Glossary of Judicial Claim Constructions in the Electronics, Computer and Business Method Arts

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"ANI"; "calling number identification data" — "a signal that identifies the calling number, i.e. the number from which a call originated." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).\(^1\)

"a" — "one or more." Goff v. Harrah's Operating Co., 412 F. Supp. 2d 1090 (D. Nev. 2005).\(^2\)

"a computer" — "a system of interconnected electronic components that receive, process, and present data according to instructions, but not a network system of two or more computers." Quickview Systems, Inc. v. Belo Interactive, Inc., 2005 U.S. Dist. LEXIS 19444 (N.D. Tex., Sept. 7, 2005).\(^3\)

"a contact" — "one or more paths for charge to flow to and from the charge sink means." Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al., 906 F. Supp. 798 (E.D.N.Y. 1995).\(^4\)

"storing password data and trade details in a database" — "A plain reading of the claim term 'a' demonstrates that the '647 patent claims one database in which the password data together with trade details data is stored. ... even if 'a' is interpreted as meaning one or more, the presence of 'and' in the claim language requires that each of the one or more database(s) contain both password data and trade details data." PostX Corp. v. Secure Data In Motion, Inc., 2003 U.S. Dist. LEXIS 25755 (N.D. Cal., Sept. 29, 2003).\(^5\)

"a first clock signal to said analog circuitry for controlling the sampling" — "does not require a single clock signal to control sampling." Crystal Semiconductor Corp. v. Tritech Microelectronics International, Inc., et al., 246 F.3d 1336 (Fed. Cir. 2001).\(^6\)

"a first computer"; "said first computer" — "requires the 'first computer' to be one and the same computer." PostX Corp. v. Secure Data In Motion, Inc., 2003 U.S. Dist. LEXIS 25754 (N.D. Cal., Nov. 25, 2003).\(^7\)

"[selection of one of the coding modes as] a function, at least in part, of periodicity [of the speech signal]" — "The Board reversibly erred in ... (2) construing Claim 1 to require only the provision of a plurality of coding modes wherein at least two of the coding modes 'correspond to substantially voiced input speech signals,' where the claim also requires that a coding mode be selected based on the periodicity of the speech signal." In re Gerson, 1996 U.S. App. LEXIS 23421 (Fed. Cir., Sept. 6, 1996) (unpublished).\(^8\)

"a multi-unit memory system" — "is 'a' (that is to say, one, or a single) system that uses two or more data storage memory units. Of course, the fact that the patent claims 'a' system does not mean that IBM or some other party would escape liability for infringement by constructing two or three or even more such multi-unit memory systems and somehow linking them together or causing them to operate together." TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999).\(^9\)

"a program running on a computer" — "one or more computer software programs in operation on one or more computers." Aircraft Technical Publishers vs. Avantext, Inc., 2009 U.S. Dist. LEXIS 105623 (N.D. Cal., Nov. 10, 2009).\(^10\)
"disposed over a portion" — "disposed over at least one portion." Crystal Semiconductor Corp. v. Tritech Microelectronics International, Inc., 246 F.3d 1336 (Fed. Cir. 2001). 11


"a rasterization process which operates on a floating point format" — "one or more' of the rasterization processes (e.g., scan conversion, color, texture, fog, shading) operate in floating point format." Silicon Graphics, Inc. v. ATI Technologies, Inc., et al., 2010 U.S. App. LEXIS 11457 (Fed. Cir., Jun. 4, 2010). 13


"a tunneling diffusion region" — "is not limited to processes that create only a single tunneling diffusion region." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998). 17

"about one quarter wavelength of the center of ..." — "about the result of the center of ... divided by four." Raytheon Co. v. Indigo Systems Corp., 2010 U.S. Dist. LEXIS 3530 (E.D. Tex., Jan. 18, 2010). 18


"an electrically isolated first conductive gate disposed above said substrate between said first and second doped regions" — "requires only that the gate be located somewhere in between the source and the drain." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998). 20

"first abbreviated information" — "an amount of information found in the first information that is shorter or briefer than that which is found in the second information." BarTex Research, LLC v. FedEx Corp., et al., 2009 U.S. Dist. LEXIS 117609 (E.D. Tex., Dec. 14, 2009). 21

"absorbs"; "absorbing" — "to retain wholly, without reflection or transmission, that which is taken in." MacDermid Printing Solutions, L.L.C. v. E.I. Du Pont De Nemours & Co., 2010 U.S. Dist. LEXIS 23746 (D.N.J., Mar. 15, 2010). 22


"an AC powered DC charger for powering said radio and charging a removable DC voltage power source" — "a direct current charger powered by alternating current that is capable of powering the radio and is capable of charging the removable direct current voltage power source." Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005). 24
"an AC powered DC power supply disposed in said enclosure for powering said radio and generating a first DC output voltage having a magnitude sufficient to power said radio" — "a direct current power supply in the enclosure powered by alternating current that generates a direct current output voltage sufficient to power the radio." Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005). [25]


"accepting television (TV) broadcast signals, wherein said TV signals are based on a multitude of standards" — "accepting television (TV) broadcast signals, wherein said TV signals are based on numerous standards." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005). [27]


"accessed by any one of the authorized plurality of media player devices" — "retrieved or obtained, including for use, by each of the authorized 'media player devices.'" Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). [29]


"acting on the signal from said receiver" — "restoring a modified signal received from the receiver to its unmodified condition." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). [32]

[i] "activates the call pod"; [ii] "automatically activate"; [iii] "automatically deactivate"— [i] "powers on the call pod"; [ii] "to automatically power on the call pod during a call"; [iii] "to automatically power off the call pod upon the termination of the call." Callpod, Inc. v. GN Netcom, Inc., et al., 2009 U.S. Dist. LEXIS 51103 (N.D. Ill., Mar. 6, 2009). [33]


"activation amount" — "a value used to establish the total value of goods or services that the user may obtain upon the prepaid account being made functional for use." Alexsam, Inc. v. IDT Corp., 2010 U.S. Dist. LEXIS 64478 (E.D. Tex., Jun. 29, 2010). [35]

"active electrode" — "a stimulating electrode ... applied to tissue for stimulation and distinguished from [a return electrode] by having a smaller area of contact, thus affording a higher current density." Arthrocare Corp. v. Smith & Nephew, Inc., 2003 U.S. Dist. LEXIS 5976 (D. Del., Apr. 9, 2003). [36]
"active layer" — "the layer in which both types of carriers (electrons and holes) are simultaneously present in significant numbers compared to an intrinsic semiconductor at room temperature." Seoul Semiconductor Co. Ltd. v. Nichia Corp., et al., 596 F. Supp. 2d 1005 (E.D. Tex. 2009).


"accelerator board" — "a printed circuit board made of insulating material that has an upgraded microprocessor mounted thereon and is adapted to connect into the socket of a computer board system." All Computers, Inc. v. Intel Corp., 2005 U.S. Dist. LEXIS 43968 (E.D. Va., Feb. 9, 2005).

"accepting bid submissions only during a predetermined time period" — "allowing for transmission of bids to the issuer only up until a fixed time on a fixed sale date." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006).

"access" — "shall be given its plain and ordinary meaning." Leader Technologies, Inc. v. Facebook, Inc., 2010 U.S. Dist. LEXIS 21100 (D. Del., Mar. 9, 2010).

"access" — "to gain entry to a computer system and make use of its resources." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).


"access code" — "a sequence of characters used as a password which an authorized user must enter to gain access to the controller means." Medtronic MiniMed Inc. v. Smiths Medical MD Inc., 2005 U.S. Dist. LEXIS 10583 (D. Del., Jun. 1, 2005).

"user remote access device"; "remote access device" — "a device that can gain access to voice messages stored on the telephone answering device from a remote location." Klausner Technologies, Inc. v. Vonage Holdings Corp., et al., 2007 U.S. Dist. LEXIS 57604 (E.D. Tex., Aug. 7, 2007).

"access information" — "a combination of numerals, letters, and/or characters that can be transmitted from a phone to a call processor, which identifies one, and only one pre-paid calling card account." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).


"access information defining a specification of said operation mode in combination with said external control input defining said operation mode" — "information defining a specification for an operation mode, which, together with external control input, defines the specifics of the operation mode." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007).


"access threshold value" — "a value used to determine whether the subscriber station is authorized to access the common telecommunications channel." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).

"selected ones of a plurality of target objects and sets of target objects characteristics that are accessible via an electronic storage media" — "selected ones of a plurality of physical or electronic objects and/or sets of their characteristics available for access by the user, that are capable of being obtained, used, seen, or known, by means of electronic storage media." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).


[i] "accessing"; [ii] "system for accessing" — [i] "any suitable form of solely computer-executed data transfer including exchanging data directly between software modules, uploading a data file, or using a common memory, and may utilize a local area network or wide area network such as the Internet to transfer data"; [ii] "software or any hardware device programmed to access inventory information of multiple stations. A 'system' does not include a human being attempting to perform the task or function manually." Grantley Patent Holdings, Ltd. v. Clear Channel Communications, Inc., et. al., 2008 U.S. Dist. LEXIS 1588 (E.D. Tex., Jan. 8, 2008).


"accessing" — "gaining or obtaining the ability to enter or make use of files. The Court further concludes that the term 'accessing' in the context of the Katz patents does not delineate or restrict the types of functions that may be performed on the files once they are accessed, such as updating files, creating new files, or deleting files." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).

"accessing the master data base, performing a compatibility comparison, and selecting each option of the third plurality of options from the first plurality of options as a function of each option's compatibility with the selected choice" — "accessing the master data base to perform a compatibility comparison of each of the first plurality of options and all previously selected choices in order to select for inclusion in the third plurality of options those options that are compatible with all previously chosen options. The compatibility comparison must be performed using compatibility tags and cannot be performed using relationship tables." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).
"account number unique to the consumer"; "consumer account number"; "unique account number" — "Aside from the term 'consumer,' which the court has already construed, these terms may be understood according to their plain and ordinary meaning. No further construction is needed." *Source, Inc. v. American Express Co.*, 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006).56


"accounting data" — "any combination of data associated with the number of users, number of interactions, and, for service requests to perform transactions, the commissions based on such transactions." *Yodlee, Inc. v. CashEdge, Inc.*, 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).58


"accumulating" — "the invention gathers error flags, however few there may be, to indicate whether a slide is suitable for processing. Thus, 'accumulating' may encompass one or more error flags." *Cytyc Corp. v. Tripath Imaging, Inc., et al.*, 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005).60


"accumulating a count of bytes of data arriving at a node per interval" — "maintaining a count of bytes that have arrived at a node over a period of time." *Lucent Technologies, Inc. v. Newbridge Networks Corp., et al.*, 168 F. Supp. 2d 181 (D. Del. 2001).63

"accumulating the payments until a predetermined amount is reached" — "accumulating the payments until a predetermined monetary amount is reached." *AdvanceMe, Inc. v. Rapidpay, LLC, et al.*, 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006).64


"means under control of the accumulator ..."; "accumulator" — "Coinco has not convinced the Court that the general term 'accumulator' on its own describes sufficient structure for an individual skilled in the art to understand the claim."; "the term 'accumulator' ... is also a means-plus-function term despite lack of the word 'means.'" *Mars, Inc. v. Coin Acceptors, Inc.*, 2007 U.S. Dist. LEXIS 20094 (D.N.J., March 20, 2007).67

"acting as a router"; "acting as a bridge" — "operating at the network layer to forward a message"; "operating at the data link layer to forward a message." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).\textsuperscript{71}

"an intrusion detection system coupled to the firewall ... and acting on the data representing text identified as hostile in order to prevent an attack" — "the claim term 'acting on the data representing text identified as hostile in order to prevent an attack' consists of a method step in an apparatus claim. This impermissibly mixes more than one class of patentable subject matter and fails to define for the person of ordinary skill in the art what the scope of the claim is. This claim term is therefore indefinite." Deep Nines, Inc. v. McAfee, Inc., et al., 2010 U.S. Dist. LEXIS 79420 (E.D. Tex., Aug. 4, 2010).\textsuperscript{72}


"repeatedly substantially simultaneously activating" — "there is nothing in the record to suggest that 'activating' means other than what its dictionary definition would suggest, i.e., starting the operation or turning on." Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002).\textsuperscript{74}

"the controller activates the activity counter" — "the controller increases the number of the activity counter." Good Sportsman Marketing LLC v. Testa Associates, LLC, et al., 440 F. Supp. 2d 570 (E.D. Tex. 2006).\textsuperscript{75}

"activation information" — "the data transmitted that initially makes it possible to associate a dollar amount with a particular calling card account." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).\textsuperscript{76}

"active area" — "the area bounded by the field oxide layer." UniRAM Technology, Inc. v. Monolithic System Technology, Inc., 2006 U.S. Dist. LEXIS 21661 (N.D. Cal., March 30, 2006).\textsuperscript{77}

"active call authorization amount" — "a monetary amount to be used to pay for call service." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).\textsuperscript{78}

"active relationship" — "a relationship in which all elements on the left-hand side of the relationship are selected." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005).\textsuperscript{79}

"activity counter" — "a device for counting and displaying the number of triggering signals received by the controller from the motion detector." Good Sportsman Marketing LLC v. Testa Associates, LLC, et al., 440 F. Supp. 2d 570 (E.D. Tex. 2006).\textsuperscript{80}

"actuating" — "activating or putting into motion." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).\textsuperscript{81}
"adapted to create and send a communication that includes a then current dynamic public IP address (publicly addressable) or dynamic LAN IP address (publicly un-addressable) of the personal computer" — "the claimed data communication facility has the ability to create and send a communication that includes the current dynamic IP address of the personal computer. This dynamic IP address may be publicly addressable or unaddressable." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).82

"adapted to initiate the display of said video image and initiate a countdown" — "Nothing in the intrinsic evidence indicates that the initiation of the display of the video image and the initiation of the countdown must occur simultaneously. Instructing the jury that simultaneity is required would be error." Probatter Sports, LLC v. Joyner Technologies, Inc., 518 F. Supp. 2d 1051 (N.D. Iowa 2007).83


"adapted to supplement" — "means the claimed network interface must be capable of supplementing a node; there is no requirement that it actually supplements the node." Intel Corp. v. Broadcom Corp., 2001 U.S. Dist. LEXIS 23106 (D. Del., Dec. 6, 2001).85

"adapter" — "a device for transforming the contact configuration of a battery pack so as to connect parts that will not otherwise mate." Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005).86


"adaptively selecting one of a plurality of operating parameter scaling options" — "making a selection from among a set of options, each of which has different values for one or more operating parameters." Agere Systems, Inc. v. Broadcom Corp., 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004).89

"adding the current requested website page to the traffic path analysis data and thereby showing the complete path of website pages requested during the current website visit" — "use of Netratings' proposed terms 'appending' and 'link' would impermissibly rewrite claim language and improperly limit the claims. ... the acquired meaning of this disputed phrase is: 'Adding the current requested website page to the traffic path analysis data in the website cookie and thereby showing the complete path of website pages requested during the current website visit.'" Websidestory, Inc. v. Netratings, Inc., 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007).90
"additional information" — "refers to any information beyond that which identifies data stored in the first storage system but not yet copied to the second and which is about the copy of data stored in the second data storage system." EMC Corp. v. Hewlett-Packard Co., Inc., 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003). 81

"additional processor outside any e-mail system" — "a processor or information source which originates electronic information without executing electronic mail programming." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002). 82

"an address in a format designating at least one mass memory storage block"; "a mass memory storage block address" — "may specify either a physical or a logical address for the mass memory system." Sandisk Corp. v. Zotek Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010). 83

"address-data bus" — "a bus that carries both address information and data." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006). 84

"an FDDI or ethernet MAC address for a nonfunctioning router" — "an FDDI or ethernet MAC address that is assigned to a router not functioning in the network." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 85

"address information" — "an Internet Protocol address, an E-mail address or a telephone number." eBay Inc. v. IDT Corp., et al., 2009 U.S. Dist. LEXIS 56469 (W.D. Ark., Jun. 10, 2009). 86

"address information" — "at least a portion of an address." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006). 87

"address information" — "characters, numbers or bits used to represent an address." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007). 88

"address set" — "a set of one or more bits in a message specifying the address of one or more devices connected to a bus." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007). 89


"located adjacent to said battery" — "'located adjacent to' is properly construed as 'close to,' as in 'located close to the battery so that it may sense the temperature of the battery.'" Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006). 93

"an adjustment input operable, in response to receiving an adjustment action, to adjust the magnitude of the lamp current by way of adjusting the frequency of the alternating lamp voltage" — "As with the other claim elements that have failed to avoid the impact of Paragraph 6, the claim element now at issue 'will be construed to cover the corresponding structure… described in the specification and equivalents thereof' (the statutory prescription)." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000).105

"advertising data" — "data representing one or more advertisement or data representing one or more characteristics of an advertisement." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).106

"aesthetically pleasing" — "'Aesthetically pleasing,' as it is used in the only independent claim of the '137 patent, fails to 'particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.' See 35 U.S.C. § 112, P2. We therefore affirm the district court's grant of summary judgment of invalidity of all claims of the '137 patent." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342 (Fed. Cir. 2005).107

"a cyclic redundancy checker for detecting errors in said assembled data after correction of said data by said correction circuitry" — "we agree with the Commission, which found that the device claimed in the '715 patent first performs error correction on an entire Sector of data, and then performs error detection with a cyclic redundancy checker on the entire corrected Sector of data." Oak Technology, Inc. v. International Trade Commission, et al., 248 F.3d 1316 (Fed. Cir. 2001).108

"after the subscriber terminates the incoming call attempt" — "has a plain meaning and needs no interpretation." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007).109

"accumulator agency" — "a non-state, third-party entity that collects payments and payment information from an individual or entity for a fee and passes along those payments and payment information either directly to a state's bank, a state agency's bank, an individual, or an individual's bank or indirectly to a state, state agency, or an individual." Pay Child Support Online, Inc. v. ACS State & Local Solutions, Inc., 2004 U.S. Dist. LEXIS 6011 (D. Minn., Apr. 5, 2004).110

"agglomerated silicon self-interstitial intrinsic point defects" — "defects caused by the reaction in which self-interstitials agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects." MEMC Electronic Materials, Inc. v. Mitsubishi Materials Silicon Corp., et al., 2006 U.S. Dist. LEXIS 9353 (N.D. Cal., Feb. 24, 2006).111

"agglomerated vacancy intrinsic point defects" — "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." MEMC Electronic Materials, Inc. v. Mitsubishi Materials Silicon Corp., et al., 2006 U.S. Dist. LEXIS 9353 (N.D. Cal., Feb. 24, 2006).112

"aggregate" — "gathered in to a mass or sum so as to constitute a whole." Lucent Technologies, Inc. v. Extreme Networks, Inc., et al., 367 F. Supp. 2d 649 (D. Del. 2005).113


"algorithm" — "a set of instructions that can be followed to carry out a particular task." *Uniloc USA, Inc., et al. v. Microsoft Corp.*, 447 F. Supp. 2d 177 (D. R.I. 2006).119


"alignment structure, in said computer" — "the combination of hardware and software within the computer that provides for alignment." *PolyVision Corp. v. Smart Technologies, Inc., et al.*, 501 F. Supp. 2d 1042 (W.D. Mich. 2007).121


"allotting a plurality of numbers from the predetermined range of numbers" — "giving to the player two or more numbers from a range of numbers. The range of numbers must be determined before the beginning of the first main game. Each number in the predetermined range need not be available for allotment." *Aristocrat Technologies, et al. v. International Game Technology, et al.*, 2009 U.S. Dist. LEXIS 40975 (N.D. Cal., May 14, 2009).123


[i] "allowing the one or more merchants to select at least one of the localized geographic areas and at least one of the topical categories"; [ii] "allowing the one or more merchants to input information into the system" — [i] "permitting one or more merchants to choose or pick at least one localized geographic area and at least one topical category"; [ii] "permitting one or more merchants to create and post information to the system." *Shopntown, LLC v. Landmark Media Enterprises, LLC*, 2009 U.S. Dist. LEXIS 62936 (E.D. Va., Jul. 22, 2009).126
[i] "allowing ... to assume a second voltage level"; [ii] "forcing ... to a first voltage level" — [i] "requires only that the transistor be turned OFF, or kept turned OFF (i.e., kept in a nonconducting state), so that the voltage stays at a high ('1') logic level for the relevant time period"; [ii] "requires only that the transistor be turned ON, or kept turned ON (i.e., kept in a conducting state), so that the voltage is held at a low ('0') logic level for the relevant time period." U.S. Philips Corp. v. Atmel Corp., et al., 2004 U.S. Dist. LEXIS 5832 (S.D.N.Y., Apr. 2, 2004).127


"wherein said identification encoder allows entry of a popularity code" — "an identification encoder assigns an optional popularity code." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2004 U.S. Dist. LEXIS 13415 (C.D. Cal., Jul. 12, 2004).129


"alterable" — "able to be modified or changed in the field." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).133


"altering" — "one or more techniques selected from the group consisting of adding, removing, isolating and shielding a known fraction of said initial amount." Travanti Pharma, Inc. v. Iomed, Inc., 2006 U.S. Dist. LEXIS 2646 (D. Minn., Jan. 11, 2006).136

"altering the threshold" — "the court declines to construe the term 'altering.'" 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).137

"altering under the control of both sets of said data and a programmed digital computer the configuration of said first facial display to produce substantially the configuration of the second facial display" — "requires that the new lip configuration be calculated according to lip position data and control point data." Bloomstein v. Paramount Pictures Corp., et al., 1996 U.S. Dist. LEXIS 22260 (N.D. Cal., May 6, 1996).138

"alternately connected to a [said] first node and a [said] second node" — "strips in a given layer of the capacitor structure are connected to either the first node or second node in a manner such that adjacent strips of the capacitor structure are not connected to the same node." *Lonestar Inventions LP v. Nintendo of America, Inc.*, 2009 U.S. Dist. LEXIS 31753 (E.D. Tex., Apr. 14, 2009). 141

[T]he district court's construction of 'aluminum and aluminum oxide' in claim 1 was correct." *Id.*, 215 F.3d 1281 (Fed. Cir. 2000). 143


"amplifier" — "a circuit (or a device when connected in a circuit) that draws power from a source other than the input signal and provides an output signal that reproduces the essential features of the input signal." *Avocent Huntsville Corp. v. Clearcube Technology, Inc.*, 443 F. Supp. 2d 1284 (N.D. Al. 2006). 145

"amplifier circuit" — "is not 'functional' language that would overcome the presumption against the application of P 6." *Agere Systems, Inc. v. Broadcom Corp.*, 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004). 146

"a corresponding plurality of amplifiers for amplifying the plurality of filtered RF signals" — "two or more devices for strengthening two or more radio frequency signals, each device associated with one or more filters." *Isco International, Inc. v. Conductus, Inc., et al.*, 2002 U.S. Dist. LEXIS 20832 (D. Del., Oct. 30, 2002). 147


"amplitude modulator" — "is [] not limited to a variable attenuator." *Trilithic, Inc. v. Wavetek U.S., Inc.*, 64 F. Supp. 2d 816 (S.D. Ind. 1999). 149


"an illumination apparatus"; "illuminating" — "encompass one or more illumination sources." *Scanner Technologies Corp. v. ICOS Vision Systems Corp., N.V.*, 365 F.3d 1299, 1304 (Fed. Cir. 2004). 152
"analog and digital signals" — "the phrase 'analog and digital signals' has a common meaning which require[s] no further construction." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).153


"analog signal" — "a continuously variable, measurable, physical quantity or impulse by which messages or information can be transmitted." Diagnostic Group, LLC v. Benson Medical Instruments Co., 2005 U.S. Dist. LEXIS 5030 (D. Minn., Mar. 28, 2005).155


"analog-to-digital converter"; "ADC" — "the ADC will be construed as a separate element from the CPU." P3 International Corp., et al. v. Unique Products Manufacturing Ltd., et al., 2009 U.S. Dist. LEXIS 43751 (S.D.N.Y., May 21, 2009).158

"analyzer" — "software in the shim that analyzes monitors the properties or characteristics of a computing device." Widevine Technologies, Inc. v. Verimatrix, Inc., 2009 U.S. Dist. LEXIS 102768 (E.D. Tex., Nov. 4, 2009).159

"analyzing a property of the data file to be transferred" — "studying the data file itself but does not include referencing destination information. The data file may be transmitted in any of various formats (a data file, data packets, encapsulated packets, or data streams)." ConnecTel, LLC v. Cisco Systems, Inc., 428 F. Supp. 2d 564 (E.D. Tex. 2006).160

"analyzing each frame of samples to extract a set of variable frequency components having individual amplitudes" — "analyzing each frame of samples and extracting therefrom a set of variable frequency components that have individual amplitudes, without regard to voiced/unvoiced decisions." Massachusetts Institute of Technology v. Lockheed Martin Global Telecommunications, Inc., et al., 242 F. Supp. 2d 58 (D. Mass. 2003).161

"analyzing ... to determine a resulting indication" — "does not require that the resulting indicator need be one of the two calculation results. It can, for example, be an average of the two results. Additionally, the process of analyzing includes, but is not necessarily limited to 'studying, comparing, or breaking down.' No further construction is required." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).162
"and" — "the Court agrees with Orion that 'and,' in context, is used in the disjunctive."  
Orion IP, LLC v. Staples, Inc., et al., 406 F. Supp. 2d 717 (E.D. Tex. 2005).164 "The Staples Defendants took the same position, which the Court rejected and instead construed the term as a disjunctive--i.e., the questions (or answers) must relate to either features or uses."  

"an electrical operating unit and a pair of spaced-apart electrically exposed conductive probe networks" — "the clear implication of the claim language is that the pair of probe networks is a distinct component, separate from the electrical operating unit of the claimed invention."  
Dr. Harry Gaus v. Conair Corp., 363 F.3d 1284 (Fed. Cir. 2004).165

"utilizing said decode control key and said transmitted control signal to generate a pseudo-random signal at said receiver station" — "requires that both the signal and the key participate in generation of the pseudo-random signal, but does not limit the way in which the signal and key participate in the generation."  

"first animated facial display"; "second animated facial display" — "a depiction of a face in a cinematic work speaking one 'language'"; "a depiction of second face, an actor's, speaking a different 'language.' Neither display must appear on a 'monitor device.'"  

"annotated web page" — "a web page modified by the addition of thumbnail visual images."  

"annular" — "a surface area defined by two concentric polygons."  
International Rectifier Corp. v. IXYS Corp., 361 F.3d 1363 (Fed. Cir. 2004).169

"answer data" — "responses from callers to vocal questions or prompts."  

"antenna" — "that part of a transmitting or receiving system that radiates or receives electromagnetic waves."  

"antenna means" — "a means for radiating or receiving radio waves."  

"recording any errors" — "to set down for preservation all errors."  

"light transmitting aperture" — "a hole, window, port, or opening in the tip of the probe through which laser energy passes."  

"apparatus"; "system" — "computer hardware running with the required software program, including at least a computer, display screen, input device (e.g., keyboard, mouse), and associated printer."  
Intell-a-Check Corp. v. Autoscribe Corp., et al., 346 F. Supp. 2d 698 (D.N.J. 2004).175
"apparatus for producing a fixed code signal and for combining said fixed code signal with a rolling code signal" — "a processor programmed to 1) produce a message carrying information indicative of a non-changing code and also 2) combine that message with a message carrying information indicative of a rolling code."  

"an apparatus for selectively increasing the voltage on one or more of a plurality of conductive lines having inherent distributed capacitance disposed in a semiconductor circuit" — "A conductive line is any line that is capable of conducting electrical current. A conductive line having inherent distributed capacitance is a conductive line in a semiconductor circuit that has capacitance distributed along its length that must be accounted for in the operation of the claimed circuit, and includes word lines, y-lines, write lines, and select lines."  

"individual ones of the redundancy codes being appended to ends of the user data from which they are generated" — "requires the redundancy code to be attached immediately adjacent to the user data."  

"appending" — "attaching to the end of."  

"remote interface"; "applicant interface"; "remote applicant interface" — "dedicated computer equipment, meaning equipment supplied by the entity providing the financial account or service, such as but not limited to equipment housed in a kiosk, which allows the applicant ... to provide information to and receive information from a data processing system and which facilitates completion of all steps of the claim involving interaction between the applicant ... and the data processing system."  

"applicable pricing adjustment(s)"; "applicable price adjustment(s)"; "pricing information applicable"; "applicable pricing information" — "the court gives the above terms their plain meanings."  

"application events" — "an event in an application program."  

"application generator" — "a software tool used to develop data collection applications and libraries."  

"application program" — "software that performs tasks for an end user."  

"application program" — "software that performs tasks for an end-user."  

"application programs" — "sequences of machine-level instructions capable of execution on a processor."  

"Application Program Interface (API) calls" — "a set of formalized software calls that can be referenced by an application platform to access underlying services." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).188

"application service provider (ASP)" — "a party that provides authenticated access information to a user through the network to enable the user to access one or more NSPs." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).189

"application software for ... transmitting said second menu to a wireless handheld computing device or Web page" — "application software, which is capable of transmitting to both wireless handheld computing devices and Web pages, transmitting the second menu to a wireless handheld computing device or Web page." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).190


"applying a rules engine continuously to at least two patient data elements stored in the database" — "applying a rules engine repeatedly and automatically to at least two patient data elements stored in the database." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009).192

"applying an approximately constant bias voltage to the conductive shield of the coaxial cable" — "this court [] declines to further construe the phrase." Monster Cable Products, Inc. v. Quest Group, 2005 U.S. Dist. LEXIS 4213 (N.D. Cal., Mar. 17, 2005).193

"applying one or more test methodologies to the collected information" — "using a computer to perform calculations for one or more test methodologies using the data collected from the testing of the pavement construction material." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).194

"applying FECC (forward error correcting code) coding and codeword interleaving differently to signals of different data channels to produce encoded data signals having different delays" — "the FECC coding and codeword interleaving are applied in a way that differentiates among the data channels which results in the production of encoded data signals with different delays." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).195

"another portion of said third doped region extends appreciably under the edges of said field stop regions which define the sides of said channel" — "means that the third doped region must extend far enough under ... so that the edges of the third doped region are not exposed to the thin portion of the first insulating layer." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).196
"appropriate application software" — "software that allows for 'normalized transactional processing,' or, specifically, for the addition and reporting of database record sets." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 197

"approximately constant" — "nearly constant or constant." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 198


"arcs" — "lines that connect the nodes in a data flow diagram and represent that data produced by one node is used by another." National Instruments Corp. v. Mathworks, Inc., 2002 U.S. Dist. LEXIS 27577 (E.D. Tex., May 24, 2002). 200

"storing a set of definitions of architecture independent actions and conditions" — "storing a set of instructions of actions or conditions to which a circuit could be subjected that are not dependent on any particular arrangement of hardware cells to perform the actions or create or maintain the conditions." In re Ricoh Company Ltd. Patent Litigation, 2009 U.S. Dist. LEXIS 103775 (N.D. Cal., Oct. 23, 2009). 201

"architecture independent actions and conditions" — "functional or behavioral aspects of a portion of a circuit (or circuit segment) that does not imply a set architecture, structure, or implementing technology, but excludes the use of register-transfer level descriptions as taught in Darringer." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005). 202

"a requirements area" — "an area (i.e., one or more areas) for displaying one or more requirements (i.e., at least one requirement)." iRise v. Axure Software Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 102160 (C.D. Cal., Sep. 11, 2009). 203

"area of said single substrate"; "area of said substrate" — "the top surface area of the substrate." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 204

"display areas"; "background area" — "display areas include any illuminated pixel anywhere on the display device, other than background area pixels in defined background regions. The background area pixels substantially surround the illuminated display area pixels. Display area pixels may be illuminated in the background color, but background area pixels may not be illuminated in the display color." Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002). 205

"arithmetic comparison mechanism coupled to the plurality of correction values, and wherein the motion signals are not output to the computer system whenever a correlation surface described by the plurality of correlation values fails to exhibit a selected curvature" — "a device that executes an algorithm which determines a surface shape by plotting the multiple correlation values and that blocks the transmission of motion data to the computer system if the result of the algorithm is that the surface shape is not a suitable curvature. ... to the extent that the parties interpret the Court's use of 'plotting' in its previous construction as 'forming an actual graphical representation of the correlation values,' such 'plotting' is not required by the specification. At a rudimentary level, the Court understands the equation \( y = 2x \) to be a linear equation without using graph paper and a ruler. The Court declines to further construe the phrase." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006).

"around the receiver front end" — "so as to pass, bypass, or avoid the receiver front end." Isco International, Inc. v. Conductus, Inc., et al., 2002 U.S. Dist. LEXIS 20832 (D. Del., Oct. 30, 2002).


"the modulator is arranged to allocate bits of encoded data signals having relatively less interleaving to carriers carrying relatively fewer bits in each symbol period" — "the modulator is configured in a way such that it allocates bits of encoded data signals with relatively less interleaving to carriers with relatively fewer bits in each symbol period." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).

"programmable FECC coder arranged to be programmed by the control unit" — "programmable FECC coder configured in a way that enables it to be programmed by the control unit." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).


"arrangement for reactivating" — "a processor connected to a transceiver and programmed to formulate and send messages to reactivate the link, if the handover is unsuccessful." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).

"array" — "DBI argues that the plain meaning of the word 'array,' as evidenced by its dictionary definition, does not require the data contained therein to be digital. ... The intrinsic evidence clearly indicates that the applicant distinguished between analog 'frames' and digital 'arrays.' Because the intrinsic record is clear we do not give weight to an inconsistent dictionary definition." Digital Biometrix, Inc. v. Identix, Inc., et al., 149 F.3d 1335 (Fed. Cir. 1998).


"an array of EEPROM cells" — "need not be 'contiguous' or contain 'dedicated row and column decoders.'"  Sandisk Corp. v. Zotek Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010).217

"array of non-volatile floating gate memory cells" — "a group of memory cells on one or more memory chips. Multiple chips in the same array are connected through objects such as a common interface and/or common logic and resistor circuits. An array may contain components that are not memory cells, such as an interface."  Sandisk Corp. v. Memorex Products, Inc., et al., 2007 U.S. Dist. LEXIS 15393 (N.D. Cal., Feb. 21, 2007).218


"array state bits" — "bits that identify either the missing or replacement member disk or the state of the array."  Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).220

"a method of screening the data as it is being transferred" — "a method of screening the data while it is being moved or copied and before the data is stored to the computer storage medium."  Symantec Corp. v. Computer Associates International, Inc., 2005 U.S. Dist. LEXIS 46912 (E.D. Mich., Mar. 16, 2005).221

"defining and loading, as required by the formation of the particular monochromatic images, at least some of the font patterns in the font memory" — "as new characters are encountered in the image, new font patterns (or monochromatic characters) can be formed and stored in the font memory."  OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).222

"as the interrupt signal" — "the signal to the host processor from the device that may cause the host processor to temporarily suspend other tasks while addressing the device."  PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).223

"ascertaining a georeferenced map that contains the geographic coordinates" — "determining a georeferenced map that includes the geographic coordinates."  Sourceprose Corp. v. Fidelity National Financial, et al., 2006 U.S. Dist. LEXIS 10151 (E.D. Tex., Feb. 23, 2006).224

"ascertaining as a function of an outcome of a comparison whether an access of the at least one subscriber station to the at least one telecommunication channel is enabled" — "comparing an access threshold value to a random or pseudo-random number to determine whether access to the common telecommunications channel is allowed or whether the subscriber station (cell phone) must wait for and check the next transmission."  HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).225

"asks" — "one or more asks each of which comprises an ask quantity and an ask price."  Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010).226
"assembling said second code module having said service response" — "putting together a second code module (which, as you already know, is a computer program) that includes, as part of the program, a service response (which I have previously defined for you)." *Modavox, Inc. v. Tacoda, Inc.*, 607 F. Supp. 2d 530 (S.D.N.Y. 2009). 227

"assign"; "assignment" — "the scope of the terms is limited to the present transfer of a property right." *H&R Block Tax Services, Inc. v. Jackson Hewitt Tax Service, Inc.*, 2009 U.S. Dist. LEXIS 114208 (E.D. Tex., Dec. 8, 2009). 228

"assigned in buckets" — "assigned to areas in which items are stored or contained, such as partitions or sectors of a placement area." *Synopsys, Inc. v. Magma Design Automation, Inc.*, 2005 U.S. Dist. LEXIS 46882 (N.D. Cal., Aug. 23, 2005). 229


"assigning" — " 'Assigning' is a commonly used and widely understood word. It means 'to set aside for a particular purpose' or 'designate.' It is clear upon review of the specification that the patent uses the term in a manner consistent with its ordinary meaning without providing a more specialized meaning." *800 Adept, Inc. v. Murex Securities, Ltd., et al.*, 2006 U.S. Dist. LEXIS 53696 (M.D. Fla., Aug. 3, 2006). 232


"assigning a secret code to activate the multi-function card" — "The user assigns a secret code by entering a code through a separate electronic device or through an alphanumeric keyboard or keypad on the card." *E-Pass Technologies, Inc. v. 3COM Corp., et al.*, 177 F. Supp. 2d 1033 (N.D. Cal. 2001). 234

"assigning a UID to each license file" — "the act of specifying a correspondence between each license file and respective UIDs, where 'license file' is an area of memory on a disk capable of storing at least one license." *Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al.*, 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999). 235


"assigning the process steps to the machines" — "designating the fundamental operation or operations that a machine will carry out during manufacturing." *Information Technology Innovation, LLC v. Motorola, Inc., et al.*, 391 F. Supp. 2d 719 (N.D. Ill. 2005). 238


"song associated pictorial graphics" — "visual images associated with songs." *Rowe International Corp. v. Ecast, Inc.*, 500 F. Supp. 2d 891 (N.D. Ill. 2007).\(^{241}\)

"associated therewith"; "having" — "the Court construes 'associated therewith' or 'having' as logically related to or logically connected, but not necessarily embedded." *Intergraph Corp. v. Intel Corp.*, 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002).\(^{242}\)

"associated with" — "identified with or having a connection to." *Stambler v. JPMorgan Chase & Co., et al.*, 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).\(^{243}\)

"associated with" — "is given its plain and ordinary meaning." *Stanacard, LLC v. Rebtel Networks, AB, et al.*, 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).\(^{244}\)

"a given object of a participating content provider is associated with an alphanumeric string" — "a particular object of a participating, content provider is associated with an alphanumeric string that includes the URL used to identify the object in the absence of a content delivery network." *Akamai Technologies, Inc., et al. v. Limelight Networks, Inc.*, 494 F. Supp. 2d 34 (D. Mass. 2007).\(^{245}\)

"associated with at least one patron" — "in an identifiable relationship with at least one patron." *PalmTop Productions, Inc. v. LO-Q PLC, et al.*, 450 F. Supp. 2d 1344 (N.D. Ga. 2006).\(^{246}\)

"at least one data storage assembly associated with said local processor assembly" — "the local processor assembly includes at least one structure for holding data." *Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al.*, 491 F. Supp. 2d 1105 (S.D. Fla. 2007).\(^{247}\)

"said auxiliary site data being associated with said primary site data" — "auxiliary site data is capable of interacting with the primary site data." *Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al.*, 491 F. Supp. 2d 1105 (S.D. Fla. 2007).\(^{248}\)

"a plurality of media player devices associated with the user account"; "a plurality of media player devices as being authorized with the user account" — "two or more media players specified in the user account, whereby referenced media assets can be copied and/or used by the aforementioned media players." *Zapmedia Services, Inc. v. Apple Inc.*, 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010).\(^{249}\)

"associates the valid logon command with the remote computer unit" — "to connect or bring into relation a valid logon command with a particular computer unit that is to be remotely controlled from a remote location using an interface unit." *Automated Business Cos. v. ENC Technology Corp., et al.*, 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009).\(^{250}\)

"associating a UTID with the electronic transaction" — "the party originating the transaction connecting or linking up the unique transaction identifier created by the originating party to the transaction." *Starpay.com L.L.C., et al. v. Visa International Service Association, et al.*, 514 F. Supp. 2d 883 (N.D. Tex. 2007).\(^{251}\)
"associating an active call authorization amount with the particular pre-paid calling card account" — "means that as part of the activation process, and not before, the active call authorization amount is linked in the remote location database, to the pre-paid calling card account." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).252

"associating, at the host computer, an amount of call authorization to a security number" — "means that as part of the activation process, and not before, the amount of call authorization is linked in the host computer database to a security number for that card." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).253


"associating the roles with individual metadata elements" — "for each of a plurality of metadata elements, assigning a plurality of roles to the metadata element." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009).255

"associating with said packet an identifier" — "covers both an implicit or an explicit approach. The district court, by construing it to cover the explicit approach alone, read an additional limitation into the claim." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615 (Fed. Cir. 1995).256

"associating users who will access the image with roles" — "for at least two roles, assigning a plurality of users who will access the image to the roles." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009).257

"association" — "the state of being joined or connected together such that communication is possible as between the joined or connected components." Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al., 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999).258

"associative crossbar"; "associative crossbar switch" — "a crossbar in which the data being routed includes the routing instructions." Intergraph Corp. v. Intel Corp., 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002).259

"to assume a proper configuration" — "to assume a proper hardware configuration." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).260

"asynchronous communication" — "Vonage's argument that the court should construe the claim term 'asynchronous communication' to mean ATM communication is essentially an attempt to limit the claim term to one particular type of packet communication and, in particular, to the exclusion of the IP packet technology used in the Vonage system." Sprint Communications Co., L.P. v. Vonage Holdings Corp., et al., 500 F. Supp. 2d 1290 (D. Kan. 2007).261

"at a later timepoint determined by a fixed period of time predefined at a beginning of a handover" — "when the time, which has been preset and initiated before handover, expires." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).262
"each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher" — "the teacher may set a time limit or control the pace by starting, stopping, or advancing to the next instructional activity, question, or set of questions which the students may provide responses to on their student terminals." Better Education, Inc. v. eInstruction Corp., et al., 2010 U.S. Dist. LEXIS 40972 (E.D. Tex., Apr. 27, 2010).\textsuperscript{263}

"at a time requested by the user" — "at the output time specified by the user when the user makes the request to the transmission system to transmit information." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).\textsuperscript{264}

"at a time when" — "the Court accepts Mars' interpretation, and the patent does not cover the situation where actuation of the switch means energizes the first portion regardless of whether or not the amount accumulated at least equals the vend price." Mars, Inc. v. Coin Acceptors, Inc., 2007 U.S. Dist. LEXIS 20094 (D.N.J., March 20, 2007).\textsuperscript{265}

"at all times not admit for storage in said buffer any cells on said virtual channel connections for which since the previous indication of said end of transmission on said virtual channel connection there has been any rejection of cells for storage" — "at all times, if there has been any rejection of cells on a virtual channel connection since the receipt of a cell on that virtual channel connection that contains an end of transmission indication, not admit any cells arriving on the virtual channel connection for storage in said buffer." QPSX Developments 5 Pty. Ltd. v. Juniper Networks, et al., 2007 U.S. Dist. LEXIS 1991 (E.D. Tex., Jan. 10, 2007).\textsuperscript{266} "at all times, if there has been any rejection of cells from a particular frame on a virtual channel connection since the receipt of a cell on that virtual channel connection that contains an end of transmission indication, not admit any other cells from that particular frame arriving on the virtual channel connection for storage in said buffer." Id., No. 2:05-CV-268 (E.D. Tex., April 17, 2007).\textsuperscript{267}

"at least approximately 600 tpi" — "defines an open-ended range starting slightly below 600." Quantum Corp. v. Rodime, PLC, 65 F.3d 1577 (Fed. Cir. 1995).\textsuperscript{268}

"at least one light source" — "cover[s] a device that has only one light source or a device that has more than one light source." Rhine v. Casio, Inc., et al., 183 F.3d 1342 (Fed. Cir. 1999).\textsuperscript{269}

"at least one of ... and ..." — "in connection with a list of items [] mean[s], 'one or more of one or more of the items contained in the list.'" Joao, et al. v. Sleepy Hollow Bank, et al., 348 F. Supp. 2d 120 (S.D.N.Y. 2004).\textsuperscript{270}

"the song record including song identity data comprising at least one of a song title, a song category, song address, song size, graphics address, graphics size, and play count" — "the conjunctive language in this claim term requires that the song record include at least one of each of the categories of information listed." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010).\textsuperscript{271}

"at least one of program start time, program end time, program service, and program type for a plurality of television programs" — "the district court correctly interpreted this phrase as requiring that the user select at least one value for each category; that is, at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type." SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004).\textsuperscript{272}
"content profiles indicating at least one of the presence and the degree of" — "content profiles indicate either the presence or the degree of predetermined characteristics." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004). 373

"wherein the routing means comprises at least one of: means for ...; means for ...; and means for ..." — "Defendants construe 'at least one of' in this clause to mean 'each and every' of the following three 'means.' Plaintiff construes 'at least one of' to mean 'at least one of.' The Court agrees with Plaintiff." DealerTrack v. Huber, et al., No. 06-CV-02335 (C.D. Cal., Sept. 27, 2008). 374

"at least one of [A] and [B]" — "The critical distinction for purposes of this case is between the performance of both functions simultaneously and the capability to perform both functions. The Court finds that this conjunctive construction is most consistent with the language and scope of the Patents-in-Suit." Inventio AG v. ThyssenKrupp Elevator Americas Corp., et al., 2010 U.S. Dist. LEXIS 59020 (D. Del., Jun. 14, 2010). 375

"at least one of ... [followed by an enumerated list]" — "only requires that one of the categories be selected." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007). 376

"at least one spare read/write memory unit that is similar in operation to an individual read/write memory unit of said plurality of read/write memory units" — "The phrase 'at least one' does not, as IBM urges, mean 'one and no more than one.' Rather, as TM notes, it means 'one or more than one.'" TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999). 377

"at least one switch operable to optically couple the second optical line interface to (a) the first optical line interface through at least the optical demultiplexer, and alternatively (b) the second transponder" — "at a minimum, one switch can at least both: (a) optically couple the second optical line interface to the first optical line interface through at least the optical demultiplexer; and alternatively (b) optically couple the second optical line interface to the second transponder." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 378


"ATA register address" — "the ATA register address of claim 3 is not required to receive both single-byte and multi-byte commands from the host computer." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34454 (N.D. Cal., Sept. 9, 2005). 380

[i] "attaching"; [ii] "detaching" — [i] "making physically or logically available such as by producing a ready state"; [ii] "to make physically or logically unavailable such as by producing a not ready state." EMC Corp. v. Hewlett-Packard Co., Inc., 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003). 381

"attachment unit interface"; "AUI" — "the court construes AUI as defined by the 802.3 Standard: In a local area network, the interface between the medium attachment unit and the data terminal equipment within a data station." Level One Communications, Inc. v. Seeq Technology, Inc., 987 F. Supp. 1191 (N.D. Cal. 1997). 382
attachment unit interface port"; "AUI port" — "the court rejects both proffered definitions and construes AUI port just as it is defined in Claim 6, as having data out, data in, and collision presence circuits for coupling said attachment unit interface to said media attachment unit." Level One Communications, Inc. v. Seeq Technology, Inc., 987 F. Supp. 1191 (N.D. Cal. 1997).

"attenuated and filtered" — "reduced and removed." Nellcor Puritan Bennett, Inc., et al. v. Masimo Corp., 300 F. Supp. 2d 923 (C.D. Cal. 2004). “[W]e hold that the district court erred in its construction of that critical claim language and that 'attenuated and filtered from the composite waveform' means 'reduced in comparison to the desired information.'” Id., 402 F.3d 1364 (Fed. Cir. 2005).


"VAN ... attesting to the authenticity of the instrument" — "including the VAN with the instrument for subsequent use in verifying that the information in the instrument has not changed and verifying that the instrument originated from the first party." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).

"the VAN being used for attesting to the authenticity of the payor and document information" — "The VAN being used to verify that the instrument originated from the payor and that the at least a portion of the document information used to create the VAN has not changed." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).


"auction" — "a process over a trusted network, or with a trusted intermediary." MercExchange, L.L.C. v. eBay, Inc., 401 F.3d 1323 (Fed. Cir. 2005).

"an auctioneer in control of the auction event" — "an auctioneer in complete control of all changes in the state of the auction, including which bids are accepted and rejected." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).

"the auctioneer manages the psychology and pace of the auction"; "the auctioneer manages the ... pace of the auction and the psychology of the auction" — "the auctioneer uses a variety of techniques to exert influence over the emotion, enthusiasm, and excitement of remote and onsite bidders and over the speed of bidding to play bidders off each other so that they are more likely to bid on auction items and make larger bids." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).

"audio and/or visual selection" — "audio and/or visual content of a stream made available to user(s)." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).

"audio/video source information" — "an audio and/or video work that can be received from one or more sources and that has a temporal dimension." Apple Computer v. Burst.com, Inc., 2007 U.S. Dist. LEXIS 33863 (N.D. Cal., May 8, 2007).

"authentication data" — "information indicating a system user or ownership of a ticket, such as a credit card number, a cell phone number, a digital encryption on a personal digital assistant, or a single- or multi-dimensional bar code." Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010). 298


"authorization code" — "we hold that: (1) an authorization code must authorize copying but need not provide decoding information; (2) the term 'authorization code' is not to be construed to require that it include an IMM code or that it be transmitted electronically; and (3) an authorization code is separate and distinct from a request reproduction code." Interactive Gift Express, Inc. v. CompuServe, Inc., et al., 256 F.3d 1323 (Fed. Cir. 2001). 300

"entering an authorization code through the keypad for having the computer initiate communication with a host data processor" — "a series of numbers and/or letters, or a combination thereof, entered via the keypad to establish a communication link with a host data processor." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010). 301


"an authorization procedure" — "process which determines whether access should be granted." Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009). 303

"authorization request" — "a query sent to the central processing computer via a communications medium, seeking approval or disapproval of a transaction or activity." Joao v. Sleepy Hollow Bank, et al., 418 F. Supp. 2d 578 (S.D.N.Y. 2006). 304

"authorized by the subscriber" — "elected by the subscriber after the subscriber is presented with a choice among multiple options." Media Queue, LLC v. Netflix, Inc., et al., 2009 U.S. Dist. LEXIS 118896 (N.D. Cal., Dec. 1, 2009). 305


"automated method, performed by a computer-based auction system"; "computer-implemented method of conducting Internet-based auctions" — "the district court was correct in holding that not all steps had to be performed by way of an automated process." MercExchange, L.L.C. v. eBay, Inc., 401 F.3d 1323 (Fed. Cir. 2005). 307

"automated modification" — "a change by the system without a request or instruction to change from a user." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010). 308
"automated negotiations engine for analyzing terms"— "[s]pecial purpose software that performs the functions necessary to implement multiple rounds of bargaining which allows for an offer and multiple counteroffers between two participants where each round is related to prior rounds without human intervention." Sky Technologies, Inc. v. Ariba, Inc., 491 F. Supp. 2d 154 (D. Mass. 2007). 307

"automated" — "working with little or no human actuation." Intell-a-Check Corp. v. Autoscribe Corp., et al., 346 F. Supp. 2d 698 (D.N.J. 2004). 308


"automatic"; "without human intervention"; "without human assistance" — "These terms mean a system which is fully automated and completed without human involvement (other than by the applicant). This construction does not exclude systems that allow human involvement after all steps described as being performed without human assistance are completed." Decisioning.com, Inc. v. TD Ameritrade Holding Corp., Inc., et al., 484 F. Supp. 2d 426 (D.S.C. 2007). 310

"automatic bridging device" — "is not a means-plus-function limitation but rather a limitation that suggests sufficient structure to one ordinarily skilled in the art to avoid the application of 112 P 6." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007). 311

"automatic call distributor"; "ACD" — "a device that receives incoming telephone calls and automatically distributes those calls, which is comprised of an integrated telephone switch and computer apparatus, in communication with one another through a specialized proprietary software interface." Rockwell Electronic Commerce Corp., et al. v. Apropos Technology, Inc., 2002 U.S. Dist. LEXIS 272 (N.D. Ill., Jan. 9, 2002). 312

"automatic ion output current adjustment circuit" — "a circuit used to increase or decrease the ion output current of the positive and/or negative high voltage power supplies based on the result of the comparison performed by the comparator." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003). 313

"automatic message distribution system" — "a system that processes information received in message format that is able to route messages based on message content." eBay Inc. v. IDT Corp., et al., 2009 U.S. Dist. LEXIS 56469 (W.D. Ark., Jun. 10, 2009). 314

"automatic operation" — "movement of the camera base that is not directly responsive to input from a monitoring person (other than initiation of the automatic operation)." Lectrolarm Custom Services v. Vicon Industries, Inc., et al., 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005). 315
"an automatic steering and isolation diode network for supplying voltage to said radio from either said AC powered DC power supply or said removable DC power supply, and also for automatically supplying charging voltage from said AC powered DC power supply to said removable DC power supply" — "a group or system of at least two diodes that supplies voltage to the radio from either the alternating current powered direct current power source or the removable direct current power supply and also supplies the removable direct current power supply with a voltage from the alternating current powered direct current power supply."  

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"automatically" — "once initiated, the function is performed by a machine, without the need for manually performing the function."  Collegenet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225 (Fed. Cir. 2005). 318

"automatically" — "the district court did not err in construing the term 'automatically' to mean that the claimed apparatus is 'capable of performing multiple, autonomous east-west changes in position over a substantial period of time without ground transmissions concerning the parameters of such movements.'"  Space Systems/Loral, Inc. v. Lockheed Martin Corp., 2000 U.S. App. LEXIS 21414 (Fed. Cir., Aug. 23, 2000). 319


"automatically" — "a method that automatically performs all of the steps in the project management cycle, without the need for manual intervention or supervision, based only on messages sent to the computer."  Enpat, Inc., et al. v. Microsoft Corp., et al., 26 F. Supp. 2d 806 (E.D. Va. 1998). 322

"bus master configuring the bus automatically" — "the bus master, without manual user intervention, is able to (i) control access to the bus by newly connected stations, and (ii) cease controlling stations disconnected from the bus, without interruption of the operation of the system in either situation. The Court does not define 'without manual user intervention' to exclude, for instance, the possibility that a person connected a device to the bus."  Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc., 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010). 323
"automatically"; "automatically establishing"; "automatically dialing" — "'automatically' as used in the phrase 'automatically establishing voice communications,' requires that the step of establishing voice communications between a called party and a calling party is initiated and performed without human intervention, i.e., without manual dialing, manual activation or other manual activity. For example, establishing voice communications by manually dialing or manually activating a connection using a button (such as on a phone, mouse, keyboard or other device) to initiate a call is not 'automatically establishing voice communications.' Additionally, ... as used in the patent, 'automatically dialing' requires that the step of dialing a telephone number be performed without human intervention, i.e., without manual activity. For example, initiating a call by manually dialing the digits or manually activating a connection using a button (such as on a phone, mouse, keyboard or other device) to initiate a call is not 'automatically dialing.'"


"automatically adjusting" — "changing at least one of the high voltage power supplies in a manner independent of external influence or control." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003) \textsuperscript{325}

"automatically administering credit on a unilateral basis" — "Keeping track, without user intervention, of whether each trading floor extends credit to the other trading floors, on a one-way basis." EBD Dealing Resources, Inc. v. Intercontinental Exchange, Inc., 379 F. Supp. 2d 521 (S.D.N.Y. 2005) \textsuperscript{326}

"automatically and simultaneously displaying at the programmed computer in real time the current status information of at least a portion of the delegated instructions received from each two-way communication device" — "the current status information for one instruction and some current-status information for another instruction may be simultaneously displayed." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008) \textsuperscript{327}

"automatically answering incoming telephone calls" — "does not require construction." Klausner Technologies, Inc. v. Vonage Holdings Corp., et al., 2007 U.S. Dist. LEXIS 57604 (E.D. Tex., Aug. 7, 2007) \textsuperscript{328}

[i] "automatically apply or compare the internet media venue design or style standards to the information input by the seller or the advertisement"; [ii] "automatically apply or compare the internet media venue distribution factors to the information input by the seller or the advertisement"— [i] "execute a systematic sequence of mathematical and/or logical operations to apply or compare the internet media venue's design or style standards to the information input by the seller or to the advertisement"; [ii] "execute a systematic sequence of mathematical and/or logical operations to apply or compare the internet media venue's distribution factors to the information input by the seller or to the advertisement." Function Media, L.L.C. v. Google, Inc., 2009 U.S. Dist. LEXIS 94340 (E.D. Tex., Oct. 9, 2009) \textsuperscript{329}
"automatically computing at least one interest cost value based at least in part on said inputted data, said automatically computed interest cost value specifying a rate representing borrowing cost associated with said at least one fixed income financial instrument" — "calculating, without further action by the user, an interest cost value, representing borrowing cost associated with a original issue fixed income financial instrument, based at least in part on the information put into a bidder's computer in the previous step." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006).


"automatically denoting" — "is limited to a non-continuous currency evaluation device that has only one output receptacle." Cummins-Allison Corp. v. Glory, Ltd., et al., 2003 U.S. Dist. LEXIS 2151 (N.D. Ill., Feb. 10, 2003). "[T]he Court construes the phrase 'automatically denoting' to mean automatically determining the denomination of bills by any method known to those skilled in the art at the time the '806 patent application was filed." Cummins-Allison Corp. v. Glory, Ltd., et al., 2005 U.S. Dist. LEXIS 6150 (N.D. Ill., Mar. 28, 2005). "[T]he Court agrees with the '806 Opinion that 'automatically denoting' includes any method for automatic denomination known to those skilled in the art at the time the '806 Patent was filed." Cummins-Allison Corp. v. Glory, Ltd., et al., 457 F. Supp. 2d 843 (N.D. Ill. 2006).

"automatically deriving a respective dealable price message" — "Deriving a message sent to a trading floor (a potential taker) and indicating a bid or offer originating from another trading floor (a potential maker) with whom the potential taker has credit remaining." EBD Dealing Resources, Inc. v. Intercontinental Exchange, Inc., 379 F. Supp. 2d 521 (S.D.N.Y. 2005).

"in response to the consumer selecting a displayed icon corresponding to an expert from the list, automatically establishing a telephone connection" — "the plain meaning of the words in claim 1 is that clicking on or selecting a displayed icon corresponding to an expert results in an immediate telephone connection between the expert and the consumer, without a series of intervening manual steps." Keen, Inc. v. InfoRocket.com, Inc., 2002 U.S. Dist. LEXIS 13640 (S.D.N.Y., Jul. 26, 2002).


"automatically provided by a communications network" — "supplied by either the telecommunications network or the telecommunications network via the message originator's device without manual entry by the message originator." Intellect Wireless, Inc. v. Kyocera Communications, Inc., et al., 2010 U.S. Dist. LEXIS 64726 (N.D. Ill., Jun. 29, 2010).

"automatically receiving and integrating reports of suspicious activity" — "without user intervention, receiving reports of suspicious activity and combining those reports into a different end product; i.e., something more than simply collecting and reiterating data." SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006).
"automation boot sequence data" — "a particular value assigned to the system ID byte of the first partition which indicates to the custom boot loader that the computer should boot in automation mode." Altiris, Inc. v. Symantec Corp., 160 F. Supp. 2d 1274 (D. Utah 2001).341

"automation code" — "the code in the automation partition which loads an operating system, LAN drivers for the resident NIC, and a program for reading a database on the network server to ascertain the automation commands to be executed." Altiris, Inc. v. Symantec Corp., 160 F. Supp. 2d 1274 (D. Utah 2001).342

"autonomous" — "the module operates independently of the host device and does not incorporate any of the device's functionality." Digi International, Inc. v. Lantronix, Inc., 402 F. Supp. 2d 1041 (D. Minn. 2005).343


"auxiliary device" — "the source of substitute video material, where such material may include messages, information, advertisements or other video programs." Sony Electronics, Inc. v. Guardian Media Technologies, Ltd., 2009 U.S. Dist. LEXIS 79716 (S.D. Cal., Aug. 31, 2009).345

"auxiliary site data" — "data that supplements or aids the claimed primary site data." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).346

"AV path" — "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery." Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).347

"available for receiving [transmitting] a packet" — "The district court construed 'available for receiving [transmitting] a packet' as requiring that the virtual connection exists when setting up a bypass pipe. ... we hold that the intrinsic and extrinsic evidence both indicate the virtual connection must exist when setting up a correspondence relationship. We therefore find no error in the district court's construction." Toshiba Corp. v. Juniper Networks, Inc., 2007 U.S. App. LEXIS 21288 (Fed. Cir., Sept. 6, 2007) (unpublished).348


"average consumer" — "an individual that purchases supplies for a home improvement task from a retail outlet and performs the home improvement task himself or herself, regardless of whether the individual has any training in that task." Romala Stone, Inc. v. Home Depot U.S.A., Inc., 2007 U.S. Dist. LEXIS 73098 (N.D. Ga., Sept. 28, 2007).350

"averaging the resulting indication ... over time"; "averaging over a time window" — "mean that more than one resulting indication, each of which is derived at a different time, is averaged. Additionally, 'time window' means a 'period of time.'" Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).351

"avoids transfer" — "the controller, at times, avoids the transfer of a particular information block during a host rewrite request." Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005).352
"an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" — "An award of any type in which the value of the award is not based upon how many cards have a winning pattern." The HomeBingo Network, Inc. v. Multimedia Games, Inc., 2006 U.S. Dist. LEXIS 93632 (N.D.N.Y., Dec. 28, 2006).


"a first axially symmetric region" — "a region that is symmetric about the central axis of the wafer." MEMC Electronic Materials, Inc. v. Mitsubishi Materials Silicon Corp., et al., 2006 U.S. Dist. LEXIS 9353 (N.D. Cal., Feb. 24, 2006).


- B -


"backlight unit" — "[t]he layers of the flat-panel display device which illuminate the flat-panel (or liquid crystal) display from behind." LG Philips Co., Ltd. v. Tatung Co., et al., 2007 U.S. Dist. LEXIS 43557 (D. Del., June 15, 2007).


"banking network" — "a set of interconnected computers used by banks and financial institution for purposes of conducting and processing financial transactions, and which incorporates and utilizes a processing hub." Alexsam, Inc. v. IDT Corp., 2010 U.S. Dist. LEXIS 64478 (E.D. Tex., Jun. 29, 2010).

"banking transaction" — "an activity affecting a deposit account, such as a deposit of funds or a withdrawal." Joao, et al. v. Sleepy Hollow Bank, et al., 348 F. Supp. 2d 120 (S.D.N.Y. 2004).


"base map" — "a map on which information may be placed." Sourceprose Corp. v. Fidelity National Financial, et al., 2006 U.S. Dist. LEXIS 10151 (E.D. Tex., Feb. 23, 2006).

"base secret cryptographic value corresponding to said internal secret state" — "an initial value sought to be kept secret which is used in the cryptographic method disclosed in Claim 1." Cryptography Research, Inc. v. Visa International Service Association, et al., 2007 U.S. Dist. LEXIS 76502 (N.D. Cal., Sept. 28, 2007).


"based on" — "The term is not a scientific phrase and can be easily understood. Substitution of the word 'dictate' for the term 'based on' is unwarranted and needless. Accordingly, the Court does not construe this term." *Sklar v. Microsoft Corp.*, 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007).


"the toolbar being displayable based on a location of a cursor in relation to a hyperlink in a first page in a first window of an application" — "the Court holds that the proper construction of Claim 26 is one in which the toolbar is 'automatically displayed' upon the placement of the cursor in proximity to a hyperlink with no further action on the part of a user." *iLOR, LLC v. Google, Inc.*, 2007 U.S. Dist. LEXIS 88835 (E.D. Ky., Nov. 30, 2007).

"[determining or measuring] an elapsed time period based on a time at which the characteristic appeared in the signal" — "using the point at which the characteristic appears to determine or measure an interval of time." *Nike, Inc. v. Adidas America, Inc., et al.*, 2006 U.S. Dist. LEXIS 91011 (E.D. Tex., Dec. 18, 2006).

"capable of dynamic partitioning based on the elemental width of data received from the data path, the elemental width being equal to or narrower than the data path" — "capable of dividing width-wise into a variable number of elements no wider than the data path, based upon the size of the data elements received from the data path." *Microwin Systems Engineering, Inc. v. Dell, Inc., et al.*, 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).

"based upon the order of the list": "based upon the desired order" — "allows for some deviation from the exact order of the list." *Netflix, Inc. v. Blockbuster, Inc.*, 477 F. Supp. 2d 1063 (N.D. Cal. 2007).


"interrogation beacon" — "a signal, transmitted from a fixed wireless router, containing information representative of the communication limitations imposed by a jurisdiction governing the location of the wireless router." *Harris Corp. v. Federal Express Corp.*, 2010 U.S. Dist. LEXIS 3424 (M.D. Fla., Jan. 12, 2010).378


"beam path configuration signal" — "a detectable message indicating the physical properties of the beam, as well as the course upon which the beam is moving." *Optivus Technology, Inc., et al. v. Ion Beam Applications S.A.*, 2004 U.S. Dist. LEXIS 30314 (C.D. Cal., Aug. 31, 2004).380

"before completing the subsequent launch, processing the final log file to move the memory blocks specified in the final log file into a RAM cache" — "during the subsequent launch, reading each log entry in the final log file and copying those memory blocks specified in log entries that are not already in the RAM cache, from the secondary storage device to the RAM cache." *Computer Acceleration Corp. v. Microsoft Corp.*, 516 F. Supp. 2d 752 (E.D. Tex. 2007).381

"causes said lower layer to vaporize before said upper layer vaporizes" — "causes said lower layer to convert into vapor before said upper layer converts into vapor." *EMI Group North America, Inc. v. Cypress Semiconductor Corp.*, 68 F. Supp. 2d 421 (D. Del. 1999).382

"before storage" — "before data is entered in memory from which it may be retrieved at a later time." *General Electric Co., et al. v. Sonosite, Inc.*, 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).383


"being capable of being represented by a defined bit width which is equal to said defined bit width of said operands" — "able to be represented by a data field of the same size as the floating point operands." *Microunity Systems Engineering, Inc. v. Dell, Inc., et al.*, 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).386

"being delivered" — "has a plain meaning that is already readily understood by lay jurors; thus, the Court does not construe 'being delivered.'" *Accolade Systems LLC v. Citrix Systems, Inc.*, 634 F. Supp. 2d 738 (E.D. Tex. 2009).387
"being electrically connected in a first polarity" — "connected such that, during discharge, current will flow from the energy source through the patient in only one direction." Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al., 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005). 388

"said information being reproduced by projecting a light beam via an objective lens" — "the information on the disc is capable of being reproduced by projecting a light beam via an objective lens." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010). 389

"the adequacy of the funds in the first party's account being verified after the instrument is issued" — "The words 'after the instrument is issued' refers back to the 'creating step' and the choice of the gerund 'being' as opposed to the verb 'is' suggests that the verification of the adequacy of funds is not a separate method step." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010). 390


"bid/offer system state"; "system bid/offer state" — "a state during which participants may enter into the system bids and offers for an item at select prices and volumes." eSpeed, Inc., et al. v. BrokerTec USA, L.L.C., et al., 2004 U.S. Dist. LEXIS 20589 (D. Del., Sept. 9, 2004). 392


"bill value" — "a value related to a credit value that is billed to a merchant's account or to a third party." Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006). 394


"billing authorities" — "the different entities which track billing costs associated with a personal identification number (as construed herein)." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 396

"billing authorities maintaining a service profile for the mobile user" — "more than one billing authority (as construed herein) maintaining a service profile (as construed herein) for the mobile user." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 397

"billing code" — "a code, separate from a personal identification number (as construed herein), identifying a particular billing authority (as construed herein)." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 398

"billing for access to the service"; "generating a bill for the service" — "indicating an amount due for operation of a remote computer unit of a split personal computer system." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009). 399
"billing information" — "includes the billing data for all customers, and includes for each user: (1) information about the transactions that are to be billed to that user, and (2) identification information for that user. This limitation would not cover any equipment that telecommunicates only an individual user's bill(s) from the supplier to the user." Databurst, LLC v. Checkfree Corp., 2003 U.S. Dist. LEXIS 3852 (N.D. Ill., Mar. 17, 2003).

"binary code" — "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base 2 number." Chamberlain Group, Inc. v. Lear Corp., 2006 U.S. Dist. LEXIS 68899 (N.D. Ill., Sept. 11, 2006). "Lear's central argument is that we erred in relying on dictionary definitions in construing 'binary code,' in contravention of Phillips. We disagree." Chamberlain Group, Inc. v. Lear Corp., 2007 U.S. Dist. LEXIS 12004 (N.D. Ill., Feb. 20, 2007).

"binary code generator" — "a processor programmed to respond to the enabling device to generate a binary code that is different for each activation of the enabling device." Chamberlain Group, Inc. v. Lear Corp., 2006 U.S. Dist. LEXIS 68899 (N.D. Ill., Sept. 11, 2006).

"binary tree" — "an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).


"binary tree configuration" — "an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).


"bingo operator" — "A person or entity, or a machine or the software in it, that operates a bingo game." The HomeBingo Network, Inc. v. Multimedia Games, Inc., 2006 U.S. Dist. LEXIS 93632 (N.D.N.Y., Dec. 28, 2006).

"bit line" — "Because Hynix's construction is problematic and Hynix has not provided any reason why the ordinary meaning of 'bit line' does not suffice, the court declines to construe this term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006).

"blend information" — "the specification impliedly defines 'blend information' as 'pressure information.'"  QuanTel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).

"blending" — "combining at least a first image or video frame with a second image or second video frame such that the result includes all or part of both."  Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).

"generating the tool path by blending between the isoloops" — "producing a smooth tool path based on a process that produces intermediate values from the isoloops being connected."  Surfware, Inc. v. Celeritive Technologies, Inc., et al., 2009 U.S. Dist. LEXIS 51620 (C.D. Cal., Jun. 3, 2009).


"block" — "erasable storage for one or more sectors; ... erasable storage for a plurality of sectors."  Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005).

"modify block" — "a contiguous portion of text that can be selected by word processor commands to be deleted, moved or copied."  Hyperphrase Technologies, LLC, et al. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 24591 (W.D. Wis., Jun. 18, 2003).

"an error correction code generation circuit which generates for each block of data to be stored in said memory system an error correction code"; "each block of data comprising a first plurality of digits and each error correcting code comprising a second plurality of digits from which at least one digit of error may be detected and corrected in the block of data" — "A block of data, as used in this phrase, means a group of data bits which may be corrected by another group of bits called error correction bits. The data is information to be stored in the computer."  TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999).

"block size" — "information that specifies the total amount of data that is to be transferred on the bus in response to a transaction request."  Rambus Inc. v. Infineon Technologies AG, et al., 2001 U.S. Dist. LEXIS 10990 (E.D. Va., Mar. 15, 2001).

"block size information" — "information that specifies the total amount of data that is to be transferred on the bus in response to a transaction request."  Hynix Semiconductor Inc., et al. v. Rambus Inc., 2004 U.S. Dist. LEXIS 23230 (N.D. Cal., Nov. 15, 2004).

"operating individual blocks of memory cells with non-overlapping portions thereof storing at least user data and overhead information" — "must include multiple erase blocks and is limited to a single user data and a single overhead portion."  Sandisk Corp. v. Zotek Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010).

"a device layer having ... a bonded surface ... being bonded generally in its entirety to the oxide layer" — "means that the surface is joined to the oxide layer by bonds created by heat, not by the growth of or formation of a layer."  S.O.I.T.E.C. Silicon on Insulator Technologies, S.A., et al. v. MEMC Electronic Materials, Inc., 2010 U.S. Dist. LEXIS 109667 (D. Del., Oct. 13, 2010).
"bonus" — "a reward or payment in addition to any payout specified by the normal gaming device pay table." *IGT v. Bally Gaming International Inc., et al.*, 610 F. Supp. 2d 288 (D. Del. 2009).\(^{423}\)

"bonus play period" — "the period during which the bonus promotion is active." *IGT v. Bally Gaming International Inc., et al.*, 610 F. Supp. 2d 288 (D. Del. 2009).\(^{424}\)

"bonus points" — "additional points awarded beyond those given in an actual football game for unusual scoring plays, such as when a player scores in a manner not typically associated with his position." *Fantasy Sports Properties, Inc. v. Sportsline.com, Inc., et al.*, 287 F.3d 1108 (Fed. Cir. 2002).\(^{425}\)

"Boolean . . . mathematical operation" — "A Boolean operation is an operation that applies formal logic (for example, AND, OR, NOR, etc.)." *Microunity Systems Engineering, Inc. v. Dell, Inc., et al.*, 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).\(^{426}\)

[i] "boot portion"; [ii] "program portion"; [iii] "data portion" — [i] "the part of the non-volatile memory containing the boot or startup code"; [ii] "the part of the non-volatile memory containing program code"; [iii] "the part of the non-volatile memory containing stored data." *Square D Co., et al. v. E.I. Electronics, Inc.*, 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010).\(^{427}\)


"mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals" — "requires that each of the contacts moves from its first position into a spaced, circuit breaking relation with respect to each of its respective terminals." *Pass & Seymour, Inc. v. International Trade Commission, et al.*, 2010 U.S. App. LEXIS 17899 (Fed. Cir., Aug. 27, 2010).\(^{430}\)


"the telephone wiring network includes a branch network which couples one of the plurality of telephone devices to the telephone network telephone network" — "the branch network is part of the telephone wiring network." *Inline Connection Corp. v. AOL Time Warner, Inc.*, 2007 U.S. Dist. LEXIS 6209 (D. Del., Jan. 29, 2007).\(^{432}\)

"bridge" — "component(s) for communicating between two or more buses each using different interface standards." *DisplayLink Corp. v. Magic Control Technology Corp.*, 615 F. Supp. 2d 1051 (N.D. Cal. 2009).\(^{433}\)

"bridging node" — "a non-terminal node that relays messages in an interconnected network." *Agere Systems, Inc. v. Broadcom Corp.*, 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004).\(^{434}\)

"broad band information" — "information that requires high bandwidth for transmission relative to the available bandwidth of the transmission channel or medium considering temporal requirements." *OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.,* 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 436


"browser-based subscriber" — "a person who pays for access to a service that allows the user to access, view, and enter remotely-stored data utilizing a software application that locates and displays web pages." *Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al.,* 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 439


"a buffer"; "a data buffer" — "memory used to store data temporarily to compensate for differences between the rate in the flow of data between the data transmit/receive device and the host device." *In re Papst Licensing GmbH & Co. KG Litigation,* 624 F. Supp. 2d 54 (D.D.C. 2009). 441


"message buffer" — "IBM argues that the 'message buffer' must have sufficient capacity to store an entire message, claiming that it would be a misnomer to call anything smaller a 'message buffer.' This is hardly a persuasive argument. While it might be desirable to have an amply-sized buffer, there is absolutely nothing in the claim language that requires it." *TM Patents, L.P., et al. v. International Business Machines Corp.,* 72 F. Supp. 2d 370 (S.D.N.Y. 1999). 444


"a buffer, coupled to the first port, storing received packets" — "a temporary storage device connected to the first port for received packets." *3COM Corp. v. D-Link Systems, Inc., et al.,* 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007). 446

"means for ... causing an execution of buffered write requests" — "LGE contends that the trial court erred in construing system claims 1 and 23 as requiring all write requests to be executed after a match is detected, as opposed to executing any number of write requests until the write request corresponding to the matching read request is executed. We agree. The claim language does not require all write requests to be executed after a match is detected. ...Because the recited function is clear on its face, it was improper to incorporate the additional functional limitation of executing 'all' buffered write requests."  LG Electronics, Inc., et al. v. Bizcom Electronics, Inc., et al., 453 F.3d 1364 (Fed. Cir. 2006). 448

"building at least one long-term and at least one short-term statistical profile from at least one measure of the network packets" — "generating at least two separate data structures, one a statistical description representative of historical network activity, and one a statistical description of recent network activity, where the statistical descriptions are based on at least one measure of the network packets and are generated through the use of statistical analysis; i.e., something more than simply collecting and retrieving data."  SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006). 449

"buried within said semi-conductor material ... while beneath the surface of said semiconductor material" — "the claim language clearly defines a charge sink means completely surrounded by semiconductor material. The claim describes a charge sink means 'buried,' 'within,' and 'beneath the surface of said semiconductor material.' Standing alone, the single term 'buried' or the single term 'within' might describe something only partially submerged and still in contact with the surface of the substrate. The use of 'within' in conjunction with 'buried,' however, leaves no question that this claim describes structure completely surrounded by semiconductor material. The addition of 'beneath the surface' further clarifies that the charge sink means is completely submerged and does not contact any surface of the device."  Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al., 906 F. Supp. 798 (E.D.N.Y. 1995). 450 "The district court properly construed the claim."  Loral Fairchild Corp. v. Sony Corp., et al., 181 F.3d 1313 (Fed. Cir. 1999). 451

"burst mode" — "a mode for sequentially accessing memory locations in which the memory receives the address of one memory location and provides in response the contents of a plurality of consecutive memory locations."  Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd., et al., 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009). 452

"burst mode signals" — "low-frequency PWM signals which regulate the power to a load based on the pulse width of the PWM signals."  O'Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006). 453

"burst state" — "the camera takes a pre-determined number of pictures in rapid succession in response to one or more signals from a motion detector. ... Defendants argue 'in rapid succession' requires a more precise definition. ... It is a phrase potential jurors will be familiar with, and the Court will not place additional limitations on the claim language based on such weak support."  Good Sportsman Marketing LLC v. Testa Associates, LLC, et al., 440 F. Supp. 2d 570 (E.D. Tex. 2006). 454

"bus" — "carries its ordinary meaning as a set of signal lines to which a number of devices are connected, and over which information is transferred between devices." Rambus Inc. v. Infineon Technologies AG, et al., 318 F.3d 1081 (Fed. Cir. 2003).456

"bus" — "a multiplexed set of signal lines used to transmit address, data and control information." Rambus Inc. v. Infineon Technologies AG, et al., 2001 U.S. Dist. LEXIS 10990 (E.D. Va., Mar. 15, 2001).457

"bus" — "a set of signal lines to which two or more devices may be connected and over which information is transferred between those devices." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004).458

"bus" — "a set of signal lines." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).459

"bus" — "a signal line or set of signal lines used by an interface system to connect a number of devices and to transfer information between the devices." Computer Cache Coherency Corp. v. Via Technologies, Inc., 2007 U.S. Dist. LEXIS 81121 (N.D. Cal., Oct. 22, 2007).460

"communication bus" — "a signal line or set of lines that may be used by an interface system to connect a number of devices and to transfer information." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).461

[i] "source bus"; [ii] "gate bus" — [i] "the conductor used to transmit an electrical signal or power to the source regions"; [ii] "the conductor used to transmit an electrical signal or power to the gate." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).462

"bus controllers" — "controllers that transfer instructions and data from the host computer to the connected processing elements and data from the connected processing elements to the host computer over a bus." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).463

"bus master" — "the device which initiates a data transfer on a bus." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).464


"business relationships of the client" — "business relationships that may affect the fulfillment of the client's order request, including business relationships between the client and the order servicing organization, or between the client and the fulfillment partner." Versata Software, Inc., et al. v. SAP America, Inc., et al., 2009 U.S. Dist. LEXIS 45751 (E.D. Tex., May 19, 2009).466

"by at least one computer" — "If automation was absolutely necessary to the invention, the words 'automatically' and 'without manual intervention' should have appeared in the claim itself. Accordingly, I do not construe any of the disputed terms to include the words 'automatically' or 'without manual intervention.'" Investment Technology Group, Inc., et al. v. Liquidnet Holdings, Inc., 2010 U.S. Dist. LEXIS 3588 (S.D.N.Y., Jan. 19, 2010).467
"by determining the then current location of the personal computer" — "by determining a current address or communication session for communicating with the personal computer." Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).

[information encoded] "in said bit areas by the presence or absence of printing" — "to those skilled in the art at the time of the patent's filing, the phrase 'presence or absence of printing' did not include variable width encoding." Datastrip (ION) Ltd., et al. v. Symbol Technologies, Inc., 15 Fed. Appx. 843 (Fed. Cir., Jul. 2, 2001) (unpublished).


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"CPE"; "customer premises equipment" — "customer side equipment in a wireless communication system that transmits data to and/or receives data from a base station." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).


"cache" — "temporary memory storage operating in conjunction with computing instructions to perform various functions." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).


"cache data storage modes" — "strategies for writing data to cache and to primary memory." Intergraph Hardware Technologies Co. v. Toshiba Corp., et al., 508 F. Supp. 2d 752 (N.D. Cal. 2007).


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"cache memory"; "cache memory means" — "LGE disputes the trial court's construction of 'cache memory means' ... and 'cache memory' ..., which were construed as 'one of at least two high speed memories located close to the CPU of a computer to give the CPU faster access to blocks of data than could be taken directly from the larger, slower main memory and never using valid/invalid bits.' ...We agree with LGE that the trial court erred in reading the limitation of at least two high speed memories into claims 1 and 14. ...We also agree with LGE that the trial court improperly read the limitation of never using valid/invalid bits into the claims." LG Electronics, Inc., et al. v. Bizcom Electronics, Inc., et al., 453 F.3d 1364 (Fed. Cir. 2006).481

"cache memory configured to store texture mapping data"; "storing texture mapping data on a cache memory" — "the court construes the phrase 'cache memory' ... to mean a cache memory configured to store a complete texture mapping." Silicon Graphics, Inc. v. nVIDIA Corp., 58 F. Supp. 2d 331 (D. Del. 1999).482


"caching policy identification information" — "storing information that identifies and is used to retrieve a separately cached instance of network policy." Storage Technology Corp. v. Cisco Systems, Inc., et al., 2001 U.S. Dist. LEXIS 25876 (N.D. Cal., Nov. 26, 2001).484 "According to its plain language, the limitation construed by the district court, 'caching policy identification information,' requires only the identification information, not the instance of network policy, to be cached." Id., 329 F.3d 823 (Fed. Cir. 2003).485


"calculating": "determining" — "to determine by mathematical equation." Transonic Systems Inc. v. Non-Invasive Medical Technologies Corp., 1999 U.S. Dist. LEXIS 22687 (D. Utah, Dec. 13, 1999).488 [W]e conclude that the terms 'calculating' and 'determining' must use at least one of the equations set forth in the specification of the '989 patent, i.e., 'Q=V/S', but that the claims also cover the use of indicators other than saline. In other words, the elements of the equation, 'V' and 'S', may be altered to account for the characteristics of different indicators, such as saline, temperature, etc., so long as the relationships set forth in the equations in the specification are still expressed." Id., 75 Fed. Appx. 765 (Fed. Cir., Aug. 26, 2003) (unpublished).489 "The asserted claims do not require 'producing a dilution curve.' Instead, 'calculating' in claim 1, and 'determining' in claim 9, means solving or estimating shunt blood flow, using at least one of the equations set forth in the '989 patent. A method or device 'uses' an equation in the '989 patent when it solves for shunt blood flow by combining measured parameters according to a particular relation specified in a relevant equation from the '989 patent." Id., 143 Fed. Appx. 320 (Fed. Cir., Jul. 25, 2005) (unpublished).490

"calculating a price": "calculate a price" — "computing a fee or credit (that may be zero) for modifying or entering into a credit account, based on the credit or account parameters." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010).491

"calculating at the programmed computer a remaining quantity of unfilled orders to fill using current-status information transmitted to the programmed computer" — "mathematically processing the current-status information to expressly determine a number of unfilled orders to be completed." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008).492

"calculating costs involved in moving such product to said destination based upon said destination and such product" — "determining all applicable costs of moving the selected product to said destination." DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006).493

"calculating ... for the selected drug treatment" — "We agree with Lextron that the claims require that the recited calculation be performed with respect to the withdrawal period for a specific drug selected for a particular animal." Micro Chemical, Inc. v. Lextron, Inc., et al., 1998 U.S. App. LEXIS 12905 (Fed. Cir., Jun. 17, 1998) (unpublished).494

"calculating ... from the relative maximum ... and minimum" — "mean[s] that both the relative maximum and relative minimum of the red and infrared waveforms must be 'mathematically' used in the oxygen saturation calculation. In addition, ... the minimum must be part of the composite, meaning that it must be determined after the composite waveform is generated." Nellcor Puritan Bennett, Inc., et al. v. Masimo Corp., 300 F. Supp. 2d 923 (C.D. Cal. 2004).495 "[W]e believe that 'calculating the amount of blood constituent from the relative maximum and minimum amplitude of the composite periodic waveforms of the detected wavelengths' means only that both the relative maximum and the relative minimum of the red and infrared waveforms must be mathematically used in the oxygen saturation calculation." Id., 402 F.3d 1364 (Fed. Cir. 2005).496
"calculating the reaction parameter" — "calculating a result that constitutes a measurement of the extent of the reaction. However, this construction encompasses more than a display of a mere number to indicate the measurement of the extent of the reaction, and can include other user understood or convenient formats as described in the patent."  

"calculating said glucose concentration in said sample from one of said reflectance readings" — "calculating the amount of glucose contained per unit volume in the sample from the reflectance reading taken at the expiration of the predetermined time period."  

"calibration code circuitry for transmitting a desired calibration code" — "requires a calibration code that is a value that indicates known wavelength(s) of light. the value must be a single known quantity. further, the calibration code circuitry must be a part of the sensor probe."  

"call authorization amount"; "amount of call authorization" — "a monetary amount to be used to pay for call service."  
TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).  

"received call-back number" — "a telephone number associated with a page sender."  

"call cost register means, including a digital display, for providing a substantially instantaneous display of cumulative call cost in dollars and cents" — "When the claim itself is considered in its entirety, it becomes clear that the call cost register means has two separate and equally important functions: (1) it provides the caller with real time, accurate information about the cost of the call via digital display as the long distance charges accrue during the call; and (2) it reflects the total cost of the call via the same digital display after the call has been terminated. Phonometrics argues that only the second function is claimed, or that only this second function is important for determining infringement. We disagree. Both functions are claimed explicitly in the [ ] patent, and both are significant for construction."  

"call distributor" — "hardware and/or software to receive and have the capability to direct calls."  

"call having a first message" — "a call having a signaling message that is distinct from the second message."  

"call pod" — "a portable device which forms conference calls among a plurality of call participants."  

"a call state, being at least one of the group consisting of active and hold states" — "a call state, which is 'active,' 'hold,' or both 'active' and 'hold' simultaneously." *Collaboration Properties, Inc. v. Tandberg ASA, et al.*, 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006). 509


"calling card" — "a card, which may be made of various materials and in various shapes, which has associated with it a combination of numerals, letters, and/or characters (sometimes called a security number or code) that can be entered at a telephone to obtain access to the telephone network or system." *TGIP, Inc. v. AT&T Corp., et al.*, 512 F. Supp. 2d 696 (E.D. Tex. 2007). 513

"calls" — "Even if the preamble were limiting, the Court would still elect not to construe 'calls' because the plain and ordinary meaning of the term is consistent with its meaning within the patent. Accordingly, the Court will not construe the term 'calls.'" *Fenner Investments, Ltd. v. Juniper Networks Inc., et al.*, 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 512

"electronic camera"; "digital camera" — "a self-contained, portable electronic camera, with the capability to take still pictures, the components of which are contained in a single housing." *St. Clair Intellectual Property Consultants, Inc. v. Matsushita Electronic Industrial Co., Ltd., et al.*, 2009 U.S. Dist. LEXIS 106697 (D. Del., Nov. 13, 2009). 511


"processing frequency capability" — "the speeds at which the CPU can operate." *Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al.*, 514 F. Supp. 2d 916 (E.D. Tex. 2007). 519
"refractory metal forming a cap to prevent evaporation of said fuse portion when said fuse portion is exposed to a directed energy source to increase the vapor pressure under the cap to produce an explosive removal of said fuse portion" — "The cap does not include a passivation layer, as the claim recites that it is the refractory metal that forms the cap. ... No judicial construction is required for the term 'to prevent evaporation ... to increase the vapor pressure under the cap to produce an explosive removal.'" EMI Group North America, Inc. v. Cypress Semiconductor Corp., 68 F. Supp. 2d 421 (D. Del. 1999).520

"data transmission device capable of connecting directly to a communication network" — "a device that transmits data and is capable of connecting to a communication network without requiring a separate data processor." PHT Corp. v. Invivodata, Inc., 2005 U.S. Dist. LEXIS 9577 (D. Del., May 19, 2005).521

"an electronic display displaying information regarding the activities and state of operation of said injector, said display capable of displaying information in at least a first and a second orientation" — "an electronic display displaying at least some information regarding the activities and state of operation of said injector head, said display capable of displaying at least some information in at least a first and a second orientation so that said information is oriented properly for reading." Tyco Healthcare Group LP, et al. v. E-Z-EM, Inc., et al., 2010 U.S. Dist. LEXIS 15664 (E.D. Tex., Feb. 22, 2010).522

"plurality of radio transceivers capable of communicating on the plurality of communications channels and capable of providing paging signals for mobile units" — "The transceivers can be commanded to provide any one of several functions upon receipt of instructions from the central control station, including the function of establishing a communication connection between a mobile unit and the central control station." MLMC, Ltd. v. Airtouch Communications, Inc., et al., 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).523


"card key" — "a unique identifier that is created at the time the card is sent and which is the information required for retrieving the electronic postcard data from a card database and an image database." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009).525

"electrically cardioverting the heart by discharging said selected magnitude of stored energy through said delivery electrodes into the heart of the wearer" — "The clause 'by discharging said selected magnitude of stored energy through said delivery electrodes into the heart of the wearer' sufficiently describes how the heart is cardioverted. Thus, 35 U.S.C. § 112 P 6 does not control this element." Cardiac Pacemakers, Inc., et al. v. St. Jude Medical, Inc., et al., 2000 U.S. Dist. LEXIS 17352 (S.D. Ind., Nov. 29, 2000).526

"carrier signal such as a television or commercial radio signal"; [ii] "broadcasting data ... using a carrier signal such as a television or commercial radio carrier signal"; [iii] "data stream broadcast over a carrier signal"; [iv] "receiving data ... using a carrier signal such as a television or commercial radio carrier signal"; [v] "broadcasting the data stream within the carrier signal" — [i] "a signal modulated to carry data"; [ii] "transmitting data by means of a signal modulated to carry data"; [iii] "a data stream broadcast by means of a signal modulated to carry data"; [iv] "receiving data broadcast by means of a signal modulated to carry data"; [v] "broadcasting a data stream by means of a signal modulated to carry data." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003).


"carrier wave" — "Consistent with the IEEE Dictionary, the court defines 'carrier wave' as 'a continuous wave, of sinusoidal or non-sinusoidal form, capable of being modulated or impressed with a signal.'" *Lectrolarm Custom Services v. Vicon Industries, Inc., et al.*, 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005).


"carrying out processing operations in response to said position information" — "does not ... mean[] using higher-resolution position information generated by the pen-tablet unit." *Quantel Ltd. v. Adobe Systems Inc.*, 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).


"cash value" — "a value accumulated in an account that is (i) personal to each consumer, (ii) determined by accumulating credit values, (iii) to which the consumer receives access and (iv) measured in dollars transferred to the consumer directly or placed in the consumer's account." *Source, Inc. v. American Express Co.*, 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006).

"catalog"; "product catalog" — "an organized collection of items and associated information, published by a vendor (which includes suppliers, manufacturers, and distributors), which preferably includes a part number, price, catalog number, vendor name, vendor ID, a textual description of the item, and images of or relating to the item." *ePlus, Inc. v. Lawson Software, Inc., et al.*, 2010 U.S. Dist. LEXIS 42609 (E.D. Va., Apr. 30, 2010).
"catalog file" — "a file that includes information identifying a song and the location of the digital data representing the song in the computer memory." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).


categorization label" — "label indicating a category or categories to which a page is assigned." Iconfind Inc. v. Yahoo! Inc., 2009 U.S. Dist. LEXIS 115923 (E.D. Cal., Dec. 14, 2009).


"causing a quantity of digital data resident on a source storage medium to be transferred to a computer system having a destination storage medium" — "effecting by command, authority, or force, the transfer of digital data resident on a source storage medium to a personal computer or workstation having a computer storage medium which is the target of the transfer of data as a result of the 'causing' step." Symantec Corp. v. Computer Associates International, Inc., 2005 U.S. Dist. LEXIS 46912 (E.D. Mich., Mar. 16, 2005).


"cell" — "a group of one or more digital words." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).

"cell analysis instrument" — "a device, not including a microscope station, that performs measurement or analysis of at least one cell feature on a specimen preparation, such as a specimen slide." Cytyc Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005).


"cellphone"; "cellular telephone" — "a device capable of communicating wirelessly via a cellular or satellite network and including an antenna, a transmitting/receiving section, a memory, a dialing pad, a microphone, and a speaker." Minerva Industries, Inc. v. Motorola, Inc. et al., 2010 U.S. Dist. LEXIS 9329 (E.D. Tex., Feb. 3, 2010).

"center conductor [of a coaxial cable]" — "a conductive material which is enclosed by the conductive shield of a coaxial cable and which carries the voltage varying electrical signal." *Monster Cable Products, Inc. v. Quest Group*, 2005 U.S. Dist. LEXIS 4213 (N.D. Cal., Mar. 17, 2005). 550

"central channel" — "a radio frequency channel assigned to carry control signals to establish, as opposed to maintain, communication connections between the central control station and the mobile units." *MLMC, Ltd. v. Airtouch Communications, Inc., et al.*, 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001). 551

"central computer" — "a computer capable of communicating, either directly or indirectly, with a local computer and a remote computer." *Anthurium Solutions, Inc. v. Medquist, Inc., et al.*, 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 552


"a central computing device" — "a single server or higher-end machine at the top of the hierarchical relationship which stores, processes and transmits information to and from multiple remote computing devices." *B-50.com, LLC v. Xfromity, Inc.*, 2006 U.S. Dist. LEXIS 6852 (N.D. Tex., Feb. 23, 2006). 554

"central control manager" — "hardware and/or software that is separate from the conferencing control and that is capable of establishing and managing video and data connections for multiple workstations" *Collaboration Properties, Inc. v. Tandberg ASA, et al.*, 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006). 555

"central controller operatively connected" — "one or more 'central controllers,' which are construed as 'computers.' The Court also construes this term as teaching that the 'central controllers' are 'operatively connected to the communication interface circuits and the surgeon's control panel.'" *Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc.*, 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010). 556


"central processing location" — "a single transmission system, as previously defined, from which compressed, digitized data, representing a complete copy of the at least one item of audio/video information, is transmitted at a non-real time rate to at least one of a multiple of local distribution systems." *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007). 560
"central processing means" — "does not invoke § 112, P6, as one skilled in the relevant art would understand 'central processing means' to be 'a central processing unit.' Thus, 'central processing means' is construed to be 'a central processing unit.'" Genlyte Thomas Group LLC v. Lutron Electronics Co., Inc., 2004 U.S. Dist. LEXIS 5311 (N.D. Tex., Mar. 31, 2004).

"a central processing section coupled to said laser transmitting and receiving sections for determining a distance to said target based on a time of flight of said transmitted and returned laser pulses" — "a processor that determines a distance to the target using time-of-flight information from the received laser pulses." Laser Technology, Inc. v. Nikon, Inc., et al., 215 F. Supp. 2d 1135 (D. Colo. 2002).


"a central processor section ... for determining a range to said target derived from said flight time of said laser pulses to said target and said flight time of said reflected laser pulses from said target" — "a processor compares time-of-flight information stored in memory to locate the times-of-flight that occur with the greatest frequency, and uses the most frequent times-of-flight to determine a range to the target. Neither a specific microcomputer nor anything that puts received laser pulses in a 'stack' is required." Laser Technology, Inc. v. Nikon, Inc., et al., 215 F. Supp. 2d 1135 (D. Colo. 2002).

"central server" — "a computer system that is dedicated to communicating over a network with the processing station at each of the plurality of remote sites." Southwest Efuel Network, L.L.C. v. Transaction Tracking Technologies, Inc., 2009 U.S. Dist. LEXIS 103395 (E.D. Tex., Oct. 23, 2009).

"central server" — "a device through which the remote terminal accesses the internet and stores userID/password and configuration information for future use by the user." Logiclink, Inc. v. Keylink Service Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 22962 (C.D. Cal., Mar. 19, 2009).


"central station" — "one or more computers or other data processing devices operated together in order to transmit a single, continuous stream of digital data that includes both the video product and data used to limit viewing of the video products." American Patent Development, Corp., LLC v. MovieLink, LLC, 604 F. Supp. 2d 704 (D. Del. 2009).


"change in membership" — "a change in status resulting from an act affecting a member of the set, such as a member being added or removed from the set." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).572

"for changing the flow of said data collection application" — "changing the next question presented from the data collection application depending on the response to the previous question." Typhoon Touch Technologies, Inc., et al. v. Dell, Inc., et al., 2009 U.S. Dist. LEXIS 64013 (E.D. Tex., Jul. 23, 2009).573

"changing the hardware configuration" — "changing the physical arrangement of non-programmable structures." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).574

"changing the stored sound waveform in accordance with changes made in the visually displayed waveform by the step of editing" — "overwriting the stored waveform stored in the computer RAM memory to reflect a change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform." Adobe Systems Inc. v. Macromedia, Inc., 200 F. Supp. 2d 309 (D. Del. 2002).575


"first channel"; "second channel" — "an amount of bandwidth isolated for communications that may be either unidirectional or bi-directional." Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., et al., 92 F. Supp. 2d 483 (E.D. Va. 2000).577 "[A]lthough the term 'channel' may encompass both unidirectional and bi-directional communications, it is clear that the first and second data channel limitations in claims 1 and 21 support only unidirectional communications. ... the '786 patent specification defines the first and second channels, by implication, as amounts of bandwidth, and thus, communication paths separated by frequency." Id., 262 F.3d 1258 (Fed. Cir. 2001).578

"channel estimator" — "a device that estimates the effect of the channel on the transmitted signals." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010).579

"channel forming region" — "the region of a semiconductor device in which the channel may form." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006).580

"channel-free region"; "channel free zone" — "refer to areas where there is no channel. In other words, ... when the transistor is turned off, a channel-free region exists between the source and drain." Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd, et al., 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009).581

"channel region" — "an area that includes but is not limited to the channel." *Semiconductor Energy Laboratory Co., Ltd. v. Samsung Electronics Co., Ltd., et al.*, 2010 U.S. Dist. LEXIS 45107 (W.D. Wis., May 7, 2010). 583

"channel select designation" — "refers to a control signal for picking a channel tuning designation which may be programmed into memory by a viewer, or by someone else, such as the cable service operator." *Beery v. Thomson Consumer Electronics, Inc., et al.*, 2004 U.S. Dist. LEXIS 17173 (S.D. Ohio, Aug. 18, 2004). 584


"character-based output device" — "a device that processes data in the form of characters. It includes devices that process characters even though they may, at times, process data in the form of a bit map." *OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.*, 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 586


"information of the characteristics of said first group of blocks"; "characteristics of the memory cell blocks" — "I conclude that both logical and physical addresses are 'characteristics of' user data blocks." *Sandisk Corp. v. Zotek Electronic Co., Ltd., et al.*, 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010). 591

"characterized as being a member of one category selected from a plurality of categories"; "characterized in the display as being a member of a category selected from a plurality of categories" — "one characteristic of an item is that it is a member of at least one category, where multiple categories exist." *Sklar v. Microsoft Corp.*, 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007). 592
"characterized by a first monitor for reproducing a real time image of the user as a background on the monitor screen, ... [and] a second monitor for displaying a composite of a user-created frozen real time image as a background and at least one user-selected computer-digitized image from the memory store as a foreground" — "requires only that the apparatus have a first and a second monitor, the first of which 'reproduces a real time image of the user as a background on the monitor screen' and the second of which 'displays a composite of a user-created frozen real time image as a background and at least one user-selected computer-digitized image from the memory store as a foreground.' Neither the claim language or the written description necessitates interpreting the claim to specify the simultaneous performance of these two functions." Kis, S.A., et al. v. Foto Fantasy, Inc., et al., 60 Fed. Appx. 319 (Fed. Cir., Feb. 28, 2003) (unpublished).593

"characterized in that the B-mode image is displayed within said blood flow display region while said blood flow display region is moved" — "characterized in that the B-mode image is always displayed in place of the blood flow image within the blood flow display region while the blood flow display region is moved, and the blood flow image is never displayed within the blood flow display region while the region is moved." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).594

"a first gate drive circuit for charge pumping a node" — "a first circuit that drives a power transistor by raising the electrical potential in an additive, charge transfer process in the manner of a pump." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004).595


"a chassis comprising a front panel" — "a frame or housing including a front panel." Rackable Systems, Inc. v. Super Micro Computer, Inc., 2006 U.S. Dist. LEXIS 81432 (N.D. Cal., Oct. 27, 2006).598

"chip memory apparatus" — "a device that includes memory on a semiconductor chip that is adapted for use with a separate audio player." Sandisk Corp. v. LSI Corp., 2010 U.S. Dist. LEXIS 24973 (N.D. Cal., Mar. 17, 2010).599

"choosing a dynamic model for the plant from a group of specimen sequenced-dynamic-factory models" — "selecting a representation or simulation that is marked by change of a manufacturing plant from a group of such models." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).600

"the chosen factory-specific model containing descriptions of the dynamic interactions of part lots and machines in the plant" — "the chosen model contains descriptions of changes in the way that groups of like parts and machines act upon one another." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).601

"cinematic work" — "is not limited to an entire motion picture, but may be only a portion of a motion picture." Bloomstein v. Paramount Pictures Corp., et al., 1996 U.S. Dist. LEXIS 22260 (N.D. Cal., May 6, 1996).602

"message transfer circuit for ..." — "refers to a structure within the computer system. That this structure has a particular function to perform, and must therefore be capable of performing that function, does not transmute a structural component of a computer system into a means-plus-function claim to which Section 112, para. 6 applies." TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999).


"circuit means" — "the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function." Nilssen v. Magnetek, Inc., 1999 U.S. Dist. LEXIS 16718 (N.D. Ill., Oct. 22, 1999).

"a circuit means connected between the inverter output terminals and the lamp terminals, thereby to provide lamp operating voltage to the lamp terminals; the circuit means having a pair of auxiliary output terminals at which is provided a cathode heating voltage" — "is also in means-plus-function form." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000).


"an on-screen programming circuit that produces video signals for display on the video monitor" — "Because the term is not expressed in 'means plus function' language, there is a rebuttable presumption that § 112, P6 does not apply. Raritan has not overcome the presumption." Apex Inc. v. Raritan Computer, Inc., 2005 U.S. Dist. LEXIS 4017 (S.D.N.Y., Mar. 11, 2005).

"circuitry" — "electronic components that may include digital circuitry, analog circuitry, software, firmware, or a combination of these elements." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).
"aesthetic correction circuitry" — "MIT urges that the term 'aesthetic correction circuitry' connotes sufficient structure to avoid 112 P6 treatment. We agree. In contrast to the term 'mechanism,' dictionary definitions establish that the term 'circuitry,' by itself, connotes structure." Massachusetts Institute of Technology v. Abacus Software, et al., 462 F.3d 1344 (Fed. Cir. 2006).\footnote{613} "I believe that in view of its specific language, 'aesthetic correction circuitry' was correctly construed as a means-plus-function claim limitation." Id. (Michel, C.J., dissenting).\footnote{614}

"processing circuitry ..."; "inverting circuitry ..."; "a cursor enable circuit ..."; "output circuitry ..." — "the Claim elements describe an apparatus and proper interpretation calls for electronic circuitry that performs the tasks as claimed in the invention, without limitation as to the type of electronic circuits." Compaq Computer Corp. v. eMachines, Inc., et al., 2002 U.S. Dist. LEXIS 13265 (S.D. Tex., Feb. 26, 2002).\footnote{615}

"call progress detector circuitry for detecting a call waiting signal" — "this Court rejects Defendants' argument that claim limitations involving the term 'circuitry' necessarily exclude so-called 'software based implementations'; ... no further construction ... is necessary." Kernius v. International Electronics, Inc., et al., 2007 U.S. Dist. LEXIS 24874 (D. Md., March 30, 2007).\footnote{616}

"circuitry for limiting transmission of the internal signal in the high frequency band from the telephone wiring network to the telephone exchange"; "circuitry for limiting transmission of signals in the high frequency band from the telephone wiring network to the telephone exchange" — "circuitry that prevents high frequency signals (i.e., frequencies above the telephone voice band between 0.25 MHZ and an undetermined upper limit) from traveling upstream from the signal interface to the telephone exchange." Inline Connection Corp. v. AOL Time Warner, Inc., 2007 U.S. Dist. LEXIS 6209 (D. Del., Jan. 29, 2007).\footnote{617}

"circuitry for performing a mute ... and transferring" — "no further construction of the claim language ... is necessary." Kernius v. International Electronics, Inc., et al., 2007 U.S. Dist. LEXIS 24874 (D. Md., March 30, 2007).\footnote{618}

"circuitry to recognize a first signal with a duty cycle or cadence coupled with frequency and level indication of a call waiting SAS signal or a distinctive call waiting SAS signal" — "circuitry specifically adapted for 'recognizing' the call waiting tone based on its duty cycle or cadence, frequency, and level." Kernius v. International Electronics, Inc., et al., 2007 U.S. Dist. LEXIS 24874 (D. Md., March 30, 2007).\footnote{619}

"circular storage buffer" — "a physical memory device that contains digital signal values and that is circular in the sense that when the last address is reached, the next address accessed is the first address location. While the digital input signal values are always stored in the same repeating physical addresses, these addresses do not have to be physically contiguous. The 'circular buffer limitation' requires that the circular buffer store the digital input signal values in continually advancing physical addresses." Pause Technology LLC v. TiVo Inc., 419 F.3d 1326 (Fed. Cir. 2005).\footnote{620}


"clamping" — "the act of adding a specific reference voltage level, which results in holding the panel capacitance at such reference voltage level.' Further, ... 'clamping' need not be accomplished through connection to an external power supply but rather, can be accomplished by adding any voltage reference, whether internally or externally generated." Competitive Technologies, et al. v. Fujitsu Ltd., et al., 286 F. Supp. 2d 1161 (N.D. Cal. 2003). 623

"includes classification" — "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005). 624

[i] "classifying"; [ii] "sorting" — [i] "to 'organize or arrange' pit and particle defects according to 'class or category'"; [ii] "to arrange pit and particle defects 'according to class, kind, or size.'" ADE Corp. v. KLA-Tencor Corp., 220 F. Supp. 2d 303 (D. Del. 2002). 625

"classifying the specimen" — "[classifying the specimen] includes primary and secondary classifiers, but not a classifier, human or otherwise, that provides a final diagnosis." Cytyc Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass. Nov. 28, 2005). 626

"[I]nsofar as I have previously construed 'comprising' as describing a closed set or a whole, TriPath has convinced me that I was incorrect and I will correct this aspect of the Markman order. This correction, however, does not change my definition of 'classifying the specimen' as used in claims 11 and 16. I will continue to construe 'classifying the specimen' in those claims to exclude final classification." Id., 505 F. Supp. 2d 199 (D. Mass. 2007). 627


"clear" — "the district court correctly construed the term 'clear' to mean 'transparent or having the property of transmitting light without appreciable scattering so that bodies lying beyond are seen clearly,' and that nothing in the claims or the written description warranted giving the term 'clear' an expansive meaning that would cover 'translucent' holders." Terlep v. Brinkmann Corp., et al., 418 F.3d 1379 (Fed. Cir. 2005). 629

"clearinghouse means" — "any clearinghouse server(s) with software capable of storing and authenticating identity data." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007). 630

"clerk system" — "software to control the sequencing of items to be sold and control the bidding process for each item to be sold." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 631


"clocking circuitry for a generating time related signal, said repository device for storing time related data associated with picture image data" — "the defendants' indefiniteness argument is rejected and the phrase means 'clocking circuitry for generating a time related signal, said repository device for storing time related data associated with picture image data.'" *SmartDisk Corp. v. Archos S.A., et al.*, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).642

"the given name server that receives the DNS query being close to the client local name server as determined by given location information ... local name server" — "the particular name server that receives the DNS query is selected by the alternative domain name system and is close in Internet terms to the client." *Akamai Technologies, Inc., et al. v. Limelight Networks, Inc.*, 494 F. Supp. 2d 34 (D. Mass. 2007).643


"coaxial cable" — "a cable with two conductors that share an axis." Monster Cable Products, Inc. v. Quest Group, 2005 U.S. Dist. LEXIS 4213 (N.D. Cal., Mar. 17, 2005).646


"a code directed to" — "software code or instructions for." MedioStream, Inc. v. Microsoft Corp., et al., 2010 U.S. Dist. LEXIS 88716 (E.D. Tex., Aug. 27, 2010).648

"code which includes data indicating whether the player wins or loses" — "I will construe 'indicating,' in the context of 'code which includes data indicating whether the player wins or loses,' in accordance with its ordinary meaning to mean that the code 'shows the way to, points out, or makes clear in another way.'" Ingenio, Filiale de Loto-Quebec, Inc. v. GameLogic, Inc., 445 F. Supp. 2d 443 (D. Del., July 21, 2006).649

"coded embedding"; "hard coding" — "fixing within a given copy of the program the payee identification information." Intell-a-Check Corp. v. Autoscribe Corp., et al., 346 F. Supp. 2d 698 (D.N.J. 2004).650

"coded heading(s)" — "instructions in the reference file indicating what data to extract from the database." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).651


"coding said contributions at said electronic contribution accepting devices to obtain coded contributions; and decoding said coded contributions at a device other than said electronic contribution accepting devices" — "'Coding' means to put the information into computer-readable format, so that the information can be read by the intended recipient, but not readily read by other recipients, whether computers or people. 'Decoding' is the reverse of 'coding,' that is, reading the information by the recipient computer. Beyond that, this claim language does not require further definition." Ziarno v. American National Red Cross, et al., 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000).653

"cold purge process" — "The district court correctly placed the term 'cold purge process' in the context of the state of the art when the '389 invention was made. This context requires construing the literal meaning of the claims as limited to the process wherein electrostatic contamination is formed and removed." Applied Materials, Inc. v. Advanced Semiconductor Materials America, Inc., et al., 98 F.3d 1563 (Fed. Cir. 1996).654


"a plurality of color pattern masks each corresponding to a color in said color image ... capable of providing ... visual discrimination" — "Each color in the color image has a corresponding separate and distinct color pattern. The claim is not limited to the particular pattern masks disclosed in the specification, and thus images may contain more than eight colors. The phrase 'visual discrimination' means that when the output image is displayed, the pattern masks provide visual discrimination between areas that were originally represented by different colors in the color image." *OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.*, 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).

"information about said different color values" — "luminance information or chrominance information or both in a selected portion of an image." *Sportvision, Inc. v. Sportsmedia Technology Corp.*, 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).


"combining" — "encompasses any logical combination of the user selection criteria. However, the logical combination of the user selection criteria must occur prior to any search and does not include dependent, hierarchal searching where new user selection criteria are combined with prior search results." *Gemstar-TV Guide International, Inc., et al. v. International Trade Commission, et al.*, 383 F.3d 1352 (Fed. Cir. 2004).


"command" — "one or more words or instructions to initiate, terminate or otherwise control the execution of an operation." *EMC Corp. v. Hewlett-Packard Co., Inc.*, 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003).

"to the extent data responsive to said query is not available at said client computer, combining said query with at least one additional query associated with said application program, for simultaneous transmission from said client computer across said network" — "when data needed to respond to the data request of the application program is not stored in the client computer, combining that data request with at least one other data request of the application program, for sending to the server in a single request or package." *Hyperion Solutions Corp. v. Outlooksoft Corp.*, 422 F. Supp. 2d 760 (E.D. Tex. 2006).
"combining the associated value and the additional parameter to determine motion control commands" — "a computerized, mathematical combination of the associated value and the additional parameter to determine motion control commands provided to the machine tool to automatically adjust velocity or acceleration to achieve the desired quality of result." Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006).  

"command information" — "information relating to one or more commands for controlling a bus transfer, rather than to address or data." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).


"command specifying data to be transferred" — "a command sent from a host processor that identifies, names, or states explicitly or in detail which data is transferred from a first storage medium to a second storage medium." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"commercial access provider ..." — "a service provider that provides subscription-based services and uses a computer system commercially available to telephone users that acts to provide an interface to or from ..." eBay Inc. v. IDT Corp., et al., 2009 U.S. Dist. LEXIS 56469 (W.D. Ark., Jun. 10, 2009).

"commercial insert video signal" — "an analog video signal, distinct from the programmed channel signal and local video signal, that contains commercial content that is to be inserted into a local time avail in the programmed channel signal." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001).

"commercial invoice" — "an international shipping document that contains at least the information in the form required under the applicable laws of the jurisdiction[s] through which the selected product travels." DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006).

"common conduction region" — "the semiconductor material of the first conductivity type between the bases. ... The amount of spacing between the bases is not constrained. ... [T]he claimed 'common conduction region' is properly construed not to require any particular kind of interaction between the current flows emanating from the spaced bases." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001).

"wherein said vertical common conduction region is continuous and uninterrupted" — "A 'continuous and uninterrupted' common conduction region is properly construed to require that be possible to transit from any point to any other point within that three-dimensional structure while staying entirely within the common conduction region." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25712 (C.D. Cal., Jul. 16, 2001).

"common formats" — "allow[] for instruction sets to have more than one format, but requiring commonality." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000). 678

"common processing" — "processing in which the logic underlying certain of the content and/or sequence of steps of the formats are the same or shared." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003). 679

"common static price axis" — "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006). 680 "We need not alter our construction. And the extrinsic evidence presented -- in light of our construction, based almost entirely on intrinsic evidence -- will not change our construction." Id., 2007 U.S. Dist. LEXIS 12965 (N.D. Ill., Feb. 21, 2007). 681

"communicating a superseding signal to a bus coupled to said first computer and said at least one originally provided memory through a diagnostic/emulation port or harness coupled to said bus from an adapter module, said superseding signal to alter control of said engine by said first computer" — "communicating a superseding signal from an adapter module to a bus coupled to the first computer and the originally provided memory, with the result of altering control of the engine by the first computer." Adrain v. Superchips, Inc., 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006). 682 "This term means that a signal is sent to alter control of the vehicle's engine. The signal overrides the control signals that are otherwise being sent from 'a first computer' to the engine. As a result, control of the engine by the first computer is altered. As discussed above, the court agrees that the claims must be read as encompassing such an 'in transit' limitation. Thus, the control of the engine by the first computer can be altered while the vehicle is moving or stopped, but otherwise in normal operation." Adrain v. Hypertech, Inc., 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002). 683

"communicating at least one message associated with said submitted bid to said issuer's computer over said at least one electronic network" — "a message associated with the submitted bid is sent to the issuer's computer over at least one network for communicating data messages between said computers, including, but not limited to, the Internet." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006). 684

"communicating frames containing data between all of the nodes at a common communication capability" — "requires that each and every node in the network have the ability to communicate with the medium and hence with each and every other node in the network at the common communication capability, and that each node would be expected to use this ability at some time in the operation of the network. This means that in actual network operation, each node at some time can be expected to place data frames on the medium at the common capability and receive data frames from the medium at the common capability." Datapoint Corp. v. Standard Microsystems Corp., et al., 31 Fed. Appx. 685 (Fed. Cir., Feb. 15, 2002). 685

"the central server communicating with said content provider" — "the central server providing information to or receiving information from said content provider." Logiclink, Inc. v. Keylink Service Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 22962 (C.D. Cal., Mar. 19, 2009).

"communication" — "has its ordinary and customary meaning and is not limited to calls. Because the plain meaning is sufficiently clear from the claim language, there is no need for construction of this term." Fortinet, Inc. v. Palo Alto Networks, Inc., 2010 U.S. Dist. LEXIS 102246 (N.D. Cal., Sep. 28, 2010).


"communication cable" — "any cable which carries any data or control signal from one point to another in a low voltage system -- i.e., that communicates between aspects or elements of a low voltage system." Erico International Corp. v. Doc's Marketing, Inc., et al., 2007 U.S. Dist. LEXIS 1367 (N.D. Ohio, Jan. 9, 2007).

"a first communication connection between a caller and a called party"; "a first communication connection between an institutional caller and an outside recipient" — "1. the telephone instrument of the caller, 2. the telephone instrument of the called party or outside recipient, and 3. all apparatus for maintaining an ongoing communication connection between the caller and the called party or outside recipient." T-Netix, Inc. v. Global Tel*Link Corp., 2003 U.S. Dist. LEXIS 27830 (E.D. Tex., Aug. 15, 2003).

"communication connection is provided between said option connector and said second processor" — "a two-way line of communication in which information may be sent from the option connector to the second processor or information may be sent from the second processor to the option connector." ABB Automation Inc. v. Schlumberger Resource Management Services, Inc., 254 F. Supp. 2d 475 (D. Del. 2003).


"communication device other than an Internet-connected device" — "a device that is not connected to the Internet at the time the device receives the notification." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).

"a communication facility" — "[c]omputer software associated with the remote computer." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007). 698

"communication facility" — "that part of a telephone network that enables a caller to connect to the Katz system." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999). 699


"communication interface" — "hardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line." Ricoh Corp., et al. v. Pitney Bowes, Inc., 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006). 701

"communication interface" — "the point at which data is received by or sent from the jukebox from or to the central management station." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007). 702

"plurality of communication interface circuits" — "two or more circuits, each of which enables communication between a single piece of surgical equipment and the central controller." Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc., 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010). 703

"communication line" — "a telephone line, RS232 line, or any other suitable communication line used to transmit information and having two respective ends." Ricoh Corp., et al. v. Pitney Bowes, Inc., 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006). 704

"communication means for selectively establishing a communication link with each mobile phone unit" — "require[s] communications established by the host processor. As the district court concluded, the disclosed embodiments describing user-initiated communications could not provide the structure or equivalent structure for performing the claimed function in accordance with 35 U.S.C. § 112, ¶ 6." Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316 (Fed. Cir. 2001). 705

"communication medium" — "a collection of connections (generally links between nodes) in a communication system over which information may be transmitted." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001). 706


"communication pathway" — "a medium that carries a communication signal between components." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009). 708


"a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" — "at least two communication ports in the video conferencing system (at least one for each AV device), each port supporting one or more of audio in, audio out, video in and video out connections to an analog or digital AV switch, which may be physical or logical." Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).711

"communication receiver" — "a device that obtains and demodulates radio signals." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009).712

"communication settings associated with the data communication facility" — "[s]ettings that control some aspect of how the data communication facility works." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).713


"communication system" — "a plurality of network elements and connections forming a network to transfer information." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007).715


"communication with the network" — "exchange of data over a connection to the network." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).718

"communications channel" — "a medium for transferring information. A communications channel can be a physical or wireless link." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).719
"communications channel storage means"; "storage means containing the identification of the network members" — "the better view is that ... storage means (including its use in communications channel storage means' is not in means plus function format, but refers to a specific structure - the computer's permanent and temporary storage." Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006). 720

"plurality of communications channels" — "radio frequency communications channels, each channel including two distinct frequencies, one for communication to the mobile unit and the other for communication from the mobile unit." MLMC, Ltd. v. Airtouch Communications, Inc., et al., 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001). 721


"communications medium" — "a 'network for transferring data,' not including the internet." DealerTrack v. Huber, et al., No. 06-CV-02335 (C.D. Cal., Sept. 27, 2008). 723


"communications module" — "software routines or code that perform the task of communicating." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005). 725


"computer based communications network" — "Defendants urge that the proper construction ... is 'a computer network that does not include or use a central database that contains more information than is required to determine which network vendors should receive an RFQ.' The court has already rejected this construction in its rejection of Defendants' disclaimer contention." Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006). 727


"a communications network electronically linking the computer workstations to the host computer network" — "hardware and software forming an electronic connection between the users' computers and the host computer network that enables data transfer via the X.25 protocol." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 729


"a compact, portable and interchangeable computer readable medium" — "[a] computer readable medium that is small, can be carried easily, and can be mutually substituted. Examples include a CD-ROM or a DVD. In contrast, the local processor assembly's hard drive is not a 'compact, portable and interchangeable computer readable medium.'" Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).  


"comparing a first of said selected pixels to at least a second of said pixels" — "taking the selected pixels of an image, and within the group of them, comparing a pixel of the original image to at least a second of the selected pixels." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).  


"comparing bit patterns from a contiguous plurality of said output reconstructed bytes with bit patterns known to have comprised a like contiguous plurality of bytes of each of said contributory frames" — "means that two or more adjacent reconstructed bytes are compared with bit patterns known to have been present in two or more adjacent bytes in each of the contributory frames which have been multiplexed to form the bit stream. Each contributory frame must contain the bit pattern and each frame must contain the bit pattern within two or more adjacent bytes of the contributory frame." Bell Communications Research, Inc. v. Fore Systems, Inc., 113 F. Supp. 2d 635 (D. Del. 2000).
"comparing, by means of the data processing system, the response data with the offer data representing the overt and hidden terms of the offer to produce term compliance data indicating whether the response data are in compliance with the overt and hidden terms of the offer" — "comparing automatically, by means of the data processing system, the response data with the offer data to indicate whether the response data are in compliance with the overt and hidden terms of the offer." Tradecard, Inc. v. SI Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007).  

"comparing each of said assigned pulse values with other ones of said assigned pulse values ... continuing to perform said comparing step until a predetermined number of said assigned pulse values coincide within a specific precision ... determining said actual return signal to be represented by said ... values" — "comparison of pulse values--both noise and target--continually until a large enough number of pulse values is gathered that falls within a specific, limited degree of variation. The comparison is not necessarily an immediate one. The actual target signal represents the distance from range finder to target. It corresponds to the pulse values within that specified, limited degree of variation. The target signal is associated with the 'matching' pulse values that correspond within the specified limit." Laser Technology, Inc. v. Nikon, Inc., et al., 215 F. Supp. 2d 1135 (D. Colo. 2002).  

"comparing predictions obtained with the simulation using the model with observed manufacturing trends in the plant, and using the comparison to refine the model" — "using the comparison of predictions obtained from the simulation with observed manufacturing trends in the plant to improve upon the simulation." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).  

"receiving said signal at said receiver, and comparing said received signal to an expected signal" — "mandates a receiver that performs encryption in order to compare received and expected signals." Lear Automotive Dearborn, Inc., et al. v. Johnson Controls, Inc., et al., 528 F. Supp. 2D 654 (E.D. Mich. 2007).  


"comparing the bid to the asks" — "examining a bid and one or more asks in order to note similarities and differences." Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010).  

"comparing the ion output current reference value to an actual ion output current value" — "using a non-hardware-based system to a) examine the actual ion current value and the ion output current reference value and b) note any similarity or difference between the two values." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003).
"comparing the outlines of the outer surface of the lesion of the said at least one ultrasound image with the outline of the outer surface of the lesion of at least one of the diagnostic images, whereby the position of the lesion with respect to the radiation therapy device may be verified to conform to a desired position of the lesion in the radiation treatment plan" — "comparing the two-dimensional outlines of the outer surface of the lesion generated from the at least one ultrasound image (which has positional data regarding the third dimension), with the three-dimensional rendering outline of the outer surface of the lesion generated from the at least one of diagnostic images, whereby the position of the lesion with respect to the radiation therapy device may be verified to conform to a desired position of the lesion in the radiation treatment plan."


"comparing the UID of stored license file to record of assigned UID" — "1) asking the operating system for the UID for the license file (area of memory which contains a UID, which is on a disk and which is capable of storing at least one LICENSE) that the operating system caused to be stored in a record in the system memory at the local NODE; 2) decrypting the UID contained in the license file; 3) comparing the UID contained in the license file with the UID returned by the operating system. Equivalents of the process just described also are implicated." _Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al.,_ 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999).

"a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes" — "at least two frames, each generated by shifting a sample frame or a reference frame, are compared with the other of a reference frame or a sample frame to provide the degree to which the frames are related. Such correlations produce numerical representations of the degree of similarity between the frames. Such correlations are also used to ascertain motion in the directions along the first and second axes. A frame refers to a single image in a sequence of images." _Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp.,_ 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006).

"compatible with said scrambling means" — "require[s] that for each scrambling technique there is a single corresponding unscrambling technique." _Broadcast Innovation, LLC v. Echostar Communications Corp.,_ 240 F. Supp. 2d 1127 (D. Colo. 2003).


"completing the execution of said branch instruction" — "delivering the target address of a branch instruction so that the target instruction will be the next instruction fetched for execution." _Biax Corp. v. Intel Corp., et al.,_ 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).

"complex billing algorithm" — "a function that includes the means to store phone rates for local, long distance, international, and roaming calls. ... the algorithm includes means to identify the appropriate rate category and to selectively apply those rates to each call." _Telemac Cellular Corp. v. Topp Telecom, Inc.,_ 247 F.3d 1316 (Fed. Cir. 2001).

"a compliant layer"; "compliant material" — "a layer/material that is appreciably compressible in a direction perpendicular to its surface." Tessera, Inc. v. Micron Technology, Inc., 423 F. Supp. 2d 624 (E.D. Tex. 2006).757


"component" — "Because means-plus-function treatment is not appropriate, ... the Court concludes that 'component' means a computer-related entity, either hardware, a combination of hardware and software, software, or software in execution." Leader Technologies, Inc. v. Facebook, Inc., 2010 U.S. Dist. LEXIS 21100 (D. Del., Mar. 9, 2010).759


"component identifier" — "a device that identifies, recognizes, or selects, the type of component stored in a compartment with or without analyzing indicia of the component or compartment." Aguayo, et al. v. Universal Instruments Corp., 2003 U.S. Dist. LEXIS 27846 (S.D. Tex., Jun. 9, 2003).761


"composed image" — "is the image that results from compositing two images using a control image that has more than two values." Quantel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).763

"composite gesture action" — "a gesture action (as defined []) that involves movement of several joints." New York University v. Autodesk, Inc., 2007 U.S. Dist. LEXIS 26671 (S.D.N.Y., April 10, 2007).764

"comprehensive surveillance of a predetermined area" — "[u]sing at least two sensor appliances, and in some cases one or more conventional security sensors, to monitor or observe the area protected by the system, so that all parts of the area are monitored or observed, although some or all parts of the area may be monitored or observed by only one sensor appliance or sensor." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex. Aug. 4, 2006).765

"compression rate" — "compressor throughput as a measure of the amount of input data a compressor can compress and make available for storage per unit of time at a given compression ratio." Realtime Data, LLC v. Packeteer, Inc., et al., 2009 U.S. Dist. LEXIS 78459 (E.D. Tex., Jun. 23, 2009).766

"comprised of" — "Correctly construed, 'comprised of' does not of itself exclude the possible presence of additional elements or steps." CIAS, Inc. v. Alliance Gaming Corp., et al., 504 F.3d 1356 (Fed. Cir. 2007).767
"comprising" — "raises a presumption that the list of elements is nonexclusive. ... [However,] the presumption raised by the term 'comprising' does not reach into each of the six steps to render every word and phrase therein open-ended." Dippin' Dots, Inc., et al. v. Mosey, et al., 476 F.3d 1337 (Fed. Cir. 2007).\textsuperscript{768}

"comprising" — "including, but not limited to." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).\textsuperscript{769}

[i] "comprising"; [ii] "having" — [i] "When a patent claim uses the word 'comprising' as its transitional phrase, the use of 'comprising' creates a presumption that the body of the claim is open."; [ii] "The transition 'having' can also make a claim open. However, the term 'having' does not convey the open-ended meaning as strongly as 'comprising.' 'Having,' for instance, does not create a presumption that the body of the claim is open." Crystal Semiconductor Corp. v. Tritech Microelectronics International, Inc., 246 F.3d 1336 (Fed. Cir. 2001).\textsuperscript{770}

"the method comprising the computer-implemented steps of ..." — "adds a limitation to each element of the claims in which it appears in the preamble. 'Computer-implemented' will have its ordinary meaning, but will not be confined to the provider's computer." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007).\textsuperscript{771}

"... comprising the steps of ..." — "Since the claim is not foreclosed to additional steps, the steps themselves are not foreclosed from being carried out in a different order than stated in the claim." Lincoln National Life Insurance Co. v. Transamerica Financial Life Insurance Co., 2007 U.S. Dist. LEXIS 16822 (N.D. Ind., March 6, 2007).\textsuperscript{772}


[i] "computer"; [ii] "browser" — [i] "a device that processes data"; [ii] "a computer application for browsing a network, such as the internet." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009).\textsuperscript{774}

"computer"; "general purpose computer" — "a programmable machine that is operable to conduct a wide variety of tasks using a variety of applications programs that can be accessed and operated. The term does not include a microprocessor or microcontroller that is operable to conduct only a single, specific task." Quantum World Corp. v. Atmel Corp., et al., 2009 U.S. Dist. LEXIS 7936 (E.D. Tex., Jan. 30, 2009).\textsuperscript{775}

"computer readable medium" — "a storage device." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009).\textsuperscript{776}

"computer"; "computer system" — "we agree [] that the '353 patent uses the terms 'computer' and 'computer system' as synonyms. Although we would typically be inclined to give meaning to the word 'system,' rather than regard it as surplusage, ... the patent in this case provides no indication that the two terms mean different things. Instead, the patent uses the term 'computer system' in the specification and the term 'computer' in the claims; nothing in the patent itself explicates their relationship or indicates any difference in meaning." Pickholtz v. Rainbow Technologies, Inc., et al., 284 F.3d 1365 (Fed. Cir. 2002).\textsuperscript{777}


"computer" — "the Court construes 'computer' and 'attraction computer' as 'a computer system including a processing unit, random-access memory, disk storage, input and output devices, applicable wireless communication hardware and software, which may be implemented as: (1) a distinct processor or processing node within a computer system or group of computers; or (2) a separate computer physically disposed at or near its associated attraction.'" PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).780

"computer" — "either the external operation panel or the remote diagnostic station." Ricoh Corp., et al. v. Pitney Bowes, Inc., 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006).781


"computer" — "as used in claim 1, does not include peripherals." Pickholtz v. Rainbow Technologies, Inc., et al., 2000 U.S. Dist. LEXIS 21945 (N.D. Cal., Apr. 28, 2000).784


"a computer-aided design process for designing" — "a process that uses a computer to direct and control the design of an ASIC chip." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005).786


"user initiable computer ... being programmed to vary the temperature of said heating and cooling system and thereby to vary the temperature of said plurality of chambers in accordance with said polymerase chain reaction protocol upon initiation by a user" — "is not in means-plus-function form." Applera Corp., et al. v. MJ Research Inc., et al., 292 F. Supp. 2d 348 (D. Conn. 2003).788

"computer code that receives a first set of signals ..."; "computer code that performs a comparison ..."; "computer code that generates a base call ..." — "the Court finds that § 112, P 6 does not apply to the terms recited in the form, 'computer code that [performs x function]." Affymetrix, Inc. v. Hyseq, Inc., 132 F. Supp. 2d 1212 (N.D. Cal. 2001).789

"computer displaying, in response to the scanner sensing a document, a plurality of user-selectable options for processing image data from said scanner" — "A reference to a 'computer' provides no basis to distinguish the structure from any other general purpose computer; thus, 'computer' does not adequately describe a specific structure. ... Accordingly, these claims must be construed as means-plus-function claims." Soque Holdings (Bermuda) Ltd. v. KeyScan, Inc., 2010 U.S. Dist. LEXIS 60501 (N.D. Cal., Jun. 4, 2010). 791

"computer-implemented method" — "a method where the steps are performed using a computer." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009). 792


"computer network"; "multinode computer network" — "a system of two or more interconnected computers; the computers are 'interconnected' if the computers are able to exchange information." Brooktrout, Inc. v. Eicon Networks Corp., et al., 2004 U.S. Dist. LEXIS 31054 (E.D. Tex., Jul. 27, 2004). 797

"computer software" — "While 'software' in the abstract might consist of only one instruction, the Court's obligation is to interpret terms in the claims of the patent as they are used in the patent, and not in the abstract. The expressed purpose of the '353 is to prevent the unauthorized use of computer software, that is, software that would require protection. As plaintiff conceded at the claim construction hearing, there is little practical value to protecting single instruction software." Pickholtz v. Rainbow Technologies, Inc., et al., 2000 U.S. Dist. LEXIS 21945 (N.D. Cal., Apr. 28, 2000). 798

"computer system" — "a system that includes at least one computer and that may contain a number of computers coupled in a network. Even where a computer system contains only one computer, that computer must be able to communicate via email or a modem connection or another communication channel to allow remote monitoring." Sun Microsystems Inc v. Network Appliance, 2009 U.S. Dist. LEXIS 48209 (N.D. Cal., May 29, 2009). 799

"computer system" — "an information handling system which can be designed to give independent computing power to one user or a plurality of users." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 800

"computer system" — "one or more general purpose computing devices performing server and/or client functions, including a storage medium." Individual Network, LLC v. Apple, Inc., 2009 U.S. Dist. LEXIS 1645 (E.D. Tex., Jan. 12, 2009). 802

"computer usable medium" — "a tangible medium, such as a computer readable media (for example, diskette, CD-ROM, ROM, or fixed disk) or a medium for transmission to a computer system via a modem or other interface device using communications lines (for example, optical or analog communication lines) or wireless techniques (for example, microwave, infrared or other transmission techniques)." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004). 803


"concurrent processing" — "processing two or more calls at the same time or in parallel (simultaneously)." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003). 808

"concurrently" — "refers to a mode of operation wherein control of the CPU is alternated among executing threads of the same program at so rapid a rate that the multiple threads of execution appear to be executing simultaneously to the computer user." Reiffin v. Microsoft Corp., 2002 U.S. Dist. LEXIS 21690 (N.D. Cal., Apr. 30, 2002). 809


"concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes" — "the independent performance of two or more specific portions of the invoked routines wherein at least one part of the two portions are run in an overlapping fashion." Gobeli Research, Ltd. v. Apple Computer Inc., et al., 384 F. Supp. 2d 1016 (E.D. Tex., Aug. 26, 2005). 811
"said processing being performed by said page server while said web server concurrently processes said other requests" — "said processing being performed by said page server while said Web server processes said other requests at the same time." EpicRealm, Licensing, LLC v. AutoFlex Leasing, Inc., et al., Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Aug. 15, 2006).813 "The Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court." Id., Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Oct. 30, 2006).814

"concurrently with at least one of the data unit transfers in said step of sequentially transferring" — "while at least one of the data units is moving from the secondary memory to the bus master." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).815

"condition proportional" — "mean[s] that the sensor must sense a condition that has some fixed relationship with the LEDs' light output, but would not understand the phrase to require a certain location for the sensor." Relume Corp. v. Dialight Corp., et al., 63 F. Supp. 2d 788 (E.D. Mich. 1999).816

"conditional analysis" — "a determination that generates a first result based on a first condition or data, and a second result based on a different condition or data." Verizon Services Corp., et al. v. Vonage Holdings Corp., et al., 503 F.3d 1295 (Fed. Cir. 2007).817

"conditionally interfacing" — "connecting a call to the selected format once any conditions associated with that format have been satisfied." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).818

"conditioning the signal for transmission to a remote receiver" — "converting the signal into a radio frequency (RF) signal to be transmitted to a remote receiver." MHL TEK, LLC v. Nissan Motor Co., et al., 2009 U.S. Dist. LEXIS 77578 (E.D. Tex., Aug. 28, 2009).819

"conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame" — "controlling a first frame synchronizing process that utilizes a corrected phase course of a detected frequency correction burst to identify a range within which the beginning of a frame falls." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).820

"conducting a coarse frequency synchronization" — "having detected a carrier frequency, controlling a process to bring the mobile station's frequency into approximate step with the base station frequency, such as by tuning to a carrier frequency." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).821

"conducting a fine frame synchronization over said plurality of time slots which comprise a frame" — "controlling a second frame synchronizing process that achieves bit-precision frame synchronization by recognizing and evaluating the training sequence within the synchronization burst." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).822
"conducting a fine frame synchronization with fine frequency synchronization" — "controlling a process to monitor and maintain the frame timing in step between the mobile station and neighboring base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the neighboring base station, by producing frame shift and frequency correction parameters when crossing a cell boundary." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).823

"conducting a fine frequency synchronization" — "controlling a second frequency synchronizing process to bring the oscillator frequency of the mobile telephone more precisely into step with the frequency of the base station, within a desired operating accuracy." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).824

"conducting a frame synchronization with fine frequency synchronization" — "controlling a process to monitor and maintain the frame timing in step between the mobile station and base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the base station, by producing frame shift and frequency correction parameters." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).825

"conducting an initial synchronization by means of a frequency correction burst" — "controlling a process to achieve an initial synchronized connection between a mobile station and a base station through use of one or more frequency correction bursts and a synchronization burst." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).826

"conductive" — "capable of allowing a direct current or an alternating current of electricity to pass through it." MHL TEK, LLC v. Nissan Motor Co., et al., 2009 U.S. Dist. LEXIS 77578 (E.D. Tex., Aug. 28, 2009).827

"conductive connection means communicatively connected to said gel layer" — "a conductive lead or leads that are configured to enable electrical connection to the gel layer." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).828


"a plurality of conductive lines having inherent distributed capacitance" — "'conductive lines' refers not only to x-lines, but also to other lines that conduct current." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).830

"conductive liquid-like medium" — "a medium sufficiently conductive to perform its function as a variable capacitor plate." Ekchian v. Home Depot, Inc., et al., 104 F.3d 1299 (Fed. Cir. 1997).831

"conductive shield [of a coaxial cable]" — "outer conductor that reduces the effect of external electrical interference on the voltage varying electrical signal transmitted on the center conductor." Monster Cable Products, Inc. v. Quest Group, 2005 U.S. Dist. LEXIS 4213 (N.D. Cal., Mar. 17, 2005). \n
"conductive wire portion of which contacts said gel layer" — "the conductive wire portion of the insulated wire that is in contact with the gel layer." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006). \n
"conductor" — "one or more conducting media." Travanti Pharma, Inc. v. Iomed, Inc., 2006 U.S. Dist. LEXIS 2646 (D. Minn., Jan. 11, 2006). \n
"conductor" — "those portions of the [lead frame] assembly that extend from inside the package to the outside, and connect the semiconductor device to an external circuit." Texas Instruments, Inc. v. Cypress Semiconductor Corp., et al., 1995 U.S. Dist. LEXIS 20328 (N.D. Tex., Aug. 28, 1995). \n
"conference controller"; "through a conference controller" — "a component that initiates, enables and/or establishes a conference call"; "the data packet transmissions of the IP data session pass through the conference controller." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007). \n
"conferencing control" — "hardware and/or software at each workstation which is used to initiate and facilitate videoconferencing, data conferencing, and other collaborative sessions" Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006). \n
"wherein the interface device is configured by the processor and memory to include a first command interpreter and a second command interpreter" — "the processor of the interface device runs a program from its memory to determine the data transfer parameters of the interface device for the first and second command interpreters." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009). \n
"configuration table" — "a structure organizing data that governs the interactions between logical units and host computing systems." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). \n
"interacting with a graphical user interface to configure said imaging system" — "interacting with a graphical user interface to control the association with a first remote device." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).
"the second end configured for electrical interconnection to a defibrillator" — "the plain language of the claim merely requires that the second end of the insulated lead wire allows for electrical interconnection to the defibrillator."  Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006). 846


"configured to operate in either the presence or absence of a bandwidth encompassing modem signal" — "no further construction of this claim language is necessary."  Kernius v. International Electronics, Inc., et al., 2007 U.S. Dist. LEXIS 24874 (D. Md., March 30, 2007). 848

"configured to supply service channel optical signals" — "programmed to supply service channel optical signals."  Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006) 849


"to thereby confirm that said hardware key is connected to said subscriber client computer" — "to verify after initial authentication, but before session termination, that the hardware key remains connected to the subscriber client computer."  Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007). 852


"connected" — "electrically connected, directly or indirectly."  SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010). 856

"connected" — "in communication with, inserted in, or attached to."  Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007). 857


"connected" — "joined or linked with the capacity of transferring data."  ACTV, Inc., et al. v. Walt Disney Co., et al., 204 F. Supp. 2d 650 (S.D.N.Y. 2002). 859


"connected between transmit and receiver antenna means common to all of the channels" — "each transceiver is connected to a common receiver and transmit antennae." *MLMC, Ltd. v. Airtouch Communications, Inc., et al.*, 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001). ⁸⁶²

"connected directly" — "means a connection between two points that is unimpaired by an outside electrical force and uncompromised by any intervening physical structures other than a structure that connects the two points." *Quality Semiconductor, Inc. v. Pericom Semiconductor, Inc.*, 1998 U.S. Dist. LEXIS 22633 (N.D. Cal., Feb. 27, 1998). ⁸⁶³

"electrically connected directly between said busses" — "The bus and the capacitor are connected without any intervening active devices, such as transistors." *Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd, et al.*, 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009). ⁸⁶⁴

"connected to" — "having a link to ... to send or receive data." *Soverain Software LLC v. Amazon.com, Inc.*, 2005 U.S. Dist. LEXIS 46872 (E.D. Tex., Apr. 7, 2005). ⁸⁶⁵

"connected to" — "the district court erred in construing the claim limitation 'connected to' as requiring two physically separate circuits that are electrically connected, thereby precluding a software-only implementation of the PID filter." *Animatics Corp. v. Quicksilver Controls, Inc., et al.*, 102 Fed. Appx. 659 (Fed. Cir., Jun. 8, 2004). ⁸⁶⁶

"connected to" — "connected without interposition of additional circuit elements, such as inductors, capacitors, or resistors." *Pulse Engineering, Inc. v. Mascon, Inc.*, 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009). ⁸⁶⁷


"first and second receiving circuits connected to and energized by, respectively, the first and second feed circuits" — "The first receiving circuit is connected to and receives electricity or is capable of receiving electricity from the first feed circuit and the second receiving circuit is connected to and receives electricity or is capable of receiving electricity from the second feed circuit." *Hewlett-Packard Co., et al. v. EMC Corp.*, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). ⁸⁶⁹

"source electrode means connected to said source regions" — "does not require or preclude any particular structure for 'connecting' the source electrode to the annular source." *International Rectifier Corp. v. IXYS Corp.*, 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001). ⁸⁷⁰
"connecting each of said second gate electrodes to an individual adjacent first gate electrode to form a composite electrode for a charge coupled element" — "this limitation describes a process step which connects each second gate electrode to one, but not both, adjacent first gate electrodes." Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al., 906 F. Supp. 798 (E.D.N.Y. 1995).871


"connecting device" — "a network connection, such as the Internet, used for transferring data between computers." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 421 F. Supp. 2d 371 (D. Mass. 2006).873

"connecting to the network"; "providing to the user a connection to the network." — "establishing the ability to communicate with the network." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).874

"connecting together the circles of adjacent families of circles having an identical index to form isoloops" — "selecting circles that have been assigned identical indexes and connecting those circles to form sets of loops consisting of pieces of the original circles and curves or lines joining those pieces." Surfware, Inc. v. Celeritive Technologies, Inc., et al., 2009 U.S. Dist. LEXIS 51620 (C.D. Cal., Jun. 3, 2009).875

"connectionless communications network" — "a network in which data packets are routed through devices independently, based on a destination address for the packet." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).876

"one or more connections for coupling to transmission media" — "at least one point of connection to a transmission media such as the PSTN that is different from the 'one or more connections for coupling to a telephony server and a local area network.'" Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).877

"connections over the telephone network" — "communications to a single intended recipient over the telephone network." USA Video Technology Corp. v. Time Warner Cable, Inc., et al., 2007 U.S. Dist. LEXIS 92578 (E.D. Tex., Dec. 12, 2007).878

"connections through the Internet" — "connection through an electronic communications network, known as the Internet, that further connects computer networks and organizational computer facilities around the world." Windy City Innovations, LLC v. America Online, Inc., 2005 U.S. Dist. LEXIS 15688 (N.D. Ill., July 29, 2005).879


"consisting essentially of" — "the invention necessarily includes the listed claim elements but is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention." Digital Angel Corp. v. Datamars, Inc., et al., 2006 U.S. Dist. LEXIS 32260 (D. Minn., May 22, 2006).881
"supports consisting essentially of electrically conductive interconnects" — "the court finds that this term does not need to be construed." Raytheon Co. v. Indigo Systems Corp., 2010 U.S. Dist. LEXIS 3530 (E.D. Tex., Jan. 18, 2010). 882

"consisting of a steady-state component and a transient component subsequent to said arbitrary time" — "consisting of, after the arbitrary time, a component in which one or more characteristics exhibit only negligible change over time (i.e., a steady state component) and a variable component that diminishes over a relatively short period of time (i.e., a transient component)." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 883


"incrementing the count in the accumulator by a constant" — "encompass[es] a constant whose range is typically between 0 and 1000." Lucent Technologies, Inc. v. Newbridge Networks Corp., et al., 168 F. Supp. 2d 181 (D. Del. 2001). 885

"constant current" — "an exact, non-absolute numerically valued current, precisely metered through each transistor to operate the op-amps, and not required to be situated between the first power supply circuit and the power supply." Fiori v. Rockford Corp., 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006). 886

"constant electromagnetic signal with time"; "constant electromagnetic calibration signal with time" — "are uninterrupted signals over time. This necessarily excludes signals that are pulsed or on-off keyed." Digital Control Incorporated, et al. v. Charles Machine Works, 2003 U.S. Dist. LEXIS 27828 (W.D. Wash., Dec. 11, 2003). 887

"constant value" — "a value that does not change." PACid Group, LLC v. Apple, Inc., et al., 2010 U.S. Dist. LEXIS 70997 (E.D. Tex., Jul. 15, 2010). 888

"power or power-spectral-density constraint" — "an absolute limit in the transmitter power or a limit in maximum transmit power allowed at particular frequencies." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 889

"constructing a data representation of a lifetime of the telephone call using data regarding telephony events associated with the telephone call segments of the telephone call" — "does not require construction. The Court's construction of 'data representation of a lifetime of the telephone call,' in particular, obviates the need to further construe the disputed language." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007). 890


"consumable participation key" — "a number or word that allows a caller access to a service or part of a service a predefined limited number of times and which cannot be refreshed or recharged." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999). 892

"consumer" — "a person or entity that acquires goods or services for direct use or ownership rather than for resale or use in production and manufacturing." Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006). 893


"contact layer" — "the semiconductor material between the metal contacts and the voltage sustaining layer that is designed to perform two contacting functions: (a) permit ohmic contacts to be formed at the terminals (e.g., the source or emitter contacts) and (b) provide a connection between the metal contacts and the voltage sustaining layer such that the reverse voltage across the device terminals is sustained primarily across the voltage sustaining layer." Power Mosfet Technologies, L.L.C. v. Siemens AG, et al., 2001 U.S. Dist. LEXIS 25828 (E.D. Tex., Jan. 31, 2001). 896

[i] "contact region"; [ii] "semiconductor body"; [iii] "opening" — [i] "an electrically conducting space or area to which another electrical conductor may be connected so as to allow current to pass"; [ii] "any semiconductor material"; [iii] "a hole, void, or open space." Agere Systems Inc. v. Atmel Corp., 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003). 897

"contacting" — "[should] be defined in terms of its relationship with the term 'contact layer' as 'permitting or enabling contact.' Thus, 'contacting' is not limited to physical contact and can also include electrical contact." Power Mosfet Technologies, L.L.C. v. Siemens AG, et al., 2001 U.S. Dist. LEXIS 25828 (E.D. Tex., Jan. 31, 2001). 898


"a hard disk drive contained within said hand-held housing" — "this phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006). 900


"contains" — "describes a product in which the FM transmitter and the power supply/charging assembly are 'enclosed,' 'bound,' or 'kept within' the same housing unit." Netalog, Inc. v. Griffin Technology, Inc., 2006 U.S. Dist. LEXIS 39089 (M.D.N.C., June 12, 2006). 902

"content" — "any form of digital data stream that may be supplied or sent to a computing system such as a personal computer." CA, Inc. v. Simple.com, Inc., et al., 2009 U.S. Dist. LEXIS 25241 (E.D.N.Y., Mar. 5, 2009). 903


"content of information" — "information in a data source such as data values and information about structure." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006). 905
"content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source" — "data that describes the significant characteristics of a data source, indicating the degree to which predetermined characteristics are contained in the data from the data source." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).906


"context" — "information already existing within the system that becomes relevant upon the occurrence of an event." SFA Systems, LLC v. Infor Global Solutions (Michigan), Inc., et al., 2009 U.S. Dist. LEXIS 13705 (E.D. Tex., Feb. 23, 2009).908

"context free processor element" — "a processor element that retains no execution state information from prior operations." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).909

"contiguous" — "immediately preceding or following in time and sequence." Negotiated Data Solutions, LLC v. Dell, Inc., 596 F. Supp. 2d 949 (E.D. Tex. 2009).910

"continually detecting the instantaneous flow rate" — "without interruption, creating a signal corresponding to the flow rate at a particular point of time." Respironics, Inc. v. Invacare Corp., 2006 U.S. Dist. LEXIS 62233 (W.D. Pa., Aug. 30, 2006).911

"said lattice being continuous and uninterrupted" — "means that it is possible to travel from any point to any other point within the claimed lattice (the semiconductor material between the bases of the first conductivity type) while staying within the lattice." International Rectifier Corp. v. IXYS Corp., 2002 U.S. Dist. LEXIS 27248 (C.D. Cal., Mar. 5, 2002).912


"continuously" — "means that the tonal frequency changes constantly as the quantity being measured changes." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).914


"coupled for continuously providing" — "continuously connected such that the first user can update the web site as new information becomes available." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).916

"continuously updating" — "bringing up to date as new information becomes available." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).917

"control" — "direct, guide or manage the transfer or delivery of electronic data." Network Commerce, Inc. v. Microsoft Corp., 260 F. Supp. 2d 1034 (W.D. Wash. 2002).918


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"control apparatus" — "The phrase 'control apparatus' in the preamble merely gives a descriptive name to the set of limitations in the body of the claim that completely set forth the invention. Its use does not limit the claims, as Haas contends, to a control apparatus that is separate from the machine tool." IMS Technology, Inc. v. Haas Automation, Inc., et al., 206 F.3d 1422 (Fed. Cir. 2000).921


"control circuit" — "an electronic circuit that is located outside of the main case and that receives system control signals from the computing device and generates logical control signals for the image sensing module and motion mechanism." Plustek, Inc. v. Syscan, Inc., et al., 2009 U.S. Dist. LEXIS 122777 (N.D. Cal., Dec. 21, 2009).923


"control circuitry determining when the power MOSFET switches are turned on and off in a switching cycle at a switching frequency" — "is not a means-plus-function limitation governed by 35 U.S.C. § 112 P 6." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010).926

"control commands" — "commands that control the system." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).927


"at least one control key for initiating the predetermined operations relating to said digital camera memory module" — "the terms are readily understandable and the court concludes that this phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).929

"control input" — "an I/O port of a computer, where the instruction initiating the control of that computer is input." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001).930

"control means" — "The 'control means' element ... is not governed by Section 112, paragraph 6." Gross International Americas, Inc. v. K&M Newspaper Services, Inc., 469 F. Supp. 2d 547 (N.D. Ill. 2006).931


"control means for automatically operating said valves" — "a bare statement that known techniques or methods can be used does not disclose structure. ... the judgment of the district court holding claims 13-17 and 40 of the '502 patent as invalid for indefiniteness is AFFIRMED." Biomedino, LLC v. Waters Technologies Corp., et al., 490 F.3d 946 (Fed. Cir. 2007).  

"control message" — "information that is intended to reconfigure or manage characteristics of a receiving unit, and does not include a subchannel identifying byte." Sutton Ltd. v. Nokia Corp., et al., 2009 U.S. Dist. LEXIS 69735 (E.D. Tex., Aug. 10, 2009).  

"a control module arranged to control deployment of said occupant restraint device" — "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device, and if deployed, how to adjust the manner in which the occupant restraint device is deployed." Automotive Technologies International, Inc. v. Delphi Corp., 2009 U.S. Dist. LEXIS 83187 (E.D. Mich., Sep. 11, 2009).  

"control object" — "a collection of data and operations that receives commands from a user that control the flow of broadcast data." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).  


"control program" — "a program within the operating system that controls the execution of other system resources." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004).  


"control store" — "A 'control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node." Southwestern Bell Telephone, L.P., et al. v. Arthur Collins, Inc., 454 F. Supp. 2d 600 (E.D. Tex. 2006).943

"control trading"; "control subsequent trading" — "to exercise authority to hold up a trade for as long as a participant continues to respond to its contra-party's size offerings." eSpeed, Inc., et al. v. BrokerTec USA, L.L.C., et al., 2004 U.S. Dist. LEXIS 20589 (D. Del., Sept. 9, 2004).944

"control unit" — "a combination comprising a CPU and a partitioned memory system capable of controlling the communication unit." LG Electronics, Inc., et al. v. Bizcom Electronics, Inc., et al., 453 F.3d 1364 (Fed. Cir. 2006).945

"controllably conductive device for adjusting the status of said electrical device" — "a controllably conductive device for altering the condition of the electrical device (such as, the on/off state or intensity level of the electrical device)." Lutron Electronics Co., Inc. v. Control4 Corp., 2009 U.S. Dist. LEXIS 3562 (D. Utah, Jan. 20, 2009).946

"controller" — "a device that actuates and/or directs the operation of other components, or is capable of making decisions with respect to the operation or actuation of those components, including being operable to selectively delay execution of the door operation commands." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009).947


"controller" — "a device that interfaces between a host and nonvolatile memory; ... a device that interfaces between a host and flash memory; ... a device that interfaces between a host and nonvolatile memory." Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005).949


"controller" — "a device that interfaces between a host and nonvolatile memory." Lexar Media, Inc. v. Fuji Photo Film USA, Inc., 2007 U.S. Dist. LEXIS 19983 (N.D. Cal., Mar. 1, 2007).951

"controller" — "The claim language does not merely describe a controller, but adds further structure by describing the operation of the controller. ... Accordingly, the description of the operation of a controller is sufficient to avoid section 112 P 6." 911EP v. Whelen Engineering Co., Inc., et al., 2007 U.S. Dist. LEXIS 20779 (E.D. Tex., March 23, 2007).952
"controller" — "while the patentee did not modify the term controller with the word single, the specification indicates that a single control system regulates the entire process." AutoMed Technologies, Inc. v. Microfil, LLC, et al., 2005 U.S. Dist. LEXIS 26032 (N.D. Ill., Oct. 26, 2005).953 "[W]hile we affirm the district court's initial construction of 'controller' to mean a 'single control system that regulates the entire process,' we clarify that the controller need not be limited to a single device, nor to any particular hardware or software." Id., 2007 U.S. App. LEXIS 16956 (Fed. Cir., July 16, 2007) (unpublished).954

"controller" — "something other than a general purpose CPU." Orenshteyn v. Citrix Systems, Inc., 265 F. Supp. 2d 1323 (S.D. Fla. 2003).955 "We agree with Orenshteyn that Citrix is not entitled to summary judgment of noninfringement of claim 1. The district court granted Citrix's motion because the MetaFrame product uses a CPU, in contrast to its construction of the '942 patent as referring to something other than a CPU. However, as we shall demonstrate, claim 1 of the '942 patent covers products that employ a CPU, and the district court's grant of summary judgment of noninfringement was therefore erroneous." Id., 2009 U.S. App. LEXIS 16403 (Fed. Cir., Jul. 24, 2009) (unpublished).956


"power supply controller"; "system controller" — "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007).958


"controller adapted to provide selectively modulated illumination to the illuminated LEDs/light sources" — "controller adapted to provide illumination whose intensity is selectively varied to illuminate LEDs/light sources." 911EP v. Whelen Engineering Co., Inc., et al., 2007 U.S. Dist. LEXIS 20779 (E.D. Tex., March 23, 2007).960

"a controller computer" — "the computer programmed to perform certain functions in the Communication System. ... we decline to include a determination of whether the controller computer must perform the functions of 'connecting,' 'arbitrating,' and 'distributing' in the instant claim construction." Windy City Innovations, LLC v. America Online, Inc., 2005 U.S. Dist. LEXIS 15688 (N.D. Ill., July 29, 2005).961

"a controller, coupled to the visual display, for automatically determining when the terrain information is displayed on the visual display" — "is not a means-plus-function element under §112(6)." Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al., 264 F. Supp. 2d 135 (D. Del. 2003).962

"controlling a computer" — "taking over the functionality of the host computer that is responsive to an input device event received from a client computer." Accolade Systems LLC v. Citrix Systems, Inc., 634 F. Supp. 2d 738 (E.D. Tex. 2009).

"controlling the routing of the stream of packets" — "directing a portion of the routing path taken by the stream of packets from one of a group of intermediate computers located in a specific geographic area to the user." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).

"the network management system controlling when the video program is forwarded to the display unit for display" — "the network management system determines the specific time or times at which the video program is forwarded and displayed at the display unit of each of the receiving sites." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006).


"convergence criterion based upon a partition size" — "condition for terminating an iterative process based on the number of cells contained in a partition or the total area of cells in a partition." Synopsys, Inc. v. Magma Design Automation, Inc., 2005 U.S. Dist. LEXIS 46882 (N.D. Cal., Aug. 23, 2005).


"converter for converting ..." — "because the claim element 'converter for converting...' does not use the word 'means,' there is a rebuttable presumption that § 112, P 6 does not apply. The Court finds that the Defendants have not met their burden to rebut the presumption." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010).

"converter means for converting" — "any firmware, software, and/or hardware that functions to carry complimentary color control signals." Texas Digital Systems, Inc. v. Telegenix, Inc., 2000 U.S. Dist. LEXIS 18360 (N.D. Tex., Dec. 6, 2000).

"converting data relating to a selected matching item and an associated source to data relating to an item and a different source" — "substituting data relating to a selected matching item and an associated source to data relating to an item and a different source." ePlus, Inc. v. Lawson Software, Inc., et al., 2010 U.S. Dist. LEXIS 42609 (E.D. Va., Apr. 30, 2010).975

"converting said set of three dimensional coordinates into a set of two dimensional positions" — "mathematically converting the set of three-dimensional coordinates (x, y, z) into a set of two-dimensional positions. The two-dimensional positions have x and y coordinates." Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).976

"converts the access as required for the register set and address assignment of the device" — "converts the request for accessing the register set and address assignment of a UART to a request for accessing the register set and address assignment of the device." PCTEL, Inc. v. Agere Systems, Inc., et al., 2006 U.S. Dist. LEXIS 25943 (N.D. Cal., March 20, 2006).977


"cooperating with said first optical filter element so as to form a band-pass optical filtering system" — "mean[s] the cooperation of the two band-pass filters, neither of which is itself a narrow bandpass filter. The two filters, one of which transmits light of wavelengths just below and above a predetermined wavelength, the other transmitting light of wavelengths just above and below the predetermined wavelength, cooperate to form a narrow band-pass optical filter which does not exist before the cooperation between the two filters." Metrologic Instruments, Inc. v. PSC Inc., 2003 U.S. Dist. LEXIS 26636 (D.N.J., Aug. 26, 2003).979

"coordinate" — "to harmonize, work together, or bring into a common action, effort or condition." Network Commerce, Inc. v. Microsoft Corp., 260 F. Supp. 2d 1034 (W.D. Wash. 2002).980

"coordinate" — "The plain language of the claims precludes the possibility that a coordinate can be a scalar." Vehicle IP, LLC v. General Motors Corp., et al., 306 Fed. Appx. 574 (Fed. Cir., Jan. 6, 2009) (unpublished).981 "I [] agree with VIP that a coordinate can be anything that describes a particular point on a line, on a plane or surface, or in space. This includes a numeric value (a scalar) describing an offset to a fixed point along a known curve." Id. (Mayer, J., dissenting).982

"x,y coordinate"; "x,y coordinate location"; "x and y coordinate" — "one or more points that designates the position of a package where the picking means selects, grabs and replaces packages." McKesson Automation, Inc. v. Swisslog Holding AG, et al., 2009 U.S. Dist. LEXIS 103665 (D. Del., Oct. 30, 2009).983 "While construing 'x,y coordinate' in terms of where the picking means can access packages has intuitive appeal based on the claim language and the specification (which demonstrate a relationship between x,y coordinates and the automated picking means), Judge Stark's proposed construction goes one step further and associates the 'x,y coordinate' with the location of the packages themselves. The court declines to adopt this construction for several reasons." Id., 2010 U.S. Dist. LEXIS 48742 (D. Del., May 18, 2010).984

"workspace coordinate framework" — "a static or immovable coordinate system centered in the workspace that must be re-established if one or more of the cameras are moved." Medtronic Navigation, Inc., et al. v. Brainlab Medizinische Computersystems GmbH, et al., 2007 U.S. App. LEXIS 2521 (Fed. Cir. 2007) (unpublished).\(^{986}\)


"a copy key for initiating the copying of the contents of a memory of a digital camera containing picture image data previously captured by said digital camera from said memory of said digital camera to said mass storage device" — "an exclusive copy button used only for copying the contents of a memory of a digital camera containing picture image data previously captured by the digital camera to the mass storage device." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).\(^{988}\)

"core" — "a longitudinally-extending element that separates the transmission media." Belden Technologies Inc., et al. v. Superior Essex Communications LP, et al., 2010 U.S. Dist. LEXIS 86833 (D. Del., Aug. 24, 2010).\(^{989}\)


"correct level required to turn on a selected memory cell access transistor" — "the ordinary and plain meaning of the 'correct level' claim term is 'a voltage level sufficient to fully turn on a memory cell access transistor but not so high that it will damage the transistor.'" Mosaid Technologies, Inc. v. Samsung Electronics Co., Ltd., et al., 2004 U.S. Dist. LEXIS 27636 (D.N.J., Mar. 23, 2004).\(^{991}\)

[ii] "correlated"; [ii] "correlated noise" — [i] "means two items that have a tendency to vary together"; [ii] "noise with 'correlation' among 'signal samples,' such as that caused by coloring by front-end equalizers, media noise, media nonlinearities, and magnetoresistive (MR) head nonlinearities." Carnegie Mellon University v. Marvell Technology Group, Ltd., et al., 2010 U.S. Dist. LEXIS 104891 (W.D. Pa., Oct. 1, 2010).\(^{992}\)


"correlating said images such that changes in location of characteristics of said region within successive images are computationally recognized" — "further construction of this term is unnecessary." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006).\(^{994}\)

"correlating the electrooxidized electroactive reaction product to the concentration of glucose in the blood sample" — "using a relationship between the electrooxidized reaction product and the concentration of glucose in blood." Roche Diagnostics Operations, Inc., et al. v. Abbott Diabetes Care, et al., 2009 U.S. Dist. LEXIS 84423 (D. Del., Sep. 15, 2009).\(^{995}\)
[i] "correlation"; [ii] "correlation sensitive branch metrics"; [iii] "a correlation sensitive metric computation update circuit" — [i] "the degree to which two or more items (here, noise in signal samples) show a tendency to vary together"; [ii] "branch metrics' that account for 'correlation' in the signal samples by using multiple signal samples from different time instances and including at least one term in the branch metric calculation that involves multiplying signal samples from different time instances together"; [iii] "a circuit that recalculates 'correlation-sensitive branch metrics' using statistics from the 'noise statistics tracker circuit.'" Carnegie Mellon University v. Marvell Technology Group, Ltd., et al., 2010 U.S. Dist. LEXIS 104891 (W.D. Pa., Oct. 1, 2010).996

"correlation coefficient" — "a value representing or corresponding to the degree to which two variables are similar." IP Innovation, LLC, et al. v. Google, Inc., 2010 U.S. Dist. LEXIS 987 (E.D. Tex., Jan. 7, 2010).997

correlator" — "a device that measures the degree of similarity between the modulated data symbols and a code." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010).998

"displaying pixels which correspond to" — "we conclude, as did the district court, that 'correspond to' means that an illuminated image of the object or part thereof is displayed." Vivid Technologies, Inc. v. American Science & Engineering, Inc., 200 F.3d 795 (Fed. Cir. 1999).999

"so that the memory locations correspond to different points on the screen"; "into the memory at locations corresponding to the position of the light pen on the screen" — "The issue before us is one of claim construction—viz., whether the claims require a one-to-one correspondence between particular memory locations and particular points on the display. We conclude that they do not." In re Beasley, 1999 U.S. App. LEXIS 16695 (Fed. Cir., July 20, 1999) (unpublished).1000

"corresponding" — "a relationship is maintained between each full size image and the reduced size image generated from that full size image." Ampex Corp. v. Eastman Kodak Co., et al., 460 F. Supp. 2d 541 (D. Del. 2006).1001

"corresponding time signal" — "a signal indicating the time when the sense signal is received." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009).1002

"[information] corresponding to an alignment state" — "relating to the relative position of one layer on a semiconductor wafer as compared to another layer on the same wafer in a photolithography application." Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd, et al., 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009).1003

"corresponding voice message" — "the voice message received by the telephone answering device with the first signal." Klausner Technologies, Inc. v. Vonage Holdings Corp., et al., 2007 U.S. Dist. LEXIS 57604 (E.D. Tex., Aug. 7, 2007).1004

"coup message" — "communication sent from one router to notify the active router that the router sending the message wishes to become the active router." *Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc.*, 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).  

"coupled" — "is not limited to a mechanical or physical coupling." *Johnson Worldwide Associates, Inc. v. Zebco Corp., et al.*, 175 F.3d 985 (Fed. Cir. 1999).  


"coupled" — "associated in such a way that power or signal information may be transferred from one to another." *Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P.*, 326 F. Supp. 2d 1060 (C.D. Cal. 2003).  

"coupled" — "two circuits are coupled when they are connected such that voltage, current or control signals pass from one to another. ... the Court's construction ... should not be read to imply or necessitate a direct connection, as the Court does not read the patent to require a direct connection or to preclude the use of intermediate circuit elements." *Power Integrations, Inc. v. Fairchild Semiconductor International, Inc., et al.*, 422 F. Supp. 2d 446 (D. Del. 2006).  


"coupled" — "the transfer of energy over a conductive or dielectric medium, such as an optical waveguide or wire." *CIENA Corp., et al. v. Corvis Corp.*, 334 F. Supp. 2d 598 (D. Del. 2004).  

"coupled" — "The court finds no reason not to apply the ordinary meaning of the term 'couple,' and determines that the ordinary meaning in this context is 'coupled or connected, directly or indirectly.'" *Silicon Graphics, Inc. v. nVIDIA Corp.*, 58 F. Supp. 2d 331 (D. Del. 1999).  


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"coupled between" — "While the court cannot disagree with Hynix's tautological reasoning, Hynix has not provided any reason why its far more cumbersome construction would assist a jury perform its duties better than the simple term 'coupled between.' Accordingly, the court declines to construe this term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006). 1021

"a control coupled only to said preprogrammed memory for selectively communicating said preprogrammed memory to said electronic control module" — "a control coupled to the preprogrammed memory for the sole purpose of permitting the transfer of information from the preprogrammed memory to the electronic control module at different times and for different purposes." Adrain v. Superchips, Inc., 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006). 1022 "This term means that the external module includes a control circuit that is connected only to the preprogrammed memories and to nothing else. The control circuit is used to regulate or guide the operation of the vehicle. The control circuit regulates or guides the operation of the vehicle according to the additional program within the preprogrammed memory in lieu of, that is, instead of, the original program within the fixed system's memory." Adrain v. Hypertech, Inc., 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002). 1023


"coupled to" — "Any further construction at this point would be both unnecessary and unhelpful. The terms 'direct' and 'indirect' are themselves ambiguous. Thus, adopting one of the parties' constructions would only invite further debate at summary judgment regarding the meaning of those terms." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007). 1025

"coupled to" — "means an electrical communication between the two specified components, here being the memory portion and the logic portion of the integrated circuit." NeoMagic Corp. v. Trident Microsystems, Inc., 2003 U.S. Dist. LEXIS 8054 (D. Del., May 9, 2003). 1026

"coupled to" — "connected, not through an impedance matching network, but in a fashion that allows for the transfer of power." Applied Science and Technology, Inc. v. Advanced Energy Industries, Inc., 204 F. Supp. 2d 712 (D. Del. 2002). 1027

"coupled to" — "directly connected to or attached to." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2004 U.S. Dist. LEXIS 13415 (C.D. Cal., Jul. 12, 2004). 1028

"a drain electrode coupled to said drain conductive region" — "This 'coupling' is properly construed to indicate device current flowing through both the drain conductive region and the electrode." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001). 1029

"a data bus coupled to the computer system and the unit for transferring unit data information" — "a communications pathway connecting the computer system to one or more units that allows for the transfer of address, control and data information between the computer system and each of the units." Keystone Autonics, Inc. v. Sirius Satellite Radio Inc., et al., 2009 U.S. Dist. LEXIS 3195 (E.D. Tex., Jan. 16, 2009).1031

"a device coupled to the local bus" — "device directly connected to the local bus." PCTEL, Inc. v. Agere Systems, Inc., et al., 2006 U.S. Dist. LEXIS 25943 (N.D. Cal., March 20, 2006).1032

"coupled to receive" — "capable of receiving." In re Translogic Technology, Inc., 504 F.3d 1249 (Fed. Cir. 2007).1033

"coupling"; "coupled" — "refer[] to the direct connection of two or more circuits or systems in such a way that power or signal information may be transferred from one to the other." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).1034


"logic gates with a voltage supply having a coupling to said underlying substrate regions determined by a voltage of said underlying substrate regions" — "'coupling' requires a voltage potential in the substrate that is different than the voltage potential in the logic gates." NeoMagic Corp. v. Trident Microsystems, Inc., 98 F. Supp. 2d 538 (D. Del. 2000).1036 "We agree, and hold that, consistent with the specification, the term coupling requires that the voltage applied to the substrate be different from that applied to the logic circuit." Id., 287 F.3d 1062 (Fed. Cir. 2002).1037

[i] "covariance"; [ii] "covariance matrices"; [iii] "noise covariance matrices" — [i] "the expected (mean) value of the product of (r_i-m_i) and (r_j-m_j), where r_i and r_j are observed signal samples (at time i and j, respectively) and m_i and m_j are the expected (mean) values of the samples (at time i and j, respectively) (i.e., E[(r_i-m_i)(r_j-m_j)]); [ii] "arrays of covariance of pairs of signal samples, e.g.: [cov(r_{i+1},r_i) cov(r_{i+1},r_{i+1})]"; [iii] "covariance matrices of signal samples (where the signal samples include noise)." Carnegie Mellon University v. Marvell Technology Group, Ltd., et al., 2010 U.S. Dist. LEXIS 104891 (W.D. Pa., Oct. 1, 2010).1038


"creating a circle" — "involves not just 'calculating values that define' a circle, but specifying that those values comprise a circle, as opposed to some other figure." Surfware, Inc. v. Celeritive Technologies, Inc., et al., 2009 U.S. Dist. LEXIS 51620 (C.D. Cal., Jun. 3, 2009).1040

"creating a family of concentric indexed circles at each of two or more separate and distinct selected points within the region" — "practicing the step of selecting two or more centers, bringing into existence multiple circles that have the same center but where the circles are located at different distances from the center, and assigning each circle a number, or index." Surfware, Inc. v. Celeritive Technologies, Inc., et al., 2009 U.S. Dist. LEXIS 21913 (C.D. Cal., Mar. 9, 2009).1041
"creating an error detection code (EDC1) by coding" — "creating an error detection code (EDC1) by applying an algorithm to information in such a manner as to permit detection of changes but without complete recovery of the original information." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003).1042

"creating the instrument face with functional indicia thereon in the computer in electronic format" — "this court construes 'creating' to require more than simply using the computer as a conduit to convey information to the printer from a scanner or a CD ROM. Creating requires, rather, a substantive addition or modification of the artwork in the computer, such as when graphics software adds a design to an instrument face." Trintec Industries, Inc. v. Top-U.S.A. Corp., 295 F.3d 1292 (Fed. Cir. 2002).1043

"credential" — "a document or information obtained from a trusted source that is transferred or presented to establish the identity of a party." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003).1044 "This is one of those instances in which the interests of comity yield to this Court's view of its independent obligation to give the correct meaning to claim terms. The Court construes the term to mean, 'a document or information obtained from a trusted source that is transferred or presented for purposes of determining the identity of a party.'" Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).1045

"credit" — "includes advanced credit as well as prepaid credit." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001).1046

"credit account" — "an account that allows a customer to buy goods or services without cash and pay the issuer of the account at a later date." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010).1047


"credit rate"; "credit value" — "a rate used along with a purchase amount to determine a credit value"; "a value determined in connection with point-of-sale transactions." Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006).1049

"cross-reference table" — "a table that links vendors items determined to be equivalent between two of more different vendors." ePlus, Inc. v. Lawson Software, Inc., et al., 2010 U.S. Dist. LEXIS 42609 (E.D. Va., Apr. 30, 2010).1050


"cryptographic operation"; "cryptographic processing operation"; "cryptographic processing"; "cryptographically processed" — "an operation within a class of techniques or algorithms used to secure data and avoid digital identity misrepresentations." Cryptography Research, Inc. v. Visa International Service Association, et al., 2006 U.S. Dist. LEXIS 79026 (N.D. Cal., Oct. 19, 2006).

[i] "cue"; [ii] "select code" — [i] "the listing in memory of the various programmed entries made by the viewer, wherein each select code is stored along with its corresponding channel code and display code"; [ii] "the channel designation chosen by the viewer for subsequent use in selecting a particular channel." Beery v. Thomson Consumer Électronics, Inc., et al., 2004 U.S. Dist. LEXIS 17173 (S.D. Ohio, Aug. 18, 2004).

"cumulative index of revisions" — "the list of all changes made to publications since the first change." Aircraft Technical Publishers vs. Avantext, Inc., 2009 U.S. Dist. LEXIS 105623 (N.D. Cal., Nov. 10, 2009).

"current bandwidth metric" — "the present calculation of a moving average of bandwidth over a predetermined time period." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).


"current website visit" — "a visit to a website in which the website cookie is not expired." Websidestory, Inc. v. Netratings, Inc., 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007).

"a storage device customary in a host device" — "a storage device that was normally present within the chassis of most commercially available computers at the time of the invention." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).


"customer" — "Although we agree with the district court that the Ross invention does not concern itself with whether the 'customer' reads the book or obtains it for resale, the focus of the Ross patent is immediate single-copy printing and binding initiated by the customer and conducted at the customer's site. The district court's definition of 'customer' cannot eliminate these constraints in order to embrace the remote large-scale production of books for publishers and retailers." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 442 F.3d 1331 (Fed. Cir. 2006).

"entering a customer authorization code for authorizing access to a customer data base of a host data processor" — "a series of numbers and/or letters, or a combination thereof, which may be entered via the keypad by the customer or may be on the card itself, for authorizing access to a customer data base of a host data processor." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010).


"customer profile for each eligible recipient of said data, said customer profile indicating the customer's preferences for data having predetermined characteristics" — "The court construes customer profile as 'a set of information related to a specific customer that describes significant characteristics of the customer'; indicating the customer's preferences for data having predetermined characteristics as 'the customer profile points out or shows indirectly the customer's preferences for certain kinds of information or items of interest'; and predetermined as 'the characteristics are established before the system practices the method claimed.'" Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).

"customer specified credit parameter"; "customer-selected account parameter" — "a term of a credit account that is chosen by a customer." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010).
"customer terminal means" — "either a standard landline telephone unit, which has a standard commercial handset, a touchtone pad, a display unit and an audio unit, and which may have a cordless handset, or [] an interactive hookup with a touchtone telephone and a cable TV system to selectively display the requested catalog data and menu on a particular TV channel."


"The district court identified two means disclosed in the specification for performing the claimed function: a 'standard landline telephone unit' and a 'touchtone telephone' connected to a television for displaying catalog data. Furnace Brook asserts that the district court ignored as a disclosed means a device communicating over an 'online interactive communications network' (shown in figure 4 of the patent), which Furnace Brook defines as a device in 'connection to, or communication with, a computer.' The label 'online interactive communications network,' however, identifies no specific structure for performing the claimed function; it describes only a generic class of structures and was thus properly ignored."

"Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007)."

"customized proposal" — "for the reasons given in its Staples opinion, the Court construes 'proposal' as 'information intended for conveyance to a potential customer,' and 'customized proposal' does not require further construction."

"Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007)."

"customized software" — "executable software, delivered to and running on the client machine, which provides device-appropriate user interface and control operations."


"customized to characteristics of the device" — "the bytecode instructions are specifically customized or tailored to the characteristics of the device."


"cut-on filter" — "an optical filter that substantially blocks all wavelengths shorter than the cut-on wavelength and substantially transmits all wavelengths that are longer than the cut-on wavelength. The cut-on wavelength is that wavelength in the transition zone at which the transmission is 1%."


"cyclic redundancy checker" — "hardware, commonly available in June 1994, that performs the division of a CRC generator binary polynomial into a 16,000-bit EDC code word to produce a CRC remainder."

"Oak Technology, Inc. v. International Trade Commission, et al., 248 F.3d 1316 (Fed. Cir. 2001)."

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"2D documentation package" — "software that operates on a two dimensional representation of a 3D object, and may support dimensioning, text, and other annotation features."

"Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004)."
"2D representation" — "the 2D geometric data that are projections of one or more features of a 3D model onto a viewing plane." *Hewlett-Packard Co. v. Intergraph Corp.*, 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).


"DS0 connection" — "a channel over which DS0 communication signals (a term of art meaning Digital Signal Level 0) are transmitted or received." *Sprint Communications Co. L.P. v. Big River Telephone Co., LLC*, 2009 U.S. Dist. LEXIS 58161 (D. Kan., Jul. 8, 2009).


"data acquisition unit" — "a structure or set of structures that includes at least the electronic positioning device and the physiological monitor." *Paragon Solutions, LLC v. Timex Corp.*, 566 F.3d 1075 (Fed. Cir. 2009).

"data being unrecognizable to the player" — "the player is not able to recognize from the data whether the player wins or loses the lottery game and amusement game." *Ingenio, Filiale de Loto-Quebec, Inc. v. GameLogic, Inc.*, 445 F. Supp. 2d 443 (D. Del., July 21, 2006).

"data block" — "a computer data structure containing the information needed by a machine tool to perform a single machining operation. As properly construed, a 'data block' is not limited to the specific set of variables and display sequence disclosed in the written description and does not preclude the use of G- and M-codes." *IMS Technology, Inc. v. Haas Automation, Inc., et al.*, 206 F.3d 1422 (Fed. Cir. 2000).


"data block describing three-dimensional terrain" — "a block or collection of data or digital information that represents or describes a section of three-dimensional terrain at a particular resolution level and that includes any additional data overlaid on the digital image of the terrain, such as altitude, labels or optional objects." *Skyline Software Systems, Inc. v. Keyhole, Inc., et al.*, 421 F. Supp. 2d 371 (D. Mass. 2006).
"data blocks belonging to a hierarchical structure" — "data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution, and each successive level contains data blocks of a higher resolution than those in the preceding level." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 421 F. Supp. 2d 371 (D. Mass. 2006).

"data center" — "one or more operably connected data structures and computers used for processing or transmitting data." Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010).


"in data communication with" — "two or more devices connected such that data is being transferred between the devices in real time." Acacia Media Technologies Corp. New Destiny Internet Group, et al., 405 F. Supp. 2d 1127 (N.D. Cal. 2005).

"data communication with one or more of the plurality of data storages that may be different than the one or more of the plurality of data storages in communication with the other session modules" — "The court concludes that this phrase requires no additional construction other than those previously provided for 'data storage' and 'session module.'" Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).

"obtaining data concerning the fluid catalytic cracking unit in order to establish" — "obtaining data relating to the fluid catalytic cracking unit for the purpose of establishing (such as by trial and error)." Intercat, Inc. v. Nol-Tec Systems, Inc., et al., 2005 U.S. Dist. LEXIS 344 (D. Minn., Jan. 7, 2005).

"data corresponding to one or more thoroughfares" — "the X and Y coordinates corresponding to one or more thoroughfares." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006).

"first and second data couplers, each coupled to a respective one of said first and second ports, and each having a data signal port operative to pass only a data signal" — "two data couplers, each coupled to a different port, where each such port transmits a data signal, but not a power signal." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007).
"instruction does not have any data dependencies with preceding issued instructions which have not yet been completed" — "an instruction that is free of α and β dependencies." Cornell University, et al. v. Hewlett-Packard Co., 313 F. Supp. 2d 114 (N.D.N.Y. 2004). 1106

"data download circuit" — "the circuitry that downloads data corresponding to the frame segment descriptor." 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007). 1107


"data flow diagram" — "incorporates the following four semantic limitations: 1. the order of operations is not completely specified by the user; 2. the order of operations is implied by data interdependencies; 3. a node may only execute after all necessary inputs have become available; and 4. outputs are generated after a node completes execution." National Instruments Corp. v. Mathworks, Inc., 2002 U.S. Dist. LEXIS 27577 (E.D. Tex., May 24, 2002). 1109 "We agree with the trial court that the inclusion of 'necessary' was proper given that the ordinary meaning of 'data flow' and 'data flow diagram' does not limit the scope of the terms to await inputs that may be unnecessary for execution, and, likewise, the specification does not limit semantic limitation three to require 'all inputs' be available before execution." Id., 113 Fed. Appx. 895 (Fed. Cir., Sept. 3, 2004) (unpublished). 1110

"data for servicing and/or programming" — "data used to service and/or program one or more multimedia boxes." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007). 1111

"data gathering system" — "the Court believes that there is sufficient structure in claim 1 of the '910 patent to establish that the 'data gathering system' is software. Accordingly, the Court does not construe this claim in means-plus-function terms." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 1112

"data generating facilities" — "[c]omputer software that generates data, such as voice message reception, fax reception, e-mail retrieval, alarm monitoring facilities, child monitoring facilities and the like." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007). 1113

"data in digital form representing the configuration of the first facial display"; "data in digital form representing the configuration of the second display" — "include[s] both lip position data and control point data"; "include[s] only lip position data." Bloomstein v. Paramount Pictures Corp., et al., 1996 U.S. Dist. LEXIS 22260 (N.D. Cal., May 6, 1996). 1114

"data in packetized format from any of said sources is written into any available empty payload field of any of said frames" — "means that packets are only put in frames which are empty, i.e. which have zero data in their payloads." Bell Communications Research, Inc. v. Fore Systems, Inc., 113 F. Supp. 2d 635 (D. Del. 2000). 1115
"said advertisement data includes at least one time for said at least one advertisement to be run" — "data which permits a determination of a time within which, or event in relation to which, the advertisement will be run." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010).\footnote{1116}

"data loading mechanism for loading at least fact data from the relational data store" — "the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).\footnote{1117}

"data mart" — "an analytical database containing a subset of corporate information useful for decision support for an aspect of a business." Informatica Corp. v. Business Objects Data Integration, Inc., 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005).\footnote{1118}


"data objects" — "data records and their linked manipulative programs." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).\footnote{1120}

"data packet" — "data in binary form, including address and control elements." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008).\footnote{1121}

"data path" — "a route or course over which information represented in a form suitable for processing by computer can travel, but such information does not include AV signals." Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).\footnote{1122}

"data path" — "the buses and circuit elements that convey data." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).\footnote{1123}


"data processing device" — "[a] mechanism or piece of equipment separate from the flat-panel display device that systematically performs operations upon data." LG Philips Co., Ltd. v. Tatung Co., et al., 2007 U.S. Dist. LEXIS 43557 (D. Del., June 15, 2007).\footnote{1125}

"data reference" — "a reference to a single, specific record which the created link retrieves." Hyperphase Technologies, LLC, et al. v. Google Inc., 2006 U.S. Dist. LEXIS 92195 (W.D. Wis., Dec. 20, 2006).\footnote{1126} "[T]he district court erred in its claim construction of the term 'data reference.' We hold that the correct construction is 'a unique phrase or word which may be used in a record to refer to another record or record segment;' and that a data reference may refer to one or more than one record." Id., 2007 U.S. App. LEXIS 29796 (Fed. Cir., Dec. 26, 2007) (unpublished).\footnote{1127}
"data reflecting a particular selection of dialysate to be circulated"; "data concerning a particular selection of dialysate to be circulated" — "The Court hereby rejects Baxter's narrow construction and finds that the phrase shall be given its plain and ordinary meaning." Fresenius Medical Care Holdings, Inc. v. Baxter International, Inc., 2006 U.S. Dist. LEXIS 36788 (N.D. Cal., May 25, 2006).1128


"data representing a complete copy of at least one item of information" — "a complete copy of information from items." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007).1131

"data representing text, a universal resource locator, an image, and a user-selected category" — "data representing text, a universal resource locator, an image, and a user-selected category." Graphon Corp. v. Autotrader.com, Inc., 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007).1132

"data representing the identity of each of said advertisements" — "data that identifies each advertisement." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).1133

"data representing when and number of times ..." — "data associated with an advertisement that provides a period of time within which, or event in relation to which, the advertisement will be run and permits a calculation of the frequency an advertisement will be run within a given period." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).1134

"data representing when and the number of times each of said advertisements is to be run" — "data which permits a determination of a time within which, or event in relation to which, the advertisement will be run and the frequency an advertisement will be run." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010).1135

"data scan codes" — "a code number that the keyboard generates whenever a key is depressed or released, said code number created by converting a pairing of a row signal and a column signal in the keyboard matrix." Samsung Electronics Co., Ltd. v. Quanta Computer, Inc., et al., 2006 U.S. Dist. LEXIS 66447 (N.D. Cal., Sept. 15, 2006).1136

"data set" — "a set of one or more bits in a message reflecting data that is read from or written to a device." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007).1137

"data set" — "any collection of information representing a particular single-purpose card which is necessary to allow the electronic multi-function card to act as a substitute, in both form and function, for that particular single-purpose card." E-Pass Technologies, Inc. v. 3COM Corp., et al., 177 F. Supp. 2d 1033 (N.D. Cal. 2001).1138

"data source" — "a collection of computer readable information such as a data file." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).1140


"plurality of data sources" — "two or more different single-purpose cards, such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys, regardless of whether the single-purpose cards are from the same category or from different categories." E-Pass Technologies, Inc. v. 3COM Corp., et al., 177 F. Supp. 2d 1033 (N.D. Cal. 2001).1142


"data storage device" — "a computer disk drive, including all electronic and mechanical components, which receives shaped commands from a processor which may be integrated into the drive." Convolve, Inc., et al. v. Compaq Computer Corp., et al., 2005 U.S. Dist. LEXIS 16375 (S.D.N.Y., Aug. 9, 2005).1144


"data storage rate" — "maximum sustained rate at which data can be written to the data storage device, including, in the case of hard disk drives, seek time, rotational latency, and data transfer in a condition of steady state fragmentation of the disk drive." Realtime Data, LLC v. Packeteer, Inc., et al., 2009 U.S. Dist. LEXIS 109438 (E.D. Tex., Nov. 23, 2009).1146

"data storage system"; "data storage system controller" — "a 'data storage system' is a set of associated components working together to store data and a 'data storage system controller' is a device that controls data storage operations. Neither is required to include cache memory." EMC Corp. v. Hewlett-Packard Co., Inc., 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003).1147

"data structure" — "a data structure having the plurality of data packets present in the local computer-readable memory at the same time." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008).1148

"data structure" — "the logical organization of data such as table, columns, or rows." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).1149

"data successfully received" — "data from the data file transferred from the server computer to the client computer." Ethos Technologies, Inc. v. RealNetworks, Inc., 462 F. Supp. 2d 131 (D. Mass. 2006).1150

"data terminal" — "a device that can transmit and receive data to a host computer to allow for charging and recharging a calling card or calling card account." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).1151


"data transfer circuitry for controlling the transfer of data stored in said digital camera flash memory module inserted into said memory input port to said hard disk drive" — "The court incorporates by reference its construction of 'port,' and concludes that the balance of the phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).  

"data transfer system" — "a system or mechanism that transfers data." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009).  


"data transmission device of the portable unit" — "a device that transmits data and is part of a coherent group or whole that is capable of being carried." PHT Corp. v. Invivodata, Inc., 2005 U.S. Dist. LEXIS 9577 (D. Del., May 19, 2005).  

"data transmit/receive device" — "a device that is capable of transmitting data to and receiving data from the host device when connected to the host device by the interface device." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).  


"database" — "a collection of information organized in such a way that a computer program can quickly access desired pieces of data." Jardín v. Datallegro, Inc., et al., 2010 U.S. Dist. LEXIS 105502 (S.D. Cal., Oct. 4, 2010).  


"database" — "a collection of organized information accessible through computer software, distinguishable from a collection of information stored in a flat file form such as a spreadsheet." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).  


"database" — "no construction of this phrase is required." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).
"database field" — "the space reserved in a database for storage of a particular type of data." 

"a database interface unit having inputs and outputs, for retrieving and storing data in the relational system"; "a database interface unit for retrieving and storing data and metadata in the relational system"; "a database interface unit for applying the statements on the relational system" — "these terms are not means-plus-function claims subject to interpretation under § 112 P 6." *Software Tree, LLC v. Red Hat, Inc., et al.*, 2010 U.S. Dist. LEXIS 53549 (E.D. Tex., May 28, 2010).  


"database synchronization process" — "updating configuration information that is stored by the network manager in one or more databases, based upon the values stored in the MIB of the network elements." *Cisco Systems, Inc., et al. v. Telcordia Technologies, Inc.*, 2007 U.S. Dist. LEXIS 58650 (E.D. Tex., Aug. 10, 2007).  


"de-configuring the computer system" — "functionally removing a faulted component from the computer system." *Hewlett-Packard Co., et al. v. EMC Corp.*, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).  

"selectively deactivating" — "the customary meaning of 'deactivate' to a person of skill in the art is 'to make inactive.'" *Agere Systems, Inc. v. Broadcom Corp.*, 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004).  

"deactivating said generator only upon expiration of said predetermined time period or in response to a reset signal" — "the stopping of the activated generator either upon the expiration of the predetermined time period or in response to a reset signal. The activated generator can be deactivated only upon either of these two conditions (expiration of predetermined time period or in response to a reset signal) and the generator must be capable of being deactivated by both of these conditions." *Agrizap, Inc. v. Woodstream Corp., et al.*, 431 F. Supp. 2d 518 (E.D. Pa. 2006).  

"dealer interface" — "a hardware/software module used by a dealer to access the Data Center system." *Autobytel, Inc. v. Dealix Corp.*, 2006 U.S. Dist. LEXIS 3381 (E.D. Tex., Jan. 18, 2006).  


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"debit purchase transaction" — "a purchase transaction made using a debit styled card,' with debit styled card construed as I have previously recommended." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010). 1178


"debit/medical services card" — "a card that can function as both a debit card and a medical services card." Alexsam, Inc. v. Humana Inc., 2009 U.S. Dist. LEXIS 77553 (E.D. Tex., Aug. 28, 2009). 1180

"debiting"; "charging [] against" — "recording as a debt or financial obligation against the accessed account and not the actual transfer of funds from the account." BMC Resources, Inc. v. Paymentech, L.P., 2004 U.S. Dist. LEXIS 22536 (N.D. Tex., Nov. 4, 2004). 1181

"decoded data which has not been displayed" — "data that has been decoded, corresponding to pictures that have not been displayed." Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al., 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006). 1182

"decoder" — "a subsystem which can receive the output of the radio receiver and convert it into a form wherein the data contained in the received transmissions can be interpreted by the microprocessor." Chamberlain Group, Inc. v. Lynx Industries, Inc., et al., 2003 U.S. Dist. LEXIS 5091 (N.D. Ill., Mar. 31, 2003). 1183

"decoding" — "refer[s] broadly to extraction or retrieval of data from any data stream -- not necessarily a video or audio signal -- based on a predetermined format or encoding scheme." ACTV, Inc., et al. v. Walt Disney Co., et al., 204 F. Supp. 2d 650 (S.D.N.Y. 2002). 1184

[i] "decoding NFS requests"; [ii] "encoding NFS reply messages" — [i] "converting NFS requests from the format received from the network to another, decoded format"; [ii] "converting NFS reply messages from a decoded data format to the format used for transmission on the network." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004). 1185

"decoding said at least one instruction to determine said predetermined position" — "interpreting an instruction, in particular the portion therefor that signifies the operation to be performed, in order to identify a position relative to the beginning or end of the instruction group that includes the operand or instruction being accessed." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 1186

"decoding said data establishing a limit" — "at the user site, extracting the data establishing a limit for authorized viewing of the video product from the downloaded digital data stream in order to separate the data establishing the authorized viewing limit from the video product." American Patent Development, Corp., LLC v. MovieLink, LLC, 604 F. Supp. 2d 704 (D. Del. 2009). 1187
"decoding said microcoded instruction into a LHS instruction having fields essentially compatible with a RISC architecture and a RHS instruction having fields to select a plurality of indirect registers pointing to emulated registers" — "requires 'redefining' or 'translating' the native instruction, identified in claim 1 as LHS of the instruction, using the fields of the RHS of the instruction to emulate the instruction of a target computer." TechSearch L.L.C. v. Intel Corp., 286 F.3d 1360 (Fed. Cir. 2002).\[1188]\n
"decomposed into a plurality of levels" — "broken down into two or more structured set(s) of information." Accenture Global Services GmbH, et al. v. Guidewire Software Inc., 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010).\[1189]\n
"clock decorrelator" — "a device that generates an internal clock signal that varies in a randomized way." Cryptography Research, Inc. v. Visa International Service Association, et al., 2006 U.S. Dist. LEXIS 79026 (N.D. Cal., Oct. 19, 2006).\[1190]\n
"decreases the visibility" — "decreases the visibility of a void in the displayed image relative to the original image." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).\[1191]\n
"decreasing the time said shaped modulator drive signal is above threshold" — "The plain meaning of 'decreasing the time said shaped modulator drive signal is above threshold decreasing' is 'becoming less and less.'... Thus, as the district court recognized, the use of the word 'decreasing' indicates that the inventors intended to shorten the time the modulator drive signal is above threshold." Optical Disc Corp. v. Del Mar Avionics, et al., 208 F.3d 1324 (Fed. Cir. 2000).\[1192]\n
"decryption shim"; "shim" — "software that is downloaded to or pre-installed on the client machine and used to decrypt transparently incoming data stream from the encryption bridge on its way to the media player software." Widevine Technologies, Inc. v. Verimatrix, Inc., 2009 U.S. Dist. LEXIS 102768 (E.D. Tex., Nov. 4, 2009).\[1193]\n
"dedicated character memory in circuitry controlling said output device" — "must be part of the character-based output device and must be used exclusively for the purpose of storing a set of monochromatic characters." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).\[1194]\n
"dedicated memory" — "memory that is within the media processor that is accessible only through the media processor." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).\[1195]\n
"deducting from the initial prepayment amount the running cost of the call" — "means that the cost of the call is deducted from the initial account balance after the end of the call." Aerotel, Ltd. v. Telco Group, Inc., et al., 2010 U.S. Dist. LEXIS 47266 (S.D.N.Y., May 12, 2010).\[1196]\n
"defeating the effects of a video anti-copy process" — "circumventing a copy protection process to produce a watchable copy." Macrovision Corp. v. Dwight Cavendish Developments Ltd., 105 F. Supp. 2d 1070 (N.D. Cal. 2000).\[1197]\n
"defective floppy diskette controller" — "needs no construction, for its ordinary meaning is clear." Phillip M. Adams & Associates, LLC v. Dell, Inc., et al., 2010 U.S. Dist. LEXIS 68749 (D. Utah, Jul. 9, 2010).\[1198]
"define an updated form line" — "recompute a previously computed path across the area to be treated." *Trimble Navigation Ltd. v. RHS, Inc., et al.*, 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1199


"defining a second form line using positioning data derived from GPS data and a swathing offset" — "computing a second path across the area to be treated using geographical positions computed using GPS satellite data transmissions and a distance determined by the effective width of a towed implement." *Trimble Navigation Ltd. v. RHS, Inc., et al.*, 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1201

"defining an intensity distribution of the illumination light on the Fourier transform plane in the illumination optical system with respect to a pattern on the mask to have increased intensity portions apart from an optical axis" — "quantifying or shaping of increased intensity portions of the illumination light, as those portions appear on the Fourier transform plane, in the illumination optical system." *Nikon Corp., et al. v. ASM Lithography B.V.*, 308 F. Supp. 2d 1039 (N.D. Cal. 2004). 1202

"defining an updated second form line according to one or more deviations from said second form line while following said second form line" — "recomputing the previously computed second path across the area to be treated using new geographical positions computed while deviating from the previously computed second path across the area to be treated." *Trimble Navigation Ltd. v. RHS, Inc., et al.*, 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1203

"defining at least time and yield characteristics of each process step" — "determining at least the duration of, and the result or quantity produced by, each fundamental operation performed on a machine." *Information Technology Innovation, LLC v. Motorola, Inc., et al.*, 391 F. Supp. 2d 719 (N.D. Ill. 2005). 1204

"defining element" — "an element that can be used to calculate the essential information required to construct other elements." *Adobe Systems Inc. v. Macromedia, Inc.*, 201 F. Supp. 2d 309 (D. Del. 2002). 1205


"a set of relationships among the medical service codes defining whether selected ones of the medical service codes are valid when input with other selected ones of the medical service codes" — "a set of relationships specifying that if two or more particular medical service codes are input together as part of the same claim, then one or more of the input medical service codes are appropriate for payment." *McKesson Info. Solutions LLC v. Trizetto Group, Inc.*, 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006). 1207

"delineating a set of factory operating rules" — "setting forth with accuracy, or in detail, a group of prescribed guides for how a manufacturing plant works." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).1209


"demodulated aural signal" — "an aural signal that has been amplitude demodulated or frequency demodulated." Comark Communications, Inc. v. Harris Corp., 1997 U.S. Dist. LEXIS 2067 (E.D. Pa., Feb. 24, 1997).1211

"demodulation circuitry"; "demodulator circuitry" — "circuitry used to reconvert a modulated data signal back into its original form by extracting the data from the modulated data signal on the loop." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).1212

"demographic conditions" — "conditions used to limit a call based on the caller's geographic area." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).1213


"demographics information" — "characteristics of human populations and population segments, especially when used to identify consumer markets, that are created from the collection of first end user inquiries that identify distinct trends in interests or preferences." Keithley v. HomeStore.com, Inc., et al., 2007 U.S. Dist. LEXIS 71126 (N.D. Cal., Sept. 10, 2007).1215

"selecting a set of stored functions in dependence upon a received format identifier and said read user information" — "selecting one or more functions based upon a received format identifier and said read user information." Dow Jones & Co., Inc. v. Ablaise, Ltd., et al., 2007 U.S. Dist. LEXIS 49750 (D.D.C., July 11, 2007).1216


"sub-layers deposited successively during growth of said one layer, each of said sub-layer having ... inclusions" — "the layer is formed by growing sub-layers, each of which has inclusions, one at a time, with each sub-layer forming on the preceding sub-layer." Seoul Semiconductor Co. Ltd. v. Nichia Corp., et al., 596 F. Supp. 2d 1005 (E.D. Tex. 2009).1218

"depth parameter D" — "a system parameter used to determine which transformation function to use in the secret state transformation process, and a parameter whose value is greater than or equal to the number of transformation iterations in a transformation operation." Cryptography Research, Inc. v. Visa International Service Association, et al., 2007 U.S. Dist. LEXIS 76502 (N.D. Cal., Sept. 28, 2007).1219
"value derivable from said secret state" — "the Court finds that the plain and ordinary meaning
controls. Accordingly, the Court declines to construe the word 'derivable.'" Cryptography
(N.D. Cal., Sept. 28, 2007).

"derived element" — "an element which is calculated from the defining element(s) via a present
Del. 2002).

"deriving" — "to obtain something from another thing or source." Optivus Technology, Inc., et al.

"deriving a reference cell value" — "generating a value solely from the words comprising a cell,
which value represents the words of the cell." OKI Electric Industry Co., Ltd. v. LG Semicon

"a set of menus describing the database" — "a set of menus that, when taken as a whole (i.e.,
collectively), give an account, or convey an idea or impression, of the entire database." Command

"describing the parameters in terms of data structures of the chosen model" — "describing the
parameters using a table of data, including structural relationships or an organizational scheme,
such as a list, record, or array." Information Technology Innovation, LLC v. Motorola, Inc., et al.,

[i] "description of a product"; [ii] "data representing a plurality of products" — [i]
"information sufficient to identify a product or service"; [ii] "data sufficient to identify two or
more products or services." Performance Pricing, Inc. v. Google Inc., et al., 2009 U.S. Dist.

"a descriptor signal which corresponds to data stored within memory" — "a signal indicating
where the corresponding data are in the host memory." 3COM Corp. v. D-Link Systems, Inc., et
al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).

"design or style standards" — "presentation rules which control the look and feel of an
Tex., Oct. 9, 2009).

"designating a combination of a plurality of but less than all of said multiple sectors to be
erased" — "requires the ability to designate 'any combination' of sectors for erase but does not
require setting a tag in a dedicated register for each sector to be erased." Sandisk Corp. v. Zotek
Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010).

"designating at least one category" — "Any attempted construction will amount to defining the
word 'designate,' which is a common and simple enough term that a lay juror would easily
understand its meaning. Therefore, the Court does not construe this term." Sklar v. Microsoft

"designing" — "to prepare the plans for something such as a fire sprinkler system." First
"the spectral light distribution of a desired daylight" — "is not indefinite and does not limit the claim." Tailored Lighting, Inc. v. Osram Sylvania Products, Inc., 514 F. Supp. 2d 417 (W.D.N.Y. 2007).1232

"desired format" — "a user selected format for the display of the results of the search performed by the system." SuperGuide Corp. v. DirecTV Enterprises, Inc., et al., 169 F. Supp. 2d 492 (W.D.N.C. 2001).1233


"[inputting/receiving] a desired output media format based upon the first input" — "[inputting/receiving] one from among multiple available output media formats based upon a first input." MedioStream, Inc. v. Microsoft Corp., et al., 2010 U.S. Dist. LEXIS 88716 (E.D. Tex., Aug. 27, 2010).1235

"a plurality of despreading devices for detecting, at each receiver antenna of the plurality of receiver antennas, the first spread-spectrum signal and the second spread-spectrum signal, as a first plurality of detected spread-spectrum signals and a second plurality of detected spread-spectrum signals, respectively" — "a plurality of devices in the receiver that reverses the spreading operation that occurred in the transmitter for determining the presence of and recovering both the first multipath spread-spectrum signal and second multipath spread-spectrum signal received at each antenna port." Linex Technologies, Inc. v. Belkin International, Inc., et al., 2009 U.S. Dist. LEXIS 10905 (E.D. Tex., Feb. 12, 2009).1236

"destination address" — "Since Vonage's proposed construction was wrong by failing to account for the possibility that telephone numbers could be destinations, Vonage has failed to show error in the district court's failure to adopt it." Verizon Services Corp., et al. v. Vonage Holdings Corp., et al., 503 F.3d 1295 (Fed. Cir. 2007).1237

"destination processor" — "any one of the constituent processors in an electronic mail system to which information is transmitted by the system. Said processor is identified by an address, in order to initiate the transmission of the originated information from the originating processor." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002).1238

"destination signal" — "a data signal providing passenger conveying information that identifies the boarding floor and/or the destination floor." Inventio AG v. ThyssenKrupp Elevator Americas Corp., et al., 2010 U.S. Dist. LEXIS 59020 (D. Del., Jun. 14, 2010).1239


"detectable series" — "information in which a pattern, relationship, or arrangement may be detected through examination of a practical number of samples in the context in which the invention is used." CIAS, Inc. v. Alliance Gaming Corp., et al., 424 F. Supp. 2d 678 (S.D.N.Y. 2006).1241
"detected phase angle signal" — "the representation corresponding to the relationship between the phase angles present on different rotating shafts." General Kinematics Corp. v. Carrier Vibrating Equipment, Inc., 2009 U.S. Dist. LEXIS 65081 (N.D. Ill., Jul. 27, 2009).1242


"detecting that a first participant has disconnected from the online session"; "broadcasting a notification to existing participants of the online session over the communication network" — "The claim does not dictate whether a non-human system or online participants perform the 'broadcasting' or 'detecting' steps." In re Chatani, et al., 2007 U.S. App. LEXIS 26745 (Fed. Cir., Nov. 19, 2007) (unpublished).1244

"detecting the existence of concurrencies in instructions stored in said dispatch stack"; "detecting the existence of a plurality of instructions which are concurrently executable from those instructions stored in said dispatch stack" — "determining the existence of a plurality of dependency free instructions stored in the dispatch stack." Cornell University, et al. v. Hewlett-Packard Co., 313 F. Supp. 2d 114 (N.D.N.Y 2004).1245

"detecting whether buffer overflow is threatened by the storage of further cells arriving for, transmission on said virtual path" — "no additional construction of this phrase is appropriate." QPSX Developments 5 Pty. Ltd. v. Juniper Networks, et al., 2007 U.S. Dist. LEXIS 1991 (E.D. Tex., Jan. 10, 2007).1246

"detection means" — "is subject to means-plus function construction." Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al., 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006).1247

"detector" — "refers to a device for detecting the presence of electromagnetic waves and is not confined to the detection component of a laser interferometer." Applied Material, Inc. v. Tokyo Seimitsu, Co., 446 F. Supp. 2d 525 (E.D. Va. 2006).1248

"detector" — "The 'detector' claims are structural claims and their scopes are not limited by the leakage detector description in the specification." Trilithic, Inc. v. Wavetek U.S., Inc., 64 F. Supp. 2d 816 (S.D. Ind. 1999).1249

"detector operable to detect a fluorescence optical signal" — "it is unnecessary to construe this term." Applera Corp. v. Stratagene Corp., 2007 U.S. Dist. LEXIS 17154 (D. Conn., March 9, 2007).1250

"determinator for determining an output brightness level" — "logic, such as a circuitry, for determining an output brightness value." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 12969 (D. Del., Feb. 16, 2010).1251

"determine" — "to identify or ascertain, as after 'consideration, investigation, or calculation.'" Davis v. Speechworks International, Inc., 2006 U.S. Dist. LEXIS 71705 (W.D.N.Y., Sept. 29, 2006).1252

"to determine the individual caller's credit" — "to determine the caller's credit standing," and is not limited to determining whether a caller has sufficient account resources. *Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P.*, 326 F. Supp. 2d 1060 (C.D. Cal. 2003).1254

"the user's role is determined from the request" — "the user's role is determined from a user ID, class ID, group ID or information about access type contained in the request." *FotoMedia Technologies, LLC v. AOL, LLC, et al.*, 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009).1255

"if the at least a portion of the received funds transfer information and the VAN are determined to be authentic" — "if the at least a portion of the received funds transfer information is unchanged and the VAN is not fraudulent." *Stambler v. JPMorgan Chase & Co., et al.*, 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).1256

[i] "determines the size of the pits and particles"; [ii] "groups the pits and particles based at least in part on the determination of size" — [i] "determines the physical magnitude or dimension of the pits and particles"; [ii] "groups the pits and particles based at least in part on the determination of physical magnitude or dimension." *ADE Corp. v. KLA-Tencor Corp.*, 252 F. Supp. 2d 40 (D. Del. 2003).1257


"determining a condition of the heart from among a plurality of conditions of the heart" — "We conclude that the district court erred in applying § 112 P6. Method claims necessarily recite the steps of the method, and the preamble words that 'the method comprises the steps of' do not automatically convert each ensuing step into the form of § 112 P6. Nor does the preamble usage 'steps of' create a presumption that each ensuing step is in step-plus-function form; to the contrary, the absence of the signal 'step for' creates the contrary presumption. The district court's claim construction is modified accordingly; the 'determining' step must be construed, as for all claim steps, in light of the specification and the prosecution history. We remand to the district court for that purpose." *Cardiac Pacemakers, Inc., et al v. St. Jude Medical, Inc., et al.*, 381 F.3d 1371 (Fed. Cir. 2004).1260 "Detecting which one of a number of heart arrhythmias exists, i.e., whether there exists, e.g., tachycardia, fibrillation, or bradycardia, or whether there exists a normal sinus rhythm. This step of 'determining' may merely analyze heart rate to determine the condition of the heart." *Cardiac Pacemakers, Inc., et al v. St. Jude Medical, Inc., et al.*, 418 F. Supp. 2d 1021 (S.D. Ind. 2006).1261

"determining a first position of a second imaging device with respect to the second coordinate system of the operation site" — "determining the position of the second imaging device (e.g., the ultrasound probe) relative to the second coordinate system." *NOMOS Corp. v. ZMED, Inc.*, 260 F. Supp. 2d 215 (D. Mass. 2002).1262
"determining a number of categories which are to be represented in a display"; "determining a number of categories which are to be represented in the display" — "The words are so common and simple that a lay juror would have no difficulty in understanding them. It is difficult to conceive of a more clear way to convey the meaning of these terms. Accordingly, the Court does not construe these terms." Sklar v. Microsoft Corp., 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007).1263

"determining a rescue stage from the measured resistance" — "measuring the impedance at the electrodes and comparing the measured impedance to stored impedance values to determine which stage the AED is at during a rescue procedure." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).1264

"determining a set of three dimensional coordinates using information identifying a position in said environment and a three dimensional model of at least a portion of said environment" — "determining a set of three-dimensional coordinates (x, y, z), using information identifying a position in the environment and using a three-dimensional model (represented in x, y and z coordinates) of at least a portion of the environment." Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).1265

"determining a subset of data having content profiles which are determined in said relating step to most closely match said at least one customer profile" — "finding the subset of data having content profiles that comprise the most suitable pairings to the customer profile." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).1266

"determining a total cost of the transaction that includes a price of the product" — "determining the total cost of the transaction borne by the buyer for obtaining a selected product at a selected destination that includes the price of the product." DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006).1267


"determining an initial benefit payment" — "the Court declines the Defendant's invitation to import ... the concept of pre-existing formulas." Lincoln National Life Insurance Co. v. Transamerica Financial Life Insurance Co., 2007 U.S. Dist. LEXIS 16822 (N.D. Ind., March 6, 2007).1269

"determining an instance of protocol data unit (PDU) network policy from a plurality of policies" — "selecting a particular network policy from a pre-programmed group of such policies." Storage Technology Corp. v. Cisco Systems, Inc., et al., 2001 U.S. Dist. LEXIS 25876 (N.D. Cal., Nov. 26, 2001).1270

"determining and depositing on a surface of the substrate adjacent the PN junction, a dose of the transition metal" — "ascertaining after consideration, investigation, or calculation and depositing a dose of the transition metal on a surface of the substrate near the PN junction." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).1271
"determining and generating motion instructions that are adjusted to compensate for lead or taper errors" — "creating movement directives that compensate for lead and taper errors. Adjusting does not require readjusting after the motion control commands have been determined and generated (e.g. after the program is built and sent for execution)."  Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006). 1272

"automatically determining at least the last-dialed number ..." — "is not drafted in 'step plus function' form."  Serrano, et al. v. Telular Corp., 111 F.3d 1578 (Fed. Cir. 1997). 1273

"determining how much of the display area would be left over area, if any, after display of category labels representing items" — "The term is so common and simple that a lay juror would have no difficulty in understanding it. It is difficult to conceive of a more clear way to convey the meaning of this term. Accordingly, the Court does not construe this term."  Sklar v. Microsoft Corp., 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007). 1274


"determining if the cookie ... has expired" — "meaning is readily apparent, and no construction is necessary."  Websidestory, Inc. v. Netratings, Inc., 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007). 1276

"determining that an operating characteristic of said method should be scaled from a first level to a second level based on said feedback signal received from said receiver" — "deciding whether an operating characteristic should be scaled from a first level to a second level based on the feedback signal from the receiver."  Agere Systems, Inc. v. Broadcom Corp., 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004). 1277

"determining the difference between image elements ... such surrounding image elements" — "calculating the difference between two or more surrounding image elements to determine their similarity."  IP Innovation L.L.C., et al. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005). 1278

"determining the duration of the color stripe burst" — "determining the duration of the color stripe burst, which may include obtaining an average phase signal from the color burst."  Macrovision Corp. v. Sima Products Corp., et al., 2006 U.S. Dist. LEXIS 75372 (S.D.N.Y., Oct. 12, 2006). 1279

"determining the position of the increased intensity portions" — "setting or ascertaining the spatial arrangement of increased intensity portions of light."  Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004). 1280

"determining the total delivery time ... to the user" — "Because an ordinary skilled person in the computer networking field would understand 'delivery' as the carrying and turning over of data, the Court rules that no construction is required on this disputed term."  Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007). 1281
"determining when the cruise control is engaged" — "one of ordinary skill in the art would know that a cruise control feature on a manual transmission vehicle could have six operational states: (1) activation switch off; (2) activation switch on; no vehicle speed set; (3) activation switch on and speed set, but the set speed is below a pre-programmed minimum set speed; (4) activation switch on and speed set above minimum, but operator pressed the clutch or the brake; (5) activation switch and speed set above minimum, but operator used throttle to exceed set speed; and (6) activation switch on, speed set above minimum, and operator neither presses brake or clutch, nor exceeds set speed through use of throttle. ... The cruise control is 'engaged,' i.e. controlling the vehicle speed, only in the final state." Caterpillar Inc. v. Detroit Diesel Corp., 961 F. Supp. 1249 (N.D. Ind. 1996). 1282

"determining whether the difference between the short-term statistical profile and the long-term statistical profile indicates suspicious network activity" — "using the result of the comparison to decide whether the monitored activity is suspicious." SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006). 1283

"determining whether the DNS request transmitted in step (1) is requesting access to a secure web site" — "is not limited to being performed by the computer that receives the DNS request." VirnetX, Inc. v. Microsoft Corp., 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009). 1284

"deterministic function algorithm" — "a formula or series of steps such that for a certain input there is always the same output, and that condenses, or hashes, the digital document." Surety Technologies, Inc., et al. v. Entrust Technologies, Inc., 74 F. Supp. 2d 632 (E.D. Va. 1999). 1285


"development support functions" — "functions in support of a development system to debug hardware and/or software of the data processor." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004). 1287

"deviating from the previously computed form line to accommodate one or more terrain features" — "deviating from a previously computed path across the area to be treated in order to avoid at least one terrain feature." Trimble Navigation Ltd. v. RHS, Inc., et al., 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1288


"a repeater management device" — "no particular physical manifestation is articulated in the claim or the specification; therefore, the term 'device' is not limited to these physical manifestations." Intel Corp. v. Altima Communications Inc., 275 F. Supp. 2d 1236 (E.D. Cal. 2003). 1290


"device" — "an integrated circuit or similar item." *Nikon Corp., et al. v. ASM Lithography B.V.*, 308 F. Supp. 2d 1039 (N.D. Cal. 2004).1293


"device diagram" — "a graphical description of a control scheme, created using the device programming means, hence, [it is] a combined representation of the physical description [ ] and the logical definition of the facility ... with the caveat that the physical and logical information must appear on a single diagram." *Fisher-Rosemount Systems, Inc. v. Control Systems International, Inc.*, 2007 U.S. Dist. LEXIS 93125 (S.D. Tex., Dec. 19, 2007).1295


"a device for capturing the symbol, identifying the object from the symbol information" — "a device that captures symbol image and identifies an object upon which the symbol is affixed, attached, etched, and/or engraved from the information contained within the symbol." *Cognex Corp. v. VCode Holdings, Inc., et al.*, 2007 U.S. Dist. LEXIS 75364 (D. Minn., Oct. 9, 2007).1297

"device object" — "a 'device object' encapsulates device logic, device tag definitions, device diagram symbols and graphic screen symbols and dynamics. Hence, the encapsulation is the improvement, but it is also the limitation, providing the only access to the data set." *Fisher-Rosemount Systems, Inc. v. Control Systems International, Inc.*, 2007 U.S. Dist. LEXIS 93125 (S.D. Tex., Dec. 19, 2007).1298

"device-specific style" — "the format in which a particular type of output device receives and displays service output, consisting of values for a plurality of parameters." *Microstrategy, Inc. v. Business Objects, S.A., et al.*, 429 F.3d 1344 (Fed. Cir. 2005).1299


"diagnose an operation"; "diagnostic operation" — "to display or process state data received from the office machine system in order to identify or characterize the operational state of the office machine system." *Ricoh Corp., et al. v. Pitney Bowes, Inc.*, 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006).1301

"diagnostic processor" — "part of the Remote Diagnostic Station, which is remotely located from the office machine system and communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system." *Ricoh Corp., et al. v. Pitney Bowes, Inc.*, 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006). 1303

"dial-up network server" — "a server that is used to establish a communications link with the user's PC." *LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al.*, 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010). 1304

"dialing"; "calling" — "Defendants' proposed limitation based on the preferred embodiment is not warranted, and no further construction of 'dialing' or 'calling' is therefore necessary." *In re Cygnus Telecommunications Technology, LLC Patent Litigation*, 481 F. Supp. 2d 1029 (N.D. Cal. 2007). 1305


"differences" — "one or more distinctions between information or values contained in sets of data." *Visto Corp. v. Seven Networks, Inc.*, 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005). 1309

"different codes" — "factory-defined codes stored within the radio transmitters which uniquely identify each different transmitter and are not selectable or modifiable by the user of the garage door opener [] system." *Overhead Door Corp., et al. v. Chamberlain Group, Inc.*, 194 F.3d 1261 (Fed. Cir. 1999). 1310

"each of a different color" — "means that each colored material in a particular color printing system must be of a different color. ... Both magenta and light magenta are violet-reds, and therefore are not 'different colors' for purposes of the asserted claims." *Only the First, Ltd., et al. v. Seiko Epson Corp., et al.*, 2010 U.S. Dist. LEXIS 103988 (N.D. Ill., Sep. 29, 2010). 1311
"plurality of different data formats for different types of computer apparatus" — "a plurality of different data formats for different types of computer apparatus where: (1) a 'data format' is the arrangement of digital data in a file including image, audio, text or other data and includes, at least, MPEG, JPEG, GIF, TIFF, PICT, BMP, JFIF, DCF, TXT, DOC, WPD and WAV, and (2) a 'computer apparatus' is a computer and any operating system or application software loaded on the computer. Computer apparatus are of 'different types' within the meaning of the claim if they are loaded with different application software, even if they are otherwise the same." St. Clair Intellectual Property Consultants, Inc. v. Canon Inc., et al., 2004 U.S. Dist. LEXIS 17489 (D. Del., Aug. 31, 2004). Having reviewed the extensive prosecution history here, including especially the history generated during the reexaminations, I conclude that the 'plurality of data formats' terms should be construed in a manner so as to not require the one-to-one correspondence proposed by Defendants." St. Clair Intellectual Property Consultants, Inc. v. Matsushita Electronic Industrial Co., Ltd., et al., 2009 U.S. Dist. LEXIS 106697 (D. Del., Nov. 13, 2009).

"different distinct and independent games" — "the games are unique if they have a difference in the rules of play and random factors. Both the rules of play and random factors must contain a difference. A game with different rules of play and nonunique random factors would not be covered by the claim language. The two games can be of the same type and can use the same ball blower or random number generator so long as some other difference in the rules of play and random factors exists." FortuNet, Inc., et al. v. Melange Computer Services, et al., 412 F. Supp. 2d 1071 (D. Nev. 2006).

"a first predetermined wavelength" [and] "a second predetermined wavelength different from said first predetermined wavelength" — "mean[s] any difference in wavelength that allows for signal separation by optical couplers that existed at the time of the invention." Pirelli Cable Corp. v. Ciena Corp., 988 F. Supp. 424 (D. Del. 1997).


"differential light transmissivity" — "mean[s] the claimed ability of the beam splitter to 'reflect[] light entering the aperture and striking the outer surface of the beam splitter, while transmitting therethrough light that is projected from the concave mirror toward the aperture.'" Optical Products Development Corp. v. Dimensional Media Associates, Inc., 134 F. Supp. 2d 320 (S.D.N.Y. 2001).
"differentially thermally growing"; "relatively thicker"; and "relatively thinner" — "require three elements: 1) the grown oxide must be thick enough on top of the gate electrode to serve as a mask for the implant of step (d); 2) the grown oxide must be thick enough on the side of the gate electrode to block the implant of step (d), thereby making a 'gap;' and 3) the top oxide thickness must be in a proportion of at least 1.77 to 1 to the substrate oxide thickness." Thorn EMI North America, Inc. v. Intel Corp., 936 F. Supp. 1186 (D. Del. 1996).1320

"apparatus arranged for differently encoding a plurality of data signals" — "the apparatus implementing the encoding is configured in such a way that it encodes more than one data signal by using at least two types of encoding that are not the same." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).1321

"diffraction grating" — "[a]ny arrangement in the waveguiding structure that imposes a periodic variation of amplitude and/or phase on an incident wave." Corning Inc. v. SRU Biosystems, et al., 400 F. Supp. 2d 653 (D. Del. 2005).1322

"diffractive follow-on track" — "the groove in between the lands on a optical storage disc, which is narrower than a spot of radiation." U.S. Philips Corp. v. Princo Corp., et al., 361 F. Supp. 2d 168 (S.D.N.Y. 2005).1323

"digest"; "network protocol processing information" — "the parties have failed to show that any of these three terms would benefit from judicial construction." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).1324


"digital audio signal" — "does not include all types of computer software or, more specifically, MIDI. Rather, it includes only digital representations of sound waves." Sightsound.com Inc. v. N2K, Inc., et al., 185 F. Supp. 2d 445 (W.D. Pa. 2002).1326


"digital camera electronics" — "is not ambiguous or unexplained in the specification because it simply refers to 'digital camera components' which are thoroughly explained and referenced in the patent's specification." Good Sportsman Marketing LLC, et al. v. Non Typical, Inc., et al., 2009 U.S. Dist. LEXIS 69737 (E.D. Tex., Aug. 10, 2009).1328

"digital data file" — "a collection of digital data stored as a self-contained unit, either created by a user or copied by a user from another source, and containing a unique file name by which it can be accessed by a user." Timecertain, LLC v. Authentidate Holding Corp., et al., 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006).1329


"digital signal processor" — "processor optimized to perform repetitive computations used in digital signal processing such as multiply-accumulates." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).1337

"digital signals" — "A digital signal or processed signal is a set of data representing frames of a video." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).1338


"digitally-encoded message" — "digitally-encoded information from a message sender to one or more message receivers that includes message content information, for example substantive content, mail header parsers, addressing parsers, marks, and the like, which may be used in making routing decisions, rather than simply an identification of the type of information, analogous to a caller dialing a number for customer service for a particular product line." eBay Inc. v. IDT Corp., et al., 2009 U.S. Dist. LEXIS 56469 (W.D. Ark., Jun. 10, 2009).1340

"digitized representation of the detected writing" — "digital data that represents the subject's writing." PHT Corp. v. Invivodata, Inc., 2005 U.S. Dist. LEXIS 9577 (D. Del., May 19, 2005).1341


"digitizing" — "the process of creating a digital representation of a non-digital signal by converting, or encoding, the non-digital signal into digital words." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).1344
"direct access to modify add or remove information" — "the ability to edit the information that the merchant previously created or posted into the system." *Shopntown, LLC v. Landmark Media Enterprises, LLC*, 2009 U.S. Dist. LEXIS 62936 (E.D. Va., Jul. 22, 2009). 1345

"direct inward dial telephone number" — "the last four or five numbers dialed by a subscriber which are passed to the system over a trunk line capable of carrying a direct inward dial number." *In re Cygnus Telecommunications Technology, LLC Patent Litigation*, 481 F. Supp. 2d 1029 (N.D. Cal. 2007). 1346


"direction of at least one of said ... thoroughfares"; "direction ... is determined from said retrieved cartographic data" — "I agree with plaintiff that the term 'direction' is clear and requires no judicial construction." *Garmin Ltd. v. TomTom, Inc.*, 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 1348


"directly" — "the module interfaces or links the device control circuitry of a device to a client machine without the need of intermediate devices." *Digi International, Inc. v. Lantronix, Inc.*, 402 F. Supp. 2d 1041 (D. Minn. 2005). 1351


"directly"; "direct" — "the transfer of data without intervening processing." *Ampex Corp. v. Eastman Kodak Co., et al.*, 460 F. Supp. 2d 541 (D. Del. 2006). 1353

"directly accessing" — "communicating with the flash memory storage module using USB or IEEE1394 bus protocol without a communication protocol conversion such as a USB to ATA conversion." *Netac Technology Co. Ltd. v. PNY Technologies, Inc.*, 2007 U.S. Dist. LEXIS 91536 (E.D. Tex., Dec. 13, 2007). 1354

"directly connected" — "connected by non-switched connections not involving a local area network or wide area network." *Advanced Communication Design, Inc. v. Premier Retail Networks, Inc.*, 186 F. Supp. 2d 1009 (D. Minn. 2002). 1355

"directly connected" — "a connection that runs from the driver IC directly, without any intervening connections, to the center memory chip in the chip clusters on the memory module." *Sun Microsystems, Inc. v. Dataram Corp.*, 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997). 1356
"for directly controlling a recording device" — "event timer information sequences stored in an event timer are used to provide the information and generate the signals that are necessary to control a recording device." SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004). 1357


directly from the body-worn tracking device to remote associated notification devices" — "In this context, ... 'directly' means without passing through a second piece carried by the offender." Pro Tech Monitoring, Inc. v. Satellite Tracking of People, LLC, 2010 U.S. Dist. LEXIS 458 (M.D. Fla., Jan. 4, 2010). 1360

directly manipulate" — "causing tasks to occur, such as querying, adding, or removing data, by commands sent to the client." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006). 1361

directly manipulate the associated client database" — "causing tasks to occur on a client database, such as querying, adding, or removing data from that client database, by commands sent to the client." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006). 1362

direction of the timing adjustment interval" — "means the timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow." Southwestern Bell Telephone, L.P., et al. v. Arthur Collins, Inc., 454 F. Supp. 2d 600 (E.D. Tex. 2006). 1363

directory" — "the Court rejects both parties' proposed constructions and finds that, since Optima acted as its own lexicographer." Optima Technology Corp. v. Roxio, Inc., 2004 U.S. Dist. LEXIS 30262 (C.D. Cal., Sept. 30, 2004). 1364

disable" — "to place into a condition which is not fully operational and performing its function." LunarEye, Inc. v. Independent Witness, Inc., et al., 2006 U.S. Dist. LEXIS 75808 (E.D. Tex., Oct. 3, 2006). 1365


disabling" — "to de-activate, or cut-off, not mere attenuation." DoorKing, Inc. v. Sentex Systems, Inc., et al., 1999 U.S. Dist. LEXIS 22925 (C.D. Cal., Feb. 22, 1999). 1367 "We construe 'disabling' as requiring that the visitor microphone be rendered incapable of: (a) transmitting a signal that is audible at the tenant location; and (b) preventing the tenant microphone from controlling the system. This construction is similar to but not identical to the district court's construction." Id., 19 Fed. Appx. 872 (Fed. Cir., Sept. 13, 2001) (unpublished). 1368

"disabling device that disables ..." — "Unlike the term 'indicator,' which is defined in technical dictionaries, the term 'disabling device' is not defined in standard or technical dictionaries in a way that connotes sufficient structure to avoid the application of section 112, P 6." Aguayo, et al. v. Universal Instruments Corp., 2003 U.S. Dist. LEXIS 27846 (S.D. Tex., Jun. 9, 2003). 1370

"disabling said EFM decoder" — "stopping the flow of EFM decoded audio data." Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al., 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006). 1371


"discovery interface" — "one or more software modules that receive information from a fabric driver and provide the information to an application." Sun Microsystems Inc v. Network Appliance, 2009 U.S. Dist. LEXIS 48209 (N.D. Cal., May 29, 2009). 1373

"discrete" — "[t]he term 'discrete,' as it is used in the claims of both patents, simply means that a color video signal (e.g., red) is separate or distinct from the other two color video signals (e.g., green and blue)." Avocent Huntsville Corp. v. Clearcube Technology, Inc., 443 F. Supp. 2d 1284 (N.D. Al. 2006). 1374

"discrete coded signal" — "there is nothing in the common meaning of the words ... which requires the use of a so-called 'button signature.'" Code Alarm, Inc. v. Directed Electronics, Inc., 919 F. Supp. 259 (E.D. Mich. 1996). 1375

"plurality of discrete switches" — "two or more distinct and separate manual or mechanically actuated devices for making, breaking, or changing the connections in an electric circuit." NCR Corp. v. Palm, Inc., et al., 120 Fed. Appx. 328 (Fed. Cir., Jan. 6, 2005) (unpublished). 1376

"disk platform" — "the specification requires that a disk platform includes its own computing capability and is not the 'dumb' controller of the prior art." Storage Computer Corp. v. Veritas Software Corp., et al., 2003 U.S. Dist. LEXIS 1181 (N.D. Tex., Jan. 27, 2003). 1377


"display"; "display device" — "an output device on which display images can be represented." Crystal Image Technology, Inc. v. Mitsubishi Electric Corp., 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010). 1379


"display" — "a device that can be attached to a computer in order to present images." IP Innovation, LLC, et al. v. Red Hat, Inc., et al., 2009 U.S. Dist. LEXIS 69682 (E.D. Tex., Aug. 10, 2009). 1381

"display area" — "an area of display that is defined prior to the step of determining how much display area would be left over."  Sklar v. Microsoft Corp., 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007).  


"display means" — "The Court here agrees with Nonin that the word 'display' as used in the '052 Patent is a structural term."  Nonin Medical, Inc. v. BCI, Inc., 2004 U.S. Dist. LEXIS 3824 (D. Minn., Mar. 8, 2004).  


"display of a plurality of bids and a plurality of asks"; "displaying the bid and ask display regions" — "a display of one or more bids and one or more asks.  eSpeed encouraged us to limit the display to information that is displayed in a single window.  We decline to do so."  Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006).  "We grant plaintiff's motion to reconsider.  We construe 'display of a plurality of bids and plurality of asks' as 'a display of more than one bid and more than one ask.'"  Id., 2007 U.S. Dist. LEXIS 12965 (N.D. Ill., Feb. 21, 2007).  

"display unit" — "a structure or set of structures, separate from the data acquisition unit, for displaying real-time data provided by both the electronic positioning device and the physiological monitor independently or over a common transmission path."  Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075 (Fed. Cir. 2009).  


"displaying a plurality of ... play lists"; "displaying a plurality of ... lists" — "the simultaneous display of at least the titles of two or more play lists."  Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007).  

"displaying an item label for each item in the at least one open category and other open categories, if any, and a category label for each unopen category" — "at least one category is designated as open and an item label is displayed for each item in this open category and any other open categories.  A category label is displayed for each unopen category."  Sklar v. Microsoft Corp., 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007).
"displaying in the second set of fields, the information identified by selection of fields of the first set of fields" — "the initial selection of fields defines information that is displayed in the second set of fields." **Accenture Global Services GmbH, et al. v. Guidewire Software Inc.**, 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010). 1395

"displaying, on said issuer's computer display, information associated with said bid including said computed interest cost value" — "showing information associated with the submitted bid, including the bid's previously computed interest cost value, on the issuer's computer display." **Muniauction, Inc. v. Thomson Corp.**, 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006). 1396

"displaying ... options and ... choices" — "construction of this language is unnecessary." **Merit Industries, Inc. v. JVL Corp.**, 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007). 1397

"displaying said combined order book to the traders" — "one of ordinary skill in this art would not limit the distributing and displaying limitations in the manner suggested by the district court. ... Rather, one of ordinary skill in the art would construe the distributing and displaying limitations as covering an embodiment that distributes and displays information for only a subset of the combined order book." **Lava Trading, Inc. v. Sonic Trading Management, LLC**, 445 F.3d 1348 (Fed. Cir. 2006). 1398

"displaying said monochromatic characters on said character-based output device" — "transmitting the monochromatic characters to a character-based output device for display." **OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.**, 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 1399

"displaying the cartographic data" — "showing the cartographic data." **Garmin Ltd. v. TomTom, Inc.**, 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 1400

"displaying the playlists" — "displaying the audiovisual content listed in the playlists." **STV Asia, Ltd. v. PRN Corp., et al.**, 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006). 1401

"displaying, with the base map" — "The court is persuaded that the term 'base map' is the key term which requires construction. The court defines the term to mean 'a map on which information may be placed.'" **Sourceprose Corp. v. Fidelity National Financial, et al.**, 2006 U.S. Dist. LEXIS 10151 (E.D. Tex., Feb. 23, 2006). 1402

"second conductive gate disposed above and insulated from said first conductive gate" — "although the second conductive gate must be 'above' and separated from the first conductive gate, it need not be perfectly aligned." **Atmel Corp. v. Information Storage Devices, Inc.**, 997 F. Supp. 1210 (N.D. Cal. 1998). 1403

"window disposed adjacent to the hole formed through the platen" — "encompasses windows that are both in and near the hole of the platen." **Applied Material, Inc. v. Tokyo Seimitsu, Co.**, 446 F. Supp. 2d 525 (E.D. Va. 2006). 1404

"a second gate electrode ... disposed entirely over said first gate electrode" — "requires that the second gate electrode must be located above the first gate, and that no portion of the second gate electrode may extend horizontally beyond the edge of the first gate electrode." **Atmel Corp. v. Information Storage Devices, Inc.**, 997 F. Supp. 1210 (N.D. Cal. 1998). 1405

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"a plurality of pixel electrodes disposed on cross points" — "pixel electrodes atop the intersection of the signal and scanning lines." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006).\(1406\)


"computer means disposed remotely" — "a computer that is located apart from a terminal and connected to the terminal by a signal path." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).\(1408\)

"a first doped region disposed under the edge of the stacked gate" — "a part of the doped source region located beneath the edge of the stacked gate." Fast Memory Erase, LLC v. Spansion, Inc., et al., 2010 U.S. Dist. LEXIS 8658 (N.D. Tex., Feb. 2, 2010).\(1409\)

"disposing a continuous layer of transparent, passivating material atop said layer of opaque material and said light influencing material" — "placing a continuous, separate layer of transparent, passivating material atop the separate layer of opaque material and the light influencing material, where the passivating material is a material that performs at least two of the following functions: 1) levels the underlying filter and opaque layers to a continuous, flat surface to serve as a base upon which subsequent layers may be formed; 2) electrically insulates the light influencing element from any electrically conductive layers that may be disposed upon the passivating layer; and 3) provides a flat, level surface so as to assure a uniform thickness for any layer of liquid crystal material disposed thereon." Advanced Technology Incubator, Inc. v. Sharp Corp., et al., 2009 U.S. Dist. LEXIS 109173 (E.D. Tex., Jun. 26, 2009).\(1410\)

"distinct" — "we conclude that 'distinct' does not require storage in separate files. ... The closer question is whether 'distinct' requires independent manipulation of the metacode map and mapped content. Several of the embodiments in the '449 patent allow the user to manipulate only the metacode map or mapped content. However, based on our review of the claim language, the specification, and the prosecution history, we conclude that the claims are not limited to these particular embodiments." i4i L.P., et al. v. Microsoft Corp., 589 F.3d 1246 (Fed. Cir. 2009).\(1411\)

"said second microprocessor employs a second operating system distinct from said first operating system" — "'distinct' should be construed a[s] meaning a different instance, and not a different type." Storage Computer Corp. v. Veritas Software Corp., et al., 2003 U.S. Dist. LEXIS 1181 (N.D. Tex., Jan. 27, 2003).\(1412\)

"an alternative domain name system (DNS), distinct from the Internet domain name system and any client local name server" — "a domain name system, separate from the Internet DNS and the client's name server, that is controlled by a content delivery network service provider and includes control routines that are different from regular name servers." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007).\(1413\)

"said preprogrammed memory ... for use in controlling operation of said vehicle in a distinguishable protocol in addition to those provided by said originally provided program and in lieu of control provided by said originally provided program" — "means that the additional program within the preprogrammed memory not only controls the operation of the vehicle but it does so in a different manner than the original program." Adrain v. Hypertech, Inc., 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002).\(1414\)
"distributed along said buses" — "either multiple capacitance means located at various points along, and in a layer beneath, the buses, or a single capacitance means having plates whose long dimension is spread out along, and in a layer beneath, the buses. The Court does not read in any minimum fraction of the length a bus along which capacitance means must be deployed."  OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 82654 (N.D. Cal., Nov. 13, 2006). 1415

"distributed computer system" — the district court erred in requiring that each processor system 'stand-alone,' i.e., have a separate clock and power supply. 'Distributed computer system' should be given its ordinary meaning, which both parties agree is 'a computer system in which several interconnected computers share computing tasks assigned to the system.'  SeaChange International, Inc. v. C-Cor Inc., 413 F.3d 1361 (Fed. Cir. 2005). 1416

"distributed manufacturing plant" — "a factory that makes a variety of products using machines in workstations throughout the plant."  Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005). 1417

"distributed packet manager" — "a device, process or algorithm located within each packet data source, that controls how the packet data source accesses the time-division multiplexed bus."  Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007). 1418

"distributed switching network" — "a network in which the switching function is distributed over a number of switching or routing elements, components or devices."  Neutral Tandem, Inc. v. Peerless Network, LLC, et al., 2010 U.S. Dist. LEXIS 11248 (N.D. Ill., Feb. 8, 2010). 1419

"distributed Viterbi decoder" — "a Viterbi decoder having multiple Viterbi decoding processes operating on separate portions of a stream of data to be decoded."  Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007). 1420

"distributing the combined order book to the traders in the common system order book protocol" — "one of ordinary skill in this art would not limit the distributing and displaying limitations in the manner suggested by the district court. ... Rather, one of ordinary skill in the art would construe the distributing and displaying limitations as covering an embodiment that distributes and displays information for only a subset of the combined order book."  Lava Trading, Inc. v. Sonic Trading Management, LLC, 445 F.3d 1348 (Fed. Cir. 2006). 1421

"distribution interface" — "the connection that permits data to be conveyed from the central processor through the telephone network to the requesting customer."  USA Video Technology Corp. v. Time Warner Cable, Inc., et al., 2007 U.S. Dist. LEXIS 92578 (E.D. Tex., Dec. 12, 2007). 1422

"distribution stage" — "the stage that serves for retrieval of recorded information, providing it in a human recognizable form, and, in some instances, archiving the recorded information to removable storage."  NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007). 1423

[a memory cell array] "being divided into first and second row groups" — "is correctly understood as referring to two physically separated rows of word lines and hence includes only open bit line structures or architecture."  NEC Corp. v. Hyundai Electronics Industries Co., Ltd., et al., 30 F. Supp. 2d 546 (E.D. Va. 1998). 1424
"dividing said first image frame of pixel intensity data into a regular grid of kernels forming a plurality of rows" — "dividing the frame of image data acquired during the first scan of the subject into a ordered grid of curved or rectilinear zones arranged in one or more rows and columns, each zone containing multiple pixels of data of potentially varying intensity." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008). 1425

"dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" — "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate." Finisar Corp. v. DirecTV Group, Inc., et al., 416 F. Supp. 2d 512 (E.D. Tex. 2006). 1426

"dividing said tracks into a plurality of concentric annular blocks" — "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk." Ricoh Co., Ltd. v. Quanta Computer, Inc., et al., 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007). 1427

"dividing the digitized broad band information" — "grouping, or segmenting, the digitized information into a predetermined cell structure where each cell contains the same pre-selected number of digital words." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 1428

"docking with the host computer" — "plugging or inserting into the host computer without the use of an intermediate bus structure." Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc., et al., 2004 U.S. Dist. LEXIS 29773 (D. Del., Nov. 29, 2004). 1429


"domain name and path" — "a name or other identifier that defines a network connection to the embedded object at a content provider server and is used to retrieve the object in the absence of a content delivery network." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007). 1433


"door control system" — "an electronic system, that also includes a door motor and a driver, for controlling movement of a vehicle door." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009). 1435
"door operation commands" — "door control system specific signals sent to the controller that controls door functions, such as, open, close, lock and unlock." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009).1436

"having said third dopant concentration" — "intending to have the same dopant concentration as the second region." Micrel Inc. v. Monolithic Power Systems, Inc., et al., 2006 U.S. Dist. LEXIS 45860 (N.D. Cal., June 28, 2006).1437

"first doped region"; "second doped region" — "the 'first doped region' must be the drain, and the 'second doped region,' by extension, the source." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).1438

"third doped region" — "need not be contiguous, but can be as depicted in Figure 1." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).1439

"doping ... with ... atomic hydrogen" — "doping with atomic hydrogen (from any source)." Rothschild v. Cree, Inc., et al., 2007 U.S. Dist. LEXIS 48127 (S.D.N.Y., July 2, 2007).1440

"a double layered metal gate" — "a patterned structure of an electrically conductive material that includes two sequentially deposited metal layers and includes a portion that controls current flow through the channel between the source electrode and drain electrode." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010).1441

"down converter" — "a converter where the output voltage is lower than the input voltage." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010).1442

"download component"— "a file or program either sent to or received by a computer in response to a request for electronic data that 1) requests (or controls the download of) electronic data from a computer other than the computer from which the program was sent or received; 2) coordinates the download of electronic data; and 3) interacts directly with the operating system of the computer without another program mediating between it and the operating system." Network Commerce, Inc., et al. v. Microsoft Corp., 422 F.3d 1353 (Fed. Cir. 2005).1443

"downloadable code storage" — "a component or set of components on which instructions or software are kept, from which the instructions or software can be retrieved or accessed, and into which the instructions or software can be transferred." Lantronix, Inc., et al. v. Digi International, Inc., 2006 U.S. Dist. LEXIS 12032 (E.D. Tex., March 6, 2006).1444


"downloading ... if the provided block from the local memory is not at the indicated resolution level"; "downloading ... if the first block is not from the indicated level" — "downloading ... upon some determination that the block provided from local memory is not at the indicated resolution level"; "downloading ... upon some determination that the first block is not at the indicated level." Skyline Software Systems v. Keyhole, Inc., et al., 2006 U.S. Dist. LEXIS 83603 (D. Mass., Nov. 16, 2006).1447

"downloading into a memory storage device" — "transferring the desired data into a device capable of saving it for later access." Comcast Cable Communications Corp., LLC v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., April 6, 2007).1448


"downloads into a memory storage device those of said received data packets which match said specified set of requested data packets" — "the data filter transfers into a memory storage device the data packets specified in the filter data." Finisar Corp. v. DirecTV Group, Inc., et al., 416 F. Supp. 2d 512 (E.D. Tex. 2006).1450

"a drain conductive region remote from said common region and separated therefrom by said relatively lightly doped major body portion" — "is properly construed to include any region carrying a substantial portion of device current that is separated from the common conduction region (between the bases) by the lightly doped layer." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001).1451

"drive bay slot" — "the relatively narrow opening in the housing of the computer that leads to the drive bay." Comaper Corp. v. Antec, Inc., 2006 U.S. Dist. LEXIS 67363 (E.D. Pa., Sept. 13, 2006).1452

"a drive circuit for the motor" — "the portion of a machine tool that receives motor commands and electronically controls motor functions. It may or may not include one or more controllers that interpret and adjust motor commands." Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006).1453

"drive controller" — "The court finds that the inventors disclaimed external translation circuitry. Thus, the proper construction of 'drive controller' includes translation circuitry but excludes circuitry necessarily located on an external adapter card." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34454 (N.D. Cal., Sept. 9, 2005).1454

"drive signal" — "It is true that the term 'drive signal' is a fairly generic term of art. However, the language of the claims in the '659 patent limits the claimed 'drive signals' to those 'phase-related to said clock pulses.'" General Electric Co. v. Nintendo Co., Ltd., 179 F.3d 1350 (Fed. Cir. 1999).1455

"driver" — "the set of software routines used to direct a device, for example, an input/output device or a multi-purpose interface." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).1456

"driver" — "computer software which performs functions." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).1457
"driver means in said computer for receiving said control signals and in response generating a command to a selected one of said applications programs for updating said screen video displays in accordance with said applied pressure to said touch-sensitive display screen" — "is a means-plus-function limitation." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).1458

"driving current in the primary winding"; "driving the primary winding of the transformer with a current" — "mean the power supply producing alternating current that drives current in the primary winding and not through an impedance matching network." Applied Science and Technology, Inc. v. Advanced Energy Industries, Inc., 204 F. Supp. 2d 712 (D. Del. 2002).1459

"dropping packets when the detected congestion exceeds a predetermined severe congestion threshold" — "dropping packets after the detected congestion exceeds the predetermined severe congestion threshold." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).1460

"[noise] due to independent operation of said transistors" — "noise caused by operation of a plurality of on-chip transistors whose operation is not contingent upon operation of the memory array." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004).1461

"dummy conducive patterns" — "conductive patterns in the specified region that are not in contact with any of the wiring." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 12969 (D. Del., Feb. 16, 2010).1462

"during delivery of the real-time information" — "the Court does not construe this claim." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).1463

"during iterative processing" — "the claimed steps can be repeatedly performed by the automated negotiations engine while performing multiple rounds of bargaining involving an offer and multiple counteroffers between two participants where each round is related to prior rounds." Sky Technologies, Inc. v. Ariba, Inc., 491 F. Supp. 2d 154 (D. Mass. 2007).1464

"during variation of the number of channels in the WDM optical signal" — "while the number of channels in the WDM optical signal changes." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).1465

"multi-pulse portion having a given duty ratio \( z = t_2/(t_2+t_3) \)" — "the entire multi-pulse portion has a given ratio, \( z \), where \( z \) is the result of dividing (i) the pulse width at high power (\( t_2 \)), by (ii) the sum of the pulse width at high power (\( t_2 \)) plus the pulse width at low power (\( t_3 \))." Ricoh Co., Ltd. v. Quanta Computer, Inc., et al., 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007).1466

"dynamically" — "automatically and in response to the preceding event." Leader Technologies, Inc. v. Facebook, Inc., 2010 U.S. Dist. LEXIS 21100 (D. Del., Mar. 9, 2010).1467
"dynamic display"; "dynamically displaying" — "a display of a plurality of bids and asks that are updated in response to new market information such that the bids and asks change positions relative to the static display of prices when the market changes"; "updating the first (second) indicator in response to new market information such that the first (second) indicator changes positions relative to the common static price axis when the market changes." We construe "indicator" in its plain and ordinary meaning as "something that indicates." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006).


"dynamically adding information" — "[the] dispute is whether the 'dynamically adding information' language requires the addition of specific types of information, ... the court rejects the defendants' attempt to further limit this term." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).


"dynamically partition data received from the data path to account for an elemental width of the data wherein the elemental width of the data is equal to or narrower than the data path" — "dividing width-wise into a variable number of elements no wider than the data path, based upon the size of the data elements received from the data path." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).

"dynamically partitionable arithmetic unit" — "the arithmetic unit can be divided into a variable number of elements." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).

"dynamically receiving data relating to a portion of a particular thoroughfare in a route" — "receiving in real time data relating to a portion of a particular thoroughfare in a route." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006).

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"each" — "defendant seeks to replace the word 'each' with 'every.' The claim language is clear as written. Aside from construing 'thoroughfare,' I leave the claim language undisturbed." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006).

"each channel having a separate control circuit that is adapted to control the operation of its associated transceiver to complete radio frequency communication paths to mobile units as instructed by the telephone switch" — "each channel is operated via a separate control circuit consistent with the instructions downloaded from the central control station." MLMC, Ltd. v. Airtouch Communications, Inc., et al., 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).
"dividing a period of a clock in said master unit into a number of subframes, dividing each subframes into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs" — "[t]he court therefore construes 'each corresponding to transmission times' to mean 'each subframe corresponding to transmission times.' All other terms have their plain and ordinary meaning." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).1477

"for each message" — "Each is not synonymous with 'every.' Thus, had I been aware at the Markman phase that the parties disputed the meaning of the word 'each,' I would have given it a literal interpretation -- notwithstanding the fact that the preferred embodiment apparently does not establish and maintain a path to the output circuit for each message in a contention situation. The Markman decision is deemed amended accordingly." TM Patents, L.P., et al. v. International Business Machines Corp., 121 F. Supp. 2d 349 (S.D.N.Y. 2000).1478

"wherein each of said impurity diffusion layers of said buffer MOSFETs is separated from one of said impurity diffusion layers of said protection MOSFETs by at least 5 μm" — "requires that one of said separation distances be at least 5 μm, but that in no case should a field oxide film not be interposed between the impurity diffusion layers of buffer MOSFETs and protection MOSFETs, as required by the 'interposed field oxide film' limitation." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 73144 (N.D. Cal., Sept. 21, 2006).1479

"each of said plurality of computers sharing the shared addressable memory space" — "two or more computers, every one of which of those two or more computers participating in the system has access to, and may contribute to, the shared addressable memory space." Mangosoft, Inc., et al. v. Oracle Corp., 2004 U.S. Dist. LEXIS 19357 (D.N.H., Sept. 21, 2004).1480

"each radio frequency channel including a separate transceiver" — "each channel is associated with a separate transceiver." MLMC, Ltd. v. Airtouch Communications, Inc., et al., 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).1481

"echo returns"; "echoes"; "reflections" — "acoustic signals created when an acoustic pulse, encountering a discontinuity or surface, is reflected as it is transmitted through a medium." Echometer Co., et al. v. Lufkin Industries, Inc., 2003 U.S. Dist. LEXIS 13210 (N.D. Tex., Jul. 31, 2003).1482

"field stop regions in said substrate having edges defining the sides of said channel" — "the term 'edge' ... has its ordinary spatial meaning of 'the line where an object or area begins or ends.'" Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).1483


"editing the appearance of the visually displayed waveform by manipulation of said visually displayed waveform" — "altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line." Adobe Systems Inc. v. Macromedia, Inc., 201 F. Supp. 2d 309 (D. Del. 2002).1485
"educational information" — "information that is entered, transmitted and displayed in a context in which there is a teacher/student or student/teacher relationship between a person who enters and transmits the information and a person who views the shared display of the information." Hamilton v. ComWeb Technology Group, Inc., et al., 2003 U.S. Dist. LEXIS 27832 (D. Md., Nov. 13, 2003). 1486

"effective index" — "a number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum." Corning Inc. v. SRU Biosystems, et al., 400 F. Supp. 2d 653 (D. Del. 2005). 1487

"effectively corresponds to the voice of the operator who is on-line with and services incoming calls" — "simply requires that the messages be recorded in the voice of the operator who is on-line with the caller." Golden Voice Technology & Training, L.L.C. v. Rockwell Firstpoint Contact Corp., et al., 267 F. Supp. 2d 1190 (M.D. Fla. 2002). 1488 "[T]he Court adopts the Magistrate's construction of the phrase." Id., 267 F. Supp. 2d 1190 (M.D. Fla. 2003). 1489

"machine processing effectiveness parameter" — "a predetermined value that is an indication of whether a machine has examined the specimen properly." Cytyc Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005). 1490

[i] "first plurality of egress queues"; [ii] "second plurality of egress queues" — [ii] "two or more queues consisting of the organization in memory of data generated from the egress traffic of a network"; [ii] "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of data generated from the egress traffic of a network." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 1491

"egress traffic of a network" — "traffic that has exited or is exiting a network operating at a faster data rate and directed towards a network operating at a slower data rate." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 1492

"either ... or" — "requires at least one, but does not exclude the possibility of both." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003). 1493

"a first electrical conductor connecting the ground mechanism to the utility box for electrically grounding the utility box" — "a structure (possibly including several elements such as grounding wire and a clamp), which can transmit electricity from the utility box to the ground mechanism so as to ground the utility box." Senior Industries, Inc. v. Thomas & Betts Corp., et al., 2001 U.S. Dist. LEXIS 16901 (N.D. Ill., Sept. 27, 2001). 1494


"electrical instructions are sent thereto for interpretation by the loaded program" — "electrical signals are sent to the circuitry and are acted upon by the loaded program." Lantronix, Inc., et al. v. Digi International, Inc., 2006 U.S. Dist. LEXIS 12032 (E.D. Tex., March 6, 2006). 1496
"electrical outlet" — "a point on the wiring system at which current is taken to supply utilization equipment." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007). 1497

"electrical parameters" — "the measurable attributes of electricity and the attributes that can be calculated from such attributes and other data." P3 International Corp., et al. v. Unique Products Manufacturing Ltd., et al., 2009 U.S. Dist. LEXIS 43751 (S.D.N.Y., May 21, 2009). 1498

"electrical potential" — "the relative voltage at some point in an electric circuit or field with respect to some reference point in the same circuit or field." Dicon Global Inc. v. Senco Sensors, Inc., et al., 2004 U.S. Dist. LEXIS 23758 (N.D. Ill., Nov. 18, 2004). 1499

"electrically conductive fibers" — "We are not here modifying the district court's claim construction to limit its scope to stainless steel fibers. We only modify it to exclude carbon fibers from the scope of the '879 patent claims." Honeywell International, Inc., et al. v. ITT Industries, Inc., et al., 452 F.3d 1312 (Fed. Cir. 2006). 1500


"an electrically conductive layer embedded in said first contact hole up to a level higher than the gate electrode such as to be contacted with said electrically conductive layer" — "the court finds that the present term is not indefinite and declines to construe the term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006). 1502

"a first strip formed of a first electrically conductive material having a resistance, ... the first material being carbon" — "carbon plus some adhesive, filler or other material, so long as carbon is the primary conductive material." Stowe Woodward, L.L.C. v. Sensor Products, Inc., 2005 U.S. Dist. LEXIS 16479 (W.D. Va., Aug. 11, 2005). 1503


"electrically connected" — "directly coupled to the primary winding, not through an impedance matching network, such that power is transferred by electrical current flow." Applied Science and Technology, Inc. v. Advanced Energy Industries, Inc., 204 F. Supp. 2d 712 (D. Del. 2002). 1505

"electrically controlled birefringence type"; "electrically controlled birefringence effect" — "a category of liquid crystal cells distinguished from the helical nematic type (i.e., the twisted nematic type) in which the molecules have a homeotropic direction when no voltage is applied between the electrodes." Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007). 1506

"electrically coupled" — "electrically connected, but not requiring a direct electrical connection or the same voltage." Vanguard Products Group, Inc., et al. v. Diam USA, Inc., et al., 2007 U.S. Dist. LEXIS 95710 (N.D. Ill., May 16, 2007). 1507
"electrically distinct contacts" — "contacts along the edge of a printed circuit board in which the contacts on the first side of the printed circuit board and the contacts on the second side of the printed circuit board are not connected across the printed circuit board edge but may be electrically connected away from the edge." Sun Microsystems, Inc. v. Dataram Corp., 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997). 1508


"electrically separated from" — "the 'second layer of conducting strips' is separated from the 'first layer of conducting strips' by a nonconducting layer." Lonestar Inventions LP v. Nintendo of America, Inc., 2009 U.S. Dist. LEXIS 31753 (E.D. Tex., Apr. 14, 2009). 1510

"electro-optical conversion" — "the conversion of an electrical signal into an optical signal and/or the conversion of an optical signal into an electrical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 1511

"electrode" — "any conductive surface, including a metal chamber wall or other surface except a spike, coupled to the plasma, and having an electric potential or source coupled to it." Tegal Corp. v. Tokyo Electron America, Inc., 257 F.3d 1331 (Fed. Cir. 2001). 1512

"electrode" — "any piece of conductive material through which an electric current enters or leaves a medium such as a liquid solution." Roche Diagnostics Corp. v. Inverness Medical Technology Inc., et al., 186 F. Supp. 2d 914 (S.D. Ind. 2002). 1513


"electrode means comprising a source/drain" — "a region or regions embedded in a semiconductor substrate that forms an interface with the lower capacitor plate, which is the doped region embedded in the substrate that lies beneath the gate electrode, and the region or regions electrically connect the lower plate to one of the buses." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 82654 (N.D. Cal., Nov. 13, 2006). 1515


"electrode terminal" — "one or more active electrodes." Arthrocare Corp. v. Smith & Nephew, Inc., 2003 U.S. Dist. LEXIS 5976 (D. Del., Apr. 9, 2003). 1517


"electronic access" — "the ability to gain entry to or use a computer." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 1519


"electronic chip" — "The district court provided the jury with the following construction ...: 'Chip' is not used in whatever technical sense it may have; here, it means the same thing as an electrical component, whether it is a complex integrated circuit of several subparts or a single resistor. A resistor itself is made of two leads, case, and resistant core, at a minimum, making it a packaged electronic component.' Although we do not agree with the district court's construction, for it appears from the definition given to the jury that the district court was confusing a 'packaged electronic component' (i.e., the claimed invention as a whole) with an 'electronic chip' (i.e., an element of the claimed invention), this aspect does not appear to have been material to the result, and any error appears to have been harmless." Strattec Security Corp. v. General Automotive Specialty Co., Inc., et al., 126 F.3d 1411 (Fed. Cir. 1997).1522


"electronic display means" — "As the plaintiff has not overcome the § 112, P 6 presumption, the court will treat electronic display means as a means plus function limitation." Better Education, Inc. v. elInstruction Corp., et al., 2010 U.S. Dist. LEXIS 40972 (E.D. Tex., Apr. 27, 2010).1528

"electronic element" — "a device or thing that has distinct characteristics related to electricity, and that also has terminals at which it may be connected to other distinctly electrical devices or things in order to form a circuit, in which electrons move through devices called semiconductors."  

"electronic mail message" — "a digital text message that is sent over a communications network from one device to another."  

"electronic mail message" — "a formatted text message that is transmitted over a communication system. As originally inputted to an electronic mail system by the sender, the electronic mail message includes the following characteristics: (a) a destination address identifying the person(s), place(s) or object(s) to which the message is directed; (b) an indication of the sender (which may be added automatically by the electronic mail programming); (c) a subject field (which maybe blank); and (d) the inputted message text. The term 'electronic mail message' encompasses all forms of the message as it moves through the communication system (information may be added or deleted to facilitate further transmission as it proceeds through the system)."  

"electronic mail programming" — "an application program specially designed to create, send, access and manage electronic mail messages. Electronic mail programming may operate on a variety of different types of processors (e.g., desktop computer, email server, handheld device, mainframe computer)."  

"electronic mail system" — "a type of communication system which includes a plurality of processors running electronic mail programming wherein the processors and the electronic mail programming are configured to permit communication by way of electronic mail messages among recognized users of the electronic mail system. The various constituent processors in the electronic mail system typically function as both 'originating processors' and 'destination processors.'"  
**NTP, Inc. v. Research In Motion, Ltd.,** 418 F.3d 1282 (Fed. Cir. 2005).  

"electronic market" — "we agree with the district court's definition of electronic markets as markets in which the participants, in addition to browsing and searching, may either buy or sell or do both."  
**MercExchange, L.L.C. v. eBay, Inc.,** 401 F.3d 1323 (Fed. Cir. 2005).  

"electronic marketplace" — "an electronic destination that (1) receives and processes non-binding indications, (2) allows for the matching of non-binding indications with their contra interests and for the negotiation and execution of trades, and (3) has the capacity to record trades if and when they are executed."  

"electronic medium" — "an electronic medium that can be used to update the up-dateable memory of the microcontroller."  

"electronic navigational aid device" — "any electronic device designed to provide information used for in-vehicle navigation."  
"said computers being coupled to at least one electronic network for communicating data messages between said computers" — "said computers being connected to at least one network for communicating data messages between said computers, such connection being at least partially via the Internet." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006). 1539


"electronic sourcing system" — "an electronic system for use by a prospective buyer to locate and find items to purchase from sources, suppliers or vendors." ePlus, Inc. v. Lawson Software, Inc., et al., 2010 U.S. Dist. LEXIS 42609 (E.D. Va., Apr. 30, 2010). 1541

"electronic storage media" — "memory configured to store information in a format that an electronic device can read. The term 'electronic' does not exclude magnetic or optical media such as hard drives, floppy disks, or compact disks." Diego, Inc. v. Audible, Inc., 2006 U.S. Dist. LEXIS 22715 (W.D. Wash., March 27, 2006). 1542

"electronic tax return" — "a completed computerized statement of tax liability or tax-related information ready for submission to a governmental tax agency." Simplification, LLC v. Block Financial Corp., et al., 593 F. Supp. 2d 700 (D. Del. 2009). 1543

"electronically" — "performed on a computer without manual intervention from the user." Simplification, LLC v. Block Financial Corp., et al., 593 F. Supp. 2d 700 (D. Del. 2009). 1544

"electronically communicate with each other as desired and communication between the connected devices as desired" — "transmission and/or receipt of electronic information between linked devices in a manner that the information can be utilized by the receiving device." Lantronix, Inc., et al. v. Digi International, Inc., 2006 U.S. Dist. LEXIS 12032 (E.D. Tex., March 6, 2006). 1545


"electronically providing" — "the court declines to construe this term, other than to reject the defendant's construction that 'providing' requires 'transmission.'" Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006). 1547

"electronically specifying information identifying a plurality of parts and specifications for the parts" — "information identifying a plurality of parts and specifications for the parts that is in an electronic form." Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007). 1548

"electronically updating" — "changing based on information received from the customer via the Internet using an electronic device. 'Electronic' is given its plain-language meaning." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007). 1549
"electronics means for at least reading the signals of said electricity manipulating devices";
"electronics means further for reading said at least one of said electricity manipulating devices including means for creating an On/Off signal exclusively as an On/Off switch";
"electronics means is further for reading at least one of said electricity manipulating devices exclusively as an On/Off switch"; "electronics means also is for outputting to a game console information representing the signals"; "active electronic means for interpreting the analog output of said pressure-sensitive variable-conductance sensor"; "active electronic means for at least interpreting the outputs of said pressure-sensitive variable-conductance sensor"; "active electronic means for interpreting the electrical conductivity of said sensor" — "Because the four terms that begin with 'electronics means . . .' do not recite limited and definable structure, the court concludes that they are means-plus-function limitations. ... [However,] as with 'baffle' in Envirco, 'active electronic' imparts structure. The three claims that include 'active electronic means' are not means-plus-function clauses." Anascape, Ltd. v. Microsoft Corp., et al., 2007 U.S. Dist. LEXIS 88248 (E.D. Tex., Nov. 30, 2007).1550

"the electrotherapy device can provide at least six electrical shocks to the patient before the battery is depleted" — "when the battery low warning is given, the battery is able to deliver at least six therapeutic electrical shocks to the patient." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).1551

"image element" — "the smallest element of an image that can be assigned independent characteristics." Crystal Image Technology, Inc. v. Mitsubishi Electric Corp., 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010).1552

"element substrate" — "the substrate having a matrix circuit and a peripheral drive circuit driving said matrix circuit." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006).1553

"elements" — "a shape together with its graphical attributes, such as color, line width, fill properties, and line properties." Adobe Systems Inc. v. Macromedia, Inc., 201 F. Supp. 2d 309 (D. Del. 2002).1554


"embedded in a series of interrelated screens" — "providing graphical elements (i.e., individual pictures or screens) with corresponding instructions (i.e., command code) in a single file for each graphical element, such that all of the control codes for a given graphical element are directly accessible on the consumer screen." IP Innovation, L.L.C. v. eCollege.com, et al., 2005 U.S. App. LEXIS 26138 (Fed. Cir., Nov. 29, 2005) (unpublished).1556

"Web page including a first code module embedded therein" — "Embedded means contained within the programming architecture (technically known as its 'HTML code') of a computer-readable program (the technical name for which is 'code module')." Modavox, Inc. v. Tacoda, Inc., 607 F. Supp. 2d 530 (S.D.N.Y. 2009).1557

"embodied in a housing" — "This phrase does not involve technical terms and can be understood through its plain and ordinary meaning. It does not require construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).1558
"at least one user interface key embodied in said housing" — "at least one user interface key permanently attached to the housing." *SmartDisk Corp. v. Archos S.A., et al.*, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).\(^{1559}\)

"at least one of which is not embodied in the housing" — "this phrase requires no construction." *SmartDisk Corp. v. Archos S.A., et al.*, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).\(^{1560}\)


"empty payload field" — "a payload field that is empty of source data, but includes bit signals of some kind." *Telcordia Technologies, Inc. v. Cisco Systems, Inc.*, 2010 U.S. App. LEXIS 13692 (Fed. Cir., Jul. 6, 2010).\(^{1562}\)

"emulation" — "a process in which one computer X behaves identically to another computer Y, as X executes the instructions of Y, where the internal architectures of computers X and Y are different." *TechSearch L.L.C. v. Intel Corp.*, 286 F.3d 1360 (Fed. Cir. 2002).\(^{1563}\)

"a UART emulation which" — "software that responds to the operating system as a hardware UART would respond, with respect to UART control and register data, which." *PCTEL, Inc. v. Agere Systems, Inc., et al.*, 2006 U.S. Dist. LEXIS 25943 (N.D. Cal., March 20, 2006).\(^{1564}\)

"enable" — "to place into a condition which is fully operational and performing its function." *LunarEye, Inc. v. Independent Witness, Inc., et al.*, 2006 U.S. Dist. LEXIS 75808 (E.D. Tex., Oct. 3, 2006).\(^{1565}\)


"to enable the second end to be interconnected to a defibrillator" — "the lead wire extends from the package in a manner that allows for interconnection to the defibrillator prior to use of the electrode." *Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al.*, 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).\(^{1567}\)


"enabling caching operations" — "permitting the storing and reading of data on the cache" *SuperSpeed Software, Inc. v. Oracle Corp.*, 447 F. Supp. 2d 672 (S.D. Tex. 2006).\(^{1569}\)


"enabling dynamic assignment of one of said RIMs to supply paging commands" — "any channel, with its associated RIM, transceiver and voice circuit, can function as the central channel in response to separate commands from the central control station." *MLMC, Ltd. v. Airtouch Communications, Inc., et al.*, 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).\(^{1571}\)
"enabling said EFM decoder" — "restarting the flow of EFM decoded audio data." *Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al.*, 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006).\textsuperscript{1572}

[i] "encapsulates the point-to-point link level session in a forwarding protocol header"; [ii] "encapsulates the point-to-point protocol session in the layer 2 forwarding protocol header" — [i] "placing a communication connection between a source and destination pair using the point to point link level protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol"; [ii] "placing a communication connection between a source and destination pair using the point to point protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol." *Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc.*, 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).\textsuperscript{1573}

[i] "enciphered"; [ii] "unenciphered" — [i] "transmission of information in a secure mode; i.e., the transmitted output is encoded (as by logically scrambling the signal)"; [ii] "transmission of information in a clear, not secure mode; i.e., the transmitted output is unencoded." *MLMC, Ltd. v. Airtouch Communications, Inc., et al.*, 172 F. Supp. 2d 557 (D. Del. 2001).\textsuperscript{1574}


"an enclosed lamp envelope" — "an enclosure." *Tailored Lighting, Inc. v. Osram Sylvania Products, Inc.*, 514 F. Supp. 2d 417 (W.D.N.Y. 2007).\textsuperscript{1576}


"encrypt" — "to encipher or encode by altering information." *Diego, Inc. v. Audible, Inc.*, 2006 U.S. Dist. LEXIS 22715 (W.D. Wash., March 27, 2006).\textsuperscript{1579}

"to encrypt the payload portion of the packet" — "to encrypt only the payload portion of the packet." *Widevine Technologies, Inc. v. Verimatrix, Inc.*, 2009 U.S. Dist. LEXIS 102768 (E.D. Tex., Nov. 4, 2009).\textsuperscript{1580}

"encrypted event data" — "event data coded to be unintelligible without decoding information, commonly a key or a password." *Accolade Systems LLC v. Citrix Systems, Inc.*, 634 F. Supp. 2d 738 (E.D. Tex. 2009).\textsuperscript{1581}

"encryption" — "describes a method wherein parts of the signal are rearranged relative to other parts. 'Encryption' does not include the method of inversion." *IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al.*, 146 F. Supp. 2d 498 (D. Del. 2001).\textsuperscript{1582}
"end of access control signal"; "end of access system bus control signal" — "a signal generated by the requesting agent and transmitted over the system bus to indicate completion of memory access. It need not occur at the end of the memory access as long as it indicates when the memory access is to be complete."; "a signal transmitted over the system bus to indicate completion of memory access. It need not occur at the end of the memory access as long as it indicates when the memory access is to be complete." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).1583

"said end user inquiries being the retrieving and viewing of test and/or graphic data from a database" — "said end user inquiries being requests for information that are passively monitored." Keithley v. HomeStore.com, Inc., et al., 2007 U.S. Dist. LEXIS 71126 (N.D. Cal., Sept. 10, 2007).1584


"energy delivery surface" — "the outer surface of the energy delivery device through which energy is delivered toward the patient." Thermage, Inc. v. Syneron Medical, Ltd., et al., 2004 U.S. Dist. LEXIS 19993 (N.D. Cal., Sept. 27, 2004).1586

"energy signal" — "a signal representative of the electrical energy determination made by the first processor, such as watthour delivered/received, volt amp reactive hour delivered/received, or volt amp hour delivered/received." ABB Automation Inc. v. Schlumberger Resource Management Services, Inc., 254 F. Supp. 2d 475 (D. Del. 2003).1587

"energy source" — "The claimed 'energy source' is one capable of delivering a therapeutic shock. Determining which sources of energy meet this requirement is a question for another day." Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al., 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005).1588

"enhanced drift region" — "the Court will not define 'enhanced drift region' beyond how it is already described in Claim 1." Micrel Inc. v. Monolithic Power Systems, Inc., et al., 2006 U.S. Dist. LEXIS 45860 (N.D. Cal., June 28, 2006).1589

"entering a clerk authorization code for initiating a debit purchase transaction" — "the clerk enters a series of numbers and/or letters, or a combination thereof, which permits the initiation of a debit purchase transaction." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010).1590

"entering said secret code into the multi-function card to activate the same" — "The user activates the electronic multi-function-card by entering the secret code. 'Activated' means the point at which the user has entered in the secret code so that she is able to access a data set." E-Pass Technologies, Inc. v. 3COM Corp., et al., 177 F. Supp. 2d 1033 (N.D. Cal. 2001).1591
"entering the data concerning the FCC unit into a programmed computer in order to determine" — "inputting the data relating to the FCC unit into a programmed computer for the purpose of fixing, by way of a computer calculation of the data or a computer implementation of an individual's calculation of the data." Intercat, Inc. v. Nol-Tec Systems, Inc., et al., 2005 U.S. Dist. LEXIS 344 (D. Minn., Jan. 7, 2005). 1592


"an entire ring oscillator variable speed system clock in said integrated circuit" — "a ring oscillator variable speed system clock that is located entirely on the same semiconductor substrate as the CPU and does not directly rely on a command input control signal or an external crystal-clock generator to generate a clock signal." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 1596


"alert envelope" — "The claim itself explains that 'alert envelope' encompasses 'an at least two dimensional region whose boundaries are determined as a function of the flight path angle, look ahead distance and terrain floor boundary.' ... one of skill in this art would agree that the claim defines this term adequately without additional limitations." Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al., 488 F.3d 982 (Fed. Cir. 2007). 1599


"equal peers" — "mean[s] that nodes must have direct access to all other nodes in the network so that all data frames transmitted by each node are 'heard' by all other nodes." Datapoint Corp. v. Standard Microsystems Corp., et al., 31 Fed. Appx. 685 (Fed. Cir., Feb. 15, 2002). 1601

"said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame" — "require[s] an equality of the periods to receive the source image frame and to provide the destination image frame." MStar Semiconductor, Inc. v. International Trade Commission, et al., 183 Fed. Appx. 957 (Fed. Cir., May 25, 2006) (unpublished). 1602

"erasing said video product" — "at the user site, removing or obliterating the downloaded and stored video data; this does not include scrambling or other methods of limiting access to the video product." American Patent Development, Corp., LLC v. MovieLink, LLC, 604 F. Supp. 2d 704 (D. Del. 2009).1604

"an error code correction and detection subsystem" — "a subsystem capable of performing error correction and detection on two different data formats." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34422 (N.D. Cal., Sept. 9, 2005).1605

"generating ... error correcting codes" — "Although one skilled in the art may view the reference to 'correcting' instead of 'detecting' as an obvious error, the claim cannot be rewritten by the Court to correct this error." Intel Corp. v. Altima Communications Inc., 275 F. Supp. 2d 1236 (E.D. Cal. 2003).1606


"scan processing error flags" — "These flags, measures, and tests mentioned in the written description are indeed signals. However, they are particular types of signals used for a particular purpose. A computer conducts the image processing and slide suitability scoring, so the signals must be electronic. The thirteen suitability tests are, at their essence, computer software mechanisms that indicate when an error has been detected. To construe 'scan processing error flags' to include any other type of signal, is inconsistent with the specification and the claims." Cytyc Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005).1608

"error indicator" — "a device that indicates if a compartment has not been placed in a location, or if the compartment has not been placed in a location within a predetermined amount of time." Aguayo, et al. v. Universal Instruments Corp., 2003 U.S. Dist. LEXIS 27846 (S.D. Tex., Jun. 9, 2003).1609

"having an output providing an amplified signal that has essentially the same wave shape as the input signal" — "The parties dispute whether this functional language necessarily requires that the claims only cover devices that achieve fine modulation of the output signal or whether the language merely states the normal function of any amplifier, i.e., creating an output signal that is similar to, but larger than, an input signal. We conclude that it is the latter." Thomcast A.G. v. Continental Electronics Corp., 1997 U.S. App. LEXIS 30444 (Fed. Cir., Nov. 5, 1997) (unpublished).1610

"establish a communication link between said remote home base and said plurality of various job sites" — "establish communication connections between the remote base and each of the various job sites." Key Energy Services, Inc. vs. C.C. Forbes, LLC, et al., 2010 U.S. Dist. LEXIS 67292 (E.D. Tex., Jul. 7, 2010). 1613

"establish[ing] patient-specific rules associated with each of the geographically dispersed hospitalized patients" — "establish[ing] patient-specific rules for each of the individual, geographically dispersed hospitalized patients." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009). 1613

"establishing the spatial relationship" — "Such a minimal dropping of an unenabled reference to an undeveloped system does not support a claim to it. We accordingly conclude that the court did not err by excluding an optical tracking system from its claim construction." Medtronic Navigation, Inc., et al. v. Brainlab Medizinische Computersystems GmbH, et al., 2007 U.S. App. LEXIS 2521 (Fed. Cir. 2007) (unpublished). 1614

"subcarrier-indexed estimates of transmission quality" — "does not require that the measurements of the estimates be determined by any of the four factors enumerated in the preamble." Globespanvira, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 1615

"etch" — "a process or processes for removing one or more materials using chemical and/or physical means." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 1616


"etching" — "the process for removing material in a specified area through a wet or dry chemical reaction, or by physical removal, such as by sputter etch." Agere Systems Inc. v. Atmel Corp., 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003). 1618


"etching the exposed portion of the second semiconductor film" — "removing the entire exposed portion of the second semiconductor film." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006). 1620


"evaluating" — "encompasses determining for each bill whether that bill's value can be determined." Cummins-Allison Corp. v. Glory, Ltd., et al., 457 F. Supp. 2d 843 (N.D. Ill. 2006). 1622
"an automatic operation position wherein the comb moves toward the discharge position automatically upon the occurrence of a predetermined event" — "On its face, the claim does not limit the predetermined event to a cat exit." Lucky Litter LLC v. International Trade Commission, et al., 2010 U.S. App. LEXIS 20621 (Fed. Cir., Oct. 6, 2010) (unpublished). 1623


"event timer" — "at least nonvolatile memory and logic for storing 'event timer information sequences' that are used to control the recording of a television program." SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004). 1627


"non-time based events" — "changing states when prompted by events that are not based on time and excluding the use of delays, buffers and time windows to control bid acceptances in order to control the amount of processing." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 1630

"every node coupled to the communication medium" — "is meant to refer only to nodes that are included in the 'plurality of nodes' that is called for by the claim language. Characteristics of other nodes on the network that are not included in the 'plurality of nodes' are irrelevant to the claimed 'computer communication system.'" Intel Corp. v. Broadcom Corp., 2001 U.S. Dist. LEXIS 23106 (D. Del., Dec. 6, 2001). 1631

"exact geographic location" — "a position in longitude and latitude, not determined using signal strength or cellsite location location techniques, having a degree of accuracy and precision typical of GPS and LORAN systems available at the time of invention." EMSAT Advanced Geo-Location Technology, et al. v. MetroPCS Communications, Inc., et al., 2010 U.S. Dist. LEXIS 62196 (E.D. Tex., Jun. 23, 2010). 1632

"examination data" — "the Court construes 'examination data' to mean 'information that is the actual physical examination by the physician and any tests or procedures ordered or provided that becomes the basis for the patient's medical record and required documentation.' ... [U]sing the verb conjugation 'becomes' here helps ensure that the patient's medical record and required documentation are based on all the information that makes up examination data, not merely the tests or procedures." Prompt Medical Systems, L.P. v. McKesson Corp., 2006 U.S. Dist. LEXIS 54808 (E.D. Tex., July 21, 2006). 1633
"first examination results"; "second examination results" — "the term 'examination results' ... mean[s] 'information regarding one or more workspace elements obtained by examining those workspace elements.' The terms 'first' and 'second' require no construction." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).\footnote{1634}

"examining the payload portion of the packet data" — "examining at least the payload portion of the packet data." Widevine Technologies, Inc. v. Verimatrix, Inc., 2009 U.S. Dist. LEXIS 102768 (E.D. Tex., Nov. 4, 2009).\footnote{1635}

"excess cash" — "an amount selected by the payor beyond the total amount owed at the point of sale." Every Penny Counts, Inc. v. American Express Co., et al., 563 F.3d 1378 (Fed. Cir. 2009).\footnote{1636}

"excessive bandwidth packet" — "a packet transmitted at a rate greater than the subscribed rate." Lucent Technologies, Inc. v. Extreme Networks, Inc., et al., 367 F. Supp. 2d 649 (D. Del. 2005).\footnote{1637}

"exchanging" — "giving up something for something else." Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010).\footnote{1638}

"excitation" — "as a noun [] mean[s] 'an input signal of a system or apparatus without additional values,' and as an adjective [] mean[s] 'relating to an input signal of a system or an apparatus without additional values.'" AT&T Corp. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 10716 (S.D.N.Y., Jun. 23, 2003).\footnote{1639} "Upon reconsideration, this Court reconstrues the term 'excitation' when used as a noun to mean 'an input signal of a system or apparatus that does not require use of voiced/unvoiced coded signals and a noise generator,' and when used as an adjective to mean 'relating to an input signal of a system or apparatus that does not require use of voiced/unvoiced coded signals and a noise generator.'" Id., 2004 U.S. Dist. LEXIS 2394 (S.D.N.Y., Feb. 19, 2004).\footnote{1640}

"excludes relationship" — "a relationship that causes the elements of the right-hand side of the relationship to be excluded when all elements of the left-hand side are already included." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005).\footnote{1641}

"exclusion" — "a color range or a color range in combination with pixel locations that determines which pixels are not to be enhanced." Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).\footnote{1642}

"executable application" — "any computer program code, that is not the operating system or a utility, that is launched to enable an end user to directly interact with data." Eolas Technologies, Inc., et al. v. Microsoft Corp., 399 F.3d 1325 (Fed. Cir. 2005).\footnote{1643}

"executable code" — "a type of software that a processor or hardware device can directly execute." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).\footnote{1644}
"associating an executable file with the part number of the selected choice, the executable file for use during manufacture of the computer system" — "associating a program that is ready to run on a computer with the part number of the selected choice which program is used during manufacturing of the computer system and cannot be a macro (i.e., a symbol, name, or key that represents a list of commands, actions, or keystrokes) or query (i.e., a request for information from a database)." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).1645

"executable play list" — "a play list that can be played automatically." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007).1646


"executable program instruction" — "a computer program that directs a client or server to perform certain operations." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009).1648


"execute concurrently" — "play simultaneously, i.e. at once, through a multitasking operating system where each task is a game. One of those games could operate in the background while the other is played with human interaction." FortuNet, Inc., et al. v. Melange Computer Services, et al., 412 F. Supp. 2d 1071 (D. Nev. 2006).1651

"a window object executes within ... said web browser client" — "means that the window object runs inside the client." CA, Inc. v. Simple.com, Inc., et al., 2009 U.S. Dist. LEXIS 25241 (E.D.N.Y., Mar. 5, 2009).1652

"executing a trade of the security based on information contained in the offer for consideration specified in the reply to the offer, whereby the security is traded efficiently between the first [offering] individual and the second [replying] individual" — "changing a memory location to indicate that an agreement had been reached between the two [trading] individuals." Minton v. National Association of Securities Dealers, Inc., et al., 336 F.3d 1373 (Fed. Cir. 2003).1653

"executing an installation process that generates at the client a permission that is locked uniquely to the client and that may be found by a later execution of the access checking process" — "running an installation program that creates a permission locally, which permission is (1) locked uniquely to the client and (2) capable of being found locally by a later execution of the access checking process." Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009).1654

"executing said student tasks" — "performing student tasks." Better Education, Inc. v. eInstruction Corp., et al., 2010 U.S. Dist. LEXIS 40972 (E.D. Tex., Apr. 27, 2010).1655
"executing the play list"; "presenting the works on a ... play list" — "automatically playing the works in the play list." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007). \textsuperscript{1656}


"said opening further causing the execution of the executable software to initiate automatic generation and transmission of said return receipt to said first computer" — "requires that the executable software itself actually generate and transmit the return receipt." PostX Corp. v. Secure Data In Motion, Inc., 2003 U.S. Dist. LEXIS 25754 (N.D. Cal., Nov. 25, 2003). \textsuperscript{1658}

"existing routing mechanisms" — "the routing mechanisms used by the underlying network." Cable & Wireless Internet Services, Inc. v. Akamai Technologies, Inc., 272 F. Supp. 2d 912 (N.D. Cal. 2003). \textsuperscript{1659}

"existing schedule" — "an association of financial card term data with the applicant ratings established by the financial institution as necessary to become eligible for those particular financial card terms." Block Financial Corp. v. LendingTree, Inc., 2007 U.S. Dist. LEXIS 72332 (W.D. Mo., Sept. 27, 2007). \textsuperscript{1660}

"exit station" — "a portion of the processing machine where wafers are moved after processing and from which said wafers exit the processing machine." Nova Measuring Instruments, Ltd. v. Nanometrics, Inc., 2006 U.S. Dist. LEXIS 90736 (N.D. Cal., Dec. 1, 2006). \textsuperscript{1661}

"expanded instruction decoder" — "a decoder that 'redefines' or 'translates' the native instruction identified as N bits of the expanded RISC instruction, using M bits of the expanded RISC instruction, thereby enabling the instruction set of the microprocessor of the computer to emulate the instructions of a target computer." TechSearch L.L.C. v. Intel Corp., 286 F.3d 1360 (Fed. Cir. 2002). \textsuperscript{1662}

"expanding the received set of reference cell values" — "means a process for generating a complete set of values for the digital words based on the reference cell values that have been received up to that point in time." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). \textsuperscript{1663}

"expert system" — "a software program operating on a set of rules which can be automatically updated based upon successful sales approaches." SFA Systems, LLC v. Infor Global Solutions (Michigan), Inc., et al., 2009 U.S. Dist. LEXIS 13705 (E.D. Tex., Feb. 23, 2009). \textsuperscript{1664}

"expert system knowledge base" — "the Court defines 'expert system' and 'knowledge base' separately. 'Expert system' should be defined as software that solves problems through selective application of rules in the knowledge base. 'Knowledge base' should be defined as a portion of an expert system software having a set of rules and embodying expert knowledge of highly skilled VLSI designers." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005). \textsuperscript{1665}

"exposure apparatus" — "a structure used in the photolithographic projection processes to form or to transfer a pattern of a semiconductor integrated circuit, or a liquid crystal device, or the like onto a substrate." *Nikon Corp., et al. v. ASM Lithography B.V.*, 308 F. Supp. 2d 1039 (N.D. Cal. 2004).1667


"an extended mathematical element coupled to the data path and programmable to implement additional mathematical operations at substantially peak data throughput" — "a programmable unit coupled to the data path that performs additional mathematical operations other than addition, subtraction, multiplication, division, and other floating point operations at substantially peak data throughput." *Microunity Systems Engineering, Inc. v. Dell, Inc., et al.*, 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).1670

"extending laterally from said contact toward said light sensing element" — "the charge sink means, as interpreted by the court, must extend parallel to the top surface and perpendicular to a contact toward the light sensing element." *Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al.*, 906 F. Supp. 798 (E.D.N.Y. 1995).1671


"external memory device" — "external memory is memory that is connected to the computer (as 'computer' is used in claim 1), that is, it is external to the computer, not external to the casing in which the computer is housed. Thus a disk drive or CD ROM which is 'housed' in the same casing as the computer would still be external memory under the Court's interpretation since it is not part of the computer, but rather is accessible to the computer." *Pickholtz v. Rainbow Technologies, Inc., et al.*, 2000 U.S. Dist. LEXIS 21945 (N.D. Cal., Apr. 28, 2000).1674

"external modulator" — "a modulator that acts on the optical carrier signal output from a signal emitter, as opposed to acting on the signal emitter itself." *CIENA Corp., et al. v. Corvis Corp.*, 334 F. Supp. 2d 598 (D. Del. 2004).1675

"externally coupled to said bus" — "externally coupled to said bus via either the diagnostic port or the wiring harness." *Adrain v. Superchips, Inc.*, 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006).1676 "The plain language of this term means that the module is physically connected to the bus of the fixed system by a direct connection from outside of the fixed system." *Adrain v. Hypertech, Inc.*, 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002).1677
"extract" — "to select and obtain nontextual electronic information from a hard copy document (e.g., scanning a hard copy document) and/or to convert nontextual electronic information into a textual form." Eon-Net, L.P. v. Flagstar Bancorp, Inc., 2009 U.S. Dist. LEXIS 24080 (W.D. Wash., Mar. 4, 2009). 1678


"extracting a correction condition" — "creating a value or data set to be used to affect the determination of a current working condition." Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd, et al., 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009). 1680

"extracting information from said magnetic field variation measure as a function of time utilizing said functional relationship being employed" — "extracting information from the measure of the variation in the magnetic field as a function of time utilizing the association being employed, wherein the association functions to relate a variation in the magnetic field with an item of information." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 1681

"extraction circuit outputting a plurality of data segments, each of which being selected from a respective one of said plurality of data frames"; "extraction circuit selecting each of a plurality of data segments from a respective one of said plurality of frames" — "a circuit extracting a data segment from each of a plurality of data frames." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006). 1682

"extracts data" — "no reasonable person, and certainly not someone with ordinary skill in the art, would think that the term 'extract' as used in the patent involves erasure. This term need not be construed." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 1683

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"facsimile"; "facsimile protocol" — "image data transmitted using facsimile protocol on the switched telephone network"; "the standardized procedure that governs the transmitting and receiving of facsimile messages over the switched telephone network." Catch Curve, Inc. v. Venali, Inc., 2007 U.S. Dist. LEXIS 93667 (C.D. Cal., May 11, 2007).[1686] "[E]ven if the district court's claim construction was unduly restrictive with respect to the use of fax protocol in every phase of the communication process, it was not in error with respect to the requirements that the communications take place over a switched telephone network and that the fax messages be delivered to a traditional fax machine or a proxy for such a machine by fax protocol over a switched telephone network." Id., 2010 U.S. App. LEXIS 1401 (Fed. Cir., Jan. 22, 2010) (unpublished).[1687]


"facsimile transceiver" — "A facsimile transceiver is used which includes a scanner that scans a printed image on a piece of paper and turns the image into digitized information. The facsimile transceiver also has a printer which allows the facsimile transceiver to take digitized information, such as a digitized picture or words, and print the picture or words on a piece of paper." Kirsch, et al. v. AOE Ricoh, Inc., et al., 2004 U.S. Dist. LEXIS 31070 (E.D. Mich., Oct. 8, 2004).[1690]


"fault-monitoring data" — "data concerning the status or operating condition of one or more POL regulators used to determine if there is a fault." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007).[1692]


"feedback signal" — "a signal that is indicative of feedback." O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).[1695]


"a feedback signal indicative of an electrical condition at a cold cathode fluorescent lamp load" — "an electrical signal that can be used to determine an electrical condition at a cold cathode fluorescent lamp load." O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).[1697]

"ferromagnetic" — "a material that exhibits ferromagnetism, but, in the absence of an applied external magnetic field, is not magnetized." Fargo Electronics, Inc. v. Iris Ltd., Inc., 2005 U.S. Dist. LEXIS 34493 (D. Minn., Nov. 30, 2005).  

"objects fetched from said clients" — "has only one plain meaning to those of skill in the art: that clients are the source of the objects." Teknowledge Corp. v. Akamai Technologies Inc., 2004 U.S. Dist. LEXIS 18779 (N.D. Cal., Sept. 11, 2004).  


"field of view information from a camera" — "information from at least one field view sensor, which can be used to determine what the camera sees." Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).  


"field stop regions in said substrate having edges defining the sides of said channel for said memory device and for separating each of said memory cells from others of said memory cells in said array" — "the field stop regions ... need only define the sides, and not necessarily the ends, of the memory cell. ... The patent requires that there must be field stop regions ... that completely separate cells from at least some other cells." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998).  

"field view sensors" — "sensors that provide information about the area being viewed by the camera." Sportvision, Inc. v. Sportsmedia Technology Corp., 2006 U.S. Dist. LEXIS 8995 (N.D. Cal., Feb. 17, 2006).  

"plurality of data input fields" — "data input fields, occurring at various locations, as requested by the computer application or program." SP Technologies, LLC, v. Garmin International, Inc., et al., 2009 U.S. Dist. LEXIS 94953 (N.D. Ill., Oct. 9, 2009).  


"file" — "electronically stored or transmitted information or data." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009).  


"file retrieval requests prepared"; "preparing reply messages" — "are unambiguous and need not be construed by the court." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004).1712

"file server means for receiving data from said media means, receiving data inquiries and transmitting data in response to said data inquiries" — "Because the 'file server means' element does not qualify for section 112(6) treatment, it is not limited to the structure corresponding to the claimed function as 'described in the specification and equivalents thereof.' 35 U.S.C. § 112, P 6. Instead, this Court construes the term in accordance with standard claim construction rules." Keithley v. HomeStore.com, Inc., et al., 2007 U.S. Dist. LEXIS 71126 (N.D. Cal., Sept. 10, 2007).1713

"fileservr" — "a networked device or program that manages access to one or more separately stored files." Diego, Inc. v. Audible, Inc., 2006 U.S. Dist. LEXIS 22715 (W.D. Wash., March 27, 2006).1714


"filing electronically" — "submitting or transmitting to a taxing authority by means of a computer without manual intervention from the user." Simplification, LLC v. Block Financial Corp., et al., 593 F. Supp. 2d 700 (D. Del. 2007).1716


"film" — "a thin layer of material. A film may have voids, cracks, or other discontinuities." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).1720

"filter conditions" — "limitations or conditions that determine which of the network vendors will receive a buyer's request for quotation and/or which buyers will receive a response from a network vendor." Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006).1721
"filter means" — "a computer programmed to apply or compare specified conditions to an item(s) of information to determine if the condition is met or not by the item(s) of information."  Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006).

"final results file" — "a file that includes one or more records or fields from the first intermediate results file and one or more records from the second intermediate results file."  Jardin v. Datallegro, Inc., et al., 2010 U.S. Dist. LEXIS 105502 (S.D. Cal., Oct. 4, 2010).

"financial card" — "a tangible piece of plastic or similar material issued by a financial institution that authorizes the cardholder to purchase goods and services on credit or by debiting a bank account, for example, a credit card or debit card."  Block Financial Corp. v. LendingTree, Inc., 2007 U.S. Dist. LEXIS 72332 (W.D. Mo., Sept. 27, 2007).

"financial card terms" — "terms that relate to a financial card offer, e.g., type of offer, interest rate, fees, APR, credit limit, incentive programs, etc., that are pre-set by the financial institution and presented to consumers for consideration in deciding whether to accept the offer."  Block Financial Corp. v. LendingTree, Inc., 2007 U.S. Dist. LEXIS 72332 (W.D. Mo., Sept. 27, 2007).


"financial schedule" — "a kind of document (whether a paper document or electronic file) that data comes from."  Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).

"financial transaction" — "The electronic transfer of funds, or the electronic inquiry as to funds, using an electronic funds transfer (‘EFT’) system such as an ATM system or a point of sale (‘POS’) system. Such electronic transfer of funds, or electronic inquiry as to funds, being characterized by both a transaction type and a plurality of transaction parameters."  IPXL Holdings, L.L.C. v. Amazon.com, Inc., 333 F. Supp. 2d 513 (E.D. Va. 2004).

"firewall" — "software and/or hardware for protecting an organization's network against external threats, such as hackers, coming from another network, such as the Internet. A firewall prevents computers in the organization's network from communicating directly with computers external to the network and vice versa by routing all communications through a proxy server outside of the organization's network for a determination whether a particular message or file will be permitted to pass through to the organization's network."  Visto Corp. v. Sproqit Technologies, Inc., 413 F. Supp. 2d 1073 (N.D. Cal. 2006).

"firewall" — "software and/or hardware for protecting an organization's network against external threats, such as hackers, coming from another network, such as the Internet."  Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).

"firing time information" — "intelligence used to indicate when a given instruction may be executed."  Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).
"first"; "second" — "the terms 'first' and 'second' are used to distinguish repeated instances of the same element or limitation." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010).1732


"first ... and [] second light beam" — "two beams of light that are, for some portion of their paths, separate and discrete." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004).1734

"first clock signal" — "the [] patent does not limit 'a first clock signal' to only one clock." Crystal Semiconductor Corp. v. Tritech Microelectronics International, Inc., 246 F.3d 1336 (Fed. Cir. 2001).1735

[i] "first external clock signal"; [ii] "second external clock signal" — [i] "a periodic signal received by the memory device from an external source to provide first timing information"; [ii] "a periodic signal received by the memory device from an external source to provide second timing information that is different from the first timing information." Rambus Inc. v. Infineon Technologies AG, et al., 2001 U.S. Dist. LEXIS 10990 (E.D. Va., Mar. 15, 2001); Hynix Semiconductor Inc., et al. v. Rambus Inc., 2004 U.S. Dist. LEXIS 23230 (N.D. Cal., Nov. 15, 2004).1736

"a first fraction of a clock pulse interval" — "the term 'first' does not refer to the beginning of a clock pulse interval. Instead, it refers to the first 'fraction,' that is, before another 'fraction' in time." U.S. Philips Corp. v. Atmel Corp., et al., 2004 U.S. Dist. LEXIS 5832 (S.D.N.Y., Apr. 2, 2004).1737


"first-order low-pass filter section"; "second-order low-pass filter section" — "are not indefinite and they do not require specific construction by the court." Pulse Engineering, Inc. v. Mascon, Inc., 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009).1740

"first/second response unit means" — "While the claim language requires two functionally distinct response units, the claim language does not appear to require that the first and second response unit means reside in physically separate structures." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003).1741

"a first signal part and a second signal part" — "to separate the unmodulated optical signal into at least two parts." Cheetah Omni LLC v. Samsung Electronics America, Inc., 2009 U.S. Dist. LEXIS 119541 (E.D. Tex., Dec. 21, 2009).1742


"a first addressable memory area ... a second addressable memory area ... a second addressable memory area" — "requires three separate addressable memory areas." Quantel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997). 1746

[i] "first command interpreter"; [ii] "second command interpreter" — [i] "a software program for interpreting an inquiry from a host device and sending a signal to the host device in response to the inquiry, which signal tells the host computer that the interface device is an input/output device customary in a host device regardless of the type of transmit/receive device attached to the interface device"; [ii] "a software program for translating data request commands from the host device into data transfer commands understandable by a plurality of dissimilar data transmit/receive devices." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009). 1747

[i] "first connecting device"; [ii] "second connecting device" — [i] "a physical socket or plug for permitting a user to attach and detach the interface device to and from a host device/computer"; [ii] "a physical plug or socket for permitting a user readily to attach and detach the interface device with a plurality of dissimilar data transmit/receive devices." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009). 1748

"first data processing element, coupled to the system bus [means], for processing data from primary memory" — "Because this issue has been resolved via the construction of 'system bus,' no construction of 'first data processing element' or 'first data processing element coupled to the system bus for processing data from the main memory' is necessary." Intergraph Hardware Technologies Co. v. Toshiba Corp., et al., 508 F. Supp. 2d 752 (N.D. Cal. 2007). 1749

"first header having parameters stored therein for use by said audio player in decoding said digitally encoded music stored in said memory" — "a single data structure that includes information used by the audio player to decode digitally encoded music stored in memory." Sandisk Corp. v. LSI Corp., 2010 U.S. Dist. LEXIS 24973 (N.D. Cal., Mar. 17, 2010). 1750

"first layer to be etched" — "a layer of a semiconductor device from which some amount of material is removed in order to create a pattern in the layer. The first layer may consist of any type of material and need not be present in the completed device." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 1751

"first message" — "a signaling message that is distinct from the second message." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007). 1752
"a first metallization layer comprising aluminum being defined overlying said gate region" — "a metallization layer that includes aluminum, at least a portion of which is specifically deposited overlying at least a portion of the polysilicon layer directly above either the channel or field region."  IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).  

"a first metallization layer comprising aluminum having portion overlying said polysilicon layer"; "a first metallization layer comprising aluminum having a portion overlying a portion of said polysilicon layer" — "a metallization layer that contains aluminum at least a portion of which is overlying at least a portion of the polysilicon layer."  IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).  

"first state of circuit operation"; "second state of circuit operation" — "the first state of operation can be linked to high load currents, and the second state can be linked to low load currents, although the states of operation do not necessarily have to be linked to a high or low load current."  Linear Technology Corp. v. International Trade Commission, et al., 566 F.3d 1049 (Fed. Cir. 2009).  


"fixed frequency" — "is not a technical term and can be understood according to its plain and ordinary meaning. Accordingly, the Court declines to construe this term."  Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).  

"fixed level control signal" — "a constant level, that is, one which does not vary according to external temperature; and a signal simply means an electrical characteristic that carries information."  Control Resources, Inc. v. Delta Electronics, Inc., et al., 133 F. Supp. 2d 121 (D. Mass. 2001).  

"flat panel display device" — "a display device having at least a flat display panel sandwiched by the first and second frames."  LG Philips Co., Ltd. v. Tatung Co., et al., 2007 U.S. Dist. LEXIS 43557 (D. Del., June 15, 2007).  

"flight management computer" — "a computer capable of receiving flight critical data from navigation databases files."  Harris Corp. v. Federal Express Corp., 2010 U.S. Dist. LEXIS 3424 (M.D. Fla., Jan. 12, 2010).  

"floppy diskette controller" — "The claims of the '002 and '222 patents are not limited to a system or method in which the FDC [floppy diskette controller] is controlling a 'floppy diskette' as that term was defined for '414 patent; other types of spinning storage media may be employed."  Phillip M. Adams & Associates, LLC v. Dell, Inc., et al., 2010 U.S. Dist. LEXIS 68749 (D. Utah, Jul. 9, 2010).  

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"flowing process fluids sequentially and continuously" — "means that process fluids flow past the wafers one after another and that the term 'continuously' requires an uninterrupted flow of the process fluids." *CFMT, Inc., et al. v. YieldUP International Corp.*, 92 F. Supp. 2d 359 (D. Del. 2000).\(^{1763}\)

"following a previously computed form line having been defined using positioning information derived from earlier received GPS data and a swathing offset" — "following a previously computed path across the area to be treated, where the path was computed using geographical positions computed from earlier received GPS satellite data transmissions and a distance determined by the effective width of a towed implement." *Trimble Navigation Ltd. v. RHS, Inc.*, *et al.*, 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007).\(^{1764}\)

"maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase" — "requires the two signals to be maintained separate and apart beginning immediately after the amplitude is initially altered and the phase is initially shifted." *Desper Products, Inc., et al. v. QSound Labs, Inc.*, 157 F.3d 1325 (Fed. Cir. 1998).\(^{1765}\)

"for" — "There is no need to inject verbiage into such a straightforward and ordinary term." *PageMelding, Inc. v. Feeva Technology, Inc., et al.*, 2009 U.S. Dist. LEXIS 80886 (N.D. Cal., Aug. 19, 2009).\(^{1766}\)


"a statistical decoder coupled to said I/O port for decoding variable-length-encoded compressed video signals"; "I/O circuitry coupled to said I/O port, for providing processed video signal to said I/O port, and for accepting a processed video signal from said I/O port"; "a pixel interpolator for generating values representing pixels interstitial to pixel values represented by said processed video signal" — "The court finds that the 'statistical decoder,' 'I/O circuitry,' and 'pixel interpolator' of claim 10 are not means-plus-function elements." *Intel Corp. v. Broadcom Corp.*, 172 F. Supp. 2d 516 (D. Del. 2001).\(^{1768}\)

"for electrical connection" — "any combination of contact arm(s) and/or the spring makes the electrical connection with the first terminal of the battery." *Invisible Fence, Inc. v. Perimeter Technologies, Inc.*, 2006 U.S. Dist. LEXIS 33792 (N.D. Ind., May 25, 2006).\(^{1769}\)

"for increasing bandwidth said first colors are gradually replaced with a single second color until, at large bandwidths, only said single second color is assigned to the display" — "as bandwidth increases continuously or in regular steps, said first colors are replaced continuously or in regular steps, with a single second color until, at large bandwidths, only said single second color is assigned to the display." *General Electric Co., et al. v. Sonosite, Inc.*, 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).\(^{1770}\)

"includes data for locating the personal computer" — "includes data from which it can determine how to direct communications to the personal computer." *01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al.*, 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).\(^{1771}\)
"a variable speed wind turbine controller, responsive to the sensed signals indicative of generator speed and generator electrical power output, for providing a generator torque command signal for commanding maneuvers" — "the variable speed controller must be responsive to sensed signals of generator velocity and electrical power output for the purpose of providing torque command signals." Gamesa Eólica, S.A. v. General Electric Co., 359 F. Supp. 2d 790 (W.D. Wis. 2005). 1772

"category for providing information" — "a category for network pages that have as a purpose the provision of information, for example, network pages that contain articles, journals, or publications." Iconfind Inc. v. Yahoo! Inc., 2009 U.S. Dist. LEXIS 115923 (E.D. Cal., Dec. 14, 2009). 1773

"signal conditioning units ... for receiving electronic signals produced by the keyboard and mouse and for creating a serial data packet that includes the electronic signals" — "I conclude that there is sufficient structure so as to avoid the application of § 112, P6." Apex Inc. v. Raritan Computer, Inc., 2005 U.S. Dist. LEXIS 4017 (S.D.N.Y., Mar. 11, 2005). 1774

"for storing the received programs, and for subsequently playing the video programs" — "for storing the entire received program and for playing the video program after storage is complete." USA Video Technology Corp. v. Time Warner Cable, Inc., et al., 2007 U.S. Dist. LEXIS 92578 (E.D. Tex., Dec. 12, 2007). 1775


"for use in transferring data between a flash memory module and a user's computer" — "the court concludes that this phrase requires no construction and rejects the defendants' proposed limitations." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006). 1777

"form line" — "a path across the area to be treated." Trimble Navigation Ltd. v. RHS, Inc., et al., 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1778

"form line following information corresponding to the updated form line" — "the recomputed path across the area to be treated that is to be followed." Trimble Navigation Ltd. v. RHS, Inc., et al., 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1779

"form line having been defined" — "path across the area to be treated that has been computed." Trimble Navigation Ltd. v. RHS, Inc., et al., 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 1780

"form set" — "According to the trial court's construction, 'form set' includes 'single-ply' form sets. The government argues that 'form set' must be interpreted to exclude 'single-ply' form sets because, it says, the claim language itself recites and the specification discloses more than one 'sheet' in every form set described. ...We agree with the trial court." Paymaster Technologies v. United States, 2006 U.S. App. LEXIS 11325 (Fed. Cir. 2006) (unpublished). 1781

"format" — "a data transmission characteristic that is defined in terms of 'data architecture' and/or the 'rate of data transmission.' The 'rate of data transmission' is defined in the specification as 'the rate at which data bits are transmitted from source node to destination node.' 'Data architecture' is defined in the specification 'by one or more of the following data transmission characteristics: encoding, encryption, compression, and protocol.' Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001).1783

"format set" — "a collection of individual formats for a node consisting of at least one format." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001).1784

"a format specified by the institution" — "In sum, in its determination that 'a format specified by the institution' requires an unlimited number of formats, the district court defined 'format' too narrowly by limiting it to any 'file format' and erroneously imported the term 'any' into the claim language, ignoring the ordinary meaning of the term 'a.'" Collegenet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225 (Fed. Cir. 2005).1785

"type of formatting" — "a layout or presentation of text and/or graphics on a page." Dow Jones & Co., Inc. v. Ablaise, Ltd., et al., 2007 U.S. Dist. LEXIS 49750 (D.D.C., July 11, 2007).1786

"formatting data" — "HTML tags, which specify the location of text and/or graphics on a page." Dow Jones & Co., Inc. v. Ablaise, Ltd., et al., 2007 U.S. Dist. LEXIS 49750 (D.D.C., July 11, 2007).1787


"is formed" — "The plain language of the claim requires that the step of encoding is performed, not simply that the values have the characteristic of having been encoded-phrase [5] requires that 'a first code value is formed' and phrase [6] requires that 'a second code value is formed.' Accordingly, the Court concludes that phrases [5] and [6] are limiting and, thus, that claim 38 requires both encoding and decoding." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).1790

"a plurality of memory cell transistors and a plurality of select transistors formed in said plurality of element regions" — "a plurality of memory cell transistors and a plurality of select transistors, each transistor of which is formed in one of said plurality of element regions." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006).1791

"formed of" — "the court gives the term 'formed of' its plain and ordinary meaning and finds no specific construction of this term is required." Pulse Engineering, Inc. v. Mascon, Inc., 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009).1792

"a first strip formed of a first electrically conductive material having a resistance ..., the first material being carbon" — "The 'first material' refers to the first electrically conductive material, not to the entire first strip which may also include adhesives, fillers, or other materials, so long as they are not the primary conductive material." Stowe Woodward, L.L.C. v. Sensor Products, Inc., 2005 U.S. Dist. LEXIS 16479 (W.D. Va., Aug. 11, 2005).1793

"forming a contact plug comprising a conductive material which substantially fills said contact holes and which is in contact with said barrier layer" — "The hole is plugged and thereby substantially filled with a conductive material. This plug is in contact with the barrier layer." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 15254 (N.D. Cal., Feb. 14, 2006).

"forming a first insulation layer over said plurality of first gate electrodes; forming implanted barrier regions in said semiconductor substrate in the intervals between said plurality of spaced-apart first gate electrodes, the edges of said implanted barrier regions being aligned with the vertical edges of the insulation layer on the respective first gate electrodes" — "By the literal language of the claim, the edges of the implantation barrier regions are aligned with the edges of the insulation layer; hence, the insulation layer must already be in place in order to align the barrier regions with it during ion implantation." Loral Fairchild Corp. v. Sony Electronics Inc., et al., 181 F.3d 1313 (Fed. Cir. 1999).


"forming a monochromatic image from a digital representation of a color image" — "converting, or transforming, a digital representation of a color image into a monochromatic image as described by the steps of the method." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).


"forming an adhesion and contacting layer of titanium at least in said holes, including along said walls, in contact with the underlying doped region" — "Titanium [must] be deposited in the contact holes so as to form an adhesion and contacting layer. This layer runs along the walls of the holes and contacts the underlying doped regions." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 15254 (N.D. Cal., Feb. 14, 2006).


"to the extent data required to render said at least one spreadsheet has not been previously stored by said cache, said cache formulates a single query for transmission from said client across said network to said server" — "when data needed to generate the spreadsheet is not stored in the cache, combining requests for data into one package before sending it to the server." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).
"forward channel protocol"; "high speed downstream channel protocol" — "a set of rules for transmission of high speed data addressed to a remote link adapter." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).

"Fourier transform plane" — "a mathematically calculable plane generally corresponding to or substantially near the pupil plane of a projection optical system." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004).

"frame" — "a spatially complete image with respect to how it is displayed on the display device and an incomplete fractional image of the image to be displayed with respect to the image seen by the viewer." Crystal Image Technology, Inc. v. Mitsubishi Electric Corp., 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010).


"data frame"; "frames containing data" — "refers to frames formulated at or above the physical layer including both a source and destination address and comprising data communication between the nodes and not other physical layer signals that may exist on the network." Datapoint Corp. v. Standard Microsystems Corp., et al., 31 Fed. Appx. 685 (Fed. Cir., Feb. 15, 2002).

"frame segment descriptor" — "a descriptor identifying where the corresponding segment is in the host memory." 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).

"frame store means for storing a frame" — "a store that is capable of storing data representing an entire frame of video and supplying pixels in the order in which they are scanned by the electron gun for display on the monitor at a rate sufficient to satisfy the refresh rate of the display monitor." Quantel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).


"data frames"; "frames" — "these terms do not require construction." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006).


"to freeze in said still frame buffer an image obtained by said at least one input device, and to receive a save command and in response thereto to save in said memory a frozen image" — "means what it says." Luma Corp. v. Stryker Corp., et al., 2005 U.S. Dist. LEXIS 40884 (S.D. W. Va., July 27, 2005).
"processing frequency" — "the speed at which the CPU operates." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).

"frequency jittering" — "varying the switching frequency of a switch mode power supply about a target frequency in order to reduce electromagnetic interference." Power Integrations, Inc. v. Fairchild Semiconductor International, Inc., et al., 422 F. Supp. 2d 446 (D. Del. 2006).


"frequency variation signal" — "an internal signal that cyclically varies in magnitude during a fixed period of time and is used to modulate the frequency of the oscillation signal within a predetermined frequency range." Power Integrations, Inc. v. Fairchild Semiconductor International, Inc., et al., 422 F. Supp. 2d 446 (D. Del. 2006).

"a signaling message ... from a narrowband communication system" — "the prosecution does not contain anything which could be construed as a clear disavowal of claim scope or an explicit characterization of an aspect of the invention to overcome prior art that 'from a narrowband system' means 'received in a format sent from a narrowband system.' ... no further claim construction is required." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007).

"read and process data in the identified packets from the buffer" — "the court construes 'from the buffer' to mean 'while the packets are in the buffer.'" 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).


"fuel injection system component" — "is limited to a fuel filter." Honeywell International, Inc., et al. v. ITT Industries, Inc., et al., 452 F.3d 1312 (Fed. Cir. 2006).

"a full band broadcast signal" — "because the claim term 'full band broadcast signal' in Claim 13 has no meaning to one of skill in the art and is not defined in the '534 Patent, Claim 13 cannot be construed and is therefore indefinite." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).


"full-width data path" — "a data path on the memory module that is at least as wide as the path used by the central processing unit of the computer into which the module is installed." _Sun Microsystems, Inc. v. Dataram Corp._, 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997). 1827

"fully enabled mode"; "full version run" — "a mode/version that allows full use of the digital data or software in accordance with the license." _Uniloc USA, Inc., et al. v. Microsoft Corp._, 447 F. Supp. 2d 177 (D. R.I. 2006). 1828

"fully folded array" — "a memory storage array in which the level of organization of data is non-redundant and which contains regenerated data from a failed disk in the place of previously existing parity data corresponding to that regenerated data." _Hewlett-Packard Co., et al. v. EMC Corp._, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). 1829


"fundamental frequency detector" — "a mechanism that receives an input signal and, using a low-pass filter, generates a modified output signal representative of the fundamental frequency." _Square D Co., et al. v. E.I. Electronics, Inc._, 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010). 1834

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"gallery" — "a representation of one or more items." _ADE Corp. v. KLA-Tencor Corp._, 220 F. Supp. 2d 303 (D. Del. 2002). 1835

"gaming machine" — "gaming device which is not limited to any particular type of game such as poker." Aristocrat Technologies, et al. v. International Game Technology, et al., 2009 U.S. Dist. LEXIS 40975 (N.D. Cal., May 14, 2009).  


[i] "gate electrode"; [ii] "source electrode" — [i] "a patterned, electrically conductive material that controls current flow through the channel between the source electrode and drain electrode"; [ii] "a patterned, electrically conductive material formed over the source region. Current flows through the channel between the source electrode and the drain electrode under the control of the gate electrode." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010).  

"gate electrode means on said gate insulation layer means and overlying said first and second channel regions" — "is properly construed to embrace any aluminum, polysilicon or other gate electrode." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001).  

"gate insulation layer means on said first surface, disposed at least on said first and second channel regions" — "is properly construed to embrace any gate insulation layer." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001).  

"gate line" — "a conductor that connects a plurality of gate electrodes." Sharp Corp. v. AU Optronics Corp., et al., 2005 U.S. Dist. LEXIS 44745 (N.D. Cal., Jun. 20, 2005).  


"gateway switch" — "[a] processor in an electronic mail system which connects other processors in that system and has additional functions for supporting other conventional aspects of the electronic mail system such as receiving, storing, routing, and/or forwarding electronic mail messages." NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).  

"gathering software agents" — "a software component and/or related data that once processed can be employed to locate and retrieve information from Internet destinations based on user or enterprise request." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).  

"gatherer" — "[because] 'gatherer' is a 'coined term lacking clear meaning,' the Court finds that the above element is written in means-plus-function form." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).
"a general coupon template" — "a generic form for a coupon which includes no site specific information with respect to the specific location where the site specific coupon is to be printed." Southwest Efuel Network, L.L.C. v. Transaction Tracking Technologies, Inc., 2009 U.S. Dist. LEXIS 103395 (E.D. Tex., Oct. 23, 2009). [1850]


"general purpose computer" — "The district court accepted the definition of "general purpose computer" that had been agreed by the parties; the court found that a RISC microprocessor does not meet that definition ... We do not discern error in this finding, for the term 'general purpose computer' was added to Hutchins' claims during prosecution in order to distinguish the '685 invention from prior art that showed similar devices with dedicated microprocessor units. This produced an estoppel against reading the term 'general purpose computer' to include a dedicated microprocessor such as a RISC." Hutchins v. Zoll Medical Corp., 2007 U.S. App. LEXIS 15809 (Fed. Cir., July 3, 2007). [1852]

"general purpose media processor"; "general purpose programmable media processor"; "media processor"; "programmable media processor"; "general purpose [multiple precision parallel operation] programmable media processor" — "a processor having an execution unit capable of operating on different media types and data sizes." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). [1853]

"general synchronization module" — "software routines or code that perform the task of determining whether a workspace element and/or an independently modifiable copy thereof has (or have) been modified, based on one or more criteria." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005). [1854]


"to generate" — "is commonly defined as 'to bring into being' or 'produce as a result of a chemical or physical process,' and in the context of computer science it is defined as 'to produce (a program) by instructing a computer to follow given parameters with a skeleton program.' ... This definition is consistent with the discussion of the term in the '961 patent." ResQNet.com, Inc. v. Lansa, Inc., 2002 U.S. Dist. LEXIS 16667 (S.D.N.Y., Sept. 5, 2002). [1857]

"generate a display" — "create a representation of an image that comprises graphics and/or text." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009). [1858]

"generate a fill signal" — "to generate a signal which fills voids by varying the input signal without solely modifying the on and off times of the signal carrying the image." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006). [1859]
"generate a message"; "generating a message" — "assemble/assembling information to create a message." *Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al.*, 518 F. Supp. 2d 1306 (D. Kan. 2007).\(^{1860}\)

"generate device control signals" — "to generate signals that control the device." *Digi International, Inc. v. Lantronix, Inc.*, 402 F. Supp. 2d 1041 (D. Minn. 2005).\(^{1861}\)

"wherein said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame" — "requires only that a second clock signal be generated so as to be consistent with an equality of the source image frame and destination image frame periods." *MStar Semiconductor, Inc. v. International Trade Commission, et al.*, 183 Fed. Appx. 957 (Fed. Cir., May 25, 2006) (unpublished).\(^{1862}\)


"generating a bit stream" — "encompasses the creation of either serial or parallel bit streams." *Bell Communications Research, Inc. v. Fore Systems, Inc.*, 113 F. Supp. 2d 635 (D. Del. 2000).\(^{1865}\)

"generating a high voltage charge when a shockable rhythm is detected" — "initiating a charge in the high voltage generation circuit at the time that the device detects a shockable rhythm (or recognizes fibrillation)." *Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al.*, 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).\(^{1866}\)

"generating a signal based on the measured pressure in said chamber and providing said signal to said control module" — "generates a signal based upon the measured pressure in the chamber and provides that signal to the control module." *Automotive Technologies International, Inc. v. Delphi Corp.*, 2009 U.S. Dist. LEXIS 83187 (E.D. Mich., Sep. 11, 2009).\(^{1867}\)

"generating a transaction ID corresponding to the database entry"; "generating a unique transaction ID corresponding to the database entry" — "mean 'generating a unique identifier for a particular database entry'; the 'generating a transaction ID' step of the method [need not] occur[] before the 'creating a database entry' step." *Graphon Corp. v. Autotrader.com, Inc.*, 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007).\(^{1868}\)


"generating at least one reservation request" — "bringing into existence at least one reservation request." *PalmTop Productions, Inc. v. LO-Q PLC, et al.*, 450 F. Supp. 2d 1344 (N.D. Ga. 2006).\(^{1870}\)

"generating one or more reports from the test methodologies" — "using a computer to generate one or more reports based on the results of the test methodologies." Aser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009). 1872


"generating via said projector means a plurality of alignment images onto said display screen at predetermined locations" — "The alignment images are generated and projected onto the display screen at locations that are predetermined relative to the image being projected." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007). 1874

"generator of a voting session identifier for each voting session" — "a component of the voting machine (such as a processor, random number generator, processor with a random number generator) provides a random or pseudo-random, unique identifier for each voting session." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 1875

"geographic vicinity" — "The summary of the invention provides the following: 'Geographic vicinity,' and 'map' are used to denote a geographic region which includes and surrounds selected items of interest. ... I find that the '525 patent's definition of 'geographic vicinity' is sufficiently clear, deliberate, and precise, and therefore ... controls." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000). 1876

"geometric address information" — "refers to (1) address information which represents or characterizes the physical geometry of a particular hard disk system and (2) address information in binary form which represents the geometry of a hypothetical or imagined hard disk system having a binary number of heads, cylinders and sectors." Database Excelleration Systems, Inc. v. Imperial Technology, Inc., 1998 U.S. Dist. LEXIS 19038 (N.D. Cal., Jul. 23, 1998). 1877


"given flow temperature" — "is the temperature at which a particular ternary doped silicon oxide, heated for a specific period of time, and in a given atmosphere, will flow across the semiconductor body to form the insulating layer." Harris Corp., et al. v. Atmel Corp., 14 F. Supp. 2d 821 (E.D. Va. 1998). 1879

"less than a given level" — "less than a given power level to satisfy federal regulations." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010). 1880
"given observation plane" — "a plane perpendicular to the screen which corresponds to the most probable position of a screen reader, i.e., a vertical plane extending perpendicularly from the screen." *Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al.*, 524 F. Supp. 2d 498 (D. Del. 2007). 1881

"given one of the content servers" — "a particular one of the content servers distinct from the content." *Akamai Technologies, Inc., et al. v. Limelight Networks, Inc.*, 494 F. Supp. 2d 34 (D. Mass. 2007). 1882


"global control system" — "a control system that sends commands to other devices in a system (e.g. local control systems)." *WesternGeco LLC v. ION Geophysical Corp.*, 2010 U.S. Dist. LEXIS 71875 (S.D. Tex., Jul. 16, 2010). 1885


"global repository" — "an abstraction for a database that stores metadata that can be shared with other linked repositories." *Informatica Corp. v. Business Objects Data Integration, Inc.*, 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005). 1887


"graphical object" — "a graphical object is a symbol and pertains to pictorial representations of data. Graphical objects are not text. Text is not a graphical object. A graphical object may include text. Text alone is not a graphical object." Luma Corp. v. Stryker Corp., et al., 2006 U.S. Dist. LEXIS 7905 (S.D. W.Va., Feb. 3, 2006). 1893

"said one or more visual representations comprising graphical objects" — "one or more visual representations comprising graphical objects. A graphical object is a symbol and pertains to pictorial representation of data. Graphical objects are not text. Text is not a graphical object. A graphical object may include text. Text without a graphical object is not a graphical object." Luma Corp. v. Stryker Corp., et al., 2005 U.S. Dist. LEXIS 40884 (S.D. W. Va., July 27, 2005). 1894

"graphical user interface" — "computer environment wherein an application program presents graphical representations of data on a computer display screen and enables a user to make selections of the graphically represented data." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010). 1895


"graphics" — "images on a computer screen." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010). 1897


"ground proximity warning system" — "the district court properly declined to limit the term 'ground proximity warning system' to any particular system, whether approved or designed to use particular factors in warning of ground proximity." Honeywell International, Inc., et al. v. Universal Avionics Systems Corp., 493 F.3d 1358 (Fed. Cir., July 3, 2007). 1899


"group" — "refer to a subset of all subscribers." Irdeto Access, Inc. v. EchoStar Satellite Corp., et al., 383 F.3d 1295 (Fed. Cir. 2004). 1902

"skill group" — "one or more agents, each agent having a particular sub-combination of skills." IEX Corp. v. Blue Pumpkin Software, 2002 U.S. Dist. LEXIS 27707 (E.D. Tex., May 29, 2002). 1903 "[T]he district court declined to accept the Magistrate Judge's 'one or more' construction and instead determined that 'skill group' referred to 'a group of agents.'... 'skill group' correctly interpreted includes a group of one or more agents, and the district court erred when it construed 'skill group' to require more than one agent." Id., 122 Fed. Appx. 458 (Fed. Cir., Feb. 2, 2005) (unpublished). 1904

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"group of collaboration types" — "a group of types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax" Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).1908

"groups/sets of individual instructions" — "a collection of one or more individual instructions that can be executed simultaneously (i.e. can be dispatched to parallel pipelines simultaneously)." Intergraph Corp. v. Intel Corp., 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002).1909


"guaranteeing predetermined individual minimum bandwidths" — "guaranteeing individual minimum amounts of data that can be sent per unit of time, determined beforehand." Lucent Technologies, Inc. v. Extreme Networks, Inc., et al., 367 F. Supp. 2d 649 (D. Del. 2005).1912

"guard" — "the term 'guard' is a 'coined term' that was not known in the art. The Court therefore finds that it is subject to 35 U.S.C. § 112 P 6." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).1913

"outer electrostatic discharge guard ring" — "a closed or open ring, or open L or C-shaped line, outside the active matrix display to provide protection from electrostatic discharges." L.G. Philips LCD Co., Ltd. v. Tatung Co., et al., 434 F. Supp. 2d 292 (D. Del. 2006).1914


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"a hard disk drive ... operatively coupled to receive and store" — "The court agrees with the plaintiff that the terms used in this phrase are readily understandable and concludes that this phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).1917

"hardware key data security system" — "a security system which locks the network until it is unlocked by a hardware key." Citec, Inc. v. Romtec, Inc., 2003 U.S. Dist. LEXIS 27833 (D. Md., Dec. 5, 2003).1918

"hardware operating parameter" — "an operating parameter (such as 'line impedance' or 'transmit line signal level') that when changed requires a change in hardware configuration not simply a change in the use of the hardware provided." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).1919


"headers" — "need not identify the computer data packets' type and length or whether the voice data packets contain speech or silence." Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340 (Fed. Cir. 2004).1921

"heading of the aircraft" — "the angular direction of the aircraft from a point on a runway." Honeywell International, Inc., et al. v. Universal Avionics Systems Corp., 493 F.3d 1358 (Fed. Cir., July 3, 2007).1922 "In my view, the patent in this case falls far short of anything that suggests a clear redefinition of the term 'heading.' ... This is not a case like Bell Atlantic in which the patentee implicitly redefined a claim term by using it throughout the written description in a manner consistent with an unconventional meaning." Id. (Plager, J., dissenting).1923

"heading signal" — "the ordinary and accustomed meaning of 'heading' connotes only direction, rather than being limited to the direction of the trolling motor. ... We therefore agree with the district court that the ordinary and accustomed meaning of 'heading signal' controls." Johnson Worldwide Associates, Inc. v. Zebco Corp., et al., 175 F.3d 985 (Fed. Cir. 1999).1924

"heating station" — "a slide support and heating element capable of directly heating at least one microscope slide by conductive heating, e.g., direct contact of a heating surface to a portion of the microscope slide to be heated." Cytologix Corp. v. Ventana Medical Systems, Inc., 424 F.3d 1168 (Fed. Cir. 2005).1925

"hello message to notify other routers" — "a message intended at least in part to notify other routers that the sending router is operational." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).1926

"help access window" — "a window that contains one or more controls for accessing help information from a help system or database that has been loaded on the central processing unit (CPU)." Apple Computer; Inc. v. Articulate Systems, Inc., 234 F.3d 14 (Fed. Cir. 2000).1927

"heterogeneous computer system" — "should be restricted to encompass only systems in which at least two host computers use a different operating system as the district court held." Global Maitech Corp., et al. v. I/O Concepts, Inc., 2006 U.S. App. LEXIS 11017 (Fed. Cir. 2006) (unpublished).1928


"hierarchically arranged set of indices" — "the indices are placed in some order based upon logical relationships between or among the indices." Finisar Corp. v. DirecTV Group, Inc., et al., 416 F. Supp. 2d 512 (E.D. Tex. 2006).

"hierarchically arranged set of indices for referencing data in said information database" — "a set of ranked indices used to reference data within the database, with the higher-level indices giving access to the lower-level indices. An index within the hierarchy may contain a single item." Comcast Cable Communications Corp., LLC v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., April 6, 2007).

"hierarchical tree format" — "a format having one or more sublevels branching from a common root." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).

"hierarchy of primitive elements which represent said system" — "a set of primitive elements arranged in a ranked or ordered series that represent the designed system." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).

"a high band of frequencies above a telephone voice band of frequencies"; "high frequency band"; "high band of frequencies" — "frequencies above the telephone voice band between 6 MHz and an undetermined upper limit." Inline Connection Corp. v. AOL Time Warner, Inc., et al., 347 F. Supp. 2d 56 (D. Del. 2004).

"high bandwidth bus" — "a bus having a bandwidth capable of transmitting the collective isochronous data streams arriving from all nodes connected to a hub, e.g., a time slot interchange, "TSI" ring, FDDI-II, and P1394." Negotiated Data Solutions, LLC v. Dell, Inc., 596 F. Supp. 949 (E.D. Tex. 2009).

"high bandwidth external interface" — "an interface between the media processor and external sources of data that is capable of operating at or near the peak data throughput rate of the execution unit of the media processor." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).

"high contrast" — "no construction of this term is necessary." Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007).
"a voltage converter for receiving a low voltage from a system source and converting it to a high DC output voltage" — "means that the voltage converter produces a high DC output voltage to some value relatively greater than the converter input." Lucas Aerospace, Ltd. v. Unison Industries, L.P., 899 F. Supp. 1268 (D. Del. 1995). 1940

"high density memory array" — "a memory array having a large number of memory cells for a given area." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004). 1941

"material having a high electrical resistance" — "because its ordinary and customary meaning is clear to one skilled in the art, the Court declines to construe the phrase." Joyal Products, Inc. v. Johnson Electric North America, et al., 2007 U.S. Dist. LEXIS 79522 (D.N.J., Oct. 25, 2007). 1942

"high frequency" — "encompasses a range of 3-30 MHz, based on the intrinsic evidence as confirmed by the extrinsic evidence." Intellectual Property Development, Inc., et al. v. UA-Columbia Cablevision of Westchester, Inc., et al., 2002 U.S. Dist. LEXIS 17 (S.D.N.Y., Jan. 3, 2002). 1943 "[T]he district court correctly construed 'high frequency' as including only any frequency between 3-30 MHz." Id., 336 F.3d 1308 (Fed. Cir. 2003). 1944

"a high frequency band of frequencies above the highest frequency of the telephone voice band"; "high frequency band"; "high band of frequencies" — "frequencies above the telephone voice band between 0.25 MHz and an undetermined upper limit." Inline Connection Corp. v. AOL Time Warner, Inc., et al., 347 F. Supp. 2d 56 (D. Del. 2004). 1945

"a high-frequency power MOSFET device" — "a power MOSFET device which operates between 1 MHz and 900 MHz." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004). 1946

"high impedance" — "a mathematically sufficient term of degree for providing a constant current power supply circuit coupled to said first stage to increase electrical isolation between the first stage and the at least one return reference signal." Fiori v. Rockford Corp., 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006). 1947


"high order commands" — "commands which provide access to selected manipulative programs which cause the performance of operations on the designed system." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004). 1951
"high repetition rate" — "The light pulses produced by the laser are repeated at a rate high enough so that a fluorophore normally excitable by a single high energy photon having a short wavelength will absorb two long wavelength photons from the laser source simultaneously to produce fluorescence and an image may be acquired in a practical amount of time." Carl Zeiss Jena GmbH, et al. v. Bio-Rad Laboratories, Inc., et al., 2002 U.S. Dist. LEXIS 1729 (S.D.N.Y., Feb. 4, 2002).  \(^{1952}\)

"high speed" — "an aggregate data transmission rate of 10 or more megabits per second." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).  \(^{1953}\)

"high speed manufacture of a single copy" — "The district court's instruction that the preamble in this case does not limit the claim was incorrect, for the entirety of the claim implements the preamble's high speed manufacture of a single copy, upon customer review of the stored sales information, promptly printing and binding the single copy in response to the customer's selection. The preamble embraces the totality of these limitations, and limits the claim to the subject matter of the preamble." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 442 F.3d 1331 (Fed. Cir. 2006).  \(^{1954}\)

"highest h\(_{\text{max}}\) and lowest h\(_{\text{min}}\)" — "require[s] only an apparatus that shows the highest and lowest points of the terrain within the portion of terrain displayed." Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al., 488 F.3d 982 (Fed. Cir. 2007).  \(^{1955}\)

"highly collimated projected scanning pattern" — "a scanning pattern of scan lines that is columnar in nature, or as columnar as possible, given practicable design constraints." Metrologic Instruments, Inc. v. PSC Inc., 2003 U.S. Dist. LEXIS 26636 (D.N.J., Aug. 26, 2003).  \(^{1956}\)

"highly faithful digital representation" — "the representation that is virtually perfect, with no effect of any interference or noise in the transmission process." Digital Technology Licensing, LLC v. Cingular Wireless, LLC, 2007 U.S. Dist. LEXIS 57492 (E.D. Tex., Aug. 7, 2007).  \(^{1957}\)

"having hills and valleys" — "describes the physical appearance of the hemisphere polysilicon particle layer. 'Hills' refers to the raised, rounded polysilicon particles. 'Valleys' refers to the areas in between the raised, rounded polysilicon particles, whether or not polysilicon material forms in these areas." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).  \(^{1958}\)

"historical data" — "the Court construes the term 'historical data' to mean 'information consisting of the patient's current health and, optionally, any previous medical history and any related family or social problems that becomes the basis of the patient's medical record and required documentation.' This construction more precisely captures the '443 Patent's expression of 'historical data.' The commas that bound 'optionally' clarify that the adverb is to be distributed both to 'any previous medical history' and 'any related family or social problems.' Retaining the verb conjugation 'becomes' clarifies that the patient's medical record and required documentation are based on all the information that makes up 'historical data,' not merely information pertaining to related family or social problems. Finally, the Court opts to use the phrase 'consisting of' as opposed to 'that consists of' to avoid repetitive and possibly confusing use of the word 'that.'" Prompt Medical Systems, L.P. v. McKesson Corp., 2006 U.S. Dist. LEXIS 54808 (E.D. Tex., July 21, 2006).  \(^{1959}\)

[i] "holding in reserve"; [ii] "initially causing the resources of the first base station to remain held in reserve" — [i] "causing a first base station to preserve resources for a link"; [ii] "causing a first base station to continue to hold link resources while a handover to a second base station is attempted." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).1963


"home page" — "the Court construes 'homepage' of a website, therefore, to mean 'entry page' of a website." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006).1964

"home position data" — "information identifying one or more home positions that is set through use of the structure of the second input means. 'Home position' is a stored position." Lectrolarm Custom Services v. Vicon Industries, Inc., et al., 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005).1965

"homeotropic direction"; "homeotropic structure" — "the direction substantially perpendicular to the to the adjacent surfaces of the substrates." Commissariat a l’Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007).1966

"hook flash signal" — "a temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, consistent with an attempt to initiate a three-way call." T-Netix, Inc. v. Global Tel*Link Corp., 2003 U.S. Dist. LEXIS 27830 (E.D. Tex., Aug. 15, 2003).1967


"host" — "interfaces, through the controller, with nonvolatile memory." Lexar Media, Inc. v. Fuji Photo Film USA, Inc., 2007 U.S. Dist. LEXIS 19983 (N.D. Cal., Mar. 1, 2007).1969


"host computer" — "a computer that is connected to and controls the binary tree of bus controllers." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).1971


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"host computer network" — "a network having attached thereto one or more remote access servers providing command-response services to computers connecting to the network from remote locations." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).

"host computing device" — "a processor or computer, connected to the data collection terminals through a network, that performs the comparison of the epidermal topographical pattern for a presented individual with the stored epidermal topographical patterns on behalf of a data collection terminal." Accu-Time Systems, Inc. v. Zuccetti U.S.A., et al., 486 F. Supp. 2d 165 (D. Mass. 2007).

"host device" — "a general purpose computer that connects to and directs the operation of peripherals, including drivers for input/output devices customary in a host device and a multi-purpose interface." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).


"host mode" — "the particular or idiosyncratic operational state of a host or group of hosts." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"host platform" — "interface circuitry to which a CPU is connected by a CPU or host bus and to which peripheral devices are connected by a peripheral bus." OPTi, Inc. v. Advanced Micro Devices, Inc., et al., 2009 U.S. Dist. LEXIS 68378 (E.D. Tex., Aug. 5, 2009).

"host platform" — "a bus controller to which a CPU is connected by a CPU or host bus and to which peripheral devices are connected by a peripheral bus." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).


"host processor" — "a processor that can send a command to a storage medium or requests for access that are received by a shadow set." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"host processor" — "a computer that communicates with one or more users to provide services such as transaction processing or database access." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).

"host signal processing modem/communication system" — "a modem/communication system that utilizes the processing power of the central processing unit of a host computer to process communication signals rather than including a dedicated digital signal processor." \textit{PCTEL, Inc. v. Agere Systems, Inc., et al.}, 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).


"hostname" — "a name or other identifier that can be translated by a client machine's local DNS server into the IP address of a content server." \textit{Akamai Technologies, Inc., et al. v. Limelight Networks, Inc.}, 494 F. Supp. 2d 34 (D. Mass. 2007).


"a housing connectable to both a user's notebook or desktop computer" — "the defendants' indefiniteness argument is rejected and the phrase is construed to mean 'a housing connectable to both a removable flash memory module and a user's notebook or desktop computer.' The court incorporates by reference its definition of 'connectable.'" \textit{SmartDisk Corp. v. Archos S.A., et al.}, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).

"a housing of a size to be held in the palm of a user's hands" — "The phrase requires no construction and the court rejects the defendants' indefiniteness argument." \textit{SmartDisk Corp. v. Archos S.A., et al.}, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).


"HTTP-compliant device" — "a device that is compliant with the communication protocol known as HyperText Transport Protocol (HTTP)." \textit{EpicRealm, Licensing, LLC v. AutoFlex Leasing, Inc., et al.}, Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Aug. 15, 2006). "The Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court." \textit{Id.}, Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Oct. 30, 2006).
"HTTP port and SSL port" — "any port that is used to transfer information or communicate using Hyper Text Transfer Protocol (HTTP) and any port that is used to transfer information or communicate using Secure Sockets Layer (SSL) protocol." Visto Corp. v. Seven Networks, Inc., 2006 U.S. Dist. LEXIS 91453 (E.D. Tex., Dec. 19, 2006).


"processing hub" — "a computer which provides front-end point of sale device management and message processing for card authorizations or activations." Alexsam, Inc. v. IDT Corp., 2010 U.S. Dist. LEXIS 64478 (E.D. Tex., Jun. 29, 2010).


"hybrid access system" — "a system for managing upstream and downstream communications between a host computer and one or more remote clients." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).


"hyperlink phrase" — "is equivalent to 'keyword phrase,' which is a recognized text string that serves as the hypertext link." Hyperphrase Technologies, LLC, et al. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 24591 (W.D. Wis., Jun. 18, 2003).


"an I/O port for coupling said integrated circuit to memory means" — "the court finds that the term 'memory means' is to be accorded its ordinary meaning and defined as memory or device where information can be stored and retrieved. ... With respect to the functional phrase 'for coupling,' the court finds that this phrase indicates only that the I/O port must be capable of being connected to an off-chip memory means and not that it is actually connected to such memory means." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 516 (D. Del. 2001).

"I/O request" — "commands, such as reads and writes, used to transfer data among various components or portions of the components of the computer system." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"ID information [stored on the debit card]" — "encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).

"ID information [stored on the terminal]" — "data stored on the terminal in the form of merchant ID, store ID, or terminal ID." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).

"IP address" — "a fixed, unchanging, and unique identifier of a connection to the internet represented by a series of numbers that has no internal structure to suggest network connection location." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006).


"ISA command information" — "information correlating to one or more of the commands recognized in the Industry Standard Architecture bus standard." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).

"ISA-compatible computer" — "Defendant Arima invites the court to adopt a construction that would specify that an ISA-compatible computer must include an ISA bus as one of its components. However, the court finds no legal justification for carrying its claim construction to that level of specificity." Samsung Electronics Co v. Quanta Computer, Inc., et al., 2006 U.S. Dist. LEXIS 54538 (N.D. Cal., July 25, 2006).
[i] "input variable-icon"; [ii] "output variable-icon" — [i] "a graphical image that represents a symbol whose value is entered into the system by the user for processing"; [ii] "a graphical image that represents a symbol whose value is the product of processing by the system." National Instruments Corp. v. Mathworks, Inc., 2002 U.S. Dist. LEXIS 27577 (E.D. Tex., May 24, 2002).

"identical" — "as used throughout the '287 claims is not incapable of being understood on its own." Faroudja Laboratories, Inc., et al. v. Dwin Electronics, Inc., 76 F. Supp. 2d 999 (N.D. Cal. 1999).


[i] "identification information"; [ii] "address information" — [i] "specific information from the user communication device that identifies that specific device, its user and where the device is located, that is stored in the VPS and that is used by the VPS to determine if the data and voice communications received by the LAN or telephony server, respectively, are intended for the remote user and used by the VPS to route such data and voice communications to the remote user"; [ii] "a designation of the identify of the user communication device sufficient to indicate where the user communication device can be contacted. The information is typically a telephone number." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).


"a second identification number" — "a personal identification number, associated with only one metered account, which provides access to services and debiting of that metered account." Barry Fiala, Inc. v. Stored Value Systems, Inc., 2005 U.S. Dist. LEXIS 20068 (W.D. Tenn., Mar. 31, 2005).

"identification of a position" — "coordinates defining a location using the positional coordinates of the vicinity as a reference." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000).

"identified profile"— "data that identifies a given subject, such as a component or components." Aircraft Technical Publishers vs. Avantext, Inc., 2009 U.S. Dist. LEXIS 105623 (N.D. Cal., Nov. 10, 2009).


"identifier" — "because the plain and ordinary meaning of the term 'identifier' is easily understood, no construction of this term is necessary." Aloft Media, LLC v. Microsoft Corp., et al., 2009 U.S. Dist. LEXIS 24124 (Mar. 24, 2009).


"identifier" — "a unique label that serves to distinctly identify each one of a plurality of input object types and, if any, each one of a plurality of group identifier types." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).


"identifying anomalies" — "means just that-to identify the presence or absence, as the case may be, of anomalies on the surface of a silicon wafer or similar article." ADE Corp. v. KLA-Tencor Corp., 220 F. Supp. 2d 303 (D. Del. 2002).

"identifying from among them a benchmark from which may be determined the beginning of each of such contributory frames and, thereby, the boundaries of such frames" — "requires that (1) a benchmark must be determined for each instance of higher-level frames, (2) from the benchmark the first byte of each distinct and complete higher-level frame must be determined, and (3) from that first byte, the boundary of each distinct and complete higher-level contributory frame must be determined." Bell Communications Research, Inc. v. Fore Systems, Inc., 113 F. Supp. 2d 635 (D. Del. 2000).

"number-of-recording planes identifying information" — "information whose purpose is to identify the number of recording planes on the recording medium." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010).

"the selection identifying information from a second set of fields" — "the selection identifying the contents of one or more other components of a record not in the first set of such components." Accenture Global Services GmbH, et al. v. Guidewire Software Inc., 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010).
"recording-plane identifying information that uniquely identifies that recording plane" — "information whose purpose is to identify the recording plane being reproduced." *Toshiba Corp. v. Imation Corp., et al.*, 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010). 2045

"identifying which phenomena in the manufacturing plant are stochastic in nature" — "determining which events or things in the manufacturing process occur randomly." *Information Technology Innovation, LLC v. Motorola, Inc., et al.*, 391 F. Supp. 2d 719 (N.D. Ill. 2005). 2046

"identity data"; "part of said identity data" — "data sufficient for the patented system to determine whether a person, organization, and/or computer is authentic and/or is entitled to assess said selected computer resources"; "some, but not all, of the identity data of the subscriber client computer." *Prism Technologies LLC v. Verasign, Inc., et al.*, 512 F. Supp. 2d 174 (D. Del. 2007). 2047

"family of concentric indexed circles" — "two or more complete circles with the same center point but whose points are located at different distances from that center, with each such circle identified according to its position." *Surfware, Inc. v. Celeritive Technologies, Inc., et al.*, 2009 U.S. Dist. LEXIS 51620 (C.D. Cal., Jun. 3, 2009). 2048

"an ignition system having the ability to diagnose the state of health of an igniter plug"; "a diagnostic circuit responsive to the exciter and igniter plug detectors for reporting a failure of the igniter plug only when ... the sparks are not being produced at the igniter plug, the diagnostic circuit including an output for reporting the state of the health of the ignition system"; "an igniter plug detector for detecting whether the high energy pulses produce sparks at the igniter plug" — "these claims [] mean that the diagnostic system must only detect an open circuit failure at the plug and need not detect all plug failures." *Lucas Aerospace, Ltd. v. Unison Industries, L.P.*, 899 F. Supp. 1268 (D. Del. 1995). 2049

"image" — "a two dimensional representation of a scene, that depending on the context, may refer to the image to be displayed or to the image on the display device that is to be interleaved to recreate the image to be displayed." *Crystal Image Technology, Inc. v. Mitsubishi Electric Corp.*, 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010). 2050

"image" — "the actual printed image (i.e., a scene or picture) excluding registration marks." *Quad Tech, Inc. v. Q.I. Press Controls B.V., et. al.*, 2010 U.S. Dist. LEXIS 33559 (E.D. Pa., Apr. 1, 2010). 2051


"ballot image"; "image of the ballot"; "image of each paper ballot"; "image thereof" — "an electronic representation of all or a portion of a paper ballot, including a representation of the jurisdiction identifier and at least one voting selection, which representation is stored in a pixilated or bitmapped format." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).2055


"image display device" — "a device for providing an image that may be viewed by a viewer." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).2058

"image server" — "a computer server that stores image files and provides them, via the internet, to one or more web browsers." Girafa.com, Inc. v. IAC Search & Media, Inc., et al., 2009 U.S. Dist. LEXIS 84405 (D. Del., Sep. 15, 2009).2059


"image element" — "The Court therefore accepts IPI's definition of 'image element' as encompassing complete pixels, as well as sub pixels, and other elements of images that are not pixel related." IP Innovation L.L.C., et al. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005).2061

"image source" — "a device, such as a video monitor or projector, that can generate screen-borne images." Optical Products Development Corp. v. Dimensional Media Associates, Inc., 134 F. Supp. 2d 320 (S.D.N.Y. 2001).2062

"an image source attribute that specifies a website traffic path analysis data location" — "the named location for the graphical element that specifies a website traffic path analysis data location." Websidestory, Inc. v. Netratings, Inc., 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007).2063


"impedance matching network" — "a lossless network placed between the power supply and the discharge to ensure maximum transfer." *MKS Instruments, Inc., et al. v. Advanced Energy Industries, Inc.*, 204 F. Supp. 2d 720 (D. Del. 2002). "The Court concludes that its previous construction should be clarified ... to mean 'a lossless network placed between the power supply and the discharge to ensure maximum power transfer by matching, although not perfectly, the impedance of the power supply and load.'" *Id.*, 303 F. Supp. 2d 510 (D. Del. 2004).

"implanted region"; "source/drain region" — "regions of opposite polarity as compared to the substrate surrounding them." *EMI Group North America, Inc. v. Intel Corp.*, 157 F.3d 887 (Fed. Cir. 1998).

"filtered samples having improved resolution" — "samples that are each represented by a larger number of bits than were the original samples generated by the sampling section." *Technology Licensing Corp. v. Videotek, Inc.*, 2002 U.S. Dist. LEXIS 26803 (N.D. Cal., Nov. 14, 2002).

"an improvement in a vehicle" — "a module that becomes part of a vehicle and is intended to remain part of the vehicle during use." *Adrain v. Superchips, Inc.*, 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006).

"an improvement in a vehicle having a predetermined combination of operational elements for controlling vehicular operation ..., said predetermined combination of operational elements being defined in a fixed system having a bus ..." — "The plain language of this term means the following: The invention is an improvement to a vehicle. That improvement includes a predetermined combination of operational elements. These operational elements control the vehicle according to at least one originally provided program. These operational elements define a fixed system that includes a bus. That bus includes a predetermined operable design for operation of the vehicle. The operational elements of the fixed system are controlled by an ECM, in accordance with an originally provided program. The ECM is coupled to the bus and is accessible to the outside at least for diagnostic purposes." *Adrain v. Hypertech, Inc.*, 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002).

"improving the apparent resolution" — "improving the original image to make it appear to have a higher resolution when displayed, without increasing the number of elements in the image carried on the signal originally input into the processing circuitry device." *IP Innovation L.L.C., et al. v. Sony Electronics, Inc.*, 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005).
"improving the apparent resolution of the image without requiring an increase in the number of image elements originally making up the image" — "improving the original image to make it appear to have a higher resolution when displayed without actually increasing the number of image elements originally making up the image."  *IP Innovation L.L.C. v. Lexmark International, Inc., et al.*, 424 F. Supp. 2d 1078 (N.D. Ill. 2006). 2076

"in a format specified by the institution" — "the institution chooses from a third party one or more data formats that allow the institution to use the data without having to convert it."  *CollegeNET, Inc. v. Xap Corp.*, 442 F. Supp. 2d 1036 (D. Or. 2006). 2077

"formed in a plural number" — "two or more plug electrodes are formed."  *Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd.*, 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 2078

"each in a time on the order of the logarithm of the number of processing elements ..." — "the broadcasting operation is capable of being performed in one clock cycle, multiplied by the base 2 logarithm of the number of processing elements in the binary tree; the priority is capable of being determined in two clock cycles, multiplied by the base 2 logarithm of the number of processing elements in the binary tree."  *Fifth Generation Computer Corp. v. International Business Machines Corp.*, 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010). 2079


"paying in accordance with [the command or message]" — "the command or message makes the bonus available. The claims do not require that the bonus is paid 'automatically' or without any subsequent withdrawal steps upon receipt of the pay command."  *IGT v. Bally Gaming International Inc., et al.*, 610 F. Supp. 2d 288 (D. Del. 2009). 2081

"a 10Base-T MAU comprising an AUI port in accordance with proposed standards of IEEE supplement (P802.31/D10) for LANs" — "Seeq urges the court to interpret the claim such that the MAU must meet the referenced IEEE standards, and Level One argues that only the AUI port claims to be in accordance with those standards. ... the court concludes that both the MAU and the AUI port of Claim 12 must meet the referenced IEEE standards."  *Level One Communications, Inc. v. Seeq Technology, Inc.*, 987 F. Supp. 1191 (N.D. Cal. 1997). 2082

"in-band telecommunications signal" — "signaling that is sent on the same communications path as that used for voice and/or data."  *Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al.*, 518 F. Supp. 2d 1306 (D. Kan. 2007). 2083


"in communication with the personal information provider" — "[The] Court [] declines to construe this phrase."  *Yodlee, Inc. v. CashEdge, Inc.*, 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 2085

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"in data communication with" — "a reception system connected to subscriber selectable receiving stations such that data can be transferred between the devices in real time."  *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007).  

"in parallel with" — "mean[s] that the two data storage systems are attached to correspond to one another in time such that a mirroring relationship is established whereby the two data storage facilities receive data from the first application concurrently."  *EMC Corp. v. Hewlett-Packard Co., Inc.*, 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003).  

"in relation to the credit value" — "This term may be understood according to its plain and ordinary meaning. No further construction is necessary."  *Source, Inc. v. American Express Co.*, 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006).  


"circuit interrupter coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state" — "The plain language of claim 1 of the '386 patent requires that the circuit interrupter be configured to trip in response to an actuator signal in the reset state. The wiring state detection circuit and the actuator assembly claim elements do not contain limitations as to the circuit state. These components of the device must therefore generate their respective signals at least once, without regard to the state of the device (i.e., reset or tripped)."  *Pass & Seymour, Inc. v. International Trade Commission, et al.*, 2010 U.S. App. LEXIS 17899 (Fed. Cir., Aug. 27, 2010).  

"a controller ... generating said control signal in response to the output of said power supply" — "the controller generates the control signal based a direct reaction from the second winding."  *ABB Automation Inc. v. Schlumberger Resource Management Services, Inc.*, 254 F. Supp. 2d 479 (D. Del. 2003).  

"in response to a user selecting one of the entries' universal resource locator" — "mean[s] that information is presented to the user after the user selects one of the search results displayed as a result of the search."  *Graphon Corp. v. Autotrader.com, Inc.*, 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007).  

"in response to the stored compressed, digitized data" — "transmitting a representation of the at least one item which is initiated by the commencement of storing compressed, digitized data or by the completion of storing compressed, digitized data."  *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007).
"each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding" — "each controlled rectifier being turned from on to off or from off to on at the same time as a change of the voltage waveform across a primary winding." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010).

"in the desired order" — "refers to the precise order the customer selected." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007).

"inaudible" — "a sound signal that is too faint, meaning that it is approximately 50dB to 60dB below the level of its accompanying sound signals or a sound signal whose frequency is outside the range of audible frequencies, meaning that it is approximately below 40 Hz." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009).


"memory includes an audio recorder in said housing"; "memory including an audio recorder mounted in said housing" — "the memory comprises an associated device in the housing for recording sounds." Minerva Industries, Inc. v. Motorola, Inc. et al., 2010 U.S. Dist. LEXIS 9329 (E.D. Tex., Feb. 3, 2010).

"a scrambled television program signal that includes an identification code" — "does not require that the identification code be placed in the vertical retrace interval. The plain language of the claim makes clear that the program signal, and not the specific video signal, includes the identification code." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001).

"includes relationship" — "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005).

"including a web page at the web site having customized information from the first user point for users at the second user point" — "no construction of this claim term is required." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).

"inclusion"; "three-dimensional inclusion" — "island of semiconductor material grown by three-dimensional nucleation buried in a layer of a different semiconductor material that has a larger bandgap." Seoul Semiconductor Co. Ltd. v. Nichia Corp., et al., 596 F. Supp. 2d 1005 (E.D. Tex. 2009).

"independent" — "performed by a computer algorithm(s) at least partially distinct from the
algorithm(s) for computing the collective mass information, and where the computation of
spiculation information is performed separately from the computation of the collective mass
7436 (D. Del., Apr. 30, 2003).\(^{2107}\)

"independent calibration operations" — "calibration operations that are separate from one
another but are not necessarily unrelated."  Storage Technology Corp. v. Custom Hardware
Engineering & Consulting, Ltd., et al., 2006 U.S. Dist. LEXIS 43690 (D. Mass., June 28,
2006).\(^{2108}\)

"independent communication" — "communication among a pair of devices that does not effect
nor preclude the communication of any other communicating pair of devices."  SercoNet Ltd. v.
NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007)\(^{2109}\)

"independent forward and return channels"; "upstream channel that is independent of the
downstream channel"; "independent upstream channel" — "the downstream channel is
different from the upstream channel, either in the same or a different medium."  Hybrid Patents
Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4,
2007).\(^{2110}\)

"means, independent of the one computer-related application, for forming link data linking a
portion of the audio data to at least one of the recognized words independently of the one
computer-related application"; "means, independent of the one computer-related
application, for updating position identifiers in response to changes in positions of the
recognized words within the one computer-related application" — "the claim term
'independent of' means that the interface must maintain its own position data, in its own data
structures, but still have the ability to receive positional information from the application."  AllVoice Computing PLC v. Nuance Communications, Inc., 504 F.3d 1236 (Fed. Cir. 2007).\(^{2111}\)

"external clock is operative at a frequency independent of a clock frequency of said oscillator"
— "an external clock wherein a change in the frequency of either the external clock or oscillator
does not affect the frequency of the other."  Technology Properties Ltd., et al. v. Matsushita
Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).\(^{2112}\)

"second clock independent of said ring oscillator ... system clock"; "second clock independent
of the ring oscillator system clock" — "a second clock wherein a change in the frequency of
either the second clock or ring oscillator system clock does not affect the frequency of the other."  Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp.
2d 916 (E.D. Tex. 2007).\(^{2113}\)

"independent processes" — "the part of the devices or device subsystems external to the computer
that independently generate interrupts."  Gobeli Research, Ltd. v. Apple Computer Inc., et al., 384
F. Supp. 2d 1016 (E.D. Tex., Aug. 26, 2005).\(^{2114}\)

"the user can request viewpoint motion and point of interest motion independently" — "the
user can individually request viewpoint motion and point of interest motion."  IP Innovation,
"independently connected electrically" — "each gate electrode segment is connected through a separate electrical path, or paths, that are not shared by any other gate electrode segment." *Advanced Micro Devices, Inc., et al. v. Samsung Electronics Co., Ltd., et al.*, 2009 U.S. Dist. LEXIS 91536 (N.D. Cal., Sep. 17, 2009).2116

"independently modifiable copy" — "a copy of a workspace element capable of being modified independent of the workspace element. The copy of the workspace element does not have to be in the same format as the workspace element." *Visto Corp. v. Seven Networks, Inc.*, 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).2117

"a layer acts independently of other content within a particular HTML document" — "mean[s] that the activity associated with a layer, such as moving or resizing, does not depend on other content within a particular HTML document." *CA, Inc. v. Simple.com, Inc., et al.*, 2009 U.S. Dist. LEXIS 25241 (E.D.N.Y., Mar. 5, 2009).2118

"at least one of said signal processors in said plurality operates independently of other signal processors" — "at least one signal processor can operate without being interrupted by any of the two or more other signal processors." *Saxon Innovations, LLC v. Nokia Corp., et al.*, 2009 U.S. Dist. LEXIS 67019 (E.D. Tex., Jul. 30, 2009).2119

"circuitry operable independently of the operation of said memory array" — "circuitry whose operation is not contingent upon operation of the memory array." *STMicroelectronics, Inc. v. Motorola, Inc.*, 327 F. Supp. 2d 687 (E.D. Tex. 2004).2120

"independently modifiable copy" — "For the '192 and '131 patents, ... a copy of a workspace element capable of being modified independent of the workspace element."; "For the '708 patent, ... a copy of a workspace element capable of being modified independent of the workspace element. A copy of a workspace element is a complete replication of all the information comprising the workspace element unless the copy and workspace element are in different formats. In that case, there may be some differences between the copy and workspace element are in different formats, but those differences are due to formatting only." *Visto Corp. v. Sproqit Techs., Inc.*, 445 F. Supp. 2d 1104 (N.D. Cal. 2006).2121

"an index" — "an organized collection of information which may be contained in one or more data structures, including but not limited to tables, lists or directories, which contains the requisite indicators providing an indication about the validity of predetermined data elements. Because the terms 'a' or 'an,' in the context of patent claim language, mean at least one, the subject patents will be construed to include at least one index having the characteristics described above." *EMC Corp. v. Hewlett-Packard Co., Inc.*, 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003).2122


"index parameter" — "a parameter used to derive another value. For purposes of the process disclosed in Claim 1, a transaction counter can be used as an 'index parameter.' However, an 'index parameter' is not limited to a transaction counter." *Cryptography Research, Inc. v. Visa International Service Association, et al.*, 2007 U.S. Dist. LEXIS 76502 (N.D. Cal., Sept. 28, 2007).2124
"indexed by tunnel identifiers" — "mean[s] that each tunnel identifier is used to access an entry in the tunnel table directly."  UTStarcom, Inc. v. Starent Networks, Corp., et al., 2009 U.S. Dist. LEXIS 93869 (N.D. Ill., Sep. 16, 2009). 2125

"indexed memory sized and structured to store cash values for a multitude of consumer accounts" — "a computer memory associated with an index that is sized and configured to store cash values for a multitude of consumer accounts."  Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006). 2126


"said input voice command indicating a desired movement" — "the voice command input to the system by the surgeon indicates a desired movement of the surgical instrument."  Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002). 2129

"indicating an operating status of a defibrillator" — "providing a visible or audible alert of whether the defibrillator is capable of treating a patient and possibly other indications of operational status."  Koninklijke Philips Electronics NV, et al. v. Defibtech LLC, et al., 397 F. Supp. 2d 1257 (W.D. Wash. 2005). 2130

"indicating in the computer readable data file at least one implementation operation required for the implementation of the selected choice in the computer system during manufacturing of the computer system" — "indicating in the computer system readable data file at least one operation required for the implementation of hardware components and software programs on a computer system including, but not limited to, installation programs, hard-disk-drive formatting operations, testing operations and other similar operations."  Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 2131


"indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number" — "two numbers 'match' under the claim language when they are 'identical.' … 'indicating the occurrence' as used in the claim means indicating to the player."  Aristocrat Technologies, et al. v. International Game Technology, et al., 2009 U.S. Dist. LEXIS 40975 (N.D. Cal., May 14, 2009). 2133  "The court will clarify[y] its previous claim construction as follows: If one of the allotted numbers is identical to the selected random number, alerting the player that a second game will appear after the first game is complete. This indication is different from and precedes the appearance and display of the second game."  Id., 643 F. Supp. 2d 1165 (N.D. Cal. 2009). 2134
"said remote object indicating to said interrogator its ability to receive and store transmitted data by the existence of writable semiconductor memory within said object" — "The plain and ordinary meaning of the claim supports that the remote object indicates its ability to perform the functions stated through or 'by the existence of writable semiconductor memory,' not, as Plaintiffs contend, that the remote object signals to the interrogator 'the presence of writable semiconductor memory.'" Single Chip Systems Corp., et al. v. Intermec IP Corp., et al., 2006 U.S. Dist. LEXIS 96537 (S.D. Cal., Dec. 5, 2006). 2135

"indication" — "a communication to the audience member." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009). 2136


"indication of the condition of the defibrillator" — "indication of whether the defibrillator is capable of treating a patient, and possibly other defibrillator status." Koninklijke Philips Electronics NV, et al. v. Defibtech LLC, et al., 397 F. Supp. 2d 1257 (W.D. Wash. 2005) 2138

"providing an indication of a virus from said searching step" — "the computer provides an alert to the user if a virus has been detected during the searching step." Symantec Corp. v. Computer Associates International, Inc., 2005 U.S. Dist. LEXIS 46912 (E.D. Mich., Mar. 16, 2005) 2139


"indications" — "something that represents the physiological parameters. Such a representation can be in the form of a number, a word, a symbol, or any other marker with established meaning." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003) 2141


"indicative of" — "the patent uses the terms 'indicative of' and 'representing' interchangeably ... We agree ... that the intrinsic evidence indicates that the patentee meant for those two terms to be interchangeable and to carry the same meaning within the claims." Tehrani v. Hamilton Medical, Inc., et al., 331 F.3d 1355 (Fed. Cir. 2003) 2143

"indicative of" — "I do agree with plaintiff, however, that the words 'indicative of' are unnecessary. Accordingly, I construe 'displays images indicative of said thoroughfares' as 'shows the thoroughfares.'" Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006) 2144

"signals indicative of ... generator electrical power output" — "The word 'indicative' in preceding element four makes it clear that the signals would convey the amount of power sensed." Gamesa Eolica, S.A. v. General Electric Co., 359 F. Supp. 2d 790 (W.D. Wis. 2005) 2145

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"a sensor incorporated into said inductive device" — "any inductive device incorporating a sensor 'providing a diagnostic signal having electrical characteristics that represent the electrical and magnetic events occurring at the gap of the ignitor plug during the period of energy transfer to spark across a gap of the ignitor plug' that is placed in the ignition system in accordance with the requirements of the claim." *Lucas Aerospace, Ltd. v. Unison Industries, L.P.*, 899 F. Supp. 1268 (D. Del. 1995). 2146

"indicator" — "something that indicates,' which means points out or points to, or to be a sign, symptom, or index of." *Hewlett-Packard Co., et al. v. EMC Corp.*, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). 2147

"indicator" — "information which provides a fairly certain sign or symptom of the validity of a predetermined data element. An indicator can include information about data located at a particular storage location on a storage device, such as a track, or about data stored in an entire storage device via a device-level indicator." *EMC Corp. v. Hewlett-Packard Co., Inc.*, 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003). 2148

"PIC indicator"; "indication which has a particular value" — "requir[e] a design that indicates, at a minimum, whether a specific IXC is the PIC of the terminating subscriber at the time the call is made." *AT&T Corp. v. Excel Communications, Inc., et al.*, 1999 U.S. Dist. LEXIS 17871 (D. Del., Oct. 25, 1999). 2149

[i] "indicia arranged on the template and located in a plurality of groups, one group of each corresponding to one predetermined, selectable item of said main menu"; [ii] "at least a second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu corresponding to an item of said Main Menu"; [iii] "said pointing device can select a working function with a single movement of the said button" — [i] "at least two groups must appear on a template, where one group corresponds to a Main Menu item and the other corresponds to another Main Menu item"; [ii] "at least two indicia contained in the second set of indicia contained within one of the "at least two groups of indicia" described in Claim 1(b) must correspond to an item of the first sub-menu of the Main Menu item to which the group corresponds"; [iii] "the single movement of the pointing device's button can, but need not, select a working function." *Baystate Technologies, Inc. v. Bowers*, 81 F. Supp. 2d 152 (D. Mass. 1999). 2150 [i] "this court agrees with the district court's interpretation"; [ii] "at least one of the main-menu indicia groups include at least two indicia associated with the same sub-menu of the main-menu"; [iii] "each of the indicia associated with the sub-menu of a main-menu group must represent a working function accessible with a single movement of the pointer button (e.g., as opposed to access through further selection via a drop-down menu)." *Id.*, 302 F.3d 1334 (Fed. Cir. 2002). 2151 [i] "this court agrees with the district court's interpretation of paragraph b"; [ii] "paragraph c requires that at least one of the main-menu indicia groups include at least two indicia associated with the same sub-menu of the main-menu"; [iii] "paragraph d requires that all indicia below that sub-menu must represent working functions." *Id.*, 320 F.3d 1317 (Fed. Cir. 2003). 2152

"indirectly issuing" — "the Board properly concluded that the broadest reasonable interpretation of 'indirectly issuing' requires 'only that a request from the host computer go through some other component before it is sent to the database.'" In re American Academy of Science Tech Center, 367 F.3d 1359 (Fed. Cir. 2004).  

"individual" — "Defendants argue that 'individual' excludes all persons who are brokers acting in any capacity. ... [T]he explicit language of the claims places no restriction or limitation on the identity of the traders." Minton v. National Association of Securities Dealers, Inc., et al., 197 F. Supp. 2d 699 (E.D. Tex. 2001).  

"individualized rule set" — "elements or conditions for a particular user ID that apply during a user's session." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010).  

"an inductor"; "the inductor" — "allow for more than one inductor. However, the claims that describe both charging and discharging through 'said' inductor make it clear that the same inductor must be used for both charging and discharging the panel capacitance. ... The Court defines an inductor as follows: A device consisting of one or more associated windings for introducing inductance into a circuit. Windings are 'associated' for the purposes of this definition only if they share coupled magnetic field lines." Competitive Technologies, et al. v. Fujitsu Ltd., et al., 286 F. Supp. 2d 1161 (N.D. Cal. 2003).  

"inductor means" — "a coil of wire wound on magnetic material." Nilssen v. Magnetek, Inc., 1999 U.S. Dist. LEXIS 16718 (N.D. Ill., Oct. 22, 1999).  "For a second time this opinion has parted company with Judge Kennelly's MagneTek opinion. But that opinion makes no reference to Nilssen's PTO representations referred to here in the text--and in the absence of that factor, this Court would also have reached the same conclusion as Judge Kennelly." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000).  

"inferring" — "a logical process by which a factual conclusion is derived from known facts by the application of logical rules." SFA Systems, LLC v. Infor Global Solutions (Michigan), Inc., et al., 2009 U.S. Dist. LEXIS 13705 (E.D. Tex., Feb. 23, 2009).  


"information" — "facts contained in or describing some or all of a data source." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).  

"information" — "anything that can be represented in electronic form, including text, sound recordings, and images." Diego, Inc. v. Audible, Inc., 2006 U.S. Dist. LEXIS 22715 (W.D. Wash., March 27, 2006).  


"first information" — "first data that can be processed." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010).
"creating a database entry containing information accepted from a user" — "creating a database entry containing information accepted from a user over a public computer network wherein the information content and classification is entirely controlled by the user." Graphon Corp. v. Autotrader.com, Inc., 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007). 2167

"information bearing optical signal" — "an optical signal which has been coded with any type of information; any optical signal that has been modulated constitutes an information bearing optical signal." CIENA Corp., et al. v. Corvis Corp., 334 F. Supp. 2d 598 (D. Del. 2004). 2168

"information block" — "a plurality of sectors that are logically associated with a group of LBAs for erasure." Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005). 2169


"information characterizes said strata"; "characterizing information of said strata"; "characterizing information" — "mean[s] data produced by logging methods conventional in the industry." Union Pacific Resources Co. v. Chesapeake Energy Corp., et al., 236 F.3d 684 (Fed. Cir. 2001). 2171

"information database" — "a collection of computerized information which can be accessed." Finisar Corp. v. Directv Group, Inc., et al., 416 F. Supp. 2d 512 (E.D. Tex. 2006). 2172

"information database" — "a dynamic, structured collection of digitized data capable of being held in computer storage." Comcast Cable Communications Corp., LLC v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., Apr. 6, 2007). 2173

"information describing the associated/selected attraction" — "preset static information, such as cycle capacity, estimated throughput, and operating hours, and dynamic information, such as current status and current staff, for a particular attraction." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006). 2174

"information from items" — "refers to audio information, video information or both audio and video information, which is derived by the transmission system from a physical item such as a tape, a film, or a computer storage disk." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 2175

"information for identifying the first/second account of the first/second party" — "information that is used to identify an account of the first/second party." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010). 2176

"storing information identifying the selected programs, said stored information identifying broadcast schedule times, channels, and program titles" — "'information identifying' includes the storage of either the actual 'broadcast schedule times, channels, and program titles' data or separate references, such as addresses or software pointers, to the location of the actual data. If references are used, there must be separate references for the broadcast schedule time, channel, and program title parameters." Gemstar-TV Guide International, Inc., et al. v. International Trade Commission, et al., 383 F.3d 1352 (Fed. Cir. 2004). 2177
“wherein said audible information comprises information indicating undesired movement of the distal end of the surgical instrument” — "requires synthesized speech indicating that the distal end of the surgical instrument has moved in an undesired way." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002).

"information management and synchronous communications system" — "a computerized system having multiple devices in which a change to data made on a central server is updated on client devices and vice versa." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).

"information manufacturing machines" — "an IMM must contain one or more components for performing at least the functions of: (1) storing information to be reproduced; (2) receiving a request reproduction code; (3) transmitting a request reproduction code to a device remotely located from the IMM; (4) receiving an authorization code from the device remotely located from the IMM; and (5) reproducing the requested information in a material object in response to receiving the authorization code. An IMM need not contain the four separate and distinct components of the preferred embodiment." Interactive Gift Express, Inc. v. CompuServe, Inc., et al., 256 F.3d 1323 (Fed. Cir. 2001).


"information pertaining to the item being auctioned"; "information about the item being auctioned"; "information regarding the item being auctioned" — "facts or data pertaining to the item being auctioned other than information regarding the acceptance or rejection of bids and the live audio and video of the auction." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).


"creating a database entry containing information received from a user" — "creating a database entry containing information received from a user in which the user entirely controls the information content of a database entry and the manner in which the information is classified." Graphon Corp. v. Autotrader.com, Inc., 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007).

"information segments" — "simply referring to parts into which information on the Internet is commonly divided." ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082 (Fed. Cir. 2003).

"information source" — "a place or thing which originates electronic information concerning particular subjects without executing electronic mail programming." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002).
"creating a database entry containing the information submitted via the entry form" —
"creating a database entry containing information submitted by a user via an entry form displayed to the user over a public computer network wherein the information content and classification is entirely controlled by the user." *Graphon Corp. v. Autotrader.com, Inc.*, 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007). 2187

"information transmitter"; "recognition device" — "the district court construed ... 'information transmitter' to mean 'a device that communicates with a recognition device via electromagnetic waves, after being actuated by that recognition device, without requiring any sort of personal action by the passenger.' It construed 'recognition device' to mean 'a device that actuates and reads data transmitted by an information transmitter without requiring any sort of personal action by the passenger.' ... We modify the district court's construction of 'information transmitter' and 'recognition device' by striking the phrase 'without requiring any sort of personal action by the passenger' from each construction." *Schindler Elevator Corp. v. Otis Elevator Co.*, 593 F.3d 1275 (Fed. Cir. 2010). 2188

"information uniquely descriptive of an intending licensee" — "[i]nformation that is uniquely associated with a person who intends to become a licensee so as to access full functionality of the digital data." *Uniloc USA, Inc., et al. v. Microsoft Corp.*, 447 F. Supp. 2d 177 (D. R.I. 2006). 2190


"inhibiting said triggering step once activation of said generator is triggered, until said reset signal is detected" — "the triggering step is inhibited upon each and every activation of the triggering of the generator until the power on reset signal is detected; each time the high voltage generator is activated, further triggering cannot take place, at least until the power on reset signal is detected." *Agrizap, Inc. v. Woodstream Corp., et al.*, 431 F. Supp. 2d 518 (E.D. Pa. 2006). 2192


"an initial set of traffic path analysis data for the current website" — "an initial set of traffic path analysis data for the current website, which includes at least the current website page requested." *Websidestory, Inc. v. Netratings, Inc.*, 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007). 2195
"initialization NSP"; "initialization log-in data"; "initializing set of identification information" — "an NSP used the first time the user contacts the ASP"; "log-in data used the first time the user contacts the ASP"; "a set of information used the first time the user contacts the ASP."  


"host computer is initially accessed by said client computer through a web page" — "does not require construction."  


"initiates" — "begins."  


"initiates a diagnostic operation in the office machine system" — "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation."  


"initiating a next-line inquiry" — "sending a command to snoop the next line."  

OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).  

"initiating a next-line inquiry ... to determine whether an N+I'th byte line of said secondary memory is cached in a modified state in said first cache memory" — "initiating a next-line inquiry to determine whether the next-line of data in the secondary memory is different from the corresponding data in the cache."  

OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).  

"initiating communication between the business office device and a computer, by the business office device"; "initiating communication between the printer and the computer by the printer" — "the business office device/printer itself starts or establishes communication with the computer."  


"initiator group (igroup)" — "a logical named entity that may have a human friendly name assigned to one or more addresses associated with one or more initiators. As used in the patent, 'human friendly name' means an arbitrary label selected by the user or administrator that may be a spoken name, a path designation or include a hierarchical naming convention."  


"initiator peripheral device command" — "a command sent by the operating system to a peripheral device in response to an initiator peripheral device request sent by an application program to the operating system, and which causes the peripheral device to enter a waiting state ready to receive new microcode."  

"ink permeates through the sheet from said printed front surface to said back surface to provide the indicia in mirror image form on said back surface" — "We agree with the trial court's construction that ink must reside on or at the back surface of the sheet - but does not have to permeate through the back surface of the sheet." Paymaster Technologies v. United States, 2006 U.S. App. LEXIS 11325 (Fed. Cir. 2006) (unpublished).

"input" — "information that is delivered to the system from outside the system." Convolve, Inc., et al. v. Compaq Computer Corp., et al., 2005 U.S. Dist. LEXIS 16375 (S.D.N.Y., Aug. 9, 2005).

"an input and an output port" — "an input port and a separate output port." Ampex Corp. v. Eastman Kodak Co., et al., 460 F. Supp. 2d 541 (D. Del. 2006).


"input entries" — "features displayed on a web page that allow a user to enter information into the page, like text entry fields, menu items, and check fields." MShift, Inc. v. Digital Insight Corp., et al., 2010 U.S. Dist. LEXIS 107946 (N.D. Cal., Oct. 8, 2010).

"input key" — "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for changing the value of one of the hue, lightness, and saturation values." American Video Graphics, L.P. v. Microsoft Corp., 2005 U.S. Dist. LEXIS 46858 (E.D. Tex., Jun. 30, 2005).

"an input keyboard" — "a hardware device consisting of a number of mechanical buttons (keys) which the user presses to input characters to a computer." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).


"input portion" — "This Court does not find that 'input portion' is a means-plus-function limitation under 35 U.S.C. § 112 (6)." Fiori v. Rockford Corp., 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006).
"providing at least one Input Section, wherein said Input Section converts said specific program to an Moving Pictures Experts Group (MPEG) formatted stream for internal transfer and manipulation" — "providing at least one portion of a device that receives inputs, wherein said portion of the device that receives inputs converts said specified frequency range to an Moving Picture Experts Group (MPEG) formatted stream for internal transfer and manipulation." *TiVo Inc. v. EchoStar Communications Corp., et al.,* 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).


"input terminal pin"; "output terminal pin" — "are not indefinite and they do not require specific construction by the court." *Pulse Engineering, Inc. v. Mascon, Inc.,* 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009).


"an optical coupling means having an input, an input/output and an output"; "a first optical coupler having an input, an input/output and an output" — "may, but need not, be bidirectional." *Pirelli Cable Corp. v. Ciena Corp.,* 988 F. Supp. 424 (D. Del. 1997).

"inputting an item having information into the transmission system" — "putting physical items containing audio information or video information or both into the transmission system." *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.,* 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007).

"inputting contributions at said contribution accepting devices in response to said request" — "To 'input' means to provide computer-readable information to the system. Here, the contribution information is input to the contribution accepting devices." *Ziarro v. American National Red Cross, et al.,* 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000).

"inputting data associated with at least one bid for at least one fixed income financial instrument into said bidder's computer via said input device" — "putting information, in a form suitable for processing by a computer, associated with a bid to buy a fixed income financial instrument into a computer used by a bidder to access an electronic auction via any input device used to prepare or submit bids." *Muniauction, Inc. v. Thomson Corp.,* 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006).

"inputting in the data processing system response data representing a response from the at least one party to the transmitted overt terms data" — "inputting into the data processing system the response of a party to whom the offer data has been transmitted." *Tradecard, Inc. v. SI Corp., et al.,* 509 F. Supp. 2d 304 (S.D.N.Y. 2007).

[i] "inquiry"; [ii] "inquiring" — [i] "an instruction seeking information concerning the type of the device attached to a computer"; [ii] "sending an instruction seeking information concerning the type of the device attached to a computer." *In re Papst Licensing GmbH & Co. KG Litigation,* 624 F. Supp. 2d 54 (D.D.C. 2009).
"insert locator data" — "identifies the 'predetermined storage locations' at which the digitally formatted local video signals have been stored." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001).2227

"insertable storage medium having information stored therein" — "require[s] that the storage medium is a physical device which itself stores information; and that the storage medium is itself inserted into the machine (rather than being connected in some other manner) in order to operate it." Rackman v. Microsoft Corp., 102 F. Supp. 2d 113 (S.D.N.Y. 2000).2228


"inserting a category identification signal into the scrambled program signal at the remote location for transmission thereof with the program signal" — "there is no reason to modify the plain meaning of 'insert,' which means 'to set (something) in.' Thus, the court will construe 'inserting . . . into' as requiring the identification signal to be placed inside the program signal." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001).2230

"inspecting" — "examining or measuring to verify whether an item or activity conforms to specified requirements." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).2231

"inspecting" — "to conduct an appraisal of at least two of the partially surrounding image elements provided by the neighboring element means in order to determine the presence of a void at a particular position in the image." IP Innovation L.L.C., et al. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005).2232

"inspecting a plurality of said at least partially surrounding image elements of the image to determine the presence of the void" — "inspecting two or more of the at least partially surrounding image elements of the group from the original image for the purpose of determining the presence of a void at the particular position." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).2233


"instigating the analysis circuit simultaneously to the actuation of the charging circuit" — "performing analysis at the same time as the high voltage capacitor begins to charge." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).2235

"instruction" — "either a stack-based instruction that is to be translated into a register-based instruction, or a register-based instructions that is input to the CPU pipeline. In either case the 'instruction' must be upstream of the decode stage of the CPU pipeline. As used in the claims of the patent, 'instruction' cannot mean the control signals that are the output of the decode stage." Nazomi Communications, Inc. v. Arm Holdings, PLC, et al., 2006 U.S. Dist. LEXIS 66354 (N.D. Cal., Sept. 6, 2006).2236
"instruction" — "an expression that specifies one or more operations and identifies the applicable operands." Cornell University, et al. v. Hewlett-Packard Co., 313 F. Supp. 2d 114 (N.D.N.Y. 2004).2237

"instruction cycle" — "the period of time between the issuing of two successive instructions." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).2238

"a site instruction file" — "an electronic file containing instructions which tell the data processing system at each remote location which general coupon templates to download and which site specific information files to download." Southwest Efuel Network, L.L.C. v. Transaction Tracking Technologies, Inc., 2009 U.S. Dist. LEXIS 103395 (E.D. Tex., Oct. 23, 2009).2239

"instruction firing time" — "intelligence used to indicate when a given instruction may be executed." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).2240

"instruction groups" — "sets of from 1 to a maximum number of sequential instructions, each set being provided to the instruction register as a unit and having a boundary, and in which any operand that is present must be right justified." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).2241


"said instruction groups include at least one instruction that, when executed, causes an access to an operand or instruction or both" — "the instruction being executed causes the CPU to use an operand or execute a second instruction." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).2243

"instructions" — "mean[s] 'S-Instructions' which are a level below high-level language instructions and a level above conventional machine language instructions." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).2244


"executable instructions for building a displayable inventory of works" — "computer instructions for automatically creating an inventory of works that can be displayed." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007).2247

"instructions for automatically contacting an authorized representative ... to communicate registration information and obtaining authorization for continued operation" — "The district court ... construed the term to mean 'instructions (i.e. a computer code) that enable a user's computer to contact an authorized representative of the software.' ... the district court correctly rejected Microsoft's attempt to exclude any user interaction from the claims, and we affirm its construction of this term." z4 Technologies, Inc. v. Microsoft Corp., et al., 507 F.3d 1340 (Fed. Cir. 2007).2248
"executable instructions for creating at least one play list by selecting works in accordance with a predetermined criterion" — "computer instructions for automatically creating at least one play list based on a user-selected criterion." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007). 2248

"instructions for effecting royalty payments to appropriate recipients" — "computer instructions that automatically cause royalty payments to be made to appropriate recipients." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007). 2250

"the circuitry includes instructions for selecting works to be included in the displayable list in accordance with a selected characteristic" — "computer instructions for automatically selecting works to be included in the displayable list based on a user-selected characteristic." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007). 2251

"microcontroller set of instructions signals received from the call progress detector circuitry" — "the call progress detector circuitry outputs a signal corresponding to the call waiting signal to recognition circuitry." Kernius v. International Electronics, Inc., et al., 2007 U.S. Dist. LEXIS 24874 (D. Md., March 30, 2007). 2252

"instrument"; "payment instrument" — "document (including paper or electronic) that is used to transfer funds to a recipient party"; "a document (including paper or electronic) that is used to transfer funds to a recipient party in connection with a payment." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010). 2253


"an insulating film covering the surface of said substrate on which the MOSFET is formed" — "because the language for this term is both sufficiently clear and is in fact superior to the proposed constructions, the court declines to construe this term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006). 2256

"insulating housing" — "a covering which has a high electrical resistance and which can serve to prevent a short circuit between components." Murata Manufacturing Co., Ltd. v. Bel Fuse Inc., 445 F. Supp. 2d 938 (N.D. Ill., July 28, 2006). 2257

"insulating layer" — "a layer made of one or more materials that are poor conductors of electricity." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 2258

"insulating material" — "a material with poor electrical conduction that acts to suppress switching noise generated by a pulse width modulation control of the direct driving motor, thereby suppressing the video screen and audio noise caused by electrical noise produced by the capstan motor." Funai Electric Co., Ltd. v. Daewoo Electronics Corp., et al., 2010 U.S. App. LEXIS 18237 (Fed. Cir., Sep. 1, 2010). 2259

"insulator member" — "a single piece of material surrounding all or a portion of the conductor in the female connector passageway that inhibits or prevents the flow of electricity between the conductor and the female connector." Arrow Communication Laboratories, Inc., et al. v. John Mezzalingua Associates, Inc., 2009 U.S. Dist. LEXIS 8512 (N.D.N.Y., Feb. 5, 2009).

"integrated aggregation module" — "because the meaning of 'integrated aggregation module' is sufficiently clear based on the claim language, the court declines to construes this term." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).

"integrated circuit"; "integrated circuit means" — "any complex set of electronic components and their interconnections that are etched or imprinted on a chip and are capable of performing the functions stated in the claims, including storing an identification code, detecting an interrogation signal, outputting the identification code upon reception of an interrogation signal by said coil means, and generating a transmission frequency signal by dividing the frequency of the interrogation signal." Digital Angel Corp. v. Datamars, Inc., et al., 2006 U.S. Dist. LEXIS 32260 (D. Minn., May 22, 2006).


"integrated computer software application" — "software codes or instructions that are compatible and operate as a unit." MedioStream, Inc. v. Microsoft Corp., et al., 2010 U.S. Dist. LEXIS 88716 (E.D. Tex., Aug. 27, 2010).

"integrated data and video storage" — "the memory module has memory elements configured to store bits representing data and memory elements configured to store bits representing video information." Sun Microsystems, Inc. v. Dataram Corp., 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997).


"integrated whole" — "means that the data lines encode data to be read as a unity, in contrast to information stored in particular positions that can be read or searched for individually." *Datapstrip International Ltd. v. Intacta Technologies, Inc.*, 253 F. Supp. 2d 1308 (N.D. Ga. 2003). [2274]


"integrating the received ORMS data from the ORMSs of the fulfillment partners";
"integrate the received ORMS data from the ORMSs of the fulfillment partners" — "storing in the same database, or otherwise combining, received ORMS data to provide a single source of information." *Versata Software, Inc., et al. v. SAP America, Inc., et al.*, 2009 U.S. Dist. LEXIS 45751 (E.D. Tex., May 19, 2009). [2276]

"the thickness of the layer and each polarization means are intended to bring about a compensation of the birefringence of the liquid crystal layer in its homeotropic structure so that the cell has a high contrast for said structure in the case of an oblique observation performed in a given observation plane" — "The claimed thickness of the liquid crystal layer is 2e[o]. This thickness, 2e[o], is defined as twice the thickness of the liquid crystal layer at which the polarization ellipse that is the result of an obliquely incident light wave traveling in the observation plane through a circular polarizer has its major axis rotated by the birefringence of the liquid crystal layer to align with the observation plane." *Commissariat a l’Energie Atomique v. Samsung Electronics Co., et al.*, 524 F. Supp. 2d 498 (D. Del. 2007). [2277]

"intensity" — "the area under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color." *Only the First, Ltd., et al. v. Seiko Epson Corp., et al.*, 2010 U.S. Dist. LEXIS 103988 (N.D. Ill., Sep. 29, 2010). [2278]

"interactive network sessions"; "interactive asymmetric communication in a session"; "interactive session"; "interactive communication" — "an established communication connection where information or commands are exchanged between a host server and a remote client in real time." *Hybrid Patents Inc. v. Charter Communications, Inc., et al.*, 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007). [2279]
"interactive operating process format" — "a call process flow implemented by at least one computer program that sets forth the content and sequence of steps to gather information from and convey information to callers through pre-recorded prompts and messages. The call process flow ... may be implemented by several linked or independently -- executable computer programs." *Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P.*, 326 F. Supp. 2d 1060 (C.D. Cal. 2003).

"interactive voice prompting" — "audible prompts provided to a user that enable the user to perform network services." *Foundry Networks v. Lucent Technologies, Inc.*, 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).


"intercepting said request at said web server"; "intercepting said request at said http-compliant device" — "intercepting the handling of a request at a web server"; "intercepting the handling of a request at a said http-compliant device." *EpicRealm, Licensing, LLC v. AutoFlex Leasing, Inc., et al.*, Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Aug. 15, 2006). "The Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court." *Id.*, Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Oct. 30, 2006).

"interchangeable with other cards" — "mean[s] that a user card that unscrambles a signal scrambled according to a particular scrambling technique can be readily exchanged with at least one other user card that unscrambles a signal scrambled according to a matching scrambling technique." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003).


"interconnecting" — "connecting, which includes connecting physically, through the use of a cord, adaptor or wireless connection." *Callpod, Inc. v. GN Netcom, Inc., et al.*, 2009 U.S. Dist. LEXIS 51103 (N.D. Ill., Mar. 6, 2009).

"interconnecting said transceiver and one of said voice circuits for supplying paging signals" — "a single RIM connected to a single voice circuit and a single transceiver is downloaded with instructions from the central control station for operation as the central channel." *MLMC, Ltd. v. Airtouch Communications, Inc., et al.*, 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).


"telephone network interface" — "a shared boundary between a telephone network and another system or device across which information is passed." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).

"interface engine" — "an interface module located outside of the main case that houses the image sensing module and the motion mechanism." Plustek, Inc. v. Syscan, Inc., et al., 2009 U.S. Dist. LEXIS 122777 (N.D. Cal., Dec. 21, 2009).

"interface for applying said binary true random sequence of signals to said general-purpose computer"; "true random number generator circuit interface" — "software, firmware, and/or hardware to directly or indirectly convey the binary true random sequence of signals to a bus in a general purpose personal computer." Quantum World Corp. v. Atmel Corp., et al., 2009 U.S. Dist. LEXIS 7936 (E.D. Tex., Jan. 30, 2009).

"interface in the form of a plurality of menus" — "a connection that provides a user with one or more screens with two or more menus (but not icons, pictures or symbols) to permit the user to make selections from the menus in order to enter script instructions." Rockwell Electronic Commerce Corp., et al. v. Apropos Technology, Inc., 2002 U.S. Dist. LEXIS 272 (N.D. Ill., Jan. 9, 2002).

"interface means for transferring a control program and control parameters from an external medium into said alterable memory and for recording the control parameter contents of said memory onto an external medium" — "is subject to § 112, P 6." IMS Technology, Inc. v. Haas Automation, Inc., et al., 206 F.3d 1422 (Fed. Cir. 2000).

"communications interface means" — "the term 'interface' does not stand alone, but is modified. The term 'communications interface' identifies a structure sufficient to perform the claimed function. This claim element is not a means-plus-function element requiring interpretation under § 112, P 6; it will be construed under the ordinary rules of claim construction." Microsoft Corp. v. Multi-Tech Systems, Inc., et al., 2002 U.S. Dist. LEXIS 15960 (D. Minn., Aug. 16, 2002).

"telephone line interface means" — "telephone line interface' is a specific reference to a type of interface, namely a 'telephone line' interface, that identifies a structure sufficient to perform the claimed function of connecting the invention to a telephone line. Therefore, this claim element is not a means-plus-function element requiring interpretation under § 112, P 6." Microsoft Corp. v. Multi-Tech Systems, Inc., et al., 2002 U.S. Dist. LEXIS 15960 (D. Minn., Aug. 16, 2002).

"telephone voice interface means" — "the reference to 'telephone voice interface' identifies a structure sufficient to perform the claimed function of receiving local voice signals and conveying remote voice signals. Therefore, this claim element is not a means-plus-function element requiring interpretation under § 112, P 6." Microsoft Corp. v. Multi-Tech Systems, Inc., et al., 2002 U.S. Dist. LEXIS 15960 (D. Minn., Aug. 16, 2002).


"interface ports for interprocessor communication" — "channels through which data is allowed to be transferred between two separate processing units." *Matsushita Electric Industrial Co., Ltd., et al.*, 514 F. Supp. 2d 916 (E.D. Tex. 2007). (2304)


"interface switch"; "interface" — "a device or system, which includes a processor, that transmits electronic mail messages to a wireless system for delivery to a mobile processor." *NTP, Inc. v. Research In Motion, Ltd.*, 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002). (2306)

"first interface to the computer system" — "software that enables the internet media venue user to interact with the computer system." *Function Media, L.L.C. v. Google, Inc.*, 2009 U.S. Dist. LEXIS 94340 (E.D. Tex., Oct. 9, 2009). (2307)

"second interface to the computer system" — "software that enables the seller user to interact with the computer system through which the seller user is prompted to enter information to select one or more internet media venues." *Function Media, L.L.C. v. Google, Inc.*, 2009 U.S. Dist. LEXIS 94340 (E.D. Tex., Oct. 9, 2009). (2308)


"interfacing said binary true random sequence of signals to a general purpose personal computer"; "interfacing said binary true random sequence of signals to a computer" — "directly or indirectly conveying the binary true random sequence of signals to a bus in a general purpose computer." *Quantum World Corp. v. Atmel Corp., et al.*, 2009 U.S. Dist. LEXIS 7936 (E.D. Tex., Jan. 30, 2009). (2310)

"first inter-layer insulating film" — "a first insulating film that is located between layers and that is separate from and not a part of an insulating film covering the surface of said substrate on which the MOSFET is formed." *Toshiba Corp. v. Hynix Semiconductor Inc., et al.*, 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006). (2311)

"second interlayer dielectric film" — "cover nonuniform second interlayer dielectric films in the common contact portion of the matrix." *Semiconductor Energy Laboratory Co. Ltd. v. Chi Mei Optoelectronics Corp., et al.*, 485 F. Supp. 2d 1089 (N.D. Cal. 2007). (2312)

"an intermediary disposed between adjacent pairs of said plurality of magnet elements" — "the term 'intermediary' can embrace magnetic substances, albeit only if the additional term requirement of 'alternating polarity' allows for it." *Intamin, Ltd. v. Magnetar Technologies, Corp.*, 2007 U.S. App. LEXIS 8791 (Fed. Cir., April 18, 2007). (2313)
"an intermediate memory ..." — "electronic storage media is included in the jukebox to temporarily store musical selections received from the central music store over the data telecommunications line." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007). 2314


"interconnecting each one of said processor systems through a network for data communications with each other one of said processor systems" — "mean[ ]s establishing data communication between every pair of processor systems in the distributed computer system using any kind of network." SeaChange International, Inc. v. nCube Corp., 115 F. Supp. 2d 473 (D. Del. 2000). 2317


"interface circuit" — "any circuit that links one type of logic system with another." Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364 (Fed. Cir. 2003). 2319


"interface module" — "interface engine located outside of the main case that houses the image sensing module and motion mechanism." Syscan, Inc. v. Portable Peripheral Co., Ltd., et al., 2006 U.S. Dist. LEXIS 47824 (N.D. Cal., July 5, 2006). 2322

"an interface module coupling ... to a computing device and receiving ... from the computing device" — "the court agrees that the previously agreed upon construction unduly limits claim 1. Plaintiff will not be bound by that construction. But aside from the term "interface module," which has already been construed, the court sees no reason to construe the remainder of the phrase." Syscan, Inc. v. Portable Peripheral Co., Ltd., et al., 2006 U.S. Dist. LEXIS 47824 (N.D. Cal., July 5, 2006). 2323


"interleaving"; "interleaved" — "the merging of two different frames of an image, with or without overlap, such that a given line of the merged image includes alternating image elements from each frame."  Crystal Image Technology, Inc. v. Mitsubishi Electric Corp., 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010).  

"storing the FECC codewords in an interleaved manner, the interleaving being different for the codewords of the different data channels" — "storing the FECC codewords such that interleaving is different for the codewords of the different data channels."  Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).  

"intermediate nodes" — "network connection points that have additional functionality for exploiting overlay routing, and that cooperate to provide forwarding to paths overlaid over the underlying network."  Cable & Wireless Internet Services, Inc. v. Akamai Technologies, Inc., 272 F. Supp. 2d 912 (N.D. Cal. 2003).  

"intermediate results file" — "a file that includes one or more records or fields used to respond to the query."  Jardin v. Datalegro, Inc., et al., 2010 U.S. Dist. LEXIS 105502 (S.D. Cal., Oct. 4, 2010).  

"the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer" — "the court concludes that 'the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer,' is indefinite under 35 U.S.C. § 112 based on its use of the term 'intermittent.'"  Rackable Systems, Inc. v. Super Micro Computer, Inc., 2006 U.S. Dist. LEXIS 81432 (N.D. Cal., Oct. 27, 2006).  


"intermittent power" — "power generated at irregular or regular intervals."  Excellent Inventions LLC v. FKA Distributing Co., et al., 2005 U.S. Dist. LEXIS 36174 (S.D. Tex., July 15, 2005).  


"international shipping information" — "any information, including at least shipping options and associated costs, related to shipping a product internationally from its point of origination to its point of destination."  DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006).  

"internet" — "a group of networks that have been connected by means of a common communications protocol."  Civix-DDI, LLC v. Cellco Partnership, 387 F. Supp. 2d 869 (N.D. Ill. 2005).
"Internet" — "the publicly accessible network capable of relaying information via Internet Protocol, either alone or in conjunction with one or more other protocols, but not including a wholly self-contained private network of devices communicating only with each other." Skyline Software Systems v. Keyhole, Inc., et al., 2006 U.S. Dist. LEXIS 83603 (D. Mass., Nov. 16, 2006). 2337


"Internet address" — "is simply a reference to a location of the information segment on the Internet. There is no support for the district court's added requirements that the 'Internet address' be a particular host or that it be unique. A URL, then, as defined by the language and context of the claims, is something that identifies the location of relevant information segments. This can include web pages, audio clips, images, and the like. It can be an absolute URL or a relative URL, as long as it specifies one or more Internet addresses of information segments relating to Internet content." ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082 (Fed. Cir. 2003). 2339

[i] "a published compilation of preselected Internet locations"; [ii] "a predetermined published Internet location" — [i] "a publicly accessible collection of information which corresponds to preselected Web sites (or to any other type of preselected data found on the Internet) which have unique URL addresses, the URL addresses being associated with diverse individuals or entities"; [ii] "a predetermined Web site (or any other type of data found on the Internet): (a) which has a unique URL address included in the published compilation; and (b) which serves to provide access to other preselected Internet locations." Internet Media Corp. v. Dell, Inc., et al., 2009 U.S. Dist. LEXIS 2187 (D. Del., Jan. 14, 2009). 2340

"second user Internet point" — "a terminal connected to the Internet through which the second user accesses the web site." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 2341

"Internet portal"; "portal server" — "a website, requiring user authentication, used to connect with Internet destination on behalf of end users [and retrieve personal information]." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 2342

"Internet protocol (IP) address for identifying a mobile" — "the IP address (as construed herein) identifies the mobile for routing purposes." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 2343


"interpretation by the local computer" — "processing the job instructions to produce a set of computer readable job processing requirements." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2346
"interpreting"—"refers to any kind of analyzing and translating utilized to enable the browser to effectively retrieve the relevant Web page." ACTV, Inc., et al. v. Walt Disney Co., et al., 204 F. Supp. 2d 650 (S.D.N.Y. 2002). 2347


"interrupt"—"a hardware signal which literally interrupts the computer and causes control to be transferred to the interrupt handler." Gobeli Research, Ltd. v. Apple Computer Inc., et al., 384 F. Supp. 2d 1016 (E.D. Tex., Aug. 26, 2005). 2349

"interrupt"—"requires: (1) providing electrical current to a device up to a preset threshold so that auxiliary components may continue to operate; and (2) completely shutting off electrical current to the device when the electrical current exceeds the preset threshold." Boss Control, Inc., et al. v. Bombardier Inc., et al., 410 F.3d 1372 (Fed. Cir. 2005). 2350

"interrupting"—"temporarily stopping a formatting operation, which may occur at any time." Ricoh Co., Ltd. v. Quanta Computer, Inc., et al., 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007). 2351


"intervention"—"an action by a health care provider to manage the care of an individual patient." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009). 2353


"intra-oral radiological sites"—"icons or sites, included in the representation of an intra-oral radiograph holder, that designate respective anatomical regions of the dental arch." Board of Regents of the University of Texas System, et al. v. Eastman Kodak Co., et al., 2006 U.S. Dist. LEXIS 7997 (W.D. Tex., Jan. 26, 2006). 2356

"first user intranet point"—"a terminal on a private network through which a web site provider accesses a site." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 2357

"introducing"—"has an ordinary meaning and does not require construction." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). 2358


"invalidate data"—"to indicate previously cached data has been modified." SuperSpeed Software, Inc. v. Oracle Corp., 447 F. Supp. 2d 672 (S.D. Tex. 2006). 2360
"an inverter circuit connected between the DC terminals and the lamp terminals; the inverter circuit being operable to supply an alternating lamp voltage across the lamp terminals" — "Nilssen is bound by his assertion before the Patent and Trademark Office that the quoted element is a means-plus-function limitation." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000).


"an inverter-type power supply that is connected with the DC output terminals and operative to provide a high-frequency AC voltage between a first inverter output terminal and an inverter reference terminal" — "the prosecution history reveals that Nilssen himself limited his claim to a 'full-bridge inverter.'" Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000). "This Court now holds that the phrase 'inverter-type power supply' ... is not limited by the specification. Instead the phrase is given its well-known meaning in the relevant art." Id., 130 F. Supp. 2d 976 (N.D. Ill. 2000).


"invoicer billing information" — "information relating to the customer's obligations to the invoicer, which may include the due date, amount due, list of goods and services, late charge." Emergis Technologies, Inc. v. Midwest Energy, Inc., 2006 U.S. Dist. LEXIS 65854 (D. Kan., Sept. 14, 2006).


"isolation"; "isolating"; "isolated" — "the absence of an electric path permitting the flow of DC current (other than a de minimus amount) between an input and an output of a particular stage, component, or circuit." *SynQor, Inc. v. Artesyn Technologies, Inc., et al.*, 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010). 2376


"issue"; "issued"; "issuing" — "remove or decouple the tangible medium from the means that stores the information therein, so the tangible medium provides an independent record of a voting session." *Avante International Technology Corp. v. Diebold Election Systems, et al.*, 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 2378

"issuing multiple instructions and non-sequential instructions within a given processor cycle when the existence of concurrencies is detected"; "issuing multiple instructions and non-sequential instructions within a given processor cycle when said plurality of concurrently executable instructions are detected" — "issuing multiple and non-sequential instructions when the dispatch stack has detected a plurality of concurrently executable (i.e. data dependency free) instructions." *Cornell University, et al. v. Hewlett-Packard Co.*, 313 F. Supp. 2d 114 (N.D.N.Y. 2004). 2379


"first code module issues a command to retrieve a second code module" — "the first code module performs a program instruction contained within the first code module to request the downloading of a second code module from a location on a network." *Modavox, Inc. v. Tacoda, Inc.*, 607 F. Supp. 2d 530 (S.D.N.Y. 2009). 2381

"item" — "the term 'item' has its plain ordinary meaning and does not require construction." *Sklar v. Microsoft Corp.*, 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007). 2382

"item"; "movie" — "As these are commonly-understood English words, they need no clarification." *Netflix, Inc. v. Blockbuster, Inc.*, 477 F. Supp. 2d 1063 (N.D. Cal. 2007). 2383

"item/movie rental queue" — "the sequence from which the provider selects movies or items to be rented." *Netflix, Inc. v. Blockbuster, Inc.*, 477 F. Supp. 2d 1063 (N.D. Cal. 2007). 2384

"items containing information" — "physical items, such as video tapes, film, or computer disks, which contain audio information, video information or both." *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 2385
- J -

"job input" — "data received from the authorized user that is to be transcribed, translated, entered, or assembled." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2386

"job instructions" — "communication(s) providing information for performing the job." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2387

"job packet" — "one or more electronic files associated with a job." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2388


"job request" — "data from an authorized user to a local computer asking for performance of a job." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2390


"job steps" — "the series of actions that defines the job." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009). 2392

"junction" — "an intersection or interface between two different semiconductor regions, the place where two regions contact each other or come together." Semiconductor Energy Laboratory Co., Ltd. v. Samsung Electronics Co., Ltd., et al., 2010 U.S. Dist. LEXIS 45107 (W.D. Wis., May 7, 2010). 2393

"junction" — "the specification provides no support for defendants' attempt to limit the claimed device to only three layers." Magil Corp., et al. v. Seagate Technology, et al., 2010 U.S. Dist. LEXIS 18086 (D. Del., Mar. 1, 2010). 2394

- K -

"Kaufman-type ion beam source" — "any ion beam gun with the four stated components: a hot-wire cathode, an anode, grids, and magnets." Litton Systems, Inc. v. Honeywell, Inc., 140 F.3d 1449 (Fed. Cir. 1998). 2395

"kernel" — "a portion of the host operating system facility that resides in memory at all times." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004). 2396
"key" — "a unique sequence used to create or verify a digital signature." Timecertain, LLC v. Authentidate Holding Corp., et al., 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006).


"hardware key" — "the Court concludes that the specification requires that the hardware key be an external hardware device." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007).

"keyboard controller" — "a component, electronically or functionally distinct from the keyboard, that activates interrupt signals in response to receipt of data scan codes from the keyboard, and, upon request, transmits data scan codes to the computer." Samsung Electronics Co., Ltd. v. Quanta Computer, Inc., et al., 2006 U.S. Dist. LEXIS 66447 (N.D. Cal., Sept. 15, 2006).


"a keypad for both dialing out and programming said ringer" — "a telephone keypad in which the same keypad is used for both dialing out and programming a ringer." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009).

"keystoning caused by planar misalignment between said projector means and said display screen" — "[i]mage distortion that occurs when the projection axis deviates from a 90 [degree] angle (i.e., is non-orthogonal) with the plane of the display screen." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).


"knowledge-based access to, and management of" — "access based on knowledge of the user, and control, which includes any and all changes to the database including but not limited to the creation, deletion, and modification of content." Aircraft Technical Publishers vs. Avantext, Inc., 2009 U.S. Dist. LEXIS 105623 (N.D. Cal., Nov. 10, 2009).

"known anthropometric data" — "should not be limited to patient specific data, but should be construed more broadly to include anthropometric data that is compiled in a database and applies generally to a population." Healthport Corp. v. Tanita Corp. of America, 499 F. Supp. 2d 1179 (D. Or. 2007).

"language" — "programming used to couple network sites and mobile devices." MShift, Inc. v. Digital Insight Corp., et al., 2010 U.S. Dist. LEXIS 107946 (N.D. Cal., Oct. 8, 2010).

"large-screen display surface" — "although the Court believes that this is a close question, it concludes that a person skilled in the art would understand the term 'large-screen display surface.'"  *PolyVision Corp. v. Smart Technologies, Inc., et al.*, 501 F. Supp. 2d 1042 (W.D. Mich. 2007). 2411

"periodically forming largely overlapping images of a field of view of said array" — "The Court does not find 'largely' to be indefinite simply because there is no specific quantity by which the images must overlap. ...Based on the Court's determination that the device ... is one which may operate in a three-dimensional environment, the Court declines to further construe this phrase."  *Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp.*, 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006). 2412

"larger than said simple geometric figure" — "having a greater area than the area of the simple geometric figure of the first planarizing pattern."  *Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al.*, 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006). 2413

"laser piloting means connected to said converting means and to said second transmitter for controlling said second transmitter by said electrical signals within said operating parameters of said optical amplifier" — "The dispute between the parties as to this term is whether the 'laser piloting means' must operate through direct modulation or whether the claim language also covers 'laser piloting means' that operate through external modulation. ... The Court is persuaded that, as a matter of law, the function of the 'laser piloting means' cannot include external modulating devices, but only includes direct modulation devices."  *Pirelli Cable Corp. v. Ciena Corp.*, 988 F. Supp. 424 (D. Del. 1997). 2414

"a laser source of subpicosecond laser light pulses, ... producing in the region of said focal point a two photon excitation energy level" — "definite structure and material is recited, thus making § 112, P 6 inapplicable. For example, the term 'laser source' by itself recites a structure, that is, a laser."  *Carl Zeiss Jena GmbH, et al. v. Bio-Rad Laboratories, Inc., et al.*, 2002 U.S. Dist. LEXIS 1729 (S.D.N.Y., Feb. 4, 2002). 2415

"last synchronization signature" — "a record computed by the general synchronization module from which the most recent synchronization may be determined."  *Visto Corp. v. Seven Networks, Inc.*, 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005). 2416

"latching level shifter" — "a level shifter including a feedback loop that will indefinitely retain at least one data state in the absence of any new control signal to change the state."  *Mosaid Technologies, Inc. v. Samsung Electronics Co., Ltd., et al.*, 2004 U.S. Dist. LEXIS 27636 (D.N.J., Mar. 23, 2004). 2417


"layer" — "a thickness of material, which may be made up of sub-layers, but does not refer to a substrate in a device unless the substrate is an electronically active portion of the device." Seoul Semiconductor Co. Ltd. v. Nichia Corp., et al., 596 F. Supp. 2d 1005 (E.D. Tex. 2009).  


"layer 2 forwarding protocol"; "the forwarding protocol"; "virtual dial-up protocol" — "rules for enabling a remote client to communicate information with a home network through an intermediary, containing the following features: packaging data at the link level frames of higher protocols; enabling multiplexing (and demultiplexing) multiple remote clients within a single tunnel; encapsulating and packaging data configured in a particular protocol (such as PPP) without regard to the information content of the encapsulated data; structuring packets of data by a layer 2 forwarding protocol header (containing information relating to the layer 2 forwarding protocol operation) and a payload containing the encapsulated data; changing none of the encapsulated data during transmission; obviating the need for authentication or address assignment from the internet service provider; containing no requirement that the remote client be queried a second time; and supporting an arbitrary request/response exchange, in that the network access server can detect the apparent identity of the user and establish a tunnel connection to the home gateway, where the arbitrary exchange can occur." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).  


"LCD panel" — "a panel of material whose reflectance or transmittance changes when an electrical field is applied to it." O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).
[i] "lead frame"; [ii] "paddle"; [iii] "external mounting frame" — [i] "the metal piece, initially flat, to which a semiconductor integrated circuit chip is mounted, and which comprises the external mounting frame, the paddle, the paddle support arms, and the fingers"; [ii] "the surface upon which a semiconductor integrated circuit chip is mounted"; [iii] "the exterior portion of the lead frame to which the paddle support arms and fingers are initially attached." Agere Systems Inc. v. Atmel Corp., 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003).

"lead wire extending from the package" — "the insulated wires or leads start inside the envelope and extend from the inside to the outside of the envelope." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).


"Lempel-Ziv encoders" — "encoders which implement a compression methodology for dictionary-based lossless data compression, where the dictionary contains any data sequence that has already been used to build the dictionary contents; a pointer to an earlier entry in the dictionary contents indicates a data sequence; and either a combination of address to already coded dictionary contents and sequence length is stored or only an index to the dictionary is stored." Realtime Data, LLC v. Packeteer, Inc., et al., 2009 U.S. Dist. LEXIS 78459 (E.D. Tex., Jun. 23, 2009).

"lens" — "a body that has two opposite regular surfaces, at least one of which is curved, that is structured and positioned to form an image by focusing a beam of electromagnetic radiation." International Automated Systems, Inc. v. Digital Persona, Inc., et al., 2008 U.S. Dist. LEXIS 445 (D. Utah, Jan. 2, 2008).

"pricing information that is less restrictive for the same pricing type" — "pricing information that is less specifically applicable to an organizational group or a product group for a given pricing type." Versata Software, Inc., et al. v. SAP America, Inc., et al., 2009 U.S. Dist. LEXIS 45751 (E.D. Tex., May 19, 2009).


"library" — "The district court defined 'library' as a 'collection ... of places that store information, and you can have a single control or common handling system.' ... we conclude that the district court erred." Odetics, Inc. v. Storage Technology Corp., et al., 1997 U.S. App. LEXIS 15254 (Fed. Cir., Jun. 25, 1997) (unpublished).

"virtual media asset library" — "a repository of media assets to which the user is licensed and functionality that allows synchronization and replication of the user's licensed assets with each of the user's media player devices." Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010).


"a license pool" — "one or more license(s) collected together, as in a license file." Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al., 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999).


"licensing component" — "a part that coordinates or requests the licensing of information or products. The phrase implies action or the presence of an active constituent part. In computer programming, such an active part is an executable file or program. Thus, based on the claim language, the Court finds that the 'licensing component' must include an executable file or program." Network Commerce, Inc. v. Microsoft Corp., 260 F. Supp. 2d 1034 (W.D. Wash. 2002).

"in lieu of control provided by said originally provided program" — "in place of or instead of control provided by all or part of said originally provided program." Adrain v. Superchips, Inc., 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006).


"light" — "the spectrum of electromagnetic radiation which can be seen by the human eye and is not limited to lasers." Applied Material, Inc. v. Tokyo Seimitsu, Co., 446 F. Supp. 2d 525 (E.D. Va. 2006).


"a light transmission element attached to the light device" — "a part of a composite entity that allows light to pass or be conveyed to the light device." Yanova, Inc., et al. v. Johnson, et al., 2005 U.S. Dist. LEXIS 497 (S.D.N.Y., Jan. 11, 2005).

"limit on use" — "a control that limits a caller's access to a service based on some predetermined method of measuring the level of use. The term 'limit on use' is not restricted to a specific method of measuring use, such as a limited number of accesses into the Katz system." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).  

"limiting the voltage applied to said transformer and to said components" — "ordinary meaning; no further construction is necessary." ABB Automation Inc. v. Schlumberger Resource Management Services, Inc., 254 F. Supp. 2d 475 (D. Del. 2003).  

"limits" — "end point values delineating the range of angular motion for a particular joint for a particular gesture action (as defined [])." New York University v. Autodesk, Inc., 2007 U.S. Dist. LEXIS 26671 (S.D.N.Y., April 10, 2007).  

"a line activity monitor coupled to the telephone line to record information indicative of usage of the telephone line" — "an apparatus for monitoring activity or information indicative of how the telephone line is being used. All types of line activity or modes of line use need not be monitored and recorded, so long as at least some information indicative of usage is recorded." Octel Communications Corp., et al. v. Theis Research, Inc., et al., 1999 U.S. App. LEXIS 30066 (Fed. Cir., Nov. 18, 1999) (unpublished).  

"line-powered, serially connected intelligent cells"; "PSICs" — "SICs wherein one SIC receives power directly from the power source and other SICs are fed power from network wiring and may feed power to other connected SICs if capable." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007).  

"linear combination" — "means the sum or difference of a transmission function and a scatter function, with each function depending on a single input variable." American Science and Engineering, Inc. v. Autoclear, LLC, et al., 2009 U.S. Dist. LEXIS 25954 (E.D. Va., Jan. 30, 2009).  


"bi-directional communications link coupled between the futures and options computers"; "a bi-directional communications link coupled between the options computer and principal market maker computer"; "communications link" — "(1) 'link' means 'a unit in a communication system'; and (2) 'coupled' means 'to join for combined effect.'" Chicago Mercantile Exchange, Inc., et al. v. Technology Research Group, LLC, 2010 U.S. Dist. LEXIS 65002 (N.D. Ill., Jun. 28, 2010).2462

"link data" — "data describing the identity and features of the mobile station and the call in which the mobile station is engaged." HTC Corp., et al. v. IPCom GmbH & Co., KG, 2010 U.S. Dist. LEXIS 87585 (D.D.C., Aug. 25, 2010).2463

"link layer" — "the second lowest layer of the Open Systems Interconnect (OSI) seven layer model, providing the functional and procedural means to transfer data between modems, and to detect and correct errors." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).2464

"link said memory to a remote home base" — "establish a communication connection between a device that stores digital data and a 'remote home base.'" Key Energy Services, Inc. vs. C.C. Forbes, LLC, et al., 2010 U.S. Dist. LEXIS 67292 (E.D. Tex., Jul. 7, 2010).2465

"linked" — "associated with, related to, or connected to." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).2466

"linked to" — "requires no construction." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).2467

"linking the address of such unusable blocks with addresses of other blocks that are useable" — "need not take the form of a map or table, but must be something more than simply storing a pointer in the unusable block that points to a usable block." Sandisk Corp. v. Zotek Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010).2468

"liquid crystal display"; "LCD" — "[a] display device including a LCD panel and a device backlight unit both of which are sandwiched by the first and second frames." LG Philips Co., Ltd. v. Tatung Co., et al., 2007 U.S. Dist. LEXIS 43557 (D. Del., June 15, 2007).2469

"a liquid crystal layer which can have a homeotropic structure" — "the liquid crystal layer having molecules substantially oriented in a homeotropic direction." Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007).2470


"live operator stations with prompting capability" — "operator stations with the capability of providing prompting data, which may or may not be related to prompts used in automated formats." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003).2472
"the second level name server includes a load balancing mechanism that balances loads across a subset of the set of servers" — "a mechanism in the second level name server monitors the loads on a group of content servers in a content delivery network and distributes requests for objects among them to avoid overloading any single content server." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007).

"being selected according to a load sharing algorithm enforced across the subset of the set of content servers associated with the given name server" — "being selected by a procedure that distributes requests for objects among a group of content servers in a content … delivery network associated with the particular name server to avoid overloading any single content server." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007).

"having a loadable font memory for storing a library of up to a predetermined maximum number of font patterns" — "means that the character-based output device must contain a dynamically changeable storage area for storing a limited number of monochromatic characters." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).

"loan application" — "a request for an extension of credit in a format that contains sufficiently detailed information to enable a lender to grant or deny the request." IMX, Inc. v. LendingTree, LLC, 405 F. Supp. 2d 479 (D. Del. 2005).

"local area network" — "a plurality of computers located nearby to one another that are interconnected so they can exchange information." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).

"local area network" — a network that switches hardware and software, a construction that is consistent with both the patent language and the prosecution history." Advanced Communication Design, Inc. v. Premier Retail Networks, Inc., 186 F. Supp. 2d 1009 (D. Minn. 2002).

"local area network"; "LAN" — "a short distance communications network (typically within a building or campus) used to link computers and peripheral devices (such as printers, CD-ROMS, modems) under some form of standard control." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007).

"communicatively linking said contributions accepting devices in a local area network" — "A 'local area network' is a group of computers and other devices over a relatively limited area connected by a communications link that enables any device to interact with any other on the network." Ziarno v. American National Red Cross, et al., 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000).

"local area network that is further connected to the server" — "needs no construction." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).

"a local calling area of the caller" — "a calling area where a caller does not incur long distance or toll charges when making a call." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).
"local computer" — "a computer system from which an authorized user can initiate a job, either directly or indirectly, that includes an information system that stores databases of information used to process jobs." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009).2483

"local control system" — "a control system located on or near the streamer positions devices (e.g. birds)." WesternGeco LLC v. ION Geophysical Corp., 2010 U.S. Dist. LEXIS 71875 (S.D. Tex., Jul. 16, 2010).2484

"local digital data processing system" — "a digital data processing system restricted to a particular area and physically and logically distinct from any other local digital data processing system if one exists." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).2485

"local distribution system" — "a reception system, as previously defined, located geographically close to subscriber receiving stations which are coupled to the reception system." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007).2486

"local memory" — "memory easily accessible to the user's processor, either because it is physically part of the processor or is attached directly thereto, and distinct from the memory of the remote server from which data must be downloaded." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 421 F. Supp. 2d 371 (D. Mass. 2006).2487

"local memory device" — "the word 'local' is used to describe computer devices that are directly attached to a single computer's processor (by, for example, the computer's bus), without the need for an intervening communication channel." Mangosoft, Inc., et al. v. Oracle Corp., 2004 U.S. Dist. LEXIS 19357 (D.N.H., Sept. 21, 2004).2488

"local port" — "a point of physical interface." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).2489

"local processor assembly" — "a computer at the user's location; in contrast to a 'remote' server assembly, the user can access data on the claimed 'local' processor assembly without an on-line connection." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).2490

"one or more local server computers" — "The plain language of the patent makes clear that caching is critical to the function of a local server, and that unless there is caching, the device cannot be considered a local server for purpose of this patent." Netword, LLC v. Centraal Corp., 1999 U.S. Dist. LEXIS 1957 (E.D. Va., Jan. 12, 1999).2491 "We conclude that the district court correctly construed claim 1 as requiring a local server computer that has a limited database of aliases and that may request updates from a central registry computer. The district court's construction of the claimed element 'local server computer' as requiring performance of these functions is affirmed." Id., 242 F.3d 1347 (Fed. Cir. 2001).2492 "[T]he file history and the specification, as demonstrated above, actually teach that claim 1 does not carry the limitations imposed on it by the district court and the majority." Id. (Clevenger, J., dissenting).2493

"localized wireless gateway system" — "require[s] that the system be limited to an operating range of a few feet and perform compression and packetization functions." Verizon Services Corp., et al. v. Vonage Holdings Corp., et al., 503 F.3d 1295 (Fed. Cir. 2007). 2495

"locally generated video signal" — "a video signal that is generated at the headend, i.e., locally to the switching system." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001). 2496

"located in the computer" — "located in the CPU, main memory, the CPU or main memory circuit boards, or qualifying peripherals." Pickholtz v. Rainbow Technologies, Inc., et al., 284 F.3d 1365 (Fed. Cir. 2002). 2497


"locating said predetermined position" — "locating the operand or instruction within the instruction group that includes the operand or instruction being accessed at the predetermined position." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 2501

"location" — "the place in the memory where information is stored." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007). 2502


"location facility" — "computer software associated with the locator server." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007). 2505


"location on the internet being defined by a static IP address" — "requires no construction." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007). 2507
"predetermined locations"; "point-of-sale locations" — "a business establishment or kiosk which may be automated or staffed by one or more persons." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007).2508

"locator server computer"; "server computer" — "[a] computer with unrestricted access to an interconnected network of computers, such as the internet." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007). 2509

"log entry" — "a set of data items, treated as a unit, which concern transactions or activities that take place on a computer and which is placed into a set of related records concerning such transactions or activities." Computer Acceleration Corp. v. Microsoft Corp., 516 F. Supp. 2d 752 (E.D. Tex. 2007). 2510

"log file" — "the set of log entries, which, if the log file for a program does not already exist on the computer system, are, upon launch of that program, generated in sequence for each access during the launch sequence to a physical address block at which a portion of the computer program is stored." Computer Acceleration Corp. v. Microsoft Corp., 516 F. Supp. 2d 752 (E.D. Tex. 2007). 2511


"logic circuit" — "a circuit outside of the memory device that performs some processing or controlling function." UniRAM Technology, Inc. v. Monolithic System Technology, Inc., 2006 U.S. Dist. LEXIS 21661 (N.D. Cal., March 30, 2006). 2513

"logic circuit" — "the software and/or hardware that provides pre-programmed, or preset, responses dictated by the test subject's inputs." Diagnostic Group, LLC v. Benson Medical Instruments Co., 2005 U.S. Dist. LEXIS 5030 (D. Minn., Mar. 28, 2005). 2514

"second logic coupled with the buffer, and responsive to the packet filter to read and process data in the identified packets from the buffer, and to produce a data value dependent on contents of the packet prior to transfer of the identified packets to the second port by the first logic" — "§ 112(6) does not apply." 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007). 2515


"logic gates" — "refers to the logic circuitry that makes up the graphics engine and manipulates video data on a computer screen." NeoMagic Corp. v. Trident Microsystems, Inc., 98 F. Supp. 2d 538 (D. Del. 2000). 2517


"logic means" — "does not recite sufficient structure to overcome the presumption that it is in a means-plus-function format." St. Clair Intellectual Property Consultants, Inc. v. Matsushita Electronic Industrial Co., Ltd., et al., 2009 U.S. Dist. LEXIS 106697 (D. Del., Nov. 13, 2009). 2519

"logical address" — "a fixed, unique, and unchanging identifier assigned within a network of interconnected computers for source to destination packet delivery." Fenner Investments, Ltd. v. Hewlett-Packard Co., et al., 2009 U.S. Dist. LEXIS 102765 (E.D. Tex., Nov. 4, 2009). 2521

"logical address" — "a fixed, unique, and unchanging identifier assigned within a network of interconnected computers for source to destination packet delivery." Fenner Investments, Ltd. v. 3Com Corp., et al., 2009 U.S. Dist. LEXIS 44842 (E.D. Tex., May 26, 2009). 2522

"logical block address" — "address provided by the host to the controller for identifying blocks which contain a plurality of N sectors." Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005). 2523


"logical page address" — "is not limited to a 'logical block number plus logical page offset.'" Sandisk Corp. v. Zotek Electronic Co., Ltd., et al., 2010 U.S. Dist. LEXIS 99500 (W.D. Wis., Sep. 22, 2010). 2525

"logical processor number" — "a number correlated by the hardware to an actual physical processor element." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 2526

"logical resource driver" — "a hardware device which provides a data cache and instruction selection support system for a given user. The LRDs receive execution sets, store the instructions, and deliver the instructions to the processor elements." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 2527

"logical unit" — "is synonymous with the term 'volume' or 'virtual disk.'" Storage Computer Corp. v. Veritas Software Corp., et al., 2003 U.S. Dist. LEXIS 1181 (N.D. Tex., Jan. 27, 2003). 2528

"logging accesses to ..." — "placing in a log file, information about the obtaining of data from ..." Computer Acceleration Corp. v. Microsoft Corp., 516 F. Supp. 2d 752 (E.D. Tex. 2007). 2529

"logon command" — "identifying information, such as a name or data, associated with and enabling operation of a remote computer unit, and which is checked for validity by the [remote system controller, network control computer, website]." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009). 2530 "Contrary to the court's prior claim construction ruling with regard to the term 'logon command,' with respect to the '943 patent, the court concludes that a logon command is not limited to being associated with or enabling the operation of only one particular remote computer unit." Id., 2009 U.S. Dist. LEXIS 101031 (S.D. Tex., Oct. 30, 2009). 2531
"long wavelength spectral range" — "The light produced by the laser is of such a wavelength that the fluorophore in the target material will not fluoresce in response to the absorption of one photon, but will fluoresce when the energies of two photons of that wavelength are absorbed and combined. Long wavelength means longer than the short wavelength spectral range light of claim element 1[a] or the predetermined wavelength of claim element 7[a]. The specific wavelengths depend on the particular fluorophore used in the target material." Carl Zeiss Jena GmbH, et al. v. Bio-Rad Laboratories, Inc., et al., 2002 U.S. Dist. LEXIS 1729 (S.D.N.Y., Feb. 4, 2002).

"look ahead distance" — "a distance along the ground track of the aircraft that marks the outer limit of each alert envelope that is a function of aircraft speed and time to complete an evasive maneuver." Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al., 488 F.3d 982 (Fed. Cir. 2007).

"the lottery game and an amusement game" — "a game which amuses the player, which can be combined with or be separate from the 'actualization' game which reveals the result of the lottery game." Ingenio, Filiiale de Loto-Quebec, Inc. v. GameLogic, Inc., 445 F. Supp. 2d 443 (D. Del., July 21, 2006).


"low level current" — "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." Network-1 Security Solutions, Inc. v. D-Link Corp., et al., 2006 U.S. Dist. LEXIS 84510 (E.D. Tex., Nov. 20, 2006).


"low-power state" — "state of operation brought about by shutting off or reducing power to the unnecessary sections of circuitry." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).

"low temperature oxide" — "an oxide in which deposition, densification, or curing occurs at temperatures less than approximately 450 ° C." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).


"lower speed return channel protocol"; "upstream channel protocol" — "a set of rules for transmission of lower speed data addressed to a host computer or server." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).

"lower substrate"; "conductive layer formed over said ... substrate" — "'lower substrate' refers to the base or foundation on which the rest of the structure is built, and 'conductive layer formed over' the substrate means that the conductive layer covers the surface of the substrate." Laser Diode Array, Inc. v. Paradigm Lasers, Inc., et al., 114 F. Supp. 2d 167 (W.D.N.Y. 2000).

-M-

"MAC address" — "physical address used by the media access controller (MAC) level defined by standards such as Ethernet, token ring, or FDDI." Fenner Investments, Ltd. v. 3Com Corp., et al., 2009 U.S. Dist. LEXIS 44842 (E.D. Tex., May 26, 2009).

"machine-readable code elements" — "individual parts of a code (1) that can be separated into parts and (2) that can be automatically obtained from objects." CIAS, Inc. v. Alliance Gaming Corp., et al., 424 F. Supp. 2d 678 (S.D.N.Y. 2006).

"[the needle] is rendered magnetic at [or to] a level that enables detection of the magnetism of the needle"; "the needle is magnetized to a level which enables detection of the magnetism of the needle" — "either prior to injecting the living animal or while in the flesh of the animal after slaughter, the needle is magnetized to become a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time, to a level that makes it possible for the magnetism of the needle to be detected by a metal detector or magnetic detector." Ideal Instruments, Inc. v. Rivard Instruments, Inc., et al., 498 F. Supp. 2d 1131 (N.D. Iowa 2007).


"magnetic or magnetizable" — "is or is capable of becoming a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time." Ideal Instruments, Inc. v. Rivard Instruments, Inc., et al., 498 F. Supp. 2d 1131 (N.D. Iowa 2007).


"main case" — "a compact case that houses the image sensing module and the motion mechanism." Syscan, Inc. v. Portable Peripheral Co., Ltd., et al., 2006 U.S. Dist. LEXIS 47824 (N.D. Cal., July 5, 2006).
[i] "a main computer including a main memory for storing variable data, constant data and a main revision status related to at least one product, the main revision status indicating the revision level of the constant data stored in the main memory"; [ii] "a remote computer including a remote memory for storing constant data and a remote revision status related to the at least one product, the constant data being a subset of information data related to the at least one product, the remote revision status indicating the revision level of the constant data stored in the remote computer" — [i] "a computer that has a memory in which variable data, constant data, and a main revision status indicating the revision level of the constant data is stored" [ii] "a computer that has a memory in which constant data and a remote revision status indicating the revision level of the constant data is stored." Charles E. Hill & Associates, Inc. v. Compuserve Inc., et al., 2003 U.S. Dist. LEXIS 19218 (S.D. Ind., Aug. 29, 2003).


"maintain ... at a predetermined level" — "charge[s] the invention of claim 1 with the task of keeping, or preserving from decline, the luminous output of its LEDs at an amount chosen beforehand." Relume Corp. v. Dialight Corp., et al., 63 F. Supp. 2d 788 (E.D. Mich. 1999).


"maintaining a currently displayed frame"; "maintain a currently displayed frame" — "continuing to display the same picture frame that is being displayed when the manually inputted signal is detected." Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al., 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006).

"maintaining said encoded information" — "keeping the encoded information such that it is readable when the disc is subsequently played back." *Ricoh Co., Ltd. v. Quanta Computer, Inc., et al.* 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007).2563


"maintaining updated sums of said coefficients" — "far from reciting a function without specific acts, appears to delineate an act ('maintaining updated sums of said coefficients') that helps achieve the desired purpose of 'forming a seamless DWT.' We therefore hold that the claim limitation at issue does not, as a matter of law, implicate section 112, paragraph 6." *LizardTech, Inc. v. Earth Resource Mapping, Inc., et al.* 35 Fed. Appx. 918 (Fed. Cir., May 22, 2002) (unpublished).2566

[i] "the majority of the unscrambling circuit"; [ii] "essential portion of the unscrambling circuit" — [i] "either the amount of circuitry or the portion of the circuitry that performs the majority or most important part of the unscrambling function"; [ii] "the indispensable portion of the entire circuit that restores a modified signal to its unmodified condition." *Broadcast Innovation, LLC v. Echostar Communications Corp.* 240 F. Supp. 2d 1127 (D. Colo. 2003).2567

"making a first image of the organ with respect to a first coordinate system using a first imaging device" — "making a three-dimensional rendering of the organ of interest. This may be done by use of a CT or a MRI device. The rendering is taken with respect to a first coordinate system." *NOMOS Corp. v. ZMED, Inc.* 260 F. Supp. 2d 215 (D. Mass. 2002).2568

"making a second image with said second imaging device, the second image corresponding to a cloud of points of the surface of the organ or skin region" — "using the second imaging device (e.g., the ultrasound probe that takes two-dimensional images) to make a three-dimensional rendering showing the organ." *NOMOS Corp. v. ZMED, Inc.* 260 F. Supp. 2d 215 (D. Mass. 2002).2569

"making a wager" — "mean[s] betting, which is an act performed by the player." *Aristocrat Technologies, Australia PTY Ltd., et al. v. International Game Technology, et al.* 2010 U.S. Dist. LEXIS 47290 (N.D. Cal., May 13, 2010).2570

"making at least one 3D first image of an organ of a patient having a first coordinate system and of a surface of the organ or skin region with a first imaging device while the patient is in a pre-operation site without fixing any mark to the patient" — "making a three-dimensional rendering of the organ of interest. This may be done by use of a CT or a MRI device. The image is taken with respect to a first coordinate system while the patient is in a pre-operation site and without fixing any mark to the patient." *NOMOS Corp. v. ZMED, Inc.* 260 F. Supp. 2d 215 (D. Mass. 2002).2571
"making telephone calls from any available telephone" — "means that the calling telephone must be capable of (1) dialing the special exchange; (2) transmitting a special code to the exchange; and (3) transmitting a phone number to be called to the exchange." Aerotel, Ltd. v. Telco Group, Inc., et al., 2010 U.S. Dist. LEXIS 47266 (S.D.N.Y., May 12, 2010). 2572

"the auctioneer manages the acceptance and rejection of bids" — "the auctioneer has complete control over which bids are accepted and rejected." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 2573


"managing the efficient routing of transit traffic between said plurality of tandem access points and said switch" — "managing transit traffic into, out of and throughout the claimed network by reducing the customer carriers' reliance on the RBOC/ILEC network." Neutral Tandem, Inc. v. Peerless Network, LLC, et al., 2010 U.S. Dist. LEXIS 11248 (N.D. Ill., Feb. 8, 2010). 2575


"manipulating component fields" — "rearranging the data fields received from the data path in different ways." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 2577

"manipulating the client database by commands received from the gateway computer" — "The only phrase that needs construction is 'manipulating the client database by commands,' and the court incorporates by reference its previous construction of 'directly manipulating the client database' as the definition for that term." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006). 2578

"manipulating the client database with the session module" — "The court concludes that 'manipulating the client database' means 'causing tasks to occur on the client database, such as querying, adding, or removing data, by commands sent to the client database.' The balance of the phrase requires no construction." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006). 2579

"the adjustment being performed in a manner which causes the actual ion output current value to become equal to the ion output current reference value" — "the actual ion output current value is either increased or decreased until it equals the ion output current reference value." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003). 2580

"manual reset" — "This Court will construe 'manual reset' to be the same 'power on reset signal' present in Claim 1(d) and (e)." Agrizap, Inc. v. Woodstream Corp., et al., 431 F. Supp. 2d 518 (E.D. Pa. 2006). 2581

"manually modified" — "effecting a change as a result of a user's input or request." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010). 2582

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"many-to-many functionality" — "two or more users able to access two or more data files." Leader Technologies, Inc. v. Facebook, Inc., 2010 U.S. Dist. LEXIS 21100 (D. Del., Mar. 9, 2010). 2583

"map" — "a visual representation of the location of pit and particle defects on the surface of a scanned workpiece that includes the underlying electronically stored data corresponding to said visual representation." ADE Corp. v. KLA-Tencor Corp., 252 F. Supp. 2d 40 (D. Del. 2003). 2584

"map image" — "a representation of a flood map, such as a FEMA flood map, stored as a grid of pixels." Sourceprose Corp. v. Fidelity National Financial, et al., 2006 U.S. Dist. LEXIS 10151 (E.D. Tex., Feb. 23, 2006). 2585


"determining whether or not the data packet is marked as being transmitted at an excessive rate" — "determining whether the packet is marked in a network environment where marking is being performed to designate those packets that are transmitted at excessive rates." Lucent Technologies, Inc. v. Newbridge Networks Corp., et al., 168 F. Supp. 2d 181 (D. Del. 2001). 2588


"marker value" — "a value or number associated with a channel select designation." Beery v. Thomson Consumer Electronics, Inc., et al., 2004 U.S. Dist. LEXIS 17173 (S.D. Ohio, Aug. 18, 2004). 2590

"principal market maker" — "an entity required to provide the following functions: (1) continuously maintain a two-sided bid/offer market of specified size and spread for its designated product(s); (2) maintain a public order book with respect to these assigned products; and (3) give priority to customer order execution over personal trading. As compensation for the fulfillment of these responsibilities, this entity is to receive priority volume benefits." Chicago Mercantile Exchange, Inc., et al. v. Technology Research Group, LLC, 2010 U.S. Dist. LEXIS 65002 (N.D. Ill., Jun. 28, 2010). 2591

"market reports routine" — "a portion of a program that performs the particular task of allowing the user to search the auction data and display on the user workstation information about prior sales including the sale prices for different vehicle types that have been sold at an auction in the system." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 2592

"market-specific segment" — "individual audiovisual segments designed for specific markets within the network." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006). 2593

"marking that one customer's data packets as being transmitted into the network at an excessive rate" — "monitoring the transmission of a customer's data packets and marking those packets that are being transmitted at an excessive rate." Lucent Technologies, Inc. v. Newbridge Networks Corp., et al., 168 F. Supp. 2d 181 (D. Del. 2001).  

"mask" — "an item, in a semiconductor integrated circuit, on which a circuit pattern is placed." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004).  

"mass information" — "the computation of all mass features. Masses are lesions within the breast characterized by density, margin definition, shape, texture, or asymmetry." R2 Technology, Inc. v. Intelligent Systems Software, Inc., 2003 U.S. Dist. LEXIS 7436 (D. Del., Apr. 30, 2003).  

"mass storage means" — "is a proper mean-plus-function limitation because, while there, are endless ways to store information, the claim language, itself provides none of that structure." Catch Curve, Inc. v. Venali, Inc., 2007 U.S. Dist. LEXIS 93667 (C.D. Cal., May 11, 2007).  


"master data base of a first plurality of options that may be implemented on a computer system" — "a file containing a collection of entries for every option offered that may be implemented on a computer system." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).  


"matching"; "matched" — "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).  


"matching relationship" — "the Court finds that no construction is necessary because a proper understanding of 'matching relationship' may be reached from a plain reading of the term in context of the surrounding claim language." Konami Corp. v. Roxor Games, Inc., et al., 445 F. Supp. 2d 725 (E.D. Tex. 2006).  

"matching the at least one 3D first image and the second image where the at least one 3D first image is located with respect to the first coordinate system of the patient" — "aligning the at least one three-dimensional first rendering, which is located with respect to the first coordinate system, with the three-dimensional second rendering." NOMOS Corp. v. ZMED, Inc., 260 F. Supp. 2d 215 (D. Mass. 2002).
"material object" — "a tangible medium or device in which information can be embodied, fixed, or stored, other than temporarily, and from which the information embodied therein can be perceived, reproduced, used or otherwise communicated, either directly or with the aid of another machine or device. A material object must be offered for sale, and be purchasable, at point of sale locations where at least one IMM [information manufacturing machine ] is located. Further, a material object must be separate and distinct from the IMM, removed from the IMM after purchase, and intended for use on a device separate from the IMM either at the point of sale location or elsewhere. 'Material object' does not encompass the hard disk component of a home personal computer. Finally, a material object need not be offered for sale independently from the information that may be reproduced onto the material object, that is, as a blank." Interactive Gift Express, Inc. v. CompuServe, Inc., et al., 256 F.3d 1323 (Fed. Cir. 2001).  

"maximizing throughput of said memory requests to the synchronous DRAM so that use of the data slots by the synchronous DRAM is maximized" — "scheduling memory requests to the synchronous DRAM to maximize throughput so that the use of data slots is maximized." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).  

"a maximum dose of the selected transition metal that can be fully dissolved into the substrate at a temperature in a range between a eutectic temperature of the substrate and an annealing temperature of the substrate" — "the upper limit to the dose of selected metal that can be fully dissolved within the semiconductor material at subsequent processing temperatures. When the selected metal is platinum, this maximum dose is about 2 x 10^{16} \text{atoms/cm}^2." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).  

"the maximum dose sufficient to effect lifetime control without substantially increasing leakage current of the device" — "the upper limit to the dose of transition metal that can be applied to the device that will be sufficient to effect lifetime control but will not cause the leakage current to increase by three orders of magnitude or more when compared with a similar device that has not had transition metal added. For Pt, this upper dose limit is between 10^{16} and 6.5 \times 10^{16} \text{atoms/cm}^2." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).  

"means" — "as a whole it is clear that the terms using the 'means' language are used in their ordinary and customary meaning throughout the patent to mean 'circuit' or 'portion' of the chip. As such Claim 1 provides sufficient structure and section 112, paragraph 6 does not apply to the analysis." Sanyo Electric Co., LTD v. Mediatek, Inc., 2006 U.S. Dist. LEXIS 96191 (C.D. Cal., Aug. 17, 2006).  


"card reader means" — "a device, included as part of a terminal, used for retrieving ID information from a debit card." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).  

"communication means" — "[corresponding structure:] a modem or a signal path." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).
"mater network timing means" — "is not governed by § 112 P 6." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).\(^{2614}\)

"means (at a merchant) for accepting a customer identifier as payment from the customer and means for electronically forwarding information related to the payment to a computerized merchant processor" — "The parties have addressed this single 'means-plus-function' claim limitation as two separate limitations, one being 'means for accepting' and the other being 'means for forwarding.' However, the claim, as written, clearly sets forth dual functions and requires the corresponding structure to perform both." AdvanceMe, Inc. v. Rapidpay, LLC, et al., 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006).\(^{2615}\)

"means for [performing computer-implemented functions]" — "the specification of the '156 Patent does not point to some undefined software implemented on a general purpose computer as the corresponding structure for its functional claim limitations. Rather, the specification describes various types of modules and their equivalents as the corresponding structure for the means limitations. ... As a result, the WMS Gaming line of cases is inapplicable, and the means limitations of the '156 Patent are not indefinite." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).\(^{2616}\)

"means, coupled with the buffer memory and including a host system alterable threshold store for storing a threshold value, for monitoring the transferring of data of a frame to the buffer memory to make a threshold determination of an amount of data of the frame transferred to the buffer memory" — "While the claim is somewhat unusual in form, it does appear that the language set off by commas does define structure. ... Accordingly, the court holds that 'coupled with the buffer memory and including a host system alterable threshold store for storing a threshold value' should not be interpreted according to § 112(6)." 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).\(^{2617}\)

"means for ascertaining whether the at least one claim contains a plurality of medical service codes" — "is a means-plus-function limitation. The function is ascertaining whether the at least one claim contains a plurality of medical service codes. The structure is hardware and software capable of ascertaining whether the at least one claim contains a plurality of medical service codes." McKesson Info. Solutions LLC v. Trizetto Group, Inc., 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006).\(^{2618}\)

"means for associating ... [vs.] means for authorizing ..." — "TGIP cannot 'have its cake and eat it, too.' If Claim 7 is so different from Claim 1, then what is the corresponding structure? TGIP proposes only the same structure ... without reconciling, or accounting for, how the same structure would perform these different functions. There is no evidence that one skilled in the art would be able to determine that the structure suggested by TGIP corresponds to the authorizing function. The court concludes that this claim is indefinite and so invalid." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 727 (E.D. Tex. 2007).\(^{2619}\)
"means for assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers" — "Although we fail to find anything in the Telmaes patent that limits the 'means for assigning' limitation to a microprocessor or computer, where, as here, the parties agree to a claim construction that is adopted by the district court, and neither party disputes that construction on appeal, we decline to raise an issue sua sponte that the parties have not presented"; "the disclosed structure is a microprocessor programmed to assign a plurality of single numbers to stop positions such that: 1) the number of single numbers exceeds the number of stop positions; 2) each single number is assigned to only one stop position; 3) each stop position is assigned at least one single number; and 4) at least one stop position is assigned more than one single number."  

WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339 (Fed. Cir. 1999).
[1] "means for authorizing medical service codes which are valid in response to the means for determining"; [2] "means for rejecting medical service codes which are invalid in response to the means for determining"; [3] "means for revising the at least one claim to delete invalid medical service codes"; [4] "means for informing a user why the at least one claim was revised"; [5] "means for requesting further information from a user regarding the at least one claim"; [6] "means for determining whether one of the medical service codes in the at least one claim is included in any other medical service code in the at least one claim"; [7] "means for authorizing medical service codes which are not contained in any other medical service code"; [8] "means for rejecting medical service codes which are contained in any other medical service code"; [9] "means for revising the at least one claim to not include a rejected medical service code"; [10] "means for determining whether one of the medical service codes in the at least one claim is medically exclusive with any other medical service codes in the at least one claim"; [11] "means for authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining"; [12] "means for rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step"; [13] "means for determining whether any medical service code contained in the at least one claim is not present in the predetermined database"; [14] "means for informing a user that a medical service code is not contained in the predetermined database"; [15] "means for determining whether one of the medical service codes in the at least one claim is mutually exclusive due to non-medical criteria with any other medical service code in the at least one claim"; [16] "means for authorizing medical service codes which are not medically exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining"; [17] "means for rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining"; [18] "means for authorizing the at least one claim in response to the means for determining"; [19] "means for rejecting the at least one claim in response to the means for determining" — [1] "This is a means-plus-function limitation. The function is authorizing medical service codes which are valid in response to the means for determining. The structure is hardware and software capable of authorizing medical service codes which are valid in response to the means for determining." [2] "This is a means-plus-function limitation. The function is rejecting medical service codes which are invalid in response to the means for determining." [3] "This is a means-plus-function limitation. The function is revising the at least one claim to delete invalid medical service codes. The structure is hardware and software capable of revising the at least one claim to delete invalid medical service codes." [4] "This is a means-plus-function limitation. The function is informing a user why the at least one claim was revised. The structure is hardware and software capable of informing a user why the at least one claim was revised." [5] "This is a means-plus-function limitation. The function is requesting further information from a user regarding the at least one claim. The structure is hardware and software capable of requesting further information from a user regarding the at least one claim." [6] "This is a means-plus-function limitation. The function is determining whether one of the medical service codes in the at least one claim is included in any other
medical service code in the at least one claim. The structure is limited to the disclosed algorithm in the patent specification." [7] "This is a means-plus-function limitation. The function is authorizing medical service codes which are not contained in any other medical service code. The structure is hardware and software capable of authorizing medical service codes which are not contained in any other medical service code." [8] "This is a means-plus-function limitation. The function is rejecting medical service codes which are contained in any other medical service code. The structure is hardware and software capable of rejecting medical service codes which are contained in any other medical service code." [9] "This is a means-plus-function limitation. The function is revising the at least one claim to not include a rejected medical service code. The structure is hardware and software capable of revising the at least one claim to not include a rejected medical service code." [10] "This is a means-plus-function limitation. The function is determining whether one of the medical service codes in the at least one claim is medically exclusive with any other medical service codes in the at least one claim. The structure is limited to the disclosed algorithm in the patent specification." [11] "This is a means-plus-function limitation. The function is authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining. The structure is hardware and software capable of authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining." [12] "This is a means-plus-function limitation. The function is rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step. The structure is hardware and software capable of rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step." [13] "This is a means-plus-function limitation. The function is determining whether any medical service code contained in the at least one claim is not present in the predetermined database. The structure is limited to the disclosed algorithm in the patent specification." [14] "This is a means-plus-function limitation. The function is informing a user that a medical service code is not contained in the predetermined database. The structure is hardware and software capable of informing a user that a medical service code is not contained in the predetermined database." [15] "This is a means-plus-function limitation. The function is determining whether one of the medical service codes in the at least one claim is mutually exclusive due to non-medical criteria with any other medical service code in the at least one claim. The structure is limited to the disclosed algorithm in the patent specification." [16] "This is a means-plus-function limitation. The function is authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. The structure is hardware and software capable of authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining." [17] "This is a means-plus-function limitation. The function is rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. The structure is hardware and software capable of rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining." [18] "This is a means-plus-function limitation. The function is authorizing the at
least one claim in response to the means for determining. The structure is hardware and software capable of authorizing the at least one claim in response to the means for determining."

[19] "This is a means-plus-function limitation. The function is rejecting the at least one claim in response to the means for determining. The structure is hardware and software capable of rejecting the at least one claim in response to the means for determining." *McKesson Info. Solutions LLC v. Trizetto Group, Inc.*, 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006).

"means for comparing the counter to the threshold value in the alterable storage location and generating an indication signal to the host processor responsive to a comparison of the counter and the alterable storage location" — "The court finds that § 112(6) applies to 'generating' for two reasons." *3COM Corp. v. D-Link Systems, Inc., et al.*, 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007).


"means for executing programs which make calls to a general purpose operating system"; "means for executing pro-grames which make calls to a UNIX operating system" — "defendant's proposed claim limitations are little more than a laundry list of applications that run on the host processor. Rather than describing a 'means for executing programs'-in functional terms or otherwise-this list of programs merely describes the functional attributes of the programs that are executed by those means. This is not sufficient to disclose 'structure' for purposes of applying section 112 P 6. ... The court therefore holds that the structure corresponding to the 'means for executing programs which make calls to a general purpose [or a Unix] operating system' is 'a SunOS Unix processor.'" *Network Appliance, Inc. v. BlueArc Corp.*, 2005 U.S. Dist. LEXIS 16732 (N.D. Cal., Jan. 5, 2005).


"means for operating on a predetermined database" — "is a means-plus-function limitation. The function of the claim is operating on a predetermined database. The structure corresponding to this function comprises data processing capabilities, memory and software capable of managing a database." *McKesson Info. Solutions LLC v. Trizetto Group, Inc.*, 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006).

"means for receiving at least one claim" — "is a means-plus-function limitation. The function is receiving at least one claim. The structure is hardware and software capable of receiving the at least one claim." *McKesson Info. Solutions LLC v. Trizetto Group, Inc.*, 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006).

"a global positioning receiver means for receiving signals indicative of the apparent position of the receiver means using the global positioning satellite system"; "memory means for storing the position of the golf cup"; "display means for displaying the distance" — "none of these three limitations is subject to § 112, paragraph 6." *Optimal Recreation Solutions, LLP v. Leading Edge Technologies, Inc.*, 6 Fed. Appx. 873 (Fed. Cir., Apr. 6, 2001) (unpublished).

"In this case, there is no specific, definite structure that is well understood in the art corresponding to the claim terms 'memory' or 'display.'" *Id.* (Gajarsa, J., dissenting-in-part).

"measuring the effective index and effective index change" — "means: 'determining the effective index' and 'determining the effective index change.'" Corning Inc. v. SRU Biosystems, et al., 400 F. Supp. 2d 653 (D. Del. 2005). 2631

"measuring levels of carbon dioxide and oxygen of the patient" — "does not require that the respirator itself measure the carbon dioxide and oxygen levels of the patient." Tehrani v. Hamilton Medical, Inc., et al., 331 F.3d 1355 (Fed. Cir. 2003). 2632

"measuring variable parameters" — "ascertaining the measurements of said variable parameters for each of said paths at or about the time of transfer." ConnecTel, LLC v. Cisco Systems, Inc., 428 F. Supp. 2d 564 (E.D. Tex. 2006). 2633

"colorant selection mechanism" — "We agree with the district court's conclusion that the presumption here is overcome and that the phrase 'colorant selection mechanism' should be construed as a means-plus-function limitation." Massachusetts Institute of Technology v. Abacus Software, et al., 462 F.3d 1344 (Fed. Cir. 2006). 2634

"a mechanism that interfaces with software supplied by the customer" — "[a] mechanism (as construed above [see construction of 'payment mechanism']) that interacts with software made available to the vending machine by the customer." PowerOasis, Inc., et al. v. Wayport, Inc., 2006 U.S. Dist. LEXIS 42505 (D. Mass., June 26, 2006). 2635


"media asset" — "any media that is digitized and suitable for electronic distribution." Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). 2637

"media attachment unit" — "a 10Base-T MAU comprising an [attachment unit interface] port, a twisted pair port and an auto-engage means, each of these as defined in Claim 6 and as further construed below." Level One Communications, Inc. v. Seeq Technology, Inc., 987 F. Supp. 1191 (N.D. Cal. 1997). 2638

"a plurality of media data streams" — "two or more different types of media data streams." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 2639


"media header information" — "information contained in the header of a PDU that provides details about the PDU. The information can be ISO Layer 2 (data link) information or ISO Layer 3 (network) information." Storage Technology Corp. v. Cisco Systems, Inc., et al., 2001 U.S. Dist. LEXIS 25876 (N.D. Cal., Nov. 26, 2001). 2642
"providing a Media Switch, wherein said Media Switch parses said MPEG stream, said MPEG stream is separated into its video and audio components" — "providing hardware and/or code that mediates between a microprocessor CPU, hard-disk or storage device, and memory, wherein said device, portion of a device, or code analyzes said MPEG stream, said MPEG stream is separated into its video and audio components." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005). 3643

"media unit" — "computer system capable of receiving analog or digital real estate and real estate related information, and transmitting said real estate and real estate related information." Keithley v. HomeStore.com, Inc., et al., 2007 U.S. Dist. LEXIS 71126 (N.D. Cal., Sept. 10, 2007). 3644

"a media writing device ... whereby ... works ... can be written to a removable medium"; "a media write unit ... for writing items ... to a removable medium" — "a media writing device for writing works to a medium removable from the media writing device." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007). 3645


"medical service code" — "code representing a particular medical service or procedure, e.g., CPT-4 codes, CVS codes, and similar medical service or procedure codes." McKesson Info. Solutions LLC v. Trizetto Group, Inc., 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006). 3647

"meet" — "We agree with DirecTV that SuperGuide waived its right to assert a construction other than 'matches or equals' for the term 'meet.'" SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004). 3648

"membership signatures" — "information that identifies physical mass storage devices or portions of physical mass storage devices as members of a set and which substantially matches the global identifier of the set." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). 3649

"memory" — "a commonly used internal computer component (here, within the voting machine or system) which is capable of storing the voting record and the [unique randomly assigned identifying number or unique identifier] and interacts with the processor." Avante International Technology, Inc. v. Premier Election Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 95047 (E.D. Mo., Oct. 13, 2009). 3650

"memory" — "is entitled to its ordinary meaning, and no further definition is necessary." IP Innovation, LLC, et al. v. Red Hat, Inc., et al., 2009 U.S. Dist. LEXIS 69682 (E.D. Tex., Aug. 10, 2009). 3651


"memory"; "a memory" — "storage elements other than column latches." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 3653

"memory" — "any form of volatile or non-volatile computer memory, including random-access memory (RAM) and hard disk drive space." Board of Regents of the University of Texas System, et al. v. Eastman Kodak Co., et al., 2006 U.S. Dist. LEXIS 7997 (W.D. Tex., Jan. 26, 2006). 2655


"memory cell" — "refers to a cell with a single select and memory device." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998). 2660


"sales random access memory chip"; "incoming random access memory chip"; "playback random access memory chip" — "covers any RAM in a system which is configured to perform the function described, whether or not that is the only function it is configured to perform." Sightsound.com Inc. v. N2K, Inc., et al., 185 F. Supp. 2d 445 (W.D. Pa. 2002). 2662

"a memory coupled to said processor for storing the voting record and the unique voting session identifier for each voting session"; "memory for storing a voting record of each one of a number of voting sessions" — "a commonly used internal computer component (here, within the voting machine or system) which is capable of storing the voting record and the voting session identifier and interacts with the processor." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 2663

"MOS memory device" — "refers to a cell with only a single select and memory device." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998). 2664

"a memory input port sized to receive a digital camera flash memory module" — "the court incorporates by reference its construction of 'port', and concludes that the balance of the phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006). 2665

"a memory insertion section for receiving a first digital flash memory module, and for receiving a second flash memory module" — "this phrase requires no construction." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006). 2666
"memory means" — "As in Lutron and Lucent, the Court finds that PCTEL has not overcome the presumption that 'memory means' is a means-plus-function limitation." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).2667

"memory means" — "is written in means plus function language, and the claim does not recite structure definite enough to rebut the presumption that it is a means plus function situation." Genlyte Thomas Group LLC v. Lutron Electronics Co., Inc., 2004 U.S. Dist. LEXIS 5311 (N.D. Tex., Mar. 31, 2004).2668

"memory means" — "A physical memory system, in the absence of a mechanism to convert logical addresses into physical addresses, could not perform the function stated in Claim 10. Thus, § 112(6) applies." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).2669

"memory means" — "would have connoted sufficient structure to one of ordinary skill in the art at the time of the Katz patents such that it is not subject to analysis under 35 U.S.C. § 112, P 6." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).2670


"memory means for storing predetermined operating parameters defining one of said plurality of features to be performed at each type of said port circuits connected to said system" — "is a means-plus-function element." Lucent Technologies, Inc. v. Newbridge Networks Corp., et al., 168 F. Supp. 2d 181 (D. Del. 2001).2673

"memory portion" — "refers to the circuitry required for a working memory, including the memory cells that store data and the circuitry associated with reading, writing, addressing and refreshing data in the memory cells." NeoMagic Corp. v. Trident Microsystems, Inc., 98 F. Supp. 2d 538 (D. Del. 2000).2674

"memory requests" — "requests from an external device, such as a processor, to a memory device." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).2675

"memory selection second switch means being adapted to select a first position ... and ... a second position" — "the district court properly held 'memory selection second switch means' is a means-plus-function element under 35 U.S.C. § 112, P 6." Overhead Door Corp., et al. v. Chamberlain Group, Inc., 194 F.3d 1261 (Fed. Cir. 1999).2676


"memory store" — "a section used primarily for storing information. It includes all of the addressable storage in a processing unit and other internal storage that is used to execute instructions."  *Foundry Networks v. Lucent Technologies, Inc.*, 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 2680

"memory subsystem" — "a shared memory for all controller subsystems, but the memory subsystem need not be at the same location as all controller circuitry."  *Zoran Corp., et al. v. Mediatek, Inc., et al.*, 2005 U.S. Dist. LEXIS 34422 (N.D. Cal., Sept. 9, 2005). 2681

"whereby the meniscus provides a constant flow of said chemical onto said substrate surface" — "The meniscus, i.e., the curved surface of the chemical created by the surface tension of the chemical when the chemical contacts a solid, supplies a constant flow of the chemical onto the substrate. The meniscus exists between the nozzle and the substrate. The meniscus cannot form unless the nozzle is positioned sufficiently close to the spinning coated wafer."  *OKI America, Inc., et al. v. Advanced Micro Devices, Inc.*, 2006 U.S. Dist. LEXIS 15254 (N.D. Cal., Feb. 14, 2006). 2682


"menu key" — "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for displaying on the screen a set of selectable colors."  *American Video Graphics, L.P. v. Microsoft Corp.*, 2005 U.S. Dist. LEXIS 46858 (E.D. Tex., Jun. 30, 2005). 2687

"video game menu options" — "video games that can be selected in the programming mode to be video game menu choices playable in the menu choice selection mode."  *Merit Industries, Inc. v. JVL Corp.*, 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007). 2688


"merchant database" — "a database of or related to a merchant."  

"merchant-selected credit rate" — "a credit rate selected by a particular merchant."  

"merchant-specific credit rate" — "a credit rate associated with a particular merchant."  

"merchant-specific credit value" — "a credit value associated with a particular merchant."  

[i] "message"; [ii] "message address" — [i] "an electronic notice"; [ii] "an electronic address used to send a message."  

"message" — "information received by the selective call receiver."  

"message" — "a reconfiguration message that includes a reconfiguration command."  

"message" — "a data packet."  

"message" — "a unit of information sent electronically."  

"message" — "an intended communication."  

"shopping cart message"; "payment message"; "access message"; "transaction detail hypertext link"; "product request message" — "including a cryptographic key in these terms' constructions is contradicted by the claim language."  

"message center" — "a computer, server, or other device suitable for receiving and transmitting messages."  

"metadata" — "shall be given its plain and ordinary meaning."  

"metadata elements for an image" — "a plurality of data elements relating to an image, other than the image itself."  

"metal interconnect layer" — "refers either to pure elemental metals or to alloys."  

"metallization" — "a deposited metallic material."  
"metering cycle" — "a series of recurring events that occur on a meter, including, in this order, the collection of data, the performance of updates/calculations, the execution of user programmed metering logic, and the performance of secondary functions."  


"metering logic programmed by a user" — "program or procedure written by a user to perform functions other than those included by the meter manufacturer."  


"a method for adjusting a noise threshold of said laser light receiver to a level at which said laser light receiver produces a noise light pulse output having a constant pulse firing rate" — "This claim language does not recite a 'function.' The purpose for which the adjusting ultimately is done—the why and what for—is noticeably absent from the disputed language. Therefore, this is a step without a function, and § 112 P 6 does not apply."  


"a method of preventing the spread of computer viruses to a computer having a storage medium" — "a method of preventing the spread of malicious computer code, including but not limited to self-replication code, to a personal computer or workstation having a 'storage medium', i.e., having any storage medium such that the data, when stored on the medium, are accessible to the operating system or other programs such that viruses in the data can spread and infect the computer system."  


"a method of processing a computer file request" — "no construction is necessary."  


"microcircuit device" — "a single imaged layer on a single die. A large microcircuit device is a single imaged layer on a single die which has a diagonal longer than the diameter of the image field of the reduction lens."  

_Ultratech Stepper, Inc. v. ASM Lithography, Inc._, 2001 U.S. Dist. LEXIS 25729 (N.D. Cal., Dec. 20, 2001). 2712 "[T]he term 'microcircuit device' refers to the pattern exposed in the photo-resist on the wafer, as the result of the practice of the method claimed by the '996 patent. The pattern exposed on the wafer will necessarily mirror the pattern on the mask. A 'large microcircuit device,' then, refers to a pattern on the wafer which, when measured in the diagonal, exceeds the diameter of the image field of the reduction lens."  


"microcode" — "one or more programs for a peripheral device that can be stored in the non-volatile memory of the peripheral device and executed by a peripheral device's resident processor."  


"microcontroller" — "During the hearing, the parties agreed 'microcontroller' does not require construction. The Court agrees."  

"microcontroller" — "the electronics including input/output interfaces, a microprocessor, and an up-dateable memory comprising at least a random access memory which is capable of being updated via an electronic medium and which is capable of storing updated information including at least television programming information. The microcontroller is not limited to a single integrated circuit." SuperGuide Corp. v. DirecTV Enterprises, Inc., et al., 169 F. Supp. 2d 492 (W.D.N.C. 2001).2716


"a microprocessor responsive to a program resident therein" — "an integrated circuit that contains a central processing unit (CPU) on a single chip, that responds to a software program resident in memory." Bed-Check Corp. v. Ultimate Safety, Inc., 2003 U.S. Dist. LEXIS 27845 (N.D. Okla., Nov. 24, 2003).2719

"microscope station" — "equipment, not including a cell analysis instrument, at which a human operator performs analysis." Cytac Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005).2720


"minimum bandwidth" — "smallest amount of data transmission capacity over a predefined period of time." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).2723


"mining the image data stored in the sensor memory" — "searching the still frame images and the motion video images stored in those sensor appliances which retain such images." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006).2725

"mobile processor" — "a processor which can be carried by a person outside of a home or office and which executes electronic mail programming to function as a destination and/or source of electronic mail." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002).2726


"a mode selector switch" — "does not require an activation switch that initiates the operation of the recording circuit in the selected mode and is distinct from the mode selector switch." Howes, et al. v. Zircon Corp., 992 F. Supp. 957 (N.D. Ill. 1998).2729

"modem" — "a connection between components that allows communication from one component to the other that includes a device that modulates and demodulates signals." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).2730


"said reader operating in at least one of a plurality of modes, said modes being characterized by mode control data" — "the reader operating in at least one of two or more modes, each mode being characterized by data describing one or more parameters associated with the mode of operation." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006).2732

"modifiable tree structure including elements in a fixed hierarchical relationship";
"modifiable static tree" — "a tree structure comprising elements, which does not vary according to the system being monitored, and which can be changed to add or delete elements representing hardware or software components on a computer system." Sun Microsystems Inc v. Network Appliance, 2009 U.S. Dist. LEXIS 48209 (N.D. Cal., May 29, 2009).2733

"modification of the connection" — "altering the connection such that information can move through the connector." Lantronix, Inc., et al. v. Digi International, Inc., 2006 U.S. Dist. LEXIS 12032 (E.D. Tex., March 6, 2006).2734


"modified set of log-in data" — "a set of log-in data that has been changed." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).2736

[i] "modifier menu"; [ii] "sub-modifier menu" — [i] "a list of choices or options that may modify a menu item"; [ii] "a list of choices or options that may further modify a modifier." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).2737

"modifying a characteristic of said display of said derived elements in accordance with said accepted at least one new parameter without respecification of all said parameters, said characteristic selected from a group consisting of display shape and display color of said derived elements"; "monitoring said at least one defining element for changes thereto"; "maintaining an internal reference between said derived elements and said at least one defining element"; "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified"; "using said internal reference to identify and discard all derived elements associated with a modified defining element" — "The Court has reviewed each of these five phrases in the context of their respective claims and concludes that they are not drafted in means-plus-function form. Accordingly, 35 U.S.C. § 112 P6 does not apply, and the Court will construe these phrases in accordance with the standard principles of claim construction." *Adobe Systems Inc. v. Macromedia, Inc.*, 201 F. Supp. 2d 309 (D. Del. 2002). 2739

"modifying a phase of a selected portion or portions of said duration of the color stripe burst in chosen lines of the selected lines to be the phase of the normal color burst" — "modifying the phase of the abnormal color stripe bursts to match normal color bursts." *Macrovision Corp. v. Sima Products Corp., et al.*, 2006 U.S. Dist. LEXIS 75372 (S.D.N.Y., Oct. 12, 2006). 2740


"modifying the digital values of selected pixels in accordance with the sets of said data" — "requires that the digital values representing the colors and intensities of selected pixels of the first facial display be modified in accordance with the lip position data of both the first and second facial displays and the control point data of the first facial display." *Bloomstein v. Paramount Pictures Corp., et al.*, 1996 U.S. Dist. LEXIS 22260 (N.D. Cal., May 6, 1996). 2743

"modulate" — "The IEEE dictionary does not exclude the process of encoding digital data as a series of electrical pulses from the definition of modulation. ... Therefore, the court will not use the Defendants' proposed definition." *Lectrolarm Custom Services v. Vicon Industries, Inc., et al.*, 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005). 2744

"modulating the energy" — "varying the energy of at least one of the frequency components in accordance with the message to be encoded." *Arbitron, Inc. v. International Demographics Inc., et al.*, 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009). 2745

"modulation onto a carrier wave" — "'modulation onto a carrier wave' includes encoding digital data onto a pulse waveform in a format such as non-return to zero, return to zero, Manchester, or bi-phase." *Lectrolarm Custom Services v. Vicon Industries, Inc., et al.*, 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005). 2746

"a modulator arranged to modulate bits of the encoded data signals onto multiple carriers of the transmission system, different numbers of bits in each transmission symbol period being allocated to different carriers" — "a modulator configured to modulate bits of encoded data signals such that different numbers of bits are allocated to different carriers in each symbol period." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 2748

"modular type adaptor design" — "no specific construction of this term is required." Pulse Engineering, Inc. v. Mascon, Inc., 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009). 2749

"computing module"; "computer module" — "an assembly for providing a computing function within a computer system as recited in a particular claim." ACQIS LLC v. Appro International, Inc., et al., 2010 U.S. Dist. LEXIS 77548 (E.D. Tex., Aug. 2, 2010). 2750

"originating telephone number module"; "telephone number detection module"; "call connection module" — "§ 112, P 6 is not invoked." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010). 2751


"a multiple purchase order generation module, said purchase order generation module creating multiple purchase orders from a single requisition created with said user-generated criteria and said search-module criteria" — "the term 'module' connotes sufficient structure. Because the patents deal with computer software, and module carries a special meaning in that field, the term 'module' as used in the patent defines a structure. Therefore, Lawson has not overcome its burden, and 'module' will not be construed as a means-plus-function term." ePlus, Inc. v. Lawson Software, Inc., et al., 2010 U.S. Dist. LEXIS 42609 (E.D. Va., Apr. 30, 2010). 2754

"modular jack" — "the female portion of a modular connector in which wires of a circuit are connected at one end and into which a plug is inserted at the other end." Murata Manufacturing Co., Ltd. v. Bel Fuse Inc., 445 F. Supp. 2d 938 (N.D. Ill., July 28, 2006). 2755

"modulator" — "a device that varies one or more of the amplitude, frequency, or phase of each data symbol." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010). 2756


"monitoring patient data elements of patients in a plurality of geographically dispersed ICUs" — "monitoring at the remote command center data elements of patients who are located in a plurality of geographically dispersed ICUs." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009). 2767

"monitoring payments made by the customer to maintain the customer's access to the service" — "any process of various persons or devices for checking on whether payment has been made, and terminating access to the service if payment has not been received." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009). 2768

"monitoring the current to the load" — "We agree with Linear that the Commission improperly narrowed this claim limitation to exclude indirectly monitoring current through the measurement of voltage. The claim limitation does not state directly monitoring current. Rather, it simply reads 'monitoring the current to the load.' As such, this limitation should be accorded a scope commensurate with the '258 patent's specification. In this case, the '258 patent not only discloses monitoring current directly by using a current comparator, but also indirectly by some other means." Linear Technology Corp. v. International Trade Commission, et al., 566 F.3d 1049 (Fed. Cir. 2009). 2769

"monitoring the reception of the packets by the users and accumulating records that indicate which streams were received by which users"; "monitoring the reception of the stream of information by the users and accumulating records relating to the reception of the stream of information by the users" — "no construction is necessary." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007). 2770

"motion" — "movement of body tissue which causes erratic noise, that, in the absence of a filter, would cause the ratio of red to infrared signals to not accurately reflect the arterial oxygen saturation." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003). 2771


"movable" — "in the operation of the assembly, the terminals are capable of being displaced relative to the chip by external loads applied to the terminals, to the extent that the displacement appreciably relieves mechanical stresses, such as those caused by differential thermal expansion which would be present in electrical connections absent such displacement."  Tessera, Inc. v. Micron Technology, Inc., 423 F. Supp. 2d 624 (E.D. Tex. 2006). 2774

"moving said electronic record via EMF communications links from point to point" — "transmitting the electronic record electronically to at least one point and, where necessary and where feasible, between or among other points along the route of passage for the selected product."  DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006). 2775

"moving ... between ... cells" — "it was error for the ITC to limit the broad 'moving ... between ... cells' claim language to encompass only irregular movement in the time dimension. ... 'Moving said visual identification ... between ... cells' includes both regular and irregular movement of the 'visual identification,' and requires only that the visual identification be capable of moving relative to the cells in the grid guide in either dimension. There is no requirement that the 'visual identification' must move relative to the television screen."  Gemstar-TV Guide International, Inc., et al. v. International Trade Commission, et al., 383 F.3d 1352 (Fed. Cir. 2004). 2776

"MPEG decoder" — "hardware and/or software that can decode compressed audio and video data in accordance with any of the standards established by the Moving Picture Experts Group."  Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34422 (N.D. Cal., Sept. 9, 2005). 2777

"a transmission system using multicarrier modulation" — "a transmission system using modulation of more than one carrier."  Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 2778

"multi-component task" — "an overall task that is made up multiple individual tasks."  Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 2779

"a unique predetermined multi-digit jump code" — "a unique predetermined code consisting of more than one number. There is nothing in the specification, however, to warrant ... limiting the code to just numbers, so long as the code has more than one number."  Internet Media Corp. v. Dell, Inc., et al., 2009 U.S. Dist. LEXIS 2187 (D. Del., Jan. 14, 2009). 2780

"multi-function image sensor appliance" — "a sensor appliance, as defined above, that can generate more than one type of image signal."  E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006). 2781

"multi-level information" — "the information inputted to the web site from the first user intranet point which is organized or grouped into more than one level of user access."  Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 2782
"multi-level managed information" — "the information inputted to the web site from the first user intranet point which is organized or grouped into more than one level of user access." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).

"multi-level user access" — "the court concurs, that no construction of this claim term is required." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).

"multi mega bit per second" — "an aggregate data transmission rate of 10 or more megabits per second." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).

"multi-mode operation to treat a detected arrhythmia" — "two or more different modes of therapy capable of being used in sequence to treat a single arrhythmia." Cardiac Pacemakers, Inc., et al. v. St. Jude Medical, Inc., et al., 2000 U.S. Dist. LEXIS 17352 (S.D. Ind., Nov. 29, 2000).


"multi-precision execution unit" — "a unit that receives instructions and executes the instructions to perform simultaneous parallel operations on the plurality of media data streams, each of a width up to the width of the data path." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).


"multi-purpose interface" — "a communication interface designed for use with multiple devices that can have different functions from each other." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).

"in a multi-tasking environment" — "requires no construction"; if construed, it means "performs or appears to perform more than one task at a time." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).

"multi-tasking interface" — "software that is tailored to each operating system peer-level facility that supports direct communication with other peer-level facilities and capable of managing at least two concurrent or interleaved tasks." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004).

"multiple non-regulating isolating step down converters providing plural non-regulated, isolated DC outputs, plural of the non-isolating down-converter switching regulators receiving power from one of the non-regulated, isolated DC outputs" — "two or more non-regulating isolating step down converters, each providing a non-regulated, isolated DC output, wherein two or more of the non-isolating down-converter switching regulators receives power from one of the non-regulated, isolated DC outputs." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010).
"multiple operands in partitioned fields of operand registers" — "more than one object upon which operations are performed, each object being stored in a separate and distinct field of a register." *Microunity Systems Engineering, Inc. v. Dell, Inc., et al.*, 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 2784

"multiplexed"; "multiplexed manner" — "individual signal lines carry more than one type of specific information in a time interleaved manner (i.e., one specified type of information is carried at a first time and a second specified type is carried at a second time). In addition, each specified information type must be carried on a signal line that also carries at least one other specified type of information." *OPTi Inc. v. nVidia Corp.*, 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006). 2795


"the information is multiplexed over a number M of levels" — "the information is multiplexed over a number M of levels, where M is the number of levels each symbol can take using differential modulation." *WI-Lan, Inc. v. Acer, Inc., et al.*, 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010). 2797

[i] "multiplexer"; [ii] "time-multiplexed data"; [iii] "time-division multiplexing data" — [i] "circuitry for processing data from one or more inputs into a repeating series of frames or templates"; [ii] "data that has been processed into a repeating series of frames or templates"; [iii] "processing data into a repeating series of frames or templates according to time intervals." *Negotiated Data Solutions, LLC v. Dell, Inc.*, 596 F. Supp. 2d 949 (E.D. Tex. 2009). 2798

"multiplexing" — "the term 'multiplexing' does not include the limitations of detecting and discarding silence packets and transmitting computer data packets during periods of silence." *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340 (Fed. Cir. 2004). 2799

"multiplexing address signals being transferred to said second bus by said access means and said controller means, together with data signals being transferred to said second bus" — "Address and data signals are being transferred to the second bus by the access and controller means. In this step, those address and data signals are combined for transmission over the second bus." *OKI America, Inc., et al. v. Advanced Micro Devices, Inc.*, 2006 U.S. Dist. LEXIS 15254 (N.D. Cal., Feb. 14, 2006). 2800


"a multitasking operating system" — "an operating system that permits the user to execute two or more application programs at the same time." *Intermec Technologies Corp. v. Palm Inc.*, 2010 U.S. Dist. LEXIS 96247 (D. Del., Sep. 14, 2010). 2804
"multithreading" — "shall be construed in each patent as explicitly defined in that patent. To the extent there is any material difference between these definitions, the patents shall be considered to be working with different definitions of multithreading." Reiffin v. Microsoft Corp., 2002 U.S. Dist. LEXIS 21690 (N.D. Cal., Apr. 30, 2002).

"multivariate negotiation system"— "[a] system of hardware and software that enables participants to perform multiple rounds of bargaining over multiple terms. The multiple rounds of bargaining (i.e., the 'negotiation') must allow for an offer and multiple counteroffers between two participants where each round is related to prior rounds and is more than a simple bid submission system." Sky Technologies, Inc. v. Ariba, Inc., 491 F. Supp. 2d 154 (D. Mass. 2007).

"music device controlled by a computer"; "computer responsive music device"; "computer controlled music device" — "a device capable of playing music that is controlled by and responsive to a computer." Contois Music Technology, LLC v. Apple Computer, Inc., 2006 U.S. Dist. LEXIS 50822 (D. Vt., July 24, 2006).

"mutual fund" — "a company that pools money from many investors and invests the money in a group of securities of other companies." Boyle v. Molson Coors Brewing Co., et al., 2007 U.S. Dist. LEXIS 67296 (D.N.J., Sept. 11, 2007).

"NSM-packet signal" — "as expressly defined by the specification, an 'NSM packet-signal' includes more than just 'NSM data'; it also includes a header, footer, and message identifier information." Itron, Inc. v. CellNet Data Systems, Inc., 34 F. Supp. 2d 1135 (D. Minn. 1999).

"Nx1 switch"; "Nx1 optical switch" — "device to receive an optical signal from one of N inputs and route the optical signal to one output, or to receive an optical signal from one input and route the optical signal to one of N outputs." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).

"name translation request" — "a query for translation of a name into routing information for a public packet data network." Verizon Services Corp., et al. v. Vonage Holdings Corp., et al., 503 F.3d 1295 (Fed. Cir. 2007).

"narrow band transmission medium" — "an information channel capable of handling a relatively low bandwidth or data rate with respect to the information being sent across the medium." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).

"natural concurrences" — "mutually independent instructions that can be executed in parallel." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).
"a navigational receiver for providing a location of the remote unit" — "a receiver in a remote unit that receives navigational information, and that provides a location of the remote unit, to a radio transmitter." Zoltar Satellite Alarm Systems, Inc. v. Motorola, Inc., et al., 2007 U.S. Dist. LEXIS 95521 (N.D. Cal., Dec. 21, 2007). 2814

"negative optical anisotropy" — "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is less than the other two." Commissariat a l’Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007). 2815

"negative with respect to" — "requires only that the voltage supplied by the second power supply be negative relative to that provided by the first power supply." NeoMagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062 (Fed. Cir. 2002). 2816

"neighbor" — "two nodes are neighbors when they have a link between them; a link is a bi-directional communication path that terminates at a single node on either end." Lucent Technologies, Inc. v. Extreme Networks, Inc., et al., 367 F. Supp. 2d 649 (D. Del. 2005). 2817


"net position error" — "[The first modulating step is performed] in order to minimize a net position error without initially detecting said net position error." Space Systems/Loral, Inc. v. Lockheed Martin Corp., 2006 U.S. Dist. LEXIS 70712 (N.D. Cal., Sept. 19, 2006). 2819

"a netlist defining the hardware cells which are needed to perform the desired function of the integrated circuit" — "a description of the hardware components (and their interconnections) needed to manufacture the ASIC as used by subsequent processes, e.g., mask development, foundry, etc." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005). 2820

"network" — "one or more wired or wireless communication networks." Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). 2821

[i] "network"; [ii] "communications network" — [i] "interconnected computers or devices that transfer and exchange information between the service providing computational system and the node of the network"; [ii] "interconnected computers or devices that transfer and exchange information between the service providing network accessible node (‘SPNAN’) and the first and second network accessible nodes." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010). 2822

"network" — "system of interconnected computers that have the ability to communicate." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005). 2823

"network" — "communication facilities that link points at which computers or devices may be connected." SuperSpeed, L.L.C. v. International Business Machines Corp., 2009 U.S. Dist. LEXIS 10124 (E.D. Tex., Feb. 11, 2009). 2824

"network" — "an interconnected set of devices which communicate with each other." Negotiated Data Solutions, LLC v. Dell, Inc., 596 F. Supp. 2d 949 (E.D. Tex. 2009).


"network access manager" ; "network access module" — "a device, process or algorithm for controlling the assignment of synchronous and packet data portions on a TDM bus, and for passing data between the bus and a network." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).


"a network code that identifies a network element to provide egress from the packet communication system" — "a logical address identifying a network element which network element provides an exit from a packet communication system." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007).

"network control computer" — "a computer that stores a list of access codes for individuals authorized to use the remote computer units, checks the validity of logon commands, and interfaces the local computer unit with the local computer unit to permit the local computer unit to operate the remote computer unit, but excluding passive devices that merely forward data packets without regard for their content." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009). 2837

"network data communications" — "The phrase 'network for data communications' is limited to networks in which every processor system is connected to every other processor system via direct, point-to-point, two-way channel interconnections." SeaChange International, Inc. v. C-Cor Inc., 413 F.3d 1361 (Fed. Cir. 2005). 2838


"network management site" — "a single location from which the network is managed." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006). 2840

"network management system" — "a combination of interacting hardware and software components that manage the network from a single distribution center." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006). 2841

"network management system"; "a control system common to the downstream and upstream channels" — "a common network management system that is separate and apart from upstream and downstream routers for controlling paths in both the upstream and downstream channels of hybrid interfaces." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007). 2842

"network member" — "a network member is anyone or any company which has registered as a user by completing an application." Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006). 2843

"network monitors" — "software and/or hardware that can collect, analyze and/or respond to data." SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006). 2844

"network operational activity" — "contemplates 'a need for valid network activity sensed throughout the network to maintain some aspect of the network functionality.' Moreover, ... it must not be 'a fleeting or transitory event.'" Datapoint Corp. v. Standard Microsystems Corp., et al., 31 Fed. Appx. 685 (Fed. Cir., Feb. 15, 2002). 2845


"Network Service Provider (NSP)" — "a party that provides a connection to the network and authenticates users for access to the network." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005). 2847 "In light of the specification's teachings and MyMail's admissions below, the district court's claim construction must be affirmed." Id., 476 F.3d 1372 (Fed. Cir. 2007). 2848
"network that is further connected to the gateway computer" — "The court defines 'network' to mean 'a plurality of computers that are interconnected so they can exchange information.' The balance of the phrase needs no construction." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).2849

"network-wide" — "requires distribution to the entire network." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006).2850

"network-wide program"; "network-wide video program" — "a preassembled audiovisual program that is sent to every store location in the media distribution network." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006).2851

"values for said updated secret cryptographic value are never recreated more than a fixed number of times" — "identical secret cryptographic values are never recreated more than a fixed number of times. The number of times is determined by the transformation operation algorithm and the initial parameters." Cryptography Research, Inc. v. Visa International Service Association, et al., 2007 U.S. Dist. LEXIS 76502 (N.D. Cal., Sept. 28, 2007).2852

"next-line" — "the line immediately following the line being transferred." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).2853

"next operation information" — "information that specifies the particular type of operation to be performed by the network forwarding device. The information is added to the media header information and must include information to accomplish forwarding of the PDU in the communication network." Storage Technology Corp. v. Cisco Systems, Inc., et al., 2001 U.S. Dist. LEXIS 25876 (N.D. Cal., Nov. 26, 2001).2854


"node" — "a processor or computer with a memory." Jardin v. Datallegro, Inc., et al., 2010 U.S. Dist. LEXIS 105502 (S.D. Cal., Oct. 4, 2010).2856

"node" — "a point of connection into a network, such as a computer." eBay Inc. v. IDT Corp., et al., 2009 U.S. Dist. LEXIS 56469 (W.D. Ark., Jun. 10, 2009).2857


"node" — "any data processing device, including, but not limited to, a computer, a file server, a bridge, a gateway, a co-processor, modem server, memory, or printer, that includes a network interface, through which it is coupled to the communication medium." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001).2859


"node" — "a point on a network where information can be sent, received, or forwarded." Lucent Technologies, Inc. v. Extreme Networks, Inc., et al., 367 F. Supp. 2d 649 (D. Del. 2005).2861

"in accordance with a noise model" — "I conclude that both proposed constructions are flawed and will decline to adopt either construction." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).  
"painting with an electronic brush ... to paint in inherently non-aliased strokes" — "the court shall construe 'inherently non-aliased strokes' in a manner based on the parties' usage: natural-appearing lines that blend smoothly into a background image in the process of being created." Quantel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).  
"non-binding indications" — "non-binding purchase or sale offers that allow traders to enter into negotiation to trade securities, which cannot be executed without a further, affirmative action by a trader." Flash Seats, LLC v. Paciolan, Inc., 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010).  
"in a non-fixed pattern" — "in such a way that the redundant information can be placed within the stripe on unallocated blocks in any order." Sun Microsystems Inc v. Network Appliance, 2009 U.S. Dist. LEXIS 48209 (N.D. Cal., May 29, 2009).  
"non-interactive electronic message" — "an electronic message in which the sender does not provide any additional information after the message has been received." Bright Response, LLC v. Google Inc., et al., 2010 U.S. Dist. LEXIS 60361 (E.D. Tex., Jun. 18, 2010).  
"non-personalized cardholder name"— "a name that does not identify the purchase card as belonging to a specific cardholder and that is used by a retailer to complete a purchase transaction." PrivaCash, Inc. v. American Express Co., et al., 2010 U.S. Dist. LEXIS 29313 (W.D. Wis., Mar. 26, 2010).  
"non-public personal information" — "information that is personal to a specific end user and not accessible to the general public." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).  
non-single crystal semiconductor material" — "a semi-amorphous semiconductor, an amorphous semiconductor or a mixture thereof." Semiconductor Energy Laboratory Co., Ltd. v. Samsung Electronics Co., Ltd., et al., 2010 U.S. Dist. LEXIS 45107 (W.D. Wis., May 7, 2010). 2875

non-telephone actuation signal" — "an activation signal sent via something other than the telephone system." Brooktrout, Inc. v. Eicon Networks Corp., et al., 2004 U.S. Dist. LEXIS 31054 (E.D. Tex., Jul. 27, 2004). 2876

non-transmissive" — "an optical structure that reduces the transmission of radiant light to the greatest degree practicable consistent with the intended purpose." Koninklijke Philips Electronics N.V., et al. v. Cinram International, Inc., et al., 2010 U.S. Dist. LEXIS 43764 (S.D.N.Y., May 4, 2010). 2877

non-volatile configuration memory" — "data or memory storage, located within the module, that persists when the module is powered down." Digi International, Inc. v. Lantronix, Inc., 402 F. Supp. 2d 1041 (D. Minn. 2005). 2878


non-volatile memory sector" — "is the basic unit of erase for the non-volatile memory. It is not limited to 512 bytes of user data and 64 bytes of overhead data." Sandisk Corp. v. Memorex Products, Inc., et al., 2007 U.S. Dist. LEXIS 15393 (N.D. Cal., Feb. 21, 2007). 2880

normal operation" — "a normal mode of operation that excludes start-up, shutdown, and fault conditions such as over-current conditions." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010). 2881

the normal operation ... is interrupted to convey" — "the regular, standard, or natural function or working... is stopped so that it can be resumed at a later time, in order to convey..." Joao v. Sleepy Hollow Bank, et al., 418 F. Supp. 2d 578 (S.D.N.Y. 2006). 2882

normally"; "conventional"; "traditionally"; "standard" — "are governed by their ordinary and customary meanings, and [], in view of their implicit time-dependence, the district court did not err in construing the literal scope of the claim limitations qualified by those terms as being limited to technologies existing at the time of the invention." PC Connector Solutions LLC v. Smartdisk Corp., et al., 406 F.3d 1359 (Fed. Cir. 2005). 2883

transformer that is not driven into saturation" — "transformer that is connected in a manner such that the transformer's magnetic flux density level is less than its saturation flux density level." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010). 2884

optical demultiplexer through which the first optical line interface is not optically coupled to the first transponder" — "The first optical line interface does not send optical information to the first transponder through the optical demultiplexer. Alternatively, the first optical line interface does not receive optical information from the first transponder through the optical demultiplexer." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 2885
"whereby said caller is **not required to be within a particular network for making calls**" —
"this limitation excludes from claimed material any system that restricts the caller to a specific network, of any type, when dialing the assigned incoming telephone number and placing a call into the claimed system. Because the claim language conveys the meaning of this limitation, no construction is required." *Stanacard, LLC v. Rebtel Networks, AB, et al.*, 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).


"**notification alert system**" — "there is no evidence before the Court that would rebut the presumption against means-plus-function construction. Accordingly, the Court finds that this term is not subject to 35 U.S.C. § 112 P 6." *Yodlee, Inc. v. CashEdge, Inc.*, 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).


"**said selected number**"; "**one of said ... numbers**" — "refers to single numbers, as opposed to combinations of numbers." *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339 (Fed. Cir. 1999).

"**number(s) [of consecutive first values]**" — "[a] count of consecutive first values-**i.e., a run length**." *In re Compression Labs, Inc. Patent Litigation*, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).

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"**objectionable interference or distortion**" — "the modification made to a signal during scrambling." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003).

"**obligation**" — "an amount owed by a merchant that is independent of any costs or fees arising out of the use of customer identifiers as payment." *AdvanceMe, Inc. v. Rapidpay, LLC, et al.*, 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006).


"obtain access" — "the court declines to construe the term." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004). 2899

"obtain ... information about the data structure ... [by] accessing content of information" — "accessing the information in a data source to obtain information about the logical organization of the data in the source." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006). 2898

"obtaining a current position of at least a part of a seat on which the occupant is situated" — "detecting the current position of at least a part of the seat on which the occupant is situated with respect to a reference position. In other words, detecting how far forward or backward the seat is." Automotive Technologies International, Inc. v. Delphi Corp., 2009 U.S. Dist. LEXIS 83187 (E.D. Mich., Sep. 11, 2009). 2900


"obtaining a proportionality constant for said given transmitter and said given receiver" — "the Court reads this to be a step plus function claim element, and the phrase 'obtaining a proportionality constant' must be limited to the acts described in the specification for achieving the function of the step." Digital Control Incorporated, et al. v. Charles Machine Works, 2003 U.S. Dist. LEXIS 27828 (W.D. Wash., Dec. 11, 2003). 2902

"obtains a buffer" — "obtains memory where data can be temporarily stored for transfer." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005). 2903

"a display screen occupying substantially an entire broad side of the processing module" — "a display screen that occupies the entire surface of the largest face, except for a small border, as shown in figure 9." Intermec Technologies Corp. v. Palm Inc., 2010 U.S. Dist. LEXIS 96247 (D. Del., Sep. 14, 2010). 2904

"odds" — "a ratio of two numbers, represented by the total wager amount divided by an individual wager, creating a range from which a random number may be generated." Goff v. Harrah's Operating Co., 412 F. Supp. 2d 1090 (D. Nev. 2005). 2905

"off" — "the lowest power state of the monitor or circuit that can be achieved by the power management system where the monitor is still able to reactivate itself." In re: Elonex Phase II Power Management Litigation, 2002 U.S. Dist. LEXIS 18724 (D. Del., Oct. 3, 2002). 2906

"offer data" — "data representing a presentation of provisions for a proposed trade in goods or services, including two or more overt terms and one or more hidden terms, the presentation being made in anticipation of a reply."  Tradecard, Inc. v. SL Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007).2909

"office machine system" — "a business office device, such as a copier, printer or facsimile, connected to but separate from an external operation panel."  Ricoh Corp., et al. v. Pitney Bowes, Inc., 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006).2910

"OLAP server" — "[t]he court declines to construe further the term 'OLAP server' given that its meaning is clear in the relevant claims."  Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).2911

"depositing a titanium film containing nitrogen atoms on a semiconductor substrate";
  "forming a titanium nitride film on the semiconductor substrate" — "The titanium film containing nitrogen atoms must be deposited directly on a semiconductor substrate."; "The titanium nitride film must be directly on the titanium silicide film, which in turn must be directly on the semiconductor substrate."  OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).2912

"the processor causing the display to display on a single screen stored transaction information" — "the presentation of stored transaction information to a user on one screen, without the user having to first encounter any preliminary screens that would require the user to select a transaction type or a transaction parameter."  IPXL Holdings, L.L.C. v. Amazon.com, Inc., 333 F. Supp. 2d 513 (E.D. Va. 2004).2913

"on and in contact with" — "in a layered device formed on a substrate, above and touching or in immediate proximity to."  IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004).2914

"in which energy is transferred from a primary winding to a secondary winding of a transformer during the ON period of a primary switch" — "The important question in construing this language is whether the 'ON period' is defined in terms of voltage across the primary switch (Unitrode's proposed construction) or in terms of that switch's capacity to carry current (Vicor's proposed construction).  ... Although the question is close, I conclude that Vicor's interpretation is the better."  VLT Corp., et al. v. Unitrode Corp., 130 F. Supp. 2d 178 (D. Mass. 2001).2915

"a source electrode and a drain electrode on said semiconductor layer" — "a source electrode and a drain electrode above and in contact with the semiconductor layer."  LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010).2916


"one first capacitor ... and one second capacitor ..." — "a first capacitor operative to store electrical energy, and a second capacitor operative to store electrical energy." *Square D Co., et al. v. E.I. Electronics, Inc.*, 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010).  

"one of a selection of formats" — "one of several arrangements of data on a printed page or display screen or in a record, data file, or storage device." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003).  

"only a single tournament game is playable for each sequence" — "each sequence of tournament games consists of two or more repetitions of the same tournament game." *Merit Industries, Inc. v. JVL Corp.*, 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).  

"only four elements" — "to literally infringe ... an accused device must have only four elements." *Strattec Security Corp. v. General Automotive Specialty Co., Inc., et al.*, 126 F.3d 1411 (Fed. Cir. 1997).  

"only if" — "this term needs no construction and will be understood by a jury." *O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al.*, 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).  


"a feedback control loop circuit receiving a feedback signal indicative of power being supplied to said load, and adapted to generate a second signal pulse signal for controlling the conduction state of said second plurality of switches only if said feedback signal is above a predetermined threshold" — "'only if' means that, during all times, including start-up, steady state, and shut-down of the device, the feedback circuit must not control the conduction state of the second plurality of switches unless the feedback signal is above a predetermined threshold. If the feedback signal is not above the predetermined threshold, then the feedback circuit must not control the conduction state of the second plurality of switches." *O2 Micro International Ltd. v. Beyond Innovation Technology, et al.*, 2009 U.S. Dist. LEXIS 33697 (E.D. Tex., Apr. 22, 2009).  

"filter means responsive to said second voltage clamping means for filtering noise or transients signals from said voltage signals only when said voltage signals exceed said second predetermined voltage potential"; "means connected in series between said first and second means for filtering noise or transients signals from said first and second conductors only while said second means is at a voltage greater than or equal to said second breakdown voltage" — "So long as the frequency response of the alleged device changes when the threshold voltage of the second element in the claim is reached so as to attenuate, or increase attenuation, of the undesired high frequencies within the relevant frequency range, the device incorporates [this] third element of claim 1 or claim 11." *Oneac Corp. v. Raychem Corp.*, 20 F. Supp. 2d 1233 (N.D. Ill. 1998).  

"open category" — "a category for which an item label is displayed in the display area for each item in the category." *Sklar v. Microsoft Corp.*, 2007 U.S. Dist. LEXIS 51253 (E.D. Tex., July 16, 2007).
"open lamp condition" — "a condition in which the lamp is not connected to the converter."  O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006). 2928


"an opening to expose the channel and via" — "an opening in the second soft mask where the channel and via are to be formed."  Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 2930

"operable to perform unique operations on each component symbol" — "capable of performing a distinct operation on each component of a data unit."  Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 2931

"operably connecting" — "connecting in a manner that allows a signal to flow from one point to another point."  Callpod, Inc. v. GN Netcom, Inc., et al., 2009 U.S. Dist. LEXIS 51103 (N.D. Ill., Mar. 6, 2009). 2932

"operand" — "an input to a single operation specified by an instruction that is encoded as part of the instruction where the size of the input can vary."  Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 2933

"the actuating mechanism is operated remotely by sending signals from a communication device" — "the actuating mechanism receives signals from a communication device that is not in contact with the actuating mechanism."  Graham-White Manufacturing Co. v. Ellcon-National, Inc., 2007 U.S. Dist. LEXIS 89126 (D.S.C., Dec. 4, 2007). 2934

"operating data" — "data that controls the automatic operation of the camera base, and that is set through use of the structure of the input means."  Lectrolarm Custom Services v. Vicon Industries, Inc., et al., 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005). 2935

"wireless communication system/network operating in accordance with the GSM standard" — "system/network that transmits data between a mobile station and a base station over a 200 kHz radio channel using time-division multiple access (TDMA) in accordance with the Global System for Mobile communications specifications existing as of October 29, 1997."  WiAV Solutions LLC v. Motorola, Inc., et al., 2010 U.S. Dist. LEXIS 30711 (E.D. Va., Mar. 29, 2010). 2936

"operating mode" — "a functional status which the controller can be placed in by the user or automatically without user intervention."  Good Sportsman Marketing LLC v. Testa Associates, LLC, et al., 440 F. Supp. 2d 570 (E.D. Tex. 2006). 2937


"operating session" — "a period of communication between the subscriber client computer and the first server computer that follows successful initial authentication and ends upon termination of authorized access, such as upon a log-out or time-out due to prolonged inactivity."  Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007). 2939
"operating system peer-level facility" — "a major functional subsystem of the operating system constituted as a separately executed software entity." Network Appliance, Inc. v. BlueArc Corp., 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004). 2940

"operation code" — "one or more bits to specify a type of action." Hynix Semiconductor Inc., et al. v. Rambus Inc., 2004 U.S. Dist. LEXIS 23230 (N.D. Cal., Nov. 15, 2004). 2941


"operation panel" — "an input/output device that can input commands and display information that is separate and external from the business office device." Ricoh Corp., et al. v. Pitney Bowes, Inc., 2006 U.S. Dist. LEXIS 22453 (D.N.J., April 20, 2006). 2943

[i] "operational data for the scanhead"; [ii] "operational data unique to the transducer scanhead" — [i] "data that is used in the operation of the scanhead"; [ii] "data that is used collectively in the operation of a particular model of the transducer scanhead." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008). 2944

"operational state signal" — "a signal that indicates the operating state of device." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009). 2945

"operations of an interface" — "the processes, activities, or functions of the interactive connection between the processors upon which the Katz system is running, the communication facility, and the callers." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999). 2946

"operational" — "the device must, as the district court held, be capable of testing both the sensing circuitry and the trip mechanism in order to determine whether the circuit interrupter is operational." Shanghai Meihao Electric, Inc. v. Leviton Manufacturing Co., Inc., et al., 2007 U.S. App. LEXIS 736 (Fed. Cir., Jan. 10, 2007) (unpublished). 2947

"operational position" — "the relay position in which the high voltage delivery system can deliver shock to the patient, although the defibrillator can perform other relay self-tests in this position as well." Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al., 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005). 2948


"a graphics computer sub-system operatively connected to said host computer sub-system" — "The district court construed the operatively connected limitation to mean 'the graphics computer subsystem communicates with the host computer subsystem through an unmediated mechanism.' To the contrary, the broad language 'operatively connected' does not require communication through an unmediated mechanism." IP Innovation, L.L.C. v. eCollege.com, et al., 2005 U.S. App. LEXIS 26138 (Fed. Cir., Nov. 29, 2005) (unpublished). 2951
"operatively connecting" — "must be construed to require a direct source-drain electrical connection, for only then would the object of the invention be accomplished, namely, 'to provide a memory circuit capable of operation without the need for applying a reference voltage to one input of the output sense amplifier.'" NEC Corp. v. Hyundai Electronics Industries Co., Ltd., et al., 30 F. Supp. 2d 546 (E.D. Va. 1998).2952

"operatively coupled to said communication pathway" — "connected to the communication pathway to send and receive signals on the communication pathway." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009).2953


"operator group" — "one or more jukeboxes managed and serviced by one entity." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).2955

"operator terminal" — "an input-output device, for use by a human operator, capable of transmitting data to and obtaining input from the system to which it is connected." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003).2956

"presenting on said remote contribution accepting devices symbols representing operators for inducing the making of monetary contributions, said symbols comprising said request for a contribution data packet" — "An 'operator' is the device by which a person triggers the action, usually by means of a button, switch, or similar triggering device. The operator, in this case, has marks or symbols specifying contribution amounts." Ziarno v. American National Red Cross, et al., 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000).2957

"optical arrangement" — "a collection comprising two or more mirrors, lens, prisms, or other optical devices, placed in some specified configuration, which reflect, refract, dispense, absorb, polarize, or otherwise act on light. That definition allows for a combination of two or more different optical devices. Also, a mirror whether it is motorized or not, is an optical device." Erchonia Medical Inc., et al. v. Miki Smith, et al., 2006 U.S. Dist. LEXIS 38498 (D. Az., June 8, 2006).2958

"optical channel selector" — "device that selects a single optical channel from a wavelength division multiplexing input signal." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006).2959

"an optical coupling means having an input, an input/output and an output" — "because there is a detailed recitation of structure and there is an absence of any mention of function in the claim, the Court finds the mean-plus-function limitations of section 112, P6, are not implicated." Pirelli Cable Corp. v. Ciena Corp., 988 F. Supp. 424 (D. Del. 1997).2960

"optical demultiplexer" — "a device that receives a plurality of wavelengths multiplexed together as an optical signal and outputs each of the plurality of wavelengths as at least one of the following: (a) individual wavelengths, (b) bands of wavelengths or (c) a combination of bands and individual wavelengths." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).

"optical elements in a telescope" — "this Court rejects plaintiff's definition limiting the term 'optical elements in a telescope' to 'mirrors,' in favor of a broader definition which includes 'mirrors,' 'lenses,' and 'prisms.'" Lasermax, Inc. v. Glatter, 2005 U.S. Dist. LEXIS 17136 (S.D.N.Y., Aug. 17, 2005).


"optical line interface" — "an interface that can carry a plurality of wavelengths multiplexed together as an optical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).

"bidirectional optical line interface" — "an interface for sending and receiving a plurality of wavelengths multiplexed together as an optical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).


"optical reader means for effecting the input of optical information" — "Here, 'reader' does not provide sufficient structure for performing the function of effecting the input of optical information. ... Therefore, plaintiff has failed to overcome the presumption that this term is subject to § 112 P 6." Intermec Technologies Corp. v. Palm Inc., 2010 U.S. Dist. LEXIS 96247 (D. Del., Sep. 14, 2010).


"an optically absorptive refractory transition metal" — "Because the dictionary definition of the term 'transition metal' does not indicate that this term refers to alloys, and because nothing in the intrinsic evidence suggests otherwise, the court concludes that the term 'an optically absorptive refractory transition metal' refers only to pure elemental metals, and does not include alloys. ... Since the plain language of the claim suggests no limitation on the degree of absorptivity of the transition metal layer, the court declines to construe the specification's description of the high relative absorptivity of this layer as a claim limitation." EMI Group North America, Inc. v. Cypress Semiconductor Corp., 68 F. Supp. 2d 421 (D. Del. 1999).

"optically coupled to" — "requires that optical information can be sent or received between two different components." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).
"is optically coupled to ... through at least"; "optically couple ... to ... through at least" — "mean[s]: (Component A) can send optical information to (Component B) through at least (Component C). Alternately, (Component A) can receive optical information from (Component B) through at least (Component C)." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 2973


"optimization" — "providing performance with respect to a given characteristic (e.g. speed or flexibility of output) that is superior to the performance of some other possible configuration with respect to that characteristic." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006). 2975

"optimizing the threshold" — "changing the threshold value to make it as perfect, effective or functional as possible." 3COM Corp. v. D-Link Systems, Inc., et al., 2007 U.S. Dist. LEXIS 3754 (N.D. Cal., Jan. 8, 2007). 2976


"optional relationship" — "a relationship in which a number of elements may be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005). 2979

"opto-electric componentry" — "relates to an optical-to-electrical or an electrical-to-optical transducer extending from the sensor to the cable." High Tech Medical Instrumentation, Inc. v. New Image Industries, Inc., 1995 U.S. Dist. LEXIS 9215 (N.D. Cal., May 24, 1995). 2980 


"or" — "The prosecution history requires that 'or' means the operator's choice between search for the strongest or fastest target speed, but not both." Kustom Signals, Inc. v. Applied Concepts, Inc., et al., 264 F.3d 1326 (Fed. Cir. 2001). 2982

"location of the point of origin, or angle of rotation, or scale" — "requires that the device performing the claimed method need only have the ability to translate one of the three attributes of the coordinate system." Schumer v. Laboratory Computer Systems, Inc., et al., 308 F.3d 1304 (Fed. Cir. 2002). 2983
"OR circuit means operative to generate an output signal substantially equal to the greatest of any input signal" — "a circuit that makes a choice. In this case, it makes the choice whether to run the fan at a temperature, at a fixed temperature speed or at a speed that is dependent on the temperature, that is, which runs faster as the temperature rises, or slower as the temperature drops." Control Resources, Inc. v. Delta Electronics, Inc., et al., 133 F. Supp. 2d 121 (D. Mass. 2001).  

"with years being represented by at least one of two-digit, three digit, or four-digit year-date representations" — "or' in element 6 of claim 16 must be construed to include the ability to convert only two-digit, only three-digit, only four-digit, or any combination of two-, three- and four-digit date-data. This interpretation of 'or' is within the ordinary meaning of the term." Brown v. 3M, et al., 2000 U.S. Dist. LEXIS 21630 (D. Ariz., Aug. 9, 2000).  


"-order" — "has no independent significance and does not require specific construction by the court." Pulse Engineering, Inc. v. Mascon, Inc., 2009 U.S. Dist. LEXIS 26885 (S.D. Cal., Mar. 9, 2009).  

"trade order" — "a single, electronic message in executable form that includes at least all required parameters of a desired trade. ... however, if the computer must perform additional steps or route the order through a router or gateway, such would still fall within the ambit of 'trade order,' as construed herein." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006).  

"order entry region" — "a location within the trading display where a user sends and not simply initiates an order." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006).  


"ordered list" — "the term 'ordered list' will be given its plain meaning. The ordered list may be, but is not required to be, ordered precisely according to the customer's preferences; it could also include some other default order." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007).  

"an ordered sequence of process steps" — "specification of the order in which process steps take place." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).

"ordering the converted analog signals and the formatted digital signals into a sequence of addressable data blocks" — "in the transmission system placing the converted analog signals and the formatted digital signals into a sequence of data blocks, such that the ordering of the data blocks permits the retrieval of portions of information from items." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).

"ordering the interest cost values associated with said inputted data" — "placing the interest cost values in some order before transmission to the issuer's computer." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006).


"originated information" — "the message text of an electronic mail message." NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).

"originating processor" — "'Originating processor' is not an umbrella term referring to all of the processors that add data into the system, but rather would be understood to one skilled in the art to be the first processor, or the initial source of the 'originated information' or email message text. ... the 'originating processor' is the sole processor that initiates the transmission of the electronic mail message text into the electronic mail system and is separate from the gateway or interface switches." NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).


"originating telephone number assigned to the caller" — "telephone number given to a caller from which the caller initiates a call." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).


"oscillator ... clocking" — "an oscillator that generates the signal(s) used for timing the operation of the CPU." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).

"out-of-band telecommunications signaling" — "signaling that is sent on a separate channel from that used for voice and/or data." *Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al.*, 518 F. Supp. 2d 1306 (D. Kan. 2007). 


"outlining the outer surface of the lesion in at least one of said ultrasound images" — "using computer software either to draw a line around the image of the surface of the lesion manually or through image processing algorithms that automatically identify the surface of the lesion, in at least one of said ultrasound images." *NOMOS Corp. v. ZMED, Inc.*, 260 F. Supp. 2d 215 (D. Mass. 2002).


"output device" — "a device for using images obtained by the input device to enable image data to be communicated to a user of the system. Examples may include but are not limited to: cathode ray tube displays; television monitors; LCD panels and screens; EMM memory and disk memory; digital film recorders; post script color printers, raster driven film recorders and fast-driven printers." *Luma Corp. v. Stryker Corp., et al.*, 2005 U.S. Dist. LEXIS 40884 (S.D. W. Va., July 27, 2005).

"output device for outputting a rhythmic piece" — "the Court will not construe 'output device for outputting a rhythmic piece,' and additionally finds MadCatz proposed construction to be inappropriate." *Konami Corp. v. Roxor Games, Inc., et al.*, 445 F. Supp. 2d 725 (E.D. Tex. 2006).


"output means" — "does not present any issue regarding the application of § 112, P6, for the claim element does not include any language describing the function of the output means." *Nilssen v. Magnetek, Inc.*, 1999 U.S. Dist. LEXIS 16718 (N.D. Ill., Oct. 22, 1999).

"output portion" — "a physical structure, specifically defined as op-amp 65, which is separate, independent and isolated from the input operational amplifier and recited as generating a destination signal and a corresponding destination reference signal." *Fiori v. Rockford Corp.*, 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006).
"Output Section" — "the portion of a device that decodes data from memory and produces output signals." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).


"[output voltage] slew rate data" — "data provided to a POL regulator specifying the desired slew rate (i.e., rate of change of output voltage) for the POL regulator." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007).


"outside agent" — "interpreting 'outside agency' to include persons or entities in the same company as the originator of the document is not inconsistent with the patent's goal of providing a reliable evidence that a document existed in a particular form at a particular time." Surety Technologies, Inc., et al. v. Entrust Technologies, Inc., 71 F. Supp. 2d 520 (E.D. Va. 1999).

"overlay"; "overlaid" — "to superimpose one graphic image over another." Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364 (Fed. Cir. 2003).


"override criteria" — "two or more preemptive rules that alter the operation of the system based upon the 'exact geographic location' of the mobile unit." EMSAT Advanced Geo-Location Technology, et al. v. MetroPCS Communications, Inc., et al., 2010 U.S. Dist. LEXIS 62196 (E.D. Tex., Jun. 23, 2010).

"overt term" — "provision for a proposed trade in goods or services which is designated for transmission by the data processing system to the party or parties from whom an acceptance is elicited and which if compared to a response conforming to such overt term will result in a meeting of the minds as to that term." Tradecard, Inc. v. SI Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007).


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[i] "packet"; [ii] "payload"; [iii] "non-payload" — [i] "a block of data used for transmitting information that may include payload and non-payload portions"; [ii] "data of interest"; [iii] "the packet data that is not payload data, such as routing or configuration information." *Widevine Technologies, Inc. v. Verimatrix, Inc.*, 2009 U.S. Dist. LEXIS 102768 (E.D. Tex., Nov. 4, 2009). 3036

"packet" — "a collection of information, including a data field which may be preceded and/or followed by non-data information, such as preamble information, housekeeping information and data destination information." *Negotiated Data Solutions, LLC v. Dell, Inc.*, 596 F. Supp. 2d 949 (E.D. Tex. 2009). 3031


"packet" — "a group of bits, including data and control limitations, which is switched and transmitted as a unit; the data is arranged in a specific format." *Lucent Technologies, Inc. v. Extreme Networks, Inc., et al.*, 367 F. Supp. 2d 649 (D. Del. 2005). 3033


"data packet transferring computer network" — "a computer system by which a block of computer information is broken into smaller information units called 'packets.' These packets are sent over a computer network over a variety of paths. The packets are automatically reassembled into their proper order at the receiving end." *Ziarno v. American National Red Cross, et al.*, 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000). 3037


"pickup pad" — "the Court concludes that no further construction of the term 'pickup pad' is necessary." *L.G. Philips LCD Co., Ltd. v. Tatung Co., et al.*, 434 F. Supp. 2d 292 (D. Del. 2006). 3040

"page" — "the unit of data, consisting of a plurality of bytes, programmed to and read from the memory at the same time; ... the unit of data, consisting of a plurality of bytes, written to and read from the memory at the same time." Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 5213 (N.D. Cal., Jan. 24, 2005).

"page file" — "a Web page file, such as an HTML file." PageMelding, Inc. v. Feeva Technology, Inc., et al., 2009 U.S. Dist. LEXIS 80886 (N.D. Cal., Aug. 19, 2009).

"page mode type of memory access" — "a type of memory access where blocks of memory cells in the same row are accessed by the assertion of the row address strobe signal followed by multiple assertions and deassertions of the column address strobe signal while the row address strobe signal remains asserted." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).


"The Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court." Id., Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Oct. 30, 2006).


"to pan" — "to move an entire display image in such a manner that new data appears within the screen as old data disappears, to give the impression of movement of the image." Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc., et al., 2004 U.S. Dist. LEXIS 29773 (D. Del., Nov. 29, 2004).


"to partition said memory" — "to divide a memory into multiple locations recognized by the operating system as separate sections of memory for storing data." Typhoon Touch Technologies, Inc., et al. v. Dell, Inc., et al., 2009 U.S. Dist. LEXIS 64013 (E.D. Tex., Jul. 23, 2009).

"partitioning the cells into a plurality of partitions" — "subdividing cells in one region into multiple groups of cells." Synopsys, Inc. v. Magma Design Automation, Inc., 2005 U.S. Dist. LEXIS 46882 (N.D. Cal., Aug. 23, 2005).
"partly enabled or demonstration mode" — "a mode that allows partial use of the digital data or software." Uniloc USA, Inc., et al. v. Microsoft Corp., 447 F. Supp. 2d 177 (D. R.I. 2006).3055

"parts relationships" — "an association that exists between a first set of parts and a second set of parts, the association having a left-hand side and a right-hand side. The first set of parts represents the left-hand side of the relationship and the second set of parts represents the right-hand side of the relationship." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005).3056

"printing on paper pages" — "When this clause is correctly construed, no reasonable jury could find that it reads on a process of printing on large sheets or webs of paper that require the further processing step of cutting into pages after printing." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 442 F.3d 1331 (Fed. Cir. 2006).3057

"parallel interface" — "a plurality of data lines that transmit both formats of information to the MPEG decoder." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34422 (N.D. Cal., Sept. 9, 2005)3058

"parameter" — "an element of a trade order, including, but not limited to, quantity, price, type of order and the identity of the commodity." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006)3059

"credit parameter"; "account parameter" — "a term or provision of a credit account. For example, the interest rate may be one of several parameters of a credit account." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010)3060

"parameter values" — "constants that are assigned to variables." Roche Diagnostics Corp., et al. v. Apex Biotechnology Corp., et al., 455 F. Supp. 2d 840 (S.D. Ind. 2005)3061

"parses video and audio data from said broadcast data" — "analyzes video and audio data from the broadcast data." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005)3062

"particular user" — "a user who may be authenticated." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009)3063

"products carrying participation numbers" — "a physical item sold or exchanged in a commercial setting which carries a number allowing participation in the Katz system." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999)3064

"patient-specific rules" — "a rule tailored to the medical condition of the patient." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009)3065

"partitioned" — "refers to either logically dividing or physically dividing the memory into a plurality of sectors." Sandisk Corp. v. Lexar Media, Inc., 1999 U.S. Dist. LEXIS 2682 (N.D. Cal., Mar. 4, 1999)3066
"partitioning first and second registers into a plurality of floating point operands, said floating point operands having a defined bit width, wherein said defined bit width is dynamically variable" — "dividing a first and a second register width-wise into a variable number of floating point operands based upon a variable width of the floating point element." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 3067

"partitioning the memory cells within the individual sectors into at least a user data portion and an overhead portion" — "the non-volatile memory sectors contained within an array of non-volatile floating gate memory cells include at least one user data portion and one overhead portion. Memory sectors are not limited to only one user data portion and one overhead portion." Sandisk Corp. v. Memorex Products, Inc., et al., 2007 U.S. Dist. LEXIS 15393 (N.D. Cal., Feb. 21, 2007). 3068


"party" — "an entity, whether a corporation or real person, possessing and/or controlling the stated structure, or performing the necessary steps for the claims. One skilled in the art would understand that a party can act through another. Thus, although the term 'agent' will not be added to the term party, the term will not be construed so as to require that a party act on its own behalf for purposes of the claims in suit, i.e., a party may, as in all other matters, act through others it authorizes to do so for purposes of the claims in suit." Sightsound.com Inc. v. N2K, Inc., et al., 185 F. Supp. 2d 445 (W.D. Pa. 2002). 3070

"a plurality of filters at the local color display including ... (3) a third filter for filtering the red color band of the local source of light and passing a narrowband of the red color band" — "We conclude that the proper construction of local color display is that it must emit perceptible red light." Honeywell International, Inc. v. United States, et al., 2010 U.S. App. LEXIS 3199 (Fed. Cir., Feb. 18, 2010) (unpublished). 3071

"telephone wiring network used for passing telephone signals in a telephone voice band between a plurality of telephone devices and a telephone exchange"; "circuitry for limiting transmission of signals in the high frequency band from the telephone wiring network to the telephone exchange and for passing signals in the telephone frequency between the telephone a telephone wiring network and the telephone exchange" — "the telephone wiring network (as defined above) is used for passing telephone signals in the telephone voice band (as defined above) to the telephone exchange." Inline Connection Corp. v. AOL Time Warner, Inc., 2007 U.S. Dist. LEXIS 6209 (D. Del., Jan. 29, 2007). 3072

"passing the video signal unchanged at other times" — "passing at least some portions of the video signal without changes or modifications. This step does not exclude replacing normal sync pulses with normal sync pulses." Macrovision Corp. v. Sima Products Corp., et al., 2006 U.S. Dist. LEXIS 75372 (S.D.N.Y., Oct. 12, 2006). 3073


"telecommunications path"; "communications path"; "data path" — "a transmission medium (a network type such as POTS, leased lines, mobile cellular networks, digital links, fiber optics, satellite links, and private and public packet switching networks such as the Internet)." ConnecTel, LLC v. Cisco Systems, Inc., 428 F. Supp. 2d 564 (E.D. Tex. 2006). 3078

"path name in a uniform resource locator" — "a sequence of zero or more elements that follows the host address in a URL." Soverain Software LLC v. Amazon.com, Inc., 2005 U.S. Dist. LEXIS 46872 (E.D. Tex., Apr. 7, 2005). 3079


"pattern" — "a design or series of marks in a semiconductor integrated circuit that is to be transferred to a photoresist layer of a substrate." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004). 3084

"pattern recognition system" — "a system that receives and compares signals from vehicle sensors to patterns characteristic of normal or abnormal behavior through pattern recognition technology or technologies, such as, for example, neural networks, sensor fusion, or fuzzy logic, in order to diagnose the state of the vehicle." Automotive Technologies International, Inc. v. Delphi Corp., 2009 U.S. Dist. LEXIS 83187 (E.D. Mich., Sep. 11, 2009). 3085

"patterning" — "performing the process of lithography (producing a pattern that covers portions of the substrate with resist) followed by etching (selective removal of material not covered by resist) or otherwise transferring the pattern into the substrate." Agere Systems Inc. v. Atmel Corp., 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003). 3086

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"patterning the continuous layer of transparent conductive material" — "patterning the continuous layer of transparent conductive material on the second substrate, wherein the patterning is performed before the second substrate is spacedly disposed from said first substrate and arranged so that the layer of transparent conductive material of the second substrate faces the layer of transparent conductive material of the first substrate."  *Advanced Technology Incubator, Inc. v. Sharp Corp., et al.*, 2009 U.S. Dist. LEXIS 109173 (E.D. Tex., Jun. 26, 2009). 3087


"payment-due data representing a seller's fulfillment of a sale-of-goods transaction between the seller and a buyer" — "electronically transmitted data representing that (a) a seller has satisfied its obligations under a sale-of-goods transaction or (b) that a buyer has otherwise accepted the seller's performance, and that a buyer's obligation to pay for the goods is due."  *Tradecard, Inc. v. S1 Corp., et al.*, 509 F. Supp. 2d 304 (S.D.N.Y. 2007). 3091


"material peculiarly responsive to a particular form of radiant energy not normally present in ambient light in amounts sufficient to cause said material to discolor" — "a substance which darkens or changes color when exposed to radiant energy (as previously defined by the court) of a type or intensity (or both) that is not ordinarily present in sunlight or normal indoor lighting."  *Flashmark Technologies, LLC, et al. v. GTECH Corp., et al.*, 2007 U.S. Dist. LEXIS 65317 (E.D. Tex., Sept. 2, 2007). 3096

"pending message list" — "a notification to the roaming terminal that it needs to request transmission of its pending messages." Agere Systems, Inc. v. Broadcom Corp., 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004).

"not including a display object that is perceptible as the same tool" — "not including a display object that is recognized as the same display object, even if the objects have some different display characteristics, including different positions, sizes, and contexts." IP Innovation, LLC, et al. v. Red Hat, Inc., et al., 2009 U.S. Dist. LEXIS 69682 (E.D. Tex., Aug. 10, 2009).


"performance report" — "I am inclined to agree with defendants that the claims require the performance report generated by the graphics rendering pipelines to include information about the length of time required for processing." Silicon Graphics, Inc. v. ATI Technologies, Inc., et al., 2007 U.S. Dist. LEXIS 61997 (W.D. Wis., Aug. 20, 2007).


"peripheral management station" — "a computer that is used to manage and service jukeboxes." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).


"periodic" — "reach[es] only project management programs which perform their functions at fixed intervals, rather than intermittently or on request." Enpat, Inc., et al. v. Microsoft Corp., et al., 26 F. Supp. 2d 806 (E.D. Va. 1998).


"periodic fee" — "will have its ordinary meaning, a fee charged or collected at regular intervals, based on time, and not calculated per item rented." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007).3112

"periodic interrupts" — "a signal that recurs or repeats, at time intervals that are not necessarily precise or the same, that suspends other tasks on the host processor while the processor addresses the device." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).3113

"periodic save code" — "code that is operative to periodically transfer at least a portion of the working data from volatile memory to non-volatile memory." Square D Co., et al. v. E.I. Electronics, Inc., 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010).3114

"periodically asserts a first signal while operating in the first mode" — "the assertion of a first signal that recurs or repeats at regular intervals while operating in the first mode." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).3115

"periodically forming largely overlapping images of a field of view of said array" — "Acquiring optoelectric signals from an array of photosensors and, using circuitry, converting the signals to values which represent the field of view to which the array is being exposed at discrete points in time. The substep of forming an image is not otherwise limited to any particular process. This substep includes processing of the signals from acquisition up to but not including storing as a frame." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2007 U.S. Dist. LEXIS 45828 (N.D. Cal., June 13, 2007).3116

"periodically forwarding" — "forwarding at an interval other than upon every payment." AdvanceMe, Inc. v. Rapidpay, LLC, et al., 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006).3117


"peripheral region of the semiconductor chip" — "region outside the area of the semiconductor chip in which the internal circuit is formed." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007).3120

"a permission" — "information which grants access." Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009).3121

"a permission that is locked uniquely to the client" — "information which grants access, said access being confined to the client." Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009).3122
"wherein a voice recognition system further permits the surgeon to select commands or operating modes from menus" — "the voice recognition system of the robotic surgical system permits the surgeon to select commands or operating modes from displayed menus." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002).3123

"permitting access" — "permitting the subscriber client computer to access said selected computer resources." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007).3124

"persistent connection" — "a connection that exists the entire time the application is used." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).3125

"non-persistent connection" — "an occasional connection that does not exist for the entire time an application is used." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).3126

"persistently unique sequence numbers" — "unique sequence numbers used to ensure that all objects using the particular named sequence generator (i.e., whether newly created or already persisted in a database) will have different identification numbers." Software Tree, LLC v. Red Hat, Inc., et al., 2010 U.S. Dist. LEXIS 53549 (E.D. Tex., May 28, 2010).3127

"personal communication device" — "a portable hand-held device capable of receiving and transmitting information -- that includes a CPU or microprocessor, a data storage device, a display screen, input device, output device, and wireless communication hardware and software." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).3128

"personal computer"; "PC" — "a computer capable of operation without additional equipment, independent of a mainframe or other computer, and designed for use by one person." Timecertain, LLC v. Authentidate Holding Corp., et al., 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006).3129

"personal computer"; "general purpose personal computer" — "a computer designed for use by one person at a time, such as a desktop PC or a laptop." Quantum World Corp. v. Atmel Corp., et al., 2009 U.S. Dist. LEXIS 7936 (E.D. Tex., Jan. 30, 2009).3130


"personal computer" — "a stand-alone computer (not sharing the processing or disk resources of another computer) designed for use by one person at a time, and excludes mainframe computers or mini-computers." Microsoft Corp. v. Multi-Tech Systems, Inc., et al., 2002 U.S. Dist. LEXIS 15960 (D. Minn., Aug. 16, 2002).3132


"personal identification number" — "a number, separate from a billing code (as construed herein), identifying an individual system user." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006).3134
"personalized page"; "stored personal pages"; "personalized web page" — "the Court agrees with Yodlee that these terms need not be construed." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).3135

"phantom power" — "operating power transmitted over the data signaling pairs." Network-1 Security Solutions, Inc. v. D-Link Corp., et al., 2006 U.S. Dist. LEXIS 84510 (E.D. Tex., Nov. 20, 2006).3136 "[T]he Court adopts its construction in the D-Link case and Defendants' construction and construes the term 'phantom power' to mean 'operating power transmitted over the data signaling pairs.'" Network-1 Security Solutions, Inc. v. Cisco Systems, Inc., et al., 2010 U.S. Dist. LEXIS 12938 (E.D. Tex., Feb. 16, 2010).3137

"phase shifted burst mode signals"; "phased burst signals/phased burst mode signals" — "a burst mode signal that is shifted in phase with respect to another burst mode signal." O2 Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).3138


"physical interface connection elements" — "elements such as electrical pins and socket connections that link the connector to a discrete external electronic device." Lantronix, Inc., et al. v. Digi International, Inc., 2006 U.S. Dist. LEXIS 12032 (E.D. Tex., March 6, 2006).3140

"physical layer" — "the lowest layer of the Open Systems Interconnect (OSI) seven layer model, concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).3141

"physical layer modulation" — "a protocol that is concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).3142

"physical media path" — "a physical route or path which allows the transfer of data packets to and from the node." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006).3143

[i] "central picture element"; [ii] "surrounding picture elements"; [iii] "neighboring pixels" — [i] "a sample of picture information being noise reduced"; [ii] [iii] "the Court will construe 'surrounding picture element'--and, by extension, 'neighboring pixels'--to mean one or more pixels sufficiently near the central pixel in time or space to be useful for the purpose of noise-reducing the central pixel." Technology Licensing Corp. v. Videotek, Inc., 2002 U.S. Dist. LEXIS 26803 (N.D. Cal., Nov. 14, 2002).3144

"pipeline identifier" — "a designation indicative of a processing pipeline." Intergraph Corp. v. Intel Corp., 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002). Intergraph expressly defined the term 'pipeline identifier' during prosecution of the '028 patent. In light of that prosecution history, as well as the claim language and the specifications, we hold that, for both the '028 patent and the '003 patent, a 'pipeline identifier' must identify the specific processing pipeline to which an instruction will be dispatched. Id., 89 Fed. Appx. 218 (Fed. Cir., Feb. 11, 2004) (unpublished).

"pit" — "depression in the surrounding land area, where the depth is the principal factor creating a difference in reflected light intensity for encoding information." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010).

"pit" — "an area which creates a difference in reflected light to represent information." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010).


"pixel interpolator" — "a device that calculates spatially interpolated pixel values, from the pixel values of a previous image, which approximate the values of fractionally offset pixels between pixels." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 516 (D. Del. 2001).


"pixelated or bitmapped format" — "a collection of data elements representing the individual pixels of the ballot image such that the darkness of each pixel may be determined. The images are typically stored in formats such as .BMP, or .TIFF, or other bitmapped format." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).


"a step of placing an amount of liquid crystal on plural locations on the first substrate" — "depositing an amount of liquid crystal material in multiple locations on a substrate." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006).
"placing the FCC unit under control of a computerized control device and thereby" — "placing the FCC unit under control through the addition or withholding of catalyst additive by a valve regulated by a computerized control device and thereby." *Intercat, Inc. v. Nol-Tec Systems, Inc., et al.*, 2005 U.S. Dist. LEXIS 344 (D. Minn., Jan. 7, 2005).\(^{3159}\)

"planar filters" — "two or more non-cavity resonator, essentially flat surface, film devices for separating, according to radio frequency, signals received on the communication pathways, each communication pathway having a pre-assigned radio frequency." *Isco International, Inc. v. Conductus, Inc., et al.*, 2002 U.S. Dist. LEXIS 20832 (D. Del., Oct. 30, 2002).\(^{3160}\)


"plasma" — "a charged collection of particles, generated by the high and/or low frequency electric fields established between the electrodes, excluding arc or spike discharges such as would emanate from a spiked electrode." *Tegal Corp. v. Tokyo Electron America, Inc.*, 257 F.3d 1331 (Fed. Cir. 2001).\(^{3163}\) "We see no reason to deviate from the construction we applied on appeal in the TEA litigation, and therefore we adopt the construction of 'plasma' set forth in that opinion." *Tegal Corp. v. Tokyo Electron Co., Ltd.*, 2002 U.S. App. LEXIS 1992 (Fed. Cir., Feb. 1, 2002) (unpublished).\(^{3164}\)

"plasma etching" — "refers to a chemical process without excluding the non-chemical process of ion bombardment." *Northern Telecom Limited v. Samsung Electronics Co., Ltd., et al.*, 1996 U.S. Dist. LEXIS 21786 (N.D. Cal., Sept. 13, 1996).\(^{3165}\) "[W]e hold that the district court's claim construction of ... 'plasma etching' was correct." *Id.*, 215 F.3d 1281 (Fed. Cir. 2000).\(^{3166}\)

"play list" — "a list of works that can be played sequentially." *Premier International Associates v. Apple Computer, Inc., et al.*, 512 F. Supp. 2d 737 (E.D. Tex. 2007).\(^{3167}\)

"playing back the stored copy of the information using the receiving system" — "using the receiving system to output the stored copy of the information in real time." *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).\(^{3168}\)

"playlist" — "a particular program sequence requested by a user who is located in the distribution center." *STV Asia, Ltd. v. PRN Corp., et al.*, 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006).\(^{3169}\)

"game playable in the non-tournament mode" — "is clear and no construction is required." *Merit Industries, Inc. v. JVL Corp.*, 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).\(^{3170}\)

"plug electrodes are connected respectively to both sides which are positioned across a part of said fuse portion where cutting off is to be performed" — "at least one plug electrode connected to the fuse portion on each side of the region where the fuse may be cut." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 3172

"pluggable memory key means" — "a removable and/or reinsertable read-only-memory ('ROM') chip and/or module." Roche Diagnostics Corp., et al. v. Apex Biotechnology Corp., et al., 455 F. Supp. 2d 840 (S.D. Ind. 2005). 3173


"plural protective transistors" — "multiple transistors which provide a discharge path for current to flow between the first power supply wire and the second power supply wire when activated." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 3175

"a plurality of active MOS regions within a semiconductor substrate" — "at least two distinguishable, active MOS regions within a semiconductor substrate." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004). 3176


"a plurality of calibration images including a calibration marker"; "a plurality of alignment images including an alignment marker"; "a plurality of calibration marks" — "more than one individual mark or target serving as touch points for the calibration process." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007). 3178

"plurality of coordinates being included in a plurality of respective distinct blocks" — "Several coordinates, where each set of coordinates is contained within one block in a set composed of data blocks that are distinct from one another." Skyline Software Systems v. Keyhole, Inc., et al., 2006 U.S. Dist. LEXIS 83603 (D. Mass., Nov. 16, 2006). 3179

"receiving a plurality of demands ... and ... receiving a plurality of settlement offers" — "require[s] the receipt of at least two demands and at least two settlement offers." Cybersettle, Inc. v. National Arbitration Forum, Inc., 243 Fed. Appx. 603 (Fed. Cir., July 24, 2007). 3180
[transceiver that operates in a] "plurality of different modes"; "ADSL/AVR transceiver" — "a transceiver that operates by dividing available bandwidth between two channels in at least two of the following ways, (1) where the first channel is smaller than the second ('conventional ADSL' mode); (2) where the two channels are of 'roughly' equal size ('bi-directional' mode); and (3) where the first channel is larger than the second ('reversible' mode)." Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., et al., 92 F. Supp. 2d 483 (E.D. Va. 2000).3181 "[T]he patentees defined the term 'mode' by implication, through the term's consistent use throughout the '786 patent specification. Given this definition, the three modes described in the Detailed Description of the Preferred Embodiments describe the three possible modes of the invention, and the claims are not entitled to any broader scope." Id., 262 F.3d 1258 (Fed. Cir. 2001).3182


"plurality of optical communication channels" — "two or more optical communication channels; each optical communication channel providing an optical signal path separated in frequency from other optical signal paths." CIENA Corp., et al. v. Corvis Corp., 334 F. Supp. 2d 598 (D. Del. 2004).3184

"a plurality of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values" — "a device in which the voltage from each photo detector is converted to a binary number, which number is stored in memory in an array." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2007 U.S. Dist. LEXIS 45828 (N.D. Cal., June 13, 2007).3185

"plurality of pre-determined values" — "at least two values that are set prior to that comparison." BorgWarner, Inc., et al. v. New Venture Gear, Inc., 237 F. Supp. 2d 919 (N.D. Ill. 2002).3186

"plurality of pulse amplitude and location coded signals" — "two or more pulse amplitude values having a formatted representation and two or more pulse location values having a formatted representation." AT&T Corp. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 10716 (S.D.N.Y., Jun. 23, 2003).3187

"plurality of specific screen identifying information" — "must be construed based upon the specification. ... That specification describes an algorithm that identifies a screen of data in order to match it to a GUI. The specification incorporates by reference the '961 patent. Thus, the 'information' which was defined by reference should be consistent with the use of that term in the '961 patent, insofar as all fields on the screen are utilized." ResQNet.com, Inc. v. Lansa, Inc., 2002 U.S. Dist. LEXIS 16667 (S.D.N.Y., Sept. 5, 2002).3188 "As previously noted, 'plurality' ordinarily means 'at least two'; thus, 'a plurality of specific screen identifying information' means 'at least two pieces of specific screen identifying information.' Moreover, the presence of 'specific' connotes selected or particular. This phrase does not equate to 'all.'" Id., 346 F.3d 1374 (Fed. Cir. 2003).3189

"point-of-load [POL] regulator" — "a dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007).3191 "The intrinsic record supports the district court's construction, and despite Artesyn's contention, the terms 'adapted to' and 'near' are not facially vague or subjective." Id., 2010 U.S. App. LEXIS 6487 (Fed. Cir. 2010).3192

"point of sale location" — "a location where a consumer goes to purchase material objects embodying predetermined or preselected information. This construction permits a home to be a point of sale location. A point of sale location need not have more than one blank material object and it need not have any material objects separately for sale as blanks." Interactive Gift Express, Inc. v. CompuServe, Inc., et al., 256 F.3d 1323 (Fed. Cir. 2001).3193

"point-of-sale": "point-of-sale transaction": "point-of-sale terminal" — "the physical location where a consumer enters a sales transaction with a merchant"; "the sales transaction occurring at the point of sale"; "an electronic device at the point-of-sale for entering a point of sale transaction." Source, Inc. v. American Express Co., 2007 U.S. Dist. LEXIS 68248 (E.D. Tex., Sept. 14, 2006).3194


"pointer memory" — "a memory for storing variables that indicate the memory location of some data, such as by an address." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).3196

"policy information indicating a permitted neighboring node/network from which a packet transfer by the label switching is to be permitted" — "the district court construed the term as requiring the policy information to relate to an upstream node/network. ... We [ ] affirm the district court's construction." Toshiba Corp. v. Juniper Networks, Inc., 2007 U.S. App. LEXIS 21288 (Fed. Cir., Sept. 6, 2007) (unpublished).3197


"polygon" — "a region defined by a finite number of straight line segments at the first semiconductor surface, which lines could deform slightly during diffusion or other processing steps resulting in a region only generally polygonal in configuration when viewed from the device surface." International Rectifier Corp. v. IXYS Corp., 2002 U.S. Dist. LEXIS 27248 (C.D. Cal., Mar. 5, 2002).3199
"base region being a cellular polygonal region" — "this limitation is properly construed to require the base shape, at the surface, to be generally but not perfectly polygonal -- i.e., the surface expression of the base will be a closed figure with generally (not necessarily perfectly) straight sides." _International Rectifier Corp. v. IXYS Corp._, 2001 U.S. Dist. LEXIS 25711 (C.D. Cal., Jul. 16, 2001).3208 "The correct construction of the term 'polygonal,' consistent with the written description, is simply 'a closed plane figure bounded by straight lines.' The patentee, being fully aware of the effects of the doping process, could have claimed the regions more broadly but chose to use the word 'polygonal' without modification or qualification. The district court was not free to attribute new meaning to the term or to excuse the patentee from the consequences of its own word choice." _Id._, 361 F.3d 1363 (Fed. Cir. 2004).3209


"popularity" — "information indicative of the number of times a particular work has been downloaded or played back, indicating how popular the particular work is." _Premier International Associates v. Apple Computer, Inc., et al._, 512 F. Supp. 2d 737 (E.D. Tex. 2007).3203

"port" — "a terminal, e.g., a personal computer with a modem, from which a user of the invention can access the database storing the information about the items of interest." _Civix-DDI, LLC v. Celco Partnership_, 387 F. Supp. 2d 869 (N.D. Ill. 2005).3204


"port" — "a defined physical or logical connection where data enters or leaves a network device." _Utstarcom, Inc. v. Starent Networks Corp._, 2005 U.S. Dist. LEXIS 40520 (N.D. Cal., Dec. 6, 2005).3206

"port" — "an abstraction for describing the inputs and/or outputs of sources, targets or transformation objects." _Informatica Corp. v. Business Objects Data Integration, Inc._, 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005).3207


"portable computer"; "portable computer microprocessing system" — "a computer without a built-in display or keyboard that is capable of being moved or carried about." _Computer Docking Station Corp. v. Dell Inc., et al._, 2006 U.S. Dist. LEXIS 58388 (W.D. Wis., Aug. 16, 2006).3210


"a portable point of sale terminal" — "a portable computer terminal that is capable of handling a sales transaction." *Symbol Technologies, Inc. v. Janam Technologies LLC*, 605 F. Supp. 2d 618 (D. Del. 2009). 3213


"portal" — "a computer server or group of servers that stores media assets and transmits and receives media assets to and from media players over a communications network." *Zapmedia Services, Inc. v. Apple Inc.*, 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). 3216


"the portion of the IP data session" — "all the data packets transmitted between the first and second participants during the part of the IP data session being recorded." *NICE Systems, Inc., et al. v. Witness Systems, Inc.*, 528 F. Supp. 2d 470 (D. Del. 2007). 3218

"portion of the [predefined] bandwidth" — "the part, but less than all, of the data transfer capacity of the bus that is assigned to a group of data sources." *Rembrandt Technologies, L.P. v. Comcast Corp., et al.*, 512 F. Supp. 2d 749 (E.D. Tex. 2007). 3219

"portion of the stored information"; "part of the stored information" — "The phrases ... are synonymous. The Court does not find it necessary to further construe these phrases." *Acacia Media Technologies Corp. v. New Destiny Internet Group, et al.*, 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 3220

"wherein a portion of the patterned second semiconductor film is exposed" — "part of the second semiconductor film is made subject to etching." *Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al.*, 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006). 3221

"portions of the first layer beneath the valleys of the hemisphere polysilicon particle layer" — "the portions of the first layer that are removed, i.e., the portions of the first layer between the raised, rounded polysilicon particles." *OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.*, 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 3222


"positional coordinates" — "a set of coordinates defining a single reference point within a corresponding geographic vicinity which operates to determine the corresponding geographic vicinity." *CIVIX-DDI, LLC v. Microsoft Corp., et al.*, 84 F. Supp. 2d 1132 (D. Colo. 2000). 3224
"positive optical anisotropy" — "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is greater than the other two."  Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007). 3225

"a positive supply voltage" — "a voltage at an external source to the gate drive circuits that has a positive potential relative to a reference potential." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004). 3226

"potential first parties" — "individuals who can place a telephone call but have not yet done so." 800 Adept, Inc. v. Murex Securities, Ltd., et al., 2006 U.S. Dist. LEXIS 53696 (M.D. Fla., Aug. 3, 2006). 3227

"power" — "the rate at which energy is transferred, calculated by multiplying electric current times voltage." Symbol Technologies, Inc. v. Janam Technologies LLC, 605 F. Supp. 2d 618 (D. Del. 2009). 3228

"a power conditioning circuit ... being functional ..." — "this Court construes claim 32 ... to be in means-plus-function form." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000). 3229


"power mode setting for setting the emitter module in one of a plurality of different operating power modes" — "a setting that defines the type or width of the high voltage signal that supplies power." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003). 3234

"power regulating signal" — "a signal for controlling power to a load." O; Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006). 3235

"said power source" — "The district court ... concluded that 'said power source' must power the entire apparatus. This ruling is erroneous because it imported an extraneous limitation into the claim." Clearwater Systems Corp. v. Evapco, Inc., et al., 2010 U.S. App. LEXIS 18222 (Fed. Cir., Aug. 30, 2010) (unpublished). 3236
"power source" — "mean[s] only parts of the patch that generate power, and parts of the patch that merely regulate the provision of power to the patch, but do not individually generate power, are not part of the 'power source.'" Travanti Pharma, Inc. v. Iomed, Inc., 2006 U.S. Dist. LEXIS 2646 (D. Minn., Jan. 11, 2006). 3237


"power supply" — "a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit." NeoMagic Corp. v. Trident Microsystems, Inc., 98 F. Supp. 2d 538 (D. Del. 2000). 3239 "The court has revisited the issue of the proper definition of the words 'power supply' and has decided the court was correct to reject NeoMagic's proposed construction that a power supply is a source connection or line that may be at a particular voltage level." Id., 129 F. Supp. 2d 689 (D. Del. 2001). 3240 "[W]e vacate and remand for further proceedings that portion of the court's summary judgment holding that the 'power supply' limitation requires a constant voltage supply." Id., 287 F.3d 1062 (Fed. Cir. 2002). 3241 "To be considered a second power supply, the split-bias device must be able to deliver power to an electrical circuit at a voltage to enable the junction between the well and the substrate to remain reverse-biased. A split-bias device is simply a BIAS signal line that controls the current in the digital-analog-converter at a constant level, not a power supply, as held by Judge McKelvie in his previous decisions." Id., 2003 U.S. Dist. LEXIS 25760 (D. Del., Jul. 30, 2003). 3242

"personal computer power supply" — "a device that receives AC current and provides DC current to the components of a personal computer, and expressly excludes redundant power supplies." Streak Products, Inc. v. Antec, Inc., et al., 2010 U.S. Dist. LEXIS 114458 (N.D. Cal., Oct. 19, 2010). 3243


"power supply circuit" — "a first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps [] so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current pathway." Fiori v. Rockford Corp., 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006). 3245


"power supply controller"; "system controller" — "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit." Power-One, Inc. v. Artesyn Technologies, Inc., 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007). 3247

"a power supply coupled to the first power signal port and to at least one of said modems to be powered by the power signal and for powering said modem" — "the device receives a power signal and allows the transfer of the power signal with the modem and the power coupler." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007). 3248


"with each user being capable of having predefined characteristics indicative of multiple predetermined roles in the system" — "discrete roles and their associated characteristics to which a user can be multiply assigned are set in advance within the system." *Blackboard, Inc. v. Desire2Learn, Inc.*, 2007 U.S. Dist. LEXIS 56680 (E.D. Tex., Aug. 3, 2007).

"predefined query language"; "predetermined query language" — "a query language that must be determined prior to the 'generating a query' step, but not necessarily prior to the associating step. Furthermore, the 'predefined [or predetermined] query language' must support the functions and operators contained in the associating step's SELECT clause." *Business Objects, S.A. v. Microstrategy, Inc.*, 393 F.3d 1366 (Fed. Cir. 2005).

"predesignated sites such as consumer stores" — "requires that the location of the terminal be pre-established in a specific location at the point of sale." *Catalina Marketing International, Inc. v. Coolsavings.com, Inc.*, 2001 U.S. Dist. LEXIS 3781 (N.D. Ill., Mar. 27, 2001).


"predetermined condition" — "the occurrence of a current imbalance from an actual or artificially induced ground fault."  

"predetermined data element" — "a part or unit of data, including the data on an entire storage device, which identity is determined beforehand and which is stored in the first or second data storage system."  

"predetermined database" — "a set of decision-making rules that incorporate a medical code classification system and expert medical clinical judgment and that are not programmed to be modified by the user."  

"predetermined digit sequences" — "the set of all signals which are used for international dialing."  

"predetermined digital identification" — "digital data whose value is known in advance or calculated at the moment."  

"time interval of predetermined duration" — "the time interval of the recorded signal must be of a fixed duration determined prior to operation."  
Pause Technology LLC v. TiVo Inc., 419 F.3d 1326 (Fed. Cir. 2005).

"a timer circuit ... for providing a time-out sequence of a predetermined duration" — "a timer circuit ... that measures a time period having a duration determined beforehand."  

"predetermined length of time" — "a length of time within a known time period."  

"providing a predetermined level of access and control" — "the level of access and control is set in advance within the system."  

[i] "predetermined match weight"; [ii] "predetermined mismatch weight" — [i] "a predetermined factor that arithmetically increases a stored case model's match score when a feature from the stored case model matches text and attributes from the presented case model"; [ii] "a predetermined factor which arithmetically decreases a stored case model's match score when a feature from the stored case model does not match text and attributes from the presented case model."  

"predetermined maximum peak-to-peak value" — "a predetermined value that the peak-to-peak voltage produced by the resistive divider will not exceed."  
"predetermined number of digital bits" — "Each digital word in the digitized image consists of one or more bits of information, where the number of bits in each word is preselected and constant for a given set of broad band information." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).3275

"a predetermined number of random bingo numbers" — "The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end." The HomeBingo Network, Inc. v. Multimedia Games, Inc., 2006 U.S. Dist. LEXIS 93632 (N.D.N.Y., Dec. 28, 2006).3276

"predetermined operations"; "predetermined expected response" — "reading 'predetermined' to mean 'determined beforehand' and 'expected' to mean 'predicted' is entirely consistent with the purpose of the method and the specification." Thomson Consumer Electronics, Inc. v. Innovatron, S.A., 43 F. Supp. 2d 26 (D.D.C. 1999).3277

"predetermined parameters" — "parameters of the paths that are stored in memory and not measured." ConneTel, LLC v. Cisco Systems, Inc., 428 F. Supp. 2d 564 (E.D. Tex. 2006).3278

"said operand or instruction being located at a predetermined position from a boundary of said instruction groups" — "the operand or instruction is accessed at a position defined in relation to the boundaries of the instruction group that includes the operand or instruction being accessed." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).3279


"predetermined region" — "a region stored in the user station and determined prior to use by the user[,] subject, however, to new information loaded into the base station memory, by the system developers, from time to time." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000).3282

"predetermined response" — "responses prepared prior to the receipt of the electronic message. The responses may be modified and/or altered based on the interpretation of the electronic message." Bright Response, LLC v. Google Inc., et al., 2010 U.S. Dist. LEXIS 60361 (E.D. Tex., Jun. 18, 2010).3283

"predetermined sequences [signals] which are used for international dialing" — "the set of all digits which are used for international dialing." Gammino v. Southwestern Bell Telephone, L.P., et al., 2007 U.S. Dist. LEXIS 20881 (N.D. Tex., March 23, 2007).3284

"predetermined severe congestion threshold" — "a predetermined number of queued data units, which is greater than the predetermined mild congestion threshold." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).3285

"a predetermined time" — "a time ... that is set or otherwise determined before the ball is propelled toward a target." *Probatter Sports, LLC v. Joyner Technologies, Inc.*, 518 F. Supp. 2d 1051 (N.D. Iowa 2007).3287

"connecting at a predetermined time and date via a data transfer line the call rating device to a rate provider having billing rate parameters for a plurality of calling stations" — "encompass[es] a method in which the time and date for calling the rate provider are selected a substantial period in advance of the call, and in which each call to the rate provider need not be initiated by the individual user." *Mediacom Corp. v. Rates Technology, Inc.*, 4 F. Supp. 2d 17 (D. Mass. 1998).3288

"said triggered generator being activated for a predetermined time period" — "the time period between activation and deactivation of the generator that has its length programmed prior to the triggering of the generator. ...while the 'predetermined time period' is a definitive time period, it is not of definitive length until it is programmed prior to triggering." *Agrizap, Inc. v. Woodstream Corp., et al.,* 431 F. Supp. 2d 518 (E.D. Pa. 2006).3289

"said predetermined time period being the time required for the transient associated with turning on said reversing magnetic field to decrease to a level where said magnetic field variation is distinguishable from said transient" — "the predetermined period of time being substantially equal to the time required for the transient associated with the generation of the reversing magnetic field to decrease to a level sufficient for the reader to distinguish the transient from the variation in absorption of power." *Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al.*, 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006).3290

"applying a positive direct current to said distal tip for a predetermined time period" — "applying a positive direct current to the distal tip for a time period determined in advance of the initiation of the detachment process." *Regents of the University of California v. Micro Therapeutics, Inc., et al.*, 2007 U.S. Dist. LEXIS 20511 (N.D. Cal., Mar. 2, 2007).3291

[i] "predetermined value"; [ii] "predetermined measure"; [iii] "threshold value" — [i][ii] "a value or measure determined before the signals are compared"; [iii] "a numerical quantity 'above which something is true or will take place and below which it is not or will not.'" *ADE Corp. v. KLA-Tencor Corp.*, 252 F. Supp. 2d 40 (D. Del. 2003).3292


"preempted" — "a thread is 'preempted' when control is taken away from it." *Reiffin v. Microsoft Corp.*, 2002 U.S. Dist. LEXIS 21690 (N.D. Cal., Apr. 30, 2002).3295


"with a preference for avoiding the particular portion of the thoroughfare in the route" — "with the possibility of avoiding the particular portion of the thoroughfare in the route." *Garmin Ltd. v. TomTom, Inc.*, 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 3298

"preference information" — "information preferred by a user of the system or information related to a preferred procedure or both." *Luma Corp. v. Stryker Corp., et al.*, 2005 U.S. Dist. LEXIS 40884 (S.D. W. Va., July 27, 2005). 3299

"preliminarily" — "The plain meaning of 'preliminarily' is 'at first' or 'prior to.'" *Combined Tactical Systems, Inc. v. Defense Technology Corp. of America, et al.*, 426 F. Supp. 2d 140 (S.D.N.Y., April 4, 2006). 3300

"pre-paid calling card account" — "a record maintained in a database which, when activated, allows a user with the access information for that account to obtain access to a phone system or network." *TGIP, Inc. v. AT&T Corp., et al.*, 512 F. Supp. 2d 696 (E.D. Tex. 2007). 3301


"preparing first and second substrates provided with active elements" — "preparing the first and second substrates such that at least one substrate has active elements." *Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al.*, 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006). 3303

"preparing to transmit the data packet" — "accessing the header of a packet to make a decision on where to send the packet and to obtain the marking field." *Lucent Technologies, Inc. v. Newbridge Networks Corp., et al.*, 168 F. Supp. 2d 181 (D. Del. 2001). 3304

"prepayment amount" — "the exact amount of money deposited to obtain a special code. It may be deposited by anyone." *Aerotel, Ltd. v. Telco Group, Inc., et al.*, 2010 U.S. Dist. LEXIS 47266 (S.D.N.Y., May 12, 2010). 3305

"prepayment amount less deductions for the running cost of the call" — "the exact amount of money deposited to obtain a special code, ... less the running cost of the current call." *Aerotel, Ltd. v. Telco Group, Inc., et al.*, 2010 U.S. Dist. LEXIS 47266 (S.D.N.Y., May 12, 2010). 3306

"prepending given data to a content provider-supplied URL to generate an alternate resource locator (ARL)" — "generating an alternative resource locator (ARL) by adding a name or other identifier that can be translated by a domain name system into the IP address of a content server to the beginning of the URL of an embedded object supplied by a content provider." *Akamai Technologies, Inc., et al. v. Limelight Networks, Inc.*, 494 F. Supp. 2d 34 (D. Mass. 2007). 3307

"pre-programmed logic" — "software and/or hardware that provides preset responses dictated by the test subject's inputs." *Diagnostic Group, LLC v. Benson Medical Instruments Co.*, 2005 U.S. Dist. LEXIS 5030 (D. Minn., Mar. 28, 2005). 3308

"prescribed set of reverse control channels" — "a predetermined range of frequencies that transmit control information in only one direction, from a cellular telephone to a cell site."  TruePosition, Inc. v. Andrew Corp., 2007 U.S. Dist. LEXIS 62702 (D. Del., Aug. 23, 2007). 3310

"preselected condition" — "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node."  Network-1 Security Solutions, Inc. v. D-Link Corp., et al., 2006 U.S. Dist. LEXIS 84510 (E.D. Tex., Nov. 20, 2006). 3311 "[T]he Court construes the term 'preselected condition' to mean 'a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node.'"  Network-1 Security Solutions, Inc. v. Cisco Systems, Inc., et al., 2010 U.S. Dist. LEXIS 12938 (E.D. Tex., Feb. 16, 2010). 3312


"presenting ... a link corresponding to the personal information stored on the personal information provider" — "No construction is necessary."  Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006). 3314

"said apparatus ... presenting information to the user ..." — "the Court agrees with Meade that the presentation of information need not occur via an overlay on the field of view."  Meade Instrument Corp. v. Yamcon, Inc., 2005 U.S. Dist. LEXIS 43396 (C.D. Cal., July 27, 2005). 3315

"presenting to a form user over a computer network by a third party forms servicer a form" — "the limitation ... as to 'presenting' a form means to provide the form to a form user via the form user's web browser."  CollegeNET, Inc. v. Xap Corp., 442 F. Supp. 2d 1036 (D. Or. 2006). 3316

"presenting to the user via the user interface, the list of the third plurality of options" — "displaying to the user only those options that are determined to be compatible with all previously selected choices."  Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). 3317

"presettable level" — "means that threshold levels of attenuated and backscattered radiation can be preset before the scan of the object."  Vivid Technologies, Inc. v. American Science & Engineering, Inc., 200 F.3d 795 (Fed. Cir. 1999). 3318

"pressure-sensitive variable-conductance analog sensor"; "pressure-sensitive variable-conductance sensor"; "pressure-sensitive analog sensor"; "pressure-sensitive variable-conductance structural arrangement"; "pressure-sensitive variable-conductance structure"; "pressure-sensitive variable sensor"; "pressure-sensitive ... button sensor" — "an electricity manipulating device that uses pressure-sensitive variable conductance material to vary electrical output as varying physical force is applied."  Anascape, Ltd. v. Microsoft Corp., et al., 2007 U.S. Dist. LEXIS 88248 (E.D. Tex., Nov. 30, 2007). 3319

"pressure-sensitive variable conductance material" — "a substance that changes in conductivity to allow a greater flow of electric current through it, as pressure is applied to it."  Anascape, Ltd. v. Microsoft Corp., et al., 2007 U.S. Dist. LEXIS 88248 (E.D. Tex., Nov. 30, 2007). 3320
"pressure-sensitive variable conductance of one of said buttons" — "the conductivity of a pressure-sensitive variable-conductance sensor associated with one of said buttons." Anascape, Ltd. v. Microsoft Corp., et al., 2007 U.S. Dist. LEXIS 88248 (E.D. Tex., Nov. 30, 2007).3321

"a configuration which would prevent unauthorized reproduction of the ... signals" — "Plaintiff's definition of 'prevent' ..., i.e., 'presenting a technical obstacle sufficient to impede the ordinary customer from duplicating the purchased digital audio signal' is appropriate to the facts of this case." Sightsound.com Inc. v. N2K, Inc., et al., 391 F. Supp. 2d 321 (W.D. Pa. 2003).3322

"[send] a message preventing [an external program from running when there are no available licenses for the requesting program]" — "require[s] only a message that results in the program's being prevented from running; active prevention is not required." Globetrotter Software, Inc., et al. v. Elan Computer Group, Inc., et al., 362 F.3d 1367 (Fed. Cir. 2004).3323

"preventing intelligible viewing" — "scrambling the video signal of the chosen program transmission such that the video signal displays in an incomprehensible form and transmitting the descrambling signal related to said transmission only to requesting viewers' receivers" In re: VTRAN Media Technologies, LLC, Patent Litigation, 2009 U.S. Dist. LEXIS 61328 (E.D. Pa., Jul. 17, 2009).3324


"price determining activity" — "any form of competition or entertainment activity or combination of such activities that is used to determine the price paid for the product or service and is not otherwise part of a sales transaction." Performance Pricing, Inc. v. Google Inc., et al., 2009 U.S. Dist. LEXIS 71264 (E.D. Tex., Aug. 13, 2009).3326

"price for a credit account"; "price for a proposed credit account" — "a fee or credit (that may be zero) for modifying or entering into a credit account, based on the credit or account parameters." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010).3327


"price selection switch" — "a 'price selection switch' actuable by a customer must mean that the customer is choosing one price from among more than one price. This is separate from a 'product selection switch' which differentiates between different products." Mars, Inc. v. Coin Acceptors, Inc., 2007 U.S. Dist. LEXIS 20094 (D.N.J., March 20, 2007).3329

"pricing adjustment(s)"; "price adjustment(s)" — "a denormalized number that may affect the determined price." Versata Software, Inc., et al. v. SAP America, Inc., et al., 2009 U.S. Dist. LEXIS 45751 (E.D. Tex., May 19, 2009).3330

"pricing information" — "any information relating to price other than an adjustment to price that is not a denormalized number." Versata Software, Inc., et al. v. SAP America, Inc., et al., 2009 U.S. Dist. LEXIS 45751 (E.D. Tex., May 19, 2009).3331

"primary circuit"— "the circuitry that performs the primary task for which the semiconductor chip
is designed and excludes the auxiliary circuitry that is added to furnish the identification
"primary router address" — "address associated with the router as a principal identifier of the
(C.D. Cal., Aug. 27, 2002).3333
"primary site data" — "data at a location on the remote server assembly." Rothschild Trust
"primary voltage" — "a base or initial voltage" Power Integrations, Inc. v. Fairchild
"printed board" — "a generally flat piece of material typically fabricated from insulating material
that provides support and structural integrity for a plurality of electrically interconnected
components comprising a circuit, with some or all of the conducting interconnection pattern
(N.D. Ill., July 28, 2006).3336
"printed paper" — "a reviewable printout of the voters' voting selections or choices or a
corresponding voting session identifier that is retained by the voter." Avante International
Technology, Inc. v. Premier Election Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 95047 (E.D.
"printer" — "a printer that retains no record of the data printed (including but not limited to
conventional printers such as a thermal printer, a dot matrix printer, an ink-jet printer, a bubble jet
printer, or a laser printer)." Avante International Technology, Inc. v. Premier Election Solutions,
"printer" — "printer that retains no record of the data printed (including but not limited to a
thermal jet printer, a dot matrix printer, an ink-jet printer, a bubble jet printer, a laser printer, and
the like)." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S.
"prior to" — "means 'before' and requires a delay during which neither the primary nor the
auxiliary switch is enabled to conduct current that it could otherwise block." VLT, Inc. v. Artesyn
court's construction of the 'prior' limitation as requiring a small delay between the opening of the
auxiliary switch and the closing of the primary switch that is useful to allow the magnetizing
current to charge and discharge parasitic capacitances associated with the switches and windings.
We also agree with the district court that the delay should be long enough to reduce switching
losses and that it includes delay that eliminates or greatly reduces such losses." Id., 103 Fed.
"prior to any attempted use of the defibrillator" — "prior to any attempted use of the
defibrillator to treat a patient, and possibly other uses as well." Koninklijke Philips Electronics

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"said first and second channels being maintained separate and apart prior to being fed to the two transducers" — "Because the public has the right to rely on the applicants' remarks in seeking allowance of their claims, ... we agree with the district court that 'prior to' should be construed to mean after the altering of the amplitude and shifting of the phase has begun." Desper Products, Inc., et al. v. QSound Labs, Inc., 157 F.3d 1325 (Fed. Cir. 1998). 3345

"prior to said reading and for each of a plurality of voters, producing by a voting machine a paper ballot including voting selections made by a voter" — "Before the reading step, a ballot is produced with the voter's choices printed thereon. The entire process is then repeated for multiple voters." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 3344

"prior to storage" — "Hilgraeve also argued before that court that the phrase 'prior to storage' must be construed from the ordinary user's perspective, i.e., that whether or not VirusScan screens before or after storage, it will infringe if the user perceives that screening occurs before storage. ... The district court correctly found nothing in the intrinsic evidence to support Hilgraeve's argument based on the perception of the program's operation." Hilgraeve Corp. v. McAfee Associates, Inc., 224 F.3d 1349 (Fed. Cir. 2000). 3345

"stored thereon prior to the transaction" — "stored on the terminal prior to the consumer presenting the debit card to the merchant." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007). 3346


"a prioritized set of tiers" — "a set of levels ranked by expected or actual customer usage possibly together with other allocation factors, wherein each successively lower level of information contains a larger amount of information than the next higher level. The root information described in the specification is part of the top tier." Comcast Cable Communications Corp., LLC v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., April 6, 2007). 3348

"priority bit" — "a bit that is used to convey the relative importance of the communication." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007). 3349

"private branch exchange network" — "a private telecommunications exchange network that includes access to a public telecommunications exchange. It may be on the user's premises and may provide a switching facility for telephones on extension lines within the premises and access to the public telephone network." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 3350

"said private branch exchange services including providing substantially real-time voice communications" — "this phrase requires no construction." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 3351

"probability density function estimation"; "PDFE" — "a finite data set large enough to approximate a function of a continuous variable whose integral over a region gives the probability that a random variable falls within the region." Wavetronix v. EIS Electronic Integrated Systems, 573 F.3d 1343 (Fed. Cir. 2009). 3353

"procedure routine specifications" — "stored values from which time values can be determined for controlling a sense means during execution of an algorithm." Roche Diagnostics Corp., et al. v. Apex Biotechnology Corp., et al., 455 F. Supp. 2d 840 (S.D. Ind. 2005). 3354


"process auction bids"; "processing auction bids" — "perform operations on bids other than receiving, accepting, or transmitting bids"; "performing operations on bids other than receiving, accepting, or transmitting bids." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 3357


"process ... to select"; "processing ... to select" — "process/processing to participate in the selecting." Sprint Communications Co. L.P. v. Big River Telephone Co., LLC, 2009 U.S. Dist. LEXIS 58161 (D. Kan., Jul. 8, 2009). 3359

"process ... travel along a route" — "monitor ... travel along a route." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 3360

"processed"; "processing" — "redirect[ing], allow[ing], or block[ing] data traffic." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010). 3361

"processed signals" — "a digital signal or processed signal is a set of data representing frames of a video." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006). 3362


"processing" — "manipulating the data access operation requests into a format usable by the external storage device." Netac Technology Co. Ltd. v. PNY Technologies, Inc., 2007 U.S. Dist. LEXIS 91536 (E.D. Tex., Dec. 13, 2007). 3364


"processing" — "manipulation of data which performs some operation or sequence of operations on the data." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999). 3366

"processing chamber" — "processing chamber should be interpreted to encompass the entire interior of the processing vessel." Semitool, Inc. v. Dynamic Micro Systems Semiconductor Equip. GmbH, 444 F.3d 1337 (Fed. Cir. 2006). 3368


"processing electronically" — "performing the appropriate computations (e.g., addition, subtraction, multiplication, and division) without manual intervention from the user." Simplification, LLC v. Block Financial Corp., et al., 593 F. Supp. 2d 700 (D. Del. 2009). 3370

"processing hub" — "a computer which provides front-end POS device management and message processing for card authorizations." Alexsam, Inc. v. Humana Inc., 2009 U.S. Dist. LEXIS 77553 (E.D. Tex., Aug. 28, 2009). 3371

"time domain processing means for ..." — "the district court erred in holding that claims 1, 2, and 33 can cover systems that implement either a one-step or two-step process. The corresponding structure limits the 'time domain processing means' to a two-step algorithm in which the processor calculates generally nondiscrete estimates and then selects the discrete value closest to each estimate, or structural equivalents thereof." Harris Corp. v. Ericsson, Inc., 417 F.3d 1241 (Fed. Cir. 2005). 3372

"user response processing modules for ..." — "components or units of a computer program that process information received by a user." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010). 3373

"processing qualified calls" — "requires that the calls be qualified prior to execution of common processing operations." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003). 3374

"processing station" — "the transmission system as previously defined by the Court." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007). 3375

"processing system" — "the court rejects Vonage's proposed claim construction and finds that the parties have not demonstrated that further construction of the claim term 'processing system' is warranted." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007). 3376

"processing ... the electronic advertisement ... in compliance with the presentation rules of the internet media venue" — "executing a systematic sequence of mathematical and/or logical operations upon the customized electronic advertisement to make it comply with the presentation rules of the internet media venues." Function Media, L.L.C. v. Google, Inc., 2009 U.S. Dist. LEXIS 94340 (E.D. Tex., Oct. 9, 2009). 3377
"processing time parameters" — "a set of values that determine the duration of one or more of a series of actions in manufacture." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005). 3378

"processing ... to select" — "these claim terms do not require further construction." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007). 3379

"processor" — "The Court adopts the Special Master's claim construction as follows: no limitation requiring a CPU that is separate from the FDC and that controls the interpretation of instructions and their execution should be applied to the term 'processor' in the asserted claims of the '002 and '222 patents or in the '858 patent. Further, the Court agrees with and adopts the Special Master's finding that '[t]here is absolutely no warrant for construing the claims of these patents in a way that would exclude redesigned FDCs that nonetheless incorporate the claimed solutions.'" Phillip M. Adams & Associates, LLC v. Dell, Inc., et al., 2010 U.S. Dist. LEXIS 68749 (D. Utah, Jul. 9, 2010). 3380

"processor" — "the CPU along with its peripheral circuitry." Fenner Investment, Ltd v. Microsoft Corp., et al., 632 F. Supp. 2d 627 (E.D. Tex. 2009). 3381


"processor element" — "the Court finds sufficiently definite such that §112, P6 does not apply." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009). 3386

"processor element" — "a device that is capable of interpreting and executing instructions." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 3387

"said processor elements being connected to said plurality of sets of shared resources" — "The question is whether this limitation is drafted according to § 112 P 6. The court holds it is not." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 3388
"processor executing detection executables effective to determine an underrun error undetected by a floppy diskette controller" — "The term 'processor' means an element capable of controlling the interpretation of instructions and their execution; this element need not be the CPU nor need it be outside the FDC. The term 'executables' means software that can run on the processor. The term 'software' is used in its broadest sense, and includes high-level applications, portions or 'modules' of programs, and so-called 'firmware' (instructions or data that are embedded in a particular hardware device)." Phillip M. Adams & Associates, LLC v. Dell, Inc., et al., 2010 U.S. Dist. LEXIS 68749 (D. Utah, Jul. 9, 2010).3389

"processor includes a computing device" — "[t]he term 'processor includes a computing device' is indecipherable. As Ingenio points out, the patent describes 'a home computer or an interactive TV system' as examples of 'a computing device.' Because a processor itself must be a part of a computing device to function, it cannot also include 'a computing device,' as that terminology is used in the patent. Ingenio attempts to avoid this conclusion by arguing that the computing device in this claim is simply 'a component device that can perform computations.' The patent's own description of what a 'computing device' is, as cited by Ingenio, does not comport with this construction. Therefore, I find that the term 'processor includes a computing device' is indecipherable in the context of this patent." Ingenio, Filiale de Loto-Quebec, Inc. v. GameLogic, Inc., 445 F. Supp. 2d 443 (D. Del., July 21, 2006).3390


"processor means" — "§ 112(6) applies to the term 'processor means' in the '797 Patent. ... [I]t is not inconsistent for this Court to apply § 112(6) to the term 'processor' in the '797 Patent while declining to apply that statutory provision to the identical term used in the '603 Patent." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).3392

"processor means for performing the calculating function" — "a microprocessor programmed to perform an anlyte testing procedure using variable values from a pluggable memory key means or, for glucose values specifically, a microprocessor programmed to compare measured current values to a calibration curve defined by values from a pluggable memory key means." Roche Diagnostics Corp., et al. v. Apex Biotechnology Corp., et al., 455 F. Supp. 2d 840 (S.D. Ind. 2005).3393

"processor system" — "must have a CPU but it need not be capable of running application-type software." SeaChange International, Inc. v. C-Cor Inc., 413 F.3d 1361 (Fed. Cir. 2005).3394

"processor systems" — "at least one central processing unit capable of running application type software, and at least one mass storage subsystem." SeaChange International, Inc. v. nCube Corp., 115 F. Supp. 2d 473 (D. Del. 2000).3395

"processor within a computing device" — "the same thing as 'a processor.' The language 'within a computing device' adds no additional limitation to the term 'a processor,' as a processor must be within a computing device to perform the functions it is required to perform in claim 1 of the '082 patent." Ingenio, Filiale de Loto-Quebec, Inc. v. GameLogic, Inc., 445 F. Supp. 2d 443 (D. Del., July 21, 2006).3396
"producing" — "is used in the claims in accordance with its ordinary meaning, and no construction is necessary." *Websidestory, Inc. v. Netratings, Inc.*, 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007).

"producing desired tooth position signals containing digitized data of desired positions of a plurality of the patient's teeth"; "a computer programmed ... to calculate finish positions of the teeth of the patient"; "determining treatment positions of the teeth"; "a computer programmed to apply at least some automated tooth position criteria to produce a digital model of the teeth of the scanned shapes in desired positions"; "a computer ... programmed to select geometric parameters on the patient's teeth from the digitized data by operator-interaction and to produce a digital model of the teeth in desired positions" — "require automatic computer determination of the finish positions of the teeth without human adjustment of the final results." *Ormco Corp., et al. v. Align Technology, Inc.*, 498 F.3d 1307 (Fed. Cir. 2007).

"I would reverse the district court's grants of summary judgment, and remand with direction that the claim language at issue be construed and that a record supporting that construction be developed." *Id.* (O'Malley, J., dissenting-in-part).

"producing payment guaranty data in the data processing system in response to the term compliance data, the payment guaranty data representing a payment guaranty to the seller for payment under the contract" — "furnishing or providing, upon or in reaction to the production of term compliance data, data which reflect an obligation by the buyer to assure payment to a seller, for example a letter of credit." *Tradecard, Inc. v. SI Corp., et al.*, 509 F. Supp. 2d 304 (S.D.N.Y. 2007).

"product identification data" — "information displayed to and/or submitted by a potential buyer that identifies a product sought to be purchased." *Autobytel, Inc. v. Dealix Corp.*, 2006 U.S. Dist. LEXIS 3381 (E.D. Tex., Jan. 18, 2006).

"product name" — "is not limited to a 'generically known name'. It may include an 'alphanumerical designation,' a 'product code,' or a 'vendor name and description,' or any other designation by which the software programs may be recognized for the purpose of reporting on their use." *Isogon Corp. v. Amdahl Corp.*, 47 F. Supp. 2d 436 (S.D.N.Y. 1998).

"product pictures" — "Nothing in the claim language, specification, or prosecution history supports Defendants' proposed limitations. Thus, the Court does not adopt them. Without these limitations, Defendants' proposed construction of 'product pictures' is 'more than one picture, each of which is of a product.' This is no different than how 'product pictures' would ordinarily be understood. Accordingly, 'product pictures' does not require construction." *Orion IP, LLC v. Staples, Inc., et al.*, 406 F. Supp. 2d 717 (E.D. Tex. 2005).

"Hyundai reurges the Staples Defendants' position that the product pictures [images] and product environment pictures [images] must be separate, i.e., they cannot contain the same content. ... [T]he Court rejects Hyundai's exclusivity requirement and its proposed constructions." *Orion IP, LLC v. Mercedes-Benz USA, LLC, et al.*, 516 F. Supp. 2d 720 (E.D. Tex. 2007).

"product relationship" — "an association between a product and one or more parts, the association having a left-hand side and a right-hand side. The product represents the left-hand side of the relationship, and the set of elements represents the right-hand side of the relationship." *Trilogy Software, Inc. v. Selectica, Inc.*, 405 F. Supp. 2d 731 (E.D. Tex. 2005).
"product record" — "is not limited to the 'product ID,' the 'product name' and the 'vendor ID,' and is not required to contain a 'product name,' but may contain whatever information is necessary to identify the software product." Isogon Corp. v. Amdahl Corp., 47 F. Supp. 2d 436 (S.D.N.Y. 1998). 3406

"said customer profile including a profile of data previously accessed by said customer" — "the customer profile includes data that describes the significant characteristics of the data previously accessed by the customer." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004). 3407

[i] "program"; [ii] "application program" — [i] "a sequence of coded instructions that can be loaded into a mechanism such as a computer"; [ii] "a software program that performs substantial useful functions for a user (e.g., electronic mail programming, word processors, spreadsheets, personal calendar programs, games) as opposed to software that primarily controls the allocation and use of computer resources (e.g., memory, display, storage devices, modem)." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002). 3408


"programmable controller" — "[a] control device, normally used in industrial control applications, that employs the hardware architecture of a computer and a relay ladder diagram language. Also known as programmable logic controller." Probatter Sports, LLC v. Joyner Technologies, Inc., 518 F. Supp. 2d 1051 (N.D. Iowa 2007). 3412

"programmable controller" — "a control device that is capable of being programmed to perform specific tasks." Rosen's, Inc., et al. v. Van Diest Supply Co., et al., 2004 U.S. Dist. LEXIS 5435 (D. Minn., Mar. 30, 2004). 3413

"programmable switch": "crosspoint switch" — "a programmable device capable of forwarding packets from one computer/workstation/server to another." Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364 (Fed. Cir. 2003). 3414


"programmed" — "programmed with algorithms which process the lip position data and control point data, resulting in data representing the new pixel configuration of the altered first facial display." Bloomstein v. Paramount Pictures Corp., et al., 1996 U.S. Dist. LEXIS 22260 (N.D. Cal., May 6, 1996). 3416
"programmed channel signal" — "any video signal carried by a programmed channel. A 'programmed channel' would be understood by a person of ordinary skill in the art to be a cable channel or network such as CNN and MTV. Additionally, it is an inherent limitation of the claim that the programmed channel signal must include time slots for local advertising insertion; otherwise, there would be no need for switching between the programmed channel signal and the commercial insert signal. Because programmed channel signals typically include cue tones to signal upcoming local avail, a person of ordinary skill in the art would so understand the term 'programmed channel signal' to include this limitation." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001).

"programmed response mode" — "the surveillance sensor appliance responds to the condition in accordance with predetermined instructions which are, or previously have been, received from the server." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006).


"programming" — "a data stream containing video signals, audio signals, and/or uniform resource locators, with no requirement that all the signals be contained in a single data stream." ACTV, Inc., et al. v. Walt Disney Co., et al., 204 F. Supp. 2d 650 (S.D.N.Y. 2002).

"programming mode" — "a mode in which video game menu options are selected to be video game menu choices." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).


"progressive prize" — "A prize that starts at some value then is incremented as wagers are placed on gaming devices linked to the prize. The increment value is the result of multiplying the value of the wagers made by a contribution percentage." Goff v. Harrah's Operating Co., 412 F. Supp. 2d 1090 (D. Nev. 2005).

"project manager" — "an individual assigned to carry out and be responsible for construction of all or a specified portion of a project." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).

"projection data information" — "the data necessary to permit a particular 2D representation of a 3D model to be reproduced." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).

"projector means connected to said one or more computers for receiving and projecting said screen video displays onto said display screen" — "is a means-plus-function limitation." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).


"prompting said first application server" — "giving a cue to a server running the service application." Pixion, Inc. v. PlaceWare, Inc., 2004 U.S. Dist. LEXIS 15808 (N.D. Cal., Aug. 2, 2004). 3430


"generating a signal proportionate to the denomination of each validated bill" — "creating an electrical communication that indicates the value of the bill as read by the bill receiving apparatus." Arbitron, Inc. v. International Demographics Inc., et al., 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009). 3432

"proposal" — "has its ordinary meaning and it is a term that would be familiar to a lay juror." Walker Digital, LLC v. Capital One Services, LLC, et al., 2010 U.S. Dist. LEXIS 56429 (E.D. Va., Jun. 8, 2010). 3433


"proposed reservation time" — "a time reflective of a position in the virtual queue that can be accepted or rejected by the patron." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006). 3435

"prospective wagerer" — "a subscriber who then goes on to access the system to enter one or more wagers." Lottotron, Inc. v. Gtech Corp., 2007 U.S. Dist. LEXIS 82579 (D.N.J., Nov. 7, 2007). 3436


"protection MOSFET" — "a MOSFET connected to a circuit in such a way that it tends to prevent one or more circuits from undergoing electrostatic breakdown." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 73144 (N.D. Cal., Sept. 21, 2006). 3439
"protective MOS transistor" — "a MOS transistor that provides a discharge path for current to flow from the first power supply terminal to the second power supply terminal when activated by a voltage on the drain that exceeds a predetermined level."  Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 3440

"protective transistor" — "a transistor which provides a discharge path for current to flow between the first power supply wire and the second power supply wire when activated."  Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007). 3441

"protocol" — "a set of rules governing the communication and/or transfer of data."  Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc., 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010). 3442

"protocol data unit (PDU) network policy" — "a filtering or auditing rule which determines if and why a PDU should be forwarded."  Storage Technology Corp. v. Cisco Systems, Inc., et al., 2001 U.S. Dist. LEXIS 25876 (N.D. Cal., Nov. 26, 2001). 3443  "The district court erred in its claim construction of the terms 'caching policy identification information' and 'protocol data unit (PDU) network policy' in the '040 patent."  Id., 329 F.3d 823 (Fed. Cir. 2003). 3444


"provide different prompts" — "I agree with plaintiff that the phrase is clear and unambiguous and no judicial construction is necessary."  Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 3446

"provide power to said meter" — "[does not] require a specific or threshold amount or level of power, other than as specified in the plain language of the claims."  Square D Co., et al. v. E.I. Electronics, Inc., 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010). 3447

"the speech synthesis system provides a message to the surgeon stating information about the movement of the surgical camera" — "requires synthesized speech informing the surgeon about the movement of the surgical camera."  Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002). 3448

"providing" — "is an everyday word used in its ordinary, everyday sense and, thus, it needs no construction."  CollegeNET, Inc. v. Xap Corp., 442 F. Supp. 2d 1036 (D. Or. 2006). 3449

"providing" — "supplying."  
Girafa.com, Inc. v. IAC Search & Media, Inc., et al., 2009 U.S. Dist. LEXIS 84405 (D. Del., Sep. 15, 2009).[[13045]] "Upon additional review [], the court believes that 'providing' cannot be isolated from the remainder of the relevant phrase. The terms 'providing to a user a visual image or a web page' and 'providing [to a user] a thumbnail visual image' require definition commensurate with the disclosure of the '904 patent. ... 'Providing to a user a visual image or a web page' [] contemplates the use of a web browser (and display screen). ... The term 'providing [to a user] a thumbnail visual image' is construed [] as 'displaying to a user a thumbnail visual image.'"  

"providing"; "provides" — "generating"; "creating."  

"providing ..."; "searching ..."; "selecting ..." — "I find no reason here to limit Claim 5's terms by 35 U.S.C. 112 P 6."  
CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000).[[13045]|2]

"providing a communications link" — "providing customers access to the internet."  
Netcraft Corp. v. EBay Inc., et al., 2007 U.S. Dist. LEXIS 91806 (W.D. Wis., Dec. 10, 2007).[[13045]|2]

"providing a decode control key to the receiver station" — "the court concludes that 'providing' includes permanently storing in a memory at the receiving station."  

"providing a driver" — "supplying or making available a driver."  

"providing a level of service to the traffic associated with the particular customer of the packet-based network independent of all other traffic on the packet-based network outside of the virtual private network's logical domain" — "is plain on its face and requires no further construction."  

"providing a plurality of indications" — "providing more than one communication."  

"providing a readout of the glucose concentration in the blood sample" — "displaying the blood glucose concentration on a device that can be read by the user."  
"providing a second substantially transparent substrate member having a continuous layer of transparent conductive material disposed on one surface thereof, said second substrate being spacedly disposed from said first substrate and arranged so that the layer of transparent conductive material of said second substrate faces the layer of transparent conductive material of the first substrate" — "providing a second substrate having a continuous layer of transparent conductive material placed on one surface. The substrates are assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other." Advanced Technology Incubator, Inc. v. Sharp Corp., et al., 2009 U.S. Dist. LEXIS 109173 (E.D. Tex., Jun. 26, 2009).3461

"providing a signal based on the measured pressure in the chamber to a control module" — "providing a signal based upon the measured pressure in the chamber to a control module." Automotive Technologies International, Inc. v. Delphi Corp., 2009 U.S. Dist. LEXIS 83187 (E.D. Mich., Sep. 11, 2009).3462

"providing access to a personal computer ... from a remote computer" — "requires no construction." 01 Communique Laboratory, Inc. v. Citrix Systems, Inc., et al., 2007 U.S. Dist. LEXIS 17955 (N.D. Ohio, March 13, 2007).3463

"providing access ... to each component provided for the computer selected from the group consisting of" — "providing the user or operator of the computer with access to each of the following parts of the computer if present: removable power supplies, removable drives, removable media drives, one or more plugs for external drives and devices, and ports for switches." Rackable Systems, Inc. v. Super Micro Computer, Inc., 2006 U.S. Dist. LEXIS 81432 (N.D. Cal., Oct. 27, 2006).3464


"providing fabrication sequences" — "providing a series of operations for the manufacture of a part or parts." Information Technology Innovation, LLC v. Motorola, Inc., et al., 391 F. Supp. 2d 719 (N.D. Ill. 2005).3466

"providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima" — "does not require that the 'indication' of two fingers be returned to the host. However, the limitation does require that infringing methodology perform some affirmative step to provide an indication of multiple fingers." Elantech Devices Corp. v. Synaptics, Inc., et al., 2007 U.S. Dist. LEXIS 82017 (N.D. Cal., Oct. 26, 2007).3467

"providing said at least partially surrounding image elements in respect to said particular position" — "making at least some of the image elements of the original image that surround the particular position available for inspection." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006).3468

"DNS proxy server" — "a computer or program that responds to a domain name inquiry in place of a DNS. ... [T]he 'DNS proxy server' does not have to be separate from the client computer." VirnetX, Inc. v. Microsoft Corp., 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009).3469
"proxy server" — "server that mediates communication between a client application, such as a Web browser, and a real server. It handles requests to the real server to see if it can fulfill the requests itself; if not, it forwards the requests to the real server. The proxy server can serve as a firewall component." SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006). 3470

"pseudo-random" — "refers to output that is repeatable and predictable to anyone who knows the function's input but appears to be totally random to those without such knowledge." PaCid Group, LLC v. Apple, Inc., et al., 2010 U.S. Dist. LEXIS 70997 (E.D. Tex., Jul. 15, 2010). 3471


"pseudorandom number generator device including a sealed casing" — "indicates that hardware must be involved. At the claim construction hearing plaintiff conceded that the sealed casing would cover the hardware, although he contended that software could also be included. His concession, however, demonstrates that his proposed definition -- which would allow the pseudorandom number generator device to consist of only software -- is contrary to what is claimed." Pickholtz v. Rainbow Technologies, Inc., et al., 2000 U.S. Dist. LEXIS 21945 (N.D. Cal., Apr. 28, 2000). 3473


"publishing the electronic advertisement to one or more of the selected internet media venues" — "placing or making available the customized electronic advertisement within the framework of and at each internet media venue so that it is accessible by the end users, consumers, viewers, or buyers." Function Media, L.L.C. v. Google, Inc., 2009 U.S. Dist. LEXIS 94340 (E.D. Tex., Oct. 9, 2009). 3476

"pulse value" — "a value identifying time-of-flight data, including noise and signals reflected from the target, that provides information sufficient to permit correlation of the received signal with other received signals to determine which of the received signals represents the actual return or target-reflected signal, as opposed to random noise signals." Laser Technology, Inc. v. Nikon, Inc., et al., 215 F. Supp. 2d 1135 (D. Colo. 2002). 3477

"pulse width" — "the time interval between the beginning and the end of the pulse." Ricoh Co., Ltd. v. Quanta Computer, Inc., et al., 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007). 3478

"ON/OFF pulses" — "does not limit the shape of the pulses' wave form but instead requires that a switching power supply create the pulses by turning a switch on and off." Relume Corp. v. Dialight Corp., et al., 63 F. Supp. 2d 788 (E.D. Mich. 1999). 3479
"at least one application operative to punch through a firewall" — "an application that has the ability to communicate through a firewall." Square D Co., et al. v. E.I. Electronics, Inc., 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010).\footnote{3480}

"purchase request" — "the Court does not construe purchase request with the limitation that it must travel directly from a potential buyer to the Data Center system." Autobytel, Inc. v. Dealix Corp., 2006 U.S. Dist. LEXIS 3381 (E.D. Tex., Jan. 18, 2006).\footnote{3481}

"purchasing value of a card in response to card use" — "a value stored on a card itself or a value in an account associated with a card (but not limited to situations where the card holder has a business arrangement with the host data processor)." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010).\footnote{3482}

- Q -


"quality of result"; "desired quality of result" — "quality of result refers to any number of features or characteristics of a cut, including but not limited to surface finish, uniformity of cut surface, precision and dimensional accuracy. A user specifies his or her desired quality of result using an associated value." Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006).\footnote{3485}

"quality of service"; "QoS" — "a quantifiable measure of service provided." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007).\footnote{3486}

"quality value" — "a value that indicates the value of a wireless communications link." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).\footnote{3487}

"at least one of the halogens Cl, Br or I is present in a quantity" — "I construe 'quantity' to mean a concentration--the amount per unit volume." U.S. Philips Corp. v. Iwasaki Electric Co., et al., 2006 U.S. Dist. LEXIS 106 (S.D.N.Y., Jan. 3, 2006).\footnote{3488}

"a quantity between 10^{-6} and 10^{-4} \text{\mu mol/mm}^3" — "means that the halogen is present in the envelope or bulb in a quantity between 1 divided by 1,000,000 and 1 divided by 10,000 micromoles per cubic millimeter." U.S. Philips Corp. v. Iwasaki Electric Co., et al., 2006 U.S. Dist. LEXIS 106 (S.D.N.Y., Jan. 3, 2006).\footnote{3489} "The claim construction that we affirm today is 'between 1 \times 10^{-6} and 1 \times 10^{-4} \text{\mu mol/mm}^3', not 'between 1.0 \times 10^{-6} and 1.0 \times 10^{-4} \text{\mu mol/mm}^3'." Id., 505 F.3d 1371 (Fed. Cir. 2007).\footnote{3490}

"quantity or intensity" — "the specification confirm that the patentee elected to use the term 'intensity' as a synonym for the term 'quantity' meaning the areas under the spectroscopic graph." Only the First, Ltd. v. Seiko Epson Corp., 2009 U.S. Dist. LEXIS 57994 (N.D. Ill., Jul. 8, 2009).\footnote{3491}

"query processing mechanism for processing a given query statement, wherein, upon identifying that the given query statement is on said user-defined reference, communicates with said aggregation module over an interface therebetween to retrieve portions of aggregated fact data pointed to by said reference that are relevant to said given query statement" — "the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006). 3493

"query servicing mechanism, operatively coupled to the aggregation module, for servicing query statements generated in response to user input" — "the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006). 3494

"responding to queries" — "replying to requests to a database for information." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 3495

"questions" — "there is no need to construe the term, much less to stringently limit the meaning of 'questions' as Defendants would like." Orion IP, LLC v. Staples, Inc., et al., 406 F. Supp. 2d 717 (E.D. Tex. 2005). 3496 "Since there is evidence that the applicant did not limit the meaning of "questions" to exclude menus, the Court rejects Hyundai's proposed construction. As there is no other dispute about the term's meaning, the term does not require further construction." Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007). 3497

"queue" — "a queue must have some sequence or order; it cannot merely be a group of things." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007). 3498

"queuing" — "placing data into a structure in which items are removed in a first in, first out (FIFO) manner." Hamilton v. ComWeb Technology Group, Inc., et al., 2003 U.S. Dist. LEXIS 27832 (D. Md., Nov. 13, 2003). 3499

- R -

"RF information transmission network"; "RF information network"; "RF information transmission system"; "RF transmission system" — "a combination of circuits and devices for transmitting data, which combination includes a plurality of RF transmitters for transmitting RF signals carrying data and one or more RF receivers for receiving data. Each RF transmitter has a substantial geographic RF coverage area and is interconnected with other RF transmitters. [The combination may include pluralities of local, lata and hub switches]." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002). 3500
"RF receiver" — "a device for receiving radio frequency electromagnetic signals, for demodulating the radio frequency electromagnetic signals, and for recovering data that is carried by the radio frequency electromagnetic signals. The RF receiver can be carried by a person outside a home or office and can receive data while being carried."  NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002).

"an RF section for receiving instructions from said microcontroller and for receiving radio frequency information from the mixer and a television station and properly converting the information into video signals which may be sent to said television for viewing" — "the electronics for (1) receiving radio frequency signals from a source external to the invention; (2) receiving instructions from the microcontroller internal to the invention; (3) making a channel selection pursuant to the instructions received from the microcontroller; (4) receiving and converting signals received from the mixer or a television station into video signals capable of being received by the television set; and (5) transmitted the converted signals to the television for viewing."  SuperGuide Corp. v. DirecTV Enterprises, Inc., et al., 169 F. Supp. 2d 492 (W.D.N.C. 2001).


"a radiation absorbing material with a sheet resistance providing at least 50% absorption in said spectral range" — "a layer of material that absorbs, through its sheet resistance, at least 50% of incident radiation in the specified spectral range."  Raytheon Co. v. Indigo Systems Corp., 2010 U.S. Dist. LEXIS 3530 (E.D. Tex., Jan. 18, 2010).


"radio frequencies" — "the frequencies in the portion of the electromagnetic spectrum that is between the audio-frequency portion and the infrared portion."  Commonwealth Scientific Industrial Research Organization v. Buffalo Technology (USA), Inc., et al., 2006 U.S. Dist. LEXIS 26977 (E.D. Tex., May 8, 2006).

"radio frequency information" — "modulated or unmodulated analog signals containing television programming and video information received either from the mixer internal to the system or from a television station. It does not include digital television signals." SuperGuide Corp. v. DirecTV Enterprises, Inc., et al., 169 F. Supp. 2d 492 (W.D.N.C. 2001).3511

"radio interface module"; "RIM" — "electrical circuitry connected to individual transceivers in order to provide the various control functions (data or communications) involved in the operation of each channel." MLMC, Ltd. v. Airtouch Communications, Inc., et al., 2001 U.S. Dist. LEXIS 18472 (D. Del., Nov. 1, 2001).3512

"a radio receiver for receiving a command" — "The plain and ordinary meaning of 'radio receiver' is a receiver that receives radio signals. ... the Court construes the word 'command' to mean: a signal representing an instruction to perform an operation." Zoltar Satellite Alarm Systems, Inc. v. Motorola, Inc., et al., 2007 U.S. Dist. LEXIS 95521 (N.D. Cal., Dec. 21, 2007).3513

"radio receiver for receiving radio signals and generating audio output signals responsive thereto" — "a portion of the radio for receiving radio signals and converting the signals to audio output signals." Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005).3514

"radio receiver means for receiving radio signals and generating electronic audio output signal responsive thereto" — "a § 112, P6 claim term where the claimed function is 'receiving radio signals and generating electronic audio output signals responsive thereto' and the claimed structure is 'the radio circuit board disclosed as item 33 in Figures 6 and 7, and any equivalent structure thereof.'" Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005).3515

"a radio transmitter connected for receiving the remote unit location, the at least one switch output, defining a switch status, and transmitting the remote unit location and the switch status" — "a radio transmitter that is connected to the navigational receiver and receives the remote unit location from the navigational receiver; and to at least one manually operated switch and receives switch output, defining the state of the switch. The radio transmitter transmits the remote unit location and information on the state of the switch." Zoltar Satellite Alarm Systems, Inc. v. Motorola, Inc., et al., 2007 U.S. Dist. LEXIS 95521 (N.D. Cal., Dec. 21, 2007).3516

"random access memory" — "The court construes 'random access memory' as 'synonymous with the term 'RAM' as that term was used in 1988, but not including "ROM" as that term was understood in 1988. It is a volatile memory that permits access to any of its address (storage) locations in any desired sequence with similar access time to each location. ROM includes masked ROM, PROM, EPROM, and EEPROM.'" Lectrolarm Custom Services v. Vicon Industries, Inc., et al., 2005 U.S. Dist. LEXIS 32752 (W.D. Tenn., Sept. 2, 2005).3517

"random access storage means" — "the court is satisfied that 'random access storage', unlike 'storage', connotes sufficient structure to one ordinarily skilled in the art. Section 112(6) does not apply to this term." Apple Computer v. Burst.com, Inc., 2007 U.S. Dist. LEXIS 33863 (N.D. Cal., May 8, 2007).3518
"randomly selected" — "true and not pseudo-random selection." CIAS, Inc. v. Alliance Gaming Corp., et al., 424 F. Supp. 2d 678 (S.D.N.Y. 2006). \(3519\) "We discern no error in the district court's construction of the scope of the '422 claims." Id., 504 F.3d 1356 (Fed. Cir. 2007). \(3520\)


"range" — "the set of values between the highest and lowest value that a quantity or function may assume." 01 Micro International, Ltd., v. Rohm Co., Ltd., 2007 U.S. Dist. LEXIS 84979 (E.D. Tex., Nov. 16, 2007). \(3522\)

"range value" — "a name associated with certain data that is used to extract that data from the database." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006). \(3523\)

"raster clock signal" — "a periodic signal used to synchronize a display device in response to a program clock reference." Mediatek, Inc. v. Sanyo Electric Co. Ltd., 513 F. Supp. 2d 778 (E.D. Tex. 2007). \(3524\)

"rate adapting said Ethernet frame based data by adapting an Ethernet data frame to at least one bit stream, each bit stream having a data rate which can be multiplexed into a synchronous digital network virtual container" — "converting Ethernet frame based data and the data rate into one or more bit streams, each bit stream has a data rate which can be multiplexed into a synchronous digital network virtual container, the bit stream is not encapsulated in an intermediate format." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006). \(3525\)

"rating" — "a value or measure assigned to the applicant." Block Financial Corp. v. LendingTree, Inc., 2007 U.S. Dist. LEXIS 72332 (W.D. Mo., Sept. 27, 2007). \(3526\)

"ratio" — "a result of dividing two values." Zircon Corp. v Stanley Works, 2010 U.S. Dist. LEXIS 47958 (N.D. Cal., May 14, 2010). \(3527\)

"a reaction force caused by movement of the mask stage and the object stage" — "an equal and opposite counterforce created by the shifts and vibrations of the mask stage and the object stage." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004). \(3528\)

"read" — "the Court rejects Symbol's argument that the '971 patent defines the term 'read' to mean 'decoded.'" Metrologic Instruments, Inc. v. Symbol Technologies, Inc., 2006 U.S. Dist. LEXIS 68287 (D.N.J., Sept. 22, 2006). \(3529\)

"read" — "to extract data from memory or a storage medium and [usually] transfer it to another area of memory or other medium for use or extraction at a point in time." LaserDynamics Inc. v. Acer America Corp., et al., 2003 U.S. Dist. LEXIS 27826 (S.D. Tex., Jun. 12, 2003). \(3530\)


"the compatibility comparison including reading a characteristic of each option" — "no construction of this claim term is required. The ordinary meaning suffices." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006). \(3532\)
"reading the code by a processor" — "receiving input of the code from some source, which may include a computer program/software source." *Ingenio, Filiale de Loto-Quebec, Inc. v. GameLogic, Inc.*, 445 F. Supp. 2d 443 (D. Del., July 21, 2006).

"reading the command from a user interface" — "the defendants' indefiniteness argument is rejected and the phrase is construed to mean 'reading a command initiated by a user through a user interface.'" *SmartDisk Corp. v. Archos S.A., et al.*, 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006).


"real time" — "as instantaneously as possible, limited by the ability of the reporter to transcribe text, the ability of the CAT system to convert the transcribed text into readable text, and the ability of the software/hardware that is directly connected to the transcription means to display the converted text." *Engate, Inc. v. Esquire Deposition Services LLC, et al.*, 2003 U.S. Dist. LEXIS 573 (N.D. Ill., Jan. 13, 2003).

"in real time" — "the receiving system receives the data in the same electronic time frame as the transmission system sends the data." *Acacia Media Technologies Corp. New Destiny Internet Group, et al.*, 405 F. Supp. 2d 1127 (N.D. Cal. 2005).

"real time" — "immediately, as it happens; in the context of a system that processes data, it means processing the data as it is received (as against storing the data as it is received and processing the data later on)." *Rockwell Electronic Commerce Corp., et al. v. Apropos Technology, Inc.*, 2002 U.S. Dist. LEXIS 272 (N.D. Ill., Jan. 9, 2002).


"displaying real-time data" — "displaying data without intentional delay, given the processing limitations of the system and the time required to accurately measure the data." *Paragon Solutions, LLC v. Timex Corp.*, 566 F.3d 1075 (Fed. Cir. 2009).


"real-time video" — "non-buffered video transmitted and displayed to the remote users without perceived delay between the events as they occur and the events depicted in the video." *Auction Management Solutions, Inc. v. Adesa, Inc.*, 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).
"realized" — "the 'initial intended delay' is 'realized' if 'the delay obtained is less than or approximately equal to the initial intended delay.'" *Synopsys, Inc. v. Magma Design Automation, Inc.*, 2005 U.S. Dist. LEXIS 46882 (N.D. Cal., Aug. 23, 2005).3546

"reallocating processing resources unused by said specific portions to other specific portions" — "with respect to processing resources that were previously allocated to, but unused by, specific portions of defined routines, reallocating those unused resources to other specific portions of defined routines." *Gobeli Research, Ltd. v. Apple Computer Inc., et al.*, 384 F. Supp. 2d 1016 (E.D. Tex., Aug. 26, 2005).3547


"receive ... purchase and sale trades and orders"; "receive the commodity bids and offers" — "Plaintiffs ask the Court to insert the word 'directly' before the claim term 'receive.' ... The Court finds Plaintiffs' arguments unconvincing as they improperly seek to import a claim limitation from the specification and patent figures." *Chicago Mercantile Exchange, Inc., et al. v. Technology Research Group, LLC*, 2010 U.S. Dist. LEXIS 65002 (N.D. Ill., Jun. 28, 2010).3550


"the live audio and video being received along with the reception of information regarding the an item being auctioned at the live auction site and information regarding acceptance and rejection of onsite and remote auction bids over an IP network" — "audio and video streams travel on the same channel as the data stream containing information about the item being auctioned and information about the acceptance and rejection of bids." *Auction Management Solutions, Inc. v. Adesa, Inc.*, 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).3552


"receiver" — "a device that can receive video signals and playlists either together or independently." *ACTV, Inc., et al. v. Walt Disney Co., et al.*, 204 F. Supp. 2d 650 (S.D.N.Y. 2002).3556

"message receiver" — "one of skill in the art would have understood receiver to connote specific structure such that the term is not drafted according to 35 U.S.C. § 112 P 6." *Brooktrout, Inc. v. Eicon Networks Corp., et al.*, 2004 U.S. Dist. LEXIS 31054 (E.D. Tex., Jul. 27, 2004).3557
[i] "heterodyne receiver circuit"; [ii] "common heterodyne receiver"; [iii] "receiver" — [i] "A person of ordinary skill in the art would understand 'heterodyne receiver circuit' as it is used in claim 1 to mean that such a circuit must be connected to both the cable signal level and the leakage antenna inputs, and the circuit must have greater sensitivity for the leakage antenna input. Accordingly, a person of ordinary skill in the art would know that a certain combination of oscillator and mixers must be used in order to make one side of the circuit more sensitive. Implicit in this understanding is knowledge concerning the use of dual conversion or single conversion front ends and IF stages. A person of ordinary skill in the art would also know what combination of oscillators, mixers and circuitry are required to get either of those two signals from the input of the cable signal or leakage to the point of becoming input for the detector. Because the claim specifically provides that the input from the heterodyne receiver circuit is separate from the detector, the person of ordinary skill in the art will know that the detector is not part of the receiver."; [ii] "a person of ordinary skill in the art would understand that the common heterodyne receiver begins with a single input to the heterodyning circuitry, providing a point where the cable signal input and the leakage input come together to share circuitry. The common heterodyne receiver includes whatever components are necessary to complete the heterodyning process, and whatever components are necessary to produce an output that can then be demodulated. A person of ordinary skill in the art should know what components those processes encompass."; [iii] "the term 'receiver' in claim 35 encompasses all the circuitry that is attached to both the CATV signal level meter input and the CATV leakage antennas that is needed to move the signals from the inputs to and through the detector." Trilithic, Inc. v. Wavetek U.S., Inc., 64 F. Supp. 2d 816 (S.D. Ind. 1999). 3558

"receiver incorporating an unscrambling circuit" — "an apparatus for receiving television broadcasts which includes a circuit that restores a modified signal to its unmodified condition." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). 3559

"receiver means" — "§112, P6 was found to apply." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009). 3560

"receiving" — "'receiving' is a widely recognized term and does not require further construction." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006). 3561

"receiving a command for performing an operation with said picture from image data" — "the phrase requires no construction and the defendants' indefiniteness argument is rejected." SmartDisk Corp. v. Archos S.A., et al., 2006 U.S. Dist. LEXIS 85999 (E.D. Tex., Nov. 28, 2006). 3562


"receiving a request for retrieval of stored data"; "retrieving stored data"; "transferring the retrieved data" — "Witness contends that the intrinsic evidence and the claim structure support its proposal that all three steps, 'receiving,' 'retrieving,' and 'transferring,' are performed by the Web server. ... The Court construes the disputed terms to include the language 'Web server' but not 'digital logger.'" NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007). 3564
"receiving an indication of a speed" — "to acquire a value indicating speed, such as supplied by a computer system." Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006). 3565


"receiving, at a financing institution-accessible facility" — "receiving, transmitted data within a computer system accessible by a financing institution." Tradecard, Inc. v. SI Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007). 3567

"for receiving exclusively therethrough USB based display signals" — "means that the USB controller receives all of the USB display based signals." DisplayLink Corp. v. Magic Control Technology Corp., 615 F. Supp. 2d 1051 (N.D. Cal. 2009). 3568

"receiving data to be stored in memory in an alterable fashion ... said alterable data being permanently stored until purposely altered" — "receiving data to be stored in memory in a manner such that the data can be changed ... the alterable data being stored in a non-volatile manner until it is purposely altered." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 3569

"receiving from the renderer"; "receives from the renderer" — "Something distinct from the renderer receiving from the renderer"; "Something distinct from the renderer that receives from the renderer." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 2006 U.S. Dist. LEXIS 83603 (D. Mass, Nov. 16, 2006). 3570


"receiving information identifying a customer's parts requirements for the equipment" — "does not require further construction." Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007). 3572

"receiving means for receiving said video signals and said first code signals" — "Because this limitation uses 'means for' there is a presumption that the claim invokes 35 U.S.C. § 112, P 6. Neither party contends that the presumption has been rebutted; we agree that it has not." Elbex Video, Ltd. v. Sensormatic Electronics Corp., 508 F.3d 1366 (Fed. Cir. 2007). 3573

"receiving station" — "a device which answers a telephone call and accepts a telephone address signal." Brooktrout, Inc. v. Eicon Networks Corp., et al., 2004 U.S. Dist. LEXIS 31054 (E.D. Tex., Jul. 27, 2004). 3574

"receiving system" — "an apparatus which directly receives information from the transmission system. The apparatus comprises the following interconnected components: transceiver means, receiver format conversion means, storage means, decompressing means and output data conversion means, as illustrated in Figure 6. The corresponding structure for each means is the structure identified in the specification for performing the recited function." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 3575
"a receiving terminal" — "one or more devices that receive a WDM optical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 3576

"reception system at a second location" — "a reception system at one particular location separate from the location of the transmission system." Acacia Media Technologies Corp. New Destiny Internet Group, et al., 405 F. Supp. 2d 1127 (N.D. Cal. 2005). 3577

"recharge information" — "data transmitted that makes it possible to associate a dollar amount with a particular previously activated calling card account." TGIP, Inc. v. AT&T Corp., et al., 512 F. Supp. 2d 696 (E.D. Tex. 2007). 3578

"recipient" — "is [] given its plain and ordinary meaning." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010). 3579


"recognition of identification codes of passengers" — "the passenger identification codes are associated with each individual passenger's identity as well as that passenger's destination floor." Inventio AG v. ThyssenKrupp Elevator Americas Corp., et al., 2010 U.S. Dist. LEXIS 59020 (D. Del., Jun. 14, 2010). 3581

"recognizable relationship" — "These [proposed] constructions are not incorrect. In fact, they are both fairly accurate characterizations of the disputed term, but the Court declines to adopt any construction because a proper understanding of this term may be reached from the ordinary and accustomed meaning of these terms in the context of the claims. Accordingly, the Court elects not to construe 'recognizable relationship.'" Konami Corp. v. Roxor Games, Inc., et al., 445 F. Supp. 2d 725 (E.D. Tex. 2006). 3582

"reconstructed bytes"; "reconstructing said data bytes" — "refers to bytes that have been aligned, latched and converted from serial to parallel format." Bell Communications Research, Inc. v. Fore Systems, Inc., 113 F. Supp. 2d 635 (D. Del. 2000). 3583


"record"; "multiple records" — "a Collection of related data items stored in named data fields"; "multiple Collections of related data items stored in named data fields." CollegeNET, Inc. v. Xap Corp., 442 F. Supp. 2d 1036 (D. Or. 2006). 3585


"record of an input channel"; "record of a communication channel" — "stored voice and/or call information received from an input channel"; "stored voice and/or call information received from a communication channel." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007). 3587
"record structure" — "is not subject to 35 U.S.C. § 112, P 6 because the term would have connoted sufficient structure to those of ordinary skill in the art." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999). 3588


[i] "recording"; [iii] "storing" — [i] "writing information to the CD"; [ii] "copy[ing] (data) into memory or onto a storage device, such as a hard disk." Optima Technology Corp. v. Roxio, Inc., 2004 U.S. Dist. LEXIS 30262 (C.D. Cal., Sept. 30, 2004). 3590


"recording plane" — "construction of this term is unwarranted." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010). 3592

"circuit means for recording time of energy use" — "a circuit for use with standard electric meters capable of recording information regarding the amount of energy used or consumed and the time of day, week or year when the energy was used or consumed." Cellnet Data Systems, Inc. v. Itron, Inc., 17 F. Supp. 2d 1100 (N.D. Cal. 1998). 3593


"records recovered from the data stream"; "records recovered from the broadcast database records" — "records received from the transmission and decoded so as to restore the transmitted data to its former condition." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). 3595

[i] "rectifier circuitry connected with the AC terminals and operative to provide a substantially constant DC supply voltage across a pair of DC terminals"; [ii] "rectifying and filtering circuitry connected with the AC terminals and operative to provide a substantially constant DC supply voltage across a pair of DC terminals" — [i] "does not trigger means-plus-function treatment"; [ii] "Once again Paragraph 6 does not come into play." Nilssen v. Motorola, Inc., et al., 80 F. Supp. 2d 921 (N.D. Ill. 2000). 3596

"recycling the magnetizing energy stored in said transformer to reset it" — "require[s] that all of the magnetizing energy (except for energy loss attributed to the non-ideal nature of circuit components) in the transformer be recycled to reset the transformer." VLT Corp., et al. v. Lambda Electronics, Inc., 238 F. Supp. 2d 347 (D. Mass. 2003). 3597 
"[W]e affirm the district court's construction of the phrase 'recycling the magnetizing energy stored in said transformer to reset it' as requiring that all of the magnetizing energy removed from the transformer's core be returned to the transformer to reset it." Id., 103 Fed. Appx. 356 (Fed. Cir., May 24, 2004) (unpublished). 3598

"redirection server" — "a server logically located between the user's computer and the network that controls the user's access to the network." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010).

"redirector string" — "one or more contiguous domain labels, including a top level domain that was not part of the originally entered domain name, which identify the domain name server responsible for resolving the transformed compliant domain name." IDN Technologies, LLC v. VeriSign, Inc., 2004 U.S. Dist. LEXIS 20173 (N.D. Cal., Sept. 24, 2004).

"redirects the client computer to a post login page on the personal information provider" — "Construing this claim is thus unnecessary, and would needlessly complicate jury instructions at trial." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).


"reference" — "a reference represents an abstraction for pointing to the contents of a shared folder within the same repository or in the global data mart repository." Informatica Corp. v. Business Objects Data Integration, Inc., 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005).

"reference file" — "modified worksheet that includes computer instructions that tell the computer how to extract data from a database and where to place that data in a spreadsheet." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).

"reference generating mechanism for generating a user-defined reference to aggregated fact data generated by the aggregation module" — "the court reject Hyperion's proposed means-plus-function construction and declines to construe this term." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).


"the payment-duē data reflecting a result of automatically comparing delivery data with delivery obligation data representing a delivery obligation of the seller in accordance with the sale-of-goods transaction" — "which reflects a comparison made automatically by the computer system showing that (a) the seller's performance has conformed to the parameters set by the buyer or (b) the buyer has otherwise accepted the seller's performance, and that a buyer's obligation to pay for the goods is due." Tradecard, Inc. v. S1 Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007).

"reflecting surface" — "surface that internally reflects essentially all of the incident electromagnetic radiation that is communicated by the waveguide toward the tip, where 'internally reflects' means the electromagnetic radiation is reflected because it is incident on the reflecting surface at an angle greater than the critical angle." American Medical Systems, Inc., et al. v. Laser Peripherals, LLC, 2009 U.S. Dist. LEXIS 95387 (D. Minn., Oct. 13, 2009).
"said content profiles reflecting the customer profiles of those customers who have previously accessed said data from each data source" — "content profiles contain data that results from the customer profiles of those customers who have previously accessed data from each data source." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).

"reflector means" — "encompass[es] either a totally reflective reflector, a partially reflective reflector, as well as a partially light transmissive reflector, with or without apertures or openings in the reflector itself, where the reflector is capable of radiating light through or out of the reflector in all directions, including both laterally and upwardly." Sportlite, Inc. v. Genlyte Thomas Group, LLC, et al., 2006 U.S. Dist. LEXIS 96638 (D. Ariz., Sept. 13, 2006).


"regardless of the presence of markers, frame boundaries, and other boundaries that may occur within said data" — "the download restarts at any point within the data file heedless of markers, frame boundaries, or other boundaries that may occur within the data." Ethos Technologies, Inc. v. RealNetworks, Inc., 462 F. Supp. 2d 131 (D. Mass. 2006).

"substantially a same informational content regardless of which of said advertising presentations are combined therewith" — "informational content that is not substantially changed based on which of said advertising presentations are combined therewith." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010).


"registering at least one bingo card" — "Assigning each card an identify that will differentiate that card from all the others in play." The HomeBingo Network, Inc. v. Multimedia Games, Inc., 2006 U.S. Dist. LEXIS 93632 (N.D.N.Y., Dec. 28, 2006).
"registering use" — "refers to recording, indicating or making note of the amount of use of the shuffler. The claim term is not limited to the number of times the shuffler has completely shuffled a stack of cards as VendingData argues." *Shuffle Master, Inc. v. VendingData Corp., et al.,* 2004 U.S. Dist. LEXIS 27945 (D. Nev., Mar. 31, 2004).3623

"registry" — "in a 'registry database' [is] a collection of data that describes either (A) a registrant, an event, and the products and/or services that the registrant would like to acquire in celebration of the event; or (B) a registrant and a wishlist of products and/or services that the registrant would like to acquire." *WeddingChannel.com, Inc. v. Knot, Inc.,* 2005 U.S. Dist. LEXIS 991 (S.D.N.Y., Jan. 26, 2005).3624

[i] "regularly received television signal"; [ii] "radio frequency information"; [iii] "mixer" — [i] "video data that is customarily received by the television viewing public and not video-on-demand. The form of the television signal is irrelevant; it could be an analog signal, a digital signal, some combination of the two, or another format."; [ii] "the information received from the mixer, microcontroller, and/or a television station that is carried on or derived from a radio frequency signal."; [iii] "the electronics that receive the 'regularly received television signal' and a signal generated by the microcontroller, and that combine those two signals as instructed by the microcontroller. The mixer is not limited to any particular electronics because the claim language does not so limit the scope of the mixer." *SuperGuide Corp. v. DirecTV Enterprises, Inc.,* 358 F.3d 870 (Fed. Cir. 2004).3625 "In my view, the expert evidence briefly summarized above establishes that a person of ordinary skill in the art in 1985 would have read the critical claim term ([ii]) to mean only the analog television signals that were being regularly transmitted at the time, and not the later-developed, later-transmitted digital signals. I therefore cannot extend the literal scope of the claims to systems for receiving signal technology that was not then in use by the television industry, nor even conceived of and reduced to practice by these inventors, much less described and enabled in their '578 patent application filed in 1985." *Id.* (Michel, J., concurring).3626

"said second party control integrated circuit and said first party control integrated circuit regulate the transfer of the desired digital video or digital audio signals" — "the phrase 'regulate the transfer' is construed to mean that the first party and second party integrated circuits control the transfer of the digital signals, i.e., control the transmitting and receiving of such signals." *Sightsound.com Inc. v. N2K, Inc., et al.,* 185 F. Supp. 2d 445 (W.D. Pa. 2002).3627


"generating regulated voltage" — "mean[s] that claim 1's 'converter means' is designed to produce stabilized voltage at its output despite fluctuations in its input voltage." *Relume Corp. v. Dialight Corp., et al.,* 63 F. Supp. 2d 788 (E.D. Mich. 1999).3629
"related to" — "encompasses both a direct and indirect relationship, with the indirect relationship being limited to information that can be directly used in the computation of the various syringe properties without reference to some other source of information." Liebel-Flarsheim Co. v. Medrad Inc., 2002 U.S. Dist. LEXIS 4046 (S.D. Ohio, Feb. 19, 2002). 3630 "Because both the plain language of the claims and the prosecution history do not support a claim construction limiting the relationship between the physical indicia and the syringe properties to a direct relationship, the district court erred in so ruling." Id., 358 F.3d 898 (Fed. Cir. 2004).

"related to each fields of the second set of fields based on the selected fields" — "the predefined text area 'has text which is predefined on the basis of the contents of the second set of fields, which in turn are based on the fields selected from the first set of fields.'" Accenture Global Services GmbH, et al. v. Guidewire Software Inc., 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010).

"relates ... in a predetermined manner" — "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).

"relating said at least one customer profile with the content profiles for the data available from each data source to the customer" — "establishing a logical connection between the customer profile and content profiles for the available data." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).


"relative movement" — "the Court finds that this term's ordinary and accustomed meaning controls, and no construction is necessary." Konami Corp. v. Roxor Games, Inc., et al., 445 F. Supp. 2d 725 (E.D. Tex. 2006).

"indicative of the relative position between the tool and the workpiece" — "must be construed to include systems that measure the location of the workpiece from some fixed point on the machine tool table." IMS Technology, Inc. v. Haas Automation, Inc., et al., 1998 U.S. Dist. LEXIS 22820 (E.D. Va., Sept. 23, 1998).

"relative to" — "denotes the concept of relative positioning as opposed to absolute positioning." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000).

"differentially thermally growing an oxide to serve as an implant mask having controlled thickness on both the top and sides of the gate electrode whereby a relatively thicker layer of oxide is developed on the top and sides of the gate electrode and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate" — "Although we agree with EMI that the 1.77 to 1 ratio is not the only way of defining 'relatively thicker,' it was presented to the examiner, in distinguishing the Steinmaier reference, as a ratio below which differential thermal growth is not deemed to be achieved. It was not incorrect for the district court to construe the claims as requiring at least the relative thickness that was invoked to distinguish the '943 method from the prior art. In all events, it is clear that the oxide grown on top of the gate must be thick enough to serve as a mask for the gate during the implant step (d), for this was the basis on which EMI overcame the final rejection on the Cohen and Steinmaier references." EMI Group North America, Inc. v. Intel Corp., 157 F.3d 887 (Fed. Cir. 1998).
"relay having an operational position and a test position" — "a single relay with only an operational position and a test position, where 'operational position' and 'test position' have the meanings the court provided above." Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al., 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005).

"relaying" — "nothing in the claim language requires or even suggests the use of pneumatically operated valves in performing the relaying step." Varco, L.P. v. Pason Systems USA Corp., 436 F.3d 1368 (Fed. Cir. 2006).

"said page server receiving said request and releasing said web server to process other requests" — "said page server receiving said request and said page server performing an act (separate from merely receiving the request) to free the web server to process other requests." EpicRealm, Licensing, LLC v. AutoFlex Leasing, Inc., et al., Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Aug. 15, 2006). "The Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court." Id., Nos. 2:05CV163, 2:05CV356 (E.D. Tex., Oct. 30, 2006).

"relieving the institution of the administrative burden of processing forms and payments" — "the described acts of the third party eliminate the administrative burden to the institution of processing forms and payments." CollegeNET, Inc. v. Xap Corp., 442 F. Supp. 2d 1036 (D. Or. 2006).


"remote"; "remotely" — "'separated by an interval or distance' with 'separated' meaning 'to be set or kept apart.'" Civix-DDI, LLC v. Cellco Partnership, 387 F. Supp. 2d 869 (N.D. Ill. 2005).

"remote command center" — "a dedicated location for monitoring and managing the care of hospitalized patients, which location is apart from the geographically dispersed ICUs." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009).

"remote link adapters"; "RLA devices" — "a device that has a unique address and includes a hybrid interface, a user interface, a microprocessor, and memory to detect data at a rate of 10 or more megabits per second." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).

"remote computer" — "a computer associated with a scribe that includes an information system that stores databases of information used to process jobs." Anthurium Solutions, Inc. v. Medquist, Inc., et al., 2009 U.S. Dist. LEXIS 9129 (E.D. Tex., Feb. 9, 2009).

"remote flight operations control center" — "a location, distinct from the airport base station, supporting a variety of airline operations including flight safety, flight operations, engineering, maintenance, passenger service, a system controller segment and FOQA workstations, where analysts can evaluate aircraft data files conveyed from the airport base station." Harris Corp. v. Federal Express Corp., 2010 U.S. Dist. LEXIS 3424 (M.D. Fla., Jan. 12, 2010).
"remote locations" — "positions or sites distant in space from some identified place or places.
"Positions or sites distant in space from the transmission system." Id., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).

"remote payment card network"; "remote payment network" — "a third party processor that will process the transaction for a fee, providing connectivity to either the financial institution that issued the payment card number, or another payment card network that has the capability to connect with the financial institution that issued the payment card number." BMC Resources, Inc. v. Paymetech, L.P., 2004 U.S. Dist. LEXIS 22536 (N.D. Tex., Nov. 4, 2004).

"remote server" — "a computer system that provides services to other computers on a network and may be accessed by the central server over the network." WeddingChannel.com, Inc. v. Knot, Inc., 2005 U.S. Dist. LEXIS 991 (S.D.N.Y., Jan. 26, 2005).

"remote server assembly" — "a computer that is in a network usually shared by multiple users; it is separate from the user and local computer assembly, but is accessible to the user and the local processor assembly via an online connection." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).

"remote site(s)"; "remote locations" — "end-user locations, such as homes, offices, or schools, that have end-user equipment and a remote link adapter." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007).

"remote system controller" — "a computer or controller that checks the validity of logon commands and interfaces the local portion/computer unit with the remote computer unit to permit the local portion/computer unit to operate the remote computer unit, but excluding passive devices that merely forward data packets without regard for their content." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009).


"remote terminals" — "a device or instrument for connecting callers to the telephone network for voice and digital communication, including, but not limited to, conventional telephones." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).

"remote user" — "the remote user may either be a telecommuter or a road warrior, or may be a resident in a branch office, also referred to as a remote small office who accesses a corporate office from a physically distant location over a transmission media." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).

"remote vendor network site" — "the location of information regarding a particular vendor that is remote to the local user and that may include real vendor sites, real internet vendor sites, or virtual internet vendor sites, including sites that have no connection on the internet but have information loaded onto, accessible from and local to the database." Harrington v. Shop.com, et al., 2006 U.S. Dist. LEXIS 43660 (D. Colo., June 27, 2006). 3663


"remotely located" — "at a different location." Extreme Networks, Inc. v. Enterasys Networks, Inc., 2007 U.S. Dist. LEXIS 86568 (W.D. Wis., Nov. 21, 2007). 3665

"remotely-located" — "means that there are more than two stations that use different central processing units. Thus, two stations in the same physical room, each served by a different CPU, would be 'remotely located' while two stations in two different cities using a common CPU (wherever the CPU might be located) would not be." Hamilton v. ComWeb Technology Group, Inc., et al., 2003 U.S. Dist. LEXIS 27832 (D. Md., Nov. 13, 2003). 3666

"removed relationship" — "a relationship that causes the elements of the right-hand side of the relationship to be removed when all elements of the left-hand side are already included." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005). 3667

"removing a defective image element to produce a void at said particular position" — "eliminating a defective image element from the image to produce, at the specific position, a location with no image information." IP Innovation L.L.C., et al. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005). 3668

"removing added pulses occurring after normal sync pulses" — "removing one or more added pulses such as added AGC pulses and/or added pseudo-sync pulses." Macrovision Corp. v. Sima Products Corp., et al., 2006 U.S. Dist. LEXIS 75372 (S.D.N.Y., Oct. 12, 2006). 3669

"removing said fuse portion from said interconnect line by exposing said optically absorptive refractory metal to directed energy source that explosively removes said fuse portion without damaging the substrate" — "needs no clarification, as it is clear on its face." EMI Group North America, Inc. v. Cypress Semiconductor Corp., 68 F. Supp. 2d 421 (D. Del. 1999). 3670

"removing said outer guard ring and row and column intersections" — "physically disconnecting said guard ring and row and column interconnections." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010). 3671

"renderer" — "software and/or hardware object that performs at least the following functions: (1) determining and providing to another object the required coordinates in the terrain along with a respective resolution level; (2) receiving the data blocks corresponding to the specified coordinates; and (3) using the received data blocks to display a three-dimensional image." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 421 F. Supp. 2d 371 (D. Mass. 2006). 3672
"re-ordering packets from different conversations on said common link when the detected congestion exceeds a predetermined mild congestion threshold while maintaining the order of transmission for each conversation" — "arranging packets from different conversations and preparing them for transmission on the common link without affecting the sequencing of packets within such conversation when the number of packets queued on a common link exceeds a predetermined mild congestion threshold." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).\(^\text{3673}\)

"repetitive sequentially varying relationship" — "a video signal produced such that the ratio of video fields to film frames changes between different ratios within the video signal in a predetermined repetitive pattern." Faroudja Laboratories, Inc., et al. v. Dwin Electronics, Inc., 76 F. Supp. 2d 999 (N.D. Cal. 1999).\(^\text{3674}\)

[capable of] "replaying the recorded information upon demand" — "does not ... require that a covered device record upon demand." Howes, et al. v. Zircon Corp., 992 F. Supp. 957 (N.D. Ill. 1998).\(^\text{3675}\)

"image, replicating a control interface" — "a replica of the control panel/faceplates." Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc., 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010).\(^\text{3676}\)

"relying agent" — "an agent that performs a transfer operation with the bus owner." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).\(^\text{3677}\)

"report algorithm" — "a set of rules followed by the system to determine what data is to be extracted by the data gathering system and how that data is to be processed by the report processor in response to a report request." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).\(^\text{3678}\)

"report control means" — "In light of these statements and disclosures, which inextricably link the comparison of new requests against previously submitted requests with the asynchronous submission of requests to the OLAP, the district court did not err when it construed the requests handled by the report control means to be the asynchronously submitted requests mentioned in the preamble of the claim." Microstrategy Inc. v. Business Objects Americas, 2007 U.S. App. LEXIS 15100 (Fed. Cir., June 27, 2007).\(^\text{3679}\)

"report processor" — "The Court finds that the meaning of this term is clear in light of the surrounding claim language and the construction of 'reports' and 'report algorithm' and declines to construe 'report processor.'" Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).\(^\text{3680}\)

"report request"; "user request" — "the Court declines to construe th[ese] term[s]." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).\(^\text{3681}\)

"reports"; "presenting reports from the data" — "presenting calculated and solution-oriented results derived from data." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).\(^\text{3682}\)
"repositioning the spraying device relative to the conveying device to the relative synchronized position based upon the stored positions" — "moving the spraying device, the conveying device, or both to reestablish the correlation between the spraying device and the conveying device based upon the stored positions." Durr Systems, Inc v. Fanuc Ltd., et al., 463 F. Supp. 2d 663 (E.D. Mich. 2006).


"representation of an intra-oral radiograph holder" — "a representation or image of a dental film holder (a device for mounting two or more dental x-rays)." Board of Regents of the University of Texas System, et al. v. Eastman Kodak Co., et al., 2006 U.S. Dist. LEXIS 7997 (W.D. Tex., Jan. 26, 2006).

"representative" — "one that in some way symbolizes, represents, replaces, or is equivalent to something else." AT&T Corp. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 10716 (S.D.N.Y., Jun. 23, 2003).

"having at least one representative child node represent a subset of the child nodes" — "at least one representative child node represents a subset of the child nodes located on the same level of the hierarchy." Cisco Systems, Inc., et al. v. Telcordia Technologies, Inc., 2007 U.S. Dist. LEXIS 58650 (E.D. Tex., Aug. 10, 2007).


"said data items include ordinary unresolved pointers, each one of said ordinary unresolved pointers representing a represented address of said addresses" — "'said addresses' refer to the addresses in memory commands specifying a location in memory means and 'represented address' is the address derived from the ordinary unresolved pointer." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).

"representing" — "We agree ... that the ordinary meaning of 'representing' is broad enough to include 'symbolizing' or 'to stand for,' and that the '268 patent did not assign the term a narrower meaning. On the other hand, the statement that one item 'represents' another cannot be interpreted so broadly as to include any case in which the two items are related in some way. Rather, the first item must be directly related to and stand for, or be a reasonable proxy for, the latter item." Tehrani v. Hamilton Medical, Inc., et al., 331 F.3d 1355 (Fed. Cir. 2003).

"a width of said pulse representing a coordinate position of said joystick device" — "the width of the pulse, as assessed in time or distance, provides all the information necessary to determine a coordinate position of the joystick device." Fenner Investment, Ltd v. Microsoft Corp., et al., 632 F. Supp. 2d 627 (E.D. Tex. 2009).

"request" — "an act or instance of asking for something. In the context of misdirection, a request is made by the client computer." Ethos Technologies, Inc. v. RealNetworks, Inc., 462 F. Supp. 2d 131 (D. Mass. 2006).

"a request" — "a communication, message or directive that asks a remote computer for a response, including the download of electronic data. 'To request' is to send such a message." Network Commerce, Inc. v. Microsoft Corp., 260 F. Supp. 2d 1034 (W.D. Wash. 2002). 3695

"read request"; "write request"; "transaction request" — "a series of bits used to request a read of data from a memory device where the request identifies what type of read to perform"; "a series of bits used to request a write of data to a memory device"; "a series of bits used to request performance of a transaction with a memory device." Rambus Inc. v. Infineon Technologies AG, et al., 318 F.3d 1081 (Fed. Cir. 2003). 3696

"a request for access to the metadata" — "a request to access one or more metadata elements apart from a request for the image." FotoMedia Technologies, LLC v. AOL, LLC, et al., 2009 U.S. Dist. LEXIS 62542 (E.D. Tex., Jul. 21, 2009). 3697


[i] "read request"; [ii] "write request"; [iii] "transaction request" — [i] "a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a read of data from a memory device"; [ii] "a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a write of data to a memory device"; [iii] "a series of bits transmitted over the bus that contain multiplexed address and control information needed to perform a transaction over the bus with a memory device." Rambus Inc. v. Infineon Technologies AG, et al., 2001 U.S. Dist. LEXIS 10990 (E.D. Va., Mar. 15, 2001). 3699


"request for quotation"; "RFQ" — "a request for the price and other terms of a particular transaction in sufficient detail to constitute an offer capable of acceptance." Source Search Technologies, LLC v. Lending Tree, LLC, et al., 2006 U.S. Dist. LEXIS 79651 (D.N.J., Oct. 16, 2006). 3701


"request interface [that] receives requests for video programs made over the telephone network" — "the connection that permits data to be conveyed from the telephone network to the central processor." USA Video Technology Corp. v. Time Warner Cable, Inc., et al., 2007 U.S. Dist. LEXIS 92578 (E.D. Tex., Dec. 12, 2007). 3703
"request processor" — "hardware and associated software application of computer system that receives requests and determines a proposed reservation position in the virtual queue." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).3704

"request signal" — "a single electronic representation of a user's selection of at least one category and at least one geographic vicinity." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000) (emphasis in original).3705

"requested" — "programmed for retention in the subscriber's filter." Comcast Cable Communications Corp., LLC v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., April 6, 2007).3706

"a requested time"; "a viewer-requested time" — "a specific time of day chosen and scheduled by the viewer where at the time the choice is made the viewer can choose from any time of day." In re: VTRAN Media Technologies, LLC, Patent Litigation, 2009 U.S. Dist. LEXIS 61328 (E.D. Pa., Jul. 17, 2009).3707

"requesting a response of approval or disapproval from the host data processor" — "requesting that the host data processor approve or disapprove a debit purchase transaction." Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010).3708

"requesting agent" — "an agent that has entered into the arbitration function for bus access." LG Electronics, Inc., et al. v. Bizcom Electroncs, Inc., et al., 453 F.3d 1364 (Fed. Cir. 2006).3709

"requesting agent" — "an agent that has entered arbitration for bus access, where arbitration is the process by which agents attempt to gain exclusive access to the parallel system bus." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).3710

"required data" — "all data necessary to create a spreadsheet that is not contained in the cache." Hyperion Solutions Corp. v. Outlooksoft Corp., 422 F. Supp. 2d 760 (E.D. Tex. 2006).3711


"requires choice relationship" — "a relationship in which a number of elements must be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included." Trilogy Software, Inc. v. Selectica, Inc., 405 F. Supp. 2d 731 (E.D. Tex. 2005).3713

"requiring a seller to establish a seller's account, the seller's account being based at least on the seller's identity and a financial instrument associated with the seller" — "a seller's account must be established based at least on the seller's identity and a financial instrument associated with the seller." MercExchange, L.L.C. v. eBay, Inc., 401 F.3d 1323 (Fed. Cir. 2005).3714

"requiring assistance from a human operator" — "requiring that a manual reviewer review the electronic message or information derived from the electronic message, or review, revise or compose the response to be delivered to the source." Bright Response, LLC v. Google Inc., et al., 2010 U.S. Dist. LEXIS 60361 (E.D. Tex., Jun. 18, 2010).3715

"reservation request" — "a data message that initiates the processing of a reservation that includes at least a patron or PCD identification." *PalmTop Productions, Inc. v. LO-Q PLC, et al.*, 450 F. Supp. 2d 1344 (N.D. Ga. 2006).\(^{3717}\)

"reservation request generator" — "a device or process that adds to a message a request for additional time slots." *Rembrandt Technologies, L.P. v. Comcast Corp., et al.*, 512 F. Supp. 2d 749 (E.D. Tex. 2007).\(^{3718}\)

"reservation request processor" — "a device or process for receiving and processing requests for additional time slots from a reservation request generator." *Rembrandt Technologies, L.P. v. Comcast Corp., et al.*, 512 F. Supp. 2d 749 (E.D. Tex. 2007).\(^{3719}\)

"reserving a portion of transmission bandwidth available for said transmitting step for transmitting portions of said information database requested by subscribers" — 
"'Transmission bandwidth' is 'reserved' by setting aside part of the transmission capacity for transmitting portions of the information database that are requested by subscribers." *Finisar Corp. v. Directv Group, Inc., et al.*, 416 F. Supp. 2d 512 (E.D. Tex. 2006).\(^{3720}\)

"reset lock-out" — "We are not persuaded. Leviton's argument is essentially that the district court's construction requires 'or' to be replaced with 'and.'" *Shanghai Meihao Electric, Inc. v. Leviton Manufacturing Co., Inc., et al.*, 2007 U.S. App. LEXIS 736 (Fed. Cir., Jan. 10, 2007) (unpublished).\(^{3721}\)


"deactivating said generator only upon expiration of said predetermined time period or in response to a reset signal" — "the power on reset signal." *Agrizap, Inc. v. Woodstream Corp., et al.*, 431 F. Supp. 2d 518 (E.D. Pa. 2006).\(^{3723}\)

"resetting said CIRC decoder" — "restoring the CIRC decoder to a state at which it is ready to receive a data frame." *Matsushita Electric Industrial Co., Ltd. v. Mediatek, Inc., et al.*, 2006 U.S. Dist. LEXIS 84399 (N.D. Cal., Nov. 9, 2006).\(^{3724}\)

"resign message" — "a message, sent by the active router to inform other routers that the active router will be resigning from its status as active router, which is unicast by the active router in response to the active router's receipt of a coup message, and is otherwise broadcast." *Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc.*, 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).\(^{3725}\)

"resistance" — "a circuit component that has a specified resistance to the flow of electric current and is used to minimize the current surge from an electrostatic discharge." *LG Display Co., Ltd. v. AU Optronics Corp., et al.*, 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010).\(^{3726}\)

"resistance" — "a circuit component that has a specified resistance to the flow of electric current and is used to minimize the current surge from an electrostatic discharge." *L.G. Philips LCD Co., Ltd. v. Tatung Co., et al.*, 434 F. Supp. 2d 292 (D. Del. 2006).\(^{3727}\)

"resistive component" — "a resistance in an integrated circuit that arises due to the nature or layout of the other materials used to implement the other elements of the integrated circuit." OKI America, Inc., et al. v. Advanced Micro Devices, Inc., 2006 U.S. Dist. LEXIS 15254 (N.D. Cal., Feb. 14, 2006).3729

"a resistive switch coupled between said high voltage electrode and said reference electrode, said resistive switch further comprising a trigger circuit having a trigger output and an arm/disarm input" — "a switch that is physically connected across the electrodes. The switch includes a distinct trigger circuit with a trigger output and an arm/disarm input." Agrizap, Inc. v. Woodstream Corp., et al., 431 F. Supp. 2d 518 (E.D. Pa. 2006).3730


"resistor(s)" — "component(s) of an electric circuit used to offer resistance to the flow of an electric current." Raytheon Co. v. Indigo Systems Corp., 2010 U.S. Dist. LEXIS 3530 (E.D. Tex., Jan. 18, 2010).3732

"resizing" — "changing the size (height/width) of the video." MedioStream, Inc. v. Microsoft Corp., et al., 2010 U.S. Dist. LEXIS 88716 (E.D. Tex., Aug. 27, 2010).3733


"resolution" — "the fineness of an image, as measured by the number of image elements or pixels making up the image." Crystal Image Technology, Inc. v. Mitsubishi Electric Corp., 2010 U.S. Dist. LEXIS 48290 (W.D. Pa., May 15, 2010).3735


"the alphanumeric string is resolved without reference to a filename for the given object" — "the alphanumeric string is translated into an IP address without reference to the name of the object." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007).3738

"each data storage unit storing in parallel a respective one of said multi-bit data portions for each data word" — "The patent claim specifies that each data storage unit stores 'a respective one' multi-bit word portion. 'A respective one' means exactly one, no more and no less. That means there must be an equal number of data storage units and multi-bit word portions in a system covered by the '979 patent." TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999).\textsuperscript{3740}

"respectively" — "requires a one-to-one relationship." Mars, Inc., et al. v. Coin Acceptors, Inc., 2007 U.S. Dist. LEXIS 34436 (D.N.J., May 9, 2007).\textsuperscript{3741}


"responding to the first indicating signal when said one of said first plurality of bus masters is reading data by placing the generated second address and SNOOP signal on the second bus" — "responding to the indicating signal from the first bus when one of the bus masters connected to the first bus is reading data by placing the generated second address and SNOOP signal on the second bus." Computer Cache Coherency Corp. v. Via Technologies, Inc., 2007 U.S. Dist. LEXIS 81121 (N.D. Cal., Oct. 22, 2007).\textsuperscript{3743}

"in response to step b), redisplaying all data fields not having an item selected therefrom with data related only to the at least one item selected in step b)" — "The patent does not address the timing of the redisplay of data fields in response to the selection of an item, either in the claims or the written description. Contois has therefore not persuaded the Court to add 'automatically' or 'immediately' to the plain meaning of the words at issue. The phrase is construed as 'in response to the step b) selection, redisplaying all data fields not having a selected item with data related only to the selected item(s)." Contois Music Technology, LLC v. Apple Computer, Inc., 2006 U.S. Dist. LEXIS 50822 (D. Vt., July 24, 2006).\textsuperscript{3744}

"first response unit means" — "is not subject to means plus function analysis." Katz, et al. v. AT&T Corp., et al., 63 F. Supp. 2d 583 (E.D. Pa. 1999).\textsuperscript{3745}

"responsive to" — "based on." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).\textsuperscript{3746}

"responsive to" — "in response to." Board of Regents of the University of Texas System, et al. v. Eastman Kodak Co., et al., 2006 U.S. Dist. LEXIS 7997 (W.D. Tex., Jan. 26, 2006).\textsuperscript{3747}

"responsive to a potential of" — "Because Hynix's construction is flawed and Hynix has not provided any reason why this seemingly simple term must be construed, the court declines to construe 'responsive to a potential of.'" Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006).\textsuperscript{3748}

"[issuing a] command ... responsive to a predetermined event" — "issuing a command in reply or reaction to the occurrence of one or more conditions chosen in advance." IGT v. Bally Gaming International Inc., et al., 610 F. Supp. 2d 288 (D. Del. 2009).\textsuperscript{3749}
"selectively adding a current to [a signal] wherein the amount and/or polarity of said current is responsive to [another signal] ..." — "is sufficiently clear as it stands, and that is the construction it will be given. ... TLC is correct that a method that adds a current in a fixed amount would not infringe this claim." Technology Licensing Corp. v. Gennum Corp., 2007 U.S. Dist. LEXIS 35521 (N.D. Cal., May 4, 2007).3750

"responsive to the rate of inflation"; "as a function of a rate of inflation"; "based on a rate of inflation" — "The Board did not err in concluding that the broadest reasonable interpretation of the term 'responsive to the rate of inflation' (and related terms) is not limited to a continuous, one-to-one relationship but also includes a delayed relationship, in which adjustments are made in one percent increments." In re Trans Texas Holdings Corp., 498 F.3d 1290 (Fed. Cir. 2007).3751


"image data resulting from a number of previous processing operation[s] during the stroke" — "cannot be image data precisely as it existed before the initial processing operation because such data is modified during the processing operation. This construction does not exclude the possibility that some of the original image data may be part of the 'image data resulting from a number of previous processing operation[s] during the stroke.'" Quantel Ltd. v. Adobe Systems Inc., 1997 U.S. Dist. LEXIS 16918 (D. Del., Aug. 1, 1997).3754


"reticle image"; "reticle pattern" — "one of a series of lines, dots or crosshairs, capable of serving as a reference for centering or otherwise adjusting an optical element in a telescope." Lasermax, Inc. v. Glatter, 2005 U.S. Dist. LEXIS 17136 (S.D.N.Y., Aug. 17, 2005).3756


"retrieving via the terminal" — "locating and returning, by means of the terminal, ID information and a card number stored on the debit card." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).3758

"return electrode" — "an electrode having a larger area of contact than an active electrode, thus affording a lower current density." Arthrocare Corp. v. Smith & Nephew, Inc., 2003 U.S. Dist. LEXIS 5976 (D. Del., Apr. 9, 2003).3759


"reverses at least one of the magnetization directions" — "mean[s] a turning or change of the magnetization direction of at least one of the electrodes or film layers, towards an opposing alignment, to such a degree as necessary to achieve at least a 10% change in resistance." *Magsil Corp., et al. v. Seagate Technology, et al.*, 2010 U.S. Dist. LEXIS 18086 (D. Del., Mar. 1, 2010). \[3763\]

"revision selection list" — "a list of revised publications from which individual revisions to publications can be selected." *Aircraft Technical Publishers vs. Avantext, Inc.*, 2009 U.S. Dist. LEXIS 105623 (N.D. Cal., Nov. 10, 2009). \[3764\]


"rise time" — "the time it takes a signal to rise to substantially its final steady value." *Sun Microsystems, Inc. v. Dataram Corp.*, 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997). \[3767\]


"roaming terminal/device" — "a terminal/device that is free from cable connections and designed to be able to be moved while receiving or transmitting signals." *Agere Systems, Inc. v. Broadcom Corp.*, 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004). \[3769\]


"rolling spot system"; "rolling spot future trade system" — "the term will be construed in accordance with how CME's Rolling Spot Currency contracts were defined at the effective filing date of the patent application." *Chicago Mercantile Exchange, Inc., et al. v. Technology Research Group, LLC*, 2010 U.S. Dist. LEXIS 65002 (N.D. Ill., Jun. 28, 2010). \[3771\]

"root bus controller" — "the bus controller at the highest order position of the binary tree computer system that connects the binary tree to the host computer and which has no parent bus controller." *Fifth Generation Computer Corp. v. International Business Machines Corp.*, 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010). \[3772\]

"rotating" — "is to be given its ordinary meaning. ... therefore ... the ITC was correct in interpreting the term 'rotating' to mean merely a phase shift in the desired waveform." Enercon GmbH, et al. v. International Trade Commission, 151 F.3d 1376 (Fed. Cir. 1998).

"rotating the reference waveform" — "the ITC was correct in interpreting the term 'rotating' to mean merely a phase shift in the desired waveform." Enercon GmbH, et al. v. International Trade Commission, et al., 151 F.3d 1376 (Fed. Cir. 1998).


"route" — "a course or pathway that is capable of changing based on received transportation requests." IAP Intermodal, L.L.C. v. Northwest Airlines Corp., et al., 2005 U.S. Dist. LEXIS 46838 (E.D. Tex., Sep. 7, 2005).


"the router will attempt to become the active router"; "the physical router will attempt to become the active router"; "the ability to issue coup messages can be disabled at least temporarily"; "disable, at least temporarily, the router's ability to issue a coup message" — "these terms are plain on their face and do not require additional construction." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).

"routes" — "to choose an appropriate destination from two or more possibilities and to direct based on that choice." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).

"routine" — "Plaintiff maintains that it means 'software instructions or algorithm.' Defendant defines it as 'a set of procedures or programmed instructions.' The term is not defined in the specification. However it is clear from the claim language itself that it means 'a set of procedures for providing route guidance' and I construe it in this manner." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006).

"accepting said request for a contribution data packet at said remote contribution accepting devices by way of a routine, said remote contributions accepting devices utilizing a routine for accepting at least one contribution" — "A 'routine' is a computer program or a portion of a computer program designed to accomplish a defined task. In this case, the contribution data packet is accepted by the physically separated contribution-accepting devices, using a routine which allows it to accept information representing one or more contributions." Ziarno v. American National Red Cross, et al., 2000 U.S. Dist. LEXIS 22508 (N.D. Ill., Aug. 16, 2000). 3785

"routing" — "sending or forwarding by a particular route." DealerTrack v. Huber, et al., No. 06-CV-02335 (C.D. Cal., Sept. 27, 2008). 3786

"routing" — "(1) specifying the path for a subscriber's incoming message according to a characteristic of the incoming message; and (2) transmitting the incoming message on the specified path." Lottotron, Inc. v. Scientific Games Corp., 2003 U.S. Dist. LEXIS 15507 (S.D.N.Y., Sept. 8, 2003). 3787

"routing information" — "information indicating the next physical media path (as construed herein) for the data packet to take." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006). 3788

"routing such stream to one or more users" — "the disputed language in the claim needs no construction." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007). 3789


"a set of cell selection rules" — "a set of rules embodying the expert knowledge of highly skilled VLSI designers, each rule having an antecedent portion (e.g., IF) and a consequent portion (e.g. THEN)." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005). 3793

"run-time executor" — "a software program invoked during execution of a data collection application to manage the various tasks involved in executing the data collection application." Typhoon Touch Technologies, Inc., et al. v. Dell, Inc., et al., 2009 U.S. Dist. LEXIS 64013 (E.D. Tex., Jul. 23, 2009). 3794

"running time" — "the period of time during which a program is being executed." Bed-Check Corp. v. Ultimate Safety, Inc., 2003 U.S. Dist. LEXIS 27845 (N.D. Okla., Nov. 24, 2003). 3795
"safety switch mechanism ... for connecting a pre-qualified release of a defibrillation shock to patient electrode terminals" — "the safety switch does not close until after the processor receives the defibrillation shock release request and pre-qualifies release of the defibrillation shock." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006). 3796

"safety switch mechanism ... separately responsive to the defibrillation shock release request signal" — "the safety switch responds to the signal from the rescue/trigger switch without input from the monitoring and analysis circuit." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006). 3797

"said"; "the" — "Where subsequent uses of a claim term within a claim make reference to the first usage as an antecedent (through the use of introductory definite articles such as 'said' or 'the'), the claim term must be interpreted consistently across all such uses." Microprocessor Enhancement Corp., et al. v. Texas Instruments Inc., 2007 U.S. Dist. LEXIS 23768 (C.D. Cal., Feb. 8, 2007). 3798

"a system for minimizing the storage ... requirements of digital representation of analog signals comprising a means for converting an analog signal to said digital representation ... first means for detecting the complete absence of said analog signal, second means for detecting the duration of said absence of said analog signal ..." — "'Said analog signal' refers only to 'analog signal.' The district court was correct that ... the first and second detecting means as operate[ ] only on analog input signals." Moll v. Northern Telecom Inc., 1997 U.S. App. LEXIS 17607 (Fed. Cir., Jul. 15, 1997) (unpublished). 3799


"said assembled data" — "refers to an entire Sector of CD-ROM data as it is stored in random access memory." Oak Technology, Inc. v. International Trade Commission, et al., 248 F.3d 1316 (Fed. Cir. 2001). 3801

"storing a plurality of covers for books to be printed in said computer" — "does not require that the covers be stored in the same computer as the text of the books to be printed." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 2003 U.S. Dist. LEXIS 27127 (E.D. Mo., Jul. 8, 2003). 3802

"said http server" — "the same http server that received the request from the http client." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009). 3803


"taking a first reflectance reading from a dry first surface of said porous matrix" — "The district court held that the claims can not be literally infringed when the dry reflectance reading is not taken from the same test strip that is used in the test, but is measured in advance at the factory. We conclude that the district court correctly interpreted the claims." Lifescan, Inc. v. Home Diagnostics, Inc., 76 F.3d 358 (Fed. Cir. 1996). 3805
"a memory for storing characteristic signal samples produced by scanning said preselected segments of bills of different denominations with said scanning head" — "the characteristic signal samples must be produced and stored by the specific scanning head that is present in the device." Cummins-Allison Corp. v. Glory, Ltd., et al., 457 F. Supp. 2d 843 (N.D. Ill. 2006).


"said uppermost surface of said at least one insulating layer" — "requires formation of the second gate electrodes between the first gate electrodes on the upper surface of the same continuous insulation layer upon which the first gate electrodes were formed." Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al., 906 F. Supp. 798 (E.D.N.Y. 1995).

"said zinc anode" — "Neither the Commission nor the Intervenors argued that they did not understand the intended scope because of the absence of an antecedent. The Commission erred in holding that the need to construe a claim, or the proffer of alternative constructions, renders the claim indefinite." Energizer Holdings, Inc., et al. v. International Trade Commission, et al., 435 F.3d 1366 (Fed. Cir. 2006).

"sale calendar module which allows the user to search the auction data and to display on the video monitors at the workstations a list of one or more auctions by date, by location, and by vehicle sale type" — "a portion of a program which performs the particular tasks of allowing the user to query a motor vehicle auction database for auctions matching a user-selected parameter, wherein the parameters available to the user must include date, location, and vehicle sale type, and displaying the results of that search on the video monitors at the user workstations." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).

"sale catalog review routine" — "a portion of a program that performs the particular task of allowing the user to search the auction data and display on the user workstation information about minute and distinct aspects of the vehicle, where such information may include options, status, dates, charges, notes, and condition information." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007).

"sales information" — "We agree with the defendants that 'sales information' requires that promotional information is stored in the computer that is made available to the customer. The ISBN or the title and author are file identifiers, not promotional information. The jury instruction, if read to mean that identifying information alone can satisfy the 'sales information' term, is incorrect." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 442 F.3d 1331 (Fed. Cir. 2006).

"sample well" — "a container or reservoir for the sample." Roche Diagnostics Corp., et al. v. Apex Biotechnology Corp., et al., 455 F. Supp. 2d 840 (S.D. Ind. 2005).


"saturation" — "the state in which the ratio of collector-current to base-current is forced lower by excess base current." Linear Technology Corp. v. Micrel, Inc., 2006 U.S. Dist. LEXIS 96860 (N.D. Cal., June 9, 2006).
"in saturation" — "the working of the covered invention consistently at a state of forced current gain." Linear Technology Corp. v. Micrel, Inc., 2006 U.S. Dist. LEXIS 96860 (N.D. Cal., June 9, 2006). 3816

"price being ... scaled to the performance of the buyer" — "price being adjusted by a ratio, table, or algorithm, wherein a lower price always corresponds to a better performance or better performance level in the PDA and a higher price always corresponds to a worse performance or worse performance level in the PDA." Performance Pricing, Inc. v. Google Inc., et al., 2009 U.S. Dist. LEXIS 71264 (E.D. Tex., Aug. 13, 2009). 3817


"scanner" — "The district court concluded that the scanner must have 'relative movement between the scanning element and the object being scanned.' We agree." Massachusetts Institute of Technology v. Abacus Software, et al., 462 F.3d 1344 (Fed. Cir. 2006). 3819 "The district court also concluded that the 'scanner' ... must involve placing the 'color original ... on or in close proximity to the scanner.' We conclude that the term scanner in 1982 should be construed to include a requirement of close proximity." Id. 3820

"image document scanner"; "document image scanner" — "The document image scanner includes, but is not limited to, optical readers, commercial imaging scanners, and all or part of conventional ballot readers, (excluding non-imaging conventional ballot readers which employ sensors positioned on a fixed grid pattern) conventional office equipment such as copiers, scanners, facsimile (fax) machines, and other commercial imaging and/or scanning devices, and the like." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 3821

"scanning a symbol comprising of a data field of information data cells and orientation means for indicating an orientation of the field" — "scanning a symbol." Cognex Corp. v. VCode Holdings, Inc., et al., 2007 U.S. Dist. LEXIS 75364 (D. Minn., Oct. 9, 2007). 3822

"scanning process" — "the process by which the bar code is read." BarTex Research, LLC v. FedEx Corp., et al., 2009 U.S. Dist. LEXIS 117609 (E.D. Tex., Dec. 14, 2009). 3823

"scanning the surface of the workpiece" — "mean[s] that the entire surface of the workpiece is inspected through relative motion of the incident beam of P-polarized light and/or the workpiece being inspected." ADE Corp. v. KLA-Tencor Corp., 220 F. Supp. 2d 303 (D. Del. 2002). 3824

"groups of software scheduled instructions"; "sets of software scheduled instructions" — "sets of one or more instructions that have been identified by software as being capable of being processed in parallel." Intergraph Corp. v. Intel Corp., 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002). 3825
"each subscriber station calling at a scheduled time a rate provider having billing rate parameters for each calling station, wherein the scheduled time for each call is such that the calls from each calling station are substantially spaced apart from each other" — "encompass[es] a method in which the time for calling the rate provider is determined and planned in such a way as to ensure that there are substantial intervals of time between each call received by the rate provider from all users." Mediacom Corp. v. Rates Technology, Inc., 4 F. Supp. 2d 17 (D. Mass. 1998). 3826

"scheduling" — "is entitled to its ordinary meaning and needs no construction." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 3827


"scrambling transmitter" — "a transmitter that includes a scrambling circuit." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). 3829


"scroll sequence" — "refers to one or more channel tuning designations, which are retained in the memory means." Beery v. Thomson Consumer Electronics, Inc., et al., 2004 U.S. Dist. LEXIS 17173 (S.D. Ohio, Aug. 18, 2004). 3832

"scrolling" — "moving viewable element from a first displayed location to a second displayed location in a continuous manner." Konami Corp. v. Roxor Games, Inc., et al., 445 F. Supp. 2d 725 (E.D. Tex. 2006). 3833

"sealing structure" — "a structure, made after the second substrate is laid on the first, which may help to contain the liquid crystal material within the cavity between the two substrates or to keep impurities out." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 13243 (N.D. Cal., March 27, 2006). 3834

"to perform a search" — "any examination of the program listings stored in RAM to find those that meet a user's search criteria." SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004). 3835


"second circuit"; "third circuit" — "We agree with the Commission's construction of 'second circuit' and 'third circuit,' defining the terms broadly to not require entirely separate and distinct circuits." Linear Technology Corp. v. International Trade Commission, et al., 566 F.3d 1049 (Fed. Cir. 2009). 3838

"a second control signal … to cause both transistors to be OFF" — "requir[es] the second control signal to neither directly cause both transistors to be OFF nor be entirely distinct from the first control signal." Linear Technology Corp. v. International Trade Commission, et al., 566 F.3d 1049 (Fed. Cir. 2009). 3839

"second information indicative of said total traffic load constituted by communication packets belonging to communications handled by the switching module" — "information indicative of the accumulated traffic load for all of the communications flowing through at least one output of the switching module." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 3840

"a second memory associated with the scanhead and outside of the console and communicating with the console through a second connector, the second memory storing software and data necessary for use of the transducer scanhead in the ultrasound diagnostic instrument"; "the second memory storing software and data necessary for the use of the transducer scanhead in the ultrasound diagnostic instrument" — "Because I conclude that both parties have failed to propose an appropriate construction, I will decline to construe [these terms]." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008). 3841

"second portion of the dose" — "that portion of the dose which is diffused after the first portion." IXYS Corp. v. Advanced Power Technology, Inc., 301 F. Supp. 2d 1065 (N.D. Cal. 2004). 3842

"second telecommunications network" — "a telecommunications network over which the switch system at the local cable headend receives from a remote control center the commercial insert video signal and the switch commands, and, in the '825 Patent, the insert locator data. Additionally, it would be understood that the second telecommunications network is distinct from the 'first telecommunications network,' over which is sent the programmed channel signal." Beam Laser Systems, Inc. v. Cox Communications, Inc., et al., 144 F. Supp. 2d 475 (E.D. Va. 2001). 3843

"secondary power source" — "the Court construes the claim as requiring the secondary source to be physically separate." Network-1 Security Solutions, Inc. v. D-Link Corp., et al., 2006 U.S. Dist. LEXIS 84510 (E.D. Tex., Nov. 20, 2006). 3844 "[T]he Court adopts its previous construction in the D-Link case and Defendants' construction and construes the term 'secondary power source' to mean 'a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source.'" Network-1 Security Solutions, Inc. v. Cisco Systems, Inc., et al., 2010 U.S. Dist. LEXIS 12938 (E.D. Tex., Feb. 16, 2010). 3845

"secret key of the credential issuing entity" — "a key that is known only to the credential issuing entity and those intended to know it and that exists beyond the duration of a particular transaction." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003). 3847

"secret key of the first party" — "a key that is known only to the first party and those intended to know it and that exists beyond the duration of a particular transaction." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003). 3848

"secret key of the originator" — "a key that is known only to the originator and those intended to know it and that exists beyond the duration of a particular transaction." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003). 3849

"secret key of the payor" — "a key that is known only to the payor and those intended to know it and that exists beyond the duration of a particular transaction." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003). 3850

"secret state" — "one or more parameters, the attributes, conditions or values of which are secret, which are stored in computer-readable memory of the device." Cryptography Research, Inc. v. Visa International Service Association, et al., 2007 U.S. Dist. LEXIS 76502 (N.D. Cal., Sept. 28, 2007). 3851

"a precision timing section coupled to said laser transmit section and said laser receive section for determining a flight time of said laser pulses to said target and said reflected laser pulses from said target ... based upon a flight time of a pulse" — "recites sufficiently definite structure to resist application of 112 P 6." Laser Technology, Inc. v. Nikon, Inc., et al., 215 F. Supp. 2d 1135 (D. Colo. 2002). 3852

"sector" — "the basic unit of erase." Sandisk Corp. v. Memorex Products, Inc., et al., 2007 U.S. Dist. LEXIS 15393 (N.D. Cal., Feb. 21, 2007). 3853


"sector" — "a subdivision or subsection, which may or may not relate to a particular industry." American Stock Exchange, LLC, v. Mopex, Inc., 250 F. Supp. 2d 323 (S.D.N.Y. 2003). 3855

"secure access" — "the ability to gain entry to and make authorized use of, such that unauthorized entry and use is prevented." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 3856

"secure computer network address" — "a network address that requires authorization for access and is associated with a computer capable of virtual private network communications." VirnetX, Inc. v. Microsoft Corp., 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009). 3857

"secure domain name" — "a domain name that corresponds to a secure computer network address." VirnetX, Inc. v. Microsoft Corp., 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009). 3858
"secure domain name service" — "a lookup service that returns a secure network address for a requested secure domain name." *VirnetX, Inc. v. Microsoft Corp.*, 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009). 3860

[i] "secure hash operation"; [ii] "secure hash algorithm"; [iii] "secure hash computer program" — [i] "a deterministic operation that produces a fixed output bit length regardless of input bit length such that it is practically impossible to determine (a) the input from the output, and (b) two inputs that produce the same output and where if a single bit of the input is changed, on average at least approximately 50% of the output bits are changed"; [ii] "an algorithm that implements a secure hash operation"; [iii] "a computer program that implements a secure hash operation." *PACid Group, LLC v. Apple, Inc., et al.*, 2010 U.S. Dist. LEXIS 70997 (E.D. Tex., Jul. 15, 2010).

"secure web site" — "a web site that requires authorization for access and that can communicate in a VPN." *VirnetX, Inc. v. Microsoft Corp.*, 2009 U.S. Dist. LEXIS 65667 (E.D. Tex., Jul. 30, 2009). 3862

"security indicia" — "a mark printed on a document that can be used to verify the authenticity of the document." *Kara Technology Inc. v. Stamps.com Inc.*, 582 F.3d 1341 (Fed. Cir. 2009). 3863

"security measures" — "measures taken to preclude the generation of drafts payable to someone other than the payee, including at least coded embedding of the payee identification information." *Intell-a-Check Corp. v. Autoscribe Corp., et al.*, 346 F. Supp. 2d 698 (D.N.J. 2004). 3864

"security module" — "a module that performs the task of preventing unauthorized access to data, including encryption, authentication or firewall components." *Square D Co., et al. v. E.I. Electronics, Inc.*, 2010 U.S. Dist. LEXIS 11204 (N.D. Ill., Feb. 9, 2010). 3865

"select" — "the plain language of the claim when read in light of the specification is clear that the term 'select' does not merely require a 'preference' for certain signals. Signals are to be specifically chosen based on whether or not they pass through irregularities in the container." *National Recovery Technologies, Inc. v. Magnetic Separation Systems, Inc., et al.*, 166 F.3d 1190 (Fed. Cir. 1999). 3866


"selectable categorical information" — "information related to a type of music that can be used to select individual tracks of music." *Sandisk Corp. v. LSI Corp.*, 2010 U.S. Dist. LEXIS 24973 (N.D. Cal., Mar. 17, 2010). 3868


"selected" — "the Court finds that the term 'selected' is used in accordance with its plain and ordinary meaning and requires no construction." *Agere Systems, Inc. v. Broadcom Corp.*, 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004). 3870
"selected computer resources of at least a first server computer" — "computer services, applications, or content that can be accessed by (either directly or indirectly) said first server computer." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007). 3871

"selected content"; "selected displayed content" — "this term can be easily understood by a jury and [] no construction is necessary." Aloft Media, LLC v. Yahoo!, Inc., et al., 2009 U.S. Dist. LEXIS 59599 (E.D. Tex., Jul. 13, 2009). 3872

"selected from a group of ID information" — "chosen from one of the following ID information." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007). 3873

"at selected higher and lower pressure magnitudes" — "at a higher pressure magnitude and a lower pressure magnitude that have been chosen prior to operation of the computer circuitry that is used to determine whether the patient is inhaling or exhaling." Respironics, Inc. v. Invacare Corp., 2006 U.S. Dist. LEXIS 62233 (W.D. Pa., Aug. 30, 2006). 3874


"selecting" — "In sum, claim 14 does not suggest that the selecting step requires a two-part manual process as interpreted by the district court. Moreover, the specification and prosecution history confirm that the two-part manual process relied upon by the district court is distinct from the claimed selecting step. Thus, the district court's interpretation of the selecting step was unduly narrow." Varco, L.P. v. Pason Systems USA Corp., 436 F.3d 1368 (Fed. Cir. 2006). 3878

"selecting" — "includes selecting all lines simultaneously." Atmel Corp. v. Information Storage Devices, Inc., 997 F. Supp. 1210 (N.D. Cal. 1998). 3879

"selecting" — "the meaning of 'selecting' in claims 40 and 67 is identical to that of 'sorting' in claims 1, 19, 87, and 93." Clintec Nutrition Co., et al. v. Baxa Corp., 988 F. Supp. 1109 (N.D. Ill. 1997). 3880

"selecting a floor broker to whom a further instruction is to be transmitted" — "the operator selects, based on the displayed current status information and number of unfilled orders calculated above using current status information, the identity of a floor broker to whom a further instruction is to be transmitted." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008) 3881
"responsive to a DNS query, selecting a given one of the name servers in the content delivery network"; "responsive to a DNS query received from a client local name server, selecting a given one of the name servers in the content delivery network" — "in response to a DNS query, the content delivery network's domain name system selects a particular name server"; "in response to a DNS query received from a client local name server, the content delivery network's domain name system selects a particular name server." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007). 3882


"selecting a timing parameter from a plurality of predetermined timing parameters in response to said timing control bit" — "no further construction is required because the phrase may be understood according to its plain and ordinary meaning." Juniper Networks, Inc. v. Toshiba America, Inc., 2007 U.S. Dist. LEXIS 29660 (E.D. Tex., April 23, 2007). 3886

"selecting an item from the table" — "a choice made by the customer and then input into the computer by the salesperson, or possibly by the customer in the case of an on-line purchase." Grantley Patent Holdings, Ltd. v. Clear Channel Communications, Inc., et. al., 2008 U.S. Dist. LEXIS 1588 (E.D. Tex., Jan. 8, 2008). 3887

"selecting at least one mode of operation of the implantable heart stimulator which operation includes a unique sequence of events corresponding to said determined condition" — "involves matching the currently determined heart condition to the unique set of instructions that have been programmed to treat the detected condition. The treatment operation selected by the device is determined exclusively by the currently determined condition of the heart." Cardiac Pacemakers, Inc., et al. v. St. Jude Medical, Inc., et al., 2000 U.S. Dist. LEXIS 17352 (S.D. Ind., Nov. 29, 2000). 3888

"selecting from said stored data for each of the specified definitions a corresponding integrated circuit hardware cell" — "mapping the specified stored function to a corresponding stored hardware cell." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005). 3889

"selecting the number of game credits to be associated with a deposit of one coin for each of the different coin types" — "does not require construction." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007). 3890

"selecting the total number of currency units to be associated with each coin type" — "does not require additional interpretation." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007). 3891
"selecting ...; selecting ...; selecting ..." — "the claim language is sufficiently clear that ..., ..., and ... are selected in three separate steps." Orion IP, LLC v. Staples, Inc., et al., 406 F. Supp. 2d 717 (E.D. Tex. 2005).\[3892\] "It is clear, as the Court concluded in the Staples Markman opinion, that both claims 1 and 11 require selecting at least three separate items, namely (1) a product picture, (2) a product environment picture, and (3) a text segment." Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007).\[3893\]

"selection" — "audio and/or visual content of a stream made available to user(s)." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).\[3894\]

"transmission power level selection circuit being responsive to the received command for selecting the transmission power level" — "a circuit in a remote unit that is responsive to an instruction from a base station to select a power level at which the radio transmitter in the remote unit transmits." Zoltar Satellite Alarm Systems, Inc. v. Motorola, Inc., et al., 2007 U.S. Dist. LEXIS 95521 (N.D. Cal., Dec. 21, 2007).\[3895\]

"item selection criteria"; "movie selection criteria"; "game selection criteria" — "the characteristics used by the customer to select items." Netflix, Inc. v. Blockbuster, Inc., 477 F. Supp. 2d 1063 (N.D. Cal. 2007).\[3896\]

"selection keys" — "keys that allow a user to select a song." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007)\[3897\]; TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010).\[3898\]

"selection logic" — "Because 'selection logic' is not governed by § 112, P 6, the Court finds that no further construction of the term is necessary." PCTEL, Inc. v. Agere Systems, Inc., et al., 2005 U.S. Dist. LEXIS 34288 (N.D. Cal., Sept. 8, 2005).\[3899\]

"selection signals received from the users" — "signals from users selecting a stream." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).\[3900\]


"selective communication link" — "a dial-up connection through a telephone exchange or a private branch exchange to a telephone network." Furnace Brook LLC v. Overstock.com, Inc., 2006 U.S. Dist. LEXIS 73422 (S.D.N.Y., Sept. 27, 2006).\[3902\]

"selective coupling"; "selectively couple"; "selectively coupling" — "coupling under some circumstances and not others." 02 Micro International, Ltd. v. Rohm Co., Ltd., 2007 U.S. Dist. LEXIS 84979 (E.D. Tex., Nov. 16, 2007).\[3903\]

"selective reception of the signals incorporating the differing scrambling techniques" — "reception of a signal modified in accordance with a scrambling technique." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003).\[3904\]

"selective voltage" — "voltage difference used to select a cell to be lit during the display period." Hitachi Plasma Patent Licensing Co., Ltd. v. LG Electronics, Inc., et al., 2009 U.S. Dist. LEXIS 38738 (E.D. Tex., May 7, 2009).\[3905\]
"selectively accessing ... from a remote location" — "the court concludes that initiation of the connection can come from either the remote location or the subscriber location, and therefore, 'selectively accessing' refers to the process of establishing a communication path, regardless of the origin of the connection." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001). \[3906\]

"selectively according to a particular one of a multiple of techniques" — "by selecting a particular one of more than one distinct scrambling methods, where a scrambling method is something more than merely varying one scrambling technique's parameters." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). \[3907\]

"selectively activating"; "selectively energizing" — "cover both printing continuous and strobed stripes." Laitram Corp. v. NEC Corp., et al., 62 F.3d 1388 (Fed. Cir. 1995). \[3908\]

"said step of displaying selectively allowing and prohibiting the display of said route guidance information that returns said vehicle to an original optimal route" — "said step of displaying, after deviation from the original optimal route, sometimes allowing and sometimes prohibiting the display of said route guidance information that returns said vehicle to an original optimal route." Garmin Ltd. v. TomTom, Inc., 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). \[3909\]

"selectively altering circuitry functions depending on mode of operation of the instrument when a first power limit is reached, thereby reducing power consumption" — "cannot be construed further." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008). \[3910\]

"selectively applying at least one layer of insulation material to said semiconductor substrate" — "this language describes a process step during which one or more layers of insulation material of a defined thickness form at specific locations on the top surface of the silicon wafer." Loral Fairchild Corp. v. Victor Co. of Japan, Ltd., et al., 906 F. Supp. 798 (E.D.N.Y. 1995). \[3911\]

"selectively changing" [the first and second transmission rates] — "means that a change is chosen and occurs, although it need not occur during a communication session." Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., et al., 92 F. Supp. 2d 483 (E.D. Va. 2000). \[3912\] 

"[T]he 'selectively changing' and 'selectively operating' limitations in claims 1 and 21 mean that a change is chosen or occurs without alteration of the transceiver hardware, although the change need not occur during a communication session." Id., 262 F.3d 1258 (Fed. Cir. 2001). \[3913\]

"selectively connecting" — "we agree with the district court that 'selectively connecting ...' requires that the connection between the electronic circuit and the power supply occur when the trigger means is in the first position and that the operator of the device be able to use the trigger means to select when the power supply and the electronic circuit are connected." McNulty, et al. v. Taser International, Inc., et al., 106 Fed. Appx. 15 (Fed. Cir., Jul. 7, 2004) (unpublished). \[3914\]

"selectively connecting"; "connected"; "selectively interconnected" — "defendants have not overcome the presumption that the limitations are non-means-plus-function terms. No additional construction is required." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). \[3915\]
"selectively controlling said engine by means of said first computer through at least one additional programmed mode provided by said adapter module, said additional programmed mode not being originally included in said originally provided memory" — "making a decision to switch control of the engine from the programmed mode provided in the originally provided memory to the additional programmed mode provided by the adapter module, with the adapter module remaining coupled to the bus such that control of the engine can be switched back and forth between the originally provided programmed mode and the additional programmed mode." Adrain v. Superchips, Inc., 2006 U.S. Dist. LEXIS 25212 (S.D. Tex., March 14, 2006). Id. "[T]he language of [the] claim [] makes no reference to switching back and forth between the originally provided programmed mode and the additional programmed mode during vehicle operation. Nor does [the] claim [] require the further step of storing the original configuration elsewhere in an additional memory ... It merely requires that the adapter module provide at least one additional programmed mode not originally included in the ECM." Id., 2007 U.S. App. LEXIS 1799 (Fed. Cir. 2007) (unpublished); "As the district court properly recognized, 'selectively controlling' indicates the ability to switch back and forth between multiple programmed modes." Id. (Prost, J., dissenting). "This term means that the vehicle's ECM can be selectively changed by the user through the use of at least one of the additional programs in the adapter module." Adrain v. Hypertech, Inc., 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002). Id. 

"selectively controlling the durations of the time intervals of activation" — "controlling the width of pulses during repetition periods." Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002). Selectively delay execution of the said door operation commands" — "delaying the execution of door operation commands when movement of the door would cause operational interference between the door and the ramp." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009). 

"selectively elect to be included in or to be excluded from" — "a customer's acceptance or denial of an invitation to have his name and address, and, if applicable, his order placed, retained in a customer profile by the retailer." Furnace Brook LLC v. Overstock.com, Inc., 2006 U.S. Dist. LEXIS 73422 (S.D.N.Y., Sept. 27, 2006). 

"steps of ... selectively energizing ... to provide a combination of energized unequal capacity compressors that exceeds in number the preselected number of compressors in the system" — "invokes application of § 112 par. 6." Altech Controls Corp., et al. v. E.I.L. Instruments, Inc., 1997 U.S. Dist. LEXIS 21336 (S.D. Tex., Jun. 5, 1997). 

"selectively filling in the void" — "filling in, replicating, creating, modifying, replacing, substituting, adding to, providing, correcting, or improving the void by varying the input signal without solely modifying the on and off times of the signal carrying the image." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006). 

"selectively generating"; "selective transfer" — "to choose whether to generate"; "to choose whether to transfer." Ampex Corp. v. Eastman Kodak Co., et al., 460 F. Supp. 2d 541 (D. Del. 2006).
"selectively mask one or more of said second portions from dopants in a subsequent doping step" — "selectively shield at least one or more of said second portions from dopants implanted during a doping process conducted after forming the masking layer (shield)." Micrel Inc. v. Monolithic Power Systems, Inc., et al., 2006 U.S. Dist. LEXIS 45860 (N.D. Cal., June 28, 2006). 3926

"selectively placing the motion detector camera into one or more of a burst state, a pause state, and a test state" — "the motion detector camera is placed automatically or by the user into at least one of a burst state, a pause state, and a test state." Good Sportsman Marketing LLC v. Testa Associates, LLC, et al., 440 F. Supp. 2d 570 (E.D. Tex. 2006). 3927

"selectively providing access" — "determining which of a plurality of devices coupled to a bus is allowed access to the memory based on a priority scheme." STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004). 3928


"song selector" — "a device that allows a user to select a song." TouchTunes Music Corp. v. Rowe International Corp., 2009 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010). 3931

"being self-aligned with said conductive gate when forming said first region" — "being formed using the conductive gate as a mask so that the relative position of the first region is controlled by the position of the conductive gate." Micrel Inc. v. Monolithic Power Systems, Inc., et al., 2006 U.S. Dist. LEXIS 45860 (N.D. Cal., June 28, 2006). 3932

"self-configuring bus" — "a shared communication medium connecting multiple stations (e.g., instruments) that has functionality for (i) automatically, based on arbitration provisions or assigned priorities, determining which one of the stations will serve as the bus master, and (ii) automatically detecting the connection or disconnection of stations to or from the bus." Karl Storz Endoscopy-America, Inc. v. Smith & Nephew, Inc., 2010 U.S. Dist. LEXIS 85036 (W.D. Tenn., Aug. 18, 2010). 3933

"second doped regions being self-aligned with said first doped regions" — "first and second doped regions being formed using the same mask to control the relative locations of said regions." Micrel Inc. v. Monolithic Power Systems, Inc., et al., 2006 U.S. Dist. LEXIS 45860 (N.D. Cal., June 28, 2006). 3934


"semi-conducting material" — "all materials, whether elements, compounds, or some other material, known to be semi-conducting." Lemelson Medical, Education & Research Foundation, L.P. vs. Intel Corp., et al., 2002 U.S. Dist. LEXIS 8081 (D. Az., Feb. 20, 2002).

[i] "semi-regulation"; [ii] "semi-regulated, isolated output"— [i] "the act of controlling an output towards a predefined value by sensing a voltage in the primary transformer winding circuit without sensing the isolated output voltage"; [ii] "an isolated output that is controlled towards a predefined value by sensing a voltage in the primary transformer winding circuit without sensing the isolated output voltage." SynQor, Inc. v. Artesyn Technologies, Inc., et al., 2010 U.S. Dist. LEXIS 74808 (E.D. Tex., Jul. 26, 2010).

"semiconductor"; "semiconductor material" — "a solid material that conducts limited electric current by means of a small number of carriers (free electrons or holes) and additional carriers that can be freed from their local bonds by the addition of other elements (doping) or by application of an electrical or magnetic field." Seoul Semiconductor Co. Ltd. v. Nichia Corp., et al., 596 F. Supp. 2d 1005 (E.D. Tex. 2009).


"sending"; "transmitting"; "receiving" — "requir[e] the direct transmission of data packets between the local and remote sites over a telephone line and exclud[e] the use of a packet-switched network such as the Internet." Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340 (Fed. Cir. 2004). "I cannot support this court's many leaps of illogic. I would not import the exclusive telephone line limitation, if it even exists in the specification, into the claims." Id., 357 F.3d 1340 (Rader, J., dissenting).

"sending information collected from the pavement construction material mixture to the server" — "sending data collected from the testing of the pavement construction mixture to the server." Ater Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).

"message originator sending the caller ID with the picture to the message center" — "message originator sending the caller ID, without manual entry of the caller ID, and the picture to the message center." Intellect Wireless, Inc. v. Kyocera Communications, Inc., et al., 2010 U.S. Dist. LEXIS 64726 (N.D. Ill., Jun. 29, 2010).

"sending the one or more reports to a project manager" — "using a computer to provide the one or more reports to a project manager." Ater Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).

"sensing a torque occurring at a drive shaft of the washer due to an impact from the clothes" — "sensing a torque occurring at a drive shaft of the washer due to a collision from the clothes." LG Electronics U.S.A., Inc. et al. v. Whirlpool Corp., 2007 U.S. Dist. LEXIS 24056 (D.N.J., April 2, 2007). 3949

"sensing a torque occurring at a drive shaft of said washer due to the twist of clothes, to sense the distribution of impact applied to an agitator of the washer by said clothes" — "sensing a torque occurring at a drive shaft of the washer due to clothes that are entwined together, to sense the distribution of collisions between the clothes and the agitator of the washer." LG Electronics U.S.A., Inc. et al. v. Whirlpool Corp., 2007 U.S. Dist. LEXIS 24056 (D.N.J., April 2, 2007). 3950


"sensing intervals between successive synchronization codes" — "measuring the interval between successive synchronization codes." Sandisk Corp. v. LSI Corp., 2010 U.S. Dist. LEXIS 24973 (N.D. Cal., Mar. 17, 2010). 3952

"sensor" — "a device designed to respond to a physical stimulus (as heat or cold, light, a particular motion) and transmit a resulting impulse for interpretation or measurement or for operating a control." Harmonic Design, Inc. v. Hunter Douglas, Inc., 88 F. Supp. 2d 1102 (N.D. Cal. 2000). 3953

"sensor appliance" — "a network device which contains one or more sensors for monitoring an area and which generates and transmits an IP signal indicating a condition or event in the monitored area." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006). 3954

"sensor means"; "control circuit means"; "switching means" — "we reject DESA's argument that the use of "sensor, "control circuit," and "switching" before the word "means" was sufficient to denote structure. ... Here, we agree with the district court that DESA failed to overcome the presumption that § 112, P 6 does apply." DESA IP, LLC v. EML Technologies, LLC, 2007 U.S. App. LEXIS 256 (Fed. Cir. 2007) (unpublished). 3955


"separate and discrete additional element" — "an element having no value, and not being available for designating by the player as one of the winning numbers or symbols of the usual lottery series. A separate and discrete additional element cannot be combined with a discrete lottery element." FortuNet, Inc., et al. v. Melange Computer Services, et al., 412 F. Supp. 2d 1071 (D. Nev. 2006). 3957
"a separate audio programming channel of the television carrier"; "an SAP associated with television signals" — "the part of the analog signal specifically designed to carry second audio programming,' but ... this definition must be applied in light of the preceding discussion." \textit{Command Audio Corp. v. Sony Electronics, Inc.}, 2003 U.S. Dist. LEXIS 27838 (N.D. Cal., Aug. 5, 2003).\textsuperscript{3958}

"separate electrical power connections being provided to said first and second heating elements" — "each heating element has a separate connection to power and ground." \textit{Cytologix Corp. v. Ventana Medical Systems, Inc.}, 424 F.3d 1168 (Fed. Cir. 2005).\textsuperscript{3959}

"a separate set of queue replenishment control rules" — "a set of rules (distinct from the set of notification rules) governing whether to automatically add playable media titles to the subscriber's rental queue." \textit{Media Queue, LLC v. Netflix, Inc., et al.}, 2009 U.S. Dist. LEXIS 118896 (N.D. Cal., Dec. 1, 2009).\textsuperscript{3960}

"said buffer MOSFETs having impurity diffusion layers \textit{separated} from said impurity diffusion layers of said protection MOSFETs \textit{by an interposed field oxide film}" — "requires that all impurity diffusion layers of the protection MOSFETs be separated by an interposed field oxide film from the impurity diffusion layers of the buffer MOSFETs that the protection MOSFETs serve to protect." \textit{OKI America, Inc., et al. v. Advanced Micro Devices, Inc.}, 2006 U.S. Dist. LEXIS 73144 (N.D. Cal., Sept. 21, 2006).\textsuperscript{3961}

[i] "\textit{respective separately executed}"; [ii] "\textit{executed separately from said kernel}" — [i] "an operating system peer-level facility executed separately from other operating-system peer-level facilities"; [ii] "executed by a processor that does not execute the kernel." \textit{Network Appliance, Inc. v. BlueArc Corp.}, 2004 U.S. Dist. LEXIS 28344 (N.D. Cal., Nov. 30, 2004).\textsuperscript{3962}

"separately, independently, and simultaneously" — "means that each display means responds to different and distinct electrical signals to produce different and distinct visual displays (i.e. images) at the same time." \textit{American Science and Engineering, Inc. v. Autoclear, LLC, et al.}, 2009 U.S. Dist. LEXIS 25954 (E.D. Va., Jan. 30, 2009).\textsuperscript{3963}

"separating into frequency components" — "splitting up the digital sound signal to frequency components by digital transform processing." \textit{Arbitron, Inc. v. International Demographics Inc., et al.}, 2009 U.S. Dist. LEXIS 1382 (E.D. Tex., Jan. 8, 2009).\textsuperscript{3964}

"separator layer" — "the term 'separator layer' speaks for itself and needs no further construction." \textit{Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al.}, 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).\textsuperscript{3965}

"sequence encoder" — "the Court limits its finding of indefiniteness to the independent claims 1, 17 and dependent claim 32. Dependent claims 'shall be presumed valid even though dependent upon an invalid claim.' 35 U.S.C. § 282. The Court leaves for later consideration upon motions by the parties whether or not the limitations in dependent claims 7, 18 and 33 provide additional information about 'sequence encoder' to allow the Court to define it and to satisfy the definiteness requirement." \textit{Acacia Media Technologies Corp. New Destiny Internet Group, et al.}, 405 F. Supp. 2d 1127 (N.D. Cal. 2005).\textsuperscript{3966}
"a sequence of groups of digital bits which represent the respective values of said analog electrical output signal at said periodic instants" — "a series of groups of digital bits in which each group of bits corresponds to values taken at the periodic instants of the analog electrical output signal." Digital Technology Licensing, LLC v. Cingular Wireless, LLC, 2007 U.S. Dist. LEXIS 57492 (E.D. Tex., Aug. 7, 2007).

"sequence of tournament games" — "one or more types of tournament games played at least two times in succession. A single play of a single tournament game is not a 'sequence.'" Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).


"a sequencer" — "a device that performs certain tasks, namely 'receiving data in a non-return to zero format and providing a mode select output for selecting one of a plurality of data patterns and a step select output for selecting one of a plurality of time segments in response thereto.'" Level One Communications, Inc. v. Seeq Technology, Inc., 987 F. Supp. 1191 (N.D. Cal. 1997).


"sequential" — "The term 'sequential' in the claims is in accordance with this description in the specification; no usage or exemplification of the sequential movement requires eliminating all overlap. It is incorrect to construe the claims as barring all overlap, as urged by M3 Systems. On the correct claim construction, no reasonable jury could have found that the claims are not supported by the description in the specification." C.R. Bard, Inc. v. M3 Systems, Inc., 157 F.3d 1340 (Fed. Cir. 1998).

"sequential from each said data line" — "mean[s] that the sequential information within the data lines is sequentially related to the information in the preceding and following lines." Datastrip International Ltd. v. Intacta Technologies, Inc., 253 F. Supp. 2d 1308 (N.D. Ga. 2003).

"sequentially display four calibration marks" — "four calibration marks are displayed individually in four separate successive images." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).

"sequentially ... contiguous" — "requires the device to have the ability to store multiple command bytes in a sequentially contiguous manner." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34454 (N.D. Cal., Sept. 9, 2005).

"sequentially transferring data units between said bus master and said secondary memory" — "moving data units from the bus master and the secondary memory in the sequence in which they are stored." OPTi Inc. v. nVidia Corp., 2006 U.S. Dist. LEXIS 22377 (E.D. Tex., April 24, 2006).
"the method for demultiplexing a serial data bit stream consisting of a continuum of an interleaved multiplicity of data bytes of predetermined size derived from a plurality of identically-formatted contributory frames" — "means that each frame of the serial bit stream that is being demultiplexed was formed by interleaving the bytes of two or more contributory frames. Each contributory frame must have exactly the same format and there can be no gaps or pauses in the interleaving." Bell Communications Research, Inc. v. Fore Systems, Inc., 113 F. Supp. 2d 635 (D. Del. 2000). 3977

"serial data packet" — "a unit of information transmitted as a whole from one device to another on a network that includes a keyboard signal, a mouse signal, or both." Apex Inc. v. Raritan Computer; Inc., 325 F.3d 1364 (Fed. Cir. 2003). 3978


"serial number" — "a number that is one of a series." Uniloc USA, Inc., et al. v. Microsoft Corp., 447 F. Supp. 2d 177 (D. R.I. 2006). 3980

"serially connected intelligent cell[s]"; "SICs" — "two or more intelligent cells directly connected using point-to-point medium, where 'intelligent cells' refers to 'programmable elements for providing remote control, sensing and/or communications that when interconnected with other like elements form a communications, control and sensing network or system with distributed intelligence.'" SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007). 3981

"a series circuit connecting in series through a series junction point said entire-width erasing head and said linear record erasing head" — "does not require that the series junction point must be between the two heads, but only that all three must be in series." Funai Electric Co., Ltd. v. Daewoo Electronics Corp., et al., 2010 U.S. App. LEXIS 18237 (Fed. Cir., Sep. 1, 2010). 3982

"a server" — "one or more devices or networks, with each computer or device having user account(s), server database application(s), and server application(s)." Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). 3983

"server" — "a computer that provides data." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009). 3984

"server" — "a computer system, such as one or more computers and/or devices, that provides services to other computer systems over a network." Verizon Services Corp., et al. v. Vonage Holdings Corp., et al., 503 F.3d 1295 (Fed. Cir. 2007). 3985

"server" — "a computer or program, on the Internet or another network, that responds to commands from a client." In re Margolin, 2007 U.S. App. LEXIS 14269 (Fed. Cir., June 15, 2007) (unpublished). 3986

"server" — "a computer that provides services to another computer." Atser Research Technologies, Inc. v. Raba-Kisiner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009). 3987
"server" — "computer system that receives, stores, and provides data."  


"server applying one or more test methodologies to the collected information; generating one or more reports from the test methodologies; and sending the one or more reports to a project manager" — "a server that (1) performs calculations for one or more test methodologies using the data collected from the testing of the pavement construction material, (2) generates one or more reports based on the results of the test methodologies, and (3) provides the one or more reports to a project manager." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).

"server computer" — "a machine on a network that provides a particular service to other machines." Seven Networks Inc. v. Visto Corp., 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006).

"first server computer" — "a computer that makes available information or other resources." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007).

"server remote from the client computer system" — "a computer that responds to requests from the client computer system through a network connection." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).


"at least one first level name server that provides domain name service (DNS) resolution"; "and at least one second level name server that provides a second level domain name service (DNS) resolution" — "a computer or program hosting framework that receives a request to resolve a name or other identifier into an IP address, and returns the IP address of a name server or servers"; "a computer or program running on a computer in the hosting framework that receives a request to resolve a name or other identifier into an IP address, and returns the IP address of a content server or servers." Akamai Technologies, Inc., et al. v. Limelight Networks, Inc., 494 F. Supp. 2d 34 (D. Mass. 2007).


"service application" — "a program running on a server that provides a service to a client." Pixion, Inc. v. PlaceWare, Inc., 2004 U.S. Dist. LEXIS 15808 (N.D. Cal., Aug. 2, 2004).

"service center" — "the central location at which the system apparatus carries out the process of the invention." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007).


"service request(s)" — "a solicitation of services from a client to a server. A service request may entail the exchange of any number of messages between the client and the server." *Soverain Software LLC v. Amazon.com, Inc.*, 2005 U.S. Dist. LEXIS 46872 (E.D. Tex., Apr. 7, 2005).

"service response" — "is the answer to the question, 'Will you the end user accept (display) the web page containing added function, and on what terms will you accept it?" *Modavox, Inc. v. Tacoda, Inc.*, 607 F. Supp. 2d 530 (S.D.N.Y. 2009).

"service-specific information about a state of a client service session" — "the current conditions of an active communication between the server running a particular service application and a client computer." *Pixion, Inc. v. PlaceWare, Inc.*, 2004 U.S. Dist. LEXIS 15808 (N.D. Cal., Aug. 2, 2004).


"set [of ... followed by ...]"] — "the Court is not persuaded that this term would be clarified further by using either 'sequence' or 'count' instead of set. No party has addressed whether there is any difference between the terms 'sequence' and 'count' or why it would be beneficial to use either of these terms rather than 'set.' Accordingly, without any persuasive argument for giving term nine any construction other than its plain meaning, the Court will provide no additional construction for this term." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).

"set of cards within the apparatus" — "While claim construction is a question of law, the district court's analysis is important to the process of claim construction, and in this context, as in others, we decline to construe the claim without the guidance of the district court's construction. ... We therefore vacate the preliminary injunction and remand this case to the district court for further proceedings consistent with this opinion." Shuffle Master, Inc. v. VendingData Corp., 2005 U.S. App. LEXIS 28878 (Fed. Cir. 2005) (unpublished). VendingData contends that 'a set of cards' means 'a discrete hand or part of a hand.' Under that construction, however, the trial court could have determined that the internal stack consisted of multiple sets, wherein each set consisted of no more than one hand of cards. This determination is possible since the claims clearly allow more than one set of cards within the apparatus." Shuffle Master, Inc. v. VendingData Corp., 2005 U.S. App. LEXIS 28878 (Fed. Cir. 2005) (unpublished) (Mayer, J., dissenting).

"reference set of colors" — "set denotes 'a group of two or more articles grouped together according to a system of classification' and color means a 'particular hue or tint being one of the constituents into which white or colorless light can be decomposed, the series of which constitutes the spectrum; also any mixture of these' as well as 'the quality or attribute in virtue of which objects present different appearances to the eye.'" X-Rite, Inc. v. Accudent Pty Ltd., 2006 U.S. Dist. LEXIS 70186 (D.D.C., Sept. 28, 2006).

"set of identification information" — "information reflecting a user's identity, such as a PAP ID or PAP password, used to authenticate the user's right to communicate with the network." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).

"set of indices for referencing data in said information database" — "the pieces of digital information (each of which contains an identification value plus, in many cases, other information) used to refer to specific items of information within the database." Finisar Corp. v. Directv Group, Inc., et al., 416 F. Supp. 2d 512 (E.D. Tex. 2006).

"set of log-in information"; "set of log-in data" — "information or data used to authenticate the user's right to connect to the network." MyMail, Ltd. v. American Online, Inc., et al., 2005 U.S. Dist. LEXIS 40716 (E.D. Tex., June 3, 2005).

"comparing the detected code to a set of selected codes" — "comparing a detected program classification code to more than one code, each of which has been assigned a value by the user." Sony Electronics, Inc. v. Guardian Media Technologies, Ltd., 2009 U.S. Dist. LEXIS 79716 (S.D. Cal., Aug. 31, 2009).

"set-up signaling associated with the call" — "a message or messages used to set up the call." Sprint Communications Co. L.P. v. Big River Telephone Co., LLC, 2009 U.S. Dist. LEXIS 58161 (D. Kan., Jul. 8, 2009).


"setting ... to initial values"; "expired" — "have readily apparent ordinary and customary meanings, and do not need to be construed."  *Websidestory, Inc. v. Netratings, Inc.*, 2007 U.S. Dist. LEXIS 50186 (S.D. Cal., July 10, 2007).

"shadow set" — "Copies of data located on one or more storage media. If a change is made to any copy, that change is reflected in the others."  *Hewlett-Packard Co., et al. v. EMC Corp.*, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"shape" — "a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines."  *Adobe Systems Inc. v. Macromedia, Inc.*, 201 F. Supp. 2d 309 (D. Del. 2002).


"shaping input signals to the data storage device to reduce selected unwanted frequencies from a plurality of frequencies" — "the term 'shaping' ... is interpreted to mean: 'applying a transformation to a signal.' ... the term 'selected unwanted frequencies' ... is interpreted to mean: 'at least the chosen unwanted frequencies.'"  *Convolve, Inc., et al. v. Compaq Computer Corp., et al.*, 2005 U.S. Dist. LEXIS 16375 (S.D.N.Y., Aug. 9, 2005).

"shared addressable memory space" — "memory space distributed across the volatile and non-volatile memory of all nodes participating in the patents' shared memory system (though not necessarily all nodes on the network), which shared memory space can be accessed by the various participating nodes using one or more addresses. The participating nodes need not, however, utilize a common or global addressing scheme."  *Mangosoft, Inc., et al. v. Oracle Corp.*, 2004 U.S. Dist. LEXIS 19357 (D.N.H., Sept. 21, 2004).

"shared context storage information" — "static and dynamic information that identifies the register level for the instruction as well as the context file."  *Biax Corp. v. Intel Corp., et al.*, 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).

"shared folder" — "a folder represents the abstraction for grouping related objects and metadata in a repository. The contents of a shared folder may be accessed by other folders in the same repository and/or by other linked repositories through the use of a reference."  *Informatica Corp. v. Business Objects Data Integration, Inc.*, 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005).
"sharp cut-on" — "in the context of a dye or filter, having a cut-on slope that at some concentration or dye density rises more than one half percent (0.5%) change in transmission for every one nanometer of increasing wavelength change. The cut-on slope is that portion of the transmission spectra of a cut-on dye that represents the transition between [the] substantially blocking and the substantially transmitting region." Suntiger, Inc. v. Sunglass Products of California, 2006 U.S. Dist. LEXIS 1076 (C.D. Cal., Jan. 10, 2006).

"sheet"; "sheet-like" — "A review of the '482 patent and its prosecution history reveals that the terms 'sheet' and 'sheet-like' do not have any special meanings in the art and that the '482 inventors used these terms in their ordinary, everyday sense, i.e., to describe something flat with a fairly broad surface relative to its thickness. The claims thus include within their literal scope only devices with conductive material that comprises a fairly broad surface relative to its thickness." Strattec Security Corp. v. General Automotive Specialty Co., Inc., et al., 126 F.3d 1411 (Fed. Cir. 1997).

"shift register" — "a register in which, at each common shift clock cycle the pattern of 0's and 1's in the register shifts to the right or left, with the data at the input of the register entering from the left or right, respectively." Honeywell International, Inc., et al. v. Acer America Corp., et al., 2009 U.S. Dist. LEXIS 1381 (E.D. Tex., Jan. 7, 2009).

"shopping cart model" — "a method for on-line ordering in which a user selects and accumulates items to be purchased while browsing a merchant's site and then must proceed to one or more checkout or confirmation steps in order to complete the purchase." Amazon.com, Inc. v. Barnesandnoble.com, Inc., 73 F. Supp. 2d 1228 (W.D. Wash. 1999).


"shortest path" — "path through the network having the shortest distance (distance being a function of the time delay incurred by a packet moving from one switch to another, sometimes referred to as 'cost' or 'delay')." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006).

"showing … a number of game credits associated with a deposit of one coin of a particular type" — "no construction is required." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).

"showing … the number of game credits associated with each coin type" — "does not require construction." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).

"showing … the total number of currency units associated with each coin type" — "does not require construction." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007).
"shuffled bit result"; [ii] "bit shuffling operations"; [iii] "bit shuffling function" / "function to shuffle bits"; [iv] "bit shuffle computer program" — [i] "the result of an operation that mixes the bits of its inputs"; [ii] "operations that mix the bits of inputs"; [iii] "a function that mixes the bits of its inputs"; [iv] "a computer program that mixes the bits of its inputs." PACid Group, LLC v. Apple, Inc., et al., 2010 U.S. Dist. LEXIS 70997 (E.D. Tex., Jul. 15, 2010).

"shut-down condition" — "an express signal used for the purposes of entering a low-power state or a loss of framing." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010).

"side view" — "the side view image is not limited to crescent shaped; the viewing angle may not be a 90 degree angle, a top view angle, or identical to the angle created by the first camera; and the viewing angle is not limited to a 'low angle.'" Scanner Technologies Corp. v. ICOS Vision Systems Corp., N.Y., 2002 U.S. Dist. LEXIS 331 (S.D.N.Y., Jan. 10, 2002).

[i] "single instruction multiple data mode (SIMD mode)"; [ii] "multiple instruction multiple data mode (MIMD mode)" — [i] "where each processing element is first loaded with its own data and then a single stream of instructions is broadcast to every processing element in the binary tree"; [ii] "where each processing element has broadcast to it its local program and data and then each processing element is logically disconnected from its neighbor processing element and executes independently." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).

"sign value" — "an indicator of the sign of a value—i.e., whether a value is positive or negative." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).


"signal" — "some physical form for the signal is required, but any form will do, so long as a recipient can understand the message—the nature of the signal's physical carrier is totally irrelevant to the claims at issue." In re Petrus A.C.M. Nuijten, 500 F.3d 1346 (Fed. Cir. 2007).

"signal" — "a detectable physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted." Cardiac Science, Inc. v. Koninklijke Philips Electronics N.V., et al., 2006 U.S. Dist. LEXIS 22267 (D. Minn., April 20, 2006).

"signal" — "an impulse by which messages or information can be transmitted." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003).

[i] "signal-dependent noise"; [ii] "signal-dependent branch metric function" — [i] "media noise in the readback signal whose noise structure is attributable to a specific sequence of symbols (e.g., written symbols)"; [ii] "a 'branch metric function' that accounts for the signal-dependent structure of the media noise." Carnegie Mellon University v. Marvell Technology Group, Ltd., et al., 2010 U.S. Dist. LEXIS 104891 (W.D. Pa., Oct. 1, 2010).

"signal point" — "a value that is transmitted by a modulator in one signaling interval." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).


"signal representative of the differences between said interval speech pattern and the interval representative set" — "a sequence of values representative of the differences between the interval speech pattern and the predicted speech pattern based on the set of signals representative of the speech pattern of said time interval." *AT&T Corp. v. Microsoft Corp.*, 2003 U.S. Dist. LEXIS 10716 (S.D.N.Y., Jun. 23, 2003). 4054


"signal transfer device" — "a device that incorporates both a transmission circuit and a reception circuit and involves the transfer of signals between the two." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003). 4057


"signaling message" — "a message used to set up or tear down a call." *Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al.*, 518 F. Supp. 2d 1306 (D. Kan. 2007). 4059


"signals representative of" — "one of ordinary skill in this art would not limit this term to numerical or instantaneous values. Rather these signals are inputs into the system which uses its algorithms to process this information into appropriate warnings." *Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al.*, 488 F.3d 982 (Fed. Cir. 2007). 4062


"significant oxide growth" — "a thickness of oxide growth on the exposed portion of the semiconductor body (1) that a metallic interconnect will not readily punch through when deposited thereon, or (2) that requires removal by a separate etching step that will simultaneously remove desirable oxide and thereby disrupt the integrity of the contact hole." Harris Corp., et al. v. Atmel Corp., 14 F. Supp. 2d 821 (E.D. Va. 1998).4066

"signing" — "the process of computing a hash result, which result is converted into a digital signature using a cryptographic function and the signer's private key." Timecertain, LLC v. Authentidate Holding Corp., et al., 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006).4067

"substantially similar in design"; "similar in design" — "the claim language is clear and understandable to the fact finder and any substitute for the claim language is likely to cause confusion rather than aid. Thus, the terms do not require construction." ACQIS LLC v. Appro International, Inc., et al., 2010 U.S. Dist. LEXIS 77548 (E.D. Tex., Aug. 2, 2010).4068

"simulated LMU" — "refers to a device capable of being used to perform diagnostic testing on an LSM before the LSM is connected to a library." Storage Technology Corp. v. Custom Hardware & Engineering Consulting, Ltd., et al., 2006 U.S. Dist. LEXIS 43690 (D. Mass., June 28, 2006).4069

"simulating a virtual file system" — "appearing to be a system of files, including a directory structure, that is not physically stored; rather, it is constructed or derived from existing data when its contents are requested by an application program so that it appears to exist as a system of files from the point of view of the host device." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).4070


"simultaneous" — "existing or occurring at the same time" Meade Instrument Corp. v. Yamcon, Inc., 2005 U.S. Dist. LEXIS 43396 (C.D. Cal., July 27, 2005).4072 "We agree with the district court that claims 1 and 15 require that information be presented to the user in a manner that allows the user to access the information at the same time that he is observing the field of view." Id., 197 Fed. Appx. 929 (Fed. Cir., Aug. 25, 2006) (unpublished).4073

"simultaneously" — "in the claim preamble refers to the capability of the multiplexed bit stream to carry signals from multiple sources during a finite interval, not to any requirement that several data sources must be inserting data into empty frames at the same instant in time." Bell Communications Research, Inc. v. Fore Systems, Inc., 62 Fed. Appx. 951 (Fed. Cir., Mar. 27, 2003) (unpublished).4074

"simultaneously" — "at or about the same time."  

"simultaneously active windows" — "two or more defined and separated areas on the computer screen which are open at the same time and may be operated on by the user."  

"simultaneously monitoring the selected multiple connection points or wires for presence of the test signal which is applied sequentially to each point on the interconnect of the system under test" — "require[s] the simultaneous monitoring of input and output points, but not necessarily the simultaneous monitoring of an input point and multiple output points."  
In re Graves, 69 F.3d 1147 (Fed. Cir. 1995). 4078 "I construe that claim language to mean that multiple points must be monitored for the test signal, a single test signal, at the same time -- i.e., 'simultaneously.'"  
Id. (Nies, J., dissenting). 4079

"can be simultaneously operated" — "all of the surgical equipment can be controlled and monitored at the same time from the surgeon's control panel."  

"simultaneously supplying the first input-output bus line with one of a logic 1 or 0 signal and the second input-output bus line with the other of a logic 1 or 0 when the memory circuit is enabled in the write operation mode" — "require[s] both events (i.e., the application of a '1' and a '0' signal) to commence at the same time."  

"simultaneously testing to determine if at least one of at least two predefined sequences are present in the digital data received" — "'simultaneously testing' means testing for at least two predefined sequences 'at the same time.' ... the [remainder of the] phrase should be construed exactly as it is written, requiring testing only for at least one of multiple predefined sequences."  

"single action" — "appears to refer to one action (such as clicking a mouse button) that a user takes to purchase an item once the following information is displayed to the user: (1) a description of the item; and (2) a description of the single action the user must take to complete a purchase order for that item."  
Amazon.com, Inc. v. Barnesandnoble.com, Inc., 73 F. Supp. 2d 1228 (W.D. Wash. 1999). 4083 "[W]e ultimately agree with Amazon and construe all four independent claims (i.e., claims 1, 6, 9, and 11) to call for the single action to be performed immediately after a display of information about an item and without any intervening action, but not necessarily immediately after the first display or every display."  
Id., 239 F.3d 1343 (Fed. Cir. 2001). 4084
"single action of a user input device" — "an action by a user within a short period of time that may comprise one or more clicks of a mouse button or other input device." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006). 4085 "This court was easily able to determine that the TSE system's method of order entry did not fall within the boundaries of the patents-in-suit because the combined actions of double-clicking, entering quantity, and pressing 'enter,' even though it literally constitutes 'one or more clicks' of a mouse button, et cetera, did not constitute a single action from the perspective of a user. Our very ability to determine that the TSE does not fall within the claim's ambit is evidence that the claim term is sufficiently definite. Therefore, defendants have failed to meet their burden of proving by clear and convincing evidence that the claim term 'single action' is indefinite." Id., 2008 U.S. Dist. LEXIS 292 (N.D. Ill., Jan. 2, 2008). 4086 "This court agrees with the district court that the claim term as construed is sufficiently definite." Id., 2010 U.S. App. LEXIS 3914 (Fed. Cir., Feb. 25, 2010) (unpublished). 4087

"single, bi-state switch" — "do[es] not limit the dialer unit to only one bi-state switch. The claim language does not preclude other switches on the exterior of a dialer unit, such as another switch to choose a different preprogrammed telephone number. The term 'single,' however, precludes the use of multiple switches to perform the activating function for one phone number. Only a single switch activates the dialing function for a preprogrammed number." Innovad Inc. v. Microsoft Corp., et al., 260 F.3d 1326 (Fed. Cir. 2001). 4088

"single common interface" — "claim 34 discloses a cable system capable of selective connection to either a monitoring device, a stimulating device, or a therapeutic device. It does not require that the system protected is capable of simultaneous connection to all three devices." R2 Medical Systems, Inc., et al. v. Katecho, Inc., et al., 931 F. Supp. 1397 (N.D. Ill. 1996). 4089

"said single connector for making all connections from the microprocessor to said specific computer peripheral devices" — "[this] phrase will be construed to require that all individual peripheral device connections on the housing that connect to the microprocessor also pass through the single connector." Computer Docking Station Corp. v. Dell Inc., et al., 2006 U.S. Dist. LEXIS 58388 (W.D. Wis., Aug. 16, 2006). 4090

"single ended forward converter" — "a device in which (a) the power flow from source to load is controlled (gated) by a single solid state primary switch; (b) energy is transferred forward from the primary winding to the secondary winding of the transformer during the ON period of the switch; and (c) the power transformer is simultaneously connected to the source and the load." VLT Corp., et al. v. Lambda Electronics, Inc., 238 F. Supp. 2d 347 (D. Mass. 2003). 4091 "We agree with VLT that the district court did not err in its interpretation of the term 'single ended forward converter.'" Id., 103 Fed. Appx. 356 (Fed. Cir., May 24, 2004) (unpublished). 4092

"single in-line memory module"; "SIMM" — "a compact circuit board with memory chips mounted on it which can be inserted into a connector within a computer system to expand the computer's memory and which derives all necessary electrical signals from the connector." Sun Microsystems, Inc. v. Dataram Corp., 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997). 4093

"sink object" — "a collection of data and operations that (1) obtains data stream buffers [memory where data can be temporarily stored for transfer] from a transform object and (2) outputs the streams to a video and audio decoder." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).

"slave game device" — "a secondary data processing device for playing games which is connected to the game network and is at least partially controlled by the master game device." FortuNet, Inc., et al. v. Melange Computer Services, et al., 412 F. Supp. 2d 1071 (D. Nev. 2006).

"slice data" — "the phrase 'slice data' is synonymous with 'active area.'" Digital Biometrix, Inc. v. Identix, Inc., et al., 149 F.3d 1335 (Fed. Cir. 1998).

"slot" — "a space for receiving a computer module,' where 'a computer module' means 'one or more computer modules.'" ACQIS LLC v. Appro International, Inc., et al., 2010 U.S. Dist. LEXIS 77548 (E.D. Tex., Aug. 2, 2010).

"a small magnitude of electromagnetic energy" — "mean[s] that magnitude of electromagnetic energy which is sufficient to reverse the magnetization direction of the electrode or film layer with a lower coercive force (thereby achieving a change in resistance of at least 10%) but less than the amount necessary to reverse the magnetization direction of the electrode or film layer with a higher coercive force." Magsil Corp., et al. v. Seagate Technology, et al., 2010 U.S. Dist. LEXIS 18086 (D. Del., Mar. 1, 2010).

"smart card" — "a card that contains an integrated circuit such as a microprocessor or a memory." AdvanceMe, Inc. v. Rapidpay, LLC, et al., 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006).


"soft mask" — "a mask is an erodable layer of material used to cover selected areas of a surface during etch. A soft mask erodes more rapidly than a hard mask, which erodes slowly or not at all." Samsung Electronics Co., Ltd. v. Matsushita Electric Industrial Co., Ltd., 2007 U.S. Dist. LEXIS 84758 (E.D. Tex., Nov. 14, 2007).


"software-adjustable memory for storing an ion output current reference value" — "a unit of a computer that holds a value that can be changed to a different value via software." Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003).

"client software means installed on each of said subscriber client computers adapted to forward its identity data to said first server computer at the beginning of an operating session in which access to selected computer resources is requested" — "while 'client software means' is a means-plus-function element, the means-plus-function interpretation does not apply to the phrase 'at the beginning of an operation session in which access to selected computer resources is requested.'" Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007).  

"software modem" — "a modem that utilizes the software executed by the host processor to perform modulation and demodulation rather than including a digital signal processing (DSP) chip." PCTEL, Inc. v. Agere Systems, Inc., et al., 2006 U.S. Dist. LEXIS 25943 (N.D. Cal., March 20, 2006).  


"solely contained within" — "mean[s] that a window object cannot be moved from or displayed, in whole or in part, outside a content manifestation environment." CA, Inc. v. Simple.com, Inc., et al., 2009 U.S. Dist. LEXIS 25241 (E.D.N.Y., Mar. 5, 2009).  


"song" — "a 'studio quality musical recording,' where 'studio quality' means that the recording is suitable for commercial distribution." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 106353 (S.D.N.Y., Oct. 4, 2010).  

"song record" — "information regarding at least one of the following categories: song title, song category, song address, song size, graphics address, graphics size, and play count." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).  

"song selector" — "a device that allows a user to select a song." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007).  

"sorter for supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices"; "sorter for sorting the carriers in accordance with the stored values" — "are not governed by § 112, P 6." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).  

"sorting said memory requests based on their addresses" — "segregating memory requests into one or more groups based on their addresses." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).
"sorting the subcarrier-indexed estimates of the transmission quality, scaled by the desired subcarrier bit-error-rates, into an invertible ordering" — "requires mere 'sorting' of the estimates, i.e., segregating the estimates into groups based on specified criteria, and does not require reordering." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 4118


"a sound signal source for providing a sound electrical signal representative of sound at a source location in a vehicle" — "limiting the recited 'sound signal source' to a 'music' signal source ... would violate In re Yamamoto's prohibition against reading limitations appearing only in the specification into the claims." In re Bose Corp., 1995 U.S. App. LEXIS 18456 (Fed. Cir., July 18, 1995) (unpublished). 4120

"sound signals generated from digital information" — "detectable physical quantities or impulses, generated from digital information, that can be perceived by the sense of hearing by which messages or information can be transmitted." Diagnostic Group, LLC v. Benson Medical Instruments Co., 2005 U.S. Dist. LEXIS 5030 (D. Minn., Mar. 28, 2005). 4121

"source information": "destination information": "channel identification information" — 
"information identifying the source, destination, or channel." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006). 4122

"source leakage" — "leakage from the source terminal to the substrate terminal that occurs during source erase." Fast Memory Erase, LLC v. Spansion, Inc., et al., 2010 U.S. Dist. LEXIS 8658 (N.D. Tex., Feb. 2, 2010). 4123

"source means having AC terminals and being operative to provide an AC voltage thereat" — 

[i] "source node"; [ii] "destination node" — [i] "a 'node' that has the capability to transmit data"; [ii] "a node that has the capability to receive data." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478 (D. Del. 2001). 4125

"source object" — "a collection of data and operations that (1) extracts video and audio data from a physical data source, (2) obtains a buffer [memory where data can be temporarily stored for transfer] from a transform object, (3) converts video data into data streams, and (4) fills the buffer [memory where data can be temporarily stored for transfer] with the streams." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005). 4126

"source of" — "place or device that originates." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010). 4127

"source of illumination" — "the Court declines to construe 'source of illumination' ... as requiring an angle. The Court declines to further construe the phrase at this time." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006). 4128

"spacer layer defining a well" — "a layer that defines a space that will be created when the layer is removed." Raytheon Co. v. Indigo Systems Corp., 2010 U.S. Dist. LEXIS 3530 (E.D. Tex., Jan. 18, 2010). 4130

"source pad" — "a portion of patterned, electrically conductive material that is provided near the periphery of the thin film transistor array to receive a data signal from a data driving circuit." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010). 4131

"spacial [sic spatial] key" — "a single number that identifies a specific geographically defined area, line, or point that is defined by a set of coordinates." 800 Adept, Inc. v. Murex Securities, Ltd., et al., 2006 U.S. Dist. LEXIS 53696 (M.D. Fla., Aug. 3, 2006). 4132

"spatial detail" — "geographic information relating to an area or region." Civix-DDI, LLC v. Celco Partnership, 387 F. Supp. 2d 869 (N.D. Ill. 2005). 4133

"spatial independence" — "requires the invention to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface." Xerox Corp. v. 3Com Corp., et al., 2000 U.S. Dist. LEXIS 10028 (W.D.N.Y., Jun. 6, 2000). 4134 "The district court properly found 'spatial independence' requires the invention to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface." Id., 267 F.3d 1361 (Fed. Cir. 2001). 4135

"hands-free speaker phone"; "full-duplex speaker phone"; "full-duplex hands-free speaker phone" — "the 'speaker phone' limitations require the use of echo cancellation." Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340 (Fed. Cir. 2004). 4136

"special code" — "a code that is received in return for the deposit of a prepayment amount that is linked to a particular account." Aerotel, Ltd. v. Telco Group, Inc., et al., 2010 U.S. Dist. LEXIS 47266 (S.D.N.Y., May 12, 2010). 4137


"specific driver for the multi-purpose interface" — "the set of software routines that control the multi-purpose interface and that are developed for the particular multi-purpose interface." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009). 4139

"specification for the parts"; "specifications corresponding to the ... parts" — "Defendants do not contend that the terms have any meaning unique to the technology-at-issue. Defendants' only explanation for why these terms need construction is so that 'Orion is not allowed to argue any meaning to the jury.' The same could be said for every single word in any claim. This is not a sufficient reason to construe a term." Orion IP, LLC v. Staples, Inc., et al., 406 F. Supp. 2d 717 (E.D. Tex. 2005). 4140
"specified parameters" — "criteria that limit the available choices or options in a generated menu." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).

"specifying a selected one of the attractions" — "identifying one of a plurality of attractions chosen by the patron through a corresponding Attraction ID." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).

"specifying for each described action and condition of the series one of said stored definitions" — "specifying for each desired functional specification to be performed by the desired ASIC one of the definitions from the set of stored definitions." Synopsys, Inc. v. Ricoh Co., Ltd., 2005 U.S. Dist. LEXIS 46833 (N.D. Cal., Apr. 7, 2005).


"spectral representative signals" — "signals representing the frequency spectrum (i.e., the whole range of frequencies) of speech for a time interval." AT&T Corp. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 10716 (S.D.N.Y., Jun. 23, 2003).


"speech synthesis"; "voice synthesis"; "synthesized voice messages" — "electronically creating specific units of sound and combining those units of sound to produce audible words that are output from the robotic surgical system to the surgeon." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002).

"a speech synthesis system to provide the surgeon with voice messages containing information about the operation of the system"; "a voice synthesis system for providing audible information to a surgeon regarding operation of the system during the surgery"; "a speech synthesis system provides the surgeon with voice messages containing information about the operation of the system" — "requires synthesized speech informing the surgeon about the state of the system or a change in the state of the system." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002).


"spiculation information" — "the computation of all spiculation features. Spiculations are lesions within the breast that have diffuse, irregular appearances such as radially oriented filamentous structures or lines." R2 Technology, Inc. v. Intelligent Systems Software, Inc., 2003 U.S. Dist. LEXIS 7436 (D. Del., Apr. 30, 2003).

"split personal computer system" — "a system where a local portion, which performs the video and input/output portions of the personal computer tasks, communicates through a remote system controller to operate a remote computer unit, which performs the computational and storage portions of the personal computer tasks." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009).
"sponsored community with prescribed rules and procedures for participants" — "[a] group defined by a user or a third-party sponsor, having a facility to conduct negotiations according to prescribed rules and procedures." *Sky Technologies, Inc. v. Ariba, Inc.*, 491 F. Supp. 2d 154 (D. Mass. 2007).\(^{4153}\)

"sponsorship software which enables the creation of a sponsored community with prescribed rules and procedures for participants"— "[s]oftware that permits rules and procedures to be created by a user or a third-party sponsor, which are applicable to a group of participants and provides a facility to conduct negotiations." *Sky Technologies, Inc. v. Ariba, Inc.*, 491 F. Supp. 2d 154 (D. Mass. 2007).\(^{4153}\)

"spots of different sizes" — "light spots of various sizes." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 69 F. Supp. 2d 325 (D. Conn. 1998).\(^{4154}\) "[B]ecause we hold that the 'spots' that can be 'of different sizes' are the spots of discharged area on the photoreceptor, not the spots of light produced by the laser beam, we vacate the district court's grant of summary judgment ... and remand for further proceedings in accordance with this decision." *Id.*, 182 F.3d 1298 (Fed. Cir. 1999).\(^{4155}\)

"a plurality of spread-spectrum devices for spread-spectrum processing the plurality of subchannels of data, thereby generating a plurality of spread-spectrum-subchannel signals, respectively." — "a plurality of devices for processing the plurality of subchannels of data with one or more codes that distributes the signal across the available bandwidth, thereby generating a plurality of signals which correspond to each of the subchannels of data." *Linex Technologies, Inc. v. Belkin International, Inc., et al.*, 2009 U.S. Dist. LEXIS 10905 (E.D. Tex., Feb. 12, 2009).\(^{4156}\)

"spread-spectrum subchannel signals" — "signals, corresponding to each of the subchannels of data, which have been processed with one or more codes that distributes each signal across the available bandwidth." *Linex Technologies, Inc. v. Belkin International, Inc., et al.*, 2009 U.S. Dist. LEXIS 10905 (E.D. Tex., Feb. 12, 2009).\(^{4157}\)

"[a] sputter-deposited dielectric" — "cannot be formed by a two-step process in which a metal layer is first sputter-deposited and then oxidized." *Southwall Technologies, Inc. v. Cardinal IG Co.*, 54 F.3d 1570 (Fed. Cir. 1995).\(^{4158}\)

"second stage" — "a stage, operatively coupled to the first stage, generating an output signal which is a sum of the at least one intermediate signal generated in the first stage minus a potential of the at least return reference signal plus an output return reference signal." *Fiori v. Rockford Corp.*, 2006 U.S. Dist. LEXIS 41477 (E.D. Pa., June 21, 2006).\(^{4159}\)


"stand-alone aggregation server" — "an aggregation server that could operate independently from, but works with, an OLAP server." *Hyperion Solutions Corp. v. HyperRoll, Inc., et al.*, 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).\(^{4161}\)
"standard control module" — "a controller that controls features or components installed by the OEM." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009). 4162


"standby router" — "the router that backs up the active router and becomes the active router under certain circumstances, such as upon receipt of a resign message from the active router, or when a hello message is not received from the active router within a specified amount of time." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 4164

"star-topology network" — "network configuration with data sources transmitting to a central hub which then transmits the data to data sinks. A node can act as both a data source and a data sink." Negotiated Data Solutions, LLC v. Dell, Inc., 596 F. Supp. 2d 949 (E.D. Tex. 2009). 4165

"starting a formatting process for said optical disc as a background process" — "no construction needed." Ricoh Co., Ltd. v. Quanta Computer, Inc., et al., 2007 U.S. Dist. LEXIS 34892 (W.D. Wis., May 11, 2007). 4166

"first state"; "second state" — "The term 'first state' means 'first mode or condition' and the term 'second state' means 'second mode or condition.'" O, Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006). 4167

"changes in state characteristic of an event" — "a change in a unique configuration of information within the system that is indicative of the occurrence of an event within the system." SFA Systems, LLC v. Infor Global Solutions (Michigan), Inc., et al., 2009 U.S. Dist. LEXIS 13705 (E.D. Tex., Feb. 23, 2009). 4168

"shuffler state information" — "information concerning the condition of the shuffler, or the machine that mixes the cards as described in the patent." Shuffle Master, Inc. v. VendingData Corp., et al., 2004 U.S. Dist. LEXIS 27945 (D. Nev., Mar. 31, 2004). 4169

[i] "state object"; [ii] "state information" — [i] "data having a predetermined structure that specifies state information"; [ii] "information, such as a cookie, that specifies an identity, a characteristic, or a condition of a client and/or a server." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009). 4170


"static display of prices" — "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Trading Technologies International, Inc. v. eSpeed, Inc., et al., 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006).\(^{4174}\) "We need not alter our construction. And the extrinsic evidence presented -- in light of our construction, based almost entirely on intrinsic evidence -- will not change our construction." Id., 2007 U.S. Dist. LEXIS 12965 (N.D. Ill., Feb. 21, 2007)\(^{4175}\) "[T]his court, after reconstruing this term based on its own understanding of the claims, specification, prosecution history, and record, agrees with the district court's claim construction of the word 'static.'" Id., 2010 U.S. App. LEXIS 3914 (Fed. Cir., Feb. 25, 2010) (unpublished)\(^{4176}\)

"statically adding intelligence" — "adding information prior to program execution." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007)\(^{4177}\)

"station" — "a location at which there is a monitor, input and transmission means." Hamilton v. ComWeb Technology Group, Inc., et al., 2003 U.S. Dist. LEXIS 27832 (D. Md., Nov. 13, 2003)\(^{4178}\)

"statistical decoder" — "a device that takes as input variable-length-encoded data and reverses the encoding process to provide decoded data as output." Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 516 (D. Del. 2001)\(^{4179}\)

"a statistical detection method" — "a method of detecting suspicious network activity by applying one or more statistical functions in the analysis of network traffic data. This method is not a signature matching detection method." SRI International, Inc. v. Internet Security Systems, Inc., et al., 2006 U.S. Dist. LEXIS 75355 (D. Del., Oct. 17, 2006)\(^{4180}\)

"[statistically coded signals such that] the more frequently occurring values ... are represented by shorter code lengths and the less frequently occurring values ... are represented by longer code lengths" — "The Court will adopt neither of the parties' proposed constructions. Instead, as it suggested it would do during oral argument, the Court will use the plain language of the claim term as its construction." In re Compression Labs, Inc. Patent Litigation, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006)\(^{4181}\)

"statistically comparing test results in determining pay factor adjustments and material acceptance" — "using a computer to perform statistical analysis and compare the results of the analysis to the specification requirement for the pavement construction material mixture in order to determine pay factor adjustments and material acceptance." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009)\(^{4182}\)

"status information" — "any subset of information related to whether the defibrillator is treating a patient or other indications of operational status." Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al., 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005)\(^{4183}\)

"status information therein regarding the status of the electrical device after adjustment of the status in response to the control information as affected by the control information and the manual actuator" — "information about the condition of the electrical device, after the condition has been altered in response to the control information, regardless of whether the condition of the electrical device is being directed by control information or by the manual actuator." Lutron Electronics Co., Inc. v. Control4 Corp., 2009 U.S. Dist. LEXIS 3562 (D. Utah, Jan. 20, 2009). 4185

"status signal" — "a signal that provides the status of a telephone call such as ring-no-answer, busy, or live answer." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 4186


"steps of: providing a memory ... determining when the cruise control is engaged; ... retrieving one of the sets [of] data ...; retrieving the other set of ...; and using the retrieved data ..." — "§ 112(6) is not applicable." Caterpillar Inc. v. Detroit Diesel Corp., 961 F. Supp. 1249 (N.D. Ind. 1996). 4188

"steps of ..." — "Because claim 1 uses the phrase 'steps of' rather than 'steps for,' there is no presumption that subsection (a) is in step-plus-function format." Synopsys, Inc. v. Magma Design Automation, Inc., 2005 U.S. Dist. LEXIS 46882 (N.D. Cal., Aug. 23, 2005). 4189

"... the steps ... of: ... placing the retrieved information into a predetermined format as formatted data; placing the formatted data into a sequence of addressable data blocks; ..." — "a step, which is an antecedent to a succeeding step, must commence before the succeeding step commences, and the antecedent step must finish before the succeeding step can finish." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 4190


"storage" — "storage occurs when the incoming digital data is sufficiently present on the destination storage medium, and accessible by the operating system or other programs, so that any viruses contained in the data can spread and infect the computer system." Hilgraeve Corp. v. McAfee Associates, Inc., 70 F. Supp. 2d 738 (S.D. Mich. 1999). 4192 "[T]his Court will construe 'storage' here as follows: storage occurs when the incoming digital data is sufficiently present on the destination storage medium so that any viruses contained in the data can spread and infect the computer system. By omitting from the definition a restriction that does not have a basis the patent claims, patent specification, or prosecution history, this definition is closer to the ordinary and customary meaning of the term in this context and still appears to be consistent with the definitions offered by the parties' experts." Hilgraeve Corp. v. Symantec Corp., 90 F. Supp. 2d 850 (E.D. Mich. 2000). 4193

"storage" — "connotes specific structure and that the term is not drafted in means-plus-function format. The ... claim term does not need any further construction." Brooktrout, Inc. v. Eicon Networks Corp., et al., 2004 U.S. Dist. LEXIS 31054 (E.D. Tex., Jul. 27, 2004). 4194

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"a storage element for storing electrical energy" — "Because the claim language does not use the word 'means' there is no presumption that 35 U.S.C. § 112 P 6 applies. However, the element is stated in purely functional terms, so 35 U.S.C. § 112 P 6 still controls." Cardiac Pacemakers, Inc., et al. v. St. Jude Medical, Inc., et al., 2000 U.S. Dist. LEXIS 17352 (S.D. Ind., Nov. 29, 2000).4195


"storage means" — "§112, P6 was found to apply." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009).4197


"store" — "a storage location for data that may reside on any type of memory device." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).4200

"a store for storing user identification" — "a medium that stores data used to identify a user." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010).4201


"said data storage unit having a song storage location storing song data and an advertisement storage location receiving advertisement data" — "a data storage unit having separate structural advertisement and song locations within the data unit." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010).4203


"storage medium" — "refers to any storage medium of the computer system, if the data, when stored on the medium, are accessible to the operating system or other programs, such that viruses in the data can spread and infect the computer system." Hilgraeve Corp. v. Symantec Corp., 265 F.3d 1336 (Fed. Cir. 2001).4206

"stored" — "saved temporarily or permanently." Ameranth, Inc. v. Menusoft Systems Corp., et al., 2010 U.S. Dist. LEXIS 39338 (E.D. Tex., Apr. 21, 2010).4207

"stored"; "storing" — "will be easily understood by a jury and [] no construction is necessary." Aloft Media, LLC v. Yahoo!, Inc., et al., 2009 U.S. Dist. LEXIS 59599 (E.D. Tex., Jul. 13, 2009).4208
"stored association" — "a table record that relates a MAC address to a communications port on the node." Fenner Investments, Ltd. v. Hewlett-Packard Co., et al., 2009 U.S. Dist. LEXIS 102765 (E.D. Tex., Nov. 4, 2009).


"storing" — "placing the state object in memory or a storage device." Netscape Communications Corp. v. ValueClick, Inc., et al., 2009 U.S. Dist. LEXIS 98764 (E.D. Va., Oct. 22, 2009).


"storing" — "recording data in an electronic device from which the data can be obtained as needed." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).

"storing" — "data written to a nonvolatile form of storage medium (nonvolatile means the data is not lost when the circuit is broken)." Ethos Technologies, Inc. v. RealNetworks, Inc., 462 F. Supp. 2d 131 (D. Mass. 2006).


"storing a license in a license file" — "maintaining a license on a disk in an area of memory which is capable of storing at least one license and which contains at least a UID." Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al., 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999).


"storing a sound waveform" — "storing a pattern of pressure variation in a computer memory (i.e. RAM) from which the information can be obtained." Adobe Systems Inc. v. Macromedia, Inc., 201 F. Supp. 2d 309 (D. Del. 2002).


"storing cells arriving for transmission on said virtual path in a buffer for transmission of cells on said virtual path in conformance with said constraint on said rate" — (1) "The dispute is whether a specific buffer is required for each virtual path. The ... the court rejects the defendants' attempt to limit this claim element."; (2) "the court holds that the rate constraint portion of this phrase modifies 'transmission' as opposed to 'storing.'" *QPSX Developments 5 Pty. Ltd. v. Juniper Networks, et al.*, 2007 U.S. Dist. LEXIS 1991 (E.D. Tex., Jan. 10, 2007). 4224

"storing data indicative of the establishing a contract for said goods and/or services based on the term compliance data" — "no interpretation necessary." *Tradecard, Inc. v. S1 Corp., et al.*, 509 F. Supp. 2d 304 (S.D.N.Y. 2007). 4225

"storing, in electronic form, information" — "storing information in a format that an electronic device can read." The term 'electronic' does not exclude magnetic or optical media such as hard drives, floppy disks, or compact disks." *Diego, Inc. v. Audible, Inc.*, 2006 U.S. Dist. LEXIS 22715 (W.D. Wash., March 27, 2006). 4226


"storing in the computer product pictures, product environment pictures and text segments" — "Although the claim language requires 'storing in the computer product pictures, product environment pictures and text segments,' neither the claim language itself, nor the specification, nor the prosecution history clearly limit the storing step to storing the product pictures, product environment pictures, and text segments as 'separate and distinct' items." *Orion IP, LLC v. Staples, Inc., et al.*, 406 F. Supp. 2d 717 (E.D. Tex. 2005). 4229


"a programmable memory storing said song data representing the plurality of songs, said programmable memory also storing said advertisement data representing the at least one advertisement" — "does not ... limit the term to a particular type of memory ..., but rather ... requires both song data and advertisement data to be stored in the same programmable memory." *TouchTunes Music Corp. v. Rowe International Corp., et al.*, 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010). 4232
"storing said telephone number and said first graphical icon together in memory" — "storing together the telephone number and the association to the selected icon in the memory." Motorola, Inc. v. VTech Communications, Inc., et al., 2009 U.S. Dist. LEXIS 59226 (E.D. Tex., Jul. 6, 2009).\textsuperscript{4233}

"storing the first IP address and associating it with a physical media path from which the first data packet was received" — "storing the first IP address (as construed herein) and associating it with a physical media path (as construed herein) from which the first data packet was received." Fenner Investments, Ltd. v. Juniper Networks Inc., et al., 2006 U.S. Dist. LEXIS 29945 (E.D. Tex., May 16, 2006).\textsuperscript{4234}

"storing ... the information in a compressed data form, the information including an identification code and being placed into ordered data blocks" — "storing the information, along with an identification code, in the compressed data library of the transmission system, when, previously to storing: (a) an identification code has already been assigned to the information; (b) the information has been placed into ordered data blocks, and (c) the information has been compressed." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006).\textsuperscript{4235}

"storing the positions of the spraying device and the conveying device at the moment of a movement interruption" — "retaining on an electronic storage medium data representative of the spraying device and conveying device locations at the moment of a movement interruption." Durr Systems, Inc v. Fanuc Ltd., et al., 463 F. Supp. 2d 663 (E.D. Mich. 2006).\textsuperscript{4236}

"storing the positions of the spraying device and the conveying device after movement of the spraying device and conveying device has ended" — "retaining on an electronic storage medium data representative of the spraying device and conveying device locations after the inertial drift of the spraying device and conveying device has ended." Durr Systems, Inc v. Fanuc Ltd., et al., 463 F. Supp. 2d 663 (E.D. Mich. 2006).\textsuperscript{4237}

"storing the text of a plurality of books in a computer" — "the prosecution history and the specification of the '213 patent do not evidence that Plaintiff surrendered the broad meaning of the term 'storing the text of a plurality of books in a computer' so as to require that the text files for books be stored in a bit mapped format." On Demand Machine Corp. v. Ingram Industries, Inc., et al., 2003 U.S. Dist. LEXIS 27127 (E.D. Mo., Jul. 8, 2003).\textsuperscript{4238}

"storing the unified media data streams in a general register file" — "storing the unified media data streams in a set of hardware storage locations that are available to the user/programmer for various purposes." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).\textsuperscript{4239}

"stream of data" — "a stream of raw bytes or words with no used marking or framing for sending included by the application program." Ethos Technologies, Inc. v. RealNetworks, Inc., 462 F. Supp. 2d 131 (D. Mass. 2006).\textsuperscript{4240}

"stream(s) of addressed digital packets" — "continuous sequence of bundles of digital data, including a destination address." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007).\textsuperscript{4241}

"stripline sections"; "stripline segments"; "stripline elements" — "conductive strips that are a portion of the radio-frequency phase shift assembly that transmit electrical signals." Kathrein-Werke KG v. Radiacion y Microondas S.A., et al., 2010 U.S. Dist. LEXIS 50468 (N.D. Ill., May 17, 2010).4243


"wherein said remote server assembly is structured internal site and identify an internal site address of said compact, portable and interchangeable computer readable medium relative to said local processor assembly" — "taking all factors into account (including the case law cited by Citrix) finds that even with the typographical error, the construction proposed by Rothschild is consistent with the language of the '534 Patent. Thus, Claim 4 is construed to mean: the remote server assembly can identify where on the local processor assembly the compact, portable and interchangeable computer readable medium is found." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).4246

"structured store of data" — "data that are organized in some recognized fashion (e.g., database files, word processing document files, or Web pages) and stored in the volatile and/or non-volatile memory of the various nodes participating in the shared memory system." Mangosoft, Inc., et al. v. Oracle Corp., 2004 U.S. Dist. LEXIS 19357 (D.N.H., Sept. 21, 2004).4247

"said local processor assembly being structured to access said primary site address so as to achieve said data transmitting and receiving communication with said remote server assembly" — "the local processor assembly can communicate with the primary site address of the remote server assembly in a manner that permits the transmission and receipt of data." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).4248

"said remotely accessible auxiliary site addresses being structured to be remotely accessed by said remote server assembly so as to initiate utilization of said select portions of auxiliary site data by said local processor assembly in conjunction with said primary site data" — "the auxiliary site address is capable of being remotely interacted with by the remote server assembly so as to cause the use of select portions of said quantity of auxiliary site data by said local processor assembly at the direction of, intermingled with, or otherwise with some of the primary site data." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007).4249
"wherein said compact, portable and interchangeable readable medium is structured to identify an internal site address thereof relative to said local processor assembly, thereby facilitating access thereto by said remote server assembly" — "the remote server assembly can identify where on the local processor assembly the compact, portable and interchangeable computer readable medium is found so that it can interact with it." Rothschild Trust Holdings, LLC v. Cytrix Systems, Inc., et al., 491 F. Supp. 2d 1105 (S.D. Fla. 2007). 4250

"student tasks" — "instructional activities." Better Education, Inc. v. eInstruction Corp., et al., 2010 U.S. Dist. LEXIS 40972 (E.D. Tex., Apr. 27, 2010). 4251


"sub-channel" — "one of the 256 addressable subdivisions of a receiver identification address." Sutton Ltd. v. Nokia Corp., et al., 2009 U.S. Dist. LEXIS 69735 (E.D. Tex., Aug. 10, 2009). 4253

"sub-harmonic signal" — "a signal at a frequency that is a common denominator of the frequency of the first clock signal and the second clock signal." All Computers, Inc. v. Intel Corp., 2005 U.S. Dist. LEXIS 43968 (E.D. Va., Feb. 9, 2005). 4254

"said alterability being subject to permanent disablement" — "being able to prohibit permanently the ability to change the alterable data." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 4255

"the alterability of data in said alterable memory being subject to permanent disablement" — "being able to prohibit permanently the ability to change the data in the alterable memory." Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al., 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 4256

"subjective data" — "data which is input by the patient to the data logger, regardless of whether that data pertains to the patient or the patient's environment, and whether or not the information is objective or factual, such as medication dosage or consumption of a particular food." PHT Corp. v. Invivodata, Inc., 2005 U.S. Dist. LEXIS 9577 (D. Del., May 19, 2005). 4257

"submitting said bid by transmitting at least some of said inputted data from said bidder's computer over said at least one electronic network" — "transmitting at least some of the previously input data from the bidder's computer over at least one network for communicating data messages between said computers, including, but not limited to, the Internet." Muniauction, Inc. v. Thomson Corp., 2006 U.S. Dist. LEXIS 57461 (W.D. Pa., Aug. 15, 2006). 4258


"subscriber" — "to mean a particular individual, not a telephone line." AT&T Corp. v. Excel Communications, Inc., et al., 1999 U.S. Dist. LEXIS 17871 (D. Del., Oct. 25, 1999). 4260

"subscriber area" — "a system component unique to that subscriber that transfers forms between a database server and a subscriber." Billingnetwork, Inc. v. Cerner Physician Practice, Inc., et al., 2006 U.S. Dist. LEXIS 5995 (M.D. Fla., Feb. 1, 2006). 4261

"subscriber selectable receiver stations" — "receiving device or devices which can be designated by the subscriber." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2007 U.S. Dist. LEXIS 19314 (N.D. Cal., Mar. 2, 2007). 4263

"subscriber telephone station" — "a device that allows audio communication over a telephone network." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007). 4264

"subscribers" — "businesses, historical sites, governmental sites or the like that either agreed or requested in some manner to be a part of the database." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000). 4265

"subscription services" — "is not limited to arrangements in which a subscriber pays for services on a flat fee basis." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001). 4266

"detecting a subsequent launch" — "detecting a launch of a computer program after the final log file for that computer program has been generated and stored in RAM, RAM cache, secondary storage, or some other storage." Computer Acceleration Corp. v. Microsoft Corp., 516 F. Supp. 2d 752 (E.D. Tex. 2007). 4267

"subsequent services" — "a service that occurs after the exact geographic location and specific mobile unit identification have been recorded." EMSAT Advanced Geo-Location Technology, et al. v. MetroPCS Communications, Inc., et al., 2010 U.S. Dist. LEXIS 62196 (E.D. Tex., Jun. 23, 2010). 4268

"and having and having a transmittance level in substantial accordance with the formula\[ T(\theta)=\frac{[D(\theta)-[S^*(\theta)+(1-N)]/[S(\theta)+N]]}{[D(\theta)+[S^*(\theta)+(1-N)]/[S(\theta)+N]]} \]" — "requires that [the] coating of the bulb transmit light energy that is in substantial accordance with the stated formula." Tailored Lighting, Inc. v. Osram Sylvania Products, Inc., 514 F. Supp. 2d 417 (W.D.N.Y. 2007). 4269

"substantial loss in transfer of line voltage" — "Loss of receipt of energy -- as measured by the voltage at the final destination (either the receiving circuits or the transfer circuits) after the de-energization of the first feed circuit or first energy source compared to the voltage at the same final destination prior the de-energization of the first feed circuit or first energy source -- sufficient to impair the proper functioning of whatever device is powered by the claimed invention during and after loss of the redundant energy source." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004). 4270

"interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another" — "electrically connecting with conductors nearly all, but not all, of said row lines to one another and nearly all, but not all, of said column lines to one another."  

"substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range" — "Substantially all of the data blocks covering terrain within a uniform predetermined distance from a point in the terrain that is seen from the current viewpoint."  

"[block] substantially all of the flow of current" — "Plaintiff contends that the term should be given its normal meaning of ‘all but an insignificant amount.’ ... the Court adopts plaintiff’s construction."  

"substantially automated process" — "process that takes place with minimal, if any, human interaction."  

"substantially block" — "in reference to wavelengths, it is defined as blocking over 99% of the incident radiation at each and every wavelength"; "in reference to polarization, it is defined as blocking 80% or more of the horizontally polarized incident radiation at each and every wavelength."  

"substantially congruent to said first layer of conducting strips in a top view" — "having the same or very close shape and dimensions when viewed from the top."  

"substantially equal" — "a level that is not completely the same but can be accepted as a substantially equal level."  

"substantially equal" — "equal to the extent that diverse regulatory standards and currencies are applied and the purpose of the invention is enabled."  

"substantially free of agglomerated vacancy [or interstitial] defects" — "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm3."  

"wherein said first bandwidth is substantially greater than said second bandwidth" — "is not indefinite."  
"substantially identical in uniformity to" — "because the inventor specifically defined the term 'substantially identical' in the specification of the '017 patent, the patent's definition controls this court's interpretation of that term." Tailored Lighting, Inc. v. Osram Sylvania Products, Inc., 514 F. Supp. 2d 417 (W.D.N.Y. 2007). 


"substantially monolithic"; "sufficiently close ... to form a first fringe-effect capacitance" — "ATC has failed to show by clear and convincing evidence that the phrases 'substantially monolithic' and 'sufficiently close ... to form a first fringe-effect capacitance' are indefinite as a matter of law." Presidio Components Inc. v. American Technical Ceramics Corp., 2010 U.S. Dist. LEXIS 36127 (S.D. Cal., Apr. 13, 2010).

"said substantially opaque material being a black polyimide material" — "the material that substantially prevents transmission (or passage) of light is a black polyimide material." Advanced Technology Incubator, Inc. v. Sharp Corp., et al., 2009 U.S. Dist. LEXIS 109173 (E.D. Tex., Jun. 26, 2009).


"side surfaces of said embedded insulator being substantially perpendicular to said semiconductor substrate" — "Although the patent does not provide a numerical limitation for the term 'substantially,' the disclosed embodiments and the ordinary and plain meaning of 'substantially' should be sufficient to guide a jury in performing its duties. If necessary, and if the parties marshal any new intrinsic evidence, the court would consider revisiting this issue at a later date. But for present purposes, the court rejects Hynix's construction and declines to construe this term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006).

"substantially replaceable" [and] "differing unscrambling circuits" — "mean that the distinct circuitry of the active user card must take the place of the circuitry of any other user card for use in the unscrambling means." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003).

"receiving and substantially simultaneously processing the second quantity of digital data to determine if at least one of said predefined sequences is present in the second quantity of digital data" — "the computer system of claim 1 receives the second quantity of data and the second quantity of data is received and processed at substantially the same time as the first quantity of digital data is received and screened." Symantec Corp. v. Computer Associates International, Inc., 2005 U.S. Dist. LEXIS 46912 (E.D. Mich., Mar. 16, 2005).
"substantially transmit" — "in reference to wavelengths, [it] is defined as transmitting more than 1% of the incident radiation at each and every wavelength"; "in reference to polarization, it is defined as transmitting more than 20% of the horizontally polarized incident radiation at each and every wavelength." Suntiger, Inc. v. Sunglass Products of California, 2006 U.S. Dist. LEXIS 1076 (C.D. Cal., Jan. 10, 2006). 4291

"substantially uniform magnetic field" — "a field that is sufficiently uniform to obtain useful MRI images." Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313 (Fed. Cir. 2005). 4292

"substantially zero overlap"; "substantially aligned" — "the same as or very close to zero overlap"; "the same as or very close to perfect alignment." Thorn EMI North America, Inc. v. Intel Corp., 936 F. Supp. 1186 (D. Del. 1996). 4293 "[W]e reach the same conclusion as did the district court." Id., 157 F.3d 887 (Fed. Cir. 1998). 4294


"substrate" — "the supporting material in an LED upon which the other layers of an LED are grown or to which those layers are attached and including the case in which the supporting material functioning as the substrate is grown on top of, or attached to, the other layers." Epistar Corp. v. International Trade Commission, et al., 566 F.3d 1321 (Fed. Cir. 2009). 4296


"substrate" — "any underlying material or materials (such as a silicon wafer alone or a silicon wafer combined with other layers such as a dielectric layer) upon which other materials may be formed or deposited." Agere Systems Inc. v. Atmel Corp., 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003). 4298

"substrate" — "an item on which a photosensitive layer or pattern is formed or placed." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004). 4299

"substrate interval correction means" — "a structure, located in the areas of the sealing forming region where no wires cross, which compensates for the asymmetry in the wires crossing the sealing region." Semiconductor Energy Laboratory Co. v. Chi Mei Optoelectronics Corp., et al., 2006 U.S. Dist. LEXIS 12343 (N.D. Cal., March 27, 2006). 4300

"subsystem" — "a system that is part of a larger system." SFA Systems, LLC v. Infor Global Solutions (Michigan), Inc., et al., 2009 U.S. Dist. LEXIS 13705 (E.D. Tex., Feb. 23, 2009). 4301

"subsystem" — "because 'subsystem' is always used in the claims to refer to the collection of circuits that performs a function specified in the claim, 'subsystem' does not require separate construction." Zoran Corp., et al. v. Mediatek, Inc., et al., 2005 U.S. Dist. LEXIS 34422 (N.D. Cal., Sept. 9, 2005). 4302

"subtree" — "a subset of the binary tree such that each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010). 4303

"such that the sum \( \alpha_1 + \alpha_2 \) is less than unity, and no thyristor action occurs under any device operating conditions" — "cover[s] only four-layer devices that, because of their structure, never act as thyristors (i.e., devices in which the sum \( \alpha_1 + \alpha_2 \) is less than one under all circumstances)."  *Harris Corp. v. IXYS Corp.*, 114 F.3d 1149 (Fed. Cir. 1997). 4308

"suitable"; "suitably" — "'suitable' or 'suitably' give 'life, meaning, and vitality' to the claims, and thus should be read as limitations."  *Cytyc Corp. v. Tripath Imaging, Inc., et al.*, 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005). 4306


"suitable for imaging said multi-sample plate" — "can be used for creating an image of a multi-sample plate having at least one sample in a recessed well."  *Amersham Biosciences Corp., et al. v. PerkinElmer, Inc.*, 2006 U.S. Dist. LEXIS 32758 (D.N.J., May 23, 2006). 4309


"super block" — "two or more blocks that are used to store data, the two or more blocks having addresses that are correlated with a group of logical block addresses that is determined by the number of sectors in a block."  *Lexar Media, Inc. v. Fuji Photo Film USA, Inc.*, 2007 U.S. Dist. LEXIS 19313 (N.D. Cal., Mar. 1, 2007). 4311

"super-block" — "two or more blocks that are used to store data, the two or more blocks having addresses that are correlated with a group of logical block addresses that is determined by the number of sectors in the blocks."  *Toshiba Corp. v. Lexar Media, Inc.*, 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005). 4312


"supplied with a potential of" — "Because Hynix has not provided any reason why 'supplied with a potential of' should be construed and Toshiba's proposed construction appears nearly identical to the term itself, the court declines to construe this term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006).

"supporting the housing of the microprocessor in position relative to said docking connection means so that the single connector on the housing is coupled with said additional connection provided in the docking connection means" — "[this] phrase will be construed to mean that the housing is supported and the single connector on the housing couples or mates with the connector on the docking module." Computer Docking Station Corp. v. Dell Inc., et al., 2006 U.S. Dist. LEXIS 58388 (W.D. Wis., Aug. 16, 2006).


"surface mount semiconductor light elements" — "a semiconductor light emitting element where the electrical leads are designed to be soldered to a surface of a circuit board, rather than mounted through a hole in the circuit board." Litepanels, LLC, et al. v. Gekko Technology, Ltd., 2007 U.S. Dist. LEXIS 89756 (E.D. Tex., Dec. 6, 2007).

"surrender value protected investment credits" — "the components of the term have well-recognized meanings, which allow the reader to infer the meaning of the entire phrase with reasonable confidence." Bancorp Services, L.L.C. v. Hartford Life Insurance Co., et al., 359 F.3d 1367 (Fed. Cir. 2004).


"surveillance sensor appliance controlled by the server" — "a sensor appliance (as defined previously) which monitors one or more conditions or events in an area, and which can receive and respond to signals from a server." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006).

"suspending operation" — "rendering the door control system temporarily unresponsive to door operation commands." Braun Corp. v. Vantage Mobility International, LLC, 608 F. Supp. 2d 1036 (N.D. Ind. 2009).


"switch" — "a device, including mechanical, electrical, electronic or optical devices, which opens or closes circuits, completes or breaks a path, or selects paths or circuits." Neutral Tandem, Inc. v. Peerless Network, LLC, et al., 2010 U.S. Dist. LEXIS 11248 (N.D. Ill., Feb. 8, 2010). 4328

"switch", "optical switch" — "a device to receive an optical signal from at least one input and route the optical signal to one of at least two outputs, or to receive an optical signal from one of at least two inputs and route the optical signal to at least one output." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009). 4329

"a mode selector switch connected to the circuit controlling and processing means and movable between a RECORD and a PLAY mode" — "does not necessarily require a slide switch, but allows for other types of switches." Howes, et al. v. Zircon Corp., 992 F. Supp. 957 (N.D. Ill. 1998). 4330

"a switch connected to said input circuits for ..." — "A switch is a commonly understood to be a structure. It is a device for making, breaking, or changing connections in an electrical circuit. Like the word 'brake,' 'clamp,' or 'screw,' the name of the device connotes what it does. The commonly understood meaning of the word is cast in terms of its function. It is well settled that naming a function-specifying device in a patent claim is not sufficient to bring that claim within the ambit of Section 112, para. 6." TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999). 4331

"a switch coupled to the data path and programmable to manipulate data received from the data path, the switch providing data streams to the data path" — "a routing device that is: (1) coupled to and receives data from the data path, (2) rearranges the data fields received from the data path in different ways in response to instructions, and (3) provides the rearranged data fields to the data path." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 4332


"switch means comprised of at least three distinct parts for connecting said dedicated memory address, data, and control circuits of said path configuring means to each of said first three sets of contacts" — "The Court agrees with Intel that this limitation should be construed as a means-plus-function limitation under 35 U.S.C. § 112, P 6." Maurice Mitchell Innovations, L.P. v. Intel Corp., 2006 U.S. Dist. LEXIS 41453 (E.D. Tex., June 21, 2006). 4334

"switch means for connecting said dedicated memory address, data, and control lines of said path configuring means to said dedicated memory address, data and control lines of said CPU respectively" — "The Court agrees with Intel that this limitation should be construed as a means-plus-function limitation under 35 U.S.C. § 112, P 6." Maurice Mitchell Innovations, L.P. v. Intel Corp., 2006 U.S. Dist. LEXIS 41453 (E.D. Tex., June 21, 2006). 4335

"switched" — "the mode in which the bypass is on or utilized." Isco International, Inc. v. Conductus, Inc., et al., 2002 U.S. Dist. LEXIS 20832 (D. Del., Oct. 30, 2002). 4336

"switched telephone network" — "may be understood according to its ordinary and customary meaning and does not require construction." Catch Curve, Inc. v. Venali, Inc., 2007 U.S. Dist. LEXIS 93667 (C.D. Cal., May 11, 2007). 4337

"switching"; "transferring" — "shifting or reassociating PPP state to another session associated with the new call set-up message." Utstarcom, Inc. v. Starent Networks Corp., 2005 U.S. Dist. LEXIS 40520 (N.D. Cal., Dec. 6, 2005).  


[i] "switching network ... for establishing a communications link"; [ii] "switching network means ... for establishing a communications link"— [i] "a component or set of components to which multiple nodes can attach and that selectively enables transferring of information among attached nodes."; [ii] "This claim is expressed in means plus function format, and the Court therefore construes it pursuant to 35 U.S.C. § 112, P 6." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).  


"symbol" — "a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).  

"symbol" — "a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 27820 (D.N.J., Nov. 10, 2005).  

"symbol count" — "a count of individual or groups of symbols." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005).  

"symbol information for uniquely identifying the symbol"; "symbol information" — "information within a symbol that uniquely identifies the symbol." Cognex Corp. v. VCode Holdings, Inc., et al., 2007 U.S. Dist. LEXIS 75364 (D. Minn., Oct. 9, 2007).  

"symmetrical power and ground" — "all of the power and ground leads on the memory module are positioned in such a way that when the memory module is inserted into the connector backwards, all of the power and ground leads on the module line up with comparable power and ground leads on the connector, thereby avoiding damage to the computer or module." Sun Microsystems, Inc. v. Dataram Corp., 1997 U.S. Dist. LEXIS 18363 (N.D. Cal., Aug. 29, 1997).
"symmetrically disposed [bases]" — "bases arranged to correspond in relative position on both sides of a dividing line or median plane or about a center or axis." *International Rectifier Corp. v. IXYS Corp.*, 2002 U.S. Dist. LEXIS 27248 (C.D. Cal., Mar. 5, 2002). 4350

"synchronization" — "updating the client and server databases to reflect changes that have happened since the last connection." *Seven Networks Inc. v. Visto Corp.*, 2006 U.S. Dist. LEXIS 93870 (E.D. Tex., Dec. 29, 2006). 4351

"synchronization agent" — "software routines or code that send at least a portion of second version information to a general synchronization module for purposes of synchronization." *Visto Corp. v. Seven Networks, Inc.*, 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005). 4352


"synchronous digital network virtual container" — "an information payload that can be transported across a digital network that uses time-division multiplexing such as SDH or SONET." *Ciena Corp. v. Nortel Networks, Inc., et al.*, No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006). 4358

"synchronous memory device" — "a memory device that receives an external clock signal which governs the timing of the response to a transaction request." *Hynix Semiconductor Inc., et al. v. Rambus Inc.*, 2004 U.S. Dist. LEXIS 23230 (N.D. Cal., Nov. 15, 2004). 4359


"system" — "the entire set of computers, databases, and mechanical or optical equipment used for electronically exchanging paperless tickets for an event in a secondary market from ticket sellers to buyers." *Flash Seats, LLC v. Paciolan, Inc.*, 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010). 4361

"system" — "an integrated assemblage of hardware and/or software elements operating together to accomplish a prescribed end purpose." *ABB Automation Inc. v. Schlumberger Resource Management Services, Inc.*, 2003 U.S. Dist. LEXIS 5002 (D. Del., Mar. 27, 2003). 4362
"system bus" — "a bus having multiple masters and through which the primary memory communicates with each system element that accesses primary memory." **Intergraph Hardware Technologies Co. v. Toshiba Corp., et al.,** 508 F. Supp. 2d 752 (N.D. Cal. 2007).363

"system bus" — "a plurality of shared signal lines that interconnects more than two agents for transmission of data, address, and control signals." **OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al.,** 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).364

"system bus means" — "is not a means-plus function term." **Intergraph Hardware Technologies Co. v. Toshiba Corp., et al.,** 508 F. Supp. 2d 752 (N.D. Cal. 2007).365

"system clock operably connected to the processor to provide a time base" — "an element, made of up hardware, software, or some combination of the two, that provides electrical signals at a precise frequency to the processor." **Phillip M. Adams & Associates, LLC v. Dell, Inc., et al.,** 2010 U.S. Dist. LEXIS 68749 (D. Utah, Jul. 9, 2010).366

"system clock" — "a circuit that generates the signal(s) used for timing the operation of the CPU." **Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al.,** 514 F. Supp. 2d 916 (E.D. Tex. 2007).367

"system controller" — "a combination of software and hardware operated under the direction of a human operator that is capable of storing and retrieving data generated by the system and of performing data analysis on said data, preferably responsive to predetermined commands." **ADE Corp. v. KLA-Tencor Corp.,** 252 F. Supp. 2d 40 (D. Del. 2003).368

"system database" — "the Court construes the term such that the database is 'in' the Data Center system." **Autobytel, Inc. v. Dealix Corp.,** 2006 U.S. Dist. LEXIS 3381 (E.D. Tex., Jan. 18, 2006).369


"system monitor" — "a circuit, component, or device for receiving information regarding at least one self-test and operating a fail-safe defibrillator status indicator or display to correspond to that information." **Koninklijke Philips Electronics, NV, et al. v. Defibtech LLC, et al.,** 2005 U.S. Dist. LEXIS 39859 (W.D. Wash., Dec. 21, 2005).371


"TV quality" — "generally of the same quality as television (at the time the patent was filed)." *Collaboration Properties, Inc. v. Tandberg ASA, et al.*, 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).4375


"table" — "[a] collection of data, in which each item is uniquely identified by a label, by its position relative to the other items, or by some other means." *In re Compression Labs, Inc. Patent Litigation*, 2006 U.S. Dist. LEXIS 46308 (N.D. Cal., June 28, 2006).4377


"profile tailoring the concentration of transition metal atoms in the substrate relative to the surface of the substrate" — "fashioning or adjusting the concentration of transition metal atoms as a function of depth within the substrate in order to create a particular pattern or layout of depth-wise concentrations." *IXYS Corp. v. Advanced Power Technology, Inc.*, 301 F. Supp. 2d 1065 (N.D. Cal. 2004).4381

"the transition metal is tailored to have a relatively shallow profile compared to a completed diffusion throughout the entire substrate" — "diffusing the transition metal atoms in the substrate in such a way that there is a higher concentration of transition metal atoms near the surface of the substrate, and a lower concentration of transition metal atoms in the substrate, than there would be with a completed diffusion throughout the entire substrate [construed infra]." *IXYS Corp. v. Advanced Power Technology, Inc.*, 301 F. Supp. 2d 1065 (N.D. Cal. 2004).4382

"taking a sequence of reflectance readings from the testing surface of said matrix at specified time intervals" — "taking reflectance readings at times set in advance." *Home Diagnostics, Inc. v. Lifescan, Inc.*, 2002 U.S. Dist. LEXIS 27575 (N.D. Cal., Oct. 2, 2002).4383

"direct talk path"; "telephone emulation" — "A 'direct talk path' requires a voice pair or a data pair used to carry voice sounds and connected to voice detection circuitry, and 'telephone emulation' is impossible without [a] 'direct talk path.'" *Voice Technologies Group, Inc. v. VMC Systems, Inc.*, 164 F.3d 605 (Fed. Cir. 1999).4385
"tandem access points" — "a point at which a carrier's network is connected to the claimed network." Neutral Tandem, Inc. v. Peerless Network, LLC, et al., 2010 U.S. Dist. LEXIS 11248 (N.D. Ill., Feb. 8, 2010).  


"portable tangible medium" — "a non-volatile storage medium (e.g., printed receipt and/or a smart card) separate from the memory of the voting machine (and thus portable) in which the records stored and contained therein if changed would leave evidence of that change." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).  


"tangible receipt"; "printed receipt"; "printed paper" — "a reviewable printout of the voters' voting selections or choices or a corresponding voting session identifier that is retained by the voter." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).  

"tapping points" — "locations where electrical signals are transferred between, meaning to or from: (1) the tapping element and the stripline sections, segments or elements, (2) the tapping element and the center tap, or (3) the antenna radiating elements and the stripline sections, segments or elements." Kathrein-Werke KG v. Radiacion y Microondas S.A., et al., 2010 U.S. Dist. LEXIS 50468 (N.D. Ill., May 17, 2010).  

"task assistant" — "a feature that displays a list of tasks to be performed on a claim." Accenture Global Services GmbH, et al. v. Guidewire Software Inc., 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010).  

"task engine" — "a feature that generates the tasks that need to be performed in response to an event." Accenture Global Services GmbH, et al. v. Guidewire Software Inc., 2010 U.S. Dist. LEXIS 20087 (D. Del., Mar. 5, 2010).  


"telecentric lens means for peering into the well" — "As a matter of law, this Court construes that the term 'telecentric lens' is a sufficient structure to support the function of 'peering into the well.' The Court does not accept Defendant's argument of construing the telecentric lens as a limitation stemming from construing the phrase in means-plus-function format of 35 U.S.C. § 112 P6." Amersham Biosciences Corp., et al. v. PerkinElmer, Inc., 2006 U.S. Dist. LEXIS 32758 (D.N.J., May 23, 2006).
"telecommunication services" — "services typically provided on telecommunication networks, including voice communications, private branch exchange services, multimedia messaging, and information services." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).

"telecommunication switches" — "devices that set up calls and relay voice and/or data information from one connection to another." Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al., 518 F. Supp. 2d 1306 (D. Kan. 2007).


"telecommunications means" — "[is] a means-plus-function element, with the function being 'communicating with a host data processor' and the associated structure being 'a modem or its equivalent.'" Stored Value Solutions, Inc. v. Card Activation Technologies, Inc., 2010 U.S. Dist. LEXIS 41569 (D. Del., Apr. 28, 2010).

"telecommunications stage"; "telecom stage" — "the stage that serves to capture and pre-process signals from two or more communication channels and interfaces with the recorder stage." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007).

"telecommunications system" — "is not limited to the network of a facilities-based IXC." AT&T Corp. v. Excel Communications, Inc., et al., 1999 U.S. Dist. LEXIS 17871 (D. Del., Oct. 25, 1999).


"telephone-communication facility" — "a telephone network that connects remote terminals and other devices having telephonic capabilities, such as the audio response units, for communication." Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P., 326 F. Supp. 2d 1060 (C.D. Cal. 2003).

"telephone communication link" — "does not need construction." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007).

"telephone connection means" — "one skilled in the art would recognize a telephone line as the structure performing the connecting and receiving functions." In re Cygnus Telecommunications Technology, LLC Patent Litigation, 481 F. Supp. 2d 1029 (N.D. Cal. 2007).

"telephone device"; "telephony device" — "a piece of equipment that uses electricity to send sound or speech to a distant point." BMC Resources, Inc. v. Paymetech, L.P., 2004 U.S. Dist. LEXIS 22536 (N.D. Tex., Nov. 4, 2004).


"telephone network"; "switched telephone network" — "a commercial system that establishes a route for telephone communication from one party to another." USA Video Technology Corp. v. Time Warner Cable, Inc., et al., 2007 U.S. Dist. LEXIS 92578 (E.D. Tex., Dec. 12, 2007).

"telephone number" — "is given its plain and ordinary meaning." Stanacard, LLC v. Rebtel Networks, AB, et al., 2010 U.S. Dist. LEXIS 1109 (S.D.N.Y., Jan. 5, 2010).


"telephone terminal" — "a standard landline telephone unit, which has a standard commercial handset, a touchtone pad, a display unit and an audio unit, and which may have a cordless handset." Furnace Brook LLC v. Overstock.com, Inc., 2006 U.S. Dist. LEXIS 73422 (S.D.N.Y., Sept. 27, 2006). "We agree with Furnace Brook insofar as it suggests that a 'telephone terminal' refers to a device for communicating over a telephone network: a cellular telephone and a personal computer are capable of such communication, and to the extent that they are used to do so, either device can constitute a 'telephone terminal.' But telephone communication, as discussed in the patent, requires more than just communication over a telephone line. It requires a dial-up connection to the catalog server at the other end of the connection." Id., 230 Fed. Appx. 984 (Fed. Cir., May 23, 2007) (unpublished).

"telephone wiring network" — "the network of twisted pair wires extending from the point of convergence where the signal interface may be installed downstream to telephone devices which is shared by information and telephone signals in a telephone voice band." Inline Connection Corp. v. AOL Time Warner, Inc., 2007 U.S. Dist. LEXIS 6209 (D. Del., Jan. 29, 2007).

"telephony events" — "actions or occurrences detected by a computer program and that related to what happens to a phone call (such as the initiation of the call, the addition or removal of callers, the transfer of the phone call, or the termination of the calls)." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007).

"telescope" — "this Court construes the term 'telescope' to include both 'reflecting telescopes,' which use mirrors as optical elements, and 'refracting telescopes,' which use lenses as optical elements." Lasermax, Inc. v. Glatter, 2005 U.S. Dist. LEXIS 17136 (S.D.N.Y., Aug. 17, 2005).


"a television transmission system ... for transmitting television programs thereover for reception by a plurality of receivers"; "a television transmission system for transmitting programs thereover for reception by a plurality of receivers" — "a system that allows multiple viewers to choose the same program at the same time such that once the chosen program is scheduled for transmission on a particular channel, additional viewers can be added by transmitting the appropriate descrambling signals to the requesting viewer's receiver." In re: VTRAN Media Technologies, LLC, Patent Litigation, 2009 U.S. Dist. LEXIS 61328 (E.D. Pa., Jul. 17, 2009).

"the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus" — "the SNOOP signal indicating to one of the bus masters on the second bus when to write cached data to the one of the second data storage locations at the address appearing on the second bus." Computer Cache Coherency Corp. v. Via Technologies, Inc., 2007 U.S. Dist. LEXIS 81121 (N.D. Cal., Oct. 22, 2007). "[T]he claim language and the patent specification support the district court's construction." Id., 2010 U.S. App. LEXIS 19775 (Fed. Cir., Sep. 22, 2010) (unpublished).
"temperature controller" — "The district court construed 'temperature controller' to mean 'the switch, power amplifier or like device that directly adjusts the flow of electric power to one or more heating elements. The temperature controller includes a means for converting temperature data.' Neither party objected to the instructions at trial. Under these circumstances 'the issue [is] limited to the question of whether substantial evidence supported the verdict under the agreed instruction.' Cytologix Corp. v. Ventana Medical Systems, Inc., 424 F.3d 1168 (Fed. Cir. 2005).

"temperature controller electronic circuits" — "The district court's instruction defined the phrase to mean 'electronic components, wiring, and printed circuit board which comprise the power amplifying device and decoder',' since neither party objected to the instruction, we look to see whether there is substantial evidence under the agreed instruction." Cytologix Corp. v. Ventana Medical Systems, Inc., 424 F.3d 1168 (Fed. Cir. 2005).

"template" — "the only issue regarding this term that may be resolved at this stage of the proceedings is that template can be 'filled in by a compiler during compilation.' Freyburger LLC v. Microsoft Corp., 2009 U.S. Dist. LEXIS 86344 (W.D. Wis., Sep. 21, 2009).


"active template containing terms for use during such a negotiation" — "[a] set of predefined data fields for terms to be negotiated using the automated negotiations engine that is configured so that certain fields can be used automatically by other programs." Sky Technologies, Inc. v. Ariba, Inc., 491 F. Supp. 2d 154 (D. Mass. 2007).

"temporarily assigned network address" — "an address that is assigned to a user and identifies a user only for the duration of a networking session." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010).

"temporary storage device" — "a device intended to store data for an impermanent basis and allows for stored data to be retrieved from the storage device while the data resides therein." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 2004 U.S. Dist. LEXIS 13415 (C.D. Cal., Jul. 12, 2004).


"terminal" — "any point on a semiconductor device that can be used to connect the device to the leads." Texas Instruments, Inc. v. Cypress Semiconductor Corp., et al., 1995 U.S. Dist. LEXIS 20328 (N.D. Tex., Aug. 28, 1995).

"terminal" — "a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).

"terminal" — "an end point for electrical connection of the package to the outside. It is not necessary that a terminal be externally accessible when the chip package is fully assembled." Samsung Electronics Co., Ltd. v. Tessera Technologies, Inc., 2004 U.S. Dist. LEXIS 31074 (N.D. Cal., Jan. 8, 2004).
"terminal device" — "a computing device such as a data terminal, workstation, portable computer, or smart phone that enables a user to communicate with a host processor. It manages its associated display itself and manages its internal memory with the assistance of the host processor." Lucent Technologies Inc. v. Gateway, Inc., et al., 2007 U.S. Dist. LEXIS 36219 (S.D. Cal., May 16, 2007). The court adopts Judge Brewster's construction of 'terminal device' in the Gateway action. Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005).


"terrain" — "the surface features of an area of land, an object, or a material, including color, elevation, and existing objects or structures on the land, object or material." Skyline Software Systems, Inc. v. Keyhole, Inc., et al., 421 F. Supp. 2d 371 (D. Mass. 2006).

"terrain floor boundary" — "a boundary that extends downwardly below the aircraft which is proportional to the distance to the closest runway." Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al., 488 F.3d 982 (Fed. Cir. 2007).


"test signal" — "a 'test signal' is a 'signal associated with testing.' In several of the asserted claims, however, additional claim language limits the term to a 'signal that initiates testing.'" Koninklijke Philips Electronics NV, et al. v. Defibtech LLC, et al., 397 F. Supp. 2d 1257 (W.D. Wash. 2005).


"the" — "If only some of the transformer's energy needed to be recycled, the word 'the' would not have been used." VLT Corp., et al. v. Lambda Electronics, Inc., 238 F. Supp. 2d 347 (D. Mass. 2003).
"includes the average elapsed time between visits" — "includes a single value representing the calculated average time between visits."  

"the computer" — "The term 'the computer' simply refers to 'a computer' that is programmed to perform the functions of the '474 Patent. Although one embodiment of the Patent can operate using a single computer, the plain language of the claim illustrates that the Patent does not require operating only one computer."  

"the digital data" — "the data as it is output by the analog to digital converter, and/or the data as it is output by the analog to digital converter after it has undergone additional processing, such as digital signal processing."  

"the digital information signal" — "refers to the signal as it exists at the time it is written into memory."  

"the home page" — "the claims' use of the article 'the' preceding 'home page' (i.e. 'the home page') implies that any objective definition must identify just one page. Upon further review, the court does not alter its construction. ... [T]here is no 'objective anchor' that exists for 'the home page' as used in the claims. ... The court concludes, therefore, that claims 1 and 18 are invalid for indefiniteness."  

"the master controller" — "the Court is not prepared to strike the entire claim from this patent because of a misused article. As such, the Court will construe 'the master controller' as 'a master controller.'"  

"partitioning the memory cells within the individual sectors into at least a user data portion and an overhead portion" — "Nothing in the claims precludes additional memory cell configurations, which need not contain such partitioned sectors. Second, claims 1 and 10 are self-evidently drawn to claimed methods. It is fully consistent with practicing the claimed invention to make additional, unclaimed use of Flash EEPROM memory cells, so long as each limitation is satisfied."  
Sandisk Corp. v. Memorex Products, Inc., et al., 415 F.3d 1278 (Fed. Cir. 2005).  

"retrieving one of the sets [of] data from the memory representing one of the fuel delivery limit curves when the cruise control is engaged; ... retrieving the other set of data from the memory representing the other fuel delivery limit curve when the cruise control is not engaged" — "require the retrieval of one set of data representing a fuel delivery limit curve if the cruise control is engaged, and the retrieval of a different set of data representing a different fuel delivery limit curve if the cruise control is not engaged."  
"the output of said waveform memory" — "Yamaha's interpretation would change 'the' in the last clause to 'an.' The claim, however, cannot bear such a weight. Unless there exists a strong indication to the contrary, Yamaha must live with its choice of claim language and the inferences to be drawn therefrom. The language of the claim therefore supports the interpretation requiring the same output value to be both fed-forward and fed-back." *Yamaha Corp. v. ESS Technology, Inc.*, 1996 U.S. App. LEXIS 7631 (Fed. Cir., March 29, 1996) (unpublished).  

"the plurality of media player devices including a media asset portability application" — "two or more 'media player devices,' with at least one of the devices having software permitting a 'media asset' to be copied or moved." *Zapmedia Services, Inc. v. Apple Inc.*, 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010).  

"one or more parts within the plurality of parts" — "In some contexts, 'the plurality of parts' or similar terms may be confusing to a lay jury. Here, the antecedent 'plurality of parts' is identified in the previous step. Given the close proximity of the phrases, it is highly unlikely to be confusing." *Orion IP, LLC v. Staples, Inc., et al.*, 406 F. Supp. 2d 717 (E.D. Tex. 2005).  

"the selection circuit" — "The Court finds that the use of 'the' instead of 'a' to be an error in drafting that does not obscure the ability of the Court to discern a meaning of 'the selection circuit,' when the claim language is construed in light of the specification." *Zoltar Satellite Alarm Systems, Inc. v. Motorola, Inc., et al.*, 2007 U.S. Dist. LEXIS 95521 (N.D. Cal., Dec. 21, 2007).  

"the server" — "deciding which 'server' is described in Claims 26, 27, and 29 is a toss-up. Given the claim language, it is just as likely to be the 'initial server' as the 'central server.' True, with a 50-50 chance one can pick the initial server and argue that it is not insolubly ambiguous, merely debatable. But the only 'debate' is how the coin toss comes out. Therefore, the court finds that this term is insolubly ambiguous." *E-Watch, Inc., et al. v. March Networks Corp.*, 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006).  

"forming a doped gate electrode ... then ... differentially thermally growing an oxide ... whereby a relatively thicker layer of oxide is developed on the top and sides of the gate electrode and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate"; "forming a doped polysilicon gate electrode ... growing a dielectric layer over the gate electrode by a process controlled to develop a high differential of dielectric thickness such that the dielectric is relatively thick over the top and sides of the gate electrode and relatively thinner over the intended source/drain regions"; "forming a doped gate electrode ... then ... establishing an isolating oxide on the top and sides of the gate electrode and over the substrate adjacent the gate electrode such that the oxide on the top and sides of the gate electrode is relatively thick compared to the oxide over the substrate, including oxidizing in a steam atmosphere at a temperature which promotes high differential rates of growth of oxide as between the doped poly gate electrode and the substrate" — "all ... require doping of the gate electrode prior to the differential dielectric growth step." *Thorn EMI North America, Inc. v. Intel Corp.*, 928 F. Supp. 449 (D. Del. 1996).  


"third data link" — "a third communications link that is either a separate link or a combination of the first and second links." Rowe International Corp. v. Ecast, Inc., 500 F. Supp. 2d 891 (N.D. Ill. 2007). 4472

"third party" — a "payment receiver, i.e., a party that is neither the merchant or the merchant processor." AdvanceMe, Inc. v. Rapidpay, LLC, et al., 2006 U.S. Dist. LEXIS 92444 (E.D. Tex., Dec. 21, 2006). 4473

"a third party for determining" — "a party, other than the first or second parties, that performs the determining step of the claim." Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010). 4474

"thread" — "the execution of a sequence of instructions constituting one of the possibly many procedures, functions or subroutines within the program. Further, when interrupted, a thread's context must be saved and retrievable when a thread is reassigned control of the CPU and resumes execution." Reiffin v. Microsoft Corp., 2002 U.S. Dist. LEXIS 21690 (N.D. Cal., Apr. 30, 2002). 4475


"threshold" — "the value of current, voltage or other quantity at which something happens." O2 Micro International Ltd. v. Sumida Corp., et al., 2005 U.S. Dist. LEXIS 46584 (E.D. Tex., Mar. 8, 2005). 4477


"threshold voltage" — "the critical gate electrode to source electrode voltage that determines whether a field effect transistor is on or off." UniRAM Technology, Inc. v. Monolithic System Technology, Inc., 2006 U.S. Dist. LEXIS 21661 (N.D. Cal., March 30, 2006). 4479

"through" — "we are dealing with electric current, which by definition passes 'through' the circuitry in the common-sense usage of that term, as contrasted with the wholly figurative concept of passing 'through' a traffic light." Calabrese v. Square D Co., 14 F. Supp. 2d 1050 (N.D. Ill. 1998). 4480 "The court will therefore define the word 'through' as used in the claim as follows: 'to go past, or to enter into and to exit.'" Id., 1999 U.S. Dist. LEXIS 21160 (N.D. Ill., Dec. 21, 1999). 4481


"throughput maximizing unit for processing said memory requests" — "The court concludes that 'throughput maximizing unit for processing said memory requests . . .' is not a means-plus-function limitation. The court therefore adopts the plaintiff's construction and construes 'throughput maximizing unit for processing said memory requests' as an 'element of the controller that processes memory requests in response to scheduling constraints of the synchronous DRAM which maximizes the use of data slots.'" Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005). 4484


"time division multiplexed bus" — "a bus wherein data from a data source is put into time intervals and arranged as a repeating series of frames or templates." Negotiated Data Solutions, LLC v. Dell, Inc., 596 F. Supp. 2d 949 (E.D. Tex. 2009). 4488

[i] "time integration quantity of a brightness change"; [ii] "ideal quantity of light in a stationary state" — [i] "a quantity of light equal to the actual brightness level output through a liquid crystal, summed over the rise and fall response time of the liquid crystal"; [ii] "quantity of light emitted by a pixel during one time increment in which the pixel is in a non-changing state." LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 12969 (D. Del., Feb. 16, 2010). 4489

"time slot" — "one of 8 physical channels in each time-division multiple access (TDMA) frame of a 200 kHz GSM radio channel." WiAV Solutions LLC v. Motorola, Inc., et al., 2010 U.S. Dist. LEXIS 30711 (E.D. Va., Mar. 29, 2010). 4490

"time slot assigned to each of said application programs" — "[t]he court construes 'time slot' to mean 'an interval of time during which data from an application program is transmitted.' All other terms have their plain and ordinary meaning." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007). 4491

"a time-space-time (TST) switch having a space switch including a plurality of inlet ports and a plurality of outlet ports each having a memory" — "a structure with time-switch input and output stages, and with one or more intermediate space-switch stages containing only structure for space translation." Arthur A. Collins, Inc. v. Northern Telecom Ltd., et al., 216 F.3d 1042 (Fed. Cir. 2000). 4492
"time stamp bits representing the time at which said cellular telephone signals were received" — "binary units representing the time when cellular telephone signals were received at the cell site." TruePosition, Inc. v. Andrew Corp., 2007 U.S. Dist. LEXIS 62702 (D. Del., Aug. 23, 2007).

"time vector for each of the joints, the time vector containing three variables which are functions of time whose values correspond to a linear interpolant between the upper limit and the lower limit of the rotational range, on, respectively, each of the rotational axes" — "at any given time, t, this equation is used to specify (by values that can be mathematically combined) the angular position of a joint about each axis of rotation between the upper and lower end point values: j+(k-j)*j(t), where j represents the lower limit value of a rotation about a given axis, k represents the upper limit value of a rotation about the axis, and j(t) is a function whose value varies with time between zero and one." New York University v. Autodesk, Inc., 2007 U.S. Dist. LEXIS 26671 (S.D.N.Y., April 10, 2007).

"time-division multiplexed bus" — "a bus having a bandwidth partitioned into a defined, repeated sequence of time slots, that is shared by two or more sources of data by limiting each source's transmission opportunities to discrete intervals of time." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007).


"timeslice" — "the fixed, predetermined length of time during which each thread is given uninterrupted control of the CPU, at the expiration of which the executing thread is preempted in favor of another thread." Reiffin v. Microsoft Corp., 2002 U.S. Dist. LEXIS 21690 (N.D. Cal., Apr. 30, 2002).


"timing circuit" — "an assemblage of electronic components that cuts off the power to the light source a predetermined time after a switch, responsive to the motion of the footwear, transitions between the 'off' to the 'on' state. The timing circuit cuts off the power to the light source regardless of the position of the switch, i.e., if the switch remains in the 'on' position, the light source will be disconnected from the power source, preventing battery exhaustion." Orlaford Ltd., et al. v. BBC International, Ltd., et al., 1999 U.S. App. LEXIS 9712 (Fed. Cir., May 20, 1999) (unpublished).
"a timing module having an input coupled to said trigger output of said resistive switch, a control output coupled to said generator control input and an arm/disarm output coupled to said arm/disarm input of said resistive switch" — "a specific distinct timing module having an input and two outputs. The input is connected to the trigger output of the resistive switch. A control output is connected to the high voltage generator control input. An arm/disarm output is connected to the arm/disarm input of the resistive switch." Agrizap, Inc. v. Woodstream Corp., et al., 431 F. Supp. 2d 518 (E.D. Pa. 2006). 4501

"said timing module disarms said trigger circuit of said resistive switch upon said activation of said timer module until said timer module is reset" — "the timing module has an output that is coupled to the trigger circuit of the resistive switch to disarm the trigger circuit until a power on reset signal re-enables or re-sets the timing module." Agrizap, Inc. v. Woodstream Corp., et al., 431 F. Supp. 2d 518 (E.D. Pa. 2006). 4502


"titanium film containing nitrogen atoms" — "a thin titanium layer with nitrogen atoms. It may be a composite film including a thickness with a substantial nitrogen concentration and a thickness with little or essentially zero nitrogen concentration. It may include titanium nitride at some point in its thickness." OKI Electric Industry Co., Ltd. v. LG Semicon Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999). 4506


"to a monitor mode" — "to the point the microprocessor is executing a line of code as part of the program." Bed-Check Corp. v. Ultimate Safety, Inc., 2003 U.S. Dist. LEXIS 27845 (N.D. Okla., Nov. 24, 2003). 4509

"to a television set" — "directly to a television set and not to any component residing outside of a television set." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003). 4510

"to allow the devices to withstand relatively high breakdown voltages" — "to permit improvements in breakdown performance of the base-drain junction, even in designs where breakdown first occurs in other locations of the device." International Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25712 (C.D. Cal., Jul. 16, 2001). 4511

"a remote control system ... for permitting a viewer of said television to direct said microcontroller to perform a search on at least said updated television programming information contained in said RAM of said microcontroller" — "The phrase 'to perform a search' means a user-directed examination by the microcontroller of all the television programming information stored in the random access memory of the system and the retrieval of a subset of that information which meets the criteria specified by the user for display on the television set." SuperGuide Corp. v. DirecTV Enterprises, Inc., et al., 169 F. Supp. 2d 492 (W.D.N.C. 2001). 4513

"processing ... an electronic payment ... from the user to the one of the multiple institutions to which the form is directed" — "does not require a system that allows a form to go to multiple institutions." CollegeNET, Inc. v. Xap Corp., 442 F. Supp. 2d 1036 (D. Or. 2006). 4514

"token" — "a file indicating whether access should be granted." Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009). 4515

"token" — "a data structure consisting of a name; an identifier of an element with which the token is associated; an identifier of the method by which the value field may be populated; and the value field, which holds the value associated with the element, which can include an empty value." Sun Microsystems Inc v. Network Appliance, 2009 U.S. Dist. LEXIS 48209 (N.D. Cal., May 29, 2009). 4516


"total area of said single substrate"; "total area of said substrate" — "the total top surface area of the substrate." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007). 4518

"total traffic load" — "information indicative of the aggregate traffic of a multiplexed output data stream obtained from the traffic load parameters of all input data streams forming said multiplexed output data stream." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 4519

"total wager amount" — "The theoretical sum of all wagers made for each prize award event. The total wager amount must be of a value that will support all the criteria for the prize starting value, increment values, and any other values generated as a result of contribution percents applied against wagers. The total wager amount serves as a link between devices and a progressive prize." Goff v. Harrah's Operating Co., 412 F. Supp. 2d 1090 (D. Nev. 2005). 4520


"tournament period for each tournament game" — "a period of time, set during the setup mode, during which each tournament game in a sequence can be played." Merit Industries, Inc. v. JVL Corp., 2007 U.S. Dist. LEXIS 63418 (E.D. Pa., Aug. 24, 2007). 4524

"track" — "a grouping of one or more packets, each of which is comprised of a grouping of contiguous user data blocks"; "a sequence of sectors, the sector numbers of which form a contiguous ascending sequence. No sector belongs to more than one track." Optima Technology Corp. v. Roxio, Inc., 2004 U.S. Dist. LEXIS 30262 (C.D. Cal., Sept. 30, 2004). 4525

"track information map" — "a data structure that is stored on the last use data blocks on the last packet of the track. It contains the start logical block address of the directory, and the start and end logical block address of every track." Optima Technology Corp. v. Roxio, Inc., 2005 U.S. Dist. LEXIS 43210 (C.D. Cal., Oct. 24, 2005). 4526

"track pitch" — "the distance between the center of adjacent tracks, as measured in the radial direction." Toshiba Corp. v. Imation Corp., et al., 2010 U.S. Dist. LEXIS 45653 (W.D. Wis., May 10, 2010). 4527

"tracking movement of the device relative to a region of an environment in which said device resides" — "tracking movement of the device relative to a region of the three-dimensional space in which said device may operate." Avago Technologies General IP PTE, et al. v. Elan Microelectronics Corp., 2006 U.S. Dist. LEXIS 62700 (N.D. Cal., Aug. 18, 2006). 4528

"traditionally connectible"; "standard I/O port" — "mean devices that were 'traditionally connectible' and I/O ports that were 'standard' at the time of the invention. Therefore, the Court defines traditionally connectible as a device that would be connectible to a computer as it was in October of 1988." PC Connector Solutions LLC v. Smartdisk Corp., et al., 2003 U.S. Dist. LEXIS 26452 (M.D. Fla., Oct. 8, 2003). 4529

"traffic channel encoding selector" — "a module that selects the encoding scheme to apply to a traffic channel." WiAV Solutions LLC v. Motorola, Inc., et al., 2010 U.S. Dist. LEXIS 30711 (E.D. Va., Mar. 29, 2010). 4530

"traffic load parameters (ABR, MBR)" — "two or more parameters each of which characterize at least the data rate of an input data stream." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 4531


"transaction type"; [ii] "transaction parameter" — [i] "a particular kind, class, or group of electronic transfer[s] of funds or a particular kind, class, or group of electronic inquiry[ies] as to funds. Examples of transaction types include withdrawals, deposits, transfers, payments, and balance inquiries."; [ii] "a property whose value determines the characteristics of (1) an electronic transfer of funds, or (2) an electronic inquiry as to funds. Examples of transaction parameters include the identification of the specific account, and the specific dollar amount." *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 333 F. Supp. 2d 513 (E.D. Va. 2004).


"transfer peripheral device command" — "a command received by a peripheral device -- after it has entered the waiting state in response to the initiator peripheral device command -- from an operating system in response to a transfer peripheral device request sent by an application program to the operating system, and which causes the peripheral device to receive new microcode." *Hewlett-Packard Co., et al. v. EMC Corp.*, 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).

"transferring a device pattern on a workpiece" — "conveying, through a photolithographic process, the pattern for an integrated circuit or similar item onto a substrate with a photoresist layer." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004).  

"transferring electrical energy at a predetermined radio frequency range as arcs in ionized conductive pathways at a predetermined power level within the gas jet in an electrical circuit which includes the tissue" — "transferring electrical energy, at a predetermined radio frequency from the RF drive to a resonant output circuit to the pencil to the needle-like electrode, which extends into the nozzle, to the tissue as arcs in ionized conductive pathways in a gas jet." Erbe Elektromedizin GmbH, et al. v. Canady Technology, LLC, et al., 512 F. Supp. 2d 297 (W.D. Pa. 2007).  

"transform object" — "a collection of data and operations that transforms the form of data upon which it operates." TiVo Inc. v. EchoStar Communications Corp., et al., 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005).  

"transformation component" — "a transformation component is the same as a transformation object, which is a software binary file acting as an individual unit that possesses built-in autonomy and encapsulates the functionalities of a transformation." Informatica Corp. v. Business Objects Data Integration, Inc., 2005 U.S. Dist. LEXIS 46869 (N.D. Cal., Aug. 1, 2005).  


"transformed signal having a predetermined mathematical relationship" — "means a signal representative of light of a second wavelength scattered by the tissue sample and that has a predetermined mathematical relationship to the first probe signal. There is no requirement that the transformation itself must be performed based on a predetermined mathematical relationship." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).  


"a transformer having a primary side and a secondary side" — "a device, which when used, will raise or lower an incoming voltage, having a side receiving the incoming voltage, and a side outputting the raised or lowered voltage." O. Micro International Ltd. v. Samsung Electronics Co., Ltd., et al., 2006 U.S. Dist. LEXIS 43904 (E.D. Tex., June 28, 2006).  


"transforming" — "converting each of the color characters to monochromatic characters by replacing the pixels in the color character that represent the foreground colors with the corresponding color pattern masks for those colors and by replacing the pixels in the color character that represent the background colors with the corresponding color pattern masks for those colors." OKI Electric Industry Co., Ltd. v. LG Semiconductor Co., Ltd., et al., 1999 U.S. Dist. LEXIS 22625 (N.D. Cal., Jul. 19, 1999).
"transistor" — "only a single transistor with a source, drain and a gate."  

"transit traffic" — "traffic between one telecommunications carrier and another such carrier, transmitted by a third carrier in a local region regardless of any other transport of the call."  

"transition times" — "time periods during which a change of a voltage waveform occurs across a primary winding."  

"translation circuitry" — "electrical components that make the sensor and meter electrically and physically compatible."  

[i] "translator"; [ii] "translating" — [i] "software routines or code that convert information or data in one format to information or data in a second format."; [ii] "converting information of data in one format to information or data in another format."  

"transmission" — "sending."  

"transmission means" — "must be construed as a means-plus-function limitation."  

"transmission channels" — "paths for transmitting electronic signals which are differentiated by their frequencies."  

"transmission line" — "lossy physical media, such as lines, wire and cable."  

"transmission times" — "Transmission times' are 'reserved' by setting aside time for transmitting portions of the information database that are requested by subscribers."  

"transmission system" — "an assembly of elements, hardware and software, that function together to convert items of information for storage in a computer compatible form and subsequent transmission to a reception system."  
Acacia Media Technologies Corp. New Destiny Internet Group, et al., 405 F. Supp. 2d 1127 (N.D. Cal. 2005) 4567  "An apparatus which comprises the following interconnected components: a source material library means, an identification encoding means, a conversion means, an ordering means, a compression means, a compressed data storing means (as illustrated in the block diagram labeled Figure 2a), and a compressed data storage means and a transmitter means (as illustrated in the block diagram labeled Figure 2b). The corresponding structure for each means is the structure identified in the specification for performing the recited function."  
Id., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006) 4568

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"transmission system at a first location" — "a transmission system at one particular location separate from the location of the reception system." Acacia Media Technologies Corp. v. New Destiny Internet Group, et al., 405 F. Supp. 2d 1127 (N.D. Cal. 2005). 4569

"transmit/transmitting information regarding the acceptance and rejection of the onsite and remote auction bids" — "transmit[ting] facts or data regarding the acceptance and rejection of bids submitted by onsite and remote bidders." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 4570


[i] "transmitted symbol"; [ii] "received symbol" — [i] "a symbol that is in the process of being transmitted which may or may not be in the transmitter"; [ii] "a symbol that is in the process of being received which may or may not be in the receiver." Globespanvirata, Inc. v. Texas Instruments, Inc., et al., 2005 U.S. Dist. LEXIS 5744 (D.N.J., Apr. 6, 2005). 4574


"transmitting"; "transmitted" — "the propagation of a signal from the first location to the second, and does not include the sending of information by mail." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001). 4576


"transmitting, by means of the data processing system, overt terms data representing the overt terms of the offer to trade to at least one party" — "no interpretation necessary." Tradecard, Inc. v. S1 Corp., et al., 509 F. Supp. 2d 304 (S.D.N.Y. 2007). 4578

"transmitting in sequence a plurality of response command signals" — "should not be construed to provide for an automatic transmitting of a plurality of response command signals. Rather, these words are broad enough to include a user transmitting in sequence one at a time a plurality of response command signals." Phillips Electronics North America Corp. v. Universal Electronics Inc., 930 F. Supp. 986 (D. Del. 1996). 4579

"transmitting said e-mail message and executable software associated with said e-mail message from said first computer using said first e-mail platform to said second computer using said second e-mail platform" — "requires sending the executable software with the email message." PostX Corp. v. Secure Data In Motion, Inc., 2003 U.S. Dist. LEXIS 25754 (N.D. Cal., Nov. 25, 2003) (emphasis in original). 4580


"a transmitting terminal" — "one or more devices that transmit a WDM optical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009) 4583

"transmitting the requested resource to the client" — "does not require data transmitted from the server to the client to bypass the load balancer." Resonate, Inc. v. Alteon Websystems, Inc., 338 F.3d 1360 (Fed. Cir. 2003). 4584

"transmitting the proposed reservation time to the PCD" — "sending the proposed reservation time to the PCD." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006). 4585


"transmitting ... to said device" — "transmitting information directly to the device without retransmission of the information by an intermediate processor." Foundry Networks v. Lucent Technologies, Inc., 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 4587

"transmitting to a user remote access device at least one specific voice message linked to a specific one of said received first signals" — "the concept of 'play back' does not appear to be inherent in the word 'transmitting,' nor does Vonage point to anything in the intrinsic record, aside from a specific embodiment described in the specification, suggesting otherwise. The Court declines to incorporate details of a disclosed embodiment into a claim term in the absence of clear direction otherwise from the intrinsic record." Klausner Technologies, Inc. v. Vonage Holdings Corp., et al., 2007 U.S. Dist. LEXIS 57604 (E.D. Tex., Aug. 7, 2007). 4588

"transmits primarily non-video information on at least one other one of said multiplicity of transmission channels" — "most of the information which is transmitted on at least one of the frequencies is non-video information." Finisar Corp. v. Directv Group, Inc., et al., 2006 U.S. Dist. LEXIS 33633 (E.D. Tex., April 19, 2006). 4589

"transparent" — "to perform in a manner that is invisible to, and of no concern to a user." Hybrid Patents Inc. v. Charter Communications, Inc., et al., 2007 U.S. Dist. LEXIS 33062 (E.D. Tex., May 4, 2007). 4590

"transparent" — "transmitting light without appreciable scattering in a manner such as ordinary window glass so that objects placed behind the placard are clearly distinguishable." MPT, Inc. v. Marathon Labels, Inc., et al., 2006 U.S. Dist. LEXIS 4612 (N.D. Ohio, Feb. 7, 2006). 4591

"transparent light scattering materials" — "material that is transparent, such as, but not limited to, glass, epoxy, liquid, or gas, including air." Texas Digital Systems, Inc. v. Telegenix, Inc., 2000 U.S. Dist. LEXIS 18360 (N.D. Tex., Dec. 6, 2000). 4592
"transparent window layer" — "a transparent layer that spreads current, composed of semiconductor material different from AlGaInP, where the material has a bandgap greater than the bandgap of the active layers and a resistivity lower than the active layers." Epistar Corp. v. International Trade Commission, et al., 566 F.3d 1321 (Fed. Cir. 2009). 4591

"trap sequence number" — "a number associated with a trap from a particular network element, which can be, and is, used to determine the order in which that trap has been sent with respect to other traps from the same network element." Cisco Systems, Inc., et al. v. Telcordia Technologies, Inc., 2007 U.S. Dist. LEXIS 58650 (E.D. Tex., Aug. 10, 2007). 4594

"traversing" — "navigation according to a specific path or route." Leader Technologies, Inc. v. Facebook, Inc., 2010 U.S. Dist. LEXIS 21100 (D. Del., Mar. 9, 2010). 4595


"trellis encoded channel symbol" — "a set of one or more trellis encoded signal points that corresponds to a group of bits that is treated as a unit by an encoding system." Rembrandt Technologies, L.P. v. Comcast Corp., et al., 512 F. Supp. 2d 749 (E.D. Tex. 2007). 4597

"trellis encoding ones of the aggregated bits to identify, for each of the plurality of symbols, a respective subset from which that symbol is to be chosen" — "trellis encoding some of the aggregated bits to identify one or more subsets, from each of which one symbol is to be chosen." Agere Systems, Inc. v. Broadcom Corp., 2004 U.S. Dist. LEXIS 14992 (E.D. Pa., Aug. 2, 2004). 4598


"a plurality of trenches" — "the court rejects Hynix's construction and the court declines to construe this straightforward term." Toshiba Corp. v. Hynix Semiconductor Inc., et al., 2006 U.S. Dist. LEXIS 63313 (N.D. Cal., Aug. 21, 2006). 4601


"trigger means" — "the 'trigger means' claim element does not recite sufficient structure to perform the undisputed function of selectively activating." Quantronix, Inc. v. Data Trak Technologies, Inc., et al., 503 F. Supp. 2d 1152 (D. Minn. 2007). 4604

"triggering signal"; "triggering event signal"; "triggering activity signal" — "one or more signals sent from the motion detector in response to activity detected by the motion detector." *Good Sportsman Marketing LLC v. Testa Associates, LLC, et al.*, 440 F.Supp.2d 570 (E.D. Tex. 2006). 4606

"triggering the activation of a high voltage and current generator in response to said sensed presence" — "the sensed presence of a pest results in an immediate and irreversible triggering of the high voltage and current generator." *Agrizap, Inc. v. Woodstream Corp., et al.*, 431 F. Supp. 2d 518 (E.D. Pa. 2006). 4607

"a trinary code generator for generating a three-valued or trinary code responsive to the variable binary code" — "a processor programmed to generate a trinary code in response to the variable binary code." *Chamberlain Group, Inc. v. Lear Corp.*, 2006 U.S. Dist. LEXIS 68899 (N.D. Ill. Sept. 11, 2006). 4608


"trusted time source" — "a real time clock, which is not resettable, is independent of any system clock of the PC, and is installed locally relative to the PC." *Timecertain, LLC v. Authentidate Holding Corp., et al.*, 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006). 4610

"tuning said TV signals to a specific program" — "tuning said TV signals to a specified frequency range." *TiVo Inc. v. EchoStar Communications Corp., et al.*, 2005 U.S. Dist. LEXIS 46879 (E.D. Tex., Aug. 18, 2005). 4611


"layer 2 tunnel" — "communication path between a remote client and a local network through an intermediary, operating according to a layer 2 forwarding protocol." *Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc.*, 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002). 4613


"tunnel identifier" — "an indicator such as an integer that specifies a tunnel, but does not use addresses." *UTStarcom, Inc. v. Starent Networks, Corp., et al.*, 2009 U.S. Dist. LEXIS 93869 (N.D. Ill., Sep. 16, 2009). 4615
(1) "turn-off data"; (2) "turn-off delay period"; (3) "turn-off period"; (4) "turn-on data"; (5) "turn-on delay period"; (6) "turn-on period" — (1) "data indicating when to stop generating an output"; (2) "the time to wait from an event before turning on an output," and "the time to wait from an event before turning off an output"; (3) "the time to wait from an event before turning off an output"; (4) "data indicating when to generate an output"; (5) "the time to wait from an event before turning on an output"; (6) "the time to wait from an event before turning on an output." *Power-One, Inc. v. Artesyn Technologies, Inc.*, 2007 U.S. Dist. LEXIS 20458 (E.D. Tex., March 22, 2007). 4616

"twisted pair" — "twisted pair' wiring, which is used in the '919 patented invention to conduct analog video signals, may be either 'shielded' or 'unshielded." *Avocent Huntsville Corp. v. Clearcube Technology, Inc.*, 443 F. Supp. 2d 1284 (N.D. Al. 2006). 4617


"type information" — "may include the name of an application associated with the object." *Eolas Technologies, Inc. v. Microsoft Corp.*, 2000 U.S. Dist. LEXIS 18886 (N.D. Ill., Dec. 28, 2000). 4619

- U -

"USB" — "an abbreviation for 'Universal Serial Bus,' which is a computer standard technology described in Universal Serial Bus Specification Revision 2.0 and the prior versions of this standard. The court does not reach the issue of whether the term as used in the patent is compatible with possible future versions of the USB specification." *DisplayLink Corp. v. Magic Control Technology Corp.*, 615 F. Supp. 2d 1051 (N.D. Cal. 2009). 4620

"USB based display signals" — "USB encoded display signals." *DisplayLink Corp. v. Magic Control Technology Corp.*, 615 F. Supp. 2d 1051 (N.D. Cal. 2009). 4621

"USB controller" — "USB Controller" is a device that receives a USB display signal, holds it until it receives a bus command, and then forwards the USB display signal out on a FIFO basis." *DisplayLink Corp. v. Magic Control Technology Corp.*, 615 F. Supp. 2d 1051 (N.D. Cal. 2009). 4622

"data to be permanently stored in memory in an unalterable fashion" — "data to be stored in memory in a non-volatile manner and in such a way that the data cannot be changed." *Avid Identification Systems, Inc. v. Philips Electronics North America Corp., et al.*, 2006 U.S. Dist. LEXIS 35477 (E.D. Tex., Feb. 3, 2006). 4623


"occurring under the direction of the auctioneer" — "occurring under the complete control of the auctioneer." *Auction Management Solutions, Inc. v. Adesa, Inc.*, 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 4625
[undisputed claim limitations] — "Although the construction of the claim is independent of the device charged with infringement, it is convenient for the court to concentrate on those aspects of the claim whose relation to the accused device is in dispute." Pall Corp. v. Hemasure, Inc., 181 F.3d 1305, 1308-09 (Fed. Cir. 1999). "[W]e are reviewing only certain disputed terms of the claim construction and lack the power to construe other terms not disputed by the parties." MBO Laboratories, Inc. v. Becton, Dickinson & Co., 474 F.3d 1323 (Fed. Cir. 2007).

"uniaxial medium" — "a type of birefringent material wherein the values of two of the principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) has a different value." Commissariat a l'Energie Atomique v. Samsung Electronics Co., et al., 524 F. Supp. 2d 498 (D. Del. 2007).

"unified execution of multiple media data streams" — "processing two or more different types of media data streams by the same execution unit." Microunity Systems Engineering, Inc. v. Dell, Inc., et al., 2005 U.S. Dist. LEXIS 36814 (E.D. Tex., Aug. 26, 2005).


"unique" — "a random or pseudo-random number (alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).

"a unique audio data signal in IP protocol representing a specific visual condition to be monitored" — "[i]nformation: a. which is transmitted in a protocol compliant with the internet; b. is about a condition, which can be heard, and which has been chosen to be observed; and c. which distinctly identifies the condition being observed." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006).

"unique authorized information" — "information associated with each object, unique to that object and authorized by the '422 patent's system, but excluding information other than serial information alone or randomly-selected information alone." CIAS, Inc. v. Alliance Gaming Corp., et al., 424 F. Supp. 2d 678 (S.D.N.Y. 2006).

"unique identifier"; "unique randomly assigned identifying number" — "random or pseudo random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers assigned to a particular voting session which the voter takes away at the end of the voting session to enable the voter to identify his/her voting record from among the voting results published for that particular election." Avante International Technology, Inc. v. Premier Election Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 95047 (E.D. Mo., Oct. 13, 2009).
"unique identification"; "UID" — "data assigned to a license file which is different from the data assigned to any other license file then in existence with which the first mentioned license file otherwise may be confused." Globetrotter Software, Inc. v. Elan Computer Group, Inc., et al., 1999 U.S. Dist. LEXIS 22482 (N.D. Cal., Oct. 22, 1999). 4636


"a unique visual data signal in IP protocol representing a specific visual condition to be monitored" — "[i]nformation: a. which is transmitted in a protocol compliant with the internet; b. is about a condition, which can be seen, and which has been chosen to be observed; and c. which distinctly identifies the condition being observed." E-Watch, Inc., et al. v. March Networks Corp., 2006 U.S. Dist. LEXIS 54366 (E.D. Tex., Aug. 4, 2006). 4638

"uniquely identifying" — "The term 'uniquely,' as used in the claim language, quite simply means one of its kind." ResQNet.com, Inc. v. Lansa, Inc., 2002 U.S. Dist. LEXIS 16667 (S.D.N.Y., Sept. 5, 2002). 4639

"unistroke symbols" — "requires definitive recognition of a symbol immediately upon delimitation - e.g. immediately upon pen lift. I further find that 'definitive recognition' does not simply refer to 'unambiguous differentiation,' but rather requires that the computer be capable of making a final, unalterable interpretation (recognition) of the symbol immediately upon delimitation (e.g. pen lift) without requiring the system to wait for possible additional strokes." Xerox Corp. v. 3Com Corp., et al., 2000 U.S. Dist. LEXIS 10028 (W.D.N.Y., Jun. 6, 2000). 4640

"The term 'unistroke symbols' therefore requires sufficient graphical separation for the computer to definitely recognize a symbol immediately upon delimitation or pen lift." Id., 267 F.3d 1361 (Fed. Cir. 2001). 4641

"unit" — "a device or collection of components, separate from the computer system, that is designed to be installed and removed from the apparatus in the mobile environment." Keystone Autonics, Inc. v. Sirius Satellite Radio Inc., et al., 2009 U.S. Dist. LEXIS 3195 (E.D. Tex., Jan. 16, 2009). 4642


"computing unit" — "because ... the claim language itself does not recite sufficient structure to perform the claimed function, means-plus-function treatment is warranted." Inventio AG v. ThyssenKrupp Elevator Americas Corp., et al., 2010 U.S. Dist. LEXIS 59020 (D. Del., Jun. 14, 2010). 4644

"unit having a persistent unique hardware identification used to restrict access to data received at the unit via the wireless signal" — "number, code, bit pattern or other location independent identifier that identifies a specific piece of hardware and does not identify any other piece of hardware of the same type, and once assigned to that specific piece of hardware does not typically change, and is provided to the computer system so that the computer system makes a determination whether it will accept data from the unit that was received from a wireless signal." Keystone Autonics, Inc. v. Sirius Satellite Radio Inc., et al., 2009 U.S. Dist. LEXIS 3195 (E.D. Tex., Jan. 16, 2009).


"unmagnetized magnetic material" — "material that is capable of being magnetized but in the absence of an applied external magnetic field is not magnetized." Fargo Electronics, Inc. v. Iris Ltd, Inc., 2005 U.S. Dist. LEXIS 34493 (D. Minn., Nov. 30, 2005).

"wherein the unique voting session identifier is unrelated to a particular voter's personal identity" — "the unique voting session identifier consists of a random or pseudo-randomly chosen number which is unrelated and untraceable to the voter's identity." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).

"unrequested" — "not requested by the user." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010). "The Court finds that the construction for the term 'unrequested' should be modified in light of Beneficial's remarks and arguments to the USPTO during reexamination of the '366 patent. ... The Court finds that the term 'unrequested' should be construed to mean 'not in response to any immediate previous input by the user.'" Id., 2010 U.S. Dist. LEXIS 54151 (E.D. Tex., Jun. 3, 2010).

"ordinary unresolved pointer" — "a 'pointer' is a data item that represents the address of a target data item. A 'resolved pointer' contains the target's address. An 'unresolved' pointer does not contain the target's address, but instead, contains data from which that address may be determined." Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89 (D. Mass. 2000).

"unscrambling circuit" — "the entire circuit that restores a modified signal to its unmodified condition." Broadcast Innovation, LLC v. Echostar Communications Corp., 240 F. Supp. 2d 1127 (D. Colo. 2003).

"untrusted network" — "a public network with no controlling organization, with the path to access the network being undefined and the user being anonymous." Prism Technologies LLC v. Verasign, Inc., et al., 512 F. Supp. 2d 174 (D. Del. 2007).


"updating" — "an automatic process of adding, modifying, or deleting data records or program files to bring the remote computer up-to-date." Charles E. Hill & Associates, Inc. v. Compuserve, Inc., et al., 65 F. Supp. 2d 924 (S.D. Ind. 1999).

"updating, without input from each customer, each customer profile in accordance with the content profiles of the data sources actually accessed by that customer to automatically update each customer's actual preferences for said predetermined characteristics" — "modifying, without the customer taking an overt action, each customer profile in accordance with the content profiles of the data sources actually assessed by that customer to automatically update each customer's actual preferences for said predetermined characteristics." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).

"upgrade microprocessor" — "a microprocessor which operates at a faster speed than the first microprocessor." All Computers, Inc. v. Intel Corp., 2005 U.S. Dist. LEXIS 43968 (E.D. Va., Feb. 9, 2005).


"upon confirmation of availability of said funds, accepting said order, generating an electronic record" — "following determination that the funds are available, confirming acceptance of the order and generating an electronic record." DE Technologies, Inc. v. Dell Inc., 2006 U.S. Dist. LEXIS 5459 (W.D. Va., Feb. 14, 2006).

"upon connection with the destination" — "the plain language of the claim is clear, and therefore declines to construe this phrase." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).
"upon detecting a predetermined drop in reflectance sufficient to indicate that said sample has reached said first surface" — "a reflectance reading taken immediately following or very soon after detecting the point in time of a drop in reflectance, the magnitude of which is determined in advance, to be the point in time of the first breakthrough of sample to the testing surface. At that point in time, the reflectance drop must be mostly or entirely due to wetting of the testing surface and not color from chemical reaction."  Home Diagnostics, Inc. v. Lifescan, Inc., 2002 U.S. Dist. LEXIS 27575 (N.D. Cal., Oct. 2, 2002).4669 "[T]his interpretation improperly limits claim 4 to a preferred embodiment and does not give the disputed claim terms their proper scope in this technology at the time of invention. Therefore, 'upon detecting a predetermined drop in reflectance sufficient to indicate that sample reached said first surface' means 'immediately following or very soon after detecting the point in time of a predetermined drop in reflectance, where the predetermined drop in reflectance is mostly or entirely due to wetting of the testing surface.'"  Id., 381 F.3d 1352 (Fed. Cir. 2004).4670

"upon detection of a suitably stable endpoint" — "at the expiration of the predetermined time period."  Home Diagnostics, Inc. v. Lifescan, Inc., 2002 U.S. Dist. LEXIS 27575 (N.D. Cal., Oct. 2, 2002).4671 "[T]his court determines that the customary meaning in this art field of ‘upon detection of a suitable stable endpoint’ means ‘when the stated reaction is sufficiently complete that the glucose concentration of the sample can be calculated without an error of clinical significance.’"  Id., 381 F.3d 1352 (Fed. Cir. 2004).4672


"Upstream Manager" — "a computer system component that (a) accepts messages from a client bound for services on a server; (b) routes messages from a client to services on a server; and (c) is distinct from the Downstream Manager."  nCube Corp. v. Seachange International, Inc., 436 F.3d 1317 (Fed. Cir. 2006).4674

"URI"; "Uniform Resource Identifier" — "the [] patent contemplates that a particular server will field all of the requests for a particular resource (or URI), whereas under WebLogic, a particular server handles all of the requests from a particular user (or session ID). The session ID inserted by WebLogic does not point to a network resource but, instead, to a user and thus fundamentally differs from a URI."  BEA Systems, Inc. v. Web Balance, Inc., 2006 U.S. Dist. LEXIS 15030 (D. Mass., March 31, 2006).4675

"URL" — "A URL, then, as defined by the language and context of the claims, is something that identifies the location of relevant information segments. This can include web pages, audio clips, images, and the like. It can be an absolute URL or a relative URL, as long as it specifies one or more Internet addresses of information segments relating to Internet content."  ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082 (Fed. Cir. 2003).4676

"use information" — "information which a content producer or supplier wishes to consider in regulating access to the digital content."  Digital Reg of Texas, LLC. v. LFP Internet Group, LLC, et al., 2009 U.S. Dist. LEXIS 59610 (E.D. Tex., Jul. 13, 2009).4677

"use mode" — "a mode that allows full use of the digital data or software in accordance with the license."  Uniloc USA, Inc., et al. v. Microsoft Corp., 447 F. Supp. 2d 177 (D. R.I. 2006).4678
"said first responsive information is used for one or more of" — "the first responsive information is used for at least one or more of." Beneficial Innovations, Inc. v. Blockdot, Inc., et al., 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010). 4679

"user" — "is properly construed as 'a person or a person using a computer.'" z4 Technologies, Inc. v. Microsoft Corp., et al., 507 F.3d 1340 (Fed. Cir. 2007). 4680


"user" — "the Court rejects Hyundai's proposed construction and construes the term according to its ordinary meaning." Orion IP, LLC v. Mercedes-Benz USA, LLC, et al., 516 F. Supp. 2d 720 (E.D. Tex. 2007). 4682

"user" — "a person located in the distribution center who has access to the product movement information from the receiving sites." STV Asia, Ltd. v. PRN Corp., et al., 2006 U.S. Dist. LEXIS 95523 (N.D. Cal., Oct. 15, 2006). 4683

"user" — "refers to a human being." Civix-DDI, LLC v. Cellco Partnership, 387 F. Supp. 2d 869 (N.D. Ill. 2005). 4684

"user" — "the court holds that the term 'user' includes 'a person or a computer.'" Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007). 4685

"user" — "a human who issues a command to the computer on which a digital data file was created or copied." Timecertain, LLC v. Authentidate Holding Corp., et al., 2006 U.S. Dist. LEXIS 92789 (M.D. Fla., Dec. 22, 2006). 4686

"user" — "a person who requests information from items in the transmission system. Any person acting as part of the transmission system, such as an operator, is not a user or a subscriber." Acacia Media Technologies Corp. New Destiny Internet Group, et al., 2006 U.S. Dist. LEXIS 93710 (N.D. Cal., Dec. 14, 2006). 4687

"user account" — "a record indicating that the user has the right to access the media assets, and indicating which media player devices may access referenced media assets." Zapmedia Services, Inc. v. Apple Inc., 2010 U.S. Dist. LEXIS 49387 (E.D. Tex., May 19, 2010). 4688

"user attract mode" — "a mode, when the jukebox is not in selection mode, in which graphics are displayed to attract users to the jukebox." TouchTunes Music Corp. v. Rowe International Corp., et al., 2010 U.S. Dist. LEXIS 74043 (S.D.N.Y., Jul. 21, 2010). 4689

"user authorization information" — "user information upon which access is granted." Graphon Corp. v. Autotrader.com, Inc., 2007 U.S. Dist. LEXIS 46941 (E.D. Tex., June 28, 2007). 4690

"user commands" — "instructions issued by a remote computer, causing selected portions of the auction data stored on the host computer network to be located, organized, and transmitted over the communications network to the user's workstation." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 4691

"user computer" — "it was proper for the Board to construe 'user computer' to encompass the mainframes and minicomputers of the cited prior art." In re American Academy of Science Tech Center, 367 F.3d 1359 (Fed. Cir. 2004). 4692
"user configuration information"; [ii] "user identification information" - [i] "information associated with the user such as the user's account information, email information, screen formats, or screen colors"; [ii] "a user's given name or a system user name specially coined by the user that is used to identify the user in each transaction." Logiclink, Inc. v. Keylink Service Solutions, Inc., et al., 2009 U.S. Dist. LEXIS 22962 (C.D. Cal., Mar. 19, 2009).

"user context file" — "a set of registers assigned to a user." Biax Corp. v. Intel Corp., et al., 2007 U.S. Dist. LEXIS 14250 (E.D. Tex., March 1, 2007).

"user-defined reference to aggregated fact data" — "the term[s] 'user-defined' and 'aggregated fact data' do not need additional construction, as their plain meaning corresponds with their usage in claim 1. ... Moreover, the meaning of "reference" is clear from its usage in claim 1 and no further construction is needed." Hyperion Solutions Corp. v. HyperRoll, Inc., et al., 2006 U.S. Dist. LEXIS 64081 (N.D. Cal., Aug. 28, 2006).


"user interface" — "hardware, firmware, or a combination thereof that allows a person, directly or indirectly, to alter parameters." Convolve, Inc., et al. v. Compaq Computer Corp., et al., 2005 U.S. Dist. LEXIS 16375 (S.D.N.Y., Aug. 9, 2005).

"user-selectable options for processing said image data" — "options presented to a user regarding a course of action to be taken with a scanned image, such as faxing, emailing, printing, storing or performing word processing on a scanned image." Soque Holdings (Bermuda) Ltd. v. KeyScan, Inc., 2010 U.S. Dist. LEXIS 60501 (N.D. Cal., Jun. 4, 2010).


"user station" — "is limited to a fixed public structure." CIVIX-DDI, LLC v. Microsoft Corp., et al., 84 F. Supp. 2d 1132 (D. Colo. 2000).

"user store" — "a storage component accessible by a processor containing verification data and information identifying information providers that house personal information for a given end user." Yodlee, Inc. v. CashEdge, Inc., 2006 U.S. Dist. LEXIS 48614 (N.D. Cal., July 7, 2006).

"automatically generating at least one user target profile interest summary for a user at a user terminal, each of said user target profile interest summary being indicative of ones of said target objects and sets of target object characteristics accessed by said user" — "automatically generating a concise statement of the data that describes the significant characteristics of target objects that a user likes and/or dislikes pointing out or showing indirectly the target objects and/or sets of target object characteristics accessed by the user." Pinpoint Inc. v. Amazon.com, et al., 2004 U.S. Dist. LEXIS 17641 (N.D. Ill., Aug. 31, 2004).
"user's rule set" — "elements or conditions that apply during a user's or users' session." *LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al.,* 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010). 4704

"uses" — "it is far from clear that the applicant acted as his own lexicographer to exclusively define 'use' as synonymous with 'environments.' Accordingly, the Court rejects Hyundai's proposed construction." *Orion IP, LLC v. Mercedes-Benz USA, LLC, et al.,* 516 F. Supp. 2d 720 (E.D. Tex. 2007). 4705

"using a computer" — "the use of a computer to aid in performing the sub-steps in (b)(1)-(b)(3)." *Lincoln National Life Insurance Co. v. Transamerica Financial Life Insurance Co.,* 2007 U.S. Dist. LEXIS 16822 (N.D. Ind., March 6, 2007). 4706

"using a telecommunications line" — "using a system of wires and other components to transmit messages between users by various devices such as telegraph, cable, telephone, radio, or television." *BMC Resources, Inc. v. Paymentech, L.P.,* 2004 U.S. Dist. LEXIS 22536 (N.D. Tex., Nov. 4, 2004). 4707

"using the computed positions to define the updated second form line" — "using the new positions computed while deviating from the previously computed second path across the area to recompute the second path across the area to be treated." *Trimble Navigation Ltd. v. RHS, Inc., et al.,* 2007 U.S. Dist. LEXIS 41267 (N.D. Cal., May 29, 2007). 4708

"using the network code to route the user communication through the packet communication system to the network element" — "using the logical address identifying a network element (which network element provides an exit from the packet communication system) to direct the user communication through the packet communication system by a selected route or in a specified direction to the network element that provides an exit from the packet communication system." *Sprint Communications Co. L.P. v. Vonage Holdings Corp., et al.,* 518 F. Supp. 2d 1306 (D. Kan. 2007). 4709

"using the retrieved information"; "transmitting the retrieved information" — "'using the retrieved information' must be presumed to mean something other than 'transmitting the retrieved information.'" *Microstrategy Inc. v. Business Objects Americas,* 2007 U.S. App. LEXIS 15100 (Fed. Cir., June 27, 2007). 4710


"the usual driver for the storage device" — "the customary driver(s) in a host device used to communicate with customary internal and external storage device(s), which driver(s) were normally present within the chassis of most commercially available computers at the time of the invention." *In re Papst Licensing GmbH & Co. KG Litigation,* 624 F. Supp. 2d 54 (D.D.C. 2009). 4712

"utilized by said browser to identify and locate" — "means that the enumerated functions are performed by the browser. This is a fact-intensive inquiry." *Eolas Technologies, Inc. v. Microsoft Corp.,* 2000 U.S. Dist. LEXIS 18886 (N.D. Ill., Dec. 28, 2000). 4713
utilizing an output from the rules engine to determine if intervention is warranted" — "using information generated by the rules engine to determine if intervention is warranted." VISICU, Inc. v. iMDsoft, Ltd. et al., 2009 U.S. Dist. LEXIS 40033 (E.D. Pa., May 7, 2009).4714


V


"VGA controller" — "a component or components that control the routing of VGA signals pursuant to the VGA standard." DisplayLink Corp. v. Magic Control Technology Corp., 615 F. Supp. 2d 1051 (N.D. Cal. 2009).4716

"valid or invalid" — "appropriate or inappropriate for payment." McKesson Info. Solutions LLC v. Trizetto Group, Inc., 2006 U.S. Dist. LEXIS 16097 (D. Del., April 5, 2006).4718

"valid" — "is not simply a synonym of 'consistent' but must be construed in accordance with its broad plain meaning, i.e. correctly stored in a particular data storage system." EMC Corp. v. Hewlett-Packard Co., Inc., 2003 U.S. Dist. LEXIS 27824 (D. Mass., Sept. 12, 2003).4719

"validating"; "verifying" — "the process used for comparing (a) the UTID that is generated by an originator and associated with a transaction with (b) the record of UTIDs for transactions generated by the originator, to confirm the identity of the originator and the transaction related thereto." Starpay.com L.L.C., et al. v. Visa International Service Association, et al., 514 F. Supp. 2d 883 (N.D. Tex. 2007).4720

"validation"; "valid" — "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal." RealSource, Inc. v. Best Buy Co., Inc., et al., 514 F. Supp. 2d 951 (W.D. Tex. 2007).4721


"value" — "Bid for Position is [] incorrect in arguing for a construction of 'value' that is distinct from the amount or price of the bid. The claim language uses the terms 'bid' and 'value of the bid' interchangeably, such that the two cannot be read to have separate meanings." Bid for Position, LLC v. AOL, LLC, et al., 2010 U.S. App. LEXIS 7163 (Fed. Cir., Apr. 7, 2010).4723
"value" — "any numerical quantity or measure that is not generated by an analog-type trim potentiometer or described as 'hardware component.'" Illinois Tool Works, Inc. v. Ion Systems, Inc., 250 F. Supp. 2d 477 (E.D. Pa. 2003).\textsuperscript{4724}

"value" — "refers to a single numerical quantity." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).\textsuperscript{4725}

"an associated value representing a desired quality of result" — "one value from a range of values representing the quality of a cut. This value is inputted into an equation containing other values that reflect characteristics of the task that will impact the quality of the cut, such as material type." Omax Corp. v. Flow International Corp., 2006 U.S. Dist. LEXIS 81914 (W.D. Wash., Nov. 7, 2006).\textsuperscript{4726}

"variable" — "is not a technical term that requires construction." Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).\textsuperscript{4727}

"variable authentication number (VAN)" — "a variable number that can be used in verifying the identity of a party or the integrity of information or both." Stambler v. RSA Security, Inc., et al., 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003).\textsuperscript{4728} "The Court slightly modifies the Delaware construction to read, 'an encoded variable number that can be used in verifying the identity of a party or the integrity of information or both.'" Stambler v. JPMorgan Chase & Co., et al., 2010 U.S. Dist. LEXIS 35035 (E.D. Tex., Apr. 9, 2010).\textsuperscript{4729}

"variable data"; "constant data" — "product information classified as capable of changing at any time"; "product information classified as likely to change less often than variable data." Charles E. Hill & Associates, Inc. v. Compuserve, Inc., et al., 65 F. Supp. 2d 924 (S.D. Ind. 1999).\textsuperscript{4730}

"variable parameters"; "measurable parameters" — "parameters of the paths that can vary and are measured." ConnecTel, LLC v. Cisco Systems, Inc., 428 F. Supp. 2d 564 (E.D. Tex. 2006).\textsuperscript{4731}

"variable speed" — "capable of operating at different speeds." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).\textsuperscript{4732}

"variable speed wind turbine controller" — "an integrated set of hardware and software that provides torque command signals, among other things." Gamesa Eólica, S.A. v. General Electric Co., 359 F. Supp. 2d 790 (W.D. Wis. 2005).\textsuperscript{4733}

"variably controlling, in response to a sensed vacuum level in the handpiece corresponding to the occluded condition of the handpiece, the ultrasonic power being provided to the handpiece" — "the ability of the control unit to automatically change the amount of ultrasonic power, other than merely turning it on or off, being provided to the handpiece in response to a signal from the vacuum sensor indicating that a sensed rise in the vacuum of the aspiration line has reached a particular numeric value which is equal to the vacuum that exists in the aspiration line when the doctor believes he is going to have an occlusion issue." Advanced Medical Optics, Inc. v. Alcon Inc., et al., 361 F. Supp. 2d 370 (D. Del. 2005).\textsuperscript{4734}

"varying together"; "vary together"; "varying ... in the same way"; "varying in the same way" — "increasing and decreasing proportionally." Technology Properties Ltd., et al. v. Matsushita Electric Industrial Co., Ltd., et al., 514 F. Supp. 2d 916 (E.D. Tex. 2007).\textsuperscript{4735}


"vehicle sale type" — "a type of vehicle sale which may include regular sale, manufacturer sale, and heavy duty/truck sale." Auction Management Solutions, Inc. v. Adesa, Inc., 2007 U.S. Dist. LEXIS 66994 (N.D. Ga., Sept. 11, 2007). 4739


"ventilation opening" — "an opening in the enclosure to provide for reducing the buildup of heat, fumes, or vapor, within the radio enclosure." Black & Decker Inc., et al. v. Robert Bosch Tool Corp., 389 F. Supp. 2d 1010 (N.D. Ill. 2005). 4743

"verbally command motions" — "the voice recognition system of the robotic surgical system permits the surgeon to use his voice to control the movement of the robotic manipulator or the surgical instrument." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002). 4744


"verify the applicant's identity" — "confirm or substantiate the applicant's identity. This is not limited to checking biometric information and does not exclude verification using information such as name, address, and social security number plus some additional information less likely to have been improperly obtained (e.g., mother's maiden name, years at current address, years at job, etc)." Decisioning.com, Inc. v. Federated Department Stores, Inc., et al., 2007 U.S. Dist. LEXIS 23045 (D.S.C., Mar. 27, 2007). 4746
"verify the operational status of the computer" — "determine whether the computer is functioning." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007). 4747

"comparing the personal signature produced by the user with said stored personal signature to verify use of said card" — "[T]he district court construed that requirement to mean that the signatures must be compared for the purpose of verifying that it is the user's card that is being used when the personal data is being accessed. ... Since both the claims and the specification would lead a person of skill in the art to conclude that the language of claim 19 requires the party comparing the signatures to verify the use of the card itself, and not just the identity of the user, we hold that the district court correctly construed the disputed claim term." E-Pass Technologies, Inc. v. Microsoft Corp., et al., 2007 U.S. App. LEXIS 10494 (Fed. Cir., May 2, 2007) (unpublished). 4748

"verifying if the originator generated the payment transaction" — "the originator must determine that the originator generated the payment transaction by comparing (a) the unique transaction identifier that has been returned to the originator with a particular transaction with (b) a record of unique transaction identifiers maintained by the originator." Starpay.com L.L.C., et al. v. Visa International Service Association, et al., 514 F. Supp. 2d 883 (N.D. Tex. 2007). 4749

"verifying the authenticity of one of the beam request signals from one of the treatment rooms" — "to confirm or establish the genuine or trustworthy nature of one of the beam request signals from one of the treatment rooms." Optivus Technology, Inc., et al. v. Ion Beam Applications S.A., 2004 U.S. Dist. LEXIS 30314 (C.D. Cal., Aug. 31, 2004). 4750

"verifying the operational status of the user's access to the communications network during delivery of the real-time information" — "Determining whether the user's connection to the communications network is functioning while real-time information is being transmitted." Two-Way Media LLC v. America Online, Inc., 508 F. Supp. 2d 526 (S.D. Tex. 2007). 4751


"very long instruction word" — "a fixed-width instruction that encodes multiple operations. A 'very long instruction word' may contain one or more groups of individual instructions." Intergraph Corp. v. Intel Corp., 2002 U.S. Dist. LEXIS 27117 (E.D. Tex., Jun. 3, 2002). 4753


"via the modular connector" — "through an electrical connector constructed with standardized units or dimensions, and not requiring a direct wire-to-wire connection with equal voltage." Vanguard Products Group, Inc., et al. v. Diam USA, Inc., et al., 2007 U.S. Dist. LEXIS 95710 (N.D. Ill., May 16, 2007). 4755

"video buffer image within said host computer" — "video image data that is stored in memory within the host computer and is currently available for display." Accolade Systems LLC v. Citrix Systems, Inc., 634 F. Supp. 2d 738 (E.D. Tex. 2009). 4756
"video camera" — "is used in the claim in accordance with its plain and ordinary meaning to one skilled in the art and is not limited to analog video cameras."  

"a video combiner connected to said symbol generator and to said display computer for processing said symbol producing signals and delivering them to a selected display device" — "require[s] that the claimed invention have (1) the capability to be attached to multiple display devices, and (2) the capability to project different images on different displays."  

"video data"; "video pixel data"; "data set"; "image data set"; "the video data"; "the video pixel data"; "said video pixel data"; "the data sets"; "said image data sets" — "numerical information representing the same luminance, red chrominance, and blue chrominance components of each pixel in a video image."  

"video delay circuit"; "delayed video signal" — "a circuit that provides to the complementary non-linear amplifier a video signal that is delayed in time"; "a 'video signal' that has passed through a 'video delay circuit.'"  

"video display device"; "display means" — "a device for providing an image which may be viewed by a viewer, where the device is capable of displaying a moving image."  

"video game controller" — "should not be read narrowly to include only one of the possible types to which the inventor refers in the specification."  

"video image"; "video still store" — "an electronic signal representation of visual information displayable in visual form on a monitor or other display device"; "video still store" to mean "a system capable of storing still video images."  

"video player" — "an electronic device capable of playing a video as well as musical sound."  

"video program" — "recorded movies, broadcast television programs, and cable television, regardless of the media on which they are recorded."  

"video signal" — "a signal containing television picture information that is input to the transmitter's IF vision modulator and the video delay circuit."  

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"virtual address" — "a memory address provided by the CPU in executing an application software program and that is translated into a real memory address by hardware." Intergraph Hardware Technologies Co. v. Hewlett-Packard Co., 2004 U.S. Dist. LEXIS 31055 (E.D. Tex., Jun. 30, 2004).


"virtual files" — "files that appear to be but are not physically stored; rather, they are constructed or derived from existing data when their contents are requested by an application program so that they appear to exist as files from the point of view of the host device." In re Papst Licensing GmbH & Co. KG Litigation, 624 F. Supp. 2d 54 (D.D.C. 2009).

"virtual interface with the device" — "a virtual display that allows the user of the client machine to send commands from the client machine to the device control circuitry via the module." Digi International, Inc. v. Lantronix, Inc., 402 F. Supp. 2d 1041 (D. Minn. 2005).


"virtual path" — "a logical connection transmitted over a physical path, which is dedicated to a particular virtual private network and has a guaranteed bandwidth, through which one or more virtual circuits may be constructed." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).

"virtual presence" — "a remote user's ability to send and receive voice and data communications to and from a corporate office with the full capabilities and user interfaces of the corporate office just as if the remote user were physically present in the corporate office." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).

"virtual presence server"; "VPS" — "a server located at the corporate office that executes software that enables a virtual presence at the corporate office by dialing the VPS and establishing a direct connection." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).
"virtual presence server communications device" — "a modem, ISDN adapter or similar device attached to the VPS that connects to the VPS through the transmission media to allow the remote user to dial up the VPS and establish a connection with the VPS through the connection media in order to transmit and receive communications." Data Race, Inc. v. Lucent Technologies, Inc., 73 F. Supp. 2d 698 (W.D. Tex. 1999).4779


"virtual queue" — "an electronically-stored representation of a physical queue including reservation information for an attraction retained in solid-state memory such as RAM, magnetic storage such as a disk drive, or other electronic storage facility." PalmTop Productions, Inc. v. LO-Q PLC, et al., 450 F. Supp. 2d 1344 (N.D. Ga. 2006).4782

"virtual router" — "a virtual entity defined by an address or set of addresses capable of identifying a device and its location in the network that can be emulated by a physical router." Alcatel Internetworking, Inc., et al. v. Cisco Systems, Inc., 2002 U.S. Dist. LEXIS 28372 (C.D. Cal., Aug. 27, 2002).4783

"virtual terminal process" — "a process to simulate the operation of a selected real terminal with respect to the transmission and receipt of input and output streams, except that each virtual terminal merely prepares and stores a set of instructions (a display list) for creating a full screen display according to the data from the associated first process; and each virtual terminal process does not independently control a separate screen." American Video Graphics, L.P. v. Microsoft Corp., 2005 U.S. Dist. LEXIS 46858 (E.D. Tex., Jun. 30, 2005).4784


"virtually simultaneously and concurrently" — "means that the transmission is sufficiently swift that insofar as humans are able to perceive, the transmission is effectively, even though not precisely, instantaneous." Hamilton v. ComWeb Technology Group, Inc., et al., 2003 U.S. Dist. LEXIS 27832 (D. Md., Nov. 13, 2003).4786

"visible exterior surface" — "the phrase can be understood as written and no further construction is necessary." 911EP v. Whelen Engineering Co., Inc., et al., 2007 U.S. Dist. LEXIS 20779 (E.D. Tex., March 23, 2007).4787


"visual display"; "displaying" — "displaying' and 'visual display' are limited to the structures or their equivalents actually described in the specification. As discussed above, the specification describes no display mechanism other than a monitor." Cytyc Corp. v. Tripath Imaging, Inc., et al., 2005 U.S. Dist. LEXIS 29850 (D. Mass, Nov. 28, 2005).4789
"visual identification" — "requires a visual correlation or linkage of a selected irregular cell with the selected irregular cell displayed on the television screen. This may include the properties of a conventional cursor." *Gemstar-TV Guide International, Inc., et al. v. International Trade Commission, et al.*, 383 F.3d 1352 (Fed. Cir. 2004). 4790

"visual representations" — "visual representations and may include but are not required to include: text that is anti-aliased; graphical objects; possess the attribute of translucency; prompts for prompting a user; and images." *Luma Corp. v. Stryker Corp., et al.*, 2005 U.S. Dist. LEXIS 40884 (S.D. W. Va., July 27, 2005) 4791

"visualization functionality" — "hardware and/or software that produces a designed effect, that is, to download via the image server a thumbnail visual image which is associated with a given hyperlink." *Girafa.com, Inc. v. IAC Search & Media, Inc., et al.*, 2009 U.S. Dist. LEXIS 84405 (D. Del., Sep. 15, 2009). 4792


"Viterbi-like" — "an algorithm that is or is similar to an iterative algorithm that uses a trellis to determine the best sequence of hidden states (in this case, written symbols) based on observed events (in this case, observed readings that represent the written symbols), where the determined sequence is indicated by the best path through the trellis and is determined using branch metric values calculated for branches of the trellis." *Carnegie Mellon University v. Marvell Technology Group, Ltd., et al.*, 2010 U.S. Dist. LEXIS 104891 (W.D. Pa., Oct. 1, 2010). 4795


"voice communication module" — "a module that enables a communication platform to provide voice-over-IP calls." *Foundry Networks v. Lucent Technologies, Inc.*, 2005 U.S. Dist. LEXIS 46840 (E.D. Tex., May 24, 2005). 4799


"voice guidance" — "spoken words that give accurate directions about how to navigate at a particular position." *Garmin Ltd. v. TomTom, Inc.*, 2006 U.S. Dist. LEXIS 61187 (W.D. Wis., Aug. 24, 2006). 4802
"voice recognition"; "voice recognition system"; "input device" — "an apparatus into which the surgeon speaks verbal instructions. These terms are not limited to the structure of any embodiment described in the specification." Intuitive Surgical, Inc., et al. v. Computer Motion, Inc., 2002 U.S. Dist. LEXIS 14752 (D. Del., Jul. 12, 2002). 4803


"voiceband" — "frequencies in the range of 0 to 4 kHz." WI-Lan Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 99263 (E.D. Tex., Sep. 20, 2010). 4805

"void" — "a space or spaces in the image carried by the input video signal where a change or illumination may be made to cause an improvement of the perceived quality of the image." IP Innovation LLC, et al. v. Mitsubishi Electric Corp., et al., 2009 U.S. Dist. LEXIS 100647 (N.D. Ill., Oct. 29, 2009). 4806

"void" — "a space or spaces in the image where a change of illumination may be made to cause an improvement of the perceived quality of the image." IP Innovation L.L.C. v. Lexmark International, Inc., et al., 424 F. Supp. 2d 1078 (N.D. Ill. 2006). 4807

"void" — "any location, existing at the point of image creation, before or after storage, or at the point of presentation, in or around an image where a change of illumination may be made to cause an improvement of the perceived quality of the image. Such voids may include, but are not limited to, defects, unwanted elements, improper elements, corrupted elements, valid but replaceable elements, locations with no image information, and other locations or elements which may be in question or need for improvement." IP Innovation L.L.C., et al. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962 (N.D. Ill., Aug. 18, 2005). 4808

"volley codes" — "codes that define the present stage of a transaction or which reflect the progression of communications for a transaction." Papyrus Technology Corp. v. New York Stock Exchange, Inc., 581 F. Supp. 2d 502 (S.D.N.Y. 2008). 4809

"voltage amplifier" — "a device that at least attenuates voltage." P3 International Corp., et al. v. Unique Products Manufacturing Ltd., et al., 2009 U.S. Dist. LEXIS 43751 (S.D.N.Y., May 21, 2009). 4810


"voltage source means providing a constant or variable magnitude DC voltage between the DC input terminals" — "does not suggest sufficient structure on its face to overcome the means-plus-function presumption, and it must be construed in accordance with section 112, P 6." Lighting Ballast Control, LLC v. Philips Electronics North America Corp., et al., 2010 U.S. Dist. LEXIS 85570 (N.D. Tex., Aug. 19, 2010). 4812

"voltage supply" — "refers to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit." NeoMagic Corp. v. Trident Microsystems, Inc., 98 F. Supp. 2d 538 (D. Del. 2000). 4813


"voting session" — "the period during which a voter makes his or her voting selections on the voting apparatus, ending when the voter confirms the voting selections." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).

"voting session identifier" — "a random or pseudo-random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers assigned to a particular voting session which the voter takes away at the end of the voting session to enable the voter to identify her voting record from among the voting results published for that particular election." Avante International Technology Corp. v. Diebold Election Systems, et al., 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007).


"wafer" — "a thin, generally cylindrical, slice of semiconductor material used as a base for an electronic component or circuit." MEMC Electronic Materials, Inc. v. Mitsubishi Materials Silicon Corp., et al., 2006 U.S. Dist. LEXIS 9353 (N.D. Cal., Feb. 24, 2006).

"wafer cassette" — "a wafer carrier that holds one or more wafers and keeps them separate." Nova Measuring Instruments, Ltd. v. Nanometrics, Inc., 2006 U.S. Dist. LEXIS 90736 (N.D. Cal., Dec. 1, 2006).


"wagering an additional wager" — "placing another wager, either separately or through an increased purchase price, that one or more of the additional lottery elements will be drawn during play of the game." FortuNet, Inc., et al. v. Melange Computer Services, et al., 412 F. Supp. 2d 1071 (D. Nev. 2006).
"wagering format" — "the kind of lottery games that are available, such as Keno, Lotto, and 3- or 4-digit lotteries."  Lottotron, Inc. v. Gtech Corp., 2007 U.S. Dist. LEXIS 82579 (D.N.J., Nov. 7, 2007).4824

"waiting state" — "a state of the peripheral device in which it is ready to receive new microcode." Hewlett-Packard Co., et al. v. EMC Corp., 2004 U.S. Dist. LEXIS 28460 (N.D. Cal., Jun. 23, 2004).4825


"wavelength division multiplexed terminal" — "a terminal at the end of a communication pathway having a transmitter and/or receiver for wavelength division multiplexing communications." Ciena Corp. v. Nortel Networks, Inc., et al., No. 2:05-cv-00014-LED (E.D. Tex., Apr. 25, 2006).4832

"wavelength division multiplexed (WDM) optical network environment" — "an environment having a network for carrying information on a plurality of wavelengths, the plurality of wavelengths multiplexed together as an optical signal." Tellabs Operations, Inc. v. Fujitsu Ltd., et al., 2009 U.S. Dist. LEXIS 40533 (N.D. Ill., May 13, 2009).4833

"waveshape the voltage and current in order to efficiently ignite the fuel in the turbine engine" — "produce a current waveform…which initially rises relatively slowly, followed by a transition to a fast rising current which quickly peaks and thereafter slowly dissipates." Lucas Aerospace, Ltd. v. Unison Industries, L.P., 899 F. Supp. 1268 (D. Del. 1995).4834

"web browser" — "a software application that can be used to locate and display Web pages in human-readable form." ACTV, Inc., et al. v. Walt Disney Co., et al., 204 F. Supp. 2d 650 (S.D.N.Y. 2002).4835

"web browser" — "software that can be used to retrieve information over a network, including, but not limited to, the Internet." Hewlett-Packard Co. v. Intergraph Corp., 2004 U.S. Dist. LEXIS 31073 (N.D. Cal., Dec. 20, 2004).4836


"web server" — "a component that provides access to information accessible from a computer connected to the Internet or an intranet." NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007).

"a web server separated from said image server" — "a web server that is a separate computer from the image server." Girafa.com, Inc. v. IAC Search & Media, Inc., et al., 2009 U.S. Dist. LEXIS 84405 (D. Del., Sep. 15, 2009).


"website" — "one or more servers operating together that (1) can be located on the Internet by use of a Uniform Resource Locator (URL), (2) host one or more web pages retrievable by a web browser through hypertext transfer protocol ('HTTP') and hypertext markup language ('HTML') interpretation, (3) validate logon commands, and (4) send and receive data signal instructions." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009).


"when a subset of the stored terrain information is located within boundaries" — "every time the terrain data intersects with one of the 'alert envelopes.'" *Honeywell International Inc., et al. v. Universal Avionics Systems Corp., et al.*, 264 F. Supp. 2d 135 (D. Del. 2003). 4852

"when not downloading blocks required by the renderer" — "During periods of time when the local computer, or a connection thereof, is not downloading data blocks in response to coordinates received from the renderer." *Skyline Software Systems v. Keyhole, Inc., et al.*, 2006 U.S. Dist. LEXIS 83603 (D. Mass., Nov. 16, 2006). 4853

"when required"; "consistent with the format determined by the control program" — "have ordinary meanings and do not require construction." *Broadcast Innovation, LLC v. Echostar Communications Corp.*, 240 F. Supp. 2d 1127 (D. Colo. 2003). 4854

"when said first voltage signal exceeds a predetermined threshold for said predetermined duration" — "when the above-mentioned first voltage signal exceeds and continues to exceed a voltage value determined beforehand for the above-mentioned time period." *Monolithic Power Systems, Inc. v. O2 Micro international Ltd.*, 2010 U.S. Dist. LEXIS 13106 (N.D. Cal., Feb. 16, 2010). 4855

"the probe generate a trigger signal when said sensing tip contacts an object and said stylus holder is thereby deflected relative to said housing" — "claim 2 covers probes which signal within a nonappreciable period of time after contact such that the delay in signaling is insignificant when compared to the sensitivity and accuracy of the probe." *Renishaw plc v. Marposs Societa' per Azioni, et al.*, 158 F.3d 1243 (Fed. Cir. 1998). 4856

"stopping the relative displacement of corresponding contact surfaces when said testing determines said alignment and existence of correct electrical contact" — "mean[s] stopping that occurs as a result of a positive test for correct alignment and electrical contact, and that is instantaneous or nearly instantaneous such that relative displacing is halted before the corresponding contact surfaces are moved from a position of proper alignment and correct electrical contact to a position out of such alignment and contact." *Thomson Consumer Electronics, Inc. v. Innovatron, S.A.*, 43 F. Supp. 2d 26 (D.D.C. 1999). 4857

"calculating ... when the animal may be released" — "we are satisfied that the term 'when' refers to the beginning of the period in which the animal may be released from the feedlot, which is contrary to the claim construction adopted by the district court." *Micro Chemical, Inc. v. Lextron, Inc., et al.*, 1998 U.S. App. LEXIS 12905 (Fed. Cir., Jun. 17, 1998) (unpublished). 4858

"completing a transfer of the paperless tickets when the bid price equals the ask price and the ask quantity is equal to or greater than the bid quantity" — "transfer of the paperless tickets is completed at, during, or after the time that the bid price equals the ask price and the ask quantity is equal to or greater than the bid quantity." *Flash Seats, LLC v. Paciolan, Inc.*, 2010 U.S. Dist. LEXIS 4181 (D. Del., Jan. 19, 2010). 4859

"causing the display means to display the shape of a character ... when the code numbers entered by the entering means uniquely identify said character" — "We thus construe the term 'when' as requiring only that a character be displayed at the time it is uniquely identified, an event that must occur sooner for those characters with trimmed codes than for those characters with untrimmed codes." *Zi Corp. of Canada Inc. v. Tegic Communications Inc.*, 2000 U.S. App. LEXIS 26659 (Fed. Cir., Oct. 24, 2000) (unpublished). 4860
"SPNAN receives said first responsive information when the first user has reconnected the first network accessible node to the network" — "SPNAN receives said first responsive information at the time that the first user reestablishes a subsequent different network connection with the communications network." *Beneficial Innovations, Inc. v. Blockdot, Inc., et al.*, 2010 U.S. Dist. LEXIS 35784 (E.D. Tex., Apr. 12, 2010). 4861

"when the market changes" — "at the time that new data reflecting a change in the inside market is received." *Trading Technologies International, Inc. v. eSpeed, Inc., et al.*, 2006 U.S. Dist. LEXIS 80153 (N.D. Ill., Oct. 31, 2006). 4862

"whenever" — "whenever' does not require the selection switch to be actuated for sufficient time."; "'whenever' does not permit the output signal to depend upon other logical requirements." *Mars, Inc. v. Coin Acceptors, Inc.*, 2007 U.S. Dist. LEXIS 20094 (D.N.J., March 20, 2007). 4863

"whereby a trade network supports users ... to concurrently engage in interactive data messaging on said topic boards" — "We confirm the district court's construction of the 'whereby' clause as requiring interactive data messaging, and that claim 21 is thereby limited to a method that provides interactive data messaging." *Hoffer v. Microsoft Corp., et al.*, 405 F.3d 1326 (Fed. Cir. 2005). 4864

"whereby data may be selectively transmitted to and received and stored by a remote object only after such remote object has been identified as the correct remote object to receive such data" — "The presence of the conjunctive term 'and' indicates that the interrogator performs all three functions, i.e. transmits, receives and stores data, only after the correct remote object has been identified by the interrogator. As such, whether an interrogator transmits data but does not store the information to the tag is irrelevant to the infringement analysis." *Single Chip Systems Corp., et al. v. Intermec IP Corp., et al.*, 2006 U.S. Dist. LEXIS 96537 (S.D. Cal., Dec. 5, 2006). 4865

"whereby said vehicle is caused to operate in a protocol selected from at least one alternative available in said preprogrammed memory" — "This term means that after a program in the preprogrammed memory is sent to the vehicle's ECM, the vehicle is caused to operate according to the alternate program now residing in the preprogrammed memory. The vehicle must be responsive to the act of selecting a program while the vehicle is moving or while it is stopped, but otherwise in normal operation." *Adrain v. Hypertech, Inc.*, 2002 U.S. Dist. LEXIS 3732 (D. Utah, Mar. 6, 2002). 4866

"whereby the position of the lesion in the ultrasound image can be compared with a position of the lesion in the radiation therapy plan" — "the system must be structured to compare the position of the lesion in the two-dimensional image generated by the ultrasound probe with the position of the lesion identified in the radiation therapy plan." *NOMOS Corp. v. ZMED, Inc.*, 260 F. Supp. 2d 215 (D. Mass. 2002). 4867

"whereby the voting selections marked on each paper ballot are imaged and recorded in accordance with a template corresponding to the jurisdiction identifier for that paper ballot" — "The voting selections on each paper ballot are imaged and the choices/selections are recorded in accordance with a selected template corresponding to the jurisdiction identifier for that paper ballot." *Avante International Technology Corp. v. Diebold Election Systems, et al.*, 2007 U.S. Dist. LEXIS 61011 (E.D. Mo., Aug. 20, 2007). 4868
"wherein a credential is previously issued" — "the credential referenced in the claim must already be issued before the execution of the steps recited in the claim."  *Stambler v. RSA Security, Inc., et al.*, 2003 U.S. Dist. LEXIS 1547 (D. Del., Jan. 29, 2003). 4869

"wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" — "transmitting the selected portions of the database within a tier at a single, chosen repetition rate, wherein the selected portions per tier are less than the entire database."  *Comcast Cable Communications Corp., LLC v. Finisar Corp.*, 2007 U.S. Dist. LEXIS 28994 (N.D. Cal., April 6, 2007). 4870

"wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and the embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers" — "This language [] requires only that the embedded object is 'identified by the modified embedded object URL' and is 'served from a given one of the content servers as identified by the first and second level name servers.' The plain meaning of the claim language does not require any load balancing mechanism. Instead, it simply requires the embedded object to be served from 'the content servers as identified by the first level and second level name servers.' Load balancing, if required at all, could be at either the DNS servers or the content provider server. The ordinary meaning of the term 'identifying' in claims 1 and 3 covers standard DNS resolution, without any sort of load balancing."  *Akamai Technologies, Inc., et al. v. Cable & Wireless Internet Services, Inc., et al.*, 344 F.3d 1186 (Fed. Cir. 2003). 4871

"wherein said deposition temperature and environment is controlled such that said interaction is self-limiting with a self-limiting thickness less than said junction depth" — "recites a step-plus-function limitation [] that ... should be construed in accordance with the specification."  *Agere Systems Inc. v. Atmel Corp.*, 2003 U.S. Dist. LEXIS 9823 (E.D. Pa., May 23, 2003). 4872

"wherein said download starts at any point within the data file, exclusive of the start of file and end of file" — "the download cannot resume at the 'start of file' or 'end of file' indicators/markers."  *Ethos Technologies, Inc. v. RealNetworks, Inc.*, 462 F. Supp. 2d 131 (D. Mass. 2006). 4873

"wherein said first and second switch means assume a non signal-conducting state when said CPU power circuit is not supplied with power" — "describes a further function performed by the first and second switch means. When the CPU power circuit is not supplied with power, the switch means takes on a state in which no current or voltage may be conducted through the switch, and therefore a voltage representing a signal on a line connected to one side of the switch will not be affected by and will not affect a voltage representing a signal on a line connected to the other side of the switch. This also means that a voltage representing a signal on a line connected to the switch will not be transmitted through the switch."  *Maurice Mitchell Innovations, L.P. v. Intel Corp.*, 2006 U.S. Dist. LEXIS 41453 (E.D. Tex., June 21, 2006). 4874
"wherein said lines of said CPU and said contacts assume a non signal-conducting state when said first and second switch means are in said non signal-conducting state" — "the dedicated memory address data, and control lines of the CPU and the dedicated memory address, data and control lines of each of the three sets of contacts assume a non signal-conducting state when the first and second switch means are in a non signal-conducting state. Accordingly, those lines take on a state in which no current or voltage may be conducted through them, and voltages representing signals on the lines may not be transmitted along the lines, whenever the first and second switch means are also in this state." Maurice Mitchell Innovations, L.P. v. Intel Corp., 2006 U.S. Dist. LEXIS 41453 (E.D. Tex., June 21, 2006).

"wherein said primary memory interface means selectively transfers data between said primary memory and said cache memory in response to a miss signal" — "Intergraph cites no case where a 'wherein' clause was held not to impose a limitation. ... Here, the 'wherein' clause does not recite a necessary result of arranging the delineated components of the claimed apparatus. Rather, it recites a specific function of the primary memory means. Selectively transferring data between the primary memory and cache memory in response to a miss signal is not a necessary result of coupling data between the primary memory and the cache memory. It is a separate function performed by the primary memory interface means which must be read as part of the limitation." Intergraph Hardware Technologies Co. v. Toshiba Corp., et al., 508 F. Supp. 2d 752 (N.D. Cal. 2007).

"wherein the web site includes a web page having customized information from the first user point for users at the second user point" — "no construction of this claim term is required." Dell USA L.P. v. Lucent Technologies, Inc., 464 F. Supp. 2d 620 (E.D. Tex. 2006).

"whether or not ... approved" — "means determining without human involvement whether or not establishment of the financial account was fully approved, not merely reaching a preapproval determination. This means the automated process continues until information is provided to the applicant as to whether the financial account was approved or not approved." Decisioning.com, Inc. v. TD Ameritrade Holding Corp., Inc., et al., 484 F. Supp. 2d 426 (D.S.C. 2007).

"while buffer overflow is threatened, admitting for storage in said buffer cells only on such of said virtual channel connections on which the previous cell admitted was not indicated by the header of said previous cell as being end of transmission on said virtual channel" — "no additional construction of this phrase is warranted." QPSX Developments 5 Pty. Ltd. v. Juniper Networks, et al., 2007 U.S. Dist. LEXIS 1991 (E.D. Tex., Jan. 10, 2007).

"while maintaining an open association with said first remote device throughout a series of image acquisitions" — "wherein the imaging system is configured to continuously maintain an association with the first remote device that allows for transmission of multiple images acquired by the imaging system." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).

"while said association with said first remote device is open" — "while the association between the ultrasound imaging system and the first remote device has remained open continuously." General Electric Co., et al. v. Sonosite, Inc., 2008 U.S. Dist. LEXIS 33223 (W.D. Wis., Jan. 8, 2008).
"while the amplification reaction is in progress" — "during the amplification reaction." Applera Corp. v. Stratagene Corp., 2007 U.S. Dist. LEXIS 17154 (D. Conn., March 9, 2007).

"modifying at least a portion of the user's rule set while the user's rule set remains correlated to the temporarily assigned network address" — "changing at least one of the elements or conditions in the 'user's rule set' during the session." LinkSmart Wireless Technology, LLC v. T-Mobile USA, Inc., et al., 2010 U.S. Dist. LEXIS 65424 (E.D. Tex., Jun. 30, 2010).

"wide-area-network" — "a geographically distributed network composed of smaller networks of computers that are joined into a single large network using communications services provided by one or more common carriers. The Internet is an example of a WAN." Atser Research Technologies, Inc. v. Raba-Kistner Consultants Inc., et al., 2009 U.S. Dist. LEXIS 25294 (W.D. Tex., Feb. 27, 2009).

[i] "wideband frequency division multiplexer for multiplexing the information onto wideband frequency channels"; [ii] "wideband frequency channels" — [i] "a device that combines the information from multiple inputs into a single output for multiplexing the information onto wideband frequency channels"; [ii] "frequency channels with a K (number of points) and a Δf (frequency band) large enough to be able to achieve a specific throughput and large enough to be able to avoid using either a clock or a carrier recovery device without substantially affecting the BER (bit error rate)." WI-Lan, Inc. v. Acer, Inc., et al., 2010 U.S. Dist. LEXIS 47540 (E.D. Tex., May 11, 2010).

"a total width"; "a width greater than" — "Examining the claim language in light of the specification and the testimony concerning the understanding of one of ordinary skill in the art, the Court concludes that the width terms are not indefinite and are properly defined as proposed by LGD ... Accordingly, the Court concludes that the width terms are defined as 'the width of the first metal layer, determined by the portion of the first metal layer in contact with the second metal layer together with the portions exposed to the subsequently deposited gate insulating layer, is more than 1 μm and less than 4 μm greater than the width of the second metal layer.'" LG Display Co., Ltd. v. AU Optronics Corp., et al., 2010 U.S. Dist. LEXIS 42546 (D. Del., Apr. 30, 2010).

"window" — "a framing device on the computer screen that displays information and may set the displayed information apart from other information on the screen." Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14 (Fed. Cir. 2000).

[i] "windowing function"; [ii] "prefix and window circuit" — [i] "applying a pattern to the amplitude of the OFDM symbol at the beginning and the end of the symbol"; [ii] "a circuit that copies the last part of the OFDM symbol and augments the OFDM symbol by prefixing it with the copied portion of the OFDM symbol, and which also applies a pattern to the amplitude of the OFDM symbol at the beginning and end of the symbol." Agere Systems, Inc. v. Broadcom Corp., 2004 U.S. Dist. LEXIS 14187 (E.D. Pa., Jul. 20, 2004).

"Windows™ operating system environment"; "Windows™ software on the computer" — "the Court will limit the term [] to include Windows 3.0 and Windows 3.1, as well as prior versions of Windows." PolyVision Corp. v. Smart Technologies, Inc., et al., 501 F. Supp. 2d 1042 (W.D. Mich. 2007).
"wire on a printed board" — "a conductive metallic element interconnecting various regions, contributing to the interconnecting of various regions, on the printed board." Murata Manufacturing Co., Ltd. v. Bel Fuse Inc., 445 F. Supp. 2d 938 (N.D. Ill. 2006).


"wireless device" — "a device that receives and/or transmits electromagnetic signals and can be carried by a person outside of a home or office." NTP, Inc. v. Research In Motion, Ltd., 2002 U.S. Dist. LEXIS 27942 (E.D. Va., Aug. 14, 2002).


"first and second wiring segments in a building" — "two distinct wiring segments, each consists of 2 or more distinct wires exclusively located in a building." SercoNet Ltd. v. NetGear, Inc., 2007 U.S. Dist. LEXIS 58760 (N.D. Cal., July 30, 2007).


"transmitting within at least one allocated television channel frequency band, together with the information transmissions a cost signal indicating the magnitude of the charge for access to the information in the transmissions" — "to the extent 'with the information transmissions' refers to the relationship between the cost signal and the information transmissions, the words mean closely associated in time." IPPV Enterprises, LLC, et al. v. Echostar Communications Corp., et al., 146 F. Supp. 2d 498 (D. Del. 2001).


"within a substrate" — "the Court is not persuaded that the term 'within' requires special construction beyond its ordinary meaning." Power Integrations, Inc. v. Fairchild Semiconductor International, Inc., et al., 2006 U.S. Dist. LEXIS 72718 (D. Del., Oct. 5, 2006).

"within the call pod" — "does not require further construction." Callpod, Inc. v. GN Netcom, Inc., et al., 2009 U.S. Dist. LEXIS 51103 (N.D. Ill., Mar. 6, 2009).

"without direct control of the processors of the processing elements" — "means that the [broadcasting] /[determining a priority] function is performed independently by the I/O device without receiving instructions from its associated processor." Fifth Generation Computer Corp. v. International Business Machines Corp., 2010 U.S. Dist. LEXIS 772 (S.D.N.Y., Jan. 5, 2010).

"without installing new software on the wireless terminal" — "without installing an application program, other than the parsing software, to provide user interfaces." Symbol Technologies, Inc. v. Janam Technologies LLC, 605 F. Supp. 2d 618 (D. Del. 2009).

"without significant interference" — "means that the calculated oxygen saturation is accurate enough for the purposes of which the calculation is being employed." Mallinckrodt, Inc., et al. v. Masimo Corp., et al., 254 F. Supp. 2d 1140 (C.D. Cal. 2003).
"without the need for human analysis" — "not requiring evaluation or choice by a human." Timeline, Inc. v. ProClarity Corp., et al., 2006 U.S. Dist. LEXIS 44478 (W.D. Wash., June 29, 2006).

"data word" — "the term 'word,' in computerese, means the amount of data, or the number of bits (binary digits, or 0s and 1s), that can be transferred to or from input/output devices in a single memory cycle. It is not a specific number of bits; rather, it is whatever number of bits can be transferred to or from input/output devices in one memory cycle." TM Patents, L.P., et al. v. International Business Machines Corp., 72 F. Supp. 2d 370 (S.D.N.Y. 1999).

"word line driver circuit" — "a circuit that applies a driving input voltage to a single word line or a group of word lines." Mosaid Technologies, Inc. v. Samsung Electronics Co., Ltd., et al., 2004 U.S. Dist. LEXIS 27636 (D.N.J., Mar. 23, 2004).


"established on the World Wide Web" — "(1) accessible on the Internet, (2) can be located by a Uniform Resource Locator (URL), and (3) can be communicated with through a browser." Automated Business Cos. v. ENC Technology Corp., et al., 2009 U.S. Dist. LEXIS 91177 (S.D. Tex., Sep. 30, 2009).

"work(s)"; "item(s)"; "media item(s)" — "audio and/or video compositions, e.g. songs, movies, music videos, advertisements." Premier International Associates v. Apple Computer, Inc., et al., 512 F. Supp. 2d 737 (E.D. Tex. 2007).


"workspace data" — "data, including corresponding version information, which may include e-mail data, file data, calendar data, user data, etc. Workspace data may also include other types of data such as applications programs." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).

"workspace element" — "For the '192 and '131 patents, the tentative construction for the term 'workspace element' is as follows: A basic unit of workspace data such as an e-mail, file, bookmark, or calendar.; "For the '708 patent, the tentative construction is as follows: A basic unit of workspace data such as an e-mail or e-mail folder, file or file folder, calendar or calendar folder, or bookmark or bookmark folder." Visto Corp. v. Sproqit Techs., Inc., 445 F. Supp. 2d 1104 (N.D. Cal. 2006).

"workspace element" — "a subset of workspace data such as an e-mail, file, bookmark, calendar, or applications program which may include version information." Visto Corp. v. Seven Networks, Inc., 2005 U.S. Dist. LEXIS 46113 (E.D. Tex., Apr. 20, 2005).

"workstation" — "a position including a device or group of devices, which are equipped with capabilities for computer data processing in combination with audio and video interaction, and which are based upon or include a conventional desktop or portable computer." Collaboration Properties, Inc. v. Tandberg ASA, et al., 2006 U.S. Dist. LEXIS 42466 (N.D. Cal., June 23, 2006).
"writable memory" — "memory that is capable of having data written to and read from." -STMicroelectronics, Inc. v. Motorola, Inc., 327 F. Supp. 2d 687 (E.D. Tex. 2004).

"each signal processor having write access at any time to only a particular one of said memories and read access at any time to any of said memories" — "each signal processor can always: (1) write without delay to only its exclusive memory; and (2) read without delay from any of the memories."  Saxon Innovations, LLC v. Nokia Corp., et al., 2009 U.S. Dist. LEXIS 67019 (E.D. Tex., Jul. 30, 2009).


"writing ... simultaneously" — "initiating a write command to two or more sectors within two or more (row) blocks at the same time."  Toshiba Corp. v. Lexar Media, Inc., 2005 U.S. Dist. LEXIS 46842 (N.D. Cal., Jan. 24, 2005).

"writing the audio data from the buffer onto a digital audio tape and a random access storage device" — "transferring audio data from the buffer directly to both a digital audio tape and a random access storage device."  NICE Systems, Inc., et al. v. Witness Systems, Inc., 528 F. Supp. 2d 470 (D. Del. 2007).

- X -

- Y -


[i] "yield management system"; [ii] "yield management program logic" — [i] "a computer with a program that produces a pricing forecast used to determine prices for sales of commercial time based on factors such as past trends, performance data, and available inventory, updated with data from recent transactions in order to maintain an accurate pricing model. A system does not include a human being attempting to perform a task manually."; [ii] "software that produces a pricing forecast used to determine prices for sales of commercial time based on factors such as past trends, performance data, and available inventory, updated with data from recent transactions in order to maintain an accurate pricing model."  Grantley Patent Holdings, Ltd. v. Clear Channel Communications, Inc., et. al., 2008 U.S. Dist. LEXIS 1588 (E.D. Tex., Jan. 8, 2008).

- Z -
[i] "0-order diffracted beam"; [ii] "non-0-order diffracted beam" — [i] "a light beam or ray formed when a mask pattern diffracts light back directly along the illumination axis"; [ii] "a light beam or ray formed when a mask pattern diffracts light off the illumination axis." Nikon Corp., et al. v. ASM Lithography B.V., 308 F. Supp. 2d 1039 (N.D. Cal. 2004).
8. "ANI" and "Calling Number Identification Data"

"ANI" and "calling number identification data" are the next terms presented to the Court for construction. In general, the term "calling number identification data" appears in the claims and the term "ANI" is used in the specifications. The parties agree that "ANI" and "calling number identification data" have the same meaning.

In the Analysis Control System Claims, the term "calling number identification data" appears in context as "receiving said calling number identification data." See Claims 33, 104, 117, and 192 of the '707 patent and Claim 171 of the '863 patent. In the Conditional Format claims, the terms appear in context as "call data signals as to indicate. . . calling numbers" or "calling numbers as additional call data signals." See Claim 15 of the '150 patent and Claims 17 and 24 of the '285 patent. In the Products Carrying Participation Numbers Claims, the terms appear in context as "call data signals indicative of calling number identification data." See Claim 44 of the '707 patent and Claim 79 of the '863 patent. These terms appear throughout the Katz patents. The parties agree and the Court concludes that the terms have a consistent meaning across the claims.

The arguments of the parties regarding the proper construction of these terms mostly mirror their arguments regarding "DNIS" and "called number identification data." The plaintiffs argue that these terms mean a signal provided by the telephone network that indicates all or part of the calling number. (Pls.' Appendix at 31, 69). The defendants argue that "ANI" and "calling number identification data" must refer to the entire calling number, do not include routing or billing signals used within the telephone network, and must identify the geographic location of the caller such that wireless phones are excluded. The arguments of the defendants will be addressed in turn.

There is no indication in the claim language that "ANI" or "calling number identification data" must be the full calling number; indeed many of the claims call out a signal that indicates the calling number. The specifications do not support the defendants' contention either. In Column 4, lines 62 through 67 of the '707 patent, Katz notes that "ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals." The defendants contend that because Katz used ten digit phone numbers in his examples in the specifications, the terms "ANI" and "calling number identification data" must include the full seven or ten digit number. In Column 6, lines 62 through 65 of the '707 patent, Katz describes two ways in which the calling number could be transmitted to the Katz system; he notes that "the caller would push the buttons in sequence to indicate his telephone number, e.g. '(213) 627-2222.' Alternatively, the interface 20 can accept the calling number (213) 627-2222) according to its provision by standard ANI equipment of the communication facility C." In Column 7, lines 29 through 30 of the '707 patent, Katz notes that "the first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. '(213) 627-2222.'"

The first passage of the specifications cited by the defendants is provided as an example of a calling number. It is clear that the number from which a caller is calling would be a full seven or ten digit number; however, the specification is silent about what the signal that conveys this number, the ANI or the calling number identification data, would include. The second passage of the specifications cited by the defendants describes an example of data that is stored in a cell as represented in Figure 2, not "ANI" or "calling number identification data." Neither of these passages indicates that "ANI" or "calling number identification data" must include any particular number of digits.

As for the defendants' second argument, the claim language does not support a construction of "ANI" or "calling number identification data" that excludes routing signals or billing signals that are used within the telephone network. This argument is essentially the same as the defendants' argument that "communication facility" means that the Katz system must operate outside of the telephone network, which the Court addressed above and will not repeat here. In short, neither the claim language nor specifications mention routing or billing signals as either included or excluded in the definition of "ANI" or "calling number identification data." Determining whether routing or billing signals are signals which indicate the calling number is not a matter of claim construction, and as such, is not properly before the Court.

Further, the prosecution history cited by the defendants neither confirms their proposed construction of "ANI" or "calling number identification data" nor conflicts with the plain meaning of the terms "ANI" and "calling number identification data" conveyed by the claim language and specifications. In an Amendment dated April 15, 1996 in the prosecution of the '751
patent, Katz attempted to distinguish the '020 patent to Fodale to support his amendment. Katz described the Fodale patent as providing a system which blocks delinquent telephone terminals from making toll calls by comparing routing and billing information provided by the local telephone office against a list of delinquent terminal numbers. Katz notes that in one arrangement in the Fodale patent, ANI provides the calling or billed number. Katz stated that "no reference to ANI can be located in providing the caller number, which presumably is otherwise available to the local toll network." (Ex. 67). The defendants contend that Katz was referring to "his" version of ANI in this last statement and distinguishing signals that are sent outside the telephone network from the billing signals or routing signals that are internal to the telephone network. The defendants' interpretation of this statement by Katz is inconsistent with his statement that Fodale uses ANI to provide the calling or billed number in one arrangement. While the meaning of Katz's statements in this Amendment is not completely clear, the Court concludes that these statements clearly do not convey the message that the defendants would attribute to them, that Katz was disclaiming coverage of routing and billing signals.

As for the defendants' final argument, there is no requirement in the claim language that "ANI" and "calling number identification data" must identify the geographic location of callers. The defendants argue that the "ANI" and "calling number identification data" must disclose the geographic location of the caller because the formats disclosed in the specifications use ANI to screen callers based on their geographic area. In his description of a television game show format in Column 18, lines 37 through 44, lines 56 through 62 of the '707 patent, Katz proposes that different questions be used for different geographic locations to accommodate the different time zones and that "area code numbers afford an effective geographic classification of callers." In the context of the discussion of a television poll format in Column 20, line 16 through 22 of the '707, Katz proposes that callers may be screened by geographic area according to their telephone number which is provided by ANI equipment. The defendants contend that because Katz uses the geographic location of the callers taken from the calling number in these formats, the Mobile Identification Number or MIN supplied by wireless phones cannot constitute "calling number identification data" or "ANI" because MIN does not supply an accurate indication of the callers geographic location. However, in the discussion of an instant lottery format in Column 12, lines 46 through 47 of the '707 patent, Katz proposes the use of a caller's telephone number and date of birth to qualify a caller based on his age; in this example, the calling number is not used to qualify a caller based on his geographic location. Similarly, Claims 165 and 175 of the '707 patent call out the use of calling numbers for purposes other than determining geographic limitations. To adopt the defendants' construction of the terms at issue to always require the identification of the geographic location of the caller would not only improperly limit the claims by the examples disclosed in the specifications, but also would limit the claims in a manner inconsistent with some of the other examples in the specifications. The Court concludes that there is no basis in the claim language for importing such a limitation.

Based on the foregoing, the Court concludes that "ANI" and "calling number identification data" are synonymous in the claims at issue in the Katz patents and mean: a signal that identifies the calling number, i.e. the number from which a call originated.

2

2. Step (A): "A Prize Winning Number" n1

n1 The term, "defining" was not among the terms highlighted by the parties for construction, although it was addressed somewhat in the briefings and hearing. The parties essentially agree on the meaning of "defining" as "setting" or "fixing" or "making distinct," and we do not address it further here.

Defendants urge us to limit "a prize winning number" to mean a singular number, specifically the number 1. (Def. Br. at 12-13.) Plaintiff claims that "a" has an open-ended meaning of "one or more." (Pl. Resp. at 4.)

In cases addressing the meaning of "a," especially within claims involving "comprising," the Federal Circuit has recommended an open-ended interpretation, unless a specific limitation or evidence of intent to limit is found in the claims. Scanner Techs. Corp. v. ICOS Vision Systems Corp., N.V., 365 F.3d 1299, 1304-06 (Fed. Cir. 2004). We have not found
such an intent to limit in the specification. Occasionally the claims refer to "the" prize winning number, but that occurs in the claims only after an immediate reference to "a" prize winning number, which implies that "the" refers to the number of the previous reference, but not that the number must be singular.

There are references in the specification to multiple prizes and winners, which provide some basis to allow for the existence of multiple prize winning numbers as well. For example, the Summary of the Invention describes a system for linking game devices to "a plurality of progressive prizes," and states that one of the objectives of the invention is to allow players "to share in the possibility of winning common progressive prizes." (460 Patent, col. 4:42-46, 20-24.) In addition, the summary states that "the method enables the system to randomly select one or more of the current participants as a winner." (Id., col. 4:37-38.)

However, multiple winners and prizes are not necessarily equivalent to multiple prize winning numbers. The multiple winner and prizes could be linked to one specific number that occurs in the system more than once. Therefore, the real inquiry remains whether the specification in any way limits the meaning of "prize winning number." Defendants' proffered evidence in support of finding that "a" must be singular is not convincing. First, Defendants find only one potential reference in the specification outside the claims: the use of the word "the." This usage appears to apply to a device's generated number, not a prize winning number, the reference to which in their example contains the article "a." (Id. col 16:43-45 ("If the number produced was equal to a predefined number, such as the number one ('1'), then the prize award process would start."))

Next, Defendants claim that the number must be the number 1 because the odds have not been calculated yet, and the number must be within the range of odds, and 1 is the only number that could anticipate all odds. We disagree with Defendants that the potential prize winning number must be the number 1. First, the specification never states that the prize winning number must be the number 1, but merely provides it as an example. The use of the term "such as" lends more support to an inference that other numbers are possible, than it confines the prize winning number to being the number 1. In addition, the specification provides examples of "win numbers" being numbers other than 1. n² Furthermore as discussed below, we are not convinced that the prize winning number must be determined before the odds are determined, or that the number one is guaranteed to fall within such a range of numbers, and Defendants' argument thus fails on those grounds as well.

n² To what extent "win numbers" are distinct from prize winning numbers is not entirely clear from the specification, but the similarity of the terms makes the reference worth noting.

The specification does not provide a clear indication of how many prize winning numbers are envisioned by the inventor. As stated by the Federal Circuit, "unless the claim is specific as to the number of elements, the article 'a' receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article." Id. at 1304. Because we have not found evidence of an intent to limit the amount of prize winning numbers in the specification, we do not import any quantitative limitation onto Step (A). Thus, we find that "a" means "one or more."

B. "A Computer"

The Magistrate Judge next construed the term "a computer" as that term appears in Claim 26 and dependent Claim 58 of the 653 Patent. He noted that, while the parties agree that the term "a computer" includes "a system of interconnected electronic components that receive, process and present data according to instructions," they part company over whether the term covers "networked systems of two or more computers" where "the components may be co-located or distributed" (Quickview's position) or only "a single computer that does not include networked systems" (Belo's view). (F & R at 6) The Magistrate Judge scanned the intrinsic record including the specification and prosecution history, and found no support for Quickview's interpretation of "a computer" as a networked systems of computers. In discounting Quickview's proposed
construction, he remarked, "nothing in the plain language of the claims themselves or the prosecution history indicates that the program is intended for multiple or networked computers . . . every description of the invention either references or contemplates a single computer." (Id. at 7) Ultimately, he concluded that the term should be construed in conformity with Belo's position as "a system of interconnected electronic components that receive, process, and present data according to instructions, but not a network system of two or more computers." (Id. at 7-8)

Quickview filed objections to the Magistrate Judge's construction of the term "a computer," again arguing that the construction improperly limits the claim element to the preferred embodiment. Quickview further complains that the construction violates the "established" Federal Circuit rule that the article "a" immediately preceding the term "computer" should not limit the claim element "computer" from encompassing two or more like elements. Quickview also takes issue with the Magistrate Judge's determination that "co-located" "does nothing to further elucidate the meaning of the term a computer."

Again, upon de novo review of the claim construction at issue along with the intrinsic record, the Court finds Quickview's objections without merit. Nowhere in the Magistrate Judge's ruling does he suggest he is limiting the term "a computer" to the preferred embodiment. Rather, he correctly relies upon the specification and prosecution history to find that there is no support for Quickview's construction of a networked system of computers and further that "every description of the invention either references or contemplates a single computer," in support of Belo's view. (Id. at 7) Quickview's reliance upon "established" patent precedent to support its construction is wholly unavailing in the absence of any support in the intrinsic proof. The settled patent principles referred to by Quickview do not operate in a vacuum, but rather must be applied in the context of proper claim construction methodology. This requires the Court to look to the language in the claim, specification and prosecution history which, in this instance, simply do not support its proposed construction.

With respect to Quickview's contention that the article "a" immediately preceding "computer" should have been construed by the Magistrate Judge to refer to "two or more computers" in accord with the "Federal Circuit's established rule," the Court is not persuaded. In advancing this argument, Quickview overlooks the fact that Federal Circuit precedent on this issue actually holds that "a" may suggest "one" but can mean "more than one" depending on the context in which it is used. Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999) (other citations omitted) (emphasis added). Quickview has not adequately explained how, when read in the "context" of this claim, "a" means "two or more." In contrast, in the context of the specification and prosecution history, the Magistrate Judge found "a computer" to refer to a single computer. For this reason, the Court is persuaded, after de novo review, that Quickview's objection on this point should be overruled.

Finally, Quickview objects to the Magistrate Judge's finding that the term "co-located" does not further elucidate the meaning of the term "a computer." Quickview maintains that the Magistrate Judge should have focused on the entire phrase "the components may be co-located or distributed" in making his determination as to the effect of the term "co-located." Citing to a "long held" Federal Circuit principle that terms describing "spatial locations" are proper and must be read in context, Quickview contends that the Magistrate Judge erred in not adhering to this principle with respect to the term "co-located." The Court disagrees.

Simply because the Magistrate Judge addressed the term "co-located" separately, does not mean that he disregarded the term in the context of the sentence from which it derives. He begins his analysis of the term "a computer" by specifically referring to the fact that Quickview "argues for an expanded definition that encompasses networked systems of two or more computers where the components may be co-located or distributed." (F & R at 6 [emphasis added]). Having identified Quickview's definition as including the term "co-located" in the context of the full sentence, he then observes that Quickview's definition is "not supported" by the specification, prosecution history, or preferred embodiment. (Id. at 6-7) This suggests that he did examine Quickview's proposed construction, including the full sentence containing the term "co-located," in the context of the intrinsic record and found Quickview's construction unsupported. In any event, stripped to its essence, this is simply another argument by Quickview to support its position that the term "a computer" refers to a network system of two or more computers. The Magistrate Judge properly examined the intrinsic proof and found no support for Quickview's definition. Moreover, other than contending that the Magistrate Judge disregarded long held patent principles in construing "co-located," Quickview fails to explain how its method of analysis would have yielded a different claim construction of the term "a computer." For all of these reasons, the Court OVERRULES Quickview's objections on this point and accepts the Magistrate Judge's construction of "a computer."
C. What is "a contact"?

The parties also read "a contact" differently. Element d of claim 1 describes a charge sink means "having a contact for applying a bias thereto." The indefinite article "a" when used in a claim normally means one or more. North Am. Vaccine, Inc. v. American Cyanamid, Co., 7 F.3d 1571, 1576 (Fed. Cir. 1993), cert. denied, 128 L. Ed. 2d 365, 114 S. Ct. 1645 (1994).

The specification describes the contact shown in Figure 1. It reads, at column 3, lines 24-27:

In accordance with one embodiment, N + type material, such as phosphorous, is implanted or diffused into layer 12 for forming region 16 which makes ohmic contact with region 14.

It then reads, at lines 27-30: "Other electrical connecting means may be employed for making ohmic contact with region 14. This structure provides a means for externally applying an electrical potential to region 14 . . . . " The discussion in the specification describes generally the single illustrative embodiment depicted in the patent. At the same time, the specification states that skilled artisans will know to employ "other electrical contacting means" to supply a bias to the charge sink means. Nothing in the specification limits the claim to a single contact or to a particular kind of contact. Neither the applicant nor the examiner focused on "contact" during the course of the prosecution.

The specification suggests that skilled artisans would know many ways to make electrical contact. Dr. Barbe agreed that one skilled in the art would understand that contacts are common to anti-blooming devices. These features apply a bias to the charge sink means to make the device operate. Transcript at 44. He explained that the patent does not restrict the point of contact or the number of contacts to apply a bias to the charge sink means. According to Dr. Barbe, "a contact can be anything from a discrete point to -- the complete bottom of a substrate . . . . So [a contact] can be looked at as a single point or as a continuum of points representing a large area." Transcript at 45. Dr. Barbe explained on cross-examination that the contact is generally made from an ohmic contact in the semiconductor and a metallic contact. Transcript at 99. As Dr. Barbe explained, a contact might be any point from or to which charge would flow. Transcript at 101.

The broad definition of "contact" in the specification, coupled with the testimony of Dr. Barbe, show that "a contact" is one or more paths for charge to flow to and from the charge sink means.

Defendant argues that Sigaba technology differs from the invention of the '647 patent because it encrypts and decrypts documents using encryption keys. The encryption keys are unrelated to password data and are managed separately from the content they encrypt. Def.’s Mot. Summ. J. at 5:5-11. Defendant argues in the alternative that summary judgment is appropriate even if the encryption keys are "considered to be the equivalent of a 'password'" because the Sigaba system does not meet the other limitations of independent claims 1, 18, and 43. Id. at 6:4-11. All three claims require: (i) storing password data and trade details in a database and (ii) encrypting an electronic envelope and one or more trade confirmation documents based on the password data and the trade details.

H. Literal Infringement

The parties dispute the proper claim construction of the terms "a," "and," and "based on" present in all three independent claims of the '647 patent. Defendant urges the court to follow the guidance of the Federal Circuit in DeMarini Sports v. Worth, Inc., 239 F.3d 1314 (Fed. Cir. 2001), holding, "the language of the claims as allowed is what [is] construed, and it is that language that determines the limitations of the claim." Id. at 1327-1328.

A. Sigaba Does Not Store Password Data And Trade Details In A Database
Defendant argues that Sigaba technology is unique because it does not use "password data" to encrypt a document. Instead, "encryption keys" are used to encrypt and decrypt a document. If encryption keys are considered to be "password data," however, defendant argues that Sigaba technology does not store password data and trade details in a database. Def.'s Mot. Summ. J. at 6:4-10. Plaintiff argues that defendant's interpretation of "and" and "a" are too restrictive, presenting a competing claim construction of these terms.

1. "A"

Defendant contends that "a" refers to "one and the same" database. PostX asserts that defendant's claim construction with regards to "a" is faulty, citing the Federal Circuit in KCJ Corp. v. Kinetic Concepts Inc., 223 F.3d 1351 (Fed. Cir. 2000), which states that the word "a" in patent parlance is "notoriously accepted as meaning 'one or more.'" Id. at 1356. Plaintiff argues that only in rare circumstances, in which the patentee evinces a clear intent to limit the article, should "a" receive a singular interpretation. Defendant, on the other hand, argues simply that the normal meaning of "a" is singular, citing numerous cases supporting that interpretation. See Def.'s Reply Br. at 4-6.

This Court must look to the written description in order to determine the intention of the claim limitations. KCJ Corp. v. Kinetic Concepts Inc., 223 F.3d at 1356 ("as the rule dictates, when the claim language or context calls for further inquiry, this court consults the written description for a clear intent to limit the invention to a singular embodiment."); North American Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1576 (Fed. Cir. 1993) ("When the meaning of a claim term is in doubt, we look to the specification for guidance."). Plaintiff cites Landis on Mechanics of Patent Claim Drafting, (4th Ed. 2002), to support the argument that "as", singular, generally covers more than one. This Court finds, however, that although it is possible for "a" to mean one or more, analysis of its context within the '647 patent militates in favor a more restricted interpretation. As Landis states, "A more correct view is stated in Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 U.S.P.Q.2d (BNA) 1109 (Fed. Cir. 1999), wherein 'a' or 'an' suggests 'one,' but can also mean 'one or more than one' or 'at least one,' depending on the context in which the article is used, when the claim has the open-ended transition, such as 'comprising.'" See also North American Vaccine, Inc., 7 F.3d at 1576 ("While it is generally accepted in patent parlance that 'a' can mean one or more... there is no indication in the patent specification that the inventors here intended to have other than its normal singular database."). The plain meaning of the word "a," in the context of the '647 patent suggests a singular database.

PostX makes reference to a singular database throughout the patent specifications. Contrary to the context requirements of KCJ, PostX makes repeated reference to "the database," namely the OTC database 28, in the claim language as well as the specification. '647 patent at 4:54-57, 4:63, 4:67, 5:2, 5:27, 6:7, 6:24, 6:25, 6:43-44, 6:62, 7:57-58 & 11:13. Further, the '647 patent drawings depict one database labeled: "OTC DATABASE FOR STORING TRADE DATA AND PASSWORD DATA." Id. at Fig. 2. The evidence in the specification consistently suggests singularity.

Further, when the patent makes purposeful reference to the possibility of transmitting multiple trade confirmation documents, the '647 patent claims state: "one or more trade confirmation documents." This indicates PostX's intention to identify a plurality. PostX demonstrates awareness of a distinction between "a" and "one or more," evinced in their description of the OTC database and the document[s] that maybe contained in the encrypted electronic envelopes.

A plain reading of the claim term "a" demonstrates that the '647 patent claims one database in which the password data together with trade details data is stored. Because neither party disputes the fact that Sigaba's products and technology do not store password data and trade details data or trade confirmation documents in the same database, Def.'s Reply Br. at 3:16-21, the Court finds no infringement of the '647 patent.

2. "And"

According to Sigaba, even if "a" is interpreted as meaning one or more, the presence of "and" in the claim language requires that each of the one or more database(s) contain both password data and trade details data. Def.'s Reply Br. at 7:15-17. The Court concurs. A normal reading of "and" suggests together with or along with, as defendant argues. Def.'s Reply Br. at 8:1-3. In addition, plaintiff acknowledges that claim language using the word "and" is conjunctive rather than disjunctive, Pl.'s Opp'n '688 at 11:13-19, and that there are several instances in which the patent description represents password data and the trade details data conjunctively. '647 patent at col. 4:54-57, 4:62-63, 6:23-24, Fig. 2.
PostX's interpretation of the claim term would mean that the '647 patent governs the vast terrain of storing password data in one database and trade details in a wholly different database. This expansive interpretation does not comport with a normal reading of the patent. Sigaba technology does not store both password data and trade details data in the same database, Suppl. Decl. of Chakraborty at 2, and, therefore does not infringe on this requirement of the '647 patent.

The '899 Patent

The '899 patent claims a method for reducing the effect of noise on the analog sampling process by switching digital section logic gates in an A/D converter. The patent discloses two sets of clocks: one to control timing of the analog sampling in the analog section; the other to control timing of the logic gate output switching in the digital section. By offsetting the two clocks, digital logic gate switching occurs during gaps in the analog sampling. Clock offsetting prevents digital logic gate noise from affecting analog signal sampling.

The disputed portion of claim 4, which is dependent on claim 1, recites:

a method for reducing deleterious effects of said electrical noise on the analog-to-digital conversion process, said method comprising:

a. providing a first clock signal to said analog circuitry for controlling the sampling of an analog input voltage;

b. . . .

c. generating a second clock signal having its leading edge delayed with respect to the trailing edge of said first clock signal . . . .

(emphasis added). In construing the claims, the district court explained: "The integrated circuit must have at least one common reference clock (either digital or analog . . .)." The district court further stated: "[The phrase] 'first clock signal' . . . indicates the analog circuit clock signal comes prior to the 'second' digital circuit clock signal. Again, this language does not limit the claims construction to one clock."

As the district court correctly noted, "a first clock signal" does not require a single clock signal to control sampling. As previously discussed, the word "comprising" in the transitional phrase of a patent claim creates a presumption that the body of the claim is open. Because claim 4 uses "comprising," it encompasses more than one clock unless the written description or the prosecution history clearly limits claim 4 to its recited elements. Similarly, the article "a" in "a first clock signal" generally suggests one or more clocks. The written description and figures of the '899 patent actually disclose two analog clocks, ACLK1 and ACLK2, in the preferred embodiment. See, e.g., col. 2, ll. 52-56; col. 4, ll. 16-26; Fig. 3. According to the preferred embodiment, analog clock ACLK1 accepts the analog input voltage (the charge), analog clock ACLK2 transfers the charge to or from the feedback capacitor.

2. Claim 12 requires the "first computer" to be one and the same computer

Claim 12 states that the e-mail is sent by a first computer PostX argues that "this does not mean 'one and only one' computer as Sigaba implies." Pl.'s Opp'n at 14:9-10. Here, the question of the proper meaning and interpretation of "a" arises, as it did in the infringement action regarding the '647 patent. See Order Granting Def.'s Mot. for Summ. J. of Noninfringement of U.S. Patent No. '647 at 6-7. PostX makes a similar argument, again citing KCJ Corp. However, the argument must fail here as it did before, because the language suggests the singular meaning of "a."

In the '647 patent action, this Court reasoned:
PostX asserts that defendant's claim construction with regards to "a" is faulty, citing the Federal Circuit in KCJ Corp. v. Kinetic Concepts, Inc., . . ., which states that the word "a" in patent parlance is "notoriously accepted as meaning 'one or more.'" . . . Plaintiff argues that only in rare circumstances, in which the patentee evinces a clear intent to limit the article, should "a" receive a singular interpretation . . . This Court must look to the written description in order to determine the intention of the claim limitations . . . This Court finds . . . that although it is possible for "a" to mean one or more, analysis of its context within the '647 patent militates in favor of a more restricted interpretation . . . The plain meaning of the word "a," in the context of the '647 patent, suggests a singular database.

Id. (citations omitted).

Likewise, in this context "a" describes the singular form. The "first computer" unambiguously refers to the same computer. The claim language, "said first computer," is used throughout the patent and the definite term "said" further indicates a singular meaning. See Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1024 ("Repeatedly the claim refers to 'said chamber' as it describes various portions of the apparatus. This term itself, 'said chamber,' reinforces the singular nature of the chamber. The claim does not place the sterilization zone vaguely within 'a chamber,' but within 'said chamber.' This language clarifies that only one chamber is in question.").

PostX further argues that, in Sigaba's technology, "it is undisputed that the e-mail sent to the recipient includes e-mail message data provided by the original sender, and the executable software provided by the 'Gateway' computer. Accordingly, these two computers cooperate in composing and sending the e-mail received by the computer, and can thus be considered together the claimed 'first computer.'" Pl.'s Opp'n at 14:15-19; see also Pl.'s Supplemental Br. in Opp'n at 5:16-17 ("Sigaba's 'Key Server', 'User Management Server' and 'Administration Server' are not separate computers. Instead, these refer to software functions performed by the Sigaba product."). The Court finds this argument unconvincing. The '688 patent specification confirms that there is only one first computer. The sender computer "contains, as is known, a computer portion 22 that contains, as is known, I/O [input/output] 22A, memory 22B, and some type of processor 22C." '688 Patent at col. 3:45-47. The sender computer is distinguished from "additional computers [that] can also be connected to the network." Id. at 3:41-44. Figure 1 of the specification also confirms that the sender computer is a single computer. 1

1 At oral argument, PostX presented several diagrams of the Sigaba system, all depicting two separate computers, which PostX represents as "a first computer."

If PostX meant one or more computers constituting the first computer, it would not have referred to the first computer as the "said first computer" nor would its specification clearly depict one first computer. Sigaba argues convincingly 2 that equivalence in this instance would "entirely vitiate this claim limitation, particularly given the patentee's decision to precisely enumerate the computers using ordinal numbers (e.g., "first", "second", etc.)." See Def.'s Supplemental Reply Br. at 4:6-9. Id. The Court, therefore, finds no literal or substantial equivalent in the Sigaba technology.

2 Although the Court finds Sigaba's arguments convincing, it finds Sigaba's footnotes unsatisfactory. Sigaba's use of footnotes for most of its case citations and analysis is an improper and unsophisticated effort to evade the page limitations set.

Furthermore, Claim 1 requires the selection of one of the coding modes as "a function, at least in part, of periodicity" of the speech signal. The Board fails to explain how, under even its interpretation of the Bottau disclosure, the prior art discloses
the selection of a coding mode based in part on the periodicity of a segment of the speech signal. The Commissioner's brief tries to correct for this omission in the Board's opinion by referring to the second embodiment of Bottau wherein the high frequency component of the speech signal is filtered out and separately encoded: "the low band and high band components of voiced input signals are separated [in Bottau] as a function of their frequency or periodicity by using a low-frequency pass filter." (emphasis added). However, for Bottau to "teach" the claimed invention in accordance with the Commissioner's argument, we would have to equate "frequency" of the input speech signal with applicants' "periodicity." These phenomena, however, are quite different, particularly in light of the manner in which "periodicity" is defined in the Application specification.

According to the claimed invention as defined in the specification, an incoming speech signal is parsed into a plurality of segments. In the preferred embodiment, speech coding is performed on a frame-by-frame basis wherein each frame is composed of four segments or subframes. For each subframe, a signal Pi is calculated, and for each frame, a signal Pf is calculated. Pi is measured in decibels (dB) and is representative of how much an earlier segment or subframe "substantially conforms to the information in the current segment." This is a measure of the periodicity of the given subframe. Pf is a signal, also measured in dB, that indicates the degree of periodicity of the entire frame compared to an earlier frame. The determination of the coding mode to use to encode the subframes in a given frame is based on the values of the signals Pi and Pf. Accordingly, the "periodicity" function of Claim 1(B), as used and defined in the specification, is a function of how similar recurring signal patterns are over time, not the frequency or decibel level of the signal at a particular time, as the Commissioner and the Board incorrectly supposed.

Finally, the Commissioner makes the argument that, according to the specification, the Bottau coding method is only applied to voiced signals: "Bottau teaches that the two modes are derived for voiced speech because the input s(n) is already sampled (not shown) to provide only voiced signals. A72, column 2, lines 27-30." The portion of the specification referenced by the Commissioner states:

The voice signal to be transmitted, sampled at 8 kHz and digitally PCM encoded with 12 bits per sample in a conventional analog to Digital converter (not shown) provides samples s(n).

(emphasis added). Nothing in this section of the Bottau specification indicates that the incoming speech signal has been sampled only to include voiced, as distinct from unvoiced, speech. Granted, Bottau refers to a "voice signal"; however, the voice signal of Bottau is clearly equivalent to the input speech signal of the present invention and is not related to the voiced nature of sampled signal segments as the Commissioner argues.

Neither Bottau nor Tokura teaches providing a plurality of coding modes for coding a segment of a speech signal wherein at least two of these coding modes are for encoding speech segments that are substantially voiced speech, and selecting one coding mode based, in part, on the periodicity of the speech signal of the segment.

CONCLUSION

The Board reversibly erred in (1) finding a motivation to combine Tokura, Bottau and "various excitation codes and methods . . . known in the art" to arrive at the claimed invention which applies multiple coding modes to substantially voiced speech where such motivation clearly was not shown in the cited prior art; (2) construing Claim 1 to require only "the provision of a plurality of coding modes wherein at least two of the coding modes 'correspond to substantially voiced input speech signals,'" where the claim also requires that a coding mode be selected based on the periodicity of the speech signal; and (3) finding Bottau to teach the application of at least two, distinct coding modes to substantially voiced speech. Thus, even though there were multiple known ways of encoding a speech signal, it would not have been obvious from Tokura and Bottau to encode an input speech signal according to the claimed invention. Therefore, the decision of the Board is reversed.

(i) 1. A multi-unit memory system comprising:

This claim, which was not disputed before Judge Young, means precisely what the words say. "A multi-unit memory
system" is "a" (that is to say, one, or a single) system that uses two or more data storage memory units. Of course, the fact that the patent claims "a" system does not mean that IBM or some other party would escape liability for infringement by constructing two or three or even more such multi-unit memory systems and somehow linking them together or causing them to operate together.

There is no reason to read anything further into the very simple words used by the claimant. There is no mention of a "single array" in the patent claim, and I decline to adopt IBM's suggestion that I read such a limitation into the claim, applying the settled principle of patent construction that the language of the claim defines its scope, see Mantech Environmental Corp. v. Hudson Environmental Servs., Inc., 152 F.3d 1368, 1373 (Fed. Cir. 1998), and that the words of a claim are to be construed in accordance with their ordinary meaning to persons in the relevant field of technology, unless it appears that the inventor used them otherwise. See Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995). In particular, claims are not to be limited or construed by reading in extraneous words from written descriptions or specifications that are not contained in the claims themselves. See Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347 (Fed. Cir. 1998). This rule is not inconsistent with the principle that claims should be construed in light of the patent specification, see, e.g., Bell Communications, 55 F.3d at 620, but simply recognizes that the claims of a patent are not limited to the preferred embodiment that is described in the specifications. See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997).

Throughout this proceeding, IBM has contorted the plain meaning of words and phrases used in the patent claims themselves by referring to the written description, including the specifications and the embodiment disclosed therein. In construing this patent (and, indeed, all three patents), I have adopted the principle that, where the language of the claim is clear and unambiguous, I will read nothing additional into it. If this means that the patent turns out to be invalid (which is a decision for the jury, not for the Court), then so be it. Although courts are to construe claims so as to sustain a patent's validity where possible, see ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984), courts are nonetheless bound to follow the other rules of construction discussed above. See id.

2. "a program running on a computer"

Disputed Term comprising a program running on a computer

Plaintiff's Construction one or more computer software programs in operation on one or more computers

Defendant's Construction a set of instructions to accomplish a specific task being executed by a single stand alone computer

Next, the parties disagree as to the meaning of "program running on a computer," which also appears in Claim 8 of the '806 Patent. ('806 Patent at 83:33-34.) Plaintiff contends that "program" and "computer" should be construed to mean "one or more computer software programs in operation on one or more computers." (Jt. Stmt. at 8 (emphasis added).) As a general matter, the Federal Circuit has recognized that an indefinite articles such as "a" or "an" in a patent claim is presumptively interpreted to mean "one or more." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (holding that an element of patent requiring "a" continuous chamber was not limited to a single chamber); accord Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008). Here, although the reference to "program" and "computer" are in the singular, no intrinsic or extrinsic evidence has been offered by Defendant to demonstrate an intent to disclaim the use of multiple programs or computers. KCJ Corp., 223 F.3d at 1356 (noting that absent any indication to disclaim the use of multiple elements, the singular use of "a" or "an" is to be construed as meaning one or more).

Similarly, there is little, if any, support for Defendant's proposed construction of "program running on a computer" to mean "a set of instructions to accomplish a specific task being executed by a single stand alone computer." (Jt. Stmt. at 8.) By definition, a computer program or software is "the set of instructions, known as code, that directs a computer to perform specified functions or operations [.]" See Microsoft Corp. v. AT & T Corp., 550 U.S. 437, 447, 127 S. Ct. 1746, 167 L. Ed. 2d 737 (2007) (internal quotations and citation omitted). There is no need to construe "program," since neither party seeks to depart from the ordinary meaning of that term. See Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp,
Inc., 249 F.3d 1341, 1349 (Fed. Cir. 2001) ("melting" did not require construction where parties did not deviate from its ordinary meaning). Moreover, as discussed above, there is nothing in the patent to support the conclusion that the program must be "executed by a single stand alone computer," as suggested by Defendant. (Jt. Stmt. at 8.) In accordance with Federal Circuit case law in tandem with the language of Claim 8 and the patent specification, the Court construes "a program running on a computer" as "one or more computer software programs in operation on one or more computers."

11

The trial court construed "disposed over a portion" to require an "area of coincidence between the two layers greater than zero." Thus, the court interpreted claim 1 to encompass capacitor structures with layers covering anywhere from a small area to the entire area of the underlying surface.

Claim language itself sets the claim scope. Vitronics Corp v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1577 (Fed. Cir. 1996). This court has consistently emphasized that the indefinite articles "a" or "an," when used in a patent claim, mean "one or more" in claims containing open-ended transitional phrases such as "comprising." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356, 55 U.S.P.Q.2D (BNA) 1835, 1839 (Fed. Cir. 2000); see Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977, 52 U.S.P.Q.2D (BNA) 1109, 1112 (Fed. Cir. 1999); AbTox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023, 43 U.S.P.Q.2D (BNA) 1545, 1548 (Fed. Cir. 1997). "Under this conventional rule, the claim limitation 'a,' without more, requires at least one." KCJ at 1356 (emphasis added).

Based on this conventional rule, because claim 1 is open-ended, the limitation "disposed over a portion" means "disposed over at least one portion." This claim construction comports completely with the district court's claim construction. Thus, claim 1's proper construction does not limit "disposed over a portion" to only a portion of the layer beneath. In other words, claim 1 includes within its scope a capacitor structure with layers disposed over the entirety of the underlying surface. Claim 1 does not require a capacitor structure shaped like a three-tiered wedding cake, with the first layer being largest in surface area and the third layer being smallest, or stacked like staggered, partly overlapping layers.

When a patent claim uses the word "comprising" as its transitional phrase, the use of "comprising" creates a presumption that the body of the claim is open. In the parlance of patent law, the transition "comprising" creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements. See KCJ, 223 F.3d at 1356.

The transition "having" can also make a claim open. Regents of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1573, 43 U.S.P.Q.2D (BNA) 1398, 1410 (Fed. Cir. 1997). However, the term "having" does not convey the open-ended meaning as strongly as "comprising." "Having," for instance, does not create a presumption that the body of the claim is open. Therefore, this court examines the claim in its full context to determine whether Crystal's use of "having" limits claim 1 to its recited elements.

The language of claim 1 itself does not limit the term "having" to a closed meaning. The '483 patent discloses a capacitor structure that shields the sensitive plate of the capacitor from stray noise. The "Background of the Invention" describes typical prior art capacitors with a two-plate structure. Col. 1, ll. 58-68. The top plate served as a "sensitive 'virtual ground' capacitor plate" while the bottom "shielded the sensitive node from substrate noise." Id. These two-plate capacitors were "still susceptible to noise coupling onto the sensitive top plate through passivation and packaging dielectrics." Id. at 66-68. The claimed tri-layered structure improves noise shielding. The first and third layers are connected together and operate "to shield . . . the second conductive layer, from noise resulting from external sources or from the semiconductor substrate." Col. 2, ll. 19-24; col. 4, ll. 8-11 ("The upper metal plate 38 is operable to shield the shielded plate 36 from noise resulting from signals that are disposed above the plate 38.").

Figure 6 illustrates that the preferred embodiment of the claimed '483 invention shields against noise by entirely covering the middle layer (36):

[SEE FIGURE 6 IN ORIGINAL]

According to the written description, the fourth conductive layer (also called the conductive ring 82) "is disposed between
the contacts 84 and 85, and the shielded plate 36 to substantially eliminate stray capacitance between plate 34 and sensitive plate 36." Col. 5, ll. 10-15. Contacts 84 connect the upper conductive layer to the intermediate interconnection strip 83 as depicted in Figure 6. Col. 5, ll. 42-50. Contacts 85 connect the lower conductive layer to the same interconnection strip to link the upper and lower layers. Because the conductive ring "is disposed between plate 34 and contacts 84 and 85," a capacitor structure with such a conductive ring must have a middle layer that is smaller in surface area than the upper and lower layers. In other words, because claim 1 recites this fourth conductive layer, the written description requires claim 1 to encompass a capacitor structure wherein the third layer covers the entirety of the second layer.

The written description thus shows the intent to make claim 1 at least partially open to permit the limitation "disposed over a portion" to mean "disposed over at least one portion." Any assertion that "disposed over a portion" means "disposed over only one portion" would contradict the clear purpose of the invention as described in the written description, depicted in Figure 6, and recited in claim 1. Such an assertion would also impermissibly read the preferred embodiment out of claim 1. Vitronics, 90 F.3d at 1583.

4. "a processor"

4. The Parties' Proposed Constructions

Ingenio asserts that "a processor" should be construed to mean "one or more processors are present." (D.I. 113 at 22-23.) Ingenio argues that even though "a processor" is followed by claim language referring to "the processor" or "said processor," the term should not be limited to a single processor because it is in a claim using "comprising" claim language. (Id. at 22-23.) GameLogic asserts, to the contrary, that the language used in the asserted claims and the specifications of the '082 and '603 patents clearly limited this term to a single processor in a single location.

b. The Court's Construction

The dispute between the parties centers around the meaning of the term "a" in the context of the claim language. The United States Court of Appeals for the Federal Circuit "has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). Furthermore, that Court has held that "[u]nless the claim is specific as to the number of elements, the article 'a' receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article." Id. This is true even where the patentee refers to "a" widget, and later refers to "the" or "said" widget. See id. at 1353, 1356-57 (finding that "a . . . continuous . . . chamber" was not limited to a single chamber, even where the claim language later referred to "said chamber"); Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999) (holding that term "a . . . feed tube" was not necessarily limited to a single feed tube by later claim language "said feed tube," but that the prosecution history of the patent did so limit the claim). n7

- Footnotes -

n7 To determine whether "a" means only one or one or more than one, the Federal Circuit looks to the language of the patent claims and specification. In both Abtox, Inc. v. Exitron Corp., 122 F.3d 1019 (Fed. Cir. 1997) and North Am. Vaccine, Inc. v. Am. Cyanamid Co., 7 F.3d 1571 (Fed. Cir. 1993), the Court held that the language of the patent indicated that "a" meant only one. See Abtox, 122 F.3d at 1023-24; North Am. Vaccine, 7 F.3d at 1575-76. In Abtox, the Court found that where the claim referred to "a chamber," but later repeatedly referred to "said chamber," "only one chamber is in question." Abtox, 122 F.3d at 1024. Similarly, in North Am. Vaccine, the court found that where a claim referred to linkage at "a terminal aldehyde group," but the specification referred to "the terminal aldehyde group," that there was only one linkage. North Am. Vaccine, 7 F.3d at 1576. Although the Federal Circuit interprets the term "a" in light of the claims and specification, the Court recently has more commonly held that "a" in patent parlance, means one or more than one, even where later claim language refers to "the" or "said." See KCJ Corp., 223 F.3d at 1356 (holding that the article "a" would only be limited to its singular meaning when the inventor evinced a clear intent to so limit it). In light of the decisions in Phillips and KCJ Corp., I have construed "a processor" to mean "one or more processors."
GameLogic's only argument that "a processor" should be limited to a single processor in a single device is the later claim language referring to "the processor" or "said processor." Notably, GameLogic has not cited a single case in support of its position. Because the Federal Circuit has previously held that such language does not evince a clear intent by the patentee to limit the claim to a single device, I will not so limit the claim language here. Thus, I will construe "a processor" to mean "one or more processors."

A.

As noted, claims 1 through 6 of the '327 patent claim "[a] computer system, comprising . . . a rasterization circuit coupled to the processor that rasterizes the primitive according to a rasterization process which operates on a floating point format." (Emphasis added.) The district court construed the term "rasterization" to mean "a graphics operation that translates three-dimensional primitives into a set of corresponding fragments of pixels or both and fills them in." Silicon Graphics, Inc. v. ATI Techs., Inc., No. 06-611, 2007 U.S. Dist. LEXIS 76452, 2007 WL 5614112, at *11 (W.D. Wis. Oct. 15, 2007) ("Claim Construction Opinion"). In its summary judgment ruling, the district court noted that its construction reflected the concept that rasterization includes "two specific judgments: (1) translating three-dimensional primitives into a set of corresponding pixels and fragments and (2) filling in those pixels or fragments" and that the "process as a whole operates on a floating point format." Summary Judgment Opinion, 2008 U.S. Dist. LEXIS 7406, 2008 WL 4200359, at *20.

The district court's construction formed the basis of its summary judgment ruling of non-infringement for those claims that contain the "a rasterization process" term. Even though ATI's products fill in pixels or fragments using floating point values (for example, through fog and blending functions and calculation of color values), they translate primitives into pixels and fragments using fixed point values. Id. Thus, according to the district court, the rasterization process does not operate on a floating point format "as a whole." Id.

Silicon Graphics argues that the district court did not recognize that claims 1-6 refer to one or more rasterization processes, not a single process, and that not all of the rasterization processes need to be conducted in floating point format. Instead, Silicon Graphics proposes that "a rasterization process" means that "one or more of the rasterization processes (e.g., scan conversion, color, texture, fog, shading) operate in floating point format." Scan conversion, the argument continues, is a "translating" rasterization process and shading is an example of a "fill in" rasterization process, but "a rasterization process" does not necessarily refer to both of those processes as a single unit.

Indeed this record shows that the district court erred in requiring rasterization to occur entirely with floating point values. The '327 patent explicitly teaches that rasterization consists of multiple processes: "The processes pertaining to scan converting, assigning colors, depth buffering, texturing, lighting, and anti-aliasing are collectively known as rasterization." '327 patent col.1 ll.43-45 (emphasis added). These passages from the specification define the terms in controlling terms. See Phillips, 415 F.3d at 1316. Thus, when the claims refer to "a rasterization process" they are referring to one of the subsets of rasterization (e.g., scan converting, color, texture, fog, shading) listed in the specification.

The district court concluded that the claims referred to a single rasterization process: "[C]laims 1 through 6 state that the 'rasterization process' operates on a floating point format." Summary Judgment Opinion, 2008 U.S. Dist. LEXIS 7406, 2008 WL 4200359, at *20. The claims themselves, however, specifically claims 1 through 6, recite "a rasterization process which operates on a floating point format . . .," not "the rasterization process." The use of the indefinite article "a" in the claim, when coupled with the list of processes provided in the specification, makes it clear that the claims' references to "a rasterization process" means "one or more rasterization processes." See Tate Access Floors, Inc. v. Interface Architectural Res., Inc., 279 F.3d 1357, 1370 (Fed. Cir. 2002) ("It is well settled that the term 'a' or 'an' ordinarily means 'one or more.'").

The limitation "a rasterization process which operates on a floating point format" therefore means that "one or more of the rasterization processes (e.g., scan conversion, color, texture, fog, shading) operate on a floating point format." This construction is also in line with the rest of the specification. Nowhere does the specification teach that all rasterization processes must operate on a floating point format. To the contrary, the Summary of the Invention states that "[t]he present
invention provides a display system and process whereby the geometry, rasterization, and frame buffer predominately operate on a floating point format." '327 patent col.4 ll.8-11 (emphasis added). Similarly, the Summary of the Invention states that "certain rasterization processes are performed according to a floating point format." Id. col.4 ll.15-16 (emphasis added). And the specification also notes that certain processes within the rasterization and frame buffer processes "can be implemented in a fixed point format without departing from the scope of the present invention." Id. at col. 12 ll.27-29. In sum, this court determines that the language of the claims in context and the specification show the accuracy of Silicon Graphics' proposed construction. Accordingly, the district court's construction of "a rasterization process" is reversed.

1. "a server"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a server&quot;</td>
<td>one or more server computers</td>
<td>one server computer</td>
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</table>

The dispute between the parties concerning the construction of "a server" is whether the claimed systems and methods may include multiple server computers, and whether steps recited in the claims can be divided among these server computers.

The Federal Circuit has held that generally, the use of 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.' Free Motion Fitness, Inc. v. Cybex Int'l Inc. 423 F.3d 1343, 1350 (Fed. Cir. 2005). However, "a" may be properly construed as being singular when a plural construction is inconsistent with the claim context and neither the specification nor the drawings disclose more than "one". See id. at 1356 (Prost, J., dissenting) (citing Insituform Techs., Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1105-06 (Fed. Cir. 1996)).

The plaintiff points out that the specification discloses multiple servers. See '774 patent, at col. 2, ll. 49-52 ("The system comprises at least one server computer connected to a network."); id. at Fig. 1 (depicting multiple servers as part of the system disclosed). Fotomedia further argues that an electronic postcard may contain links to websites found on multiple servers. Therefore, Fotomedia contends that the term "a server" cannot be limited to a single server computer.

In response, the defendants argue that issue is whether the steps recited in the claims at issue can be performed by different servers. They contend that even if the patent teaches an overall system having one or more servers, a single server must execute all of the steps of the claimed invention. According to the defendants, a system which distributes processing of the various claimed steps amongst multiple servers would be beyond the scope of the claims. Turning to the specification, the defendants point out that it does not suggest or teach the concept of a distributed system anywhere. 1 Defendants argue that if such a system were claimed, the disclosure would have to spell out the implementation, including the integration of various components, conflict resolution between the multiple servers, and other related problems that would arise from utilizing such a system. 2

1 To the contrary, Figure 2 in the specification shows a single server 31 as containing all of claimed functionality. See '774 patent, at Fig. 2.

2 The defendants also note that the inventor himself has testified to the difficulty of integrating such a system. The Court, however, agrees with Fotomedia that inventor testimony may not be relied on for claim construction purposes. Howmedica Osteonics Corp. v. Wright Med Tech., Inc., 540 F.3d 1337, 1346 (Fed. Cir. 2008).

The Court concludes that the defendants' argument is persuasive. Under these circumstances, there is convincing evidence that the scope of the invention is limited as proposed by the defendants, even in light of the general rule that use of 'a' in a claim would mean 'one or more.' See Insituform Techs., 99 F.3d at 1106 (the rule does not apply where the only correct and
reasonable interpretation of claim limits the scope of the claim to singular). The Court does not rule that there cannot be
more than one server, each capable of performing all of the recited steps, in the claimed system. However, in light of the
disclosure, the inventors did not claim a system that could distribute the steps of the claims at issue between various server
computers. 3

Footnotes

3 Fotomedia also argues that the Court ignore any issues of enablement and written description in construing the term in
dispute. Federal Circuit law counsels otherwise. See Nystrom v. TREX Co., 424 F.3d 1136, 1144-45 (Fed. Cir. 2005) ("As
explained in Phillips, [the patentee] is not entitled to a claim construction divorced from the context of the written
description and prosecution history.")

Footnotes

"A server" is construed as "one server computer."

The Court adopts Plaintiffs' constructions and generally construes "a signal" as "one or more signals." Defendants' proposed
constructions limits "a signal" to "a single signal." Although this appears to accurately reflect the claim language, the
limitation is unwarranted.

"'[A] or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase
'comprising.'" Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1350 (Fed. Cir. 2005) (quoting KCJ Corp. v.
Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000)). "The" is given the same presumptive meaning of "one or
more" when used in a "comprising" claim. Id. at 1350-51. This plural meaning is overcome "only when 'the claim is specific
as to the number of elements' or 'when the patentee evinces a clear intent to . . . limit the article.'" Id. at 1350 (quoting KCJ
Corp., 223 F.3d at 1356). Claim 17 is an open-ended claim and uses the term "comprising." Claim 17 ("A method of
controlling a motion detector camera, the method comprising:"

Defendants argue that the specification limits the signal to a single signal. Defendants are incorrect. Like the claim, the
specification uses the term "a signal." See Abstract; Cols. 1:45-51, 4:14-16,4:25-34. The specification does not expressly
limit the signal to a single signal. Rather, Defendants argue that a single signal is necessary for the one-to-one
 correspondence between the triggering event and signal. However, this one-to-one correspondence between a single
 triggering event and single signal is created by Defendants, not by the patent. The specification, neither by expression nor
 logic, does not require that only a single signal be sent per triggering event. All that is logically required is that the camera
 mechanism know what the signal(s) means. There is nothing in the specification or claim language that would prevent the
 motion detector from always sending two signals when a triggering event occurs. Accordingly, the Court rejects Defendants'
 argument.

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"Signal" terms n2

n2 Whether "a signal" is "one or more signals" or "a single signal" is the disputed issue in the following terms: receiving a
signal from a motion detector, sending a signal, ignoring the signal from the motion detector, and sending a signal to a test
light to cause the test light to flash. The Court's constructions of these terms can be found in Appendix B.

Footnotes

The Court adopts Plaintiffs' constructions and generally construes "a signal" as "one or more signals." Defendants' proposed
constructions limits "a signal" to "a single signal." Although this appears to accurately reflect the claim language, the
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 motion detector from always sending two signals when a triggering event occurs. Accordingly, the Court rejects Defendants'
 argument.

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Spot of Radiation

The final disputed term is "spot of radiation." Philips argues that "it's clear from the specification and from the prosecution history that the claim is broad enough to cover both a one-beam system and a multi-beam system, but it certainly cannot be confined to a one-beam system." See Tr. at 14. It argues further that "the preferred embodiment...shows a three-beam reading system...it is almost never correct...to come up with a claim interpretation that excludes the preferred embodiment." See id. at 15. Defendants argue that "That claim speaks in terms of a beam, intensity distribution caused by the beam so as to enable the position of the spot to be determined. Normal claim language interpretation would indicate that that means a single beam." See id. at 49.

In '209 5:2-14, the patent provides that "said follow-on track being configured to diffract radiation incident thereon when scanned with a spot of radiation of a predetermined size and having a width which is smaller than the dimension of the spot in the width direction..." '493 11:45-46 states "said groove being configured to diffract radiation incident thereon when scanned with a spot of radiation of a predetermined size and having a width which is smaller than the dimension of the spot in the width direction...". The claim language, to which this Court must adhere, is written in terms of "a spot of radiation." The presence of the article "a" does not necessarily limit the element to its singular. See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). The article "a" will receive a singular interpretation only where the patent evidences a clear intent to limit the article to its singular form.

These patents do not demonstrate an intent to limit "a spot of radiation" to a single spot. The specifications disclose clearly a three-beam tracking system, and such a three-beam system is described as the preferred embodiment of the device. A Court is seldom, if ever, correct to interpret a claim in a manner that does not read on the claim's preferred embodiment. See Vitronics Corp. v. Conceptronic, 90 F.3d 1576, 1583 (Fed. Cir. 1996). Highly persuasive evidentiary support is required before the Court may adopt an interpretation that excludes the preferred embodiment. See Hoechst Celanse Corp. v BP Chems. Ltd., 78 F.3d 1575, 1581 (Fed. Cir. 1996) ("We share the District Court's view that it is highly unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way."). Interpreting the claims to exclude multi-beam tracking systems would exclude the three-beam tracking system which is the preferred embodiment of the claim. To do so in this situation would be improper.

Defendants acknowledged at oral argument that the three beam method is the preferred embodiment. They argue that the claims were redirected from a multibeam tracking system to a single beam system because of a change in technology since these patents originated. See Tr. at 50. The mere fact that the patent speaks to "a spot" in one location and "spots" in another is not "persuasive evidentiary support" that "a spot of radiation" is to be interpreted as applying to only single-spot tracking when such an interpretation would exclude the patents' preferred embodiment. The term must be read consistently with the preferred embodiment, and cannot be construed in a manner than would rule out the inventor's preferred embodiment. Accordingly, the Court interprets "a spot of radiation" to apply to both single and multi-beam tracking systems.

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structure or region, or multiple such structures. In both cases the Federal Circuit first noted that the claims referred to the structure or region in the singular: "a chamber" and "said chamber" in Abtox and "a cup" in Insituform. Likewise, the claim language in this case refers to "a tunneling diffusion region" and "said tunneling diffusion region." In Abtox and Insituform, the Federal Circuit then noted that the specifications confirmed the singular reading of the claim language, for they described only a single chamber and cup, respectively. Abtox at 1024; Insituform at 1106. In this case, by contrast, the specification makes clear that the patent contemplates multiple tunneling diffusion regions, formed at different times. The specification states that "tunnel implant region 33 may consist of two segments, 33a and 33b . . . Region 33b, however, may be formed later in the process sequence." '750 patent, 10:9-17. Abtox and Insituform are thus distinguishable. In light of the specification, and noting that the article "a" can mean "one or more," see Abtox at 1023, the Court holds that the '750 patent is not limited to processes that create only a single tunneling diffusion region.

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7. About one quarter wavelength of the center of [a spectral range of infrared radiation having wavelengths of 8-12 m/the spectral range/said spectral range] (claims 18, 26-27, 33, 35-36)

Plaintiff contends that this term means "about the result of the center of the spectral range divided by four," while Defendants contend that it means "within a few hundred angstroms of one quarter wavelength of the center of the specified spectral range." Defendants thus contend that this claim requires near absolute precision in the spacing between the resistor and the reflective layer.

Because the specification explains how the spacing between the resistor and the reflective layer is optimally 1/4\(\varepsilon\) of the center of the spectral range ('663 patent, 7:66-8:2), the specification contemplates that some degree of deviation from 1/4\(\varepsilon\) is necessarily present in a bolometer detecting any range of wavelengths. For example, 1/4\(\varepsilon\) of 8 \(\mu\)m wavelength radiation is 2 \(\mu\)m, while 1/4\(\varepsilon\) of 12 \(\mu\)m wavelength radiation is 3 \(\mu\)m (a difference of 10,000 Angstroms). Therefore, for a bolometer that detects radiation in a range of 8-12 \(\mu\)m, spacing of 2.5 \(\mu\)m is exactly 1/4\(\varepsilon\) of the center of the 8-12 \(\mu\)m spectral range, yet 5000 Angstroms from 1/4\(\varepsilon\) of the radiation with wavelengths of 8 \(\mu\)m and 12 \(\mu\)m. Even when the spacing is exactly 1/4\(\varepsilon\) of the center of the spectral range, therefore, the specification contemplates that the spacing will be up to 5000 Angstroms from 1/4\(\varepsilon\) for radiation having wavelengths at the ends of the range, yet still be optimally spaced.

Despite the inexact spacing inherent in any bolometer that detects radiation within a range of wavelengths, Defendants contend that this term allows for only a "few hundred angstroms" deviation from 1/4\(\varepsilon\) of the center of the spectral range. In support of this argument, Defendants cite '663 patent, 8:40-43, in which the specification explains that "Fig. 4b illustrates some of the underlying circuitry (CMOS) in substrate 142 and indicates the slight (few hundred ) unevenness of ground plane 192." The specification then explains that "[t]he unevenness of ground plane 192 has minimal effect on the absorption." '663 patent, 8:52-53. This description in the specification, however, does not relate to the tolerance for deviation in the claimed 1/4\(\varepsilon\) spacing or provide a ceiling for maximum allowable deviation in the spacing. Instead, the specification describes how unevenness of a few hundred Angstroms in the ground plane will not materially affect the reflective properties of the ground plane (e.g., by failing to provide uniform reflection). Moreover, even if this statement related to allowable tolerance from 1/4\(\varepsilon\) spacing, it does not purport to provide a maximum amount of deviation. Instead, it simply states that a few hundred Angstroms deviation has minimal effect on the absorption capability of the bolometer.

The court thus declines to add mathematical precision to this claim through construction of this term, which the patentee chose not to include. The court construes this term to mean "about the result of the center of the spectral range divided by four."
5 In its reply brief, Plaintiff submitted an affidavit from Dr. Solomon stating that, in his opinion, "about" would mean +/- 10% in this context. The court, however, specifically declines to impose a numerical limitation to the term "about" in this claim term. Whether any degree of deviation from 1/4λ renders an array of bolometers, or a method of fabrication of an infrared imager, outside the scope of these claims due to degradation in performance, enhanced performance at a different level of spacing, manufacturing capabilities, or otherwise is a fact question better left to the jury. See W.L. Gore Associates, Inc. v. Garlock, Inc., 842 F.2d 1275, 1280-81 (Fed. Cir. 1988).

--- End Footnotes ---

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c. "above"

A claim construction that excludes a preferred embodiment is "rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). The first element of claim 1 recites that the metal interconnect layer is formed "above" the substrate surface. The specification states, as illustrated in Figure 1, that the interconnect layer (16) may be separated from the substrate layer (10) by a dielectric layer (12). Thus, the metal interconnect need not sit directly on top of the substrate layer. As is advocated by EMI, the court finds that the term "above" means higher than, but not necessarily directly in contact with.

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E. "above . . . [and] between"

The patent requires "an electrically isolated first conductive gate disposed above said substrate between said first and second doped regions." '776 patent, 13:3-5. Defendant argues the word "between" requires that the gate span the entire distance between the source and the drain. Plaintiff argues that the word requires only that the gate be located somewhere in between the source and the drain. Plaintiff's construction is the ordinary meaning of the word "between." As plaintiff points out, a chandelier can be "above" a table and "between" the two table ends without extending the table's entire distance. Unless the patent provides a different meaning, this ordinary construction must be adopted.

Defendant argues that the patent originally claimed a floating gate disposed "generally between" the source and the drain, and was amended to "between" to narrow the claim in the face of a prior rejection, thus requiring that the gate span the entire distance. Plaintiff responds by arguing that there was no prior rejection on basis of the floating gate's size, and that the modification was made simply for the purpose of clarity. Neither side cites to any part of the prosecution history that supports its version of events. The Court agrees with plaintiff, however, that the modified patent is clearer than the original, because the phrase "generally between" might have been construed to mean either "usually between" or "partially between." Having no solid reason to adopt defendant's out-of-the-ordinary construction of the term, the Court adopts plaintiff's construction.

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III. "Abbreviated"

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<th>Claim Term</th>
<th>BarTex's Proposal</th>
<th>FedEx's Proposal</th>
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<tbody>
<tr>
<td>Abbreviated</td>
<td>One or more characters that represent some larger piece of information that can be linked or called to a database, and that database, using the</td>
<td>Ordinary meaning, i.e. shortened</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Claim 10</th>
<th>FedEx's Proposal</th>
</tr>
</thead>
</table>

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Plaintiff contends its proposal is consistent with the commonly understood meaning of the term. Plaintiff argues that its proposal simply provides further clarity within the context of the claims. Plaintiff further argues that its proposal is supported by the specification's examples of abbreviated information.

Defendants contend that the term does not appear in the specification or prosecution history, but nevertheless is used in accordance with its plain and ordinary meaning. Defendants argue that the examples that Plaintiff cited are not examples of abbreviated information. Defendants further argue that Plaintiff's proposal improperly imports limitations into the claims.

The Court finds no basis for importing a database call limitation into the scope of the term "abbreviated." Outside of the claim language, the term "abbreviated" does not appear in the 377 patent. Plaintiff cites an example from the specification wherein a bar code represents a database command and address. See PL'S. MOT. at 15-16 (quoting '377 Patent col. 4:2-8). Contrary to Plaintiff's contention, this embodiment does not describe abbreviated information as used in claim 10; rather, the command and address are obtained by the scanning process and represent complete information that may be used to access a database. See '377 Patent col. 4:2-8 ("the bar code may store an address command . . . followed by a base 39 alphanumeric value"). Furthermore, in light of the Court's rejection of Plaintiff's "scanning process" construction, the context of claim 10 does not compel the conclusion that the term "abbreviated" necessarily involves a database call. Abbreviated information is simply an amount of information found in a first bar code portion that is shorter or briefer than that which is found in the second bar code portion. Compare '377 Patent col. 6:33-35 ("[E]nhanced information can be additional information, or it can be the same information as in the first bar code portion, as well as additional information") with '377 Patent col. 8:38-46 (claiming a bar code which includes a first part capable of providing "first abbreviated information" and a second part capable of providing "second information, which has more information that said first information, wherein said additional information includes the same information as said first information, and also includes additional information"). Accordingly, the Court finds it appropriate to construe this term in light of what is actually claimed in claim 10.

While the Court agrees generally with Defendants that the term "abbreviated" has a plain and ordinary meaning, the Court finds it more appropriate to construe the phrase "first abbreviated information." In keeping with the above discussion of the specification and the language of claim 10, the Court construes the term as "an amount of information found in the first information that is shorter or briefer than that which is found in the second information."

C. "absorbs/absorbing"

MacDermid contends that no construction of "absorbs" and "absorbing" is necessary but, if the Court determines that a construction is necessary, that it be defined as "to take up by chemical or molecular action." (MacDermid Responsive Br. at 19.) DuPont originally proposed the construction "to retain wholly, without reflection or transmission." (DuPont Opening Br. at 9.) DuPont, during oral argument, stated that it was amenable to altering its construction to "to retain wholly, without reflection or transmission, that which is taken in." (Tr. at 78.)

MacDermid contends that DuPont's original proposed construction was too extreme. (MacDermid Responsive Br. at 19.) MacDermid contends that DuPont's construction would require that the support layer retain all actinic radiation despite the fact that the '835 Patent acknowledges that the support layer is capable of taking in some radiation, not all. (Id.) MacDermid further notes that certain claims in the '835 Patent specify the amount of actinic radiation to be absorbed. (Id.) As such, MacDermid states that a construction requiring complete retention would conflict with these claims. (Id. at 20.) MacDermid states that DuPont provided a dictionary definition, from which it improperly excluded the phrase "that which is taken in." (Id.) MacDermid states that this clause qualifies that only that which is taken in is, in fact, wholly retained. (Id.)

DuPont states that MacDermid is incorrect in characterizing its construction as requiring the complete absorption of all radiation. (Tr. at 77.) Instead, DuPont contends that its construction requires that only the portion of the radiation that is actually absorbed be wholly absorbed. (Id.)
The Court agrees with DuPont's revised construction and construes absorbs/absorbing as "to retain wholly, without reflection or transmission, that which is taken in." MacDermid's objection to DuPont's initial construction was that it required 100% absorption. DuPont has clarified its proposed construction with the insertion of the phrase "that which is taken in," making clear that 100% absorption is not required, but only 100% of that which is actually absorbed must necessarily be retained.

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2) "AC Power Supply"

MKS contends that the phrase "AC power supply" in claim 19 means "an electric power supply producing alternating current." (D.I. 103 at 31). MKS further contends that "AC power supply" is broader than "AC switching power supply" and to construe the phrases to be equivalent would render dependent claim 24 redundant. (D.I. 103 at 32). Advanced Energy contends that the phrase "AC power supply" is equivalent in meaning to the phrase "AC switching power supply." (D.I. 110 at 23-24). In support, Advanced Energy contends that MKS represented to the Patent and Trademark Office that "all pending apparatus claims include an AC switching power supply..." (D.I. 110 at 25, D.I. 111 A172). Thus, Advanced Energy contends that "AC power supply" means "AC switching power supply." (D.I. 110 at 32).

The doctrine of claim differentiation is well-established. When different words or phrases are used in separate claims, a difference in meaning and scope is presumed. See Comark Communications, Inc. v. Harris, 156 F.3d 1182, 1187 (Fed. Cir. 1998). Further, where there is a conflict between an attorney's remark during the prosecution of the patent application and the language of the claim, the language of the claims controls. See Intervet America, Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1054 (Fed. Cir. 1989). Thus, because the Court finds that the language of the claim controls, the Court concludes that "AC power supply" is not equivalent in meaning to "AC switching power supply." The phrase "AC power supply" means an electric power supply producing alternating current.

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XI. "An AC powered DC charger for powering said radio and charging a removable DC voltage power source"

The Court next construes the term "an AC powered DC charger for powering said radio and charging a removable DC voltage power source" from claims 1 and 2 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker contends that the term "an AC powered DC charger for powering said radio and charging a removable DC voltage power source" means "a direct current charger powered by alternating current that is capable of powering the radio and is capable of charging the removable direct current voltage power source." Bosch proposes construing the term as "a charger that receives an AC voltage and transforms the AC voltage into a first DC output voltage, the first DC output voltage being of a voltage equal to the input voltage to power the radio and the first DC output voltage being transformed to a second DC output voltage equal to the input voltage of the battery to charge the battery."

B. The Court's Construction

As discussed above in Section VI.B., there is no support in the intrinsic record for requiring that any DC output voltage be equal to any particular value. Accordingly, Bosch's attempt to incorporate the limitation "equal to" into the plain and ordinary meaning of the claim language fails. Black & Decker's proposed construction closely tracks the claim language and is supported by the intrinsic record as discussed in Section VI.B. Accordingly, the Court construes the term "an AC powered DC charger for powering said radio and charging a removable DC voltage power source" as "a direct current charger powered by alternating current that is capable of powering the radio and is capable of charging the removable direct current voltage power source."
VI. "An AC powered DC power supply disposed in said enclosure for powering said radio and generating a first DC output voltage having a magnitude sufficient to power said radio"

The Court next construes the term "an AC powered DC power supply disposed in said enclosure for powering said radio and generating a first DC output voltage having a magnitude sufficient to power said radio" from claim 1 of the '059 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes construing the term "an AC powered DC power supply disposed in said enclosure for powering said radio and generating a first DC output voltage having a magnitude sufficient to power said radio" as "a direct current power supply in the enclosure powered by alternating current that generates a direct current output voltage sufficient to power the radio." Bosch argues that the term means "a power supply that receives an AC voltage and transforms that voltage into a DC output voltage, the DC output voltage being of a voltage equal to the input voltage of the radio."

B. The Court's Construction

At the Markman hearing, Bosch's counsel conceded that its proposed construction was too narrow to the extent it sought to require a DC output voltage being of a voltage equal to the "input" voltage of the radio. Rather, Bosch's counsel stated that voltage could merely be equal to the "nominal" voltage of the radio. Black & Decker still could not agree to this construction, arguing that the intrinsic record did not indicate that the DC output voltage be "equal" to anything and instead provided a variety of ranges and magnitudes. Bosch, on the other hand, contends that there is no support in the intrinsic record for a meaning of this term and instead resorts to extrinsic evidence. The Brodsky Declaration, however, is unreliable as discussed above. Even if the Court relied on that Declaration, the paragraph cited by Bosch does not support its assertion that the DC output voltage must be "equal" to any particular value.

Black & Decker contends that the Court should construe this term to require only a DC output voltage "sufficient to power the radio." According to Black & Decker, claim 8 of the '059 patent, which depends from claim 1 of that patent, requires that "the magnitude of said first DC output voltage from the AC powered DC power supply is greater than 9.6 volts and less than 18 volts." Under Federal Circuit law, the Court presumes that this range is not a limitation in independent claim 1, Phillips, 415 F.3d at 1314-15 (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004)), and that independent claim 1 has a broader scope than dependent claim 8, Phillips, 415 F.3d at 1324-25 (citing Dow Chem. Co. v. United States, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000)). n7

n7 The Court recognizes that the doctrine of claim differentiation and other claim construction guides related to the comparison between independent and dependent claims are not hard and fast rules, but instead mere presumptions that a Court may apply. See Fantasy Sports Props., Inc. v. Sportsline.com, Inc., 287 F.3d 1108, 1115 (Fed. Cir. 2002). Nonetheless, here, Bosch fails to rebut the presumption that a DC output voltage sufficient to power the radio is not limited to any particular value or range.

The specification further supports Black & Decker's contention that the patentee did not limit the claimed "DC output voltage sufficient to power the radio" to a particular range or value. The specification provides various embodiments of the claimed invention where the voltage supplied to the radio is not equal to any particular value. ('059 patent; col. 4, ll. 43-45 ("approximately 13.6 volts"); col. 4, ll. 52-55 ("a nominal 12 volts (i.e., 12 to 13.2 volts), is supplied to radio circuit board 33"); col. 4, ll. 22-24 ("Modern batter operated professional power tools use batter packs ranging from 9.6 to 18 volts").) Further, in the prosecution history, the inventor provided that the "AC powered DC power supply generates an output voltage having a magnitude sufficient to power the radio," but did not provide that the DC output voltage be equal to any particular value or within any particular range. (Id. at FH059087.) Accordingly, the intrinsic record is clear that the term "an
AC powered DC power supply disposed in said enclosure for powering said radio and generating a first DC output voltage having a magnitude sufficient to power said radio" means "a direct current power supply in the enclosure powered by alternating current that generates a direct current output voltage sufficient to power the radio." In particular, the intrinsic record provides that the phrase "sufficient to power the radio" means just what it says, and the Court rejects Bosch's attempt to incorporate limitations from the extrinsic record into the plain language of the claims.

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1) "AC Switching Power Supply"

MKS contends that the phrase "AC switching power supply" used throughout the '628 Patent means "an electrical power supply producing alternating current by the use of devices as switches." (D.I. 103 at 6). Advanced Energy contends that the phrase "AC switching power supply" means "a power supply that uses switching devices to produce an AC output without using an impedance matching network." (D.I. 110 at 32).

In construing the disputed phrase the Court has reviewed the patent specification and prosecution history. (D.I. 94 N.J.L. 480, 111 A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). Based on a review of these sources, the Court concludes that although the language of the claims might be broad enough to encompass an impedance matching network, the patent specification and prosecution history make it clear that the invention was not intended to encompass an impedance matching network. See SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1345 (Fed. Cir. 2001); (D.I. 94 N.J.L. 480, 111 A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). Thus the Court concludes that "AC switching power supply" means a power supply that uses switching devices to produce an AC output without using an impedance matching network.

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1. "accepting television (TV) broadcast signals, wherein said TV signals are based on a multitude of standards"

TiVo argues no construction is needed for this limitation, or, if construed, should be defined as "accepting transmitted television programming that is based on one or more established specifications." See TiVo's Op. Br. 5-7; TiVo's Markman Slides at 51-60.

EchoStar argues "multitude" means "a large number." EchoStar's Opening Br. at 6-8; EchoStar's Slide Presentation at 49-53. During the claims construction hearing, EchoStar stated that "the plain meaning of multitude [is] many, a large number... It is not a specific technical term." 5/23/05 Hr. Tr. at 92:14-17. EchoStar further argues "accepting television (TV) broadcast signals, wherein said TV signals are based on a multitude of standards" means "accepting for processing a large number of different TV broadcast signals formatted in conformance with different TV broadcast signal standards." EchoStar's Opening Br. at 6-8; EchoStar's Slide Presentation at 49-53.

Though "multitude" is a term that is understood by persons of skill in the art, for clarification purposes, the Court defines it as "numerous." The construction proposed by defendant, "a great number," does not clarify the meaning of the term "multitude" and instead only adds ambiguity as the term "great" is a term of degree in need of further construction. The Court's construction accords with the plain meaning of the term "multitude" and with the use of the term in the patent claims and the patent specification. '389 patent at col. 2:4-10; 3:32-37; see also '389 patent Abstract. Further, as written, the claim language requires an invention that accepts TV broadcast signals that are based on a multitude of standards - not that the invention actually process a multitude of TV broadcast standards. See TiVo Op. Br. at 6-7.

Though not determinative in the Court's decision, it is of note that construing "multitude" as "numerous" further accords with extrinsic evidence proffered by defendant. See EchoStar's Opening Br. at 6-7 citing Exh. D, THE AM. HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed. 2000) at 1156 ("multitude. n.: 1. the condition or quality of being numerous") and Exh. E, the OXFORD ENGLISH DICTIONARY ONLINE, 2004 ("multitude. n. 1. A mass noun: the character, quality, or condition of being many; numerous").
The Court finds that the remaining terms do not require construction. Therefore, the Court construes "accepting television (TV) broadcast signals, wherein said TV signals are based on a multitude of standards" as "accepting television (TV) broadcast signals, wherein said TV signals are based on numerous standards."

--- Footnotes ---

1 EchoStar argues that the claim term "standards" is indefinite and renders the entire claim invalid. EchoStar Opening Br. at 2, 20-22. Whether or not the claim is indefinite, however, is an invalidity question and should be raised in the context of a summary judgment motion. Patents are presumed valid. 35 U.S.C. § 282. During claim construction, courts will construe claims unless, because of an ambiguity, one of ordinary skill in the art could not reasonably understand the scope of the claim. See Exxon Research and Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001); see also Phillips, 415 F.3d 1303, 1305 WL 1620331 at * 19 (noting that a validity analysis is not a regular component of claim construction). Presently, this Court finds the term "standards" is not so ambiguous that the claim cannot be construed.

--- End Footnotes ---

28 Access device

Claims 1, 2, 6, and 9 of the '930 Patent contain the term "access device." Network-1 contends that the term means "a device that can access an Ethernet network," while Defendants contend that it means "a piece of equipment that requires power to access a network and to receive and transmit data." The parties disagree whether or not the term "access device" is limited to an Ethernet network and whether or not it can receive and transmit data.

Network-1 asserts that the ordinary and customary meaning of the term is merely a device that can access. Further, Network-1 asserts that, in the context of the claim limitation as a whole, the term means a device adapted to access a data network, particularly an Ethernet network. Defendants counter that the Court's construction in the D-Link case, which Network-1 then agreed to, remains proper because it is consistent with the specification and inclusion of an Ethernet requirement is improper.

Inherent in the term "'access device' adapted for data transmission" is the fact that the device requires electrical power to operate. See '930 Patent, col. 4:13. Network-1's construction, other than the improper inclusion of "Ethernet" as addressed in the discussion of the term "data node," adds nothing beyond the understandable meaning of the term itself. Defendants' construction, which Network-1 agreed to in the D-Link case, adds the superfluous recitation of "a piece of equipment that requires power." This language repeats what the claim element itself states, so the Court will adopt a simpler, clearer definition than it did in the D-Link case. Accordingly, the Court construes the term "access device" to mean "a device that can receive and transmit data over a network."

29 K. "accessed by any one of the authorized plurality of media player devices"

This term is located in claim 1 of the '414 patent: "A method of managing access to a plurality of media assets . . . wherein the plurality of referenced media assets can be accessed by any one of the authorized plurality of media player devices." The plaintiff argues that this term means "retrieved, obtained or used by any of the 'media player devices' which are permitted to play said 'media assets.'" Alternatively, the plaintiff contends that the proper construction is "retrieved or obtained, including for use, by any of the 'media player devices' which are permitted to play said 'media assets.'" In contrast, the defendant's proposed definition is "each of a plurality of media player devices communicates with a portal to download or stream the associated media assets for use." The parties' proposals differ in three main respects: direct communication between media player devices, definition of "access," and meaning of "any one."
First, Apple argues that "access" is limited to transfers to and from the portal. But, in the term "the plurality of media player devices including a media asset portability application," construed supra, the court rejected Apple's prosecution history disclaimer argument regarding direct player-to-player communications. Second, the defendant contends that "access" does not include use of the media asset. According to Apple, the specification treats "use" and "access" as distinct and separate concepts, e.g., "access media assets for use." (414 patent, 1:45-46) (emphasis added). But the language "access . . . for use" indicates that use is subsumed within the broader access function. Third, Apple asserts that plain meaning "any one of" is that each media player must be capable of accessing media assets. Apple provides the following example in support of its construction: "you can access Marshall by any [one] of these three roads" means simply that all three, not merely one, of the roads provide access to Marshall. But Zapmedia argues that "any one of" does not mean "every one of"—it means "any of" or "one or more of." The claim language, however, states that the "referenced media assets can be accessed by any one of the . . . media player devices." (emphasis added). The claim indicates that any one of the devices must be capable of accessing the media assets. Therefore, the court construes the term "accessed by any one of the authorized plurality of media player devices" to mean "retrieved or obtained, including for use, by each of the authorized 'media player devices.'"

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3. "According to a function defining generator speed versus generator electrical power output"

As suggested in the preceding discussion, this is a critical aspect of the parties' dispute. In context, the phrase reads as follows:

a variable speed wind turbine controller, responsive to the sensed signals indicative of generator speed and generator electrical power output, for providing a generator torque command signal for commanding maneuvers of the generator speed according to a function defining generator speed versus generator electrical power output which maneuvers tend to cause the wind turbine to operate substantially on the wind turbine power coefficient versus velocity ratio optimum performance curve substantially at the peak thereof;

Both parties agree that the term "function" means a mathematical rule defining the relationship between an independent variable and a dependent variable in which each independent variable value corresponds with exactly one dependent variable value. The question is whether the words "according to" mean "dependent on" or "derived from" or whether they mean simply "consistent with." In its ordinary use, the phrase is susceptible to either interpretation. Merriam-Webster Dictionary online at http://www.m-w. com/cgi.bin/dictionary (definition of "according to" includes both "in conformity with" and "depending on").

The claim specification explains that "the variable speed wind turbine controller, by means of the signal processor, determines what the generator air gap torque should be according to a function defining sensed power versus generator speed to obtain maximum efficiency." '736 Pat. at col. 5, Ins. 5-10 (italics added). This language supports a "dependent on" or "derived from" construction. In plaintiff's view, however, the clause "according to a function defining generator speed versus generator electrical power output" modifies "commanding maneuvers of the generator speed" rather than "providing a generator torque command signal." Even if plaintiff is correct, "according to" would necessarily refer indirectly to the provision of generator torque command signals because generator speed maneuvers are commanded by generator torque command signals.

Moreover, it is not clear that "according to" refers to command maneuvers. It would apply if one used the last antecedent rule, a doctrine of interpretation that presumes that qualifying phrases refer to the terms immediately preceding them. Shelby County State Bank v. Van Diest Supply Co., 303 F.3d 832, 836 (7th Cir. 2002) (noting that Supreme Court recognized "last antecedent" rule as early as 1799). Although rules likes these may be useful in construing patent claim language, Chisum on Patents § 18.03[2][a] (2003), the last antecedent rule is "not an absolute and can assuredly be overcome by other indicia of meaning," Barnhart v. Thomas, 540 U.S. 20, 26, 157 L. Ed. 2d 333, 124 S. Ct. 376 (2003); see also Miniit v. Ed Miniit, Inc., 315 F.3d 712, 715 (7th Cir. 2002); Shelby County, 303 F.3d at 836 (rule is "helpful in determining the existence of the ambiguity, but not in solving the puzzle when [two] readings are plausible").

In this instance, the claim specification is an indication of meaning. It establishes that the function of defining generator
speed in contrast to generator power output is to be used in determining what the generator air gap torque should be. In addition, the preferred embodiments demonstrate that a function that defines generator speed versus generator electrical output is used in producing torque command signals. For example, Fig. 2 depicts a system in which sensed power signals are transmitted to the turbine controller where the function that defines sensed power as distinct from generator speed is used to produce a generator speed reference signal that is transmitted to the summing junction, where it is compared to a signal of actual generator speed. The summing junction generates a difference signal representing the difference between the speed reference signal and the generator speed signal, which is used to determine the generator torque command signal.

Finally, the phrase immediately following the one in dispute reads "which maneuvers tend to cause the wind turbine to operate substantially on the wind turbine power coefficient versus velocity ratio optimum performance curve substantially at the peak thereof." If these maneuvers had been the noun that the "according to" phrase modified, it would have been unnecessary to re-identify it, rendering the second "maneuvers" superfluous.

In this case, the claim language, the claim specification and the preferred embodiment all point towards defendant's construction of the phrase "according to." Therefore, I conclude that "for providing a generator torque command signal for commanding maneuvers of generator speed according to a function defining generator speed versus generator electrical power output," the generator torque command signals issued by the controller must be determined by a mathematical rule defining the relationship between generator speed and generator electrical power output.

5. Acoustic Velocity: Lufkin argues that acoustic velocity is the velocity of sound determined by an acoustic pulse sent down the borehole, which requires determination of collar frequency. To support its definition, Lufkin cites to the language of the '399 Patent specification stating that acoustic velocity is the product of joint length and collar frequency multiplied by two. '399 Patent, at 29 (col. 14, 1. 17-18). Echometer argues that acoustic velocity is the speed of sound through a medium and that the specification of the '399 Patent merely teaches one method, albeit preferred, for calculating acoustic velocity.

The parties' interpretations of acoustic velocity overlap in that both define acoustic velocity as the speed of sound through a medium. Lufkin's definition further specifies the method by which the speed of sound is measured, namely sending an acoustic pulse down a borehole and determining collar frequency. Though the specification discloses this method of calculating acoustic velocity, the Court finds Lufkin's definition unduly restrictive; acoustic velocity is the speed of sound through a medium, and the specification merely describes a preferred method for calculating such numeric value.

9. "acting on the signal from said receiver"

The next disputed claim term is "acting on the signal from said receiver." The plaintiff asserts the term means modifying the signal from said receiver. Joint Claim Construction Brief, Exh. B. The defendants argue the term means processing the scrambled signal received from the receiver and restoring the scrambled signal to its unscrambled condition.

According to defendant EchoStar:

The difference between the parties' proposed constructions is minor. Both recognize that the unscrambling process--or "acting upon" a scrambled signal--occurs on a scrambled signal after it has been received from the receiver.
Defendant EchoStar Opening Claim Construction Brief for the '066 Patent, at p. 23.

I have construed "unscrambling" to mean restoring a modified signal to its unmodified condition. The claim makes clear that that is the process accomplished when the unscrambling means acts on the signal. '066 Patent, col. 6, lines 38-40. Both parties agree that the signal is acted on by the unscrambling means after it is received from the receiver. Joint Claim Construction Brief, Exh. B.

I construe the term "acting on the signal from said receiver" according to the plain language of the claim to mean restoring a modified signal received from the receiver to its unmodified condition.

I. "Activates the call pod", "automatically activate", and "automatically deactivate"

The parties dispute the meaning of these three terms because they disagree over the meaning of the term "activate" in the '611 patent. Callpod claims that "activation" refers to operating the call pod to connect a call, while Defendants contend that "activation" refers to powering the call pod on.

The '611 patent expressly discloses "a power switch adapted to automatically activate the call pod upon detection of a call connection." (JA, Ex. 1, '611 patent, at 6:7-11.) The specifications provide another way for the call pod to receive power: a microphone bias current. (JA, Ex. 1, '611 patent, at 2:44-51.) When the call pod uses the microphone bias current, "the bias current provided by the wireless telephone may be used to activate the call pod during a call, thereby eliminating the need for a power switch . . . ." (JA, Ex. 1, '611 patent, at 2:44-49.) Therefore, the term "activate" refers to turning the call pod on through the use of a power switch or microphone bias current. Regardless of how the call pod receives power, when the '611 patent describes activation of the call pod, it refers to turning the call pod on, not connecting a call. Accordingly, the Court determines that "activate" means "to power the call pod on."

Based upon that construction, the Court determines that "activates the call pod" means "powers on the call pod." Likewise, "automatically activate" means "to automatically power on the call pod during a call." Finally, "automatically deactivate" means "to automatically power off the call pod upon the termination of the call."

A. Activation Amount

The Court construed this term in the Datastream Markman Order. Alexsam asks the Court to modify its prior construction because it does not reflect all disclosed embodiments. After considering Alexsam's arguments, the Court agrees. See Oatey Co. v. IPS Corp., 514 F.3d 1271, 1276-77 (Fed. Cir. 2008) ("We normally do not interpret claim terms in a way that exclude embodiments disclosed in the specification.").
The specification discloses an embodiment in which a card is activated with an amount different than the total value of the card. For example, when a phone card is activated, the vendor will conduct a transaction with a nominal amount in order to comply with banking regulations. The amount of the transaction is significantly less than the value of the card, but may correspond to or be keyed to the total card value. '608 patent, 5:49-6:4. Alexsam argues that this nominal amount is an "activation amount."

Moreover, the claim language indicates that the patentee envisioned that an activation amount could be different than the total card value. For example, claim 34 of the '608 patent shows that the card balance need not be equal to the activation amount. See '608 Patent, claim 34 ("a balance corresponding to the electronic gift certificate activation amount").

IDT argues that "nominal amounts" and activation amounts are distinct concepts. According to IDT, the nominal amount relates to the transaction amount and not the card value. IDT also argues that Alexsam is collaterally estopped from advancing this argument because the Court previously rejected the same argument in Datastream. To prevail on the theory of collateral estoppel, a party must show the following: "(1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) plaintiff had a full and fair opportunity to litigate the issue in the first action." In re Freeman, 30 F.3d 1459, 1465 (Fed. Cir. 1994); see also U.S. v. Shanbaum, 10 F.3d 305, 311 (5th Cir. 1994) (setting forth a similar test). In the Datastream Markman order, the Court did not expressly reject Alexsam's argument that the activation amount can be the nominal transaction amount. Moreover, the arguments that the Court considered in the Datastream Markman Order were not identical to the current arguments. Alexsam's present argument is persuasive in light of the reliance on the claim language "corresponding to," which suggests that "activation amount" could be broader than the value of the card. "A patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal or contrary definition in the specification." Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004). See also Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371 (Fed. Cir. 2005) ("[A] patentee typically claims broadly enough to cover less preferred embodiments as well as more preferred embodiments, precisely to block competitors from marketing less than optimal versions of the claimed invention."). The Court construes "activation amount" to mean "a value used to establish the total value of goods or services that the user may obtain upon the prepaid account being made functional for use."

The court shall apply the ordinary definition of the term "active electrode" in the relevant art. The term "active electrode" means "a stimulating electrode . . . applied to tissue for stimulation and distinguished from [a return electrode] by having a smaller area of contact, thus affording a higher current density." 3


The term "active layer" appears in Claim 3: "The structure claimed in claim 1, wherein said layer comprising said inclusions is an active layer of an optoelectronic component."

Nichia suggests that the court adopt wording contained in the specification which states that "the active layer [] is the only
region of the structure in which the two types of carriers are simultaneously present. . . " Col. 2, l. 47-53. Nichia's construction does not go far enough, as it is possible for electrons and holes to be simultaneously present in other layers, although not in appreciable numbers relative to the active layer. One of skill in the art would know that outside the active layer, some hole and electrons exist in practice. Even in a pure, undoped semiconductor (called an intrinsic semiconductor) at room temperature, some holes and electrons simultaneously exist. See Tr. at p. 80, l. 24 to p. 81, l. 5. Therefore, the issue is really one of degree. Holes and electrons are simultaneously present in the active layer to a significantly greater degree than in any other layer.

Seoul criticizes Nichia's proposed construction, citing a book by Nichia's technical advisor, for the proposition that "[c]arriers tend to escape from the active layer of an LED into the confinement layers." Seoul's Claim Const. Br. at 13, Ex. 9, E. Fred Schubert, Light-Emitting Diodes, 81 (2nd ed. 2006). However, earlier in the chapter, the text explains that "[i]n an ideal LED, the injected carriers are confined to the active region by the barrier layers adjoining the active regions." Id. at 75. Again, this illustrates that the issue is one of degree. While electrons and holes may simultaneously exist and they may recombine to emit light, this occurs to a greater degree in the active layer. The active layer may simultaneously contain a thousand times more electrons and holes than an intrinsic semiconductor. For example, the carrier density in intrinsic (undoped) GaAs in a quantum well device is 10<15> cm<sup>-3</sup> or less (see Sajal Paul et al., Empirical expressions for the alloy composition and temperature dependence of the band gap and intrinsic carrier density in Ga[x] In[1-x]As, 69 J. Appl. Phys. 827 (1991); Wallace C. H. Choy et al., AlGaAs-GaAs Quantum-Well Electrooptic Phase Modulator with Disorder Delineated Optical Confinement, 34 IEEE J. Quant. Elec. 84 (1998)), whereas the carrier density in the active region of a quantum well laser under operating conditions is over 10<18> cm<sup>-3</sup> (see A. Champage et al., The Performance of Double Active Region InGaAsP Lasers, 27 IEEE J. Quant. Elec. 2238 (1991)).

Further, Seoul's proposal that "active layer" means "a layer in the device that is capable of emitting light (i.e., emitting photons as electrons and holes recombine) when current is applied" suffers the same practical problem. If electrons and holes exist in the same region, they may recombine and release a photon of light. Moreover, the specification discloses more than light emitting devices, specifically optical modulators and optical switches. Col. 4, l. 33-36. The parties even agreed that the term "optoelectronic component" includes more than simply light emitting devices. It would be inappropriate to require the active layer to emit light as not every optoelectronic component that contains inclusions with a smaller bandgap than the surrounding material emits light. Tr. at p. 92, l. 3-13; Tr. at p. 136, l. 7-18; Pl. Resp., Doc. # 53, Ex. 8, U.S. Patent No. 5,187,715. The court will therefore construe the term as follows:

"active layer" means "the layer in which both types of carriers (electrons and holes) are simultaneously present in significant numbers compared to an intrinsic semiconductor at room temperature."

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5. "the predetermined number is within about a reasonable number for human capacity" Used in Claims 14, 18, and 30.

Cisco proposes that this term should mean that "the predetermined number is a number that humans can understand." Telcordia argues that the limitation is indefinite and incapable of construction.

35 U.S.C. § 112 P 2 requires that the claims of a patent particularly point out and distinctly claim the subject matter which the applicant regards as his invention. "In ruling on a claim of patent indefiniteness, a court must determine whether those skilled in the art would understand what is claimed when the claim is read in light of the specification." Bancorp Servs., LLC v. Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004). "If the claim is subject to interpretation, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness." Bancorp Servs., 359 F.3d at 1371. "[T]he definiteness of claim terms depends on whether those terms can be given any reasonable meaning." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). In determining whether a claim is insolubly ambiguous, the court should construe the terms according to the general principles of claim construction. Id.

The disputed term appears in Claim 14, which is dependent upon Claim 1. Claim 1 states "the number of objects displayed are limited to within a predetermined number . . . ." '304 patent, col. 19, ll. 62-63. (emphasis added). So the "predetermined number" of Claim 14 refers to a number of objects displayed. The problem with this claim language is that nobody of ordinary skill in the art is given any guidance as to what range of objects is encompassed by the "predetermined number."
Cisco asserts that there is a well known principle of psychology that humans have a capacity for remembering a limited number of items before confusion begins, with the number being generally accepted at being about seven. Cisco says this is known as the "rule of seven." Indeed, Claim 15 refers to the predetermined number being "about seven." '304 Patent, col. 22, ll. 65. That might be definite enough. But the disputed term is limited only by "human capacity."

There is no good indication in the claim language or the specification of the time in which the person will have to view, comprehend, and make use of the number of objects displayed. Obviously a person with plenty of time can review and keep track of a greater number of objects than one under pressure to make immediate decisions in a constantly changing environment. Nothing in the patent indicates that one viewing a graphic display will be trying to memorize what is displayed, so extrinsic references to short term human memory studies do not make this term more definite.

Cisco notes that a computer program filed with the patent application was incorporated in the specification. '304 patent, col. 1, ll. 9-13. Cisco asserts that it identifies eight as the number the court should use. Application, December 9, 1998, p. 38, Bates stamped 00000359, Exhibit F part 2 of Cisco's Opening Claim Construction Brief, [Doc. # 50, Attachment # 2, p. 16 of 25]. But that use of "eight" is in reference to a program called "Soapbubbles." There is no indication it is tied to any measure of human capacity.

Cisco also argues that the number is related to the size of the screen of the display, so that at some point a viewer would not understand what is being displayed because objects would be too small or would occlude each other. But the patent does not place a limit on the size of the screen, so that the graphic display which is impossible to read when shown on the screen of a hand-held unit might easily be within "human capacity" on a twenty-one inch monitor.

The range of human capacity to understand numbers and numbers of objects is almost unlimited, and varies greatly. Some poorly educated humans in a rural environment have the capacity to visualize a large number of objects, such as the number of cattle in a herd. On the other hand, many with advanced degrees seem to have little grasp of the actual total number of dollars represented in tax legislation. The average high school quarterback preparing to receive a snap must keep track of twenty-one other players and the ball. How does this, let alone the number of objects on the graphic display screen of an air traffic controller, tie in with a "rule of seven," which is not mentioned in the patent or prosecution history?

The disputed term purports to identify a number of objects, or range within which a number of objects will be, but in actuality, has no discernable limit. There is no objective standard to allow one of ordinary skill to design around the invention. If someone created a GUI with twenty objects, the patentee could assert that since it had been created, twenty was within "human capacity." The court concludes that this term is indefinite.

GO BACK

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3. accelerator board

a printed circuit board made of insulating material that has an upgraded microprocessor mounted thereon and is adapted to connect into the socket of a computer board system

This definition is derived from the patent following specification language and figure 1.

This invention relates to accelerator board devices that may be used to replace a microprocessor of a personal computer system which operates at a relatively slow speed in comparison to that of the replacement microprocessor to enhance the performance of the system.

('981 Patent Col 1:10-15)

In accordance with one aspect of this invention, an accelerator board plug-in replacement to the microprocessor socket of a system board includes a sub-harmonic signal generator responsive to the clock signal of the system board.

('981 Patent Col 2:31-34)
Accelerator board 1 is used in conjunction with a slow speed system board B which will normally include a socket S for a microprocessor for which board B was designed, which microprocessor will be responsive to those signals on SS Bus 20 indicated above. In this case it will be recognized that these signals form part of the control signals for a 80286 microprocessor. This "slow" microprocessor is removed from the slow system board B and may be consequently referred to hereinafter as a ghost microprocessor. Accelerator board 1 includes pin connectors (not shown) which are receivable in socket S to interconnect SS Bus 20 to socket S; such pin connectors will also connect System Address Bus 26 and System Data Bus 27 to socket S to provide for the transfer of data between the slow system board and microprocessor 11. The control signals on MP Control bus 22 will be recognized as part of the control signals of an 80386SX microprocessor. Given that this latter microprocessor has a different Address and Control timing than that of the ghost microprocessor, System Address Bus 26 is connected to the microprocessor 11 through Address latch 10 and the MP Address Bus 28, the operation of which will be further described. In addition the change in microprocessor clock, causes the Data Bus timing of the new microprocessor and the slow speed system board to be different.

("981 Patent Col 4:27-53)

For the purposes of this description it will be assumed that the ghost microprocessor for which the slow speed system board B was designed was an 80286 microprocessor operating at 16Mhz, and that the microprocessor 11 of the accelerator board 1 is an 80386SX operating at a frequency of 48 Mhz, to which microprocessors the timing diagram of FIG. 10 is applicable. For such system, the frequency of the sub-harmonic generator 3 is conveniently selected to be 4 Mhz, and the phase lock oscillator 4 accordingly to provide a value of N in the divide by N portion of the circuit of twelve.

("981 Patent Col 10:65-11:9 Fig 1)

The following dictionary definitions fully support the Court's definition of accelerator board.

Dictionary of Computer and Internet Words (2001) accelerator board: A printed circuit board that can be added to a computer to enhance its performance by substituting a faster microprocessor without replacing the entire motherboard and associated components.


Microsoft Computer dictionary (4th ed. 1999) daughterboard: A circuit board that attaches to another, such as the main system board (motherboard), to add extra capabilities.

Microsoft Computer Dictionary (4th ed. 1999) board: An electronic module consisting of chips and other electronic components mounted on a flat, rigid substrate on which conductive paths are laid between the components.
H. Accesses [the data]

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3 The bracketed terms are not being offered for construction. (D.I. 179, at 14 n.3.)

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Leader's Construction Facebook's Construction
plain and ordinary meaning Retrieves information in the
second context or user
workspace as distinct from
uploading it, adding or
creating it

The phrase "accesses the data" appears in Claims 1, 17, and 23. 4 Facebook contends that the disputed claim term "accesses" means "retrieves information in the second context or user workspace as distinct from uploading, adding or creating it." (D.I. 191, at 22.) According to Facebook, this proposed construction is supported by the intrinsic record, and is consistent with the plain meaning one of ordinary skill in the art would ascribe to the term. (Id. at 23-24.) Leader criticizes Facebook's proposed construction on several grounds: 1) it reads limitations which are unsupported by the specification into a simple term; 2) if adopted, it would render the claim nonsensical; and 3) it attempts to deconstruct the term rather than construe it. (D.I. 179, at 14-15.) Leader contends that the term "accesses" in the '761 patent is used consistently with its everyday meaning, and accordingly, should be given its plain and ordinary meaning. (Id. at 14.)

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4 In Claim 17, the phrase reads "the data is accessed." '761 patent, col. 22:24.

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The Court concludes that Facebook's proposed construction is not supported by the intrinsic record. The specification provides that

Any user operating within any board has access to the suite of applications associated with that board, and can obtain access to any data in any form (e.g., documents and files) created by the applications and to which he or she has permission. Moreover, thereafter, the user can then move to shared workspaces (or boards), and access the same data or other data.

'761 patent, col. 3:37-43. There is no references to "access" of the data being distinct from uploading, adding, or creating the data. Facebook points to a portion of the specification, referring to Figure 8, which states that "[d]ata of any kind and size can be uploaded to a common or shared workspace or board. Varying levels of access can be provided to the uploaded data." '761 patent, col. 11:29-31. The Court is mindful of the Federal Circuit's admonition that "although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." Phillips, 415 F.3d at 1323. That uploaded data can be "accessed" in this embodiment is insufficient, in the Court's view, to import Facebook's proposed limitation into the claim term.

Accordingly, the Court declines to adopt Facebook's proposed construction for the term "accesses."

IV. Conclusion

An Order consistent with this Memorandum Opinion will be entered.

ORDER

At Wilmington, this 9 day of March 2010, for the reasons discussed in the Memorandum Opinion issued this date;
IT IS HEREBY ORDERED that the following terms in United States Patent No. 7,139,761 (the "'761 patent") are assigned the following meanings:

8. The term "access" shall be given its plain and ordinary meaning.

Access, accessing, all forms of "access"

This term appears, in some form, in every claim of the patent. MyMail argues that all forms of "access" should be defined "establish/establishing the ability to communicate with," while Defendants propose "the right to gain entry to a computer system and make use of its resources (for example, to retrieve data from another computer)."

MyMail's proposed construction is at odds with the language of Claims 11 and 13 of the patent, which recites both "access" and "communicate." It makes no sense to define "access" as a function of "communicate." The Court will instead substantially adopt Defendants' proposed construction, which is consistent with the ordinary meaning of "access." The Webster's New World Dictionary of Computer Terms defines "access" as "the right or ability to gain entry to a computer system and make use of its resources." WEBSTER'S NEW WORLD DICTIONARY OF COMPUTER TERMS 12 (6th ed. 1997). Accordingly, the Court defines all forms of "access" as "to gain entry to a computer system and make use of its resources."

Access authorization data

IPCom defines "access authorization data" as "access rights information that must at least include either (1) information indicating whether access is to be authorized based on an access threshold value or access class information, and at least one of an access threshold value or access class information or (2) access threshold value and access class information." Chart at 5. HTC asserts that this phrase means "bit patterns (45, 50, 55) which may include an access threshold value or alternatively different information from which the mobile station can determine whether it has access rights or must wait until access authorization data are transmitted again." Id.

The specification to the '751 Patent indicates that access to the RACH (random access channel), by which a plurality of mobile stations/cell phones communicates with a singlebase station/cell tower, can be restricted to "certain user classes" or each mobile station can "be provided with its own user class." '751 Patent at 4:14, 21. "User classes with different numbers of mobile stations can also be provided. . . . The network operator can now enable access to the RACH by the individual mobile stations as a function of their membership in one of the . . . user classes." Id. at 4:22-27. "By means of information signals," the network operator "informs the various mobile stations which rights for transmitting on the RACH are granted to the applicable mobile station." Id. at 4:32-36 (numerical references to Fig. 1 omitted).

At predetermined times, the base station transmits information signals to the first mobile station [as an example for all the mobile stations]. The information signals can be transmitted, as shown in FIG. 1, via a signaling channel 25, hereinafter embodied as an example as a broadcast control channel or BCCH. . . .

Since the bit pattern sent from the base station is sent not only to the first mobile station 5 but also to all the other mobile stations 10, 15, 20, and likewise over the signaling channel 25, which as described is embodied as a BCCH, that is, a point-to-multiple-point channel, so that all the mobile stations receive the same ink 16 [i.e. information] at the same time, the bit pattern includes the access rights granted to each user class, 35, 40, for the sake of informing the mobile stations of the RACH access rights they have been allowed.
Id. at 4:41-45, 59-67. A random distribution of access authorization occurs because the base station also sends an access threshold value $S$. The access threshold value $S$ is "delivered" to the evaluation unit in the mobile station. Id. at 5:19. Then, the evaluation unit "draws a random or pseudo-random number $R$ and asks whether the random or pseudo-random number $R$ is at least as great as the access threshold value $S."$ Id. at 5:21-24. "Only then is an [sic] access to the r30 [RACH] allowed." Id. at 5:24-25.

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16 The word "ink" is a typographical error in the '751 Patent, a place holder accidentally left behind by the person who translated the Patent from German into English. Tr. 1/26/10 at 115 (IPCom). "Ink" represents the English word "information." Id.

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However, some classes of users may be enabled to access the RACH even when, "on the basis of the random distribution by means of the access threshold value [such users] are not authorized access." Id. at 1:56-58. "For instance, subscriber stations of emergency services, such as the police or fire department are assigned to a predetermined user class of this kind and can then access the telecommunications channel with priority by means of appropriate access threshold value ink, independently of the random distribution." Id. at 1:59-64.

From these descriptions, it is evident that the term "access authorization data" represents two different kinds of information sent by a base station: access rights granted to each user class and an access threshold value unless the subscriber is, for instance, an emergency service in which event its user class has priority and its access threshold value is not dependent on random distribution. Notably, even emergency services must have both a user class and an access threshold value to gain access to the network.

HTC thus proposes that access authorization data is confined to three particular bit patterns described as preferred embodiments in the specification. There is nothing in the specification, however, that suggests that authorization data is limited to these three specific bit patterns. To the contrary, the specification expressly states that these three bit patterns are set forth as mere examples:

The numbers of bits used for the access threshold value $S$, the access channel [information] $Z_0$, $Z_1$, $Z_2$, $Z_3$, the priority threshold value $P$ and the telecommunications service [information] $D_0$, $D_1$, $D_2$ are understood to be merely examples, and they can also be increased, for example for more extensive signaling, and reduced, for the sake of bandwidth reduction. In this case, the total length of the bit patterns 45, 50, 55 may change as well. Individual components of the [information] can optionally also be omitted entirely.

'751 Patent at 8:54-62. Further, HTC's proposal that the bit patterns "may include an access threshold value or alternatively different information," Chart at 5, fails to appreciate that access authorization data include both access threshold values and access rights granted to each user class. Similarly, IPCom's proposed construction would present an either/or scenario: "information indicating whether access is to be authorized based on an access threshold value or access class information . . .," id., which is not consistent with the specification.

The Court construes "access authorization data" to mean "access rights granted to each user class and an access threshold value."

b. "access code"

i. The Parties' Proposed Constructions

MiniMed argues that the term "access code" should be construed to mean "a secret sequence of characters including a
password which an authorized user must enter to gain access to the controller means." MiniMed cites the dictionary definitions of "access" and "code," to support what it contends is a common usage of the term "access code." Specifically, MiniMed states that access is defined as "to get at: gain access to" and code is defined as a "system of symbols (as letters or numbers) to represent assigned and often secret meanings." (D.I. 167 at 32 (citing Merriam-Webster Dictionary, 6,221 (10th ed. 2001)).) Moreover, MiniMed argues that the term "access code" and the term "password" are used consistently in the specification. (Id.)

Smiths argues that "access code" should be given its plain meaning and argues that MiniMed selectively chooses definitions to support its proposed construction. Smiths also notes that the same dictionary also defines "code" as "a system of principals or rules … a system of signals or symbols for communication." (D.I. 220 at 13-14 (citing Merriam-Webster Dictionary, 6 (10th ed. 2001)).)

ii. The Court's Construction

I have concluded that MiniMed's definition of the term "access code" is correct. An additional dictionary definition, not cited by either party, captures the common and ordinary meaning of the phrase: "an alphanumeric sequence that permits access to an electronic network, such as a telephone network or an automated teller machine." The American Heritage Dictionary of the English Language (4th ed. 2000). Although this definition refers to gaining access to a network, it supports the idea that preventing use by unauthorized people is integral to the meaning of the term "access code." Consequently, I construe the term "access code" to mean "a sequence of characters used as a password which an authorized user must enter to gain access to the controller means."

The rest of the disputed terms 7 have their plain and ordinary meaning and require no further construction.

6. "user remote access device"

Klausner proposes "a device that can from any remote location gain authenticated access to internal system resources from outside the system that does not require separate data and voice channels to communicate with the telephone answering device." Vonages proposes "the user remote access device having the structure specified in Claim 1." In support of its proposal, Vonage contends that "user remote access device" is not discussed in the written description 5 but is expressly defined only in ten of means-plus-function elements in Claim 1. Vonage argues that because there is a presumption that the same terms appearing in different claims have the same meanings, the term "user remote access device" should be defined in all claims as it is in Claim 1. Vonage's argument is without merit.

Vonage's argument hinges on the idea that a "user remote access device" is different from a "remote access device." See Applied Med. Res. Corp. v. U.S. Surgical Corp., 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) ("in the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings"). Although different terms in a patent are presumed to have different meanings, that presumption is overcome in this case. Claim 2,
which depends from Claim 1, references the "user remote access device" of Claim 1 by calling it a "remote access device." Moreover, independent Claims 5 and 20 use the terms "remote access device" and "user remote access device" interchangeably within the same claim. Thus, Vonage's proposed construction would have the effect of importing the limitations of Claim 1 into all claims when claims 2 and 5-13 include a "remote access device" that contains different elements.

Vonage also argues that the prosecution history shows that Claim 1 defines this term because the inventors amended Claim 1 to clarify that a "user remote access device" includes the means-plus-function elements in part (b) of Claim 1. As noted by Klausner, however, the examiner expressed concern with the term "system independent user remote access device." ("Regarding claim 15 [current Claim 1], it is not clear if a 'user remote access device (line 11)' and "a system-independent remote access device (line 15) are the same."). Ex. 27 to Klausner's Reply Br. at 4. In response, the inventors removed "system independent" to "make the claim language consistent." Ex. 7 to Klausner's Claim Constr. Br. at 20. The Court cannot conclude that such an amendment reflects an intention to define the "user remote access device" of Claim 3 in terms of the means-plus-function limitations of Claim 1.

Finally, contrary to Vonage's contention, Claim 1 is not defining a "user remote access device" or a "remote access device." Instead, the claim sets forth elements included in the "user remote access device" for purposes of that claim. A claim's elements establish the boundaries of that claim, Innova, 381 F.3d at 1115, rather than define a particular claim term. Indeed, Claims 2 and 5-13 set forth different elements of a "remote access device" but none of these claims purport to define the term. Vonage does not cite to any authority holding that means-plus-function elements in an independent claim can be used to define a term appearing in another independent claim. 6 "There is a rebuttable presumption that different claims are of different scope." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1326 (Fed. Cir. 2003). Vonage has not rebutted this presumption here.

6 The Court finds this situation distinguishable from the case cited by Vonage, Pods, Inc. v. Porta Stor, Inc., 484 F.3d 1359 (Fed. Cir. 2007). In that case, the parties agreed on the definition of "carrier frame" in Claim 1 and there was no reason to fail to apply that definition to the term as used in another claim. Here, the parties have not agreed on a definition for "user access remote device" and Vonage is attempting to restrict the meaning of a term by way of an independent claim's means-plus-function elements, not by way of some sort of definition.

The construction proposed by Klausner suffers from its own deficiencies. Klausner proposes "a device that can from any remote location gain authenticated access to internal system resources from outside the system and that does not require separate data and voice channels to communicate with the telephone answering device." Klausner points principally to the prosecution history to support various aspects of its proposed construction. However, the Court does not find adequate support for certain aspects of Klausner's proposal. Klausner refers to an Amendment, dated April 3, 1995, in which the Applicant distinguishes a prior art reference to Jachmann. In his argument, the Applicant said that "Jachmann does not disclose a flexible and system-independent remote device that may be used from any remote location to access any TAD wherein visual messages are displayed on the system-independent remote device." See Ex. 6 to Klausner Opening Br., p. 28. But, in this particular argument, the Applicant actually relied on two specific differences to distinguish Jachmann; namely the "system-independent" remote device, and the fact that, in Jachmann, "remote retrieval of information must be accomplished without use of any visual messages." Id. The "system-independent" aspect of the claims at issue was deleted in a subsequent Amendment.

Klausner points to its expert Levine as support for that portion of its proposal reciting "from any remote location gain authenticated access to internal system resources from outside the system." However, Klausner points to nothing specific in the intrinsic record to support these restrictions, other than the notion that access to voice messages is typically intended to be limited or controlled. The reference to "internal system resources" does not aid in the understanding of the subject claim term, at least in the context of the asserted claims of the '576 patent. Those claims do not expressly recite a "system," nor is a "system" implicitly required. Hence, inclusion of a requirement of "authenticated access to internal system resources from outside the system" interjects limitations not reasonably connected to any other claim requirement and will likely only cause confusion to a lay jury. Certainly the word "remote" carries with it the connotation that some distance, and perhaps a
considerable distance, may exist between the remote access device and the telephone answering device. Dr. Levine, Klausner's expert, describes that distance as "any distant location" and having "no range limit on access." Levine Decl. P 51. Klausner's proposed language of "from any remote location" adequately describes this limitation.

Finally, Klausner proposes that the term "remote access device" be construed to require that the device "does not require separate data and voice channels to communicate with the telephone answering device." Klausner points to an Amendment dated November 10, 1995, in which the Applicant again distinguished the Jachmann reference. Klausner points to the Applicant's statement that "in the preferred embodiment of Jachmann, two separate data paths are required for retrieving voice messages." Therefore, argues Klausner, the "remote access device" of the claims must not require two separate channels. However, in the November 10, 1995 Amendment, the Applicant went on to acknowledge that a second embodiment shown by Jachmann "arguably uses only a telephone link to convey both voice and data information." See Ex. 7 to Klausner Opening Br., pp. 24-25. But, said the Applicant, in that second embodiment of Jachmann, the user may be restricted in his use of the single telephone link to only certain times of the day. Thus, the Applicant argued that the distinction between the claimed invention and the disclosure of Jachmann lie in the fact that, in the claimed invention, the "first signals are available upon user demand." Id. The prosecution history is insufficient to show that the Applicant surrendered claim scope regarding the number of channels required for transmission of voice and data. See Sorenson v. Int'l Trade Comm'n, 427 F.3d 1375, 1378 (Fed. Cir. 2005) ("in order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution").

For the reasons expressed above, the Court construes the terms "user remote access device" and "remote access device" identically to mean "a device that can gain access to voice messages stored on the telephone answering device from a remote location."

7. "Access information." Used in '768 patent, Claims 1, 3, 5, 7, 9, and 11

The parties agree the terms "activation information," "access information," and "recharge information" are closely related. The parties state that the issue with these three claim terms is whether a single security number must be used to activate, use and recharge a prepaid calling card. "Activation" involves associating a dollar amount with a new card or account. "Access" involves actually using the phone, thus depleting the monetary value stored in the account. "Recharge" involves associating a dollar amount for a card or account which has already been established.

TGIP suggests that "access information" means: "data transferred or received in connection with the attempted use of an account." Defendants propose "information including the security number entered to access the telephone network."

Every independent claim of the '768 patent describes a method by which someone with a pre-paid calling card account uses a telephone to obtain access to a telephone network by transmitting "access information," which is used by the call processor to identify "the particular prepaid calling card account." See '768 patent Reexam Cert, col. 1, 11. 47-53 (Claim 1); '768 patent Reexam Cert, col. 2, 11. 38-44 (Claim 3); '768 patent Reexam Cert, col. 3, 11. 30-36 (Claim 5); '768 patent Reexam Cert, col. 4, 11. 25-27 (Claim 7); '768 patent Reexam Cert, col. 5, 11. 13-18 (Claim 9); '768 patent Reexam Cert, col. 6, 11. 23-26 (Claim 11). None of the independent claims omit this step. The specification describes this process as a user making a call by accessing a phone number to which the host computer is connected. The user enters the "security code," and if the account has a positive balance, the user is prompted to enter the desired phone number. '768 patent, col. 5, 11. 42-55.

TGIP objects to the use of the word "security number," raising the familiar argument that the specification recites but a single embodiment and that limitations of the specification should not be imported into the claims. That does not get around the language of the claims themselves, which require in each case that the "access information" is used by the call processor to identify a "particular," i.e. a single, prepaid calling card account. If a unique set of access information identified more than one calling card account, more than one account would be billed for the same call. See e.g. '768 patent Reexam Cert, col. 1, 11. 54-56 (Claim 1); '768 patent Reexam Cert, col. 2,11. 44-47(Claim 3). Each unique set of access information must identify only one pre-paid calling card account.
Perhaps this access information is given the name "security code" only in the specification. In some cases, as suggested by TGIP's counsel it might be called a "PIN number." It could be called the "password" for the calling card account. The precise name is not important. There is a combination of numerals, letters, and/or characters that can be transmitted from a phone to a call processor. Each such combination is associated with only one ("a particular") pre-paid calling card account. The court defines this term as follows:

"Access information" means "a combination of numerals, letters, and/or characters that can be transmitted from a phone to a call processor, which identifies one, and only one pre-paid calling card account."

The Court agrees with MEI and construes "access information" as "information that specifies a memory access." To access memory, the memory address of the information and the operation to be performed at that location are needed. See '921 Patent col. 11:30-40, Figs. 12 & 13. Samsung's proposed construction--"drawing rules (DR), start/stop bits, and H/V bit"--improperly imports limitations from a preferred embodiment. See Turbocare Div. v. Gen. Elec. Co., 264 F.3d 1111, 1123 (Fed. Cir. 2001) (citing Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988)("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.").

The Court agrees with MEI and construes the phrase as "information defining a specification for an operation mode." As discussed above, Samsung's proposed construction--"drawing rules (DR), start/stop bits, and H/V bits provide further details of the operation mode, as defined in Table II"--improperly imports limitations from a preferred embodiment.

The Court construes the phrase as "information defining a specification for an operation mode, which, together with external control input, defines the specifics of the operation mode." Samsung's proposed construction--"drawing rules (DR), start/stop bits, and H/V bits provide further details of the operation mode, as defined in Table II"--improperly imports limitations from a preferred embodiment.

II. "ACCESS POINT" ('311 patent, Claims 1, 2, 10)

In the July 20 Order, the Court: (a) rejected Broadcom's argument that this term had a customary meaning to persons of skill in the art when the patent application was filed; and (b) rejected Agere's construction as without evidentiary basis. Agere, 2004 WL 1658530, at *20-21, 2004 U.S. Dist. LEXIS 14187, at *71-74. In supplemental briefing, Agere contends that the Court held the term to be incapable of proper construction, and that the claim is therefore invalid for indefiniteness. Agere's argument, however, misconstrues the Court's ruling. The Court did not hold that the term is incapable of construction;
indeed, the invitation of supplemental briefing was premised on the fact that additional evidence might permit the Court to adopt a construction of value to the ultimate trier of fact. Id., 2004 WL 1658530, at *47 n.76, 2004 U.S. Dist. LEXIS 14187, at *167 n.76 ("The parties may file supplemental briefs regarding the construction of this term, including new or revised proposed constructions."). Furthermore, the Court did not hold that Broadcom's construction was incorrect, but rather rejected Broadcom's sole contention that this construction represented the customary meaning of the term in 1991. Id., 2004 WL 1658530, at *20, 2004 U.S. Dist. LEXIS 14187, at *73 ("Broadcom having presented no other evidence showing the existence of a customary meaning, the Court holds that this term had no such meaning in 1991."). Accordingly, the Court clarifies that the July 20 Order did not find the instant term incapable of being construed, and instead examines the arguments and evidence provided on supplemental briefing in pursuit of a proper construction.

Broadcom's construction of "access point" as "an element in a network that provides access to the network infrastructure" is clearly supported by both intrinsic and extrinsic evidence. Most importantly, the claim language itself supports this construction, as all three claims at issue describe the access point at the communicative link between the wireless terminal nodes and the remainder of the network. ('311 patent, col. 19, l. 64-col. 20, l. 5 (describing access point as delivering messages and transmitting beacons from network to wireless node), col. 20, ll. 10-15, 36-41 (same).) In addition, the evidence provided by Broadcom in its initial Markman briefing, while insufficient to establish a customary meaning of the term in 1991, supports Broadcom's position that its construction was, at the least, shared by some persons of skill in the art at that time. (See Broadcom Opening Ex. O at 23 (Ken Biba, A Hybrid Wireless MAC Protocol Supporting Asynchronous and Synchronous MSDU Delivery Services, IEEE 802.11 (Sept. 1991)) (defining access point as "controlling access to the infrastructure").) Finally, the contemporaneous technical evidence provided by Broadcom's supplemental brief further bolsters its construction. (See, e.g., Broadcom Fourth Supplemental Br. Ex.BatAS158286-88 (defining access point as fixed transceiver providing radius of communicative functionality for wireless user devices).) In total, therefore, the Court finds that Broadcom's proposed construction is supported by both the claim language and extrinsic evidence, and it is accordingly adopted.

7. "Access threshold value"

HTC suggests "a numerical value optionally included in access authorization data that is transmitted at periodic intervals for controlling network access. If a mobile phone determines that the numerical value was transmitted, it will directly compare the value with a random/pseudo-random numerical value generated within the mobile phone to determine whether it can gain access rights or must wait until access authorization data are transmitted again." Chart at 5-6. IPCom offers "a value used to determine whether the subscriber station is authorized to access the common telecommunications channel." Id. at 5. Part of HTC's definition states that "[i]f a mobile phone determines that the numerical value was transmitted, it will directly compare the value with a random/pseudo-random numerical value generated within the mobile phone to determine whether it can gain access rights or must wait until access authorization data are transmitted again." There is no need to import this limitation again here. It can be found in the "ascertaining" limitation discussed above. See Section III.B.5 of this Opinion. The Court adopts IPCom's straightforward definition: "access threshold value" is "a value used to determine whether the subscriber station is authorized to access the common telecommunications channel."

Preamble

The parties dispute the construction of the preamble to '939 patent claim, which provides, in relevant part, "selected ones of a plurality of target objects and sets of target objects characteristics that are accessible via an electronic storage media." The parties agree that the inventors explicitly defined one of the main terms in the patent specification. "Target object" is defined as "an object available for access by the user, which may be either physical or electronic in nature." Def. Mem. Ex. 3, Col. 4. The parties dispute, however, whether inclusion of the phrase "accessible via an electronic storage media" places additional limitations on the phrase "target objects" as it is used in claim 1.
According to Amazon, the overall language of the disputed phrase limits the relevant "target objects" to those that are "accessible via an electronic storage media," that is only electronic objects, not physical objects. Amazon further relies upon the specification's discussion of relevant architecture to define the term "sets of target object characteristics" as referring to a "unique file that contains an identifying description of the target object." Def. Mem. at 37 (quoting Ex. 3, Col. 29). Amazon therefore construes the disputed phrase as meaning "selected electronic objects and the characteristics, contained in a unique file, describing the objects, that are accessible via an electronic storage media."

In contrast, Pinpoint's proposed construction emphasizes the express definition of "target objects." According to Pinpoint, the disputed phrase is properly construed as "selected ones of a plurality of physical or electronic objects and/or sets of their characteristics available for access by the user, that are capable of being obtained, used, seen, or known, by means of electronic storage media." Pinpoint's proposed construction finds support in the patent specification, which provides examples of both physical and electronic target objects: "published articles, purchasable goods, or even other people," and distinguishes existing technology in the field of information retrieval as merely allowing users to find textual documents, as opposed to non-textual documents: used cars, products being sold, publicly traded stocks, etc. Def. Mem. Ex. 3, Col. 6, 9. The remainder of Pinpoint's proposed construction comes from a general purpose dictionary, which defines the terms "accessible" and "via," respectively as "capable of being used, seen or known: OBTAINABLE," and "by way of. . . [or] by means of." Pl. Opp. Mem. at 5 (quoting Merriam-Webster Dictionary 23 (1997)).

Amazon's proposed construction lacks merit. If the court construes the phrase "target objects" as limited by the phrase "accessible via an electronic storage media," no '939 patent claim would cover physical target objects. This is because every '939 patent claim contains the limitation "accessible via an electronic storage media." The '939 patent claims must cover physical target objects. Amazon concedes as much. See Def. Reply at 4 ("there is no dispute that the '939 Patent purports to provide a system in which users can locate physical target objects"). Therefore, Amazon's proposed construction is untenable. The plain language and the patent specification provide otherwise. Vitronics, 90 F.3d at 1582. The court construes the disputed phrase in accord with Pinpoint's proposed construction: "selected ones of a plurality of physical or electronic objects and/or sets of their characteristics available for access by the user, that are capable of being obtained, used, seen, or known, by means of electronic storage media."

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1. "Accessing"

Liquidnet proposes that I construe "accessing" to mean "gaining entry to," 64 while ITG/Pulse proposes that I construe it to mean "retrieving." 65 The parties appear to agree that the patented method must perform both of these steps -- i.e., it must first gain entry to the OMS database and then at some point retrieve data from within that database in order to transmit it to an ETM. 66 However, the parties disagree as to which action the term "accessing" refers. While both parties' arguments are meritorious, Liquidnet's construction has the greater evidentiary support.

64 Liquidnet Br. at 12.
65 Opening Brief of ITG and Pulse Concerning Claim Construction ("ITG/Pulse Br.") at 33.
66 See Liquidnet Br. at 13 ("[T]he act of retrieving data must logically be something that takes place after the step of 'accessing' that data."); Responsive Brief of ITG and Pulse ("ITG/Pulse Resp.") at 19 ("ITG and Pulse agree that to retrieve data - in Liquidnet's example email -- one must connect to the database through the use of a computer.").

First, Liquidnet's construction better reflects the ordinary meaning that one skilled in the art would attribute to the term "accessing" when reading it in the context of the specification. In one of the few places that the specification uses the term accessing, it discloses that:
The OIM is in communication with the OMS database and the ETM. An OMS database integration module in the OIM reads data records stored in the OMS database and, in a preferred embodiment, also creates and modifies data records stored in the OMS database upon execution of a trade through the ETM. In one embodiment, the OMS database interaction module directly accesses the OMS database and in another embodiment it sends commands to an application programming interface (API) in the OMS for accessing the database.

Although the specification never defines "accessing," this section uses the terms "accesses" and "accessing" to refer to a mode of "communication" between the OIM and the OMS database wherein the OIM reads and monitors records within the OMS database. Nothing in this section suggests that the records must be retrieved for them to be accessed. Instead, it appears that when the patent applicants used the term "accessing," they contemplated a process in which the OIM would be able to gain entry to the records and read them while they remained within the database.

Second, and relatedly, ITG/Pulse's construction would exclude preferred embodiments described in the specification. According to Patent '834, after a trader logs on to the OMS, the trader's computer "retrieves data records about orders suitable for transmission to the ETM from the OMS database." In one embodiment, "all open orders are suitable for transmission to the ETM," but in other embodiments, only some orders are deemed suitable for transmission. The specification, therefore, discloses embodiments wherein the trader's computer will only retrieve the records of some orders - i.e., those determined to be suitable for transmission. Because the claim describes the patented method as "accessing . . . all records of open orders," construing "accessing" to mean "retrieving" would exclude the preferred embodiments where only some records of open orders are retrieved.
Third, Liquidnet's definition is also supported by extrinsic evidence. Liquidnet has introduced a computer dictionary published by Microsoft in 2002 that defines "access" as "[t]o gain entry to memory in order to read or write data." 72 While courts are cautioned not to rely too heavily on dictionaries, the definition further supports the view that Liquidnet's construction reflects the ordinary meaning of the term "accessing."

Despite this intrinsic and extrinsic evidence, ITG/Pulse objects to defining the term "accessing" to mean "gaining entry to" on the grounds that Liquidnet's construction does not make sense in the syntax of the claim language. The claim describes the patented method as "accessing . . . all records of open orders from a database of an order management system." According to ITG/Pulse, "[c]omputers do not gain entry to records from a database, they retrieve records from a database." 73 While it is true that applying Liquidnet's definition to the term "accessing" results in awkward phrasing, ITG/Pulse is incorrect that Liquidnet's construction is illogical. The preposition "from" may refer to a prepositional object of the transitive verb (e.g., removing a splinter from your skin), but it may also refer to the location of that verb's object (e.g., meeting a man from China). Therefore, "accessing . . . records of open orders from a database of an order management system" can logically be read to mean that the records of the open orders are located in the OMS database without suggesting that they are being removed from that database.

Accordingly, I adopt Liquidnet's construction of the term "accessing" to mean "gaining entry to."
are indefinite...[t]hus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning.").  The court will therefore construe these terms as follows:

"Accessing" means "any suitable form of solely computer-executed data transfer including exchanging data directly between software modules, uploading a data file, or using a common memory, and may utilize a local area network or wide area network such as the Internet to transfer data."

"System for accessing" means "software or any hardware device programmed to access inventory information of multiple stations. A 'system' does not include a human being attempting to perform the task or function manually."

B. Accessing

The term "accessing" was not one of the 29 terms listed in the Joint Claim Chart submitted by Timeline and ProClarity in February 2006. 3 The term "accessing" is used in various contexts in the claims, such as "accessing" data, content of information, and a data source. See, e.g., '511 patent, claim 1; '617 patent, claim 4. As discussed above, Timeline argues that the court should decline to construe the term "accessing." In the alternative, Timeline proposes that the term should be construed to mean: "Obtain access to. Accessing may include actions such as reading, obtaining, viewing, and/or saving." Defendants propose that the term should simply be construed to mean "reading."

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3 However, the term "accessing" already arose in the first round of claim construction, when the court construed the term "obtain . . . information about the data structure . . . [by] accessing content of information." In its proposed construction of that term, ProClarity simply repeated the word "accessing," without seeking to define it further.

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Timeline does not dispute that the term "accessing" may include "reading." However, Timeline maintains that "accessing" is "a term of art that has a broader meaning than simply 'read'" and that Defendants' proposed construction is too narrow. (Dkt. No. 226 at 19).

Timeline argues that Defendants themselves have suggested a broader meaning of "accessing" in other sections of their claim construction briefing. In particular, Timeline points to Defendants' discussion of a "programming means for accessing" at least two different data sources, where Defendants argue that the steps for "accessing" a data source include selecting directories, searching directories, loading general information, and loading data. (Dkt. No. 218 at 19). Timeline notes that "[n]owhere do defendants explain how 'reading' can be reconciled with the position that 'accessing' requires the functions select directories, search directories, load general information, or load data definitions." (Dkt. No. 226 at 21).

Timeline also observes that the specification of the '511 patent uses the word "obtain" as a synonym for "access," noting that the specification states that "[p]referably, the system is flexible in that it is not inherently limited in the data formats it can access, but can be configured to obtain data from virtually any computer-readable information source." '511 patent, Col 3:6-9 (emphasis added). While Defendants focus on the words "computer-readable" in this sentence to suggest that "access" must mean "read," Timeline is correct that this sentence uses "obtain" rather than "read" as a synonym for "access."

Defendants have also offered several contemporaneous definitions of the term "access" from computer dictionaries. As Timeline notes, these dictionary definitions reflect a broader meaning of "accessing" than simply "reading." While Defendants have offered a declaration from an expert who opines that "accessing" as used in the patents is limited to "reading," the court does not regard this extrinsic evidence as compelling.

In sum, the court agrees with Timeline that the term "accessing" as used in the claims has a broader meaning that simply "reading" and that Defendants' proposed construction is too narrow. However, Timeline's proposed construction is also not ideal. Timeline has proposed construing the term to mean "Obtain access to. Accessing may include actions such as reading, obtaining, viewing, and/or saving." Timeline offers little if any explanation as to why "accessing" would include actions
Therefore, the court will adopt a modified version of Timeline's proposed construction. The court construes the term "accessing" to mean "obtaining access to." The court regards this construction as broad enough to include reading, without limiting the term to that particular action.

The core dispute between the parties in relation to the record structure limitations is over the meaning of the term "accessing." The plaintiffs argue that the term "accessing" includes anything a computer can do to a file, such as creating or opening records or storing additional information entered by callers. The defendants argue that the term "accessing" does not encompass deleting a file or creating or initiating a file because a file must exist before it can be "accessed." The defendants point to passages of the specification in which the ideas of updating a file are distinct from creating a cell in memory in the first instance. See Column 12, line 63-65, Column 16, lines 29-32, and Column 17, lines 29-30 of the '707 patent. Thus, they contend that the term "accessing" must mean retrieving a file that already exists.

In Claim 51 of the '309 patent, Katz recites a "record structure, including memory and control means, . . . for updating a file." This indicates to the Court that the use of the word "accessing" in a similar limitation in another claim connotes a different meaning. Further, although Katz describes updating files and assigning cells in memory as different functions in the specification, there is nothing in the specification that indicates that the term "accessing" could not encompass both of those functions.

Webster's Dictionary defines the verb "access" as "to get at, gain access to." Addenda to Webster's 3rd New International Dictionary at 55a (1986). As a noun, the term is defined as "permission, liberty, or ability to enter, approach, communicate with, or pass to and from" or "freedom or ability to obtain or make use of." The Court concludes that the term "accessing" means in the context of the Katz patents: gaining or obtaining the ability to enter or make use of files. The Court further concludes that the term "accessing" in the context of the Katz patents does not delineate or restrict the types of functions that may be performed on the files once they are accessed, such as updating files, creating new files, or deleting files.

Claim 1e

accessing the master data base, performing a compatibility comparison, and selecting each option of the third plurality of options from the first plurality of options as a function of each option's compatibility with the selected choice

The parties disagree on the meaning of the above-stated language. Dell argued that the ordinary meaning of the above-stated language should suffice. Lucent, however, proposed the following: "accessing the master data base to perform a comparison (using the at least one tag indicating compatibility) of each of the first plurality of options and all previously selected choices in order to select for inclusion in the third plurality of options those options that are designed to work with the selected choices without modification, wherein the comparison cannot be performed using relationship tables."

The court concludes that the term should be construed as follows:

"accessing the master data base to perform a compatibility comparison of each of the first plurality of options and all previously selected choices in order to select for inclusion in the third plurality of options those options that are compatible with all previously chosen options. The compatibility comparison must be performed using compatibility tags and cannot be performed using relationship tables."
5. "Account Number Unique to the Consumer," "Consumer Account Number," and "Unique Account Number"

The plaintiff contends that the terms do not need construction. In the alternative, the plaintiff proposes that the terms, except for "unique account number" mean "an identifying number for a consumer account." The defendant argues that all the terms mean "an identifying number that is not shared by any other consumer, and which is additional to, or separate from, any number associated with a credit card or debit card used to pay for a transaction." The disputes are whether the account number can be shared and whether the number can be the same as a credit card account number.

The defendant argues that Social Security numbers can be used as account numbers and, therefore, the number cannot be shared by another customer. The defendant also argues that the account number cannot be a number associated with a credit card because the accumulation of cash value may not be limited to how the product is paid for. See '116 patent, claim 18. 3

Footnotes

3 The defendant also cites to portions of the '090 patent specification.

The defendant attempts to limit the terms to a preferred embodiment. Aside from the term "consumer," which the court has already construed, these terms may be understood according to their plain and ordinary meaning. No further construction is needed.

GO BACK

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(ii) Account Value.

As noted above, Claim 1 speaks of an annuity product "having an account value and a guarantee of lifetime payments." The parties agree with the dictionary definitions of account value and lifetime payments but disagree how these terms apply to Claim 1. Thus, both the Plaintiff and the Defendant note that the account value refers to the economic value or proceeds associated with an annuity contract. However, while the Plaintiff puts a period at the end of that definition, the Defendant goes on to add "[value] that is maintained in the post-annuitization phase." Similarly, while agreeing on what a guarantee of lifetime payments is, the parties diverge on whether the term "payment" should be read as the "payment in the post-annuitization phase." In addition, the Defendant distinguishes payments from withdrawals whereas the Plaintiff treats them the same.

The Plaintiff vigorously objects to defining the account value only to apply to the post-annuitization phase. It claims that the invention seamlessly combines the pre- and post-annuitization phases and any reference to the annuitization contradicts the express language of the Claim, which did not include the word annuitization. At the same time, the Plaintiff "acknowledges that an 'annuitization' concept is expressly built into the guarantee of lifetime income benefits from the preamble of claim 1." (Pl. Supp. Br. at 8; DE 63-1.) For this reason, the Plaintiff believes that "adding the words 'annuitization' or 'post-annuitization' into claim 1 renders existing claim limitation superfluous or redundant." (Id.)

As used in the '815 Patent, the account value and the guarantee of lifetime payments are intricately related. After all, the existence of these two concepts alongside each other is the essence of the invention. However, the Plaintiff's initial application for the patent in 2001 did not reflect this idea clearly. In that application, the first sentence of the Claim had no reference to the account value: "What is claimed: A data processing method for administering an annuity product having a guarantee of lifetime payments." (Pf. Ex. C, LIN 00074; DE 36.) The account value was not mentioned until step (e):

"periodically paying the subsequent payment and reporting the account value to the beneficiary." (Id.) The examiner turned down that application for obvious reasons in light of previous art in Hagan and Schirripa. He explained:

Schirripa discloses a data processing method for administering an annuity product having a guarantee lifetime payments (col 6, lines 5-45). There is established a charge for the guarantee of lifetime payments (col 9, lines 1-6). An initial benefit payment and subsequent periodic benefit payments are determined (col 5, lines 5-15). An initial payment to beneficiary is made, periodically paying the subsequent payment and reporting the account value to the beneficiary (col 10, lines 20-50). . . . Subsequent periodic payments are re-determined in the event of a partial withdrawal or additional deposit (col 9,
Schirripa does not explicitly disclose periodically determining an account value.

Hagan (828) discloses periodically determining an account value for annuities (col 3, lines 11-19).

It would have been obvious to one with ordinary skill in the art to include periodically determining an account value for annuities to Schirripa because of what is taught by Hagan (828). Hagan (828) teaches periodic determination of balances for insurance purposes (col 2, lines 30-37).

(Df. Ex. C, TFLIC-RFP55-00093-94; DE 38-4.)

In its response to the examiner, along with other changes, the Plaintiff amended the first sentence of Claim 1 to explicitly state that it claimed a "data processing method for administering an annuity product having an account value and a guarantee of lifetime payments." In addition, the Plaintiff submitted a brief in which it distinguished Schirripa and Hagen from its invention:

In a deferred annuity, an account value is maintained up to the point of annuitization. Following annuitization, the concept of an account value ceases to exist. Payments are made to the annuitant pursuant to the annuity contract. The account value which existed prior to annuitization is exchanged by the annuitant for the stream of payments to be received after annuitization. Thus, the account value is neither periodically determined nor periodically reported to the annuitant. In an immediate annuity, this same process occurs at the time of purchase, where the "account value" equals the purchase price of the annuity, less customary charges and expenses.

In contrast, the present invention (which is applicable in the case of both immediate and deferred annuities) maintains the concept of an account value after annuitization, and bases certain of its features and benefits on the account value in the post-annuitization period. Neither Hagen nor Schirripa disclose such methodology.

The present invention provides a method in which account values, and attendant benefits, can be provided in the post-annuitization period. This method includes establishing a charge associated with the guarantee of lifetime payments, and deducting the charge in a variety of ways to render affordable and practical that which has previously been neither.

(Pf. Ex. C, LIN 208, 210; DE 36.)

The examiner approved the amended application and issued the '815 Patent. In his approval, the examiner concluded that prior art "made of record discloses 'post-annuitization' but does not disclose the invention as claimed in independent claim 1." (Df. Ex. E, TFLIC-RFP55-151; DE 38-6.)

The above examples demonstrate that the novelty of the Plaintiff's invention concerning the account value is limited to the distribution, or post-annuitization, phase of the annuity contracts. The Plaintiff did not invent the concept of account value. At the time of the Plaintiff's patent application, the account value was an established tool in administering annuities. However, as the Plaintiff explained to the examiner, this principle existed only in the deferral, or accumulation, phase of the annuity, and ceased once the disbursements began.

In fact the examiner rejected the Plaintiff's application, believing that it contained the same principle of the account value as previous art, that is, the account value in the pre-annuitization phase of the annuity. The Plaintiff overcame this rejection by clarifying that the account value in the '815 Patent was different from previous art, Schirripa and Hagen in particular, because it was not limited to the deferral phase of the annuity but carried on to the post-annuitization phase. Thus, the essence of the invention, as claimed by the Plaintiff, was the annuity with the account value in the distribution, or post-annuitization, phase of the annuity.

Having made clear to the examiner that its invention was the existence of the account value in the post-annuitization phase of the annuity, whereas previous art maintained the same only during the pre-annuitization phase, the Plaintiff is precluded from claiming that no limitations should be imposed on that term. The Plaintiff's argument to the examiner and the
specification make an explicit record of disavowing the application of the account value to the pre-annuitization phase, a concept already covered by Schirripa and Hagen. This is not a case of ambiguous prosecution history that could be interpreted numerous ways. Rather, taken together, the Plaintiff's file informs a person of ordinary skill in the art that the Plaintiff's claim is narrower than it now claims it to be. Therefore, the Court construes the term "account value" to mean the monetary value that is maintained in the post-annuitization phase.

The Plaintiff complains that such interpretation is unwarranted because the meaning of the word "annuitization" is uncertain. That is not true. The Plaintiff itself has consistently acknowledged that its invention has an annuitization concept expressly built into the guarantee of lifetime benefits. (Pl. Supp. Br. at 8; DE 63-1.) Moreover, the Plaintiff has asserted numerous times to the examiner that its invention was novel because it maintained the account value of the annuity contract in the post-annuitization, that is the distribution, phase. Accordingly, the Court understands the annuitization to mean the point when the annuitant starts to receive regularly scheduled payments from the annuity. This meaning is consistent with both the Plaintiff's own and the general usage of that term.

The Plaintiff also insists that narrowing the term "account value" to post-annuitization phase makes the term "a guarantee of lifetime payments" superfluous, as "lifetime payments" are by definition limited to post-annuitization phase. Such is not the case. The term "account value" does not qualify the term "a guarantee of lifetime payments." These terms are independent of each other and defining the first one to apply only in the post-annuitization phase does not render the second one superfluous. In fact, the use of the two terms side-by-side, one of which by definition is limited to the post-annuitization phase, is consistent with the Court's interpretation that the account value is also limited to the post-annuitization phase.

D. "Accounting Data" ('850 Patent)

Every independent claim (claims 1, 18, and 21) of the '850 patent contains the term "accounting data." The independent claims each describe a method or system for "monitor[ing] interactions between a personal information provider and an end user of personal information via an intermediary computer to determine revenue derived from the interactions." One step in this process is "updating accounting data associated with the intermediary computer based on the serviced request." CashEdge seeks to limit this phrase as meaning "in response to the serviced request, a processor increments a count for each serviced request or for each new user or increments a commission total for the purpose of determining revenue," claiming that the specification indicates that the manner in which accounting data may be updated is limited to these three ways. '850 patent col. 3, lines 23-25. Yodlee advances constructions only for the terms "intermediary computer" and "accounting data," asserting that no further construction of this phrase is needed.

The specification includes a "summary of the invention" which states that the host computer "may update the accounting data in a variety of ways." It then lists the three methods of counting users, counting transactions, and determining a commission when the request is to perform a transaction, and also states that any combination of these three methods may be used. See id. CashEdge's construction impermissibly excludes this combination method, which is also described in the preferred embodiment. See id. at col. 3, lines 23-25; id. at col. 14, lines 36-38; Sandisk Corp. v. Memorex Prods., 415 F.3d 1278, 1285 (Fed. Cir. 2005). CashEdge's approach is also impermissible since it seeks to re-write an entire section of Claim 1. See K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1364 (Fed. Cir. 1999). As proposed by Yodlee, focus on the terms "accounting data" and "intermediary computer" is more appropriate; construing "accounting data" to include only the three methods described above is in any case the chief concern of CashEdge's proposed construction.

Yodlee proposes that "accounting data" should be construed to mean "data associated with the amount of and/or nature of user interaction." This definition is too broad; while the "Summary of Invention" states that the accounting data may be updated in a "variety" of ways, the language describing those ways indicates that the three outlined methods plus any combination of them are all that is in included in this "variety." The summary language reads as follows:

"The host computer processor may update the accounting data in a variety of ways. First, the host computer may increment a user count for each new user of the intermediary computer over a selected period of time. Next, the host computer processor may count the interactions performed through the intermediary computer. Third, the host computer processor may, where the service request is a request to perform a transaction, increment a commission total an amount based on the"
serviced request. Finally, the host computer processor may use any combination of these ways to update the accounting data associated with the intermediary computer.

Through its use of the terms "first," "next," "third," and "finally," this listing indicates that it is exclusive. Therefore, the Court construes "accounting data" to mean "any combination of data associated with the number of users, number of interactions, and, for service requests to perform transactions, the commissions based on such transactions."

2. "Accounting data"

The second term from the Claims Involving Products Carrying Participation Numbers that the parties have presented to the Court for construction is "accounting data." This term appears in Claim 44 of the '707 patent, which includes the step of "providing on-going accounting data to said individual callers at intervals during calls from said individual callers."

The plaintiffs argue that "accounting data" should be construed according to its ordinary, common meaning, which is information relating to a reckoning or a computation. (Pls.' App. 83-84). The defendants argue that "accounting data" means callers' scores in the television game show format because that is the only format in the specifications in which Katz discusses accounting data.

The claim language does not support the construction proposed by the defendants. Nothing in Claim 44 indicates that "accounting data" should be limited to only callers' scores in a television game show format. In addition, Claim 45 of the '707, which is dependent on claim 44, provides for the step of "accounting for said limits on use for said participation numbers for said individual callers by incrementing or decrementing on-line said cumulative use for said individual callers to said limits on use." In this claim, the concept of accounting connotes keeping a record of the usage of the Katz system according to set limits on use associated with a caller's participation number; the language of this claim in no way limits the concept of accounting to scores in a game show.

The defendants contend that Column 16, lines 44-53 of the '707 patent is the only place that Katz describes "accounting data." In that passage of the specification, Katz discusses a television game show format and states that:

However, in Column 17, lines 44 through 48 of the '707 patent, the specifications reads "the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any." Contrary to the defendants assertion, Katz discusses accounting in this passage of the specification in a context other than a television game show format. This passage of the specification is consistent with the language of Claim 45, which adds the step of "accounting for said limits on use for said participation numbers," and indicates that "accounting data" may relate to the limits on use specified in the participation numbers or consumable key numbers, and not only callers' scores in a game show. Further, even if the only example of "accounting data" in the specification were in the television game show context, the Court finds no reason in the claim language to restrict the term to a disclosed embodiment in the specification. See Johnson Worldwide, 1999 WL 243570 at *4.

The defendants argue that the prosecution history of the '707 patent supports their construction of "accounting data." In a Supplemental Amendment dated December 28, 1994 during the prosecution of the '707 patent, Katz added Claim 53, which eventually became Claim 37 (upon which Claim 44 depends). In his remarks, Katz stated that "support for the 'accounting' distinction may be found, for example, at page 34, lines 11-21 of the present specification," which corresponds to the passage in the specifications upon which the defendants rely. The Court concludes that this statement by Katz in no way limits the term "accounting data" to only callers' scores during a television game show format, as evidenced by his use of
the phrase "for example."

The claim language and the specification makes it clear that a caller's score in a television game show format is accounting data, but it only one example of accounting data, not the term's definition. Based on the foregoing, the Court construes the term "accounting data" in accordance with its ordinary, common meaning to mean: information relating to a computation of data.

3. "Accumulating" (claim 1)

The parties agree that the ordinary meaning of "accumulating" is gathering or amassing. The parties disagree as to whether "accumulating" refers to gathering or amassing more than one thing. TriPath argues that it can include only one thing, while Cytyc contends that it requires more than one.

The claims and the specification offer few clues as to the correct construction. "Accumulating" appears only once in the entire patent, and that is in claim 1(d). However, there is sufficient intrinsic evidence to suggest that "accumulating" should be construed as gathering one or more things.

The preamble of claim 1 and the specification support the broader definition of "accumulating." Read together, the preamble and claim 1(d) provide: "[a] method of determining whether a slide processing system has suitably processed a biological specimen slide comprising the steps of . . . (d) accumulating scan processing error flags." 327 patent at col. 8, 11. 38-40. n11 Accumulating error flags is part of the process for determining whether the system properly processed a slide.

Cytyc argues that the object of the word "accumulating" is the plural term "error flags." This weighs in favor of gathering more than one thing. Cytyc also notes that claims 1(b) and (c) use the term "at least one" to refer to machine processing effectiveness parameters. If the patentee intended "accumulating" to include just one error flag, claim 1(d) could have read "accumulating at least one scan processing error flag."

Although persuasive in the abstract, these arguments do not make sense in the context of the preamble and the specification. In other words, the narrower construction does not "naturally align" with the patent's description of the invention. See Phillips, 415 F.3d at 1316 (quoting Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). "Ultimately, the interpretation to be given to a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim." Id. Here, the invention gathers error flags, however few there may be, to indicate whether a slide is suitable for processing. Thus, "accumulating" may encompass one or more error flags.

n11 As discussed earlier, the claims are not independent of the preamble.

n12 This construction comports with the understanding of a person skilled in the art. TriPath's expert witness, Dr. Peter Bartels, testified that "accumulating" could mean gathering only one thing. Cytyc/Callahan Decl. Ex. 76 (Deposition of Dr.
Peter Bartels at 209). He explained that if one starts with nothing and adds one thing, this is "accumulating." Id. at 210. He noted that accumulating just one thing is an "extreme case of the definition" and may not be the common meaning, but it is how a mathematician would understand it. Id. From this testimony, Cytyc argues that defining accumulating as gathering just one thing is an extreme, and therefore, incorrect construction. However, the benchmark for claim construction is not the understanding of a layperson, but that of "a person of ordinary skill in the art in question at the time of the invention." Phillips, 415 F.3d at 1313.

6. "Accumulating"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "increasing in number or quantity." The defendant proposes "increasing gradually in quantity or number." The dispute is whether "accumulating" must be done "gradually."

Although the defendant cites to a dictionary in support of its proposed construction, the court concludes that in the context of this patent, the term "accumulate" means "to increase in quantity or number." The court, therefore, adopts the plaintiff's construction.

- "accumulating a count of bytes of data" is construed to mean "maintaining a count of bytes of data." Lucent contends that this term, coupled with the phrase "arriving at a node per interval" means "maintaining a count of bytes that have arrived at a node over a period of time." (D.I. 396 at 6.) Defendants contend that this term should be construed to mean "maintaining an increasing count of bytes." (D.I. 395 at 15; D.I. 385 at 12.) In support of their contention, Defendants point to places in the specification where the COUNT parameter is first set to zero ('810 patent at 6:49-51) and then incremented (Id. at 7:12-15).

The Court finds that both of these references are found in a preferred embodiment of the invention and ignore the fact that the value of COUNT is also decremented. See id. at 7:22-29. After reviewing the claim language and the specification, the Court concludes that there is nothing in the claim language or specification suggesting that an increasing count must be maintained. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the patent's specification.

- "accumulating a count of bytes of data arriving at a node per interval" is construed to mean maintaining a count of bytes that have arrived at a node over a period of time. Newbridge contends that this term should be limited to a count that maintains the total number of bytes arriving at a node. After reviewing the claim language and the specification, the Court concludes that there is nothing in the claim language or specification suggesting that a total count must be maintained. Rather, the claim language uses the article "a" before the word "count," suggesting that the count is not limited to a total number, but is kept open. In addition, the specification explains that the count is used to compare the traffic from a particular user's bandwidth against the user's subscribed bandwidth to determine whether the user is exceeding his or her subscription. (810 Patent, col. 5, ll. 36-53, col. 6, ll. 10-20). To this effect, the count does not even accumulate all the bytes of data arriving at the node. Indeed, the count does not accumulate the bytes of data arriving in marked packets, because these packets are outside the traffic contract. (810 Patent, col. 8, ll. 16-18). Thus, the bytes of data accumulated by the count described in step (a) of Claim 12 are akin to a subset of the data arriving at any given node, and not a total count. Accordingly, in the Court's view, its construction is consistent with the plain language of the claim and the Patent's specification.
Accumulating the payments until a predetermined amount is reached

Plaintiff asserts that the phrase "accumulating the payments until a predetermined amount is reached" should be construed as "holding a payment or payments until a predetermined monetary amount is reached." Defendants agree with the ending of Plaintiff's proposed construction "... until a predetermined monetary amount is reached." However, Defendants assert that the construction should start with "accumulating the payments ..." rather than "holding a payment or payments..." as proposed by Plaintiff.

The claim term itself expressly uses "payments" in the plural. This requires that there must be more than one payment, and that more than one payment, i.e., at least two payments, have to be accumulated. Thus, Defendants are correct that more than a single payment must be held, and the Court construes the phrase "accumulating the payments until a predetermined amount is reached" as "accumulating the payments until a predetermined monetary amount is reached."

14. "Accumulator"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "a system, device or program that performs the operation of accumulating." The defendant proposes "a register used for logic or arithmetic to accumulate a sum."

The defendant cites to the Microsoft Computer Dictionary in support of its proposed construction. The plaintiff disputes the propriety of the "register" limitation.

Claim 31, in relevant part, states "an accumulator associated with the computer, coupled to the memory and to the processor, and structures to . . . ." An "accumulator," therefore, is not a program, but is a device that can be coupled to the memory and to the processor. The court construes the term to mean "a device that performs the operation of accumulating."
value in a register which may be modified depending upon arithmetic operations.

In the '442 Patent, the inventors use the word "accumulator" to refer both to a register and a value in a register:

(2c) step (d)(i) is thereafter performed as follows:

(i) if said symbol is of said first type, said step of multiplying said value in said accumulator by said positive integer power of said digital quantity includes multiplying said accumulator value by itself, where said accumulator contains a positive integer power of said digital quantity . . .

('442 Patent, Col. 11:51-57.) In the above excerpt from Claim 2, the word "accumulator" refers to an apparatus, i.e., a register, and the phrase "accumulator value" refers to a value in the apparatus.

In the written description of the '442 Patent, the inventors use the phrases "accumulator R" and "the accumulator steps:"

Here, y_{sub.13} denotes bit i of y such that y_{sub.-- 0} is the least significant bit and y_{(k-1)} is the most significant bit. In standard exponent encoding conventions, a "0" bit specifies a squaring (i.e., multiplication of accumulator R by itself) while a "1" bit specifies squaring followed by a multiplication (of accumulator R by base x).

* * *

In this case, the accumulator steps updating R in the modular exponentiation loop would perform two squaring (mod n) operations, followed by a multiplication (mod n) with one of the table values: x 0 for a "00" bit pair (or "0" in base 4); x 1 for a "01" bit pair (or "1" in base 4); x 2 for a "10" bit pair (or "2" in base 4); and x 3 for a "11" bit pair (or "3" in base 4).

* * *

It will also be understood by one skilled in the art that various combinations of the variations discussed here can be used in connection with the invention. For example and without limitation, the operation-based encoding schemes may be combined with the bit windowing techniques using k-ary modular exponentiation where each nonzero exponent digit could represent a power of x, while zero digits could represent squaring operations. For example, as stated above, a "1" digit denotes simple multiplication of the result accumulator by the value x (i.e., by exponentiation of x to the power 1). Similarly, a "2" digit (if used) denotes multiplication x 2 mod n, and so forth. In one embodiment of the invention, a table of pointers may be employed to indicate the value of the bit. For example, the first entry (offset zero) could be a pointer to the result accumulator R (for squaring operations), the entry at offset 1 could point to x (i.e., x_1), the entry at offset 2 (if used) could point to the precomputed value x 2 mod n, and the entry at offset 3 (if used) could point to the precomputed value x 3 mod n. The powers of x may be precomputed at the beginning of the modular exponentiation operation; even so, the performance benefit obtained by reducing the number of multiplication operations during the modular exponentiation generally more than compensates for the precomputation time. Note that x 0 (equivalent to multiplication by 1) is not used; all steps involve multiplication with a number larger than 1 because "0" digits in the encoding represent multiplication by R.

('442 Patent, Col. 4:26-32; 51-56; Col. 7:64-8:23.) One of ordinary skill would understand the phrase "accumulator R" to refer to a value. The phrase "the accumulator steps" refers to operations on a value.

The Court declines to adopt the parties' stipulation defining "accumulator" as a "memory location." Although a register may be a memory location; a memory location is not a register. 2 In addition, the Court declines to adopt the parties' stipulated definition, "variable." A "variable" is commonly understood to be a value which can change as a program executes. See Microsoft Computer Dictionary, 547 (5th ed. 2002). Thus, while an "accumulator value" might be a variable, an "accumulator" is not a variable.

--- Footnotes ---

2 To define "accumulator" as a "memory location" might cause confusion with other devices such as "random access memory," or "memory cell," or "memory address," all of which might be called a "memory location."

--- End Footnotes ---

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The Court construes the word "accumulator," as it is used in the phrase, "loading an accumulator with a positive integer power of said digital quantity," as follows: a register used in arithmetic operations.

1. "means under control of the accumulator . . . including . . . vend selection means" (1[b])

(i) Claim Construction

Mars has asked the Court to construe the claim term "accumulator" as a term in means-plus-function format, which would require looking to the specification for a description of the accumulator's structure. According to 35 U.S.C. § 112, paragraph 6, a claim element "may be expressed as a means . . . for performing a specified function without the recital of structure." Where a claim describes a means for a function without stating the structure associated with the means, "such claim shall be construed to cover the corresponding structure . . . in the specification . . . ." Id. This allows a patentee to draft a claim using generic language describing the means to perform a particular function, "provided that [the patentee] discloses specific structure(s) corresponding to that means in the patent specification." Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1360 (Fed. Cir. 2000); Mass. Inst. of Tech. & Elecs. for Imaging, Inc. v. Abacus Software, 462 F.3d 1344, 1361 (Fed. Cir. 2006); Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1307-08 (Fed. Cir. 1998) ("the 'means' term in a means-plus-function limitation is essentially a generic reference for the corresponding structure disclosed in the specification."). Without a disclosure of adequate structure in the specification, the claim must be rendered invalid as indefinite. Mass. Inst., 462 F.3d at 1361; Kemco, 208 F.3d at 1360-61.

(a) Use of the word "means" triggers the presumption of a means-plus-function analysis of the term "accumulator" in claim 1

Generally, "[t]he use of the word 'means' 'triggers a presumption that the inventor used this term advisedly to invoke the statutory mandate for means-plus-function clauses." Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1347 (Fed. Cir. 2002) (citation omitted); see also Kemco, 208 F.3d at 1361 ("Use of the term 'means' in a claim limitation creates a presumption that 35 U.S.C. section 112, paragraph 6 has been invoked . . . "). A party may rebut this presumption either by (1) showing that the claim element describing "means" does not recite a function corresponding to the means, or (2) by finding sufficient structure within the claim for performing the function. Allen, 299 F.3d, 1347; Kemco, 208 F.3d at 1361.

(1) The claim term "accumulator" in claim 1 does recite a function

Determination of function for a means-plus-function element is a claim construction issue decided as a matter of law. Chiuminatta, 145 F.3d at 1308. In this case, the "accumulator means" and "means to accumulate" of claim 1 recite the function of accumulating "the amount of credit entered in the coin unit during each vending operation," and then producing an output "whenever an amount accumulated at least equals the amount of a selected vend price." '903 Patent col. 8, lines 26-30. n14

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n14 The specification supports this interpretation of the accumulator's function of price comparison, explaining that "the output of the accumulator 56 on lead 65" is one of the inputs required to create a vend condition. '903 Patent col. 3, lines 60-63. See generally Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005).

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(2) The language of claim 1 does not give a structure for the claim term "accumulator"

Because the function of the accumulator means is well expressed within the claim language, the remaining issue for a determination of whether or not the accumulator means should be construed according to section 112, paragraph 6, is whether these means also recite sufficient definite structure within the language of the claims themselves for producing
these functions. Determination of this structure is also a matter of claim construction. Id.

Coinco points to Cole v. Kimberly-Clark Corp., 102 F.3d 524 (Fed. Cir. 1996), as one example of a case where a court held that a claim element describing a "means" itself recited sufficient structure for performing the stated function. Cole discussed a patent with a claim employing "perforation means . . . for tearing." Id. at 531. Because the accused infringing product did not possess true perforations but instead used bonded seams capable of tearing, the plaintiff in Cole desired to have "perforation means" construed by the court as a means-plus-function element in order to claim infringement via additional embodiments described in the patent's specification. Id. The Federal Circuit rejected the plaintiff's arguments because the claim element recited the structure of perforations to perform the tearing function. Id. at 531. In addition, the claim detailed the location and extent of these perforations. Id. Thus, Cole held that the defendant had shown sufficient definite structure to rebut the presumption of applying 35 U.S.C. § 112, paragraph 6 to "perforation means." n15

n15 Cole also held that the "perforation means" could not apply to stitched seams because of estoppel arising from the prosecution history of the patent. Cole, 102 F.3d at 531-32.

Just as Cole held that a claim with "perforation means" recites sufficient structure so as to avoid the means-plus-function presumption, Coinco asks the Court to also hold that "accumulator means" and "means to accumulate" within the claims of the '903 Patent recite sufficient definite structure to avoid the presumption. Besides the word "accumulator" itself, the only structural descriptions of an accumulator within claim 1 of the patent are that the accumulator has an input and an output, both of which fit within the invention's general structure. The claim language gives no guidance for how the accumulator should keep a record of total money deposited, and how it should compare that total to the "selected vend price." '903 Patent col. 8, lines 20-54. This contrasts with Cole, where the claim language specified the means to perform the tearing function with a detailed structure which included perforations extending from the leg band to the waist band and through an outer impermeable layer. Cole, 102 F.3d at 531. Unlike the "perforations" in Cole, the word "accumulator" by itself describes a function with no associated structure. n16

n16 As in Allen and Cole, the drafter of the '903 patent "was clearly enamored of the word 'means.'" Cole, 102 F.3d at 531; Allen, 299 F.3d at 1348. Although this drafting style may provide some evidence to rebut the presumption created by the presence or absence of the word "means," the most important evidence for or against a finding of a means-plus-function limitation comes from the presence or absence of sufficient definite structure in the claim language.

Where Mars has specifically alleged -- as with the term "accumulator means" -- that a particular use of the word "means" requires an examination into whether function and structure exist, the Court has engaged in a full claim construction analysis. However, in light of Allen and Cole's holding regarding patent drafters enamored of the word "means," the Court declines Mars' invitation to do a full means-plus-function analysis of every other use of the word "means" within the '903 Patent, and gives Coinco the benefit of the doubt regarding those "means" terms not specifically discussed in this Opinion. Without more specific allegations relating to claim construction or invalidity as to all other "means" terms within the '903 Patent, the Court cannot appropriately engage in this analysis.

Further evidence that claim 1(b) does not recite a definite structure for the accumulator comes from the trial testimony of Mr. Upchurch regarding infringement. During his testimony, Mr. Upchurch attempted to use the language of claim 1 to show structural similarity with the inputs and outputs of the U1 microprocessor on Mars' control board. (Tr. vol. 30, 97-99.) However, when he compared the accumulation activity described in claim 1 with the U1 microprocessor, Mr Upchurch's testimony referred only to the function of accumulation within the patent, and did not discuss any supporting structure within the claim language itself which allowed the accumulation to take place. (Tr. vol. 30, 99-100.) The Court would have expected Mr. Upchurch to make some comparison to the structure of the accumulator using the language of claim 1, if such a structure existed within the language of the claim. Because Mr. Upchurch, Coinco's expert witness on infringement, did
not even attempt to reference the language of claim 1 to find a structure for the accumulator, the Court is further persuaded that no such structure exists within the language of the claim itself.

"What is important is not simply that a [term] is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art." Greenberg v. Ethicon Endo-Surgery, 91 F.3d 1580, 1583 (Fed. Cir. 1996); see also Watts v. XL Sys., 232 F.3d 877, 880 (Fed. Cir. 2000). Coinco has not convinced the Court that the general term "accumulator" on its own describes sufficient structure for an individual skilled in the art to understand the claim. There was no testimony from Coinco relating the level of ordinary skill to the knowledge required to understand the structure of an accumulator. During his testimony, Mr. Upchurch discussed U.S. Patent No. 3,687,255, which the '903 Patent's specification described as containing an accumulator that could be used in one embodiment of the '903 Patent. (Tr. vol. 34, 138-41.) In the '255 patent, element 14 is labeled "Forward Back Accumulator." '255 Patent Fig.1. Although the '255 Patent appears to refer to this element alone as the accumulator, Mr. Upchurch testified that the accumulator means in claim 1 of the '903 Patent included more than just the Forward Back Accumulator element. (Tr. vol. 34, 138-39.) Because the '903 Patent and the '255 Patent use the word "accumulator" to refer to different types of structures with different purposes, the court must conclude that individuals with ordinary skill in the art at the time of the invention would differ in their understanding of the structure that an "accumulator" requires.

n17 Reference to other patents does more harm than good to Coinco's case because there is little consistency between the structures of the elements marked as accumulators within the various patents submitted as evidence to the Court. For example, the Court notes that the Forward Back Accumulator element 14 in the '255 patent does not perform price comparison, and that any individual skilled in the art would likely realize the necessity of additional elements. Price comparison in the '255 Patent is performed by Price Control elements 28 and 30, which operate based upon outputs from the Forward Back Accumulator. However, the claim language of the '903 Patent uses only the word "accumulator." Many of the patents described as containing accumulators within the '903 Patent's specification appear to separate accumulation and price comparison into different elements. In light of this distinction and the testimony of both Mr. Upchurch and Dr. Morley that the element labeled "Forward Back Accumulator" in the '255 Patent would not satisfy the accumulator described in the '903 Patent, the court cannot find that the word "accumulator" on its own recites sufficient structure so that a person of ordinary skill in the art would understand the structure without further description. (See Tr. vol. 34, 51-58, 104, 115.) There is no basis in the evidence for Coinco's broad assertion that "to someone skilled in the art an 'accumulator means' represents any electromechanical device or electronic circuit . . . ." (Coin Acceptors, Inc.'s Supplemental Memorandum of Law Regarding Coinco Patent Issues ("Coinco's Supp."), at 10.)

The Court reaches this conclusion -- that the word "accumulator" does not have a well defined structure -- in contrast to a recent case which construed the word "scanner" as containing limitations even though "the specification [did] not define the term 'scanner' either explicitly or implicitly." Mass. Inst., 462 F.3d at 1351. The Mass. Inst. court did not construe "scanner" as a means-plus-function term, as the Court does for the word "accumulator." Additionally, Coinco has not convinced the Court that an individual of ordinary skill in the art would have understood the meaning of "accumulator" in light of the claims and the specification of the '903 Patent.

(b) The term "accumulator" in claim 11 is also a means-plus-function term despite lack of the word "means"

The accumulator described in claim 11 also satisfies the requirements for a means-plus-function element. Although the language of claim 11 does not use the word "means" in reference to the accumulator, the requirements of 35 U.S.C. § 112, paragraph 6 still apply. "[A]bsence of the word 'means' creates a presumption that 35 U.S.C. section 112, paragraph 6 has not been invoked," but this presumption may be rebutted if the claim limitation is determined not to recite sufficiently definite structure to perform the claimed function. Kemco, 208 F.3d at 1361. Generally, "the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims." Fin Control Sys. Pty. Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). The accumulator described in claim 11 is quite similar to the accumulator described in claim 1. n18 Just as in claim 1, the accumulator must have an input "responsive to outputs produced . . . when coins are deposited to accumulate the value thereof," and must also be capable of "producing an accumulator output signal whenever
the amount accumulated therein at least equals the price of a selected vend." '903 Patent col. 9, line 44 - col. 10, line 14. Because claim 11 also does not recite any structure to perform these functions, the term "accumulator" in claim 11 must also be construed as a means-plus-function element. n19

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n18 There is no suggestion made that the '903 Patent intended to use the word "accumulator" differently in claims 1 and 11.

n19 The accumulator in claim 11 must also include "means to control the refunding of amounts deposited in excess of the vend price of a selected product." This requirement adds another function to the accumulator without a defined structure within the claim. The specification gives a limited structural description of how this should take place. '903 Patent Fig.1; col. 4, lines 51-54; col. 5, lines 17-22; col. 7, lines 44-53.

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(C) The specification of the '903 Patent provides a structure for the term "accumulator"

"After a court establishes that a means-plus-function limitation is at issue, it must then construe the function recited in that claim and determine what structures have been disclosed in the specification that correspond to the means for performing that function." Kemco, 208 F.3d at 1361; Chiuminatta, 145 F.3d at 1308. The "accumulator means" limitation must be "defined by the corresponding structure, material, or acts described in the patent specification, or their equivalents . . . ." WMS Gaming, 184 F.3d at 1348. Figure 1 of the patent describes a single-price embodiment where all products to be vended share the same price. The specification describes the accumulator's structure in the single-price embodiment as follows:


'903 Patent col. 3, lines 17-23. In addition, the specification states that

[t]he accumulator-change maker circuit 56 can have many different forms as stated and should be able to accumulate amounts deposited or otherwise entered and should be able to make change for deposits in excess of a selected vend price. The form of circuit selected for the circuit 56 is not part of this invention. n20

'903 Patent col. 4, lines 22-27.

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n20 Although the text of the specification indicates that the accumulator element itself adds nothing new to the art of vending machine circuits, the accumulator element is a required portion of any circuit based upon claims 1 and 11.

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Figure 6 describes a dual-price embodiment where each product in the vending machine may have one of two prices. The accumulator in this embodiment is a "dual changer or accumulator circuit" which "may be similar to that shown in Johnson U.S. Pat. No. 3,687,255 and which has one of its inputs connected to a cash or credit acceptor circuit 152." '903 Patent col. 6, lines 59-62. The two different price lines in this dual-price embodiment each have their own selection monitor, and each of those selection monitors has a separate connection to the dual changer or accumulator element. Figure 6 also shows two separate outputs from the dual changer or accumulator, each of which connects to an OR gate connected to the escrow element and also back to the product selection switches, which appear intended to provide the high-power current. '903 Patent col. 6, line 59 - col. 7, line 39.

An examination of the accumulator means requires the Court to decide how broadly to interpret the structures and patents given as examples for an "accumulator" within the specification. "When multiple embodiments in the specification
correspond to the claimed function, proper application of § 112, paragraph 6 generally reads the claim element to embrace each of those embodiments." Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999); see also Versa Corp. v. Ag-Bag Int'l Ltd., 392 F.3d 1325, 1329 (Fed. Cir. 2004). For the single-price embodiment, the specification reveals certain patents as providing the structure for the accumulator means. The specification also advises that the accumulator "is not part of this invention," and that it "can have many different forms." Similarly, the specification broadens the structure of the dual-price (or multi-price) embodiment beyond the '255 Patent by including language that the structure "may be similar" to the accumulator in the '255 Patent. However, "[w]hile the use of means-plus-function language in a claim is clearly permissible by reason of section 112(6), a means clause does not cover every means for performing the specified function." Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536 (Fed. Cir. 1991) (emphasis in original); see also NOMOS Corp. v. BrainLAB USA, Inc., 357 F.3d 1364, 1368 (Fed. Cir. 2004). A court should not define the structure to include any possible means for performing the designated function, even where the specification lacks disclosure of the structure. WMS Gaming Inc. v. Int'l Game Tech., 184 F.3d at 1348 (refusing to apply a broad definition of structure to "means for assigning" even where the patent was "almost completely devoid of any structure to support this limitation of the claim); see also Source Search Techs., LLC v. Lending Tree, LLC, 2006 U.S. Dist. LEXIS 79651, at *27-*35 (D.N.J. 2006) (unpublished opinion) (quoting WMS Gaming). Thus, regardless of the language in the specification that the accumulator "can have many different forms," the Court construes "accumulator" to include only the structures in those patents disclosed within the specification and equivalents of those structures. NOMOS, 357 F.3d at 1369.

Coinco argues that the court should apply a broad interpretation to the structure of the accumulator. Although the Court believes that it would have been possible to draft the claims to encompass a broader definition of the term "accumulator," the actual language used by the '903 Patent prevents the Court from accepting the broad interpretation urged by Coinco. Instead, the language of the '903 Patent requires the Court to adopt a much narrower construction; therefore, the word "accumulator" includes only the structures in those patents disclosed within the specification and equivalents of those structures.

L) "act as an intermediary between"

The court agrees with 01 Communique that this phrase requires no construction.

1. Acting as a router to recognize and forward to and from end systems user data packets which conform to a first protocol suite and acting as a bridge to recognize and forward between networks user data packets which conform to at least a second protocol suite (claim 1)

Plaintiffs Construction:

. acting as a router. . .: This term is indefinite. Alternatively, it means the device must perform all the functions of a router, including when forwarding user data packets to and from end systems which conform to a first predefined protocol suite. The decision to act as a router depends on the device identifying the protocol suite of the user data packets.

. acting as a bridge . . .: This term is indefinite. To the extent the term can be defined, it means the device must perform all functions of a bridge, including when forwarding user data packets between networks which conform to a second predefined protocol suite. The decision to act as a bridge depends on the device identifying the protocol suite of the user data packets.

Defendant's Construction:

. acting as a router. . .: Performing certain functions and operations typically associated with a router to recognize and forward to and from end systems user data which conform to a first protocol suite.
Although the parties identified a handful of disputed terms regarding the '727 patent in their briefs, they discussed only "acting as a router" and "acting as a bridge" at the claim construction hearing. From that discussion, it appears that the rest of the disputed terms in the '727 patent rise and fall with these two.

The parties focused on two issues: (1) whether "acting as" a bridge or a router means that the device must perform all the functions of such a device; and (2) whether the invention must determine which protocol suite is at issue before deciding whether to act as a router or a bridge.

I do not find persuasive plaintiff's argument that "acting as" means "performing all the functions of." As a general matter one thing may "act as" another thing without behaving in exactly the same manner in all respects. Defendant gave the example of a person who may "act as" a lawyer without simultaneously conducting an oral argument, writing a brief and drafting a contract. Similarly, a babysitter may "act as" a child's guardian while the parents are away but this does not mean that the babysitter assumes the functions of saving for the child's college tuition. As an inanimate example, a pile of books may "act as" a stool even though the books do not possess all the qualities that one would normally associate with a stool.

Plaintiff made a valid point during the hearing that it is not enough that the device act as a router or a bridge in any random manner. It must act as those devices in a manner that satisfies the requirements of the patent. To some extent, the manner in which the device must act as a router or bridge is already specified in the claim itself. With respect to "acting as a router," the device must emulate a router in a manner that allows it "to recognize and forward to and from end systems user data packets which conform to a first protocol suite." With respect to "acting as a bridge," the device must be able "to recognize and forward between networks user data packets which conform to at least a second protocol suite."

At the hearing, plaintiff emphasized that "acting as" a router must mean that the device operates on the network layer and that "acting as" a bridge must mean that the device operates on the data link layer because these are the defining functions of bridges and routers. Defendant did not deny this. In fact, it included these functions in its proposed constructions of "bridge" and "router." Accordingly, I will incorporate those functions into the court's construction: "acting as a router" means "operating at the network layer to forward a message" and "acting as a bridge" means "operating at the data link layer to forward a message."

The second issue disputed by the parties is more complicated but is even more easily resolved. Plaintiff wishes to include an additional sentence in both of its constructions: "The decision to act as a [router or bridge] depends on the device identifying the protocol suite of the user data packets." In other words, plaintiff argues that the device cannot decide whether to act as a bridge or a router until it has identified whether it is dealing with a "first protocol suite" or a "second protocol suite." (The parties agree that a "protocol suite" is "a comprehensive set of protocols that is designed to work together to coherently provide complete communication capabilities." The patent provides the examples of TCP/IP packets as one type of protocol suite and OSI packets as another kind of protocol suite.) Despite the substantial amount of time at the claim construction hearing plaintiff devoted to this issue, it never identified the language in the claim that was the basis for its construction. Obviously, this is a fatal deficiency; plaintiff is not entitled to a "claim" construction that has no basis in the claim. I will not add plaintiff's proposed additional sentence to the constructions.

IV. THE DISPUTED CLAIM TERM

"Acting on the data representing text identified as hostile in order to prevent an attack." Found in '976 patent, claim 7.

The "gateway system" of claim 7 is described as comprising:

2. "an intrusion detection system coupled to the firewall . . ." 10:35; and

3. "acting on the data representing text identified as hostile in order to prevent an attack . . ." 10:43-44.

Deep Nines contends no construction is necessary. Secure argues that claim 7 is indefinite because the third limitation, which begins with the term in dispute, consists of a method step in an apparatus claim, thus impermissibly mixing more than one class of patentable subject matter.

Claim 7 is a system claim and may not include a method step.

A patent claim that covers both an apparatus and a method of using that apparatus is indefinite under 35 U.S.C. § 112, ¶ 2. IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.3d 1377, 1384 (Fed. Cir. 2005). However, "apparatus claims are not necessarily indefinite for using functional language," even where the claim is not in means-plus-function format.2 Microprocessor Enhancement Corp. v. Texas Instruments, Inc., 520 F.3d 1367, 1375 (Fed. Cir. 2008) (citing K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999) (where functional language was analyzed as an additional limitation to an apparatus claim for an in-line skate)).

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - 

2 Neither Deep Nines nor Secure argues that this claim term is a means-plus-function limitation.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - 

In Microprocessor, the court indicated that the key question might be whether the limitation is directed to using the claimed apparatus (meaning it is a method step) or whether the limitation is instead a functional description of certain features of the claimed apparatus (meaning it is not a method step). See 520 F.3d at 1374. In that case, the apparatus claim "was clearly limited to a pipelined processor possessing the recited structure and capable of performing the recited functions," and was therefore not indefinite. Id. at 1375 (emphasis in original).

It is undisputed that claim 7 is an apparatus or system claim, not a method claim. See, e.g., '976 patent, claim7, 10:30-31 ("A gateway system for detecting attacks on a network, comprising . . ."); claim 8, 10:51 ("The system recited in claim 7 . . . ."). More specifically, claim 7 describes a system comprised of three elements:

A gateway system for detecting attacks on a network comprising:

a firewall for receiving data . . .; 

an intrusion detection system coupled to the firewall . . .; and

acting on the data representing text identified as hostile in order to prevent an attack . . ." '976 patent, 10:30-50.

Grammatically, the third element of claim 7 is a separate step.

The third element of the claim describes an action—"acting on the data . . ." The question is whether this is an impermissible method step, or merely a functional limitation on the IDS described in the second element of the claim. The court begins by analyzing the grammar and punctuation because, although those responsible for drafting important documents can make mistakes, one begins with the modest expectation that the words of a claim say what the author wanted them to say. See, e.g., SuperGuide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 885 (Fed. Cir. 2004) (citing William Strunk, Jr. & E.B. White, The Elements of Style (4thed. 2000) to support a grammatical interpretation); Credle v. Bond, 25 F.3d 1566, 1571-72 (Fed. Cir. 1994). Use of a colon following "comprising"and semicolons following each separate paragraph denotes separation of distinct items in a series. Bryan Garner, The Redbook: A Manual on Legal Style 14 (2d ed. 2006).

There is no basis to ignore the grammatical construction and instead read the term as a functional limitation.
Deep Nines now argues that the patentee intended for the "acting on" step to be subsumed in the second claim limitation, which relates to the IDS. That is not how the claim reads. Deep Nines nevertheless suggests that a person of ordinary skill in the art would understand that the only structure performing the "acting on the data" function is the IDS in item 2 above ("an intrusion detection system coupled to the firewall . . . ."). Therefore, "acting on the data" would be understood as a functional limitation of the IDS.

While a general rule is that, if possible, a construction should be chosen that preserves a claim's validity, the rule applies only if the court concludes, after applying all available claim construction tools, that the claim is ambiguous. Phillips, 415 F.3d at 1327. Courts do not redraft a claim with a plain meaning to make it valid or operable. Id. For example, a plainly written claim would not be reworded just because it achieved the absurd result of burnt dough. See Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004)

This is not a case involving obvious typographical errors such as missing letters or punctuation. Claim 7 could be considered ambiguous only if the person of ordinary skill in the art is assumed to ignore standard rules of grammar and punctuation when interpreting a claim. In claim 12, which is stated to be a method claim, the patentee used the same colon and semi-colon structure to list "acting on the data representing text identified as hostile . . . ." as one of the method steps. '976 patent, 10:66-11:31. On the other hand, claim 13, which describes a "system," uses a colon after comprising, but does not use a semi-colon to set off the "acting on data representing text . . . ." term as a separate element. '976 patent, 12:1-29.

Further, the prosecution history does not support Deep Nines's attempt to give a strained interpretation to a claim that is plain when standard rules of grammar are applied. Deep Nines copied claims of McAfee's '122 patent to provoke an interference. Tr. at 16:21-25. Some of the language of the equivalent claim in the '122 patent is deleted in Deep Nines's claim. Compare '122 patent, claim 7, 8:10-31 with '976 patent, claim 7, 10:35:50; see also May 17, 2000 Second Preliminary Amendment, Def. Cl. Const. Br., Ex. 6, 15-17 [Doc. # 112]. Had the '122 patent, claim 7's deleted language ("the intrusion detection system further capable of identifying the data representing text as hostile based on the comparison, and acting on the data representing text . . . .") been included in the final clause of the '976 patent, claim 7, it would have been clear, as it is in the '976 patent, claim 13, that "acting on the data" was a function of the IDS. Without that language, and given claim 7's punctuation, the "acting on the data" clause in claim 7 is a separate method step rather than a functional limitation.

The patentee did not attempt to act as her own lexicographer, using the specification to provide a clear special meaning for a claim term. The specification describes at least two different ways that the "acting on the data" step can be performed. One is at '976 patent,5:18-22:

This in turn activates communication interface 224 to gateway router 13 to instruct the router to perform some action to choke down operation that will begin to limit the flooding operation to help solve the red line situation.

Compare this example with the one described at '976 patent, 4:12-18:

If a problem exists, detection/notification server 21 sends a command via modem 16 to modem 17 to configuration server 22 to instruct server 22 to perform an action with respect to gateway router 13. This action serves to address the attack by choking down the offending volume . . . .

In the latter example, the IDS (labeled as "Detection/Notification Server 21" in Figs. 1 and 2, and described at 4:12-13, 44) sends a command to the configuration server 22, which "performs an action with respect to gateway router 13."

In the first example, the router 13 performs an action. In the second, server 22 “performs an action with respect to gateway router 13.” Even assuming this means that server 22 sends an instruction and router 13 takes an action, in both cases something other than the IDS is what is "acting on the data."

Although Deep Nines contends that the actions in both examples begin with a command from the IDS, a statement that the IDS sends a command to another component that causes it to take some action to choke off the data is not the same as unambiguously stating that the IDS itself is "acting on the data." The specification does not clearly instruct one of ordinary skill that, in all cases, the IDS is acting on the data. To the contrary, the specification indicates that the "acting on the data" step might be performed by something other than the IDS.
Correction of term by court is not justified

The court may act to correct an error in the patent where no certificate of correction has been issued if: "(1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims." Novo Indus. L.P. v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed. Cir. 2003). To the extent that Deep Nines would have the court correct the claim's punctuation and wording to make it similar to claim 13—where the "acting on the data" step is subsumed under the IDS element—the preceding discussion, and the patentee's choice to delete certain language in the copied '122 patent claims, strongly suggest a different interpretation of claim 7.

Here, the claim term "acting on the data representing text identified as hostile in order to prevent an attack" consists of a method step in an apparatus claim. This impermissibly mixes more than one class of patentable subject matter and fails to define for the person of ordinary skill in the art what the scope of the claim is. This claim term is therefore indefinite.

1. To Activate

Activate is defined as "to make active …" WEBSTER'S at 13. Webster's defines "active" as "(10) marked by present operation, transaction, movement or use [as in] an [active] account." Id. Claim 12 refers specifically to the activation of an account. Fiala's proposed construction is "to make active and usable by the consumer." (Pl. Brief at 20.) SVS suggests the definition "to make operational." (Def. Slide 24.) The text of Fiala's proposed definition demonstrates that the phrase "usable by the consumer" is an addition to the plain meaning of "active."

In addition, the patent specification anticipates a situation in which the data-encoded cards can be activated and made usable by individuals other than the consumer, namely thieves. See, e.g., U.S. Patent No. 5,918,909, Column 5:30-34, 6:7-14, 18:45-53. It is clear, then, that "usable by the consumer" is not a definitional element of the word "activate." In the context of claim 12, SVS's definition coincides with the meaning that would be given to the term by an ordinary person skilled in the art. The court defines "to activate" as: "to make operational."

A. "repeatedly substantially simultaneously activating"

Each of the asserted claims of TDS's '481 and '561 patents includes the limitation, "repeatedly substantially simultaneously activating." 1 The district court construed this limitation as follows:

The term repeatedly means "repeating" in its ordinary sense, and that the repetitions be fast enough such that the composite color is actually perceived by the viewer. The term substantially, simultaneously activating means that during some portion of this period (defined as repeatedly), the two separate lights are on at the same time.

that the activation of each light begin at substantially the same time. According to Telegenix, the district court improperly separated the adverbs "substantially simultaneously" from the verb it modifies, "activating," and thereby failed to require that the light emitting diodes ("LEDs") must be activated, or turned on, at the same time.

According to TDS, the crucial word in the phrase is "repeatedly," which would signal to one of skill in the art that the invention activates light sources repeatedly within the "refreshing period" or "repetition period" within which humans do not detect pulses due to the principle of "persistence of vision." TDS argues that because one of skill in the art would understand that the claim refers to simultaneously activating light sources of different colors at some time during that critical repetition/refreshing period, and because humans cannot detect changes, pulses, or activations that occur within that period, the question of whether one begins activation of the LEDs at the exact same time or whether one simply ensures that both of the LEDs are on at some time during the repetition period is irrelevant. Thus, according to TDS, one of skill in the art would not interpret the claim term "repeatedly substantially simultaneously activating the light sources" to limit the starting point of the LED activations.

The district court correctly construed the term "repeatedly." However, the district court's construction of the overall phrase "repeatedly substantially simultaneously activating" was in error and ignored the meaning of the term "activating." We begin by ascertaining the ordinary meaning to one skilled in the art. See Specialty Composites, 845 F.2d at 986, 6 USPQ2d at 1604. According to a relevant technical dictionary, to activate is "to start an operation, usually by application of an appropriate enabling signal." Modern Dictionary of Electronics 20 (6th ed. 1984). We presume that the word used in a claim carries this ordinary meaning, but this presumption may be rebutted. See CCS Fitness, 288 F.3d at 1366, 62 USPQ2d at 1662. Here, the intrinsic evidence is entirely consistent with the dictionary definition, and there is nothing in the record to suggest that "activating" means other than what its dictionary definition would suggest, i.e., starting the operation or turning on. We conclude that the presumption has not been rebutted, and thus the ordinary meaning controls.

TDS has argued that "activating" can mean "being on." Certainly, once activated, a lamp might accurately be described as "being on." But the claim does not refer to the state of the lamps as being "substantially simultaneously activated." The words used, which serve as the focus of the claim construction analysis, call for "substantially simultaneously activating" the lamps, and the ordinary meaning of that phrase requires that during some portion of the period defined as "repeatedly," the two separate lights are turned on at the same or nearly the same time.

The controller increases the number of the activity counter and increases the activity counter and the controller activates the activity counter

Defendants argue these terms cannot be construed since "activity counter" cannot be construed. As the Court has construed "activity counter," the Court disagrees. Typically, one assumes that different terms used in claims have different meanings. Nystrom v. TREX Co., 424 F.3d 1136, 1143 (Fed. Cir. 2005). These terms are an exception to that general rule as the inventor used the terms interchangeably. The inventor used "the controller increases the number of the activity counter" in independent claim 7 and "increases the activity counter" in dependent claim 8. In claim 7, upon receiving a triggering signal, in the first mode, the controller "activates the camera mechanism" and, in the second mode, the controller "increases the number of the activity counter and does not activate the camera mechanism." In claim 8, in the first mode, the controller "activates the camera mechanism and increases the activity counter." This appears to be a shortened way of saying "increases the number of the activity counter" since it is contrasted with claim 7, in which the number of the activity counter must be increased in the second mode but not in the first. Additionally, the specification uses the phrases "increase the activity counter by one" and "increase the activity counter" interchangeably. Col. 8:20-20, 26, 27, 33-34. Thus, these terms both mean "increases the number of the activity counter." No further construction of the terms are necessary since the Court has already construed "activity counter."

"The controller activates the activity counter" is used in claims 23 and 26. This term is used in the limitations that distinguish the first and second operating modes. See cols. 14:57-64, 15:11-19; see also claim 7 at col. 13:19-26 (using "the controller increases the number of the activity counter" in the same context). In the first mode, the controller activates the camera mechanism when it receives a triggering signal from the motion detector. In the second mode, the controller activates the activity counter but does not activate the camera mechanism. See also col. 8:23-26 (describing the two modes).
The parties agree that the term "the controller activates the camera mechanism," used in claims 23 and 26, means "the controller causes the camera mechanism to take a picture." Thus, in this context, Defendants agree that "activates the camera mechanism" does not mean to turn the camera mechanism on, but rather it means that the camera mechanism performs its inherent function-taking pictures. Similarly, "the controller activates the activity counter" does not mean that the activity counter is turned on or enabled to operate, but instead means that the activity counter performs its inherent function-counting triggering activities. Thus, the Court construes "the controller activates the activity counter" as "the controller increases the number of the activity counter."

8. "Activation information." Used in '768 patent, Claims 1, 3, 5, 7, 9, and 11.

For "activation information" TGIP proposed "data transferred or received in connection with the activation of an account." The Defendants suggest "information including the security number communicated during activation of the calling card account."

Both these definitions are somewhat circular, each using "activation" as part of the definition of "activation information." The claims disclose that "activation information is transferred to the host computer. '768 patent Reexam. Cert, col. 1, 11. 21-26. With the variable dollar amount accounts this might just be the calling card account number and the dollar amount purchased. See '768 patent Reexam. Cert, col. 1, 11. 35-37; '768 patent Reexam Cert, col. 1, 11. 66 - col. 2, 1. 7; '768 patent, col. 5, 11. 64 - col. 6, 1. 13. Because the data terminals can transmit and receive data, there is no reason the host computer can not select a password (the access information), associate it with the account and the dollar amount and send to the data terminal, to be given to the customer. For example, after the host computer receives the dollar amount the customer wants, it could select a password from a list, associate it with that account, and send it to the data terminal, which would print that number out on paper or even on the card itself See '768 patent, col. 6, 11. 1-12 (describing data terminal transmitting a message to the operator of the data terminal).

There is no absolute requirement for the "access information" to be transmitted to the host computer during initial activation. The court will define this term as follows:

"Activation Information" means "the data transmitted that initially makes it possible to associate a dollar amount with a particular calling card account."

11. "active area"

"Active area" appears in claims 3 and 4 of the 229 patent and claims 3, 4, 5, 6, 24 and 25 of the 148 patent. MoSys and TSMC assert that "active area" is defined as "[t]he area where the claimed select transistor and the trench capacitor are formed, that area being bounded by the edges of the field oxide layer." Jt Cl Const, Ex B at 1. UniRAM contends that the active area is the "area bounded by the field oxide layer." Id.

The court adopts UniRAM's construction because it is simpler and more accurately reflects the disclosed embodiments. For example, one problem with MoSys and TSMC's definition is that the specification does not clearly delineate the select transistor gate's boundary. The specification states, "[T]he poly silicon word lines 1606 define the gates of the select transistors ** *." 229 patent at 20:12-14. But Figure 15(c) shows these word lines traveling both in the active area 1502 and in the field oxide 1504. Because the specification never limits the gates to the active area, the select transistor gate could spill into the field oxide, making MoSys and TSMC's definition inaccurate.

More importantly, the complexity of MoSys and TSMC's construction is unnecessary, because the specification defines active area clearly and in concise terms: "The first step is to define active area 1502, and grow isolation field oxide 1504 to separate those [sic] active area ** *." Id at 19:50-52. And in seven of the eight claims in which active area appears, it is as
"active area isolated and defined by edges of a field oxide layer," "active area isolated by a field oxide," "active area isolated by said field oxide" or "active area isolated as an enclosed area by said field [sic] oxide." Id at 26:16-17, 26:22-23 (claims 3 and 4); 148 patent at 25:55, 25:64-65, 26:9-10, 28:20-21, 28:26-27 (claims 3, 4, 5, 24 and 25). UniRAM's proposed construction captures this meaning better than MoSys and TSMC's construction.

To assist in the analysis, the relevant portion of the first claim of each patent is set out with these terms in bold:

Claim 1 from the '114 patent:

at least one data terminal located at a predetermined location remote from the host computer and connectable to the input port for associating, at the host computer, an amount of call authorization to a security number of a calling card using data transmitted between the data terminal and the host computer during one or more charging transactions, the means for associating of the data terminal including:

means for entering the security number;

means, operative during any initial transaction and any recharge transaction, for entering any monetary amount corresponding to the amount of call authorization;

means for connecting to the host computer to transfer the security number and the call authorization amount; and

means responsive to the transfer for receiving a verification message from the host computer authorizing receipt of the monetary amount to thereby associate at the host computer the call authorization amount to the security number, wherein the calling card does not store the call authorization amount; and

wherein the database includes a record for each calling card security number having a call authorization amount associated therewith, the record including a balance; and

Claim 1 from the '68 patent:

activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account;

for each pre-paid calling card account that is activated, maintaining in the database information sufficient to identify: (i) a date on which the particular pre-paid calling card account is activated, (ii) a particular point-of-sale location at which the particular pre-paid calling card account is activated, and (iii) the active call authorization amount that was associated with the particular pre-paid calling card account when activated on said date and from said point-of-sale location;

At the hearing the parties agreed generally that:

1. The "data terminal" is the terminal at which the calling card is swiped or data is otherwise entered at the point of sale
where the customer obtains the card or recharges the card. Tr. p. 13-14; and

The parties also agreed that, at a minimum, the three terms in dispute describe variable amounts selected by the customer. The real question is whether these terms can also be defined as including a pre-set amount, say $ 5.00 or $ 10.00. Tr. p. 11-13, p. 34-35. TGIP says they can. Tr. p. 21. The Defendants argue they can not. Tr. p. 22.

TGIP points, among other things, to '114 patent col. 2, 11. 52-54, which describes using a keypad at the point of sale or recharge "for entering any monetary amount corresponding to an amount of call authorization associated with a particular calling card . . . ." TGIP also relies upon its request for reexamination of the '768 patent in which it stated that "[a]n active call authorization amount means a call amount that is then useful for obtaining the call service . . . . a call authorization amount (albeit inactive) may be associated with the account prior to the user purchasing the calling card account because the calling card account is not associated with an 'active call authorization amount' until an active, or usable, amount is joined with the account . . . ." Request for Reexamination, 7/6/2000, p. 3, Ex. E to TGIP's Opening Claim Construction Brief [Doc. # 200, Attachment # 5, p. 3 of 24]. Additionally, during the reexamination process, the Board of Patent Appeals stated that claim limitations of an "active call authorization amount" "do not require (but do not exclude) point-of-sale activation of varying call amounts . . . . The active call authorization amounts could be a limited number of predetermined values as in the prior art." See Board of Patent Appeals Decision of 9/26/2003, Ex. H, p. 11 to TGIP's Opening Claim Construction Brief [Doc. # 200, Attachment # 8, pp. 11 of 31].

The court does not discount TGIP's statement in reexamination proceedings out of hand, but recognizes that it was submitted to the PTO after some years of disputes concerning the patents. The court must be careful about allowing statements made during a reexamination to enlarge the patent's scope, or to recapture scope which had been earlier surrendered when limiting arguments made to obtain the patent have not been retracted and brought to the attention of the new examiner. See Creo Prods. v. Presstek, Inc., 305 F.3d 1337, 1344 (Fed. Cir. 2002); Hakim v. Cannon Avent Group, PLC,-- F.3d --, 2007 U.S. App. LEXIS 3926, 2007 WL 542697, *3 (Fed. Cir. 2007). This would seem especially true when the statement in question was peripheral to the issues being addressed by the examiner and the Board of Appeals.

Of course, TGIP also relies upon the familiar cannons of construction that a patent is defined by its claims, that claims should be given their full scope, and that limitations should not be imported from descriptions of preferred embodiments.

Defendants rely heavily upon statements in the specification such as: "The present invention relates to . . . activation and recharging of calling cards in customer defined amounts." '114 patent, col.1., 11. 6-9. Defendants also argue that TGIP disavowed all cards issued in fixed or pre-set amounts pointing to statements distinguishing prior art such as: "The most significant drawback is the requirement that pre-paid calling cards be issued in fixed or preset amounts." '114 patent, col. 1, 11. 46-48, and '768 patent, col. 1, 11. 51-53. See Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

It appears to the court that nothing in the claim language itself eliminates all cards with a pre-set amount. n3 The first use of the disputed phrase is in Claim 1 of the ' 114 patent: "associating, at the host computer, an amount of call authorization to a security number of a calling card . . . ." '114 patent, col. 6, 11. 14-16. In Claim 1 of the '768 patent Reexamination Certificate ("Reexam Cert") we see: "activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account." '768 patent Reexam Cert, col. 1,11.33-37. The statements in the specification and prosecution history of each patent establish that the intent was to go beyond the previous fixed limit card, but they do not eliminate the possibility that what is claimed is a new system which describes: (1) an "open ended" card (or one with a high upper limit) so the customer picks any amount (or any amount less than the high limit); and (2) a card with an amount preprinted on the card, or alternatively two or more amounts, one of which must be selected by the customer.

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n3 The record contains a much more detailed exposition on this issue, including the responses of the parties to various hypotheticals. See Tr. pp. 10-60.
Whether the claim language can be defined as including this second type of card is the real dispute. See Tr. p. 11-13. Both patents use the indefinite article "an" when referring to the call authorization amount or the amount of call authorization. The specification describes an embodiment in which there is "an amount of call authorization associated with a particular calling card . . . ." '114 patent, col. 2, 11. 53-54. The court concludes that the claim language describes at least some types of cards with a pre-printed amount, or perhaps a limited choice of amounts. To this extent, "call authorization amount" and "active call authorization" simply mean a monetary amount assigned to the card or account.

But the analysis does not end there. Two systems or scenarios for use of cards with pre-set dollar amounts are technically feasible. Tr. p. 16-18, 42.

Scenario 1: Cards of say $ 5.00 or $ 10.00, etc., where the security number is pre-associated with that amount at the host computer, but the card is not valid until it is "swiped" at the point of sale so the host computer knows it is activated. (In other words the host computer database already "knows" the security number of the card, and the amount of the card, and all that is needed is to validate or activate the card.)

Scenario 2: Cards of say $ 5.00 or $ 10.00 etc., where a security number is not associated with a particular card or amount until the card is swiped. This could include a card with a limited number of choices available, say a choice between $ 5.00, $ 10.00, or $ 15.00. (In other words the host computer database has a list of security numbers, and when a card is activated at the data terminal amount printed on the card is associated with one of those security numbers.)

Comparing these scenarios illuminates the importance of the term "associating" and illustrates why it must be construed in conjunction with the three terms originally submitted. n4

n4 Of course, with a "variable" or pure "customer choice" card, no dollar amount can be associated with a security number until the customer selects an amount and activates or recharges the card for that amount. As noted, the parties do not dispute that the patent terms define this type of transaction.

Claim 1 of the '114 patent states that as part of the system there is a host computer with an input port, and a data terminal "connectible to the input port for associating, at the host computer an amount of call authorization to a security number of a calling card . . . ." '114 patent, col. 6, 11. 13-16 (emphasis added). Similarly, Claim 1 of the '768 patent describes a method in which calling card account in the database is activated "by associating an active call authorization amount with the particular pre-paid calling card account." '768 patent Reexam Cert, col. 1, 11. 35-37 (emphasis added).

"Associating" is an active verb, which must mean something. If, as TGIP argues, cards could have a preset amount printed and coded on the card, along with that card's identifying or security number, then what is left to associate by the host computer or the data terminal? After Claim 1 of original application for the '114 patent had been rejected as obvious in light of two earlier patents, the applicant stated:

Claim 1 has been amended to further emphasize several of the above-identified features and concepts that are neither described nor obtained by Schilling, taken by itself or in combination with Kamil . . . For example, Claim 1 now describes . . . . The data terminal is now described as the device in the system which is used to associate an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer.

Amendment to First Office Action, 5/18/1995, p. 8 (Bates No. TGIP 006428), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 9 of 11].

To define the terms at issue so broadly as to encompass the system of scenario 1 above, would simply ignore this statement to the PTO, and would define "authorizing" as simply meaning "validating." The prosecution history makes it clear that such a construction was rejected by the PTO. n5 The court will define these related terms as follows:
"Call authorization amount" as used in the '114 patent, Claims 1, 6, and 7, and "amount of call authorization" as used in the '114 patent, Claims 1 and 6, mean: "a monetary amount to be used to pay for call service."

"Associating, at the host computer, an amount of call authorization to a security number" as used in the '114 patent Claims 1 and 6, means that as part of the activation process, and not before, the amount of call authorization is linked in the host computer database to a security number for that card.

"Active call authorization amount" as used in the '768 patent, Claims 1-3, and 5-11 means: "a monetary amount to be used to pay for call service."

"Associating an active call authorization amount with the particular pre-paid calling card account" as used in the '768 patent, Claims 1-3, and 5-11, means that as part of the activation process, and not before, the active call authorization amount is linked in the remote location database, to the pre-paid calling card account.

--- Footnotes ---

n5 TGIP tries to get around the statements it made to the PTO to obtain approval of the patent by now arguing that the security number (or other card identifier) and the monetary amount could be combined on the card but not really be "associated" until transmitted to the host computer or database. This is just a fancy way of saying "validating."

--- End Footnotes ---

TGIP points out in its Supplemental Claim Construction Brief ("Supp. Br."), Claim 7 of the '114 patent does not include the term "associating." See TGIP's Supp. Br., p. 2 [Doc. # 229-1, p. 3 of 12]. Claim 7 was added during prosecution after Claim 1 was rejected. See TGIP's Supp. Br., p. 2 [Doc. # 229-1, p. 3 of 12]. After explaining (as set out above) that amended Claim 1 could be distinguished from Schilling and Kamil, because the data terminal associated an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer, the patentee stated to the PTO:

Independent Claim 7 is directed to a system wherein a "plurality of data terminals" are used to provide the on-site card activation capability. For the reasons set forth above with respect to Claim 1, Claim 7 is also patentable.

Amendment to First Office Action, 5/18/1995, p. 9 (Bates No. TGIP 006429), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 10 of 11] (emphasis added). However, the effect of these statements to the PTO on the interpretation of Claim 7 is not before the court at this time.

6. Active Relationship

Trilogy contends that the term "active relationship" is used to describe "a relationship that is presently in effect." Selectica contends that a relationship is "active" when all parts on the left-hand side of the relationship are included in the configuration and all the parts on the right hand side of the relationship have been evaluated according to their classifications during the configuration.

Trilogy acknowledges that one portion of the specification supports Selectica's proposed construction. The specification provides that "a relationship is active when all of the items on the left-hand of the relationship are selected. A relationship is inactive until all of the parts on the left-hand side of the relationship are selected." 651 patent, col. 12, ll. 40-43. Trilogy urges, however, that the passage in the specification should be read as describing only features of the preferred embodiment, and that the claim language (construed with regard to the doctrine of claim differentiation) supports a broader construction. Specifically, Trilogy contends that claim 3 recites the limitation of "determining whether a relationship in said set of relationships is active." Claim 4 depends from claim 3, and recites "the method of claim 3 wherein said step of determining whether a relationship is active further comprises the step of determining whether the elements specified in the left-hand
"Activity counter" terms

Activity counter

Defendants contend that prior-art motion-detector cameras included "event counters" to count each event detected by the motion detector. According to Defendants, "event counter" had acquired an established meaning in the art. Although the "event counter" did not display the number of events, many cameras included a means for the user to view the number of events counted. Defendants argue that the term "activity counter" cannot be construed because one skilled in the art cannot determine whether the "activity counter" performs the counting function (like the known "event counter") and the display function or whether the activity counter only performs the display function and does not perform the counting function.

Although the change in nomenclature may be slightly confusing, it is not fatal. The specification and claims make clear that the activity counter counts and displays the number of triggering signals sent by the motion detector to the controller.

The specification summarily describes one embodiment of the invention as having an "activity counter" activated by the controller when a triggering activity occurs. Col. 1:48-50. Embodiments of the invention may include a display, and that display may be an LCD display. Cols. 4:17-20, 5:25. The display may show the number of exposures taken by the camera, the power level, a film count, or other information. Cols. 4:17-20, 5:25. The display can also be used as an activity counter displaying the number of triggering activities sensed by the motion sensor. Col. 8:17-19. In that situation, "controller 901 can increase the activity counter by one when motion detector 906 is triggered and sends a triggering signal to the controller." Col. 8:20-22.

In one operating mode, when a triggering activity occurs, the controller sends a signal to the activity counter, the activity counter increases, and no picture is taken. Col. 8:25-26. In another operating mode, the activity counter can increase and the camera can take a picture. Col. 8:23-26. The activity counter can also continue to increase after the camera runs out of film. Col. 8:27-29. "In one example, the controller goes into the activity counting mode automatically when the camera runs out of film." Col. 8:39-41.

In claims 5 and 21, the activity counter is programmable to display at least a predetermined number of triggering events detected by the motion detector. Cols. 12:64-67, 14:33-35. In claims 7 and 8, the activity counter is mounted to the housing, displays the number of triggering signals, and the number of the activity counter is increased by the controller when the controller receives a triggering signal. Col. 13:16-17, 23-26, 27-30. In claims 23, 24, and 26, the activity counter is mounted to the housing, and the controller activates the activity counter when the controller receives a triggering signal. Col. 14:55, 61-64.

Generally, a term should be given the same meaning throughout the patent. Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1328 (Fed. Cir. 2006) (citing Phillips, 415 F.3d at 1314). The general role of the activity counter is described in claim 7: "the activity counter for displaying a number of triggering signals." Col. 13:16-17. Although the activity counter's purpose is described in claim 7, the activity counter is actually first mentioned in dependant claim 5, where an additional limitation is placed on the activity counter: "an activity counter which is programmable to display at least a predetermined number of triggering events detected by the motion detector." Col. 12:64-67. Claim 21 also includes this limitation. Col. 14:33-35. The other claims that include the activity counter-claims 8 (dependent on 7), 23, and 26-do not contain any further description of the function or nature of the activity counter. Therefore, the generalized description in claim 7—for displaying a number of triggering signals—is logically read to apply to all other mentions of activity counter. Thus, throughout the claims, the activity counter displays a number of triggering signals.

The patent also teaches that the controller can activate the activity counter when it receives a triggering signal from the motion detector. See claim 5 at col. 12:65-67; claim 21 at col. 14:33-35 ("programmable to display . . . number of triggering
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7. "actuating"

Claim 1 of the '571 Patent discloses self-test means for "actuating the maintenance indicator if a malfunctioning component is identified." Philips asserts that "actuating" should be construed as "mechanically moving the maintenance indicator to identify a malfunction." Cardiac Science contends that "actuating" means "activating."

The dictionary defines "actuate" as "to put into mechanical action or motion"; and "to move to action." Merriam-Webster's Collegiate Dictionary, supra, at 13. The maintenance indicator of the '571 Patent is "switched to its maintenance required state by processor 74 if faults are identified during the lid closed self-test." ('571 Patent at c. 7, ll: 15-17.) The Court finds that Philips' construction attempts to import the commercial embodiment of the '571 Patent into the claim construction. But neither the specification nor the claim language limits the term "actuating" to a "mechanical" movement of the maintenance indicator when a malfunction is identified. The Court finds that in the context of the '571 Patent, the term "actuating" should be construed as "activating or putting into motion."

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F) The claimed data communication facility being "adapted to created and send a communication that include a then current dynamic public IP address (publicly addressable) or dynamic LAN IP address (publicly un-addressable) or the personal computer"

Citrix largely changed its construction of this claim in its brief from what it proposed to 01 Communique. Therefore the court chooses to ignore Citrix's newly submitted construction, instead adopting that of 01 Communique. Therefore the court adopts the proposed construction to mean, "The claimed data communication facility has the ability to create and send a communication that includes the current dynamic IP address of the personal computer. This dynamic IP address may be publicly addressable or unaddressable."

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4. "means for synchronizing the propelling of said balls with said moving image, wherein said programmable controller is adapted to initiate the display of said video image and initiate a countdown upon detecting that said wheels have reached a predetermined speed and the power head has assumed a predetermined horizontal and angular position"

The parties' fourth dispute concerns the clause "means for synchronizing the propelling of said balls with said moving image, wherein said programmable controller is adapted to initiate the display of said video image and initiate a countdown upon detecting that said wheels have reached a predetermined speed and the power head has assumed a predetermined horizontal and angular position." This clause appears in Claim 22 of the '134 Patent. The focus of the parties' dispute with respect to the clause is the language "adapted to initiate the display of said video image and initiate a countdown." Joyner argues that this clause should be construed to mean that "[t]he initiation of the video and the countdown timer must be simultaneous." Joyner's Amended Motion for Markman Construction of Asserted Claims (docket no. 165-1), at 2; see also JACCC (docket no. 174), at 13 (citing '134 Patent, fig. 15 & col. 18, l. 23 through col. 19, l. 13). Joyner does not offer much argument or evidence in support of this construction, however, but simply states that "[i]n context of the specification, which explains how the countdown timer is used to synchronize the video, no reasonable reader could be confused on this point." Joyner's
Amended Brief on Markman Construction of Asserted Claims (docket no. 165-2), at 8. ProBatter responds that nothing in the claims or the specification requires that the initiation of the display of the video image and the initiation of the countdown occur simultaneously and, as a consequence, Joyner is attempting to insert a limitation into the clause that does not exist.

14 At the Hearing, counsel for Joyner appeared to concede that the clause did not require simultaneity and argued for a construction of the claim that would require "near simultaneity." Further, in the JACCC, which was filed after the Hearing, Joyner replaced simultaneity and near simultaneity with an "immediately upon" construction. It is unclear whether ProBatter would object to such a construction. Because Joyner did not brief this argument, however, the court considers Joyner's ever-shifting claim constructions to be waived.

The court declines to adopt Joyner's construction of the clause. Nothing in the intrinsic evidence indicates that the initiation of the display of the video image and the initiation of the countdown must occur simultaneously. Instructing the jury that simultaneity is required would be error.

Cf. Omega Eng'g, 334 F.3d at 1329-30 ("[T]here is no ground for adding a 'sequential' limitation or for excluding the concept of simultaneity. In sum, we reject the [district court's] imposition of a 'sequential' limitation to the function of claims 16 and 18, because that restriction finds no support in the intrinsic evidence.").

I. "Contact arrays being adapted to interchangeably connect"

Foxconn maintains that the district court correctly interpreted the claim limitation "contact arrays being adapted to interchangeably connect" as requiring a contact array that was not present in the prior art. Foxconn asserts that the word "adapted" includes the concept of adjustment or modification of the array known to the prior art such that there must be something different from the prior art. The district court opined that a device which uses preexisting contact arrays does not contain "contact arrays being adapted."

We disagree. There is nothing in either patent to indicate that the claims require a novel contact array. Nowhere in the written description does either patent state that the disclosed contact array is novel or has been specifically adapted from prior art contact arrays. Rather, the written description simply describes the contact array as a pin terminal array that can accept either a memory card or a hard disk drive. We decline to find that the claims require a novel contact array when the only contact array that is disclosed in the written description is not novel.

The patentee's use of the claim term "adapted to" does not change our conclusion. The term "adapted to" is often used in claim drafting to indicate "capable of." There is nothing in the claims, written description, or prosecution history to indicate a different meaning. That a claim element is old does not prevent a claim to a combination from being infringed.

Foxconn asserts that when Berg added the "adapted to" language to overcome the Tarver prior art reference, Berg added the additional limitation of a novel contact array. Tarver teaches a housing used to assemble a complete mini-computer. The Tarver device has spaces for accepting submodules such as a central processing unit, a fan, or a hard disk drive and a midplane member comprising connectors. The patent states that one type of connector is a 32-pin contact array.

During prosecution, Berg stated that although "Tarver appears to show upper and lower storage spaces within a single housing, Tarver never suggests that the upper and lower storage spaces be combined to form a single, larger storage space for accommodating larger submodules. . . . None of Tarver's submodules is designed to occupy more than a single sub-space within the housing" while the applicant's connector device is specifically designed to accept either memory cards in either the upper or lower storage space or both or a single hard disk drive package occupying both spaces.

Berg also stated that Tarver does not teach applicant's claimed feature "wherein 'at least one of [the] upper and lower contact arrays [is] adapted to interchangeably connect to both a memory card and a hard disk drive package.' To the contrary, the 'midplane' of Tarver provides a separate connector for each submodule. None of the connectors of Tarver is capable of interchangeably connecting to two different types of submodules."
We do not read the interchangeable capability of the contact array asserted by Berg during prosecution as requiring a new contact array that has never existed in the prior art. Rather, the capability simply requires a contact array that is selected so that it is connectable to both a memory card and a hard disk drive, so that the connector can receive those memory storage devices in the spaces that the structure of the connector defines to receive them. It is both the structure defining those spaces and the contact array selected to receive both of those devices that give the claimed combination the alternative capability that the Examiner found to be nonobvious.

Foxconn further asserts that we cannot adopt the patentee's claim interpretation because under that interpretation, the claims are invalid as anticipated by the Tarver reference. However, validity of the claim is not at issue on appeal and has not been fully briefed before us. The patentee has urged adoption of its claim interpretation and bears the risk that the claim may later be found invalid.

Thus, we conclude that the term "contact arrays adapted to interchangeably connect" requires contact arrays that are able to interchangeably connect to both a memory card and a hard disk drive package. Because the Foxconn device contains a contact array that is able to interchangeably connect to both a memory card and a hard disk drive package, the district court erred in finding the Foxconn device fails to meet this claim limitation.

This conclusion, however, does not end our analysis. Foxconn additionally asserts that the district court's finding of noninfringement should also be affirmed because its device lacks a storage space that is substantially uninterrupted by a guide member, as required by the claims.

B. Does the court's construction of the claim term "adapted to supplement" means that there is a requirement that a "real live" node actually be augmented

Claim 15 recites, in relevant part:

A network interface for interfacing a network having nodes and for supplementing the nodes of the network … wherein said network interface is adapted to supplement a node selected from said nodes by adding at least one supplemental format to the format set of said selected node.

830 patent, col. 12: 62-13: 24. The court construed the above "wherein" phrase in two parts. The court first found that the claim term "adapted to supplement" means the claimed network interface must be capable of supplementing a node; there is no requirement that it actually supplements the node. Thus, "an interface is adapted to supplement if its use can create a supplemented node." 830 Markman, 172 F. Supp. 2d 478, 2001 WL 1388437 at *31. The court then went on to construe the second portion of the phrase and found that "to supplement a node selected from said nodes by adding said at least one supplemented format to the format set of said selected node" means that the node that the network interface is capable of supplementing may be supplemented either by adding at least one supplemented format to the format set of an existing node or by adding at least one supplemented format to the format set of a previously connected networked node that is subsequently reconnected to the network through the claimed network interface card. Id. With respect to this second portion of the disputed phrase, the key claim construction dispute in the briefing concerned whether the network interface could supplement a node by adding a new node or whether it had to add a format to an already existing node. Based on the limiting language, "selected from said nodes," the court construed that portion of the phrase to mean that the node had to be connected to the communication medium at some time (either an existing node or a node that was previously connected and then re-connected using the network interface card). Taken together, the complete construction of the phrase is that the claimed network interface must be capable of supplementing either by adding a format to an existing node or adding a format to a node that was previously connected and then re-connected using the network interface card. Some of Broadcom's questions of witnesses indicates that it has focused only on the second part of the court's construction of this phrase and thus understands the phrase in claim 15 to mean that the network interface must actually be placed into a network in order to read onto the claims. This erroneously ignores the court's construction of the "adapted to supplement" language. As the court stated in its '830 Markman opinion, based on that claim language, in order to satisfy claim 15, the network interface only must be capable of supplementing, or augmenting, a node.
XV. "An adapter"

The term "an adapter" appears in claims 9 and 10 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker argues that the term "an adapter" means "a structure to accommodate different batteries." Bosch counters that the term means "a device for connecting parts that will not otherwise mate, so as to transform the contact configuration of a battery pack from a different manufacturer to fit in a socket."

B. The Court's Construction

At the Markman hearing, Bosch's counsel indicated that it could drop from its proposed construction the requirement that the battery pack be "from a different manufacturer." Black & Decker agrees with the first portion of Bosch's proposed construction -- "a device for connecting parts that will not otherwise mate." Black & Decker, however, argues that Bosch's proposed limitation -- "so as to transform the contact configuration of a battery pack to fit in a socket" -- improperly limits the term "adapter." Black & Decker contends that the specification discloses two embodiments of an adapter: (1) a device that mates with batteries from different manufacturers; and (2) a device that accommodates battery packs with different voltages. Therefore, according to Black & Decker, Bosch's proposed construction is too narrow because it does not cover a device that accommodates battery packs with different voltages. The Court disagrees that the term "adapter" is so broad. The portion of the specification relied on by Black & Decker ('059 patent, col. 4, ll. 55-64) for supporting an adapter that accommodates battery packs with different voltages plainly provides for a DC/DC converter to change the voltage from the batteries, not the adapter. That portion of the specification teaches that the adapter 61 mates with the six contacts on socket 70 in order to match the requirements of particular battery pack 60. ('059 patent, col. 4, ll. 58-60.) It then continues to disclose a DC/DC converter. (Id. at col. 4, ll. 61-64.) Black & Decker concedes that the use of DC/DC converters is a preferred embodiment of a "power correction circuit" that changes the electrical energy flowing to or from a battery pack. Accordingly, with respect to this embodiment relied on by Black & Decker, it is the DC/DC converter 68 that accommodates voltage of different voltages, and not the adapter 61. Therefore, the specification only discloses an adapter that mates with batteries with different contact configurations. (Id. at col. 4, ll. 34-39; ll. 57-60.)

Black & Decker also relies on the doctrine of claim differentiation in arguing for a construction of "adapter" broader than the one proposed by Bosch. Claim 12 of the '925 patent requires a "means to permit use of battery packs lower or higher than the nominal operating voltage to be used by said radio, said means comprising a socket having a plurality of contacts mating with an adapter matching predetermined requirements of a DC source power battery pack, and a double pole single throw on/off switch controlling a DC/DC power source converter for supplying power to said radio." ('059 patent, col. 8, ll.36-35.) This claim language does not further limit the claimed adapter. Rather, it merely provides that an adapter is part of the claimed "means to permit use of battery packs lower or higher than the nominal operating voltage." The means also includes a DC/DC power source converter, which, as discussed above, is the portion of the "means" that converts the voltage. Nothing in this claim language requires that the "adapter" do anything other than accommodate batteries with different contact configurations. Accordingly, the Court does not find support in the intrinsic record for Black & Decker's broad construction of adapter and construes "adapter" as "a device for transforming the contact configuration of a battery pack so as to connect parts that will not otherwise mate. n15"

n15 The Court slightly varies Bosch's proposed construction to remove the requirement of a "socket." The Court does not find any support in the intrinsic record for incorporating the requirement of that additional structure into the plain claim language.

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(iv) . . . **an adapter** connected to said parallel data bus, said data storage units and said correction bit storage unit for, in response to a storage request, (i) generating an error correction code for each data word, (ii) dividing each data word into a plurality of multi-bit portions, and (iii) transmitting said multi-bit portions and error correction code to respective data storage units and said correction bit storage unit for storage.

The last limitation appears easy to interpret on its face. Taken literally, it means that the system includes an adapter (elsewhere referred to as a controller), which is connected to three things: the parallel data bus (the multiple-wire conduit over which the data travels through the system), the data storage devices, and the correction bit storage unit. When the adapter receives a request to store new data, it causes three things to happen. First, it generates an error correction code for each data word that needs to be stored. Second, it divides the data word into two or more multi-bit portions (i.e., it "stripes" the data). Last, it sends the multi-bit portions and the associated error correction codes to their respective storage units.

IBM asks this Court to take a much less straightforward approach. It argues that this limitation ought to be construed in accordance with Section 112, para. 6 of the Patent Law, because it is a "means-plus-function" claim. I disagree with IBM and decline to impose means-plus-function status on this limitation.

We start from the proposition that a claim is presumptively not a means-plus-function claim when it does not use the talismanic words "means for . . ." See Personalized Media Communications Inc., L.L.C. v. Int'l Trade Comm'n, 161 F.3d 696, 703-04 (Fed. Cir. 1998). Of course, that is a rebuttable presumption, and IBM cites the Court to cases in which the Federal Circuit or a district court construed a claim that lacked the words "means plus." See, e.g., Mas-Hamilton Group, Inc. v. LaGard, Inc., 156 F.3d 1206, 1214 (Fed. Cir. 1998); Raytheon Co. v. Roper Corp., 724 F.2d 951, 957 (Fed. Cir. 1983).

IBM argues that limitation (iv) qualifies as a means-plus-function claim because it discloses nothing more than the function performed (an adapter that does x, y and z) rather than disclosing any structure. TM, supported by a greater number of cases, urges me to find that this limitation discloses enough structure, in addition to the functions performed, to keep the claim within the presumption.

To a neophyte like myself, this special wrinkle to the means-plus-function doctrine is particularly perplexing. TM correctly calls my attention to cases in which the following limitations have been held not to state means plus function claims: Personalized Media, 161 F.3d at 704-05 (finding that "digital detector" could not be construed as means-plus-function limitation; "detector" is not a generic structural term, but rather had well-known meaning to those skilled in the art); Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996) (Section 112 para. 6 could not apply to "detent mechanism" simply because claim took its name from function; "detent" had well understood meaning in the art); Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996) (no means-plus-function treatment where claim described both structure and location); Hay & Forage Indus. v. New Holland North America, Inc., 25 F. Supp. 2d 1170, 1175 (D. Kan. 1998) ("steering structure" did not state means-plus-function claim because structure was not a structure connected between junction box and tongue); MediaCom Corp. v. Rates Technology, Inc., 4 F. Supp. 2d 17, 27 (D. Mass 1998) ("switch jack" did not state means-plus-function claim where structure named and described as connected to adjacent structure). This last example is particularly difficult to understand, since the claim actually uses the "means plus" language. IBM responds that, in MediaCom, although the switch term was held not to be a means-plus-function, the construction of the term "switch jack" was nevertheless informed by the structure of the switch as described in the specification. See MediaCom, 4 F. Supp. 2d at 27. IBM also notes that (1) in Ethicon, the Federal Circuit emphasized that it was not suggesting that paragraph 6 is triggered only if the word "means" is used; (2) the digital detector patent in Personalized Media, unlike the one in this case, included numerous embodiments; and (3) the Hay & Forage case has not been reviewed by the Federal Circuit.

--- Footnotes ---

8 Of course, just as the presumption of means-plus-function treatment for claims using means plus language is rebuttable, so also the converse: any presumption that the failure to use means plus language takes one out of the scope of Section 112, para. 6 can also be overcome.

--- End Footnotes ---
IBM's clarifications notwithstanding, the examples cited by TM fairly support an argument that the claim in suit here is not a means-plus-function claim. The claim does not simply state "any means for performing functions x, y, and z." Rather, it discloses the use of an adapter (which TM asserts would connote a well-defined structure to persons of ordinary skill in the art), in a particular electronic configuration ("an adapter ... connected to said parallel data bus, said data storage units and said correction bit storage unit"), which performs those functions. If the cases cited by TM mean anything, it must be that the disclosure of this case is more than sufficient to keep a limitation out of the ambit of Section 112 para. 6.

IBM argues that the term "adapter" does not connote or identify any definite structure, but is rather a "generic descriptor" for "devices used to make electrical or mechanical connections between items not intended for use together." (IBM Br. at 23.) It calls the Court's attention to cases in which devices it deems similar have been found to state means-plus-function claims, notwithstanding the absence of the presumptive language. See, e.g., Mas-Hamilton Group v. La Gard, Inc., 156 F.3d 1206, 1213-14 (Fed. Cir. 1998) ("a substantially non-resilient lever moving element for moving the lever" qualifies as a means plus function claim). And it suggests that the veracity of its position can be confirmed simply by replacing the word "adapter" with the word "means," so that the claim language reads "a means for" achieving the three desired functions.

However, IBM misreads the law. A claim qualifies for Section 112, para. 6 treatment when it covers any and all means for achieving a desired result. See Davies v. United States, 31 Fed. Cl. 769, 776 (Fed. Cl. 1994). Thus, the "lever moving element for moving a lever" in Mas-Hamilton encompasses anything that can be used to make a lever move. It is a tautological claim. The instant claim is not. It does not cover any conceivable means for dividing the data words, generating error codes and sending the data and associated error codes on their respective ways. It covers one means: an adaptor that is simultaneously connected to both types of storage units (data and error correction bit) and to the parallel bus. If this could be converted into a means-plus-function claim, then so could any claim in which the disclosed structure takes its name from the function it performs, e.g., "brake", "clamp", or "filter," to name a few.

I therefore decline to construe this claim under Section 112, para. 6, and I reject IBM's suggestion that it be defined for the jury in terms of the specifications disclosed in the preferred embodiment. I will explain the claim to the jury in the precise terms set forth in the opening paragraph of this section of the opinion.

Claims 16 and 28 of the '642 patent are at issue, and only one limitation present in both claims is relevant to this appeal. Claim 16 reads as follows:

1. A pulse oximeter which measures the oxygen saturation of blood in body tissue, said pulse oximeter comprising:

   a light emitter adapted to emit light of at least first and second wavelengths;

   a light detector responsive to light from said light emitter which has passed through body tissue having blood, said light detector providing intensity signals;

   an adaptive filter responsive to said intensity signals to provide at least one filtered signal; and an oxygen saturation module responsive to at least said filtered signal to calculate oxygen saturation of said blood.

Id. at col. 42, ll. 17-29 (emphasis added). Claim 28 is similar to claim 16, except that claim 28 uses the term "adaptive signal processor" instead of "adaptive filter." 1 Id. at col. 43, l. 7 to col. 44, l. 5.

1 Neither party has argued that any meaningful difference exists between the "adaptive signal processor" and "adaptive filter" limitations. We therefore interpret these limitations identically.

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Masimo sued the defendants in the United States District Court for the Central District of California, alleging that the defendants' N-395 stand-alone pulse oximeter and MP-404 OEM pulse oximetry circuit board infringed claims 16 and 28 of the '642 patent. Masimo, slip op. at 1. Masimo thereafter filed a motion for a preliminary injunction and the defendants filed a motion for summary judgment of noninfringement. Id. The district court interpreted the "adaptive filter" limitation of claim 16 and the "adaptive noise canceler" limitation of claim 28 to mean "only one specific type of adaptive filter, an adaptive noise canceler." Id. Based on its claim construction, the court granted the defendants' motion for summary judgment of noninfringement. Id. at 2. The court determined that no reasonable juror could find literal infringement of the "adaptive filter" or "adaptive signal processor" limitations and that Masimo failed to demonstrate that there was a genuine issue of material fact that the adaptive filter in the accused devices satisfy those limitations under the doctrine of equivalents. Id. The district then denied Masimo's motion for a preliminary injunction because it failed to establish a likelihood of success at trial. Id.

Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). "The evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). We review a district court's grant of a motion for summary judgment de novo. Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315, 47 U.S.P.Q.2D (BNA) 1272, 1275 (Fed. Cir. 1998). The grant or denial of a preliminary injunction pursuant to 35 U.S.C. § 283 is within the discretion of the district court, Genentech, Inc. v. Novo Nordisk, A/S, 108 F.3d 1361, 1364, 42 U.S.P.Q.2D (BNA) 1001, 1003 (Fed. Cir. 1997), and thus we review such a denial for an abuse of discretion, Canon Computer Sys., Inc. v. Nu-Kote Int'l, Inc., 134 F.3d 1085, 1088, 45 U.S.P.Q.2D (BNA) 1355, 1358 (Fed. Cir. 1998).


Masimo argues that the terms "adaptive filter" and "adaptive signal processor" are readily understood by those skilled in the art to be "devices that remove noise by monitoring their own performance and, in response, self-adjust their own parameters through closed loop action to improve their performance," and that the Widrow and Haykin texts incorporated by reference into the '642 patent confirm that ordinary meaning. Masimo also contends that statements made in the specification and the prosecution history clearly demonstrate that Masimo broadly claimed a generic adaptive filter, not any particular type of filter. Finally, Masimo argues that, even under the district court's construction, it established a genuine issue of material fact that the defendants' products infringe its patent under the doctrine of equivalents.

The defendants respond that the only "adaptive filter" disclosed in the specification is an adaptive noise canceler, and that the Widrow and Haykin references were cited only for their disclosures of particular algorithms that may be utilized in an adaptive filter, not for their discussion of different types of adaptive filters. The defendants also contend that the terms "adaptive filter," "adaptive signal processor," and "adaptive noise canceler" were used interchangeably during prosecution and thus have the same meaning. Finally, the defendants argue that undisputed testimony reveals that the adaptive filter used in its pulse oximeter products operates in a substantially different way from the "adaptive filter" in the '642 patent, and therefore that it cannot infringe that patent either literally or under the doctrine of equivalents.

We agree with the defendants that the district court properly construed the "adaptive filter" and "adaptive signal processor" limitations to mean an adaptive noise canceler. The specification repeatedly teaches the use of an adaptive noise canceler to remove noise from the input signals once the noise reference signal is generated, and it does not point to any other filter that performs a similar function. E.g., '642 patent, col. 10, ll. 21-25; col. 18., ll. 26-30; col. 28, ll. 5-10; col. 32, ll. 63-66. Moreover, the specification characterizes the invention, and makes clear that an adaptive noise canceler is central to the operation of the patented pulse oximeter, when it states that "the present invention is a processor which determines a noise
Masimo argues that the specification states in the Summary of the Invention that "the adaptive signal processor may comprise an adaptive noise canceler," and therefore that it is improper to construe that limitation to cover only the preferred embodiment. However, as discussed above, no embodiments of the "adaptive filter" limitation other than an adaptive noise canceler are disclosed. One isolated statement in the Summary of the Invention to the effect that the limitation at issue "may" be an adaptive noise canceler does not override the teachings of the specification as a whole that it is only an adaptive noise canceler. We therefore conclude that one of ordinary skill in the art reading the specification would understand the term "adaptive filter" to be limited to an adaptive noise canceler.

Masimo also argues that the Widrow and Haykin references provide support for its broad interpretation of the term "adaptive filter." However, as pointed out by the defendants, those texts were referenced for the sole purpose of explaining the least squares and least squares lattice algorithms, respectively, '642 patent, col. 11, ll. 10-16; col. 18, ll. 38-43, and not for the purpose of disclosing alternative types of adaptive filters. The reference to those texts in the specification therefore does not support Masimo's interpretation of the term "adaptive filter."

Moreover, the prosecution history supports the conclusion that the claims of the '642 patent are limited to an adaptive noise canceler. Masimo used the terms "adaptive filter," "adaptive signal processor," and "adaptive noise canceler" interchangeably when it responded to the examiner's initial rejection for failure to provide proper antecedent basis for the term "adaptive filter."

Specifically, Masimo stated that:

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The term adaptive filter is also supported in the specification. The characteristic of filtering is discussed throughout the specification. The adaptive noise canceler is described on page 19 as a dynamic multiple notch filter. In addition, a "noise canceler" is a filter. . . . Thus, applicants have support for the term adaptive filter.
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Paper No. 6 at 5-6 (emphasis added). Masimo later stated that "the independent claims define that at least one output/filtered signal is provided by an adaptive canceler, multiple notch filter, adaptive signal processor or adaptive filter," id. at 6 (emphasis added), thus demonstrating that Masimo gave these terms the same meaning.

Finally, and perhaps most compelling, an examination of the claims of the '642 patent demonstrates that Masimo treated these terms synonymously. Claims 18, 19, and 21, all of which depend from claim 16, refer to "said adaptive canceler." '642 patent, col. 42, ll. 32-46. Claim 16 does not refer to an "adaptive canceler," as would be expected from the use of the word "said" in the dependent claims. See MPEP § 2173.05(e) (7th ed. Rev. Feb. 2000) (stating that claim terms must have proper antecedent basis to avoid an indefiniteness rejection). Instead, claim 16 refers to an "adaptive filter." Id. at 25-26. Thus, Masimo drafted the claims such that the term "adaptive filter" provided the antecedent basis for the phrase "said adaptive canceler." Accordingly, those claim terms must be construed to mean the same thing, i.e., an adaptive noise canceler, the only type of adaptive filter disclosed in the '642 patent.

Based on the intrinsic evidence of the '642 patent, we conclude that the district court correctly interpreted the "adaptive filter" and "adaptive signal processor" limitations to mean an adaptive noise canceler.

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6 Broadcom concedes that, under either construction, "only one operating parameter actually need be selected and scaled." (Broadcom Resp. at 27.)

7 "Our position is operating parameter scaling options is a set of values of various parameters." (R. at 72 (May 7, 2004).)

8 "Your operating parameter options have two components. One is which parameter you change and the second is which value you adopt for that parameter." (R. at 76 (May 7, 2004).)

Although each party argues that the plain language of the term and its surrounding claim text supports its construction, the Court finds that the claim language itself is ambiguous because it could be read to support either construction. The specifications, however, provide strong support for Agere's construction. See Vitronics, 90 F.3d at 1582 ("As we have repeatedly stated, claims must be read in view of the specification, of which they are a part." (internal citation and quotations omitted).) The specifications include a table describing "parameter scaling options" exemplified by sets of fixed values for the various parameters. ('550 patent, col. 5, ll. 37-50.) This table "lists several parameter options for various scaleable transmission or data rates." (Id., col. 5, ll. 32-33 (emphasis added).) In the text describing the table, the term "options" is used to describe sets of operating parameters consisting of given values for each of symbol duration, guard time, number of carriers, bandwidth, and raw data rate. (Id., col. 5, ll. 33-36.) Therefore, although the claim text does not provide clear content to the term "options," the specification demonstrates that "options" consist of sets of specified values of parameters. Accordingly, the intrinsic record supports Agere's proposed construction.

Broadcom attempts to refute this conclusion with evidence from the prosecution history, specifically arguments made by the applicant to distinguish the application from prior art. As originally filed, claim 1 taught "dynamically scaling at least one of said operating parameters for said method." (Broadcom Resp. Ex. E at 22 ("550 File History").) This broad claim was rejected by the Examiner in light of U.S. Patent No. 5,063,574 (the "Moose patent"), which "teaches a method for providing communication OFDM signals which comprises the step of dynamically scaling at least one of the operating parameters." (Id. at 44.) In response, the applicant amended claim 1 to add the limitation of "said dynamic scaling achieving a scalable operating characteristic by adaptively selecting one of a plurality of operating parameter scaling options." (Id. at 49-50.) While this exchange itself does not provide substantive content to the word "options," Broadcom points to a statement in which the applicant writes: "To scale an operating parameter in response to changes in characteristics of the communications environment, one of a plurality of scaled operating parameter options (e.g., the number of carriers, symbol duration, number of bits per carrier, and guard interval) is selected." (Id. at 75.) Broadcom argues that this statement clearly equates "options" with parameters. As Agere points out, however, the very next page of the file history suggests just the opposite. While describing a figure in the specifications, the applicant writes: "The dynamic control circuitry...may adaptively select an operating parameter scaling option having a relatively large guard time interval and large number of subcarriers to achieve the desired data rate while providing low delay spread tolerance." (Id. at 76.) This statement suggests that an "option" consists of a set containing values of multiple parameters and that this set may be selected to achieve a desired operating characteristic. Thus, the file history is ambiguous and therefore cannot overcome the construction suggested by the specifications. See Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1345 (Fed. Cir. 2003) ("One vague statement from the prosecution history does not have much bearing on the meaning of a claim phrase . . . which [the Federal Circuit] derives from the specification's clear teachings . . .").

Agere also challenges Broadcom's inclusion of the following sentence in its proposed construction: "The choice of which operating parameter(s) to select cannot be predetermined." Broadcom claims that this statement, which is not found in any of the claim text, is necessitated by the claim term "adaptively." The problem with this language, however, is obvious given the Court's resolution of the first dispute. While the choice among parameter scaling options is "adaptively selected" in real time, and thus not predetermined, operating parameters themselves are not "selected," as Broadcom's language would imply. (See '550 patent, Table 1, col. 5, ll. 37-50; see also R. at 80 (May 7, 2004) (Broadcom's counsel conceding that "the numbers are predetermined. The options are not.").) Accordingly, the Court declines to add this further limitation. Therefore, the Court adopts the following construction: "Making a selection from among a set of options, each of which has different values for one or more operating parameters."
15. Adding the current requested website page to the traffic path analysis data and thereby showing the complete path of website pages requested during the current website visit. (First appearing in claim 1 at col. 13, ll. 1-5, and as used similarly in claims 11 and 22)

Websidestory contends that this phrase has an ordinary meaning, and does not need construction. Joint Claims Construction Chart at 7. Netratings contends that the phrase should be construed to mean, "appending in sequence the link for the current requested website page to the preexisting sequence of website page links in the website cookie." Joint Claims Construction Chart at 7. Websidestory rejects Netratings' proposed construction, arguing that (1) Netratings' use of the word "appending" in place of "adding" does nothing to clarify the disputed phrase, (2) Netratings' use of the word "link" is unnecessary, and improperly limits the scope of the '479 Patent, and (3) nothing in the '479 Patent limits storing traffic path analysis data in locations other than the website cookie.

As previously concluded, the claims require that the traffic path analysis data referred to be contained in the website cookie. Accordingly, the Court adopts that part of Netratings' proposed construction which clarifies that the current requested website page is being added to the traffic path analysis data in the website cookie. Patent at col. 12, l. 55 - col. 13, l. 5. The Court concludes that the balance of this disputed phrase does not require construction. The phrase has an ordinary and customary meaning which is "readily apparent" to "lay judges," and the Court concludes that the ordinary meaning today is the same as it was when the '479 Patent issued in 1999. Phillips, 415 F.3d 1314; see Lucent Technologies, 367 F. Supp. 2d at 657 ("marking" construed as "marking"). The Court concludes that use of Netratings' proposed terms "appending" and "link" would impermissibly rewrite claim language and improperly limit the claims.

The Court concludes that the acquired meaning of this disputed phrase is: "Adding the current requested website page to the traffic path analysis data in the website cookie and thereby showing the complete path of website pages requested during the current website visit."

(9) "Additional Information"

Claim 18 of the '792 Patent states, in relevant part,

[the first data storage system maintains . . . an index of information . . . the index identifying data stored in the first data storage system and not yet copied to the second data storage system, the index including additional information about the copy of the data stored in the second data storage system so that the additional information is accessible by the first data storage system without retrieval from the second data storage system in order to reduce time for recovery from a failure to access the data stored in the first data storage system.]

'792 Patent, Col. 63, ll. 54-67 (emphasis added). EMC contends that the term "additional information" as used in the '792 Patent means information in addition to the information "identifying data stored in the first data storage system and not yet copied to the second" including, for example, whether a predetermined data element stored in the second data storage system is valid. HP contends that the term "additional information" is vague and indefinite, but, in any event, relates to the copy of the data on the second data storage system and cannot refer to general information about the status of that system or devices in that system, e.g. device pending or write-disable drive information. The operative dispute is, therefore, whether the term "additional information" is vague and indefinite and, if not, whether it includes device-level information.

Because the parties do not dispute the plain and ordinary meaning of the term "additional information", dictionary definitions are not helpful. Nor do the terms of Claim 18 shed any light on the dispute at issue. The language of dependent Claim 19, however, provides some clarification wherein it states, in relevant part,

[the system as claimed in claim 18, wherein the index includes a first indicator of whether a write to a predetermined
data element is pending to the second data storage system . . . and the additional information about the copy of the data stored in the second data storage system includes a second indicator of whether the predetermined data element is valid in the second data storage system.

'792 Patent, Col. 64, ll. 1-9. Accordingly, the index in dependent Claim 19 of the '792 Patent includes at least a first indicator of write pending information with respect to a predetermined data element and a second indicator of the validity of that predetermined data element on the second data storage system. Under the doctrine of claim differentiation, again, there is a presumption that the term "additional information" as used in Claim 18 includes, at least, validity information about a predetermined data element. As more thoroughly discussed earlier in this Memorandum, an indicator of the validity of a predetermined data element can include both track and device level information, i.e. information about data located at a specific track on a storage device and about all of the data stored in a particular storage device.

Finally, consistent with the claim language itself, the Specification of the '792 Patent does not explicitly or implicitly limit "additional information" to track-level information. Indeed, in many instances the Specification refers to device-level information as "additional". For example, in describing Figure 3, which depicts an index including invalid track, device pending and write disable drive information, the Specification states that

FIG 3 is a schematic representation of an additional list or index . . . to keep track of additional items including an invalid data storage device track, device ready status and write disable device status . . . .

'792 Patent, Col. 6, ll. 23-26 (emphasis added). Later, the Specification also adds,

[i]n addition to the write pending and format pending bits described above, the data storage system 10 also includes several additional general purpose flags to assist in error recovery. As shown in FIG. 3, invalid track flags . . . are utilized and maintained on each data storage device . . . . Additional flags may be provided such as the device ready flags . . . . Similarly, write disable flags 132 may be provided . . . .

'792 Patent, Col. 11, ll. 51-56, Col. 11, ll. 63-67 (emphasis added).

With respect to the '792 Patent, therefore, the term "additional information" has not been limited to track level validity information but rather can include device level information such as device pending or write disable drive information because such information refers, albeit indirectly, to the copy of the data stored on an entire storage device in the second data storage system. As with track level information, moreover, device-level information "assist[s] in error recovery" as required by the language of Claim 18. See '792 Patent, Col. 11, In. 51 - Col. 12, In. 5. Accordingly, the term "additional information" will be construed to include device level validity information.

Finally, the term "additional information" is neither vague nor indefinite. A claim is considered indefinite only if it is "insolubly ambiguous, and no narrowing construction can properly be adopted." Amgen, 314 F.3d at 1342 (internal quotation marks omitted). Here, both the claim language and the Specification make clear that the term "additional information" refers to any information beyond that which identifies data stored in the first storage system but not yet copied to the second and which is about the copy of data stored in the second data storage system. The language of dependent Claim 19 and the Specification instruct that such "information" can include information about the validity of a predetermined data element and the '347 and '792 Patents disclose numerous validity indicators at both the track and device levels. HP's claim that the term "additional information" is vague or indefinite is, therefore, unavailing.

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1. Additional Processor Outside Any E-Mail System: A processor or information source which originates electronic information without executing electronic mail programming.

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3. "an address in a format designating at least one mass memory storage block" and "a mass memory storage block address" ('316 pat., cls. 67 and 79; '842 pat., cls. 1, 10 and 61)

For this term, the parties have one major and one minor dispute. The minor dispute is whether the claimed address must "reference a block of user data" as plaintiff contends. In a sentence, defendants assert that "[t]here is simply no requirement in claim language" to support this limitation. Dkt. #536 at 20. Plaintiff responds in a footnote that elsewhere the claim language requires at least "user data" and "overhead data" and asserts that overhead data can be excluded because it is not "involved" in the method. Dkt. #559 at 16 n.5. The parties' cursory treatment of this matter suggests it is not a matter of importance to them, and may not even be related to a question of infringement or invalidity. At any rate, I am not persuaded that the limitation is required and decline to accept plaintiff's request to add it.

The major dispute is whether the mass memory storage block address must specify a "physical" address for the mass memory system or whether they could also specify a "logical" address. By "physical" address, the parties are referring to a description of a physical location within the mass memory system. A "logical" address describes the data without regard to its physical location; it is simply a number assigned to data to distinguish that data from other data stored in mass memory. In either instance, the system maintains a way for "finding" the data (which is presumably why these physical and logical descriptions are both considered "addresses").

As plaintiff points out, the type of addressing used by a mass memory system (such as a hard disk) matters little to the functioning of a flash memory device. Regardless what sort of address the mass memory gives it, the flash memory device will have to "remap" the memory into its unique storage system. A mass memory physical address cannot become the physical address of the data stored in the flash memory. To take an example, data stored in a magnetic memory disk may be given a "physical address" according to the Cylinder, Head and Sector in which the data is located but a flash memory device does not have cylinders or heads. Therefore, it must convert the previous physical address into an address that reflects its own physical organization.

For plaintiff, this point weighs in favor of including both physical and logical addresses within the claim. Plaintiff adds that its construction is supported by both the "intrinsic record" of the '316 and '842 patents and the "understandings" of persons of ordinary skill in the art at the time of the inventions. In particular, plaintiff asserts that, by the time the patents were filed, it was "well understood" that disk drives could use either physical or logical addressing. Moreover, a prior art patent, U.S. Pat. No. 4,924,331 (the "Robinson patent"), stated that it was already "well known in the disk drive field to convert logical block addresses into cylinder head and sector addresses as most seek commands are initially input as logical block addresses."

Defendants acknowledge that logical addressing in mass memory storage was known at the time the patents at issue were filed but attempt to distinguish the Robinson patent (which also suggests that logical addressing was common). For the sake of argument, I assume defendants are correct in saying that logical addressing would not have been common at the time of the invention. Even so, plaintiff's point is valid: it would make sense for a flash memory device to receive both logical and physical addresses.

That is not enough to say it does. The starting point in construing any term is the language of the claim itself, which in this instance is "an address in a format designating at least one mass memory storage block." (The parties agree that this language is interchangeable with the term "mass memory storage block address.") According to defendants, plaintiff's construction would make the phrase "in a format" superfluous because format falls out of the picture under that construction.

Defendants may be right that logical block addressing is not regularly considered a mass memory storage "format" even if it can be used in that setting. Nonetheless, I am not persuaded that the phrase is as empty as defendants say it is under plaintiff's reading. Leaving out the phrase and claiming "an address designating at least one mass memory storage block" tends to suggest that the address is actively "designating" the block while the phrase "in a format" helps emphasize that the address need be only of a sort designed to work in a mass memory storage block. Moreover, nothing about the phrase or the purpose of the patents at issue suggests an intent to limit the patent to converting only one type of mass memory storage addressing. It would make no sense or produce any additional benefit to include such a limitation. Defendants do not suggest that the limitation was necessary to distinguish prior art. At most, the phrase "in a format" is inartful; it is not intended to impose a requirement that the address of the mass memory storage block be physical.
Thus, I conclude that "an address in a format designating at least one mass memory storage block" and "a mass memory storage block address" need not "refer to a block of user data" and may specify either a physical or a logical address for the mass memory system.

OPTI's construction of "address-data bus" is "a bus that carries both address information and data." nVidia's construction is similar. nVidia contends that "address-data bus" is "the bus that carries address information in one or more address phases, and data information in one or more data phases." As the parties' proposed constructions are similar, the Court's inquiry for this dispute is focused on whether or not "address-data bus" is limited to the use of phasing techniques.

According to nVidia, the intrinsic evidence defines the address-data bus as sending address information and data in phases. The 141 patent Abstract explains:

Address, data, command, interrupt request, and DMA request information are communicated between the host and the peripheral device via a single bus by multiplexing the information on the bus using phase techniques.

Furthermore, nVidia relies on this Court's precedent that statements in the Summary of the Invention and prosecution history that define the invention may limit the scope of the claims. See IAP Intermodal, L.L.C. v. Northwest Airlines Corp., 2:04-CV-65 (Memorandum Opinion and Order of Sept. 7, 2005). Accordingly, nVidia contends that the Summary of the Invention in the 141 patent is so limiting:

The present invention, roughly described, is directed to an interface to be used between a host device and one or more peripheral devices . . . Using phasing techniques, the CISA interface multiplexes the different types of information onto the single bus. For instance, in one cycle, address information may be driven onto the bus for a time period, an "address phase," followed by data information in a "data phase."

'n141 patent, Col. 3:24-58. In further support of its argument, nVidia notes that every other example in the 141 patent specification that communicates address and data information communicates address and data information over the "address-data bus" in at least one address phase and at least one data phase. See 141 patent, Col. 6:7-18.

nVidia's proposed construction is incorrect. nVidia is attempting to incorporate limitations from the preferred embodiment into the claims. The citations nVidia relies on to support its construction are full of non-limiting words such as: "the present invention, roughly described" and "for instance." These non-limiting words appear throughout the Summary of the Invention and specification.

There is nothing in the Summary of Invention or the rest of the specification that would require "address-data bus" to be limited in the manner nVidia desires. To do so would be error. See RF Del., Inc. v. Keystone Techs., Inc., 326 F.3d 1255, 1264 (Fed. Cir. 2003). Phasing techniques are just one method of multiplexing information and the claims will not be limited to phasing techniques absent a disavowal of claim scope by the patentee.

In addition, claim differentiation supports OPTI's proposed construction. As a matter of claim construction, dependent claims are generally narrower in scope than the claims from which they depend. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed. Cir. 2000). The doctrine of claim differentiation "is clearly applicable when there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim, and that limitation is the only meaningful difference between the two claims." Werner Mfg. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001).

Independent claim 1 of the 141 patent states that the invention comprises "an address-data bus to carry in a multiplexed manner address information . . . [and] data information." Dependent claim 2 states that the "said address information is carried on said address-data bus during an address phase . . . and said data information is carried during a data phase[.]"
Thus, if phasing techniques were a limitation of address-data bus in claim 1, it would render claim 2 of the 141 superfluous.

nVidia asserts that claim differentiation does not apply in this case because claim 2 additionally contains the phrase "said data phase follows said address phase[.]" Thus, nVidia contends, the difference between claim 1 and claim 2 is that the data phase may precede the address phase in claim 1. The Court rejects this argument as it is understood that the data phase follows the address phase. See September 4, 1998 Office Action at 3 ("one of ordinary skill in the art would have considered having the data phase follow the address/command phase because following this sequence is important in order to avoid sending data information to the wrong destination/address."). Accordingly, because the patentee did not disavow other methods of multiplexing and claim differentiation undermines nVidia's assertions, the Court adopts OPTi's proposed construction for "address-data bus."

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"An FDDI or Ethernet MAC Address for a Nonfunctioning Router"

Cisco's proposed construction for this term is "a MAC address for an FDDI or ethernet network, which address is not assigned to a physical router functioning in the network." Alcatel argues that claim 17, in which the above term appears, is indefinite and thus does not meet the requirements of 35 U.S.C. § 112 P 2. Alcatel contends that claim 16, on which claim 17 depends, is unclear because it contains the phrase "the two or more routers" (emphasis added), and there is no clear indication what routers are being referenced. However, the Court finds it clear that "the two or more routers" in claim 16 is referring to the "at least two physical routers" discussed in claim 10, on which claim 16 depends, and thus Alcatel's argument for indefiniteness fails in this regard.

Furthermore, Alcatel contends that claim 17 is also indefinite because there is no support in the patent to explain what is meant by "a nonfunctioning router." According to Alcatel, one is left to wonder whether this refers to "a virtual router, a broken-down router, or to some other form of router." Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,473,599 (Li et al.) ("Alcatel's '599 Opening Brief"), at 24.

Notwithstanding that argument, while the Court agrees that the patent is devoid of an explanation of "nonfunctioning router," 38 according to Cisco's expert, the term "nonfunctioning router" would be known to one of ordinary skill in the art to refer to a router that is not functioning in the network. See Halpern '599 Report, at 25. Alcatel offers no evidence to refute this assertion, nor does Alcatel even claim that "nonfunctioning router" has no meaning to one of ordinary skill in the art.

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38 None of the passages in the specification identified by Cisco refer to a "nonfunctioning router," or anything that can be understood to mean a "nonfunctioning router."

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Nevertheless, even accepting that "nonfunctioning router" is a term known to one of ordinary skill in the art, Cisco's proposed construction does not comport with the meaning of that term. Cisco seeks to construe the language as an FDDI or ethernet MAC address not assigned to a functioning router. However, the claim term does not refer to an address not assigned to a functioning router; the term refers to an address assigned to a nonfunctioning router.

Therefore, Alcatel's argument that claim 17 is indefinite fails, and the Court construes the term "an FDDI or ethernet MAC address for a nonfunctioning router" to mean "an FDDI or ethernet MAC address that is assigned to a router not functioning in the network."

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1. "address information"

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The term appears in claim 1, 6, 8, 12 and 18. The parties deem claim 1 as representative (the disputed term is in boldface):

1. A method for establishing real-time audio communications between a process executing on a computer system coupled to a packet-switched network and an information source coupled to either a packet-switched data network or terminating apparatus on a circuit-switched communication network, the method comprising:

A. retrieving, with a browser process executing on the computer system, address information usable in establishing a real-time audio communication connection with a destination;

B. supplying the address information from the browser process to a computer telephony communication utility associated with the browser process; and

C. initiating with the computer telephony communication utility a real-time audio communication connection with the destination identified by the address information. (emphasis added)

a) The Parties' Proposed Constructions

The parties propose the following constructions:

<table>
<thead>
<tr>
<th>eBay</th>
<th>IDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Internet Protocol address,</td>
<td>Information that a telephone communication</td>
</tr>
<tr>
<td>an E-mail address or a</td>
<td>utility will use to establish a communication</td>
</tr>
<tr>
<td>telephone number.</td>
<td>with a destination.</td>
</tr>
</tbody>
</table>

*2*See Doc. No. 99 at 87 (JCCC Exhibit 1 at 85).

b) Discussion

Beginning once again and always with the claim language, nothing in the claim language per se counsels in favor of one construction or the other. However, claim 1 does require "initiating with the computer telephony communication utility a real-time audio communication connection with the destination identified by the address information." (emphasis added)

Thus, turning to the specification, eBay's proposed construction is based on the following statement in the specification:

"Contained on webpage 302 is address information, i.e. an Internet protocol address, an E-mail address or a telephone number, or other information which may be stored in any number of forms including an HTML tag."

(Doc. No. 87 at 38) (quoting '490 patent, col. 9, line 66-col. 10, line 2). eBay points out that "i.e." stands for the Latin term id est, meaning "that is." eBay relies in part on Abbott Labs. v. Novopharm Ltd., 323 F.3d 1324, 1327, 1330 (Fed. Cir. 2003), in urging that the specification thus defines "address information."

In Abbott, the specification of the patent-in-suit explained:

"the "co-micronization of fenofibrate and a solid surfactant (i.e., the micronization of an intimate mixture of fenofibrate and a solid surfactant) makes it possible to improve the bioavailability of the fenofibrate to a significantly greater extent than that which would be achieved either by adding a surfactant [to fenofibrate], or by micronizing the fenofibrate on its own, or by intimately mixing the separately micronized fenofibrate and surfactant.""

323 F.3d at 1327. The district court concluded that claims thus could not be construed to include "mixtures obtained by adding a surfactant to fenofibrate, or micronizing fenofibrate by itself, and/or mixing separately micronized fenofibrate and surfactant." Id. The Federal Circuit agreed: "Had that term not been explicitly defined in the '726 patent specification, we might well agree with the appellants that that term could simply mean 'micronized with or together' and would not necessarily exclude the presence of ingredients not specifically recited in the claim. However, the phrase 'co-micronization of fenofibrate and a solid surfactant' is in fact explicitly defined at column 1, lines 35-38, of the '726 patent, as
'micronization of an intimate mixture of fenofibrate and a solid surfactant.' Hence, this is a case in which the patentee has 'chosen to be his own lexicographer,' and the district court did not err by reading the patentee's definition from the specification into the claim." 323 at 1330.

[EDITOR'S NOTE: TEXT WITHIN THESE SYMBOLS [O> <O] IS OVERSTRUCK IN THE SOURCE.]

Net2Phone argued in its opening brief that "other information" in the quoted portion of the '490 patent specification indicated that "address information" encompasses "all types of information usable in establishing a communication with a destination." (Doc. No. 83 at 28). eBay in response notes that disregards the grammar expressed in the sentence. That is, eBay points out that in the phrase "an Internet protocol address, an E-mail address or a telephone number, or other information," "or other information" does not refer to "address information," but rather other information that may be contained on a webpage. In other words, "[c]ontained on webpage 302 is [1] address information, i.e. an Internet protocol address, an E-mail address or a telephone number, or [2] other information which may be stored in any number of forms including an HTML tag." (Doc. No. 87 at 39). eBay notes that to read the sentence as Net2Phone does, the sentence would have to be rewritten "[c]ontained on webpage 302 is address information, i.e. an Internet protocol address, an E-mail address or a telephone number, or other information which may be stored in any number of forms including an HTML tag." Id.

Net2Phone responds that "eBay's citations to the case law [i.e., Abbott], however, are irrelevant because they would only support eBay's proposition only if there were no other disclosure in the specification as to the scope of 'address information,"" (Doc. No. 92 at 13-14) (citing Pfizer, Inc. v. Teva Pharms.USA, Inc., 429 F.3d 1364, 1373-74 (Fed. Cir. 2005)), urging that the Federal Circuit held that "i.e." did not define the term "saccharides" because the remainder of the specification gave the term a broader scope. Net2Phone urges that "[i]n any case, the Background of the Invention removes any ambiguity regarding whether other information is included in 'address information' by providing that 'other information' can be address information to the extent that it is retrieved from a website and used to establish a communication with a destination." (Doc. No. 92 at 14) (citing '490 patent, col. 3, lines 39-44).

In its sur-reply, eBay urges contends that Net2Phone's reliance on Pfizer is misplaced because here, unlike in Pfizer, there is no disclosure of a broader intended meaning. eBay urges that "Net2Phone has not and cannot point to a single instance in the intrinsic evidence where 'address information' comprises something other than an internet protocol address, an email address or a telephone number." (Doc. No. 95 at 14-15).

The Court agrees with eBay. First, eBay is correct in parsing the sentence, according to punctuation and grammar: "[c]ontained on webpage 302 is [1] address information, i.e. an Internet protocol address, an E-mail address or a telephone number, or [2] other information which may be stored in any number of forms including an HTML tag." Or, using ellipses: "[c]ontained on webpage 302 is [1] address information, . . . or [2] other information which may be stored in any number of forms including an HTML tag." In Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1336 (Fed. Cir. 2008), the Federal Circuit, in discussing the doctrine of the last antecedent and the corollary rule of punctuation, commented that "[t]herefore, to avoid slipping into a realm of ambiguity that could render jury verdicts wholly unreviewable, this court imputes an understanding of English grammar and usage to the jury. Moreover this court consults the overall context of the passage." The court also, though, noted that rules of grammar and punctuation "are more guidelines than absolute rules." Id.

Nevertheless, the grammatical construction becomes clearer in the context of the specification. The paragraph in which the subject sentence lies, begins: "FIG. 3 illustrates conceptually the inventive process of the present invention." '490 patent, col. 9, lines 61-62. Fig. 3 illustrates:

GET DRAWING SHEET 5 OF 5

The paragraph continues: "First, a browser utility process 300 executing on one of the same computer systems as WebPhone client 232 of FIG. 2B accesses a webpage 302 residing on web server 260 of FIG. 2B, as illustrated by step 1." '490 patent, col. 9, lines 62-66. The reference to "step 1" refers to arrow 1 in Fig. 3. Fig. 2B illustrates:

GET DRAWING SHEET 4 OF 5

The specification then explains that:
Contained on webpage 302 is address information, i.e. an Internet protocol address, an E-mail address or a telephone number, or other information which may be stored in any number of forms including an HTML tag. The address information is selected by the user of browser process 300, typically with a pointing device by clicking a graphic representation of the data on the webpage, as illustrated by step 2. The address information is then supplied to WebPhone client process 306, as illustrated by step 3. If the WebPhone client process is already executing, the browser process 300 does not need to launch the WebPhone client process, otherwise the process 300 launches the WebPhone client process. Having obtained the address information, the WebPhone client process 306, upon instruction from the user or automatically upon receipt of the address information from browser process 300, attempts to establish a direct, point-to-point communication with a destination specified by the address information, as illustrated [sic. "illustrated"] by step 4.

'490 patent, col. 9, line 66-col. 10, line 15.

The specification then describes the connection processes when the "address information is (1) an Internet protocol address, (2) an E-mail address, or (3) a telephone number. The specification does not describe a connection process if the "address information is "other information."

For an "Internet protocol address," for example, the specification explains:

If the address information is an Internet protocol address, having the form XXX.XXX.XXX, the WebPhone client process 306 will attempt to establish a call directly to WebPhone client process 308.

'490 patent, col. 10, lines 20-24.

For an "E-mail address," the specification explains:

If the address information comprises an E-mail address, WebPhone client process 306 may first attempt to search the local directory associated with the WebPhone client process for a corresponding Internet protocol address. If not found, WebPhone client process 306 will attempt to connect with connection/information server 252 of FIG. 2B to obtain the corresponding dynamically assigned Internet protocol address associated with the E-mail address. In such instance, WebPhone client process 306 supplies the E-mail address in packetized form to connection server 252. In response, if the process identified by the E-mail address is currently online and has a currently assigned Internet protocol address, connection server 252 will supply the Internet protocol address back to WebPhone client process 306 in packetized form. WebPhone client process 306 will then attempt to establish a connection to the second WebPhone client process 308 in a manner previously described. WebPhone client process 308 may be implemented as any process adhering to the WebPhone protocol, including an automatic call distribution system 242, a connection server 252, a gateway 218, etc.

'490 patent, col. 10, lines 24-44.

If the "address information" is a telephone number, the specification explains:

If the address information obtained by browser process 300 comprises a traditional PSTN telephone number, WebPhone client process 306 will supply the telephone number to connection server 252 of FIG. 2B. In one embodiment, connection server 252 recognizes the information as a telephone number and, using a look-up table algorithm matches a portion of the telephone number, such as the country code, area code or exchange, to an IP address representing a gateway which can establish a call over a circuit-switched network to the terminating apparatus represented by the telephone number. Such IP address is then returned to WebPhone client process 306. WebPhone client process 306 then attempts to contact the gateway, e.g. gateway 218. In the illustrative embodiment, gateway 218 implements the WebPhone protocol and is capable of functioning as a WebPhone client process without a graphic user interface. In a manner previously described, gateway 218 then establishes a traditional call to the terminating apparatus specified by the telephone number and performs the functions of translating either analog or digital telephone signals to compressed packetized audio packets, and vice versa to effect communication between the WebPhone client process and the terminating apparatus, i.e., a telephone 214.

Alternatively, the telephone number may be supplied from WebPhone client process 306 to a domain name server which then resolves the telephone number into the Internet protocol address of the appropriate gateway, in a manner described in
U.S. patent application Ser. No. 08/911,133, entitled Method and Apparatus for Establishing Communications Between Packet-Switched and Circuit-Switched Networks, by Keith C. Kelly, filed Aug. 14, 1997, and U.S. patent application Ser. No. 08/911,519, entitled Domain Name Server Architecture for Translating Telephone Number Domain Names into Network Protocol Addresses, by Keith C. Kelly, filed Aug. 14, 1997. The IP address is then returned to WebPhone client process 306 which then contacts the gateway represented by the IP address directly to establish the call to the terminating apparatus on the TSTN network, in the manner described above.

"490 patent, col. 10, line 45-col. 11, line 16. There is no description of using "other information" to establish a connection, or in the terms of claim 1 "initiating with the computer telephony communication utility a real-time audio communication connection with the destination identified by the address information," where the "address information" is something other than (1) an Internet protocol address, (2) an E-mail address, or (3) a telephone number.

Indeed, the next paragraph in the specification says:

"Utilizing the method described above, a user of a web browser utility may single click on an icon representing an HTML tag on a web page and, using the technique described herein seamlessly establish a real-time communication with either an automatic call distribution center associated with the website over a packet-switched data network or with a traditional automatic call distribution system over a telephone line.

"490 patent, col. 11, lines 17-24. The "method described above" does not include "address information" other than (1) an Internet protocol address, (2) an E-mail address, or (3) a telephone number.

The Court is mindful that during prosecution, in a response of April 27, 2001, the applicants stated in an After Final Response that "[g]enerally, upon request from a user, the browser process retrieves address information from a website address information can be in the form of an internet protocol address, an e-mail address, a telephone number or other information, any of which may be stored in the form of an HTML tag (page 17, lines 4-6)." (Doc. 87-17 at 12). That comment appears in an "Amendment After Final Action Under 37 C.F.R. § 1.116." There is a hand-written notation "O.K. to enter" which presumably comes from the examiner. However, the parties have not provided the Court with the entire prosecution history, and the context of that statement, especially given that the statement was made in after a final rejection, remains in doubt. The Court has considered the statement in the context of the parties' briefs and their oral presentations at the Markman hearing, and is not persuaded that that statement trumps the explanation given in the specification. However, the Court is open to reconsidering its conclusion if the parties request.

With respect to Net2Phone's argument that "the Background of the Invention removes any ambiguity regarding whether other information is included in 'address information' by providing that 'other information' can be address information to the extent that it is retrieved from a website and used to establish a communication with a destination," (Doc. No. 92 at 14) (citing '490 patent, col. 3, lines 39-44), that paragraph of the specification says in whole:

A further need exists for the ability to utilize information, such as Internet protocol addresses, telephone numbers, E-mail addresses and other information which may be posted on the Internet to efficiently establish a communication link between a software application, such as a browser, and a source posting of such information.

A "need" may exist for "the ability to utilize . . . other information" to "efficiently establish a communication link between a software application, such as a browser, and a source posting of such information," but that is not what the patentees equate to "address information" in the specification.

With respect to Pfizer, the Federal Circuit in distinguishing Abbott, noted that "the court did not identify any support in the intrinsic evidence for a construction of the disputed claim term other than the construction linked to 'i.e.'" Here, the Court has considered each of the instances in which the patentees referred to "address information" in the specification, and none extend "address information" beyond (1) an Internet protocol address, (2) an E-mail address, or (3) a telephone number. In Pfizer, the patent-in-suit included a section entitled "SACCHARIDES" with the following disclosure:

The saccharide components to be used in the pharmaceutical products and methods of the invention are substances which are compatible with the alkali or alkaline earth metal-containing stabilizers. Generally, they are substances which do not contain groups which could significantly interfere with the function of either the metal-containing component or the drug.
component. Mannitol, lactose, and other sugars are preferred. Mixtures are operable.

The Federal Circuit concluded that a reference to "saccharides (i.e., sugars)" did not constitute a definition of "saccharides" in light of the broader disclosure of "saccharides." Although a separate section of the specification is certainly not required, as was the case in Pfizer, none of the portions of the specification that Net2Phone references suggests that "address information," within the disclosure of the '490 patent, means other than (1) an Internet protocol address, (2) an E-mail address, or (3) a telephone number.

c) Conclusion

In view of the foregoing, the Court concludes that:

In the asserted claims of the '490 patent, "address information" means "an Internet Protocol address, an E-mail address or a telephone number."
Applying nVidia's construction to claim 2 would require that a complete address must fit on the address phase of a first cycle. Thus, nVidia's construction would mandate that claim 2 would only apply to addresses that are small enough to fit on a single phase. However, claim 4 makes clear that the address can be broken into a plurality of sub-phases and would permit transfer of addresses of varying size -- including addresses larger than 16 bits. See, e.g., 141 patent, Col. 6:7-18. In short, under nVidia's construction, claim 4 would be broader than claim 2. As claim 4 depends from claim 2, this construction would violate the canons of claim construction and is therefore rejected. The Court therefore adopts OPTi's construction for "address information."

The court rejects the parties' constructions and construes "address information" to mean "characters, numbers or bits used to represent an address."

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6. "address set," "command set," "data set"

The dispute with regard to these terms is whether a "set" can contain a single bit, as Power-One proposes, or, as Artesyn suggests, whether it must contain two or more bits. Power-One concedes that the examples of sets given in the specification are multi-bit sets. See, e.g., '916 patent, col. 4:19-25. However, the '916 specification provides that "communication cycles containing more or less information and/or bits is within the spirit and scope of the present invention." Id. at col. 4:30-33. Although the '916 specification provides examples of multi-bit sets, this does not mean that a "set" referred to in the claims must contain more than one bit. See, e.g., Varco, L.P. v. Pason Systems USA, Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) ("In examining the specification for proper context... this court will not at any time import limitations from the specification into the claims."). Accordingly, the Court declines to narrow the definition of set and construes these terms as follows:

Address set: A set of one or more bits in a message specifying the address of one or more devices connected to a bus.

Command set: A set of one or more bits in a message specifying a given command operation.

Data set: A set of one or more bits in a message reflecting data that is read from or written to a device.

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2. "Address Space"

<table>
<thead>
<tr>
<th>Term</th>
<th>VIA &amp; Intel's Proposal</th>
<th>CCCC's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;address space&quot;</td>
<td>&quot;A set of addresses that may be represented on a particular bus.&quot;</td>
<td>&quot;A set of addresses that may be associated with one or more buses.&quot;</td>
</tr>
</tbody>
</table>

According to Claim 1, each "bus" provides "bus masters connected" to it with access to "data storage locations mapped to
separate addresses within" an "address space." '369 patent at 12:43-46, 58-61. The parties agree that "address" means "an identification, such as a label, number, or name that designates a particular location in storage or any other data destination or source." Accordingly, the court will construe "address space" as "a set of addresses."

But as demonstrated by the parties' differing proposed constructions, the real dispute is over whether the first address space must be associated with the first bus and the second address space must be associated with the second bus. Basically, the parties disagree whether an address space is necessarily associated with only one bus or may be associated with multiple buses. The language of the patent resolves this disagreement. The description of the preferred embodiment makes clear that, at least for the preferred embodiment, each address space is associated with only one bus:

The interface circuit 8 maps a portion of VMEbus address space onto a portion of Futurebus address space so that when computer 2 read or write accesses selected addresses on the VMEbus, the interface circuit 8 implements the read or write access on corresponding addresses in a device on Futurebus 12 such as main memory 3.

'369 patent at 3:35-41. However, limitations from the preferred embodiment may not be read into the claims. Primos, Inc. v. Hunter's Specialties, Inc., 451 F.3d 841, 848 (Fed. Cir. 2006).

Nevertheless, the claims discuss the first address space along with the first bus and components connected to the first bus. The preamble to claim 1 sets forth a first bus providing a first plurality of bus masters to first data storage locations mapped to separate addresses within a first address space. In identical fashion, the second address space is discussed along with the second bus and components attached to the second bus; the preamble sets forth a second bus providing a second plurality of bus masters to second data storage locations mapped to separate addresses within a second address space. This discussion clearly demonstrates that an "address space" when modified by either "first" or "second" is associated with the corresponding bus. 3

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

3 There is a portion of the claims from which it might appear that a "first" reference is used inconsistently with the association set forth above. At column 12 lines 58-67, the patent reads, "the second bus providing a second plurality of bus masters connected thereto with data read and write access to second data storage locations mapped to separate addresses within a second address space, wherein one of said second plurality of bus masters writes data to a first particular one of said second data storage locations by placing on the second bus an address to which the first particular one of said second data storage locations is mapped and transmitting the data via said second bus." The "first particular one" is not inconsistent because it refers to the first of a number of second data storage locations that are mapped on the second address space.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Based on the foregoing, the court construes "address space" as "a set of addresses." Further, the court construes "first address space" as an address space that necessarily refers to addresses represented on the first bus and "second address space" as an address space that necessity refers to addresses represented on the second bus.

101

Adjacent neighbouring switches

The Court modifies Ciena's proposed construction and construes the term as “switches coupled with another switch.” Nortel argues that the term should be construed as “the first path-oriented switches encountered along each transmission path from a given switch.” Again, for the reasons discussed above the Court rejects Nortel’s inclusion of the “path-oriented switch” in the definition of the term.

Ciena contends that the term should be construed as “switches directly connected to another switch.” Ciena argues that the claims and the specification support its argument that the switches must be directly connected to one another. See Cols. 3:2-6 (“This information is calculated at switch C and is broadcast to all switches that are directly connected to switch C (i.e. to switches A, B, D, and E in this example)”; 3:21-23; 4:14-17. Nortel argues that the term "directly connected" does not appear in the claim language and is not required by the specification. However, the parties do not dispute that each “adjacent
neighbouring switch” must be able to communicate with the switch connected to it as displayed in Figure 1. The real disagreement between the parties involves Nortel’s concern that the use of the words “directly connected” will create the opportunity for Ciena to later argue that a repeater or some other device placed between two switches will prevent them from being “directly connected.” Therefore, the Court construes the term such that the switches are “coupled with” another switch.

8. Adjacent to/next to.

Intergraph argues "adjacent to" or "next to" carries its plain and ordinary meaning and needs no further construction. Intergraph offers a definition of "relatively near and having nothing of the same kind intervening." Intel, relying on the '028 specification at 5:61-65, counters that the term means groups are to be placed side-by-side within a frame in accordance with the issue sequence of the groups. Intel's position, however, goes beyond that which is necessary to define these relatively simple, descriptive terms. The Court construes "adjacent to" and "next to" as side-by-side, alongside, beside, or in the next position. '028 patent at 3:31-37; 5:61-6:5.

1. "located adjacent to said battery"

Claim 13 describes an AED with a battery and a temperature sensing circuit that is "located adjacent to said battery." The parties dispute the meaning of the term "adjacent." Philips asserts that "adjacent" should be defined as "adjoining or next to the battery, with nothing of the same kind in between." Cardiac Science contends that "adjacent" means "close," but does not require that the temperature sensing circuit needs to touch the battery. Philips agrees that the temperature sensing circuit does not need to touch the battery, but contends that Cardiac Science's definition is not precise enough. (Tr. at 444.) The claim itself provides some guidance as to the proximity required between the battery and the temperature sensors, as the claim describes a "temperature sensing circuit designed to sense the temperature inside of said battery." ('576 Patent at c. 8, ll: 47-48.) However, nothing in the claim language or the specification requires that the temperature sensors adjoin the battery, as Philips proposes. The Court finds that "located adjacent to" is properly construed as "close to," as in "located close to the battery so that it may sense the temperature of the battery."

1. "Adjusting" means "modifying."

The term "adjusting" appears in eight of the claims-in-suit, and in each, the surrounding language strongly supports Defibtech's argument that the term simply means "modifying." Philips proposes that the term means "correcting or modifying to reflect actual [patient] conditions." Inserting Philips' definition into the claims-in-suit demonstrates the flaws in its construction. For example, Claim 1 of the 612 patent covers a method that includes monitoring a "patient-dependent electrical parameter" and "adjusting a discharge parameter of a later phase of the multiphasic waveform as a function of a value of the electrical parameter during an earlier phase." The claim language itself dictates precisely what type of "adjusting" the claim contemplates. Philips' construction is surplusage, as the claim language dictates waveform adjustment according to a patient-dependant electrical parameter. Philips' less specific "modifying to reflect actual [patient] conditions" language would read out or needlessly broaden the specific language of the claim.

The same contextual analysis applies to the remaining claims that use "adjusting." Every "adjusting" claim contains specific language that informs the reader what type of adjusting falls within the invention. Claim 15 of the 454 Patent discloses "adjusting the title of the waveform based on the value of the monitored electrical parameter," and Claim 53 covers "adjusting a waveform parameter based on a value of the monitored parameter." Claims 1 and 13 of the 879 Patent address
"adjusting a discharge parameter based on the measured patient impedance" and "adjusting waveform tilt based on a value of the monitored electrical parameter." The remaining claims are similar in that they unambiguously disclose the parameter that will dictate the necessary "adjusting." Philips' proposed construction is inappropriate in light of this unvarying pattern of using the term "adjusting" followed by specific instructions. The parties agree that "adjusting" means "modifying," but Philips insists that the term has qualifying language built into it. This proposal conflicts with the claim language, which contains its own qualifiers in every instance.

The court finds nothing within the remainder of the patents' specifications that is inconsistent with the meaning that the claim language dictates. Philips insists that a primary feature of the inventions claimed in the shock delivery patents is adjusting the shock waveform to reflect differing electrical parameters within patients. A review of the written descriptions supports Philips' assertion, e.g., 879 Patent at 2:2-7; 454 Patent at 3:38-41, but the assertion is irrelevant. The language surrounding the term "adjusting" in each claim serves the purpose of delimiting how the defibrillator adjusts the waveform in response to those parameters. This is a case in which the patentee has not merely acted as his own lexicographer, but has done so in the language of the claims. The court must defer to that lexicography, Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1344 (Fed. Cir. 1998), under which "adjusting" means no more than "modifying."

"Adjustment Input" in the '356 Patent's Claim 4

Claim 4 of the '356 Patent relates to an inverter circuit that:

- has an adjustment input operable, in response to receiving an adjustment action, to adjust the magnitude of the lamp current by way of adjusting the frequency of the alternating lamp voltage.

Although that claim element is clearly functional in tone, Nilssen urges that it also recites sufficient structure--more specifically an "adjustment input," where "input" is defined this way (Penguin at 269):

(1) The signal or driving force applied to a circuit….

(2) The terminals at which this signal is applied. 22

On Motorola's part, M. Mem. 14 asserts that the claim element is in means-plus-function format because "a function is recited without a structure to perform that function." To support that position M. Mem. 14 relies on Mas-Hamilton Group, Inc. v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1998), which found a claim was in that format because "even though the catch phrase ['means'] is not used, the limitation's language does not provide any structure." According to Motorola, the claim element at issue here suffers from the same vice that was described in Mas-Hamilton, id.:

The limitation is drafted as a function to be performed rather than definite structure or materials.

Is "adjustment input" such a "definite structure," as Nilssen would have it? One clue to the answer lies in N. Mem. 24's not-so-subtle shift in the meaning of that term:

An "adjustment input" is simply an input that is adjustable. Accordingly, the "adjustment input" limitation has a reasonably well known meaning in the art.

Not so--for the plain reading of the claim element that has been quoted at the outset of this section adverts to an input that
adjusts the lamp current (a statement of the input's function), rather than to the fact that the input itself is "adjustable" in order to perform that function. 23

23 After all, the claim element did not employ the more normal adjectival locution, if Nilssen's restatement of its meaning were accurate, of referring to "an adjustable input."

In plain meaning terms, then, the only possible candidate for a "structure" referred to in the claim element is "input." And although Nilssen is correct in stating that "input" is a common term--"widely known in the art of electronics" (N. Mem. 24)--that does not at all suffice. Greenberg, 91 F.3d at 1583, reconfirmed by Mas-Hamilton, 156 F.3d at 1213-14, requires that the term under scrutiny must be widely known "as the name for a structure." It can scarcely be gainsaid that "input" is essentially as broadly generic in those terms as the term "circuit"--neither of those terms qualifies as a "definite structure" that satisfies the standard prescribed by the caselaw.

As with the other claim elements that have failed to avoid the impact of Paragraph 6, the claim element now at issue "will be construed to cover the corresponding structure…described in the specification and equivalents thereof" (the statutory prescription). N. Mem. 23-24 and N. Resp. 24-25 say nothing to counter Motorola's characterization of the specification's description, which therefore prevails.

"Adjustment Input Electrically Isolated" in the '356 Patent's Claim 5

M. Mem. 14-15 asserts that the isolated adjustment input structure for this claim element is limited to a rotary knob because the "adjustment input" is to be "electrically isolated from the power line terminals." That contention is based on Nilssen's response to a PTO office action in which he limited the claim element to a specification that recites "a manually rotatable external knob" as the structure for electrically isolating the adjustment input ( '356 Patent col. 3, lines 50-56).

Because that language is not qualified or constrained in an respect, Nilssen has expressly limited that element of his claim, so that prosecutorial estoppel applies. 24 This Court therefore construes the "adjustment input electrically isolated" language of Claim 5 in the '356 Patent to mean "a manually rotatable external knob."

24 This issue was not even discussed in Nilssen's initial memorandum, and N. Resp. 24 devoted only a single sentence to the question.

b. “advertisement data”

The term “advertisement data” appears in claims 3, 4, 7, 10, and 12 of the 834 patent and claims 1 and 8 of the 398 patent. In each instance, the term is coupled with an additional limitation, for example, at least one advertisement, a plurality of advertisements, and at least one time for the advertisement to be run. See Opening Brief, Ex. 6 at 10:30-31, 43-44, 62-63, 11:8-9, 34-12:3; Ex. 5 at 9:49-54, 10:5-6. Plaintiffs contend, therefore, that the term “advertisement data” must always be construed in light of how the term is used in each
They argue that the only generalization that can be drawn regarding “advertising data” is that it includes “data representing one or more advertisement or data representing one or more characteristics of an advertisement.” Id. at 25.

Defendants point to the specification and abstract of the 834 patent to support their contention that “advertisement data” means “digital data representing the identity of each advertisement and the number of times and when (in the day) each of the advertisements is to be run.” Resp. Brief at 25. Specifically, the abstract of the 834 patent states that “[t]he advertisement data represents an identity of each of the plurality of advertisements, and data representing times for each of the advertisements to be run.” Opening Brief, Ex. 6 at Abstract. The specification states that [a]lso downloaded with the advertisements is digital data representing the identity of each advertisement, the number of times, and when each of the advertisements is to be run. The advertisement data is stored at a separate location on the storage unit 93 so that they can be easily located and tracked.

*19 Id. at 9:8-12.

Construing “advertisement data” in the fashion suggested by defendants in all claims regardless of the additional limitations disclosed in certain claims would read particular phrases out of the patent. For example, claim 1 includes a limitation regarding “when and the number of times” the advertisements are to run. Defendants’ proposed construction would render that language superfluous, a result not permitted. See Curtiss-Wright Flow Control Corp., 438 F.3d at 1380-81; see also Phillips, 415 F.3d at 1314-15. The Court therefore adopts plaintiffs’ proposed construction.

A. The ’137 Patent and Related Prosecution History

The ’137 patent, entitled "Electronic Kiosk Authoring System," discloses a software program that allows a person to author user interfaces for electronic kiosks. "The authoring system enables the user interface for each individual kiosk to be customized quickly and easily within wide limits of variation, yet subject to constraints adhering the resulting interface to good standards of aesthetics and user friendliness."’137 patent, Abstract; see also id. at col. 3, ll. 28-32.

The authoring system gives the system author a limited range of pre-defined design choices for stylistic and functional elements appearing on the screens. Id. at col. 3, ll. 52-57. "[M]ajor aesthetic or functional design choices ...as well as hierarchical methods of retrieving information may be built into the system [while] taking into account the considered opinions of aesthetic design specialists, database specialists, and academic studies on public access kiosk systems and user preferences and problems.” Id. at col. 3, ll. 57-64.
Claim 1, the '137 patent's only independent claim, recites:

1. In an electronic kiosk system having a plurality of interactive electronic kiosks for displaying information provided by a plurality of information providers, a method for defining custom interface screens customized for individual kiosks of said plurality and operable to make different assortments of said information available for display at different kiosks of said plurality, said method comprising the steps of:

   providing a master database of information from said plurality of information providers, said master database referencing substantially all information content from said providers to be displayed on any of said plurality of kiosks;

   providing a plurality of pre-defined interface screen element types, each element type defining a form of element available for presentation on said custom interface screens, wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and aesthetically pleasing look and feel for said interface screens on all kiosks of said kiosk system,

   each element type having a plurality of attributes associated therewith, wherein each said element type and its associated attributes are subject to pre-defined constraints providing element characteristics in conformance with said uniform and aesthetically pleasing look and feel for said interface screens, and

   wherein said plurality of pre-defined element types includes at least one pre-defined window type, at least one pre-defined button type, and at least one pre-defined multimedia type;

   selecting a plurality of elements to be included in a custom interface screen under construction, said plurality of elements being selected from said plurality of pre-defined elements types, said plurality of selected elements including at least one button type;

   assigning values to the attributes associated with each of said selected elements consistent with said pre-defined constraints, whereby the aggregate layout of said plurality of selected elements on said interface screen under construction will be aesthetically pleasing and functionally operable for effective delivery of information to a kiosk user;

   selecting from said master database an assortment of information content deriving from selected ones of said information providers to define kiosk information content for an individual kiosk of said kiosk system;

   associating said kiosk information content with at least a portion of said selected elements for said interface screen under construction; and

   linking said at least one selected button type element to an action facilitating the viewing of at least portions of said kiosk information content by a kiosk user.

'137 patent, col. 20, l. 37-col. 21, l. 23 (emphases added). At issue in this appeal is the definiteness of "aesthetically pleasing" as it is used in the context of claim 1 of the '137 patent.

The "aesthetically pleasing" claim language was not discussed by the inventor or the patent examiner during prosecution of the application that led to the '137 patent. The language was discussed, however, during prosecution of a continuation application to the '137 patent, which eventually issued as United States Patent No. 6,460,040 ("the '040 patent"). The patent examiner reviewing the application leading to the '040 patent rejected a claim as being indefinite for using the phrase "aesthetically pleasing." In response to this rejection, the inventor argued that the phrase is definite, but ultimately deleted it, stating in part that it is "not intended to identify qualities separate and apart from the remainder of this claim element" and is "superfluous and unnecessary."

B. The District Court Proceedings

Datamize sued Plumtree Software, Inc. ("Plumtree") for infringing the '137 patent, and Plumtree responded by moving for summary judgment on the ground that the '137 patent is invalid for indefiniteness under 35 U.S.C. § 112, P2. The district
court granted Plumtree's motion, concluding that the '137 patent's only independent claim is indefinite due to use of the phrase "aesthetically pleasing."

The district court began its analysis of the definiteness of "aesthetically pleasing" by referring to dictionary definitions of the words "aesthetic" and "pleasing." The court determined that the ordinary and customary meaning of the phrase is "having beauty that gives pleasure or enjoyment" or, in other words, "beautiful," a meaning the court believed to be "quite subjective." Next, the court turned "to determine whether the patent's specification provides an explicit definition of the term that clarifies or differs from its ordinary dictionary meaning." After reciting parts of the specification, the court concluded that the specification does not limit the subjectivity of the phrase "aesthetically pleasing."

The district court then reviewed the prosecution history of the '137 and '040 patents. The court concluded that the prosecution history of the '040 patent "does not provide a more objective means of ascertaining the meaning of 'aesthetically pleasing. In fact, the prosecution history suggests that the language has little meaning at all."

The district court went on to compare the current case with several district court and Federal Circuit opinions addressing indefiniteness. It concluded that three district court cases deal with terms that are similar to "aesthetically pleasing" in that they are all terms "with very subjective ordinary meanings that are not sufficiently narrowed by the patents in question." See Mossman v. Broderbund Software, Inc., 1999 U.S. Dist. LEXIS 8014, No. 98-71244-DT, 1999 WL 696007 (E. D. Mich. May 18, 1999) ("readily follow"); STX, Inc. v. Brine, Inc., 37 F. Supp. 2d 740 (D. Md. 1999), aff'd, 211 F.3d 588 (Fed. Cir. 2000) ("improved handling and playing characteristics"); Semmler v. Am. Honda Motor Co., 990 F. Supp. 967 (S. D. Ohio 1997) ("considerable fuel savings"). On the other hand, the court rejected a comparison with two of our cases, since in those cases the terms were either "not controlled by individual subjective impressions" or "sufficiently well-defined by the patent to make the meaning of the entire term readily discernable." See All Dental Prodx, L.L.C. v. Advantage Dental Prods., Inc., 309 F.3d 774 (Fed. Cir. 2002) ("original unidentified mass"); Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367 (Fed. Cir. 2004) ("surrender value protected investment credits").

The district court next rejected proposed constructions of "aesthetically pleasing" offered by Datamize, stating that "[t]he term 'aesthetically pleasing' must mean something different from predefined constraints or limitations" since "predefined constraints" are separate limitations in claim 1. Furthermore, the court stated that "aesthetically pleasing" must be given meaning and cannot be read out of the claim. The court also rejected the argument that "aesthetically pleasing" should be evaluated from the system author's view point and that anyone else's perception is irrelevant, stating that "the court would be hard-pressed to construe a patent term so that it would turn on the subjective beliefs of those individuals who will use the authoring tool."

Finally, the district court rejected expert testimony offered by Datamize for various reasons: expert testimony is disfavored and cannot vary or contradict claim language; the expert admitted that no objective measure of aesthetics is disclosed in the specification or any of various references; the expert relied upon an article published after the application for the '137 patent was filed; and the article relied upon admitted that no one knows how to measure aesthetic value and that some people doubt that it can be measured.

Concluding that the phrase "aesthetically pleasing" in claim 1 is "hopelessly indefinite," the district court granted Plumtree's motion for summary judgment of invalidity. Since claim 1 is the '137 patent's sole independent claim, the court's grant of summary judgment of indefiniteness as to claim 1 invalidated each claim in the '137 patent.

Datamize appeals the grant of summary judgment of invalidity for indefiniteness. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

A. Standard of Review

We review a district court's grant of summary judgment de novo. High Concrete Structures, Inc. v. New Enter. Stone & Lime Co., 377 F.3d 1379, 1382 (Fed. Cir. 2004). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." Personalized Media Communications, L.L.C. v. Int'l Trade Comm'n, 161 F.3d 696, 705 (Fed. Cir. 1998). Thus, as with claim construction, we exercise de novo review over the conclusion that a claim is indefinite under 35 U.S.C. § 112, P.2. Id.
B. The Law of Indefiniteness

Every patent's specification must "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P2 (2000). Because the claims perform the fundamental function of delineating the scope of the invention, Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1379 (Fed. Cir. 2005), the purpose of the definiteness requirement is to ensure that the claims delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude, Honeywell Int'l, Inc. v. ITC, 341 F.3d 1332, 1338 (Fed. Cir. 2003).

According to the Supreme Court, "[t]he statutory requirement of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." United Carbon Co. v. Binney & Smith Co., 317 U.S. 228, 236, 87 L. Ed. 232, 63 S. Ct. 165, 1943 Dec. Comm'r Pat. 758 (1942). The definiteness requirement, however, does not compel absolute clarity. Only claims "not amenable to construction" or "insolubly ambiguous" are indefinite. See Novo Indus., L.P. v. Micro Molds Corp., 350 F.3d 1348, 1353 (Fed. Cir. 2003); Honeywell Int'l, 341 F.3d at 1338; Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning. Furthermore, a difficult issue of claim construction does not ipso facto result in a holding of indefiniteness. Exxon Research & Eng'g, 265 F.3d at 1375. "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Id. In this regard it is important to note that an issued patent is entitled to a statutory presumption of validity. See 35 U.S.C. § 282 (2000). "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of validity and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal." Exxon Research & Eng'g, 265 F.3d at 1375 (citation omitted). In this way we also follow the requirement that clear and convincing evidence be shown to invalidate a patent. See Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001).

In the face of an allegation of indefiniteness, general principles of claim construction apply. See Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1340-41 (Fed. Cir. 2003) (noting that a determination of definiteness "requires a construction of the claims according to the familiar canons of claim construction"). Intrinsic evidence in the form of the patent specification and file history should guide a court toward an acceptable claim construction. Phillips v. AWH Corp., 415 F.3d 1303, 2005 U.S. App. LEXIS 13954, *35, No. 03-1269, -1286 (Fed. Cir. July 12, 2005) (en banc). And while "we have emphasized the importance of intrinsic evidence in claim construction, we have also authorized district courts to rely on extrinsic evidence," such as expert testimony. 2005 U.S. App. LEXIS 13954 at *37. In construing claims, "what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law." 2005 U.S. App. LEXIS 13954 at *58.

C. Analysis

With these principles in mind, we proceed to the question at hand: whether the '137 patent's use of "aesthetically pleasing" meets the standards articulated in our case law concerning definiteness. We begin our analysis by noting our agreement with the district court's understanding that the ordinary meaning of "aesthetically pleasing" includes "having beauty that gives pleasure or enjoyment" or, in other words, "beautiful." We also recognize that the district court's opinion presents a reasoned and detailed analysis of both the intrinsic evidence, including the specification of the '137 patent and the prosecution history of the '040 patent, and the extrinsic evidence in the form of Datamize's expert testimony. Datamize, however, argues that the district court erred by considering the phrase "aesthetically pleasing" divorced from the context of claim 1.

Datamize is right to point out that the phrase "aesthetically pleasing" should be considered in the context of claim 1. Claim construction involves reviewing the intrinsic evidence of record, including the claim language itself. See Chimie, 402 F.3d at 1377; Abbott Labs. v. Syntron Bioresearch, Inc., 334 F.3d 1343, 1351 (Fed. Cir. 2003) (explaining that usage of disputed claim terms in the context of the claims as a whole informs the proper construction of the terms).

"Aesthetically pleasing" is used three times in claim 1. The first use of "aesthetically pleasing" relates to the look and feel of custom interface screens on kiosks:
providing a plurality of pre-defined interface screen element types, each element type defining a form of element available for presentation on said custom interface screens, wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and aesthetically pleasing look and feel for said interface screens on all kiosks of said kiosk system,

'137 patent, col. 20, ll. 50-57 (emphasis added). The second use relies on the first use for antecedent basis and similarly relates to the look and feel of interface screens:

each element type having a plurality of attributes associated therewith, wherein each said element type and its associated attributes are subject to pre-defined constraints providing element characteristics in conformance with said uniform and aesthetically pleasing look and feel for said interface screens,

Id. at col. 20, ll. 58-63 (emphasis added). The third use provides a slightly different context, relating to the aggregate layout of elements on the interface screen:

assigning values to the attributes associated with each of said selected elements consistent with said pre-defined constraints, whereby the aggregate layout of said plurality of selected elements on said interface screen under construction will be aesthetically pleasing and functionally operable for effective delivery of information to a kiosk user;

Id. at col. 21, ll. 6-12 (emphasis added). Thus, in the context of claim 1, "aesthetically pleasing" relates to the look and feel of custom interface screens on kiosks, and the aggregate layout of elements on an interface screen is apparently one example or aspect of the interface screens that may be "aesthetically pleasing."

This context, while helpful in terms of identifying the components of the claimed invention that must be "aesthetically pleasing," does not suggest or provide any meaningful definition for the phrase "aesthetically pleasing." Merely understanding that "aesthetically pleasing" relates to the look and feel of interface screens, or more specifically to the aggregate layout of elements on interface screens, fails to provide one of ordinary skill in the art with any way to determine whether an interface screen is "aesthetically pleasing."

Datamize, however, contends that when construed in the context of claim 1, the phrase "aesthetically pleasing" applies to the process of defining a "desired" result and not the actual result itself. Datamize believes a reasonable construction of "aesthetically pleasing" in the context of the claims involves the intent, purpose, wish, or goal of a person practicing the invention: that person simply must intend to create an "aesthetically pleasing" interface screen; whether that person actually succeeds is irrelevant. In other words, Datamize suggests we adopt a construction of "aesthetically pleasing" that only depends on the subjective opinion of a person selecting features to be included on an interface screen. Indeed, Datamize argues that the district court erred by requiring an objective definition for the phrase "aesthetically pleasing." Citing our decision in Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1575-76 (Fed. Cir. 1986), Datamize maintains that a claim term need not be subject to a single, objective definition to be definite but rather may include a subjective element. According to Datamize, subjective terms are permissible so long as one of ordinary skill in the art would understand their scope. In this regard, Datamize, citing Seattle Box Co. v. Industrial Crate & Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984), implies that "aesthetically pleasing" includes "words of degree" that are not fatally imprecise. Datamize also contends that the existence of aesthetic constraints in a computer program, as opposed to purely functional constraints, would be circumstantial evidence of a person's subjective "desire" to achieve an "aesthetically pleasing" look and feel for an interface screen. Related to these arguments, Datamize believes that the person practicing the invention is the "system creator," defined by Datamize as the person who creates the authoring software. According to Datamize, the appropriate inquiry would focus on whether a system creator makes aesthetic choices to limit or constrain the possible on-screen characteristics of screen elements since these choices would reflect a subjective intent to create an "aesthetically pleasing" look and feel for an interface screen.

Datamize's proposed construction of "aesthetically pleasing" in the context of claim 1 is not reasonable for several reasons. First and foremost, the plain meaning of the claim language requires that the look and feel of interface screens actually be "aesthetically pleasing." The first use of "aesthetically pleasing" in claim 1 clearly sets forth two requirements for the look and feel of interface screens: the look and feel must be (1) uniform and (2) "aesthetically pleasing." That the uniform and "aesthetically pleasing" look and feel must also be "desired" does not alter that fact.
Furthermore, in Orthokinetics we did not conclude, as Datamize suggests, that the absence of an objective definition for a claim term does not render the phrase indefinite. In that case we concluded that the phrase "so dimensioned" in the following limitation is not indefinite: "wherein said front leg portion is so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats thereof." Orthokinetics, 806 F.2d at 1575. We noted that based on expert testimony it was undisputed that one of ordinary skill in the art would easily have been able to determine the appropriate dimensions that the claim language required. Id. at 1576. One desiring to build and use the invent on, a travel chair, "must measure the space between the selected automobile's doorframe and its seat and then dimension the front legs of the travel chair so they will fit in that particular space in that particular automobile." Id. The fact that the claims were intended to cover the use of the invention with various types of automobiles made no difference; we concluded that the phrase "so dimensioned" is as accurate as the subject matter permits since automobiles are of various sizes. Id. Thus, in Orthokinetics we recognized that an objective definition encompassed by the claim term "so dimensioned" could be applied to innumerable specific automobiles.

In stark contrast to Orthokinetics, here Datamize has offered no objective definition identifying a standard for determining when an interface screen is "aesthetically pleasing." In the absence of a workable objective standard, "aesthetically pleasing" does not just include a subjective element, it is completely dependent on a person's subjective opinion. To the extent Datamize argues that such a construction of "aesthetically pleasing" does not render the phrase indefinite, we disagree. The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention. See Application of Musgrave, 57 C.C.P.A. 1352, 431 F.2d 882, 893 (C. C.P.A. 1970) (noting that "[a] step requiring the exercise of subjective judgment without restriction might be objectionable as rendering a claim indefinite"). Some objective standard must be provided in order to allow the public to determine the scope of the claimed invention. Even if the relevant perspective is that of the system creator, the identity of who makes aesthetic choices fails to provide any direction regarding the relevant question of how to determine whether that person succeeded in creating an "aesthetic ally pleasing" look and feel for interface screens. A purely subjective construction of "aesthetically pleasing" would not notify the public of the patentee's right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person's opinion of the aesthetics of interface screens. While beauty is in the eye of the beholder, a claim term, to be definite, requires an objective anchor. Thus, even if we adopted a completely subjective construction of "aesthetically pleasing," this would still render the '137 patent invalid.

Furthermore, "aesthetically pleasing" does not exactly compare to words of degree such as "substantially equal to," see Seattle Box Co., 731 F.2d at 826, "about," see BJ Servs. Co. v. Halliburton Energy Servs., Inc., 338 F.3d 1368, 1372-73 (Fed. Cir. 2003), or "substantial absence," see Exxon Research & Eng'g, 265 F.3d at 1380-81. The language, however, invokes a similar analysis. "When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree." Seattle Box Co., 731 F.2d at 826. Similarly, when faced with a purely subjective phrase like "aesthetically pleasing," a court must determine whether the patent's specification supplies some standard for measuring the scope of the phrase. Thus, we next consult the written description. See id.; see also Chimie, 402 F.3d at 1377 (" When the claim language itself lacks sufficient clarity to ascertain the scope of the 'claims, we look to the written description for guidance." (quoting Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc., 347 F.3d 1314, 1324 (Fed. Cir. 2003))).

The inventor describes various advantages of his invention in the "Summary of the Invention" section of the '137 patent. Most relevant to the construction of "aesthetically pleasing," the inventor states:

The authoring system enables the user interface for each individual kiosk to be customized quickly and easily within wide limits of variation, yet subject to constraints adhering the resting [sic, resulting, see '137 patent, Abstract] interface to good standards of aesthetics and user friendliness. ...It is a further advantage of the present authoring system that an individual using the authoring software to devise a kiosk interface screen (that individual is referred to herein as a "system author") is only given a limited range of choices for stylistic and functional elements appearing in the screen displays. In this way major aesthetic or functional design choices such as button syles [sic] and sizes, window borders, color combinations, and type fonts as well as hierarchical methods of retrieving information may be built into the system taking into account the considered opinions of aesthetic design specialists, database specialists, and academic studies on public access kiosk systems and user preferences and problems.

'137 patent, col. 3, ll. 32; 28-52-64. Furthermore, in the "Detailed Description of Illustrative Embodiments" section of the '137 patent, the inventor, discussing a particular embodiment of the invention, states:
A closer look at the structure of the screen layout of FIG. 2A is in order. The buttons 21 have a fixed predefined size, which is chosen not only to make them aesthetically pleasing in appearance, but also easy to use on a touch screen by persons generally unpracticed with touch screen operation. The button placement in FIG. 2A is generally fixed along two adjacent edges. This is an aesthetic choice, but it is a choice that is forced by the authoring software to assure that once an aesthetically and functionally acceptable button size and layout has been chosen, it will be maintained throughout all further screen layouts for all kiosks without having to expend time and effort re-creating an acceptable button layout anew for each kiosk. Other aesthetic button layouts may also be used, but once a general button layout is devised, the software makes it available for use in all kiosk interface screens. Considering that many many [sic] screen layouts will generally have to be set up and then regularly revised, limiting the system author's freedom to devise new button patterns and button styles greatly enhances the ease with which new kiosks may be brought in operation and ensures that the button pattern will be aesthetically and operationally acceptable. ...The authoring system of the present invention then allows each kiosk to be customized quickly and easily while maintaining a high degree of variability in the screen layouts without sacrificing aesthetic appearance.

'137 patent, col. 5, ll. 35-56.

In general, neither these statements nor any others in the written description set forth an objective way to determine whether an interface screen is "aesthetically pleasing." The description of the advantages of the invention indicates that there are "good standards of aesthetics," which of course implies that there are also standards of aesthetics that are "not good." The inventor does not attempt to explain what distinguishes the two, except to say that experts, specialists, and academics may have views that are influential in determining what aesthetic standards are good. Some statements indicate particular aspects of the screen that might affect whether the screen is "aesthetically pleasing": button styles, sizes, and placements, window borders, color combinations, and type fonts. There is no indication, however, other than by referring to "the considered opinions of aesthetic design specialists, database specialists, and academic studies on public access kiosk systems and user preferences and problems," how to determine what button styles, sizes, and placements, for example, are "aesthetically pleasing." Moreover, what ever the considered opinions of unnamed people and studies say is altogether unclear.

And while the description of an embodiment provides examples of aesthetic features of screen displays that can be controlled by the authoring system, it does not explain what selection of these features would be "aesthetically pleasing." Major aesthetic choices apparently may include some aspect of button styles and sizes, window borders, color combinations, and type fonts. The written description, however, provides no guidance to a person making aesthetic choices such that their choices will result in an "aesthetically pleasing" look and feel of an interface screen. For example, the specification does not explain what factors a person should consider when selecting a feature to include in the authoring system. Left unanswered are questions like: which color combinations would be "aesthetically pleasing" and which would not? And more generally, how does one determine whether a color combination is "aesthetically pleasing"? Again, one skilled in the art reading the specification is left with the unhelpful direction to consult the subjective opinions of aesthetic design specialists, database specialists, and academic studies.

Simply put, the definition of "aesthetically pleasing" cannot depend on an undefined standard. See Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1342 (finding indefinite claim requiring comparison to moving target since the patent failed to direct those of ordinary skill in the art to a standard by which the appropriate comparison could be made). Reference to undefined standards, regardless of whose views might influence the formation of those standards, fails to provide any direction to one skilled in the art attempting to determine the scope of the claimed invention. In short, the definition of "aesthetically pleasing" cannot depend on the undefined views of unnamed persons, even if they are experts, specialists, or academics. Thus, the written description does not provide any reasonable, definite construction of "aesthetically pleasing."

We must also analyze the prosecution history to determine whether it provides any reasonable construction of "aesthetically pleasing." Vtronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582. Since the '040 patent is a continuation of the '137 patent, the '040 patent's prosecution history is relevant material that we should consider. See Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1349 (Fed. Cir. 2004) (recognizing that "the prosecution history of one patent is relevant to an understanding of the scope of a common term in a second patent stemming from the same parent application").

The attorney prosecuting the '040 patent responded to a rejection for indefiniteness of the phrase "aesthetically pleasing" by
making the following statements:

In context "aesthetically pleasing look and feel" is that which is "desired," "chosen," or "predetermined" for uniform appearance. It does not call for the subjective application of some external standard of aesthetics.

The "aesthetically pleasing" language is not itself intended to imply judgment on the relative artistic merits of the "look and feel."

One practicing the invention can create an "aesthetically pleasing look and feel" that is "desired" by that person and that is maintained as desired on screens of the system.

Whether the system creator's sense of aesthetics complies with some other standard of beauty or good taste is irrelevant to the claims.

The "aesthetically pleasing" language is not intended to identify qualities separate and apart from the remainder of this claim element. Accordingly, the deleted language is superfluous and unnecessary to the claims.

These statements merely confirm the understanding derived from the context of the claims and the specification: that the phrase "aesthetically pleasing" fails to delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude. By arguing that "aesthetically pleasing" does not depend on any standard of aesthetics other than a purely subjective standard held by any person who steps into the role of the system creator, the prosecuting attorney would eliminate any objective meaning for the phrase "aesthetically pleasing." As discussed, this would be improper.

We next consult the extrinsic evidence in the record. See Frank's Casing Crew & Rental Tools, Inc. v. PMR Techs., Ltd., 292 F.3d 1363, 1374 (Fed. Cir. 2002); Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed. Cir. 1995) ("In construing the claims we look to the language of the claims, the specification, and the prosecution history. Extrinsic evidence may also be considered, if needed to assist in determining the meaning or scope of technical terms in the claims." (internal citation omitted)).

Datamize points to its expert, Jeremy Rosenblatt, who testified in a declaration that persons of ordinary skill in the relevant art would recognize that "[t]he terms 'aesthetic' and 'aesthetically pleasing' in the patent serve to make it clear that the motivation of limiting selection is to allow the system creator to enforce his/her will regarding the 'look and feel' and aesthetic aspects rather than solely functionality." The expert also provided a list of what he denominated "generally accepted" parameters of design that contribute to a display getting high marks from users for being "aesthetically pleasing." The list included symmetry, consistency, predictability, simplicity, cleanliness, and non-crowdedness. The expert concluded that in his opinion "one of ordinary skill in the art of software development of kiosks and computer user interfaces would understand the claims and be able to determine whether their own work was or was not covered by the claims in question."

The expert's declaration attempts to identify parameters that one skilled in the art might reference when attempting to determine whether an interface screen is "aesthetically pleasing." But the identification of parameters one might consider fails to explain how the parameters should be evaluated or weighed to reach the conclusion that an interface screen is "aesthetically pleasing." And while indefiniteness does not depend on the difficulty experienced by a particular person in comparing the claims with the prior art or the claims with allegedly infringing products or acts, see SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1340-41 (Fed. Cir. 2005), even the expert could not determine whether the look and feel of particular interface screens are "aesthetically pleasing" using the parameters he specified, instead testifying that whether an interface screen is "aesthetically pleasing" is a "multidimensional question" that is "not amenable to a single-word answer. "The inability of the expert to use the parameters he himself identified to determine whether an interface screen is "aesthetically pleasing" militates against the reasonableness of those parameters as delineating the metes and bounds of the invention.

Datamize also argues that one of ordinary skill in the art would understand the phrase "aesthetically pleasing" to distinguish aesthetic constraints from purely functional constraints. To support this argument, Datamize first points to the Supreme Court's use of the phrase "aesthetically pleasing": "[t]o qualify for [design patent] protection, a design must present an aesthetically pleasing appearance that is not dictated by function alone, and must satisfy the other criteria of patentability."
Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 148, 103 L. Ed. 2d 118, 109 S. Ct. 971 (1989) (emphasis added). According to Datamize, "[i]f the term 'aesthetically pleasing' is sufficiently definite for courts to apply in determining whether something qualifies for design patent protection, then it is also sufficiently definite for a trier of fact to apply in determining infringement." Datamize also points to Mr. Rosenblatt's declaration, which it believes shows that one of ordinary skill in the art would understand "aesthetically pleasing" to distinguish functionality from aesthetics. Datamize maintains that infringement could be shown by looking to constraints imposed by the system creator: aesthetic constraints, such as limitations in terms of size and placement of on-screen elements, would be objective evidence of the infringer's "desire" to achieve a "uniform and aesthetically pleasing look and feel."

We reject Datamize's attempt to rely on an understanding of the phrase "aesthetically pleasing" derived from design patent law. Use of the phrase "aesthetically pleasing" in design patent law relates to the threshold question of patentability. See Bonito Boats, 489 U.S. at 148. A design patent protects a particular ornamental, or "aesthetically pleasing" as opposed to functional, design. Id. (citing 35 U.S.C. § 171). In contrast, a utility patent protects "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," 35 U.S.C. § 101 (2000), the scope of which is defined by the patent's written claims, see Johnson & Johnston Assocs. v. R.E. Serv. Co., 285 F.3d 1046, 1052 (Fed. Cir. 2002) (en banc) ("[C]laims define the scope of patent protection."); see also 35 U.S.C. § 112, P2. In light of this basic difference between design patent law and utility patent law, it is clear that the understanding of "aesthetically pleasing" used in design patent law bears no reasonable relationship to utility patent law generally. Furthermore, Datamize has not pointed to any discussion in the '137 patent indicating that "aesthetically pleasing" means "aesthetic rather than functional" as opposed to its ordinary meaning of beautiful in the context of this patent in particular. Thus, while creative, Datamize's argument fails.

We also reject Datamize's more general argument, based on its expert's declaration, that one of ordinary skill in the art would understand the phrase "aesthetically pleasing" to distinguish aesthetic constraints from purely functional constraints. Datamize's argument, as well as its citation to its expert's declaration, improperly ignores the plain meaning of the claim language. Furthermore, its proposed construction would improperly eliminate the word "pleasing" from the phrase "aesthetically pleasing." See Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1582 (Fed. Cir. 1996); Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1349 (Fed. Cir. 2002). We would subvert the definiteness requirement if we allowed a word to be eliminated from a phrase when the phrase cannot be given a reasonable meaning except in the absence of that word. Furthermore, because the phrase "aesthetically pleasing" does not simply distinguish aesthetic constraints from purely functional constraints, Datamize's argument, again based on its expert's declaration, that infringement could be shown by determining whether aesthetic constraints are imposed by the system creator is irrelevant.

Finally, additional cases cited by Datamize at oral argument fail to persuade us that "aesthetically pleasing" can be given any reasonable meaning. Datamize points us to Koito Manufacturing Co. v. Turn-Key-Tech, L.L. C., 381 F.3d 1142 (Fed. Cir. 2004), and Combined Systems, Inc. v. Defense Technology Corp. of America, 350 F.3d 1207 (Fed. Cir. 2003). According to Datamize, these cases confirm that intent may properly form part of a phrase's claim construction.

Datamize apparently references the second footnote of Koito Manufacturing, which states:

The jury instruction stated that the "predetermined general direction" means the "prevailing direction of flow determined before injection of the liquid plastic into the mold." (Emphasis added). The instruction thus connotes an element of forethought and planning, which we note is a logically essential part of the patent. The mold designer must be aware of the flow direction that will result upon an injection of plastic so that he can assure himself that the next flow direction will be different. We have held that the construction of a patent term may require an actor to have knowledge of certain facts. See Combined Sys., Inc. v. Def. Tech. Corp. of Am., 350 F.3d 1207, 1211-14 (Fed. Cir. 2003) (construing "forming folds" to require "the deliberate and systematic creation of folds"). In the present case, Turn-Key chose to limit its claims with ascienter requirement and thus was correctly required to demonstrate foreknowledge of flow directions to prove infringement.

381 F.3d at 1150 n. 2. This footnote identifies the unremarkable proposition that a patent applicant may use claim language that requires a person to have foreknowledge of certain facts when practicing the invention. Consistent with this proposition, claim 1 is not indefinite for using the term "desired," which requires foreknowledge and even intent on the part of the person practicing the invention. Neither would claim 1 be indefinite if an "aesthetically pleasing" look and feel for an interface screen was objectively verifiable. For example, the "general direction" construed in Koito Manufacturing and the "folds"
construed in Combined Systems can be objectively verified and do not depend on a particular person's unfettered, subjective opinion. The '137 patent, however, fails to provide any objective way to determine whether the look and feel of an interface screen is "aesthetically pleasing." As explained above, claim 1 is indefinite for this reason.*

* In both its opening and reply briefs, Datamize states that in SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870 (Fed. Cir. 2004), we affirmed the district court's construction of "desired format" and that that construction supports its construction of "desired uniform and aesthetically pleasing look and feel" in the context of claim 1. We disagree. In SuperGuide, the parties did not dispute the district court's construction of "desired format" and so we did not reinterpret the phrase, let alone affirm the district court's claim construction. Id. at 883. We also did not address the definiteness of the district court's claim construction. See id. Finally, unlike the present case, the phrase at issue in SuperGuide did not involve any modifiers between the word "desired" and the noun it modified, "format."

CONCLUSION

"Aesthetically pleasing," as it is used in the only independent claim of the '137 patent, fails to "particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention." See 35 U.S.C. § 112, P2. We therefore affirm the district court's grant of summary judgment of invalidity of all claims of the '137 patent.

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This brings us to the next claim interpretation dispute in this case: the significance of the word "after" in the phrase "a cyclic redundancy checker for detecting errors in said assembled data after correction of said data by said correction circuitry." As our sequential view of the claim language would indicate, we agree with the Commission, which found that the device claimed in the '715 patent first performs error correction on an entire Sector of data, and then performs error detection with a cyclic redundancy checker on the entire corrected Sector of data. Referring to an embodiment of the invention, the written description states as follows:

The error correction circuitry would first perform Reed-Solomon error correction on each block of data. . . . Then, a cyclic redundancy check of the corrected data would be performed.

'715 patent, col. 6, ll. 30-39. Like the language of the claim, this passage demonstrates that the data error detection and correction circuitry first performs Reed-Solomon error correction on an entire block or Sector of CD-ROM data, and that after this first operation is complete, the error detection circuitry then performs a cyclic redundancy check on the output of the error correction operation.

As mentioned earlier, according to the Yellow Book, "P-codewords" and "Q-codewords" are associated with Reed-Solomon error correction, while the "EDC-codeword" is associated with error detection using a cyclic redundancy checker. With this in mind, the written description goes on to confirm the exact order of operations in the only embodiment disclosed in the '715 patent:

E01RQ-bit 5-Error Detect and Correct Request "1" enables the error correction and detection (ECC and EDC) logic to process the following CD-ROM blocks, according to the settings of QRQ and PRQ. "0" disables the ECC and EDC logic. Changes to E01RQ control the CD-ROM blocks following the next data sync. If both QRQ and PRQ are enabled, the ECC/EDC sequence is Q-codewords, P-codewords, EDC-codeword. If QRQ is enabled but PRQ is disabled, the sequence is Q-codeword, EDC-codeword. If QRQ is disabled but PRQ is enabled, the sequence is P-codeword, EDC-codeword. If both QRQ and PRQ are disabled, only the EDC-codeword is checked. Normally, QRQ and PRQ are enabled whenever E01RQ is enabled in order to provide maximum correction capability.

'715 patent, col. 12, ll. 44-55 (emphasis supplied). As the above passage plainly indicates, the only embodiment described in the '715 patent always performs error correction before performing CRC error detection. There is no mention in the '715 patent of any embodiments where the sequence of operations is reversed, or where error detection begins before error correction has been completed. As the above passage indicates, the only variations mentioned in the '715 patent simply
describe the possibility of eliminating some or all of the error correction steps. However, the embodiment where "both QRQ and PRQ are disabled" (i.e., where error correction is completely disabled) is inconsistent with the plain language of the asserted claims, which require that error correction take place, and that it be performed before CRC error detection.

Oak argues that reliance on the written description amounts to an impermissible importation of limitations from the preferred embodiment. We disagree. The sequential limitation is imposed by the claim language itself, and the written description simply confirms this understanding. There is no discussion anywhere in the intrinsic record of embodiments of "error detection and correction means" which do not operate in a straightforward sequential manner. More importantly, even if such a disclosure existed, these embodiments would not be covered by the language selected by the claim drafter. In Oak's own words: "Specifications teach. Claims claim." See Texas Instruments Inc. v. United States Int'l Trade Comm'n, 988 F.2d 1165, 1171, 26 U.S.P.Q.2D (BNA) 1018, 1023 (Fed. Cir 1993) ("To construe the claims in the manner suggested [by the patente] would read an express limitation out of the claims. This we will not do because 'courts can neither broaden nor narrow claims to give the patentee something different than what he has set forth.'" (quoting Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 396, 155 U.S.P.Q. (BNA) 697, 701 (Ct. Cl. 1967))).

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1. "After the subscriber terminates the incoming call attempt"

It is not clear why the parties do not agree on what "after" means. The "control means" of claim 1 of the '964 patent must have the ability of "calling the subscriber remote telephone number through the first telephone connection means after the subscriber terminates the incoming call attempt and connecting to the subscriber telephone station." Defendants argue that "after the subscriber terminates the incoming call attempt" means that the subscriber is not called back "until a detection of the subscriber telephone handset going 'on-hook' to hang-up." Cygnus states that the phrase does not need construction, but also says that the phrase should be read to mean that the subscriber terminates the call before he is charged for it. Cygnus's support for this latter argument is that claim 11 of the '027 patent is a Jepson-style claim directed to "the improvement comprising using direct inward dialing for the initial call from the subscriber to the service, and the subscriber hangs up before there is a charge for the call from the subscriber to the service." Cygnus asserts that this claim "makes explicit what was implicit in the earlier patent."

The term "after" is not a technical telecommunications term but rather an ordinary English word. The limitations each side wish read into "after the subscriber terminates the incoming call attempt" are not supported by the clear language of the claim. "After the subscriber terminates the incoming call attempt" has a plain meaning and needs no interpretation.

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B. "Accumulator Agency"

The term "accumulator agency" is found throughout the claims of the Patents. ACS's Motion for Summary Judgment is based on its contention that the prior art cited by PCSO does not disclose or suggest an accumulator agency. PCSO, on the other hand, asserts that an accumulator agency is either disclosed or suggested in the prior art. PCSO also contends that ACS's motion was brought prematurely because the Court had not yet construed the terms of the Patents. Because the parties have solely focused in their briefs on the interpretation to be given to the term accumulator agency, the Court will construe that term according to the Patents and use that interpretation to decide the Motion for Summary Judgment.

PCSO asserts the term "accumulator" should be defined as "a device or circuit unit performing one or more of the operations of storage, arithmetic, and logic, as in a computer, cash register, etc." PCSO asserts that "agency" should be defined as "the business of any firm, person, etc., empowered to act for another" or "an administrative division of government with specific functions." Thus, PCSO asserts that, based on the plain and ordinary meaning of the terms, an accumulator agency is merely a computer program or processor that can perform its functions on behalf of any number of entities, including government agencies. In the alternative, PCSO asserts that an accumulator agency can be a state, a state or state agency's bank, or a payroll service or processor.
ACS, on the other hand, defines an accumulator agency as a "processing station between the collector and the recipient/intermediary." ('107, c. 5, 17-19; '669, c. 5, 14-16.) ACS cites to language in the '107 Patent's preferred embodiment that defines a "collector" as "preferably an employer" (107 c. 5, 35-36) and describes a "recipient" at least in one place as a "custodial parent." (107 c. 8, 7-8.) ACS asserts that an accumulator agency cannot merely be a computer program or processor, because Figure 2 of the '669 and '107 Patents clearly reference that the accumulator agency has its own bank. ACS also claims that the accumulator agency cannot be a state or state agency because "accumulator agency" and "state" refer to different parties in the Patents' claim language. Specifically, ACS points to the fact that several of the claims reference transfers of information and payments between the accumulator agency and a state.

A review of the Patents shows that an accumulator agency is not merely a computer program or processor. A finding to the contrary would create the untenable situation in which a computer program or processor, apart from any organizational entity, operated with its own bank account. Thus, the Court determines that an accumulator agency must be some type of public or private entity. The Court next considers whether an accumulator agency can be a state or state agency. The Court finds that an accumulator agency cannot be a state or state agency. Both the terms "accumulator agency" and "state" are used throughout the Patents, but the terms are not used interchangeably. In addition, all of the drawings present in the Patents differentiate an "accumulator agency" from a "state."

A more difficult issue to resolve is whether an accumulator agency can be a bank. The Court finds that an accumulator agency can be a bank, but that it cannot be a bank whose sole involvement in the process is to receive funds and payment information on behalf of a state, state agency, or intermediary. The claims clearly differentiate the accumulator agency from the banks of a state, state agency, or an intermediary. For instance, Claim 13 of the '107 Patent describes a method of processing a payment whereby at one stage in the process the accumulator agency transfers a "payment from the ACH to an intermediary's bank for the benefit of an intermediary." (107, c. 21, 52-67.) Likewise, Claims 19-21 of the '669 Patent adopt verbatim the '107 Patent's language regarding the transfer of funds from an accumulator agency to an intermediary's bank. (669, c. 22, 18-20.) Thus, the Court finds that an accumulator agency can be a bank, but that an accumulator agency cannot be a bank whose sole purpose in the process is to receive funds and payment information on behalf of a state, state agency, or intermediary.

PCSOn's final contention is that an accumulator agency can be a payroll service or processor. A payroll service or processor is a business that provides certain payroll services, including, but not limited to: the basic calculating of employee payroll and tax obligations, the actual production of employees' checks, the preparation of management reports, and the preparation of certain tax forms. A payroll service or processor provides these services to businesses for a fee. The Court finds that a payroll service or processor could be an accumulator agency if it was found to perform certain functions described in the Patents.

Thus, based on the Patents' claim language and usage of the term in the specifications, the Court defines an accumulator agency as a non-state, third-party entity that collects payments and payment information from an individual or entity for a fee and passes along those payments and payment information either directly to a state's bank, a state agency's bank, an individual, or an individual's bank or indirectly to a state, state agency, or an individual.

Pursuant to this Court's Markman Order, the term "wafer" means "a thin, generally cylindrical, slice of semiconductor material used as a base for an electronic component or circuit." The term "a first axially symmetric region" means "a region that is symmetric about the central axis of the wafer." The term "substantially free of agglomerated vacancy [or interstitial] defects" means "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm3." The term "agglomerated vacancy intrinsic point defects" means "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." Finally, "agglomerated silicon self-interstitial intrinsic point defects" means "defects caused by the reaction in which self-interstitials agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects."
Pursuant to this Court's Markman Order, the term "wafer" means "a thin, generally cylindrical, slice of semiconductor material used as a base for an electronic component or circuit." The term "a first axially symmetric region" means "a region that is symmetric about the central axis of the wafer." The term "substantially free of agglomerated vacancy [or interstitial] defects" means "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm3." The term "agglomerated vacancy intrinsic point defects" means "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." Finally, "agglomerated silicon self-interstitial intrinsic point defects" means "defects caused by the reaction in which self-interstitials agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects."

Lucent contends that this term means "a collection of." (D.I. 379 at 29.) In support of its contention, Lucent cites a dictionary published in 2003. (Id.) Extreme contends that this term means "gathered into a mass or sum so as to constitute a whole." (D.I. 399 at 21.) In support of its contention, Extreme cites a dictionary published in 1981. (D.I. 384, Ex. 16.)

The filing date of the '650 patent application is December 6, 1988. ('650 patent.) Thus, the Court will choose the ordinary meaning of the term as advanced by Extreme. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

WeddingChannel argues that an "aggregated purchase list" is a list of items selected for purchase by a guest from more than one registry. The Knot argues that an "aggregated purchase list" is a collection of two or more registry items selected by a guest during a session from at least two different registries from at least two different registry database providers.

WeddingChannel argues that the following text from the specification supports its interpretation:

> In another aspect of the present invention, a query is received from a guest and multiple registry databases are searched… The guest may pick items in the registry for purchase while the registry is open. In a preferred embodiment, the guest may make additional queries. The additional queries may designate different registrants or additional event dates. As with the original query, each registry database is searched for matching registries. Unique identifiers, each representing a matching registry, are communicated to the guest. The guest selects one of the unique identifiers and the corresponding registry is opened. Items selected by the guest from the opened registry are added to an aggregated purchase list that includes all items selected by the guest from previously selected registries.

"753 Pat. at col 2, l. 57 - col. 3, l. 8.) According to WeddingChannel, the last sentence of this excerpt, which describes how items are added to the aggregated purchase list, contains no requirement that such items derive from the registries of more than one registry database provider. Rather, the sentence merely states that the items on the aggregated purchase list derive from more than one registry. Elsewhere, the specification states:

"One of the advantages of the present invention is that the guest may make multiple queries in a single Internet session 718. Each query 704 may be for a different party and/or event. Thus, in a single session, a guest may make several different selections, or purchases, from several different registry databases 120. Each selection made by a guest in a single Internet session is collected into an aggregated purchase list."
Id. at col. 9, ll. 21-29. WeddingChannel points out that this passage of the specification does not state that an aggregated purchase list must include items from different database providers. The text merely states that the aggregated list includes items derive from registries for "a different party and/or event."

The Knot argues that the ordinary meaning of "purchase list" is a list of items to be purchased, and the ordinary meaning of the term "aggregate" is "to collect into one mass." The Meriam-Webster Dictionary 33 (1997). 8 Based on these definitions, the Knot takes the position that an "aggregated purchase list" is a collection of purchase lists from different registry database providers. Furthermore, the Knot argues that its construction is consistent with the following text from the specification:

When the guest has finished making queries and selecting items, a single purchase transaction is performed. The purchase transaction includes the steps of producing a requisition for each registry database provider represented in the aggregated purchase list. Each requisition corresponds to a particular registry database provider and includes each item in the purchase list that originated from a particular registry database supported by the corresponding registry database provider.

'753 Pat. at col. 3, ll. 9-16. The Knot argues that this portion of the specification distinguishes between the "aggregated purchase list," which includes items from each registry database provider and the "individual purchase lists" from particular registry databases.

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8 WeddingChannel argues that this definition of the word "aggregate" is consistent with how the inventors used the term during the prosecution of the '753 patent. For example, the inventors stated that an "aggregated registry" is one that "consolidates all of the disparate registries that the registrant has created at different registry databases." (Qualey Decl. Ex. 4 at WC002875, Ex. 5 at WC002903.)

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The Knot argues that its construction of the term "aggregated purchase list" is further supported by the following text from the specification: "The advantage of an aggregated purchase list is that it provides convenience to the guest. Rather than executing a series of on-line sessions to buy registry items, a guest makes all necessary selections during one session." Id. at col. 9, ll. 64-67. The Knot point out that multiple sessions are not necessary if gifts are purchased from a single registry database provider.

Furthermore, the Knot points out that Figure 9 illustrates the fact that the aggregated purchase list shows multiple registry database providers from which the guest has purchased registry items.

As the Knot has stated, the plain meaning of "purchase list" is "a list of items to be purchased," and the plain meaning of "aggregated" is "to collect into one mass." Based on these plain meanings, the term "aggregated purchase list" means a list of items drawn from multiple purchase lists. That is, the plain meaning merely requires that the items on the "aggregated purchase list" be drawn from more than one registry; it does not impose the requirement that such items be drawn from multiple registry database providers.

Moreover, the Knot has failed to point to any intrinsic material evidencing "expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope" that would support the more restrictive definition that it advocates. ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1384 (Fed. Cir. 2003) (quoting Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002)).

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9 Indeed, the specification provides ample support for WeddingChannel's construction. The specification states that an "aggregated purchase list" is comprised of "all items selected by the guest from previously selected registries." Id. at col. 3, ll. 7-8. Furthermore, the specification provides that an "aggregated purchase list" contains "each selection made by a guest in a single Internet session." Id. at col. 9, ll. 26-28.
For example, lines 9-16 of column three of the specification, which the Knot cites in support of its construction, merely discloses that the ’753 invention generates vendor-specific requisitions after a guest has made purchases. Lines 64-67 of column 9, also cited by the Knot, states that the "aggregated purchase list" facilitates purchases from the registries of multiple registry database providers, but it does not attempt to impose limitations as to what constitutes an "aggregated purchase list." Finally, Figure 9, which the Knot cites, merely illustrates that an "aggregated purchase list" can include items selected from multiple registry database providers; it does not say that an "aggregated purchase list" must include items selected from multiple registry database providers.

Based on the foregoing, WeddingChannel's construction of the term "aggregated purchase list" is adopted.

C. "aggregation engine * * * storing the resultant aggregated data in a multidimensional data store"

This term "aggregation engine" appears in claims 1, 5 and 7-10 of the ’544 patent. Hyperion contends here, as it did for numerous terms in the ’604 patent, that "aggregation engine" should be interpreted as a means-plus-function term under 35 USC § 112(6). Hyperion asserts that the specification does not recite sufficient structure to perform the claimed function for an "aggregation engine" and therefore the term is indefinite and the claims in which it appears are invalid. Alternatively, Hyperion contends that the specification has not enabled one of ordinary skill to make and use the invention because "HyperRoll has failed to describe an aggregation engine that would be capable of storing the resultant aggregated data in a multidimensional data store." Hyperion Br at 25.

The court first addresses Hyperion's means-plus-function argument. Hyperion contends that the "aggregation engine does not connote sufficient structure to perform the storing function; at best it only connotes sufficient structure to perform the aggregation function." Hyperion Reply Br at 15. But this argument misses the point. The relevant question is whether the claim recites sufficient structure such that one of ordinary skill in the relevant art, having read the claim, could build an aggregation engine. Just because an engine is an "aggregation" engine does not preclude that engine from also performing some other function, such as storing data. And common sense dictates that storing data in a multidimensional database is not a particularly complicated action that would befuddle one of ordinary skill in the art. Accordingly, such a person likely could read the claim and build an aggregation engine that also stores data.

Moreover, Hyperion's enablement argument is without merit. Contrary to Hyperion's contention, the specification describes aggregation engines that store data. See ’544 patent at 7:37-40 ("[T]he aggregation engine carries out a high-performance aggregation algorithm and novel storing and searching methods within the MDDB."); id at 10:64-11:6 ("[A] stand-alone Aggregation Server of the present invention, having an integrated aggregation engine and MDDB * * * the stand-alone Aggregation Server performs aggregation functions * * * and multi-dimensional data storage functions * * * "). And as described above, because storing data in a multidimensional database does not appear to be a particularly difficult action for one skilled in the art, the court concludes that the ’544 patent has satisfied the enablement requirement for this term.

Accordingly, the court rejects Hyperion's proposed construction and declines to construe this term.

A. "Data aggregation server" and "stand-alone data aggregation server"

The term "data aggregation server" appears with the modifier "stand-alone" only in the preamble of independent claim 1 and in the preambles of its dependent claims. As used in claim 1, it is apparent that "data aggregation server" and "stand-alone data aggregation server" refer to the same structure. See ’544 patent at claim 1 ("A stand-alone data aggregation server" later referred to as "the data aggregation server comprising"). Hence, although these terms were briefed separately, the court construes them simultaneously.
Hyperion contends that "data aggregation server" means a "computer system programmed to perform data aggregation functions and not analysis or graphical user interface functions." Joint CI Const at 48. Hyperion further contends that a "stand-alone data aggregation server" is a "data aggregation server that is external (self-contained) and operable independently from an OLAP server." Id at 51.

HyperRoll contends that both of these terms should not be construed because Hyperion did not assert they needed construction in Hyperion's original Pat L R 4-1 contentions. Id at 48. Hyperion also contends that these terms do not need to be construed because they appear in only the preamble of the claims. HyperRoll Br at 4, 7. To the extent the court does construe these terms, HyperRoll defines "data aggregation server" as a "system or computer program for performing data aggregation functions" and "stand-alone data aggregation server" as a "data aggregation server that works with an independently operable OLAP server." Joint CI Const at 48, 51.

First, the preamble of independent claim 1 appears to limit claim scope because limitations in the bodies of various claims derive their antecedent basis from the preamble. Compare '544 patent at claim 1 preamble ("A stand-alone data aggregation server for use with any one of a plurality of different OLAP servers * * *"). See also Catalina Marketing Intl, 289 F3d at 808 ("[D]ependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention. Likewise, when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope.").

Turning to construction of the term, the crux of the dispute between the parties appears to center on two issues: (1) whether the data aggregation server can perform "analysis or graphical user interface functions" or whether it is limited to performing "data aggregation functions" and (2) whether the data aggregation server is "external (self-contained) and operable independently from an OLAP server" or whether the server merely works with an independently operable OLAP server.

Regarding the first issue, the court finds that Hyperion's construction improperly limits the functions that a data aggregation server can perform. This is evident based on dependent claim 5, which states: "The stand-alone data aggregation [sic] server of claim 1, wherein computational tasks performed by the aggregation engine is [sic] restricted to data aggregation operations." Because Hyperion's proposed construction would render this claim superfluous, it conflicts with the doctrine of claim differentiation and is disfavored. See Free Motion Fitness, 423 F3d at 1351 (Fed Cir 2005) (quoting Comark, 156 F3d at 1187). On the other hand, HyperRoll's proposed definition for "aggregation server" is consistent with the specification and claim language. See, e.g., '544 patent at 10:17-21 ("[T]he stand-alone Aggregation Server [in FIG 6A] performs aggregation functions (e.g. summation of numbers, as well as other mathematical operations, such as multiplication, subtraction, division etc) and multi-dimensional data storage functions"); id at claim 1 (the "data aggregation server" includes an "aggregation engine" that "perform[s] data aggregation operations").

Turning to the second issue, HyperRoll appears to interpret the modifier "stand-alone" as requiring the OLAP server to be "independently operable." But "stand-alone" does not modify "OLAP server," "stand-alone" modifies "aggregation server," thereby suggesting that the aggregation server must be the claim element that is able to stand by itself.

But what does it mean to "stand alone?" The specification uses the term "external" interchangeably with "stand-alone." See '544 patent at 6:52-53 ("novel stand-alone (i.e., external) data aggregation server"). The specification also teaches that a stand-alone aggregation server could be physically external to an OLAP server. See, e.g., id at 13:19-27 ("[T]he Aggregation Server 603 can be plugged into (e.g. interfaced to) OLAP Servers (two shown as 605’ and 605”) of different users or vendors. * * * This dramatic move discontinues the restricting dependency of aggregation from the analytical functions of OLAP * * *"). But the specification further teaches that a "stand-alone" aggregation server need not be physically external to the OLAP server, as demonstrated by one embodiment in which the data aggregation server "shares the same hardware platform and operating system (OS) that [is] used to run the [OLAP server]." Id at 15:44-46. Hence, "standing alone" does not necessitate physical separation between the aggregation server and the OLAP server.

Rather, the specification consistently describes the "stand-alone" aggregation server as functionally separate from, but
working with an OLAP server. See e.g., FIGS 6A, 6E, 7A, 7B. It would appear that, at a minimum, this would require the software module for the stand-alone aggregation server to be "separate" from the software module for the OLAP server; otherwise, the "stand-alone" limitation would be meaningless. This usage fits with Hyperion's proposed construction, which requires the "stand-alone aggregation server" to be "external to" and operable independently from an OLAP server. Relevant technical dictionaries also support Hyperion's construction. See Webster's New World Computer Dictionary 354 (10th ed 2003) ("standalone ** [s]elf-sufficient; not requiring any additional component or service"); IBM Dictionary of Computing 644 (10th ed 1994) ("stand-alone ** [p]ertaining to operation that is independent of any other device, program, or system"); Microsoft Computer Dictionary 421 (4th ed 1999) ("stand-alone or standalone ** [o], pertaining to, or being a device that does not require support from another device or system, for example, a computer that is not connected to a network"). Accordingly, it appears that for an "aggregation server" to "stand alone," the aggregation server must be able to operate, at least to some extent, independently of the OLAP server.

In sum, the court adopts HyperRoll's definition of an "aggregation server" as a "system or computer program for performing data aggregation functions." The court adopts a blend on the parties' constructions for a "stand-alone aggregation server," which is "an aggregation server that could operate independently from, but works with, an OLAP server."

6. Construction of "Alerting the Subscriber for a Set Period Visually or until an Acknowledge Button is Depressed before the Set Period Expires"

Plaintiffs contend that the claim language "alerting the subscriber for a set period visually or until an acknowledge button is depressed before the set period expires" needs no construction. Defendants contend that this claim language should be construed as "[a]lerting for a specific period of time unless interrupted by manual intervention. n11 (Def.'s Handout p. 54.)

n11 Defendants propose essentially the same construction in their claim construction brief (See Def.'s Cl. Constr. Br. p. 22 (proposing that this claim language should be construed as requiring "a device that has some set period of alerting, rather than a device that alerts at variable speeds. In addition, this phrase also requires that the set time period may be interrupted.").)
n12 See also ’771 Patent, col. 11, ll. 18-22 ("The alert condition is latched for a predetermined period, or until either the acknowledge button switch 121, which is incorporated into the device is depressed, or until a telephonic device, plugged into the voice/FAX port jack 114, is picked up.") (emphasis added). This matter was not raised by the parties during the Markman hearing.

21 The term "algebraic function" is contained in claims 3, 13, and 16 of the '646 patent and claims 1 and 3 of the '612 patent.

The patents-in-suit both contain the claim term "algebraic function." The parties generally agree that a construction for this term should include "any operation in mathematics," but dispute whether the claim term includes "logic." PACid argues for a narrow claim scope under a theory of claim differentiation. OPENING at 9. PACid contends that an algebraic function is separate from a logic function because they are discussed separately in the claims and the specification for the patents-in-suit. Id. Defendants' contend that the patentee gave the claim term an explicit definition and the patent specifically explains that "algebraic function" "is to be understood" to include logic functions. RESPONSE at 23-24.

Starting with the language of the claims themselves, there is nothing that points towards a restrictive reading that would exclude logic, and the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using "words or expressions of manifest exclusion or restriction." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). In all five claims where this term appears, a plain reading does not present language excluding logic functions. In particular, while the claims occasionally juxtapose the terms "logic function" and "algebraic function," there is no claim usage requiring that these terms refer to mutually exclusive realms in math. In every claim instance, logic functions may be partially or entirely subsumed in algebraic functions. The same is true with respect to the specification where a form of the term "algebra" is repetitively used to describe an operation of the bit shuffling generator (Item 52, Figure 2). '646 patent at 3:22-26; 3:38-48; 3:49-53; 4:60-65; 5:44-50; and 8:52-55. Further, like the claims, while some of the specification references juxtapose the two terms, none of the references serve to re-define or constrain the term "algebra" to a realm of mathematics that would not include logic. One definitional specification reference, in fact, provides an express inclusion of logic within the realm of algebra:

It is to be understood that the algebraic function executed by the function generator 52, where two inputs... are subjected to a bit-shuffling mapping... can be any of numerous other logic, cryptographic, or algebraic functions that would protect the E-Key Seed from being discovered.

'646 patent at 5:44-50 (emphasis added). Thus, the specification states that the "algebra" performed by bit shuffling generator 52 is not confined to the XOR logic operation used in the example embodiment, '646 patent at 4:60-65, but may include "any of numerous other logic, cryptographic, or algebraic functions." This is further consistent with a commonly
accepted dictionary meaning that is inclusive of the logic functions associated with "Boolean algebra." See CHAMBERS 21ST CENTURY DICTIONARY 805 (1996); WEBSTER'S NEW WORLD DICTIONARY OF COMPUTER TERMS 298 (6th ed. 1997). Therefore, the patentee is entitled to the full scope of the claim language, and based on this record, the claims properly include "logic." In accepting the teaching of the '646 patent specification, the Court also rejects PACid's arguments that "algebraic function" is differentiated in the '612 patent. PACid maintains that based on claims 1 and 4 of the '612 patent, if the claim term included logic functions, it would "render claim 4 superfluous" because the dependent claim separately claims "algebraic, logic, and cryptographic functions." OPENING at 9; REPLY at 9. Contrary to this assertion, however, claim 4 does not alter the broad definition of "algebra." While claim 1 refers to "algebraic function" without limitation and is later narrowed by the step disclosed in dependent claim 4, nothing about claims 1 and 4 indicates that the term "algebraic function" would not remain inclusive of Boolean algebra. Even with the added step of "combining a constant value and a secret plural bit sequence in accordance with an algebraic function," a person of ordinary skill in the art would still read "algebra" to include Boolean concepts based in logic. Phillips, 415 F.3d at 1312 (Claim terms are "generally given their ordinary and customary meaning," the meaning that the term would have to "a person of ordinary skill in the art... at the time of the invention.").

Accordingly, the Court finds that the proper construction of the term "algebraic function" is "any operation used in mathematics or logic."
3. "A method of aligning an optical element in a telescope"

The next dispute concerns the phrase "[a] method of aligning an optical element in a telescope." The phrase appears in every claim in the '908 patent, either expressly or by reference. It appears twice in claim 1, once in the preamble and once in subpart (b).

The key term in this phrase is the word "aligning." As used in the '908 patent, the term "aligning" is construed to mean moving an optical element toward a collimated position in response to a projected reticle image.

Glatter argues that "aligning" means "moving an optical element in a telescope to its optimal position and angular orientation specified in the telescopes' [sic] design." (Def.'s Opp. Br. at 3.) LaserMax contends that "aligning" meant "moving an optical element in a telescope to a desired position." (Pl.'s Reply at 2.) The difference between the terms "optimal" and "desired" is a difficult one to parse. The language of the claims themselves offer little guidance as to the meaning of "aligning," as used therein. The tautological nature of claim 1 makes it difficult to discern a contextual definition of aligning. It claims a "method of aligning an optical element in a telescope" wherein the second step in the method is "aligning the optical element." '908 Patent at 6:29, 33. Thus, the claim itself offers little guidance in discerning a definition. Other claims, however, demonstrate that the choice of the word "aligning" may have been intended to mean more than simply moving or adjusting an element. Claim 18, for example, has "aligning" in the preamble, but uses the term "adjusting," in subpart (c), when indicating that one following the method would move an optical element. Id. at 7:13, 21-23. Therefore, it is unclear based on the claims alone, whether "aligning" means more than simply "moving to a desired position."

The specification provides some guidance in construing the term. Glatter originally construed "aligning" as "moving an optical element to an optimal position," but changed his asserted definition during the Markman hearing to "moving to an optical element in a telescope to its collimated position." (See Hearing Tr. at 33:6-11.) "Collimated" is a term of art in the field of optical devices that would be understood by a person of ordinary skill in the art. The specification uses variations of the word "align" several times. At one point, the specification uses the terms "properly aligned" and "collimated" as synonyms. First, the specification states that "Newtonian type telescopes are subject to misalignment of the optical elements. . . . A misaligned Newtonian telescope will exhibit an image of a star that looks like a comet with a tail." '908 Patent at 1:36-40. In describing how to determine whether the optical elements are aligned, the specification uses the phrase "in a properly aligned or collimated telescope." Id. at 1:43-46. According to the specification, the term "collimate" means "properly aligned," as opposed to "misaligned," and in a Newtonian telescope is characterized as an arrangement of the optical elements wherein "a laser beam is projected through an emission aperture to reflect off of the secondary mirror which directs it to the center of the primary mirror. The primary mirror reflects the beam back to the secondary mirror which then reflects it back to the emission aperture of the laser." Id. at 1:43-49. In other words, "the complete return of the emission aperture assures that the telescope is correctly aligned." Id. at 1:49-51. Thus, the specification indicates that "properly aligned" means "collimated." Aligning, therefore, means moving toward a collimated configuration.

Nonetheless, use of the word "collimated" should not be unduly limited to a single appropriate arrangement for the elements in a telescope. First, although the specification's description of "properly aligned" uses the components of a reflecting telescope as an example, refracting telescopes can also be collimated. See id. at 6:19-21. Second, at the Markman hearing, plaintiff and defendant agreed that there can be more than one "collimated position," depending upon the setup of the telescope, for example, collimation for use with a camera may be slightly different from collimation for use with the eye alone. (See Markman Tr. at 43:18-25.) Since the claims pertain to "optical element(s) in a telescope," the meaning of a claim term should not be limited based on potential uses that differ from one another due to a component that lies outside of the telescope, like the viewer's eye or a camera. Therefore, the word "collimated" restricts the term "aligning" to arrangement of the optical elements for use in a telescope (usually centering the elements along a line formed by the beam's center), but does not connote a single, objectively accurate position.
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1. "alignment structure, in said computer" (claim 1)

PolyVision's proposed construction: The combination of hardware and software within the computer that provides for alignment.

Smart's proposed construction: Hardware and/or software within the computer that provides for alignment.

PolyVision contends that the term "alignment structure" is properly construed to mean both the hardware and the software in the computer that performs the alignment function on the touch-sensitive display screen. Smart contends that no construction is required because it contends, as it did above regarding the phrase "means for receiving said control signals and in response generating and projecting graphic images onto said touch sensitive display screen at said locations" in the '263 patent, that Federal Circuit case law holds that computer structure includes the software that is necessary to perform the claimed function. Although the Court rejected Smart's argument above, it notes that the instant claim language supports the conclusion that it includes not only the hardware but also the software for performing the alignment function. Finding little or no difference between the parties' proposed constructions, the Court concludes that PolyVision's construction comports with the claim language, and the Court will adopt that construction.

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2. "All"

Liquidnet construes the term "all" as the "whole number or sum," 74 while ITG/Pulse defines it as "each and every." 75 I see little practical difference between these two constructions once the other terms in the claim are defined, and the parties have not pointed to any evidence that strongly suggests that one of these definitions is more accurate than the other. Therefore I will define "all" in the most common-sense way -- namely "each and every." 76

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74 Liquidnet Br. at 17.
75 ITG/Pulse Br. at 32.
76 See Phillips, 415 F.3d at 1314 (stating that when the ordinary meaning of claim language is apparent a district court need not consider any other source of intrinsic or extrinsic evidence to interpret that language).

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

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7. "Allotting a plurality of numbers from the predetermined range of numbers"

The parties disagree as to what "allotting a plurality of numbers from the predetermined range of numbers" means. They propose the following interpretations:

Term or Language Requiring Aristocrat's Proposed
Construction Construction
"allotting a plurality of Giving to the player a plurality
numbers from the of numbers from a range of
predetermined range of numbers determined in
In the case of a computer implementation of the method, the term "predetermined" can include "programmed" as in computer programming.

Term or Language Requiring Construction
"allotting a plurality of numbers from the predetermined range of numbers"

IGT's Proposed Construction
Selecting and assigning two or more numbers from the entire predetermined range of numbers. Each number within the predetermined range must be available for selection and assignment. This excludes selecting and assigning only one single number.

The predetermined range of numbers is a range of numbers that is determined before making a wager and before initiating the first main game.

a. "Allotting a Plurality of Numbers"

The '215 Patent describes two possible ways of determining whether the feature game trigger condition has been satisfied. In both embodiments, a single random number is selected from within a range. In the first embodiment, a game is allotted a set of numbers within that range. '215 Patent at 6:18-23; '603 Patent at 51-65. The size of that set of numbers (that is, the number of allotted numbers) is equal to the number of credits the player has bet. '215 Patent at 6:18-23; '603 Patent at 51-65. The trigger condition is satisfied when the random number matches one of the numbers in the allotted set. '215 Patent at 6:18-23; '603 Patent at 51-65. In the second embodiment, the game is allotted a single number corresponding to the number of credits bet. '215 Patent at 6:27-37; '603 Patent at 55-60. If, within the range of numbers, the randomly selected number is less than the single allotted number (called the "player value"), the feature-game trigger condition is satisfied. '215 Patent at 6:27-37; '603 Patent at 55-60. At issue is whether, as described in the second embodiment, the allotting of a single number is foreclosed by the claim's requirement that a "plurality of numbers" be allotted.

"Plurality" means at least two. York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1575 (Fed. Cir. 1996). Neither party disagrees. The dispute is whether "allotting a plurality of numbers" includes allocating "a single number" which is equal to, or proportional to, the number of credits bet and the trigger value is compared with the "single player value" and a jackpot feature awarded if the trigger value is less than or equal to the player value. '215 Patent at 6:28-32; '603 Patent at 5:58-60. Aristocrat contends that the single number or single player value referred to in the specification is a plurality of numbers because it represents the number and all those numbers less than the number. Aristocrat further points out that IGT's interpretation would exclude coverage of the alternative embodiment of the patent and that a claim interpretation that excludes a preferred embodiment "is rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

IGT points out, however, that the claim language expressly states "allotting a plurality of numbers" and the description of the alternative embodiment in the specification expressly says "a number is allocated" and refers to "the range of numbers below the allotted number." IGT CC at 16 (quoting '215 Patent at 6:18-23 (emphasis added)). Therefore, argues IGT, the claim language cannot include the alternative embodiment. The court disagrees. If Claim 1 of the '215 Patent is read in the context of the specification as a whole, the allocation of a number representing a range of numbers falls within the coverage of "allotting a plurality of numbers."
IGT also argues that Aristocrat gave up coverage of the alternative embodiment during prosecution to get around prior art and that Aristocrat abandoned claims that would have read on the alternative embodiment. Neither argument has merit. Nothing Aristocrat said during prosecution gave up a claim that involved allocating one number (e.g., 20) to represent a plurality of numbers (e.g., 1-20) nor does it appear that Aristocrat intentionally narrowed its claims. See SuperGuide Corp. v. DirectTV Enterprises, Inc., 358 F.3d 870, 875 (Fed. Cir. 2004). Under the alternative embodiment, then, each of the numbers below the player value are "allotted" to the player. The embodiment is therefore covered by the claim language.

b. "Predetermined Range of Numbers"

IGT contends that Aristocrat defined, in the prosecution history, "predetermined range of numbers" as a range of numbers determined before the beginning of the game. IGT CC at 18. IGT points to a prosecution-history document which distinguishes two pieces of prior art, the "Surprise Software Specification," and the "Torango '460 Patent" because "the range of the random number generator in the pending claims does not change during game play." Irvine Decl. Ex. D at 3. The specification supports this reading. The abstract of the '215 Patent states that the range is selected "prior to each game" and the flowchart in Fig. 2 refers to the range as "predetermined" in the first step. Aristocrat responds that the claims do not support this construction of "predetermined range" and that a person of skill in the art would understand the term otherwise. Pls.' Claim Construction Brief 13 (hereinafter "Aristocrat CC"). The court finds that the Aristocrat's statements in the prosecution history constitute a "clear disavowal of claim coverage." SuperGuide, 358 F.3d at 875. The predetermined range of numbers must therefore be determined before the beginning of the main game.

c. Must Each Number in the Predetermined Range Be Available for Allotment?

IGT also proposes that the claim requires that "each number within the predetermined range must be available for selection and assignment." Aristocrat responds that this means, "[i]n other words, if a particular IGT machine one[-]dollar machine had a 100,000 range of possible numbers from which numbers could be given to the player based on his or her bet size, but the particular slot machine, not surprisingly, did not accept $ 100,000 wagers, the IGT machine would not infringe." Aristocrat CC at 13. IGT does not respond in its claim construction brief, and the court agrees that the limitation has no basis in the claim language.

d. Construction of Language

The court construes the language at issue as "giving to the player two or more numbers from a range of numbers. The range of numbers must be determined before the beginning of the first main game. Each number in the predetermined range need not be available for allotment."

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We conclude that the district court correctly construed these claim terms. The court construed "allowing" as "allow to begin." Ring Plus argues that the term should be construed as "allow to continue or to begin." Ring Plus's proposed construction conflicts with the required order of the claimed steps, which it does not appeal. The claimed algorithm (1c)) determines whether the line is busy, (1d)) allows a sound presentation if the line is not busy, and then (1e)) initiates the actions to play the message. The court held that the step of "allowing for" a sound presentation must be performed before the step of playing that presentation. Because a sound presentation cannot be "allowed to continue" before the presentation is first played, the required order of the steps necessarily indicates that "allowing" a sound presentation means allowing the presentation to begin. Indeed, if we construed "allowing" as Ring Plus proposes, the claims would recite the illogical sequence of allowing a sound presentation to continue before initiating the playing of that presentation. Step 1e) states "initiating those actions to play." If the sound presentation was playing in advance of or during the determination regarding whether the line is busy (step 1c), then the "initiating those actions to play" required by 1e would have already occurred. You cannot initiate the playing of the message as required by step 1e), if it has been playing all along. The court's construction is further supported by the specification, which consistently teaches that a sound presentation is not generated at all until after the algorithm determines that the recipient line is not busy. Id. col.6 l.62-col.7 l.2. Thus, the court did not err in construing "allowing" as "allowing to begin."
16. Allowing access to the client database

The court agrees with Seven that this term, as used in the '201 patent, needs no construction.

B. Claim Construction: allowing

The term allowing appears three times in Claim 40; however, the parties dispute its construction in only two phrases. The phrases at issue read:

- allowing the one or more merchants to select at least one of the localized geographic areas and at least one of the topical categories to list or display information pertaining to the one or more merchants;

- allowing the one or more merchants to input information into the system for viewing by the consumers on the one or more web pages;

Plaintiff asserts that allowing in each of these phrases means permitting. Defendant asserts that allowing means that the task must actually be completed for the next steps to occur. In other words, Defendant asserts that, rather than merely "permitting," the element requires that the merchant "actually" select a geographic area and topical category and "actually" input information into the system. (Def.'s Mem. Supp. Proposed Claim Constr. 14; Hr'g Tr. 106-08.) Defendant argues that all steps must actually be carried out in order for infringement to occur. (Def.'s Mem. Supp. Proposed Claim Constr. 14.) The Court does not disagree with Defendant's assertion regarding requirements for infringement; however, the issue as to if and how many merchants actually pick may be a damages issue addressed later in the lawsuit and is not properly at issue in claim construction.

The ordinary meaning of allowing is letting happen or permitting. (The American Heritage Dictionary of the English Language, 4th Ed. (2004)). As used in the claim, allowing does not mean that the acts accompanying the term must take place or "requiring," as Defendant proposes. There is no mandatory connotation to this word as used in the claim and throughout the Patent. Rather, in this claim and in other claims in this Patent, the term is used in a passive and permissive way. The Court finds no special or extraordinary meaning given to allowing in the Patent, nor does the patentee use language that limits or disavows its plain usage. Moreover, Defendant has not offered sufficient support to overcome the presumption that the word allowing means anything other than its ordinary meaning.

Because there is nothing in the patent history or specification that contradicts the ordinary English definitions, the Court interprets the phrase allowing the one or more merchants to select at least one of the localized geographic areas and at least one of the topical categories as means "permitting one or more merchants to choose or pick at least one localized geographic area and at least one topical category." Furthermore, allowing the one or more merchants to input information into the system means "permitting one or more merchants to create and post information to the system." 3

Footnotes

3 Input appears at various points throughout the '513 Patent. Defendant offers that the term means "to create or post." Plaintiff has not proposed a definition. It is clear from the prosecution history that the patentee intended input information into the system to encompass creating and posting information into the system. (See Pl.'s Claim Constr. Reply Brief 14) ((citing Joint App. A568, Mar. 24, 2004 Decl.) ("[T]he present invention permits the user to create and post . . . information onto the system using a substantially automated process.")) (emphasis added).
"Forcing", "Allowing" and "Clock Pulse Interval"

As noted in the fact section above, the '740 patent claims a novel two-wire bus protocol with unique start and stop control signals. The terms "forcing", "allowing" and "clock pulse interval" appear in, for example, claims 16-18 and are used to describe, in part, the functions of transmitting a clock signal, transmitting a start signal, transmitting a stop signal and transmitting binary data.

The Defendant argues that two transitions are required to cause a periodic clock signal at the clock terminal, a low to high transition (allowing) and a high to low transition (forcing), and that without both there is no clock signal. (Def. Br. at 27.)

Defendant argues that the phrase "allowing … to assume a second voltage level" must include the act of turning a transistor from ON to OFF and that the phrase "forcing … to a first voltage level" must include the act of turning a transistor from OFF to ON. (Def. Br. at 26-27.) In other words, if a switch is already turned OFF, it must be turned ON and then OFF again to "allow." Similarly, they argue that if it is already ON, it must be turned OFF and then ON again to "force." Defendants, arguments are without merit.

At the outset, Defendants' proposed interpretation is inconsistent with the claim language itself. Claim 16 describes "allowing" and "forcing" as continuous acts which occur over a period of time--like holding down a doorbell buzzer for thirty seconds--not as instantaneous acts--like turning ON or OFF a light switch. For example, the step of "transmitting a clock signal" requires "allowing the clock terminal … to assume a second voltage level during each of a series of periodic clock pulse intervals" and then "forcing … to a first voltage level at all other times." Similarly, the steps of "transmitting a start signal" and "transmitting a stop signal" require allowing or forcing "during a first fraction of a clock pulse interval." Also, the step of "transmitting binary data" requires allowing or forcing "during an entire clock pulse interval." The act of switching ON-to-OFF, or OFF-to-ON, is not recited or relevant to the claim. In other words, there is nothing in the claim that requires a transistor that is in the OFF state to be switched ON and then OFF again to "allow" or the reverse--ON-OFF-ON--to "force."

Defendants' proposed "turning the switch" interpretation for "allowing" and "forcing" is also contrary to the patent specification. A basic tenet of claim construction is that "the construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998); see also Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 326 F.3d 1215, 1222 (Fed. Cir. 2003) ("the intrinsic record must always be consulted to identify which of the different possible [ordinary] meanings is most consistent with the use of the words by the inventor"). Here, Defendants' interpretations conflict with not just one part of the '740 specification, but many.

For example, the start and stop signals described in the '740 patent are illustrated below:

Start and Stop Signals Shown in the '740 Patent

GET DRAWING SHEET 1 OF 3.

If the Defendants' "changing the switch" interpretation were adopted, the start and the stop signals would look as follows: 6

6 See Defendants' slide numbers 31 (start) and 30 (stop), presented during the May 30, 2003 tutorial. (Exhibit B, pp. 30-31.)
According to the Defendants' interpretation, a composite start signal, two-bit data transmission, and stop signal would appear as follows:

The stark contrast between the signals illustrated in Figure 3 of the '740 patent and those presented by Defendants confirms that the latter interpretation is not correct. The specification contains other descriptions that conflict with Defendants' interpretation. (E.g., '740 patent, Col. 1, line 48; Col. 2, line 8; Col. 3, lines 15-50.)

The plain meaning of the phrase "allowing ... to assume a second voltage level" requires only that the transistor be turned OFF, or kept turned OFF (i.e., kept in a nonconducting state), so that the voltage stays at a high ("1") logic level for the relevant time period. Similarly, the plain meaning of the phrase "forcing ... to a first voltage level" requires only that the transistor be turned ON, or kept turned ON (i.e., kept in a conducting state), so that the voltage is held at a low ("0") logic level for the relevant time period. When those definitions are applied consistently to the patent claims, they correspond exactly to the clock, start, stop, and data signals shown in Figures 2 and 3 of the '740 patent. (See figures on pp. 30, 32, 34, and 36 of Pl. Br.) Accordingly, Philips' proposed interpretations for the "allowing" and "forcing" elements are the proper constructions to be followed.

Defendants' argument that Philips' proposed claim construction is in some way "inconsistent" is without merit. (Def. Br. at 28-30.) Philips' interpretations are entirely consistent as demonstrated by, inter alia, the "allowing" and "forcing" illustrations in Philips' opening brief.

1. Principles of claim construction

Claim construction of a patent, including terms of art within claims, is exclusively within the province of the court, not the jury. Markman v. Westview Instruments, Inc., 517 U.S. 370, 388-8, 116 S. Ct. 1384, 134 L. Ed. 2d 577, 579 (1996).

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. See Markman, 52 F.3d at 979, 34 U.S.P.Q.2d at 1329. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.


The first step is to look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Id. Second, it is necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. Id.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. Id. "Claims must be read in view of the specification, of which they are a part." Id. (citing Markman, 52 F.3d at 979). The specification is always highly relevant to the claim construction analysis, and usually, it is dispositive; it is the single best guide to the meaning of a disputed term. Id. The drawings or figures of the patent are considered with the specification in interpreting claim language. Wright Medical Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed. Cir. 1997).
Third, the court may also consider the prosecution history of the patent, if in evidence. Vitronics Corp., 90 F.3d at 1582.

In addition, the Court should not read into a patent limitations that do not exist in the claims. As the Federal Circuit recently held, "[t]he danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim." Amgen, Inc. V. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed Cir. 2003) (internal citations omitted).

Moreover, like contract interpretation, the Court should first give claim terms their ordinary and accustomed meanings.

Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic evidence using words Or expressions of manifest exclusion or restriction, representing clear disavowal of claim scope.

Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1377 (Fed. Cir. 2003) (emphasis added).(citation omitted).

In fact, the Federal Circuit has issued a ruling instructive on this issue. In Rexnord Corp. v. Laitram Corp., 274 F.3d.1336, 1343-44 (Fed. Cir. 2001) the Federal Circuit overruled the district court's holding that the claim term "portion" was to be accorded a meaning narrower than its customary meaning, by finding that the district court had improperly relied on the preferred embodiment, the drawings, and one passage in the prosecution history to overcome the presumption.

Finally, if an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence. Id. at 1583. Extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles. Id. at 1584. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. Id.

This approach was affirmed in the Federal Circuit's most en banc decision, Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). In that case, the Court reiterated that "[w]e have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms." Id.

Following this guidance and framework, this Court finds that the '801 Patent's Claim 5 and the specification only requires that the microprocessor permits (allows) audio data to leave through the audio reproduction circuit and not that the audio data must always leave that way.

Additionally, nothing in the claim language, specifications, or prosecution history supports a finding that "allows" is limited to an understanding of "enable" meaning to turn on from a previously turned off starting point. As to "when," this term appears multiple times in the '801 Patent and none support an interpretation of "every time." "When" simply means that "at the time."

Here, it is inappropriate for this Court to find that Mediatek's argument is correct, as there is little to support overcoming the heavy presumption that the terms carry their ordinary meaning. As such, for the purposes of Claim 5 and its dependant claims 6 and 7, the plain terms are interpreted as (1) "allows" meaning "to permit" and (2) "when" meaning "at the time" instead of Defendants' more restrictive interpretation.

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5. "wherein said identification encoder allows entry of a popularity code" (claims 6 and 27 of the '702 patent)

The disputed phrase "wherein said identification encoder allows entry of a popularity code" appears in claims 6 and 27 of the '702 patent. Acacia's proposed construction of the phrase is: "a popularity code is the symbols, letters, or words or combinations thereof used to represent the popularity of a particular item. The identification encoder allows entry of the popularity code." See Plaintiff's Claim Construction Brief at 28 (May 7, 2004).
Defendants contend that Acacia's definition is too broad. Defendants assert that the specification discloses a specific function in the transmission system "the popularity code can be used to determine the most appropriate form of media storage of the compressed data in a mixed media system." (Defendants’ Opposition to Plaintiff’s Claim Construction May 13, 2004 at 18) (citing ‘702 patent, col 12, 11. 8-10). "In some cases, where multiple compressed data libraries 118 are organized, the popularity code may dictate the distribution of a particular item to multiple distribution systems." (702 patent, 12:41-43).

"The storage encoding process performed by [the] identification encoder 112 allows entry of a popularity code." (‘702 patent, 12:4-5). According to figure 2a, the "identification encoding process" occurs as the first step of converting material in a source material library into a format suitable for storage in a compressed data library and subsequent transmission. (‘702 patent, fig. 2a). The specification indicates that the "popularity code is preferably assigned on the basis of how often the corresponding item is expected to be requested from the compressed data library 118." (‘702 patent, 12:6-8).

The specification mentions that the popularity code may be updated by "factoring item usage against system usage." (‘702 patent, 12:12-13). However, the specification does not disclose an algorithm, software program, or even a high level block diagram of how requests for a particular item (with copies possibly in other locations) is tracked by the popularity code and how the code is updated.

The specification does not disclose using a popularity code to retrieve items of information, but rather discloses the popularity code as a way of efficiently determining what storage media should be used for particular information to enhance retrieval. For example, how often an item of information is retrieved from the compressed data library determines whether the item is stored on cassette tapes (lower number of requests) or magneto-optical disks (highest number of requests). (‘702 patent, 12:20-23). If a popularity code is assigned, the popularity code dictates distribution of a particular item to multiple distribution systems. (‘702 patent, 12:41-43).

Acacia contends that the term "popularity code" has a plain and ordinary meaning such that the Court need not look to the specification to define the term. While a term "popularity rating" connotes a meaning that it is a rating of how popular an item is, the same does not hold true for a "popularity code." Even if the term had a plain and ordinary meaning, which it does not, the patentees acted as their own lexicographers in assigning a specific meaning to the term in one of the few portions of the specification that are unambiguous.

As defined in the specification of the ‘702 patent, the popularity code, if assigned, has no function separate from the compressed data library. (‘702 patent, 12:5-47). Accordingly, the Court construes "popularity code" to mean "a code that indicates initially the projected requests for an item of information in the compressed data library relative to other items contained therein for purposes of determining its place in the storage hierarchy; where said popularity code may be updated over time to reflect actual requests from users for particular information."

The Court construes "wherein said identification encoder allows entry of a popularity code" to mean "an identification encoder assigns an optional popularity code." 27

27 During the prosecution of the ’992 patent, the applicants disagreed with the examiner that Lang disclosed the recited "identification encoding means." The applicants explained that "the functions of the identification encoding means are to retrieve of [sic] information from the source material library means and to assign a unique identification code to the retrieved information." Id. Thus, in addition to retrieving information from a source material library means and assigning a unique identification code to the retrieved information, here said identification encoder must perform the additional step of assigning an optional popularity code.

End Footnotes

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The court need only construe the term "alphanumeric keyboard" within claim 1 to decide the preliminary injunction application. Wireless proposes the following construction: "An alphanumeric keyboard is a regular arrangement of keys. When activated, these keys are used to generate the internal representation of symbols. Alphanumeric symbols include letters of the alphabet and numbers 0-9. Alphanumeric keyboards allow the generation of internal representations for this set of symbols." P. Reply Br. 8 (quoting Dr. Deffner Report P 31, P. App. 306). Sony submits the following proposed construction: "An input device having a QWERTY, FITALY, or Dvorak layout or any other alphanumeric layout that includes a substantially full set of alphabetic and numeric keys." D. Br. 8 (emphasis omitted).

n5 Wireless has submitted proposed constructions for ten terms within claim 1. For purposes of Wireless' preliminary injunction application, Sony does not dispute the proposed constructions of seven of the ten terms, but it does challenge the proposed constructions of three -- "hand-held," "body portion," and "alphanumeric keyboard" -- and maintains that a fourth term -- "high resolution" -- needs to be interpreted. Of these, the court need only construe the term "alphanumeric keyboard" to conclude that Wireless is not entitled to injunctive relief.

To support its proposed construction, Wireless relies exclusively on extrinsic evidence -- primarily the report of its expert, Dr. Gerhard Deffner ("Dr. Deffner"). The Federal Circuit generally views extrinsic evidence as "less reliable than the patent and its prosecution history in determining how to read claim terms." Phillips, 415 F.3d at 1318. The language of Wireless' proposed construction comes directly from Dr. Deffner's report. The report states in conclusory terms that the proposed construction is how "[a] person of ordinary skill in the art would understand" the term. P. App. 306. But "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to [the] court." Phillips, 415 F.3d at 1318.

n6 Wireless also points to various technical dictionaries to support its proposed construction. Under Phillips the court may review technical dictionaries "if the court deems it helpful." Phillips, 415 F.3d at 1318. Because the court is able to construe the disputed claim term based on intrinsic evidence, it need not resort to technical dictionaries. See Vitronics, 90 F.3d at 1583 (If "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . ., it is improper to rely on extrinsic evidence.").

In addition, Wireless points to allegedly inconsistent positions that Sony and its expert, Dr. Brad A. Myers ("Dr. Myers"), have taken in other patent proceedings. This is also extrinsic evidence because it is external to the 173 patent and its prosecution history. See Phillips, 415 F.3d at 1317.

In contrast to Wireless' reliance on extrinsic evidence, Sony points primarily to the patent specification to support its proposed construction. Indeed, the text of its proposed definition comes directly from the specification. Compare D. Br. 8 with P. App. 20.

Because the meaning of the claim term "alphanumeric keyboard" as understood by persons of skill in the art is not immediately apparent, the court will interpret it by considering the intrinsic evidence. See Vitronics, 90 F.3d at 1582 ("It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record. . . ."). The court turns first to the specification of the 173 patent. The "Background of the Invention" section of the specification summarizes the configurations of several conventional wireless communication devices, including the mobile phone. It describes the mobile phone as typically including, inter alia, "a twelve-digit keypad designed for numeric data entry." P. App. 18. It then details shortcomings with each of the conventional wireless devices. It describes the following fundamental disadvantage with the mobile phone's twelve-digit keypad. Although the twelve-digit keypad usually supports some
alphanumeric data entry,

the commonly used method of accessing alphanumeric characters is to switch the device into a text entry mode, then press a key repeatedly to access a particular one of a subset of characters available for each key, this method being extremely slow, awkward, error prone, and not appropriate for a device intended to transfer textual data on a regular basis.

Id.

The "Summary of the Invention" section distinguishes between the invention's alphanumeric keyboard' and the mobile phone's keypad. "The alphanumeric keyboard is easier and faster to use and learn than the keypads . . . on most mobile phones. . . ." Id. at 20. It describes the alphanumeric keyboard as follows: "The keyboard may be a keyboard with a layout such as the common QWERTY' layout, but need not be limited to this particular layout. Other layouts may include the FITALY' layout, the Dvorak' layout[,] or any other alphanumeric layout that includes a substantially full set of alphanumeric keys." Id. (emphasis added). The specification explains the primary advantage of the invention's keyboard. In contrast to data entry using the mobile phone's twelve-digit keypad, which is "extremely slow, awkward, [and] error prone," id. at 18, the invention's "full alphanumeric keyboard allows the user to quickly and easily transmit messages and other textual and graphical communications in a complete and intuitive manner," id. at 20, and is "effortless to learn and use," id. n7

--- Footnotes ---

n7 Neither party has adduced evidence of the patent's prosecution history. Thus the specification is the only intrinsic evidence that the court will consider.

--- End Footnotes ---

Based on the intrinsic evidence, the court rejects Wireless' proposed construction of "alphanumeric keyboard." The patent specification unambiguously distinguishes between the invention's keyboard and the mobile phone's standard twelve-digit keypad. Because Wireless' proposed construction -- "a regular arrangement of keys" -- would include the twelve-digit keypad, it is simply too broad. Instead, the court adopts Sony's proposed construction, which is taken directly from the language of the patent specification.

Wireless contends that the court's adoption of Sony's proposed construction would be improper because it would use the patent specification to limit the scope of the claims. The court recognizes that it is prohibited from "limiting the claimed invention to preferred embodiments or specific examples in the specification." Tex. Instruments, Inc. v. U.S. Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed. Cir. 1986); see also Phillips, 415 F.3d at 1323 ("Although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."). The court also "recognize[s] that the distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice." Phillips, 415 F.3d at 1323. But because the court's analysis does not refer to the patent's preferred embodiment or to the numerous specific examples of other embodiments listed within the patent, the court is satisfied that it is relying on the specification to interpret the claims, not to improperly limit them.

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The claims of the 173 patent do not read on the accused products. The Sony devices do not have an "alphanumeric keyboard," as the term is properly construed. Rather, they incorporate a typical twelve-digit numeric keypad, a power key, and a Sony operator-defined key. Like standard mobile phone keypads, the keys associated with the numerals 2 through 9 are also capable of inputting alphabetic characters in a text-entry mode. But the specification makes clear that this is the keypad configuration that suffers from the problems that the inventors sought to overcome by incorporating an alphanumeric keyboard that employs a substantially-full set of alphanumeric keys. Thus the court concludes on the present record that Wireless has failed to establish that it will likely prove infringement of claim 1 at trial. The remaining asserted claims are dependent on claim 1. Because dependent claims necessarily include all limitations of the claims on which they depend, Wireless has not demonstrated that it will likely prove infringement of any of the asserted dependent claims at trial.

The intrinsic evidence provides adequate grounds for the court to construe the term "alphanumeric keyboard." Accordingly,
the court does not rely on any extrinsic evidence, including expert reports. See Vitronics, 90 F.3d at 1583 (If "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . ., it is improper to rely on extrinsic evidence.").

In their briefing on the summary judgment motion, the parties focus their arguments on the construction of "alphanumeric keyboard" alone, disregarding the remaining claim terms. Thus the court in deciding the motion will construe "alphanumeric keyboard" only. In its summary judgment motion, Sony urges the court to adopt its preliminary construction of "alphanumeric keyboard" as its final construction. Sony relies on the court's analysis of the intrinsic evidence in Wireless I, contending that this evidence dictates that an "alphanumeric keyboard" have a substantially full set of alphabetic and numeric keys and maintaining that Wireless cannot rely on extrinsic evidence to contradict the meaning of "alphanumeric keyboard" that is contained in the specification. Wireless posits that the court improperly construed "alphanumeric keyboard" on an incomplete record at the preliminary injunction stage and impermissibly limited the claims of the '173 patent to the preferred embodiment. Wireless also directs the court to the prosecution history of United States Patent Application No. 10/655,802 ("the '802 application"), which Wireless maintains supports a broader construction for "alphanumeric keyboard" than the one the court adopted in Wireless I. Sony replies that the '802 application's prosecution history does not support Wireless' assertions.

Because the parties' arguments are substantially the same ones made at the preliminary injunction stage, the court will address only the new claim construction evidence before issuing its final claim construction for "alphanumeric keyboard." Wireless submitted a November 29, 2005 notice of filing supplemental appendix to its brief in support of its motion to reconsider, which contains the prosecution history of the '802 application. Wireless filed the supplemental appendix even though the court had earlier denied Wireless' motion to reconsider and Wireless had already appealed the denial of the preliminary injunction motion and the motion to reconsider. Sony recognizes the "procedural impropriety" of Wireless' filing a supplemental appendix for a motion that had already been decided by the court and that was the subject of a pending appeal. D. Br. 2 n.6. Nevertheless, Sony does not object to the supplemental appendix; instead, it contends the '802 application's prosecution history does not support Wireless' assertions.

Wireless avers that during the prosecution of the '802 application -- which it maintains has an identical specification to that of the '173 patent -- the Patent and Trademark Office ("PTO") Examiner ruled that an "alphanumeric keyboard" should be construed to include "a qwerty, a Fitaly, a Dvorak or a twelve-key keyboard." P. Br. 3 (emphasis omitted) (quoting P. Supp. App. 32-33). Wireless contends the prosecution histories of related applications are highly relevant and useful evidence in determining a patent's scope, and that the PTO Examiner's conclusion is wholly consistent with Wireless' construction of "alphanumeric keyboard" as specifically including a twelve-digit keypad. Sony alleges that Wireless has misrepresented the prosecution history of the '802 application. It maintains that, in response to the PTO's rejection of all claims in the '802 application, Wireless removed the word "alphanumeric" from the claims, and that the PTO Examiner made no conclusions relating to the construction of "alphanumeric keyboard."

The prosecution history of the '802 application is extrinsic evidence. See Phillips, 415 F.3d at 1317 (holding that extrinsic evidence "consists of all evidence external to the patent and prosecution history" (quoting Markman, 52 F.3d at 980)). As such, it is less reliable than the '173 patent's specification in construing that patent's claim terms, and the court should discount it if it is clearly at odds with the claim construction mandated by the intrinsic evidence. See id. at 1317-18. And because, as the court held in Wireless I, "the intrinsic evidence provides adequate grounds for the court to construe the term 'alphanumeric keyboard,'" Wireless I, 390 F.Supp.2d at 540, it is improper for the court to rely on extrinsic evidence,
including the '802 application's prosecution history. See Vitronics, 90 F.3d at 1583 (If "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . ., it is improper to rely on extrinsic evidence.").

Moreover, even if the court were to afford great weight to the '802 application's prosecution history, it does not support Wireless' assertions. To support its contention that the PTO Examiner "ruled that an 'alphanumeric keyboard' should be construed to include 'a qwerty, a Fitaly, a Dvorak or a twelve-key keyboard,'" P. Br. 3, Wireless cites claims 67, 68, and 69 of the '802 application. Claim 67 depends on claim 1, claim 68 depends on claim 31, and claim 69 depends on claim 56. At one point, claims 1 and 31 required, inter alia, "an alphanumeric keyboard carried by the body portion." P. Supp. App. 16, 25. In response to PTO action, the '802 applicant amended claims 1 and 31 such that the "alphanumeric keyboard" limitation was removed. These claims now include the limitation of "a keyboard carried by the body portion." Id. at 15, 16, 25. Claim 56 also contains the limitation of "a keyboard carried by the body portion." Id. at 30. Claims 67, 68, and 69 each contain the limitation that the "keyboard [be] selected from the group of a qwerty, a Fitaly, a Dvorak or a twelve-key keyboard." Id. at 32-33. Wireless' contention that this language is somehow equivalent to a ruling by the PTO Examiner regarding the construction of "alphanumeric keyboard" is incongruous. To the extent that claims 67, 68, and 69 might enlighten a person of ordinary skill in the art as to whether a claim term includes "a twelve-key keyboard" in its definition, that term is "keyboard," not "alphanumeric keyboard."

Relying only on the intrinsic evidence of the '173 patent as the court explained in Wireless I, the court adopts its tentative construction of "alphanumeric keyboard" at the preliminary injunction stage as its final construction. Thus the court construes "alphanumeric keyboard" as an input device having a QWERTY, FITALY, or Dvorak layout or any other alphanumeric layout that includes a substantially full set of alphabetic and numeric keys.

DISCUSSION

This appeal turns entirely on the correct construction of the term "alphanumeric keyboard." We construe the term "alphanumeric keyboard" without deference to the district court's claim construction. Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1347 (Fed. Cir. 2005).

The scope of the term "alphanumeric keyboard" is not readily apparent from the face of the claim, and there is no common dictionary definition of this term. n2 However, the term "alphanumeric keyboard" "must be read in view of the specification, of which [it is] a part." Phillips, 415 F.3d at 1315 (internal quotation marks and citation omitted). The specification is "the single best guide to the meaning of a disputed term." Id. (internal quotation marks omitted). Here, it is clear to us, as it was to the district court, that an "alphanumeric keyboard" is an input device having a QWERTY, FITALY, or Dvorak layout or any other alphanumeric layout that includes a substantially full set of alphabetic and numeric keys, and that it does not include a twelve-digit keypad.

n2 See Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc) (noting that where the meaning of a claim term is readily apparent, claim construction involves "little more than the application of the widely accepted meaning of commonly understood words" and, in such cases, "general purpose dictionaries may be helpful").

First, the description of the invention in the "Summary of the Invention" section of the specification states:

The keyboard may be a keyboard with a layout such as the common "QWERTY" layout, but need not be limited to this particular layout. Other layouts may include the "FITALY" layout, the "Dvorak" layout or any other alphanumeric layout that includes a substantially full set of alphanumeric keys.

'173 patent, col. 5, ll. 6-11 (emphasis added). The description clearly depicts the claimed invention as having "the common 'QWERTY' layout" or "any other alphanumeric layout that includes a substantially full set of alphanumeric keys." This
description is not merely referring to a preferred embodiment; rather, as part of the "Summary of the Invention," it is "commensurate with the invention as claimed." 37 C.F.R. § 1.73 (2004). Therefore, to allow Wireless to claim a keyboard with less than a substantially full set of keys would injure the public's right "to take the patentee at [his] word." Honeywell Int'l, Inc. v. ITT Indus. Inc., 452 F.3d 1312, 2006 U.S. App. LEXIS 15553, F.3d , No. 05-1407, 2006 WL 1703376, at *6 (Fed. Cir. June 22, 2006).

Wireless argues that the specification cannot be used to define the term "alphanumeric keyboard" because at the end of the specification the '173 patent contains the following boilerplate language:

"Although the invention has been described with reference to a particular embodiment, this description is not meant to be construed in a limiting sense. Various modifications of the disclosed embodiments as well as alternative embodiments of the invention will become apparent to persons skilled in the art. . . . It is therefore contemplated that the appended claims will cover any such modifications or embodiments that fall within the scope of the invention."

'173 patent, col. 13, ll. 20-28. We see nothing in this language that contradicts our reading of the specification.

Second, the specification explicitly references the disadvantages of keypads that have only twelve digits, such as the accused device. For example, in describing the disadvantage of the mobile phone twelve-digit keypad, the specification states:

"The mobile phone configuration has the following disadvantages . . . the keypad is typically a twelve-digit keypad designed for numeric data entry, although the keyboard usually supports alphanumeric character entry . . . whereby the commonly used method of accessing alphanumeric characters is to switch the device into a text entry mode, then press a key repeatedly to access a particular one of a subset of characters available for each key, this method being extremely slow, awkward, error prone, and not appropriate for a device intended to transfer textual data on a regular basis. . . ."

'173 patent, col. 2, ll. 39-58 (emphasis added). Further, the specification distinguishes the "alphanumeric keyboard" from the keypads on most mobile phones by stating "[t]he alphanumeric keyboard is easier and faster to use and learn than the keypads and touch screens on most mobile phones and personal digital assistants." '173 patent, col. 5, ll. 4-6.

We have previously recognized that "[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). In Honeywell Int'l, Inc., 2006 U.S. App. LEXIS 15553, F.3d , a case involving similar circumstances, we found that the claim term "electrically conductive fibers" excluded carbon fibers because the specification's "repeated derogatory statements concerning one type of material [carbon fibers)] [was] the equivalent of disavowal of that subject matter from the scope of the patent's claims." Id., 2006 U.S. App. LEXIS 15553, 2006 WL 1703376 at *7. Here too, the specification's repeated derogatory statements about the twelve-digit keypad convince us that the "alphanumeric keyboard" does not include a twelve-digit keypad.

n3 This is not a case like Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352 (Fed. Cir. 2004), where the references to problems with the prior art appear only in the description of the preferred embodiment. Id. at 1365.

Wireless also urges that we look to extrinsic evidence, including a statement by its expert witness that "an 'alphanumeric keyboard' is a regular arrangement of keys." J.A. at 407 (emphasis added). Wireless's expert concluded that the accused device "includes a regular arrangement of keys, i.e., a keyboard, which allows users to generate all the letters of the alphabet and the numbers 0 through 9." J.A. at 415. We find that the expert's statement is conclusory and is unsupported by reference to any contemporaneous document and therefore of no value in our claim construction analysis. Phillips, 415 F.3d at 1318.

Wireless also points to the fact that the Patent and Trademark Office allowed certain claims of Wireless's related patent
application ("the '802 application") to cover a twelve-digit keyboard. The allowed claims of the '802 application do not
include an "alphanumeric keyboard." That allowance has no bearing on the construction of the term "alphanumeric
keyboard." Wireless also cites to various patent applications filed by Sony, arguing that Sony's patents describe a twelve-
digit keypad as an alphanumeric keyboard. None of the references cited by Wireless contains a definition of alphanumeric
keyboard that is contrary to the district court's claim construction here. In any event, the specification here is clear and the
expert testimony and other extrinsic evidence cannot be used to contradict it.

For the foregoing reasons, we conclude that the district court's claim construction was correct. The undisputed evidence
established that the accused device utilized twelve keys rather than a substantially full set of alphanumeric keys. The
preliminary injunction was therefore properly denied. We affirm.

1. "alterable"

Claim 12 of the '616 Patent describes a program memory that includes "at least one alterable AED operating parameter."
The parties dispute the meaning of the word "alterable." Philips asserts that "alterable" should be construed as "able to be
modified or changed to different values in the field by a user." Cardiac Science contends that "alterable" should be defined
as "able to be modified or changed." Thus, the dispute is over the use of "to different values in the field by the user" in
Philips' proposed construction.

In support of its construction, Philips points to the following language from the specification:

Such alterations should be capable of being performed locally in the field after the AED has been delivered to the end
user.

('616 Patent at c. 1, ll: 46-48.)

The present invention substantially meets the aforementioned needs of the industry by providing a parameter altering
capability. These alterations may be performed locally in the field without recourse to factory assistance.

(Id. at c. 1, ll: 51-55.)

The AED includes apparatus for altering at least one AED operating parameter value in the field, the operating parameter
value being programmed in the microprocessor. The apparatus for altering is an information storage medium disposed
operationally exterior to said case and that is selectively communicatively coupled to the microprocessor.

(Id. at c. 2, ll: 7-13.)

An advantage of this capability is that this update may be readily made in the field, without the need to remove the AED
10 from service and return it to the factory for update.

(Id. at c. 14, ll: 26-29.)

Being able to update the AED 10 in the field by means of a data card 29, ensures that all AED's 10 are readily configured
with the latest software program improvements without being removed from service in order for the update to be installed.

(Id. at c. 14, ll: 35-39.)

The Court finds support in the specification for Philips' construction that the AED parameters can be changed "in the field."
The title of the patent further reflects this intent. However, the Court sees no other support to limit the claim in the manner
Philips suggests. Thus, the Court construes "alterable" as "able to be modified or changed in the field."
21. "an alterable memory" (’409 patent, claim 8)

AVID argues that the term should be construed to mean "memory wherein the stored data can be changed." AVID cites the specification at 1:64-68, 2:13-17, and 2:36-43 as support.

The Defendants' proposed construction is "a second type of memory, physically different from the first type of memory, which store data capable of being altered by a user." The Defendants also submit an alternative construction of "a reprogrammable type of memory, physically different from the first type of memory, in which the data can be changed." The Defendants argue that the term "alterable memory" has no accepted meaning in the art. As such, the Defendants point to the specification, which states: "Another portion of the data to be transmitted is stored permanently in a reprogrammable type of memory wherein the stored data can be altered even after the tag has been implanted in the object that is subject to identification." 2:13-17. The Defendants argue that the description of the EEPROM 252 at 6:60-7:2 is consistent with their proposed construction. Furthermore, the Defendants argue that the specification makes clear that "unalterable data" is stored in a first non-reprogrammable memory 258 and "alterable data" is stored in a second reprogrammable memory 252. Thus, while two distinct and separate types of memory are described in detail (i.e., laser PROM 258 and EEPROM 252) for storing "unalterable data" and "alterable data," the Defendants claim there is no suggestion in the ’409 patent that a single memory could be used to store both types of data.

Despite the Defendants' arguments to the contrary, the Court agrees with AVID's proposed construction. The claim does not require a first or second "type of memory," nor does it require that the alterable memory be physically distinct from the unalterable memory.

2. "alterable storage location"

The parties dispute whether this term should be ascribed its ordinary meaning. 3Com offers the dictionary-derived construction "a storage location whose value is changeable." Doc # 81 (05-0098) at 1. Realtek argues that "alterable" does not mean simply "changeable," but rather "dynamically changeable." Doc # 333 (03-2177) at 19-21. Realtek thus proposes the construction "a storage location whose value is dynamically changeable." Doc # 81 (05-0098) at 1.

Realtek once again suggests "dynamically" to capture the repeated nature of the operation. For example, Realtek quotes a passage in the specification that status information "may be used by the host processor as feedback for optimizing the threshold value in the alterable storage location." Doc # 333 (03-2177) at 20. Realtek, however, fails to show that repeated nature is required by the specification. The word "may" in the quoted passage undermines Realtek's argument by declaring that usage of the status information is optional. Accordingly, the court declines to add "dynamically" to the construction.

Realtek argues that "claims should not be interpreted so broadly as to read on prior art." Doc # 333 (03-2177) at 21. The Federal Circuit has explicitly "limited the maxim to cases in which 'the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.'" Phillips, 415 F.3d at 1327, quoting Liebel-Flarsheim, 358 F.3d at 910. Claim one is not ambiguous. Accordingly, the court adopts "storage location whose value is changeable."

2. Altering (claims 1, 30, 46, 50) 4

For purposes of claim construction, the parties appear to use the words "altered," "altering," and "adjusting" interchangeably. The Court will also use them interchangeably.
Plaintiff one or more techniques selected from the group consisting of adding, removing, isolating and shielding a known fraction of said initial amount.

Defendant a two-phase manufacturing process in which a lot or test characterization is performed, and the initial amount of an oxidizable or reducible species is altered or adjusted to bring it within a desired or target.

For its proposed construction, defendant relies on the language in claims 30 and 46, which include the terms "initial amount" as the thing to be altered. (Def.'s Mem. in Opp'n, 20.) Based on the claim language, defendant argues that "the plain meaning of claim terms 'initial amount' or 'original amount' is the first or beginning amount of oxidizable and reducible species on each iontophoretic device . . . the plain meaning of the terms 'altering' and 'altered' requires a change or variation from that beginning amount." (Id. at 20.) Defendant also argues that the specification shows that the two-step process was necessary to avoid encompassing prior art. (Def.'s Mem. in Support Summ. J., 19.)

Plaintiff's construction simply quotes the language of the claim itself. (014 Patent, col. 8, lines 44-48.) Under plaintiff's proposed construction, a two-phase process is not required. In addition, plaintiff notes that the prosecution history does not suggest that specifically a two-phase manufacturing process, rather than a one-step "altering" process, was necessary to avoid encompassing prior art.

The Court adopts plaintiff's proposed construction of the term "altering." First, plaintiff's proposed construction relies on the claim language itself. Phillips, 415 F.3d at 1312-13. Second, defendant's construction of "altering" would impermissibly import the two-phase manufacturing process limitation from a dependent claim -- claim 32 -- into an independent claim -- claim 30. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004) ("the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim"). Therefore, the Court construes the claim term "altering" to mean: one or more techniques selected from the group consisting of adding, removing, isolating and shielding a known fraction of said initial amount.

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4. "altering the threshold"

This term is offered for construction only for purposes of the '094 patent and appears in claim forty-seven. '094 patent at 32:58. The dispute centers not on the phrase as a whole but on the term "altering." 3Com proposes "changing." Id. Realtek proposes "dynamically changing." Id.

As discussed above, Realtek suggests "dynamically" to capture the repeated nature of the operation. Doc # 333 (03-2177) at 23-25. Although the specification contemplates practicing the method multiple times, there is no evidence that the specification requires practicing the method multiple times or that the method is inoperative if practiced only once.

Because Realtek's construction is flawed and 3Com has not provided any reason why this seemingly simple term must be construed, the court declines to construe the term "altering."

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e. Altering the First Facial Display

The defendants also argue that the "altering" step of claim 1 must include the use of measurement data. The claim reads: "altering under the control of both sets of said data and a programmed digital computer the configuration of said first facial display to produce substantially the configuration of the second facial display." "Both sets of data" clearly refers to the two sets of "data in digital form" discussed above. Consistent with the construction of the "generating" steps, therefore, the two "sets of data" refer to the data representing the configuration of the first facial display, which includes both lip position data and control point data, and the data representing the configuration of the second facial display, which includes only lip position data.

Bloomstein's proposed construction is too broad. He contends that the altering step encompasses any manipulation of the pixels in the digitized, first facial display to conform to new and different words. As discussed, the claim language requires...
that any manipulation be accomplished "under the control of both sets of data." Construed in light of the specification, this requires that the new lip configuration be calculated according to lip position data and control point data. Without such a limitation, the "generating" steps would be wholly superfluous.

The specification supports this interpretation: "While the new and original lip movement measurements will be used to control the amount of alteration of each frame the standard facial curves will control the location of the alterations." Joint Memorandum, Ex. 1 at column 7:32-35.

Footnotes
1. Bloomstein submitted an affidavit claiming that his program allows direct entry of control points. See Bloomstein Affidavit of February 9, 1996, at P 3. Defendants dispute that the referenced lines of the program allow direct entry of control points. The court finds that the (English) text of the claims and specification controls and that resort to the computer program is unnecessary and inappropriate.

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The parties next set their sights on the term "altering voids." IP contends that the term should bear its ordinary and customary meaning and that one of ordinary skill in the art at the time of filing would understand what "altering voids" means. Lexmark and Dell ask that this term be construed to mean filling voids by varying the input signal without modifying the on and off times of the signal carrying the image.

Lexmark and Dell again point to the prosecution history to support their argument. During prosecution, Cooper attempted to distinguish his invention from the prior art by pointing out that the prior art only modified the on and off times of an input signal. In a response to an office action, Cooper cited three prior art references to the examiner. He went on to explain what each patent disclosed and why his invention was distinguishable. He differentiated the first on the basis that, unlike his invention, it did not modify character scanning or fill voids except by modifying the length of a horizontally adjacent character element via the on and off times of character elements. This operation also affected the size of the object. See S/N 355,461 O.A. response 12/11/91 at 17. Similarly, with respect to the second prior art patent, Cooper contended that the invention did not fill voids or modify the laser beam used in constructing the image except in modifying the on and off times of the beam. See id. at 18, 19. The third discussion proceeded on similar lines. Id. at 20.

The doctrine of prosecution disclaimer provides that, if a patentee disclaims or disavows certain subject matter in order to obtain patentability, the disclaimed matter cannot be recaptured during claim construction. See Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003). This prevents a patentee from construing the claims of the patent narrowly before the PTO to achieve patentability but later attempting to broaden the same claims when asserting infringement. Autogiro Co. of America v. United States, 384 F.2d 391, 399, 181 Ct. Cl. 55 (Ct. Cl. 1967). Here, Cooper introduced to the examiner three prior art patents related to printers and distinguished each from his invention by pointing out that no voids are filled, and that the patents only modify the on and off times. In so doing, he clearly and unambiguously disclaimed simple modification of on and off times of the input signal. Thus, we agree with Lexmark and Dell to a point, but their proposed definition goes further to exclude any way of altering a void that includes modifying on and off times, even if that is done in combination with some other method. The court therefore construes the term to mean filling voids by varying the input signal without solely modifying the on and off times of the signal carrying the image.
Claim 15 also discloses a step that includes "altering voids in said image in response to said comparing step thereby improving the apparent resolution of the image . . . ." Again, no dispute appears to exist. IPI defines "altering" as meaning a thing different in some respect, to change its characteristics, position, etc., or to modify. See The New Shorter Oxford English Dictionary on Historical Principles 60 (1993). This definition is consistent with the term's use in this claim, as well as other claims throughout the '780 patent that disclose various ways in which an image can be improved, including changing the size, position, or shape of image elements to fill a void or altering the signal illumination. Moreover, Sony disputes IPI's proffered definition only to the extent that the parties disagree on the appropriate scope of the term "void."

Thus, the Court adopts the following interpretation of "altering voids": to make a void different in some respect, to change its characteristics, position, etc., or to modify the void (as the Court has previously defined the term "void").

2 "A" and "B" represent node type. See Col. 2:40-44 ("All the strips 24A of the first layer and the strips 26A of the second layer are connected to form a common node. Likewise, the strips 24B of the first layer and the strips 26B of the second are connected to form a second common node.").
to mean "strips in a given layer of the capacitor structure are connected to either the first node or second node in a manner such that adjacent strips of the capacitor structure are not connected to the same node."

B. "Aluminum and Aluminum Oxide"

Claim 1 of the Ingrey patent claims "a process for gaseous etching of aluminum and aluminum oxide." Samsung contends the language "aluminum and aluminum oxide" must be construed to mean substantially pure aluminum together with the oxide that forms naturally upon it, not any aluminum-based alloy together with its aluminum oxide layer. Samsung manufactures semiconductors from alloys such as aluminum silicon or aluminum silicon copper.

Samsung submits evidence that persons ordinarily skilled in the art in the mid-1970s would understand aluminum to mean substantially pure aluminum. Cecchi Decl. PP 30-32. In support of its position, Samsung argues that etching of aluminum alloys poses different problems than those posed by the etching of pure aluminum. Specifically, etching aluminum alloys requires an additional step of removing a silicon or copper residue that is left on the chip surface after the aluminum is removed.

Northern Telecom submits evidence, contrary to that offered by Samsung, that a person ordinarily skilled in the art in the mid-1970s would understand aluminum and aluminum oxide to encompass aluminum alloys. See, e.g., Taylor Decl., Exs. 51 & 52. Thus, Northern Telecom argues that Samsung's manufacture of semiconductors from aluminum alloys such as aluminum silicon or aluminum silicon copper is included within the scope of the Ingrey patent.

1. Intrinsic Evidence

As Vitronics makes clear, a court constructing a claim must rely primarily on "intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics, 90 F.3d at 1582. Of paramount importance are the words of the claim itself, which should generally be given their "ordinary and customary meaning." Id. Although "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning," he or she may do so only if "the special definition of the term is clearly stated in the patent specification or file history." Id.

Here, the Ingrey patent claims a process for the plasma etching of "aluminum and aluminum oxide." In the patent, aluminum and aluminum oxide are specified and they are referred to by their periodic table notations (i.e. Al and Al2O3) (subscript notation not available). No alloys are mentioned by name or by their compound periodic table notations. Neither the claim itself nor the specifications specially defines the meaning of either aluminum or aluminum oxide. In addition, the prosecution history of the Ingrey patent contains no information, such as representations by the patent applicant, that is helpful in determining whether "aluminum and aluminum oxide" should be read to include aluminum alloys.

Because terms in a claim are to be given their "ordinary and customary meaning," this court finds that aluminum alloys are not included within the scope of the Ingrey patent. Northern Telecom has offered no intrinsic evidence showing that aluminum alloys are encompassed within the terms "aluminum and aluminum oxide." Rather, Northern Telecom relies on extrinsic evidence such as the testimony of experts 14 to support its claim that "aluminum and aluminum oxide" should be construed to include aluminum alloys. However, as Vitronics makes clear, extrinsic evidence in general, and expert evidence in particular is to be used "only if the patent documents, taken as a whole, are insufficient to enable the court to construe disputed claim terms. Such instances will rarely, if ever, occur." Vitronics, 90 F.3d at 1585. Thus, the court concludes that the term "aluminum and aluminum oxide" in the Ingrey patent refers solely to substantially pure aluminum and its native layer of aluminum oxide, and not to alloys such as aluminum silicon or aluminum silicon copper.

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14 Even were the court to find that the intrinsic evidence was insufficient to enable it to construct the disputed term, Northern Telecom would probably not be able to rely on expert testimony. Even in the "rare instances" where extrinsic
evidence is necessary to construct a claim, expert testimony is frowned upon. Vitronics, 90 F.3d at 1585. Instead "prior art
documents and dictionaries . . . are more objective and reliable guides. Unlike expert testimony, these sources are accessible
to the public in advance of litigation," and "are to be preferred over opinion testimony." Id.

--- End Footnotes ---

III

Samsung cross appeals the district court's construction of claim 1 and grant of summary judgment of infringement in favor
of Northern Telecom. In particular, Samsung challenges: (a) the district court's construction of "aluminum and aluminum
oxide" to mean pure aluminum and its native oxide layer without further limitation; and (b) the district court's conclusion
that "plasma etching," as claimed in the '967 patent, encompasses processes that combine chemical reactive etching and ion
bombardment. We take these arguments in turn.

A

To the district court, Samsung asserted that "aluminum and aluminum oxide," in claim 1, means pure aluminum and
aluminum oxide -- that is, not any other metals or alloys in combination with aluminum. See Northern Telecom, No. C-95-
499, slip op. at 31. After analyzing the intrinsic evidence of record, the district court agreed with Samsung's construction
and concluded that the '967 patent "refers solely to substantially pure aluminum and its native layer of aluminum oxide, and
not to alloys such as aluminum silicon or aluminum silicon copper." Id., slip op. at 33. Nevertheless, the district court found
that Samsung's process literally infringes the '967 patent because pure aluminum is indisputably present in the aluminum
silicon alloy that is etched in that process. See id., slip op. at 34. That is, the district court concluded that there was no
genuine dispute of fact that Samsung's process does indeed etch "aluminum and aluminum oxide" as claim 1 requires. See
id. The court reasoned that the additional etching of the silicon and copper in the Samsung process was simply an additional
step or aspect of the accused process and thus did not prevent a finding of literal infringement. See id.; see also e.g., A.B.
Dick Co. v. Burroughs Corp., 713 F.2d 700, 703, 218 U.S.P.Q. (BNA) 965, 967 (Fed. Cir. 1983) ("It is fundamental that one
cannot avoid infringement merely by adding elements if each element recited in the claims is found in the accused device.").

On appeal, Samsung does not dispute that its accused process etches "aluminum" as defined by the district court: that is,
aluminum -- in the aluminum silicon or aluminum silicon copper alloys -- is etched by the Samsung process. Instead,
Samsung presents to this court yet another interpretation of the "aluminum and aluminum oxide" limitation of claim 1.
Specifically, Samsung now asserts that the aluminum must be arranged in a "layer" to meet the requirements of the
"aluminum and aluminum oxide" limitation, notwithstanding that the term "layer" does not appear anywhere in the text of
claim 1.

We note at the outset that we look with "extreme disfavor" on appeals that allege error in claim constructions that were
advocated below by the very party now challenging them. Key Pharms. v. Hercon Labs. Corp., 161 F.3d 709, 714-15, 48
U.S.P.Q.2d (BNA) 1911, 1915 (Fed. Cir. 1998). In this case, because we find little merit to its arguments on this point, we
need not address whether Samsung is judicially estopped from challenging its own claim construction adopted by the trial
court. See, e.g., Yniguez v. Arizona, 939 F.2d 727, 738 (9th Cir. 1991) (judicial estoppel "prevents a party from changing its
position over the course of judicial proceedings when such positional changes have an adverse impact on the judicial
process.").

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Samsung's first argument is that the district court's construction of "aluminum" -- as pure elemental aluminum -- would
work (in its view) the "absurd" result that claim 1 could cover processes where even very small (i.e., "trace") amounts of
pure aluminum were etched. In essence, Samsung appears to suggest that the additional "layer" limitation must be read into
the claim to ensure that only larger (i.e., non-"trace") quantities of etched aluminum are covered by the '967 patent. We
reject this contention. Not only is the term "layer" not found in claim 1, but neither is a limitation that establishes a
minimum quantity of aluminum that must be etched to meet the claim. This court has repeatedly and clearly held that it will
Accordingly, we hold that the district court's construction of "aluminum and aluminum oxide" in claim 1 was correct.
CLAIM CONSTRUCTION

On appeal, SVI asserts that the Special Master erroneously construed two limitations in claims 1 and 32 of the '740 patent—the "intelligent prompt" clause and term "amenity identification information." Claim construction is a question of law that we review de novo on appeal. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed Cir. 1998) (en banc). Proper claim construction requires analysis of the patent record's intrinsic evidence—the claim language, the written description, and the prosecution history. See Vitronics Corp. v. Conectarison, Inc., 90 F.3d 1576, 1582-83, 39 U.S.P.Q.2D (BNA) 1573, 1576-77 (Fed. Cir. 1996). Resort to extrinsic evidence for purposes of claim construction is appropriate only if, after a review of the intrinsic evidence, the meaning of a claim term remains ambiguous. See Key Pharms. v. Hercon Labs. Corp., 161 F.3d 709, 716, 48 U.S.P.Q.2D (BNA) 1911, 1917 (Fed. Cir. 1998).

2 When interpreting claims, a special master or a district court should follow this court's precedent and construe claims without recourse to the accused device, or their own personal beliefs of what the law should be.

During prosecution of the '740 patent, the Patent and Trademark Office examiner rejected claims 1 and 32 as obvious over U.S. Patent No. 5,077,607 ("the Johnson patent") in light of U.S. Patent No. 4,700,386. The Johnson patent teaches a system that allows hotel guests to access amenities through an interactive television located in their hotel rooms. According to the Johnson patent, a guest uses a series of television screen menus to order desired amenities and authorize payment for those amenities through an in-room checkout procedure. During the checkout procedure, a screen menu displays a summary of the selected amenities and another screen displays the final bill.

In response to the examiner's rejection, the inventors of the '740 patent amended claims 1 and 32 by adding the following "intelligent prompt" clause: "said CDC [i.e., central distribution computer] determining whether a prompt is to be initiated and determining the content of the prompt." Accompanying the claim amendment, the inventors also argued that, in contrast to the Johnson patent, the '740 patent "initiates the prompts when the system determines the user needs help in entering billing or amenity identification information through the telephone."

To determine the meaning of a claim term, a court must analyze arguments and amendments made during the prosecution of a patent application. See Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 U.S.P.Q.2D (BNA) 1673, 1676 (Fed. Cir. 1995). In the present case, the Special Master construed the "intelligent prompt" clause as requiring "initiative from the system as to the content of at least some prompt." That construction, however, erroneously ignores arguments made during prosecution to distinguish the claimed invention from the Johnson patent. To overcome the Johnson patent, which teaches a system that determines the content of a prompt, the inventors argued that the claimed invention also performs the additional step of determining whether a prompt is necessary. Thus, based on the prosecution history, we hold that the "intelligent prompt" clause requires the central distribution computer to (1) determine if a prompt is necessary to assist a guest in selecting an amenity or providing billing information, and (2) the content of the prompt.

Claims 1 and 32 of the '740 patent also recite a limitation of storing and processing amenity identification information. The '740 patent explains that amenity identification information is generated by a guest's pressing amenity keypads on the room telephone. The patent further explains that amenity identification information refers broadly to a class of amenities, such as movies or fax services, rather than a specific amenity within that class, such as a particular movie.

The Special Master construed amenity identification information as meaning "credit card information or other data to assist billing." Such a broad construction is not supported by written description of the '740 patent, which makes clear that a system that provides only one class of amenities, such as movies, does not generate amenity identification information.

Under the Special Master's claim construction, however, the term amenity identification information would cover a system that, for example, provides only movies, because the choice of a particular movie would be amenity information that assists billing. Moreover, the Special Master's claim construction is overly broad because it renders the claim term "billing information" redundant, by giving both terms the same meaning. Thus, we reverse the Special Master's claim construction and hold that amenity identification information refers to a class of amenities within a system that offers more than one class.

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In sum, because the jury's finding of infringement by SVI and non-infringement by Tharaldson were based on erroneously construed terms, we vacate those findings and remand for a determination of infringement in accordance with our claim construction. Thus, we also vacate the district court's award of treble damages and attorney fees.

PART THREE

The Disputed Claims

Avocent contends that ClearCube's accused products infringe claim 1 of the '997 patent, and claims 1, 6, and 16-18 of the '919 patent. Claim 1 of the '997 patent, and claims 1, 16, and 18 of the '919 patent, are independent claims. Claim 6 of the '919 patent is dependent on claim 1, and claim 17 of the same patent is dependent on claim 16. Claim 1 of the '997 Patent recites:

1. A system for transmission of analog color video signals between a source of said signals and a video monitor, being at spaced locations, comprising: n32

   a plurality of computers, each providing, as a set, said color video signals;

   a switch receiving said sets of said color video signals, each with respect to a common reference, from said computers and providing a selected said set of said color video signals as an output;

   a signal transmitter at a first location responsive to said output of a set of said color video signals, said transmitter, including n33 an amplifier for each said color video signal of one of said sets for providing a color video signal output and wherein n34 at least a high frequency portion of each said color video signal has been amplified as a direct function of frequency and providing both an inverting and non-inverting signal, available as an output;

   a plurality of video transmission circuits, each said circuit having first and second ends, respectively, one circuit for each of said color video signals of one of said sets and each said circuit having an input responsive to an output of said transmitter at said first end, and each said circuit having a responsive signal output at said second end;

   a signal receiver at a second location responsive to each of said transmitted signal outputs and color video signal at said second end, including an amplifier for each said color video signal for providing a discrete color video signal with respect to a common reference; and

   signal means responsive to said receiver for providing each said color signal, each with respect to a common reference, to an analog color video monitor. n35

Claim 1 of the '919 Patent recites:

1. An extended-in-length computer video communications link for transmitting computer video signals comprising:

   a source of computer video signals including red, green, and blue video signals,

   a video transmitter comprising a plurality of amplifiers, one of each said amplifiers for each of said red, green, and blue video signals, each said amplifier comprising:

   a signal input for receiving a one of said red, green and blue video signals,

   frequency sensitive compensating circuitry responsive to a said video signal so that said amplifier provides a first video signal that increases in amplitude with increasing frequency at a first output and a second video signal that is an inverse of said first video signal at a second output,
a twisted pair of conductors for each said amplifier, with first and second conductors of said twisted pair coupled at one
end to respective said first and second outputs of said amplifier,

an adapter for each of said twisted pair of conductors, each said adapter coupled to an opposite end of a respective one of
said twisted pair of conductors, each said adapter receiving said first video signal and said second video signal and
providing a respective said video signal as a single ended output, and further configured to provide a ground reference
potential for said transmitter at said adapter, whereby need for a reference ground conductor between said transmitter and
said adapter is eliminated. n36

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n31 Doc. no. 1 (complaint); see also doc. no. 125 (Avocent Huntsville's Summary and Background of the Technology
Embodied in the Claims of the Patents-in-Suit), at 1.

n32 The word "comprising" is a term of art in Patent law that means the claim includes all of the elements that follow in the
body of the claim statement, but does not exclude additional, unrecited elements. See, e.g., Georgia-Pacific Corp. v. United
States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999). Claims that use "comprising" are sometimes referred to as

n33 The word "including" is another term that, like "comprising," signals the claim statement encompasses all of the
elements that follow, but does not exclude additional, unrecited elements. See Robert C. Faber, LANDIS ON

n34 The word "wherein" is another term of Patent art that customarily signals the claim includes all the elements that follow,
but does not necessarily exclude additional, unrecited elements. See id.

n35 '997 patent, col. 13 & line 14 through col. 14 & line 15. A copy of the '997 patent is located, among many other places
in the record, at doc. no. 79 (Avocent's Combined Memorandum), Ex. A(2).

n36 '919 patent, col. 18, lines 12-41. The '919 patent is located, among many other places in the record, at doc. no. 79
(Avocent's Combined Memorandum), Ex. A(1).

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Claim 6 of the '919 Patent, which is dependent to claim 1 above, recites "[a] video communications link as set forth in claim
1 wherein said source of video signals comprises a termination point of another video communications link." n37

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n37 Id., col. 19, lines 5-7.

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Claim 16 of the '919 Patent recites:

16. A computer video signal communications system for selectively coupling sets of R, G, B computer color video signals
from one of a plurality of computers to a separately located color monitor, said system comprising:

a transmitter including:

switching means for selectively providing a said set of said color video signals from a selected said computer, and

a first signal format converter responsive to each said color signal of a said set of color signals from said switching
means for converting a signal format of each said color signal from single ended format to a balanced format;

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a plurality of sets of twisted pair conductors, each set of said conductors having a first end and second end, with a said first end of each of said sets of conductors receiving a discrete color video signal from said said transmitter;

a receiver coupled to said second ends of said sets of said twisted pair conductors and including:

a plurality of second signal format converters for converting a said balanced format of each said discrete color video signal from each said set of conductors from balanced to unbalanced format; and

signal means responsive to unbalanced format signals from said receiver for coupling color video signals to a color video monitor. n38

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n38 Id., col. 20 & line 48 through col. 21 & line 7.

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Claim 17 of the '919 Patent, which is dependent to claim 16 above, recites "[a] system as set forth in claim 16 wherein said receiver includes frequency compensation means for boosting a frequency response of at least one said color video signal directly as a function of frequency." n39

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n39 Id., col. 21, lines 8-11.

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Claim 18 of the '919 Patent recites:

18. A computer video signal communications system for selectively coupling a set of R, G, and B computer color video signals from one of a plurality of computers to a separately located color monitor, said system comprising:

a transmitter including:

switching means for selectively providing said set of R, G, and B computer color video signals from a selected said computer, and

a first signal format converter responsive to each said R, G and B color video signal for converting a signal format of each said R, G and B color video signal from single ended format to a balanced format;

a set of twisted pair conductors for each said balanced format R, G, and B color video signals, each said set of twisted pair conductors having a first end and a second end, with a said first end of each of said sets of twisted pair conductors receiving a discrete one of said balanced format R, G, and B color video signals from said transmitter;

a receiver coupled to said second ends of said sets of twisted pair conductors and including:

frequency compensation means for boosting a frequency response of each said R, G and B color video signal directly as a function of frequency;

a plurality of second signal format converters for converting said balanced format of each said R, G and B color video signal from each said set of twisted pair conductors from balanced to unbalanced format; and

signal means responsive to said [sic] unbalanced format signals from said receiver for coupling said R, G and B color video signals to a color video monitor. n40
PART FOUR
Claim Construction Decisions

A claim construction hearing was held on February 22 and 23, 2006. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 372, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996) (holding that the first issue in any patent infringement case is that of "claim construction": the interpretation of words used in a patent's claim, "the portion of the patent document that defines the scope of the patentee's rights"); see also, e.g., Rockwell International Corporation v. United States, 147 F.3d 1358, 1362 (Fed. Cir. 1998) ("The first step in any invalidity or infringement analysis is claim construction.") (citations omitted). The memorandum opinion and order entered on March 15, 2006, set forth this court's interpretation of the following, disputed, claim terms.

"Twisted pair" wiring, which is used in the '919 patented invention to conduct analog video signals, may be either "shielded" or "unshielded."

The term "amplifier," as it is claimed in both the '997 and '919 patents, was defined as "a circuit (or a device when connected in a circuit) that draws power from a source other than the input signal and provides an output signal that reproduces the essential features of the input signal."

The term "discrete," as it is used in the claims of both patents, simply means that a color video signal (e.g., red) is separate or distinct from the other two color video signals (e.g., green and blue).

Finally, the phrase "for said transmitter," as recited in claim 1 of the '919 patent, was construed as meaning "from the signals received from the transmitter."

2. "Amplifier circuit" (Claim 11)

The only significant dispute regarding this term is whether it is a means-plus-function term governed by P 6. Because the word "means" is not used, there is a presumption that P 6 does not apply, and this presumption may be overcome only by showing that the term "relies on . . . functional terms rather than structure or material to describe performance of the claimed function." Micro Chem, 194 F.3d at 1250. Broadcom argues that the term is functional, as opposed to structural, because there are many different types of amplifier circuits. In effect, Broadcom suggests that P 6 applies because rather than describing a device, the claim term instead encompasses a number of possible devices that share nothing more than a common function. (See Allen '817 Rep. at 9-10.) This argument, however, is unsupported by Federal Circuit precedent, under which the mere fact that a claim term cannot be linked to a single structure is insufficient to overcome the presumption against the application of P 6. See Linear Tech. Corp. v. Impala Linear Corp., 371 F.3d 1364, 2004 WL 1351181, 2004 U.S. App. LEXIS 11882 (Fed. Cir. 2004) (reversing district court determination that "circuit" was means-plus-function term); Phillips, 363 F.3d at 1212 (holding that broad term "baffle" had ordinary meaning encompassing "sufficient recitation of structure," and that "its particular structure is not relevant"); Personalized Media Communs., L.L.C.
v. ITC, 161 F.3d 696, 704 (Fed. Cir. 1998) (holding that "digital detector" is not means-plus-function term because "detector" is not "a generic structural term such as 'means,' 'element,' or 'device' [or] . . . lacking a clear meaning, such as 'widget'"); Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996) (reversing district court's determination that P 6 applied to non-means term that did not invoke "a single well-defined structure"). Indeed, if Broadcom's position were an accurate reflection of the law, no patentee could use common, well-understood claim terms with multiple physical manifestations without being subject to P 6. This is clearly not the manner in which the Federal Circuit has interpreted the statute, and, accordingly, the Court finds that the term "amplifier circuit" is not "functional" language that would overcome the presumption against the application of P 6. Thus, because there do not appear to be any other disputes regarding this term, Agere's proposed construction is adopted.

5. Claim 10: "... a corresponding plurality of amplifiers for amplifying the plurality of filtered RF signals ...." This language is construed to mean "two or more devices for strengthening two or more radio frequency signals, each device associated with one or more filters."

Claim Language
"amplitude and phase differential characteristics"

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<tr>
<th>Claim Language</th>
<th>Wi-LAN's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<tr>
<td>&quot;amplitude and phase differential characteristics&quot;</td>
<td>&quot;amplitude and phase distortions&quot;</td>
<td>&quot;amplitude and phase distortions from differential modulation&quot;</td>
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<tr>
<td>&quot;differential characteristics&quot;</td>
<td>Same alternative</td>
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<tr>
<td>&quot;estimated amplitude and an estimated phase differential&quot;</td>
<td>Same alternative</td>
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<td>&quot;amplitude and phase differential&quot;</td>
<td>&quot;difference in amplitude and phase&quot;</td>
<td>&quot;estimated difference in amplitude or phase between&quot;</td>
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<tr>
<td>&quot;differential characteristics&quot;</td>
<td>&quot;characteristics resulting from differential modulation&quot;</td>
<td>&quot;characteristics resulting from differential modulation&quot;</td>
</tr>
<tr>
<td>&quot;estimated amplitude and an estimated phase&quot;</td>
<td>&quot;estimated difference in amplitude or phase between&quot;</td>
<td>&quot;estimated difference in amplitude or phase between&quot;</td>
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The Court rejects Wi-LAN's proposal that "differential" in the claims is equal to "distortions." The claims of the '222 patent never mention "distortion." While much of the '222 patent references "phase differential," the patent also references "distortion" in various instances. However, the patent never refers to a "differential" as a "distortion" and never equates those terms. The Court finds that Wi-LAN is seeking to improperly remove the word "differential" from the claims and substitute an entirely different word. The Court finds that "differential" and "distortion" have different meanings. Claim 1 of the '222 patent requires "amplitude and phase differential characteristics," "the amplitude," "the phase differential," "an estimated amplitude," and "an estimated phase differential." Further, dependent claim 4 recites "the estimated amplitude" or "the estimated phase differential," dependent claim 6 recites "estimated amplitude and phase differential," dependent claim 11 recites "an estimated phase differential," and dependent claim 12 recites "the phase differential." The claims recite only two terms: "amplitude" and "phase differential." In other words, the words "differential" and "phase" must be construed together as "phase differential." Thus, the Court rejects the parties' arguments that the term "differential" applies to both "phase" and "amplitude." Accordingly, based on the claim language, the Court rejects Wi-LAN's argument that the "differential" term implies that it is distortions to both the amplitude and phase of the signal or differences in both the amplitude and phase caused by the channel. Similarly, based on the claim language, the Court rejects Defendants' argument that the "differential" term implies that it is the result of differential modulation to both the amplitude and phase of the signal, as compared to just the phase of the signal. If the Court were to require differential modulation to both the amplitude and the phase of the transmitted signal, it would impermissibly eliminate the preferred embodiment of multilevel differential phase shift keying (MDPSK), a technique that changes the phase of a signal and not the amplitude of the signal.

This interpretation is consistent with the specification. The Abstract and the Background and Summary of the Invention sections provide that "[t]he processing of the signal at the second transceiver may include estimating the phase differential of the transmitted signal..." '222 patent, Abstract, 3:4-6. The Detailed Description also has numerous references to "phase differential." See id. at 9:43-61; 10:58-11:2; 11:18-12:13; 18:1-9. While the focus of the patent is on differential phase modulation, hence the repeated use of the term "phase differential," there are at least two references in the specification to the potential use of amplitude modulation by the technique of quadrature amplitude modulation ("QAM"). See id. at 5:34-35; 7:24-27. However, the '222 patent suggests that QAM should not be used because "amplitude modulation makes it difficult to equalize the distorting effects of the channel on the signal." Id. at 7:24-27. Based upon the claim language chosen by the patentee, the Court finds that the claimed embodiment does not necessarily require the alternative disclosed technique of amplitude modulation. In the claims, the term "differential" applies specifically only to the phase of the signal, and does not reference or relate to the term amplitude in the claim language. While the transmitted and received signals will necessarily have an amplitude (and phase), and there will likely be distortions to the amplitude (and phase) caused by the channel, the Court finds that the express claim language indicates that the term differential, and hence differential modulation, only applies to the phase of the signal and not the amplitude.

In the patent, the claimed channel estimator estimates the phase differential of the transmitted signals by sampling the amplitude envelope of the signals. See '222 patent, 11:1-28. The specification expressly describes a "phase estimator" in the channel estimator. See '222 patent, 10:58-60; 18:48-50. The Court agrees with the Defendants that estimates of the "amplitude" and the "phase differential" are used to correct for distortion over the channel, and accordingly, the "phase differential" of the received signal is supplied to the "pre-distorter" to correct for "phase distortion over the channel." See '222 patent, 9:43-61. The channel estimator uses the differences in amplitude of the signals by sampling the amplitude envelope to estimate the phase differential of the transmitted signal, see '222 patent, 11:3-12:22, and the estimated "amplitude" and the "phase differential" are then used to correct for distortion over the channel. See claim 4; see also '222 patent, 9:43-61. This interpretation is further reinforced by the patentee's co-pending application, now U.S. Patent No. 5,369,670 ("the '670 patent"), that was referenced in the prosecution history of the '222 patent as being "relevant to the extent that it includes a description of the phase estimation technique disclosed in the present application." See Applicants' April 19, 1993 Information Disclosure Statement. The '670 patent expressly states that "[a] differential of a sequence of symbols or data points is a measure of the time rate of change of a sequence of symbols or data points. ... it may be estimated as a difference between symbols or data points." '670 patent, 4:3-11. "The information in the carrier signal may be carried in the phase differential of a number of consecutive time instants, or as differential phase shifts of a number of frequency components of the transmitted signal." '670 patent, 4:27-31. Further, the '670 patent states that "the estimation of the phase differential may be made from sampling the amplitude of the transmitted signal" and that the estimated phase differential can be used to "produce a corrected signal." '670 patent, 2:46-48, 63-68. Thus, the specification of the '670 patent is consistent with this Court's interpretation of the claims in the '222 patent.
In an alternative construction, Wi-LAN proposes that the amplitude and phase differences in the received signal are "caused by the wireless channel." Defendants take a contrary position and contend that the differences result solely from "differential modulation." Neither position is entirely correct. The wireless channel can cause differences or distortions to the amplitude or phase of the transmitted signal by numerous affects, such as Doppler shifts, multipath interference, fading, and clock error. Thus, while there will likely be distortions to the amplitude and phase of the transmitted signal caused by the channel, the claim language, as interpreted in light of the specification, indicates that the terms "amplitude" and "phase differential" as claimed are not the distortions or differences to the signal as a result of the channel. Further, the Court finds that the claimed phrase, because the term "differential" applies to "phase" and not "amplitude," cannot be referencing the differences or distortions of the channel on both the amplitude and phase of the received signal. Rather, the term "phase differential," based upon the specification, the claims, and one of ordinary skill in the art, implies that the transmitted information is carried in the phase differential of the transmitted signals, i.e., the phase differential is the result of differential modulation and not the effects of the wireless channel. As described further in the analysis section for the term "channel estimator," the channel estimator computes the effects of the distortions from the differences in the amplitude and phase differential, but it does not directly measure or compute the distortions. Rather, the channel estimator supplies the estimated phase differential to correct for or equalize the phase distortions over the channel. This construction for the term channel estimator confirms the Court's construction for the term "amplitude" and "phase differential" of the signal as not being distortions or mere differences as a result of the channel effects.

For the above reasons, the Court construes the term "phase differential" to mean "difference in phase resulting from differential modulation." The term "characteristic" is not used in the specification of the '222 patent. The Court finds that the term applies to both "amplitude" and "phase differential" in claim 1. Thus, the Court construes the term "amplitude and phase differential characteristics" to mean "characteristics of both the amplitude and the difference in phase resulting from differential modulation of the received data signals." The Court construes the term "amplitude and phase differential" to mean "amplitude and difference in phase resulting from differential modulation." The Court construes the term "an estimated amplitude and an estimated phase differential" to mean "an estimated amplitude and an estimated difference in phase resulting from differential modulation."

2. Amplitude Modulator

The parties also dispute the meaning of "amplitude modulator" as it appears in claims 15 and 22. Claim 15 reads "the improvement wherein the means for coupling one of the program material-modulated carrier frequencies in the circuit comprises an amplitude modulator having a control input, a program material-modulated carrier frequency input, and an amplitude modulated, program material-modulated carrier frequency output . . . " '428 patent, col. 10, In. 54-59. Trilithic asserts that the amplitude modulator is a structure, a device that "imposes on the envelope of the carrier, or on the amplitude of the carrier, a signal of interest." Tr. at 104. Therefore, Trilithic argues that no part of the clause in claim 15, nor the clause in claim 22, is properly interpreted as a means-plus-function limitation because the structure, the amplitude modulator, has been disclosed in the claim. Wavetek contends that the clauses should be construed under 35 U.S.C. § 112, P 6, and accordingly, the Court should construe amplitude modulator as being limited to the variable attenuator disclosed in Figure 1 of the specification and its equivalent. Def.'s Br. on Claim Construction at 22. Maintaining that claims should be construed consistently throughout the patent, Wavetek urges that amplitude modulator be given the same meaning in claim 22 as it is given in claim 15, even though it admits that claim 22 is not written in means-plus-function language. Id. at 22.

Although it is not required that the word "means" be in used in the claim before 35 U.S.C. § 112, P 6 can be utilized, the use of the term "means" is central to the Court's analysis. Greenberg, 91 F.3d at 1583-84; see Personalized Media v. International Trade Comm'n, 161 F.3d 696, 703 (Fed. Cir. 1998). However, the use of the term "means" and particularly "means for" is so closely associated with the means-plus-function format that the use of such words generally invokes 35 U.S.C. § 112, P 6, whereas other formulations generally do not. Greenberg, 91 F.3d at 1583-84; see Personalized Media, 161 F.3d at 703. Using the word "means" gives rise to a presumption that the inventor meant to invoke 35 U.S.C. § 112, P 6, the mean-plus-function clause. Sage Prods., 126 F.3d at 1427 (citing York Prods., 99 F.3d 1568 at 1572). Failing to use the word "means" creates a presumption that 35 U.S.C. § 112, P 6 does not apply. Personalized Media, 161 F.3d at 704.
These presumptions, however, are not always conclusive and may be rebutted by intrinsic and, at times, extrinsic evidence. Id. If a claim contains the word "means" but does not specify a corresponding function for the means, 35 U.S.C. § 112, P 6 is not implicated. Sage Prods., 126 F.3d at 1427; see also York Prods., 99 F.3d at 1574. Similarly, if a claim uses the term "means" and describes a function but also "goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in mean-plus-function format." Sage Prods., 126 F.3d at 1427-28; see also Cole v. Kimberly-Clark Corp., 102 F.3d 524 (Fed. Cir. 1996). Yet, if a claim does not contain the word "means" but is drafted as a function to be performed instead of a definite structure, 35 U.S.C. § 112, P 6 is invoked. Mas-Hamilton Group v. Lagard, Inc., 156 F.3d 1206, 1214 (Fed. Cir. 1998).

When the entire "means for coupling one of the programmed material-modulated carrier frequencies . . . " clause of claim 15 is examined, the wording used by the patentee indicates that the clause was not written in means-plus-function form, even though the term "means" is used in the clause. '428 patent, col. 10., ln. 54-59. The intrinsic evidence overcomes the presumption established by previous case law. The claim states "the means for coupling one of the program material-modulated carrier frequencies in the circuit." Id. ln. 54-55. This language, standing alone would be functional language. However, the claim continues that the means for coupling "comprises an amplitude modulator having control input, a program material-modulator carrier frequency input, and an amplitude modulated, program material-modulated carrier frequency output." Id. ln. 55-59. With that language the patentee disclosed within the claim a specific structure, an amplitude modulator, to support the "means for coupling" function. See Cole, 102 F.3d at 531.

In Cole, a case concerning a patent for disposable training pants, the Federal Circuit examined an element of a claim which read "perforation means extending from the leg band means to the waist band means through the outer impermeable layer means . . . ." Id. at 530. The Court determined that such language did not invoke 35 U.S.C. § 112, P 6. Id. In coming to this conclusion, the court emphasized that the claim described not only the structure that supports the function but also the structure's location and extent. Id. at 531. The court commented, "an element with such a detailed recitation of structure, as opposed to its function, cannot meet the requirements" of § 112 P 6. Id.

Here, the language in the element of the claim clarifies that the means for coupling is composed of or consists of the amplitude modulator that specifically has a control input, a program material-modulated carrier frequency input, and an amplitude-modulated carrier frequency program. '428 patent, col. 10, ln. 57-59. An amplitude modulator is a structure which ordinary skilled people in the art understand to be "any device which imposes amplitude modulation upon a carrier wave in accordance with a desired program." Pltf.'s Ex. 9 at 85 (McGraw-Hill Dictionary). What is required of the structure is set forth directly in the claim language. As in Cole, there is greater emphasis on the detail of the structure than on the detail of the function. The structure which corresponds to the means for coupling is disclosed in the claim, as are the required components for that structure. Because a specific structure has sufficiently been disclosed in the claim, 35 U.S.C. § 112, P 6 is not applicable to this clause.

Nothing in the specification indicates that the patentee meant to give "amplitude modulator" a different or unusual meaning. In the specification, specifically in Figure 1, the patentee depicts the amplitude modulator as a variable attenuator. Wavetek requests that the claim be limited to variable attenuators. However, given that the claim is not written in means-plus-function form, the limitation from the specification should not be read into the scope of the claim. A person of ordinary skill in the art would know that a variable attenuator can perform the function of an amplitude modulator. Tr. at 104- 106; Pltf.'s Ex. 22 (technical data for a Hewlett Packard Voltage Variable Absorptive Attenuator stating that when combined with input/output match it is useful in applications such as amplitude modulation). The Court will not limit the interpretation of this clause to include only the variable attenuator or its equivalents as disclosed in the specification. Additionally, the Court notes that both parties agree that the language of claim 22 is not means- plus- function language. The construction of amplitude modulator in claim 15 is also applicable to claim 22, and therefore, the amplitude modulator noted claim 22 is also not limited to a variable attenuator.

Go Back

Alterable Memory

The Patent teaches "an alterable memory operable to retain a control program and control parameters." Def. Ex. A (Pat.) at col. 14, ll. 47-48. Defendants argue that use of the phrase "an alterable memory" requires that a single alterable memory

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store both the control program and the control parameters. Furthermore, although defendant does not contend that the above phrase constitutes a means-plus-function element, defendant relies on the patent specification, which states that the control program is stored in a "RAM 36" memory unit, and that the '754 device reads data block entries of control parameters from a cassette to this RAM memory. See Def. Ex. A (Pat. col.3, ll. 2-5, col. 6 ll. 52-58). As defendant points out, the patent mentions no memory unit other than the RAM 36.

Plaintiff argues that because this language does not state a means-plus-function element, there is no reason for the Court to read the specification as limiting this element to a single RAM 36 chip. Plaintiff is correct. This element states a function (retaining a control program and control parameters) but also specifies a definite structure for performing that function (an alterable memory). See Cole v. Kimberly-Clark, 102 F.3d 524, 531 (Fed. Cir. 1996) (means-plus-function elements "must not recite a definite structure which performs the described function."). As such, the language of this element is not limited by the single RAM 36 chip disclosed in the specification. Furthermore, we find that the patent's use of the language "an alterable memory" does not mandate that the patent be limited to memories based on a single RAM chip. Defendant has cited no authority for the proposition that a single alterable memory could not be comprised of two or more such chips. The Court declines to limit this element to the structure described in the specification, that is, a single RAM 36 chip.

2. The '562 patent

As for the phrases "an entry initiate key" and "entry initiate signal," the district court acknowledged that an indefinite article normally means "one or more" in open-ended claims, but found sufficient evidence in the specification of the '562 patent and the prosecution history to limit "an" to the singular. We agree that "a" or "an" normally carries the meaning of "one or more" in claims containing the transitional phrase "comprising." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). Here, however, the patentee clearly intended the use of only one entry initiate key.

Looking first to the language of Claim 9 itself, the phrase "user activation of an entry initiate key" is immediately followed by a reference to "said entry initiate key," which reinforces the singular meaning. See Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023-24 (Fed. Cir. 1997). Likewise, Claim 1 refers to a "keyboard means having a plurality of keys for providing respective keyboard output signals upon user activation of respective one of said keys . . . said keyboard output signals further comprising an entry initiate signal." The patent thus contemplates pressing only one key at a time to provide keyboard output signals, including the entry initiate signal. Significantly, during prosecution, the claim language was amended from "ones of said keys" to "one of said keys," a disclaimer of the plural.

The specification further confirms that the patented invention only uses one entry initiate key. In describing how a particular embodiment could incorporate the inventions described by the '359 patent as well as the '562 patent, the specification states that pressing more than one key simultaneously would initiate a routine "which is irrelevant to an understanding of the present invention," i.e., the "learn" or "scan" method which is described in the '359 patent. '562 Patent, col. 5, ll. 7-21.

In any case, if the number of keys pressed exceeds one, the routine is not part of the present invention and will not be described in detail herein.

If the number of keys pressed is equal to one, the microprocessor first tests whether this is the record key. If the user has pressed the record key (herein also referred to as the enter initiate key), he has taken the initial step for implementing the present invention, i.e., for entering the necessary data for identifying a particular manufacturer and model number directly on the keyboard.

Id. at col. 5, ll. 21-31 (emphasis added). We thus agree with the district court that "an entry initiate key" means "one entry initiate key" and "entry initiate signal" means "the keyboard output signal generated by the entry initiate key."

Because it is undisputed that the accused device required a user to press two keys simultaneously to initiate the code entry programming sequence, a routine that was expressly disclaimed by the '562 patent, we must affirm the summary judgment of non-infringement.

Claim 1 of the '756 patents reads:

1. A three dimensional inspection apparatus for ball array devices having a plurality of balls, wherein the ball array device is positioned in a fixed optical system, the apparatus comprising:

   a) an illumination apparatus positioned for illuminating the ball array device;

   b) a first camera disposed in a fixed focus position relative to the ball array device for taking a first image of the ball array device to obtain a characteristic circular doughnut shape image from at least one ball;

   c) a second camera disposed in a fixed focus position relative to the ball array device for taking a second image of the ball array device to obtain a side view image of the at least one ball; and

   d) a processor, coupled to receive the first image and the second image, that applies triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position of the at least one ball with reference to a pre-calculated calibration plane.

'756 patent, col. 18, ll. 34-53 (emphases and formatting added). Similarly, claim 1 of the '757 patent reads:

1. A three dimensional inspection process for ball array devices having a plurality of balls, wherein the ball array device is positioned in a fixed optical system, the process comprising the steps of:

   a) illuminating the ball array device;

   b) taking a first image of the ball array device with a first camera disposed in a fixed focus position relative to the ball array device to obtain a characteristic circular doughnut shape image from at least one ball;

   c) taking a second image of the ball array device with a second camera disposed in a fixed focus position relative to the ball array device to obtain a side view image of the at least one ball; and

   d) processing the first image and the second image using a triangulation method to calculate a three dimensional position of the at least one ball with reference to a pre-calculated calibration plane.

'757 patent, col. 18, ll. 34-49 (emphases and formatting added).

In its claim construction decision, the trial court construed "illumination source," a phrase that does not appear in the patent, to be limited to "only one illumination source." Memorandum Decision at 17. With regard to the '757 patent, the district court did not separately construe "illuminating," instead construing "illumination source" and "illuminating" together. Id, at 8, 17. Scanner sought reconsideration of the district court's claim construction decision, noting that the '756 patent does not claim an "illumination source," but rather an "illumination apparatus." Scanner also challenged the district court's construction on the merits. In denying Scanner's motion for reconsideration, the district court clarified that the distinction between "illumination apparatus" and "illumination source" was "not significant" for purposes of the decision, and that the claim language "apparatus" only "underscored the correctness of the decision." Order Denying Motion for Reconsideration at 1.

Prior to trial, the parties stipulated that, during the infringement period, ICOS sold inspection systems containing one or two
The difference between "illumination apparatus" and "illumination source" is surely not so great. Scanner's own

Scanner timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

This opinion follows the court's review of the record and consideration of the parties' oral argument, heard on February 6, 2004.

We review de novo a district court's grant of summary judgment. Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315 (Fed. Cir. 1998). Summary judgment is appropriate if, drawing all factual inferences in favor of the non-movant, there is no genuine issue of material fact and the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986).

Analysis of infringement involves two steps. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 988 (Fed. Cir. 1999). First, the trial court determines the scope and meaning of the asserted claims. Markman v. Westview Instruments, Inc., 517 U.S. 370, 372-74, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). The trial court's claim construction is an issue of law reviewed without deference. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). Second, the claims as construed by the court are compared to the allegedly infringing device. Johnson Worldwide, 175 F.3d at 988. We affirm a district court's grant of summary judgment of non-infringement only if, "after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999).

On appeal, Scanner challenges the methodology employed by the district court in construing the terms "an illumination apparatus" and "illuminating," and its substantive constructions of those terms. Scanner further challenges the district court's entry of summary judgment of non-infringement as based upon erroneous claim constructions. We address these challenges below.

We first address Scanner's argument that the district court only construed a term that does not appear in either the '756 or '757 patent, namely "illumination source." It is correct that the district court's claim construction order referred to an "illumination source," a term that does not appear in either patent's claims, and was thus imprecisely worded. Nevertheless, in its claim construction decision, the district court concluded that "because the plain language sufficiently shows that the illumination apparatus is limited to one light source, the Court does not rely on extrinsic evidence in construing this term." Memorandum Decision at 10 (emphasis added). Moreover, in its order denying Scanner's motion for reconsideration, the district court acknowledged that "Scanner correctly points out that the memorandum decision refers to the term 'illumination source' when the reference should be to 'illumination apparatus' in the '756 patent and to the term 'illuminating' in the '757 patent," but went on to state that "the distinction, however, is not significant for purposes of my decision." Order Denying Motion for Reconsideration at 1. The district court also made clear that "if anything, the fact that the actual reference is to 'illumination apparatus' underscores the correctness of the decision." Id.

Though we agree with Scanner that it is improper for a district court to construe terms that do not appear in the patent claims, we do not agree that the trial court in the present case construed only the term "illumination source." Rather, a careful review of the district court's claim construction and reconsideration decisions shows that the court used inconsistent wording in referencing its claim construction. However, because the district court made clear that it did in fact construe the claims terms at issue, namely "an illumination apparatus" and "illuminating," we find any error in the district court's use of the phrase "illumination source" to be harmless. 1

1 The difference between "illumination apparatus" and "illumination source" is surely not so great. Scanner's own
Memorandum on Interpretation of the Asserted Claims to be Determined From the Markman Hearing [A326-364] argued that an illumination apparatus is "a source of illumination" and that illuminating "indicates that there is a source of illumination."

We also reject Scanner's argument that the district court failed to take into account the fact that claim 1 of the '756 patent is an apparatus claim, while claim 1 of the '757 patent is a method claim. Indeed, the district court demonstrated that it appreciated the difference between the apparatus and method claims during oral argument, when it noted, "there certainly is a difference between the phrase 'illumination apparatus' and the word 'illuminating.'" The fact that the district court construed both terms together in no way establishes that the district court failed to appreciate the distinction between the apparatus and method claims. Indeed, we find that the limitations "an illumination source" and "illuminating" may properly be construed together because they refer to corresponding portions of the apparatus and steps of the method. The concurrent treatment of these terms is particularly appropriate where the parties themselves referred to the terms "an illumination apparatus" and "illuminating" concomitantly.

2 For purposes of this opinion, we too treat "an illumination apparatus" and "illuminating" together. Thus, to the extent "an illumination apparatus" is construed to include one or more illumination sources, the step of "illuminating" in the '757 patent may be performed by one or more illumination sources. Similarly, if "an illumination apparatus" is found to be limited to a single illumination source, the "illuminating" step may be performed with only one illumination source.

The language of the claim defines the boundary of its scope. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1324 (Fed. Cir. 2002). Accordingly, "the claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." Id. (quoting Renishaw plc v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998)). Claim terms must be construed as they would be understood by a person of ordinary skill in the art to which the invention pertains. Specialty Composites v. Cabot Corp., 845 F.2d 981, 986 (Fed. Cir. 1988). "The words used in the claim[] are interpreted in light of the intrinsic evidence of record, including the written description, the drawings, and the prosecution history, if in evidence." Teleflex, 299 F.3d at 1324.

"This court has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.' Unless the claim is specific as to the number of elements, the article 'a' receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article." KCI Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (citations omitted).

Here, we agree with Scanner that the district court erred in limiting "an illumination apparatus," and thus "illuminating," to an apparatus containing only a single illumination source. We hold that "an illumination apparatus" is properly construed to encompass one or more illumination sources because the patentee has not evinced a clear intent to limit the article "an" to a single illumination source in either the claims or specification of the '756 patent.

To the extent ICOS argues, and the district court found, that Insituform Technologies, Inc. v. Cat Contracting, Inc., 99 F.3d 1098 (Fed. Cir. 1996), and North American Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571 (Fed. Cir. 1993), require a construction of the disputed claim term as limited to a single illumination source, we disagree.

Unlike the present case, Insituform dealt with claim language and a specification that strongly suggested that the claim language "a cup" was meant to encompass only one cup. There, the asserted claim repeatedly described a single cup, using the term "the cup" and describing a process in terms of a single cup. Insituform, 99 F.3d at 1105-06. The claim at issue in Insituform also used the phrase "region of vacuum application" in a "manner indicating that only one such region exists at any given time" and was thus "inconsistent with the use of more than one cup at any given time, as each cup creates its own associated region of vacuum application." Id. Moreover, the court in Insituform found that "neither the specification nor the drawings disclose the use of more than one cup," and in fact repeatedly described or depicted "the cup." Id. Thus, the court in Insituform found that the claims were properly limited to a single cup. Id.
Here, we discern no intent on the part of the patentees to limit the term "an illumination apparatus" to a single illumination source in either the claim language or the specification. Though ICOS argues, and we acknowledge, that claim 1 of the '756 patent and the specification call out other limitations with multiple components, e.g., "first camera" to take "a first image" and "second camera" to take "a second image," we do not agree that the failure to specifically refer to a "first illumination apparatus" and a "second illumination apparatus" evinces a clear intent on the part of the patentee that the term be limited to a single illumination source. Indeed, the very use of the article "an" indicates, at least presumptively, that the patentees intended the claim language "an illumination apparatus" to mean one or more illumination sources, and thus to cover implicitly "a first illumination apparatus" and subsequent "illumination apparatuses" where they exist. To limit the claim term "an illumination apparatus" to one illumination source, we require much stronger evidence of the patentees' intent than strained extrapolation from the language employed by the patentees in other claim limitations. Barring some evidence that the patentees intended to limit the claims to a single illumination source, evidence we do not find in the claim language, their use of the term "an" is consistent with multiple illumination sources.

3 We also disagree with ICOS's assertion that dependent claim 11 of the '756 patent requires a narrow reading of "an illumination apparatus." Claim 11 claims, "the three dimensional inspection apparatus of claim 1 wherein the illumination apparatus further comprises a diffuser." '756 patent, col. 19, ll. 17-18 [A69]. Though this claim does suggest that there is one illumination source, "the illumination source," it does not suggest or require that every embodiment of the claimed inventions be limited to a single illumination source. We do not find the language of dependent claim 11 to be sufficient to "evince a clear intent" that "an illumination apparatus" must in every embodiment be limited to a single illumination source.

Turning to the specification, we find no evidence of a clear intent on the part of the patentees to limit the claim language at issue to a single illumination source. Even where the specification refers to "a light source," there is no indication that the patentee intended to limit the claims to the single light source. At best, the specification is inconclusive on the issue of one versus multiple light sources. ICOS argues that the specification references and depictions of multiple mirrors or prisms for shaping the course of the light, and the failure to depict multiple illumination sources, suggest that only a single illumination source is covered by the claimed invention. We disagree. Though the specification does disclose multiple mirrors and prisms, it does not describe or depict any illumination source. The closest the specification comes to describing or depicting the number of illumination sources is the reference to the "design of the lighting." And although this language is certainly not conclusive, we find that it at least suggests that multiple lighting sources may be arranged in a particular "design."

Where an open "comprising" claim includes the article "a"or "an," and the specification is at best inconclusive on the patentee's intent to limit that article to a single element or step, we do not find a "clear intent" to so limit the claims. Both the specification and claims in this case are far short of those in Insituform.

In addition, the district court relied upon, and ICOS cites, North American Vaccine in support of limiting the claims to a single illumination source. In North American Vaccine, the court acknowledged that "it is generally accepted in patent parlance that 'a' can mean one or more," but found that in that case, there was no indication in the patent specification that the patentees intended "a terminal portion" to include one or more terminal portions and that the specification repeatedly spoke of "a linkage, not multiple linkages." 7 F.3d at 1575-76. Accordingly, the court construed the article "a" in the singular.

We find North American Vaccine to be inapposite. There, unlike the present case, the disputed claim did not include the open transitional phrase "comprising." The use of the transitional phrase "comprising" itself indicates that the elements or steps following the transition may be supplemented by additional elements or steps and still fall within the scope of the claim. See, e.g., AFG Indus. Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1244-45 (Fed. Cir. 2001) ("When a claim uses an 'open' transition phrase, its scope may cover devices that employ additional, unre cited elements. We have consistently held that the word 'comprising' is an open transition phrase." (citations omitted)). Indeed, it the very use of the transition "comprising" in conjunction with the article "a" or "an" that creates the presumption that the article is construed to mean one or more elements or steps, unless there is evidence of a clear intent to limit the claims. Unlike North American Vaccine, the use of "comprising" in claim 1 of the '756 and '757 patents itself establishes a presumption that those claims are "open," and North American Vaccine is not relevant to the present case on that ground alone.
In view of the above, we find that the patentees have not evinced a clear intent to limit the disputed claims to apparatuses or methods with a single illumination source. Unlike the cases relied upon by ICOS and the district court, neither the claims nor the specification in the present instance indicate any such intent on the part of the patentees. Accordingly, we give the article "an" its ordinary meaning of "one or more" and hold that the '756 and '757 patents encompass apparatuses and methods using one or more illumination sources.

--- Footnotes ---

4 Scanner also relies upon the prosecution history and expert testimony to support its argument that the claims should be construed to encompass one or more illumination sources. Naturally, ICOS disputes the import and interpretation of the prosecution history and presents its own expert testimony. Because we find this evidence to be inconclusive, and because we find the claim language and specification to strongly support a broad construction of the disputed language, we do not further address the prosecution history or expert testimony cited by the parties.

--- End Footnotes ---

CONCLUSION

We hold that the claim terms "an illumination apparatus" and "illuminating" in the '756 and '757 patents respectively encompass one or more illumination sources.

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3. "analog and digital signals"

The Court has received no evidence that one skilled in the relevant art at the time of the application was aware of an item containing information that would contain both analog and digital signals. However, presuming that such an item is conceivable and could be part of the transmission system, the phrase "analog and digital signals" has a common meaning which requires no further construction.

A question is raised as to whether the transmission system, which performs these steps, is capable of performing simultaneous operations on items containing both analog and digital signals. The apparatus claims pertaining to the transmission system have separated these functions. Claim 1 claims a generic conversion step, and Claims 3 and 4, depending from Claim 1, separately claim to convert analog and digital signals respectively.

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6. "analog signal" Terms

* * *

During the claim construction hearing, Quantum stipulated to the defendants' proposed construction, with the exception of "entirely." Regarding "entirely," the issue is whether the noise signal can be blended with something else. Quantum contends that there is no disclosure of a signal that includes something other than noise, i.e., there is no deterministic aspect. See '364 Patent, cl. 12; '242 Patent, col. 2, ll. 27-29; col. 12, ll. 43-44, 34-36, Fig. 3. Quantum argues that the patent contains no express disclaimer of something other than noise. The court agrees with Quantum. The intrinsic evidence suggests that the terms require "noise," but there is no indication that it must be "entirely noise."

As such, the court defines "analog noise signal(s)" as "nondigital, nondeterministic signal consisting of noise" and "analog random signal(s)" as "nondigital, nondeterministic signal."

The court defines "hardware device to produce an analog noise signal" as "hardware device to produce a nondigital
16. Analog sound derived from digital data and analog signal

The terms "analog sound derived from digital data" and "analog signal" appear in claim 9 of the '482 Patent. Diagnostic asserts that these two terms are synonymous and both should be construed as an "analog signal representative of a voice instruction and/or message." Benson, on the other hand, asserts that using plain and ordinary meaning of the terms require that "analog sound" be construed as "continuously variable, measurable, physical quantities perceived by the sense of hearing" and that "analog signal" be construed as "a continuously variable, measurable, physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted."

The definition of analog is "of relating to, or being a device in which data are represented by continuously variable, measurable, physical quantities, such as length, width, voltage, or pressure." American Heritage Dictionary 64 (4th ed. 2000). "Signal" is defined as "a detectable physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted." Webster's 2115. Therefore, the ordinary meaning of "analog signal" is "a continuously variable, measurable, physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted."

The Court now turns to the intrinsic record. While the claimed invention is a device and a method for implementing a hearing test in which the sounds heard by the test subject switch between test tones and signals that may be voice instructions and/or messages, the Court notes that the specification indicates that "the particular signals could be representative of virtually any type of information which is subject to derivation from digital data … for example, visual graphics and images and others." ('482 Patent, col. 10, 11. 35-40.) Therefore, the Court finds that the specification does not rebut the presumption that the ordinary meaning of the term applies and construes the term "analog signal" as a "continuously variable, measurable, physical quantity or impulse by which messages or information can be transmitted."

Diagnostic argues that in the text of claim 9, the term "analog signal" and "analog sound" are used interchangeably. Specifically, claim 9 specifies, in part:

- generating an analog sound derived from the digital data;
- switching the audible sound from the step of outputting between the test tone and the analog signal.

Diagnostic argues that because the phrase "analog sound" is followed in the next line with "the analog signal," the term is being used interchangeably. Benson argues that because the two different terms both appear in the same claim, they must have different meanings. The Court finds that the terms are used interchangeably and therefore, "analog sound" is properly construed as a "continuously variable, measurable, physical quantity or impulse by which messages or information can be transmitted."

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2. "[A]nalog-to-digital converter means."

DTL contends that this limitation is not a means-plus-function limitation under § 112, P 6 and should be construed as "an analog to digital converter, also commonly known as an 'A/D converter.'" Cingular states that this term must be construed as a means-plus-function limitation because not all analog-to-digital converters are capable of converting a sampled signal into a sequence of groups of digital bits which represent the respective values of the analog electrical output signal at the periodic instants.

The means-plus-function presumption can be overcome if the "claim itself" recites sufficient structure "to perform entirely
the recited function." Sage Prods., Inc. v. Devon Indus., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997). Although the disputed phrase contains the word "means," and is presumed to be governed by Section 112, P 6, the specification is replete with evidence that an analog-to-digital converter by itself is a sufficient structure to perform the described function. The prosecution history also reveals that the examiner used the term "A/D converter" generically when distinguishing the Bader reference. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000118.

Footnotes

4 See '799 patent, col. 1, l. 64; col. 2, l. 27; col. 3, l. 49; col. 4, l. 12; col. 4, l. 23; col. 4, l. 27; col. 4, l. 37; col. 4, l. 43; col. 4, l. 51; col. 5, l. 12; col. 5, l. 16; col. 5, l. 23; col. 5, l. 37; col. 5, l. 49; col. 7, l. 16; col. 7, l. 64; col. 9, l. 27; col. 9, l. 34; col. 9, l. 47; col. 9, l. 53; col. 9, l. 62; col. 9, l. 64; col. 10, l. 5; col. 10, l. 7; col. 10, l. 11.

End Footnotes

Cingular opposes this interpretation, arguing that even if the court does not consider the limitation to be a means-plus-function limitation, the term should be construed as "an analog-to- digital converter with a resolution output of 16 bits or higher." At the hearing, Cingular's technical advisor admitted that a generic A-to-D converter could sample and convert signals pursuant to the language in claim 18. Trans. at p. 101-102. Even if the specification details a preferred embodiment using a 16 bit A/D converter such as in the '799 patent, col. 10, ll. 25-27, this does not compel the court to deviate from the ordinary and customary meaning by importing added dimensions to the term. The specification consistently refers to a generic A/D converter and there is no evidence that the patentee disclaimed or disavowed all A/D converters except for one with a resolution output of 16 bits or higher.

Cingular will be free to later argue that its A/D converter cannot produce a "highly faithful digital representation." But at this stage, the court will decline to import superfluous limitations in claim construction or engage in anticipating the variety of accused products which may be presented. The court defines the terms as follows:

"[A]nalog-to-digital converter means" is construed as: an analog to digital converter, also commonly known as an 'A/D converter.'

The parties dispute whether the phrase "analog to digital converter means for converting said analog picture information signal into corresponding digital data information signals" is in means-plus-function format. Canon contends that the disputed phrase requires a means-plus-function construction. Canon contends that the phrase uses the term "means," and therefore the presumption that it is a means-plus-function claim applies. Canon also contends that the presumption is not rebutted, because the disputed phrase recites a function without reciting or describing a definite structure.

St. Clair contends that the presumption that the phrase is in means-plus-function format is rebutted, because the structure of an analog digital converter is a structure well known in the art. Thus, St. Clair contends that the "analog to digital converter means" is "analog to digital converter(s)."

Although the disputed phrase contains the word "means," and is presumed to be governed by Section 112, P 6, the Court concludes that the "analog to digital converter means" should not be construed as a means-plus-function term. An analog to digital converter is a sufficient structure to perform the described function, and therefore, additional structures do not need to be imported from the specification. See Rodime, 174 F.3d at 1302. Accordingly, the Court concludes that the "analog to digital converter means" is "analog to digital converter(s)."
2. "Analog-to-Digital Converter"

P3 contends that the term "analog-to-digital converter" ("ADC") as used throughout the claims should be construed as "any device or combination of devices that convert an analog signal to a digital signal." UPM's contends that this construction is improper, because the term as claimed in the '850 Patent is a separate element from the CPU, and therefore it argues that the construction should reflect that the claim term only covers such devices that are separate elements from the CPU.

As claimed in the '850 Patent, the ADC converts the analog voltage or current signals into a digital value, and then "send[s] the digital . . . value to the" CPU. UPM is correct that it appears from the specification that the preferred embodiment uses ADCs that are separate from the CPU. As discussed above, however, while the specification is the best guide to interpreting a disputed term, courts must be careful not to import limitations from the specification into the claim. Here the claim language itself, which states that the ADC sends the converted digital signal to the CPU, also implies that the ADC is separate from the CPU rather than a component within the CPU, and thus the ADC will be construed as a separate element from the CPU.

3 Even if the claims are construed to claim a separate ADC element from the CPU, however, a device that combines the ADC element into the CPU may still infringe under the doctrine of equivalents. See, e.g., Dolly, Inc. v. Spalding & Evenflo Companies, Inc., 16 F.3d 394, 398 (Fed. Cir. 1994) ("Equivalency can . . . exist when separate claim limitations are combined into a single component of the accused device.").

The parties dispute whether "analyzer" is governed by 35 U.S.C. § 112(6). Widevine argues that "analyzer" is a colloquial term that refers to a physical device that analyzes data and should be construed as "software in the shim that monitors the properties or characteristics of a computing device." Verimatrix argues that "analyzer" is a generic term that does not connote a particular structure, the remainder of the claim does not provide the necessary structure, and is therefore equivalent to "means for analyzing."

"Shim," of which "analyzer" is an element, has an agreed construction: "software that is downloaded to or pre-installed on the client machine and used to decrypt transparently incoming data stream from the encryption bridge on its way to the media player software." The agreed construction provides the necessary structure for "analyzer." "Analyzer" is therefore not governed by 35 U.S.C. § 112(6). "Analyzer" means "software in the shim that analyzes monitors the properties or characteristics of a computing device."

Analyzing a property of the data file to be transferred and similar phrases

ConncTel proposes that the Court construe "analyzing a property of the data file to be transferred" to mean "quantitatively or qualitatively observing a characteristic of the data file being transferred, e.g., size, security requirement not including a phone number." ConncTel argues that one skilled in the art would interpret "analyzing" to mean "observing" and "observe" is synonymous with the plain meaning of "analyze," which is to "study or determine." ConncTel also contends the relevant "properties of the data file" are found in the header or control information of data or a data file. Furthermore, because the data properties include quantitative factors, such as data size, and qualitative factors, such as the type of file, analyzing a property of the data file involves observing such quantitative or qualitative factors.
Cisco contends "analyzing a property of the data file to be transferred" means "studying the data file itself, and does not include referencing a data packet header or destination information. The data file may be transmitted in any of various formats (a data file, data packets, encapsulated packets, or data streams)." During the hearing, ConncTel conceded to the use of "studying" rather than "quantitatively or qualitatively observing." The Court modifies Cisco's proposed construction and construes "analyzing a property of the data file to be transferred" to mean "studying the data file itself but does not include referencing destination information. The data file may be transmitted in any of various formats (a data file, data packets, encapsulated packets, or data streams)."

In the specification, the Inventor defined "data file" to include "data file, data packets, encapsulated packets, or data streams." Col. 1:16-19 ("Data may be transmitted in any of various formats, such as a data file, data packets, encapsulated packets, or data streams (referred to herein as a data file)."). Thus, unless there is a clear disavowal in the file history, "analyzing a data file" must include analyzing a data packet. The Applicant's reference to Derby in the prosecution history does not show a clear disavowal that the term data file does not include "data packet." 370 patent application, Amendment 6/19/1998, p. 7-8. This portion of the file history directed to Derby is more properly interpreted toward distinguishing the difference between making packet decisions within a network and "the initial selection of the services to be utilized." See id. at 8. Thus, this portion of the file history impacts the construction of "telecommunication path," but it does not constitute a clear disavowal that the term "data file" no longer includes a "data packet" as stated in the specification.

Although a data packet typically includes a header containing destination information, studying the data file does not include referencing destination information. During prosecution, the Applicant stated that neither Kobayashi or Derby "utilizes a property of the data file being transferred." Id. at 8. Kobayashi taught a method for connecting phone calls and thus utilized the destination telephone number in selecting the appropriate path. Id. at 7. Since Kobayashi used telephone numbers but did not use properties of the data file, the telephone number cannot be a property of the data file. Further, even if Kobayashi was extended to include a line terminal rather than a telephone, Kobayashi would still not utilize a property of the data file. Id. According to the Applicant, Derby was directed at routing packets within a network, which would necessarily require destination information, but Derby did not utilize properties of the data file. Id. at 7-8. Thus, destination information cannot be a property of the data file. Finally, Figure 1 depicts "Destination #" as separate from "Data File 30."

Accordingly, the Court construes "analyzing a property of the data file to be transferred" to mean "studying the data file itself but does not include referencing destination information. The data file may be transmitted in any of various formats (a data file, data packets, encapsulated packets, or data streams)." Since it was not clearly disavowed during prosecution, this includes analyzing a data packet. Because there is evidence of a clear disavowal during prosecution, "analyzing a property of the data file to be transferred" does not include referencing destination information.

3 A ”frame” is a compilation of samples derived from a particular waveform. See Col. 15, ln. 17-19.

As a preliminary matter, the Court notes that Lockheed argued during the Markman hearing that the word ”variable” in the disputed patent language required definition. Upon further reflection and consideration, however, the Court concludes that the words ”analyzing” and ”extract” -- not ”variable” -- require construction. The parties contest not how to describe the frequency components or define ”variable,” but rather what the patented system does (or does not do) during the analysis and extraction phases of the process claimed. 4 Therefore, the Court adopts the plain and ordinary meaning of the word ”variable” 5 and looks to the specification and file wrapper 6 to construe the terms ”analyze” and ”extract” and consider how -- if at all -- MIT has limited its claim.

4 This debate is clear in the transcripts from the Markman hearing and the submissions by the attorneys.

5 The specification and file history make clear that the plain meaning of the word ”variable” should govern. Therefore, the Court interprets ”variable” frequency components to mean that the frequency components vary from frame to frame.

6 The Court will look to the prosecution history of both the reissue ’478 Patent and the original ’790 patent. This analysis is in keeping with 35 U.S.C. § 251 because Claim 1 was reissued without amendment. See Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437, 1443 (Fed. Cir. 1997) (”The prosecution history when a patent is reissued is part of the framework in which the patent is construed, as is the prosecution history of the original patent.”), abrogated on other grounds by Cybor Corp. v. Fas Technologies, Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998).

II. DISCUSSION

MIT and Lockheed agree that the Court may look to the specification and the prosecution history to construe a claim properly. See, e.g., Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (”It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history.”); SRI Int’l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1118 (Fed. Cir. 1985) (noting that a claim is construed in light of the claim, the specification, and the prosecution history); Automigo Co. of America v. United States, 384 F.2d 391, 397, 181 Ct. Cl. 55 (Fed. Cir. 1967) (”In deriving the meaning of a claim, we inspect all useful documents . . . [including] the specification, the drawings, and the file wrapper.”).

MIT argues, however, that no such examination is needed in this case. It asserts that Claim 1 of the ’478 Patent, on its face, does not limit its method in any way and, therefore, that the language of the claim should be given its plain and ordinary meaning. Pl.’s Mot. For Partial Summ. J. [Docket No. 27] at 15-16. In the alternative, MIT further argues that if any limitation inheres at all in Claim 1, it is only that the technique works independently of voiced/unvoiced decisions with respect to an entire frame because, when such decisions are made, data is potentially discarded or separated out. See Markman Hearing Tr. [Docket No. 60] at 5, 9-12. Thus, MIT argues that if a technique makes some voiced/unvoiced decisions, but does not do so for an entire frame, that technique is still covered by Claim 1 of its patent. The Court disagrees with MIT on both counts.

A court may look to the specification and file wrapper when it needs to determine whether the patentee has limited the scope
of claims. See, e.g., SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) (noting that claims can be given a narrow construction in light of the written description and explaining that one reason to look to the specification is to determine if the patentee has limited the scope of the claims); Watts v. XL Systems, Inc., 232 F.3d 877, 882-883 (Fed. Cir. 2000) (noting that "one purpose for examining the specification is to determine if the patentee has limited the scope of the claims" and explaining that "even if [the terms] are clear on their face, [a court] must consult the specification to determine if the patentee redefined any of those terms"); CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (explaining that the presumption that the claim's ordinary meanings prevail can be overcome by showing that a patentee limited its claim in the specification or prosecution history); Spectrum Int'l, Inc. v. Sterilite Corp., 164 F.3d 1372, 1378 (Fed. Cir. 1998) (noting that it is appropriate to look to "explicit statements made by the patent applicant" in the prosecution history to narrow the scope of the claim). The Court concludes that a review of the specification and file wrapper is appropriate in this case.

A. The Specification

The '478 Patent's "Summary of the Invention" begins with an introductory paragraph summarizing the invention as working "independent of the speech state" -- that is, it does not make voiced/unvoiced decisions. 7 Col. 1, ln. 66-67; Col. 2, ln. 1-3. Immediately thereafter, the '478 Patent outlines the basic method of the new invention which, by deduction, includes this general description. Unlike its references with respect to other aspects of the invention, the specification does not state that the technique "can" work independently of voicing decisions or that "one way of using" the technique is not to resort to a voiced/unvoiced decision. 8 Instead, the technique is described as one that simply works independently of such decisions. 9 The fact that the technique works "independently of the speech state" is repeated and held constant when different ways to utilize the invention are described. Col. 2, ln. 39; see also Col. 3, ln. 23-26. Moreover, the fact that the invention works independently of voicing decisions is never specifically limited to voiced/unvoiced decisions as to an entire frame.

7 The prosecution history makes clear that the words "independent of the speech state" mean the system does not resort to voiced/unvoiced decisions. For example, in an Amendment filed May 20, 1988, MIT stated: "For speech, the representation is independent of the speech state, thus avoiding the need for voicing decisions . . . ." File Wrapper, Ex. 2, Tab. D at 10.

8 In reference to other aspects of the invention, the specification does use this kind of language. See, e.g., Col. 3, ln. 63-64 (noting that "various coding techniques can also be used interchangeably with those described below") (emphasis added); Col. 10, ln. 24-50 (stating that "One way to do this is to force all of the frequencies to be harmonic . . . ." As a practical matter it is preferable to estimate the fundamental frequency that characterizes the set of frequencies in each frame, . . . . For example, pitch extraction can be accomplished by selecting the fundamental frequency that characterizes the set of frequencies in each frame, which in turn relates to pitch extraction, . . . . Other pitch extraction techniques can also be employed.") (emphasis added). This is precisely the specific limitation on a disclaimer that is lacking with regard to voiced/unvoiced decisions.

9 Had MIT intended this feature of the technique to be a preferred embodiment, one would think it would have expressed this intention more carefully, as it did with regard to "pitch extraction." See supra, note 8.

MIT argues that Claim 1 "literally applies" to a system that makes voiced/unvoiced determinations and that it is not "inappropriate or unacceptable to make voiced/unvoiced decisions" when practicing their invention. Pl's. Mot. for Partial Summ. J. at 16-18. While the language of Claim 1, when read without reference to the specification, may be considered broad enough to encompass methods that make some kind of voiced/unvoiced decisions, "where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent . . . ." SciMed, 242 F.3d at 1341. Here, the specification clearly demonstrates that the technique does not include the making of voicing decisions, and, therefore, techniques that do make such decisions are outside the scope of Claim 1, lines 20-22, of the '478 Patent.

MIT responds that the specification merely represents a preferred embodiment of the invention and should not limit the claim. The Court agrees that the specification of a patent usually sets forth the preferred embodiment of the invention and
that this does not normally restrict the claims. "Where the patentee describes an embodiment as being the invention itself and not only one way of utilizing it," however, it can aid interpretation. Autorigio, 384 F.2d at 398; see also Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) (noting that "when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment").

10 In describing an embodiment of the '478 Patent, the specification states that "recourse is never made to a voice-unvoiced decision" and that "as a consequence, the invention is robust in noise and can be applied at various data transmission rates simply by changing the rules of the bit allocation." Col. 3, ln. 20-26 (emphasis added). In essence, then, this is not a preferred embodiment of the invention, but an integral aspect of the invention itself. Although every embodiment of the invention need not be stated in the specification, the claims cannot "enlarge what is patented beyond what the inventor has described as the invention." Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001) (limiting the claim despite the argument presented during litigation that the invention could work in a different way).

MIT argues that, at most, the only limitation it has placed on its patent is the making of voiced/unvoiced decisions as to an entire frame because, when this is done, valuable data may be discarded or separated out. See Markman Hearing Tr. at 5, 9-12. To support this, MIT claims that the specification distinguishes its invention from the binary model. It explains that, at the time of the invention, the binary model made voiced/unvoiced decisions as to an entire frame. MIT suggests that therefore, each time the specification states that the invention works independently of voiced/unvoiced decisions or speech state, it is doing so in counter-reference to the binary model; in other words, these references imply that the new invention does not make a voicing decision as to an entire frame.

This interpretation of the specification, however, is unsupported. While it is true that the specification distinguishes the new invention from the binary model, the distinction derives primarily from the fact that the binary model relies on the speech state -- not from the fact that it makes a voicing decision for an entire frame. The specification begins by describing the binary model as follows: It "use[s] a speech production model in which speech is viewed as the result of a glottal excitation waveform," in which the "glottal excitation can be in one of two possible states corresponding to voiced or unvoiced speech." Col. 1, ln. 20-27. 11 The specification then details the limitations that are caused by the binary model's reliance on the speech state. The fact that the binary model "requires that each frame of data be classified as either voiced or unvoiced" is merely one of these limitations. Col. 1, ln. 39-42.

Furthermore, the specification's emphasis is on the making of a voiced/unvoiced decision itself and how "particularly difficult" this is to do. Col. 1, ln. 41-42. No emphasis is placed on the fact that the binary method employs a single decision for an entire frame versus multiple decisions. No reference is made to the potential for wasted data that occurs with a single decision per frame. Instead, the specification broadly suggests that it is the difficulty of making a voiced/unvoiced decision in itself that MIT's new invention sidesteps. Col. 1, ln. 66-67 and Col. 2, ln. 1-3. The invention's ability to skip the voiced/unvoiced determination altogether is what makes it "a new analysis-synthesis technique" 12 that is different and "better" than the binary model. Col. 2, ln. 4-5; Col. 1, ln. 57. 13 The binary system is summarized in the specification 14 as one that relies on the speech state, i.e., that makes voiced/unvoiced decisions. MIT's invention, on the other hand, is summarized throughout as one that works independently of the speech state, i.e., that does not make voiced/unvoiced decisions. When the patentee distinguishes its invention from the binary model, the Court interprets it to be doing so in reference to the fact that the binary method relies on voicing decisions, while MIT's technique does not do so at all. The
specification suggests, therefore, that Claim 1, lines 20-22, is limited to a technique that does not resort to any voiced/unvoiced decisions.

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12 This is supported further by the specification. For example, it states: "Although pitch is used to provide side information for the coding algorithm, the standard voice-excitation model for speech is not used. This means that recourse is never made to a voice-unvoiced decision." Col. 3, ln. 20-26 (emphasis added). Here the specification clearly defines the standard binary model as relying on the speech state. MIT's invention, by not relying on the speech state, skips a voice/unvoiced decision entirely.

13 In the prosecution history, the inventor makes the same point -- its new invention does not have to make the difficult voiced/unvoiced decision. "Like the Fulgham system, Hedelin relies on an initial voiced/unvoiced analysis. (In many instances, it is difficult to make the voicing decision in real time; if the voicing decision is wrong for a particular frame, the synthesized speech is faulty, and the result is an unpleasant and unnatural sound to the listener's ear)." File Wrapper, Ex. 2, Tab D at 15.

14 The binary method is summarized similarly in the file wrapper. See, e.g., File Wrapper, Ex. 2, Tab D at 17 (explaining that the Taguchi system is "a conventional binary (voiced/unvoiced) analysis system employing linear predictive analysis of the voiced segments").

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B. The Prosecution History

The prosecution history similarly compels the conclusion that Claim 1, lines 20-22, of the '478 Patent is limited to such a technique. Arguments made during the prosecution to differentiate a new invention from prior art, or to convince the Patent and Trademark Office to approve a patent, may circumscribe a claim's scope. See, e.g., Spectrum, 164 F.3d at 1378 (noting that "explicit statements made by a patent applicant during prosecution to distinguish a claimed invention over prior art may serve to narrow the scope of the claim"); Southwall Technologies Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution."); Alpex Computer Corp. v. Nintendo Co. Ltd., 102 F.3d 1214, 1220 (Fed. Cir. 1996) (noting that prosecution history is "relevant . . . for construing the meaning and scope of the claims"); Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997) ("An argument contained in an IDS which purports to distinguish an invention from the prior art thus may affect the scope of the patent ultimately granted.").

In the case of the '478 Patent, the inventors distinguished their invention before the Patent and Trademark Office based on the structural difference between a speech analysis system that does not resort to voicing decisions and one that does. In an amendment filed May 20, 1988, the applicants stated that the "most important" distinction between their invention and Fulgham's is that "Fulgham neither teaches nor suggests applicant's system for analysis of acoustic waveforms in which the waveform is sampled to extract a series of variable frequency components directly from each frame (independent of voicing state, pitch or channel constraints)." File Wrapper, Ex. 2, Tab D at 14 (emphasis added). Subsequently, the applicants distinguished their invention from Hedelin because "like the Fulgham system, Hedelin relies on an initial voiced/unvoiced analysis. . . . There is no teaching in the Hedelin reference of any system for analyzing a waveform . . . without regard to voicing decisions or the base band." Id. at 15-16.

Similarly, in a supplemental Information Disclosure Statement before the Patent and Trademark Office on May 20, 1988, the inventor distinguished prior art because, "unlike the present invention, the [prior art] is driven by voiced/unvoiced decisions." File Wrapper, Ex. 2, Tab C at 2.

Because MIT's invention was clearly distinguished from prior art based on the grounds that it does not resort to voiced/unvoiced determinations, the '478 Patent does not cover a technique that makes any voiced/unvoiced determinations. See Ekchian, 104 F.3d at 1304 ("by distinguishing the claimed invention over the prior art, an applicant is indicating what the claims do not cover, [and] he is by implication surrendering such protection."). In essence, MIT is asking this Court now to construe the claim differently for infringement purposes than MIT itself did to obtain the patent. Such construction, however, is impermissible. Alpex, 102 F.3d at 1221 (noting that "just as prosecution history estoppel may act to estop an
equivalence argument under the doctrine of equivalents, positions taken before the PTO may bar an inconsistent position on claim construction’); see also Southwall, 54 F.3d at 1576.

Furthermore, any argument that it was not necessary for the inventors to make such extensive disclaimers for approval of the patent -- because they might well have prevailed even had they only disclaimed voiced/unvoiced determinations for an entire frame -- would fail. Claims cannot be construed in a more limited way for approval of the patent and then more broadly in claim construction even if the statements were not necessary for approval. See, e.g., id. at 1576 ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution."); Standard Oil Co. v. Am. Cyanamid Co. 774 F.2d 448, 452 (Fed. Cir. 1985) ("All express representations made by or on behalf of the applicant to the examiner to induce a patent grant or . . . to reissue a patent" can limit interpretation of claims); KX Industries, L.P. v. PUR Water Purification Prod., 18 Fed. Appx. 871, 876 (Fed. Cir. Aug. 10, 2001) (unpublished opinion) ("whether the limiting assertions made were necessary for allowance of the claims is not dispositive as to whether a patentee has disclaimed certain subject matter.") 15 For example, in Ekchian, the patentee distinguished his invention from prior art preemptively to prevent the Patent and Trademark Office from rejecting the patent. See Ekchian, 104 F.3d at 1304. The patentee was later estopped from asserting a broader construction of the claim. See id. The determining factor is whether the patentees have clearly excluded a broader interpretation. See, e.g., Northern Telecom Ltd. v. Samsung Elec. Co., Ltd., 215 F.3d 1281, 1294-95 (Fed. Cir. 2000) (analyzing whether the patentee "with reasonable clarity and deliberateness" excluded a broader interpretation of the claims in the prosecution history); KX Industries, 18 Fed. Appx. at 876 ("What is determinative is whether the patentee has defined a claim term as excluding a broader interpretation with reasonable clarity and deliberateness."). In the “Remarks” of the May 20, 1988 Amendment, the patentees clearly articulated that its invention worked “independent of the speech state, thus avoiding the need for voicing decisions,” see File Wrapper, Ex. 2, Tab D, at 10, and they repeatedly distinguished their invention from prior art based on this broad characterization.

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MIT argues that extrinsic evidence shows that the only art known at the time the patent was sought and amended was a binary method that made a voiced/unvoiced decision for an entire frame and, therefore, that this must necessarily constitute the extent of the claim limitation. This argument requires the Court to delve into extrinsic evidence -- evidence to which resort ought be had only "if necessary." Vitronics, 90 F.3d at 1583. Even if it were necessary and, thus, appropriate for this Court to consider extrinsic evidence about what art existed at the time -- and the Court believes it is not -- MIT's argument would still fail.

As an initial matter, it is not clear that MIT's characterization of what art existed at the time is accurate. Lockheed has presented extrinsic evidence suggesting that multiple voicing decisions within a frame were known to those skilled in the art prior to 1985. 16 Whether sufficient evidence exists to support this contention, however, is a moot question because MIT's argument fails for two other reasons.

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16 The patent was originally sought in 1985 and then abandoned. The inventors then filed for the patent in April of 1989.

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First, as stated in Autorigo, "it is not the prior art that provides the guidelines, but the applicant's acquiescence with regard to prior art. In its broader use as a source material, the prior art cited in the file wrapper gives clues as to what the claims do not cover." Autorigo, 384 F.2d at 399. Although here the Court is not dealing with traditional file wrapper estoppel as was
the Autorigo court, the same reasoning applies. 17 In the prosecution history of the '478 Patent, the emphasis is placed on
the prior art's reliance on voiced/unvoiced decisions generally. The primary distinction the inventor makes consistently with
respect to the prior art in the file wrapper is that the system works "independent of the speech state, thus avoiding the need
for voicing decisions." File Wrapper, Ex. 2, Tab D at 10. Moreover, the differentiating aspect of the conventional binary
system that is highlighted by the inventors in the prosecution history (and in the specification) is that it makes
voiced/unvoiced decisions -- not that it makes a single decision for the entire frame. For example, in reference to Taguchi,
MIT points out that it "is a conventional binary (voiced/unvoiced) analysis system employing linear predictive analysis of
the voiced segments" as opposed to MIT's "analysis system based on sinusoidal representation of a speech waveform." Id. at
17.

17 Other courts have applied file wrapper estoppel theories to claim construction. See, e.g., Alpex, 102 F.3d at 1221.

Admittedly, there are at least two references to the prior art's determination of whether an entire frame of speech is voiced or
unvoiced in the file wrapper. See, e.g., id. at 14, 15. These two cursory references, however, are insufficient to convince the
Court that the inventor did not clearly disavow a system that resorts to any voiced/unvoiced decisions. 18

18 In one of these instances, the inventor pointed out that the most important difference was that the system worked
"independent of voicing state, pitch, or channel constraints." File Wrapper, Ex. 2, Tab D at 14.

Second, MIT could and should have been clearer about what it was disclaiming. Courts may look to the file wrapper to
interpret claims because the patent approval process is a public one and "the public has a right to rely on such definitive
statements made during prosecution." Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998); see also
Ekchian, 104 F.3d at 1304 (noting that "the courts and the public may rely" on an information disclosure statement to
interpret the claims.) "Notice is an important function of the patent prosecution process, as reflected by the statute itself . . .
and recently confirmed by the Supreme Court." Digital Biometrics, 149 F.3d at 1347 (internal citations omitted), citing
not known of the other voiced/unvoiced techniques, it might well have mentioned in the prosecution that its system is
compatible with voiced/unvoiced decisions or that it was not disclaiming all systems that use any voiced/unvoiced
decisions.

III. CONCLUSION

For the foregoing reasons, the Court interprets Claim 1, lines 20-22, of the '478 Patent to mean that the invention does not
resort to any voiced/unvoiced decision during the analysis and extraction phases. Accordingly, the Court concludes that the
appropriate interpretation of the language of Claim 1, lines 20-22, of the '478 Patent is as follows:

Analyzing each frame of samples and extracting therefrom a set of variable frequency components that have individual
amplitudes, without regard to voiced/unvoiced decisions.

3. The phrase "ANALYZING . . . TO DETERMINE A RESULTING INDICATION" (claim 1) does not require that the
resulting indicator need be one of the two calculation results. It can, for example, be an average of the two results.
Additionally, the process of analyzing includes, but is not necessarily limited to "studying, comparing, or breaking down."
No further construction is required.
Plurality of questions relating to features and uses of the products

Defendants argue that this term and others like it, including "a plurality of questions related to at least one of a desired feature and desired use of the product," and "a plurality of customer answers to the questions, the answers specifying a customer's desired product features and uses," require constructions indicating that at least one question (or answer) relates to a desired product feature and at least one question (or answer) relates to a desired product use. Orion argues that these terms do not require construction. Orion also argues that "and" is fairly common in patent claiming and it is understood in patent parlance that "and" may be used in the disjunctive, depending on the context in which it is used. Orion contends that the phrases mean there are desired features and desired uses and the questions must relate to at least one of those -- the questions must relate to either desired features, or desired uses, or both.

The Court agrees. The specification does not require questions and answers on both features and uses. The phrase "features and uses" appears only in the claims. The 342 patent abstract refers to "needs and interests": "The system queries a user to determine a customer's needs and interests." The specification also says:

The system queries a customer to determine his or her interests and desired options. The interests may include a "use" desired by the customer, such as a marina or golf course. The interests may also include the type of information, such as technical, that the customer would like in the proposal. The desired options may include the various features of interest to the customer, such as the type of engine desired.

Col. 2:12-19. Thus, the specification language tends to equate "interest" with "use" and "features" with "options." But nowhere is there any statement that the invention requires -- at a minimum -- a question and an answer on a customer's desired options (or features) and a question and an answer on a customer's desired interests (or uses).

It further seems clear that the patentee did not intend for the claims to be read to require questions and answers on both features and uses. The claims are drawn generally to a method "for selling products." See Claim 1. Some products may not have "options" or multiple "features" and the only actual variation is seeing that product in various environments. Defendants' constructions would require that all products have both multiple "features" and "uses." Further, in both claims 1 and 11, only one answer is required for the "selecting" step or steps. It is not reasonable to read claim 1 as requiring a minimum of four questions and two answers, and claim 11 as requiring a minimum of two questions and two answers, when only one answer is required for the "selecting" step or steps, especially when nothing in the specification or prosecution history requires the same. n3

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n3 This is in contrast to the Superguide case, which Defendants rely on, where the specification taught that the user must choose a value for each designated category. See Superguide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 887 (Fed. Cir. 2004).

- End Footnotes -

Thus the Court agrees with Orion that "and," in context, is used in the disjunctive. Therefore Defendants' proposed construction is unduly narrow, and the Court does not adopt it. Since this is the only clarification Defendants' construction makes to the claim language, the language does not require construction.
n2 This group of terms includes "plurality of questions relating to features and uses of the products" and "a plurality of customer answers to the questions, and the answers specifying a customers desired product features and uses" in claim 1 and "a plurality of questions related to at least one of a desired feature and desired use of the product" and "customer answers of the customer to the plurality of questions" in claim 11.

Hyundai argues "features and uses" should be construed as a conjunctive phrase--i.e., the questions (or answers) must relate to both features and uses. Hyundai incorrectly asserts that this issue was not before the Court in the Staples case. The Staples Defendants took the same position, which the Court rejected and instead construed the term as a disjunctive--i.e., the questions (or answers) must relate to either features or uses.

Hyundai argues that the applicant distinguished Donald and Yourick during prosecution on the basis that the invention queries customers about features and uses. See June 19, 1995 Amendment and Response for Application No. 07/878,602 at 4. However, reading this response in context shows that the applicant distinguished Donald and Yourick because the present invention relates the customer's answers to customer-specific information rather than using an inductive learning technique that did not associate a user's responses with pictures and text. Id.

Hyundai also argues that its construction is necessary to distinguish the patent from the prior art. First, construing claims to preserve validity is a last resort and is only used when claims remain ambiguous after applying all other claim construction tools. MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1332 (Fed. Cir. 2007). Second, Hyundai has not shown that its construction would preserve validity over Montagna because Hyundai has not shown that Montagna includes all of the limitations of the claims at issue. Finally, Hyundai has not shown that the term remains ambiguous after all other construction tools have been utilized. Accordingly, the Court rejects Hyundai's proposed construction. As Hyundai's proposed construction only addresses the conjunctive-disjunctive issue, further construction is unnecessary.

As Hyundai's proposed construction only addresses the conjunctive-disjunctive issue, further construction is unnecessary.

Turning to the merits, we focus on the critical claim language, which provides that the housing of the claimed apparatus comprises "an electrical operating unit and a pair of spaced-apart electrically exposed conductive probe networks." The claim lists the "electrical operating unit" separately from the "pair of spaced-apart electrically exposed conductive probe networks," and does not suggest that the "pair of . . . probe networks" consists in part of a portion of the "electrical operating unit." Rather, the clear implication of the claim language is that the pair of probe networks is a distinct component, separate from the electrical operating unit of the claimed invention.

The specification confirms that interpretation. 2 The specification refers to the "electrical operating unit" variously as the "voltage-carrying exposed parts" of the device, '047 patent, col. 3, l. 41, the "interior part of the apparatus carrying a voltage," id., col. 5, ll. 61-62, the "other parts of the electrical apparatus which have a voltage on them, e.g., the heating coil in the case of a hairdryer," id., col. 7, ll. 1-2, or the "voltage-carrying parts of the apparatus," id., col. 7, ll. 10-11. The "pair of spaced-apart electrically exposed conductive probe networks" is described in the specification as an "exposed electrical double conductor," id., col. 3, ll. 5-6, and a "probe in the form of a double conductor," id., col. 3, l. 20; col. 5, l. 40; col. 6, l. 66; col. 7, ll. 9-10. Nothing in the descriptions of those two components suggests that their structures or functions overlap. To the contrary, the specification plainly describes the two components as separate.

2 Indeed, as we discuss below, even if the claim language itself did not support the interpretation we adopt, there is in the specification "a clear case of disclaimer of subject matter that, absent the disclaimer, could have been considered to fall within the scope of the claim language." SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001); accord Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906-09 (Fed. Cir. 2004).
The Summary of the Invention describes the exposed electrical double conductor and the protective circuit that is wired to it as triggering the disconnection of the power to the appliance as soon as "a conductive fluid such as water penetrates into the apparatus housing." '047 patent, col. 3, ll. 34-39. The device "accomplishes this disconnection," according to the Summary, "before the user can be connected to voltage-carrying exposed parts via the fluid which has entered the housing." Id., col. 3, ll. 39-42. That description plainly contemplates that the double conductor is separate from the voltage-carrying electrical operating unit, a structural separation that is essential to the operation of the device in the prescribed manner.

The specification explains that the "electrical double conductor of the probe" may be configured in the form of strips placed near the areas of the housing to which water might have access, so that "water which penetrates through the opening or through the gap in the housing cannot produce an electrical contact forming a current path from any interior part of the apparatus carrying a voltage to any point lying outward of such interior part, without said water wetting the strips." '047 patent, col. 5, ll. 58-63. Elsewhere, the specification makes the same point, directing that the "electrical double conductor of the probe should be configured in such a way that the trigger switch circuit will respond before the penetrating water reaches any other parts of the electrical apparatus which have a voltage on them (e.g., the heating coil, in the case of a hairdryer)." Id., col. 6, l. 66, through col. 7, l. 3.

The specification further describes how far the probes must be separated from the electrical operating system to avoid any water contacting the electrical operating system before the power has been disconnected. For example, in the case of a protective switch with a tripping speed of 1.3 milliseconds, the specification explains that the minimum distance between the electrical double conductor of the probe and the voltage-carrying parts of the apparatus must be 10 millimeters. '047 patent, col. 7, ll. 7-11. By separating the pair of probe networks from the voltage-carrying components of the device by that amount, the invention ensures that the protective circuit will have time to cut the power to the apparatus before the water reaches the voltage-carrying components.

Moreover, the specification explains that "the object of the invention is to devise a protective device . . . which device will respond in an extremely short time . . . independently of the operating state of the apparatus, so as to protect the user from electric shock." 47 patent, col. 2, ll. 55-61 (emphasis added). The invention therefore cannot encompass a hairdryer with a protective device that relies on current passing between a probe and the electrical operating system, since such a device would be triggered only when the hair dryer was operating and voltage was being applied to the electrical operating system. The specification thus plainly requires that the pair of probe networks be separate from the voltage-carrying electrical operating unit of the device, such as (in the case of a hairdryer) the heating coil and the blower.

Significantly, the specification describes one of the principal advantages of the claimed invention in a way that excludes the electrical operating unit from serving as part of the pair of probe networks. The specification explains that prior art devices would trigger the protective circuit only when there was a direct connection between the water and the power supply circuit, which would result in a shock of at least brief (and thus, ideally, nonlethal) duration to the user of the device. '047 patent, col. 2, ll. 13-20. The specification adds, however, that the invention of the '047 patent protects the user from such a shock, see id., col. 2, ll. 55-61, and the specification explains that the invention does so by arranging for the protective circuit to be separate from the voltage-carrying components of the appliance. The invention achieves that objective because it ensures that water will encounter the two probe networks before it encounters the voltage-carrying electrical operating unit. The lowering of impedance between the two probe conductors caused by the entry of water into the housing triggers the flow of electricity through a circuit that cuts power to the entire apparatus within milliseconds. Because of the presence of large resistors in the protective circuit, the leakage of current from the protective circuit, when it is triggered, is very low and completely safe--approximately 1.8 milliamperes, according to the specification. Id., col. 5, ll. 32-34. For that reason if, for example, a bather drops a hairdryer into the bath water, the claimed invention will interrupt the power to the hairdryer before the bather feels any shock.

Dr. Gaus argues that the specification's discussion of a protective device that prevents the user from being connected to the electrical operating unit via the fluid is merely a description of a preferred embodiment. The specification, however, states that "according to the invention" the protective circuit "accomplishes this disconnection before the user can be connected to voltage-carrying exposed parts via the fluid which has entered the housing." '047 patent, col. 3, ll. 34-42. The specification thus demonstrates that the invention itself requires that the user be completely protected from shock, in contrast to prior art devices that exposed the user to a brief, non-lethal shock.
The parties disagree about whether the "control signal" and "decode control key" of the phrase "utilizing said decode control key and said transmitted control signal to generate a pseudo-random signal at said receiver station" in claim 21 must generate the pseudo-random signal in a particular way. IPPV argues that the signal and key must initialize the pseudo-random signal independently and separately. That is, it contends that the initialization of the key cannot depend on the signal and vice versa. Conversely, Echostar argues that there is no such limitation in the patent, and therefore, the initialization of the key may depend on the signal.

In support of its proposed construction, IPPV points to the plain meaning of the language of the claim, the specification and the prosecution history. First, IPPV argues that the plain meaning of the conjunction "and" requires that the two signals act independently. According to IPPV, "and" precludes combining of the signal and the key, or manipulating one of the two signals based on the other, to produce one or more additional values, and then using these values to generate the pseudo-random signal.

Second, it contends that the specification is consistent with the independent and separate construction. The specification explains that the STAT word indicates the state of each register in the pseudo-random signal generator. The control signal corresponds to the STAT word. The specification also defines a separate quantity called the TAPS word, which corresponds to the decode control key. IPPV argues that the preferred embodiment of the invention employs the TAPS and STAT word independently, and as such, claim 21 requires that the signal and key always be employed independently.

Third, it contends that the August 27, 1984 amendment during the patent prosecution supports the independent and separate construction. In the amendment, the inventors state that "in order to generate this [pseudo-random] signal, two keys are required: the control signal . . . and a separate decode control key." From this statement, IPPV concludes that the signal and key must act separately and independently.

Echostar counters that claim 21 does not specify how the control signal and the decode control key are to be used to generate the pseudo-random signal. It argues that the plain and ordinary meaning of claim 21 does not include such a limitation. Echostar further argues that there is no support for the separate and independent construction in the specification or prosecution history of the patent.

Finally, Echostar contends that IPPV's experts have set forth conflicting validity and infringement constructions. According to Echostar, Sherwood, in attempting to rebut its anticipation allegations, stated that claim 21 requires the control signal and decode key to separately and independently initialize the pseudo-random generator, but on another occasion, Roy Griffen, another IPPV expert, posited that the odd/even bit, a decode key found in the headers of the packets used in Echostar's DISH Network, infringes the control signal limitation in claim 21. The odd/even bit, however, is used to select a control word. The control word depends on the odd/even bit, and therefore, the odd/even bit is not used separately and independently from the control word to generate a pseudo-random signal. From these statements, Echostar concludes that IPPV is improperly advocating opposing constructions depending on the ultimate purpose of each construction. Thus, the essence of this dispute is whether the control signal and the decode key must independently and separately initialize the pseudo-random signal.

Having reviewed the parties' arguments, the court will construe the claim in accordance with the plain and ordinary meaning of "and," which requires that both the signal and the key participate in generation of the pseudo-random signal, but does not limit the way in which the signal and key participate in the generation. As such, the court will not construe claim 21 to require that the control signal and decode key separately and independently initialize the pseudo-random signal.
b. Animated Facial Displays

The parties also dispute the scope of the terms "first animated facial display" and "second animated facial display." The defendants would limit the definitions to a foreign actor displayed in the motion picture on one monitor, and the film of the target actor speaking a translated dialogue displayed on another monitor, respectively. Bloomstein takes the far broader view that each is merely a visual display that depicts a face.

Because Bloomstein's proposed definition comports with the plain meaning of the terms, the defendants' definition must fail unless supported by other language in the claims and specification or by the prosecution history or extrinsic evidence. To support their argument, the defendants point to the next clause in claim 1: "the displays have lip movements corresponding to the languages used . . . ." Of course, this only supports the defendants' interpretation if the term "languages" is construed as a foreign tongue and a translation of that tongue into the "target" tongue. The defendant also points to the specifications which describe and depict an actor in a foreign film providing the "first animated display" and the target actor/translator providing the "second animated facial display." See Joint Memorandum, Ex. A at column 4:15-31, column 4:61-5:4, column 5:41-50, and Figure 2. However, the patent expressly states that the "invention is applicable to works using live actors as well as for animated cartoons." Thus the first animated facial display need not be a depiction of an actor's face. In light of the specifications and a contextual analysis of the claims, the "first animated facial display" is construed to mean a depiction of a face in a cinematic work speaking one "language." "Second animated facial display" is construed to mean a depiction of second face, an actor's, speaking a different "language." Neither display must appear on a "monitor device."

7. "Annotated web page": "A web page modified by the addition of thumbnail visual images." This construction is consistent with claims 13, 14, 35 and 36, as well as the specification: Figs. 1 and 2; col. 5, ll. 59-65; col. 6, ll. 24-32.

2. "Annular"

The same asserted claims that describe the base regions as "polygonal" describe the source regions as "annular." The district court construed "annular" to mean "each claimed source has an outer and inner extent defined by generally, but not necessarily perfectly, polygonal shapes." Construction Order '725 and '767 Patents at para. 7. In another order, the district court, discussing "annular," stated that "each source is ring-like, in that the semiconductor material . . . constituting the source does not completely fill the space within the polygonal-shaped outer boundary of the source, but instead has an inner polygonal-shaped boundary." Int'l Rectifier Corp. v. IXYS Corp., 2002 U.S. Dist. LEXIS 27247, No. CV-00-6756-R, (C.D. Cal. Mar. 5, 2002) ("Statement of Uncontroverted Facts '725 and '767 Patents"), at para. 18 n.11.

The parties and the district court are in agreement regarding the dictionary definition of annular--specifically, "of, relating to, or forming a ring." Id. (citing Webster's Ninth New Collegiate Dictionary at 88); see also Webster's, supra, at 88 (defining "annular" as "of or relating to a ring: forming a ring: shaped like a ring"). Moreover, the parties agree that the "ring" of the source region need not be circular. Even though the word "ring" ordinarily means "circular," the written descriptions of the patents re-define the word and refer to the square regions of the '699 patent and the hexagonal regions of the '725 and '767 patents as "ring-shaped regions" and "polygonal ring regions," respectively. '699 patent, col. 6, l. 32; '725 patent, col. 3, l. 21. But here is where the agreement ends. IXYS argues that the construction provided by the district court is too broad and could encompass shapes not ordinarily considered to be "annular." Such shapes include, for example, an oval shape enclosing two parallel rectangles or a hexagonal shape enclosing a plurality of small squares. These regions, argues IXYS, would not be considered "annular" under the ordinary and customary meaning of the word, but do fit within the district court's construction--having an outer and inner extent defined by generally polygonal shapes. IXYS argues that a better construction for "annular" would be a space "defined by two concentric polygons." IR argues that the district court's interpretation is correct and that IXYS's construction is unsupported. The crux of the disagreement reduces to whether the term "annular" requires concentricity of inner and outer borders of like shape.
As noted above, the ordinary and customary meaning of the term "annular" is "of or relating to a ring: forming a ring: shaped like a ring." Webster's, supra, at 88. In turn, the only relevant definition of "ring" includes "a circular or curved band." Id. at 1958. The relevant definition of "band" includes "an elongated surface or section with parallel or roughly parallel sides." Id. at 170. The ordinary and customary meaning of "annular" is thus "of or relating to a circular or curved surface or section with roughly parallel sides; forming or shaped like a circular or curved surface or section with roughly parallel sides." In order, then, for the surface or section to have roughly parallel sides, it must be formed of two concentric circular or curved regions. The ordinary definition of "annular" is thus "of or relating to an area formed by two concentric circular or curved regions."

In this case, the inventor has deviated from this ordinary and customary meaning, and has used the word "annular" to describe structures that are not circular or curved, but polygonal. In particular, Figure 7 of the '699 patent illustrates base and source regions of concentric squares, and Figure 3 of the '725 and '767 patents illustrates base and source regions of concentric hexagons. The text accompanying these figures refers to these shapes as "rings." See, e.g., '699 patent, col. 6, ll. 20-25, 32; '725 patent, col. 3, l. 21. Therefore, it is evident from the intrinsic record that the inventor has attributed a meaning to the term "annular" that is broader than the ordinary and customary meaning limited to an area formed by two concentric circles. The written description shows that the patentee used the term to describe the area between two concentric polygons, or an area shaped like a polygonal band. In doing so, the patentee acted as his own lexicographer, and the patentee's definition trumps the ordinary and customary meaning that otherwise would have attached. 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1374 (Fed. Cir. Dec. 2, 2003).

The written description, however, does not support any broader reading than this. The district court's construction, requiring only that "each claimed source has an outer and inner extent defined by generally, but not necessarily perfectly, polygonal shapes," is overbroad because it permits sources that are not formed by concentric regions; in fact, the district court's construction would encompass shapes that are not ring-like at all, regardless of the shape of the outer polygonal extent. Therefore, we reverse the district court's construction of the term "annular," and hold that the term, as used in the patents-in-suit, means "a surface area defined by two concentric polygons."

4. "Answer Data"

"Answer data" is the fourth term the parties have presented to the Court for construction from the Claims Involving Products Carrying Participation Numbers. The term appears in Claims 44 and 96 of the '707 patent and Claims 79 and 190 of the '863 patent. The language of the limitations in which "answer data" appears is almost identical in each patent and reads "receiving digital identification data from said individual callers responsive to said voice signals including said participation numbers for said individual callers and answer data developed by said remote terminals under control of said individual callers."

The parties agree that the clear meaning of "answer data" is responses by callers to vocal questions or prompts. The defendants ask this Court to exclude any response that includes a telephone number, and specifically the telephone number of the party the caller would like to reach, from the definition of "answer data."

The defendants argue that the specifications describe callers providing answers to questions only in the context of one of the Katz formats, and because making a telephone call is not a format, a telephone number cannot be included in the definition of "answer data." See Column 7, lines 46 and 59; Column 17, line 8; Column 19, line 17 of the '707 patent. Even taking the defendants characterization of these passages of the specification as true, the Court has already rejected the defendants' narrow definition of the term "format" in the context of these patents. Further, there is nothing in the passages of the specifications cited by the defendants that indicates that answer data could not include any telephone number, including the number the caller is trying to reach.

The Court concludes that there is nothing in the claim language or specification that restricts the ordinary, common meaning of the term "answer data," which denotes data containing answers or responses. The defendants argue that "answer data" cannot encompass all answers to questions because the claims refer to some types of answers with specific terms, such as participation numbers. Although the claims recite different terms to refer to some specific responses received from the
callers, the use of these more specific terms does not indicate that the broad term "answer data" cannot encompass these responses as well.

The prosecution history cited by the defendants does not support their construction of "answer data" nor does it limit the ordinary, plain meaning of the term as expressed in the claims. The defendants argue that Katz distinguished his inventions from a patent to Newkirk, which involved a system that enabled callers to make calls at pay telephones using a magnetic stripe on a card. In the prosecution history of the '968 patent in a Supplemental Amendment dated May 4, 1988, Katz stated that:

The Newkirk et al. patent (4,439,636) is directed to a system for enabling a magnetic stripe card to be used at a pay telephone somewhat independently of the composite telephone system. Although the Newkirk patent discloses digital communication between a remote terminal and central terminal, the communication essentially involves the magstripe of a credit card. Distinct from applicant's development, Newkirk does not contemplate any operations related to statistical analysis. Specifically, with respect to the claims herein, while the Newkirk patent utilizes a calendar clock and form records for purposes of billing, the system does not store any form of "answer data."

(Ex. 33). The defendants contend that Katz's statements indicate that a telephone number could not be answer data. The Court concludes that Katz's statement that the Newkirk system did not store any form of answer data does not limit the term "answer data" to exclude responses that include telephone numbers. Katz stated that the only communication between a remote terminal and a central terminal was through the magnetic stripe; such a magnetic stripe would not have constituted "answer data" as this Court concludes that term is used in the Katz patents.

Although not addressed by Katz in his statements regarding Newkirk, the defendants argue that the Newkirk patent provided for callers to be "prompted" by a dial tone to enter the telephone number they were trying to reach. Thus, the defendants argue, Newkirk involved callers' responses to prompts and Katz statement that Newkirk did not include answer data indicates that Katz was disclaiming responses involving telephone numbers from the scope of the term. The Court is not persuaded by this argument for two reasons. First, Katz did not mention that Newkirk prompted callers with a dial tone in his discussion of the Newkirk patent; thus, the Court will not limit Katz's claims by a statement that he did not make during the prosecution of the patents. Second, the patents make clear that the questions or prompt must be vocal or voice generated. 26 Thus, the dial tone used in Newkirk is not a "prompt" or "cue" as used in the Katz patents.

26 Claim 44 provides support for the notion that the questions or prompts are vocal in nature. The third limitation in Claim 37, upon which Claim 44 depends, provides for "coupling said remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers." The specification also supports the idea that answer data is responses to vocal questions or prompts. See Column 7, lines 46 through 53 of the '707 patent.

During the prosecution of the '846 application, Katz distinguished his patent from a patent to DeBruyn. (Ex. 66). In an Amendment dated July 7,1997, Katz stated:

DeBruyn is silent as to the fourth and fifth steps of claim 31. These steps provide: "cueing callers with selected questions from a batch of questions;" and "receiving answer data . . . responsive to the selected questions." DeBruyn prompts callers for simple and fixed input: a phone number and a Lotto number, which can be confirmed and corrected in linear fashion. There is no suggestion or disclosure of selected "questions from a batch of questions." DeBruyn does not contemplate a selection of the same or different questions for different callers, from a batch of questions. DeBruyn, by its silence, can not imply cueing callers with those questions, nor receiving answer data in response to those questions.

It is clear that in these statements, Katz was distinguishing his patent from DeBruyn on the basis that DeBruyn did not select questions from a batch of questions or receive answers to those questions from a batch of questions. These statements clearly do not indicate that answer data cannot include any telephone number, including the number the caller is trying to reach.
Based on the foregoing, the Court concludes the term "answer data" to mean: responses from callers to vocal questions or prompts.

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Plaintiff argues that the term "antenna" does not need any construction. If the Court were to adopt defendants' construction, MHL argues that the Court exclude the word "designed" from the construction. Plaintiff argues that the invention uses the wheel already available in the vehicle, not one that was specially designed or intended by automakers to function as an antenna. The defendants argue that the word "designed" includes within the construction the fact that the system is configured to use the wheel as an antenna. The Court fails to read defendants' proposed construction as reflecting the intended meaning. The Court, therefore, construes "antenna" as "that part of a transmitting or receiving system that radiates or receives electromagnetic waves."

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"Antenna means"

The Court adopts CSIRO's proposed construction and construes the term "antenna means" to mean "a means for radiating or receiving radio waves." Nothing in the claim language, the specification, or the prosecution history supports Buffalo's contention that the term's meaning should be limited to "a means for transmitting and/or receiving radio frequency signals whereby the antenna in the mobile transceiver is a steerable antenna." Buffalo argues that the specification's language referring to a "steerable antenna" supports its interpretation, but the language Buffalo cites unmistakably designates steerability of an antenna as a preferred embodiment: "antenna 37 is preferably a steerable antenna which is electronically steerable." 069 Patent, col. 6:12-16. A preferred embodiment usually does not restrict construction of a patent's claims. See Nazomi Commc'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1369 (Fed. Cir. 2005) (claims may embrace "different subject matter than is illustrated in the specific embodiments of the specification"); see also Phillips, 415 F.3d at 1323; Teleflex, 299 F.3d at 1327. But see Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) (holding that "when the preferred embodiment is described . . . as the invention itself, the claims are not necessarily entitled to a broader scope than that embodiment"), overruled on other grounds by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558, 574 (Fed. Cir. 2000) (en banc) ("Festo I"). Buffalo tries to circumvent this clear principle of law by arguing that the relevant preference in the specification's text is distributed to the adverb "electronically" but somehow by-passes the adjective "steerable." This construction is grammatically untenable, and a claim must be read in accordance with the precepts of English grammar. In re Hyatt, 708 F.2d 712, 714 (Fed. Cir. 1983).

Therefore, the Court construes "antenna means" as "a means for radiating or receiving radio waves."

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13. "Recording Any Errors."

The court shall apply the ordinary definition of the words "recording" and "any." The term "recording" means "to set down for preservation in writing or other permanent form." 3 The term "any" means "the whole amount of; all." 4 Thus, the phrase "recording any errors" means "to set down for preservation all errors."

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A. ’413 PATENT

All of SLT’s contact probes have optically transparent distal ends made of either sapphire or quartz that transmit laser or radiant energy from a fiber optic cable. Almost all of the contact probes have an infrared coating that is sprinkled on this distal, transparent surface of the probe. This infrared coating, which does not cover the entire distal end, absorbs a limited portion of the radiant energy and converts it to thermal or heat energy. These contact probes also have a stainless steel connecting sleeve that secures the probe to the fiber optic cable. A coolant is supplied to the sleeve to prevent the connecting sleeve from heating. The sleeve also contains a port to vent the coolant.

The district court focused on claims 1 and 20, the only two independent claims of the ‘413 patent asserted against SLT. Claims 1 and 20 read as follows:

1. A localized heat applying medical device for applying heat to a site in a selected lumen in a patient's body, the device comprising in operative association:

an elongated light transmitting conduit having a proximal end and a distal end, and bulbous heat generating means mounted on the distal end, for converting light transmitted by the conduit in part to heat thereby raising the temperature thereof, the diameter of the bulbous heat generating means being larger than the diameter of said conduit, the bulbous heat generating means including a light transmitting aperture therethrough enabling light transmitted by the conduit in part to pass through the means into the lumen to directly impinge on a region thereof.

20. A localized heat applying medical device for applying heat to a site in a patient's lumen, the device comprising in operative association:

an elongated light transmitting conduit having a proximal end and a distal end and a heat generating element defining a cavity with vent means therein for permitting gas to escape from the cavity, the element being mounted on the distal end such that light transmitted by the conduit to the element is in part converted by the element into heat to raise the temperature of the element and the element can then be contacted with material in the patient's lumen to alter the material, the element including a light transmitting aperture through which a part of the transmitted light can pass to impinge directly onto the material; the conduit and heat generating element being adapted for insertion into the patient's lumen.

The district court focused on the claim term "light transmitting aperture" common to both claims 1 and 20. The district court found that the term was described in the specification as a "hole," "window," or "port," and concluded that it should be defined as "an opening in the tip of the device through which laser energy passes." Trimedyne, slip op. at 3 (C.D. Cal. May 8, 1996). The district court found that the accused SLT probes do not have such an aperture because the SLT device tip was entirely light transmissive and there was no evidence that the amount of light transmission could be controlled for clinical effect. Id. The district court additionally found that the accused SLT probes do not have "a cavity with vent means therein for permitting gas to escape from the cavity" as additionally required by claim 20. Id. at 3-4.

The district court held that SLT’s accused probes do not infringe under the doctrine of equivalents because SLT’s probes perform in a different way from that claimed in the ’413 patent. For instance, the district court found that SLT’s probes are light transmissive, but also transmit a "mix" of laser and thermal energy over the entire tip, whereas radiant energy is transmitted straight ahead through a "light transmitting aperture" in the tip of the ’413 claimed probe while the rest of the tip transmits only thermal energy. This difference the district court found creates a different therapeutic effect than SLT’s contact probes. Therefore, the district court granted SLT’s motion for summary judgment of non-infringement of the ’413 patent.

*   *   *

II. DISCUSSION
A. '413 PATENT

First, Trimedyne argues that the district court improperly construed the claim term "light transmitting aperture" from independent claims 1 and 20 as requiring an opening in the tip of the probe through which laser energy passes when the specification of the '413 patent teaches that the aperture can be a quartz window or lens, as in SLT's contact probes. Trimedyne also argues that the district court improperly decided a question of fact when it determined that SLT's contact probe tips or distal ends are entirely light transmissive. SLT applies a heat absorbing coating of carbon particles to the majority of its contact probes. Because such a coating is not perfect, Trimedyne asserts that laser energy escapes from the probe tip through the spaces between the coating's carbon particles. These spaces, Trimedyne asserts, constitute "light transmitting apertures" as claimed in claims 1 and 20.

Trimedyne also argues that during use of SLT's contact probes such an aperture is created. During use, carbonized tissue particles adhere to the surface of the tip, which increases the tip temperature. Through further use, the laser light burns an aperture through the "blackened" tip, which Trimedyne argues independently satisfies the "light transmitting aperture" limitation of the patent claims at issue.

Second, Trimedyne asserts that the SLT contact probes have the vents described in claim 20. Trimedyne argues that a gap is created between the fiber optic cable and the probe when mounted together. A hole or port communicates with the gap and can allow gases as well as liquid coolant to pass from the gap through the hole or port. This ability to vent gases, regardless of whether SLT uses the vent to do so, Trimedyne asserts, meets the limitation of claim 20. Therefore, Trimedyne concludes that at least a triable issue of fact exists concerning whether SLT's contact probes literally infringe the asserted claims of the '413 patent.

Lastly, Trimedyne argues that even if we agree with the district court, after construing the claims, that no literal infringement exists, triable issues of fact remain concerning whether SLT's contact probes infringe the '413 patent under the doctrine of equivalents. For instance, Trimedyne argues that SLT has admitted that its contact probes function to achieve the same therapeutic result as the claimed probe, i.e. to deliver heat to alter the tissue by coagulation, ablation, or vaporization.

SLT counters Trimedyne's arguments by asserting that its various contact probes do not infringe the '413 patent because they lack the claimed light transmitting aperture, vent means, and a bulbous heat generating means or element. First, SLT asserts that the district court properly construed the claim term "light transmitting aperture" to be a hole in an opaque heat generating element through which a portion of the radiant energy may be transmitted directly to the tissue. All of SLT's contact probes are made of quartz or sapphire, which are light transmissive, and therefore, SLT argues, they have no such discrete light transmitting aperture. Therefore, SLT's contact probes do not infringe the '413 patent, it argues, because the claimed probe allows laser energy to pass only through the small, single aperture, while laser energy may exit the entire surface of the distal end of SLT's contact probes.

Second, SLT asserts that the claimed means-plus-function element, "vent means," must function to "permit gas to escape from the cavity." SLT argues that its probes do not use the vents to perform the function of venting gas. Rather, force-driven coolant is used to keep the probe cool to avoid the build-up of such gases. Therefore, its vents do not perform the required function of venting gases.

Third, SLT asserts that its contact probes lack a heat generating element, an issue that the district court did not reach. The heat generating element or means when read in light of the specification, SLT asserts, requires an opaque material in which there is an aperture for transmitting direct laser radiation to the tissue. Because the distal end of SLT's probes are light transmissive with no opaque material, it asserts that it lacks the claimed heat generating element. Finally, SLT asserts that its probes are not bulbous because during the prosecution of the '413 patent the applicants distinguished probes such as SLT's with a cylindrical body portion and distal ends having the same or smaller diameter as the body portion. Because of this increasing diameter, SLT's contact probes have an increasing point of contact with the walls of a vessel when the probe is urged forward; exactly what SLT argues the claimed probe of the '413 patent was intended to avoid. Therefore, SLT asserts that the district court properly found that SLT’s contact probes do not literally infringe any asserted claim of the '413 patent.

SLT also agrees with the district court that none of SLT’s contact probes infringe the '413 patent under the doctrine of equivalents. Taken on an element by element basis, SLT argues that its devices do not perform in substantially the same way.
because SLT's contact probes diffuse laser energy throughout the entire probe surface whereas the claimed probe transmits laser energy only through the light transmitting aperture. This leads to substantially different clinical results, SLT argues. The lesion formed by the claimed device is a double crater; the outer crater mirrors the shape of the heat generating element and the inner crater reflects the intense, direct laser irradiation of the tissue from the aperture. The lesion formed by SLT's probes, on the other hand, is a single, uniform crater.

1. LITERAL INFRINGEMENT

Summary judgment is properly rendered when "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c); see also Johnston v. IVAC Corp., 885 F.2d 1574, 1576-77, 12 U.S.P.Q.2d (BNA) 1382, 1383 (Fed. Cir. 1989). In deciding whether a genuine issue of material fact exists, any evidence must be viewed in favor of the nonmoving party with any doubts resolved in its favor. O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1580, 42 U.S.P.Q.2d (BNA) 1777, 1779 (Fed. Cir. 1997). A grant of summary judgment is reviewed de novo. Conroy v. Reebok Int'l, Ltd., 14 F.3d 1570, 1575, 42 U.S.P.Q.2d (BNA) 1373, 1377 (Fed. Cir. 1994).

To determine on summary judgment whether SLT literally infringes any claim of either patent in suit, we first interpret the claims, and second, determine whether a reasonable trier of fact could find that every limitation in any construed claim at issue is found in SLT's accused probes. Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570, 1575, 34 U.S.P.Q.2d (BNA) 1673, 1676 (Fed. Cir.), cert. denied, 516 U.S. 987, 133 L. Ed. 2d 424, 116 S. Ct. 515 (1995). The primary issue presented in the appeal from the grant of summary judgment of the '413 patent is whether the district court properly construed the claim terms "light transmitting aperture" and "vent means for permitting gas to escape from the cavity." Claim construction is a question of law that we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2d (BNA) 1169, 1174 (Fed. Cir. 1998). In defining the meaning of key terms in a claim, the court may refer to the specification, the prosecution history of a patent, prior art, and other claims. Minnesota Mining and Mfg. Co. v. Johnson & Johnson Orthopaedics, 976 F.2d 1559, 1566, 24 U.S.P.Q.2d (BNA) 1321, 1335 (Fed. Cir. 1992) (citing Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1021, 4 U.S.P.Q.2d (BNA) 1283, 1286 (Fed. Cir. 1987)).

The distal end or head portion of the claimed contact probe is a generally rounded, heat generating element preferably made of metal, such as stainless surgical steel, or a combination of metal and ceramic. '413 patent, col. 6, ll. 52-55. This head portion or heat generating element is designed to absorb the radiant energy from fiber optic cable and convert it to heat. Id. at col. 5, ll. 55-60; col. 12, ll. 25-32. This heat is transferred primarily by conduction to ablate any obstruction. Id. at col. 12, ll. 31-32. The heat generating element is thus not light transmissive.

The light transmitting aperture as claimed in the '413 patent is first introduced in one embodiment as

a central aperture or bore which permits a portion of the light transmitted to the heat generating element to pass through the aperture and directly impinge upon a selected region of the plaque obstruction. With this form of heat generating element, both radiant and heat energy can be applied sequentially or simultaneously to the lumen or to the obstruction therein.

'413 patent, col. 3, ll. 11-18.

Under the Description of the Preferred Embodiments, the light transmitting aperture is described in more detail in relation to Figure 10 reproduced below.

[SEE FIGURE 10 IN ORIGINAL]

As illustrated in FIG. 10, tapered body portion 542 has a varying side wall thickness and partly defines a cavity 544. An optically transparent means such as a lens or window 546 is positioned within the head portion 543 so as to block the distal end of the cavity 544 against the inflow of body fluids and tissue components. The window 546 can be made of quartz, sapphire or other optically transparent material. Aperture or bore 550 in head portion 546 defines a communication port between the window 546 and the surroundings. The window 546 prevent bodily fluids or material that have entered the boring 550 from contaminating the end 532a of the fiber optic member 532. The thickness of the side wall of body portion 542 is less than the wall thickness of the head portion 543.
The light transmitting fiber 532 emits light or radiant energy from an end surface 532a which impinges upon a surface 548 of the window 546. As discussed earlier with respect to the embodiments of FIGS 1-8, radiant energy transmitted through the conduit 532 heats the heat generating element 536 when it impinges upon the surface 548. A portion of the radiant energy, such as the light beam designated by the legend R emitted from the surface 532a passes through the window 546 and the aperture 550 directly into the surrounding lumen. The radiant energy R then impinges upon a surface 154a of the obstruction 154. The sequential or simultaneous application of heat and radiant energy to the obstruction 154 softens or vaporizes the plaque thereby easing the advance of the heat generating element 536.

As a result of adding the port or aperture 530, light or electromagnetic energy as well as thermal energy, are sequentially or simultaneously applied to the obstruction 154 desired to be removed. By controlling the size of the aperture 550, it is possible to control the amount of power or energy delivered directly to the site.

"413 patent, col. 13, ll. 20-56.

On the basis of the above description of the aperture, we hold that the district court was correct in defining "light transmitting aperture" as a hole, window, port, or opening in the tip of the probe through which laser energy passes. The written description, including Figure 10, shows the aperture as a discrete hole or bore in the center of the distal end or head portion of the probe. Also, the aperture 550 and the transparent window 546 that is positioned within the aperture to transmit light are always described in the singular. Only one aperture and window are present within the distal head of the probe as described in the '413 patent, not a multitude of small apertures, as Trimedyne asserts, exist between the carbon particles of the infrared coating on some of SLT's contact probes. The reference to controlling the size of the aperture to control the amount of radiant energy for use with Trimedyne's contact probes further supports the conclusion that the claim limitation "light transmitting aperture" refers to a single discrete hole or opening.

"413 patent, col. 13, ll. 20-56.

2. "apparatus" and "system" 6

6 The pertinent claims identified by the parties are: '677 patent (claims 2, 22, 37, 39, 40, 46), '249 patent (claims 1, 2, 6-8, 20, 21, 25, 28, 42-44, 48, 52-54), '698 patent (claims 1-3, 6, 7), and '315 patent (claims 1, 2, 4-7, 12-19, 21-23).

As with the term "automated," AutoScribe argues that because "apparatus" and "system" are included in the identified claims' preambles, they should not be construed. 7 This argument, however, flies in the face of the patents' disclosures and therefore is wrong. Unlike "automated," which was referred to most often in the preamble of the relevant claims, the terms "apparatus" and "system" are consistently used in the body of the claims. Indeed, they are used in the body of 42 out of the 45 identified claims. Even in those claims where the terms are used solely in the preamble, they breathe life and meaning into the claims, not by describing a purpose or intended use, but by adding structure to them. Thus, the argument that the terms are located in the preamble and therefore should not be construed, simply ignores how the patentee chose to claim his invention and thus is inapt. Accordingly, both terms will be construed.

7 It is worth noting that this argument was first articulated in the Joint Chart. In its claim construction brief, AutoScribe contended that they were limitations that should be construed. (Def.'s May 22, 2003 Br. at 24).
is used by a "system operator"); claim 37 (claiming an "automated apparatus" and then referring to that apparatus as a "system" in the body of the claim). Moreover, the parties proffer the same definition for both terms. Thus, they will be given the same construction.

Both parties cite to the specifications of the patents to support their slightly different constructions. AutoScribe, generalizing based on its references to the ’677 specification, argues that the terms mean "computer hardware installed with computer software." (Joint Chart at 2). Intell-A-Check, quoting a particular portion of the specification, argues that they mean "a computer, with a display screen, keyboard and printer, on which the required software program is running." (Id. at 1-2 (quoting ’677 patent, col. 6, lines 40-44)). Although they agree that both terms involve a computer running on the appropriate software, 8 AutoScribe's definition is very general, effectively not limiting the definition to any type of computer hardware used by the operator, whereas Intell-A-Check's definition is more narrow, and limits the system to a computer, keyboard, display and printer. Thus, the issue boils down to what type of computer system, if any, is required by the relevant claims.

--- Footnotes ---

8 The intrinsic records supports the parties' agreement. See, e.g., ’677 patent, claims 2, 22 ("wherein said apparatus is implemented on a computer using software"); ’249 patent, claims 1 and 7 ("automated computer-based apparatus . . . wherein said apparatus is implemented using software"); ’315 patent, claim 12 ("a standalone personal computer apparatus").

--- End Footnotes ---

In this case, Intell-A-Check has the better argument. There is no dispute that the computer requires at least an input device and a display device. Thus, the issue devolves into whether a printer is included in "system" and "apparatus." All of the claims, but one, explicitly require the production of a paper draft. Claim 10 of the ’315 patent does not. AutoScribe argues that is because claim 10 does not produce a paper draft, but is directed to a paperless transaction. 9 However, that construction is not supported by the ’315 patent's disclosure. Indeed, the ’315 specification directly contradicts such a construction.

--- Footnotes ---

9 Claim 10 of the ’315 patent reads:

An automated process for making payments from a payer having a financial account at a financial institution to a payee based on authorization in a telephone conversation between the payer and a system operator representing the payee, comprising the steps of:

- providing an automated payment order computing system having an input screen for receiving payment order input information;

- conducting a telephone conversation with a payee who has not previously authorized payments to payee by telephone, in which said system operator obtains said payment order input information, including at least identification of said financial account and a financial institution identification code identifying said financial institution holding said financial account, and contemporaneously enters said payment order input information in said input screen;

- using said computing system, automatically verifying said financial institution identification code contemporaneously with system operator entry of said draft input information, by comparing said code to entries in an institutional database and determining whether said code matches an entry in the database;

- if said code matches an entry in the database, retrieving identifying information about the institution and displaying said identifying information for the system operator whereby the system operator may verify institution identification with the payer;

- if said code does not match an entry in the database, displaying an error indication to the system operator whereby the
operator may request corrected information from the payer;

using said input information, generating an electronic record containing information sufficient to generate an order to pay an amount authorized by said payer to said payee; and

processing said electronic record and transmitting information to a central clearing system for processing to cause a transfer of funds from said payer account to said payee.

(Emphasis added).

The Abstract of the '315 patent summarizes the claimed invention as follows:

A system and method of collecting payments uses an automated system to generate a draft, payable to the creditor and drawn on the payor's checking account, pursuant to the payor's authorization. The draft is then executed by the debt collector as authorized signatory for the payor, and deposited into the payee's account to complete payment. The automated system has a simple input screen which receives the necessary information for generation of the draft . . . . When verification is complete, the system generates a paper bank draft payable to the payor . . . . '315 patent, Abstract (emphasis added).

Similarly, the "Field of Invention" depicts the invention as a system that generates a printed draft. '315 patent, col. 1, lines 17-19 ("The present invention relates to systems and methods for collecting payments using an automated draft printing system operated by a payment collector.") (emphasis added). Further, and probably of greatest significance to determining whether the patentee limited the construction of the term "apparatus" and "system," is the statement in the '315 specification that differentiates the patented system from one that allows electronic funds transfers. The '315 specification states in pertinent part:

One solution to the problems of reliably collecting repeated payments is a pre-authorized electronic debit. Many large and well-connected creditors, such as banks and the finance arms of automobile manufacturers, generate monthly tapes of authorized payments which are then processed electronically within the banking system. Funds are withdrawn from the checking account of the consumer and transferred directly to the creditor. . . . Such electronic funds transfers cannot be authorized by telephone; a written authorization is legally required, so that immediate authorized collection of a debt cannot be accomplished by this method. '315 patent, col. 2, line 53 - col. 3, line 5 (emphasis added).

As clearly described by the patentee, the patented invention allows for the immediate collection of debts. See, e.g., '315 patent, col. 3, lines 37-41 ("Therefore, the inventor believes there is a need for an improved system and method for collection of debts which can be used for immediately debiting a debtor's bank account when the debtor authorizes this collection method by telephone."). Because electronic funds transfers could not be authorized by telephone, in contradistinction to the patented invention, a person of ordinary skill in the art reading that specification would understand that electronic funds transfers were not included within the scope of the patent. In fact, the patentee represented as much when prosecuting the application that matured into the '677 patent by stating, "the electronic debits of the banking system do not suggest the present invention or provide its advantages." Application No. 07/959,930, May 14, 1993 Petition to Make Special for New Application at 10.

"Where the general summary or description of the invention describes a feature of the invention (here, [immediate debt collection authorized by telephone]) and criticizes other products (here, [electronic funds transfers]) that lack that same feature, this operates as a clear disavowal of these other products (and processes using these products)." Astrazeneca, 384 F.3d at 1340. Thus, the patentee disavowed electronic funds transfers authorized by telephone in the specification. Since the method in claim 10 requires obtaining authorization during a telephone conversation, it cannot encapsulate electronic funds transfers; rather, it must be construed to include the production of a paper draft which provides the necessary written authorization to immediately collect the debt owed. In other words, the disputed terms shall be construed to include a printer.

In sum, the terms "apparatus" and "system" mean "computer hardware running with the required software program,"
Finally, we turn to the language "apparatus for producing a fixed code signal and for combining said fixed code signal with a rolling code signal," appearing in claim 3. In the specification's summary of the invention, the patentee defined "rolling or variable code" as a code "changed with each actuation of the transmitter" (3:15-16). Comparing the two, the patentee defined "fixed code" to "remain the same for each actuation of the transmitter" (3:16-17). As we understand the invention, the fixed code signal acts as an identifier for the receiver, and therefore, the make-up of the fixed code must remain the same for each activation. Thus, if the fixed code is 123, it must remain made up of 1, 2, and 3, such that the receiver can recover the fixed code. Such a static make-up is compared to the rolling code, which, in addition to potential encryption, changes its make-up after each activation. Based on that understanding, and the language in the specification, we find that "fixed code signal" is "a coded signal representing a fixed code generated by the processor."

Chamberlain encourages us to further define "fixed code" to include the clause "regardless of how it is later encrypted before or during the RF (radio frequency) transmission." Defendants disagree, arguing that not only must the make-up of the fixed code remain unchanging, but the representation of the make-up must remain also fixed, up until and through the transmission of the radio frequency signal. So, under defendants' construction, if the fixed code is 123, it must remain 123, and cannot ever be encrypted - for example, mirrored to read 321. Defendants state that because, "[i]n the only embodiment shown, the same fixed code signal is generated and transmitted with each transmitter activation," the "fixed code" must remain the same in each transmission (Lear's Markman position slides, p. 20). First, we note that both parties' arguments anticipate an infringement dispute and should not necessarily be part of the claim construction. Therefore, we decline, at this stage, to define "fixed code" beyond "a coded signal representing a fixed code generated by the processor." We do recognize, however, that the Federal Circuit teaches us that "[a]bsent a clear disclaimer of particular subject matter, the fact that the inventor may have anticipated that the invention would be used in a particular way does not mean that the scope of the invention is limited to that context." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 909 (Fed.Cir.2004) (internal citations omitted). Although the patent does not specifically indicate that the fixed code may be encrypted, it does not clearly disclaim such an embodiment occurring outside of the activation of the transmitter. n5 See Innova/Pure Water, Inc., 381 F.3d at 1117 ("[E]ven where a patent describes only a single embodiment, claims will not be 'read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction'). In fact, claims 4 and 17 indicate that the fixed binary code is "interleaved" or "combined" with the binary rolling code. Such claim language indicates that the radio frequency signal, which contains the "fixed code," can be altered before or during the radio frequency transmission (as long as the original fixed code can be recovered by the receiver). Therefore, at this point we will not read the preferred embodiment to limit a broader claim. Based on our understanding of "fixed code," we adopt plaintiff's construction of "apparatus for producing a fixed code signal and for combining said fixed code signal with a rolling code signal" to mean "a processor programmed to 1) produce a message carrying information indicative of a non-changing code and also 2) combine that message with a message carrying information indicative of a rolling code."
distributed capacitance disposed in a semiconductor circuit"

The parties agree that the term "plurality" means "two or more." The parties also agree that the phrase "conductive lines having inherent distributed capacitance" as recited in the claim preamble lends meaning to the phrase "said conductive lines" as used in the body of the claim. The parties disagree, however, on the meaning of the phrase "conductive lines having inherent distributed capacitance." Atmel argues that this phrase refers to any line in a semiconductor circuit capable of conducting electronic current and storing electronic charge. ISD counters that this phrase refers only to lines in a memory array having numerous, evenly spaced capacitive elements, and that only word lines can meet this requirement. The Court construes this claim element according to the ordinary principles of claim construction.

The Court finds that the ordinary meaning of the term "conductive line" is a line capable of conducting electronic current. Because the phrase "inherent distributed capacitance" does not have a clear meaning, however, the Court looks to the specification to determine what the patentee meant by this phrase. The specification notes that, "although this disclosure has been made with reference to raising the voltage on a word line in a memory array, those skilled in the art will recognize that other lines, such as y-lines, select lines, and write lines may be pumped up to higher voltages by use of this invention." '811 Patent, 7:26 - 31. Furthermore, Figure 4 of the '811 Patent depicts the invention connected to several types of conductive lines. The specification, in explaining Figure 4, notes that the charge pump circuits are connected to "lines in the memory array which require programming voltages, namely, x-lines (word lines), y-lines, write lines (two shown), and the sense line." '811 Patent, 7:46 - 8:3. The specification language clearly indicates that the patentee intended the phrase "conductive lines having inherent distributed capacitance" to mean more than just word lines.

The Court rejects ISD's argument that the prosecution history and specification show that the patentee intended to limit his invention to word lines in a memory array only. While much of the specification does relate to word lines, the disclosure of a preferred embodiment in a specification should not generally be used to limit a patent's claims, especially in a case as this where portions of the specification clearly evidence an intent to include other types of conductive lines. Furthermore, in reading the prosecution history, the Court finds that the patentee's statements are not inconsistent with the unambiguous language in the specification referring to different types of lines, even if the patentee did focus on the preferred embodiment. (Declaration of Nitin Subhedar, Ex. 2.)

Atmel urges the Court to rule that any line in a semiconductor circuit that can conduct electronic current and store electronic charge is a conductive line having inherent distributed capacitance. Atmel points to language in the specification that the disclosed invention "can be used anywhere where an on-chip generation of high voltage is required to supply small amounts of current." '811 Patent, 7:14 - 16. The Court agrees with ISD that Atmel's construction would not lend sufficient meaning to the phrase "inherent distributed capacitance" because almost all conductive lines disposed on a semiconductor substrate would fall within this definition, and the claim already requires that the conductive line be "disposed in a semiconductor circuit." ISD has conceded, however, that construing "conductive lines having inherent distributed capacitance" as those relatively long lines in a semiconductor memory array having a great deal of capacitance distributed along their length that must be accounted for in the operation of the claimed circuit would read on word lines, y-lines, write lines, and select lines.

For these reasons, the Court adopts the following construction of this claim element:

A conductive line is any line that is capable of conducting electrical current. A conductive line having inherent distributed capacitance is a conductive line in a semiconductor circuit that has capacitance distributed along its length that must be accounted for in the operation of the claimed circuit, and includes word lines, y-lines, write lines, and select lines.

For this term, the parties' dispute relates to what is required for the claimed "redundancy code" (error correcting code) to be "appended to the ends of" the user data. Defendants contend that the claimed redundancy code must be attached immediately adjacent to the user data and plaintiff says the only limitation is that "no other user data" may intervene between the end of the user data and the redundancy code generated from that data.
The plain meaning of the language controls here. As plaintiff points out, the word "appended" could mean "attached to" without requiring immediate adjacency. Think of a set of exhibits "appended to" a brief; not all of the exhibits are immediately adjacent, but any of them could be said to be "appended to" the brief. The problem is that the claim language is more specific: the phrase is "appended to the ends of." The added phrase "to the ends of" emphasizes exactly where the code must be attached.

Plaintiff contends that the phrase "appended to the ends to" has been used loosely to indicate only that data comes after other data. In particular, U.S. Pat. No. 5,551,020 (the Flax patent) discloses information "appended to the ends" of a string and contrasts it with information "appended to the beginning" of the string. There are two problems with this argument. First, plaintiff fails to point to anything in the Flax patent suggesting that the attachment "to the ends" and "to the beginning" was not attached immediately to the ends. Second, even if plaintiff could show the term was used loosely in that patent, the circumstances were different; there the patent contrasted data "appended to the ends" with data "appended to the beginning," suggesting that the phrase "to the ends" served the purpose of emphasizing at which location the data was stored. In this case, that added emphasis is not needed because there is no contrast of the data with data stored elsewhere.

Plaintiff's next argument is that the claim cannot require immediate adjacency because that would interfere with another feature claimed in the invention related to "fill bytes," which are used to fill in defects in the block. Figure 4 of the '893 patent shows an example of how a relationship between user data (labeled "DATA" in the figure) and redundancy code (labeled ECC in the figure) would appear in a "perfect world."

The "SPARE" bytes represent the space that the data may shift if fill bytes are inserted at places in the data "to avoid bad columns." '893 pat., col. 13, lns. 26-29. According to plaintiff, fill bytes could be inserted anywhere, including at the very beginning of the redundancy code. If so, the redundancy code would no longer be immediately adjacent to the user data.

Plaintiff's theory has two problems. First, plaintiff does not explain why the "fill byte" feature of the invention would have to work alongside the feature requiring the redundancy code to be "appended to the ends" of the user data. The only claim plaintiff identifies that includes the "fill byte" feature is claim 60, which depends from claim 52. The claim at issue here is claim 58, which also depends from claim 52. Plaintiff does not explain why these separate dependent claims must be construed in a way that makes them both work together and no principled basis for doing so suggests itself.

Second, even if the present claim language should be construed in a way to accommodate the "fill byte" feature, it would not warrant leaving the construction as wide open as plaintiff proposes (to allow anything but user data to intervene). At most, such an accommodation would allow the redundancy data to be attached either directly to the user data or to fill bytes that are attached directly to the user data. Plaintiff has not indicated it would be satisfied with this accommodation, so adopting it seems unjustified. I conclude that "individual ones of the redundancy codes being appended to the ends of the user data from which they are generated" requires the redundancy code to be attached immediately adjacent to the user data.

IDNT and VeriSign agree that "appending" means "attaching," but dispute whether the term should be construed simply as "attaching" (IDNT) or as "attaching to the end of" (VeriSign). In other words, the dispute regarding the construction of "appending" centers on whether, in the claims at issue, the redirector string must be attached to the end of the domain name, or whether it must simply be attached to the domain name, with the location being unspecified.

Where, as here, the patent applicant has not acted as his or her own lexicographer, the process for determining the acquired meaning of a word in a claim begins with the presumption that the word (or term) has its full ordinary or accustomed meaning. Johnson Worldwide Assocs. v. Zebo Corp., 175 F.3d 985, 989 (Fed. Cir. 1999). If a word has a meaning from the ordinary use of the English language, then the word is presumed to have acquired that meaning. Nat'l Recovery Techs. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1195 (Fed. Cir. 1999). In addition, however, if the word had a customary
meaning known at the time of invention to one with ordinary skill in the art to which the patent pertains, then the word is presumed to have acquired that meaning. Arthur A. Collins, Inc. v. Northern Telecom Ltd., 216 F.3d 1042, 1044-45 (Fed. Cir. 2000). If there is both an ordinary meaning and a customary meaning, and the two are in conflict, then the customary meaning to persons skilled in the relevant art is the presumed meaning. Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed. Cir. 1999).

Nevertheless, ascertaining the presumed meaning is not dispositive by itself of the acquired meaning of the word (or term) in a patent claim, because the court must also consider the particular use of those words in the patent. Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999).

In construing claim terms, the general meanings gleaned from reference sources, such as dictionaries, must always be compared with the use of the terms in context, and the intrinsic record must always be consulted to identify which of the different possible dictionary meanings is most consistent with the use of the words by the inventor.

Ferguson Beauregard/Logic Controls, Div. of Dover Resources. Inc. v. Mega Sys., LLC, 350 F.3d 1327, 1338 (Fed. Cir. 2003): see also Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir.2001) (claims are directed to invention described in specification; they have no meaning removed from context from which they arose); Toro, 199 F.3d at 1299 (words of ordinary usage must be construed in context of patent documents; court must determine how a person of experience in field of invention would, upon reading the patent documents, understand words used to define the invention); Renishaw, 158 F.3d at 1250 (interpretation to be given claim term can be determined and confirmed only with full understanding of what inventors actually invented and intended to envelope with claim). In addition, it may be necessary for the court to consider the use of the claim language and the patent applicant's statements in the patent's prosecution history, as the claims issue after an examination process. Toro, 199 F.3d at 1299.

In sum, if the patentee is not deemed to be the lexicographer, the court can determine the acquired meaning of the claim language only by ascertaining the acquired meaning of the term, and then testing this meaning against the particular use of the word in the patent and possibly against the particular use in the patent's prosecution history. Cortland Line Co., Inc. v. Orvis Co., Inc., 203 F.3d 1351, 1356-57 (Fed. Cir. 2000). While it is important that the court determine the context and usage of the words in the patent claims by examining the specification, the prior art, and other evidence (including dictionaries and treatises) showing the understanding of those skilled in the art, "a court must resist relying on any of these sources in a vacuum because they each influence the understanding of one of skill in the art at the time of invention." Alloc, 342 F.3d at 1368.

Here, each party claims that its proposed construction is consistent with the ordinary meaning of "appending." Dictionaries provide evidence of a term's "ordinary meaning." Texas Digital Sys., 308 F.3d at 1202. Such dictionaries include standard dictionaries of the English language, which in most cases will provide proper definitions, as well as technical dictionaries, encyclopedias, and treatises, which may be used for establishing specialized meanings in particular fields of art. Inverness Medical Switzerland GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1369 (Fed. Cir. 2002). IDNT contends that the ordinary meaning is the meaning set forth in a standard dictionary, citing the Merriam-Webster Collegiate Dictionary, which defines "appending" as "attaching." VeriSign asserts that the ordinary meaning is the meaning set forth in two technical dictionaries -- Webopedia, an online dictionary that specializes in Internet terminology, and the Random House Webster's Computer and Internet Dictionary, both of which define "appending" as "adding to the end of or "attaching to the end of." 12

12 IDNT also asserts, however, that there are other technical dictionaries that define "appending" as "attaching" without the limitation of "to the end of," such as the on-line Computer Hopes Computer Dictionary which defines "append" as "attach or combine," and the Webster's New World Dictionary of Computer Terms, which defines "append" as "add on."

A review of a range of both standard and technical dictionaries shows that "append" has multiple, though related, meanings. The "general-use" dictionaries consulted by the court define "append" as follows: (1) attach, affix; to add as a supplement or appendix (as in a book) (Merriam-Webster's Collegiate Dictionary (10th ed., 1999)); (Webster's II New Riverside University
that an accused infringer cannot "narrow a claim term's ordinary meaning . . . simply by pointing to the preferred
preferred embodiments.'" CVI/BETA Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1158 (Fed. Cir. 1997). IDNT also argues
preferred embodiments from the specification. IDNT contends that "it is fundamental that claims of a patent are not limited
to; attach (American Heritage Dictionary of the English Language (4th ed.) (http://www.bartleby.com)).

The court has also consulted a number of self-styled "computer" or "Internet" dictionaries, which provide the following
definitions: 13 1) to add something to the end -- for example, to append one file to another, or to append a file to a record;
"append" always means to add at the end, while "insert" means to add in between (Webopedia
(http://www.webopedia.com)); (Random House Webster's Computer and Internet Dictionary (3d ed. 2000)); 2) to add the
contents or a list, or file, to those of another (Newton's Telecom Dictionary (17th ed. 2001)); 3) to attach or combine
(Computer Hopes Computer Dictionary (http://www.computerhope.com)); 4) to add on, for example, to add new records to
a data base or to add to the end of a character string or list (Webster's New World Dictionary of Computer Terms (3d ed.
1988); 5) state or say further; fix to, attach; add to the very end (HyperDictionary (http://www.hyperdictionary.com)); and 6)
to add to the end of an existing structure (TechEncyclopedia (http://www.techweb.com/encyclopedia).

A review of all these definitions shows that "append" generally means "attach" in the sense of "add to the end of." One
definition that appears repeatedly in the general-purpose dictionaries is "attach or add to a piece of writing," while the
definition in several of the computer/Internet dictionaries is "attach or add to the end of a file [or list or data base or existing
structure]." Nevertheless, where a term has more than one meaning when standing in isolation, the court must consider the
use of the term in context. Inverness Med., 309 F.3d at 1370. VeriSign argues that its proposed construction is supported by
the usage of the term in the specification, and is also supported by the prosecution history. VeriSign cites to two instances in
the description of the preferred embodiments where "appending" is used to exemplify attaching something -- such as a
redirector string or one or more domain labels -- at the end of something else -- such as another domain label. VeriSign also
notes that there is no instance in the 148 patent specification where "appending" refers to adding or attaching something to a
position other than the end.

The first example is taken from an illustration of the translation process. It lists several steps, one of which is "construct the
final domain name by appending the redirector information to the FC1035-compliant domain name obtained above." Col. 7,
lines 35–42. VeriSign notes that in this example, the redirector information ".ar.il8n.net" is added to the end of the initial
string. The second example is the following:

The string "ar.il8n.net" is redirector information 130 that is appended to the converted string and functions like a top level
domain, and identifies the authoritative domain name server responsible for the current domain name. Once the redirector
information is appended to the domain name, the domain name becomes a fully qualified domain name (FQDN). A fully
qualified domain name includes at least a top level domain and a secondary domain which is enough information to resolve
the domain name.

Col. 7, lines 50–58. VeriSign asserts that, by definition, the redirector information or redirector string is added to the end of a
domain name to make the domain name a fully qualified domain name. VeriSign claims that any other position of the
redirector string with respect to the domain name to which it is attached would render the entire string useless for resolution.

IDNT responds, however, that VeriSign is improperly attempting to limit the meaning of "appending" by incorporating the
preferred embodiments from the specification. IDNT contends that "it is fundamental that claims of a patent are not limited
by preferred embodiments." CVI/BETA Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1158 (Fed. Cir. 1997). IDNT also argues
that an accused infringer cannot "narrow a claim term's ordinary meaning . . . simply by pointing to the preferred
VeriSign also argues that its proposed construction is supported by the prosecution history, where the patent owner, in discussing the primary reference applied against the claims, notes that "the user is required to manually enter the suffix i-DNS.apng.org' in order to point the request to the i-DNS Proxy server to properly resolve the request." VeriSign argues that it is clear from this i-DNS reference that "appending" means "adding something at the end," and asserts that the patent owner clearly understood that the term "append" is equivalent to a "suffix," something that is placed at the end of that which precedes it.

IDNT submits, however, that VeriSign's proposed construction conflicts with the way the word "appending" was used in the prosecution history. During prosecution, the patent application (Dr. Walid Tout) commented on the i-DNS reference as follows: "The [prior art] iDNS publication teaches a system that requires the user to manually enter and append a predetermined suffix." IDNT contends that if "append" is construed as "attach to the end of," as VeriSign claims it should be, then the word "suffix" is superfluous in the quoted sentence.

The court is persuaded that VeriSign's proposed construction is the proper one. The term "append" does not convey any special technical meaning; however, its use is "technical" in the sense that it is used in conjunction with the term "redirector string," and in the sense that the person skilled in the art is a person familiar with Internet applications of computer programming or computer science. Thus, the definitions in the computer/Internet dictionaries are likely to more closely reflect the usage of "append" in the context of domain labels and character strings.

The court finds, moreover, that the term "appending" is not ambiguous, because the claims and the written description provide sufficient information to guide the court's interpretation of the term. See Renishaw, 158 F.3d at 1251-52. The examples in the specification -- illustrating the "appending" of redirector information, or a redirector string, to a domain name -- all indicate that "appending" means "attach to the end of." There is no indication anywhere in the specification of a system that would allow the redirector string to be attached to the front of, or to be inserted in the middle of, a domain name.

Nor is the court persuaded by IDNT's argument that the use of the word "suffix" in the prosecution history indicates that the concept "add to the end" cannot be considered part of "appending" because that concept is conveyed by "suffix. In the court's view, the word "suffix" in the quoted sentence is simply being used to underscore that "append" is being used in the sense of "attach to the end of rather than in the sense of "attach somewhere."

I. Remote Interface
A. Construction of Claim Term

Each asserted claim of the '007 Patent requires a "remote interface," or depends from a claim including this or the synonymous limitations: "applicant interface" and "remote applicant interface." 5 The court construed these terms, collectively, as follows:

For purposes of the '007 [Patent], these terms refer to dedicated computer equipment, meaning equipment supplied by the entity providing the financial account or service, such as but not limited to equipment housed in a kiosk, which allows the applicant . . . to provide information to and receive information from a data processing system and which facilitates completion of all steps of the claim involving interaction between the applicant . . . and the data processing system.

Dkt No. 111 at 3 (emphasis added).

5 Some of the claims in the '007 patent use the terms "applicant interface" or "remote applicant interface." The manner of use suggests that these terms and "remote interface" are interchangeable as used in the '007 patent. In any event, the parties agreed that they should be construed uniformly. References in this order to "remote interface," therefore, also encompass the terms "applicant interface" and "remote applicant interface."
3. "applicable pricing adjustment(s)"; "applicable price adjustment(s)"; "pricing information applicable"; "applicable pricing information"

<table>
<thead>
<tr>
<th>Disputed Claim Term or Phrase</th>
<th>Versata's Proposed Construction</th>
<th>SAP's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;applicable pricing adjustment(s)&quot;; &quot;applicable price adjustment(s)&quot;</td>
<td>Plain meaning. If further construction required, this term means: associated adjustment(s) related to pricing.&quot;</td>
<td>a pricing adjustment that corresponds to a given level in the pricing hierarchy either because that pricing adjustment is associated directly with that level, or because that pricing adjustment is associated with a higher level in the hierarchy.</td>
</tr>
<tr>
<td>&quot;pricing information applicable&quot;; &quot;applicable pricing information&quot;</td>
<td>Plain meaning. No construction needed. If further construction required, this term means: &quot;associated information related to pricing.&quot;</td>
<td>pricing information that corresponds to a given level in the hierarchy either because that pricing information is associated directly with that level, or because that pricing information is associated with a higher level in the hierarchy.</td>
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The fundamental dispute here is the definition of "applicable." In construing the term, SAP urges a definition that includes adjustments or information corresponding to a hierarchy at the same level or at a higher level. Versata argues that the terms need no construction.

Versata asserts that the limitation imposed is improper for generally three reasons. First, the limitation makes further claim limitations superfluous. For example, the pertinent portion of claim 1 of the '400 patent reads as follows:

retrieving applicable pricing adjustments corresponding to each of the following:

a particular purchasing organization;

each organizational group above said particular purchasing organization in said organizational group hierarchy;

a particular product; and

each product group above said particular product in said product group hierarchy . . . .

Versata argues that the suggested limitation would render the above-emphasized portions unnecessary. Second, Versata argues that SAP's construction would not allow for price adjustments from more than a single level of a branch of a hierarchy in direct contravention of the specification. See, e.g., '350 Patent, col. 9, l. 56-col. 10, l. 8; col. 10, ll. 23-30.
Finally, Versata argues that the asserted limitation would require that adjustments come from a specific level, again contrary to the specification. See '350 Patent, Fig. 4A; col. 7, ll. 18-20; cl. 18; cl. 9.

SAP does not address many of Versata's arguments, but instead generally asserts that the use of "higher" will alleviate jury confusion or misinterpretation by the jury of Fig. 4B or the concept that a price adjustment is applicable based upon higher levels in the hierarchy--in essence, SAP wants to emphasize that the price adjustments roll downhill, not up.

The court agrees with Versata. Read in context of the claim as a whole, the alleged explanatory language/definition suggested by SAP would not clarify nor simplify the terms of the claim.

As such, the court gives the above terms their plain meanings.
collection applications and libraries. Thus, Defendants' construction restricting the application generator to turning "menu selection" to code is unsupported. Instead, as explained by the patent and viewed in the context of the extensive appendix on application generation, the "application generator" is a tool for creating questions (in the form of data collection applications) and answers (in the form of libraries).

On the other hand, Typhoon's suggested definition requires that the "application generator" also "customize[s]" applications. The patents do not describe a difference between the creation of applications and libraries and their customization. Additionally, the ordinary meaning of "customize" is inherently subjective. See The American Heritage College Dictionary 341 (3d ed. 1997) (defining "customize" as "to make or alter to individual or personal specifications"). Finally, as the definition suggests, "creation" necessarily includes the ability to "customize." Therefore, the addition of the phrase "and customize" in Typhoon's proposed definition is inappropriate. See Datamize, 417 F.3d at 1350. Accordingly, "application generator" is defined as "a software tool used to develop data collection applications and libraries."

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1. Application program

The term "application program" appears in claim 8 of the '201 patent. Seven argues that this term simply means "software." Visto proposes that the term means "a hardware independent program on the client created using the FormLogic Builder for performing tasks such as allowing remote database or email access." Seven's proposed definition is too broad. Not all software constitutes an application program. At the same time, Visto's proposal is too narrow, given that it is limited to the preferred embodiment. The court defines "application program" as "software that performs tasks for an end user."

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1. "application program"

Claim 1 of the '819 patent requires a master unit communicating with a plurality of remote units. The remote units must be executing "application programs." The parties dispute the construction of this term. The plaintiff defines the term to mean "a computer program or process." The defendants propose "a program designed to assist in the performance of a specific end-user task (e.g., word processing, accounting, or inventory management) in contrast to a program designed to perform management of or maintenance work on the system or system components."

The ordinary meaning of the term "application program" is software that performs tasks for an end-user. Despite the parties' arguments for different constructions, the court discerns nothing in the patent or the prosecution history that would vary the ordinary meaning for this term. As such, the court defines "application program" to mean "software that performs tasks for an end-user."

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3. "[A]pplication programs" are sequences of machine-level instructions capable of execution on a processor. This construction is consistent with claims 13, 15, and 20, as well as the specification: col. 9:66-10:15.
20. "API": The interface between the application software and the application platform, across which all services are provided.

N18 '203, '212 and '615 patents, multiple claims.

(D.I. 266, exs. R, S)

11. Application Program Interface (API) calls

The parties dispute the meaning of "Application Program Interface (API) calls." Foundry asserts that the ordinary meaning of "Application Program Interface (API) calls" is "a set of formalized software calls that can be referenced by an application program to access underlying services." On the other hand, Lucent submits that "Application Program Interface (API) calls" should be construed to mean "a set of formalized software calls that can be referenced by an application program to access underlying network services." The court adopts Foundry's definition and construes "Application Program Interface (API) calls" accordingly.

ASP and NSP

Two new terms, Access Service Provider ("ASP") and Network Service Provider ("NSP"), are coined by the patentee to claim the invention in the 290 patent. In the lexicon of the 290 patent, an ASP performs many of the same log-in and authentication functions performed by the disclosed prior-art Internet Service Providers ("ISPs"), and an NSP acts similar to prior-art Network Access Providers ("NAPs"), providing the physical connection between the customer and internet. However, the coined terms are not completely analogous to their well-known prior art counterparts. Indeed, these coined terms help delineate the 290 patent's claimed invention from prior art internet access systems, such as those using Remote Authentication Dial-In User Service ("RADIUS") servers for authentication management.

The term "ASP" (or variation thereof) appears in every asserted claim of the patent-in-suit. "NSP" appears in all asserted claims except independent Claim 3 and dependent Claims 4 and 5. MyMail asserts that ASP should be defined as "a party that offers network access service to the user via one or more NSPs" and NSP should be defined as "a party other than the ASP that provides the actual connection to the network." Defendants propose defining ASP as "an ISP broker including a server that (1) has a public Internet address, (2) maintains ISP-specific user IDs and passwords for multiple ISPs, and (3) transmits to the user's computer a user ID and password for a particular ISP selected by the broker based on the user's location and the user's preference for a type of Internet service (such as lowest cost service, highest reliability service, and most available service)" and NSP as "a provider of network services (such as an ISP) that (1) authenticates its customers for access to its services (such as Internet access, email, etc.) based on user IDs and passwords that are specific to the provider, and (2) grants its customers Internet access directly from a modem bank."

To properly define these coined terms, the Court first looks to the ordinary meaning of each component word in ASP and NSP. See Bancorp Servs., 359 F.3d at 1372. That however provides little insight into the meaning of either coined term, so the Court next looks to the specification. See Goldenberg, 373 F.3d at 1164. Although the definitions proposed by both MyMail and Defendants find some support in the specification, when construing terms like NSP and ASP that lack an
accepted meaning in the art, the Court must construe the terms as broadly as provided for by the patent itself. Irdeto Access, Inc. v. EchoStar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004). The Court thus rejects both sets of definitions since both import unnecessary limitations and neither reflect the breadth provided in the specification, figures, and claims.

Figure 1 of the 290 patent provides that a user dials into an NSP, is authenticated, and then connects to the internet. The user next communicates, over the internet, with an ASP. The ASP again authenticates the user and (re)assigns him to an appropriate NSP, which provides internet access for the rest of the session. The specification teaches that the ASP offers network access via multiple NSPs, see Col. 8:32-34, but Claim 8 establishes that an ASP works with either a single NSP or multiple NSPs. Accordingly, the Court defines NSP as "a party that provides a connection to the network and authenticates users for access to the network" and ASP as "a party that provides authenticated access information to a user through the network to enable the user to access one or more NSPs."

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>generating and transmitting menus</td>
<td>creating or updating menus and synchronously configuring display versions for transmission</td>
</tr>
<tr>
<td>generating a second menu from said first menu</td>
<td>creating a second menu from constituents of the first menu and other options and synchronously configuring a handheld device or Web page version for transmission such that the displayed second menu is operationally consistent throughout the system</td>
</tr>
<tr>
<td>transmitting said second menu to a wireless handheld computing device or Web page</td>
<td>The application software is enabled to configure either a handheld or Web page version of the second menu for transmission, but does not require that the application software is enabled to configure both.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>generating and transmitting menus [menus]</td>
<td>creating and transmitting</td>
</tr>
<tr>
<td>generating a second menu from said first menu</td>
<td>creating a [second menu] from the [first menu] and transmitting the [second menu] to a wireless handheld computing device or Web page</td>
</tr>
<tr>
<td>transmitting said second menu to a wireless handheld computing device or Web page</td>
<td>This term requires structure for &quot;transmitting the second menu to both a wireless handheld computing device and a Web page.&quot;</td>
</tr>
</tbody>
</table>

The disputed term "generating and transmitting menus" is located in the preamble of each of the asserted independent claims: "An information management and synchronous communications system for generating and transmitting menus
comprising . . . ." The '850 patent specification discusses the menu generation and transmission process:

The menu generation approach of the present invention includes a desktop software application that enables the rapid creation and building of a menu and provides a means to instantly download the menu configuration onto, e.g., a handheld device or Web page and to seamlessly interface with standard point of sale ("POS") systems to enable automatic database updates and communication exchanges when a change or input occurs in any of the other system elements.

('850 patent, 3:16-24).

The plaintiff's and defendants' proposals are similar, except that the plaintiff requires "synchronously configuring display versions for transmission." "Synchronous" was already addressed in the immediately preceding term; adding "synchronous" here would be redundant. Furthermore, "menus" will be construed consistently throughout the claims and there is no support for Ameranth replacing "menus" with "display versions."

The term "generating a second menu from said first menu" is located in claim 1, element (g) of the '850 patent: "application software for generating a second menu from said first menu and transmitting said second menu to a wireless handheld computing device or Web page." Ameranth contends that the second menu is created "from constituents of" the first menu. But this term itself contains no language indicating that the second menu is a subset of the first menu. The separate limitation immediately following the claim at issue discloses that the second menu is generated from the first menu by allowing selection of categories and items from the first menu. As this limitation is independent and clearly stated, there is no need to import the restriction into the term at issue. As such, "generating a second menu from first said menu" is construed consistently with the preamble as "creating a second menu from first said menu."

The term "transmitting said second menu to a wireless handheld computing device or Web page" is located in claim 1, element (g) of the '850 patent. The limitation states: "application software for generating a second menu from said first menu and transmitting said second menu to a wireless handheld computing device or Web page." (emphasis added). The defendants argue that the software must be capable of both transmitting to a handheld computing device and transmitting to a Web page. Ameranth responds that software does not have to be capable of transmitting to both types of clients; transmitting to one or the other only is sufficient. The plaintiff notes that the term reads "handheld computing device or Web page"; it does not say "and." The specification also contains this disjunctive language: "In one embodiment, the present invention is a software tool for building a menu, optimizing the process of how the menu can be downloaded to either a handheld device or Web page . . . ." ('850 patent, 3:35-39).

In support of its argument, the defendants cite Cyrix Corp. v. Intel Corp., 846 F. Supp. 522 (E.D. Tex. 1994), aff'd, 42 F.3d 1411 (Fed. Cir. 1994). In Cyrix, the claim limitation at issue stated, "address generating means connected, in the alternative, to receive either (i) said linear address from said segmentation unit, or (ii) said offset part . . . from said page cache or said page table entry . . . ." Id. at 542. The court held that the claimed address generating means must "hav[e] the capability of" receiving both the segmentation and page cache options. Id. at 530. But it was not necessary for the segmentation and page cache entries to be actually stored in the memory at the same time. Id. Based upon Cyrix, the defendants contend that the software must be capable of transmitting a second menu to both wireless handheld devices and Web pages.

In support of its argument, the defendants cite Cyrix Corp. v. Intel Corp., 846 F. Supp. 522 (E.D. Tex. 1994), aff'd, 42 F.3d 1411 (Fed. Cir. 1994). In Cyrix, the claim limitation at issue stated, "address generating means connected, in the alternative, to receive either (i) said linear address from said segmentation unit, or (ii) said offset part . . . from said page cache or said page table entry . . . ." Id. at 542. The court held that the claimed address generating means must "hav[e] the capability of" receiving both the segmentation and page cache options. Id. at 530. But it was not necessary for the segmentation and page cache entries to be actually stored in the memory at the same time. Id. Based upon Cyrix, the defendants contend that the software must be capable of transmitting a second menu to both wireless handheld devices and Web pages.

The defendants' argument is persuasive. The court construes this term "application software for . . . transmitting said second menu to a wireless handheld computing device or Web page" to mean "application software, which is capable of transmitting to both wireless handheld computing devices and Web pages, transmitting the second menu to a wireless handheld computing device or Web page."

5. "applying"; "applied"

<table>
<thead>
<tr>
<th>Disputed Claim Term or Phrase</th>
<th>Versata's Proposed Construction</th>
<th>SAP's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine how to use and</td>
<td>use to influence the</td>
<td></td>
</tr>
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</table>
The central issue concerning this term is best understood through the application of each construction to a disclosed embodiment. An aspect of the patent involves the "application" of price adjustments to determine a "final price." A portion of the specification indicates as follows:

In step 1522 the price of the user specified product is set to zero so that the price can be determined by application of the sorted pricing adjustments. In step 1524 the various Pricing Types included in the sorted pricing adjustments are applied in the user specified pricing sequence. Thus, the price of the user specified product is increased, decreased, and/or overridden until the final price is determined. '400 patent, col. 19, ll. 42-50 (emphasis added).

In light of the specification, any construction should allow that a price adjustment is "applied" even if the adjustment is ultimately ignored or overridden. In this sense, SAP's construction is too limiting because a price adjustment that is overridden would not influence the computation of the price. Versata's construction more properly encompasses what the patent teaches. It implicitly recognizes at least a consideration of all price adjustments, whether increased, decreased, ignored, and/or overridden. The court adopts Versata's construction.

8. "applying a rules engine continuously to at least two patient data elements stored in the database"

The crux of the parties' dispute here lies in the word "continuously." Plaintiff proposes, "repeatedly and automatically according to the rules of the rules engine" or "repeatedly and automatically...according to time-driven or event-driven rules." 4 Defendants seek to define this term as "constantly and automatically...24 hours a day 7 days a week." 5

First, as explained previously, the Court has rejected defendants' continued request to add 24/7 to other disputed claim terms when that phrase only appears in the "wherein" clause. Indeed, when questioned by the Court as to why the 24/7 phrase needed to be added to a phrase like "continuously," defendants replied "there is the constant component in that it's always happening, and there is also that it's happening all the time, which is the reason why we have the 24 - hour and day, 7 day a week." (Hr'g., p. 203.) The distinction suggested by defendants between "always happening" and "happening all the time" seems to be excessively nuanced. Adding the 24/7 component to words like constantly and automatically would only serve to confuse the jury as would plaintiff's suggested phrase, "the rules of the rules engine."

Thus, the only remaining dispute is whether "continuously" shall be defined as "repeatedly and automatically" (plaintiff's version), or "constantly and automatically" (defendants' version). Despite the fact that continuously is a commonly understood word, the scope of the meaning is still in dispute. Indeed, plaintiff notes that while the Court may be tempted to give "continuously" its ordinary meaning, the dispute is a matter of law that must be decided by the Court. (Pl.'s Br., p. 21, citing 02 Micro Int'l v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360 (Fed. Cir. 2008).)

The dictionary definition of "continuous" is: "1. Uninterrupted in time; without cessation: continuous coughing during the concert. 2. Being in immediate connection or spatial relationship: a continuous series of blasts; a continuous row of warehouses." (Webster's Encyclopedic Unabridged Dictionary of the English Language, 1996.) 5 As in 02 Micro, the common meaning of continuously does not completely resolve the parties' dispute regarding the scope of the term as it pertains to the patents-in-suit. 02-Micro, 521 F.3d at 1361 ("a determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on

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a term's 'ordinary' meaning does not resolve the parties' dispute.

5 Continuously, the word in dispute here, is the adverb form of continuous.

Plaintiff's proposed construction, "repeatedly and automatically," is consistent with the intrinsic evidence. In the patent, there are descriptions of time-driven and event-driven rules that trigger the rules engine at varying degrees of frequency. (See Pl.'s Br., p. 20, citing examples of laboratory data that can appear relatively infrequently.) This comports more with the idea of something happening "repeatedly" rather than the defendants' more limited meaning of "constantly."

In contrast, defendants' proposed construction narrows the scope of the term's meaning without adequate support. Defendants refer to the prosecution history and plaintiff's argument during similar litigation in the case of Cerner Corp. v. VISICU, Inc., No. 04-1033-CV-W-GAF (W.D. Mo., filed Nov. 12, 2004), to support their position that plaintiff itself defines "continuously" as "constantly" and that it should be bound to this meaning. 6 The Court has reviewed defendants' argument and is not persuaded to adopt their proposed word, "constantly." Plaintiff's proposed construction, "repeatedly and automatically," is clear and consistent with the intrinsic evidence. The term is construed as: "applying a rules engine repeatedly and automatically to at least two patient data elements stored in the database."

6 The Court notes that the parties repeatedly asked the Court to take note of arguments and holdings in the Cerner case. We have considered all of plaintiff's and defendants' arguments here independently of the Cerner litigation. Nonetheless, many of this Court's claim constructions are consistent with those determined by the court in Cerner.

E. "Applying an Approximately Constant Bias Voltage to the Conductive Shield of the Coaxial Cable"

Once the terms "bias voltage," "conductive shield" and "coaxial cable" have been construed, Monster Cable argues that the words remaining in the phrase "applying an approximately constant bias voltage to the conductive shield of the coaxial cable" are plain English that do not require further construction. Quest argues that this court should construe the term "applying" as "placing in direct contact." If construction is deemed necessary, Monster Cable seeks a construction of "applying" as "conducting the voltage or signal to the relevant conductors" or "bringing into nearness or contact with, or conducting them to, the relevant conductors."

Indeed, as Monster Cable points out, the term appears in the constructions of other claims and means-plus-functions agreed to by the parties. See Joint Claim Const. Statement at 1-2 (agreeing to constructions of the term "single line" and the means-plus-function element of "means for applying the electrical signal"). The parties do not dispute that the essence of the term is that voltage is passed to the conductive shield. The preferred embodiment of the patent demonstrates bias voltage connected to the conductive shield via an intermediate conductor. See 416 Patent, figure 9. Quest does not contest that "applying" voltage to the conductive shield described in the 416 Patent would typically involve one or more intermediate conductors. See Villasenor Decl., P 46 ("While it is true that an intermediate conductor would typically carry that bias voltage from the voltage source [to] the conductive shield . . . that intermediate conductor nonetheless places the shield in direct contact with the bias voltage.") "Directness," central to Quest's definition, is therefore not a valid measure of the voltage conduction in this technology. Both parties agree that the function may be accomplished through an intermediate conductor, which in ordinary terms would constitute indirect contact.

Monster argues that if claim construction should be necessary, the proper barometer of contact should be "nearness" rather than "directness." However, there is no reason that distance -- the vector of "nearness" -- is relevant to the connection uncertainty in the patent.
between the voltage and the conductive shield. Rather, the relevant concept is that voltage is "conducted" to the outer conductive shield. Both parties' proposed constructions are thus unsatisfying, and the court finds that "applying" does not require further construction. It will be clear to a jury that "applying" simply means that voltage is conducted to the conductive shield.

This court thus declines to further construe the phrase "applying an approximately constant bias voltage to the conductive shield of the coaxial cable."

G. Applying One or More Test Methodologies to the Collected Information

This term is found in claims one and thirteen of the patent. The Plaintiff proposes that the term does not need construction, but also offers "using a computer to perform calculations for one or more test methodologies using the data collected from the testing of the pavement construction material." The Defendants propose the construction "a server computation engine automatically applying one or more test methodologies to the collected information stored in the server computation spooler in response to the server computation spooler activating the server computation engine, and automatically storing the results in a project specific database on the server" (emphasis added).

The Defendants attempt to shoehorn the limitations that they argued for in previous claims into this disputed phrase. First, the Defendants argue that the test methodologies must be performed automatically. The Defendants support this argument by citing to their arguments that were rejected above. Second, the Defendants argue that collected information is stored in the computation spooler as in the FIG. 2 embodiment. This argument has also been rejected in the construction of the previous term for the reasons state therein.

Third, the Defendants add in the limitation that applying test methodologies involves automatically storing the results in a project specific database on the server. The Defendants do not offer support for why this disputed phrase should encompass the unrelated step of storing the results.

Fourth, the disputed phrase is intact and unchanged in Defendant' proposed construction, but it is buried in the additional limitations the Defendants attempt to jam into this construction. The Defendants' definition does not "construct" any of the disputed phrase, but instead attempts to re-write the claim through this phrase.

In contrast, the Plaintiff's proposed construction is based upon the words of the claim itself, including the parties' agreement that the preamble limits the claim to a computer-implemented method.

Construction: Using a computer to perform calculations for one or more test methodologies using the data collected from the testing of the pavement construction material.

8. "applying FECC (forward error correcting code) coding and codeword interleaving differently to signals of different data channels to produce encoded data signals having different delays"

The next disputed term is found in independent Claim 15, and dependent Claims 16-18. Claim 15 reads:

15. A method of modulating multiple carriers with signals of a plurality of data channels, comprising the steps of:

applying FECC (forward error correcting code) coding and codeword interleaving differently to signals of different data channels to produce encoded data signals having different delays; and

modulating different numbers of bits of the encoded data signals onto different carriers,
wherein the step of applying FECC coding and codeword interleaving comprises the steps of:

storing signals of the different data channels;

sequentially FECC coding the stored signals to produce FECC codewords; and

storing the FECC codewords in an interleaved manner, the interleaving being different for the codewords of the different data channels.

'604 Patent, col. 13, ll. 40-56 (emphasis added). The issue before the Court is whether the application of FECC coding and codeword interleaving must be applied "concurrently." Plaintiff proposes that the term should be construed as "the FECC coding and interleaving is applied concurrently to at least two data channels, so that the FECC coding and interleaving that is applied to the first data channel differs from the FECC coding and interleaving that is applied to the second data channel." (Chart at 11 (emphasis added)). Defendants rely on the arguments they raised when the issue of "concurrently" was first addressed and assert that the inclusion of "concurrently" is again improper.

Based on the same reasoning previously set forth when the issue was first raised, the Court concludes that such a limitation is not warranted by the claims and specification. See supra Part II.C.2. Plaintiff has not offered additional arguments that persuade this Court to change its conclusion. Plaintiff merely asserts that the language "to produce encoded data signals having different delays" makes it "crystal clear" that the claim requires the "concurrently" limitation. (Tr. at 155:5-9). The Court does not agree and rejects Plaintiff's proposed construction.

Accordingly, the Court concludes that the construction of disputed term [32] "applying FECC (forward error correcting code) coding and codeword interleaving differently to signals of different data channels to produce encoded data signals having different delays" does not include the limitation "concurrently," and means "the FECC coding and codeword interleaving are applied in a way that differentiates among the data channels which results in the production of encoded data signals with different delays."

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A. "appreciably under"

The patent requires that "another portion of said third doped region extend[] appreciably under the edges of said field stop regions which define the sides of said channel." Defendant argues that "appreciably under" requires that the third doped region be formed before the field stop regions. Defendant points out that the process portion of the specification states that "the third region . . . is defined and implanted . . . prior to defining the field oxide channel stop regions." '776 patent, 3:48-51. It is inappropriate, however, to limit a product patent to a manufacturing process described in the specification. See Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1541 (Fed. Cir. 1983). Moreover, no reasonable person would believe that the ordinary meaning of "appreciably under" refers to a production process rather than a spatial relationship. The Court therefore will not adopt defendant's interpretation.

Plaintiff proposes that "appreciably under" means that the third doped region must extend "far enough under . . . so that the edges of the third doped region are not exposed to the thin portion of the first insulating layer." Joint Constr. Ex. B at 6. Defendant objects that this is a "functional" definition precluded by the holding in York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1573 (Fed. Cir. 1996). The Court disagrees. In York Products, the Federal Circuit construed claim language that required that a ridge extend "for at least a substantial[] part of the entire height" of the sidewall of a pickup truck bed. Construing "substantial part" to mean "nearly the entire length of," the court refused to adopt a "functional definition" of the term "substantial," according to which the term would mean "only so [high] as necessary" to accomplish the function of the structure. 99 F.3d at 1572-73. Plaintiff's construction would be such a "functional definition" if, for example, it required that the doped region be "far enough under to prevent voltage breakdown." Instead, plaintiff's construction is purely spatial.

Plaintiff's proposed construction, moreover, is consistent with the specification, which states that by extending the third
doped region appreciably under, "it is assured that the resulting structure is free from any exposed N+ edges under the
tunnel dielectric region." 776 patent, 6:13-15. The use of the term "assured" suggests that the third doped region must
extend far enough under that its edges are not exposed to the thin portion of the first insulating region no matter what the
width of the thin region. The Court therefore adopts plaintiff's construction of the term "appreciably under."

2. Indefiniteness of "Appropriate Application Software"

Defendants argue that use of "appropriate application software" in the phrase "said database server then, utilizing an
appropriate application software thereon, producing billing invoices and statements to clients and customers, for each
argue that the term has a purely subjective meaning and does not adequately advise the public of the scope of the invention.
Further, Defendants argue that the specification and prosecution history fail to provide any objective definition for
determining whether software is "appropriate." Defendants cite to the declaration of James Whicker, who opines that one of
ordinary skill would conclude that Claim 1 is indefinite because the phrase "appropriate application software" does not
"delineate the scope of the invention." (Dkt. 68 at Ex. C, P 20). n10

The Court agrees that Defendants' arguments that: (1) the inclusion of this sufficiently specific term overcomes the
presumption that the section of the "means for providing electronic transfer" limitation containing that phrase is written in means-plus-function format. Plaintiff further argues that the claims and specification clearly indicate that the type of software application claimed is software that
"produces billing invoices and statements to clients of each corresponding browser-based subscriber." Finally, Plaintiff
argues that the Court must disregard the declaration of James Whicker on substantive and procedural grounds.

Because the Court finds that Plaintiff's expert's conclusion is consistent with the specification, the Court need not address
Plaintiff's argument that Defendants' expert affidavit is barred on substantive and procedural grounds.

n10 Plaintiff replies that Defendants' argument is inconsistent with its contention that a database server "utilizing
appropriate application software" is sufficient structure to overcome the presumption that the section of the "means for
providing electronic transfer" limitation containing that phrase is written in means-plus-function format. Plaintiff further
argues that the claims and specification clearly indicate that the type of software application claimed is software that
"produces billing invoices and statements to clients of each corresponding browser-based subscriber." Finally, Plaintiff
argues that the Court must disregard the declaration of James Whicker on substantive and procedural grounds.

"The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject
matter which the applicant regards as his invention." 35 U.S.C. § 112, P 2. This requirement ensures that the public is
Cir. 2005). The requirement "does not compel absolute clarity" and only claims that are "not amenable to construction" or
are "insolubly ambiguous" are indefinite. Id. Such an approach respects the statutory presumption of patent validity. Exxon
Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001); 35 U.S.C. § 282. Close questions of invalidity
in cases involving issued patents are resolved in favor of the patentee. Id. at 1380. The determination of whether a claim is
invalid for indefiniteness depends on whether those skilled in the art would understand the scope of the claim when read in
light of the specification. Verve, LLC v. Crane Cams, Inc., 311 F.3d 1116, 1119-20 (Fed. Cir. 2002); Atmel Corp. v.
Information Storage Devices, Inc., 198 F.3d at 1378 (citing North Am. Vaccine Inc., v. American Cyanamid Co., 7 F.3d
1571, 1579 (Fed. Cir. 1993)).

Defendants' expert opines that one of ordinary skill would not be able to discern from the specification what constitutes
"appropriate software." (Dkt. 68 at Ex. C, p. 9). In contrast, Plaintiff's expert opines that "every major database system
available on the marketplace had certain inherent tools built into their infrastructures that would allow 'appropriate
application software' to be utilized." (Dkt. 72 at Ex. 4, p. 6). The most common type of "appropriate application software" involves "normalized transactional processing" which allows the addition, modification, deletion and reporting of database
record sets. (Id.); see Verve, LLC, 311 F.3d at 1119 (instructing that extrinsic evidence should be consulted before determining that a claim term is indefinite).

The plain language of the claim itself indicates that the "appropriate application software" is utilized by the database server to produce billing invoices and statements to clients and customers. The specification confirms that "data entered via forms processing is transferred into the database server which utilizes appropriate application software therein to produce billing invoices and statements to clients and customers of each corresponding browser-based subscriber." (229 patent, col. 2, ll. 59-63). The specification provides that no new software is required to be installed at the subscriber's computer as the subscriber is able to access the database server with its software and applications "contained thereon." (Id., col. 2, ll. 38-46, 66, col.3, ll. 1-3). The specification also provides, at the least, that the database allows for the addition and reporting of information. Subscribers enter information on forms which are added to the database server. (Id., col. 3, ll. 58-61). The database server reports information back to the subscriber and creates billings. (Id., col. 4, ll. 9-14, 5, ll. 24-28).

These provisions are consistent with Plaintiff's expert's conclusion that a person of ordinary skill would understand the term "appropriate application software," in light of the claim language and specification, to refer to software that allows for "normalized transactional processing,” or, specifically, for the addition and reporting of database record sets. Accordingly, the phrase "appropriate application software" is not subject to a purely subjective definition, as was the case in Datamize, and the Court will resolve this matter in favor of the patentee. See 417 F.3d at 1352 (finding that the term "aesthetically pleasing" used in the claim language was indefinite because the claim, specification and prosecution history provided no guidance as to what conditions would meet the "aesthetically pleasing" requirement). The Court rejects Defendant's contention that Claim 1 is invalid as indefinite.

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B. "Approximately Constant"

For the following reasons, this court construes the claim term "approximately constant" in claims 1, 6, 9, and 14 of the '681 patent to mean:

Nearly constant or constant.

The term "approximately constant" occurs in context as: "a controller which controls the gain to be approximately constant." ('681 patent, col. 22:17-18; col. 22:45-46; col. 22:66-67; col. 24:14-15.) The language "approximately constant" therefore refers to the resulting effect of the controller on the gain.

The term "approximately constant" should be given its plain and ordinary meaning. An examination of the specification reveals that the various embodiments within the specification describe the device that controls the gain as an automatic optical gain control circuit ("AGC"). (See, e.g., '681 patent, col. 6:6-14; col. 10:19-38). One embodiment of the specification that describes an automatic optical gain control circuit and is representative of the entire specification states:

[O]ptical gain control circuit controls pump laser diode so as to maintain, at a constant level, the ratio between the level of the input wavelength-multiplexed optical signal . . . and the level of the amplified wavelength-multiplexed optical signal . . . . In this manner, first part conserves the wavelength dependence by controlling the optical gain at a constant level.

('681 patent, col. 6:6-14.) Specifically, Figure 5 provides an illustration of an automatic gain control circuit "for controlling an optical gain to be at a constant level." ('681 patent, col. 10:19-38; see Fig. 5.) All descriptions of an AGC dictate that the circuit works to keep the gain constant, and there is nothing in the specification indicating a special meaning of "constant" beyond the plain and ordinary meaning of the word.

In addition, nothing in the '681 patent's specification dictates that a special meaning is attributed to the word "approximately." Therefore, "approximately" must be given its plain and ordinary meaning. Consequently, "approximately constant" is construed as nearly constant or constant.

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10. **Arbitrary number of instructions.**

Intergraph contends this phrase carries its ordinary meaning to a person skilled in the art. Intel, incorporating specific claim requirements into the definition of the term, defines the phrase as a number of instructions in a group of instructions that are executed simultaneously that is less than the width of an instruction frame. The Court construes the term as any number of instructions. '028 patent 5:19-23.

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3. **Arcs.**

The court construes "arcs" to be lines that connect the nodes in a data flow diagram and represent that data produced by one node is used by another.

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D. **Reconsideration**

1. "architecture independent"

Claim 13 is not the only claim in which the inventors use the phrase "architecture independent" and the phrase "actions and conditions," or some variation of those phrases, in a limitation.

When the same words or phrases are used in different claims of the same patent, a court interprets the words and phrases as having the same meaning unless it is clear from the specification and prosecution history that the phrases have different meanings in the different claims. See Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005).

The phrases "architecture independent" and "actions and conditions" first appear in Claim 1:

A computer-aided design system for designing an application specific integrated circuit directly from architecture independent functional specifications for the integrated circuit, comprising

- a macro library defining a set of architecture independent operations comprised of actions and conditions

input specification means operable by a user for defining architecture independent functional specifications for the integrated circuit, said functional specifications being comprised of a series of operations comprised of actions and conditions, said input specification means including means to permit the user to specify for each operation a macro selected from said macro library

In the Preamble to Claim 1, the inventors use the phrase "architecture independent" to modify "functional specifications." A skilled artisan would understand the Preamble of Claim 1 to recite a system that designs an ASIC from "architecture independent functional specifications." It is necessary therefore, to determine what the inventors meant when they recited that these "functional specifications" are "architecture independent."

In the background section of the specification, the inventors recite state of the art computer-aided design (CAD) systems and methods for designing an ASIC that require input from highly skilled design engineers:

CAD techniques have been used with success in design and verification of integrated circuits, at both the structural level and at the physical layout level. For example, CAD systems have been developed for assisting converting VLSI structural
level descriptions of integrated circuits into the physical layout level topological mask data required for actually producing the chip. Although the presently available computed-aided design systems greatly facilitate the design process, the current practice still requires highly skilled VLSI design engineers to create the necessary structural level hardware descriptions.

('432 Patent, Col. 1:51-63.)

As an improvement over the existing state of the art, the invention is summarized as a computer-aided design system and method that allows a user to define the "functional requirements" for a desired ASIC, using a "sequence of logical operations" independent of the "logic," i.e., hardware structure, that could "carry out those specific functions." ('432 Patent, Col. 2:7-15.) The inventors pointed to a flowchart of logical operations as a preferable example of specifications that are "architecture independent:"

The functional architecture independent specifications of the desired ASIC can be defined in a suitable manner, such as in list form or preferably in a flowchart format. The flowchart is a highly effective means of describing a sequence of logical operations, and is well understood by software and hardware designers of varying levels of expertise and training.

('432 Patent, Col. 2:21-29.)

In contrast to specifications that are "architecture independent," the inventors use the phrase "architecture specific" to refer to specifications that include the logic hardware cells that can perform a particular function:

From the flowchart (or other functional specifications), the system and method of the present invention translates the functional architecture independent specifications into structural and architecture specific level definition of an integrated circuit, which can be used directly to produce the ASIC. The structural level definition includes a list of the integrated circuit hardware cells needed to achieve the functional specifications. The structural level definition includes a list of the integrated circuit hardware cells needed to achieve the functional specifications. These cells are selected from a cell library of previously designed hardware cells of various functions and technical specifications.

('432 Patent Col. 2:34-39.)

Footnotes

4 The Court finds that the article "an" would be understood to be a typographical error and should be read as the conjunction "and."

End Footnotes

The inventors' use of the phrase "architecture dependent" to describe specifications for a functional decision tree and "structural and architect specific" to describe specifications that are of implementing logic components is supported by the drawings and the descriptions of the drawings. The inventors label FIG. 1a, "Functional Level:"

A flowchart is a graphic representation of an algorithm and consists of two kinds of blocks or states, namely actions and conditions (decisions). Actions are conventionally represented in the flowchart by a rectangle or box, and conditions are represented by a diamond. Transitions between actions and conditions are represented by lines with arrows.

('432 Patent, Col. 3:52-57.)

The inventors label FIG. 1b "Structural Level:"

FIG. 1b illustrates a structural (or logic) level representation of an integrated circuit. In this representation, blocks are used to represent integrated architecture specific circuit hardware components for performing various function, and the lines interconnecting the blocks represent paths for the flow of data or control signals between the blocks. The blocks may, for example, represent hardware components such as adders, comparators, registers, system controllers, etc.
2. "actions and conditions"

In the "input specification means" limitation of Claim 1, the inventors state that "operations and conditions" are a series of logical operations:

. . . said functional specifications being comprised of a series of operations comprised of actions and conditions.

(‘432 Patent, Col. 14:43-44.) Consistently throughout the written description, the phrase "actions and conditions" is used to describe the state of the data being controlled by the ASIC, changed in state, and flow of the data based on the state or changes in the state.

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5 In patent claims, the word "comprising" is open ended; it includes the recited elements and additional elements. AGF Industries, Inc. v. Cardinal IG Company, 239 F.3d 1239, 1250 (Fed. Cir. 2001).
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3. "a set of definitions"

The storing step of Claim 13, recites "storing a set of definitions of architecture independent actions and conditions." In the written description, the inventors variously describe a "data base" that contains "design data (flowchart, logic, etc.)" 7 The flowchart is described as being created by a "Flowchart Editor." In the written description, "macro names and arguments" are described as data from which a flowchart would be created. A person of ordinary skill in the art would understand macros and arguments as computer instructions. These macros are stored in a macro library. 9 Thus, one skilled in the art would understand "a set of definitions" to mean "a set of computer instructions such as macros and arguments."

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6 (‘432 Patent, Col. 5:63.)
7 (‘432 Patent, Col. 5:65.)
8 (‘432 Patent, Col. 7:25-26.)
9 (‘432 Patent, Col. 7:28.)
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

There is nothing in the ‘432 Patent documents that indicates that the inventors intended any different meaning of "architecture independent" or of "actions and conditions" in Claim 13.

Accordingly, as used in Claim 13 of the ‘432 Patent, the Court construes the phrase "storing a set of definitions of architecture independent actions and conditions" to mean:

storing a set of instructions of actions or conditions to which a circuit could be subjected that are not dependent on any particular arrangement of hardware cells to perform the actions or create or maintain the conditions.
not imply any set architecture, structure or implementing technology." Aeroflex states that the term means "the logical steps and decisions that are represented as rectangles and diamonds in the flowchart; where register-transfer level (RTL, as defined in Darringer et al.) descriptions are excluded." Thus, the parties disagreement focuses on whether claim 13 limits input specifications for the proposed ASIC to data in a flowchart format.

Ricoh admits that Fig. 1a illustrates an embodiment that utilizes a flowchart representation. However, Ricoh argues that Aeroflex's definition impermissibly attempts to limit the scope of the claimed invention to the preferred embodiment of the '432 patent. Ricoh contends that a broader interpretation of "architecture independent actions and conditions" is supported by the patent specification:

The architecture independent functional specifications can be defined in a suitable manner, such as in list form or preferably in a flowchart form. The flowchart is a highly effective means of describing a sequence of logical operations, and is well understood by software and hardware designers of varying levels of expertise and training. From the flowchart (or other functional specifications), the system and method of the present invention translates the architecture independent functional specifications into an architecture specific structural level definition of an integrated circuit, which can be used directly to produce the ASIC.

'432 patent, col. 2:21-34 (emphasis added). 5 Ricoh also relies on specification language stating that "the present invention . . . enables a user to define the functional requirements for a desired target integrated circuit, using an easily understood architecture independent functional level representation . . ." '432 patent, col. 2:6-11. Ricoh also notes that patent claim 11, not patent claim 13, specifically references a flowchart format and recites "having boxes representing architecture independent actions" and "diamonds representing architecture independent conditions." '432 patent, col. 16:10-12. Ricoh argues that this demonstrates that if the patentee intended the use of "architecture independent" in claim 13 to be restricted to a flowchart format, the patentee would have used the same or similar limiting language as used in claim 11.

--- Footnotes ---

5 Ricoh argues that a "list form" input specification is a preferred embodiment of the '432 patent. However, this argument does not find any support in the patent specification.

--- End Footnotes ---

Aeroflex responds that the '432 patent's file history conclusively demonstrates that claim 13 requires a sequence of logical steps and decisions in a flowchart format. 6 See April 1989 Amendment at 11; October 1989 Examiner Interview Summary; November 1989 Amendment at 7. Aeroflex contends that the Examiner Interview Summary explicitly states that the examiner and the applicant reached an agreement on application term 20 (patent claim 13). Specifically, the Examiner Interview Summary form shows that the examiner checked the box providing: "Agreement was reached with respect to some or all of the claims in question." (October 1989 Interview Summary). The summary form identifies application claim 20 (patent claim 13) as one of the claims discussed, and states that the following agreement was reached: "It is agreed that the features "flowchart editor" and "expert system for translating the flowchart into a netlist defining the necessary hardware cells of the integrated circuit" are patentable [sic] distinct from the reference list above." Aeroflex argues that this language demonstrates that an agreement was reached and that the features "flowchart editor" and "expert system for translating the flowchart into a netlist" were the examiner's only basis for allowing all of the claims including patent claim 13. Furthermore, Aeroflex contends that the file history demonstrates that all register-transfer level descriptions were explicitly excluded from the claimed invention.

--- Footnotes ---

6 Aeroflex's reliance on the specification language to support its argument is not well taken. Aeroflex cites almost exclusively to language from the preferred embodiment. See '432 patent, col. 3:50-59; 4:5-22, 4:35-38, 7:12-23. However, in construing disputed claim terms, a limitation cannot be imported from the preferred embodiment into the claims themselves. Markman, 52 F.3d at 980.

--- End Footnotes ---
Ricoh responds that the October Interview summary, at best, is ambiguous and inconclusive. Ricoh states that while the Interview summary clearly identified the claims discussed in the interview, it specifically left undefined which claims were subject to any agreement reached because the form indicated that an agreement was reached as "to some or all of the claims." Thus, Ricoh concludes that the only thing evidently agreed upon was that the features of a "flowchart editor" and an "expert system" were distinct over prior art, and any claims containing those features would be understood by both parties to be patentable over the cited prior art. Ricoh contends that this understanding is supported in the November 1989 Amendment, in which the patentee stated as follows:

During the interview, the Examiner carefully reconsidered the prior art and applicants' claims, and upon reconsideration agreed that certain features as defined in applicants' claims, such as the "flowchart editor" and the "expert system for translating the flowchart into a netlist defining the necessary hardware cells of the integrated circuit" patently distinguish applicants' invention from the prior art of record, including Darringer et al. 4,703,435. Thus, it was agreed that Claim 18 [patent claim 11] in its present form, for example, patently defines applicants' invention over the prior art of record.

November 1989 Amendment at 7. Ricoh argues that the patentee could have made a similar statement with respect to application claim 20 (patent claim 13). Furthermore, Ricoh argues that Aeroflex's attempt to exclude register-level transfer descriptions from the claimed invention improperly distorts the file history.

Initially, the Court finds that the specification language supports Ricoh's arguments. While the flowchart format input specification is the single embodiment of the '432 patent, the specification explicitly contemplated alternative input descriptions. See '432 patent, col. 2:21-24; 2:27-28. "[I]t is improper to read limitations from a preferred embodiment described in the specification -- even if it is the only embodiment -- into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004). Given the explicit patent language, the Court finds that the specification language does not support the conclusion that the input specification of the claimed invention is limited to a flowchart format.

Furthermore, the Court is not persuaded that the prosecution history unmistakably demonstrates that the input specification of the claimed invention is limited to the designer's use of a flowchart format. As noted by Ricoh, the October Interview Summary specifically left undefined which claims were subject to any agreement between the patentee and the examiner. Thus, contrary to Aeroflex's argument, this case is distinguishable from cases such as Spring Window Fashions LP v. Novo Industries, L.P., 323 F.3d 989 (Fed Cir. 2003), in which the court held that a reasonable competitor could rely on unequivocal statements of disclaimer made during the prosecution history. Here, the statements made during the prosecution history upon which Aeroflex attempts to rely, are at best, ambiguous.

In addition, while the patentee and the examiner evidently agreed that the features of a "flowchart editor" and an "expert system" were distinct over prior art, there is no indication that those terms necessarily applied to application term 20 (patent claim 13). Moreover, the fact that those terms were not included in the final version of patent claim 13 suggests just the opposite. "To be given effect, a disclaimer must be 'clear and unmistakable.'" Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1306 (Fed. Cir. 2003) (quoting Omega Eng g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325 (Fed. Cir. 2003)). While Aeroflex's interpretation of the October Interview summary may be reasonable, the law requires much more. Accordingly, "because the statements in the prosecution history are subject to multiple reasonable interpretations, they do not constitute a clear and unmistakable departure from the ordinary meaning of the [claim term at issue]." Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed. Cir. 2004).

Aeroflex's argument pertaining to the file history of register-transfer level descriptions is more persuasive. The file history demonstrates that the patentee amended the patent claims to include the phrase "architecture independent," and distinguished the claimed invention from prior art partially on that basis. See November 1989 Amendment at 7. The patentee stated that the "specifications used by Darringer et al. are not truly at an architecture independent level, but rather are at a lower level which is indeed hardware architecture dependent and defines the system at a 'register-transfer' level description." Id. Similarly, in the April 1989 Amendment, the patentee stated that "a very clear distinction between Darringer and the present invention is that the input to the Darringer system is in the form of a register transfer level flowchart control language . . . [and] input to the present invention is in the form of an architecture independent functional specification." Id. Based on this language, Aeroflex argues that Ricoh disclaimed the "register-transfer" level descriptions described in the Darringer prior art from the scope of its claimed invention. Ricoh responds that the patentee's use of the term "register-transfer level" was merely a shorthand reference used to denote the "structural" RTL-type, as opposed to
"functional" RTL-type, of input systems prevalent at the time.

In order to make this determination, the Court must examine the Darringer 4,703,435 Patent ("the '435 patent") and how closely it reads upon the present invention. The '435 patent specifically defines a register-transfer level description and the subsequent translation or transformation steps described in that patent do not alter this explicit definition. 7 '435 patent, col. 5:27-38. The Court finds no relevant distinction between the RTL described in the '435 patent and the RTL specifically disclaimed by Ricoh in the April and November 1989 Amendments. Furthermore, an examination of the '432 patent's public record fails to provide any support for Ricoh's distinction between "structural" and "functional" RTL-type input systems. Given these findings, Ricoh's attempt to limit the patentee's disclaimer to only "structural" level RTL-type input systems is unpersuasive. See Kumar v. Ovonic Battery Co., Inc., 351 F.3d 1364, 1368 (Fed. Cir. 2003) (adopting definition of term in cited prior art which is intrinsic evidence). Accordingly, the prosecution history indicates that the patentee expressly disclaimed all register-transfer level descriptions.

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7 "[T]he process of this invention begins at step 100 with a register-transfer level description e.g. of the type shown in Fig. 4. The description consists of two parts: a specification of the inputs, outputs and latches of the chip to be synthesized; and a flowchart-like specification of control, describing for a single clock cycle of the machine how the chip outputs and latches are set according to the values of the chip inputs and previous values of the latches. At step 102 in FIG 2., the register-transfer level description undergoes a simple translation to an initial implementation of AND/OR logic. '435 patent, col. 5:27-38.

--- End Footnotes ---

Given these considerations, the Court defines "architecture independent actions and conditions" as functional or behavioral aspects of a portion of a circuit (or circuit segment) that does not imply a set architecture, structure, or implementing technology, but excludes the use of register-transfer level descriptions as taught in Darringer.
Patent No. 7,349,837 col.84 l.48-50, col.85 l.58-60, col.87 l.4-6, col.88 l.18-20 (filed Jan. 22, 2004). This broad claim language is consistent with Plaintiff's construction and provides no support for Defendant's proposed definition which includes additional limitations that a requirements area must be capable of displaying previously recorded requirements before the requirements are associated with any primitives. "[T]he plain language of the claim gives no indication" that requirements must be recorded prior to appearance in the requirements area and must be able to appear in the requirements area before being associated to a primitive. See Biagio W. Sales, 423 F.3d at 1302. Thus, the claim language itself omits any reference to the supplemental "pre-recording" limitation Defendant seeks to include in the construction of "a requirements area."

ii. The Specification

In support of its proposed construction of "a requirements area," mandating that "a requirements area" be capable of displaying previously recorded requirements before the requirements are associated with primitives, Defendant erroneously seeks to import limitations from the preferred embodiment into the broad claim language, "a requirements area comprising one or more requirements," see U.S. Patent No. 7,349,837 col.83 l.47-48 (filed Jan. 22, 2004); see also U.S. Patent No. 7,349,837 col.84 l.48-50, col.85 l.58-60, col.87 l.4-6, col.88 l.18-20 (filed Jan. 22, 2004), even though the '837 Patent does not demonstrate a clear intent to limit the claim scope. (See Pl.'s Opp'n 4-6.) It is a canon of claim construction that a court should not import limitations from the specification into the claims. See ICU Med., Inc., 558 F.3d at 1375 (internal citation omitted); Renishaw PLC, 158 F.3d at 1248. Specifically, "[p]articular embodiments appearing in a specification [should] not be read into the claims when the claim language is broader than such embodiments." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2002) (internal citation omitted). A court may err by placing too much emphasis on "the specification's discussion of the preferred embodiments, rather than the meaning of the claim terms themselves," as the specification need not describe every conceivable embodiment of the invention and the preferred embodiment is "just . . . one way of using the invention." Home Diagnostics, Inc. v. Lifescan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004); see CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002); Gen. Elec. Co. v. Nintendo Co., Ltd., 179 F.3d 1350, 1358 (Fed. Cir. 1999) (internal citation omitted) ("[W]hat is patented is not restricted to the examples, but is defined by the words in the claims."). The Federal Circuit has "cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent clear disclaimer in the specification." In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1369 (Fed. Cir. 2004) (internal citation omitted). Therefore, even if "the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Id. (internal citation and quotations omitted). The patentee's "choice to describe only a single embodiment does not mean that the patent clearly and unambiguously disavowed other embodiments." Home Diagnostics, Inc., 381 F.3d at 1357 (internal citation omitted). As such, a claim term's ordinary and customary meaning cannot be narrowed "simply by pointing to the preferred embodiment . . . in the specification." CCS Fitness, Inc., 288 F.3d at 1366 (internal citations omitted); see Home Diagnostics, Inc., 381 F.3d at 1357 (internal citation omitted).

As the above analysis of the term "requirements" shows, see supra Part II.A.1.b, Defendant's argument regarding the pre-recording of requirements concentrates on portions of the patent's preferred embodiment in Figure 1 and its accompanying description in the specification. Although it is true that the preferred embodiment of the patented invention allows for pre-recording of requirements, Defendant has not shown that reading such a limitation into the term "a requirements area" is required based on the patentee's clear intention to limit the claim scope by using "words or expressions of manifest exclusion or restriction." See In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d at 1369 (internal citation omitted). Rather, the entirety of Figure 1 and other portions of the specification, which expressly state that users can skip the initial step of recording requirements in the preferred embodiment and demonstrate a more flexible, simultaneous approach to the addition and association of requirements, see U.S. Patent No. 7,349,837 fig. 1, col.6 l.3-5, col.6 l.14-18, col.14 l.35-39, col.62 l.39-46, col.72 l.1-14 (filed Jan. 22, 2004), undermine Defendant's contentions that "a requirements area" as claimed must be
capable of displaying pre-recorded requirements prior to association with primitives. The disclosure in the specification does not clearly and unambiguously disavow other embodiments within the scope of the claim language that do not provide for pre-recorded requirements. See Home Diagnostics, Inc., 381 F.3d at 1357. Thus, the preferred embodiment, allowing for display of pre-recorded requirements prior to association with primitives, does not limit the broader claim language regarding "a requirements area comprising one or more requirements." See Home Diagnostics, Inc., 381 F.3d at 1357 (internal citation omitted).

iii. Extrinsic Evidence

The Court notes that the extrinsic evidence on the issue, limited to expert depositions and reports, does not aid the Court's analysis. The expert report of Defendant's expert, Alexander, merely makes the conclusory assertion that Defendant's construction is "consistent with the disclosure of the '837 [P]atent." (See Alexander Infringement Report 19; see also Alexander Infringement Report 11.) The declarations of Plaintiff's expert, Locke, also repeat the contentions made in Plaintiff's briefs. (See Locke Decl. P 25; Locke Opp'n Decl. PP 11-15.) Nevertheless, Locke does contend that a person having ordinary skill in the art would understand the claim language to correspond with Plaintiff's construction. (See Locke Decl. P 25; Locke Opp'n Decl. P 11.) Accordingly, based on the specification of the '837 Patent and the broad claim language, the Court finds Defendant's attempt to limit "a requirements area" to an area that must be capable of displaying previously recorded requirements before the requirements are associated with primitives to be without merit.

b. "A Requirements Area" Must Be Able to Display "At Least One" Requirement, Not Multiple Requirements

The language in Claim 1 that refers to "a requirements area" includes the language "a requirements area comprising one or more requirements." U.S. Patent No. 7,349,837 col.83 l.47-48 (filed Jan. 22, 2004) (emphasis added). Similarly, Claims 10, 20, 30, and 40 include "a requirements area comprising one or more statements, where a statement describes a desired behavior for a primitive." U.S. Patent No. 7,349,837 col.84 l.48-50, col.85 l.58-60, col.87 l.4-6, col.88 l.18-20 (filed Jan. 22, 2004) (emphasis added). Defendant construes this language to mandate that a "requirements area" be able to display "multiple" requirements for "multiple" primitives. (See Def.'s Mot. 10-11; Def.'s Opp'n 11-13; Def.'s Reply 3.) Plaintiff, however, argues that the claim language covers a "requirements area" that displays "at least one" requirement. (See Pl.'s Mot. 7; Pl.'s Opp'n 5-6; Pl.'s Reply 5-6.)

Federal Circuit precedent establishes that "one or more" means "at least one." See Superguide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 886 (Fed. Cir. 2004) (internal citation omitted) ("We conclude that the plain and ordinary meaning of the disputed language supports the district court's construction and that the phrase 'at least one of' means 'one or more.'"); Rhine v. Casio, Inc., 183 F.3d 1342, 1346 (Fed. Cir. 1999) ("Use of the phrase 'at least one' means that there could be only one or more than one."); Rhine v. Kistler Instrumente AG v. United States, 628 F.2d 1303, 1318, 224 Ct. Cl. 370 (Ct. Cl. 1980) ("Anyone with even the most rudimentary understanding of the English language understands 'at least one . . . ' to mean 'one or more . . . '.") As such, the phrases "one or more" and "at least one" both mean that "there could be only one or more than one." Rhine, 183 F.3d at 1345. Based on this precedent, the claim language "a requirements area comprising one or more requirements" covers a "requirements area" that displays "only one" requirement or "more than one" requirement, supporting Plaintiff's interpretation that a "requirements area" must be able to display "at least one" requirement as opposed to "multiple" requirements. See Rhine, 183 F.3d at 1346. Moreover, the claim language regarding a "requirements area" does not reference "primitives" and, therefore, provides no support for Defendant's argument that a "requirements area" must be able to display multiple requirements for multiple primitives.

In arguing that "a requirements area comprising one or more requirements" means that a "requirements area" must be capable of displaying multiple requirements, Defendant emphasizes that other claims of the '837 Patent, specifically Claim 8, use the phrase "at least one." See Def.'s Opp'n 11-12; see also U.S. Patent No. 7,349,837 col.84 l.33-34 (filed Jan. 22, 2004) (emphasis added). Defendant argues that the phrases "one or more" and "at least one" must therefore have different meanings under the doctrine of claim differentiation. (See Def.'s Opp'n 11.) The doctrine of claim differentiation provides that "[w]here claims use different terms, those differences are presumed to reflect a difference in the scope of the claims." Forest Labs., Inc., 239 F.3d at 1310 (internal citation omitted). Nevertheless, claim differentiation is merely "a guide, not a rigid rule." ICU Med., Inc., 558 F.3d at 1376 (internal citations omitted). As such, Defendant's reliance on claim differentiation in support of its argument that "one or more" requirements equates with "multiple" requirements is
unconvincing in light of clear Federal Circuit precedent establishing that the phrases are identical in meaning.

In its Reply, Defendant cites to various portions of the specification to support its argument that "a requirements area" must be able to display multiple requirements for multiple primitives, referring to the '837 Patent's "ubiquitous references to display of multiple primitives and multiple requirements." (See Def.'s Reply 3 (citing U.S. Patent No. 7,349,837 col.5 1.49-col.6 l.18; col.6 l.65-col.7 l.4; col.8 l.1-34; col.82 l.34-col.83 l.15 (filed Jan. 22, 2004)).) Although the portions of the specification to which Defendant cites do refer to "requirements" and "primitives" in the plural, they do not support Defendant's contention that a "requirements area" must be limited to an area capable of displaying multiple requirements for multiple primitives.

Accordingly, the Court finds that as properly construed, "a requirements area" is an area displaying "one or more" requirements, i.e., "at least one" requirement.

c. "A" Requirements Area Encompasses "One or More" "Requirements Areas"

Defendant's non-infringement arguments make clear that Defendant interprets "a requirements area" to encompass only one "requirements area" such that a product that has more than one "requirements area" would not be infringing. (See Def.'s Opp'n 11-12; 17-18; Def.'s Reply 3-4.) Plaintiff contends that this interpretation conflicts with Federal Circuit authority equating the article "a" with the phrase "one or more." (See Pl.'s Reply 5.)

The Federal Circuit "has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008) (quoting KCJ Corp., 223 F.3d at 1356); KCJ Corp., 223 F.3d at 1356 (internal citations omitted). In light of this precedent, "[t]hat 'a' or 'an' . . . mean[s] 'one or more' is best described as a rule rather than merely as a presumption or even a convention." Baldwin Graphic Sys., Inc., 512 F.3d at 1342; see KCJ Corp., 223 F.3d at 1356 ("This court has uniformly applied the general rule for indefinite articles."); Collegenet, Inc. v. Applyyourself, Inc., 418 F.3d 1225, 1232 (Fed. Cir. 2005) (internal citation omitted) ("It is well settled that the term 'a' or 'an' ordinarily means 'one or more.'"). In order to avoid this rule, "a patentee must evince a clear intent to limit 'a' or 'an' to 'one,'" i.e., "the language of the claims themselves, the specification, or the prosecution history [must] necessitate departure from the rule." Baldwin Graphic Sys., Inc., 512 F.3d at 1342, 1343 (internal citations, quotations and alterations omitted); see KCJ Corp., 223 F.3d at 1356 (internal citations omitted); see also TiVo, Inc. v. Echostar Commc'ns Corp., 516 F.3d 1290, 1303 (Fed. Cir. 2008) (internal citations omitted). Moreover, "the subsequent use of definite articles 'the' or 'said' in a claim to refer back to . . . an initial indefinite article[ 'a' or 'an'] does not implicate, let alone mandate" an exception from the general rule that "a" or "an" generally means "one or more." Baldwin Graphic Sys., Inc., 512 F.3d at 1342-43. Rather, "[b]ecause the initial indefinite article . . . carries either a singular or plural meaning, any later reference to that same claim element merely reflects the same potential plurality." Id. at 1343. Additionally, "standing alone, a disclosure of a preferred or exemplary embodiment encompassing a singular element does not disclaim a plural embodiment." KCJ Corp., 223 F.3d at 1356.

In this case, the preambles of all of the independent claims, which later recite a "requirements area," conclude with the "open-ended . . . transitional phrase 'comprising,'" see Baldwin Graphic Sys., Inc., 512 F.3d at 1342 (quoting KCJ Corp., 223 F.3d at 1356); KCJ Corp., 223 F.3d at 1356 (internal citations omitted), U.S. Patent No. 7,349,837 col.83 l.38-40, col.84 l.38-41, col.85 l.46-48, col.86 l.62-63, col.88 l.8-10 (filed Jan. 22, 2004), prior to the claims' reference to the claim term "a requirements area." As such, under the general rule, the indefinite article "a" before "requirements area" means "one or more." Defendant does not point to any portion of the '837 Patent specification demonstrating the patentee's clear intent to depart from the general rule and thereby limit "a" to "one." The Court has not found any such indication, as "[n]othing in the claim language, specification, or prosecution history compels an exceptional reading of 'a' in this case." See Baldwin Graphic Sys., Inc., 512 F.3d at 1343. Moreover, subsequent use of the definite article "the" in the claims to refer to "requirements area," i.e., "wherein the programming area and the requirements area are displayed at the same time" and "such that a primitive displayed in the programming area is visually associated with a displayed requirement of the requirements area," see, e.g., U.S. Patent No. 7,349,837 col.83 l.48-40, col.51-54 (filed Jan. 22, 2004) (emphasis added), does not alter the application of the general rule that "a" means "one or more." See Baldwin Graphic Sys., Inc., 512 F.3d at 1342-43.

Defendant's only support for its contention that "a" requirements area covers only one "requirements area" appears to be from Plaintiff's expert, Locke, who explained at his deposition his understanding that the claim language "a requirements
area" does not cover a product that has "more than one requirements area displayed at the same time." (See Def.'s Opp'n 11-12; Locke Dep. 167:23-169:12; see also Pl.'s Reply 6.) However, Federal Circuit precedent makes clear that the Court is to consider extrinsic evidence, including expert declarations and deposition testimony, only if the intrinsic evidence is insufficient to clarify any ambiguity, see Boss Control, Inc., 410 F.3d at 1377 (internal citation omitted); Vitronics Corp., 90 F.3d at 1583 (internal citation omitted). The Court does not find the intrinsic evidence ambiguous on this point and therefore need not consider this extrinsic evidence. Moreover, even if the Court were to properly consider Locke's opinions, "a court should discount any expert testimony that is clearly at odds with the claim construction mandated by . . . the written record of the patent." Phillips, 415 F.3d at 1318 (internal citation omitted). Because Locke's understanding of the meaning of the claim language "a requirements area" is at odds with Federal Circuit precedent on the issue, his testimony on the point is entitled to no weight.

Accordingly, "in view of the use of an indefinite article 'a' in the claim language without numerical qualifiers" and the absence of evidence in the '837 Patent limiting "a requirements area" to one such area, see Baldwin Graphic Sys., Inc., 512 F.3d at 1342, 1343 (internal citations, quotations and alterations omitted); KCJ Corp., 223 F.3d at 1356 (internal citations omitted), the Court holds that "a requirements area" covers "one or more" requirements areas. Thus, an accused device having "one or more" requirements areas would fall within the claim term "a requirements area." See KCJ Corp., 223 F.3d at 1357.

d. Conclusion

In light of the above analysis, the Court rejects Defendant's limitations to the claim term "a requirements area." The Court therefore finds that the ordinary and customary meaning of the claim term "a requirements area" is "an area (i.e., one or more areas) for displaying one or more requirements (i.e., at least one requirement)."

The patents in suit recite "display areas" and "background area" at several locations in the asserted claims. For example, claim 1 of the '619 patent recites "a plurality of variable color display areas . . .; [and] a variable color background area . . . ." The district court instructed the jury:

Display areas and the background areas "include any illuminated pixel anywhere on the display device with background pixels illuminated to substantially surround the illuminated display area pixels." As the image for illuminated display area changes, so does the adjacent illuminated background area."

Telegenix argues that the jury should have been instructed that the display areas are distinct from the background areas, that display areas cannot become background areas, and that background areas cannot become display areas. TDS argues that the claims encompass display areas arranged in the form of an array or matrix of areas, and as such the display areas and background areas are interchangeable.

Beginning with the words of the claims themselves, the dictionary meaning of display is "[a] visually observable presentation of information . . . ." Illustrated Dictionary of Electronics 147 (3rd ed. 1985). Background is defined as: "[t]he context or supporting area of a picture . . . ." Id. at 43. Thus, the ordinary meaning of "display area," as reflected in these dictionary definitions, is an area designated to portray information. Background is ordinarily understood to provide the context or contrasting reference against which the displayed information is presented. The ordinary meaning of these
The specification of the '619 patent is consistent with an interpretation in which the display and background areas are distinct and not interchangeable. For example, the written description describes the invention as including "a variable color display area" and "a variable color background area 32, substantially surrounding the display area." '619 patent, col. 2, ll. 16-21. The specifications of the patents in suit do not establish that display areas can become background areas, nor do they allow for their interchangeable use.

The specification of the '890 patent describes illuminating selected display areas in the background color to "blend with the background to provide maximum color contrast." '890 patent, col. 2, ll. 41-54. However, this establishes only that the inventor contemplated that display areas could function similar to the background areas, not that the display and background areas could be interchangeable.

Looking to the prosecution history, there is additional evidence supporting a construction that the display and background areas are mutually exclusive. The inventor stated in response to a rejection: "[claims 1 and 2], similar to claim 13 which was not explicitly rejected, are distinguished from the prior art by the recitation of background regions separated from the display areas by opaque walls. No reference of the record describes explicitly defined background regions." This evidence of manifest exclusion or restriction represents a clear disavowal of claim scope. See Teleflex, 299 F.3d at 1325, 63 USPQ2d at 1381. In doing so, the patentee expressly limited background areas to function similar to the background areas, not that the display and background areas could be interchangeable.

Moreover, if the background and display areas could each include "any illuminated pixel," the background area would not be different in nature or quality from the display area. Such a proposition is inconsistent with the language of the claims, in which the inventor claimed a device having two types of areas, and with the specification which describes distinct display areas and background areas.

On the basis of the ordinary meaning of the words of the claim and the intrinsic evidence, we conclude that these limitations should be construed as follows: display areas include any illuminated pixel anywhere on the display device, other than background area pixels in defined background regions. The background area pixels substantially surround the illuminated display area pixels. Display area pixels may be illuminated in the background color, but background area pixels may not be illuminated in the display color.

A. Arithmetic and logic unit (claims 1-4, 8, 11)

The '434 patent relates to the field of data processing. It discloses a structure and method for using an arithmetic and logic unit ("ALU") in a multiplier circuit. 1:9-13. Both multiplier circuits and ALUs were prior art to the '434 patent. They are both circuits that perform operations on data retrieved from memory. 1:15-37. The claimed invention improves the multiplier circuit by making it smaller and more efficient. 2:5-10.

The parties agree that an ALU is a circuit that processes data from memory by performing both arithmetic operations (such as addition and subtraction) and logic operations (such as OR and AND) on the data. They also agree that an ALU can, but need not, include registers. 10 Compare 1:19-21 (specification states that prior art ALU "includes registers"), with 4:15-21.
(claim 3 states that registers are external to the ALU). The parties dispute two narrow issues: (1) whether the construction of this term should include addition as an exemplary operation and (2) whether the construction should specify that an ALU may optionally include registers. AMD proposes the following construction: "Unit that can perform both arithmetic and logic operations." Samsung's proposed construction is: "A conventional circuit which performs arithmetic and logic operations (e.g. addition) within the data processing system and optionally includes registers capable of receiving inputs from multiple sources within that data processing system."

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10 Registers temporarily save data. See, e.g., 1:20-21.

- - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - -

The Court finds that Samsung's construction is more likely to confuse jurors than to help them. Samsung's use of "addition" as an example is unlikely to help jurors understand what a logic operation is. In addition, Samsung's inclusion of information about registers is likely to be confusing because Samsung does not explain what registers are. This aspect of Samsung's construction is also unnecessary as there is no dispute that registers are optional. AMD's construction is more useful because it explains to jurors that an ALU simply performs the functions that its name suggests.

Accordingly, the Court adopts AMD's construction of this term.

In PixArt, the Court did not construe the entire phrase, but instead referred the parties to the Court's construction of "frame" as "a single image in a sequence of images" and "the correlation being upon the values in all memory array locations that correspond to overlap between the comparison frame and the other of the reference frame or sample frame" as "the operation of comparing at least one shifted sample frame or at least one shifted reference frame with the other of a reference frame or a sample frame being upon all of the values stored in memory that correspond to the area shared between the frames. The comparison provides the degree to which the frames are related. The values that are being compared are numerical representations of the digitized photo detector outputs." Avago proposes that the claim language should be construed as "at least two frames, each generated by shifting a sample frame or a reference frame, are compared with the other of a reference frame or a sample frame to produce a corresponding number of correlation values and ascertain motion along the first and second axes".

In this embodiment, the comparison frames are not limited to the image captured by the complete array of photodetectors -- rather, the comparison frames may be the product of an internal operation so that what is captured by the array of photodetectors (a reference frame or a subsequent sample frame) may be correlated to the comparison frame, or the comparison frames may be correlated with each other.

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Furthermore, Elan's definition of comparison frames excludes the prediction function disclosed in the specification: "For a hand held mouse, several successive collections of comparison frames can usually be obtained from the (16x16) reference frame taken at . . . This shifting to accommodate prediction throws away, or removes, some of the reference frame, reducing the size of the reference frame." Col. 5, ll. 14-25. In the prediction operation the comparison frame is derived from the reference frame and is thus neither a complete image, nor technically, an image captured by the array of photosensors.

Accordingly, the Court construes "a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes" as "at least two frames, each generated by shifting a sample frame or a reference frame, are compared with the other of a reference frame or a sample frame to provide the degree to which the frames are related. Such correlations produce numerical representations of the degree of similarity between the frames. Such correlations are also used to ascertain motion in the directions along the first and second axes. A frame refers to a single image in a sequence of images."

2. "arithmetic comparison mechanism coupled to the plurality of correction values, and wherein the motion signals are not output to the computer system whenever a correlation surface described by the plurality of correlation values fails to exhibit a selected curvature"

In the PixArt litigation, the Court construed this claim language to mean: "a device that executes an algorithm which determines a surface shape by plotting the multiple correlation values and that blocks the transmission of motion data to the computer system if the result of the algorithm is that the surface shape is not a suitable curvature." Avago primarily takes issue with the word "plotting" in this Court's construction. Avago proposes that the claim language above be construed as "logic that performs arithmetic comparison operations and that receives correlation values. Wherein signals indicative of actual motion in the directions along the first and second axes and relative to the work surface height irregularities of the illuminated portion of the work surface are not communicated to the computer system whenever the mathematical surface produced or described by the various correlation values does not meet a particular criteria with respect to its curve or shape. This mathematical surface is a mathematical abstraction insofar as it is merely a mathematical representation of the distribution of correlation values." Elan contends that "arithmetic comparison mechanism coupled to the plurality of correlation values" is impossible to construe because the "arithmetic comparison mechanism" bears no relationship with any other element of the claim and there is no explanation as to how this mechanism is "coupled" to correlation values. Elan construes the remainder of the claim language as "motion signals are not output to the computer whenever the surface shape described by the plotting of the multiple correlation values fails to exhibit a predetermined curvature of the plotted correlation values." As to a mechanism being "coupled" to a "plurality of values" the Court invites the parties to stipulate to a construction or present evidence with respect to this relationship. As to the remainder of the claim language, to the extent that the parties interpret the Court's use of "plotting" in its previous construction as "forming an actual graphical representation of the correlation values," such "plotting" is not required by the specification. At a rudimentary level, the Court understands the equation y = 2x to be a linear equation without using graph paper and a ruler. The Court declines to further construe the phrase.

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8. Claim 10: "around the receiver front end" This language is construed to mean "so as to pass, bypass, or avoid the receiver front end."

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K. "arranged about/disposed about"

The parties have agreed that "arranged about" and "disposed about" are synonymous and should have the same construction. The plaintiff proposes "placed or set in a particular order." Defendants propose "covering substantially all of."

The plaintiff contends that its construction follows the plain and ordinary meaning of the phrases as defined in dictionaries.
See, e.g., American Heritage Dictionary 129 (2d college ed. 1991). The plaintiff also argues that this dictionary meaning is supported by the prosecution history, and that Defendants' construction is limited to the preferred embodiment.

 Defendants argue that the plaintiff's construction is not supported by the claims or the specification because they do not require "a particular order." Defendants argue that the specification shows LEDs covering substantially all of the surfaces. See '269 patent, fig. 8.

 In reply, the plaintiff contends that it does not need to have "a particular order;" "specific order" or "proper order" would be sufficient as defined by other dictionaries. Furthermore, the plaintiff argues that Defendants' construction would not encompass the specification's figures showing 25-50% of surfaces covered by LEDs. See '269 patent, figures 5-8, 12.

 The Court agrees with the plaintiff that the defendants' construction would exclude preferred embodiments. Accordingly, "arranged about" and "disposed about" mean "placed or set in a specific order."

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4. "the modulator is arranged to allocate bits of encoded data signals having relatively less interleaving to carriers carrying relatively fewer bits in each symbol period"

The next disputed term is found in Claims 7 to 14 and 17 to 20 of the '604 Patent. Plaintiff proposes that the term means "the modulator is actually arranged to allocate bits such that, in each symbol period, carriers that have been allocated relatively fewer bits will be modulated to include bits from data signals having relatively less interleaving." (Chart at 8). Defendants assert that term means "the modulator is capable of allocating bits of encoded data signals having relatively less interleaving to carriers carrying relatively fewer bits in each symbol period." (Id.). Again, the issue arises concerning the construction of "arranged to." The Court will adopt the ordinary meaning of this phrase as articulated above.

 In their Reply brief, however, Defendants suggested that Plaintiff's construction could be interpreted to exclude the possibility that interleaved, or slow, data can be allocated to the carriers carrying fewer bits. (Defs.' Reply at 27). Although the Court does not interpret Plaintiff's construction as necessarily incorporating that limitation, the Court concludes that the disputed term should not be construed in such a way that prohibits the encoded data signals with greater interleaving from being allocated to the carriers with fewer bits.

 Accordingly, the Court construes disputed term [27] "the modulator is arranged to allocate bits of encoded data signals having relatively less interleaving to carriers carrying relatively fewer bits in each symbol period" to mean "the modulator is configured in a way such that it allocates bits of encoded data signals with relatively less interleaving to carriers with relatively fewer bits in each symbol period."

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3. "programmable FECC coder arranged to be programmed by the control unit"

Disputed term [26] is found in Claims 3 and 9 of the patent. Plaintiff contends that the term means "the control unit recited in claims 2 and 8 programs the programmable FECC coder with any parameters that relate to FECC coding and interleaving." (Chart at 8). Defendants assert that the term should be construed as: "an FECC coder capable of being programmed by the control unit." (Id.). Two issues predominate construction of this term. The first involves the construction of "arranged to." Rather than argue that "arranged to" means "actually arranged," Plaintiff now asserts that "arranged to program" means "programs." Plaintiff has not proffered sufficient evidence or argument to convince this Court that the term should be construed as "programs." Accordingly, the Court will once again adopt the ordinary meaning of "arranged" and construe this phrase to mean "configured to."

 The second issue is whether "any" parameters that relate to FECC coding and interleaving must be set through the control unit. Plaintiff submits that the term "control unit" in Claim 3 derives its antecedent basis from Claim 2. Claim 2, an
independent claim, states:

2. A data transmission system using multicarrier modulation, comprising:

    FECC (forward error correction code) coding and codeword interleaving apparatus arranged for differently encoding a plurality of data signals to provide a plurality of encoded data signals with different delays through the coding and interleaving apparatus, the coding and interleaving apparatus comprises a first store for storing the plurality of data signals, a second store, an FECC coder coupled between an output of the first store and an input of the second store, and a control unit for controlling the supply of data signals from the first store to the coder and for controlling storage of FECC codewords from the coder into the second store to provide codeword interleaving, and

    a modulator arranged to modulate bits of encoded data signals onto multiple carriers of the transmission system, different numbers of bits in each transmission symbol period being allocated to different carriers.

'604 Patent, col. 11, ll. 21-39 (emphasis added). Claim 8, the claim on which Claim 9 depends, recites, in pertinent part:

8. A data transmission system using multicarrier modulation, comprising:

    FECC (forward error correction code) coding and codeword interleaving apparatus . . . the coding and interleaving apparatus comprises . . . a control unit for controlling the supply of data signals from the first store to the coder and for controlling storage of FECC codewords from the coder into the second store to provide codeword interleaving . . . .

'604 Patent, col. 12, ll. 24-39 (emphasis added). On this basis, Plaintiff argues that the control unit as recited in Claims 2 and 8 sets "any" parameter that relates to the FECC coding and interleaving. In contrast, Defendants argue that the word "any" does not appear in Claims 3 or 9 or in the specification. Further, Defendants assert that the patent's disclosure does not define or limit the types of parameters that are being controlled by the control unit. (Tr. at 129:4-18).

The Court agrees that the "control unit" recited in Claim 3, which is a dependent claim, derives its antecedent basis in Claim 2. Plaintiff's proposed construction, however, is unduly restrictive and unsupported by the claim language and specification. Claim 2 itself does not recite the phrase "with any parameters that relate to FECC coding and interleaving." Nor does the Court find this limitation inherent in the claim language as Plaintiff suggests. Additionally, the specification does not mention this limitation when describing the FECC coder. It states: "The coder 72 is programmed by the control unit 68 to perform sequentially the functions of the plurality of FECC coders 32 in Fig. 2, and R can be different for different FIFOs of the RAM 70." '604 Patent, col. 9, ll. 9-12. Therefore, the Court declines to import such a limitation into the claim.

Accordingly, the Court construes disputed term [26] "programmable FECC coder arranged to be programmed by the control unit" to mean "programmable FECC coder configured in a way that enables it to be programmed by the control unit."
1. "Arrangement for reactivating" (Claims 1 and 18)

The parties are in agreement that the term "arrangement for reactivating" is a means-plus-function term that is subject to the requirements of paragraph 6 of 35 U.S.C. § 112, which requires each described function to also have a structure. The function of "arrangement for reactivating" is "to recommence communications with the first base station over the traffic channel that already was allocated and used prior to the handover attempt" (as asserted by HTC) or, more briefly, "to reactivate the link with the first base station if the handover is unsuccessful" (as described by IPCom). As explained previously, when a claim is expressed in means-plus-function language and it does not recite a definite structure in support of its function, the claim must be construed to cover that which is described in the specification and equivalents, Medtronic, 248 F.3d at 1311, and if one skilled in the art could not determine the bounds of the claim by reading the specification and equivalents, the claim is indefinite. See Halliburton, 514 F.3d at 1249.

HTC asserts that this claim is indefinite under paragraphs two and six of § 112. "[C]lear and convincing evidence that a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as [the accused infringer's] knowledge of the relevant art area" is required to find a claim invalid on indefiniteness grounds. Halliburton, 514 F.3d at 1249-50. HTC fails to meet this standard.

An analysis of whether one skilled in the art would understand the bounds of the claim when read in the light of the specification is necessary to determine whether a claim is definite. See Personalized Media, 161 F.3d at 705. "If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more." Id. Thus, the question is whether the "arrangement" is either identified or obvious to one skilled in the art.

In considering whether a claim term recites sufficient structure to avoid application of section 112 ¶ 6, we have not required the claim term to denote a specific structure. Instead, we have held that it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.

... . . .

Thus, while it is true that the term "connector assembly" does not bring to mind a particular structure, that point is not dispositive. What is important is whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term "means for."

Lighting World, 382 F.3d at 1359-60.

IPCom says that the structure represented by the "arrangement for reactivating" is "a processor connected to a transceiver and programmed to formulate and send messages to reactivate the link, if the handover is unsuccessful." Chart at 6 (citing '830 Patent at 6:30-44; 7:48-52; 7:65-83; Fig. 1 & Fig. 5 (steps 406-410)). IPCom argues that one skilled in the art would understand what is "plainly understood to be present in a mobile station" and that "the descriptions in the patent of receiving messages over a radio link (see, e.g., . . . Fig. 1; 1:20-21), interpreting the messages (Figs. 2-6; 6:34-36), making decisions based on the messages (Fig. 5; 6:37-38), formulating messages based on the decisions (Fig. 5; 6:37-38), and sending messages back over a radio link (Fig. 5, ref. 408; 6:37)" would indicate to one skilled in the art the required transceiver and properly programmed processor. IPCom's Resp. [Dkt. # 150] at 49. HTC's expert, Dr. Christopher Rose, conceded this point:

Indeed, Dr. Rose's concessions that a mobile station "has to be able to talk to the network so you've got to have a transceiver" and would be understood to have "some sort of processor. Something has to handle the data" ends this dispute as they establish exactly the same point IPCom made in opening - skilled persons would understand the specification to disclose sufficient structure. (Ex. 160B at 15:25-16:14.) 20 Dr. Rose's concessions are devastating to HTC's position. Id.
The Court agrees. The word "arrangement" by itself has no common or special meaning that one skilled in the art of telephony would know meant a processor and transceiver. But in the context of the '830 Patent and the art, the Court has no doubt that one skilled in the art would immediately deduce that a processor with a transceiver was the structure indicated by the term. The Court construes "arrangement for reactivating" in Claims 1 and 18 as meaning "a processor connected to a transceiver and programmed to formulate and send messages to reactivate the link, if the handover is unsuccessful."

The word "array" is used repeatedly in the specification. Claim 16 itself uses the word twice: once to refer to the data structures containing the "slice data" and another time to refer to the data structure containing the "data characteristic of the rolled fingerprint image," i.e., the composite array. Thus, whatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently. See Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632, 3 U.S.P.Q.2D (BNA) 1109, 1113 (Fed. Cir. 1987) (the meaning of a term in a claim must be defined in a manner that is consistent with its appearance in other claims in the same patent).

The fact that the word "array" is used to refer to both the data structures containing the slice data and the composite data supports the district court's claim construction. The pixel values stored in the image "arrays" (e.g., "IAL") are described as "digital values representative of the intensity of optical fingerprint images . . . ." Col. 4, ll. 13-14. Moreover, according to the written description, the "optical image OIL will be propagated from the prism and data representative thereof will be stored in RAM 14 as image array IAL." Thus, the written description teaches that the array is created upon storing the image data in memory.

The composite "array" is also described as containing digital data. This follows naturally from the fact that the data in the composite array is taken directly from the active area of the image array, which is digital. The data in the composite "array" is also stored in memory. See Col. 6, ll. 20-21 ("Composite array CA is stored in RAM 14.") Our interpretation of "slice data," discussed infra, also supports the district court's construction. Accordingly, both the claim language itself and the written description support the district court's claim construction.

DBI points to one isolated passage in the written description to support its claim construction. That passage states that the "digitizer 24 produces two-dimensional arrays of digital pixel values PVn,m[/] representative of the intensity of fingerprint images at corresponding discrete pixel locations PLn,m[/]." It is clear from the entirety of the written description that this is not an accurate statement. The digitizer is an analog-to-digital converter. Analog data comes in and digital data goes out. The digitizer does not organize the data nor index it. Thus, the digitizer does not "produce[] [an] array" even under DBI's proposed definition of array, which requires the data to be "individually addressable." This isolated passage therefore does not alter our construction, which is based on the entire written description.

In light of the explicit teaching of the '976 patent, it is difficult to understand how the composite data structure could be assembled without storing digital data. The composite image must be stored in a memory separate from the memory used to contain the current image array or otherwise the current image array would overwrite the composite image. Both the current image array and the composite image must also be operated upon in order to integrate the current slice data into the composite image. This requires the data in the composite array to be compared with the image in the active area, which may then be combined according to a mathematical formula. In view of the uncertainties surrounding the implementation of such an invention, we adopt the narrow claim construction that is clearly supported by the written description, and interpret "array" in claim 16 to mean a data structure stored in memory that is representative of a two-dimensional image. See Athletic Alternatives, 73 F.3d at 1581, 37 U.S.P.Q.2D (BNA) at 1372.

A DBI argues that the plain meaning of the word "array," as evidenced by its dictionary definition, does not require the data contained therein to be digital. To support its position it offers the following definition: "an n-dimensional ordered set of
data items identified by a single name and one or more indices, so that each element of the set is individually addressable" (quoting The New IEEE Standard Dictionary of Electrical and Electronic Terms (5th ed. 1993)). The intrinsic evidence clearly indicates that the applicant distinguished between analog "frames" and digital "arrays." Because the intrinsic record is clear we do not give weight to an inconsistent dictionary definition.

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1. Phase[d] delay array.

The patent claims require a "phase[d] delay array." O2 contends that the court should construe this phrase as a whole and define it to mean "a circuit that generates a plurality of phase shifted signals." O2 argues that the patent uses the phrase (or similar phrases) sixty-six times in the specification. O2 thus argues that the court should define the term by reference to its context in the specification. O2 argues that the inventors implicitly acted as their own lexicographers by using the term phased delay array according to O2's proposed definition. Samsung counters that the term in need of construction is "array." According to Samsung, an array is a narrower term than a "circuit" as proposed by O2. Samsung points to a dictionary definition of "array" and proposes that the term means "a group of components arranged to provide a desired variation."

Despite O2's arguments in the briefs, Samsung correctly observes that O2's proposed construction effectively reads the term "array" out of the claims and substitutes the term "circuit" in its place. The claims and the language of the patent use both the terms "circuit" and "array." Had the inventors desired to use the term "circuit" in the claims, they easily could have done so. Indeed, as Samsung observes, claim 6 of the '264 patent actually used both terms, when it adds the limitation of "phase array driver circuits." In light of these issues, the court defines "array" as used in the claim limitation to mean "a group of components arranged to provide a desired variation." The balance of the phrase needs no construction.

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a. "LED array"

The parties' dispute over claim 1's "LED array" concerns its configuration and components. Ecolux, Dialight, and Precision argue that the "LED array" requires a series-parallel configuration of strings of LEDs with a ballast resistor 3 in each string. Lumileds supports this construction, but also argues that if I reject it, the plain meaning of "LED array" requires only a group of LEDs forming a complete unit - a broad construction that could encompass a single string of LEDs in series or a series-parallel configuration. Relume contends that the "LED array" requires a series-parallel configuration, but not ballast resistors.

3 A ballast resistor is a resistor that limits and spreads current across a load (here the LED array). This "ballasting" function gives the resistor its name.

4 The exception is the alternative, plain meaning construction offered by Lumileds.
Relume finds its proposed construction in a different passage of the specification than do defendants. That passage describes the preferred embodiment of the LED array as "consisting of a large number of series-parallel connected LED devices." '645, 6:24-25. Relume also relies on the patent's diagrams of three prior art LED arrays, all of which depict series-parallel configurations, but only one of which depicts ballast resistors. From these references - the preferred embodiment passage and the prior art diagrams - Relume argues that a person of ordinary skill in the art of LED array power supplies would understand the series-parallel configuration, but not the ballast resistors, to be a necessary part of the claimed "LED array".

My construction of "LED array" must begin with the language of claim 1. See Phillips Petroleum Co. v. Huntsman Polymers Corp., 157 F.3d 866, 871 (Fed. Cir. 1998). It does not mention series-parallel LED configurations or ballast resistors. All that claim 1 explicitly requires is the "LED array" element to have as physical structure is 1) the LEDs in an array arrangement and 2) an input connected to the output of the power factor correction converter means.

In fact, claim 1 speaks broadly of its claimed invention. It states at the outset that it covers "an apparatus for supplying regulated voltage d.c. electrical power to an LED array." '645, 13:16-17. It further states that this apparatus has three major elements: a rectifier means, a power factor correction converter means, and an LED array. Thus, upon reading claim 1 in its entirety, a person of ordinary skill in this art would understand that it covers a certain kind of regulated voltage power supply for an LED array, but would not necessarily conclude that the invention's application was restricted solely to traffic signals. To put it another way, the invention described by the language of claim 1 is a relatively simple one with potentially broad application: any conceivable use for regulated voltage LED illumination.

This point is important because it informs the ordinary meaning of the phrase "LED array." By itself, the word "array" connotes nothing more than a series or orderly grouping of things. Webster's Third New International Dictionary (1986) (hereafter "Webster's") defines it variously as "a regular and imposing grouping or arrangement" and "an impressive list, series, or group of things." 5 The modifier "LED" simply tells the reader that the things arranged by the array are LEDs. Together, then, the words "LED" and "array" have a range of ordinary meaning that can cover LED configurations as simple as a string of LEDs in a series or as complicated as the series-parallel LED strings of the '645 patent's preferred embodiment. The entirety of claim 1 does not alter this range of ordinary meaning. 6 Thus, after reading claim 1, a person of ordinary skill in the art of LED array power supplies would understand the phrase "LED array," on its face, to cover a wide scope of LED configurations, including, but not limited to, the simple series and the series-parallel.

5 Relume argues, without reference to a dictionary or treatise, that "array" merely means "array shaped," "having a two dimensional extent, width and height." (Pl.'s Consolidated Opp. at 12.) I reject this definition. Besides being circular and at odds with Webster's, it is critically incomplete. It does not speak to the ordered nature of arranged things that the word array evokes. It is also fails to gain Relume what it wants for validity purposes: a construction of "LED array" that excludes from its scope a single string of LEDs in a series. That simple configuration does have a width and a height: it is one LED wide and however many LEDs high.

A related point: In its response to Lumileds' anticipation motion, Relume raised arguments vehemently attacking the use of dictionaries in claim construction because they are extrinsic evidence. (See Pl.'s Anticipation Opp. at 9.) Throughout my opinion, I follow the rule laid down in Vitronics, which permits me to consult dictionaries and treatises "at any time" in my claim construction so long as the dictionary's definition does not contradict the definition supplied by the intrinsic evidence of the patent. See 90 F.3d at 1584, n.6.

6 Some defendants suggest that the reference numeral attached to "LED array" limits the phrase's ordinary meaning by referring the reader to the diagram of the array's preferred embodiment, which shows ballast resistors in the array. I find this argument unpersuasive, however. A reference numeral is simply a convenient tool for directing the reader to an example of the element the patentee has claimed. Had the drafter wanted to incorporate the limitations of the preferred embodiment into the language of claim 1, he or she could have done so quite easily with words.
The parties' proposed constructions for "LED array" raise the issue whether the specification narrows the phrase's ordinary meaning. According to the United States Court of Appeals for the Federal Circuit ("Federal Circuit"), I "must presume that the terms in a claim mean what they say, and, unless otherwise compelled, give fall effect to the ordinary and accustomed meaning of claim terms." Johnson Worldwide Assocs., Inc. v. Zebeco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999). The Federal Circuit has identified "two situations where a sufficient reason exists to require the entry of a definition of a claim term other than its ordinary and accustomed meaning." Id. at 990. "The first arises if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term." Id. "The second is where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used." Id. This second situation is not at issue here because, as I have explained, the phrase "LED array" is clear on its face.

The ballast resistor construction of "LED array" proposed by defendants is essentially an argument under the first situation. That is, defendants believe that the drafter of the '645 patent acted as his/her own lexicographer and clearly set forth an explicit definition of "LED array" in the specification that requires ballast resistors. At a March 22, 1999 hearing, I stated an inclination for a preliminary construction of "LED array" that was consistent with defendants' construction.

After further consideration, however, I am not persuaded that I should adopt their construction, which relies entirely on a passage and a diagram that describe the preferred embodiment of claim 1's LED array. It is a fundamental rule of claim construction that "references to a preferred embodiment, such as those often present in a specification, are not claim limitations." Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988); see also Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1302-03 (Fed. Cir. 1997). Otherwise, "there would be no need for the claims." SRI Int'l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1121 (Fed. Cir. 1985).

Claim 1 only requires its array to incorporate one component: the LEDs. No additional components are therefore necessary. Except for its description of the preferred embodiment of the array, the specification of the '645 patent teaches nothing different. Its statement of the invention's objectives does not mention ballast resistors or claim any functional advantage related to ballast resistors. Perhaps most telling, the preferred embodiment passage relied on by defendants is itself only cursory in its reference to ballast resistors; it does not explain what advantage is to be gained by using them in the array. From the context of the '645 patent, then, it is clear that the drafter did not intend for the preferred embodiment's use of ballast resistors to limit the full range of ordinary meaning inherent in the "LED array" phrase of claim 1.

Precision attempts to justify a ballast resistors requirement on functional grounds. As this argument goes, a person of ordinary skill in the art would understand ballast resistors to be necessary components in any voltage-regulated LED array because, without them, a voltage-regulated LED array will not illuminate well in all conditions. From an engineering standpoint, ballast resistors undoubtedly improve the performance of a voltage-regulated LED array. By limiting and spreading the current in the array, they help the LEDs maintain a more even level of illumination. Yet claim 1 recites no limitations on the array's illumination level, nor does it recite limitations for limiting and spreading current. Because their function is not essential to the claimed array, it follows that ballast resistors themselves are not essential components for that array.

Having determined that the "LED array" of claim 1 does not require ballast resistors, the question then becomes whether it also requires a certain configuration of the LEDs. Relume essentially argues that the "LED array" of claim 1 requires a series-parallel configuration of LEDs, but not necessarily the exact series-parallel example of the patent's preferred embodiment. Defendants argue that this construction improperly imports limitations from the specification into claim 1. They correctly point out the fundamental inconsistency in Relume's objection to a ballast resistors requirement, which comes from the specification, and its support for a series-parallel requirement, which also comes from the specification. Relume responds by contending that a person of ordinary skill in the art would know that a series-parallel configuration is necessary because LED string redundancy allows the array to continue to emit light in the event of a single point LED failure. 7

Footnotes

7 A single point LED failure occurs when one LED in a string of connected LEDs fails, for whatever reason, to conduct...
electrical current and therefore emit light. This failure causes the entire LED string to fail as well. A series-parallel configuration of LED strings minimizes the impact of a single point LED failure because, even if one string is extinguished, the other strings will continue to emit light.

I find Relume's series-parallel construction of "LED array" unpersuasive, however, because it fails to overcome the presumption in favor of the phrase's ordinary and accustomed meaning. The language of claim 1 does not explicitly limit the "LED array" to a series-parallel configuration. Nor does it implicitly do so. As discussed above, the phrase "LED array" means on its face that the claimed element must arrange LEDs in a regular grouping. A series configuration is simply the logical minimum of this facial meaning and thus cannot be excluded from the phrase's scope. The specification supports this conclusion. It notes that both series and series-parallel configurations exist in the prior art as design choices for LED arrays. '645, 1:18-30.

If I were to determine that a person of ordinary skill in the art would read a series-parallel limitation into "LED array," I would violate the fundamental principle that the preferred embodiment not limit the meaning of the claims. See Laitram, 863 F.2d at 865. The specification does not indicate that the drafter acted as his own lexicographer and intended for the series-parallel definition of the preferred embodiment to override the ordinary meaning of "LED array." See Zebco, 175 F.3d at 990. Aside from the preferred embodiment, there are no explicit series-parallel definitions for claim 1's LED array set forth in the specification. The specification also does not mention a series-parallel configuration in its summary of the invention, nor in its statement of the invention's objectives. Finally, the specification's diagrams of the prior art tellingly attach "series-parallel" as an adjective to "LED array"; this further reveals that the phrase "LED array" does not inherently teach a series-parallel configuration to those in the art.

Relume falls back on a functionality argument to support its narrow construction. It contends that the LED array of claim 1 requires, at minimum, a series-parallel configuration in order to gain the benefit of LED string redundancy. But just as Precision's function argument failed, so too does Relume's. Claim 1 nowhere recites a limitation on the configuration of the LED array, nor does it state a functional advantage from a series-parallel configuration. Moreover, claim 1 states no concern for how well or how safely the LED array illuminates, only that it does. All of this makes sense given that the invention described by claim 1 is not a kind of LED array or a safer LED array, but an apparatus that supplies voltage-regulated electrical power to any kind of LED array, whatever its application.

I conclude that the intrinsic evidence of record would lead a person of ordinary skill in the art of LED array power supplies to understand the "LED array" of claim 1 to mean an orderly arrangement of LEDs - a meaning that encompasses both a simple series and a series-parallel configuration. I further conclude that a person of ordinary skill in this art would not understand the "LED array" of claim 1 to require ballast resistors.

4. "an array of EEPROM cells" ('808 pat., cl. 16)

The parties disagree about whether the term "an array of EEPROM cells" requires the claimed memory storage elements to be "contiguous" or contain "dedicated row and column decoders." Defendants seek both limitations on the ground that the sole embodiment shows storage elements that are arguably "contiguous" (assuming that term is sufficiently clear to have meaning) and contains decoders labeled "column decoder" and "row decode." (The embodiment is from a separate application incorporated into the '808 patent by reference, Figure 4 from U.S. Patent Application No. 07/337,579, which became U.S. Patent No. 5,172,338).

Even if I assume that the sole embodiment includes contiguous elements and dedicated decoders, this does not necessarily mean that an "array of EEPROM cells" must always do so. As explained above, the mere fact that a sole embodiment includes certain features does not mean that the claimed invention is so limited. Something in the specifications must indicate that the embodiment was intended to demonstrate the contours of the invention, not just provide one example of the invention. Phillips, 415 F.3d at 1323. Defendants do not point to any intrinsic evidence suggesting the inventor intended to limit "an array of EEPROM cells" to the embodiment it incorporated by reference.
Defendants point out that the term is not described in the specification, which is true, but that does not mean the embodiment must be the sole source for interpreting the term. Indeed, the starting point is the "ordinary and customary meaning" of the terms themselves, as understood by a person of ordinary skill in the art at the time of the invention. Id. at 1312-14. The cited embodiment may suggest that, at the time of the invention, an "array" in the relevant field included dedicated row and column decoders and contiguous memory storage elements. However, this does not suggest that either of these features was a requirement of an array. Indeed, as plaintiff's expert avers, at the time of the invention (the late 1980s), "it was well-known in the semiconductor memory industry to divide a memory array into physically distinct units called 'sub-arrays' or 'subarrays.'" Taylor Decl., dkt. #540, ¶ 12. This matters because a memory system using a sub-array might not have "contiguous" memory storage elements throughout the array and may have dedicated decoders at the sub-array level as opposed to the array level, as demonstrated in a later patent of plaintiff's using sub-arrays:

[SEE FIGURE IN ORIGINAL]

Dkt. #60-5, U.S. Pat. No. 5,890,192, Fig. 3. (Although each separate group of memory storage elements is labeled as a "quad" in Fig. 3, elsewhere the patent describes the group of storage elements as a "plurality of flash EEPROM cells 400 organized into four sub-arrays or quadrants, 400-0 to 400-3." Id., col. 3, Ins. 57-58.)

Plaintiff's expert has more than his say-so to back this up; he identifies three patents from the time of the invention that included arrays subdivided into sub-arrays: U.S. Pat. No. 4,694,433, Abstract ("[a] memory structure for very large memory arrays on a chip . . . where the memory array is divided into a number of subarrays."); U.S. Pat. No. 4,758,993, Abstract ("having an array of memory cells which are divided in several sub-arrays."); U.S. Pat. No. 4,807,191, col. 1, Ins. 13-15 ("[t]he integrated circuit memories are frequently characterized by being divided into sub-arrays, or blocks, of memory cells.").

Defendants point out that none of the patents involve flash EEPROM memory, but do not explain why the term "array" would mean something different in the flash memory field from what it would mean in other semiconductor memory devices. Even if defendants are correct that at the time of the invention "sub-arrays" had not been contemplated in the flash memory context, that would not mean an "array" must be limited in the ways that defendants propose. Only if "arrays" in the field of flash memory excluded sub-arrays would there be a ground for imposing the limitations defendants request. Defendants have no evidence of this, so the limitations will not be imposed. "An array of EEPROM cells" need not be "contiguous" or contain "dedicated row and column decoders."

"[A]rray of non-volatile floating gate memory cells" (claims 1 & 10)

The court previously interpreted the term "array of non-volatile floating gate memory cells" as meaning:

- a group of memory cells on one or more memory chips. Multiple chips in the same array are connected through objects such as a common interface and/or common logic and resistor circuits. An array may contain components that are not memory cells, such as an interface.

Doc # 318 at 12.

On appeal, the Federal Circuit did not address the "array" interpretation. SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1292. Despite the Federal Circuit's pass on this term, SanDisk argues that the interpretation should be: "a memory portion of a semiconductor chip that contains non-volatile floating gate memory cells organized into rows and columns (i.e., a non-volatile floating gate memory chip)." SanDisk Br (Doc # 373) at 6 (emphasis added).

SanDisk repeats the argument that an "array" is limited to a single chip. Id at 6-9; SanDisk Reply Br (Doc # 396) at 3-6. This argument was considered and rejected in the initial claim construction order. Doc # 318 at 12-16. SanDisk presents no reason why the court should revisit that decision here. Accordingly, the court declines to adopt SanDisk's construction.
Ritek contends that the Federal Circuit's analysis of the "partitioning" construction provided "additional guidance regarding the meaning of 'array.'" Ritek Br (Doc # 390) at 14-15. Ritek proposes the following claim construction to "conform" with the Federal Circuit opinion:

A group of memory cells on one or more memory chips that are required to perform the steps of the claimed method and are connected through a common interface and/or common logic and resistor circuits. It may contain components that are not memory cells, such as an interface. There may be other memory cells in the memory system that are not part of the array which performs the steps of the claimed method.

Id at 15 (Ritek's proposed additions to this court's original claim construction order in italics). For the reasons that follow, the court declines to modify the original construction of "array."

The Federal Circuit explicitly stated: "The judgment does not depend on the choice between these disputed meanings of 'array.'" * * * [W]e find it unnecessary at this point to decide this dispute." SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1292. This suggests that the Federal Circuit did not intend to provide any "additional guidance" on the term. More importantly, the Federal Circuit explicitly acknowledged it was not reviewing "array." Id. The court finds that the Federal Circuit did not intend to alter the construction of "array" in its analysis of "partitioning."

Moreover, Ritek concedes that the court's original construction of "array" is correct. Ritek conceded at the claim construction hearing that the additional language it proposes merely makes the court's previous construction "extra right" in light of the guidance provided by the Federal Circuit with respect to the "partitioning" construction. A construction need not be "extra right" to avoid being wrong. Since the court will address the Federal Circuit's guidance in the "partitioning" construction, the court declines to adopt Ritek's proposed additions.

Accordingly, the court's original construction of the term "array" stands.

Because the court declines to adopt Ritek's proposed modifications to the construction, SanDisk's motion to strike Ritek's "new" construction of "array" is moot and DENIED. See Doc ## 393, 405-2.

An array of optical signal processing devices

Claims 18 and 19 of the '714 Patent contain the term "an array of optical signal processing devices." Cheetah contends that the term means "a plurality of mirrors arranged in a regular pattern that process the optical signal," while Mitsubishi contends that it means "an array of variable blazed gratings." The parties disagree whether the term "an array of optical signal processing devices" is limited to variable blazed gratings.

Cheetah asserts that the specification indicates that configurations other than variable blazed grating may be used for the optical signal processing devices. Cheetah also points to the prosecution history as providing evidence as to how the Patent Office interpreted this term to include digital micro-mirrors, which are not variable blazed gratings, when applying the prior art. Mitsubishi counters that all of the signal processing devices disclosed in the specification are variable blazed gratings. Mitsubishi also points out that the title of the patent is "Variable Blazed Grating Based Signal Processing" and that "blazed grating" appears 145 times in the specification, and argues that collectively these statements demonstrate that blazed gratings are part the invention, not merely a preferred embodiment.

Although the specification provides extensive reference to the use of blazed gratings, it states that "any shape can be used consistent with the invention" for the strips and "switches implementing different geometric configurations or different numbers of blazed grating elements, circulators, reflective surfaces, or other optical elements are contemplated as being within the scope of the invention." '714 Patent, col. 3:37-42, col. 14:58-65. In addition, Claims 18 and 19 themselves provide additional explicit detail regarding the array of optical signal processing devices without limiting the devices to variable blazed gratings. '714 Patent, col. 25:48-67, col. 26:16-22. Further, the fact that the title of the patent is "Variable Blazed Grating Based Signal Processing" is of very little significance to claim construction. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1313 (Fed. Cir. 1999) (stating the fact that "the patent title has only been mentioned
once by [the Court of Appeals for the Federal Circuit] in the context of claim construction and, even then, merely to make an illustrative point in one sentence, makes a powerful statement as to the unimportance of a patent's title to claim construction”). Thus, limiting the array to variable blazed gratings would be improperly importing a limitation of the preferred embodiment. Phillips, 415 F.3d at 1323 (stating that "the danger of reading limitations from the specification into the claim" should be avoided). Accordingly, the Court construes the term "an array of optical signal processing devices" to mean "a plurality of devices arranged in a regular pattern that process the optical signal."

The text of claim 1 is set forth below with the key disputed term highlighted in bold type.

A method of on-line reorganization of data in a storage system having n+1 disks arranged in a RAID array when one of said disks fails while preserving concurrent access to said array by a user application, each of said disks in said storage system having a plurality of data blocks, a plurality of parity blocks, each parity block associated with n data blocks, a plurality of groups of parity block state bits, each group of parity block state bits indicating that said associated parity block contains parity information or data or the contents are undefined, and a group of array state bits indicating the condition of the array as "normal," "folding," "fully folded" or "unfolding," said method comprising the steps of:

(a) receiving a read request from said user application to read a targeted data block;

(b) interrogating said array state bits to determine the condition of said array;

(c) if said array state bits indicate said array is in said "normal" state, then proceeding with a read operation;

(d) if said array state bits indicate said array is in said "folding" state, then proceeding with a "folding" read operation;

(e) if said array state bits indicate said array is in said "fully folded" state, then proceeding with a "fully folded" read operation; and

(f) if said array state bits indicate said array is in said "folding" state, then also proceeding with a deliberate process to complete said reorganization concurrently with user application access to said array.

The text of claim 7 is set forth below, with the key disputed term highlighted in bold type.

A method of on-line reorganization of data in a storage system having n+1 disks arranged in a RAID array when one of said disks fails while preserving concurrent access to said array by a user application, each of said disks in said storage system having a plurality of data blocks, a plurality of parity blocks, each parity block associated with n data blocks, a plurality of groups of parity block state bits, each group of parity block state bits indicating that said associated parity block contains parity information or data or the contents are undefined, and a group of array state bits indicating the condition of the array as "normal," "folding," "fully folded" or "unfolding," said method comprising the steps of:

(a) receiving a write request from said user application to write to a targeted data block;

(b) interrogating said array state bits to determine the condition of said array;

(c) if said array state bits indicate said array is in said "normal" state, then proceeding with a write operation;

(d) if said array state bits indicate said array is in said "folding" state, then proceeding with a "folding" write operation;

(e) if said array state bits indicate said array is in said "fully folded" state, then proceeding with a "fully folded" write operation; and
if said array state bits indicate said array is in said "folding" state, then also proceeding with a deliberate process to
complete said reorganization concurrently with user application access to said array.

HP asks the Court to construe this term as: "Bits indicating the state of the array as a whole." EMC proposes: "Bits stored on
each disk in a RAID array that indicate the condition of the RAID array as being normal,' folding,' fully-folded,' and
unfolding.'"

The claim language reveals that array state bits may indicate the condition of the array as normal, folding, fully folded, or
unfolding. Nevertheless, a list of things that an object may indicate does not necessarily define the object. Indeed, the
specification acknowledges that array state bits identify other information as well. For example, "[i]n the preferred
embodiment, two array state bits identify the missing or replacement member disk and two additional array state bits
identify the state of the array." 327:11/67-12/2. Similarly, "[t]he state information for the array as a whole includes the
following: (a) Identity of the missing or replacement member disk and (b) Array state. The array state includes (a)
normal,' . . . (b) folding,' . . . (c) fully folded,' . . . and, (d) unfolding."' 327:11/50-57. Accordingly, looking to the
specification to help define the term without importing limitations, the Court concludes that "array state bits" contain
information relating to the identity of a missing or replacement disk and the state of the array.

EMC's proposal further requires the array state bits to be "stored on each disk in a RAID array." However, nothing in the
claim or the specification indicates that a location limitation is necessary for proper claim construction.

Accordingly, the Court construes this term as "bits that identify either the missing or replacement member disk or the state
of the array."

A. "A Method of Screening the Data as It Is Being Transferred"

The parties first dispute the meaning of the phrase "a method of screening the data as it is being transferred" as used in the
preamble of Claim 1 (and which, of necessity, constitutes part of dependent claims 2-17). Defendant proposes that this term
be construed as "a method of screening the data while it is being moved or copied and before the data is written to the
computer storage medium." Joint Claim Construction Statement ("JCCS"), Appx. A, at 3 (term 8). Plaintiff proposes that the
phrase be construed as "a method of screening the data prior to storage." Id. Preliminarily, however, plaintiff contends that
this phrase is part of the claim preamble, and because the preamble ordinarily does not limit the claim it is not necessary to
construe this term.

1. Whether the Phrase Needs to Be Construed

Plaintiff argues that the phrase "a method of screening the data as it is being transferred" is, as part of the preamble to Claim
1, not a limitation on the claimed invention. As plaintiff correctly notes, if the preamble is not limiting, "then the preamble
is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation." Schumer v.
Laboratory Computer Sys., Inc., 308 F.3d 1304, 1310 (Fed. Cir. 2002) (quoting Bristol-Myers Squibb Co. v. Ben Venue
Labs., Inc., 246 F.3d 1368, 1373-74 (Fed. Cir. 2001)). Thus, the Court must first determine whether this language of the
preamble has any limiting effect on the claimed invention.

In general, "a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses
the preamble only to state a purpose or intended use for the invention." Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.,
289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997)); see also, Pitney Bowes, Inc.
v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). "No litmus test defines when a preamble limits claim scope." Catalina Mktg., 289 F.3d at 808 (Fed. Cir. 2002). Rather, "[w]hether to treat a preamble as a claim limitation is determined
on the facts of each case in light of the claim as a whole and the invention described in the patent." Storage Tech. Corp. v.
Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003); see also, Poly-America, L.P. v. GSE Lining Tech., Inc., 383 F.3d 1303,
1309 (Fed. Cir. 2004). Nevertheless, "[s]ome guideposts . . . have emerged from various cases discussing the preamble's
effect on claim scope." Catalina Mktg., 289 F.3d at 808. These guideposts establish three general situations in which
language in the preamble may have limiting effect.

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First, "[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention." Eaton Corp. v. Rockwell Int'l Corp., 323 F.3d 1332, 1339 (Fed. Cir. 2003); see also, Catalina Mktg., 289 F.3d at 808. Second, and relatedly, "a preamble generally limits the claimed invention if it 'recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.'" NTP Inc. v. Research in Motion, Ltd., 392 F.3d 1336, 1358 (Fed. Cir. 2004) (quoting Catalina Mktg., 289 F.3d at 808); see also, Poly-America, L.P., 383 F.3d at 1309. Finally, "because such reliance indicates use of the preamble to define, in part, the claimed invention," Catalina Mktg., 289 F.3d at 808, preamble language is limiting if there is "clear reliance on the preamble during prosecution to distinguish the prior art." Intirtool, Ltd. v. Texar Corp., 369 F.3d 1289, 1295 (Fed. Cir. 2004) (quoting Catalina Mktg., 289 F.3d at 808).

Defendant contends that the language at issue was added during patent prosecution in order to distinguish the claimed invention from the prior art. The Court agrees. As originally submitted, the preamble to Claim 1 read: "In a data transfer system for receiving a transmission of digital data for storage in a computer storage medium, a method of identifying and inhibiting the storage of data containing at least one predefined sequence, comprising: . . . ." Def.'s Claim Construction Br. ["Def.'s Br."] at 2. On November 21, 1991, in part to overcome the prior art, the inventors amended the preamble to read: "In a system for transferring digital data for storage in a computer storage medium, a method of inhibiting the storage of data containing at least one predefined sequence, comprising the steps of . . . ." Id.; see also id. at 6-7 (explaining reason for amendment). After the application was again rejected, the inventors amended the application once more, altering the preamble to read: "In a system for transferring digital data for storage in a computer storage medium, a method of screening the data as it is being transferred and automatically inhibiting the storage of screened data containing at least one predefined sequence, comprising the steps of . . . ." Def.'s Br., Ex. 15, Amendment filed 8/26/92, at 1 (emphasis added).

Importantly, counsel for the inventors explained that this amendment was sufficient to overcome the prior art. Counsel explained that "the art relied upon does not teach or suggest a method or apparatus for screening the data as it is being transferred (on the fly) . . . ." Id. at 5 (emphasis added). Thus, counsel indicated that the prior art was distinguishable because it did not "screen the data as it is being transferred," the precise language added to the preamble by the amendment. "This language shows a clear reliance by the patentee on the preamble to persuade the Patent Office that the claimed invention is not anticipated by the prior art. As such, the preamble is a limitation of the claims." In re Cruciferous Sprout Litig., 301 F.3d 1343, 1348 (Fed. Cir. 2002); see also, Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1370 (Fed. Cir. 2003); Middleton, Inc. v. Minnesota Mining & Mfg. Co., No. 99-1201, 1999 U.S. App. LEXIS 29872, 1999 WL 1072246, at *3 (Fed. Cir. Nov. 16, 1999). See generally, Catalina Mktg., 289 F.3d at 808 ("[C]lear reliance on the preamble during prosecution to distinguish the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention.").

This conclusion is buttressed by the language of the specification. The specification notes that the problem with the then-existing technology was that it only allowed for scanning of files already on the destination storage medium, when the virus has already corrupted that medium. See '776 patent, col. 1, Ins. 45-54. As stated by the specification, the invention disclosed constitutes an improvement over the prior art because it solves this problem "by performing an in transit detection of computer viruses," '776 patent, col. 1, In. 36 (emphasis added), and notes that the invention "is able to test for viruses 'on the fly.'" '776 patent, col. 1, Ins. 59-60. "The specification therefore indicates that the inventors believed their invention to be a method for screening the data during transfer, as recited in the preamble to Claim 1. Cruciferous Sprout Litig., 301 F.3d at 1347. Thus, "both the specification and the prosecution history indicate that the phrase ["a method of screening the data as it is being transferred"] helps to define the claimed invention and is, therefore, a limitation of Claim 1 [and the claims that are dependent upon Claim 1]." Id.

This conclusion is not altered by Bristol-Myers Squibb Co. v. Immunex Corp., 86 F. Supp. 2d 447 (D.N.J. 2000), aff'd in relevant part sub nom. Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1373-74 (Fed. Cir. 2001), upon which plaintiff relies. As plaintiff notes, the Bristol-Myers court noted that the fact "[t]hat the examiner insisted on including certain language . . . does not automatically make the claims' preambles limitations." Id. at 451. However, as the Federal Circuit explained on appeal, in that case the language which was added to the preambles was not added for the purpose of distinguishing the prior art, and was added voluntarily by the patentee after the claim had already been allowed. See Bristol-Myers, 246 F.3d at 1375. In other words, the patentee did not rely on the preamble language during prosecution to distinguish the prior art. Here, as explained above, the patentees did just that, and under the cases discussed above this
renders the language added to the preamble a limitation on the claim. Accordingly, the Court finds it necessary to construe the phrase "a method of screening the data as it is being transferred." 6

6 Because the prosecution history and specification lead to this conclusion, the Court need not consider the effect of Mr. Schallop's deposition testimony and the additional argument based on that testimony in defendant's supplemental brief.

2. Construction of the Phrase

As noted above, defendant proposes that this term be construed as "a method of screening the data while it is being moved or copied and before the data is written to the computer storage medium." JCCS, Appx. A, at 3 (term 8). Plaintiff proposes that the phrase be construed as "a method of screening the data prior to storage." Id. The Court concludes that defendant's construction is correct.

Plaintiff's construction merely equates "prior to storage" with transfer. It may ultimately be, as plaintiff argues, that everything between sending and "storage" constitutes transfer, and thus the terms mean the same thing. This cannot be resolved, however, without independently construing each term. As used in Claim 1, the phrase "a method of screening data as it is being transferred" by its plain terms contemplates screening while the data is being moved or copied. This conclusion is buttressed by the specification and the prosecution history, both of which point up the method's ability to detect viruses "on the fly" as central to the merits of the claimed method. Whether this construction of the phrase adds any limitation which is not already encompassed by other terms in the claims need not be decided here. Accordingly, the Court concludes that the phrase "a method of screening the data as it is being transferred" means "a method of screening the data while it is being moved or copied and before the data is stored to the computer storage medium." 7

7 The Court has substituted the word "stored" here in placed of "written" as set forth in defendant's proposed construction. This use of "written" assumes that the Court adopts defendant's definition of "storage," which is discussed below, see infra part IV.D.1. It is enough in construing this term to used the word "stored," with "stored" taking the further meaning discussed below.

8. Defining and Loading, as Required by the Formation of the Particular Monochromatic Images, at Least Some of the Font Patterns in the Font Memory

The phrase "defining and loading, as required by the formation of the particular monochromatic images, at least some of the font patterns in the font memory" means that as new characters are encountered in the image, new font patterns (or monochromatic characters) can be formed and stored in the font memory.

D. As the Interrupt Signal ('950 patent, claims 1, 13; '780 patent, claims 1, 7)

Agere contends that the term means "as the one and only signal to the host computer from the device that forces the host processor to temporarily suspend other tasks while addressing the device, which signal is not asserted in conjunction with Direct Memory Access transfers." PCTEL contends that the term means "as a signal that attempts to get the attention of a
Agere's proposed construction is based on the ordinary meaning of the term, the intrinsic evidence, and the prosecution history. Agere contends that the ordinary meaning of "interrupt" is "[a] temporary suspension of a process caused by an event outside of that process. . . ." (Mills-Robertson Decl., Ex. 14 at 13, Newton's Telecom Dictionary (1997). Agere also states that "as the interrupt signal" refers to only one signal, as the word "the" is used to modify the term that follows it by making that word singular and specific. Agere contends that this conclusion is supported by the following claim language: "the selection logic selects the first signal as the interrupt signal when the device is operating in the first mode and selects a second signal from the communication lines as the interrupt signal when the device is operating in second mode." '950 patent, col. 6:53-57. Agere also cites to the specification to support its position. '950 patent col. 4:32-61, 4: 62-5:6, 5:22-29; '780 patent col. 4:23-53, 4:54-64, 5:13-22. Finally, Agere asserts that the prosecution history reveals that PCTEL limited the claim coverage to a single, specific interrupt signal.

PCTEL responds that it has become standard practice to use indefinite articles (i.e., "a" and "an") the first time a claim term is introduced, and definite articles (i.e., "the" and "said" when the claim term is mentioned subsequently. n11 PCTEL also asserts that the term "comprising" in a claim term means that the claim covers devices that contain "at least" the elements in the claim. See Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other claims may be added. . . ). PCTEL contends that the '950 and '780 patents reflect both of these general drafting principles. Hence, PCTEL argues that the definite article "the" in the claim term "as the interrupt signal" simply makes clear that the signal that is selected by the selection logic is the same signal that causes the software to be executed by the host processor. Moreover, PCTEL argues that the use of the indefinite article "an" in conjunction with the open-ended claim term "comprising" evidences the applicant's intent that the claims cover products wherein the software is executed in response to more than one interrupt signal.

In construing this term, the Court agrees with Agere that ordinary meaning of "interrupt" is a signal that forces the host processor to temporarily suspend other tasks. (Mills-Robertson Decl., Ex. 22, Oxford Dictionary of Computing (1996)) ("A signal to a processor indicating that a asynchronous event has occurred. The current sequence of instructions is temporarily suspended (interrupted), and a sequence appropriate to the interruption is started in its place."); (Ex. 23, Webster's New World Dictionary of Computing Terms (1997)) ("A signal to the microprocessor indicating that an event has occurred that requires its attention. Processing is halted momentarily so that input/output to other operations can take place."); (Ex. 26, The IEEE Standard Dictionary of Electrical and Electronics Terms (1996)) ("The suspension of a process to handle an event external to the process.").

Regarding the parties' dispute over whether "as the interrupt signal" refers to only one signal, the Court finds Agere's reliance on the prosecution history is unpersuasive. The PTO originally rejected claim 1 because it was unclear where the interrupt signal was coming from. (Mills-Robertson Decl., Ex. 19 at 14982). Accordingly, the applicant specifically amended claim 1 to include "as the interrupt signal" to overcome the examiner's objection:

The Examiner indicated that claim 1 was unclear as to the source of the interrupt signal. Amended Claim 1 now recites, "the selection logic being coupled to select the interrupt signal provided to the host processor, wherein the selection logic selects the first signal as the interrupt signal when the device is operating in the first mode and selects a second signal from the communication lines as the interrupt signal when the device is operating in the second mode." Accordingly, amended claim 1 clearly indicates the source of the interrupt signal.

(Mills-Robertson Decl., Ex. 7 at AL 14994 (emphasis added).

Based on this amendment, the U.S. Patent examiner for the '780 patent approved claim 1 precisely because it distinguished
between interrupts from two different sources:

The following is an examiner's statement of reasons for allowance: the selection logic that distinguishes between interrupts from two different sources when in two different modes.

(Mills-Robertson Decl., Ex. 20 at AL 15079).

However, by clarifying that the selection logic selects the interrupt that causes the host processor to execute the software, the Court is not convinced that PCTEL limited the claim so that either the first or the second signal must be exclusively selected as the interrupt. See Omega Eng'g, Inc. v. Raytek, Corp., 334 F.3d 1314, 1326 (Fed. Cir. 2003) (stating that for prosecution disclaimer to attach, the alleged disavowing actions or statements made during prosecution be both clear and unmistakable). It is certainly possible that the patentee, by using the term "and" to connect the two "selections" made by the selection logic, intended the claim to cover selection logic that can select signals in addition to the first signal when in the first mode and can select signals in addition to the second signal when in the second mode. Thus, the Court construes "as the interrupt signal" as the signal to the host processor from the device that may cause the host processor to temporarily suspend other tasks while addressing the device. n12

n12 The Court rejects Agere's use of the phrase "which signal is not asserted in conjunction with Direct Memory Access transfers" for the reasons stated in Sec. II(C).

6. **Ascertaining a georeferenced map that contains the geographic coordinates**

This limitation appears in claim 1 of the 698 patent. The plaintiff contends that no construction is necessary. Alternatively, the plaintiff urges that the term means "determining a georeferenced map that includes the geographic coordinates." The defendants contend that the term means "determining the georeferenced raster FEMA map image containing the property latitude and longitude or other coordinate set that defines the position of the property on the earth's surface using a virtual grid of rectangular regions covering all geographic areas contained within the FEMA maps, creating a list of insets that intersect with each grid-rectangle, selecting the grid rectangle containing the property latitude and longitude, and determining which inset associated with the grid rectangle contains the property."

Previously, the court rejected the defendants' attempt to limit claim 1 to the disclosed embodiment. That holding largely determines the outcome of this issue. The court adopts the plaintiff's alternative construction and defines the term to mean "determining a georeferenced map that includes the geographic coordinates."

5. "Ascertaining as a function of an outcome of a comparison whether an access of the at least one subscriber station (5, 10, 15, 20) to the at least one telecommunications channel is enabled"

HTC contends that this clause should be construed mostly according to its plain meaning as "comparing (S) to ® to determine whether access to the common telecommunications channel is allowed, or whether the subscriber station (cell phone) must wait for and check the next transmission of access authorization value." Chart at 5. IPCom asserts that it means, "the microprocessor is programmed . . . to determine, based on an outcome of a comparison of the access threshold value and the random (or pseudo-random) number, whether to authorize the particular subscriber station access rights to the common telecommunications channel." Id.
IPCom contends that HTC's construction improperly imports the concept of waiting for and checking the next transmission. But this concept is fully supported by the specification, which states, "[a]fter the end of the program, the mobile station informs the user that the access to the r30 was not possible, and waits for further inputs from the user. Alternatively, by means of a waiting loop embodied in the mobile station, the program is executed over again, so there is a wait for the next information signal with the next bit pattern, and the information signal is then evaluated . . . ." '751 Patent at 10:3-10; see also HTC's Resp. [Dkt. # 151], Ex. D. (Dep. of Martin Hans) at 175-76 (inventor testified that once the mobile station attempts to gain access and has been denied authorization, it will not immediately seek re-access).

The Court concludes that HTC's construction is the better one, as it more closely follows the claim terms and the specification. The phrase "ascertaining as a function of an outcome of a comparison whether an access of the at least one subscriber station (5, 10, 15, 20) to the at least one telecommunication channel is enabled" is construed to mean "comparing an access threshold value to a random or pseudo-random number to determine whether access to the common telecommunications channel is allowed or whether the subscriber station (cell phone) must wait for and check the next transmission."

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**F. "Asks"**

<table>
<thead>
<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>An ask quantity and an ask price.</td>
<td>A plurality of offers to sell tickets, each of which can be accepted.</td>
</tr>
</tbody>
</table>

The primary dispute between the parties is whether this term is limited to the plural (Defendant's position) or whether it encompasses the singular as well as the plural (Plaintiff's position). Defendant contends that the term is limited to the plural because "[t]he claims and the specification only use the noun 'asks' in the plural form because the term is intended to refer to the asks submitted by a plurality of sellers." (D.I. 50 at 16.) However, this does not appear to be correct. Indeed, Claim 14, which is unasserted, requires a "means for receiving from secondary market event ticket owner electronic asks comprising an ask quantity and an ask price." Likewise, Claim 17, also unasserted, calls for "receiving from the secondary market paperless ticket seller electronic asks comprising an ask quantity and an ask price." Thus, at least two claims associate the term "asks" with only a single "owner" or "seller," undermining Defendant's position that the term "asks" is plural because it is always linked to a plurality of individuals.

"[I]n context, the plural can describe a universe ranging from one to some higher number, rather than requiring more than one item." Versa Corp. v. Ag-Bag Int'l Ltd., 392 F.3d 1325, 1330 (Fed. Cir. 2004). On reviewing the specification and claims, the Court is unable to identify anything stating that the exchange of tickets in a secondary market requires multiple sellers to collectively provide a plurality of "asks." In other words, the Court finds nothing that strictly precludes use of the invention in connection with a single seller that provides a single "ask." Indeed, the specification even describes the invention with reference to the sale of a single ticket, which is presumably associated with a single seller and a single "ask." See '809 patent at 4:63-5:8 ("During the step of offering the ticket 126, a price is associated with the ticket.") (emphasis added). Thus, the Court concludes that this claim term should encompass the singular as well as the plural. See also Every Penny Counts, Inc. v. Bank of Am. Corp., No. 2:07-cv-42, 2008 U.S. Dist. LEXIS 75672, at *16-*17 (M.D. Fla. Sept. 29, 2008) (construing the term "accounts" to include the singular where nothing in the claim language or specification suggested that it was limited to the plural). Furthermore, the claims specifically state that the "asks [comprise] an ask quantity and an ask price," and therefore, the Court will construe the term "asks" to mean "one or more asks each of which comprises an ask quantity and an ask price."

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Modavox defines this phrase as "manipulating computer code instructions that include a service response." Tacoda's counter-definition is "creating at the server, a customized, executable computer program that controls user access to additional Web page functionality."

Frankly, there is very little difference between these two definitions. Where Modavox uses the words "service response," Tacoda inserts a variant of the definition of that term selected by the court. And while Tacoda includes a great deal of additional and (or so it appears) unnecessary "stuff" in its proposed definition of the term "assembling," Modavox's "manipulating computer code" is unnecessarily broad. The word "assemble" has a commonly understood meaning -- "put together" -- that can be used to create the following definition:

The term "Assembling Said Second Code Module Having Said Service Response" means putting together a second code module (which, as you already know, is a computer program) that includes, as part of the program, a service response (which I have previously defined for you).

II. "Assign" and "Assignment"

<table>
<thead>
<tr>
<th>Claim</th>
<th>Plaintiff's Proposal</th>
<th>Defendant's Proposal</th>
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<tbody>
<tr>
<td>assign /</td>
<td>Ordinary meaning</td>
<td>The present unconditional,</td>
</tr>
<tr>
<td>assignment</td>
<td>Alternatively, the transfer of a right or</td>
<td>legal transfer of the right to receive at least</td>
</tr>
<tr>
<td>Claim 1</td>
<td>interest</td>
<td>a portion of a payment that gives the</td>
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<tr>
<td></td>
<td></td>
<td>transferee the right to receive such portion</td>
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<tr>
<td></td>
<td></td>
<td>of the payment that the transferor was</td>
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<tr>
<td></td>
<td></td>
<td>entitled to receive prior to the transfer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The assignment is not conditional upon any</td>
</tr>
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<td></td>
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<td>further performance or non-performance by the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>transferor or any third party.</td>
</tr>
</tbody>
</table>

Defendant contends that its construction reflects the ordinary meaning of the term as it is used in the specification and claims. Defendant argues that an assignment must be a present transfer of the right to receive a payment that is not conditioned upon further performance.

The Court finds that the scope of the terms is limited to the present transfer of a property right, which is tantamount to Plaintiff's proposal. Permutations of the term "assign" appear throughout the specification. See '829 Patent col. 1:44-49; 1:62-63; 2:1-2, 51-53; 3:1-8, 60-64; 4:53-55; 5:1-4. The terms are used not only to describe a transfer of an interest between a taxpayer and a spending vehicle provider, but also unclaimed transfers between spending vehicle providers, see '829 Patent col. 4:53-55, and transfers between the taxpayer and a tax preparer. See '829 Patent col. 5:1-4. In each instance, the terms are used in their ordinary meaning to indicate the present transfer of a right or interest from one party to another. See Black's Law Dictionary (8th ed. 2004) (defining the term assign as "to transfer rights or property"); see also Mar. 21, 2005 Amendment, p.10 (describing an assignment as something "which transfers a property right to another party"). It is unnecessary to muddle the definition by explicitly stating that a transfer is unconditional; an agreement to assign may be conditional, but an assignment is simply a transfer.

Having determined the scope of the claim terms, the Court must now determine how best to communicate them to a lay jury. The Court finds that the terms "assign" and "assignment" are readily understandable for a jury and thus no construction is necessary. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008); Fenner Inv. Ltd. v. Microsoft Corp., No. 6:07-cv-8, 2008 U.S. Dist. LEXIS 65686, 2008 WL 3981838 at *3 (E.D. Tex. Aug.22, 2008) (finding that a court need not construe a disputed term as long as it has resolved the claim scope dispute between the parties). Although the Court will not construe the terms, the parties may not interpret the terms in a manner that is inconsistent with
The phrase "assigned in buckets" appears in claims 17 and 31 of the '446 patent and claim 17 of the '438 patent. Claim 17 of the '446 patent states: "The automated method of claim 1 wherein a group of said some cells are assigned in buckets and operated upon." (See '446 Patent at 18:36-37.) Claim 31 states: "The automated method of claim 21 wherein a group of said some cells are assigned in buckets and operated upon in order to determined [sic] the initial intended area of each of the group of said some cells." (See id. at 19:38-41.) Claim 17 of the '438 patent states: "The automated method of claim 1 wherein a group of said some cells are assigned in buckets and operated upon in order to determined [sic] the initial intended area of each of the group of said some cells." (See '438 Patent at 18:46-49.)

The only discussion of "buckets" in the specification appears in a section of the specification that discusses cell placement in one embodiment of the invention. (See '446 Patent at 15:65-16:22.) In such discussion, the specification states:

In step 225 (FIG. 4), the placement of cells is performed. FIGS. 10A and 10B show how a circuit design is transformed from a logical hierarchy 830 to a physical hierarchy 832 during the cell placement step 225 (FIG. 4). In the physical hierarchy 832, the intermediate logic levels in the logical hierarchy 830 are associated in or grouped in buckets 834 wherein each bucket 834 holds, for example, about one-hundred (100) cells 836. The buckets 834 are arranged in an array as shown in FIG. 10C. If the designer chooses to keep a group of cells 836 together, then the group of cells 836 are grouped in the same buckets 834 or in neighboring buckets. Preferably, a bucket 834 is sized small enough such that cell placement within a bucket 834 has an insignificant effect on timing. In other words, the size of a bucket 836 is such that the wire delay in a bucket 834 can be ignored. However, the size of a bucket 836 should be large enough to accommodate remapping and resizing of the cells 836 contained in the bucket. The number of cells which can be placed within a bucket can range, preferably, from about 20 cells to about 200 cells.

Pre-routes and pre-places (for driving the placer and global router) are driven into the bucket 834 structure. It is further noted, however, that the present invention may be practiced or incorporated with conventional placement methods and systems.

(See id.)

Dr. Harris atests, referring to three technical dictionaries, that "bucket" is a term of art in the computer science industry that has been defined as "an area of storage that may contain more than one record," "a storage cell in which data may be accumulated," and "[a]n area of storage where items with a common property are stored." 10 (See Harris Decl. P 76 and Exs. H, N, and O.) Dr. Harris further atests that the use of the term "buckets" in the specification is "entirely consistent with the normal dictionary definition of the term 'buckets.'" (See id. P 79.)

--- Footnotes ---

10 Magma's expert, Dr. Sechen, atests that the definitions cited by Dr. Harris "relate to computer storage or memory and are not useful for understanding the meaning of the term 'buckets' in the context of the '446 patent." (See Sechen Decl. P 56.) Magma's proposed construction, however, although purportedly tethered solely to the language of the specification, (see Magma Mem. at 13), is, as discussed infra, unpersuasive.
In the instant patent, "buckets" are used in the course of placement of cells on an integrated circuit. (See '446 Patent at 15:65-16:22.) Said placement is part of the process of transforming the "logical hierarchy" of the chip to a "physical hierarchy." (See id. at 15:65:1.) According to Dr. Harris, the term "hierarchy" indicates a subdivision of a complex whole into multiple simpler pieces, and the term "physical hierarchy" is "a hierarchy applied to the layout of an integrated circuit." (See Harris Decl. P 79 and n.1.) Dr. Harris further attests that, "[a]s is known to one of ordinary skill in the art, the physical hierarchy is a subdivision of the whole placement area into partitions or sectors." (See id.) Synopsys's proposed construction of "buckets" as "areas in which items are stored or contained, such as partitions or sectors of a placement area" thus applies the standard technical dictionary definition of "bucket" and applies it to the specific field of integrated circuit design.

Magma's proposed claim construction, requiring "buckets" to be "fixed-sized two-dimensional regions of the chip area," is not supported by the claim language, the specification, or the dictionary definitions cited by Dr. Harris. Magma relies on the statement in the specification that the buckets "are arranged in an array as shown in FIG. 10C," and points to the uniform grid set forth in that figure as evidence that the buckets must be both fixed in size and arranged in a two-dimensional array. (See '446 patent at 16:5-6 and Fig. 10C.) Although Figure 10C is the only figure in the '446 patent depicting the arrangement of buckets on a chip, nothing in the specification requires that the buckets be either fixed in size, or arranged in a two-dimensional array. As noted, the Federal Circuit has "expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." See Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331 at *15.

Accordingly, the Court will adopt Synopsys's proposed construction and will construe "assigned in buckets" as "assigned to areas in which items are stored or contained, such as partitions or sectors of a placement area."

B. "assigned incoming telephone number"

Stanacard proposes that the term "assigned incoming telephone number" either be given its plain and ordinary meaning or, to the extent it must be defined, be given the definition "telephone number assigned to initiate calls into a system." Rebtel argues that the term is indefinite or, to the extent it may be defined, should be given the definition "telephone number preprogrammed by a caller to correlate to a recipient."

Rebtel has argued that "assigned incoming telephone number" is indefinite because it does not specify whom or what does the assigning nor does it specify to whom or what the number is assigned. However, there is no requirement that the claim be limited in this manner, and "[w]ho or what performs claimed method steps is generally irrelevant to claim scope." Alcatel USA Sourcing, Inc. v. Microsoft Corp., No. 6:06 CV 499, 2008 U.S. Dist. LEXIS 64351, at *24 (E.D. Tex. Aug. 21, 2008) (finding that "while the specification discloses that a user enters the first user identification information, the disclosed embodiments do not require a user to perform that method step").

Rebtel's proposed construction seeks to introduce the phrase "preprogrammed by a caller." However, the term "preprogrammed" is not found anywhere in the specification or the prosecution history, and the only use of a variant of
"preprogrammed" is in a single passage in the specification that states "for example, the caller programs the system 300 to connect with a particular recipient when the caller dials one of the assigned incoming telephone numbers." '156 Patent, col. 4:21-23. This reference provides only a single example of the claimed invention, and it would be improper to limit the claims to a preferred embodiment disclosed in the specification. See Phillips, 415 F.3d at 1323; Chamberlain Group, Inc. v. Lear Corp., 516 F.3d 1331, 1335 (Fed. Cir. 2008); Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed. Cir. 2003).

Rebtel's proposed construction also seeks to incorporate "correlate to a recipient" into the claim term. As the specification and the claims make clear, the existence of a correlation between a telephone number dialed by the caller and a particular recipient is at the heart of the claimed invention. See, e.g., '156 Patent, col. 3:45-48; 5:32-34. Moreover, including the phrase "correlate to a recipient" serves to clarify that the "assigned incoming telephone number" is the number dialed by the caller that is associated with a recipient and not, e.g., the number assigned by the telephone company from which a caller dials.

Stanacard argues that the inclusion of the phrase "correlate to a recipient" would render the subsequent claim element "identifying a recipient associated with the assigned incoming telephone number" superfluous because both capture the concept of an association between an assigned number and a recipient. However, the phrase "correlate to a recipient" serves only to describe the nature of the incoming telephone number; it does not set forth the separate act, described in the subsequent claim element, of "identifying a recipient" to which the number is correlated.

"[A]ssigned incoming telephone number" is not "insolubly ambiguous," Datamize, 417 F.3d at 1347, and is therefore construed to mean "telephone number correlating to a recipient assigned to initiate calls into a system."
"Assigning"

Defendants contend that the term "assigning" means to specify, select, or designate or to "fix in correspondence or relationship." (Doc. No. 240, p. 4 n.8). Defendants argue that the patent abstracts and figures demonstrate further that such assignment must be accomplished before a caller places a telephone call and that such assignment must be stored in a single look-up table. (Id. at 5-8). Defendants also identify portions of the prosecution history that allegedly show a disclaimer of spacial calculations made after a caller has placed a call and a disclaimer of database structures other than a single look-up table. (Id. at 8-15). In addition, Defendants contend that the Examiner's statements concerning the scope of the disclosure of the '111 Reissue in an unrelated reexamination proceeding supports the conclusion that the claims of the '111 Reissue are limited to single look-up tables. (Id. at 16). The state of the art at the time of the filing of the patent applications, argue Defendants, also supports the limitation of "assigning" to that of a single look-up table. (Id. at 16-18). Lastly, Defendants assert that because Plaintiff omitted any reference to spacial calculations made during a call in an interrogatory response, such omission is evidence of a disclaimer of such calculations. (Id. at 18-19).

800 Adept contends that the abstract, figures and other parts of the patents' specifications do not limit the claimed inventions to a single look-up table. (Doc. No. 268, pp. 3-5, 6-8). On the contrary, argues Plaintiff, the specifications specifically recite multiple embodiments, including relational or hierarchical database structures. (Id. at 4). 800 Adept also criticizes Defendants' reliance on statements made in an unrelated reexamination proceeding by the Examiner concerning the scope of the disclosure of the '111 Reissue. (Id. at 5-6).

Returning to the languages of the claims, Plaintiff asserts that the plain meaning of the term "assign" is not limited to any one methodology. (Id. at 8). 800 Adept avers that every database query is the equivalent of a mathematic calculation, and therefore the database embodiments disclosed in the specifications do require "calculations" to be made after a telephone call is placed by a caller. (Id. at 10-11). Moreover, Plaintiff argues that there is no way in which to perform the "assign" limitation to a caller using a mobile telephone prior to the actual telephone call. (Id. at 11-13). Lastly, Plaintiff argues that the passages from the prosecution history identified by Defendants do not address the "assigning" limitation of the claims and, in any event, do not disclaim calculations made during a telephone call. (Id. at 14). n3

n3 Plaintiff also presents an argument which relies on a portion of the Magistrate's Markman Order which was not adopted by the Court. (See Doc. No. 178, p. 39). Such reliance is misplaced. In addition, Plaintiff improperly attempts to incorporate by reference arguments presented in other documents. (See Doc. No. 268, p. 16). This practice is prohibited by Local Rule 3.01(b) which limits a response to a document to not more than twenty (20) pages.

Based on the above, it is apparent that there are two general disagreements over the construction of this claim term. First, the parties debate whether the claims of the '111 Reissue and '689 Patent are limited to a single look-up table, or in other words whether the applicants disclaimed all embodiments except for a database containing a single table. Secondly, the parties dispute whether the assigning limitation disclaims calculations made during the telephone call.

As to the first issue, the Plaintiff plainly has the better argument. The claims, specification and prosecution history of the '111 Reissue and '689 Patent do not limit the term "assigning" to a single, static look-up table. The claims do not recite the term table; they recite the term database. The specification teaches that the database contains fields which can be used as natural keys and that the database structure may be relational or hierarchal. ('111 Reissue, col. 9, ll. 48-51). Thus, the specification plainly teaches database structures as alternatives to a single table database. Moreover, it is well settled that "the scope of the claims is not limited to particular embodiments depicted in the figures." Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1365 (Fed. Cir. 2004). Therefore, without more, Defendants' arguments concerning Figure 1 from the patents is without merit.

Moreover, the passages selected from the patents' prosecution history do not clearly and unambiguously disclaim alternative
database structures. See Sorensen v. Int'l Trade Comm'n, 427 F.3d 1375, 1378-79 (Fed. Cir. 2005) ("Disclaimers based on disavowing actions or statements during prosecution . . . must be both clear and unmistakable."). In each passage quoted from the prosecution history, applicants speak of a "database," not a table or a single look-up table. (See Doc. No. 240, pp. 10-11, 13).

Lastly, the Court finds no reason to limit the claims to a single look-up table from the statements of the Patent Office Examiner. First, "it is the applicant, not the examiner, who must give up or disclaim subject matter that would otherwise fall within the scope of the claims." Sorensen, 427 F.3d at 1379 (quoting Innova/Pure Water, Inc., 381 F.3d at 1124). Secondly, the Examiner's statements in the '111 Reissue do not refer to a look-up table but rather to the database of the claimed invention. It is of no moment that the Examiner refers to the embodiment depicted in Figure 1. That argument has no more force in this context than when the Court construes the claims. See Lighting World, Inc., 382 F.3d at 1365 ("[T]he scope of the claims is not limited to particular embodiments depicted in the figures."). Further, although the Examiner characterizes the '111 Reissue in an unrelated reexamination proceeding as implementing "a telephone number to telephone number lookup in a single table, or database," it is clear from the context of the statement that the Examiner was discussing the patent's disclosure, i.e., what the '111 Reissue teaches and not the scope of the claimed invention. (See Doc. No. 240, p. 16 n.33 & n.34). "Specifications teach. Claims claim." SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985).

The parties also dispute whether the assigning limitation disclaims calculations made during the telephone call, and both parties delve into the prosecution history and state of the art to support their positions. The Court addresses this dispute in two parts. First, the Court must determine when the "assigning" step occurs. Then, the Court determines whether there is a disclaimer of the scope of the claims.

The answer to the first question starts with the language of the claims. The claims of the '111 Reissue recite "assigning to [each originating telephone number n4 or the physical location n5] of said potential first parties a telephone number of a service location of a second party that will receive calls originating from within the boundary of a geographic area." Similarly, claim 1 of the '689 Patent recites "assigning to the telephone number of each potential first party a telephone number of a specific location of the second party that will receive calls originating from within a geographic area of each first party."

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N4 This is the language used in claim 1 and claim 9 of the '111 Reissue.

n5 This language is used in claim 17, claim 29, and claim 41 of the '111 Reissue.

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"Assigning" is a commonly used and widely understood word. See Phillips, 415 F.3d at 1314. It means "to set aside for a particular purpose" or "designate." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 131 (1994). It is clear upon review of the specification that the patent uses the term in a manner consistent with its ordinary meaning without providing a more specialized meaning. See Phillips, 415 F.3d at 1316.

As discussed above, the term "potential first parties" refers to individuals who can place a telephone call but have not done so. The use of the term "potential first parties" strongly suggests that the assignment occurs prior to the caller placing a telephone call. In addition, each and every one of the claims uses the future tense, i.e., "the second party that will receive calls." The use of the future tense in the claims also suggests that the event described by the verb, i.e., the call, has not happened yet.

A review of the specification also supports the conclusion that the assignment occurs prior to the placement of the telephone call. The '111 Reissue teaches that once a telephone call has been placed by an individual, a local exchange carrier contacts a long distance carrier ("LDC") for routing instructions. ('111 Reissue, col. 4, l. 60 to col. 5, l. 20). The LDC retrieves the routing instructions from its own network control point ("NCP") and passes those instructions back to the local exchange carrier. (Id.). The specification teaches that the NCP contains "all of the direct routing instructions for the WATS number." (Id.; see also id., col. 5, ll. 24-51; id., col. 5, ll. 45-53; id., col. 8, ll. 14-22; id., col. 8, ll. 39-48; id., col. 8, l. 64 to col. 9, l. 6;
id., col. 9, ll. 23-32).

The specification also teaches the steps required to prepare the NPC for its role in this system. The written description discloses that "[a]fter defining the trade areas, assigning the corresponding NPA-NXX (or NPA-NXX-XXXX) combinations and submitting the appropriate direct routing information to the chosen LDC, the system (network) is activated." (Id., col. 12, ll. 38-41, emphasis added). In other words, the LDC does not receive the routing instructions that are stored in the NCP until after the assignment step is complete.

The abstract also supports this claim construction. It discloses:

Once these coordinates are assigned to each of the potential callers, the second party's criteria is applied to assign the potential caller to a second party. . . . Once all such assignments have been made, a database is assembled to be used by a long distance carrier for direct routing of telephone calls from callers to an assigned second party.

(Id. at face page, emphasis added).

Consequently, the language of the claims when read in light of the specification refers to "a designation made prior to the telephone call of the first parties."

The Court also considers whether the applicant disclaimed calculations made after the telephone call. Nothing in the above analysis indicates that the applicant must have disclaimed further calculations. Indeed, the specification contemplates further processing where the call is placed from a mobile telephone. n6 (Id., col. 6, l. 59 to col. 7, l. 2).

n6 Plaintiff's argument concerning the "cell phone embodiments" supports only the proposition that further calculations were contemplated once the technology was available.

Additionally, the prosecution history does not expressly and unambiguously disclaim all calculations made after a telephone call is placed. In distinguishing a prior art reference, the applicant stated:

A second major distinction between Finucane, et al. patent and Applicant's system is that Finucane, et al. requires that a computer perform "point of origin" to "point of termination" calculations while the caller is on the line . . . .

On the other hand, Applicant's Direct Routing Telephone System performs all such calculations prior to the call even being made and, in fact, prior to the delivery of the data base [sic] to the Long Distance Carrier (LDC).

(Doc. No. 240, Ex. C, pp. 123). Similar statements are quoted by Defendants on pages 9 to 13 of docket number 240. These statements are, at best, ambiguous. They might refer to the timing of the "assigning" step or they might refer to the disclaimer of post telephone call calculations. The Court finds the former is the better view in light of the disclosure of the specification as a whole. In any event, such ambiguity prevents the applicant's statements in the prosecution history from serving as a disclaimer of claim scope.

GO BACK

4. Assigning

After considering the arguments of counsel and the intrinsic record, the court construes "assigning" in accordance with its ordinary meaning. The term means "to fix or specify in correspondence or relationship." Webster's Ninth New Collegiate Dictionary (1991).

GO BACK
4. "assigning a secret code to activate the multi-function card"

Step 3 of Claim 1 provides for "assigning a secret code to activate the multi-function card." 311 patent, col. 10, lns. 63-64. Plaintiff argues that this term should be construed as:

a step of the method recited in claim 1 that means selecting a code that must be entered before it is possible to activate the multi-function card. The activation enables the user to access the data set of a particular single purpose card, document, key or the like in order to convert the multi-function card in form and function to that particular single purpose card, document, key or the like.

Joint Stmt. at App. A, p. 4. Defendants, on the other hand, argue that the term should be construed as "inputting a code through a separate electronic device into the electronic multi-function code." Id. (emphasis added). The Court finds that a separate electronic device is not required by the patent.

a. Separate Electronic Device to Assign Secret Code

In the "Description of the Embodiments" section of the specification, the patent provides two examples for how a user assigns a secret code to the card. The first example describes the use of a "master unit." The user "determines a secret code which will be required later to activate the electronic multi-function card. This secret code is known to nobody else but the user and may be input in the electronic multi-function card, for example via the master unit." 311 patent, col. 6, lns. 56-61. The second example for how a user would assign a code is through the use of a personal computer. In this scenario, the user would "enter the secret code via the computer keyboard . . . ." Id., col. 9, lns. 6-8.

Defendants contend that because the specification also states that "the secret code can be determined only if a master unit according to Fig. 3 is available, as only the master unit is provided with means for entering figures or alphanumerical information, as shown in Fig. 3," this means that only a master unit in the form of a unit designed for the multi-function card or a master unit in the form of a computer can be used to assign a secret code. 311 patent, col. 7, lns. 56-65; Def. Resp. at 21. Defendants' conclusion is overreaching.

The language that defendants rely upon to reach this conclusion appears under the "Description of the Embodiments" section, and follows the example of how the "master unit 15" is one example of how the user may assign a code. The specification then provides a second example of how a user could enter in the code through a computer keyboard. Thus, the language that defendants cite to imply that a master unit is the only means for assigning a code ("The secret code can be determined only if a master unit according to Fig. 3 is available . . . "). is simply hypothesizing a situation where the master unit 15 is the unit being used, rather than another example like the computer keyboard. The patentee does not limit himself to one form of assigning the code over another.

Although the specification does provide two examples of how a user could assign a secret code, the language used makes it clear that these are just possibilities. The suggestion of using the master unit to assign the code says that the code may be input, "for example, via the master unit 15." 311 patent, col. 6, lns. 58-61 (emphasis added). This is non-exhaustive language. Likewise, the suggestion of using a computer to assign a code is prefaced with the language "in this case, too," thus making it clear that the computer is just another option for assigning the code, rather than the exclusive means for assigning the code. Id., col. 9, lns. 6-8.

It is true that the only two examples describing how a user would assign a secret code do require assignment via a separate electronic device; thus, the only examples comport with defendants' proposed construction. Nevertheless, the patent does not exclude the possibility of the user assigning the secret code through the multi-function card itself. In fact, the Claim 1 of the patent provides that the multi-function card will have a keyboard for entering in the secret code, 311 patent, col. 10, lns. 65-66, although the patent does not state that this same keyboard can be used for assigning the code. Again, the non-exhaustive language in the specification suggests to the Court that assigning a secret code can be done in more ways than described in the preferred embodiment, even including through the electronic multi-function card itself.
Looking to the prosecution history for further guidance is unavailing. The prosecution history cited by both parties merely indicate that a secret code "is assigned," and that the card remains inactive until this point. The prosecution history does not provide any insight as to how the user assigns the secret code.

Furthermore, defendants cites no extrinsic evidence in support of their proposed construction. Defendants merely state that there is "possible inventor testimony" and "possible expert testimony" to support their construction, but do not submit such testimony. Joint Stmt. at App. C, p. 15. Defendants do, however, cite the Hennerg Invention Disclosure Statement, which provides that "one can only be determine [sic] this PIN code if one has a master device." Inv. Dis. Stmt. at p. 10. This exclusive language contradicts the non-exclusive language of the patent; the patent states that the master device is just one example of how a user can enter in his identification code. Because the cited extrinsic evidence contradicts the language of the patent specification, this extrinsic evidence cannot be used to support defendants' proposed construction. See Georgia Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1332 (Fed. Cir. 1999).

Based on this lack of extrinsic evidence, as well as a general disfavor of using Preferred Embodiment language to limit the construction of broader claim language, the Court construes "assigning a secret code to activate the multi-function card" as:

"The user assigns a secret code by entering a code through a separate electronic device or through an alphanumeric keyboard or keypad on the card."

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2. STEP OF ASSIGNING (a UID to each LICENSE FILE)

The analysis here is similar to that in the preceding section. The function of the claim is "assigning a UID." As already noted in section III(C)(1), herein, reference to the specification reveals that the assignment of a UID is accomplished by the operating system, however, no description is provided as to how the assignment is accomplished. Because this element is introduced with "step of" rather than "step for," and because there is no indication in the claims or in the specification that "assigning a UID" is truly a "step" in the sense intended by § 112 P 6, the Court believes that "assigning a UID" should be given its plain meaning.

"STEP OF ASSIGNING A UID TO EACH LICENSE FILE," refers to the act of specifying a correspondence between each license file and respective UIDs, where "license file" is an area of memory on a disk capable of storing at least one LICENSE.

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17 The discussion in the preceding section specifies that a license file by definition contains a UID. The clear meaning of the second element of Claim 18 is that a UID is assigned to a license file which, until that instant, does not contain a UID. By analogy, if the patent were for a house and the definition of "house" was "four walls and a roof," the Court would not interpret "step of adding a roof to the house" to mean "the addition of a second roof to a structure already consisting of four walls and a roof." The Court recognizes that this interpretation implies a certain lack of precision on the part of the patent drafter, but is unwilling wholly to abandon common sense and clear meaning in the pursuit of strict consistency.

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5. "assigning and displaying a device symbol" (claims 1 and 6)

The plaintiff proposes the following construction: "setting aside for a particular purpose and making available for viewing a representation of a device." The defendant asks the court to construe the term to mean "setting aside for a particular purpose and visually presenting a persistent representation of a storage device." The parties' disagreement centers around the persistent representation of a device and whether the device must be visually represented or simply capable of being
visually represented. The relevant claim language provides:

... wherein said data processing system assigning and displaying a device symbol for said external storage device and processing the operation request in magnetic disk format issued from users upon plug said external storage device into said USB or IEEE 1394 interface of said data processing system.

The only mention of "displaying" in the specification occurs in a discussion of a preferred embodiment in col. 4 of the '672 patent. Specifically, the patent states that "the driver coordinates with the firmware to accomplish the initialization of the device and notifies the operating system to assign and display a device symbol for the external storage device. . ." '672 Patent at 4:48-51. This use of "displaying" confirms the plain and ordinary meaning of "displaying" as used in claim 1.

The claim language does not limit or modify "display." The plain meaning of displaying within the context of claim 1 is visually representing a symbol for the external storage device. Nothing in the patent specification suggests that "displaying" means "capable of being displayed" or "making available." Grammatically, "displaying" is present tense active voice of the verb "to display."

The parties also disagree as to the duration of the visual display. The defendant asks the court to read into the claim the limitation that the display must be "persistent" while the plaintiff argues that it is incorrect to add that limitation. There is no support in the intrinsic record for requiring the display to be persistent or indefinite.

The court defines "assigning and displaying a device symbol" to mean "setting aside for a particular purpose and visually presenting a representation of a storage device."

4. "Assigning Attractant and Repellant Vectors" ('053 patent, claim 3)

The next phrase in dispute is "assigning attractant and repellant vectors." Plaintiff's construction is "providing information for influencing the movement of one object towards or away from another object." Defendant's proposed construction is "associating objects with attractor and repulsive values that can be mathematically combined."

Defendant's construction is supported by the specification of the '053 patent (and the corresponding specification of the '132 patent), which provides that "[o]bject avoidance is accomplished by equipping each object with a small repulsive force vector and monitoring the vector sum." '053 patent at 8:17-19; see also '132 patent at 8:20-22. Defendant's construction replaces the word "equipping," which appears in the above-quoted language, with the word "associating," but the Court credits Dr. Booth's testimony that "[a]ssociating . . . is more consistent" than "equipping" "with the usual terminology that you would find in computer science, where you associate properties with objects." See Tr. at 129. In any event, Dr. Booth noted that defendant "would be satisfied by either" "associating" or "equipping," see Tr. at 129-130, and both "associating" and "equipping" are preferable to the word "providing" in plaintiff's construction because, as Dr. Booth testified, the word "providing" "blurs the distinction between the object that is being influenced and the object which is doing the influencing," see Tr. at 130.

Further, the Court is persuaded by Dr. Booth's testimony as to why the phrase "that can be mathematically combined" should be included in the construction. Dr. Booth explained that people in computer graphics "use vector mathematics to describe the locations of objects in three-dimensional space" and occasionally "slip into the fantasy . . . that [the objects'] locations actually are vectors instead of points." See Tr. at 158. However, "you cannot mathematically combine two points," so that "even someone who is well practiced in the art at the time of the patent might appreciate the reminder that these are real mathematical vectors, not the sort of pretend ones that we all the time use in computer graphics and in animation." See Tr. at 158. In any event, plaintiff's own expert essentially conceded that the vectors "the patent is talking about are vectors that can be mathematically combined." See Tr. at 78.

Accordingly, the Court hereby adopts defendant's construction of "assigning attractant and repellant vectors."
e. Assigning the process steps to the machines

ITI proposes that the limitation "assigning the process steps to the machines" should be construed as designating the operations that a particular machine, machines, or workstation will carry out during manufacturing. Defendants argue that ITI's meaning is incorrect, as the patent requires that each machine perform a single fundamental operation and that each machine must be assigned a process step. Thus, defendants' proffered construction of the phrase involves specifying the fundamental operation (for example, in semiconductor manufacturing: depositing, patterning, etching, or doping) performed by each machine in the model.

The specification defines a process step as "the fundamental operation performed on a machine." U.S. Patent No. 4,796,194, col. 11, lines 29-30. The term "operations," however, is used interchangeably with "process steps." See id., col. 11, lines 23-25 ("In this embodiment each workstation is qualified to perform only a specified set of process steps or operations."). Defendants aptly note that "the fundamental operation performed on a machine" might indicate that each machine performs only one fundamental operation. But the language is also open to the interpretation that each machine performs a fundamental operation, but is not limited to only that operation.

Defendants' reading does not find support in the claims or specification; the patent nowhere specifies that each machine is limited to one operation. ITI's interpretation, however, is consistent with the specification. Example two provides a representation of two simplified semiconductor wafer fabrication processes. In describing the process, the patent states that "real semiconductor fabrication sequences may have 250 process steps using 50 workstations and 200 pieces of equipment." If 200 machines are capable of performing 250 process steps in one embodiment of the invention, it would appear that some machines must be capable of performing multiple process steps. Similarly, the specification indicates that workstations are groupings of like machines. Id., col. 11, lines 16-17. It further states that "workstations may perform more than one step in a single process sequence." Id., col. 8, lines 30-32.

In addition, defendants have provided no intrinsic support for their contention that each machine must be assigned a process step. Indeed, the specification clearly contemplates that certain machines might be unavailable for processing as a result of planned downtime or random failures. See id., col. 12, lines 21-26. And figure 1 demonstrates that a fabrication sequence can skip certain machines.

The Court is unwilling to adopt defendants' proposal that providing examples of fundamental operations within the definition will aid the jury's understanding of the meaning of fundamental operations. The cited operations apply to only one embodiment of the invention. The Court therefore adopts the following interpretation of the limitation: designating the fundamental operation or operations that a machine will carry out during manufacturing.

3. "Associate"

Plaintiff argues that the ordinary and customary meaning of the term "associate" is "relate." (Pl.'s Mot. 7-8; Pl.'s Opp'n 6.) Defendant, however, contends that the specification of the '837 Patent demonstrates that the proper construction of the term is: "'to directly connect,' such that a separate association is created between each selected requirement-primitive pair ('associating' means 'directly connecting,' 'associated' means 'directly connected')." (Def.'s Mot. 11-12; Def.'s Opp'n 13-14.)

a. The Claim Language

Neither party refers to the claim language to support its argument as to the proper construction of the term "associate." The claims repeatedly include phrases such as "associating the one or more primitive with the one or more requirements" (Claim 1), "displaying an association between a primitive and a selected requirement" (Claim 2), "associating the one or more primitives with the one or more statements" (Claim 10), and "displaying an association between a primitive and a selected
statement" (Claim 12). See, e.g., U.S. Patent No. 7,349,837 col.83 l.51-54, col.83 l.57-60, col.84 l.53-56, col.84 l.61-65 (filed Jan. 22, 2004). This claim language does little more than establish that an association involves some type of interaction between a primitive and a requirement. Nevertheless, the Court notes that some of the claim language implies that an "association" between a primitive and a requirement is non-visual. Specifically, Claim 1 states "associating the one or more primitives with the one or more requirements such that a primitive displayed in the programming area is visually associated with a displayed requirement of the requirements area." U.S. Patent No. 7,349,837 col.83 l.51-54 (filed Jan. 22, 2004); see Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (finding that use of the phrase "steel baffles" in the claim "strongly implies that the term 'baffles' does not inherently mean objects made of steel").

b. The Specification

In support of its interpretation of the term "associate," Defendant points to the '837 Patent specification's description of how to create an association between a requirement and a primitive:

To create an association between a requirement and a primitive:

1) Click on the Requirements tab in the project browser
2) Click on the desired requirement, using the (+) symbol to expand the parent classifications if necessary.
3) Right click on the primitive to be associated with the requirement.
4) Select Associate from the context menu.

U.S. Patent No. 7,349,837 col.82 l.45-52 (filed Jan. 22, 2004); see Def.'s Mot. 11-12; Def.'s Opp'n 13-14. Defendant argues that this description demonstrates that the "association" between a primitive and a requirement is between the "actual requirement itself" and the primitive, i.e., that the association is "direct." (Def.'s Mot. 11; see Def.'s Opp'n 13.) In other words, the procedure shows "that the text of a requirement is directly connected, via the 'Associate' action selected from the context menu, with the primitive." (See Def.'s Opp'n 13.) The Court, however, does not find Defendant's narrow construction convincing. This portion of the '837 Patent specification describes, with reference to the preferred embodiment, see U.S. Patent No. 7,349,837 col.61 l.48-50 (filed Jan. 22, 2004), how to create an association between a requirement and a primitive but it does not specify that an association must necessarily be directly between the actual requirement and the primitive. Moreover, Plaintiff correctly points out that the term "direct" is vague and unclear, leading to an improper and ambiguous claim construction. See Pl.'s Opp'n 6; see also Chimie, 402 F.3d at 1377 (internal citation omitted).

Plaintiff stresses other portions of the specification in support of its construction of "associate" as "relate." (See Pl.'s Mot. 7-8; Pl.'s Opp'n 6-7.) The '837 Patent describes Figure 20, the preferred embodiment in "Meta mode," see U.S. Patent No. 7,349,837 col.16 l.26-29 (filed Jan. 22, 2004), as such:

FIG. 20 shows the simulation in Meta mode and highlights the relationship between the requirements and their associated user interface components. For example line 432 highlights the relationship between the list page (with superscript 1) and the requirement numbered 1. Similarly, for example, line 433 highlights the association between the user interface element superscripted 13 with the requirement number 13.

U.S. Patent No. 7,349,837 col.72 l.21-29 (filed Jan. 22, 2004) (emphasis added). This portion of the '837 Patent specification demonstrates that the terms "relationship" and "association" are used interchangeably, as line 432 "highlights the relationship" between a certain primitive and a certain requirement, whereas line 433 "highlights the association" between a certain primitive and a certain requirement. Similarly, the specification explains that users may "$[d]eclar[e] relationships between requirements and instances of IRM primitives." U.S. Patent No. 7,349,837 col.19 l.54-55 (filed Jan. 22, 2004). Again, given that the claim language describes an "association" between a requirement and a primitive, this portion of the specification, referencing a "relationship" between a requirement and a primitive, implies that "association" and "relationship" are used interchangeably.

Because the specification of the '837 Patent uses the terms "association" and "requirement" interchangeably, the Court finds that the specification supports Plaintiff's definition of the claim term "associate" as "relate," rather than Defendant's
interpretation, i.e., "to directly connect."

c. Extrinsic Evidence

Although the Court does not find the intrinsic evidence on the term "associate" to be entirely unambiguous such that reference to extrinsic evidence is appropriate, the Court again notes that the extrinsic evidence on the issue, limited to expert depositions, declarations, and reports, is not particularly useful for purposes of construing the term "associate." Both parties' experts merely repeat the arguments made in their respective parties' briefs. (See Alexander Infringement Report 8; Locke Decl. P 26; Locke Opp'n Decl. PP 16-20.) Nevertheless, Plaintiff's expert, Locke, does contend that Plaintiff's construction comports with the plain and ordinary meaning of the term. (See Locke Decl. P 25; Locke Opp'n Decl. P 11.)

d. Conclusion

Particularly in light of the specification's interchangeable use of the terms "relationship" and "association," the Court finds that the proper construction of the term "associate" is "relate."

5. "Associating"

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<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<tr>
<td>&quot;associating&quot;</td>
<td>Plain and ordinary meaning.</td>
<td>specifically and uniquely relating</td>
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<tr>
<td>&quot;associate&quot;</td>
<td>Plain and ordinary meaning.</td>
<td>specifically and uniquely relate</td>
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<td>&quot;associated with&quot;</td>
<td>Plain and ordinary meaning.</td>
<td>specifically and uniquely related to</td>
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</table>

The dispute here is similar to the "uniqueness" argument surrounding the "identifier" term. The defendants argue that the URL sent out to the viewer has to be specific and unique. Therefore, the defendants argue that if the association between an identifier or URL and a particular image or display is not specific and unique, the identifier or URL would not be able to perform its purpose, namely, enabling access to a specific image or display. Defendants contend that the specification repeatedly describes the relationship between the identifier and an image or display as specific and unique.

Fotomedia's argument is that the term "associate" is used in the specification in its ordinary meaning - to mean "relate." Therefore, Fotomedia urges that the Court should avoid construing it further. Fotomedia argues that the specification discloses an "identifier" that is unique, and Court should not introduce this limitation to the "associating" terms. The Court agrees. The Court has already construed the term "identifier" as being unique. Therefore, there is no need to further import such a limitation into the "associating" terms.

The Court concludes that "associate" means "to relate."
Plaintiffs contend that the term “song associated pictorial graphics” means “visual images associated with songs.” Opening Brief at 13. Defendants contend that the term means “graphics that are linked by the song record to a particular song.” Resp. Brief, Ex. E at 2. Plaintiffs base their proposed construction on standard definitions of “pictorial” and “graphic.” “Pictorial,” they contend, means “suggesting or conveying visual images,” and “graphic” means “[a]ny computer-generated pictures produced on a screen, paper, or film ... [g]raphics range from simple line or bar graphs to colorful and detailed images.” Opening Brief at 13. They also contend that “song associated” needs no interpretation because it simply means something associated with a song.

Defendants' proposed construction is based on language in the specification stating that the “graphics address field” in the catalog “contain[s] the beginning address in the bulk storage unit of the compressed digital data of a graphics image, if any, to be associated with the song.” Id., Ex. 2 at 3:48-51. The Court disagrees that this language in the specification “defines” the term as defendants suggest. Rather, defendants' proposed construction is an effort to import into the claim a limitation from a preferred embodiment, which is inappropriate in this situation. The Court construes the term as meaning “visual images associated with songs.” The same construction applies to the term “song associated pictorial graphics” in the 189 patent.

6. Associated therewith or having.

Relying on the plain meaning of the terms, Intergraph argues "associated therewith" means "related to, but not necessarily embedded within." Intergraph supports this position with language from the '028 patent's specifications which states, "we use the word 'associated' herein to designate the concept that the pipeline and group identifiers are not required to have a fixed relationship to the instruction words. That is, the pipeline and group identifiers need not be imbedded within the instructions themselves as shown in FIG. 7. Instead they may arrive from another means, or on a different cycle." '028 patent at 8: 20-26. Intel, however, relying on communications with the patent examiner during prosecution, claims that pipeline and group identifiers must be "embedded" or "encapsulated" within each individual instruction. Thus, Intel contends "associated therewith" or "having" requires that the identifier be embedded within the instruction. However, as discussed above, Intergraph's acceptance of an "embedded" limitation in the prosecution of some claims, claims that issued with the term "embedded" included, does not limit all claims issued.

Thus, the Court construes "associated therewith" or "having" as logically related to or logically connected, but not necessarily embedded. '028 patent at 8: 20-26.
M. "associated with"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a payer obtaining a document containing document information, the document information being associated with a debt incurred by the payer or for goods or for services to be paid for or purchased by the payer&quot;</td>
<td>Identified with or having a connection to.</td>
<td>Plain meaning; alternatively, identified with or pertaining to.</td>
</tr>
</tbody>
</table>

This term appears in claim 28 of the '148 patent and claims 7 and 41 of the '302 patent. The parties dispute whether "associated with" can "have some connection to" or can "pertain to."

Plaintiff argues that its proposal is consistent with "customary definitions" as found in dictionaries. According to Plaintiff, "pertain" is defined as "to belong as an adjunct, part, holding, or quality," which is narrower than "associated with." Plaintiff explains that "associated with" is used to describe the relationships between a party and account or credential information, and between a VAN and a transaction. A VAN has a connection to a transaction, according to Plaintiff, and does not belong as an adjunct. Defendants argue that "having some connection to" is too broad.

Although some portions of the specification support Defendants' argument, the claim languages is broadly written to embrace document information "associated with" the debt. There may be document information that "has a connection to" a debt but does not necessarily "pertain to" a debt. For example, the debtor's account number pertains to the debtor, but has only a connection to the debt. **Plaintiff's proposal is more consistent with the language of the claim, and the Court adopts it.**

D. "associated with"

Stanacard proposes that "associated with" be given its plain and ordinary meaning, while Rebtel argues that "associated with" be given the definition "preprogrammed by the caller to correlate to."

Rebtel argues that given the computerized context of the claimed invention, the association between the incoming telephone number and the recipient number must, in fact, be "preprogrammed." Further, Rebtel asserts that because the specification only discloses embodiments in which the caller preprograms the system, the claims are properly limited to the single disclosed embodiment. See, e.g., Toro Co. v. White Consolidated Indus., Inc., 199 F.3d 1295, 1301-02 (Fed. Cir. 1999); Ormco Corp. v. Align Tech., Inc., 498 F.3d 1307, 1316 (Fed. Cir. 2007).

However, the specification, including the passages cited by Rebtel, do not establish that "associated with" has the same meaning as "preprogrammed." See Vitronics, 90 F.3d at 1582. Things can be "associated" with each other by an individual without being preprogrammed by the individual, as the specification of the '156 Patent makes clear. Compare '156 Patent, col. 4:18-23 ("In one embodiment, the call connection module 360 selects a particular recipient based on the profile information associated with the caller. For example, the caller programs the system 300 to connect with a particular recipient when the caller dials one of the assigned incoming telephone numbers.") with col. 7:1-5 ("In another embodiment, the recipient is determined, in part, by the recipient selected by the caller to be associated with the specific assigned incoming telephone number as shown in the recipient field 430 within the caller's profile."). Because the specification discloses embodiments in which the caller may select the recipient of a call without actually engaging in preprogramming the system to dial the selected recipient, it cannot be said that the specification discloses only a single embodiment of the invention in which the caller preprograms the system. As a result, Rebtel's proposed definition would improperly impose a
new limitation to the claim term "associated with."

Finally, Rebtel's definition would introduce unnecessary verbiage to claim language that a jury would understand. See Alcatel USA, 2008 U.S. Dist. LEXIS 64351, at *30-31 (holding that "associating" did not require construction because "a lay jury will understand the term").

"Associated with" is given its plain and ordinary meaning.

1. Term 1 ('645 Patent, Claim 1)

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>... a given object of a participating content provider is associated with an alphanumeric string ...</td>
<td>... a particular object of a participating, content provider is associated with an alphanumeric string that includes the URL used to identify the object in the absence of a content delivery network ...</td>
</tr>
</tbody>
</table>

Akamai's suggestion that the term "associated" be given its dictionary meaning ignores the Federal Circuit's warning in Phillips that "[t]he risk of systematic overbreadth is greatly reduced if the court [] focuses at the outset on how the patentee used the claim term in the claims, specification, and prosecution history, rather than starting with a broad definition and whittling it down." Phillips, 415 F.3d at 1321. The '645 Patent specification describes as the present invention a single embodiment in which the Uniform Resource Locator ("URL") used to retrieve an embedded object from the content provider's server(s) in the absence of a content delivery network is modified by prepending it with a virtual server hostname:

According to the present invention, a given Web page (comprising a base HTML document and a set of embedded objects) is served in a distributed manner. . . . To serve the page contents in this manner, the URL associated with an embedded object is modified. As is well known, each embedded object that may be served in a page has its own URL. . . . According to the invention, the embedded object URL is first modified, preferably in an off-line process, to condition the URL to be served by the global hosting servers 2 . . . . Thus, according to the present invention, a virtual server hostname is prepended into the URL for a given embedded object . . . ." ('645 Patent, col.6 1.35 - col.7 1.40 (emphasis added).)

1 (See Akamai's Claim Construction Mem. (Docket # 67) at 9 (citing the definition of "associated" from Merriam-Webster's Collegiate Dictionary).)

2 The '645 Patent specification uses the terms "ghost," "ghost server" and "hosting server" interchangeably to describe the service provider's servers which replicate and deliver a participating content provider's content to the user. (See '645 Patent, col.5 11.65-67.) The claims, however, use the term "content server(s)," a term which does not appear in the specification, to describe these servers. (See, e.g., '645 Patent, Claim 1 (claiming "a method of content delivery wherein participating content providers identify content to be delivered by a service provider from a set of content servers that are distinct from the participating content provider sites and associated with the service provider").) The court construes "ghost(s)," "ghost server(s)," and "hosting server(s)" to refer to "content server(s) distinct from the content provider server(s)."

The specification then continues on to describe "the inventive global framework" in the context of a specific example. (Id. col.7 11.50-53 (emphasis added).) At step 5 of the example, a copy of the object is retrieved from a content delivery provider ("ghost") server. The specification goes on to explain:
Step 6: If, however, no copy of the data on the ghost exists, a copy is retrieved from the original server or another ghost server. Note that the ghost knows who the original server was because the name was encoded into the URL that was passed to the ghost from the browser.

(Id. col.12 11.54-58 (emphasis added).)

Here, the specification describes the invention as associating a particular object of a content provider with an alphanumeric string consisting of a virtual server hostname prepended onto the URL for the object. The URL of the object is necessary to the inventive global framework in order to retrieve the object from the content provider's server if no copy exists on a ghost server. The specification discloses no other way that an object is associated with an alphanumeric string, nor is there any suggestion or teaching that an association which did not include the URL for the embedded object could be used in an embodiment of the invention. Therefore, Akamai's proposed construction is overly broad and the court declines to adopt it. Rather, the court adopts a construction that incorporates the association described in the specification as "the . . . invention." (Id. col.7 ll.36-40.)

--- Footnotes ---
3 Limelight's proposed construction requiring the alphanumeric string to include "the domain name conventionally used . . . to identify the object," is excessively limiting. (See Docket # 90, 1.) Neither the specification nor the claim requires the domain name to be a part of the object URL. (See '645 Patent, col.6 11.51-54 ("Typically, the URL has a hostname identifying the Content Provider's site from where the object is conventionally served . . . .") (emphasis added).)

--- End Footnotes ---

B. "associated with at least one patron"

Claim 5 sets forth, in relevant part, "[a] system for assigning and managing patron reservations to one or more of a plurality of attractions, comprising: at least one personal communication device (PCD), each PCD associated with at least one patron. . . ." (col. 27, ll.26-29) (emphasis added). The specification indicates that each PCD is "associated with a patron or group of patrons visiting the park." (col. 5, ll. 60-61.) Consistent with this, the Plaintiff contends that the ordinary meaning of "associated with at least one patron" is simply "in an identifiable relationship with at least one patron." In proposing this construction, the Plaintiff relies on the dictionary definition of "associated" as "closely connected, joined, or united with another (as in interest, function, activity or office)." Webster's Third New International Dictionary (Unabridged) 132 (1993). The Defendants argue that the Plaintiff improperly relies on a dictionary definition to establish the ordinary meaning of the term. However, while cautioning against excessive reliance on dictionaries, the Federal Circuit has stated that the use of dictionaries is not precluded. Pfizer, Inc. v. Teva Pharms., USA, Inc., 429 F.3d 1364, 1375 (Fed. Cir. 2005); Phillips, 415 F.3d at 1321-22.

The Defendants also argue that because the personal communication device is inherently "in an identifiable relationship with at least one patron," the Plaintiff's construction is unduly broad and renders the "associated with" portion of the phrase meaningless. Instead, the Defendants propose the following construction: "for at least one customer of a group assigned to the PCD, there is a unique information record for the customer stored locally in the PCD." Neither the claims nor the specification supports this limiting construction. The Defendants point to several instances in the specification that discuss how patrons may input into the PCD various information describing their groups. (See col. 2, l. 63 to col. 3, l. 2; col. 6, l. 67 to col. 7, l. 8.) However, these portions of the specification simply describe the manner in which patrons may initiate use of the PCD. They do not limit the ordinary meaning of "associated with at least one patron." Finding no support for the Defendants' proposed construction, the Court finds that the ordinary meaning of "associated with at least one patron" is "in an identifiable relationship with at least one patron."
a. "at least one data storage assembly associated with said local processor assembly"

The parties' dispute concerning this limitation focuses on a single word: Citrix proposes that the "data storage assembly" is a structure for holding data, while Rothschild contends it is a place for holding data. While Rothschild claims that its construction is supported by the specification of the '534 Patent, Rothschild does not explain how the specification supports its construction and the basis for Rothschild's proposed construction is not clear.

Citrix, on the other hand, claims that its proposed construction is supported by the claims, the patent specification, and the ordinary meaning of "assembly," which, as defined in the dictionary, is a structure of some kind, i.e., a collection of parts. For example, in relevant part, the American Heritage Dictionary defines "assembly" as follows:

assembly: 4a. The putting together of manufactured parts to make a completed product, such as a machine or electronic circuit. 4b. A set of parts so assembled.

Citrix also suggests that the ordinary definition of "assembly" is consistent with the patent's use of the term. Citrix notes that each of the examples of a "data storage assembly" in the '534 Patent contemplates a structure, such as an internal hard drive, CD-ROM or DVD disk. For example:

Preferably, the data storage assembly 30 includes a computer readable medium, and in the preferred embodiment of FIG. 1 preferably includes a computer hard drive or other fixed data storage assembly wherein a large quantity of data may be stored and contained. As will be described in further detail subsequently, however, the data storage assembly may also include a portable and/or interchangeable assemblies such as compact discs or other such writable and non-writable assemblies and the accompanying drives.

The Court concludes that Citrix's proposed construction is supported by the relevant intrinsic and extrinsic evidence. Rothschild identifies no basis for construing an assembly to be a "place" rather than a structure, and such a construction would contradict both the '534 Patent and the ordinary meaning of the word. Moreover, it is not clear what Rothschild's proposed construction means: for example, Rothschild's construction could encompass a location, such as a court room, rather than the structure storing the data. Accordingly, the Court construes "at least one data storage assembly associated with said local processor assembly" as "the local processor assembly includes at least one structure for holding data."

b. "said auxiliary site date being associated with said primary site data"

Claim 1 further requires that the claimed "auxiliary site data be associated with said primary site data." Citrix suggests that this term is properly construed as "[t]he auxiliary site data concerns the same subject matter as the claimed primary site data and provides additional information on that subject matter. For example, if the primary site data concerns a particular real estate space, the associated auxiliary site data may include video images of that particular real estate space." Rothschild contends that the term should be construed as "auxiliary site data is capable of interacting with the primary site data."

Because Citrix's position is contradicted by its own expert and because Rothschild's proposed construction is consistent with the language of the '534 Patent, the Court construes "said auxiliary site data being associated with said primary site data" to mean: auxiliary site data is capable of interacting with the primary site data.
F. "a plurality of media player devices associated with the user account" / "a plurality of media player devices as being authorized with the user account"

This disputed term appears in claim 7 of the '704 patent: "A media asset management system comprising: . . . a plurality of media player devices associated with the user account. . . . " Likewise, claim 4 of the '414 patent states, "A media asset management system comprising: . . . a server application accessible over a network and capable of recognizing a plurality of media player devices as being authorized with the user account. . . . " Zapmedia believes that this term means "two or more 'media player devices' associated with the user account." Alternatively, Zapmedia contends that the term should be defined as "two or more media players specified in the user account, whereby referenced media assets can be copied and/or used by the aforementioned media players." The defendant's proposed construction is "a set of two or more permitted media players that are specified in the user account, whereby referenced media assets can be copied and used exclusively by media players in the set."

The primary difference between the plaintiff's alternative definition and the defendant's definition is whether the associated or authorized media player devices are the "exclusive" set of media players that may copy and use media assets. Apple argues that prosecution disclaimer prevents Zapmedia from contending that the associated or authorized set of media players is non-exclusive. In distinguishing the Milsted reference, the applicants pointed to the "associate a plurality of media player devices with the user account" limitation. (Dkt. No. 84, Ex. F, at 6). According to Apple, the following statements to the PTO distinguish Milsted on the basis that Milsted did not require an exclusive set of media player devices:

"And although Milsted does indicate that assets can be copied to another player device, the use of the asset is governed by licensing rights that are embedded in the asset itself without regard to the device being associated with the user account." Id. at 7 (emphasis added).

"Rather than associating the end user devices with a user account as recited in claim 84, Milsted describes embedding usage conditions within an asset. Thus subject to the usage conditions, the assets can be copied and used by ANY player device, not a subset of player devices that are associated with a user account." Id. at 8 (emphasis added).

"[T]he media assets are referenced in the media asset library associated with a particular user account. The user account specifies the plurality of media player devices that may access the media assets." (Dkt. No. 84, Ex. L, at 11).

In response, Zapmedia asserts that there was no "clear and unmistakable" disavowal of access by media player devices not associated with the user account. See Omega Eng'g Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). The plaintiff admits that the patentees distinguished Milsted on the basis that the Milsted prior art did not teach the association of media player devices with a user account. But, according to Zapmedia, the patentees did not disclaim prior art methods of media asset distribution, such as taught in Milsted. In one of the responses to a PTO rejection, upon which Apple relies, the patentees state, "Although the embodiments that are covered by claim 84 do not preclude technology such as described in Milsted, the applicants point out that the Milsted reference does not disclose the invention as recited in claim 84 . . . ." (Dkt. No. 84, Ex. F, at 8). This statement indicates that the patentees did not disclaim the prior art, but merely distinguished Milsted from their improvement. Zapmedia argues that the '414 and '704 patents teach a hybrid of the prior art DRM techniques (watermarking, encryption, encapsulation) and the allegedly novel registration/authorization of media player devices. (See '704 patent, 11:28-31 ("The system and method of the present invention optionally allow for security against asset piracy by one or more methods: watermarking, encryption, and object encapsulation.").) In support of this argument, Zapmedia points to the following passage from the specification:

Furthermore, with the permission of a digital media asset owner or licensor, a user may be granted the right to loan or forward his or her licensed media assets to another person that is not a registered user of the system. The forwarded asset is encapsulated in an executable file that allows for the object's integration into the recipient's media players . . . .

(704 patent, 11:61-66). Thus, the media players associated with the user account are not the exclusive set of media players that are permitted to access the media assets. As such, the court construes the terms "a plurality of media player devices associated with the user account" and "a plurality of media player devices as being authorized with the user account" to mean "two or more media players specified in the user account, whereby referenced media assets can be copied and/or used by the aforementioned media players."
C. "Associates the Valid Logon Command with the Remote Computer Unit"

The term "associates the valid logon command with the remote computer unit" appears in claims 3, 4, and 5 of the '945 patent. 128 ABC contends that the term means "to connect or bring into relation a valid logon command with one or more computers that are to be remotely controlled from a remote location using a local computer/interface unit." 129 WebEx asserts that the term means "uses the valid logon command to connect to the remote computer unit that is associated with the valid logon command." 130

128 The term "associates the valid logon command with the remote computer unit" literally appears only in claim 1 of the originally issued version of the '945 patent. Claims 3, 4, and 5, however, are written in dependent form, and all depend on claim 1. As explained above, ABC canceled claim 1 during reexamination, but claims 3, 4, and 5 survived reexamination without amendment. Therefore, the text of claim 1, including the term "associates the valid logon command with the remote computer unit," remains part of the '945 patent because it is incorporated by dependent claims 3, 4, and 5.

129 ABC's Brief, Docket Entry No. 154, at 15.

130 WebEx's Brief, Docket Entry No. 156, at 27.

The context within which the disputed phrase appears makes clear, 131 and the parties agree, that the website performs the function of associating the valid logon command with the remote computer unit. The parties disagree, however, as to what is communicated by the term "associates." In other words, they do not agree as to precisely what the website actually does when it "associates" the valid logon command with the remote computer unit. The parties also disagree as to whether the phrase "remote computer unit" requires further explanation or definition, and if so, whether "remote computer unit" refers to only a single remote computer unit, or whether it can be interpreted to refer to one or more remote computer units.

131 Claims 3, 4, and 5 of the '945 patent are method claims. The first four steps are common to all three asserted claims:

[1] operating a website capable of allowing and facilitating communication between a remote computer unit and an interface unit via an internet;

[2] receiving, by a website, a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit;

[3] receiving, by the website, data signal instructions from the interface unit; and

[4] sending the data signal instructions from the website to the remote computer unit whereby the data signal instructions act to remotely operate the remote computer unit . . . .

'945 patent, claims 3, 4, 5 (emphasis added).

1. "Associates"

ABC contends that "associates" should be given its ordinary and customary meaning, which -- because "associates" is not a technical term -- can be ascertained from general purpose dictionaries. 132 The first dictionary cited by ABC explains that
the verb "associate" means "to connect; combine; join" or "to connect in the mind." 133 The second dictionary cited by ABC similarly defines "associate" as "connect in the mind" or "join or combine." 134 Accordingly, ABC begins its proposed definition with the phrase "to connect or bring into relation . . . ."


WebEx argues that the verb "associates," in this context, means "uses . . . to connect to." WebEx asserts that the claim language of the '945 patent supports this definition because the step immediately following the step of receiving and validating the logon command involves the website receiving data signal instructions from the interface unit (the local element) and sending the data signal instructions on to the remote computer unit. 135 WebEx also points to the specification of the '945 patent, which states that the computer service control unit "connects the [customer interface unit] to the [multiple computer system] . . . when an encrypted valid PIN is received." 136

135 See '945 patent, claims 3, 4, 5.

136 '945 patent, col.4 ll.46-48 (emphasis added).

The court notes that the word "connect" is included in both parties' proposed definitions, but appears to carry a slightly different connotation in each. In WebEx's definition the term "connect" apparently refers to establishing a link or means of communication between two physical objects: the remote computer unit and, presumably, the website itself. In ABC's definition the term "connect" conveys the more abstract concept of identifying a relationship or correspondence between two things: the logon command and a particular remote computer unit.

The court is persuaded that this aspect of ABC's proposed definition is preferable for several reasons. It is more consistent with the ordinary and customary meaning of "associates." Moreover, the cited excerpts from the claim language and specification do not necessarily suggest that the website "uses" the logon command to connect -- i.e., establish a link for communication -- to the remote computer unit. Nor are the cited claim and specification excerpts inconsistent with ABC's proposed definition. In other words, neither the claim language nor the specification indicates that the website cannot or does not, in the abstract, "connect or bring into relation" the logon command with a particular, corresponding remote computer unit. Accordingly, the court concludes that the term "associates" means "to connect or bring into relation."

2. "Remote Computer Unit"

ABC's proposed definition describes the remote computer unit as "one or more computers that are to be remotely controlled from a remote location using a local computer/interface unit." WebEx does not seek to further define this phrase, but objects to this aspect of ABC's definition because it suggests that a remote computer unit can consist of more than one computer.

As explained above in the discussion of the term "logon command," the asserted claims unanimously and unambiguously speak in terms of a single remote computer unit and, therefore, cannot be interpreted to ambiguously refer to one or more computer units as ABC suggests. Also, ABC has not presented any evidence to show that the "remote computer unit" is necessarily equivalent to a "computer." Similarly, ABC has not shown that the "interface unit" disclosed in the '945 patent claims is necessarily equivalent to a "local computer." The court agrees, however, with ABC's description of the remote
computer unit as a computer unit "that [is] to be remotely controlled from a remote location using a[n] . . . interface unit."
This description is consistent with the claim language and specification of the '945 patent, and WebEx does not contend or present evidence to the contrary.

3. Conclusion

For the reasons explained above, the court concludes that the term "associates the valid logon command with the remote computer unit" means "to connect or bring into relation a valid logon command with a particular computer unit that is to be remotely controlled from a remote location using an interface unit."

K. Independent Claim 50 - "associating a UTID with the electronic transaction"

The magistrate judge recommended that the phrase "associating a UTID with the electronic transaction" in independent claim 50 should be construed as: "the party originating the transaction connecting or linking up the unique transaction identifier created by the originating party to the transaction." First Report at 10. Plaintiffs object to the magistrate judge's recommended construction, arguing that independent claim 50 was purposefully drafted to claim the alternative embodiments where the UTID may be generated by a party other than the originator. Plaintiffs' proposed claim construction in place of the magistrate judge's is: "connecting or linking up the UTID to the transaction." Pl. Obj. to First Report at 15. Once again, Plaintiffs contend that the magistrate judge's recommended claim construction is contrary to the specification and that the magistrate judge erred in relying on the prosecution history to find that the originator must generate the UTID. Plaintiffs contend that the limiting statements in the Petition Statement, properly interpreted, taught "one of the ways the invention can be practiced[.]") Id. at 16. The court overrules Plaintiffs' objections. The magistrate judge's recommended construction is correct based on the Petition Statement, wherein VIMachine distinguished its invention over prior art because its invention requires that the originator generates the UTID. Plaintiffs' argument that the Petition Statement merely stated a preference or one way the invention can be practiced is not persuasive. The Petition Statement is "clear and unmistakable" in distinguishing "the pending claims" and "claimed invention" from prior art based on the UTID generated by the originator. That an alternative embodiment in the specification allows a UTID to be generated by a TA does not sway the court otherwise. See Rheox, 276 F.3d at 1327 ("[W]here the prosecution history requires a claim construction that excludes some but not all of the preferred embodiments, such a construction is permissible and meets the standard of highly persuasive evidentiary support.").
associating of the data terminal including:

   means for entering the security number;

   means, operative during any initial transaction and any recharge transaction, for entering any monetary amount
   corresponding to the amount of call authorization;

   means for connecting to the host computer to transfer the security number and the call authorization amount; and

   means responsive to the transfer for receiving a verification message from the host computer authorizing receipt of the
   monetary amount to thereby associate at the host computer the call authorization amount to the security number, wherein
   the calling card does not store the call authorization amount; and

   wherein the database includes a record for each calling card security number having a call authorization amount
   associated therewith, the record including a balance; and

Claim 1 from the ' 68 patent:

activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to
receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling
account;

for each pre-paid calling card account that is activated, maintaining in the database information sufficient to identify: (i) a
date on which the particular pre-paid calling card account is activated, (ii) a particular point-of-sale location at which the
particular pre-paid calling card account is activated, and (iii) the active call authorization amount that was associated with
the particular pre-paid calling card account when activated on said date and from said point-of-sale location;

At the hearing the parties agreed generally that:

1. The "data terminal" is the terminal at which the calling card is swiped or data is otherwise entered at the point of sale
   where the customer obtains the card or recharges the card. Tr. p. 13-14; and

2. The "host computer" is the central computer, or a system of networked computers, that keeps track of all the cards or
   card accounts. Tr. p. 14-16.

The parties also agreed that, at a minimum, the three terms in dispute describe variable amounts selected by the customer.
The real question is whether these terms can also be defined as including a pre-set amount, say $ 5.00 or $ 10.00. Tr. p. 11-
13, p. 34-35. TGIP says they can. Tr. p. 21. The Defendants argue they can not. Tr.22.

TGIP points, among other things, to '114 patent col. 2, 11. 52-54, which describes using a keypad at the point of sale or
recharge "for entering any monetary amount corresponding to an amount of call authorization associated with a particular
calling card . . . " TGIP also relies upon its request for reexamination of the '768 patent in which it stated that "[a]n active
call authorization amount means a call amount that is then useful for obtaining the call service . . . a call authorization
amount (albeit inactive) may be associated with the account prior to the user purchasing the calling card account because
the calling card account is not associated with an 'active call authorization amount' until an active, or usable, amount is
joined with the account. . . . ." Request for Reexamination, 7/6/2000, p. 3, Ex. E to TGIP's Opening Claim Construction Brief
[Doc. # 200, Attachment # 5, p. 3 of 24]. Additionally, during the reexamination process, the Board of Patent Appeals stated
that claim limitations of an "active call authorization amount" "do not require (but do not exclude) point-of-sale activation
of varying call amounts . . . . The active call authorization amounts could be a limited number of predetermined values as in
[Doc.# 200, Attachment # 8, pp. 11 of 31].

The court does not discount TGIP's statement in reexamination proceedings out of hand, but recognizes that it was
submitted to the PTO after some years of disputes concerning the patents. The court must be careful about allowing
statements made during a reexamination to enlarge the patent's scope, or to recapture scope which had been earlier
surrendered when limiting arguments made to obtain the patent have not been retracted and brought to the attention of the new examiner. See Creo Prods. v. Presstek, Inc., 305 F.3d 1337, 1344 (Fed. Cir. 2002); Hakim v. Cannon Avent Group, PLC, -- F.3d --, 2007 U.S. App. LEXIS 3926, 2007 WL 542697, *3 (Fed. Cir. 2007). This would seem especially true when the statement in question was peripheral to the issues being addressed by the examiner and the Board of Appeals.

Of course, TGIP also relies upon the familiar cannons of construction that a patent is defined by its claims, that claims should be given their full scope, and that limitations should not be imported from descriptions of preferred embodiments.

Defendants rely heavily upon statements in the specification such as: "The present invention relates to . . . activation and recharging of calling cards in customer defined amounts." ‘114 patent, col.1., 11. 6-9. Defendants also argue that TGIP disavowed all cards issued in fixed or pre-set amounts pointing to statements distinguishing prior art such as: "The most significant drawback is the requirement that pre-paid calling cards be issued in fixed or preset amounts."' 114 patent, col. 1, 11. 46-48, and '768 patent, col. 1, 11. 51-53.  See Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

It appears to the court that nothing in the claim language itself eliminates all cards with a pre-set amount. n3 The first use of the disputed phrase is in Claim 1 of the ‘114 patent: "associating, at the host computer, an amount of call authorization to a security number of a calling card . . .” "114 patent, col. 6, 11. 14-16. In Claim 1 of the ‘768 patent Reexamination Certificate ("Reexam Cert") we see: "activating the particular pre-paid calling card account in the database of pre-paid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account." ‘768 patent Reexam Cert, col. 1,11.33-37. The statements in the specification and prosecution history of each patent establish that the intent was to go beyond the previous fixed limit card, but they do not eliminate the possibility that what is claimed is a new system which describes: (1) an "open ended" card (or one with a high upper limit) so the customer picks any amount (or any amount less than the high limit); and (2) a card with an amount preprinted on the card, or alternatively two or more amounts, one of which must be selected by the customer.

--- Footnotes ---

n3 The record contains a much more detailed exposition on this issue, including the responses of the parties to various hypotheticals. See Tr. pp. 10-60.

--- End Footnotes ---

Whether the claim language can be defined as including this second type of card is the real dispute. See Tr. p. 11-13. Both patents use the indefinite article "an" when referring to the call authorization amount or the amount of call authorization. The specification describes an embodiment in which there is "an amount of call authorization associated with a particular calling card . . ." '114 patent, col. 2, 11. 53-54. The court concludes that the claim language describes at least some types of cards with a pre-printed amount, or perhaps a limited choice of amounts. To this extent,"call authorization amount" and "active call authorization" simply mean a monetary amount assigned to the card or account.

But the analysis does not end there. Two systems or scenarios for use of cards with pre-set dollar amounts are technically feasible. Tr. p. 16-18, 42.

Scenario 1: Cards of say $ 5.00 or $ 10.00, etc., where the security number is pre-associated with that amount at the host computer, but the card is not valid until it is "swiped" at the point of sale so the host computer knows it is activated. (In other words the host computer database already "knows" the security number of the card, and the amount of the card, and all that is needed is to validate or activate the card.)

Scenario 2: Cards of say $ 5.00 or $ 10.00 etc., where a security number is not associated with a particular card or amount until the card is swiped. This could include a card with a limited number of choices available, say a choice between $ 5.00, $ 10.00, or $ 15.00. (In other words the host computer database has a list of security numbers, and when a card is activated at the data terminal the amount printed on the card is associated with one of those security numbers.)

Comparing these scenarios illuminates the importance of the term "associating" and illustrates why it must be construed in conjunction with the three terms originally submitted. n4
n4 Of course, with a "variable" or pure "customer choice" card, no dollar amount can be associated with a security number until the customer selects an amount and activates or recharges the card for that amount. As noted, the parties do not dispute that the patent terms define this type of transaction.

Claim 1 of the '114 patent states that as part of the system there is a host computer with an input port, and a data terminal "connectible to the input port for associating, at the host computer an amount of call authorization to a security number of a calling card . . . ." '114 patent, col. 6, ll. 13-16 (emphasis added). Similarly, Claim 1 of the '768 patent describes a method in which calling card account in the database is activated "by associating an active call authorization amount with the particular pre-paid calling card account." '768 patent Reexam Cert, col. 1, ll. 35-37(emphasis added).

"Associating" is an active verb, which must mean something. If, as TGIP argues, cards could have a preset amount printed and coded on the card, along with that card's identifying or security number, then what is left to associate by the host computer or the data terminal? After Claim 1 of original application for the '114 patent had been rejected as obvious in light of two earlier patents, the applicant stated:

 Amendment to First Office Action, 5/18/1995, p. 8 (Bates No. TGIP 006428), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 9 of 11].

To define the terms at issue so broadly as to encompass the system of scenario 1 above, would simply ignore this statement to the PTO, and would define "authorizing" as simply meaning "validating." The prosecution history makes it clear that such a construction was rejected by the PTO. n5 The court will define these related terms as follows:

"Call authorization amount" as used in the '114 patent, Claims 1, 6, and 7, and "amount of call authorization" as used in the '114 patent, Claims 1 and 6, mean: "a monetary amount to be used to pay for call service."

"Associating, at the host computer, an amount of call authorization to a security number" as used in the '114 patent Claims 1 and 6, means that as part of the activation process, and not before, the amount of call authorization is linked in the host computer database to a security number for that card.

"Active call authorization amount" as used in the '768 patent, Claims 1-3, and 5-11 means: "a monetary amount to be used to pay for call service."

"Associating an active call authorization amount with the particular pre-paid calling card account" as used in the '768 patent, Claims 1-3, and 5-11, means that as part of the activation process, and not before, the active call authorization amount is linked in the remote location database, to the pre-paid calling card account.

n5 TGIP tries to get around the statements it made to the PTO to obtain approval of the patent by now arguing that the security number (or other card identifier) and the monetary amount could be combined on the card but not really be "associated" until transmitted to the host computer or database. This is just a fancy way of saying "validating."

TGIP points out in its Supplemental Claim Construction Brief ("Supp. Br."), Claim 7 of the '114 patent does not include the term "associating." See TGIP's Supp. Br., p. 2[Doc. # 229-1, p. 3 of 12]. Claim 7 was added during prosecution after Claim
1 was rejected. See TGIP's Supp. Br., p. 2 [Doc. # 229-1, p. 3 of 12]. After explaining (as set out above) that amended Claim 1 could be distinguished from Schilling and Kamil, because the data terminal associated an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer, the patentee stated to the PTO:

Independent Claim 7 is directed to a system wherein a "plurality of data terminals" are used to provide the on-site card activation capability. For the reasons set forth above with respect to Claim 1, Claim 7 is also patentable.

Amendment to First Office Action, 5/18/1995, p. 9 (Bates No. TGIP 006429), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 10 of 11](emphasis added). However, the effect of these statements to the PTO on the interpretation of Claim 7 is not before the court at this time.

The parties initially stated that the primary dispute between them involves these three related claim terms. TGIP proposed: "a call amount that is useful for obtaining call service." Defendants suggested "any customer defined variable (i.e. not fixed or pre-set) amount, assigned to a calling card at the time of activation or recharge." A candid discussion between the court and the parties at the Markman hearing revealed that the more important issue is how the term "associating" applies to, and affects, these three terms.

To assist in the analysis, the relevant portion of the first claim of each patent is set out with these terms in bold:

Claim 1 from the '114 patent:

at least one data terminal located at a predetermined location remote from the host computer and connectable to the input port for associating, at the host computer, an amount of call authorization to a security number of a calling card using data transmitted between the data terminal and the host computer during one or more charging transactions, the means for associating of the data terminal including:

means for entering the security number;

means, operative during any initial transaction and any recharge transaction, for entering any monetary amount corresponding to the amount of call authorization;

means for connecting to the host computer to transfer the security number and the call authorization amount; and

means responsive to the transfer for receiving a verification message from the host computer authorizing receipt of the monetary amount to thereby associate at the host computer the call authorization amount to the security number, wherein the calling card does not store the call authorization amount; and

wherein the database includes a record for each calling card security number having a call authorization amount associated therewith, the record including a balance; and

Claim 1 from the '68 patent:

activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account;

for each pre-paid calling card account that is activated, maintaining in the database information sufficient to identify: (i) a
At the hearing the parties agreed generally that:

1. The "data terminal" is the terminal at which the calling card is swiped or data is otherwise entered at the point of sale where the customer obtains the card or recharges the card. Tr. p. 13-14; and

2. The "host computer" is the central computer, or a system of networked computers, that keeps track of all the cards or card accounts. Tr. p. 14-16.

The parties also agreed that, at a minimum, the three terms in dispute describe variable amounts selected by the customer. The real question is whether these terms can also be defined as including a pre-set amount, say $5.00 or $10.00. Tr. p. 11-13, p. 34-35. TGIP says they can. Tr. p. 21. The Defendants argue they can not. Tr. p.22.

TGIP points, among other things, to '114 patent col. 2, 11. 52-54, which describes using a keypad at the point of sale or recharge "for entering any monetary amount corresponding to an amount of call authorization associated with a particular calling card . . . ." TGIP also relies upon its request for reexamination of the '768 patent in which it stated that "[a]n active call authorization amount means a call amount that is then useful for obtaining the call service . . . a call authorization amount (albeit inactive) may be associated with the account prior to the user purchasing the calling card account because the calling card account is not associated with an 'active call authorization amount' until an active, or usable, amount is joined with the account. . . ." Request for Reexamination, 7/6/2000, p. 3, Ex. E to TGIP's Opening Claim Construction Brief [Doc. # 200, Attachment # 5, p. 3 of 24]. Additionally, during the reexamination process, the Board of Patent Appeals stated that claim limitations of an "active call authorization amount" "do not require (but do not exclude) point-of-sale activation of varying call amounts . . . . The active call authorization amounts could be a limited number of predetermined values as in the prior art." See Board of Patent Appeals Decision of 9/26/2003, Ex. H, p. 11 to TGIP's Opening Claim Construction Brief [Doc.# 200, Attachment # 8, pp. 11 of 31].

The court does not discount TGIP's statement in reexamination proceedings out of hand, but recognizes that it was submitted to the PTO after some years of disputes concerning the patents. The court must be careful about allowing statements made during a reexamination to enlarge the patent's scope, or to recapture scope which had been earlier surrendered when limiting arguments made to obtain the patent have not been retracted and brought to the attention of the new examiner. See Creo Prods. v. Presstek, Inc., 305 F.3d 1337, 1344 (Fed. Cir. 2002); Hakim v. Cannon Avent Group, PLC., -- F.3d --, 2007 U.S. App. LEXIS 3926, 2007 WL 542697, *3 (Fed. Cir. 2007). This would seem especially true when the statement in question was peripheral to the issues being addressed by the examiner and the Board of Appeals.

Of course, TGIP also relies upon the familiar cannons of construction that a patent is defined by its claims, that claims should be given their full scope, and that limitations should not be imported from descriptions of preferred embodiments.

Defendants rely heavily upon statements in the specification such as: "The present invention relates to . . . activation and recharging of calling cards in customer defined amounts." '114 patent, col.1., 11. 6-9. Defendants also argue that TGIP disavowed all cards issued in fixed or pre-set amounts pointing to statements distinguishing prior art such as: "The most significant drawback is the requirement that pre-paid calling cards be issued in fixed or preset amounts." '114 patent, col. 1, 11. 46-48, and '768 patent, col. 1, 11. 51-53. See Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

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an amount preprinted on the card, or alternatively two or more amounts, one of which must be selected by the customer.

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Whether the claim language can be defined as including this second type of card is the real dispute. See Tr. p. 11-13. Both patents use the indefinite article "an" when referring to the call authorization amount or the amount of call authorization. The specification describes an embodiment in which there is "an amount of call authorization associated with a particular calling card . . . ." '114 patent, col. 2, 11. 53-54. The court concludes that the claim language describes at least some types of cards with a pre-printed amount, or perhaps a limited choice of amounts. To this extent,"call authorization amount" and "active call authorization" simply mean a monetary amount assigned to the card or account.

But the analysis does not end there. Two systems or scenarios for use of cards with pre-set dollar amounts are technically feasible. Tr. p. 16-18, 42.

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"Associating" is an active verb, which must mean something. If, as TGIP argues, cards could have a preset amount printed and coded on the card, along with that card's identifying or security number, then what is left to associate by the host computer or the data terminal? After Claim 1 of original application for the '114 patent had been rejected as obvious in light of two earlier patents, the applicant stated:

Claim 1 has been amended to further emphasize several of the above-identified features and concepts that are neither described nor obtained by Schilling, taken by itself or in combination with Kamil . . . For example, Claim 1 now describes . . . The data terminal is now described as the device in the system which is used to associate an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer.
Amendment to First Office Action, 5/18/1995, p. 8 (Bates No. TGIP 006428), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 9 of 11].

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--- Footnotes ---

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TGIP points out in its Supplemental Claim Construction Brief ("Supp. Br."), Claim 7 of the '114 patent does not include the term "associating." See TGIP's Supp. Br., p. 2 [Doc. # 229-1, p. 3 of 12]. Claim 7 was added during prosecution after Claim 1 was rejected. See TGIP's Supp. Br., p. 2 [Doc. # 229-1, p. 3 of 12]. After explaining (as set out above) that amended Claim 1 could be distinguished from Schilling and Kamil, because the data terminal associated an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer, the patentee stated to the PTO:

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Amendment to First Office Action, 5/18/1995, p. 9 (Bates No. TGIP 006429), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 10 of 11](emphasis added). However, the effect of these statements to the PTO on the interpretation of Claim 7 is not before the court at this time.

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9. Associating the DR and the referenced record ('321 patent, claims 47, 185, 190 and 193)

The parties agree that "associating the DR and the referenced record" creates a relationship between the DR and the referenced record and that the term "associating" is broader than "linking." Although defendant argues that this relationship must be "unambiguous and defined" in order to "facilitate the principal goal of the '321 patent," I will not read such a limitation into the disputed claims. See also Webster's Ninth New College Dictionary 110 (1983) (defining "associate" as "to bring together or into relationship in any various and tangible ways"). Accordingly, "associating the DR and the referenced record" in claims 47, 185, 190 and 193 of the '321 patent creates a relationship that is broader than linking.
4. "associating roles"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;associating the roles with individual metadata elements&quot;</td>
<td>No construction necessary</td>
<td>for each of a plurality of metadata elements, assigning a list of roles to the metadata element</td>
</tr>
</tbody>
</table>

The dispute here is similar to the preceding one. The defendants argue that the intrinsic record requires that roles must be associated with more than one metadata element and that the association be done on an "individual" basis. This plurality is reflected in the claim language. The defendants argue that the plain meaning of the phrase "individual metadata elements" requires associating the roles with the metadata elements on an individual basis, i.e., roles must be associated "for each of a plurality" of metadata elements. 10 The defendants also point to following section of the specification for support:

[after] defining metadata elements for an image file, particular roles (e.g., job roles) are then associated with the individual metadata elements defined for the image, and each role is assigned certain access privileges for the metadata element to which they are associated.

'231 patent, at 3:54-60.

Footnotes

10 The defendants also point to an office action response wherein the applicants differentiated a prior art that allowed associating access rights with sets of images, such as photo albums. This prosecution history, however, is irrelevant to the issue of associating metadata elements of a single image.

FotoMedia responds by arguing that the claim only requires associating roles with metadata elements, and that there is no support for a specific type of association such as assigning a list of roles to each of at least two metadata elements.

As with the "associating users" term, a key feature of the invention claimed by the inventors is the ability to discriminate between various types of users and roles in providing access to the various elements of the image data. As such, the Court adopts defendants' proposed construction for this term.

"Associating the roles with individual metadata elements" means "for each of a plurality of metadata elements, assigning a plurality of roles to the metadata element."

A. Claim Construction

Before turning to the parties' contentions about the proper construction of the asserted claim, it is important to review some basic principles of claim construction. First, and most importantly, the language of the claim defines the scope of the protected invention. Yale Lock Mfg. Co. v. Greenleaf, 117 U.S. 554, 559, 29 L. Ed. 952, 6 S. Ct. 846 (1886) ("The scope of letters-patent must be limited to the invention covered by the claim, and while the claim may be illustrated it cannot be enlarged by language used in other parts of the specification."); Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384
F.2d 391, 396, 155 U.S.P.Q. (BNA) 697, 701 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he set forth [in the claim]."). See also Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 419, 52 L. Ed. 1122, 28 S. Ct. 748 (1908); Cimiotti Unharring Co. v. American Fur Ref. Co., 198 U.S. 399, 410, 49 L. Ed. 1100, 25 S. Ct. 697 (1905). Accordingly, "resort must be had in the first instance to the words of the claim," words to which we ascribe their ordinary meaning unless it appears the inventor used them otherwise. Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 U.S.P.Q. (BNA) 473, 477 (Fed. Cir. 1984). Second, it is equally "fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention." United States v. Adams, 383 U.S. 39, 49, 15 L. Ed. 2d 572, 86 S. Ct. 708 (1966). See also Markman, ___ F.3d at ___, 34 U.S.P.Q.2D (BNA) at 1329-30 ("Claims must be read in view of the specification, of which they are a part. . . . For claim construction purposes, the [specification's] description may act as a sort of dictionary, which explains the invention and may define terms used in the claims.").

We construe claim preambles, like all other claim language, consistently with these principles. Much ink has, of course, been consumed in debates regarding when and to what extent claim preambles limit the scope of the claims in which they appear. See, e.g., 2 Donald S. Chisum, Patents § 8.06[1][d] (1993); 1 Anthony W. Deller, Patent Claims §§ 78, 163-83 (2d ed. 1971); Willis Higgins, The Significance of Preambles in Chemical Composition Claims, 49 J. Pat. & Trademark Off. Soc'y 337 (1967); Vincent Millin, PTO Practice: Preamble--Prelude to Patentability, 72 J. Pat. & Trademark Off. Soc'y 348 (1990); David R. Pressman, Note, Patents--Claim Construction, 30 Geo. Wash. L. Rev. 380 (1961); Alton D. Rollins, Is It New or Not?, 68 J. Pat. & Trademark Off. Soc'y 89 (1986). These debates center, however, on particular arts and claiming styles and do not call into doubt the general principle, as well-settled as any in our patent law precedent, that a claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects. In re Paulsen, 30 F.3d 1475, 1479, 31 U.S.P.Q.2D (BNA) 1671, 1673 (Fed. Cir. 1994) ("Terms appearing in a preamble may be deemed limitations of a claim when they give meaning to the claim and properly define the invention.") (internal quotation omitted); London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1539, 20 U.S.P.Q.2D (BNA) 1456, 1459 (Fed. Cir. 1991) ("The shank is defined in the preamble as that portion of the hanger 'between the supporting hook for the hanger and the support for the garment.' This is not merely a suggested use or 'clarifying language,' as London argues, but rather a limitation supported by structure which must be satisfied by Samsonite's clamp, either literally or equivalently[,] if infringement is to be found."); In re Stencel, 828 F.2d 751, 754, 4 U.S.P.Q.2D (BNA) 1071, 1073 (Fed. Cir. 1987) ("Whether a preamble of intended purpose constitutes a limitation to the claim is, as has long been established, a matter to be determined on the facts of each case in view of the claimed invention as a whole."); Loctite Corp. v. Ultraceal Ltd., 781 F.2d 861, 866, 228 U.S.P.Q. (BNA) 90, 92 (Fed. Cir. 1985) ("Although it appears in the preambles of the '012 patent claims, the term 'anaerobic' breathes life and meaning into the claims and, hence, is a necessary limitation to them."); Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 896, 221 U.S.P.Q. (BNA) 669, 675 (Fed. Cir.) ("The system of claim 1 is one of unity magnification and is image forming. Those limitations appear in the preamble, but are necessary to give meaning to the claim and properly define the invention.").

the preamble has been denied the effect of a limitation where . . . the claim or [interference] count apart from the introductory clause completely defined the subject matter [of the invention], and the preamble merely stated a purpose or intended use of that subject matter. On the other hand, in those . . . cases where the preamble to the claim or count was expressly or by necessary implication given the effect of a limitation, the introductory phrase was deemed essential to point out the invention defined by the claim or count. In the latter class of cases, the preamble was considered necessary to give life, meaning and vitality 1 to the claims or counts.

--- Footnotes ---

1 This particular phrase originates in Schram Glass Manufacturing Co. v. Homer Brooke Glass Co., wherein the court observed that a claim preamble "may entirely fail to supply a necessary element in a combination, yet it may so affect the enumerated elements as to give life and meaning and vitality to them, as they appear in the combination." 249 F. 228, 232-33 (7th Cir.), cert. denied, 247 U.S. 520 (1918).

--- End Footnotes ---
Id. at 152, 88 U.S.P.Q. (BNA) at 480-81. Preamble construction thus presents no deeper mystery than the broader task of claim construction, of which it is but a part.

B. Claim 6 of the '080 Patent

Claim 6 of the '080 patent recites a "method for transmitting a packet over a system comprising a plurality of networks . . . said packet including a source address and destination address," as its preamble indicates. It then recites, inter alia, the steps of "assigning, by said source device, one of said trees to broadcast said packet and associating with said packet an identifier indicative of said one of said trees." (Emphasis added). These two steps of the claimed method, by referring to "said packet," expressly incorporate by reference the preamble phrase "said packet including a source address and a destination address." As a result, only a method for transmitting packets that have both source and destination addresses can literally infringe Claim 6.

Bellcore contends, as it did before the district court, that one ought not to accord "definitional status" to the phrase "said packet including a source address and a destination address" because it appears in the claim's preamble, relying primarily on our decision in DeGeorge v. Bernier, 768 F.2d 1318, 226 U.S.P.Q. (BNA) 758 (Fed. Cir. 1985), for the proposition that "the preamble to a claim does not limit the claim." Bellcore likely maintains this position on the mistaken belief that to do otherwise would be to concede its case against Vitalink. In any event, however, Bellcore's position is untenable. In DeGeorge, we noted that "generally, and in this case, the preamble does not limit the claims." Id. at 1322 n.3, 226 U.S.P.Q. (BNA) at 761 n.3. As the preceding discussion of our cases on claim preambles makes clear, this observation in DeGeorge can only have been descriptive, rather than prescriptive. We have long eschewed the use of an absolute rule according or denying all preambles limiting effect, having recognized that one cannot determine a preamble's effect except by reference to the specific claim of which it is a component. Claim 6, as drafted and in light of the specification, is plainly limited such that it literally reads only on methods that transmit packets having both source and destination addresses. 2

The district court further concluded that the above limitation regarding the contents of the packet compels one to construe the step of "associating with said packet an identifier" to require that the identifier be separate and distinct from the destination address. Vitalink urges us to affirm this construction of the claim. In other words, Vitalink would have us read the phrase "associating with said packet an identifier" as if it were "inserting into said packet a separate identifier." This construction of the claim is, however, no more tenable than Bellcore's. For, while nothing within Claim 6 considered in isolation impeaches the construction that Vitalink prefers, it is legal error to construe a claim by considering it in isolation. A claim must be read in view of the specification of which it is a part. Adams, 383 U.S. at 49; Markman, __ F.3d at __, 34 U.S.P.Q.2D (BNA) at 1329-30. The specification of the '080 patent makes it clear to one of ordinary skill in the art that one can "associate" an identifier with a packet within the meaning of Claim 6 either explicitly (e.g., by the insertion of an additional "tree number" field into the packet) or implicitly (e.g., by the insertion of a destination address field from which a tree number can be determined). Thus, the associating step of Claim 6 covers both an implicit or an explicit approach. The district court, by construing it to cover the explicit approach alone, read an additional limitation into the claim, an error of law. See, e.g., Specialty Composites v. Cabot Corp., 845 F.2d 981, 988, 6 U.S.P.Q.2D (BNA) 1601, 1606 (Fed. Cir. 1988).

Bellcore also contends that the district court erred when it interpreted the assigning step of Claim 6 to require that the source device assign the packet to be broadcast along one and only one spanning tree, on which the packet would travel to its destination without any mid-course changes in tree assignment. We, however, share the trial court's view of the assigning step's proper construction. The claim first recites the step of "assigning, by said source device, one of said trees to broadcast said packet." Although this clause appears to include no limitation regarding the possibility that mid-course changes in tree assignment might occur, the remainder of the claim renders such a construction of Claim 6 unworkable. First, the broadcasting step, according to which the packet is sent "through the system on said one of said trees," strongly suggests that the packet travels on the same tree, assigned at the outset, from its source to its destination. Second, and more importantly, the claimed method whereby the gateways execute their store-and-forward protocol precludes mid-course changes in tree assignment. According to the claim, each gateway receiving the packet "determines for each said packet . . . said packet identifier"—that is, the identifier associated with the packet that is "indicative of said one of said trees" on which
the packet has been broadcast. Each gateway then executes its first inhibit-or-forward decision according to whether it "processes packets having said identifier"—again, the identifier associated with the packet that is "indicative of said one of said trees" on which the packet has been broadcast. Thus, the identifier that indicates the "one of said trees" along which the packet is broadcast "through the system" remains the same throughout the packet's trip from its source to its destination. As a consequence, in the claimed method, the tree on which the packet travels must also remain the same: if the packet were assigned to a new tree mid-course, the gateways along that new tree would not forward it, inasmuch as they do not process packets having the identifier, indicative of a different tree, that was associated with the packet prior to its broadcast. The district court properly construed Claim 6 to require that the source device assign, prior to transmission, the one spanning tree along which the packet travels to its specified destination.

3. "associating users"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;associating users who will access the image with roles&quot;</td>
<td>No construction necessary</td>
<td>For at least two roles, assigning a list of users who will access the image to the roles</td>
</tr>
</tbody>
</table>

Fotomedia proposes that no further construction is necessary for this term. Fotomedia argues the patent teaches that users are assigned roles, and there is no support in the intrinsic record for defendants' proposed construction, assigning a "list of users" to "roles."

The defendants contend that this term should at least be limited to its plural form. As part of their proposed construction, defendants also suggest that the term "associating" be interpreted as "assigning." For this, defendants point to the specification that reads "[a]ll users who will access the image are assigned particular roles." See '231 patent, col. 3, ll. 61-63.

In this context, the specification uses the terms "assign" and "associate" synonymously. Therefore, the Court finds that the scope of the claim should be limited to a system wherein users are indeed assigned roles. The defendants' proposed requirement of a plurality of roles is also supported by the claim language and the specification. One highlighted feature of the invention over the prior art is that it is able to intelligently discriminate between users based on these roles. See '231 patent, col. 1, 50-60. There can be no discrimination between users if there is only a single role defined.

The Court, therefore, adopts the defendants' proposed construction. "Associating users who will access the image with roles" is construed as follows: "For at least two roles, assigning a plurality of users who will access the image to the roles."

4. ASSOCIATION

The parties apparently have been unable to agree upon the meaning of the word "association" as used in the phrase "computers each in association with one of said license storage keys," in Claim 1. Defendants maintain that the phrase means each computer must be "connected to an associated peripheral storage device containing one of the license files . . . ." Plaintiff's opt for a straightforward dictionary definition.

The Court has found the dictionary to be a convenient reference tool for discovering the meaning of common English words. Accordingly, reference to Webster's Ninth New Collegiate Dictionary, Merriam Webster (1984), yields an appropriate definition for "association" for purposes of construing the '297 Patent. The relevant dictionary entry for association reads "the state of being associated." In turn the pertinent entry for "associate" reads "to join or connect
together." It follows directly from the preceding that "association" refers to the state of being joined or connected together.

Additionally, because Claim 2, which is dependent upon Claim 1, adds only that "communications between a license storage key and a computer are encrypted," the Court is of the opinion that association contemplates communication, even in Claim 1. That is, "communications" are referred to in Claim 1 as though they are a pre-existing aspect of the relationship between license storage keys and computers in the computer network with encryption thereby being the only new element of the dependent claim. In light of the above, the following definition is appropriate.

**ASSOCIATION** is the state of being joined or connected together such that communication is possible as between the joined or connected components.

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**12. Associative crossbar/ associative crossbar switch.**

Borrowing from Intel's practice of incorporating claim elements into the definition of a term, Intergraph defines "associative crossbar" as a first set of connectors coupled to the super scaler storage for receiving each of the software-scheduled instructions therefrom, and a second set of connectors coupled to the plurality of instruction pipelines. Intel's proposed construction is addressed above, as it views the terms "crossbar" and "associative crossbar" to be synonymous. The Court construes "associative crossbar" and "associative crossbar switch" as a crossbar in which the data being routed includes the routing instructions. '028 patent at 3:11-17; 10:10-21.

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E. To Assume a Proper Configuration (Claim 1)

PCTEL contends that the term requires no construction. Agere and USR state that the term means "to assume a proper hardware configuration."

The Court agrees with Agere and USR. Agere and USR base their interpretation on the relation of this term to the remaining language in claim 1. The only configuration that is identified in claim 1 is a "hardware configuration." In fact, the term in context reads "to cause said means for changing the hardware configuration to assume a proper configuration." '561 patent, col. 11:52-54. Thus, it appears to the Court that the "proper configuration" in this claim obviously refers to the hardware configuration term that proceeded it. Accordingly, the Court construes "to assume a proper configuration" as to assume a proper hardware configuration.

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c. The '064 Patent

The disputed claim terms in the '064 Patent are "interworking unit" (which, again, the parties seem to agree means the same thing as the "interworking device" disclosed in the '294 Patent) and "asynchronous communication." With respect to the claim term "interworking unit," the parties once again incorporate their arguments as to the same claim term in the '294 Patent. For the same reasons, the court also construes the claim term "interworking unit" in the '064 Patent to mean ATM interworking multiplexer, grants Vonage's motion for summary judgment on the issue of literal infringement as to this claim limitation, and denies Vonage's motion as to the issue of infringement of this claim limitation under the doctrine of equivalents.

The only new issue presented with respect to the '064 Patent is the disputed claim term "asynchronous communication." Vonage asks the court to construe this claim term to mean ATM communication. To help understand the distinction, "asynchronous" is a term of art in the communications field that refers to communications where the transmitting and
receiving devices do not communicate based on a synchronized clock. A declaration submitted by Sprint's expert, Dr. Wicker, is helpful to an understanding of the relevant technology underlying the distinction between "asynchronous communication" and ATM communication. Dr. Wicker explains that one of skill in the art recognizes "asynchronous" as a term of art in the communications field that refers to communications where the transmitting and receiving devices do not share a common clock to facilitate communication. This is opposed to synchronous communications such as the PSTN in which time synchronization is required to identify data and ensure delivery to its proper destination. To put the matter in context, Dr. Wicker asserts that asynchronous communication in the '301 Family Patents is descriptive of packet communication including ATM, IP, and other well known packet technologies. Such packets are generally communicated without a timing relationship (or synchronized clock) between the sender and receiver. Thus, packet technologies are asynchronous. Consequently, Vonage's argument that the court should construe the claim term "asynchronous communication" to mean ATM communication is essentially an attempt to limit the claim term to one particular type of packet communication and, in particular, to the exclusion of the IP packet technology used in the Vonage system.

As Sprint points out, the doctrine of claim differentiation is once again pertinent to the court's construction of this claim language. Dependent claim 6 claims a method "wherein the asynchronous communication is in asynchronous transfer mode [ATM]." '064 Patent, col. 23, ll. 56-57. Thus, a presumption arises against construing the claim term in the manner suggested by Vonage.

Vonage has not directed the court's attention to any disclosure in the specification which suggests that the court should construe the specific claim term "asynchronous communication" in the manner urged by Vonage.

Instead, Vonage relies on its overriding theory that the written description establishes that the inventions disclosed in the '301 Family Patents generally relate to ATM technology. In the absence of some type of link to the disputed claim language at issue, however, these generalized disclosures are insufficient to overcome the presumption created by the doctrine of claim differentiation. As such, the court declines to construe the claim term in the manner urged by Vonage.

5. "At a later timepoint determined by a fixed period of time predefined at a beginning of the handover" (Claim 1)

The full phrase of this limitation states: "at a later timepoint determined by a fixed period of time predefined at a beginning of a handover, deleting the link data from the first base station and freeing up the resources of the firstbase station . . . ." '830 Patent at 8:25-29. The specification explains:

It is therefore proposed that in the case of a handover the base station initially continue to hold the data and resources. To accomplish this a timer, for example, is started when the old base station asks the mobile station to look for a new base station (or when the mobile station confirms this). The base station holds the resources of the mobile station in reserve until it receives the request to redirect the links or until the timer runs out. During this time the mobile station has time to look for a new base station that is capable of carrying the traffic. If the search for a new base station is unsuccessful, the [mobile station] re-registers at its old [base station] and keeps its previous settings. If the [mobile station] does not [re-]register within the time defined by the timer the old base station frees up the resources and deletes the [mobile station] from its lists.

Id. at 7:41-54.

HTC proposes that the cited limitation be construed to be "the base station deleting the link data and freeing up the link resources if a predetermined time passes after the mobile station began searching for a new base station." This defines more than the limited phrase, quoted above. IPCom prefers, "when the time, which has been preset and initiated before handover, expires." The Court adopts IPCom's more limited definition. The phrase "at a later timepoint determined by a fixed period of time predefined at a beginning of a handover" means "when the time, which has been preset and initiated before handover, expires."
C. "each of said plurality of student terminals . . . at a pace controlled by teacher" (Pacing)

Claim 1 also requires, in part, "allowing the teacher to initiate and terminate said student tasks on said interactive electronic classroom system, such that each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher." (emphasis added). Better Education's proposed construction is "the teacher may set a time limit or control the pace by starting, stopping, or advancing to the next instructional activity, question, or set of questions which the students may provide responses to on their student terminals." The defendants assert that this term means "the teacher has the ability to set separate time limits for when different student terminals send responses to the student tasks." The primary dispute is whether the system must be capable of setting different time limits for individual students.

The defendants first argue that the system must permit separate time limits because the claim language states that "each of said plurality . . . is under the control of the teacher." (emphasis added). According to the defendants, Better Education's proposed construction reads "each of" out of the claim language by not requiring individual control. But, even with a system having a single aggregate timer, each individual student terminal provides responses; thus, the "each of" language is not rendered superfluous. Next, the defendants cite to a portion of the Summary of the Invention, which states:

The inventive system also involves a combination of software and hardware to accomplish the following: . . . a timing environment . . . for allowing each of the terminals to proceed . . . either at each student's own pace, or in lockstep with all other students in the class. If the teacher assigns different tasks to different groups of students in the class, then students within each group may proceed either individually or in lockstep with others in that group . . . .

('491 patent, 4:26-27, 39-52). Thus, according to the defendants, the claimed system must permit individual timers. In response, Better Education argues that the language of the dependent claims supports its asserted construction. Claim 28, which depends upon claim 1, "allows each of said plurality of student terminals to receive and respond to said student tasks at each student's own pace." The Federal Circuit has explained that "the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). As claim 28's pacing limitation is nearly identical to the defendants' proposed construction of claim 1, the doctrine of claim differentiation counsels against the construction asserted by the defendants. The court is not persuaded that the specification requires the narrow reading of this limitation that is advanced by the defendants. Therefore, the court construes "each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher" to mean "the teacher may set a time limit or control the pace by starting, stopping, or advancing to the next instructional activity, question, or set of questions which the students may provide responses to on their student terminals."

12. "at a time requested by the user"

Claim 19 provides in pertinent parts:

A distribution method responsive to requests from a user identifying items in a transmission system containing information to be sent from the transmission system to receiving systems at remote locations, the method comprising the steps of:

- sending a request, by the user to the transmission system, for at least a part of the stored information ...

- sending at least a portion of the stored information from the transmission system to the receiving system at the selected remote location;
receiving the sent information by the receiving system at the selected remote location;

storing a complete copy of the received information in the receiving system at the selected remote location; and

playing back the stored copy of the information using the receiving system at the selected remote location at a time requested by the user.

The Court finds that the "time" in the phrase "at a time requested by the user" refers to the time the user wants to receive the information at a device, such as a TV or VCR. This method gives the user the ability to designate a playback time. In this regard, the parties raise two issues: 1) whether designation of a playback time is optional or mandatory; 2) when, i.e., at what point is the playback time designated.

With respect to the first issue, to determine the optional or mandatory nature of the playback time, Court examines Figure 3, which is a flowchart of an embodiment of a distribution method practicing the claimed invention. Step 3090 of Figure 3 provides: "User may enter time and destination." The use of the word "may" suggests that the playback time is optional rather than mandatory. However, the specification does not contain the optional language of "may:"

The user then indicates whether the confirmation performed in step 3070 is correct (step 3080). If the confirmation performed in step 3070 is correct, the user so indicates and then inputs a desired delivery time and delivery location (step 3090).

('992 Patent, Col. 14:29-33.) The specification does not disclose a means for the user to communicate with the transmission system after making the request for transmission of the information. This leads the Court to the second issue--at what point is the playback time designated.

First, a reasonable interpretation of the phrase "at a time requested by the user" is one in which "at the time" the user makes a request to the transmission system to transmit the information, the user designates a playback time which is at the time of the transmission or at a time later than the time of the transmission. While the transmission request and the playback time request must be made by the user to the transmission system at the same time, the actual playback time may be later than the transmission request time. This interpretation is supported by the specification. Figure 6 is a block diagram of an embodiment of the reception system. The specification of Figure 6 discusses playback time as follows:

In the reception system 200 of the present invention, the user may want to playback the requested item from the source material library 111 at a time later than when initially requested. If that is the case, the compressed formatted data blocks from receiver format converter 202 are stored in storage 203. Storage 203 allows for temporary storage of the requested item until playback is requested.

When playback is requested, the compressed formatted data blocks are sent of [sic] data formatter 204. Data formatter 204 processes the compressed formatted data blocks and distinguishes audio information from video information.

('992 Patent, Col. 18:14-26.) It is apparent that the user would be required to specify a playback time as part of the initial request. However, the user could specify a playback time which is later in time than the time when the request for transmission itself is being made. After the material is transmitted, it would be stored automatically in "storage 203" in the reception system. When the specified delayed playback time arrives, the system would automatically output it in real time. Although a delay in output would occur, the time for output would have been specified at the time of the initial request. There is no means disclosed in the specification by which the user can communicate with the transmission system to modify the designated delayed output time.

Second, there is support in the specification for an embodiment in which the user initiates playback after the information has been received by the reception system. The specification discloses an embodiment in which the user is able to request a particular song, for example, directly from the information "buffered" n10 in the reception system:

For example, a user may desire to listen to a particular song. They may preferably enter the song number either when requesting the item from the compressed data library 118 and only have that song sent to their receiving system 200 or they may preferably select that particular song from the items buffered in their receiving system 200.
In another provision, the specification discloses an embodiment in which the reception system has playback controls which would allow the user to communicate a playback request directly to the reception system:

The reception system 200 has playback controls similar to the controls available on a standard audio/video recorder. These include: play, fast forward, rewind, stop, pause, and play slow.

The Court interprets "buffered," in this context, to mean "temporarily stored." There is no mention in the specification of what kind of a buffering device a user would have in such a receiving system.

These embodiments in which the user is able to communicate a playback request directly from storage in the reception system are described in the specification as direct connection configurations in which the reception system is located at the user's premises:

In direct connection configurations, such as reception system 200 shown in FIGS. 1e and 1f, the user preferably select the reception system 200 to which the requested material is sent, and optionally selects the time playback of the requested material as desired. Accordingly, the user may remotely access the transmission system 100 from a location different than the location of receptions system 200 where the material will be sent and/or played back. Thus, for example, a user may preferably call transmission system 100 from work and have a movie sent to their house to be played back after dinner or at any later time of their choosing.

In non-direct connection reception systems such as shown in reception system 200 of FIG. 1f, intermediate storage device 200c may preferably include, for example, sixteen hours of random access internal audio and video storage. A reception system with such storage is capable of storing several requested items for future playback. The user could then view and/or record a copy of the decompressed requested material in real time, or compressed in non-real time, at a time of their choosing. Accordingly, the user would not have to make a trip to the store to purchase or rent the requested material.

There is no detail for these embodiments. In any event, neither of these references to user controls at the reception system lead the Court to come to a different conclusion that the phrase "at the time requested by the user" should be construed to require that a playback time must be designated at the time of the initial transmission request.

The Court defines at "a time requested by the user" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, in a nondirect connection configuration, the phrase "at a time requested by the user" means "at the output time specified by the user when the user makes the request to the transmission system to transmit information." At the time the user makes a request to the transmission system to transmit information, the user must designate an output time. At the time of the transmission request, a user may designate a delayed output time. If so, the information is transmitted to the receiving system where it is stored and at the pre-designated time, the information is automatically output by the receiving system.

The specification states that there can be "storage" in the reception system in a direct connection configuration: "Since items are preferably stored on random access media...."
4. "at a time when" (1[f], 6, 11[b])

(i) Claim Construction

Claim 1 explains that "actuation of said [vend selection] switch means at a time when the amount accumulated in the accumulator means at least equals the vend price" will energize the first portion of the selection monitor. '903 Patent col. 8, lines 45-47 (emphasis added). In a similar vein, claim 6 describes how a selection monitor designed with an optical isolator "includes means responsive to the light produced when said photo-diode is energized by operation of the switch means in the vend selection means at a time when the accumulator has an amount accumulated therein at least equal to the vend price." '903 Patent col. 8, lines 14-19 (emphasis added). Claim 11 also uses this language, describing a means to inhibit the accumulator "until after the customer has actuated one of the product selection switches at a time when the amount accumulated in the accumulator at least equals the selected vend price." '903 Patent col. 9, lines 59-63 (emphasis added).

Mars urges the Court to interpret these phrases so that the patent does not cover the situation where actuation of the switch means energizes the first portion regardless of whether or not the amount accumulated at least equals the vend price. Coinco urges the opposite interpretation, and suggests that the patent covers the situation where the closing of the selection switch may enable the first portion regardless of whether or not the amount accumulated at least equals the vend price.

Words in a patent must have meaning. Ethicon Endo-Surgery v. United States Surgical Corp., 93 F.3d 1572, 1582 (Fed. Cir. 1996); see also Chef Am. v. Lamb-Weston, Inc., 358 F.3d 1371, 1373 (Fed. Cir. 2004) (explaining that words "mean exactly what they say."). Coinco's position, as demonstrated by Mr. Upchurch, is that the "at a time when" language only requires that the selection monitor be capable of working at a time when the amount accumulated at least equals the selected vend price; according to this interpretation, it is irrelevant, according to the claim language, whether or not the selection monitor also operates at a time when sufficient money has not been accumulated in the accumulator. (Tr. vol. 30, 112 (Mr. Upchurch explained that the statement regarding when actuation should occur "is true whether the amount accumulated in the accumulator equals the vend price or not."); Tr. vol. 30, 134 (disclosing the same testimony for claim 11.)) If the Court were to accept Coinco's argument, then claims 1, 6, and 11 would have exactly the same meaning even if the language specifying "at a time when" were removed from the text of those claims. The Court rejects Coinco's argument for three reasons.

First, construing the claims in the manner requested by Coinco would have the result of effectively excising these words from the claims. Second, the specification does not support Coinco's argument because the specification contains no indication that the selection monitor's operation does not depend upon sufficient accumulation. Third, figures that are part of a patent cannot be used to directly contradict the language of the claims. Coinco argues that Figures 1-5 of the '903 Patent do not show any direct connection between the selection monitor and the accumulator, and that without this connection the selection monitor cannot be dependent upon the accumulator. Although Coinco is correct that the figures do not show any direct connection between the selection monitor and the accumulator, requiring the selection monitor to be dependent on the accumulator -- as urged by Mars -- would result in a working vending machine that used the teachings of the '903 Patent's claims. The interpretation requested by Mars would certainly not result in a nonsensical patent. Because "[e]ven a nonsensical result does not require the court to redraft the claims of the . . . patent," and the specification does not show any indication that the drafter intended anything other than what the words say, the law is clear that the words "at a time when" must be given meaning. See Chef Am., 358 F.3d at 1373-74 (citation omitted). Therefore, the Court accepts Mars' interpretation, and the patent does not cover the situation where actuation of the switch means energizes the first portion regardless of whether or not the amount accumulated at least equals the vend price.

GO BACK

6. "at all times not admit for storage in said buffer any cells on said virtual channel connections for which since the previous indication of said end of transmission on said virtual channel connection there has been any rejection of cells for storage"

The plaintiff again argues that all of the agreed technical terms have been defined; therefore, no further construction is needed. In the alternative, the plaintiff argues that the phrase as a whole means "whether or not buffer overflow is
threatened, not admit for storage in the buffer any cells on the virtual channel connection for which since the previous indication of the end of transmission there has been any rejection of cells for storage."

Under the plaintiff's construction, the cell rejection that occurs as a result of the fourth step of the method is tied to and follows the rejection of the first cell of a frame in a threatened buffer overflow situation following the admission of an end-of-transmission cell, as specified by the third step of the method. As a result, under the plaintiff's proposed construction, the only cell rejection required by the fourth step is the rejection of the remaining cells in a frame whose first cell was not admitted under the threat of buffer overflow as a result of the third step.

The defendants propose that the phrase as a whole means "at all times, if there has been any rejection of cells on a VCC since receipt of a cell on that VCC that contains an end-of-frame designation, reject all cells arriving on that VCC for storage in the buffer." Under the defendants' construction, the terms "at all times" and "any rejection of cells" language operates to include not only the rejection of cells because of threatened buffer overflow, but also the rejection of cells for violation of the preferred embodiment's "pre-storage scheduling check." The defendants point to Figure 9 and observe that Figure 9 describes a second method for rejecting cells, based on the pre-storage scheduling check. See Fig. 9, Step 110.

In addition, the defendants argue that the, "said end of transmission" language cannot refer to the same "end of transmission" indication called out by step 3. If this were the case, then once a cell on a VCC has been rejected after the admission of an end-of-transmission cell, all subsequent cells must also be rejected, thus shutting down that VC. According to, the defendants, this would render the claim indefinite or useless.

The claim language at issue is not a model of clarity; nevertheless, the court disagrees that the claim is indefinite and incapable of construction. The court construes this limitation to mean "at all times, if there has been any rejection of cells on a virtual channel connection since the receipt of a cell on that virtual channel connection that contains an end of transmission indication, not admit any cells arriving on the virtual channel connection for storage in said buffer."

Despite the plaintiff's arguments to the contrary, the language "at all times" and "any rejection" are broad terms that suggest that the claim limitation encompasses rejections for reasons unrelated to buffer overflow. As a consequence, the court rejects the plaintiff's alternative construction that "at all times" means "whether or not buffer overflow is threatened."

The Court issues this supplemental claim construction order in light of Defendant Nortel Networks, Inc.'s (“Nortel”) argument during trial regarding the meaning of a term in the Court’s January 10, 2007, claim construction order. The claim language at issue is “at all times not admit for storage in said buffer any cells on said virtual channel connections for which since the previous indication of said end of transmission on said virtual channel connection there has been any rejection of cells for storage.” The Court previously construed this limitation to mean “at all times, if there has been any rejection of cells on a virtual channel connection since the receipt of a cell on that virtual channel connection that contains an end of transmission indication, not admit any cells arriving on the virtual channel connection for storage in said buffer.”

Nortel has suggested that this construction requires that, after any rejection of a cell on a virtual channel connection, all future cells arriving on that virtual channel connection cannot be admitted for storage in the buffer. The Court did not intend this construction, and Nortel did not suggest this construction in its Markman briefing or at the Markman hearing.

Claim construction is an issue of law for the court to decide. Markman v. Westview Instruments, Inc., 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), aff’d, 517 U.S. 370 (1996). The Court must construe claims in the context of the entire patent. Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). One of ordinary skill in the art, after reading the entire patent, would understand that this claim limitation is focused on cells in a given frame. See 5,689,499 Patent, Fig. 9, 9:53-10:6. Accordingly, the Court construes this limitation to mean “at all times, if there has been any rejection of cells from a particular frame on a virtual channel connection since the receipt of a cell on that virtual channel connection that contains an end of transmission indication, not admit any other cells from that particular frame arriving on the virtual channel connection for storage in said buffer.”
Rodime is the owner of the reexamined '383 patent, which issued on November 29, 1988. The reexamined '383 patent is directed to a micro hard-disk drive system (3.5 inch drive) suitable for use in portable computers with performance parameters comparable to those available in 5.25 inch disk drive systems. Quantum, the plaintiff in this declaratory judgment action, is the manufacturer of disk drives which, Rodime alleges in its counterclaim, infringe its patent.

The claim limitation at issue in this appeal relates to the storage capability of the hard-disk. The storage capability of a hard-disk is a function of the track density; the greater the track density, the more data that can be stored in a given area of the disk. Track density may be defined in terms of "tracks per inch" (tpi), calculated based on the number of concentric tracks present within an inch along the radius of the hard-disk.

On November 19, 1985, James G. McGinley and Roderick M. Urquhart, two engineers at Rodime, filed a patent application for the invention described above. Claim 1 of this application recited, inter alia, a track density of "approximately 600" tpi. The examiner, in a first office action, rejected all the claims as obvious under 35 U.S.C. § 103. With respect to the track density limitation in Claim 1, the examiner stated:

The art described in the preceding paragraph [regarding 5.25 inch disks] demonstrates that such a density is within the state of the art. Such a density would seemingly be achievable on a [3.5 inch] disk in the same manner by which it was achieved on a larger disk. Consequently it would seem that the subject matter of claim 1 - which is seemingly quite general - should not be considered patentable.

In a response dated May 23, 1986, applicants cancelled the original claims and inserted new claims some of which recited a track density of "at least 600" tpi. Although applicants had replaced "approximately" with "at least" in the track density limitation of these new claims, they made no reference to this in their response, but instead focused on the difference between the size of their disks (3.5 inch) and those in the prior art (5.25 inch) as a basis for overcoming the examiner's rejection. The examiner subsequently allowed these new claims, and the patent issued on January 20, 1987, as U.S. Patent No. 4,638,383 (the original '383 patent). Claims 4, 6, 7, 9, and 14 of the original '383 patent all recited a track density of "at least 600 concentric tracks per inch."

On September 28, 1987, Rodime, the owner of the original '383 patent pursuant to an assignment from the inventors, requested reexamination of its patent. Finding a substantial new question of patentability, see 35 U.S.C. § 303, the United States Patent and Trademark Office (PTO) granted Rodime's request for reexamination of all 16 claims in the original '383 patent. In an office action dated April 19, 1988, the examiner rejected all but two of the original claims. Rodime responded by cancelling certain claims, amending others, and adding dependent Claims 17-31. With respect to the claims at issue in this appeal, Rodime made substantial amendments including changing the track density limitation from "at least 600" tpi to "at least approximately 600" tpi. These claims were allowed, as amended, and the '383 reexamined patent issued on November 29, 1988, as U.S. Patent No. B1 4,638,383. As issued, independent Claims 4, 6, 7, 9, and 14 of the reexamined '383 patent all recite a track density of "at least approximately 600" tpi, and the newly added dependent claims which are at issue in this appeal, i.e. Claims 19-27, either explicitly contain this limitation or incorporate it through their dependency.

--- Footnotes ---

2 Illustrative of the amendments made is Claim 4 with the sections within the brackets being the matter that was deleted and the underlined sections indicating the additions made to the claim during reexamination:

4. A computer disk drive system [for operating a micro hard-disk, said disk drive system] comprising:

   a sealed housing;

   at least [one] two micro [hard-disk] hard-disks each having a diameter of between 92 and 96 millimeters and each having a plurality of concentrically adjacent tracks on both planar sides thereof, said micro hard-disks fixedly mounted in [a] the
sealed housing;

means for rotatably supporting said [hard-disk] micro hard-disks;

means for rotating said [hard-disk] micro hard-disks;

first and second transducer means [having two

read/write heads] for writing digital information on and reading digital information from said [hard-disk] micro hard-disks on both planar sides of [said] each micro hard-disk in a format so that [said] each micro hard-disk has digital information stored on [concentric] said concentrically adjacent tracks at a density providing at least 5 Megabytes of storage per [disk] micro hard-disk with the digital information being stored at a density of at least [6000] approximately 600 concentric tracks per inch, said first and second transducer means each comprising two read/write heads; [and,]

positioning means for moving said first and second transducer means between the concentrically adjacent tracks on said [hard-disk] micro hard-disks, said positioning means including:

a positioning arm disposed within the sealed housing and mounted for movement relative to said micro hard-disks;

a pivot shaft coupled to one end of said positioning arm and supporting said positioning arm for rotational movement relative to said micro hard-disks, four support arms, each supporting one of said heads at one end and each connected to said positioning arm at its other end; and

means for moving said positioning arm including a stepper motor having a shaft extending into said sealed housing and means for operating said stepper motor in step increments, each increment causing [said transducer means] said read/write heads to move from one track to the next adjacent track on said [hard-disk] micro hard-disks.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

B.

Quantum filed the present action in the United States District Court for the District of Minnesota on February 26, 1993, seeking a declaration that the reexamined '383 patent is invalid, unenforceable and not infringed. Rodime subsequently filed an answer and a counterclaim for infringement. On February 22, 1994, Quantum filed a motion for summary judgment that Claims 4, 6, 7, 9, 14, and 19-27 of the reexamined '383 patent are invalid under 35 U.S.C. § 305 for being impermissibly broadened by Rodime during reexamination. According to Quantum, Rodime's amendment during reexamination of the track density limitation from "at least 600" tpi to "at least approximately 600" tpi broadened the scope of the claims to cover certain disk drives with approximately but less than 600 tpi that were not covered by the original '383 patent claims, and therefore these claims are invalid under 35 U.S.C. § 305.

The district court, in an order dated April 11, 1994, granted Quantum's motion for summary judgment. The court, after examining the claims, specification, and prosecution history, concluded that the addition of the word "approximately" to the track density limitation during reexamination was not a mere clarification, as Rodime argued, but was instead a substantive change that expanded the scope of the claims at issue in violation of 35 U.S.C. § 305, and that no reasonable juror could have found otherwise. In support, the court relied on the difference in the ordinary meaning of the disputed claim limitations: a track density of "at least 600 tpi" indicates densities starting at, but greater than 600 tpi, whereas the addition of "approximately" in the track density limitation of the reexamined '383 patent modifies the 600 tpi value, thereby eroding the "not less than" meaning of "at least." Based on these definitions, it followed, according to the court, that the claims had been broadened during reexamination since the reexamined '383 patent covered devices with track densities less than 600 tpi that were not covered by the original '383 patent. The court then concluded, without analysis, that the improperly broadened claims were invalid.

Since the district court's ruling disposed of all the claims which Rodime in its counterclaim had alleged Quantum to infringe, the district court, on April 26, 1994, ordered that final judgment be entered under Fed. R. Civ. P. 58 in favor of Quantum for a declaratory judgment of nonliability and against Rodime for its counterclaim of infringement of the
reexamined '383 patent. This appeal followed.

II. DISCUSSION

There are two issues in this case: first, whether Rodime broadened the scope of the claims at issue during reexamination in violation of 35 U.S.C. § 305 by changing the track density limitation from "at least 600 tpi" to "at least approximately 600 tpi," and, second, assuming the claims were impermissibly broadened, the legal effect of violating section 305. We review the district court's grant of summary judgment in favor of Quantum on these issues -- that the claims were broadened and are therefore invalid -- to determine whether any genuine issues of material fact are in dispute, and whether any errors of law were made. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1537, 20 U.S.P.Q.2D (BNA) 1456, 1458 (Fed. Cir. 1991).

A. 35 U.S.C. § 305 states, in relevant part, that "no proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding." An amended or new claim has been enlarged if it includes within its scope any subject matter that would not have infringed the original patent. In re Freeman, 30 F.3d 1459, 1464, 31 U.S.P.Q.2D (BNA) 1444, 1447 (Fed. Cir. 1994). "A claim that is broader in any respect is considered to be broader than the original claims even though it may be narrower in other respects." Id. (quoting Tillotson, Ltd. v. Walbro Corp., 831 F.2d 1033, 1037 n.2, 4 U.S.P.Q.2D (BNA) 1450, 1453 n.2 (Fed. Cir. 1987)). Accordingly, the claims at issue have been improperly broadened in violation of 35 U.S.C. § 305 if the track density limitation in the claims of the reexamined '383 patent -- "at least approximately 600 tpi" -- is broader than the track density limitation in the claims of the original '383 patent -- "at least 600 tpi."

Whether claims have been enlarged is a matter of claim construction, a question of law subject to complete and independent review on appeal. Id. at 1464, 31 U.S.P.Q.2D (BNA) at 1447. When construing the meaning of disputed terms in a claim, we look to the claims, specification and prosecution history. Carroll Touch, Inc. v. Electro Mechanical Sys., Inc., 15 F.3d 1573, 1577, 27 U.S.P.Q.2D (BNA) 1836, 1839-40 (Fed. Cir. 1993). Although a patentee can be his own lexicographer, the words of a claim will be given their ordinary meaning to one of skill in the art unless the inventor appeared to use them differently. Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 951, 28 U.S.P.Q.2D (BNA) 1936, 1938 (Fed. Cir. 1993).

Rodime's principle argument on appeal is that the addition of the word "approximately" to the track density limitation only made explicit what was already implicitly included in the claim, and therefore did not expand the scope of the claims at issue. In support of this proposition, Rodime cites Laitram Corp. v. NEC Corp., 952 F.2d 1459, 1464, 31 U.S.P.Q.2D (BNA) 1276 (Fed. Cir. 1992); Tennant Co. v. Hako Minuteman, Inc., 878 F.2d 1413, 11 U.S.P.Q.2D (BNA) 1303 (Fed. Cir. 1989); and Kaufman Co. v. Lantech, Inc., 807 F.2d 970, 1 U.S.P.Q.2D (BNA) 1202 (Fed. Cir. 1986). Specifically, Rodime asserts that to one of skill in the art the term "600 tpi" means "approximately 600 tpi." In support, Rodime proffers the testimony of various technical experts who maintain that, because of manufacturing tolerances and variations inherent in rotary actuator drives, industry literature referring to a specific track density value is understood by those skilled in the art to represent a range. This interpretation, according to Rodime, is consistent with the specification which uses the terms "600 tpi" and "approximately 600 tpi" interchangeably. Since "600 tpi" means "approximately 600 tpi" to one of skill in the art, it necessarily follows, Rodime argues, that one of skill in the art would interpret "at least 600 tpi" to mean "at least approximately 600 tpi." Accordingly, Rodime concludes that the district court erred in not granting summary judgment to their advantage, or, at a minimum, concluding that this evidence created a genuine issue of material fact to be resolved at trial.

We disagree. The major flaw in Rodime's argument is that it focuses solely on the term "600 tpi" instead of the claim limitation as a whole, in context. See United States v. Telelectronics, Inc., 857 F.2d 778, 781, 8 U.S.P.Q.2D (BNA) 1217, 1219-20 (Fed. Cir. 1989), cert. denied, 490 U.S. 1046, 104 L. Ed. 2d 423, 109 S. Ct. 1954 (1989). Even if "600 tpi" means "approximately 600 tpi," as Rodime argues, it is unnecessary to read in an implicit range when interpreting "at least 600 tpi" because this limitation as a whole already expressly represents an open-ended range, i.e. 600 tpi and up. Therefore, that one skilled in the art understands "600 tpi" to connote a range is irrelevant because the limitation in dispute is "at least 600 tpi," and Rodime offered no evidence to show that one skilled in the art understood "at least 600 tpi" to be the same as "at least approximately 600 tpi" or that the patentee defined it as such in the patent or during prosecution.

Absent such a definition or evidence that the claim limitation as a whole has a special meaning to one of skill in the art, we
To give meaning to the phrase "at least one light source," we must construe claim 1 to cover a device that has only one light
source or a device that has more than one light source, assuming that the "device" is a "flashlight," as that term is used in the claim. According to the written description, the flashlight 8 is a light that is bright enough "to illuminate a small room or to otherwise serve satisfactorily as a flashlight." Col. 2, ll. 46-53. The face illuminator 9, in contrast, is a light that "enables reading the time without turning on [the flashlight] 8 if desired." Col. 2, ll. 58-62. According to the written description, the flashlight 8 and the face illuminator 9 are different elements. However, the written description further explains that light from the flashlight 8 can be used to illuminate the watch face 4 in the absence of a distinct face illuminator. See col. 2, ll. 49-54 ("The brightness of lamps 8 and the disposition of lamps 8 about case 3 should be arranged to illuminate timepiece face 4 so that the watch hands can be seen in the absence of otherwise provided light and so that the time indicative numbers and dots are also then visible."). Therefore, properly construed, the flashlight limitation is met by a wrist watch whose only light source illuminates both the watch face and a significant area beyond the watch face. This definition is consistent with the term's ordinary meaning. See American Heritage Dictionary 511 (2d College ed. 1982) (defining "flashlight" as a "small, portable lamp usually powered by batteries").

Casio argues that the claim cannot cover a watch without a separate face illuminator because the preferred embodiment includes one. However, "particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Electro Med. Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054, 32 U.S.P.Q.2D (BNA) 1017, 1021 (Fed. Cir. 1994). Because claim 1 does not recite a face illuminator, it is broader than the embodiment referenced by Casio. Moreover, because the written description does not require that the watch include a face illuminator, this "limitation should not be read from the specification into the claim[]." Specialty Composites v. Cabot Corp., 845 F.2d 981, 987, 6 U.S.P.Q.2D (BNA) 1601, 1605 (Fed. Cir. 1988).

Casio also argues that, under our construction, claim 1 is invalid because the recited combination is obvious. This argument is premature. Casio cannot avoid a full-blown validity analysis by raising the specter of invalidity during the claim construction phase. Although the court appeared to believe that several pieces of prior art, when viewed in combination, disclose all the limitations of claim 1, it did not conduct a validity analysis. See Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 U.S.P.Q. (BNA) 459, 467, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966). Specifically, it did not identify any motivation to combine the references, see In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2D (BNA) 1596, 1598-99 (Fed. Cir. 1988), or consider objective evidence of nonobviousness, see Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 960, 1 U.S.P.Q.2D (BNA) 1196, 1199 (Fed. Cir. 1986). Moreover, Rhine alleges that he was denied the opportunity to conduct discovery on the secondary considerations. Therefore, we remand the case so that discovery can proceed, if necessary, and the court may fully evaluate the strength of the invalidity case.

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A. "At least one of . . . and . . ."

The first and most interesting disputed term is the phrase, "At least one of . . . and . . ." The phrase is used throughout the patent, in the same manner each time:

"Wherein the limitation or restriction prohibits a withdrawal from at least one of a checking account, a savings account, and an automated teller account, or prohibits use of at least one of a checking account, a savings account, and an automated teller machine account." ("725 patent, Claims 108, 135, 138 and 164);

"Wherein the banking transaction is at least one of a clearing transaction, a check clearing transaction, an account charging transaction, and a charge-back transaction." (Id., Claim 118);

"Wherein the apparatus is programmed for at least one of automatic activation, self-activation, automatic operation, and self-operation." (Id., Claims 128 and 157); and

"Wherein the banking transaction is at least one of a clearing transaction, a check clearing transaction, an account charging transaction, a charge-back transaction, and an account settling transaction." (Id., Claim 148).

Plaintiffs urge that the disputed phrase, when used in connection with a list of items (which is the way it is used in the patent in suit) means, "Only one item from the list or any combination of items in the list." Using the phrase, "At least one of A, B
and C," as an example, plaintiffs say the claim means only A, or only B, or only C, or any combination of A, B and C.

Defendants argue that the phrase means, "One or more of each of the items contained in the list." Using the same example, defendants contend that the phrase, "At least one of A, B and C," means, "One or more of A, one or more of B, and one or more of C."

I construe the phrase "at least one of . . . and . . ." in connection with a list of items to mean, "One or more of one or more of the items contained in the list."

If I were to look only to the plain meaning of the language, defendants would be indisputably correct. This is a simple matter of good English grammar (admittedly, a lost art). According to William Strunk, Jr. and E.B. White's classic authority on grammatical construction, THE ELEMENTS OF STYLE, 27 (4th ed. 2002), "An article of a preposition applying to all the members of the series must either be used only before the first term or else be repeated before each term." Here, the preposition "of" (or, rather, the phrase "one of") appears only before the first term in the sequence. It thus applies to every individual term that follows -- to A, and to B, and to C. Or, to put it in the context of the claims in suit, the phrase "at least one of a clearing transaction, a check clearing transaction, an account charging transaction, and a charge-back transaction" means at least one of each kind of transaction. The construction favored by plaintiffs would, as a matter of proper grammar, read, "at least one of a clearing transaction, a check clearing transaction, an account charging transaction, or a charge-back transaction." Use of the disjunctive preposition "or," rather than the additive preposition "and," makes a tremendous difference if all I care about is the grammatically correct construction of the phrase.

Use of the grammatically correct interpretation of the disputed language -- which I will call the "plain meaning" of the language -- was endorsed by the Federal Circuit in the recent case of SuperGuide Corporation v. DirectTV Enterprises, Inc., 358 F.3d 870, 885 (Fed. Cir. 2004). Applying an Occam's Razor approach to claim construction, I am tempted to follow suit.

However, in SuperGuide, interpreting the phrase in the grammatically correct fashion made sense in the context of the patent specifications. Reading the phrase in the same way here would render the claims utter nonsense.

Take again the phrase, "wherein the banking transaction is at least one of a clearing transaction, a check clearing transaction, an account charging transaction, and a charge-back transaction." A single banking transaction cannot be all four, so reading the disputed phrase additively -- while grammatically correct -- means it does not make any sense. That suits defendants' purposes nicely, of course, but it does not comport with the rules for proper claim construction.

One of the things I have learned in my brief but intensive introduction to patent law is that plain English grammar and syntax are not always endorsed by either patent examiners or courts interpreting patents. My personal favorite example of this phenomenon is the word "one," which in plain English means "one and no more than one" but which in patent English means "one or more than one," or "at least one." I do not understand why this is so, but I know that it is so, and I have applied that principle on more than one occasion -- indeed, I will apply it again later in this opinion. So I accept the proposition that it is perfectly proper to ignore English grammar and syntax when interpreting patent claim language -- at least, when context renders a different reading more sensible.

Here, it is far more sensible to read the disputed phrase as though plaintiffs had used the word "or" in place of "and." Indeed, that is what plaintiffs do in the specifications. They substitute either the word "or" or the phrase "and/or" for the word "and" every time they describe an embodiment of the claim. For example, despite phrasing their claims as "at least one of a checking account, a savings account and an ATM account," they state, "FIG. 4 illustrates a block diagram of an alternate embodiment of the apparatus of the present invention which is utilized in conjunction with a checking account, savings account and/or ATM account and/or transaction (hereinafter referred to as a 'banking transaction')." "725 patent, col. 20, line 63 - col. 1, line 10. Or, despite the use of the word "and" in the phrase "at least one of a clearing transaction, a check clearing transaction, an account charging transaction, and a charge-back transaction," the specifications state, "The apparatus and method of the present invention may be utilized to obtain account owner authorization in a banking and/or financial transaction." The specification continues in this vein, making repeated references to "a savings account or a checking account number," "determining the status of the account" and "the transaction," as in "...the account owner may either utilize the reply or two-way pager feature on the communication device 104 in order to either approve or authorize the transaction or disapprove of, or void, the transaction." (the relevant portions of the specification are found at col. 24, line 49 - col. 28, line 5).
Ironically, SuperGuide offers further support for adopting the ungrammatical but sensible reading of the disputed phrase. In that case, the disputed phrase was "at least one of selection and storage of program start time, program end time, program service and program type." In the first instance, the Federal Circuit concluded that the grammatically correct reading of the phrase "at least one of...and..." was the "plain and ordinary meaning of the disputed language." SuperGuide, supra, 358 F.3d at 885. But the court then looked to the specification, to see if anything therein "rebuts the presumption that the patentee intended the plain and ordinary meaning of the language." Id., at 887. What it learned from the specification was that, "Every disclosed embodiment teaches that the user must choose a value for each designated category," and that Figure 4a -- the only Figure in the specifications that explains how transmitted schedule information is stored -- likewise showed that the system's user had to choose at least one value for each designated criterion. Id.

I agree with defendants that the plain meaning of the language is conjunctive, not disjunctive. But when I go on to test that proposition by referring to the specifications -- as I must, under the teaching of Hoechst-Celanese, supra, 78 F.3d at 1578 -- it becomes clear that the patentee did not intend to use the phrase in its plain and ordinary way. Rather, the language used in the specifications is either disjunctive ("or") or both conjunctive and disjunctive ("and/or"). And unlike Figure 4a in SuperGuide, Figure 4 in the '725 patent plainly diagrams a transaction that supports a disjunctive, rather than conjunctive, reading of the relevant term. In short, the specification rebuts the presumption that the language should be given its plain and ordinary meaning.

Therefore, in the context of the '725 patent, I define the phrase "at least one of...and..." in connection with a list of items to mean "one or more of one or more of the items contained in the list." I hasten to add that this definition is adopted solely to square the claim language in the '725 patent with the patent's specifications. Thus, this decision has absolutely no precedential value for any other patent.

Touchtunes contends that the conjunctive language in this claim term requires that the song record include at least one of each of the categories of information listed, whereas Arachnid contends that the song record only requires at least one of the categories of data.

The plain meaning of "at least one of...and..." is conjunctive and requires at least one of each category unless the intrinsic records requires a departure from such plain meaning. See, e.g., SuperGuide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 885-87 (Fed. Cir. 2004); cf. Joao v. Sleepy Hollow Bank, 348 F. Supp. 2d 120, 123-26 (S.D.N.Y. 2004) (the phrase "at least one of...and..." should be construed to require the presence of all listed items unless doing so would contradict the specification or "render the claims utter nonsense").

Arachnid cites the '575 Patent specification as evidence in the intrinsic record of a departure from a conjunctive interpretation of the disputed claim term. Arachnid characterizes the '575 Patent specification as explaining that a song record is "a collection of song data representing one or more identifying characteristics of a song." (Arachnid Resp. 20(emphasis in original).) However, nothing in the cited specification indicates that song data consists of "one or more" of the characteristics, as opposed to at least one of each. The only indication that certain fields may be blank is in the description of the "graphics address field," which is used for "a graphic image, if any, to be associated with a song." '575 Patent 3:48-53. But the "if any" language does not make the inclusion of graphics address data optional, but rather allows for the possibility that the data might indicate that no graphic image is associated with the song.

Arachnid also argues that Touchtunes' proposed construction would render the phrase "at least one of" superfluous because the song record would always include data in each of the listed categories. This argument is incorrect, because even if data were always included in each of the listed categories, the phrase "at least one of" allows for the inclusion of more than one piece of data in some of the categories.

The Court therefore adopts Touchtunes' proposed construction.
The relevant portion of claim 1 with the disputed claim language underlined reads as follows:

An online television program schedule system comprising:

first means for storing at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type;

means for receiving television program schedule information, said television program schedule information comprising at least one of program start time, program end time, program service, and program type for a plurality of television programs;

second storing means, connected to said first storing means and said receiving means, for storing selected portions of received television program schedule information which meet at least one of the desired program start time, the desired program end time, the desired program service, and the desired program type; and . . . .

'211 patent, col. 8, ll. 4-27 (emphases added).

SuperGuide generally argues on appeal that the district court's interpretation of the disputed language in claim 1 is inconsistent with the claim language, the specification and the prosecution history. 7

B. "At least one of"

The phrase "at least one of" also appears in claims 2, 5 and 6. 8 SuperGuide does not dispute that this phrase should be construed to have the same meaning in each instance. In interpreting this phrase, the district court concluded that the term "a desired," which precedes "at least one of," is repeated for each category and because the final category in the criteria list is introduced by "and a desired," the list is conjunctive. SuperGuide Corp., 169 F. Supp. 2d at 517. The court also concluded that accepting SuperGuide's position that "at least one of" refers only to one category of the criteria would contradict the purpose of the invention as described in the written description, as depicted in Figure 4a and recited in claim 1. Id. Thus, the court construed the phrase "at least one of . . . and" as meaning "at least one of each desired criterion; that is, at least one of a desired program start time, a desired program end time, a desired program service and a desired program type. The phrase does not mean one or more of the desired criteria but at a minimum one category thereof." Id.

8 We note that the district court stated that SuperGuide withdrew allegations that the defendants' products infringe claims 2, 5 and 6. DirecTV, however, does not contest that claims 1, 2, 5 and 6 have been asserted in this case.
addition, SuperGuide contends that the district court erroneously relied on Figure 4a in its analysis because that figure does not cover the asserted claims. SuperGuide lastly emphasizes that during prosecution the patentee repeatedly characterized the invention as requiring the presence of one or more of the four listed criteria and interchangeably used the terms "or" and "and."

DirecTV counters that the district court's construction is supported by the patentee's use of the conjunctive word "and" and by the grammatical rule requiring that the phrase "at least one of" be applied to each category in the list. Moreover, it disputes SuperGuide's arguments that the patentee used "and" out of necessity and that it could not introduce relevant evidence on that point. With respect to the specification, DirecTV contends that every disclosed embodiment of a desired criteria list, including Figure 4a, teaches a conjunctive list that is consistent with the plain meaning of the claim language. Responding to SuperGuide's argument, DirecTV maintains that even though Figure 4a relates to a data structure involving the transmission of data in packet form, claim 1 is written to also cover such a system. DirecTV lastly argues that accepting SuperGuide's prosecution argument would improperly allow the prosecution history to enlarge the claim scope beyond its ordinary meaning. DirecTV also points out that the '211 patentee never explicitly stated that "and" should be interpreted as "or" in the claim language and they did not refute the Examiner's characterization of the criteria list as being conjunctive.

We conclude that the plain and ordinary meaning of the disputed language supports the district court's construction and that the phrase "at least one of" means "one or more." Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999). The issue here is: what does "at least one of" modify? The criteria listed in the claim at issue consist of four categories (program start time, program end time, program service, and program type). Each category is further comprised of many possible values. SuperGuide contends that the phrase "at least one of" modifies the entire list of categories, i.e., selection and storage of one or more values for one or more of the four listed categories is required. DirecTV, on the other hand, argues that the phrase "at least one of" modifies each category in the criteria list, i.e., one or more values in each category are required.

We agree with DirecTV. The phrase "at least one of" precedes a series of categories of criteria, and the patentee used the term "and" to separate the categories of criteria, which connotes a conjunctive list. A common treatise on grammar teaches that "an article of a preposition applying to all the members of the series must either be used only before the first term or else be repeated before each term." William Strunk, Jr. & E. B. White, The Elements of Style 27 (4th ed. 2000). Thus, "in spring, summer, or winter" means "in spring, in summer, or in winter." Id. Applying this grammatical principle here, the phrase "at least one of" modifies each category of the list, i.e., each category in the list. Therefore, the district court correctly interpreted this phrase as requiring that the user select at least one value for each category, that is, at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type.

10 Indeed, SuperGuide does not articulate its argument that "at least one of" means "one or more of the four listed criteria" without using the term "or" to separate the four listed categories. See Brown v. 3M, 265 F.3d 1349, 1352 (Fed. Cir. 2001) (interpreting the phrase "at least one of two-digit, three-digit, or four-digit year-date representations" as "only two-digit, only three-digit, only four-digit, or any combination of two-, three-, and four-digit date-data").
different elements. If two equivalent parts are referred to as "rods" or "bars," the alternative expression may be considered proper.

MPEP § 706.03(d) (1990). According to SuperGuide, at least some of the criteria referred to in the claims at issue, such as "program start time" and "program type," are not equivalent in the same sense that a "rod" may be equivalent to a "bar." SuperGuide's argument lacks merit for three reasons. First, the cited MPEP rule only states that the given example "may make a claim indefinite," it does not absolutely preclude such alternative expression. Moreover, the example given is distinguishable from the language the '211 patentee could have arguably used here because the modifying phrase "at least one of" does not precede the alternatives in the example. The use of the phrase "at least one of" in the claims at issue provides definiteness that is not present in the example provided in the MPEP rule. Lastly, even assuming arguendo that the patentee drafted the claim at issue in response to the PTO's instructions on avoiding indefiniteness, we fail to see how this instruction compels us to construe the term "and" as "or."

--- Footnotes --

11 Having concluded that the '211 patentee was not precluded from using the term "or," we do not address SuperGuide's argument that the patentee was also precluded from using a "Markush" format.

--- End Footnotes ---

We further conclude that nothing in the specification rebuts the presumption that the '211 patentee intended the plain and ordinary meaning of this language. See Tex. Digital, 308 F.3d at 1204. Every disclosed embodiment teaches that the user must choose a value for each designated category. See, e.g., '211 patent, fig. 1. The written description explains that in this embodiment "the [predetermined] selection criteria 17 may include a desired service list 17a, a desired types of programming list 17b, desired times of listings 17c and other criteria 17d." Id. at col. 4, ll. 23-26. SuperGuide points to another part of the written description, describing the same embodiment, which states the following:

for example, if a user is only at home in the evening he may only wish to view listings from 6 p.m. to 11 p.m. Other criteria 17d may also be selected or provided.

Id. at col. 4, ll. 49-52. This description, however, does not teach that a value for less than all the designated categories can be chosen. Further, "other criteria" refers to either another category or another list of categories that require values. In other words, it explains that other categories, besides the ones specified, are possible.

--- Footnotes ---

12 DirecTV contends that 17a-d in Figure 1 are "alternative lists of categories of criteria," whereas SuperGuide contends that they are "alternative criteria." We find it unnecessary to resolve this dispute. In either case, the figure does not teach a conjunctive list of categories.

--- End Footnotes ---

We also conclude that Figure 4a of the '211 patent supports the plain and ordinary meaning of the asserted claims. This figure and its corresponding explanation are the only parts of the specification that explain how only certain portions of the transmitted schedule information are stored. The figure consists of a flow chart describing a method for storing portions of the received schedule information according to the chosen criteria. The method compares the received information to determine whether the information "meets" all the criteria chosen by the user. Importantly, the flow chart uses a conjunctive criteria list, i.e., the system's user must choose at least one value for each designated criteria, or the logic would be inoperable. '211 patent, fig. 4a.

--- Footnotes ---

13 The meaning of this term is discussed below.

--- End Footnotes ---
SuperGuide argues that Figure 4a is inapplicable to the construction of the disputed language because the figure relates to the processing of received information that has been transmitted in group format whereas the asserted claims do not require such a group format. We disagree. The asserted claims do not require the transmission of schedule information in any particular format. Thus, the asserted claims could cover a system with schedule information that is transmitted in group format. There is also no suggestion in the specification that Figure 4a is applicable only to the transmission format disclosed in the figure. Indeed, the specification states that Figures 4a-4c "are a block diagram illustrating the logic and sequence of operations for storing broadcast TV program information according to the present invention." Id. at col. 3, ll. 41-44 (emphasis added).

Lastly, we decline to enlarge the claim scope from its plain and ordinary meaning based on the prosecution history in this case because the ’211 patentee did not clearly and explicitly define the term "and" in the covered criteria list as "or." 14 See N. Telecom, 215 F.3d at 1295 (holding that vagueness and inferences in the prosecution history do not rebut an ordinary meaning of a claim term).

--- Footnotes ---
14 SuperGuide argues that the district court erred by failing to consider the ’211 prosecution history. However, because the claim construction is unaffected by the prosecution history, any error was harmless. See Lemelson v. United States, 752 F.2d 1538, 1550 (Fed. Cir. 1985) (holding that the district court properly interpreted the claim at issue, and the court's failure to consider the prosecution history was therefore harmless error not meriting reversal).

--- End Footnotes ---

Step 2

The parties' next dispute is with the claim construction of Step 2's phrase "content profiles indicating at least one of the presence and the degree of." As explained, the court accepts Pinpoint's argument that the '257 patent claim term "degree" was intended to include "presence" and that the claim term "presence" was later added to the'722 patent for clarification purposes. The court need only consider whether the disputed phrase requires that content profiles indicate either presence or degree (Pinpoint's proposed construction), or both presence and degree (Amazon's proposed construction). Def. Mem. at 33; Pl. Opp. Mem. at 25. According to Amazon, Superguide Corp. v. Directv Enters., 358 F.3d 870, 886 (Fed. Cir. 2004), instructs that the phrase "at least one of" before "the presence and the degree of" requires the disputed phrase be construed to mean that both presence and degree are included in the content profile. Amazon is mistaken. Superguide is inapplicable because the prosecution history supports Pinpoint's proposed construction. Not only does file history reveal that the '722 patent inventors explicitly asserted that the phrase meant that "the content profiles indicate either the 'degree of content' or the 'presence' of predetermined characteristics in the data," but the patent examiner later confirmed this reading. See Pl. Mem. at 25-26, App. 8 (AMZN 002688); App. 11 (HH 0002402). The inventors' construction, as it appears in the prosecution history, controls. See Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed. Cir. 2004) ("an inventor . . . may be his own lexicographer if he defines the specific terms . . . in the written description or in the prosecution history"); Superguide, 358 F.3d at 888 ("lastly, we decline to enlarge the claim scope from its plain and ordinary meaning based on the prosecution history in this case because the '211 patentee did not clearly and explicitly define the term 'and' in the covered criteria list as 'or'). The court construes "content profiles indicating at least one of the presence and the degree of" as "content profiles indicate either the presence or the degree of predetermined characteristics."

---

1.1.5 “Wherein the Routing Means Comprises at Least One of"

Claim 25 claims a routing means, wherein the routing means comprises at least one of:
**means for** sending at least a portion of a credit application to more than one of said remote funding sources substantially at the same time;
**means for** sending at least a portion of a credit application to more than one of said remote funding sources sequentially until a funding source returns a positive funding decision; and
**means for** sending at least a portion of a credit application to a first one of said remote funding sources, and then, after a predetermined time delay, sending to at least one other remote funding source, until one of the funding sources returns a positive funding decision or until all funding sources have been exhausted.

(’403 Patent, 34:38-56.) Defendants construe “at least one of” in this clause to mean “each and every” of the following three “means.” Plaintiff construes “at least one of” to mean “at least one of.” The Court agrees with Plaintiff. The ordinary meaning of the term supports Plaintiff’s construction, and none of Defendants’ arguments convince the Court that the ordinary meaning of the term should not apply.

Defendants rely on SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870, 885-88 (Fed. Cir. 2004), to argue that the ordinary meaning of this disputed term is “each and every one of the means listed below.” But the reasoning in that case does not apply here. In that case, the court found that the phrase “at least one of [A], [B], [C], and [D]” meant “at least one of [A], at least one of [B], at least one of [C], and at least one of [D].” The court cited a “common treatise on grammar” for the principle that “in spring, summer, or winter” means “in spring, in summer, or in winter.” Id. at 886. That principle is inapplicable here for two reasons. First, the structure of the clause is different in our case. In that case, [A], [B], [C], and [D] were elements of a series, separated by commas. Here, in contrast, “at least one of” is followed by a colon, and then a list separated by semicolons. This grammatical structure implies that the “at least one of” means “at least one of the elements listed below.” Second, in SuperGuide, the construction “at least one of [A], at least one of [B], at least one of [C], and at least one of [D]” made sense, because [A], [B], [C], and [D] were categories with elements that users of the patented technology could choose “at least one of.” Here, in contrast, to construe this claim as “at least one of [A], at least one of [B], and at least one of [C]” would not make sense. Accordingly, the ordinary meaning of this claim term is “wherein the routing means includes at least one of the elements listed below.”

Defendants’ other arguments do not convince the Court that its construction should stray from the ordinary meaning of the claim term. Accordingly, this claim term is construed as “wherein the routing means includes at least one of the elements listed below.”

### Claim Term

<table>
<thead>
<tr>
<th></th>
<th>Plaintiff’s Proposed Construction</th>
<th>Defendants’ Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>&quot;at least one of [A] and [B]&quot;</td>
<td>See below.</td>
<td></td>
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(’861 Patent, claim 1); (’465 Patent, claim 1)
"floor terminal . . . operative for at least one input of codes of destination call reports and recognition of identification codes of passengers"

('861 Patent, claim 11)

"operative for input of destination call reports or recognition of identification passengers"

To the extent these claim terms can be construed, the floor terminal must perform both the functions of inputting destination call reports and recognizing identification codes; and the computing unit must perform both the functions of evaluating destination call reports and associating destination floors with recognized identification codes.

"floor terminal . . . for at least one of the input of destination call reports and for recognition of identification codes of users"

('465 Patent, claim 1)

"for the input of destination call reports or for recognition of identification codes of users"

Here, the parties have not submitted identical terms, however, the terms sought to be defined are similar. More importantly, the Court's interpretation of these terms will produce a single result - namely, these terms will be construed either in the disjunctive or the conjunctive.

"computing unit . . . for at least one of evaluating the destination call reports and association of destination floors with recognized ones of the identification codes"

('465 Patent, claim 1)

"for evaluating the destination call reports or for association of destination floors with recognized ones of the identification codes"
Plaintiff argues in favor of the disjunctive interpretation on the basis that the specification does not disclose a single embodiment in which both of the stated functions are required and application of the conjunctive formulation does not make grammatical sense. Plaintiff concedes that the prosecution history indicates that the original submission to the PTO stated a claim for "installing at least one floor terminal at each floor served by an elevator controlled by an elevator control for the input of destination call reports or for recognition of identification codes of users." (Pl.’s Opening Markman Br. 20) (emphasis added). The Patent Examiner rejected Inventio’s original claims as indefinite because the "or" terminology made the claim alternative. (See Defs.’ Opening Markman Br. Appx. 278.) Plaintiff amended its claim to include language of "at least one of [A] and [B]" in order to overcome this rejection for indefiniteness. (See id. 267, 271.) (emphasis added). Plaintiff argues that this amendment was not intended to substantively narrow the scope of its claim, but rather it was intended merely to overcome the Patent Examiner’s formalistic objection to the use of the term "or."

Plaintiff further contends that the specification for the ’465 Patent supports the disjunctive formulation. Specifically, Plaintiff cites to the following statements:

. The floor terminals . . . each comprise at least one manual input means . . . for input of a destination call report or at least one recognition device . . . for the recognition of at least one identification code. (’465 Patent, col. 6:8-10.)

. A user inputs, at a boarding floor, a destination call report by way of the manual input means . . . or the user carries the identification 10 transmitter . . . and communicates an identification code to the recognition device. (Id. col. 8: 7-14.)

. The floor terminal . . . communicates to the computing unit 30 by way of the data bus 37 a conveying signal corresponding with the destination call report or an identification signal corresponding with a recognized identification code. (Id. col. 8:15-19.)

. The computing unit 30 executes at least one computer program product for the evaluation of destination call reports or for the association of recognized identification 30 codes with destination floors. (Id. col. 6:27-30.)

. The computing unit 30 executes the computer program product and ascertains at least one conveying result for the conveying signal or for the identification signal. (Id. col. 8:20-23.)

Plaintiff posits that these statements clearly convey that the functions performed with respect to the call reports and identification codes are exclusive of one another, and therefore this language militates in favor of applying the disjunctive construction.

Plaintiff distinguishes the instant case from the decision of the Federal Circuit in Superguide Corp. v. Directv Enterprises, Inc., 358 F.3d 870, 885-888 (Fed. Cir. 2004), in which the court held that the phrase "at least one of" modified each component of the qualified list enumerated in the patent. Superguide involved patents for interactive electronic television programming guides and the "at least one of" language addressed different categories of program information (e.g., start time, end time) that needed to be included for an online television system. Id. at 885. In Superguide, the Federal Circuit determined that the "plain and ordinary meaning" of the phrase "at least one of [A], [B], [C], and [D]" is the conjunctive formulation, and that there is a rebuttable presumption that the plain and ordinary meaning should apply. Id. at 886-87. The court concluded that nothing existed in the patent specification that served to rebut the presumption, and relied upon the fact that under the particular patent embodiment, a value had to be assigned for each category in the list. Id. at 886-87.

Plaintiff argues that the presumption for application of the plain meaning is rebutted in this circumstance because every embodiment disclosed in the ’465 Patent’s specification indicates that only one of the enumerated requirements (i.e., call reports or identification codes) needs to be present.

Similarly, Plaintiff contends that if the conjunctive formulation adopted in Superguide is applied here, it would not make grammatical sense based on the linguistic structure of the instant claims. Plaintiff emphasizes that unlike Superguide, in which there could conceivably be more than one entry within each enumerated category, the Patents-in-Suit do not refer to different categories but are independent types of action that cannot occur simultaneously. In other words, Superguide addressed a television system that allowed a user to input a start time, end time, and program type into the system, whereas, the Patents-in-Suit would only allow for a user to manually input a destination call report or have one automatically generated by an identification code at a single time, i.e., the use of one method would render the other superfluous for that

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passenger. Plaintiff argues that applying the "at least" language to each clause would create an absurd grammatical result, and therefore, the conjunctive formulation is appropriate here. See Joao v. Sleepy Hollow Bank, 348 F. Supp. 2d 120, 124 (S.D.N.Y. 2004) (analyzing the phrase, "wherein the banking transaction is at least one of a clearing transaction, a check clearing transaction, an account charging transaction, and a charge-back transaction," and concluding that because a single banking transaction cannot be all four, a conjunctive reading would be nonsensical). 7

7 Certain courts that have addressed the holding in Superguide have found that it does not dictate a bright-line rule, but rather the phrase "at least one of" must be read in light of the specification to ensure an appropriate grammatical result. See Rowe Int'l Corp. v. Ecast, Inc., 500 F. Supp. 2d 891, 909 (N.D. Ill. 2007); Joao, 348 F. Supp. 2d at 124; Power-One, Inc. v. Artesyn Techs., Inc., No. 05-463, 2007 U.S. Dist. LEXIS 20458, 2007 WL 896093, at *14 (E.D. Tex. Mar. 22, 2007).

Defendants counter that the prosecution history indicates an express renunciation of the interpretation that Plaintiff now seeks to apply. Defendants argue that the conjunctive interpretation is more consistent with the scope of the Patents-in-Suit. Defendants emphasize that the language cited by Plaintiff in the specification contemplates that the floor terminal or computing unit must be able to accomplish both of the enumerated functions. In other words, Defendants do not contest Plaintiff's point that the individual actions of a manual input and the recognition of an identification code are mutually exclusive with respect to an individual passenger (i.e., the elevator would not perform more than one function for a passenger at a given time). Rather, Defendants argue that both functions must be available to a particular passenger. Defendants stress this point by noting that in practical terms, an elevator system could not be limited to recognition of identification codes alone because this would only permit a passenger to travel to the pre-determined floor associated with that identification code.

The court in Automotive Technologies Int'l v. BMW of N. Am., No. 01-71700, 2004 U.S. Dist. LEXIS 30593, 2004 WL 5465964, at *10 (E.D. Mich. Mar. 31, 2004), addressed a similar argument. There, the court addressed the means for mounting a vehicle sensor "onto at least one of a side door of the vehicle and a side of the vehicle between the centers of the front and rear wheels." Id. The court rejected the plaintiff's argument that the term "and" could be interpreted in the disjunctive. 2004 U.S. Dist. LEXIS 30593, [WL] at *11. Instead, the court determined that the plain meaning militated in favor of interpreting the language as requiring that the sensor "must be capable of being mounted on one of the side doors of the vehicle and one of the sides of the vehicle." Id. The court concluded that this language did not require that the sensor be mounted at both locations at the same time, but only that the sensor have the capability to be mounted at either location. Id. Similarly here, Defendants argue that the Patents-in-Suit need not perform both functions simultaneously, but rather that the device be capable of performing both functions when required.

In light of the existing case authority, the Court disagrees with Plaintiff's arguments on both grounds. First, the Court rejects Plaintiff's contention that it intended only a formalistic amendment when it changed the claim language from "or" to "and" to overcome the Patent Examiner's indefiniteness rejection. Plaintiff's reliance merely on its subjective intent that it did not intend a substantive change by submitting the altered language is inapposite. See Seachange, 413 F.3d at 1375 ("Courts must 'view [ ] the prosecution history not for . . . applicant's subjective intent, but as an official record that is created in the knowledge that its audience is not only the patent examining officials and the applicant, but the interested public.'") (quoting Biogen, Inc. v. Berlex Labs., Inc., 318 F.3d 1132, 1139 (Fed. Cir. 2003)); Markman, 52 F.3d at 985 ("The subjective intent of the inventor when he used a particular term is of little or no probative weight in determining the scope of a claim (except as documented in the prosecution history"). There is nothing from the face of the prosecution history itself to indicate that the change submitted by Plaintiff should be construed merely as formalistic rather than substantive. Without a more detailed explanation as to the basis for submitting the altered claim language to the PTO, the prosecution history indicates that Plaintiff has waived the disjunctive interpretation it now seeks to assert.

Even if the Court accepted Plaintiff's contention that the claim amendment in the prosecution history did not serve to limit the scope of the claims, the Court disagrees with Plaintiff's construction of the disputed claim language. In accordance with the teachings in Superguide, the Court concludes that Plaintiff has presented insufficient evidence in the record to rebut the presumption that the disjunctive construction was intended for the Patents-in-Suit. It is true that the statements in the specification cited by Plaintiff indicate that a passenger would utilize only a manual call report or identification code at a
single time, however, these statements are not inconsistent with the construction that the Patents-in-Suit must still be capable of performing both functions.

The Court recognizes that the stated functions pertaining to call reports and identification codes in the above-referenced claims are mutually exclusive, meaning that only one is capable of being performed at a given time. This fact alone, however, does not lead to a grammatically absurd result. The critical distinction for purposes of this case is between the performance of both functions simultaneously and the capability to perform both functions. The Court finds that this conjunctive construction is most consistent with the language and scope of the Patents-in-Suit.  

8 The conjunctive interpretation is particularly compelling in this case because, as Defendants point out, applying the disjunctive construction would create an incongruous result because the elevator system using only identification codes would not let a passenger travel to a destination floor other than that pre-determined floor associated with that passenger's identification code.

GO BACK

15. "at least one of . . ." followed by an enumerated list

For illustration sake, the Court will consider this phrase as "at least one of X, Y, and Z." Essentially, Artesyn contends that this phrase means "at least one X, at least one Y, and at least one Z." Power-One, on the other hand, argues that the listing of "X, Y, and Z" composes a group (i.e., the group includes X, Y, and Z) from at least one is selected. The Court finds Artesyn's position to be inconsistent with the specification. For example, Artesyn contends that in the sole example in the '999 patent specification where a control unit in a POL regulator calculates the period of time recited in the claim, the calculation is made using data from all three of the relevant data categories (turn-on data, slew rate data, voltage set-point data) in claims 3, 4, 27 and 30:

Alternatively, a POL regulator may generate a one volt output one millisecond after receiving activation data if it received voltage set-point data, slew rate data and turn-on data corresponding to two volts, one volt per millisecond and three milliseconds respectively.

See Col. 4:37-41. However, the passage immediately preceding describes a scenario where a turn-on period is determined without turn-on data or slew rate data.

For example, a POL regulator might generate a one volt output for five milliseconds after receiving activation data if it received voltage set-point data and sequencing data corresponding to one volt and five milliseconds, respectively.

See Col 4:33-36. Another embodiment in the specification only mentions voltage set-point data and enable data when it speaks of output data. '999 patent, col. 3:63-65, while another includes output timing data as output data, col. 4:16-19. Further, claim 2 of the '999 patent describes a control unit adapted to determine at least one timing parameter of said output in accordance with said output data wherein said output data further comprises at least one of turn-on data . . . and turn-off data." Artesyn's proposal would require the output data to include both "turn-on" data and "turn-off data even though the control unit need only determine "at least one timing parameter." Finally, Artesyn's proposed construction would require "slew rate data" and "sequencing data," even though the specification makes clear that these types of data are optional:

the POL control unit receives output timing data, which may include slew-rate data, sequencing data, termination data, etc.

See '999 patent, col. 7:1-3.

Artesyn cites Superguide Corp. v. Direct TV Enterprises, Inc., 358 F.3d 870, 886-87 (Fed. Cir. 2004), arguing that Superguide requires an "at least one of X, Y, and Z" term be construed "at least one X, at least one Y, and at least one Z."
However, even if the Court were to agree that Superguide holds that the ordinary meaning of "at least one" is as Artesyn suggests, nothing in Superguide dictates that this term must be construed in this manner no matter what the specification teaches. In Superguide, the specification taught that the user must choose a value for each designated category. Id. at 887. Here, as noted above, the specification teaches embodiments that do not require each category of the enumerated set. Thus, the Court holds that although one of each of the enumerated data categories may be used, the "at least one" language only requires that one of the categories be selected. See Orion IP, LLC v. Staples, Inc., 406 F.Supp.2d 717, 726 (E.D. Tex 2005).

Once again, the plain meaning of the words used in the limitation dictates the construction to be given by this Court. The phrase "at least one" does not, as IBM urges, mean "one and no more than one." Rather, as TM notes, it means "one or more than one." Therefore, the claim limitation teaches that the multi-unit memory system should have one or more than one "spare" memory unit, with "spare" used in its ordinary dictionary sense (a la "spare tire").

G. "At Least One Switch Operable To Optically Couple the Second Optical Line Interface To (a) the First Optical Line Interface Through At Least the Optical Demultiplexer, and Alternatively (b) the Second Transponder"

For the following reasons, this court construes the claim term "at least one switch operable to optically couple the second optical line interface to (a) the first optical line interface through at least the optical demultiplexer, and alternatively (b) the second transponder" in claim 1 to mean:

At a minimum, one switch can at least both: (a) optically couple the second optical line interface to the first optical line interface through at least the optical demultiplexer; and alternatively (b) optically couple the second optical line interface to the second transponder. 1

Footnotes

1 The term "optically couple" contained within this claim term and throughout the '772 patent should be interpreted consistent with section I.A., supra, of this memorandum opinion.

Inclusion of the word "and" in the term "and alternatively," indicates that the switch must be able to optically couple "the second optical line interface" to at least both (a) and (b). Inclusion of the word "alternately" indicates that the switch can only couple the "the second optical line interface" to one of at least (a) or (b) at any particular time. The switch therefore must be able to optically couple "the second optical line interface" to at least (a) and (b) but can only couple "the second optical line interface" to only one of (a) or (b) at any particular time.

The specification supports this understanding and explains that an OLT contains a switch that allows an individual wavelength to either be passed through to a peer OLT via a pass-through port or to client equipment via a transponder. ('772 patent, col. 3:22-29.) For example, when transmitting a wavelength to or from a peer OLT, the patent '772 specification describes how any two or three WDM systems "may be interconnected by connecting respective OLTs of separate WDM system back-to-back at respective pass-through ports." ('772 patent, col. 5:22-27; see col. 5:11-6:51; Figs. 5-8) And when transmitting a wavelength to or from a client apparatus, the specification explains that demultiplexed signals are sent "to client equipment via a transponder and a local port." ('772 patent, col. 2:46-48; col. 2:66-3:1; col. 3:45-50; see Fig. 1.)
4. "At least partially concurrently": "To some extent, occurring at the same time." No guidance in the intrinsic record is provided; the court's construction tracks the ordinary meaning of "concurrently" consistent with the evidence of record. (D.I. 387, ex. 130 (MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1998))

3. "ATA register address"

Claim 3 recites "an ATA register address at which to receive data addresses and commands from said host computer and transmit data to said host computer, and a multibyte command packet buffer operable to sequentially store a packet of contiguous bytes of command information received through the ATA register address." 527 patent at 30:9-12. Although defendants agree that the claim language requires one ATA register address to receive data addresses and commands, transmit data and receive command information, they contend that the term should be construed such that all command information, whether single-or multi-byte, be received through a single ATA register address. Plaintiffs, on the other hand, argue that the claim language only requires that one ATA register address receive multi-byte command information, but that another ATA register address may receive single-byte commands.

The claim language does not refer to single-byte commands. It requires only an ATA register address "at which . . . commands" are received and through which "contiguous bytes of command information" are received. There is no disclosed embodiment in the specification that includes an ATA register address that receives single-and multi-byte commands from the host computer and transmits data to a host computer. "A patent claim should be construed to encompass at least one disclosed embodiment in the written description portion of the patent specification." Johns Hopkins University v. Cellpro, Inc., 152 F.3d 1342, 1355 (Fed. Cir. 1998). Because the claims do not address single-byte commands, the court concludes that the ATA register address of claim 3 is not required to receive both single-byte and multi-byte commands from the host computer.

(3) "Attaching" and "Detaching"

For purposes of efficiency, the following analysis will focus on the term "attaching" but is meant to apply to the converse term "detaching" as well. EMC contends that the term "attaching" means making a device logically available, i.e. by setting that device to a "ready state." HP, however, asserts that the term "attaching" means establishing an actual and complete connection between the two data storage facilities such that, in the context of the second command, the second application can read and write to the second data storage facility without any additional "bookkeeping operations," i.e. without any further commands or instructions by the host computer. The parties do not dispute that an attachment may be physical or logical, but rather whether the subject attachment must be, in HP's jargon, "complete".

The claim language is particularly instructive here. Although the parties focus primarily on the use of the term "attaching" in the context of the second command, Claim 1 of the '497 Patent uses the term "attaching" twice and, because the term is used similarly in both instances, it must be construed uniformly. In describing the first command, Claim 1 states,

establishing . . . in response to the first application and in response to a first command, a copy of the data set in the second data storage facility as a mirror for the first data storage facility by attaching the second data storage facility in parallel with the first data storage facility . . . .

'497 Patent, Col. 31, ll. 9-14 (emphasis added). In describing the second command, Claim 1 states,

in response to a second command . . . attaching the second storage facility to be addressed by the second application
whereby the first and second applications thereafter can access the data sets in the first and second data storage facilities respectively and concurrently . . . .

‘497 Patent, Col. 31, ll. 15-25 (emphasis added).

With respect to the second command, the italicized language implies that the term "attaching" does not denote a "complete" attachment after which the second application can, without additional steps, access the second data storage facility. In fact, such language specifically implies that the purpose of the "attaching" function is to allow the second storage facility "to be addressed," i.e. at some time in the future perhaps after other steps have been completed, by the second application. "Thereafter," i.e. after that attachment, the first and second applications can access the data sets in both data storage facilities.

Nor does the language with respect to the first command imply that the term "attaching" requires a "complete" attachment. Although the language of the first command seems to suggest that the direct result of the subject "attaching" is the establishment of a mirrored copy of the data in the second data storage device, that language must be read in light of the preamble to Claim 1 which states, in relevant part,

[a] method for controlling access to a data set . . . wherein the data set is stored in a first data storage facility that is addressable by the first application . . . .

‘497 Patent, Col. 31, ll. 3-6. At the outset of this method claim, therefore, the patentee acknowledges that the first application already can address the data stored in the first data storage facility and no further "bookkeeping operations" are needed to make the first data storage facility available to it. Consequently, the attachment of the first and second data storage systems can, without further ado, "establish" a mirrored copy of the data in the second data storage facility. Use of the term "attaching" in the context of the first command, therefore, does not require that term to be defined as a "complete" attachment.

Moreover, the language of dependent Claim 9 of the ‘497 Patent unambiguously suggests that the term "attaching" can be defined as, at least, "producing a ready status." Claim 9 states

[a] method as recited in claim 1 wherein each of the first and second data storage facilities comprises first and second logical volumes on first and second disk drives, respectively, each of the disk drives connecting through a corresponding device controller to be attached to the first and second data storage facilities by producing a ready status to the first and second applications . . . .

‘497 Patent, Col. 32, ll. 29-38 (emphasis added). Because similar claim terms, comparably used, must be construed uniformly within the same patent, Claim 9 provides some evidence that the term "attaching" ought to be defined as making a device physically or logically available by, for example, producing a ready status. As illustrated above, the language of Claim 1 does not hinder that construction.

Although the Specification of the ‘497 Patent does not specifically refer to the term "attaching," it clearly describes that process in terms of making a device physically or logically available by producing a ready state. Indeed, with respect to the first command (called "the establish command"), the Specification states

the ESTABLISH command effectively connects the BCV [Business Continuation Volume] device 226 as an M3 mirror volume to define a BCV pair with the mirrored storage Volume A. Now the BCV device 226 status as seen by the Volume B application 221 is Not Ready (NR). The status as seen by the Volume A application 222 and copy program is Ready.

‘497 Patent, Col. 17, ll. 58-64 (emphasis added). 14 The plain and ordinary meaning of the term "attach" is to "make fast or join." Webster's Third International Dictionary, 140 (1981). Although the quoted portion of the Specification uses the term "connect" rather than its synonym "attach," it clearly illustrates that such "connection" is marked by a device status of "Ready" or "Not Ready", depending upon the subject application. Moreover, although the phrase "bookkeeping operations" is mentioned with respect to the first command, it appears wholly unrelated to the function of establishing a mirrored copy and, in any event, the Specification clearly states that such operations "do not form part of this invention." See ‘497 Patent, Col. 18, ll. 26-28.
14 A Business Continuation Volume is described in the Specification of the '497 Patent as a device comprised of a standard disk controller and related disk storage devices especially configured to independently support applications and processes. See '497 Patent, Col. 16, ll. 8-15.

Likewise, in the context of the second command (also called "the split command"), the Specification implies that the term "attaching" includes making a device physically or logically available by producing a ready state. In fact, in describing the first response to the split command the Specification states:

\[n\]ext the status of the BCV device 226 in the context of its mirror operation is discontinued by setting the device to a Not Ready (NR) state with respect to the system responsive to the Volume A application 221.

'497 Patent, Col. 19, ll. 8-12. Later, in describing the second response to the split command, the Specification states,

\[s\]tep 262 then sets the BCV device 226 to a ready state with respect to the Volume B application 222. In step 263 the device controller posts a complete status as a return message. The host adapter [which is part of the data storage system and not affiliated with the host computer], in step 264, receives that status and reconnects. When this occurs, the Volume B application 222 now accesses the data set as it stood at the instant of the SPLIT command.

'497 Patent, Col. 19, ll. 56-62 (emphasis added). Each of the prior descriptions related to the dual prongs of the split command reinforce EMC's contention that the term "attaching" includes making a device, such as a BCV, physically or logically available to a particular application (by setting the device to a ready state) and contradicts the supposition that it includes any additional "bookkeeping operations" on the part of the host computer. Thus, although the Specification mentions that other "bookkeeping procedures" may be required, such as updating device records on the data storage system, such procedures "do not form part of this invention." See '497 Patent, Col. 18, ll. 26-28.

In conclusion, both the claim language and the language of the Specification support EMC's construction of the term "attaching" and "detaching". Consequently, the term "attaching" will be construed to mean making physically or logically available such as by producing a ready state. Conversely, the term "detaching" means to make physically or logically unavailable such as by producing a not ready state.

2. Attachment Unit Interface

The AUI mentioned in the preamble of Claim 6 is not part of the claim nor defined by it. It simply gives context to the claimed MAU. Both parties agree that its definition should come from the IEEE 802.3 Standard. The disagreement stems from how much of the 802.3 Standard should be used.

Level One proposes using the one-line description of an AUI found in the "Definitions" section of the 802.3 Standard, which reads: "In a local area network, the interface between the medium attachment unit and the data terminal equipment within a data station." Guy Decl., Ex. H at § 7.1.1.

In addition to the above definition Seeq suggests adding the phrase, "The AUI interfaces three data sources, data out (DO), data in (DI) and collision presence (CP)." Seeq derives this language from the "Description of the Preferred Embodiment" and from the language of claim 6 itself. '183 Patent at 3:35-40. Seeq would also incorporate the description of the AUI from the section of the 802.3 Standard entitled, "Functional Description of Interchange Circuits," which states that "the AUI consists of either three or four differential signal circuits, power, and ground. Two of the circuits carry encoded data and two carry encoded control information. Circuits DO (Data Out) and CO (Control Out) are sourced by the DTE, and circuits DI (Data In) and CI (Control In) are sourced by the MAU. The interface also provides for power transfer from the DTE to the..."
MAU. The CO circuit is optional." Guy Decl., Ex. H at § 7.5.1.

Given that the patent does not even claim an AUI, it seems unnecessary and imprudent to construe the preamble term beyond the basic definition in the 802.3 Standard. This functional description of an AUI is not necessary to understanding the disclosed MAU. In fact, neither is it necessary to understanding the AUI itself, if it were, it would be incorporated into the Standard's own definition. For the same reasons, the court is not inclined to incorporate the unattributed phrase Seeq proposes. Accordingly, the court construes AUI as defined by the 802.3 Standard: In a local area network, the interface between the medium attachment unit and the data terminal equipment within a data station.

3. AUI Port

The language of Claim 6 defines an AUI port simply as "having data out, data in, and collision presence circuits for coupling said attachment unit interface to said media attachment unit." '183 Patent at 7:31-33. Level One proposes that the court adopt a construction of AUI port that defines it as "the portion of the media attachment unit (MAU) that (1) allows the communication of data between the AUI and MAU on "data out," "data in" and "collision presence" circuits and (2) may be placed in a high impedance condition." Level One would also add to its definition that the DO, DI and CI circuits can encompass the AUI transmit-receiver, the AUI receiver-driver, the collision driver or any equivalent structure.

Seeq protests that Level One's proposed definition is purely functional and, more importantly, runs contrary to the plain language of the claim by covering "covering structures in which the AUI and the twisted pair MAU are not distinct devices." Instead, Seeq suggests that the definition include the relevant language of the claim and a description of the AUI port in the preferred embodiment which comprises an AUI transmit-receiver, an AUI receiver-driver and a collision driver. '183 patent at 3:58-64. In addition, Seeq would incorporate the definitions of data in circuit, data out circuit and collision presence found in the 802.3 Standard.

While it seems evident that each party is attempting to expand or contract the scope of the claim to suit its purposes, the court fails to see the ambiguity in the language of the claim itself. First, although Seeq stresses that Level One's proposed construction fails to include the fact that the circuits of the AUI port "couple" the AUI to the MAU, it does not appear necessary for the definition of the AUI port to explicitly clarify whether the MAU and the AUI are two distinct devices. Rather, what sorts of configurations of a MAU might infringe this element is a question for a jury.

On the other hand, Level One correctly argues that Seeq's proposed construction incorporates limitations from the preferred embodiment that are not present in or necessary to the claim language. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988). There is no indication that data in circuit, data out circuit or collision presence are terms that need to be each fully defined in order to construe "AUI port." As Seeq itself states, "the language of the IEEE 802.3 standard is not the language of the claim and cannot be used to broaden the claim beyond its plain meaning." Defendant. Opp'n at 5. Nor can it be used to narrow the claim beyond its plain meaning. The parties seem to agree that the data in circuit transfers signals to the AUI from the MAU, the data out circuit transfers signals to the MAU from the AUI and the collision presence detects the simultaneous transmission of data in both direction.

Accordingly, the court rejects both proffered definitions and construes AUI port just as it is defined in Claim 6, as having data out, data in, and collision presence circuits for coupling said attachment unit interface to said media attachment unit.

1. "ATTENUATED AND FILTERED FROM"

The phrase "ATTENUATED AND FILTERED FROM" (Claim 1) is construed by the Court to mean reduced and removed. This Court declines to adopt Nellcor's interpretation of the limitation, which is "reduced in comparison to the desired information." Accepting Nellcor's interpretation would oblige this Court to construe the claim in a way such that "no
removal or reduction" of any aperiodic information (that is, noise) is required. See Nellcor Opp. at 2. Nellcor asserts, instead, that aperiodic information is "spread across the time frame of the composite waveform," thus "reducing in comparison" its magnitude to that of the "desired, periodic information." Id. at 3. This Court finds that such an interpretation is contradictory to both the terms of the patent and the file history.

a. Ordinary and Customary Meaning

Webster's dictionary defines "attenuate" as "to lessen the amount, force or value of" (Webster's Third New Int'l Dictionary ("Webster's"), Lateef Decl., Ex. 9 at 3); the IEEE Dictionary defines "attenuate" as "a decrease in signal magnitude between two points or between two frequencies." The Authoritative Dictionary of IEEE Standards Terms ("IEEE Dictionary"), Lateef Decl., Ex. 10 at 3 (emphasis added).

Similarly, Webster's dictionary defines "filter" as "a device or material for suppressing or minimizing waves or oscillations of certain frequencies passing through it without greatly altering the intensity of others." Webster's at 3. The IEEE Dictionary defines filter as (1) "a transducer for separating waves on the basis of their frequency . . .:" and (2) "a device or program that separates data, signals, or materials in accordance with specified criteria." IEEE, Ex. 10, at 5. The IEEE Dictionary also provides a definition requiring that a filter "eliminate a portion of the signal." Id.

In deciding which dictionary definition to apply, the Federal Circuit instructs this Court to look at the intrinsic evidence and decide which definition best fits within the context of the patent.

Nellcor claims that its purported interpretation of "attenuated and filtered from" as "reduced in comparison" is "consistent with the ordinary meaning of those terms to one of ordinary skill in the art." Nellcor Opp. at 12. To prove this, Nellcor relies upon the IEEE definition for the meaning of "attenuate." See IEEE Dictionary, Ex. 10 at 3 ("a decrease in signal magnitude between two points or between two frequencies"). Nellcor asserts that attenuation is used in the '372 patent to explain the process whereby the "aperiodic information is decreased in magnitude in relation to the periodic information." Nellcor Opp. at 12.

Masimo contends that by inserting the words "in relation to" into their application of the definition to the '372 patent, Nellcor has altered the IEEE Dictionary definition to support its own "reduced in comparison" language. Masimo asserts that such a manipulation is neither supported by case law nor by the patent itself. Instead Masimo claims this Court should rely more heavily upon Webster's definition of attenuate, which is "to lessen the amount force or value of." Masimo Mot. at 11.

This Court finds that both the IEEE Dictionary and the Webster's definitions are relevant in construing the term "attenuate" given the context of the '372 patent. Regardless of the source this Court chooses to apply, the result is the same, as both definitions indicate that "attenuate" implies reduction -- and perhaps even "reduction in comparison." Nonetheless, this Court does not adopt Nellcor's construction of reduced in comparison, because doing so would render this claim construction analysis incomplete, as only one of the two terms would be construed.

In construing the word "filter" Nellcor relies upon the Webster's definition of "filter" as "a device or material for suppressing or minimizing waves or oscillations of certain frequencies passing through it without greatly altering the intensity of others." Webster's at 3. Nellcor explains that this definition is consistent with the use of the term "filtered" in the '372 patent because "aperiodic information [is] being spread across the frequency spectrum, such that its magnitude is decreased or minimized, in relation to the periodic information." 3

3 Further, Nellcor rejected Masimo's use of the IEEE Dictionary definition of filter -- as meaning "eliminate a portion of a signal" -- explaining that since no reduction or removal of aperiodic information occurs, that definition is irrelevant. See Nellcor Opp. at 14.

Again, Masimo objects to Nellcor's insertion of the words "in relation to" into the interpretation. Masimo, instead asserts that
"filter" means "removed." In coming to this conclusion, Masimo relies heavily upon Webster's definition of the verb "to filter." Masimo Mot. at 11. Webster's defines "to filter" as "to remove . . . by means of a filter." Webster's, Lateef Decl., Ex. 9, at 5.

This Court was not immediately convinced that "filter" means "remove." First, as Nellcor points out, the definition upon which Masimo relies reads in full: "to remove from a fluid by means of a filter." Webster's, Lateef Decl, Ex. 9, at 5 (emphasis added). Thus, as Nellcor asserts, this definition may not be completely relevant to the technology at issue in this case. Second, none of the definitions mentioned above clearly indicates that filter means "remove."

Nonetheless, in considering the complete picture -- including the claim language, the specification, and the file history -- this Court ultimately agrees with Masimo and concludes that filter in this context means remove, and that the phrase "attenuate and filter" means reduce and remove.

b. Claim Language

The language at issue claims a process whereby "aperiodic information present in the time-measure is attenuated and filtered from the composite." '372 patent, col. 1:38-40. The law assumes that Nellcor chose those particular words in the claim for a particular purpose. The fact that Nellcor chose to use both attenuate and filter -- side-by-side, in the same phrase -- to describe this process indicates that these words carry unique meanings. If this Court were to adopt Nellcor's construction, then the words "attenuate" and "filter" would lose their individuality and purpose, since either word, taken on its own, could be construed to mean "reduce in comparison."

Similarly, Nellcor's interpretation is incomplete. The words "attenuate" and "filter" and the phrase "attenuated and filtered from" need to be considered within the context of the language of the claim. Claim 1 of the '372 patent claims (in pertinent part): "processing the time-measure collectively to determine a composite . . . so that the aperiodic information present in the time-measure is attenuated and filtered from the composite; and thereafter calculating . . . ." '372, col 59:34-40.

In breaking down the language of the claim, Nellcor appears to be claiming a two-step process: (1) the formation of the composite and (2) the calculating step. Nellcor itself does not contest the fact that aperiodic information is removed prior to the calculating step. See Nellcor Opp. at 2 ("Desired periodic portions of the composite signal are selected for further processing and used in calculating oxygen saturation, thereby removing the aperiodic information from the composite signal.") (emphasis added).

Thus, as Nellcor explains, the aperiodic information must be removed at some point between the formation of the composite and the calculating step. The claim language itself only leaves one point at which that removal could occur: filtration. Therefore, the claim language read in context clearly supports a construction of "attenuated and filtered" that means reduced and removed.

Further, by adopting Masimo's interpretation of "reduce and remove" both attenuate and filter retain meaning and purpose. The two words work in conjunction to describe a complete process whereby aperiodic information is attenuated (reduced) and filtered (removed).

Finally, the placement of the word "from" - in the phrase "attenuated and filtered from" - is quite telling as well. Nellcor's word choice implies that something is taken or removed from, rather than merely reduced in comparison. This notion is further explained and clarified when viewed in the context of the language in the specification as well as the file history.

c. Specification

For additional support of the "reduced and removed" construction, Masimo cites several parts of the '372 patent specification where the terms "attenuated" and "filtered" mean reduced and removed. For example, column 7 of the patent states that the process creates a composite waveform "from which noise, spurious signals, and motion artifact, have been filtered out." '372 at 7:33-38. "Filtered out" in this context clearly supports a construction that implies removal.

d. File History:
The file history of '372 patent provides the strongest support for the conclusion that "attenuated and filtered" means reduced and removed. The record of the prosecution clearly indicates that one of the characteristics distinguishing the '372 patent from the prior art (the New, Jr. Patent) is that the '372 patent requires the removal of aperiodic information prior to the calculation of oxygen saturation in the blood, while the prior art did not. See Examiner's Report, Lateef Decl., Ex. 1 at 208-211.

Specifically, Nellcor argued to the PTO: "In contrast to the New[, Jr.] patent, [Nellcor's] application teaches that by collecting and collectively processing time-measures to obtain a composite waveform from which aperiodic information is removed . . . one does not need to examine pulse against confidence criteria or to determine whether that pulse is a periodic or aperiodic pulse before the blood constituent can reliably and accurately be determined." Id. at 210-11 (emphasis added).

The prior art required the examination of each pulse against confidence criteria; Nellcor urges that the importance of its argument to the PTO was not to emphasize the removal of aperiodic information, but rather to claim the improvement of a "composite waveform." Nellcor adamantly contends that the prosecution history should not be read to limit the '372 patent to require "removal," instead Nellcor explains that the term "removal" should be read as a proxy for "reduced in comparison."

This Court should not be convinced by Nellcor's alternate interpretation. Nellcor cannot argue one meaning to the PTO to distinguish itself from the prior art, and then argue a different meaning to this Court to prove infringement. Thus, this Court should find that in light of the surrounding evidence, the most appropriate interpretation of "attenuated and filtered" is "reduced and removed."

II

Nellcor first contends that the trial court improperly interpreted "attenuated and filtered" to mean "reduced and removed." We agree with Nellcor that the district court's interpretation is incorrect.

The '372 patent describes two embodiments of the invention in detail. The patent first describes a time domain method, which it characterizes as the preferred embodiment of the invention. The time domain method begins with a trigger that is related to the patient's heart beat and thus indicates the beginning of an arterial pulse. The device then detects optical data from the photodetector for both the red and infrared sources throughout the duration of the pulse. That data is digitized and then moved to a buffer that collects data for the red and infrared signals over time. With each subsequent pulse, new data is gathered and stored in a "new data" buffer. In the preferred embodiment, the value of each data point in the new data buffer is divided by 6, and the values for each of those data points are added to 5/6 of the value of the corresponding data points in the data collection buffer. '372 patent, col. 6, line 20, to col. 8, line 49.

Each set of new data contains information from the pulse of interest, together with aperiodic noise. Because the data in the data collection buffer is weighted five times as heavily as the new data that is introduced with each pulse, and because the aperiodic data does not share the same characteristics for each pulse (and thus does not accumulate overtime), the effect of using this method of data accumulation is to reduce the effect of the aperiodic data in each pulse by 5/6. Additionally, the effect of older aperiodic data on the cumulative data is reduced at each triggering event by 1/6. Thus, the aperiodic data is not eliminated altogether, but it is continuously reduced in magnitude in comparison to the desired, periodic data.

A second embodiment of the invention described in the '372 patent is a frequency domain method that can be used with or without a separate pulse-identifying event. '372 patent, col. 11, line 12, to col. 12, line 60. In that embodiment, the output of the photodetector for each of the red and infrared signals is digitized at a rate of 57 samples per second for about nine seconds. In the time domain, the amplitude of that data is represented as a function of the time at which the data was sampled. The resulting 512 data points for each wavelength are then averaged; the resulting value represents the average background intensity for each wavelength. That average value is then subtracted from each of the 512 data points for each wavelength. The resulting data is then transformed to the frequency domain using a mathematical operation known as a Fourier transform. The transformation of the data to the frequency domain produces a value for each of a number of
frequencies above zero for both the red and infrared wavelengths. The average background intensity of the detected optical signals at the red wavelength and at the infrared wavelength is the amplitude at zero frequency for each of those wavelengths. When the data is transformed to the frequency domain, the amplitude of the pulse data for each wavelength can easily be detected because it is the value located at the pulse frequency.

Because the aperiodic noise has components at many frequencies, the aperiodic noise "appears spread across the frequency domain spectrum." '372 patent, col. 11, ll. 53-54. The frequency domain embodiment, however, uses data at only two of the 512 frequencies for each wavelength—the heartbeat frequency (which contains the most useful data for determining blood constituents) and zero frequency (which contains the background level of the optical signals). Accordingly, while some noise still remains at those two frequencies, the noise is not concentrated at those frequencies. The relative impact on the selected data is therefore considerably reduced.

Nellcor contends that the district court erred by construing the term "filtered" to require that the aperiodic signal data be removed rather than simply reduced in comparison to the desired periodic signals. Nellcor submits that the district court's interpretation is not supported by the ordinary meaning of the claim language to one of skill in the art, and that it is not supported by the specification or the prosecution history of the '372 patent.

A standard dictionary prepared by the Institute of Electrical and Electronics Engineers ("IEEE") provides eight different meanings for the noun "filter." Those definitions include a device "that separates data, signals, or material in accordance with specified criteria" and a circuit "that eliminates certain portions of a signal, by frequency, voltage, or some other parameter." IEEE, Authoritative Dictionary of IEEE Standard Terms 435 (7th ed. 2000). It is reasonable to characterize the disclosed processes as involving the separation of signals "in accordance with specified criteria," including their frequency, and it is fair to characterize the process of reducing the relative magnitude of aperiodic noise as the elimination of "certain portions of a signal, by frequency ...or some other parameter." Thus, two of the definitions of the term "filter" given in the standard dictionary of electrical engineering and electronics are consistent with the definition proposed by Nellcor; in any event, the IEEE definition certainly does not compel rejection of Nellcor's proposed construction of the term.

The meaning that the patentees intended to accord to the claim phrase "attenuated and filtered" is made clear from an examination of the specification of the '372 patent. In the Background of the Invention portion of the specification, the patent describes one of the objects of the invention as being to "provide enhanced periodic information from which the patient's blood constituent can be accurately determined" by "collecting successive portions of detected optical signals encompassing periodic information for more than one heartbeat and processing the collected portions to attenuate and filter therefrom aperiodic signal waveforms." '372 patent, col. 4, ll. 28-35. That passage summarizes the cumulation technique described in more detail later in the patent as resulting in the attenuation and filtering of aperiodic signals. As such, it indicates that the words attenuated and filtered are used to describe the relative reduction in the significance of aperiodic noise that results from the cumulation technique described in the patent.

The same is true of the more detailed description of the invention in the Summary of the Invention portion of the specification. There, the patent describes the relative reduction of the impact of aperiodic noise on the composite signal through non-synchronous (and thus canceling) addition and through the spreading of noise signals across the relative time frame of the composite signal. '372 patent, col. 7, ll. 3-9. The patent describes that effect, and in particular the small relative weight given to new information as compared to the prior composite, as resulting in new aperiodic information being "quickly and effectively attenuated, and thus filtered out of the resultant additive portions." Id., col. 7, ll. 21-22. The patent then summarizes the process as follows: "The collective additive sum having synchronized periodic information waveforms thus presents enhanced periodic information that is a composite data set that corresponds to a composite optical pulse from which noise, spurious signals, and motion artifact, have been filtered out." Id., col. 7, ll. 33-38. Because the disclosed process does not actually remove data, but merely results in the suppression of aperiodic noise relative to the periodic signal, it is clear from those passages that the patent uses the terms "attenuated and filtered" to refer to the process of reducing the effect of the aperiodic noise as compared to the periodic signal. Thus, the specification confirms that the claim phrase "attenuated and filtered from the composite" is used to refer to what the patent at one point calls "effective removal" of data, id., col. 8, line 28, rather than the absolute removal of unwanted data, as held by the district court.

Apart from the manner in which the term "filtered" is used in the patent, construing the term "filtered" to require removal of the aperiodic noise would have the effect of excluding all the embodiments described in the specification. That is because none of the embodiments actually "remove" the aperiodic noise from the data used for calculations, as opposed to reducing...
its relative impact on that data. As this court has explained, a construction that excludes all of the embodiments of an invention is "rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). The fact that the construction adopted by the district court and advocated by Masimo would have the effect of placing all the embodiments of the invention outside the scope of the claims is powerful evidence that the court's construction is incorrect.

Masimo argues that the district court's construction would not mean that the claims would fail to read on all the embodiments set forth in the written description, but we disagree with that contention. The claim language in question provides for "obtaining a time-measure of the absorption signal including periodic information and aperiodic information," and processing that data "to determine a composite waveform" so that "the aperiodic information present in the time-measure is attenuated and filtered from the composite." The portions of the specification that describe that claimed process disclose the use of various means to reduce the impact of the aperiodic data on the resulting composite waveform. In each instance, the aperiodic data is reduced in impact but is not altogether removed from the composite. Thus, in the time domain embodiments of the invention the data is manipulated so that the periodic data cumulates, while the aperiodic data does not. As a result, the relative impact of the aperiodic data is constantly reduced in comparison with the impact of the periodic data. Similarly, in the frequency domain embodiment the selection of only the zero frequency and the heartbeat frequency as the frequencies from which data is obtained has the effect of substantially reducing the effect of aperiodic noise, which is spread across many frequencies, but it does not remove the noise altogether. From the context of the patent, it is clear that those processes are what the patent refers to as attenuation and filtering. See '372 patent, col. 11, ll. 43-58. While it may be that, in hindsight, the patentees would have been wise to choose a word other than "filtered," it is clear that they meant for that term to describe the "relative reduction" processes set forth in the specification. The use of the term in that fashion is not at odds with the understanding of the term "filtered" in the pertinent art, and in the absence of a clear contrary directive in the patent, we decline to give that term a definition that would exclude the preferred embodiments from inclusion within the language of the claims.

In construing the phrase "attenuated and filtered from the composite," the district court relied heavily on the prosecution history of the '372 patent. The portion of the prosecution history on which the court relied was the applicant's discussion of a prior art patent to New (U. S. Patent No. 4,653,498), which the examiner had cited against the application in an office action. The New patent disclosed a pulse oximeter in which the instrument tested each pulse-like signal against certain parameters to determine whether the signal was related to a heartbeat and therefore should be used in making the blood constituent measurement. The applicants argued that the method used to identify the proper source of meaningful data in New was quite different from the method set forth in the application. In particular, the applicants noted that the New patent disclosed a method consisting of "detecting an absorption signal and determining a related maximum and minimum value in the absorption signal corresponding to a pulse." New's method then evaluated each maximum and minimum "using preselected confidence criteria to determine whether or not they correspond" to a periodic pulse or an aperiodic event unrelated to the patient's heartbeat. In New, the applicants explained, "[a] pulse history is formed based on accepted maximum and minimum signal values that are averaged to smooth out small deviations in pulse rate and oxygen saturation due to physiologic and artifactual noise variations."

The applicants argued to the examiner that the New patent described calculating blood constituents "in a manner that is fundamentally different from, and which does not teach or suggest applicants' claimed invention." In contrast to the New patent, the applicants claimed that their invention "teaches that by collecting and collectively processing time-measures to obtain a composite waveform from which aperiodic information is removed, and which yields a composite relative maximum and minimum, one does not need to examine each pulse against confidence criteria or to determine whether that pulse is [a] periodic or aperiodic pulse before the blood constituent can be reliably and accurately determined."

The district court seized on the applicants' characterization of their invention as one in which "aperiodic information is removed" from the composite waveform, and concluded from that statement that the reference to aperiodic information being "attenuated and filtered" should be construed to mean that aperiodic information is removed altogether. In context, however, the prosecution history does not support that interpretation. The distinction that the applicants sought to draw between the method described in the New patent and the method used in their invention was between (1) testing each pulse-like event to determine whether it was related to the patient's heartbeat, and (2) using a cumulation technique to separate synchronous pulse events from aperiodic events unrelated to the patient's heartbeat. Their method, the applicants pointed out, reduced the relative amplitude of the aperiodic events through processing and thus effectively removed those events from consideration in the blood constituent measurements. The applicants' reference to the "removal" of aperiodic noise thus must be interpreted to refer to a reduction in the aperiodic noise relative to the desired signal, so that the aperiodic noise
does not materially affect the composite waveform generated by the patented method. Accordingly, we do not regard the prosecution history as providing support for the district court's construction of the claim phrase "attenuated and filtered from the composite waveform." For that reason, and because Nellcor's proposed construction of that phrase as meaning "reduced in comparison to the desired information" is consistent with the written description of each embodiment of the invention, we hold that the district court erred in its construction of that critical claim language and that "attenuated and filtered from the composite waveform" means "reduced in comparison to the desired information."

(b) "Attenuating" means "reducing in force, value or amount,"

E. "VAN . . . attesting to the authenticity of the instrument"

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<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
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<tr>
<td>&quot;including the VAN with the instrument for subsequent use in attesting to the authenticity of the instrument&quot;</td>
<td>The VAN evidencing that the instrument has not changed.</td>
<td>The VAN verifies that the information in the instrument as a whole has not changed and verifies the identity of the party who created the instrument.</td>
</tr>
</tbody>
</table>

This phrase appears in claim 34 of the '148 patent. The parties again dispute whether the VAN "evidences" or "verifies" authenticity, and whether "authenticity of the instrument" requires verifying the identity of the payor as well as confirming that the instrument has not changed. As discussed above, verifies is the appropriate verb.

Plaintiff argues that this claim requires only that the instrument has not changed and that it does not need to verify the identity of the party. Plaintiff relies upon claim differentiation to explain that the originating party is not required to be authenticated in all claims. Defendants argue that an instrument is authentic if the information has not changed and the payor authorized the payment. Defendants further argue that the "instrument as a whole" must be authentic because, "[a]n instrument cannot be authentic . . . if any aspect of the instrument has changed." Def. Brief at 19.

The Court is of the opinion that an instrument is authentic if it has not been forged. As discussed above, there are two types of forgery: creating an unauthorized check and altering an otherwise authorized check. If the instrument is created fraudulently, even if there are no changes to it, it would not be an authentic instrument. The claim requires authenticating the instrument, not merely the transfer information, as in Claim 28. Therefore, authentication should include verifying on some level that it is an authorized instrument. Plaintiff need not be concerned that using the word "verifies" would impose greater authenticity restrictions on the claim. The claim recites "for subsequent use in attesting," which only requires that it be helpful to attesting to authenticity. Therefore, the Court construes the phrase to mean "including the VAN with the instrument for subsequent use in verifying that the information in the instrument has not changed and verifying that the instrument originated from the first party."

D. "the VAN being used for attesting to the authenticity of the payor and document information"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;the payer creating a variable authentication&quot;</td>
<td>The VAN being used to evidence that the verify</td>
<td>The VAN is used to the identity of</td>
</tr>
</tbody>
</table>
number (VAN) on a computer using at least a portion of the document information, and a secret key of the payor, the document information including an amount, and information for identifying the payee, the VAN being used for attesting to the authenticity of the payor and document information"

The disputed phrase appears in claim 28 of the '148 patent. First, the parties dispute whether "attesting" means that the VAN "verifies" or "evidences." Second, the parties dispute whether "attesting to the authenticity of a payor" requires confirming the identity of the payor or merely that the document originated with the payor.

Plaintiff argues that the invention only gives indications of authenticity and does not exactly "verify" authenticity. Pl. Brief at 18. According the Plaintiff, the invention authenticates that the instrument is not forged and did in fact originate with the payor. The plaintiff also argues that "it is axiomatic that the VAN verifies only the portion of the 'document information' that was used to create it." Pl. Brief at 19. Therefore, as the VAN is only created using "at least a portion of the document information," the VAN can only attest to that portion of the document information.

With respect to the authenticity of the payor, Plaintiff argues that the VAN does not confirm the originator's identity. Rather, according to Plaintiff, "the VAN in the funds transfer embodiments is used to confirm that the payor originated, or authorized, the funds transfer instructions." Pl. Brief at 19. Under Plaintiff's construction, the "information extracted from the VAN" needs only match "the information included on the payment instrument." Id. Defendants argue that Plaintiff's proposal is inconsistent with the definition for VAN and inconsistent with the specification.

Defendants also argue that the invention confirms identities of parties, so the VAN must be used to confirm the identity of the payor in claim 28. See Def. Brief at 16-17. Defendants point to the "numerous references to [the invention's] authentication process involving a verification of a party identity."

The Court construed VAN such that it "can be used in verifying the identity of a party or the integrity of information or both." Furthermore, as Defendants point out, the specification repeatedly uses the word "verify" and never uses the word "evidences." The Court is of the opinion that the VAN gives more than just an "indication." Moreover, while an accurate VAN may be only an indicator that a document is not forged, the claim does not require that the VAN verify the document. Rather, the VAN verifies--not merely indicates--that at least some document information is unchanged and that the payor is authentic.

The Court does not agree that payor authenticity is the same thing as identity verification. The specification does indeed recite that the originator's bank verifies the originator's identification, but this is not in connection with a VAN. The bank authenticates the identity of the party at enrollment, not as part of a transaction. The party's identity is presumed to be authentic through the use of the secret PIN, but that identity need not be verified as part of the transaction. The VAN merely confirms that the account holder originated the instrument. The VAN does not confirm that the account holder is who he says that he is. The Court construes the disputed phrase to mean: "The VAN being used to verify that the instrument originated from the payor and that the at least a portion of the document information used to create the VAN has not changed.

1. attribute

Hyperion contends that an attribute is "an identifier used to classify financial data." OutlookSoft contends that attribute is
"an identifier used to organize financial data." Thus, the debate is simply whether an attribute classifies or organizes data.

While Hyperion cites to one example in the prosecution history to support its construction, OutlookSoft proposes the correct construction. In the 141 patent, claim 1 recites "financial data is organized in accordance with at least the attributes. . . ." Thus, the claim language itself supports OutlookSoft's construction. Accordingly, the Court adopts OutlookSoft's construction. "Attribute" means "an identifier used to organize financial data."

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First, MercExchange challenges the construction of the term "auction," asserting that the district court erred in construing the term as "a process over a trusted network, or with a trusted intermediary." MercExchange argues that the district court should not have required a "trusted" element. We disagree. The district court's construction is supported by the language of the specification, which states that the purpose of the patented system is "to provide a trusted network of consignment nodes that act as brokers to provide a means to electronically present a used good or collectable to an electronic market." '051 patent, col. 2, ll. 12-14.

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1. "auctioneer in control of the auction event"

The parties dispute whether the term "auctioneer in control of the auction event" appearing in the preamble to claims 1, 2, and 3 serves as a limitation on the claims, and thus, whether that term must be construed at all. Manheim and LGB contend that the term serves as a limitation on the claims and should be construed to mean "auctioneer in complete control of all changes in the state of the auction, including which bids are accepted and rejected." AMS contends that this term is not limiting, and thus needs no construction; or, in the alternative should be construed to mean "an auctioneer is able to exercise authoritative influence over the auction event."

There is no litmus test for determining whether to treat a preamble as limiting the scope of the patent claims. Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). Rather, "a claim preamble has the import that the claim as a whole suggests for it." Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). Thus, "whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." Bicon, Inc. v. Straumann Co., 441 F.3d 945, 952 (Fed. Cir. 2006) (quoting Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003)); see also Catalina Mktg., 289 F.3d at 808 ("Whether to treat a preamble as a limitation is a determination 'resolved on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.'" (quoting Coming Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989))).

In general, [i]t the body of the claim 'sets out the complete invention,' the preamble is not ordinarily treated as limiting the scope of the claim. Catalina Mktg. v. CoolSavings.com, 289 F.3d 801, 808 (Fed. Cir. 2002). Rather, "a claim preamble has the import that the claim as a whole suggests for it." Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). Thus, "whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." Bicon, Inc. v. Straumann Co., 441 F.3d 945, 952 (Fed. Cir. 2006) (quoting Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003)); see also Catalina Mktg., 289 F.3d at 808 ("Whether to treat a preamble as a limitation is a determination 'resolved on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.'" (quoting Coming Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989))).

Conversely, a preamble will be regarded as limiting if it is "necessary to give life, meaning, and vitality' to the claim." Catalina Mktg., 289 F.3d at 808 (quoting Pitney Bowes, 182 F.3d at 1305). "That is, if the claim drafter 'chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.' Bicon, 441 F.3d at 952 (quoting Bell Comm'n's Research v. Vitalink Comm'n's Corp., 55 F.3d 615, 620 (Fed. Cir. 1995)) (emphasis in original). In such situations, "there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim, for only together do they comprise the 'claim.'" Pitney Bowes, 182
AMS contends that the preamble term "auctioneer in control of the auction event" merely states "the purpose of the claimed invention" and that the term should not be read as a limitation because "the body of each of the '612 patent claims fully recite[s] an invention that achieves the purpose set forth in the preamble"--i.e., "to allow the auctioneer to remain in control of the auction." (AMS Br. at 6-7.) In contrast, Manheim and LGB contend that AMS clearly and repeatedly relied on the element of auctioneer control in distinguishing prior art, and that such reliance renders the preamble term "auctioneer in control" limiting. (See Manheim Br. at 11-13; LGB Br. at 9-11.) After reviewing the prosecution history of the '612 patent, the Court agrees with Manheim and LGB and concludes that the term "auctioneer in control of the auction event" appearing in the preambles into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." Catalina Mktg., 289 F.3d at 808-09.

The file history reveals that the examiner repeatedly rejected AMS's patent claims as anticipated or obvious in light of two prior art auction systems disclosed in the Friedland and Dinwoodie patents. In response to the examiner's rejections, AMS clearly and repeatedly relied upon the aspect of auctioneer control to distinguish that prior art. For example, in response to the examiner's initial § 102(e) rejection as anticipated by Friedland, AMS attempted to distinguish that art, arguing that "the claimed invention is not fully disclosed in Friedland" because "Friedland does not disclose a system that allows the auctioneer to remain in control of the auction." (AMS Br. at 6-7.) In contrast, Manheim and LGB contend that AMS clearly and repeatedly relied on the element of auctioneer control in distinguishing prior art, and that such reliance renders the preamble term "auctioneer in control" limiting. (See Manheim Br. at 11-13; LGB Br. at 9-11.) After reviewing the prosecution history of the '612 patent, the Court agrees with Manheim and LGB and concludes that the term "auctioneer in control of the auction event" appearing in the preambles into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." Catalina Mktg., 289 F.3d at 808-09.

The auctioneer being in control of the auction event is a key element for the integration of remote bidders into the live auction. The auctioneer needs to have control over which bids are accepted, which bids are rejected, when the bidding is going to be closed, when the next lot is put on the block, when the lot is moved into a pre-sold state, etc. . . . For the auctioneer to maintain such control, the various events (i.e., the transition from a bidding state to a sold state) must be conducted under the control of the auctioneer rather than some external force. If such transitions are controlled by external events, the auctioneer is stripped of some level of control.

(Id.) Additionally, after pointing out that Friedland disclosed a time-based system wherein auction events such as state transitions from the pre-bid state to the sold state can occur totally autonomous of the auctioneer, AMS argued that "Friedland cannot possibly describe, suggest, or teach the control aspect of the present invention because it explicitly strips the auctioneer of such control." (Id. at 528.) Finally, the examiner allowed AMS's claims over the Friedland and Dinwoodie patents on the sole ground that the clerk and bid systems claimed in the '612 Patent operate subject to the occurrence of only non-time based events. In commenting on the examiner's reasons for allowance, AMS yet again returned to the aspect of auctioneer control, and again attempted to distinguish Friedland on this ground, stating:

It is applicant's position that Friedland et al.'s [sic] system does not leave an auctioneer in complete control of the auction event. Allowing the auctioneer to remain in complete control of the auction event as claimed in the present invention was a technical hurdle that Friedland et al. was not able to clear, and thus, was not described, suggested, or taught by Friedland.

Id. at 616.

This clear and repeated reliance by AMS on the preambles of Claims 1, 2, and 3 to distinguish prior art references on the ground that they did not "leave[] an auctioneer in control of the auction event" indicates that AMS used the preamble to
define, at least in part, its invention. Such reliance is sufficient to render the preambles of those claims limiting. See Catalina Mktg., 289 F.3d at 808-09.

Because the inventors relied on the preambles to distinguish prior art, the preamble terms serve as limitations on the claims, and thus, must be construed. Manheim and LGB contend that the term "an auctioneer in control of the auction event" should be construed to mean "an auctioneer in complete control of all changes in the state of the auction, including which bids are accepted and rejected." AMS counters that this term should be construed to mean "an auctioneer is able to exercise authoritative influence over the auction event." The Court agrees with Manheim and LGB.

The prosecution history shows that AMS clearly and consistently used the terms "complete control" and "total control" to distinguish the prior art Dinwoodie and Friedland patents. (See, e.g., id. at 576 (stating that in the prior art system "the auctioneer remains subservient to the system delays and the processor's bid acceptance algorithm and thus is not in complete control of the auction event"); id. at 617 ("the system described in Friedland et al. is unable to leave an auctioneer in complete control of the auction event"); id. at 373 (explaining that Friedland was distinguishable because in that system "the auctioneer was stripped of some measure of control") (emphases added).) Having previously adopted the position its invention was distinguishable from prior art because it allowed an auctioneer to remain in "complete control" of the auction event, AMS may not now, in litigation, adopt a position contrary to that taken before the PTO. See Torpharm, Inc. v. Ranbaxy Pharm., Inc., 336 F.3d 1322, 1329 (Fed. Cir. 2003). Accordingly, the Court adopts the definition proposed by Manheim and LGB, and the preamble term "an auctioneer in control of the auction event" shall mean "an auctioneer in complete control of all changes in the state of the auction, including which bids are accepted and rejected."

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9. "the auctioneer manages the psychology and pace of the auction" / "the auctioneer manages the . . . the pace of the auction and the psychology of the auction"

The parties dispute the meaning of the term "the auctioneer manages the psychology and pace of the auction." The Court has considered Manheim's proposed definition, and concludes that it is untenable in light of the specification and prosecution history. The Court therefore adopts the definition proposed by AMS and LGB, and concludes that the term "the auctioneer manages the psychology and pace of the auction" in claim I shall mean "the auctioneer uses a variety of techniques to exert influence over the emotion, enthusiasm, and excitement of remote and onsite bidders and over the speed of bidding to play bidders off each other so that they are more likely to bid on auction items and make larger bids."

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1. "AUDI0 AND/OR VISUAL SELECTION"

AOL: "An individual work such as a song or a music video."

TWM: No construction required. In the alternative, "Audio and/or visual content of a stream made available to user(s)."

AOL argues that its definition is "consistent with the ordinary meaning of a 'selection' as a 'work.'" (D.E. 68, pg. 6). TWM counters that "nothing in the claim language limits 'selection' to an individual song." (D.E. 69, pg. 7). As described above, the Court is mandated to first examine the claim language and specification.

AOL's proposal is inconsistent with the claim language. The claim language does not intimate that a "selection" consists of a whole "individual" work, as AOL suggests. Instead, the disputed term is preceded by the following: "wherein at least one stream of [p]ackets comprises an audio and/or visual selection." (emphasis added). The claim itself reveals that merely a packet of information, which as recalled from both parties' DVD tutorials, is a digitized part of an audio selection--not the whole selection--constitutes a selection. A stream of packets is short segments of a song. Because those segments are not the entire "individual" song, AOL's proposal does not comport with the claim language.
The Court believes a construction is necessary because the ordinary skilled person in the art understands "selection" differently than laypersons. Specifically, laypersons would read "selection" as an individual work; skilled persons in the field would read "selection" as either an individual work or a selection of data. To prevent any confusion, the Court adopts TWM’s second proposal. So "selection" is construed as "audio and/or visual content of a stream made available to user(s)."

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B. "audio/video source information"

This term as well as "audio/visual source information" appear in each of the four patents-in-suit in a total of over sixty claims. A representative usage is reproduced above in claim 1 of the '995 Patent. The parties agree that "video" and "visual" are equivalent, and that "audio/video source information" denotes a "work" having a "temporal dimension" as opposed to a photograph or text. However, both parties wish to further clarify this construction.

The intrinsic evidence supports Burst's construction of the term as "an audio and/or video work that can be received from one or more sources and that has a temporal dimension." The '995 specification states that the invention is capable of "receiv[ing] an input signal from a source such as a television camera, a conventional VCR, a television tuner, or another VCR, etc." '995 Patent at 7:2-4, see also '995 Patent at 7:23-8:2 (describing other sources of input). Likewise, the prosecution history discusses "an audio/video transceiver having the ability to receive audio/video source information from a variety of signal sources." Amendment "A", '995 File History, Payne Dec., Exh. 9 at ABPU 89. Apple's failure to support its objection to "from a variety of sources" inclines the court to accept Burst's construction of "audio/video source information" as meaning "an audio and/or video work that can be received from one or more sources and that has a temporal dimension."

Though both parties agree to use "work" to define "audio/video source information," they interpret the term differently. Apple insists that "work" means a complete work, i.e. an entire song or video as opposed to a portion thereof. Under Apple's proposed construction, the patents disclose a sequential process such as that in Mantech Envtl. Corp. v. Hudson Envtl. Serv. Inc., 152 F.3d 1368, 1375-76 (Fed. Cir. 1998). There, the claim covered a process for rehabilitating a hydrocarbon-contaminated stretch of ground water. The Federal Circuit found that the claim inherently disclosed sequential steps, where each step necessarily relied upon the completion of the prior. Id. at 1376.

This case differs from Mantech. Though the steps of Burst's patents are necessarily sequential, each step need not be performed on an entire work before commencement of the subsequent step. Rather, the patent covers a sequential and potentially continuous system. The '995 Patent specification states that "[o]nce received in the second VCR-ET's memory . . . the digitized program can then either be viewed directly from memory or transferred to storage . . . either in its entirety or in random segments, based on user preference." '995 Patent at 10:1-5 (emphasis added); see also id. at 9:17-22 (describing interim storage before storage of entire program is complete). Here, a latter step may be initiated on a portion of some "work" that has been processed in a prior step, though the remainder of the same "work" is still being processed in the earlier step. Apple's argument on this issue relies upon its reading of Mantech to insert the term "complete" into the definition of work. However, the intrinsic evidence suggests no limitation that "work" should include only complete works.

The court concludes that "audio/video source information" is equivalent to "an audio and/or video work that can be received from one or more sources and that has a temporal dimension." Additionally, "work" may be a portion of a complete program, permitting subsequent steps to commence before completion of previous steps.

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Second, Lockwood asserts that the term "audio-visual" refers to either video presentations or audio presentations, but not necessarily to both. We disagree. The '115 patent specification states that the unit displays travel documentaries and that a "high-quality audio-visual travelog can utilize practically all the human senses to motivate and influence a customer." During prosecution, Lockwood argued:
Although certain alpha numeric data are presented in the [prior art] reference, and such as in airport terminals which display schedules, etc., these are to be distinguished from applicant's device which actually presents brief travelogues and other movie-quality audio visual presentations to sell a product.

Although Lockwood correctly notes that the disclosed terminal displays an initial selection menu that does not produce any sound, this menu is not referred to as an "audio-visual" presentation. Rather, the selection menu is merely a method used for choosing an "audio-visual" presentation. Examination of the claims, specification, and prosecution history leads us to conclude that the district court correctly interpreted this term as requiring a device that produces both audio and video. It is undisputed that the SABREvision system cannot produce audio presentations.

### C. "Authentication Data"

<table>
<thead>
<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
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<tbody>
<tr>
<td>Information identifying the user which includes a credit card number, cell phone number, digital encryption on a personal digital assistant, or a single- or multi-dimensional bar code, social security number, phone number, driver's license number, PIN number, or password.</td>
<td>Information that authenticates the bearer as holding a valid ticket.</td>
</tr>
</tbody>
</table>

With regard to the process of "authentication," Plaintiff notes that the specification explains that it can occur via "infra-red wireless scanning," for example by sliding a credit card through an authentication reader or through the use of bar-coded authentication tickets. '809 patent at 5:24-30. Plaintiff further notes that the specification explains that "ownership information" can be a "cell phone number, a digital encryption on a personal digital assistant, or a single- or multi-dimensional bar code." Id. at 5:10-20. From these passages, Plaintiff purportedly draws its proposed construction. However, Plaintiff's proposed construction also refers to items such as a social security number, pin number, password, and driver's license number, which are not mentioned anywhere in the specification. Without a stronger basis in the internal record, the Court is highly reluctant to construe "authentication data" in terms of such items. Furthermore, with regard to items that are explicitly mentioned in the specification, the Court concludes that these are mere examples and should not limit the claims. Thus, the Court will not adopt Plaintiff's proposed construction.

--- Footnotes ---
1 However, as noted above, based on the claim language and prosecution history, the Court excludes this specific embodiment from the scope of the claims.

--- End Footnotes ---

For its part, Defendant points to no evidence - either intrinsic or extrinsic - to support its own proposed construction. Thus, the Court is also reluctant to adopt Defendant's proposed construction. To the extent Defendant addresses this claim term at all, it is mainly to criticize Plaintiff's construction. Specifically, Defendant criticizes Plaintiff's proposed construction as improperly seeking to include "two things that are not intangible: a printed bar code and an encrypted personal digital assistant." (Id.) However, Plaintiff clarifies in its Answering Claim Construction Brief that its proposed construction is intended to refer only to "non-physical" information, (see D.I. 60 at 6), a limitation that is nonetheless manifest in the claims (see, e.g., '809 patent at Claim 1). In this regard, the Court notes that Plaintiff's proposed construction does not include a "printed bar code," but merely a "bar code," which the specification confirms is not necessarily physical. See '809 patent at 5:13-15 ("The two dimensional bar code can be printed by the user in order to provide a physical indication of ticket
ownership."). Likewise, Plaintiff's proposed construction does not, as Defendant contends, include "an encrypted personal digital assistant." Rather, it includes a "digital encryption on a personal digital assistant," which again is not necessarily physical in nature. Thus, this particular criticism of Plaintiff's proposed construction is, in the Court's view, unfounded.

Defendant further criticizes Plaintiff's construction as improperly pertaining to the establishment of the "identity of the person providing the data." (D.I. 50 at 28.) However, Plaintiff has agreed that "authentication data has nothing to do with the name or identity of the person who has the account." (D.I. 60 at 5.) Plaintiff further states that "authentication data" is "information indicating a system user or ownership of a ticket." (Id. (emphasis added).) Thus, Plaintiff appears to agree with Defendant that "authentication data" is, at least in part, related to ticket ownership. However, the claims also state that "authentication data" may be associated with both ticket buyers and sellers, neither of which may, at a particular point in time, actually hold a valid ticket. Thus, the Court will not, as Defendant requests, construe this claim term to refer only to the "holding [off] a valid ticket."

Notably, though criticizing Plaintiff's construction, Defendant actually maintains that the parties propose "similar" constructions. (See D.I. 62 at 9.) Thus, the Court understands Defendant's objections to Plaintiff's proposed construction as being fairly limited. Accordingly, the Court will construe the term "authentication data" in a manner largely consistent with Plaintiff's proposal. Specifically, the Court will construe the term "authentication data" to mean "information indicating a system user or ownership of a ticket, such as a credit card number, a cell phone number, a digital encryption on a personal digital assistant, or a single- or multi-dimensional bar code." This construction clarifies the meaning of "authentication data" without improperly limiting it to examples that are either set forth in the specification or drawn from some other unknown source. In addition, in the Court's view, this construction better expresses the parties' agreement that "authentication data" does not pertain to the name or identity of the system user.

"Authentication server" means a "server that provides session identifiers for service requests." This term is expressly defined in claim 12. Amazon urges the Court to also define "server that provides session identifiers for service requests to multiple servers." Given the Court's constructions of session identifiers and services requests, this is unnecessary.

The district court made several findings with regard to the construction of the term authorization code. We agree with some of these findings, disagree with others, and address them below.

1.

The district court held that an authorization code must "include a code that enables the IMM to decode the information that is to be reproduced in a material object and that was previously stored in encoded form at the IMM." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1809. The district court reasoned that the "seemingly component" of the disclosed authorization codes was the encoded catalog decipher program that allowed the IMM to decode information. See id. at 1805. Without this component, the district court continued, "the IMM would be unable to convert the information from its encoded, unusable format to its decoded, usable format." Id. Accordingly, the district court held that "the encoded catalog decipher program is the true 'authorizing' mechanism," and the authorization code needs such a component. Id.

IGE argues that an authorization code need only authorize copying and need not provide decoding information. IGE points to the language of the claims to substantiate its argument. The appellees respond that the portions of the specification noted in IGE's asserted definition before the district court require that the authorization code perform a decoding function, and that the specification does not disclose an authorization code without such a function. The appellees also maintain that an
authorization code must include an IMM code, used to identify the IMM intended to receive the authorization code from the ICM. The appellees further respond that the definition of the term authorization code requires that it be transmitted electronically between the IMM and the ICM.

We agree with IGE that the authorization code need only authorize copying. Our holding is based on the claim language and the language of the specification identified in IGE's asserted definition before the district court. First, the language of the independent claims does not require that the information be encoded, much less that the authorization code have decoding information. Encoded information is not claimed until claim 5. Further, the claim language itself suggests that the sole function of the authorization code is "authorizing . . . reproduction." Freeny patent, col. 28, l. 47 (claim 1).

Second, in response to the district court's request for a binding definition of all disputed terms, IGE identified the passage in the Freeny patent at column 6, lines 1-23 as defining the term authorization code. At two points in that passage, the purpose of the authorization code is stated to be providing permission for copying. In the context of the preferred embodiment, it states that "if [the request for reproduction is] approved, [the ICM] provides an authorization code." Id. at col. 6, ll. 4-5. Later, it notes that information is reproduced only with permission, "such permission being indicated by the authorization code." Id. at col. 6, ll. 21-22. The only reference in this passage to decoding information merely states that such decoding occurs in the IMM of the preferred embodiment "in response to receiving the authorization code." Id. at col. 6, ll. 7-8. This simply does not state that the authorization code must include a decoding code. It does indicate a sequence to the events or a causality between reception of the authorization code and the decoding action, but this is expected given that information, which may or may not be encoded, cannot be decoded before permission to reproduce has been received. See id. at col. 6, l. 17.

The appellees' arguments that an authorization code must also include an IMM code and that the authorization code must be transmitted electronically are not persuasive. Neither of these proposed limitations is mandated by the claim language itself or the specification. Although the preferred embodiment routes the authorization code with the use of an IMM code and electronic transmission, these features are not recited in the independent claims and we are not at liberty to read them into the claims. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 U.S.P.Q.2d (BNA) 1289, 1299 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."); SRI Int'l. v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121, 227 U.S.P.Q. (BNA) 577, 585-86 (Fed. Cir. 1985) (en banc); cf. Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301, 53 U.S.P.Q.2d (BNA) 1065, 1069 (Fed. Cir. 1999) ("It is well established that the preferred embodiment does not limit broader claims that are supported by the written description.").

2.

The district court also held that the authorization code is separate and distinct from the request reproduction code. This is clearly correct. First, these codes are separately recited in claim 1. Compare Freeny patent, col. 28, ll. 31-36 (origin of request reproduction code) with id. at ll. 37-41 (origin of authorization code). Second, the specification supports this distinction. In the preferred embodiment, a request reproduction code originates from the user and is passed from the user to the IMM and then to the ICM. See id. at col. 5, l. 60 - col. 6, l. 3. However, an authorization code originates from the ICM and is passed from the ICM to the IMM. See id. at col. 6, ll. 3-7.

3.

As discussed above with respect to the IMM, the district court further held that an ICM must transmit the authorization code to the IMM. This is a limitation associated with the ICM or the IMM and not with the term "authorization code." Because an authorization code need only authorize copying, it would be improper in this case to construe the term "authorization code" to include limitations regarding its origin or its destination. See Intervet, 887 F.2d at 1053, 12 U.S.P.Q.2d (BNA) at 1476; Laitram, 863 F.2d at 865, 9 U.S.P.Q.2d (BNA) at 1299; SRI Int'l, 775 F.2d at 1121, 227 U.S.P.Q. (BNA) at 585-86; cf. Toro, 199 F.3d at 1301, 53 U.S.P.Q.2d (BNA) at 1069.

4.

Accordingly, we hold that: (1) an authorization code must authorize copying but need not provide decoding information; (2) the term "authorization code" is not to be construed to require that it include an IMM code or that it be transmitted
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G. "entering an authorization code though the keypad for having the computer initiate communication with a host data processor" 7

7 Claim 20, in which the disputed claim term appears, reads:

A method for processing debit purchase transactions, the method comprising the steps of:

- providing a counter-top terminal having telecommunications means operable with a computer, at least one keypad for data entry to the computer, a display responsive to the computer, and a card reader communicating with the computer for modifying purchasing value of a card in response to card use;

- entering sales transaction data to the computer through keypad data entry by a clerk;

- entering confirmation of the sales transaction data by a customer;

- reading a debit styled card through the card reader for providing card data to the computer;

- entering an authorization code through the keypad for having the computer initiate communication with a host data processor;

- electronically transmitting a transaction request to the host data processor through the telecommunications means of the counter-top terminal for requesting a response of approval or disapproval from the host data processor;

- receiving a response from the host computer; and

- displaying the response from the host data processor for the debit purchase transaction on the counter-top terminal display.

('859 patent, col 9 lines 56-67 to col 10 lines 1-15 (emphasis added))

SVS proposes that this disputed term be construed to mean: "the customer enters via the keypad a personal identification number for authorizing access to a customer data base of a host data processor or the clerk enters via the keypad a code which permits the initiation of a debit purchase transaction." (D.I. 43 at 19; D.I. 47 at 27) CAT proposes instead "a series of numbers and/or letters, or a combination thereof, entered via the keypad to establish a communication link with a host data processor." (D.I. 44 at 29) I recommend that the Court adopt CAT's construction.

SVS argues that the only types of "authorization codes" in the '859 patent are the "customer authorization code" and the "clerk authorization code," and, accordingly, this general "authorization code" term should be construed to incorporate SVS's proposed constructions for those two specific types of authorization codes. (D.I. 43 at 19) SVS also points out that certain claims depending from independent claims 20 and 29 -- the claims in which this general "authorization code" term appears -- indicate that the step of entering an authorization code requires entering both a customer authorization code and a clerk authorization code. (Id. at 19-20)

CAT argues that SVS's construction of this general "authorization code" term in claims 20 and 29 wrongly incorporates the limitations SVS proposes for the "customer authorization code" and "clerk authorization code" terms from claims 1 and 10. (D.I. 44 at 29) Specifically, CAT finds three flaws in SVS's construction: 1) it requires that only the customer or clerk enter
the authorization code, 2) it requires that the code is a PIN, and 3) it renders the function of the "authorization code" synonymous with the functions of the "customer authorization code" and "clerk authorization code." (Id. at 29-32) CAT also points out that SVS's construction would improperly read limitations from certain dependent claims into the independent claims from which they depend. (Id. at 32) To CAT, the general "authorization code" and its function are wholly distinct from and broader than either the "customer authorization code" or the "clerk authorization code" terms.

For reasons already given, I recommend that the "code" portion of the disputed term not be limited to a PIN but instead be construed to mean "a series of numbers and/or letters, or a combination thereof." Given the plain language of the claims at issue, the code must be entered "via the keypad." Finally, I agree with CAT that the general "authorization code" language of claims 20 and 29 is broader than the "customer authorization code" and "clerk authorization code" terms. The general "authorization code" language does not specify that any particular party must enter the "authorization code." Also, the function of this general "authorization code"—"for having the computer initiate communication with a host data processor"—is broader than the functions of the "customer authorization code" ("authorizing access to a customer data base of a host data processor") or the "clerk authorization code" ("initiating a debit purchase transaction").

The prosecution history is consistent with this analysis. The examiner initially rejected as anticipated the general "authorization code" term based on the Gutman patent (U.S. Pat. No. 5,221,838), but indicated that the related "customer authorization code" and "clerk authorization code" terms were allowable subject matter. (D.I. 43 Ex. D (March 8, 1999 Office Action) at SVS000190, SVS000193) This implies that the examiner viewed the "authorization code" term as broader than the other (allowable) terms. See In re Skvorecz, 580 F.3d 1262, 1266 (Fed. Cir. 2009).

Accordingly, I recommend that the Court construe the term "entering an authorization code through the keypad for having the computer initiate communication with a host data processor" to mean "a series of numbers and/or letters, or a combination thereof, entered via the keypad to establish a communication link with a host data processor."

2. Authorization data

This term is found in Claim 3 of the '364 Patent, which discloses: "The process of claim 2, further comprising the process of: (g) providing authorization data at selected ones of said points along said route of passage by means of said electronic record." '364 Patent, col. 16, ll. 8-12.

DE proposes that "authorization data" should be construed as "data relevant to obtaining authorized passage through a point." Dell contends that it should be construed as "information required to authorize passage through a point."

DE claims that the data is not required to receive authorized passage through a point, and that the specification provides an alternative approach for obtaining an authorized passage through customs. The specification provides that "rather than providing a hard copy of a commercial invoice, an electronic copy with the authorization of the international carrier can be provided either as an electronic document or a hard copy can be generated and provided ...." '020 Patent, col. 12, ll. 7-10.

The court agrees with DE, and construes "authorization data" to mean "data relevant to obtaining authorized passage through a point."

An authorization procedure

Digital Reg argues that this term does not require construction or alternatively should be construed as "a process which determines whether access should be granted." Defendants contend the term should be construed as "a process that determines whether a transaction is accepted or rejected."
Digital Reg argues that Defendants’ construction improperly imports limitations from the specification into the claims. Specifically, Digital Reg objects to Defendants’ use of the word "transaction," which Digital Reg contends is only used in the specification to describe situations where payment is required. See Abstract ("The payment authorization center approves or rejects the payment transaction, and bills the corresponding account. The authorization center then transmits an authorization signal to the payment server computer indicating whether the transaction was approved."). Digital Reg contends that it is clear from the specification and the claims that either payment or use information can be provided to gain access to content. See col. 4:13-16; claim 20.

Defendants contend that the term's ordinary meaning is a procedure that will either approve or reject the client's requests to access the client, i.e., will authorize the request. Defendants contend that in the step described in claim 13, the external source reviews the information provided by the client, e.g., use and payment information, to determine whether the external source should provide a token to the client that will allow the client to execute an installation process to generate the unique permission for the digital content. See col. 4:30-46. Defendants argue that the specification describes the authorization procedure as occurring at an external source and that the purpose of the procedure is to determine whether the external source should approve or deny a client's request for permission to receive a resource to access the digital content.

As argued by Digital Reg, and as discussed with regard to "token," limiting the term to "transaction[s]" is overly narrow. Defendants' construction is also overly limiting in that it specifies an act of either acceptance or rejection. "Authorization" carries a broader meaning consistent with Digital Reg's proposal of "access should be granted." Claim 13, in view of its dependence on claim 1, connotes granting access to digital content. Inclusion of "acceptance or rejection" is not consistent with the language "based on a result of the authorization procedure" in claim 13. Accordingly, the Court construes "an authorization procedure" as "process which determines whether access should be granted."

A. "Authorization Request"

I adopt the following definition: "a query sent to the central processing computer via a communications medium, seeking approval or disapproval of a transaction or activity."

"Authorization request" appears in two claims-in-suit, 87 and 94.

Defendants offer the following: "a query seeking approval or disapproval of a banking transaction, the query being sent from a banking transaction terminal over a communications medium to the central processing computer for processing the query." Plaintiffs suggest, "an asking for an approval or an allowance of or regarding a transaction or an activity."

At first glance, plaintiffs' definition should be sufficient. "Authorization" and "request" are easily understood terms, both on their own and in connection with the commercial practice of seeking approval from some third party before completing a credit transaction. One might assume that any query "asking for approval… of a transaction," regardless of its source or destination, would constitute such a request.

However, as defendants correctly argue, the patent limits the definition beyond the plain meaning of the words. Many transmissions discussed in the patent may be queries for some kind of approval - a vendor device may contact a central processing device or the account holder directly; the central processing device may contact the account holder; etc. However, the phrase "authorization request" as used in the patent refers only to communications between a vendor device and the central processing device. In the second claim, for example, in which the central processing computer is bypassed and a message to the account holder is sent directly from the transaction processing device at the vendor location, the message is not referred to as an "authorization request," but only as a "first signal." "725 Patent, col. 44:58 - 45:14. Therefore, I conclude that an authentication request is a request for approval by the vendor (or the bank, if we are talking about an ATM transaction) that terminates at the central processing computer.

Footnotes

1 The authorization request may pass through other computer systems in transit to the central processing device. See '725 Patent, col. 21:32-38.
This limitation makes sense in light of what we know about the invention itself. The claims make it clear that the central processing device, not the account holder, either authorizes or blocks a transaction. Its decision may be based on its own internal database of rules or, if the invention works, it may be based on information received from the account holder. Therefore, a request from the central processing computer to the account holder concerning a transaction is not an "authorization request."

However, defendants are incorrect in asserting that the request must originate at a "banking transaction terminal" or be limited to requests concerning banking transactions. I have previously defined a "banking transaction" as, "An activity affecting a deposit account, such as a deposit of funds or a withdrawal" Joao I, 348 F. Supp. 2d at 130. Therefore a banking transaction terminal is a device which engages in activity affecting a deposit account.

The description of the invention, as well as the preferred embodiments, make it plain that authorization requests can be generated by a credit or debit card authorization device ('725 Patent, col. 46:63-65); a smart card authorization device, (Id., col. 47:1-2), a "point-of-sale" transaction (Id., col. 47:4-6) or a cellular telephone (Id., col. 29:10-24). Claim 94 states that the authorization request may originate at "a point-of-sale authorization device, a point-of-sale authorization terminal, and a transaction authorization device." Id., col. 55:15-18. None of these devices necessarily affect deposit accounts. Therefore, the patent does not limit "authorization requests" to those generated specifically by "banking transaction terminals," or limited to those seeking authorization for banking transactions.

Striking unnecessary language from defendants' definition, I adopt the following phrase: "a query sent to the central processing computer via a communications medium, seeking approval or disapproval of a transaction or activity." That is the definition I adopt.

C. "Authorized by the subscriber"

Independent claims 13 and 23 both recite "a set of notification rules . . . authorized by the subscriber" and "a separate set of queue replenishment control rules authorized by the subscriber." '243 patent, 27:18-24, 28:17-23. Plaintiff proposes that the term "authorized by the subscriber" in this context should simply be construed as "permitted or sanctioned by the user," whereas defendants propose that the term be construed more narrowly in light of the specification to mean "a subscriber's election after being presented with a choice among multiple options."

Defendants rely on the fact that all of the disclosed embodiments are directed to user selections that control the management of the subscriber's queue. Defendants argue that plaintiff's construction of the claim language is so broad that it could even encompass a situation in which the subscriber is required to take no particular action to "authorize" the relevant rules. Defendants contend that such a reading is clearly inconsistent with the specification. On the other hand, plaintiff relies on Howmedica Osteonics Corp. v. Wright Medical Technologies, Inc., 540 F.3d 1337, 1345 (Fed. Cir. 2008), to argue that "the fact that the specification describes only a single embodiment, standing alone, is insufficient to limit otherwise broad claim language." However, the Court finds that the intrinsic evidence supports construing the claim language "authorized by the subscriber" to require affirmative selection of an option by the subscriber from multiple options. Specifically, in the background, the '243 patent mentions Netflix's rental queue system as prior art and describes one of its drawbacks as not giving subscribers "any flexible degree of control over their rental selection queue or shipments." '243 patent, 2:20-23. The summary of the invention goes on to state its objects as overcoming the limitations of the prior art, and implementing "an intelligent queue monitoring system that allows subscribers/purchasers to define policies and rules to be used in determining what actions should be taken with respect to particular items in such queue, and at what times." '243 patent, 3:5-9. Accordingly, the Court finds that there is sufficient intrinsic evidence to support construing the term "authorized by the subscriber" to mean "elected by the subscriber after the subscriber is presented with a choice among multiple options."
5. "Authorizing"

**Step (c) of Claim 1 recites: "authorizing beam transport to one of the treatment rooms."** 20 (Rosenberg Decl. Ex. 2, the '581 Patent at 9:10-12.) "Authorizing" is defined in the Oxford English Dictionary as "the giving of authority; sanctioning." Id. Random House gives the following definition: "to give authority for; formally sanction[.]") (Airhart Decl. Ex. H at 121.) The American Heritage Dictionary defines "authorize" as follows: "[t]o give permission for; sanction." AMERICAN HERITAGE DICTIONARY (4th ed. 2000.) Defendant Ion Beam proffers the following construction of the disputed term: "issuance of computer generated data permitting beam transport." However, the court finds no reason to import this limitation to the claim terms.

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20 The entire claim reads as follows: Claim 1 of the '581 patent recites the following: "a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms . . . comprising the steps of:

(a) receiving a beam request signal from one . . . treatment rooms;

(b) verifying the authenticity of one of the beam request signals from one of the treatment rooms; and

(c) authorizing beam transport to one of the treatment rooms.

(Rosenberg Decl. Ex. 2, the '581 Patent at 9:1-12.)

--- End Footnotes ---

Ion Beam offers the following definition, taken from a technical treatise, in support of its construction: "authorization The process of verifying that a user or process has permission to use a resource in the manner requested." (Rosenberg Decl. Ex. 24, IEEE 100 THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS (7th ed. 2000). But that definition does not mention "issuance of computer generated data." (See id.) Indeed, in the context of the contested claim language, it more closely supports Plaintiff Optivus' construction. Therefore, the disputed claim term is hereby defined as follows: "to permit beam transport to one of the treatment rooms."

Finally, MercExchange asserts that the district court erred in construing the preamble phrases "automated method, performed by a computer-based auction system," and "computer-implemented method of conducting Internet-based auctions" in various claims of the '051 patent. The district court held that those phrases do not require that all steps following the preamble be performed by an automated process, as argued by MercExchange. Rather, only the steps that are claimed to occur automatically are required to be performed in that manner. MercExchange contends that the court's interpretation is inconsistent with the portion of the specification entitled "Computer Implementation," which provides different operating systems and platforms for use in a preferred embodiment of the invention. '051 patent, col. 7, line 59 through col. 8, line 9. That portion of the specification does not support MercExchange's argument, however. Various limitations of the relevant claims require actions by participants and cannot be "automatically performed via an automated process." For example, as the district court stated in its Markman order, claim 1 contains a limitation requiring that the computer system "receive bids on the item from participants." That step requires that participants enter their bids manually and cannot occur automatically. Likewise, one step of claim 12 requires that a seller "establish a seller's account." That step also requires that a seller manually enter relevant information into the system. Accordingly, the district court was correct in holding that not all steps had to be performed by way of an automated process.
J. "automated modification"

Claim 15 contains the term "automated modification": "wherein the redirection server is configured to allow automated modification of at least a portion of the rule set correlated to the temporarily assigned network address." Although the specification does not contain the term "automated modification," the modification of rule sets is discussed, e.g., "[r]ule sets may contain data about . . . when and how to modify the rule set during a session," (118 patent, 4:46-47), and "[t]he redirection server . . . is programmed to implement . . . other attendant logical decisions such as . . . dynamically changing the rule sets based on conditions." (118 patent, 4:59-66). Linksmart asserts that no construction of this term is necessary.

Alternatively, Linksmart proposes the following construction: "a change by the system based on a condition." On the other hand, the defendants contend that "automated modification" means "a change by the system without a request or instruction by a person."

The parties agree that "modification" means "a change by the system" but disagree on the meaning of "automated." Linksmart argues that "automated" means "based on a condition." In support of its proposed construction, the plaintiff cites the above-quoted language from the specification: "dynamically changing the rule sets based on conditions." Linksmart's proposal does not distinguish an automated or dynamic modification from a manual modification, however—the phrase "based on a modification" provides no clarification. On the other hand, the defendants contend that automated means "without a request or instruction by a person." But Linksmart notes that an automated modification may occur in response to a user's action. For example, claim 17, which depends from claim 15, states that "the redirection server is configured to allow modification of at least a portion of the rule set as a function of the data transmitted to or from the user." Thus, user action may prompt an automatic modification. As such, the court adopts the following construction: "a change by the system without a request or instruction to change from a user."

B. "automated negotiations engine for analyzing terms"

As to this term, this Court ordered the following claim construction, which remains unchanged following this Court's analysis of the prosecution history:

Special purpose software that performs the functions necessary to implement multiple rounds of bargaining which allows for an offer and multiple counteroffers between two participants where each round is related to prior rounds without human intervention.

Tr. 14:20-15:4; 19:4-10.

3 The following patents and corresponding claims were identified by the parties in the Joint Claim Construction Chart ("Joint Chart") as relevant to construction of this term: '677 patent (claims 2, 22, 37, 39, 40, 46), '249 patent (claims 1, 2, 6-8, 12, 20, 21, 25, 28, 42-44, 48, 52-54), '698 patent (claims 1-3, 6, 7), and '315 patent (claims 1, 2, 4-8, 10, 12-19, 21-23).
of construction even though the word appears in the preamble of the identified claims? Only if the answer to that question is yes, is it necessary for the Court to construe this term.

Generally speaking, there are three parts to every claim: the preamble, the transitional phrase, and the body. The transitional phrase, e.g., "comprising" or "consisting of," connects the preamble to the body of the claim. The preamble is the portion of the claim that includes everything before the transitional phrase. The body is everything after the transitional phrase. For example, the preamble of claim 2 of the ’677 patent reads:

An automated apparatus for generating a plurality of authorized drafts on financial accounts belonging to a plurality of payors, the drafts payable to one of a fixed set of one or more payees . . . . ’677 patent, claim 2.

With regard to the claims identified as containing the term "automated," almost all of them only use the term in the preamble.

Terms found solely in the preamble are not to be construed if the body of the claim sets forth the complete invention. Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1371 (Fed. Cir. 2003). Thus, if the preamble does not give "life, meaning and vitality to the claim," the preamble is considered to be "of no significance to claim construction because it cannot be said to constitute or explain a claim limitation." Id. In order to determine whether the preamble should constitute a limitation, the Court must look to the "overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history." Id. When the preamble merely states a "purpose or intended use for the invention," it is not limiting. Catalina Mktg. Int'l v. Coolsavings, 289 F.3d 801, 808 (Fed. Cir. 2002).

AutoScribe contends that "automated" is merely an "intended use" of the invention. However, beyond that bald statement, AutoScribe fails to explain why that is the case. That may be because the intended use of the invention is not "automated," but to pay the amount owed to the payee in a more timely, less cumbersome fashion then waiting for a check to be delivered in the mail. The intrinsic evidence reveals that the word "automated" is more than a purpose or intended use for the invention, but describes how the claimed system functions and achieves its purpose. All of the patents are directed towards an "Automated Payment System." See, e.g., ’677 patent, Title of Invention, col. 1, line 1. As the ’677 specification elaborates, an "object of the present invention is to provide a process for receiving payments in which an automated draft production system is provided to produce authorized drafts on the account of a payor, executable by a person other than the payor." ’677 patent, col. 4, lines 40-44 (emphasis added). 4 The claimed invention is also described as follows:

The automated system used to generate the drafts in the preferred embodiment has a simple input screen which receives the necessary information for generation of the draft . . . . The system then immediately verifies the bank and account information by comparing the input information to the data in a bank information database associated with the system. ’677 patent, col. 5, lines 6-14 (emphasis added).

Thus, there is nothing that conveys "automated" amounts to a mere purpose or intended use; on the contrary, it is a limitation that requires construction. Buttressing this conclusion, is the fact that the term "automated" is not always relegated to being used in the preamble. For example, in the ’315 patent, the term "automated" is used in the body of several claims. See ’315 patent, claim 8 ("providing an automated draft production computing system"), claim 10 ("providing an automated payment order computing system"), and claim 12 ("according to automated check clearing house conventions"). Accordingly, the Court shall construe the term "automated."

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4 Although the Court only cites to the ’677 patent in this instance for support, as explained above, all of the patents in suit contain a similar, if not identical disclosure because they are related patents, derived from the same initial patent application.

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the Joint Chart, Intell-A-Check proffered a definition for "automated" that included in relevant part "working with little or no human actuation" based on the dictionary definition for "automatic." See The New Short Oxford Dict. 152 (1993). This general dictionary definition appears to be more appropriate and consistent with how the term is used in the identified claims, which require that most elements be performed by the computer system with little human involvement.

Inexplicably, Intell-A-Check then proffered a third construction at the Markman hearing. Recognizing that its first construction, which allowed for no human input, was fatally flawed, and apparently not satisfied with the second construction, Intell-A-Check asked this Court to limit the term such that after the operator has entered the specific payor information, the claimed invention allows for no human involvement. (Tr. at 22:3-8). This construction, however, finds no support in the patents' disclosures. For example, claim 8 of the '315 patent explicitly calls for human interaction after the system operator inputs all of the relevant payor information into the system because it requires that the printed draft be submitted to the automated check clearing system for processing. Further, and perhaps more importantly, even a layperson reviewing the patents in suit would understand that an automated computer system may need some limited amount of human involvement after inputting the relevant draft information in order to ensure the system works correctly. For example, the computer may freeze, requiring the user to reboot the system and reenter the payor information. Or, a printer cartridge may run out of ink and need to be replaced. Because Intell-A-Check's third proposed construction ignores claim language, and ignores the known reality of how a user operates a computer system, it cannot possibly be correct and, thus, must be rejected.

Finally, AutoScribe, relying on its argument that this Court should not look to a dictionary definition to determine the ordinary meaning of the term, argues that "automated" should be construed to mean "the use of a system or apparatus to undertake tasks traditionally performed by human beings." (Tr. at 17:19-18:13). As stated above, this Court will adhere to Texas Digital and its progeny unless and until the Federal Circuit reverses its position on the use of dictionaries in Phillips. But, assuming arguendo AutoScribe is correct, the Court still disagrees with AutoScribe's proposed construction. Using AutoScribe's construction, an "automated apparatus" means "an apparatus used to undertake tasks traditionally performed by human beings." In other words, it does not allow for any human interaction. Obviously, this construction suffers from the same flaw as Intell-A-Check's first proffered construction and, for the same reason, must be rejected.

In summary, the Court adopts the ordinary meaning of the term "automated," which is most consistent with how the term is used in the patents. Accordingly, "automated" means "working with little or no human actuation."

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These terms mean a system which is fully automated and completed without human involvement (other than by the applicant). This construction does not exclude systems that allow human involvement after all steps described as being performed without human assistance are completed. In the '007 patent, this means steps d.i. through d.v.

16. "Automatic bridging device"

Defendants argue that the term "automatic bridging device" as used in claim 1 of the '027 patent is a means-plus-function limitation and that the specification fails to recite sufficient structure to perform the automatic bridging function. According to claim 1, the function of the "automatic bridging device" is to "bridg[e] the subscriber on the first circuit to the called party on the second circuit, whereby the subscriber is telephonically linked to the called party without human intervention at the service center." '027 patent, col. 10, 11. 40-42. Cygnus claims that "automatic bridging device" needs no construction and offers expert opinion in support of its position:

The Defendants claims [sic] that this term is a means plus function limitation. It appears to me that claim describes a component in a system. It describes a structure. One of ordinary skill in the art would understand what an automatic bridging device is. There are several examples of such structures in the industry e.g. a dial in bridge service offered by organizations such as AT&T. The mere act of dialing in causes bridging.

Am. Forys Expert Report Claims Constr. (dkt. # 643) at 26. 9 In addition, Cygnus claims that two of its witnesses gave examples of automatic bridging devices. Thomas Thompson testified that Call Interactive used a "telecommunications switch" called the "AT&T Dimension," although he did not specifically state whether "AT&T Dimension" corresponded to the "automatic bridging device" of the '027 patent. See Thompson Decl. at 108-09. 10 James Alleman, the named inventor, explained:

[Q.] Was the 386 system capable of doing that bridging after the person that was being called picked up on the line?

A. I don't believe--I don't know. I don't know that we've--I believe that the bridge prior to, it could have, but we certainly didn't attempt to experiment with that, to the best of my recollection.

Q. Did you have any specific hardware that accomplished the bridging function in the 386 system?

A. Yes. It was from Dialogic, as I had mentioned earlier.

Q. It was one of the Dialogic boards?

A. I believe it truly bridged the two. They were called DX 4 Dialogic boards, and it really, if you think about a computer system, where there's empty slots, the DX 4 board would fit in one slot, and another DX 4 would fit in another slot, just as a second hard drive or serial port would fit in. And to the best of my recollection, the bridge actually fitted on top of those two DX 4 boards. So it didn't have a separate slot of its own in the computer, but it fit on top.

Q. Okay.

Alleman Depo. at 121. 11
9 The court strikes Forys's opinion on whether "automatic bridging device" is a means-plus-function limitation as without foundation and invading the province of the court. 10 Excerpts of the September 20, 2006 deposition of Thomas Thompson, including pages 108 and 109, are attached as Exhibit 297 to the declaration John Sutton (dkt. # 685). 11 " Excerpts of the September 20, 2006 deposition of James Alleman, including page 121, are attached as Exhibit 298 to the declaration John Sutton (dkt. # 685).

--- End Footnotes ---

Defendants argue "automatic bridging device" is a means-plus-function limitation and that it is fatally indefinite. Defendants point to two portions of the description of the preferred embodiment which they claim are inconsistent. First, "DTMF Generator 26 recognizes the called party number DTMF digits entered by the subscriber and out pulses those digits over the second seized circuit. DTMF generator 26 activates bridging function 29 to bridge the subscriber onto the second outbound circuit." '027 patent, col. 7, 11. 54-57. Second, "When a second outbound circuit is seized, as described at 62 in FIG. 4, CRU 20 out pulses the called party number at 70, and bridges the subscriber onto the second outbound circuit to monitor call progress tones at 71." Id., col. 9, 11. 28-31. The patent appears to recite in different places that bridging is performed by different components, either the "DTMF generator 26 activat[ing] bridging function 29" or the "CRU 20." However, it is not clear from the '027 patent whether the components along the right edge of Figure 1 are intended to be subparts of the "CRU 20" or whether they are distinct from it. In places, the specification treats them as distinct. See, e.g., '027 patent, col. 7, 11. 25-28 ("At the same time the CRU 20 delivers the DID digits to the subscriber table server 21, it also delivers call detail information to the system message detail recording database (SMDR) 24."). In another portion, however, it would appear that at least some of these right-side components are subparts of "CRU 204":

CRU 20 is a computer, or switch, that is connected to the LEC 15 central office and consisting of integrated components that permit the system to perform a number of functions integral to this invention. This includes switching functions to handle line (circuit) connections; interactive voice response operations; database controller for subscriber identification; and a system message detail recording (SMDR) unit 24 to provide information necessary to create call records.

'027 patent, col. 6, 11. 59-67.

When a claim limitation does not contain the word "means," the limitation is "presumptively not a means-plus-function limitation." Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1355 (Fed. Cir. 2006). "However, a limitation lacking the term 'means' may overcome the presumption against means-plus-function treatment if it is shown that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." Id. at 1353 (some quotation marks omitted). "The generic term[] 'device[]' typically do[es] not connote sufficiently definite structure" to avoid treatment as a means-plus-function limitation. Id. at 1354. The Federal Circuit has contrasted a pair of examples:

Claim language that further defines a generic term like "mechanism" can sometimes add sufficient structure to avoid 57 Ore. 541, 112 P 6. For example, in Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996), which involved a mechanical device, we held that 57 Ore. 541, 112 P 6 did not apply to the term 'detent mechanism," because "the noun 'detent' denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms." Id. at 1583. The court recited several dictionary definitions for "detent," including "a mechanism that temporarily keeps one part in a certain position relative to that of another, and can be released by applying force to one of the parts." Id. (internal quotation marks and citations omitted). These definitions connoted sufficient structure to avoid 57 Ore. 541, 112 P 6. We also concluded that "the fact that a particular mechanism--here 'detent mechanism'--is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of 57 Ore. 541, 112 P 6" because "many devices take their names from the functions they perform." Id. 12

In contrast, the term "colorant selection," which modifies "mechanism" here, is not defined in the specification and has no dictionary definition, and there is no suggestion that it has a generally understood meaning in the art. We therefore agree with the district court that "colorant selection mechanism" does not connote sufficient structure to a person of ordinary skill in the art to avoid 57 Ore. 541, 112 P 6 treatment.' 13

Mass. Inst. of Tech., 462 F.3d at 1354 (original bracket removed; footnotes renumbered).
I. Term Relating to All Patents: "automatic call distributor"

Rockwell proposes that the term "automatic call distributor" or "ACD" means "a system that receives incoming calls, then routes the calls (e.g., by queuing incoming calls to put them 'in line' until they are able to be answered), so as to distribute each call to a selected one of a set of agents at the call center." This definition comprehends a system that is software-based rather than requiring a hardware apparatus called a central processing unit or "CPU." Apropos proposes that ACD means "a device that receives incoming telephone calls and automatically distributes those calls, which is comprised of an integrated 2 telephone switch and computer apparatus, in communication with one another through a specialized proprietary software interface." Rockwell, noting that ACD is not specifically defined in the patent specifications, relies on a broad, functional definition such as is found in dictionaries. 3 It relies on testimony of its expert, John E. MacCrisken, as well as the testimony of Leonard J. Forys, Ph.D., that the ordinary English meaning of ACD is "an apparatus that connects calls to agents in some automatic fashion," (Tr. of Markman Hr'g, Feb. 12-14, 2001 ("Markman Tr.") at 83, l. 17), and points to the testimony of Patrick Kevin Brady, Apropos' founder and former chief technology officer, that ACD means "a device, not an operator, that automatically distributes calls" and other extrinsic evidence from which such a functional definition might be drawn. 4 Apropos, on the other hand, contends that ACD, at the time of the filing of the 059 patent application (1996), 5 was understood in the industry as consisting of an integrated telephone switch and a computer that, together, performed the function of call distribution. It points to the specification of the 059 patent which states that an ACD "... generally includes a multiport switch controlled by a central processing unit (CPU) to interconnect the customers and the agents..." col. 1, l. 22-23. Apropos also cites the 117 patent, which refers to ACD as a "switch," col. 2, l. 23-24, fig. 1, and the reference in the 070 patent which describes existing (unsatisfactory) telephone systems as "hard-wired by the manufacturer," col. 1, l. 4-16, and col. 2, l. 26-27: "The telephone switching system 12 has a network 14 which is connected to a switching system such as an Automatic Call Distributor (ACD) ...") as evidence that Rockwell understood at the time it filed these applications that an ACD was an integrated telephone switch and computer using proprietary software. 6

2 Apropos' expert, Leonard J. Forys, Ph.D., explained that "integrated" in this context means "that the switch and the software associated with the switch were integrated together." (Tr. of Markman Hr'g, Feb. 12-14, 2001 ("Markman Tr.") at 182).

3 See Interactive Gift Express, Inc. v. Compuserve, Inc., 231 F.3d 859, 866 (Fed. Cir. 2000) ("Dictionaries, which are a form of extrinsic evidence, hold a special place and may sometimes be considered along with intrinsic evidence.")
256 F.3d 1323, 1327 (Fed. Cir. 2001); IIEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 6th ed. 58 (defines an ACD as "the facility for allotting incoming traffic to idle operators or attendants."); IBM
DICTIONARY OF COMPUTING 43 (defines an ACD "in telephony, [as] a service that allows incoming telephone calls
directed to the same dialed number to be routed to one of multiple agents, all of whom can provide the same service to
the calling party and all of whom are assigned to the same ACD group."); NEWTON'S TELECOM DICTIONARY 87 (defines
an ACD as "[a] specialized phone system originally designed simply to route an office's incoming calls to all available
personnel so that calls are evenly distributed.").

4 (Brady Dep. at 94) (Brady agreed to a functional definition of "Automatic Call Distributor"). Rockwell also cites the
following Brady Dep. at 105-06 (Brady agreed with Rockwell that an "ACD" need not be "in one box": "it doesn't matter
how many cabinets that device is in."); Brady Dep. at 266-67 (Brady agreed with Rockwell that an "ACD" need not have
a switch that is "integrated" with a computer apparatus: "they [ACDs] were not integrated."); Brady Dep. at 261 (Mr. Brady
testified that the term "automatic call distributor" did not necessarily require that the device contain "specialized proprietary
software interface" and Brady agreed with Rockwell and Apropos that the 059 patent at Col. 1, l. 20-24 gives a brief but
accurate description to a person of ordinary skill in the art of the term "automatic call distributor."); Brady Dep. at 101-02
(Brady agreed that the individual words in the phrase "automatic call distributor" describe the function being performed by
the device.); Brady Dep. at 236-38 (Brady agreed that ACDs did in fact contain "general purpose computers" such as the
Intel 80386, and that the Opinion Letters stating the opposite should be rephrased in that regard.).

5 "In the past, telephone call centers have been provided with two major systems, an [ACD] and a business data system
comprising a host computer. (Markman Tr. at 180-82) (Forys) (In the time frame that the applications for the patents-in-suit
were filed, Forys had seen or inspected 12-15 models of ACDs manufactured by separate companies and all were integrated
systems. In that time frame, an automatic call distributor was "an integrated system which distributed calls. . . . Proprietary
protocols were used for the communication"), and at 455 (Forys) (an ACD "was integrated with this hard wired switch with
it, switch fabric together with the computer. Very rigid kind of thing. That's what's back then.").

6 A propros cites other evidence as well: 394 Patent, col. 3, l. 37-44 and Fig. 1 ("The ACD 116, or alternatively a private
branch exchange (PBX), operates in a well-known manner to connect an agent telephone … to external telephonic units
. . ."); Competitive Flash, Ex. 116 to the MacCrisken Dep., R006356-6359, attached as Ex. A to the Decl. of Chris
Rechtsteiner ("While not a true ACD, Apropos [Call Link] is positioned as a robust, call handling system"); Decl. of Chris
Rechtsteiner, PP 2, 5, 11 and 12 (stating that he prepared Ex. A when he was a Rockwell employee, and that the statement
that Apropos' product was not a "true ACD" reflected the perception both at Rockwell and throughout the industry that
products such as Apropos' Call Link were not ACDs, because they were not hardware-based products; the prevailing
mindset at Rockwell and in the industry was that software-based solutions such as Apropos' Call Link were not automatic
call distributors); MacCrisken May Dep. at 657-62 (MacCrisken admitting that the phrase "while not a true ACD" in
reference to Apropos' product is a statement that Apropos' product is not an ACD); MacCrisken May Dep. at 661, l. 21-662,
l. 7 (Richard McLaren, Rockwell's counsel, contending that the "not a true ACD" language must have been written by an
Apropos employee, thus implying that if it were written by a Rockwell employee, it was an admission by Rockwell that
Apropos' product was not an ACD); Brady Dep. at 105, l. 13-23 ("I think we're leaving out that the industry has seen many
call distributors, and . . . they come in certain configurations and . . . the term 'automatic call distributor' . . . implies this
mating of a computer or embedded CPU with the switching hardware. And you run wires to it, for instance, and . . . it has its
own phones, et cetera."); id. at 109, l. 14-110, l. 10 ("by implication your question lumped the Apropos product in with the
other devices, which have a CPU and a switch which is controlled directly by the CPU, not just interfaced to it, and has
phones wired up to it, and I can't agree with that"); id. at 111, l. 9-20 (ACDs control the switching matrix itself); id. at 265, l.
10-17 ("It's not really that important whether its control computer is on a shelf in a rack or if it's sitting next to it. If it's
sending the same kind of information and doing the same types of control of the hardware that comprise that switching
device, then . . . it's an integrated, all-in-one, stand-alone unit.").

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The court finds Apropos more persuasive than Rockwell. The inventor, as well as those ordinarily skilled in the art,
necessarily understood the term ACD as a device that existed at the time these patents were being pursued, unless evidence
of foresight exists. See Elekta Instrument S.A., 214 F.3d at 1308 (The prosecution history of the claims must be thoroughly
considered when construing the claims of a patent because the prosecution history makes clear the patent examiner's
understanding of what he or she deemed to be patentable.). Although there may have been other types of ACDs in existence
in 1996, there is no evidence of any ACD that did not consist of an integrated telephone switch and computer using proprietary software (whether or not in a single "box"). Nor is there evidence that the inventor would have foreseen ACDs that were not comprised of these elements. Therefore, the court adopts Apropos' definition of automatic call distributor for the purposes of this case.

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3. "Automatic ion output current adjustment circuit"

ITW's claim construction is: "a circuit used to increase or decrease the ion output current of the positive and/or negative high voltage power supplies based on the result of the comparison performed by the comparator." Pl.'s Revised Proposed Order Regarding Claim Construction at 5. Ion's proposed construction is: "a circuit under the control of a software routine used to increase or decrease the ion output current by a predetermined amount." Def.'s Proposed Order re Claim Construction for the '756 patent at 6.

The parties agree that the change in the ion output current is based on the result from either the comparison step or the performance of the comparator. Def.'s Opp'n Br. re Claim Construction of the '756 patent at 22. They disagree on the meaning of "circuit." Ion contends that this circuit must be under the control of a software routine. ITW argues that such a construction impermissibly limits the claim language. The dictionary definition of "circuit," in the context of electronics, is: "a closed path followed or capable of being followed by an electric current." American Heritage Dictionary of the English Language (4th 2000). Nothing in the claim language or specification requires that circuit be limited in the manner proposed by Ion.

ITW and Ion also disagree over whether the ion output current must be changed by a "predetermined amount." ITW argues that Ion's proposed limitation would unreasonably preclude ITW's product from employing an electronic circuit to compare two values. I have already defined the comparator and the comparing step for purposes of the '756 patent. Therein, I found that the '756 patent disavowed any balancing or comparing step that was "hardware-based." See supra §§ 1.A.3, 1.B.2. These decisions do not, however, preclude the patent from employing hardware like an electronic circuit. So long as mere use of the circuit is insufficient to render the "comparison" "hardware-based," i.e. the hardware circuit is not a signature feature of the step in question, it can be properly included within the construction for this claim.

The proper construction, consistent with my discussion of claim 17, is: "a circuit used to increase or decrease the ion output current of the positive and/or negative high voltage power supplies based on the result of the comparison performed by the comparator."

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2. "an automatic message distribution system"

The phrase appears in claims 13 and 21 (and parent claims) of the '414 patent, and claims 1, 2, 15, and 19 of the '399 patent. Claim 15 of the '399 patent is representative (the disputed term is in boldface):

15. A method for automatically distributing digitally-encoded messages that are input to an automatic message distribution system that includes a resource load containing a plurality of resources, comprising the steps of:

(a) storing each of said digitally-encoded messages in one or more distributed message queues;

(b) storing resource information concerning said resources in a resource information table that enables the automatic message distribution system to determine which of said resources is available to a digitally-encoded message stored in said one or more distributed message queues;

(c) storing a set of routing rules in a distribution routing table that control distribution of said digitally-encoded message
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

to the resources; and

(d) automatically routing a digitally-encoded message stored in said one or more distributed message queues.
[paragraphing added by the parties]
a) The Parties' Proposed Constructions
The parties propose the following constructions:

eBay
The system that processes information received in message format that can route messages based on message content.

IDT
A system that processes information received in message format.

*2*See Doc. No. 99 at 66 (JCCC Exhibit 1 at 64).

IDT's current proposed construction was advanced after the parties' briefing. Currently, the only substantive difference between the parties' proposed constructions is that eBay adds "that can route messages based on message content." To the extent that IDT previously argued that eBay's proposed construction excluded making routing decisions on factors other than message content, e.g., the availability of resources, eBay clarifies in its sur-reply that "eBay's construction does not provide that the system must make all routing decisions only on the basis of message content, to the exclusion of all other considerations." (Doc. No. 95 at 8). However, eBay adds that "thus [the claims as construed] [do] not cover systems that do not use content-based routing." Id.

b) Discussion

eBay's proposed construction is taken from the specification, '399 patent, col. 2, lines 51-55, which again, in context, i.e., lines 51-56, provides:

"The AMD of the present invention processes information that is received in message format rather than as a telephone call, and therefore can base routing decisions on message content. Message content information is not available to conventional ACD systems as described above."

While it is true, as discussed above, that AMD systems, as described in the '414 and '399 patents, have the capability of making routing decisions based on message content -- which ACD systems could not -- eBay's arguments seem to gloss over the word "can" (although the word appears in eBay's proposed construction) and seem to contend that routing decisions must be made, at least in part, on message content.

The '414 and '399 patents, however, are generally directed to allocating resources to received messages -- or, as the specification explains, "[u]sing the present invention, message distribution is optimized according to a set of configurable distribution rules." '399 patent, col. 2, lines 43-45. Although, as the specification also says, the system "can base routing decisions on message content," eBay points to nothing in the claims, specification, or prosecution history of the patents-in-suit that requires that routing decisions be made on message content -- in addition to other information.

Based on the foregoing, the Court believes that the proper construction of "automatic message distribution system," in the context of the '414 and '399 patents, is "a system that processes information received in message format that is able to route messages based on message content."

c) Conclusion
In view of the foregoing, the Court concludes that:

The phrase "automatic message distribution system" means "a system that processes information received in message format that is able to route messages based on message content."
2. Automatic Operation

Lectrolarm proposes that "automatic operation" be construed to mean "the automatic reciprocating motion of the camera between defined points." The Defendants would interpret "automatic operation" to mean "movement of the camera base that is not directly responsive to input from a monitoring person (other than initiation of the automatic operation)."

Both Lectrolarm and the Defendants agree that "'automatic operation,' as typically understood in the field of electronics, refers to the operation of some structure without human intervention." (Pl.'s Br. at 53.) Lectrolarm argues that the scope of the definition of "automatic operation" was narrowed in the specification by the language "during automatic operation, the television camera 7 undergoes rectilinear motion between the two points A and B regardless of the path of rotation in scanning...." U.S. Patent 4,974,088, Column 5:57-60.

The court agrees that the specification consistently uses the term "automatic operation" to refer to motion of the camera between pre-set points. This is not, however, the meaning of the definition Lectrolarm has proposed. Lectrolarm's definition includes the term "reciprocating motion." Webster's defines "reciprocating" as "to move forward and backward alternately." Webster's Revised Unabridged Dictionary, 1998. One of the modes of automatic operation described in the specification involves directing the camera to a pre-defined position when an alarm is triggered. U.S. Patent No. 4,974,088, Column 6:28-40. This aspect of the camera's automatic operation does not involve "reciprocating motion."

The parties agree that the plain meaning of "automatic operation" is movement without human intervention. The specification does not limit the plain meaning of the claim in the manner that Lectrolarm proposes. The court construes "automatic operation" as "movement of the camera base that is not directly responsive to input from a monitoring person (other than initiation of the automatic operation)."

X. "An automatic steering and isolation diode network for supplying voltage to said radio from either said AC powered DC power supply or said removable DC power supply, and also for automatically supplying charging voltage from said AC powered DC power supply to said removable DC power supply"

Next, the Court turns to the term "an automatic steering and isolation diode network for supplying voltage to said radio from either said AC powered DC power supply or said removable DC power supply, and also for automatically supplying charging voltage from said AC powered DC power supply to said removable DC power supply" from claim 13 of the '059 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes that the term "an automatic steering and isolation diode network for supplying voltage to said radio from either said AC powered DC power supply or said removable DC power supply, and also for automatically supplying charging voltage from said AC powered DC power supply to said removable DC power supply" means:

At least one diode in conjunction with other components that supplies voltage to the radio from either the alternating current powered direct current power source or the removable direct current power supply. The diode component also supplies the removable direct current power supply with a voltage from the alternating current powered direct current power supply.

Bosch proposes construing the term as:

A first diode that receives a voltage from the AC powered DC power supply, a second diode that supplies an appropriate charge voltage to the removable DC power supply, and a third diode that feeds current from the removable DC power supply.
supply to the radio such that the three diodes operate the radio through the AC powered DC power supply, the removable DC power supply, or to simultaneously power the radio and charge the battery.

B. The Court's Construction

Bosch points to the three diodes in Figures 6, labeled 54, 55, and 56, that perform the three functions of this claim term and therefore require that the Court adopt its proposed construction. Bosch, however, does not point to any portion of the intrinsic record that requires that the Court limit this claim term to the embodiment disclosed in the specification. n11 The Court rejects Bosch's attempt to limit this claim term according to the preferred embodiment disclosed in the specification. SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005) ("it is axiomatic that without more the court will not limit claim terms to a preferred embodiment described in the specification"). The plain meaning of the claim does not in any way restrict this claim to the three particular diodes required by Bosch's construction. Further, the specification discloses an alternative embodiment of the claimed invention where the radio uses two diodes for power steering and two diodes for DC/DC converter isolation. (059 patent, col. 5, ll. 6-10.) Therefore, the specification does not limit automatic steering and isolation diode networks to the three diodes, each having a specific function, that Bosch's proposed construction requires. Accordingly, the Court rejects Bosch's construction because it is not supported by the intrinsic evidence and attempts to limit the claims to the preferred embodiment.

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N11 Bosch, in essence, wants the Court to construe this claim as if it were a means-plus-function limitation under 35 U.S.C. § 112, P6, limiting the claimed structure to the disclosed structure in the specification corresponding to the claimed function. But, Bosch fails to argue, or in any way point out, how this claim term invokes § 112, P6. Even if Bosch did make such an argument, that argument would fail. First, because this claim term does not recite the term "means," the Court presumes that this term does not invoke § 112, P6. Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004) ("the presumption flowing from the absence of the term "means" is a strong one that is not readily overcome"). Next, this term expressly includes "an automatic steering and isolation diode network," and therefore identifies sufficient structure such that it does not invoke § 112, P6. Id. at 1358-1363.

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Black & Decker, on other hand, contends that a "diode network" can simply be "at least one diode in conjunction with other components." The Court finds that this proposed construction is too broad and not supported by the intrinsic record. In the Summary of Invention, the patentee explains that the automatic steering and isolation network has a "plurality of diodes" rather than a single diode. First, the patentee summarizes how one can use a single diode in the claimed invention: "A button causes the power supply to supply voltage through the diode, and the diode feeds current from the power supply to the radio receiver." (059 patent, col. 2, ll.49-52.) Notably, the patentee does not use the term "automatic steering and isolation network" in the context of disclosing the use of a single diode. The patentee then goes on to explain that "alternatively" one could use a "plurality of diodes," which the patentee refers to as "an automatic steering and isolation network." The specification provides: "Alternately, a plurality of diodes may act as an automatic steering and isolation network to supply either AC supplied current, battery power or simultaneous power and battery charging from AC power." (059 patent, col.2, ll. 53-56.) Accordingly, the "Summary of Invention" provides that "an automatic steering and isolation diode network" must have more than one diode. n12 See C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) (noting that statements that "describe the invention as a whole, rather than statements that describe only preferred embodiments" are commonly found in the "Summary of Invention" section of the specification and "are more likely to support a limiting definition of a claim term"). In addition, there is no teaching in the specification of using a single diode for the purposes required by this claim term. Boss Control, Inc. v. Bombardier Inc., 410 F.3d 1372, 1378 (Fed. Cir. 2005) ("While it is of course improper to limit the claims to the particular preferred embodiments described in the specification, the patentee's choice of preferred embodiments can shed light on the intended scope of the claims"). The Court construes the term "an automatic steering and isolation diode network for supplying voltage to said radio from either said AC powered DC power supply or said removable DC power supply, and also for automatically supplying charging voltage from said AC powered DC power supply to said removable DC power supply" as "a group or system of at least two diodes that supplies voltage to the radio from either the alternating current powered direct current power source or the removable direct current power supply and also supplies the removable direct current power supply with a voltage from the alternating current powered direct current power supply." n13
n12 This understanding is supported by the extrinsic evidence. Various patents in this field from slightly before and after the
time of the invention, use the terms "network of diodes" and "diode network" interchangeably, and therefore indicate that a
"diode network" must contain multiple diodes, rather than a diode in connection with other components. (See U.S. Patent
Nos. 4,492,935, 4,712,184, 6,055,180, and 6,172,383). Although the Court does not give this extrinsic heavy weight, the
Court notes that this extrinsic evidence confirms the understanding of one of ordinary skill in the art based on reading the
intrinsic record.

n13 In addition, there is no teaching in the specification of using a single diode for the specific purposes required by this
claim term.

A. "Automatic Tax Reporting"

Simplification's Construction Block's Construction
Determining and/or reporting Preparing a tax return on a
tax liability, or satisfying computer automatically without
tax reporting obligations, via manual intervention from the
a process in which one or more user.
functions, once initiated, are completed without manual intervention.

The essence of Block's proposed construction appears to be that manual intervention in the preparation of the tax return is
allowed only during an unclaimed initialization step that precedes the initiation of the claimed tax preparation method.
Figure 1 of the specification portrays this initialization step in a flow chart as a box labeled "Provide information on the tax
data providers." The text of the specification refers to this initialization procedure as "step 11" and provides a detailed
description of what it may include. (See '052 patent at 4:34-5:49.) Simplification urges the Court to adopt a broader
construction of "automatic tax reporting." Specifically, Simplification contends that the term simply refers to a process in
which "at least one piece of tax data is handled automatically in accordance with the steps recited in the claims." (D.I. 85 at
11 (emphasis added).) Thus, Simplification's construction would allow for manual intervention at any point in the process.
During the Markman hearing, Simplification clarified that their construction would permit one to "circle back around in the
process" and do additional manual data entry as necessary "throughout" the process. (See, e.g, D.I. 101 at 13:9-14:7, 17:14-
18:7.) Put yet another way, Simplification contends that Block is inappropriately asking the Court to redefine the term
"automatic" to mean "fully automated." (Id. at 7:5-16, 16:21-17:13.)

After reviewing the intrinsic evidence, the Court agrees with Block that the claims are limited to a tax preparation system
that, outside of manual intervention during the initialization process, is "fully automated." Beginning with the specification,
the Court notes that the patent distinguishes the prior art on the basis of it not being "fully automated." Indeed, the
specification explains that despite certain technological advances, "the potential for fully-automated tax reporting has not
yet been realized . . . ." (052 patent at 2:16-18.) Likewise, the specification explains that the "objects and advantages of the
present invention" are achieved through a "fully-automated" tax reporting system. (Id. at 3:21-24 (emphasis added); see also
id. at 4:28-33 (explaining that the figures in the specification portraying the "preferred embodiment" correspond to a "fully-
automated" tax reporting system).) Similarly, the patent explains that "few technological, legal, or practical obstacles exist
for the fully automated preparation and filing of federal and state tax returns . . . ." (Id. at 2:11-15 (emphasis added).) Thus,
the patent characterizes the invention as a "fully automated" system. In fact, although the Court affords this little weight, it
is notable that the '052 parent patent is entitled "Fully-Automated System For Tax Reporting, Payment And Refund."

The substance and structure of the specification comports with the raw textual evidence set forth above. To the extent the
The patent describes manual intervention in the tax preparation process, it is only during an extended description of "step 11" of the method, which is the first step of the disclosed tax preparation process and that pertains to initialization of the process and the provision of information regarding tax data providers. (See id. at 4:34-5:48.) In describing this process, the specification explains that the taxpayer can provide information regarding "special tax cases," such as whether the taxpayer has charitable contributions. (Id. at 4:63-5:2.) The specification further describes an alternative embodiment where, during "step 11," a "tax return preparer ensures that the electronic intermediary receives the appropriate information required . . . ," including information pertaining to "special tax cases." (Id. at 5:43-49.) Such manual intervention is not described as being part of subsequent steps in the automated tax preparation process. On the contrary, in discussing "step 12," the patent unambiguously explains that "the invention eliminates the current requirement that a taxpayer manually collect the tax data, eliminates the current requirement that a taxpayer manually enter such tax data onto a tax return or into a computer, and eliminates the need for all, or virtually all, intermediate hard copies of tax data, thereby saving paper, time, and cost." (Id. at 6:23-29 (emphasis added).) Thus, the specification contemplates that during "step 11" the taxpayer and/or tax preparer, in addition to providing rudimentary information such as a social security numbers, will anticipate "special tax cases" so that during "step 12" manual entry of tax data is "eliminat[ed]." In the Court's view, this description does not embrace the notion of "circling back around" to do manual input as the need arises, but is more consistent with the construction advocated for by Block.

To the extent the specification could be understood differently, such interpretations are laid to rest by the prosecution history. Indeed, during the BPAI hearing, counsel for Simplification argued as follows:

JUDGE LEE: The tax preparer ensures that information is collected to determine whether the taxpayer has a special tax case.

MR. SARTORI: Oh, on column 5. Okay, I got you. I'm sorry.

JUDGE LEE: Can you explain that?

MR. SARTORI: Sure.

JUDGE LEE: That sounds like manual intervention.

MR. SARTORI: That is manual intervention. And that has to do with step 11, which is the manual step required to initiate it, to initiate the automatic process. That's taken from column 5, line 45, what you've been focusing on, sir, Your Honor. And that has to do with step 11, which is the manual stuff.

JUDGE LEE: I see. So you're allocating all of these manual input to the category of initiating the process.

MR. SARTORI: Yes, Yes.

JUDGE LEE: If there's any manual input outside of initiation, then it's not covered by the claim.

MR. SARTORI: It's not covered by the claim and it does not anticipate the claim.

(D.I. 79, Exh. F at 30:7-24 (emphasis added).)

This Court is aware that to disavow claim scope during prosecution a patentee must clearly and unambiguously express surrender of subject matter, and the Court is thus cautious in concluding that a patentee has disavowed claim scope. See, e.g., Sepracor Inc. v. Dey, L.P., No. 06-113-JJF, 590 F. Supp. 2d 649, 2008 U.S. Dist. LEXIS 102728, at *17-18 (D. Del. Dec. 18, 2008); Honeywell Int'l, Inc. v. Nikon Corp., No. 04-1337-JJF, 589 F. Supp. 2d 433, 2008 U.S. Dist. LEXIS 99199 (D. Del. Dec. 9, 2008). However, in the Court's view, the above exchange represents a clear and unambiguous disavowal of claim scope. Furthermore, the Court has reviewed the entirety of the BPAI hearing transcript and concludes that this disavowal is not, as Simplification contends, merely taken out of context. Indeed, many other statements during the BPAI hearing confirm the disclaimer. For instance, at one point the following exchange occurred:

JUDGE MEDLEY: So "automatic," what does that - what is your position? What does that mean?
MR. SARTORI: It should mean acting or operating in a manner that is essentially independent of external input or control.

JUDGE MEDLEY: So not manual.

MR. SARTORI: Not manual, yes.

JUDGE MEDLEY: So if you have any kind of manual input from start to end, then, it's no good.

MR. SARTORI: It's no good in the sense of the comprising language, and no good in the sense of the limitations we have in the claims must be performed automatically.

(D.I. 79, Exh. F at 15:8-18.) 2 Counsel for Simplification went on to explain that "step 11" was the point where some data had to be input manually, and that this was the "feature of the invention . . . not recited in the claims." (Id. at 15:21-26 (emphasis added).)

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2 Simplification argues that Block is misunderstanding this exchange and contends that in referring to the open-ended transitional phrase "comprising," it was clearly advocating for a broader understanding of the claims. (D.I. 85 at 9-10.) However, the Court disagrees, and finds that although the term "comprising" was mentioned, Simplification's position was quite clear that "any kind of manual input from start to end" was "no good."

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Likewise, Simplification analogized its invention to an automatic dishwasher during the BPAI hearing. In so doing, Simplification explained that "once you start that dishwasher or that washing machine, it's going to town," that it was "automatic," and that there would be no need to "add the water" or "tell it when to start the rinse cycle." (Id. at 16:13-18, 17:11-14.) Later in the hearing, Simplification explained that "[s]tep 11 talks about the manual part of it," and that "once it receives the information, it automatically goes through all the steps in the process." (Id. at 21:14-20 (emphasis added).) In the Court's view, none of these statements comports with the meaning of "automatic tax reporting" that Simplification now advocates for.

Simplification raises two main arguments in support of its construction. First, Simplification contends that by using the open-ended transitional phrase "comprising," the claims allow manual input that Block's construction improperly forecloses. (D.I.80 at 13-14.) Second, Simplification relies on the Federal Circuit's decision in CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1235 (Fed. Cir. 2005), where the term "automatically" was interpreted to mean "once initiated the function is performed by a machine, without the need for manually performing the function." Though these arguments would normally have force, Simplification's statements during the BPAI hearing change the situation dramatically. Furthermore, this case is not resolved by a straightforward application of CollegeNet, as Simplification contends, because in CollegeNet the specification and prosecution history both supported the proposed construction. See id. at 1235-36. As explained above, the Court finds that this is not the case here, especially when it comes to the prosecution history.

Accordingly, the Court concludes that "automatic tax reporting" means, as Block essentially contends, "preparing a tax return on a computer without manual intervention from the user." Though the Court effectively adopts Block's construction, the Court declines to include in its construction the word "automatically," as Block proposes. In the Court's view, this word is redundant to the phrase "without manual intervention from the user."

On the other hand, though Simplification criticizes Block's construction for using the word "computer" (see D.I. 85 at 5 n.2), the Court concludes that this word clarifies the meaning of "automatic." See CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1235 (Fed. Cir. 2005) (defining "automatically," in part, to include the limitation of being "performed by a machine"). Furthermore, it is consistent with the agreed upon definition set forth in the specification for "electronic intermediary," which, in the claims and specification, is the component that carries out "automatic tax reporting." (See D.I. 79 at 5; '052 patent 4:39-42 ("The term 'electronic intermediary' refers to a data processing system comprising a general
D.

In its cross-appeal, ApplyYourself argues that the district court's grant of summary judgment of infringement of the '278 patent was improper, because it was based on an incorrect construction of the term "automatically." However, before reaching the merits of ApplyYourself's appeal, this court must first address whether ApplyYourself waived its right to challenge the construction of this term. Rule 51 of the Federal Rules of Civil Procedure provides that "no party may assign as error the giving or the failure to give an instruction unless that party objects thereto before the jury retires to consider its verdict, stating distinctly the matter objected to and the grounds of the objection." Fed. R. Civ. P. 51 (2002). n2 Though not formally objecting to the jury instruction and risking the loss of a right to appeal, ApplyYourself did flag the instruction in its Joint Submission of Jury Instructions as "disputed." ApplyYourself also referred the court to the Markman ruling, in which the district court rejected ApplyYourself's proposed construction, and to ApplyYourself's construction of "automatic" in the Joint Claims Construction Statement. CollegeNet, Inc. v. ApplyYourself, Inc., Nos. CV-02-484-HU, CV-02-1359-HU (D. Or. Dec. 19, 2002) (Markman ruling). Thus, while ApplyYourself's actions may have been "deficient in terms of the plain language of Rule 51," they "fall within the limited exception we have recognized for a pointless formality." Vohries-Larson v. Cessna Aircraft Co., 241 F.3d 707, 714 (9th Cir. 2001). "Where the district court is aware of the party's concerns with an instruction, and further objection would be unavailing, we will not require a futile formal objection." Gulliford v. Pierce County, 136 F.3d 1345, 1348 (9th Cir. 1998) (citations and quotation marks omitted). Therefore, this court finds ApplyYourself did not waive this argument.

n2 This court is aware of the 2003 amendments to Fed. R. Civ. P. 51. However, because the amendments became effective after the trial in this case, the previous version of Fed. R. Civ. P. 51 applies to this appeal.

Claim 1 uses the word "comprising." "The transitional term 'comprising' ... is inclusive or open-ended and does not exclude additional, unreelcted elements or method steps." Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999). "A drafter uses the term 'comprising' to mean 'I claim at least what follows and potentially more." Vehicular Techs. Corp. v. Titan Wheel Int'l, Inc., 212 F.3d 1377, 1383-84 (Fed. Cir. 2000). Thus, consistent with this court's precedent, the district court correctly adopted CollegeNet's inclusive definition and rejected ApplyYourself's preclusive definition. While claim 1 does not expressly provide for human intervention, the use of "comprising" suggests that additional, unreelcted elements are not excluded. Such elements could include human actions to expressly initiate the automatic storing or inserting, or to interrupt such functions.

This construction does not read "automatically" out of the claims, as ApplyYourself suggests, because a machine still

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performs the claimed functions without manual operation, even though a human may initiate or interrupt the process. The district court's automatic dishwasher and auto-pilot examples also support this court's understanding of automatic processes that contemplate human intervention. "Simply because a human has to load [an automatic dishwasher] and press the start button, and has the ability to turn it off mid-cycle, does not mean that the device does not 'automatically' wash the dishes." Markman ruling, slip. op. at 83. Similarly, "an 'auto-pilot' which is turned on by a human and necessarily must be able to be interrupted by a human once the automatic process is engaged ... remains an 'automatic' device." Id. slip.op. at 83-84. Thus, the claim language supports the district court's interpretation.

In addition, the district court's construction of "automatically" is consistent with one of the problems the invention sought to redress: avoiding the manual re-entering of the same information for every college application a prospective student desires to complete. '278 patent, col. 1, ll. 27-30. The '278 patent solves this problem by inserting common information into subsequent application forms, without the human user re-entering it. Adding a human initiation or interruption element would not alter the invention's solution to this problem.

The prosecution history also supports the district court's construction. The system disclosed in U.S. Patent No. 5,640,577 (issued June 17, 1997) (the Scharmer system or reference) obtains data from a database on a mainframe computer and displays it on a display terminal as a database report. The patent applicants explained:

Some of the displayed data is saved in memory at the display terminal on which it is displayed, and is then inserted onto a form. Report data to be saved is identified by its coordinates on the display screen, which coordinates had to have been previously programmed into the saving function. An operator can also enter data into a form before the form is saved, but the information typed in by the operator, although saved as part of the form, is not saved in a database independent of the form. Consequently, the data is not available from such a database for use on subsequent forms. None of the data manually entered by the operator on one form can be used to automatically fill in subsequent forms. Scharmer teaches a one way flow of data from the database into the forms, and nothing the user does can add to or change the data in the database that is the source of information for completing subsequent forms.

Markman ruling, slip. op. at 92-93. The patent applicants then amended claims 1 and 21 to include the term "automatically." The district court correctly concluded that the patent applicants' prosecution-related comments supported its interpretation of "automatically." Markman ruling, slip. op. at 98. The addition of "automatically" to the claim language did not prohibit human interaction; it merely decreased the need for the user to insert information into a form. In addition, the distinction over Scharmer was not that the applicants' invention eliminated the requirement of manual input of data into a form. Rather, the distinction was that instead of a one-way flow of information from a database where a machine inputs information which has previously been stored in the database by some other process, into a form, the claimed invention allows a two-way flow of information in that the user, by filling out and saving an application form, enters data into the database which can then be accessed by the forms engine to allow the forms engine to input that data into a second form.

Id. Thus, the forms engine "automatically", i.e., without human intervention, extracts data from the database and inserts that information into the second form. The patent applicants distinguished the Lextron reference on similar grounds. Therefore, because the district court's claim construction of "automatically" was correct, the district court's grant of summary judgment of infringement was proper.

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C. Infringement

1. The Chan Patent

SSL argues that the district court erred in construing the "automatically" limitation in claim 1 of the Chan patent to mean "autonomously." SSL contends that the plain meaning of "automatically" is "having a self-acting or self-regulatory mechanism," and that "automatically" does not mean "undertaken or carried out without any outside control." SSL argues that the claim only requires that desaturation and east-west stationkeeping occur simultaneously and without further manual
commands from the ground; it does not preclude such maneuvers from being initiated by ground control commands. SSL further argues that Lockheed's satellites literally infringe claim 1, and that prosecution history estoppel does not preclude infringement under the doctrine of equivalents.

Lockheed responds that SSL's proposed claim construction is inconsistent with the written description, and that the district court properly concluded that the accused satellites do not infringe claim 1, either literally or under the doctrine of equivalents. Lockheed emphasizes the fact that the accused satellites require a ground operator to initiate stationkeeping maneuvers. Lockheed contends that the Chan patent does not disclose manually initiated east-west stationkeeping, and instead discloses that desaturation maneuvers are initiated by the satellite itself, not by a ground operator. Lockheed further contends that SSL failed to present any evidence of any structural equivalence under 35 U.S.C. § 112, P 6, and that the district court correctly concluded that the accused satellites do not perform the same functions as recited in the claim.

In interpreting claims, a court "should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conectronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1577 (Fed. Cir. 1996). Absent an express intent to impart a novel meaning, "terms in a claim are to be given their ordinary and accustomed meaning." Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249, 48 U.S.P.Q.2D (BNA) 1117, 1121 (Fed Cir. 1998); Carroll Touch, 15 F.3d at 1577, 27 U.S.P.Q.2D (BNA) at 1840 ("The words of a claim are generally given their ordinary and accustomed meaning, unless it appears from the specification or the file history that they were used differently by the inventor.").

As an initial matter, we do not agree with SSL's assertion that the district court erred in construing the term "automatically" to mean "autonomously." The disputed portion of claim 1 reads as follows:

[...]

Chen patent, col. 6, ll. 40-44 (emphasis added). Given its ordinary meaning, the term "automatically" denotes that the claimed apparatus is capable of performing east-west stationkeeping independently, without any external control. See, e.g., Webster's II New Riverside University Dictionary 140 (1988) (defining "automatic" as "1. a. Acting or operating in a manner essentially independent of external influence or control. b. Self-regulating."). The term "autonomously" has a similar ordinary meaning, likewise denoting independent operation. See id. (defining "autonomous" as "1. a. Independent. b. Self-contained."). Thus, the district court's construction is supported by the ordinary meaning of those terms.

The district court's construction is also consistent with the specification. The written description explicitly states that one of the advantages of the present invention is that "all manual east-west stationkeeping maneuvers are eliminated." Chen patent, col. 1, ll. 63-65. Moreover, the abstract indicates that the claimed invention relates to an "apparatus for autonomously performing stationkeeping maneuvers for three-axis stabilized spacecraft." Id., Abstract (emphasis added). 1 The abstract further states that "the invention autonomously performs desaturation of a momentum/reaction wheel . . . while simultaneously accomplishing the preselected compensation of the spacecraft's east-west position." Id., Abstract (emphasis added). Accordingly, given that the elimination of "all manual east-west stationkeeping maneuvers" is one of the stated advantages of the claimed apparatus, and the fact that the terms "automatically" and "autonomously" are used interchangeably in the specification, we conclude that the district court did not err in construing the term "automatically" to mean that the claimed apparatus is "capable of performing multiple, autonomous east-west changes in position over a substantial period of time without ground transmissions concerning the parameters of such movements." Space I, 1998 WL 1045304, at *6 (emphasis added).

--- Footnotes ---

1 Although SSL argues that it was improper for the district court to rely on the abstract in construing the claim, we have previously stated that in determining the scope of a claim, the abstract of a patent is a potentially useful source of intrinsic evidence as to the meaning of a disputed claim term. See Hill-Rom Co. v. Kinetic Concepts, Inc., 209 F.3d 1337, 1341 n.*; 54 U.S.P.Q.2D (BNA) 1437, 1440 n.1 (Fed. Cir. 2000).
A. Automatically

The term "automatically" appears in all claims. Timeline argues that "automatically" should be construed to mean "without the need for human analysis," a term that appears in a number of the same claims as "automatically." In its prior claim construction order, the court construed the term "without the need for human analysis" to mean "not requiring evaluation or choice by a human." 2 (Dkt. No. 173 at 21).

2 The court also noted that "[s]imply because human evaluation or choice is not required would not mean that human evaluation or choice is never allowed." Id.

Timeline argues that the patents expressly define "automatically" to mean "without the need for human analysis." To support this argument, Timeline points to the following sentence from the '511 patent specification:

Preferably, some or all of the analysis involved is performed automatically (i.e., without the need for human analysis), in one embodiment, using a properly programmed computer.

'511 patent, Col. 3:3-5 (emphasis added).

Timeline's argument that "automatically" and "without the need for human analysis" have identical meanings is not consistent with the Joint Claim Chart filed in February 2006, in which Timeline proposed somewhat different constructions of the two terms. As Timeline notes, a patentee may serve as his or her own lexicographer in defining claim terms. However, "[w]hen a patentee acts as his own lexicographer in redefining the meaning of particular claim terms away from their ordinary meaning, he must clearly express that intent in the written description." Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005). "[T]he statement in the specification must have sufficient clarity to put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term." Id. Given that Timeline itself previously proposed somewhat different constructions of "automatically" and "without the need for human analysis" in the Joint Claim Chart, it would be difficult to conclude that the written description reflects a clear intent by the patentee to define "automatically" to mean "without the need for human analysis."

The Federal Circuit has also indicated that "[t]he use of [two] terms in close proximity in the same claim gives rise to an inference that a different meaning should be assigned to each." Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1373 (Fed. Cir. 2004); see also Primos, Inc. v. Hunter's Specialties, Inc., 451 F.3d 841, 848 (Fed. Cir. 2006) (holding that "the terms 'engaging' and 'sealing' are both expressly recited in the claim and therefore 'engaging' cannot mean the same thing as sealing'; if it did, one of the terms would be superfluous."). Here, the terms "automatically" and "without the need for human analysis" are sometimes used in close proximity in the same claims. For example, Claim 1 of the '511 patent reads, in part:

[U]sing said first driver to automatically obtain first information about the data structure of said first data source without the need for human analysis of the first data source by automatically accessing content of information…

(emphasis added). There is no apparent reason why the patentee would use "automatically" and "without the need for human analysis" in such close proximity in the same claim if the patentee intended the two terms to have identical meanings.

Defendants' proposed construction of "automatically" is "without user input or analysis." The court finds this construction to be more consistent with the ordinary meaning of the term and the intrinsic evidence. As Defendants note, the claims use the term "automatically" in the context of automatically obtaining information and automatically accessing content of information. Construing "automatically" to mean "without user input or analysis" is sensible in these contexts. Defendants also point to language in the '511 patent specification that contrasts actions that may be performed "automatically" to those that include user "input." See '511 patent, Col. 12:10-16 and Col. 12:27-32.
Therefore, the court adopts Defendants' proposed construction and finds that the term "automatically" means "without user input or analysis."

1. "automatically" or "automated" (claim 1)

Flow argues that this term should be construed as "performed without manual intervention." Omax acknowledges in its Markman brief that "this is generally the ordinary meaning of the term," but argues in the joint claim chart that this phrase "should be construed against Flow depending on the circumstances." In its Markman brief, Omax proposes that the Court find this term to be invalid or adopt a narrow construction of this term: "on-the-fly, in real time."

Omax's arguments for finding the term invalid lack merit. Omax seizes on a number of apparently contradictory references to the claim term to argue that the term is indefinite and therefore the claim invalid. Flow's alleged contradictions, however, would not affect the ability of an individual of ordinary skill in the art to understand the meaning of the term as used in the patent. Moreover, it is far from apparent that Flow has ever defined the term "automatically," as used in claim 1, as anything other than "performed without manual intervention." In light of Omax's acknowledgment that this is how someone of ordinary skill in the art would interpret this term, the Court adopts this construction.

4 Omax's proposed definition for this term seems far more fitting as a definition of "dynamically." This adds credence to Dr. Garris's argument that the prosecution history relied on by Omax refers to the static vs. dynamic issue, not the definition of automatically.

2. Automatic

Claim 1 describes a method for managing projects,

said method to be automatic in nature and with built in triggers which are based on the nature and status of said data without the need for manual project management coordination, said project management coordination to involve all the steps of the project management cycle including planning, resource leveling, status reporting and reminding, tracking and updating plans . . .

Def. Ex. A at col. 8, lines 49-55. Based on this language, Microsoft argues that Claim 1 is limited to a program which can automatically perform all steps of the project management cycle without the need for human intervention.

Again, the patent specifications and prosecution history support this limitation. The Patent Examiner initially rejected inventor Raj's patent application on the basis of obviousness. To distinguish his invention from prior art, Raj emphasized in a later amendment: "The inventor is not aware of any project management system . . . which performed the above 4 [project management] steps automatically, based only on data sent to a server" and that "none of the systems described by Michael Heck are automatic in their behavior with respect to the complete project management cycle." Def. Ex. B at 63-64. Raj further told the Patent and Trademark Office ("PTO") that "the [program] provides a method for hands-off project management. The complaint against project management tools has before this invention [sic] required experts to manage the project management cycle, including coordination, archiving, resource leveling, reminding etc." Def. Ex. B at 64. In particular, Raj noted that his invention improved on commercially available project management software such as defendant's Microsoft Project because, for such programs, "typically a project coordinator is hired by organizations to manually compile input data, run the tools and distribute progress reports." Def. Ex. B at 7. Thus, we conclude from the
inventor's statements that the patented method requires no human inputs in order to perform its specified management roles.

Plaintiffs dispute the notion that Claim 1's use of "automatic" means that the Program was intended to perform all steps of project management without human intervention. Plaintiffs have not offered any evidence drawn from the language of the Patent, its specifications or prosecution history to support their interpretation. Instead, plaintiffs point to Microsoft's use of the word "automatic" in its promotional materials, which we find irrelevant for purposes of this Markman hearing.

Plaintiffs are, however, correct in arguing that use of the Patent involves some human intervention. For example, in its description of the invention, the Patent provides that a human project leader "creates a project plan," containing "information on the project, tasks, dependencies and resources to be used." Def. Ex. A at col.7, lines 32-34; see also Def. Ex. A at fig.3. Similarly, a human manager must assign priorities for multiple projects in order for the Program to perform its algorithm-based function of allocating resources among multiple projects. See Def. Ex. A at col.7, lines 51-54. As discussed above, the periodic basis within which the Program performs specific functions is "as desired by . . . work group members." However, none of these features contradicts the clear language in the patent and its specifications and prosecution history that the Program is to perform all four steps of the project management cycle without human intervention. As the Patent states:

It should be noted that the operations of the 'Auto Multi-Project Server' are automatic (or self-running) and there is no manual intervention. Only at the staff-up stage is there any manual customization of the environment, by changing some of the program variables and setting up the environment file. In general the operation is driven by mail messages received from users. The 'Auto Multi-Project Server' responds to the messages and is thus 'event driven', though the response does not occur immediately but rather batched together for the end of day processing, as explained in the next paragraph.

Def. Ex. A at col.8, lines 7-16.

Accordingly, we find that Claim 1 teaches a method that automatically performs all of the steps in the project management cycle, without the need for manual intervention or supervision, based only on messages sent to the computer. As Microsoft points out, such a claim would not, for example, cover a method in which a human project leader resolved resource conflicts by manually reassigning resources among projects.

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c. "Bus master configuring the bus automatically"

Claim 1 discloses that a "bus master configuring the bus automatically whenever a said instrument is either newly connected or is disconnected from said bus." '286 Pat. col.7 ll.17-19. KSEA argues that this term should be construed as "the bus master identifying and communicating with connected devices." (Proposed Constructions Chart 8.) S&N contends that it should be construed as "the bus master, without manual user intervention, is able to (i) control access to the bus by newly connected stations, and (ii) cease controlling stations disconnected from the bus, without interruption of the operation of the system in either situation." (Id.)

KSEA's proposed construction fails to acknowledge the bus master's expressly-disclosed configuration role and the notion that a bus master controls access to the bus, instead of merely identifying and communicating with stations on the bus. S&N's proposed construction accurately reflects the claim's text and the teaching of the specification.

The Court construes the "bus master configuring the bus automatically" term as "the bus master, without manual user intervention, is able to (i) control access to the bus by newly connected stations, and (ii) cease controlling stations..."
disconnected from the bus, without interruption of the operation of the system in either situation.

9 The Court does not define "without manual user intervention" to exclude, for instance, the possibility that a person connected a device to the bus.

15 Apropos contends that "automatically" as used in the phrase "automatically establishing voice communications," requires that the step of establishing voice communications between a called party and a calling party is initiated and performed without human intervention, i.e., without manual dialing, manual activation or other manual activity. For example, establishing voice communications by manually dialing or manually activating a connection using a button (such as on a phone, mouse, keyboard or other device) to initiate a call is not "automatically establishing voice communications." Additionally, Apropos argues, as used in the patent, "automatically dialing" requires that the step of dialing a telephone number be performed without human intervention, i.e., without manual activity. For example, initiating a call by manually dialing the digits or manually activating a connection using a button (such as on a phone, mouse, keyboard or other device) to initiate a call is not "automatically dialing."
Tr. at 236-37), reading the definition of "automatic" from the IEEE STANDARD DICTIONARY, "Automatic …[pertains] to a function, operation, process or device that … functions without intervention by a human operator." Without detailing all the relevant portions cited, the court, after reviewing the text, discerns that the only human intervention permitted in the "automatically dialing" phrase is the entry by the computer user of the information that permits the call center's telephone switching system to return the call. (Rockwell cites col. 1, l. 8-19, col. 2, l. 17-30, 51-67, and col. 4, l. 51 to col. 5, l. 42, in support of its position). For example, at col. 1, l. 17, the Background of the Invention portion recites, "... The computer user transmits a call request over the computer network to a telephone switching system associated with the agent and, in response to the call request, the telephone switching system calls the computer user and connects the agent to the computer user when the computer user answers the call." (Emphasis added.) The specification recites, "The telephone computer may detect the time to call in the call request and delay transmitting the call request to the ACD until the time to call. ... The ACD would then attempt to dial the telephone number substantially immediately upon receipt of the dial request command." Col. 4, l. 55-62 (Emphasis added). The unambiguous meaning of the text is that the computer detects the information in the call-back request and at the appointed time makes the call which can be routed to any available agent. The term "automatically establishing voice communication" also occurs without human intervention: "When the computer user answers the computer user telephone, the telephone switching system connects an agent telephone associated with the agent to the computer user telephone." Col. 2, l. 27-30 (emphasis added). The word "automatic" may, indeed, be nuanced in that typically some human action in a chain of events sets the automatic function in motion, but the circumstances described in the patent do not admit the notion that human intervention occurs either at the point of dialing or establishing the voice connection, such as an agent making a decision to push a button to activate a call back. The inventor, William Quayle, conceded as much. See (Ex. 23); (Quayle Dep. at 134-35); (Markman Tr. at 257-58) (testifying that "automatically establishing voice communications" does not include "where an agent must manually click on a mouse"). The prosecution history is equally clear. 16 For these reasons, the court accepts Apropos' definition of "automatically dialing" and "automatically establishing." 16 As Apropos pointed out, see discussion note 12, supra, the prosecution history demonstrates that the applicant overcame the initial rejection by asserting that the computer must activate the callback. See A 10052.

The term "automatically adjusting" shall mean: "changing at least one of the high voltage power supplies in a manner independent of external influence or control."
B. The Step-Plus Function Limitation

ICE argues that the remaining terms, "automatically administering credit on a unilateral basis," and "automatically deriving a respective dealable price message," are "step-plus-function Claims" and are limited by 35 U.S.C. § 112 P 6 (the "112(6) limitation"). Section 112 P 6 allows a patentee to "describe an element of the invention by the result accomplished or the function served, rather than by describing the element to be used." Warner-Jenkinson Co., v. Hilton Davis Chem. Co., 520 U.S. 17, 27, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997). According to 35 U.S.C. § 112 P 6:

An element in a claim for a combination may be expressed as a means or a step for performing the specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112 P 6 (2000). However, "the price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1208 (Fed. Cir. 2002) (citing to O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1583 (Fed Cir. 1997)). As such, the patentee shoulders "the duty to link or associate structure in the specification with the function [as] the quid pro quo for the convenience of employing the [statute]." B. Braun Med., Inc. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed. Cir. 1997). However, if the patentee fails to sufficiently describe the structure, material, or act to which the function corresponds, the claim is overbroad and therefore, invalid. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001) ("Failure to disclose adequate structure corresponding to the recited function in accordance with 35 U.S.C. § 112, paragraph 1, results in the claim being of indefinite scope, and thus invalid, under 35 U.S.C. § 112, paragraph 2.").

In O.I. Corp. v. Tekmar Co., 115 F.3d 1576 (Fed Cir. 1997), the Federal Circuit analyzed whether the 112(6) limitation applies to a "step" or "method" claim as opposed to when it limits an apparatus claim. The Federal Circuit concluded that "the term 'steps' [refers] to the generic description of elements of a process and the term 'acts' [refers] to the implementation of those steps," and that the 112(6) limitation "is implicated only when steps plus function without definite acts are present." See O.I Corp. at 1583 (emphasis added). The Federal Circuit reasoned that: "Claiming a step by itself, or a series of steps, does not implicate section 112, P 6. Merely claiming a step without recital of a function is not analogous to a means plus a function." O.I. Corp., 115 F.3d at 1583 (Fed. Cir. 1997); Cardiac Pacemaker, Inc., v. St. Jude Med., Inc., 381 F.3d 1371, 1382 (Fed. Cir. 2004) (A method claim "necessarily recites the steps of the method.").

The Federal Circuit reviewed a patent which claimed: "A method comprising the steps of: (a) passing an analyte slug through a passage." O.I Corp., 115 F.3d at 1578. The Federal Circuit held that the act of "passing an analyte slug through a passage" did not constitute a function simply because the operative verb was in the imperfect tense, "such as passing, heating, reacting transferring etc." Id. The Federal Circuit noted that if it were "to construe every process claim containing steps described in an 'ing' verb," then every process claim would be subject to the 112(6) limitation. Id.; see also Cardiac Pacemaker, Inc., 381 F.3d at 1371 (Fed. Cir. 2004) ("[A] patentee can define a method or process claim containing steps that begin with a gerund . . . without necessarily subjecting the claim to § 112 P 6 limitations."). While it indicated that verbs in the imperfect tense do not in themselves implicate the 112(6) limitation, the Federal Circuit left it to the trial courts to establish whether a claim element was a function or an act.

The Federal Circuit subsequently clarified when claim language is to be construed as a function as opposed to an act in Masco v. United States, 303 F.3d 1316 (Fed. Cir. 2002). In Masco, the Federal Circuit expanded upon its reasoning in O.I. Corp., and further advised when claim language describes acts or functions:

The "underlying function" of a method claim element corresponds to what the element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to how the function is accomplished.

Masco, 303 F.3d at 1327 (citing to Seal-Flex, Inc. v. Athletic Track and Ct. Constr., 172 F.3d 836, 849-50 (Fed. Cir. 1999) (per curiam) (Rader, J., concurring) (emphasis in original)). The Federal Circuit held that "where a method claim does not contain the term 'steps for,' a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act." Masco, 303 F.3d at 1327 (emphasis added). Indeed, if any act is present in the claim element language, then the 112(6) limitation is inapplicable to the claim element. In Masco the claim language was, "The method comprising the steps of . . . transmitting a force . . . to drive the lever into a position where the protrusion can
contact the surface of the cam wheel," and the Federal Circuit determined that both a function and an act were present. Masco, 303 F.3d at 1327. While the underlying function of "transmitting a force" was "to drive the lever into the cam," the Federal Circuit found that "transmitting" was an act, and "a limitation of a claim cannot be construed as a step-plus function limitation without showing that the limitation contains no act." Id. at 1327-28. Accordingly, under the Federal Circuit's holdings in O.I. Corp. and Masco the 112(6) limitation applies when:

(1) the claim limitation uses the phrase "step for"; (2) the "step for" is modified by functional language; and (3) the phrase "step for" is not modified by sufficient structure, material, or acts for achieving the specified function.


Here, relying on Masco ICE contends, Claim 17 does not contain acts, but rather merely states functions. (Harrison, Att'y for Def., Hr'g Tr. 63: 12.) In other words, ICE asserts that Claim 17 states what the elements of the claim ultimately accomplish (the function), but does not state how the function is accomplished. Id. ICE asks: "Where is the how?" Id. In opposition, EBS asserts that, similar to the language in O.I. Corp., the terms are just a recital of steps that do not state a function. (Siff. Att'y for Pl., Hr'g Tr. 10: 7-8.)

In accordance with Masco and O.I. Corp., the 112(6) limitation does not apply for two reasons. First, the disputed claim does not contain the language "step for" and, therefore, the 112(6) limitation is presumed not to apply. Second, as the Federal Circuit found in both O.I Corp and Masco, the operative verbs "administering" and "deriving" do not themselves indicate the presence of functions.

First, it is undisputed that Claim 17 of the '627 Patent does not contain the language "step for." U.S. Patent No. 6,014,627 (issued January 11, 2000). As noted, the lack of the language "step for" generally signals that an act, rather than a function, follows. See Cardiac Pacemaker, Inc., 381 F.3d at 1382. While not dispositive, "such a grammatical structure indicates that this is not a step-plus function claim," or at least creates a heavy "presumption that each ensuing step is [not] in step-plus function form." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 339 F. Supp. 2d 202, 255 (D. Mass. 2004); see also Cardiac Pacemaker, Inc., 381 F.3d at 1382; Epcon Gas Sys., Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1028 (Fed. Cir. 2002); Seal-Flex, Inc. v. Athletic Track & Ct. Constr., 172 F.3d 836, 850 (Fed. Cir. 1999) (Rader, J., concurring); Supp. Exam. Guidelines for Determining the Applicability of 35 U.S.C. § 112 P 6, 65 Fed. Reg. 38510 (June 21, 2000) ("[A] claim element that does not include the phrase [] "step for" will not be considered to invoke 35 U.S.C. 112, 6.").

Second, as in both the O.I Corp. and Masco, the disputed terms in Claim 17 are steps without functions. The verbs "administering" and "deriving" can be analogized in use and form in their respective claim elements to the verbs "passing" and "transmitting" in O.I Corp. and Masco, respectively. Additionally, as neither the claim language nor dictionaries of the art explicitly ascribe these verbs meanings particular to "traders dealing in financial instruments," they are interpreted according to their ordinary meaning in their respective clauses. According to their ordinary meaning in their respective clauses, the phrases "automatically administering credit on a unilateral basis" and "automatically deriving a dealable price message" do not state "what" is accomplished, but rather state steps as to "how" the ultimate function of Claim 17 accomplishes, the "trading of financial instruments between traders." U.S. Patent No. 6,014,627 (issued Jan. 11, 2000).
As such, the remaining terms do not implicate section 112 P 6. Phrased in the "what" and "how" language of Masco, "administering" in the sense of dispensing, furnishing or tendering, describes how "administering credit on a unilateral basis" is performed. See Webster's Third New International Dictionary of the English Language Unabridged 27 (1993) ("Administer: to mete out, dispense."); see also Webster's Third New International Dictionary of the English Language Unabridged 27 (1993) ("Administration: furnishing or tendering according to a prescribed act."). Additionally, the '627 Patent itself suggests that "administering" means dispensing according to a prescribed act: "Each client site establishes and may subsequently vary or reset a credit limit for each possible counterparty." U.S. Patent No. 6,014,627 (issued Jan. 11, 2000). "Deriving" in the sense of gathering and arriving at a conclusion by deduction, is an act which describes how "deriving a dealable price message" is performed. See Webster's Third New International Dictionary of the English Language Unabridged 608 (1993) ("Derive: to gather or arrive at (as a conclusion) by reasoning and observation; deduce."); see also American Heritage Dictionary of the English Language 489 (4th ed. 2000).

Consequently, the terms "automatically administering credit on a unilateral basis" and "automatically deriving a respective dealable price message" are not subject to § 112 P 6.

1. "Automatically Administering Credit on a Unilateral Basis"

As Claim 17 is not subject to § 112 P 6, I construe the remaining terms in accordance with the claim language in light of the relevant industry standards, the plain language of the terms, and with an eye to what one knowledgeable in the field would find appropriate. EBS avers that consistent with the Claim itself, and the ordinary meaning of the Claim terms, the phrase "automatically administering credit on a unilateral basis" should be construed as:

Keeping track, without user intervention, of whether each trading floor extends credit to the other trading floors, on a one-way basis.

(Siff, Att'y for Pl., Hr'g Tr. 31: 2-4.) ICE, on the other hand, argues that § 112 P 6 applies and does not propose any construction of the terms in the absence of its application.

The term "automatically administering credit on a unilateral basis" consists of four terms, (i) "automatically," (ii) "administering," (iii) "credit," and (iv) "unilateral basis."

First, the parties do not dispute that "automatically" does not have any special meaning, and that it means "without user intervention," (Siff, Att'y for Pl., Hr'g Tr. 27: 12-13), a definition pretty much in line with the American Heritage Dictionary of the English Language, 112 (4th ed. 2000), which defines "automatically" as the adverbial tense of "automatic" meaning: "acting or operating in a manner essentially independent of external influence or control; acting or done as if by machine; mechanical."

Second, "administering," as defined above in Webster's Third New International Dictionary of the English Language Unabridged, 27 (1993), is: "to mete out; dispense." As aforementioned, "administering" is also supported by the Claim language to mean, dispensing according to a prescribed act.

Third, "credit," according to The McGraw-Hill Dictionary of International Trade and Finance, 96 (McGraw-Hill 1994), means "in finance, an agreement to provide money, goods, or services in exchange for a borrower's promise to pay at a future date." Similarly, the Dictionary of Finance and Investment Terms, 117 (4th ed. 1995), defines "credit" as:

Loans, bonds, charge-account obligations, and open account balances with commercial firms. Also, available but unused bank letters of credit and other standby commitments as well as a variety of consumer credit facilities.

Fourth, Claim 17 of the '627 Patent uses the term "unilateral basis" as involving an independent, one-sided action: "From those other trading floors for which bilateral credit currently remains both from and to a particular trading floor." U.S. Patent No. 6,014,627 (issued Jan. 11, 2000).

As such, reading the '627 Patent in light of the relevant industry standards and the ordinary meaning of the terms, at least insofar as current dictionary definitions are concerned, the contested language must follow the EBS construction and be
construed as:

Keeping track, without user intervention, of whether each trading floor extends credit to the other trading floors, on a one-way basis.

5. The Displaying Step

The "displaying step" of Claim 1 provides as follows: "automatically and simultaneously displaying at the programmed computer in real time the current status information of at least a portion of the delegated instructions received from each two-way communication device." '877 Patent col.32 ll.41-45.

Papyrus suggests that the court construe the step as meaning "the simultaneous display at the programmed computer of some current-status information for one instruction and some current-status information for another instruction." Pl. PCCO 2. In effect, Papyrus focuses on the content of the information displayed on the programmed computer and relies primarily on the language in the specification. Pl. MHSP vol. 1 at 25-28. For example, although the claim language itself expressly references the programmed computer as the display location of the current-status information, it makes no reference to displaying on the floor broker's HHD. See '877 Patent col.32 ll.41-45. In addition, the Abstract also discusses displaying current-status information at the programmed computer. '877 Patent Abstract ("A related method enables an operator to delegate instructions . . . by receiving at the operator's computer current-status information on any delegated instructions and automatically displaying that information at the computer." (emphasis added)). In addition, Papyrus contends that the displaying step requires only the "simultaneous display of current-status information for at least two instructions at the programmed computer." Pl. MHSP vol. 1 at 25.

NYSE, however, asks the court to define this step to mean "the current-status information is displayed both on the programmed computer and the two-way communication device at the same time." Def. PCCO 2. Despite Papyrus's argument that the claim language does not make any reference to a display on the HHD, NYSE asserts that the current-status information is displayed simultaneously on the broker's device and the programmed computer. Markman Hr'g Tr. vol. 1 at 123-124. Relying on the prosecution history, 14 NYSE argues that the current-status information is displayed simultaneously on the broker's device and the programmed computer. Markman Hr'g Tr. vol. 1 at 123-124. Relying on the prosecution history, 14 NYSE argues that the current-status information is displayed simultaneously on the broker's device and the programmed computer. Markman Hr'g Tr. vol. 1 at 123-124. 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11. The September 8, 2007 amendment is the first time that the phrase "automatically and simultaneously" appeared in the patent. Rule 1.116 Amendment in Application Serial No. 08/309,337 (Sep. 8, 1997), Pl. App. Ex. 12 at 206.

To construe the displaying step, the court must therefore determine whether the examiner's statements reflect express representations made by Papyrus, or whether the statements are evidence of unilateral action on the part of the examiner. Although the prosecution history is intrinsic evidence that aids the court in claim construction, it "cannot enlarge, diminish, or vary the limitations in the claims." Markman, 52 F.3d at 980 (quotations omitted). The prosecution history includes "all express representations made by or on behalf of the applicant to the examiner to induce a patent grant," as well as amendments to the claims and arguments made to convince the examiner. Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985). "Arguments made during the prosecution of a patent application are given the same weight as claim amendments," and both give rise to prosecution history estoppel. Elkay Mfg. Co. v. EBCO Mfg. Co., 192 F.3d 973, 979 (Fed. Cir. 1999). Although "an examiner's reasoning and findings are highly relevant to the validity inquiry . . . they are not beyond challenge and they do not in every case automatically preclude the existence of a dispute of material fact." TorPharm Inc. v. Ranbaxy Pharm., Inc., 336 F.3d 1322, 1329 (Fed. Cir. 2003). Because the Federal Circuit "has recognized that an Examiners Statement of Reasons for Allowance 'will not necessarily limit a claim," an applicant's "silence regarding statements made by the examiner during prosecution, without more, cannot amount to a 'clear and unmistakable disavowal' of claim scope." Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1345 (Fed. Cir. 2005) (quoting 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1373-74 (Fed. Cir. 2003)). Consequently, "the applicant has no obligation to respond to an examiners statement of Reasons for Allowance, and the statement of an examiner will not necessarily limit a claim." Eolas Techs., Inc. v. Microsoft Corp., 399 F.3d 1325, 1337-38 (Fed. Cir. 2005) (quotations omitted); see Acco Brands, Inc. v. Micro Sec. Devices, Inc., 346 F.3d 1075, 1079 (Fed. Cir. 2003). Nevertheless, an applicant or patent owner may commit to a particular meaning for a patent term "through statements made during prosecution" which are then "binding in litigation." CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1158 (Fed. Cir. 1997). Further, "the public is entitled to equate an inventors acquiescence to the examiners narrow view of patentable subject matter with abandonment of the rest. Such acquiescence may be found where the patentee narrows his or her claims by amendment." TorPharm, Inc., 336 F.3d at 1330 (emphasis added).

Here, Papyrus contends that (a) the examiner mischaracterized the displaying step in both the interview summary and the Statement of Reasons for Allowance, and (b) the "automatic and simultaneous display" language was all that was needed to circumvent the prior art. Pl. Reply Br. 5. The court agrees. The record shows no evidence that Papyrus sought to limit the claim in such a way. Neither the proposed Claim 50 (now Claim 1) language attached to the Interview Summary nor the proposed language in the September 8, 1997 amendment contains any reference to information being simultaneously displayed on both the HHD and the programmed computer. See Pl. App. Ex. 11 at 202; Pl. App. Ex. 12 at 206. Indeed, the phrase "both on the floor broker's display [and] the booth operator[s'] display" appears only in documents issued by the examiner. Pl. App. Ex. 11 at 201; see Pl. App. 14 at Ex. 212. Moreover, the text of the amendment, which represents the arguments that Papyrus made to convince the examiner and induce the patent grant, makes no reference to the displaying of current-status information on the HHD. Papyrus therefore did not seek to induce a patent grant based on the content displayed on the HHD, as NYSE alleges. See Standard Oil Co., 774 F.2d at 452. In discussing the real-time nature of the invention in connection with the current-status information, Papyrus specifically stated that "[i]nsofar as the Examiner indicated in the Interview Summary that the automatic and simultaneous display of information in real-time differs over the art of record, the inclusion of the calculating step should not negate allowability." Pl. App. Ex. 12 at 207. Addressing the prior art, the amendment also states that "[t]he [Sisley] patent does not teach the provision of two-way devices nor does it teach the use of, or access to, current-status information as called for in the pending claims. These features provide the operator of the programmed computer with a distinct advantage over prior art schemes . . . ." Pl. App. Ex. 12 at 208 (emphasis added); see Method and Resource Assignment and Scheduling, U.S. Patent No. 5,467,268 Abstract (issued Nov. 14, 1995), Pl. App. Ex. 71 at 917. 16 Because the record evidence shows that Papyrus repeatedly proposed consistent language which made no reference to the HHD display, the examiner's statements were unilateral and therefore do not limit the claim. See Salazar, 414 F.3d at 1345-46. Furthermore, that Papyrus did not respond to the examiner's statements does not indicate acquiescence to the examiner's interpretation, particularly since the language of the September 8, 1997 amendment does not support the examiner's written statements. See Eolas Techs. Inc., 399 F.3d at 1337-38. For these reasons, the court construes the displaying step as meaning "the current status information for one instruction and some current-status information for another instruction may be simultaneously displayed."
1. "automatically answering incoming telephone calls"

Klausner believes this term need not be construed while Vonage contends that this term should be construed to mean "sensing an incoming ring signal on the called party's telephone line and putting the called party's telephone line in an off-hook state." To support its contention, Vonage primarily relies upon Figures 3A and 3B and the corresponding text in the specification, arguing that these figures "illustrate" the "answer mode of the present invention" and not merely an embodiment of the invention. See Col. 3:27-28; Col. 6:10-11. Vonage also contends, essentially, that because the specification describes a single way of "answering incoming telephone calls," the term should be limited to that embodiment. In response, Klausner asserts that Vonage is improperly limiting the phrase to a specific embodiment. The Court agrees with Klausner.

It is important to remember that although the specification often describes very specific embodiments of the invention, the Federal Circuit has cautioned against confining the claims to those embodiments. See Phillips, 415 F.3d at 1323. The roles of the specification are to "teach and enable those of skill in the art how to make and use the invention and to provide a best mode for doing so. One of the best ways to teach a person of ordinary skill how to make and use the invention is to provide an example of how to practice the invention in a particular case." Id. "[T]he claims of the patent, not its specifications, measure the invention." Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004) (citation omitted). "Accordingly, particular embodiments appearing in the written description will not be used to limit claim language that has broader effect. And, even where a patent describes only a single embodiment, claims will not be 'restrictively unless the patentee has demonstrated a clear intention to limit the claim scope 'using words or expressions of manifest exclusion or restriction.'" Id. at 1117 (citations omitted).

Vonage argues that, where the patent specification makes clear that what is described is "the invention" rather than simply "an embodiment" of the invention, the claims may be limited to that description. It is true that where a patent clearly indicates that the description is that of "the invention" and not simply "an embodiment," that indication should be taken into account in construing the claim terms at issue. However, as is discussed below, in this particular case, the patent specification is not so clear as to be directing its description, in any aspect, to "the invention" as opposed to an embodiment of the invention.

The Court begins, as it must, with the words of the claim. See Teleflex, 299 F.3d at 1324; see also CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("The terms used in the claims bear a presumption that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art."). Vonage does not rely on the language of Claim 3 to support its contention. Indeed, Claim 3 cannot be read to define the term as Vonage suggests. Claim 3 simply requires a "method of automatically answering incoming telephone calls and storing and retrieving information from the incoming telephone calls." While not determinative, Klausner presents evidence, which Vonage does not meaningfully dispute, that one skilled in the art would understand "automatically answering telephone calls" as answering telephone calls without human intervention and not limited in the fashion Vonage proposes. See Ex. 25 to Pl.'s Claim Const. Br. PP 26-28.
Vonage argues that Figures 3A, 3B, 4 and 5 are described as "illustrating [various features] of the present invention." According to Vonage, this language clearly indicates that what is shown in these Figures represents the invention itself and is not simply illustrative of an embodiment of the invention. The Figures are first discussed in the section titled "Brief Description of the Drawings." This section begins with the statement that the "above and other objects and advantages will become apparent to those skilled in the art upon reviewing the detailed description of the preferred embodiments in conjunction with a review of the appended drawings." See Col. 3:18-21. These drawings are then further discussed in the section titled "Detailed Description of the Preferred Embodiments." This section concludes with the statement that "[w]hile the embodiments shown and described are fully capable of achieving the objects of the invention, it is to be understood that these embodiments are shown only for the purpose of illustration and not for the purpose of limitation." Col. 12:61-64.

At several points in the discussion of Figures 3A and 3B, the figures are described as "preferably" containing certain characteristics. See, e.g., Col. 6:30-31 ("The microcontroller then preferably multiplies this number by 6 . . ."); Col. 6:44-45 ("The OGM is preferably stored as message # 1 in memory 2."); Col. 6:48-49 ("When the playing of the OGM is completed, the microcontroller preferably waits 5 seconds (block 160).""). While Vonage argues the description of Figures 3A and 3B define what is meant by answering an incoming telephone call, Vonage does not request that other characteristics of the figures be included in the definition of the term. See, e.g., Col. 6:14-24 ("As illustrated in Fig. 3, the TAD first determines if the user has pressed a key on the TAD (Decision Block 100). This is done by means of the microcontroller reading RS232 serial data port connected to the touch screen 5 through connection to determine if the screen has been touched.").

Moreover, Figure 3B includes a "DTMF DECODE ROUTINE 230", which is further described in Figure 5. And, as Vonage points out in its brief, Figure 5 uses the "present invention" language in describing Figure 5 as "illustrating a flow chart illustrating the DTMF decode routine of the present invention." However, at column 9, lines 51-54, the patent specification states that "[i]t is to be understood that any incoming signals over the telephone line with a voice message that is recognizable by the TAD and is generally unique to the caller may be used instead of DTMF tones." Thus, the patent specification is clear that DTMF tones need not be used, and accordingly, the DTMF decode routine of Figure 5, and as shown in Figure 3B, need not be used. Rather, other incoming signals may be used instead. The clear implication of the patent specification, taken as a whole and not focusing strictly on the descriptions of the Figures, is that Figures 3A and 3B illustrate an embodiment of the invention, an embodiment in which DTMF tones, and a DTMF decode routine are used.

Vonage does not cite the Court to a case where the Federal Circuit has held that describing figures as "illustrating . . . the present invention" alone amounts to a clear intention to limit claim scope to a specific embodiment taught in the specification. See Innova/Pure Water, Inc., 381 F.3d at 1117. It is worth noting that the terms "illustrating," "illustrates," and "illustrated" are used throughout the patent. See, e.g., Col. 3:42-43 ("Fig. 10 is an illustration of the display recalling information linked to one of the callers."); Col. 3:44-45 ("Fig. 11 is a flowchart illustrating a typical operation of the present invention."); Col. 3:65-66 (Fig. 1 illustrates the front perspective view of a telephone answering device (TAD) 25 according to the invention."); Col. 6:14 ("As illustrated in Fig. 3 . . ."). Thus, the term "illustrating" would not seem to necessarily lead to the conclusion that claim scope is limited to the "illustrated" embodiments.

The specification does not teach that the specific embodiment described in the figures is somehow important or vital to what is claimed. Put another way, the specification does not teach that this embodiment is the only way to accomplish the answer mode of the invention. Indeed, as already pointed out, Vonage does not request that all features shown in Figures 3A and 3B be incorporated into "the invention" as claimed. If Figures 3A and 3B were considered as illustrating "the invention" instead of simply an embodiment, the Court would not be at liberty to pick and choose which aspects of Figures 3A and 3B to include and which to not include. And the specification does not provide guidance as to how such determinations might be made.

Vonage also asserts that during prosecution of the '576 patent, Klausner expressly distinguished methods of automatically answering telephone calls with a "telephone answering device" from methods using a computer-based voice messaging system. See Ex. 2 to Vonage's Claim Constr. Br. at 12. The Court disagrees. The cited excerpt from the prosecution history shows the inventors arguing that there was no motivation or suggestion to combine a 1981 patent issued to Klausner and U.S. Patent No. 5,003,577 issued to Ertz. The Court does not find this portion of the prosecution history to disclaim computer based voice messaging systems, but rather to be addressing the examiner's conclusion that certain claims were obvious in light of the referenced prior art.

The Court is not persuaded that one skilled in the art would read the intrinsic evidence as containing explicit expressions of
exclusion or restriction such that the answer mode of the invention was limited to the embodiment set forth in Figures 3A and 3B. Cf. Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1342 (Fed. Cir. 2001) (noting that the common specification leads to the "inescapable conclusion" that patents had disclaimed a particular configuration). Further, the Court finds this phrase understandable to a juror in the context of the claims at issue and, therefore, does not require construction.

G. "Automatically apply or compare the internet media venue design or style standards to the information input by the seller or the advertisement" & "Automatically apply or compare the internet media venue distribution factors to the information input by the seller or the advertisement"

Claim 62 of the '025 patent states, "The computer system of claim 45, wherein the presentation rules of the internet media venue comprise design or style standards, further comprising a computer program design filter to automatically apply or compare the internet media venue design or style standards to the information input by the seller or the advertisement to control look and feel of the advertisement to be displayed on the internet media venue." Similarly, claim 90 states, "The computer system of claim 62, wherein the internet media venue presentation rules comprise distribution factors, further comprising a computer program distribution filter to automatically apply or compare the internet media venue distribution factors to the information input by the seller or the advertisement to determine whether to publish the advertisement to the internet media venue." FM proposes that these claims should be defined as "execute a systematic sequence of mathematical and/or logical operations to apply or compare the internet media venue's design or style standards / distribution factors> to the information input by the seller or to the advertisement." Google advances the same indefiniteness arguments that the court rejected in Section F. The court construes the term "automatically apply or compare the internet media venue design or style standards to the information input by the seller or the advertisement" to mean "execute a systematic sequence of mathematical and/or logical operations to apply or compare the internet media venue design or style standards to the information input by the seller or to the advertisement." Likewise, the court construes the term "automatically apply or compare the internet media venue distribution factors to the information input by the seller or the advertisement" to mean "execute a systematic sequence of mathematical and/or logical operations to apply or compare the internet media venue's distribution factors to the information input by the seller or to the advertisement."
i. The Parties' Proposed Constructions

Smiths argues that "automatically control" means "to automatically control in response to a blood glucose reading." (D.I. 165 at 2.) Smiths states that:

in each initial usage of the term "automatic" or "automatically," it is used in the context of operating the infusion pump in response to a blood glucose reading. As such, the term 'automatically controlling' as recited in claims 1 and 19 means to 'automatically control' in response to a blood glucose reading.

(D.I. 190 at 19.) Smiths further argues that where I to construe "automatically controlling" without reference to a blood glucose reading such construction would constitute new matter not disclosed in the '065 patent application. (Id.) Therefore, Smiths argues, its construction is necessary to avoid invalidity of the patent.

MiniMed contends that the term "automatically control" is part of the function of the "controller means" limitation. (D.I. 214 at 17.) Consequently, it contends, adding the "responding to a blood glucose reading" limitation impermissibly adds a functional limitation to the term "control means." (D.I. 214 at 17 (citing Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001)(holding "a court may not import functional limitations that are not recited in the claim").)

ii. The Court's Construction

Contrary to MiniMed's assertion, Smiths is not arguing for the importation of functional limitations into the claim. Smiths is arguing that one of ordinary skill in the art would understand "automatically controlling" to mean "automatically controlling in response to a blood glucose reading." (D.I. 218 at 3.) That being said, I nevertheless reject the argument that one of ordinary skill in the art would understand "automatically controlling" to have that meaning.

"The general rule is that terms in the claim are to be given their ordinary and accustomed meaning." K-2 Corp., 191 F.3d at 1362. Neither party has argued that there is any ambiguity as to the meaning of "automatically controlling." The fact that "automatically" was used in a different context in the prosecution history is of little significance. Smiths does not even argue that the patentee acted as his own lexicographer and redefined the word "automatic" or the phrase "automatically controlling." (D.I. 190 at 18-19.)

I also find unpersuasive Smiths' argument that giving "automatically controlling" its plain meaning would raise issues of invalidity. "Claims can only be construed to preserve their validity where the proposed claim construction is 'practicable,' is based on sound claim construction principles, and does not revise or ignore the explicit language of the claims." Generation II Orthotics, Inc. v. Medical Tech., Inc., 263 F.3d 1356, 1365 (Fed. Cir. 2001). Smiths' proposed construction of "automatically controlling" is not based on "sound claim construction principals," and must be rejected. See id. Consequently, I find the term has its plain meaning.
evaluation," and not a function. For its part, Glory urges this Court to read "automatically denominating" as a "function" that limits these claims, under the step-plus-function doctrine found in 35 U.S.C. § 112(6), to the structure, material or acts identified in the written specifications of the '806 patent necessary to perform that function. After careful review of the disputed claim language in the '806 patent, this Court finds that the term "automatically denominating" is subject to Section 112(6) because it discloses a function without disclosing the structure, material or acts necessary to perform it. 5

5 Hereinafter, the Court will refer to the components necessary to perform the denominating function as a "structure" even though many of these components resemble acts rather than material or a structure made of material. We choose this word, not because it has any special meaning under § 112(6), but because use of the word "acts" -- in the context of the arguments made by Cummins would be confusing.

We begin construction of the disputed claims with the plain and ordinary words of the patent claim itself. Johnson Worldwide Assocs., Inc. v. Zecco Corp., 175 F.3d 985, 989-90 (Fed. Cir. 1999). If the scope of the claims cannot be unambiguously determined by reference to the plain language in the disputed claims, then the Court may interpret the disputed claim language in light of the specifications and prosecution history. Id.

The dictionary meaning of "denominating" (or "denominate") is "to name" or to "designate." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY, at 308-09 (10th ed. 1997). Cummins conceded during oral argument that the word "denominating" in the context of the '806 patent claims at issue means more than "to name" and, instead, embraces both identifying the denomination of a bill of currency (that is, whether a piece of currency is a $1, or a $5, or a $10 bill), and discriminating among spurious or "bad bills" (those that cannot be identified as genuine) and "good bills" (those that can be identified as genuine).

There is no real leap of logic or linguistics in Cummins' concession. Claim 40 refers to the accumulation in the output bin of "a set of bills, all of whose denominations are known, including bills of a plurality of denominations" (here, the word "denominations" may carry its dictionary meaning) (Col. 33, lines 50-52) (emphasis added). Claim 76 refers to delivery of bills to the output bin that have been successfully evaluated" (Col. 36, line 50), and Claim 101 refers to placing bills in the input bin "to be evaluated" (Col. 38, line 40). To perform this evaluation, the currency device must necessarily "know" the bills that it is evaluating. For several reasons, we construe this dual purpose encompassed within the phrase "automatically denominating" as the disclosure of a function rather than a discrete action for performing some other function.

First, to "denominate," in the way the disputed claim term is written, the device must perform multiple acts to achieve the end results of identification and discrimination. For example, the device must optically scan the narrow portion of the bill, compare the scanned data with the correlation data stored in the software, and stop the machine when a bill is identified as spurious, so that it may be removed from the output bin. The term "automatically denominating" is shorthand for this series of acts which result in an "evaluation," and which, in turn, constitutes the underlying function for the entire invention and for the claims at issue. In the words of the Seal-Flex test, the term automatically denominating "corresponds to what that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish." 172 F.3d at 849-50.

Second, if we accepted Cummins' invitation to construe "automatically denominating" as an "act" for performing the evaluation of U.S. currency, and to stop reading at the literal language, then the '806 patent would achieve a virtual monopoly in the currency evaluation device market (as we understand it), because it would cover any method for evaluating (i.e., identifying and discriminating among) a plurality of U.S. currency and thus any "structure" for achieving that function. A claim "cannot be construed so broadly to cover every conceivable way or means to perform" that function. Mas-Hamilton Group, 156 F.3d at 1214. Moreover, as we discuss below, such a reading also would create serious validity problems with respect to prior art. We decline to read the patent language in a way that likely would invalidate the patent.

Third, both the identification and discrimination aspects of the claimed "automatically denominating" function necessarily require a structure for culling out spurious bills from those that are genuine and thus ultimately "denominated" or named. But, the disputed claims fail to disclose any structure for performing that function. Thus, this Court finds that the claim
language, read plainly, supports the view that disputed claims 40, 76 and 101 are step-plus-function claims subject to the limitations of Section 112(6).

6 The cases Cummins cites to support the notion that "automatically denominating" is an act are inapposite to the disputed claim term in this case. First, we do not accept the proposition that the decision in O.I. Corp. v. Tekmar Co., 115 F.3d 1576 (Fed. Cir. 1997), precludes a finding that a verb ending in "ing" cannot be written as a function subject to § 112(6). We read O.I. Corp. merely to warn against a blanket rule that every "ing" verb used as an element in a method claim is subject to the statute. Id. at 1583. Second, we find Masco Corp. v. United States, 303 F.3d 1316 (Fed. Cir. 2002) and Serrano v. Telular Corp., 111 F.3d 1578 (Fed. Cir. 1997) -- as well as the other cases cited by Cummins in its reply -- inapposite on the issue of whether "automatically denominating" is an act, rather than a function. In Masco, the term "transmitting a force" was construed as an act rather than a function. The federal circuit rejected the argument that the word "transmitting" was too amorphous to be an act and instead used the Seal-Flex test to determine that "transmitting a force" in the context of the disputed claims in that case was an act for performing the function of "driving the lever into the cam." 303 F.3d at 1327. The Court also found that the plain meaning of the word "transmitting" in the dictionary "described an act for accomplishing the identified function." Our case is distinguishable from Masco because "denominating" has a special meaning given to it by the inventor and cannot be reduced to a plain, dictionary definition that discloses an act for performing some other function; "denominating" is, as we explain above, a function (and we think too amorphous to be an act). The Serrano case is also distinguishable because we do not find the term "automatically denominating" to be "practically identical" to the phrase "automatically determining" -- as Cummins contends (Cummins Reply at 31). "Automatically determining," in the context of the Serrano claim, was an act. For the reasons we have explained, we do not find "automatically denominating" to be in the same category, given Cummins' special and conceded meaning for it.

Construing "automatically denominating" in the disputed claims as a step-plus-function claim element means that this element will be construed narrowly and limited in scope to only the structure necessary for performing the denominating (i.e., identification and discrimination) function. See, e.g., Overhead Door Corp. v. Chamberlain Group, 194 F.3d 1261, 1271-73 (Fed. Cir. 1999). Both the written specifications and the prosecution history are consulted to answer the question of scope presented by the step-plus-function claims. See id. There may be only one structure disclosed in the specification and/or prosecution history that performs the claimed function, Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1357 (Fed. Cir. 2000), or there may be more than one structure disclosed for performing the recited function. Ishida Co. v. Taylor, 221 F.3d 1310, 1316 (Fed. Cir. 2000). The proper claim construction identifies all the relevant and/or alternative structures necessary to perform the function and allows the disputed claim to cover all of them. Ishida, 221 F.3d at 1316.

It is important to remember, however, that "before finally concluding" that a disputed term "encompasses" several alternative meanings and/or structures, the court "must determine whether the specification or prosecution history clearly demonstrates that only one of the multiple meanings [and/or structures] was intended." Inverness Medical Switzerland GmbH v. Warner Lambert Co., 309 F.3d 1373, 1378 (Fed. Cir. 2002). This search for a single limitation is not to be confused with the well-settled rule against incorporating preferred embodiments "such as those often present in a specification" into a claim limitation. Id. (quoting Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988)). That rule only applies when the preferred embodiment is being chosen over other disclosed alternatives to limit a claim term with language broader than the limitation imposed by the preferred embodiment. Id. Where there is evidence in the prosecution history, for example, that the inventor intended to limit the claim to the preferred embodiment, or to any embodiment, then that evidence will carry the day on the issue of claim construction. 309 F.3d at 1379-80.

As discussed below, we find that the written specifications do not provide a definitive answer regarding the necessary structure for performing the "automatically denominating" function. But, the prosecution history of the '806 patent and its parent applications tell the tale. The tale told by the prosecution history is that of inventors who may have intended to broaden the '806 patent claims beyond a non-continuous, single-output evaluation device, but who could not accomplish this objective, despite the change to broader language in the '806 patent, because the patent examiner never removed his prior art objections. Specifically, the inventors had to limit the '067 and '951 patent claims, based on the same prior art obviousness objections by the patent examiner, to a non-continuous, single output evaluation device. Based on our review of the entire prosecution history for the '806 patent, we find that the disputed '806 patent claims must be limited in the same way that

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Cummins limited the parent claims, because prior art covers the broader claims that Cummins disavowed to obtain the '067 and '951 patents, but now wants to reclaim through litigation.

(a) The Specifications.

The written specifications have several parts: the abstract, the background, the summary, the drawings (and a description of them), and a description of the preferred embodiments. The invention claimed by the '806 patent is titled "Method and Apparatus for Currency Discrimination and Counting." The parties have no issues regarding the apparatus covered by the invention. The only claims at issue, as indicated, are the method claims, and more particularly, the method claims for currency discrimination and identification -- not counting. We therefore focus on those portions of the specifications that regard the structures necessary to perform those functions.

In the abstract, the inventor describes "an improved method . . . for discriminating between currency bills of different denominations [that] uses an optical sensing and correlation technique based on the sensing of bill reflectance characteristics obtained by illuminating and scanning a bill along its narrow dimension." The parties agree that this "optical sensing and correlation technique" is a software system. 7 We will refer to it as software here. The rest of the abstract goes on to describe how this software distinguishes between bills or different denominations and how the software performs "denomination identification" -- identification of a bill "as belonging to the denomination." In other words, the software described in the specifications incorporates a process for identifying "known" (genuine) versus "unknown" (spurious) bills. The abstract speaks of a correlation number system for achieving such identification and/or discrimination, but it does not say what the software does the with the bills that are known and what it does with the bills that are unknown. The claims say what the invention does with the known bills (it stacks them in a "denominated bill output receptacle" ('806 patent, Col. 33, lines 46-47), or "one and only one output receptacle" (Id., Col. 36, line 51); but, it is not clear from the abstract what additional structure is needed for discriminating between the spurious and genuine bills and dealing with the spurious ones.

7 In the background, the inventor states that "optical sensing" is a "commonly used" technique ('806 patent, Col. 1, line 49). Thus, although this portion of the software claimed by the '806 patent is necessary structure for performing the claimed function of evaluation, the inventor is not claiming an "invention" as to this aspect of the software.

The background of the invention describes the invention as "relating, in general, to currency identification" and "more particularly to a method . . . for automatic discrimination . . . of different denominations . . . " ('806 patent, Col. 1, lines 24-27). The background goes on to describe the "related art" and draws a distinction between "systems capable of handling only a specific type of currency" and "complex systems which are capable of identifying and discriminating among and automatically counting multiple currency denominations" (Id., Col. 1, lines 35-40). The '806 patent claims an invention that falls into the latter, more complex system category.

The background section then proceeds to describe the "major obstacle" and "major problem" of conventional currency discrimination systems as being the tension between the desire for speed and accuracy: that is, the need to acquire an amount of data from the scanned bill sufficient to compare to the stored sample patterns in the software program of known bills in order to determine genuineness and denomination (which ordinarily had required scanning on the longer dimension of currency bills), versus the amount of "time required to analyze test data and compare it to predefined parameters in order to identify the currency bill under scrutiny, and the rate at which successive currency bills may be mechanically fed through and scanned" ( '806 patent, Col. 1, lines 63-66). The background describes the problem as being that "systems capable of accurate currency discrimination are costly, mechanically bulky and complex, and generally incapable of both currency discrimination and identification at high speeds with a high degree of accuracy" (Id., Col. 2, lines 30-35).

The summary of the invention picks up from that point, and identifies the way in which the "present invention" solves those identified problems. Specifically, "it is a principal object of the present invention to provide an improved method . . . for identifying and counting currency bills comprising a plurality of currency denominations" ('806 patent, Col. 2, lines 38-41). The summary further calls out some other objectives of the invention, namely, to increase the speed and accuracy of the devices that both count and perform the task of "denomination discrimination" among a plurality of types of United States
currency; and, to be compact in physical form, more economical, and more uncomplicated in construction and operation (Id., Col. 2, lines 45-50).

The "improved method" disclosed as the "principal object" of the invention is comprised of "an improved optical sensing and correlation technique adopted to both counting and denomination discrimination of currency bills" that "is based on" among other things -- "scanning a bill along its narrow dimension, approximately about the central section of the bill" (‘806 patent, Col. 2, lines 57-58). From this disclosure, it appears that the inventors are claiming a structure that comprises an improved software that adds a "correlation technique" that "scans" a bill "along its narrow dimension" (Id., Col. 2, line 57) and also "on the bill surface" (Id., Col. 2, line 61; Col. 3, line 5). The narrow dimension portion is expressly claimed (Id., Col. 33, lines 38, 41-42, 46): the correlation software and scanning on the bill's surface is not. Thus, the summary discloses the structure of the software that the inventors claim will help them achieve the identification aspect of the denominating function, but the summary does not tell us what structure to use for the discrimination aspect of that function because we still do not know what to do with the non-denominated (unknown or spurious) bills.

Thus, we move to the description of the preferred embodiments (and their corresponding drawings) (the "description"). The overwhelming majority of the description (all twelve pages, except for one arguable reference in one sentence in one paragraph, which we discuss below) discloses a currency evaluation device that employs a controlled stopping feature as part of the optical sensing and correlation technique that stops the device after a spurious bill is detected, and deposits the bill into the output bin so that it maybe removed before another bill is deposited on top of it (see, e.g., ‘806 patent, Col. 15, lines 24-30, Col. 16, lines 16-24). The description discloses, in great detail, a device that stops as part of the discrimination step of the evaluation process. Moreover, because the device stops "the transport of a bill that has been identified as ‘spurious’" (Id., Col. 17, line 60), such a device needs only one single stacker bin (or output receptacle) -- which is consistent with the desire, expressed in the summary, for a device that is "compact" (Id., Col. 2, line 49). The drawings for the description only show a device with one output receptacle or stacker (see, e.g., ‘806 patent, Figures 11 and 13-15), and the description -- like the language in Claim 40 -- refers exclusively to "a conventional stacking station where sensed and counted bills are collected" (Id., Col. 4, lines 1-3) (emphasis added) and "the stacker" (See, e.g., id., Col. 17, line 12).

8 We recognize that the articles "a" and "an" are not invariably synonymous with "one," but can mean "more than one, depending on the context in which the article is used," Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999); see also Tate Access Floors, Inc. v. Maxcess Technologies, Inc., 222 F.3d 958, 966 n. 4 (Fed. Cir. 2000) (giving "a" and "an" a plural meaning "in view of the embodiment disclosed in the specifications"). For reasons discussed in the text, we read the embodiment, the balance of the specifications and the prosecution history all to suggest that these articles be given their singular meaning.

The only reference in the specifications that may arguably be read as disclosing a multi-output bin device is found in one "fleeting" passage in the description:

Another advantage accruing from the reduction in processing time realized by the present sensing and correlation scheme is that the response time involved in either stopping the transport of a bill that has been identified as 'spurious', i.e., not corresponding to any of the stored master characteristic patterns, or diverting such a bill to a separate stacker bin, is correspondingly shortened. Accordingly, the system can conveniently be programmed to set a flag when a scanned pattern does not correspond to any of the master patterns. The identification of such a condition can be used to stop the bill transport drive motor for the mechanism.

(‘806 patent, Col. 17, lines 57-67) (emphasis added). Cummins argues that the reference a "separate stacker bin" expressly disclosed an invention with two output pockets: one for known bills, and one for spurious or rejected bills (Cummins Reply at 25). Cummins repeated this contention at oral argument, and further argued that the preceding reference to "stopping the transport of a bill that has been identified as 'spurious'" calls out the preferred embodiment disclosed in the description.

This latter interpretation strikes the Court, as implausible, because stopping the transport of a bill that has been identified as spurious is not what the preferred embodiment discloses. Rather, the preferred embodiment discloses an invention that
allows the transport of the spurious bill to continue until it is deposited in the output pocket; then and only then does the transport stop, so that no additional bills will be deposited into the pocket on top of the spurious bill. Thus, we read this language to refer to an approach different from that in the preferred embodiment discussed at length in the description.

Cummins' interpretation of the reference to diverting a spurious bill to a separate stacker bin, on the other hand, is not facially implausible. The word "divert" would suggest redirecting the spurious bill from the path that a known or genuine bill would follow, and the reference to a "separate" stacker could be interpreted as a separate, dedicated output pocket that would receive only spurious or rejected bills. On the other hand, the reference to diverting the spurious bill to a separate stake could be read as expressing in different words the preferred embodiment: the single output pocket which accumulates known currency in substance becomes a reject bin when a spurious bill is deposited into it, and the system then stops so that no other bills -- known or spurious -- can be deposited in that pocket until the spurious bill is removed. During

oral argument, counsel for Cummins conceded that this language could be read as referring to the system of handling spurious bills disclosed in the preferred embodiment.

In the Court's view, the immediately following sentences in Column 17 do not resolve the question. The first sentence, introduced by the word "accordingly," suggests that what follows is the result of either stopping the transport of the bill or depositing it in a stacker bin. But, the sentence that follows the word "accordingly" merely says that the system can be programmed to set a "flag" when a spurious bill is identified -- which would have to be done under any embodiment to ensure that the spurious bill is not commingled with genuine bills. This sentence does not shed light on what method of handling the bills identified as spurious is disclosed in the preceding sentence. And, the next sentence states that identification of a spurious bill "can be used to stop the bill transport drive motor for the mechanism" ( '806 patent, Col. 17, Lines 66-67) that would be necessary to the approach described at length in the preferred embodiment (stopping the transport immediately after the spurious bills is deposited in the output pocket), or in an alternative approach (set forth in Col. 17, lines 59-60) (stopping the transport of the bill that has been identified as spurious, before it reaches the output pocket). But, identification that stops the transport of a spurious bill would not be necessary if there was a separate output pocket dedicated to receiving spurious bills, since in that event there would be no need to stop the transport to avoid commingling known and spurious bills. On the other hand, the fact that this sentence states that identification of a spurious bill "can be used" to stop the bill transport drive can read to mean that it "need not be used" to do that -- which could be consistent with a continuous output system that contains two pockets, one exclusively dedicated to genuine bills and the other to spurious or rejected bills (i.e., the "separate stacker bin").

For these reasons, we find the passage upon which Cummins relies for its disclosure of a multi-pocket continuous operation unit to be ambiguous. Accordingly, we look to the prosecution history.

(b) The Prosecution History.

It is in the prosecution history for the '806 patent, and the history of its predecessor or parent patents, especially the '067 and '951 patents, that we find the answer to our question regarding the proper scope of the term "automatically denoming" in the disputed claims. We focus, in particular, on the discriminating function since the identification function for recognized bills only requires the structure of software identified in the specifications as the "optical sensing and correlation technique." We therefore look to the prosecution history for the sole purpose identifying the structure necessary to perform the discrimination function, and to consider Glory's assertion that Cummins has disavowed any claim to a two-pocket continuous operating unit (Glory Mem. at 45). We review the governing legal principles first.

The relevant legal rule is known as "prosecution history estoppel." "Prosecution history estoppel precludes a patentee from obtaining in an infringement suit patent protection for subject matter which it relinquished during prosecution in order to obtain allowance of the claims." Mark I Marketing Corp. v. R.R. Donnelly & Sons Co., 66 F.3d 285, 36 U.S.P.Q.2d 1095, 1099-1100 (Fed. Cir. 1995). "The standard for determining whether particular subject matter was relinquished is an objective one that depends on what a competitor reasonably would conclude from the patent's prosecution history. The application of prosecution history estoppel is a question of law." Id. (internal citations omitted). The relevant "history" is not limited to the particular patent-in-suit if that patent is part of a "continuation-in-part application." Id. 9 Rather, the prosecution history must be examined with respect to the entire history of the patent-in-suit to determine whether estoppel applies. Id. (citing Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) (prosecution history of parent application in a continuation-in-part series relevant to understanding claim scope). When viewing this entire history, the examining court must be careful "to determine whether and what subject matter was surrendered to procure issuance of the patent." Id.
Thus, the case law confirms that "any interpretation that is provided or disavowed in the prosecution history . . . shapes the claim scope." See, e.g., Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249 n.3 (Fed. Cir. 1998) (citing Loctite Corp. v. Ultraseal, Ltd., 781 F.2d 861, 867 (Fed. Cir. 1985) (holding that term not limited by the specifications was nonetheless "expressly defined" in a narrow manner in the prosecution history). This rule applies in a step-plus-function method claim where a court is searching for the structure or structures necessary to perform the claimed function. See Personalized Media v. Int'l Trade Comm'n, 161 F.3d 696, 704-05 (Fed. Cir. 1998).

9 "A CIP (continuation-in-part) application contains subject matter from a prior application and may also contain additional matter not disclosed in the prior application." Augustine, 181 F.3d 1291, 1301. "Different claims of such an application may therefore receive different effective filing dates." Id. "Subject matter that arises for the first time in the CIP application does not receive the benefit of the filing date of the parent application." Id. Thus, the decision on the proper priority date -- the parent application date -- for the subject matter claimed in a CIP application depends on when that subject matter first appeared in the patent disclosures. To decide this question, a court must examine whether the "disclosure of the application relied upon reasonably convey[s] to the artisan that the inventor had possession at that time of the later claimed subject matter." Id.

Surrender of subject matter can occur either by the amendments filed or arguments made by an applicant to overcome the patent examiner's objections to the disputed claims. Id. In particular, "the prior art may aid in determining the scope of an estoppel." Id. at 1299. Specifically, during prosecution a patentee cannot add a claim limitation in a parent application to overcome prior art and then later assert in a continuation-in-part application for another patent, which is subject to the same prior art objections, that the prior claim limitation is not binding on the patent-in-suit. Augustine, 181 F.3d at 1298-99.

10 Cummins asserts that this legal principal is limited to parent applications with the same literal language in the disputed claims (Cummins Reply at 26). We disagree. The two cases that Cummins cites to support this proposition, Advanced Cardiovascular Systems, Inc. v. Medtronic, Inc., 265 F.3d 1294 (Fed. Cir. 2001), and Al-Site Corp. v. VSI Inat'l, Inc., 174 F.3d 1308, 1322-23 (Fed. Cir. 1999), are distinguishable from this case. In Medtronic, for example, specific limitations were added to claim terms in the parent application that did not appear, literally or functionally, in the successive patent-in-suit. 265 F.3d at 1305. That is not the case here where the claim terms, although they use different literal language, describe the same function to be performed by device when it discriminates among a plurality of bills. Al-Site is also distinguishable from our case because, there, the court found that claim language in the parent application was different than that found in the patent-in-suit and had a different meaning. Thus, the specific limitations added to the claims in the parent application had no relevance to the claims at issue in the patent-in-suit. As indicated below, we find that the disputed claims of the '806 patent are functionally the same as those that were limited by Cummins to overcome prior art objections to what became the '067 and '951 patents.
the same as those in the '067 and '951 patents (i.e., claims disclosing the identification and discrimination functions that later were reduced to the shortened term "denominating" in the '806 patent).

The patent examiner initially rejected certain claims in the '067, '951 and '806 patents on the grounds that they were obvious over certain prior art in particular, the Jones and the O'Maley patents. Jones discloses a device that counted currency with an apparatus that included an input receptacle; a single output receptacle for receiving evaluated bills; a transport mechanism for transporting bills; a discriminating unit for evaluating the bills; and a means for flagging a bill when the identity of the bill could not be determined by the discriminating unit. However, the Jones device does not determine the denomination of the bill. It is the O'Maley invention that both determines the denomination of a bill and discriminates between genuine bills and spurious bills. But, the O'Maley device discloses a continuous operation that did not count the currency, and "teaches the use of at least two output receptacles" (Cummins Reply, Gatz Dec., Dec., Ex. D, CG0000662); one for rejected or spurious bills and the other for denominated or successfully evaluated bills. Thus, although the patent claims did not literally read on either the Jones or O'Maley patents, the patent examiner initially rejected the disputed claims in the Cummins' patent applications as invalid under 35 U.S.C. § 103, because he thought it was "obvious" to combine the two inventions into one device: the Cummins' invention, as disclosed in the '067, '951 and '806 patents.

It is this Court's view that Cummins persuaded the examiner to issue the claims that were initially rejected based on the Jones/O'Maley prior art by limiting Cummins' claims, including those that are disputed in this lawsuit, to a non-continuous device using a single output receptacle for denominated and non-denominated bills. Our reasons for this conclusion are as follows.

With respect to Application No. 200 (which led to the '806 patent), the examiner rejected all pending claims under 35 U.S.C. § 103 for obviousness in light of the Jones and O'Maley prior art (Cummins Reply, Gatz Dec., Ex. F, CG0000014). To overcome this objection, Cummins argued that the examiner had engaged in impermissible hindsight to combine the two references and that the invention claimed by what is now the '806 patent teaches a device that is distinguishable from the simple note counter invented by Jones and the denomination discriminator invented by O'Maley (Id. at CG0000014-15). Cummins argued that the claims of the '806 patent were distinguishable from the prior art because they contain, among other things, the limitations "automatically denominating bills of a plurality of U.S. denominations," "delivering any bill that has been denominated to one and only one output receptacle," delivering bills which have been evaluated to an output region comprising one and only one stacker wheel containing output receptacle," and "delivering any bill that has been denominated to one and only one output receptacle" (Id. at CG0000015). In other words, Cummins did not provide any arguments outside the claimed language to overcome the examiner's obviousness objections. We, therefore, look to the prosecution history of the parent applications for clues regarding the scope of the disputed claims.

Although the disputed claim language in the application for the '067 and '951 patents is not literally the same as what appears in the '806 patent's disputed claims, the identification and discrimination function claimed by the '067 and '951 patents is the same as that claimed by Cummins in the '806 patent. Thus, we find the prosecution history of the '067 and '951 patents relevant to the determination of what "automatically denominating" in the disputed claim is limited to and thus covers (i.e., what the necessary structure is for performing that aspect of the identification and discrimination function).

It is clear from the prosecution history of the parent applications for the '067 and '951 patents that Cummins limited the scope of the claims regarding the discrimination function in those patents to a non-continuous, single output receptacle. In the face of the Jones/O'Maley prior art objections by the examiner, Cummins distinguished the claims in the '067 and '951 patents by arguing that the inventions did more than combine the teachings of the single output receptacle note counter invented by Jones (an invention with the ability to flag unknown bills, including counterfeit, by stopping the machine, but which could not determine the denomination of the bills it was counting) with O'Maley's multiple output receptacle denomination discriminator (Cummins Reply, Gatz Dec., Ex. E, CG0001552; Ex. D, CG0000662-63). According to Cummins, the claims of the '067 and '951 patents discriminated, denominated and counted using a single-output receptacle and a controlled stopping function, so that spurious or rejected bills could be removed and thus culled out from the genuine bills that would be denominated, counted and deposited in the output receptacle (Id., Ex. D at CG0000662-663; Id., Ex. F., CG0001551-1552).

Specifically, with regard to the '067 patent, Cummins successfully distinguished its claims from the prior art by arguing that it was not obvious to combine a denomination discriminator, which necessarily needed to do something with unknown bills, with a single output receptacle. The invention was the combination of those features, and the combination worked due to the
controlled stopping feature and the software that allowed the unknown bill to be removed without commingling it with the known bills (Id., Ex. D, CG0000662). Cummins further explained to the examiner that this combination of a currency discriminator utilizing a single-pocket satisfied a "long felt need" for a unit that was more compact, lighter and more attributable than previously available systems, and that the single output pocket "contributes to these attributes by reducing the mechanical complexity of the device including a reduction in the number of parts" (Id., Ex. D, CG0000665). This point is consistent with Cummins' stated objective in the summary of the '067 (and '806 patent) that an object of the invention was to create a unit that is "compact, economical, and has uncomplicated construction and operation" (compare '067 patent, Col. 2, lines 41-42; and '806 patent, Col. 2, lines 49-50). As evidence that the '067 patent was not obvious, Cummins pointed to the long coexistence of single pocket note counters and multi-pocket discriminators, without characteristics of a "single pocket" and a discrimination function being combined in one unit (Cummins Reply, Gatz, Dec., Ex. D, GC0000666).

With regard to the '951 patent, Cummins again distinguished its claims from the Jones/O'Maley prior art by arguing that it was not obvious to combine a denomination discriminator that flagged not only unknown bills, but also spurious bills, with a note counter in a single device that contained only one output receptacle for known and unknown bills (Cummins Reply, Gatz Dec., Ex. E, CG0001552). In particular, Cummins argued that the combination of prior art would teach a device that "would detect counterfeit bills and determine their denomination" (as well as, presumably, count the denominated bills), but "it would stop when a suspect bill was detected and also divert it to a separate bin" (Id.) (emphasis added). Because the Cummins' invention "does not do that" Cummins argued that there was "no suggestion that such a combination" could "be made" (Id.). In addition, Cummins distinguished other prior art cited by the examiner (the Glory GFB-200 series) by pointing out that the cited Glory units deposited both a suspect bill and the next bill into the output tray, whereas the Cummins' invention "features stopping the machine such that only the suspect bill is deposited in the output tray for inspection" (Id., Ex. E, 0001553).

The Court finds that these statements by Cummins expressly limited the claims of the '067 and the '951 patents to a currency evaluation device that performed the identification and discrimination function by using a non-continuous, single output receptacle. In overcoming the examiner's objectives, Cummins asserted that this "combination" of features was distinct and not obvious from the prior art because the prior art did not teach the art of discrimination and identification using a single output receptacle; and, the only way such an art could be achieved was by using a stopping mechanism for the discrimination that did not divert the spurious bills to a separate stacker bin or output receptacle. Given this history, which preceded the application for the '806 patent, it is difficult to see how the discrimination step in the denomiating function -- broadly identified as "denomination discrimination" in the same specifications used for the '067 and '951 patents -- can avoid being limited to a non-continuous currency evaluation device comprising a single output receptacle.

In so stating, we acknowledge that Cummins' use of broader claim language in the '806 patent may have been intended to cover a broader range of devices than the non-continuous, single output receptacle evaluation system to which Cummins limited itself in order to overcome the examiner's prior art rejections and obtain issuance of the '067 and '951 patents. And, we further recognize that in responding to the examiner's same prior art rejection in the application leading to the '806 patent, Cummins did not expressly state that its invention was limited to a device with a controlled stopping function and a single output receptacle -- as we believe Cummins clearly did in connection with the '067 and '951 patents. But, at the same time, in addressing the examiner's prior art rejections in the prosecution of the '806 patent, Cummins did not expressly indicate that it was seeking by its new claim language an invention covering the continuous operating machine with multiple output pockets. Rather, Cummins simply pointed the examiner to the new claim language which contained the term "automatically denomiating" -- a term that was used in the prior patents and that Cummins did not explain. Cummins did nothing to alert the examiner that it was seeking to cover by the '806 patent what it had previously disavowed, in order to avoid a rejection due to prior art, in obtaining the '067 and '951 patents. Nor can Cummins point to the brief passage in Col. 17 of the '806 patent to a unit that would "divert [spurious bills] to a separate stacker bin" as revealing this intent; that same passage in the specifications of the '806 patent also appears in the '067 and '951 patents. 11

11 In light of the prosecution history, Cummins' reliance on this language does not carry the day. A fair reading of the prosecution history shows either (a) that this language, which was in the applications for '067 and '951 patents, does not mean what Cummins now claims, or else Cummins would not have told the examiner that its invention was a one output device with a controlled stopping function, or (b) that the cited language means what Cummins claims, but that Cummins disavowed any effort to obtain a patent for a multi-output continuous operation unit when confronted with prior art that
jeopardized the issuance of the patents at all.

The fact remains that the discriminating step in the evaluation function of the '806 patent is functionally the same as that step in the '067 and '951 patents. It stands to reason that the same limitations would apply to that step, despite linguistic differences in the claim language. Otherwise, the broad claims now urged by Cummins would run headlong into the combination taught by Jones and O'Maley, and the Cummins' inventors admitted as much in prosecution of the '951 patent (Gatz Dec., Ex. E, at CG0001552) ("A combination of the machines of O'Maley and Jones . . . would detect counterfeit bills and determine their denomination, as the applicants' machine does. However, it would stop when a suspect bill was detected and also divert it to a separate bin").

In sum, we refuse the invitation to allow Cummins to recapture through litigation subject matter that it surrendered to obtain issuance of the '067 and '951 patents -- and thus the '806 patent. This Court finds that the proper construction of "automatically denominating" in the '806 patent's disputed claims is limited to a non-continuous currency evaluation device that has only one output receptacle.

Automatically Denominating

Much of the dispute in this case centers on the interpretation of the phrase "automatically denominating." That phrase appears in all of the independent claims plaintiff asserts against Glory. (See Nelson Decl., Ex. 1, '806 Patent, Claims 1, 16, 21, 30, 40, 49, 76, 82, 91, 101, 112, 125.) Claim 1, set forth below, is illustrative:


receiving a stack of bills to be evaluated in an input receptacle of the device,

transporting the bills, one at a time, from the input receptacle along a transport path,

automatically denominating bills of a plurality of U.S. denominations,

delivering bills which have been evaluated to an output region comprising one and only one stacker wheel containing output receptacle.

(Id., Claim 1, Col. 30, ll. 34-44) (emphasis added).

Glory contends that the phrase "automatically denominating" must be interpreted as a "step-plus-function" limitation as set forth in 35 U.S.C. § 112 P 6:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The phrase "steps for" creates a presumption that the recited steps are in step-plus-function form. Masco Corp. v. United States, 303 F.3d 1316, 1326 (Fed. Cir. 2002). A claim that does not contain the "steps for" signal is not construed as a step-plus-function limitation unless the "limitation contains no act." Id. at 1327. If a claim is subject to a step-plus-function limitation, the Court must "look[] to the specification for acts corresponding to the step-plus-function element [that] are necessary to perform the recited function." Micro Chem., Inc. v. Great Plains Chem. Co., Inc. 194 F.3d 1250, 1259 (Fed. Cir. 1999).

Claims 40, 76 and 101, the independent claims at issue in the preliminary injunction proceeding, do not contain the "steps for" signal. (See Nelson Decl., Ex. 1, ‘806 Patent, Claims 40, 76, 101.) Nonetheless, as Glory points out, because those
claims contain the "automatically denominating" function without reciting any acts in support of it, we held that those claims must be interpreted pursuant to 35 U.S.C. § 112 P 6. (See PI Order at 17.) In Glory's view, the Court should extend that construction to every claim in which the phrase "automatically denominating" appears and hold that the acts necessary to perform that function are: (1) scanning standard bills of known denominations to generate master characteristic patterns; (2) scanning unknown bills to obtain a reflected light pattern proportional to the intensity of light from the scanned bills; (3) using a correlation algorithm that requires calculating average values, variances, and normalized values to correlate the reflected light pattern from the scanned bill with the master characteristic patterns; (4) decelerating the transport mechanism upon identification of a no-call bill; and (5) stopping the transport mechanism after scanning the bill following a no-call bill. (Defs.' Mem. Supp. Mot. Partial Summ. J. '806 Patent at 14-15.)

Glory's argument, however, ignores the fact that two of the independent claims that were not at issue in the preliminary injunction proceeding, but are at issue now, recite acts in support of the "automatically denominating" function. Claim 112, for example, recites:


automatically denominating bills of a plurality of U.S. denominations at a rate in excess of 800 bills per minute, the bills being denominated having images associated therewith corresponding to the plurality of denominations, wherein the denoming comprises scanning passing bills using a detector and generating image signals and determining the denomination of the bills based on the image signals.

(Nelson, Decl., Ex. 1, '806 Patent, Claim 112, Col. 39, ll. 17-18, 26-33) (emphasis added). Similarly, claim 125 recites:


automatically processing bills of a plurality of U.S. denominations . . . wherein the denoming comprises scanning passing bills using a detector and generating image signals and determining the denomination of the U.S. bills based on the image signals associated with only the green side of bills.

(Id., Claim 125, Col. 40, ll. 9-10, 19-29) (emphasis added). In addition, Cummins now asserts numerous dependent claims against Glory's machines that recite additional acts in support of "automatically denominating" or "denominating." (See id., Claims 4, 10-11, 15, 18-19, 26-27, 29, 35-36, 39, 44-45, 48, 51-52, 55-56, 61-62, 65, 70-71, 75, 79-81, 86-87, 96-97, 100, 109, 111, 124.) For example, in claim 4, Cummins claims:

The method of claim 1 wherein automatically denominating comprises detecting light reflected off passing bills, generating a reflected light characteristic information output signal in response to detected characteristic information, and generating a denomination signal in response to the reflected light characteristic information output signal.

(Id., Claim 4, Col. 30, ll. 51-56) (emphasis added). Though none of this additional language was analyzed during the preliminary injunction proceeding, Glory makes no attempt to reconcile the language with the preliminary injunction construction of "automatically denominating" that it espouses.

Cummins contends that Glory's view is wrong on all fronts. First, it argues that "automatically denominating" should not be construed as a step-plus-function limitation because it recites a function rather than an act. (Pl.'s Mem. Opp'n Defs.' Mot. Partial Summ. J. '806 Patent at 53); see Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 849-50 (Fed. Cir. 1999) (Rader, J., concurring) (stating that the "function" of claim element corresponds to what the element ultimately accomplishes while "acts" correspond to how the function is accomplished). Second, even if it does recite a function, Cummins says that these claims explicitly recite "acts in support thereof," which takes the limitation out of the scope of § 112 P 6. See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. GE, 264 F.3d 1111, 1120-21 (Fed. Cir. 2001) (explaining that "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format") (citation omitted). Finally, Cummins contends that even if the "automatically denominating" term is a step-plus-function limitation, Glory overstates the acts that are required to perform that function. (Pl.'s Mem. Opp'n Defs.' Mot. Partial Summ. J. '806 Patent at 59.)
The Court finds Cummins' argument persuasive. None of the claims at issue contain the phrase "steps for," creating a presumption that the claim should not be interpreted under § 112 P 6, unless the claim plainly fails to recite an act. See Masco Corp. at 1327 (noting "where the claim drafter has not signaled his intent to invoke § 112, paragraph 6 by using the 'steps for' language, we are unwilling to resort to that provision to constrain the scope of coverage of a claim limitation without a showing that the limitation contains nothing that can be construed as an act.") In this case, independent claims 112 and 125 explicitly recite acts related to denominating. (See Nelson Decl., Ex. 1, '806 Patent, Claim 112, Col. 39, ll. 16-33, Claim 125, Col. 40, ll. 9-29.) Claim 112, for example, recites, "[a] method of processing currency bills . . . comprising . . . automatically denominating bills . . . wherein the denominating comprises scanning passing bills using a detector and generating image signals and determining the denomination of the bills based on the image signals." (Id., Col. 39, ll. 16-33.)

The acts of "scanning passing bills," "generating image signals" and "determining the denomination of the bills" remove the phrase "automatically denominating" from the scope of § 112 P 6. (Id.; see TurboCare, 264 F.3d at 1120-21. Glory makes no attempt to explain the inconsistency between its proposed interpretation of "automatically denominating" and the language in claims 112 and 125 that describe the automatically denominating function. Accordingly, the Court construes the phrase as falling outside the scope of 35 U.S.C. § 112 P 6, and declines to read in the limitations proposed by Glory.

Even if "automatically denominating" is not a step-plus-function limitation, Glory says the phrase must still be interpreted to require the device (1) to identify "unknown bills . . . using the correlation procedure" described in the patent and (2) "stop[] . . . when a no-call bill is identified" because the specification so requires. (Defs.' Mem. Supp. Mot. Partial Summ. J. '806 Patent at 16.) Though proper claim construction includes an examination of the patent specification, "the appropriate starting point . . . is always with the language of the asserted claim itself." Comark Communications, Inc., 156 F.3d at 1186. The specification may shed light on the meaning of the terms recited in a claim, but "the resulting claim interpretation must, in the end, accord with the words chosen by the patentee to stake out the boundary of the claimed property." Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998). As with the step-plus-function limitation, Glory does not explain how to reconcile its specification-based construction with the explicit language in the claims concerning "automatically denominating."

Interpreting "automatically denominating" in all claims to require bills to be identified according to the correlation procedure set forth in the patent is problematic. First, a number of dependent claims, like claim 4, contain limitations on "automatically denominating" and "denominating." (See Nelson Decl., Ex. 1, '806 Patent, Claim 4, Col. 30, ll. 51-56 (stating that automatically denominating "comprises detecting light reflected off passing bills, generating a reflected light characteristic information output signal in response to detected characteristic information, and generating a denomination signal in response to the reflected light characteristic information output signal").) According to the doctrine of claim differentiation, the limitations on "automatically denominating" that appear in claim 4, the dependent claim, should not he 'read into' claim 1, the claim on which it depends. Liebel-Flarsheim Co., 358 F.3d at 910. Moreover, as Cummins notes, reading additional limitations into the independent claims would make them narrower than the dependent claims that define "automatically denominating" broadly, an interpretation that would violate the patent statute. (Pl.'s Mem. Opp'n Defs.' Mot. Partial Summ. J. '806 Patent at 63); see 35 U.S.C. § 112 P 4 ("[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.").

Interpreting "automatically denominating" as requiring the device to slow and stop when a no-call bill is identified creates similar problems. As discussed in the following section, some of the claims that contain the phrase cannot be limited to a single output pocket and transport path. If the claims extend to an embodiment with two paths and pockets, one path and pocket for denominatied bills and another path and pocket for no-call bills, the patented device would not have to decelerate and stop to perform the automatic denomination function, as Glory contends.

Glory argues that "automatically denominating" must include slowing and stopping because plaintiff made that representation to the PTO. Glory points to an affidavit plaintiff submitted to the PTO to overcome an obviousness rejection of various claims of U.S. Patent No. 5,692,067 ("the '067 patent"), an ancestor of the '806 patent. In that affidavit, plaintiff partially attributes the commercial success of its JetScan currency discriminators, which are covered by the '067 patent and perform the automatic denomination function, to the fact that "the operation of the device is suspended" when "the discriminator is unable to determine the denomination of a bill." (Nelson Decl., Ex. 5, Prosecution History '067 Patent at GL047382.) Having told the PTO that the automatic discrimination includes stopping when a no-call bill is identified, Glory says plaintiff must live with that representation.
Read in context, however, it is clear that the JetScan is just one embodiment of the invention disclosed by the '067 patent. Earlier in that affidavit, plaintiff said that there had been a long-felt need for "a small, light weight, affordable currency discriminator," which the JetScan fulfilled: "The single pocket embodiment of the present invention contributes to a device that can denominate bills and yet is compact, light weight, and more affordable." (Id. at GL047379-80) (emphasis added).

The fact that the JetScan, which stops on no-call bills, is just one embodiment of the invention is also illustrated by the claims of the patent itself. Claim 1 of the '067 patent recites:

A currency evaluation device for receiving a stack of currency bills and rapidly evaluating all the bills in the stack, said device comprising:

an input receptacle for receiving a stack of bills to be evaluated;

a single output receptacle for receiving said bills after said bills have been evaluated;

a transport mechanism for transporting said bills, one at a time, from said input receptacle to said output receptacle along a transport path;

a discriminating unit for evaluating said bills, said discriminating unit including a detector positioned along said transport path between said input receptacle and said output receptacle, said discriminating unit counting and determining the denomination of said bills; and

means for flagging a bill when the denomination of said bill is not determined by said discriminating unit.

(Id., - '067 Patent, Claim 1, Col. 30 ll. 11-27 at GL047180.) Claim 2, which is dependent on Claim 1, claims: "The currency evaluation device of claim 1 wherein said means for flagging causes said transport mechanism to halt with said bill whose denomination has not been determined being the last bill transported to said output receptacle." (Id., Claim 2, Col. 30, ll. 28-31 at GL047180.) As discussed above, under the doctrine of claim differentiation, the presence of the halting limitation in dependent claim 2 creates the presumption that the limitation is not present in claim 1. Liebel-Flarsheim Co., 358 F.3d at 910. Because claim 2 recites an embodiment that stops on no-calls, the JetScan embodiment, claim 1 is presumed to recite an embodiment that is not so limited, i.e. does not stop on no-calls. Because Glory has not rebutted that presumption, plaintiff's statement to the PTO about the JetScan's halting feature cannot be extended to claims and embodiments that do not contain the halting limitation.

In short, the Court holds that "automatically denominated" is not a step-plus-function limitation and does not require that the claimed device identify unknown bills using the correlation procedure described in the patent or decelerate and stop when a no-call bill is identified.

Now that we know what "automatically denominated" does not mean, we must determine what it does mean. Cummins contends that the phrase means determining the denomination of bills by any method known to those skilled in the art at the time the '806 patent application was filed. (Pl.'s Mem. Opp'n Defs.' Mot. Partial Summ. '806 Patent at 61-62.) Construing the phrase so broadly, Glory asserts, creates validity problems. To be valid, a patent must have a specification that:

contain[s] a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and . . . set[s] forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112 P 1. If "automatically denoming" is construed to mean determining the denomination in any recognized manner, Glory says the specification does not comply with the enablement requirement.

"To be enabling, the specification of the patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." Plant Genetic Sys., N.V. v. DeKalb Genetics Corp., 315 F.3d 1335, 1339
That is not to say that the specification itself must necessarily describe how to make and use every possible variant of the claimed invention, for the artisan's knowledge of the prior art and routine experimentation can often fill gaps, interpolate between embodiments, and perhaps even extrapolate beyond the disclosed embodiments, depending upon the predictability of the art. But it does mean that, when a range is claimed, there must be reasonable enablement of the scope of the range.

AK Steel Corp. v. Sollac & Uigine, 344 F.3d 1234, 1244 (Fed. Cir. 2003) (citations omitted).

Glory argues that the '806 patent enables only a device that denominates according to the correlation procedure disclosed in the patent. The Court disagrees. Though the specification says little about alternate denomination methods, the record establishes that such methods were well known to those skilled in the art of designing currency processing devices in December 1999, when the application for the '806 patent was filed. There is no dispute that currency denominating devices existed in December 1999. (See, e.g., Nelson Decl., Ex. 8, U.S. Patent No. 4,179,685 ("O'Maley Patent"), Col. 2, ll. 3-5 (disclosing "an automatic currency identifying system"); id., Ex. 5, Prosecution History '067 Patent at GL047392 (statement by plaintiff to PTO that De La Rue had been selling multipocket discriminators since 1980); id. (statement by plaintiff to PTO that Glory "was . . . offering a multipocket discriminator in 1986"); Anderson Decl., Ex. T, David Munson Decl. P 14 (stating that "automatic currency identification systems have existed for decades").) Moreover, Glory's own expert David Munson opines that various correlation algorithms for currency discrimination were known to and understood by those skilled in the art well before 1999. (Id., Ex. V, Munson Report at 5-6.) Given this evidence, the Court concludes that the specification of the '806 patent sufficiently enables a device that denominates according to methods other than the correlation procedure disclosed in the patent.

In sum, the Court construes the phrase "automatically denominating" to mean automatically determining the denomination of bills by any method known to those in the art at the time the '806 patent application was filed. See Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1254 (Fed. Cir. 2004) (stating that "a patent document cannot enable technology that arises after the date of application"), cert. denied, 160 L. Ed. 2d 770, 125 S. Ct. 870 (2005).

The parties dispute the claims "evaluating," and "about 800 bills per minute," both of which have already been construed above. The only other term the parties dispute is "automatically denominating." Having fully reviewed the parties' briefs on the motion for reconsideration and the briefs on claim construction for the '806 Patent, and having heard testimony on the term "automatically denominating" at the Markman hearing, the Court affirms the '806 Opinion.

In Glory's late 2005 motion for reconsideration, in the second half of its claim construction brief before this Court, and in argument during the Markman hearing, Glory relies primarily on recent cases from the Federal Circuit that Glory believes invalidate the reasoning of the '806 Opinion. Glory cites to Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) and Honeywell Intl' Inc. v. ITT Industrials, Inc., 452 F.3d 1312 (Fed. Cir. 2006) to support its argument that the '806 Opinion erroneously relied too little upon the terms of the specification, and relies upon Curtiss-Wright Flow Control Corp. v. Velan, Inc. 438 F.3d 1374 (Fed. Cir. 2006) to support its argument that an inventor cannot claim prior art specifically disclaimed in its specification. While the Court respects Glory's arguments that the specification discusses the "optical sensing and correlation technique" that halts whenever a "no-call" bill is discovered, none of the cases cited by Glory refute the basic principles that a court should not import everything in the specification into the claims, or the basic principle of claim differentiation. See Phillips, 415 F.3d at 1315 ("The presence of a dependent claim that adds a particular limitation give rise to a presumption that the limitation in question is not present in the independent claim;"); Varco, L.P. v. Pason Systems USA Corp., 436 F.3d 1368, 1372 (Fed. Cir. 2006) ("In examining the specification for proper context, however, this court will not at any time import limitations from the specification into the claims."). The '806 Opinion explained why "automatically denominating" could not be limited to the specific correlation technique with halting function suggested by Glory because the dependent claims of the '806 Patent describe specific limitations on "automatically denominating" and "denominating," creating the inference that the independent claims may not be so limited. '806 Opinion at 11-13. Additionally, as stated in the '806 Opinion, Glory's own expert testified that correlation algorithms as well as various other denomination techniques were "known to and understood by those in the art well before 1999." '806 Opinion at 15. Therefore, the Court agrees with the '806 Opinion that "automatically denominating" includes any method for automatic denomination known to those skilled
B. The Step-Plus Function Limitation

ICE argues that the remaining terms, "automatically administering credit on a unilateral basis," and "automatically deriving a respective dealable price message," are "step-plus-function Claims" and are limited by 35 U.S.C. § 112 P 6 (the "112(6) limitation"). Section 112 P 6 allows a patentee to "describe an element of the invention by the result accomplished or the function served, rather than by describing the element to be used." Warner-Jenkinson Co., v. Hilton Davis Chem. Co., 520 U.S. 17, 27, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997). According to 35 U.S.C. § 112 P 6:

An element in a claim for a combination may be expressed as a means or a step for performing the specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112 P 6 (2000). However, "the price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1208 (Fed. Cir. 2002) (citing to O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1583 (Fed Cir. 1997)). As such, the patentee shoulders "the duty to link or associate structure in the specification with the function [as] the quid pro quo for the convenience of employing the [statute]." B. Braun Med., Inc. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed. Cir. 1997). However, if the patentee fails to sufficiently describe the structure, material, or act to which the function corresponds, the claim is overbroad and therefore, invalid. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001) ("Failure to disclose adequate structure corresponding to the recited function in accordance with 35 U.S.C. § 112, paragraph 1, results in the claim being of indefinite scope, and thus invalid, under 35 U.S.C. § 112, paragraph 2.").

In O.I. Corp. v. Tekmar Co., 115 F.3d 1576 (Fed Cir. 1997), the Federal Circuit analyzed whether the 112(6) limitation applies to a "step" or "method" claim as opposed to when it limits an apparatus claim. The Federal Circuit concluded that "the term 'steps' [refers] to the generic description of elements of a process and the term 'acts' [refers] to the implementation of those steps," and that the 112(6) limitation "is implicated only when steps plus function without definite acts are present." See O.I Corp. at 1583 (emphasis added). The Federal Circuit reasoned that: "Claiming a step by itself, or a series of steps, does not implicate section 112, P 6. Merely claiming a step without recital of a function is not analogous to a means plus a function." O.I. Corp., 115 F.3d at 1583 (Fed. Cir. 1997); Cardiac Pacemaker, Inc., v. St. Jude Med., Inc., 381 F.3d 1371, 1382 (Fed. Cir. 2004) (A method claim "necessarily recites the steps of the method.").

The Federal Circuit reviewed a patent which claimed: "A method comprising the steps of: (a) passing an analyte slug through a passage." O.I Corp., 115 F.3d at 1578. The Federal Circuit held that the act of "passing an analyte slug through a passage" did not constitute a function simply because the operative verb was in the imperfect tense, "such as passing, heating, reacting transferring etc." Id. The Federal Circuit noted that if it were "to construe every process claim containing steps described in an 'ing' verb," then every process claim would be subject to the 112(6) limitation. Id.; see also Cardiac Pacemaker, Inc., 381 F.3d at 1371 (Fed. Cir. 2004) ("[A] patentee can define a method or process claim containing steps that begin with a gerund . . . without necessarily subjecting the claim to § 112 P 6 limitations.") While it indicated that verbs in the imperfect tense do not in themselves implicate the 112(6) limitation, the Federal Circuit left it to the trial courts to establish whether a claim element was a function or an act.

The Federal Circuit subsequently clarified when claim language is to be construed as a function as opposed to an act in Mascio v. United States, 303 F.3d 1316 (Fed. Cir. 2002). In Mascio, the Federal Circuit expanded upon its reasoning in O.I. Corp., and further advised when claim language describes acts or functions:

The "underlying function" of a method claim element corresponds to what the element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to how the function is accomplished.

Mascio, 303 F.3d at 1327 (citing to Seal-Flex, Inc. v. Athletic Track and Ct. Constr., 172 F.3d 836, 849-50 (Fed. Cir. 1999))
and "transmitting" in O.I Corp. and Masco, respectively. Additionally, as neither the claim language nor dictionaries of the "administering" and "deriving" can be analogized in use and form in their respective claim elements to the verbs "passing" Second, as in both the O.I Corp. and Masco, the disputed terms in Claim 17 are steps without functions. The verbs element that does not include the phrase "step for" will not be considered to invoke 35 U.S.C. 112, 6."

First, it is undisputed that Claim 17 of the '627 Patent does not contain the language "step for." U.S. Patent No. 6,014,627 (issued January 11, 2000). As noted, the lack of the language "step for" generally signals that an act, rather than a function, follows. See Cardiac Pacemaker, Inc., 381 F.3d at 1382. While not dispositive, "such a grammatical structure indicates that this is not a step-plus-function claim," or at least creates a heavy "presumption that each ensuing step is [not] in step-plus-function form." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 339 F. Supp. 2d 202, 255 (D. Mass. 2004); see also Cardiac Pacemaker, Inc., 381 F.3d at 1382; Epcon Gas Sys., Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1028 (Fed. Cir. 2002); Seal-Flex, Inc. v. Athletic Track & Ct. Constr., 172 F.3d 836, 850 (Fed. Cir. 1999) (Rader, J., concurring); Supp. Exam. Guidelines for Determining the Applicability of 35 U.S.C. § 112 P 6 is not warranted. n4

Here, relying on Masco ICE contends, Claim 17 does not contain acts, but rather merely states functions. (Harrison, Att'y for Def., Hr'g Tr. 63: 12.) In other words, ICE asserts that Claim 17 states what the elements of the claim ultimately accomplish (the function), but does not state how the function is accomplished. Id. ICE asks: "Where is the how?" Id. In opposition, EBS asserts that, similar to the language in O.I. Corp., the terms are just a recital of steps that do not state a function. (Stiff. Att'y for Pl., Hr'g Tr. 10: 7-8.)

In accordance with Masco and O.I. Corp., the 112(6) limitation does not apply for two reasons. First, the disputed claim does not contain the language "step for" and, therefore, the 112(6) limitation is presumed not to apply. Second, as the Federal Circuit found in both O.I Corp and Masco, the operative verbs "administering" and "deriving" do not themselves indicate the presence of functions.

First, it is undisputed that Claim 17 of the '627 Patent does not contain the language "step for." U.S. Patent No. 6,014,627 (issued January 11, 2000). As noted, the lack of the language "step for" generally signals that an act, rather than a function, follows. See Cardiac Pacemaker, Inc., 381 F.3d at 1382. While not dispositive, "such a grammatical structure indicates that this is not a step-plus-function claim," or at least creates a heavy "presumption that each ensuing step is [not] in step-plus-function form." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 339 F. Supp. 2d 202, 255 (D. Mass. 2004); see also Cardiac Pacemaker, Inc., 381 F.3d at 1382; Epcon Gas Sys., Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1028 (Fed. Cir. 2002); Seal-Flex, Inc. v. Athletic Track & Ct. Constr., 172 F.3d 836, 850 (Fed. Cir. 1999) (Rader, J., concurring); Supp. Exam. Guidelines for Determining the Applicability of 35 U.S.C. § 112 P 6 is not warranted. n4

Second, as in both the O.I Corp. and Masco, the disputed terms in Claim 17 are steps without functions. The verbs "administering" and "deriving" can be analogized in use and form in their respective claim elements to the verbs "passing" and "transmitting" in O.I Corp. and Masco, respectively. Additionally, as neither the claim language nor dictionaries of the
art explicitly ascribe these verbs meanings particular to "traders dealing in financial instruments," they are interpreted according to their ordinary meaning in their respective clauses. According to their ordinary meaning in their respective clauses, the phrases "automatically administering credit on a unilateral basis" and "automatically deriving a dealable price message" do not state "what" is accomplished, but rather state steps as to "how" the ultimate function of Claim 17 accomplishes, the "trading of financial instruments between traders." U.S. Patent No. 6,014,627 (issued Jan. 11, 2000).

As such, the remaining terms do not implicate section 112 P 6. Phrased in the "what" and "how" language of Masco, "administering" in the sense of dispensing, furnishing or tendering, describes how "administering credit on a unilateral basis" is performed. See Webster's Third New International Dictionary of the English Language Unabridged 27 (1993) ("Administer: to mete out, dispense."); see also Webster's Third New International Dictionary of the English Language Unabridged 27 (1993) ("Administration: furnishing or tendering according to a prescribed act."). Additionally, the '627 Patent itself suggests that "administering" means dispensing according to a prescribed act: "Each client site establishes and may subsequently vary or reset a credit limit for each possible counterparty." U.S. Patent No. 6,014,627 (issued Jan. 11, 2000). "Deriving" in the sense of gathering and arriving at a conclusion by deduction, is an act which describes how "deriving a dealable price message" is performed. See Webster's Third New International Dictionary of the English Language Unabridged 608 (1993) ("Derive: to gather or arrive at (as a conclusion) by reasoning and observation; deduce."); see also American Heritage Dictionary of the English Language 489 (4th ed. 2000).

Consequently, the terms "automatically administering credit on a unilateral basis" and "automatically deriving a respective dealable price message" are not subject to § 112 P 6.

* * *

2. "Automatically Deriving a Respective Dealable Price Message"

EBS contends that the phrase, "automatically deriving a respective dealable price message" means:

- Deriving a message sent to a trading floor (a potential taker) and indicating a bid or offer originating from another trading floor (a potential maker) with whom the potential taker has credit remaining.

(Siff, Att'y for Pl., Hr'g Tr. 32: 1-4.)

"Automatically deriving a respective dealable price message" consists of (i) "automatically" (ii) "deriving" (iii) "respective dealable price message." As "automatically" and "deriving," already defined above, do not necessitate more attention here.

The term "respective dealable price message" is supported by evidence intrinsic in the '627 Patent. Claim 17 states: "price quotation messages from those other trading floors for which bilateral credit currently remains both from and to a particular trading floor." U.S. Patent 6,014,627 (issued Jan. 11, 2000). In further support, the term "dealable" consists of two conjoined root words, "deal" and "able." To deal means "to buy or sell, or to do business." Dictionary of Banking and Finance, 112 (Standard Chartered Bank 1998). Analogous to the verb "to deal," "deal" as a noun defined by the Handbook of International Financial Terms, 145 (Oxford Univ. Press 1997), is a "colloquial term for transaction." "Able," according to Webster's Third New International Dictionary of the English Language Unabridged, 4 (1993), means, "possessed of needed powers or of needed resources to accomplish an objective."

As such, reading the '627 Patent in light of the relevant industry standards and the ordinary meaning of the terms, at least insofar as current dictionary definitions are concerned, the contested language must follow the EBS construction and be construed as:

- Deriving a message sent to a trading floor (a potential taker) and indicating a bid or offer originating from another trading floor (a potential maker) with whom the potential taker has credit remaining.
Keen has alleged that InfoRocket infringes claims 1-10, 12-19 and 44 of the '165 Patent. (Keen's Mem. Prelim. Inj. at 11).

Claim 1 of the '165 Patent claims:

A method of connecting two parties in real time, the method comprising:

displaying a list of experts to a consumer via an Internet connection with said consumer prior to the consumer submitting a question;

the list indicating individually whether each expert is currently available to telephonically communicate with said consumer at a time when said consumer is viewing the list, said list includes a compensation rate for each expert;

in response to the consumer selecting a displayed icon corresponding to an expert from the list, automatically establishing a telephone connection between the expert and the consumer prior to the consumer submitting a question to the expert; and

said automatically establishing the connection includes a central controller placing a telephone call to said consumer via a connection separate from said Internet connection, and said central controller placing a telephone call to said expert.

('165 Patent, col. 9, ln. 65 to col. 10, ln. 18). Claim 1 is the only independent Claim contained within the '165 Patent that is alleged to be infringed.

In their claim construction arguments, the parties focus primarily on certain phrases contained in claim 1 of the '165 Patent, viz., "automatically establishing" a telephone connection "in response to" the selection of an icon by the consumer. With respect to the claims themselves, InfoRocket argues that the meaning of these phrases is "unequivocal":

"In response to" means exactly what it [says]. Namely, that the telephonic connection is made in response to selecting an icon. The telephonic connection is not made in response to selecting a button. Nor is it made in response to dialing a number. The language "in response to" means that once the consumer merely selects the icon, he does not perform any further manual steps to facilitate the connection.

(InfoRocket's Mem. Summ. J. at 5). In response, Keen asserts that the claims do not require an "instantaneous relationship between selecting the icon and completing the connection, like a switch closing an electrical circuit to turn on a light." (Keen's Opp'n Mem. Summ. J. at 4). Rather, according to Keen, the claims "contain language demonstrating that the process of 'automatically establishing a telephone connection' includes 'manual' steps." (Id. at 5).

With respect to the specification, InfoRocket points to the sole example provided in the '165 patent, which describes a consumer clicking an icon and being connected to an expert:

David clicks an icon in Joe's box and a second or two later, a streaming real-time video of Joe appears on David's PC, and if David's PC is so enabled, Joe sees David in his PC.

(InfoRocket's Mem. Summ. J. at 6 (citing '165 Patent, col. 9, ins. 46-48) (emphasis added)). InfoRocket also highlights the portion of the specification that describes the consumer's "last step" as clicking on the symbol corresponding to the expert--indicating that the consumer need not do anything further in order to be connected to the expert. (Id. (citing '165 Patent, col. 2, ins. 27-31)). Keen responds by asserting that the steps between the consumer's selecting an icon and being connected to an expert are "interactive safety steps" consistent with the '165 Patent's intent to "protect the interests of the consumer."

(Keen's Opp'n Mem. Summ. J. at 6).

With respect to the prosecution history, InfoRocket states that Keen's significant narrowing of the scope of the claims during the application process supports its interpretation of the disputed claim language. (InfoRocket's Mem. Summ. J. at 6). Claim 1 of the originally filed application claimed:

1. A method of facilitating the delivery of advice to consumers, comprising:

providing a server unit with the ability to store the names or identification of two or more experts, said experts coded by
one or more expert characteristics, said server having the ability to detect which experts are online;

said server having the ability to display at least one of said expert characteristics with information-rich graphics or symbols;

said server having the ability to respond to a consumer's selection of expert by either sending the consumer a means to contact expert or by connecting the consumer and expert for real-time communication;

wherein the time-to-connect between consumer and expert is 30 minutes or less.

(Declaration in Support of John A. Bauer, sworn to on February 15, 2002, Ex. 2, at 38 ("Bauer Decl.")). This claim was rejected by the Patent and Trademark Office ("PTO"). (P.I. Hearing Tr. at 71-73). So, too, was the following significantly more narrow claim rejected, in light of the Walker Patent, as obvious:

101. A method of connecting two parties in real time, the method comprising:

displaying a list of experts to a consumer, the list including an indication of each expert's current availability; and,

in response to the consumer selecting an expert from the list, establishing a real time communication connection between the expert and the consumer.

(Bauer Decl., Ex. 2, at 170, 189). Only after this claim was rejected did Keen amend its application to the language as it exists in Claim 1 in the '165 Patent. (Id. at 229). In distinguishing this amended claim from the Walker Patent, Keen asserted:

In addition, Walker does not disclose a central controller automatically placing two independent separate calls to the expert and consumer, in response to the consumer selecting an icon displayed via the Internet. Rather, Walker teaches away from the claimed limitation by only teaching a time consuming and tedious Interactive Voice Response Unit maze, that requires the consumer call into the IVRU and navigate their way into having the expert contacted. (Walker col. 29).

(Id. at 289 (emphasis omitted)). Keen responds to InfoRocket's argument by suggesting that the prosecution history of the '165 Patent does not address the "in response to" or "automatically establishing" language, but rather focused on the differences between the way that the '165 Patent and the Walker Patent taught to select an expert (icon vs. bidding process) and the patents' different usage of telephones (central controller and Internet connection vs. Interactive Voice Response Unit). (Keen's Opp'n Mem. Summ. J. at 9).

I find that InfoRocket's interpretation of the phrases "automatically establishing" and "in response to" in Claim 1 of the '165 Patent is correct and I construe the claims accordingly. The Oxford English Dictionary's first definition of "automatically" includes "by spontaneous, or apparently spontaneous, action," (1 Oxford English Dictionary 805 (2d ed. 1991 (the "Dictionary")), and the second definition includes "without active thought or volition, unconsciously, involuntarily, mechanically," (id.). The Dictionary's definition la of "response" includes "an answer, a reply," and definition 1c includes "the way in which an apparatus responds to a stimulus …."

(8 Oxford English Dictionary 741 (2d ed. 1991)). 4 Using these plain meanings, the stimulus in the '165 Patent is the clicking on the icon. The apparatus or, here, the website, responds to that stimulus by establishing the telephone connection. Use of the word "immediately" as a modifier confirms that the response, that is, the telephone connection, is set up spontaneously or mechanically, without additional volitional acts.

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4 Keen provides no independent definition in the '165 Patent of the term "automatically." Therefore, that term is defined by its ordinary meaning, which may include the use of a dictionary. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("Sensibly enough, our precedents show that dictionary definitions may establish a claim term's ordinary meaning."); York Prods., 99 F.3d at 1572-73 (using two dictionaries to construe the term "substantially").

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Thus, the plain meaning of the words in claim 1 is that clicking on or selecting a displayed icon corresponding to an expert results in an immediate telephone connection between the expert and the consumer, without a series of intervening manual steps. This construction is confirmed by both the specification (reflecting the consumer's clicking the icon as the "last act" and a connection "a second or two later") and the prosecution history (where Keen's twice-amended application documents attempted to circumvent the prior art by, inter alia, adding the word "automatically" to modify "establishing a telephone connection," (Bauer Decl., Ex. 2, at 229, 289)).

Ultrak, Inc. v. Kustom Signals, Inc., No. Civ. 3:96-CV-1569-H, 1997 WL 528046 (N.D. Tex. Aug. 18, 1997), further confirms this construction. There, plaintiff Ultrak, Inc. ("Ultrak") alleged infringement of claim 1 of its patent entitled "Police Protection Method and Apparatus" against defendant Kustom Signals, Inc. ("Kustom"). Id. at *1. Both Ultrak's and Kustom's systems "enable recording of a police officer's interrogations and interactions by using a wireless microphone transmitter to transmit the officer's conversations to a recording device located in the officer's patrol car." Id. In the patented Ultrak device, when the microphone transmitter is not being used it is stored in a recharging holder in the police car. Id. An officer exiting his vehicle removes that transmitter from its holder—which "automatically initiates transmission and recording"--and places it in his pocket. Id. Further, the transmitter has an "override" provision that enables the officer to remove it from the holder and move without transmitting. Id. In the accused Kustom system, however, "the microphone transmitter is worn continuously on the officer's belt," and the officer must manually turn on the transmitter before it can be used. Id.

Ultrak argued that Kustom's device infringed claim 1 of the patent, which claims "a method for providing the record of interrogation and activity by police officers, . . . including: a. replacement of an automatically activated transmitter in the officer's clothing." Id. Kustom, in turn, moved for summary judgment for noninfringement "on the basis that the accused device does not involve the 'replacement' of an 'automatically activated transmitter' on an officer's person." Id.

With respect to claim construction, the parties presented different interpretations of the phrase "automatically activated." Id. at Kustom asserted that it refers to "the feature of the patented system that the transmitter begins sending a signal to the recorder immediately upon removal from its holder, without the officer having to switch the unit on." Id. Therefore, Kustom's system would not infringe the patent because an officer must manually turn on Kustom's transmitter to start recording. Id. Ultrak, on the other hand, argued that the phrase only means that the officer must push a button to record particular words and that the use of the phrase "automatic" is meant "to distinguish the patented device's "hands-free' transmitter from walkie-talkie-type 'push-to-talk' transmitters that had been the subject of other patents for police devices." Id.

After considering both the patent and its prosecution history, the court agreed with Kustom's claim interpretation:

"Two central features of the "automatic" operation of the transmitter were 1) that the system began to transmit and record immediately, without the officer having to take any special action, and 2) that it did not enable the officer (intentionally or otherwise) to turn the transmitter off and on easily to selectively record. Moreover, considering ordinary meaning of the term, "automatically activated" is naturally construed to mean that a device begins operating without being specially turned on."

Id.

Keen cites Bingo Brain, Inc. v. California Concepts, Inc., 2002 U.S. Dist. LEXIS 1209 (N.D. Ill. Jan. 24, 2002), to support its interpretation of the term "automatically." (Letter from Mark D. Rowland to the Court, dated April 26, 2002, at 2). That case does not support Keen's position. In Bingo Brain, the parties were competitors in the market for hand-held devices that allowed players to use multiple bingo cards simultaneously. Dependent Claim 18 in the patent at issue provided:

18. The method of claim 13 wherein the number configurations for the next game having identification numbers which are displaced in a predetermined relationship from the identification numbers of the previous game are automatically transferred from storage to the calculating unit without entering the identification numbers of the selected number configurations. (151 Patent, Col. 6, lines 40-46).

(Id. at *8 (emphasis added)). Both parties agreed that this phrase meant, at a minimum, that "the device automatically enters the next set of bingo cards at the end of a game." (Id. at *21). But while defendants argued that "the use of the word
'automatically' in Claim 18 precludes any human intervention to initiate the transfer of the number configurations," plaintiff suggested that "this automatic function can also be initiated by the player by pressing a button to signal that the game is over." (Id. (emphasis added)).

The court agreed with plaintiff's interpretation of the claim:

The Patent details a device that is able to determine which sheet of bingo cards follows the sheet just played, and pull that successor sheet from its memory so the player can play this sheet next. No intervention is required for the device to determine which sheet of cards is next. Nor is intervention required for the device to retrieve that sheet from the memory. In other words, the device has a "self-regulating mechanism" that enables it to complete those functions. Only the timing of these processes is initiated by human intervention. Thus, the question becomes whether the fact that this procedure is initiated by an external factor precludes it from being automatic. The court finds that it does not. The device, on its own, ascertains which sheet of bingo cards comes next and makes that sheet available for play -- the player merely prompts the machine to perform this automatic function. An "automatic" garage door opener, similarly, does not sense that an automobile is ready to enter or depart a garage, but performs automatically once it is prompted to do so. Much the same, the device does not sense that a player in the bingo hall has shouted "bingo" and call up the next sheet to be played, but prepares for the next game once the player instructs the device that a new game is starting.

(Id. at *21-*22 (emphasis added)). Therefore, the court concluded, "the word 'automatically,' as used in the '151 Patent, does not preclude human intervention to trigger a process that is, in all other respects, automatic.” (Id. at *24).

In the instant case, however, both parties agree, as they must, that the '165 Patent requires, at a minimum, that a telephone connection between a consumer and an expert is initiated by an external factor--i.e., the clicking of an icon. In other words, neither party suggests that when the consumer sits down at his computer, the computer "senses" that the consumer desires to initiate a telephone connection with the expert and "automatically" facilitates that connection. Rather, the only issue is how much more additional human intervention is needed, beyond the initial clicking of an icon, before InfoRocket is outside the scope of Claim 1's "automatically establishing" language. Therefore, Bingo Brain does not change the result.

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The issue regarding this term generally centers on the construction of "automatically." Anthurium argues for the plain and ordinary meaning, including "primarily without human intervention." The defendants argue that "automatically," as indicated by the specification and the prosecution history, means "independent of action by the scribe."

Again, the defendants rely upon the prosecution history of the '124 patent. As indicated above, it is proper intrinsic evidence to consider. The defendants argue that the patentee's statements to overcome prior art during the prosecution of the '124 patent form the basis for their proposed construction. In a Preliminary Amendment, dated February 28, 2001, the inventor attempted to distinguish her alleged invention from the Kikinis patent, by stating the following:

Kikinis does not teach a central computer that automatically selects a scribe from the list of available scribes, and
forwards a job request to a scribe computer associated with the selected scribe. By contrast, Kikinis teaches that the dictation, including instructions is e-mailed to a transcription center. The center pages the "next available transcription person, which then can call in or pick up the emailed information if that person elects to accept the task."

The systems and methods of the present invention eliminate the need for the center to page the transcription person by "automatically selecting a selected scribe from a list of available scribes, and forwarding a job request to a scribe computer associated with the selected scribes." Additionally, unlike the system of Kikinis, the claimed invention does not require the center to scroll through a list of scribes to go to "the next available person until the job is accepted." By maintaining a current list of available scribes, the central computer of the claimed system can select a scribe from the current list, and automatically forward the job request to the selected scribe. Defs.’ Ex. 5 at 118-19 (citations omitted; emphasis added).

In a subsequent Office Action, the patentee again explained the "automatically forwards" aspect of the invention from the prior art. The patentee stated as follows:

As discussed above, both Kikinis and Zebryk disclose making a file available for the scribe to retrieve, rather than automatically forwarding the file to the scribe. . . . By contrast, because the central computer of the claimed invention automatically forwards the job request to the scribe computer, it is desirable for the central computer to ‘know’ that the scribe is available so that the job will be performed when it arrives. Defs.’ Ex. 5 at 177-78 (emphasis added).

As indicated above, the defendants argue that the patentee disavowed any interpretation of "automatically forwards" that would encompass a system where the job packet was not sent from the central computer to the scribe computer until the scribe contacted the central computer.

Anthurium points to one passage in particular for its argument that the patent envisions a scenario in which, after the scribe has been selected, the central computer places the job in the scribe's directory for the scribe to download. '998 Patent, col. 14 ll. 36-42. Anthurium, however, leaves out the subsequent paragraph.

When the Scribe sits down at their computer to begin a work session, they will dial-in to their local internet provider. They will then go to their Scribe Home form where they will click on the ON-LINE BUTTON. The next screen they view is their Directory. Any jobs in the input directory are to be downloaded by priority indicated. They download all files of a job. '998 Patent, col. 14 ll. 36-42.

As the defendants point out, the passage cited to by Anthurium does not support its argument. In fact, as the subsequent paragraph suggests, the jobs have already been sent to the scribe independent of any actions by the scribe.

Anthurium's argument and proposed construction fail to encompass what the specifications and prosecution history envision. It is clear from the prosecution history that, in order to overcome the Kikinis and Zebryk prior art, the present invention had to "automatically forward," absent any "elect[ing] to accept the task." Defs.’ Ex. 5 at 118-19. Additionally, Anthurium's reliance on CollegeNet is misplaced. See CollegeNet Inc. v. ApplyYourself Inc., 418 F.3d 1225, 1235 (Fed. Cir. 2005). The defendants do not intend to preclude human intervention; the defendants merely intend to preclude scribe intervention in the "automatically forwards" aspect of the claim. It is of no effect what the scribe does after the "job step data" is "automatically forward[ed]." It is clear that the prior art required scribe intervention to receive the job file; whereas, in this case the patentee intended to claim an invention to overcome such prior art based on the automatic forwarding absent scribe intervention.

As such, the Court defines "automatically forwards" as follows: "forwards independent of action by the scribe." 5

5 The scope of the claim language includes the situation in which an e-mail is sent to a scribe's e-mail account, even though the e-mail server is not physically close to the scribe. See Tr. of Claim Construction Hearing at 42-44, 87-90.
"automatically initiating the VPN"

The '135 patent, claim 1 contains the phrase "automatically initiating the VPN." VirnetX contends that "automatically initiating the VPN" means "starting the VPN without intervention by a person." Microsoft contends that "automatically initiating the VPN" means "initiating the VPN without the client or target computer requesting such initiation." The parties dispute whether "automatically" refers to not requiring a user or refers to not requiring the client and target computers.

The Court construes "automatically initiating the VPN" as "initiating the VPN without involvement of a user." The specification supports the Court's construction. The specification describes various embodiments of the invention. See Col. 37:63-40:13. In these embodiments, after the user or user's computer makes the initial DNS request, the user is not further involved in setting up the VPN. See, e.g., Col. 39:22-29 (describing that if the user has sufficient security privileges, a secure VPN is established between the user's computer and the secure target website "preferably performed transparently to the user (i.e. the user need not be involved in creating the secure link)"); 38:28-33 (describing that the DNS proxy 2610 determines whether the user has sufficient security privileges to access the required site and if so, the "DNS proxy 2610 transmits a message to gatekeeper 2603 requesting that a virtual private network be created between a user computer 2601 and secure target site 2604"); Figs. 26 & 27. Thus, the specification describes that the VPN is initiated without further user action.

Microsoft argues that "automatically" does not refer to a "user" because claim 1 does not make any reference to a person and instead states "automatically initiating the VPN between the client computer and the target computer." Col. 47:20-32. Microsoft concludes that claim 1 clearly refers to not involving the client and target computers when stating "automatically." However, claim 1 only refers to the client and target computers to indicate where the VPN is being established, "between the client computer and the target computer." This phrase does not disallow involvement of the client and target computers in initiating the VPN. Instead, as discussed supra, the specification shows that "automatically" refers to not involving a user.

Furthermore, the difference between independent claim 1 and dependent claim 2 indicates that the client computer can be involved in step (3) of claim 1, which includes "automatically initiating the VPN between the client computer and the target computer." Claim 2 states "The method of claim 1, wherein steps (2) and (3) are performed at a DNS server separate from the client computer." Col. 47:33-35 (emphasis added). Because claim 2 contains "separate from the client computer" and claim 1 does not, claim 1 presumably does not contain this limitation. This claim differentiation presumption is not rebutted in light of the intrinsic evidence. Thus, the client computer may be involved in initiating the VPN in claim 1. Accordingly, the Court does not adopt Microsoft's construction, but construes "automatically initiating the VPN" as "initiating the VPN without involvement of a user."

4. "automatically provided by a communications network"

The disputed claim term "automatically provided by a communications network" appears in claims 1, 2, 4, 7, 25, 35, 36, 43, and 44 of the '416 Patent and claims 1, 2, 4, 5, 8, 10, 13, 14, 17, 34, and 35 of the '186 Patent. According to Kyocera, "automatically provided by a communications network" should be construed to mean "supplied automatically by the communications network." (Kyocera Br. 24.) Intellect Wireless, in contrast, argues that the proper construction is "supplied by the wireless portable communication device and/or the telecommunications network without manual entry by the message originator." (Intellect Wireless Resp. 21.) According to Intellect Wireless, Kyocera's proposed construction improperly "require[s] that the caller ID information be derived solely from the communications network to the exclusion of any other device or component such as the wireless device itself." (Id.) Instead, "automatically provided by a communications network," Intellect Wireless contends, simply means that "the caller ID information is provided without human intervention" (id.); in other words, when composing a message, the message originator does not need to enter his or her own caller ID information.
Turning first to the claims, the court finds that the plain language of claim 1 of the '186 and '416 Patents supports Intellect Wireless's position that the phrase "automatically provided by a communications network" is describing the transmission of the "caller ID" (i.e., that it is "automatic") as opposed to imposing limitations on the caller ID's origin. Specifically, those claims describe "the message originator sending the caller ID with the picture to the message center." '186 Patent, col.46 ll.51-53; '416 Patent, col.46 ll.46-48. Because the claims expressly recognize that the "caller ID" originates from the "message originator," the court does not believe that one of ordinary skill in the art in the mid-1990s, reading the phrase "automatically provided by a communications network" in the context of all the claim language, would have understood the term as precluding the "caller ID" from emanating from the message originator's device. Rather, the court finds that a person of ordinary skill in the art in the mid-1990s would have interpreted "automatically provided" to mean that the "caller ID" is not manually entered by the message originator.

This interpretation also is consistent with the specifications. First, the Background of the Invention explains that manual entry of caller ID was a disadvantage of the prior art:

One particular problem with conventional paging systems using message center devices is the requirement that a caller must manually enter their call back telephone number. . . . This can be cumbersome particularly if the calling party wishes to also leave a voice message or send some other message data such as a facsimile.

'186 Patent, col.2 ll.19-28. Disparaging the manual entry of caller ID in the prior art likely would suggest to one of ordinary skill in the art that the references to "automatically provided" in the asserted claims indicate that such entry by the message originator is not required. See Hearing Components, Inc. v. Shure Inc., 600 F.3d 1357, 1367 (Fed. Cir. 2010) (relying on "disparag[ing]" discussion of the prior art to interpret claim term).

The specifications also distinguish between caller-identification information and manually entered information. Although Kyocera interprets this distinction as excluding embodiments where the caller ID originates with the message originator's device, the court instead believes that the comparison between automatically transmitted "caller-identification information" or "caller ID" and manually entered "optional data" indicates that the caller ID in the asserted claims is transmitted without manual entry. For example, in discussing Figure 21, the specifications contrast "caller-identification information" that "is automatically transferred to the central office" with "optional data" that the "page-originating communicant enters." '186 Patent, col.42 ll.50-56. The specifications also recognize that "[t]he most common applications of an embodiment requires that the page-originating communicant enter either numeric or alphanumeric data which is identified with the caller-identification information." Id. at col.43 ll.4-7 (emphasis added). In this embodiment, "[u]pon receipt by portable communication device 271, at least one of either the numeric caller-identification information, or the alphabetic caller-identification information, or the optional data entered by the page-originating communicant is compared to one or more data fields in a database . . . ." Id. at col.43 ll.7-12 (emphasis added). The manually entered data, therefore, is distinct from the "caller-identification information" or "caller ID."

Not only do the specifications support Intellect Wireless's position that the message originator does not manually enter the "caller ID" but they also disclose the automatic transmission of the "caller ID" originating with the message originator's device. In one embodiment, "upon establishment of a voice circuit between the telephone unit utilized by the page-originating communicant and the paging center, the caller identification information, if any exists, is automatically transferred to the central office." Id. at col.42 ll.47-51. Similarly, the specifications explain that "[i]n accordance with current Bell standards, caller-identification information may be transmitted, automatically, between call-originator 11 and call receiver 15, through the telephone network 9." Id. at col.34 ll.15-18. (emphasis added). The court accordingly finds that the specifications for the patents in suit support Intellect Wireless's assertion that the phrase "automatically provided by a communications network" simply indicates that the "caller ID" does not require manual entry by the message originator; it does not impose a limitation on the origin of the "caller ID."

The specification for the parent '862 Patent also bolsters Intellect Wireless's position. The court finds that the '862 Patent is relevant intrinsic evidence that one of ordinary skill in the art in the mid-1990s would have reviewed to understand the inventions claimed in the '186 and '416 Patents. See Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) (recognizing that construction of claim term in parent patent "is relevant to an understanding of" how "that term is used in the [child patent]"). Specifically, the '862 Patent touts the impact of the automatic transmission of the caller ID on "enhancing the efficiency and accuracy of alphanumeric paging networks":

- 808 -
It is another objective of the present invention to provide a method and apparatus for enhancing and improving the communication of information over an alphanumeric paging network, which automatically sends caller identification information, including numeric information and alphabetic information, over the telephone network during interactions between a page-originating communicant and the paging network, thus enhancing the efficiency and accuracy of alphanumeric paging networks, by then automatically transmitting the caller identification information over the wireless communication link between a central office and a page-receiving communicant.

'862 Patent, col.11.65-col.2 1.9 (emphasis added). In addition, according to the '862 Patent, the page-originating communicant's paging request initiates the automatic transmission of caller ID: "The paging request [from the page-originating communicant] automatically transfers caller-identification information . . . from the telephone network to the alphanumeric paging network." Id. at col.2 ll.29-33.

Like the '186 Patent, the '862 Patent also distinguishes between the transmission of the caller-identification information, which occurs automatically, and an "optional message," which requires the page-originating communicant's "input":

Communication is initiated between the page-originating communicant and the alphanumeric paging network over a telephone network. The caller-identification information is automatically passed from the telephone network to the paging network. The page-originating communicant is allowed an opportunity to input an optional message into the paging network.

Id. at col.2 ll.52-58.

Nor does the prosecution history support Kyocera's interpretation of "automatically provided by a communications network." Kyocera relies on the inventor's January 25, 2007 Amendment during the prosecution of the '186 Patent. In that amendment, the inventor added the following phrase which appears (with slight variation) in all of the asserted claims: "the message including a picture supplied by the message originator and a caller ID automatically provided by a communications network that identifies the telephone number of the message originator." (J.A. at 186FH000974.) The phrase's "parallelism," Kyocera contends, "makes clear that one category of information (a picture) is supplied by the message originator, and another category of information (caller ID) is provided by the network." (Kyocera Br. 24.) Again, as explained above, the court believes that this juxtaposition between caller ID and other data such as a picture supplied by the message originator is consistent with Intellect Wireless's assertion that "automatically provided by a communications network" simply indicates that the "caller ID" does not require manual entry by the message originator; the phrase does not exclude the original provision of the "caller ID" by the message originator's device.

Nevertheless, although the court agrees with Intellect Wireless's position that the "caller ID" may originate from the message originator's device and does not involve manual entry by the message originator, the court cannot accept Intellect Wireless's proposed construction for two reasons. First, under one possible interpretation, Intellect Wireless's construction eliminates the phrase "by a communications network" from the asserted claims, replacing it with "wireless portable communication device." Second, the use of the phrase "the wireless portable communication device" incorrectly suggests that the claimed "wireless portable communication device" which receives the message, as opposed to the message originator's device, is sending the "caller ID." For these reasons, the court instead construes "automatically provided by a communications network" to mean "supplied by either the telecommunications network or the telecommunications network via the message originator's device without manual entry by the message originator."

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10. "Automatically receiving and integrating reports of suspicious activity": n10 Without user intervention, receiving reports of suspicious activity and combining those reports into a different end product; i.e., something more than simply collecting and reiterating data.

n10 '203, '212 and '615 patents, multiple claims.
b.) Automation Boot Sequence Data

The first method step of claim 1 provides that the technology will test for "automation boot sequence data" by examining a boot selection flag. Altiris claims that "automation boot sequence data" is data or computer code from which the computer can be booted up that is separate from the "normal" boot sequence data. Symantec claims that the plain language of the claim suggests that the "automation boot sequence data" must be a particular "known value" of the boot selection flag. The phrase "automation boot sequence data" does not have a customary meaning in the art. As a result of the parties' competing interpretations of the phrase, it would generally be useful to review the specification, however, the phrase "automation boot sequence" does not appear in the specification.

Altiris concludes that because the testing for "automation boot sequence data" is a test for whether an "automation boot" will be implemented instead of a "normal boot," that data is the data or code that will be used to implement the automation boot sequence. However, reviewing the claim language in the context of the entire claim indicates that the "automation boot sequence data" cannot be the automation data or code itself, but something that indicates that the computer should boot in automation mode. Therefore, the court concludes that the proper construction of the phrase "automation boot sequence data" is a particular value assigned to the system ID byte of the first partition which indicates to the custom boot loader that the computer should boot in automation mode.

2. "Automation Code" in Claim 1

The second step of claim 1 requires the "transferring of said computer system to automation code." (Emphasis added.) Similar to the other disputed terms, Symantec argues that this term does not have a clear meaning in the software industry and must be construed by reference to the specification. Symantec claims that according to the specification, the automation code clearly consists of a common operating system, Local Area Network drivers for the Network Interface Card and a program for reading a database on the network server to ascertain the automation commands to be executed.

Altiris rejects Symantec's limitation of "automation code" and argues that the claim language defines "automation code" as any booting code separate from the normal booting code. Altiris further asserts that the specification does not ever expressly "define" automation code in the manner Symantec asserts and, in fact, confirms its interpretation of the claim language by referring to computer code in the automation partition as code from which the computer is "booted up" separate from the"normal" booting. See '593 Patent at col. 6, lines 1-9, 19-21, 47-50, 55-56, 59-61; col. 4, lines 37-41.

The specification provides that "the Installation Utility creates an automation partition on the hard disk populated with a common operating system (such as PC DOS), Local Area Network (LAN) drivers for the Network Interface Card (NIC), and a program for reading a database on the network server to ascertain the automation commands to be executed." Id at col. 3, lines 50-55. The specification also explains that if the testing step indicates that an automation boot should occur, "then the MBR code finds the automation partition on the hard disk, transfers control of the boot process to the code in the automation partition, which then loads the computer operating system. When the operating system has been loaded, the LAN drivers for the resident NIC are loaded, also from the automation partition, and a connection is established across the network to the network server." Id. at col. 6, lines 6-13.

This court concludes that because this phrase is not commonly used in the industry and the claim language is not clear, the phrase should be construed according to what an ordinary person in the field would understand the phrase to mean based upon the information and embodiment contained in the claim specification.
means the code in the automation partition which loads an operating system, LAN drivers for the resident NIC, and a
program for reading a database on the network server to ascertain the automation commands to be executed.

A. Single Self-Contained and Autonomous

Digi proposes that "self-contained" means "providing all networking hardware, networking software, and device interface
elements needed for networked operation of a device." Digi asserts that the term "autonomous" should be construed as
follows: "the module operates independently of the device, does not incorporate any of its functionality or require any
changes to the device, and can if necessary provide all processing power and the network communication capabilities
required to enable networked operation of the device." Further, Digi adds, "No device specific applications run on the
module." Lantronix, on the other hand, contends that the term "self-contained autonomous" "should be defined by the
elements listed after the word 'comprises,' which define what the 'self-contained autonomous' module is 'comprised of.'"
Lantronix asserts that the word "comprises" is "non-limiting and means that a device may be covered by the claim even if it
has additional components or functionality." Finally, Lantronix maintains that "autonomous," as used in Claim 1, does not
mean that the module is located outside the device.

As a preliminary matter, the Court disagrees with two crucial aspects of Lantronix's proposed construction. First, Lantronix
asserts that the claim language to be construed is a single phrase: "self-contained autonomous." Claim 1, however, uses the
language "self-contained and autonomous." (192 Patent C. 18, 1: 41 (emphasis added).) In light of the actual claim
language, the Court will construe the terms "self-contained" and "autonomous" separately. To do otherwise would
inappropriately render one of the terms meaningless. See Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc., 296 F.3d 1106,
1115 (Fed. Cir. 2002).

In addition, the Court finds no support for Lantronix's position that the phrase "self-contained and autonomous module,
followed by the word "comprises," means that the "module" of Claim 1 merely contains the elements that are subsequently
listed in Claim 1. The Court agrees with Lantronix that the word "comprises" acts as a transition, meaning that the claim
language "is inclusive or open-ended and does not exclude additional, unrecited elements or method steps." Georgia-Pacific
Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999) (citations omitted). However, this transitional
language does not render meaningless the terms that precede the word "comprises." In other words, Lantronix's proposed
construction would inappropriately render the terms "self-contained" and "autonomous" as mere surplusage. The Court finds
that Claim 1 describes a unit that "comprises" the subsequently listed elements, but is also "self-contained" and
"autonomous." (192 Patent c. 18, 11: 41-44.) With this determination in mind, the Court turns to the construction of the
words "self-contained" and "autonomous."

1. Self-Contained

As noted above, Lantronix has not provided the Court with an independent proposed construction for the term "self-
contained." Digi asserts that the term "self-contained" should be construed as "providing all networking hardware,
networking software, and device interface elements needed for networked operation of a device." The Court finds merit in
Digi's construction.

The specification supports Digi's construction. The specification describes a module that provides all of the networking
capabilities needed to operate or monitor a device from a remote location. The specification specifically states:

- the present invention requires only a single, inexpensive integrated circuit chip. Remarkably, this single network interface
  chip provides all the networking hardware, networking software and device interface elements necessary for network
  connectivity and web-based or network-based management of any device.

   (192 Patent c.2, 11: 45-50.) Further, it describes the invention as follows:

   - the network interface chip of the present invention provides complete internet enablement without any expensive web
     server machine. The chip alone is a fully functional internet node, including a web server, and supporting various protocols
and hardware connections.

(Id. at c. 3, 11: 11-16.) Finally, the specification reads:

The network interface chip 36 is a single integrated circuit that connects to the control circuitry 38 of virtually any remote device 34 and implements all networking services required to interface the device with a high performance computer network 32 for remote control and monitoring by one or more clients 30.

(Id. at c. 6, 11: 30-35.) This language supports a construction of "self-contained" as providing all of the hardware and software required to operate a device remotely.

In addition, the prosecution history supports Digi's construction. In their reply to the Office Action dated November 30, 2001, the inventors stated:

The present invention clearly claims and describes in the specification (for example Page 3, lines 23-24; Page 4, lines 22-24; Page 5, lines 1-2) a single module (such as a network interface chip) that provides all the networking hardware, networking software, and device interface elements necessary for network connectivity and web-based or network-based management of any device.

(Reply to Office Action at 5-6 (emphasis in original).) This prosecution history is consistent with the specification and supports Digi's construction.

Thus, the Court construes the term "self-contained" to mean that the module "provides all networking hardware, networking software, and device interface elements needed for the networked operation of the device."

2. Autonomous

As stated above, Digi asserts that "autonomous " should be construed to mean "the module operates independently of the device, does not incorporate any of its functionality or require any changes to the device, and can if necessary provide all processing power and network communication capabilities required to enable networked operation of the device. No device specific applications run on the module." Aside from its arguments noted above, Lantronix offers no independent proposed construction of the term "autonomous." Lantronix disagrees with Digi's construction, however, and asserts that it inappropriately reads limitations into Claim 1.

Digi contends that the specification supports its construction. Specifically, Digi points to the following language:

the present invention requires only a single, inexpensive integrated circuit chip. Remarkably, this single network interface chip provides all the networking hardware, networking software and device interface elements necessary for network connectivity and web-based or network-based management of any device.

(id. at c. 2, 11: 45-50);

the network interface chip of the present invention provides complete internet enablement without any expensive web server machine. The chip alone is a fully functional internet node, including a web server, and supporting various protocols and hardware connections.

(id. at c. 3, 11: 11-16);

The network interface chip 36 is a single integrated circuit that connects to the control circuitry 38 of virtually any remote device 34 and implements all networking services required to interface the device with a high performance computer network 32 for remote control and monitoring by one or more clients 30.

(id at c. 6, 11: 30-36);

The resulting interface to the Device Control Circuitry 38 is a simple, easy to use data exchange. The device 34 is not
burdened with the overhead of network processing.
(id. at c. 6, 11: 41-44);

The chip's complete Internet Protocol implementation offloads the complex network processing and real-time requirements from the device control circuitry.
(id. at c. 7, 11: 23-26); and

As is evident from the description above, the chip 36 is entirely generic and capable of being customized to interface with any device using any of the various device interfaces described above, and with any client via any of the various network interfaces described above. Thus, this single chip can be inexpensively produced in large quantities for a wide variety of potential applications, and then easily customized for use in specific devices.
(id. at c. 16, 11: 23-30).

In addition, Digi asserts that the invention's patentability was initially rejected over prior art that disclosed modules that provided remote monitoring and control of devices but envisioned modification of the devices or running device-specific applications on the module. In reply to the Office Action, the inventors stated:

Important is the partitioning and autonomy of the module wherein the module performs none of the application-specific functions of the host device. The module solely and completely provides the network connectivity function. The same module also enables monitoring and controlling of any device, regardless of its available processing power, code space, or interface pins. Even devices without a CPU or microcontroller are supported.
(Reply to Office Action at 6.)

The Court agrees, in part, with Digi's proposed construction. The Court finds that the specification points to the universal applicability or generic nature of the module, and thus that the module operates independently of the device. In addition, in light of the generic, universally-applicable nature of the module, the Court finds that the specification and prosecution history support that the module does not incorporate any of the device's functionality. If the module were to take over some of the device's functions itself, the module would, in effect, become part of the device control circuitry and not be autonomous. Here, rather, the module simply acts as a conduit between the virtual interface controls of the client machine and the device itself.

The Court finds that Digi's proposed construction goes too far in some respects as well. First, the Court finds no support for Digi's contention that the module "does not require any changes to the device." The Court can contemplate ways in which the universally-applicable module described in the claim language and specification would require a change to the device. For instance, in the hypothetical example often used by Digi in this litigation, the module acts as a link between a host computer and a thermostat via a computer network. Digi's construction does not account for the change that would be required to the thermostat to allow the module to physically connect to the thermostat's circuitry. The Court sees this same issue arising with any device that does not have built-in connection ports. In this sense, the module would require a change to the device in order to allow it to connect to the device. Neither the claim language nor the specification disavows this interpretation.

Digi also asserts that the module can, if necessary, provide all processing power and network communication capabilities required to enable networked operation of the device. The Court agrees that this may be true of the invention based on the specification and prosecution history. But the Court sees no need to incorporate these aspects into the construction of the term "autonomous" because the Court has already construed the term "self-contained" to encompass these elements. Thus, to attach these same definitions to the term "autonomous" would render one of the terms redundant.

Finally, Digi asserts that no device-specific applications run on the module. The Court finds no support in the claim language or specification for this construction. Moreover, the Court finds that the language of the prosecution history (or the inventor testimony) is not sufficient to impart this construction into the definition of the term "autonomous." Specifically, Digi cites to language from the inventors' reply to the Office Action that states that the module "performs none of the
application-specific functions of the host device." (Reply to Office Action at 6.) But this language does not equate to "no device-specific applications running on the module," as Digi contends. Because the claim language and prosecution history contain no clear disavowal of device-specific applications running on the module, this portion of Digi's proposed construction is inappropriate.

With these considerations in mind, the Court defines the term "autonomous" as "the module operates independently of the host device and does not incorporate any of the device's functionality."

**A. Claim Construction**

The parties' dispute whether the auxiliary signal includes the synchronization signal. Philips asserts that the term "auxiliary codes" specifies "control data" that is "distinct from synchronization signals, which contain no information." See Philips Memo. at 40. It states that "synchronization signals are used to indicate that a code word, whether an address or an auxiliary code, will follow immediately." See id. at 40. In comparison, Defendants argue that Claim 20 of '764 does not state that certain types of control information are included within the auxiliary signal, with synchronization signals being excluded from the auxiliary signal. In fact, Claim 20 states that "the auxiliary signal is comprised of address codes and auxiliary codes." See Defs. Memo. at 20. As the patent does not specifically exclude synchronization signals from the auxiliary signal, Defendants argue that those signals are included within the auxiliary signal. See Tr. at 48-49 ("Now, the language of the claim, the '764 patent, states that the auxiliary codes specify control data used for recording information on the carrier. Synchronization codes are used exactly for that purpose, for specifying control data used for recording information on the record carrier.").

The patent specification explains the function of the auxiliary codes. See '764 2: 6-12 ("the auxiliary codes comprise control data for controlling the recording process, wherein the recording device is adapted to control the recording process in dependence upon the extracted auxiliary codes."); '764 2:61-65 ("In such a case, a predetermined address can be assigned to one of the radial positions, while the addresses of track portions having the other radial positions can be indicated by means of auxiliary codes."). The patent differentiates clearly between the auxiliary codes and the synchronization signal. See '764 4: 44-46 ("FIG. 2 provides an example of a suitable auxiliary signal comprising code signals 12 which alternate with synchronized signals [comprising code signals] 11."); '764 59-61 ("The synchronized signals 11 are selected in such a way that they can be distinguished from the code signals 12."); '764 6:64- 7: 6:

As already stated, it should be possible for the auxiliary codes and the address codes to be distinguished from one another. This can be achieved, for example, if the code signals representing the address codes and code signals representing the auxiliary codes are preceded by different synchronization signals 11. A number of different synchronization signals 11 which may be used in conjunction with the code signals 12 described herein are described inter alia in Netherlands Patent Application NL-A-8801275, which corresponds to U.S. Pat. No. 5,060,219.

The plain language of the patent claims and specification indicates that the "auxiliary codes" and the "synchronization signals" are separate and distinct from one another. It would make no sense to contrast the synchronization signal and the auxiliary signal, which encompasses the auxiliary codes, if the synchronization signal was in fact part of the auxiliary signal. As the auxiliary signal is comprised of the address codes and the auxiliary codes, and the synchronization signal is shown to be distinct from the auxiliary signal, and hence cannot be part of either the address codes or auxiliary codes, the Court interprets the disputed term "auxiliary code" as separate and distinct from synchronization signals.
CONSTRUCTION

Auxiliary Device

A playback device, such as another VCR, that is physically separate from the video player that plays back the video program, and is the source of substitute material

A substitute source of video material, where such material may include messages, information, advertisements or other video programs.

Claim 8 uses the term "auxiliary device" in the following context: "sending a signal to an auxiliary device." Claim 19 uses the exact same terminology.

i. Parties' Arguments

The NG Parties argue "auxiliary device" means "a playback device, such as another VCR, that is physically separate from the video player that plays back the video program, and is the source of substitute material." First, the NG Parties rely on the plain meaning of the phrase "sending a signal to an auxiliary device." They believe the verb "sending to" means the auxiliary device is external to the video player because a device cannot send a signal to itself. Second, the Non-Guardian Parties argue the specification exemplifies the "auxiliary device" only by reference to external devices such as "a second video player," "another VCR," or "a VCR."

Guardian believes "auxiliary device" means "a substitute source of video material, where such material may include messages, information, advertisements or other video programs." Guardian believes their construction is consistent with the findings of the PTO's reexamination of the patent. Further, Guardian contends the PTO rejected the definition proposed by the NG Parties.

In its reply, the NG Parties contest Guardian's use of "substitute." They assert the auxiliary device is "the source of substitute material" not "a substitute source of video material." The NG Parties believe Guardian's construction avoids the essence of the claimed invention: replacing material from the main program. Further, the NG Parties argue the auxiliary devices at issue do not replace anything.

ii. Analysis

The first issue is whether the auxiliary device need be external to the video player system. The Court first turns to the language of the claim. Both claim 8 and claim 19 include the phrase "sending a signal to an auxiliary device." Generally, a device cannot send a signal to itself; therefore, the video player and auxiliary device must be separate and distinct components of the system. However, neither claim 8 or claim 19 discusses whether the system must be located either inside or outside of one enclosure. When reasonably read, the claims' limitations would allow both components -- the video player and auxiliary device -- to be housed in same enclosure. The silence of the claims on the issue of physical separation weighs against reading a "physically separate" limitation into the claim.

Moreover, the specification is also silent on the issue of the proposed "physically separate" limitation. According to the specification, the "auxiliary device" provides substitute material to replace material from a main program:

If a REPLACE code is detected, a signal is sent to auxiliary output . . . . On receipt of this signal, an auxiliary device, such as another VCR, responds by playing another recording, and an auxiliary switching device selects the substitute material to be displayed . . .

. . .

When the auxiliary device has finished replaying the substitute program, it sends a signal to auxiliary input . . . which causes replay of the first program to resume.

('158 Patent, at Col. 5:25-41.) Although the specification contains an example of an auxiliary device, "another VCR," it does not explicitly require the auxiliary device be external to the enclosure that contains the video player. Furthermore, after scouring the remainder of the specification, the Court finds no support for the physically separate requirement. Accordingly,
the specification weighs against reading a "physically separate" limitation into the claim.

The NG Parties fail to appreciate the difference between an exemplar and a requirement. The specification includes two exemplars of the "auxiliary device" that are external devices. First, the specification states, "[o]n receipt of this signal, an auxiliary device, such as another VCR, responds by playing another recording . . . ." (The '158 Patent, 5:27-30.) Later, the specification again describes the auxiliary device as an external device, "In this case, the auxiliary device can be a VCR which plays a recording comprising a number of advertisements or messages . . . ." (The '158 Patent, 5:48-50.) Although these examples prove the auxiliary device may be external, it does not necessarily follow that the device must be external. See, e.g., Varco, L.P. v. Pason Systems USA, Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) ("In examining the specification for proper context . . . this court will not at any time import limitations from the specification into the claims."). Accordingly, this language does not support the position of the NG Parties.

The second issue is whether the auxiliary device is "the source of substitute video material" or "a substitute source of video material." Despite Guardian's protestations, this is a distinction with a difference. A review of the specification reveals that the sole purpose of the auxiliary device is to provide "substitute video material." The specification states the patent's purpose is "directed to providing means for replacing unwanted program with programme [sic] from another source." (Gresalfi Decl., Ex. 1, at A.9: 5:12-15) (emphasis added). Further, at oral argument, Guardian agreed the auxiliary device provides substitute video material. Guardian's construction improperly implies the auxiliary device is a substitute source, not a source of substitute material. This would mean an auxiliary device could provide the same video material, as long as it was generated from a different source. This would clearly fail to reflect the purpose of "providing means for replacing unwanted program with program from another source." Accordingly, the Court finds the auxiliary device is "the source of substitute video material."

The third issue is whether to include the final sentence of Guardian's proposed construction, in which it defines "video material" as "may include messages, information, advertisements, or other video programs." Turning to the intrinsic record, the specification teaches that substitute material may include "information," "advertisements," "messages," or "substitute programs." (Gresalfi Decl., Ex. 1., at A.9: 5:39, 48, 50-51.) However, because the specification cannot act as a limitation unto itself, the construction should not constrain the term "video material" to these categories. Accordingly, the Court includes the phrase "video material, where such material may include messages, information, advertisements, or other video programs." 3

--- Footnotes ---

3 After oral argument, the NG Parties filed a supplemental letter brief arguing the Court should apply the doctrine of collateral estoppel to determine the proper construction of the term "video program." The NG Parties argue this Court is bound by the Central District's construction of that term in the case Guardian v. Coby, Case No. 2:08cv08439, which also concerned the '158 patent. The Court will not consider this argument, raised by the NG Parties for the first time after extensive briefing and oral argument on the summary judgment motion.

--- End Footnotes ---

iii. Construction

The Court construes the term "auxiliary device" as "the source of substitute video material, where such material may include messages, information, advertisements or other video programs."

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b. "auxiliary site data"

Claim 1 requires "at least one storage assembly associated with said local processor assembly and structured to contain a quantity of auxiliary site data." Citrix urges the Court to construe "auxiliary site data" as "data that supplements or aids the claimed primary site data." Rothschild proposes that the term be construed as "data on a location on the local processor assembly." "Auxiliary site data" is not a term of art in the computer science field.
Citrix claims that the '534 Patent defines auxiliary site data as a particular type of data and not by its location. For example, Citrix points to the following specification excerpts:

When, however, utilization of the primary site address calls for interactive video and/or graphical displays with associated audio, downloading need not take place, but rather the remote server assembly 50 accesses the [local processor assembly's data storage assembly] and initiates utilization of the auxiliary site data stored thereon by the local processor assembly 25' so as to significantly enhance the on-line experience with added information, graphical display, and advertising clips, if desired.

* * *

The system should also be capable of seamlessly and quickly providing a variety of supplemental and auxiliary information, which can significantly enhance the on-line experience by achieving sophisticated and generally lengthy audio and video segments . . . .

* * *

Preferably, the compact, portable interchangeable, computer readable medium 36 is structured to contain a plurality of separate and distinct video images, audio signals, graphical displays, etc. and various combinations thereof. Indeed, it is seen that the auxiliary site data contained on the compact, portable interchangeable computer readable medium 36 primarily includes data types which are substantially difficult to quickly and effectively download from a remote server assembly . . . .


Citrix also argues that the patent's use of "auxiliary site data" to describe the display data or information meant to supplement or aid the primary site data is consistent with the ordinary meaning of "auxiliary" as defined in the dictionary:

auxiliary: 1. Giving assistance or support; helping. 2. Acting as a subsidiary; supplementary: [e.g.,] the main library and its auxiliary branches. (The American Heritage Dictionary of the English Language, 3d Ed. 1996).

In addition, Citrix points to the testimony of its expert Dr. Newman, who testified at the Markman hearing that "auxiliary site data" is data that "supplement[s] the primary site data." (4/13/07 Hearing Tr. at 78:11-20).

Rothschild contends that the claims and specification support its proposed construction. For example, Rothschild points to language in the specification that indicates that the auxiliary site data is stored on a data storage assembly associated with the local processor assembly. The Court concludes that Rothschild's proposed construction of "auxiliary site data" suffers from the same defect as its construction of "primary site data." By defining "auxiliary site data" merely by its location, Rothschild effectively reads out "auxiliary site" from the limitation. Accordingly, in accordance with the patent's use of the term and the ordinary meaning of "auxiliary," the Court construes the limitation "auxiliary site data" as "data that supplements or aids the claimed primary site data."

II. "AV path" / "data path" / "second path" / "path"

The parties request construction of three different types of "paths," as well as resolution of a global issue pertaining to all "paths" in the asserted claims. The three disputed uses of the term "path" appear in Claim 1 of the '654 patent:

1. A teleconferencing system for conducting a teleconference among a plurality of participants, comprising:

   (a) a plurality of workstations, each workstation having first and second monitors and in communication with audio and video (AV) capture capabilities;
(b) a data path in communication with the plurality of workstations, over which data can be shared among the plurality of participants; and

(c) an AV path in communication with the plurality of workstations, along which AV signals, representing video images and spoken audio of the participants, can be carried;

wherein, the system is configured to reproduce images, based on data signals shared along the data path, on at least two first monitors so as to permit participants associated with the workstations having the two first monitors to interactively share the reproduced images and reproduce participant video images, based on AV signals carried along the second path, on at least two second monitors.

'654 patent at 41:36-55.

A. "path"

Tandberg argues that each type of claimed path must be "defined" or specified before data or AV signals are transmitted. Tandberg argues that the claim language compels this finding. For example, claim 15 states that the data conferencing control establishes "communications with the central control manager to set up requested data paths along a second network over which the data conference can be conducted." '654 patent at 44:3-9. According to Tandberg, once the central control manager has "set up" the path (which occurs before transmission takes place), the path has been defined.

This argument depends on the meaning of "set up." For Tandberg's argument to be valid, "set up" must mean "define." The phrase "set up," however, encompasses other meanings, such as "establish" or "make ready." See, e.g., Webster's Third New International Dictionary of the English Language Unabridged 2079 (1993) ("to put (a machine) in readiness or adjustment"); Random House Unabridged Dictionary 1751 (2d ed. 1993) ("to be assembled or made ready for use") (emphasis added). Moreover, as discussed below, Tandberg's narrow construction would exclude all of the embodiments disclosed in the specification, which unquestionably make use of opportunistic routing and do not require predefined paths.

Tandberg next points to Figure 4 of the patent, which depicts different routes that an AV signal may take through the Wide Area Network ("WAN"). The portion of the Specification corresponding to Figure 4 states that "[t]he system also provides optimal routes for audio/video signals through the WAN. For example, in Figure 4, location A can take either a direct route to location D via path 47, or a two hop route through location C via paths 48 and 49." Spec. at 10:55-59. The fact that data can take one of two routes, however, says nothing about whether the choice of route is predetermined. Indeed, Tandberg observed at argument that in packet-switched networks such as those described in the Specification, the route through the WAN could change during the middle of a transmission, depending on network load and other factors. The routing of each packet through a packet-switched network is individually determined and can change to adapt to changing network conditions. See Spec. at 10:63-66 ("In a more complex network, several multi-hop routes are typically available, in which case the routing system handles the decision making, which for example can be based on network loading considerations.").

Tandberg's remaining arguments in support of its contention that all paths must be predefined relate to a different question—whether the AV and data paths must lie on physically separate wires. The court considers these arguments below. The fact that signals may travel on different wires, however, is not determinative of whether the path for each signal individually is pre-defined. The court will therefore not limit the claim terms as Tandberg requests, and construes "path" to mean "a route or course."

B. "AV path"

CPI argues that the "AV path" should be construed to mean "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery." Tandberg does not expressly offer a construction of "AV path," but suggests in its papers that the AV path must be physically separate from the data path.

In an earlier litigation involving the '654 and '547 patents, Judge Chesney of this district has already construed the terms "AV path" and "data path" and rejected the very argument which Tandberg advances in this case. Collaboration Props., Inc. v. Polycom, Inc., No. C 02-04591, slip op. at 27 (N.D. Cal. Mar. 23, 2004). The Polycom court reviewed the intrinsic record and concluded that the claimed inventions cover both the preferred embodiment, in which AV and data signals travel over
Finally, Tandberg argues that the Polycom claim construction is inconsistent in that it provides both for paths that are physically separate and paths that are not. The Polycom court only noted, however, that certain claims expressly require...
varying degrees of physical separation while others do not. Nothing about this holding is inconsistent.

The court therefore adopts the Polycom construction; "AV path" means "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery."

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B. "available for receiving [transmitting] a packet"

At oral argument, counsel for Toshiba argued that affirming the construction of "layer" would not support the noninfringement judgment as to the '710 patent. Even accepting this late-stage contention, it would make no difference. We hold that the district court also properly construed the term "available for receiving [transmitting] a packet," providing another ground for affirming noninfringement of the '710 patent.

The district court construed "available for receiving [transmitting] a packet" as requiring that the virtual connection exists when setting up a bypass pipe. The dispute turns on whether the virtual connection at issue must exist before setting up a correspondence relationship, or only be capable of existing for receiving/transmitting packets.

The claim language uses "available" to describe the virtual connections, a relatively vague term that does not compel either party's position. As Juniper points out, the specification describes a preferred embodiment in which the router will not set up a bypass pipe if the desired virtual connection does not exist. '710 patent, col. 24, ll. 40-50, col. 24, l. 66-col. 25, l. 2. Moreover, Yasuhiro Katsube, a named inventor on the patents, stated in a deposition that "the virtual connection needs to be in existence" before registering the correspondence relationship.

Toshiba urges us to focus on the language of the claims, and provides no other support for its argument that the virtual connections need not exist when establishing a correspondence relationship. Given the ambiguous claim term at issue, we hold that the intrinsic and extrinsic evidence both indicate the virtual connection must exist when setting up a correspondence relationship. We therefore find no error in the district court's construction and affirm the judgment of noninfringement as to the '710 patent.

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B. Proper Construction of "Free Partitions" "Available To Store Data"

NetApp initially proposed construction of the term "free partitions" as "logical cylinders in which all space is free and no data is currently stored." Sun challenged NetApp's initial construction in part because it would preclude a free partition from containing administrative data, which the claims and this Court's Claim Construction Order specifically allow for. See '012 Patent at 18:64-65; 12/22/08 Claim Construction Order. NetApp shifted gears at the second hearing and instead proposed to construe "free partition" as "a portion of verifiable memory space" that is "configured to store verifiable data, such as customer and redundancy data." Sun proposes to construe "free partitions" as "[all or a segment of a memory space] which do[es] not contain customer or redundancy data." Thus, the decisive difference between the parties' current proposed constructions is whether a free partition must be configured to be able to store "customer or redundancy data," or whether it is sufficient if the free partition can contain only administrative data. Resolution of this dispute turns on two questions: (1) what is the correct construction of the term "data" as used in the patent; and (2) how closely must a free partition be associated with a RAID group.

First, with respect to the term "data," NetApp persuasively argues that Sun's infringement theory hinges on an internally inconsistent interpretation of the term "data." Specifically, NetApp points out that Sun's proposed construction of the term "dedicated partition currently storing data" means a partition that "contains customer or redundancy data." Thus, in the context of "dedicated partitions," Sun defines "data" as "customer or redundancy data." In contrast, in connection with "free partitions," Sun argues that "data" can be "administrative data" and need not be limited to "customer or redundancy data." Nothing in the '012 Patent indicates that the term "data" should be interpreted differently with respect to free and dedicated...
partitions, and the patent contemplates the existence of administrative data in both free and dedicated partitions and provides for scrubbing of administrative data in both free and dedicated partitions. Homrig Decl. Ex. 4 at 15:30-44. NetApp is correct that, were Sun to consistently construe "data" so that dedicated partitions could encompass mere administrative data, then it would necessarily follow that the non-filesystem region and spare disks (which Sun admits contains administrative data) would not only be deemed "free partitions," but would necessarily also be deemed "dedicated partitions." This unreasonable interpretation would impermissibly obliterate the patent's distinction between dedicated partitions and free partitions. Further, it would mean that, for the accused NetApp products to infringe, they would need to scrub the administrative data of these "dedicated" partitions, but it is undisputed that the non-filesystem region and spare disks are never scrubbed. Thus, what is significant is whether a partition contains, or is capable of containing, customer and redundancy data, not merely administrative data. The Court therefore concludes that a free partition must at least be configured so that it is capable of containing customer or redundancy data in order to be "available to store data," as required by claim 1.

Second, the '012 Patent discloses a scheme for running a separate periodic scrub for each volume, where "[e]ach volume consists of N+M physical devices forming an N+M redundancy group." Homrig Decl. Ex. 4 ('012 Patent) at 13:34-44. This indicates that the patent only contemplates periodical scrubbing of N+M disks that make up the redundancy, or RAID group. Additionally, the patent states that the periodic disk scrubbing procedure functions by sequencing through all of the device range partitions "on all of the configured volumes for a selected cylinder" before proceeding to scrub the next cylinder. Id. at 14:19-23. This further indicates that the patent contemplates scrubbing configured volumes that are already within a RAID group. Finally, NetApp points out that the claim term "dedicated partition" expressly states that it is "currently storing data." Id. at 17:41-42. NetApp contends that this supports its position that the partitions in the patent change freely from "dedicated" to "free" and vice-versa depending on whether they are "currently" holding data at any given minute, and do not contemplate a situation where a "free partition" would have to undergo a process of being configured to store data and incorporated into a RAID group before it could be a dedicated partition. The Court agrees with these points and construes the term "available to store data" of a "free partition" as "ready and able to store customer and redundancy data." 2

2 NetApp also argues that the '012 Patent discloses the use of a free space directory for "dynamically monitoring" how much data each partition is presently storing. See Opp. at 16 (citing Homrig Decl. Ex. 4 at 8:44-50, Fig. 8). NetApp contends that the claimed invention discloses free and dedicated partitions that can fluidly transform from one to another based on whether they are holding data at a given time, and that dynamic tracking of the available space in each partition is the mechanism by which the patent achieves its claimed performance benefit of knowing what to scrub and not scrub. Sun counters that the Court should not indulge NetApp's attempt to read a "dynamic tracking" limitation into the asserted claims because no such limitation is found in the claim terms and NetApp has not sufficiently shown how or why this limitation should apply. Specifically, Sun argues that claims 1 and 16 do not require that a free partition ever become a dedicated partition (though claim 24 does contemplate this type of transition). The Court does not rely on this assertion by NetApp in granting summary judgment.

Markman Order

By order [138] entered June 15, 2006, this case was referred to Gale R. Peterson, as Special Master, for issues relating to claim construction. Following briefing of the issues by the parties and a hearing, Mr. Peterson submitted his Report and Recommendation (the "R&R") [153] to the Court on April 3, 2007. Following submission of the R&R to the Court, each of the parties filed objections [154 and 155] to the R&R, as well as responses [156 and 157] to the opposing party's objections. As required by Federal Rule of Civil Procedure 53(g)(4) the Court has conducted a de novo review of all of the recommended findings to which objections have been filed. Except as set out below, the Court adopts the findings and conclusions of the R&R. Specifically, the Court adopts the proposed constructions of all terms and phrases as recommended by the R&R, except for the following phrases: "average consumer," "suitable for installation by the average consumer," "can be installed by the average consumer," and "price affordable to an average consumer" (the "average consumer' phrases").

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In defining "average consumer" in the "average consumer" phrases, the R&R suggests that because the claimed method in the patent is a "method for providing," the focus of the claim is "the objective characteristics of what is 'provided' rather than the characteristics of an actual purchaser." (R&R at 36) Based on this conclusion, the R&R proposes that these terms be construed as follows:

1. "average consumer" to mean one without special training in stonecutting;
2. "price affordable to an average consumer" to mean that a "pre cut" "non man made" "stone top" in accordance with other terms in the claims does not require a purchaser to incur the additional costs of engaging the services of someone skilled in stonecutting in order to install the top;
3. "suitable for installation by the average consumer" and "can be installed by the average consumer" to mean a "pre cut" "non man made" "stone top" in accordance with other terms in the claims that is "non custom ordered" or "not custom ordered" also in accordance with other terms in the claims, and that product may be installed without requiring the services of someone with special training in stone-cutting.

(R&R at 46.) The problem with this conclusion is that, in defining what is "provided," the patent claim utilizes the characteristics of the purchaser. That is, the counter top must be one that is "pre cut non man made" stone and is "affordable to an average consumer" and is capable of being installed "by the average consumer." ('973 Patent, col. 5, ll 27-28, 32.)

The Federal Circuit has instructed that "claim language should not be treated as meaningless," and "claims are interpreted with an eye toward giving effect to all terms in a claim." Bicon, Inc. v. Straumann Company, 441 F.3d 945, 950, 951 (Fed. Cir. 2006). The construction of these terms in the R&R violates this principle by attributing no meaning to "average consumer" beyond what is otherwise stated in the claim: "a pre cut non man made, non custom ordered stone top." ('973 Patent, col. 5, ll. 27-28.) Plaintiff recognized something more was required to define "average consumer" in its proposed claim construction in which it proposed to define the average consumer, not in terms of the pre cut nature of the top, but in terms of the characteristics of the consumer. Plaintiff's proposed construction of "average consumer" was: "an individual that purchases supplies for a home improvement task from a retail outlet and performs the home improvement task himself or herself, regardless of whether the individual has any professional training in that task." (Joint Claim Construction Statement at A1-1.)

Consistent with the foregoing principles, the Court rejects the construction of "average consumer" in the R&R. The Court finds that Plaintiff's construction of the term "average consumer," with one exception, is consistent with the specification and does not treat a clearly stated characteristic as superfluous. The use of the word "professional" in Plaintiff's proposed definition is not warranted. First, this is a term that may require further definition. Second, the Court finds no support for imposing an additional limitation on the type of training. After reviewing the evidence, the Court concludes that the patent is intended to include tops that can be installed by consumers with no training in counter top installation. The claim provides a method for providing a top that the typical "do-it-yourself homeowner" would be able to install. (973 Patent, col. 2, ll. 18-19.) Therefore, the term "average consumer" shall mean "an individual that purchases supplies for a home improvement task from a retail outlet and performs the home improvement task himself or herself, regardless of whether the individual has any training in that task."

The phrases "AVERAGING THE RESULTING INDICATION . . . OVER TIME" and "AVERAGING OVER A TIME WINDOW" (claims 22 and 24) simply mean that more than one resulting indication, each of which is derived at a different time, is averaged. Additionally, "TIME WINDOW" means a "period of time."
The disputed claim phrase "avoids transfer" appears in claims 1 and 18 of the '051 patent. The parties propose that the disputed claim phrase be construed as follows:

Lexar's proposed constr: - none - [but contests
Toshiba's proposed constr: The controller never transfers the original sectors of the information block during a host rewrite request.
Pretec's proposed constr: Prevents transfer from happening.

For the most part, Toshiba and Pretec agree on the construction of "avoids transfer" and although Lexar disputes Toshiba's construction as the proper one, it does not offer its own proposed construction. The Court finds, however, that Lexar is right in that "avoids transfer" should be construed in accordance with its ordinary meaning. Pretec's proposed construction, "prevents transfer from happening," does not illuminate the meaning of "avoids transfer" in the context of the claim at issue. Toshiba's proposed construction is not consistent with the ordinary meaning of the claim phrase because its use of "never transfers" is likewise inaccurate regarding the meaning of the claim language in context. Claim 1 says that the controller "avoids transfer of a particular information block from one location to another block location each time the host requests that a portion of the information block be re-written." (‘051 patent, 18:54-57 (emphasis added).) The claim language does not say that transfer cannot occur or that it never occurs; it says that transfer is avoided each time the host requests a re-write. That way, as Lexar argued at the claim construction hearing, the invention is more efficient and prevents wearing out the nonvolatile memory device. (Claim Construction Hearing Transcript at 100). Moreover, the description of the preferred embodiment explains that "the overhead associated with an erase cycle is avoided for each write to the memory except for periodically." (‘051 patent, 8:8-10 (emphasis added).) While the court is not to import limitations from a preferred embodiment into the claims themselves, a construction that excludes a preferred embodiment is rarely, if ever, correct. Vitronics, 90 F.3d at 1583-84. Therefore, the court rejects Toshiba's proposed construction. Having considered the claim language in context, the court construes "avoids transfer" to mean: the controller, at times, avoids the transfer of a particular information block during a host rewrite request.

b. Claim 5

Claim 5 of the '892 patent reads (bracketed text and letters provided for ease of reference):

[Preamble] 5. A method of providing a bingo game comprising the steps of:

[A] providing a bingo operator for determining at least one winning bingo pattern;

[B] registering at least one bingo card bearing a plurality of bingo numbers with said operator;

[C] generating a predetermined number of random bingo numbers; and,

[D] identifying all registered bingo cards on which the generated random bingo numbers form one of said at least one [sic] winning bingo pattern and,

[E] awarding the holder of the winning bingo card an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed.

c. Defendant's Proposed Constructions

Defendant contends the Court should give the following terms the meaning they would have had to a person of ordinary skill in the art in light of the intrinsic record. In this regard, Defendant asserts that the following terms should have the following constructions
The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

c. Plaintiff's Proposed Constructions

Plaintiff contends that, based upon the general acceptance of certain terms by the public and by using dictionary definitions, the following terms should be constructed as follows:

"Bingo game" - a "traditional" bingo game as that term is understood by the general public. In this regard, Plaintiff suggests that the Court construct the term "bingo game" within Claim 5 as:

a game simultaneously played by multiple players that contains the following elements: (1) displayed cards that bear numbers, (2) which must be daubed on each card when numbers are determined by random means during the game, and (3) which game is won by at least the first person to hold a card on which a previously designated arrangement of numbers has been covered.

"Predetermined number" of random bingo numbers: Plaintiff argues that the term "predetermined number" should be construed in accordance with the dictionary definition of "predetermined." In this regard, Plaintiff argues that the construction should be: "A number or range of numbers that is determined, decided, or established in advance."

"Registered": Plaintiff argues that the term should be constructed as follows:

identifying a discrete bingo card chosen by a player, communicating the pattern of that card to the game operator, and having the game operator record the pattern of the card prior to play of a discrete bingo game.

III. CONCLUSION

Having carefully reviewed the text of Claim 5, the specification, and the prosecution history of the '892 patent, and having considered the parties' arguments presented at the Markman Hearing, the Court finds that the construction proposed by Defendant is, in all respects, proper. The '892 patent was proposed and amended in order to distinguish the patent from prior art. Plaintiff's proposed construction would have the opposite effect. Therefore, the Court finds as a matter of the law that the following terms from Claim 5 shall have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.
The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

IT IS SO ORDERED.

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1. "Awarding Prize" Step

IGT argues that the "awarding prize" step requires a transfer of legal rights to the prize to the player. Aristocrat contends that simply displaying the amount of the prize won, without a concomitant transfer of entitlement to the prize, suffices to satisfy the "awarding prize" step. Aristocrat's construction is problematic for two reasons. First, this interpretation is contrary to the ordinary and customary meaning of the word "award." "[W]ords in a claim are generally given their ordinary and customary meaning." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). There does not appear to be any evidence in the specification or prosecution history suggesting that the inventor meant to use the term "award" in a manner inconsistent with its ordinary meaning, and Aristocrat seems to agree that "award," as used in the patent, has its ordinary and customary meaning. To award a prize is ordinarily understood to mean to confer rights to a prize, not simply to display for viewing the amount of the prize won, and the dictionary definitions cited by Aristocrat corroborate this understanding. See Dkt. No. 462-1 at 2 (defining "award" as "to grant as legally due").

Second, Aristocrat's proposed construction is contrary to the claim language. The '215 Patent claims a method that includes both of the following two steps: (1) "identifying to the player said one progressive prize from said plurality of progressive prizes that has been won" and (2) "awarding said one progressive prize from said plurality of progressive prizes that has been won." '215 Patent 9:21-25, 10:26-30. In light of this claim language, the "awarding prize" step cannot be met simply by displaying the amount of the prize won, as this would render the "identifying prize" step superfluous. Aristocrat attempts to differentiate between these two steps by contending that the "identifying prize" step indicates to the player that some prize has been won without displaying the monetary amount of the prize, while the "awarding prize" step displays the monetary amount of the prize. This interpretation lacks support in the patent and is contrary to the ordinary and customary meaning of "award." Because a "claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so," Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005), the court finds that the "awarding prize" step requires more than displaying the amount of the prize won.

It is undisputed that during the testing of gaming machines, legal entitlement to a prize is never conferred upon IGT employees. Since the step of "awarding said one progressive prize from said plurality of progressive prizes that has been won" is not performed during testing, IGT does not perform all of the steps of the claimed method during testing, as required for a finding of infringement. Consequently, the court grants IGT's motion for summary judgment of non-infringement with respect to the '215 Patent.

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Pursuant to this Court's Markman Order, the term "wafer" means "a thin, generally cylindrical, slice of semiconductor material used as a base for an electronic component or circuit." The term "a first axially symmetric region" means "a region that is symmetric about the central axis of the wafer." The term "substantially free of agglomerated vacancy [or interstitial] defects" means "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm3." The term "agglomerated vacancy intrinsic point defects" means "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." Finally, "agglomerated silicon self-interstitial intrinsic point defects" means "defects caused by the reaction in which self-interstitials
agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects."

12. **axis of symmetry** ('412 patent)

CEA's proposed construction is "a line relating to the ellipsoid of the indices of a medium corresponding in some way to a symmetric property of the ellipsoid."

Samsung's proposed construction is "the axis in a uniaxial material corresponding to the extraordinary index."

The court adopts Samsung's proposed construction.

CEA's proposed construction, including the language "corresponding in some way to a symmetric property," provides little in the way of defining this claim term. CEA agreed at oral argument that the axis of symmetry corresponds to the extraordinary index. Based on its contention that uniaxial medium does not require the ordinary indices to be equal, however, CEA stated their position is that there is "an axis of rotation" which is an axis of symmetry with respect to the extraordinary index. 39

The specification recites "the compensating medium is a uniaxial medium of negative optical anistropy having an axis of symmetry parallel to the homeotropy direction and an extraordinary axis parallel to said axis of symmetry." 40

Samsung's proposed construction is consistent with the court's construction of uniaxial medium having equal ordinary indices, which would be symmetrical in relation to the extraordinary index.

**Samsung's construction is adopted by the court: "the axis in a uniaxial material corresponding to the extraordinary index."**

1. **Background process** (claim 8)

Plaintiff's Construction: "a process performed automatically while a foreground process, such as reading to or writing from the disc, is not being performed"

Defendants' Construction: "a process performed by the optical disc drive so that another process can be accepted while the background process is being performed"

Although plaintiff argues vigorously in favor of its own proposed definition, the parties' constructions are not that far apart. The parties appear to agree that a "background process" is a lower priority than a foreground process and that the
background process stops while the foreground process is running. At the claim construction hearing, defendants offered no argument on this term.

Plaintiff disputes defendants' use of the word "accepted," which plaintiff says is ambiguous and allows the drawing of an inference that the two processes are occurring simultaneously. One problem with plaintiff's argument is that "accepted" is the word used throughout the patent to describe this process. However, I agree with plaintiff that using the word "accepted" without further clarification leaves the construction ambiguous. Further, defendants did not make an argument in their briefs or at the hearing for keeping that word in the definition, suggesting that they do not object to its omission.

In their response brief (but not at the hearing), defendants included a short discussion questioning plaintiff's use of the word "automatically" because it does not appear in the claim or in any other part of the patent. Dkt. # 183, at 7. In defending the inclusion of "automatically," plaintiff says that "background process" is a term of art in the computer science field and that "automatically" commonly appears in those dictionary definitions. Again, however, it is not enough to point to a dictionary to support a particular construction because dictionaries, even technical ones, do not speak directly to the invention at hand. Phillips, 415 F.3d at 1318-19. The key question is whether the patent itself adopts a dictionary definition or whether it adopts a meaning more tailored to the particular invention. Because plaintiff neither makes a showing that the patent incorporates that definition nor makes any other argument for its inclusion, I will omit it from the construction.

I conclude that this is another term that needs no construction. Again, the parties noted two important aspects of a background process: (1) it can be interrupted by other, higher priority processes; and (2) it is not performed while the high priority process is being performed. These two ideas are already incorporated into the claim itself, which makes clear that the background process is "interrupted" by the request for a recording or reproducing process and that the background process "is resumed" once the other process is finished.

**Court's Construction:** No construction needed
Master does not adopt LPL's construction of "backlight unit" because it does not further define the term. It is axiomatic that a "backlight unit" would include a backlight.

Accordingly, the Special Master's claim construction is as follows:

<table>
<thead>
<tr>
<th>CLAIM TERM</th>
<th>SPECIAL MASTER CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>backlight unit</td>
<td>The layers of the flat-panel display device which illuminate the flat-panel (or liquid crystal) display from behind</td>
</tr>
</tbody>
</table>

The Court construes the term "sufficient bandwidth" to mean "sufficient data transfer capability." In this instance, both parties' proposed constructions improperly include limitations found elsewhere in the claims or specification. For example, ST would include the limitation "that allows real time operation" in the term "sufficient bandwidth." However, the "real time" limitation is found elsewhere in the claim and does not need to be repeated in this term. See '789 Patent, 12:31-32. The Court's construction describes the understanding of one skilled in the art without unnecessary limitations.

4 ST's proposed construction is: "data transfer capability at a rate that allows for real time operation." Motorola's proposed construction is: "equal to greater than the bandwidth required for the decoder to operate in real time without denying the other components on the bus access to memory for an amount of time that would interfere with their operation."

5 ST agreed to the Court's construction at the Markman hearing.

D. Banking Network

Alexsam's Proposal: the Court should adopt the definition provided in section 9 of its Datastream Claim Construction Order (i.e., "a set of interconnected computers used by banks and financial institutions for purposes of conducting and processing financial transactions")

IDT's Proposal: "terminals, computers, and processors of multiple banks, issuers, and third-party processors that are linked together for the purpose of processing financial transactions, and which incorporates and utilizes a bank processing hub"

IDT asks the Court to modify its previous construction for "banking network," which appears in many of the asserted claims. IDT relies on the prosecution history, during which the patentee argued that "a banking network necessarily, by virtue of its being a banking network, incorporates and utilizes a banking processing hub." See Def. Br. at 14. IDT identifies no error in the Court's prior construction, but its argument is nonetheless persuasive. However, the Court disagrees that the banking network necessarily includes a bank processing hub. See '608 Patent, Fig. 2 (processing hub 103 includes three different databases; databases of this type would not ordinarily be found in a bank processing hub). See also '608 patent, 5:4-8 (indicating clearly that the processing hub of the invention is not limited to a bank processing hub). The Court construes "banking network" to mean "a set of interconnected computers used by banks and financial institution for
purposes of conducting and processing financial transactions, and which incorporates and utilizes a processing hub."

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G. "Banking Transaction"

I define the last disputed term, "banking transaction," as follows: "An activity affecting a deposit account, such as a deposit of funds or a withdrawal."

Again, plaintiffs propose a definition that is vague and overbroad -- "Something carried out or performed with a bank." Defendants' proposed definition, "An activity affecting a deposit account, such as a deposit of funds or a withdrawal, carried out at the request of the account owner," hits closer to the mark, no doubt because that is the definition of "banking transaction" found in the DICTIONARY OF BANKING TERMS. The only problem with the definition is that, as used in the '725 patent, the term "banking transaction" can mean a transaction authorized by the account owner or one that is not authorized by the account owner. The DICTIONARY OF BANKING TERMS limits the definition to an owner-authorized transaction. Such a limitation does not work in connection with this particular patent, which is designed to allow a customer to stop not just transactions that he authorized but has had second thoughts about, but also transactions that he has not authorized, but that are occurring because someone other than the owner has obtained access to the owner's account. In this day and age, where information and identity theft is rampant, it would be foolish to pretend that banking transactions cannot be initiated -- and sometimes completed -- by persons other than account owners. The use of the term "banking transaction" throughout the '725 specifications contemplates the possibility of unauthorized banking transactions. Therefore, the DICTIONARY OF BANKING TERMS definition is too restrictive.

Again, there is an easy fix. Placing a period after the word "withdrawal" in the DICTIONARY OF BANKING TERMS definition, and eliminating the phrase, "Carried out at the request of the account owner," solves the problem while casting the definition in terms that are familiar to one skilled in the art of banking.

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Base

The Court agrees with Samsung and construes the term "base" in claim 11 of the '339 patent as "a structure on which a multilayer electrical interconnect is fabricated." MEI's proposed construction--"a bottom layer of electrically conductive material"--adds limitations requiring that the base be "electrically conductive" and a "bottom" layer. The specification discloses that the base may be "an organic or inorganic insulator, a conductor, an integrated circuit, or a preceding layer . . . ." '339 Pat. col. 3:24-28 (emphasis added). MEI's narrow construction is controverted by the specification.

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8. Displaying, with the base map, data that is usable to make a flood zone determination for the real property

This limitation is found in claim 15 of the 698 patent. There are two components to the term. The first is "displaying, with the base map." The second component of the limitation is "data that is usable to make a flood zone determination." The court will address each component.

With respect to the first portion, "displaying, with the base map," the plaintiff suggests that no construction is required. Alternatively, the plaintiff suggests that the court should construe the term to mean "showing, on a CRT or other computer screen to a user, with the base map." The defendants contend that the term "displaying, with the base map" means "showing, on a CRT or other computer screen to a user, with the georeferenced raster topographical map upon which information may be placed." Thus, the defendants contend that the base map must be a georeferenced raster topographical map and that "base" means a map on which information may be placed. The court is persuaded that the term "base map" is the key term
which requires construction. The court defines the term to mean "a map on which information may be placed."

With respect to the second component of the phrase, "data that is usable to make a flood zone determination," the plaintiff contends that the phrase means data which "includes FEMA designations of the same accuracy as a FEMA Flood Insurance Rate Map that may be used to make a flood zone determination for the real property." The defendants contend that the clause means "FEMA designations that may be used to make a flood zone determination for the real property." Although the two definitions are close, the plaintiff's construction is too limiting. The claim language only requires data that "may be used" to make a flood zone determination. As a result, the defendants' construction appears proper, and the court adopts it.

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3. "a base secret cryptographic value"

A limitation on the "at least one second device" is that it has access to "a base secret cryptographic value" corresponding to said internal secret. The parties dispute the meaning of "base secret cryptographic value."

The language of Claim 1 states that the "base secret cryptographic value" corresponds to "said internal secret state."

The "Detailed Description of the Invention" provides:

The server also obtains the client's base key value K[0] (for example, by retrieving K[0] from the server's memory, by cryptographically deriving K[0] using other secret keys or secret algorithms, by obtaining K[0] from a third party such as a key server, etc.).

('092 Patent, Col. 6:62-66.)

The court construes the phrase "base secret cryptographic value corresponding to said internal secret state" to mean: an initial value sought to be kept secret which is used in the cryptographic method disclosed in Claim 1.

The parties dispute the effect, if any, which step (b) has on the definition of "base secret cryptographic value." In step (b), substep (I), an "updated secret cryptographic value" is derivable. The parties dispute whether this "updated" value 2 is a new value, leaving the "base" value unchanged or whether the "updated" value changes the base value. The Court is requested to indicate in its definition whether the "base" value is "unchanging."

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

2 The dispute also applies to successive "updated" values which are created as step (b) is repeated a plurality of times under step (e).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

A person skilled in the art at the time of the invention would understand from the "Detailed Description of the Invention" that the base value is not retained and used in succeeding processes. Instead, the inventor discloses a method in which the base value is changed in the updating process. Therefore, the Court finds it unnecessary to include the word "unchanging" in its construction of the phrase.

Moreover, the written description discloses an embodiment in which a base cryptographic value may be changed. The specification discloses a state in which "rekeying" could be performed:

Eventually, the client may reach a point at which the entire table has been traversed. For example, the end of the process of FIG. 1 is reached at step 170, where C=60. After this transaction (or at an earlier point if the table length exceeds the maximum number of transactions allowed by the system), the client device could, and might typically disable itself, such as by deleting its internal secrets. However, other actions may be preferable in some cases (e.g., by repeating back to step 110, entering a state in which rekeying is required, etc.).
"Rekeying" could establish a new base cryptographic value. Therefore, the Court declines to include the word "unchanging" in the construction of the phrase because it would eliminate re-keying as part of the process.

A. Parties' Construction Arguments

Plaintiff's original proposed construction seeks "base station" to be construed as "equipment in a wireless communication system that transmits data to a CPE." Plaintiff argues there is language in the specification that supports the "transmits" language. See '759 patent, 2:46-47. At the hearing Plaintiff also proposed a revised construction that reads "a station in a wireless communication system that facilitates communication between a fixed network infrastructure and at least one CPE." Plaintiff provided no briefing on the revised construction, but Plaintiff argued at the hearing that Plaintiff's revised construction is an attempt to bring Plaintiff's construction closer to Defendants' proposed construction in order to focus the Court on the real disputes between the parties.

Defendants seek a construction of "base station" as a "fixed station in a wireless communication system that relays data between a fixed network infrastructure and at least one CPE." Defendants ask the Court to require that the base station be "fixed." For support, Defendants cite to technical dictionaries to show one of ordinary skill in the art would have known that base stations were fixed stations at the time of the filing of the '759 patent. Defendants also point out that the '759 patent incorporates U.S. Patent No. 6,016,311 (filed Nov. 19, 1997) (the '311 patent) by reference, and the '311 patent shows base stations in fixed locations. See, e.g., '311 patent, Figure 4. Defendants' construction additionally requires the fixed station to "relay" data between a fixed network infrastructure and at least one CPE. Defendants' argument relies on the figures and the specification of the '311 patent that show the base station communicating with both the CPEs on one end and network infrastructure on the other end. Id.

B. Analysis

The Court construes the term "base station" as "equipment in a wireless communication system that transmits data to and/or receives data from a CPE." While the Court mostly agrees with Plaintiff's original construction that reads "equipment in a wireless communication system that transmits data to a CPE," the Court believes it is incomplete because it only requires that the base station transmit data to a CPE. Plaintiff supports its construction with the '759 patent specification that describes a method for use in a wireless communication system involving "data transmitted by the base station and subsequently received by the CPE." '759 patent, 2:46-47. But the base station does not only transmit data to the CPEs, it also receives data from the CPEs. See, e.g., '759 patent, 2:19-22 ("a base station having a second modem configured to measure a second link quality for each of the plurality of CPE based on received uplink data"); '759 patent, 2:38-39 ("data transmitted by a CPE and received by a base station"). Therefore, the Court adds the "receives" language to Plaintiff's construction. The Court's construction is strongly grounded in the intrinsic record. See, e.g., '759 patent, 2:52-55 ("receiving a request for the second downlink modulation scheme at the base station, transmitting a third frame of data by the base station to the CPE"); '759 patent, 3:8-40 ("a system where three CPEs . . . are receiving and transmitting data with the base station"); '759 patent, 7:27-29 ("The downlink subframe 302 is used by the base station 102 to transmit information to the plurality of CPEs."). The Court adds the qualification "and/or" to reflect the fact that the specification does not require the base station to both transmit and receive at all times, as in some instances, for example, the specification only discusses the base station transmitting data to the CPEs. See '759 patent, 7:27-29 ("The downlink subframe 302 is used by the base station 102 to transmit information to the plurality of CPEs.").

Defendants' construction is problematic because it imposes an additional limitation that the base station be fixed. "[U]nless required by the specification, limitations that do not otherwise appear in the claims should not be imported into the claims." N. Am. Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1348 (Fed. Cir. 2005). The Court concludes that the '759 patent never limits the base station to a fixed base station, and to the extent Defendants are arguing that base stations are
fixed under the ordinary and customary meaning of that term, the Court disagrees. Nowhere in the '759 patent does the inventor limit the base station to a fixed base station. Defendants point out the '311 patent that is incorporated by reference in the '759 patent, but the '759 patent states that the '311 patent is merely "[o]ne exemplary broadband wireless communications system." '759 patent, 3:29-34. So the '311 patent illustrates a preferred embodiment at best, and it is incorrect for the Court to read in a limitation from a preferred embodiment. Phillips, 415 F.3d at 1323 ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments"). In addition, while the '311 patent clearly shows base stations that are fixed, the '311 patent never explicitly limits or defines base stations as being fixed. Finally, as Plaintiff points out, one of ordinary skill in the art would have known at the time the '759 patent was filed that having mobile base stations was possible. See, e.g., European Patent 0936829A2 (filed Aug. 31, 1998) (describing "mobile base stations"); Patent Cooperation Treaty (PCT) WO 00/36858 (filed Nov. 30, 1999) (describing "mobile base stations"). Thus, contrary to Defendants' argument, the ordinary and customary meaning of base station at the time of the filing of the '759 patent did not require the base stations be fixed.

The Court also disagrees with Defendants' construction as it requires the base station to "relay[] data between a fixed network infrastructure and at least one CPE." The "relay" language does not appear anywhere in the '759 patent, and it is unclear what exactly it means to "relay." In any event, the relationship between the base station and the fixed network infrastructure is not the focus of this invention. The Court "cannot look at the ordinary meaning of a term . . . in a vacuum . . . [r]ather, we must look at the ordinary meaning in the context of the written description and the prosecution history." Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed. Cir. 2005) (internal quotations omitted). The patent's written description only briefly mentions the fixed network infrastructure—merely to note its existence—when describing the prior art. See '759 patent, 1:13-23 ("A wireless communication system facilitates two-way communication between a plurality of subscriber radio stations or subscriber units (fixed and portable) and a fixed network infrastructure . . . . The key objective of these wireless communication systems is to provide communication channels on demand between a plurality of subscriber units and their respective base stations in order to connect a subscriber unit user with the fixed network infrastructure."). The patentee's invention, as described in the patent, clearly pertains to the relationship between the base station and the CPEs and not any relationship with fixed network infrastructure. See, e.g., '759 patent, FIG. 1 (showing the exemplary wireless communication system that only includes the base station and the CPEs); '759 patent, FIGs. 6a and 6b (describing the invention and focusing only on the relationship between the base station and the CPE). Therefore, it is not necessary to include the relationship between the base station and the fixed network infrastructure because it is not a key part of the invention and consequently it will not be helpful to the jury.

Finally, Plaintiff offered a revised construction at the hearing, but Plaintiff's revised construction suffers the same flaws as Defendants' proposed construction. Plaintiff's revised construction uses the language "facilitates," yet there is not sufficient grounding in the specification for that language as there is for the "transmits and receives" language. The "facilitate" language is only used when describing the prior art in the beginning of the specification. See '759 patent, 1:45-47 ("These broadband networks facilitate two-way communication between a base station and a plurality of fixed subscriber units."). But as noted above, the "transmits and receives" language is located throughout the specification and the claims, so that language is better grounded in the intrinsic record. In addition, as mentioned when discussing Defendants' proposed construction, the Court does not find it necessary to mention the relationship with the fixed network infrastructure because the present invention concerns the relationship between the base station and the CPEs. Therefore, as noted above, the Court construes the term "base station" as "equipment in a wireless communication system that transmits data to and/or receives data from a CPE."

8. "Base station" ('771, Claims 1, 2, 3, 4)

The parties agree that "base station" had a customary meaning to a person of skill in the art at the time of patenting. Agere argues that this meaning is "an interior node used for extending the range of a controller," while Broadcom argues for "an element in a network that repeats data messages and provides access to the infrastructure.

Agere proffers two arguments in support of its construction. First, Agere notes that the patentee explicitly defined "base station" using Agere's definition. ('771 patent, col. 30, ll. 35-36 ("A 'base station' device is used as an interior node for extending the range of a controller.").) This specification, however, appears only in the context of "an alternate preferred
embodiment." (Id., col. 30, l. 29.) 37 In contrast, no other specification makes mention of the alleged "extending the range" function of a base station. For example, Agere cites to the summary of the invention, which states that "base transceiver units" are "linked" to a host computer by a "network controller." (Id., col. 3, ll. 39-44.) Even assuming that "base transceiver units" are "base stations," this language is ambiguous at best. It could mean that the base stations relay messages from the wireless terminal to the wired network (as Broadcom suggests), or, by implication, that the base stations provide added range for the transmissions of the network controller (as Agere argues), or both. This ambiguity is equally evident in the Background of the Invention cited by Agere, which says nothing whatsoever about the "range" of the controller. (See id., col. 1, l. 65-col. 2, l. 9.) 38 Accordingly, there is no basis in the specifications for holding that the broad claim term is defined by its use in a single embodiment because the specifications as a whole show no intent to so define the term.

37 Agere relies upon the "quote/unquote" convention to establish the definitional nature of the quoted language. This argument fails, however, because it would be improper to extend this definition beyond the embodiment in which it appears given that the other uses of the term in the specifications are not necessarily consistent with this definition, as discussed below.

38 A separate portion of the Background of the Invention discusses the range of the base stations, but this is in the context of reducing problems that arise from having too many or too few base stations, rather than of increasing the range of a controller. (See id., col. 2, l. 51-col. 3, l. 32.)

Second, Agere cites Dr. Goodman, who testified that a person of skill in the art would understand the term to have Agere's proposed construction. None of the evidence cited by Dr. Goodman, however, supports Agere's construction. For example, Dr. Goodman cites his own 1991 paper for the proposition that "[a] base station exchanges radio signals with wireless terminals. . . . The cellular switch controls the assignment of radio channels to wireless terminals." (Goodman Rep. P 171.) Several unsupported inferential leaps would be required for this language to lead to the conclusion Agere wishes the Court to adopt, namely that a cellular switch is a "controller" and that the base station "extends the range" of that controller. Similarly, the specification cited by Dr. Goodman stating that "base transceiver units . . . are . . . communicative with [the] network controller" ("771 patent, col. 9, ll. 7-12) does not directly bear on whether base stations extend the range of the controller. Thus, the Court finds that Dr. Goodman's testimony is unsupported by the evidence on which he relies, and therefore the only support for Agere's construction is a definition applicable solely to one preferred embodiment. Accordingly, this construction is rejected as without sufficient basis in the claim language, specifications, or extrinsic record.

In contrast, Broadcom's proposed construction is consistent with the specifications and supported by extrinsic evidence. Indeed, it appears beyond dispute that base stations both relay information to wireless terminals and give those terminals access to the hard-wired portion of the network. (See, e.g., id., col. 2, ll. 54-57 (discussing base station functions in "basic" network configurations), col. 3, ll. 39-44 (describing base stations as "linked" to network and "communicative with" mobile terminals); Acampora Rep. at 8 (citing IEEE dictionary definition of base station as "land-station in land-mobile service carrying on a radio communication . . . with mobile . . . radio stations").) 39 Thus, the Court credits Dr. Acampora's testimony that Broadcom's proposed construction is the customary meaning of "base station" and adopts that construction as consistent with the patent specifications.

39 Agere argues that Broadcom's construction is improper because it defines a base station to be synonymous with a "repeater." This argument, however, is contradicted by Agere's own expert, who opined, in the context of the term "bridging node," that a repeater is a device that "extends the length of the network media." (Goodman Rep. P 133.) Thus, if anything, it is Agere's definition ("a base station . . . extends the range of a controller") that appears similar to the definition of a repeater.
Based on the number of items in the category

The Court agrees with Sklar that the term has its plain ordinary meaning and does not require construction. Microsoft argues the term should be construed to mean "the number of items in a category dictates whether the category is an open category." The parties disagree whether the number of items in a category dictates or is the basis for whether the category is designated as an open category. The claim language is clear on this point: the decision is "based on the number of items in the category." Microsoft's proposed construction seeks to replace "based on" with the term "dictate." The term "dictate," however, does not appear anywhere in the specification or the claims. The term "based on" appears several times in the specification and is used in its plain ordinary meaning. See '843 patent, Cols. 3:32-35, 7:54-57. The term is common and simple, and a lay juror would have no difficulty understanding it. The term is not a scientific phrase and can be easily understood. Substitution of the word "dictate" for the term "based on" is unwarranted and needless. Accordingly, the Court does not construe this term.

GO BACK

A. Based On

The plaintiff contends that "based on" means "taking into consideration." The defendants contend that the term means "in order to fulfill." The specification of the patent states that after receiving transportation requests, "the host then creates a route or route having destinations based on the received transportation requests." Col. 3, ll. 39-40 (emphasis added). This passage implies that the route is created to fulfill the received requests and thus supports the defendants' proposal. Certain claims, however, use the phrase "based on" in a broader sense—a manner consistent with the plaintiff's proposed definition. Claim 12 of the '362 patent, for instance, includes the limitation of "creating new routes based on said received transportation requests and said existing routes." The "existing routes" referenced in dependent claim 12 are stored in memory at the host. '362 patent, claim 12. A definition of "based on" to mean "in order to fulfill" would make little sense in the context of claim 12 because claim 12 would require the creation of new routes "in order to fulfill said received transportation requests and said existing routes." At least in the context of claim 12, the patentee used the term "based on" to mean "taking into consideration." It is presumed, moreover, that the patentee used the terms consistently throughout the claims. "Based on" therefore means "taking into consideration."

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"Based on," "dependent on," "depends on," and "function of"

The terms "based on," "dependent on," "depends on," and "function of" appear in many claims within the shock delivery patents. In each instance, the term is used to describe how the defibrillator incorporates a patient-dependent electrical parameter to adjust shock delivery. E.g., 612 Patent Claim 1 ("adjusting the discharge parameter . . . as a function of the value of the electrical parameter"); 454 Patent Claim 15 ("adjusting the tilt of the waveform based on the value of the monitored electrical parameter"); 905 Patent Claim 4 ("shaping the waveform so that an initial parameter of a waveform phase depends on a value of the electrical parameter"). The parties agree that each term means that the shock adjustment is based on the measured parameter; their dispute is over whether the terms require the shock adjustment to be based solely on the measured parameter.

The court finds no reason to limit these terms to require adjustment based solely on the cited parameter. Defibtech points to numerous disclosures in the specification of shock delivery aspects that are "determined by" a measured electrical parameter. It fails, however, to point to a single location where the inventors required that shock delivery be "determined only by" the measured parameter. For that reason, the court declines to impose such a limitation on these terms. Employing Philips' proposed definition ("using") defines these terms just as well as Defibtech's ("determined by"). Neither phrase requires that the patient-dependent electrical parameter be the sole influence on the shock modification, and neither do the
1. The Language of the '839 Patent

The Court first considers the "displayable" language of claim 26 in its immediate context: "the toolbar being displayable based on a location of a cursor in relation to a hyperlink in a first page in a first window of an application." Having done so, the Court finds that claim 26, when properly construed, clearly teaches a toolbar which is "automatically" displayed, insofar as there is no further action required on the part of the user after the cursor is placed in an appropriate location proximate to the hyperlink. This language in Claim 26 means simply that the toolbar is displayable or capable of being displayed, put before the view of the user, or made evident based on the location of the cursor.

2 Indeed, the Court's commonsense understanding of the word "displayable" is supported by the lexicographers at Merriam Webster, who define "to display" as "to put or spread before the view" or "to make evident." <http://www.merriamwebster.com/dictionary/displayable> (last viewed November 30, 2007). Displayable is an adjective. Id. The suffix "-able," forming the adjective, means "capable or worthy of." The American Heritage Book of English Usage: A Practical and Authoritative Guide to Contemporary English, Chapter 8, § 2 (Houghton Mifflin Company 1996), <http://www.bartleby.com/64/C008/002.html> (last viewed November 30, 2007). In other words, a toolbar that is "displayable" is simply one which capable of being displayed, put before the view, or made evident.

3 Having reviewed the patent as a whole, the Court knows that the display of the toolbar in the invention is not the result of some divine providence once the user places the cursor in the vicinity of the hyperlink but is prompted by "detector 70" which "detects the presence of a hyperlink near the location provided by cursor 74" and "sends a toolbar display signal 73 to the display controller 72" whereupon "receipt of a toolbar display signal 73 the display controller 72 sends a signal to the display 11 to display toolbar 20." '839 patent Co. 7:36-43.

Reading further, the Court finds that the '839 Patent extols the benefits of this "automatic" display of the toolbar over earlier conceived methods of displaying a toolbar. The Detailed Description of the Invention provides, in pertinent part, that:

Thereafter, the user selects a hyperlink in block 102 by moving a cursor either "over" or near a hyperlink that the user wishes to select. When the cursor is "over" or near a hyperlink, the program displays a toolbar which illustrates the link enhancements available for that particular hyperlink in block 104. The program may wait a period of time, for example, three seconds, after the pointer is placed 'over' or near a selected hyperlink.

'839 Patent Co. 5:35-43. True, the selection of the hyperlink by the user prompts the display, but the '839 Patent does not contemplate a further action by the user, once the cursor is in the proper location near the hyperlink, to deploy the toolbar. There is no magic here, but there is no right click either, only the positioning of "the cursor in relation to" a hyperlink.

As further explained in the Summary:

Blocks 114 and 116 perform in essence the same functions that are performed when the user places the cursor over a
hyperlink, "right clicks" the hyperlink and selects and clicks on the open new window command from the menu displayed (Netscape Navigator running on Windows 98). The advantage provided by the present invention is that the user can open the new window with just a single click.

While current browsers enable the user to perform a similar function by right clicking on the link and then clicking on the "open in new window" menu selection to display the selected page in a new, browser window, however, the user would then have to manually minimize this browser window. Thus the present application enables the user to accomplish in a single click what might otherwise take three or more user actions. The more user actions taken by the user, the greater the distraction from viewing the current page.

'839 patent Co. 6:22-53.

The abstract of the patent succinctly explains how the invention arrives at this improvement:

This invention permits the user to interact with a hyperlink in a variety of ways without necessarily having to open and/or follow the hyperlink. This is accomplished by detecting the presence of a cursor near a hyperlink. When the cursor has remained near the hyperlink for a predetermined time period, a toolbar is displayed containing one or more link enhancements that a user may select.

'839 Patent Abstract (emphasis added). The same improvement is referenced in the Summary as follows:

First the presence of a pointer near a hyperlink is detected. Next, a toolbar is displayed when the pointer remains near the hyperlink greater than a predetermined time. The toolbar displayed provides at least one choice for a link enhancement.

'839 Patent Co. 2: 55-60 (emphasis added).

An individual using iLOR's invention could not both right click to open a tool bar and then click again to open the new window (or for that matter, select another desired enhancement to a hyperlink) without clicking at least twice. The description of a "single click" does not support iLOR's proposed construction of Claim 26, and it follows that the '839 Patent teaches the "automatic" display of the toolbar based on the presence of the cursor within a certain proximity of a hyperlink as urged by Google to provide the "advantage" claimed in the '839 Patent.

The patent speaks of alternative embodiments of the invention as follows:

The Enhanced Hyperlink toolbar may be designed to appear when a user "mouses-over" a hyperlink. Alternatively, the toolbar may display with the page or the toolbar may appear when the cursor or pointer is in a predetermined area around the hyperlink. Preferably the toolbar is presented to the user instantly on mouse-over, or after the user keeps the mouse pointer on the hyperlink (or banner ad) for a predetermined time, for example one to three seconds. A short time delay prevents the browser from becoming jumbled with too much information if the user simply desires to click through on any given hyperlink.

'839 Patent Col. 3:60 to 4:3. iLOR argues that the "automatic" display of the toolbar upon a mouse-over or detection of the cursor within a certain proximity to the hyperlink is but one embodiment among many contemplated by the '839 Patent. Nonetheless, the Court finds that iLOR's argument that there might be embodiments of its invention without the "automatic" display of the toolbar to be disingenuous, particularly considering that Claim 26 itself includes the only user action required to render the toolbar "displayable" - the location of the cursor proximate to the hyperlink.

No part of the '839 Patent, including Claim 26, suggests the possibility of an embodiment in which the user would "right click" in order to display the toolbar. iLOR may not have needed to explicitly describe every potential embodiment of the invention in order to obtain patent coverage therefor, but it does not change the fact that Claim 26, as well as every other portion of the '839 Patent, predicate the display of the toolbar only upon the placement of the cursor in the vicinity of the hyperlink and not some further action by a user of the invention. That the method of "detection" is taught in other claims is
irrelevant to this Court's decision, because Claim 26 itself places no additional requirements on the user - beyond placement of the cursor - with regard to the display of the toolbar.

Reading the language of Claim 26, both by itself and in the context of the '839 Patent as a whole, this Court is of the opinion that it does not teach a right-click in order to display the toolbar, only the positioning of the cursor over or near the hyperlink. In this sense, the display is "automatic" with regard to the user, and the Court holds that the proper construction of Claim 26 is one in which the toolbar is "automatically displayed" upon the placement of the cursor in proximity to a hyperlink with no further action on the part of a user.

2. Prosecution History

If the Court was left with any doubt as to whether the '839 Patent comprised an embodiment where a right-click by a user was required to display the toolbar, the Court would need only turn to the prosecution history to disabuse itself of that notion. The prosecution history of the '839 Patent plainly shows that iLOR gave up any construction of the display limitation that included a toolbar displayed as a result of a user's right-click. This was done in order to overcome the Patent Examiner's rejections based on the prior art. The "automatic" display of the toolbar was a distinction upon which iLOR relied and which ultimately allowed the '839 Patent to be granted over the prior art.

During the prosecution of the '496 Patent, the parent to the patent-in-suit, iLOR emphasized that the Newfield patent was different than the claimed invention because the user to click on a hyperlink when selecting it, explaining that the Newfield patent "fail[ed] to teach at least five features of claim 178 . . . .[.]" including "detecting a cursor in proximity to said hyperlink [and] displaying a graphical toolbar in proximity to said cursor while said cursor is in proximity to said hyperlink[.]" [Exh. H. to Def. MSJ, 8/24/2006, Amendment, at 9 (emphasis in original)]. Indeed, iLOR relied on specific distinctions between the '496 invention and the invention taught in the Newfield patent:

First, Newfield does not teach detecting a cursor in proximity to a hyperlink. Instead, Newfield teaches that a user must click on or select a hyperlink to access the breadth-first search system of Newfield. See Newfield, e.g., page 5, 3rd paragraph. In contrast, the present invention detects a cursor in proximity to the hyperlink. Therefore Newfield does not teach detecting a cursor in proximity to a hyperlink.

Third, Newfield does not teach a graphical toolbar adapted to provide a plurality of user-selectable link enhancements. . . . The Scratchpad window of Newfield is available to the user after the user selection is made, and not before.

[Id. at 10-11 (emphasis in original).]

In other words, in prosecuting the '496 patent, iLOR relied upon the fact that no "right click" or other action beyond positioning the cursor with the mouse was necessary for the user to prompt the display of the toolbar in its invention and that it was, thus, distinct from the Scratchpad invention of the Newfield patent. The arguments made during prosecution of that parent patent are relevant in determining the meaning of the terms at issue with regard to the patent-in-suit. See Jonsson v. The Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990); Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1333 (Fed. Cir. 2003).

Although Claim 26 of the '839 Patent was presented late in the prosecution of the application, it was clearly linked to Claim 9, as iLOR represented to the Examiner that Claim 47 of its Application No. 60/202,029 (ultimately issued as Claim 26 in the '839 Patent) was allowable for the same reasons as Application Claims 22-33 (which included Claim 30, ultimately issued as Claim 9 of the '839 Patent) because Application Claims 34-51 were similar. [Ex. I to Def. MSJ, 11/3/2006 Amendment, at 8.] Application Claims 22-33 were the subject of a Terminal Disclaimer due to their similarity to the claims of the '496 Patent. 5 [Id.]

5 During the prosecution of the '839 Patent, the Examiner rejected Claims 1 and 9, which taught "detecting a cursor in proximity to said hyperlink; displaying a graphical toolbar in proximity to said cursor while said cursor is in proximity to
said hyperlink." The Examiner was concerned with "double-patenting" and the fact that these Claims were not "patentably distinct" from Claims 1 and 9 of the parent '496 Patent. Although not word-for-word identical, the Examiner explained they "contain[] every element of" claims 1 and 9 of the '839 Patent, "and thus [are] anticipated." [Ex. J. to Def. MSJ, 8/7/2006 Office Action, at 2-5.] It was in response to this rejection that iLOR, apparently conceding the point, filed a Terminal Disclaimer without traversing the rejection. [Ex. I to Def. MSJ, 11/3/2006 Amendment, at 8.]

Ultimately, the Examiner allowed the claims, including Claim 26:

…based on [the] Terminal Disclaimer (filed on 11/03/2006) and [because,] in addition [,,] the prior art of record does not appear to teach or render obvious the claimed limitations in combination with the specific added limitations as recited in independent claims and subsequent dependent claims. The prior art of record fails to teach or suggest a method for enhancing a hyperlink by displaying a graphical toolbar in proximity to the cursor while the cursor is in proximity to the hyperlink…

[Ex. K to Def. MSJ, 11/21/06 Statement of Reasons for Allowance, at 2.] It follows that, even at the end of the prosecution, the Examiner relied, however tacitly, upon iLOR's distinction between Newfield and its own invention presented during the prosecution of the '496 Patent - the display of the toolbar as a result of the proximity of the cursor to the hyperlink in place of a right click by the user. 6

--- Footnotes ---
6 If iLOR had not intended this result or believed that the Examiner had improperly construed the distinctions it was making when he allowed these later added claims, iLOR could have challenged the Examiner's grouping of the claims in the Statement of Reasons for Allowance, but chose not to do so. Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979 (Fed. Cir. 1999).

--- End Footnotes ---

iLOR cannot have it both ways. If similar claims of the '496 and the '839 Patents were allowed, at least in part, because they did not teach a right click, and Claim 26 of the '839 Patent was allowable for the same reasons, it follows that Claim 26 cannot include a right click or, indeed, anything other than a display of the toolbar upon the positioning of the cursor in proximity to the hyperlink. In the course of prosecuting the patents on its invention, iLOR disavowed an interpretation of the "displayable" limitation that would include a display which resulted from a right click. Having relinquished the "right click" in order to successfully prosecute its patents in light of the prior art, iLOR cannot rely upon it now to support its claim of infringement.

Having reviewed the prosecution history of the '839 Patent and its parent, the '496 Patent, the Court is all the more firmly persuaded that Claim 26 does not teach a right-click in order to display the toolbar, only the positioning of the cursor over or near the hyperlink in order that the toolbar be displayed.

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claim describes generation of a signal after a person has begun walking or running. Paragraph (c) of Claim 13 describes "analyzing the signal to identify a characteristic in the signal that indicates the person has initially ceased taking footsteps." 314 patent, col. 14, 11. 18-21 (emphasis added). The disputed phrase is found in paragraph (d) of Claim 13, and, logically, "the characteristic" must refer back to "characteristic" in paragraph (c) of Claim 13. "Characteristic" is not used elsewhere in the Claim.

Therefore, the phrase in dispute refers only to the characteristic "that indicates the person has initially ceased taking footsteps," or, as it has been agreed, when the person has stopped stepping. There is no reference to the time the person began stepping. The elapsed time to be measured could be from the point at which the first step was taken. But that is not required by the claim language. It could be from the time the person stopped. Nothing in the claim language would eliminate the second possibility, which might be found in a system which measured a set time after stopping and then started a pulse or blood pressure monitor to determine recovery. (The time it takes the individual to return to the individual's resting pulse rate or blood pressure.)

The specification describes both situations - measurement of time between the first and last steps, and the taking of some action at some time interval after the point at which the characteristic which shows the person first stops. See 314 patent, col. 11, 11. 53-62. ("a timer is stopped or another appropriate action is taken."). Additionally, the specification states that two timers may be involved, which indicates that the "elapsed time period" measured from when the "characteristic" shows that steps have stopped may not be related to the time the steps started. See 314 patent, col. 12, 11. 6-7 (timer stopped when the steps started).

Adidas' strongest argument is based on statements made by the patentee to the Examiner. An Office Action mailed September 15, 2000 rejected Claim 14 (present Claim 13) because it would have been obvious to one of ordinary skill to combine U.S. Patent No. 5,720,200 ("Anderson") and U.S. Patent No. 5,976,083 ("Richardson") to achieve the same result. See Office Action, 9/15/2000, Ex. K to Nike's Opening Claim Construction Brief, [Doc. # 70, Attachment # 1, pp. 18-19 of 50]. The Response to the Office Action used the phrase "and to determine an elapsed time period between when the first and second characteristics appeared in the signal." Response to the September 15, 2000 Office Action, 5/21/2001, p. 18 in Ex. K to Nike's Opening Claim Construction Brief, [Doc. # 70, Attachment # 1, p. 45 of 50]. But that does not accurately describe Claim 13, which does not mention a first characteristic. The Response goes on to state:

the proposed combination of Anderson and Richardson does not disclose or suggest at least one controller, or any other device, that determines an elapsed time period based upon an identified characteristic in a signal that indicates that a person has initially ceased taking footsteps after having been walking or running.

Response to the September 15, 2000 Office Action, 5/21/2001, p. 18 in Ex. K to Nike's Opening Claim Construction Brief, [Doc. # 70, Attachment # 1, p. 45 of 50].

Taken together, these statements in successive paragraphs in the Response are not the most accurate exposition of the claim language. They are also not a clear limitation on, nor a disavowal of, an embodiment of the language in Claim 13 (nor Claims 18, 27, and 31).

The claim language and the specification indicate that the "elapsed time period" may occur before or after the "characteristic" appears. The court will construe this claim term as follows:

- Determining or measuring "an elapsed time period" based on a time at which the characteristic appeared in the signal means: "Using the point at which the characteristic appears to determine or measure an interval of time."

5. Capable of dynamic partitioning based on the elemental width of data received from the data path, the elemental width being equal to or narrower than the data path

For the same reasons advanced above, the court construes "capable of dynamic partitioning based on the elemental width of data received from the data path, the elemental width being equal to or narrower than the data path" to mean "capable of
dividing width-wise into a variable number of elements no wider than the data path, based upon the size of the data elements received from the data path."

C. "Based Upon The Order Of The List," "Based Upon The Desired Order," and "In The Desired Order."

Parties dispute the meaning of the above three terms. Essentially, Blockbuster argues that these three terms are interchangeable in the context of the patents in suit. The first term appeared in claim 14 of the ’381 patent which recited in pertinent part (col. 13:64-14:17):

14. A computer-implemented method for renting movies to customers, the method comprising:

providing electronic digital information that causes one or more attributes of movies to be displayed;

establishing, in electronic digital form, from electronic digital information received over the Internet, a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer;

causing to be delivered to the customer up to a specified number of movies based upon the order of the list, wherein the customer is not required to return the movies within a specified time associated with delivery;

in response to one or more delivery criteria being satisfied, selecting another movie based upon the order of the list and causing the selected movie to be delivered to the customer.

The second and third terms were used in claims 4 and 5 of the ’450 patent (col. 14:64-15:19):

4. A method as recited in claim 1, wherein

the one or more item selection criteria indicates a desired order for the one ore more items that a customer desires to rent,

the step of providing to the customer up to a specified number of the one or more items indicated by the one or more item selection criteria includes providing to the customer up to a specified number of the one or more criteria in the desired order indicated by the item selection criteria; and

5. A method as recited in claim 4, further comprising if a particular item from the one or more items indicated by the one or more item selection criteria is not available, then providing another item from, the one or more items based upon the desired order indicated by the one or more item selection criteria.

Here, Netflix proposes that "based upon the order of the list" should, mean "so as to provide the next-available movie in the order specified by the list." Blockbuster proposes that the same term should mean "in the same sequence as that of the 'ordered list' referred to earlier in the claim." As to "based upon/in the desired order," Blockbuster argues that both terms should have the same meaning, "in the same sequence in which any person wants the items to be provided." Netflix proposes that "based upon the desired order" should mean "so as to provide' the next-available movie in the rental sequence specified by the customer," and that "in the desired order" should mean "in the rental sequence specified by the customer."

The question of whether or not the order in the "list" is the customer's order has already been addressed. As stated above, it may be the customer's order but need not be so restricted. The real dispute is over the meaning of "in" versus "based upon." Had the inventors chosen to do so, they could have used the same term, either "in" or "based upon," in both claims. They did not. The use of two different terms in close proximity gives rise to the inference that two different meanings were intended for the two different terms. Bancorp Serv., L.L.C. v. Hartford Life Ins., 359 F.3d 1367, 1373 (Fed. Cir. 2004). Looking to
commonly-understood meanings, "based upon" allows some deviation from the exact, specified order, while "in" requires that the order must be followed. This inference could possibly be defeated, of course, by showing evidence to the contrary. Blockbuster fails to do so.

The use of the terms in the claims is instructive. Claim 4 of the '450 patent recited "the step of providing to the customer one or more other items indicated by the one or more item selection criteria includes providing to the customer one or more other items indicated by the one or more selection criteria in the desired order indicated by the one or more item selection criteria" (col. 15:8-12). Claim 5 depended from claim 4, and recited "further comprising if a particular item from the one or more items indicated by the one or more item selection criteria is not available, then providing another item from the one or more items based upon the desired order indicated by the one or more item selection criteria" (col. 15:13-18). Here, if the first item on the customer's list was unavailable, the system would select another item from the list. When the provider chooses an item "based upon" the order of the list, the provider does not necessarily follow the list's precise order.

Indeed, if "based upon" and "in" were given the same meaning in these two claims, the provider would have no way to continue renting items to the customer until the first item on the list were available. This reflects the reality that the provider cannot rent what it does not currently have. The specification also supports this construction. The '381 patent stated "[c]ustomers may specify priorities for the items indicated by the item selection criteria. Thus, if a particular customer's first choice is not available, or already rented, then the item having the next highest priority can be rented to the particular customer" (col. 11:18-23). Blockbuster's argument under the written-description requirement of 35 U.S.C. 112, P 1 fails because of this. Blockbuster argues that the specification teaches no other criteria for selecting movies other than those that the customer selected. The above statement shows that this is not the case. The specification explicitly contemplated considering the availability of items before renting them and does not exclude the use of other factors.

The requirement that "based upon" necessarily means the next-available item, however, is without support. Reading this limitation into the definition would render claim 5 redundant because the concept of sending the next-available item was specifically recited.. Accordingly, this order holds that "based upon the order of the list" allows for some deviation from the exact order of the list. "Based upon" need not be strictly based on availability; it could be based on other factors. "In the desired order" refers to the precise order the customer selected, while "based upon the desired order" allows for some deviation from the desired order that need not be solely based on availability.

20. Instruction stream/basic blocks

The plaintiff defines "instruction stream" to mean "a stream of instructions." The defendants contend that the term means "a sequential stream of instructions output from a conventional compiler."

The defendants point to the specification for a definition of "instruction stream." The relevant portion states:

"Processing system 160 operates on standard compiler output 100 which is typically object code or an intermediate object code such as 'p-code.' The output of a conventional compiler is a sequential stream of object code instructions hereinafter referred to as the instruction stream."

'755 patent, col. 6, 1.66-col. 7, 1.5. (emphasis added). Read in context, however, the court believes that the patentees intended in this passage to define instruction stream in the context of features of the preferred embodiment. Given that this is not a means-plus-function term, the court defines "instruction stream" to mean "a stream of computer instructions." It is not necessary for the stream of instructions to be a sequential stream of object code output from a conventional compiler.

ADI proposes a similar limitation to the term "basic block." Biax contends that the term "basic blocks" means "groups of contiguous instructions." ADI contends that the term means "compiler output consisting of blocks of instructions with only one branch at the end of each block." The court adopts Biax's construction. One portion of the specification suggests that basic blocks can be formed in the compiler. The term is therefore not limited to compiler output. E.g., '755 patent, col. 7, 11. 29-31 ("The TOLL software, in this illustrated embodiment of the present invention, is designed to operate on the formed basic blocks (BBs) which are created within a conventional compiler.").
1. "battery compartment"

Claims 1, 3, and 10 of the '571 Patent describe a "battery compartment." Philips asserts that this term should be construed as "a part of an enclosed space within the defibrillator case to hold the battery." Cardiac Science contends that this term should be construed as "a defined space for containing batteries."

Similar to its arguments regarding the electrode compartment of the '969 Patent discussed above, Philips asserts that the battery compartment needs to be enclosed. Cardiac Science notes that the unenclosed nature of the battery compartment is demonstrated by the fact that the battery compartment still remains a compartment even when the AED lid is open.

The specification states that "electrical power is provided by a rechargeable twelve volt lead-acid cartridge battery 80 and a nine volt battery 82 which are removeably positioned within the battery compartment and connected to power generation circuit 84." ('571 Patent at c. 3, ll: 13-16.) Cardiac Science is correct in asserting that neither the claim language nor the specification requires the battery compartment to be enclosed. Consistent with the Court's construction of the term "electrode compartment" discussed above, the Court construes "battery compartment" as "a section within the defibrillator case that contains the battery or batteries."

(1) Bayonet/Bayonet Terminal

The '211 Patent claims:

1. An electric meter for sensing electrical parameters from an electric circuit, the meter including bayonets disposed on the meter, the bayonets mateable with matching jaws of a detachable meter mounting device, the bayonets being used to receive voltage and current signals from the electric circuit to the meter, and one or more sensors coupled with the electric circuit and operative to sense one or more the electrical parameters in the electric circuit and generate one or more analog signals indicative of the electrical parameters, the meter comprising:

   a circuit board with a plurality of openings each adapted to receive the bayonet;

   a plurality of electrically conducting bayonets mounted on the circuit board through the openings to provide at least one of a first voltage bayonet and a first current bayonet, wherein a gap is provided between the openings and the bayonets;

   solder passing through the gap and extending to both sides of the circuit board; and

   a sensor coupled with the electric circuit and operative to assess at least one electrical parameter from the electric circuit and generate an analog signal indicative of the electrical parameters.


The '842 Patent has 48 claims, and the term "bayonet" appears in 22 of those claims. Interestingly, unlike the '211 Patent, the '842 also uses the term "bayonet terminals," but that term appears in just one claim, claim 39, which discloses the following:

39. In an electrical meter for sensing electrical parameters from an electric circuit, said meter including bayonet terminals disposed on said meter mateable with matching jaws of a detachable meter mounting device, said bayonet terminals used to receive signals from the electric circuit to the meter, and one or more sensors coupled with said electric circuit and operative to sense one or more electrical parameters in said electric circuit and generate one or more analog signals indicative of said...
electrical parameters, said meter comprising:

a circuit board with at least one opening adapted to receive a bayonet;

at least one electrically conduct bayonet mounted on the circuit board through said at least one opening wherein a gap is defined between said at least one opening and said bayonet;

a plurality of vias formed around said opening;

solder passing through said vias an extending to both sides of said circuit board through said vias and passing through said gap and extending to both sides of said circuit board through said gap and said solder extending to said bayonet; and

an electrical sensor connected to said at least one electrically conducting bayonet.

U.S. Patent No. 6,186,842 B1, col. 9, line 38 - col. 10, line 15.

The parties seem to use the terms "bayonet" and "bayonet terminals" interchangeably, to mean the same thing. And, indeed, so do the patents. The '842 Patent, for example, as shown above, uses both terms in the claims (though one with much greater frequency than the other); the same is true of the specification. Indeed, the specification's "overview" paragraph discusses "bayonet or blade terminals," then "bayonets," then "bayonet terminals," all seemingly interchangeably. Id., Col 3, lines 49-64. The '211 Patent, which incorporates by reference the '842 Patent, uses "bayonets" exclusively, and the '364 discusses "blade type terminals" and "blades" in the specification and "bayonet terminals" in the claims. Yet they all seem to be talking about the same physical structure or piece. The Court will treat these terms similarly for construction purposes.

Square D initially argued that the claim term "bayonet" means "an electrically conducting blade-type terminal connector that plugs into the jaws of the meter socket on one end and is connected to a circuit board on the other end." EL argued that "bayonet" should be construed to mean "a blade that electrically conducts and mates with the matching jaws of a meter mounting device." At the Markman hearing, Square D offered an alternative construction: "an electrically conducting blade," and EL represented that it did not have any real issue with this alternative definition, though it also opined that this definition would not do much to advance the litigation. Certainly, that is everyone's goal: to advance the litigation. But the Court will not read limitations into claims to do so.

The term "bayonet" is defined in the '211 Patent's specification: "S-base meters feature electronically-conducting bayonets (blade type terminals) disposed on back side of the meter. These electronically-conducting bayonets are designed to align with the matching jaws of a detachable meter mounting device such as a revenue meter socket." U.S. Patent No., 6,983,211 B2, col. 2, lines 49-53. This definition is dispositive. See Vitronics, 90 F.3d at 1582 (when the specification "expressly defines" a term used in the claims, that definition is "dispositive."). Accordingly, the Court construes "bayonet" to mean "a blade type terminal."

Reading the remainder of the proposed constructions would render much of the relevant claim language redundant, which would be inappropriate. See Merck & Co v. Teva Pharmaceuticals USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."))(citing Elekta, 214 F.3d at 1307 and Gen. Am. Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 770 (Fed. Cir. 1996)). Construing "bayonet" to mean simply "an electrically conducting blade type terminal" gives meaning to all of the language in the claim, and ensures that limiting language such as "mateable with matching jaws of a detachable meter mounting device" is not just excess verbiage.

Broadcom proposes to construe "beacon" as "a signal sent at predetermined intervals," which Broadcom asserts was the customary meaning of the term in 1991. As evidence, Broadcom provides the testimony of Dr. Acampora, who in turn relies on two allegedly contemporaneous patents and the aforementioned Biba paper. As discussed previously, the Biba paper is
insufficient to determine the customary meaning of an 802.11-related term because it is unclear to the Court whether the paper's definition of such terms was novel or customary at the time of publication. Regarding the two patents cited by Dr. Acampora, one is untimely, having been filed in September 1994. (See U.S. Patent No. 5,606,560.) The other, filed in 1992, states that beacons are transmitted "on a recurring, time intervalled basis." (U.S. Patent No. 5,548,818, col. 3, ll. 51-52). Although this language supports Broadcom's position, the Court finds it insufficient, even when combined with the limited implications of the Bibe paper, to establish that Broadcom's construction was the customary meaning of "beacon" in 1991. Stated differently, a single technical paper of unclear authoritativeness and a single contemporaneous patent, particularly in the absence of a more-broadly applicable reference, such as a dictionary, do not establish to the Court that persons of ordinary skill possessed a common understanding of the claim term. 31 Accordingly, the Court examines the claim context and specifications to determine the appropriate construction.

31 Agere confusingly argues both that there was no customary meaning and that the inventor of the '366 patent, Dr. Robert Meier, testified to not having used the term in accordance with its customary meaning. The Court considers these arguments irrelevant, however, because they are based upon testimony regarding the term "radio beacon," which is not the term at issue. (Goodman Rep. P 149.)

Agere proposes to construe "beacon" as a "packet containing a seed value." The "seed value" limitation, however, is derived from a single embodiment of the beacon in the specifications. ('366 patent, col. 12, ll. 24-25.) The specifications also disclose embodiments wherein the beacons do not contain seed values. ('311 patent, col. 3, ll. 60-63; see also '366 patent, col. 15, ll. 45-47.) Thus, the Court rejects Agere's construction as an improper narrowing of the claim by use of a preferred embodiment.

By contrast, Broadcom's construction is supported by the claim text, which states that beacons are "transmitted at predetermined intervals." ('311 patent, col. 19, l. 67-col. 20, l. 1; '366 patent, col. 20, l. 53.) Because the term "beacon" does not appear in the specifications, and because the "predetermined interval" limitation is the only modifier uniformly used for this term in the '311 and '366 claims, the Court finds that "beacon" is appropriately construed as a "signal sent at a predetermined interval."

Agere argues that Broadcom's construction is overbroad, in that it effectively reads any limitation out of the term because the "predetermined interval" language is already in the claim text. The basis for this argument is claim 1 of the '311 patent, which states that the access point "transmits at predetermined intervals beacons." Agere claims that to use Broadcom's construction would result in the access point "sending signals at predetermined intervals," which in effect simply substitutes the word "signal" for "beacon." This argument, however, neglects the next clause in the claim, which reads, "[beacons] that identify that a message awaits delivery." In total, therefore, the claim as construed by Broadcom reads, "access points . . . transmitting signals at predetermined intervals that identify that a message awaits delivery." Similarly, claim 5 of the '366 patent, as construed, reads "bridging nodes . . . transmitting signals at predetermined intervals that identify . . . wireless terminal nodes operating in the power saving state that have a message awaiting delivery." Thus, each claim itself places a content requirement on the beacon, rendering Agere's concerns about overbreadth misplaced. Accordingly, the Court adopts Broadcom's proposed construction. 32

32 Agere argues, for this term as well as others, that Broadcom's current position is different from that taken in other litigation. The Court finds these arguments irrelevant for two reasons. First, the Federal Rules of Civil Procedure do not prohibit the assertion of contradictory positions in the same lawsuit, much less in different suits. See FED. R. CIV. PROC. 8(a). Second, both parties, within the context of this case alone, assert a multitude of self-contradictory positions (including this one), each time tailoring their arguments to the term at hand. The Court finds nothing problematic in the tailoring of arguments to differing cases and factual scenarios, for this is, of course, a hallmark of effective advocacy.
c. The '545 Patent

The '545 patent recites a flight information communication system with a plurality of wireless ground links that connect respective aircraft resident subsystems with airport-located ground subsystems. Each independent claim of the '545 patent recites an "interrogation beacon." and the parties dispute the meaning of this term. 11 FedEx alleges that the System only operates in the United States, where communication limitations are uniform. (Doc. No. 83 at 12.) As a result, the transmission power level need not be adjusted after installation. Id. In response, Harris maintains that the System meets the "interrogation beacon" limitation under the doctrine of equivalents because the System contains software permitting transmission power levels to be adjusted and has the ability to declare its presence to nearby access points by seeking an open channel for communication. (Doc. No. 87 at 13-14.)
2. "A Beam Request Signal"

Claim 1 sets forth:

a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms, the method comprising the steps of: (a) receiving a beam request signal from one or more of the treatment rooms;

(b) verifying the authenticity of one of the beam request signals from one of the treatment rooms; and

(c) authorizing beam transport to one of the treatment rooms.

(Rosenberg Decl. Ex. 2, the 581 Patent at 9:3-13.)

Plaintiff argues the disputed claim term "a beam request signal" should be construed in light of its ordinary meaning and offers the following construction: "a detectable message indicating a desire for the beam." Defendant Ion Beam, on the other hand, argues the contested claim term is indefinite (Ion Beam P.&A. at 11-12). In addition, Ion Beam offers the following definition for the term "beam request signal": "computer generated data identifying the origin of the request and requesting that a beam be initiated and sent to the requesting treatment room." (Ion Beam P.&A. at pp. 12-13.)

As a preliminary matter, it is not immediately clear why Ion Beam would declare the term "beam request signal" is indefinite. The claim term is made up of three common words. Putting those words together does not obfuscate meaning. The phrase "beam request signal" is not indefinite and Ion Beam does not put forward any justification, aside from the conclusory opinion of its expert, to support the determination that the claim term is indefinite. 18 (See P.&A. at 11-12.)

18 Ion Beam's argument is flawed for several reasons. "Indefiniteness must be determined by the facts in each case, not by some abstract rule. Georgia-Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136 (2d Cir.), cert. denied, 358 U.S. 884, 79 S. Ct. 124, 3 L. Ed. 2d 112 (1958). Because the terms at issue in the instant matter are readily understood in the context of their plain and ordinary meaning, it is clear that a person skilled in the art would understand what these words mean. See id. Finally, it would probably be erroneous to allow the conclusory opinions of defendant's expert to trump the plain meaning of claim terms. See Texas Digital Sys., 308 F.3d at 1204.
Accordingly, the court hereby finds ordinary meaning of the disputed phrase to be "a detectable message indicating a desire for the beam."

AMERICAN HERITAGE DICTIONARY (4th ed. 2000); see also OXFORD ENGLISH DICTIONARY (2d ed. 1989).

The definition of "beam path" is straightforward: "a route, course or track upon which the proton beam moves." (See, e.g., Airhart Decl. Ex. H, Random House at 137.) The common dictionary definition of "configuration," according to Random House, is "the relative disposition or arrangement of the parts." (Id. at 127.) Similarly, the Oxford English Dictionary defines "configuration" as an "[a]rrangement of parts or elements in a particular form or figure; the form, shape, figure, resulting from such arrangement; conformation; outline, contour," or an "[a]rrangement of elements; physical composition or constitution." OXFORD ENGLISH DICTIONARY (2d ed. 1989). Parts or elements may also be described as "physical properties." Id. The Oxford English Dictionary explains the term is used in that manner by physicists when describing "configurations" and quantum mechanical relations of sub-atomic matter. Id. The court finds the definition of beam configuration to be the "arrangement of parts, elements or physical properties of the beam." (See id.) Signal means "a detectable message," supra. Accordingly, the plain language of the contested claim term appears to mean "a detectable message indicating the arrangement of beam elements or physical properties of the beam, as well as the course upon which the beam is moving." 22

This meaning is confirmed by reference to the '581 patent specification, which explains a "beam path configuration signal . . . may be generated by detectors or monitors for the various magnets included in the switchyard." (Rosenberg Decl. Ex. 2, the '581 Patent at 5:32-35.) The '581 patent specification elaborates: "[the] switchyard beam path configuration signal is indicative of and provides data corresponding to the path of the treatment beam from the accelerator through the switchyard to one of the treatment rooms." (Id. at 5:39-43.) Further, the patent explains, "if it is so desired that the beam reaching the treatment rooms be of a particular configuration . . . , beam configuration request signals may also be generated by the operators in a similar manner to indicate, for example, a desired beam intensity, duration and energy." (Id. at 6:8-15.) The specification continues: "such treatment room beam request and beam configuration request signals are received and compared with the . . . beam path . . . configuration signals." (Id. at 6:15-18.) In other words, monitors and detectors in the switchyard detect the "make up," "configuration," or "arrangement of components" of the beam as it passes through the switchyard, possibly sending messages regarding the intensity, energy and duration of the beam. (See id. at 5:25-6:18.) The messages include information about the beam path. (See id.) The messages are received and compared with the beam request signals. (Id. at 6:15-20.) In sum, the general character of the beam - its intensity, duration and path - is measured by monitors in the switchyard, and those measurements are then compared to the requests coming from the control room. (See

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5. "Before completing the subsequent launch, processing the final log file to move the memory blocks specified in the final log file into a RAM cache" (Seventh step of Claim 1 and seventh means element of Claim 2).

The parties have agreed to the court's construction of "subsequent launch" as "a launch of a computer program after the final log file for that computer program has been generated and stored in RAM, RAM cache, secondary storage, or some other storage." The "final log file" is "the log file processed so that log entries or log entry portions that would cause duplicate accesses to the same physical address block have been eliminated." The parties have also agreed that "memory blocks" means the smallest number of physical addresses that can be read from or written to the secondary storage device. The only dispute is: what does "processing . . . to move" mean in the context of these other agreed terms?

CAC proposed "prior to completing the subsequent launch, using a portion of the final log file to move memory blocks into all or a portion of the random access memory." The court pointed out that a log file doesn't "move" memory blocks or data. The processor acts on the log file to manipulate data. CAC then proposed "prior to completing the subsequent launch using the final log file to move memory blocks specified in the final log file into the RAM cache."

This formulation is still somewhat confusing. CAC, of course, admits that the log file doesn't move or manipulate data. One skilled in the art would probably intuit that the definition was inelegantly phrased and had to imply that the processor acted on the log file. But the court is defining terms to help a jury understand what the terms would mean to one of ordinary skill. The jurors are not likely going to be skilled artisans in the relevant art. So the definitions should not depend upon the jurors being able to imply meaning from some pre-existing knowledge of the way in which computer processing units manipulate data.

Microsoft states that the term means, "during the subsequent launch, reading, in order, each log entry in the final log file and copying, in the same order, the memory blocks specified in each log entry in the final log file from the secondary storage device to the RAM cache." The action described in this claim term is "processing the final log file to move the memory blocks . . . ." Nothing in the claim term requires movement in a particular order from secondary storage to RAM cache.

The alleged increased speed of the patented method comes from the fact that the program launch is interrupted and the memory blocks specified in the log file are moved into RAM cache. Then, as the launch of the program recommences, requests for information go to the RAM cache, where the information is now stored in optimal order (in method step 5), and from which redundant accesses have been eliminated (in method step 4). See '630 patent, col. 8, ll. 19-26.

It is perhaps true that the preferred embodiment, i.e. the method with the most speed, might read and copy the log entries from the secondary storage device to RAM cache in order. But that is not required by the claim language. For one thing, the agreed definition of "subsequent launch" includes a launch after the final log is stored in RAM cache. There is nothing in the claims or specification that requires, or even hints, that some of the memory blocks required for program launch may not also be, at that time, still in RAM cache. In that situation, there would be no need to copy anything in order from a secondary storage device to RAM cache. One example would be the relaunch of a program before the computer has emptied the cache from the previous launch. The court defines this term as follows:

"Before completing the subsequent launch, processing the final log file to move the memory blocks specified in the final log file into a RAM cache" means: during the subsequent launch, reading each log entry in the final log file and copying those memory blocks specified in log entries that are not already in the RAM cache, from the secondary storage device to the RAM cache.
i. "causes said lower layer to vaporize before said upper layer vaporizes"

Cypress asserts that the term "causes said lower layer to vaporize before said upper layer vaporizes" should be construed to require that the lower layer of the fuse "is converted to vapor" before the upper layer or cap is converted to vapor. Rephrased, Cypress contends that the claim requires the lower layer "to vaporize, not just begin to vaporize."

As discussed above, the original claim language (claim 22 in the application) recites that the energy of the laser light, when transferred to the metal interconnect "causes said metal layer to melt." When that claim was rejected, the applicants amended it to read "causes said lower layer to boil before said upper layer melts." The examiner rejected the amended claim for indefiniteness and for lack of support in the specification. After a telephone interview, the examiner allowed the claim to read "causes said metal layer to vaporize before said upper layer vaporizes."

Cypress argues that this prosecution history precludes EMI from asserting that "vaporizes" means "begin to vaporize." According to Cypress, since "boil" refers to the heating of a substance to the vaporizing point "with consequent bubbling up of gases," the disallowed term "boil" covers the phenomena "to begin to vaporize." Thus, Cypress contends, "vaporize," as was finally allowed by the examiner, must be distinct from "boil," and cannot mean "to begin to vaporize."

The examiner disallowed the term "boil" for indefiniteness and for lack of support in the specification. Indeed, the patent specification nowhere states that the lower metal layer boils. The patent, however, does disclose the vaporization process, and states that the explosion takes place after the surface temperature rises and "the fuse begins to evaporate." When the examiner disallowed the term "boil," he did not preclude the term "vaporize" from meaning "begin to vaporize." To so find would be to interpret the claims in such a way as to exclude the preferred embodiment from the claims.

The court, nonetheless, does not construe "vaporize" to mean "to begin to vaporize," as is urged by EMI. Rather, the court rules that "vaporize" simply means "to convert into vapor." As such, the term "causes said lower layer to vaporize before said upper layer vaporizes" means "causes said lower layer to convert into vapor before said upper layer converts into vapor."

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1. "before storage"

Plaintiffs' construction: prior to entering data into a network storage device

Defendant's construction: prior to entering data into a non-volatile memory to be held and from which to be retrieved at a later time

At the claim construction hearing, the parties agreed that this term may be construed properly as "before data is entered in memory from which it may be retrieved at a later time." Transcript, dkt. # 80 at 90, Ins. 24-25; 91, Ins. 1-5, 8-10; 94, Ins. 8-10, 14-15. Plaintiffs indicated that they were concerned that defendant was trying to put a "gloss" on its construction that was overly limiting; defendant stated that this was not its intent. Id. In any event, defendant's "intent" is irrelevant in determining an appropriate construction. Therefore, I will adopt the compromise construction discussed at the claim construction hearing.

Court's construction: before data is entered in memory from which it may be retrieved at a later time

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1. "beginning a first analyze sequence"

Claims 5, 10, and 15 of the '969 Patent describe a function of the AED as "beginning a first analyze sequence." Cardiac Science contends that this phrase should be construed as "starting a sequence of analysis." Philips, on the other hand, asserts
that this phrase should be construed as "starting to perform analysis for the first time only after a pre-selected impedance is detected."

The specification describes this function as follows:

After detecting an impedance indicating the proper placement of electrodes 50, and without further action by the operator (i.e., automatically), processor 74 begins a first analyze sequence by initiating the generation of a "Do not touch patient. Analyzing rhythm." voice prompt, and analyzing the patient's cardiac rhythm.

('969 Patent at c. 5, ll: 53-58.) The specification proceeds to describe, in sequential order, the manner in which the invention performs all of the functions listed in the claim language. (Id. at c. 6, ll: 23-64.) The specification states that the "second series of analyze/charge/shock sequences is identical to the first series described above, except the energy content of the defibrillation pulse can be about two hundred joules or three hundred joules." (Id. at c. 6, ll: 26-29.)

Philips places significant emphasis on the word "first," and asserts that because there is no need to differentiate the first from the second analyze sequences, the term "first" must mean first in time. Cardiac Science, on the other hand, contends that Philips is attempting to import limitations into the claim term. Cardiac Science asserts that the numerical designators in the claims are merely terms used as placeholders to designate the separate analyze sequences that are claimed. Thus, Cardiac Science maintains that the term "first" does not mean the first in time, but rather the first of two or more analyze sequences.

The Court finds that, consistent with the claim language, the function of "beginning a first analyze sequence" does not occur until a preselected impedance is detected. (Id. at c. 9, ll: 6-7; c. 9, ll: 45-46.) The specification offers no other explanation of this function other than that the first analyze sequence begins after detecting whether the impedance indicates the proper placement of electrodes. (Id. at c. 5, ll: 53-58.) In addition, the sequence of analysis/charge/shock may be relevant. Although the specification states that each sequence is identical, the specification also describes sequential increases to the energy content of the defibrillation pulses. (Id. at c. 6, ll: 19-21, 29-30, 35-39.)

Consistent with the claim language and the specification, the Court construes the term "beginning a first analyze sequence" as "starting to perform analysis for the first time after a pre-selected impedance is detected."

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30. Beginning execution of said branch instruction

This term appears in claims 7, 8, 9, and 12 of the '037 patent. The plaintiff argues that the execution of the branch instruction begins at the time it is sent to the branch execution unit. ADI argues that the execution of the instruction begins when it is loaded into the instruction register in the branch execution unit. The court agrees with this view. The claim language is drafted in terms of the "execution" of the branch instruction. Based on this language, the court concludes that execution of the instruction cannot begin until the branch instruction arrives at the branch execution unit. The execution of the branch instruction therefore begins when the instruction is loaded into the register in the BEU. The court construes the term to mean "loading the branch instruction into an instruction register in the branch execution unit."

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30. Being capable of being represented by a defined bit width which is equal to said defined bit width of said operands

The plaintiff proposes that this phrase means "able to be represented by a data field of the same size as the floating point operands." The defendants contend that the disputed phrase means "the bit width of the product of the permissible floating point operands must be no greater than the bit width of each of the operands." The plaintiff objects to the defendants' construction because of the limitation "no greater than the bit width of each of the operands." The claim language, the plaintiff argues, requires the capability of being represented by a bit width equal to the bit width of the operands. The
defendants insist, however, that their "no greater than" limitation is entirely consistent with the claim language and is found in the specification of the 482 patent. After considering the submissions of counsel, the court adopts the plaintiff's construction and construes "being capable of being represented by a defined bit width which is equal to said defined bit width of said operands" accordingly.

Claim 1 contains the term "being delivered." Accolade contends that "being delivered" means "having been transmitted." Citrix contends that "being delivered" means "transmitted from the host computer." The parties dispute whether "being delivered" indicates that the client program must originate from the host computer.

"Being delivered" does not require construction. The intrinsic record does not give any specialized meaning to "being delivered," and the plain meaning of "being delivered" is clear from the words of the term. "Being delivered" in the context of the claimed invention simply means changing the location of the client program from one place to another. Lay jurors would not need this explanation of what "being delivered" means, and offering a construction could only complicate the already clear and well understood language used in the term.

Both Accolade's and Citrix's constructions would work more to confuse rather than to clarify the meaning of "being delivered." The parties propose "having been transmitted" and "transmitted from the host computer." These constructions are taken from the specification that states, "Since the script [client program] is transmitted over the TCP/IP network." Col. 7:60-61. However, "transmitted" does not establish any special meaning for "being delivered." "Transmitted" is simply a synonymous way to say that the client program is "being delivered." Also, "transmitted" is not preferable language to use in construing "being delivered" because "transmitted" will likely be harder for lay jurors to understand than the simple language of the term "being delivered." "Being delivered" has a plain meaning that is already readily understood by lay jurors; thus, the Court does not construe "being delivered."

The parties disagree on whether the client program must originate from the host computer. The intrinsic evidence does not support limiting the claimed invention to require that the client program originate from the host computer. Claim 1 does not use any language requiring the client program to originate from the host computer, and the specification expressly states that the client program can be transmitted "alternatively, by another server on the Internet 12." Col. 7:61-62.

The prosecution history does not show that the host computer must deliver the client program. Citrix cites to the prosecution history, which states, "Independent claim 1 claims an apparatus for remotely controlling a host computer via a web browser on a client computer. An applet or equivalent is downloaded from the host computer to the client computer to permit this functionality." Defs.' Br. 30. However, the language cited by Citrix does not create a limitation where only the host computer delivers the client program. Stating that the client program "is downloaded form the host computer" does not require the host computer to exclusively deliver the client program. When read in context of the applicant's office action response, it becomes apparent that the applicant did not require the host computer to deliver the client program. The sentence following Citrix's excerpt states, "As such, no software is required at the client computer other than the browser software, which comes standard with virtually every personal computer that is sold." Defs.' Br., Ex. 13 (6-18-02 Amendment D), 4 (emphasis added). The applicant then distinguished Doyle, stating, "Doyle requires software to be installed upon the client machine in order for the browser to control remote applications." Id. at 5 (emphasis added). The applicant sought to distinguish Doyle based on whether the client computer requires software, not whether the host computer exclusively delivers the client program. Thus, the applicant did not rely on the host computer exclusively delivering the client program to distinguish the claimed invention from the prior art. As such, Citrix's excerpt from the prosecution history does not demonstrate a limitation on the claimed invention.
The "electrodes being electrically connected" term appears in one step of the method disclosed in Claim 1 of the 879 Patent. That method comprises these steps:

   placing two electrodes on a patient, the electrodes being electrically connected in a first polarity to an energy source external to the patient;

   charging the energy source to an energy level corresponding to a first start amplitude;

   discharging the energy source across the electrodes;

   adjusting the discharge parameter based on the measured patient impedance;

   reversing the polarity of the connection of the energy source to the electrodes to a second polarity;

   discharging the energy source across the electrodes.

'879 Patent Claim 1. The parties agree that the disputed term requires an electrical connection such that current flows in only one direction. Their dispute is over the term "being." Defibtech contends that the term "being electrically connected" is in present tense, and that when read in context of the claim, it means that the circuit between the defibrillator energy source and the patient must be complete at the moment the two electrodes are placed on the patient. Philips would have the court interpret the term to mean that the electrodes are placed such that they "will be" electrically connected during discharge. n5

The court rejects Defibtech's limitation. It is apparent, even to one not of skill in the art, that the electrical connection between the energy source and the patient need not exist from the moment the electrodes are placed on the patient. The patent envisions that discharge is initiated not by placing the electrodes on a patient's chest, but rather by the user manually initiating discharge or the defibrillator automatically initiating discharge in response to heart activity measured through the electrodes. 879 Patent at 5:8-9. There is no suggestion in the patent (beyond a literal reading of the tense of the verb "being") that having the electrical connection exist at the instant the electrodes are placed on the patient is important, necessary, or in any way relevant to the claimed defibrillator method. Claim construction is not a "gotcha" game in which an imprecisely used word invariably dooms the inventor, but rather a process where a court must interpret terms "in the context in which they were used by the inventor, considered by the examiner, and understood in the field of the invention." Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1299 (Fed. Cir. 1999). In this case, a review of the patent shows that "being electrically connected in a first polarity" means "connected such that, during discharge, current will flow from the energy source through the patient in only one direction."

n5 Philips cites Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-71 (Fed. Cir. 2003), for the proposition that the steps of a method claim need not be performed in the order in which they are written, but the concept is irrelevant here. Regardless of the order in which one performs the steps of Claim 1, Defibtech's interpretation of "being" would require that the electrical connection between the energy source and the patient exist when the electrodes are placed on the patient. Altering the order of the steps does not alter the meaning of the language describing a single step.

--- Footnotes ---

E. "Said information being reproduced by projecting a light beam via an objective lens"

Plaintiff's construction: the information on the disc is capable of being reproduced by projecting a light beam via an objective lens

Defendants' construction: [not seeking construction]
Plaintiff requests that this term be construed to clarify that this apparatus claim requires no action by a player or additional apparatus for infringement to occur. In other words, plaintiff contends that claim 1 does not require the act of actively reproducing information from the optical disc, but only requires that the information on the disc be capable of being reproduced. In their brief, defendants take the position that construction of this phrase is not necessary. Nonetheless, defendants provide a construction, suggesting that "being reproduced" means "that the information is actually being reproduced (read) from the disc." Defs.' Br., dkt. 71, at 34.

Room for dispute exists because the inventors used an awkward verb construction to explain a concept in their patent: their use of "being," with the past participle "reproduced" puts the concept in the passive voice, so that the action described could be interpreted either as currently occurring or to occur in the future. Plaintiff contends that "being" means "capable of" and defendants contend that it means "actually." This dispute can be resolved by considering the context of the phrase in claim 1. ACTV, Inc., 346 F.3d at 1088 ("[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms"). The patent explains that additional advantages and modifications "will readily occur" to those skilled in the art; therefore, the invention is not limited to the specific details and representative devices and examples actually described in the patent. ’651 patent, claim 1, 10:45-48. Obviously, the patent envisions future action. Thus, it seems clear enough that the inventors used "being reproduced" to explain how or in what matter information will be reproduced on the optical disc. There is no indication that in the second paragraph the inventors are describing an action or method of the disc or a disc player. 4 Plaintiff's construction captures the correct meaning of the phrase because it clarifies that the information is not actually being reproduced (within this phrase), but that the manner in which information is reproduced is by projecting a light beam via an objective lens.

Court's construction: the information on the disc is capable of being reproduced by projecting a light beam via an objective lens.

--- Footnotes ---

3 For instance, to say "Kurosawa's Rashomon is being shown on HBO" could mean either that the movie is being shown right now or that it will be shown in the future.

4 As noted above, however, it remains an open question whether the third paragraph of claim 1 requires that a disc player actually be projecting a light beam.

--- End Footnotes ---

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K. "the adequacy of the funds in the first party's account being verified after the instrument is issued"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a first party creating an instrument for transferring funds to a second party,&quot; the adequacy of the funds in the first party's party account being verified after the instrument is issued;&quot; instrument</td>
<td>The instrument being created before verifying whether an account of the first party has adequate funds or credit to cover or pay the instrument</td>
<td>after the instrument is released, determining whether or not the first party has sufficient funds in his/her account to pay the amount listed on the instrument</td>
</tr>
</tbody>
</table>

This phrase appears in claim 34 of the '148 patent. The parties dispute whether this phrase is a separate step of claim 34. Claim 34 is reproduced below:

34. A funds transfer method comprising:
a first party creating an instrument for transferring funds to a second party, the adequacy of the funds in the first party's account being verified after the instrument is issued;

using a computer to create a variable authentication number (VAN), the VAN being created using at least a secret key of the first party; and

including the VAN with the instrument for subsequent use in attesting to the authenticity of the instrument.

Plaintiff argues that the disputed phrase merely limits the "creating" step of claim 34. Plaintiff again explains that the steps of claim 34 are all recited in present participles and offset by semicolons.

Defendants argue that the phrase is a separate step. First, Defendants say that "[t]here is nothing to indicate that the disputed phrase modifies the 'creating an instrument' step." Def. Brief at 27. Second, Defendants argue that the phrase "after the instrument is issued" indicates that verifying the adequacy of the funds is a separate step that occurs, of course, after the instrument is created.

The limitation does not tell a person of ordinary skill in the art to verify the adequacy of the funds. Rather, it tells the person skilled in the art that an instrument is created without knowing whether there are adequate funds in the account. Thus, the phrase limits the step of creating the instrument by imposing a time sequence restriction. Furthermore, Defendants' argument that nothing indicates that the disputed phrase limits the creating step is incorrect. The words "after the instrument is issued" refers back to the "creating step" and the choice of the gerund "being" as opposed to the verb "is" suggests that the verification of the adequacy of funds is not a separate method step. The Court adopts Plaintiff's construction.

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15. biaxial medium (‘412 patent)

CEA's proposed construction is "an existing type of birefringent, manufactured, plastic material wherein two of the principal optical indices are not too close to one another and the third principal optical index is significantly below or above the other two indices, e.g., N1o = 1.660, N2o = 1.6425, N3e = 1.5000."

Samsung's proposed construction is "a type of birefringent material having three unequal principal optical indices."

The specification supports Samsung's proposed construction 43 and is adopted by the court: "a type of birefringent material having three unequal principal optical indices."

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43 ‘412 patent, 3:9-14 ("According to another special embodiment, the two polarizing means are crossed rectilinear polarizers and the compensating medium a biaxial medium, whereof the smallest index axis is parallel to the homeotropy direction."); '412 patent, 5:47-51 ("Each plate 20 or 22 is a biaxial medium having two principal indices N1o and N2o with values close to one another and a third index N3e below N1o and N2o, the weak index axis N3e being parallel to the homeotropic direction." (emphasis added)). The second quotation in this footnote was included as support for CEA's proposed construction, which CEA changed from "close to one another" to "not too close to one another." CEA concludes its proposed construction with exemplary figures for the three indices, but does not provide convincing explanation as to how those indices are not too close to one another, or how its definition for uniaxial medium ("a birefringent medium wherein the extraordinary index exceeds an ordinary index or vice versa") would not also read on its definition for biaxial medium.

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B. "bid/offer system state" or "system bid/offer state"

1. The Parties' Proposed Constructions

The plaintiffs' proposed construction of the term "bid/offer system state" or "system bid/offer state" is "a state during which participants may enter into the system bids and offers for an item at select prices and volumes." (D.I. 463 at 4; D.I. 464 at 17.) The defendants' proposed construction is "a 'state' (as defined above) in which a computer system allows entry of bid, offer, hit, or lift commands and allows select actions by participants with active offerings that other participants are denied, substantially as described in the '580 patent." (D.I. 463 at 4; D.I. 482 at 9.)

The plaintiffs say that "bid/offer system state" or "system bid/offer state" is clearly and broadly defined in the claims themselves, and, therefore, that definition should control. (D.I. 464 at 18 and n.9 (citing, inter alia, Prima Tek II, L.L.C. v. Polypap, S.A.R.L., 318 F.3d 1143, 1150-51 (Fed. Cir. 2003).) In support of that argument, they point to claim 20, which recites "providing a bid/offer system state wherein the passive participants participate by entering bids or offers at select prices and volumes for the item...." ('580 patent, col. 20, II. 8-10.) They also point to claims 22 and 24, which both recite "providing a bid/offer system state wherein a first participant enters [a] bid or offer for the item at a select price and volume..." (Id., col. 20, II. 37-39, 61-63.) Similarly, claim 29 (the apparatus claim) recites a trading system that "provides a system bid/offer state enabling the passive participants to participate by entering bids or offers with respect to the item...." (Id., col 22, II. 16-18.)

In response, the defendants argue that the "wherein" clauses relied upon by the plaintiffs do not provide a complete definition for "bid/offer system state" or "system bid offer state" because they differ from claim to claim. (D.I. 492 at 12.) The defendants cite unasserted claim 14 in support of this argument, which reads "providing a bid/offer system state wherein passive participants enter[] bids or offers for the item at associated select prices and volumes..." ('580 patent, col. 19, II. 41-43.)

2. The Court's Construction

I agree with the plaintiffs' position that "bid/offer system state" or "system bid/offer state" is clearly and broadly defined in the claims of the '580 patent, and that that definition should control. See Prima Tek II, 318 F.3d at 1150-52 (noting that "the scope of the asserted claims may be ascertained from the plain language of the claims" and that "broad claims supported by the written description should not be limited in their interpretation to a preferred embodiment"). The defendants' argument that "wherein" clauses cited by the plaintiffs differ from claim to claim is a futile one, as the wherein clause of claim 14 is nearly identical to the wherein clauses of claims 20, 22, 24, and 29. Nor have the defendants directed my attention to anything in the patent or the intrinsic record that contradicts the definition of "bid/offer system state" or "system bid/offer state" set forth in the claims. 9 Accordingly, I will construe "bid/offer system state" and "system bid/offer state" as "a state during which participants may enter into the system bids and offers for an item at select prices and volumes."

--- Footnotes ---

9 The defendants' proposed claim language would limit "bid/offer system state" or "system bid/offer state" to a state that "allows select actions to participants with active offerings that other participants are denied". (D.I. 463 at 4.) In support of this limitation, the defendants rely almost entirely on a description of the preferred embodiment of the invention (see id. (citing '580 patent, col. 8, 1.66 to col. 11, 1.50)) that is set forth in the specification of the '580 patent, in conjunction with a discussion of "clearing time" and the "when state" (see '580 patent, col. 9, 1.66 to col. 12, 1.38). Where, as here, the disputed claim terms are clearly defined in the language of the claims themselves, the defendants cannot overcome the presumption that those definitions apply "simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history." Teleflex, Inc. v. Ficosa North Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002) (citation omitted). I therefore decline to read the defendants' proposed limitation into the claim language.

--- End Footnotes ---
TERM # 4: "bidder's computer" - Again, there is no reason to define this term by referring to any of the process steps, as defendants propose. Particularly, we find no requirement in the claim that the "computing" step be performed on the Bidder's computer, and therefore, especially, find no support for defendants' attempt to define this term to include the "computing" step. This phrase means: "A computer used by a bidder to access an electronic auction."

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2. "Bill Value"

Next, the parties dispute the term "bill value." The term "bill value" appears in claims 19 and 30. The plaintiff contends that the term means "a value related to a credit value that is billed to a merchant's account or to a third party." The defendant proposes "a value equal to one or more credit values that is to be billed to a merchant or third party." The dispute appears to be whether the bill value must equal one or more credit values.

In support of its proposed construction, the defendant cites to the '090 specification and a sentence in the '116 specification which states that the "bill segment is then similarly incremented in relation to the amount of the credit value data received from that merchant." '116 patent, 4:42-45. This passage does not clearly limit the term in the manner the defendant proposes. Accordingly, the court adopts the plaintiff's proposed construction.

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6. "including [ , providing, or establishing] 10 in said message record" and "billing"

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10 The claims, although essentially the same, use different wording with regard to this step.
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The claims at issue disclose a two-step method comprising the steps of (1) "generating a message record for an interexchange call between an originating subscriber and a terminating subscriber" and of (2) including "in said message record" a PIC indicator. To this end independent claim 1, for example, teaches

    generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and
    including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of
    whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said
    interexchange carriers.

( '184 patent, col. 7, ins. 8-16) Excel contends that these steps occur in the network of a facilities-based IXC 11 prior to the billing process. AT&T seeks a construction that defines the billing process as the last step in the overall process disclosed in the patent, wherein the generation and mailing of "hard-copy" bills to subscribers is performed. Although the parties dispute the scope of the term "billing," their proposed constructions are not mutually exclusive.

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11 Excel argues that the process described in the patent specification for inclusion of a PIC indicator in the message record is performed "entirely within, or adjunct to, the network of a facilities-based carrier." Excel's argument is moot given the court's previous constructions which do not limit the practice of the invention to facilities-based carriers. See supra, Part V.B.1. Moreover, the court notes that the claims teach "generating a message record," generally, and that while the initial message record for any given interexchange call is generated by a switch, all other message records are generated by other pieces of equipment. The preferred embodiment, in fact, discloses a system wherein the PIC indicator is included in an EMI message record that is generated by a formatting system using information from the AMA message record.
As an initial matter, the court notes that the claim language itself indicates that the generation of "said message record" occurs prior to its transmission to a billing system. Claims 5, 14, and 20, which depend from claims 1, 12, and 18 respectively, teach "the further step of transmitting each said message record to a billing system." ( '184 patent, col. 7, lns. 31-33; col. 8, lns. 33-35; col. 9, lns. 8-10) (emphasis added). Likewise, claims 6, 15, and 21, which also depend from claims 1, 12, and 18 respectively, teach the further step of billing at least one of said calls as a function of the value of the PIC indicator in the message record generated for each one of those calls.

( '184 patent, col. 7, lns. 34-37; col. 8, lns. 36-39; col. 9, lns. 11-14) (emphasis added). Claim 41 which depends from claim 40 also teaches the additional steps of rating and billing. ( '184 patent, col. 12, lns. 25-32) Although dependent claims cannot limit the independent claims from which they depend, see Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 50 U.S.P.Q.2D (BNA) 1465, 1468 (Fed. Cir. 1999) (stating "that limitations stated in dependent claims are not to be read into the independent claim from which they depend"), they are to be considered in interpreting the scope of the claim from which they depend, see Laitram Corp. v. NEC Corp., 62 F.3d 1388, 1392 (Fed. Cir. 1995) (stating that "although each claim is an independent invention, dependent claims can aid in interpreting the scope of claims from which they depend"); see also Transmatic, Inc. v. Gulton Indus., Inc., 53 F.3d 1270, 1277 (Fed. Cir. 1995) (noting that the scope of an independent claim incorporates the embodiments recited in dependent claims). In the '184 patent, the dependent claims anticipate the transmission of the message record to a billing system after the addition of a PIC indicator.

The '184 patent's specification provides further support for reading the claims to require the generation of the message record and inclusion of the PIC indicator therein prior to "billing." According to the specification, "in a typical system" EMI records bearing an indication of the applicable toll charges "are forwarded to a billing system in which they reside until processed to generate, typically, 'hard copy' bills which are mailed to subscribers." ( '184 patent, col. 1, lns. 26-29) In the preferred embodiment,

at the completion of the call, IXC originating switch 301 generates the . . . AMA record for the call (connection). This switch is periodically polled, along with other like switches, by an associated one of message accumulator systems 311 . . . 312. . . .

On a periodic basis . . . each message accumulator sends its accumulated AMA records to a corresponding one of EMI formatting systems 321 . . . 322 . . . . The latter translates the AMA records into the aforementioned industry-standard EMI message record format. The EMI records are thereupon periodically forwarded . . . to a respective one of rating systems 331 . . . 332 . . . . Among the functions of rating systems 331 . . . 332 is to "rate" each call, 12 by which is meant the computation of the standard toll charges or rated charge, applicable to each call, and to add an indication of same to the EMI record. . . .

* * * *

. . . Additional known functionalities may also be carried out by the rating system. Of interest here, however, is the generation of PIC indicator 3419. . . . After perhaps performing various other functions not relevant here, rating system 331 transfers, or transmits, the now rated and PIC-evaluated EMI message to a billing system for subsequent processing.

( '184 patent, col. 3, lns. 26-48; col. 5, lns. 42-45, 57-61) The specification states that "the PIC indicator is advantageously added to the message record in the same system that performs the call rating--and at a time substantially contemporaneous with the rating itself." ( '184 patent, col. 2, lns. 19-22) The specification goes on to state with respect to the preferred embodiment that "advantageously, the value of PIC indicator 3419 can be used in subsequent billing operations." ( '184 patent, col. 4, lns. 44-45)

12 In order to generate the applicable PIC indicator, the rating system "needs to be able to access a comprehensive database
in which all IXC 30 subscriber telephone numbers are stored." ('184 patent, col. 5, lns. 5-37)

Although the figures and language of the specification support AT&T's assertion that "billing" is the last step in the overall process, they do not support its contention that "billing" encompasses only the generation and mailing of "hard-copy" bills. The specification states that "in a typical system" EMI records are forwarded to a billing system wherein they are"processed to generate, typically 'hard copy' bills which are mailed to subscribers." ('184 patent, col. 1, lns. 14, 27-29) (emphasis added). The typical system is not the only system. This is particularly true in light of other statements in the specification that indicate that the EMI records are transmitted to a billing system for "subsequent processing" ('184 patent, col. 5, lns. 60-61) or "subsequent billing operations." ('184 patent, col. 4, ln. 45; col. 5, lns. 65-67; col.6, lns. 12-13, 16-21, lns. 30-35) Thus, although the specification and the claim language distinguish "billing" from those steps which precede it, i.e., the generation of the message record, the gathering of information from the applicable databases, the generation of the PIC indicator, the rating of the call, and the formation of the rated message record, they do not limit it to the generation and mailing of hard-copy bills.

The court, therefore, shall construe the term "billing" to be the last step in the method disclosed in the '184 patent but shall not limit the operations performed therein to the generation and mailing of hard-copy bills, Consistent with this construction, the court shall construe the asserted independent claims as requiring the generation of the message record and inclusion of the PIC indicator therein to occur prior to the transmission of the message record to a billing system.

Billing Authorities

Fenner argues that "billing authorities" should retain its plain and ordinary meaning, but if the Court elects to construe this term it should mean, "authorities which track billing costs associated with a personal identification number." Defendants argue that "billing authorities" are "the different entities responsible for billing individuals for use of allowed calling services." For the following reasons, the Court construes "billing authorities" to mean "the different entities which track billing costs associated with a personal identification number (as construed herein)."

Defendants argue that Fenner's construction ignores the reality that billing includes charging and invoicing as well as tracking, maintaining that "billing authorities" are entities like AT&T or VISA that provide services, track the costs associated with those services, charge the customer for those costs, and then send out bills or invoices to collect on those charges. However, the patent specification and claims consistently discuss "billing authorities" maintaining service profiles and monitoring costs, only inferentially referring to the actual billing of individuals as Defendants' construction suggests. 1:50-59; 5:64-66; 6:5-15.

Presumably, these billing authorities will attempt to collect money for the services provided in the service profile, but stating that the billing authority described in the claims is "responsible for billing individuals for use of allowed calling services" is beyond the scope of the term as used in the patent and is simply not necessary to define "billing authority." Therefore, the Court construes "billing authorities" to mean "the different entities which track billing costs associated with a personal identification number (as construed herein)."

Billing authorities maintaining a service profile for the mobile user

Fenner argues that the terms in this phrase should retain their plain and ordinary meaning, while Defendants argue that the phrase means, "more than one billing authority maintaining a service profile for the mobile user." The Court favors Defendants' construction, which finds support in the surrounding claim language n3 and intrinsic evidence.
n3 The claim language reads, "receiving from the mobile user at the communication switch a billing code identifying one of the plurality of billing authorities maintaining a service profile for the mobile use, wherein different ones of the plurality of billing authorities may maintain the service profile or a second profile for the mobile user."

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Billing Code

Fenner contends "billing code" should retain its plain and ordinary meaning, alternatively suggesting that if the Court chooses to construe the term, that it should find a "billing code" "identifies a particular billing authority." Defendants argue the "billing code" is "a number code, separate from the personal identification number, that enables selection of a billing authority." As the parties had agreed to include "separate from a billing code" in the construction of PIN there was little argument on that phrase at the hearing. The remaining issues before the Court involve the difference between "enabling selection," and "identifies," and whether a "billing code" is necessarily a number.

Defendants contend that a billing code "enables selection of a billing authority," and offer segments of the prosecution history in support of its construction. Amendment, 12/22/94 at 9-10; Amendment, 11/30/95 at 7. Having disclaimed claim scope during prosecution, Defendants argue, the Court should not allow Fenner to recapture that claim scope by finding that a "billing code" "identifies" billing authorities. The Court disagrees with Defendant, and construes "billing code" to mean, "a code separate from a personal identification number, identifying a particular billing authority."

The specification and claims consistently describe a billing code identifying a billing authority. See 6:5-7 ("a billing code identifying one of the plurality of billing authorities"); 6:12-13 ("requesting a service profile of the mobile user from the billing authority identified by the received billing code"); see also 2:43-4. Further, Defendants' prosecution history evidence does not justify its proposed limitation.

First, the Amendment dated 11/30/95 where Fenner describes, "a billing code which enables selection of multiple billing authorities," does not, taken in context, rule out the possibility that a billing code may identify a billing authority. Amendment 11/30/95 at 7. The sentence following Defendants' quotation reads,

the fact that Lee et al. describes programming a local exchange with personalized calling features in response to providing a code does not suggest, it is submitted, use of a separate billing code to identify a billing authority in a conventional cellular system much less suggest a system in which a billing authority identifier and personal identification number for routing calls to a mobile user are utilized during log on or registration." (emphasis added).

Disclaimers of claim scope must be clearly and unambiguously express to surrender subject matter during prosecution. Middleton, 311 F.3d at 1388. The prosecution excerpt Defendants rely on is not sufficiently clear to show that a billing code does not identify a billing authority.

Second, even if Fenner had unequivocally established that a billing code "enables selection," during prosecution history, that would not necessarily preclude a billing code from "identifying" a billing authority because the phrase "enables selection" is broader than "identifies." "Enables selection" is a permissive phrase suggesting that the billing code somehow allows for, or
participates in, the selection of a billing authority. The term "identifies" suggests a specific role within the selection process, namely, specifying the appropriate billing authority. It is difficult to conceive how claim scope could be disclaimed by representing a broader scope during prosecution than was eventually claimed in the patent. Thus, Defendants have not established that Fenner relinquished claim scope by referring to "enabling selection" of a billing authority during prosecution.

Defendants also argue that a "billing code" is a number, but their support from the prosecution history is not compelling. In a paper broadly describing the proposed networking system, which was later submitted to the patent office during prosecution, the inventor explained that a "Billing Authority' operates like a credit card company, offering on-line credit and service profile verification," further explaining that, "we propose every PCS call should be a 'credit card' call," where "the credit card numbers (or billing codes) used by a PID would contain location information to access the issuing 'billing authority.'" Peter R. Fenner, Mobil Address Management and Billing for Personal Communications (IEEE 1992) at 253, 254. The inventor analogized the then available "credit card" call to his system as a descriptive aid but never went so far as to require that the billing code necessarily be a number. Further, although the specification refers to the billing code as a number, the claims do not require that the billing code be a number, and the Court will not import the limitation.

Accordingly, the Court construes the term "billing code" to mean, "a code, separate from a personal identification number (as construed herein), identifying a particular billing authority (as construed herein)."

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D. "Billing for Access to the Service"/"Generating a Bill for the Service"

The term "billing for access to the service" appears in claims 3 and 4 of the '945 patent. The term "generating a bill for the service' appears in claims 1 and 2 of the '943 patent. The parties agree that "billing for access to the service," as used in the '945 patent, and "generating a bill for the service," as used in the '943 patent, have the same meaning, but they are unable to agree as to what that single, common meaning is.

ABC asserts that the terms should be defined as "indicating an amount due for access to the service." 137 WebEx asserts that the terms mean "automatically creating an invoice based on past access to a remote computer unit of a split personal computer system." 138

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137 ABC's Brief, Docket Entry No. 154, at 17.
138 WebEx's Brief, Docket Entry No. 156, at 29.

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1. "Billing"/"Generating a Bill"

The parties' proposed definitions differ in the way that they describe the act of billing or generating a bill. ABC broadly and simply characterizes billing as "indicating an amount due . . . ." WebEx defines billing much more specifically and narrowly. Under WebEx's proposed definition, billing must (1) be conducted automatically, (2) involve an invoice, and (3) be based only on past access to or utilization of the service.

ABC correctly points out that the claim language itself does not require that billing be conducted by any particular entity or person, at any particular time, or with any particular frequency. ABC further argues that the specifications of the '945 and '943 patents give various examples of billing that support ABC's broad definition. The specification of the '943 patent provides a few examples of billing:

The remote system controller can be provided with a billing program which counts the number of minutes that respective local portions . . . are operating at least one of the networked computers of the remote portion . . . . By employing the remote
system controller and the billing program, individuals can 'rent' computer time from the remote portion . . . . 139

The remote system controller can also include a billing program which counts the time period in which an individual utilizes at least one of the remote computer units so that either session billings (in the case of hotel rooms billings, for example) or monthly billings could be made. The time period can be measured in seconds, minutes, or any other suitable unit of time. 140

Similarly, the specification of the '945 patent contemplates a number of ways that billing could be implemented:

In the system described, a service provider such as AOL, could charge $ 20.00 a month . . . for PC service . . . . 141

Public CIU 10 terminals in airports, malls, and hotels will be as common as public phone booths are today, and at about the same cost . . . . 142

The time of connection is noted by a multi shared computer connection unit . . . . 143

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139 '943 patent, col.3 ll.34-42.
140 Id. col.5 ll.22-28.
141 '945 patent, col.2 ll.33-35.
142 Id. col.5 ll.20-22.
143 Id. col.6 ll.58-59.

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ABC also cites definitions from two general purpose dictionaries for the non-technical term "bill." The first dictionary defines the noun "bill" as "a statement of charges for goods or services," and the verb "bill" as "to present a statement of charges to." 144 The other dictionary similarly defines the noun "bill" as "a statement of charges for goods supplied or services rendered" or "the amount owed." 145 The second dictionary defines the verb "bill" as "send a note of charges to." 146

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146 Id.

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WebEx, in support of its position, cites many of the same excerpts from the specifications of the '943 and '945 patents. 147 It argues that all of these examples involve automation and charging users for past service rendered. WebEx therefore argues that billing must be defined as an automated process only based on service rendered in the past. WebEx also asserts that prior art involved charging users before they used the service. 148 Further, WebEx argues that the USPTO Examiner who conducted the reexamination of the '945 patent manifested his understanding that billing under that patent involved charging only for past services when he stated:

Billing is disclosed in claims 3 and 4 specifically to 'maintain the customer's access to the services' . . . . Thus the instant
invention clearly establishes that payments are for continuing existing services allowing the user access to the remote computer. 149

147 See WebEx's Brief, Docket Entry No. 156, at 29-31.

148 Id. at 30 (citing '943 patent, col.1 ll.33-37; '945 patent, col.1 ll.18-26).

149 Notice of Intent to Issue Ex Parte Reexamination Certificate, at 5, Ex Parte Reexamination of U.S. Patent No. 6,999,945, Control No. 90/008,122 (March 30, 2009) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6J).

Based on the evidence in the record, the court is persuaded that ABC's broader definition of billing is correct. WebEx contends that the court should limit the concept of billing to the examples described in the patent specification that involve automation and charging for past service, but it is a cardinal rule of claim construction that the "claims of a patent are not [generally] limited to the preferred embodiment, or to the examples listed within the patent specification." Dow Chem. Co., 226 F.3d at 1341-42. Although billing may be automated and may only involve charging for service rendered in the past in some embodiments of the invention, the patentee did not indicate that automation of billing or billing only for past service was "important to the invention." Toro Co., 199 F.3d at 1301. Therefore, the claim should not be construed to include those limitations. Moreover, the court does not agree that the examples described in the specification are specifically limited to billing for past service. For example, the '945 patent describes a service provider charging a flat monthly rate for the service. 150 Such a monthly charge could be for future service, i.e., the user could pay for the service in advance.

150 See '945 patent, col.2 ll.33-35 ("[A] service provider such as AOL, could charge $ 20.00 a month . . . for PC service . . . ").

WebEx's argument that the prior art involved up-front payment is inapt. There is no rule of patent law that every element or limitation of a claimed invention must exclude or be different than the prior art. Simply because the claimed invention may encompass one aspect of the prior art does not mean that it is not patentable based on other distinctions. The method of billing employed by the prior art would only be relevant if WebEx could show that ABC clearly and unmistakably disclaimed that type of billing as a way to distinguish the claimed invention from the prior art for patentability purposes. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325-26 (Fed. Cir. 2003) (explaining that a claim term may be interpreted more narrowly than it otherwise would if the patentee "clear[ly] and unmistakabl[y]" disavowed a particular meaning during prosecution in order to obtain his patent). WebEx, however, has presented no such evidence.

Nor is the court persuaded by WebEx's argument that the Examiner understood billing to involve charging only for service rendered in the past. Just because "payments are for continuing an already existing service" 151 does not mean that payments are necessarily for service rendered or received in the past. For example, in the flat monthly rate scenario described above, a user would receive a monthly bill. The amount charged could be for future service. If the user did not pay the bill, the service provider would cease providing the remote control service that the user had, up until that time, received. If the user paid his bill, however, his payment would be "for continuing an already existing service." 152

151 Notice of Intent to Issue Ex Parte Reexamination Certificate, at 5, Ex Parte Reexamination of U.S. Patent No. 6,999,945, Control No. 90/008,122 (March 30, 2009) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6J).

152 Id.
Finally, WebEx presents no evidence and makes no argument in support of its position that billing must involve an invoice. Accordingly, consistent with the intrinsic and extrinsic evidence, the court concludes that "billing" or "generating a bill" means "indicating an amount due . . . ."

2. "Access to the Service"/"The Service"

The parties' proposed definitions also differ in that ABC's definition does not attempt to describe the service for which a bill is generated while WebEx's definition identifies the billed-for service as "access to a remote computer unit of a split personal computer system." ABC does not explain why it chose not to define "the service" or "access to the service," nor does it raise any specific objection to this aspect of WebEx's definition. Furthermore, the court agrees with WebEx that a definition explaining what "the service" is will be helpful. The court is therefore inclined to adopt this aspect of WebEx's proposed definition, with one modification.

WebEx has described the service as "access to a remote computer." The asserted claims themselves, however, describe the service provided as "controlling a remote computer" 153 and "connecting a local computer unit to a remote computer unit to permit the local computer unit to operate the remote computer unit." 154 The words "controlling" and "operate" carry a significantly different connotation than the word "access."

Moreover, WebEx criticized ABC for suggesting that the term "logon command" enabled "access to" a remote computer unit, and argued that the claim language made clear that the logon command actually enabled "operation of" a remote computer unit. 155 The court was persuaded by WebEx's argument and adopted a definition for "logon command" including the term "operation." Therefore, consistent with the claim language and the court's definition of "logon command," the court concludes that the service provided by the invention and for which a bill is generated is "operation of a remote computer unit of a split personal computer system."

3. Conclusion

The terms "billing for access to the service" and "generating a bill for the service" mean "indicating an amount due for operation of a remote computer unit of a split personal computer system."

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The language in claim 1(c) reads: "means for telecommunicating the read billing information to a user." Because it is undisputed that this claim is a means-plus-function construction, the court will construe it pursuant to 35 U.S.C. § 112, P 6. The parties' dispute over claim 1(c) turns on the meaning of the phrase "billing information" as it is used in that claim. The question of whether "billing information" refers to all users, or only one user, is determinative because the alleged infringement by CheckFree concerns a bill payment system in which a supplier telecommunicates a single user's bill information. CheckFree argues that "billing information" is synonymous with "billing data" and, therefore, its product
cannot infringe the '084 patent. Databurst, on the other hand, argues that "billing information" refers to information for only one particular user.

Checkfree argues that in claim 1(c) "billing information" is synonymous with the term "billing data," and, thus, it should be construed to mean "information regarding bills for all users." (Checkfree Mot. at 21.) Specifically, Checkfree contends that the term "billing information" represents the bills for all users, including (1) information about the transactions that are to be billed to each user; and (2) identification information for each user. Recognizing that the pertinent specification does not define the phrase "billing information" but does define "billing data," Checkfree states that "billing data for the customers" includes "customer identification information and information about the transactions that are to be billed to the customer." Checkfree asserts without explanation that the wording of the specification supports the notion that "billing information" is synonymous with "billing data" and therefore includes the billing data for all users. In addition, Checkfree argues that the prosecution history supports its argument that "billing information" is the same as "billing data" as used in the specification. Checkfree claims that the patentee used the two terms interchangeably, as evidenced by the patentee's amendment to claim 1 where "billing data" was replaced with "billing information." Finally, Checkfree relies on inventor testimony to support the correlation between "billing information" and "billing data." In light of this construction, Checkfree maintains that the limitation in claim 1(c) cannot be met by a device that telecommunicates only an individual user's bills.

Databurst argues that claim 1(c) should be construed as a "means-plus-function limitation covering modems 26 and 30, phone lines 32, modem 46 and equivalents thereof, which communicate billing information at a distance as by telephone, radio, optical beams and the like." (Databurst Mot. at 17.) Databurst argues that based on the language of the specification, "billing data" is plural, while "billing information" is the specific unit of information for one customer. Specifically, Databurst alleges that "billing information" is defined in the specification as "customer identification information and information about transactions that are to be billed to the customer." (Databurst Mot. at 18.)

The court must now determine the meaning of the phrase "billing information," as used in claim 1(c) to describe what is telecommunicated from the supplier (such as a credit card company) to the individual user. First of all, contrary to Databurst's contention, the term "billing information" is not defined in the specification or anywhere in the patent. The specification states that a "block 10 contains billing data for the customers." ('084 patent, col. 2, ll. 38-39.) It is undisputed that the term "billing data" refers to the billing data for all customers. The next sentences reads: "This includes customer identification information and information about the transactions that are to be billed to the customer." (Id. at ll. 39-40) (emphasis added). The pronoun "this" refers to the antecedent "block 10" in the preceding sentence. Reading the two sentences together, block 10 (containing "billing data") includes customer identification information and information about the transactions that are to be billed to the customer. 1 Therefore, that section of the specification relied upon by Databurst refers to "billing data" and cannot be read as a definition for "billing information." Further, the ordinary and accustomed meaning of "information" does not provide this court with any guidance as "information" may be either singular or plural. See Webster's Ninth New College Dictionary 620 (9th ed. 1985) (defining "information" as "the communication or reception of knowledge or intelligence").

--- Footnotes ---

1 Although not necessary to the court's construction, the court notes that the testimony of the inventor of the '084 patent acknowledged that "billing information" was the same as "billing data" at the "block 10" stage. (Checkfree Mot., Ex. D, Linse Dep. at 177-78.)

--- End Footnotes ---

The court next turns to the specification more generally for guidance. "Billing data" is used to describe what is broadcast from the supplier to the user. By tracing "billing data" as it travels through different blocks in the specification, "billing data" is consistently referenced until the term "billing information" appears in lines 14 and 20 in column 3. In a nutshell, "billing data" (which both parties agree refers to the data for all customers) is first supplied to block 10, read by a tape reader in block 12, temporarily stored at block 14 or 16, scrambled, encoded or faxed by block 20, 22, or 24, output to a modem at block 26, received by another modem at block 30, transmitted by block 32, 34, or 38, received by block 44 or 46, digitally decoded by block 50 and decoded according to a user's address at block 52. Up to this point, nothing has occurred in the process to change the content or substance of the "billing data," and, therefore, the court reads "billing information" in lines 14 and 20 in column 3 to refer to the billing data for all customers. Therefore, "billing information" in both lines 14

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and 20 refers to what was broadcast by the supplier to the user, i.e. billing data. This supports a construction that "billing information" includes the billing data for all customers.

There is, however, some further ambiguity and inconsistency in the use of the phrase "billing information" that occurs later in the specification's description. After the address decoder at block 52 determines if a bill is coming in for a particular user, the "billing information is stored in memory in the message storage unit." (‘084 patent, col. 3, ll. 44-45.) Now, at this point in the process, the billing data has been filtered and "billing information" refers to the individual user's bill. Use of "billing information" after the filtering process, (id.), must have a different meaning from "billing information" before the sorting process, (id. at ll. 14, 20). "Billing information," therefore, as used in the specification, has two distinct meanings.

In order to determine whether "billing information" as used in claim 1(c) means the billing data for all users or for only one user, the court now looks to the prosecution history. The inventors submitted their patent application on August 29, 1988. (Checkfree Mot., Ex. C, Tab 1 at 1.) As originally drafted, claim 1(c) used the term "billing data," not "billing information." (Id. at Tab 1 at 11.) It appears that an examiner marked corrections and comments on their application. (Id. at Tab 1 at 2-14.) On pages 11 and 12, certain corrections to claim 1 are made; the word "data" was replaced by "information." (Id. at Tab 1 at 11-12.) Significantly, in the claim as originally drafted, the term "billing data" was consistently used prior to the filtering at the address decoder, while "billing information" was consistently used after the address decoder. (Id. at Tab 1 at 11.) In the examiner's action dated June 20, 1989, the examiner did not explain his reason for replacing "data" with "information." (Id. at Tab 2 at 1.) In response, the inventors amended claim 1 by changing the word "data" to "information." (Id. at Tab 4 at 2.) Both the claim as originally drafted and the amendment from "data" to "information" supports a construction that "billing information" as used in claim 1(c) means the billing data for all customers.

However, use of the phrase "billing data" in the specification was not changed to "billing information" as it was in the recitation of claim 1. During a lengthy prosecution history, patentees sometimes fail to update the specification language as they amend the claims. Eolas Technologies, Inc. v. Microsoft Corp., 2000 U.S. Dist. LEXIS 18886, 2000 WL 1898853, *15 (N.D. Ill. 2000). It seems likely that inadvertence on the part of the patentees explains the inconsistent use of the phrase "billing information." Further, the court notes that a construction in which the supplier sends to the user only the individual user's billing information does not withstand scrutiny in light of the filtering process included within the patent. The patent contemplates that data would be received by the user, run through an address decoder, and then an individual user's bill would be delivered into the PAID. If the supplier sends the user's receiver only the individual user's bill, there would be no need to have any filtering mechanism.

Conclusion

Based on the above, the court finds that the term "billing information" in claim 1(c) includes the billing data for all customers, and includes for each user: (1) information about the transactions that are to be billed to that user, and (2) identification information for that user. This limitation would not cover any equipment that telecommunicates only an individual user's bill(s) from the supplier to the user.

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After studying the parties' arguments, we find that the intrinsic and extrinsic evidence leads to agreement with plaintiff Chamberlain on the major claim terms in dispute. We will discuss each in turn. As noted above, Chamberlain argues that "binary code" should not be limited to representation of a base 2 number. We agree. Based on the patent, we find that the patentee intended to distinguish "binary code" from "binary number" or "base 2 number." Although both are computer-readable commands displayed in a string of 0s and 1s, patentee's "binary code" can represent a "binary number" (number consisting of only two digits), a "trinary number" (number consisting of only three digits), or any other numeric or symbolic language designations. First, we look at the claims. Nowhere does the claim language use the term "binary number" or "base 2 number," instead, the claim language consistently uses "binary code" and "binary signal." The only place in the patent where "binary code" is even suggested as synonymous with "binary number," is in the patent's preferred embodiment: "Both of the bit values being set in steps 742 and 746 relate to a translation from the three-level trinary bits 0, 1, and 2 to a binary number" (8:45-48). The Federal Circuit has repeatedly held, however, that "particular embodiments appearing in the written description will not be used to limit claim language that has broader effect." Innova/Pure Water, Inc. v. Safari Water Filtration System, Inc., 381 F.3d 1111, 1117 (Fed.Cir.2004). See also Phillips, 415 F.3d at 1323; SanDisk Corp. v. Memorex Products, Inc., 415 F.3d 1278, 1286 (Fed.Cir.2005). Additionally, the summary of the invention in the specification does not
limit "binary code" to "binary number." In fact, in the entire summary of the invention, the term "binary" is only used to show how the 32-bit encrypted code in the receiver is "compared via a binary subtraction with the stored rolling code" to determine authorization (3:62-63). Without a limitation to "binary number," or clear source code that limits "binary code" to base 2 or binary numbers, we will not read the limited reference in the preferred embodiment into the claim language. Rather, we assume that the patentee intended to revert to the term's customary and ordinary meaning.

We turn, then, to a technical dictionary to aid us in understanding what the ordinary and customary meaning of "binary code" was to a person of ordinary skill in the art. See Phillips, 415 F.3d at 1318. ("Because dictionaries, and especially technical dictionaries, endeavor to collect the accepted meanings of terms used in various fields of science and technology, those resources have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention.") The IEEE Standard Dictionary of Electrical and Electronics Terms, Sixth Edition, has three definitions for "binary code," including "A code in which each code element may be either of two distinct kinds or values, for example, the presence or absence of a pulse," "A code that makes use of members of an alphabet containing exactly two characters, usually 0 and 1," and "A code that uses exactly two distinct characters, usually 0 and 1, to represent data or instructions." The definitions vary only slightly and encompass our understanding of patentee's use of the term "binary code" in the patent. Specifically, the IEEE notes, in definition number two: "The binary number system is one of many binary codes." This further supports our understanding that the ordinary and customary meaning of "binary code," to one of ordinary skill in the art, is a code consisting of two values, which may represent a binary number, trinary number, ASCII character, decimal number, or any other numerical or character language designation. Therefore, we construe the term "binary code" to be "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base 2 number." n4

n4 Lear's argument that plaintiffs' definition of "binary code" and "trinary code generator" is "driven by their need to use memory to find infringement" (Lear's Markman Position slides, pp. 9-10) is an infringement argument, rather than a claim construction argument We will not decide at this point if Lear's product exists in "binary code," as defined by this opinion, only in the computer memory, or if such a use of "binary code" is infringing.

Originally, we construed "binary code" as "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base 2 number"(Chamberlain I, 2006 U.S. Dist. LEXIS 68899, 2006 WL 2632074, at *4). Lear takes issue with a sentence in Chamberlain I, wherein we stated: ["a]s we noted above, the claims never limit the initial binary code to a 'binary number,' instead leaving the term open to encompass other numerical and character languages, including trinary code." Id. Lear argues that, based on the intrinsic evidence of the patents' claims, "binary code" cannot encompass a trinary code. Therefore, Lear implores us to modify our construction of "binary code," to "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base two number, but not including a trinary code" (def's brief, at 6).

Not surprisingly, plaintiffs disagree. First, plaintiffs suggest that Lear's arguments are inappropriate for a motion to reconsider. Second, they assert that Lear is simply attempting to rehash its argument that "binary code" should be limited to a binary number -- a construction we rejected in Chamberlain I. Plaintiffs request that we deny Lear's motion to reconsider, and in the alternative, simply modify the sentence at the heart of Lear's concerns. Specifically, they suggest the following modification: "As noted above, the claims never limit the initial binary code to a 'binary number,' instead leaving the term open to encompass other numerical and character languages, including other numerical and character languages that may also be represented in trinary code" (plfs' response, at 7).

Generally, motions to reconsider are only appropriate to correct manifest errors of law or to present newly discovered evidence. Oto v. Metropolitan Life Ins. Co., 224 F.3d 601, 606 (7th Cir.2000); United Mun. Leasing Corp. v. Lexington
Lear's central argument is that we erred in relying on dictionary definitions in construing "binary code," in contravention of Phillips. We disagree. Although Phillips clearly preferred intrinsic evidence to extrinsic evidence in construing patent claims, the Federal Circuit held that a place remains for dictionaries, particularly technical dictionaries, in claim construction. A patent's claims and specification must be "understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology." Phillips, 415 F.3d at 1313. Such person "is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field." Id. Considering that this court does not have such expertise, the Phillips court recognized that we may find guidance in "'those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.'" Id., at 1314 (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (Fed.Cir.2004)). The Federal Circuit continued: "Those sources include 'the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.'" Id. (quoting Innova, 381 F.3d at 1116). As guided by Phillips, we began with the intrinsic evidence -- the claim language itself, the specification, and the prosecution history -- and then turned to the IEEE Standard Dictionary of Electrical and Electronics Terms to aid us in determining what was the ordinary meaning of the terms of art in dispute. We do not believe any such analysis was done in contravention of the principles set forth in Phillips.

We do, however, believe that the sentence with which Lear takes issue in Chamberlain I includes an incorrect term. We stated, "As we noted above, the claims never limit the initial binary code to a 'binary number,' instead leaving the term open to encompass other numerical and character languages, including trinary code." Chamberlain I, , 2006 U.S. Dist. LEXIS 68899, 2006 WL 2632074, at *4. We should have said, "As we noted above, the claims never limit the initial binary code to a 'binary number,' instead leaving the term open to encompass other numerical and character languages, including trinary numbers."

We agree with Lear that "binary code" cannot encompass trinary code. The Phillips court indicated that the context of a term can be highly instructive in claim construction (415 F.3d at 1314). There, the Federal Circuit indicated that the term "steel baffles," "strongly implies that the term 'baffles' does not inherently mean objects made of steel." Id. Likewise, because the '544 patent specification states that the rolling code (binary code) is converted or changed to a trinary code ("544, 3:17-28, 7:8-14), a binary code cannot be a trinary code.

Although we recognize our mistake, and hopefully, have clarified our meaning, we see no reason to alter our construction of "binary code" as "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base 2 number." For both parties, however, we offer the following clarifying summations. First, a binary code is not limited to a binary number. Second, a trinary code cannot be defined as a binary code with respect to the patents-in-suit.

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We turn first to defendant's likelihood of success on the merits. Our Markman decision and subsequent reconsideration dealt an enormous blow to defendant's case. Therein we construed the term "binary" to mean "a code in which each code element may be either of two distinct kinds of values, which code may represent various kinds of letters and numbers including, but not limited to, a representation of a base 2 number." Chamberlain Markman, 2006 WL 2632074, at *4. Our construction was based on our understanding of the meaning of "binary code" to a person of ordinary skill in the art and the intrinsic evidence of plaintiff's patent. The construction followed a three-day hearing and briefs from both parties.

Now Lear, under the guise of arguing that we misapplied our construction of "binary code" to its product, essentially argues that we erred in our construction of the term. Through use of examples and analogies, defendant's current briefs give the most specific and clear explanation of its argument. Using "1001" as an example, Lear argues that the appearance of the number is meaningless -- the important consideration is "how it was determined and put together mathematically" (def's
brief at 2). Lear notes that the presentation "1001" could be a binary number that represents the decimal 9, a trinary number that represents the decimal 29, or a decimal number that represents the decimal number 1001. Thus, Lear suggests, though its code is composed of 0s and 1s, which "may appear to a layperson to be binary," it is in fact always a trinary code. (Id.). In its reply brief, Lear explains further. It argues that each of its trinary code digits (trinary being composed of three digits, usually 0, 1 and 2) is represented by a two-bit sequence: 0 = 00, 1 = 01, and 2 = 10 (def's reply, at 5). Then, by example, the trinary number "1102" is represented as 01-01-00-10. When strung together, the code reads "01010010." (Id.). Defendant argues that looks can be deceiving -- that just because Lear's code is composed of 0s and 1s does not mean that it is a binary code.

While Lear's presentation is significantly clearer than its previous presentations, we still decline to alter our claim construction. Through a thorough study of intrinsic and extrinsic evidence, we previously determined that the term "binary code" in plaintiff's patent covers any code composed of two distinct kinds of values -- in Lear's example, 0s and 1s. Thus, defendant's code, while it may represent a trinary number, remains a binary code under our definition. The IEEE Standard Dictionary of Electrical and Electronics Terms, Sixth Edition, to which we cited in our Markman ruling, gives support to such an understanding. It defines "binary code," in one instance, as "A code that makes use of members of an alphabet containing exactly two characters, usually 0 and 1." See Chamberlain Markman, 2006 WL 2632074, at *4. The IEEE, in explanation, notes: "The binary number system is one of many binary codes." See id. It is our understanding, bolstered by plaintiff's patents and extrinsic evidence, that a trinary number system, as stored in a computer, is another one of many binary codes. As computers, "by their very nature, work on alternating electrical charges (i.e., charged or uncharged)" (def's reply, at 4), a processor only operates on binary data - data that is composed of ones and zeros. Lear's code, composed of 0s and 1s (see 010110010 example above), makes use of members of an alphabet containing exactly two characters. Therefore, we also decline to alter our finding that plaintiffs are likely to succeed in showing that Lear's product infringes with respect to the binary code.

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Once we define binary code to encompass more than just a binary number, we must also adopt Chamberlain's construction of "binary code generator" to mean "a processor programmed to respond to the enabling device to generate a binary code that is different for each activation of the enabling device." Lear's proposed construction - "a processor programmed with a binary arithmetic algorithm operating on an initial binary number to generate a different binary number for each activation of the transmitter" - turns on its understanding of "binary code," as limited to a "binary number." Once we foreclose that argument, Lear's construction must fail.

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1. binary tree

The first term in dispute is "binary tree," which appears in every claim in the '201 Patent, including the four here relevant: Claims 1, 4, 7, and 8. (Claim 1 is an independent claim, and 4, 7, and 8 are dependent.) Claim 1 reads in relevant part: "A parallel processor array comprising . . . means for interconnecting said processing elements in a binary tree in which each processing element except those at the extremities of the binary tree is connected to one parent processing element and at least first and second child processing elements." '201 Patent at 69:60, 67-69; 70:59-60.

Plaintiff's proposed construction is "a tree where a node has a parent node (except for the root node) and zero, one or two children." Fifth Generation's Rebuttal Markman Brief ("Pl. Reply") at 3. In contrast, defendant reads the term as "an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children." IBM's Opening Markman Brief ("Def. Br.") at 9.

In Phillips v. AWH Corp., 415 F.3d 1303 (Fed Cir. 2005) (en banc), the Federal Circuit explained that "the words of a claim are generally given their ordinary and customary meaning" and that "the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art at question at the time of the invention, i.e., as of the effective filing date of the patent application." Id. at 1312-13. Here, plaintiff asserts that its construction reflects the
"ordinary meaning" of the term "binary tree," Pl. Reply at 3; see also tr. 08/20/09 at 48, and cites both to the dictionary of the National Institute of Standards and Technology ("NIST"), in which "binary tree" is defined as "a tree with at most two children for each node," and to IBM's own website, on which appears a similar definition. See E-Pass Technologies, Inc. v. 3Com Corp., 343 F.3d 1364, 1367 (Fed. Cir. 2003) ("We resort initially to the relevant dictionary definitions to determine the ordinary meaning of the [disputed] term . . . "). However, since the '201 patent was filed in 1986, see '201 Patent at 1, the relevant meaning is the meaning at the time of the invention, see Phillips, 415 F.3d at 1313; PC Connector Solutions LLC v. SmartDisk Corp., 406 F.3d 1359, 1363 (Fed. Cir. 2005) ("A claim cannot have different meanings at different times; its meaning must be interpreted as of its effective filing date.")., and there is no evidence before the Court that establishes what the dictionary definition of "binary tree" was in 1986. Indeed, it appears on this record that there was no entry for "binary tree" in either the 1986 version of the NIST dictionary nor in the contemporaneous version of IBM's Dictionary of Computing published in March 1987. See Def. Letter, 09/27/09. Given the huge changes in computer data processing, and accompanying jargon, between 1986 and the present, resort to NIST and IBM dictionaries from the present does not resolve the issue of the term's ordinary meaning.

The Court must therefore look to the usage of the claim term in the context of the particular claim and in the context of the entire patent as submitted in 1986. See Phillips, 415 F.3d at 1313 ("[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears but in the context of the entire patent, including the specification."). The parties agree that the structure of Claim 1, the means-plus function language of "means for interconnecting," requires that the binary tree contemplated by Claim 1 have two children for each processing element except for those at the extremities. See tr., 08/20/09, at 44. Yet, plaintiff's proposed construction contradicts the language of Claim 1 and flies in the face of this structure. Taking plaintiff's construction on its face, a node with a single parent could have a single child, and that child could, in turn, have another single child, thus creating a straight line from one node to another, and this structure would still be a "binary tree" even though there is nothing binary about it. See tr., 08/20/09, at 46. Indeed, plaintiff's construction would eliminate what plaintiff itself takes to be the preferred embodiment and therefore cannot be the proper construction. See Primos Inc. v. Hunter's Specialties, Inc., 451 F.3d 841, 848 (Fed. Cir. 2006) ("While we are mindful that we cannot import limitations from the preferred embodiments into the claim, we also should not normally interpret a claim term to exclude a preferred embodiment."). Moreover, plaintiff can point to only one sentence in the patent specification that remotely provides support for its construction: "Since the subtree that is computing the resolve need not be a complete binary tree, the value bits from the children may not arrive in the same clock cycle." '201 Patent at 21:46-49. Plaintiff asserts that this phrase from the patent specification indicates that the term "binary tree" permits a tree with zero, one or two children. Pl. Reply at 4. Yet this phrase does not define the binary tree qua structure -- it only indicates that some tasks may rely on longer legs of a subtree, and thus the report and resolve functions would not be completed simultaneously. See tr., 08/20/09, at 55. IBM's construction does not suffer from these difficulties; but plaintiff contends that IBM's construction improperly imports limitations from the preferred embodiment, see Phillips, 415 F.3d at 1323, because the preferred embodiment in no way offers a "clear disavowal" of embodiments of the binary tree computing system having less than two child nodes. Pl. Reply at 4. By way of support, plaintiff underscores the fact that the patent identifies Figure 2 as "the general configuration of a preferred embodiment of the invention comprising a binary tree of 1023 processing elements." '201 Patent at 8:11-13. In actuality, however, defendant's proposed construction does not import a limitation from the specification, but, rather, it relies on the fact that "the specification is the single best guide to the meaning of a disputed term," Phillips, 415 F.3d at 1320 (internal quotation marks omitted). Here, in fact, the specification is more properly read as dictating the correct scope of the claim, and in this respect, the "the inventor's intention, as expressed in the specification, is regarded as dispositive." Id. at 1316. In this regard, defendant has pointed not only to the claim language itself but numerous instances throughout the specification that confirm that the binary tree contemplated by the patent requires each processing element, except for the root node and the extremities, to have two children. The patent abstract describes the patent as "a plurality of parallel processing elements [...] connected in a binary tree configuration, with each processing element except those at the highest and lowest levels being in communication with a single parent processing element as well as the first and second (or left and right) child processing elements." '201 Patent Abstract. The same information is repeated in the section of the patent devoted to the background of the invention, as well as the summary of the invention. Id. at 1:62-65; 4:56-62; see also Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) ("[W]hen the preferred embodiment is described in the
specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.

Nor is the holding of E-Pass, upon which plaintiff relies heavily, see tr. 08/20/09 at 25, 29, to the contrary. There, the Federal Circuit overturned the district court's construction of "electronic multi-function card" as "[a] device having the width and outer dimensions of a standard credit card with an embedded electronic circuit." E-Pass, 343 F.3d at 1366. The Federal Circuit found that the district court had taken the preferred embodiment to impose a particular size on the term "card," ignoring language elsewhere in the patent that suggested that the patent was not based on the standardized size of a credit card. Id. at 1370. Here, in contrast, the binary tree that appears in Figure 2 may be a preferred embodiment, but Figure 2 does not suggest that the requirement of two children except at the extremities is a limitation derived from that preferred embodiment. Indeed, the patent elsewhere states directly: "In a binary tree computer, a large number of processors are connected so that each processor except those at the root and leaves of the tree has a single parent processor and two children processors." '024 Patent at 1:62-65. This statement provides critical support for the idea that the definition given to the term "binary tree" by the patentee differs from plaintiff's proposed construction and conforms more closely with defendant's proposed construction. See Phillips, 415 F.3d at 1316 (emphasizing the role of the inventor as "lexicographer").

Based on the foregoing, the Court construes "binary tree" to mean an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children.

1. binary tree computer system

Plaintiff construes the phrase "binary tree computer system" to mean "a computing system (or partitionable portion of a computing system) with nodes connected in a binary tree configuration." Pl. Br. at 19. Defendant's competing construction is "a computer system of nodes connected in a binary tree configuration." Def. Br. at 18.

The parties therefore principally dispute whether a partitionable portion of a binary tree computer system is itself a binary tree computer system. Because subtrees have the full functionality of a main tree, plaintiff argues that its construction captures the notion that a "binary tree computer system" can be a "partitionable portion of a computing system," asserting that "it is well known that a binary tree computer can be divided into a 'subtree' that functions as the full computer system." Pl. Br. at 20. Defendant, for its part, does not dispute that trees are partitionable into subtrees but rather maintains that a subtree would not itself constitute a "binary tree computer system." Def. Br. at 19; Def. Reply at 16-17. This reflects the plain meaning of the phrase, since the patent specifies that a binary tree computer system includes, inter alia, connection a host processor, see ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088 (Fed. Cir. 2003) ("[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms."). whereas a subtree alone, as the Court has construed the term, would not require such a connection to the host computer.

Although plaintiff cites to the '024 and '540 Stolfo Patents as intrinsic evidence that subtrees are themselves "binary tree computer systems," the '024 Patent incorporates those earlier patents by reference but also deliberately distinguishes itself from them. '024 Patent at 1:23-28. The '024 patent itself does not reference "subtrees" or "partitionability" and as such the incorporation by reference provides no support for the idea that the patent applicant intended for "binary tree computer system" to include a partitionable portion thereof. Cf. Modine Mfg. Co., 75 F.3d at 1553 (arguing that incorporation by reference "does not convert the invention of the incorporated patent into the invention of the host patent" and finding that the single reference to the incorporated patent did not otherwise alter the "presentation of the invention" in the specification). Plaintiff's extrapolation from the fact that a subtree is itself a binary tree to asserting that a subtree of a binary tree computer system is itself a binary tree computer system exceeds the bounds of claim construction, as it reads into the claim language a phrase that is altogether absent from the specification. In SunRace Roots Enterprise Co., Ltd. v. Sun Victory Trading Co., Inc., 336 F.3d 1298 (Fed. Cir. 2003), for example, the Federal Circuit overturned the district court's construction of "shift actuator," which held that the term required the use of a cam, even though no explicit definition of the term appeared in the specification. Rather, the district court imposed the limitation from the preferred embodiment, despite the fact that the invention could conceivably be embodied in a structure that lacked a cam. Id. at 1302. Here, the terms "subtree" or "partitionability" are not even present in the specification, and thus cannot even be plausibly read back into the claim language, which clearly does not include those terms. Cf. Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001) ("If the claim language is clear on its face, then our consideration of the rest of the intrinsic
evidence is restricted to determining if a deviation from the clear language of the claims is specified.

Nor is plaintiff's assertion that "individual processor circuit cards" are themselves "binary tree computer systems" (thus justifying plaintiff's argument for partitionability) particularly persuasive. See Pl. Br. at 20-21. The specification itself indicates that "the binary tree computer system can . . . be constructed from a plurality of sub-units," '024 Patent at 5:53-55, and refers to specific processor cards -- a three processing element unit ("3-PEU") or a four processing element expansion unit ("4-PEXU"), id. at 5:57-58 -- from which a binary tree may be built, which plaintiff marshals as evidence that subtrees are computer systems. But nowhere in the patent are these cards referred to as "subtrees," and thus plaintiff's reliance on the 3-PEU or 4-PEXU cards as "subtrees" is misplaced: the patent's language clearly indicates that the system is constructed from the cards, not that each card is itself a binary tree computer system.

Accordingly, the Court hereby reaffirms its construction that "binary tree computer system" means a computer system of nodes connected in a binary tree configuration.

2. binary tree configuration

The disputed term appears in Claim 1, which indicates that "N bus controllers [are] connected in a binary tree configuration in which each bus controller, except those at the extremes of the tree, are connected to left and right child bus controllers . . . ." '024 Patent at 7:11-16.

The parties essentially argue for constructions that track their respective constructions of "binary tree" from the '201 Patent. Plaintiff's construction is "a tree arrangement where a node has a parent (except for a root node) and zero, one or two children nodes," Pl. Reply at 15, and defendant puts forward "an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children," Def. Br. at 19. Here, the claim language clearly indicates that the binary tree configuration, as contemplated by the patent, has bus controllers with two children bus controllers except at the extremities. See Phillips, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."); Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 807 (Fed. Cir. 2002) ("Claim language defines claim scope."). This construction is confirmed by the specification. See Interactive Gift Express, 256 F.3d at 1331 (noting that if claim language is clear, specification is read only to determine if deviation from claim language is specified); see also Phillips, 415 F.3d at 1316 ("[T]he specification necessarily informs the proper construction of the claims."). The specification outlines the "basic structure of the binary tree parallel computer system of the invention" and specifies that "each node . . . is also connected downstream to its own [processing element] and either to two child nodes . . . , or in the case of the nodes at the extremes of the tree, to right and left leaf [processing elements]. '024 Patent at 2:50-56.

Considering as well the Court's construction of "binary tree" from the '201 Patent, which patent is here incorporated by reference, see '024 Patent at 1:24-26, the evidence overwhelmingly supports the Court's construction of "binary tree configuration" to mean "an arrangement of nodes where each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children."

b. Claim 5

Claim 5 of the '892 patent reads (bracketed text and letters provided for ease of reference):

[Preamble] 5. A method of providing a bingo game comprising the steps of:

[A] providing a bingo operator for determining at least one winning bingo pattern;
注册至少一张包含多个宾果号码的宾果卡给定操作者；

C 给定一个预定数量的随机宾果号码；和，

D 确定所有注册的宾果卡，其上产生的随机宾果号码形成一个预先至少的一个宾果模式；

E 将中奖的宾果卡持有人的中奖金额授予，其金额与中奖的宾果卡的数量无关。

c. 被告的拟建构

被告认为法院应将以下几个术语的含义建设为普通具有艺术技能的人在轻重记录中的意思。在这一方面，被告声称以下几个术语应进行以下建设

术语“宾果游戏”从序言：一个由元素和限制 [A]-[E] 形成的宾果游戏。

术语“宾果操作者”从段落 [A]：操作一个宾果游戏的人或实体，或其机器或软件。

术语“注册至少一张宾果卡”从段落 [B]：将每张卡分配一个身份，以区分其与其他卡的不同。

术语“一个预定数量的随机宾果号码”从段落 [C]：在一个完整的宾果游戏中将被玩的特定和预指定的随机宾果号码的数量。

E 中奖的宾果卡持有人的中奖金额授予，其金额与中奖的宾果卡的数量无关。

c. 原告的拟建构

原告认为，根据普通接受的某些术语的公众接受并使用字典定义，以下术语应进行以下建设：

“宾果游戏”- 一种“传统”宾果游戏，该术语被公众理解。在这种情况下，原告建议将术语“宾果游戏”在第 5 项中构建为：

预设数量的宾果号码：原告认为术语“预设数量”应根据字典定义“预设”来解释。在这种情况下，原告认为建设应为：“由事先确定、决定或建立的数字或数字范围。”

“注册”：原告认为术语应建设为：

识别一个由玩家选择的独立的宾果卡，将该卡的图案传达给游戏操作者，并让游戏运营商记录该卡的图案，然后开始一个独立的宾果游戏。

III. CONCLUSION
Having carefully reviewed the text of Claim 5, the specification, and the prosecution history of the '892 patent, and having considered the parties' arguments presented at the Markman Hearing, the Court finds that the construction proposed by Defendant is, in all respects, proper. The '892 patent was proposed and amended in order to distinguish the patent from prior art. Plaintiff's proposed construction would have the opposite effect. Therefore, the Court finds as a matter of the law that the following terms from Claim 5 shall have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

b. Claim 5

Claim 5 of the ‘892 patent reads (bracketed text and letters provided for ease of reference):

[Preamble] 5. A method of providing a bingo game comprising the steps of:

[A] providing a bingo operator for determining at least one winning bingo pattern;

[B] registering at least one bingo card bearing a plurality of bingo numbers with said operator;

[C] generating a predetermined number of random bingo numbers; and,

[D] identifying all registered bingo cards on which the generated random bingo numbers form one of said at least one [sic] winning bingo pattern and,

[E] awarding the holder of the winning bingo card an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed.

c. Defendant's Proposed Constructions

Defendant contends the Court should give the following terms the meaning they would have had to a person of ordinary skill in the art in light of the intrinsic record. In this regard, Defendant asserts that the following terms should have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

c. Plaintiff's Proposed Constructions
Plaintiff contends that, based upon the general acceptance of certain terms by the public and by using dictionary definitions, the following terms should be constructed as follows:

"Bingo game" - a "traditional" bingo game as that term is understood by the general public. In this regard, Plaintiff suggests that the Court construct the term "bingo game" within Claim 5 as:

a game simultaneously played by multiple players that contains the following elements: (1) displayed cards that bear numbers, (2) which must be daubed on each card when numbers are determined by random means during the game, and (3) which game is won by at least the first person to hold a card on which a previously designated arrangement of numbers has been covered.

"Predetermined number" of random bingo numbers: Plaintiff argues that the term "predetermined number" should be construed in accordance with the dictionary definition of "predetermined." In this regard, Plaintiff argues that the construction should be: "A number or range of numbers that is determined, decided, or established in advance."

"Registered": Plaintiff argues that the term should be constructed as follows:

identifying a discrete bingo card chosen by a player, communicating the pattern of that card to the game operator, and having the game operator record the pattern of the card prior to play of a discrete bingo game.

III. CONCLUSION

Having carefully reviewed the text of Claim 5, the specification, and the prosecution history of the '892 patent, and having considered the parties' arguments presented at the Markman Hearing, the Court finds that the construction proposed by Defendant is, in all respects, proper. The '892 patent was proposed and amended in order to distinguish the patent from prior art. Plaintiff's proposed construction would have the opposite effect. Therefore, the Court finds as a matter of the law that the following terms from Claim 5 shall have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.
would be improper for the court to read in this limitation simply based on the preferred embodiments. See Teleflex, 299 F3d at 1326.

Finally, Hynix resorts to the prosecution history of two related patents, United States Patent Nos 6,493,267 ("the '267 patent") and 5,726,882 ("the '882 patent"), that share virtually the same specification as the '994 patent. Hynix argues Toshiba made two statements to the patent office disavowing "any definition of bit line that includes a line interrupted by a transistor." Hynix Br at 13. In a letter requesting reconsideration of the '267 patent, the patentees distinguished the "bit line" from another wire on the other side of the switching circuit transistor. Doc # 14, Ex E at 2. But this letter adds nothing to Hynix's case because the patent claims already show that the bit line does not extend past the switching circuit. Hynix also relies on a letter from the patentees requesting an extension of time pertaining to the '882 patent but this letter does not speak to the definition of "bit line" and merely references an embodiment present in the '994 patent. Id, Ex L at 7.

Because Hynix's construction is problematic and Hynix has not provided any reason why the ordinary meaning of "bit line" does not suffice, the court declines to construe this term.

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(2) first/second plurality of groups of bits

The issue regarding these phrases is whether they should be limited to "4 bit sequences." N-Data and National both urge that the court should give these phrases their plain and ordinary meaning. N-Data further asserts that, at the most, the court should define "bits." Dell argues that the patent "only discusses groups of bits in the context of transmitting 4-bit 'nibbles' during time slots." Dell's Responsive Claim Construction Brief at 19; see also '261 Patent, col. 7, ll. 42-61, col. 8, ll.64-col. 9, l. 5, Table I (discussing the preferred embodiment). It is improper, however, to limit the phrases to their preferred embodiment absent a clear intention of the patentee to do so. The court agrees with N-Data's proposed construction.

The court defines "bits" as "basic units of information storage."

"First/second plurality of groups of" needs no construction.

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1. "Blend Information"

The first element of independent claim 1 recites "using a pen-tablet unit and a circuit coupled to said unit and responsive to a user's actions on at least the pen to generate progressively varying position and blend information." Adobe contends that the term "blend information" means "pressure information, i.e., data representing the amount of pressure applied by the user to the pen at a particular point during the stroke." Quantel contends that "blend information" is "information which comes from a circuit that responds to a user's actions and so on at least the pen, and (as the claim later recites) is used for calculating new pixel data."

The Federal Circuit has held that "the specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Vitronics. Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Adobe points out that although the term "blend information" does not appear in either the '566 specification, the specification describes only two types of "progressively varying" information: position and pressure. Accordingly, the court concludes that the specification impliedly defines "blend information" as "pressure information."

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A. "Blending"
Claim 1 of the 550 patent claims:

A method for blending images, comprising the steps of selecting a first portion of a first image, said first portion of said first image includes different color values . . .

Sportvision contends the term "blending" should be construed as: "Combining at least a first image or video with at least a second image or video such that the result includes all or part of the first image or video and all or part of the second image or video." (Sportvision's Memo at 13.)

SportsMEDIA proposes that the term be construed as: "Combining at least a first image or video with at least a second image or video such that the result includes all or part of the first image or video and all or part of the second image or video, for example, using a keyer to key one video over another video." (SportsMEDIA's Memo at 16.)

Both parties essentially agree on the definition, except that SportsMEDIA's definition includes "... using a keyer to key one video over another video." The Court finds it inappropriate to add SportsMEDIA's proffered additional language. The specification discloses other ways of accomplishing the effect of blending. SportsMEDIA's proffered construction would single out one particular embodiment. The 550 patent describes the use of computers in the "blending" process, rather than keyers. 550 patent, 4:34, 37-40.

Accordingly, the Court construes the meaning of the term "blending" to be: "Combining at least a first image or video frame with a second image or second video frame such that the result includes all or part of both."

V. "GENERATING THE TOOL PATH BY BLENDING BETWEEN THE ISOLOOPS"

The limitation at issue here, which is found in claims 14 and 35, is "generating the tool path by blending between the isoloops." The parties' proposed constructions are as follows:

<table>
<thead>
<tr>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;producing a tool path with connections between the isoloops by interpolation, i.e., a process that produces intermediate values from the isoloops being connected&quot;</td>
<td>Producing a smooth, continuously spiraling tool path based on weighted averages or other mathematical combinations of successive isoloops as wholes. The tool path so generated must not include sharp turns and must not allow the cutting tool engagement to exceed a predetermined maximum value.&quot;</td>
</tr>
</tbody>
</table>

For the reasons stated below, the Court adopts the construction it circulated at the Markman hearing:

"generating the tool path by blending between the isoloops -- Producing a smooth tool path based on a process that produces intermediate values from the isoloops being connected."

Unlike the question of a "smoothing" requirement in the previous limitation, a requirement of a "smooth tool path" is supported for this step of the claim by the prosecution history and the specification's definition of "tangent continuous."

A. The Toolpath Must Be "Smooth"

The limitation at issue here is "generating the tool path by blending between the isoloops." Although the patent does not define the term "blending," the patentee explained to the examiner that,

Limitation (c) of claim 28 recites generating the tool path by blending between the isoloops. The blending is defined at paragraphs [0170] and [0171] and Fig. 23 as a method for constructing a tangent continuous tool path based on the
parameters of the isoloops.

Bagatell Decl., Exh. J at 23 (emphasis added). As discussed above, the patent defines "tangent continuous" as "forming a smooth curve." (013 patent at 5:30). This prosecution history, combined with the patent's definition of "tangent continuous," compels the conclusion that the construction of "blending" must include a requirement of a smooth tool path.

--- Footnotes ---
6 Attorney Bagatell represented at the Markman hearing that "claim 28" became issued claim 14, and Plaintiff did not disagree.

--- End Footnotes ---

At the Markman hearing, Plaintiff argued that the statement in the prosecution history was insignificant because it did not expressly disavow a broader definition of "blending" by distinguishing prior art. See generally Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325 ("[W]e have required the alleged disavowing statements to be both so clear as to show reasonable clarity and deliberateness . . . and so unmistakable as to be unambiguous evidence of disclaimer.") But Plaintiff failed to cite or even acknowledge the rule that a "claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history." Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1370 (Fed. Cir. 2003) (citations omitted) (emphasis added). See also Phillips, 415 F.3d at 1317 ("[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.") Here, the prosecution history makes clear that the patentee defined blending "as a method for constructing a tangent continuous tool path." The patentee's statement in the prosecution history could hardly be any clearer. In fact, Plaintiff's attorney conceded during the Markman hearing that during prosecution of the patent his client defined blending as "a method for constructing a tangent continuous tool path." Transcript at 28:20-29:2.

The Court also notes that the Sixth Preferred Embodiment is consistent with the prosecution history, because it states that "[t]he blends are generated using the same exact blending function" as was used for creating isoloops in the embodiment, which was a function creating a tangent continuous tool path. (013 patent at 20:54-55).

In light of the prosecution history, the definition of "tangent continuous" in the "Detailed Description of the Invention," and the language in the Sixth Preferred Embodiment, the Court finds that the tool path created by blending must be "smooth." 7

--- Footnotes ---
7 At the Markman hearing, Defendants argued for the first time that the construction should also state that the tool path must be "based on the parameters of the isoloops." See Transcript at 33:20. Unlike the requirement of a smooth tool path, however, Defendants did not show that such a limitation is supported by language in the patent itself. The Court therefore declines to adopt it.

--- End Footnotes ---

B. It is Not Necessary to State that the Tool Path Must Be "Continuously Spiraling"

Defendants note that the Sixth Preferred Embodiment explains that "[a] spiral-like tool path . . . is then created by blending between successive isoloops." (013 patent at 20:53-54 (emphasis added)). But, as Plaintiff notes, Defendant's proposal that the path be "continuously spiraling" is more limiting than even the preferred embodiment's "spiral-like." The Court therefore omitted the requirement of a continuous spiral from its tentative construction. Defendants did not object at the Markman hearing to its omission, and the Court will not include it.

C. It is Not Necessary to State that the Tool Path May Not Include Sharp Turns

Defendants' argument for requiring that the path not include sharp turns is not entirely clear, but it seems to be that the
purpose of "blending between the isoloops" is to limit variations in the engagement angle of the cutting tool so that the tool engagement can be maintained as close as possible to a predetermined maximum engagement. Sharp turns would undermine this purpose because they increase a tool's engagement angle. Neither the claim nor the specification mentions sharp turns, and for this reason the Court did not include this requirement in its tentative construction. Defendants did not object at the Markman hearing to the omission of this language, and the Court does not include it in its construction.

D. It is Not Necessary to State that the Tool Path Must "Not Allow the Cutting Tool Engagement to Exceed a Predetermined Maximum Value"

"The tool path so generated must not include sharp turns and must not allow the cutting tool engagement to exceed a predetermined maximum value."

Defendants contend that "the patent makes clear from beginning to end that the invention is a method of generating a tool path by controlling the tool engagement." They cite several passages in the specification -- including the abstract, "summary of the invention," "detailed description of the invention," and others -- that describe the patent's method as one that stores a maximum engagement of the milling cutter and defines passes such that a value of the engagement does not exceed the maximum. See '013 patent, front page, 2:24-64, 8:1-3, 8:16-18, 22:36-44, Fig. 3. These passages often refer to this feature as part of the "present invention," and Defendants rely primarily on three Federal Circuit cases in which a specification's reference to the "present invention" was used to limit particular claim language. But in all of those cases the specification's text was tied to particular language in the claim. See Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 n.8 (Fed. Cir. 2007) (applying description of "present invention" to limit claim term where the specification referred to "the very claim term that is at issue here."); Honeywell Int'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (construing the claim term "fuel injection system component" to mean "a fuel filter," because the only component described in the specification that otherwise met the claim's requirements was a fuel filter); Watts v. XL Sys, Inc., 232 F.3d 877, 882-83 (Fed. Cir. 2000) (construing the term "dimensioned such that" based in part on the specification because the specification only described one method in which "tapered external threads [are] dimensioned" and referred to that method in the context of "the present invention"). Here, by contrast, there is no reference to engagement anywhere in claims 14 or 35, let alone the particular text at issue here, and no other language in the limitation suggests that it would be appropriate to read the engagement feature into this claim. To do so would therefore be overreaching of the kind disallowed by the Federal Circuit. See Phillips, 415 F.3d at 1323.

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A. "block"

The parties seek construction of the term "block," which appears in all four claims of the '124 patent (col. 31:1-32:18) (emphasis added):

1. A method for generating sound from data following an MPEG encoding standard comprising:

   transferring a block consisting of independent components of time-domain vectors to a first memory, wherein transferring the block comprises transferring a total of 17 components from a first time-domain vector and 16 components from a second time-domain vector;

   determining products of the independent components in the block with corresponding windowing coefficients;

   accumulating the products in a plurality of sums, each sum corresponding to a different sound amplitude value; and

   generating a sound from the sound amplitude values.

2. The method of claim 1, wherein:

   the step of determining products comprises performing 64 multiplications, each multiplication involving one of the components from the block and a windowing coefficient; and
the step of accumulating comprises adding a pair of the products to each of 32 sums.

3. The method of claim 2, further comprising:

   multiplying each of a series of matrixing coefficients by a corresponding combination of components of a frequency-domain vector;

   accumulating the products to generate four components of a time-domain vector; and

   writing the four components of the time-domain vector to a second memory, wherein transferring the block is from the second memory to the first memory.

4. The method if claim 3, further comprising repeating the steps of claims 1, 2, and 3 eight times wherein no two steps of transferring a block transfers components from the same pair of time-domain vectors.

Proposed constructions are shown below.

<table>
<thead>
<tr>
<th>Proposed constructions</th>
<th>OF &quot;BLOC&quot;</th>
<th>OF &quot;BLOCK&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSI'S PROPOSED CONSTRUCTION</td>
<td>&quot;Group of data elements stored as a unit.&quot;</td>
<td>&quot;The largest possible collection of data to be used in one or more transfer operations that is stored in contiguous storage locations before the one or more transfer operations&quot;</td>
</tr>
<tr>
<td>SANDISK'S PROPOSED CONSTRUCTION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The claims themselves give meaning to the term "block." In particular, method claim 1 stated that "a block [consists] of independent components of time-domain vectors to a first memory, wherein transferring the block comprises transferring a total of 17 components from a first time-domain vector and 16 components from a second-time domain vector" (col. 31:4-8). 3 Despite this defining claim language, SanDisk argues that numerous additional limitations that do not appear in the claims should apply to the term "block." LSI argues that they should not.

3 While this order cannot possibly explain in a footnote the full details of what these vectors represent, it may be helpful to state that the analog-to-digital conversion of audio information in the present invention involves the conversion of time-domain data to frequency-domain data. Similarly, the digital-to-analog conversion of audio information involves the conversion of frequency-domain data to time-domain data. These vectors are important to the latter conversion.

The first limitation proposed by SanDisk -- that the block be the "largest possible collection of data to be used in one or more transfer operations" -- fails in two respects: (1) it is confusing, and (2) it is wholly unsupported by the intrinsic evidence. As stated, the claim language already included an express limitation on what the block must contain: "a total of 17 components from a first time-domain vector and 16 components from a second-time domain vector." Nothing in the specification supported the additional limitation that the block must contain the "largest possible collection of data." By contrast, the specification touted the efficiency gained by transferring smaller blocks -- specifically, blocks consisting of 33 vector components as opposed to 64 vector components seen in the prior art. This reduction in block size supposedly cut the number of bytes required to be transferred using the present invention "nearly in half" (see col. 11:10-37). In other words, one of the express benefits of the present invention was to minimize both the number and size of blocks transferred out of memory for processing. Given this intrinsic evidence, this limitation fails.

SanDisk also proposes that the vector components in a block be "stored in contiguous storage locations before the one or more transfer operations." In other words, SanDisk would not allow the 33 vector components of a block to be scattered across memory, but would require vector components to be lumped together, back to back, without any intervening data.
While the claims do not expressly contain this limitation, the specification did lend some support to SanDisk's argument. Specifically, the specification noted that "[s]toring the 33 values at consecutive addresses in [memory] increases the speed of reading the values for windowing because consecutive addresses can be accessed with a minimum of page changes" (col. 11:5-9) (emphasis added). In other words, contiguous storage would allow more efficient reading of data values, and minimize page changes. Even so, SanDisk's proposed limitation fails because it excludes the exemplary embodiment. In the exemplary embodiment, "at least one block of 33 vector components is not at consecutive addresses because the current vector V[degree] can be in any of sixteen positions in memory and is not always at the lowest address" (col. 11:37-41) (emphasis added). Stated simply, at least one "block" of vector components will not be contiguously stored in memory prior to transfer. In light of this evidence, this limitation proposed by SanDisk must also fail. See Vitronics, 90 F.3d at 1583. 

Given that the term "block" is given ample meaning by the surrounding claim language, this order construes "block" as simply "a set of data elements."

i. "block" in the '638 patent

Lexar's proposed construction: erasable storage for one or more sectors

Toshiba's proposed construction: a portion of memory that is separately programmable and erasable; those portions of memory containing data cannot be programmed.

Pretec's proposed construction: a set of like items handled as a unit.

6 In its brief, Toshiba did not explicitly propose a construction for "block" in the '638 patent but offered a construction of the term within its proposed construction for the '638 patent term "non-volatile storage blocks." The Court treats this as Toshiba's proposed construction for the '638 claim term "block." Toshiba's presentation at oral argument was consistent with this conclusion.

All three parties have proposed completely different constructions for "block" in the '638 patent. Lexar contends, as it does for the term in all patents in which it appears, that the claim term should be construed as "erasable storage for one or more sectors." Lexar suggests that the dispute (between Lexar and Toshiba) over the term "block" boils down to Toshiba's "insistence that the term 'block' cannot be anything that stores less than two sectors of data." While the Court notes that the debate here is about more than just the number of sectors contained in a block, the Court begins its analysis there.

Lexar proposes that a "block" in the '638 must contain one or more sectors and Toshiba maintains that because the '638 patent is the earliest of the patents-in-suit, a block in the '638 could not be understood by a person skilled in the art as containing more than a single sector. The parties agree, then, that a "block" in the '638 can contain a single sector. The dispute lies in whether a "block" can contain more than one sector in this patent. The lone reference to "sectors" in the '638 patent explains that in one preferred embodiment, a "multi-sector erase is necessary . . . ." ('638 patent, 4:62-65.) This strongly suggests that a block can be made up of more than one sector. The Court therefore finds that Lexar is right, that a "block" in the '638 contains one or more sector.

The Court now turns to evaluate the rest of the parties' respective constructions. Pretec accurately argues that Lexar's proposed cross-patent construction does not fit for "block" in the '638 patent. However, rather than suggest a construction of "block" specific to the '638 patent, Pretec, like Lexar, proposes a cross-patent construction. Pretec proposes a construction based on the non-technical American Heritage dictionary definition of "block:" "a set of like items handled as a unit." But this construction is overly broad. Because a disputed claim term is to be given its ordinary meaning as understood by those skilled in the relevant art, "a general dictionary definition is secondary to the specific meaning of a technical term as it is used and understood in a particular technical field." Hoczest Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1580 (Fed.
Cir. 1996). Here, "block" is a technological computer-related term having to do with data and memory storage. Pretec's general definition is out of place in this context.

The remaining dispute as to the proper construction of the term "block" is between Toshiba and Lexar. The Court first disposes of Toshiba's "those portions of memory containing data cannot be programmed" language. This portion of Toshiba's proffered construction is simply redundant. The language appears in the claims themselves and the Court need not load up a claim term with surrounding language. To do so would render the surrounding claim language superfluous. The Court therefore rejects this portion of Toshiba's proffered construction.

Toshiba and Lexar also disagree about the functions a block performs and whether such functions should be described in the construction of the claim term. Toshiba urges the Court to construe "block" as both "erasable" and "programmable." Toshiba contends that claim I, which recites that "each block is selectively programmable and erasable" supports its construction. Lexar proposes that "block" be construed as erasable but not programmable. Lexar contends that a person of ordinary skill in the art would not construe "block" to be programmable as only sectors can be programmed. Toshiba agrees that sectors are what is programmable but contends that here, in the '638 patent, the earliest of the patents-in-suit, block and sector are functionally equivalent. This ties in with Toshiba's argument that a block in the '638 contains only a single sector. Because the Court has found that a block in the '638 can contain multiple sectors and because the parties agree that a block itself is not programmable, the Court finds that Toshiba's proposed "programmable" language is not properly part of the construction of the term "block." Therefore, the Court construes "block" in the '638 patent as: erasable storage for one or more sectors.

ii. "block" in the '918 patent

Lexar's proposed construction: erasable storage for one or more sectors
Toshiba's proposed construction: the smallest uniquely addressable physical group of nonvolatile memory cells that can be erased within a single nonvolatile memory device

7 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

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The technology in the '918 patent concerns "super-blocks," larger groupings of single blocks to increase the speed with which blocks can be erased and freed up for programming new data. Lexar's briefs on "block" in the '918 patent are decidedly unhelpful. Lexar again proposes its one-size-fits-all construction for "block" and offers no citations from the '918 patent to support its construction. Instead, Lexar relies on the claim language of other unrelated patents to support its construction. The Court declines to examine those patents to construe a disputed claim term in the '918 patent.

As an initial matter, the Court notes that unlike the parties' dispute over "block" in the '314/'138 and the '638 patents, whether a block in the '918 contains one or more sectors does not appear to be in dispute. At oral argument, Lexar conceded that its proposed "one or more" language was intended to account for the older '638 patent, which expressly allows a block to contain only a single sector. The Court finds, then, that in the '918 patent, a block contains a plurality of sectors.

Toshiba's proposed construction is much narrower than Lexar's. Toshiba believes it important to acknowledge in the construction that a block (one part of a super block) is the smallest physical group of uniquely addressable nonvolatile memory cells that can be erased within a single nonvolatile memory device. As Lexar points out in its opening brief, Toshiba proposes to add limitations to the construction of "block" that speak to how a block might be used, not to what a block actually is. Moreover, the portion of the patent upon which Toshiba relies to support the "uniquely addressable" language, column 2, lines 32-40, refers to past inventions and does not support such a limitation in the construction of "block" in the '918. The additional limitations proposed by Toshiba are not warranted and the Court declines to incorporate them into the construction of "block."
For the foregoing reasons, the Court construes "block" in the '918 as erasable storage for a plurality of sectors.

iii. "block" in the '314/'138 patent

Lexar's proposed construction: Toshiba's proposed construction: 8
erasable storage for one or a plurality of sectors identified by
more sectors a virtual physical block address
and expanding between two memory devices

--- Footnotes ---

8 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

--- End Footnotes ---

Lexar again proposes its one-size-fits-all construction for "block." And again, the dispute between the parties on "block" in the '314/'138 patent turns, in large part, on the number of sectors a block contains. In its briefs, Lexar contends that a block can contain a single sector or more than one sector while Toshiba proposes that "block" must, by definition, contain more than one sector. However, the independent claims in the '314/'138 recite that each block includes "a plurality of sectors" or "two or more sectors." (314 patent, claims 1 & 7.) This language suggests that a block must contain more than one sector and that Lexar's proposed construction ignores the plain language of the claims. Nothing in the specification suggests that the inventor intended to act as his own lexicographer and define "block" differently. Indeed, Lexar admitted at oral argument that "we are not disputing or claiming that it can be one [sector] in the context of the '314 patent." The Court therefore agrees with Toshiba that "block" in the '3141/'138 must contain a "plurality of sectors."

Toshiba suggests that the construction of "block" should account for the distinction made in the specification between a "sub-block" as that which is contained in a single nonvolatile memory device and a "block," which expands between two nonvolatile memory devices. The Court disagrees. To construe "block" as expanding between two nonvolatile memory devices would exclude a preferred embodiment. At column 4, lines 48-53, an embodiment of the invention is disclosed in which a block is contained within "a single nonvolatile memory device" rather than expanding across two such devices. The Court therefore declines to include that portion of Toshiba's proposed language in the construction.

The Court must now determine whether the proper construction of "block" in this patent is "identified by a virtual physical block address" as proposed by Toshiba. The Court finds that this portion of Toshiba's proposed construction is unnecessary. That a block is identified by a virtual physical block address need not be incorporated into the construction of the claim term. The additional verbiage is unnecessary and would improperly import a limitation from the preferred embodiment into the construction of the claim term.

For these reasons, the Court construes "block" in the '314/'138 as erasable storage for a plurality of sectors.

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10. Modify block ('505 patent, claims 15 and 19)

Plaintiffs define "modify block" as "a text block to be modified, e.g., a contiguous portion of text that can be selected by word processor commands to be deleted, moved or copied." Defendant disputes plaintiffs' proposed definition insofar as plaintiffs have articulated only an example of the definition (by plaintiffs' use of "e.g.") rather than the definition. I agree. Accordingly, "modify block" in claims 15 and 19 of the '505 patent means a contiguous portion of text that can be selected by word processor commands to be deleted, moved or copied.

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(ii) . . . an error correction code generation circuit which generates for each block of data to be stored in said memory system an error correction code, . . .

(iii) . . . each block of data comprising a first plurality of digits and each error correcting code comprising a second plurality of digits from which at least one digit of error may be detected and corrected in the block of data . . .

This is the first claim that is affected by collateral estoppel from Judge Young's decision. In the EMC case, Judge Young construed this claim language as follows: "[Error correction code generation circuit] means a single integrated circuit which generates the claimed error correction code . . . Data, as I have already said, is information. Here, the data is in the form of digits. A block of data, as used in this phrase, means a group of data bits which may be corrected by another group of bits called error correction bits. The data is information to be stored in the computer." (A 17.)

This construction, relying as it does on the plain meaning of the words used in the claims limitation, is plainly correct. The only arguably unclear term used by Judge Young is his definition for the phrase "error correction code circuit," which he defined as a "single integrated circuit which generated the claimed error correction code." (A 17.) The words "single integrated circuit" do not appear in the claim, and TM urges that Judge Young erred in so limiting its claim.

Putting to one side the fact that TM is collaterally estopped to challenge Judge Young's ruling, TM is simply incorrect. The limitation refers to "an" -- i.e., one -- error correction code circuit. In other words, the literal language of the claim calls for one circuit that generates an error correction code. The patent specification discloses that this circuit was a single integrated circuit -- that is, "... an interconnected array of active and passive elements integrated with a single semiconductor substrate or deposited on the substrate by a continuous series of compatible processes, and capable of performing at least one complete electronic circuit function." McGraw Hill Dictionary of Scientific and Technical Terms (3d.ed. 1984). Judge Young did not err when he restricted the claim in limitation (ii) to error correction code circuits that generated the correcting digit via a single integrated circuit.

That said, I can think of ways to phrase parts of the interpretation that might be easier for a jury to understand, and I do not understand the doctrine of collateral estoppel to require me to quote Judge Young verbatim. I will, therefore, rephrase it as follows:

The multi-unit memory system I have just described contains a single integrated circuit that is called the error correction code circuit. What does this circuit do? It generates -- that is, it creates -- something called an error correction code, which is a group of mathematically interrelated bits. It creates one of these error correction codes for each block of data that is to be stored in the memory system.

Now, let's take a look at what some of those words mean -- the words that might be unfamiliar to you. Data is simply information. In a computer, data is stored as digits -- specifically, as the digits 0 and 1, as will be explained to you during the course of the trial. Each individual digit is known as a bit, which is a contraction of the phrase "binary digit." For those of you who remember the binary number system from your high school math class -- that's also known as the Base 2 system -- 0 and 1 are the two digits in the binary system. So a block of data is two or more data bits that are used to code information in a computer. That's what the phrase "plurality of digits" means -- it's just a fancy way of saying more than one digit.

An error correction code is also a plurality of digits -- remember, that means more than one of those binary digits, 0 and 1 -- and the error correction code has a particular purpose, which is to detect and correct an error in a block of data. So for every block of data in our multi-unit memory system, there is an associated error correction code, which is capable of doing two things: determining that at least one of the bits in the associated data block is correct, and correcting the error that it has detected, by generating a new, corrected bit of data.

IBM, relying on the specification, has urged me to insert a further limitation: namely, that any block of data can contain no more than 32 bits. However, there is no reason to read any such requirement into the claim, since there is nothing about the phrase "block of data" that necessarily suggests the size of the block -- as opposed to the phrase "an error code generation circuit" -- which does suggest a single circuit rather than multiple circuits. Of course, it is possible that a jury would not find
infringement of the Plaintiff's claims by a system that can detect and correct errors in larger blocks of data, but that does not bear on the construction of the claim.

(iv) . . . a plurality of read/write memory units, which store the digits of said blocks of data and associated error correction codes generated by said error correction code generation circuit and read said digits . . .

(v) . . . at least some of the different digits of each code and its associated data block being stored in different memory units.

Again, these words are not difficult to interpret in light of their plain meaning. These limitations require that there be more than one memory unit to store the blocks of data and their associated error correction codes. These units must be what are known as read/write units -- that is, they must be able to store the data bits and to read them. Moreover, at least some of the different digits of each code and its associated data block must be stored in different memory units. That is, if we have a data block reading 100101001, and an error correction code that corresponds to that particular data block, at least some of the digits of the data block must be stored in a different memory unit from the error correction code.

IBM argues strenuously that no portion of the error correction code can reside in the same memory unit where the underlying block of data is found, relying on the specifications and the preferred embodiment, which clearly show 32 memory units storing only data and 7 associated memory units storing only error correction codes. The claim limitation as written, however, encompasses more than the configuration urged by IBM. This conclusion is reinforced by looking at unasserted Claim 5, which depends on Claim 1 and which clearly states that the all the error correction code bits must be stored on separate memory units from the block data blocks. Under the rule of claims differentiation, when some claims are broad and other, dependent claims are explicitly narrower, the limitation of the narrower claim cannot be read into the broader claim, even to avoid invalidity or to escape infringement. See Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999); Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1054-55 (Fed. Cir. 1988); D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985). IBM is free to argue at trial that the patent as construed is invalid, but I am not free to overlook the doctrine of claim differentiation in order to construe the claim limitations more narrowly than they are written.

Similarly, I reject IBM's effort to have me rule that claim limitation (iv) requires that the block of data and its associated error correction code be stored across all of the memory units in the array. Again, IBM is trying to convince me that the claim should be construed so as to limit the invention to its preferred embodiment as described in the specifications. I decline to do so.

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B. "Block Size Information"

In Rambus' invention, the user can specify the amount of data to be transferred over the bus during a bus transaction. This value is represented by the term "block size." The parties differ as to exactly how this value is to be measured. Rambus argues that "block size" is "the number of sequential data bits to be read from or written to the memory." In essence, Rambus reads block size to be a function of the number of sequential transactions on a bus necessary to respond to the transaction request. Infineon posits that "block size" "specifies the total amount of data that is to be transferred on the bus in response to a transaction request." In other words, Infineon measures block size as a function of size or the amount of data to be transferred over the bus.

1. The Claim Language

The term "block size" occurs numerous times throughout the claims of the '918 patent and the '214 patent. 25 Most of the claims indicate that block size information defines the amount of data to be output or input by the memory device. 26 Indeed, there is nothing in the text of any claim which employs the term "block size" to indicate that "block size" means anything other than the amount of data to be transferred on the bus in response to some sort of transaction request. Thus, from reading the language of the claims, one skilled in the art would conclude that block size information is an instruction indicating the amount of data to be output (or input) by the memory device.
Rambus nonetheless urges that block size means "the number of sequential data bits to be read from or written to the memory" (presumably in response to a transaction request). Rambus does not identify any aspect of the claim language that would support its preferred definition. Additionally, it is worth noting that nothing in the claim language has been cited, or for that matter argued, as supporting the temporal or order requirements which would inhere in a sequential-based definition.

2. The Specification

In general terms, the specification explains that "one object of the present invention is to use a new bus interface built into semiconductor devices to support high-speed access to large blocks of data from a single memory device by an external user of the data, such as a microprocessor, in an efficient and cost-effective manner." '918 patent, col. 3, lines 21-25 (emphasis added). See also '918 patent, col. 4, lines 15-16 ("The bus supports large data block transfers . . .").

In discussing the preferred method of Device Address Mapping and the address registers therein employed, the specification explains that:

   The address registers can include a single pointer, usually pointing to a block of known size, a pointer and a fixed or variable block size value or two pointers, one pointing to the beginning and one to the end (or to the "top" and "bottom" of each memory block.

'918 Patent, col. 7, ll. 36-41. This text and that which follows it clearly bespeaks volume or amount as the measure of a block, not sequence or time.

The several other references to block size in the specification also teach that the term relates to amount of data not the order and timing of bits of data in a particular sequence. 27

--- Footnotes ---

27 '918 Patent, col. 11, ll. 1-5, ll. 41-48; col. 16, ll. 26-35, ll. 44-47; col. 17, ll. 1-2; col. 20, ll. 18-22.

--- End Footnotes ---

3. The Extrinsic Evidence

The construction offered by Rambus purports to be grounded in a table in column 11 of the specification. The table is in a section which refers to the preferred embodiment detailed in Figure 4 of the patent. 28 The specification states:

   BlockSize[0:3] specifies the size of the data block transfer. If BlockSize[0] is 0, the remaining bits are the binary representation of the block size (0-7). If BlockSize[0] is 1, then the remaining bits give the block size as a binary power of 2, from 8 to 1024. A zero-length block can be interpreted as a special command, for example, to refresh a DRAM without returning any data, or to change the DRAM from page mode to normal access mode or vice-versa.
Rambus uses Table 11, as interpreted by its expert, Dr. Huber, as the basis for its construction that block size information is the number of sequential transfers necessary to carry the desired information over the bus line. The table is but one of many encoding schemes and does not purport to define or explain the meaning of block size generally. According to Dr. Huber, the block size indicated in the chart corresponds to the number of sequential transfers necessary to output the data onto the preferred embodiment 8-line bus. That is certainly not apparent from the patent document. Furthermore, during the Markman hearing, Dr. Huber connected almost all of his opinions, not to the patent specification, but rather to a prepared animation demonstrating how block size should be measured as sequential transfers of data. The reason for such reliance seems quite clear -- there simply is no support in the patent document. Also, that view is flatly contradicted by Infineon's expert who explained that block size contains information specifying the total amount of data that is to be transferred. See Markman Hearing, Tr. pg. 442, ll. 11-19. Mr. McAlexander has testified that "the person of ordinary skill in the art would come to [the conclusion] that block size . . . means amount, and in just a plain, simple ordinary meaning of size is an amount, it's not when or how." Markman Hearing, Tr. pg. 439, ll. 11-16 (testimony of Mr. McAlexander).

4. Construction

Infineon's construction is grounded in the specification and the claim language because both sources of information rather clearly reflect that block size is an amount of data, not the order in which it is delivered. There is nothing in the specification to support Rambus' somewhat contorted definition of block size. It simply defies reason (and the specification) to conceive of size as a measure of time.

Moreover, the construction urged by Rambus utterly ignores the clear language of the claim that block size is associated with a transaction request. (See, e.g., '918 Patent, Claim 1-7 and all other claims (8 through 38) dependent upon Claim 1-7). Infineon's definition encompasses this connection and, for that additional reason, it is the definition that is necessitated by the claim language and by the specification. Thus, "block size" is construed to mean "information that specifies the total amount of data that is to be transferred on the bus in response to a transaction request."

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5. Block Size Information
a. Proposed constructions

The disputed term "block size information" is used in U.S. Patent Nos. 6,032,214 ("the '214 patent") and 6,034,918 ("the '918 patent") and the '120 and '863 patents. Rambus proposes the term be construed as "[a] value representative of a quantity of data to be transferred during a memory read or write operation." JCCS, App. A at 11. Hynix proposes, "information that specifies the total amount of data that is to be transferred on the bus in response to a [transaction] request." Id. The dispute focuses on the amount of data to which the term refers.

b. Claim language

"In Rambus's invention, the user can specify the amount of data to be transferred over the bus during a bus transaction. This value is represented by the term block size [information]." Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL 34138091 at *16. The claims state that "first block size information defines a first amount of data to be output by the memory device onto a bus in response to a read request." '918 patent, cl. 18. The memory device receives the first block size information and responds by "outputting the first amount of data corresponding to the first block size information." Id. Similarly, second block size information typically corresponds to the amount of data to be input in response to a second transaction request. '918 patent, cl. 3.

c. Interpretation

Rambus's first objection to Hynix's proposed construction is that it can be interpreted as requiring the value of "block size information" to be equal to the amount of data to be transferred. If this were the case, for example, then when a request called for 1024 bits of data, the value that conveyed block size information would also have to be 1024. Hynix has allayed these fears by pointing out that "the term specify [in its proposed construction] only indicates that the block size information' is a code that represents the total size of the block of data to be transferred." Hynix at 20; see also Reply at 8 n.2. Hynix also notes that "Rambus's construction is ambiguous in failing to specify that the "block size information' defines a single block of data to be transferred in a single device access. Hynix's proposed construction does not contain this ambiguity and is consistent with the specification." Opp. at 19.

The court finds that block size information must be a value that corresponds to the total number of bits to be transferred. Such a construction comports with the construction of the term by the Eastern District of Virginia and is supported by the claims and the specification. Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL 34138091 at *17 (construing "block size" as "information that specifies the total amount of data that is to be transferred on the bus in response to a transaction request").

Rambus also seeks to clarify in its reply brief that the "total amount" referred to in "block size information" is the data to be transferred from a single device, not from every memory device in a system. Despite Rambus's fear, nothing in the claims, the specification, or Hynix's arguments suggests that "block size information" relates to the amount of data to be transferred from every memory device in a system. Thus, although the court agrees that the intrinsic evidence supports the position that "block size information" relates only to the amount of data to be transferred from a single device, the court does not agree that Hynix's proposed construction is susceptible to the interpretation that "block size information" refers to the amount of data to be transferred from every memory device in a system. "Block size information" is construed as "information that specifies the total amount of data that is to be transferred on the bus in response to a transaction request."

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1. "operating individual blocks of memory cells with non-overlapping portions thereof storing at least user data and overhead information" ('842 pat., cls. 1, 10)

For this claim term, the parties have two disputes: (1) whether the claimed "operation" can be on "one or more" erase blocks or must be on "multiple erase blocks"; and (2) whether there can be only one user data and one overhead portion in an "individual block."
The first issue comes down to a simple question of interpreting the meaning of "operating individual blocks." Does it allow a reading that only one block may be operated upon, or does it require at least two? As defendants point out, the term says "individual," but that word modifies "blocks," which is plural. Defendants argue that in ordinary speech a person might say she is meeting "individual people" and mean only one person, but I find this unpersuasive. "Individual people" is still plural; at most "individual" suggests the "people" may be met one-by-one. At most, "individual" suggests that the multiple "blocks" may be "operated" upon one-by-one. The claim language resolves this dispute: "individual blocks" must be multiple erase blocks.

The second dispute relates to whether each of the claimed "blocks" may contain only one user data and only one overhead portion. Defendants contend that they must, pointing to the claim language itself. Hrg. trans., dkt. #584, at 62. Both claims 1 and 10 describe "nonoverlapping portions . . . storing at least user data and overhead information" and later claim "writing data to, or reading data from" both "the user data portion of the . . . block" and "said overhead portion." The claim's reference to "the user data portion" and "said overhead portion" supports the proposed limitation.

Against this, plaintiff points to claim 16, a claim depending from claim 10. Claim 16 claims "[t]he method of claim 10, wherein the individual blocks include only one user data portion and only one overhead data portion." According to plaintiff, because claim 16 does nothing more than add a limitation to claim 10 that defendants contend is already present in claim 10, claim 16 would be superfluous under defendants' proposed construction. Under the doctrine of "claim differentiation," superfluous claims are to be avoided. ICU Medical, Inc. v. Alaris Medical Systems, Inc., 558 F.3d 1368, 1376 (Fed. Cir. 2009). However, the doctrine of claim differentiation "is not a rigid rule but rather one of several claim construction tools." Id. The doctrine of claim differentiation "cannot alter a definition that is otherwise clear from the claim language, description and prosecution history." O.I. Corp. v. Tekmar, 115 F.3d 1576, 1582 (Fed. Cir. 1997).

In this case, the meaning of the term is "otherwise clear." What the term "nonoverlapping portions . . . storing at least user data and overhead information" leaves unclear is made clear by the surrounding language ("the data portion" and "said overhead portion"). ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088 (Fed. Cir. 2003) (court must consider context of surrounding words of claim when construing term). By using the words "the" to refer to a single user data "portion" and "said" to refer to a single overhead "portion," the claim leaves no doubt that it covers a method involving only one user data portion and one overhead portion.

Although plaintiff contends that language in the specification supports a broader construction, the language it cites does not speak to the number of portions but states only that the "partitioning" between user and overhead portions "need not be rigid" and "the relative size of the various partitioned areas may be logically reassigned. Also the grouping of the various areas is largely for the purpose of discussion and not necessarily physically so." '842 pat., col. 8, lns. 52-57. Although the specification "is always highly relevant to the claim construction analysis," Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005), in this instance it does not suggest that more than one user data or overhead portion is being claimed, and the claim language itself says otherwise.

In summary, the parties' disputes related to this term are resolved as follows: "operating individual blocks of memory cells with non-overlapping portions thereof storing at least user data and overhead information" must include multiple erase blocks and is limited to a single user data and a single overhead portion.

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9. "[A] device layer having . . . a bonded surface . . . being bonded generally in its entirety to the oxide layer" ('812 patent) means that the surface is joined to the oxide layer by bonds created by heat, not by the growth of or formation of a layer. 7

7 The court discusses this limitation at pages 76-78 of its memorandum opinion of the same date.
1. "Bonus." A bonus is a reward or payment in addition to any payout specified by the normal gaming device pay table. A bonus may be awarded to a player whether the outcome on the gaming device is a win, loss, or no outcome at all. See col. 36, II. 37-46 of the '885 patent. Given the patents' explanation of the mystery jackpot, the court disagrees that a player must win a jackpot in order to win a bonus.

2. "Bonus play period" shall be construed as the period during which the bonus promotion is active. See col. 37, II. 5-48 of the '885 patent. The issue is whether there has to be a "specified portion of time" during which the promotion is active. The specification indicates that a bonus can play until the "bonus payout exceeds the bonus pool," which explanation does not indicate a specified period of time.

A. Claim Construction

Fantasy argues that the "bonus points" limitation should be broadly construed to cover any points awarded in addition to those given in an actual football game. Fantasy contends that the plain meaning of the term "bonus" is "anything given in addition to the customary or required amount," and that nothing in claim 1 limits that term to any specific type of additional points. Fantasy also argues that it did not disclaim coverage of all the bonus points discussed in the 1987 article because it distinguished that reference during prosecution on the grounds that it did not utilize a computer and did not disclose the combination of awarding bonus points and using two separate groups of players for scoring purposes. Fantasy further contends that the specification makes clear that the term "bonus points" includes non-scoring plays, such as total yardage, because it states that "bonus points are . . . awarded based upon the difficulty of the play," not the scoring play. Finally, Fantasy argues that the doctrine of claim differentiation dictates that a broader construction must be given to claim 1 because claim 2 limits the definition of the term "bonus points" to "complex or difficult plays," and claim 3 defines that limitation in terms of specific examples, e.g., "extra points for a quarterback who receives or runs for [a] touchdown."

The defendants respond that the term "bonus points" means additional points awarded beyond those given in an actual football game for scoring plays in which a player scores out of position. The defendants argue that the prosecution history clearly shows that the examiner interpreted the "bonus points" limitation to exclude the scoring methods disclosed in the 1987 article, and that Fantasy acquiesced in that interpretation, thus surrendering a broader meaning for that term. The defendants also contend that, reading the specification as a whole, it is apparent that the "plays" that qualify for bonus points are scoring plays, and that therefore the "bonus points" limitation does not include points awarded for total yardage or any other non-scoring statistic. Finally, the defendants argue that the doctrine of claim differentiation must yield where, as here, the specification and prosecution history clearly define the scope of the invention.

We conclude that the term "bonus points" is limited to additional points awarded beyond those given in an actual football game for unusual scoring plays, such as when a player scores in a manner not typically associated with his position. "The words of a claim are generally given their ordinary and accustomed meaning, unless it appears from the specification or the file history that they were used differently by the inventor." Carroll Touch, Inc. v. Electro Mech. Sys., Inc., 15 F.3d 1573, 1577, 27 USPQ2d 1836, 1840 (Fed. Cir. 1993). The specification states that "computerized football points are awarded for touchdowns, field goals, and points after touchdowns. Bonus points are also awarded based upon the difficulty of the play." '603 patent, col. 13, II. 20-23 (emphases added). The term "bonus points" therefore must be construed to mean points that are awarded for a scoring play in addition to the points given for that scoring play in an actual football game.

Furthermore, the prosecution history in this case clearly demonstrates that Fantasy surrendered any interpretation of the term "bonus points" that encompasses the methodologies taught in the 1987 article for awarding additional points beyond those given in an actual football game. In the application that eventually led to the '603 patent, Fantasy set forth a number of
claims that did not include the "bonus points" limitation and cited the 1987 article as prior art in an Information Disclosure Statement. The 1987 article discloses the concept of "fantasy football" and teaches how to organize a fantasy football game played on paper. That article also details a number of scoring methods that may be utilized in tabulating the total points for each fantasy franchise, including but not limited to assigning points for distance scoring and total yardage. The examiner rejected all but three of the claims in Fantasy's application over, inter alia, the 1987 article, and in doing so made a number of comments relevant to this appeal. First, the examiner noted that the "use of a computer to store data previously maintained on paper files is well known," Paper No. 7 at 6. The examiner also stated that "grouping players . . . is obvious since running backs and pass receivers form the offensive line, special teams line backers and defensive backs form the defensive line; and kickers perform kickoffs and field goals, functions which differ from that of both offensive and defensive teams." Id. at 8-9. Finally, and most significant to the present appeal, the examiner rejected application claim 10, which incorporated the "computer" and "grouping" limitations by reference and added the further limitation that additional points are awarded "based upon the number of yards that were involved in the play that received a touchdown," because the 1987 article "discusses [the] use of a distance scoring method in which player scores are a function of the length of the play." Id. at 9. The examiner, however, also stated that claims 13-15, the only claims that contained the "bonus points" limitation at issue, "are found allowable over [the 1987 article] since the examiner fails to find reference to [the] award of bonus points for players of first and second groups in the prior art." Id. at 11. Fantasy, without comment, rewrote application claims 13-15 in independent form as suggested by the examiner, and those claims subsequently issued as claims 1-3 of the '603 patent.

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2 Although the examiner may have misdescribed certain positions in determining that the grouping of players was known in the art, we are satisfied that the examiner adequately understood the concept of grouping players according to position.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Contrary to Fantasy's argument on appeal, the examiner found that the use of a computer to play fantasy football games and the organization of players in a first and second group were either known in the art or obvious therefrom. The examiner's rejection of claim 10 also demonstrates that he found the combination of one or more of those limitations with Fantasy's broad interpretation of the term "bonus points" to be unpatentable. Fantasy acquiesced in those rejections by canceling all claims that did not contain the "bonus points" limitation at issue on appeal, and thus cannot now be heard to argue post hoc that it was the combination of the aforementioned limitations that rendered its invention patentable over the prior art. Fantasy therefore disclaimed any interpretation of the term "bonus points" that encompasses scoring methods described in the 1987 article, including distance scoring and total yardage. See Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 USPQ2d 1673, 1676 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.") (citations omitted).

Fantasy's argument that the specification broadly defines the term "bonus points" to include non-scoring plays, such as total yardage, is not persuasive. Aside from the fact that the prosecution history defines the contours of the "bonus points" limitation, the portion of the specification cited by Fantasy must be read in context. The sentence "bonus points also are awarded based upon the difficulty of the play," id. at ll. 22-23 (emphasis added), uses the word "play" in the context of the preceding sentence. That sentence states that "points are awarded for touchdowns, field goals, and points after touchdowns," id. at ll. 20-22, all of which are scoring plays. Moreover, the specification makes clear elsewhere that only certain types of unusual plays are encompassed within the "bonus points" limitation, including, e.g.,: (1) when a quarterback "receives a pass or runs for [a] touchdown," '603 patent, col. 13, ll. 44-45; (2) when a running back "throws or receives a touchdown pass," id. at ll. 45-46; (3) when a wide receiver "passes the ball or runs for [a] touchdown," id. at ll. 47-49; (4) when a "fumble . . . results in [a] touchdown[.]," id. at ll. 44-45; or (5) when a "lateral recovery is made in the end zone," id. Accordingly, in light of the specification and the prosecution history, we interpret the "bonus points" limitation to mean additional points awarded beyond those given in an actual football game for unusual scoring plays, such as when a player scores in a manner not typically associated with his position.

Finally, Fantasy's claim differentiation argument is without merit. The doctrine of claim differentiation creates only a presumption that each claim in a patent has a different scope that "can not broaden claims beyond their correct scope." Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368, 53 USPQ2d 1814, 1818 (Fed. Cir. 2000) (citation omitted). Although claims 2 and 3 attempt to further define the term "bonus points," that presumption is overcome by Fantasy's disclaimer of
subject matter in the prosecution history. See 203 F.3d at 1368-69, 53 USPQ2d at 1818-19 (determining that any presumption arising from the doctrine of claim differentiation was overcome by the written description and prosecution history). Consequently, the "bonus points" limitation must be given the same scope in all of the claims of the '603 patent.

We therefore conclude that the "bonus points" limitation must be construed to mean additional points awarded beyond those given in an actual football game for unusual scoring plays, such as when a player scores in a manner not typically associated with his position.

33. Boolean . . . mathematical operation

The court construes "Boolean . . . mathematical operation" as follows: "A Boolean operation is an operation that applies formal logic (for example, AND, OR, NOR, etc.)."

(2) Boot Portion/Program Portion/Data Portion

Both sides seem to agree that "boot portion," "program portion" and "data portion" all relate to the parts or components of the non-volatile memory. And rightfully so. The language of the claims makes clear that these three "portions" all relate to the non-volatile memory (claim 2 discloses "[t]he method of claim 1, wherein said non-volatile memory further comprises a boot portion, a program portion and a data portion," id., col. 29, lines 31-33; claim 26 discloses "[t]he IED of claim 19, wherein said non-volatile memory further comprises a boot portion, a program portion and a data portion," id., col. 31, lines 7-9). The dispute about these terms centers on whether they necessarily involve an integrated flash memory.

Square D argues that "boot portion" means that "part of the non-volatile memory containing the boot or startup code"; "program portion" means "a part of the non-volatile memory containing program code"; and "data portion" means "a part of the non-volatile memory containing stored data." On the other hand, EI argues that "boot portion" should be construed to mean "flash memory integrated with the processor that provides storage for code executed by the processor during processor startup"; "program portion" means "flash memory integrated with the processor that provides storage for program code"; and "data portion" means "flash memory integrated with the processor that provides storage for data."

To be sure, the specification does speak in terms of a processor containing "integrated flash memory divided into three different types . . . Program flash memory 1915 provides storage for the main program code. Boot flash memory 1925 provides storage for the program code that executes during processor startup. Data flash memory 1960 provides storage for data." U.S. Patent No. 6,745,138 B2, col. 11, lines 57-64. But nothing in the specification requires that the non-volatile memory be flash memory. Indeed, the specification specifically instructs that "in the foregoing discussion, flash memory could be replaced with other types of non-volatile memory such as battery backed SRAM, ferro-electric RAM ("FRAM"), etc." Id., col. 28, lines 40-43. Thus the Court will not limit these claims as EI urges. Rather, the Court construes "boot portion" to mean "the part of the non-volatile memory containing the boot or startup code"; "program portion" to mean "the part of the non-volatile memory containing program code"; and "data portion" to mean "the part of the non-volatile memory containing stored data."

Claim 1 of the '440 patent provides:

A method for controlling access to a computer having a central processing unit (CPU), the CPU executing a boot program to initialize the computer, the method comprising the steps of: following power-up clear or reset of the CPU,
interrupting execution of the boot program; and loading a verification program from a nonvolatile dedicated memory; upon attempted access by a user,

executing the verification program to determine whether the user is authorized to access the computer: if the user is authorized, completing execution of the boot program and providing access to the computer; and if the user is not authorized, denying the user access to the computer.

('440 patent, 7:46-63.) (Emphasis added.)

Claim 1 of the '981 patent provides:

A method of operating a computer having a central processing unit, the central processing unit executing a boot program to initialize the computer, the method comprising the steps of:

a) prior to completion of the boot program, acquiring control of the central processing unit;

b) loading a verification program;

c) upon attempted access by a user, verifying that the user is authorized using the verification program; and

d) controlling access to the computer by monitoring system calls.

('981 Patent, 17:62-18:5.) (Emphasis added.) The language critical to this dispute has been emphasized. Because the same disputed term "boot program" is used in claim 1 of the '440 patent and claim 1 of the '981 patent, the court will discuss the term as it is used in both patents. Given that the '440 and '981 patents are related, share the same priority date, and are both a continuation of the '497 patent, the disputed term must have a consistent meaning across both patents. See Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979-80 (Fed. Cir. 1999).

C. Construction of "Boot Program" in the '440 and '981 Patents

Claim 1 of the '440 patent indicates that the security method of controlling access to the computer must "interrupt[] execution of the boot program," and only if the user is authorized does the computer complete execution of the boot program. Similarly, claim 1 of the '981 patent indicates that the security authorization must occur "prior to completion of the boot program." The patents give no special meaning to the term "boot program," and the term does not appear anywhere else in the specification of either patent.

Digital Privacy submits that "boot program" simply equates to "boot process," or the series of programs involved in the process of booting a computer from a power off or reset state to a state at which the user interface is presented. Digital Privacy contends a verification program interrupts the boot program if it occurs at any point from power off until the user has complete access to the computer after the operating system is fully loaded and executed. (Digital Privacy's Markman Br., at 6.)

RSA argues the term "boot program" is a term of art that ordinarily has the specific, narrow meaning of "a short computer program that is permanently resident or easily loaded into a computer and whose execution brings a larger program, such as 1) an operating system or 2) its loader, into memory." (RSA's Markman Br., at 15-16.) RSA contends that outside the context of the patents at issue, the term of art "boot program" can refer to either the BIOS 3 boot program, whose execution loads the boot loader program into memory, or the boot loader program, which is loaded from the boot record and loads the operating system. In the context of the technology description in the patents, however, RSA submits "boot program" can only refer to the BIOS boot program.

------------------- Footnotes -------------------

3 BIOS is an acronym for Basic Input/Output System.
After careful review of the intrinsic evidence presented in the claims, specifications, and prosecution histories of the '440 and '981 patents, the court construes the disputed term "boot program" to mean the BIOS boot program. The patented invention is a means of providing the maximum level of computer security against unauthorized users, which is accomplished by prohibiting access, and even power, to any peripheral or internal device of the computer system until after a user has been authorized to have access to that peripheral or internal device by a verification program.

As further discussed below, the intrinsic evidence clearly indicates that the central processing unit (CPU) does not turn on power to any peripheral or internal device until after the verification program has verified the authenticity of a user. Given that the verification program must interrupt the boot program ( '440 patent), or occur prior to completion of the boot program ( '981 patent), and given that the computer peripherals do not have power until after the verification program is complete, the "boot program" in the patents must be complete prior to any step in the boot process that requires power to a computer peripheral. Because the hard drive is one of the peripheral devices that lacks power before the successful completion of the verification program, and because the operating system is loaded and executed from the hard drive, the "boot program" in the patents must be completed before the operating system is loaded and executed from the hard drive.

4 The operating system can also be loaded from other peripherals, such as a floppy disk drive or a CD-ROM drive. However, the CPU does not turn on power to any of the peripherals before the verification program authorizes the user.

Under Digital Privacy's construction of "boot program," the verification program can occur at any point during the "boot process." However, the "boot process" includes loading and executing the operating system from the hard drive, or another peripheral device such as a floppy drive. The patents indicate there is no power to any peripheral or internal devices until after the verification program has been successfully run. Therefore, "boot program" as it is used in the patents cannot include any action by, or access to, a peripheral or internal device, including the loading of the operating system from the hard drive.

5 Furthermore, the court notes that claim 5 of the '981 patent specifies:

The method of claim 1, wherein the step of controlling access to the computer comprises the steps of: monitoring and storing system calls made by the central processing unit while loading the verification program; and if the user is verified as an authorized user, booting the computer system;…

Reading claims 1 and 5 together indicates that the computer system is booted after the boot program is interrupted to run the verification program. Boot program and booting the system are not used as equivalent concepts.
port, parallel port, and internal modem depending on the configuration of the secure computer system."

( '440 patent, 6:4-11; see also '440 patent, 4:23-30.)

Likewise, in the '981 patent, the "Summary of the Invention" explains that the verification program determines whether the user is authorized to use the computer. Then, once the user is authorized, the CPU specifies which peripherals the user is authorized to access. ( '981 patent, 2:44-46). In other words, only after a user is verified, "the CPU is allowed to access all peripherals the user has been authorized to use." ( '981 patent, 2:55-59.) These statements clearly indicate that a user does not have access to any peripherals until after authorization by the verification program. The detailed specifications confirm this understanding of boot program. (E.g., '981 patent, 4:55-63, 6:35-49).

The '981 patent explains the initialization of the secure computer system as follows. First, when the computer is initialized, such as by a power up, clear, or warm boot reset, the standard computer BIOS determines the system configuration. ( '981 patent, 12:44-53.) Second, when the BIOS boot program attempts to load the boot loader program from the hard drive, the invention in the patent intercepts the attempted read of the boot loader program from the hard drive and directs it to a ROM 6 that simulates the hard drive. This ROM contains boot loader program code and the verification program. ( '981 patent, 12:65-13:13.) In a computer not equipped with this security invention, the BIOS boot program is complete after the boot loader program has been loaded from the hard drive. The computer then begins the operating system load. However, in a computer equipped with this security invention, prior to completion of the boot program, i.e., before any loader program has been read from the hard drive, the verification program is loaded and run.

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6 ROM is an acronym for Read Only Memory.

--- End Footnotes ---

Third, and most important for the construction of "boot program" as it is used in claim 1, the '981 patent specifies that if all required steps of the verification program are successfully completed, "the CPU will then boot from hard drive 113 in order to execute the disk operating system for secure computer 110." ( '981 patent, 14:62-66). The patent unequivocally states that the operating system is loaded from the hard drive after the verification program is complete. This description confirms that the only boot program that can be interrupted in claim 1 of the invention is the BIOS boot program.

The prosecution histories of the patents also demonstrate that the "boot program" in the claims is less than the entire chain of programs required to bring the computer to a state where it can accept input from a user. In the initial application for the '497 patent, filed June 4, 1992, the applicants stated the computer peripherals were powered off until the user was authorized to use the secure computer. (Def. Ex. 4A, at P019423, P019431.) In an amendment to the '497 patent application, filed October 28, 1993, the applicants distinguished their invention from a prior art reference, the Dykes invention (United States Patent Number 4,797,928), by telling the Patent and Trademark Office Examiner that their invention differed from the Dykes invention because they use a CPU system boot ROM that "controls BIOS routines." (Def. Ex. 4G, at P019628.) In the '440 patent prosecution, the applicants again stated that the CPU does not turn power on to any computer peripheral, including the hard drive, until after the verification program has run. (Def. Ex. 5A, at P019963, P019971.) In the '981 patent prosecution, the applicants indicated that a user cannot access any peripherals until after the user is authorized by the verification program. (Def. Ex. 7A, at P020281, P020282.) The applicants repeatedly refer to a "secure hard drive," which implies the invention keeps the hard drive secure until after the verification program authorizes a user. (E.g., Def. Ex. 7A, at P020287.) The applicants discuss how their invention simulates a hard drive during the BIOS boot program, and actually intercepts and redirects the BIOS boot program's attempted read of the boot loader program from the hard drive. (Def. Ex. 7A, at P020291, P020299.)

In the October 2, 1995, Preliminary Amendment to the '981 patent, the applicants clarified claim 1, which had previously read "A method of operating a computer comprising the steps of: a) prior to boot, acquiring control of the CPU..." to read instead "A method of operating a computer having a central processing unit, the central processing unit executing a boot program to initialize the computer, the method comprising the steps of: a) prior to completion of the boot program, acquiring control of the central processing unit [CPU]...." (Def. Ex. 7B, at P020374.) (Emphasis in original.)

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clarification indicates the inventors originally described their invention as a security measure occurring "prior to boot" of the computer. Such a description stands in stark contrast to Digital Privacy's current proposed construction that the verification program can run at any point in the boot process.

The titles of both patents use the description "Preboot Protection," which is a further indication that the invention was for a computer security system that prevented access before the computer was booted.

For the reasons stated above, the intrinsic evidence makes clear the term "boot program" in claim 1 of the '440 patent and claim 1 of the '981 patent means the BIOS boot program. Even though the intrinsic evidence is unambiguous, the court notes that extrinsic evidence presented during the Markman hearing and in the Markman briefs is consistent with the court's construction of boot program. The court admitted extrinsic evidence to understand the language in which the patent is written and to give the court a familiarity with the terminology of the art to which the patent is addressed. See Markman, 52 F.3d at 986. Although such extrinsic evidence supports the court's construction of the disputed term "boot program," it is not necessary to determine the meaning or scope of the term. See Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed. Cir. 1995).

RSA's expert stated at the hearing that both patents describe an interruption of the BIOS boot program's access to the hard drive. Deposition testimony of two of the named inventors supports the conclusion of RSA's expert. Mr. Joseph Kimlinger stated that the patented invention was to "inhibit" or "block" access to the hard drive. (Def. Ex. 53, at 121; see also id. at 80-84, 123-24.) Mr. David Mooney explained that "the way our patent worked was to - basically at power-on, we took control of the entire system prior to any operating system being loaded." (Def. Ex. 54, at 61.) Although both of Digital Privacy's experts stated at the Markman hearing that figure 7A of the '981 patent did not show an interruption of the BIOS boot program, that testimony contradicted the testimony each of the two experts had given in their depositions. Furthermore, at the Markman hearing, both Digital Privacy experts confirmed that there is no embodiment, example, or description in either patent that shows any access to the hard drive before the verification program is run.

The court found RSA's expert, Dr. Paul Clark, to be quite credible, particularly as an expert on computer hardware and the computer security industry, and more credible than either of Digital Privacy's experts, Mr. Peter Bartoli and Mr. Thomas Beretvas. Mr. Bartoli described his expertise as more oriented to software than hardware, and more oriented to network security than physical security, even though he stated the patents are directed to hardware designers of physical security systems. Mr. Beretvas stated he is not an expert in personal computer operating systems or computer security issues and had never heard the term "boot program" or "preboot" prior to the case.

For example, in the November 1, 1996, Business Summary of Integrated Technologies of America, Inc., the company touts itself as having the "only patented PRE-BOOT security system" that uses smart cards. This security product "controls BIOS; it is not controlled by BIOS!" (Def. Ex. 27, at P013787-88, P013790). The company also makes this claim in a December 1996 White Paper and a January 1997 White Paper ((Def. Ex. 28, at P001.771-72; Def. Ex. 30, at P013958-60). The 1996 Business Summary claims an advantage over other computer security products because with Integrated Technologies's products "control of the system cannot be booted from the floppy drive or the hard drive" without the smart card verification. (Def. Ex. 27, at P013800.) As a final example, the Windows 95 user's guide to one of Digital Privacy's products claims "we have the patent on pre-boot protection, meaning only [this product] can stop intruders before DOS or Windows is even loaded! They can't even get the system booted!!" (Def. Éx. 29, at P016084.)

The court can look at extrinsic evidence to demonstrate the state of the prior art at the time of the invention. Markman, 52 F.3d at 980. RSA's expert witness, Dr. Paul C. Clark, explained some of the security concerns for personal computer owners in the early 1990s when plaintiff first applied for the patents. At that time, computers would always attempt to boot first from the floppy drive, and second from the hard drive. Therefore, unauthorized users could bypass security systems stored...
on the hard drive by booting from the floppy drive. In both the '440 patent and the '981 patent, Digital Privacy specifically stated that one of the problems in the computer security field that its invention addressed was the vulnerability to bypass. ( '440 patent, 1:48-51; '981 patent, 2:9-11.) Digital Privacy's invention avoids the bypass problem because only authorized users can ever access the hard drive.

A. Boot Selection Flag

The parties dispute as to the meaning of the phrase "boot selection flag" centers around whether the phrase "boot selection flag" encompasses several different values in the partition table or is limited to the system ID byte of the first partition. The method step provides for the test to determine an automation or normal boot sequence to read a boot selection flag and comparing it with a known flag setting. "Boot selection flag" is not a phrase commonly used in the computer industry. However, in the embodiment of the invention in the specification the system ID byte is used as the boot selection flag.

Symantec relies on the claim language's use of the singular form of flag to assert that the boot selection flag must be one value. On the other hand, Altiris claims that a flag is commonly known as one or more bits of data used as a signal. Therefore the claim language's use of the singular form for "boot selection flag" could still be consistent with an interpretation that the "boot selection flag" is several values in the partition table. Because both interpretations are possible from the language used in the claim, this court must refer to the specification for guidance.

Symantec relies on the fact that the system ID byte of the first partition is used in the embodiment to assert that such a limitation would be consistent with the claim's use of the singular form for "boot selection flag" and should be imposed on the claim. Symantec also claims that nothing in the specification indicates that the "boot selection flag" was intended to encompass anything else. Altiris argues that the patent specification explicitly discloses that other entries in the partition table can be used as a boot selection flag. Altiris relies upon language from two places in the specification stating: "The customized MBR code examines the partition table flags (a small database contained within the MBR which specifies the location and type of partitions on the disk) to determine which of the four partitions to load and execute;" and "The custom MBR code examines the flags in the partition table to determine which partition is to be loaded and executed. This step of the process of the invention is a test of whether an automation boot or normal boot should be implemented." '593 Patent at col. 4, lines 7-10; col. 6, lines 1-5. Altiris claims that this language supports its position that the boot selection flag can be the collection of the bootable/non-bootable entries in the partition table that indicate what boot sequence will occur (referred to as bootable flags).

However, the specification also refers several times to a "special flag" in the singular. The specification states that "when the MBR code again gains control, it recognizes the special flag and causes the 'normal' operating system to boot. Before booting the 'normal' operating system, the MBR code resets the special flag, so that next time the computer boots, it will be directed to again boot from the automation partition." Id. at col. 4, lines 39-43.

Although it appears that the specification refers to both flags and a flag, this court concludes that because the singular form of flag is used in both the claim and the specification and the embodiment in the specification uses single value of the system ID byte of the first partition as the boot selection flag, the claim should be limited to the singular boot selection flag identified in the embodiment. See Wang Labs., Inc. v. America Online, Inc., 197 F.3d 1377, 1381-83 (Fed. Cir. 1999) (limiting term to system used in the specification because it was the "only system that is described and enabled in the specification and drawings"); Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301-02 (Fed. Cir. 1999) (limiting term to its consistent description in the sole embodiment). The patent does not give a clear indication that anything other than the system ID byte could be used as the boot selection flag. The portions of the specification relied on by Altiris do not constitute additional embodiments of the invention and the patent does not teach one of ordinary skill in the art to use anything other than the system ID byte. Therefore, defining the boot selection flag as a collection of the bootable/non-bootable entries in the partition table is too broad. Reviewing this phrase in the full context of the patent, this court concludes that the phrase "boot selection flag" should be construed to mean the system ID byte of the first partition.
In its initial decision, the administrative law judge adopted P&S's proposed claim construction for the disputed term, "mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals." The administrative law judge found that the claim was satisfied if either of the two contacts was moved into a spaced, circuit-breaking second position, because collectively, "both" contacts would be in a position that resulted in the circuit breaking.

The administrative law judge also adopted P&S's proposed construction of the disputed term, "a unitary, electrically conducting member carrying a pair of spaced electrical contacts." The term was construed to mean "a member that provides an electrical current carrying path between two or more spaced contacts." The administrative law judge found that this construction was consistent with the specification and rejected defendants' argument that the structure be limited to a "buss bar." A buss bar is an I-shaped component known in the electrical engineering field and depicted in the patent as an embodiment of the claimed member.

On review, the Commission found that the administrative law judge's constructions did not give meaning to the claim limitations that "both" contacts be in a spaced, circuit-breaking second position and that the electrically conducting member be "unitary" and "carry" the pair of spaced contacts. The Commission found that the plain language of the claim required a construction of "both" that was not satisfied by the movement of only one contact. See Commission Op. 2009 ITC LEXIS 525 at *13. It also found that the specification required construing "unitary" to mean that the member was a single, continuous piece and that both contacts are disposed on the same member. See 2009 ITC LEXIS 525 at *9-*10.

Based on its modifications to the administrative law judge's claim constructions, the Commission reversed the administrative law judge's initial decision and held that the products did not infringe the '398 patent. The Commission noted that only one of the contacts in the accused devices moves into a spaced, circuit breaking second position, and that the electrical contacts for some of the accused products are carried on separate metal plates connected by a braided wire.

We agree with the Commission that the proper construction of the term "mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals" requires that each of the contacts moves from its first position into a spaced, circuit breaking relation with respect to each of its respective terminals.

P&S argues that the claim should be interpreted to simply require that the contacts in the second position be spaced such that the circuit is broken. According to P&S, this limitation would be satisfied as long as either one of the contacts was moved into spaced, circuit-breaking position, since "both" contacts collectively would be in a "second position" that results in the circuit breaking.

We reject this argument. The plain language of the claim requires that both of the pair of contacts move into spaced, circuit-breaking relation to the terminals. If P&S wanted its claim to read on devices where only one contact moved into spaced, circuit-breaking relation to the terminals, then it could have written its claim to read, "wherein at least one of said pair of contacts is in spaced, circuit-breaking relation to said pair of terminals."
Plaintiff's Proposed Construction:

Function - Comparing a set of stored unique identification characteristics codes with the codes derived from the live digitized impressions of the live body part to establish identity of both the inputs.

Structure - One or more components (such as a computer) adapted to comparing a set of stored unique identification characteristic codes with the codes derived from the live digitized impressions of the live body part to establish a match or no match situation.

Defendants' Proposed Construction

The phrase is indefinite for at least the following reasons: (1) the term "both the inputs" lacks antecedent basis, and (2) there is no corresponding structure in the specification for "comparing . . . to establish identity of both the inputs" because the specification describes, at most, using one set of codes to establish the identity of another set of codes.

The plain language of the claim establishes that the function of this clause is to compare the identification code derived from a live impression to that of the stored identification code to determine whether the two codes match. Defendants argue that this clause fails for indefiniteness because: (1) there is no antecedent basis for the phrase "both the inputs," and (2) there is no corresponding structure to carry out this function.

1. "Both the Inputs"

A claim term should be given the ordinary and customary meaning "that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id. The language of the Fifth Clause itself provides antecedent basis for the phrase "both the inputs." It explains that the program will compare a set of stored identification characteristic codes (e.g., codes stored on the magnetic strip of a credit card), with codes derived from a live impression. Therefore, from simply reading the claim, one skilled in the art would understand that "both the inputs" refers to the stored code and the code derived from the live impression. Furthermore, when the claim is read in the context of the entire patent, including the specification, it is clear that "both the inputs" refers to the stored code and the code derived from the live impression. See '474 Patent at 12:10-20. The phrase "both the inputs" therefore has antecedent basis in both the claim and the specification, and is not indefinite.

2. Structure

Plaintiff argues that both the claim and the specification teach one skilled in the art how to compare the inputs and describes the structure for doing so. For example:

In comparing a live biological characteristic to that of the stored unique biological characteristic identification code, the program finds on the live scanned image the same type of biological characteristics. If the biological characteristics are found, the program then checks to see if they are in the same relative location. If the predetermined number of biological characteristic identification codes match, then the computer program indicates a match condition. If the predetermined number of biological characteristics do not match, then the computer program indicates a no match condition.


From the language cited above, it is clear that the stored code is used to identify the live code. In other words, one input is used to establish the identity of the other input. Defendants argue, however, that there is nothing in the specification which discloses a structure for identifying both the inputs separate and apart from each other, which Defendants allege is what Clause Five requires. This technical argument misconstrues the plain language of the claim.

Clause Five provides a means for comparing the stored code with the live code to "establish identity of both the inputs," or stated differently, to find a match among both the inputs. 2 From a plain reading of the claim, the function recited by Clause Five is not, as Defendants allege, to establish the identity of each input separate and apart from the other. Rather, the
function is to compare two inputs, the input from the stored information and the input from the live impression, to establish a match. With this understanding, the language of the specification recited above, clearly discloses the structure for performing this function. See id. Therefore, Clause Five of Claim Two does not fail for indefiniteness.

2 At oral argument both parties agreed that the words "establish identity" in Clause Five means "finding a match."

432

9. "the telephone wiring network includes a branch network which couples one of the plurality of telephone devices to the telephone network telephone network [sic], and the branch network includes circuitry for preventing transmission of signals in the high frequency band to one of the telephone devices on the branch network": the branch network is part of the telephone wiring network.

Defendants propose "branch network" be defined as "[a] path of electrical wiring and/or circuitry that includes a slit off a main conductive path and is defined by wiring topology independent of physical enclosures." n40 Defendants assert that "[t]he plain meaning of 'branch network' in the context of the asserted claims is a network of wiring that includes a split off of a main conductive path." n41 Defendants provide no support to this purported "plain meaning" other than extrinsic evidence in the form of the deposition testimony of Inline's expert, Dr. Beckmann. Inline proposes that "branch network" be defined as "the local network of telephone wires internal to a residence or other structure where telephone devices are located." n42 Inline supports its proposed definition by citation to the language of claim 61 of the '596 patent; language from claim 1 of the later-issued '585 patent (directed at a "branch conductive path"); and language from the common specification defining "local networks." n43

n40 D.I. 439 at 32.
n41 Id.
n42 D.I. 480 at 5.
n43 Id. at 38-39.

The parties have not cited, and the court has not found, specification discussion of "branch network." The intrinsic and extrinsic "evidence" cited to the court does not clearly support the parties' competing constructions. Therefore, consistent with the language of claim 61 of the '596 patent, the court determines the "branch network" is part of the telephone wiring system.

433

I. BRIDGE

This term "bridge" appears throughout the claims and specification of the '788 patent. The parties propose the following constructions:

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
</tr>
</thead>
</table>

- 899 -
Bridge: Component(s) for communicating between two or more buses each using different interface standards.

Term: MCT's proposed construction
Bridge: Device that converts electrical signals between different domains in the form understood by the receiving domains, through which each signal travels over a fixed path.

MCT asserts that there is no support in the patent for DisplayLink's proposed construction that a bridge is a device used to communicate between two buses. DisplayLink asserts that MCT's proposed construction is not necessarily wrong but that it lacks clarity.

Claim 1 of the '788 patent claims

a bridge disposed external to the computer and connecting the USB controller and the VGA controller one to the other for the passage of the data therebetween, the bridge receiving the bus control command and issuing a first-in-first-out control signal to the USB controller to receive the USB based display signals from the USB controller in a first-in-first-out manner, the bridge circuit converting the USB based display signals into corresponding VGA signals and forwarding the VGA signals to the VGA controller which in turn applies the VGA signals to the display device.

Id. at 5:1-11; see id. at 6:45-56. Thus, the function of the bridge is to convert USB based display signals into corresponding VGA signals. Figure 1 of the specification shows the bridge being between the VGA controller and the USB controller. The specification states that "[t]he bridge that is connected between the USB controller and the VGA controller receives the USB based display signals from the USB controller in a first-in-first-out (FIFO) manner and converts the USB based display signals into corresponding standard VGA signals . . . ." Id. at 2:33-36. Thus, as the claim states and the specification supports, the bridge receives a "bus control command." Id. at 5:1-11.

Further, while the claims do not specifically state that the bridge connects to a second bus that exists between the bridge and the VGA controller, Figure 2 of the patent shows the bridge connecting to the VGA controller via a PCI or AGP bus. Additionally, the patent specification states that "Fig. 2 is a block diagram of a bridge circuit of the USB-to-VGA converter of the present invention." Id. at 2:4-5. Thus, the specification confirms that the bridge also connects to a second bus.

Accordingly, the court adopts DisplayLink's proposed definition and construes the term "bridge" as follows:

Component(s) for communicating between two or more buses each using different interface standards.

GO BACK

434

1. "Bridging node" (‘366, Claims 5, 19, 21; ’311, Claim 16) 25

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

25 It is undisputed that the ’366 and ’311 patents should be construed together because they are, for all relevant purposes, identical. (R. at 40 (May 6, 2004).)

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

The parties agree that a bridging node is a non-terminal or intermediate node in a network but disagree as to whether the term also serves a customary function within the network that should be included in its construction. Broadcom argues that bridging nodes had a customary meaning at the time of patenting and offers as support a "word search conducted on the USPTO website," which discloses twenty-two patents using that term. (Acampora Rep. at 5-6.) This evidence, however, provides little support to Broadcom, as it indicates nothing about how these patents define the term at issue, much less
whether they each use it in the manner that Broadcom proposes. 26 In contrast, Agere notes that no dictionary or treatise extant at the time of patenting contained a definition of "bridging node" and that a Special Master in a prior federal lawsuit has found, through exhaustive analysis, that the term at issue had no customary meaning. (Goodman Rep. PP 119-20; Agere Resp. Ex. 18 at 44 (ST Microelectronics, Inc. v. Broadcom Corp., Civ. No. 02-362, Special Master's Report and Recommendation on Claim Construction (E.D. Tex. Dec. 31, 2003)).) This Court finds the Special Master's reasoning, in combination with the lack of meaningful evidence supporting Broadcom's argument, persuasive and holds that "bridging node" did not have a customary meaning to persons of skill in the art at the time the patents were issued.

26 Broadcom cites language from four of these patents that allegedly supports its definition, but such support is tenuous at best. For example, patent 4,644,468 uses bridging nodes to, inter alia, "reformat" data. See U.S. Patent No. 4,644,468, col. 3, l. 66-col. 4, l. 3. This is substantially different from the mere "repeating" function that Broadcom proposes.

In the absence of a customary meaning, Agere urges the Court to adopt in full the construction given by the Special Master in the Texas litigation. 27 There are three aspects, however, in which this definition appears deficient. First, the Special Master defined "bridging node" as a node "that is used to bridge." This is, of course, circular. Instead, the Court finds that "bridging" means to relay messages, a definition that, although Agere contends it is incomplete, neither party claims is incorrect. (Cf. Goodman Rep. P 133 (arguing that bridging node is not limited to relaying function; see also infra note 29).) Second, the Special Master found that a bridging node is a node "in a tree." As Broadcom notes, this appears to refer to an embodiment of the invention that uses the spanning tree topology. 28 This embodiment is set out in dependent claim 8, which describes the "bridging devices" of the "communication network" of claims 7 and 5 (wherein the bridging nodes are claimed) as "participating in spanning tree routing." Therefore, if the bridging nodes of claim 5 were limited to spanning tree embodiments, claim 8 would be rendered superfluous. Such a construction would violate the doctrine of claim differentiation, which generally requires courts to avoid construing a claim in a manner that would render another claim superfluous. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004) ("Where the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest."). Thus, the Court rejects the "tree" requirement in Agere's proposed construction. Finally, the Special Master's definition contains a second and distinct sentence that sets out two additional functions of the bridging node: "a network interface function" and "a routing function." These functions are mentioned solely in the "spanning tree" embodiment discussed above ('366 patent, col. 8, l. 54-col. 9, l. 3), and therefore cannot properly be used to limit the broader claim term.

27 Agere also raises a collateral estoppel argument. This argument fails because, inter alia, the parties to the first suit apparently settled their claims before the district court could approve the Special Master's report. (Agere Supplemental Br. at 5.)

28 Agere argues that its construction refers only to a "tree," while the preferred embodiment discusses a "spanning tree." This argument, however, is belied by the fact that the second sentence of Agere's construction is taken verbatim from the "spanning tree" preferred embodiment, as discussed below.

In sum, the Court will modify Agere's proposed construction by striking the references to "tree," "network interface," and "routing," and by replacing "bridges" with "relays." The resulting construction is: "A non-terminal node that relays messages in an interconnected network." 29

29 Dr. Goodman opines that this definition is inappropriate because it describes a "repeater," and that the patentee distinguished between repeaters and bridging nodes in the prosecution history. What the prosecution history demonstrates, however, is that the patentee amended his application to replace the term "repeater" with the term "base station," while also
adding the "spanning tree" preferred embodiment, including the bridging node language at issue. (Compare Agere Resp. Ex. 23 at 18, with Agere Resp. Ex. 57 at 17-18.) Not only does this set of amendments fail to imply any particular relationship between "repeater" and "base station"--the latter could have been substituted because it was a synonym or, alternatively, because it had a different and more accurate meaning to the patent than the former--it also fails to support any conclusion regarding the relationship between the deleted "repeater" and the added "bridging node" language.

--- End Footnotes ---

435

a. a storage for storing the previous brightness level

The parties agree that the term "storage" refers to a "memory." D.I. 1388 at P 390; D.I. 1387 at 23. The parties dispute the meaning of "brightness level." LGD contends that "brightness level" means a "gray scale value or luminance value" and proposes that the phrase "a storage for storing the previous brightness level" be defined as "memory that temporarily holds the brightness level of the video signal received from the host through input logic for the previous time increment." Id. at P 394. AUO contends that the term "brightness level means "a level of intensity of light," and therefore, the term "a storage for storing the previous brightness level" should be defined as "memory for storing a previous level of light intensity of a video signal input through input logic." D.I. 376 at Exh. M-2.

After reviewing the claim language in light of the specification, the Court concludes that "brightness level" means a "level of intensity of light." This construction is consistent with the specification which explains that brightness "should be considered in terms of the quantity of light." AUO-5 (160 patent) at col. 8, ll. 32-35. While it is true that the specification suggests that a "brightness level can be represented as a target brightness by a gray scale," the Court does not read the specification to limit the representation of a video signal's brightness level to "gray scale values." Id. at col. 3, l. 67.

436

1. Broad Band Information

Broad band information is information that requires high bandwidth for transmission relative to the available bandwidth of the transmission channel or medium considering temporal requirements. In the context of the '484 patent, the term "broad band information" may refer to any image.

437

A. "broadcast"

Claim 56 of the 553 patent provides:

A method of adding a graphic indication of a first down to a video of a football game during a broadcast of said football game, comprising the steps of . . .

Sportvision contends that the term "broadcast" does not need to be construed.

SportsMEDIA contends that the Court should define "broadcast" as "distribution of video content." (Defendant and Counterclaimant's Memorandum of Points and Authorities in Opposition to Plaintiff's Markman Memorandum on Claim Construction, hereafter, "SportsMEDIA's Memo," Docket Item No. 178, at 11.).

In response to SportsMEDIA's proposed construction, Sportvision contends that if the Court is going to construe the term, it should be construed to mean, "transmission for public use." (Sportvision's Markman Memorandum on Claim Construction,
The noun "broadcast" appears in many places in the specification of the 553 patent. Generally the term is used in the context of (a) "... broadcast of a live event ..." or (b) "... broadcast of a target at a live event ..." 553 patent, 2:15-17. The common definition of the term is, "a wide-spread distribution." SportMEDIA's proposed construction is more limiting than the common definition of the term.

The Court gives the noun "broadcast" its commonly understood meaning: "A wide-spread distribution."

Lucent contends that this phrase means "a message sent to a group of devices." (D.I. 396 at 32.) In support of its contention, Lucent cites several telecommunications dictionaries published between 1984 and 2001. (D.I. 396 at 34-35.)

Extreme contends that this phrase means "a connectionless message addressed to all of the other nodes in the network." (D.I. 395 at 32.) Extreme cites the IEEE Standard Dictionary of Electrical and Electronics Terms published in 1988 in support of its construction. (D.I. 399 at 33.)

Foundry contends that this term means "a message that is sent to all nodes in the network." In support of its contention, Foundry cites the Abstract section of the patent specification and the prosecution history. (D.I. 385 at 31.)

The Court is not persuaded that the dictionaries cited by Lucent are the appropriate sources for defining "broadcast message" as it was used in data networking at the time the '607 patent application was filed in 1990. Further, the definitions proposed by Lucent and Extreme are conflicting. Thus, the Court will look to statements made in the specification and prosecution history to choose between these competing dictionary definitions.

In the Abstract section of the specification, the patent indicates that "[a] facility is provided in a data network to prevent a so-called connectionless broadcast message from flooding the network as a result of each network node retransmitting such messages to its neighboring nodes even though a neighboring node may have received them from another neighbor." In the Background of the Invention section of the specification, the problem that the patent purportedly addresses is the "failure in the provision of connectionless service in a network of communications nodes arranged in an arbitrary topology [to] route, in an efficient manner, a broadcast message from a source node to each of the other nodes." ('607 patent at 1:14-16.) In the Detailed Description of the specification, the patent uses the term "broadcast" and "connectionless" interchangeably, and seeks to "ensure that all of the nodes receive the message." (Id. at 2:14-20.)

After reviewing the prosecution history, the Court finds that, in overcoming the prior art, Lucent distinguished the invention disclosed by the '607 patent from patents directed to routing "multicast" and "limited broadcast" messages. (D.I. 383, App. 10 at LFE067679.) Further, the Court finds that Lucent amended the claim at issue specifically to include the term "broadcast" to qualify the term "message" in order to overcome prior art cited by the Examiner in a rejection notice. (Id. at LFE067657.)

For these reasons, the Court concludes that the term "broadcast message" is construed to mean "a message that is sent to all nodes in the network," and accordingly chooses the dictionary definition proposed by Extreme.

C. "browser"/"browser based subscribers"

Plaintiff, citing to the Dictionary of Computer and Internet Words at page 35, argues that the term "browser" should be construed as "a program that allows you to find and access documents from anywhere on the Internet." (Dkt. 86 at Ex. 1, p.
3). Plaintiff also relies on the Shames Declaration. n3 Defendants argue that the term "browser-based subscribers" should be
construed as "subscribers, as mutually defined by the parties (i.e. "a person who pays for access to a service that allows the
user to access, view, and enter remotely-stored data").", who use a computer on which only web browser software is required to
be installed to access, view, and enter data on HTML forms and documents stored on the database server." (Dkt. 86 at Ex.
2, p. 1).

Defendants cite to the patent specification, the Microsoft Computer Dictionary at pages 62 and 479 and Resonate, 338 F.3d
at 1362 (providing that "consumers typically access the web using client software applications known as web browsers that
run on their personal computers"). As the term "browser" is only used in the context of "browser-based subscribers" in
Claim 1, the Court will construe the entire phrase "browser-based subscriber" while utilizing the parties' agreed construction
of the term "subscriber." A person skilled in the art would understand the phrase "browser-based subscriber" to mean "a
person who pays for access to a service that allows the user to access, view, and enter remotely-stored data utilizing a
software application that locates and displays web pages."4

The plain language of Claim 1 provides that browser-based subscribers are individuals who have secure electronic access
via a modem and an ISP to a home page which provides access to subscriber areas. (229 patent, col. 5, ll. 55-62). The
specification confirms that browser-based subscribers enter the system via a home page and access subscriber areas via a
subscriber log-in and password. (Id., col. 3, ll. 51-57). A home page, as defined, is an "entry page" of a website.

In contrast, the plain language of Claim 4, which addresses the direct access system, provides that direct access subscribers
can access a direct access server (Citrix (R)), rather than a home page and subscriber areas, via a modem and ISP. (Id., col.
6, ll. 33-36); see Phillips, 415 F.3d at 1314 (other claims of patent in question, even if unasserted, can be valuable sources
when determining meaning of a claim term"). The plain language of the claims make clear that the difference between the
browser-based subscriber and the direct access subscriber is what is utilized in order to gain access to the desired data and
forms. The browser-based subscriber utilizes an internet service provider and a web site while the direct access subscribers
utilize an internet service provider and Citrix (R).

The specification describes the type of computer used by browser-based subscribers. Defendants correctly note that the
browser-based system is depicted in Figure 1 of the specification. (See Dkt. 68 at p. 4). "Browser-based subscriber 12
utilizes a single PC-type computer which operates on Windows software. This browser-based subscriber 12 gains access to
the system 11 via modem 14 and an internet service provider (ISP) 16. A local network of browser-based subscribers 20
connected to a hub 22 may also gain access to this system 11 via a modem 24 and ISP 26." (Id., col. 3, ll. 45-50).

In contrast to browser-based subscribers who utilize a PC-type computer operating on Windows software, direct access
subscribers who do not necessarily have "state-of-the-art" computer terminals operating on Windows access the same high
speed database and query system by connecting via an ISP to a Citrix (R) type server. (Id., col. 4, ll. 27-37). As noted by
Defendants, the specification provides with respect to browser-based subscribers that "no new software is required to be
installed, no new hardware is required to be purchased and connection is made at normal modem speed." (Id., col. 2, ll.
38-41). Defendants therefore argue for a construction that includes reference to a "computer on which only web browser
software is required to be installed."

While Defendants' proposed construction attempts to encompass the type of computer utilized by browser-based subscribers
described in the specification, the Court finds that, based on the plain language of the claims, the construction should focus
on what browser-based subscribers utilize in order to gain access to the information sought rather than on the type of
computer used. While Plaintiff's definition focuses on the program utilized, Plaintiff's dictionary definition of browser as a
program "that allows you to find and access documents from anywhere on the Internet" is inconsistent with the claim.

The browser-based subscribers access documents through secured subscriber areas rather than from "anywhere on the
internet”. Webopedia defines "browser" as "a software application used to locate and display web pages." n4 This definition is consistent with the plain language of the claim which provides that browser-based subscribers utilize the web. Accordingly, the Court declines to adopt either parties' construction of the term "browser" and construes the phrase "browser-based subscriber" to mean "a person who pays for access to a service that allows the user to access, view, and enter remotely-stored data utilizing a software application that locates and displays web pages."

--- Footnotes ---

n4 http://www.webopedia.com/TERM/b/browser.html

End Footnotes---

440

1. "Brush Data"

The second element of claim 64 recites the step of "providing brush data comprising pixel values for pixels in a patch in which the pixel values rise at least over a selected distance inwardly from the periphery of the patch."

Adobe contends 1) that "brush data" consists of data describing the size and shape of the brush, as well as a weight and a color, or its gray-scale equivalent, intensity, for every pixel contained in the brush, and 2) that such data is "pre-defined" in the sense that it is defined before the user begins a brush stroke and cannot be modified during the stroke.

Although there does not appear to be any dispute as to whether "brush data" consists of data describing the size and shape of the brush, as well as a weight for each pixel in the brush, the issue of whether "brush data" includes data describing a color or an intensity for each pixel in the brush is hotly contested. Adobe argues that if brush data were not to include color or intensity then claim 64 would not recite a painting process at all. At trial, Mr. Taylor, Quantel's expert witness, purported to describe how the claimed invention can paint without color. Referring to Figure 8, reproduced below, Mr. Taylor testified that if the wire transmitting pen intensity data to the processor (20) were severed "so there is no pen intensity fed in, in other words, that goes to zero," then a user will draw a "perfectly anti-aliased" black line with the stylus. See Tr. at 225.

[SEE Fig.8. IN ORIGINAL]

As Adobe points out, however, cutting that wire is the equivalent of choosing "black" as a color or intensity because pen intensity will effectively be set at zero, as Mr. Taylor testified. Thus, it would appear that the image creation process recited in claim 64 may be carried out only if color or intensity data is provided to the processor. Accordingly, the court concludes that "brush data" necessarily includes data describing a color or intensity for every pixel in the brush.

In support of its contention that "brush data" is pre-defined, Adobe relies on a disclosure in the specification showing the use of read-only memories for storing color values and weights for each pixel in the selected brush. See col. 4, lines 41-50; col. 5, lines 19-21. According to Adobe, if such data is stored in read-only memories, by definition it cannot be modified during a stroke because data cannot be written into the memories. Adobe also points out that the specification explicitly provides that if random-access memories are substituted for the read-only memories, they are used just like the read-only memories until a new color or shape is selected. See col. 9, lines 36-43.

The disclosures upon which Adobe relies, however, appear in the specification's description of the preferred embodiment of the invention of the '755 patent. The use of read-only memories to store color values and weights for each pixel in a selected brush is represented in Figure 5. The specification expressly notes that Figure 5 is only "one embodiment of the system of the present invention." See col.2, lines 63-64. The use of random-access memories in place of the read-only memories is represented in Figure 11. The specification states that Figure 11 "shows an expanded arrangement capable of providing full colour processing." See col.3, lines 7-8. Adobe thus impermissibly attempts to limit claim 64 to specific examples in the specification. Because Adobe does not identify any other evidence in support of reading the limitation it proposes into claim 64, the court concludes that "brush data" is not necessarily "pre-defined."
S. buffer terms -- "memory means comprising a buffer to buffer data to be transferred between the data transmit/receive
device and the host device" and "a data buffer for permitting independence in terms of time of the data transmit/receive
device attachable to the second connecting device from the host device attachable to the first connecting device"

Dependent Claim Three of the '399 Patent provides, "[a]n interface device according to claim 1, wherein the memory means
comprises a buffer to buffer data 19 to be transferred between the data transmit/receive device and the host device." '399
accordance with claim 1 wherein the memory has a data buffer for permitting independence in terms of time of the data
transmit/receive device attachable to the second connecting device from the host device attachable to the first connecting

Footnotes

19 The parties agree that "a buffer to buffer data" means a buffer to accomplish the task of buffering. Tr. 3:64 (Papst &
CMs)

The Camera Manufacturers define "a buffer to buffer data" and "a data buffer" as volatile memory used to temporarily store
data to compensate for differences between the rate in the flow of data between the data transmit/receive device and the host
device. Papst proposes that "memory means comprising a buffer" is memory adapted to store the data gathered by the
transmit/receive device until it is transferred to the computer, thus allowing time independence in terms of when the data is
acquired and when the data is later transferred to a host computer.

Under Papst's construction, the data could be stored indefinitely. In essence, Papst asserts that a buffer can be temporary or
semi-permanent memory; it could be non-volatile EEPROM 20 memory. Tr. 3:70. This definition would make the term
"buffer" indistinguishable from the term "memory" in Claim One of the Patents, giving Claim Three of the '399 Patent and
Claim Sixteen of the '449 Patent the same scope as Claim One -- a violation of the doctrine of claim differentiation. As
explained previously, a dependent claim references a prior claim and specifies a further limitation. See 35 U.S.C. § 112. The
presence of a dependent claim creates a presumption that the limitation set forth in the dependent claim is not present in the
independent claim. See Phillips, 415 F.3d at 1315. 21

20 EEPROM is electrically erasable programable 20 read only memory.

21 Papst asserts vaguely that the claim differentiation doctrine is not violated because Claim Three "further defines
memory." Papst's Reply at 33. Because Papst does not explain how it further defines memory, the Court does not credit this
vague assertion.

The ordinary meaning of the term "buffer" is a "temporary memory for data, normally used to accommodate the difference
(attached to CMs' Markman Br. as Ex. O). Thus, a buffer is temporary. See id. (a buffer is "temporary memory" used
"during transfer."). A buffer is used to synchronize the transfer of data between two devices to accommodate the difference
in the rate at which one device can transfer data and the other can receive the data.

[Buffering is a] programming technique used to compensate for the slow and possibly erratic rate at which a peripheral
device produces or consumes data. If the device communicates directly with the program, the program is constrained to run
in synchronism with the device; buffering allows program and device to operate independently. Consider a program sending
output to a slow device. A memory area (the buffer) is set aside for communication: the program places data in the buffer at
its own rate, while the device takes data from the buffer at its own rate. Although the device may be slow, the program does not have to stop unless the buffer fills up; at the same time the device runs at full speed unless the buffer empties.

Id.; see also The IEEE Standard Dictionary of Electrical and Electronic Terms 113 (6th ed. 1996) (attached to Papst's Reply as Ex. F, corrected copy filed at Dkt. # 270) (a buffer is "[a] device in which data are stored temporarily, in the course of transmission from one point to another; used to compensate for a difference in the flow of data, or time of occurrence of events, when transmitting data from one device to another").

The buffer is described in the specification: "the memory means can have an additional buffer for purposes of synchronizing data transfer from the data transmit/receive device to the interface device and data transfer from the interface device to the host device. Preferably, the buffer is implemented as a fast random access memory or RAM buffer." '399 Patent, col. 7:26-31; '449 Patent, col. 6:26-31; see also '399 Patent, col. 10:17-20 (under the preferred embodiment a "random access memory . . . serves as a data buffer to achieve independence in terms of time of the output line 16 from the output lines 11a, 11b, and 11c to the data transmit receive device and to the host device respectively"); '449 Patent, col. 9:17-20 (same). The buffer in the interface device is used in the way ordinary buffers are -- for "synchronizing data transfer from the data transmit/receive device to the interface device 10 and data transfer form the interface device 10 to the host device." '399 Patent, col. 7:26-29; '449 Patent, col. 6:27-29.

Papst points out that the specification explains that a "buffer can be implemented in the memory means 14 to permit independence in terms of time." '399 Patent, col. 9:8-12; '449 Patent, col. 8:8-12. But this statement must be read in context. It comes from a description of a preferred embodiment of the invention, specifically a buffer implemented by a random access memory. The specification describes an ongoing process of data transfer, not the storage of data separated by days, weeks, or months from the time of its transfer as Papst suggests.

The court construes "a buffer" (for buffering data) and "a data buffer" as "memory used to store data temporarily to compensate for differences between the rate in the flow of data between the data transmit/receive device and the host device."

442

(5) buffer, first-in-first-out buffer

The dispute with regards to these terms is whether "buffer" is a device or circuitry. In light of the intrinsic evidence, the court defines "buffer" as "temporary storage circuitry."

The court gives "first-in-first-out buffer" its plain and ordinary meaning in light of the above definition.

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1. "buffer"

<table>
<thead>
<tr>
<th>NICE's Construction</th>
<th>Witness's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory used for temporary storage of data.</td>
<td>Device in communication with the digital audio tape and the random access storage device that temporarily stores data.</td>
</tr>
</tbody>
</table>

The parties dispute the meaning of the term "buffer," as used in claim 1 of the '371 patent. Their respective proposed constructions are listed above. NICE contends that Witness's construction unnecessarily reads a limitation into the claim as to how the buffer relates to other components of the claimed method and that this relationship can be determined from the plain meaning of the claim language. Witness contends that the specification confirms that the buffer is in communication with the random access storage ("RAS") and digital audio tape ("DAT"), citing:

Apparatus and method have been devised wherein information can be retrieved from a digital audio logger as the logger continues to receive audio. The audio logger is provided with a buffer that receives audio in real time and temporarily stores
the same in the buffer. A digital audio tape (DAT) and a random access storage (RAS) device are in communication with the buffer to simultaneously receive data when the buffer down loads data.

(‘371 Pat., col. 1:45-53 (emphasis added).)

After reviewing the claim language and the specification, the Court concludes that, in this context, a buffer is, as Witness's contends, a "device in communication with the digital audio tape and the random access storage device that temporarily stores data." The language of both the claim and the specification support a construction of buffer as a device in communication with the RAS and DAT.

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(b) Claim No. 2 (Dependent Claim) -- Disputed Limitations

Claim 2, which is a dependent claim, recites the computer system as defined in Claim 1 and then adds a new element: a "message buffer," which is connected to the switch. The buffer works as follows: if the switch has already established a path for a message to run from Input Circuit A to Output Circuit B, and Input Circuit C receives a message that is also addressed to Output Circuit B, then the switch will establish a path from Input Circuit C to the message buffer. The second message in line will proceed to the buffer, which the parties agree is a place where messages wait until their path is clear. It is my understanding that the head of the message will proceed out of the buffer toward the designated output circuit as soon as that circuit is free to receive it; the head need not wait until the entire message has been received at the buffer.

This language presents no interpretive problems. IBM argues that the "message buffer" must have sufficient capacity to store an entire message, claiming that it would be a misnomer to call anything smaller a "message buffer." This is hardly a persuasive argument. While it might be desirable to have an amply-sized buffer, there is absolutely nothing in the claim language that requires it.

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1. "buffer" or "buffer memory"

These terms are located in several claims in both the '872 patent and the '094 patent. Doc # 81 at 13-14. The parties dispute whether these terms should be ascribed their ordinary meaning. 3Com proposes the dictionary-derived construction "a memory for temporary storage of data." Id at 13, 19. Realtek proposes the construction "a memory that (1) stores frame data such that the frame data can be retrieved independently of the order in which the frame data were stored and the frame data can always be retained and reused; and (2) is not a first-in-first-out (FIFO) system." Id at 13-14, 19. The primary issue before the court is whether the specification rebuts the presumption that the terms should be ascribed their ordinary meaning.

Realtek contends that the patentee disclaimed FIFO-based systems in the specification. Specifically, Realtek argues that the specification "explains the shortcomings and problems of prior FIFO-based systems." Doc # 333 at 12. An inventor "may use the specification [intentionally] to [] disclaim or disavow the broad scope of a claim. However, this intention must be clear." Conoco, Inc v Energy & Environmental Intern, L C, 460 F.3d 1349, 1357 (Fed Cir 2006)(internal citations omitted). While the specification does highlight the shortcomings of FIFO-based systems, the specification also lauds the "communications throughput available from the simpler FIFO-based systems." '872 patent at 2:8-10. The specification's mix of praise and criticism is not a "clear disavowal" of FIFO technology.

Realtek further argues that prosecution history supports its proposed construction. Doc # 333 (03-2177) at 15-16. Realtek relies on a statement differentiating the Firoozmand reference from the claimed invention. 3Com stated that the claimed application described a "much more sophisticated control environment than that required by the FDDI system of Firoozmand." Doc # 339 (Gutman decl) (03-2177) Ex F at 5. Realtek argues that this statement distinguishes the claimed invention from a "FIFO-based scheme." Doc # 333 (03-2177) at 16. 3Com argues that this statement, read in context,
describes a "CSMA/CD network (such as Ethernet) as more sophisticated than a token ring network" and does not address "the relative sophistication of a FIFO buffer." Doc # 340 (03-2177) at 8. The paragraph in question discusses details related to CSMA/CD networks such as frame transmission, collisions and backoff. Doc # 339 (Gutman decl) (03-2177) Ex F at 5. Viewed in context, the court finds that this statement is unrelated to buffer or buffer memory and has no bearing on construction of the terms "buffer" or "buffer memory."

In addition, Realtek points to the "Vulcan" document the patentee used to "swear behind" the Firoozmand reference. Doc # 333 (03-2177) at 16-17. Realtek concedes that the Vulcan document "shows that the inventors once contemplated using the prior FIFO-based technique of transmitting early a packet once the amount of data in [FIFO] reached a threshold." Doc # 333 (03-2177) at 17. According to Realtek, "understanding that the FIFO disclosed in the Firoozmand and Vulcan prior art could not retain and reuse data frames, the inventors replaced the FIFO with a transmit buffer in order to avoid the major disadvantage of a FIFO." Id. As 3Com points out, however, the purpose of "swearing behind" was to show an earlier invention date. Doc # 340 (03-2177) at 8. If the Vulcan document showed a different invention than the claimed invention, the Vulcan document could not be used to prove an earlier date of invention. Rather than disclaiming FIFO-based devices, the prosecution history confirms that use of FIFO buffers in the claimed invention was specifically contemplated by the patentee.

Realtek argues that construing the claims as 3Com suggests would render the claims invalid as reading on prior art or being unsupported by written description. Doc # 333 (03-2177) at 14. Realtek further argues that "[o]ne of the well-established maxims of claim construction is that the claims should not be so broadly interpreted as to read on prior art." Id. But the court only applies this claim construction maxim if the disputed claim term is ambiguous.

While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction. Instead, we have limited the maxim to cases in which "the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous."

Phillips, 415 F.3d at 1327, quoting Liebel-Flarsheim, 358 F.3d at 911. The claim terms at issue are not ambiguous. Both the plain meaning and the prosecution history support the construction that 3Com proposes.

For the reasons stated above, the court adopts 3Com's proposed construction "a memory for temporary storage of data."

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1. "a buffer, coupled to the first port, storing received packets"

The parties dispute whether the '884 patent is limited to embodiments with a buffer large enough to store more than one packet at a time. 3Com offers the construction "a temporary storage device connected to the first port for received packets." Doc # 81 (05-0098) at 37. D-Link propounds the construction "a temporary storage device connected to the first port that is of sufficient size to store a plurality of received packets." Id at 37-38. Realtek does not propose a specific construction. Id.

D-Link advances several considerations to support its construction. First, D-Link makes much of the fact that the '884 specification usually refers to packets in the plural. See, for example, '884 patent, 1:66-2:5 ("In particular, the present invention provides an interface that comprises the first port on which incoming data is received at the data transfer rate of the network, a buffer coupled to the port that stores received packets, and a second port coupled with the buffer through which transfer of packets to the host is executed." (emphasis added)). The specification's repeated references to "packets" in the plural are simply too tenuous a basis for limiting the scope of claim one. Whether this usage reflects the patentee's intent to claim only embodiments with buffers large enough to store multiple packets at once is, at the very best, ambiguous. For, as 3Com posits, it could be that "packets' refers to the obvious fact that multiple packets will go through the claimed device, not to the capacity of a particular component therein to hold more than one packet at once." Doc # 88 at 6.

Accordingly, the court adopts "a temporary storage device connected to the first port for received packets."

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3. "buffer overflow/buffer overload"

The second limitation of claim 1 of the '499 patent requires "detecting whether buffer overflow is threatened by the storage of further cells arriving for transmission on said virtual path." The term "buffer overflow" is used in claim 1, and the term "buffer overload" is used in various dependent claims. The parties agree that the terms mean the same thing. The plaintiff argues that these terms are common and therefore there is no need to construe them. The defendants propose that the term means "exceeding the maximum capacity of the buffer for that VPC." The court has previously rejected the defendants' argument that the buffer be assigned to a particular VPC. The court agrees with the plaintiff that the terms "buffer overflow" and "buffer overload" need no additional construction, in light of the agreed construction of "buffer."

VII. '379 patent

Like the '641 patent, the '379 patent claims a system and method for ensuring that the most current data, as opposed to "stale" data, is retrieved from memory. The claimed invention relates to how a memory controller coordinates requests to read data from the memory and requests to write data to the memory. Generally, when a read request is asserted that corresponds to a buffered write request, the write request must go first to ensure that what is read from memory is the most current data. The invention disclosed in the '379 patent does this by comparing the address of each read request to the buffered write requests, noting any matches, halting read execution when there is a match, and executing the buffered write requests.

LGE contends that the trial court erred in construing system claims 1 and 23 as requiring all write requests to be executed after a match is detected, as opposed to executing any number of write requests until the write request corresponding to the matching read request is executed. We agree. The claim language does not require all write requests to be executed after a match is detected. Moreover, claim 2, which depends from claim 1, expressly requires the execution of all write requests, as does independent method claim 7. See Phillips, 415 F.3d at 1314 (recognizing the utility of claim differentiation). In addition, the claim limitation at issue is written in means-plus function-claim language ("means for . . . causing an execution of buffered write requests"). Because the recited function is clear on its face, it was improper to incorporate the additional functional limitation of executing "all" buffered write requests. Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1357 (Fed. Cir. 1999); see also Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001) ("[A] court may not import functional limitations that are not recited in the claim . . . .").

13. "Building at least one long-term and at least one short-term statistical profile from at least one measure of the network packets": n13 Generating at least two separate data structures, one a statistical description representative of historical network activity, and one a statistical description of recent network activity, where the statistical descriptions are based on at least one measure of the network packets and are generated through the use of statistical analysis; i.e., something more than simply collecting and retrieving data.

n13 338 patent, multiple claims.

End Footnotes
The specification incorporates by reference a specific statistical analysis technique disclosed in "A. Valdes and D. Anderson, 'Statistical Methods for Computer Usage Anomaly Detection Using NIDES', Proceedings of the Third International Workshop on Rough Sets and Soft Computing, January 1995." ('338 patent, col. 5, 11. 41-49) Although the court acknowledges that the specification also indicates that the "profile engine can use a wide range of multivariate statistical measures to profile network activity indicated by an event stream" ('338 patent, col. 5, 11. 37-39), nevertheless, the court concludes that the specification and referenced article require that some manipulation of the data take place; i.e., generating a "statistical" profile means more than collecting and retrieving data.

B. Where is the "charge sink means" located?

Claim 1 describes a charge sink means "buried within said semi-conductor material." It also states that the charge sink means must extend laterally from the contact toward the light sensing element "while beneath the surface of said semiconductor material." The parties interpret the term "buried within" differently.

Before addressing the meaning of "buried within," this court must first determine the meaning of "said semiconductor material." "Said" refers to element a of claim 1. Element a specifies a light sensing element comprising "a first region of semiconductor material overlaid by a first electrode . . . ." The expert witnesses testified that this first region would extend only a few microns below the top surface of the element. The term "said semiconductor material," however, is not limited to a few microns near the surface of the semiconductor substrate. 2

2 Loral did not suggest limiting "said semiconductor material" to a top portion of the substrate such as that depicted by 12 on Figure 1 until this court began to ask questions which suggested that interpretation. When this court recalled Dr. Wen to inquire further about this interpretation, Dr. Wen accepted this interpretation with great reticence and equivocation. After all, the number 12 on Figure 1 is nowhere identified as the region near the surface of the semiconductor material sensitive to light. Moreover, the number 12 region would be much thicker than the "first region of semiconductor material overlaid by a first electrode . . . ." The expert witnesses testified that this first region would extend only a few microns below the top surface of the element. The term "said semiconductor material," however, is not limited to a few microns near the surface of the semiconductor substrate.

The specification shows that the semiconductor material referred to in element d comprises the entire substrate. Column 3, lines 17, read:

The N type impurity forming region 14 will diffuse into layer 12 during and following the deposit of layer 12 over substrate 11. Therefore, region 14 is located near the surface between substrate 11 and layer 12, and not necessarily located solely within substrate 11; that is, region 14 [the charge sink region] is buried within the semiconductor material.

(emphasis added). While describing only one embodiment of the invention, this passage clarifies that "buried within" uses the entire substrate as its reference and not simply a top layer. "Said semiconductor material," as clarified by the specification, refers to the "semiconductor material" serving as the substrate for the light sensing element and the rest of the invention. Consequently, the words "said semiconductor material" define the entire semiconductor substrate below the top surface of the device.

With that understanding of semiconductor material, the claim language clearly defines a charge sink means completely surrounded by semiconductor material. The claim describes a charge sink means "buried," "within," and "beneath the surface of said semiconductor material." Standing alone, the single term "buried" or the single term "within" might describe something only partially submerged and still in contact with the surface of the substrate. The use of "within" in conjunction with "buried," however, leaves no question that this claim describes structure completely surrounded by semiconductor material. The addition of "beneath the surface" further clarifies that the charge sink means is completely submerged and does not contact any surface of the device.
The specification further underscores the meaning of the words of the claim. The passage in column 3, quoted above, describes the charge sink means, 14, as sandwiched between two layers of semiconductor material, 11 and 12 in the Figure. Thus, "buried within" means what it says: semiconductor material completely surrounds the charge sink means. In other words, the significance of "buried within" together with "beneath the surface" requires a charge sink means surrounded by and submerged within the semiconductor material. Indeed, figure 1 of the '485 patent depicts the charge sink means in precisely this location.

The prosecution history also supports this meaning. The original claim read: "charge sink means buried within said semiconductor material and disposed in proximity to said light sensing element for receiving excess charge accumulated in said light sensing element." The examiner rejected this claim as obvious over references showing charge drains in contact with the surface of the semiconductor material. Evidently the examiner overlooked the full significance of the terms "buried within" by noting that the claims did not recite the location of the charge region "other [than] that it be 'within the semiconductor material.'" The examiner anticipated, however, the problem of identifying the location of the charge sink means.

In response to the examiner's concern, the applicant amended the claim to read: "charge sink means buried within said semiconductor material and disposed for receiving excess charge accumulated in said light sensing element, said charge sink means being located beneath and not in contact with the surface of said semiconductor material." The examiner made no further rejections on this point. In other words, the inventor amended the claim to add "beneath and not in contact with the surface" to clarify the location of the charge sink means.

The examiner's remarks in the initial rejection suggest he did not focus on the term "buried." Instead, the examiner read original claim 1 to cover surface drains. To address this rejection, the inventor narrowed and clarified the meaning of the claim. The inventor's use of the words "buried within" together with "beneath the surface" show an intent to depict the charge sink region, as shown in Figure 1, surrounded completely by semiconductor material and not in contact with any surface of the device.

Finally, the testimony of Dr. Bower instructs further on this point. He explained that one skilled in the art would read the words "buried within" to describe a structure completely surrounded by material. In fact, while recognizing "buried within" is not a term of art, an artisan in 1973 would read those words and think of a "buried layer." A buried layer, Dr. Bower explained, is a structure associated with bipolar technology that is completely surrounded by material. Transcript at 138-40.

The disputed portion of claim 1 of the '485 patent reads:

d. charge sink means having a contact for applying a bias thereto buried within said semiconductor material and disposed for receiving excess charge accumulated in said light sensing element, said charge sink means extending laterally from said contact toward said light sensing element while beneath the surface of said semiconductor material.

(Emphasis added). The doctrine of equivalents requires that the accused device have an identical or equivalent element for each limitation contained in the claim - sometimes known as the "all elements" rule. See Warner-Jenkinson 520 U.S. at 18, 29 ("Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety."). See also Dolly, Inc. v. Spalding & Evenflo Cos., 16 F.3d 394, 399, 29 U.S.P.Q.2D (BNA) 1767, 1769 (Fed. Cir. 1994); Perkin-Elmer Corp. v. Westinghouse Elec. Corp., 822 F.2d 1528, 1532-33, 3 U.S.P.Q.2D (BNA) 1321, 1324-25 (Fed. Cir. 1987); Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 935, 4 U.S.P.Q.2D (BNA) 1737, 1739-40 (Fed. Cir. 1987) (in banc).

Claim 1 of the '485 patent and the specification define the charge sink means both as to structure and location. The specification calls for a distinct region of semiconductor material doped opposite to the surrounding semiconductor.
material. The claim language locates this structure as "buried within the semiconductor material" and provides that it "extends laterally [i.e., parallel to the surface] from said contact toward said light sensing element while beneath the surface of the semiconductor material." The district court properly construed the claim to mean:

"Claim 1 of the '485 patent defines the charge sink means as a distinct structure of semiconductor material doped opposite from its surrounding semiconductor material. The claim also locates that structure within the semiconductor material. According to the claim, the charge sink means must extend parallel to the top surface of the semiconductor and perpendicular to a contact toward a light sensing element."

Loral, 931 F. Supp. at 1023.

The court also noted that Fig. 1 of the '485 patent reproduced above, "provides excellent depiction of the location of the charge sink structure." Id. at 1019. The prosecution of the '485 patent fully supports the district court's claim interpretation and indicates that only a narrow range of equivalents can be afforded the charge sink location and structure.

B. "Burst mode," "burst mode operation," "burst mode read operation" (claims 1-14, 20, 22-23)

"Burst mode" memory processing was prior art to the '990 patent. 1:8-10. Burst mode processing improved on serial processing, in which data from several memory locations had to be transmitted one location at a time. Decl. of Andrew Wolfe in Supp. of AMD Br. ("Wolfe Decl.") P 31. In contrast, burst mode made memory processing faster by allowing data from several memory locations to be transferred at the same time. Id. P 30.

Footnotes:

4 "Memory locations" are cells that store data.
5 AMD construes "burst mode operation and "burst mode read operation" as "a serial transfer in which the contents of a plurality of locations are provided in response to the address of one location." Samsung argues that these terms should receive the same construction as "burst mode."

6 An "address" is an identifier for a memory location.

The Court agrees with Samsung that in the context of the '990 patent, "burst mode" provides consecutive memory locations with consecutive addresses. First, this limitation is provided by the specification. In the "background of invention" section, the specification states, "When a memory is read sequentially (that is, consecutive reads access memory locations at consecutive addresses), the memory access can be made faster by reading from the array several consecutive locations simultaneously. Such a 'burst mode' access is provided by memory 202 of Fig. 2." 1:36-41 (emphasis added). The
specification explains why burst mode allows for faster memory performance: "Since only one address decoding operation and only one memory array access are performed to read four consecutive memory locations, the memory reads are sped up." 1:47-51 (emphasis added). The specification also explains that in some embodiments, the invention improves burst mode processing by allowing the "burst mode read" to "start at any location and [to] . . . continue for any number of locations." 1:58-61. This "boundaryless burst mode access" allows "any number of locations, not only groups of four locations, [to be] . . . read consecutively in burst mode. Sequential memory access is consequently quite fast." 1:61-64.

Second, Samsung's proposed definition is taken from a brief filed by AMD when it appealed the Patent Trademark Office's ("PTO") initial rejection of the '990 patent. See Decl. of Aaron R. Fahrenkrog in Supp. of AMD Br. ("Fahrenkrog Decl."), ex. G (Jan. 26, 1995 Office Action). In the "summary of the invention" section of its appellate brief, AMD wrote, "Burst mode access is a sequential access in which the memory receives the address of one memory location and provides the contents of a plurality of consecutive memory locations." See Fahrenkrog Decl., ex. I (Sept. 27, 2005 Br.) at 2.

AMD points out that its construction of "burst mode" is taken from AMD's request for reconsideration, filed on April 27, 1995. In this filing, AMD responded to the PTO's conclusion that claim 2 merely recited a serial transfer. AMD attempted to distinguish the "burst mode" in claim 2 from the prior art as follows: "A burst mode transfer as claimed in claim 2 is not any serial transfer but a serial transfer in which the contents of a plurality of locations are provided in response to the address of one location." Fahrenkrog Decl., ex. H (Apr. 27, 1995 Amendment after Final Office Action) at 4. AMD is correct that in this document, it did not specify that the "plurality of locations" were consecutive. This omission is not dispositive, however, because there is no evidence that AMD was attempting to distinguish the invention on this basis. Instead, AMD focused on the innovation of transferring data in different rows having different row addresses. See id. (The prior art "does not teach or suggest transferring data in different rows having different row addresses in response to the same address . . . as recited in Claim 2").

Accordingly, the Court adopts Samsung's construction of "burst mode."
array drivers and output as signal 51. The corresponding portion of the specification explains that the phased burst signals are signals 50, not 51. See '234 patent, col. 8, ll. 62-66. ("In an exemplary system, each phase array driver 100 receives two phased burst signals 50 which are 180 [degree] out of phase and generates two power regulating signals 51 which are 180 [degree] out of phase.")(emphasis added). Consequently, after considering the parties' arguments and the relevant portions of the specification, the court defines "burst mode signals" to mean "low-frequency PWM signals which regulate the power to a load based on the pulse width of the PWM signals."

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Burst state

The Court modifies Plaintiffs' proposed construction and construes "burst state" as "the camera takes a pre-determined number of pictures in rapid succession in response to one or more signals from a motion detector." The claim itself teaches that when the camera is in the burst state, a signal is sent to the camera "to cause the camera mechanism to take a predetermined number of pictures in rapid succession." Claim 17, col. 8:62-64. The specification similarly teaches that when the camera is placed in the burst state, "when the controller 301 receives a signal from motion detector 106, the controller causes a series of exposures to be taken one after another in rapid succession." Col. 4:29-32.

Defendants' proposed construction, "a user-selected mode of operation of the motion detector camera in which two or more photographs are taken in three seconds or less in response to a single signal from the motion detector," interjects limitations that are not supported in the claims or specification. First, Defendants would require the user to select the burst state mode. Defendants contend that user selection is the only manner the specification discloses for placing the motion detector camera into the burst state. Defendants argue that use of the word "selectively" within the claim indicates user input or selection is required for entry into a burst state. Defendants' limitation strains the claim language and imports limitations from the preferred embodiment. The claimed method includes the step "selectively placing the motion detector camera into one or more of a burst state, a pause state, and a test state," which the Court will also construe. The claim language uses the passive tense and does not limit who or what can selectively place the camera into the particular states. The specification also teaches that the camera can be programmed to automatically go into a pause state. Col. 4:35-44. During the hearing, Defendants argued, "The second step is an active step of selectively placing the camera into one of those programmed steps [sic], either by leaving it alone in the default it came in or by changing the parameters. That is the selective part of it." Transcript (Docket No. 94) 28:10-14. Thus, Defendants concede that someone other than the user may make the initial selection of camera state.

Second, Defendants would require that two or more photographs are taken in three seconds or less. Defendants argue "in rapid succession" requires a more precise definition. Defendants base their three-second limitation on other prior art and the speed at which they approximate an animal "at game trail speed [could] traverse the detection zone of the motion detector camera." See Defendants' Response to Plaintiffs' Claim Construction Brief (Docket No. 74) at 17. The patent does not limit "in rapid succession" any more precisely. Defendants do not argue that "in rapid succession" is a term of art requiring explanation for the jury. It is a phrase potential jurors will be familiar with, and the Court will not place additional limitations on the claim language based on such weak support.

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B. "burst time period"

The term "burst time period" and the related phrase, "having an associated time period," appear in various forms in the '995 Patent, the '932 Patent, and the '839 Patent claims. Claim 1 of the '839 Patent contains representative usages:

1. A method for handling audio/video source information, the method comprising:
   receiving audio/video source information;
compressing the received audio/video source information into a time compressed representation thereof having an associated burst time period that is shorter than a time period associated with a real time representation of the received audio/video source information;

storing said time compressed representation of the received audio/video source information; and

transmitting, in said burst time period, the stored time compressed representation of the received audio/video source information to a selected destination


The parties have agreed to construe all of the variant phrases together. The construction of "burst time period" involves the parties' dispute of whether the "burst time period" is limited to a transmission time period that is of definite duration and known at the time of compression.

Burst points to the language of approximation used in the patent specification to describe transmission rates, on which the duration of the transmission period is based. See '839 Patent at 8:15-18 (referring to fiber optic bandwidth as "about 200 Megabytes/second"). However, this language does not preclude a construction that would require a fixed time period. TCM would permit a known transmission time period even with fiber optic cable. Apple reads "burst time period" in the context of the phrases "having an associated burst time period" and "said burst [transmission] time period" to require a known transmission time. See, e.g., '995 Patent, claim 1 (having formulation); '705 Patent, claim 1 (said formulation). According to Apple, the claim language further shows that the "associated burst time period" is created and associated with the time compressed representation during compression and before transmission. If the time period is approximate or not known, then the representation cannot "have" an associated time period during compression nor can one be "associated" with the representation during compression.

The words "associated" and "said" time period do not necessarily suggest a fixed period of known duration. Rather, these words are used in a way to permit comparison between the transmission time and the playback time. See, e.g., '995 Patent, claim 1 (referring to the time compressed representation "having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information."). Indeed, the specification indicates that transmission times will be approximate. '839 Patent at 12:4-11 ("Thus, the invention can be used to receive and transmit programs via microwaves at an accelerated rate similar to and at least as fast as, the transmission and reception of programs over optical fibers.")

TCM permits a transmission period to be known and associated with the representation during compression; data compression does not. This is consistent with the court's construction of "time compressed representation" as not requiring TCM. Therefore, the "burst time period" does not require a definite time period known at the time of compression.

Burst's construction of burst time period as a "transmission time period shorter than the time period associated with a real time representation" is consistent with the court's construction of "time compressed representation." The court accordingly adopts Burst's construction.

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C. Bus

The district court construed "bus" to mean "a multiplexed set of signal lines used to transmit address, data and control information." In its Markman opinion, the district court noted Rambus's proposed ordinary meaning of "bus," but held that the patentees acted as their own lexicographer by redefining "bus" to be a multiplexed bus. Multiplexing refers to the sharing of a single set of lines to send multiple types of information. Under the district court's construction, the "bus" carries three types of information: address, data, and control information.

The term "bus" is very common in the electrical arts and has a well-recognized meaning in such arts, namely, a set of signal lines (e.g., copper traces on a circuit board) to which a number of devices are connected, and over which information is
transferred between devices. The New IEEE Standard Dictionary of Electrical and Electronic Terms 141 (5th ed. 1993). The claims generally recite outputting data over a "bus." The claims do not specify that the bus multiplexes address, data, and control information. See '918 patent, col. 26, ll. 19-27. Nothing in the claims compels a definition different from the ordinary meaning of "bus." Before according "bus" this meaning, however, this court must consider the usage and meaning of the term as used in the relevant context of the specification.

In general, most references to "bus" in the specification do not limit the ordinary meaning of this term. Only two references potentially limit the meaning of "bus" in the context of the specification. In the Summary of the Invention, the patentee stated that the "present invention" includes a bus for carrying substantially all address, data, and control information. '918 patent, col. 3, ll. 50-60. The patentee further stated that "the bus carries device-select information without the need for separate device-select lines connected directly to individual devices." n6 Id. In the Detailed Description, the patentee stated:

"The present invention is designed to provide a high speed, multiplexed bus for communication between processing devices and memory devices . . . . The bus carries substantially all address, data and control information needed by devices for communication with other devices on the bus. In many systems using the present invention, the bus carries almost every signal between every device in the entire system. There is no need for separate device-select lines since device-select information for each device on the bus is carried over the bus. There is no need for separate address and data lines because address and data information can be sent over the same lines."

'918 patent, col. 5, ll. 36-46. See also '918 patent, col. 5, ll. 52-53. While clear language characterizing "the present invention" may limit the ordinary meaning of claim terms, see Scimed, 242 F.3d at 1343; Bell Atlantic, 262 F.3d at 1268, such language must be read in context of the entire specification and the prosecution history. Although the above references, taken alone, may suggest some limitation of "bus" to a multiplexing bus, the remainder of the specification and prosecution history shows that Rambus did not clearly disclaim or disavow such claim scope in this case. See Inverness Med. Switz. Gmbh v. Princeton Biomeditech Corp., 309 F.3d 1365, 1372, 64 USPQ2d 1926, 1932 (Fed. Cir. 2002) (statements made during prosecution were not a clear and unambiguous disclaimer of a claim scope). Thus, Rambus did not limit the ordinary meaning of "bus" in the patents-in-suit.

n6 The multiplexed bus eliminates device-select (point-to-point) connections by multiplexing control information with address and data information. This elimination of point-to-point connections is one focus of the multiplexed bus. See '918 patent, col. 2, ll. 12-15 (While some prior art buses multiplexed address and data information, they retained point-to-point connections for control information.); col. 2, ll. 16-19, 26-34, 36-42, and 44-49.

In this case, the prosecution history shows that a multiplexing bus is only one of many inventions disclosed in the '898 application. Although some of Rambus's claimed inventions require a multiplexing bus, multiplexing is not a requirement in all of Rambus's claims. A careful review of the prosecution histories of the patents-in-suit shows that Rambus expressly recited multiplexing in the claim language for claims limiting the bus to the inventive multiplexing bus. For example, original claim 1 of the '898 application recites a "bus including a plurality of bus lines for carrying substantially all address, data and control information needed by said memory device." Other original claims further require that the "bus carry[] device-select information without the need for separate device-select lines connected directly to individual semiconductor devices." This claim language indicates that Rambus did not redefine "bus" in the specification to be a multiplexing bus. Indeed, it is because Rambus viewed "bus" under its ordinary meaning that Rambus specified -- in the claim language -- that the inventive multiplexing bus carries substantially all address, data, and control information and that the bus operates without the need for device-select lines.

Several restriction requirements issued by the PTO also clarify that some of the inventions described in the '898 application did not require the multiplexing bus. The PTO issued an eleven-way restriction requirement during prosecution of the '898 application. Later, during prosecution of U.S. Patent No. 5,841,580 (the grandparent of the '918 patent and the parent of the '263 patent), the PTO issued a two-way restriction, dividing the claims into two distinct groups: a multiplexing bus group (Group I) and a latency invention group (Group II). That two-way restriction stated:
The memory device in Group I does not require the access-time register of Group II, and the semiconductor device in Group II does not require the plurality of conductor [sic] being multiplexed to receive an address as claimed in Group I.

Rambus elected to prosecute the latency claims from Group II in the '580 patent. Therefore, the claims of the '580 patent do not require a multiplexing bus. The claims of the '580 patent, however, do recite a "bus." See '580 patent, col. 24., l. 46. By stating that the latency claims, which recited a "bus," do not require multiplexing, the PTO demonstrated an understanding of "bus" that is not limited to a multiplexing bus.

The specification and prosecution histories, taken in their entirety, convince this court that Rambus did not redefine "bus" to be a multiplexing bus in the patents-in-suit. None of Rambus's statements constitute a clear disclaimer or disavowal of claim scope. In these patents, the term "bus" carries its ordinary meaning as a set of signal lines to which a number of devices are connected, and over which information is transferred between devices.

A. "Bus"

The parties dispute the meaning of "bus" as that term is used throughout the claims of the patents in suit. Rambus argues that "bus" means any "set of signal lines (for example, wires) to which a number of devices are connected, and over which information is transferred between devices." According to Rambus, "the term "bus" is old and very common in the electrical arts" and, in the patents in suit, the term is used in its ordinary and customary sense "as a set of signal lines over which information is transferred." To support the contention that this is the ordinary and customary construction of the term "bus," as used in its patents, Rambus relies not upon intrinsic evidence but upon the extrinsic evidence of the IEEE (Institute of Electrical and Electronics Engineers) Standard Dictionary of Electrical and Electronics Terms, Fourth Ed., IEEE Inc., New York (1988), p. 116, to explain how one skilled in the art would understand the term. The IEEE Dictionary defines a bus as "a set of signal lines used by an interface system, to which a number of devices are connected, over which information is transferred between the devices." Id. 8

Of course, a court cannot use an inconsistent dictionary definition to contradict the meaning derived from the intrinsic evidence, but such definition may be of some assistance to the court in interpreting technical terms. See Vanguard Prods. Corp. v. Parker Hannifin Corp., 234 F.3d 1370, 1372 (Fed. Cir. 2001) ("Although a dictionary definition may not enlarge the scope of a term when the specification and the prosecution history show that the inventor, or recognized usage in the field of the invention, have given the term a limited or specialized meaning, a dictionary is often useful to aid the court in determining the correct meaning to be ascribed to a term as it was used.")

Infineon, on the other hand, contends that "bus" actually has a specialized meaning conferred by the specification of the patents in suit, which describes and explains the bus and its use with the other inventions as the Rambus "multiplexed bus." Before the '898 application was filed in 1990, most buses generally had point-to-point interfaces wherein the CPU would communicate with different memory devices by different and separate lines. Furthermore, within each bus in the prior art, the lines would be dedicated to carrying either data, address, control or device-select information. In the new inventive Rambus bus, a single bus is multiplexed so that the bus lines carry all the address, control, data and device-select information over a single bus. In Infineon's view, the use of the term "bus" throughout the claims is limited to the new inventive bus described in the specification.

1. The Claim Language

The analysis begins by first considering the claim language. Most of the 57 claims at issue use the term "a bus" or "the bus" or "an external bus." None of the claims, however, expressly define the term "bus," nor do they dispositively support
either proposed definition. Rather, the claims generally speak of outputting or inputting data over a bus.

9 The term "bus" is used in claims 1, 2, 6, 8, 16, 18, 19, 20, 24, 33, and 14 of the '918 patent, claims 1, 2, 4, 10, 15, 16, 18, and 25 of the '214 patent, claims 2, 14, 27, and 30 of the '263 patent and claim 26 of the '804 patent. 

Infineon urges the court to consider the language of claim 26 of the '918 patent as illustrative of its view of the term:

26. An integrated circuit device having at least one memory section which includes a plurality of memory cells, wherein
the integrated circuit device outputs data on an external bus synchronously with respect to first and second external clock
signals, the integrated circuit device comprises:

interface circuitry, coupled to the external bus to receive a read request, the interface circuitry includes a plurality of
output drivers, coupled to the external bus, to output data on the external bus in response to the internal clock signal,
synchronously with respect to the first and second external clock signals and in accordance with the value stored in the first
internal register.

'918 patent, Claim 26 (emphasis added). Infineon posits that this claim calls for data to be output onto the bus, and a read
request to be received on the same bus, thus supporting its conclusion that "bus" means a multiplexed bus. 10 While the
language of this single claim somewhat supports Infineon's construction, the specification must reviewed to determine how
the inventors used the term "bus" and whether they intended the term to have a special meaning. See Watts v. XL Sys., Inc.,
232 F.3d 877, 882 (Fed. Cir. 2000) ("One purpose for examining the specification is to determine if the patentee has limited
the scope of the claims"). "Even if [the claims] were clear on their face, [the court] must consult the specification to
determine if the patentee redefined any of those terms." Id. at 883.

10 The testimony of Infineon's expert, Mr. Joseph McAlexander also supports this conclusion. See Markman Hearing, Tr.
pg. 370 l. 13 to pg. 371, l. 19 (explaining that claim 1 of the '918 patent clearly indicates that a read request and output data
are to travel across a single bus).
requested data over the same bus. Each memory device contains only a single bus interface with no other signal pins." '918 patent, col. 4, lines 9-13 (emphasis added). See also '918 patent col. 3, l. 61 through col. 4 l. 1. (the DRAM "is modified to use a wholly bus-based interface rather than the prior art combination of point-of-point and bus-based wiring used with conventional versions of these devices. The new bus includes clock signals, power and multiplexed address, data and control signals").

Throughout the "Detailed Description," the specification repeatedly explains the use of the new multiplexed bus:

The present invention is designed to provide a high speed, multiplexed bus for communication between processing devices and memory devices and to provide devices adapted for use in the bus system.

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The bus consists of a relatively small number of lines connected in parallel to each device on the bus. The bus carries substantially all address, data and control information needed by devices for communication with other devices on the bus. In many systems using the present invention, the bus carries almost every signal between every device in the entire system. There is no need for separate device-select lines since device-select information for each device on the bus is carried over the bus. There is no need for separate address and data lines because address and data information can be sent over the same lines.

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Virtually all the signals needed by the computer system can be sent over the bus.

'918 patent, col. 5, ll. 29-45 (emphasis added). The inescapable lesson that emerges from comparing the claims of the patents with the inventors' fulsome textual description of the invention is that the inventions include a new bus and new devices that work with the inventive bus, all to the inventor's stated purpose, which is "to provide a high speed multiplexed bus for communication between processing devices and memory devices and to provide devices adapted for use in the bus system." '918 Patent, col. 5, ll. 29-33 (emphasis added).

Additionally, not only does the specification define "bus" to be a multiplexed bus, but it also sets a background for explaining how the inventive multiplexed bus works with various other features of Rambus' inventions. Thus, the explanation of the inventions also supports the conclusion that the term "bus" means the multiplexed bus. For example, every embodiment described in the specification involves the use of a multiplexed bus. 11 Not once do the patents indicate that any of the inventions can, or should be, used with the prior art dedicated bus architecture.

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11 See e.g. '918 patent, col. 4, ll. 1-4 ("In a preferred implementation, 8 bus data lines and an AddressValid bus line carry address, data and control information for memory addresses up to 40 bits wide.") (emphasis added); '918 patent, col. 5, ll. 59-64 ("In the preferred implementation, memory devices are provided that have no connections other than the bus connections described herein and CPUs are provided that use the bus of this invention as the principal, if not exclusive, connection to memory and to other devices on the bus.") (emphasis added); '918 patent, col. 8 ll. 17-25 ("The preferred bus architecture of this invention comprises 11 signals: BusData[0:7]; AddrValid; Clk1 and Clk2; plus an input reference level and power and ground lines connected in parallel to each device. . . . The bus lines for BusData[0:7] signals form a byte-wide, multiplexed data/address/control bus").

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This understanding is confirmed by the testimony of Mr. Joseph McAlexander, Infineon's expert, who explains that the patents "describe several bus architectures. But in every instance when they describe the bus of the invention it is always a multiplexed address, data and control bus." Markman Hearing, Tr. p. 360, l. 25 to p. 361, l. 4. Rambus' expert did not refute this conclusion.

In Toro Co. v. White Consolidated Indus., Inc., 199 F.3d 1295 (Fed. Cir. 1999), the Federal Circuit found it significant that
the disputed patent contained only one embodiment of the invention. On the issue of whether a "ring" described in the patent must be attached to the "cover," the court noted that:

The specification and drawings show the restriction ring as 'part of' and permanently attached to the cover. No other structure is illustrated or described. . . .

. . . This is not simply the preferred embodiment; it is the only embodiment. . . .

. . . Nowhere in the specification, including its twenty-one drawings, is the cover shown without the restriction ring attached to it.

Id. at 1301. See also O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1581 (Fed. Cir. 1997) (rejecting patentee's argument that the invention could have smooth or cylindrical walls when 'all of the 'passage' structures contemplated by the written description are thus either non-smooth or conical."); General Amer. Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 770 (Fed. Cir. 1996), cert. denied 520 U.S. 1155, 117 L. Ed. 2d 493, 117 S. Ct. 1334 (1997) (the disputed claim construction was "not just the preferred embodiment of the invention; it is the only one described. Nothing in the claim language, specification, or drawings suggests that any of the [limitations] may be eliminated . . .") (emphasis in original). Likewise, it is significant here that Rambus does not list a single example of how any of the new inventions would work with any type of bus other than a multiplexed bus. 12

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12 The failure of the specification to describe any other kind of bus in connection with the invention distinguishes the principal decision upon which Rambus relies, Johnson Worldwide Assoc., Inc. v. Zebco Corp., 175 F.3d 985 (Fed. Cir. 1999). In Johnson Worldwide, the Federal Circuit placed great emphasis upon the fact that the disputed claims did not require the narrower construction. 175 F.3d at 991. The Johnson Worldwide opinion distinguished Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456 (Fed. Cir. 1998) (which adopted the narrower claim construction) because the written description in Laitram made clear that the asserted claims will bear only one interpretation. In Johnson Worldwide, there was no such unambiguous language in the claim; "nothing suggests that 'heading' is required to be the heading of a trolling motor." Johnson Worldwide, 175 F.3d at 991.

The facts of Johnson Worldwide are distinguishable from the Rambus patents here. The Johnson Worldwide court noted that the "many uses of the term throughout the . . . patent are consistent with a broader definition" and that the "varied use of the term in the written description demonstrates the breadth of the term rather than providing a limited definition." Id. at 991. Thus, the dual usage of the term did not create "a special and particular definition" Id. Here, there are not varied uses of the term "bus," only a single multiplexed bus.

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The Federal Circuit's holding in Wang Labs., Inc. v. America Online, Inc., 197 F.3d 1377 (Fed. Cir. 1999) is instructive as well. In Wang, the court considered whether the ordinary and accustomed meaning of the term "frame" could be overridden by the inventor's explanation in the specification:

The parties agreed before the district court that the term "frame" can in general usage be applied to bit-mapped display systems as well as to character-based systems . . . . The disagreement was as to whether the term "frame" in the '669 claims embraced this general usage, or whether the term would be understood by persons of skill in this field as limited to the character-based systems described in the '669 patent.

Wang, 197 F.3d at 1381. As is true here, the only system described and enabled in the specification and drawings in Wang used the narrower, specific arrangement of the character-based system. Id. at 1382. The only time that the patent mentioned non-character-based systems was in the "Background of Invention" section. Id. The Federal Circuit agreed with the district court's conclusion that those references were merely acknowledgments of the state of the prior art, not an enlargement of the patent's invention; and that a person skilled in the field of art would not have understood that those references were included in the applicant's invention. Id. Similarly, Rambus is limited to the description set forth in the specification, which is only a description of the multiplexed bus.
In an effort to distance the claims from the specification, Rambus argues that one skilled in the art would recognize that any kind of bus could be used with the many inventions of the specification, not just the new multiplexed bus. The Federal Circuit has rejected this exact argument, which attempts to escape the language of the specification. See Watts, 232 F.3d at 883 (inventor's arguments that "one of ordinary skill would be aware of a myriad ways to effect a sealing connection . . . may be true, [but] it does not overcome the fact that the specification specifies that the invention uses misaligned taper angles"). The fact that the inventions might conceivably be used with any kind of bus does not overcome the oft-repeated assertions in the specification which describe, and even tout, the new Rambus inventive bus while demonstrating that the inventions are to be used with the multiplexed bus.

Rambus next argues that Infineon is trying to improperly limit the scope of the claim to the limitations described in the preferred embodiment. See Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 973 (Fed. Cir. 1999) ("The general rule, of course, is that the claims of a patent are not limited to the preferred embodiment, unless by their own language."); CVI/Beta Ventures, 112 F.3d at 1158 ("as a general matter, the claims of a patent are not limited by preferred embodiments"). The specification, however, clearly distinguishes between the "invention" of the multiplexed bus and "the preferred embodiment" of the bus. The patent often describes the broader invention of a bus multiplexed for address, data and control information. This description is then followed by a narrower description of the 'preferred embodiment' that is an implementation of the multiplexed bus.

For example, the patent states:

The new bus includes clock signals, power and multiplexed address, data and control signals. In a preferred implementation, 8 bus data lines and an AddressValid bus line carry address, data and control information for memory addresses up to 40 bits wide. Persons skilled in the art will recognize that 16 bus data lines or other numbers of bus data lines can be used to implement the teaching of the invention.

'918 patent, col. 3, l. 67 through col. 4, l. 7. (emphasis added). The new multiplexed bus is the broadly defined invention and the preferred embodiment has certain characteristics such as 8 or 16 multiplexed lines, an AddressValid line, and addresses of up to 40 bits. Numerous references in the specification highlight these differences. 13 Usually, the preferred embodiments described in the specification give a technical example of how the overall invention works, thus helping to explain the claim language. "Although claims are not necessarily restricted in scope to what is shown in a preferred embodiment, neither are the specifics of the preferred embodiment irrelevant to the correct meaning of claim limitations." Phonometrics, Inc. v. Northern Telecom, Inc., 133 F.3d 1459, 1466 (Fed. Cir. 1998). Where, as here, the several embodiments described in the specification each involves only a multiplexed bus, that weighs heavily in construing the term bus to mean a multiplexed bus. See Wang, 197 F.3d at 1383.

Footnotes
13 See e.g. 918 patent, col. 5, ll. 37-50 ("The bus carries substantially all address, data, and control information needed by devices for communication with other devices on the bus. . . Using the organization described herein, very large addresses (40 bits in the preferred implementation) and large data blocks (1024 bytes can be sent over a small number of bus lines 8 plus one control line in the preferred implementation."); 918 patent col. 14, ll. 49-67 ("In the bus-based system of this invention" a master can use the device ID to access a specific device "including the address and control registers. In the preferred embodiment, one master is assigned to carry out the entire system configuration process." (emphasis added); 918 patent, col. 16., ll. 12-21 ("The bus architecture of this invention can include more than one master device. The reset or initialization sequence should also include a determination of whether there are multiple masters on the bus, and if so to assign unique master ID numbers to each. Persons skilled in the art will recognize that there are many ways of doing this. For instance, the master could poll each device to determine what kind of device it is . . .") (emphasis added).

Finally, it is significant that the specification only mentions the generic (or "dedicated") bus architecture in the "Comparison of Prior Art" section. 14 In these references to "bus," however, the inventors are distinguishing their new inventive bus from the prior art. The inventors explain that "none of the buses described in patents or other literature use only bused connections. All contain some point-to-point connections on the backplane." 918 Patent, col. 2, l. 67 to col. 3, l. 3. Thus, it
does not help Rambus to point out, as it does, that this text of the comparison uses the same term ("bus") to describe a completely different architecture from the "new" bus which, according to Rambus, means that the term "bus" must necessarily encompass any set of information transfer lines, including those cited as prior art. The "Comparison With Prior Art" section states only what the invention does not cover; and, in so doing, the specification expressly distinguishes the prior art buses from the disclosed bus of the invention. Of course, it is settled that "claims are not correctly construed to cover what was expressly disclaimed." Cultor Corp. v. A.E. Staley Mfg. Co., 224 F.3d 1328, 1331 (Fed. Cir. 2000) (description in specification that distinguished other types of catalysts "effected a disclaimer of the other prior art acids"). See also Wang, 197 F.3d at 1382 (references to "bit-mapped" protocols in "Background of Invention" were acknowledgments of the state of the art and not an enlargement of the invention described in the patent). The argument which Rambus makes based on the term "bus" as used in the discussion of prior art runs afoul of this basic precept of claim construction.

Footnotes:

14 For example, the specification explains that the bus of an earlier patent (U.S. Patent No. 3,821,715) "multiplexes addresses and data over a 4-bit wide bus and uses point-to-point control signals to select particular RAMs or ROMs." 918 patent, col. 2 ll. 13-15. The specification also explains that in the DRAM of a previous patent (U.S. Patent 4,449,207) "the external interface to this DRAM is convention, with separate control, address and data connections." 919 patent, col. 2, ll. 32-33.

In a further effort to use the discussions of prior art to support its proposed definition of "bus," Rambus relies on Clearstream Wastewater Sys. v. Hydro-Action, Inc., 206 F.3d 1440 (Fed. Cir. 2000), to argue that its inventions involve "combination claims," therefore it is entirely permissible to include both the new and the generic buses in its inventions:

> Clearly, the written description does point out the disadvantages of the [prior art] rigid conduit system and the advantages of the [new] flexible-hose system. However, the written description does not require that only the new flexible-hose system, but not the old, rigid conduit system, could be used in the claimed wastewater treatment plant. It is well established in patent law that a claim may consist of all old elements . . . for it may be that the combination of old elements is novel and patentable. Similarly, it is well established that a claim may consist of all old elements and one new element, thereby being patentable.

Id. (emphasis added).

Infineon properly agrees that combination claims can include some, or even all, prior art elements. However, Infineon also is correct in asserting that the proper framework for the current analysis is whether one of ordinary skill in the art would understand the Rambus disclosure to assert the combination theory recently embraced by Rambus.

The patent specification here does not support that theory because, unlike Clearstream, the specification in Rambus' patents do not describe the generic prior art bus in combination with any of the claims. Indeed, the "Comparison With Prior Art" discussion is at considerable pain to dissociate the inventive bus, and its uses, from the prior art, and to establish a similar disconnect of the other inventions from the prior art. '918 Patent, col. 2, l. 7 to col. 3, l. 47.

Thus, the specification clearly demonstrates that when the inventors used the term "bus" in the claims, they were referring to the new multiplexed bus described in the specification. 15 Upon reading the patent, one skilled in the art would conclude that the patentee explicitly defined bus: "the present invention includes a memory subsystem comprising at least two semiconductor devices . . . connected in parallel to a bus where the bus includes a plurality of bus lines for carrying substantially all address, data and control information needed by said memory devices." 918 patent, col. 3, ll. 50-55.

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Nothing in the specification - no drawing and no embodiment - indicates that the bus in the claims has the dictionary definition that Rambus now asserts.

Footnotes

15 Other than the "Comparison with Prior Art" section, the patent specification only once indicates that a bus can be anything but the multiplexed bus: "Persons skilled in the art recognize that certain devices, such as CPUs, may be connected to other signals lines and possibly to independent buses, for example a bus to an independent cache memory, in addition to the bus of this invention." '918 patent, col. 5, ll. 54-57. In this reference, the inventors clearly distinguish between the multiplexed bus of the invention and any other kind of bus to be used in the system.

Footnotes

3. The File History

Despite the obvious descriptions in, and implications of, the patent itself, Rambus argues that the patent history teaches that the term "bus" includes more than just the multiplexed bus. While it is doubtful that a court should look to the patent history to contradict the unambiguous meaning described in the specification, see Multiform Desiccants, 133 F.3d at 1478 ("when the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term"), the patent history here does not in any fashion clarify the scope of the disputed term. Rambus relies upon two statements made, and actions taken, in the prosecution of the patents stemming from the 1990 '898 application.

In June 1997, during the prosecution of the parent application 16 to the '263 patent (which is also the grandparent to the '918 patent), 17 the Patent Examiner issued a requirement for restriction under 35 U.S.C. § 121, 18 finding that this patent claimed two distinct inventions. The examiner divided the claims into two groups, one group describing a plurality of conductors to be used with the multiplexed bus and the second group describing an access-time register within the memory device (the latency invention). 19 Asserting that the groups were not "connected in design, operation, or effect," the Patent Examiner required the inventors to elect to pursue only one group of claims. Rambus prosecuted the claims in Group II (the latency invention), resulting in the '580 patent.

Footnotes

16 This application eventually issued as U.S. Patent No. 5,841,580.

17 When considering a patent's prosecution history, it is proper to look to statements made in the prosecution of related patents stemming from the same application, as is the case here. See Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 980 (Fed. Cir. 1999) ("When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation."); Mark I Marketing Corp. v. R.R. Donnelley & Sons Co., 66 F.3d 285, 291 (Fed. Cir. 1995) ("Thus, the relevant prosecution history here includes not only the '659 application but also the parent '815 and grandparent '668 applications."); Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) (prosecution history of parent application is relevant to understanding scope of claims issuing in a continuation-in-part application).

18 A requirement for restriction is issued by the PTO when a patent application contains more than one distinctly claimed invention. 35 U.S.C. § 121.19 The June 9, 1997 Office Action explains:

4. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   Group I. Claims 151-55, drawn to a memory device having a plurality of conductors being multiplexed for sequentially receiving an address, classified in Class 365, subclass 230.02.

   Group II. Claims 156-158, drawn to a semiconductor device having at least one access-time register, classified in Class 395, subclass 290.
The inventions are distinct, each from the other because of the following reasons:

5. Inventions I and II are disclosed as different combinations which are not connected in design, operation or effect. These combinations are independent if it can be shown that (1) they are not disclosed as capable of use together, (2) they have different modes of operation, (3) they have different functions, or (4) they have different effects. (MPEP 806.04, MPEP 808.01). In the instant case the combinations [sic] the memory device in Group I does not require the access-time register of Group II, and the semiconductor device in Group II does not require the plurality of conductor being multiplexed to receive an address as claimed in Group I.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for invention I is not required for invention II, restriction for examination purposes as indicated is proper.

(emphasis added).

From this action by the PTO and from the fact that the same Patent Examiner reviewed the '263 and '918 patents in suit, Rambus asks the Court to make the leap in logic that the PTO must have understood that the multiplexed bus was not necessary for every other invention arising from the specification. This kind of speculation into the motivations of the patent examiner is not useful to a reviewing court or a competitor reading the patent history. "It is the applicant's representations during the prosecution that potentially shed light on the construction of the claims." Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1462-63 (Fed. Cir. 1998) (emphasis in original) (rejecting argument that meaning could be derived from the representation of the reexamination requester). The snippet of patent history upon which Rambus relies only shows that: (a) a single Patent Examiner at one time indicated that some claims should not be lumped together, and (b) that, rather than making an affirmative response to this restriction, Rambus chose to drop the claims for the multiplexed bus and pursue the latency invention. No more can be inferred from this exchange.

Rambus also relies on a second piece of evidence contained in the file history. Specifically, in November 1995, a different Patent Examiner rejected claims pending in the grandparent to the '804 patent as being obvious in view of prior art reference, U.S. Patent No. 5,129,069 to Helm, et al. Under Rambus' view of the file history, the Patent Examiner must have equated the generic term "bus" (recited in claims 176-181 of the grandparent application) with the non-multiplexed bus contained in the Helm patent when he initially rejected the claims. Nevertheless, this same Patent Examiner allowed claim 26 of the '804 patent (which contains a reference to an external bus) to issue without requiring that the term "bus" be limited to a multiplexed bus. Again, this kind of guessing as to what a Patent Examiner may have been thinking is not generally helpful to construing the claim terms because it requires both the court and the public to pour over oftentimes complex and voluminous patent histories, speculate as to the motivation behind an office action, and then follow the patents in an effort to divine whether that same Patent Examiner may have had reason to construe another claim in the same manner. This invitation to haphazard guesswork certainly cannot be considered sufficiently reliable to trump the clear language of the specification. See Vitronics, 90 F.3d at 1582 ("Usually, [the specification] is dispositive; it is the single best guide to the meaning of a disputed term").

Moreover, the standard for construing claims in the patent application process is far different than the standard for construing claims in a litigation context. Patent examiners construe claims under a broader standard than that used by a court in undertaking claim construction. The Federal Circuit has held that "it would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption that the patent is valid." In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997). In the posture of a claim construction during litigation, if the intrinsic evidence is ambiguous, "another claim construction canon comes into play. Because the applicant has the burden to 'particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention' 35 U.S.C. § 112, P 2 (1994), if the claim is susceptible to a broader and a narrower meaning, and the narrower one is clearly supported by the intrinsic evidence while the broader one raises questions of enablement under § 112, P 1, we will adopt the narrower of the two." Digital Biometrics, 149 F.3d at 1344. See also Athletic Alternatives, Inc. v. Prince Mfg. Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996) ("Were we to allow AAI successfully to assert the broader of the two senses of 'between' against Prince, we would undermine the fair notice function of the requirement that the patentee distinctly claim the subject matter disclosed in the patent from which he can exclude others temporarily.") Therefore, even if
one were to conclude that the patent history casts doubt on the clear meaning of the specification (which it does not), Rambus should be limited to the embodiment and description of a multiplexed bus set forth in the specification because it is the narrower of the two constructions.

The simple fact here is that reference to the file history does not contradict the clarity given by the specification. What Rambus has done is fixate upon two isolated events in the file history and, without connecting them to the issued patents, urges the Court to ascribe significance to the events by divining what an examiner must have meant by directing a certain action. That kind of sophistry is not among the tools available for claim construction under the carefully defined protocol established for that task by the Federal Circuit.

4. Claim Differentiation

Rambus relies on the doctrine of claim differentiation to support its contention that "bus" means only a "generic" bus. The doctrine presumes "a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Toro Co., 199 F.3d at 1302 (Fed. Cir. 1999) (quoting Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987)). Rambus highlights the claims contained in Rambus U.S. Patent No. 5,983,320 (the '320 patent), 20 in which the independent claims of the '320 patent cover the concept of the "new" multiplexed bus. Each claim contains qualifying language to limit the bus to one that carries multiplexed address, data and control information over the same bus. For example, claim 7 of that patent claims a method for programming memory having a bus, where the bus "comprises a group of general purpose signal lines carrying substantially all of the time-division multiplexed address, data and control information for a memory transaction, wherein the address information is indicative of a range of addresses for a corresponding one of the individually addressable discrete memory sections of the memory device . . . " 21 Therefore, Rambus argues that, when it wanted to limit the term "bus" to a bus that carries multiplexed information, it knew how to do so.

--- Footnotes ---

20 The '320 patent is a "sister" or "brother" patent to the '804 patent. Rambus bases the notion of cross-patent claim differentiation on footnote 2 of Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1460 n.2 (1998). Because the argument of claim differentiation fails for other reasons, it is assumed, without deciding, that this is a proper use of related patents and their prosecutions.

--- End Footnotes ---

21 According to Rambus, other Rambus patents include similar limiting language: U.S. Patent No. 5,995,443, Claim 33 ("the bus further includes a plurality of conductors terminated by an impedance to a power source") and U.S. Patent No. 6,032,215, Claims 33 and 37 (same) and Claim 38 ("the bus further includes a plurality of conductors wherein each conductor is terminated at an end by a resistor to a power terminal.")

--- End Footnotes ---

This argument is unavailing because it too contradicts the clear meaning of the specification. "The doctrine of claim differentiation cannot broaden claims beyond the scope that is supported by the specification." ATD Corp. v. Lydall, Inc., 159 F.3d 534, 541 (Fed. Cir. 1998). See also Multiform Desiccants, 133 F.3d at 1480 (same). "Although the doctrine of claim differentiation may at times be controlling, construction of claims is not based solely upon the language of other claims; the doctrine cannot alter a definition that is otherwise clear from the claim language, description, and prosecution history." O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1582 (Fed. Cir. 1997) (concluding "that the description provides a clear meaning for the language of the claim in this case and that it trumps the doctrine of claim differentiation"). See Toro Co., 199 F.3d at 1302 (claim differentiation "does not override clear statements of scope in the specification and the prosecution history"). "The presumption that separate claims have different scope is a guide, not a rigid rule." ATD Corp., 159 F.3d at 541 (quoting Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 404 (1967)). Having determined that the written specification limits the term "bus" to a multiplexed bus, it would be impermissible to allow
Rambus to rely upon claim differentiation (citing to other patents) to broaden the meaning of the term. 22

22 Along these same lines, Rambus argues that the claims of the original '898 application specifically claim a multiplexed bus, therefore the reasoning behind claim differentiation would apply to give "bus" a generic meaning within the specification because the original claims are part of the specification. See In re Dossel, 115 F.3d 942, 945 (Fed. Cir. 1997) ("The statute thus makes clear that under current law the specification of a patent consists of, and contains, both a written description of the invention and the claims."); Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 938 (Fed. Cir. 1990) ("The original claims as filed are part of the patent specification.") However, Dossel explains that "modern usage . . . does not always conform to that statutory structure. For example, when discussing the process of claim construction, it is not uncommon for the process to be described as requiring an examination of the claims, the specification, and the prosecution history, treating them as distinct entities." 115 F.3d at 945. To the extent that the claims of the original application (which never issued), indicates that the inventors distinguished between the new multiplexed bus and a generic bus, this difference does not trump the clear descriptions in and implications of the written description.

5. The Extrinsic Evidence

A review of the intrinsic evidence clearly demonstrates that when the term "bus" is used in the claims, it means the new inventive Rambus multiplexed bus. "Because the intrinsic record is clear, [the court] does not give weight to an inconsistent dictionary definition," Digital Biometrics, 149 F.3d at 1346, as offered by Rambus.

A reading of the entire specification, without parsing it into individual quotes, unmistakably conveys that one of the primary benefits of every invention claimed in the patents in suit, and described in the specification, is to increase the speed of operation of the memory device. High speed access is the crown jewel of the specification and to that end, the multiplexed bus, in combination with the other inventions, increases the transfer speeds and decreases the amount of space occupied by the transfer lines. One skilled in the art reading the specification would certainly conclude that the "bus" meant to be used with the inventions is the new, inventive, high-speed, multiplexed bus. This conclusion is supported by the testimony of Joseph McAlexander, an expert who is experienced in the art and whose explanation for reaching that conclusion is highly credible because it is fully consonant with the specification and the claim language as explicated by the specification. 23 Mr. McAlexander's testimony is consistent with, and complimentary of, the intrinsic evidence. 24 On the other hand, the testimony of Rambus' expert, Dr. William Huber, is at odds with the intrinsic evidence and depends on a dictionary definition (other extrinsic evidence) that is not consistent with the many descriptions given by the inventors in the specification.

23 See Markman Hearing, Tr. p. 379, l. 20 to p. 380, l. 3 (Mr. McAlexander states, "Because the patent very strongly distinguishes numerous times the multiplex bus of the invention from the prior art, and states specifically in numbers of places, that the bus architecture of this new bus design is essential for the type of high speed activity that is required across the bus, and it distinguishes from the prior art because the prior art is stated not to be able to give that high speed type of transaction.")

24 Other portions of Mr. McAlexander's testimony generally support this construction. See Markman Hearing, Tr., pg. 361, ll. 14-24; pg. 364, l. 22 to pg. 365, l.22; pg. 367, l. 17 to pg. 368, l. 13; pg. 371, ll. 3-19.

6. Construction

For the foregoing reasons, the term "bus" means a multiplexed set of signal lines used to transmit address, data and control information.
"Bus" is the next term disputed by the parties. The term "parallel bus" occurs in claim 19 of the 366 Patent. 366 Patent, 54:41. In addition, the term "communications bus" occurs in claims 1, 7, and 11 of the 037 Patent. 037 Patent, 55:53, 56:32, 57:24. The parties agree that the term "bus" is used consistently in the two patents, although they differ as to what this meaning should be. Plaintiff argues that "bus" should be construed to mean "a channel or path for transferring a signal, data, or power from one or more sources to one or more destinations." Defendant proposes the construction "a path for transferring information from any of several sources to any of several destinations." The dispute between the parties boils down to two issues: namely, (1) whether a bus may connect as few as two endpoints, rather than requiring that it have the capability of connecting at least three devices; and (2) whether a bus transfers only information or data, or whether it may transfer a signal or power as well as information.

The parties again cite numerous technical dictionaries and treatises in support of their positions. For example, both parties point to the AP Dictionary, which defines bus as, inter alia, "a channel or path for transferring data or power from one of many sources to one or more of many destinations." Id. at 329. Plaintiff also cites two of the nine definitions of bus that appear in the IEEE Dictionary: (1) "a signal line or set of lines used by an interface to connect a number of devices and to transfer data"; and (2) "one or more conductors used for transmitting signals or power from one or more sources to one or more destinations." Id. at 128. As noted above, the Federal Circuit's decision in Texas Digital announced a general rule for determining if one or more of several possible dictionary definitions should be adopted as the legal meaning of a disputed term: namely, that a claim term may be construed to encompass all such definitions that are consistent with the intrinsic record. 308 F.3d at 1203. At the same time, the court noted that the "intrinsic record must always be consulted to identify which of the different possible dictionary meanings of the claim term in issue is most consistent with the use of the words by the inventor." Id.

In the instant case, the court looks to the specification to provide the "best guide" for selecting among the competing definitions of "bus" found in the cited technical references. Accord Vitronics, 90 F.3d at 1582. Taking the 037 Patent as an example, the specification discloses multiple network controllers, mass storage processors, memory cards, and a host processor coupled to a "backplane bus." 037 Patent, 5:50-54. Similarly, the specification of 366 Patent describes the various elements of the file server as being connected over a "VME bus" -- i.e., an IEEE Standard 1014-1987 backplane bus. 366 Patent, 8:6-10; IEEE Dictionary at 1259. A "backplane bus" is in turn defined as "[a] set of signal lines to which a number of devices are connected and over which information is transferred between them." Id. at 129 (defining "simple 32-bit backplane bus"). In other words, the embodiment of the invention disclosed in the specification includes a bus that (1) connects "a number" (i.e., at least two, but usually more) devices and (2) transfers information between those devices.

Although mindful of its obligation to avoid reading limitations from the specification into the claim, the court believes that this definition of "bus" bests fits the language of the claims themselves as well as the description of the preferred embodiment. Accord Irdeto, 383 F.3d at 1300 (reaffirming doctrine that specification may define claim terms by implication). As to the number of devices, it is noteworthy that claim 7 of the 037 Patent reveals only that a "plurality" of processors -- i.e., more than one processor -- are connected to the communications bus. 037 Patent, 56:26-47. In contrast, other claims recite at least three devices connected -- for example, the plurality of processors and data memory coupled to the communications bus in claim 11 of the 037 Patent. Id. at 57:24-27. Furthermore, the function of the "bus" described in the claim language is to provide for the transfer of "message[s]," id. at 56:46, or "NFS requests," 366 Patent, 54:45. Both of these functions are best characterized as transferring data or information between the devices connected to the bus. Accordingly, the court construes the term "bus" as used in the patents in suit to mean "a set of signal lines to which two or more devices may be connected and over which information is transferred between those devices."

----- Footnotes -----
v. Advanced Power Tech., Inc, 301 F. Supp. 2d 1065 (N.D. Cal. 2004) (Patel, J.), is similarly misplaced. That case involved a patent claiming a lithographic machine for use in semiconductor manufacturing rather than a patent for a network file server architecture, and is thus at best only marginally relevant to construing the claims at issue here.

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4. bus

In a case of role reversal the Court cannot help but notice, the parties have taken atypical approaches to the construction of "bus." OPTi, the plaintiff, has minted a narrow construction of "bus" to mean "a communications interface connecting two or more devices, in which information is conveyed on a set of bi-directional signal lines. A bus is distinct from a point-to-point unidirectional interconnect." nVidia contends that a "bus" is simply "a set of signal lines."

OPTi bases its construction on citations from the preferred embodiment in the specification. In addition, OPTi contends that other claim language requires its "bi-directional" limitation. The Court has previously rejected these arguments when offered by nVidia and rejects them again. OPTi does not deny that nVidia's construction is the well-known construction of one of ordinary skill in the art. Further, OPTi's arguments do not overcome the presumption that a patentee is not limited to the preferred embodiment absent a clear disavowal of claim scope. Accordingly, "bus" means "a set of signal lines."

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1. "Bus"

Term

VIA & Intel's Proposal

"A set of parallel conductors that is capable of transmitting signals between two or more modules (such as computer processors and local memories) connected to these conductors."

CCCC's Proposal

"One or more conductors used for transmitting signals or power from one or more sources to one or more destinations."

i. Serial or Parallel

The parties' primary disagreement about the term "bus" is whether, as used in the patent, "bus" refers to any sort of bus, or only a parallel bus. 1 One definition of bus circa 1998, as provided by IEEE, is as CCCC proposes: "one or more conductors used for transmitting signals or power from one or more sources to one or more destinations." Buses may be classified as either "serial" or "parallel." Levy Decl. (dkt. # 130 2) PP 3-4. A parallel bus is one containing more than one conductor used simultaneously to transmit data, while a serial bus has only one conductor for data. Id. PP 5-6.

Footnotes

1 Because from the parties' original filings and arguments it was unclear the precise definition of "parallel bus" that one skilled in the art would have used in the context of the '369 patent at the time its application was filed, the court ordered the parties to file supplemental declarations on the definitions of "parallel bus" and the related term "serial bus," as well as certain other bus-related terms the parties believed would be helpful to the court to understand. From the supplemental declarations the parties filed, it appears that they generally agree on the applicable definitions of "parallel bus" and "serial bus." In its filing in response to the court's order, Salik Decl. (dkt. # 198), CCCC included in its declaration information beyond that requested by the court. Defendants also object on several grounds--such as relevance, and lack of factual support--to CCCC's supplemental declaration. Defendants' objections are all well-taken and sustained. 2 This declaration was docketed only in case C-05-01766. All other references to docket numbers in this order are those used for case C-05-01668.

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The dispute over whether the construction of bus is limited to parallel buses is informed by reviewing the use of "bus" and "parallel bus" in the specification. CCCC argues that since the term "parallel bus" appears in certain places in the patent, the drafter clearly intended "bus" alone to not be limited to a parallel bus. Defendants, on the other hand, contend that all uses of "bus" refer to "parallel buses."

The defendants are correct that at least some uses of "bus" necessarily refer to a parallel bus. For example, the background section of the patent states:

When various computer processors employ differing parallel buses, it is not possible to directly connect the computer processors to the same bus. In such case, the processors must operate within separate computer systems utilizing separate buses and accessing separate local memories.

'369 patent at 1:53-58. The first sentence contemplates a situation involving "differing parallel buses," and the second sentence, in explaining the limitations of such a situation, refers merely to "buses," even though these "buses" are those discussed in the first sentence and as a result, necessarily parallel. However, the background section specifies parallel buses twice, but mentions buses without further specification eleven other times.

It is not clear that each mention of "bus" should be taken to be a reference to a parallel bus. For example, the background section begins with the sentence: 

"[t]he present invention relates in general to interface circuits providing communication between computer systems and in particular to an interface circuit permitting a bus master connected to one computer bus to directly access data stored in a memory connected to another bus." '369 patent at 1:10-15. This sentence does not clearly refer only to parallel buses.

 Defendants nevertheless argue that the patent's references to "bus" refers to parallel buses. First, they argue that the specification sets forth the problem to be solved in the prior art only in terms of parallel buses. However, the problem to be solved need not necessarily limit the patent claims. See, e.g., Brookhill-Wilk I, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1301 (Fed. Cir. 2003). Further, it does not appear that the patentee has acted as his own lexicographer, providing a clear definition of "bus" as a parallel bus. See Rambus Inc. v. Infineon Technologies AG, 318 F.3d 1081, 1094-95 (Fed. Cir. 2003) (references to "multiplexed bus" in specification does not limit "bus" as used in claims to a "multiplexed bus"); Multiform Desiccants Inc. v. Medzam Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998) (any special meaning assigned to a term "must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention."). Nor does it appear that the defendants' narrower construction of "bus" is necessary to preserve the validity of the claim. As CCCC points out, the problem of cache coherency is not necessarily limited to the parallel buses, even if the problem to be solved and preferred embodiment are stated in the context of parallel buses. Thus, because the patent specification refers to both "buses" and "parallel buses" and because there is no special definition of "bus" clearly defined in the specification, the court concludes that "bus" is not limited solely to a parallel bus.

ii. Signal or Power

The parties also disagree as to whether "bus" should be defined as transmitting signals only or "signals or power." The patent clearly contemplates information passing through the bus, so it is undisputed that a bus transmits signal. The patent does not disclose power passing through the bus.

CCCC's proposed construction, using "signals or power," is too broad because it would allow a bus that is only used for transmitting power and not signal. While it is true that a signal, which is an electrical current, carries power, albeit a very small amount (P = I^2*R or power = current squared multiplied by resistance), defining the term as transmitting either "signal or power" implies that the bus can solely transmit power, which is not disclosed. Therefore, although it is implicitly understood that a signal carries power, it should not be defined to be "signal or power."

iii. Transmission

CCCC proposes the use of one of many available IEEE dictionary definitions to construe "bus." Defendants argue that in light of the Federal Circuit in Phillips, it is inappropriate to just select the broadest possible dictionary definition. The focus
is on how the particular claim term is used in the patent claims and specification. Upon review of the available IEEE
definitions circa 1998, IEEE definition number 2, which relates to a "microcomputer system bus," defines "bus" to be "a
signal line or set of lines used by an interface system to connect a number of devices and to transfer information." See Salik
Decl. (dkt. # 46), Ex. 10. This definition of bus, which describes a shared bus, is more appropriate in light of the claim
language. The preamble specifies "the first bus providing a first plurality of bus masters connected thereto", '369 patent at
12:43-4, and "the second bus providing a second plurality of bus masters connected thereto", '369 patent at 12:58-9. It is
thus clear from the claim language that the patent contemplates shared buses--buses that are connected to a plurality of bus
masters such that the buses connect multiple devices--and not buses that connect a single source to a single destination.
Indeed, all uses of "bus" in the claims and the specification of the '369 patent describe a shared structure to which multiple
bus masters are connected.

iv. Construction

Based on the foregoing, the court construes "bus" as "a signal line or set of signal lines used by an interface system to
connect a number of devices and to transfer information between the devices." The parties have agreed that the construction
of "first bus" and "second bus" follows the construction of "bus."

16. Communication bus

With respect to the term "communication bus," Foundry argues that the term should be given its ordinary meaning. Foundry
submits that the ordinary meaning of "communication bus" is "a communication medium to which two or more devices are
connected and over which information is transferred between them." Lucent contends, however, that "communication bus"
should be construed to mean "a signal line or a set of lines used by an interface system to connect a number of devices and
to transfer data." The court construes "communication bus" consistent with the ordinary meanings of the term "bus" - "a
signal line or set of lines that may be used by an interface system to connect a number of devices and to transfer
information." See Newton's Telecom Dictionary (1996); see also Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193,
1203 (Fed. Cir. 2002).

3 "If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may
be construed to encompass all such consistent meanings."

2. "Source bus" and "Gate bus"

Although Ixys urges this court not to expound upon the meaning of the terms "source bus" and "gate bus" and their relation
to one another, the claim term at issue (as well as Ixys' own proposed construction) includes both phrases. This court is
loathe to leave significant disputed words within a claim element undefined, and so it will undertake to interpret the
language of those terms fully.

At the outset, APT argues that the source bus and gate bus must be electrically isolated. This seems a self-evident limitation:
it is common knowledge within the industry that a "bus" is an electrical conduit through which a signal or current may flow,
and so an electrical interconnection between the two buses would render them effectively one entity. In addition, any
individual skilled in the art would understand that a power MOSFET would not function correctly if the gate were shorted to
the source; it stands to reason that any device intending to function as a MOSFET must have a gate and source that are
electrically isolated.
With reference to the precise meaning of the "gate bus" itself, the specification discloses that it is in "common" with the first metallization layer (presumably meaning in electrical contact), '715 patent, 8:12-14, and that "with the improved structure, the turn-on or turn-off signal propagates from the gate pad through the gate bus portion of the second metallization through the first metallization layer..." '715 patent, 6:25-28. Ixys urges that this court apply a more generalized interpretation, based on the common understanding of the word "bus" as "one or more conductors used for transmitting signals or power," a definition taken from the IBM Dictionary of Computing, which therefore does not speak directly to the issue of semiconductor construction at hand here.

Reliance on extrinsic evidence is improper where intrinsic evidence exists to define the term. Vitronics, 90 F.3d at 1583. Although the specification to which APT points appears less a definition of the gate bus and more a description of one embodiment of its functioning, it is well known to those skilled in the art that the function of a transistor "gate" is to switch the transistor on or off depending on the signal that it receives. The court will thus construe "gate bus" to mean generally "the conductor used to transmit an electrical signal or power to the gate." If indeed the only current that travels to the gate is the on-off signal, this definition will end up subsuming APT's proposal.

In light of this, and in the absence of any intrinsic evidence altering the meaning, the court construes "source bus" congruently as "the conductor used to transmit an electrical signal or power to the source regions."

4. bus controllers

This disputed term appears in all the claims except dependent Claims 6 and 10. Claims 1 and 7 establish that the bus controllers are connected in a binary tree configuration, and each bus controller includes "a buffered interface connecting said processing element to said bus controller for transmitting instructions and data between the bus controller and the connected processing element" (Claim 1), '024 Patent 7:29-32, and "means for interpreting instructions received from the host computer and for executing such instructions addressed to it and for passing instructions to bus controllers down the tree. . . ." (Claim 7), id. at 8:29-33.

Plaintiff asserts that the term is not generally known in the art of computing but that "buffers" are, and that, when such meaning is combined with the "means of writing information," the construction of "bus controller" is "clear." Pl. Reply at 23. Despite that assertion of clarity, however, the construction plaintiff then offers is, on its face, circular and confusing, as it uses the term "bus controller" in the definition of the same: "A buffered interface connecting the processing element to the bus controller that enables writing information into the memory of the processing element without involving the microprocessor of said connected processing element." Pl. Br. at 21. 5 Even though it borrows phraseology directly from the claims, plaintiff's construction conflates the buffered interface, which is part of the bus controller, with the bus controller itself.

5 Prior to submitting its opening brief, plaintiff had indicated to defendant that its construction was "a buffer interface connecting the processing element to the bus controller and the means for writing information into the memory of the connected processing element without control of the main processor of the connected processing element." See Def. Reply at 20 n.13.

At the Markman hearing, plaintiff offered the unpersuasive argument that "is" and "includes" were synonymous, and therefore its construction meant that a bus controller "includes" a buffered interface. See tr., 08/20/09, at 143-45. The Federal Circuit has held that "including" is a broad term that refers to essential elements but permits additional elements to be added, Lucent Techs., Inc. v. Gateway, Inc., 525 F.3d 1200, 1214 (Fed. Cir. 2008); but plaintiff can provide no case that supports the premise that "is" can be read more broadly to mean "includes." Moreover, even assuming arguendo plaintiff's tortured linguistic alchemy permitted "is" to mean "includes," plaintiff's construction would still suffer from circularity by
relying for its definition on the very term it seeks to define.

In contrast, defendant defines the plural "bus controllers" as "controllers that transfer instructions and data from the host computer to the connected processing elements, and data from the connected processing elements to the host computer over a bus." Defendant's construction also fairly tracks Claim 1's language, as well as Claim 7's language which says that the bus controllers "include[] means for interpreting instructions received from the host computer . . . and for passing instructions to bus controllers down the tree." Def. Br. at 22. The patent specification provides support for this construction, which reads: "The BCxs [bus controllers] act as buffered repeaters that transfer Function Calls and data from the Host Computer to the selected PE(s), and data with its Fault Message from the selected PE to the Host Computer." '024 Patent at 2:64-3:1. In short, the specification tells us that the bus controllers, by acting collectively as a "bucket brigade," transfer data and instructions from the host computer to the processing elements and from processing elements to other processing elements. Id. at 2:38-40. So too does the abstract provide that the bus controllers "include[] a buffered interface . . . for transmitting instructions and data between the bus controller and the processing element . . . ." '024 Patent Abstract.

Accordingly, the Court construes "bus controllers" to be controllers that transfer instructions and data from the host computer to the connected processing elements and data from the connected processing elements to the host computer over a bus.

1. bus master

OPTI's construction of "bus master" is "the device which initiates a data transfer on a bus." nVidia contends the "bus master" is "a device connected to a bus which arbitrates for control of the bus and can receive data transferred on the bus."

Both parties rely on PCI Local Bus Specification Revision 2.0 that was specifically incorporated by reference into the patent specification. In the PCI Local Bus Specification, there are references to the bus master arbitrating for each access it performs. nVidia asserts therefore that its construction must be correct. The Court is not persuaded by nVidia's argument.

The most relevant section of the PCI Local Bus Specification 2.0 to determine a proper construction for "bus master" would be the glossary. A review of the glossary section of the PCI Local Bus Specification 2.0 reveals that the "master" is defined as the "agent that initiates a bus transaction." Further, the specification is consistent with this definition. See 906 patent, Col. 10:34-35 ("These data transfers may be either read or write data transfers; the master is the initiator, and the target is the responding device . . ."). Accordingly, the Court adopts OPTI's construction of "bus master."

4. "business office device"

The next disputed term "business office device" appears in various claims of the '289, '120 and '618 Patents. n6 Ricoh proposes the following construction:

A business office device is an intelligent module of an office machine system that includes a device engine for carrying out the mechanical operations of the office machine system, and its own communication capability that enables it to communicate intelligently with other modules of the office machine system, or with other devices. The intelligent business office device makes use of an intelligent communication protocol.

(Chart at 13). Pitney asserts that "business office device" is "a copier, printer or facsimile or other business office equipment." (Id.).
The parties agree that "business device engine" should be construed in the same way as "business office device." (Chart at 13).

The Court finds that the intrinsic evidence, particularly the claims in this instance, provides a straightforward definition for this term which is consistent with Pitney's proposed construction. As the Federal Circuit noted in Phillips, the claim in which the term appears and other claims of a patent, including both asserted and unasserted claims, can serve as "valuable sources of enlightenment as to the meaning of the claim term." Phillips, 415 F.3d at 1314. Claim 1 of the '289 Patent reads:

A method, comprising the steps of:

- storing semi-static state data in a business office device, the semi-static state data including data which may change infrequently over a life of the business office device;
- initiating communication between the business office device and a computer, by the business office;
- transmitting the semi-static state data from the business office device to the computer; and
- receiving the semi-static state data by the computer.

'289 Patent, Claim 1. Notably, dependent claims 4 through 6 further recite:

4. A method according to claim 1, wherein: the business office device is a copier . . .

5. A method according to claim 1, wherein: the business office device is a facsimile machine . . .

6. A method according to claim 1, wherein: the business office device is a printer . . .

Id., Claims 4-6. Thus, the plain language of the claims appearing in the '289 Patent clearly defines copiers, facsimiles and printers as examples of a "business office device." This language is consistent with Pitney's construction.

Additionally, Pitney's construction is further supported by the specification. In the Background of the Invention, the patentee states:

The present invention relates to a method and apparatus for communicating and controlling various types of business office equipment or devices transparently and uniformly. The types of business equipment could be copiers, facsimiles and/or printers.

The creation of business office devices such as a copier, facsimile or printer requires activities assigned to various groups which must be integrated into at a certain time.

Id., col. 1, ll. 15-23 (emphases added). Support for this construction is further found in the Abstract which describes the claimed invention as "[a] method and apparatus for controlling and communicating with business office devices, such as copiers, facsimiles and/or printers." Id., Abstract. In light of the intrinsic evidence, the Court finds that the patentee acted as his own lexicographer with respect to the term "business office device" by setting forth a clear definition in the specification.

Ricoh argues that Pitney's proposition is incorrect because: 1) the prosecution history supports its construction which includes language regarding intelligent modules and communication, (Chart at 13-14); and 2) by adopting Pitney's construction, the Court would not maintain integrity between the Court's definitions. (Tr. of Markman Hr'g at 44-45). With respect to Ricoh's first argument, the Federal Circuit clearly indicated that the specification is usually dispositive and "the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315. The Court remains mindful that "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Id.
at 1317. In this case, the Court relies heavily upon the specification as opposed to the prosecution history in defining this term since it provides a clear definition for "business office device" -- one that is consistent with Pitney's construction.

The Court further rejects Ricoh's second argument as a basis for adopting its proposed construction. Ricoh argues that integrity between the Court's constructions is not maintained because the "business office device" must be "just the engine" of a device, rather than the device as a whole. (Tr. of Markman Hr'g at 44:14-45:1). Ricoh, however, fails to provide any basis for limiting the construction to "just the engine" when the claims and specification clearly indicates otherwise. Consequently, the Court concludes that a "business office device" means "a copier, printer or facsimile or other business office equipment."

5. "business relationships of the client"

<table>
<thead>
<tr>
<th>Disputed Claim Term or Phrase</th>
<th>Versata's Proposed Construction</th>
<th>SAP's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>business relationships of the client</td>
<td>Business relationships that may affect the fulfillment of the client's order request, including client information, used to identify fulfillment partner(s). business relationships between the client and the order servicing organization, between the client and the fulfillment partner, or between the order servicing organization and the fulfillment partner.</td>
<td></td>
</tr>
</tbody>
</table>

This phrase is used in claim 4 of the '235 patent. The pertinent language of claim 4 reads as follows:

using electronically stored routing rules to select a fulfillment partner from business relationships of the client to provide each item ordered.

SAP's suggested construction attempts to capture the portion of the specification which describes various relationships which a client, an order servicing organization, and a fulfillment partner may have. See '235 Patent, col. 6, ll. 12-30. SAP's construction, however, allows for a relationship between an order servicing organization and a fulfillment partner, a relationship not contemplated by the cited examples. In fact, each of the additional examples cited by Versata includes relationships between, at a minimum, the client and either the order servicing organization or the fulfillment partner. See, e.g., '235 Patent, col. 3, ll. 10-18; col. 7, ll. 6-14; col. 8, ll. 13-21; col. 10, ll. 34-40; col. 10, ll. 41-47; col. 11, ll. 1-9; and col. 12; ll. 1-15. Absent any example of a relationship that excludes a client, the court is unwilling to expand the scope of this term to include such an example in its construction.

Accordingly, the court construes "business relationships of the client" as "business relationships that may affect the fulfillment of the client's order request, including business relationships between the client and the order servicing organization, or between the client and the fulfillment partner."

A. "Automatic" and "Without Manual Intervention"
Liquidnet requests that I construe several terms within claim one of Patent '834 to include the words "automatically" and "without manual intervention." For example, it proposes that the term "by at least one computer" be construed throughout the patent claim as "by one or more computers, without manual intervention." Because claim one does not use the words "automatically" and "without manual intervention," or any analog, Liquidnet relies for support on the patent's specification - which, unlike the claim itself, frequently uses both terms. Of particular relevance, the specification outlines in detail "that there is a need in the art for an electronic marketplace that does not require any manual intervention or traders," and asserts that "[t]he present invention addresses [that] need by providing for the automated transmission of orders (i.e., without manual trader intervention) from various order management systems . . . to an electronic trading marketplace[.]

48 In total, Liquidnet proposes that this construction be read into five different terms that appear one or more times in the claim: (1) that "by at least one computer" be construed as "by one or more computers, without manual intervention"; (2) that "subsequently generating" be construed as "subsequently producing in a format understood by the electronic marketplace automatically, without manual intervention"; (3) that "sending" be construed as "automatically transmitting, without manual intervention"; (4) that "subsequently sending" be construed as "subsequently transmitting automatically, without manual intervention"; (5) that "periodically determining" be construed as "automatically determining, from time to time, without manual intervention."

49 Patent '834 col. 2 ll. 30-33. 50 Id. col. 2 ll. 38-43 (emphasis added).

This language, along with the fact that the specification discusses multiple preferred embodiments wherein the patented method occurs automatically, provides evidence that the inventor envisioned the patented method occurring without manual intervention. However, this pervasive use of the words "automatically" and "without manual intervention" does not settle the issue. It is the claim itself, and not the specification, that defines an invention, and courts are well-advised not to add limiting modifiers (e.g., an adjective like "automatically") to broad claim language (e.g., a verb like "sending") without sufficient justification.

51 See Lemelson v. United States, 752 F.2d 1538, 1552 (Fed. Cir. 1985) (holding that a district court erred in construing the term "prepositioning" to mean "automatic prepositioning" even though the specification only discussed automatic prepositioning and did not discuss manual prepositioning at all). As Patent '834 itself states of the specification: "The above description is included to illustrate the operation of the preferred embodiments and is not meant to limit the scope of the invention. The scope of the invention is to be limited only by the following claims." Patent '834 col. 12 ll. 42-45. This may be boilerplate language found in almost any patent, but it must still be taken seriously. A patent applicant should not be allowed to use a patent's described embodiments to broaden that patent's scope when doing so is desirable (e.g., to sue for alleged infringement by later inventions) and to narrow it when doing so is desirable (e.g., to avoid invalidation by prior art).

52 See Renishaw PLC, 158 F.3d at 1249-50 ("Nor may we in the broader situation, add a narrowing modifier before an otherwise general term that stands unmodified in a claim. For example, if an apparatus claim recites a general structure (e.g., a noun) without limiting that structure to a specific subset of structure (e.g., with an adjective), we will generally construe the claim to cover all known types of that structure that are supported by the patent disclosure." (citations omitted)).

As stated, the Federal Circuit has discussed two ways in which the specification can be used to narrow the construction of a patent's claims. While these are not necessarily the only ways that such narrowing can occur, they do provide a good starting point for analysis.
First, the claim may contain ambiguous language that is susceptible to being construed as requiring the requested limitation. The closest such term in claim one is "by at least one computer." During the Markman hearing, Liquidnet contrasted computerized operations with manual operations, and stressed that the patented method was computerized. However, while the computerization of a process does suggest a degree of automation, this term does not rule out manual intervention. As a matter of common sense, it is apparent that some computer functions require manual intervention (e.g., a user must often click a key to save a document to a computer's hard drive). In addition, and perhaps more importantly, the specification states that even though computers are used in the prior art, these processes are not fully automated. If, as the specification states, the use of computers in the prior art does not mean that those processes occur automatically, the use of computers in the patented method cannot require such automation.

See 12/16/09 Markman Hearing Transcript ("Tr.") at 64-65.

Although computers are heavily used to facilitate trading of securities, manual intervention is still required at certain steps in the trading process. For example, most traders at institutional investment management firms record their orders to purchase or sell securities in computerized order management systems (OMS's). However, one or more traders at each firm must manually review the orders in the OMS and attempt to fill the orders by contacting one or more market intermediaries. Typically, the traders transmit the orders in the OMS by telephone or separate data entry links to registered broker-dealers for the securities, to electronic marketplaces that trade the securities, or to other market intermediaries. Accordingly, manual effort is required to actually execute the orders in the OMS.

See Patent '834 col. 1 ll. 20-33 ("Although computers are heavily used to facilitate trading of securities, manual intervention is still required at certain steps in the trading process. For example, most traders at institutional investment management firms record their orders to purchase or sell securities in computerized order management systems (OMS's). However, one or more traders at each firm must manually review the orders in the OMS and attempt to fill the orders by contacting one or more market intermediaries. Typically, the traders transmit the orders in the OMS by telephone or separate data entry links to registered broker-dealers for the securities, to electronic marketplaces that trade the securities, or to other market intermediaries. Accordingly, manual effort is required to actually execute the orders in the OMS.").

Nevertheless, Liquidnet asks me to read the claim terms to include the words "automatically" and "without manual intervention" on the grounds that the purpose of the invention will be frustrated unless the patented method includes such limitations. As Liquidnet argues, the specification explicitly describes the importance of the invention's automatic nature to solving issues not addressed in the prior art. I am also convinced that the invention, as it is actually practiced, involves a large degree of automation, and that its success in the marketplace is at least partly due to this automation. However, while an invention's purpose can be useful for interpreting "ambiguous" claim language, the Federal Circuit has made clear that "the court's task is not to limit claim language to exclude particular devices because they do not serve a perceived 'purpose' of the invention." In our patent system, it is the claims, and not the invention to which they relate, that define a patent's scope.

See Tr. at 48-49.

Liquidnet differs from all its counterparts in that traders do not have to enter orders themselves. Its software searches participants' order management systems (OMSs) and automatically alerts traders to natural matches.

See, e.g., 5/31/02 Dow Jones News Story, Ex. 8 to Declaration of Gaston Kroub ("Kroub Deck"), counsel for Liquidnet, at 2 ("Liquidnet differs from all its counterparts in that traders do not have to enter orders themselves. Its software searches participants' order management systems (OMSs) and automatically alerts traders to natural matches.").

E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1370 n.3 (Fed. Cir. 2003).

Id. at 1370.

Moreover, it is apparent from the specification that the claimed invention is not exclusively aimed at addressing the lack of automation in the prior art. The patented method is also designed to address the need for an electronic trading system that offers anonymity, 60 creates a high amount of liquidity, 61 and prevents over-execution of trades. 62
prosecution, the patent applicants removed the term "automatically" from the claim language in response to the PTO's assertions that the automatic nature of the method would not distinguish the patent from the prior art. In doing so, the applicants made clear that "although Applicants still do not agree with the Examiner's previous discussion [regarding automatic execution], . . ., this limitation is not relied upon as a distinguishing element in the current claims." 63 While this statement is not definitive in determining the scope of the claim at issue, it further supports the view that the patented method need not proceed automatically.

59 See id. ("An invention may possess a number of advantages or purposes, and there is no requirement that every claim directed to that invention be limited to encompass all of them.").

60 See Patent '834 col. 21. 32.

61 See id. col. 21. 33.

62 See id. col. 2 ll. 18-22. At the Markman hearing, Liquidnet argued that it is the automatic nature of the patented method that creates liquidity and prevents over-execution. See Tr. at 48. And the specification corroborates that the use of manual effort contributed, in part, to the existence of these problems in the prior art. See, e.g., Patent '834 col. 1 ll. 34-37 ("One problem arising from this manual effort is that institutional traders cannot execute trades involving large quantities of securities without adversely affecting the market price of the securities."). However, the specification also discloses other ways that the invention addresses gaps in the prior art. For example, the patented method is designed to allow "[t]raders [to] communicate with the ETM to anonymously negotiate trades of securities." Patent '834 col. 2 ll. 52-53 (emphasis added). This is a proposed benefit of the patented method that is entirely independent of the invention's automatic nature.

63 7/12/06 Amendment to Patent '834, Ex. 4R to Brenner-Leifer Decl., at 7.

Liquidnet and ITG have both made persuasive arguments regarding whether the patented method should be construed to occur automatically. Because one skilled in the art could reasonably have adopted either interpretation, this is one of those unfortunate situations where the patent has failed to perform adequately its public notice function, and my decision may consequently undermine the reasonable expectations of persons who are engaged in practicing or designing around the claimed invention. Nevertheless, this case cannot proceed with two interpretations of the same term, and I must therefore choose the definition that most closely accords with the claim language and the intrinsic evidence. While I do not doubt that the applicants believed their invention would work best when the method is automated, the intrinsic evidence is insufficient to read such a limitation into the claim. If automation was absolutely necessary to the invention, the words "automatically" and "without manual intervention" should have appeared in the claim itself.

Accordingly, I do not construe any of the disputed terms to include the words "automatically" or "without manual intervention."

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N) the claimed one or more communication session being created by the location facility, "by determining the then current location of the personal computer"

01 Communique suggest that the appropriate construction should be "The one or more communication sessions are created by the location facility by determining a current address or communication session for communicating with the personal computer." Citrix, however, suggests that the proper construction should be

In response to the claimed request from the remote computer, the location facility searches the dynamic directory to obtain the current IP address of the claimed personal computer and uses that current IP address to create the requested communication channel between the remote computer and the personal computer by forwarding to the data communication

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facility the remote computer's request for communication with the personal computer.

The court agrees with 01 Communiques that Citrix improperly tries to read "dynamic directory" into the claim. This would violate the principle of patent law that claims should be read in light of the specification, but that features should not be imported from the specification into the claims. SciMed Life Sys v. Advanced Cardiovascular Sys. Inc., 242 F.3d 1337, 1340-1341 (Fed. Cir. 2001). Therefore, the court rejects Citrix's proposed construction and instead adopts that of 01 Communiqué.

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With regard to the claim 1's limitation that the information be encoded "in said bit areas by the presence or absence of printing," Datastrip argues that this phrase, properly construed, only requires that the bit areas that are used to encode information be printed or not. Datastrip contends that claim 1 is not limited to matrix codes 2 as Symbol contends, but also covers variable width codes because variable width codes, like bar codes and the PDF417, still encode information by "the presence or absence of printing" at the bit area (module) level, which is all that is required by claim 1 of the '221 patent. Datastrip also argues that someone skilled in the art at the time claim 1 was filed considered presence/absence encoding to simply mean printing was used to define a bit area, not that a matrix code was being used. Datastrip therefore concludes that any testimony indicating that the PDF417 does not use presence/absence encoding is premised on a faulty claim construction.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
2 A code that uses presence/absence encoding can also be called a "matrix code." A matrix code is a two-dimensional code that uses the position of printed and blank areas within the matrix to encode information, with each printed or blank area being the same size. In a matrix code, the data is coded by the position of a printed or blank bit area.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Symbol responds by arguing that claim 1 is directed to a specific type of encoding, presence/absence encoding, which is distinct from variable width encoding used by bar codes and the PDF417. Symbol notes that claim 1 specifically recites that information is "encoded by the presence or absence of printing," not by the variable width of the printing. Symbol also notes that the '221 patent expressly distinguishes the claimed invention from bar codes, which use variable width encoding. Symbol then argues that substantial evidence was presented to the jury that indicated there were fundamental differences between presence/absence encoding, which is used in matrix codes, and variable width encoding, which is used in bar codes and the PDF417.

Claim 1 of the '221 patent requires that the "information be[] encoded in said bit areas by the presence or absence of printing." '221 patent, col. 7, ll. 24-25. Contrary to Datastrip's arguments, this phrase limits claim 1 to presence/absence encoding, such as matrix coding, as opposed to variable width encoding, such as bar coding. When construing a patent claim, we first look to the intrinsic evidence of record: the claim, the specification, and the prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83, 39 U.S.P.Q.2D (BNA) 1573, 1576-77 (Fed. Cir. 1996). Claim 1 requires that the information be "encoded in said bit areas by the presence or absence of printing." '221 patent, col. 7, ll. 24-25 (emphasis added). The claim language requires the information in the data strip be encoded by using the presence or absence of printing in the bit areas. The plain language of the claim requires the usage of presence/absence encoding.

The specification supports the claim's plain language. First, the specification's only discussion of variable width encoding is in the BACKGROUND OF THE INVENTION section, where it is discussing the prior art. The patent explains that "prior printed systems include bar codes which are a series of parallel printed lines so spaced and dimensioned as to convey information when scanned . . . ." '221 patent, col. 1, ll. 17-20. The specification contrasts the bar code prior art with the claimed invention, indicating that the invention provides bits of information by the "presence or absence of printing." Id. at col. 1, ll. 24-46. Second, the encoding method used in the preferred embodiment, dibit encoding, is presence/absence encoding. As the patent explains, a dibit conveys information by the presence or absence of printing in two adjacent bit areas. Id. at col. 3, ll. 54-63. Like any other presence/absence encoding, such as a matrix coding, dibit encoding uses the location of printed and blank areas within the data strip to encode information, i.e., whether the printed or blank bit area is
Datastrip correctly asserts that the phrase "presence or absence of printing" must be construed to mean what the phrase meant to someone skilled in the art at the time the '221 patent was filed. See Cybor, 138 F.3d at 1456, 46 U.S.P.Q.2d (BNA) at 1174. Based on the evidence of record, we conclude, as a matter of claim construction, that to those skilled in the art at the time of the patent's filing, the phrase "presence or absence of printing" did not include variable width encoding.

After holding a Markman hearing, the Court issued its Memorandum Opinion and Order on Claim Construction in which it construed six terms integral to the determination of this case and the instant motions. (doc. 270) The claims were construed as follows:

1. "connected and connectable" -- These terms mean "directly joined to one another within the same unitary piece of equipment without any intervening equipment."

2. "unified structure" -- Although not a claim term, the Court defines the term "unified structure" to mean "a consolidated structure with all components directly connected to one another."

3. "bypass" -- "Bypass" means "a structure and path by which data channels completely go around and in no respect go through the TST switch."

4. "control store" -- "A 'control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node."

5. "means for measuring" -- The Court finds that this term is not capable of construction.

6. "direction of the timing adjustment interval" -- This term means "[t]he timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow."

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 6.) Defendants contend that the term "bytes" means "the number of bytes in a packet being received from a customer's terminal, by an access node." (D.I. 395 at 13; D.I. 385 at 13.) In support of this construction, Defendants cite a description of the variable named BYTES used in an algorithm of the preferred embodiment. (‘810 patent at 7:35-36.)

The Court finds that Lucent has not clearly defined the term "bytes" by way of describing this parameter. Thus, the Court
concludes that the ordinary meaning of the term has not been rebutted. In the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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1. "Current-controlled complementary metal oxide semiconductor (C3MOS) logic"

This dispute concerns whether C3MOS logic is fabricated "using CMOS processes" only, as Broadcom asserts, or "using MOSFETs" (encompassing both CMOS and BiCMOS processes), as Agere claims. Importantly, both Broadcom's expert, Dr. Fair, and Agere's expert, Dr. Blalock, testified that C3MOS logic is made using CMOS processes. (Fair '194 Rep. P 37; Blalock Rep. P 57.) Agere provides no expert evidence in support of its position, relying instead on a vague citation to a technical paper stating that BiCMOS, which combines bipolar and CMOS technologies on the same chip, is "probably" "the technology of the future." KENNETH R. LAKER & WILLY M.C. SANSEN, DESIGN OF ANALOG INTEGRATED CIRCUITS AND SYSTEMS 156 (1994). Broadcom responds, correctly, that this citation has little to do with the instant dispute, in that it does not refute the testimony of the two expert witnesses. Thus, the Court finds that Broadcom's proposed construction accurately reflects the understanding of persons of ordinary skill in the art, and that construction is therefore adopted.

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The Court construes "CPE" (or customer premises equipment) as "customer side equipment in a wireless communication system that transmits data to and/or receives data from a base station." This construction is similar to the construction of base station, as the base station and the CPE are related.

A. Parties' Construction Arguments

Plaintiff's original proposed construction reads "equipment in a wireless communication system that transmits data to a base station." Plaintiff's rationale for its original construction of "CPE" is essentially the same as its rationale for its construction of "base station." Plaintiff's revised proposed construction reads "equipment in a wireless communication system that facilitates communication between a base station and at least one end user." Plaintiff's revised construction is similar to Plaintiff's revised construction of "base station" as well, and Plaintiff provides essentially the same support for the construction of "CPE" as Plaintiff did for "base station."

Defendants seek a construction that reads "equipment installed at a customer premises that relays data between a base station and end users." Defendants first argue that "CPE" (or customer premises equipment) must be installed at a customer premises. For support, Defendants first provide technical dictionary definitions that show one of ordinary skill in the art at the time of filing would have known the CPE must be installed at a customer premises. As with Defendants' argument for "base station," Defendants also argue the '311 patent (incorporated by reference in the patent-in-suit) explicitly shows the CPE being installed at the customer premises. See '311 patent, Figure 7. Defendants also ask the Court to construe CPE as requiring the CPE to "relay[] data between a base station and end users." Defendants' argument here cites to the specification where it states that the CPE is coupled to end users in addition to the base station. See, e.g., '759 patent, 4:13-14 ("Each CPE is further coupled to a plurality of end users . . . ").

B. Analysis

The Court construes "CPE" as "customer side equipment in a wireless communication system that transmits data to and/or receives data from a base station." As with "base station," the Court primarily agrees with Plaintiff's original construction, but the Court has made changes. For the same reasons as the Court's construction of "base station," the Court adds the "receives" language. Furthermore, the Court adds the language "customer side" to the beginning of Plaintiff's original construction. The Court concludes that merely stating "equipment" is not sufficient because it would fail to give effect to the "customer premises" language in the actual claim term.
However, the Court disagrees with Defendants that the equipment must be installed at a customer premises. While the term does plainly read customer "premises" equipment, the specification shows that the equipment need not be installed at the customer premises. The specification never limits the CPEs to being installed at the customer's premises. Indeed, the specification mentions "fixed and portable" subscriber units and the specification also discusses "mobile cellular telephone systems," which would clearly not be installed at the customer premises. See '759 patent, 1:15-20. While the '311 patent (incorporated by reference) may show the CPEs installed at the customer premises, the '311 patent is merely "[o]ne exemplary broadband wireless communication system" and thus only a preferred embodiment. See '759 patent, 3:28-34. See also Phillips, 415 F.3d at 1323("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments"). The Court additionally disagrees with the Defendants' proposed construction language that requires the "CPE" to "relay[] data between a base station and end users." As with the Court's construction of "base station," the Court believes that while there is a relationship with the CPE and end users that is briefly mentioned in the specification, the invention here refers to the relationship with the base station and the CPE. Hence, the relationship with end users is not necessary to include in the construction of "CPE."

Finally, the Court disagrees again with Plaintiff's revised construction for the same reasons the Court disagreed with Plaintiff's revised construction of "base station." The "facilitates" language is not grounded in the specification as the "transmits and receives" language. Further, the Court concludes it is not necessary to include the relationship between the end users and the CPE. Therefore, the Court construes "CPE" as "customer side equipment in a wireless communication system that transmits datato and/or receives data from a base station."

1. "CPU"

Claim 1 describes, inter alia, "a control circuit including a central processing unit located within the housing for detecting a plurality of electrical parameters of the appliance during operation." (Emphasis supplied). P3's proposed construction of the term "central processing unit" ("CPU") in its opening brief is "an electronic circuit that executes software programs" (emphasis supplied), and in its reply brief its preferred construction is "an electronic circuit that executes computer programs." (Emphasis supplied). UPM claims that this construction is inconsistent with the specification because the specification does not mention that the CPU executes software programs. UPM argues that the construction of CPU should be what the specification describes: that "the CPU receives signals generated by a zero-crossing detecting circuit [], an analog-to-digital converter [], and a time base signal generator []. The CPU processes the data and provides an output to the display unit . . . ."

Considering the intrinsic evidence of record, namely the claims and the specification, UPM has failed to demonstrate how P3's construction of a "CPU" as an electronic circuit that executes computer or software programs is inconsistent with the claim language or specification or is a deviation from how the term is understood by a person of ordinary skill in the art. Simply because the word "software" is not used in the specification does not make the specification inconsistent with P3's proposed construction. UPM's proposed construction is an attempt to import improperly the limitations from the specification into the claims, without any showing that the specification in this case was intended to be coextensive with the claim. Phillips, 415 F.3d at 1323.

Any ambiguity in the usage of the term is clarified by looking at the extrinsic evidence proffered, which also supports P3's construction, as the Modern Dictionary of Electronics provides that a CPU is a "primary unit of the computer system that controls interpretation and execution of instructions." Modern Dictionary of Electronics, 158 (7th ed. 1999) (emphasis supplied). The intrinsic evidence shows that the claimed CPU is that is to execute various programs and instructions. There is nothing in the specification inconsistent with this understanding of the term's ordinary meaning, and thus the term CPU is construed as "an electronic circuit that executes computer programs."

1. Cache
OutlookSoft asserts that the proposed definition of cache is "a mechanism for data storage and transfer." Hyperion asserts that the proper construction is a "computer memory having a first part that stores data and a second part that stores data requests." Both parties cite to functions the cache performs in claim 1 and both parties cite to statements made by the Examiner during prosecution. However, the parties' citations do not define "cache." Instead, these citations relate to additional claim limitations. To incorporate these limitations into the term cache would render the limitations within claim 1 moot. Bedrock principles of claim construction counsel against a construction that renders additional limitations superfluous. See Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005).

An example of how the parties incorrectly support their respective positions may prove beneficial. In support its two-part cache argument, Hyperion places great emphasis on the Notice of Allowability of the 292 File History. The reason for allowance in the file history was:

Applicant's invention in claim 1 claims features of the two part cache function described in the preferred embodiment in pages 18-20. Claim 1 claims a spreadsheet with a cache wherein said cache stores data for use by said spreadsheet program in rendering said at least one spreadsheet.' This claim limitation is the first part -- the data cache -- of Applicant's inventive two part cache. The second part of Applicant's inventive spreadsheet cache -- the key cache -- is claimed in the language said cache formulates a single query for transmission from said client across said network to said server requesting all required data.'

In other words, the data cache and key cache functionality that Hyperion seeks to have incorporated into the term "cache" is actually specifically claimed in claim 1. To include the functionality of the data cache and key cache in the construction of the term cache would therefore render a large part of claim 1 superfluous. OutlookSoft's proposed construction suffers from the same deficiencies. Thus, the Court adopts neither party's proposed construction.

The Court will instead develop its own construction using the common and well understood meaning of the term cache while at the same time allowing for the multi-functionality that the elements in claim 1 require. Generally, a cache is nothing more than temporary memory storage. However, in this case, the cache also performs other functions. Thus, there must be an associated set of computer instructions that allow for the functionality described in the claims of the OutlookSoft patents. Accordingly, within the context of this patent, "cache" is "temporary memory storage operating in conjunction with computing instructions to perform various functions."

The parties do not dispute the meaning of the term "cache." A "cache" is a memory. More specifically, according to its plain meaning, a cache is a portion of memory that can be accessed quickly. See Novell's Encyclopedia of Networking 116 (1997).
Toshiba further argues that the invention disclosed in the '846 Patent specifically stated that it was superior to the prior art because it implements "all three caching strategies, cacheable non-cacheable, write-through, and copyback, to be utilized in the same machine, and which allows for selection of any one of the three strategies under software control using software control bits." 846 Patent at 1:62-67, 3:1-4. Toshiba claims that no cacheable modes are described or suggested in the patent other than write-through and copyback.

The parties also raise substantial arguments regarding two pieces of prior art cited by the PTO during the prosecution of the '846 Patent. In rejecting the claims, the PTO relied on the fact that U.S. Patent No. 4,433,374 ("the Hanson reference") disclosed "three modes of written data into the cache memory": "non-write through mode [normal write command]," "write through mode [Store-Thru command]" and "non-cacheable mode [Dispersed Write]." Pl's Exh. O at 4 (brackets in original). Intergraph claims that the PTO's rejection was based on the number of modes disclosed in the Hanson reference rather than the types of modes disclosed, because the Hanson reference did not disclose a copyback mode. Intergraph attempted to overcome this rejection by amending its claims to include limitations related to data consistency rather than asserting the failure of the Hanson reference to disclose a copyback mode. Pl's Exh. P at 11-12.

In response, Toshiba cites statements from Dr. Wolfe claiming that, in the "normal write" mode disclosed in the Hanson reference and cited by the PTO, "data was held in a disk-drive cache until the disk drive was not busy, and was then written to the disk." Wolfe Dec., Exh. A P 45. Despite the fact that Dr. Wolfe's very next sentence is "Hanson does not disclose a copyback mode," Toshiba claims that Dr. Wolfe's explanation of the "normal write" is consistent with the copyback mode recited in Claim 4 of the '846 Patent. Aside from drawing an obtuse parallel between Dr. Wolfe's explanation and Claim 4's recitation of immediately storing data only in the cache memory, Toshiba provides no explanation as to why Dr. Wolfe allegedly contradicted himself in his report. Accordingly, Toshiba's argument in this regard is unconvincing.

Toshiba additionally relies on a second piece of prior art asserted by the PTO. In attempting to distinguish from U.S. Patent No. 4,669,043 ("the Kaplinsky reference"), Intergraph stated that its claimed invention accomplished combining write-through and copyback caching strategies whereas the prior art disclosed only systems using one strategy or the other. Defs' Exh. Z at 11, 13-14. Intergraph distinguished the Kaplinsky reference based on the inability to add additional modes to the reference disclosed therein, not the absence of a particular mode. Id. at 13. As with the Hanson reference, the salient point regarding the Kaplinsky reference was numerosity rather than type. A system's ability to select a caching strategy as new requirements arise, rather than committing to a particular strategy in advance and therefore being unable to adapt, increases the flexibility and functionality of the system. Id. at 11.

Intergraph further claims that the PTO's citation of Hanson, which did disclose a plurality of modes, was in response to Intergraph's distinction of Kaplinsky. The Examiner stated that "when Hanson et al's teachings of different cache data storage modes is incorporated into Kaplinsky's system, it would have been obvious to one of ordinary skilled [sic] in the art that the different cache data storage modes can be controlled by the system attributes stored in the descriptor table." Pl's Exh. O at 4. This further supports the contention that the ability to select from among different available strategies was the salient issue in this exchange.

While the specification cites specific examples known at the time to demonstrate the invention's multiple cache storage modes, the claims themselves do not limit the invention to the delineated modes. The intrinsic record supports Intergraph's contention that the PTO was chiefly concerned with the number, rather than type, of modes. Furthermore, the claim language itself refers to "a plurality of cache data storage modes." '846 Patent at Claims 1 & 9. The term "cache data storage modes" is broad, and to limit the modes to those specifically identified in the specification would be to improperly import claim limitations where none exist. Accordingly, the court adopts Intergraph's construction of "cache data storage modes": "strategies for writing data to cache and to primary memory."
creates a cache in the memory of the computer in which it resides; (iii) includes executable remote messaging code; (iv) at least one of the cache drivers includes executable interception code; and (v) at least one of the cache drivers includes executable invalidate code. ('244 Patent, at 26:60-27:31). Claim 22 of the '244 Patent adds that the cache driver (vi) allocates to the cache, space in the memory of the computer. (Id. at 27:42-46).

Superspeed contends that the definition of "cache driver" means "a program that implements a cache." (Instrument No. 69, at 24-26). The parties have already agreed that the definition of cache means "a portion of system main memory (e.g., RAM) used for temporary storage of data." (Instrument No. 69, at 9-10). Thus, it is not necessary to re-define cache within the definition of "cache driver." However, it is necessary to determine how the term "driver" in "cache driver" is used within the context of the claims and specifications of the patents-in-suit.

The specifications of the '244 Patent refer to the "cache driver" as "cache driver software." ('244 Patent, at 4:8-10; 5:14-16) ("When the OpenVMS system (14) performs a read data I/O access to a disk (12) the cache driver (10) software intercepts the I/O.") (emphasis added). The specifications also describe the "cache driver" as something that is loaded on to a computer or operating system, rather than a separate physical device that is inserted or attached to the computer. (See id. at 3:18 ("When the cache driver is first loaded on the operating system all the disks (12) present on the computer system are located. . . ."); Id. at 3:36-38 ("The cache driver (10) maintains remote message communication channels (18) with other cache drivers loaded on other computers "). Thus, the "cache driver" is accurately described as software or a program that is loaded on a computer.

The specifications describe the function of the "cache driver" software as follows:

The cache driver (10) maintains remote message communication channels (18) with other cache drivers loaded on other computers that can access a common set of disks (12). Whenever the OpenVMS system (14) changes the data on the disk (12) for example by doing a write data access to the disk (12), the cache driver (10) uses its remote message communications channels (18) to send a message to each of the remote cache drivers in the list contained in the TCB [the control block] (16) disk control structure.

... . . .

When the OpenVMS system (14) performs a read data I/O access to a disk (12) the cache driver (10) software intercepts the I/O. Using the size of the read data access the cache driver (10) selects which of the three caches, small, medium, or large, the data transfer fits. Having selected the appropriate sized cache the TCH [the cache hack] (26) cache control structure is selected. Using the read data I/O access disk block as a pointer into the disk block value hash table (30) of the TCH (26), the cache driver (10) attempts to locate a matching TCMB (24) bucket control structure.

... . . .

If a TCMB (24) bucket control structure with its corresponding cache data bucket (22) was obtained from one of the three sources described above, cache data space can be assigned for this disk (12) read data. The disk (12) is accessed normally, however the read data is not only sent to the requesting user on the OpenVMS system (14), but also copied to the cache data bucket.


According to the specifications, the "cache driver" controls the cache by communicating with the cache control structures and disk control structures. The "cache driver" also creates cache by assigning cache data to available cache data buckets and copying the data to the cache data bucket.

In order to assist the Court, both parties refer to the definition of "driver" as set forth in the IEEE DICTIONARY. The IEEE DICTIONARY defines "driver" in many contexts:

(1) (communication practice) An electronic circuit that supplies input to another electronic circuit.

(2) (A) (software) A software module that invokes and, perhaps, controls and monitors the execution of one or more other
software modules (B) (software) A computer program that controls a peripheral device, and, sometimes, reformats data for transfer to and from the device. See also: test drives.

(3) A program, circuit or device used to power or control other programs, circuits or devices. See also: bus driver, device driver

(4) An electrical circuit whose purpose is to signal a binary state for transmitting information. Also referred to as a generator in international standards.

IEEE DICTIONARY, at 318. (Instrument No. 69, Exh F).

Here, the cache driver is software that creates or controls cache in the memory of the computer in which it resides and uses remote message communication to communicate with an I/O device or other cache driver programs and computers. Superspeed argues that the appropriate definition for "driver" in this context is "[a] software module that invokes and, perhaps, controls and monitors the execution of one or more other software modules." IEEE DICTIONARY, at 318. (Instrument No. 69, at 25-26). By linking the IEEE definition of "driver" to the agreed definition of "cache," Superspeed contends that "cache driver" may be defined as "software that invokes or controls the cache." (Id.). Superspeed further contends that this definition can be simplified by removing the terms "invokes or controls" and replacing it with the term "implementing." (Id. at 26). However, the Court finds that the term "implementing" is overly vague in the context of the specifications that state that the cache driver communicates with structures that control the cache. Thus, the Court does not find that Superspeed's additional modification to include the term "implementing" is necessary.

Oracle argues that the appropriate definition of "driver" in this context is "[a] computer program that controls a peripheral device, and, sometimes, reformats data for transfer to and from the device." IEEE DICTIONARY, at 318. (Instrument No. 77, at 33). Oracle ultimately attempts to use this IEEE definition to support its proposed construction that "cache driver" means "device driver that controls a cache." The Court initially notes that Oracle's proposed definition of "cache driver" includes both of the terms that the definition purports to define. Furthermore, including the term "device driver" does nothing to clarify what a "driver" is -- which is the entire basis of dispute.

In addition, Oracle entirely focuses on the cache driver communication with I/O devices, to support the conclusion that the cache driver operates on the device driver level. (Id. at 32). However, it is not necessary to limit the cache driver to communication on the device driver level, because the specifications indicate that the cache driver is not limited to communication with peripheral I/O devices. Rather, the cache driver uses remote message communications to communicate with I/O devices, as well as other operating systems and cache drivers. (244 Patent, at 3:34-42, 4:8-17, 4:52-58) The cache driver also communicates with other internal software programs and disks, such as the TCH cache control structure, TCB disk control structure, and TCMB bucket control structure. (Id.).

Because the "cache driver" controls the cache by communicating with the cache control structures, and creates cache by copying read data to the cache data buckets, the Court finds that the term "cache driver" means "a software program that creates or controls a cache."

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4. "Cache memory"

The court defines the term "cache memory" to mean "a high speed memory that bridges main memory and the CPU." The court rejects the plaintiff's argument that no definition of this term is required and, at the same time, rejects the defendant's argument that the patentee expressly limited the scope of this term in an exchange with the examiner. In the pertinent correspondence, the patentee remarked that the cache memory was by definition, "a memory having a higher speed than the local memory and which is disposed between the local memory and the processor." This statement must be read in the context in which it was made. The applicant was distinguishing the Kaplinsky reference from the present invention, and the court is not persuaded that this statement has the effect of incorporating a concept of "local memory" into the claims of these patents.
VI. '641 patent

The '641 patent discloses a system for ensuring that the most current data is retrieved from the main memory. Because individual devices can update data in their own local cache memory without immediately writing the new data back to the main memory, data in the main memory can be "stale." Therefore, the system claimed in the '641 patent monitors the data being transferred over the bus, and if data stored in the cache matches the address of the data being transferred, a hold signal is asserted. Then, the data being transferred is compared with the data on the cache. If there is a difference, the data stored on the cache, which is the most recent data, is also transferred.

The trial court concluded the '641 patent claims asserted were not infringed based on its patent exhaustion holding, which we reverse above. However, LGE contends that the trial court also improperly construed claims 1, 5, and 14. In particular, LGE disputes the trial court's construction of "cache memory means" (in claims 1 and 5) and "cache memory" (in claim 14), which were construed as "one of at least two high speed memories located close to the CPU of a computer to give the CPU faster access to blocks of data than could be taken directly from the larger, slower main memory and never using valid/invalid bits." Claim Construction Order at 18-22. LGE contends that the trial court improperly read claims 1 and 14 as requiring at least two caches. It also contends that the trial court improperly read in the limitation that neither cache uses valid/invalid bits.

We agree with LGE that the trial court erred in reading the limitation of at least two high speed memories into claims 1 and 14. Unlike claim 5, which expressly requires at least two cache memories, claims 1 and 14 have no such express limitation. Cf. Phillips, 415 F.3d at 1314 ("Differences among claims can also be a useful guide in understanding the meaning of particular claim terms." (citing Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991))). To the contrary, claims 1 and 14 only require one or more CPUs and a cache memory coupled between the CPU and the bus. Because the claims expressly cover one central processing unit, they logically also cover systems with only one cache coupled between that single central processing unit and the bus. Defendants rely on the fact that the written description describes a system with multiple caches. However, as we explain in more detail below, the patent application initially described two inventions, and these statements relate to the other invention that is not claimed in the '641 patent.

We also agree with LGE that the trial court improperly read the limitation of never using valid/invalid bits into the claims. The patent's background section suggests that valid/invalid bits were used to manage data in systems with more than one cache. In particular, it explains that the purpose of the invalid bit is to redirect a processor attempting to access an address in its cache to another cache with a more updated memory associated with that address. '641 patent col. 1 ll. 44-52. The claims at issue do not themselves expressly include or exclude the use of valid/invalid bits. Defendants, however, contend that the trial court's construction is supported by the specification and prosecution history. The specification states that "a further object of this invention [is] to provide a cache memory system wherein the use of valid/invalid data indicators are avoided." '641 patent col. 1 ll. 65-67. It further states that "[i]t should be kept in mind during the following description, that the invention maintains data integrity by assuring that cache data is always the most up-to-date in the system. Thus, there never is a 'valid' or 'invalid' indication with respect to any cache data as it is always assured that if data is provided by a cache, that it invariably is valid (i.e. most up-to-date)." Id. col. 3 ll. 27-33.

Defendants are correct that reviewing the specification in construing claims is appropriate. Phillips, 415 F.3d at 1315-17, but such review need not be done in the abstract. Here, as noted above, the original patent application disclosed two inventions. As the examiner observed, one invention "was drawn to a cache system for updating each copy of the data stored in a plurality of caches when the data is modified," and the other was drawn to "a cache system for sending the most current data to a requestor by monitoring the address of a data on a data bus for detecting whether the [data] is stored and modified in the cache." The patent examiner concluded that these two inventions were distinct and required the applicant to elect one invention. The applicant ultimately limited the original application to the latter group of claims, which issued as the '641 patent, and the other claim group was separated into a different application, which ultimately issued as U.S. Patent No. 5,097,409.

%Here, the discussion of valid/invalid bits in the specification was relevant to multi-cache systems, because the patent's background provides that "[s]o long as a write back cache is utilized with only one processor, data management is straight
forward. However, when more than one central processor uses the same main memory, data management problems multiply. "'641 patent col. 1 ll. 39-43. The patent explains that the data management problems in multiple CPU systems are a result, at least in part, of their containing more than one cache memory. Managing data in multiple cache systems was the subject of the invention not elected during prosecution and, therefore, the statements in the specification referring to valid/invalid bits are not relevant to the invention ultimately claimed in the '641 patent. Cf. Pitney Bowes, Inc. v. Hewlett-PackardCo., 182 F.3d 1298, 1311 (Fed. Cir. 1999) (observing that a written description describing multiple inventions may not be relevant" in toto" to each of those inventions). Indeed, the unelected claims expressly contained the limitation that the "cache memory means hav[e] no provisions for indicating the invalidity of said data units," whereas the elected claims contained no such limitation.

For the same reasons, we do not find that the patentee disavowed the use of valid/invalid bits under the doctrine of specification disclaimer. "[T]he specification may reveal an intentional disclaimer, or disavowal, of claim scope by an inventor. In that instance, . . . the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." Phillips, at 1316; see also SciMed Life Sys. v. Advanced Cardiovascular Sys., 242 F.3d 1337, 1341 (Fed. Cir. 2001). However, because the statements relied upon by defendants relate to the invention not elected during prosecution, there is no clear disavowal with respect to the invention actually claimed in the '641 patent.

3. Claim Construction

The parties dispute the meaning of several of the terms in Claims 1 and 10 of the patent: (1) cache memory; (2) output rendered pixel; (3) coupled; and (4) interpolator.

Regarding the meaning of cache memory, Silicon Graphics contends that the court should use the plain meaning of the terms. nVidia contends that read within the context of the prosecution history of the '481 patent and its parent application, cache memory should be construed to mean a cache memory configured to store a complete texture mapping.

E. The Prosecution History

The court draws the following facts from the '481 patent and its prosecution history. In particular, the court looks to the prosecution history of the '481 patent and the patent which issued from the parent application of the '481 patent, U.S. Patent No. 5,548,709 ("the '709 patent").

1. Prosecution of the '709 Patent

On March 7, 1994, Marc R. Hannah and Michael D. Nagy filed Application No. 8/206,959 ("the '959 application") with the Patent and Trademark Office ("PTO"). As first filed, the application contained 19 pending claims, including Claim 19, which claims a TRAM comprising an interpolator and a cache memory. Claim 19 read:

A single semiconductor chip comprising a cache memory for storing texture information and an interpolator for generating a texel by interpolation from said texture information stored in said cache memory, wherein said cache memory and said interpolator both reside on said single semiconductor chip.

The other claims pertain to a TRAM including an on-chip main memory in addition to the elements recited by Claim 19.

On March 21, 1995, the PTO rejected pending Claims 1, 4, 10, 13 and 19 in the '959 application, as being anticipated or obvious in light of an article by Tom Williams on Intel's 80860 chip, entitled "80860 May Force Rethinking of Graphics System Architectures," Computer Design, 28:42 (July 1, 1989) ("the Williams 80860 reference"). In rejecting the pending claims, the examiner stated:

As per claims 1 and 19, Williams teaches that Intel's 80860 RISC-based 64-bit microprocessor chip contains a memory management unit, data and instruction caches, and pixel-generated circuitry for shaded 3D graphics. Williams further teaches that the 80860 graphics section contains interpolation and adder logic for rendering shaded triangles. And Williams teaches that the 80860 is used for texture mapping. Memory and I/O [in/out] are inherent features of any microprocessor
design therefore the 80860 would have main memory as well as I/O.

(Citations omitted).

On June 29, 1995, the applicants responded to the rejection over the Williams 80860 reference, arguing there were differences between the pending claims in the '959 application and the Williams 80860 reference. Regarding the rejection of pending Claims 1, 10 and 19, the applicants contended in full:

Williams describes the Intel 80860 microprocessor ("80860") as having on-chip graphics processing circuitry. Although the 80860 is capable of texture mapping, it does not have the specialized architecture found in the present invention. In particular, the graphics processor in the 80860 does not have a dedicated memory unit which can store a texture pattern, in contrast to the TRAM in the present invention. Although the Examiner is correct in stating that memory and I/O are inherent features of any microprocessor design, the present invention is clearly not a microprocessor. Indeed, the on-chip TRAM of the present invention is designed to receive and store a complete texture pattern, whereas the 80860 would have to access off chip memory containing the texture pattern. There is no indication that the data cache alone in the 80860 is suitable for holding a texture pattern. As a result, the texture mapping capability of the present invention would be superior to that of the 80860 because of fewer off chip memory accesses. Therefore, since the TRAM of the present invention or an equivalent is not found in the 80860 as described by Williams, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 10 and 19 under 35 U.S.C. § 102.

(Emphasis added).

On October 20, 1995, the PTO issued an examiner action allowing Claims 1-18 of the '959 application and rejecting Claim 19. In allowing Claims 1-18 over the Williams 80860 reference, the examiner stated in full:

In view of the Applicant's remarks [contained in the June 26, 1995 response], the totality of the structural combinations recited is not rendered obvious by the prior art. Specifically, the cited prior art [Williams 80860 reference] does not teach a dedicated memory unit for storing a texture pattern, fault prediction means comprising more than cache miss notification as per the specification on pg. 15, lines 3-12, parallel memory access scheme, generating interpolations for different data widths, using interpolation schemes together on a single ic chip, and that filtering and pattern storage be done on a single chip.

In rejecting Claim 19 as anticipated by the Williams 80860 reference, the examiner stated in full:

As per claim 19, Williams teaches that Intel's 80860 RISC-based 64-bit microprocessor chip contains a memory management unit, data and instruction caches, and pixel-generated circuitry for shaded 3D graphics. Williams further teaches that the 80860 graphics section contains interpolation and adder logic for rendering shaded triangles. And Williams teaches that the 80860 is used for texture mapping.

(Citations omitted).

On January 16, 1996, the applicants canceled Claim 19, and on February 14, 1996, the PTO issued a notice of allowability for Claims 1-18 of the '959 application, which issued as U.S. Patent No. 5,548,709 ("the '709 patent"). The inventors assigned the patent to Silicon Graphics.

Like the '481 patent, the '709 patent discloses a semiconductor chip used to perform texture mapping and a method of performing texture mapping. The invention claims a chip containing a main memory, a cache memory, an interpolator, and a memory controller which controls the data transfers between the main memory and the cache memory. The invention differs from the invention of the '481 patent in that the '709 patent claims a chip containing a memory controller and a main memory on the chip. The '481 patent does not claim a memory controller or a main memory that is on the chip containing the interpolator and the cache memory.

The '709 patent has 18 claims. Claims 1 and 10 are independent claims. Claim 1 is an apparatus claim covering a semiconductor chip (TRAM). It includes six elements: (1) an input; (2) a main memory coupled to the input; (3) a cache memory coupled to the main memory; (4) a memory controller coupled to the main memory and cache memory; (5) an
interpolator coupled to the main memory and cache memory; and (6) an output coupled to the interpolator. Claim 1 reads as follows:

Claim 1

In a computer system, a semiconductor chip for performing texture mapping, said semiconductor chip comprising:

- an input for inputting textures to said semiconductor chip;
- a main memory coupled to said input for storing said textures;
- a cache memory coupled to said main memory, for storing recently used textures;
- a memory controller coupled to said main memory and said cache memory for controlling data transfers between said main memory and said cache memory;
- an interpolator coupled to said main memory and said cache memory for producing an output rendered pixel by interpolating from said recently used textures stored in said cache memory;
- an output coupled to said interpolator for outputting said output rendered pixel, wherein said input, said main memory, said cache memory, said memory controller, and said interpolator reside on a single substrate.

Claim 10 is a method claim covering the texture mapping process performed by a semiconductor chip (TRAM). It includes six elements: (1) inputting textures; (2) storing textures in a main memory; (3) storing recently used textures in a cache memory; (4) controlling data transfer; (5) interpolating from recently used texture to produce an output rendered pixel; and (3) outputting an output rendered pixel. Claim 10 reads as follows:

Claim 10

In a computer system, a method of performing texture mapping, said method comprising the steps of:

- inputting textures to a semiconductor chip;
- storing said textures in a main memory of said semiconductor chip;
- storing a recently used texture in a cache memory of said semiconductor chip;
- controlling data transfers between said main memory and said cache memory;
- producing an output rendered pixel by implementing an interpolator and interpolating from said recently used texture stored in said cache memory, wherein said interpolator resides on said semiconductor chip;
- outputting said output rendered pixel from said semiconductor chip.

2. Prosecution of the '481 Patent

On May 22, 1996, Hannah and Nagy filed Application No. 08/206,117 ("the '117 application), as a continuation of the '959 application. When first filed, the '117 application contained the specification and the original 19 claims of the '959 application. On November 5, 1996, the applicants filed an amendment, canceling pending Claims 1-19, and adding pending Claims 20-37. These claims are related to the '959 application's Claim 19. Both Claim 19 of the '959 application and Claims 20-37 of the '117 application disclose a semiconductor chip comprising a cache memory and an interpolator, but not an on-chip main memory, which is an element of the claims of the '709 patent.

In the remarks section of the preliminary amendment, Silicon Graphics made the following representations concerning the then pending claims:
The present invention is directed at a semiconductor integrated circuit chip which is dedicated to graphics processing, and in particular, texture mapping. For example, Independent Claims 20 and 29 include the unique limitation of a cache memory and an interpolator residing on the semiconductor chip dedicated to texture mapping, wherein the cache memory is configured to store a complete texture mapping.

While prosecuting the parent application, several related claims had been rejected as being anticipated by the article by Williams [the Williams 80860 reference].

Williams describes the Intel 80860 microprocessor ("80860") as having on-chip graphics processing circuitry. Although the 80860 is capable of texture mapping, it does not have the specialized architecture as claimed by applicants. In particular, the graphics processor in the 80860 does not have a cache memory that, alone, is capable of holding a complete texture pattern.

The present invention as claimed, however, includes the structural limitation of having a cache memory that is configured to store a complete texture mapping. As a result, the texture mapping capability of the present invention would be superior to that of the 80860 because fewer off chip memory accesses would be necessary.

(Emphasis added) (Citations omitted).

The applicants stated in conclusion:

Therefore, since the unique combination of a semiconductor chip dedicated to graphics processing having a cache memory that is configured to store a complete texture mapping, so as to require less memory accesses off chip, is not disclosed or suggested by any of the cited prior art references, applicants respectfully submit the claimed invention is in condition for allowance.

In a January 14, 1997 office action, the examiner rejected pending Claims 20-37 for obviousness-type double patenting, and rejected pending Claims 20-28 as indefinite under 35 U.S.C. § 112, second paragraph.

In the remarks accompanying this action regarding the double patenting rejection, the examiner compared Claims 1 and 2 of the '709 patent with pending Claims 20 and 21 of the '117 application. The examiner found that Claims 1 and 2 of the '709 patent differ from pending Claims 20 and 21 "in that [the '709 patent] claims 'an input for inputting textures to said semiconductor chip,' a 'main memory . . . for storing said textures,' and 'a memory controller' in addition to all of the elements of claims 20 and 21 of this application." The examiner found the only differences between the inventions of the '709 patent and the '117 application were as follows:

1) an input to the semiconductor chip is recited in [the '709 patent] and not in this application, 2) the cache memory of this application is recited to store "a complete texture mapping" whereas the cache memory of [the '709 patent] is recited to store "a recently used texture[,]" and 3) the main memory is disposed on the chip in [the '709 patent] and off the chip in this application.

With respect to the second enumerated difference, the examiner observed:

since both caches store texture map data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have stored in the cache [] "a recently used texture" in place of [] "a complete texture mapping" to facilitate a type of texture processing desired.

The examiner compared pending Claim 29 to the '709 patent's Claims 10 and 11. The examiner found Claims 10 and 11 of the '709 patent differ from pending Claims 29 and 30 "in that [the '709 patent] claims 'inputting textures to a semiconductor chip,' [] 'storing said textures in main memory . . . ' [] and 'controlling data transfers between said main memory and said cache memory' in addition to all of the steps of claims 29 and 30 of this application." The examiner found the only differences between the inventions are as follows:

1) inputting textures to the chip in [the '709 patent]; 2) storing the textures in the main memory on the chip in [the '709 patent]...
With respect to the second enumerated difference, the examiner observed:

since both caches store texture map data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have stored in the cache a "recently used texture" in place of ["a complete texture mapping"] to facilitate the type of texture processing desired.

On April 29, 1997, the applicants also filed an amendment. The applicants amended pending Claims 20 and 29 by deleting the term "complete texture mapping" and inserting "texture mapping data" in its place. The applicants also amended Claim 20 to require "an input configured to input texture mappings to said semiconductor." The applicants stated that they had submitted a Terminal Disclaimer to overcome the examiner's rejection for obviousness-type double patenting over the '709 patent. The applicants also stated: "Applicants have amended claims 20 and 29 in response to the Examiner's rejection under 35 U.S.C. § 112 second paragraph. Moreover, the claims have been amended to more accurately claim the operations of the present invention."

On April 30, 1997, the applicants filed a Terminal Disclaimer agreeing that any patent issuing from the '117 application would only be enforceable for the statutory term of the '709 patent.

On August 20, 1997, the PTO issued a notice of allowability, allowing the '117 application's pending Claims 20-37, which issued as the '481 patent's Claims 1-18. The inventors assigned the patent to Silicon Graphics.

The parties' claim construction disputes concern terms in the '481 patent's independent claims, Claims 1 and 10, which are the same as the '117 application's pending Claims 20 and 29, respectively. Claim 1 of the '481 patent reads as follows, with disputed phrases italicized:

Claim 1

A computer system having semiconductor chip for performing texture mapping, said semiconductor chip comprising:

  an input configured to input texture mappings to said semiconductor chip;

  a cache memory coupled to said input, said cache memory configured to store texture mapping data;

  an interpolator coupled to said cache memory for producing an output rendered pixel by interpolating from a texture mapping stored in said cache memory; and

  an output coupled to said interpolator for outputting said output rendered pixel, wherein said input, said cache memory, and said interpolator reside on a single substrate device.

Claim 10 of the '481 patent reads as follows, with disputed phrases italicized:

Claim 10

A method for performing texture mapping, said method comprising the steps of:

  storing texture mapping data on a cache memory residing on a semiconductor chip;

  producing an output rendered pixel via an interpolator interpolating from a texture mapping stored in said cache memory, said interpolator residing on said semiconductor chip; and

  outputting said output rendered pixel from said semiconductor chip.

II. DISCUSSION
Based upon the above findings, the court construes the meanings of the disputed terms of the '481 patent.

A. Claim Construction

1. What is the Legal Standard Under Which the Court Construes the Patent Claims?

Claim construction is a matter for the court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). The court construes claims according to their "ordinary and accustomed meaning." See Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Claims are construed from the vantage point of a person of ordinary skill in the art at the time of the invention. Markman, 52 F.3d at 986. In construing a claim, a court looks first to the intrinsic evidence of record, namely, the language of the claim, the specification, and the prosecution history. Insituform Tech. Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1105 (Fed. Cir. 1996), cert. denied, 520 U.S. 1198, 113 L. Ed. 2d 703, 117 S. Ct. 1555 (1997). The claim language itself defines the scope of the claim, and "a construing court does not accord the specification, prosecution history, and other relevant evidence the same weight as the claims themselves, but consults these sources to give the necessary context to the claim language." Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1552 (Fed. Cir. 1997).

Although extrinsic evidence such as expert testimony may be considered if needed to assist the court in understanding the technology at issue or in determining the meaning or scope of technical terms in a claim, Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1579 (Fed. Cir.), cert. denied, 519 U.S. 911, 136 L. Ed. 2d 198, 117 S. Ct. 275 (1996), reliance on any extrinsic evidence is improper where the public record, i.e., the claims, specification, and file history, unambiguously defines the scope of the claims. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

2. What is the Proper Construction of the Phrases "Cache Memory Configured to Store Texture Mapping Data" and "Storing Texture Mapping Data on a Cache Memory" in Claims 1 and 10 of the '481 Patent?

The parties dispute whether the phrases "a cache memory configured to store texture mapping data" in Claim 1 and "storing texture mapping data on a cache memory" in Claim 10 require a cache memory that stores a complete texture map. nVidia contends they do. Silicon Graphics contends they do not.

According to Silicon Graphics, the plain language of the claims does not require a cache memory configured to store a complete texture map, but only one configured to store "data" used for "texture mapping."

nVidia makes several arguments in support of its proposed claim construction. Each is based on the statements the applicants made to the examiner in the course of presenting their applications for the '709 and '481 patents. First, nVidia contends with these statements the applicants acted as their own lexicographers in describing and defining the cache memory and adopted a definition that it is a memory configured to store a complete texture mapping. Second, nVidia contends that by these statements the applicants disclaimed any meaning for the cache memory other than one that would store a complete texture pattern. Third, nVidia contends that the court should avoid construing the cache memory as configured to store less than a complete texture map, as that would render the claims obvious in light of the Williams 80860 reference.

a. Did the applicants act as their own lexicographers and define the phrase "cache memory" to mean a cache memory configured to store a complete texture mapping?

As a starting point, the court agrees that the plain meaning of the words in Claims 1 and 10 do not appear to describe a cache memory configured to store a complete texture mapping. Normally, the words "texture mapping data" read to suggest that the cache is configured to store some data, but not necessarily all or a complete texture mapping.

nVidia's position depends, therefore, on whether it can demonstrate that the applicants had used these words to express something other than their ordinary meaning. The Federal Circuit teaches that a term in a claim can be given something other than its ordinary and accustomed meaning when the patentee has chosen to be his own lexicographer "by clearly setting forth an explicit definition for a claim term." Johnson Worldwide Assoc., Inc. v. Zebco Corporation, 175 F.3d 985, 1999 WL 243570, *4 (Fed. Cir. 1999).
In this case, the court has four critical facts before it. First, in prosecuting both the '481 and '709 patents and in distinguishing their invention from the prior art, the applicants described the specialized architecture of their invention as including an on-chip TRAM designed to receive and store a complete texture pattern or complete texture mapping. Second, after offering this description of their invention, the applicants amended the '481 patent's Claims 1 and 10 to delete the words "complete texture mapping" and inserted in their place the words "texture mapping data." Third, in amending Claims 1 and 10, the applicants reported to the examiner that "the claims have been amended to more accurately claim the operations of the present invention." Fourth, Silicon Graphics now contends that the patent claims a cache memory that is not designed to receive and store a complete texture mapping.

While the second and fourth facts may be consistent with the words in Claims 1 and 10 if they are read according to their ordinary meaning, Silicon Graphics's current contention as to the architecture or configuration of the cache memory claimed is not consistent with the first and third facts. The question the court now addresses is what is the significance of the first and third facts? More precisely, can and should the inconsistency between the second and fourth facts and the first and third facts be resolved in the context of claim construction?

The court first notes that the Federal Circuit teaches "common words, unless the context suggests otherwise, should be interpreted according to their ordinary meaning." Desper Products, Inc v. QSound Labs, Inc., 157 F.3d 1325, 1336 (Fed. Cir. 1998). In Desper Products, the Federal Circuit interpreted the term "prior to" according to the "context of the specification." Id.

Silicon Graphics urges the court to approach any inconsistency between their statements concerning the Williams 80860 reference and the claims as an obviousness issue. The court, however, is inclined to find that this is, at least in part, a matter that can be resolved in the context of claim construction.

Prosecution history is an important source of intrinsic evidence in interpreting claims because it is a contemporaneous exchange between the applicant and the examiner. Id. at 1336-37. Starting with the prosecution history of the '709 patent, we see that in distinguishing pending Claims 1, 10 and 19 from the Williams 80860 reference, the applicants represented that a distinctive feature of the invention is that the "on-chip TRAM of the present invention is designed to receive and store a complete texture pattern." Pending Claim 19 claims a TRAM with only a cache memory for storing texture information. In the context of pending Claim 19, the applicants' statement must mean that the cache memory "is designed to receive and store a complete texture pattern."

The applicants subsequently canceled pending Claim 19. When the applicants refiled their application as the '117 application, they based pending Claims 20 and 29 on the '959 application's pending Claim 19; all three claims claimed a TRAM containing a cache memory and an interpolator, and all three claims do not claim an on-chip main memory. When presenting these claims to the examiner, the applicants claimed as a specific structural limitation an equivalent limitation to the one they placed on pending Claim 19 to distinguish it from the prior art: a cache memory that is configured to store a complete texture mapping.

Next, the examiner rejected Claims 1 and 10 for double patenting in light of the '709 patent. In explaining the action, the examiner referred to the phrase "complete texture mapping" in the '117 application as one of three differences in the claims of the two inventions. The examiner then discounted this distinction, finding it would have been obvious to store "a recently used texture" in the cache memory in place of "a complete texture mapping." This latter statement by the examiner is somewhat confusing, because the examiner appears to have inverted the chronology of the patents by stating that storing "a recently used texture" would be obvious in place of storing "a complete texture mapping."

The applicants overcame the double patenting rejection by filing a terminal disclaimer agreeing that any patent that issued from the '117 application would have the same statutory term of protection as the '709 patent. A terminal disclaimer is a technical and procedural device that allows inventors to incorporate later developments into their original patents without violating the double-patenting bar. 35 U.S.C. § 253.

The applicants also amended pending Claims 20 and 29, replacing the phrase "complete texture mapping" with the phrase "texture mapping data." Silicon Graphics now argues the applicants took the opportunity to disclaim the "complete texture mapping" limitation.
The applicant's amendment could have been a significant change in the invention they were claiming, if they did not already define "cache memory" to mean a cache memory configured to store a complete texture mapping, or give the same meaning to the phrase "complete texture mapping" as to "texture mapping data." This change would have been significant in such a case both because it would have deleted what the applicants had previously described as a unique aspect of their invention, and because it would have sought to capture or recapture a structure they had specifically disclaimed.

One would expect that, if the applicants had intended these significant changes, they would have so stated and would have identified their intention to the examiner. They did not. Instead, the applicants explained to the examiner that they had amended their claims "to more accurately claim the operations of the present invention." If that statement is correct, then it must be that the applicants had not intended the amendment to make a significant change in the description of their invention and in the matters claimed. Accordingly, if that statement is correct, and the amendments were nothing more than an attempt to "more accurately" claim the operations of the claimed invention, then we should read them so that they "more accurately" claim the invention.

The applicants have previously described their invention as "having a cache memory that is configured to store a complete texture mapping." It would not be a more accurate description of the invention to withdraw from the invention the structural limitation that the cache memory be configured to store a complete texture mapping, which the applicants have previously stated is one of the unique aspects of their invention. The applicants relied on this distinction in the '117 and '959 applications to distinguish their invention from prior art. Disclaiming it would have required an explanation as to how the invention overcame the prior art Williams 80860 reference.

It must be, then, that by stating that they were providing a more accurate description of their invention, the applicants did not intend to contradict their prior description, but to add precision to it. Accordingly, the applicants must have believed that the phrase "texture mapping data" added precision to their claims, while, at the same time, maintained the structural limitation that the cache memory be configured to store a complete texture mapping.

The applicants' representations throughout the course of the prosecution history demonstrate that the applicants acted as their own lexicographers in defining the phrase "cache memory." While prosecuting the '959 application, the applicants represented that the cache memory claimed in pending Claim 19 was designed to store a complete texture pattern, even though the claim did not contain the phrase "complete texture pattern" or the term "complete." Instead, the applicants acted as their own lexicographers to define cache memory to mean something different than its ordinary meaning. The applicants retained their own definition of the phrase "cache memory" when prosecuting the '481 patent by representing pending Claims 20 and 29 of the '117 application were configured to store complete mapping data. Even when the applicants dropped the words "complete mapping data" out of the claim, this did not remove the structural limitation, because the stated reason for the amendment was to "more accurately claim the operations of the present invention."

In this context, the court finds that the applicants have acted as their own lexicographers. The applicants clearly set forth an explicit definition of the phrase "cache memory" in Claims 1 and 10 of the '481 patent. See Johnson Worldwide Assoc., Inc. v. Zebco Corporation, 1999 WL 243570, *4. It is apparent from the applicants' statements that they intended to use the phrase "texture mapping data" consistently with the phrase "complete texture mapping" so as to define the cache memory as configured to store a complete texture map. The public had a right to rely on the applicant's representations during the prosecution history. See Spectrum Intl, Inc. v. Sterilite Corp., 164 F.3d 1372, 1378 (Fed. Cir. 1998); Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998) ("The public has a right to rely on such definitive statements made during prosecution. Notice is an important function of the patent prosecution process . . . .").

Accordingly, the court construes the phrase "cache memory" in Claims 1 and 10 of the '481 patent to mean a cache memory configured to store a complete texture mapping.

b. Did the applicants disclaim a chip that stores less than a complete texture pattern in on-chip memory?

Because the court has found that the applicants acted as their own lexicographers by defining cache memory to mean a cache memory designed to store a "complete texture mapping," the court need not reach the issue of whether the applicants disclaimed a chip that stores less than a complete texture pattern in on-chip memory.

c. Is it proper for the court to interpret "cache memory" as meaning anything other than a cache memory configured to store
a complete texture mapping?

nVidia argues that Silicon Graphics's proposed construction results in Claims 1 and 10 of the '481 patent being as broad as the '959 application's Claim 19, which the examiner rejected based on prior art, and which the applicants canceled. nVidia argues that the court should not adopt a meaning of the phrase "texture mapping data" which would invalidate the '481 patent. Because the court has found that the phrase "texture mapping data" in Claims 1 and 10 of the '481 patent means "complete texture mapping," the court need not reach this issue.

5. "Cache memory means"

Claim 1 of the '835 patent recites a "cache memory means" term. This term is drafted according to § 112 P 6. The claimed function is "storing data from main memory." Again, the parties dispute whether "storing" is used in the passive or active sense and this dispute affects the parties' positions on the appropriate corresponding structure. The court concludes that "storing data" in the context of this claim is used in the passive sense and means "retaining" data. The cache memory 320 is the corresponding structure. '835 Patent, Col. 14, ll. 42-46; col. 19, ll. 34-36, ll. 40-42, ll. 65-66; col. 20, ll. 38-42; Figs. 9 and 10A.

(c) Catching Policy Identification Information

StorageTek's proposed construction of this element is "storing information that identifies and is used to retrieve the particular policy selected." Cisco proposes "storing information that identifies and is used to retrieve a separately cached instance of network policy." The dispute between the parties is whether there is a requirement in the claim that the policy itself be "separately cached."

Cisco argues, in its Response and Supplemental Memorandum on Claim Construction ("Cisco Supp. Brief") that claim 1 requires the policy to be separately cached because the invention itself is entitled "policy caching method" and the preamble of claim 1 makes it clear that a "policy caching method" is being claimed. 16 Cisco also notes that the words "policy cache" or "policy caching method" are found in every independent claim of the 040 patent, indicating that the term, as used in the preamble, limits the scope of the invention claimed. See Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1380 (Fed. Cir. 2001) (where preamble term appeared in every claim, district court properly found that the preamble term described and limited the invention being claimed). Portions of the specification also consistently demonstrate that instances of PDU policy are separately stored in a "cache" or temporary memory. See, e.g. 040 Patent at Col. 2, In. 43-49 ("The present invention provides a network policy caching scheme which addresses the problem of enforcing policy at high data throughput rates by . . . caching the relevant portion of the policy, and applying that cached policy to the other related PDU's without requiring a complete analysis of the other related PDUs."); 040 Patent, Fig. 1, Element 110.

16 The amount of reliance a Court should place on the patent title in claim construction, however, is minimal. See Pitney Bowes, Inc, v. Hewlett-Packard Co., 182 F.3d 1298, 1312 (Fed. Cir. 1999) (describing the patent title as nearly irrelevant to claim construction process).

Additionally, in prosecuting the patent, the patentee characterized the invention as follows:

As recited in independent claims 1, 11, and 18, Applicant's invention provides a method and system wherein the contents of one protocol data unit (PDU) from a group of related PDUs is analyzed to determine a network policy for the PDU from
a plurality of policies. The instance of PDU policy is cached, as is the policy identification information identifying the instance of PDU policy. Lastly the instance of PDU policy is applied to the other related PDUs, without requiring a complete analysis of these PDUs, by utilizing the cached policy identification information to retrieve the cached instance of PDU policy.

See 11/4/97 Amendment and Response at 3 (emphasis added); 5/8/98 Response at 2 (same).

StorageTek responds that the preamble and the description of the invention in the summary of the invention do not limit claim 1 where claim 1 itself is silent on whether the policy itself is separately cached. StorageTek also argues that because the term "policy cache" in the preamble does not give "life and meaning" to the remainder of the claims, it cannot be viewed as limiting. See StorageTek Supp. Brief at 3. Attempting to rebut Cisco's reliance on the prosecution history, StorageTek contends that the description of the invention in the prosecution history does not limit claim 1 as the specification and prosecution history explain that the invention provides several steps to completely process a PDU. StorageTek argues that claim 1 does not require all of the steps, where as claim 11 requires all six steps. The Court, however, fails to see how this fact is important. Claims 11 and 18, which the patentee relied on along with claim 1 in describing the invention, also do not explicitly mention or require the caching of the policy. Yet the patentee described the "invention" recited in claims 1, 11 and 18 as caching the instance of PDU policy as well as the policy identification information. Additionally, while StorageTek argues that the policy cache is separately claimed in claim 19 and, under the doctrine of claim differentiation a separate policy cache cannot be incorporated into claim 1, claim 19 claims an instance policy cache "operatively coupled" to the exception processing means provided in claim 18. Based on the language of the claim, it appears that claim 19 is directed towards the "caching of the instance of PDU policy" in conjunction with the exception processor of claim 18. Due to the difference in scope of claim 19 and claim 1, the doctrine of claim differentiation is not properly raised.

Finally, Cisco relies on extrinsic evidence from its expert and the inventors of the 040 patent to support its construction. Cisco's expert asserts that requiring the instance of policy to be stored separately in a cache is necessary to serve the purpose of the invention to speed up filtering and auditing of packets. See Smith Decl. PP 43-44. Defining claim 1 to require the separate caching of the policy is also consistent with the testimony of the inventors. See Olson Decl. P 16; Hughes Depo. 131:21-24, 133:24-134:5.

Because the patent consistently emphasizes the importance and necessity of caching the policy itself, and the patentee explicitly characterized the invention claimed in claims 1, 11 and 18 as including a separate policy cache, the Court construes "caching policy identification information" as "caching policy identification information" means storing information that identifies and is used to retrieve a separately cached instance of network policy.

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Claim 1 of the '040 patent includes the step of "caching policy identification information." StorageTek contends that the district court erred when it construed that claim language to require not only caching of policy identification information, but also caching of an instance of network policy. Cisco argues, as it did before the district court, that the written description and prosecution history make it clear that the invention involves utilizing the cached policy identification information to retrieve a cached instance of policy, and therefore the claims must be construed to require the instance of policy to be cached. As discussed below, we agree with StorageTek that the district court's interpretation of claim 1 was overly narrow.

Our analytical focus must begin with and remain centered on the language of the claims themselves. Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002). Claim 1 is a method claim with two steps--determining an instance of network policy to be applied to related PDUs based on the contents of one PDU, and caching policy identification information identifying that instance of network policy. The claim does not include any step relating to caching the instance of network policy or any limitation indicating that the instance of network policy is stored in or retrieved from a cache. According to its plain language, the limitation construed by the district court, "caching policy identification information," requires only the identification information, not the instance of network policy, to be cached.

The district court based its interpretation in part on the presence of the phrase "policy caching method" or "policy cache" in
the preamble of every independent claim of the '040 patent. Whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent. See Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808, 62 USPQ2d 1781, 1784 (Fed. Cir. 2002). In the case of the '040 patent, the written description consistently uses the terms "policy caching method" and "policy cache" to refer to the invention as a whole, not to the specific step of storing an instance of network policy or to the cache that stores the instance of network policy, which the written description refers to as the "instance policy cache." Similarly, the term "policy caching method" or "policy cache" in the preamble of each claim serves as a convenient label for the invention as a whole. See IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1434, 54 USPQ2d 1129, 1137 (Fed. Cir. 2000) (holding that preamble phrase "control apparatus" does not limit claim scope when it merely gives a descriptive name to the claimed invention). In contrast, any claim in the '040 patent that requires the instance of policy to be cached includes an explicit "instance policy cache" limitation in the body of the claim. See '040 patent, col. 17, l. 20 (claim 19 includes "instance policy cache means"). Thus, the preamble terms "policy caching method" or "policy cache" do not limit claim scope and simply refer to the invention set forth in the body of the claim, which, depending on the limitations provided in a particular claim, may include caching policy identification information or caching an instance of policy or both. Claim 1 includes only the step of caching policy identification information, and therefore it was improper for the district court to further limit the scope of claim 1 based on language in the preamble.

The district court also relied on the written description, prosecution history, and a declaration by Cisco's expert witness regarding the purpose of the invention to define claim 1 to require a cache for the instance of network policy. In so doing, the district court disregarded the well-established rule that while proper claim construction requires an examination of the written description and relevant prosecution history to determine the meaning of claim limitations, additional limitations may not be read into the claims. See, e.g., Prima Tek II, L.L.C. v. Poly泪, S.A.R.L., 318 F.3d 1143, 1148, 65 USPQ2d 1818, 1821 (Fed. Cir. 2003); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186, 48 USPQ2d 1001, 1005 (Fed. Cir. 1998). We have recognized that there is sometimes a fine line between reading a claim in the written description and relevant prosecution history, and reading a new limitation into the claim. Comark, 156 F.3d at 1186, 48 USPQ2d at 1005. However, "interpreting what is meant by a word in a claim 'is not to be confused with adding an extraneous limitation . . ., which is improper.'" Intervet Am., Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1053, 12 USPQ2d 1474, 1476 (Fed. Cir. 1989) (quoting E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 USPQ2d 1129, 1131 (Fed. Cir. 1988)).

Cisco relies on the fact that Figure 1 of the '040 patent shows two caches--a "cached instance classification" cache and a "cached instance policy" cache--to support its theory that claim 1 requires the instance of network policy to be cached. This argument, however, ignores Figure 2, which is a flowchart showing the steps of the inventive method. Figure 2 includes a step for caching policy identification information, but notably does not show a step for caching an instance of network policy. Given the lack of explicit language in claim 1 requiring the instance of network policy to be cached and the absence of any such step from Figure 2, the written description is not a basis for construing the claim as requiring the step of caching an instance of network policy.

Cisco's use of the prosecution history to narrow the meaning of claim 1 is also misplaced. During prosecution, the patent applicants stated that in the invention as recited in claims 1, 11, and 18, the instance of network policy and the policy identification information are both cached. While on its face this statement appears to limit claim scope, it cannot do so absent some claim language referring to the caching of the instance of network policy. The prosecution history statement describes generally the features of the claimed invention and erroneously suggests that the independent claims include a cache for the instance of network policy. The applicants' inaccurate statement cannot override the claim language itself, which controls the bounds of the claim. See Rambus Inc. v. Infineon Techs. AG, 318 F.3d 1081, 1089, 65 USPQ2d 1705, 1711 (Fed. Cir. 2003) (holding that general statement introducing new limitations does not limit scope of claims not amended to include the new limitations); Intervet, 887 F.2d at 1054, 12 USPQ2d at 1477 (holding that erroneous statement made during prosecution does not limit claim scope because "the claims themselves control").

Finally, the district court improperly relied on extrinsic evidence in the form of a declaration by Cisco's expert to support its construction of claim 1. Resort to extrinsic evidence is appropriate only when an ambiguity remains after consulting the intrinsic evidence of record. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583, 39 USPQ2d 1573, 1578 (Fed. Cir. 1996). Moreover, the district court did not use the extrinsic evidence to assist in defining a claim limitation, but rather used it to limit claim scope based on the purpose of the invention, which is impermissible. See Comark, 156 F.3d at 1187, 48 USPQ2d at 1005 (rejecting defendant's attempt to limit claim term to its functional purpose as disclosed in the preferred
B. Claim Construction


A review of the intrinsic evidence begins with the claims themselves. See Vitronics, 90 F.3d at 1581, 39 U.S.P.Q.2d (BNA) at 1576. The claims are to be construed in light of the specification and "both are to be read with a view to ascertaining the invention." Bell Communications Research v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 U.S.P.Q.2d (BNA) 1816, 1819 (Fed. Cir. 1995); see also Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2d (BNA) at 1577 (stating that the specification is reviewed to determine whether the patentee used terms inconsistent with their ordinary meaning). Finally, the court should consider the prosecution history for any express representations regarding the scope and meaning of the claims. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2d (BNA) at 1577.

The claim terms are generally given their ordinary and customary meaning. See id. Accordingly, a technical term used in a patent is interpreted as having the meaning a person "experienced in the field of the invention" would understand it to mean. Hoechst Celanese Corp. v. BP Chem. Ltd., 78 F.3d 1575, 1578, 38 U.S.P.Q.2d (BNA) 1126, 1129 (Fed. Cir. 1996). See also Johnson Worldwide Assoc., Inc. v. Zebco Corp., 175 F.3d 985, 989, 50 U.S.P.Q.2d (BNA) 1607, 1610 (Fed. Cir. 1999) (noting the "heavy presumption" that courts "give full effect to the ordinary and accustomed meaning of claim terms."). Of course, a patentee is free to act as his or her own lexicographer and may define a claim term differently from its ordinary meaning. See id. However, if the patentee chooses to act as his or her own lexicographer, this special definition must be "clearly stated within the patent specification or file history." Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2d (BNA) at 1576.

There is no indication in the written description or in the prosecution history that the patentee intended "CAD system" and "CAD commands" to be defined differently from their ordinary or customary meanings. Therefore, this court's task is to determine the ordinary meaning of "CAD system" and "CAD command" to one experienced in the field of the invention. See Hoechst Celanese Corp., 78 F.3d at 1577, 38 U.S.P.Q.2d (BNA) at 1129.

In the written description, the patentee describes a CAD system as a package "commonly used to create and edit drawings and other graphic displays on a computer screen or other cathode ray tube (CRT) display." '393 Patent, Col. 1, ll. 17-21. The district court relied heavily on this sentence as the proper understanding of CAD system to one of skill in the art. However, in the very next sentence of the written description, the patentee further describes CAD systems as "particularly well-suited for producing engineering design drawings." '393 Patent, Col. 1, ll. 21-22. The district court disregarded how this sentence further refines and narrows the broad description found in the previous sentence. As a result, the district court adopted an unduly broad definition of "CAD system."

The proper understanding of "CAD system" is ascertained by reading these two sentences in conjunction. For something to be a CAD system as understood by one of skill in the art, and as used in this patent, the system must not only be used to create and edit drawings on a computer screen, but must also be well-suited for producing engineering drawings. Thus, a "CAD system" is a species of graphics programs particularly well-suited for producing engineering drawings. "CAD commands," consequently, are those commands that enable a user to produce engineering drawings in a CAD environment.
The remainder of the written description supports this interpretation of "CAD system" and "CAD commands." For example, a user of a CAD system "can construct detailed design drawings and edit the drawings as necessary directly on screen." '393 Patent, Col. 4, ll. 38-40 (emphasis added). Similarly, "CAD commands are used to produce a design drawing or the like on a computer screen display." '393 Patent, Col. 4, ll. 15-17. Also, by using the technical term "CAD system" throughout the written description, the patentee is, of course, referring to the system described earlier in the patent--a system well-suited for producing engineering drawings. See col. 1, ll. 18-22. The fact that the specification does not repeatedly refer to engineering drawings or use particularly elaborate examples to illustrate the functionality of the invention does not suggest that the inventor intended to give "CAD system" a meaning broader than the ordinary and customary meaning of the term. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577 (stating that a patentee must clearly indicate that a claim term is used in a manner other than its ordinary meaning). Such statements further defining or describing "CAD system" are unnecessary given the explicit description of the term elsewhere in the patent and would have been redundant. Finally, merely because a CAD system is capable of producing simple drawings such as circles, lines, and the example found in Figure 4 of the '393 patent does not suggest that any graphics editor that can create such simple drawings is a "CAD system." This logical fallacy urged upon us by appellee must be rejected.

The doctrine of claim differentiation also supports this interpretation of "CAD system" and "CAD commands." Under this doctrine, two patent claims are presumptively of a different scope. See Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1366, 53 U.S.P.Q.2D (BNA) 1814, 1823 (Fed. Cir. 2000). This presumption is heightened if the absence of such a difference in meaning and scope would make a term in a claim superfluous. See Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987). For example, claim 8, depending from claim 1, restricts the "second means for electronically displaying in response to user input commands" of claim 1 to a CAD system. '393 Patent, Col. 10, ll. 60-62. Claim 8 also limits "merging means for merging said first and second images" of claim 1 to "editing means responsive to CAD user input commands of said second image for modifying said first image." '393 Patent, Col. 10, ll. 60-62. To broadly define CAD system as simply a generic graphics editor, as the district court did, would render claim 8, as well as claims 9 through 13, which also incorporate the CAD limitation, superfluous in light of claims 1 through 7. Thus, the doctrine of claim differentiation supports the conclusion that "CAD system" refers to graphic editors particularly well-suited for engineering design drawings, and "CAD commands" are those commands used by such a system.

3. "Calculating"

I construe "calculating" in the '415 patent to mean "determining" because of the patent's interchangeable use of those two terms. The '415 patent claims the laboratory automation system "reading the identification code [on the first carrier] and calculating" three different things:

the priority of the first specimen relative to any other specimens entered into the LAS;
the priority of each test to be conducted on the first specimen relative to one another; and
the most direct route from the receiving station to a first workstation for conducting the highest priority test of the first specimen

(Filing 64-3, Ex. C, at 6:13-21.) The term "recalculating" appears later in claim 1, and the term "calculations" appears in claim 3.

The specification of the '415 patent uses the word "determine" synonymously to describe all of these "calculations." (Id. at 2:40-55, 4:10-16.) Moreover, while the claims of the '415 patent refer to "calculation" of the "most direct route" (id. at 6:19-21), the specification states that the laboratory automation system "will determine the optimal route to workstation 30, while simultaneously determining the priority of the requested test." (Id. at 4:62-67 (emphasis added).) The abstract of the '415 patent likewise states that the laboratory automation system "reads the identification code and thereby determines" priorities. (Id., Abstract.) Hill-Rom Co., Inc. v. Kinetic Concepts, Inc., 209 F.3d 1337, 1341 (Fed. Cir. 2000) (abstract properly used in interpreting meaning of claim terms). "Determines" is also used as a synonym for "calculates" in the
description of the Summary of the Invention. (Filing 64-3, Ex. C, at 2:11-15) ("A further object is to provide a method for automating a laboratory which determines optional routing to a particular workstation . . . .").

Similarly, during prosecution the University used "determine" as a synonym for "calculate" in summarizing the invention by noting that "[a]t processing station 28, the carrier assignment is entered into the LAS to determine which work stations the specimen must utilize, the order in which the stations are to be utilized and any other pertinent information with respect to priority or turn around time." (Filing 64-5, Ex. E, at SHD001480 (emphasis added.).)

Neither the claims nor the specification of the '415 patent require that the "calculation" of priorities be accomplished by mathematical computation. One can readily envision "calculations" that require no computation; for example, the calculation of the "most direct route" could involve a determination of which workstations are busy and which are available —not the kind of mathematical computation the defendant's proposed construction requires. Similarly, in some circumstances, calculation of the priority among tests to be conducted on a specimen might involve a simple determination to follow an order given by a health care practitioner. Therefore, "calculating" in claims 1 and 3 of the '415 patent means "determining."

C. Calculating/Determining

Claim 1 and Claim 9 contain disputed limitations which refer to the calculation of the rate of blood flow. 4 Although the language used in each limitation is slightly different -- the former refers to "calculating" while the latter refers to "determining" -- both parties agree that the meaning of each limitation is the same. However, the parties do not agree what the meaning is. Plaintiff would interpret "calculating/determining" to mean: (1) the actual access blood flow using the measured amount of distinguishable blood characteristic (for example, flow = 600 ml/minute), (2) a number related to the flow rate from which flow rate can be determined, or (3) determining whether the flow rate is above or below a predetermined threshold (for example flow >/= 600 ml/minute)." (Pl's Reply Brief at 13). In contrast, defendant suggests the proper construction would be limited to: "determining a number representing the amount of flow of blood in the line per unit time without using a recirculation calculation, and using the equations set forth in the specification." (Def's Opening Brief at Exh. 1).

Nothing in the record, however, suggests that the terms "calculating" or "determining," as used in patent '989, mean anything other than, "to determine by mathematical equation." See WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY (1991).

--- Footnotes ---

4 The relevant, disputed limitation in Claim 1 reads as follows: "calculating the rate of flow of said shunt blood flow in said arterio-venous shunt from said measured amount of distinguishable blood characteristic." The relevant, disputed limitation in Claim 9 reads as follows: "determining the rate of patient blood flow in said shunt from the measured amount of said changed parameter."

--- End Footnotes ---

While defendant asserts that representations made by plaintiff to the PTO now prevent plaintiff from relying on the plain language of the claim limitations, the Court is unpersuaded by this argument. Defendant relies heavily on a representation made by plaintiff to the PTO in which plaintiff stated:

[Recirculation and blood flow] are unrelated quantities, for shunt recirculation can only occur when the patient is connected to a hemodialysis machine through intake (arterial) and delivery (venous) lines. . . . Line blood flow, however, is a cardiovascular system quantity. It is the flow of blood, in mL/min, inside a patient, and a functioning shunt in a patient will always conduct such flow, whether a patient is connected to the dialyzer or not.

(Wong Decl., Ex. B at FH 989 0143). Specifically, defendant emphasizes plaintiff's statement that recirculation and blood flow "are unrelated quantities" in support of its position that the "calculations/determinations" anticipated by patent '989 do not, and cannot, rely on recirculation measurements in any way.

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This emphasis, however, distorts the meaning and context of plaintiff's statement. As plaintiff stated in oral argument, the PTO was concerned that prior art which calculated recirculation in shunts rendered the '989 patent obvious. In response to this concern, plaintiff carefully explained to the PTO that the '989 patent device calculated, as an ultimate computation, blood flow -- a rate distinct from, or "unrelated" to -- recirculation rate. However, in making this distinction clear to the PTO, at no time did plaintiff disavow the device's possible reliance on a recirculation rate in calculating its ultimate blood flow determination.

Defendant also asserts that the equations set forth in the specification are the equations contemplated by the '989 patent. The intrinsic evidence cited by defendant in support of this argument, however, is comprised of nothing more than references taken out of context and puffed up to support defendant's position. While plaintiff did proffer various dilution equations in the specification to illustrate the preferred embodiments of their device calculations, no statements in the prosecution history suggest that plaintiff, or the PTO, intended to limit the blood flow calculation to the preferred embodiment equations. See Rhine, 183 F.3d at 1346.

A. Claims 1 and 9 of the '989 Patent

The parties dispute the meaning of the terms in claims 1, 9, 24, and 32 of the '989 patent. We turn first to the construction of claims 1 and 9. Transonic and NMT dispute the meaning of the term "calculating" in the final limitation of claim 1, which recites "calculating the rate of flow of said shunt blood flow in said arterio-venous shunt from said measured amount of distinguishable blood characteristic." '989 patent, col. 8, ll. 53-55. They also dispute the meaning of the term "determining" in the final limitation of claim 9, which recites "determining the rate of patient blood flow in said shunt from the measured amount of said changed parameter." 1 Id. at col. 9, ll. 34-35. Transonic argues that, based on the language of the claims, these terms should be defined as "calculating shunt blood flow using indicator dilution equations." NMT contends that the terms should be defined to require the use of the exact equations disclosed in the '989 specification. Despite their disagreement about the precise meaning of these two claim terms, Transonic and NMT agree that these terms should be given the same meaning. We therefore discuss claim construction of the term "calculating," but apply our final claim construction to both the terms "calculating" and "determining."

--- Footnotes ---

1 Claim 1 of the '989 patent is quoted above. Claim 9 reads as follows:

9. A process for determining patient blood flow in a patient hemodialysis shunt, comprising:

removing blood from a downstream location in a hemodialysis shunt by way of an inlet connected to an inlet side of a hemodialysis circulating line to provide blood flowing in said circulating line;

delivering the blood flowing in said circulating line by way of an outlet connected to an outlet side of said circulating line to an upstream location of said shunt, the blood from said outlet being delivered to said shunt so as to mix with patient blood flow in said shunt to produce mixed blood, whereby blood removed from said shunt by way of said inlet is a portion of said mixed blood;

changing a selected blood parameter in said circulating line to produce a distinguishable blood characteristic at the outlet side of said circulating line;

measuring in said circulating line the amount of said changed parameter present in said portion of the mixed blood; and

determining the rate of patient blood flow in said shunt from the measured amount of said changed parameter.

'989 patent, col. 9, ll. 13-35.
As noted, the preliminary injunction portion of this case has previously been before our court, so we begin with a discussion of our prior holding. In Transonic III, we concluded that the district court erred when it construed the claim terms "calculating" and "determining" to mean "to determine by mathematical equation." Transonic III, 10 Fed. Appx. at 934. In reaching that conclusion, we considered the intrinsic record, including the claims themselves, the '989 patent specification, and the prosecution history of the '989 patent, to determine whether the patentee limited the scope of the claims. Based on statements made by the patentee in the specification, we observed that "the '989 patent describes the determination of shunt blood flow with reference to specific equations." Id. We further noted that the specification contains "no description of 'calculating' or 'determining' blood flow that does not require the use of at least one of the disclosed equations" and that there is no indication that "the invention encompasses other methods of 'calculating' or 'determining' blood flow." Id.

We also considered the prosecution history in Transonic III, finding that "the disclosed equations are part of the claimed invention, play an important role in achieving the objects of the invention, and help to distinguish the invention from the prior art." Transonic III, 10 Fed. Appx. at 934. We concluded that "Transonic disclaimed any interpretations of the terms 'calculating' and 'determining' that do not reflect the stated significance of the disclosed equations to the invention as a whole." Id. In sum, we construed the claim terms "calculating" and "determining" as "requiring the use of at least one of the equations set forth in the specification of the '989 patent." Id.

As an initial matter, NMT contends that we are bound by this prior construction of claims 1 and 9 because it is the law of the case. Conversely, Transonic contends that the preliminary injunction proceedings were by their very nature provisional and that, as such, we are not bound by the claim construction set forth in Transonic III.

Our initial inquiry is whether, on remand, the district court was bound by our claim construction in Transonic III. Generally, the law of the case doctrine prohibits a court from revisiting an issue once it has been decided in pending litigation. Arizona v. California, 460 U.S. 605, 618, 75 L. Ed. 2d 318, 103 S. Ct. 1382 (1983) ("The [law of the case] doctrine posits that when a court decides upon a rule of law, that decision should continue to govern the same issues in subsequent stages in the same case."); see also Bio-Technology Gen. Corp. v. Genentech, Inc., 267 F.3d 1325, 1331 (Fed. Cir. 2001) ("BTG's position is contrary to the claim construction that is the law of this case."). The Supreme Court, however, has made clear that findings of fact and conclusions of law made by a court during a preliminary injunction proceeding are not binding on the court during trial. See Univ. of Tex. v. Camenisch, 451 U.S. 390, 395, 68 L. Ed. 2d 175, 101 S. Ct. 1830 (1981) (stating that "findings of fact and conclusions of law made by a court granting a preliminary injunction are not binding at trial on the merits"). We have consistently followed the Supreme Court's precedent by holding that a claim construction reached during an appeal from a grant of a preliminary injunction is tentative and is not binding on the district court in subsequent proceedings. Guttman, Inc. v. Kopykake Enters., 302 F.3d 1352, 1361 (Fed. Cir. 2002) ("District courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves."). A district court therefore is at liberty to change the construction of a claim term as the record in a case evolves after a preliminary injunction appeal. Alternatively, a district court may adopt a construction reached by our Court in a preliminary injunction decision. Since the district court was not bound in this case, we also are not bound. We therefore review the court's claim construction under our traditional standard of review for claim construction, de novo. Cybor, 138 F.3d at 1456.

Claim language defines claim scope. SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The terms used in the claims bear a "heavy presumption" that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Nevertheless, an inventor may use the specification and prosecution history to limit the scope of the claim terms. Watts v. XL Sys., Inc., 232 F.3d 877, 882 (Fed. Cir. 2000). Thus to help determine the proper construction of a patent claim, a court consults the claims themselves, the written description, and, if in evidence, the prosecution history. Markman, 52 F.3d at 979-80.

Claim 1 of the '989 patent does not limit the term "calculating," except to require that the rate of flow of shunt blood flow be calculated "from said measured amount of distinguishable blood characteristic." '989 patent, col. 8, ll. 34-55. The claim language does not limit "calculating" to the use of any particular type of scientific principle or mathematical relationship. Turning to the specification, we have often stated that "one purpose for examining the specification is to determine if the patentee has limited the scope of the claims." Watts, 232 F.3d at 882. "The specification is always highly relevant to the
claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). In this case, the patentee's statements made in the SUMMARY OF THE INVENTION, and reproduced in pertinent part below, are instructive:

Blood flow, Q, measured by the dilution method (A. C. Guyton Textbook of Medical Physiology, Sixth Edition, p. 287, 1981) is given by:

\[ Q = \frac{V}{S} \] (Eq. 1)

where \( V \) is the amount of injected indicator and \( S \) is the area under a dilution curve and is equal to the average concentration of indicator in the blood for the duration of the curve, multiplied by the duration of the curve.

* * *

The change of characteristics is measured by known sensors, such as sound velocity sensors, electrical impedance sensors, optical sensors, thermal sensors, isotope sensors, or the like, and the blood flow relationships are calculated in accordance with the foregoing equations.

'989 patent, col. 1, ll. 56-61 & col. 4, ll. 26-27. As discussed in Transonic III, the specification does not disclose "calculating" or "determining" without the use of one of the disclosed relationships.

During prosecution, an inventor may surrender coverage of material that would otherwise be covered by a claim, but only if the surrender is clear and unmistakable. Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1252 (Fed. Cir. 2000) ("In determining whether there has been a clear and unmistakable surrender of subject matter, the prosecution history must be examined as a whole."). During prosecution of the '989 patent, in response to an Office Action rejecting the pending claims, Transonic identified several "primary features of the invention." Included in these features was "the calculation of shunt blood flow (line blood flow) from the sample via dilution principles as is taught in the present application." As discussed above, the only "calculation . . . via dilution principles" taught in the specification of the '989 patent revolves around the disclosed equations. In the same response, Transonic argued that the disclosed equations are critical to achieving the purpose of the invention and are novel over the prior art. It stated in pertinent part as follows:

The purpose of the invention is to measure shunt (blood line) blood flow, and for this purpose the application sets out the flow relationships which permit calculation of the line blood flow from other measurements. These relationships are not taught in the prior art . . . .

Moreover, Transonic distinguished a prior art reference during prosecution by explaining that, "in the present invention[,] shunt flow is calculated from a dialysis flow and a concentration curve measurement." Based upon the claim, the specification, and the prosecution history, we again conclude that Transonic "disclaimed any interpretations of the terms 'calculating' and 'determining' that do not reflect the stated significance of the disclosed equations to the invention as a whole." Transonic III, 10 Fed. Appx. at 934.

On remand from Transonic III, the district court further construed claims 1 and 9 as requiring the use of "the exact equations defined in the specification of the '989 patent." Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). The court stated: "In light of [the Federal Circuit's] claim interpretation, and because NMT's methods do not use at least one of the '989 patent equations, there is insufficient evidence that would allow a jury to find that NMT's methods infringe the '989 patent." Id.

The district court rejected Transonic's contention that the claims include equations that are variations of the general equations set forth in the specification, i.e., \( Q = \frac{V}{S} \). Transonic Sys., Inc. v. Non-Invasive Med. Tech. Corp., No. 1:00CV00046ST and No. 1:99CV00041B (D. Utah Sept. 14, 2001). Transonic renews this contention on appeal and argues that the district court went beyond our claim construction to require that NMT's methods use the exact equations disclosed in the specification. Transonic contends that the proper scope of the claims includes those equations that express the same mathematical relationships disclosed in the specification but are tailored to a specific indicator, also disclosed in the specification. Although the district court's reasoning is understandable, we do not think that the term "calculating" is limited to the exact equations disclosed in the '989 patent specification.
The specification discloses the use of several indicators to create a dilution curve as follows:

A dilution curve is obtained by measuring changes in a physical parameter of the blood over a period of time, and plotting the resulting variations. For example, if the blood parameter being measured is sound velocity, the injection of an indicator such as a saline solution, having a different sound velocity than blood, will produce a change in the measured parameter as the indicator passes the sensor location. The indicator dilutes the blood, and produces a sound velocity curve which is a measure of that dilution. Although injection of a saline solution is convenient for producing a measurable change in a blood parameter such as sound velocity, other changes of parameters may also be suitable. Thus, changes in temperature, electrical impedance, optical characteristics, and the like may also be used as indicators to produce dilution curves. For purposes of this disclosure, however, reference will primarily be made to the use of saline solution as the indicator, with resulting changes in sound velocity in the blood being measured to provide a dilution curve.

'989 patent, col. 1, ll. 66-67 & col. 2, ll. 1-17. Equations that embody the mathematical relationships disclosed by the specification, but are modified for a specific indicator, are within the scope of the claims. It would be improper to read such embodiments out of the claims. Vitronics, 90 F.3d at 1583 ("Indeed, if 'solder reflow temperature' were defined to mean liquidus temperature, a preferred (and indeed only) embodiment in the specification would not fall within the scope of the patent claim. Such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support, which is wholly absent in this case."). Accordingly, we conclude that the terms "calculating" and "determining" must use at least one of the equations set forth in the specification of the '989 patent, i.e., "Q=V/S", but that the claims also cover the use of indicators other than saline. In other words, the elements of the equation, "V" and "S", may be altered to account for the characteristics of different indicators, such as saline, temperature, etc., so long as the relationships set forth in the equations in the specification are still expressed.

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B.

1.

In Transonic II this court examined the relation between the "dilution principles" discussed in the '989 patent specification, the equations set forth in that specification, and the meaning of "calculating" and "determining" in the asserted claims. Rejecting the notion that infringement lay only in solving for shunt blood flow using the "exact equations" in the '989 patent specification, this court recognized that the specific arguments of the various equations might vary depending on the choice of indicator and the properties inspected to ascertain indicator density at any given time. As the court explained,

The specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F. 3d 1576, 1582 (Fed. Cir. 1996). In this case, the patentee's statements made in the SUMMARY OF THE INVENTION, and reproduced in pertinent part below, are instructive:

Blood flow, Q, measured by the dilution method (A. C. Guyton Textbook of Medical Physiology, Sixth Edition, p. 287, 1981) is given by:

\[ Q = \frac{V}{S} \] (Eq. 1)

where V is the amount of injected indicator and S is the area under a dilution curve and is equal to the average concentration of indicator in the blood for the duration of the curve, multiplied by the duration of the curve.

***

The change of characteristics is measured by known sensors, such as sound velocity sensors, electrical impedance sensors, optical sensors, thermal sensors, isotope sensors, or the like, and the blood flow relationships are calculated in accordance with the foregoing equations.
"989 patent, col. 1, ll. 56-61 & col. 4, ll. 26-27. …The specification [of the '989 patent] does not disclose "calculating" or "determining" without the use of one of the disclosed relationships.

***

During prosecution of the '989 patent, in response to an Office Action rejecting the pending claims, Transonic identified several "primary features of the invention." Included in these features was "the calculation of shunt blood flow (line blood flow) from the sample via dilution principles as is taught in the present application." As discussed above, the only "calculation …via dilution principles" taught in the specification of the '989 patent revolves around the disclosed equations. In the same response, Transonic argued that the disclosed equations are critical to achieving the purpose of the invention and are novel over the prior art. It stated in pertinent part as follows:

The purpose of the invention is to measure shunt (blood line) blood flow, and for this purpose the application sets out the flow relationships which permit calculation of the line blood flow from other measurements. These relationships are not taught in the prior art. …

Moreover, Transonic distinguished a prior art reference during prosecution by explaining that, "in the present invention[,] shunt flow is calculated from a dialysis flow and a concentration curve measurement." Based upon the claim, the specification, and the prosecution history, we again conclude that Transonic "disclaimed any interpretations of the terms 'calculating' and 'determining' that do not reflect the stated significance of the disclosed equations to the invention as a whole."

Transonic II, 75 Fed. Appx. at 775-76.

The court concluded:

The terms "calculating" and "determining" must use at least one of the equations set forth in the specification of the '989 patent, i. e., "Q=V/S", but that the claims also cover the use of indicators other than saline. In other words, the elements of the equation, "V" and "S", may be altered to account for the characteristics of different indicators, such as saline, temperature, etc., so long as the relationships set forth in the equations in the specification are still expressed.

Id. at 776-77.

2.

Although the court explained that "calculating" or "determining" required the "use of at least one equation" set forth in the '989 patent specification, it did not delve into what it meant to "use" an equation or relation. Based on the '989 patent specification's frequent reference to dilution curves, on remand following Transonic II the trial court concluded that "calculating" means that the accused infringer has to "calculate a dilution curve."

Transonic contends that the trial court erred in this claim construction. In particular, Transonic contends that the construction is not required by the plain language of the claims, and, indeed, violates the canon of claim differentiation by making superfluous the specific reference to dilution curves in claim 18. Nor is the trial court's reading compelled by the '989 patent's written description, which discusses dilution curves in the context of explaining various mathematical relations but does not suggest that a curve must actually be drawn, or the area under a curve must be measured from a graph, in order to make use of the relations set forth in the specification. Finally, Transonic maintains that the trial court erred in ignoring the effect of a broadening amendment during prosecution, in which specific reliance on dilution curves was moved to issued claim 18 as a special case of the asserted claims. As set forth below, we agree with Transonic.

3.

For this analysis the court focuses on language, and prosecution history, of issued claims 1, 9, and 18. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 619-20 (Fed. Cir. 1995).
As originally filed, claim 1 required:

[1] measuring the [a] amount and [b] duration of said changed physical property in said arterial line and [2] producing a dilution curve from said measurement; and

[3] determining from the area of said dilution curve the blood flow in said arterio-venous shunt.

(ll. 21-25).

Responding to a June 19, 1996 Office Action (and examiner interview), the inventors cancelled original claim 1 and added new independent claims (43 and 52) that issued as independent claims 1 and 9. The inventors explained that the new independent claim 43 was "revised to more clearly highlight the features of the invention which distinguish it over the prior art of record." Arguing that new independent claims 43 and 52 (issued as 1 and 9) "define the primary features of the invention," the inventors defined those features as:

- "The sampling of the mixture downstream in the shunt using the intake of the hemodialysis circulating system;" and
- "The calculation of shunt blood flow (line blood flow) from the sample via dilution principles as is taught in the present application."

As issued, claim one requires:

measuring the amount of distinguishable blood characteristic in said removed portion of mixed blood; and

calculating the rate of flow of said shunt blood flow in said arterio-venous shunt from said measured amount of distinguishable blood characteristic.

'989 patent, col. 8, ll. 51-55 (emphases added). For this analysis, claim 9 differs only by reciting "determining" instead of "calculating."

The district court, Transonic argues, limited "calculating" in a manner consistent with the originally filed claim, but inconsistent with the broadened language that actually issued in claims 1 and 9.

By comparison, Transonic points to issued claim 18. It reads:

18. The process of claim 9, further including:

[1] producing from the changed parameter measurement an indicator dilution curve representing said distinguishable blood characteristic; and

[2] determining from said indicator dilution curve said blood flow rate in said shunt.

'989 patent, col. 10, ll. 9-13 (emphases added). As Transonic argues, issued claim 18 basically appends to claim 9 (which, with issued claim 1, replaced original claim 1) the limitations from original claim 1.

In view of this record, two long-standing principles of claim construction support the view that "calculating" is not limited to "producing a dilution curve," nor to "calculating a dilution curve." First, this court's case law precludes a reading that restricts "calculating" to the limitations removed by broadening amendment. See United States v. Telectronics, Inc., 857 F.2d 778, 783 (Fed. Cir. 1988) ("Courts are not permitted to read back into the claims limitations which were originally there and were removed during prosecution of the application through the Patent Office." [cit. omitted]); Kistler Instrumente AG v. United States, 224 Ct. Cl. 370, 628 F.2d 1303, 1308 (Ct. Cl. 1980) ("It is significant that none of the claims in the patent which ultimately issued contain the narrow limitation of original claim .... It must be concluded that the Patent Office did not feel that this was a critical limitation. Thus, defendant's insistence upon this court's reading back into the claims limitations which were originally there and were removed during prosecution of the application through the Patent Office
cannot be permitted."). Thus, "calculating" in issued claim 1 is broader than "calculating" in originally filed claim 1. The district court's construction is consistent with the plain language of the originally filed claim, but not the issued claim.

Second, by the doctrine of claim differentiation the court presumes that "determining" in claim 9 must have a different scope from the narrow limitations set forth in claim 18. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F. 3d 898, 910 (Fed. Cir.), cert. denied, 543 U.S. 925, 160 L. Ed. 2d 223, 125 S. Ct. 316 (2004) ("The presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim."). "There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Tandon Corp. v. U.S. International Trade Com., 831 F. 2d 1017, 1023 (Fed. Cir. 1987). Claim 18 plainly requires "producing …an indicator dilution curve" and "determining" the shunt blood flow from it. By straightforward application of this doctrine, "determining" in claim 9 (and "calculating") has broader scope; it does not require "producing an indicator dilution curve." Although claim differentiation is only an interpretative presumption, NMT identifies no substantive reason to foreclose its application here. Cf. Comark Communications, Inc. v. Harris Corp., 156 F. 3d 1182, 1187 (Fed. Cir. 1998).

The '989 patent specification is fully consistent with a reading of "calculating" or "determining" that does not require creating a dilution curve or measuring the area (in part) underneath it. In the Summary of Invention, Transonic introduces its use of dilution methods to ascertain shunt blood flow. Discussing blood flow Q as a function of indicator volume V and defined variable "S", the specification explains:

S is the area under a dilution curve and is equal to the average concentration of indicator in the blood for the duration of the curve, multiplied by the duration of the curve.

'989 patent, col. 1, ll. 62-65. As this passage explains, the area under a dilution curve can be ascertained without actually drawing such a curve and measuring the area under it. Put differently, the parameter relevant to the claims at bar, "S", represents the product of average indicator concentration over a specific interval, and the duration of that interval. In short, although "S" may have meaning as an area in the context of a dilution curve, charting indicator concentration over time, the fact that S may be graphically illustrated does not require that an infringer actually plot the curve. Aside from claim 18, which specifically requires "producing …an indicator dilution curve," the claims at bar do not so require. The '989 patent specification, both at claim 18 and the written description explaining dilution principles, thus does not support the district court's analysis. The trial court erred in reading "calculating" and "determining" to mean "calculation of a dilution curve."

As this court explained in Transonic II, an infringer "calculates" or "determines" shunt blood flow within the meaning of the asserted claims by "using" at least one equation set forth in the '989 patent. A method or device "calculates" shunt blood flow within the meaning of the asserted claims if it solves for the flow as a function of the parameters set forth in the relevant question.

For example, the '989 patent expresses the basic relation between shunt blood flow (Q) and 'dilution' as a ratio of indicator volume (V) and the product of a measuring interval and the average indicator concentration over that interval (S). I. e., Q=V/S. This expression captures an intuitive relationship in which a high blood flow rate suggests a briefer interval over which indicator can be detected, or a lower average concentration as the indicator rapidly dissipates in the presence of a high blood flow rate (and vice versa). A method or device that solves for shunt blood flow by measuring or deriving indicator volume, identifying a measuring interval over which the indicator is detectable, and obtaining the average indicator concentration over that interval, and combining this information according to a relation described in the '989 patent, therefore "uses" that relation. A method that obtains S by plotting a dilution curve and measuring the area beneath it provides one way of "using" this relation or equation, but the asserted claims are not limited to that approach.

The court further reaffirms the analysis in Transonic II, where the court held that such "use" of an equation set forth in the '989 patent includes varying the specific parameters at issue to account for different indicators or different indicator or blood properties that are inspected to ascertain indicator density. That is, "the elements of the equation, 'V' and 'S', may be altered to account for the characteristics of different indicators …so long as the relationships set forth in the equations in the specification are still expressed." 75 Fed. Appx. at 777. The elements of the equation may be altered to account for use of a different indicator, a different way of introducing that indicator to the bloodstream at the upstream location, and a different changed blood characteristic measured at the downstream location, so long as the resulting equation utilizes indicator
5. "Calculating a Price" and "Calculate a Price"

Walker proposes that the claim terms "calculating a price" and "calculate a price" be construed to mean "ascertaining an exchange of value expressed as the composite credit or account parameters that a credit card issuer is willing to offer a customer, together with any fee or credit for modifying or entering into the credit account." Capital One proposes a construction "computing a fee or credit using a mathematical formula." Both Walker and Capital One base their proposed constructions of these claims terms on their proposed constructions of the claim terms "price for a credit account" and "price for a proposed credit account." Significantly, Capital One includes "computing . . . using a mathematical formula" in its proposed construction whereas Walker proposes "ascertaining an exchange of value." Thus, Walker proposes a broader construction of "calculate" that would permit the use of methods other than a computation for determining a price. As an example, Walker argues that if a customer wants to increase its minimum monthly payments by 30%, the issuer could make the change for free because the new terms are more favorable to the issuer. Walker argues that this new price -- a fee of zero -- is "calculate[ed] by simply ascertaining the trade-offs in the modified terms, without performing any 'computation' and without using a mathematical formula."

Since the court did not find Walker's "exchange of value" language to be an appropriate construction of "price" when that term is used with "for a credit account," it also finds that Walker's proposed language should not be adopted where the "price" is used in conjunction with "calculate." Walker cites three examples in the specification where a "price" is "calculated" and argues that these examples support its construction. In the first example, Walker notes that an issuer may be willing to issue a credit card to someone with a poor credit history if the card has a low credit limit and a high annual fee. (478 patent, Col. 2:60-67). In the second example, Walker notes that "[i]f a customer calls to cancel his account, the card issuer may be able to rewrite the terms of the customer's existing account and thereby entice him to stay." (478 patent, Col. 3:1-5). In the third example, Walker notes that "[t]he invention also benefits credit card issuers by providing them with an opportunity to charge a fee for changing the terms of a customer's account." (478 patent, Col. 3:6-8). The examples cited by Walker simply do not support its contention that the "price" is "calculated" by "ascertaining an exchange of value." Rather, the examples simply indicate how the invention may be used: to issue credit to people with poor credit histories; to rewrite accounts; and to the benefit of issuers. Tellingly, the claims consistently use the term "calculate" to mean that the invention uses a computation to determine a fee for the customization of a credit account. Capital One notes that the Walker Patents detail a calculation where "Price = Base x Adjustment = $ 30 x 96% = $ 28.80" and provide that other formulae may be used. (478 patent, Col. 7:64-65).

Keeping in mind that the field of the invention is computer programming in the credit account industry, the court finds that Capital One's proposed use of the word "computing" is consistent with use of the term "calculate" in the Walker Patents. Each example and description of "calculation" contained in the Walker Patents contains some form of "computation." Furthermore, given that the invention involves an apparatus and program, any program used to calculate a price or fee would need to be written using some criteria. This computer program intended to generate a "price" for the customization of the accounts would need to have some pre-established criteria for determining how each modification of the credit parameters would affect the final price. This is precisely the method that is described in detail in the specification. (478 patent, Col. 6:48-8:22). However, the court does not believe that it is appropriate to state in the construction that the "price" is "computed . . . using a mathematical formula." The specification does include examples of mathematical formulae but it does not limit the method of computing the price to mathematical formulae. Instructing the jury that a mathematical formula is required by the claim language may cause confusion.
Walker has proposed that these terms be construed so as to reference the fact that the calculation is undertaken with reference to the account parameters. The court finds ample support for this proposition (e.g. '478 Patent, Col. 6:48-52) even if it does not agree with Walker's phrasing. It is clear from the Walker Patents that every "calculation" conducted to determine the price is done with reference to the account parameters. This is critical, because without this limitation almost any type of computation could be read into the patent, when it is clear that it is the interplay between the various account parameters that is to be calculated when determining the price. For these reasons, the court construes the terms "calculating a price" and "calculate a price" to mean "computing a fee or credit (that may be zero) for modifying or entering into a credit account, based on the credit or account parameters."

4. The Calculating Step

The "calculating step" of Claim 1 states: "calculating at the programmed computer a remaining quantity of unfilled orders to fill using current-status information transmitted to the programmed computer." '877 Patent col.32 ll.38-40. Papyrus argues that in this step "the programmed computer uses some current-status information to mathematically determine the remaining quantity for each order that still needs to be filled, i.e., the leaves quantity." Pl. PCCO 2. According to Papyrus, under its construction, "the calculating step provides information about the progress of each unfilled or pending order by determining the leaves quantity for each order." Pl. MHSP vol. 1 at 52. The focus of Papyrus's construction, therefore, is the unfilled portion within each individual order.

As support, Papyrus relies on the plain meaning of the phrase, the specification, and dictionary definitions. Pl. Br. 15-16. It first asserts that because the term "fill" modifies the phrase "a remaining quantity," the calculating step concerns a remaining quantity to fill for each of the unfilled orders. Pl. MHSP vol. 1 at 54. In addition, Papyrus contends that the phrase "calculating . . . a remaining quantity of unfilled orders to fill" does not refer to the calculation of a single quantity, but rather, the calculation of the number of shares needed to fill each pending order. '877 Patent col.32 ll.38-40 (emphasis added); Pl. MHSP vol. 1 at 57-58; see KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (construing the indefinite article "a" to mean "one or more").

With regard to the specification itself, Papyrus notes that the written description teaches that "the invention provides continuous information as to the handling of the transmitted instruction, that is, partial executions against orders, cancellations, and the like" resulting in the "clerk, manager, or investor [having] complete knowledge of the status of an order or quote request through the trading day." '877 Patent col.6 ll.55-61. Further, the preferred embodiment explains that the computer program processes incoming data packets by updating the record to indicate a new stage or status for the corresponding instruction. Id. col.29 ll.37-52. Once the programmed computer receives the data, the base station computer then uses the current-status information to mathematically determine the number of shares needed to fill each pending order. See '877 Patent col.10 ll.17-21, Fig. 1 step 328; Pl. MHSP vol. 1 at 58. Indeed, the specification notes that the leaves quantity is calculated for each execution or partial execution. See '877 Patent col.29 ll.43-44 ("the leaves must be amended to reflect the execution"), col.30 ll.54-57 ("the remaining quantity or leaves that must be traded to fill the order is calculated at step 860."). Fig. 17 at step 860.


Alternately, NYSE construes the calculating step as "mathematically processing the current-status information to expressly determine a number of unfilled orders." Def. PCCO 2. In so proposing, NYSE argues that leaves are the number of shares remaining to be executed in a single order, while Claim 1 specifies calculating the remaining quantity of unfilled orders in the plural. Def. MHSP 113. NYSE contends that the only calculation the patent describes making before selecting a broker is the number of pending instructions. Def. MHSP 108. Specifically, it cites language in the specification stating that
brokers, and finding the floor broker with a comparatively few number of such instructions.

'877 Patent col.9 ll.55-60 (emphasis added). The Abstract and Summary of the Invention recite a similar description. See id. at Abstract ("the method uses a programmed computer to compare a relative number of instructions having a pending status . . . and find the floor broker having comparatively few pending instructions."); id. col.6 ll.64-col.7 l.4 ("[t]he method includes the steps of . . . determining the one of the one or more floor brokers who is best able to handle a further instruction by comparing the relative number of reviewed delegated instructions having a pending status . . . ").

NYSE also relies on the prosecution history, where Papyrus's amendment to Claim 1 allegedly "changed the claim from one directed to calculating leaves to one directed to calculating the number of unfilled orders." Def. MHSP 112. While the calculating step in the original text states "calculating at the programmed computer the remaining quantity that must be traded to fill a particular order using the current-status information transmitted to the programmed computer concerning the particular order," the amended step states "calculating at the programmed computer a remaining quantity of unfilled orders to fill using the current-status information transmitted to the programmed computer." Pl. App. Ex. 11 at 202 (emphasis added). Papyrus's own amendment also describes that the "calculation" of the number of open orders assigned to each broker sets up the "selecting step." The amendment states that

the management method compares a relative number of previously delegated instructions to the floor brokers which have a pending status so that the floor broker having comparatively few pending instructions can be found. The method then selects or suggests that the found floor broker be the one to whom a further instruction is delegated.

Pl. App. Ex. 8 at 176 (emphasis added).

Accordingly, the court finds that neither party's proposed construction fully encompasses the meaning of the calculating step. On one hand, the specification makes clear that the booth clerk frequently receives current-status information, including leaves quantities. See '877 Patent col. 10 ll. 17-21, col.29 ll.40-44, col.30 ll.54-57 & Fig. 1 step 328. Moreover, the specification clearly defines "leaves" as "the unfilled portion (leaves) of an orders [sic]," and as a quantity "which advises the broker of the quantity of stock required to be traded to fill the order." 13 '877 Patent col.15 ll.50-51, col.16 ll.55-57. On the other hand, the specification and prosecution history contain language suggesting that the calculating step involves a comparison of unfilled orders. See '877 Patent Abstract, col.6 ll.64-col.7 l.4, col.9 ll.55-60; Pl. App. Ex. 8 at 176, Ex. 11 at 202. During the Markman Hearing, Papyrus conceded that the clerk can compare the relative number of pending instructions through visual observation. Pl. MHSP vol. 1 at 64. Furthermore, in its discussion of the selecting step, Papyrus again stated that: ". . . the specification explains that a clerk may compare the relative number of pending instructions just by looking at lists of pending instructions for different brokers." Pl. MHSP vol. 1 at 73; see '877 Patent col.9 ll.24-27. The court must therefore settle on a construction of the calculating step that encompasses both leaves and the relative number of unfilled orders. See Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). Accordingly, the court construes the calculating step to mean "mathematically processing the current-status information to expressly determine a number of unfilled orders to be completed."

13 Even though the definition of "leaves" appears in reference to the HHD, the court must apply the same definition to the term in its use throughout the patent, as "a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent." Rexnord Corp., 274 F.3d at 1342.

4. Calculating costs involved in moving such product to said destination based upon said destination and such product n5
DE maintains that the phrase means "determining applicable costs involved in moving such product to said destination based upon said destination and such product." Dell contends that the phrase should be construed as "mathematically determining the costs of moving the selected product including the costs of shipping, insurance, licensing fees, handling fees, documentation fees, and taxes on these costs."

Dell's construction, defining "calculating," as "mathematically determining," improperly imports a limit into the specification, because not all of the calculations of costs involve mathematical computation. For example, when the customer is able to determine the real price of his transaction, the code for the product is obtained by accessing a database "containing lookup tables of the harmonized international tariff tables and classification system, as well as the formats for any necessary import-export data, and administrative requirements for all countries involved in possible transactions." '020 Patent, col. 6, ll. 56-60. The court therefore finds that the word "calculating," shall be construed, in accordance with its plain meaning, as "determining."

In addition, Dell's construction requires certain costs to always be included in the cost calculation, such as transportation, insurance, duties, tariffs, and taxes. The court agrees with Dell's construction to the extent that it requires the determination of all actual underlying costs of shipping the product. See id. at col. 15, ll. 22-23 ("calculating costs involved in moving such product to said destination based upon said destination and such product"). These costs can include the cost of all freight for each leg of the journey, insurance (if desirable), sales taxes, handling charges, document generation and forwarding charges, import/export duties, and 'value added' taxes as well as luxury taxes (if applicable). Id. at col. 7, ll. 7-11. Dell's listing of costs improperly constrains the specification, however. The specification recognizes that the illustrative flowchart in the Appendix "show[s] many of the variables which will ultimately determine the final transaction price but in no way should this chart be construed to mean the only or all encompassing variables. Since each product or service is of itself unique and since the buyer and sellers geographic location can change, the variables are never fixed." Id. at col. 13, ll. 30-35 (emphasis added). Although all costs of a transaction must be determined at this step, the actual costs involved will vary depending upon the type of transaction. As Dell observes, a potential customer must have "the full cost of a foreign transaction displayed in front of him before the transaction is actually carried out." Id. at col. 9, ll. 1-3. The court bases its construction on the fundamental precept that a customer must be presented with all actual costs of moving a product.

Accordingly, the court finds that "calculating costs involved in moving such product to said destination based upon said destination and such product," must be construed as, "determining all applicable costs of moving the selected product to said destination."

Lextron's second argument is that the district court ignored the requirement that the calculation must be made "for the selected drug treatment." According to Lextron, its system does not perform calculations for any selected drug treatments but "merely considers the date an animal received some treatment and the longest withdrawal time of any drug treatment used in the feedlot."

We agree with Lextron that the claims require that the recited calculation be performed with respect to the withdrawal period for a specific drug selected for a particular animal. The claim language makes this clear, requiring that the computer calculation be "in response to entry of a selected drug treatment" and that it determine when the animal may be released "for the selected drug treatment." The specification also makes clear that the calculations are performed with respect to the specific drug treatments selected by an operator. Because the district court interpreted the claims to require merely the calculation of the "days to ship," without including as part of the calculation a drug withdrawal period corresponding to the treatment selected for the particular animal, the court's interpretation is incorrect.
Although we vacate the judgment in Micro Chemical's favor, we decline Lextron's invitation to rule that its modified system does not infringe as a matter of law. That question is one for the district court, not for us on this appeal, which was directed solely to the issue of claim construction. On remand, the district court, applying the correct claim interpretation, can determine whether Lextron's accused system performs in the manner recited in the claims either literally or under the doctrine of equivalents.

2. "CALCULATING . . . FROM THE RELATIVE MAXIMUM . . . AND MINIMUM"

The term "RELATIVE MAXIMUM AMPLITUDE" means the intensity of the composite waveform. See '372 patent, col. 11:39-40. The term "RELATIVE MINIMUM AMPLITUDE" is the background intensity or zero frequency. Id. at col. 11:40-41. The phrase "CALCULATING . . . FROM THE RELATIVE MAXIMUM . . . AND MINIMUM" (Claim 1) is construed to mean that both the relative maximum and relative minimum of the red and infrared waveforms must be "mathematically" used in the oxygen saturation calculation. In addition, the Court finds, as Masimo argues, that the minimum must be part of the composite, meaning that it must be determined after the composite waveform is generated. See Masimo Mot. at 12-14, and Reply at 13.

This Court declines to follow Nellcor's construction, which asserts that the maximum and minimum amplitudes are used "at some point in the calculation" of oxygen saturation - not necessarily after the composite is formed. See Nellcor Opp. at 17. Doing so would be contrary to the language of the claims and the file history, since both clearly indicate that "the maximum and minimum come from the composite waveforms," and thus, cannot be used in a calculation prior to the formation of the composite. '372 patent, col. 59: 41-43; See Masimo Mot. at 13; Reply at 12.

a. Claim Language

The claim language supports Masimo's construction. The language of the '372 claims require that the minimum must be part of the composite waveform, and must be determined after the composite waveform is generated. See 372 col. 59: 40-44 (explaining in Claim 1 that the time measure is processed to collectively determine "a composite waveform having a relative maximum and minimum amplitude . . . thereafter calculating the amount of blood constituent from the relative maximum and minimum amplitude of the composite") (emphasis added).

The strategic placement of the term "thereafter" in the claim demonstrates Nellcor's intent to conduct the calculation after the composite is formed. Further, if the calculation must "use" both the maximum and the minimum, as required by the claim language, then it only makes sense for the calculation to be completed after the formation of the composite, since the composite is composed of the necessary maximum and minimum waveforms.

b. File History

The file history also supports Masimo's construction, in that the Examiner distinguishes the '372 patent from prior art (and specifically the New, Jr. patent), by highlighting that, in the '372 patent, there is a composite waveform "having a relative maximum and minimum", whereas in the New, Jr. patent, there is "no composite signal." See Lateef Decl. Ex.1 at 208. The Examiner further contrasts '372 from New, Jr by explaining that '372 "yields a composite relative maximum and minimum." See also id. at 209.

Thus, the Court agrees with Masimo's construction and rejects Nellcor's contention that the relative minimum can be determined and used in the calculation of saturation before generating any composite waveform. See Masimo Reply at 11.
Nellcor next contends that the trial court erred when it ruled that "calculating ... from the relative maximum and minimum" requires that any calculation using the relative minimum must be made only after formation of the composite signal. We agree with Nellcor that the district court's claim construction is incorrect. The composite signal in the frequency domain embodiment of the '372 patent consists of data for each of 512 frequencies starting at zero frequency. The Fourier transform at zero frequency is equal to the average value of the signal in the time domain and represents the average background intensity of that signal. '372 patent, col. 11, ll. 54-58 & Fig. 10.

In the frequency domain embodiment of the '372 patent, the zero frequency component of the composite signal is computed when the average value of the signal is determined, which is before the transformation for the other frequencies that make up the composite signal. That average value is then subtracted from each of the 512 data points before the Fourier transform is computed for the rest of the 511 frequencies that make up the composite signal.

The district court was correct when it stated that the relative minimum value must be part of the composite signal, but it was incorrect in concluding that the minimum value may be determined only after the composite waveform is generated. Experience with oximeters has shown that infrared light has a different average detected background intensity than does red light. The detected background intensities for the red and infrared light are represented by the average value of the signal for each of those two wavelengths. Calculating the oxygen saturation of blood requires a determination of the ratio of the difference in absorbance level at those two wavelengths, with the detected average background intensities removed from each. Accordingly, in order to make that calculation, the infrared and red signals have to be normalized relative to one another. In the invention of the '372 patent, the relative maximum values of the infrared and red signals are divided by their respective relative minimum, or zero frequency, components to normalize each relative to the other. This division produces the same result regardless of whether it is performed before or after the transformation of the data to the frequency domain.

The district court found that the placement of the word "thereafter" in claim 1 supported its conclusion that the minimum value could be used only after the composite signal was generated. We disagree. "Thereafter" refers to the time when the amount of blood constituent is calculated, not to the time when the relative minimum is used. By requiring that the relative minimum value be used in any calculation of the oxygen saturation only after the composite signal has been formed, the district court added a limitation that is not present in the claim language and is not supported by the specification or prosecution history. We have stated that we "cannot construe the claim to add a limitation not present in the claim itself." Hewlett-Packard Co. v. Mustek Sys., 340 F.3d 1314, 1325 (Fed. Cir. 2003). In light of our analysis, we believe that "calculating the amount of blood constituent from the relative maximum and minimum amplitude of the composite periodic waveforms of the detected wavelengths" means only that both the relative maximum and the relative minimum of the red and infrared waveforms must be mathematically used in the oxygen saturation calculation.

5. "Calculating the reaction parameter"

Claim 50 of the '774 patent covers a method that requires a "computer implemented process," comprising several steps. The method requires determining the fluorescence polarization of the first and second mixtures and then comparing the fluorescence polarization levels of the two mixtures. The fourth step requires "calculating the reaction parameter." Caliper proposes that the term "calculating the reaction parameter" be construed as: "calculating a result that constitutes a measurement of or otherwise reflects the extent of the reaction."

MDC proposes: "calculating a result that constitutes a measurement of the extent of the reaction." The only contention is whether the construction should contain the words proposed by Caliper, "or otherwise reflects." Caliper's inclusion of the words "or otherwise reflects" is vague and ambiguous, although the primary contention appears to be whether the computer can generate more than a mere number when displaying the measurement of the extent of the reaction. The specifications contemplate alternative displays of information.

The specifications indicate that the computer receives the data regarding the interactions and "interprets the data, and ... provides it in one or more user understood or convenient formats, e.g., plots of raw data, calculated dose response curves, enzyme kinetics constants, and the like." ('774 Patent at 20:56-60.) The specifications also indicate that the computer, using the fluorescence polarization comparison, "may then interpolate or extrapolate a quantitative measure of the reaction, its
level of inhibition or enhancement which quantitative measurement may then be displayed to the investigator.” (’774 Patent at 19:46-50.)

Accordingly, the Court adopts MDC’s construction of the term "calculating the reaction parameter" to mean: calculating a result that constitutes a measurement of the extent of the reaction. However, this construction encompasses more than a display of a mere number to indicate the measurement of the extent of the reaction, and can include other user understood or convenient formats as described in the patent.

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4. "calculating said glucose concentration in said sample from one of said reflectance readings" means calculating the amount of glucose contained per unit volume in the sample from the reflectance reading taken at the expiration of the predetermined time period.

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The district court also construed "calculating said glucose concentration in said sample from one of said reflectance readings" to mean "calculating the amount of glucose contained per unit volume in the sample from the reflectance reading taken at the expiration of the predetermined time period." Claim Construction Order, 2002 U.S. Dist. LEXIS 27575 at *10 (emphasis added). This construction again improperly limited claim 4 of the ’162 patent to predetermined timing methods. This court construes "calculating said glucose concentration in said sample from one of said reflectance readings" to mean "calculating the amount of glucose contained per unit volume in the sample using a reflectance reading taken when the reaction between glucose in the blood sample and the reagents in the test strip has reached a suitably stable endpoint."

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8. The phrase "CALIBRATION CODE CIRCUITRY FOR TRANSMITTING A DESIRED CALIBRATION CODE" (claim 10) requires a calibration code that is a value that indicates known wavelength(s) of light. The value must be a single known quantity. Further, the calibration code circuitry must be a part of the sensor probe.

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1. "Call Authorization amount." Used in ’114 patent, Claims 1, 6, and 7; ’768 patent, Claims 1-3, 5-11.

"Amount of call authorization." Used in ’114 patent, Claims 1 and 6.

"Active Call Authorization Amount." Used in ’768 patent, Claims 1-3, and 5-11.

The parties initially stated that the primary dispute between them involves these three related claim terms. TGIP proposed: "a call amount that is useful for obtaining call service." Defendants suggested "any customer defined variable (i.e. not fixed or pre-set) amount, assigned to a calling card at the time of activation or recharge." A candid discussion between the court and the parties at the Markman hearing revealed that the more important issue is how the term "associating" applies to, and affects, these three terms.

To assist in the analysis, the relevant portion of the first claim of each patent is set out with these terms in bold:

Claim 1 from the ’114 patent:

at least one data terminal located at a predetermined location remote from the host computer and connectable to the input port for associating, at the host computer, an amount of call authorization to a security number of a calling card using data transmitted between the data terminal and the host computer during one or more charging transactions, the means for
associating of the data terminal including:

means for entering the security number;

means, operative during any initial transaction and any recharge transaction, for entering any monetary amount corresponding to the amount of call authorization;

means for connecting to the host computer to transfer the security number and the call authorization amount; and

means responsive to the transfer for receiving a verification message from the host computer authorizing receipt of the monetary amount to thereby associate at the host computer the call authorization amount to the security number, wherein the calling card does not store the call authorization amount; and

wherein the database includes a record for each calling card security number having a call authorization amount associated therewith, the record including a balance; and

Claim 1 from the '68 patent:

activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account;

for each pre-paid calling card account that is activated, maintaining in the database information sufficient to identify:(i) a date on which the particular pre-paid calling card account is activated, (ii) a particular point-of-sale location at which the particular pre-paid calling card account is activated, and (iii) the active call authorization amount that was associated with the particular pre-paid calling card account when activated on said date and from said point-of-sale location;

At the hearing the parties agreed generally that:

1. The "data terminal" is the terminal at which the calling card is swiped or data is otherwise entered at the point of sale where the customer obtains the card or recharges the card. Tr. p. 13-14; and

2. The "host computer" is the central computer, or a system of networked computers, that keeps track of all the cards or card accounts. Tr. p. 14-16.

The parties also agreed that, at a minimum, the three terms in dispute describe variable amounts selected by the customer. The real question is whether these terms can also be defined as including a pre-set amount, say $5.00 or $10.00. Tr. p. 11-13, p. 34-35. TGIP says they can. Tr. p. 21. The Defendants argue they can not. Tr. p.22.

TGIP points, among other things, to '114 patent col. 2, 11. 52-54, which describes using a keypad at the point of sale or recharge "for entering any monetary amount corresponding to an amount of call authorization associated with a particular calling card . . . ." TGIP also relies upon its request for reexamination of the '768 patent in which it stated that "[a]n active call authorization amount means a call amount that is then useful for obtaining the call service . . . . a call authorization amount (albeit inactive) may be associated with the account prior to the user purchasing the calling card account because the calling card account is not associated with an 'active call authorization amount' until an active, or usable, amount is joined with the account. . . . " Request for Reexamination, 7/6/2000, p. 3, Ex. E to TGIP's Opening Claim Construction Brief [Doc. # 200, Attachment # 5, p. 3 of 24]. Additionally, during the reexamination process, the Board of Patent Appeals stated that claim limitations of an "active call authorization amount" "do not require (but do not exclude) point-of-sale activation of varying call amounts . . . . The active call authorization amounts could be a limited number of predetermined values as in the prior art." See Board of Patent Appeals Decision of 9/26/2003, Ex. H, p. 11 to TGIP's Opening Claim Construction Brief [Doc.# 200, Attachment # 8, pp. 11 of 31].

The court does not discount TGIP's statement in reexamination proceedings out of hand, but recognizes that it was submitted to the PTO after some years of disputes concerning the patents. The court must be careful about allowing statements made during a reexamination to enlarge the patent's scope, or to recapture scope which had been earlier
surrendered when limiting arguments made to obtain the patent have not been retracted and brought to the attention of the new examiner. See Creo Prods. v. Presstek, Inc., 305 F.3d 1337, 1344 (Fed. Cir. 2002); Hakim v. Cannon Avent Group, PLC, -- F.3d --, 2007 U.S. App. LEXIS 3926, 2007 WL 542697, *3 (Fed. Cir. 2007). This would seem especially true when the statement in question was peripheral to the issues being addressed by the examiner and the Board of Appeals.

Of course, TGIP also relies upon the familiar cannons of construction that a patent is defined by its claims, that claims should be given their full scope, and that limitations should not be imported from descriptions of preferred embodiments.

Defendants rely heavily upon statements in the specification such as: "The present invention relates to . . . activation and recharging of calling cards in customer defined amounts." '114 patent, col.1., 11. 6-9. Defendants also argue that TGIP disavowed all cards issued in fixed or pre-set amounts pointing to statements distinguishing prior art such as: "The most significant drawback is the requirement that pre-paid calling cards be issued in fixed or preset amounts." ' 114 patent, col. 1, 11. 46-48, and '768 patent, col. 1, 11. 51-53. See Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

It appears to the court that nothing in the claim language itself eliminates all cards with a pre-set amount. n3 The first use of the disputed phrase is in Claim 1 of the ‘114 patent: "associating, at the host computer, an amount of call authorization to a security number of a calling card . . . ." '114 patent, col. 6, 11. 14-16. In Claim 1 of the '768 patent Reexamination Certificate ("Reexam Cert") we see: "activating the particular pre-paid calling card account in the database of prepaid [sic] calling card accounts in response to receipt of the activation information by associating an active call authorization amount with the particular pre-paid calling card account." '768 patent Reexam Cert, col. 1, 11. 33-37. The statements in the specification and prosecution history of each patent establish that the intent was to go beyond the previous fixed limit card, but they do not eliminate the possibility that what is claimed is a new system which describes: (1) an "open ended" card (or one with a high upper limit) so the customer picks any amount (or any amount less than the high limit); and (2) a card with an amount preprinted on the card, or alternatively two or more amounts, one of which must be selected by the customer.

--- Footnotes ---

n3 The record contains a much more detailed exposition on this issue, including the responses of the parties to various hypotheticals. See Tr. pp. 10-60.

--- End Footnotes ---

Whether the claim language can be defined as including this second type of card is the real dispute. See Tr. p. 11-13. Both patents use the indefinite article "an" when referring to the call authorization amount or the amount of call authorization. The specification describes an embodiment in which there is "an amount of call authorization associated with a particular calling card . . . ." '114 patent, col. 2, 11. 53-54. The court concludes that the claim language describes at least some types of cards with a pre-printed amount, or perhaps a limited choice of amounts. To this extent,"call authorization amount" and "active call authorization" simply mean a monetary amount assigned to the card or account.

But the analysis does not end there. Two systems or scenarios for use of cards with pre-set dollar amounts are technically feasible. Tr. p. 16-18, 42.

Scenario 1: Cards of say $5.00 or $10.00, etc., where the security number is pre-associated with that amount at the host computer, but the card is not valid until it is "swiped" at the point of sale so the host computer knows it is activated. (In other words the host computer database already "knows" the security number of the card, and the amount of the card, and all that is needed is to validate or activate the card.)

Scenario 2: Cards of say $5.00 or $10.00 etc., where a security number is not associated with a particular card or amount until the card is swiped. This could include a card with a limited number of choices available, say a choice between $5.00, $10.00, or $15.00. (In other words the host computer database has a list of security numbers, and when a card is activated at the data terminal the amount printed on the card is associated with one of those security numbers.)

Comparing these scenarios illuminates the importance of the term "associating" and illustrates why it must be construed in conjunction with the three terms originally submitted. n4
n4 Of course, with a "variable" or pure "customer choice" card, no dollar amount can be associated with a security number until the customer selects an amount and activates or recharges the card for that amount. As noted, the parties do not dispute that the patent terms define this type of transaction.

Claim 1 of the '114 patent states that as part of the system there is a host computer with an input port, and a data terminal "connectible to the input port for associating, at the host computer an amount of call authorization to a security number of a calling card . . . ." '114 patent, col. 6, l. 11-16 (emphasis added). Similarly, Claim 1 of the '768 patent describes a method in which calling card account in the database is activated "by associating an active call authorization amount with the particular pre-paid calling card account." '768 patent Reexam Cert, col. 1, l. 35-37 (emphasis added).

"Associating" is an active verb, which must mean something. If, as TGIP argues, cards could have a preset amount printed and coded on the card, along with that card's identifying or security number, then what is left to associate by the host computer or the data terminal? After Claim 1 of original application for the '114 patent had been rejected as obvious in light of two earlier patents, the applicant stated:

Claim 1 has been amended to further emphasize several of the above-identified features and concepts that are neither described nor obtained by Schilling, taken by itself or in combination with Kamil . . . For example, Claim 1 now describes . . . The data terminal is now described as the device in the system which is used to associate an amount of call authorization to a security number of a calling card using the data transmitted between the terminal and the host computer.

Amendment to First Office Action, 5/18/1995, p. 8 (Bates No. TGIP 006428), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 9 of 11].

To define the terms at issue so broadly as to encompass the system of scenario 1 above, would simply ignore this statement to the PTO, and would define "authorizing" as simply meaning "validating." The prosecution history makes it clear that such a construction was rejected by the PTO. n5 The court will define these related terms as follows:

"Call authorization amount" as used in the '114 patent, Claims 1, 6, and 7, and "amount of call authorization" as used in the '114 patent, Claims 1 and 6, mean: "a monetary amount to be used to pay for call service."
be associated with a caller and also obtained by the disclosed "communication receiver" to perform the method described in claim 15. ('140, 2:12-19; 5:51-56; Fig. 4 (402)).

In contrast, VTech contends its proposal is consistent with the intrinsic evidence, including the specification and prosecution history ('140, 1:42-48), while Motorola's proposed definition is not supported by the disclosure in the specification. According to VTech, Motorola's use of the word "associated" is vague, consistent with Motorola's attempt to extend the scope of its user interface patents beyond what the specification enables, i.e. pagers and pager systems. VTech takes issue with Motorola's use of the word "associated" based merely on a statement made in the prosecution history. VTech contends that in response to a rejection by the Patent Office based upon the Sato prior art reference, Motorola Enhanced Coverage Linking clarified what it meant by the term "call-back number:" "The "call-back number" of the instant application is a telephone number associated with the person sending a page." (VTech Ex. 16, pg. 70) (emphasis in original).

There is some support for VTech's construction, "a phone number entered by a sender." Support for VTech's position is found in the Background section: "By utilizing numeric display paging, callers could dial a single telephone access number to send a call-back number (entered by the caller using, for example, a tone dialing telephone set) that the page recipient could then call to contact the caller by telephone (emphasis added)." ('140, 1: 44-49). And "[u]pon receiving the call, the paging control center 106 prompts the caller to enter a call-back number. . . . (emphasis added)." ('140, 3:60-62).

However, the phrase proposed by VTech requires action on the part of a sender (a second party in the claim), The claim in general and the surrounding claim language in particular, however, is directed toward the receiver. Further, the claim element in question is the "received" call back number. The file history quote noted by both parties emphasizes not how a call back number is created but rather what a call back number is ("a telephone number associated with the person sending a page").

Moreover, the exact phrases that VTech and Motorola have proposed are not found in the intrinsic record. In contrast, the exact phrase "a telephone number associated with the person sending a page" is supported by the intrinsic record. The Applicant made the remark during prosecution regarding the preferred embodiment: "the 'call-back number' of the instant application is a telephone number associated with the person sending a page." Ex. JJ (Paper 4 at 8). However, the examples listed in Col. 1:4-53 are not necessarily a person because they include "offices." Sometimes a page sender may not be a person, but a machine, or an automated dialer. Therefore, the Court removes the reference to "person" and construes the disputed phrase as "a telephone number associated with a page sender."

c. The Court's Construction

The Court construes the term "received call-back number" to mean "a telephone number associated with a page sender."

1. The Language of Claim 1.

The crucial clause of claim 1 requires a "call cost register means, including a digital display, for providing a substantially instantaneous display of cumulative call cost in dollars and cents." Because we can dispose of this appeal by construing only the "call cost register means," we need not and do not construe other, unrelated clauses except to the extent they can help us establish the requirements attributed to a call cost register means by the '463 patent. We therefore focus our attention on reviewing the construction of this clause, and this clause only.

According to claim 1, the call cost register means provides "a substantially instantaneous display of cumulative call cost in dollars and cents." Thus, it appears that a call cost register means functions to display current, accurate information about the cost of a call. It is not immediately clear, however, what the limitation "substantially instantaneously" requires. NTI and United suggest that it requires displayed information about the cost of the call at the same instant that charges accrue. Phonometrics argues, however, that it simply requires the display of accurate cost information immediately upon termination of the call. Fortunately, we need not rely solely on the words used in this means clause to determine the requirements of this limitation, for there are other clauses in claim 1 that inform our construction of the call cost register means and further define the functions attributed to it by the patentee. Specifically, the final three clauses of claim 1 provide
such information.

The first of these three clauses requires an "initial cost transfer means . . . for applying the complete initial fixed charge data from said charge selector means to said call cost register means substantially instantaneously upon resetting of said call timing means and said call cost register" (emphasis added). Thus, when the device is reset, the "initial fixed charge data" is transferred "substantially instantaneously" from the charge selector means to the call cost register means and displayed there via the digital display.

Claim 1 further requires (emphasis added) an incremental cost transfer means for applying the complete incremental charge data from said charge selector means to said call cost register means substantially instantaneously upon completion of timing out the initial call interval . . . and for again applying the complete incremental charge data from said charge selector means to said call cost register means substantially instantaneously upon completion of timing out of each incremental call interval following said initial call interval.

According to this clause, if the call is still in progress when the initial call interval has expired, the "incremental charge data" is transferred to the call cost register means and displayed there "substantially instantaneously." Additional incremental charges are transferred to the call cost register means "substantially instantaneously" upon the passage of additional call intervals. This process of transferring successive interval costs continues throughout the duration of the call.

The limitations in these clauses are revealing. The repeated use of the limitation "substantially instantaneously" to convey the immediacy by which the call interval cost information is transferred to the call cost register means supports our interpretation that the register displays cumulated costs as they accrue, in real time, and not only once the call has ended. A word or phrase used consistently throughout a claim should be interpreted consistently. Thus, as each cost increment is accrued, it is transferred to and displayed "substantially instantaneously" by the call cost register means. The phrase "substantially instantaneously" clarifies that the display in the register is current throughout the duration of the call; the call cost register does not merely display the cost after the call has ended.

Furthermore, the final clause addresses what occurs upon call termination; the claimed device includes a "termination means for interrupting operation of said computer apparatus, with the cumulative call cost held in and displayed by said call cost register means, upon operation of said switch by replacement of the calling telephone." It is especially significant that, at the point at which the call is terminated, the apparatus does not perform a calculation to determine the total cost of the call. Thus, the cost displayed in the register must be accurate at all times during the call, so that regardless of the point at which the call is terminated, the cumulative cost displayed in the register will be accurate without further calculation. Phonometrics's description of its claimed device as a "calculator" is therefore misleading; rather, the claimed device is simply a continuous counting device, for no provision is made for any calculation upon completion of a call.

When the claim itself is considered in its entirety, it becomes clear that the call cost register means has two separate and equally important functions: (1) it provides the caller with real time, accurate information about the cost of the call via digital display as the long distance charges accrue during the call, and (2) it reflects the total cost of the call via the same digital display after the call has terminated. Phonometrics argues that only the second function is claimed, or that only this second function is important for determining infringement. We disagree. Both functions are claimed explicitly in the '463 patent, and both are significant for construction.

2. The Written Description.

The language used throughout the specification preceding the claims supports this construction of dual functions of the call cost register means. For example, the written description explains that the call cost register means operate so that "the cumulative cost of a single call is displayed in the single call cost register . . . to continuously remind the caller as to the cost of the call as the call progresses and to indicate the total cost of the call at the completion." Col. 3, ll. 27-31 (emphasis added). This description of the operation of the call cost register means in a preferred embodiment supports our construction of the claim language: the call cost register means clearly provides information about the cost of the call while the call progresses. Although claims are not necessarily restricted in scope to what is shown in a preferred embodiment, neither are the specifics of the preferred embodiment irrelevant to the correct meaning of claim limitations. See Markman, 52 F.3d at 979, 34 U.S.P.Q.2D (BNA) at 1329. Phonometrics of course argues that additional limitations cannot be imported into a claim from the written description. We may, however, construe a specifically claimed limitation in light of the specification,
which is all we do here.

Similarly, the written description carefully explains the importance of the initial and incremental cost transfer means for the real time operation of the device:

When the party called is reached, the 90-volt pulse derived from the telephone line upon the lifting of the receiver of the called party substantially simultaneously clears the elapsed time indicator and starts the indicator counting time. Further, substantially instantaneously the single call cost register is cleared and loaded with the 3-minute charge indicated on the set charge selector. . . . Should the call exceed three minutes, the elapsed time indicator causes the per-minute overtime charge to be added to [the] cost register[], and this is repeated at further 1-minute intervals during the call. At the conclusion of the call, all counting stops and the displays in the cost register[] and elapsed time indicator are retained.

Col. 3, ll. 3-19 (emphasis added, internal figure references omitted). Thus, the specification further clarifies the way in which the claimed device operates, adding each incremental charge to the call cost register means as each interval elapses, to provide real time long distance charge information while the long distance call is in progress.

Phonometrics, however, objects to the district court's construction of the call cost register means -- that it displays the mounting cost of a call in progress -- observing that the phrase "in progress" appears nowhere within the language of claim 1. While Phonometrics is correct that this phrase does not appear in the claim itself, that fact does not render erroneous the construction given the claim by the district court. In fact, when the claim is considered properly as a whole, we think it clear that the '463 patent is limited to a device which displays the cumulative cost of a long distance call both as charges accrue during the call and after the call has been terminated.

3. The Prosecution History.

Finally, the prosecution history supports our understanding that the call cost register means performs two distinct functions by displaying cumulated costs both during the call and upon its termination. During prosecution of the '463 patent, the applicants specifically emphasized the functions of the cost transfer means in distinguishing over the prior art:

In addition, and as clearly set forth in Claim 10 [now claim 1 of the '463 patent], the apparatus of the present invention instantaneously transfers the three minute charge information to the cost register when the call is completed by the receiving party lifting the called telephone, and the incremental one minute charges are applied to the cost registers substantially instantaneously upon the timing out of each one minute interval. In the Fletcher device, and other similar prior art apparatus, the call charge information requires considerable time for entry and may well result in an erroneous charge recording if the calling telephone is hung up after only a minor increment of a charge interval is completed. This operational error is entirely obviated by the cost computer apparatus of the present invention. Accordingly, it is submitted that Claim 10 affords distinctive and patentable differences, in comparison with the prior art of record, and should be allowed.

Amendments to Application No. 229,711, April 4, 1973, p. 12 (emphasis added). Thus, the in-progress transfer of accrued costs to the call cost register means increased the inherent accuracy of the device compared to the prior art Fletcher device. By the applicants' own statement, the in-progress and instantaneous transfer of incremental costs was an important function for patentability. The function is clearly set forth by the claim language as viewed in light of the written description and the prosecution history, and cannot be ignored by us here.

Our independent review of the claim language thus reveals that the district judge's construction of claim 1 of the '463 patent with respect to the functions of the call cost register means was supported by the language of the claim itself, the rest of the specification, and the prosecution history. We hold that claim 1 of the '463 patent requires a call cost register means which functions both to provide accurate cost information while the call progresses as well as total cost information once the call has ended.

GO BACK

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C.4.f. "call distributor"
According to Katz, "call distributor" means "hardware and/or software to receive and have the capability to direct calls." Katz Brief at 74. Verizon appears to allege that "call distributor" means "a switch for routing calls." See Verizon Brief at 100.

"Call distributor" means "hardware and/or software to receive and have the capability to direct calls." See Lucantoni Decl. P 29. This interpretation is consistent with the claim language and the specification. See 863 patent, Col. 4:15-31 ("the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls. Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.").

E. "Call Having a First Message"

Claims 1 and 18 of the '932 Patent refer to a system or method for handling a "call having a first message," in which a processing system receives and processes the "first message" to select a narrowband switch and generates and transmits a "second message" based on that selected switch. In Vonage, the Court adopted Sprint's proposed construction of "first message" in these claims to mean a signaling message that is distinct from the second message. See 518 F. Supp. 2d at 1322-23. Based on that ruling, Sprint now argues that "call having a first message" should be construed to mean a call having a signaling message that is distinct from the second message. Big River seeks to construe this phrase to mean the original signaling message created by the call. The Court rejects Big River's construction.

The Court begins with the language of the claims, at it must. Big River notes that the claims require that the "second message" be based on a selection made from processing of the "first message," which necessarily requires that the "second message" come after the "first message;" thus, Big River argues that the claims impose a temporal limitation. The Court agrees with Sprint, however, that because that sequence is dictated by the claim, "first" and "second" need not be further defined to incorporate that sequence. Moreover, the fact that the "first message" comes earlier in time than the "second message" does not bear on whether the "first message" is required to be the original message in the call.

The Court also does not agree with Big River that the language "call having a first message" somehow associates the "first message" with the entire call in a temporal fashion. Instead, the use of that language would appear to contradict Big River's construction, as a patentee intending Big River's meaning could more easily have referred to a call generally (which must of course have signals, and therefore a first-in-time signal as well) and the processing of the "original" or "first" message of that call. The use of the phrase "call having a first message" suggests that "first message" refers to something other than the original signaling message of the entire call, using "first" to distinguish its role from that of the "second" (or "third" or "fourth") message discussed in the claims.

Big River also cites portions of the specification that indicate that signaling messages are created when calls are placed. Those references do not use the term "first message," however, and they do not suggest that the message processed in the claims must be the original message of the call. To the contrary, the specification specifically notes that the element from which the processor receives the "first message" may be a switch in another network ('650 Family at 8:49-51), which would mean that the first-in-time signaling message for the call took place within that other network, and not within the claimed system.

Finally, the Court rejects Big River's argument based on the patent application's prosecution history. In the cited references, the applicant distinguished prior art by noting that the present invention routes the signaling message to the processor instead of routing it to a switch first. The applicant did not state that the invention required processing of the original message of a call, and the claims in the application at that point did not include the term "first message" at any rate.
Accordingly, the Court construes "call having a first message" in these claims to mean a call having a signaling message that is distinct from the second message.

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B. "Call pod"

The term "call pod" initially appears in claim 1 of the '611 patent. Callpod contends that "call pod" should be construed to mean "a portable device which forms conference calls among a plurality of call participants." Defendants claim that "call pod" should be construed as "a portable device with at least two headset ports." Alternatively, Defendants recommend that "receptacles" or "plugs" be used in place of "ports" in its construction of the term as both are found within the patent description.

The claim language itself does little to resolve this issue. Each of the independent claims use the term "call pod" and states that the call pod is "for interconnecting a plurality of headsets." (JA, Ex. 1, '611 patent, claims 1, 9, & 18). However, nothing in the claims specifically suggests that the headsets require ports to achieve the interconnection. Fortunately, while the claim language is inconclusive, the specification expressly defines "call pod" as a "portable telephone device which forms conference calls among a plurality of call participants, at least two of which are proximate the call pod." (JA, Ex. 1, '611 Patent, at 2:23-25.) Defendants claim that this definition does not satisfy the precision requirement in 35 U.S.C. § 112 because Callpod's proposed definition could refer to any mobile telephone with a speaker function. However, the reference to headsets throughout the patent would resolve any such confusion and provide sufficient clarity and precision for a person skilled in the art to know what the invention actually concerns. Moreover, even when a different meaning from what the specification provides could be attached to the term at issue, "the inventor's lexicography governs." Phillips, 415 F.3d at 1316. Therefore, the Court will construe "call pod" to mean "a portable device which forms conference calls among a plurality of call participants."

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<table>
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<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<td>&quot;call report&quot;</td>
<td>&quot;a signal providing passenger conveying information&quot;</td>
<td>The claim term is too ambiguous to be construed.</td>
</tr>
<tr>
<td>('861 Patent, 861 claims 1, 2, 3 and 11); ('465 Patent claim 1)</td>
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Plaintiff argues that its definition is supported by the specification describing call reports in the context of users operating elevator cars in which a first call report can "indicate a conveying destination (upwards or downwards) or a boarding floor" and a second call report indicates a "destination floor." ('465 Patent col. 4:59-67.) Plaintiff further argues that another embodiment of a "call report" is a "destination call report," which is defined in the specification as including "data regarding not only the boarding floor, but also the destination floor." (Id. col. 6:18-19.).

Defendants counter that the term "call report" is invalid based on its ambiguity. Defendants emphasize that, at a minimum, the construction of "call report" must include some limitation concerning it to use for controlling the elevator control.

With respect to Defendants' indefiniteness argument, the issues before the Court with respect to this term are whether it is indefinite, and if not, what its proper construction should be. "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, [the Federal Circuit has] held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Exxon Res. & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). "A claim will be found indefinite only if it is insolubly ambiguous, and no
narrowing construction can properly be adopted . . ." Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008) (internal quotation marks and citation omitted). In contrast, a claim term is definite if it can be given any reasonable meaning. See Young v. Lumenis, Inc., 492 F.3d 1336, 1346 (Fed. Cir. 2007) (citing Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005)).

A reasonable meaning for the term "call report" can be derived from the specification. As cited by Plaintiff above, the specification describes a "call report" to be "for example, analog electrical signals of defined current strength, voltage, frequency, period, etc." ('465 Patent, col. 5:37-40.) The specification further provides that a "call report" includes both a "boarding floor" and a "destination floor" for a passenger. (See id. col. 4:59-67; id. col. 6:18-19.). Based on these descriptions, the Court finds that the term "call reports" is not ambiguous as its meaning could be discerned by a person of ordinary skill in the art.

Despite rejecting Defendants' indefiniteness argument, the Court recognizes that Defendants present a valid limitation that the term "call report" should be restricted to information "used to control the elevator control." The express words of the claims themselves are clear that "call reports" are generated in order to be used by the elevator control. (See '861 Patent, col. 12:33-34) ("having at least one elevator and an elevator control for controlling the at least one elevator by a call report"); (id. col. 12:51-52) ("converting said destination signal into a call report for use by the elevator control in controlling the elevator"); ('465 Patent, col. 11:7-8) ("having at least one elevator control by way of at least one call report"); (id. col. 11:23-25) ("for converting the destination signal into at least one call report and for controlling the elevator control by way of the call report"). In these references, "call reports" are explicitly described as being used by the elevator control in performing its function. In light of this limiting language contained in the claims themselves, the Court concludes that the term "call report" means "a signal providing passenger conveying information used to control the elevator control."

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VI. "a call state, being at least one of the group consisting of active and hold states" / "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out"

The two disputed phrases from the '500 patent are interrelated, and must be construed together. Claim 1 of the '500 patent is representative of the use of both phrases.

1. A teleconferencing system comprising:
   
   (a) a plurality of AV devices, each capable of
      
      (i) originating and reproducing
      
      (1) user related audio and video signals;
   
   (b) a plurality of communications ports, each supporting
      
      (i) at least one of the group of switch connections consisting of
      
      (1) video in, video out, audio in and audio out; and
   
   (c) at least one communication path,
      
      (i) arranged for transport
      
      (1) of audio and video signals,

   wherein the system is configured to

   (i) to control a communication connection
(1) between two of the AV devices,

(2) over the communication path,

(ii) by creating,

(1) as a result of a call request,

(2) at least a first call handle,

i. associated with one of the two AV devices and, thereafter,

(3) at least a second call handle,

i. associated with the other AV device,

(4) each call handle defining,

i. for its respective AV device,

ii. a call state, being at least one of the group consisting of active and hold states; and

iii. the port switch connections involved in the communications connection.

'500 patent at 41:51-42:11 (emphasis added).

The claims of the '500 patent relate generally to the mechanics of placing and connecting a videoconference call between two AV devices (CMWs) using the invention described in the Specification. The description of the preferred embodiment illustrates the general process for how a videoconference call is connected.

First, before a CMW can participate in a videoconference call, it must connect to the AVNM and register the types of collaborative services it provides—such as videoconferencing or data sharing—in a central directory, or "service server." Spec. at 20:66-21:1. During registration, the CMW can specify "the audio/video ports physically connected to the particular CMW into which the user is logged in." Id. at 21:18-19. Based on the information provided by the CMW, the AVNM creates a data record called a "port abstraction, wherein each port represents an addressable bidirectional audio/video channel." Id. at 20:42-44.

In the preferred embodiment, a CMW has four physical connections to the AV switch: video in, video out, audio in, and audio out. Id. at 20:35-41. A CMW need not make all four of these connections available in its port abstraction, however. Instead,

[c]lient programs can specify which of the 4 physical connections on its ports should be switched. This allows client programs to establish unidirectional calls (e.g., by specifying that only the port's input connections should be switched and not the port's output connections) and audio-only or video-only calls (by specifying audio connections only or video connections only).

Id. at 20:57-63. Moreover, not all devices participating in a conference must support all four connections:

The system architecture also accommodates the situation in which the user's desktop computing and/or communications equipment provides varying levels of media-handling capability. For example, a collaboration session -- whether real-time or asynchronous -- may include participants whose equipment provides capabilities ranging from audio only (a telephone) or data only (a personal computer with a modem) to a full complement of real-time, high-fidelity audio and full-motion video, and high-speed data network facilities.
When a user initiates a videoconference from a CMW, the caller's CMW sends a call request to the AVNM, specifying the address of the callee's CMW. The AVNM then looks up the callee in the service database. Id. at 22:3-17. If the callee has registered a videoconference service, the AVNM proceeds to create two "call handle" records, and associates one call handle with each CMW's port abstraction. Id. at 22:54-61. The call handle records include information about the state of the call. Id. 23:11-20. If a CMW is connected to a call, the call handle will have an "active" state. Id. If a CMW places a call on hold, the associated call handle will be changed to a "hold" state. Id. A CMW has a separate call handle for each videoconference call it engages in, and can have multiple call handles at any one time. Id. at 23:7-10 ("Each port can have an arbitrary number of callhandles bound to it, but typically only one of these call handles can be active at the same time."). For example, if a CMW is connected to one videoconference and has two more videoconferences on hold, the CMW will have a total of three call handles associated with its port abstraction.

Based on this overall understanding of how a call is placed in the preferred embodiment, the court now turns to the construction of the disputed terms.

A. "a call state, being at least one of the group consisting of active and hold states"

CPI argues that the phrase "a call state, being at least one of the group consisting of active and hold states" should be construed to mean "the call state of the call handle must have at least one of two possible states; active (in a call) or on hold (connected but not transferring images or sound)." Tandberg argues that the phrase should be construed as follows:

Call State: the status of both audio and video connections indicating whether each connection is active or hold.

Active State: a call state in which information is exchanged over a dedicated physical connection between the caller and the callee.

Hold State: a call state permitting the caller to answer incoming calls or initiate new calls without releasing a previous call.

The parties' proposed constructions differ in two respects. First, the parties dispute whether a call state must have the ability to be simultaneously "active" and "hold," or whether the state may be either "active" or "hold" individually. Second, the parties dispute whether an "active" call is one where information is exchanged over a dedicated physical connection. The court has already concluded, in the context of construing "A V path," supra, that calls need not be connected over a dedicated physical connection.

Turning to whether the call state must be able to simultaneously be active and hold, the phrase "configured to" in claim 1 indicates that the following elements are a recitation of the claimed system's capabilities. Claim I thus requires that the system have the functionality of creating a call handle which defines "a call state, being at least one of the group consisting of active and hold states." A system with the capability of creating a call handle with a call state of "active" would fall within the literal scope of the claim, as would a system with the capability of creating a call handle with a call state of simultaneously "active" and "hold." The phrase "at least" is most reasonably understood as broadening the claim to include systems with call states being simultaneously "active" and "hold," as well as either individually, rather than requiring the call state to be simultaneously "active" and "hold." The court's construction is consistent with the Specification, which clearly contemplates that the call state will toggle between "active" and "hold," but will not be both simultaneously. See Spec. at 23:11-20. The phrase "a call state, being at least one of the group consisting of active and hold states" is therefore construed to mean "a call state, which is 'active,' 'hold,' or both 'active' and 'hold' simultaneously."

n2 The court takes up the meaning of "configured to" in more detail in its order denying Tandberg's motion for summary judgment of invalidity under 35 U.S.C. section 112.
7. The 298 Patent and the 456 Patent contain multiple references to the term "caller." Both parties agree that the ordinary meaning of "caller" is "one who calls." (Def. Op. Br. at 19; Plf. Op. Br. at 21). Relying on the description of the preferred embodiment, Paymentech suggests that the term be construed to mean "a bill payer using a touch tone telephone." (Def. Op. Br. at 19). However, the preamble to Claim 1 of the 298 Patent states that "a caller places a call using said telephone." (Plf. App., Exh. 1 at 16) (emphasis added). Thus, Paymentech's suggested definition creates redundancy and should not be adopted by the court. See Power Mosfet Technologies, L.L.C. v. Siemens AG, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (interpretations that render language of the claims superfluous are disfavored). By contrast, Claims 1 and 6 of the 456 Patent state that "a caller begins a session by using a telecommunications [network] line to initiate a spontaneous payment transaction to a payee.["] (Id., Exh. 3 at 42) (emphasis added). The court has construed "telecommunications line" to mean "a system of wires and other components to transmit messages between users by various devices such as telegraph, cable, telephone, radio, or television." Because the "telecommunications lines" and "telecommunications network lines" described in the 456 Patent are not limited to telephones, it would be impermissible to adopt the restrictive definition advocated by Paymentech. See Arlington Industries, 345 F.3d at 1327 (a court is seldom justified in importing limitations from the preferred embodiments to restrict the meaning of a claim term).

3. "Caller ID"

The disputed claim term "caller ID" appears in claims 1, 2, 4, 7, 25, 35, 36, 43, and 44 of the '416 Patent and claims 1, 2, 4, 5, 8, 10, 13, 14, 17, 34, and 35 of the '186 Patent. Kyocera proposes the following construction of "caller ID":

Conventional number and number/name caller id, ANI, video caller identifying data, fax header caller identifying data or alternate manually entered caller identifying data, where "conventional number and name/number caller id" is transmitted in the conventional manner between the ringing signals from the terminating central office. "Caller ID" does not include a unique identifier associated with a wireless portable communication device.

(Kyocera Br. 19.) Intellect Wireless, however, argues that Kyocera's proposed construction is unnecessarily narrow and improperly limited to a preferred embodiment. Instead, according to Intellect Wireless, the plain and ordinary meaning of "caller ID" is "data which identifies a telephone number associated with the device of the message originator." (Intellect WirelessResp. 16.) The conflicts in the parties' constructions center around three primary disputes. First, Kyocera believes that the inventor provided an "express definitional statement" of "caller ID" in the specifications, which Intellect Wireless disputes. Second, Kyocera argues that "[a] 'unique identifier' pertains explicitly to a device, whereas 'caller ID' refers to the telephone number of a person" (Dkt. No. 216 ("Kyocera Reply") at 13); Intellect Wireless, in contrast, disagrees that the "caller ID" cannot be associated with the message originator's device. Finally, Intellect Wireless challenges Kyocera's position that the "caller ID" must be transmitted in the "conventional manner."

a. Inventor Did Not Expressly Define "Caller ID"

Kyocera predominately bases its definition of the term "caller ID" on the following description of caller ID in the specifications' "ANI Detector Used in a Paging Center" embodiment:

Hereinafter, the generic term caller id shall be used interchangeably to describe conventional number and number/name caller id, ANI, video, fax header or alternate manually entered caller identifying data.

'186 Patent, col.8 ll.28-31. According to Kyocera, this language is an"express definitional statement" indicating that the inventor acted as his own lexicographer in defining "caller ID." (Kyocera Br. 20.) As explained above, however, although "[a] patentee may act as its own lexicographer and assign to a term a unique definition that is different from its ordinary and

In this case, the court disagrees with Kyocera that the above-quoted excerpt from the specifications constitutes an express definition of caller ID. The asserted independent claims in the patents in suit recognize that the "caller ID . . . identifies the telephone number of the message originator." '186 Patent, col.46 ll.49-51; '416 Patent, col.46 ll.44-46, col.50 ll.33-35. Kyocera's construction, however, includes additional types of caller ID not contemplated by this claim language, such as "video" and "name caller id."

Additionally, the specifications present various descriptions of caller ID, thereby suggesting that Kyocera's purported definition is merely one of several illustrations rather than an express definition. In one embodiment, for example, the specifications refer to caller ID separately from ANI: "The stored voice communications device includes a means for receiving transmitted voice messages, receiver identifying control information, and source identifier information such as caller id, ANI, synthesized caller id, DTMF, image, or the like." '186 Patent, col.26 ll.13-15 (emphasis added). Notably, this excerpt appears after the inventor purportedly defined "caller ID." If, as Kyocera contends, the term "caller ID" already embraces ANI, the inventor would not have made this distinction between ANI and caller ID.

A more general definition of caller-identification information 6 also appears later in the patents' specifications:

[C]onsidered broadly, caller-identification information may be solely data which identifies a telephone number associated with the telephone unit utilized to place a call, or the telephone number associated with the telephone unit utilized to place the call in combination with alphabetic characters identifying a name associated with that particular number in a telephone directory (i.e., a telephone directory data base). In either event, whether the directory name is provided or not, this information can be considered to be the "caller-identification information."

Id. at col.35 l.66-col.36 l.8. Consequently, the court does not agree with Kyocera's position that the above-quoted excerpt from the specifications constitutes an "express definitional statement" of "caller ID."

--- Footnotes ---

6 The court notes that Kyocera does not appear to dispute that "caller-identification information" refers to "caller ID." (See Kyocera Reply 12.)

--- End Footnotes ---

b. "Caller ID" Can Be Associated with the Message Originator's Device

The court similarly is unpersuaded by Kyocera's position that the "caller ID" is associated only with the calling party, not that party's telephone device. As quoted above, the specifications instruct that "caller-identification information may be solely data which identifies a telephone number associated with the telephone unit utilized to place a call." Id. at col.35 l.66-col.36 l.2. Additionally, according to the specifications, ";[t]ypically Caller ID data transmitted includes either 7 digit or 10 digit numeric data corresponding to the calling party's telephone," id. at col.20 ll.28-30, and ";[s]uch caller-identification information which may be received includes numeric information corresponding to the telephone number of telephone 13 utilized by call originator 11," id. at col.37 ll.16-18.

The references cited in the specifications also indicate that the plain and ordinary meaning of "caller ID" is "data which identifies a telephone number associated with the device of the message originator," as proposed by Intellect Wireless. Specifically, in an October 23, 1995 news release listed in the specifications' References Cited section, AT&T announced its caller ID services for cellular customers in Washington state, explaining that caller ID "display[s] the telephone numbers of incoming calls." (Intellect Wireless Resp., Ex. L at T020172.) U.S. Patent No. 5,559,860 ("'860 Patent"), also identified in the References Cited section, similarly discloses a "caller ID processor" and "caller ID memory" to store "identifying data," which in one embodiment "is the telephone number of the calling party." '860 Patent, col.8 l.1-5; see also id. at Abstract.

The prosecution history does not support a different construction. According to Kyocera, the inventor "surrendered" "a unique identifier associated with a wireless portable device" during the prosecution of the '186 Patent. (Kyocera Reply 13.)
This surrender, Kyocera argues, demonstrates that "a 'unique identifier' pertains explicitly to a device, whereas 'caller ID' refers to the telephone number of a person." (Id.)

As discussed above, the doctrine of prosecution history disclaimer applies "where the patentee has unequivocally disavowed a certain meaning to obtain his patent." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). "For example, an amendment that clearly narrows the scope of a claim, such as by the addition of a new claim limitation, constitutes a disclaimer of any claim interpretation that would effectively eliminate the limitation or that would otherwise recapture the claim's original scope." Schindler Elevator Corp. v. Otis Elevator Co., 593 F.3d 1275, 1285 (Fed. Cir. 2010). In this case, the amendments to the claims identified by Kyocera do not "clearly narrow[] the scope of the claim" to constitute a disavowal of claim scope.

As support for its prosecution history disclaimer argument, Kyocera directs the court to a 35 U.S.C. § 102 anticipation rejection by the examiner in October 2006 and the inventor's subsequent amendments to the claims. In the rejection, the examiner stated:

Regarding claim 33, Metroka discloses a wireless communication device (see Figure 1) comprising:

- a receiver . . . operably coupled to receive, over a wireless communication connection . . . call data including a message . . . and a unique identifier associated with the wireless portable communication device, the message including visual image data, the call data optionally including associated caller identification information . . . .

(J.A. at 186FH000874.) The inventor made several amendments in response to this rejection, including deleting the phrase "unique identifier associated with the wireless portable communication device" and adding "caller ID automatically provided by a communications network that identifies the telephone number of the message originator." (Id. at 186FH000974.)

As Intellect Wireless correctly notes, whether the rejection was premised on the "'unique identifier' limitation or some other element or combination of elements" is not apparent from the examiner's comments in the October 2006 office action. (See Intellect Wireless Resp. 18.) Furthermore, the phrase "caller ID automatically provided by a communications network that identifies the telephone number of the message originator," which was added in the amendment, does not unambiguously disavow the association of the "caller ID" with the message originator's device and therefore does not clearly exclude "a unique identifier associated with the message originator's device" from the claim scope. To the contrary, as discussed below, the court finds that "automatically provided" refers to the transmission of the "caller ID" without entry by the message originator. For this transmission to occur, the "caller ID" presumably would be associated with the message originator's device. Thus, when viewed in the context of the entire amendment, the court finds that the patentee did not expressly disavow an embodiment of "caller ID" which is a "unique identifier associated with the wireless portable communication device."

The prosecution history for the parent '264 Patent, also relied upon by Kyocera, is similarly ambiguous. In the September 2006 office action cited by Kyocera, the examiner rejected then-pending claim 192 of the '264 Patent's application as obvious under 35 U.S.C. § 103 offering limited explanation:

Regarding claim 192, Baehr discloses a method of communicating information from a calling party connected to a telephone network, to a called party having a portable communication device that is pageable by a paging system in communication with a message center, such message center in communication with the telephone network, comprising the steps of:

- receiving at the message center caller identification information, pertinent to the telephone of the calling party;
- transmitting the caller identification information from the message center to the paging system; and
- transmitting the caller identification information from the paging system to the portable communication device . . . .

(Kyocera Br., App. Vol. 10 at KA00803-804.)
In response to that rejection, the inventor amended the entire claim, including deleting the phrase "receiving at the message center caller identification information pertinent to the telephone of the calling party" and replacing it with "receiving at the message center . . . message originator identification information provided automatically by the communications network as a caller ID identifying the telephone number of the message originator." (Id., App. Vol. 10 at KA00786-787.) Again, like the excerpts from the prosecution history of the '186 Patent discussed above, the addition of the phrase "receiving at the message center . . . message originator caller identification information provided automatically by the communications network as caller ID identifying the telephone number of the message originator" does not clearly disavow unique identifiers associated with a device. The court, therefore, will not exclude "a unique identifier associated with a wireless portable communication device" from its construction of "caller ID."

c. "Caller ID" Need Not Be Obtained in the "Conventional Manner"

Kyocera also contends that the claimed "caller ID" must be transmitted in the "conventional manner," i.e., "between the ringing signals from the terminating central office." According to Kyocera, because the phrase "conventional number and number/name caller id" in the "express definitional statement" of "caller ID" is a "potentially ambiguous term," the court should look to the specifications' discussion of the conventional transmission of caller ID to clarify the ambiguity. (Kyocera Br. 20.) The court does not agree with Kyocera on this point.

First, the asserted claims contain no reference to the "conventional" transmission of caller ID. Instead, they merely state that the "caller ID" is "automatically provided by a communications network" and describe "the message originator sending the caller ID . . . to the message center." See, e.g., '186 Patent, col.46 ll.43-56. Second, because the court does not find that the description of "caller ID" from the "ANI Detector Used in a Paging Center" embodiment constitutes an express definition of the term "caller ID," that description's reference to "conventional number and number/name caller id" does not warrant reading Kyocera's proposed "conventional manner" limitation into the claims. Finally, even assuming that Kyocera's proposal for the term "caller ID" was considered to be an express definition, that definition nevertheless does not support requiring the caller ID to be transmitted in the "conventional manner." If the specifications had expressly defined "caller ID," as Kyocera contends, these additional "clarifications" propounded by Kyocera presumably would be unnecessary. Moreover, based on the court's interpretation of the phrase "conventional number and number/name caller id," the court believes that one of ordinary skill in the art would have found that "conventional" does not refer to how the caller ID is transmitted but rather describes what type of information the caller ID contains--in this case, the caller's name and/or number. For these reasons, the court declines to include Kyocera's "conventional manner" limitation in its construction of "caller ID."

The court accordingly finds that Intellect Wireless's definition of "caller ID" is consistent with the plain and ordinary meaning of the claim term as demonstrated by the intrinsic evidence. Consequently, "caller ID" is "data which identifies a telephone number associated with the device of the message originator."

TGIP argues that the term "calling card" in the '114 patent should be construed to mean: "a body portion typically formed of cardboard or plastic on which information capable of being used to obtain telephone service is displayed, printed or stored." Defendants propose "a card used to make calls on a telephone network." TGIP states that the term "calling card" should not be construed in the '768 patent, and that only the term "prepaid calling card accounts" should be construed.

TGIP's definition implies that a "calling card" could be of almost any material and be formed in almost any shape. Defendants agreed that they have no dispute over the material from which the card is made, nor what its shape it is. Tr. pp. 61-62.

TGIP stated it understood Defendants to be arguing that a "calling card" was something that had to be physically present to make a call, but it turned out that was not an issue either. Tr. p. 63.

Since neither the physical composition and structure of a card nor its location during use are disputed issues, it appears that
the claim language itself describes a calling card. "[E]ach of said calling cards having a security number associated therewith that must be entered at a telephone to obtain access to the telephone network." '114 patent, col. 6, 11.6-9. The specification describes the calling card in the preferred embodiment having a security number stored on a "read-only memory stripe" and possibly also "in cleartext under a suitable blackout." '114 patent, col. 2, 11.36-39. A similar description is found at '114 patent, col. 3, 11.42-48. The same construction was given to the PTO during the application process. "Claim 1 now describes that the calling card has a security number associated therewith that must be entered 'at the telephone' to obtain access to the telephone network." Amendment to First Office Action, 5/18/1995, p. 8 (Bates No. TGIP 006428), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 9 of 11].

At the hearing Plaintiff gave this description of a calling card, and Defendants agreed that this was a proper definition. Tr. p. 66, l. 4 - p. 67, l. 1. Plaintiff then began to argue that a calling card should not be defined as having a security number which was used to obtain access to a phone network or system. "But it doesn't have to be a security number, your Honor. It could be a PIN number. It could be a tracking number." n6 Tr. p. 68, 11. 7-9; see also Tr. p. 71. Arguing over semantical differences of common homonyms is not claim construction.

--- Footnotes ---

n6 Plaintiff's counsel was honest in admitting that Plaintiff simply did not want to be pinned down. Tr. p. 70, 11. 14-19. The court understands that if patentees commit to a construction they may lose the flexibility to sidestep invalidity claims. See James M. Amend, Patent Law: A Primer for Federal District Court Judges 19-20 (1998). But at some point the court has to construe the claims, and it is incumbent upon the parties to present their best evidence and arguments at the Markman hearing, not on appeal.

--- End Footnotes ---

Counsel could not identify a single reference in the patent or prosecution history that hints at a calling card, which does not have a security number (or access information as defined below) associated with it, either before or after activation, which must be used to obtain access to the phone system or network. Plaintiff's argument that "calling card" has different meanings in the different claims is without support in the record, and flies in the face of the rule that ordinarily the same term in different claims of a patent has the same meaning. This argument also contradicts the admission in TGIP's brief that all claims require that "they [calling cards] be used to access a telephone network." TGIP Br., p. 24 [Doc. # 200, p. 28 of 37].

The fact that calling cards may be used in various way to obtain access in the different systems described by the claims does not imply that the term "calling card" should be defined differently. For example, the fact that the security number or password could be memorized and used after throwing away the physical card does not mean that the card did not exist initially.

The court recognizes that defining a term as it is defined in the claim could result in some redundancy if the definition is substituted for the word defined. But when one side is obviously planning on focusing at least part of its case on that term, such a definition will be more clear than simply leaving the issue open to the arguments of counsel. The court will define this term as follows:

"Calling card" means "a card, which may be made of various materials and in various shapes, which has associated with it a combination of numerals, letters, and/or characters (sometimes called a security number or code) that can be entered at a telephone to obtain access to the telephone network or system."
"calls."


When limitations in the body of a patent claim rely upon, and derive antecedent basis from, the claim preamble, the preamble may act as a necessary component of the claimed invention. Bicon, Inc. v. Straumann Co., 441 F.3d 945, 952 (Fed. Cir. 2006). In order to be limiting, the preamble must recite essential structure that is important to the invention or necessary to give meaning to the claim. Id. citing NTP, Inc. v. Research In Motion, Ltd, 418 F.3d 1282, 1305-06 (Fed. Cir. 2005), cert. denied,-U.S.-, 126 S. Ct. 1174, 163 L. Ed. 2d 1141 (2006). However, patent claim preamble language that merely states the purpose or intended use of the invention is generally not treated as limiting the scope of the claim. Bicon, Inc., 441 F.3d at 952.

Defendants cite Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298 (Fed. Cir. 1999) to argue that the preamble of claim 1 is necessary to give meaning to the claim. However, Defendants' reliance on Pitney Bowes is misplaced. In that case, the term at issue appeared in the preamble as well as the claims, and was necessary to discerning some of the claim language. Pitney Bowes, 182 F.3d at 1306 (stating that "the term 'spots' is initially used in the preamble . . . then appears twice in each of the independent claims. That the claim term 'spots' refers to the components that together make up the images of generated shapes on the photoreceptor is only discernible from the claim preamble.") By contrast, "calls" appears once in the preamble of Claim 1 and does not reappear in the body of the claim. Further, it is not necessary to discern any of the claimed terms or understand the claimed method. The claimed method for providing access to a mobile user may be properly understood without reference to the type of communication awaiting access.

Even if the preamble were limiting, the Court would still elect not to construe "calls" because the plain and ordinary meaning of the term is consistent with its meaning within the patent. Accordingly, the Court will not construe the term "calls."

B. Whether the patents are limited to a self-contained camera?

In his previous claim construction, Judge Farnan construed the term "electronic camera" to mean a "self-contained, portable electronic camera, with the capability to take still pictures, the components of which are contained in a single housing." Canon Construction, 2004 U.S. Dist. LEXIS 17489, 2004 WL 1941340, at *9. St. Clair contends that Judge Farnan's claim construction is correct and should not be altered because it is consistent with the plain and ordinary meaning of the word "camera," as well as with the specification and prosecution history of the patents-in-suit. Defendants contend that this construction is incorrect because Judge Farnan was not fully apprised of the applicability of the prosecution history of the '219 patent and did not consider that some of the claimed "cameras" include a remote control device. Defendants also contend that Judge Farnan used a "dictionary-based approach" to claim construction which the Federal Circuit has since rejected. According to Defendants, a proper construction of the terms "electronic camera" and "digital camera" should not be limited to a self-contained device. In this regard, Defendants propose that the terms "electronic camera" and "digital camera" be construed as "electronic equipment that may be self-contained or not, and has the capability to take still pictures." (D.I. 259 at 24)

After considering the parties' arguments in light of the claim language, specification, and prosecution history, I agree with the claim construction proposed by St. Clair and adopted by Judge Farnan in the Canon litigation. I do not read the Federal Circuit's decision in Phillips to forbid the use of dictionaries in informing claim interpretation. Rather, Phillips cautions
against a heavy reliance on dictionaries to the exclusion and/or contradiction of the specification, which is "the single best
to the meaning of a disputed term," and is itself "a dictionary when it expressly defines terms used in the claims or
when it defines terms by implication." Phillips, 415 F.3d at 1321 (internal citations and quotation marks omitted). In his
decision, Judge Farnan consulted a dictionary to inform the ordinary meaning of the term "camera," but he also emphasized
the specification and prosecution history of the patents-in-suit, which I agree are consistent with the ordinary meaning of the
term "camera" and describe a self-contained, portable device.

For example, the common specification of the patents-in-suit notes that the object of the invention is "to provide an
electronic still camera that is efficient in design and permits extended periods of portable operation." '010 patent, col. 2 lines
59-61 (emphasis added). This is consistent with other statements in the specification referring to the compression hardware
and software as being incorporated "in the camera." '010 patent, col. 10 lines 48-55. It is also consistent with statements
made during the prosecution history which distinguish the claimed device from prior art systems by its self-contained
housing and portability. See, e.g., JCCCDefs. Ex. 17, '219 patent 8/25/97 Amend. at 8 ("The claimed device instead stores a
plurality of computer-ready digitized images on a removable mass memory element in the device housing.") (emph

Defendants contend that the reference to a remote control device in claim 15 of the '459 patent and Figure 6C means that the
camera is not necessarily self-contained, portable, or contained in a single housing. In this regard, Defendants contend that
"claim 15 requires that the remote control -- which is not in the camera body -- be part of the claimed 'camera."
(D.I. 259 at 25) I do not read claim 15 in the manner proposed by Defendants. First, claim 15 refers to a camera "further comprising
remote activation means for selectively activating said camera." '459 patent, col. 15 lines 17-19 (emphasis added). In my
view, this phrasing does not claim a remote control within the camera itself. To the contrary, I agree with St. Clair that the
"[t]he patents' description of how the Roberts camera could receive and process remote commands does not transform a
physical remote control into the camera." (D.I. 283 at 31-32) Rather, the patent describes how the camera processes external
signals inside the body of the camera as depicted in Figure 6C, which shows a remote signal outside the camera activating
an internal switch. '010 patent, col. 4 lines 28-30 ("Upon receipt of the externally generated 'shoot' command, the relay
switch 32 is activated and provides internal switch closure.").

Defendants also contend that I should depart from Judge Farnan's previous ruling that the phrase "in an electronic camera"
is implicit in claim 16 of the '459 patent. However, I am not persuaded that such a departure is justified.

In sum, I recommend that the terms "electronic camera" and "digital camera" be construed as a "self-contained, portable
electronic camera, with the capability to take still pictures, the components of which are contained in a single housing."

B. Camera Base

The preambles to all six claims contain the language 
"[a] remote control apparatus for a rotating camera base...." Lectrolarm
argues that the preambles are limitations of the claims and proposes that "camera base" should be construed to mean
"television camera base." The Defendants argue that the preambles are not limitations of the claims, and would interpret
"camera base" to mean "a base capable of supporting a camera." n6

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n6 If the preambles are not claim limitations, as the Defendants argue, it is not clear why the Defendants have proposed a
definition for the preambles.

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1479 (Fed. Cir. 1994) ("terms appearing in a preamble may be deemed limitations of a claim when they give meaning to the claim and properly define the invention"). The preambles to claims one through six of the '088 patent give meaning to the claims. For example, claim two recites "an input means for inputting the operating data for the automatic operation of said rotating camera base." U.S. Patent No. 4,974,088, Column 11:38-45. The words "said rotating camera base" refer back to the "camera base" in the preamble, and are only properly understood if the accompanying description of the camera base in the preamble is read as a limitation of the claim. All six of the claims include the language "said rotating camera base" referring the reader back to the description of the rotating camera base in the claims' preambles.

Because the preambles are limitations of the claims, the court must construe the disputed language. The plain language of the term "camera base" is "camera base." Neither the specification nor the prosecution history indicates that the patentees desired a different definition of this term. The Defendants have identified no reference to the base of the apparatus in the specification that contemplates any use other than in conjunction with a camera.

The Defendants attempt to use the specification to support their view by arguing that the "'088 Patent does not describe any aspect of the camera itself, apart from the existence of zoom, focus, and iris motors. Instead the focus of the '088 Patent is the base itself and the control box, not what is on the camera base." (D.'s Br. at 46.) As the title of the invention states, the patent is for a "Television Camera Base." U.S Patent No. 4,974,088 (emphasis added). Patenting an invention for a base for television cameras does not require discussing the details of the television cameras that will be mounted on that base.

The inventors, by the plain language used in the claims, limited patent '088 to bases for cameras. Nothing in the specification or prosecution history indicates otherwise. The court sees no reason to use a definition other than the plain meaning of the words and construes "camera base" to mean "television camera base."

Camera Mechanism

The Court construes "camera mechanism" to mean "the functional components of the motion detector camera." Defendants' proposed construction limits the camera to a film-camera, a limitation the Court has already rejected. Defendants' proposed construction also includes the limitation that the camera mechanism "includes a stand-alone [off-the-shelf] camera that can be used independently when removed from the housing of the motion detector camera." Defendants argue the Court should adopt this limitation because Plaintiffs do not argue against it, nothing in the claims excludes off-the-shelf cameras, and Figure 7 depicts such a camera. The specification does not describe the camera mechanism in Figure 7 as an off-the-shelf camera. The claim does not address whether the camera mechanism can be an off-the-shelf camera. Defendants do not present any reason that the jury should specifically be instructed that the camera can be an off-the-shelf camera. Accordingly, the Court rejects this limitation of Defendants' construction.

B. "Camera Means" (First Clause of Claim 1) and "Camera" (Claim 3)

Plaintiff's Proposed Construction: A generic term referring to any suitable reader that can read a body part and generate an electronic representation of the body part.

 Defendants' Proposed Construction: A light sensitive device that receives a visual image and records the image on film or translates the image into signals.

The dispute here is whether "camera" or "camera means" should be narrowly construed to mean an optical device, i.e., a light-sensitive device that receives a visual image, or broadly construed to mean a generic body part reader. Plaintiff argues that in the claims at issue, the Patentee deliberately used the term "camera means" to encompass more than just a camera. The doctrine of claim differentiation supports this argument wherein Claim 8 states that the "camera means" is a video camera and Claim 3 describes the additional elements of a lens and camera as part of the "camera means." Furthermore, the
specification teaches that "camera means" is a generic term for the fingerprint reader by describing the reader as: "[a] video camera or suitable replacement," '474 Patent at 8:55-56; "any suitable reader that can render a valid picture of the fingerprint," id. at 6:20-22; "any device that can convert an image to a picture form," id. at 9:21-22; and "some form of reader or transducer," id. at 2:63-64.

Defendants respond that although the specification notes that other suitable fingerprint readers could be used, the claims do not recite a "reader," they recite a "camera," and thus Plaintiff should be limited to what they claimed. Looking closely at the claim language itself, it is clear to the Court that "camera means" is used broadly, and encompasses more than just a video camera. It is also clear, however, that the term does not refer to non-optical devices. Although the specification generally states that "[a] video camera or suitable replacement" can be used, id. at 8:55-56, it specifically teaches that "[t]he reader utilizes an optical scanner" id. at 6:7. Reading the claim in the context of the entire patent, one of ordinary skill in the art at the time of the invention would have understood that another suitable fingerprint reader would be another optical device. Therefore, in accordance with Defendants' proposed construction, the Court finds that the terms "camera means" and "camera" as used in the claims of the '474 Patent refer to "a light sensitive device that receives a visual image and records the image on film or translates the image into signals."

7. Candidate georeferenced maps

Dependent claim 2 of the 698 patent provides:

The method of claim 1, wherein the ascertaining further comprises:

- examining a plurality of candidate georeferenced maps with boundaries that are proximate to the geographic coordinates, and

- inspecting the candidate georeferenced maps to determine which contains the geographic coordinates and is usable to make the flood zone determination for the real property.

The parties dispute what the term "candidate georeferenced maps" means. The plaintiff contends that no construction is necessary. Alternatively, the plaintiff suggests that the term should be construed to mean "georeferenced maps that may be of interest." The defendant contends that the term means "two or more raster FEMA map images containing the listed insets that intersect with the selected grid-rectangle containing the property latitude and longitude or other coordinate set that defines the position of the property on the earth's surface." The court adopts the plaintiff's alternative construction for this term.

2. "cannot be reliably predicted"

The parties dispute whether the phrase "cannot be reliably predicted" mean that there must be perfect security.

The description of clock skipping and clock decorrelation in the specification also indicates that "cannot be reliably predicted" is not limited to perfect security. The claim language "cannot be reliably predicted" adequately reflects the variable effectiveness of the technique in different situations, and thus, the Court declines to further construe the phrase.

i. "processing frequency capability"
The plaintiffs propose "the range of speeds at which the CPU can operate." The defendants propose "fastest safe operating speed at which the CPU can operate."

As discussed in the previous section, "processing frequency" is not limited to the "fastest safe operating speed." In addition, "capability" is not limited to a range or to the fastest speed. Accordingly, the Court construes the term to mean "the speeds at which the CPU can operate."

f. "refractory metal forming a cap to prevent evaporation of said fuse portion when said fuse portion is exposed to a directed energy source to increase the vapor pressure under the cap to produce an explosive removal of said fuse portion"

i. the structure of the cap

The parties do not appear to dispute that the term "cap" is the layer of an optically absorptive refractory transition metal formed above the interconnect. The cap does not include a passivation layer, as the claim recites that it is the refractory metal that forms the cap.

ii. "to prevent evaporation . . . to increase the vapor pressure under the cap to produce an explosive removal"

The court must decide whether the claim limitation "to prevent evaporation" means to prevent evaporation "from the top of the fuse portion," as is urged by EMI, or to "prevent all significant evaporation from the fuse portion," as is advocated by Cypress.

Neither the claim language, nor the specification, suggests that the claim language should be limited as sought by the parties. The patent does not specify that the cap should prevent evaporation "from the top of the fuse." Nor does the patent teach that the cap should prevent "all significant evaporation from the fuse portion." The claim language can be interpreted on its face. The court declines to construe the term "to prevent evaporation . . . to increase the vapor pressure under the cap to produce an explosive removal."

iii. cause of the explosion

The parties agree that an increase in vapor pressure must cause the explosive removal of the fuse material. The parties appear to disagree, however, on the degree of causation required for the increased vapor pressure to induce the explosion. Cypress argues that the increased vapor pressure must be "the proximate cause" of the explosion. EMI states that the increased vapor pressure must be "a proximate cause" of the explosion, but that other forces may contribute to producing the explosion.

The patent examiner rejected claim 1 twice, and allowed the claim only when the inventors emphasized the function of the absorptive layer in inducing an explosion. The applicants explained that the absorptive cap "transfers the heat or energy . . . to the underlying material and permits a vapor pressure to accumulate." In distinguishing their claimed invention from the prior art, the applicants stated that the art of record "generally calls for melting the fuse material, and nowhere is seen to suggest building up an explosive vapor pressure under a cap." Based on these statements, the examiner allowed the claims, remarking that "the ability of the refractory metal to prevent evaporation of the underlying metal and cause explosive removal is an unexpected result which is not taught or suggested by the prior art."

The applicants succeeded in overcoming the examiner's rejections by emphasizing that the absorptive layer induces an explosion by preventing evaporation of the metal layer. Clearly, the increase in vapor pressure must proximately cause the explosive removal of the fuse portion. Neither the claims, specification, nor prosecution history, however, limit the explosion-inducing force to increased vapor pressure alone. Thus, the court holds that under the terms of the patent, increased vapor pressure must proximately cause the explosive removal of the fuse portion, but that other forces may contribute to the explosion. No judicial construction is required for the term "to prevent evaporation . . . to increase the vapor pressure under the cap to produce an explosive removal."
2. Data Transmission Device Capable of Connecting Directly to a Communication Network

The parties dispute the construction of the phrase "capable of connecting directly." The defendants contend that this term should be construed so that "connecting directly" means that the data transmission device "can be connected to a communication network without requiring a separate unit (such as a computer or modem) between the data transmission device and the network." The defendants further contend that PHT's proposed construction is "overly broad and impermissibly recaptures claim scope that was disclaimed during prosecution in order to obtain allowance of the claims." (D.I. 40, at 17); see Elekta Instrument S.A. v. O.U.R. Scientific In'tl, Inc., 214 F.3d 1302, 1308 (Fed. Cir. 2000).

In response, PHT asserts that the phrase should be construed so that "capable of connecting directly" means that the data transmission device "is capable of transmitting data from the data logger to a communication network site without the data being processed by or accessed on an intervening computer." According to PHT, Claim 22 only excludes an intervening computer. It does not exclude the possibility a device located between the data logger and communications network, such as an external modem. (D.I. 45, at 4 n.6.) PHT argues that its construction is supported by the specification and prosecution history of the patent, noting that the preferred embodiment expressly includes an external modem. (D.I. 39, at 10-11.) PHT further argues if the court adopts the defendants proposed construction then claim 22 would not cover the preferred embodiment, and "[a] claim interpretation that excludes a preferred embodiment from the scope of the claim 'is rarely, if ever, correct.'" Id. (quoting Globetrotter Software, Inc. v. Elan Computer Group, Inc., 362 F.3d 1367, 1381 (Fed. Cir. 2004)).

PHT correctly states the law of the Federal Circuit. Indeed, an interpretation that excludes the preferred embodiment "require[s] highly persuasive evidentiary support." Elekta, 214 F.3d at 1308. The defendants, however, contend that this is the "rare case" in which the evidence shows that the asserted claims do not cover the preferred embodiment. See Transcript of Markman hearing, dated April 19, 2005 ("Tr."), at 23-24; Elekta, 214 F.3d at 1308. According to the defendants, PHT disclaimed coverage of the preferred embodiment with unambiguous claim amendments and prosecution history statements, pointing out that "arguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary." Southwall Techs., Inc., 54 F.3d at 1579.

Here, the examiner rejected certain claims during prosecution as being obvious in light of U.S. Patent No. 5,128,552 (the "Fang patent"). In response, the applicants cancelled some of the original claims, amended claims, and distinguished the Fang patent. Specifically, the applicants amended claim 22, adding the "data transmission device capable of connecting directly to a communication network" limitation. The applicants also asserted that their invention was different from the Fang patent. The defendants argue that the applicants' asserted distinctions compel the court to adopt their proposed construction. The court disagrees.

After reading the prosecution history, the court is not convinced that the applicants "disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1204 (Fed. Cir. 2002) (citing Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1324 (Fed. Cir. 2002). For example, the applicants told the patent examiner that "[a] particularly useful feature [in regard to portability] is the construction of the monitor to allow direct access to a communications network without requiring connection via a separate unit, such as a personal computer." (D.I. 42 Ex. C, at 11.) While the court could consider this statement as a possible disclaimer of an external modem, the applicants further explained the difference between their invention and the Fang patent, stating:

Fang provides no suggestion of a handheld unit, and certainly does not suggest the use of a data transmission device with a handheld unit that allows direct connection from the unit to a communication network. Without such direct connection capability, a user would have to download the data to a separate processor before it could be transmitted to a remote destination site. This would require the user to carry, in addition to the monitor itself, a portable computer (or other portable processing unit), or to simply wait until he or she reaches a place where a computer with a modem (not to mention the appropriate software) is available.

(Id. at 12) 5 (emphasis added). The emphasized language from the prosecution history describes direct connection capability

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in relation to downloading data to a separate processor. That is, the applicants told the patent examiner that without the
direct connection capability of their invention a user would have to carry a portable computer. Thus, the applicants used the
direct connection capability to distinguish their invention over the Fang patent, because the Fang patent teaches a personal
health monitor that includes a programmable computer, or laptop computer, while the 985 patent teaches a personal
health monitor that is "truly ambulatory" and does not require the data to be downloaded to a separate processor. (Id. at 11.) At
most, the court finds that the disclaimer issue is arguable. As such, the court cannot say that the applicants "used words or
expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Texas Digital, 308 F.3d at
1204. Accordingly, the court will construe the phrase "capable of connecting directly" to mean "capable of connecting
without requiring a separate data processor." The court, therefore, construes the phrase "data transmission device capable of
connecting directly to a communication network" to mean "a device that transmits data and is capable of connecting to a
communication network without requiring a separate data processor."

5 The applicants made these comments with respect to claim 1. However, as noted by the defendants and the applicants,
claim 22 is similar to claim 1 in that it contains the "capable of connecting directly" limitation. (D.I. 40, at 18 n.6.)

The parties dispute whether the display must display all information in multiple orientations, and whether the display must
be "oriented properly for reading." Mallinckrodt argues that not all information need be properly oriented for reading, such
as graphics, and therefore only some information needs to be reoriented. E-Z-EM argues that the display is "tilt
compensating" and the same information that is displayed in one orientation must also be displayed in a second orientation.
Mallinckrodt's argument is twofold. First, the claim does not require that all of the displayed information be displayed in a
first and second orientation, primarily because of the absence of the word "said" before the second occurrence of
"information." Second, "oriented properly for reading" is an unnecessary limitation because, according to the argument, it
would preclude the display of graphics, which need not be "oriented properly for reading." According to Mallinckrodt, only
text would need to be "oriented properly for reading," yet the preferred embodiment and dependent claims expressly
contemplate the display of graphics. See 710 patent, Claim 4 ("wherein display is a matrix of evenly-spaced pixels which
can be selectively activated to, in combination, for[m] graphics or characters for display"). Mallinckrodt further argues that
E-Z-EM's proposal introduces ambiguity because a person of ordinary skill in the art would not be able to know when a
display is properly oriented.
E-Z-EM argues that the Summary of the Invention requires that a display be "tilt-compensating" and "always oriented properly for reading." '710 patent, 3:36-45. E-Z-EM also argues that a later limitation in the claims requires that all of the information on the display be "flipped" because it states that "said display is responsive to said tilt angle signal to display said display information in said first orientation in response to a first range of values . . . ." Id. at 21:40-45. E-Z-EM renews its injector head argument, asking the Court to insert the limitation that is display the activities of the injector head. Finally, E-Z-EM argues that the invention's purpose to solve the problem in the prior art would be thwarted unless all of the information in the display were reoriented. The Background of the Invention explains a particular problem with the prior art:

Unfortunately, operators have found it cumbersome . . . to read the injector head gauges and displays, for several reasons, not the least of which is the necessary tilting of the injector head between the upward, filling position to the downward, injection position, . . . and at some tilt angles, rendering the gauges or displays difficult to read.

'710 Patent, 1:55-62. According to E-Z-EM, if only some of the displayed information were "reoriented properly for reading" on the injector display, then the injector display would fail to overcome the prior art. Therefore, to solve the problem with the prior art, E-Z-EM urges the Court to adopt a construction that would require that all displayed information be shown in two or more orientations.

Reviewing the patent figures demonstrates that not even the preferred embodiment would satisfy E-Z-EM's proposal. "[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct." On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH, 386 F.3d 1133, 1138 (Fed.Cir. 2004) (quotation marks omitted). First, it is highly unlikely that Figs. 13B & 13C represent all of the available information regarding the "activities and status of operation" of the injector. It does not indicate the angle of tilt, whether the injector is operating in programmed mode, or whether the injector is inhibiting motion. Second, it is clear that not all information on the display is reoriented when the injector is tilted. For example, the image of the syringe is not "flipped," as E-Z-EM's construction would require.

The Court finds persuasive E-Z-EM's argument that the Summary of the Invention requires the additional limitation that the display be "oriented properly for reading." A display that reorients information by 90 degrees, yet remains difficult to read, would satisfy the claim language but would be beyond the scope of the invention. Mallinckrodt objects on the basis that it would preclude the display of graphics or require that graphics be reoriented because of the word "reading." E-Z-EM's proposed language, however, comes directly from the Summary of the Invention: "The injector head includes a tilt angle sensor for detecting the tilt angle of the head, and uses this tilt angle to choose one of two display orientations. As a result, the display is always oriented properly for reading." '710 patent, 3:40-43. The Court, however, agrees that the invention does not require that all information about the injector be included on the display. Nor does the invention require that all information on the display change orientations when there is a change in tilt angles.

The Court construes the limitation to mean, "an electronic display displaying at least some information regarding the activities and state of operation of said injector head, said display capable of displaying at least some information in at least a first and a second orientation so that said information is oriented properly for reading."

4. "Plurality of radio transceivers capable of communicating on the plurality of communications channels and capable of providing paging signals for mobile units." The transceivers can be commanded to provide any one of several functions upon receipt of instructions from the central control station, including the function of establishing a communication connection between a mobile unit and the central control station. ( 554 patent, col. 31, Ins. 1-5)
4. card data (Claim 32)

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Alexsam's Proposed Construction</th>
<th>Humana's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>card data</td>
<td>no construction is needed.</td>
<td>data contained on the card,</td>
</tr>
<tr>
<td></td>
<td>Alternatively, information</td>
<td>including activation data</td>
</tr>
<tr>
<td></td>
<td>related to the card</td>
<td>encoded on the card</td>
</tr>
</tbody>
</table>

Primarily, the parties dispute whether "activation data" needs to be encoded on the card. Alexsam seeks to broadly construe "card data" as any "data related to the card" that is used in the transactions being processed. In contradiction to the very term, Alexsam argues that "card data" includes even data that is not contained on the card, so long as it is related to the card.

Humana seeks to add a limitation of "activation data" being included on the card. Humana argues that activation of cards at POS terminals is a key aspect of the invention. See '608 patent, 2:15-18. Further, it argues that the "unique identification number" is the only card data relevant to activation, and the claim expressly includes this number as being part of "card data." Id., cl. 32. Furthermore, Humana argues that a scope disavowal by the inventor during prosecution of the '608 patent mandates the limitation. Humana points out that in overcoming the Stimson 2 prior art, the Applicant argued:

Thus, the present invention recognizes, and claims, the unique advantage of providing a system which can be used flexibly with a variety of different encoded cards that include, as part of the information contained on the card, a unique identification number which includes a bank identification number approved by the ABA for use in a banking network, thus allowing the existing point of sale system in place at a retailer, and the existing banking network and existing bank processing hubs, to be used to activate or recharge phone cards, electronic gift certificates and other card types and functionality described and claimed in the instant application.

Amendment dated June 24, 1999, '608 patent prosecution history, at 11-12.


Further, Humana notes that in the Notice of Allowability for the '608 patent claims, the Examiner stated that "the applicant discloses a multifunction card system which has means for receiving activation data from an unmodified point-of-sale device when the card is swiped through the point-of-sale device which is not found in the prior art of record." See Examiner's Notice of Allowability dated August, 5, 1999, 608 Patent Prosecution History. Therefore, Humana argues that POS activation was a basis for the Examiner's allowance of the '608 patent claims.

Alexsam's response is that Claim 32 is different from all other claims. Alexsam points out that Claim 32 and dependent claim 33 were never rejected over the Stimson prior art. The Examiner rejected these two claims over a different prior art, Pritchard, 3 and the disclaimers made in response to the Office Action that Humana relies upon, according to Alexsam, do not apply to these two claims. Alexsam's argument is that the Examiner did not reject claims 32 and 33 in light of Stimson because these claims did not involve activation, while all the other rejected claims did. Along the same lines, Alexsam argues that Claims 32 and 33 should be differentiated from claims that expressly include the activation data as part of the unique identification number. See, e.g., '608 patent, clts. 1, 9, 16. The Court agrees. In construing claim terms the Court first looks to the claims themselves. See Phillips, 415 F.3d at 1312 ("the claims of a patent define the invention to which the patentee is entitled the right to exclude"). There is nothing in Claims 32 and 33 that requires activation. The Court is not persuaded Humana's argument that the Examiner's comments read an implied limitation into these claims. First, the prior art that the examiner rejected these claims over, Pritchard, had nothing to do with activation. Secondly, even if the Court were to look to the argument that the patentee made to overcome the Stimson prior art, the statement made by the patentee clearly includes "other card types and functionality described and claimed in the instant application." Similarly, the Court

"Card data" means "data contained on the card."

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10. "card key"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;card key&quot;</td>
<td>Information for identifying image data</td>
<td>a unique identifier that is created at the time the postcard is sent and which includes information for retrieving the electronic postcard data from a Card Database and an Image Database</td>
</tr>
</tbody>
</table>

Fotomedia responds by asserting that any reference to a Card Key and the Card or Image Database in the specification is merely a description of an embodiment. It presents two arguments. First, Fotomedia notes that claim 9 of the '936 patent recites a card key that "identifies the digital image." Fotomedia argues that referring to the digital image should be different from referring to the electronic postcard, and, therefore, the construction of card key cannot be limited to a postcard. Second, it argues that the defendants' proposed definition of card key imposes an unclaimed temporal limitation - "at the time the postcard is sent." Despite Fotomedia's position, neither of its arguments explains why the description of "card key" in the specification should not be considered the inventor's definition. The Court adopts the patentee's own language for these terms.

The "Card Key" is "a unique identifier that is created at the time the card is sent and which is the information required for retrieving the electronic postcard data from a Card Database and an Image Database."
K. '472 Claim 18: "electrically cardioverting the heart by discharging said selected magnitude of stored energy through said
delivery electrodes into the heart of the wearer."

The step of "electrically cardioverting the heart by discharging said selected magnitude of stored energy through said
delivery electrodes into the heart of the wearer" is another disputed element of the method stated in Claim 18. However,
unlike the step of "sensing an abnormal cardiac rhythm," the "cardioverting" element recites the acts that accomplish the
cardioverting function. The clause "by discharging said selected magnitude of stored energy through said delivery electrodes
into the heart of the wearer" sufficiently describes how the heart is cardioverted. Thus, 35 U.S.C. § 112 P 6 does not control
this element and there is no basis for limiting the scope of the claim to the disclosures in the specification. Nonetheless, St.
Jude renews its argument that the patentee has at least implicitly limited the definition of the word "cardioverting" to the
treatment of atrial, and not ventricular, arrhythmias.

To support the contention that "cardioverting," as used in a step of the method claim, should be limited to atrial
cardioversion, St. Jude cites the same intrinsic evidence discussed above in Section II-A of this entry. St. Jude also points
out a few additional instances in the specification where the description discusses atrial arrhythmias or the discharge of
cardioverting energy "in or about the heart, as in the right atrium." '472 Patent, col. 7, ll. 42-43; see also, e.g., col. 6, ll. 2-5
("the discharge capacitor feeds directly to a catheter 72 implanted in or about the atrium 74 of a heart"); col. 8, ll. 1-7 ("the
discharge capacitor 78 discharges through the heart 76 of the patient via atrial catheter 72.").

For the reasons discussed in detail above regarding Claim 1, the court finds that the step of "cardioverting the heart" as used
in Claim 18 is not limited to atrial cardioversion.

8. "carrier [recovery]" and "clock recovery"

Wi-LAN's Proposed Construction          Defendants' Proposed Construction
carrier [recovery]:                        carrier [recovery]:
"synchronizing the local oscillator to the  "recovery of the carrier signal"
carrier frequency of the received signal"

clock recovery:                           clock recovery:
"synchronizing the sampling clock to the  "recovery of the clock"
timing of the received signal"

Claim 7 requires that "the width of the frequency band is chosen so that neither carrier nor clock recovery is required at the
second transceiver." The terms "carrier" and "clock recovery" are also used in the construction of the term "wideband
frequency channels" in claim 1. Defendants argue that the claim language uses carrier and clock recovery generally and
does not limit those terms to any particular known technique. Wi-LAN argues that the terms are limited to a particular
 technique that is implicitly defined in the context of the prior art receiver shown in FIG. 1b.

There are numerous references to clock and carrier recovery in the specification and not one instance restricts the types of
clock or carrier recovery that should be avoided. See '222 patent, 2:19-24; 4:55-63; 6:30-33; 6:46-50; 12:45-50; 13:5-7;
13:17-19; Figure 1b. The specification provides only that the use, in general, of "clock recovery" and "carrier recovery" is
not required by the present invention. It does not provide that certain specific techniques or methods of "clock recovery" or
"carrier recovery" are not required. The Court finds that the terms should not be limited to a particular embodiment or
method, particularly when the claims and specification do not support such a limited interpretation. Thus, the Court rejects
Wi-LAN's proposed constructions and finds that they are an attempt to improperly restrict those terms to only one of the
many ways of performing the clock or carrier recovery that were well-known at the time the application leading to the '222
patent was filed. The Court finds, however, that Defendants merely rephrase and rearrange the terms to be construed, and
such a construction is not helpful in this instance.

One of skill in the art would understand the term "carrier recovery" to generally mean the process of extracting a phase-coherent reference carrier from a received carrier waveform or providing an estimate of the carrier phase from the received signal. One of skill in the art would understand the term "clock recovery" to generally mean the process of determining the clock of the received signal or recovering clocking information from the received data. Thus, both clock and carrier recovery derive the carrier phase and clock, respectively, from the information-bearing signal.

The Court construes the term "carrier recovery" to mean "process of determining the carrier phase of the received signal." The Court construes the term "clock recovery" to mean "process of determining the clock of the received signal."

The dispute is over the meaning of the term "carrier signal." The plaintiff contends that the term means a signal modulated to carry data. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that "carrier signal" should be limited to an analog baseband TV signal or main or secondary channel of an AM or FM radio signal. Id.

The distinction is explained in the affidavit of Dr. Stephen Castell, offered by the defendants. According to Dr. Castell:

12. As [a] television frame is recorded, it must be converted to a mode that can be transmitted. Television uses a signal to carry the picture. Generally speaking, in the broad field of electronics, a signal is a measurable quantity such as a voltage. In traditional television technology, an analog signal is modified by increasing or decreasing voltage over time. These variations correspond to how light or dark part of the picture is, for example. . . . Circuitry in the television interprets the variations to reproduce the picture on the screen.

17. The "baseband" television signal is the television video signal, including the scan lines, the blanking intervals, and the sync pulses, in an "unmodulated" form that is used to drive the electron beam(s) in a television. If the images did not need to be broadcast over long distances (such as through the atmosphere), the television camera could send an unmodulated, baseband signal to a television set. But, since television is broadcast over long distances, the baseband television signal is sent over on a radio frequency (RF) wave.

18. An RF wave is an electromagnetic wave that cycles a certain number of times per second that is characteristic of the radio spectrum. The more times per second the wave cycles, the higher the frequency. . . .

19. To use the RF wave, the television signal must modulate it. This is done by modifying the RF wave using the television signal. . . .

20. However, an RF wave modulated with a video signal cannot be directly used to drive the electron beam in a television. It must first be demodulated back to the baseband video signal.

The parties conceded at the Markman hearing that there are two carrier signals—(1) the low frequency baseband television signal, and (2) the higher frequency RF wave that broadcasts the television signal through the atmosphere to distant locations. See Record, p. 24, lines 5-23; p. 73, lines 7-23; p. 110, line 14-p. 111, line 12. The issue for construction is which "carrier signal" is referred to in the claims at issue.

I agree with the plaintiff that the term "carrier signal such as a television or commercial radio carrier signal" means a signal modulated to carry data. I reject the defendants' position that the low frequency baseband signal is the carrier signal as that term is used in the claims of the '094 Patent.
My conclusion is based on the plain language of the claims themselves. In particular, claim 8 states that it concerns "a method for broadcasting data to a television set using a carrier signal such as a television or commercial radio carrier signal." '094 Patent, col.22, lines 21-23. Broadcast means the "transmission of a radio or television program or signal." The American Heritage Dictionary of the English Language, 167 (1971), and a transmission is "the sending of modulated carrier waves from a transmitter." Id. at 1364 (emphasis added). Combining the two terms, to broadcast is to send radio or television signals by a modulated carrier wave. Thus, it is the modulated radio frequency wave that is broadcast, not the low frequency baseband television signal. In addition, the claim deals with broadcasting "to a television set." According to Dr. Castell, the baseband television signal is "made to modulate the appropriate RF frequency for transmission"; it is not broadcast to a television set. Castell Declaration, at P23(4). It is the RF wave that is transmitted to a television set and demodulated to reproduce the baseband television signal. Id. at PP23(4)-23(6). Also, the claim states that the broadcast is accomplished "using a carrier signal such as a television . . . carrier signal." '094 Patent, col. 22, lines 22-23 (emphasis added). Significantly, the claim does not say that the broadcast is accomplished using a "baseband television signal" or even a "television signal," as it would to express the construction advanced by the defendants. To the contrary, the broadcast is accomplished using a television or commercial radio carrier signal. The carrier signal utilized to broadcast a television signal is a modulated radio frequency wave.

My conclusion also finds support in the specification. For example, the specification provides that a "data stream is inserted into the vertical blanking interval (VBI) of the television broadcast signal transmitted from the central station and is subsequently broadcast over the ether to be received by the receiver stations. . . ." '094 Patent, col. 4, lines 18-22 (emphasis added). Significantly, the data is inserted into the "television broadcast signal," or baseband television signal, and not the carrier signal. By contrast, the claims specify that they concern a method for broadcasting using a carrier signal such as a television carrier signal. Thus, when the inventors meant to describe the baseband television signal, into which the data is inserted, they used the term "television broadcast signal," but when they meant to describe the modulated RF signal used to broadcast the data through the atmosphere, they used the term "carrier signal such as a television or commercial radio carrier signal."

Nor is the term "carrier signal" limited to a radio frequency signal. To the contrary, the specification provides that "the TV broadcast signal can be delivered by any one of a number of known methods including VHF/UHF transmission[,] microwave transmission, satellite transmission, fibre optic transmission." '094 Patent, col. 15, lines 50-54.

I construe the term "carrier signal such as a television or commercial radio signal" to mean a signal modulated to carry data.

I construe the term "broadcasting data . . . using a carrier signal such as a television or commercial radio carrier signal" to mean transmitting data by means of a signal modulated to carry data.

I construe the term "data stream broadcast over a carrier signal" to mean a data stream broadcast by means of a signal modulated to carry data.

I construe the term "receiving data . . . using a carrier signal such as a television or commercial radio carrier signal" to mean receiving data broadcast by means of a signal modulated to carry data.

I construe the term "broadcasting the data stream within the carrier signal" to mean broadcasting a data stream by means of a signal modulated to carry data.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

1 The defendants do not dispute the statement contained in the plaintiff's opening brief that although the claims contain differing language--i.e., "using a carrier signal"; "over a carrier signal"; and "within a carrier signal"--"the parties dispute over these phrases is solely a reflection of their differences regarding the definition of 'carrier signal.'" Broadcast's Opening Claim Construction Brief, at p. 18. Therefore, I accept the parties' concession that there is no significance in the varying formulations of the expression.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
1. Carrier traps ('943 patent, claim 1, 4, 9, 11; '437 patent, claims 1, 7, 13, 15)

Plaintiff initially contended that "carrier traps" are "ions that trap electrons and cause flashing," while Defendants initially contended that they are "traps for electrons or holes." At the Markman hearing, the court proposed a construction of "traps that capture electrons and thereby impede the movement of holes." Defendants agreed to this construction, while Plaintiff argued that the court's proposed construction is essentially correct, but that the construction should specify that carrier traps "cause flashing." Markman Tr. 166:8-168:14. The sole remaining issue for the court, therefore, is whether the construction proposed by the court at the Markman hearing should specify that carrier traps cause flashing.

Plaintiff argues that the essence of the invention is preventing flashing and, therefore, that this construction should specify that the carrier traps to which the claim term refers are those that cause flashing. As Defendants point out, however, the patent does not define "flashing," and Plaintiff did not purport to identify what "flashing" means to a person of ordinary skill in the art in its briefing or at the Markman hearing. Because the term "flashing" is not a term that a jury would readily understand, and because Plaintiff has not offered a meaning of the term that a jury would understand, the court declines to include this undefined term in the construction of this term.

Moreover, based on the briefing and the parties' arguments at the Markman hearing, the "flashing" phenomenon that the specification describes as being prevented in the inventions of the '437 and '943 patents (see '437 patent, 2:10-17; '943 patent, 1:57-64) is caused by traps capturing electrons and thereby impeding the movement of holes to the P-N junction. As the '943 specification explains:

> The present invention is based on the realization that the flashing is caused by hot electrons generated by photons of visible or ultraviolet radiation which are captured by these electron traps in the passivation layer. The trapped electrons suppress the infrared response by recombining with photogenerated minority carriers (holes for the N-type base) before they are collected in the semiconductor P-N junctions of the device.

'943 patent, 2:56-63; see also '437 patent, 1:47-53. The court's construction, therefore, takes into account the "flashing" phenomenon described in the patents and referenced by Plaintiff.

The court, therefore, construes "carrier traps" to mean "traps that capture electrons and thereby impede the movement of holes."

2. Carrier Wave

Lectrolarm proposes that "carrier wave" should be construed to mean:

> The term carrier wave is completely synonymous with the term carrier, which, to one skilled in the art in 1988, means wave. A carrier wave is a continuous electromagnetic wave, of sinusoidal or non-sinusoidal form, capable of being modulated or impressed with a signal.

Defendants propose that the court should construe carrier wave to include only the second sentence of Lectrolarm's proposed definition minus the word "electromagnetic." The IEEE Dictionary defines "carrier wave" as a synonym for "carrier." IEEE Dictionary, at 136. The IEEE Dictionary gives several definitions for carrier. Definition (5)(A) explicitly states that it applies to the use of the word "carrier" as a synonym for "carrier wave" and defines the terms as "a continuous frequency capable of being modulated or impressed with a signal." IEEE Dictionary, at 134-135.

The first sentence of Lectrolarm's proposed definition of carrier wave is superfluous. Although the IEEE Dictionary defines "carrier wave" as a synonym for "carrier," making this statement in the court's claim construction does not clarify the term.
for the fact finder. Similarly, whether "carrier" is a synonym for "wave" does not clarify the term for the fact finder. The court will not adopt the first sentence of Lectrolarm's proposed construction of "carrier wave."

The court next considers the use of the word "electromagnetic." The IEEE Dictionary defines "electromagnetic waves" as:

(1) Waves characterized by variations of electric and magnetic fields. Note: Electromagnetic waves are known as radio waves, heat rays, light rays, etc., depending on the frequency. (2) (radio wave propagation) Waves characterized by temporal and spatial variations of electric and magnetic fields.

IEEE Dictionary, at 346. The parties agree that the modulating and demodulating circuits are connected electrically (Pl.'s Br. at 39.); therefore, it must be possible for the carrier wave to be an electrical signal. The IEEE Dictionary definition does not include electrical pulses within its recitation of examples of electromagnetic waves. Lectrolarm has presented no arguments for including the word "electromagnetic" in the definition of "carrier wave." Therefore, the court will not adopt Lectrolarm's proposed inclusion of the word "electromagnetic" in the definition of "carrier wave."

The court notes that, although the IEEE Dictionary definition of "carrier wave" does not specify whether a "carrier wave" can be sinusoidal or non-sinusoidal, the parties agree that the definition should include the language "of sinusoidal or non-sinusoidal form." Neither the specification nor the prosecution history narrows the scope of the term "carrier wave" from its ordinary meaning to a person of skill in the art. Consistent with the IEEE Dictionary, the court defines "carrier wave" as "a continuous wave, of sinusoidal or non-sinusoidal form, capable of being modulated or impressed with a signal."

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8. "(2.2) Carrying out preliminary data signal processing"

The phrase in question comes from Step 2 of the method, normal synchronization, and, in context, reads:

[M]aintaining said normal synchronization comprises the substeps of:
(2.1) conducting a framed synchronization with fine frequency synchronization, and

(2.2) carrying out preliminary data signal processing.

'216 Patent at 9:34-40. Further, the specification discloses:

A frequency correction value produced by the central control unit 31 from the actual (current) frequency measurement is supplied to the synchronization processor 28. By means of this preprocessing of the data signal any impairment of error-free decoding in the case of frequency shifts exceeding 200 Hz is completely eliminated. Such frequency shifts are to be expected from the Doppler effect and from oscillator drift.

Id. at 7:63-8:2 (referring to Fig. 2). "The central control unit 31 prescribes to the synchronization processor 28 which synchronization step is to be activated. The control unit reads out the responses of the synchronization processor, interprets them and supplies the setting values to the corresponding components, as for example a correction for a local oscillator." Id. at 5:16-21 (referring to Fig. 2).

HTC assails the lack of any real description of what "[c]arrying out preliminary data signal processing" means and where it is performed. HTC contends:

The specification merely discloses that "this preprocessing" results in "[a] frequency correction value produced by the central control unit 31." ['216 Patent at 7:63-8:2]. The specification further discloses that, as a result of this unknown "processing," the frequency correction value "completely eliminates . . . any impairment of error-free decoding in the case of frequency shifts exceeding 200 Hz." [Id.] Thus, the '216 patent only describes the goal of substep (2.2) — an ambitious goal at that. But neither the '216 patent nor the claims specifies [sic] what acts implement that goal. . . . [T]he acts claimed by substep (2.2) are impossible to discern.

HTC's Reply [Dkt. # 156] at 24. In the alternative, HTC proposed that the phrase be construed as "preprocessing a data signal to generate a frequency correction value to be used in further signal processing of that data signal." Chart at 3. IPCom proposes that the phrase means, "preprocessing data signals to account for frequency shifts during communication." Id.

The Court disagrees with HTC's contention that the phrase is incapable of construction. As the specification discloses, preliminary data signal processing is performed by the central control unit 31 when it analyzes the actual, or real-time, frequency signal received from the base station and produces a frequency correction value to the synchronization processor 28. Using that frequency correction value, the synchronization processor 28 can then perform whichever synchronization step the central control unit 31 orders. Because the central control unit 31 supplies a frequency correction value for each step of synchronization, frequency shifts do not impair the cell phone's ability to decode the signals it receives.

The Court construes "(2.2) carrying out preliminary data signal processing" to mean "measuring the actual frequency from the base station and calculating a frequency correction value for use by the synchronization unit."


The fourth element of independent claim 1 recites the step of "carrying out processing operations in response to said position information." Adobe proposes that this phrase be construed to mean "carrying out processing operations using position information generated by the pen-tablet unit, which is substantially higher in resolution than that of the displayed image data."

The underscored portion of Adobe's proposed construction relates to dependent claim 4, which recites "[a] process as in claim 1 in which the step of using the circuit responsive to pen position comprises generating pen position information to a resolution substantially higher than that of the image data." The court agrees with Adobe that the position information used in the processing operations recited in the fourth element of independent claim 1 must be pen position information substantially higher in resolution than that of the displayed image data. "Said position information" recited in that element
refers to the pen position information recited in element 1. Dependent claim 4 expressly recites the step of generating pen position information to a resolution substantially higher than that of the image data.

The court does not, however, agree with Adobe that the phrase "carrying out processing operations in response to said position information" means using higher-resolution position information generated by the pen-tablet unit. Claim 4 recites the step of using the circuit coupled to the pen-tablet unit, rather than merely the pen-tablet unit, to generate the higher-resolution pen position information.

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2. Cartographic data

The term "cartographic data" appears throughout the '873 patent. Plaintiff continues to argue that the '873 patent pertains only to automobile navigation: it defines "cartographic data" as "map data." On the other hand, defendant, pursues the argument that the '873 patent is also relevant to marine and aircraft: it defines "cartographic data" as "data relating to maps or charts." For the same reasons that I restricted the definition of "thoroughfare" to "public road," I restrict the definition of "cartographic data" to "map data." I am satisfied that the '873 patent concerns only automobile navigation and I will not broaden the meaning of critical terms in this patent to include terminology pertaining to marine or air craft.

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B. "case base knowledge engine"

Claim 26 contains the term "case base knowledge engine": "interpreting the electronic message using a rule base and case base knowledge engine." The specification provides a description of case base processing:

"An attribute setting rule is used when a satisfied condition is useful in subsequently matching the E-mail message 11 to stored case models of the case base 34 . . . . The application of the attribute setting rules produces a case model of the E-mail message 11 (i.e., an index of features useful in comparing the E-mail message 11 to the stored case models of the case base 34). Specifically, when attribute setting rules fire, specific attributes of the case model of the E-mail message 11 are flagged (i.e., set true). Thus, when a search of the case base 34 is required, the flagged attributes of the case model are used to search the stored case models of the case base 34."

(‘947 patent, 6:42-44, 6:53-61) (emphasis added). Bright Response's proposed construction is "a knowledge engine that processes electronic messages by comparing them to a stored set of exemplar cases." The defendants argue that this term means "a knowledge engine that compares an incoming set of facts (a 'problem') with a stored set of exemplar cases representing past 'problems' to obtain a set of prior cases which are used to formulate an appropriate action."

The parties disagree on whether the stored exemplar cases must be past problems or may they include anticipated problems. In support of limiting the term's scope to past problems, the defendants cite the following passage from the Background of the Invention: "A help desk application utilizing a case based reasoning system, see U.S. Pat. No. 5,581,664 to Allen et al., has been described which compares an incoming set of facts (a 'Problem') with a stored set of exemplar cases (a case base). . . . The case base is stored in the form of case attributes representing past 'problems.'" (‘947 patent, 2:41-48). The defendants argue that this language expressly defines case base and restricts its meaning. But this discussion of case base is written in the context of explaining the functionality of the Allen reference, not the present invention. The patent describes Allen as prior art and distinguishes it from the claimed invention. (See '947 patent, 2:52-53 ("Unfortunately, [Allen] has several drawbacks.").) The defendants also argue that the prosecution history supports limiting case base to past problems. In response to a PTO rejection, the patentees explained that a case base reasoning system "compares an incoming set of facts (a 'Problem') with a stored set of exemplar cases (a case base)" and cited the portion of the specification discussing the Allen reference. Notably, however, the patentees omitted the sentence that stated, "The case base is stored in the form of case attributes representing past 'problems.'" In all, the court concludes that the prosecution history contains no clear and unmistakable disavowal of case bases containing anticipated problems. See Omega Eng'g, Inc v. Raytek Corp., 334 F.3d

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Next, the defendants contend that the case base knowledge engine "compares an incoming set of facts (a 'Problem')" to the case base, while Bright Response asserts that the "electronic message" is compared. The defendants cite the portion of the prosecution history, quoted above, that contains the "incoming set of facts" language. But the passage that immediately follows states, "The specification describes in detail an example of a case base knowledge engine for interpreting electronic messages . . . In that example, an incoming message ("a presented model") is compared to each of a set of stored case models . . . ." Furthermore, the claim language itself explains that the electronic message is being interpreted. (947 patent, claim 26, step b ("interpreting the electronic message using a . . . case base knowledge engine")). The defendants also argue that Bright Response's proposed construction excludes the preferred embodiment, which compares flagged attributes. The specification describes an embodiment of the case base knowledge engine's operation:

The application of the attribute setting rules produces a case model of the E-mail message 11 (i.e., an index of features useful in comparing the E-mail message 11 to the stored case models of the case base 34). Specifically, when attribute setting rules fire, specific attributes of the case model of the E-mail message 11 are flagged (i.e., set true). Thus, when a search of the case base 34 is required, the flagged attributes of the case model are used to search the stored case models of the case base 34.

(947 patent, 6:53-61). Thus, the defendants contend that Bright Response's "incoming message" proposal excludes the embodiment above. But comparing flagged attributes is subsumed within the broader "processing electronic messages" construction. Also, the scope of this term should not be limited to the flagged attributes comparison embodiment. Therefore, the court construes "case base knowledge engine" to mean "a knowledge engine that processes electronic messages by comparing them to a stored set of exemplar cases."

3. "Cash Value"

The next term is "cash value." The plaintiff argues that this term means "a value measurable in dollars (or other currency)." The defendant proposes "a value accumulated in an account that is (i) personal to each consumer, (ii) determined by accumulating credit values, (iii) to which the consumer receives access and (iv) measured in dollars transferred to the consumer directly or placed in the consumer's account."

The defendant correctly derives its proposed construction from the prosecution history. There, the patentee explicitly defined "cash value." Response to Office Action, February 26, 1997, at 3. In addition, the defendant points out that its proposed construction is the exact same construction that the plaintiff offered in a prior case in this Court. See Defendant's Responsive Claim Construction Brief, Ex. BB. The plaintiff, on the other hand, argues that the defendant's proposed definition incorporates limitations from other portions of the claims and is unnecessarily cumbersome.

The court rejects the plaintiff's arguments. The patentee defined this term in the file history, and, therefore, the court adopts the defendant's proposed construction.

1. Catalog/ Product Catalog

'683 Patent, Claims 3, 26, 28, 29

'516 Patent, Claims 1, 2, 6, 9, 21, 22, 29

a. Words of the Claim
Claim 3 of the '683 Patent claims an electronic sourcing system comprising:

at least two product catalogs containing data relating to items associated with the respective sources;

means for selecting the product catalogs to search;

means for searching for matching items among the selected product catalogs…

'683 Patent at 25:10-15 (emphasis added). Claims 26, 28 and 29 of the '683 Patent claim a method comprising the steps Of:

maintaining at least two product catalogs on a database containing data relating to items associated with the respective sources;

selecting the product catalogs to search;

searching for matching items among the selected product catalogs…


2 Claim 29 incorporates Claim 28.

Claims 1, 2 and 6 of the '516 Patent claim an electronic sourcing system comprising:

a collection of catalogs of items stored in an electronic format;

a first set of pre-determined criteria associated with said collection of catalogs;

a second set of pre-determined criteria associated with items from each of said catalogs;

a catalog selection protocol, said catalog selection protocol relying on first set of pre-determined criteria to selected less than said entire collection of catalogs, and including a matching vendor identification code with a subset of said collection of catalogs, wherein said subset of catalogs includes both a vendor catalog from a predetermined vendor and a second catalog from a predetermined third party that is one of a manufacturer and a competing vendor, said predetermined third party selling items corresponding to items in said vendor catalog; and

a search program, said search program relying on said second set of criteria to select specific items from said catalogs determined from said catalog selection protocol.

'516 Patent at 23:44-64 (emphasis added). Claim 21 and 22 claim an electronic sourcing system comprising:

a requisition module including data fields, user-generated criteria entered into at least one of said data fields to generate at least partial criteria corresponding to a desired item;

a catalog collection searching module, said searching module including a collection of catalogs of items stored in an electronic format, a catalog selection criteria used to select less than said entire collection, said searching module being used to generate additional search-module criteria for said data fields of said requisition module;

a multiple purchase order generation module, said purchase order generation module creating multiple purchase orders from a single requisition created with said user-generated criteria and said search-module criteria;

wherein each of at least two catalogs include a generally equivalent item from a different source, said requisition module

a collection of catalogs of items stored in an electronic format;

a first set of pre-determined criteria associated with said collection of catalogs;

a second set of pre-determined criteria associated with items each of said catalogs;

a catalog selection protocol, said catalog selection protocol relying on first set of pre-determined criteria to select less then said entire collection of catalogs, and including a matching vendor identification code with a subset of said collection of catalogs, wherein said subset of catalogs includes both a vendor catalog from a predetermined vendor and a second catalog from a predetermined third party;

a search program, said search program relying on said second set of criteria to select specific items from said catalogs determined from said catalog selection protocol; and

a cross-reference table linking a vendor item catalog number from said vendor catalog with an item catalog number from said predetermined third party.


b. Specification

The most significant disagreement between the parties is whether a "catalog" must be published by a vendor. The specification provides:

A feature of the present invention is the ability to search multiple catalogs from different suppliers. For example, catalog database 36 can contain the catalog or catalogs published by a vendor Distributor. . . Catalog database 36 can further contain catalogs published by some of the vendor manufacturers. . . Catalog database 36 can further contain catalogs published by outside suppliers, whether manufacturers or other distributors, listing such vendor's products different from those in the Distributor's catalogs.

'683 Patent, 4:46-59 (emphasis added). In briefing, Lawson argued that it is essential that the construction of "catalog" require that it be "published by a vendor." At oral argument, ePlus stated that it objected to the inclusion of "published by a vendor" because the specification quoted above makes clear that a catalog may be published by a supplier, manufacturer or distributor, among others. The parties' disagreement over whether a catalog must be published by a vendor was resolved when they agreed, at oral argument, that the term "vendor" includes suppliers, distributors, and manufacturers.

Additionally, the specification outlines what is generally-included in a catalog. It provides that catalogs "preferably include such information as part number, price, catalog number, vendor name or I.D., and vendor catalog number, as well as textual information and images of or relating to the catalog products." '683 Patent at 4:38-42.

c. Proper Construction

Based on the fact that a catalog is published by a vendor and includes the type of information outlined in the specification above, "catalog" and "product catalog" mean: an organized collection of items and associated information, published by a vendor (which includes suppliers, manufacturers, and distributors), which preferably includes a part number, price, catalog
number, vendor name, vendor ID, a textual description of the item, and images of or relating to the item. That construction is consistent with the ordinary meaning of the term as used in the words of the claim and the specification.

b. “catalog file”
The digital jukebox described in the 302 patent includes “a catalog file including data for each stored song representing the identity of said song and the location in said computer memory of the digital data representing said song.” Opening Brief, Ex. 1 at 5:18-19 (emphasis added). The specification states that it includes seven fields: title, classification (genre), song address (where the song is stored in the jukebox), song size, graphics address, graphics size, and play count. Id. at fig. 2; 2:56-58. Plaintiffs contend that “catalog file” means “a file that includes information associated with songs.” Opening Brief at 7. Defendants contend that catalog file should be construed as “a data structure made up of song records, with each song record having the fields set forth in Figure 2.” Resp. Brief at 6. In other words, defendants contend that the catalog file must include, for each song, data in each of the seven fields. Plaintiffs argue that the claim does not require that there be data in each field or category for each song.

Defendants’ proposed construction amounts to an impermissible attempt to read the preferred embodiment in figure 2 as a limitation of the claim. Nazomi Comm., Inc. v. ARM Holdings, PLC, 403 F.3d 1364, 1369 (Fed.Cir.2005). The plain language of the claim shows that the catalog file need have only two of the fields depicted in figure 2: “the identity of said song and the location in said computer memory of the digital data representing said song.” Opening Brief, Ex. 1 at 8:55-58. Defendants’ proposed construction disregards the claim language itself, which is the first place to look when construing disputed terms. See Hockerson-Halberstadt, 222 F.3d at 955. The Court therefore construes the term “catalog file” as “a file that includes information identifying a song and the location of the digital data representing the song in the computer memory.” The same construction applies to the term “catalog file” in claims 2 and 10 of the 889 patent.
The parties' proposed constructions are as follows:

**Plaintiff**
- System of characters or symbols that represent categories.

**Defendant**
- A code representing a category to which a network page is or could be assigned.

The parties dispute whether the term "categorization code" refers to an entire "system" of codes or to the individual codes that correspond to each category. The term "categorization code" appears in dependent claims 19, 20, 25, and 30:

19. The method of claim 1, further comprising providing a categorization code that can be used to label the page with the categorization label that indicates the categories to which the page is assigned.

20. The method of claim 19, wherein said categorization code comprises an indicium for each of said categories.

25. The method of claim 19, wherein said categorization label further includes an identifier to indicate that said label is part of said categorization code.

30. A computer implemented method for categorizing a network page, comprising:

   - providing a list of categories, wherein said list of categories include a category for transacting business and a category for providing information, and wherein said list of categories include a plurality of categories based on the copyright status of material on a page;
   - providing a categorization code for labeling the network page with a categorization label, wherein said categorization label indicates a set of categories and subcategories to which the network page is assigned, and wherein said categorization label indicates the copyright status of material on the network page; and
   - controlling usage of the network page using the categorization label and the copyright status of the network page.

(13:40-45; 14:3-5; 14:16-33) (emphasis added.) The language of a patent's claims are "generally given their ordinary and customary meaning," Phillips, 415 F.3d at 1313. Furthermore, the claim term is read in the context of both the particular claim in which it appears and in the context of the entire patent. Id.

These claims reveal a system of characters that represent categories to which network pages can be assigned. Specifically, dependent claim 20 refers to a categorization code as comprising "an indicium for each of said categories" to which a page is assigned. (13:44-45.) For claim 20 to make sense, the term "categorization code" must contemplate a system that can comprise the categorical indicia. Likewise, dependent claim 25 refers to an "identifier" to indicate that the categorization label is part of the categorization code. Defendant's proposed construction is nonsensical when posed alongside claim 25. If a "categorization code" is merely a two-letter indicium of a particular category to which a page has been labeled, then the categorization code should constitute part of the categorization label rather than the label constituting a part of the code. The specification provides further light for interpreting claim 25:

The categorization label for a page preferably also includes an identifier, such as a combination of several characters or symbols, to indicate that the characters or symbols that follow are part of a categorization code system.

(7:8-11.) This portion of the preferred embodiment directly speaks to dependent claim 25 of the specification, and uses the term "categorization code system" where the claim uses "categorization code." According to the patent, the terms are used interchangeably, and is further evidence that the inventors intended the term "categorization code" to mean a code system.

Defendants cite the example of coding a pornographic web page, where the patent states: "The categorization label would be 'coexvimu,' which indicates: Commerce (co); Explicit (ex); Visual (vi); and Multimedia (mu). The Explicit category 42, identified by the 'X' icon and the 'ex' code, . . . " (7:48-54.) While the specification also uses the term "code" when referring to individual category symbols, this is not in conflict with recognizing that the term "categorization code" refers to the system of as a whole. The patent repeatedly refers to these individual codes as "indicia":

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The list of categories includes at least one different indicium for each category. The indicium is preferably a universal symbol or icon that is not associated with any one language, but it may also include a combination of letters, numerals, or other characters, or symbols. The indicia preferably used are universal icons and two-letter or two-numeral indicia, as shown in FIG. 1. Thus, the indicia for commerce are "co" and the "$" symbol, while the indicum for "Public Domain" is "01."

(6:3-11.)

The preferred embodiment further states: "The method also includes the step of providing the creator with a categorization code that can be used to tag or label each page or site . . . . and is preferably the indicia shown in FIG 1." (6:63-7:1.) Figure 1 of the '459 patent displays the three "tiers" of categories and the fourth category comprising copyright status, and the various categories within the tiers. Accordingly, "categorization code" as used in this instance cannot constitute a singular code or category, but must represent the entire system of codes displayed in Figure 1 of the '459 patent.

Defendant also points to portions of the provisional patent applications which referred to the term "categorization code" as both a system and as the individual string of codes as evidence that the term could mean an individual code. (E.g., Yahoo! Reply Decl. Kevin A. Smith Ex. 15 Fig. 1 ("The iics copyright code can simply be typed in at the end of the categorization code . . . .").) The provisional applications that the defendant points to, however, did not use the term "categorization label." Rather, they used the term "categorization code" to also mean what is now defined as the "categorization label." While the provisional patent applications may have used the term "categorization code" to express multiple meanings, the '459 patent claims and specification are consistent in their usage of the term.

Finally, the preferred embodiment generally speaks about the "categorization code" as something that the network page creator "uses" to assign categorization labels to network pages. (See 6:63-65; 7:1-3; 7:12-15.) This conception of "categorization code" aligns with a systemic view of the term, and is incompatible with a construction that limits the term to one particular set of characters or symbols in code.

Therefore, the term "categorization code" means "System of characters or symbols that represent categories."

4. Categorization Label

The parties' proposed constructions are as follows:

<table>
<thead>
<tr>
<th>Plaintiff</th>
<th>Defendant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag indicating the category or categories to which a page is assigned.</td>
<td>The complete code string</td>
</tr>
<tr>
<td>representing all the categories to which a network page is assigned.</td>
<td></td>
</tr>
</tbody>
</table>

Defendant's proposed construction clearly is contrary to the preferred embodiment of the invention with respect to the words "complete" and "all." The specification states that: "The categorization label preferably consists of the indicia for all of the categories to which the page is assigned." (7:3-4) (emphasis added). According to the preferred embodiment, therefore, it is not necessary that the categorization label include the indicia representing every category to which the page has been assigned. Plaintiffs also point to dependent claim 22, which states: "The method of claim 20, wherein said categorization label includes the indicia for each category to which a page is assigned." (13:48-50.) Furthermore, independent claim 30, which includes both terms "categorization code" and "categorization label," makes clear that the categorization label need not contain the indicia of all the categories to which a network page is assigned:

30. A computer implemented method for categorizing a network page, comprising:

providing a list of categories, wherein said list of categories include a category for transacting business and a category for providing information, and wherein said list of categories include a plurality of categories based on the copyright status of material on a page;
providing a categorization code for labeling the network page with a categorization label, wherein said categorization label indicates a set of categories and subcategories to which the network page is assigned, and wherein said categorization label indicates the copyright status of material on the network page; and

controlling usage of the network page using the categorization label and the copyright status of the network page.

(14:17-33) (emphasis added.)

Plaintiff argues that the defendant's proposed construction also improperly reads "categorization code" and "code string" into independent claim 1 of the '459 patent. Specifically:

1. A computer implemented method of categorizing a network page, comprising:

   Providing a list of categories, wherein said list of categories include a category for transacting business and a category for providing information, and wherein said list of categories include a category based on copyright status of material on a page;

   assigning said network page to one or more of said list of categories;

   providing a categorization label for the network page using the copyright status of material on the network page; and

   controlling usage of the network page using the categorization label and the copyright status of the network page.

   19. The method of claim 1, further comprising providing a categorization code that can be used to label the page with the categorization label that indicates the categories to which the page is assigned.

(‘459 patent 12-13) (emphasis added.) "[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1314-15. Dependent claim 19 adds the limitation of "further comprising a categorization code," which presumably is not contained in independent claim 1. While independent claim 30 includes both "categorization label" and "categorization code," independent claims 1 and 31 do not require a "categorization code." The court will not import a dependent claim into independent claim 1 by importing the term "categorization code" to the term "categorization label."

Furthermore, the language of the specification, which was quoted only in part by the defendant, states that: "The indicia for the categories are preferably placed in an unbroken code string in the following order: first tier, second tier, third tier, and copyright-status categories." (7:15-18) (emphasis added). The specification further states that: "An example of such a categorization label is a single, simple character string consisting of the two-letter or two-numerical indicia for all of the categories to which the page is assigned." (7:5-8) (emphasis added). It does not appear, therefore, that the preferred embodiment is the only embodiment of the categorization label, and the court will not interpret the term "categorization label" to require a "code string."

Finally, because the patent does not limit its claims to placing only one categorization label on a network page, it is clear that each label does not need to include every category to which a page is assigned in order for the patent to function. A network page creator could assign a network page two categorization labels, each indicating only some of the categories to which a page is assigned. Furthermore, the specification provides that a network page designer can communicate the categories to which a page is assigned directly to search engines rather than include those categories in the categorization label. (6:50-58.) This clearly contemplates that a categorization label might not include every category to which a network page is assigned.

Defendants object to plaintiff's including the word "tag" in their proposed construction of the term "categorization label." While the word "tag" may be a term of art, "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history." Honeywell Intern., Inc., 452 F.3d at 1318. In the specification, the patent clearly uses the words "tag" and "label" and "mark" in the verb form interchangeably. (6:55-53, 6:63-65.) The construction suggested by plaintiff, however,
uses the word "tag" as a noun, which is not supported by the patent language as being synonymous with a "label." Additionally, the preferred embodiment somewhat confusingly also states that "The method also includes the step of providing the creator with a categorization code that can be used to tag or label each page or site." (6:63-65.) Substituting the word "tag" for "label" in the definition adds nothing to enlighten the jury. To the contrary, it would just add another word which arguable would have to be defined. Since the plaintiff asserts that the patent uses the terms "tag" and "label" interchangeably, this construction provides the same meaning while avoiding possible confusion. Furthermore, this construction makes clear that the label need not include every category to which a page is assigned.

Therefore, the term "categorization label" means "Label indicating a category or categories to which a page is assigned."

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Cause, causing, all forms of "cause"

The term cause is a common word with no peculiar meaning in the 290 patent. Accordingly, the Court concludes "cause" means "bring about."

GO BACK

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B. "Causing a Quantity of Digital Data Resident on a Source Storage Medium to Be Transferred to a Computer System Having a Destination Storage Medium"

The parties next dispute the meaning of the phrase "causing a quantity of digital data resident on a source storage medium to be transferred to a computer system having a destination storage medium," which represents the first of the three steps of the method described in Claim 1. See '776 Patent, col. 17, Ins. 14-16. The parties agree that the phrase "a quantity of digital data" means "an amount of digital data," and that the phrase "source storage medium" means a "computer storage medium that is the point of origin of the data being transferred." See JCCS, Appx. A, at 4 (terms 14-15). Within this phrase, the parties principally dispute the meaning of the terms "causing," "computer system," and "destination storage medium."

1. "Causing"

Defendant defines "causing" as used in Claim 1 as "effecting by command or request." JCCS, Appx. A, at 4 (term 13). Plaintiff defines "causing" as "effecting by command, authority, or force." Id. Plaintiff contends that defendant's proposed definition is truncated, and that an effect can be "caused" even if there is no explicit command or request. Defendant argues that plaintiff, through its proposed definition, is attempting to interpret "causing" so as to include actions by either the user of the software described in the patent or a computer other than the destination computer.

Defendant's concerns, in so far as claim construction is concerned, are misplaced. Neither proposed definition speaks to who or what is doing the "causing." Indeed, even under defendant's proposed definition a user or computer other than the destination computer may be able to "command" or "request" a certain result. Whether the limitations of the claims as a whole require the "causing" step to be initiated by the destination computer is simply not affected by either party's proposed construction of "causing." That being the case, defendant's proposed construction is adopted, as that construction is consistent with the ordinary definition of the term. See MERRIAM-WEBSTER ONLINE (available at www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=causing); OXFORD ENGLISH DICTIONARY (2d ed. 1989) (online edition available at www.dictionary.oed.com/cgi/entry/50034905?query_type=word&queryword=causing&first). 

2. "Computer System"

The parties also dispute the meaning of the term "computer system." Plaintiff contends that the appropriate definition of this term is "any combination of hardware, software, documentation, and manual procedures that are combined to perform a specific function." JCCS, Appx. A, at 4 (term 17). Defendant contends that the appropriate definition is simply a "personal computer or workstation." Id. The Court adopts defendant's proposed construction of this term.
The specification clearly contemplates a "computer system" in accord with defendant's proposed definition. In setting forth the preferred embodiment, the specification describes a computer system as comprising a bus to which are connected a central processing unit, random access memory, a serial port, and a data storage medium (such as a hard disk)--i.e., a single personal computer or computer workstation. See ’776 Patent, col. 3, lns. 18-31. This constitutes the complete description of the computer system. Importantly, the specification describes data transmission occurring between two such systems through modems which, although attached to each computer system, are outside of the system. See id., lns. 32-38. This construction also makes sense in light of the claim limitations, which discuss transfer of data to a computer system that has a destination storage medium--i.e., a hard disk or similar storage device.

8 The specification's reference to the possibility that the modules described in the patent could be implemented directly in hardware, "as in the form of add on circuitry for a 'virus free' modem," ’776 Patent, col. 10, lns. 26-27, does not alter this conclusion. Nothing in this brief sentence leads to the conclusion that a modem is itself a "computer system" as that term is used in the patent, and any such conclusion is belied by the explicit description of such a system earlier in the specification.

The extrinsic evidence also supports this construction. In his rebuttal report, plaintiff's expert Eugene Spafford states that the term "computer system" encompasses various systems other than a simple personal computer or workstation, including interconnected computer systems, channel processors, and distributed computer systems. See Pl.'s Br., Ex. 11, Decl. of Professor Eugene H. Spafford, Appx. 1, Rebuttal Expert Report of Professor Eugene H. Spafford, PP 18-21 [hereinafter "Spafford Rebuttal Report"]. In his deposition, however, Dr. Spafford testified that the specification's use of "computer system" referred to a single computer, see Def.'s Br., Ex. 12, Deposition of Eugene Spafford, at 68-69 [hereinafter "Spafford Dep."], and that a modem as referred to in the specification and as understood in 1990 would not be considered either part of a computer system or such a system in its own right, see id. at 69. He also conceded that the patent nowhere mentions the terms "channel processors," "interconnected computer systems," or "distributed computer systems," other types of systems which Spafford contends in his report are types of "computer systems" as used in the patent. See id. at 99-100. Further, Dr. Stephen Melvin, plaintiff's expert in the Hilgraeve case, opined in his report on plaintiff's behalf in that case that

[t]he only type of system that is described in the ’776 Patent is a personal machine . . . . Generally speaking, this class of computer systems is the only type that needs protection from viruses. There are other types of computer systems, such as unattended servers, that typically don't need this protection. They are used to simply relay information, they are not under the control of an ordinary user and they don't execute any software except pre-installed applications. There is no support to indicate that the patentees intended to cover these types of systems. Furthermore, there is no figure, and no teaching of how to apply the claims to an unattended server.

Def.'s Br., Ex. 13, Expert Report of Dr. Stephen W. Melvin in Hilgraeve Corp. v. Symantec Corp., at 8 [hereinafter "Melvin Expert Report"]. Dr. Melvin further notes that, as used in Claim 1, "[t]he computer system is a desktop personal computer or workstation[]." Id.

Accordingly, the Court adopts defendant's proposed construction of the term "computer system."

3. "Destination Storage Medium"

The parties next disagree about the meaning of the term "destination storage medium." Plaintiff contends that the term means "a computer storage medium that is the intended endpoint of the transfer of digital data." JCCS, Appx. A, at 4 (term 18). Defendant counters that the term should be defined as "a computer storage medium that is the target of the transfer of data as a result of the causing step." Id.

The Court finds that defendant's proposed construction should prevail. As defendant correctly notes, construing destination storage medium as plaintiff does would permit the invention to operate outside of the computer system. For instance, the source storage medium could transfer the data to the computer, which would then transfer the data to a peripheral storage device such as a thumb drive. Under plaintiff's proposed construction, only the thumb drive would be the "destination
storage medium," even though it is only connected to, but not part of, the computer system identified in the patent. Plaintiff's construction would allow two separate transfers of data to be collapsed into only one transfer, and for the destination storage medium to be located outside of the "computer system" identified in the patent. The language of the patent does not permit this interpretation. See '776 Patent, col. 3, lns. 38-44 ("It will further be assumed that the data to be transmitted is initially stored on storage medium 24a of system 12 and after transmission will also be stored on storage medium 24b of system 14. Thus, storage medium 24a may be considered the source storage medium while storage medium 24b may be considered the destination medium."); id., col. 6, lns. 17-21 (emphasis added) ("In this regard, the local [computer] system 14 has the capacity for causing a transmission of digital data resident on the remote system 12 (e.g., hard disk storage medium) to be transmitted to the local system.").

Accordingly, the Court adopts defendant's construction of this term.

4. The Phrase as a Whole

In light of the construction given the individual terms above, the complete phrase "causing a quantity of digital data resident on a source storage medium to be transferred to a computer system having a destination storage medium" means: "effecting by command, authority, or force, the transfer of digital data resident on a source storage medium to a personal computer or workstation having a computer storage medium which is the target of the transfer of data as a result of the 'causing' step."

1. "CD Reader" and "Recordable CD Drive"

The terms "CD Reader" and "Recordable CD Drive" appear together in dependent Claims Four and Eight of the '531 Patent. The language of Claims Four and Eight mirror each other and state the following: "The method [system] of claim 1 [claim 5] which further allows a user to repeatedly add and interchange recordable CDs between a CD reader and a recordable CD drive using sessions." ('531 Patent, col. 6, ll. 41-43; '531 Patent, col. 8, ll. 7-9).

Optima urges the Court to construe these terms based on their "plain meaning," which, Optima contends, limits them to drives capable of reading or recording CDs only. Roxio, on the other hand, avers that these terms should be construed more broadly to include all drives that are capable of reading and recording Write-Once-Read-Many (WORM) discs. 2

--- Footnotes ---

2 The acronym 'WORM' is used to refer to various storage media that is capable of being written once by a computer that has the appropriate capabilities and then read many times. Although recordable CDs are one type of WORM media, there are many different types of WORM media that are not CDs, including 130mm magneto-optical drives and 300mm optical disks. (Expert Report of Dr. Scott Brandt, p. 6.) Indeed, a floppy disc written upon once with the ability to write on the disc permanently disabled might also be a WORM disc.

--- End Footnotes ---

Each party's proposed claim construction of "CD Reader" and "Recordable CD Drive" is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;CD Reader&quot;</td>
<td>A CDROM player capable of reading but not writing CDs.</td>
<td>A disc drive capable of reading Write-Once-Read-Many (WORM) discs.</td>
</tr>
<tr>
<td>&quot;Recordable CD Drive&quot;</td>
<td>A CD player/recorder capable of both reading and writing CDs.</td>
<td>A disc drive capable of recording Write-Once-Read-Many (WORM) discs.</td>
</tr>
</tbody>
</table>

To support its constructions, Roxio argues that Optima equates recordable CDs with WORM discs several times within the '531 Patent. For example, Roxio cites to the following statement in the '531 Patent: "Recordable CD can not be directly
interfaced with the operating system because they are WORM (Write Once Read Many) devices." (Roxio's Opening Claim Construction Brief, p. 17, citing '531 Patent, col. 1, ll. 12-14). This "equation" of recordable CDs to WORM discs, Roxio argues, leads to the conclusion that the terms at issue should be construed to include all WORM discs and not be limited to CDs.

The Court rejects Roxio's contention that the '531 Patent equates recordable CDs to all WORM discs. As both parties in the instant case are aware, recordable CDs are a type of WORM discs. Optima merely chose to clarify this relationship in the '531 Patent and, by doing so, did not equate one with the other. Thus, the Court finds that the terms "CD Reader" and "Recordable CD Drive" are accorded their ordinary meaning and are limited to drives that are capable of reading and recording CDs only, respectively, not other WORM discs.

The parties also dispute whether the term "CD Reader" is 'a drive that can only read CDs, or whether it is a drive that is capable of reading CDs but that also can perform other tasks, such as recording CDs. Optima urges the former construction based on the term's "plain meaning." (Pl.'s Opening Markman Brief, p. 10). Roxio, however, argues the latter construction because "any drive that can write CDs can also read them." (Roxio's Opening Claim Construction Brief, p. 17-18, citing Compton Decl., Ex. E, P 15).

The Court finds that the claim language of the '531 Patent compels a construction of "CD Reader" that limits this term to drives that are able only to read CDs. Roxio's argument is logically flawed. Although it may be correct that any drive that is able to write CDs also can read them, it does not follow that the opposite is true." Moreover, the decision by Optima to include the terms "CD Reader" and "Recordable CD Drive" in the '531 Patent demonstrates its desire to distinguish the two. The ordinary meaning of "CD Reader" is a drive that only reads CDs. The ordinary meaning of "Recordable CD Drive" is a drive that can both read and write CDs.

7. Cell

A cell is a group of one or more digital words.

2. "Cell analysis instrument" (claim 21)

Cytyc contends that a "cell analysis instrument" is "a device, not including a microscope station, that performs measurements or analysis of at least one cell feature on a specimen preparation, such as a specimen slide." TriPath's proposed definition is, "an instrument that automatically conducts a detailed assessment or examination of one or more cells to determine its nature or essential features." The disagreement centers on three issues. First, whether a cell analysis instrument is or includes a microscope station; second, whether it performs "measurements"; and third, whether it conducts assessments automatically or requires human input.

The above discussion of "microscope station" resolves the first issue. A "cell analysis instrument" is not, and does not include, a microscope station. Therefore, the remainder of this section will focus on the second and third issues.

The claims provide little guidance as to whether the cell analysis instrument performs measurements. Claim 21 states that the cell analysis instrument produces "analysis", but does not provide any further details. 969 patent at col. 14, 1. 33. Similarly, claim 24 states that the cell analysis instrument produces "analysis data." Id. at col. 14, 1. 49.

The specification is more helpful. As mentioned above, the specification lists examples of four types of cell analysis instruments. Id. at col. 9, 11. 25-30. The only type that it describes in detail is a particular brand of laser scanning cytometer, the CompuCyte LSC(tm) ("LSC"). Id. at col. 9, 1. 27.
The description states that the

LSC can scan slides stained with fluorescent dyes to measure the constituents and morphology of cells on the slide and generate a computer database file containing a set of constituent values, morphology values and slide position values of every cell found by it on the slide.

Id. at col. 9, 11. 39-44 (emphasis added). This passage indicates that the patentee intended a cell analysis instrument to conduct measurements.

Moreover, the sentence introducing the four types of cell analysis instruments begins, "There are at least four types of instruments." Id. at col. 9, 11. 35 (emphasis added). The words "at least" make clear that the four listed types are examples; they are not the outer limits of the claims. The patentee does not define any specific method of analysis that the claimed "cell analysis instruments" must use. Therefore, to interpret "cell analysis instrument" as one that does not perform measurements would not only contradict the example in the preferred embodiment, but would improperly limit the scope of the claim. See Phillips, 415 F.3d at 1323 (warning against confining the claims to the embodiments in the specification when those embodiments are merely "exemplary in nature").

The claims are silent as to whether a "cell analysis instrument" operates automatically or requires human input. Again, the description of the LSC provides the only detailed example of how a cell analysis instrument functions. The LSC clearly allows some human interaction. For example, the user may move the slide to view areas of interest and annotate the positions of specific cells while the slide is on the stage. Id. at col.9, 11. 61-62; col. 10, 11. 2-4. However, it does not appear that human interaction is required in order for the LSC to perform the analysis. Another embodiment specifically automates the movement of the microscope to locations of interest. Id. at col. 10, 11. 6-14.

Since much of the description of the LSC is written in the passive voice, it is difficult to discern whether a machine or a human is conducting the analysis. See id. at col. 9, 1. 34 -- col. 10, 1. 5. However, the specification is clear that the purpose of the "cell analysis instrument" is to perform "analysis", an activity that can be conducted with or without human interaction. The claims and the specification do not restrict the methods by which the "cell analysis instrument" can perform its analysis. Thus, I will not read into the claims a limitation that a "cell analysis instrument" must conduct analysis either automatically or with human input.

In sum, a "cell analysis instrument" is a device, not including a microscope station, that performs measurement or analysis of at least one cell feature on a specimen preparation, such as a specimen slide.

2. Cell separation process

<table>
<thead>
<tr>
<th>Disputed Claim Language</th>
<th>Synopsys's Proposed Construction</th>
<th>Magma's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell separation process</td>
<td>a process which assigns a cell a location or an approximate location on the physical placement area</td>
<td>method of assigning locations to cells such that they do not overlap</td>
</tr>
</tbody>
</table>

The phrase "cell separation process" appears in claims 1, 6, and 11 of the '114 patent, each time as part of the longer phrase "executing a cell separation process according to the netlist." (See '114 Patent at 6:56-7:3, 7:13-28, 8:5-22.) The parties agree that the "cell separation process" involves assigning a location to the cells, but dispute whether the cells are assigned to specific, as opposed to approximate, locations, and whether cells may overlap in any way.

In the initial portions of the '114 patent specification, one possible reading of the language is that the "cell separation process" assigns specific locations to cells but does not require that the cells be spaced apart from each other. For example, the "Summary of the Invention" section of the '114 patent states:
[A] cell separation process assigns (x,y) locations to each of the cells. The cell location information is supplied to the synthesis tool, which can then make changes to the netlist thereto. In the present invention, the size of the placement area is allowed to be scaled according to the new netlist. Next, the cells of the netlist are spaced apart according to a spacing algorithm.

(See '114 Patent at 2:16-23.) Additionally, in the "Detailed Description" portion of the specification, which describes a preferred embodiment of the invention, the inventors reiterate that "cell separation" and "spacing" are separate steps of the patented process. (See id. at 3:14-20, 3:41-47.) According to the specification, "[t]he cell separation process takes each cell in the netlist and assigns a pair of (x,y) coordinates" which are "used to specify the location of each cell relative to a two-dimensional boundary area in which the circuit is to be placed." (See id. at 3:16-20.) The placement of cells during the "cell separation process" is "a best estimate guess," after which "the netlist is tweaked to optimize the design." (See id. at 3:27-32.) Only thereafter does the "spacing" of the cells occur, followed by a separate step of partitioning the cells "in order to better 'spread' them apart." (See id. at 3:41-48.) The above-cited language arguably suggests that the "cell separation process" includes the step of assigning a location to each cell, but does not include the step of ensuring that the cells are "spaced apart." 13

Elsewhere in the specification, however, in a more detailed description of "cell separation" found in a description of a preferred embodiment, the specification expressly states that "[c]ells must be assigned locations so that they do not overlap each other, they all fit within some overall bounding figure, and the total wiring cost is minimized." (See id. at 5:23-25 (emphasis added)). The cell separation process determines "an assigned (x,y) position . . . denoting the approximate centerpoint of the cell." (See id. at 5:27-28.) The specification further explains that, in the spacing step, the partition walls are changed "in order to improve the spacings between the cells." (See id. at 5:32-35 (emphasis added)). Although the above-cited language appears in the description of a preferred embodiment, (see id. at 4:59-61), the provision that, during cell separation, "[c]ells must be assigned locations so that they do not overlap each other," read in context, describes a requirement of the invention rather than an optional aspect of the preferred embodiment.

Nonetheless, Dr. Harris attests, "[t]o one with ordinary skill in the art, it would make no sense to require that the cells are completely non-overlapping" at the conclusion of the cell separation process. (See Harris Decl. P 134.) He further attests that while "it is true that the precise x,y locations for the centerpoints of two cells need to be different (because one cannot have two cells that have precisely the same centerpoint), this does not mean that the entire area of the cells must or should be non-overlapping." (See id.) According to Dr. Harris, "it is typical during rough placement, that cells are assigned overlapping locations, and this overlap is usually dealt with during detailed placement." (See id. P 138.)

Even if it is "typical" for cells to overlap during rough placement, the specification of the '114 patent expressly states, as noted, that "[c]ells must be assigned locations so that they do not overlap each other." (See '114 Patent at 5:23-25.) The Federal Circuit has held that "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor" and, in such instances, "the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." See Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331 at *8. Accordingly, the Court concludes that the "cell separation process" must result in assignment of cells to locations such that they do not overlap each other in any way.

With respect to whether the cells are assigned to precise locations during the "cell separation process," the specification repeatedly states that the cells are assigned "(x,y)" locations during the cell separation process. (See, e.g., '114 Patent, Abstract and 2:17-18, 3:16-17, 5:12-14, 5:25-28.) Synopsisys's argument that the locations nonetheless may be approximate is based entirely on one sentence in the specification: "The output from cell separation process 306 is a number of cells, each of which has an assigned (x,y) position 307 denoting the approximate centerpoint of the cell." (See id. 5:25-28.) As Dr. Sarrafzadeh suggests, however, where a cell has an irregular shape, its precise centerpoint may be difficult to determine, and the cell nonetheless is assigned to a precise (x,y) location, which location is intended to represent the "approximate
centerpoint" of the cell. (See Sarrafzadeh Decl. P 43; see also '114 Patent at 5:25-28.) Synopsys fails to explain how a cell can be assigned to specific (x,y) coordinates and still be assigned only an "approximate" location.

Accordingly, the Court will adopt Magma's construction of "cell separation process" and construe the term as "a method of assigning locations to cells such that they do not overlap."

Cell stuff information

Ciena argues that the term should be construed as "information indicating the location of cells that enable the receiving node to remove them." Ciena contends that its construction of "cell stuff information" reflects the ordinary meaning of the term as evidenced by the specification. In support of its argument, Ciena points to Column 10, Lines 35 through 37 of the specification that state, "[a]ny cell can be used for stuffing as long as the location is indicated so that the receiving node can remove it."

Claim 3 of the patent is an independent claim that discloses a method comprising, among other things, "transmitting from the first node the series of [Asynchronous Transfer Mode] data cells in the round robin order, the first node inserting at least one inverse multiplexing control cell that contains cell stuff information into each frame."

Claim 4, a dependent claim of claim 3 reads, "The method of claim 3, wherein the cell stuff information includes stuff code indicating the location of stuff cells inserted in a respective frame." If the Court were to adopt Ciena’s construction, claim 4 would effectively read, "The method of claim 3, wherein the information indicating the location of cells that enable the receiving node to remove them includes stuff code indicating the location of stuff cells inserted in a respective frame."

Furthermore, the excerpt from the specification is described in the context of one embodiment of the invention and does not support Ciena’s construction of the term. The term “cell stuff information” should retain its ordinary meaning. Accordingly, the Court construes the term as “information relating to cell stuffing.”

"cellphone" / "cellular telephone"

The term "cellphone" or "cellular telephone" appears in the independent claims. Claim 50 of the '783 patent states in part, "a cellphone having a portable housing of a size and weight for being handheld by a person and adapted for placing and receiving person-to-person telephone calls to and from remotely located telephones." The plaintiff proposes that "cellphone" and "cellular telephone" mean "a portable telephone capable of communicating wirelessly in a cellular system or satellite system." In contrast, the defendants contend that these terms mean "a device capable of communicating wirelessly via a cellular or satellite network and including an antenna, a transmitting/receiving section, a microprocessor, a memory, a dialing pad, a microphone, and a speaker."

The defendants argue that the components comprising the cellphone must be enumerated to allow the fact finder to determine if those components are in the claimed "housing." This argument is based in part upon the Alltel defendants' proposed claim construction of "housing," in which Minerva allegedly disclaimed housings with slides or hinges. The defendants also quote the following passage from the specification in support of their proposed construction:

Referring more particularly to the figures, the entertainment and communication device, generally designated 100, includes a cellular telephone or satellite accessible telephone or the like, hereinafter referred to collectively as a "cellphone", having a dialing pad 101 . . . . The cellphone includes a microphone 103 and a speaker 125 . . . . The cellphone also includes a dialing memory 113, a dialing section 114, a transmitting/receiving section 115, an antenna 119 and a ring signal capturing
The microphone 103 and speaker 125 are connected through an audio signal processing section 108 to the microprocessor 112 of the device 100.

(‘783 Patent, 1:52-2:3) (emphasis added).

Minerva disputes the need to enumerate the cellphone's components. The plaintiff points out that some of the dependent claims add limitations indicating that the cellphone includes "a microphone, a speaker, . . . and a memory" (‘783 Patent, Claim 50) and a microprocessor (‘783 Patent, Claim 32). These additional limitations would be redundant if the term "cellphone" were construed to include a microphone, speaker, memory, and microprocessor. Furthermore, the written description does not assert that the individual cellphone components, deemed necessary by the defendants, are novel or required.

As shown in the quoted passage above, the specification does describe the cellphone as having a dialing pad, microphone, speaker, a dialing memory, transmitting/receiving section, and an antenna. The court finds that an ordinary artisan would recognize that a cellphone requires these components, and they are not optional features of a preferred embodiment. However, despite the enumeration of a microprocessor, the specification's language does not clearly state that the cellphone includes a microprocessor; some of the cellphone's components are merely connected to the microprocessor of the claimed portable entertainment device. (See ’783 Patent, 1:67-2:6 ("The microphone 103 and speaker 125 are connected . . . to the microprocessor 112 of the device 100. The dialing memory 113, dialing section 114, transmitting/receiving section 115, ring signal capturing section 122 and dialing pad 101 are also connected to the microprocessor 112 . . . .") (emphasis added)) For the reasons provided above, the court construes the terms "cellphone" and "cellular telephone" to mean "a device capable of communicating wirelessly via a cellular or satellite network and including an antenna, a transmitting/receiving section, a memory, a dialing pad, a microphone, and a speaker."

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"Cells"

"Frames"

"Packets"

The constructions of these terms are somewhat interdependent, so the Court finds it useful to discuss them together. Alcatel's proposed construction for "cells" is "data formatted in accordance with ATM standards." Cisco's proposed construction for "cells" is "fixed length packets/frames." Alcatel's proposed construction for "frames" is "data formatted in accordance with the frame relay standards." Cisco's proposed construction for "frames" is "formatted set of data, not limited to frame relay." Alcatel's proposed construction for "packets" is "cells of data formatted in accordance with the ATM standards." Cisco's proposed construction for "packets" is "formatted set of data, not limited to ATM."

Alcatel argues, supported by testimony from its expert, that the term "cells" have an ordinary and common meaning to persons skilled in the art, which is data formatted according to the ATM standards. See Lucantoni ’032 Decl., at P 45. In the specification, the term "cells" is also defined in accordance with this construction. In particular, the patent states, "ATM networks are cell switching networks that transfer fixed length packets or 'cells' in a time multiplexed manner . . . ." Valizadeh, at 1:15-16; see also Valizadeh, at 1:45-48.

Cisco does not point to any place in the specification where the term "cells" is used in a context other than an ATM network. Nevertheless, Cisco's puts forth two arguments to refute Alcatel's proposed construction. First, Cisco claims that because the term "cells" is not explicitly referred to in connection with an ATM network in claim 12, as opposed to claims 3, 9, 13, and 17, which clearly refer to an ATM network in the same context as the term cells, then "cells" was not intended to be limited to data formatted only in accordance with the ATM protocol. However, if, as Alcatel argues, "cells" has an ordinary and accustomed meaning to one of ordinary skill in the art as referring only to ATM networks, then simply omitting the phrase ATM network in claim 12 does not amount to an explicit intention by the inventor to define cells in a different manner. See, e.g., Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 21 n.5 (Fed. Cir. 2000) (in order for a patentee to define terms in a way that differs from the common understanding of those skilled in the art, "a patentee must deliberately and
clearly point out how these terms differ from the conventional understanding”). Nonetheless, Cisco's expert, once again in direct contrast to Alcatel's expert, claims that "[o]ne of ordinary skill in the art would understand from this that the term 'cells' alone refers to a set of data formatted for some form of network, but not only for an ATM network." Acampora '032 Report, at 9.

In looking at the dictionary definition of the term to resolve this dispute, the relevant definition of "cell" is described as follows: "A packet with fixed length. Notes: 1. Each cell has a 5 octet header and 48 octets of data. 2. This definition is specific to asynchronous transfer mode (ATM). See also: asynchronous transfer mode; cell relay." IEEE Dictionary, at 141 (6th ed. 1996) (emphasis added). 14 Therefore, in accordance with this definition, as well as the description of the term "cell" in the patent specification, the Court acknowledges that the common understanding of "cells" to one of ordinary skill in the art is specific to an ATM network. Furthermore, the patent does not indicate an intention to define this term differently from its customary meaning. Therefore, the Court construes the term "cells" in the '032 patent claims as "fixed length packets 15 formatted in accordance with ATM standards."

14 See Alcatel's '032 Responsive Brief, Ex. A.

15 As discussed further below, the Court construes "packets" as "formatted set of data."

Unlike the term "cells," the terms "frames" and "packets" are not ordinarily limited to one particular type of network. See Acampora '032 Report, at 7-8; Lucantoni '032 Decl., at PP 42, 47; IEEE Dictionary, at 428, 740 (6th ed. 1996).

Nevertheless, Alcatel argues that in the context of this patent, "frames" are limited to data formatted in accordance with the frame relay standards, and "packets" are limited to data formatted in accordance with the ATM standards.

The term "frames" is used in claims 3, 5, 6, 7, 9, 10, 12, 13, and 17. Claims 3, 12, 13, and 17 specifically refer to frames "according to a frame relay protocol," whereas the remaining claims using the term "frames" make no such reference. Therefore, this would imply that when the claims intend to limit the term "frames" to being "in accordance with the frame relay protocol," it is explicitly stated.

As before, Alcatel argues that despite the varying use of language among the claims, the term "frames" is always used in the specification as relating to a frame relay network. Since, according to Alcatel, the patent only involves ATM networks or frame relay networks, whenever the patent is using the term "frames" it is referring to data operating according to the frame relay standards. See Lucantoni '032 Decl., at P 42. Such construction is supported by the examples used in the preferred embodiment. See, e.g., Valizadeh, at 3:11-13, 3:61-65. However, were the Court to adopt Alcatel's proposed construction of "frames," it would be limiting the claim term solely based on the examples given in the preferred embodiment, which is inappropriate in this instance. See Rhine, 183 F.3d at 1346; Electro Med., 34 F.3d at 1054. Furthermore, as Cisco points out, there are parts of the specification where the term "frames" is used without necessarily referring to a frame relay network. See Valizadeh, at 1:45-65, 2:12-16, 2:25-27.

Therefore, the Court construes the term "frames" as "formatted set of data."

With regard to "packets," both parties agree that the customary use of the term does not refer only to ATM networks. 16 However, Alcatel argues that the term, as it is used in the claim, is only referring to data formatted according to ATM standards.

16 According to the IEEE Dictionary, "packet" is defined as "a unit of data of some finite-size that is transmitted as a unit." Id. at 740 (6th ed. 1996).
The term "packets" is found only in claim 6, and is used in the following manner: "a receive processor to assemble packets received from a plurality of receive channels of the network into frames, each frame being assembled based upon a respective set of the packets." Valizadeh, at 6:45-48. Nowhere in the text of claim 6 does it require that the packets come from an ATM network.

Alcatel argues, in similar fashion to its previous arguments, that the patent discloses only one type of common-carrier network, an ATM network, and thus when packets are referenced in claim 6, they must come from an ATM network. Furthermore, in the background section of the patent, the language could be read to imply that packets are synonymous with cells, as the term is used in this patent. Specifically, the patent states: "ATM networks are cell switching networks that transfer fixed length packets or 'cells' in a time multiplexed manner using a plurality of virtual paths ('VPs') and virtual channels ('VCs') defined within the physical transmission medium of the network." Id. at 1:15-20. Alcatel argues that the language "packets or 'cells'" indicates a clear intent to use the word "packets" as the equivalent of "cells," which, as this Court has previously acknowledged, refers only to data formatted in accordance with ATM standards.

Nevertheless, Cisco puts forth a more plausible interpretation that the phrase was simply describing "cells" as "fixed length packets," which would accord with Cisco's proposed definition of the two terms. Moreover, this explanation comports with the definition of "cells" in the IEEE Dictionary as noted above, which is "a packet with fixed length." Id. at 141 (6th ed. 1996).

With nothing more, the intrinsic evidence does not indicate a desire of the patentee to define "packets" more narrowly than its customary definition. 17 That notwithstanding, at first glance, a closer reading of claim 6 creates a problem with Cisco's proposed construction. Cisco argues that both "packets" and "frames" should be construed as "formatted set of data." However, by defining "frames" and "packets" identically, claim 6 effectively reads, "a receive processor to assemble [formatted sets of data] received from a plurality of receive channels of the network into [formatted sets of data], each [formatted set of data] being assembled based upon a respective set of the [formatted sets of data]."

17 Once again, both parties have submitted declarations from their experts that provide conclusory opinions as to what they each believe a person of ordinary skill in the art would interpret the term to mean in the context of the claim. Again, each experts' opinion is in direct contrast with the others, and essentially just restates the respective parties' opinion.

Normally, the Court will not construe a term to have its ordinary or accustomed meaning "where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used." Johnson Worldwide Assoc's., 175 F.3d at 990; see also K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999). Nevertheless, the Court finds that Cisco's proposed construction does not create this result. Claim 6 clearly intends to assemble a set of data formatted in a certain way into a set of data formatted in a different way. "Proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation." Hockerson-Halberstadt, Inc., 183 F.3d at 1374. The term "packets" is used in the claim simply to distinguish that formatted set of data from "frames," which is a set of formatted in a different way from "packets," without requiring either set of data to be formatted in a particular way. This is in contrast to the use of the term "cells" in other claims, which is used to describe a set of data formatted specifically in accordance with ATM standards. Thus, the Court finds that the term "packets" has the same meaning as the term "frames," but the two terms are used in conjunction in claim 6 in order for one of ordinary skill in the art to recognize that the two terms refer to formatted sets of data that are formatted differently from each other.

Therefore, the Court construes the term "packets" as "formatted set of data."

B. The "Center Conductor" of a "Coaxial Cable"

The biased cable apparatus described in Claim 2, and incorporated in claims 3 through 5, describes a "coaxial cable having a
center conductor and a conductive shield." Monster Cable captures the meaning of the reference to the "center conductor" as merely "a material which readily transfers voltage, that is surrounded by a conductive shield." Quest seeks the predictably more restricted construction of "a conductive material that runs through the middle of the coaxial cable, 'is concentric with the outer conductive shield' of the coaxial cable' and carries the voltage varying electrical signal." The parties thus dispute whether the center conductor must be concentric with, or merely enclosed by, a conductive shield, and whether the center conductor must (or merely may) carry a voltage varying electrical signal.

1. Concentricity of the Center Conductor and Conductive Shield

As discussed in the analysis of "coaxial cable" above, the "center conductor" need not be concentric with the outer conductor. "Center" can be read broadly as in the "middle part" rather than representing a point equidistant from all points on the conductive shield. See Webster's Third New International Dictionary 362 (1986) (defining "center" as either "[a] point equidistant from all points on a circumference" or "middle part in contrast to sides, boundaries, outskirts, circumference, or peripheral features"). Other than the reference to this conductor as the "center conductor" and the preferred embodiment of the bias cable apparatus depicted in figure 9, the patent contains nothing that would limit the meaning of "center" to the more narrow definition requiring equidistance. The fact that the inventor chose the term "center conductor" rather than "inner conductor" in some instances does not make the inventor "his or her own lexicographer" of the term "center," as there is no indication that the patentee disclaimed a broader meaning of the word. See Texas Digital, 308 F.3d at 1204 (to interpret terms as inconsistent with their ordinary meaning, the patentee must disavow or disclaim a broader scope of coverage by using words of "manifest exclusion or restriction").

As a matter of law, Monster Cable is entitled to the broader meaning of "center." See NTP, Inc. v. Research in Motion, Ltd., 392 F.3d 1336, 1346 (Fed. Cir. 2004) (holding that "[i]n the absence of an express intent to impart a novel meaning to the claim terms, the words take on the full breadth of the ordinary and customary meanings attributed to them by those of ordinary skill in the art"); Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1324 (Fed. Cir. 2004) (holding that where "simultaneously" can mean both "occurring" and "existing" at the same time, the term must be construed to encompass both definitions); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 326 F.3d 1215, 1222-23 (Fed. Cir. 2003) (holding that the term "remote location" could refer not only to locations far apart and distant from one another, but to locations "separate by intervals greater than usual," including two locations within a single room).

"Center conductor" is thus construed on the basis of the clarity of the intrinsic record and the ordinary meaning alone. To capture the concept of the non-equidistant center (i.e., "the middle part in contrast to sides"), this court construes the "center conductor" to be "enclosed by" the conductive shield. 8

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

8 Plaintiff's proffered construction of a center conductor "surrounded by" an outer conductor would confuse rather than illuminate coaxial cables where a helical conductor is involved, such as in the 787 Patent.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

2. Voltage Varying Electrical Signal

The claim terms expressly state that the voltage communicated along the center conductor is a "voltage varying electrical signal." 416 Patent, col. 9, lines 27-28. Based on a reading of the term "coaxial cable" as including at least two conductors, Monster Cable argues that there can be additional center conductors which do not carry the electrical signal. This reading of the patent is foreclosed by the court's construction of coaxial cable, described above, as limited to two conductors. There can be no question that the voltage communicated across the center conductor is a "voltage-varying electrical signal," as this reflects the specific invention claimed by the patentee. Id. Though the patent specifications refer repeatedly to "digital electrical signals" and "digital signals," claims 2 through 5 refer to a "voltage varying electrical signal" as the antecedent for "said electrical signal." See 416 Patent, col. 9, line 28; col. 10, line 2. See also 416 Patent, col. 2, lines 60, 63-4, 66-7; col. 3, line 38. In describing the specifications in figure 9, the patent states that the digital signal "has a voltage that changes with respect to an approximately constant ground reference voltage," i.e., a signal that is "voltage varying." See 416 Patent, col. 7, lines 24-6. In addition, the bias means described in claim 2 and incorporated in claims 3 to 5 refers to "bias voltage being larger than any peak-to-peak voltage of the voltage varying electrical signal." Id., col. 10, lines 15-17.
This reading of the patent is supported by the prosecution history, in which the inventor amended the preamble of what became claim 2. See Teleflex, 299 F.3d at 1326 (holding that the prosecution history can influence claim interpretation). In response to Office Action by the United States Patent and Trademark Office rejecting all of the inventor's claims, the patentee amended the claim for the biased cable apparatus to add the language "voltage varying." Req. for Judicial Notice at MON 7. "The prosecution history gives insight into what the applicant originally claimed as the invention, and often what the applicant gave up in order to meet the Examiner's objections." Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 978 (Fed. Cir. 1999) (quoting Lemelson v. General Mills, Inc., 968 F.2d 1202, 1206 (Fed. Cir. 1992)). By amending his claim to add "voltage varying" in accordance with the Examiner's instructions, the inventor of the 416 Patent gave up his right to claim that his apparatus used any form of "voltage."

Thus, for the reasons stated above, the court construes "center conductor" as "a conductive material which is enclosed by the conductive shield of a coaxial cable and which carries the voltage varying electrical signal."

3. "Central channel." A radio frequency channel assigned to carry control signals to establish, as opposed to maintain, communication connections between the central control station and the mobile units. (554 patent, col. 31, lns. 23-36)

8. "central computer"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>Central computer</td>
<td>A computer capable of communicating, either directly or indirectly, with a local computer and a remote computer</td>
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</table>

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central computer</td>
<td>A computer and software system server that is centrally located</td>
</tr>
</tbody>
</table>

The issues surrounding the construction of this term are similar to the above construction of "local computer." Anthurium intends to include both a direct and indirect aspect, while the defendants seek to impose a geographic limitation. The patent again uses abstract terminology to describe various aspects of the invention. Here, both parties agree that MOM refers to the "central computer." As indicated above, the Court agrees with Anthurium's construction.

Claim 1 clearly indicates communication between the central computer and both the local and remote computers. The specification supports a direct or indirect connection with the local and remote computers. See '998 Patent, col. 1 ll. 46-59, col. 4 ll. 52-65. Furthermore, the specification does not import a geographic limitation on the term. The defendants again make a claim differentiation argument concerning the use of "local," "central," and "remote" to modify computer. Here, as above, the specification simply does not support such a limitation. The defendants, in making their argument, are improperly interpreting the specification. The specification describes the MOM as a more of a hub or nerve center, as Anthurium argues. See id. at col. 4 l. 62-col. 5 l. 6. There is simply no reason to impart an ambiguous geographic limitation upon the term.
The Court defines "central computer" as follows: "A computer capable of communicating, either directly or indirectly, with a local computer and a remote computer."

4. Means-Plus-Function Analysis

In their briefing, the parties agreed that "central computer means" and "remote terminal means" were not means-plus-function elements, while "keypad means," "modem means," "display means," "local memory means," "further memory means," "means coupled to said memory means and to said keypad means," "means responsive to information stored in the further memory means," and "logic means" were means-plus-function elements. The Court questioned how this could be so at the Markman hearing, and the parties analyzed the terms both ways.

Claim 3 includes:

a central computer means in which plural blocks of information are stored at respectively corresponding locations each of which locations is designated by a predetermined address therein by means of which a block can be selected, each of said blocks comprising a first portion containing information for display and a second portion containing information not for display but including the complete address for each of plural other blocks of information . . .

662 patent, col. 6, 11. 15-24.

The use of the word "means" in the claim (particularly as used in the phrase "means for") raises a presumption that the means-plus-function limitation applies. York Prods., Inc., 99 F.3d at 1574; Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1584 (Fed. Cir. 1996). The means-plus-function presumption may be rebutted, however, if the claim uses the word "means" but specifies no corresponding function for the "means," or if the claim recites a function but also includes a definite structure to perform entirely the recited function. Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997); Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996). The Court must determine, as a matter of law, whether to apply the means-plus-function analysis.

Whether there is definite structure recited in the claim language may be evidenced by a lack of alternate structures disclosed in the specification. See Turbocare Division of Demag Delaval Turbomachinery Corp. v. General Electric Co., 264 F.3d 1111, 1120-21 (Fed. Cir. 2001). In Turbocare, the Federal Circuit found that a claim including the term "compressed spring means" recited too much structure to perform the means-plus-function. Id. Nothing in the specification disclosed anything other than a "spring" or a "compressed spring" to perform the function of the "compressed spring means." Id. at 1121. This result differed from the court's prior decision in Unidynamics Corp. v. Automatic Prods. Int'l, Ltd., 157 F.3d 1311, 1319-22 (Fed. Cir. 1988). In that case, the court found that the term "spring means" was written in the means-plus-function format. Id. The Federal Circuit decided that the use of the word "spring" did not preclude the means-plus-function limitation because the specification demonstrated that a "spring" was only one example of a "spring means." Therefore, the Federal Circuit found that the phrase "spring means" was broader than a "spring" as generally recognized in the mechanical arts. See Turbocare, 264 F.3d at 1120 (distinguishing Unidynamics, 157 F.3d 1311).

Accordingly, I find that the "central computer means" is not a means-plus-function claim. The functions of the central computer are stated in the claim language, however, the claim recites the entire structure necessary to perform the claimed function. Sage, 126 F.3d at 1427-28. That structure is a computer.

The function of the central computer means as asserted in the claims is storing blocks of information. The computer also communicates with the remote terminals. The specification discloses a "computer" for performing these functions. The term "computer" is the only structure described in the specification, and there is no indication that the patentee wished the term "computer means" to be broader than a "computer." If the term "computer" does not tell us what the computer is, then the claim would be indefinite. See S3 Inc. v. Nvidia Corp., 259 F.3d 1364, 1367 (Fed. Cir. 2001) (quoting In re Donaldson Co., 16 F.3d 1189, 1195 (Fed. Cir. 1994) ("if an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required . . ."). If possible, patents should be construed in order to preserve their validity. Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1557 (Fed. Cir. 2001)
The Special Master construed the term "a central computing device" to mean "a single server or higher-end machine at the top of the hierarchical relationship which stores, processes and transmits information to and from multiple remote computing devices." (F&R at 32) He viewed the parties' dispute over the meaning of the term "a central computing device" as two-fold and divided his analysis accordingly. First, he said the parties disputed whether or not the term can be read to mean that the central computer is at the top of the hierarchical computer network (XFormity) -or- whether there is no hierarchical relationship between the central and remote computers (B-50). Secondly, he stated the parties disagreed over whether the term "central computer" refers to one (XFormity) or multiple (B-50) computers. These arguments were raised by B-50 in its objections to the Special Master's final report. Both points are addressed below.

1. Hierarchical Relationship

With respect to the first dispute -- whether or not the claim describes a hierarchy between the central and remote computers -- the Special Master relied on the plain meaning of the claim language read in the context of the entire patent and found that the term should be construed to describe a hierarchical relationship between the central computer and the remote computer in which the central computer "is at the top of the hierarchical relationship." (F&R at 21-22) In its objections to the Special Master's report, B-50 opposed this construction, arguing that "there is nothing in the patent claims that requires either the central computing device' or the multiple remote computing devices to be at the top (or, for that matter, at the middle or bottom) of the hierarchy." (B-50's Obj. at 2)

Upon de novo review of this issue, the Court finds the Special Master's construction to be correct and based on sound principles of claim construction. The Special Master explains in his final report that the hierarchical relationship is "required" by the claim language which recites a "central" computer. (F&R at 21) The term "central," he states, "must have some meaning different that adds to the term "computing device[s]."" (Id. at 21-22) The Special Master's conclusion is grounded in solid claim construction practice. Specifically, a court must construe claims to give meaning to all terms of the claim and avoid rendering any claim language mere surplusage. Merck & Co., Inc. v. Teva Pharm., USA, Inc., 395 F.3d 1324, 1364, 1372 (Fed. Cir. 2005); Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004). Thus, to comport with proper claim construction practices, "central" must add some consequence to the term "computing device[s]."

To determine its meaning, the Special Master properly viewed the term "central" in light of the specification. From the specification, he gleaned that "central" connotes more than a "geographic indicator" because the specification indicates that the "central computer" can be moved to any one of the other locations and still be "central." (F&R at 22) The fact that the specification recited that the central computer can be moved and still retain its "central" designation confirmed to the Special Master that "it is at the top of the hierarchical relationship with respect to the other computers." (Id.) The Court agrees with this analysis and conclusion. Claims must be interpreted in view of the specification which can supply understanding of unclear terms. Phillips, 415 F.3d at 1315. The specification "provides context for understanding the meaning of the terms to one of skill in the art at the time of invention." Innovad Inc. v. Microsoft Corp., 260 F.3d 1324, 1332 (Fed. Cir. 2001) Moreover, looking to the specification for guidance on claim terminology comports with long settled claim construction practice which requires that claim terms be construed from the perspective of a person of ordinary skill in the art "in the context of the entire patent" as opposed to "the context of the particular claim in which the disputed term appears." See Phillips, 415 F.3d at 1313.

The Special Master next addressed an argument made by B-50 that the remote and central computing devices "need not be in a hierarchical relationship" because the specification indicates that data transfers occur in a variety of ways. In dismissing this contention, the Special Master referred to the claim language and found that the phraseology "transferring point-of-sale data to a central computing device from multiple computing devices at multiple remote locations" defined "a relationship between at least the central computing device and the other computers" and indicates that "all of the data is transferred . . . to a central computing device." (F&R at 22-23) This claim verbiage, in turn, reinforced his conclusion that the "central
computing device" is at the top of a hierarchical relationship with the remote computers. (F&R at 22-23) The grammatical arrangement of words in a sentence -- the syntax of the claim language -- must be examined to properly interpret a claim term. See Credle v. Bond, 25 F.3d 1566, 1571 (Fed. Cir. 1994). Here, the Special Master correctly relied on the foregoing choice of words describing data being transferred to a central computer from the remote computing devices -- to find that the claim described a hierarchy of computers with the central computer at the top.

In summary, relying primarily on the plain wording of the claims while looking to the specification for context, the Special Master used settled claim construction principles to find that the claim described a hierarchical relationship between the central computer and the remote computers in which the central computer "is at the top of the hierarchical relationship." The Court agrees with and adopts the Special Master's conclusion on the hierarchical relationship between the computers. B-50's objections on this point are accordingly overruled.

2. "A Central Computer"

The parties' second dispute over this term involves whether the Special Master correctly construed "central computing device" to mean one, as opposed to multiple devices. When the Special Master initially apprised the parties of this construction by circulating his draft report, B-50 objected on several grounds. Two of those grounds are included B-50's objections to the Special Master's final report and will be addressed by this Court. First, B-50 complains that the construction of "one" device contradicts the plain language of the specification which expressly states that "embodiments of the invention contemplate multiple central computing devices if needed. . . . " (B-50's Obj. at 2; 851 patent, col. 4 Ins. 51-54) (emphasis added) Second, B-50 contends that the Special Master's singular construction contravenes the general rule that the use of the indefinite article "a" or "an" in patent parlance means "one or more" when -- as in the 851 patent -- used in open-ended claims containing the transitional phrase "comprising." (B-50's Obj. at 3-4 (citing KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000)).

In addressing the foregoing arguments, the Special Master first acknowledged that the specification does conflict with the claim language by disclosing that there can be one or more central computers. But he did not find this contradictory disclosure in the specification determinative of the issue. Rather, he determined that "other parts of the specification, and inherent network theory, suggest this disclosure [in the specification] may be problematic." (F&R at 27 citing to 851 patent at Col. 5) He concluded that the conflicting language "cannot overcome the clear public notice found in the claim and the concession made by B-50 about how to construe the article a' in a related dispute." (Id.) The Court agrees with the Special Master's assessment of the effect of conflict between the statement in the specification and the claim language. Although the specification is a vital part of the intrinsic record, it "should never trump the clear meaning of the claim terms." Pixon, Inc. v. PlaceWare, Inc., 2004 U.S. Dist. LEXIS 15808, No. C 03-02909-SI, 2004 WL 1769024, at * 2(N.D. Cal. Aug. 2, 2004) (citations omitted); see also RF Del, Inc., v. Pacific Keystone Techs., Inc., 326 F.3d 1255, 1265 (Fed Cir. 2003) ("courts may not use the teaching of the specification to contradict the clear language of the claims").

With respect to B-50's second argument that its use of the article "a" or "an" in conjunction with the term "central computing device" necessarily required a construction that the patent claimed multiple central computing devices, the Special Master disagreed. Instead he looked directly to the claim language which he concluded implied only one device. By examining the claims, he determined that the "general rule" regarding the use of "a" or "an," relied on by B-50, was inapplicable in this context because the claim language evinced a "clear intent" to claim only a single "central computing device." (F&R at 24-27) He reasoned that in drafting the claims, B-50 had used the article "a" in several other places in the claims to signify a singular meaning. He referred to method step (b) which addresses "defining a custom report format," method step (c) which recites generating "a custom report," and method step (d) which refers back to "the generated custom report." (F&R at 25) He referred to B-50's briefing which contended that "a custom report" meant only one report. (Id.) (emphasis added) From this and other examples of B-50's use of "a" in both the independent and dependent claims to mean "one" -- as opposed to more than one -- the Special Master found that it was consistent that B-50's use of the term "a" in conjunction with central computing device likewise meant "one."

The Court agrees. His reasoning is based on solid claim construction analysis. When an identical term appears in multiple claims within a patent the term should be interpreted consistently within all claims. See CVI/Beta Ventures, Inc. v. Tura L.P., 112 F.3d 1146, 1159 (Fed. Cir. 1997)("We are obliged to construe the term elasticity' consistently throughout the claims"); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995). The Special Master bolstered his conclusion that "a" meant "one" by pointing out B-50's repeated use of terms that clearly signal "multiple" when referring to more than
one. As examples, he referred to B-50's use of terms in the claims to describe multiple structures such as "multiple computing devices," "one or more formats," and "at least one of the report formats." (F&R at 26) In other words, B-50 knew how to specify multiples when it so chose.

Upon de novo review, the Court finds that the Special Master's construction of a single central computing device is sound and should be adopted. B-50 is correct that the Federal Circuit has held that the use of the indefinite article "a" in conjunction with the word "comprising" creates a presumption that the article means "one or more." But, as noted by the Special Master, the Federal Circuit has also held that this presumption can be overcome when the patentee evinces a clear intent to limit the article to the singular. Scanner Techs. Corp. v. ICOS Vision Sys. Corp., N.V., 365 F.3d 1299, 1304 (Fed. Cir. 2004) (citing KCJ, 223 F.3d at 1356). Further, the Federal Circuit precedent on this issue specifically holds that "a" may suggest "one" but can mean "more than one" depending on the context in which it is used. Elkay Mfg. Co. v. Ebeco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999) (other citations omitted) (emphasis added). The Special Master examined B-50's use of the term "a" within the context of the other claim language, using the method described above, and found the "clear intent" to claim a single computer. The Court agrees with this construction and adopts it as the construction of the Court. B-50's objections as to this point are overruled.

In summary, the Court adopts the Special Master's construction of the term "a central computing device" and construes the term as follows: "a single server or higher-end machine at the top of the hierarchical relationship which stores, processes and transmits information to and from multiple remote computing devices."

III. "conferencing control" / "central control manager"

The phrases "conferencing control" and "central control manager" appear in claim 15 of the '654 patent:

15. A method of conducting a teleconference among a plurality of participants, comprising the steps of:

   (a) initiating a video conference, from one of a plurality of workstations, using a video conferencing control included within each of the plurality of workstations, the video conferencing control establishing communication with a central control manager to set up AV paths along a first network over which the video conference can be conducted;

   (b) capturing video images and spoken audio of the participants for transmission in the form of AV signals over the AV paths during the video conference;

   (c) reproducing the video images and spoken audio on at least one first monitor, positioned near each workstation, from the AV signals received over the AV paths during the video conference;

   (d) initiating a data conference, during the video conference, using a data conferencing control included within each of the plurality of workstations, the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted; and

   (e) sharing data, among the plurality of participants, during the data conference, such that data received over the data paths is displayed on at least one second monitor included within each workstation.

'654 patent at 43:20-44:23. As the two terms are related to each other, the court will construe them together.

A. "conferencing control"

CPI proposes that the phrase "conferencing control" should be construed to mean "video or data conferencing software and/or hardware at a workstation." Tandberg proposes that the phrase should be construed to mean "software executed by the workstation that initiates all collaborative sessions by setting up appropriate services and paths via the central control manager." The parties' constructions differ in two respects. First, Tandberg's construction requires that the conferencing control set up all services and paths via the central control manager. Second, CPI's construction allows the conferencing
control to be made up of hardware and/or software, while Tandberg's construction requires that the control be made up exclusively of software.

The phrase "conferencing control" does not appear anywhere in the specification of the patent. The parties agree, however, that the element in the preferred embodiment corresponding to the conferencing control is the Collaboration Initiator. See Spec. at 18:51-52 ("The central component of the Collaborative Multimedia Workstation software is the Collaboration Initiator 161.").

Tandberg argues that CPI's proposed construction is too vague because it says nothing about what the conferencing control does. Without some further restriction, "video conferencing software and/or hardware" might encompass any part of the workstation that is involved in a videoconference: the keyboard, the monitor, the camera, the CPU, and the operating system, as well as any special-purpose software or hardware associated exclusively with videoconferencing. CPI's construction is indeed too broad because it fails to account for the claim language. The phrase "conferencing control" has two elements. First, the term relates to "conferencing"—both videoconferencing and data conferencing. Second, the term encompasses the notion of "control." The surrounding claim language indicates that the control, at a minimum, must include setting up video and data conferences. See id. at 43:25-28 ("the videoconferencing control establishing communication with a central control manager to set up AV paths along a first network over which the video conference can be conducted") (emphasis added); id. at 44:5-9 ("the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted") (emphasis added). Moreover, "control" has broader meaning than "initiation"; the conferencing control is used to facilitate as well as initiate calls. See Spec. at 18:35-41 ("[conference control] Software 160 allows the user to initiate and manage (in conjunction with the server software) videoconferencing, data conferencing, multimedia mail and other collaborative sessions."). The court therefore finds that the conferencing control must be able to "control"—i.e., initiate and facilitate video and data conferences.

Tandberg is also correct in arguing that the "conferencing control" must "set[] up appropriate services and paths via the central control manager." The claim language already expressly includes this limitation, however, and adding it to the definition of "conferencing control" would be redundant. See '654 patent at 43:25-28, 44:5-9.

Turning to whether the control may consist of hardware or software, the specification clearly indicates that videoconferencing functionality may be implemented in hardware as well as software. See Spec. at 18:5-8 ("Given the proximity of Side Mount device 850 to the user, and the direct access to audio/video I/O within that device, various additional controls 820 can be provided at the user's touch (all well within the capabilities of those skilled in the art)." The "Side Mount" device is, in the preferred embodiment, a piece of additional hardware which is connected to a desktop computer or workstation. Id. at Fig 18B. Limiting the phrase "conferencing control" to software would exclude this disclosed embodiment, which is disfavored unless the claims present a compelling reason to do so.

Finally, the court notes that the hardware and software comprising the conferencing control must be present at each workstation. '654 patent at 43:23-24.

The court therefore construes the phrase "conferencing control" to mean "hardware and/or software at each workstation which is used to initiate and facilitate videoconferencing, data conferencing, and other collaborative sessions."

B. "central control manager"

CPI argues that the phrase "central control manager" should be construed to mean "software and/or hardware that establishes and manages connections for a video conference." Tandberg argues that the phrase should be construed to mean "A special purpose computer which manages the audio and video switching circuitry, the state of the call, and selectively establishes connections between physical ports on different workstations." The parties' constructions differ in three respects. First, Tandberg's construction requires that the central control manager be a "special purpose computer." Second, Tandberg's construction requires that the control manager manage "audio and video switching circuitry"—a physical AV switch. Third, Tandberg's construction requires that the central control manager establish connections between physical ports on different workstations. The phrase "central control manager" does not appear at any point in the specification. The parties agree, however, that the corresponding element of the preferred embodiment is the Audio Video Network Manager, or AVNM. See Spec. at 18:54-57 ("When the Collaboration Initiator is started, it exchanges initial configuration information with the Audio Video Network Manager (AVNM) 60 (shown in FIG. 3) through Data Network 902.").
1. Special Purpose Computer

The basis of Tandberg's argument that the "central control manager" is a special purpose computer is somewhat unclear. Tandberg notes that the AVNM in the preferred embodiment consists of software running on the MLAN server, and then cites WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1348 (Fed. Cir. 1999) for the proposition that "[a] general purpose computer, or microprocessor, programmed to carry out an algorithm creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software" (internal quotations omitted). In WMS Gaming, the Federal Circuit found that the district court had improperly construed a means-plus-function claim element more broadly than the structure disclosed in the specification. Id. In correcting the district court, the Federal Circuit limited the invention to the disclosed embodiment—a computer programmed to run the claimed algorithm. Id. at 1349 ("the structure disclosed for the 'means for assigning' limitation of claim 1 of the Telnaes patent is a microprocessor programmed to perform the algorithm illustrated in Figure 6.").

CPI does not dispute that, to the extent the central control manager includes software, the software must run on a computer. Indeed, CPI's proposed construction recites as much structure as the construction adopted in WMS Gaming—computer hardware and software configured to perform the steps of establishing and managing connections for a video conference. Labeling such hardware and software a "special purpose computer" does not aid in understanding the claims.

2. Audio and Video Switching Circuitry

As discussed supra in the context of "AV path," the claimed invention is not limited to analog AV networks with physical AV switches. Digital AV signals may be transmitted jointly with the data over a packet-switched network, in which case there is no need for dedicated audio and video switching circuitry. Tandberg's proposed construction is therefore too narrow.

3. Connections Between Physical Ports

For the same reason, the claim does not require that the central control manager establish actual connections between physical ports on two or more workstations. In the case of digital AV signals transmitted over a packet-switched network, Tandberg does not argue that the physical connection to the workstation will change during the course of initiating and connecting a videoconference call. The connection between the workstations is purely logical. Also, as the Polycom court noted, one of the disclosed embodiments allows for a wireless connection to a workstation. See Spec. at 38:49-67. Tandberg's proposed construction is therefore too narrow.

CPI's construction is too broad in two senses, however. First, the central control manager must be able to manage connections for both video and data conferences. '654 patent at 44:5-9 ("the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted").

Second, the control manager must be "central." Tandberg argues that the word "central" requires that the central control manager reside computer which is physically separate from the workstations. CPI counters that the central control manager can be logically distinct and "central"-brokering communications among multiple workstations—without residing on a physically separate machine. The court agrees that nothing in the claim language requires the central control manager to be physically separate, but agrees with CPI's apparent concession that it must be distinct in some way from the conferencing control, which is separately recited in the claim. In addition, claim 15 requires that a single central control manager have the capability of coordination communications among multiple workstations: claim 15 recites a plurality of workstations, each with a conferencing control, but only a single central control manager to set up paths among them. '654 patent at 43:20-28.

The court therefore construes the phrase "central control manager" to mean "hardware and / or software that is distinct from the conferencing control and that is capable of establishing and managing video and data connections for multiple workstations."
f. "Central controller operatively connected"

Claim 1 discloses the following:

A central controller operatively connected to each said communication interface circuit and said surgeon's control panel, said central controller transmitting to said plurality of self-contained pieces of surgical equipment commands entered manually on the surgeon's control panel and transmitting to said surgeon's control panel status of the surgical control heads for display on said displaymeans.

'688 Pat. col.19 l.63-col.20 l.3. Claim 10 makes a similar disclosure. See id. at col.21 ll.4-12. The Parties shifted the focus of their dispute with regard to this term following the Markman hearing.3 They agree that a "central controller" is a "computer," but they contest two other aspects of the term. (See Agreed-Upon Constructions Chart 2-3.) First, whether "a central controller" means one or one or more computers, and second, whether such computer(s) are "operatively connected" or merely "connected" to the communication interface circuits and the surgeon's control panel. (Id.)

3 The Court notes that the Parties have abandoned their dispute with regard to the rest of this term. (See Agreed-Upon Constructions Chart 2.)

The Court adopts KSEA's proposed construction with regard to the number of computers. KSEA correctly states that in open-ended claims containing the transitional phrase "comprising," the general rule is that the singular pronouns "a" and "an" mean "one or more." See Baldwin Graphic Sys., Inc. v. Seibert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (citations omitted). This rule suggests that Claims 1 and 10 disclose one or more "central controllers," which the Parties agree are "computers." S&N has provided no argument in support of its bare assertion in the Agreed-Upon Constructions Chart that the general rule does not apply here.

The Court also finds that the "central controllers" are "operatively connected" to the communication interface circuits and the surgeon's control panel, as the patent clearly expresses. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("While not an absolute rule, all claim terms are presumed to have meaning in a claim." (citing Pickholtz v. Rainbow Techs., Inc., 284 F.3d 1365, 1373 (Fed. Cir. 2002))); (see also Hr'g Tr. 88 (counsel for S&N conceding that "[w]e don't think it really matters between connected or operatively connected."))

The Court construes the "central controller operatively connected" term as disclosing one or more "central controllers," which are construed as "computers." The Court also construes this term as teaching that the "central controllers" are "operatively connected to the communication interface circuits and the surgeon's control panel."
Alliance Gaming Corp., 504 F.3d 1356, 2007 U.S. App. LEXIS 22807 at *9 (Fed. Cir. Sept. 27, 2007) ("In the patent claim context the term 'comprising' is well understood to mean 'including but not limited to.'"). "A" denotes "one or more than one." Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1359 (Fed. Cir. 2005).

Defendants agreed that there could be more than one central data facility. Their request for "a single location" in the construction of this term is merely a way of stating their position that each central data facility needed to perform all three functions (digitizing, compressing, and storing video programs). Tr. at p. 53, l. 21 - p. 54, l. 5.

USVO argues that Time Warner's proposed construction would import limitations from the preferred embodiment into the claim. Figures 1 and 2, which show all three functions at one location, do represent a preferred embodiment. However, both the Summary of the Invention and the Abstract also state that all three steps—digitizing, compressing, and storing—happen at the first location.

The Abstract of the '792 patent states that "program signals are digitized, compressed, and stored at the first location, and transferred to the remote location on request of a viewer." This description is echoed in at least two other places in the specification: first in the Summary of the Invention, col. 2, ll. 7-9 ("The program signals are digitized, compressed, and stored at the first location"); and later in the Description of the Preferred Embodiment, col. 3, ll. 7-16 ("The central data facility 10 includes a central processor 20 connected to one or more mass storage devices 22...The video programs are digitized and compressed in a digitizing processor 26, and transferred to the central processor 20 for retention in mass storage devices 22."). Figures 1 and 2 clearly show that the central data facility encompasses the digitizing processor 26, the central processor 20, and the mass storage device 22.

At the hearing, USVO suggested that this was simply poor wording by the applicant and that Claim 1 states only that the central data facility has "means for storing digital compressed versions of video programs." Tr. at p. 56, ll. 8-10; '792 Patent, col. 7, ll. 43-44. "Poor wording" is not a convincing argument to ignore the plain language of the specification.

While the specification indicates that the central data facility digitizes, compresses, and stores the video program, Claim 1 only recites a central data facility which stores the digitally compressed program. This is part of a "comprising" claim, so the claimed system must have at least "a central data facility" that has "means for storing digital compressed versions of video programs." Time Warner argues that "central data facility" is vague, and must be more than a storage place for videos. The patentee does not have to describe every feature of a facility; this is especially true in the context of a "comprising" claim. It is also possible for a patentee to disclose, but decline to claim, subject matter. "[T]his action dedicates that unclaimed subject matter to the public." Johnson & Johnston Assoc. v. R.E. Serv. Co., 285 F.3d 1046, 1054 (Fed. Cir. 2002).

Claim 1 states only that the central data facility stores programs that are digitized and compressed. There is no good basis for including other limitations. The court will therefore define this term as follows:

"Central data facility" means "a location where digital compressed versions of video programs are stored."
component of a computer. A "central processing computer" would have to contain a central processing device (or unit) and other components as well.

I adopt the following definition: "a device that receives, processes, and presents data by having, interconnected for operation, at least a central processing device and a memory device."

Plaintiffs offer "a device or computer which can perform an operation, action, or function, or a device or computer which can perform more than one operations, actions, or functions [sic]." 3 Given that a computer is a device, plaintiffs' definition seems to reduce to: "a device which can perform one or more operations, actions, or functions." That definition is so broad as to encompass many manufactured items.

Defendants put forward:

a device that receives, processes, and presents data by having, interconnected for operation, a memory device and at least one user input and one user output device and containing the circuits required to interpret and execute instructions.

The language of the claims makes plain that the central processing computer is the computer that collects data from the various point-of-sale devices, banking transaction terminals, customer communications devices, etc. It is the pivot point between the service provider and the account holder, and so is in the middle of -- "central" to -- the apparatus. 4

4 The patent at various times uses the phrase "central transaction processing computer." See, e.g., '725 Patent, Col. 44:67. These two phrases appear to be synonymous.

Neither the description of the invention, nor the claim language, nor the preferred embodiments, nor the prosecution history imposes any limitation on the type or nature of computer that can perform the "central processing computer" function. In fact, the patent places virtually no restrictions on the type of device that the central processing computer could be: "[it] may be a mainframe computer, a mini-computer, a micro-computer, a server computer… and/or any other suitable computer or computer system." '725 Patent, Col. 22:24-29.

Defendants' definition is closer to being correct, but includes some unnecessary limitations. There is no need for a "user input and "user output" (I/O) device on the computer; a server or mainframe computer (which may be a central processing computer according to the patent itself) do not necessarily have components beyond a processor and memory. Of course, for the protocol to work, the central processing computer must be connected to a communications network, but that fact is adequately stated in the claims themselves. Therefore, removing the references to input and output devices, and replacing the phrase "containing the circuits required to interpret and execute instructions" with the phrase "central processing device," I reach the following definition: "device that receives, processes, and presents data by having, interconnected for operation, at least a central processing device and a memory device."

D. "Central Processing Device"

"Central Processing Device" is construed as "That part of a computer containing the circuits required to interpret and execute instructions."
execute instructions."

This definition, propounded by defendants, is found in the McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNOLOGICAL TERMS, 356 (6th ed. 2003). It meets the first rule of patent construction -- that the plain meaning of a term shall be used to define it.

This definition is also consistent with plaintiffs' use of the term throughout the patent. For reasons that are not entirely clear to this Court, plaintiffs use this term interchangeably with the more common "central processing unit" (CPU) and with the term "central processing computer." Indeed, in most instances, plaintiffs use the word "unit" or "computer" rather than "device." For example, the illustrations in Figures 1, 4, 7, and 11 of the '725 patent include "central processing computers." Figure 8 depicts three "CPU's." The "SUMMARY OF THE INVENTION" refers repeatedly to a "central processing computer." '725 patent, col. 3-12. The "DESCRIPTION OF THE PREFERRED EMBODIMENT" section refers repeatedly to various "central processing units" and "central processing computers." Id., col. 12-44. In fact, the first time this Court sees mention of a "central processing device" is in a subsection of the "DESCRIPTION OF THE PREFERRED EMBODIMENT" section describing the patent claims, at column 46, line 12.

In any event, "device" and "unit" strike me as essentially equivalent, and my intuition is borne out by the DICTIONARY OF SCIENTIFIC AND TECHNOLOGICAL TERMS, p. 226, which defines "unit" as, "An assembly or device capable of independent operation, such as a . . . computer subassembly that performs some inclusive operation or function." The interpretation and execution of instructions is most certainly an "inclusive operation or function."

Defendants' proposed definition also comports with the definition of the term "processing" that was stipulated by the parties. Both sides agree that "processing" means "operating on data or information, or to perform a series of actions or operations directed toward a particular result." A processing "device" is, therefore, something that accomplishes "processing" as defined by the parties. In a computer, that device is the "central processing unit."

Defendants' effort to further limit the definition by suggesting that the word "central," as used in the phrases, "central processing device" or "CPU," is somehow analogous to the word's use in the phrase "central computer means" that was the subject of discussion in British Telecomms. PLC v. Prodigy Commun's. Corp., 189 F. Supp. 2d 101, 112-13 (S.D.N.Y. 2002), is misplaced. First, that case involved a "means plus function" claim, which is manifestly not the case here. Second, nothing whatever in the specifications suggests the existence of some central computer or bank of computers, as was the case in British Telecom.

Plaintiffs' effort to broaden the definition beyond the one proposed by defendants is equally misguided. "Something that processes something" defines nothing. In connection with this Markman proceeding, I have processed a great deal of information. That does not mean that the term "central processing device" as used in the '725 patent could be read onto my brain.

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2. "central processing location"

Claim 14 claims the following step:

transmitting compressed, digitized data representing a complete copy of at least one item of audio/video information at a non-real time rate from a central processing location

The parties dispute the proper construction of the phrase "central processing location" as that phrase is used in Claim 14 of the '863 patent. The phrase "central processing location" is used in the claim but it is not used elsewhere in the specification.

Courts may give a definition to a phrase which is only used in a claim if: a) the individual words in the phrase have well-recognized meanings to those skilled in the relevant art; and b) the court is able to discern a definition which the court, with reasonable confidence, finds would be understood by one skilled in the art based on the language of the claim and the other intrinsic evidence. See Bancorp Services v. Hartford Life Insurance Co., 359 F.3d 1367, 1372 (Fed. Cir. 2004).
To determine what "central processing location" means to those skilled in the relevant art, the Court turns to a standard dictionary prepared by the Institute of Electrical and Electronics Engineers ("IEEE"). The IEEE defines "centralized computer network" as: 1) a computer network configuration in which a central node provides computing power, control or other services; and 2) A computer network in which a central node provides all network control functions and services to other nodes. IEEE 100: Authoritative Dictionary of IEEE Standard Terms, 154 (7th ed. 2000).

Thus, it is reasonable to characterize that in the field of data communications, the phrase "central processing" is generally understood by skilled artisans as a computer network configuration in which a single system at the hub distributes data to multiple peripheral dependent systems belonging to the network. In contrast, a system in which "processing" is distributed over multiple locations, would be understood by skilled artisans as a "decentralized system." Id. The term "central" does not refer to any particular geographic location. It refers to a functional location.

The step of Claim 14 under consideration discloses "transmitting" from a central processing location. Claim 14, contains specific limitations governing this transmitting step. These limitations are introduced using the transitional phrase "wherein the transmitting step comprises." The transmitting step is then prescribed as, among other limitations, inputting an item having information into "the transmission system," followed by "sending" the information to the local distribution system." The Court finds that the phrase "transmission system" as used in Claim 14 is the "transmission system" which the Court previously defined in its December 14 Order. (December 14 Order at Section IA3.) Accordingly, the "central processing location" is a limitation which defines the functional location of the "transmission system."

The Court construes the phrase "central procession location" as follows:

- a single transmission system, as previously defined, from which compressed, digitized data, representing a complete copy of the at least one item of audio/video information, is transmitted at a non-real time rate to at least one of a multiple of local distribution systems.

1. Central Processing Means

The meaning and validity of the phrase "central processing means" in claim 14 is a matter of debate between the parties. Lutron contends that "central processing means" is a means plus function limitation, but argues that the specification does not name the structure required to perform the specified functions, thus rendering claim 14 invalid. Genlyte argues that the phrase is not a means plus function limitation, and that even if it is, the specification clearly links structure to perform the stated function.

As stated above, if an element of a claim uses the word "means," a presumption arises that the language is a means plus function limitation. A party may rebut the presumption by showing that the claim either mentions no function to be performed by the means or recites sufficiently definite structure for performing the desired function. See Rodime PLC v. Seagate Technology, Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999). The language of the "central processing means" element of claim 14 states that the function to be performed by the "central processing means" element is "controlling directly the light intensity of the associated lights in the room." Therefore, the question this Court must answer is whether "central processing means" recites sufficiently definite structure to avoid invoking a means plus function limitation.

As an initial matter, it is noted that simply because the phrase "central processing means" was found to be a means plus function limitation in claim 6, the Court is not bound to reach the same conclusion here. As the Federal Circuit stated in Cole, the Court must determine on an element by element basis whether § 112, P6 applies. See Cole, 102 F.3d at 531. Therefore, merely because "central processing means" is a means plus function element in claim 6, that does not necessarily mean that the same is true in claim 14.

As stated above, when construing the meaning of a disputed claim, the Court must analyze the intrinsic evidence, which includes the claims, the specification, and the prosecution history. Whether a claim recites definite structure may be evidenced by a lack of alternate structure disclosed in the specification. See British Telecomms. PLC v. Prodigy

In this case, the specification recites no alternate structure for performing the stated function of controlling directly the light intensity of the associated lights in the room, and Lutron contends that because the phrase is presented as "central processing," and not "central processor," the phrase describes function, not structure. However, the intrinsic evidence does indicate that "central processing means" recites sufficiently definite structure.

If one skilled in the relevant art would understand "central processing means" to be a central processing unit, then sufficiently definite structure exists to avoid implication of § 112, P6. The U.S. PTO rejected the application of the '731 patent several times for indefiniteness. However, despite studying claim 14 in detail, the U.S. PTO never rejected the patent for indefiniteness in using "central processing means" in the language of claim 14. While this does not end all questioning of the structure of "central processing means," the prosecution history is relevant as intrinsic evidence that "central processing means" is not indefinite.

Additionally, at col. 3, ll. 11, the specification referred to the central processing unit 42 of the microcontroller 44 contained in the multi-room controller 12 as "central processing means." While the specification does not refer to the individual light control 10 which is the subject of claim 14, the phrase "central processing means" appears to be synonymous with central processing unit 42.

Perhaps even more telling is the fact that in its First Amended Answer and Counterclaims, Lutron acknowledges that the individual light control of claim 14 contained "central processors" for directly controlling the light intensity of associated lights in a room. In making its counterclaims against Genlyte, Lutron describes prior art which Lutron claims Genlyte failed to disclose to the U.S. PTO, and alleges that the Lightolier "Lytemode" System and the Lightolier "Scenist" System contained several features in common with the claimed elements of the '731 patent, including "central processors in the individual light controls for directly controlling the light intensity of associated lights in the room." Therefore, even Lutron acknowledges that "central processing means" recites sufficiently definite structure for performing the function of directly controlling the light intensity of associated lights in the room.

Accordingly, the "central processing means" element of claim 14 does not invoke § 112, P6, as one skilled in the relevant art would understand "central processing means" to be "a central processing unit." Thus, "central processing means" is construed to be "a central processing unit."
a. **"central processing unit"**

The first term for construction is "central processing unit." The plaintiffs propose "an electronic circuit that controls the interpretation and execution of programmed instructions." The defendants propose "the central electronic circuit in a computer that controls the interpretation and execution of programmed instructions." There are two main disputes - 1) whether the circuit needs to be in a computer and 2) whether the circuit needs to be the "central electronic circuit."

In support of their construction, the plaintiffs argue that the specification teaches that the microprocessor can be used in applications other than a computer (e.g., HDTV and automobiles). ’336 patent, 9:61-10:12. The plaintiffs also observe that the specification states that the microprocessor can be part of a multiprocessor system and, therefore, no one CPU is the "central electronic circuit" for the computer. See ’336 patent, 11:64-12:4. The defendants, on the other hand, argue that they did not intend to limit the use of the CPU to a computer. They assert, however, that a CPU must be part of a computer chip.

The parties appear to agree that one of ordinary skill in the art would understand that a computer chip or other integrated circuit can be used in various devices, such as automobiles or televisions. The Court construes the term to mean "an electronic circuit on an integrated circuit that controls the interpretation and execution of programmed instructions."

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1. Central Processing Unit

The parties do not disagree as to the meaning of the term "central processing unit" in Claims 1, 8, and 13. The term "central processing unit" is construed to mean a key component of a computer, which contains circuitry to interpret and execute program instructions.

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Disputed Claim Language

"A central processor section … for determining a range to said target derived from said flight time of said laser pulses to said target and said flight time of said reflected laser pulses from said target."

Analysis

Defendants contend the elements of the central processor section are not specified, nor is any microprocessor, algorithm or the like specified in the claim. I agree. Because the term "central processor section" is unclear, I look for meaning in the specification. It describes a microcomputer that places flight times of received laser pulses in a "stack," and compares successively received pulses to those already in the stack. '910 patent, col. 17, lines 3-20. Each place in the "stack" must represent a flight time, so when a relatively large number of pulses occupy one "slot" in the "stack," that "slot" represents the flight time indicative of the distance to the target.

Plaintiff argues that in the preferred embodiment for the central processor section, "the processor compares time-of-flight information stored in memory to locate the time-of-flight information that occurs with the greatest frequency, and uses these signals to determine a range to the target." '910 patent, col. 17, line 3 - col. 18, line 30. I also agree with Plaintiff. Plaintiff's description is general while Defendants' description focuses on the specifics of the "stack" mechanism. In the end, both parties describe the same process.

I construe the disputed claim language in the general sense that Plaintiff uses to describe the preferred embodiment of the disputed claim. As stated above, while Defendants may overcome the heavy presumption that the claim terms embody their ordinary meaning and attempt to narrow the meaning of the terms, they "cannot do so simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history." CCS Fitness, Inc., 288 F.3d at 1366. Here, Defendants point to the preferred embodiment of the '910 patent specification to impermissibly narrow the
meaning of the claim to include the stacking mechanism. But "limitations from the specification are not to be read into the claims." Comark, 156 F.3d at 1186. "While ... claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims." Id. Therefore, I decline to incorporate the specification language that describes the stacking mechanism into the disputed language of Claim 8.

CONSTRUCTION: A processor compares time-of-flight information stored in memory to locate the times-of-flight that occur with the greatest frequency, and uses the most frequent times-of-flight to determine a range to the target. Neither a specific microcomputer nor anything that puts received laser pulses in a "stack" is required.

2. "central server"

Southwest argues that the term means "an electronic device capable of organizing and manipulating data located at headquarters," whereas 3T argues that the term means "in a network, a device or computer system that is dedicated to controlling or directing a processing station." Thus, Southwest proposes a construction for the term "central server" that is similar to its proposed constructions for the terms "controller" and "data processing system" in the '405 patent. Southwest bases its argument on the following phrase: "As may be seen, data processing system 10 may include data processing system 12 which may also be referred to as central server 12. Data processing system or central server 12..." '673 patent, 8:2-5. Thus, Southwest argues that the specification equates the terms "data processing system" and "central server" with the only difference being that the "central server" is located at headquarters.

3T argues that the plain and ordinary meaning of the term "server" is narrower than the terms "processing station" or "processing system." 3T bases its proposed construction on the dictionary definition of "server." See IEEE Standard Dictionary of Electrical and Electronic Terms, pp. 972-73 (6th ed. 1996) (server: "in a network, a device or computer system that is dedicated to providing specific facilities to other devices attached to the computer network"). 3T argues that the specification's use of the term is consistent with its plain and ordinary meaning. For example, in the Summary of the Invention, the patentee describes the role of the central server in creating site specific coupons. See '673 patent, 3:57-67. Further, the central server "tells the remote processing which generalized coupon templates and which site specific information files should be downloaded by that specific site." Id. at 3:65-67.

The Court finds that, similar to the rationale set above in the '405 patent on terms relating to data processing system, the patentee used different terms in claiming its invention to give different scopes to its claimed invention. The term "central server" was intended to mean something different than other related terms, such as data processing system, and the Court finds that these different terms should be given different meanings. See Innova/Pure Water, 381 F.3d at 1119. Southwest's proposed construction eliminates the meaning of the term "server" by essentially equating its construction to the terms "controller," "data processing system," central processing station," and "central processing system." The Court also finds that the term "server" is narrower than the terms "processing station" or "processing system," and is narrower than Southwest's proposed construction. Further, the Court finds that the "central server" as used in the specification and claims is connected via a network to each of the plurality of remote sites. See '673 patent, 3:59-67, 6:23-28, 8:2-7, 8:31-34. Thus, consistent with the specification and the term's generally understood meaning, the Court construes the term "central server" to mean "a computer system that is dedicated to communicating over a network with the processing station at each of the plurality of remote sites."
WeddingChannel argues that a central server is a computer system that provides services to other computers on a network. In contrast, the Knot takes the position that a central server is a computer unit that provides such services.

WeddingChannel argues that a person of ordinary skill in the art understands: (1) that a "server" is a computer system (i.e., a combination of hardware and software) (Adler Ex. F; Ligler Decl. P 29), and (2) that a server can be configured as a single computer unit standing alone or as multiple computer units working together. (Ligler Decl. P 31).

WeddingChannel argues that its interpretation is supported by the language of claim 1, which describes the central server as comprising a CPU, memory (i.e., hardware), and various instructions (i.e., software). It should be noted that the language of claim 1 does not impose any limitation concerning the physical configuration of the central server.

WeddingChannel argues that its interpretation is further supported by the language of claim 35, which claims a "computer system" comprising a central processing unit, a memory, and various instructions. WeddingChannel asserts that these claim 35 elements are largely identical to those characterized as a "server" in claim 1. On this basis, WeddingChannel concludes that server is a computer system.

The Knot argues that WeddingChannel's construction of the term "server" ignores the fact that the preamble to claim 1 already recites "a computer system," and that WeddingChannel's construction leads to the allegedly impermissible circular result that the computer system described in the preamble is comprised of two computer systems --i.e., the remote server and the central server. See Harris Corp. v. IXYS Corp., 114 F.3d 1149, 1152 (Fed. Cir. 1997) (rejecting a proposed construction on the grounds that it was circular). In support of this interpretation, the Knot points out that the '753 specification only describes and shows a single computer as the server having the elements recited in claim 1, and it specifically states that such server has a "standard computer configuration." Furthermore, the Knot argues that Figure 1 illustrates a single computer with multiple CPUs; the illustration does not suggest that a given server can be comprised of more than one computer unit.

The Knot also argues that if the inventors intended the claimed central server to be a "computer system," they would have specified as much, as evidenced by the use of the term "computer system" in the preamble of claims 1, 5, and 35. See '753 Pat. at col. 11, l. 39, col. 12, l. 7, col. 14, l. 63. Likewise, in new claims 109, 111, and 126 of the '540 continuation application, WeddingChannel apparently used "computer" when it wanted to indicate an individual unit and "computer system" when it wanted to indicate a combination of such computer units. (Qualey 2d Supp. Decl. Ex. 21 at LO002091-2092, LO002094).

In its reply to the Knot's supplemental brief on claim construction, WeddingChannel argues that none of the '540 continuation claims say or suggest that a server is not a type of computer system. Rather, these continuation claims merely reflect the fact the term "computer system" is a broader term than "server," and not every computer system is necessarily a server.
The submissions of the parties demonstrate that the word "server" as used in the claim is ambiguous - i.e., it could be read to mean that a server is a "computer system" or to mean that a server is a single computer unit. Under such circumstances, it is particularly appropriate to consult extrinsic sources. See, e.g., DeMarini, 239 F.3d at 1323. The extrinsic evidence proffered by WeddingChannel resolves this ambiguity. First, Dr. Ligler states that persons of ordinary skill in the art understand that a "server" is a "computer system." (Ligler Decl. P 29.) Furthermore, WeddingChannel has provided an excerpt from the Random House Webster's Computer & Internet Dictionary 3d ed., which states that a "computer system" is merely a "complete, working computer." (Adler Decl. Ex. F.) This dictionary definition suggests that the Knot's distinction between a single, physically integrated computer unit and a computer system consisting of spatially separate components is not one that would be recognized by one of ordinary skill in the art. On the basis of this extrinsic evidence, WeddingChannel's construction of the term "central server" is adopted.

C. "Central Station"

<table>
<thead>
<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more computers or other data processing devices operated together in order to deliver video on demand service to a user site.</td>
<td>A station in a single location, remote from the user site, where video products (such as movies and video games) and date used to limit viewing of the video products are stored.</td>
</tr>
</tbody>
</table>

The core dispute between the parties is whether the "central station" must be situated in a "single location" (Defendant's position) or not (Plaintiff's position).

In support of its construction, Plaintiffs relies largely on the fact that the specification, in describing the prior art, incorporates by reference the '387 patent, which, according to Plaintiff, shows a "central data station" that includes both a "host computer" and "memory modules" that are each distinct data transmission sources. (D.I. 64 at 6.) The specification of the patent-in-suit further describes the '387 patent as including a "host computer" that transmits data "in conjunction with other electronics." ('402 patent at 1:31-35.) Finally, Plaintiff notes that the specification of the '402 patent describes the data link connecting the "central station" and "user site" as possibly being a fiber optic link, publically switched link, telephone link, satellite wireless link, or cable television link, which one of skill in the art would allegedly recognize as being geographically distributed. (See D.I. 64 at 6.) In light of these disclosures, Plaintiff contends that the specification confirms that the central station can include one or more devices and that "there is no geographical restriction in connection with central station." (See D.I. 69 at 6:9-7:10.) Rather, what is important, Plaintiff contends, is that the components of the "central station" possess some level of "logical connectivity" so that they may "work together." (See D.I. 69 at 12:8-19.)

Defendant responds, first, that the specification only appears to disclose an embodiment in which the central station is at a single location. For instance, according to Defendant, by explaining that the "time limit" "can be encoded at the central station," the specification confirms that the limiting data and video product are stored at the same location. (See D.I. 63 at 15-16.) Likewise, according to Defendant, both figures in the patent show the "central station" as being at only a single location and only one transmission path from the "central station" to the "user site." (Id. at 16; D.I. 69 at 46:6-17.) Though pointing to this evidence in the specification, Defendant's principal argument on this claim term appears to be that its proposed construction follows from its construction for the "data stream" terms, which, as explained above, is well supported by the prosecution history. (See supra Part II.A.) Briefly, Defendant contends that "if the video product and limiting data are transmitted together as part of the same data stream, then they must be transmitted from the single location." (D.I. 63 at 16.)

After reviewing the specification and the parties' arguments on this term, the Court concludes that the specification simply
dispute that "predesignated site" meant "to designate beforehand the original or fixed position of a thing." Id. at 811. The system operated over the internet and allowed consumers to print coupons on their home computers. Id. The parties did not contained the phrase "a system for controlling the selection and dispensing of product coupons at a plurality of remote Catalina, the plaintiff had patented a selection and distribution system for discount coupons. Id. at 805. One of the claims Blank relies heavily on Catalina Mkt. Int'l v. Coolsavings, 289 F.3d 801 (Fed. Cir. 2002), in making its argument. In to the metered account will be determined before the account is credited with a dollar amount. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed. Cir. 1995). According to Blank, common sense dictates that any balance credited and the claim should not be read in such a way as to render claim language superfluous. See Exxon Chem. Patents, Inc. v. assignments to the card "during the manufacturing process prior to shipment." In fact, the specification provides for the assignment to the card "during the manufacturing process prior to shipment." WEBSTER’S at 926. Although both parties agree that the correct meaning is "determine beforehand," they disagree as to how far beforehand the certain balance must be determined. Blank proposes that "a certain predetermined balance" should be construed to mean "a value given to a card during the manufacturing process prior to shipment to retailers." (Def.’s Markman Memo. at 18.) Fiala would interpret "a certain predetermined balance" to mean "crediting the metered account with a balance that is fixed and stated prior to crediting of the metered account." (Pl.’s Markman Brief at 30).

The specification conflicts with Blank's proposed meaning. Nothing in the specification indicates that a value must be assigned to the card "during the manufacturing process prior to shipment." In fact, the specification provides for the opposite. "The metered account may have been credited with a certain predetermined balance when the metered account was entered into the digital computer [prior to shipping], but, if not, the digital computer will … credit the metered account with a certain predetermined balance [when the card is activated by the store clerk at the time of purchase]." U.S. Patent No. 5,918,909, Column 20:1-5. The specification supports Fiala's construction and permits giving the card value either before shipment or at the time of activation.

Blank, however, argues that the claim language supports its construction. Blank contends that adopting Fiala's proposed construction of the phrase would render claim language superfluous. Every word in the claim is presumed to add meaning, and the claim should not be read in such a way as to render claim language superfluous. See Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed. Cir. 1995). According to Blank, common sense dictates that any balance credited to the metered account will be determined before the account is credited with a dollar amount.

Blank relies heavily on Catalina Mkt. Int'l v. Coolsavings, 289 F.3d 801 (Fed. Cir. 2002), in making its argument. In Catalina, the plaintiff had patented a selection and distribution system for discount coupons. Id. at 805. One of the claims contained the phrase "a system for controlling the selection and dispensing of product coupons at a plurality of remote terminals located at predesignated sites such as consumer stores." Id. at 806. The accused infringer's coupon distribution system operated over the internet and allowed consumers to print coupons on their home computers. Id. The parties did not dispute that "predesignated site" meant "to designate beforehand the original or fixed position of a thing." Id. at 811. The
patent owner, however, argued that the phrase "predesignated site[s]" encompassed Coolsavings.com's system because it predesignated the consumer's computer as the site at which the coupons would be dispensed prior to the actual printing of the coupons. Id. The Federal Circuit held that this argument ignored "the physical dimension indicated by the phrase 'located at' immediately preceding 'predesignated sites'" and that "recognition simply does not amount to predesignation." Id. The court held that "the phrase 'located at predesignated sites such as consumer stores' requires designation of the physical site of the terminal before location of the terminal at a point of sale location." Id. at 811-12.

Fiala's proposed definition, however, would not ignore any of the claim language or any of the necessary implications of that language. Unlike Catalina, there is no additional language with which the court must concern itself other than "a certain predetermined balance" and, thus, no danger that claim language will be rendered superfluous. 1

--- Footnotes ---

1 The court construes "certain" to mean fixed or settled. WEBSTER'S at 222-23. Fiala's proposed definition reflects this definition rather than ignoring it.

--- End Footnotes ---

Claim terms are given their ordinary and customary meaning absent some contrary meaning indicated in the specification or the prosecution history. Johnson Worldwide, 175 F.3d at 990. As discussed above, the specification supports the ordinary meaning of predetermined as determined beforehand. The prosecution history indicates no intent to vary from the ordinary and customary meaning. There is no indication that a person of ordinary skill in the art at the time of invention would have understood predetermined to mean determined before shipping as opposed to determined before the crediting of the account. Nothing supports the imposition of additional limitations not found in the claim language itself. The court, therefore, reads the claim language as supporting Fiala's interpretation rather than Blank's interpretation.

Having considered the claim language, specification and prosecution history, the court construes "a certain predetermined balance" to mean: "crediting the metered account with a balance that is fixed and stated prior to crediting of the metered account." The evidence before the court indicates that a person of ordinary skill in the art would have so defined "a certain predetermined balance" at the time the patent was prosecuted, and this interpretation is consistent with the clear meaning of the claim language.

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C. "Certifying"

The final disputed term is the word "certifying," as used in paragraph (c) of claim 1 of the '954 patent. Plaintiffs assert that "certifying" should be defined in accordance with its plain and ordinary meaning as "confirming formally as true, accurate and genuine." In the context of the '954 patent, then, "certifying" would mean applying a verifiable digital cryptographic signature to show receipt by the outside agency. Defendants argue that "certifying" should be interpreted as meaning "to establish incontrovertibly (i) the identity of the party providing the receipt and (ii) that the contents of the receipt, particularly the time indication, are correct and have not been falsified." The short answer to defendant's contention is that claim 1 itself indicates that the "certifying" of the receipt is done "by means of a digital cryptographic signature scheme." 17 Thus, the plain language of claim 1 and the patent specification define the meaning of "certifying" without ambiguity as simply meaning applying a verifiable digital cryptographic signature to the time-stamp receipt to show that it was prepared by the outside agency.

--- Footnotes ---

17 See U.S. Pat. No. 34.954, col. 8, ll. 62-64.

--- End Footnotes ---

Moreover, it is clear that "certifying" as used in claim 1 does not indicate that the time in the receipt is correct because such
an indication cannot be done by means of a "verifiable digital cryptographic signature." It is apparent from the preceding discussion of "verifiable" that the application of the "verifiable digital cryptographic signature" only provides proof (i) of the identity of the time-stamping agency and (ii) that the document has not been altered since the application of the time-stamp. The specification explains that the proof of the veracity of the time-stamp itself relies upon an additional aspect of the invention, namely the receipt-linking method, in which the time-stamping agency adds data from adjacent receipts to the document's time-stamp to prove the veracity of the time-stamp. Claims 1-4 do not recite the elements of the receipt-linking method; those are recited in claim 14. Any attempt to read a requirement of proof of the veracity of the time in the receipt from claim 14 into claim 1 is improper. See Environmental Designs, 713 F.2d at 699. Accordingly, the term certifying as used in claim 1 does not include proof of the veracity of the time in the receipt.

III. Conclusion

In summary, the Court construes the disputed elements of claim 1 of the '954 patent in the following way. "Outside agency" is defined as "some entity or something other than the originator of the digital document to be time-stamped." "Verifiable" as used in "verifiable digital cryptographic signature" is defined in accordance with its plain and ordinary meaning as "possible to prove the truth of with evidence or testimony." In the context of the '954 patent, a "verifiable digital cryptographic signature" means the provision of significant evidence of the identity of the agency that applied the digital signature. Finally, "certifying" is defined in accordance with its plain and ordinary meaning as "confirming formally as true, accurate and genuine." In the context of the '954 patent, "certifying" means applying a verifiable digital cryptographic signature to show receipt by the outside agency. "Certifying" does not include confirmation of the truth or accuracy of the time in the receipt. An appropriate order has issued.

3. "change in membership status"

EMC asks the Court to construe this term as either: "change in membership status" or "a change in status resulting from an act affecting the member, such as the member being removed from the set." HP proposes (in its opposition brief): "Exclusion of a physical mass storage device from a logical set of mass storage devices (and, in certain circumstances, the writing of data onto the remaining physical mass storage devices in the logical set)."

The claim language indicates that when there is a change in membership status, "other ones of said plurality of mass storage devices that remain members of said logical set" are assigned new membership signatures and the set is assigned a new substantially matching global identifier. The specification states that "[w]hen a member of the set undergoes a change in membership status the [sic] (e.g., removal of a physical mass storage device), a new membership signature is assigned to each remaining physical mass storage device in the set." 497:2/45-49. Thus, removal is only one possibility of status change. Indeed, the written description states: "whenever any event occurs to change the membership of any of the drives in the set . . . ." 497:2/23-26 (emphasis added). Removal or addition of a storage device occurs in the preferred embodiment. Finally, dependent claim 2 limits the change in membership status to "the removal of said member from said logical set." Importing that limitation into independent claim 1 would render claim 2 superfluous. The Court therefore will not import "exclusion of a storage device" into the construction of this term. Similarly, there is nothing in the claim that requires writing data onto or updating the membership of the remaining physical mass storage devices in the logical set.

Accordingly, the Court construes "change in membership" as "a change in status resulting from an act affecting a member of the set, such as a member being added or removed from the set."

"for changing the flow"
Claims 7, 13, and 15 of the '057 patent and claims 4, 11, and 13 of the '362 patent contain the term "for changing the flow of said data collection applications." The parties point to the same portion of the specification to support their suggested definitions:

1.6 Logical Flow of Applications

The logical flow of your application is controlled by a parameter common to each answer field: the Go To parameter. This parameter determines the next question to be asked in the application. Each question is also assigned a Sequence Number used by the GoTo parameter. In the example of FIG. 1.1 above, question 1's GoTo parameter would be simply "Next Question." Question 2's GoTo parameter, being the final question of this short application, would be "End Program."

'057 Patent at 19:64-20:6. The above quoted language describes how "flow" is controlled by a "parameter" that determines the "next question." Typhoon suggests that the definition of "for changing the flow" is "for changing the logical order of inquiries." However, as the above quoted language clearly demonstrates, the "logical order" of questions is only altered in response to the user's answer to the previous inquiry. Further, the specification suggests a process where a change in "logical order" extends to the "next question." Thus, Typhoon's general definition including the term "logical order" is overly broad. The specification describes a specific question-by-question process whereby a change in answer to a current question may result in a different subsequent question. See id. at 19:51-54 ("Consequential libraries . . . hold lists of answers and can affect the flow of the application. That is, the next questions asked are dependant upon the previous answer selected.") Therefore, Defendants' proposed construction correctly identifies the scope of "flow." Accordingly, "for changing the flow of said data collection application" is defined as "changing the next question presented from the data collection application depending on the response to the previous question."

C. Changing a [the] Hardware Configuration (Claims 1, 9, 10, 16)

PCTEL contends that the term means "the electrical/physical properties of circuitry." Agere and USR contend that the term is indefinite under § 112, P 2. Alternatively, Agere argues that the term means "changing the relative physical arrangement of non-programmable structures on the modem board; not merely changing the use of those structures as provided." USR asserts that the term should be construed as follows: "mechanically changing the arrangement of electrical interconnections of physical, non-programmable structures on the data communication apparatus."

PCTEL's interpretation once again solely relies upon the declaration of expert witness Dr. Wicker. As explained above, PCTEL's proposed construction is problematic because it has no intrinsic support in the '561 patent, the prosecution history, or even the ordinary meaning of "hardware" or "configuration" as taken from technical dictionaries. Furthermore, this construction provides no guidance with regard to differentiating a hardware configuration from software changes, which appears to be a crucial distinction which the patentee relied upon to obtain the '561 patent. Finally, PCTEL's proposed construction is flawed because it seeks to read "hardware configuration" out of the claims by construing it no differently than "hardware related operating parameter."

Agere and USR's proposed construction relies heavily upon technical dictionaries available at the time the patent was issued. Claim terms mean what they say and have the ordinary meaning that would be attributed by one skilled in the relevant art. See Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002) (citing several cases for this proposition). The Federal Circuit recently reaffirmed that dictionaries, encyclopedias, and treatises are particular useful resources to assist the court in determining the ordinary meaning of claim terms. Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331, *15 (Fed. Cir. 2005). However, the Phillips court warned that "heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." 415 F.3d 1303, [WL] at *14. Thus, in determining the "ordinary meaning" of a claim term, the district court must initially focus on "how the patentee used the claim term in the claims, specification, and prosecution history." Id. If these sources of evidence prove unhelpful, then courts may turn to dictionary definitions to illuminate the "ordinary meaning" of the claim term. Id.
In order to overcome the "heavy presumption" in favor of the ordinary meaning, such evidence must express "manifest exclusion." See Teleflex Inc. v. Ficosa North American Corp, 299 F.3d 1313, 1326 (citation omitted). In Texas Digital Systems, the court stated: "if the meaning of the words themselves would not have been understood to persons of skill in the art to be limited only to the examples or embodiments described in the specification, reading the words in such a confined way would mandate the wrong result . . . " 308 F.3d at 1205; see also Teleflex, 299 F.3d at 1326 ("[t]hat claims are interpreted in light of the specification does not mean that everything in the expressed in the specification must be read into all the claims . . . ") (citation and quotation marks omitted). "Generally, particular limitations or embodiments appearing in the specification will not be read into the claims." Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867 (Fed. Cir. 1985), overruled on others grounds by Nobelpharma AB v. Implant Innovations, 141 F.3d 1059 Fed. Cir. 1998) (cited by Texas Digital Systems 308 F.3d at 1204).

Here, there is no genuine dispute that the claim language, the specification, and the prosecution history are not helpful in ascertaining the ordinary meaning of "changing a [the] hardware configuration." Therefore, the Court is permitted to examine technical dictionaries to determine the "ordinary meaning" of the claim term. Agere and USR assert that the ordinary meaning of "hardware" is "physical equipment used in data processing, as opposed to computer programs, procedures, rules and associated documentation." n4 (Malz Decl, Ex. 10 at AL 15292 and AL 15296, IEEE Standard Dictionary of Electrical and Electronics Terms, (1984) & (1988)). Agere and USR also assert that the ordinary meaning of "configuration" must include an arrangement of parts. (Tang Decl., Ex. 10, SAMS Modern Dictionary of Electronics (1984)) (defining "configuration" as "the relative arrangement of parts (or components) in a circuit); (Tang Decl., Ex. 8, IEEE Standard Dictionary of Electrical and Electronics Terms (1984)) (defining "configuration" as "their geometrical arrangement including the size of the wires and their relative positions with respect to other conductors and the earth"). Based on these definitions, the Court finds that the ordinary meaning of "hardware configuration" would necessarily included a "physical arrangement."

---- Footnotes ----

n4 Other dictionaries provide similar definitions. See McGraw Hill Dictionary of Electronics and Computer Technology (1984) (defining "hardware" as "physical, tangible, and permanent components of a computer or a data processing system").

---- End Footnotes ----

However, PCTEL also takes issue with other language that Agere and USR attempt to include in their proposed constructions. First, Agere and USR's proposed construction restricts the scope of the claim by including the term "non-programmable." Second, Agere and USR's proposed construction requires that the structures that constitute the "hardware configuration" be "on" the modem board. Third, USR's interpretation seeks to limit the scope of the claims to only "mechanical" changes. The Court will discuss the inclusion of each of these proposed terms in turn.

1. Non-Programmable

USR asserts that the inclusion of "non-programmable" is directly supported by the patent specification which indicates that the programmable part of the modem, the software in microprocessor 40 that controls the other components, is separate from the hardware being configured which is incapable of running software and thus non-programmable. '561 patent, 10:38-57. USR also asserts that the ordinary meaning of hardware in technical dictionaries specifically notes a difference between, software which is programmable, and hardware, which is not.

PCTEL responds that a preferred embodiment of the patent discloses a modem that uses duplicate circuits for achieving two different impedances. '561 patent, col. 10:34-46. According to this embodiment, one circuit for providing first impedance is connected to a first port or a microprocessor, and a second circuit for providing a second impedance is connected to a second port of the microprocessor. PCTEL asserts that this preferred embodiment discloses that the microprocessor is programmed to select between the two ports depending upon the impedance needed for the country in which the modem is to be used. PCTEL argues that Agere and USR's proposed construction excludes a preferred embodiment of the '561 patent, and thus is too narrow.

The Court agrees with Agere and USR that the consensus of technical dictionaries makes clear that "hardware" differs from "software," which is programs. (Tang Decl., Ex. 8, IEEE Dictionary (1984)) (noting that "hardware" is "physical equipment
used in data processing, as opposed to computer programs, procedures, rules and associated documentation”); (Tang Decl., Ex. 9, Dictionary of Computers, Information Processing & Telecommunications (1987) (same)). Furthermore, despite PCTEL's assertion to the contrary, the Court does not find that the specification discloses a preferred embodiment that describes programmable hardware. Rather, an examination of the preferred embodiment supports USR's position, namely, that the programmable microprocessor is clearly separate from the "non-programmable" hardware. '561 patent, col. 10:34-46. Hence, the Court concludes that "hardware configuration" should be construed as "non-programmable."

2. "On" the Modem

Agere and USR assert that the hardware must reside on the data communication apparatus on the '561 specification. In support of their argument, they contend that the specification does not identify an embodiment where the hardware components are not within the "data communication apparatus 10." PCTEL responds that Agere and USR's proposed construction should be rejected because no such limitation can be found in the claims.

The Court agrees with PCTEL. USR's implicit argument that the scope of the claims is limited to the examples set forth in the specification is contrary to law. "A patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal or contrary definition in the patent's specification." Home Diagnostics, Inc. v. Lifescan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004). Here, the specification contains no such disavowal or contrary definition. Thus, the Court will not limit the "hardware configuration" to being "on" the modem board.

3. "Mechanical Change"

USR asserts that a change in the arrangement of the various hardware components of the '561 patent would require a mechanical switch which changes the circuit paths by movement of the connector of a switch. USR contends that such a mechanical switch would not be present on programmable structures such as a microprocessor. USR concludes that its interpretation is consistent with the '561 patent specification and prosecution history because a change in line impedance and changing a set of resistors for transmit signal line level could be performed by a mechanical switch, such as a relay. In support of its arguments, USR relies exclusively on its expert witness Dale Walsh.

PCTEL responds that while the patent discusses using mechanical switches to change modem speed options, asynchronous or synchronous communication modes, and other options, these options have nothing to do with configuring for country of intended use. PCTEL asserts that country specific parameters are changed by the microprocessor and arrange the modem hardware. '561 patent, col. 10:38-57. PCTEL also notes that the patent itself refers to switching or circuit logic, which is not mechanical switching, but rather solid state. '561 patent, col. 10:48-51.

The Court agrees with PCTEL that the patent does not require a mechanical switch to change the arrangement of the various hardware components of the '561 patent. It appears, as noted by PCTEL, that the specification explicitly allows for the hardware configuration to be changed through the use of circuit logic, which is clearly distinguished from mechanical switching. '561 patent, col. 10:46-51. In any event, "particular limitations or embodiments appearing in the specification will not be read into the claims." Loctite Corp., 781 F.2d at 867. The word "mechanical" is found nowhere in the patent claims. Thus, the Court will not read such a limitation into the claims.

In sum, given the considerations discussed above, the Court construes "changing the hardware configuration" as changing the physical arrangement of non-programmable structures.

In Paragraph (4) Of Claim 20 Of The '998 Patent - "Changing The Stored Sound Waveform In Accordance With Changes Made In The Visually Displayed Waveform By The Step Of Editing"

Macromedia contends that this phrase (hereinafter the "changing the stored sound waveform phrase") should be construed to mean "making different or modifying the sound characteristics of the stored sound waveform in accordance with changes made in the visually displayed waveform." (D.I. 243 at 14). Adobe contends that the changing the stored sound waveform phrase should be construed to mean "overwriting the stored waveform stored in the computer RAM memory to reflect a
change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform." (D.I. 305 at 28).

In construing the changing the stored sound waveform phrase, the Court has reviewed the specification and the prosecution history. (See D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-40; D.I. 248, Ex. C). Based on a review of these sources, the Court concludes that changing the stored sound waveform is directed to overwriting the original waveform stored in the computer RAM memory. Accordingly, the Court construes the changing the stored sound waveform phrase to mean "overwriting the stored waveform stored in the computer RAM memory to reflect a change in the sound characteristics of the waveform in accordance with changes made in the visually displayed waveform."

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- "channel" is construed to mean "a path for transmitting electrical signals."

Lucent contends that this term means "a path for transmitting electrical signals." (D.I. 396 at 10.) Defendants contend that this term means a virtual circuit connection established in the network between 'end user terminals." (D.I. 395 at 9; D.I. 385 at 16.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects Defendants' proposed construction. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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B. "First" and "Second" Channels

Covad asserts that the Court should construe each of the first and second channels of claims 1 and 21 as: "An amount of bandwidth isolated for communications that may be either unidirectional or bi-directional." Bell Atlantic argues that the Court should construe each of the first and second channels of claims 1 and 21 as: "A one-way path between communicating entities." Both parties agree that the terms "first" and "second" require that there be two distinct channels and that the meaning of the term "channel" depends on the context in which it is used. The parties also agree that one type of channel contemplated by the '786 patent is the frequency division multiplexed channels shown in Figures 4 and 10 of the '786 patent. 10

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10 Frequency division multiplexed channels are regions of the available spectrum reserved for a particular communications task, usually by isolating a range of frequencies using electronic filters.

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The '786 patent repeatedly refers to "channels" by the reference numbers 302, 304, 306, 302', 304', and 306'. The patent explains that ADSL transceivers use "frequency multiplexing to divide the available loop bandwidth into three channels 302, 304, and 306 (see FIG.4)." See col. 8, ll. 20-23. Figures 4 and 10 show that channels 302, 304, 306, 302', 304', and 306' all correspond to "bands of frequencies" -- i.e., bandwidths - along the communications spectrum. See Figs. 4, 10 (attached). There are numerous references to these frequency channels scattered throughout the specification. See, e.g., col. 8, ll. 15-26; col. 8, ll. 44-65; col. 9, ll. 8-10; col. 12, ll. 17-20.

The '786 patent repeatedly refers to a bi-directional channel in the singular, which would clearly contradict Bell Atlantic's proposed definition of channel as a "a one-way path between communicating entities." In one instance, the patent states that" … the two-way control channel may be unacceptably slow …." Col. 2, ll. 29-30 (emphasis added). In another instance, the patent refers to "a small … two-way reverse control channel upstream on the ISDN packet data network between the
subscriber and the central office." Col. 8, ll. 24-26 (emphasis added). Another reference states that "the frequency channel represented by range 302 in FIG.4 thus establishes a 2-way channel used to provide standard POTS service or ISDN (2B+D) service over the ADSL line." Col. 8, ll. 44-46 (emphasis added). The prosecution history also refers to bi-directional channel 302 in the singular. In the July Amendment, Bell Atlantic explained to the PTO that "the bandwidth provided by channel 302 provides connectivity for conventional telephone services, usually below 4Khz." 11 July Amendment, at 12 (emphasis added).

11 Conventional telephone service is a bi-directional channel previously described as POTS.

Bell Atlantic states that there is no dispute that, even under Covad's proper construction of "channels," the two "channels" called for by claims 1 and 21 are present in the accused ADSL systems. Thus, regardless of how this Court rules on Covad's "channel" construction, the Court must deny Covad's motion of noninfringement as to it's ADSL systems if this Court rejects Covad's other two proposed constructions regarding "mode" and "selectivity."

Bell Atlantic argues that the Court should rely on extrinsic evidence from the Telecommunications Primer for the proposed definition of "channel" to be applied: "A one-way path between communicating entities." E. Bryan Carne, Telecommunications Primer: Data, Voice and Video Communications, at 35. Bell Atlantic also directs the Court's attention to the definition of "circuit" defined in the text as "the combination of two channels, one in each direction, between communicating entities." Id. Bell Atlantic, therefore, argues that based on extrinsic evidence, a path allowing communication from point A to point B is one channel, and a path allowing communication from point B to point A is a different channel. 12

12 This same text, however, under a section addressing "frequency-division multiplexing," states that "[a] channel is defined by its center frequency, and its bandwidth, or by its upper- and lower-frequency limits." Id. at 223.

Bell Atlantic states that the patent refers to channels not separated from one another in frequency. The specification notes that, "alternatively, a fractional T1 interface and control software could be used at the subscriber end to provide separate multiplexed carriers or channels of up to 24 DS-O's on a regular trunk." Col. 14, ll. 34-37. The specification also states that "each of the channels can be combined with others in the 1/0 DSC 15 serving the homes or the 1/0 DCS 14 on the LAN end and thereby connected to the LAN over a single T1 link." Col. 8, ll. 6-9. Plaintiff further relies on extrinsic evidence in the form of expert testimony in support of the assertion that there are various ways of implementing multiple channels in a transmission system, such as separating them by frequency, by time, or through the use of echo cancellation. See Bell Atlantic's Brief, at 4.

The patent explicitly refers to a two-way or bi-directional channel in the singular, therefore, an analysis of the intrinsic evidence alone will resolve any ambiguities with regard to the reference to the first and second channels of claims 1 and 21. Bell Atlantic's proposed definition of "channel" from The Telecommunications Primer is in direct conflict with the language of the patent, as the inventors clearly intended "channel" to encompass both one-way and two-way segments of bandwidth. Thus, the Court finds that each of the first and second channels of claims 1 and 21 mean: "An amount of bandwidth isolated for communications that may be either unidirectional or bi-directional."
unidirectional or bi-directional communications. The district court noted that various phrases in the specification described "two-way" channels, and reasoned that "the inventors clearly intended 'channel' to encompass both one-way and two-way segments of bandwidth." However, Bell Atlantic contends that the first and second channels are instead "one way paths." We agree with Bell Atlantic on this aspect of the interpretation of the "channel" limitation.

First, the language of the claims supports Bell Atlantic's contention that the first and second "channels" are intended to encompass only one-way communication. Claims 1 and 21 both describe a first transceiver "transmitting or receiving signals, at a first transmission rate, on a first channel, and transmitting or receiving signals, at a second transmission rate, on a second channel." '786 patent, col. 17, ll. 9-12 (emphasis added). The use of the word "or" demonstrates that each transceiver either transmits or receives on a single channel, but not both simultaneously. Thus, the language of the claims themselves supports a construction of the first and second "channels" that excludes bi-directional or two-way communications.

Second, the written description defines the first and second channels as those that support one-way communication. Throughout the written description, the specification discusses the data channels as either "upstream" or "downstream" channels. '786 patent, col. 2, l. 60; col. 3, l. 57; col. 7, l. 48; col. 8, l. 57; col. 12, ll. 10-29. Indeed, the written description notes that in conventional ADSL systems, "channels 304 and 306 are unidirectional." '786 patent, col. 9, l. 8 (emphasis added). Other passages refer to the "unidirectional" nature of the downstream or upstream channels. '786 patent, col. 9, l. 50. Thus, it is clear that the specification defines by implication the first and second channels as supporting only unidirectional communication.

Covad nevertheless contends that the specification and prosecution history also use the term "channel" to refer to bi-directional communications. Therefore, Covad reasons that the term as used in claims 1 and 21 must be construed to encompass both unidirectional and bi-directional communications. It is true that the specification refers to a "two-way" or bi-directional channel in numerous instances. '786 patent, col. 2, ll. 29-30; col. 8, ll. 24-26; col. 8, ll. 44-46; col. 13, l. 7. It is also true that during prosecution history, the patentees stated that "channel 302 provides connectivity for conventional [bi-directional] telephone services." However, in each of these instances, it is evident that the statements regarding the bi-directional channels refer to only the prior art control channel, the signaling channel, or the POTS channel. Conversely, wherever the specification discusses the first and second (upstream and downstream) data channels referenced in the claims at issue, it is clear that the communication is unidirectional.

"In circumstances such as this, where the language of the written description is sufficient to put a reader on notice of the different uses of a term, and where those uses are further apparent from publicly-available documents referenced in the patent files, it is appropriate to depart from the normal rule of construing seemingly identical terms in the same manner. This entirely accords with the public notice function of claims." Pitney Bowes, 182 F.3d at 1311, 51 U.S.P.Q.2D (BNA) at 1170. Thus, although the term "channel" may encompass both unidirectional and bi-directional communications, it is clear that the first and second data channel limitations in claims 1 and 21 support only unidirectional communications.

b. Frequency Separated Channels

The district court also held that the first and second "channels" are "an amount of bandwidth" or "bands of frequencies" or "frequency channels." In other words, the district court determined that the channels must be separated by frequency. Bell Atlantic contends that the ordinary meaning of the term "channel" is not limited to communication paths separated by frequency. Indeed, as understood by one of ordinary skill in the art, the ordinary meaning of the term "channel" is quite broad. Within the realm of DSL technology, technical treatises refer to channels separated by frequency ("frequency division multiplexing"), channels subdivided by time ("time division multiplexing"), channels separated by "echo cancellation" techniques, and channels subdivided by various "modulation" techniques. See, e.g., E. Bryan Carne, Telecommunications Primer 223 (Prentice Hall 2d ed. 1999); Michael Busby, Demystifying ATM/ADSL 37, 53-54, 205-206 (Wordware 1998).

However, the '786 patent specification defines the first and second channels, by implication, as amounts of bandwidth, and thus, communication paths separated by frequency. The summary of the invention references the upstream and downstream channels. '786 patent, col. 2, l. 59; col. 3, l. 57. The written description of the preferred embodiments notes that the upstream and downstream channels are illustrated in Figure 10 as channels 304' and 306'. '786 patent, col. 12, ll. 10-21. Figure 10, discussed above, illustrates the upstream and downstream channels as channels separated by frequency.
Moreover, the specification states that "the ADSL/AVRs used in the present invention are a modification of, and an improvement over, conventional ADSL." '786 patent, col. 8, ll. 15-17 (emphasis added). The specification notes that conventional transceivers use "frequency multiplexing to divide the available loop bandwidth into three channels 302, 304 and 306." '786 patent, col. 8, ll. 20-22. In numerous other passages, the specification describes the channels in conventional ADSL systems as separated by frequency. '786 patent, col. 8, l. 20; col. 8, l. 44; col. 8, l. 60; col. 9, l. 43; col. 10, l. 46. The specification notes that the ADSL/AVR system of the present invention is similar to conventional ADSL systems. '786 patent, col. 10, ll. 60-61. Furthermore, the written description states that the channelization between the upstream and downstream channels is illustrated in Figure 10. '786 patent, col. 12, ll. 19-21. Both Figure 4 (conventional ADSL channelization) and Figure 10 (bi-directional mode channelization) show that data channels 304, 306, 304', and 306' correspond to bandwidths separated by frequency.

Moreover, the patentees stated during prosecution that "in the present invention, the transmission bandwidth of channels 302, 304, and 306 are controlled for various modes." (emphasis added). This statement further demonstrates that the channels used in the present invention are defined by an amount of bandwidth. Thus, the only type of channels contemplated by the '786 patent are those that occupy an amount of bandwidth those that are separated in frequency. Nowhere does the specification discuss channels created by time-division multiplexing or echo cancellation. Indeed, in the one reference to time division multiplexing, the specification states:

'A down-stream control signal to the subscriber (not shown in Fig. 4) is time division multiplexed with the 1.544 mbps video signal on the 100-500 Hz carrier. This down-stream control signal, together with the digitized information and overhead, occupies a bit rate band of about 1.6 mbps.

'786 patent, col. 8, l. 66 to col. 9, l. 4 (emphasis added). The specification refrains from identifying the time-division multiplexed signal as a "channel," instead referring to it as a "signal."

Our construction does not limit the term "channel" through inferences drawn from the description of a preferred embodiment. Johnson Worldwide, 175 F.3d at 992, 50 U.S.P.Q.2D (BNA) at 1612. Neither does this case involve the "varied use of a disputed term." Id. at 991, 50 U.S.P.Q.2D (BNA) at 1611. Instead, the written description "provides guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format." Scimed, 242 F.3d at 1344, 58 U.S.P.Q.2D (BNA) at 1065. Because the patentees used the term "channel" throughout the entire patent specification, consistent with a single meaning, they defined that term "by implication." Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577; see also Hockerson, 222 F.3d at 955, 55 U.S.P.Q.2D (BNA) at 1490. Thus, in addition to being unidirectional, the first and second channels described in claims 1 and 21 also constitute an amount of bandwidth, and as such, are channels that are separated by frequency.

3. "channel estimator"

Wi-LAN's Proposed Construction

"a device for computing the amplitude and/or phase distortions of a received signal"

Alternative: "a device for computing amplitude and/or phase differences in the received signal caused by the wireless channel"

Defendants' Proposed Construction

"a device for estimating one or both of the amplitude and the phase differential of the received signals to produce as output one or both of the difference in amplitude or phase between received data symbols"

The construction for this term is largely related to the construction for the terms relating to "amplitude and phase differential." In light of the Court's prior constructions, the only term to be construed is the "channel estimator" term itself. As previously stated, the claimed channel estimator estimates the phase differential of the transmitted signals by sampling the amplitude envelope of the signals. See '222 patent, 11:1-28. There may be distortions to the amplitude and phase of the
transmitted signal caused by the channel. However, the Court finds that estimates of the "amplitude" and the "phase
differential" are used to correct for distortions over the channel, not that the channel estimator itself directly computes or
measures the distortions. See '222 patent, 9:43-61. Accordingly, the "phase differential" of the received signal is supplied to
the "pre-distorter" to correct for "phase distortion over the channel." Id. The Defendants' construction largely recites most of
the subsequent language following the term to be construed, and therefore the Court rejects Defendants' construction as
being unhelpful. Again, the Court rejects Wi-LAN's proposal to equate the term differential to distortion. The Court finds
that the language of the claims and specification are clear that the channel estimator may compute an estimated phase
differential and estimated amplitude, but it is not necessarily a device for computing distortions. See '222 patent, 9:43-61.
The channel estimator of the '222 patent first obtains an estimated amplitude of the received signal by sampling the
amplitude envelope, which is then used to obtain an estimated "phase differential" to correct for the channel's effects on the
received signal. '222 patent, 11:10-19. The specification provides that the channel estimator is for "estimating the channel."
See '222 patent, 10:67-11:1. Further, the plain language of the term "channel estimator" implies that it is a device that
estimates the channel. Wi-LAN's expert confirms that the goal of the channel estimator is to estimate the channel, and more
particularly to estimate the effect of the channel on information symbols. Thus, the Court construes the term "channel
estimator" to mean "a device that estimates the effect of the channel on the transmitted signals."

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B. "channel forming region"

Plaintiff proposes that "channel forming region" be construed to mean "the region of a semiconductor device in which the
channel may form." Defendants argue that the phrase means "an amorphous silicon region that is later formed into a channel
after irradiation."

The proposed definitions differ in two important respects. First, defendants contend that the entire region is converted into a
"channel" after irradiation takes place. Plaintiff contends, instead, that "channel" refers to the actual path that current takes
through the channel forming region when the transistor is in use. Second, defendants' construction requires that the channel
forming region subsequently be exposed to laser radiation. Plaintiff's construction does not.

With respect to the first point, although the specification is not entirely consistent in its use of "channel" and "channel
forming [or formation] region," it does make clear that the two are not necessarily coextensive: ":[i]n the channel formation
region, it is the interface with the gate insulating film which operates as a channel in practice." 358 patent at 8:58-60.
Although the specification describes only a particular embodiment, and, as defendants noted at oral argument, other
embodiments may exist in which current flows through the entire channel forming region, defendants' construction would
limit the scope of the claims to a case not even discussed in the specification. Their proposed construction is therefore too
restrictive.

With respect to the second point, it is certainly true that the patent frequently discusses crystallizing the amorphous silicon
regions through irradiation. See, e.g., id. at 8:60-62 ("the intrinsic amorphous silicon layer which becomes the channel
formation region must be crystallized sufficiently [through irradiation.]"); id. at Abstract ("the channel formation region . . .
[is] exposed to laser radiation."). Indeed, the stated purpose of the invention is to permit the creation of thin-film transistors
with silicon regions that are accessible to laser radiation after the structure of the transistor is completely formed. Id. at
1:62-66 (the invention "make[s] it possible to crystallize a channel formation region and to activate the Ohmic contact
region of the source and drain by laser irradiation after the device structure of a thin film transistor is completed.").

The fact that the invention provides for the possibility of irradiation, however, does not mean that irradiation is required in
order for a channel-the conductive path through the channel forming region-to form. The specification makes clear that not
all transistors formed by the patented process need be irradiated. Instead, individual transistors can be irradiated or not
depending on the desired electrical characteristics: "[t]he laser radiation is directed to the source, drain regions and to the
channel formation region of desired one or more of the amorphous silicon TFTs." 258 patent at 5:9-11 (emphasis added).
Also, "desired one or more of the amorphous silicon TFTs can be made to have desired electrical characteristics." Id. at
5:34-36 (emphasis added). Finally, "a system comprising the substrate on which amorphous silicon TFTs and polysilicon
TFTs are fabricated can be manufactured without relying on different manufacturing processes." Id. at 5:45-48. As this last
sentence makes clear, where a large number of TFTs are made using the patented process, only some of them need be
converted from amorphous silicon to polysilicon through the additional step of laser irradiation.

The specification also uses the phrase "channel formation region" in a manner suggesting that the channel formation region exists prior to irradiation: "the channel formation region can be activated and crystallized by laser irradiation after the device structure of the amorphous silicon thin film transistor has been completed." Id. at 5:2-5. While the channel formation region can be "activated" by irradiation, it exists before any irradiation takes place.

The dependent claims underscore this distinction. Claim 26 covers "[a] method according to claim 3 further comprising a step of irradiating at least the channel region with a laser after the formation of the source and drain regions." Id. at 16:7-9. By implication, the invention claimed in claim 3 does not include the step of "irradiating . . . the channel region." n2

n2 Defendants attempt to downplay the significance of the dependent claims by noting that the phrase "channel region" is different from "channel formation region." The court finds the reference to be sufficiently clear to support the conclusion that the independent claims do not implicitly contain a step of irradiation.

Defendants argue that the phrase "channel forming region," as a matter of common English usage, "suggests that the term means a region that is not yet a channel, but in which a channel will be formed." Defs.' Response at 13. The court agrees, but as defendants' own articulation suggests, the channel forming region is not transformed into a channel, but rather is the region "in which a channel will be formed" once current begins to flow through the transistor. See id. The phrase "channel forming region" is quite similar to the name for another circuit element, "light emitting diode," which also describes an event (the emission of light) which occurs when the circuit element is in use.

The court therefore adopts plaintiff's construction of "channel forming region," which means "the region of a semiconductor device in which the channel may form."

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2. Disputed term in AMD's '893 patent: "Channel-free region," "channel free zone" (claims 1, 2, 4)

This patent describes a Metal Oxide Semiconductor Field Effect Transistor ("MOSFET"). The disputed term, "channel-free region" (or "channel-free zone" 7), appears in claims 1, 2 and 4.

7 The parties agree that "channel-free region" and "channel-free zone" have the same meaning.

1. An insulated gate field effect device comprising:

a first conductivity type semiconductor substrate having a main surface; said semiconductor substrate having a concave surface formed on said main surface extending to a prespecified depth below the main surface; an insulating film formed on said concave surface; a conductive gate electrode formed above said insulating film, overlying the concave surface; first and second impurity regions of a second conductivity type respectively formed in the substrate, in the vicinity of said main surfaces, self-aligned to and positioned at one side and the other side of said gate electrode respectively; and a first conductivity type region located in said semiconductor substrate between first and second impurity regions for defining a channel region and a channel-free region extending conformably under and along said concave surface;

wherein the depth of said concave surface is set to a value which ranges between one and two times the depth of said first and second impurity regions, and

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wherein the concave surface is continuously curved in the vicinity of at least one of the first and second impurity regions to produce smooth merger of a conforming first depletion region formed around the at least one impurity region and a conforming second depletion region formed in the vicinity of the gate electrode so that excessive field concentration will not develop in the vicinity where the first and second depletion regions meet.

2. An insulated gate field effect device according to claim 1, wherein one of said first and second impurity regions constitutes a drain region of said insulated gate field effect device, the other of said first and second impurity regions constitutes a source region and wherein the concave surface is continuously curved at least in the vicinity of the drain region, where the channel-free region develops during an off state of the device, to produce smooth merger of the conforming first depletion region which develops in the vicinity of the channel-free region and the drain region and the conforming second depletion region formed in the vicinity of the gate electrode so that excessive field concentration will not develop in the vicinity of the channel-free region.

4. An insulated-gate field effect transistor comprising:

- a substrate having a substantially planar main surface and a concave surface portion extending continuously from the main surface to a predetermined depth below the main surface;
- an insulating layer conformably disposed on the main surface and the concave surface portion;
- a gate conformably disposed on the insulating layer, overlying the concave surface portion, the gate having opposed first and second sides;
- implanted source and drain regions disposed within the substrate and self-aligned to the respective first and second opposed sides of the gate; and
- a channel-region formed between the source and drain regions, for defining a channel that conducts current between the source and drain regions when the transistor is in a turned-on state;
- wherein a channel-free zone develops in the substrate, under the gate and between the source and drain regions, when the transistor is in a turned-off state; and
- wherein the gate and concave surface portion are curved at least in the vicinity of the channel-free zone such that a smoothly curved depletion zone boundary will develop in the vicinity of the channel-free zone when the transistor is in the turned-off state.

A MOSFET is a type of transistor. Transistors regulate the amount of current in a circuit. Figure 9 of the '893 patent illustrates a MOSFET. The basic features are the source (labeled "4" in Fig. 9), where current enters the transistor; the drain (5), where the current leaves the transistor; and the gate (21), which starts and stops the flow of current. When the transistor is turned on, current flows from the source to the drain through a channel (13). When the voltage is sufficiently high, the channel retracts, creating a "pinch-off" region at the drain. Figure 9 illustrates the retraction at Lg1 and labels this area "channel-free length."

[SEE FIGURE 9 IN ORIGINAL]

Figure 4 illustrates the '893 patent. The claimed invention of the '893 patent was to improve the design of the MOSFET by introducing a curved structure. The curved surface made the channel longer than the conventional MOSFET without making the transistor larger. As Figure 4 illustrates, the "pinch-off" region (Lg2) is longer than in a conventional MOSFET. See 4:3-8 ("By comparing Fig. 4 to Fig. 9, it can be seen that . . . the distance Lg2 between the end of channel region 12 and the drain 5 is longer than the distance Lg1 indicated in Fig. 9.").
The parties dispute the meaning of "channel-free region." They agree that the channel-free region encompasses the pinch-off region, but disagree as to whether it can also include the rest of the area between the source and drain. AMD's proposed construction is: "The terms 'channel-free region' and 'channel free zone' refer to areas where there is no channel." In other words, AMD argues that when the transistor is turned off, a channel-free region exists between the source and drain.

Samsung proposes the following construction: "Area without a channel and through which current flows between the channel and the drain." According to Samsung, the channel-free region describes only the pinch-off region. In Samsung's view, when the transistor is turned off, there is no "channel-free zone" between the source and drain.

Samsung's proposed construction contradicts the claim language. Claim 4 teaches that "a channel-free zone develops in the substrate, under the gate and between the source and drain regions, when the transistor is in a turned-off state[]." 4:18-21 (emphasis added). Samsung's construction would render this language in claim 4 meaningless because, according to Samsung, the channel-free region does not exist when the transistor is turned off.

Samsung cites documents from the prosecution history showing that during the prosecution of the '893 patent, AMD referred to the areas Lg2 and Lg1 as "channel-free zones." See, e.g., Haskett Decl., exs. 17 (July 7, 1992 Amendment at 3, 4), 19 (Nov. 10, 1992 Response to Office Action at 3). These documents are not instructive: it is undisputed that "channel-free zone" includes the pinch-off regions Lg1 and Lg2. The prosecution history cited by Samsung does not demonstrate that while prosecuting this patent, AMD limited the scope of this term to encompass only regions Lg1 and Lg2.

Samsung also objects that AMD's construction will be confusing to jurors because it suggests that a "channel-free region" exists anywhere a channel is absent. The Court disagrees. Read in the context of claims 1, 2, and 4 it is clear that the channel-free region exists in the substrate between the source and drain, and not elsewhere in the transistor.

Accordingly, the Court adopts AMD's construction.

I Claim Construction

As described above, the problem addressed by the patent is the issue of channel latency. See '074 patent, col.1 ll.42-67. The object of the invention is to accelerate the decoding process through a system that identifies and assembles a "channel map" that replicates from the MPEG-2 PMT all of the information necessary to identify and acquire a program. By requiring the replication of this information instead of waiting to receive the PMT as it appears in the datastream, "the time required by [the] decoder . . . to identify and acquire a program being transmitted on [a] selected sub-channel . . . is advantageously reduced." '074 patent col.7 ll.40-42.

Resolution of the issues of infringement and invalidity requires that we address three issues of claim construction at the outset. First, we address the construction of "channel map information." We must determine whether the "channel map information" must replicate the four data fields constituting the program number, PCR_PID, elementary_PID, and stream_type data from the MPEG PMT. The Commission found that the channel map must replicate these four data fields. Funai advocates the Commission's reading of the claims in order to avoid invalidity on the basis of anticipation and obviousness, whereas appellants advocate a broader reading of the claims so as to support their invalidity arguments.

The '074 patent does not define the term "channel map information," nor does this term appear to have any ordinary English meaning. To locate a user's selected program, claims 1 and 23 require identification and assembly of channel map information, and require that

said channel map information replicates information conveyed in said MPEG compatible program map information and said replicated information associates a broadcast channel with packet identifiers used to identify individual packetized datastreams that constitute a program transmitted on said broadcast channel.
'074 patent col.11 ll.36-41, col.14 ll.19-24 (emphases added). Funai argues that the claim language here references "MPEG compatible program map information," and that "channel map information" must be construed with reference to the MPEG-2 standard. Appellants challenge the Commission's reliance on the MPEG-2 standard, and argue that there are several MPEG standards and that the '074 patent does not expressly limit itself to the MPEG-2 standard. In appellants' view, the claims only require that packet identifiers (or elementary PID), one of the four data fields, be part of the channel map.

The claim language referring to "MPEG compatible program map information" must refer to the MPEG-2 standard. As the Commission noted, the '074 patent appears to define the term "MPEG standard" as the MPEG-2 standard. See '074 patent col.1 ll.18-21 ("One such widely adopted standard is the MPEG2 . . . image encoding standard, hereinafter referred to as the 'MPEG standard.'"). The MPEG-2 standard is specifically referenced in numerous places in the specification, and the specification makes no reference to any other MPEG standard. See, e.g., id. col.1 ll.18-25, col.2 ll.55-59, col.7 ll.49-57.

Appellants' own expert, Dr. Wechselberger, acknowledged that the multiple references in the '074 patent to the "MPEG standard" refer to the MPEG-2 standard. Moreover, we agree with the Commission that the fact that the MPEG-2 standard was the standard used for digital television broadcasts in the United States at the time of the filing of the patent itself suggests that one of ordinary skill in the art would understand the disputed claim terms of the '074 patent to refer to the MPEG-2 standard. See LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1375 (Fed. Cir. 2006) ("Although we have concluded that the patentee did not expressly adopt the . . . industry standard, that standard remains relevant in determining the meaning of the claim term to one of ordinary skill in the art at the time the patent application was filed, and it is treated as intrinsic evidence for claim construction purposes . . .."). rev'd on other grounds, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 128 S. Ct. 2109, 170 L. Ed. 2d 996 (2008).

Thus, we agree with the Commission that the claims require associating the program with all of the identifiers conveyed in the MPEG-2 program map information that are necessary to "constitute a program." '074 patent col.11 ll.36-41, col.14 ll.19-24. At the evidentiary hearing, the expert witnesses agreed that the MPEG-2 standard requires, at a minimum, four data fields--the program number, PCR_PID, stream type, and elementary_PID data--in order to "identify individual packetized data streams that constitute a program." See App. 28,438-39, 28,467-68, 31,841-43, 32,431. 4

--- Footnotes ---

4 The ALJ also examined the text of the MPEG-2 standard itself, and concluded the same. See Initial Determination, slip op. at 44.

--- End Footnotes ---

Appellants cryptically argue that dependent claims 2 and 10 demonstrate that the channel map information in independent claim 1 does not include all four data fields. Claim 2 recites that the "channel map information further associates an individual program with a corresponding program clock reference (PCR) value." '074 patent col.11 ll.42-45. Appellants state that "the presence of a dependent claim that adds a particular limitation gives rise to the presumption that the limitation in question is not present in the independent claim." Appellants' Br. 43 (quoting Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005)) (en banc). Thus, because dependent claim 2 adds the limitation that the channel map information associates an individual program with a PCR value, the presumption is that independent claim 1 must not require "channel map information" to include the PCR value. Appellants assume that the PCR value and the PCR_PID are the same. However, the Commission points out that the PCR value (referenced in claim 2) and the PCR_PID are not the same. See Initial Determination, slip op. at 42 ("[T]he PCR_PID field constitutes a 'packet identifier.' The Program Clock Reference values identified by the PCR_PID constitute a datastream of program specific information that relates to a particular program."). The reply brief does not disagree. We conclude that claim 2 states an additional limitation beyond the claim limitations of independent claim 1.

Likewise, claim 10, which depends from claim 1, requires that the

channel map information further associates a datastream type indicator

with an individual packetized datastream, said datastream type indicator identifying whether said individual packetized datastream contains at least one of a) audio information, and b) video information.
1. **Construction of "channel region"**

Resolution of the meaning of this claim term requires a determination of what area the channel region encompasses in the claimed thin film transistor. Plaintiff asks the court to construe the term to mean "an area--labeled 79 in figure 6H of the '463 patent--between the source and drain regions through which the current path between the source and drain electrodes is formed; the channel region includes but is not limited to the current path between the source and drain electrodes." In other words, plaintiff would have the court define the channel region as including the entire area of semiconductor material between the source and drain regions. It bases its proposed construction in part on the court's construction of the term in Acer, addressing the '941 patent, which has the same specification as the '463 patent. Defendants do not propose a specific definition for the term channel region and instead focus on identifying where the channel region would be located in the accused products.

A few initial matters deserve mention. Plaintiff's proposed construction includes a definition of channel agreed to by the parties in Acer, namely "the current path between the source and drain electrodes." Although defendants challenge the construction in their reply brief, dkt. # 321 at 9-18, they do not ask the court to construe the term "channel" and I will not do so. I am not convinced that construction of the term "channel" is necessary to resolve the parties' dispute, which relates to identifying where the channel forms in the accused products, that is, the channel region, as opposed to the channel itself.

Plaintiff also would have the court specifically define the channel region as the area between the source and drain regions, as the court did in Acer. All but two of the independent claims of the '463 patent describe the channel region as being "between" the source and drain regions. Figure 6H also labels the space between the source and drain regions as the channel region. However, it seems unnecessary to construe the term channel region as meaning the area located between the source and drain regions, when independent claims 1, 5, 12 and 13 of the patent specify that the channel region is between the source and drain regions, when independent claims 1, 5, 12 and 13 of the patent specify that the channel region is between the source and drain regions. Construing channel region to include this same language would make the explicit limitation in claims 1, 5, 12 and 13 superfluous. Further, because claims 8 and 14 do not state that the channel region is between the source and drain regions, construing channel region more specifically may add an unintended limitation to claims 8 and 14. Finally, although Figure 6H depicts the channel region between the source and drain regions, the specification makes clear that this is only a preferred embodiment of the invention. Golight, 355 F.3d at 1331 ("limitations from the specification are not to be read into the claims").

Plaintiff's proposed construction of "channel region" would include the vertical path that the electrical current takes from the source region to the channel and then back up to the drain region. Defendants contend that the channel region consists only of the bottom portion of the area that runs along the gate electrode where the channel is formed. According to defendants, the channel region in the accused products is the AL layer, a narrow layer (about 20 nanometers thick) of high-quality semiconductor material immediately above the gate insulation layers. The AL layer is not in contact with the source and drain regions because a separate protective layer (the AH layer) lies between the AL layer and the source and drain regions. Although plaintiff agrees that the accused products have both an AL and AH layer, it contends that nothing in the '463 patent limits the channel region to one layer and that together, the AH and AL layers constitute the channel region in the accused products.

I agree with plaintiff that nothing in the claim language or specification indicates that the channel region should be limited to one layer of semiconductor material. I am not persuaded by defendants' argument that the patent specification's reference to a semiconductive layer (singular) means that the channel region can never consist of two layers (plural). Neither the
patent claims nor the specification includes such a limitation. The patent also does not define the extent of the area making up the channel region. However, as the court concluded in Acer, it seems apparent that the channel region must at least include the channel itself. The parties agree that the channel is at least a layer of semiconductor material along the gate insulating layer that is rendered conductive by the gate electrode. It also is undisputed that when a voltage is applied to the gate electrodes of a thin film transistor, electric charge flows from the source region through the channel region to the drain region. Therefore, as the court did in Acer, I will construe the term channel region to mean an area that includes but is not limited to the channel.

Defendants attempt to distinguish the channel region in the accused products on the grounds that the AH layer, which is the layer in contact with the source and drain regions, is a lower quality semiconductor material that adds resistance and degrades the performance of the thin film transistor. However, it is undisputed that in the accused products, current flows through both the AH and AL layer from the source region to the drain region. Whether that current is slowed or impeded by an intermediate layer is irrelevant. Nothing in the '463 patent requires the claimed channel region to transmit current without an intermediate layer degrading the overall performance. In fact, the specification does not contain any discussion of the differences between a single layer and a multiple layer channel region. If the patent intended the claimed channel region to maximize current flow or conductivity by using only one high quality layer of material in the channel region, it would have contained some discussion on the matter. Also irrelevant is defendants' claim that manufacturing the AL layer takes significantly more time than manufacturing the AH layer. The patent is silent with respect to the desired speed at which the channel region should be manufactured.

In sum, I decline to limit the term "channel region" by adding performance and manufacturing related requirements not claimed by the patent. Therefore, plaintiff is entitled to summary judgment with respect to whether the accused products satisfy the requirement in claims 1-7 and 12-13 that the channel region be in contact with the source and drain regions.

B. "Operator" and "Channel Select Designation"

Many claims in the '952 patent use the word "operator" together with the phrase "channel select designation." It appears, for example, in claim 11 as follows:

A system for controlling a television receiver capable of tuning from a multi-channel input a television channel corresponding to a preassigned channel tuning designation upon receipt of a channel tuning control signal, the system comprising:

memory means for storing at least one operator-assigned channel select designation for at least one of said channel tuning designations;

operator-actuated control means for generating a control output signal comprising one of (a) a first data set representative of a desired channel select designation for one of said channel tuning designations, and (b) a second data set representative of a desired viewing channel identified by an operator selected one of said channel select designations;

processor means for receiving said control output signal from operator-actuated control means, and upon receipt of said first data set, causing said memory means to store said desired channel select designation as corresponding to said one channel tuning designation, and upon receipt of said second data set, retrieving from said memory means the one of said channel tuning designations corresponding to said operator selected channel select designation, and generating said channel tuning control signal to correspond to said one channel tuning designation;

wherein said memory means includes means for initially storing a channel select designation for each of said channel tuning designations which is identical thereto;

said operator-actuated control means including means for generating a memory clear signal;

said processor means including means for receiving said memory clear signal, and in response thereto, clearing said
memory and restoring therein said channel select designation for each of said channel tuning designations which is identical thereto.

(Doc. # 1, Exh. A at col. 18 (emphasis added)).

Beery contends - as he did during the Gemstar litigation - that a "channel select designation" is a control signal for picking a channel tuning designation which may be programmed into memory by a viewer, or by someone else, such as the cable service operator. In this manner, Beery argues that the term "operator" when used with the phrase "channel select designation" includes not only a person actually operating the system, such as the viewer, but also third parties such as cable service providers.

Thomson argues that proper definition of the phrase "channel select designation" was established by the courts during the Gemstar litigation and must therefore be limited to a television control system that allows the operator, the viewer, to program his or her own selected labels for tuning a television receiver to a television channel by the operator or another viewer. Thomson explains that this definition applies to the phrase "channel select designation" in all its various forms including, "operator-assigned channel select designation" and "operator selected channel select designation" and "desired channel select designation."

The prior conclusion, supra, § VIA, that collateral estoppel does not preclude construction of the '952 patent claim language in this case does not mean that the Gemstar courts' claim construction must be rejected; it simply means that this Court is not required to accept it under the doctrine of collateral estoppel. Thus, the Gemstar courts' claim construction provides insight into the proper construction of the phrase "channel select designation," at least to the extent that the '952 patent claims use this phrase in the same manner as the '734 patent. This it certainly does, and Beery seems to acknowledge this through his recognition that the '952 patent "includes the text of the '734 patent ...." (Doc. # 192 at 8).

Beery, however, further asserts that the '952 patent includes "the additional text in the '947 [patent], and many new claims present in neither the '734 nor the '947 [patents]." Id. He argues, "Thomson attempts to shoe-horn the '947 and '952 into the '734, as though the '952 never existed." (Doc. # 268 at 7). This contention is well taken.

The question is whether the '952 patent claim language reaches beyond the text of the '734 patent sufficient to justify Beery's expansion of the phrase "channel select designation" to include a channel tuning designation by a viewer or someone else, such as a cable operator. The phrase "channel select designation" as it appears in the '952 patent claims must be understood to include tuning designation by operators, viewers, or third-parties like cable television service providers. Looking first to the claim language, little clue is given to whether the phrase "channel select designation" only includes operators or viewers who enter tuning designations. This is because the phrase is conjoined with other terms such as "desired channel select designation" (claim 5) or "operator-assigned channel select designation" (claim 11) or "operator selected channel select designation" (claim 30). Reading these phrases only in the context of their surrounding claim language does not provide any meaningful guidepost to its meaning. Consequently, the specification must be consulted. See Zebco Corp., 175 F.3d at 990 (and cases cited therein).

The '952 patent specification describes a broader array of inventions incorporating the tune-by-label function than the '734 patent describes. One such invention involves programming by a cable service provider. The '952 patent specification states:

A further alternative to programming the control system through a data port is to program the system through the cable itself. Such an alternative might be useful, for example, where the cable service company itself wishes to program its subscriber's control systems to match the designation it uses for channels which it provides, or the designations used by local newspapers in providing program information. One cable channel may be reserved for transmitting the necessary data. The control system may be made responsive to such channel either on a periodic basis, or upon receiving an instruction program itself from the incoming data stream.

One cable provider may wish to provide multiple programmed series, useful for example where a cable provider serves an area covered by newspapers using different designations in their television listings. While this approach can be implemented in a number of ways, one possibility is to reserve a separate cable channel for each channel designation series. This will in fact enable the user to select the series desired, by tuning to the appropriate channel for programming of the control unit.
(Doc. # 1, Exh. A at col. 13, ll. 13-33).

To accept Thomson's construction and limit the "channel select designation" to operators and viewers, the Court would need to overlook this descriptive language in the specification. Because this explanation illuminates how a cable service provider can program its customers' television control systems with the cable provider's own channel select designations, the specification supports Beery's construction of this phrase. Both the absence of limiting terms in the claim language and this description in specification were sufficient to place a reader on notice that the phrase "channel select designation" was not limited to operators and viewers but also included third parties such as cable service providers. Cf. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1311 (Fed. Cir. 1999)(seemingly identical claim terms not interpreted same in light of specification and prosecution history).

Accordingly, the phrase "channel select designation" when combined with the word "operator" refers to a control signal for picking a channel tuning designation which may be programmed into memory by a viewer, or by someone else, such as the cable service operator.

4. Claim 10: "channels" "Channels" is construed to mean "communication pathways, each having a pre-assigned frequency, over which cellular telecommunications signals are carried."

2. Character-based Output Device

The phrase "character-based output device" means a device that processes data in the form of characters. It includes devices that process characters even though they may, at times, process data in the form of a bit map.

4. Character-based Representation of Said Color Image

The phrase "character-based representation of said color image" means that the representation is comprised of an array of characters.

5. characteristic

The term "characteristic" appears in claim 11 of the '345 patent. The plaintiff's proposed construction is "a distinguishing feature of a work, such as, beats per minute, length, resolution, artist name, song name, play count or genre." The defendant's counter-construction is "a property that can be determined by analyzing a recording (such as beats per minute, length, or video resolution), as opposed to information about a work such as "artist name" or "song name." After reviewing the briefs and the arguments of the parties, the court construes the term "characteristic" as "a distinguishing feature of a work."
F. Characteristic Impedance

Dependent Claim 15 claims: "The phase shift assembly as claimed in claim 1, wherein the at least first and second stripline sections each have a defined characteristic impedance." (Id., Claim 15, Col. 7, ll. 10-13 (emphasis added).) While Kathrein argues that "characteristic impedance" should be given its ordinary and customary meaning of a "property of a radio-frequency transmission line that is primarily determined by the geometry of the transmission line" (Pl.'s Claim Construction Br. 14), RYMSA contends that the construction of the term "characteristic impedance" should be consistent with the parties' agreed construction of the term "impedance values," i.e., "amounts of opposition to the flow of electric current" (Defs.' Claim Construction Br. 29-30; Notice Re: Undisputed Claim Terms, Ex. 1, Undisputed Claim Terms for '130 Patent, at 2).

The Court agrees with RYMSA that the proper definition of "characteristic impedance" must be consistent with the construction of the term "impedance values" as it is used in Claim 2 of the '130 Patent. Claim terms are normally used consistently throughout a patent, therefore the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). Thus, "impedance" should have the same or similar meaning in every phrase in which it appears.

In support of its construction, Kathrein relies a dictionary's definition of "characteristic impedance" as "a property of antenna transmission lines that is determined primarily by the diameter of the conductors and the spacing between them." (Pl.'s Claim Construction Br. 14, Ex. D, Modern Dictionary of Electronics 111 (7th ed. 1999).) In response, RYMSA argues that because transmission line geometry affects various physical and electromagnetic properties, a construction hinging on geometry may encompass a myriad of other unspecified properties. (Defs.' Claim Construction Br. 29-30.)

The Court finds Kathrein's definition problematic. Kathrein's dictionary definition of characteristic impedance includes reference to the spacing between the conductors and their diameter. (Id.) However, Kathrein has not explained how this is necessarily equivalent to the "geometry" of the transmission line, the phrase it uses in its definition of "characteristic impedance."

RYMSA's proffered construction of characteristic impedance is "the existing amount of opposition to the flow of electric current of a stripline." (Defs.' Claim Construction Br. at 30.) The Court finds RYMSA's use of the phrase "of a stripline" redundant when read in the context of the claim. Because the claim language states that each stripline has a defined characteristic impedance, it is unnecessary to add the descriptor "of a stripline." Further, the term "existing" by itself does not explain to a jury how "impedance value" differs from "characteristic impedance" because the latter term would be defined as "the existing impedance value."

The definition of characteristic impedance is closely related to, but not the same, as the definition of "impedance value." The parties agree that the definition of impedance values is "amounts of opposition to the flow of electric current." An impedance value is a calculable number that represents characteristic impedance. Characteristic impedance, on the other hand, is the amount of opposition to the flow of current that exists at any point as the electrical signal moves down a transmission line. (Id. defining characteristic impedance as "[t]he ratio of voltage to current at every point along a transmission line on which there are no standing waves"). Generally speaking, it could differ at different points. However, in the context of Claim 15, the Court's construction of "characteristic impedance" reads: "The phase shift assembly as claimed in claim 1, wherein the at least first and second stripline sections each have a defined [amount of opposition to the flow of current that exists at any point as the electrical signal moves down a transmission line]."

The Court adopts Defendants' construction of "loop characteristic parameters" as "values representing the electronic characteristics of the particular wire loop." The only dispute here is that Plaintiff's argue for the language "a function of" instead of "representing," so Plaintiff's proposed construction reads "values that are a function of the electronic characteristics of the particular wire loop. Plaintiff supports its construction with a citation to the specification. See '323
("Prior to initiating transport of modulated data over the loop 220, signals are exchanged over the loop 220 between the COT unit 232 and the CPE unit 242 to adapt the ADSL units to the electronic characteristics of the particular wire loop 220. For example, loop loss characteristics, which are a function of loop length, wire gauge, wire composition, and other factors, are exchanged. This exchange of information is often referred to as handshaking.") (emphasis added). But Plaintiff is mischaracterizing this language in the specification. The portion of the specification upon which Plaintiff relies explains that the electronic characteristics themselves are a "function" of the physical properties of the wire, such as "loop length, wire gauge, [and] wire composition"; it does not state, as Plaintiff argues, that "loop characteristic parameters" are a "function of" the electronic characteristics.

Therefore, since Plaintiff's reliance on the intrinsic record is misplaced, there is no clear support for either "a function of" or "representing" in the intrinsic record. However, Defendants use of "representing" is consistent with the plain meaning of a "parameter" according to various dictionary definitions. See Merriam-Webster's Collegiate Dictionary 898 (11th ed. 2006) (defining "parameter" as "something represented by a parameter: a characteristic element") (emphasis added); Webster's Third New International Dictionary 1638 (Merriam-Webster Inc., 1993) (defining "parameter" as "an arbitrary constant characterizing by each of its values some member of a system (as of expressions, curves, surfaces, functions) <we now develop an equation which, for suitable choice of a ~, will represent either a parabola, an ellipse, or a hyperbola—School Mathematics Study Group>") (emphasis added). So the Court concludes that "loop characteristic parameters" should be construed as "values representing the electronic characteristics of the particular wire loop."
physical properties. The specification explains that the relevant data includes "[o]verhead data of the condition, characteristics, status, and the like, of the individual blocks," including "an indication of how many times the block has been programmed and erased, voltage levels to be used for programming and/or erasing the block, whether the block is defective or not, and, if so, an address of a substitute good block, and the like." Id., col. 2, Ins. 56-63. Later, the specification distinguishes this type of overhead data from the type that may be stored with user data, explaining that "the overhead information that is stored in a block along with a sector of data is limited to information about the data itself and does not include physical overhead information about the block or its operation," id., col. 13, Ins. 61-64, while "information about the physical block is stored in another block," id., col. 14, Ins. 6-7. Additional examples of "this type of information about the physical block" include "experience cycles, numbers of pulse or voltages required to program or erase the block of cells, defects within the block, and like information," "flags including an indication that the user data block is a good one," voltage for programming or erasing the user data block and data indicating the wear of the user data block, id., col. 14, Ins. 1-4, 35-47, Fig. 9.

One example in the specification is silent about whether the "characteristic" involves a physical characteristic of the block. Figure 10 illustrates "an overhead record for a user data block that has exceeded its useful lifetime." Id., col. 14, Ins. 66-67. The figure shows a block of data containing "FLAGS," and "SPARE UNIT, BLOCK ADDRESS." The specification explains that the "SPARE UNIT, BLOCK ADDRESS" portion of Figure 10 specifies "the spare block's address." The specification says nothing about whether the address must be physical.

Although logical block addressing does not fit well in any of the three possible groups of data, it must fit somewhere, which means the question is where it fits best. I conclude that the best fit is with the group including "characteristics of" the blocks. Although the specification emphasizes that the data tends to relate to physical characteristics of the block, it refers to "addresses" generally in its example and does not suggest any reason for excluding logical addresses, which are at least indirectly about the physical block (each logical address is ultimately tied to a physical location when the controller "translate[s the] logical block address to a physical one." Id., col. 18, Ln. 30.

Moreover, treating logical block addresses like physical ones makes sense in light of the stated purpose of the invention, which includes avoiding "frequent rewriting of the overhead data, each time the user data is rewritten into the block" and "reduce[ing] the amount of time necessary to access and read the block overhead data." Id., col. 3, Ins. 3-7. Because a logical address is tied to a piece of user data in much the way a physical address would be and enjoys the same sort of stability, it would make sense to store logical addresses outside the user data block. I conclude that both logical and physical addresses are "characteristics of" user data blocks.

Characterized as being a member of one category selected from a plurality of categories and Characterized in the display as being a member of a category selected from a plurality of categories

Sklar contends one of ordinary skill in the art reading the claims, the specification, and the file history would understand the terms have their plain ordinary meaning. If the terms require construction, Sklar proposes the terms should mean "a category is a collection of items having a common characteristic, and being a member of one category is one item in one category where more than one category exists." The Court, however, modifies Sklar's proposed construction and construes the terms to mean "one characteristic of an item is that it is a member of at least one category, where multiple categories exist." Microsoft argues that the terms should be construed to mean "the method identifies each item as being a member of one category and as not being a member of one or more other categories. A category is a collection of items having a common characteristic, such as 'electric' cars available for sale or web pages with the term 'Oakland Raiders.'" Microsoft seeks to add the limitation that items in categories have common characteristics and that each item cannot be a member of more than one category. Microsoft claims its interpretation is consistent with the embodiment described in Fig. 11 of the patents-in-suit. Microsoft attempts to incorporate unnecessary limitations into the claims through a restrictive definition of "category," requiring that each item in the category have a common characteristic. Microsoft points to the specification as providing a basis for its interpretation: "Using the category labels and item labels, a display area can efficiently be populated, while giving the user an indication of the overall organization of the data in the database." '843 patent, Col. 11:8-10 (emphasis added). The specification, however, describes categories in more detail than Microsoft alludes to: "each label represents either an item or a category, where an item label represents an individual
item, while a category label represents an entire category of items." '843 patent, Col. 4: 46-48 (emphasis added). There are examples in the patents-in-suit of items being grouped together based on a common characteristic and examples of items being grouped together simply because they are displayed on a map in close proximity. '843 patent, Col. 7:48-49. There is no reason to incorporate the limitations of one embodiment and not the other when the claim language requires neither. Microsoft seeks to add the limitation that an item be "characterized" as being a member of only one category and as not being a member of one or more other categories. The claims do not require that an item is a member of only one category. To the contrary, the patents-in-suit teach that an item can be in more than one category. '843 patent, Col. 7: 38-41 ("the system could be designed to allow a record to be in more than one cluster"). Microsoft has provided no viable argument requiring an item to belong in one category and no others. Accordingly, the Court construes this term as set forth above.

The main issue before the district court involved whether claim 1 should be construed such that the "first monitor" and "second monitor" perform their ascribed functions simultaneously. Claim 1 of the '453 patent, in relevant part, requires:

A photographic self-portrait installation comprising a video-photo installation including a video-camera for viewing a subject user, characterized by a first monitor for reproducing a real-time image of the user as a background on the monitor screen, . . . [and] a second monitor for displaying a composite of a user-created frozen real-time image as a background and at least one user-selected computer-digitised image from the memory store as a foreground, . . .

The district court set forth its partial claim construction in a verbal ruling during an October 18, 2001, hearing on cross-motions for summary judgment. At that hearing, the court stated its conclusion that "the claim limitations require two monitors which display different images at the same time: a real-time image on the first monitor and a frozen image on the second monitor." In a subsequent order dated October 31, 2001, the district court granted summary judgment as to the patent infringement claim in favor of Foto Fantasy "for the reasons stated by the Court in its rulings during the October 18, 2001 hearing."

Photomagic has timely appealed to this court, principally challenging the district court's claim construction. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II

A

This court reviews without deference a district court's grant of summary judgment. Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1355 (Fed. Cir. 2000); Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315, 47 USPQ2d 1272, 1275 (Fed. Cir. 1998). A district court's claim construction is a question of law which we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (en banc).

B

The principal and dispositive issue on appeal involves the district court's partial claim construction, which requires that the first and second monitors display "different images at the same time." Photomagic contends in this appeal that the district court improperly imported a limitation derived from the embodiment described in the specification into claim 1 because the "temporal and functional 'time reference'" limitation at issue has no basis in the claim language or written description.

The district court - relying in part on the written description - concluded that, if claim 1 were not construed such that the claimed "first monitor" and "second monitor" did not perform their functions simultaneously, the second monitor would be rendered superfluous. Thus, to avoid a claim construction in which "the second monitor, in effect, has no function separate from the first," the district court ruled that "in light of the specifications as well as a review of the other claims . . . the claim limitations require two monitors which display different images at the same time: a real image on the first monitor and a
C

This court has frequently described certain fundamental principles governing the process of claim construction. "The starting point for any claim construction must be the claims themselves." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). After reviewing the claim language, it is then appropriate for a court to consider the rest of the intrinsic evidence, beginning with the specification and concluding with the prosecution history, if in evidence. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996) (citation omitted); Markman v. Westview Instruments, Inc., 52 F.3d 967, 979, 34 USPQ2d 1321, 1329 (Fed. Cir. 1995) (noting rule that claims be read in view of the specification). However, "if the claim language is clear on its face, then [a court's] consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of the claims is specified." Interactive Gift Express, Inc. v. Compsure, Inc., 256 F.3d 1323, 1331, 59 USPQ2d 1401, 1406-07 (Fed. Cir. 2001). Finally, we have frequently emphasized the rule that "particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Electro Med. Sys. S.A. v. Cooper Life Sci., 34 F.3d 1048, 1054, 32 USPQ2d 1017, 1021 (Fed. Cir. 1994); see also Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347, 49 USPQ2d 1199, 1203 (Fed. Cir. 1998) ("[A] court may not import limitations from the written description into the claims.").

D

Beginning by considering the claim language, we cannot discern in the express language of claim 1 any requirement that the respective functions of the first and second monitor be performed simultaneously. Nor can we discern any ambiguity or lack of clarity in the language of claim 1 sufficient to necessitate resort to the written description. Accordingly, our consideration of the written description is appropriately restricted "to determining if a deviation from the clear language of the claims is specified." Interactive Gift Express, 256 F.3d at 1331, 59 USPQ2d at 1406-07.

Turning to the specification, we address Foto Fantasy's contention that the language used to describe the claimed invention required the district court to import a temporal limitation. Foto Fantasy relies on language from the written description which states that the claimed invention "gives the user versatile control over its operation and the resultant print, the user being able to select and reselect the real time image to be recorded and to select and reselect the digitized image prior to the ultimate decision to print the resulting montage." Foto Fantasy argues that "in order to achieve these asserted advantages and allow this comparison, the booth must have two monitors, each of which displays a different image, one being the real time image and the other being the frozen composite image." While acknowledging the general rule forbidding the importation of limitations from the description of the preferred embodiment, Foto Fantasy urges application of the narrow exception that states "when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment" (quoting Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1551, 37 USPQ2d 1609, 1612 (Fed. Cir. 1996)).

Footnotes


We find Foto Fantasy's argument unpersuasive. As an initial matter, we find Foto Fantasy's invocation of the exception articulated in Modine inapposite. In Modine, a numerical range necessary to the definition of an indefinite claim limitation was contained in the sole embodiment of the relevant claim described in the specification. 75 F.3d at 1551 (concluding that the ambiguous claim language "relatively small" should be read in light of the numerical range of "about 0.015-0.040 inch" included in the written description). This is not an analogous case. Claim 1 recites a first and a second monitor as well as the ascribed functions of the first and second monitor. We can find nothing in claim 1 that is sufficiently ambiguous or undefined to require us to resort to the written description in construing the claim. See Renishaw PLC v. Marposs Societa per Azioni, 158 F.3d 1243, 1248, 48 USPQ2d 1117, 1121 (Fed. Cir. 1998) ("If we need not rely on a limitation to interpret what the patentee meant by a particular term or phrase in a claim, that limitation is 'extraneous' and cannot constrain the
claim.

2 It is not clear to us that this is a case where the written description is "described as the invention itself." However, because we reject Foto Fantasy's argument on other grounds, we assume, arguendo, that the '453 patent does present such a case. Accordingly, we specifically do not decide the question of whether this is a case "where the patentee describes an embodiment as being the invention itself and not only one way of utilizing it." Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 398, 155 USPQ 697, 703 (Ct. Cl. 1967); see also Modine, 75 F.3d at 1551, 37 USPQ2d at 1612.

Additionally, it appears clear to us that the language relied upon by Foto Fantasy describing the advantage of "versatile control" not only does not require - but fails even to imply - any "comparison" of the real-time and frozen images. A description of the "selection" and "resele action" process precedes the language upon which Foto Fantasy relies. This description explains that "if the frozen montage [i.e., composite image] is acceptable to the user," the user may cause it to be printed by "depressing" the "print button." "If, however, the frozen montage is unacceptable, it can be released and the user can reseselect a montage of acceptable form for subsequent printing." Thus, as described in the specification, the user's determination during the "reselection" process is limited to whether the frozen image is "acceptable" or "unacceptable," not - as Foto Fantasy asserts - whether the frozen image is better or worse than the real-time image. Accordingly, the written description does not support Foto Fantasy's contention that the asserted advantage of "versatile control" or the described "selection and reselection" process requires that the user be able to compare the real-time and frozen images. Thus, we cannot find that the written description provides the necessary "evidence to indicate that . . . limitations must be imported into the claim[] to give meaning to disputed terms." Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 USPQ2d 1057, 1065 (Fed. Cir. 1988); see also Specialty Composites v. Cabot Corp., 845 F.2d 981, 987, 6 USPQ2d 1601, 1605 (Fed. Cir. 1988) ("Where a specification does not require a limitation, that limitation should not be read from the specification into the claims.") (citation omitted).

In sum, we conclude that the language of claim 1 requires only that the apparatus have a first and a second monitor, the first of which "reproduces a real time image of the user as a background on the monitor screen" and the second of which "displays a composite of a user-created frozen real time image as a background and at least one user-selected computer-digitised image from the memory store as a foreground." Neither the claim language or the written description necessitates interpreting the claim to specify the simultaneous performance of these two functions. 3 We therefore hold that the district court erred by ruling that "the claim limitations require two monitors which display different images at the same time."

3 Because claim 1 was drafted using the recognized term of art "comprising" in the transitional language, it is an "open" claim that must be construed as including the recited elements, but not excluding additional, unrecited elements. See generally Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28, 52 USPQ2d 1590, 1595 (Fed. Cir. 1999). Thus, there is no basis for concluding that the first and second monitors may not, in addition to performing their ascribed functions, also perform additional functions. Accordingly, the first monitor may - at some time or period of time during operation of the apparatus - perform the function ascribed to the second monitor and vice versa so long as each monitor also performs the functions ascribed to it by the claim.

Finally, we note that Foto Fantasy also urges on appeal that the district court's claim construction was appropriate because it was necessary to prevent invalidity and also that the district court's construction was strongly supported by the '453 patent's prosecution history. The record before us indicates that the district court declined to hear argument on these issues, and the extent to which the district court relied on Foto Fantasy's invalidity and prosecution history arguments - if at all - is not reflected in the record before us. Accordingly, this court's holding is limited to the conclusion that neither the language of
claim 1 nor the written description justified construing the claim to include the limitation that the first and second monitors perform their ascribed functions simultaneously.

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1. "characterized in that the B-mode image is displayed within said blood flow display region while said blood flow display region is moved"

Plaintiffs' construction: comprising a B-mode image which is displayed in the blood flow display region while the blood flow display region is moved

Defendant's construction: characterized in that the B-mode image is always displayed in place of the blood flow image within the blood flow display region while the blood flow display region is moved, and the blood flow image is never displayed within the blood flow display region while the region is moved

Plaintiffs' construction of this term is minimal. The only difference between their construction and the term itself is a replacement of the word "characterized" with the word "comprising," an alteration they assert is appropriate given the court of appeals' explanation that "comprising" is synonymous with "including," "containing" and "characterized by." Plts.' Br., dkt. # 52 at 16 (citing Mars v. H.J. Heinz Co., L.P., 377 F.3d 1369, 1376 (Fed. Cir. 2004), and Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997)). However, there is no indication that such a substitution of a less common synonym of "characterized by" is of any value in understanding the meaning of the '294 patent. In effect, plaintiffs are arguing for no construction at all.

On the other hand, defendant seeks to add the limitation to the claim language that, when the blood flow display region is moved, only the B-mode or grayscale image is displayed. In support of its position, defendant relies on the patent specification and several types of extrinsic evidence. Defendant starts with the "Summary of the Invention," which explains that "the B-mode image is displayed in place of the blood flow image while the blood flow display region is moved, and the blood flow image is displayed while the blood flow display region is stopped." '294 pat., col. 1, Ins. 61-65. This statement supports defendant's construction that, when the blood flow display region is moving, only the B-mode image will be displayed. In fact, it is difficult to imagine a less precise explanation of how the patented invention works.

Plaintiffs attempt to rebut defendant's argument with general statements about the importance of avoiding the importation of a preferred embodiment into the claim language. However, that is not what is happening here. The cited passage from the Summary of the Invention was made in the context of a discussion of "the present invention." Therefore, it is appropriate to apply this limitation to the invention as a whole. Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."); Honeywell International, Inc., v. ITT Industries, 452 F.3d 1312, 1318 (Fed. Cir. 2006) (written description discussing "this invention" and "the present invention" may limit claim scope); C.R. Bard, Inc. v. United States Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole are more likely to be found in certain sections of the specification, such as the Summary of the Invention.") Finally, given the unequivocal language of this portion of the specification, it is not necessary to evaluate whether the preferred embodiment or extrinsic evidence support such a limitation as well.

Court's construction: "characterized in that the B-mode image is displayed within said blood flow display region while said blood flow display region is moved" means "characterized in that the B-mode image is always displayed in place of the blood flow image within the blood flow display region while the blood flow display region is moved, and the blood flow image is never displayed within the blood flow display region while the region is moved"

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A First Gate Drive Circuit for Charge Pumping a Node
The Court first addresses the term "a first gate drive circuit for charge pumping a node." ST argues that the term should be construed as "a first circuit that drives a power transistor by alternately taking on charge and delivering charge to the gate of the transistor in a repetitive process." Motorola asserts that the term should be construed as "a first charge pump that delivers charge to the gate of the MOS power transistor by shifting the negative side of a first capacitor from a lower voltage to a higher voltage, wherein said capacitor is not an external capacitor."

The Court declines to accept either proposed construction and instead construes the term to mean "a first circuit that drives a power transistor by raising the electrical potential in an additive, charge transfer process in the manner of a pump." First, the Court does not simply replace the term "gate drive circuit" with "charge pump" because of ambiguities that may be added. Motorola admits that it cannot find a dictionary definition for "charge pump," and the Court is not willing to insert a term having unknown boundaries. Therefore, the Court's construction describes the gate drive circuit's function "in the manner of a pump" without exchanging one ambiguous term for another. Second, ST's description of "alternately taking on charge and delivering charge to the gate of the transistor in a repetitive process" is also inadequate. The purpose of the first gate drive circuit is to raise the transistor's electrical potential to an appropriate level, not simply to deliver charge. The Court replaces that part of ST's proposed construction in order to more accurately describe the first gate drive circuit's purpose.

A. Is "charge sink means" a means plus function clause?

The inquiry into the meaning of this claim language begins with examination of whether "charge sink means" describes a means for performing a function under 35 U.S.C. § 112, para. 6 (1988). Under section 112, an inventor may use functional language to describe an invention. However, title 35 limits the scope of a means-plus-function claim to the "corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112. The different statutory rule for construing means-plus-function claims requires this court to determine whether this claim which recites some structure falls within the ambit of section 112.

The Federal Circuit has clarified that the recitation of some structure does not remove a claim from the ambit of section 112. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536 (Fed. Cir. 1991). This court, however, must still confront the question of how much recitation of structure removes a claim from the interpretive requirements of section 112, paragraph 6.

Several other courts have confronted this issue. In Fairchild Semiconductor Corp. v. Nintendo Co., 1994 U.S. Dist. LEXIS 3853, 30 U.S.P.Q.2D (BNA) 1657 (N.D. Cal.), aff'd, 39 F.3d 1197 (Fed. Cir. 1994) (table), another district court interpreted the language "chute means including a locking means having a detent for engaging said locking recess of said cartridge means to hold said cartridge means in a received position" to include a means-plus-function term. The court first noted that the application used the word "means." Id. at 1660. The court then noted that the word "locking" was unintelligible without reference to a function. While accepting that the claim contained structure such as "a detent," the court nonetheless applied section 112 to the term "locking means." Id.

In AMP, Inc. v. Fujitsu Microelectronics, Inc., 853 F. Supp. 808 (M.D. Pa. 1994), still another district court interpreted "bus solder tail means" to fall outside a means-plus-function format. The court found the words "bus solder tail" described a specific structure rather than a function. Id. at 820.

This court's analysis of the application of § 112 begins with examination of the '485 patent's claim language. The claim expressly uses the term "charge sink means." The word "means" is a significant term of art. The Federal Circuit's decision in Laitram suggests that the use of the word "means" presumptively places one within section 112. 939 F.2d at 1536. Inventors are not likely to use such an important legal term unless they intend to place themselves within the ambit of section 112.

The additional language in element d of claim 1 does not set forth a discernible structure. Instead, this additional language describes the location of the charge sink means, not its structure. For example, element d indicates that the "charge sink means" is "buried within" the semiconductor material and "disposed for receiving excess charge." These additional words identify the location of the charge sink means. They do not provide sufficient structure to overcome the presumption that the inventor intended to invoke the rules of § 112 by using the term "means."
Significantly, even Loral's expert witness described a "charge sink means" as a way of performing a function. The court asked Dr. Barbe to define "charge sink means." Dr. Barbe responded: "It is a way for removing excess charge from the light sensing element which is collecting the charge." Transcript at 211. Loral's own expert and one skilled in the art understood "charge sink means" to describe a function rather than a structure. Transcript at 211-12. In sum, this court determines that the term "charge sink means" falls within the rules of the sixth paragraph of section 112.

Having determined "charge sink means" describes a means-plus-function element, the court turns to interpreting those words with reference to the structure described in the specification. Valmont Indus., Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed. Cir. 1993). The structure, material or acts described in the specification and equivalents thereof set the bounds of this means-plus-function claim. Id. 1

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
1 However, the final inquiry as to whether an accused element is "an equivalent thereof" is a question of fact. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1575 (Fed. Cir. 1985).

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

The specification of the '485 patent describes and depicts only one charge sink means. Figure 1 shows a region of highly doped semiconductor material, 14, surrounded by a depletion region, 27, created upon application of a bias to the highly doped region of semiconductor material. The specification further describes the charge sink means as a region formed on the surface of a layer of semiconductor material with an epitaxial layer of semiconductor material formed over the top of the charge sink means and first substrate layer.

The specification describes formation of the charge sink region. The first step implants or diffuses an N type impurity into the first layer of P type semiconductor material to form a high conductivity N + type region. Next, additional P type semiconductor material is formed over the first layer to cover the charge sink region. The specification then notes that application of a potential forms a depletion region around the charge sink region.

Loral's expert, Dr. Barbe, as noted earlier, viewed the charge sink means in functional terms. When the court asked Dr. Barbe to describe the structure associated with that function, he testified: "The structure, the basic structure is a -- one embodiment of the structure, which is shown in figure one of the ["674] patent, is a P/N junction, which is created beneath the light sensing element." Transcript at 211-12. In similar terms, he described the charge sink means as the highly doped region, numbered 14 in Figure 1 of the '485 patent, and its associated depletion region. Transcript at 68.

Dr. Barbe agreed that differences in the type of impurities in the semiconductor substrate occur only at the PN junction between region 14 and regions 11 and 12. Dr. Barbe proceeded to testify in argumentative fashion obviously geared to the outcome of litigation. In this vein, he tried to encompass the depletion region within the structure of the charge sink means. He argued that a bias applied to the charge sink region forces electrons out of the surrounding area to form the depletion region. According to Dr. Barbe, this area constitutes structure and is part of the charge sink means. To the contrary, a depletion region exists at any P/N junction regardless of the application of a bias. In the claimed invention, the depletion region functions to receive excess charges flowing out of the light sensing element. Transcript at 105. As conceded by Dr. Barbe, the depletion region is a region influenced by the application of bias, not a region characterized by a different structure. The depletion region is a functional region, not a structural region.

Dr. Bower convincingly underscored this precise point. On several occasions, he stressed that the depletion region is not structure. During direct examination, he specifically stated that the depletion region is not structure. Transcript at 136-37. Dr. Bower explained that the doping of the semiconductor material defines atomic structure. This doping makes the semiconductor material N or P type, Transcript at 137. The free electrons do not obey the boundaries defined by the P and N type materials. Instead they "spill over" the boundary between P and N type material. Id.

During cross-examination, Dr. Bower emphasized that "structures are three-dimensional entities that have geometrical definition that are put into the semiconductor, or built on the semiconductor, and it is applying voltages to those that allow us to cause free carriers to move and congregate in certain areas, or disburse." Transcript at 177. In understanding the structure to be built, one skilled in the art would look to those things that form three-dimensional structures, formed through the use of masks, and processes using those masks. Id. These structures, when given a bias, then function to create depletion
regions. Id. The depletion region is an area defined by the function of the structures. In these areas, the structures exert control over free carriers.

Thus, this court concludes that the specification describes the structure of the charge sink means as a region of semiconductor material doped opposite from its surrounding semiconductor material. The charge sink means does not include its associated depletion region.

Claim 3 specifically describes a charge sink means as a region of opposite conductivity to its surrounding semiconductor material. This specific description of the charge sink means in claim 3 does not suggest that the charge sink means in claim 1 is broader than that of claim 3. In this patent, claim 3 does not describe an invention distinct from claim 1. In other words, the doctrine of claim differentiation does not operate to distinguish the more specific language in claim 3 from the language of claim 1. As the Federal Circuit has noted, the doctrine of claim differentiation cannot override the limitations resulting from application of the rules for interpreting means-plus-function limitations. Laitram, 939 F.2d at 1538. In the '485 patent, claim 3 buttresses this court's reading of claim 1 by describing more specifically the structure of the "charge sink means" as disclosed by the structure in the specification.

XVI. "Charger"

The Court next turns to the term "charger" from claims 9 and 10 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker asserts that the term "charger" simply means "charger" and notes that it adopts the plain and ordinary meaning. Bosch argues that the Court should construe the term as "a device that receives the DC output voltage from the first power source and transforms that DC output voltage to a voltage equal to an input voltage of the battery to charge the battery."

B. The Parties' Arguments

Claim 9 of the '925 patent requires a "charger to charge said secondary rechargeable direct current power source from said first power source." Black & Decker contends that "charger" should simply have its plain and ordinary meaning, which Webster's New World College Dictionary, 4th Ed. (1999) provides as "an apparatus used to charge storage batteries." Bosch agrees that the "charger" charges batteries, but seeks to include additional limitations. Bosch, however, fails to point to any portion of the intrinsic record that requires a limitation on the term "charger" beyond its plain and ordinary meaning. The language of the claim itself plainly sets forth the scope of the term "charger" -- an apparatus that charges the secondary rechargeable direct current power source from the first power source. Adopting Bosch's proposed construction would render claim 9 of the '925 patent nonsensical and incorporate limitations into the claim that are not present. Accordingly, the Court adopts Black & Decker's proposed construction of "charger" which is "charger, having its plain and ordinary meaning, which is 'an apparatus used to charge stored batteries.'"
6. "a chassis comprising a front panel"

This term appears in the '408 patent claims 1 and 9. Rackable contends that "a chassis comprising a front panel" means a "frame or housing for the general purpose computer including the main board and including a front panel providing access as claimed." Supermicro asserts that "a chassis comprising a front panel" means "a frame or housing including a front panel."

The essence of the dispute is whether the "chassis" is for a general purpose computer, or whether it is simply any frame or housing. Again, Rackable argues for the narrower, more specific construction, and Supermicro the broad one.

Rackable argues that the claims themselves refer to "the computer" and the various components of the computer, supporting its construction. It further asserts that the specification and the "summary of the invention" explicitly state that the chassis is for a general purpose computer, and not simply any frame or housing. Additionally, Rackable argues that the embodiments support its construction, and demonstrate a chassis built up with certain components, including a main board.

In response, Supermicro argues that Rackable's construction is too limiting. Even if it were a chassis for a computer, Supermicro notes that contrary to Rackable's construction, it should not be construed only as a frame or housing for a "general purpose computer" or server. It argues that Rackable is attempting to import an inappropriate limitation into the term.

The court indicated at the hearing that Rackable's reference to "computer" in its construction of the term was redundant, given the fact that the broader context of the claim is the computer itself. In response to the court's inquiries, Rackable indicated agreement with Supermicro's construction. Because claims must be construed in a manner that avoids such redundancies, the court adopts Supermicro's definition, and construes the term "a chassis comprising a front panel" as a frame or housing including a front panel. See Unique Concepts Inc. v. Brown, 939 F.2d 1558, 1562 (Fed. Cir. 1991) (merging one element into another is improper because it renders claim language redundant).

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A. "chip memory apparatus"

The parties dispute the term "chip memory apparatus," which appears twice in dependent claim 15 (col. 8:13-27) (emphasis added):

15. A semiconductor chip memory apparatus for storage of pre-recorded audio, said memory apparatus adapted for use with a solid state audio player, said apparatus comprising:

   a plurality of memory cells for storing digital data therein;

   address shift register for receiving serial data corresponding to addresses of memory locations; data shift register for outputting serial data read from selected memory locations;

   said chip memory apparatus including a housing, said housing including a graphics display area for inclusion of indicia pertaining to said pre-recorded music; and

   said housing including a hole disposed at an end thereof, whereby said apparatus may be transported by means of a carrying device attached through said hole.

The parties' proposed constructions are shown below:

<table>
<thead>
<tr>
<th>LSI'S PROPOSED CONSTRUCTION</th>
<th>SANDISK'S PROPOSED CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OF &quot;CHIP MEMORY APPARATUS&quot;</td>
<td>OF &quot;CHIP MEMORY APPARATUS&quot;</td>
</tr>
<tr>
<td>No construction necessary</td>
<td>&quot;Memory chip that is adapted to be</td>
</tr>
<tr>
<td>(explained below). Otherwise:</td>
<td>inserted into an accompanying audio</td>
</tr>
</tbody>
</table>

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"A device that includes a player, wherein the memory chip is not an audio player.

As mentioned at the claim construction hearing, LSI believes that because "chip memory apparatus" appears in the preamble, it should not be construed. On top of this, LSI contends that the preamble as a whole is not limiting because it merely recites a purpose or intended use for the invention. These arguments are unpersuasive. While the term "chip memory apparatus" does indeed appear in the preamble of claim 15, it also appears in body of the claim. This fact alone distinguishes the Federal Circuit decision cited by LSI, which involved a term that appeared exclusively in the preamble. IMS Tech. Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1434 (Fed. Cir. 2000). Moreover, IMS Tech involved the amorphous term "control apparatus." 206 F.3d at 1434. The term disputed here -- "chip memory apparatus" -- presents concrete questions of whether and to what extent the apparatus should be limited to memory chips. Indeed, this dispute boils down to just that question.

As framed by the parties at oral argument, this construction centers on whether the "chip memory apparatus" can itself be an audio player. SanDisk argues that the "chip memory apparatus" cannot be an audio player. LSI argues the opposite. Thankfully, the claim language provides clear guidance on this issue. The disputed "chip memory apparatus" is found in claims 15 through 19 (see cols. 6:50-8:12, 8:13-45). As described in claim 15, a "chip memory apparatus" is used "for storage of pre-recorded audio, said memory apparatus adapted for use with a solid state audio player" (col. 8:13-15) (emphasis added). This language is notably different from claims 1 through 14, which cover a "memory chip" that is "adapted for insertion into an associated audio player."

These differences between claims 1 through 14 (the "memory chip" claims), and claims 15 through 19 (the "chip memory apparatus" claims) support two presumptions under the doctrine of claim differentiation: (1) a "chip memory apparatus" is not simply a "memory chip" and (2) a "chip memory apparatus" does not need to be "adapted for insertion into" an audio player. Rather, it need only be "adapted for use with" an audio player. As such, SanDisk's proposed construction directly contradicts the language of the claims.

Finally, nothing in the language of claim 15 prevents the "chip memory apparatus" from itself being an audio player. This does not mean, however, that the audio player mentioned in claim 15 can be the apparatus itself. Recall that the preamble described the "chip memory apparatus" as "adapted for use with a solid state audio player" (col. 8:13-16) (emphasis added). A person having ordinary skill in the art at the time the patent application was filed would have understood this language to mean that the "chip memory apparatus" and the audio player were not one and the same. Rather, the "chip memory apparatus" must be adapted for use with a separate audio player.

In sum, whether or not the "chip memory apparatus" can itself be an audio player is besides the point. Even if it was, this would not satisfy the limitation in claim 15 that the "chip memory apparatus" be adapted for use with a separate audio player. As such, the term "chip memory apparatus" is construed to be "a device that includes memory on a semiconductor chip that is adapted for use with a separate audio player."

b. Choosing a dynamic model for the plant from a group of specimen sequenced-dynamic-factory models

The parties dispute the limitation "choosing a dynamic model for the plant from a group of specimen sequenced-dynamic-factory models." ITI submits that this phrase should be interpreted to mean selecting a representation or simulation that is marked by change of a manufacturing plant that has fabrication sequences and which makes a variety of products using different machines. Defendants suggest that the Court should construe the limitation as "selecting a dynamic model from a group of models. Creating or selecting data or data files that describe the manufacturing plant (for example, process flows, products, equipment, residence times, yields, equipment failure or repair rates, setup time requirements, start rates, lot sizes, dispatch schemes, or initial positions of lots) is not 'choosing a dynamic model.'"

The parties agree that the ordinary meaning of "dynamic model" is a representation or simulation marked by change. It is unclear why defendants do not use this definition in their proposed construction, but it is sufficient that they acknowledge the agreement in their brief. See Defs' Brief at 9. The primary difference between the parties' proffered definitions seems to
be that defendants wish to insert an exclusion to show that there is a distinction between the model itself and the data files that go into the model. ITI, in contrast, maintains that although a model is chosen, that model has certain data associated with it, and the claim does not exclude the possibility of creating or selecting data. During oral argument, defendants clarified that they are not asserting that the invention cannot use data files, but are simply arguing that the selection of data files in a particular model is not the act of choosing a model from a group of models for a particular simulation. Defendants contend that the specification and prosecution history confirm their reading of the claim language.

According to the specification, the invention provides a standard class of specimen models for distributed factories which have fabrication sequences. Members of this class are called sequenced-dynamic-factory (SDF) models. The class is defined by sets of fundamental rules for the definitions of fabrication sequence, queues, scheduling rules, batching, set-up times, yield, reliability, and other variables. A choice of rules from each set defines an individual model... An individual model from the class above is chosen; the choice is based upon the match between the dynamic characteristics of the model and those of the factory.

U.S. Patent No. 4,796,194. col. 5, lines 34-47.

Turning to the prosecution history, claim 18 was amended to specify that a dynamic model is chosen "from a group of specimen sequenced-dynamic-factory models." Feb. 22, 1988 Amendments at 2, Defs' Ex. B. The inventor, Robert Atherton, explained that the change was made to distinguish the present invention from the model used in prior art, specifically, the Dayhoff-Atherton paper. See id. at 4. He explained that the model depicted in the Dayhoff-Atherton paper was "a single, fixed model which is used with different fabrication processes. The fixed model is used with different manufacturing processes by providing a data file that is specific to a particular manufacturing process... There is no selection from a group of specimen sequenced-dynamic-factory models." Id. In Atherton's affidavit attached to the amendments, he further elaborates on the Dayhoff-Atherton model:

In that model "the entire manufacturing plant [is] represented as a queueing network." The queueing network is discussed further in terms of "servers," "service times," and a network of "multiple deterministic paths." The factory is described to the model in terms of the parameters of the queueing network called out in a nomenclature of factory terms. Examples include "residence times, yields, equipment failure or repair rates, setup time requirements, start rates, lot sizes."

Atherton Decl. P 4, Defs' Ex. C.

The Court does not believe that either the specification or prosecution history requires defendants' reading of the limitation. The distinction Atherton made between the current invention and the Dayhoff-Atherton model involved selecting a model from a group of available models as opposed to simply selecting different data for a single model. The specification similarly makes it clear that a model is chosen based on a match between the characteristics of the model and the factory. Defendants' exclusion is unnecessary and an issue for infringement, not claim construction. Taking both sides' positions into account, the Court adopts the following construction: selecting a representation or simulation that is marked by change of a manufacturing plant from a group of such models.

ITI contends that the proper construction of the limitation "the chosen factory-specific model containing descriptions of the dynamic interactions of part lots and machines in the plant" is: the model chosen describes how groups of like parts and machines act upon each other in a real plant. Defendants' position is that the language should be interpreted as: the chosen model contains descriptions of how the type and order of process steps change during the time the model is run.

Defendants maintain that ITI's construction is flawed because it lacks any reference to the "dynamic" nature of the interactions. They emphasize that the dynamic interactions between part lots and machines arise due to changes in the path of the lots through the machines in the factory, i.e., changes in fabrication sequences. The Court agrees with defendants'
reasoning. But defendants' interpretation incorporates the "type and order" language that the Court previously rejected in the context of defining "fabrication sequences." In their response brief, defendants suggest that "dynamic interactions" means changes in the way that the part lots and machines act upon one another.Defs' Resp. at 22. The Court believes this sentence best describes how someone skilled in the technology would interpret the ordinary and customary meaning of the phrase. Incorporating the meaning of "lots" - the specification states that "lots are composed of like parts and follow a fabrication-sequence," U.S. Patent No. 4,796,194, col. 10, lines 66-68 - the Court construes the limitation to mean: the chosen model contains descriptions of changes in the way that groups of like parts and machines act upon one another.

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a. Cinematic Work

The parties' first disagreement is over the meaning of "cinematic work." The defendants argue that a cinematic work must be an entire motion picture, not just a portion as Bloomstein contends. The defendants reason that the Bloomstein claims' focus on efficiency and periodic references to dubbing foreign films supports the interpretation that the invention must apply to the entire film.

The most applicable plain meaning of a "work" is "something produced by the exercise of creative talent or expenditure of creative effort: artistic production." Webster's New Collegiate Dictionary 1350 (1977). This definition does not clearly limit an artistic work to the entire artistic endeavor. Furthermore, even if the claims should be limited to the context of dubbing a foreign language to a native one, it is possible that the process described in the claims would be applied to dub only portions of the motion picture, leaving other portions in the unaltered language and appearance. See Joint Memorandum, Ex. A at column 8:12-15, column 12:28-32. In light of the plain language of the claims and specifications, the court determines that "cinematic work" is not limited to an entire motion picture, but may be only a portion of a motion picture.

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The parties' proposed constructions raise two central points of contention: (1) whether the board must be electrically insulated, and (2) whether the board must include conductive paths located on or within the board. DPS urges the Court to adopt both limitations. PDI argues for neither.

In accordance with the principles explained above, the Court begins its analysis by looking at the claim language. The only reference to the term "circuit board" is found in claim 1 of the '516 patent. Claim 1 provides in full:

1. A branch circuit monitor for monitoring parameters of power on each of a plurality of branch circuits extending from a panel board or circuit breaker box, said panel board or circuit breaker box including a plurality of circuit breakers arranged to distribute power from a main line that is terminated within the panel board or circuit breaker box to a plurality of branch circuits, comprising:

   a plurality of non-contact current sensors arranged to monitor currents in wires of branch circuits extending from said panel board or circuit breaker box, said non-contact current sensors surrounding said branch circuit wires; and

   a controller module,

   wherein the controller module is connected to an output of the non-contact current sensors, and wherein the controller module is arranged to process, for each of said branch circuits, currents measured by the non-contact current sensors, and

   wherein said non-contact sensors are mounted on a circuit board positioned near to said panel board or circuit breaker box.

'516 Patent, col. 4, line 52 to col. 5, line 5. The specification does little to expound on the term "circuit board," other than to describe the preferred embodiment as a "printed circuit board." See '516 Patent, col. 4, lines 15-16.
The prosecution history gives some guidance. A claim in the original patent application recited "printed circuit board," however, in a Preliminary Amendment Before Examination, the applicant amended the term to read "circuit board." DPS Memo. in Supp., Ex. M, at 2 (Oct. 18, 2000). The applicant then distinguished a prior art patent by explaining that the prior art "does not disclose or suggest . . . mounting of the non-contact branch circuit current sensors on a separate circuit board." Id. It appears, therefore, that the applicant intended the term "circuit board" to be construed to include more than just printed circuit boards.

Based on the intrinsic evidence in this case, it is appropriate to consider extrinsic evidence to determine what a person of ordinary skill in the art would understand "circuit board" to mean in 2000, on the effective filing date of the application. Phillips, 415 F.3d at 1318. The Court first considers the proposed limitation requiring the board to be insulated. The majority of the definitions presented by the parties require the board to be electrically insulated in some way, and the Court finds that a person with skill in the art would understand "circuit board" to mean an "insulated board." PDI cites two definitions that lack the word "insulated." PDI Resp. 9. Both definitions, however, require a material upon which "chips" or "printed or integrated circuits" can be mounted or installed, which would require some form of electrical insulation.

To support its argument, PDI relies on an article that describes the use of metal circuit boards. See PDI Resp. 10-11. While a metal substrate can be used in a circuit board, even the example cited by PDI shows a metal substrate that is electrically insulated. See PDI Resp. 11 (stating that "[i]nsulated metal substrates have been in use for thirty years"). The Court's construction does not exclude metal circuit boards by requiring the board to be insulated. It merely requires the board, whether it has a metal substrate or not, to be electrically insulated in some way, such as by having an insulating layer, so that electrical components can be mounted on the board and interconnected to form a circuit.

Next, the Court considers the limitation requiring the board to include conductive paths located on or within the board. To begin, the Court finds that it would be inappropriate to import the "printed" limitation found in the preferred embodiment into the claim term "circuit board." See In re Am. Acad. of Sci. & Tech. Ctr., 367 F.3d 1359, 1369 (Fed. Cir. 2004) ("We have cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent clear disclaimer in the specification."). It is particularly inappropriate given that the word "printed" was removed from the claim language during prosecution, apparently broadening the claim.

While the parties appear to agree that printed circuit boards have conductive paths located on or within the board, the more appropriate question here is whether the term "circuit board" must be interpreted to include only boards with such conductive paths. While the Court recognizes that most circuit boards do have such paths, the Court finds that the term "circuit board" should not be limited only to boards having conductive paths on or through the board. For example, a perf board may have no such conductive paths, but still fit within the Court's construction of "circuit board." Further, the majority of the definitions cited by the parties do not include the conductive path limitation. Accordingly, the Court finds it inappropriate to impose such a limitation on the term "circuit board."

IV. Conclusion

For the reasons stated above, the Court construes "circuit board" to mean "an insulated board on which electrical components are mounted and interconnected to form a circuit."

(a) Claim No. 1 -- Disputed Elements

The key issue is whether this independent claim must be construed in light of Section 112, para. 6. Just about every decision I must make hinges on that determination. I conclude that Claim Number 1 is not a means-plus-function claim. However, I prefer to follow the same format as with the two other patents, and will therefore address myself to the disputed limitations seriatim.

(i) A computer system comprising a plurality of processing elements and a message router in which: (A) each processing element for generating messages, each message comprising an address portion comprising a series of address elements and
a data portion comprising at least one data element, each processing element including a message transfer circuit for transmitting messages over said message router and for receiving messages from said router, said message transfer circuit transmitting each message by serially transmitting address elements and a data element thereof and receiving a message by serially receiving at least a data element thereof;

The first and most important thing to note about this limitation is that it refers to a computer system consisting of certain hardware (two or more processors and a message router), not to a process (wormhole routing). To that extent, IBM is correct: TM has not patented wormhole routing, but rather a system for accomplishing that result. Of course, equivalents of that system will also infringe the patent, but that is a question best left for another day.

Each processing unit in the system -- which everyone agrees is any processor that can generate messages -- is used to generate messages. Each message consists of an address portion and a data portion. There can be as little as one bit of data in the data portion, but the address portion must consist of multiple bits. The limitation does not require that the address consist of just one element; any such construction is contradicted by both the plain meaning of the language used in the limitation (a "series of address elements") and the fact that a later dependent claim (Claim 6) requires that "each address element in each said message constitutes one bit."

The processor must contain a message transfer circuit which can both send and receive messages to and from the message router. The transfer circuit sends messages by serially transmitting the address elements and any data element (serially meaning in sequence, one element after another). It receives messages by serially receiving at least the data portion of the message (this is because the address gradually gets stripped off the head of the message as it moves through the system, so the last processor in line will not receive any portion of the address).

IBM suggests that the use of the phrase "message transfer circuit" in this limitation (and later ones as well) transforms it into a means-plus-function limitation, and is therefore restricted to the specific communications interface unit shown at Figures 6B and 8 of the patent. TM has the better of this argument. Claim 1.A is not a claim for a message transfer circuit, but for a computer system having as one of its component parts a message transfer circuit that does certain things. In other words, the phrase "message transfer circuit" refers to a structure within the computer system. That this structure has a particular function to perform, and must therefore be capable of performing that function, does not transmute a structural component of a computer system into a means-plus-function claim to which Section 112, para. 6 applies.

TM has not here attempted to patent an unspecified "means for routing messages through a computer system without forcing the head of the message to wait for the tail." It cannot be expected to recite an invention without identifying its component parts. Interestingly, TM tried to do so; the prosecution history shows that claim 2 of the preliminary amendment to this patent (which was ultimately canceled) recited "means for serially transmitting message elements and means for serially receiving message elements." (A 2089.) That is not how the patent ended up. As allowed by the Examiner, it requires the use of a circuit to transfer messages. Other courts have held the word "circuit" to be a structural term, see, e.g., Cellnet Data Systems, Inc. v. Itron, Inc., 17 F. Supp. 2d 1100, 1107 (N.D. Cal. 1998). Its dictionary definition -- which IBM cites -- is "An electrical network in which there is at least one path that can be closed," S. Handel, A Dictionary of Electronics 59 (2d ed. 1966), or, alternatively, "A complete wire, radio or carrier communications channel." McGraw Hill Dictionary of Scientific and Technical Terms 302 (3d ed. 1984). Neither of those is a functional definition. Yes, it is a circuit that transfers messages -- that is its function in the invention -- but the fact that a disclosed structural element has a function should surprise no one. Under IBM's reasoning, nearly every patent limitation would qualify for Section 112 para. 6 treatment.

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Disputed Claim Language

"a circuit for automatically adjusting a noise threshold of said laser light receiver to a level at which said laser light receiver produces an output from said noise light pulses having a constant pulse firing rate."

Analysis
Defendants argue I should construe this claim element in means-plus-function format pursuant to § 112 P 6. Defendants' Memo, 35. I agree. Means-plus-function formatting applies to claim limitations that portray a function to be executed, but provide no instruction as to the structure or materials for executing that function. See CCS Fitness, Inc., 288 F.3d at 1369-70. Because I conclude that this claim element is in that format, I go to the specification to understand the "means" for performing the function embodied by the claim.

The second element of Claim 18 is not written in means-plus-function format, typified by the use of the word "means." Personalized Media Commun. v. Harris Corp., 156 F.3d at 703-704 (citations omitted). Therefore, there is a rebuttable presumption that the element should not be construed according to means-plus-function format. Id. Defendants may rebut the presumption that § 112 P 6 does not apply by "demonstrating that the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function." CCS Fitness, Inc., 288 F.3d at 1369. Also, "in deciding whether [the] presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112 P 6." Personalized Media Commun. v. Harris Corp., 156 F.3d at 704. To determine whether the claim term recites sufficient structure, I may examine whether the claim term has an understood meaning in the art. See CCS Fitness, 288 F.3d at 1369.

Defendants argue that "circuit" does not have a definite meaning. Defendants' Reply Memo, 20. They cite a Southern District of New York case in which "use of the words 'circuit,' 'interface' and 'units' were means-plus-function claims even though the customary terms 'means' or 'means for' were not used." Id. (citing Apex, Inc. v. Raritan Computer, Inc., 187 F. Supp. 2d 141 (S.D.N.Y. 2002)). That court concluded that the term "circuit" is "so generic that by itself it conveys no structure at all." Id. at 158 (citations omitted).

In 1998, the Federal Circuit decided that a very similar claim element was not in means-plus-function format. The Court held that "video delay circuit" was not limited to the preferred embodiment in the patent specification. Comark Commun. v. Harris Corp., 156 F.3d 1182 (Fed. Cir. 1998). Other district courts are in accord. See Cellnet Data Sys. v. Itron, Inc., 17 F. Supp. 2d 1100 (N.D. Cal. 1998) (The Northern District of California held that "circuit means for recording energy use" was not a means-plus-function claim because one of ordinary skill in the art would understand the claim element as a structural limitation.); Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478, 515 (D. Del. 2001) (The District of Delaware ruled that "I/ O circuitry … for providing processed video signal to said I/ O port …" was not in means-plus-function format because it could be reasonably understood by one skilled in the art.

In all three of those cases, the word "circuit" is modified in a way that sufficiently narrows its meaning so one skilled in the art may understand it. "Video delay circuit," Comark, 156 F.3d at 1182, is a phrase in which "video" and "delay" significantly modify "circuit" so that the term is clearly not just any of millions of circuits in existence. Similarly, "circuit means for recording energy use," Cellnet Data Systems, 17 F. Supp. 2d at 1100, can only be understood when the words "for recording energy use" appear. If they did not, circuit would exist in a vacuum. Moreover, the word "circuitry" in "I/ O circuitry … for providing processed video signal to said I/ O port," Broadcom, 172 F. Supp. 2d at 515, can only be understood in light of "I/ O" and "for … port." Otherwise, "circuitry" lies naked in the claim.

In Claim 18, "circuit" similarly is modified by its companion terms in a way that gives it meaning. Without "for automatically adjusting a noise threshold," circuit cannot be understood by one skilled in the art as anything but a universally abundant electrical component. Without the modifying language, a dictionary definition provides little clarification either. Circuit may be "the complete path of an electric current including any displacement current" (6a); or "[a] specified portion of a circuit" (6b); or "an assemblage of electronic elements" (8a). WEBSTER'S 3RD NEW INTERNATIONAL DICTIONARY 408 (3rd ed. 1986). None of these definitions provides more than a murky outline.

If a claim element recites a function without reciting sufficient structure for performing that function, § 112 P 6 may apply. CCS Fitness, Inc., 288 F.3d at 1369. But while the functional phrase "for automatically adjusting a noise threshold" gives "circuit" context, without more it does not provide sufficient structural meaning to withstand application of § 112 P 6. There is no structural context that teaches one how a circuit, which may be as vague as "an assemblage of electronic elements" automatically adjusts a noise threshold.

Pursuant to § 112 P 6, I must go to the patent specification and the prosecution history for clues to the meaning of Claim 18. "One of skill in the art can only reconcile the claim language with the inventor's disclosure by recourse to the specification." Comark, 156 F.3d at 1187.
Defendants state: "this claim element should be construed to require a feedback circuit which adjusts the noise threshold …." Defendants' Reply Memo, 18. Defendants also argue that I should read diode 316, found in the preferred embodiment in the '779 patent specification, into Claim 18. Defendants argue that diode 316 is "at the essence of the circuit for automatically adjusting a noise threshold, [so] the essence cannot be ignored when construing the claim or determining infringement." Defendants' Memo, 38.

While Defendants may overcome the heavy presumption that the claim terms embody their ordinary meaning and attempt to narrow the meaning of the terms, they "cannot do so simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history." CCS Fitness, Inc., 288 F.3d at 1366. Here, Defendants do more than simply point to the specification or prosecution history. They identify a portion of the prosecution history without which the '779 patent likely would not have been approved by the U.S. Patent and Trademark Office. By doing so, the presumption is rebutted.

During the prosecution of the '779 patent, inventor Jeremy Dunne distinguished his invention from the prior art embodied in Frungel's U.S. Patent no. 4,259,592. In an amendment to his '779 patent application, Dunne summarized Frungel's invention in two-and-a-half pages. Amendment to Application for Automatic Noise Threshold Determining Circuit and Method for a Laser Range Finder, U.S. Patent and Trademark Office, 1995 (Amendment). Immediately thereafter, he summarized his invention to distinguish it from patent no. 4,259,592. In his summary relating to Claim 18, Dunne wrote: "The essence of [the] automatic noise threshold section … is a feedback loop that comprises the detected (see detector 314, 316, 322, 324) average noise firing rate …." Id. at 16. Plaintiff and Defendants agree that the "316" of the "detector" of the feedback loop is diode 316. Motions Hearing, U.S. District Court for the District of Colorado, July 18, 2002 (Motions Hearing). See Figure 8, '779 patent. Later in the same document, Dunne writes that "no structure within the cited Frungel patent operates to dynamically use a range/ noise signal that is reflected from the target in order to change a detection threshold as a function of noise pulses that are received …. Frungel purposely does not generate a noise threshold signal." Amendment, 22-23.

The feedback loop that is at the "essence" of Claim 18 of the '779 patent includes diode 316. And without that feedback loop, Plaintiff's laser range finder would not be able to perform the noise thresholding that distinguishes Dunne's invention from the Frungel prior art. Defendants' explanation of the importance of diode 316 in the feedback loop was not overcome by Plaintiff at the motions hearing. Because diode 316 is integral to the feedback loop that is essential to the noise thresholding circuit of Claim 18, I conclude as a matter of law that the thresholding circuit requires diode 316 and the feedback loop.

CONSTRUCTION: A circuit consisting of a feedback loop composed in part of diode 316 that adjusts a noise threshold of a laser light receiver to a level at which a laser light receiver produces an output from noise light pulses having a constant pulse firing rate.

I. THE CLAIM TERM "CIRCUIT INTERRUPTING DEVICE" REFERS TO A DEVICE DESIGNED TO INTERRUPT OR BREAK THE FLOW OF CURRENT IN A SINGLE CIRCUIT.

The parties dispute the construction of the term "circuit interrupting device." Leviton contends that the term should be construed as a device designed to interrupt or break the flow of current in one or more circuits. The Defendants argue the term should be interpreted as a device designed to interrupt or break the flow of current in a single circuit. The Court agrees with the Defendants' construction.

The elements of the claim suggest that the circuit interrupting device interrupts a single circuit with multiple paths. See '558 Patent, Col. 13, ll. 36-40 ("circuit interrupting means . . . breaking electrical continuity between said first and second conductive path means and between said first and third conductive path means") (emphasis added); id. at Col. 13, ll. 41-44 ("reset means . . . for reestablishing electrical continuity between said first and second conductive path means and between said first and third conductive path means") (emphasis added). That the claim term only refers to a single circuit finds further support in the abstract and written specification of the patent. In describing the resettable circuit interrupting device, the abstract states that the "trip portion operates independently of a circuit interrupting portion used to break the electrical
continuity in one or more conductive paths in the device." Id., Abstract (emphasis added). This statement indicates that the device is designed to break multiple electrical paths but says nothing of breaking multiple circuits. The detailed description section of the patent also states that the "present application contemplates various types of circuit interrupting devices that are capable of breaking at least one conductive path at both a line side and a load side of the device." Id., Col. 4, ll. 58-61 (emphasis added). The specification also refers repeatedly to breaking electrical continuity in one or more conductive paths. See, e.g., '558 Patent, Col. 5, ll. 41-43; Col. 5, ll. 56-59; Col 7, ll. 31-35. Once again, the patent only describes breaking the flow of multiple paths, not multiple circuits.

Leviton nonetheless argues that the '558 patent discloses one or more circuits for the circuit interrupting device. Specifically, Leviton states that Figures 1 and 8 of the patent show at least two circuits: "one circuit includes contacts 80 and 60, that is the user accessible load and a second circuit includes contacts 36 and 40, that are the load terminals." Pl.'s Resp. at 7 (Doc. 109). This interpretation of multiple circuits, however, contradicts the language in the specification referring to these portions of the circuit as paths. See, e.g., '558 Patent, Col. 5, ll. 34-37 ("The circuit interrupting and reset portions described herein preferably use electro-mechanical components to break (open) and make (close) one or more conductive paths between the line and load sides of the device."); Col. 6, ll. 12-15 ("The circuit interrupting portion… is used to break electrical continuity in one or more conductive paths between the line and load side of the device."); Col. 6, ll. 36-37 ("The conductive path between the line phase connection 34 and the load phase connection 36 includes…"); Col. 6, ll. 46-48 ("The conductive path between the line phase connection 34 and the user accessible load phase connection includes…"). The patent does not refer to the portions of the device including contacts 80 and 60 and contacts 36 and 40 as comprising separate circuits. Rather, the patent language is consistent in referring to portions of the device including those contacts as comprising multiple paths.

Furthermore, the dictionary definition of "circuit" confirms this interpretation of "circuit interrupting device" as a device designed to break the flow of current in a circuit. Merriam Webster's Collegiate Dictionary 207 (10th ed. 1993) defines "circuit" as "the complete path of an electric current including usu. the source of electric energy." This definition contemplates a circuit as necessarily including an electrical power source in order to complete the electrical path. Claim 3 indicates that the circuit interrupting device is electrically connected to only one power source. See '558 Patent, Col. 13, ll. 23-25 ("first electrical conductive path means . . . capable of electrically connecting to a source of electricity"). The device thus contemplates breaking electrical continuity of a single circuit with multiple paths. See id. and Col. 13, ll. 36-40 ("circuit interrupting means . . . breaking electrical continuity between said first and second conductive path means and between said first and third conductive path means").

The Court therefore holds that the correct construction of the term "circuit interrupting device" used in Claim 3 is a device designed to interrupt or break the flow of current in a single circuit.

B. CIRCUIT INTERRUPTING.

In Claim 3, the term "circuit interrupting" also uses the word "means," followed by a recitation of function, resulting in the rebuttable presumption that the element is a means-plus-function element subject to 35 U.S.C. § 112, P 6. The Court finds that Leviton has again met its burden of showing that the claim recites sufficient structure to perform the claimed function.

First, the term "circuit interrupting" connotes structure. Merriam Webster's Collegiate Dictionary 612 (10th ed. 1993) defines the term "interrupter" as "a device for interrupting an electric current usu. automatically." The Court therefore finds that a person of ordinary skill in the art would understand that the term "circuit interrupting" -- a device -- is a structural term. See Linear Technology Corp. v. Impala Linear Corp., 379 F.3d at 1320. The contextual language of Claim 3 also provides further information regarding the location of the structure, i.e., "between said first and second conductive path means and between said first and third conductive path means." '558 Patent, Col. 13, ll. 37-39. Finally, Leviton's expert, Dr. De La Ree, affirmed that "circuit interrupting" is a structural term well-known and understood by persons of ordinary skill in the art. Dr. De La Ree's opinion was not merely conclusory, as he relied on technical literature and previous patents, which demonstrated that a circuit interrupter is a structural device. Furthermore, the Defendants' expert, Dr. Choma, indicated that the term "circuit interrupting" conveys structure when he stated, "the structure conveyed is little more than the schematic depiction of a controlled switch." Dr. John Choma's Expert Response to Declaration of Dr. J. De La Ree at 10.
Again, that the term may not connote a precise physical structure does not compel a finding of insufficient structure. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d at 1370; Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d at 1583. See also Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d at 1359-60 (“[I]t is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.”).

Consequently, the Court concludes that the term "circuit interrupting means" is not subject to the claims limitations in 35 U.S.C. § 112, P 6. The Court will construe the term "circuit interrupting" using standard claim construction rules as set forth in Leviton's Claim Construction chart.

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2. "Circuit means"

The "circuit means" element of the claim is stated in means-plus-function form; it uses the term "means" and describes the function that the means is to perform. MagneTek argues that this requires this claim element to be limited to the particular type of circuit described in the specification, namely a circuit with a tank capacitor and leakage reactance transformer, as well as the equivalents thereof. Nilssen argues that the term "circuit" by itself recites sufficient structure to avoid the application of § 112, P6. MagneTek essentially argues that the term is far too generic to remove the claim language from § 112, P6.

In CellNet Data Systems, Inc. v. Itron, Inc., 17 F. Supp. 2d 1100 (N.D. Cal. 1998), the court was required to construe the term "circuit means" in the context of a patent for a utility meter of the type used by electric companies. Specifically, the parties disputed the meaning of a claim element described as a "circuit means for recording energy use." Id. at 1106. The court concluded that this could not be considered a "means plus function" element, because those skilled in the art would understand the term "circuit means" as a structural element denoting "the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function …." Id. at 1107 (quoting Penguin Dictionary of Electronics (2d ed. 1988)).

The only significant difference between CellNet and this case is that there the specification did not describe any particular sort of circuitry, whereas here it does. See id. at 1107. The distinction is immaterial. In this case as in CellNet, the question is whether the claim recites sufficient structure to avoid the application of § 112, P6. And in this case as in CellNet, the fact that the claim specifies the precise location of the circuit, in addition to the fact that the term "circuit" has a commonly known meaning in the art, are enough to show that the claim is not in means-plus-function format. Id. We construe the term "circuit means" as denoting the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function -- in this instance, the function of supplying lamp voltage and current from the inverter to the lamp terminals.

E. '690 Patent, Claim 17 - "circuit means"

Claim 17 of the '690 patent reads as follows:

An arrangement comprising:

- power input terminals across which is provided an ordinary AC power line voltage;
- rectifier means connected with the power input terminals and operative to provide a DC voltage at a set of DC terminals;
- gas discharge lamp having a pair of lamp terminals as well as a pair of thermionic cathodes; such lamp terminal being connected with one of the thermionic cathodes; each thermionic cathode having a pair of cathode terminals;
- inverter means connected with the DC terminals and operative to provide an alternating inverter output voltage at a set of inverter output terminals; and
circuit means connected between the inverter output terminals and the lamp terminals, thereby to provide lamp operating voltage to the lamp terminals; the circuit means having a pair of auxiliary output terminals at which is provided a cathode heating voltage; the pair of auxiliary output terminals being connected with one of the pairs of cathode terminals, thereby to provide a cathode heating voltage there across; the cathode heating voltage having a magnitude that is substantially higher before lamp ignition than it is after lamp ignition.

U.S. Patent No. 5,047,690, Claim 17 (emphasis added).

MagneTek argues that the "circuit means" part of the claim is stated in means-plus-function form, thus requiring the circuit means to be defined as limited to the particular type of circuit described in the specification. While it is true that the claim uses the term "means" and also describes a function for the circuit, we do not agree that § 112, P6 applies. The claim language clearly includes a particularized description of a specific structure, which is more than enough to remove this element from the scope of § 112, P6. We decline to read any limitations from the specifications into the claim language, for these reasons and those previously discussed. The particular language of the claim serves to describe the nature and specifics of the circuit means, but no other limitations are appropriate. We again construe the term "circuit means" as denoting the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function -- in this instance, the function of supplying lamp voltage and current from the inverter to the lamp terminals -- with, of course, the other particulars spelled out in the claim element.

"Circuit Means" in the '690 Patent's Claim 17

Round two of this 13-round bout involves claim 17 of the '690 Patent:

A circuit means connected between the inverter output terminals and the lamp terminals, thereby to provide lamp operating voltage to the lamp terminals; the circuit means having a pair of auxiliary output terminals at which is provided a cathode heating voltage.

In this instance the stated function is "to provide lamp operating voltage to the lamp terminals." Again the issue is whether enough structure is cited to perform that function to overcome the presumption of Paragraph 6 applicability.

To negate that presumption Nilssen points to CellNet Data Sys., Inc. v. Itron, Inc., 17 F. Supp. 2d 1100, 1107 (N.D. Cal. 1998) and its finding "that those skilled in the art would understand the term 'circuit means' as a structural rather than a means-plus-function element." That conclusion rests on the dictionary definition of "circuit" as connoting the generic structure of "the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function such as amplification, filtering, or oscillation" (id. at 1111, quoting Penguin Dictionary of Electronics (hereafter "Penguin") (2d ed. 1988)). In addition, the court noted that the location of the "circuit means" was specified in the claim (17 F. Supp. 2d at 1111, citing Cole, 102 F.3d at 531). Claim 17 also specifies the location of the circuit means:"connected between the inverter output terminals and the lamp terminals."

Motorola seeks to counter with Relume Corp. v. Dialight Corp., 63 F. Supp. 2d 788, 802 (E.D. Mich. 1999), which decided that the claim language "adaptive clamp circuit means" was in means-plus-function form. But because the Relume plaintiff did not dispute that construction, the court was deprived of an opposing viewpoint that might perhaps have highlighted terms of art in the claim that could communicate sufficient structure to overcome the presumption.

Nonetheless this Court would be wholly unpersuaded by CellNet (and hence by Nilssen) if "circuit means" were the only relevant language in the claim element. Although its own days as a highly trained technician (and in one instance as the author of a modest invention) during the formative--nay, primitive--days of airborne radar have so faded into the dim past as to render any possible claim by this Court to being even moderately "skilled in the art" a serious Rule 10b-5 violation, it takes no electronic sophistication at all to understand that electrical circuits are virtually infinite in number. It is not that "circuit" is nongeneric--it is rather that it is so generic that by itself it conveys no sense of structure at all. To say simply that an electrical circuit will be inserted into another circuit to accomplish a stated function is to afford the skilled reader no sense whatever of the structure of that insertion.
Unsurprisingly, M. Mem. 16-18 (emphasis in original) states that claim 17 should be limited by the specification because "the only structure disclosed in the specification for providing operating voltage to the lamp terminals…is an inductor…with auxiliary windings…" That contention is not at odds with the admonition in Comark, 156 F.3d at 1186 that "limitations from the specification are not to be read into the claims," for that caveat applies to claims that fall on the other side of the "fine line" described in Comark, id.

That argument by Motorola is a bit oversimplistic, because it glosses over the operative language in the claim element that cuts back the otherwise generic and uninformative scope of "circuit means" somewhat by describing it as "having a pair of auxiliary output terminals at which is provided a cathode heating voltage." But unlike the situation in Cole, 102 F.3d at 531, where the element at issue carried with it "such a detailed recitation of its structure, as opposed to its function," here the quoted partial description of the "circuit means" just does not supply enough structure "to perform entirely the recited function" (as is required by such cases as Sage Prods., 126 F.3d at 1427-28). In that respect the situation is much akin to that described in the preceding section, where the reference to a "source means" as "having AC terminals" was not enough to provide a sufficient recitation of structure to take the claim out of Paragraph 6's coverage.

This Court therefore holds that claim 17 of the '690 Patent is also in means-plus-function form. And unlike the claim referred to in the preceding section, no further hearing is required to fine-tune its meaning.

1 This is one of two issues on which this Court respectfully differs with its colleague Judge Kennelly (MagneTek, 1999 WL 982966, at *8-*9).

B. "Circuit Means For Recording Energy Use"

Independent claim 1 of the '623 patent discloses a device for use with an electric meter which has a housing containing "circuit means for recording energy use." According to CellNet, the term "circuit means for recording energy use" means any circuit involved with recording energy use. Itron contends that the term is a means-plus-function element and that it means "a circuit having a sensor for detecting the black mark on the [meter] disc, a microprocessor for receiving this information and storing it in memory."


The parties vigorously dispute whether the above element of claim 1 is a means-plus-function limitation. CellNet argues that the element is not in means-plus-function format despite the fact that the patentees used the words "means for" because there is no corresponding structure in the '623 specification. CellNet also contends that those skilled in the art would understand the term "circuit means" as a structural limitation. Itron, on the other hand, argues that the specific circuitry disclosed in CellNet's separate patent application, which led to the issuance of the '677 patent, may be consulted to understand the structure of the "circuit means" because the patents are related and the "elements and circuitry" disclosed in the separate application were incorporated by reference by the patentees in the '623 patent specification. '623 patent, 4:63-5:4.

Paragraph 6 of 35 U.S.C. §112, which authorizes patentees to claim structural limitations without an express structural description in the claim itself, provides that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof.
If the Court determines that a claim element is set forth in means-plus-function format, then the "court must consult the specification to define the structure, material or acts corresponding to this claimed function." Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1428 (Fed. Cir. 1997).

Although there is a presumption that a claim element expressed using the words "means for" is a means-plus-function limitation, the Court must nevertheless make its determination "on an element-by-element basis, based upon the patent and its prosecution history." Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1997). "[T]he mere incantation of the word 'means' in a clause reciting predominantly structure cannot evoke section 112, P 6." York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1574 (Fed. Cir. 1996). The cases explain that claim elements are not expressed in means-plus-function format if there is an insufficient disclosure of the function to which the purported means corresponds or if "a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function." Sage, 126 F.3d 1420 at 1427-28; and Waterloo Furniture Components, Ltd. v. Haworth, Inc., 798 F. Supp. 489, 494-95 (N.D. Ill. 1992).

In this case, the Court finds that those skilled in the art would understand the term "circuit means" as a structural rather than a means-plus-function element. Moreover, those skilled in the art would construe the term "circuit means" to mean:

The combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function such as amplification, filtering, or oscillation.

Penguin Dictionary of Electronics (2nd Ed. 1988). In addition, the fact that the location of the "circuit means" is specified in claim 1 suggests that the patentees intended to recite a structural element. See Cole, 102 F.3d at 531 (claim language held not to be in means-plus-function format because the word "perforation" provides a sufficient description of structure and because the location of the "perforation means" is specified in the claims).

Furthermore, the absence of a corresponding disclosure of the necessary circuitry in the '623 patent specification indicates that "circuit means" is not a means-plus-function element. Itron contends that the structural details of CellNet's "circuit means" can be imported from the '677 patent. 8 However, Itron has not cited any authority, and the Court has not found any, for the proposition that the structural limitations for a means-plus-function claim element can be imported from a pending patent application. Indeed, the relevant case law disapproves of the importation of substantive claim limitations by reference to other documents. Modine Manufacturing Co. v. United States International Trade Commission, 75 F.3d 1545, 1553 (Fed. Cir. 1996). In Modine, the patentee argued that the term "relatively small" in the '580 patent should be construed to include a diameter up to 0.07 inch because it was defined as such in the specification of the related '311 patent. Id. The specification of the '580 patent incorporated by reference the related '311 patent. Id. The Modine court rejected the patentee's argument that a claim limitation could be imported from a related patent, reasoning that "incorporation by reference does not convert the invention of the incorporated patent into the invention of the host patent." Id.

--- Footnotes ---

8 Itron's proposed definition of the disputed term is based on the circuitry disclosed in the '677 patent.

--- End Footnotes ---

Moreover, the description of the circuit structure in the co-pending '677 patent was clearly considered "nonessential" by the examiner in this case. 9 This fact also weighs against a finding that "circuit means" is a means-plus-function element. Section 608.01(p) of the Manual on Patent Examining Procedure ("MPEP") instructs examiners to require the patentee to amend the specification to include essential material previously incorporated by reference before allowing a patent to issue:

Prior to allowance of an application that incorporates essential material by reference to a pending U.S. application, the examiner shall determine if the referenced application has issued as a patent. If the referenced application has issued as a patent, the examiner shall enter the U.S. Patent No. of the referenced application in the specification of the referencing application (see MPEP § 1302.04). If the referenced application has not issued as a patent, applicant will be required to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating the amendatory material consists of the same material incorporated by reference in the referencing application.
MPEP § 608.01(p) (emphasis added). The MPEP defines essential material as "that which is necessary to (1) describe the claimed invention, (2) provide an enabling disclosure of the claimed invention, or (3) describe the best mode (35 U.S.C. 112)."

9 As discussed earlier, the patentees filed a separate patent application ("the ‘677 application") to claim the circuit structure of their meter modules.

If the patentees were asserting a means-plus-function claim, a disclosure of the circuit structure described in the ‘677 application corresponding to the purported means-plus-function limitation would certainly have been considered essential material because it would have been necessary to describe the invention and to provide an enabling disclosure of the "circuit means." The record indicates, however, that the examiner of the ‘623 application did not even raise the issue of incorporating the material incorporated by reference.

Finally, the prosecution history can be helpful in the determination of whether the patentees intended to assert a means-plus-function claim. Cole, 102 F.3d 524, 531; and Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1584 (Fed. Cir. 1996). The prosecution history of the ‘623 patent does not contain any evidence that suggests the patentees intended to assert a means-plus-function limitation in claim 1.

In this case, the original 25 claims of the application which resulted in the issuance of the ‘623 patent did not contain any reference to the circuitry used in the device. The patentees filed a separate patent application to claim the circuitry. The specification of the ‘623 patent application does have a very general discussion of the various capabilities of the circuitry in the disclosed device, but there is no specific description of the elements or structure of the circuitry. ‘623 patent, 4:20-53. The ‘623 patent specification, however, does contain a reference to the patentees' separate application which resulted in the issuance of the ‘677 patent:

The elements and circuitry for generating information, such as time of energy use, and thereafter transferring that information to a system for calculating billing rates, for example an electronic meter reader, are described in greater detail in our co-pending application entitled "A System For Use With A Utility Meter For Recording Time of Energy Use," and assigned to the assignee of this application, and which co-pending application is hereby incorporated by reference.

‘623 patent, 4:63-5:4. The "circuit means" limitation was added by the patentees in their Response to the November 23, 1987 Office Action. The amended claims were allowed by the examiner without the need for further action or response by the patentees. 10 The examiner's silence regarding the absence of an adequate disclosure of the structure of the "circuit means" added in the patentees' response is relevant to the issue of whether "circuit means for recording energy use" is a means-plus-function element. The fact that the examiner did not request an amendment to the ‘623 patent specification indicates that he did not believe a means-plus-function limitation was added to claim 1. See MPEP § 608.01(p).

Accordingly, the Court concludes that the term "circuit means" is not a means-plus-function element under 35 U.S.C. § 112, P 6, despite the fact that the patentees used the words "means for," because (1) the word circuit discloses a definite structure; (2) the claims specify where the "circuit means" is located; (3) the ‘623 patent specification contains no disclosure of the
necessary corresponding structure; (4) the corresponding structure cannot be imported from the '677 patent; and (5) the prosecution history indicates that "circuit means" is not a means-plus-function limitation.

2. The Court's Interpretation Of "Circuit Means For Recording Energy Use"

Since the term "circuit means for recording energy use" is not a means-plus-function element, the Court construes the term to mean "a circuit for use with standard electric meters capable of recording information regarding the amount of energy used or consumed." Furthermore, the Court construes the term "circuit means" to mean:

The combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function such as amplification, filtering, or oscillation.

Penguin Dictionary of Electronics (2nd Ed. 1988). 11 The Court's claim interpretation is based primarily on the disclosures made in the specification. In the specification, the patentees state that their device is designed to be used in standard electric meters in conjunction with a sensor means which is not a part of claim 1. 12 There is no suggestion that the devices can also be used in utility meters other than standard meters. Moreover, the relevant portion of the specification pertaining to the circuitry reads as follows:

The device of the present invention is capable of recording time of energy use, peak demand for energy, and energy load profile data. It is usable with and mountable to standard watthour meters. [P] The device measures time of energy use by detecting the rate of rotation of the meter's disc. A black mark (not illustrated) is located on the lower surface of the disc. Sensor means are mounted within a housing 30 of device 10 to detect the black mark as it rotates past an optical port 32 in the top surface 33 of housing 30. . . [P] The rotating black mark interrupts reflection of infrared light to the sensor means, once each evolution. The phototransistor generates a different signal in response to that interruption. The signals are processed and stored by appropriate circuitry in device 10.

'623 patent, 4:20-37 (emphasis added). Thus, the function of the "circuit means" is not to detect or count the rotations of the meter disc, as Itron contends, but to simply record the signals transmitted by the discussed sensor means.

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11 The Court believes that those of ordinary skill in the art covered by the '623 patent, electrical or mechanical engineers, would have a technical understanding of the word "circuit." Therefore, the Court declines to adopt the general definition of the word, "the path of an electric current," proposed by CellNet. See Webster's Collegiate Dictionary (10th Ed. 1993). 12 An embodiment of the claimed device with the referenced sensor means is described in dependent claim 4 which is not being asserted herein. The sensor means limitation of dependent claim 4 cannot be read into independent claim 1. See Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1054-55 (Fed. Cir. 1988) ("Where some claims are broad and others narrow, the narrow claim limitations cannot be read into the broad whether to avoid invalidity or to escape infringement.") (citation and internal quotations omitted).

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B. an on-screen programming circuit that produces video signals for display on the video monitor.

Raritan argues that the phrase "on screen programming circuit" does not connote structure but rather describes a function. Because the term is not expressed in "means plus function" language, there is a rebuttable presumption that § 112, P6 does not apply. Raritan has not overcome the presumption. The term "circuit" is defined as the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function. It connotes some structure. The adjectival phrase "on-screen programming" gives the structure greater definition. To a person of ordinary skilled in the art, it means a circuit that produces a display on a monitor that allows a user to control a switch.

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The Court construes "circuitry" as "electronic components that may include digital circuitry, analog circuitry, software, firmware, or a combination of these elements."

A. Parties' Construction Arguments

Plaintiff seeks a construction of "circuitry" as "digital circuitry, analog circuitry, software, firmware, or a combination of these elements." Plaintiff's argument is that the patentee has been his own lexicographer. The specification states "[t]erminal unit circuitry may include digital circuitry, analog circuitry, software, firmware, or a combination of these elements." '323 patent, 7:44-46. Plaintiff argues that the specification defines "circuitry" here.

Defendants' construction adds the limitation that "circuitry" is also "power-consuming electronic components" in addition to Plaintiff's construction. Defendants argue that the fundamental value of circuitry for the purposes of the '323 patent is that the circuitry consumes power. Defendants cite to the specification for support. See, e.g., '323 patent, 2:1-4 ("signal processing, transmitting and receiving circuitry . . . requires a substantial amount[] of power. For a large central office . . . this power usage is substantial"); see also Claims 1, 7, 16, 24. Additionally, Defendants' construction adds the "may include" language from the specification that Plaintiff's construction leaves out.

B. Analysis

The Court agrees with Plaintiff that the patentee has been his own lexicographer. "[The Court] will adopt a definition that is different from the ordinary meaning when the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or the prosecution history.") Edwards Lifesciences LLC v. Cook, Inc., 582 F.3d 1322, 1329 (Fed. Cir. 2009) (internal quotes omitted). However, Plaintiff's proposed construction does not give the full definition expounded in the specification because it takes out the "may include" language. See '323 patent, 7:44-48 ("Terminal unit circuitry may include digital circuitry, analog circuitry, software, firmware, or a combination of these elements"). The "may include" language is important because its presence changes the definition. With the "may include" language, the list of components in the definition is not an exclusive list of components that make up the circuitry. Without the "may include" language, the list is exclusive. The Court believes that the "may include" language should be included in the construction of "circuitry" since it is included in the specification and it makes a meaningful difference. Thus, the Court construes "circuitry" as "electronic components that may include digital circuitry, analog circuitry, software, firmware, or a combination of these elements."

The Court's adopted construction is similar to Defendants' proposed construction except that it removes the "power-consuming" language. The "power-consuming" language introduces ambiguity to the phrase because the circuitry, if interpreted as Defendants' construction, might be required to be "power-consuming" at all times. While it may be fundamentally true that circuitry must have the ability to be "power-consuming," the circuitry in the '323 patent is not required to be power-consuming at all times. See, e.g., '323 patent, 5:25-27 ("Each unit . . . may . . . enter low-power mode by shutting off the now unnecessary sections of signal processing [], transmitting [], and receiving [], circuitry."). Therefore, the Court refuses to read in Defendants' "power-consuming" limitation because it adds ambiguity and is not necessary.

C

Claim 1(b) of the '919 patent recites, "display means connected to the scanner for receiving the appearance signals and aesthetic correction circuitry for interactively introducing aesthetically desired alterations into said appearance signals to produce modified appearance signals." '919 patent, col. 15, II. 37-41 (emphasis added). The phrase, "aesthetic correction circuitry for interactively introducing aesthetically desired alterations into said appearance signals to produce modified appearance signals," does not contain the term "means," and is therefore presumptively not a means-plus-function limitation. Nonetheless, the district court held that the presumption was overcome and proceeded to define the function and
MIT urges that the term "aesthetic correction circuitry" connotes sufficient structure to avoid 112 P6 treatment. We agree.

In contrast to the term "mechanism," dictionary definitions establish that the term "circuitry," by itself, connotes structure. Webster's Third New International Dictionary, 408-09 (1968 ed.) (defining "circuit" as "the complete path of an electric current including any displacement current" and "circuitry" as "the detailed plan of an electric circuit or network (as of a radio or television receiver)"); see also Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320 (Fed. Cir. 2004) ("Technical dictionaries, which are evidence of the understandings of persons of skill in the technical arts, plainly indicate that the term 'circuit' connotes structure. . . . The Dictionary of Computing 75 (4th ed. 1996) defines 'circuit' as 'the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function.'"); Random House Webster's Unabridged Dictionary 374, def. 9 (2d ed. 1998) (defining circuit as "the complete path of an electric current"); Rudolf F. Graf, Modern Dictionary of Electronics 116 (7th ed. 1999) (defining "circuit" as "[t]he interconnection of a number of devices in one or more closed paths to perform a desired electrical or electronic function");

In two of our prior cases we concluded that the term "circuit," combined with a description of the function of the circuit, connoted sufficient structure to one of ordinary skill in the art to avoid 112 P6 treatment. See Linear, 379 F.3d at 1320 ("[W]hen the structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 P6 presumptively will not apply."); Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1373 (Fed. Cir. 2003) ("[T]he term 'circuit' with an appropriate identifier such as 'interface,' 'programming' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art."). The claim language here too does not merely describe a circuit; it adds further structure by describing the operation of the circuit. The circuit's input is "appearance signals" produced by the scanner; its objective is to "interactively introduce aesthetically desired alterations into said appearance signals"; and its output is "modified appearance signals." '919 patent, col. 15, II. 29-41. This description of the operation of the circuit is sufficient to avoid 112 P6.

In arguing to the contrary, the dissent appears to misapprehend the strength of the presumption that applies when the term "means" does not appear in the claim. As we stated in Lighting World, 382 F.3d at 1362, "[W]e have seldom held that a limitation not using the term 'means' must be considered to be in means-plus-function form," and "the circumstances must be [unusual] to overcome the presumption . . . ." So too the dissent erroneously suggests that claims cannot avoid means-plus-function limitation unless the claim term denotes a specific structure. But "[i]n considering whether a claim term recites sufficient structure to avoid application of section 112 P6, we have not required the claim term to denote a specific structure. Instead, we have held that it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." Id. at 1359-60. Here, technical dictionaries supply ample evidence that the claim term designates structure.

We conclude that Microsoft has not overcome the presumption that the "aesthetic correction circuitry" limitation is not a means-plus-function limitation.

Microsoft urges that "circuitry" should be limited to hardware whereas MIT urged below that it should include both hardware and software. We conclude that the term "aesthetic correction circuitry" is clearly limited to hardware.

The parties agree that the CTM is the "aesthetic correction circuitry" of the '919 patent. As the Summary of the Invention explains, when the operator views an image of the scanned original on a TV screen, the operator can "manipulate[] the TV image interactively in terms of appearance values, introducing aesthetic corrections and such other changes as desired." '919 patent, col. 3 II. 59-62. The CTM is the device that is used "to correct the input errors" in the image on the TV screen. In the preferred embodiment, it is composed of five modules, each of which corrects a specific type of error.

The specification describes the components of the CTM as hardware components. See id., col. 8, II. 36-38 ("The next step is conversion to LC1C2 form by a hardware implementation of the given transformation, followed by the LC1C2 Color Balance Module, 35."); id., col. 8 II. 48-51 ("The next two modules operate on chrominance in polar coordinates, so that the C1C2 signals must be converted in a hardware Cartesian to Polar Coordinate Converter, 36."); id., col. 9, II. 7-10 ("After Special Correction, hue and saturation are converted back to C1C2 form by a hardware Polar to Cartesian Coordinate Converter, 39, for passage to storage or the display."). Although the specification suggests that certain computations
performed by the CTM can be accomplished with either hardware or software, n6 this reference does not alter the specification's repeated description of the circuit itself as involving hardware. Thus, the specification references do not require that "circuit" be interpreted to include software. Dictionary definitions of circuit in 1982, when the patent application was filed, did not include software. n7 See McGraw-Hill Dictionary of Scientific and Technical Terms 299 (2d ed. 1978) (defining "circuitry" as "[t]he complete combination of circuits used in an electrical or electronic system or piece of equipment"). We conclude that the term "circuitry" in claim 1 is limited to hardware.

n6 See '919 patent, col. 10, ll. 25-29 ("It has proven convenient to use a hybrid analog-digital computer to perform the said computation, but any known form of computation can be used. . . ").

n7 "Software" is defined as "the programs used to direct the operation of a computer," Random House Webster's Unabridged Dictionary 1814, def. 1 (2d ed. 1998), and "hardware" is defined as "the mechanical, magnetic, electronic, and electrical devices comprising a computer system," Id. at 872, def. 5.

Having decided that 112 P6 does not apply to the "aesthetic correction circuitry" limitation and that the term does not include software, we leave it to the district court to define this term with further particularity.

MICHEL, Chief Judge, dissenting.

I respectfully dissent from the majority's vacatur and remand-in-part of the district court's decision on the bases of the trial court's incorrectly construing the claim term "aesthetic correction circuitry" under section 112 and erring in the exclusion of Windows as an infringing product, first suggested two years after the complaint was filed. I believe that in view of its specific language, "aesthetic correction circuitry" was correctly construed as a means-plus-function claim limitation. Nor do the cases relied on by the majority support, much less require, a different disposition. Moreover, I believe that excluding Windows as an infringing product was not an abuse of the trial court's discretion because MIT itself urged, successfully, that discovery be delayed.

I.

The district court correctly interpreted "aesthetic correction circuitry" as a means-plus-function claim despite the absence of the term "means for" in view of the presence of functional language because the limitation fails to recite sufficiently definite structure, as our precedent requires. Thus, the presumption against application of section 112, paragraph 6 was overcome. Indeed, on this record, I find it overcome as a matter of law.

The parties agree that "the term 'circuit[ry]' by itself connotes some structure" to one skilled in the art. Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1373 (Fed. Cir. 2003) (emphasis added). The issue, however, is whether the "aesthetic correction circuitry" limitation "recite[s] sufficiently definite structure," id. at 1372 (emphasis added); accord Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1319 (Fed. Cir. 2004), which is required to avoid section 112, paragraph 6 in a claim using functional language, even in the absence of "means for."

This "definite structure" requirement is well-established in our precedent. "To invoke this statute [section 112, paragraph 6], the alleged means-plus-function claim element must not recite a definite structure which performs the described function." Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996); see also B. Braun Med., Inc. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed. Cir. 1997) ("Because this limitation . . . does not recite definite structure in support of its function, it is subject to the requirements of 35 U.S.C. § 112, P6 . . . "); Personalized Media Commun., LLC v. Int'l Trade Comm'n, 161 F.3d 696, 704 (Fed. Cir. 1998) ("In deciding whether either presumption ['means for' with stated function presumes that
section 112, paragraph 6 applies, while no 'means for' with stated function presumes that section 112, paragraph 6 does not apply] has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112, P6.”; Watts v. XL Sys., Inc., 232 F.3d 877, 880 (Fed. Cir. 2000) (“[T]he focus remains on whether the claim . . . recites sufficiently definite structure.”); CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002) (“Life Fitness can rebut this presumption if it demonstrates that the claim term fails to recite sufficiently definite structure.”); Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004) (“The presumption that a limitation lacking the term 'means' is not subject to section 112 P6 can be overcome if it is demonstrated that the 'claim term fails to recite sufficiently definite structure.'”) (internal quotations omitted). Indeed, section 112, paragraph 6 is rooted in the definiteness requirement of section 112, paragraph 2: “Congress has provided this statute [section 112, paragraph 6] as a specific instruction on interpretation of the type of claim which otherwise might be held to be indefinite.” Data Line Corp. v. Micro Techs., Inc., 813 F.2d 1196, 1201 (Fed. Cir. 1987); accord Jonsson v. Stanley Works, 903 F.2d 812, 819 (Fed. Cir. 1990); see also Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536 (Fed. Cir. 1991) (“Absent section 112(6), claim language which requires only a means for performing a function might be indefinite.”). Such a claim would, of course, be invalid under section 112, paragraph 2. Although both Apex and Linear, relied on dispositively and exclusively by the majority, found sufficiently definite structure in the claim language, both are distinguishable from the instant case, in which the claim language is dramatically different.

In Apex, a number of claim limitations using the term "circuit" were at issue. One such representative claim with the representative limitations was:

- a first interface circuit for receiving keyboard and cursor control device signals from the workstation;
- an on-screen programming circuit that produces video signals for display on the video monitor;
- a programmed logic circuit coupled to the first interface that transmits the keyboard and cursor control device signals to the programmable switch and controls the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation, the programmed logic circuit further operating to detect keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor and to control the programmable switch in response to the keyboard or cursor control device signals detected; and
- a second interface circuit disposed between the programmable switch and the selected computer for supplying the keyboard and cursor control device signals routed through the programmable switch to the selected computer.

325 F.3d at 1368; United States Patent No. 5,884,096, col. 13, I. 53 - col. 14, I. 24. In holding that the term "interface circuit" was not a means-plus-function limitation, we explained that "the term 'circuit' with an appropriate identifier such as 'interface,' 'programming' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art." Apex, 325 F.3d at 1373 (emphasis added). Moreover, we elaborated that "interface circuit" connotes sufficiently definite structure because "interface" and "interface circuit" are defined in electronics and computing dictionaries so as to "connot[e] specific structures to one of ordinary skill in the art." Id. at 1374. We then remanded the case to the district court for further development of the record and a similar analysis for the remaining "circuit" terms. Thus, not every "adjectival qualification" ("A.Q.");id., connotes sufficiently definite structure for the term "circuit," but rather an "appropriate" A.Q., as demonstrated in Apex by technical dictionaries.

By contrast, the "circuitry" claim limitation in this case recites only the following and nothing more:

- aesthetic correction circuitry for interactively introducing aesthetically desired alterations into said appearance signals to produce modified appearance signals;

'919 patent, col. 15, II. 38-41. Unlike in Apex, here we have no evidence whatsoever that "aesthetic correction" is such an "appropriate" A.Q. that it would connote sufficiently definite structure to one skilled in the art. Indeed, "aesthetic correction" itself may be solely functional language. For example, we were shown no evidence that any technical dictionaries suggest to the artisan a sufficiently definite structure for "aesthetic correction circuitry" or even list such a term. Nor did experts from either side opine that one skilled in the art would understand "aesthetic correction circuitry" to connote sufficiently definite circuit structure. While Microsoft's expert Anthony Johnson stated that one skilled in the art would have understood "aesthetic correction circuitry" to mean "hardware that allows an operator to interactively introduce changes into the
appearance signals to create modified appearance signals," this does not connote definite structure, but merely some unspecified hardware structure. The record on appeal does not reflect the opinion of MIT's expert, Bradley Paxton, regarding the meaning of "aesthetic correction circuitry." Rather, in the paltry portion of his testimony in the appellate record, he merely discusses "circuitry" and the fact that "[c]ircuitry contains a lot of components, including wires." This fails to impart definite structure to "aesthetic correction circuitry" because the components and their arrangements are unstated. The inventor, William Schreiber, explained that "aesthetic correction circuitry" means to one skilled in the art "hardware or software used by the system operator to introduce desired alterations into the appearance signals of an image." Again, this does not elucidate a definite structure, but merely suggests some generic structure, namely, some unspecified arrangement of unidentified hardware components or software. Neither of MIT's experts even attempted to opine that "aesthetic correction" connotes definite structure such that "aesthetic correction circuitry" would suggest a sufficiently definite array of components to one skilled in the art. Thus, I cannot discern sufficiently definite structure from the term "aesthetic correction circuitry" to avoid means-plus-function treatment.

Similarly, in Linear, a representative claim with limitations concerning "circuit" recited:

A circuit for controlling a switching voltage regulator, the regulator having (1) a switch circuit coupled to receive an input voltage and including a pair of synchronously switched switching transistors and

(2) an output circuit including an output terminal and an output capacitor coupled thereto for supplying current at a regulated voltage to a load, the control circuit comprising:

a first circuit for monitoring a signal from the output terminal to generate a first feedback signal;

a second circuit for generating a first control signal during a first state of circuit operation, the first control signal being responsive to the first feedback signal to vary the duty cycle of the switching transistors to maintain the output terminal at the regulated voltage; and

a third circuit for generating a second control signal during a second state of circuit operation to cause both switching transistors to be simultaneously OFF for a period of time if a sensed condition of the regulator indicates that the current supplied to the load falls below a threshold fraction of maximum rated output current for the regulator, whereby operating efficiency of the regulator at low output current levels is improved.

379 F.3d at 1316. In ascertaining that these "circuit" limitations were not means-plus-function limitations, Linear began with the approach of Apex and CCS Fitness: "To help determine whether a claim term recites sufficient structure, we examine whether it has an understood meaning in the art." Id. at 1320. Linear then quoted two dictionary definitions of "circuit," one identical to the dictionary definition in Apex. Yet, while Apex merely concluded from these dictionary definitions that "circuit" connoted "some structural meaning to one of ordinary skill in the art," Apex, 325 F.3d 1364 at 1373 (emphases added), Linear relied on these dictionary definitions, Apex, and certain non-functional, operational claim language to state: "Thus, when the structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 P6 presumptively will not apply." Linear, 379 F.3d at 1320 (citing Apex, 325 F.3d at 1373) (emphases added). In its holding, however, Linear also required expert testimony as to whether these descriptions of the circuit's operation conveyed sufficient structure to an artisan: "We hold that because the term 'circuit' is used in each of the disputed limitations . . . with a recitation of the structural meaning generally will be conveyed to persons of ordinary skill in the art, the 'circuit' and 'circuitry' limitations of such claims are not means-plus-function limitations . . . ." Id. at 1320-21 (emphasis added). Thus, not any operational language suffices.

Linear therefore extended the reasoning of Apex such that the use of "circuit"coupled with a description of the circuit's operation may connote "sufficient structural meaning," id. at 1320, to one skilled in the art. In Linear, this description of the first circuit's operation was "for monitoring a signal from the output terminal to generate a first feedback signal." Id. The description of the second circuit's operation was "for generating a first control signal during a first state of circuit operation." Id. at 1316. Similarly, the description of the third circuit's operation was "for generating a second control signal during a second state of circuit operation to cause both switching transistors to be simultaneously OFF." Id. Importantly, however, Linear relied on expert testimony to determine whether these descriptions of the circuit's operation conveyed sufficient structure to one skilled in the art. "That persons of ordinary skill in the art would understand the structural
arrangements of circuit components from the term 'circuit' coupled with the qualifying language of claim 1 was recognized by Linear's expert witness," id. at 1320 (emphasis added), who opined that one skilled in the art "would have an understanding of, and would be able to draw, structural arrangements of the circuit elements defined by the claims." Id. (emphasis added). Thus, in Linear, it was not merely the particular descriptions of the operation of the circuit that connoted sufficient structure, but also the expert testimony that these descriptions conveyed sufficient structure to one skilled in the art because the artisan "would be able to draw[] structural arrangements of the circuit elements." Id.

Here, we face a description of only the circuit's function, not of how it operates with other circuits or devices to carry out that function. Moreover, even assuming we had a description of the circuit's operation, "for interactively introducing aesthetically desired alterations into said appearance signals to produce modified appearance signals," '919 patent, col. 15, ll. 38-41, we were shown no evidence from which to conclude that this description identifies the circuit components or conveys the arrangement of circuit components to one skilled in the art so that he could draw the circuit's elements and their sequence.

In sum, both Apex and Linear relied on additional information in the claim to determine whether the limitation as a whole conveyed sufficiently definite circuit structure, i.e., elements or components and their sequence, to an artisan. Apex relied on dictionary definitions of an accompanying "appropriate" A.Q. that suggested sufficiently definite structure to one skilled in the art. Linear relied on expert testimony that the claim's description of the operation of the circuit connoted definite structure. Here, we have neither a dictionary definition to establish that "aesthetic correction" is an appropriate A.Q. to suggest definite structure nor expert testimony that the accompanying description of the operation of the circuit, if any, connotes definite circuit structure-sequence of particular circuit components-to an artisan so that he could draw on paper the arrangement of the components needed.

A. The Wood '107 Patent - Claim One

In this claim for infringement, the plaintiff asserts that several of the defendants' computers literally infringe Claim one (1) of the Wood '107 Patent. Claim One calls for "a data processing apparatus" comprising of:

- a frame memory, having an output connected to a pixel bus, for presenting pixel data corresponding to locations in a displayed image;
- processing circuitry having an input coupled to the output of said frame memory, for converting said pixel data into a digital form corresponding to display intensity;
- inverting circuitry, for receiving the converted pixel data from said processing circuitry and for inverting the converted pixel data responsive to a cursor control signal;
- a cursor enable circuit coupled to said inverting circuitry, for generating said cursor control signal responsive to a current display location corresponding to a cursor location in the displayed image;
- output circuitry, coupled to said inverting circuitry, for presenting the output of said inverting circuitry to a display device;
- a video processor, coupled to said frame memory for accessing said frame memory and for storing data therein corresponding to an image to be displayed;
- a host processor, coupled to said video processor by way of a host bus, and
- a display device, coupled to said output circuitry.

After the language "processing circuitry," "inverting circuitry," "a cursor enable circuit," and "output circuitry," the defendants would add the term "means." However, Compaq argues that the elements are in structural, not means-plus-
The Wood '107 Patent invents a method for achieving a higher resolution (picture or graphic) "by increasing the density of picture elements ("pixels") within the screen area." The higher the pixel density, the smaller the pixel size, resulting in increased resolution of the displayed image. The higher pixel is generated by cursors. "A cursor is a block of pixels for indicating a particular location in the display area that may be seen on a multi-colored screen. See Wood ['107 Patent - Background of the Invention (1)]. The location of the cursor in the image communicates to the user the context of the desired input. Thus, the picture or graphic is more "accurate and lifelike" to the viewer.

The defendants assert that the elements of Claim One, which discloses a circuitry, should be construed in a mean-plus-function limitations. However, the terms "means," "function" and "means for" are not included in the Claim language. Thus, the presumption in law, that the Claim should not be construed as "means for" language must be overcome by the defendants.

To overcome the presumption that § 112(6) is inapplicable, the defendant relies on the expert report of Marcian E. Hoff. However, the Hoff report does not create a dispute concerning the defendants' machine structure of the defendants' computers as they relate to Compaq's. In this regard, the structure requires: (a) a processing circuitry that is coupled to the frame memory; (b) inventing circuitry that receives the converted pixel data from the processing circuitry and inverts, in response to a cursor; (c) a cursor enable circuit that is coupled to the inventing circuitry that is coupled to the inverting circuitry and generates the cursor control signal claimed; (d) a controller in the defendants' computer coupled to the circuitry that presents the output from the inverting circuitry to a monitor; (e) a video processor coupled to frame memory, or graphics controller; (f) a host processor (microprocessor) coupled to the graphics controller by either a PCI or AGP bus; and (g) a display device (video monitors) coupled to the output circuitry.

The sole question remaining is whether the structure disclosed by Compaq's computers should be limited to the specification by which they perform the function. The Court is of the opinion that they should not. Clearly, the Claim calls for electronic circuitry, not a computer program or other mechanical structures. Therefore, the defendants' evidence fails to overcome the presumption that § 112(6) does not apply.

Accordingly, the Court holds that the Claim elements describe an apparatus and proper interpretation calls for electronic circuitry that performs the tasks as claimed in the invention, without limitation as to the type of electronic circuits. Moreover, because the defendants make, use, offer to sell or sells the same or equivalent apparatus, they infringe Claim One of the Wood '107 Patent. See 35 U.S.C. § 271(a). Summary judgment is appropriate for Compaq on this Claim.  

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1. Construction of "Call Progress Detector Circuitry for Detecting a Call Waiting Signal"

Plaintiffs contend that the claim language "call progress detector circuitry for detecting a call waiting signal" needs no construction. Defendants contend that this limitation should be construed as "[a] collection of electrical hardware components configured to detect a conventional call waiting system." (Def.'s Handout p. 17. n2)

n2 At the hearing, Defendants submitted copies of a summary of its proposed claim constructions to this Court. (See Defendant IEI's Proposed Claim Construction, Claim Construction Hearing, Friday, March 23, 2007 ("Def.'s Handout").) Although the constructions proposed in this handout differ from the constructions proposed in its claim construction brief, Defendants confirmed that the constructions set forth in the handout constitute its final proposed constructions. (Compare Def.'s Handout p. 17 (providing that "call progress detector circuitry for detecting a call waiting signal" should be construed as "[a] collection of electrical hardware components configured to detect a conventional call waiting system" with Def.'s Cl. Constr. Br. p. 6 (providing that this claim language should be construed as requiring "electronic circuitry (i.e., a collection of hardware components) that is configured to detect a conventional call waiting signal and then output a corresponding signal.").)
The parties' dispute hinges on whether the claim term "circuitry" excludes "software based implementations, such as firmware or a microcontroller that may be programmed with software for accomplishing a particular task." (Def.'s Cl. Constr. Br. p. 7.) Plaintiffs contend that "circuitry" does not exclude so-called "software based implementations" whereas Defendants maintain that such implementations are excluded.

In constructing their argument, Defendants rely on Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311 (Fed. Cir. 2004) and Massachusetts Instit. of Tech. v. Abacus Software, 462 F.3d 1344 (Fed. Cir. 2006). n3 In the Linear Tech. decision, the United States Court of Appeals for the Federal Circuit considered whether certain claim limitations involving the term "circuit" or "circuitry" are means-plus-functions limitations subject to 35 U.S.C. § 112 P 6. n4 The Federal Circuit concluded that, because none of the disputed limitations included the word "means," the rebuttable presumption that § 112 P 6 does not apply was triggered:

[W]hen the structure-connoting term "circuit" is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 P 6 presumptively will not apply. See Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1373 (Fed. Cir. 2003) ("[T]he term 'circuit' with an appropriate identifier such as 'interface,' 'programming' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art.").

Linear Tech., 379 F.3d at 1320.

The Federal Circuit faced a similar situation in Abacus Software. In that case, the parties disputed whether the term "aesthetic correction circuitry" connoted sufficient structure to avoid § 112 P 6 treatment. Abacus Software, 462 F.3d at 1355. After citing its prior decisions in Linear Tech. and Apex Inc., the Federal Circuit noted that:

The claim language here too does not merely describe a circuit; it adds further structure by describing the operation of the circuit. The circuit’s input is "appearance signals" produced by the scanner; its objective is to "interactively introduce[] aesthetically desired alterations into said appearance signals"; and its output is "modified appearance signals." This description of the operation of the circuit is sufficient to avoid 112 P 6.

Id. at 1356 (citation omitted). The Federal Circuit also rejected the plaintiff's argument that "aesthetic correction circuitry" includes both hardware and software. "Although the specification suggests that certain computation performed by the [Color Translation Module] can be accomplished with either hardware or software . . . [w]e conclude that the term 'circuitry' in claim 1 is limited to hardware." Id. at 1356-57 (emphasis in original).

The Linear Tech. and Abacus Software decisions, however, are not concerned with the precise issue upon which Defendants seek a ruling, i.e., whether the term "circuitry" includes hardware but does not extend to so-called "software based implementations," e.g., programmable microcontrollers. In Linear Tech., for example, the Federal Circuit did not discuss whether "circuitry" includes just hardware, software, or software based implementations. In Abacus Software, the Federal Circuit concluded that "circuitry" excludes software, see 462 F.3d at 1357, but did not consider whether that term also excludes "software based implementations." n5 Accordingly, this Court cannot accept Defendants' argument that limitations involving the term "circuitry" necessarily exclude "software based implementations, such as firmware or a microcontroller

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that may be programmed with software for accomplishing a particular task." (Def.'s Cl. Constr. Br. p. 7.)

n5 Instead, the Federal Circuit appeared concerned with a less fine-grained distinction. See Abacus Software, 462 F.3d at 1357 n.7 (defining "hardware" as "the mechanical, magnetic, electronic, and electrical devices comprising a computer system" and "software" as "the programs used to direct the operation of a computer"). Against this backdrop, the Federal Circuit held that claim limitations involving the term "circuitry" could not be interpreted to include software. Id. at 1356-57 ("Although the specification suggests that certain computations performed by the [Color Translation Module] can be accomplished with either hardware or software, this reference does not alter the specification's repeated description of the circuit itself as involving hardware.")(emphasis added).

In addition, there is no reasonable dispute that the specification and prosecution history of the '771 Patent use the term "circuitry" to refer to programmable microcontroller 412. Specifically, claim 1 references "circuitry to recognize a first signal with a duty cycle or cadence coupled with frequency and level indication of a call waiting SAS signal or a distinctive call waiting SAS signal." '771 Patent, Col. 14, ll. 23-26 (emphasis added). The specification explains that, in the preferred embodiment, this limitation is satisfied by microcontroller 412. Id. at Col. 10, ll. 47-50 ("[T]he principal function of [microcontroller 412] is to receive call progress signals, specifically for the preferred embodiment of the present invention, it is the call progress signal (SAS) alerting signals for CW and DCW."). Finally, the specification points out that microcontroller 412 is programmed. Id. at Col. 10, ll. 60-63 ("The microcontroller 412 is programmed with timing algorithms, which provide the flexibility for recognition of CW and a plurality of DCW signals.")(emphasis added). The prosecution history also uses the term "circuitry" to refer to microcontroller 412. (See Pl.'s Cl. Constr. Br. Ex. C (the "Dec. 12, 2002 Amendment").)

As a result, even if Defendants were correct that one of ordinary skill in the art would understand the claim term "circuitry" to exclude software based implementations, the written description and prosecution history use that term "in a manner clearly inconsistent with the ordinary meaning." See Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1204 (Fed. Cir. 2002) (stating that if the specification uses the words in a manner clearly inconsistent with the ordinary meaning of a dictionary definition, the inconsistent dictionary definition must be rejected); see also Irdeto Access, Inc. v. EchoStar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("It is well-established that the patentee can act as his own lexicographer, so long as he clearly states any special definitions of the claim terms in the patent specification or file history.")(citation omitted). Moreover, to the extent that Defendants seek a construction of "circuitry" that excludes software based implementations such as programmable microcontrollers, n6 it follows that such a construction would exclude the preferred embodiment that incorporates microcontroller 412. A claim construction that excludes a preferred embodiment, however, "is rarely, if ever, correct and would require highly persuasive evidentiary support... ." Vitronics, 90 F.3d at 1583 (citations omitted). In this case, of course, no extrinsic evidence of any kind was submitted in connection with the meaning of the claim term "circuitry."

n6 At the hearing, Defendants suggested that their proposed construction of the claim term "circuitry" applies to every use of that term in the claims of the '771 Patent. In addition, this Court notes that it is not clear whether Defendants' proposed construction would, if adopted, exclude so-called "software based implementations." As noted above, Defendants contend that "call progress detector circuitry for detecting a call waiting signal" should be construed as "a collection of electrical hardware components configured to detect a conventional call waiting system.". One could reasonably view this proposed construction, however, as exchanging one term ("circuitry") that is arguably ambiguous with respect to software based implementations for a set of terms ("electrical hardware components" that have been "configured") that are equally ambiguous with respect to software based implementations.

Finally, this Court notes that there is no confusion about the meaning of the claim language "call progress detector circuitry for detecting a call waiting signal" other than the dispute regarding "circuitry." The parties acknowledge that the limitation
at issue calls for circuitry for performing the task of detecting a call waiting signal. (See Pl.’s Cl. Constr. Br. p. 11; Def.’s Handout p. 18.) Defendants do not argue, and did not submit expert testimony to suggest, that one of ordinary skill in the art would have a difficult time understanding the meaning or scope of this limitation. There is no suggestion, moreover, that the relevant claim language is governed by 35 U.S.C. § 112 P 6. Finally, the parties recognize that the "call progress detector" of the preferred embodiment is the commercially available Teletone M-981 tone detector. (See Pl.’s Cl. Constr. Br. p. 11; Def.’s Handout p. 21); see also ’771 Patent, Col. 10, ll. 6-10 ("Isolation and protection circuitry 430 output is connected to a commercial call progress tone detector circuit 413, such as a Teletone M-981, comprising of, but not limited to, a differential amplifier, reference generator, bandpass filter, and a level sensor.").

In sum, the sole dispute with respect to the claim language "call progress detector circuitry for detecting a call waiting signal" involves the claim term "circuitry." (See Def.’s Handout p. 18.) For reasons explained above, this Court rejects Defendants’ argument that claim limitations involving the term "circuitry" necessarily exclude so-called "software based implementations." n7 Therefore, this Court concludes that no further construction of the claim language "call progress detector circuitry for detecting a call waiting signal" is necessary. This language is found in claims 1, 6 and 9 of the ’771 Patent.

--- Footnotes ---

n7 This Court notes that the specification of the ’771 Patent contains language suggesting that the claim term "circuitry" encompasses software based implementations. See ’771 Patent, Col. 14, ll. 1-6 ("[W]hile the disclosed embodiments of the present invention utilize programmed processors, and special-purpose integrated circuits, and digital processors these devices can be implemented using discrete devices, or any analog or hybrid counterpart of any of these devices."); cf. Abacus Software, 462 F.3d at 1357 (interpreting similar language as suggesting that certain computations can be accomplished by software based implementations that involve hardware).

--- End Footnotes ---

6. Signal interface including "circuitry for limiting transmission of the internal signal in the high frequency band from the telephone wiring network to the telephone exchange"; Signal interface including "circuitry for limiting transmission of signals in the high frequency band from the telephone wiring network to the telephone exchange": the signal interface includes circuitry that prevents high frequency signals (i.e., frequencies above the telephone voice band between 0.25 MHZ and an undetermined upper limit) from traveling upstream from the signal interface to the telephone exchange.

Defendants propose this claim term means the signal interface must include "circuitry that prevents high frequency signals (i.e., signals of 250 kHz and higher) from traveling upstream on the telephone wiring network to the telephone exchange." n27 Inline argues that this phrase "requires that the high frequency analog signals encoded by the signal interface for transmission downstream to the transceiver, including but not limited to, frequencies in a range above 250 kHz, are limited from transmitting upstream to the telephone exchange." n28

--- Footnotes ---

n27 D.I. 470 at 23.
n28 D.I. 452 at 2.

--- End Footnotes ---

The court construes this phrase based on its prior rulings. The court has already determined that the signal interface is designed to prevent high frequency signals from passing onto the public trunk line and back to the telephone exchange. n29 The court construed "high frequency band" as "frequencies above the telephone voice band between 0.25 MHZ and an undetermined upper limit." n30 The court, and defendants, n31 do not disagree that the "comprising" transitional phrase may mean that signals other than those in the high frequency band may be prevented from transmitting to the telephone exchange.
exchange. At a minimum, however, the signal interface must have circuitry for preventing transmission of high frequency band signals (as previously construed by the court) to the telephone exchange. \footnote{29}{2004 Markman Opinion, 302 F. Supp. 2d at 323-24 (citing the '596 patent, 48:37-39; Figure 2; and the prosecution history of the '596 patent).}

After the court construed "high frequency band" in its October 19, 2004 Memorandum Opinion, the parties represented that they did not wish to present arguments concerning the upper limit of the "high frequency band." \footnote{30}{Inline Connection Corp. v. AOL Time Warner Inc., 347 F. Supp. 2d 56, 80 (D. Del. 2004).}

Consistent with the court's prior construction of that phrase, therefore, the court construes the phrase at issue as requiring the signal interface to have "circuitry that prevents high frequency signals (i.e., frequencies above the telephone voice band between 0.25 MHZ and an undetermined upper limit) from traveling upstream from the signal interface to the telephone exchange."

\footnote{31}{See D.I. 470 at 27-28.}

\footnote{32}{See Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1345-46 (Fed. Cir. 2003) ("Comprising is a term of *1345 art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." (quoting Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997)).)

The parties' dispute appears to focus on the last portion of Defendants' proposed construction, i.e., whether "circuitry for performing a mute . . . and transferring" performs the relevant operations "without placing an on-going modem connection on hold." \footnote{10}{(Def.'s Handout p. 48.)

n9 It is difficult to identify the claim language that is disputed. (Compare Def.'s Cl. Constr. Br. p. 21 (requesting that this Court construe the claim phrase "line seizure circuitry for . . . muting . . . and . . . transferring") with Def.'s Handout p. 48 (requesting that this Court construe the claim phrase "circuitry for performing a mute . . . and transferring").) This difference might be meaningful as one phrase occurs in claim 6 while the other is found in claim 9. Compare '771 Patent, Col. 16, ll. 56-59 (claiming "first line seizure circuitry for performing the flash operation, muting the telephonic device connected to the data port and transferring from the data port to the voice/Fax port. . . .") with '771 Patent, Col. 15, ll. 8-11 ("first line seizure circuitry for performing a mute and disconnect of the telephonic device connected to the data port and transferring from the data port to the voice/Fax port. . . ."). Relying on Defendants' representation that the handout submitted at the Markman hearing contains its final proposed claim constructions, this Court assumes that Defendants only seek to construe the language "circuitry for performing a mute . . . and transferring" set forth in claim 6 of the '771 Patent.

n10 This proposed construction differs from the one set forth in Defendants' claim construction brief (See Def.'s Cl. Constr. Br. p. 21 (proposing that the relevant claim language be construed as requiring circuitry for "muting a telephonic device attached a [sic] data port and switching the connection from the telephone to another port").)
on hold." In support of their proposed construction, Defendants emphasize that the specification "teaches that transferring the line without putting the modem line on hold was an important feature of the invention." (Def.'s Handout p. 50 (emphasis in original).) Defendants also take the position that this limitation requires that the claimed invention disconnect the modem line instead of placing it on hold. (Id. ("Inventors specifically distinguished systems that placed the modem line on hold rather than simply disconnecting it.").) Plaintiffs respond that the phrase "without placing an on-going modem connection on hold" inserts a new, unnecessary limitation into the claim that is irrelevant to the disclosed invention.

Defendants proposed construction fails for two reasons. First, it lacks support in the intrinsic record. The written description distinguishes prior art schemes that adapt modems for use with call waiting. See generally '771 Patent, Col. 2. The specification notes that one disadvantage of these systems is that they are "not independent" of the modem connected to the internet because they "must pass information or signals to a modem or modem interface." Id. at Col. 2, ll. 31-34. Specifically, they "adapt[] a modem interface" for purposes of "maintain[ing] the data session on hold while responding to a third party call." Id. at Col. 2, ll. 27-29. Such systems are contrasted to the claimed invention, which does not require a particular modem or modem interface and is therefore "independent of the type of telephone devices connected to the internet." Id. at Col. 2, ll. 52-53. This context is important because it shows that the additional limitation sought by Defendants--"without placing an on-going modem connection on hold"--is relevant to understanding how the claimed invention differs from prior art schemes, but not the meaning of the claim language itself.

Second, Defendants' contention that the limitation "circuitry for performing a mute . . . and transferring" requires that the modem line be disconnected is contradicted by the specification:

Another aspect of the present invention is to provide a signal detection, alerting and switching management device of the general character described which permits a single telephone line subscriber utilizing the telephone network for a data transmission, to employ a telephone feature such as distinctive call-waiting to answer a distinctive incoming caller, or the option not to answer, without terminating the data session.

'771 Patent, Col. 4, ll. 33-41 (emphasis added). The intrinsic record acknowledges that the device claimed by the '771 Patent may terminate the data session by disconnecting the modem line. Id. at Col. 11, ll. 27-28 ("[D]isconnect operations are performed by the line seizure and control switch circuitry 416."); (Dec. 12, 2002 Amendment p. 10 ("[T]here is no concern that the connection is lost (we state that it is acceptable to reconnect using a mouse click).".). However, disconnecting the modem line does not appear to be required by the claim language at issue. Therefore, this Court concludes that no further construction of the claim language "circuitry for performing a mute . . . and transferring" is necessary. This phrase is found in claim 6 of the '771 Patent.

Buffers are electrical devices having sectors divided into tracks for the storage of data. Blocks of data can be stored in consecutive tracks or disparately throughout the storage device, as long as data can be correlated logically. Thus, data written onto a track can have both a "physical address" and a "logical address." The "physical address" identifies the sector
the "logical address" explains how data with one physical address is related to data with a different physical address. "Look-up tables" are used to correlate the logical and physical addresses. (Decl. of Hellman at 3-8.)

The district court construed the "circular storage buffer" limitation to mean:

- a physical memory device that contains digital signal values and that is circular in the sense that when the last address is reached, the next address accessed is the first address location. While the digital input signal values are always stored in the same repeating physical addresses, these addresses do not have to be physically contiguous. The "circular buffer limitation" requires that the circular buffer store the digital input signal values in continually advancing physical addresses.

Summary Judgment Opinion at 17. The district court explained that the claim requires that "digital signal input values representing an incoming audio or video program signal" be written into memory, and that when the circular buffer "writes over the oldest of said input signal values," it must write over the oldest actual signal values and not just the logical address. Id. at 16-17. The district court went on to reason that the extrinsic evidence proffered by Pause conflicted with the claim language, and that nothing in the intrinsic record defined the buffer as "logically" circular. Id. at 14-16. The district court concluded that "this claim limitation precludes a logical circular buffer which would only store pointers or references that wrap around." Id. at 17.

Pause asserts that the claimed "circular storage buffer" can be a buffer system that stores data at "continually advancing" logical addresses. In such a system, when the write address circles back to the oldest logical address, that address is overwritten by a new logical address, which is correlated to the physical address of the newest input signal values. According to Pause, the claimed buffer need not immediately circle back and write over the actual signal values, which may remain stored at the oldest physical address.

To support its construction, Pause quotes from the Encyclopedia of Computer Science 143 (3d ed. 1993), which says that "circular buffering . . . typically uses a single buffer, usually one that is larger than a single physical record and which is managed as a queue. The basic strategy is to give the appearance that the buffer is organized in a circle with data 'wrapping around' . . . ." Id. Pause argues that this description reflects the ordinary meaning of "circular storage buffer." Pause notes that the claim recites, inter alia, a "circular storage buffer" comprising "an addressable digital memory," "a programmed processor," and "memory access means." '801 reissue patent, col. 6, ll. 23-25. Pause argues that the inclusion of a "programmed processor" indicates the use of a logical addressing scheme. Pause asserts that the "writing addresses established by said processor" at which data is stored, id., ll. 28-29, need not be physical addresses. Pause also argues that the written description does not disclose a "fully physical addressing scheme" and that the written description is only consistent with logical addressing. In Pause's view, physical addressing would read out an embodiment. Pause adds that the Examiner reviewing the reissue application did not think that "circular storage buffer" was limited to physical addressing.

TiVo responds that regardless whether a circular buffer could employ logical addressing, the claimed buffer must write to "continually advancing" physical addresses. According to TiVo, the phrase "circular storage buffer" as used in the context of the claim requires that the system "write over" signal values stored at the oldest physical address with the newly input signal values, which are then stored at the same physical address. TiVo argues that Pause's construction ignores the surrounding words in the claim. TiVo asserts that the written description and prosecution history are consistent with its proposed construction. We agree with TiVo.

We begin with the language of the claim. The claimed "circular storage buffer" comprises, inter alia, a "memory access means [that] continuously writes said sequence of digital input signal values in to said addressable digital memory." Id., ll. 23-27. The writing occurs "at a sequence of continually advancing writing addresses established by said processor to write over the oldest of said input signal values recorded in said digital memory as said sequence of writing addresses are advanced." Id., ll. 27-32. In this way, "said digital input signal values received during said immediately preceding time interval of predetermined duration are stored in said addressable memory." Id., ll. 27-35. The antecedent for "said digital input signal values" is the "digital input signal values representing an incoming audio or video program signal." Id., ll. 9-10. Thus, as "writing addresses" advance, new signal values "write over" the "oldest of [the] input signal values recorded in [the] digital memory." Id., ll. 30-32.

Pause urges us to ignore the "write over" clause and other language appearing later in the claim in construing "circular
storage buffer." Specifically, Pause argues that "regardless of what claim language appears in a later portion of the claim, that language should not be read into the interpretation of a separate claim element." However, "proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation." Hockerson-Halberstadt, Inc. v. Converse Inc., 183 F.3d 1369, 1374 (Fed. Cir. 1999); accord Philips, 2005 U.S. App. LEXIS 13954, at *27 ("The context in which a term is used is the asserted claim can be highly instructive."); ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088-90 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered . . . ."); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003) (same). The parties dispute how the claimed "circular storage buffer" must operate to store digital signal values in memory and, specifically, whether the claim is broad enough to cover a buffer implemented through purely logical addressing. The "write over" clause and other language appearing later in the claim detail how the buffer employs addressing to store digital signal values in memory. There is no basis for us to ignore that language in properly construing the claim language in dispute.

Because the claim recites that the "circular storage buffer" must function to "write over" the oldest digital signal values in memory as the sequence of writing addresses advances so that the new digital signal values are stored in memory, '801 reissue patent, col. 6, ll. 23-35, a logical implementation in which the oldest digital signals remain in memory for some period impermissibly conflicts with the plain meaning of the claim. See Philips, 2005 U.S. App. LEXIS 13954, at *39 ([A] court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words with the written record of the patent." (internal quotations omitted) (emphasis added)); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996) (noting that expert testimony may not be used "to vary or contradict the claim language"). The context of the claims makes clear that the term "write over" means that new signal values replace the oldest signal values in memory.

Pause argues that the digital signal values need not be stored in the same repeating physical addresses. Pause adds that the buffer need not be circular in the sense that when the last address is reached, the next address accessed is the first address location. However, because the claim specifies that the new digital signal values replace the oldest digital signal values in memory, the new signal values must be written to the physical address of the oldest signal values. Because the new signal values must be written to the physical address of the oldest signal values, and because the writing addresses are continually advancing, when the last physical address is reached in the buffer, the next address accessed will be the address at which the oldest digital signal values are stored, i.e., the first physical address location. In this manner, digital signal values are stored in the same repeating physical addresses. We also reject Pause's argument that an implementation of the buffer through physical addressing is inconsistent with the written description and would read out an embodiment. The written description says that "the memory subsystem 5 continually stores the incoming data, writing over the oldest data stored on the hard disk 7," '801 reissue patent, col. 3, ll. 11-15, and, thus, is not inconsistent.

The prosecution history also confirms that the claimed "buffer" must employ physical addressing. In a June 27, 1997 Office Action ("Office Action"), the Examiner said that "circular buffer" was "a term well-known in the art and used to describe a memory controlled so as to continuously record-ultimately over the oldest-recorded material." Office Action at 3. The Examiner concluded that it would have been obvious to modify the memory-management algorithm in Goldwasser et al., U.S. Patent No. 5,241,428 ("Goldwasser"), to implement a circular buffer, and entered a final rejection. Id. at 2 & 8. In a January 9, 1998 Preliminary Amendment ("Amendment"), the applicant added language "to more clearly distinguish [his] invention" and asserted that:

claim 1 as amended requires the presence of a circular storage buffer for storing those digital input values representing audio or video programming which was received during the immediately preceding time interval of predetermined duration. The circular storage buffer as claimed includes an addressable digital memory and memory access means for continuously writing into the addressable digital memory at a sequence of continually advancing writing addresses to write over the oldest of said input signal values recorded in said digital memory as said sequence of writing addresses are advanced so that said digital input signal values received during said immediately preceding time interval of predetermined duration are stored in said addressable memory.

Amendment at 5. The applicant then distinguished Goldwasser:

Goldwasser et al. teach both analog tape memory and digital random-access memory embodiments of their invention, neither of which operates as claimed in applicants' claim 1. The reel-to-reel tape embodiment shown in Goldwasser et al.

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Figs. 1 and 2 is physically incapable of operation as a circular buffer since the recording head cannot physically write over the oldest of the signal values which are located on the tape wound at the interior of the take-up reel. The digital random access mechanism seen in Fig. 3, as noted by the Examiner, employs an address control mechanism which operates in accordance with the algorithm shown in Fig. 4, is not a circular buffer, and has no mechanism for writing over the oldest recorded signal values as claimed.

... It is submitted that nothing in the cited art would suggest to one of ordinary skill in the art that the function of the Goldwasser et al. recorder should be altered by substituting a circular storage buffer which, as claimed, writes over the oldest of said input values recorded.

Applicants' invention works in a way not taught by Goldwasser et al. Applicants' circular buffer is fully loaded during viewing and the oldest recorded programming is being continuously overwritten. ... The buffer memory is fully loaded with prior programming at time viewing begins. Nothing in any of the cited references suggests or discloses this unique mode of operation in which the oldest material is being continually overwritten.

Id. at 5-7.

Thus, Pause made clear to the Examiner that the buffer "as claimed" is "unique" in that it must write over the oldest signal values recorded in the digital memory as the writing addresses advance. Id. at 5. In other words, the "oldest material" stored at the oldest physical address must be "continuously overwritten" with newly inputted signal values, which are stored at the same repeating physical addresses. Because this construction is driven by the use of "circular storage buffer" in the context of the claim and is supported by the written description, a broader construction that lacks support in the intrinsic record must yield. See Phillips, 2005 U.S. App. LEXIS 13954, at *40-* 42; see also Vitronics, 90 F.3d at 1584-85 ("Regardless of how those skilled in the art would interpret a term in other situations, where those of ordinary skill ... would conclude that the [patent] documents preclude the term being given the meaning propounded by the expert witnesses, we must give it the meaning indicated by the patentee in the patent claim, specification, and file history.").

Pause's final argument as to this limitation is that the "physical address," "same repeating," and "last address/next address" language employed in the district court's construction does not appear verbatim as claim language, and that an interpretation employing this language impermissibly narrows claim scope. Pause correctly notes that courts cannot "rewrite" claims. However, in clarifying the meaning of claim terms, courts are free to use words that do not appear in the claim so long as "the resulting claim interpretation ... accords with the words chosen by the patentee to stake out the boundary of the claimed property." Cf. Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (noting that "without any claim term susceptible to clarification ... there is no legitimate way to narrow the property right").

In this case, we agree that the district court's claim construction stayed true to the claim language as it is used in the context of the claim itself. Moreover, the district court's interpretation is consistent with the written description and prosecution history. Accordingly, we affirm the district court's construction of the "circular storage buffer" limitation.
4. "Claim level:" 4 "Structured set of information about an insurance claim." For the above reason, the court rejects plaintiffs' proposed construction of "any insurance claim." In all other respects, the parties agree with this construction, which is consistent with col. 84:37-63.

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4 '284 patent, claim 1 (and dependent claims).

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b. Connection to an External Power Source

UI asserts that the definition of "clamping" should include the requirement that it be "accomplished via an electrical connection to a fixed bias (e.g., power supply or ground)." UI Claim Construction Brief at 31. In other words, UI's definition limits clamping to instances involving an external power supply. Fujitsu, on the other hand, takes the position that the common and ordinary meaning of the word "clamping" refers to the act of adding "any voltage reference, whether 'externally' or 'internally' generated." Fujitsu Claim Construction Brief at 39. The Court concludes that "clamping" need not be accomplished through a connection to an external power supply but rather, can be accomplished by adding any voltage reference, whether internally or externally generated.

The starting point for the Court's analysis is the definition of "clamping" found in the IEEE Dictionary, which is instructive in determining the common and ordinary meaning of the term. The IEEE Dictionary defines "clamping" as "[a] function by which the extreme amplitude of a waveform is maintained at a given level." IEEE Dictionary (3d Ed. 1984) at 146, Exh. K to Nui Decl. The IEEE dictionary definition is silent as to whether clamping requires a connection to an external power supply or rather, may also be accomplished through connection to an internally generated reference voltage. Thus, this definition supports Fujitsu's position that one of ordinary skill in the art in 1986 would not have understood the term "clamping" to include the limitation contained in UI's definition of the term. 12

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12 Fujitsu also cites to a number of patents, including a patent issued to Dr. Weber, in which the term "clamping" refers to fixing to an internally generated reference voltage. See Silzars Decl. at PP221-222. Although the Court places less weight on this extrinsic evidence than it does on the words of the patent and the IEEE dictionary definition, this evidence also offers some support for Fujitsu's argument that the definition of "clamping" does not include a requirement that there be a connection to an external power supply. Nor is the Court persuaded by UI's argument that all of this prior art is inapposite because the referenced patents do not involve plasma display panels. As discussed below, the '349 and '400 patents explicitly state in the Abstract that the invention is not limited to plasma panels but also can be used with electroluminescent panels and with liquid crystal panels. Because the invention is not limited to plasma panels but rather covers a variety of types of panels, the prior art cited by Fujitsu is relevant to the construction of the word "clamping" in the '349 and '400 patents.

The Court does not place a great deal of weight on the deposition testimony cited by Fujitsu of inventors Dr. Weber and Mr. Wood. See Silzars Decl. at P222. In the cited testimony, neither Dr. Weber nor Mr. Wood addresses directly the question of whether "clamping" requires a connection to an external power source. Although their failure to mention such a requirement might support Fujitsu's position, that evidence is of very limited probative value. Nor does the Court find the decision of the European Patent Office revoking the European counterparts of the '349 and '400 patents to be helpful. See Exh. 66 (September 26, 2000 Decision revoking patent); Exh. 67 to Silzars Decl. (September 26, 2002 decision on appeal affirming revocation of patent); Silzars Decl. at P223. Neither the original decision revoking the patent nor the decision affirming the revocation explicitly addresses the question of whether "clamping" requires a connection to an external power source.

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UI suggests, however, that even if the term "clamping" is not generally understood to require a connection to an external power supply, the term is defined differently when it is used in the context of plasma display panels. In particular, UI asserts that:

Clamping the voltage across a plasma display panel is not comparable to clamping the voltage in other contexts -- even to clamping in the context of other display technologies. Unlike in other display technologies, a source of significant current is required to clamp the voltage of a plasma display panel because of the large and abrupt gas discharge current that is drawn when pixels are illuminated.

UI Reply Claim Construction Brief at 21. UI does not, however, present any evidence that one of ordinary skill in the art in 1986 would have understood that the word "clamping" carried a different meaning when used in the context of plasma display panels than when used with reference to other types of display panels. Moreover, UI's argument is unpersuasive to the extent that the '349 and '400 patents explicitly state in the Abstract that the invention is not limited to plasma panels but also can be used with electroluminescent panels and with liquid crystal panels.

Finally, the Court rejects the assertion by Dr. Inan that a "special definition" is given to the word "clamping" in the Patents. Inan Report at 44. Dr. Inan relies exclusively on the fact that in all of the preferred embodiments in the Patents, clamping is accomplished through a connection to an external power source, namely, Vcc or ground. See id. The presumption that words in a patent carry their common and ordinary meaning may be overcome when a special definition is "clearly stated" in the patent, that is, when the specification "expressly defines terms used in the claims or when it defines terms by implication." See Vitronics, 90 F.3d at 1582. On the other hand, it is well-established that the scope of an invention disclosed in a patent is not limited to the preferred embodiments but rather, is defined by the claim terms. See Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 398 (Fed. Cir. 1967). The latter rule would be rendered meaningless if the Court were to accept UI's argument and hold that the term "clamping" has a special definition that is more limited than the common and ordinary understanding of the word simply because only a certain type of clamping is used in the preferred embodiments. Therefore, the Court concludes that even though the preferred embodiments in the Patents involve clamping to an external power source, this fact alone does not provide a sufficient basis to find that the word "clamping" has a special definition in the '349 and '400 patents.

c. Clamping as Maintaining vs. Clamping as Adding a Voltage Reference Level

UI argues that "clamping" is a type of "maintaining" rather than a type of switching. UI Claim Construction Brief at 31. Because clamping is simply a type of maintaining the panel capacitance in a charged or discharged state, UI asserts, it does not refer to the switching that may occur prior to clamping, which is at most a "possible condition precedent" to clamping. Nor, for example, does clamping refer to the short period shown in Figure 8 between the time when switch S3 is closed and the point when the panel capacitance reaches Vcc, according to UI. Fujitsu, on the other hand, argues that "clamping" includes the act of switching to add a voltage reference, as well as maintaining the voltage reference once the panel capacitance reaches the level of the reference voltage. The Court finds Fujitsu's position more persuasive.

The IEEE Dictionary defines a "clamping circuit" as one that "adds" a reference voltage, suggesting that "clamping" includes the act that adds the reference voltage as well as the maintenance of that voltage level. IEEE Dictionary at 146, Exh. K to Nui Decl. This construction is supported by the claims and written description of the '349 and '400 patents. In particular, switching is repeatedly equated with "clamping." See, e.g., '400 patent, col. 22, ll. 47-48 ("third switch means . . . for clamping"), 55-56 ("fourth switch means . . . for clamping"). It is inconsistent with the usage in the patent to exclude the very act that "clamps" the voltage level from the definition of clamping.

Accordingly, the Court defines "clamping" as "the act of adding a specific reference voltage level, which results in holding the panel capacitance at such reference voltage level." Further, as noted above, "clamping" need not be accomplished through connection to an external power supply but rather, can be accomplished by adding any voltage reference, whether internally or externally generated.
Claims 1 and 20 of the 651 patent require that "said product relationships comprising an includes classification." Trilogy contends that the court should define "includes classification" as "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Selectica contends that the court should define the term to mean "a designation identifying elements that are included automatically in the configuration when a set of one or more elements are selected." After reviewing the briefs and the arguments of counsel, the court is persuaded that Trilogy's construction is correct.

The term "includes classification" means "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration."

1. "sorting" and "classifying"

ADE argues that the words "sorting" and "classifying" as used in the '525 patent have an ordinary meaning in the art. ADE further asserts that one of ordinary skill in the art would recognize that the '525 patent teaches "sorting" and "classifying" of defects on the surface of silicon wafers according to pre-selected criteria or "recipe[s]." D.I. 318 at 24. KLA contours this construction by arguing that the '525 patent does not disclose any preselected criteria or "recipe" for "sorting" and "classifying" defects, therefore, the claims are invalid under 35 U.S.C. § 112, P1 because the inventors were not in possession of the invention claimed at the time of filing. D.I. 414 at 33-34. At the very least, KLA asserts, the two words should be construed to mean that defect organization is conducted by the operator based upon certain criteria. Id.

This court agrees with KLA that the written description of the '525 patent does not contain a "recipe" for "sorting" and "classifying" defects, but this court cannot extend such reasoning to a holding that dependent claims 19 and 20 are invalid under 35 U.S.C. § 112, P1 because the inventors lacked possession of the invention at the time of filing. Dependent claims 19 and 20 do not contain the word "recipe." An inventor need not be in possession of something that is unclaimed.

Dependent claims 19 and 20 use the word "sorting" and "classifying." These words have a common meaning in everyday language. Nothing in the specification or prosecution history indicates that the inventors intended any other meaning to apply. According to Webster's II New Riverside University Dictionary, 1988, "classifying" means "to organize or arrange according to class or category." Id. at 268. In this same dictionary, "sorting" means to "arrange according to class, kind, or size." Id. at 1110. Consistent with these definitions and the teachings of the '525 patent, this court holds that "classifying" means to "organize or arrange" pit and particle defects according to "class or category." Similarly, "sorting" as used in the '525 patent means to arrange pit and particle defects "according to class, kind, or size."

1. "Classifying the specimen" (claims 11 and 16)

The parties agree as to plain meanings of "classifying" and "specimen." The dispute focuses on whether "classifying" includes the steps enumerated in claims 11(b)(i) and (ii) and 16(b)(i) and (ii). Specifically, the parties disagree on whether these steps include tertiary classification conducted by a human.

Tripath argues that the language "said classifying including" at the end of claims 11(b) and 16(b) necessarily incorporates each of the steps in claims 11(b)(i) and (ii) and 16(b)(i) and (ii), respectively. Steps 11(b)(ii) and 16(b)(ii) are actions that provide for "viewing and further classification by a human." Thus, classification is not complete until a person has reviewed the suspect specimens. In contrast, Cytyc contends that the device itself classifies the specimen so that further review by a human could take place, if needed. The machine, therefore, completes the classification.

A careful reading of the claim terms and the specification leads to the conclusion that the claimed invention does not include human review. Beginning with the claims themselves, the preamble to claim 11 reads "a method . . . comprising the steps of . . . ". The word "comprising" indicates a closed grouping. In other words, the steps that follow constitute the entirety of
the claim. See Manual of Patent Examining Procedure, § 608.01(i)(e)(2005) ("any independent claim should contain . . . a preamble comprising a general description of all the elements or steps of the claimed combination which are conventional or known") (emphasis added). "Obtaining the specimen" and "classifying the specimen" are thus the only two steps claimed in claim 11.

The question remains whether "classifying the specimen" includes final, tertiary classification by a human. Claim 11(b) states that the goal of classifying the specimen is "to determine the likelihood that individual objects in the specimen have attributes of cell abnormality justifying further evaluation." (emphasis added). "Justifying further evaluation" indicates that the classification is complete when cells have been identified for further review. In contrast, a final diagnosis would not require further evaluation.

Similarly, claim 11(b)(ii) defines "classifying" as "selecting location coordinates of one or more of the objects to provide for viewing and further classification by a human." In light of the specification, the language "to provide for" means to prepare incompletely diagnosed cells for further review. Neither the specification nor the claim suggest that the secondary classifier makes or is capable of making a final diagnosis. Rather, the patent contemplates a tertiary classifier to make the final diagnosis:

Electronic image representations of cells which are classified by the primary and secondary classifiers as being suspect are stored in the computer memory . . . for further (tertiary) classification by a person trained to detect the truly abnormal cells.

'n377 patent at col. 8, 11. 48-53. See also id. at col. 8, 11. 57-59 ("the technician can make a final determination as to whether each of the suspect cells is truly abnormal."). Thus, claim 11 does not include the tertiary classifier, which the specification tells us, makes the final diagnosis.

TriPath argues that the 377 patent is a semi-automated method, or a method that is partly performed by humans and partly performed by machines. n4 To read the tertiary classification by a human out of the claims, it contends, is to disregard the semi-automatic nature of the invention. This argument fails for two reasons. First, although the specification refers repeatedly to a human as the tertiary classifier, it need not be so. The specification states that in a preferred embodiment, this classifier is a human, but it specifically reserves the possibility that it could be a machine. Id. at col. 5, 11. 5-9. Second, even if the tertiary classifier is a machine, the process still requires human involvement. For example, the automated microscope contains a coarse focus adjustment feature that can be operated manually. Id. at col. 6, 11. 53-55.

n4 Cytyc and TriPath agree to this definition of "semi-automated."

--- Footnotes ---

n5 The term "classifying the specimen" is also at issue in claim 16. Claim 16(b)(i) and (ii) are identical to claim 11, except that the word "for" is omitted in claim(b)(ii). Without the word "for", the step of "identifying locations of . . . the objects" in and of itself appears to provide viewing and further classification by a human. While this literal reading tends to support the inclusion of "further classification by a human" in the definition of "classifying", it neither comports with the specification nor makes logical sense.

It is clear from the specification that identifying the location of the cells on the slides alone does not provide viewing or further classification by a human. The locations of the suspect cells are stored in the computer until they can later be inspected or examined by a human "on a video monitor." 377 patent at col. 8, 11. 48-57. Thus, it is the video monitor that provides viewing, not "identifying locations." "Identifying locations" provides for viewing and further classification in that...
it identifies suspect cells for tertiary review. Consequently, the same analysis of "classifying the specimen" applies to claims 11 and 16.

--- End Footnotes ---

A. Patent Infringement

Given some additional claim construction I provide in this section, I cannot find noninfringement as a matter of law with respect to independent claims 11 and 16 of the '377 patent. 11, 12 In order for a technology to infringe a patent, it must infringe every limitation embodied in the patented claim. See Section IIB, supra. Because accepting Cytyc's sole argument would exclude the preferred embodiment of the patented technology from the patent, I deny Cytyc's motion for summary judgment.

--- Footnotes ---

11 The text of claim 11 (with my emphasis added to highlight the major difference between Claims 11 and 16) is:

A method for providing interactive review of objects in a specimen indicative of the highest likelihood of abnormality in the specimen, comprising the steps of:

a) obtaining the specimen; and

b) classifying the specimen to determine the likelihood that individual objects in the specimen have attributes of cell abnormality justifying further evaluation, said classifying including

I) assigning individual objects in the specimen a value according to the likelihood that an object has attributes of cell abnormality, and

ii) selecting location coordinates of one or more of the objects to provide for viewing and further classification by a human.

The text of Claim 16 (with my emphasis added) is:

A method of providing location-guided screening of a specimen for objects in the specimen having a likelihood of cell abnormality, comprising the steps of:

a) obtaining the specimen;

b) classifying the specimen to determine the likelihood that individual objects in the specimen have attributes of cell abnormality justifying further evaluation, said classifying including

I) ranking objects in the specimen in an order according to the likelihood that an object has attributes of cell abnormality, and

ii) identifying locations of one or more of the objects to provide viewing and further classification by a human.

12 Because infringement of a dependent claim cannot occur without infringement of the underlying independent claim, I first address the independent claims. See Wahpeton Canvas Co., Inc. v. Frontier, Inc., 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989) ("One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim."). Claims 13 through 15 depend on claim 11, and include limitations on the types of cells to be screened and the system for assigning values to cells. Claims 17-20 and 22-26 depend on claim 16 and add limitations concerning the selection and presentation of objects of interest to a human, mapping the objects, and ranking them according to likelihood of abnormality and morphological features.
The single disputed issue for infringement regarding both claims 11 and 16 is whether Cytyc's technology "classifies the specimen," as opposed to "objects within the specimen." There is no dispute that Cytyc's TIS meets the other limitations of the claims. Cytyc argues, however, that the TIS does not "classify specimens" because the TIS never places specimens into one of two or more groups. See Markman Order at 66 (defining classifying as placing something into "one of two or more groups."). Instead, the TIS, Cytyc argues, merely facilitates human classification of the specimen by placing objects within the specimen into one of two or more groups. Docket No. 160 at 10. It is the human, not the machine, that Cytyc claims classifies the slide or entire specimen as normal or abnormal. Cytyc points to the following testimony by TriPath's technical expert:

Q: And so it is accurate to say that the TIS machine may classify objects within a specimen but does not classify the specimen itself?
A: Yes, that's correct.
Q: And only the human being classifies the specimen?
A: Yes.

Russ Dep. at 91 (Shannon Decl., Ex. 15).

Because the parties seem essentially to agree on the definition of "specimen," I will assume that it refers only to an entire sample of biological material and not the objects within the sample. This assumption should not be fatal to either side. The legal result is the same with respect to these claims regardless of whether I construe "specimen" as including "objects within the specimen" or construe the phrase "classifying the specimen" as including "classifying objects within the specimen." At the same time, counsel argued that the patented technology classifies the specimen "by going through the entire specimen and screening out 99 percent of the objects," but without assigning the specimen to a group. See Tr. at 132; TriPath Slide titled "Rutenberg Classifiers: Primary, Secondary, Tertiary." Thus, it seems TriPath is arguing that I find that classifying the specimen includes classifying a subpart of or objects within the specimen.

Because the parties seem essentially to agree on the definition of "specimen," I will assume that it refers only to an entire sample of biological material and not the objects within the sample. This assumption should not be fatal to either side. The legal result is the same with respect to these claims regardless of whether I construe "specimen" as including "objects within the specimen" or construe the phrase "classifying the specimen" as including "classifying objects within the specimen."
specimen. Cytyc suggests that classifying the specimen involves assigning the entire specimen to one of two or more
groups, whatever the specimen consists of. That reading would exclude Cytyc's technology because the TIS primary and
secondary screens do not assign the entire specimen into one of two or more groups "for further classification," but rather,
do so only for objects or cells within a specimen.

--- Footnotes ---
15 TriPath contends that I have construed the term "classifying the specimen" incorrectly because I misconstrued the term
"comprising" in Claims 11 and 16. In the Markman Order, I interpreted "comprising" as denoting a closed grouping. See
Markman Order at 10-11. TriPath argues that the terms "comprising" and "including" are "open-ended," i.e., that they both
mean "including, but not limited to." I must agree that under governing Federal Circuit law -- as opposed to classical
grammatical usage convention -- "comprising" and "including" are open-ended. Cytyc does not dispute this contention. As
the Federal Circuit has stated, "comprising" is "inclusive or open-ended and does not exclude additional, unrecited
elements or method steps." See CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1235 (Fed. Cir. 2005) ("A drafter
uses the term 'comprising' to mean 'I claim at least what follows and potentially more.'") (quoting Vehicular Tech. Corp. v.
Titan Wheel Int'l, Inc., 212 F.3d 1377, 1383 (Fed. Cir. 2000)); see also Georgia-Pacific Corp. v. U.S. Gypsum Co., 195 F.3d
1322, 1327 (Fed. Cir. 1999) (stating that "consisting of," on the other hand, indicates a closed grouping); Moleculon
Thus, insofar as I have previously construed "comprising" as describing a closed set or a whole, TriPath has convinced me that I
was incorrect and I will correct this aspect of the Markman order.

This correction, however, does not change my definition of "classifying the specimen" as used in claims 11 and 16. I will
continue to construe "classifying the specimen" in those claims to exclude final classification. The resulting construction
may be the result of an inartful draft in the patent claim, but it is the only way to make sense of language claiming a method
"classifying the specimen to determine the likelihood that individual objects in the specimen have attributes of cell
abnormality justifying further evaluation."

Because the change in the definition of "comprising" does not change my definition of "classifying the specimen," it is also
immaterial to the dispute of whether Cytyc's TIS classifies the specimen as stated within claims 11 and 16. Cytyc's argument
is that its technology does not perform one of the explicit steps within the claim, that is, "classifying the entire specimen for
further evaluation." Thus, whether "comprising" is open-ended or not, the dispute is whether Cytyc's TIS performs that
particular element.

Having corrected my claim construction to coincide with Federal Circuit case law, I am compelled to note in this connection
that the Federal Circuit has chosen to become its own lexicographer for the word "comprise" by abandoning an ordinary,
customary, and distinctive -- if frequently misunderstood -- meaning defended by usage experts.

The distinction is concisely stated in Gowers. "The difference between comprise and include is that comprise is correct
when all the components are enumerated and include when only some of them are." Sir Ernest Gowers, The Complete Plain

Jacques Barzun has urged writers "to make the effort of coming to terms with include, compose and comprise." Jacques
Barzun, Simple & Direct: A Rhetoric for Writers 128 (rev. ed. 1994). Barbara Wallraff explains that "[t]he reason comprise
is confusing to many people is the same reason that it's useful: It doesn't work the same way as similar words." Barbara

Among those concerned with maintaining meaningful linguistic distinctions, the difference between "comprise" and
"include" continues to be observed.

The preeminent Twentieth Century newspaper copy editor explained that "[c]omprise has the meaning of contain, embrace,
include and comprehend . . . The whole comprises the parts, not the reverse." Theodore M. Bernstein, The Careful Writer: A
Modern Guide to English Usage 113 (1965). He further observed that "[t]he word include, however, usually suggests that
the component items are not being mentioned in their entirety. If all are being mentioned it would be better to write 'The
seven were . . . '; or, if there is an irresistible urge for a fancy word, to use comprised." Id. at 228.

Similarly, a journeyman book of American usage cautions writers to "be careful to use include only of incomplete lists: A
baseball team is made up of nine players. It includes a pitcher, a catcher, and four infielders. It is composed of these, plus three outfielders. (And the team comprises these nine players; they compose the team.)" Kenneth G. Wilson, The Columbia Guide to Standard American Usage 106 (1993).

Of course the distinctiveness of words in common and ordinary meaning can be eroded when those bodies charged with superintending language, such as the Federal Circuit, neglect the distinctions. Thus the former editor of the Oxford English dictionaries has reported from the field that "[c]omprise is . . competing with include". The New Fowler's Modern English Usage 387 (3d ed. 1996). Nevertheless in this competition he finds that the differences still remain: "[w]hen two words such as include and comprise have roughly the same meaning, examination will generally reveal a distinction; and the distinction between the present two seems to be that comprise is appropriate when the content of the whole is in question, and include only when the admission or presence of an item is in question." Id.

But under Cytyc's reading, the preferred embodiment of the patented technology would also not "infringe" the asserted claims. In the preferred embodiment, as TriPath points out, the first two screenings identify only objects within the specimen as normal or abnormal without classifying the specimen as a whole. The '377 specification seems to use "classifying the specimen" interchangeably with "classifying portions of the specimen." See, e.g., column 2, lines 31 - 37 ("[T]he invention includes an initial classifier . . . to classify a cytological specimen and a subsequent classifier . . . to classify those portions of the cytological specimen selected by the initial classifier for subsequent classification."). It seems clear, as well, that the primary and secondary classifiers that Rutenberg describes classify only objects within one biological sample. See, e.g., column 17, lines 34-52:

Fig. 5 shows the screening of a typical Pap smear which contains approximately 100,000 benign cells and other objects. Through erosion/dilation and IDO filters, the primary classifier 400 will filter out 99% of these objects, passing approximately 1,000 objects to the secondary classifier 420. Classifier 420 . . . in turn filters out 80% of these 1,000 objects, passing the images of approximately 200 residual objects deemed to be the most suspect of pathology to the output monitor for tertiary human inspection.

If a Pap smear is the same as a "specimen," then the '377 specification clearly calls for a method of screening out objects within that specimen. In other words, because "classifying the specimen," according to my construction, must refer to the classification by only the primary and secondary classifiers, "classifying the entire specimen" is something that neither Cytyc's TIS nor '377's methods 11 and 16 perform.

To avoid the untenable result that the patent claim excludes the preferred embodiment of the patented technology, I must construe "classifying the specimen" to include classifying objects within a specimen in an overall process falling short of classifying the entire specimen. 16 Under this construction, Cytyc's TIS "classifies the specimen . . . for further review by a human" insofar as it screens objects within the specimen and assigns them to groups. Cytyc does not dispute that its technology classifies objects within a specimen. Thus, Cytyc's current motion for summary judgment 17 is denied with respect to the asserted claims. 18
iii. "cleaning of semiconductor wafers"

The phrase "cleaning of semiconductor wafers" appears in the preamble of Claims 1 and 57 of the '532 patent. The parties agree, as does the court, that "cleaning of semiconductor wafers" refers to the removal of contaminants from the surface of the wafers.

iv. "treatment of semiconductor wafers"

The phrase "treatment of semiconductor wafers," appears in the preamble of Claims 54, 55 and 58. CFMT asserts that the phrase "treatment of semiconductor wafers" means all aspects of wafer processing, including but not limited to cleaning. Apparently, YieldUP agrees with CFMT's construction of the phrase because YieldUP requests an instruction that "treatment of semiconductor wafers" includes cleaning. Therefore, the court finds that the phrase "treatment of semiconductor wafers" refers to all aspects of wafer processing, including cleaning.

The district court construed the term "clear" of independent claim 1 to mean "transparent" or "having the property of transmitting light without appreciable scattering so that bodies lying beyond are seen clearly." Order I at 7. Terlep challenges the district court's interpretation arguing that the term should be construed to also cover translucent holders.

Brinkmann responds that the district court's construction is correctly informed by the written description, which states that the purpose of the holder is to maximize light output, and that any other interpretation would be inconsistent with the '433 patent. Brinkmann adds that the "translucent" argument was not made to the district court and, thus, was waived.

Claim 1 recites an omni-directional LED lamp that has three elements: an LED; a semi-spherical reflector; and a clear plastic tubular holder. The claim sets forth the positional relation between these elements such that the light emitted from the LED is rendered omni-directional after reflecting off the semi-spherical reflector. See '433 patent, col. 6, ll. 26-27. The reflected light passes through the holder, which holds the semi-spherical reflector. See id. at ll. 24-28. The text of claim 1 and the other claims provide little guidance on the meaning of the term "clear."

The written description discloses a preferred embodiment in which the LED is surrounded by "tubular canopies" or holders that are made of "clear and pliable plastic material." Id. at col. 3, ll. 58-59. Another embodiment describes a colored lens cover that is made "from clear colored plastic." Id. at col. 5, l. 1. While these passages are not particularly helpful in discerning the meaning of the term "clear," other portions of the written description provide greater guidance. The Background and Prior Art sections state that various techniques for applying diffusion directly to the LED surfaces had been attempted in the past and were unsuccessful in rendering the light emitted from the LED omni-directional. Id. at col. 1, ll. 37-45. The Summary of the Invention section describes the invention as an omni-directional LED lamp that does not use a diffusion lens over the LEDs. Id. at col. 2, ll. 5-7. Implicit in these passages is the distinction between lenses or holders that diffuse or scatter light and those that transmit light without obstruction. The written description is thus consistent with and supports the district court's construction of the term "clear" to refer to holders that are "transparent or [have] the property of transmitting light without appreciable scattering so that bodies lying beyond are seen clearly." Order I at 7.

Terlep argues that the written description also is consistent with a "translucent" holder because it refers to an embodiment in which "the lens cover ... can include a phosphorescent coating which glows when the LED ... is on so as to diffuse light evenly over a wide viewing angle and amplify visibility." See '433 patent, col. 5, ll. 54-57. However, the text quoted by Terlep relates to the embodiment of Figures 4A-4C, which does not include a "clear plastic tubular holder" as recited in claim 1, at issue in this case. Because the "lens cover" described supra is not the same structure as the "clear plastic tubular holder," compare id., Figures 4A-4C & col. 5, ll. 54-57, with id., Figure 2A & col. 3, ll. 57-65, Terlep's argument is misplaced. Moreover, there is nothing in the description of the phosphorescent coating embodiment to warrant construction of the term "clear" as it relates to the "clear plastic tubular holder" of claim 1 to include translucent holders.
The prosecution history further supports the district court's construction. On August 9, 1995, the application that issued as the '433 patent was filed. In a February 7, 1996 Office Action, the Examiner, inter alia, rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,469,157 to Carpenter et al. in view of U.S. Patent No. 1,198,734 to Ludescher. In a May 6, 1996 Response ("Response"), Terlep amended claim 1 to add, inter alia, "a clear plastic tubular holder." Response at 1. Terlep distinguished the claimed invention from the prior art stating that the prior art disclosed rotating LEDs and LEDs having a top "flattened and ... side surface(s) ... sandblasted or otherwise roughened to diffuse the light output," whereas the "subject invention did not use any 'flattened' tops and/or 'sandblasted or roughened' sides." Response at 5. Because the "clear plastic tubular holder" limitation helped distinguish the prior art from the claimed invention, the prosecution history supports construing the term "clear" to exclude plastic holders that are translucent or otherwise diffuse the light emitted from the LED. See Seachange Int'l, Inc. v. C-Cor Inc., 413 F.3d 1361, 2005 WL 1523382, at *8 (Fed. Cir. 2005) ("Where an applicant argues that a claim possesses a feature that the prior art does not possess in order to overcome a prior art rejection, the argument may serve to narrow the scope of otherwise broad claim language.").

In construing the claims, the parties have cited several dictionaries. District courts are authorized "to rely on extrinsic evidence, which consists of all evidence external to the patent and prosecution history, including ... dictionaries" as one of many claim construction tools. Phillips, 2005 U.S. App. LEXIS 13954, at *37 (internal citations omitted). The dictionary defines "clear" as "giving free passage to light or to the sight: easily seen through: not cloudy, turbid, or opaque." Webster's Third Int'l Dictionary 419 (1993). This definition lists "transparent" and "translucent" as synonyms. The definition also sets forth an express distinction between transparent and translucent: "transparent stresses complete absence of obstruction to vision" and "translucent applies to that which permits passage of light but bars clear and complete vision." Id. The distinction between these synonyms cannot be ignored. See Int'l Rectifier Corp. v. IXY Corp., 361 F.3d 1363, 1374 (2004) (holding that it was improper for the district court to adopt a definition that was attributed to a synonym of the disputed term while disregarding the distinction set forth in the usage note). Moreover, the distinction mirrors the distinction reflected in the written description and prosecution history between the unobstructed passage of light of the holder of the patented invention and the prior art structures that diffuse light. Here, the district court "attached appropriate weight" to the dictionary definitions in the context of the intrinsic evidence in reaching its construction of the claim term "clear." Phillips, 2005 U.S. App. LEXIS 13954, at *58.

Finally, Terlep argues that to define "clear" so as to exclude "translucent" is to import a functional limitation into the claim. Terlep asserts that "clear plastic tubular holder" is merely a structural limitation and that the district court erred in importing a functional limitation into a structural term. However, Terlep fails to recognize that the construction properly adopted by the district court merely assigned meaning to the claim term "clear" and did not impermissibly import a functional limitation. Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.").

We conclude that the district court correctly construed the term "clear" to mean "transparent or having the property of transmitting light without appreciable scattering so that bodies lying beyond are seen clearly," and that nothing in the claims or the written description warranted giving the term "clear" an expansive meaning that would cover "translucent" holders. Because Terlep's "translucent" argument is without merit, we need not consider Brinkmann's additional argument of waiver.

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N. "Clearinghouse Means" in Claim 24

The parties disagree about the applicability of 35 U.S.C. § 112, P 6 to "clearinghouse means" as used in Claim 24. Defendants contend that the patentee's use of the word "means" clearly signals that the patentee intended this to be a means-plus-function clause. Under this theory, the word "means" gives rise to the presumption that Section 112, P 6 applies to the claim element. Defendants further contend that Plaintiff cannot overcome this presumption, because the claim does not recite a function that corresponds with the clearinghouse means or a sufficiently definite structure for performing the function. Therefore, Defendants contend, Section 112, P 6 applies to the claim element. Plaintiff contends that Claim 24 is a step-plus-function claim, not a means-plus-function claim, and under step-plus-function construction rules, Section 112, P 6 is not presumed to apply.
The first question the Court must answer is whether Claim 24 invokes a means-plus-function limitation or a step-plus-function limitation, or neither. When interpreting section 112, P 6, "structure" and "material" are associated with means-plus-function claims, whereas "acts" or "steps" are associated with step-plus-function claim elements. Seal-Flex, 172 F.3d at 843 (Fed. Cir. 1999)(citing O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1583 (Fed. Cir. 1997)).

Because Claim 24 claims "[a] method of controlling access . . . comprising the steps of [the claimed elements, including clearinghouse means]," n5 the Court is not persuaded by Defendants' argument that the mere presence of the word "means" makes this claim element a means-plus-function element. Instead, the Court agrees with Plaintiff that Claim 24 is a method claim, and considers the term "clearinghouse means" in Claim 24 to be little more than an "overzealous use" of the word means. See Genzyme, 212 F. Supp. 2d at n. 10 (D. Del. 2002). In light of this determination, Section 112, P 6 could apply to this claim term only under the step-plus-function analysis.

The second question the Court must answer is whether Claim 24 is written in step-plus-function format so as to invoke Section 112, P 6. Generally, if a claim element includes the words "step for," it is presumed to be a step-plus-function limitation, and Section 112, P 6 is presumed to apply. However, when the claim uses the word "step" alone, or "steps of," then Section 112, P 6 is presumed not to apply to that element. St. Clair Intellectual Prop. Consultants, Inc. v. Canon Inc., 2004 U.S. Dist. LEXIS 17489 at *78 (citing Seal-Flex, 172 F.3d at 849 (Fed. Cir. 1999)).

The first limitation of Claim 24 describes the step of "registering identity data . . . in a clearinghouse means[.]") ('416 Patent at col. 38, ll. 42-46). The second limitation of Claim 24 describes the step of "requiring a subscriber client computer to forward its identity data to said clearinghouse means[.]" (Id. at ll. 47-50). The fourth and fifth limitations of Claim 24 describe the steps of "attempting to authenticate the identity data [of a subscriber client computer and first server computer . . . from said clearinghouse means[.]]" (Id. at ll. 56-63). The Court concludes that none of these elements are written in step-plus-function format, because, (1) the language "step for" is not used, and (2) the limitations individually describe the precise acts required to control access to selected computer resources. Thus, Section 112, P 6 does not apply to the term "clearinghouse means" as used in Claim 24.

Having concluded that the use of the term "clearinghouse means" in Claim 24 invokes neither a means-plus-function limitation or step-plus function limitation, and therefore, concluding that Section 112, P 6 does not apply, the Court adopts Plaintiff's proposed construction of "clearinghouse means" in Claim 24. Accordingly, "clearinghouse means" is construed to mean "any clearinghouse server(s) with software capable of storing and authenticating identity data."

--- Footnotes ---

n5 Contrast this language with that of Claim 1, which claims "[a] system for controlling the operation of and access . . . comprising [the claimed elements.]" (416 Patent at Col. 35 ll. 25-30)

--- End Footnotes ---

2. "clerk system"

Claim 1 recites a "clerk system operable to process auction bids." The parties dispute the meaning of the term "clerk system."

The claim term "clerk system" does not have a plain meaning to one of ordinary skill in the art. Therefore, the Court must look to other sources to ascertain its meaning. In the Court's view, the specification provides the guidance needed. As all parties acknowledge, the specification makes clear that the clerk system is software. It further defines the "clerk system" by the functions that it carries out. In the "Summary of Invention," the '612 Patent states that "[t]he Clerk System controls the sequencing of items to be sold through the auction and controls the bidding process . . . for each item to be sold." ('612 patent col. 3, 11. 10-13.) This statement serves to define the claimed "clerk system," and the Court therefore incorporates these functions into its construction of that term. Accordingly, the term "clerk system" shall mean "software to control the sequencing of items to be sold and control the bidding process for each item to be sold."
client computer

Claims 1, 4-8, 10, 11, 13, 17, and 18 contain the term "client computer." Accolade contends that "client computer" does not require construction and is defined by the limitations in the claim and alternatively argues that the term means "computer used to interact with the host computer." Citrix contends that "client computer" means "the computer accessing the host computer." The parties dispute whether construction is necessary, whether the client computer accesses or more broadly interacts with the host computer, and whether the claim language allows for a plurality of client computers.

A construction is appropriate to clarify to the jury which computer in the claimed invention is performing the accessing and which is being accessed, and the Court construes "client computer" as "a computer accessing the host computer." 5 Claim 1 refers to the client computer as accessing the host computer: "a host computer coupled to said TCP/IP protocol network and being capable of being accessed by said client computer . . . wherein said host computer is initially accessed by said client computer." Col. 13:59-14:8 (emphasis added). Also, the Abstract and Disclosure of the Invention state, "The computer 'posted' on the web page is referred to as the 'host' or 'advertiser' computer, and computers accessing the host computer are referred to as 'client' or 'user' computers." Abstract; Col. 3:28-31. Thus, the intrinsic record shows that a client computer accesses the host computer.

In regards to the parties' dispute on whether the claim language allows for a plurality of client computers, the Court modifies its earlier preliminary construction of "client computer" and construes this term using the indefinite article "a" when referring to "computer" to allow for a plurality of client computers. The Federal Circuit has stated, "[a]n indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" That "a" or "an" can mean "one or more" is best described as a rule, rather than merely as a presumption or even a convention. The exceptions to [the "indefinite article"] rule are extremely limited: a patentee must "evince [ ] a clear intent" to limit "a" or "an" to "one." The subsequent use of definite articles "the" or "said" in a claim to refer back to the same claim term does not change the general plural rule, but simply reinvokes that non-singular meaning. An exception to the general rule that "a" or "an" means more than one only arises where the language of the claims themselves, the specification, or the prosecution history necessitate a departure from the rule.

Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (citations omitted). Claim 1 uses the open claim term "comprising" and initially refers to "client computer" as "a client computer" and subsequently refers to "said client computer." Col. 13:44-Col. 14:14. The "indefinite article" rule treats the use of "comprising" combined with the initial use of "a" to mean "one or more." Also, the subsequent use of "said" to refer to "client computer" only reinvokes the "one or more" meaning of "client computer." Thus, under the "indefinite article" rule, "client computer" allows for a plurality of client computers.

Citrix argues that an exception to the "indefinite article" rule applies, proposing that "client computer" should be construed as "the client computer" because claim 18 expressly requires a plurality of client computers and claim 1 does not. Citrix is apparently referring to the principle of claim differentiation--"when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. See Phillips, 415 F.3d at 1314-15. First, claim differentiation is merely a presumption; it is not a hard and fast rule. Second, claim 1 and claim 18 are sufficiently different in scope. Claim 18 requires more than one client computer coupled to the host computer. Claim 1 requires one or more client computers coupled to the TCP/IP protocol network. Thus, claim differentiation does not support limiting "client computer" to a single client computer. Accordingly, the Court construes "client computer" as "a computer accessing the host computer."
G. Subscriber Client Computer

Plaintiff contends that the inventors never intended the "Subscriber Client Computer" to be limited to just a personal computer. Rather, Plaintiff contends, the subscriber client computer encompasses "any programmable electronic device that is capable of running the client software means." (D.I. 207 pg. 21). Plaintiff further contends that the patent covers devices which have been invented since 1997 and that can perform the functions and steps defined in the asserted claims.

Defendants contend that because the specification consistently describes the subscriber's computer as a "desktop" or personal computer, Plaintiff's proposed construction is inconsistent with the intrinsic evidence.

After reviewing the term "subscriber client computer" in the context of the specification and other claims, the Court agrees with Defendants, that the "subscriber client computer" described in the '416 Patent is not as broad as Plaintiff now proposes. Though nothing in the claim language requires the subscriber client computer to be a desktop computer, every description of the subscriber client computer suggests that it is a desktop personal computer or Macintosh. ('416 Patent col. 4, ll. 39-40, col. 5, ll. 35-40, col. 9, ll. 1-3, col. 14, ll. 57-58, 63-66, and Figs. 1 and 2). The repeated disclosure of using a personal computer, and corresponding figures, limit the "subscriber client computer" to "a computer that a subscriber uses to access selected computer resources of the first server computer." n3

--- Footnotes ---

n3 To the extent that Defendants may seek further clarification on the phrase "resources of the first server computer," as used in this construction, the Court would direct the parties to this Memorandum Opinion's earlier construction of "first server computer" and "selected resources of said [at least a] first server computer." The Court's construction of those terms applies here as well, and use of the phrase "resources of the first server computer" in no way suggests that the resources must be stored on the first server computer.

--- End Footnotes ---

L. Client Computers

The only occurrence of this term in the patent is in claim thirteen. The Defendants propose the construction "a computer coupled to the wide-area-network and adapted with a graphical user interface, such as a browser, configured to receive test data for and properties of the pavement material mixture." The Defendants arrive at their construction first by including the surrounding words of the claim. Such inclusion is redundant and unnecessary.

The Defendants also argue that the collection of information required by the claim is defined by browser box 201 in FIG. 2. The Defendants argue that the specification directs that client workstations can be computers running browsers in col. 3:8-11.

The Plaintiff proposes that the term not be construed, but offers the construction "a computer that receives services from another computer." The Plaintiff bases its definition on extrinsic evidence in the form of technical dictionaries.

The Defendants' proposed construction, stripped of the portions already in claim thirteen, is "a computer adapted with a graphical user interface, such as a browser." The Plaintiff's definition is largely the same as this revised version of the Defendants'. The patent does not require that the client workstation have a browser as the Defendants suggest, but it does require that the client workstations communicate with the network. Col. 3:5 - 67.

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The extrinsic evidence cited by the Plaintiff proves a commonly understood meaning of the disputed phrase for networks using client-server architecture like the patent. "Clients are PCs or workstations on which users run applications. Clients rely on servers for resources, such as files, devices, and even processing power." RANDOM HOUSE WEBSTER'S COMPUTER & INTERNET DICTIONARY 94 (3rd ed. 1999). "Client" is also described as "a hardware or software entity that requests shared services from a server," while the definition for a client-server system is "a computing system composed of two logical parts: a server, which provides information or services, and a client, which requests them. On a network, for example, users can access server resources from their personal computers using client software." MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 406 (6th ed. 2003).

Construction: A computer that requests information or services from a server.

2. Client database

The term "client database" appears in several of the claims of the patents-in-suit. Seven proposes that this term means "a collection of data stored electronically on a device." Visto seeks to construe the term to mean "a full local database on the portable client that serves as a temporary representation of a host database." Given Seven's concession at the hearing that the client database must be located physically on the client device, the court construes the term to mean "a collection of data stored electronically on the client device."

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client program

Claims 1, 3, and 4 contain the term "client program." Accolade contends that "client program" means "a set of instructions for execution by a client computer by, for example, a browser program or the operating system." Citrix contends that the term means "a script for execution by a browser program on, or the operating system of, the client computer," or alternatively, "a script for execution by a client computer by, for example, a browser program or the operating system." The parties dispute the scope of "client program" as the term relates to "script."

The Court construes "client program" as "a set of instructions for execution by a client computer." The specification provides guidance on the relationship between "script" and "client program," stating that "the script . . . will be referred to generically as a 'client program.'" Col. 7:63-64 (emphasis added). Given the language "generically," the specification describes "script" as a species of the genus "client program." Accordingly, "client program" presumably encompasses more than "script" and thus cannot be limited to "script."

The prosecution history also refers to "client program" generically:

It is well known in the art that scripts may be executed on browsers capable of running a script language, such as Java. An advantage to having the browser run the client program is that the client program can be platform independent. Running a client program on an operating system requires platform specific code. In contrast, client programs run in browsers no longer must communicate with the operating system directly, and thus may run on any system capable of running a script enabled browser.

Defs.' Br., Ex. 7 (08-6-99 Amendment), 3-4 (emphasis added). The prosecution history establishes that a client program structured as a script is not compiled to code executable on a particular operating system platform. Instead, a client program structured as a script is executed at run time using an interpreter program. A client program structured as a script can be run on a script-enabled browser, but a client program can also be code that is specifically compiled to be executable on a particular operating system platform. Accordingly, the full scope of the generic term "client program" extends to a set of instructions for execution on a client computer.
Citrix's proposed construction is overly limiting because it restricts "client program" to a particular implementation of "client program" disclosed in the specification--"script." Accolade's construction, on the other hand, is consistent with the description in the specification and the prosecution history that "client program" is generic to a script executed by an interpreter (script engine) and to a set of instructions that is compiled to code specifically executable on an operating system platform. Thus, the Court modifies its preliminary construction and construes "client program" as "a set of instructions for execution by a client computer."

7. Client program

The Court's Construction: A computer program that is executed by the client computer. Markman Tr. 51:24-25; 53:25-54:1; 55:4-6.

Both parties objected to the Court's construction. Ethos argued that the construction of this term should include an explanation that "the client program includes a process that monitors the download." Id. 52:2-7; see also Pl. Br. at 10. In support, Ethos cited the specification of the '892 patent which, in describing an embodiment of the invention, states: "[t]he executed client program also includes a process for monitoring the download operation." Pl. Rep. at 10 (quoting '892 patent col.6 ll.27-28); see also '709 patent col.6 ll.35-36. This language, however, refers to the client program as executed. Turning again to Figure 1, the diagram shows the "client program and other files" on the side of the server computer and an "executed client program" on the side of the client computer. '892 patent fig.1; '709 patent fig.1. Within the square labeled "executed client program" is a smaller square labeled "download monitoring process." '892 patent fig.1; '709 patent fig.1. This diagram establishes that the download monitoring process is associated with the "executed client program," as the specifications state, and not with the dormant "client program." The Court thus properly excluded Ethos' proposed addition from its definition.

RealNetworks wished to add that the computer program can also be compiled and then executed on the client computer. See Markman Tr. 54:6-10. In support of this construction, RealNetworks relied on language in the specification of the '892 patent stating that the client program may be "compiled for execution on the desired platform, such as a machine with a Windows95 operating system." Def. Br. at 14 (quoting '892 patent col.8 ll.10-14); see also '709 patent col.8 ll.18-22. The Court found this language ambiguous and unable to support RealNetworks' construction.

The remaining two terms are found only in the '709 patent. Both terms relate to the sending of a second request for a data file to the server computer after the termination of the initial download. '709 patent, claim 1, col.12 ll.17-21.

1. clock

an electronic circuit that generates accurately timed pulses used for synchronization in a digital computer

The support for this definition lies in the description of the operation of the clock in the claims and in the following specification language.

Slow speed system board B will normally include a continuously operational crystal clock that generates the clock signal SCLK intended to clock the ghost microprocessor originally present on board B. Many systems use a higher speed crystal clock and divide by 2 to generate SCLK, while some use a divide by K, where K might be normally 2 but is increased to 3 to slow the system clock for data transfers on an I/O expansion bus forming a part of the slow speed system board. This causes SCLK to be synchronously switched between two rates. The Sub-Harmonic generator 3, produces S-HCLK 23 which is a synchronized to SCLK as a low sub-harmonic of SCLK. This permits many different SCLK frequencies to be synchronized as different harmonics of S-HCLK. As an example a slow speed system board may use a 48 Mhz crystal clock and normally divide the clock by 2 to produce a 24 Mhz SCLK signal, but synchronously change SCLK to 16 Mgz for
certain I/O operations by changing the divider to 3.

('981 Patent, Col 4:58 - 5:8)

This definition is also consistent with the definition provided by the following technical dictionaries.


Clock circuit

The Court agrees with MediaTek and construes the term according to its ordinary meaning as "a collection of electrical elements for producing clock signals." See IEEE 100 AUTH. DICT. OF IEEE STANDARD TERMS, 168 (7th ed. 2000).

Sanyo argues that the term should be construed as "a circuit using a single voltage controlled oscillator ("VCO"), that reacts to a program clock reference ("PCR") of the input video signal to generate both the system clock and the raster clock."

Sanyo's construction adds three limitations: 1) the use of a single VCO, 2) generation of both the system and raster clocks, and 3) generation in reaction to a PCR. The second and third limitations are unnecessary because they are already limitations in claim 1: '486 Patent col. 14:25-30. Construing "clock circuit" to require these limitations would only add redundancy to the claim.

Sanyo argues that the specification only teaches--and therefore requires--the use a single VCO. Sanyo's interpretation attempts to improperly import a limitation from the specification into the claim. See Phillips, 415 F.3d at 1323. While the specification illustrates the use of a VCO, it does not limit the invention to any particular type of clock source. See '486 Patent col. 4:36-39; 13:1-4 (stating that the invention allows the use of a single clock source "such as a voltage controlled crystal oscillator") (emphasis added).

Clock Pulse Interval

The parties agree that a "clock pulse interval" is the time interval during which the signal on the clock bus is high (logic "1"), including the rising and falling edges. However, Defendants seek to add an additional limitation--that clock pulse intervals be "periodic," i.e., that all clock pulse intervals occur at regular intervals. 8

8 The dictionary definition for "periodic" is: "occurring or recurring at regular intervals." (Webster's at 875, Exhibits in Support of U.S. Philips Corp.'s Reply Memorandum of Law on the Interpretation of the Asserted Claims of U.S. Patent No. 4,689,740 ("Reply Br. Ex."), Ex. C)
bus returns to the 'free' condition after the formation of the stop condition, block 62 on FIG. 3." (740 patent, Col. 5, lines 46-48.) The claims reflect this basic truth. When a clock pulse interval is meant to be periodic, the claims recite "periodic clock pulse interval." At other times, it is referred to only as a "clock pulse interval," or a "fraction of a clock pulse interval." Thus, the patent expressly provides that the clock pulse interval is periodic at some times and not periodic at others, and there is no basis to construe "clock pulse interval" as always being periodic. Accordingly, I find Philips' construction to be correct.

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External clock signal

The Court construes "external clock signal" as "a single timing signal from outside of a device." MEI argues that the term should be construed as "a clock signal from outside of a device." Samsung argues that the construction should be "a single external timing signal provided to a single input pin." MEI acknowledged in its brief that a clock signal provides timing information. MEI Claim Const. Br. at 7 (Docket No. 112). Samsung's argument that the external clock signal is limited to a single input pin is presumably based only on an amendment to claim 1. See Response to Examiner at 113-14 (Exh. 5, Docket No. 120). This statement is not sufficient to establish a waiver of claim scope.

Samsung also argues that the term is limited to a single clock signal. The Court agrees. The specification of the patents-at-issue consistently emphasize and disclose the use of a single clock signal on the random port. See '921 Patent col. 2:17-19 (distinguishing the invention on the basis that it uses a single clock signal); col. 2:25-29 ("Under the teachings of the present invention, a single clock pulse drives an internal state machine to provide the control pulses thereby minimizing the number of signal paths to and from the chip . . . .") (emphasis added); col. 3:31-34 (stating that a single clock pulse is used); col. 7:36-40; col. 8:13-15; col. 9:57-58; col. 14:14-18; col. 15:38-40. Furthermore, the patentees responded to the examiner's rejection by distinguishing their claimed invention from the Target Specification because the Target Specification did not operate on a single random port clock input: "the Target Specification does not operate in response to a single clock as claimed in claim 1. . . . The Target Spec [sic] . . . requires more than one clock to perform this function." Response to Examiner at 115 (Exh. 5, Docket No. 120). A construction limiting clock signal to a single timing signal is consistent with the express purpose of the invention, the specification, and the prosecution history.

Clock signal

For the reasons discussed above in the construction of "external clock signal," the Court construes "clock signal" as "a single timing signal."

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22. clocking circuitry for a generating time related signal, said repository device for storing time related data associated with picture image data

This phrase only appears in claim 20 of the '927 patent. The defendants contend that the phrase is indefinite because it is incomprehensible and the specification fails to provide meaning for to this phrase. The court disagrees and finds that one of ordinary skill in the art would understand the phrase to refer to clocks and time related signals associated with picture image data. Accordingly, the defendants' indefiniteness argument is rejected and the phrase means "clocking circuitry for generating a time related signal, said repository device for storing time related data associated with picture image data."

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3. Term 4 ('645 Patent, Claim 1) 6

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - - - - -
The parties reached an agreement as to the construction of several contested terms prior to the Markman hearing and agreed that one other did not require immediate construction. Therefore, Terms 3, 8 and 20 are not addressed by the court here.

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
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<tbody>
<tr>
<td>... the given name server that receives the DNS query being close to the client local name server as determined by given location information ...</td>
<td>... the particular name server that receives the DNS query is selected by the alternative domain name system and is close in Internet terms to the client</td>
</tr>
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The parties' first disagreement concerns whether "close" refers to geographic distance or Internet distance. 7 While Limelight argues that the specification only intends to specify Internet distance where explicitly stated, the language of the specification supports the concept of Internet distance generally where it refers to distance. 8 For example, the Brief Summary of the Invention describes an object of the invention as "to serve Web content efficiently, effectively, and reliably to end users" by "provide[ing] a network architecture that moves content close to the user" to avoid having to "build[] a massive infrastructure to handle the associated traffic." (Id. col.2 ll.41-42, 49-53 (emphasis added).) "Close," read in this context, refers to Internet distance. In addition, the description of the preferred embodiment generally references the network or network delays in its measure of distance:

"Several factors may determine where the hosting servers are placed in the network . . . . By studying [network] traffic patterns, the ISP may optimize the server locations for the given traffic profiles." (Id. col.611.28-34 (emphasis added).)

"[A]ppropriate control routines [] are used to determine where in the network the user is located, and then to direct the user to a . . . server that is close-by." (Id. col.9 ll.51-54 (emphasis added).)

"Thus, a given top-level DNS server directs the user to a region of the Internet . . . ." (Id. col.9 ll.57-59 (emphasis added).)

After determining where in the network the request originated, the top level DNS server redirects the DNS request to a low level DNS server close to the user in the network. (Id. col.10 ll.28-30 (emphasis added).)

In general, the clients are directed to regions in a way that minimizes the overall latency experienced by clients subject to the constraint that no region becomes overloaded. 9 (Id. col.10 ll.64-67 (emphasis added).)

A particular DNS or content server may be closer to a user in geographic terms, but delays in routing or high-traffic conditions along a particular route may mean that information can be obtained in less time from a server that is physically located farther away.

The exception to the general reference to Internet distance in the specification occurs in the Brief Summary of the Invention which asserts "[a]n additional feature [of the inventive framework], the actual content that is replicated at any one geographic location is specifically tailored to viewers in that location." (645 Patent, col.311.7-9.) However, it does not appear that this particular benefit of the invention is claimed in the '645 Patent. (See also id. col.10 ll.11-16 ("Alternatively, the user's location or IP address could be directly encoded into the request sent to the top level DNS.").)

9 Latency refers to the time delay between making a request for Internet content and receiving the requested content.

While Limelight is correct that none of these descriptions explicitly states that closeness refers to Internet distance, it is implied by the emphasized text. (Cf. id. col.10 ll.9-11 ("[T]he routines make the assumption that the user is located near (in

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the Internet sense) this server.

The second issue concerns whether there is any limitation on how this closeness is determined. Akamai argues that the words of the claim do not limit the determination of closeness, while Limelight asserts that it must be determined by the alternative domain name system. For the reason discussed supra, Term 1, I believe Limelight has the better argument. The specification describes "the present invention" as "manipulat[ing] the DNS system so the name is resolved to one of the ghosts that is near the client." (Id. col.9 ll.42-44 (emphasis added); see also id. col.3 ll.42-44 (Brief Summary of the Invention) ("[T]he top-level DNS server determines the user's location in the network . . . .").) As discussed supra, Term 2, the purpose of establishing "an alternative domain name system (DNS), distinct from the Internet domain name system" is to run "appropriate control routines" to "determine where in the network a user is located." (Id. Claim 1; id. col.9 ll.52-53.) Read in light of the specification, the invention claims an alternate DNS system that selects a DNS server in response to a user request based on the location of the user.

3. Opened/Closed

Artesyn seeks a claim construction with respect to the phrases "said auxiliary switch is opened prior [to] the ON period of said primary switch," and "said auxiliary switch is closed after the ON period." It argues that the words "is opened" and "is closed" do not refer to the actual status of the switch and its ability to conduct current, but instead to the sending of a signal from a central control or processor mechanism. Artesyn relies on terms in the specification which indicate action performed by the switch control circuit. See e.g. Col. 6, 11. 63-65. ("The flow of positive currents is controlled by the switch control circuit 22 which applies a suitable voltage to the gate of the MOSFET.")

Vicor responds that these words should be defined by reference to the status of the switch because only that definition is consistent with the requirement of "dead time" which means the absence of current flowing through the switches. See Col. 7, 11. 3-8 ("[A] delay between the opening of the auxiliary switch and the closing of the primary switch 10 represents dead time."); (Hearing Tr. 51. Bassett: "I think we've defined here and we could live with the concept that dead time means there's no current that could otherwise be blocked.").

The dictionary definitions of "closed" and "open" in the context of an electrical circuit are also helpful because they use those terms to describe the status of the circuit, not the act of opening the circuit. "Closed circuit" is defined as "Elect. a circuit without interruption, providing a continuous path through which a current can flow. Random House at 389. "Open circuit" is defined as "Elect. a discontinuous circuit through which on current can flow." Id. at 1356. While the matter is not open and shut, Vicor's argument is more persuasive, and I adopt it.

*   *   *

ORDER

The Court orders as follows:

1. Claims 1 and 5 of the '098 patent are not invalid as indefinite;

2. "Closed" means that a switch is enabled to conduct current that it could otherwise block;

3. "Open" means that a switch is not enabled to conduct current that it could otherwise block;

(4) "generating a clothes twist signal"
The parties also dispute the term "generating a clothes twist signal," which appears in Claims 1, 3, and 4. LG proposes construing the term to mean "generating a signal indicative of the bundling [i.e., uneven distribution] of clothes." (Id.) Whirlpool proposes instead that the term be construed to mean "generating a signal indicative of clothes that are entwined together." (Id.) For reasons already discussed, the Court will adopt Whirlpool's proposed construction. The term "generating a clothes twist signal" is therefore construed as "generating a signal indicative of clothes that are entwined together."

A. "Coaxial Cable"

The term "coaxial cable" is found in independent claim 2 of the 416 Patent, as well as in dependent claims 3 through 5. Claim 2 describes "[a] biased cable apparatus for communicating a voltage varying electrical signal from an output of a first electrical device to an input of a second electrical device on a coaxial cable having a center conductor and a conductive shield." 416 Patent, col. 9, lines 27-29; col. 10, lines 1-2.

Plaintiff contends that "coaxial cable," as the term is used in the 416 Patent, means an "electrical cable that has two or more conductors that share an axis." Quest proposes a construction of the term as a "transmission cable consisting of two concentric conductors -- a center conductor and an outer conductive shield' -- with the space between them being filled with dielectric." The crux of the parties' disagreement thus turns on whether the apparatus includes "two" or "two or more" conductors, whether the conductors must be concentric, or simply "share an axis," and whether the added specification regarding the space between them is necessary.

1. Two, or two or more conductors

In construing claims, the court looks first at the language of the claim itself. SmithKline Diagnostics, Inc. v. Helena Lab., Corp., 859 F.2d 878, 882 (Fed. Cir. 1988). Claim 2 specifically references "a coaxial cable having a center conductor and a conductive shield." 416 Patent, col. 10: 1-2 (emphasis added). The claim goes on to describe the apparatus as "comprising" various means and elements, including "the center electrode" (agreed by the parties to mean "center conductor") and "the conductive shield." Monster Cable argues that the intermittent references to "a" center conductor and "a" conductive shield means that there can be one or more conductors, and that any use of "the" merely cross-references the element's antecedent basis as a synonym for "said."

Monster Cable offers the correct general rule for indefinite articles where they follow the open-ended transition word "comprising," namely that "the article a' receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). "[T]he claim limitation a,' without more, requires at least one," and "disclosure of a preferred or exemplary embodiment does not disclaim a plural element." Id. Applied to this patent, however, this argument astonishingly belies the fact that "having," rather than "comprising," is the transitional word preceding the disputed elements of a "coaxial cable." 416 Patent, col. 10: 1-2. The Federal Circuit has distinguished the two terms, holding that "'having' does not convey the open-ended meaning as strongly as comprising," and holding that "'having,' for instance, does not create a presumption that the body of the claim is open." Crystal Semiconductor Corp. v. Tritech, 246 F.3d 1336, 1348 (Fed. Cir. 2001). Where the word "having" is used to transition to claim terms, the court should examine the claim in its full context to determine whether "having" limits the claim to its recited elements. Id. Monster Cable is not entitled to a presumption of "one or more" in assessing the claim context. Id.

Throughout the specifications, the patent names two conductors in a coaxial cable: a center conductor or electrode and an outer conductor or conductive shield. Figure 9, which depicts the preferred embodiment of claims 2-5, depicts a coaxial cable with two conductors: one center conductor and one conductive shield. Mirroring the language of claims 2 through 5, the written description of the biased cable apparatus uses the definite article "the" in reference to both "the center conductor" and "the outer conductor," as well as the indefinite article "a." 2 Compare 416 Patent, col. 7, lines 22, 26, 27, 29, 31 with 416 Patent, col. 2, lines 62-63. The patent does not include any references -- directly or indirectly -- to more than two conductors.
2 The parties have agreed that the "outer conductor" and the "conductive shield" are used interchangeably.

The 416 Patent's use of the definite article "the" after the term "comprising" and elsewhere in the patent specifications creates the inference that the patentee intentionally limited the element. See Insituform Technologies, Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1105 (Fed. Cir. 1996) (holding that repeated references to both "a cup" and "the cup" indicated that only one cup was involved). Though it promulgated a seemingly more strict standard in KCJ, the Federal Circuit expressly did not overrule the basis in Insituform for holding that the inventor intended to limit the claim to "one" where he used both "a" and "the." See KCJ, 223 F.3d at 1357. Rather, the court referred approvingly to Insituform's determination that the claim was restricted to one cup, even though in that case, as here, the patent had referred to "a cup" and "the cup" without ever specifying the number of cups as "one."

Monster Cable's argument that the depiction of the coaxial cable (marked by a free-standing arrow) inclusively refers to the ground reference line as a third conductor is specious. 3 The coaxial cable label in figure 9 cannot include the ground reference line, because that line does not share an axis with the center conductor and the conductive shield. If it does not share an axis, then it cannot be counted as a conductor under Monster Cable's proposed construction of "two or more conductors that share an axis." 4 If its conductors share an axis, which they clearly must, the preferred embodiment of a coaxial cable in the 416 Patent necessarily excludes the ground reference line from the count of conductors. 5

3 The arrow marking element 184 (defined as the "coaxial cable") cannot refer to the entirety of figure 9. Rather, arrow 184 refers to "a coaxial cable illustrated generally," which is specified as follows: "In addition to the center conductor 182, the coaxial cable 184 includes an outer conductor 186 and a dielectric 188." 416 Patent, col. 7, lines 23-28.

4 Monster Cable's own brief concedes this point by acknowledging the contradiction between their proposed definition of coaxial cable and an argument that it might include the ground reference line depicted in the patent specification. "Because coaxial cable 184 can include at least ground reference line 192, the specification discloses an embodiment with more than two conductors and where one or more conductors might not share an axis." Reply at 11, n.4 (emphasis added).

5 At the claim construction hearing, Monster Cable argued off-handedly that the "dielectric" could be construed as a third conductor in the coaxial cable depicted in figure 9. They gave no evidence, however, that "dielectric" is a conductor, and in fact in his tutorial, their own expert described "dielectric" as a property which intensifies electrostatic fields and can degrade signal quality, not an independent conductor.

Prior art, which is also part of the intrinsic record of a patent for the purposes of claim construction, confirms a two-conductor reading of the term "coaxial cable." See Kumar, 351 F.3d at 1368 (holding that "prior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence"). The prior art references cited in the 416 Patent distinguish between multiple-conductor cables and coaxial cables, and each "coaxial cable" they describe has two conductors. The 416 Patent cited U.S. Patent No. 4,538,023, an audio cable in which "a plurality of outer conductors" surround "at least one inner conductor." See U.S. Patent No. 4,538,023, Behun Decl., Exh. E, col. 4, lines 2-5. The 023 Patent does not refer to this cable as a coaxial cable, but rather calls it a "multi-conductor audio cable." Id., col. 1, lines 11-14.

By contrast, two patents also cited as prior art describe so-called "coaxial cables" that have one center conductor and one conductive shield. See U.S. Patent No. 4,954,787, Masur Decl., Exh. K; U.S. Patent No. 4,622,638, Behun Decl., Exh. F. The first of these, the 787 Patent cited by Monster Cable, does not claim technology specifically involving a coaxial cable, however the embodiments described in the specifications employ a coaxial cable "compris[ing] an inner conductor [] and an outer conductor," which are also repeatedly referred to as "the inner conductor" and "the outer conductor." See U.S. Patent No. 4,954,787, Masur Decl., Exh. K, col. 5, lines 19-29, 49. The latter 638 Patent does not state the elements of a coaxial cable in its claims or specifications, however it depicts two coaxial cables embodied as a center conductor line running
through a conductive shield. See U.S. Patent No. 4,622,638, Behun Decl., Exh. F, figures 1-2. While this second patent could not be limited to two conductors based on its preferred embodiment, the prior art record as a whole lends support to an interpretation of the term "coaxial" as specifically having two conductors.

On the basis of the language of the claims, the specifications, and the prior art, this court is satisfied that the claim for "coaxial cables" in the 416 Patent is limited to two conductors. Technical dictionaries provided by the parties provide little assistance in confirming this reading of the disputed term, because they are clearly weighted towards cable technology in the context of computer networking, television, and radio. See Texas Digital, 308 F.3d at 1202 (holding that technical dictionary definitions can provide important evidence of the ordinary meaning of a term to persons skilled in the art). However in general, these technical dictionary definitions are overwhelmingly consistent with a two-conductor understanding of coaxial cables. Vitronics, 90 F.3d at 1584, n.6. The Illustrated Dictionary of Electronics, the McGraw-Hill Dictionary of Scientific and Technical Terms, the Dictionary of Electronics, and the New IEEE Standard Dictionary of Electrical and Electronics Terms all specify that coaxial cables have two conductors. See Behun Decl., Exhs. B, C, D; Villasenor Decl., Exh. B. The definition provided in the John Douglas-Young Illustrated Encyclopedic Dictionary of Electronics defines a "triaxial cable" to include three conductors, but the fact that this is defined as a species of "coaxial cable" given a distinct name only proves the point that "coaxial" ordinarily refers to two-conductor cables. Masur Decl., Exh. F.

Only one technical dictionary raised before this court, the Penguin Dictionary of Electronics, defines the term to include "two or more" conductors. Masur Decl., Exh. E. If this court were to use dictionaries as the principal mode of construction, this broad definition might prevail. However, given the Federal Circuit's relative clarity about the secondary status of dictionaries in relation to the language of the patent itself, this court errs in favor of the terms of the patent and the intent of the inventor as expressed therein. See Nystrom v. Trex Co., Inc., 374 F.3d 1105, 1112, n.2 (Fed. Cir. 2004) (holding that claim terms encompass all dictionary definitions not inconsistent with the intrinsic record). The term "coaxial cable" as used in the 416 Patent thus incorporates the overwhelming weight of dictionary evidence that is consistent with the claim terms and patent specifications limiting the term "coaxial cable" to encompass one center conductor and one conductive shield.

Extrinsic evidence need not be considered in construing the number of conductors understood to constitute a "coaxial cable." Inventor and expert witness testimony are forms of extrinsic evidence admissible only where the intrinsic evidence proves insufficient to enable the court to construe disputed claims. Vitronics, 90 F.3d at 1584. The ordinary meaning of "coaxial cable" refers to a species of cable with two conductors.

2. "Concentric" or "Share an Axis"

The 416 Patent does not specify whether the two conductors within the coaxial cable described must be concentric, nor does it specify any form of symmetry in their arrangement. However, the patent makes three references to the relative locations of the two conductors: (1) one conductor is referred to alternately as the "inner conductor" and the "center conductor," (2) the second conductor is alternately referred to as the "conductive shield" and the "outer conductor," and (3) figure 9 depicts the coaxial cable to have the center conductor running concentrically through the conductive shield. 416 Patent, figure 9. The dispute between the parties turns on whether these three aspects of the specifications amount to a requirement of concentricity.

The parties do not contest that the inner and outer conductors of a "coaxial" cable "share an axis," and indeed, that this is the ordinary meaning of that term. See, e.g., McGraw-Hill Dictionary of Scientific and Technical Terms, Masur Decl., Exh. D (defining "coaxial" as "sharing the same axes"). A coincident axis is consistent with the preferred embodiment of claim 2, which depicts a conductor running through the center of the conductive shield. See 416 Patent, figure 9; col. 7, lines 19-33.

By definition, concentric conductors would share an axis; however, as Monster Cable articulates, the terms "concentric" and "share an axis" are not synonyms. The 416 Patent never refers to the conductors of the coaxial cable as concentric. It does, however, specifically refer to the inner conductor as the "center conductor" or "center electrode." See, e.g., 416 Patent, col. 10, lines 1, 6. Standing alone, this parlance is inconclusive: the ordinary meaning of the adjective "center" can be read broadly to suggest that the inner conductor is merely in the "middle part" of the outer conductor, or narrowly to mean that the inner conductor is "equidistant" at all points from the outer conductor. See Webster's Third New International Dictionary 362 (1986) (defining "center" as either "$[a]$ point equidistant from all points on a circumference" or "middle part in contrast to sides, boundaries, outskirts, circumference, or peripheral features"). The depiction in figure 9 of the center conductor as
A patent describing an "electronic multi-function card" that would synthesize multiple "credit cards, or the like," and that evidenced in the intrinsic record. A recent case from the Federal Circuit is instructive. The court construed the term "card" in with concentric conductors without grafting the limitation of concentricity onto the patent where such a limitation was not evidenced in the intrinsic record. A recent case from the Federal Circuit is instructive. The court construed the term "card" in a patent describing an "electronic multi-function card" that would synthesize multiple "credit cards, or the like," and that concentric with the conductive shield would support this latter construction, however, this court is obliged to grant the broadest construction of a term which is consistent with the written description. Nystrom, 374 F.3d at 1111, n.1 (noting that "[i]f everything in the specification were required to be read into the claims, or if structural claims were to be limited to devices operated precisely as a specification-described embodiment is operated, there would be no need for claims"). Patent 787, part of the prior history and thus the intrinsic record of Patent 416, provides strong support for a broader reading of the term "coaxial." Its preferred embodiment depicts and describes a "coaxial cable" that includes an "outer conductor" around an "inner" or "center conductor." See U.S. Patent 4,954,787, figure 3; col. 5, lines 19-28. The outer conductor of the coaxial cable depicted in the diagram is helically wrapped rather than forming a cylindrical tube around the inner conductor. Such a spiral conductor is not a circle, cylinder, or sphere. See McGraw-Hill Dictionary, Masur Decl., Exh. D, at 406 (defining "concentric" as "pertaining to the relationship between two different-sized circular, cylindrical, or spherical shapes when the smaller one is exactly centered within the larger one"). In essence, it is not concentric with the inner conductor, because in cross section, a spiral is a point in space rather than a circle. 6 The helical shape does not mean that the outer and inner conductor are not symmetrical. A helical outer conductor sharing an axis with an inner conductor would render the two shapes radially symmetrical.

6 Quest argues in its opposition brief that a "helical conductor as a whole is still concentric with the inner conductor." Opp'n at 32. Yet as discussed, because a helix is not a cylinder, a helical conductor surrounding a center conductor would not fall within the ordinary definition of concentric. Quest has provided no intrinsic or dictionary-based evidence that a helical conductor should be read "as a whole" to be a cylinder, nor that the ordinary meaning of concentricity should include the concept of a helix.

On the basis of the intrinsic record, this court agrees with Monster Cable that adding the requirement of concentricity to the two-conductor cable system would impermissibly limit the claim language. Though most of the technical dictionaries submitted to this court describe coaxial cables as having concentric conductors, 7 the court must "giv[e] a claim term the full range of its ordinary and customary meaning, consistent with the written description and prosecution history." See Nystrom v. Trex Co., Inc., 374 F.3d 1105, 1113 (Fed. Cir. 2004). This court reads dictionary definitions that require concentricity to be more restrictive than the patent terms, perhaps because of their orientation towards other forms of cable technology.

7 The Penguin Dictionary of Electronics defines coaxial cable without the specification of concentricity, defining the terms as "[a] cable formed from two or more coaxial cylindrical conductors insulated from each other ..." Masur Decl., Exh. E at 74. Other definitions provided by the parties, however, specify concentricity. Definitions of coaxial cable included in the New IEEE Standard Dictionary of Electrical and Electronics Terms refer to the two-conductor system of the cable as "concentric" or as a "cable with two conductors where one completely surrounds the other." See Villasenor Decl., Exh. B, at 201. The Illustrated Dictionary of Electronics also specifies the concentricity of the two conductors, defining coaxial cables as consisting of "two concentric conductors." Behun Decl., Exh. C, at 144. The Dictionary of Electronics defines a coaxial cable to have a "transmission line formed between two conductors, one a wire and the other a cylinder concentric with the wire." Behun Decl., Exh. D, at 53. The McGraw-Hill Dictionary of Scientific and Technical Terms defines a coaxial cable as "a transmission line in which one conductor is centered inside and insulated from [the second conductor]," and its lists of synonyms for the term coaxial cable includes "concentric cable; concentric line; concentric transmission line." See Villasenor Decl., Exh. D, at 373.

A construction of the term "coaxial cable" that requires radial symmetry along a shared axis would encompass all cables with concentric conductors without grafting the limitation of concentricity onto the patent where such a limitation was not evidenced in the intrinsic record. A recent case from the Federal Circuit is instructive. The court construed the term "card" in a patent describing an "electronic multi-function card" that would synthesize multiple "credit cards, or the like," and that
had the advantage of "the outer dimensions of a usual credit or check card." See E-Pass Techs., Inc. v. 3COM Corp., 343 F.3d 1364, 1369 (Fed. Cir. 2003). The circuit held the references in the specifications to the "standardized dimensions" of the "card" were not "lexicographic," because the statements about the size of the card "suggest[ed] a preferred aspect of the invention subject to variability rather than a precise definition." Id. Vacating the grant of summary judgment of noninfringement, the circuit remanded to the district court for further proceedings on infringement by the accused device, a palm pilot with 58 times the volume and 25 times the thickness of a credit card. Id. at 1366, 1371. In the case of the 416 Patent, the inventor did not even arguably add limitations regarding concentricity onto the meaning of coaxial cable. The meaning of the term thus must be protected in its broadest form to include conductors that share an axis, whether or not they are concentric.

Therefore, this court determines that the two conductors of a coaxial cable must share an axis, but they need not be concentric.

3. "The Space Between Them Being Filled with a Dielectric"

The claim language of the 416 Patent does not specify what fills in the space between the two conductors of a coaxial cable. In the specifications of the preferred embodiment, however, the patent describes that "[i]n addition to the center conductor 182, the coaxial cable 184 includes an outer conductor 186 and a dielectric 188." 416 Patent, col. 7, lines 26-28. Quest argues that this specification should be imported into the construction of the term coaxial.

This court has no reason to believe that adding the specification "the space between [the conductors] being filled with a dielectric" would limit the term coaxial, but nor is there any reason to believe that such specification is necessary to the construction of the term. While the inventor articulated that a dielectric would lie between the inner and outer conductors in his preferred embodiment of the bias cable apparatus, there is no evidence that he was limiting the term "coaxial" to carry that specification. Only one technical dictionary definition provided by the parties specifically describes the space between the two conductors. See The Dictionary of Electronics, Behun Decl., Exh. D, at 53; Masur Decl., Exh. H at 53 (defining a coaxial cable as two conductors, "the space between them being filled with a dielectric"). Other dictionary definitions of "coaxial cable" are silent on the issue of the space between the conductive shield and the inner conductor, suggesting that such a fact is unnecessary for an ordinary understanding of that term. See Masur Decl., Exhs. D, E, I; Behun Decl., Exh. C., at 144. On the basis that the claim terms themselves do not carry a limitation regarding the dielectric, and the lack of alternate indications that the ordinary meaning of term would include this limitation, the court finds that this information is unnecessary to the term's construction.

Thus, for the reasons stated above, the court construes "coaxial cable" as a "cable with two conductors that share an axis."

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A. "Code"

The claim term "code" is used throughout independent claims 1 and 5 of the '364 Patent. Lynx argues that "code" as properly construed means "newly received code that is to be stored in a memory location" rather than previously stored codes. Chamberlain, on the other hand, claims this construction is improper and that the term as properly construed means "the identity codes of the transmitters."

Lynx argues, first, that the term "code" was defined by implication in the written description because it is used in a manner consistent with only one meaning, "newly received codes." Although the general rule of claim construction is that "limitations from the specifications are not to be read into the claims," the Federal Circuit has explained that "the written description 'can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.'" Bell Atlantic Network Services, 262 F.3d at 1270-71, quoting SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1344 (Fed Cir. 2001). A patentee will be found to have defined a term by implication if the "patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning." Id. at 1270 (citations omitted).

Lynx directs the court to a number of provisions in the specifications to support its proposed claim construction, including:
"wherein the receiver can be placed into a program mode wherein it will receive and store two or more codes corresponding
to two different transmitters," (The '364 Patent, col. 1, lines 47-49); and "in the program mode a code must be received four
times in a row in order to be permanently stored in the receiver." (The '364 Patent, col 1, lines 17-19; col. 4, lines 34-37).
The court recognizes that Lynx's proposed construction is consistent with these portions of the written description, but notes
that it is not consistent with other portions. For instance, the specifications also state, "in the invention, each transmitter . . .
will have a unique code which is determined by the encoder chip contained in the transmitter," (The '364 Patent, col. 3, lines
31-33), and "when the garage door operator is initially installed, the switch . . . is moved to the program mode and the
energize button . . . of the first transmitter . . . is depressed so that the unique code of the first transmitter is transmitted."
(The '364 Patent, col. 3, lines 40-43.) Lynx's proposed claim construction does not comport with these portions of the
written description. Because the court finds that the term "code" is used in a manner consistent with more than one meaning,
the term has not been defined by implication.

Lynx also directs the court to certain statements made by Rhyne during the prosecution of the '703 Patent, which Lynx
claims support its proposed claim construction. Chamberlain argues that statements made during the prosecution of the '703
Patent are not relevant to the claim construction of terms in the '364 Patent. The court notes that Lynx does not address
Chamberlain's relevancy argument. In any event, the court does not need to resolve this dispute because it finds the Federal
Circuit's decision in Overhead Door Corp. dispositive regarding the proper construction of the term "code."

To insure uniformity in the treatment of a patent, the court will rely on the Federal Circuit's claim construction related to
claim terms in the '364 Patent. Markman, 517 U.S. at 390-9 ("the limits of a patent must be known for the protection of the
patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be
dedicated ultimately to the public.") In Overhead Door Corp., 194 F.3d at 1274, the Federal Circuit considered the district
court's construction of the "different codes" claim element in claims 1 and 5 of the '364 Patent. The district court construed
this claim element to mean "factory-defined codes stored within the radio transmitters which uniquely identify each
different transmitter and are not selectable or modifiable by the user of the garage door opener . . . system." Id. The Federal
Circuit stated that the district court's claim construction was supported by both the claims and the written description of the
'364 Patent. Id. ("The claim language requires association of each code with a different transmitter. The written description
notes that each code uniquely identifies a transmitter.") The Federal Circuit stated, further, that "the claim language does not
supply any further constraints on the meaning of 'codes.'" Id.

Lynx proposes a claim construction, "newly received code", that associates the term "codes" with the storing process set
forth in the '364 Patent. In this court's view, Lynx's construction is inconsistent with that of the Federal Circuit. In Overhead
Door Corp., the Federal Circuit indicated that a code is associated with a transmitter, whether it is in the process of being
stored or not. Id. at 1274. Chamberlain's proposed claim construction, in contrast, does correspond with the Federal Circuit's
construction, and associates the term "code" as it relates to each transmitter. In addition, Lynx's proposed construction seeks
to impart additional constraints on the "code" element, counter to the Federal Circuit's direction that no further constraints
were warranted. Because the court finds that Chamberlain's claim construction of "code" is consistent with the Federal
Circuit's construction of the term "different codes," the court construes the term "code" in claim 1 and 5 to mean "the
identity codes of the transmitters."

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G. "a code directed to"

- Plaintiff's proposed construction: "code or instructions that execute to carry out"

- Defendants' proposed construction: "software or firmware for"

The parties dispute as to this term echoes their dispute concerning the "integrated computer software application" claim
term. This term is found in claims 1, 6, 14, 16, and 17 of the '655 patent and claims 16 and 17 of the '172 patent. Plaintiff's
"code or instructions" construction mirrors the "code or instructions" of its construction of "integrated computer software
application." Defendants' "software or firmware" construction is more ambiguous relative to their proposed construction
above. "Software or firmware" would also allow an "integrated computer software application" to include firmware rather
than software, which is not supported by the intrinsic record. "Firmware" is completely absent from the patents. The
patents describe using "software codes" to implement the disclosed functionality. 12


Plaintiff also seeks to use the term "that execute to carry out" to link its code to the function performed by the code. Defendants seek to use "for." The term "carry out" is used to express the function of code in the specification. 13 In spite of this, "for" is less ambiguous and covers the same scope as Plaintiff's proposed construction of the term.


The Court therefore defines "a code directed to" as "software code or instructions for."

1. "code which includes data indicating whether the player wins or loses"

a. The Parties' Proposed Constructions

The parties' dispute over this claim term centers on the meaning of the term "indicating." (D.I. 113 at 14-16; D.I. 117 at 9-15.) Ingenio asserts that "indicating" should be construed to mean "points to," in accordance with its ordinary meaning. (D.I. 113 at 14.) In support of its proposed construction, Ingenio cites two dictionary definitions of the word "indicating," which define that term as "shows the way to, points to, or makes clear in another way." (Id.) GameLogic, on the other hand, asserts that "indicating" connotes that the data itself states the win/loss outcome. (D.I. 117 at 9.) GameLogic relies heavily on the specification, including the preferred embodiments, and the prosecution history of the patent to support its assertion. (Id. at 10-15.) Specifically, GameLogic asserts preferred embodiments in the patent state that all of the win/loss data is stored in the code itself, without referencing additional information. (Id. at 11-15.) To further support its argument, GameLogic also relies on the inventor's statements during prosecution that the "code determines whether you win or lose the game," and on the fact that a particular prior art reference was distinguished. (Id. at 12-15.)

b. The Court's Construction

No where in its briefing does GameLogic argue that the ordinary meaning of "indicating" does not include "shows the way to, points to, or makes clear in another way," as Ingenio contends. However, GameLogic asserts that in the context of the patent, including the specification and the prosecution history, Ingenio has limited the term "indicating" to mean that the code itself must include or store the relevant win/loss data. (D.I. 117 at 9-15.) In support of its argument, GameLogic points to several preferred embodiments, which state that "the outcome of the game is stored in the Destiny Code," n4 ('082 patent at 6:28-29), or that the "primary function of the Destiny Codes is to store the outcome of the game of chance," (Id. at 2:58-59). However, GameLogic ignores the embodiment of the patent that states that "[t]he outcome may be determined, for example, by comparing the Destiny Code to a lookup table to determine if the number is a loser or a winner and the size of the prize, if any." ('082 patent at 9:63-66.) That embodiment allows for the code to point to something else, e.g., a lookup table, to determine the outcome of the game. Thus, the specification of the '082 patent does not limit the meaning of "indicating" as GameLogic argues.

n4 The "Destiny Code," or access code, is a "symbolic code[] that signifies the outcome of the particular game of chance to
be played by the player." ('082 patent at 2:66-67.)

GameLogic also cites to the prosecution history of the '082 patent to support its argument that "indicating" must mean that the data is stored in the code itself. (D.I. 117 at 12-15.) During the prosecution of the '082 patent, the applicant distinguished the invention in U.S. Patent No. 5,377,975 issued to Clapper, Jr. ("Clapper, Jr.") from the invention of the '082 patent. In a January 31, 1996 office action, the examiner, reviewing the application for the '082 patent, rejected claims 18 and 20-21 as anticipated by Clapper, Jr., and claims 1 and 10, as well as several dependent claims, as obvious over Clapper, Jr. in combination with two other references. (D.I. 114, Ex. C at IN1409-10.) In responding to that office action, the applicant stated:

None of the cited references disclose or suggest a game or method of playing a game in which a code entered by the player prior to game play controls the outcome, win or loss, of the game. The Clapper, Jr. reference discloses the use of a bar code which merely identifies indicia printed on a strip. The bar code is used to display the strip indicia to a game player. The printed indicia on the strip determines whether the player wins or loses the game, and not the code.

(Id. at IN 1406.) GameLogic argues that by this statement, the applicant disclaimed a product where the data containing the win or loss information is not in the code itself, but is located elsewhere.

I do not read the applicant's statements, or the Clapper, Jr. reference, in the way that GameLogic does. In Clapper, Jr., a strip of paper containing indicia, or symbols, such as lemons or cherries, is dispensed to a game player. (Clapper, Jr., D.I. 116, Ex. 5 at GL00334.) A duplicate strip containing the same indicia is stored in the machine. (Id.) On the back of the duplicate strip, a printed bar code is scanned by the machine to display the same indicia printed on the strip on an electronic display. (Id.) Thus, the bar code in Clapper, Jr. is used to display the same indicia that a player has on his or her game piece on the machine. The applicant's statements in distinguishing Clapper, Jr. do not give up a method of playing a game where the code requires a processor to go to a lookup table to determine the win or loss result.

Therefore, I will construe "indicating," in the context of "code which includes data indicating whether the player wins or loses," in accordance with its ordinary meaning to mean that the code "shows the way to, points out, or makes clear in another way."

Although the parties acknowledged for the first time at the Markman hearing that "security measures" and "coded embedding" are not identical, they did not offer the Court any proposed construction for the term "security measures." Consequently, it falls to the Court to determine the meaning of "security measures."

The claimed invention seeks to prevent dishonest persons from misusing the invention by issuing drafts payable to someone other than an authorized payee. The system uses "security measures" to "reduce the likelihood of production of unauthorized drafts." '677 patent, col. 4, lines 31-34. Every time the term "security measures" is referred to in the identified claims, it includes, but is not limited to, "coded embedding." See, e.g., '677 patent, claim 2 ("security measures comprising the coded imbedding of said identification of said payee in said software"); claim 22 (same); claim 37 (same); claim 39 (same). Other security measures that are available in addition to "coded embedding," include password protection and encryption. See, e.g., '249 patent, claim 12 (claiming hard coding and password protection as security measures). Thus, "security measures"
is broader than "coded embedding" and shall be construed as "measures taken to preclude the generation of drafts payable to someone other than the payee, including at least coded embedding of the payee identification information."

With respect to "coded embedding," both parties agree that it is synonymous with "hard coding." Given that, and the fact that the patent examiner explicitly found that the terms are synonymous, 11 this Court agrees. However, in defining "coded embedding/hard coding," both parties err.

--- Footnotes ---


--- End Footnotes ---

AutoScribe suggests that "coded embedding" means "an adjective describing a routine or program that is designed for a specific situation or that uses imbedded constants in place of more general user input." (Joint Chart at 2, emphasis added). The problem with that definition is that it is circular, using "imbedded constants" to define "coded embedding." Intell-A-Check on the other hand originally argued that "coded embedding" means "fixing within a given copy of the program the payee identification information and the secreting thereof into the program code so that it cannot be changed." (Id., emphasis added). In making that argument, Intell-A-Check goes too far by adding the requirement that coding requires secrecy. Coding does not require secrecy, and Intell-A-Check admitted as much at the Markman hearing. (Tr. at 68:7-19).

However, the Court, and AutoScribe based on its representation at the Markman hearing, 12 agree with the first portion of Intell-A-Check's construction -- "fixing within a given copy of the program the payee identification information." The ’677 and ’249 specifications support that construction by disclosing that "the payee is hard-coded into the program and cannot be readily changed even by an authorized user of the system." ’677 patent, col. 13, lines 66-67; ’249 patent, col. 13, lines 54-55. Although Intell-A-Check appears to suggest that the payee identification information should be fixed within a specific file on the system, e.g., an identifiable executable file, this Court finds no such limitation in the patents' disclosures and, therefore, will impose no such limitation. As long as the payee identification information is fixed within the program, regardless of what file it is located in that is associated with the program, the information is properly "coded embedded / hard coded."

--- Footnotes ---

12 (Tr. at 76:4-9).

--- End Footnotes ---

In conclusion, the Court will construe "coded embedding" and "hard coding" to mean "fixing within a given copy of the program the payee identification information."

In conclusion, the Court will construe "coded embedding" and "hard coding" to mean "fixing within a given copy of the program the payee identification information."
Both parties request unsupportable constructions of this term. Plaintiff's construction is exceedingly broad. Defendants' construction imports limitations not found in the claims. The patent specification does not define the term "code," however, the specification does state that a "coder … may be any form of such device utilizing a known algorithm[.]" ('148 patent, col. 3, ll. 37-39) Thus, the term "coding" shall be construed to mean "transforming information by applying a known algorithm."

32. The method in accordance with Claim 1 further comprising coding said contributions at said electronic contribution accepting devices to obtain coded contributions; and decoding said coded contributions at a device other than said electronic contribution accepting devices.

"Coding" means to put the information into computer-readable format, so that the information can be read by the intended recipient, but not readily read by other recipients, whether computers or people. "Decoding" is the reverse of "coding," that is, reading the information by the recipient computer. Beyond that, this claim language does not require further definition.

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Literal Infringement

The '389 patent contemplates a CVD process sequence that starts with a cold reactor chamber, the chamber having been cooled in order to permit the operator to remove the coated substrates and insert uncoated ones. The '389 claims are directed to the removal of static attraction during the gaseous purge of the cooled chamber within which electrostatic contamination has formed. Although the parties dispute whether this requires treating at a "relatively low" temperature that is high enough to eliminate the static charges, or is accomplished solely by an infrared photon flux at low intensity, claim 1 appears to include both mechanisms, while claim 4 is specific to heating the wafer above about 180 degrees C. The '389 patent describes about 180 degrees C as the temperature above which static electricity does not form or exist.

The ASM Epsilon One reactor process also conducts an initial purge with inert gases as the first step in the deposition cycle. However, this purge is conducted at about 850 degrees C. Since in the Epsilon One reactor the substrates are removed and replaced mechanically, the chamber need not be cooled significantly to perform this step and does not acquire electrostatic contamination during the processing cycle. Thus although the Epsilon One process includes an initial gaseous purge below the deposition temperature, the temperature of this purge is stated to remain above 850 degrees C. ASM argues that this can not reasonably be deemed a "cold purge process." ASM states that the problem solved by the '389 invention does not exist at the Epsilon One operating conditions, and that the '389 specification makes clear that the invention relates to a process wherein the chamber is cooled to ambient temperatures, permitting electrostatic contamination to form, in order to remove it by raising the temperature to above 180 degrees C, but still at relatively low temperatures. ASM points out that the prior art shows the initial cold purging with inert gases, and that the sole "inventive" contribution of the '389 patent is removal of the electrostatic contamination that occurred below about 180 degrees C. ASM states that under its operating conditions, which do not drop below 850 degrees C during or between processing cycles, electrostatic contamination does not occur, and thus that it does not practice the invention of the '389 patent.

Applied Materials states that "cold purge" is a word of art for the initial gas purge step, and that "cold" is understood in this art as a relative term and means a temperature below the processing temperature. Applied Materials states that the claims require only that the initial gaseous purge is conducted below the processing temperature, and that ASM does so, literally. Applied Materials states that it is the claims that define the invention, and that it is incorrect to limit the claims to any specific temperature mentioned in the specification. Thus Applied Materials states that claim 1 reads literally on the Epsilon One process.

The construction of patent claims, as well as the meaning and scope of a disputed technical term or terms of art in a patent
claim, are deemed to be questions of law and are determined de novo on appeal. Markman v. Westview Instruments, Inc., 52 F.3d 967, 34 U.S.P.Q.2d (BNA) 1321 (Fed. Cir. 1995) (en banc), aff'd, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). Although this court requires that no deference be given to the testimony of experts, id. at 983, 34 U.S.P.Q.2d (BNA) at 1333 ("when legal 'experts' offer their conflicting views of how the patent should be construed, or where the legal expert's view of how the patent should be construed conflicts with the patent document itself, such conflict does not create a question of fact nor can the expert opinion bind the court or relieve the court of its obligation to construe the claims according to the tenor of the patent. This opinion testimony also does not change or affect the de novo appellate review standard for ascertaining the meaning of the claim language."), we take note that extensive expert testimony was adduced at trial.

The district court first considered Applied Materials' argument that since the phrase "cold purge" appears only in the preamble of claim 1, it does not limit the claims as applied to the accused process. The district court concluded that "cold purge" is indeed an element of the claims, and "establishes a limitation which the accused device must meet in order to literally infringe the '389 patent." We reach the same conclusion.

Whether a preamble stating the purpose and context of the invention constitutes a limitation of the claimed process is determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history. See In re Stencel, 828 F.2d 751, 754, 4 U.S.P.Q.2d (BNA) 1071, 1073 (Fed. Cir. 1987) (the preamble is interpreted in light of the invention as a whole); Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 896, 221 U.S.P.Q. (BNA) 669, 675 (Fed. Cir.), cert. denied, 469 U.S. 857, 83 L. Ed. 2d 120, 105 S. Ct. 187 (1984) (the limitations stated in the preamble give meaning to the claim and can serve to define the invention). It is thus appropriate to determine whether the term in the preamble serves to define the invention that is claimed, or is simply a description of the prior art.

The term "cold purge" has its roots in the specification, which states that in a typical deposition process of the prior art "both the nitrogen prepurge and hydrogen purge are carried out 'cold', that is, without heating." The specification explains that in the '389 process these initial purges are carried out at low radiant energy or low thermal energy. The district court found that "cold purge process" means temperatures below 180 degrees C, and that the '389 invention was directed to the use of heat sufficiently high to remove electrostatic contamination in the initial purge steps, that is, heat above about 180 degrees C, in a reactor whose operating conditions include temperatures below 180 degrees C. "Cold purge" is interpreted in light of the problem the '389 patent solved: the elimination of electrostatic contamination during the initial purge step. The specification states:

During the use of the above outlined process sequence, electrostatic attraction is operative almost exclusively during the cold purging steps (steps 1 and 2). It is substantially non-existent when the susceptor/wafer is at an elevated temperature, such as for example above about 180 degrees C.

'389 patent, column 9, lines 17-22. The specification also states that the purpose of the invention is the removal of contamination caused by this electrostatic attraction. Claims 1 and 4 include this requirement.

The district court correctly placed the term "cold purge process" in the context of the state of the art when the '389 invention was made. This context requires construing the literal meaning of the claims as limited to the process wherein electrostatic contamination is formed and removed. The Epsilon One reactor does not meet this criterion. We affirm the court's ruling that claim 1 is not literally infringed.


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E. "Collating"
The parties ask the court to construe the term "collating," contained in the second clause of claim 3. The defendants argue that the term "collate" has a well-understood meaning—to compare and to merge two similarly-ordered sets of information into a single set of information. The plaintiffs argue that the inventors used the term "collate" in the context of the patent to refer simply to the act of "comparing" not merging. Although the defendants correctly observe that the term "collate" has a well-understood meaning of "to compare and to merge two similarly-ordered sets of information into a single set of information," the patentee has used the term throughout the specification in a different manner. Throughout the specification, the patentee refers to a device which compares the data received from the disk with a table stored in memory to discern what type of disk was being read. It is true that definition by implication is a tough climb, whether suggested by a patentee or an accused infringer. Nevertheless, the court is bound to construe the claim terms in light of the specification. The claim language itself supports this interpretation when, in the third limitation, the modulation of the servomechanism means depends on the optical disk standard data which corresponds with the processed signal. Use of the term "corresponds" suggests that the signal has been compared to the standard data stored in memory to determine a match. The plaintiff's proposed construction of this term is correct.

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2. "Collecting Electronically"

<table>
<thead>
<tr>
<th>Simplification's Construction</th>
<th>Block's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathering by way of devices, circuits, or systems utilizing electron devices.</td>
<td>The act of gathering data automatically without manual intervention from the user.</td>
</tr>
</tbody>
</table>

Other than the dispute over the interpretation of the term "electronically," the parties only disagreement is about whether the term "collecting" should refer to "gathering data" (Block's position) or simply "gathering" (Simplification's position). The Court's review of the claims reveals that the term "collecting electronically" is used exclusively in conjunction with the term "tax data." Accordingly, the Court concludes that the word "data" need not be included in the construction of "collecting electronically." Unlike the claim term "automatic tax reporting," where the Court looked to surrounding claim language to help construe the word "automatic," the Court finds no need to resort to surrounding claim language to clarify the meaning of the disputed term. The Court will thus construe the term "collecting electronically" to mean "gathering without manual intervention from the user."

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VI. "collective verify signal" in the 351 patent

<table>
<thead>
<tr>
<th>Lexar's proposed construction:</th>
<th>Toshiba's proposed construction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a signal output from the input/output buffer that is generated upon the simultaneous verification of the state of a plurality of memory cells</td>
<td>3 a signal that a collective verify operation has taken verification of the state of a plurality of memory cells</td>
</tr>
</tbody>
</table>

--- Footnotes ---

2 At oral argument, Lexar conceded that the word "simultaneous" could be employed in the construction rather than its initially proposed "parallel." (Claim Construction Transcript 31:6-13.)

3 At oral argument, Toshiba conceded that the term "signal" could be employed in the construction rather than its initially proposed "indication." (Claim Construction Transcript 33:8-9.)

--- End Footnotes ---
The disputed claim phrase "collective verify signal" appears in claims 1, 4, and 5 of the 351 patent. Claim 1 of the 351 teaches:

a memory means having a plurality of memory cells . . . for outputting a collective verify signal when all the data of the data group have been written; and . . . said memory means to allow said memory means to latch and write the transferred new data group therein and further to transfer the collective verify signal to said control circuit whenever the new latched data group has been written.

Claim 4 teaches:

a read only memory (ROM), said ROM configured to receive data of a predetermined number of bits as a page of data and to output a collective verify response to the collective verify signal received from said ROM, the control circuit outputs data to be next written to said ROM.

Claim 5 teaches:

A memory system as recited in claim 4, wherein said ROM comprises an electrically erasable ROM (EEPROM) . . . wherein during the write operation for writing m pages of data into the EEPROM, m being an integer greater than or equal to one, the EEPROM outputs the collective verify signal for each page of data written into the EEPROM.

For the most part, the parties agree about the proper construction of this claim phrase. The remaining dispute here lies in whether the construction should explain from where and to where the signal is outputted (i.e. whether the construction should include Lexar's proposed "from the input/output buffer" language). Toshiba argues that Lexar's focus on defining the means for outputting a collective verify signal is redundant because surrounding claim language explains what generates the signal and what receives it. Lexar contends that including such language would be beneficial to the jury to understand exactly what the collective verify signal does. However, at oral argument, Lexar agreed that the Court could "properly construe th[e] term without . . . including an output from the input/output buffer." (Claim Construction Transcript at 31:14-22.) Therefore, the Court declines to incorporate from whence the collective verify signal is output in its construction of the claim phrase. To do so would improperly load up surrounding claim language into the construction of a single phrase.

"Collective verify signal" is construed as a signal generated upon a simultaneous verification of the state of a plurality of memory cells.

b. Displaying in "Color"

The claims require that pixels be displayed in two predetermined colors, a first color for attenuated radiation and a second color for backscattered radiation. The district court construed the phrase "predetermined single color" to require display in a color "other than black and white and shades thereof." AS&E argues that the district court erred by so limiting the term "color." According to AS&E, a display in black and white and another color, such as green, would infringe claims 5 and 8. Vivid responds that such an interpretation would defeat the purpose of the invention, which is to avoid grey scale images.

The specification states that "the present invention is directed to an inspection system having a color display." The specification describes prior art images displayed in black and white and shades of grey, points out that images in grey tones are often difficult for the operator to interpret and may become monotonous to watch, and acknowledges that to solve this grey tone problem in the prior art "it has heretofore been proposed to use color images." The specification states that in one prior art system the range of grey tones "is replaced with a range of different colors." Thus the specification makes clear that the patentee intended to distinguish "color" displays from grey tones including black and white displays.

We conclude, as did the district court, that "color" as used in the '283 patent means colors other than black and white and shades thereof.
Each color in the color image has a corresponding separate and distinct color pattern. The claim is not limited to the particular pattern masks disclosed in the specification, and thus images may contain more than eight colors. The phrase "visual discrimination" means that when the output image is displayed, the pattern masks provide visual discrimination between areas that were originally represented by different colors in the color image.

B. "Information about said different color values"

Claim 1 of the '550 patent claims:

A method for blending images, comprising the steps of selecting a first portion of a first image, said first portion of said first image includes different color values;

storing information about said different color values . . .

Sportsvision contends that the phrase should be construed as: "At least one piece of information corresponding to a color value and at least a second piece of information corresponding to different color value." (Sportsvision's Memo at 14.)

SportsMEDIA proposes that the phrase be construed as: "A set of characteristics that describe a class of pixels." (SportsMEDIA's Memo at 17.)

Claim 1 discloses steps in a method for blending images. The method discloses selecting a portion of a first image, where the selected portion includes different "color values." The written description of the '550 patent refers to "color values" as follows:

The establishment of inclusions and exclusions in embodiments of the present invention provides for making fine distinctions between luminance and color values that are very close, where it is critical to modify pixels with one luminance-color combination and not modify pixels with another combination. Such circumstances arise during the rendering of a first down line, as described above, when the appearance of a player's uniform is very similar to the field. For example, an inclusion may describe the green color of grass while an exclusion might describe a different shade of green used on a player's uniform. A traditional chroma key system lacks the ability to make such distinctions, since it merely provides for replacing a predetermined color.

'550 patent, 20:4-16.

Thus, the Court construes the term "color values" to mean luminance and or chrominance. Color values do not contain position information.

The phrase "different color values" refers to color values within the selected portion, i.e., one color value in the selected portion is different from another color value in the selected portion. Thus, at this step in the patented method, the only information which is stored are the color values, and nothing else.

Accordingly, the Court defines the phrase "information about said different color values" to mean: "Luminance information or chrominance information or both in a selected portion of an image."
VI. "combining" 15

15 The term "combining . . . " is contained in claims 1, 9, 25, and 33. Additionally, Defendant asks the Court to construe the phrase, "combining, from each receiver antenna of the plurality of receiver antennas, each of the first plurality of detected spread-spectrum signals, thereby generating a first combined signal; and combining, from each receiver antenna of the plurality of receiver antennas, each of the second plurality of detected spread-spectrum signals, thereby generating a second combined signal." RESP. at 26-28. Yet Defendant arguments relate to a proper construction of the term "combining." Id. Therefore, the Court declines to construe the "combining . . . " phrase proposed by Defendant, in favor of construing the disputed term.

Plaintiff's Proposed Construction

forming a single aggregated version of
the received signal from the multiple
versions of the transmitted signal
received at the multiple receiver
antennas

Defendant's Proposed Construction

signals are combined using space
diversity and time diversity
employing multiple combiners and
rakes

Plaintiff argues that the patent specification clearly discloses that any appropriate method known in the art may be used to combine the received signals. OPENING at 17-18. Plaintiff contends, therefore, that Defendant's proposed construction improperly limits this term to the preferred embodiment by requiring combining to include both time and space diversity components, Id. Further, Plaintiff objects to Defendant's proposed constructions for phrases which were not previously disclosed as being subject to dispute. REPLY at 7.

Defendant argues that space and time diversity are required elements of this term not only because the specification discloses these two required elements, but also because Plaintiff specifically distinguished two prior art references--Higashi and Ono--on this basis. RESP. at 27. Defendant also argues that Plaintiff's proposed construction is unduly broad because it fails to take into account that the first and second plurality of detected spread-spectrum subchannel signals must be combined from each receiver antenna. Id.

The patent discloses that the received signals are combined using space and time diversity. First, the claims explicitly acknowledge that the signals are transmitted in a multipath environment. '322 patent at 14:15-22 (claim 1); 15:47-54 (claim 9); 18:55-61 (claim 25); 20:26-32 (claim 33). Second, every combiner contained within the figures is labeled a "RAKE and space combiner." Id., Figs. 3, 6, 7. Third, the specification consistently refers to RAKE and space-combiners. See, e.g., id. at 2:53-58; 3:49-52; 4:38-41; 4:66-67, 5:1-4; 6:1-6; 9:42-67; 10:1-67; 11:33-38. Further, the "Detailed Description of the Preferred Embodiments" section notes:

The present invention provides a novel approach for reducing the effect of fading due to shadowing and multipath, through the use of multiple antennas at the terminal and also at the base station, as well as a single RAKE/maximal ratio combiner to combine all time and space signals. Previous solutions have assumed multiple antennas at the base, where space diversity is then applied. Also, each antenna receiver has an individual RAKE. Placing multiple antennas at the terminal, however, can result in a significant improvement in system performance. The use of maximal ratio combining, RAKE and erasure decoding further enhance system performance.

Id. at 4:26-37 (emphasis added). In fact, every time the patent refers to a "combiner" or a "combining" function, the patent also refers to RAKE and space or time and space diversity combiners. See, e.g., id. at 2:53-58("[a] plurality of RAKE and space-diversity combiners combine the plurality of detected spread-spectrum signals"); 3:49-52 ("[a] RAKE and space-diversity combiner combines the detected spread-spectrum signal"); 4:38-41 ("the present invention broadly includes an
antenna system employing time (RAKE) and space (antenna) diversity and coding of spread spectrum signals"); 4:66-67, 5:1-4 ("[t]he RAKE and space-diversity means is coupled to each matched filter means of the plurality of receiver subsystems"); 6:1-6 ("[t]he RAKE and space-diversity means combines the plurality of detected spread-spectrum signals"); 9:42-67 ("[t]he plurality of RAKE and space-diversity combiners combines each plurality of detected spread-spectrum signals"); 10:1-67 ("[a] second RAKE and space-diversity combiner 162 is coupled to the [filters]"); 11:33-38 ("[t]he plurality of RAKE and space-diversity combiners 161, 162, 163, 164 combine the plurality of detected spread spectrum signals").

--- Footnotes ---

16 The Court acknowledges that claims 1 and 9 only use the term "multipath" within the preamble to each respective claim. The Court further recognizes that as a result this term may or may not be a limitation on the claims. See Symantec Corp. v. Computer Associates Int'l, Inc., 522 F.3d 1279, 1288 (Fed. Cir. 2008) ("Because the disputed term appears in the preamble to claim 1, we must first determine whether it is in fact a separate limitation."). However, the Court declines to address the issue, as the dispute is adequately resolved on other grounds, as discussed below.

--- End Footnotes ---

Fourth, the specification also explicitly notes the importance of the order of combining, depending on the data sent by each transmitter. Id. at 11:60-63 (noting that the order of combining is important if each transmitter antenna sends different data, but not if each transmitter antenna sends the same data); 12:26-41 (noting that when the same data is transmitted over each antenna, any order of combining yields the same result and all combining from all receiver antennas can be done simultaneously--time and space diversity).

Here, the patent claims and specification emphasize time and space combining as a key feature in the patented invention. Moreover, the prosecution history also supports this conclusion. As Defendant argues, Plaintiff distinguished its invention over the prior art by arguing that the invention disclosed the use of both space and time diversity. RESP. at 27. In a final amendment before the '322 patent was allowed, Plaintiff represented to the Patent Office that:

The present invention has the advantage of providing space diversity and time diversity, using a plurality of antennas and a plurality of spread-spectrum signals.

Ono does not teach or suggest a system, having space diversity and time diversity, for receiving data which were demultiplexed, spread-spectrum processed and then sent over the communications channel having multipath.

RESP., EXH. C at 188-89. Ono is entitled and teaches a Rake Reception Method For a Spread Spectrum Signal. U.S. Patent No. 5,999,560 ("the '560 patent").

This representation is pertinent to the issue of claim construction because "[t]he prosecution history gives insight into what the applicant originally claimed as the invention, and often what the applicant gave up in order to meet the Examiner's objections." Lemelson v. Gen. Mills, Inc., 968 F.2d 1202, 1206 (Fed. Cir. 1992). Further, the prosecution history is important where there is particular prior art that the patentee was trying to distinguish. Id. Referring to the prosecution history in this way for the purposes of claim construction ensures that the claims are construed during litigation consistently with the intended scope as allowed by the Patent Office. Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005). Thus, the doctrine of prosecution history disclaimer applies, narrowing the ordinary meaning of the claim consistent with the disclaimer, when a "patentee has unequivocally disavowed a certain meaning to obtain his patent." Id. (quoting Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003)).

Not only do the claims and specification disclose that both space and time-diversity combining are required limitations, but Plaintiff also made an affirmative representation to the Patent Office during prosecution which limited the claimed invention to this embodiment. Plaintiff disclaimed methods which failed to include both space and time-diversity combining. Plaintiff now seeks a construction for the "combining" term that would expand the claim scope beyond that which was represented to the Patent Office. Plaintiff proposes that "combining" should be construed as "forming a single aggregated version of the received signal from the multiple versions of the transmitted signal received at the multiple receiver antennas." OPENING at 17-18. This construction plainly and adequately describes what is taking place when signals are combined. However,
because the intrinsic evidence supports the conclusion that this construction fails to include the required limitations of both time and space combining, Plaintiff's proposed construction is too broad.

Plaintiff argues that the patent discloses that it is not limited to combining that includes both space and time diverse signals and that "the '322 patent clearly discloses that any appropriate method known in the art may be used to combine the received signals." OPENING at 17-18. In support of this argument, Plaintiff points to the following portion of the specification:

The first RAKE and space-diversity combiner 161 may use any of a number of techniques for combining signals, such as selecting the four strongest signals and adding their strengths, maximal ratio combining, maximal likelihood combining, etc. RAKE and combining techniques are well known in the art.

'322 patent at 9:62-67. However, this portion of the specification does not support Plaintiff's argument. It merely notes that differing time and space-diversity combining techniques are well known in the art and may be used. It does not state that both of these techniques are not required limitations of the claimed invention. In other words, the claimed invention requires both the ability to combine both time and space-diverse signals, but the methods used to combine these signals is left up to the designer.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
17 This statement is repeated three more times throughout the patent. See '322 patent at 10:14-19, 33-38, 52-57.
- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Defendant's proposed construction is also flawed because it fails to describe what is actually taking place when the signals are being combined. A construction which defines the term "combining" as "signals are combined using space diversity and time diversity employing multiple combiners and rakes" requires time and space-diversity combining, but fails to explain what that means or what is taking place when the received signals are combined. Thus, the Court rejects Defendant's proposed construction. For all the foregoing reasons, the term "combining" is properly construed as "forming a single aggregated version of the received signal from the multiple versions of the transmitted time and space diverse signals received at the multiple receiver antennas."

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**662**

d. combining

Fairchild contends that the term "combining" should be construed to mean "adding together from two or more different sources." (D.I. 156 at 37-38). Power Integrations contends that this term does not require construction, and should be subject to its plain English-language interpretation. To the extent construction is required, Power Integrations contends that the term "combining" means "adding together" and that different sources are not required as Fairchild contends. (D.I. 152 at 13).

In light of the Court's construction of the terms "primary voltage" and "secondary voltage" the Court agrees with Power Integrations that the term "combining" should not be construed as requiring different sources. Fairchild contends that the plain meaning of this term necessarily requires different sources, however, even the dictionary does not define the term "combine" by reference to a particular source. See Webster's Ninth New Collegiate Dictionary 262 (9th ed. 1988). Accordingly, the Court will construe the term "combining" consistent with its plain meaning such that the term "combining" means "adding together."

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c. "Combining" (Claims 18 and 66)
The disputed limitation of claims 18 and 66 of the '121 patent is: "supplying user program selection criteria to the data processor, . . . the data processor combining said user selection criteria." Re'121 patent, claims 18, 66 (emphasis added). The parties raise two issues, addressed in turn below.

(1) Logical Combining of the User Selection Criteria

Relying on the intrinsic evidence, the ITC held that "combining" required logical AND combination of the user selection criterion, specifically the "theme, prime time, and channel" criteria. FID Opinion 2002 ITC LEXIS 812 at *78. The ITC noted further that because the theme and channel criteria could be "comprised of lists of multiple themes or channels," the themes or channels composed in such lists are "combined in a logical 'OR' manner." Id. The ITC based its construction on alleged waivers made by Gemstar in the prosecution history to distinguish the claimed invention from the Kram prior art reference. Id. 2002 ITC LEXIS 812 at *90.

Gemstar argues that neither the ordinary meaning nor prosecution history limits "combining" to the particular sequence of logical AND/OR combinations enumerated in the ITC's construction. Scientific-Atlanta defends the ITC's construction, arguing that Gemstar disclaimed other methods of "combining" by describing this particular sequence of logical AND/OR combinations to distinguish its invention over the prior art.

The ordinary meaning of "combining," which is a present participle of "combine," is "to cause (as two or more things or ideas) to mix together: MINGLE: BLEND." Webster's Third New International Dictionary 452 (1993). This broad definition of "combining" as mixing or blending is not constrained to the specific logical AND/OR combinations required by the ITC's construction. Instead, "combining" may encompass any logical combination of the user selection criteria.

The ITC's claim construction is not warranted by alleged disavowals or disclaimers in the prosecution history relied upon by Scientific-Atlanta. The ITC referred to the following passage from the prosecution history:

Furthermore, even if the system of Kram could be used as a television guide controller for Kruger, the present system would not result. . . . The examiner cited a "weather" then "city" operation in Kram. . . . If the user selects a keyword topic "weather", the system constructs an index menu including each page having the keyword "weather". Each such page will also have a particular supplemental keyword which will be displayed on the index menu. The user then chooses one of the index entries to retrieve either a single or a series (one at a time) of relational pages. The system of Kram cannot automatically combine two selection criteria such as "weather" and "channels 2, 5, and 11" to provide the user a custom assembled list of programs meeting the combined criteria. The system of Kram could only provide a first index in response to "weather", from which the user would have to select "channel 2" to receive that screen, and then select "channel 5" to receive that screen, and then select "channel 11" to receive that screen.

Amendment, Aug. 2, 1992, at 43-44 (emphasis added). Gemstar's statements in the prosecution history do not indicate a disavowal or disclaimer of claim scope, see ACTV, 346 F.3d at 1091, but merely provide an example to illustrate differences between the invention and the prior art. In essence, Gemstar stated only that the Kram reference was incapable of performing a certain type of search, not that the scope of the claimed invention was limited to that particular type of search. Contrary to the ITC's holding, the prosecution history did not limit the '121 patent to that particular sequence of logical searching.

(2) Combining the User Selection Criteria Prior to Search

The second issue disputed by the parties is the ITC's requirement that the user selection criteria "must be combined prior to any search." FID Opinion 2002 ITC LEXIS 812 at *106. The ITC found that the parties agreed that Gemstar disclaimed "dependent, hierarchal" searching during prosecution and dismissed Gemstar's arguments that hierarchal searching with independent user selection criteria was preserved. 2002 ITC LEXIS 812 at *103. Hierarchal searching involves sequential searching where the data input to the current search is the output from the prior search.

Gemstar argues that statements in the prosecution history cannot reasonably be read to disclaim the sequential entry and combination of user selection criteria. Specifically, Gemstar contends that the statements in the prosecution history relate specifically to unasserted claim 65, and there are numerous examples of sequential searching in the prosecution history.
Scientific-Atlanta responds that Gemstar's disclaimer of "dependent, hierarchal" searching applies equally to all asserted claims because it appeared in a section entitled "Combining User Selection Criteria and Selecting Programs," which was not specific to unasserted claim 65.

We must consider statements made in the prosecution history "because it may demonstrate that . . . the patentee disclaimed or disavowed subject matter, narrowing the scope of the claim terms." ACTV, 346 F.3d at 1091. The disputed statement in the prosecution history states in pertinent part:

Combining User Selection Criteria and Selecting Programs

Several of the present claims recite a process in which the user enters user program selection criteria, and the data processor combines the program selection criteria, searches through the stored schedule information, and creates and stores a display list of program listings that meet the combined criteria. . . . The user may then make program selection choices (which the Examiner has characterized as further program selection criteria) from this display. The data processor then stores information for these program selections, including information identifying program titles, in a reminder calendar list.

Several claims recite the data processor combining a plurality of user selection criteria other than the program choices. This is different from the scenario that the Examiner has proposed would be inherent in Levine and similar art, namely that the user could enter a date as a first selection criteria, then be presented with a page of program listings, and then enter a program choice as a second criteria to be 'combined' with the data selection criteria. As amended, several claims (such as claim 1) require the data processor combine a plurality of selection criteria in addition to the program choice. The Examiner's proposed date entry does not meet the requirement of combined selection criteria even if entered as a series of page commands. Each page command simply establishes a new requirement that supersedes and replaces the previous requirement rather than being combined with it . . .

The user selection criteria may be entered and activated independently under different categories (theme, channel, prime time) and are maintained by the data processor whether currently activated or not. This is disclosed, for example from column 12 line 12 to column 15 line 17 (wherein it is stated that buttons can be pressed to independently activate the THEME, PRIME-TIME, and CHANNEL selection criteria) and from column 18 line 11 to column 20 line 38. Furthermore, the selection criteria can be combined as alternatives (in a logical OR fashion), such as a list of acceptable channels or a list of acceptable themes. This is far different from even the cited teletext art, where search criteria are entered and combined in a dependent, hierarchal fashion. At each stage in the cited teletext art, the available search choices are determined by and dependent upon the previous choices made. Furthermore, they are only combined in a logical AND fashion. Also, the prior art does not allow complex entries (such as theme or channel lists) to be deactivated yet saved in memory.

Supplemental Amendment After Final, Feb. 25, 1993, at 22-24 (emphases added; emphasis in original omitted).

Gemstar's comments in the prosecution history constitute a disclaimer of claim scope to distinguish the prior art. To avoid a rejection based on teletext prior art cited by the examiner, Gemstar explained the operation of its claimed invention as follows:

The user enters user program selection criteria, and the data processor combines the program selection criteria, searches through the stored schedule information, and creates and stores a display list of program listings that meet the combined criteria. . . . The user may then make program selection choices (which the Examiner has characterized as further program selection criteria) from this display . . .

Id. at 22. Gemstar then distinguished this "independent[]" method of combining search criteria, id. at 23, as "far different" from the teletext prior art where new search criteria were continuously entered and combined with prior search results in a "dependent, hierarchal fashion," id. at 24.

Based on Gemstar's statements in the prosecution history disclaiming dependent searching to distinguish the prior art, the "combining" limitation must be read consistently in the claim. See Tegal Corp. v. Tokyo Electron Am., Inc., 257 F.3d 1331, 1343 (Fed. Cir. 2001). Thus, the ITC's requirement that "combining" must be combined prior to any search is correct.

In conclusion, "combining" within claims 18 and 66 of the '121 patent encompasses any logical combination of the user
selection criteria. However, the logical combination of the user selection criteria must occur prior to any search and does not include dependent, hierarchical searching where new user selection criteria are combined with prior search results.

2. The word "COMBINING" (claim 29) requires no construction.

3. "Command" means a reconfiguration command. A reconfiguration command is a command that rearranges the previous configuration of the gaming device so that the gaming device pays out extra money it would not have paid in its previous configuration. There are virtually no commands described in the patents that are not related to reconfiguration which is, ultimately, the crux of the invention.

(1) "Command"

EMC contends that the term "command" means an instruction to initiate an action. HP responds that a command is an instruction issued by the user through the host computer and, specifically, that the '497 Patent requires at least three commands which accomplish the steps described therein. EMC does not appear to dispute that contention but rather claims that a command can consist of more than a single instruction or a single word.

To the extent that there is a separate dispute with respect to whether Claim 1 of the '497 Patent requires at least three commands, the language of the claim is dispositive. Unquestionably, the plain language of Claim 1 requires three commands which accomplish the steps described therein. Although the term "command" is preceded by the indefinite article "a", it still requires that the disclosed invention contain at least one "first command", at least one "second command" and at least one "third command" each of which accomplishes the successive functions described in the claim.

That issue notwithstanding, there appear to be two substantive disputes with respect to the term "command":

(1) whether a command can include more than one instruction, and

(2) whether a command must be issued by the host computer. The plain and ordinary meaning of the term "command" is "an order given". Webster's Third International Dictionary, 455 (1981). Nothing in that definition nor in the claim language limits the term "command" to a single instruction or a single word. In fact, the claim language contemplates that each command may involve more than one word or instruction. The second command (also called the split command), for example, produces two distinct results, namely, it detaches the second data storage facility from the first and subsequently attaches it to be addressed by the second application. That more than one result is contemplated by virtue of the split command supports the notion that, when the host adaptor, as depicted in Figures 12 and 14 of the '497 Patent, receives the split command, such command may be comprised of more than one single instruction or word. Indeed, the command-initiating device may issue a number of words or instructions each of which form a part of the first, second or third commands. Nothing in the Specification or prosecution history either implicitly or explicitly limits the term "command" to a single word or instruction.

Likewise, nothing in the claim language, Specification or prosecution history limits the term "command" to an instruction issued by the host computer. While the Specification and the relevant figures therein often describe a "command" as issued by the host computer, it is well-established that such a limitation cannot be imported into the claim terms unless EMC has acted as its own lexicographer. There is no implicit or explicit evidence of that here.

The described evidence notwithstanding, the Specification of the '497 Patent clearly contemplates that a user can initiate the
subject commands through something other than a host computer when it states that, "[i]n accordance with one embodiment of this invention . . . the host 220 in FIG. 9 can issue a number of commands . . .." '497 Patent, Col. 16, ll. 64-67. More specifically, the Specification contemplates that a user may initiate commands through a device called a "system manager" (which is depicted, in Figure 1, as separate from the host computer). See '497 Patent, Col. 11, ll. 24-55 (discussing, albeit not explicitly, the functions of the split command); Col. 12, ll. 34-41 (discussing, albeit not explicitly, the functions of the re-establish command).

Consequently, based on the claim language, the Specification and the prosecution history, the term "command" will be construed to mean one or more words or instructions to initiate, terminate or otherwise control the execution of an operation. A "command" may be issued by a host computer, a service manager or other initiating device.

5. to the extent data responsive to said query is not available at said client computer, combining said query with at least one additional query associated with said application program, for simultaneous transmission from said client computer across said network

The parties' proposed constructions are similar, but not identical, to those proposed above. Hyperion seeks to add a negative limitation while OutlookSoft does not. Further, OutlookSoft attempts to limit the construction to spreadsheet programs, and the parties disagree on the construction of "simultaneous." For the vast majority of the phrase, the Court again applies a plain meaning construction. For the "simultaneous transmission" term, the Court construes the phrase to mean "sending to the server in a single request or package."

Accordingly, the phrase "to the extent data responsive to said query is not available at said client computer, combining said query with at least one additional query associated with said application program, for simultaneous transmission from said client computer across said network" is construed to mean "when data needed to respond to the data request of the application program is not stored in the client computer, combining that data request with at least one other data request of the application program, for sending to the server in a single request or package."

3. "combining the associate value and the additional parameter to determine motion control commands" (claims 9 and 23)

Omax proposes to construe this phrase to mean "a computerized, mathematical combination of the associated value and the additional parameter to determine motion control commands provided to the machine tool to automatically adjust velocity or acceleration to achieve the desired quality of result." Flow argues that the phrase should be construed to mean "the mathematical combination of the associated value and the additional parameter to calculate the velocity (U) for a segment. It is insolubly ambiguous as to how the patented system utilizes the resultant velocity (U) for the segment to determine the incremental instructions to be sent directly to the machine tool."

Flow's proposed construction of this claim term has many shortcomings. First, by describing the claim as "insolubly ambiguous," the construction renders the claim invalid, despite the existence of a valid, equally plausible interpretation of the claim term. Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1557 (Fed. Cir. 1996) ("When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity."). abrogated on other grounds, Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 234 F.3d 558 (Fed. Cir. 2000) (en banc). Second, Flow arrives at its construction improperly by importing an embodiment described in the specification, the formula at col. 15, l. 9, to limit the terms of the claim to only providing for velocity along a straight line. Phillips, 415 F.3d at 1323. Finally, Flow's proposed construction contradicts other claim terms, which claim a method that adjusts velocity and acceleration, for the purpose of; among other things, improving dimensional accuracy around corners and curves. See, e.g., '596 Patent, claim 13; see also, Phillips, 415 F.3d at 1316 (requiring clear, intentional disclaimer to limit claim term). The Court adopts Omax's proposed construction of this claim, which is consistent with its ordinary
OPTi contends that "command information" is "information relating to one or more commands for controlling a bus transfer, rather than to address or data." nVidia contends that the proper construction for "command information" is "bits that define one or more commands for controlling the bus transfer, including the bits defining M/IO #, W/R #, and SBHE # rather than address or data bits."

nVidia again seeks to limit the construction of a term to the preferred embodiment. This methodology has been rejected by the Court. While it is clear that M/IO #, W/R #, and SBHE # are commands used in the preferred embodiment, the patentee makes clear that these commands are merely examples of commands and not the universe of commands that can be used. See 141 patent, Col. 8:44-45 "command information (e.g., M/IO #, W/R #, SBHE #)" (emphasis added); see also Col. 6:64-65 (same). Accordingly, the Court rejects nVidia's construction and adopts OPTi's proposed construction for "command information."

6. "address set," "command set," "data set"

The dispute with regard to these terms is whether a "set" can contain a single bit, as Power-One proposes, or, as Artesyn suggests, whether it must contain two or more bits. Power-One concedes that the examples of sets given in the specification are multi-bit sets. See, e.g., '916 patent, col. 4:19-25. However, the '916 specification provides that "communication cycles containing more or less information and/or bits is within the spirit and scope of the present invention." Id. at col. 4:30-33.

Although the '916 specification provides examples of multi-bit sets, this does not mean that a "set" referred to in the claims must contain more than one bit. See, e.g., Varco, L.P. v. Pason Systems USA, Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) ("In examining the specification for proper context . . . this court will not at any time import limitations from the specification into the claims."). Accordingly, the Court declines to narrow the definition of set and construes these terms as follows:

**Address set:** A set of one or more bits in a message specifying the address of one or more devices connected to a bus.

**Command set:** A set of one or more bits in a message specifying a given command operation.

**Data set:** A set of one or more bits in a message reflecting data that is read from or written to a device.
at a minimum "specifying" means "identifying, naming, or stating explicitly or in detail." Joint Claim Construction and Prehearing Statement ("JCCPS"), Ex. B. This is consistent with the plain language of the claim and is sufficient for purposes of claim construction. There is no ambiguity that requires reference to a particular method or embodiment for identifying explicitly or in detail. Nor is there any apparent reason for exchanging the word "transferred" for "transmitted" and "order" for "command" as proposed by HP.

Accordingly, the appropriate construction of "command specifying data to be transferred" as used in claim 1 is "a command sent from a host processor that identifies, names, or states explicitly or in detail which data is transferred from a first storage medium to a second storage medium."

1. "commercial access provider . . . of INTERNET" or "of digitized packet based network"

Claim 1 (and its dependent claims) use the phrase "commercial access provider node of INTERNET," while the remainder of the asserted claims use the phrase "commercial access provider node of a digitized packet based network." The phrases "commercial access provider node" (and similar phrases), "node," and "digitized packet based network," however, are separately disputed. Accordingly, the parties have here focused on "commercial access provider." The parties agree that the phrase should receive the same construction, whether in claim 1 or the remainder of the asserted claims.

The phrase appears in claim 1 as follows:

1. A method of forming a long distance communication channel between two telephone devices each of which are connected to a PSTN, said method comprising

   a user of one of said telephone devices initiating and establishing a telephone communication with a first commercial access provider node of INTERNET and providing thereto a telephone address,

   using INTERNET to establish a communication channel between said first commercial access provider node and a second commercial access provider node of INTERNET and providing said telephone address to said second commercial access provider node,

   said second commercial access provider node using said telephone address and a telephone dial out capability of said second commercial access provider node to establish a communication with a telephone device at the telephone address using a PSTN, and

   using the INTERNET communication channel to link said telephone devices and form a real time voice communication between said telephone devices. (emphasis added)

a) The Parties' Proposed Constructions

The parties propose the following constructions:

IDT
A service provider that provides subscription-based computer system commercially available to telephone users that acts to provide an interface to or from the Internet.

A computer system commercially available to
telephone users that acts to provide an interface to or from a digitized packet based network.

A service provider that provides subscription-based services and uses a computer system commercially available to telephone users that acts to provide an interface to or from a digitized packet based network.

*2*See Doc. No. 99 at 13 (JCCC, Exhibit 1 at 11).

In its opening brief, eBay urged that a "commercial access provider" is (1) a computer system, (2) that is commercially available to telephone users, and (3) provides an interface to or from the Internet or a digitized packet based network. (Doc. No. 82 at 16-20). eBay criticized IDT's then-proposed construction as (1) having no basis in the claim language, and (2) being inconsistent." Id. at 16-19. IDT thereafter revised its proposed construction adopting that portion of eBay's proposed construction calling for "commercially available to telephone users that acts to provide an interface to or from the Internet" (or a digitized packet based network). Thus, the core of the dispute is whether "commercial access provider" in the context of the claims and the '350 patent would mean to one of ordinary skill in the art (1) a "computer system" as eBay contends, or (2) a "service provider that provides subscription-based services and uses a computer system" as IDT contends. IDT contends that a "commercial service provider" (1) uses a computer system to provide access to the Internet or a digitized packet based network, and (2) provides a subscription-based service. (Doc. No. 86 at 9-11).

b) Discussion

(1) The Claims

Beginning as always with the words of the claim -- and using claim 1 as representative -- the claim language per se offers some, but not much, assistance in resolving the current dispute. Beginning with the preamble, which the parties agree is limiting, claim 1 is drawn to a method "of forming a long distance communication channel between two telephone devices each of which are connected to a PSTN." The first step provides:

a user of one of said telephone devices initiating and establishing a telephone communication with a first commercial access provider node of INTERNET and providing thereto a telephone address.

Quite simply, a "user" initiates and establishes a telephone communication with a "first commercial access provider node" and provides a "telephone address" which the parties agree means a telephone number. The term "user" per se does not on its face require a subscription, or a contractual or similar relationship between the "user" and the "first commercial access provider." The term "node" (which again is a separately disputed term) may suggest a computer network type of connection, but that does not necessarily mean that the "commercial access provider" (1) is a computer system, or, on the other hand, (2) means a service provider that "uses a computer system." Either could provide a "node."

The second step:

using INTERNET to establish a communication channel between said first commercial access provider node and a second commercial access provider node of INTERNET and providing said telephone address to said second commercial access provider node,

similarly may suggest a computer network type of connection, but again does not necessarily mean that the "commercial access provider" (1) is a computer system, or (2) means a service provider that "uses a computer system."

The third step:

said second commercial access provider node using said telephone address and a telephone dial out capability of said
second commercial access provider node to establish a communication with a telephone device at the telephone address using a PSTN, and

likewise may suggest a computer network type of connection, but yet again does not require that the "commercial access provider" (1) is a computer system, or (2) means a service provider that "uses a computer system."

The fourth step:

using the INTERNET communication channel to link said telephone devices and form a real time voice communication between said telephone devices.

also does not resolve the dispute. The claim does call for "a real time voice communication between said telephone devices," and the preamble, once again, calls for "forming a long distance communication channel between two telephone devices each of which are connected to a PSTN." That suggests claim 1 is drawn to "a real time voice communication" between two telephones. 8 Independent claims 8, 10 and 12 contain similar language (claim 8 "causing a real time voice communication channel to be formed between said telephone devices," claim 10 "forming a real time voice communication between said telephone devices," claim 12 "to form a real time voice communication channel therebetween."). But once again, that does not require that the "commercial access provider" (1) is a computer system, or (2) means a service provider that "uses a computer system."

--- Footnotes ---

8 The term "telephone device" is not a disputed term and both parties appear to regard the term as meaning a conventional "telephone" capable of connecting to a PSTN.

--- End Footnotes ---

(2) The Specification

(a) Generic Internet Commercial Access Provider

Turning then to the specification, as noted briefly above, the specification under the heading "Background of the Invention" explains:

INTERNET TM now provides a network where a subscriber typically contracts with a commercial access provider (CAP) and obtains an Internet address as well as the capability to send and receive E-Mail on Internet and perform other functions which Internet supports. The subscriber typically uses his personal computer and modem to contact the commercial access provider using the public switched telephone network (PSTN), and once connected to Internet, performs the desired functions. The CAP provides an E-Mail box for the subscriber and the subscriber, when connected to the CAP, can review the contents of this electronic mailbox.

'350 patent, col. 1, lines 21-32. Thus, the patentee explains by way of background that typically a "subscriber" would "contract" with a "commercial access provider (CAP)" and obtain an Internet address and the capability to send and receive e-mail. 9 The patentee notably does not say in that typical scenario that a "subscriber" is assigned a "telephone address" or "telephone number."

--- Footnotes ---

9 Although not addressed by the parties, an "Internet address" typically refers to an identification of a particular computer on the Internet, see e.g., http://en.wikipedia.org/wiki/Internet_address, http://browsers.about.com/od/webbrowsglossary/g/internetaddress.htm, while an e-mail address typically consists of a unique identifier for a person (e.g., a name), followed by "@" and a domain name, see e.g., http://www.webopedia.com/TERM/E/e_mail_address.html, although sometimes "Internet address" can refer to the e-mail address as well. See e.g., http://www.webopedia.com/TERM/I/Internet_address.html.
Drawing Figs. 1-3 of the '350 patent also illustrates a computer 22 connected through PSTN 10 and a "Generic Internet Access Provider" 8 to the Internet 4:

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The specification explains that the "Internet has a number of Internet commercial access providers (CAPs) 8 which each have a host of subscribers who then have access to the various services of [the] Internet typically using their personal computers. The conventional Internet access provider would provide each subscriber with an Internet address and password number for retrieval of E-Mail." '350 patent, col. 5, lines 19-25. The specification goes on to explain that one using computer 22 may, for example, therefore send an e-mail message to "subscriber 'gordon@toronto.UniPost.com" at 12.

The specification's explanation by way of background that a "subscriber typically contracts with a commercial access provider (CAP)" suggests that a "commercial access provider" in that context refers to an entity that may use computers and computer systems to provide access to the Internet and e-mail services, but is not a "computer system" per se -- one does not typically "contract" with a computer (although computers may be "used" in forming contracts, e.g., clicking "I Agree" to an agreement specifying terms of service/access). Also, that explanation suggests "commercial access providers" provide a subscription service. But, of course, the patentee's foregoing explanation relates to background and the prior art -- not necessarily the invention of the '350 patent.

(b) Parties Arguments and Remainder of Specification

Turning then to the parties' arguments and the remainder of the specification, eBay argues that the specification expressly describes a "commercial access provider" as "computer system" pointing to the following first line from the "Summary of the Invention":

A messaging system according to the present invention having a bank of direct-in-dial (DID) telephone lines associated with a public switched telephone network and a computer system which also acts as a commercial access provider for the Internet or other data communication networks through which digital messages can be delivered. (emphasis by eBay)

'350 patent, col. 2, lines 6-12, 10 (Doc. No. 82 at 17). But, "a computer system" that "acts as a commercial access provider" does not necessarily mean that a "commercial access provider" in the context of the invention of the '350 patent is a computer system -- as opposed to a service provider that "uses a computer system."

The next sentence in the specification, for example (which also has a bearing on the second question, i.e., the "subscription" question), which eBay does not quote, explains that "[t]he computer system provides each subscriber with an E-mail address and account for the data communication network, as well as a fax telephone address and a voice mail telephone address, where a communication addressed to any of the addresses results in the computer system receiving and storing the particular message in an electronic messaging mailbox for retrieval by the respective subscriber." '350 patent, col. 2, lines 12-19 (emphasis added). Although a "computer system" may be used to automate the process by providing (1) an e-mail account, (2) an account, (3) fax telephone address (telephone number), and (4) voice mail telephone address (telephone number), the term "subscriber" suggests something more than simply a "computer system" per se.

IDT also notes that the Summary of the Invention "later clarifies that a [sic.] the commercial access provider is not a computer system, but uses a computer system," (Doc. No. 86 at 9), pointing to col. 3, lines 44-49, which explain: "The invention is also directed to a method of transmitting of voice, E-Mail and facsimile messages destined for a particular identified subscriber, which messages are received by a computer system of a commercial access provider connected to a data communication network through which E-Mail is transported" (emphasis by IDT).
eBay urges that further support for its argument that a "commercial access provider" is a "computer system" appears in the specification at col. 2, lines 19, 26, and col. 3, lines 49 and 59. (Doc. No. 82 at 17). Although eBay cites only to lines 19 and 26, the portion of the specification in column 2 that eBay relies on explains in context as follows:

The computer system is accessible to any subscriber using the public switched telephone network and/or the data network for retrieval of communications stored on behalf of the subscriber or a summary of the communications whereby the subscribers may contact a single automated source for retrieval of voice mail, E-mail, data files, or facsimile transmissions received on its behalf by the computer system.

'350 patent, col. 2, lines 19-26. eBay relies on the reference to "computer system." However, the specification also explains that the "computer system" is "accessible to any subscriber." In context, the specification is also referring to "retrieval of communications." The specification does not say that the "computer system" is accessible to "anyone" -- i.e., to someone who is not a "subscriber" -- for retrieval of communications.

According to the specification, the "system" is, however, available to "anyone" wishing to leave messages "for the subscriber." For example, the very next two sentences in the specification explain:

Similarly, the system is accessible to anyone wishing to leave a voice, facsimile, or other message for the subscriber by dialing the telephone number associated with the subscriber's electronic message mailbox. As a result, data networks, such as Internet, are accessible by devices other than computers, namely by telephones and facsimile terminals.

'350 patent, col. 2, lines 26-33 (emphasis added). That is, one wishing to leave messages "for the subscriber" need not themselves be "subscribers," but rather need only use "the telephone number associated with the subscriber's electronic message mailbox." Again, in the preceding portion of the same paragraph, the specification explains that "[t]he computer system provides each subscriber with an E-mail address and account for the data communication network, as well as a fax telephone address and a voice mail telephone address, where a communication addressed to any of the addresses results in the computer system receiving and storing the particular message in an electronic messaging mailbox for retrieval by the respective subscriber." '350 patent, col. 2, lines 12-19 (emphasis added). The specification does not say that the system provides "anyone" with an e-mail address, account etc. -- that is reserved for "subscribers."

The portion of the specification in column 3 that eBay points to, although again eBay cites only to lines 49 and 59 (the portions eBay cites to are highlighted below), explains in context:

The invention is also directed to a method of transmitting of voice, E-Mail and facsimile messages destined for a particular identified subscriber, which messages are received by a computer system of a commercial access provider connected to a data communication network through which E-Mail is transported. The computer system is also connected to a public switched telephone network by means of which facsimile transmissions and voice transmissions are received and transmitted, and wherein a subscriber may access the computer for retrieval of messages stored in his electronic message mailbox or, his behalf. The retrieval of messages can use the public switched telephone network and the data communication network directly connected to access the subscriber's electronic message mailbox or retrieval can use the public switched telephone network to form a direct connection with the computer system for retrieval of messages. This method provides the subscriber with a number of alternatives for accessing his particular electronic message mailbox including using the data communication network to access his mailbox when this is the most desirable or cost effective manner to retrieve the communications. (emphasis added)

'350 patent, col. 3, lines 44-65. That is, the "computer system" is connected to the PSTN which allows a "subscriber" to retrieve voice, e-mail and fax messages using several alternatives. But again, that does not mean that the "commercial access provider" is a "computer system," as opposed to a service provider that "uses a computer system." And, once again, the specification refers to the fact that "a subscriber may access the computer" which suggests the "commercial access provider" is more than a "computer system" per se.

eBay further argues that the disclosure of "UniPost Access Nodes," which eBay says are "specialized access computers," (Doc. No. 82 at 17)(citing col. 4, lines 30-34), and that the specification "repeatedly refers to this system as including 'commercial access providing computers,'" (eBay's emphasis), id., (citing col. 2, lines 6-11, 44-51, 54 and 65, and col. 3,
lines 3-4, 11, 17-38, 40 and 49), support construing "commercial access provider" as a "computer system." In particular, eBay relies on the following quote from the specification:

According to yet a further aspect of the invention the communication system includes at least two commercial access providing computers, each interconnected to the Internet, and wherein the subscribers to the system can access either of the two commercial access providing computers for retrieval of communications stored on behalf of the subscriber. Information is effectively exchanged between the two commercial access providing computers when necessary to allow retrieval of the information by the subscriber by accessing either of the computers. This effective communication between the computers using the Internet, allows a fast, reliable and cost-effective transfer of information. Such a system has the benefit of providing the subscriber with access to the closest commercial access providing computer and can reduce long distance charges as well as improve the quality of the communication channel, as typically a local or shorter long distance call is required to connect with the particular commercial access providing computer.

(Doc. No. 82 at 17-18) (citing '350 patent, col. 3, lines 17-38) (emphasis by eBay). eBay argues that the "fact that a 'commercial access provider' includes 'commercial access providing computers' further underscores the fact that a 'commercial access provider' is a computer system." (Doc. No. 82 at 18). But "commercial access providing computers" in the context of the foregoing simply means that "computers" are providing "commercial access" to the Internet for "subscribers" such that "subscribers" can retrieve communications. That does not mean that a "commercial access provider" is a "computer system" per se, as opposed to a service provider that uses a computer system.

Indeed, the specification uses "UniPost" to refer to a "new type of commercial access provider of the type associated with the Internet." The specification explains:

The term "UniPost" will be used to describe a new type of commercial access provider of the type associated with Internet. UNIPOST TM provides dial-in access to its subscribers through specialized access computers called UniPost Access Nodes (UANs) located in different geographical regions (see FIG. 1). Each UniPost Access Node provides a subscriber with an E-Mail address and account, preferably an Internet address, for example:

jsmith@acmefireworks.com

This address provides access to the subscriber for other Internet subscribers, and for subscribers to services that have gateways into Internet. In addition, the subscriber is provided with a Personal Mailbox Telephone Number, for example: 1-416-555-1234, and Personal ID Number (PIN): 63265. Therefore, a UniPost subscriber may be provided with the following:

Internet Address: gordon@toronto.unipost.com

Personal Mailbox Number: 1-416-555-1234

Personal ID Number or password: 63265

The UniPost Access Node provides the subscriber with access to all normal facilities of Internet, including E-Mail, databases, conferences, and forums. The UniPost Personal Mailbox Number provides the subscriber with an access point which can receive messages from terminals other than computers, specifically from telephones and facsimile machines. Thus, his Personal Mailbox Number allows for receipt of voice and facsimile messages.

'350 patent, col. 4, lines 30-58. As noted above, the patentee explained by way of background that prior to the invention of the '350 patent, "a subscriber typically contracts with a commercial access provider (CAP) and obtains an Internet address as well as the capability to send and receive E-Mail on Internet" and the "CAP provides an E-Mail box for the subscriber and the subscriber, when connected to the CAP, can review the contents of this electronic mailbox." '350 patent, col. 1, lines 21-32. The "new type of commercial access provider" described in the specification, like the "typical" commercial access provider, provides a "subscriber" with an e-mail address and an account. However, the "new type of commercial access provider" also provides the "subscriber" with a "Personal Mailbox Telephone Number." Thus others can not only send e-mails to the "subscriber" in the same way as in the prior art, but can additionally send the "subscriber" voice and facsimile messages.
Recall, as the Court noted earlier in briefly summarizing the disclosure of the '350 patent, that the patentee explained "E-Mail systems have been available for many years and although they provide a very cost effective alternative to facsimile transmissions, the popularity of E-Mail does not nearly approach the popularity of voice and facsimile messaging and the number of users is many times lower." '350 patent, col. 1, lines 38-42. The invention of the '350 patent, by providing "subscribers" with a "Personal Mailbox Telephone Number" addressed the problem the patentee perceived -- i.e., now, in addition to e-mails, others could use telephones and fax machines to leave voice mail and fax messages for a "subscriber" by using the subscriber's "Personal Mailbox Telephone Number."

The specification, for example, further explains that with an e-mail address and a "Personal Mailbox Telephone Number" subscribers may be contacted, not only by e-mail users, but "the hundreds of millions of telephone and facsimile devices now in use":

With this arrangement, the subscriber can be contacted by the millions of PC users in the world familiar with E-mail, as well as the hundreds of millions of telephone and facsimile devices now in use. Furthermore, the various received communications are received by a centralized system and can be retrieved by the subscriber his or her convenience.


Also, the specification explains that message retrieval is facilitated because it was contemplated that UniPost Access Nodes would be distributed throughout the world:

The fact that the various UniPost Access Nodes are distributed throughout various countries and the world and connected by the Internet or another commonly available data communication network makes retrieval of messages more effective.

'350 patent, col. 4, line 64-col. 5, line 1.

The specification also explains that the UniPost Access Nodes can include provisions for converting e-mail to facsimile transmissions (or vice versa) or to speech, thus further facilitating retrieval by "subscribers":

Furthermore, each UniPost Access Node can include arrangements for converting of various communications from one form to another making retrieval easier and more flexible. For example, a subscriber may not wish to actually receive E-Mail as E-Mail, but may wish to have an E-Mail address. When a communication is address[ed] to him using the E-Mail address, the UniPost Access Node may convert it to a facsimile transmission and send it out to the subscriber as a facsimile transmission. In this way, the subscriber need not have the capability of receiving all transmissions and can use certain features of the UniPost Access Nodes for conversion of communications received in one form to another form. The UniPost access mode can also provide conversion of facsimile transmissions to E-mail, or E-Mail to speech. In this way, subscribers need not have their own conversion hardware and/or software.

'350 patent, col. 5, lines 2-16 (emphasis added). The context suggests those services are offered through the use of a "computer system," but it is equally clear those features are offered to "subscribers."

(3) E-Mail, Voice and Facsimile Messages

From the foregoing -- as well as the specification and drawings as a whole, and eBay's arguments -- a fundamental feature of the '350 patent is using the Internet (or a digitized packet based network) to allow sending and retrieval of not only e-mail messages, but voice and facsimile messages as well. In each of those instances, there is (1) an originator of a message or communication, and (2) a recipient.

(a) E-Mail Messages

Turning first to e-mail communications, it seems clear that both the originator and recipient must have (1) access to the Internet (or a digitized packet based network), and (2) an e-mail address. In the prior art described in the specification, both were provided when "a subscriber typically contracts with a commercial access provider (CAP)." As noted above, the UniPost commercial access provider does the same ("The term 'UniPost' will be used to describe a new type of commercial access provider of the type associated with Internet," "UNIPOST TM provides dial-in access to its subscribers . . .," "Each
UniPost Access Node provides a subscriber with an E-Mail address and account . . .," "The UniPost Access Node provides the subscriber with access to all normal facilities of Internet, including E-Mail, databases, conferences, and forums.").

In the case of e-mail communications, the specification draws a distinction between "UniPost," used "to describe a new type of commercial access provider" and "Internet commercial access providers (CAPs) 8," '350 patent, col. 5, lines 19-20, which are labeled on the drawings as "Generic Internet Access Providers." In connection with Fig. 1, the specification explains that the "Internet 4" "has a number of Internet commercial access providers (CAPs) 8 which each have a host of subscribers who then have access to the various services of Internet typically using their personal computers. The conventional Internet access provider would provide each subscriber with an Internet address and password number for retrieval of E-Mail":

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According to the specification, "[o]ne such subscriber 22 is shown using the local public switched telephone network 10 to gain access to the generic Internet CAP for transferring a file to E-Mail subscriber 'gordon@toronto.UniPost.com' indicated as 12. This is via the Toronto UniPost Access Node 6, which includes the electronic Mailbox of Gordon." '350 patent, col. 5, lines 17-30. Gordon can then retrieve the e-mail from UniPost Access Node 6 as indicated by line 24: '350 patent, col. 5, lines 30-33. Thus, in the case of e-mail messages, the specification refers to both the originator of the e-mail 22, and the recipient 12, as "subscribers" presumably because both require a "commercial access provider" to provide (1) access to the Internet (or a digitized packet based network), and (2) an e-mail address.

(b) Voice and Facsimile Messages

In the case of voice and facsimile communications, however, the situation is different. Unlike the "generic Internet CAP," the UniPost commercial access provider additionally provides a "subscriber" with a Personal Mailbox Telephone Number which allows at least two functions not available from a "generic Internet CAP," namely the Personal Mailbox Number (1) allows others to send voice and facsimile messages to a subscriber, and (2) "provides the subscriber with an access point which can receive messages from terminals other than computers, specifically from telephones and facsimile machines." '350 patent, col. 4, lines 53-57.

Specifically, in the case of voice and facsimile message, the specification explains in connection with Fig. 1 that "[m]essages to the UniPost Internet subscriber 12 can also be made from a facsimile machine 14, from a telephone set 16, from a computer modem connection indicated as 18, or a message via Binary File transfer (BFT) indicated by the apparatus 20," '350 patent, col. 5, lines 37-41, through a local PSTN 10. The specification explains that "[t]his, to a caller calling a UniPost subscriber from a telephone, the UAN will behave like a voice mail system. For callers calling a UniPost subscriber from a facsimile machine, the UAN will behave like a receiving facsimile machine." '350 patent, col. 6, lines 9-12.

The patent further explains that "the communications can be accessed by the UniPost Internet subscriber 12 making contact with the Toronto UniPost Access Node 6 or any other UAN worldwide and retrieving of communications that have been received for the subscriber." '350 patent, col. 5, lines 51-55. In particular, in Fig. 2 "each subscriber with a separate electronic message mailbox, generally shown as 30," is provided with "a facsimile in-box 32, a voice in-box 34, an E-Mail box 36 and a facsimile out-box 38." '350 patent, col. 6, lines 41-44. According to the specification, a "subscriber" may retrieve e-mail, voice and fax messages using a computer and modem 12. '350 patent, col. 6, lines 51-63:

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Alternatively, the specification explains, a "subscriber" may use a facsimile machine 25 or telephone 27 to retrieve messages. The specification further describes the steps for doing so: "if the subscriber is at the facsimile machine 25 and wishes to retrieve messages, he can contact the Toronto UniPost Access Node 6, key in his particular password, and direct the UniPost Access Node to send the facsimile message to the machine preferably directly without forming a further communication. On the other hand, the subscriber could use the telephone set 27 to get a summary of messages received as well as any voice messages, and then direct the Toronto UniPost Access Node 6 to send E-Mail or facsimile messages to the facsimile machine 25." '350 patent, col. 6, line 64 --col. 7, line 8.

In the embodiments of Figs. 1 and 2, it therefore seems clear that anyone having a telephone or facsimile machine is able to leave voice and fax messages for a "subscriber." In that instance, the originator of the message need not be a "subscriber."
However, it also seems clear from the specification of the '350 patent that the recipient of such messages must be a "subscriber."

That conclusion is further supported by the claims of the parent '786 patent which similarly provide that the recipient is a "subscriber." For example, claim 1 of the parent '786 patent provides:

1. A communication system comprising a plurality of commercial access providing computers where each commercial access providing computer is associated with INTERNET to allow subscribers to use the services offered by INTERNET, said communication system having many registered subscribers who are collectively unrelated and each subscriber is associated with one of said commercial access providing computers, providing each subscriber with an E-mail address for INTERNET, a fax address telephone address and a voice mail telephone address, where a message addressed to any of the addresses results in said associated commercial access providing computer receiving and storing the addressed message for retrieval by the respective subscriber, said commercial access providing computers allowing each subscriber to access and retrieve messages stored on his behalf or a summary of messages stored on his behalf by using either a telephone set which forms a telephone communication with said associated commercial access providing computer or using a computer and modem which forms a telephone communication with one of said commercial access providing computers, and wherein said plurality of commercial access providing computers use INTERNET to exchange information therebetween, and wherein subscribers of the system can access any of said commercial access providing computers for retrieval of messages stored on behalf of a subscriber, said commercial access providing computers cooperating such that messages stored for a subscriber in said associated computer are transferred using INTERNET from said associated access providing computer to one of the other commercial access providing computers which has been contacted by the subscriber for retrieval of communications stored on his behalf. (emphasis added)

(Doc. No. 82-5 at 13) ('786 patent, col. 11, lines 26-57).

Claim 9 of the '786 patent similarly provides:

9. A method of receiving voice, E-mail, and facsimile messages addressed to a subscriber which messages are received by a computer system connected to a data communication network through which E-mail is received and transmitted and wherein the computer system has a plurality of commercial access providing computers interconnected by said high speed data communication network, each commercial access providing computer including many direct in dial telephone lines connected to a public switched telephone network by means of which facsimile messages and voice messages are received and transmitted, and wherein any of the subscribers may retrieve messages stored on his behalf using said public switched telephone network and said date communication network directly associated with said computer system or using said public switched telephone network to form a direct connection with any of said commercial access providing computers of said computer system for retrieval of messages with said computers communicating the messages therebetwen through said data communication network. (emphasis added)

Id. ('786 patent, col. 12, lines 29-48).

Claim 11 of the '786 patent likewise provides:

11. A unified messaging system comprising a computer system having a plurality of commercial access providing computers interconnected by a high speed data communication network for digital data transmission, each commercial access providing computer including a bank of direct in dial telephone lines associated with a public switched telephone network and acting as a commercial access provider for said high speed data communication network through which E-mail is delivered, said computer system providing each subscriber with an E-mail address for data communication access, a fax telephone address and a voice mail telephone address, where a message addressed to any of the addresses results in the computer system receiving and storing the addressed message for retrieval by the respective subscriber, said computer system being accessible to any subscriber using said public switched telephone network and/or said high speed data network for retrieval of messages stored on behalf of said subscriber or a summary of said messages whereby said subscribers may contact any of said commercial access providing computers for of voice mail. E-mail or facsimile messages received on its behalf by said computer system which messages, if necessary, are exchanged between any of said commercial access providing computers over the data communication network. (emphasis added)
In addition, there is no disclosed embodiment in which a "non-subscriber" may leave voice mail or facsimile messages for another "non-subscriber." Although that is not necessarily dispositive, it is a factor to consider.

eBay argues that "[t]he fact that the patentee expressly included a 'subscriber' limitation in the claims of the '786 patent but did not include such a limitation in the claims of the child '350 patent provides additional compelling support against importing a 'subscriber' limitation into the claims of the '350 patent." (Doc. No. 82 at 22) (emphasis by eBay). Perhaps. The point, though, is not "importing a 'subscriber' limitation into the claims," but rather attempting to get a sense for how one of ordinary skill in the art would construe "commercial access provider." "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." Phillips, 415 F.3d at 1313. However, "[i]mportantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id. "[T]he line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms." Id. at 1323. After all, "[u]ltimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Id. at 1316, quoting Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (citations omitted). The claims of the parent '786 patent are certainly not dispositive, and not necessarily all that persuasive, but remain a factor that may be taken into account.

In this instance, the specification explains, "UniPost Internet subscriber, generally indicated as 12, is in Japan and uses the local public switched telephone network 10 to contact the Tokyo UniPost Access Node 6." Then, according to the specification, "[a]fter proper identification of the subscriber, the Tokyo UniPost Access Node uses Internet 4 to access the electronic mailbox 30 of the subscriber and allows retrieval of the various contents of the various boxes." A "subscriber" can then retrieve messages using a computer and modem 12, a telephone 29, or a facsimile machine 31. '350 patent, col. 7, lines 27-47. Doing so allows a "subscriber" to retrieve messages using the Internet and a local PSTN connection:

It can also be appreciated that the example shown in FIG. 3 has allowed the subscriber 12 to form a relatively local connection using the public switched telephone network 10 to contact the Tokyo UniPost Access Node 6. This is then connected to the Toronto UniPost Access Node 6 and the electronic mailbox of the subscriber via an Internet or dedicated data communication channel. Information is retrieved from the mailbox and provided to the UniPost Access Node, also by this data communication channel provided by Internet. In contrast to a single UniPost Access Node, the multiple access nodes, shown in FIG. 3, advantageously use the dedicated data communication network to interconnect the access nodes and reduces the need for long distance telephone communications with a particular computer.

(c) The Embodiment of Fig. 4

The embodiment of Fig. 4, although also drawn to sending a facsimile message, is a bit different from Figs. 1-3. Once again, Fig. 4 is described as "an overview showing an effective manner for delivering a facsimile in a cost effective manner." '350 patent, col. 4, lines 21-22.

In this embodiment, facsimile machine 60 is illustrated as connected to PSTN 10 which in turn is shown as having connections to Toronto UniPost Access Node 6. Also, facsimile machine 62 is illustrated as connected to PSTN 10 which in turn is shown as having connections to Tokyo UniPost Access Node 6. Thus, this portion of the illustration is the same as for facsimile machine 14 in Fig. 1, and facsimile machine 31 in Fig. 3. In Fig. 1, a "non-subscriber" may use a "subscriber's" Personal Mailbox Telephone Number to leave a fax message on Toronto UniPost Access Node 6, which may then be
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The specification first explains that "[i]n this case, the transmission is sent from the facsimile machine 60 via the public switched telephone network 10 to the UniPost Access Node 6." ’350 patent, col. 8, lines 9-11. The specification at this juncture does not expressly say whether the "UniPost Access Node 6" is the one in Toronto or Tokyo. The next sentence, though, says "[t]he facsimile machine 60 can include add-on devices to cause this long distance call to be rerouted or the communication may first be made to the Tokyo UniPost Access Node and thereafter to the Japanese address." ’350 patent, col. 8, lines 11-15. Because Fig. 4 illustrates fax machine 60 connected through a local PSTN to Toronto UniPost Access Node 6, the reference to "this long distance call" suggests that "UniPost Access Node 6" refers to the Tokyo node. The specification does not describe the referenced "add-on devices." But whatever those devices are, according to the specification, they "cause this long distance call to be rerouted . . ." to the Tokyo UniPost Access Node and thereafter to the Tokyo UniPost Access Node. All of that suggests that a fax is being sent from fax machine 60 through the Toronto node to the Tokyo node and then to fax machine 62 -- as opposed to simply sending the fax to the Toronto node for later retrieval as illustrated in Figs. 1, 2 and 3.

How one does so is less clear. The specification, as noted above, says that "FIG. 4 shows how a facsimile transmission addressed to a particular address in Japan can effectively use the UniPost access system." ’350 patent, col. 8, lines 7-9 (emphasis added). The emphasized phrase suggests that the user must have access to the UniPost system. Although, as discussed above, non-subscribers may leave voice mails and facsimile messages which may thereafter be retrieved by subscribers, there is no disclosure in the ’350 patent of non-subscribers having the ability to otherwise "use" the UniPost access system. This portion of the specification thus suggests that in the embodiment of Fig. 4, the originator of the fax message is a "subscriber." Indeed, the next sentence in the specification says that "the user provides the direction to initiate the contact with the Toronto UniPost Access Node 6." ’350 patent, col. 8, lines 16-17 (emphasis added). The specification does not say here what that "direction" is. But again, the preceding sentence says "[t]he facsimile machine 60 can include add-on devices to cause this long distance call to be rerouted or the communication may first be made to the Toronto UniPost Access Node and thereafter to the Japanese address." ’350 patent, col. 8, lines 11-15. In any event, the fax is sent to the Tokyo UniPost Access Node and then to fax machine 62. ’350 patent, col. 8, lines 17-29.

Although the specification does not at the foregoing juncture say what "direction" a user provides, later the specification refers to this fax transmission in analogizing long distance voice communication: "The discount long distance voice messaging requires that each UniPost Access Node is able to accept and digitize voice calls. . . . As with long distance facsimile calls, the call originator will dial the local UniPost Access Node and enter his account and the number of the recipient. The UniPost Access Node will establish a packet path between the originating UniPost Access Node and the destination UniPost Access Node closest to the recipient. The destination UniPost Access Node will then place a local call to the recipient and deliver the voice message." ’350 patent, col. 9, lines 11-23. The reference to dialing the local UniPost Access Node and then entering an "account number" strongly suggests that the originator of the fax message in the embodiment of Fig. 4 must be a "subscriber."

Also, the disclosure strongly suggests that the originating and receiving "commercial access providers" must be UniPost Access Nodes -- or at least have the capabilities of such Nodes. Although "generic" Internet access providers may have the capability to establish a packet path from an originating node to a destination node, there is no disclosure that "generic" Internet access providers have the ability to place a local call to a recipient and cause the fax to be delivered to fax machine 62. It is less clear whether the recipient must be a "subscriber."

(d) The Embodiment of Fig. 5

Once again, Fig. 5 is described in the ’350 patent as "a schematic of how the system can be used to complete a voice communication channel to a telephone set in a distant geographical location." ’350 patent, col. 4, lines 23-26:

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The specification contains scant disclosure of Fig. 5. The specification once again discloses that:

FIG. 5 also shows how this UniPost system can be used for providing a direct telephone link using the data transmission network involving Internet. In this case, voice is transmitted digitally and a live communication is maintained between Toronto UniPost Access Node 6 and Tokyo UniPost Access Node 6. Each of these have formed a live communication with the originating telephone set and the receiving telephone set. This can thus provide the subscriber with a further cost advantage in completing his international communications or other long distance communications.

'350 patent, col. 9, lines 1-10 (emphasis added). The specification thus says that a "subscriber" is provided with a cost advantage, suggesting once more that the originator of the telephone call must be a "subscriber." That is reinforced by the following disclosure, which is the same disclosure discussed above in connection with Fig. 4:

As with long distance facsimile calls, the call originator will dial the local UniPost Access Node and enter his account and the number of the recipient. The UniPost Access Node will establish a packet path between the originating UniPost Access Node and the destination UniPost Access Node closest to the recipient. The destination UniPost Access Node will then place a local call to the recipient and deliver the voice message.

'350 patent, col. 9, lines 16-23 (emphasis added). The emphasized language again strongly suggests that the call originator must be a "subscriber." Once again, the specification says that "the subscriber is provided with a . . . Personal ID Number (PIN): 63265." '350 patent, col. 4, lines 42-45 (emphasis added).

Also, the specification discloses that "[t]he discount long distance voice messaging requires that each UniPost Access Node is able to accept and digitize voice calls," and as noted above, the destination access node places a local call to the recipient. That suggests that the originating and receiving nodes are UniPost Access Nodes -- or at least have the capabilities of such Nodes. There is no disclosure that "generic" Internet service providers have the ability to "accept and digitize voice calls" or make local phone calls in response to receiving a telephone number.

(4) eBay's "widely available" Arguments

eBay argues that the '350 patent discloses in the abstract that the system is "widely available" and provides "access to hundreds of millions of telephones," (Doc. No. 82 at 18) (citing col. 3, line 66 - col. 4, line 4, and col. 4, lines 58-62). eBay urges that "[t]he millions of ordinary telephone users can continue using their existing telephones and yet still take advantage of the significant cost savings and efficiencies of the Internet -- savings and efficiencies that are not available to conventional long distance calls routed through the PSTN." Id. eBay further cites to column 3, lines 35-38 disclosing that the "Internet becomes the transport backbone of a global voice and fax mail system and opens [the] Internet to transparent access by telephones, facsimile terminals and other non-subscriber devices," and col. 2, lines 30-33 that "[s]imilarly, the system is accessible to anyone wishing to leave a voice, facsimile, or other message for the subscriber by dialing the telephone number associated with the subscriber's electronic message mailbox. As a result, data networks, such as Internet, are accessible by devices other than computers, namely by telephones and facsimile terminals." (Doc. No. 82 at 18).

The portions of the specification that eBay cites to, however, relate to the messaging embodiments of Figs. 1-3. In those embodiments, as discussed above, non-subscribers using conventional telephone and fax machines may leave voice and fax messages for a subscriber which a subscriber can thereafter retrieve. In the embodiment of Fig. 5, on the other hand, a conventional telephone may be used to originate a call. However, as discussed above, the disclosure strongly suggests that the one originating a call must be a "subscriber."

(5) Prosecution History

eBay also cites to portions of the prosecution history in which eBay says that the "applicant repeatedly emphasized to the U.S. Patent and Trademark Office how the claimed invention, for the first time, opens up the efficiencies and cost benefits of the Internet to ordinary telephone users on a broad commercial basis." (Doc. No. 82 at 19). eBay makes similar arguments in its reply. (Doc. No. 91).

In actuality, during prosecution of the application maturing into the '350 patent, the applicant originally submitted a "Preliminary Amendment" dated June 4, 1996, that, inter alia, replaced the "Summary of the Invention" covering pages 2-6
of the specification. (Doc. No. 86-7 at 36). That new "Summary" included several paragraphs discussing "[a] method of establishing a long distance telephone communication between an initiating telephone device and a receiving device telephone . . . " which were not in the original "Summary." Id. at 38. In an Office Action dated September 9, 1996, the PTO initially required, in light of the material added in the Preliminary Amendment, that the application be redesignated as a continuation-in-part (CIP), as opposed to a continuation. Id. at 52. In a response dated February 10, 1997, the applicant did not redesignate the application as a CIP. Id. at 65. In an Office Action dated March 4, 1998, the PTO, inter alia, objected to the Preliminary Amendment under 35 U.S.C. § 132 as being drawn to new matter. The Office Action explained that "[a]s originally filed, the specification is directed to facsimile communications, there is no detailed description regarding long distance voice communications as added, such as using the telephone address to establish voice communications, the long distance [sic.] comprising three distinct segments, etc." The Office Action further provided that "Applicant is required to cancel the new matter in the reply to this Office Action." (Doc. No. 86-8 at 9).

The applicant responded on July 28, 1998, urging that Fig. 5 and the accompanying description provided support for the material added in the Preliminary Amendment, and the claims. The applicant argued that:

[1] The present invention allows long distance voice communications to be available to users of conventional telephones as the specialized protocols and procedures have been concentrated with the access nodes making the process simple and convenient and available to a huge number of telephone devices in a simple manner. [2] The prior art system discloses different arrangements for long distance voice communication over INTERNET but none of these systems make it available in the simple manner of the present invention where specialization and processing is resident at the commercial access provider nodes. This solution is in contradiction to the art and provides a new alternative to long distance real time voice communication. (brackets and numbers added)

In the next paragraph, the applicant argued that in the prior art "[t]he systems that are available for a normal telephone user require each user to have a computer and essentially, prearrange a telephone communication therewith, i.e., both systems have to be on line at the same time and this essentially requires each user to know of the desire to complete a telephone communication." Id. at 26.

eBay cites to the first sentence -- sentence [1] -- but does not refer to sentence [2] or the context of the prior art. (Doc. No. 82 at 19). In all events, this portion of the prosecution history does not assist eBay -- in fact, quite the opposite. First, the applicant did not argue or assert that users were not required to be "subscribers." Second, the applicant did point out that "specialized protocols and procedures have been concentrated with the access nodes." The specification, yet again, which the applicant reproduces in its response, provides that "the subscriber" realizes a "cost advantage in completing his international communications or other long distance communications," and that "the call originator will dial the local UniPost Access Node and enter his account and the number of the recipient," (Doc. No. 86-8 at 25). The reason for dialing the UniPost Access Node and entering an account number, of course, is so that the user of a conventional telephone can use the "specialized protocols and procedures" that have been "concentrated with the access nodes." In referring to making the process simpler, the prior art, as the applicant pointed out, required a computer, in addition to a telephone, and a prearrangement between the caller and the recipient.

The PTO was not convinced. In an Office Action dated September 4, 1998, the PTO again objected to the material added in the Preliminary Amendment, and required cancellation. In a response dated February 2, 1999, the applicant replaced the "Summary of the Invention" with the original content, i.e., the specification was returned to what it had been before the Preliminary Amendment. The PTO subsequently entered a Notice of Allowance.

The applicant also submitted a Rule 132, 37 C.F.R. § 1.132, declaration by Nuno Romao with the response of February 2, 1999, in arguing over certain rejections. eBay currently relies on statements made in that declaration. (Doc. No. 82 at 19).

The first is in paragraph 3 of the Romao declaration, which states in full:

3. The present invention makes it possible to have conventional telephones communicate using PSTN's to interact with commercial access providers (CAPS) associated with a digital network to complete long distance real time voice communications. This approach allows conventional telephones to take advantage of this technology without requiring any special arrangement between the conventional phones. As such, this technology becomes generally available and is not limited to specialized networks as is the case in the art cited by the Examiner and attached to this affidavit."
(Doc. No. 82-7 at 14). eBay in its brief uses an ellipses after "generally available." (Doc. No. 82 at 19). In context, it is clear that when Romao referred to being "generally available," he was referring to the prior art that used "specialized networks." That does not address whether the call originator must be a "subscriber."

eBay also refers to a portion of paragraph 2 of Romao's declaration (which actually includes several unnumbered paragraphs). Again, the entire paragraph that eBay points to says:

The above digital technology [referring to the prior art in which voice was digitized and transmitted] is then combined with a commercial access provider to receive instructions via a local PSTN and a conventional telephone to complete a long distance call to a particular destination which instruction is sent to a second commercial access provider. This second commercial access provider out dials to the particular destination. The commercial access providers function like the local area network with respect to the signals provided thereto, and the local PSTN's complete the communication. This arrangement makes it possible for the multitude of existing conventional telephones to utilize the system in a very simple manner.

eBay quotes and emphasizes the last sentence. (Doc. No. 82 at 19). In context, though, it is clear that Romao was referring to the prior art, and, indeed, was responding to the PTO's rejection under § 112(1) for lack of enablement. In context, Romao does not address whether the call originator must be a "subscriber."

(6) eBay -- IDT's Proposed Construction Limits Claims to a Business

In its reply, eBay further contends that IDT's proposed construction limits the claims to a "business," which, eBay argues, is nowhere described in the intrinsic record, and becomes "nonsensical" in light of the claims. For example, eBay points to claim 18 providing that the first and second "commercial access providers" exchange voice communications data over a packet-based computer network and convert a signal into a different form. eBay urges that "[p]lainly, computer systems, not 'businesses,' are exchanging this data over the computer network." (Doc. No. 91 at 5). eBay further argues that with IDT's proposed construction, claim 18 would require two different businesses. Id.

IDT's proposed construction does not limit the claims to a "business." In all events, however, the '350 patent speaks in terms of a "subscriber" and in the prior art "a subscriber typically contracts with a commercial access provider (CAP)." Also, the '350 patent explains that a "subscriber" is given (1) an e-mail address, (2) an account number or password, and (3) a "Personal Mailbox Number." '350 patent, col. 4, lines 47-50. The point of being a "subscriber" is that only "subscribers" can retrieve messages from UniPost Access Nodes in the message embodiments of Figs. 1-3, and, by the most reasonable interpretation, only "subscribers" can make telephone calls using the Internet (or digitized packet based network) in the embodiment of Fig. 5 to which the asserted claims are drawn. In the context of the disclosure of the '350 patent, a "subscriber" is given entree to the features and capabilities of the UniPost Access Nodes -- a "non-subscriber" is not.

As to eBay's second argument, IDT's proposed construction clearly "uses a computer system." Claim 18 is not rendered nonsensical. Such "computer systems" may communicate per the terms of claim 18.

(7) eBay -- Use by Non-Subscribers

eBay, in its reply, also argues that IDT's proposed construction vis-a-vis "subscription-based services," is contradicted by the specification which, eBay, argues "explicitly teaches that the invention can be used by 'non-subscriber' devices." (Doc. No. 9 at 6-7).

eBay's citations to the specification are the same as those discussed above -- i.e., references to the messaging system of Figs. 1-3. As discussed above, in those embodiments, "non-subscriber" originators may leave voice and fax messages which a "subscriber" can thereafter retrieve. The asserted claims, however, as eBay points out in its opening brief, are drawn to the embodiment of Fig. 5. (Doc. No. 82 at 10). Further, in describing the embodiment of Fig. 5, eBay says that "[s]uppose Alice, who is now back in Toronto, wishes to call Bob in Tokyo. Alice places a local call over the PSTN to a first commercial access providing computer in Toronto. '350 patent, col. 9: 16-18. Alice then enters Bob's telephone number. Id." (Doc. No. 82 at 10-11). What eBay omits from the cited disclosure at col. 9, lines 16-18 ("the call originator will dial the local UniPost Access Node and enter his account and the number of the recipient") is that Alice, after using the local PSTN to call the Toronto UniPost Access Node, must "enter[s] his [her] account" and then Bob's telephone number. The account number is
what gives Alice access to the UniPost Access Node and allows her to make the telephone call. And according to the specification, account numbers are provided to "subscribers."

c) Conclusion

In view of the foregoing, therefore, the Court concludes that:

The phrase "commercial access provider" in claim 1 and its dependent claims means "a service provider that provides subscription-based services and uses a computer system commercially available to telephone users that acts to provide an interface to or from the Internet." The phrase "commercial access provider" in the remaining asserted claims means "a service provider that provides subscription-based services and uses a computer system commercially available to telephone users that acts to provide an interface to or from a digitized packet based network."

IDT has used the phrase "subscription-based services" in its proposed construction and throughout the briefing. eBay has never asserted that phrase requires separate explanation in resolving the issues of infringement and validity (or any other issue) in this case. However, if that is -- or becomes -- an issue, the Court does not foreclose further consideration.

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2. commercial insert video signal(s)

A "commercial insert video signal" is an analog video signal, 6 distinct from the programmed channel signal and local video signal, that contains commercial content that is to be inserted into a local time avail in the programmed channel signal. In the multi-channel setting, one commercial insert signal is transmitted from a remote control center to each video switch.

6 An "analog" signal is ready for broadcast, in contrast to a digital signal, which is stored for later playback.

Beam Laser argues that the commercial insert signal can be either analog or digital. The claims language does not expressly state whether the commercial insert signal is analog or digital. Defendants argue that because the commercial insert signal is generated at a remote site and there is no means specified in the patent for storing the commercial insert signal at the headend, the commercial insert signal must be analog. Moreover, Defendants assert that the specification in the '825 Patent makes explicit that the commercial insert signal is analog. See, e.g., '825 Patent, col.4, 11.15-16, 34-40 (referring to "analog commercial inserts").

Beam Laser responds by citing a specific reference in the '883 Patent specification to the source of the commercial insert video signals, in which it is stated that this video source "may be a multiple video laser disc, a video tape, or a digital video still frame, all operating in combination with an audio source." '883 Patent, col.6, 11.41-44. Even if these sources were not readily recognized as digital sources at the time the patent issued, Beam Laser argues, the use of digital technology would have been readily apparent to a person of ordinary skill in the art without undue experimentation, and therefore, digital signals would fall within the scope of enablement of the patent. See National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1195-96 (Fed. Cir. 1999). The portion of the specification to which Beam Laser makes reference is in the description of the preferred embodiment. There, it is explained that the source of the commercial insert signal, which is located in the remote control center, generates the stream of commercial insert signals, which are then applied to a satellite up link interface, so that the signals can be transmitted to the switch system at the headend. Even if the generating source of the signal is digital, the signal must be converted to an analog signal before it can be input to the switch. The term "commercial insert video signal," occurring as it does in the claim governing the switch system, thus refers to a ready-for-broadcast signal, i.e., an analog signal.
7 Beam Laser argues that a digital form of commercial insert video signal is an "inherent disclosure" of the patent. The Federal Circuit has explained that the scope of enablement of a patent includes the "explicit disclosure"--that which is disclosed in the specification--together with the "inherent disclosure"--"the scope of what would be known to one of ordinary skill in the art without undue experimentation." National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1196 (Fed. Cir. 1999).

Defendants argue that the term should be construed to include the additional limitation that the commercial insert signal is one advertisement belonging to a series of discrete commercial segments. It is clear that "commercial insert signal" refers to a single commercial. There is language both in the patent claims and in the specifications supporting this conclusion. Thus, for example, the '883 Patent distinguishes prior art as follows:

After sensing the [cue tone], this device inserts a local commercial generally by operating a video switch that selects a locally generated commercial insert video signal from one input of the video switch as opposed to selecting the programmed channel video at the other input. However, this prior art device is only capable of inserting one commercial insert in a single channel.

'883 Patent, col.1, 11.48-55. Clearly, "commercial insert video signal" is used here to refer to one commercial. In another reference, the patent refers to "a spot commercial or a commercial insert," in a way that makes clear the terms are used as synonyms. Id. col.10, 11.43-44.

Defendants nevertheless argue that the commercial insert signal must consist of a discrete commercial from a stream of commercials, because the patents consistently refer to it in this way. Thus, Defendants cite several instances in both patents where the commercial insert video signal is characterized as a "sequential stream" or a "continuous stream." E.g., id. col.3, 1.45; '825 Patent, col.6, 1.31.

Claim 1 of the '883 Patent addresses a single switch, while Claim 7 of the '883 Patent (and also Claim 14, which is not an asserted claim) addresses a plurality of switches. The specification of the '883 Patent describes the operation of the multiple switch system, which is the case in which a stream of commercial inserts is necessary. See supra § I.B (explaining the purpose of the invention). In the claims pertaining to the multiple switch system, the claim language expressly mentions that the commercial insert is one from a stream of inserts. See, e.g., '883 Patent, col.13, 11.36-37 (Claim 7); id. col.14, 11.61-63 (Claim 14). Thus, this additional limitation should not be read into the term, because it has clearly been added by the inventors when intended. The implication is that this limitation was not intended in Claim 1 of the '883 Patent. 9

8 Defendants assert that Claim 14 of the '883 Patent "equates" the terms "commercial insert video signal," "sequential stream of commercial insert video signals," and "stream of commercial insert video signals." SeaChange and Cox's Supplemental Markman Br., at 11-12. This assertion apparently rests on the fact that all three terms have been used in the claim. The court agrees that "sequential stream of commercial insert video signals" and "stream of commercial insert video signals" are used as equivalents, but does not find this significant. The court is inclined to believe that the one use of "commercial insert signal," in at least seven references to the commercial signal, reflects a careless lack of precision rather than an indication that "commercial insert signal" carries in it the notion that commercials are always part of a stream.

9 Contrary to Beam Laser's argument, the court does not find the doctrine of claim differentiation to be applicable here. The Federal Circuit has stated that "The concept of claim differentiation … states that claims should be presumed to cover different inventions. This means that an interpretation of a claim should be avoided if it would make the claim read like another one." Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991) (internal quotation marks omitted) (alterations and emphasis in original). Regardless of the construction the court gives to "commercial insert signal," Claims 1 and 7 will be distinct.

Beam Laser argues that long-form commercials ("infomercials," which typically last about thirty minutes), and alternate
signals that are broadcast after the national broadcaster has gone off the air, could qualify as commercial insert video signals. However, this ignores the use of "insert" in the disputed term. The use of "insert" must be given effect, and it is clear from the specification that "insert" refers to the insertion of the commercial insert video signal into a local time avail. Therefore, the court concludes that a commercial insert video signal is a commercial spot that is inserted into a local time avail.

7. Commercial invoice n8

DE contends that "commercial invoice" means "a document that defines the basic terms of an international transaction including at least the description and total value of the product." Dell contends that the term should be construed as "an international shipping document that contains at least the information required by all applicable customs regulations."

The specification does not assist the court in determining the ordinary meaning of "commercial invoice," and the court must therefore consult the prosecution history. DE contends that the prosecution history supports its reading of the claim language. The inventor described a commercial invoice, which "serves as a document used by governments to control imports... In contrast, an invoice used in domestic trade is nothing more than a bill for the goods from the seller to the buyer." Prosecution History Files for Patent ’020, at DET05338. If the information specified was not included as part of the commercial invoice, the documents could not be used to control imports and exports, and would be no different from the distinguished "invoice" used in domestic transactions, which is "nothing more than a bill for the goods from the seller to the buyer." Id. In contrast, a typical commercial invoice was described by the inventor as including "information about the exporter, consignee, intermediate consignee, forwarding agent, bill of lading number, [and] export references." Id. Based upon these statements, the applicant "clearly and unambiguously disclaimed or disavowed" a broad construction of "commercial invoice" during prosecution history. See Safazar v. Procter & Gamble Co., 414 F.3d 1342, 1344 (Fed. Cir. 2005). In order for a "commercial invoice" to be differentiated from an invoice used in domestic transactions, the term must encompass more than merely a bill.

The court therefore finds that "commercial invoice" must be construed as "an international shipping document that contains at least the information in the form required under the applicable laws of the jurisdiction[s] through which the selected product travels."

C. Limitation 2: at least first and second spaced base regions

7. The next element of Claim 1 is as follows: "at least first and second spaced base regions of the opposite conductivity type to said one conductivity type formed in said wafer and extending from said first semiconductor surface to a first depth beneath said first semiconductor surface; the space between said at least first and second base regions defining a vertical common conduction region of one conductivity type at a given first semiconductor surface location; the concentration of carriers of said one conductivity type in said common conduction region at said first semiconductor surface being less than the concentration of carriers of said opposite conductivity type of said first and second base regions at said first semiconductor surface." In prior litigation involving the ’699 patent, the Court concluded that the "common conduction region" of ’699 claim 1 could be defined by an array of polygonal bases. International Rectifier Corp. v. SGS-Thomson Microelectronics, Inc., 1994 U.S. Dist. LEXIS 20943, 38 U.S.P.Q.2d 1083, 1085, P7 (C.D. Cal. 1994), aff’d without op. 56 F.3d 81 (Fed. Cir. 5/10/95). This element of Claim 1 would have been understood to require a number of separate "base"
regions of conductivity type opposite to that of the lightly doped layer (e.g., P type base regions diffused into a lightly doped N type epitaxial layer). The number of base regions is not constrained -- it can be arbitrarily large, so long as there are at least two of them. The material of the first conductivity type (i.e., the same conductivity type as the lightly doped major body portion) between these bases is defined in the claim to be the "common conduction region." In addition, because the patent defines the common conduction region to be the region between bases, and further requires that the drain conductive region both be remote from the common conduction region and separated from it by the relatively lightly doped major body portion, those of ordinary'skill would have understood that the device current would flow, upon exiting the channel, in a predominantly vertical direction through the common conduction region, and hence that the claims inherently describe a vertical-conduction structure. Because the base regions are diffused into the relatively lightly doped major body portion, the concentration of dopants (carriers) at the top surface of that relatively lightly doped region is inherently less than the concentration of dopants (carriers) at the surface of the bases.

8. A number of specific arguments have been directed to this claim limitation.

1. Enhanced Conductivity

9. IXYS argues that the phrase "common conduction region" should be construed as the region in the epitaxial layer located between the base regions, which is relatively highly conductive/doped compared to the conductivity of the epitaxial layer, and through which current flows between the channels and the drain region; and that the claimed "common conduction region" must be relatively highly conductive (or highly doped) compared to the conductivity of the relatively lightly doped major body portion.

10. The claim language does not support IXYS's argument that the claimed "common conduction region" must be relatively highly conductive (or highly doped) compared to the conductivity of the relatively lightly doped major body. Rather, the "common conduction region" is defined in the claim itself as the space between the bases or, put another way, the portion of the "relatively lightly doped major body portion" between the bases.

11. The doping concentration limitation IXYS would read into all claims is found only in claims IR has not asserted against IXYS: dependent Claims 2, 4 (claim cancelled), 9, 10, 15 and 21 (and claims depending from those claims): "said common conduction region is relatively highly doped compared to said relatively lightly doped major body portion". Asserted independent Claims 1 and 7 and dependent claims 3, 6, 8, 11, 12, 16, 17, 19, 20 and 22 through 29 do not include any such language. Because unasserted Claims 2, 9, 10, 15 and 21 -- which include the restriction that "said common conduction region is relatively highly doped compared to said relatively lightly doped major body portion" -- are dependent claims that add this additional element to the elements of the claims on which they depend, it would be unreasonable to construe the asserted independent claims as already containing that limitation. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985).

12. For example, independent Claim 1 simply recites, in pertinent part: "the space between said at least first and second base regions defining a vertical common conduction region of one conductivity type at a given first surface location." Dependent Claim 2 adds the additional restriction that "said common conduction region is relatively highly doped compared to said relatively lightly doped major body portion . . .". If the "common conduction region" in the device of Claim 1 already was "relatively highly doped compared to said relatively lightly doped major body portion," then Claim 2 would not have recited that language as an added restriction on the "common conduction region" of Claim 1.

13. The Patent Office also recognized that the common conduction region of the independent claims is not required to be relatively highly doped compared to the relatively lightly doped major body portion. For example, the Patent Office examiner rejected Claim 1 during reexamination on the basis of a hypothetical device he asserted was obvious from the Takakuwa and Okabe references. Although that hypothetical device did not include a relatively highly doped region between the bases, the examiner nonetheless described it as "a plurality of polygonal base regions surrounded by a common conductive drain region." (Reexam. No. 90/003,490, Paper No. 6, pp. 14-18, copy attached as Exhibit F.) Throughout the Patent Office proceedings on the '699 patent, IR overcame this and all other rejections of Claim 1, but IR never argued that Claim 1 could be distinguished from the prior art because it requires that the common conduction region be relatively highly doped compared to the relatively lightly doped major body portion.

14. For these reasons, the "common conduction region" is properly construed as the semiconductor material of the first
The level of doping/conductivity of the "common conduction region" is not constrained to be higher between the bases than in the underlying "relatively lightly doped major body portion."

2. Spacing

15. IXYS also asserts that there is no "common" conduction region between bases where the two bases are far enough apart that they do not experience "significant FET pinch-off." Again, however, the claim language itself "defines" the "common conduction region" as "the space between said at least first and second base regions" without regard to the spacing between those base regions. While a person of ordinary skill in the art would understand that the bases preferably would be closely spaced to maintain breakdown voltage, the current from both bases will flow through the "space between" "base regions," which is "defined" to be the common conduction region -- whether or not those bases are close enough to generate "pinch off."

16. Similarly, the specification describes current flow from each channel only as flowing through the space between the bases: "Current from each source can flow through its respective channel (after the creation of the inversion layer defining the channel), so that majority carrier conduction current can flow through the bulk region and across the wafer or chip to the drain electrode." ('699 patent, 1:48-53.) The current from each channel flows through the current path defined by the space between bases (i.e., through the claimed "common conduction region"), whether or not those bases interact to generate "significant FET pinch-off."

17. Accordingly, a "common" conduction region is properly construed to refer to the portion of the "relatively lightly doped major body portion" between the bases. The amount of spacing between the bases is not constrained.

3. Admixing

18. IXYS also argues that statements in the '699 file history restrict the word common to a region wherein the current from two or more regions "admix." IXYS's reading of the prosecution history of the patents is incomplete. The comment on which it relies was immediately clarified during reexamination to make clear that no literal admixing is required:

Patentee would like to clarify certain of its remarks . . . filed March 24, 1995. In its remarks distinguishing the claimed invention from devices such as those disclosed, e.g., in the Plummer reissue patent and Scharf et al. and Plummer et al. articles, patentee stated that, in the claimed invention, current from the channels admixes and flows downwardly through the common conduction region . . . . Patentee's point is simply that current flow in the common conduction region is predominantly vertical, whereas current flow in a device [like Plummer's] with a surface drain disposed between the channels is predominantly lateral. Whether or not there is literal admixing of current in the common region is irrelevant to the invention." (Supplemental Response, Dated May 19, 1995, emphasis added.)

Footnotes

1 Likewise, IR pointed out during the reexamination of the '699 patent that "In paragraph 4 of footnote 4 of the Supplemental Response [in the '699 reexamination], the Patent Owner pointed out that the 'contributions' of the 'crowded electrical current' from each inversion layer of Lisiak et al. Figure 5, disposed along each wall of the 'V', do not combine until they reach the apex of the 'V' beneath the base. Patent Owner wishes to clarify for the record that this statement is not intended to imply, directly or indirectly, that the claims of the Lidow et al. '725 and/or '699 patents are limited to a structure in which there is admixing of current in the common conduction region. Patent Owner's point is simply that the recitation in the claims of a common conduction region between spaced bases does not and cannot read on a V-groove structure, in which the silicon occupying the space limited by the split portions of the base has been removed." (Supplemental Amendment Pursuant to 37 C.F.R. 1.550(b), served November 22, 1996 in Reexam. Nos. 90/003,490 and 90/003,900.)

End Footnotes

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cannot meet the presently claimed vertical characterization because, as the Patent Owner explains on amendment page 15, conduction therebetween is horizontal in the main.

2 IXYS cites to testimony in prior cases by the inventors concerning the supposed requirement for commingling of current in a common region. While an inventor may in testimony explain the invention and its development, inventor testimony as to the meaning of claim language seldom should be considered in construing patent claims. Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1379-81 (Fed. Cir. 2000). This is particularly true where, as here, that testimony is argued by IXYS to contradict the record of proceedings in the Patent Office. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

20. Those of ordinary skill would have understood that the current contribution from one '699 base tends to spread laterally as the current flows generally downwardly through the device. Since this is true of the other '699 spaced bases as well, the lateral components of these currents tend to cancel each other, resulting in a location between two given bases, (which Dr. Zommer referred to as the "zero current line") at which the net lateral current is zero. In other words, the current component going from left to right exactly matches the current component going from right to left at that point, so the net lateral current component is zero.

21. Electrons in a device such as a MOSFET move according to two principal phenomena. One is called "drift," and refers to the tendency of a charged particle such as an electron to move in response to an electric field or voltage. The other is called "diffusion," and refers to the motion of electrons and other particles according to local thermal conditions. A "zero current line" does not suggest that exactly zero electrons cross it. Instead, it suggests that the electric fields are arranged so that the net number of electrons crossing it is zero. If, for example, random thermal motion caused more electrons to cross the "zero current line" from left to right, that a voltage would be created that would be just sufficient to cause an equal number of electrons to cross from right to left. In this way, although electrons are moving constantly in all directions due to thermal conditions, a dynamic equilibrium is established so that the net flow across the "zero current line" tends to return quickly to zero.

22. This phenomenon is present in any MOSFET having two active base regions being held to (more or less) the same potential, such as those depicted in the '699 patent. When the channels are activated in that structure, the potential of the material near the channel will tend towards the voltage of the source electrode, while the material lower down in the device will tend towards a higher voltage (in an n-channel device, which voltage will be a function of the device current and on resistance). Under those conditions, there will be a "zero current line" at some point between the bases in the material defined in the claims to be the "common conduction region." Thus, there would be understood to be literal "admixing" of electrons at a "zero current line" in the devices depicted in the '699 patent, and in any other MOSFET device where opposing channels are held at (more or less) the same potential.

23. For these reasons, the claimed "common conduction region" is properly construed not to require any particular kind of interaction between the current flows emanating from the spaced bases.

32. The added element introduced by Claim 28 is as follows: "The device of claim 1 wherein said vertical common conduction region is continuous and uninterrupted." In the examples of the '699 patent, the common conduction region is a three-dimensional structure following a path corresponding to that of gate electrode 24 in Figure 1 and gate electrode 80 in Figure 8. In each instance, it is possible to transit from any point to any other point within that three-dimensional structure while staying entirely within the common conduction region. A "continuous and uninterrupted" common conduction region is properly construed to require that be possible to transit from any point to any other point within that three-dimensional structure while staying entirely within the common conduction region.

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10. "common data store"/"data memory accessible by each of said processors"

The term "common data store" appears in claim 10 of the 037 Patent. 037 Patent, 56:65. The term "data memory accessible by each of said processors" appears in claim 11. Id. at 57:21. In both claims, the claimed processors access the "data memory" or "common data store" to allow for the "storage and retrieval" or for the "transfer" of data between system components. Id. at 56:65-57:5, 57:21-23. Once again, plaintiff argues that no construction of these terms is needed. Defendant argues that both terms should be construed as "shared computer memory (as distinct from the mass storage device(s)) in which each of the facility processors can locate a unit of data to use in the process." 9

9 Although defendant initially contended that "every process" should have the capability of locating a unit of data in the common data store, defendant's responsive brief concedes that "each of the facility processors" better reflects with the language of the claims. See Def.'s Responsive Br. at 21-22.

The court again begins its analysis with the ordinary meaning of the claim language. Although neither the phrase "common data store" nor "data store" are defined in the IEEE Dictionary, the noun "storage" has a well-established meaning in the art of "electronic computation," which the IEEE Dictionary defines as "[a]ny device in which information can be stored, sometimes called a memory device," or "a section [of a computer] used primarily for storing information . . . sometimes called a memory or a store." Id. at 1112. The description of a "store" as memory is also consistent with the specification, which refers to the claimed data store as a "memory resource" in the preferred embodiment of the invention. 037 Patent, 13:40-41, 14:23. Indeed, the parties do not distinguish between the "common data store" recited in claim 10 and the "data memory" term in claim 11. Based on the ordinary meaning of the words "data store" and the disclosures in the specification, the court sees no reason to do so either. As the claim language makes clear, this memory resource is also "shared" or "common" to each to the filesystem facility processors in the claimed invention. See id. at 56:65-57:1, 57:21-23; see also id. at fig. 6 (depicting shared "memory" (18)). Based on this language, the court agrees that the adjective "shared" aptly describes the memory resource claimed in the 037 Patent.

Defendant urges the court to go one step further to require that claimed common data store (or data memory) allows "each of the facility processors can locate a unit of data to use in the process." However, to the extent that such a limitation is necessary, the surrounding claim language makes clear which processors can access the shared memory. For example, claim 11 expressly provides that "each of the said processors" can access the data memory "for the storage and retrieval of data blocks exchangeable between said processors." Id. at 57:21-23. Claim 10 similarly claims a network facility and a filesystem facility, each facility "providing for the transfer of data between said data store and said [facility]." Id. at 56:65-57:1. Thus, because these limitations are clear from the ordinary meaning of the other claim terms, the court declines to read these limitations into the "common data store" or "data memory" term.

Finally, defendant requests that the court construe the terms "common data store" and "data memory" to be "distinct from the mass storage device(s)." Defendant notes that in the specification, the preferred embodiment discloses a "memory resource" -- i.e, a "data store" -- that transfers data to and from a mass storage device (the "disk array resource"), thereby implying that the memory resource and mass storage device are separate and distinct. from each other. Id. at 13:34-50. While this may be true of the preferred embodiment of the invention, no such limitation appears in the language of the claims. The court cannot rewrite the claims to introduce one. Accordingly, the court construes "common data store" in claim 10 as "shared data memory." On the other hand, because it is clear from the term "data memory accessible by each of said processors" that the data memory is in fact shared by the processors that have access to it, the court declines to construe that term as it is used in claim 11 of the 037 Patent.
3. "Common Formats"

IBM argues that the phrase "common formats" requires that all of the instructions stored and provided by memory means have a "fixed" or "uniform" format, while Data General contends the phrase allows for more than one format of instructions but requires commonality.

Claim 1 provides that "instructions", now construed as S-Instructions which are a level below high-level language instructions and a level above conventional machine language instructions, have "common formats." See '797 Patent, col. 4, ll. 30-37.

Instruction format refers to the layout of the constituent parts of the instruction. An instruction typically begins with an operation code and is followed by operation code syllables known as Names. The length of operation codes and operation code syllables are measured in "bits." Data General suggest that two sets of instructions consist of instructions having common formats if the formats of one set are the same as, or a subset of, the formats of the other set.

IBM disagrees and asserts that the term "common formats" requires that all instructions share a "common" format in that every instruction has an operation code with a fixed length and operand syllables that have a fixed length within a procedure. In support of its proposed construction, IBM cites the following portion of the Common Specification which describes instructions as having a fixed format:

…the I-Stream has a fixed format: in the present embodiment, SOPs are always 8 bits long, and Names may be 8, 12, or 16 bits long. The length of Names used in a given procedure is fixed….

'602 Specification, col. 345, ll. 60-63. Based upon that and similar provisions of the Common Specification, IBM argues that all instructions must have a fixed format. It contends that because "common formats" does not have a commonly understood meaning in the art of computer science, IBM argues that it is necessary to depend upon the Common Specification to glean the meaning of that phrase.

Again, this Court is unpersuaded by IBM's argument for three reasons:

1. Although the phrase "common formats" does not have a generally accepted meaning in the art, the word "formats" does have such a meaning and the word "common" is not a term of art in computer science. "Common" has the same generally accepted meaning to one skilled in the art of computer science and to laypersons.

2. Even if it were necessary to rely solely on the Common Specification, it does not follow that limitations from the specification should be read into the claims. See Sjolund v. Musland, 847 F.2d 1573, 1581-82 (Fed. Cir. 1988).

3. To construe the phrase "common formats" to mean that all instructions have a single, fixed format contradicts the plain meaning of the plural "formats". The use of a plural indicates that instructions may have more than one format.

The phrase "said instructions" which are to have common formats refers to instructions containing operation codes belonging to more than one functionally different operation code sets. Instructions which are part of two separate sets of instructions must have identical formats. Although the formats in instruction sets of different S-Languages must be the same, Claim 1 does not require that only one fixed format may be used. This Court construes "common formats" as allowing for instruction sets to have more than one format, but requiring commonality.
Katz also proffers a definition for "common processing" as meaning "processing in which the logic underlying certain of the content and/or sequence of steps of the formats are the same or shared." Katz Brief at 36. Verizon does not offer a competing interpretation.

The Court adopts Katz's asserted interpretation to the extent it is consistent with the construction of the same limitation in the Joint Claim Construction and Prehearing Statement. See Moore 1/14/03 Decl.Ex. 13 at 3.

Static Display of Prices/Common Static Price Axis

The parties dispute the meaning of "static" in "static display of prices" and "common static price axis." Plaintiff argues that the price axis is static, or unmoving, in relation to a change in the inside market. Plaintiff further argues that the patents limit the movement of the price axis in order to increase the likelihood that a trader will not miss his price. Therefore, plaintiff encourages us to adopt a construction of "price levels that do not normally change positions when new market data reflecting a change in the inside market is received," Defendants urge adoption of their various constructions, all of which limit movement of the price axis to a manual re-centering or re-positioning command. At the center of this fight is the question of automatic re-centering-do plaintiff's patents cover automatic re-centering? Plaintiff answers in the affirmative and, not surprisingly, defendants answer in the negative.

Although our preliminary injunction construction aligned with plaintiff's view, such construction was, simply put, preliminary. Jack Guttman, Inc. v. Kopykake Enterprises, Inc., 302 F.3d 1352, 1361 (Fed.Cir. 2002) ("District courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves"). Today we have a better understanding of the technology, and all parties have had the opportunity to flesh out their arguments.

We now choose to alter our initial construction, construing "common static price axis" as "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." We construe "static display of prices" similarly, as "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Defendant eSpeed pointed us to MSN Encarta Dictionary to set forth the ordinary and customary definition of static: "motionless: not moving or changing, or fixed in position." Our search of Webster's II New College Dictionary yielded similar results: "Having no motion: at rest" While we recognize that Phillips teaches us that a dictionary definition should only be used for context. Phillips also teaches that the "words of a claim 'are generally given their ordinary and customary meaning,[..., which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." 415 F.3d at 1312-13. Plaintiff has given us no reason to think that such a person of ordinary skill in the art would construe "static" as anything other than non-moving at the time of the invention.

n4 We do find it interesting that in all of plaintiff's filed exhibits with regard to claim construction, including two dictionary excerpts, plaintiff has never argued that the ordinary and customary meaning of "static" is something other than stationary or non-moving.

If "static" ordinarily means non-moving, then we cannot see how we can construe it any other way. The only exception can be the one explicitly stated in the specifications and prosecution history-movement due to receipt of a manual re-centering command. If we were to construe the term inclusive of additional unstated exceptions, such as automatic re-centering, we would not know where to stop. Defendant eSpeed aptly asks, "Why is a price display which automatically receneters after every two seconds 'static,' but a price display which automatically recenters after every five seconds is not? Why is a price display that automatically receneters when the inside market exceeds three ticks from the center price 'static,' but a price display which automatically recenters after every fifth tick is not?" (eSpeed's post-Markman brief, at 6, n4). Plaintiff's own argument raises the same questions. Plaintiff notes, "In fact, with eSpeedometer (which contains a slow drift recentering..."
component,) a price level never suddenly changes position under a trader's cursor causing him to miss his intended price. This is in contrast to the eSpeed product addressed by the Court at the PT hearing which provided for an instantaneous automatic recentering when the inside market moved off the top or bottom of the screen. Thus, eSpeedometer is more 'static' than eSpeed's previous product because it provides the trader with virtually a 100% guarantee that he will not miss his intended price" (plf's post-Markman brief, at 8-9, n5). n6 How can any movement be "more static"? What is static enough to fall within the ambit of plaintiff's static construction? Because we cannot say, we must construe the term "static" in its ordinary meaning, non-moving, and allow for the only exception plainly stated in the written description: manual recentering.

n5 It is possible that eSpeed's (or any other defendant's) product will be considered "static" under the doctrine of equivalents, even under the current construction. Such analysis, however, is reserved for a future date.

We find unpersuasive plaintiff's argument that the patent only increases but does not guarantee the user's likelihood of accurately selecting his desired price. Plaintiff's patents are designed to achieve simultaneous goals: speed and accuracy. With regards to accuracy, the patent specification states, "The 'Mercury' display and trading method of the present invention ensure fast and accurate execution of trades by displaying market depth on a vertical or horizontal plane, which fluctuates logically up or down, left or right across the plane as the market price fluctuates" ('132, 3:5-9; '304, 3:9-13) (emphasis added). Like defendants, we read such language as a guarantee. It is only with regard to speed that the patents cannot guarantee accuracy - it is impossible to know how quickly a trader will process a desired price, move his hand to the user input device, and select the bid or ask region. It is with that in mind that the patent states "[t]he faster a trader can trade, the less likely it will be that he will miss his price and the more likely he will make money" (132, 2:60-62; '304, 2:65-67). We find that the purpose of the patents' invention would be frustrated by the inclusion of any movement uncontrolled by the user. See Curtiss-Wright Flow Control Corp. v. Vclan, Inc., 438 F.3d 1374, 1379-81 (Fed. Cir. 2006) (limiting the claim term "adjustable" to the patent's consistent description that adjustment occurs during operation of the de-header system, in part because "[a]ny construction to the contrary is not consistent with the overall context of this invention and this field of art as described in the specification"). Thus, we are further convinced of our construction.

We take time to note that the construction of "common static price axis" includes the phrase, "where the line of prices corresponds to at least one bid value and one ask value." We do so to clarify that with regard to the 'Mine of prices," orientation of the axis is irrelevant - it can be horizontal, vertical or angled, for example. We find that use of the claim language "common," "corresponding to" and "aligned" are all used as synonyms for "in relationship with." See Id., 438 F.3d at 1380 ("this court has acknowledged that two claims with different terminology can define the exact same subject matter"). The specification's language states that "Mercury displays market depth in a logical, vertical fashion or horizontally or at some other convenient angle or configuration" ('304, 4:2-45, '132, 7:22-25). That market depth, which includes the best bid and the best ask, can be displayed on an angle gives further support to plaintiff's contention that "common" connotes no more than a relationship between the price axis and the bid and ask display regions.

We also note our use of the term "price levels" in the construction of both "common static price axis" and "static display of prices." While recognizing that the '132 patent does not use the term "price level" in the claims, as compared to the '304 patent, we find that the intrinsic evidence compels us to adopt such language in both constructions. We re-assert our preliminary injunction analysis regarding this issue: "the real issue is what 'static display of prices' means, and we understand that phrase to include price levels, which is where the prices are located and displayed. In other words, the display of prices is a region in which prices, represented by numbers, are shown." Trading Technologies Int'l. Inc. v. eSpeed, Inc., 370 F.Supp.2d 691, 699 (N.D.Ill.2005) ("Trading Technologies I"). We reject defendants' contention that "price levels" are synonymous with prices or representation of prices. The written descriptions of both patents consistently refer to "price rows" and "price levels." For example, "The market depth display shows the trader the interest the market has in a given commodity at different price levels" ('304, 6:17-19, '132, 5:50-52). "The status of each order is displayed in the price row where it was entered" ('304, 8:23-24, '132, 7:56-57). "Thus, a right click in the AskQ column in the 87 price row will send a sell order to market at a price of 87 and a quantity of 150" (304, 10:46-48, '132 10:8-10). "A left click would enter an order with a price corresponding to the price row clicked . . ." (304, 11:21-22, '132, 10:50-51). n6 Found in the preferred embodiment, it is clear that both patents intended to showcase a "price level" that was broader than simply price. Pfizer, Inc.
v. Teva Pharmaceuticals. USA, Inc., 429 F.3d 1364, 1374 (Fed.Cir. 2005) ("A claim construction that excludes a preferred embodiment...is 'rarely, if ever, correct'"). Thus, we define "price level" as "a level on which a designated price or price representation resides."

n6 Defendant eSpeed argues that the use of "price levels" with respect to Figure 2 ("The working bid and ask quantity for each price level is also displayed in columns 202 and 205 respectively" (304,5:27-29, '132, 5:23-25)), wherein 202 and 205 are on the same horizontal row, proves that "price levels" are synonymous with "prices." Plaintiff counters by arguing that Figure 2 docs contain "price levels" under its proposed construction - the trading screen has a level or region on which the price resides that does not extend across the entire row, as compared to patents' preferred embodiments-We find plaintiff's argument persuasive.

Analysis of a patent infringement claim is a two-step process. First, we construe the claims, an issue of law for the court to determine. Warner-Lambert Co. v. Teva Pharmaceuticals USA, Inc., 418 F.3d 1314, 1340 (Fed.Cir.2005). Second, we compare the accused product or process to the properly construed claims, an issue of fact for the fact-finder. Id. Plaintiff's patent infringement claim will be successful "only where the accused product or process contains each limitation of the claim, either literally or under the doctrine of equivalents." Id. (citing Deering Precision Instruments, L.L.C. v. Vector Distrib. Sys., Inc., 347 F.3d 1314, 1324 (Fed.Cir.2003)). Defendants argue that plaintiff is conflating the two steps. By arguing that defendants' products may still infringe on plaintiff's patents under a part-time infringement theory, eSpeed suggests that TT is putting the cart before the horse. eSpeed contends that "[t]he theory of part-time infringement is not a canon of claim construction and does not override the plain meaning of the claim or the disclosures in the specification and file history... It is the claim construction, which is derived from the plain meaning of the claim and intrinsic evidence, that dictates whether the theory of part-time infringement has any relevance to the infringement analysis. Under the plain meaning of the claim and the Court's claim construction, part-time infringement is inapplicable because a price axis that moves other than through a manual re-centering command is not a static one" (eSpeed response, at 5).

We agree with defendants that the analysis of part-time infringement is, as the name implies, one of comparison -- the second step of patent infringement analysis. Because there seems to be some confusion on the construction of the term "static," however, we will address the merits of plaintiff's arguments. Specifically, we will address whether the term "static" in "common static price axis" and "static display of prices" requires a permanent state of lack of movement.

Plaintiff's arguments center on two overlapping principles. First, plaintiff contends that Claim 1 of each patent-in-suit is an open claim, designated by the term "comprising" in its preamble. Plaintiff asserts that such a claim does not preclude the existence of additional unrecited features of an accused product or process. Second, plaintiff asserts that part-time infringement - infringement for any length of time, regardless of whether the accused product or process also has times of non-infringement -- covers its claims. Although plaintiff's briefs imply that the two arguments are part of the same theory, we are not so sure. TT's "comprising" argument seems to assert that automatic re-centering is an unrecited additional feature that is made possible by the fact that the price axis was already in a static condition (TT reply, at 2). We read that to mean that the automatic re-centering is separate from the static claim limitation. TT's part-time infringement theory, on the other hand, seemingly suggests that the mere presence of a static price axis -- regardless of whether it moves at some time -- is...
still infringing (id., at 1). In our view, such an argument suggests that automatic re-centering takes an accused product or process out of the purview of plaintiffs patent protection, but only for the split second that it is moving, so that the time when the accused product’s price axis is not moving, it is still infringing. Ultimately, however, plaintiffs arguments both suggest that the addition of movement does not preclude a finding of infringement.

We begin by assessing plaintiffs "comprising" argument. To do so, we must lay out Claim 1 of each patent-in-suit. Patent '304, Claim 1, reads:

A method for displaying market information relating to and facilitating trading of a commodity being traded in an electronic exchange having an inside market with a highest bid price and a lowest ask price on a graphical user interface, the method comprising:

[1] dynamically displaying a first indicator in one of a plurality of locations in a bid display region, each location in the bid display region corresponding to a price level along a common static price axis, the first indicator representing quantity associated with at least one order to buy the commodity at the highest bid price currently available in the market;
[2] dynamically displaying a second indicator in one of a plurality of locations in an ask display region, each location in the ask display region corresponding to a price level along the common static price axis, the second indicator representing quantity associated with at least one order to sell the commodity at the lowest ask price currently available in the market;
[3] displaying the bid and ask display regions in relation to fixed price levels positioned along the common static price axis such that when the inside market changes, the price levels along the common static price axis do not move and at least one of the first and second indicators moves in the bid or ask display regions relative to the common static price axis;
[4] displaying an order entry region comprising a plurality of locations for receiving commands to send trade orders, each location corresponding to a price level along the common static price axis; and
[5] in response to a selection of a particular location of the order entry region by a single action of a user input device, setting a plurality of parameters for a trade order relating to the commodity and sending the trade order to the electronic exchange.

Patent '132, Claim 1, reads:

A method of placing a trade order for a commodity on an electronic exchange having an inside market with a highest bid price and a lowest ask price, using a graphical user interface and a user input device, said method comprising:

[1] setting a preset parameter for the trade order
[2] displaying a market depth of the commodity, through a dynamic display of a plurality of bids and a plurality of asks in the market for the commodity, including at least a portion of the bid and ask quantities of the commodity, the dynamic display being aligned with a static display of prices corresponding thereto, wherein the static display of prices does not move in response to a change in the inside market;
[3] displaying an order entry region aligned with the static display prices comprising a plurality of areas for receiving commands from the user input devices to send trade orders, each area corresponding to a price of the static display of prices; and
[4] selecting a particular area in the order entry region through single action of the user input device with a pointer of the user input device positioned over the particular area to set a plurality of additional parameters for the trade order and send the trade order to the electronic exchange.

Plaintiff correctly notes that the addition of unclaimed unrecited elements does not traditionally defeat a finding of infringement where the patent uses an open transitional phrase such as "comprising." Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1347 (Fed.Cir.2005); CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1235 (Fed.Cir.2005); Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371 (Fed.Cir.2005). Therefore, when the term "comprising" appears in the preamble of the claim, as it does here, it is generally read to mean including, but not limited to, the following elements. Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed.Cir.2005) ("Comprising' is often synonymous with 'including"); Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed.Cir.2001) ("In the parlance of patent law, the transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements").
limitation of a static or non-moving condition. n5 Any movement takes a product or process outside the scope of plaintiff's claim. See W.E. Hall Co., Inc. v. Atlanta Corrugating, LLC, 370 F.3d 1343 (Fed.Cir.2004) (where an accused product failed to meet each of the elements or limitations required by the claim language itself, a partially open transition term could not enlarge the scope of the claim); Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261 (Fed.Cir.1986) (the term "comprising" did not affect the scope of the particular structure recited within the method claim's step). Unlike Smith & Nephew, Inc. v. Ethicon, Inc., 276 F.3d 1304 (Fed.Cir.2002), failure to include movement of the static price axis in plaintiff's claims would not exclude a reasonable practice taught in the specification of the patent. And unlike CollegeNet, Inc., 418 F.3d at 1235, failure to include movement of the static price axis in plaintiff's claims would not be inconsistent with the problems the invention sought to redress. Rather, including movement of the static price axis would work against the patents' stated purpose: "If a trader intends to enter an order at a particular price, but misses the price because the market prices moved before he could enter the order, he may lose hundreds, thousands, even millions of dollars" (304, 2:61-65, '132, 2:57-61). It is a basic principle of patent law that an infringing use of a patented method or claim requires practice of every limitation of the claim or every step of the method. Zoltek Corp. v. U.S., 442 F.3d 1345, 1359 (Fed.Cir.2006). Addition of the term "comprising" does not remove the limitations that are present in the claim, Power Mosfet Technologies, L.L.C. v. Siemens AG, 378 F.3d 1396, 1409 (Fed.Cir.2004). Therefore, we do not read "comprising" as allowing some movement of the static price axis. Our earlier constructions remain, and we clarify that the price axis never changes positions unless by manual re-centering or re-positioning.

n5 We have already determined that "static" means non-moving. TT Markman I, 2006 U.S. Dist. LEXIS 80153, 2006 WL 3147697. In addition to the plain and ordinary meaning we focused on in TT Markman I, we also note several instances in the intrinsic record suggesting such a construction. See, e.g., '304, 7:65-67 ("The values in the price column are static; that is, they do not normally change positions unless a re-centering command is received..."); Amendment and Reply under 37 CFR § 1.111 (eSpeed Markman exhibits, Exh. E, at eS0000604873) (same); Notice of Allowability (id., Exh. OO, at eS0000604919) ("The static display, directed to the commodity price, does not change").

Once we determine that the term "comprising" does not allow for any movement of the static price axis, it is easy to dispose of plaintiff's part-time infringement argument. Plaintiff correctly points out that "an accused product that sometimes, but not always, embodies a claimed method nonetheless infringes." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 622 (Fed.Cir.1995). The statute governing patent infringement, 35 U.S.C. § 271(a) (2003), also suggests that any infringement -- even de minimis infringement -- is actionable; the level of infringement is a question of damages, not liability. Embrex, Inc. v. Service Engineering Corp., 216 F.3d 1343, 1352-53 (Fed.Cir.2000) (Rader, J., concurring). Where, however, the claim limitation itself -- here, a static condition -- requires permanency, any movement (outside of manual re-centering or re-positioning) negates one of the specified claim limitations. Therefore, introduction of such movement takes an accused device out of the protection of plaintiff's patents.

The situation at hand is different from those cases finding part-time or de minimis infringement. For example, the court in Seal-Flex, Inc. v. Athletic Track and Court Const., 172 F.3d 836, 845 (Fed.Cir.1999) found infringement where defendant's customary method was non-infringing, and defendant only used plaintiff's patented method one time. Or, in SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1341-42 (Fed.Cir.2005), the Federal Circuit affirmed the district court's determination that trace amounts of the patented compound found in the infringing device would infringe under the construction of the claims. Or, in Embrex, 216 F.3d 1343, the court found infringement when defendants engaged in testing for commercial purposes using plaintiff's patented technology. In this case, in order to literally infringe, defendants must practice all elements of plaintiff's patented technology. Zoltek Corp., 442 F.3d at 1359. Therefore, any movement of the static price axis leaves accused technology outside the protection of plaintiff's patents.

 Plaintiff makes various other arguments and points to various extrinsic evidence in support of its position that any period of a static condition falls within our construction of "common static price axis" and "static display of prices." None is persuasive. We have already determined the influence of the phrase "ensure fast and accurate execution" in the claim construction. Free Motion Fitness, a case cited by plaintiff to support its argument that the patents did not guarantee accuracy, tells us "to scrutinize the intrinsic evidence in order to determine the most appropriate definition" of a claim term. 423 F.3d at 1348-49. That is exactly what we did -- we turned to the specification, which suggested that the patented
technology would "ensure fast and accurate execution" to construe "common static price axis" and "static display of prices." Thus, we need not alter our construction. And the extrinsic evidence presented -- in light of our construction, based almost entirely on intrinsic evidence -- will not change our construction.

1. "Communicating a superseding signal to a bus coupled to said first computer and said at least one originally provided memory through a diagnostic/emulation port or harness coupled to said bus from an adapter module, said superseding signal to alter control of said engine by said first computer."

Plaintiff argues that this phrase should be read to mean "communicating or sending a signal, from an adapter module through a vehicle diagnostic/emulation port or wiring harness, to a bus connected to the vehicle computer, that alters the way the vehicle computer controls the engine." Defendants offer a competing interpretation: "communicating a superseding signal from the adapter module through the diagnostic/emulation port or harness to the vehicle computer, overriding the control signals that are simultaneously being sent from a first computer to the engine, resulting in the alteration of the control of the engine by the first computer." The essence of the parties' dispute is the definition of "superseding"; Defendants insist that this term requires that both the originally provided memory and the additional preprogrammed memory simultaneously send signals to the ECM, with the signal from the additional memory overriding the signal from the originally provided memory.

Mr. Lundell has recommended a construction of the disputed phrase as a whole but has not expressed an opinion on this particular issue. The Court notes, however, that Mr. Lundell's reading of claim 1, which the Court has adopted, permits the communication either of the contents of a memory or of the physical memory itself. If the physical memory contained in the adapter module is communicated to the ECM, replacing the originally provided memory (which, according to all parties, is transferred to the adapter module in this embodiment of the invention), then it is not possible for both memories to send signals to the ECM at once. The Court therefore adopts Mr. Lundell's recommended construction, which permits either simultaneous signaling or signaling only by the additional memory: "communicating a superseding signal from an adapter module to a bus coupled to the first computer and the originally provided memory, with the result of altering control of the engine by the first computer."

TERM # 13: "communicating at least one message associated with said submitted bid to said issuer's computer over said at least one electronic network" - As an initial matter, the majority of the terms used in this phrase have already been defined, as evidenced by the repeated use of the term "said", meaning, previously mentioned. Defendants' proposed claim construction requires that the bidder's computer do the communicating. And again, the intrinsic evidence to which they cite does not support such a construction. As plaintiff correctly points out, the patent contemplates that an auctioneer's computer could be used to coordinate the auction. Under such circumstances, the bid information could emanate from the auctioneer's computer. There is no support in the intrinsic record for importing the limitation proposed by defendants. As such, this phrase means: "a message associated with the submitted bid is sent to the issuer's computer over at least one network for
communicating data messages between said computers, including, but not limited to, the Internet."

The Special Master construed the phrase "communicating frames containing data between all of the nodes at a common communication capability" appearing in claim 31 of the 732 patent as follows:

I find that this phrase requires that each and every node in the network have the ability to communicate with the medium and hence with each and every other node in the network at the common communication capability, and that each node would be expected to use this ability at some time in the operation of the network. This means that in actual network operation, each node at some time can be expected to place data frames on the medium at the common capability and receive data frames from the medium at the common capability.

Datapoint asserts that the requirement that "each node actually use this ability at some time" is an extraneous limitation that controverts the specification and the claim language. According to Datapoint, the patents only require that each node have the ability to transmit and receive frames and either transmit or receive frames at the common communication capability. The Special Master determined that claim 31 of the 732 patent requires that the node not only be able to communicate at the common capability, but also that at some point each node actually do so, lest this method claim be inoperable. J.A. at 41 ("The mere fact that a node may have the capable hardware and/or software installed would not meet this method limitation if the network system organization precluded that node from using that communication capability in actual network operation.") (emphasis in original)); cf. Wang Labs, Inc. v. America Online, Inc., 197 F.3d 1377, 1383, 53 U.S.P.Q.2D (BNA) 1161, 1165 (Fed. Cir. 1999) (noting that claims should be construed to preserve their validity). This was not an erroneous construction.

Datapoint's position hinges on its belief that communication occurs when at least one node transmits and at least one node receives frames containing data, such as in a broadcast communication. But claim 31 recites "a method of communicating information frames between at least three nodes in a [LAN] comprising . . . communicating frames containing data between all of the nodes at a common communication capability and in accordance with a predetermined logical connectivity pattern . . . ." (emphasis added). And the specification explicitly defines what "communication" means for purposes of the present invention: "Communication between nodes occurs by sending and receiving frames. A frame is a series of signals applied to a medium." 732 patent, col. 10, lines 49-51 (emphasis added). Thus, to meet all of the limitations of method claim 31, each of the at least three nodes in the LAN must at some point during network operation interconnect as equal peers and send and receive a series of signals applied to a medium. Such a construction comports with the purpose of the invention and is proper when claim 31 is read in light of the specification as a whole.

After considering the arguments of counsel and the intrinsic record, the court concludes that the term "communicating with" requires no construction.

The phrase "the central server communicating with said content provider" - as used in the '498 Patent - means "the central server providing information to or receiving information from said content provider."

- 1172 -
A. "Communication"

Fortinet argues that "communication," as used in the '272 Patent, is limited to calls, while PAN contends that the patent imposes no such limitation, and "communication" should be understood as having its ordinary meaning. In light of how "communication" is used in the patent as a whole, the court agrees with PAN.

The words of the claims themselves shed little light on whether "communication" is limited to calls or can include other types of communication. According to Fortinet, the fact that claim 24, a dependent claim of claim 1, refers to "said call destination" when claim 1 only discusses how to determine the destination for a communication shows that "call" and "communication" are used interchangeably. See '272 Patent 12:59-13:4 (claim 1), 14:9-11 (claim 24). While this claim language is consistent with Fortinet's interpretation, it is also consistent with dependent claim 24 merely having a narrower scope than claim 1 (claim 24 being limited to calls, whereas claim 1 includes all communications).

The specification is the "single best guide to the meaning of the disputed term." Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005). The court thus looks to the specification for guidance as to how "communication" should be construed. The specification states that "[t]he classification method can be used for managing any type of communication. For example, the invention can be used to classify and/or route facsimile messages or other printed documents, electronic mail messages, instant electronic messages, or any other human readable or computer readable communication." '272 Patent 12:32-38 (emphasis added). The patentee thus expressly disclosed to the public that the "communication" referred to in the claimed invention includes "any type of communication," including facsimiles, printed documents, e-mail, instant messages, and more. Id. Further driving this point home, the specification refers to an embodiment using a "textual communication" and explains that "[r]outing of communications can be accomplished over electronic channels or through physical transportation of the communication." Id. at 12:40, 44-46. Construing "communication" to mean "call" would exclude such textual communications and communications that are routed through physical transportation, such as paper documents.

Fortinet contends that the claimed invention is limited to routing of calls because the "Field of the Invention" section of the specification states that "[t]he invention relates generally to management of telecommunications calls and more specifically to a method and apparatus for routing and managing telecommunications calls and for developing rules for accomplishing the same." '272 Patent 1:9-12. This statement only asserts that the invention relates to management of telecommunications calls and does not assert that it is limited to management of telecommunications calls. Moreover, even if this statement, standing alone, could be read as suggesting that the patentee only contemplated use of the invention for telecommunications calls, this statement should be read in the context of the patent as a whole. Elsewhere in the specification, the patent refers to "the management and routing of communications, such as telecommunications calls." Id. at 4:1-2. This usage suggests that "communications," as used in the patent, is not limited to telecommunications calls. In the context of the patent as a whole, particularly in light of the express statement that the invention can be used for "any type of communication," the statement in the "Field of the Invention" section is insufficient to limit the meaning of "communication" to calls. See Martek Biosciences Corp. v. Nutrinova, Inc., 579 F.3d 1363, 1380, 1383 (Fed. Cir. 2009) (finding that patentee's explicit definition of a claim term controls even when language in the "Field of the Invention" section suggests a more limited claim scope).

The fact that the preferred (and only) embodiment described in the patent deals with routing of telephone calls does not suggest that the claimed invention is limited to the management of calls. "[I]t is improper to read limitations from a preferred embodiment described in the specification -even if it is the only embodiment— into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004). In this case, not only is there no clear indication that the patentee sought to limit the claims to calls, the specification expressly states that the invention can be used for managing "any type of communication." '272 Patent 12:32-38. Additionally, with regard to the preferred embodiment, the specification states, "[t]he invention has been described through a preferred embodiment. However, the embodiment is not intended to be limiting to the scope of the invention as defined by the appended claims and legal equivalents." Id. at 12:54-57.

Fortinet argues that if "communication," as used in the '272 Patent, is not limited to calls, the patent would be invalid for lack of the required enabling disclosure. Though the court recognizes the maxim that claims should be construed to preserve their validity, the Federal Circuit has indicated that this principle should not be applied broadly and should be limited to cases where a claim remains ambiguous even after the court has applied all available tools of claim construction. Phillips, 415 F.3d at 1327; see also Liebel-Flarsheim, 358 F.3d at 911 ("unless the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous, the axiom regarding the construction to preserve the validity of
the claim does not apply”). In this case, the specification makes clear that "communication" has its ordinary and customary meaning. Hence, for the purposes of claim construction, the court need not determine whether such a construction would render the claims invalid.

The court finds that "communication" has its ordinary and customary meaning and is not limited to calls. Because the plain meaning is sufficiently clear from the claim language, there is no need for construction of this term.

Communication with the network; communicating/communication with an ASP; all forms of "communicate"

The term "communicate" appears, in some form, in Claims 1, 11, 12, and 13. MyMail proposes the term be construed to mean "the ability to exchange data" or the "exchange of data," depending on the context within the claims of the 290 patent. Implicit in MyMail's definition is the limitation that communication must be a two-way process. Defendants, citing two dictionaries, assert that "communicate" means "transmit information" and also argue that communication can be either one-way or two-way.

The specification describes a communications connection where the user and NSP transmit and receive data. See Col. 7:10-16. Communication cannot then be defined as transmitting information since it also entails receiving information. The Court thus rejects Defendants' proposed definition as being inconsistent with the specification. However, the Court must still determine whether communication, as defined in the 290 patent, includes one-way processes or must be limited to two-way processes.

The Court concludes that in the context of the 290 claim language, communication cannot be one-way since that would render the word "with" meaningless. The word "with" implies a two-way conversation. Had the patentee intended to include one-way conversation in his definition of "communicate," he would have replaced "with" with "to," or some other analogous word or phrase, in his claim language. The Court therefore substantially adopts MyMail's definition since "exchange" better reflects the two-way nature of communication.

The parties additionally dispute the meaning of the phrases "communication with the network" and "communicating with an ASP." MyMail proposes that "communicating with an ASP" be defined as "exchange of data with an ASP over a connection to the network." Defendants propose that "communication with the network" be defined as "transmission of information to a system of interconnected computers." The Court notes that MyMail's "over a connection to the network" limitation is already implicit in the definition of communication. For example, the Microsoft Press Computer Dictionary states that computer communication requires a connection or link between the computers. See MICROSOFT PRESS COMPUTER DICTIONARY 102 (3d ed. 1997). Thus, one skilled in the art understands that communication occurs over a connection to the network. However, a juror may not fully appreciate this nuance. Given that the purpose of claim construction is to "elaborate the normally terse claim language in order to understand and explain . . . the scope of the claims," the Court concludes that limitation is necessary to definitively express what is otherwise implied. Embrex, Inc. v. Serv. Engr. Corp., 216 F.3d 1343, 1347 (Fed. Cir. 2000). The Court therefore construes "communication" to mean "exchange of data," "communication with the network" to mean "exchange of data over a connection to the network," and "communication with an ASP" to mean "exchange of a data with an ASP over a connection to the network."

7. Communication

Genlyte asks the Court to construe the word "communication," which appears in claims 1 and 8, and the word "communicating," which appears in claims 8 and 14, to mean "digital communication" and "digitally communicating." While Genlyte argues that "the digital nature of 'communication' . . . was apparent to the U.S. PTO, and was (and is) apparent to one of ordinary skill in the Relevant Art," Lutron contends that because the inventors never claimed the digital nature of the communication as a feature of the invention in either the independent or dependent claims, the Court should
The Federal Circuit has unequivocally stated that (1) this Court cannot alter what the inventors chose to claim as their invention, (2) limitations appearing in the specification will not be read into claims, and (3) interpreting what is meant by a word in a claim is not to be confused with adding an extraneous limitation appearing in the specification, which is improper. See Bayer AG v. Biovail Corp., 279 F.3d 1340, 1348 (Fed. Cir. 2002) (internal citations omitted) (emphasis added). The parties do not disagree as to the communication that takes place in the '731 patent. The only disagreement regards whether such communication is digital in nature.

The specification at col. 2, ll. 30-33, states that one objective of the invention is to "simplify the installation of such a multi-room controller by utilizing digital rather than analog signal transmission between individual light controls and the multi-room controller." Additionally, at col. 5, ll. 30-35, the specification states that the individual light controls are adapted to communicate with the multi-room controller through "a digital signal comprising data codes to the controller 12 and receive instructions and data therefrom." The specification goes on to state at col. 5, ll. 45-50 that "because of the digital nature of communication, each light control 10 and the controller 12 are connected by twisted pairs 24 of telephone wire...capable of transmitting the digital signal at up to 1200 baud without measurable signal degradation."

Therefore, the specification clearly shows that the communication which takes place is "digital." While the claim does not specifically say "digital communication," one of skill in the relevant art would have understood that the communication at issue in the '731 patent is digital in nature. Therefore, "communication" in claims 1 and 8 and "communicating" in claims 8 and 14 mean "digital communication" and "digitally communicating."

D. "for communication between [the host device and the data transmit/receive device]"

Papst proposes that "for communication between" the computer and the data transmit/receive device should be construed to include one-way or two-way communication, or both. Papst's App. at 2. The Camera Manufacturers propose that the phrase "for communication between" means "for transmitting of information bidirectionally and actively between the two devices." CMs' PowerPoint Slides [Dkt. # 267] ("CMs' Slides") at 55.

As more fully explained above, the preamble to Claim One states, "[a]n interface device for communication between a host device . . . and a data transmit/receive device . . . ." '399 Patent, col. 12:42-45 (emphasis added); '449 Patent, col. 11:47-49 (same). "Communication between" implies bilateral interchanges. The specification describes active communication and data interchange between the host device and the data transmit/receive device via the interface device. See '399 Patent, col. 5:56-62 ("The data transmit/receive device itself can also communicate actively with the host device via the first and second connecting device . . . ."); '449 Patent, col. 4:55-61 (same); '399 Patent, col. 8:43-46 (an "important advantage of the interface device of the present invention" is the "extremely high data transfer rates by using, for data interchange, the host device's [sic] BIOS routines."); '449 Patent, col. 7:43-47 (same). Accordingly, the Court accepts, with slight modification, the construction proposed by the Camera Manufacturers, finding it consistent with the construction of the term "data transmit/receive device" to require bidirectional communication. "For communication between" the computer and the data transmit/receive device means "for transmitting of information bidirectionally between the two devices."

In this case, the only general term in dispute is "low voltage communication cable," which appears in Claim 17. While there was not much dispute over what "low voltage" means, there was significant dispute over the specific meaning of "communication cable." Accordingly, the Court limited its construction to "communication cable" specifically. For the reasons outlined in the Court's prior order, the Court construed "communication cable" to mean "any cable which carries any data or control signal from one point to another in a low voltage system -- i.e., that communicates between aspects or elements of a low voltage system."
2. "a first communication connection," "a first communication connection between a caller and a called party" & "a first communication connection between an institutional caller and an outside recipient"

a) The Parties' Proposed Construction and Arguments

T-Netix's Proposed Construction

"A first communication connection" means a telephone connection between an institutional caller and an outside recipient.

"A second communication connection" means a telephone connection between the outside recipient and another party.

T-Netix's PowerPoint presentation at the Markman Hearing, Slides 4 and 10.

Global's Proposed Construction

"a first communication connection between a caller and a called party" or "a first communication connection between an institutional caller and an outside recipient" means:

1. the telephone instrument of the caller,

2. the telephone instrument of the called party, and

3. all apparatus for maintaining an ongoing communication connection between the caller and the called party. Global's PowerPoint presentation at the Markman Hearing, Slide 10.

b) Discussion

The '533 patent is little help in interpreting "communication connection." The term appears only in the claims and not in the specification. The problem with following the rule of using the plain meaning is that both uses of the word "connection" come within the plain meaning, since both meanings are common. According to McGraw-Hill Dictionary of Scientific and Technical Terms, Fifth Edition, the term "telephone circuit" means:

"The complete circuit over which audio and signaling currents travel in a telephone system between the telephone subscribers in communication with each other."

This does not prevent the use of another term as a synonym. As an example, The IEEE (Institute of Electrical and Electronic Engineers) Standard Dictionary of Electrical and Electronic Terms, 1972, defines "telephone connection" as:

"A two-way telephone channel completed between two points by means of a suitable switching apparatus and arranged for the transmission of telephone currents, together with the associated arrangements for its functioning with the other parts of a telephone system in switching and signaling operations."

Global also makes the argument based on the formatting of the claims affecting the scope of the claims. It is a valid point. It would have been possible to move certain elements to the preamble rather than including them as claim elements. The '533 patent includes numerous references such as "a trunk management unit, which connects institutional telephones to outside telephone lines" from the Abstract and "Referring now to FIG. 4, a block diagram of one channel of a multichannel TMU 2 is shown. Generally, TMU 2 includes circuitry to selectively connect inmate phones with outside lines" from column 12, beginning with line 28. Similar phrases appear throughout the patent where some form of the word "connect" is used with "outside lines" or "outside telephone lines." We cannot, however, rewrite the claims. To interpret the claims as Global urges, does, however, create a disclosure problem. The figures used by Global at the Markman hearing add to Figure 1 of the '533 patent. Figure 1 stops at showing outside telephone lines 8. Global added blocks for "local central office" and "remote central office" and shows the called party and a telephone as well as a person representing a third person and the second
communication connection with a telephone. None of these items appear in Figure 1 or any figure of the patent. Figure 4 shows lines going to and coming from a central office, but that is all. There are, of course, reasons to not move some items to the preamble, such as patentability issues or measure of damages. Normally, however, we try to interpret ambiguous claims in a manner that supports validity. We can do that by either interpreting "communication connection" in a narrow sense, such as the dictionary definition put forward by T-Netix:

"3. anything that connects: connecting part; link; bond: a pipe connection."

In a normal landline connection between wired telephones, all of the wires, switches and telephones preexist before a "connection" takes place, so there is some logic to this claim construction. In the alternative, it could be said that the existence of telephones and telephone offices are so well known that no specific disclosure is needed for those features, in which case there is no disclosure problem. That seems to be the better logic in this case, since the construction urged by Global takes into account both the structure of the claims and the shift away from the more restricted language of the specification. Finally, it brings the term "communication connection" into agreement with the term "telephone connection" which is appropriate since the communication that the patent concerns is telephone communication.

c) Construction -- "a first communication connection between a caller and a called party"

In view of the foregoing, the Court concludes that:

d) The term -- "a first communication connection between a caller and a called party" and the term "a first communication connection between an institutional caller and an outside recipient" mean:

1. the telephone instrument of the caller,

2. the telephone instrument of the called party or outside recipient, and

3. all apparatus for maintaining an ongoing communication connection between the caller and the called party or outside recipient.


Consistent with the intrinsic evidence of the '508 patent, the phrase "communication connection is provided between said option connector and said second processor" shall mean "a two-way line of communication in which information may be sent from the option connector to the second processor or information may be sent from the second processor to the option connector."

C. "Communication Device"

"Communication device" is defined as, "An apparatus for the transmission of intelligence between two or more points." This definition accurately summarizes what a communications device would do -- it would communicate, by transmitting data.

Plaintiffs' proposed definition is, "A device having a receiver and a transmitter, or a device having a receiver, or a device having a transmitter." In other words, plaintiff defines a "communication device" as a receiver, or a transmitter, or a device that contains both a receiver and a transmitter. Plaintiff obviously takes this tack because its specifications designate a computer as the "device" that "communicates" -- and computers "communicate" with other computers.

But plaintiffs' disjunctive definition cannot possibly be correct, because it defines a "device having a receiver" (but no
transmitter) as a "communications device." A bare receiver (i.e., a device that can receive data, but not transmit data) cannot possibly be a "communications device," because "communication" requires the transmission of data. "Communicate" comes from the Latin word "communicare," which means "to impart." In the common parlance, the word is defined as, "To convey knowledge of or information about, to make known." WEBSTER'S NEW COLLEGIATE DICTIONARY, 228 (1977 ed.). In scientific and technical parlance, "communication" means, "The transmission of intelligence between two or more points…" McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNOLOGICAL TERMS, supra, at 440. Both definitions comprehend the sending or imparting of data. A bare receiver cannot send or impart data. It can only accept data. Therefore, it cannot be a "communications device."

It is equally clear from the specifications that a bare receiver cannot be a "communication device" for purposes of the '725 patent. Here is how the contested language appears in context:

    Wherein the limitation or restriction is transmitted to a receiver from a communication device associated with an individual account holder. '725 patent, col. 48, line 29-31.

In this patent, in these claims, the communications device sends data (in the form of a limitation or restriction) to a receiver. Thus, in the context of the claims in suit, the communications device is the sending device, and the receiver is the receiving device. If a communications device could be "a device having a receiver" (but no transmitter), it would be incapable of "transmitting to a receiver." Thus, in the context of the claims in suit, the communications device cannot possibly be a bare receiver. It must, therefore, either be a transmitter, or be something that contains a transmitter.

I hasten to add that nothing in the definitions of "receiver" and "communication device" that I adopt rules out a computer or other input/output (I/O) device as being either a "receiver" or a "communications device."

F. "Communication Device Other Than an Internet-Connected Device" (910 Patent)

This term appears in both independent claims of the '910 patent. CashEdge seeks to construe this to mean "a device for sending or receiving information that does not communicate with the Internet either by wireless or non-wireless means," while Yodlee asserts that no construction is necessary. Alternatively, Yodlee advances a construction that would read "a device that is not connected to the Internet at the time the device receives the notification." CashEdge asserts that the prosecution history shows that the applicants added this language to overcome prior art by excluding all devices that are capable of connection to the Internet, regardless of whether they are not connected at the time of notification. However, the cited file wrapper language does not indicate that any device that can connect to the Internet is not included, it only shows that notification via e-mail would constitute notification via an Internet-connected device. CashEdge Ex. 12 at CE 00003344-45, 00003355. Furthermore, dependent claim 6 covers wireless communication devices that are "incapable of Internet connection." Where there are different words used in different claims, there is presumed to be difference in meaning. Tandon Corp. v. International Trade Com., 831 F.2d 1017, 1023 (Fed. Cir. 1987). The CashEdge construction goes against this presumption by construing "other than an Internet-connected device" as meaning the same thing as "incapable of Internet connection." The Court construes this term to mean "a device that is not connected to the Internet at the time the device receives the notification."

29. Bi-directional communication fabric

The phrase "bi-directional communication fabric" means "an interprocessor communications network allowing communication in both directions." The specification suggests that the patentee used "network" and "fabric" interchangeably. See 840 patent, col. 6, 11. 16-19. At least one programmable media processor is provided within the communications network for receiving, processing, and transmitting the at least one stream of unified media data over the bi-directional communications fabric.
Citrix asserts that this is a mean-plus-function pursuant to 35 U.S.C. Section 112, paragraph 6.

Use of the term "means" creates a presumption that the element is to be construed in accordance with Section 112, paragraph 6. This presumption may be rebutted, however, when claim element recites sufficiently definite structure or material to perform the claimed function. Absence of the term 'means' creates a presumption that the element is not to be construed in accordance with Section 112, paragraph 6. However, this presumption may be rebutted when the claim element does not recite sufficiently definite structure or material to perform the claimed function. In determining whether these presumptions have been rebutted by a preponderance of the evidence, the court may examine the intrinsic evidence and any relevant extrinsic evidence.

Schwartz, supra, § 5.III.C.

There are four permutations of "communication facility" at issue here, and Citrix asserts that all of them are subject to Section 112, paragraph 6. The court disagrees. The four permutations are as follows: 1) "Data Communication Facility"; 2) "Location Facility"; 3) Communication Facility"; 4) "Data Generating Facilities."

None of these four permutations use the word "means" and Citrix fails to rebut the presumption that this is not a means-plus function by a preponderance of the evidence. The court agrees that the specification provides a clear description of the "facilities" and particularly the "data communication facility" as a computer software product. Indeed, the specification provides that "a number of computer program facilities are described in this invention as separate facilities for the sake of describing the invention." '479 Patent, col. 10, lines 11-13. Therefore, the court concludes that 01 Communique's proposed construction is correct, which is "Computer software associated with the personal computer."

J) "a communication facility"

As explained in section E) above, the court agrees with 01 Communique that the appropriate construction is "Computer software associated with the remote computer."

1. "Communication Facility"

The parties have asked the Court to construe the term "communication facility." 1 The plaintiffs argue that although the term does not have a common meaning to one of ordinary skill in the art, 2 the meaning is clear from the claim language. The plaintiffs contend that because the purpose of the communication facility in the claims is to connect callers to the interactive voice application ("the Katz system"), the kind of communication facility is inconsequential and the Court should construe the term to mean "any telephone network that enables callers to make calls." (Pls.' Brief at 44-45).

--- Footnotes ---

1 The parties agree that the term "telephonic [or 'telephone'] communication system" is synonymous with "communication facility" and thus should be construed the same. The Court finds no reason in the claim language, specifications, or prosecution history of the patents which contain these terms to construe the two terms differently.

In addition to Claim 51 of the '309, the term "communication facility" or "telephonic [or 'telephone'] communication system" appears in the following claims: Claims 33, 44, 93, 104, 117 and 192 of the '707 patent, Claims 49, 50, 65, 79, 171, and 190 of the '863 patent, Claim 10 of the '309 patent, Claims 17, 20, 24, and 77 of the '285 patent, and Claim 15 of the
presented by the plaintiffs, the term "communication facility" does not require the involvement of the entire PSTN or thus,
construction of this term. Thus, I conclude that in light of the claim language, specifications, and prosecution history
not undermine this reading of the claim language and specification and do not lend support to the defendants' proposed
"communication facility," is consistent with this indication. The references to the specification made by the defendants do
network." This indicates that the communication facility may, but is not required to involve the entire PSTN. In addition, the
Katz states that "in the illustrative embodiment of the system, the communication facility C comprises a public telephone
The specification is more helpful in determining the scope of the term at issue. In Column 3, lines 55-59 of the '707 patent,
however, there is no indication from claim language itself that the communication facility must include the entire PSTN.
This Court concludes that the claim language does not shed much light on the scope of the communication facility; however, there is no indication from claim language itself that the communication facility must include the entire PSTN. The specification is more helpful in determining the scope of the term at issue. In Column 3, lines 55-59 of the '707 patent, Katz states that "in the illustrative embodiment of the system, the communication facility C comprises a public telephone network." This indicates that the communication facility may, but is not required to involve the entire PSTN. In addition, the prosecution history of '299 patent cited by the plaintiffs, in which Katz removed the word "public" from modifying "communication facility," is consistent with this indication. The references to the specification made by the defendants do not undermine this reading of the claim language and specification and do not lend support to the defendants' proposed construction of this term. Thus, I conclude that in light of the claim language, specifications, and prosecution history presented by the plaintiffs, the term "communication facility" does not require the involvement of the entire PSTN or thus,
all of its elements and processes.

To support their argument that "communication facility" is defined in the patents such that the Katz system must be operated only outside the PSTN or communication facility, the defendants point to the language of the preamble and claim limitations. The parties agree that because the terms "communication facility" and "analysis control system," which initially appear in the preamble, are referred to in the claim limitations, these terms should be considered as limitations in the claims. See Gerber Garment Tech., Inc. v. Lectra Sys., Inc., 916 F.2d 683, 689 (Fed. Cir. 1990). The preamble provides for "an analysis control system for use with a communication facility;" the defendants contend that this language, particularly the word "with," indicates that the Katz system, the analysis control system, is necessarily outside of the network. Further, the defendants argue that because the preamble indicates that the communication facility provides call data signals to the Katz system, this indicates that Katz was not referring to the internal routing signals that occur inside the telephone network.

Turning to the language of the claim limitations, the defendants point out that Katz used the phrase "coupled to said communication facility," which they argue indicates that the Katz system is something distinct from the communication facility because it is "coupled to" it. The defendants also contend that the limitation "interface structure coupled to said communication facility . . . including means to provide signals representative of data developed by said remote terminals and for receiving said calling number identification data and said called number identification data (DNIS) to identify one from a plurality of called numbers" indicates that the interface structure cannot be a switch inside the PSTN, because switches send DNIS, not receive it. 4 This, the defendants argue, is further proof that the Katz system cannot include any elements or processes which are inside the PSTN.

4 This limitation is not present in Claim 51 of the '309 patent, but it and similar limitations appear in other claims in which the term "communication facility" is used. See, e.g., Claim 171 of the '863 patent (dependent on Claim 93 of the '863).

In addition, the defendants refer the Court to Figure 1 in the specification. First, the defendants argue that the Katz system is represented as a "dead-end" or the place at which a call terminates, not as a mechanism by which calls are connected from one person to another, as is the function of the PSTN. Second, the defendants argue that pursuant to the Code of Federal Regulations, if an aspect of the invention is represented in the figure as a rectangular box, it indicates that that aspect is not essential to the understanding of the invention, citing 37 C.F.R. § 1.83(a). Thus, the defendants argue, the fact that the communication facility is represented in the figure as an empty box lends support to their position that the Katz system must be operated only outside the network.

Finally, the defendants point to the specification of the '707 patent at Column 6 at line 14, which provides that "individual callers would use the remote terminals T1-Tn to contact the central station D through the communication facility," as indicating that by using the word "through," Katz indicated that the Katz system must be operated only outside the PSTN.

The plaintiffs argue that the claim language is silent as to whether the Katz system must function only "inside" or "outside" the network. Further, the plaintiffs argue that there is nothing in the specification that requires that the Katz system function only outside the network. The plaintiffs maintain that although the communication facility is represented in Figure 1 as an empty box, certain parts that the defendants would consider to be "inside" the PSTN, such as the remote terminals and customer billing, are split out and shown as separate boxes in Figure 1. Thus, the plaintiffs contend that if customer billing and the remote terminals can be shown as separate empty boxes and still be "inside" the PSTN, there is no basis in Figure 1 for construing the Katz system, which is also represented by separate boxes, as "outside" the PSTN.

The Court concludes that there is no basis in the claim language, the specifications, or in Figure 1 to construe the term "communication facility" to mean that the Katz system must be operated only outside the communication facility. It appears that the essence of the defendants' argument here is that the Katz system cannot run on any of the equipment that is part of the communication facility, and thus, is "outside" of the communication facility. The Court is not persuaded that the words "for use with," "through," or "coupled to" indicates that the Katz system must be operated only outside the communication facility. The words "with," "through," and "coupled to" connote some type of relationship between two things; however, none of these terms means that the two things in the relationship cannot be considered part of the same system or entity.
Finally, the defendants argue that, claim language and specification aside, Katz clearly limited his invention to a system only existing outside the communication facility in his representations to the PTO during the prosecution of his patents. The defendants point to comments by Katz during the prosecution of the '075 patent regarding patents to DeBruyn, Riskin, Comella, and Daudelin. Specifically, the defendants point out that in an Amendment dated August 31, 1995, Katz stated that he amended his claim to recite "that processing of at least certain of the data developed by the terminals and the calling number identification data occurs in the Applicant's system" and that "neither DeBruyn nor Riskin teach this aspect of the Applicant's system, also neither patent teaches calling number identification data provided automatically by a communication system (for example, ANI or like signals)." (Ex. 51).

In addition, the defendants point out that in the same Amendment, Katz noted in part that Comella's system "replaces the function of an operator for certain types of calls, for example, collect calls, person-to-person calls, charge-to-third number calls and so on" and that the patent to Comella "is somewhat of background interest for its interface aspects." (Ex. 51). As for the patent to Daudelin, the defendants point out that Katz described it as "generally directed to an interface arrangement for reducing the load on telephone operators." (Ex. 51). Apparently, the defendants contend that if Katz had contemplated that his system could have operated inside the PSTN, he should have said a lot more than he did to adequately distinguish his invention from the Daudelin and Comella patents, which were inventions that were operated by the PSTN.

Whether Katz complied with his obligations before the PTO, however, is a question for another day; the question before the Court is whether Katz made any statements to the PTO that limited the scope of his claims. Considering the passages of prosecution history flagged by the defendants, the answer to that question is no: The Court concludes that the statements by Katz regarding these patents do not constitute a representation from him to the PTO that his invention could be operated only "outside" the communication facility.

Further, the defendants point to statements made by Katz to the PTO in the September 19, 1994 Supplemental Information Disclosure Statement ("IDS") during the prosecution of the '575 patent, which occurred while the application of the '707 patent was still being prosecuted. Specifically, the defendants point to a passage in which Katz referred to a patent by DeBruyn and stated in part that the patent to DeBruyn "discloses a lottery system that is integral with the 'Telephone Company,'" and that in Katz' system, "the 'Telephone Company' ('a communication facility') simply provides an interface, the lottery system being a separate and distinct capability." (Ex. 41). However, taking the statements highlighted by the defendants in context, Katz points out differences between his system and the DeBruyn system including that in Katz system the caller must enter "lottery and identification data," while in the DeBruyn system, the caller need not enter such information because the system is run inside the "Telephone Company" where the callers' telephone number is already known. These statements highlight that the Katz system requires that a caller enter certain data, which is not required by the DeBruyn system; the statements do not limit the physical or geographic location where the Katz system can or cannot operate.

Similarly, the defendants refer to another piece of prosecution history in which Katz discussed a patent to DeBruyn for a telephonic lottery system. (Ex. 46). In the September 30, 1994 IDS in the prosecution of the '120 patent, 5 Katz stated that DeBruyn was distinct from his system which received identification from a caller because the it was "integrated with the composite telephone system which could identify the subscriber's telephone number." The Court concludes that the statements of Katz in the September 19, 1994 Supplemental IDS and the September 30, 1994 IDS do not restrict or limit the term "communication facility" to mean that the Katz system must be operated only outside of it.

5 The '120 patent is related to the patents-in-suit; the defendants cite to this prosecution history because the claims at issue contain language regarding the communication facility which is similar to the patents before the Court. (Defs.' Brief at 34 n. 20).

The defendants argue that Katz also distinguishes his system from the routing and connection of telephone calls, which are integral functions of a telephone company, thereby establishing that his system was to operate only outside the network. The defendants point to a statement made by Katz regarding a patent to Riskin in the prosecution of the '075 patent. (Ex. 40). In
the Preliminary Amendment dated July 17, 1990, Katz stated that "recognizing that the Riskin patent discloses the utilization of ANI and DNIS signals to accomplish telephone routing, it is respectfully submitted that applicant's system involves entirely different philosophical considerations and structure." The defendants contend that because the Riskin patent was a system that was inside the telephone network, this statement by Katz indicates that his system was to be operated outside the PSTN. Similarly, the defendants argue that Katz distinguished his invention during the prosecution of the '929 patent 6 from a patent to Riskin by stating that his invention was outside the PSTN. (Ex. 37). In the Amendment dated August 1, 1990, Katz noted that in the Riskin patent, "functions are involved that are completely distinct from applicant's system . . . . Specifically, Riskin does not disclose an interface telephone system but rather discloses a connection system." The Court concludes that in these statements, however, Katz is discussing functional differences between the Riskin system and his system, not differences in the physical or geographic location of the elements of the systems.

Essentially, the defendants are attempting in their arguments regarding "communication facility" to put a non-infringement rabbit in their hat at the claim construction stage of the case; in their arguments, they expressly seek to include any and all of their equipment, wires, switches, computers, trunks, lines, databases, and so on in the definition of "communication facility" and then establish that the Katz system cannot by definition include any of those things or run on any of that equipment because his system must be "outside" the communication facility. The result of adopting such reasoning would be to restrict the definition of "communication facility" on the basis of who owned the computer or switch on which the Katz system was running or on the basis of the physical or geographic location of the particular computer or switch. The plain words of the patents will not support such a restricted definition.

Based on the foregoing inspection of the claim language, specification, and prosecution history, the Court construes the term "communication facility" in the Katz patents to mean: that part of a telephone network that enables a caller to connect to the Katz system. The Court concludes that there is no support for a construction of "communication facility" to require that the Katz system be operated only outside the entire PSTN nor that the "communication facility" encompass the elements or processes of the entire PSTN.

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E) "data communication facility"

Citrix asserts that this is a mean-plus-function pursuant to 35 U.S.C. Section 112, paragraph 6.

Use of the term "means" creates a presumption that the element is to be construed in accordance with Section 112, paragraph 6. This presumption may be rebutted, however, when claim element recites sufficiently definite structure or material to perform the claimed function. Absence of the term 'means' creates a presumption that the element is not to be construed in accordance with Section 112, paragraph 6. However, this presumption may be rebutted when the claim element does not recite sufficiently definite structure or material to perform the claimed function. In determining whether these presumptions have been rebutted by a preponderance of the evidence, the court may examine the intrinsic evidence and any relevant extrinsic evidence.

Schwartz, supra, § 5.III.C.

There are four permutations of "communication facility" at issue here, and Citrix asserts that all of them are subject to Section 112, paragraph 6. The court disagrees. The four permutations are as follows: 1) "Data Communication Facility"; 2) "Location Facility"; 3) "Communication Facility"; 4) "Data Generating Facilities."

None of these four permutations use the word "means" and Citrix fails to rebut the presumption that this is not a means-plus function by a preponderance of the evidence. The court agrees that the specification provides a clear description of the
"facilities" and particularly the "data communication facility" as a computer software product. Indeed, the specification provides that "a number of computer program facilities are described in this invention as separate facilities for the sake of describing the invention." '479 Patent, col. 10, lines 11-13. Therefore, the court concludes that 01 Communique's proposed construction is correct, which is "Computer software associated with the personal computer."

The next disputed term "communication interface" appears in Claims 57 and 58 of the '554 Patent. Ricoh asserts that the proper construction for this term includes "any hardware and software that is used to connect two modules of a device or to connect two devices." (Chart at 11). Ricoh's construction is primarily based on the technical definition for the term "communication interface," and the opinion of its expert, James R. Adams, Ph.D. ("Adams"). (Tr. of Markman Hr'g at 42:4-10). Ricoh also points to the specification and Figure 1 and 2 of the patent.

In contrast, Pitney contends that the term means "hardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line." (Chart at 11). Pitney bases its construction primarily on the claim language. Based on the parties' proposed constructions, the issue before the Court is whether "communication interface" is limited to the hardware or includes a combination of hardware and software.

The Court agrees with Pitney that "communication interface" refers to hardware. In Claims 57 and 58 which are apparatus claims, the communication interface is described as a component of the "office machine system." '554 Patent, Claims 57 & 58. In the specification and Figure 2, the patent describes the "interface" as part of the hardware for the present invention. The specification states:

FIG. 2 illustrates hardware features utilized to implement the present invention. All devices 10, 20, 30 have buses 1001, 2001, and 3001, which connect Interface Units 114, 214, and 314 respectively.

Id., col. 3, ll. 37-40. The Court finds no basis in the intrinsic evidence for including software in the construction. Consistent with Phillips, the Court attributes greater weight to the intrinsic evidence, rather than extrinsic, including technical dictionaries and expert testimony, which are the sources upon which Ricoh relies in support of its proposed construction. Thus, the Court adopts Pitney's construction. Accordingly, "communication interface" means "hardware having an output coupled to the first end of a communication line and an input coupled to a processor to transmit state data over the communication line."

The computer jukebox has a “communication interface for receiving” data from the central management system. Opening Brief, Ex. 1 at 8:59-61. Plaintiffs contend that this term means “a connection between components that allows communication from one component to the other.” Id. at 8. Defendants contend that the term means “the point at which data is received by or sent from the jukebox from or to the central management station.” Resp. Brief at 8. Defendants' construction would limit the communication interface to one that permits point-to-point communication between the jukeboxes and the central management station without intervening.
Defendants are again improperly attempting to read a limitation into the claim from the specification. They rely on the testimony of their expert, Dr. Sigurd Meldal, to argue that a person of ordinary skill in the art would understand that the communication interface is a point-to-point system because the central management system and the jukebox “use respective modems ... to maintain serial communication on the transmission link” and the transmission link “may be a cable system such as a public or private telephone lines or the like.” Resp. Brief, Ex. F at ¶¶ 37-40. However, as plaintiffs' expert, Dr. Bradley Dickinson, points out, a skilled artisan would understand that communication networks between computers do not require fixed transmission paths. Rather, “cable and telephone modems are regularly used to connect remote devices through multiple interconnections using networks that are not point-to-point.” Reply Brief, Ex. 21 at ¶ 32.

The Court need not base its construction on the experts' opinions, however, because it is plain that defendants rely too heavily on the diagram in figure 1 to the exclusion of the actual claim language. The fact that the diagram in figure 1 shows a line between the modem in the jukebox and modem in the central management system does not mean that intervening devices such as repeater stations, routers, firewalls, and nodes cannot be utilized. The specification also describes embodiments that routinely use intervening routing devices, such as cable and telephone systems. Opening Brief, Ex. 1 at 3:30-32. Moreover, to the extent that figure 1 shows the limitation inferred by defendants, it is part of the specification. Space Sys./Loral, Inc. v. Lockheed Martin Corp., 405 F.3d 985, 987 (Fed.Cir.2005) (written description requirement in specification includes “[w]ords, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.”) (citation omitted). A limitation from the specification may not be imported into the claim in these circumstances. MBO Labs., 474 F.3d at 1334. The Court therefore construes “communication interface” as “the point at which data is received by or sent from the jukebox from or to the central management station.” The same construction applies to the term “communication interface” in patents 889, 189, 575, 398, and 834.

e. "Plurality of communication interface circuits"
Claim 1 discloses the following:

A plurality of communication interface circuits, one for each of said plurality of self-contained pieces of surgical equipment, each for transmitting data representing status of the associated surgical control head and for receiving remote commands for driving the associated self-contained surgical instrument.

'688 Pat. col.19 ll.57-62. Claim 10 makes a similar disclosure See id. at col.21 ll.17-20. As discussed at the Markman hearing, the Court construes this term as "two or more circuits, each of which enables communication between a single piece of surgical equipment and the central controller." 2 (See Hr'g Tr. 31, 84-85.)

--- Footnotes ---

2 The word "between" in this construction has its ordinary meaning. (See Hr'g Tr. 85.)

--- End Footnotes ---
means for selectively establishing a communication link with each mobile phone unit." Because this limitation is written in "means-plus-function" form, in accordance with 35 U.S.C. § 112, P 6, the claim must be construed to cover the structure disclosed in the specification as performing that function and equivalents thereof. Kahn v. General Motors Corp., 135 F.3d 1472, 1476, 45 U.S.P.Q.2D (BNA) 1608, 1610 (Fed. Cir. 1998). The first step of a 35 U.S.C. § 112, P 6 analysis is to identify the function of the claim limitation. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361, 54 U.S.P.Q.2D (BNA) 1308, 1313 (Fed. Cir. 2000). The second step requires identification of the structures disclosed in the specification and equivalents thereof that perform the claimed function. Id.

The district court observed that the claim recites the function of selectively establishing communication with each mobile phone. Based on that construction, it determined that the only structure described as performing that function corresponds to the structure found in embodiments describing selective and automatic establishment of communications for performing activation or programming of the debit phone via an electronic link. We find no error in the district court's claim construction.

We begin our analysis of this means-plus-function limitation by determining the function recited. In accordance with the plain language of the claim, the function "selectively establishing a communication link with each mobile phone unit" describes a communication established by the host processor. We cannot, as Telemac requests, read the plain language of that clause as encompassing communications established by the user, via the mobile phone. We are reminded that a construction that flies in the face of the express language of the claim is not preferred. Interactive Gift Express, Inc. v. CompuServe, Inc., 231 F.3d 859, 865, 56 U.S.P.Q.2D (BNA) 1647, 1652 (Fed. Cir. 2000). Unless something in the written description suggests that the patentee intended the unambiguous language to be construed in a manner inconsistent with its ordinary meaning, we are bound by that language. Nothing in the written description contradicts the plain language describing the function of that limitation. In light of that, we cannot agree with Telemac that the claim can be construed to encompass systems in which the user manually establishes communications with the host processor.

Next, we identify the structure described within the specification as performing the claimed function. In the preferred embodiment, activation of the phone is performed using an interlink receiver for machine-to-machine communications, thereby ensuring a secure transfer of information. '100 patent, col. 3, ll. 60-67. The '100 patent describes over the air updating of the rate table "at the initiation of the system provider." Id. at col. 14, ll. 14-19. The specification describes a transmission station for establishing a wireless link to the mobile phone for reprogramming the rate table over the air at the initiation of the host processor. Id. at col. 4, ll. 18-22; Id. at col. 6, ll. 32-39. The patent further states that the "system requires that a communication link be established between the host processor and the mobile phone unit and may require that the phone unit be physically connected to the host processor." Id. at col. 1, ll. 15-19. Thus, numerous passages from the specification identify the structure, each part of the host processor, for establishing a communication with a mobile phone.

As provided above, Telemac's challenge to the district court's construction, with an eye towards infringement, focuses upon whether the "communications means" should be construed to encompass embodiments describing communications established using toll-free calls placed by the user from the telephone. The function claimed, however, requires establishment of the link by the host processor, and not the mobile phone unit.

As a further challenge to the district court's construction, Telemac contends that embodiments describing user-initiated activation and replenishment meet the requirement that the host processor selectively establish a communication link because, in those embodiments, the host processor determines the identity of the phone establishing the communication. Telemac argues that those embodiments describe "selectively" communicating confidential information in accordance with the identity of that phone. Telemac would have this court interpret the term "selectively establishing" as a process by which the host processor checks the electronic serial number of the mobile phone that established the call. Moreover, Telemac suggests that the "selectively establishing" limitation of the claim can be found in the user-initiated embodiments, and that those embodiments should be encompassed within the scope of the claim.

On the record before us, we cannot agree with Telemac's assertions. As noted, both the plain language of the claim and the written description of the invention require that the link with the phone be "established" by the host processor, and not vice-versa. Telemac's reading of "selectively establishing," as encompassing a confidential communication protocol, ignores the remainder of the claim identifying the host processor as the device that initiates the communication. Thus, we conclude that Telemac's proposed construction, encompassing manually initiated communications, would render the phrase "for selectively establishing a communication link with each mobile phone unit" mere surplusage. Accordingly, we reject
Telemac's proposed interpretation of that language.

Telemac further argues that the court's construction is in conflict with the doctrine of claim differentiation. Under this doctrine, claims are presumed to be of a different scope. Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1366, 53 U.S.P.Q.2D (BNA) 1814, 1817 (Fed. Cir. 2000). Claim 3 provides that the host processor initiates the communication link at a "time" controlled by the system provider. Telemac contends that, under the district court's construction, the provisions of claim 3 would be negated by the court's construction limiting communications to those established automatically. We do not agree that the "time" limitation of claim 3 is negated by a construction of the "communication means" as limited to automatically established communications. Even accepting Telemac's assertions, we further note that claim 3 embraces additional limitations not encompassed within claim 1 including, "activating the communication of the record data of stored call charges from the mobile phone unit to the system provider." Therefore, the doctrine of claim differentiation does not lead us to reach a different construction.

Telemac further challenges the court's limitation of the claim to automatically established communications, on the basis that such an interpretation renders the claimed invention inoperable. First, Telemac notes that the court determined that the "communication means" performs activation and reprogramming exclusively, and that the "payment verification means" is used only for updating the account amount. Under that construction, Telemac argues, the host processor cannot automatically communicate with the phone, or perform activation or programming, until the phone has been initially programmed and assigned a telephone number. Telemac's argument, however, is contradicted by the preferred embodiment describing activation and programming via a direct connection. '100 patent, col. 8, ll. 36-38. Based upon the written description, we reject Telemac's assertions that the court's construction would render the claim inoperable.

We conclude that only those embodiments involving communications established by the host processor meet the functional requirement of the claim. Therefore, we agree with the district court's interpretation of the phrase "communication means for selectively establishing a communication link with each mobile phone unit" to require communications established by the host processor. As the district court concluded, the disclosed embodiments describing user-initiated communications could not provide the structure or equivalent structure for performing the claimed function in accordance with 35 U.S.C. § 112, P 6. Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1267, 51 U.S.P.Q.2D (BNA) 1225, 1229 (Fed. Cir. 1999).

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a. "communication medium"

The parties dispute the meaning of the term "communication medium." Intel's proposed construction for the term "communication medium" is the collection of connections (generally, links between nodes) over which negotiation signals and other data in a communications system may be transmitted. According to Intel, the term is not limited to any specific type or arrangement of a communication medium. Intel claims that its proposed construction adopts the common technical meaning of the term, see, e.g., IEEE Standard Dictionary of Electrical and Electronics Terms 581 (4th Ed. 1988) (defining medium as "a vehicle capable of transferring data"), and "communication medium" is a term whose definition is clear on its face.

Broadcom claims the term "communication medium," as used in the claim, is a shared physical medium, such as a wire or a cable, over which data is transferred. In support of its reading, Broadcom points to language in the specification explaining that a "communication medium can be cable, fiber optics, radio channel or other medium of communication shared by the nodes." Col. 1:14-16.

Before construing this claim element, the court makes the following preliminary observations. First, the claim language itself, which is clear on its face, does not contain the word "shared" and does not seem to limit the term communication medium to a single shared link. Next, while the claim language should be interpreted in a manner that is consistent with the specification, it is improper to import limitations from the specification onto the claims. Intervet, 887 F.2d at 1053. Moreover, the Federal Circuit has repeatedly stated that it is improper to add a limiting adjective or adverb before a term that stands unmodified in the claim. See, e.g., Micro Chem., Inc. v. Great Plains Chem., Inc., 194 F.3d 1250, 1258 (Fed. Cir. 1999) (refusing to limit the term "weighing" from the claim to sequential and cumulative weighing); Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999) (collecting cases); Virginia Panel Corp. v. Mac Panel Co., 133
F.3d 860, 865-66 (Fed. Cir. 1997) (holding that term "reciprocating slide plates" could cover rotational reciprocation in addition to linear reciprocation, even though embodiment in patent was linear).

Claim 1 indicates the communication medium is the vehicle by which data is transferred between nodes on a network. The particular embodiment that is shown in Figure 1 consists of five conductive cables (labeled 1) over which electrical signals travel. The specification of the 830 patent demonstrates that links other than the cables shown in Figure 1 were contemplated by the inventors. Indeed, as noted by Broadcom, the specification states that "the communication medium can be cable, fiber optics, radio channel or other medium of communication shared by the nodes." Col. 1:14-16. Rather than limiting the definition of communication medium, as Broadcom argues, that phrase indicates that the definition of communication medium was intended to be broader than the preferred embodiment shown in Figure 1. As used in that sentence, the term communication medium is not limited to a "shared" communication medium in the sense that it must be a single cable or wire link that connects all of the nodes such that every transmission placed on the medium by one node is available to all other nodes simultaneously. The plain meaning of "shared" is not limiting. The word "shared" only indicates any communication medium that is covered is used to connect each node to the system. The fact that the patent expressly includes bridges and gateways as nodes supports this conclusion.

In sum, the court declines to adopt Broadcom's limiting construction. Therefore, the court finds, a communication medium is a collection of connections (generally links between nodes) in a communication system over which information may be transmitted.

2. "Communication module" (Claims 1, 2, 10, 11, 12)

The debate over this claim term concerns Agere's proposed construction of a "module" as "as self-contained" unit. This language is found in the definition of "module" in Webster's II New College Dictionary, and Broadcom does not object to it per se. 19 Broadcom asserts, however, that if the modifier "self-contained" connotes the ability to function independently, then it is inaccurate and in conflict with the claim language.

As the claim language makes clear, this patent describes removable, interchangeable modules that can function only when assembled into the base module. (See '705 patent, col. 38, ll. 26-27 ("The base module receiving the selected one of the plurality of communication modules in an assembled position.").) The "communication module," as this term is used in the '705 patent, is not an independently-functioning entity but rather a component that, once inserted into the base module, enables communication between the base processor and a wireless transceiver. (Id., col. 38, ll. 30-36.) Furthermore, the specification describes instances in which the communication module may access and utilize external components in the receiving device in order to function. (See, e.g., id. col. 4,ll. 8-12 (teaching that communication module, after having been inserted in to receiving device, may connect to external antenna located within the receiving device), col. 32, ll. 21-33 (describing embodiment wherein radio card accesses antenna in receiving device).) Finally, Agere's expert, Dr. Goodman, confirmed at the Markman hearing that his inclusion of the term "self-contained" in the construction was not meant to imply that the module was able to function independently, but rather that "it's all within one packaging of some sort." (R. at 269 (May 6, 2004).) Therefore, the claim language, specifications, and expert testimony demonstrate that the claimed "communication modules" do not function independently. Thus, the Court will adopt the following construction for communication module: "A self-contained assembly of electronic components and circuitry used for the transmission or reception of information. A communication module cannot function independently." 20

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19 Webster's II New College Dictionary defines "module" as "a self-contained assembly of electronic components and circuitry, as a stage in a computer." WEBSTER'S II NEW COLLEGE DICTIONARY 705 (1999). The IEEE dictionary definition omits the modifier "self-contained." (See Goodman Rep. at 25 (citing IEEE at 817 ("any assembly of interconnected components which constitutes an identifiable device, instrument, or piece of equipment.").)

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As the above indicates, this patent describes removable, interchangeable modules that can function only when assembled into the base module. (See '705 patent, col. 38, ll. 26-27 ("The base module receiving the selected one of the plurality of communication modules in an assembled position.").) The "communication module," as this term is used in the '705 patent, is not an independently-functioning entity but rather a component that, once inserted into the base module, enables communication between the base processor and a wireless transceiver. (Id., col. 38, ll. 30-36.) Furthermore, the specification describes instances in which the communication module may access and utilize external components in the receiving device in order to function. (See, e.g., id. col. 4,ll. 8-12 (teaching that communication module, after having been inserted in to receiving device, may connect to external antenna located within the receiving device), col. 32, ll. 21-33 (describing embodiment wherein radio card accesses antenna in receiving device).) Finally, Agere's expert, Dr. Goodman, confirmed at the Markman hearing that his inclusion of the term "self-contained" in the construction was not meant to imply that the module was able to function independently, but rather that "it's all within one packaging of some sort." (R. at 269 (May 6, 2004).) Therefore, the claim language, specifications, and expert testimony demonstrate that the claimed "communication modules" do not function independently. Thus, the Court will adopt the following construction for communication module: "A self-contained assembly of electronic components and circuitry used for the transmission or reception of information. A communication module cannot function independently." 20
20. Agere proposed this construction in its post-Markman brief. The Court finds that it is both accurate and responsive to Broadcom's concerns. (R. at 297 (May 6, 2004); see also Agere's Post-Markman Br. at 9.)

(2) Communication Pathway

Independent claims 1 and 11 include the term "communication pathway. The parties propose the following meanings to this term:

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A medium that carries coded data, such as commands and status information, between components.</td>
<td>A medium that carries a communication signal between components.</td>
</tr>
</tbody>
</table>

Braun argues that "[t]he claim language establishes that one role of the 'communication pathway' is to carry 'door operation commands' sent by the 'standard control module' to other components of the system. (Braun Claim Constr. Br. at 10). From this, Braun concludes that "the 'communication pathway' must be capable of carrying coded data," (id.) and that "a medium incapable of carrying 'coded data' cannot be a 'communication pathway,' (id. at 11).

VMI insists that nothing in the specification defines a "communication pathway" to include only "coded data." VMI maintains that "if Braun had intended to limit the claim to only those communication pathways that carry 'coded data' it would have used the term 'serial bus' instead of the broader term 'communication pathway.'" (VMI Resp. at 5.)

Braun's argument is plausible only if the term "door operation commands" means coded data commands. But, as explained above, the term cannot be so narrowly construed. There is no other strong basis in Braun's argument to conclude that a "communication pathway" is a medium that carries coded data between components. In fact the opposite is true. For example, the portion of the specification referring to the embodiment of a communication pathway in Figure 4 states that "[i]n one embodiment, the components of system 400 are operatively coupled together with electric conductive wires for communication by electrical signals." (The '628 Patent col. 5:39.) Accordingly, the Court adopts VMI's definition of "communication pathway": a medium that carries a communication signal between components.

7. "communication of control and monitoring data therebetween"

Power-One proposes this phrase refers to "sending control and monitoring data between the POL regulator and the data bus," while Artesyn proposes the phrase refers to "sending control and monitoring data between the POL regulators." The dispute here is whether the communication recited by the claims is between a POL regulator and the serial bus (Power-One's position) or between multiple POL regulators (Artesyn's position).

Claim 1 of the '916 patent describes

a plurality of point-of-load regulators . . . and
a bi-directional, serial data bus connected to each of said plurality of point-of-load regulators to permit communication of control and monitoring data therebetween, each one of said plurality of point-of-load regulators being adapted to initiate a communication cycle by providing a synchronizing signal onto said serial data bus followed by a multi-bit data message that includes at least one of an address set, a command set, and a data set.

The claim language calling for communication "therebetween" seems to refer to communication between the immediately preceding items, i.e., "said plurality of point-of-load regulators." Unasserted Claim 14 of the '916 patent provides for a "point-of load regulator having a serial data interface adapted to communicate control and monitoring data with other like point-of load regulators via a serial data bus . . ." Clearly, claim 14 contemplates communication of control and monitoring data between point-of-load regulators. See Phillips, 415 F.3d at 1314 ("Other claims of the patent, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term . . . Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.").

Further, the larger context of claim 1 also supports communication between POL regulators. Claim 1 provides for POL regulators "being adapted to initiate a communication cycle by initiating a synchronization signal onto said serial data bus followed by a multi-bit data message that includes at least one of an address set, a command set and a data set." The address set can be used to identify the POL regulator that is providing the information or the POL that is being written to or read, while the command set can identify what the POL regulator is providing. See '916 patent, col. 4:43-48. Thus, the communication at issue is between the devices connected to the serial bus, rather than between a device and the serial bus to which it is connected. While the devices certainly communicate by way of the serial bus, they communicate with, or between, themselves.

Power-One cites to the statement in the '916 specification that the "present invention provides a system and method for using a serial bus to passively or actively communicate with a point-of-load regulator." Col. 2:55-57. Power-One also cites to Figures 2 and 3 which show, according to Power-One, control and monitoring information flowing between the POLs and the controller across the data bus. However, simply because a data bus is used to communicate or permits communication does not mean that communication is between the bus and the POLs or a controller. The specification of the '916 patent regularly speaks of communication "via," "by way of," or "over" the serial bus, rather than "between" the serial bus and a device. See, e.g., '916 patent, col. 3:42-44; col. 3:53-61; col. 3:66-67; col. 4:8-15. While a person can communicate over a telephone line, one does not typically refer to communication occurring between a person and a telephone line. Indeed, Figure 2 is discussed in terms of a controller communicating with a plurality of POL regulators (i.e., 220, 230, 230, and 250) via a serial bus 200. Col. 3:42-44 (emphasis added). Likewise, Figure 4 is described as a "method of communicating over a single-wire serial bus" and Figure 5 shows "how information can be transmitted over a serial bus." Col. 3:66-67; Col. 4:29-31. Finally, the specification discusses how POL regulators determine priority of communication where multiple POL regulators initiate a communication cycle simultaneously. Col. 4, line 59-63 ("Thus, a POL regulator can determine, by reading the start sequence 510 and address set 520 of a communication cycle 50 as it is being sent, whether another POL regulator is also attempting to send a communication cycle 50 at the same time. If multiple devices . . ."). Thus, the bus is the vehicle that allows communication between multiple POL regulators or other devices. For the foregoing reasons, the Court construes this term as "sending control and monitoring data between the POL regulators."

1. Communication platform

The court is persuaded that Judge Breyer's construction of "communication platform" in the Nortel case is correct. Accordingly, the court construes "communication platform" to mean "a general purpose computer system that operates under program control."

VI. "a call state, being at least one of the group consisting of active and hold states" / "a plurality of communication ports,
each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out"

The two disputed phrases from the '500 patent are interrelated, and must be construed together. Claim 1 of the '500 patent is representative of the use of both phrases.

1. A teleconferencing system comprising:
   (a) a plurality of AV devices, each capable of
       (i) originating and reproducing
           (1) user related audio and video signals;
       (b) a plurality of communications ports, each supporting
           (i) at least one of the group of switch connections consisting of
               (1) video in, video out, audio in and audio out; and
       (c) at least one communication path,
           (i) arranged for transport
               (1) of audio and video signals,

   wherein the system is configured to
   (i) to control a communication connection
       (1) between two of the AV devices,
       (2) over the communication path,
   (ii) by creating,
       (1) as a result of a call request,
       (2) at least a first call handle,
           i. associated with one of the two AV devices and, thereafter,
       (3) at least a second call handle,
           i. associated with the other AV device,
       (4) each call handle defining,
           i. for its respective AV device,
           ii. a call state, being at least one of the group consisting of active and hold states; and
           iii. the port switch connections involved in the communications connection.

'500 patent at 41:51-42:11 (emphasis added).
The claims of the '500 patent relate generally to the mechanics of placing and connecting a videoconference call between two AV devices (CMWs) using the invention described in the Specification. The description of the preferred embodiment illustrates the general process for how a videoconference call is connected.

First, before a CMW can participate in a videoconference call, it must connect to the AVNM and register the types of collaborative services it provides—such as videoconferencing or data sharing—in a central directory, or "service server." Spec. at 20:66-21:1. During registration, the CMW can specify "the audio/video ports physically connected to the particular CMW into which the user is logged in." Id. at 21:18-19. Based on the information provided by the CMW, the AVNM creates a data record called a "port abstraction, wherein each port represents an addressable bidirectional audio/video channel." Id. at 20:42-44.

In the preferred embodiment, a CMW has four physical connections to the AV switch: video in, video out, audio in, and audio out. Id. at 20:35-41. A CMW need not make all four of these connections available in its port abstraction, however. Instead,

   [c]lient programs can specify which of the 4 physical connections on its ports should be switched. This allows client programs to establish unidirectional calls (e.g., by specifying that only the port's input connections should be switched and not the port's output connections) and audio-only or video-only calls (by specifying audio connections only or video connections only).

Id. at 20:57-63. Moreover, not all devices participating in a conference must support all four connections:

   The system architecture also accommodates the situation in which the user's desktop computing and/or communications equipment provides varying levels of media-handling capability. For example, a collaboration session -- whether real-time or asynchronous -- may include participants whose equipment provides capabilities ranging from audio only (a telephone) or data only (a personal computer with a modem) to a full complement of real-time, high-fidelity audio and full-motion video, and high-speed data network facilities.

Id. at 3:38-46.

When a user initiates a videoconference from a CMW, the caller's CMW sends a call request to the AVNM, specifying the address of the callee's CMW. The AVNM then looks up the callee in the service database. Id. at 22:3-17. If the callee has registered a videoconference service, the AVNM proceeds to create two "call handle" records, and associates one call handle with each CMW's port abstraction. Id. at 22:54-61. The call handle records include information about the state of the call. Id. 23:11-20. If a CMW is connected to a call, the call handle will have an "active" state. Id. If a CMW places a call on hold, the associated call handle will be changed to a "hold" state. Id. A CMW has a separate call handle for each videoconference call it engages in, and can have multiple call handles at any one time. Id. at 23:7-10 ("Each port can have an arbitrary number of call handles bound to it, but typically only one of these call handles can be active at the same time,"). For example, if a CMW is connected to one videoconference and has two more videoconferences on hold, the CMW will have a total of three call handles associated with its port abstraction.

Based on this overall understanding of how a call is placed in the preferred embodiment, the court now turns to the construction of the disputed terms.

A. "a call state, being at least one of the group consisting of active and hold states"

CPI argues that the phrase "a call state, being at least one of the group consisting of active and hold states" should be construed to mean "the call state of the call handle must have at least one of two possible states; active (in a call) or on hold (connected but not transferring images or sound)." Tandberg argues that the phrase should be construed as follows:

   Call State: the status of both audio and video connections indicating whether each connection is active or hold.

   Active State: a call state in which information is exchanged over a dedicated physical connection between the caller and the callee.
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hold State: a call state permitting the caller to answer incoming calls or initiate new calls without releasing a previous call.

The parties' proposed constructions differ in two respects. First, the parties dispute whether a call state must have the ability to be simultaneously "active" and "hold," or whether the state may be either "active" or "hold" individually. Second, the parties dispute whether an "active" call is one where information is exchanged over a dedicated physical connection. The court has already concluded, in the context of construing "AV path," supra, that calls need not be connected over a dedicated physical connection.

Turning to whether the call state must be able to simultaneously be active and hold, the phrase "configured to" in claim 1 indicates that the following elements are a recitation of the claimed system's capabilities. n2 Claim 1 thus requires that the system have the functionality of creating a call handle which defines "a call state, being at least one of the group consisting of active and hold states." A system with the capability of creating a call handle with a call state of "active" would fall within the literal scope of the claim, as would a system with the capability of creating a call handle with a call state of simultaneously "active" and "hold." The phrase "at least" is most reasonably understood as broadening the claim to include systems with call states being simultaneously "active" and "hold," as well as either individually, rather than requiring the call state to be simultaneously "active" and "hold." The court's construction is consistent with the Specification, which clearly contemplates that the call state will toggle between "active" and "hold," but will not be both simultaneously. See Spec. at 23:11-20. The phrase "a call state, being at least one of the group consisting of active and hold states" is therefore construed to mean "a call state, which is 'active,' 'hold,' or both 'active' and 'hold' simultaneously."

n2 The court takes up the meaning of "configured to" in more detail in its order denying Tandberg's motion for summary judgment of invalidity under 35 U.S.C. section 112.

B. "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out"

The phrase "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" appears only in the claims of the '500 patent, and is highlighted above. CPI argues that the phrase should be construed to mean "There are at least two communication ports in the video conferencing system (at least one for each AV device), and that at least one port at each AV device supports at least one of audio in, audio out and video in and video out." Tandberg argues that the phrase should be construed as follows:

A plurality of access points for entry or exit of audio and video signals to or from a communication device, each access point connected to at least one of an audio in, audio out, video in, and video out switch that may be individually opened or closed.

Switch Connections: audio in, audio out, video in, and video out circuits that may be individually opened or closed.

Communications Port: A set of access points for entry or exit of audio and video signals to or from a communication device.

The parties' constructions differ in two respects. First, Tandberg argues that the phrase requires that each communication port must be capable of all four modes of communication—audio in, audio out, video in, and video out. Second, Tandberg argues that each of the four modes of communication must be capable of being individually switched.

1. Modes of Communication

The claim language precludes Tandberg's proposed construction, as the claims only require that each port support "at least one of the group of connections consisting of... video in, video out, audio in and audio out." '500 patent at 41:56-58. This language is identical in structure to the phrase "a call state, being at least one of the group consisting of active and hold
"states," which the court has just construed. A port supporting "video in" alone thus falls under the scope of the claim, as does a port simultaneously supporting "video in" and "video out."

This construction is completely consistent with the use of the word "port" in the Specification. The Specification uses the word "port" in two different senses. The first sense is a physical connection to a device, such as a CMW. See Spec. at 15:61-64 ("camera 500 and microphone 600 capture and transmit outgoing video and audio signals into ports 801 and 802, respectively, of Add-on box 800."); id. at 15:64-65 ("Incoming video and audio signals (from another videoconference participant) are received across AV network 901 through Audio/Video I/O port 805."). Physical ports may support only a single type and direction of data, see port 801 of Figure 18A, or they may combine multiple types and directions of data, see port 805 of Figure 18B.

The second sense is a logical "port"—a data structure used by the AVNM to initiate and manage connections between devices. See id. at 20:41-44 ("For each device on the network, the AVNM combines these four connections into a port abstraction, wherein each port represents an addressable bidirectional audio/video channel."). There is not a one-to-one correspondence between inputs and outputs in a port abstraction and physical inputs and outputs in the system. Id. at 20:45-48 ("Different ports may share the same physical connections on the switch. For example, a conference bridge may typically have four ports (for 2.times.2 mosaicing) that share the same video-out connection."). Also, each port abstraction in the preferred embodiment is not required to have all four connection types: "Not all devices need both video and audio connections at a port. For example, a TV tuner port needs only incoming audio/video connections." Id. at 20:48-51. Finally, as discussed above, workstations participating in a videoconference need not support all four connection types. Id. at 3:38-46.

CPI's construction is flawed, however, in that it requires that only "at least one port at each AV device supports at least one of audio in, audio out and video in and video out." The claims require that "each" port support at least one of audio in, audio out and video in and video out. "The claim language does not require that each connection be individually switched. The claim language is "switch connection," not "switched connection." A "switch connection" is a connection to a switch, either digital or analog. See Spec. at 7:13-18 ("Further, as the current preferred embodiment uses analog networking for audio and video, it also physically separates the real-time and asynchronous switching vehicles and, in particular, assumes an analog audio/video switch. In the future, a common switching vehicle (e.g., ATM) could be used."); id. at 8:49-50 ("A/V Switching Circuitry 30 (whether digital or analog as in the preferred embodiment) provides common audio/video switching for CMWs").

The court therefore accepts CPI's construction, with the modification set forth above, and construes the phrase "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" to mean "at least two communication ports in the video conferencing system (at least one for each AV device), each port supporting at least one of audio in, audio out and video in and video out connections to an analog or digital AV switch."

1. "Selective call receiver" (Claims 1 & 5)

   a. The Parties' Proposed Constructions

      | Motorola's Proposal | VTech's Proposal |
      |---------------------|------------------|
      | "A receiver that can respond to a radio signal communication that is specifically directed to it." | "A pager." |

   b. Discussion

   VTech argues the term "selective call receiver" should be limited to the preferred embodiment of the '391 patent, i.e., a
The '391 patent does not expressly define the term "selective call receiver." As noted by VTech, the brief specification of the '391 patent provides the following regarding a "selective call receiver." Figure 1, which contains a block diagram of a prior art selective call receiver, specifically refers to "pager circuitry." Under the section "Detailed Description Of The Invention" the patent states: "Referring to FIG. 1, pager circuitry 102…" (391, 1:63) (first emphasis added). The patent further states: "The selective call receiver shown in Fig. 1 is well known to those skilled in the art." (391, 1:67-68) (emphasis added).

According to VTech, the specification as well as the claim language, taken in context, describes the metes and bounds of the term selective call receiver as a pager. For instance, the claim language "plurality of function indicators in a selective call receiver capable of receiving a message" taken in conjunction with the disclosure in the specification shows that the term "message" in the context of the invention are messages received by pagers. (’391, 3:1-3). VTech asserts the patent does not enable, disclose, or even mention, any other technology.

The two instances where "pager circuitry" is used in the specification to describe prior art and the preferred embodiment do not necessarily limit a "selective call receiver" to a pager. The Court notes that subsequent to the ’391 Weitzen Patent, Motorola eventually adopted the phrase "radio pagers" for "selective call receiver" in the ’140 Wong patent. (’140, 1:15-17). The Weitzen Patent was filed in September 5, 1989 without equating the two phrases. The Wong Patent was filed later in November 23, 1992 with the statement "Radio pagers (also known as selective call receivers) having a plurality of alerts are well known," defining the terms to be synonymous. Id.

The Court is of the opinion Motorola did not initially limit selective call receivers to be only pagers. Around the time of the filing of the ’391 Patent, the industry terminology for pagers and paging systems was not necessarily "selective call receivers." For example, the pager patent U.S. Patent No. 4,845,491 referencing the Motorola product PMR2000 and the POCSAG standard does not contain the terminology "selective call receivers." Also, Motorola offered its PMR2000 product line brochure as a prior reference in the ’391 Patent. Motorola's 1986 - 1987 brochure introduces its PMR 2000 paging system product as a "personal message receiver," but the brochure does not mention "selective call receiver." (Motorola PMR 2000 Personal Message Receiver Product Brochure, 1986). The brochure suggests there is a wide array of terminology related to pagers, but none necessarily equated to "selective call receiver."

Similarly, the prosecution history does not limit a "selective call receiver" to a pager. VTech asserts that statements made in the prosecution history demonstrate the limited scope of the term "selective call receiver." On May 17, 1990, the Patent Office issued an office action rejecting Motorola's specification and claims based on non-enablement stating, inter alia, "[S]ince the Applicant does not show how to modify the prior art pager in order for it to accomplish the allegedly novel and unobvious functions, this specification is non-enabling." (VTech Ex. 10, pg. 30) (emphasis added). The Patent Office also stated that: "Although replete with functional language describing the display and selection, the specification must also comprise language describing how and through what means the pager performs the functions described in the flow diagram of figure 2, especially since the specification does not incorporate these hardware means by reference to a U.S. Patent. . . ." (VTech Ex. 10, pg. 29 ) (emphasis added). According to VTech, in response to this rejection, Motorola submitted a "variety" of selective call receivers to demonstrate what hardware it was referring to in the specification, which Motorola argued "are well known to those of ordinary skill in the art," (VTech Ex. 10, pg. 38), and every reference Motorola submitted is directed to pagers. (VTech Ex. 10, pg. 38). According to Motorola, the two exemplary references it submitted which were directed to pagers were intended to show how the preferred embodiment of a selective call receiver could be constructed.

The Court further finds VTech's argument regarding "disclaimer" improper in this instance. Prosecution disclaimer only applies where a disclaimer was clear and unambiguous. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). That is not the case here.

VTech next cites to the claim construction order entered in a past Motorola litigation against Qualcomm in the Southern District of California, asserting Motorola should be estopped from arguing a different definition now during its current litigation. In 1997, Motorola brought an action against Qualcomm, Inc. ("Qualcomm") for infringement of numerous patents, including the '391 Weitzen patent. See Motorola, Inc. v. Qualcomm, Inc., 989 F. Supp. 1048 (S.D.CA.)("Qualcomm litigation"). During the claim construction proceedings, Motorola submitted to Qualcomm its claim construction statement,
wherein it set forth its proposed interpretation of the preamble to claim 1 including the limitation "selective call receiver."

In response, Qualcomm submitted its claim construction statement whereby it agreed to Motorola's proposed interpretation of the preamble of Claim 1. (VTech Ex. 12, pg. 2). Following this exchange, the parties submitted a joint claim construction statement to the Court. (VTech Ex. 13). This document included the statement: "The parties agree that the preamble [to Claim 1] refers to a method for presenting function indicators in a selective call receiver capable of receiving messages, i.e. a pager" (VTech Ex. 13, pg. 2) (emphasis added) In its claim construction opinion, the court stated that "[t]he ['391] patent seeks to simplify the method by which user of a selective call receiver, or pager, accesses features of the pager." (VTech Ex. 14, pg. 2)(emphasis added) .

The Court disagrees with VTech that Motorola is judicially estopped from arguing a different definition in this litigation. Motorola explains that the Qualcomm court's reference to "selective call receiver, or, pager" was a passing reference to an uncontested term. VTech's emphasis on this reference is insufficient to judicially estop Motorola from arguing its current position. The Qualcomm litigation involved allegations of infringement of the '391 patent by a number of Qualcomm cellular telephones. According to Motorola, the parties did not dispute the term "selective call receiver" for purposes of that litigation because they clearly felt that the term was broad enough to cover pagers or telephones.

Finally, to the extent there is an enablement issue raised in the briefing, the Court finds the issue is more appropriately raised in the context of a motion for summary judgment.

c. The Court's Construction

Accordingly, the Court construes the term "selective call receiver" to mean: "A receiver that can respond to a radio signal communication that is specifically directed to it."

R) "communication settings associated with the data communication facility"

Citrix argues that this phrase should be construed to mean "Parameters that control the manner in which the data communication facility communicates with the server computer, including the Registration Routine 21." The court, however, agrees with 01 Communique that the appropriate proposed construction is "Settings that control some aspect of how the data communication facility works." Specifically, the court agrees with 01 Communique that Citrix's proposed construction does not encompass all the communication settings disclosed in the specification, and would therefore be an improper limitation. To wit, the data communication facility as described in the specification is not limited in its operation to communication with the locator server computer; Citrix's construction, however, would so limit it. Therefore, the court rejects Citrix's proposed construction and instead adopts that of 01 Communique.

A. "Communication System"

The parties dispute the meaning of the term "communication system," which is found in the '932 Patent, claims 1 and 18; the '561 Patent, claims 1 and 24; and the '052 Patent, claim 1. Sprint argues that the term should be construed to mean a plurality of network elements and connections forming a network to transfer information. In Vonage, the Court gave the term the same construction urged by Sprint here, which Vonage did not dispute. See 518 F. Supp. 2d at 1315. Big River seeks to construe the term to mean a plurality of network elements and connections forming a network to transfer a user communication over a communication path selected during call set-up. Thus, Big River essentially agrees with Sprint's definition, but seeks to add a limitation. As framed by the parties, the dispute centers on whether this term should be construed to incorporate the concept of a communication path established during set-up, with each packet traveling over the same path or route for the entirety of the call.
The parties note that this dispute is key to the issue of infringement because Big River's technology does not require that packets use a single route set up at the beginning of a call, but instead allows packets to travel over different routes during the same call.

Big River does not rely on the language of the claims themselves, as the claims contain no such limitation to the term "communication system". Instead, Big River, relying on Microsoft, argues that the '605 Family specification's repeated and consistent description demonstrates that such a path is fundamental to the invention. Big River points to the great number of references in the specification to the fact that communication systems establish paths. For instance, at the outset, the specification states that "[t]elecommunications systems establish a communications path between two or more points" and that "[c]ommunication control is the process of setting up a communications path between the points." (605 Family at 1:29-30, 36-37.) The summary in the specification makes clear that the invention separates communication control processing from the switches that form the connections or path. Big River notes that "signaling" is cited throughout the specification as a common method of communication control. Sprint has agreed that "signaling" is defined as a method to set up or tear down a call. Thus, Big River argues that the communication path must be set up before any data is transmitted during the call. Big River further notes that such connection-based systems are the only systems discussed, and that the specification contains no references to connectionless systems. Finally, Big River argues that in every embodiment described in the specification, the communication control processor (CCP) establishes paths before any packets are sent, even where the CCP shares such communication control with other network elements in the system.

Based on its review of the '605 Family specification, the Court rejects this argument and concludes that the specification does not sufficiently describe the invention with the limitation urged by Big River. Big River has not referred the Court to any particular language in the specification that actually describes the invention, or even an embodiment, as a system that sets up only a single path per call or that sets up the entire communications path before any data is transmitted. Thus, Microsoft and other cases in which the specification clearly described the entire invention as limited may be distinguished, as the specification at issue here contains no such clear description containing the limits argued by Big River. Instead, Big River relies on the specification's use of the singular noun "path"; it is not clear, however, that the patentee was not simply using that form for ease in describing what happens with respect to any particular path, but instead intended to limit the scope of the invention to a single path per telephone call. Similarly, Big River equates "signaling" with call set-up, but there is no clear language requiring an entire path prior to the transmission of any data. The specification does not mention these limits as a part of the invention, and the references to "path" and "signaling" are simply too oblique to effect limits on the claims' broad scope in the manner urged by Big River.

3 In this regard, the references in the specification are nothing like the specific descriptions of the '301 Family invention as an ATM interworking multiplexer, on which the Court relies in limiting the scope of the term "interworking unit". See infra Part IV.A; see also Vonage, 500 F. Supp. 2d at 1314-16.

It is clear from a review of the specification, and in particular the summary of the invention, that the patented invention is a method for separating communication control from the actual switches. The overall invention is not described otherwise. Big River essentially relies on references to path creation. Sprint concedes, as it must, that there must be communication paths on which information travels. Big River has not shown, however, that the specification describes an invention that imposes limits regarding the kind of path that is established. To the contrary, language in the specification that contemplates varied kinds of paths and varied ways to select paths (e.g., '605 Family at 5:16-23, 16:60) suggests that the inventor did not intend to limit the scope of the invention based on a particular type of communication path. Accordingly, the Court concludes that the specification does not support the construction urged by Big River.

The Court also rejects Big River's argument based on the doctrine of prosecution history disclaimer. Big River argues that the patent applicant distinguished prior art by describing the invention as one that uses signaling to control path creation. In
the cited excerpt, however, the applicant actually distinguished the prior art references on the basis of the present invention's separation of communication control from the path; the applicant did not distinguish those references by stating that the invention requires a single path or that the entire path must be completed before any information is transmitted. Thus, the cited prosecution history is not helpful to the Court's construction.

Nor is the Court persuaded by Big River's citation to extrinsic evidence consisting of testimony in which the inventor noted his ultimate rejection of connectionless systems. The inventor did not testify that the patent was intended not to encompass such systems, and at any rate, Big River has not cited any authority that would allow the testimony of the inventor concerning his invention to overcome the language of the patent claims. See Howmedica Osteonics Corp. v. Wright Med. Tech., Inc., 540 F.3d 1337, 1346-47 (Fed. Cir. 2008) (inventor's understanding of his invention does not equate to an understanding of the patent claims; "inventor testimony as to the inventor's subjective intent is irrelevant to the issue of claim construction"). Nor are Big River's citations to the '301 Family specification helpful.

In summary, Big River has not shown that the patent claims should be limited with respect to the term "communication system." The specification does not limit the scope of the invention or this term either by express language of disclaimer or by a consistent description of the entire invention with the limitation urged by Big River. Accordingly, the Court adopts its prior construction from the Vonage case, which Sprint urges here, and construes "communication system" to mean a plurality of network elements and connections forming a network to transfer information.

D. "Communication System"

Claim 1 of the '561 patent and claim 18 of the '932 patent recite the claim term "communication system." Sprint contends that this claim term should be construed to mean a plurality of network elements and connections forming a network to transfer information. In Vonage's response to Sprint's trial brief regarding claim construction, Vonage states that it does not dispute Sprint's proposed construction from the Vonage case, which Sprint urges here, and construes "communication system" to mean a plurality of network elements and connections forming a network to transfer information.

- "communication system" is construed to mean a system for communicating information. The Court's construction of this phrase is consistent with its plain meaning. Accordingly, further explanation for the Court's construction is not required.

Communication with the network; communicating/communication with an ASP; all forms of "communicate "

The term "communicate" appears, in some form, in Claims 1, 11, 12, and 13. MyMail proposes the term be construed to mean "the ability to exchange data" or the "exchange of data," depending on the context within the claims of the 290 patent. Implicit in MyMail's definition is the limitation that communication must be a two-way process. Defendants, citing two dictionaries, assert that "communicate" means "transmit information" and also argue that communication can be either one-way or two-way.

The specification describes a communications connection where the user and NSP transmit and receive data. See Col. 7:10-16. Communication cannot then be defined as transmitting information since it also entails receiving information. The Court thus rejects Defendants' proposed definition as being inconsistent with the specification. However, the Court must still determine whether communication, as defined in the 290 patent, includes one-way processes or must be limited to two-way processes.

The Court concludes that in the context of the 290 claim language, communication cannot be one-way since that would
Communication with the network; communicating/communication with an ASP; all forms of "communicate"

The term "communicate" appears, in some form, in Claims 1, 11, 12, and 13. MyMail proposes the term be construed to mean "the ability to exchange data" or the "exchange of data," depending on the context within the claims of the 290 patent. Implicit in MyMail's definition is the limitation that communication must be a two-way process. Defendants, citing two dictionaries, assert that "communicate" means "transmit information" and also argue that communication can be either one-way or two-way.

The specification describes a communications connection where the user and NSP transmit and receive data. See Col. 7:10-16. Communication cannot then be defined as transmitting information since it also entails receiving information. The Court thus rejects Defendants' proposed definition as being inconsistent with the specification. However, the Court must still determine whether communication, as defined in the 290 patent, includes one-way processes or must be limited to two-way processes.

The Court concludes that in the context of the 290 claim language, communication cannot be one-way since that would render the word "with" meaningless. The word "with" implies a two-way conversation. Had the patentee intended to include one-way conversation in his definition of "communicate," he would have replaced "with" with "to," or some other analogous word or phrase, in his claim language. The Court therefore substantially adopts MyMail's definition since "exchange" better reflects the two-way nature of communication.

The parties additionally dispute the meaning of the phrases "communication with the network" and "communicating with an ASP." MyMail proposes that "communicating with an ASP" be defined as "exchange of data with an ASP over a connection to the network." Defendants propose that "communication with the network" be defined as "transmission of information to a system of interconnected computers." The Court notes that MyMail's "over a connection to the network" limitation is already implicit in the definition of communication. For example, the Microsoft Press Computer Dictionary states that computer communication requires a connection or link between the computers. See MICROSOFT PRESS COMPUTER DICTIONARY 102 (3d ed. 1997). Thus, one skilled in the art understands that communication occurs over a connection to the network. However, a juror may not fully appreciate this nuance. Given that the purpose of claim construction is to "elaborate the normally terse claim language in order to understand and explain . . . the scope of the claims," the Court concludes that limitation is necessary to definitively express what is otherwise implied. Embrex, Inc. v. Serv. Engr. Corp., 216 F.3d 1343, 1347 (Fed. Cir. 2000). The Court therefore construes "communication" to mean "exchange of data," "communication with the network" to mean "exchange of data over a connection to the network," and "communication with an ASP" to mean "exchange of a data with an ASP over a connection to the network."
A. Communications Channel

The parties first dispute the meaning of the term "communications channel," used in claims 5, 7, and 8 of the '708 patent. Visto proposes the term means "a path or link by which information is passed between two locations. A communications channel can be a physical or wireless link." Seven suggests that the term means "a path or link by which information is passed between a remote computer terminal and a global server (i.e. second store) or between the global server and a first store within the firewall-protected corporate LAN. A communications channel may be a physical or wireless link."

The court adopts Visto's proposed definition, with slight modifications. As the parties' proposals suggest, a common area of disagreement which pervades the claim construction briefing is whether the inventions are limited to the preferred embodiments described in the specification. Seven's proposed definition, to illustrate, incorporates the limitations of a "global server" and a "firewall-protected corporate LAN." Seven thus urges that the patentee either explicitly or implicitly incorporated these requirements into the patents. The court rejects these arguments. The court defines "communications channel" to mean "a medium for transferring information. A communications channel can be a physical or wireless link."

M. Communications Channel Storage Means and Storage Means: These terms appear in claims 1 and 3. Independent claim 1 recites:

s较快 network members being remotely located from said central processing unit and connected thereto via a communication channel storage means containing identification of the network members.

(emphasis added). Independent claim 3 recites a "storage means containing the identification of the network members "(emphasis added). It is Defendants' contention that these terms are means-plus-function limitations subject to construction under Section 112, P 6, and that they fail to pass muster under that section.

Defendants assert that claim 1 recites two functions performed by the "communications storage means": (i) storing the identification of the network members and (ii) connecting the network members to the central processing unit; and they assert that the recited function of the "storage means" in claim 3 is to store the identifications of the network members.

1. Defendants' Contentions: According to Defendants the specification of the '328 Patent discloses only two structures capable of storing information, neither of which are suitable to store network member identities. According to the specification, the quotation system computer includes the following structures:

a random access memory for temporary storage of information, a read only memory for permanent storage of the computers [sic] configuration and basic operating commands, an input/output adapter for connecting peripheral devices and known input and interface devices, [and] a display adapter and display device.

Col. 6, ll. 35-42. Neither the random access memory ("RAM") nor the read only memory ("ROM") is identified as storing or containing the identifications of network members. The ROM could not store network member identities, because such identities are not for "permanent storage" and are not part of "the computer[']s configuration or basic operating commands." Moreover, network member identities could not be stored in ROM, because data in read only memory can be accessed, but not modified. Similarly, RAM is commonly understood to refer to volatile memory, i.e., memory that loses its data when power is disconnected from the system, and as such would also be unsuitable for storing network member identifications or other data that would need to be accessed on a more permanent basis.

No other memory or storage structures are described in the specification and there is no description or disclosure of a "communications channel storage means" or a "storage means" for containing identification of the network members. See
Defendants conclude that "[a]s stated in Amtel v. Information Storage Devices, 198 F.3d 1374, 1382 (Fed. Cir. 1999), the patentee must disclose the structure corresponding to the means in the specification in order to comply with the particularity requirement of 35 U.S.C. § 112, ¶ 2. Here, the specification is completely devoid of any structure that corresponds to the function of storing the identifications of the network members. Even if the only structures described in the specification for storing information were actually capable of storing the network member identities, . . . the specification fails to clearly link or associate those structures with the recited function." (Defs' Opening Br. at 25)

2. Discussion: SST advances two reasons why Defendants' position lacks merit. First, the claims are not in means plus function format. Second, if the storage means is in means plus function form, several corresponding structures are disclosed and linked.

Section 112, ¶ 6 provides that:

[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.


A court first "must decide the subsidiary question of whether the claim element disputed by the parties invokes § 112, ¶ 6 in the first instance." Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999). In reaching that decision:

The word "means" is "part of the classic template for functional claim elements." Accordingly, in determining whether a claim element falls within § 112, ¶ 6, this court has presumed an applicant advisedly used the word "means" to invoke the statutory mandate for means-plus-function clauses."

Id. at 1302 (citations omitted).

This presumption can be overcome:

Two specific rules, however, overcome this presumption. First, a claim element that uses the word "means" but recites no function corresponding to the means does not invoke § 112, ¶ 6. Second, even if the claim element specifies a function, if it also recites sufficient structure or material for performing that function, § 112, ¶ 6 does not apply.

Id. at 1302 (citations omitted). SST contends that the language in question does not implicate § 112, ¶ 6 because it recites no function.

There must first be noted the distinct difference in the language construed in the case upon which the Defendants rely so heavily, WMS Gaming Inc., supra, and the instant case. In WMS Gaming the disputed claim language read:

means for assigning a plurality of numbers representing said angular positions of said reel . . .

means for randomly selecting one of said plurality of assigned numbers

Means for stopping said reel at the angular position represented by said selected number

That is classical means-plus-function language. It is to be contrasted with the language of the '328 patent under consideration here:

A computerized system for forming a computer based communications network of network members inclusive of network
buyers and or network vendors for processing requests for quotations for goods and services through at least one central processing unit including operating system software for controlling the central processing unit, said network members being remotely located from said processing unit and connected thereto via a communication storage means containing identification of the network members, means for network buyers to generate request for quotation for goods and/or services, etc.

Claim 1 (emphasis added).

A method for processing requests for quotation for goods and/or services from a party representing a buyer or supplier of goods and/or services through a computerized system forming a computer based communications network of network members for linking buyers to suppliers with the computerized system having at least one central processing unit including operating systems software for controlling the central processing unit and storage means containing the identification of the network members, wherein the method comprises the steps of, etc.

Claim 3 (emphasis added).

Defendants urge rejection of the declaration of Eric M. Dowling, Ph.D., E.E., asserting that he is not a person skilled in the art and that the substance of his declaration is irrelevant. The court finds that Dr. Dowling is highly skilled in the art and that the information he provides is relevant.

The pertinent means-plus-function language in WMS Gaming clearly must find its structure apart from the claim itself. In the '328 patent, on the other hand, the language to be construed is a noun. It is not pointing to something else; it is itself a storage means which contains identification of the network members. "Storage means" was recited in both the abstract and summary of the '328 patent. The summary states "and storage means containing the identification of the network members," (Col. 2, ll. 59, 60) and "storage means containing appropriate identity and other information about members of the network, means for potential buyers of product and/or services to transmit a request for quotation to said central processing unit. .." (Col. 3, ll. 10-14).

Used as a noun, "storage means" identifies a known structure, i.e., a device into which bits of information can be written and later recalled, such as a disk, ubiquitously found on computer systems. As stated by Dr. Dowling, "[t]o one of ordinary skill in the art, 'storage means' as used in Abstract and the above two citations, taken in light of the rest of the disclosure [], would mean 'one or more computer storage devices capable of storing computer files.' Typically, this would involve a disk, like a hard drive, but could involve other types of storage devices such as semiconductor disks implemented with RAM and/or ROM (EPROM) devices. Alternatively, the storage means could be a memory such as a RAM where data is temporarily stored so it can be manipulated upon a CPU." (Dowling Decl. para. 10).

In Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996) the district court held that words "detent mechanism" used in the following claim language was within § 112(6), P 6: "a radically enlarged wheel on said sleeve and said wheel and said one handle having a cooperating detent mechanism defining the conjoint rotation of said shafts in predetermined intervals." In addition the summary of the invention used "detent means." The Federal Circuit disagreed, with the district court, stating "... the fact that a particular mechanism - here 'detent mechanism' - is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of section 112(6). Many devices take their names from the functions they perform ... 'Detent' (or its equivalent, 'detent mechanism') is just such a term" Id. at 1583. The Court found no significance in the fact that the patent specification used on two occasions the words "detent means" rather than "detent mechanism." Further the Court noted that the patentee did not use the "means-plus-function" language.

The present case is similar to Greenberg. The terms in question, "storage means" and "communications channel storage means," are devices taking their names from the functions they perform, as "detent mechanism" did. The patentee in Greenberg enjoyed a favorable presumption: "... that the failure to use the word 'means' creates a presumption that § 112, P 6 does not apply," Personalized Media, 161 F.3d at 703-04. SST faces the opposite presumption: "... the use of the word 'means' triggers a presumption that the inventor used this term advisedly to invoke the statutory mandates form means-plus-function clauses." Id. at 703.

In Personalized Media, supra, the International Trade Commission construed the limitation "digital detector" as a means-
plus-function limitation under § 112, P 6. Rejecting this holding, the Federal Circuit referred to the presumptions, stating that "[i]n deciding whether either presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112, P 6." 161 F.3d at 704. The Court noted that the "'digital detector' limitation does not use the word 'means,' and therefore this limitation is presumed not to invoke § 112, P 6." Id. Following the reasoning of Greenberg, the Court concluded:

Even though the "detector" does not specifically evoke a particular structure, it does convey to one knowledgeable in the art of a variety of structures known as "detectors." We therefore conclude that the term "detector" is a sufficiently definite structural term to preclude the application of § 112, P 6

Id. at 705.

Although the limitations "storage means" and "communications channel storage means" are subject to the presumption of § 112, P 6 applicability, they convey to one knowledgeable in the art a definite form of structure and overcome whatever presumption that may exist.

SST urges another route to avoid § 112, P 6. "[W]here a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format even if the claim uses the term means." Sage Prods. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997). SST relies upon two cases to support its contention that Claims 1 and 3 themselves elaborate sufficient structure to perform entirely the recited function.

At issue in Wenger Mfg. v. Coating Machinery Systems, 239 F.3d 1225 (Fed. Cir. 2001), was the question whether § 112, P 6 applied to a claim limitation reading "means defining a plurality of separate product coating zones." The district court held that this limitation was not subject to § 112, P 6. The Court of Appeals agreed, concluding that in spite of the presumption of applicability "it is unclear whether there is any function recited that corresponds to the word 'means.'" Regardless of that consideration, the Court stated:

. . . we agree with Wenger that § 112, P 6 does not apply because the claim recites sufficiently definite structure for performing the function of "defining." See Rodime, 174 F.3 at 1302, 50 USPQ 2d at 1434 ("[E]ven if the claim element specifies a function, if it also recites sufficient structure or material for performing that function, § 112, P 6 does not apply.").

Id. at 1237. The Court then noted that "[t]he claim specifically recites structure including spray nozzles that are directed toward the sidewall of the reel, which 'define' (i.e., establish the boundaries of) the separate product coating zones that are longitudinally spaced along the reel." Id.

Rodime, supra, is to the same effect. The Federal Circuit held that § 112, P 6 was inapplicable even though (i) the claim used the term 'means,' (ii) there was therefore a presumption of applicability, and (iii) the claim language linked the means with a function. The claims in question used the limitation "positioning means." For example, in claim 3, the element at issue began, "positioning means for moving said transducer means between the concentrically adjacent tracks on said micro-hard disk," 174 F.3d at 1302. The district court held that this language invoked § 112, P 6. The Federal Circuit reversed, stating that although the first steps in the required analysis appeared to bring the claim element within § 112, P 6, "[t]he final step in the analysis, however, requires this court to determine whether the claim nevertheless recites sufficient structure for performing the moving function to take it outside the bounds of that provision." Id. at 1303.

The Federal Circuit examined the claim and noted that after the language in question, claim 3 further provided a list of the structure underlying means: "said positioning means including: two support arms . . . a pivot shift . . . a positioning arm . . . a bearing assembly. . . a stepper motor . . . means for operating said stepper motor . . . and a tensioned steel band . . .". In addition the claim recited the specific location and interconnection of each of these structural sub-elements. "This detailed recitation of structure for performing the moving function takes this claim element out of the scope of § 112, P 6." Id. at 1303-4.

In the present case if it were assumed that "storage means" were not a noun identifying itself and not referring to another structure, then either i) the claims themselves contain a detailed recitation of structure for performing the function so as to
take them out of the scope of § 112, P 6 or ii) the details contained in the claims themselves, together with the details contained in the specification constitute compliance with § 112, P 6.

Claim 1 calls for, along with a communications channel storage means, a computerized system for forming a computer based network and processing RFQs through at least one central processing unit including operating system software for controlling the central processing unit. Claim 3 calls for similar components. As Dr. Dowling stated:

By 1996 it was well known that various types of physical storage devices could be used to store computer files on a PC or central server. Commonly known and commonly used storage devices included, by 1996 and before: hard drives, floppy drives, magnetic tape drives, RAM-Disks (file system portion loaded into RAM to speed file system access performance), ROM-Disks (disk equivalent implemented using semiconductor ROM technology), and optical disks, among others. All such storage devices were well known and commonly used by 1996 to implement computer file systems, and would have been obvious design choices well known to those of ordinary skill in the art by 1996 or as early as 1993, or before.

(Dowling Decl. para. 14).

If the detail in the claims themselves were not sufficient to bring this case within Wenger and Rodime and the limitations at issue were held to be in means plus function form, the detail in the claims and in the specification is sufficient to comply with § 112, P 6. The specification states that RAM is used as the computer's temporary memory. (Col. 6, ll. 36-42). The claimed filter operates on the data in the storage means - "means for filtering the network members in said storage means" - which is the temporary storage for the RAM. As Dr. Dowling explained, a person ordinarily skilled in the art would understand that the computer leads the data into temporary storage RAM before operating on the data, and any filtering done with respect to the network members is done when they are stored in the RAM in accordance with the claim. (Dowling Decl. para. 16-17).

Fig. 5 of the '328 patent, labeled "CREATE EMPTY TABLE TO HOLD VENDORS THAT WILL BE SELECTED FOR THIS RFQ (tmp - SELECTED TABLE)," discloses that the storage means that holds the information upon which the filter means will operate is RAM. The RAM is storage means.

Further, at Col. 6, ll. 36-42 the specification reads: "The quotation system computer is schematically (sic) shown in Fig. 4 as the 'Central Office' and includes a random access memory for temporary storage, a read only memory for permanent storage of the computers configuration and basis operating commands, an input/output adapter for connecting peripheral devices and known input and interface devices." Commenting on this language, Dr. Dowling wrote: "One of ordinary skill in the art would thus understand that 'peripheral devices and known input and interface devices' would include a hard drive or any other storage device that could hold a computer file system. To one of ordinary skill in the art, it would be unmistakable that the 'Central Office' computer system includes the storage means recited in the abstract, summary, and claims and that 'storage means' could be implemented using 'known input and interface devices,' e.g., hard drive or any other well known device in common use for storing computer files." (Dowling Decl. para. 155).

The court concludes, however, that the better view is that the '328 patent storage means (including its use in "communications channel storage means" is not in means plus function format, but refers to a specific structure - the computer's permanent and temporary storage.

2. "Plurality of communications channels." Radio frequency communications channels, each channel including two distinct frequencies, one for communication to the mobile unit and the other for communication from the mobile unit. (554 patent, col. 4, ins. 51-60)

6. Claims 1, 17 & 26 -- "Communications Link"
Defendants contend that "communications link for communicating between a user of the system and the database" is a means-plus-function phrase and is thus limited by 35 U.S.C. § 112 P 6. CIVIX argues that this phrase should not be so limited.

35 U.S.C. § 112 P 6 and federal circuit case law dictate that "where a claim sets forth a means for performing a specific function, without reciting any specific structure for performing that function, the structure disclosed in the specification must be considered, and the patent claim construed to cover both the disclosed structure and equivalents thereof." Data Line Corp., 813 F.2d at 1201. Although not dispositive, the phrase at issue here does not use the word "means." See Cole, 102 F.3d at 531; see also Personalized Media, 161 F.3d at 703-704 ("failure to use the word 'means' creates a presumption that 35 U.S.C. § 112, P 6 does not apply").

I conclude that this phrase is not a means-plus-function limitation controlled by 35 U.S.C. § 112 P 6. "Communications link" is defined in the '525 patent as follows:

"Communications link" is used to denote means, including for example a telephone line for communicating between the database and the port. . . A communications link facilitates communications between a user of the system and the database. ('525 Patent, Col. 2 lines 5-7, 16-17). Other portions of the specification support CIVIX' contention that "communications link" is a connection allowing for the transmission of information between one or more databases and one or more ports. ('525 Patent, Col. 11 line 65 through Col. 12 line 7). The patent is careful not to limit itself to the recited forms that this structure might take.

The communications link 18 of the invention can take many forms. It is generally impractical to "hard-wire" each remote access port 16 to the database 12; so the form of the communications link 18 generally includes existing communications networks, such as one or more of the following: telephone lines, fiber-optic cabling, satellite communications, cellular communications, radio and microwave-frequency communicators, infra-red communicators, the facsimile mechanism, airphones, modems, the internet, co-axial cabling, television including interactive TV communications, and the like. These communications networks and subsystems are readily known to those skilled in the art without further reference hereto. ('525 Patent, Col. 5 line 63 through Col. 6 line 8). Furthermore, the phrase "communications link" is expressed throughout the '525 patent as a specific structural element. Accordingly, the phrase at issue is not subject to 35 U.S.C. § 112, P 6, and I will not analyze it as a means-plus-function element. Therefore, I reject Defendants' contention that the patent is limited to the means in the specification.

2.1.3 “Communications Medium”

Plaintiff proposes that “communications medium” means “a medium over which data communications travel.” Defendants propose that “communications medium” means a “network for transferring data,” and does not include the internet.

Plaintiff argues that “communications medium” should include the internet because “the ordinary meaning of the term ‘communications medium’ encompasses the Internet.” (Plaintiff’s Opening Claim Construction Brief 9:10-11.) Plaintiff also argues that the patent application discloses the internet by referencing “the Internet protocol TCP/IP” and “Compuserve, a thenexisting Internet service provider.” (Id. at 10:1.) Defendants respond that “communications medium” should not include the internet because, among other arguments, at the time of the invention, that term did not refer to the internet. The Court agrees with Defendants. Whether the original patent supports a definition of “communications medium” that includes the internet depends on whether a person of ordinary skill in the art, reading the patent in 1995, would have understood “communications medium” to mean the internet. See Phillips v. AWH Corporation, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (“[T]he words of a claim are generally
given their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.”) Plaintiff has offered no evidence that “communications medium” was understood to include the internet in 1995. Instead, Plaintiff has introduced dictionary definitions of “medium” from 1995 and 2000. Plaintiff’s “ordinary meaning” argument fails because it rests on an understanding of “communications medium” today, not in 1995.

Plaintiff’s argument that the patent application discloses the internet by referencing TCP/IP and CompuServe also fails. As Defendant RouteOne explains, the mention of TCP/IP protocol in the ‘841 Patent was not made in reference to the “communications network.” (Defendant RouteOne’s Reply Claim Construction Brief 22:19-25.) Further, in 1995, TCP/IP communications protocol was used on many computer networks other than the internet. Further, in 1995 CompuServe “commercially offered only a direct (non-internet) dial-up service.” (Id. at 21:24-25.) At that time, CompuServe was still in beta testing with its web browser, and its service was “not internet based.” (Id. at 22:5-17.) Thus, in 1995, a reference to either TCP/IP or CompuServe was not automatically a reference to the internet.

The specification supports the claim construction advanced by Defendants. For example, the ‘841 specification lists as examples of a “communications medium” a wide area network, a local area network, a satellite communications network, a commercial value added network, ordinary telephone lines, and private leased lines. (‘841 Patent 18:1-5.) The internet was not on this list. And, while it is improper for a court to limit a patent to its preferred embodiment, Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1374 (Fed. Cir. 2003), it is reasonable to assume that when a patent supplies a long list of examples like here, the list is exhaustive.

The prosecution history supports both Plaintiff’s and Defendants’ arguments. First, Plaintiff argues that the prosecution history shows that the term “internet” was disclosed in the original specification of ‘841 Patent. Plaintiff contends that the patent examiner of the ‘403 Patent determined that the term “internet” was disclosed by the ‘403 Patent, which “necessarily” implies that the term was disclosed in the ‘841 Patent, since the ‘403 Patent and the ‘841 Patent were originally identical. ((Plaintiff’s Opening Claim Construction Brief 11:1-4.) Plaintiff slightly overstates the strength of the argument. The patent examiner of the ‘403 Patent did not make an express determination that “internet” was disclosed by the ‘403 Patent. Instead, the examiner allowed, without comment, amendments to the patent that added the term “internet” to two places in the specification. (‘403 Patent Prosecution History, June 23, 1998, Notice of Allowability at FXPRS002339-002342.) This action implies that the patent examiner had determined that the addition of “internet” did not disclose new matter. See MPEP 608.04 (“No amendment may introduce new matter into the disclosure of an application.”).

On the other hand, Defendants argue that the prosecution history shows that the original patent did not support the internet as a communications medium of the invention. (Id. at 28:1-2.) Defendants point out that the ‘841 patent examiner refused to allow Plaintiff to add “Internet” to its meaning in a Preliminary Amendment to the ‘841 Patent. (Defendant RouteOne LLC’s Opening Claim Construction Brief 27:20-25.) Indeed, the ‘841 patent examiner rejected the very “internet” amendments that the ‘403 patent examiner allowed. Before granting the ‘841 Patent, the examiner required that the two references to the “internet” be removed from the specification. (‘841 Patent Prosecution History, Feb. 5, 2003, Notice of Allowability at FXPRS003175.) While the ‘841 examiner, like the ‘403 examiner, did not give reasons for his action, the action alone implies that the examiner had determined that the addition of “internet” disclosed new matter. See MPEP 608.04. Thus, the patent examiners made conflicting determinations.

Determinations by patent examiners are entitled to an “especially weighty presumption of correctness.” Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1574-75 (Fed. Cir. 1992). But this Court is faced with two opposite decisions by patent examiners in the same situation. In this circumstance, the Court relies on its own reasoning. Thus, the Court construes “communications medium” to mean a “network for transferring data,” not including the internet.
Q. "communications module"

Claim 5 describes a computer which comprises "a communications module for receiving transmitted reservation requests from any of the PCDs; . . . [and] a request processor coupled to the communications module . . . for determining a proposed reservation time. . . ." (col. 27, ll. 43-54) (emphasis added). Claim 17 contains similar language. The Defendants contend that "communications module" should be construed as a means-plus-function limitation under § 112, P 6. However, the term "means" is absent from the claims and, thus, there is a presumption that § 112, P 6 does not apply. In an effort to rebut the presumption, the Defendants claim that "communications module" lacks definite structure. But, as with "personal communication device," they present no evidence in support of this conclusory assertion. As the Federal Circuit has emphasized, determining if a term connotes sufficient structure depends on "whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term 'means for.'" Lighting World, Inc., 382 F.3d at 1360. "Communications module," and even "module," represents more than a mere verbal construct serving as a "means for" substitute. For example, The American Heritage Dictionary of the English Language (4th ed. 2000), defines "module," in the electronics sense, as "a self-contained assembly of electronic components and circuitry, such as a stage in a computer, that is installed as a unit." See Lighting World, Inc., 382 F.3d at 1361 (dictionary definitions consulted to determine if "connector" has a reasonably well-understood meaning as a name for structure); Linear Tech. Corp., 379 F.3d at 1320 (technical dictionary aids determination that "circuit" is structural). Thus, "module" connotes definite structure, and when combined with "communications," which describes the module's operation, sufficient structural meaning will likely be conveyed to a person of ordinary skill in the art. In fact, the Plaintiff's expert testified that: "A person of ordinary skill in the art would recognize the structural connotation of the term Communications Module and would understand it to mean a [sic] electromagnetic transceiver and attendant software. An electromagnetic transceiver is capable of receiving and transmitting wireless signals such as RF, microwave and infrared radiation." (Frost Decl. P 5.) Consequently, the "communications module" limitation of claims 5 and 17 is not a means-plus-function limitation.

Because they contend that "communications module" is a means-plus-function limitation, the Defendants do not propose an independent construction of the term. The Plaintiff, however, claims that the term means "a transmitter/receiver designed for data transmission." This construction is consistent with the specification, which provides, for instance, that communication modules receive and transmit reservation requests and information. (col. 9, ll. 1-3; col. 10, ll. 4-11; col. 20, ll. 20-26.) The specification further states that the communications module "is implemented using wireless transmitter/receiver and attendant software." (col. 9, ll. 3-5; col. 10, ll. 9-10.) As such, the Court will adopt the Plaintiff's proposed construction of "communications module."

B. Communications Module

Visto proposes that the term "communications module," as used in claim 11 of the '192 patent, means "software routines or code that perform the task of communicating." Seven urges that the term means "a computer software module having routines for compressing data and communicating with a synchronization agent on a global server." Again, Seven has incorporated the limitations of a synchronization agent and a global server into its definition of communications module despite the fact that the claim language supports a broader meaning. Seven also asserts that the inventors defined this term by implication by referring to the communications module as having routines for compressing data. Definition by implication is a tough climb. Seven has not persuaded the court that the "communications modules" referenced in the claims necessarily include routines for compressing data as described in the description of the preferred embodiment. The court therefore adopts Visto's proposed construction of this term. "Communications module" means "software routines or code that perform the task of communicating."
3. Communications module

The term "communications module" appears in both the '201 patent and in the '542 patent. Seven defines this term to mean "software on the client for communicating." Visto proposes that the term means "a software module on the client that interfaces with the gateway computer/server computer. The communications module is based on an OLE connection technology. The communications module must be on a separate device from the session module."

Visto's definition is replete with limitations that are not found in the claims. The cited portions of the specification related to OLE connection technology demonstrate that OLE technology is clearly illustrative and not exclusive. See, e.g., '542 patent, col. 3, ll. 58-60 ("The new FormLogic client/server components described herein use an object management scheme and are preferably based on Microsoft's OLE technology.") (emphasis added). The court construed the term "communications module" as "software routines on the client for communicating."

I. Computer Based Communications Network: Defendants' proposed construction of computer based communication network is a presentation of their disclaimer contention in a different form. They note the use of the phrase in independent claims 1 and 3. Claim 3, for example, reads:

A method for processing requests for quotation for goods and/or services . . . through a computerized system forming a computer based communications network . . . for linking buyers with suppliers

(Col. 8, ll. 49-53) (emphasis added).

Defendants then observe that in various places in the specification where reference is made to a computer based network, there appears the language "No central database of goods, prices, etc. is involved" (Col. 2, ll. 35-42) or "[t]here is no central pricing database to limit the number of buyers and vendors of good and services or to limit the number of goods and services which can be processed." (Col. 3, ll. 55-62).

Relying on the claims, specification and prosecution history, Defendants urge that the proper construction of the term "computer based communications network" is "a computer network that does not include or use a central database that contains more information than is required to determine which network vendors should receive the buyer's RFQ." The court has already rejected this construction in its rejection of Defendants' disclaimer contention.

* * *

B. Disclaimer: In support of their definition of filter means Defendants contend that during the prosecution of the application leading to the issuance of the '328 patent the applicant disclaimed any central database that contained anything more than the information required to determine which vendors should receive the buyer's RFQ. SST contends that the applicant disclaimed a system wherein all of the information about all the items for sale from all the vendors was stored at the central database, so that a complete quote could be generated, and a transaction could be fully consummated, between the central database and the consumer, i.e., a central database storing anything less was not disclaimed.

The portion of the application file upon which Defendants rely gives some support to their argument.

In his February 5, 1998 Response to Office Action, the inventor summarized the claimed invention as follows:

Before turning to the specific rejections, it is believed that a brief review of the invention as claimed would be helpful. Applicant's invention comprises a central filter and broadcast means which receives RFQs, filters them to determine which particular vendor terminals may be able to service such requests, and sends the RFQs to those terminals. As explained in
applicant's originally submitted specification, this eliminates the problem of having a central database which, if it were to make available products from many worldwide vendors, would have to store hundreds of millions of entries. This would be inefficient and time consuming and thus, impractical.

The present invention solves the problem by not providing a central database which contains all of the information on all items to be sold. Rather, the invention uses a database with information regarding various vendors who may be able to supply classes of items. The central filter means then transmits the RFQ to appropriate vendors, and received back an appropriate quote from the vendors. The quote may include items such as delivery terms, price, etc., none of which are stored in the central database.

February 5, 1998 Response at 4, 5.

The inventor also stated:

In summary, none of the prior art teaches a system wherein the central database maintains information only sufficient to determine which sellers should receive the quote, and wherein the central database filters and sends that request for quote only to the appropriate sellers.

February 5, 1998 Response at 8.

The Examiner, when deciding to allow the claims of the '328 patent to issue, stated:

The systems of the prior art either maintain a central database containing all necessary information to answer an RFQ or they require that the buyer specify the vendor to deliver the RFQ to. Applicant's system represents a significant improvement over these systems in that the filtering means only maintains enough information to determine which vendors to send the RFQ to, without having to maintain data on all possible goods and services.

Notice of Allowability (Jan. 19, 1998) at p. 3.

At best from Defendants' point of view the Examiner's statement is ambiguous. He stated both that "[t]he systems of the prior art either maintain a central database containing all necessary information to answer an RFQ" and also that "[a]pplicant's system represents a significant improvement over these systems in that the filtering means only maintains enough information to determine which vendors to send the RFQ to . . ." He did not address the situation in which the central database does not contain all the necessary information to answer an RFQ but does contain more information than is necessary to determine which vendors to send the RFQ to.

For a prosecution comment or argument to narrow the ordinary meaning of claims there must be a clear, unambiguous, deliberate disavowal of claim scope. Any ambiguity must be resolved in favor of the patent owner. Middleton Inc. v. Minnesota Mining and Mfg. Co., 311 F.3d 1384 (Fed. Cir. 2002).

Apart from the ambiguous statement upon which Defendants rely, everything else in the prosecution history and in the specification and claims demonstrates that SST's contention is correct, namely, that the applicant disclaimed only a system wherein all of the information about all the items for sale from all the vendors was stored at the central database. He did not disclaim a central database that contained something more than the information required to determine which vendors should receive the buyer's RFQ but less information than that which is necessary to generate the entire quote and consummate the sale.

The file history preceding that portion upon which Defendants rely is replete with statements to the effect that the prior art discloses that all of the information on all of the items for sale is kept at a central data base, distinguishing prior art from applicant's invention, which does not store all of the information necessary to generate all of the quotes, e.g., First Office Action Response dated August 1, 1997, p. 8; Response of January 13, 1998, pp. 2-3.

The '328 patent specification refutes Defendants' assertion that the central data base can store nothing more than information required to determine which network vendors should receive on RFQ. The specification notes that the central database stores product information such as price versus time by product type, vendor profile data, password information, user
coordinates, etc. (Col. 4, ll. 43-60). The '328 patent provides a separate embodiment for "special sales" whereby a vendor can register certain products and their detailed specifications with the central office, and the central office will forward this product information to certain buyers (Col. 4, ll. 52-59). The central computer stores forms necessary to register as a member (Col. 5, ll. 3-6). This information is not filter conditions for selecting vendors, but it is stored on the same central computer.

The allowed claims of the '328 patent are inconsistent with Defendants' disclaimer contention. For example, the '328 patent claims a system wherein RFQ's are subjected to "a first set of filter conditions" to determine to which vendors the RFQ should be sent, and then the responding actual quotations are subjected to "additional filter conditions" to determine which subset of the quotes returned from the vendors should be sent on to the requesting buyer. (Col. 10, claims 17-19). The first filter conditions of claim 17 are different from the additional filter conditions of claim 17. Claim 17 recites that it is the first filter conditions, and not the additional filter conditions, that determine which sellers are to receive the RFQ. Thus the central computer must store more filter conditions than those required to determine which seller is to receive an RFQ.

These various factors compel rejection of Defendants' contention that by virtue of a disclaimer the claims do not cover a system wherein the central database stores anything more than the filter conditions to select which vendors are to receive RFQs.

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Claim Construction: "Communications Network"

The primary dispute between the parties concerning the meaning of "communications network" in claim 1 centers on whether, as argued by IPXL, the term is broad enough to encompass packet switched networks, such as the Internet, or whether it encompasses only a single defined or dedicated path that is maintained for the duration of the transmission (such as a circuit switched network), which is Amazon's position. The Court concludes that IPXL's interpretation is correct because a person of ordinary skill in the art at the time of this invention would understand the plain meaning of the term "communications network" to encompass communications techniques of both the packet switched and circuit switched varieties.

Claim 1 requires a "communications network" and "terminal device selectively connectable to the central controller through the communications network." Although the written description does not expressly use the term "communications network," it does generally address the communication function of the system in the context of a "transaction network system." For instance, the specification explains that

The transaction network system preferably comprises one or more central control units or host processors 200, having associated database(s) or memories 300 and a plurality of transaction terminals 10 connected to one or more of the central control units 200 via communications link 400 in a known manner. An example of one known system and communications link is described in the '336 Patent. Other configurations may be used.

Col. 5, ll. 57-65.

FIG. 2 is a flow chart illustrating the operation of preferred embodiments of the present invention. For simplicity, the well known steps associated with the local controller communicating with a central controller are omitted.

Col. 8, ll. 6-19. Rather than specifically defining or describing the communication aspects of the invention, the written description simply refers to the manner in which the communication is accomplished using "a known manner" and "well known steps."

Amazon argues that because the claim language requires the terminal device to be "connectable" to the central controller, the Internet, being a "connectionless" medium, is not covered by the claim. This argument fails for at least two reasons. First, Amazon applies the language "connectable" out of context. A reading of the claim as a whole reveals that "connectable" does not modify "communications network" so as to limit the claim to only connection-oriented communications. Rather, the claim simply provides that the terminal device be "selectively connectable" to the central controller. Nowhere in the claim language, the written description, or the prosecution history does the patentee discuss the
difference between connection-oriented and connectionless in the context of the claimed communications network.

Second, the Internet is only connectionless in the sense that it is packet switched rather than circuit switched. Simply because the Internet is a packet switched network does not mean that it is incapable of establishing connections. When devices communicate using the Internet, logical connections are established between those devices. A reference in a claim to "connectable" devices, without any suggestion or context in the intrinsic evidence that would disclaim packet switched networks, does not by itself exclude communication over the Internet. Moreover, a person of ordinary skill in the art would consider the Internet to be a "communications network." 2

--- Footnotes ---

2 Indeed, Amazon's own flagship U.S. Patent No. 5,960,411 discloses "communications link(s)" as incorporating "transmission(s) over the Internet." '411 Col. 6, ll. 19-21. Similarly, Amazon's invalidity expert, Dr. Kreitzberg, has asserted U.S. Patent No. 5,664,110 to Green, et.al., as prior art to the '055 patent. Dr. Kreitzberg notes that

The DPU and DFTC in Green can communicate via telephone, cable, satellite, or fiber-optic data transmission. (4:61-5:6). Green also teaches using "known communication means" such as telephonic serial data transfer or the Internet. (5:7-21)

Kreitzberg May 10, 2004, report at p. 33. The Court notes such extrinsic evidence not to support its claim construction, but rather to highlight the inconsistencies in Amazon's own arguments regarding the nature of "communications network."

--- End Footnotes ---

For all of these reasons, the Court construes the term "communications network" as follows:

Any network, including the Internet, enabling communication between a terminal device and a central controller.

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6. "a communications network electronically linking the computer workstations to the host computer network"

The parties similarly disagree about the meaning of the term "a communications network electronically linking the computer workstations to the host computer network" in claim 1. Without question, the plain meaning of the term communications network to one of ordinary skill in the art is consistent with the definition proposed by Manheim—namely, an "electronic connection between the users' computers and the host computer network that enables data transfer." (See Manheim Resp. Br. at 20; AMS Resp. Br. at 28.) But, this term must be construed in light of the claims as a whole. Given the Court's conclusion, supra, that the "means to send user commands" and the "means to receive and display … auction data retrieved and transmitted from the host computer network" require communications parameters capable of employing the X.25 network protocol, the Court adopts AMS's proposed definition. Therefore the term "a communications network electronically linking the computer workstations to the host computer network" shall mean "hardware and software forming an electronic connection between the users' computers and the host computer network that enables data transfer via the X.25 protocol."

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1. "communicatively coupled"

The term "communicatively coupled to the gel layer" appears in Claims 1 and 2 of the '102 Patent. Cardiac Science asserts that this term should be construed as "configured to enable electrical connection to the gel layer." Philips contends that this phrase should be defined as "the wire is in direct contact with the gel layer, without the use of a conductive contact layer, such as an intermediate metallic layer." Philips renews its disclaimer arguments as set forth in Section II.D.1, above.
The Court construes "communicatively coupled" to mean "configured to enable electrical connection to the gel layer."

A. "Communicatively Coupled" Means "Connected in a Way that Permits Communication."

1. Ordinary Meaning

The term "communicatively coupled," which appears in asserted Claims 1, 6, 11, and 17, invariably describes the connection between a central information storage bank (the computer or array of computers that stores the universe of downloadable media content) and local units from which a user can download selected media. E.g., 823 Patent Claim 1 ("at least one local unit communicatively coupled to said central computer"); Claim 19 (same); Claim 6 ("a first interface to be communicatively coupled to the central computer"). The ordinary meaning of the term "coupled" is "connected," and the adverb "communicatively" suggests that the coupling is for the purpose of communication.

Digeo proposes a construction of " communicatively coupled " that reflects the term's ordinary meaning. Audible, however, contends that the term is limited to couplings on an "integrated closed network." At oral argument, Audible explained that an "integrated closed network" is a network that only preauthorized users can access. Audible does not contend that the "integrated closed network" limitation is inherent in the plain meaning of "communicatively coupled," nor could it. Audible must, therefore, point to evidence of a "clear disavowal of claim scope" through "words or expressions of manifest exclusion or restriction." ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1091 (Fed. Cir. 2003).

2. Specification

The claim language and specification provide no support for Audible's proposed construction, much less a "clear disavowal of claim scope" that would mandate a departure from the ordinary meaning of "communicatively coupled." When pressed at oral argument to point to any disclosure of a "closed" network in the specification, Audible suggested that the description of a customer opening an account and obtaining an identification card was evidence that the patent disavows any "open" network. The disclosure, however, simply notes that in a "point of purchase delivery system" embodiment, the customer would obtain an access card before downloading content. 823 Patent at 10:40-11:17. The court is not at liberty to restrict the scope of the claims to conform to the description of an embodiment. Dow Chem. Co. v. Sumitomo Chem. Co., 257 F.3d 1364, 1378 (Fed. Cir. 2001) ("It is axiomatic that claims, not the specification embodiments, define the scope of protection.") (internal citation omitted). Even if the court were to limit the claims in accordance with the point of purchase embodiment, the embodiment does not require a "closed" network. Nothing in the description prohibits a user from accessing content without preauthorization. Authorization is necessary only if the user decides to purchase content.

In contrast to the single inapposite disclosure in the specification that Audible identified, the specification repeatedly discloses the use of unrestricted networks over which local units and a central information bank are communicatively coupled:

Communication network links between the central information bank... and point of sale sites can be made utilizing one or a combination of many commercially available networks such as telephone, satellite or cable networks or any other medium suitable for transmitting information in a digitized format.

Id. at 5:21-27. The inventors also stated that one could use the internet as the "backbone" network for the invention. Id. at 5:28-30. The inventors never described the communication links between the central information bank and the local units as closed or restricted to preauthorized users. Instead, the means for protecting media content from unauthorized use are the encryption methods that the court will discuss later. See infra Part III.G; 823 Patent at 15:17-28. When the patentees wished to claim encryption methods, they did so by using explicit language covering encryption. The notion that the term "communicatively coupled" is limited to "closed" communication is inconsistent with the 823 Patent's written description and claim language.

3. Are Mr. Saigh's Pro Se PTO Communications Part of the Prosecution History?
The bulk of the support for Audible's proposed construction comes from the prosecution history. Before reviewing the history, however, the court must consider a dispute over whether it may consider certain communications from Mr. Saigh as part of the prosecution history. Each of the challenged communications is physically part of the prosecution history, in the sense that each is part of the public record. Nonetheless, Digeo urges the court to ignore at least some of the communications. Audible contends that the court cannot ignore them.

The court first reviews the context of the challenged communications. Mr. Saigh executed a power of attorney during the prosecution of the 120 Application, and a joint power of attorney with the other three inventors on the 056 Application. PH at 500-244-45 ('120), 500-442-45('056). Nonetheless, Mr. Saigh submitted "pro se" communications to the PTO on several occasions, in violation of PTO rules. See Manual of Patent Examining Procedure ("MPEP") § 403. In response, the PTO took actions suggesting that it ignored the pro se communications. E.g., PH at 500-321, 500-591. The PTO also suggested, however, that it substantively considered the communications. E.g., 500-597 ("Applicant's arguments filed 12/27/95 have been fully considered but they are not deemed to be persuasive."). In the interim, Mr. Saigh purported to revoke the power of attorney. PH at 500-590. It is not clear whether the PTO applied the revocation prospectively or retrospectively. There are other entries that further complicate matters, but the court will summarize the situation succinctly: the prosecution history with respect to Mr. Saigh's communications is a big mess.

Fortunately, the court need not serve as housekeeper. The court assumes for the purposes of claim construction that Mr. Saigh's communications are part of the prosecution history, and that the court should examine them as it would any other entry in the prosecution history. It will become apparent that considering Mr. Saigh's communications does not prejudice Digeo.

4. Prosecution History

The fuss over Mr. Saigh's communications with the PTO arises because he made statements that serve, in Audible's view, to sharply limit the scope of the claims, including the scope of the term "communicatively coupled." In a November 1995 office action, the PTO rejected all claims pending in the 056 Application because a disclosure in the October 1993 issue of the Heller Report (an educational technology newsletter) either anticipated the claims or made them obvious. PH at 500-572; Culbert Decl. Ex. A. In addition, the same office action contained a "Notice of References Cited," PH at 500-575, along with a notice that the "prior art made of record and not relied upon is considered pertinent to applicant's disclosure." PH at 500-573.

Although the PTO had not rejected any claims based on any prior art other than the Heller Report, Mr. Saigh chose to discuss every reference in the "Notice of Prior Art" when he responded to the November 1995 office action. In a section addressing United States Patent No. 5,221,838 (the "Gutman Patent"), Mr. Saigh offered several bases for differentiating his invention:

While the Gutman device is to be used in connection with an unrelated network for the transmission of data electronically, the Applicant Invention represents an integrated closed network for the electronic transfer of data representing intellectual properties composed of many bytes of data.

PH at 500-581 (emphasis added).

While the Gutman device is not physically configured to make it suitable for reading or viewing intellectual properties comprised of many bytes of data, the Applicant invention is a closed network whose principal purpose would be the
electronic transmission of such intellectual properties comprised of many bytes of data.

PH at 500-581 (emphasis added).

While it would be reasonable to assume that the Gutman device will be principally used by the end user to interface with electronic networks or devices of unrelated persons to receive, store and transmit data related to the user electronically, [sic] n4 Most likely, the Applicant invention would represent a closed integrated network for the transfer of intellectual properties for the creator or owner to one or more persons desiring to purchase or lease the use of the data being transferred.

n4 Mr. Saigh's communications to the PTO often contain typographical or grammatical errors. The court has attempted to reproduce them faithfully in its citations to the prosecution history.

PH at 500-582 (emphasis added). Audible contends that these disclosures limit the scope of the claimed invention, and the term "communicatively coupled," to communication over a "closed integrated network." Audible Br. at 13. Audible seeks to invoke the doctrine of prosecution disclaimer. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323-25 (Fed. Cir. 2003). When a patentee has made "clear and unmistakable" statements disavowing claim scope, a court must interpret claims consistently with the disavowal. Id. at 1326; see also NTP, Inc. v. Research in Motion, 418 F.3d 1282, 1309 (Fed. Cir. 2005) (requiring "words or expressions of manifest exclusion or restriction representing a clear disavowal of claim scope"). Ambiguous disclaimers do not limit claim scope. See Omega Eng'g, 334 F.3d at 1325-26; see also Sandisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1287 (Fed. Cir. 2005). A court can limit claim terms by prosecution disclaimer only when the patentee's "arguments to the examiner have no reasonable interpretation other than to disavow" claim scope.

Mr. Saigh did not clearly and unmistakably disavow claim scope when he used the term "closed integrated network" during prosecution. Ambiguity pervades his statements. Mr. Saigh used the phrase, or variations of it, three times. In the first instance, he arguably made a distinction giving meaning to the phrase "integrated closed network," but it is not the distinction or meaning that Audible urges. The Gutman Patent describes a handheld "Electronic Wallet" used to conduct consumer transactions electronically. When Mr. Saigh described his invention as "an integrated closed network," he was distinguishing it from the "unrelated network" over which the Gutman wallet would transmit data. PH at 500-581. Beyond the semantic difference between the phrases, it is unclear what distinction Mr. Saigh sought to draw. The court finds no basis, however, to conclude that he was limiting his invention to networks in which all access is preauthorized, much less that he did so clearly and unmistakably.

In the remainder of Mr. Saigh's effort to distinguish the Gutman Patent, the phrases "closed network" and "closed integrated network" most likely carry the same meaning as they did in the instance the court described above. Mr. Saigh noted that the Gutman device was not suitable for "reading or viewing intellectual properties composed of many bytes of data," and stated that his invention is a "closed network whose principal purpose" is to allow transmission of many bytes of data. PH at 500-581. Mr. Saigh thus distinguished the amount of data the two inventions were meant to transport; he imparted no additional meaning to the term "closed." Similarly, in noting that the Gutman wallet connected the "end user" to "unrelated persons," whereas his invention "represents a closed integrated network" for transfer between content owners and persons desiring to purchase or lease the content, PH at 500-581-82, Mr. Saigh distinguished his invention in a manner consistent with his initial use of the term "closed integrated network." The court therefore assumes that Mr. Saigh used the term as he had previously, to distinguish the "unrelated network" on which the Gutman wallet operates.

Audible contends that Mr. Saigh described his invention as operating on an "open-ended" network in the 120 Application, suggesting that his later adoption of the phrase "integrated closed network" was significant. The use of the term "open-ended," however, only injects more ambiguity into the prosecution history. In distinguishing a prior art reference, Mr. Saigh noted that the "system described in the [prior art] is a closed network, in that, for the most part, the system will be housed and operated within the same vicinity or building." PH at 500-332. By contrast, he deemed his invention an "open ended network," because "the data may be flowing into and out of the network from many diverse locations many of which may be quite far from each other (they could be half a world away)." Id. Mr. Saigh made the same distinction in discussions of at
least two other pieces of prior art. PH at 500-340, 500-343. Following Audible's logic, when Mr. Saigh later allegedly limited his invention to a "integrated closed network," he disavowed the practice of the invention on any network except one housed "in the same vicinity or building." Such a limitation is preposterous in light of the specification and the claims. Indeed, the illustration on the first page of the 823 Patent shows a network operating across the United States.

In examining another prior art reference in the prosecution of the 120 Application, Mr. Saigh declared that it did not matter whether his invention operated on a closed or open network. PH at 500-337 ("The Saigh Patent System could be Operated as part of an open access system or network or a closed computer system or network.") (emphasis added). This is consistent with the later entry in the prosecution history on which Audible urges the court to rely. PH at 500-582 ("Most likely, the Applicant invention would represent a closed integrated network for the transfer of intellectual properties . . .") (emphasis added).

Mr. Saigh's pro se contributions exemplify the Federal Circuit's observation in Phillips that the prosecution history "often lacks the clarity of the specification and thus is less useful for claim construction purposes." 415 F.3d at 1317. The court can only speculate about why Mr. Saigh addressed the Gutman Patent at all, given that the PTO had not rejected any claims in light of it. In addressing the Gutman Patent, he may or may not have used variations of the phrase "integrated closed network" to make a distinction, but that distinction is murky at best. The court has noted that his references are subject to numerous interpretations. Audible cannot prevail merely by offering its best interpretation of Mr. Saigh's statements, even if its interpretation is reasonable. Audible must show that Mr. Saigh clearly and unambiguously disavowed the practice of his invention on any network except one that required preauthorization before accessing it. It has not met that burden here.

For these reasons, the court interprets the term "communicatively coupled" consistent with its ordinary meaning and the specification of the 823 Patent. The term means "connected in a way that permits communication."

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7. The '186 Patent

United States Patent Number 5,878,186, issued March 2, 1999, is a continuation in part of the '704 patent. Generally speaking, it relates to a method for synchronizing audio signals with transcribed text. The patent claims, in part,

1. A transcription system having a stenographic recorder that receives key-strokes representative of a group of spoken words that are spoken during a first time period, and said stenographic recorder generating, during a second time period, signals corresponding to the key-strokes received, wherein the first and second time periods are not in time synchronization, said transcription system comprising:

   a terminal, communicatively interconnected to the stenographic recorder, which transcribes signals generated by the stenographic recorder into corresponding alphabetic and numeric text;

   recording means for creating a recording of the group of spoken words;

   a link between said terminal and said recording means, said terminal operating across said link to create associations between recorded spoken words and corresponding alphabetic and numeric text; and

   analysis means for automatically identifying a third time period that provides better time synchronization with the first time period than does the second time period.

   * * *

3. A transcription system used to transcribe spoken words, comprising:

   a recorder for storing in sequential locations audible signals representative of spoken words as each of the words is spoken, and said recorder being capable of indicating a current storage location;
a terminal communicatively interconnected to said recorder;

input means responsive to manual input for generating input signals, and for delivering the input signals to said terminal as such signals are generated;

said terminal transcribes the input signals received from the input means, and, as the input signals are received, said terminal selectively associates current storage locations with the input signals;

said recorder also being controllable by said terminal to selectively access a portion of the stored audible signals based on the storage location of the portion; and

analysis means for adjusting the associated storage locations to provide better time synchronization between the input signals and the stored audible signals.


With respect to this patent, the parties dispute only the phrase "communicatively interconnected." The defendants argue that this language means that the communication links -- the link between the stenographic recorder and the computer terminal in claim 1 and the link between the recorder and the computer terminal in claim 3 -- must be two-way, in other words, that it contemplates a two-way data flow. Engate contends that neither link needs to be two-way. The defendants argue that their construction is supported by both the dictionary and the specification. But the dictionary, which defines "interconnect" as "to connect mutually or with one another" and "connect" as "to join, fasten or link together," Webster's Third New International Dictionary, Unabridged, 1177, 480 (1993), adds little to the mix. The specification section upon which the defendants rely indeed suggests that the CAT system must be able to communicate with the court reporter; it states: "if the absolute barrier is reached before identifying the beginning of a dead zone, the CAT system 13 first indicates to the court reporter that two units of speech by the same speaker have been indicated." U.S. Patent No. 5,878,186, col. 12, lines 12-18. But this language appears in the description of the preferred embodiment, and nothing in either the remainder of the specification or the claims suggests that this limitation should be written into the claims. Accordingly, we agree with Engate that the phrase "communicatively interconnected" reads on either one-way or two-way communication between the terminal and the stenographic recorder (claim 1) or recorder (claim 3).

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b. "a compact, portable and interchangeable computer readable medium"

Claim 1 explains how the data storage assembly associated with the local processor assembly includes "a compact, portable and interchangeable computer readable medium." Rothschild suggest that this term be construed as "a computer readable medium that is small, can be carried easily and can be swapped." Citrix urges the following construction for this claim term: "[a] computer readable medium that is small, can be carried easily, and can be mutually substituted. Examples include a CD-ROM or a DVD. In contrast, the local processor assembly's hard drive is not a "compact, portable and interchangeable computer readable medium."

The parties' dispute over this claim limitation stems from Rothschild's proposal, stated in its reply brief and at the Markman hearing, that the "compact, portable and interchangeable computer readable medium" should encompass the local processor assembly's hard drive. Rothschild has argued that internal computer hard drives are interchangeable and swappable. Citrix contends that Rothschild's proposal directly contradicts the '534 Patent, which distinguishes between the claimed "data storage assembly," i.e., the local processor assembly's hard drive, and a "compact, portable, and interchangeable computer readable medium," such as a CD-ROM or DVD. For example, Citrix points to the following passages from the '534 Patent specification:

While the data storage assembly may include only a fixed/hard drive of the local processor assembly, preferably the data storage assembly of the interface system includes at least one compact, portable and interchangeable readable medium.

***
Preferably, the data storage assembly 30 includes a computer readable medium, and in the preferred embodiment of FIG. 1 preferably includes a computer hard drive or other fixed data storage assembly wherein a large quantity of data may be stored and contained. As will be described in further detail subsequently, however, the data storage assembly may also include a portable and/or interchangeable assemblies such as compact discs or other such writable and non-writable assemblies and the accompanying drives.

***

While the data storage assembly may include a computer hard-drive of the local processor assembly 25', in the preferred embodiment and potentially in addition to the computer hard-drive associated with the local processor assembly 25', the data storage assembly will include a compact, portable and interchangeable computer readable medium 36 and its associated external or internal drive 35, which can be configured to merely read data or to both read and write data.


Claim terms must be construed from the vantage point of one with ordinary skill in the art at the time the patent application was filed and who has read the patent specification. Regardless of whether internal hard drives in 2007 are compact, portable, and interchangeable, Rothschild has presented no evidence to show that this was the case 10 years ago when the patent was filed. Moreover, even if internal hard drives could have generally been understood as compact, portable and interchangeable computer readable media in 1997, the fact that the patent specifically distinguishes the disputed claim term from internal hard drives means that Rothschild's construction cannot be correct. Accordingly, the Court construes "a compact, portable and interchangeable computer readable medium" to mean: "[a] computer readable medium that is small, can be carried easily, and can be mutually substituted. Examples include a CD-ROM or a DVD. In contrast, the local processor assembly's hard drive is not a "compact, portable and interchangeable computer readable medium."

3 Indeed, Rothschild's expert testified at the Markman hearing that in the past, hard drives were not compact, portable or interchangeable. (4/13/07 Hearing Tr. at 161:15-162:7).

2. "Comparator"

ITW describes this word as: "software code or an electronic circuit that compares two values." Pl.'s Revised Proposed Order Regarding Claim Construction at 5. Ion argues that it means "a digital circuit running a software routine that accepts two binary input values and outputs a result to indicate whether or not the two input values are equal." Def.'s Proposed Order re Claim Construction for the '756 patent at 6.

Any claim construction of "comparator" must be consistent with the "comparing" step defined in claim 17. See Epcon Gas, 279 F.3d at 1030. The dictionary defines "comparator" as "any of various instruments for comparing a measured property of an object, such as its shape, color, or brightness, with a standard." American Heritage Dictionary of the English Language (4th 2000). This construction is overbroad for purposes of the '756 patent. To be consistent with claim 17, supra § I.A.3, and the intrinsic evidence, a "comparator" can only use a non-hardware-based system for comparing values. The proper construction is therefore "any non-hardware-based instrument that compares two values." 13

13 To avoid unnecessary repetition or inadvertent confusion, I will incorporate the constructions for "value" and "compare" previously described in § I.A.2-3.
Disputed Claim Language

"for input to a comparator circuit for providing an automatic noise threshold adjustment to said laser receiving section to facilitate discrimination between said returned laser pulses and said noise pulses"

Analysis

Plaintiff asserts that this disputed claim language should be read in accordance with its plain meaning and argues I should refer to Claim 18 of the '779 Patent for analysis. Plaintiff's Reply Memo, 32. But here, Plaintiff argues that this claim does not require obtaining a constant pulse firing rate as does Claim 18. Defendants contend that Claim 1 "includes several of the elements discussed above in connection with claims in the other two patents," specifically, "an automatic noise threshold adjustment" and "a comparator circuit." Defendants' Memo, 35. Apparently, Defendants ask me to refer to previous analysis of those components of this claim. Id.

A comparator "compares something to be measured with a standard measure." WEBSTER'S 3RD NEW INTERNATIONAL DICTIONARY 462 (3rd ed. 1986). By the plain language of Claim 1, this comparison provides a foundation for adjusting the noise threshold. Both parties refer me to Claim 18. There, I construed the noise threshold circuit to include a feedback loop composed in part of diode 316. Here, I do the same.

CONSTRUCTION: For input to a circuit that consists of a feedback loop composed in part of diode 316 for adjusting the noise threshold based on the noise environment in relation to reflected pulses received by the laser receiving section, before the noise signals are parsed out from the actual target signals. The circuit adjusts the noise threshold by comparing incoming pulse values with previously received pulse values to ascertain the noise environment.

VII. "Comparing"

The last clause of Claim 1 indicates that the patented technology "determin[es] the optimized path by comparing the default cost and the alternative cost." The parties are divided over whether this comparison is limited to the sort of quantitative, technical comparison that a computer would do, or whether "comparing" should be given its more ordinary meaning. Defendant claims that since the comparison is being made in the context of "a packet-switched computer-based communications network," the term "comparing" should be construed as "a computer operation examining whether one term is greater than, equal to, or less than another." Plaintiff argues that the term should be construed more generally as "to examine for likenesses or differences."

Defendant's effort to give this term a narrow technical definition cannot be squared with the construction of "cost" that the Court has adopted. As indicated above, the term "cost" refers to "the value of network communication performance metrics, in accordance with a practitioner's priorities and needs." Thus the "costs" that are being "compared" may not lend themselves to unidimensional greater-or-less-than determinations; rather, "comparing" may involve a more holistic assessment of the alternative paths in relation to the default path. As such, even though the comparison may at times involve an assessment of which of two values is greater, there is no reason to limit the definition of "comparing" to that sort of quantitative assessment.

The Court will therefore adopt plaintiff's proposed construction of this term.
Defendant Ion Beam argues the claim term "comparing" is indefinite. (Ion Beam P.&A. at 12:8-14.) Ion Beam cites Union Pac. Resources v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed. Cir. 2001) to support its argument that the term "comparing" is indefinite. "Whether a claim is invalid under 35 U.S.C. § 112, P2 for indefiniteness is a question of law reviewed de novo." Id. (citing Personalized Media Communications, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 702 (Fed. Cir. 1998)). "The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Id. (citing Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576 (Fed. Cir. 1986). "Even if the written description does not enable the claims, the claim language itself may still be definite." Id. (citing In re Hyatt, 708 F.2d 712, 714-15 (Fed. Cir. 1983)). "The amount of detail required to be included in claims depends on the particular invention and the prior art, and is not to be viewed in the abstract but in conjunction with whether the specification is in compliance with the first paragraph of section 112: 'If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more.'" Georgia-Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136, 118 USPQ 122, 132 (2d Cir.), cert. denied, 358 U.S. 884, 79 S. Ct. 124, 3 L. Ed. 2d 112 (1958), cited with approval in Chemcast Corp. v. Arco Industries Corp., 854 F.2d 1328 (Fed. Cir. 1988).

Although the Union Pac. Resources court held the term "comparing" to be indefinite, the court in Georgia-Pacific Corp., 258 F.2d at 136 explained "[o]bjective indefiniteness must be determined by the facts in each case, not by reference to an abstract rule." Id. (emphasis added). "Patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and the applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision." Id.

In Union Pac. Resources, supra, 236 F.3d at 692, the court found the patentee failed to enable the patent, and the patent term "comparing" was void for indefiniteness. 24 Id. at 690-92. In Union Pac. Resources, the Federal Circuit found an oil drilling company failed to enable its method for calculating the location of a borehole because it failed to disclose all information about the computer programs used to perform the calculation. Id. The Union Pac. Resources court made the following observations:

According to the claims, the method for determining the location of a borehole relative to strata (or in the earth) comprises a step of "comparing" characterizing information. The precise meaning of the term "comparing" is not explained in the written description. The patent suggests, however, that "comparing" (which incorporates "rescaling" in Claim 1) involves the determination of TSD by correlation. As explained during trial, correlation is a process of stretching and squeezing a TVD log by carefully choosing assumed bed dip angles, until a portion of the TVD log matches a portion of the offset log. In other words, the "comparing" step presumably refers to a complex "correlation" step suggested (but not explained) in the written description.

Yet "comparing" could undoubtedly have other meanings to a person of skill in the art. For example, because the patent does not indicate that it is a technical or scientific term, the term "comparing" could simply mean "to examine in order to note the similarities or differences of." The American Heritage College Dictionary 283 (3d ed. 1997). Nothing in the specification describes "comparing" (or "rescaling") as a process of stretching and squeezing a TVD log by carefully choosing bed dip angles. Thus, the '951 patent does not define the means to "compare" the two sets of characterizing information. The district court correctly found that the "comparing" steps in claims 1 and 6 are indefinite.

Id. at 692. The instant case is distinguishable from Union Pac. Resources on several grounds. First, there is no "complex correlation step" suggested (but not explained) in the instant patent specification. Rather, the specification states that the data generated by switching magnet monitors and detectors is compared with data representing the type of beam requested by an operator. (See Rosenberg Decl. Ex. 2, the '518 Patent at 5:25-6:18.) Secondly, there is no reference to "rescaling" in the instant case, or any other similarly confusing cross-reference for the term "compare." (See id.)

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -
24 As CHISUM explains, "definiteness" and "enablement" are not the same thing: "Definiteness means that the language of the claims must clearly set forth the area over which the applicant seeks exclusive rights. Enablement means that the specification must describe the manner of making and using the invention in such clear terms as to enable any person skilled in the art to make and use it." 3 DONALD S. CHISUM, CHISUM ON PATENTS § 8.03[2][a] at 8-24 (2003). The primary purpose of the definiteness requirement is "to provide clear warning to others as to what constitutes infringement of the patent. A secondary purpose is to provide a clear measure of the invention." Id. at § 8.03, 8-18.

The court in Union Pac. Resources was dealing with a more complex procedure than the one at issue in the instant case. For example, the Union Pac. Resources court complained about the indefiniteness of the word "compare" because, inter alia, "the patent does not explain that stretching and squeezing of the borehole log, as well as significant trial and error, are necessary to correlate (i.e., "compare" and "rescale") the logs. Nor does the patent describe how to select sections of the borehole log to stretch or squeeze, or how to select points to correlate." Union Pac. Resources, 236 F.3d at 691. In the instant case, on the other hand, the term "compare" refers to the comparison of two sets of data to see if they are in "agreement."

A patentee need not disclose the underlying source code or computer program that actually structures and performs the comparison. See id.; see also Dan Burk and Mark Lemley, Is Patent Law Technology-Specific?, 17 Berkeley Tech. L.J. 1155, 1164 (2002). In the instant case, it is difficult to imagine how the patentee could be more specific without disclosing the code or including actual software program used to perform the comparison. Accordingly, the court hereby finds the claim term "comparing" is sufficiently definite as used in the context of the '581 patent. It means, "to examine, check or note similarities or differences between two things." (See, e.g., Airhart Decl. Ex. H. at 125; compare Optivus P.&A. at 17:14-15, and Ion Beam P.&A. at 17:10-11.)

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d. "Comparing a First of Said Selected Pixels to at Least a Second of Said Pixels"

This claim term appears solely in claim 15 of the 780 patent. IP proposes that we construe this term according to what it claims is the ordinary and customary meaning: taking selected pixels in an image, and within the group of them, comparing a pixel of the original image to at least a second of the selected pixels. Lexmark and Dell by and large agree with this construction, but they wish to add the phrase "electronically coded" or variants thereof to make the definition read as follows: taking the selected pixels of an electronically coded input image, and within the group of them, electronically comparing the pixel to be displayed to one or more of the surrounding selected pixels of the coded image.

As was the case with regard to the construction of "pixel" and "image element" discussed above, Lexmark and Dell's proposed construction unnecessarily adds limitations and features that are not supported by the specification, such as that the image be of the "electronically coded input" variety and that the comparator pixel be from the pixels "surrounding" the first pixel. The intrinsic evidence indicates that the addition of these terms would impermissibly narrow the scope of the claim. According to Lexmark and Dell, because the specification, particularly Figure 7, comports with their definition, we should import the limitations found in the specification into the claim itself. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 905 (Fed. Cir. 2004). While the sections of the specification to which Lexmark and Dell point undeniably illustrate and discuss one way in which the comparison can be accomplished, we disagree that the process described in the plain language of the claim term could only be effectuated in that way. In addition, the insertion of the phrase "the pixel to be displayed" is not consistent with the specification or the claims; it requires that any comparison must be with the pixel that is ultimately to be displayed. Lexmark and Dell's definition would erase the possibility of a new pixel being generated from the comparison of two existing pixels, which the language of the patent anticipates. See United States Patent No. 5,424,780, col. 5, Ins. 33-50.

Therefore, the court adopts IP's proposed definition: taking the selected pixels of an image, and within the group of them, comparing a pixel of the original image to at least a second of the selected pixels.
The parties also dispute the term "comparing a reference value with a difference between a slow spinning speed and a fast spinning speed of the drum," which appears in Claims 3 and 10. LG proposes construing the term to mean "comparing a reference value [i.e., a known value for measuring against] with a difference [i.e., change] between a slow spinning speed and a fast spinning speed of the drum." (Chart at 26.) Whirlpool proposes instead that the term be construed to mean "subtracting a slow measured drum speed from a fast measured drum speed and comparing the result with a standard value." (Id.)

According to the written description for Figures 5 and 6, "[t]he imbalance sensing operation is performed by calculating the difference between a speed X2 at which the drum spins fastest so that the laundry is placed on the top of the drum, . . . and the speed X1 at which the drum spins slowest so that the laundry is placed in the lower part of the drum, . . . and then comparing the calculated difference with a reference value in step 55S." ('731 Patent, col. 3, ll. 49-55.) Figure 5 shows this calculation in step 55S as "X[2] - X[1] > reference value."

The summary of the patent describes "a drying method for a drum-type washing machine, the method including the steps of . . . comparing a reference value with a difference between a slow spinning and a fast spinning speed of a drum . . . and based on a result of the comparing step, controlling a spinning operation of the drum." (Id., col. 2, ll. 44-53.)

Based on the patent's use of the term "difference" when describing the comparison of values X[1] and X[2], and its use of a subtraction calculation to describe the comparison performed, the Court agrees with Whirlpool that the term refers to the subtraction of the two values.

With respect to the terms "slow spinning" and "fast spinning," however, Whirlpool has failed to identify any intrinsic support for construing the terms to mean "slow measured" and "fast measured." With respect to Whirlpool's argument that the term "standard value" should apply, the Court also finds no basis to support that argument.

The Court will therefore construe the term "comparing a reference value with a difference between a slow spinning speed and a fast spinning speed of the drum" to mean "subtracting a slow measured drum speed from a fast measured drum speed and comparing the result with a reference value."

E. "Comparing An Output Of A Local Clock Signal Generator With Said Result Of Said Decoding Step"

<table>
<thead>
<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using an operating computer or hardware logic to determine whether the local time indicated by the equipment at the user site is prior to, equal to, or after the expiration time indicated by the result of the interpretation of the data values that set an expiration threshold.</td>
<td>Comparing the output of a time-of-day clock generator at the user site with the result of the decoding step.</td>
</tr>
</tbody>
</table>

Neither party addressed this term during the Markman hearing, and the parties devoted little attention to this claim term in
their claim construction briefing. After reviewing this briefing, the only dispute the Court is able to discern is whether the "local clock signal" must come from only a "time-of-day" clock (Defendant's position) or not (Plaintiff's position). Based on the parties' proposed constructions, the parties agree that the "local clock signal generator" is located "at the user site."

In support of the position that the "local clock signal" is referring to a "time-of-day" clock, Defendant contends that the only embodiment described in the specification appears to use a time-of-day-clock. (See D.I. 63 at 18-19; see also, e.g., '402 patent at 4:37-38 ("In the case of a time limit, this comparison can be made with the time-of-day clock . . . ."). Plaintiff responds that this claim limitation can be referring to "more than 'time of day' but also may include any time and date that indicate a relevant time period." (D.I. 66 at 25.) Defendant's attempt to limit this claim limitation to a "time-of-day" clock is, Plaintiff contends, merely an attempt to import a limitation from the specification into the claims.

The Court agrees with Plaintiff that, although "time-of-day" clocks are mentioned in the specification, there is no good reason to limit the claims to this particular embodiment in the specification. Nevertheless, the Court will not adopt Plaintiff's proposed construction. Plaintiff's construction introduces unnecessary verbiage and limitations into the claims, including the use of "an operating computer program or hardware logic," and a comparison of whether the "local time" is "prior to, equal to, or after the expiration time." In the Court's view, none of this would illuminate the meaning of this claim term to one of skill in the art. Accordingly, the Court will construe "comparing an output of a local clock signal with said result of said decoding step" to mean "a comparison of a local clock signal with the result of said decoding step." This construction conforms most closely to the clear language of the claim, yet at the same time confirms that the "clock signal" is not limited to a "time-of-day" clock and further reflects the parties' agreement that the "local clock signal generator" is located at the "user site."

4. comparing bit patterns from a contiguous plurality of said output reconstructed bytes with bit patterns known to have comprised a like plurality of bytes of each of said contributory frames

FORE contends that this phrase requires "bit patterns from two or more adjacent reconstructed bytes to be compared with bit patterns known to have been present in two or more adjacent bytes in each of the contributory frames which have been multiplexed to form the bit stream." (D.I. 146 at 31 (emphasis in original)). FORE further contends that each contributory frame must both contain the pattern and contain it within two or more adjacent bytes of the contributory frame.

In response to FORE's construction, Bellcore contends that this phrase means "that the contributory frames each have a plurality of bytes like the bytes included in the compared 'contiguous plurality' of bytes." (D.I. 151 at 16). According to Bellcore, this phrase cannot mean, as FORE contends, that the compared contiguous plurality must exist within each contributory frame. According to Bellcore, the requirement for byte interleaving makes this arrangement impossible.

The Court agrees with FORE's construction of this phrase. This element of the patent concerns frame boundary detection after byte reconstruction, because as the claim recites, the comparison is made from a "contiguous plurality of output reconstructed bytes." (768 Patent, col. 12, line 12). Because this step is performed after the interleaved bytes are reconstructed, Bellcore's contention that the interleaving arrangement makes this interpretation impossible is incorrect. As the specification states:

Upon completion of the formatting of the high-speed serial data stream to a low-speed, properly synchronized byte-parallel data stream, there remains the problem of identifying the boundaries of each frame of the original transmission in order that the payload, as well as the relevant overhead information bytes, may be demultiplexed to the basis STS-1 level. For this purpose, the present invention relies upon the prescribed bit sequence of both the F1 and F2 framing bytes, of which each frame above STS-1 will have at least two, F2 bytes following immediately upon the final F1 framing byte as depicted in FIG. 2.

(768 Patent, col. 5, lines 41-52 (emphasis added)). The reference to Figure 2 here is only for the purpose of illustrating that the F2 bytes follow the F1 bytes. Accordingly, the Court concludes that "comparing bit patterns from a contiguous plurality of said output reconstructed bytes with bit patterns known to have comprised a like contiguous plurality of bytes of each of said contributory frames" means that two or more adjacent reconstructed bytes are compared with bit patterns known to
have been present in two or more adjacent bytes in each of the contributory frames which have been multiplexed to form the
bit stream. Each contributory frame must contain the bit pattern and each frame must contain the bit pattern within two or
more adjacent bytes of the contributory frame.

Disputed Claim Language

"comparing each of said assigned pulse values with other ones of said assigned pulse values"; "continuing to perform said
comparing step until a predetermined number of said assigned pulse values coincide within a specified precision"; and
"determining said actual return signal to be represented by said … values."

Analysis

Plaintiff argues that the these claim elements should be construed according to their plain meaning "to require comparing
pulse values until a predetermined number of the pulse values coincide within a specified precision and determining the
target signal to be the signal associated with a desired threshold of matching pulse values (as opposed to the random pulse
values associated with noise signals)." Plaintiff's Reply Memo, 7. Plaintiff contends that this construction is supported by
the '779 patent specification. I agree. "The specification is always highly relevant to the claim construction analysis.
Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Johnson Worldwide, 175 F.3d at 990.

Given the patent specification language referenced above ( '779 patent specification, col. 2, lines 22-29, 30-35, 50-62), I
conclude that pulse values are assigned to both noise and actual pulses. Therefore, when each pulse value is compared with
every other pulse value, logical relationships result. Noise pulse values are compared with other noise pulse values. Noise
pulse values are compared with actual, or target pulse values. Actual, target pulse values are compared with other actual
pulse values.

Accordingly, the plain language of the claim elicits the following construction. The device compares pulse values
continually until a large enough sample of pulse values is gathered that falls within a specific, limited degree of variation.
The actual target signal (representing the distance from range finder to target) corresponds to the pulse values within that
specified, limited degree of variation. Therefore, I agree with Plaintiff that the target signal is associated with the
"matching" pulse values that correspond within the specified limit.

This claim interpretation is consistent with the '779 patent specification. "A representative pulse value is assigned for each
of the possible reflected signal pulses with respect to the series of signal pulses transmitted to the target and each of the
representative pulse values is compared with other ones of the representative pulse values. Each of the representative pulse
values [is] compared until any predetermined number of the representative pulse values coincide within a specified
precision and the actual return signal is determined to be represented by the predetermined number of the representative
The nature of the claimed invention further supports my reading. Because the range finder emits multiple pulses of laser light, it receives multiple return signals. The device must sort them out and decide which of them are actual target signals. Assigning pulse values to each signal gives the machine "handles" with which to identify each signal for later grouping. When a group of very similar values grows to a large enough number within a user-specified range of pulse values, the device defines this group as representative of the target.

This makes sense. If the target is a certain, specific distance from the range finder, laser pulses emitted from the range finder will travel that same, specific distance to the target, and return that same, specific distance to the range finder. Variations in the topography of the target surface might cause slight variations in the target, or actual, signal travel distance. These subtle variations would seem to be of much smaller magnitude than random variations in signals reflected from noise-creating objects like dust or water droplets in the air that could be any distances from the range finder. Therefore, pulse values indicative of the target should be similar.

Defendants argue that "the element of the claim 'comparing each of said assigned pulse values with other ones of said assigned pulse values' … should be construed [so] each newly arrived pulse is assigned a pulse value that … is immediately compared at the time of arrival with previously stored pulses"; and "each newly arrived representative pulse value [is] compared with all previously assigned representative pulse values at the time the newly arrived pulse value [sic] is assigned its pulse value, and not at the end of the pulse transmission, pulse collection and pulse storage process." Defendants' Reply Memo, 10. I disagree. I "may not add a narrowing modifier before an otherwise general claim term that stands unmodified in a claim." CCS Fitness, Inc., 288 F.3d at 1365-68. While Claim 11 of the '779 patent recites the term "comparing," it says nothing about comparing immediately as Defendants suggest. And, nothing in the '779 patent specification or other intrinsic evidence supports the conclusion that comparisons must happen immediately instead of at the end of the pulse transmission, collection, and storage process.

At first, Defendants argued that Claim 11 does not instruct a person of ordinary skill in the art how to compare pulse values. Defendants' Memo, 29-30. Defendants argued that the claim element merely states the function of comparing. Id. Now, Defendants seem to acknowledge that the comparison requires discrimination "between actual returned reflected signals and noise signals." Defendants' Reply Memo, 9. Still, Defendants argue that the proper way to construe this claim language is to require "assigning pulse values for the laser pulses transmitted and the actual reflected pulses received (but not for noise pulses), comparing pulse values for a match and then halting the comparing upon finding a match to a selected precision." Defendants' Memo, 33. See also, Defendants' Reply Memo, 12 (arguing that Claim 11 requires "assigning pulse values to the return pulse (and not the noise pulses) and comparing each incoming pulse with previously recorded pulses").

I agree that actual reflected pulses receive pulse values. I disagree, however, that Claim 11 limits pulse values to actual-or target-reflected pulses. As Defendants acknowledge, without differentiating between noise and actual pulses, it would be impossible for the device to separate the wheat (the actual, target pulses) from the chaff (the noise). See id. As I have said, both noise and target pulses receive pulse values under Claim 11.

CONSTRUCTION: Comparison of pulse values--both noise and target--continually until a large enough number of pulse values is gathered that falls within a specific, limited degree of variation. The comparison is not necessarily an immediate one. The actual target signal represents the distance from range finder to target. It corresponds to the pulse values within that specified, limited degree of variation. The target signal is associated with the "matching" pulse values that correspond within the specified limit.

The parties dispute the proper construction of the limitation "comparing predictions obtained with the simulation using the model with observed manufacturing trends in the plant, and using the comparison to refine the model." ITI again asserts that the limitation need not be construed, but it provides the Court with the following construction should we determine one is necessary: reviewing similarities and differences between results of the simulation and factory information in order to improve upon the simulation. In this instance, defendants agree with ITI that many of the words in the claim phrase do not
need to be construed. The only truly contested term is "refine." Defendants contend that the proper construction is: using the comparison of predictions obtained from the model with observed manufacturing trends in the plant to change the model to improve the model so that it more accurately reflects the actual operations of the plant. In short, the parties agree that the goal of this step is to improve the model, but defendants believe their interpretation makes it clear that the purpose is to make sure the model more accurately reflects the actual operations of the plant.

The specification states that "predictions obtained with the simulation are compared with observed manufacturing trends in the plant. The comparison is used to refine choice of fundamental rules and parameters in the model." U.S. Patent No. 4,796,194, col. 5. lines 12-16. Defendants' reading is certainly an implicit goal of the invention, but as ITI notes, their proposed added language appears nowhere in the patent. Moreover, the additional language is unnecessary to convey the plain and ordinary meaning of "refine" as used in the patent. The Court construes the limitation to mean using the comparison of predictions obtained from the simulation with observed manufacturing trends in the plant to improve upon the simulation.


As noted, JCI's challenge to Lear's claim of patent infringement rests solely upon the premise that the Roddy patent requires a receiver that operates by performing encryption. If this is so, it readily follows, in JCI's view, that its HomeLink system cannot literally infringe the Roddy patent, as it is uncontested that the receiver in JCI's system performs decryption rather than encryption. This question of "encryption versus decryption," then, is the only issue of claim construction that the Court must address at the present juncture with respect to the Roddy patent.

The Court's inquiry on this point necessarily begins with the language of the patent claims themselves. Although Lear has asserted claims 4 through 7 of this patent, the parties agree that the relevant language appears in claim 1, upon which claims 4 through 7 are dependent. This claim provides in full:

1. A method of actuating at least one home security system remotely comprising the steps of:
   (1) providing a transmitter with encryption logic to send an encrypted signal, providing a receiver adapted to identify an expected encrypted signal, said receiver being adapted to actuate a home security system said encryption logic sending signals that change sequentially, and thus are different on each actuation of said transmitter, said changing sequentially different signals being predictable to said receiver;
   (2) sending an encrypted signal from said transmitter;
   (3) receiving said signal at said receiver, and comparing said received signal to an expected signal; and
   (4) actuating said system if said received signal is determined to be as expected in step 3.

(JCI's Motion, Ex. 1, Roddy Patent at 6:8-22.)

There is no question, and Lear readily acknowledges, that the transmitter described in this claim uses "encryption logic" to send "encrypted signal[s]." It is also clear, and Lear again agrees, that the receiver "receiv[es]" these encrypted signals, and necessarily must somehow "compar[e]" these "received signal[s]" to "expected signal[s]" in order to determine whether to actuate the relevant home security system at step 4 of the claim. The parties' dispute, then, focuses upon the nature of the "compar[ison]" referred to at step 3 of the claim. JCI argues that the receiver must perform encryption in order to generate the "expected signal" that it will compare to the received (encrypted) signal. Lear, on the other hand, contends that the
The Court finds that JCI has the better of the argument, for a number of reasons. First and foremost, if the "expected signal" referred to at step 3 could encompass either encrypted or unencrypted signals, as Lear contends, then such a construction seemingly would conflict with the reference at step 1 to a "receiver adapted to identify an expected encrypted signal." 3 Although this "expected encrypted signal" language is not repeated verbatim at step 3, but instead is shortened to "expected signal," the "receiver" referred to in the latter step plainly is the very same "receiver" whose general function is set forth at step 1 -- namely, a device "adapted to identify an expected encrypted signal." In this context, the Court finds that the "expected signal[s]" referenced in steps 1 and 3 are properly construed as one and the same -- i.e., as encrypted signals.

3 In its recitation of the pertinent claim language in its response to JCI's motion, Lear notably omits this passage from step 1 of the claim. (See Lear's Response Br. at 3.)

In addition, the Court believes that this construction better comports with the ordinary meaning of the word "compare." Plainly, this activity requires that the items in question must be susceptible of comparison -- e.g., converted into the same unit of measure. Lear's expert, Dr. Avi Rubin, acknowledged as much at his deposition, opining that there were three ways in which a receiver could perform the comparison referred to at claim 1, step 3 of the Roddy patent: (i) by "decrypt[ing] the transmission and compar[ing] it to an expected plain text value," (ii) by "tak[ing] the [expected] plain text value and encrypt[ing] it and compar[ing] it to what it received," or (iii) by "perform[ing] some operation that . . . performs partial encryption and then partial decryption and compar[ing] for some value in the middle." (Lear's Response, Ex. D, Rubin Dep. at 103-04.) Under this testimony, then, "comparison" is done only after the two values in question are made comparable, through some combination of encryption and decryption that the receiver performs on either the signal sent by the transmitter, a plaintext expected value, or both.

Yet, step 3 does not refer to any intermediate processing, calculation, or transformation of any sort that the receiver performs between receipt of the transmitted signal and comparison to an expected signal; rather, it states merely that the signal is received and then compared. This immediate juxtaposition of actions requires that the received and expected signals already be capable of comparison -- i.e., that both signals are encrypted. This reading of step 3 also comports with the above-cited language from step 1, providing that the receiver is "adapted to identify an expected encrypted signal." This specified adaptation, of course, obviates the need for the receiver to decrypt a received signal before comparing it to an expected value. Thus, while Dr. Rubin's testimony fairly characterizes the range of possible ways that a receiver could determine whether a received signal matches an expected value, the Court views the language of claim 1, read as a whole, as limiting the specified receiver to only one of these three means -- namely, a comparison between encrypted signals.

Still other portions of the language of claim 1 lend further support to this conclusion. Step 1 stipulates that the transmitter is provided with "encryption logic" that enables it to "send[] signals that change sequentially, and thus are different on each actuation of said transmitter." This step then provides that these "changing sequentially different signals [are] predictable to said receiver." Similarly, after performing the receipt and comparison required under step 3, the receiver proceeds at step 4 to "actuat[e] said system if said received signal is determined to be as expected." These various passages, read together, indicate that the receiver must be able to "predict[]" the sequentially changing -- and encrypted -- signals sent by the transmitter and activate the proper home security system upon receipt of an "expected" signal. Presumably, in order to "predict" the "expected signal[s]" that will emerge from a transmitter that is performing encryption, the receiver must be able to mimic the transmitter's operation -- i.e., it must also perform encryption.

Finally, the Court finds that the specification is fully consistent with and supportive of JCI's proposed construction of claim 1. At one point, for example, the specification states that "when the receiver receives a signal from the transmitter, it compares the received signal to the first expected signal to determine whether the newly received signal is an acceptable signal." (Roddy Patent at 4:41-44.) As with the language of the claim itself, this passage from the specification indicates that the receiver makes a direct comparison between a received (encrypted) signal and an expected signal -- a comparison which, as explained, is only possible if both signals are encrypted. Similarly, the specification later refers to the possible modification of an existing GDO by adding an "encrypted receiver unit" that is able to "recognize[] . . . encrypted signals."
The receiver's evident ability to perform encryption is made explicit in another portion of the specification. In particular, the specification describes a "particular preferred embodiment" in which "the receiver and transmitter are both provided with encryption logic that sequences through a great number of different encrypted signals." (Id. at 4:27-29.) As explained in the specification, this use of the same logic enables both the transmitter and receiver to "know[] the sequential encrypted signals," such that "the receiver is able to predict and recognize the encrypted signal" sent by the transmitter. (Id. at 4:10-14.) Presumably, if the receiver both "knows" and is "able to predict and recognize" the sequence of encrypted signals that the transmitter will send, it must be performing encryption operations in parallel with those performed by the transmitter.

Lear's arguments against this interpretation of claim 1 are not persuasive. First, Lear notes the absence of language at step 3 explicitly stating that the receiver performs an encryption operation in order to generate an expected encrypted signal that can be compared to the received signal. Yet, the Court has already explained why, in its view, it is most natural to read the "expected signal" at step 3 in para materia with the "expected encrypted signal" referenced in step 1. This being the case, it necessarily follows, whether step 3 expressly says so or not, that the receiver must perform an encryption operation in order to form an expected encrypted signal that may be compared to a received encrypted signal. Thus, the Court cannot accept Lear's contention that JCI's proposed construction would impermissibly insert a limitation that is not found in the claim language itself. Rather, the claim stipulates, at step 1, that the receiver is "adapted to identify an expected encrypted signal," thereby enabling the receiver to compare two encrypted signals (received and expected) at step 3.

Lear next points to certain portions of the specification as purportedly inconsistent with JCI's proposed construction. First, Lear cites the specification's reference to certain "[p]refered patented encryption technology [that] is available from United Technologies Automotive, Inc. of Dearborn, Mich." (Id. at 4:4-6.) While this preferred technology is not identified in the specification itself, inventor Timothy Roddy testified that the intended reference was to the technology disclosed in the Koopman patents that also are at issue here. (See Lear's Response, Ex. E, Roddy Dep. at 68-69.) Lear then notes that the specification for one of these patents, the '181 patent, refers to a receiver performing "decryption." (Lear's Response, Ex. F, '181 Patent at 4:27.) Juxtaposing all of this, Lear contends that JCI's proposed interpretation would take the preferred embodiment outside the scope of the Roddy patent, a construction which the case law recognizes "is rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

This contention fails to persuade, on a number of levels. First, JCI correctly notes the patent law principle that "[t]o incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates." Advanced Display Systems, Inc. v. Kent State University, 212 F.3d 1272, 1282 (Fed. Cir. 2000). The Roddy patent manifestly fails to meet this standard through its reference to unspecified "patented encryption technology . . . available from United Technologies." Indeed, JCI points to at least two other patents, apart from the Koopman patents, that would meet this description.

In any event, any suggestion of decryption that could be culled from the Roddy patent's reference to unspecified "patented encryption technology" is overcome by the language that immediately follows this reference. Specifically, in describing this "patented encryption technology" and its use in the preferred embodiment of the invention, the specification states that this technology calls for a transmitter and receiver alike to be "provided with logic that 'knows' the sequential encrypted signals," so that both "will know what encryption will be performed" upon each actuation of the system, and so that the receiver, in particular, will be "able to predict and recognize the encrypted signal" sent by the transmitter. (Roddy Patent at 4:8-14.) As discussed earlier, the Court reads this language as indicative of a receiver that performs encryption.

Lear next points to patent figure 3, a flow chart of the invention. This figure identifies the successive stages of the patented method as (i) send signal, (ii) encrypt, (iii) transmit, (iv) receive, and (v) compare acceptable. Lear reads this figure as dictating encryption by the transmitter, but as silent regarding the receiver's use of encryption, decryption, or some combination thereof in performing its comparison. Yet, as discussed earlier, any silence on this issue in figure 3, like the analogous silence in claim 1, step 3 as to the precise nature of the "compartment" to be performed, is overcome by language elsewhere in the claim and the specification that reflects a comparison between encrypted signals. Thus, even if the figure is deliberately open-ended in this regard, other portions of the patent -- most significantly, the language of claim 1 itself -- limit the operation of the receiver to encryption rather than decryption.

Finally, Lear points to the above-quoted testimony of its expert, Dr. Rubin, regarding the number of different ways that a
receiver could determine whether a received signal matches an expected value. As previously explained, however, this
catalog of possibilities is narrowed by the language in claim 1, step 1, which describes the receiver as capable of identifying
an expected "encrypted" signal. In addition, Dr. Rubin himself apparently draws a distinction between "comparison" and the
encryption or decryption necessary to enable such a comparison. As observed above, claim 1, step 3 evidently contemplates
that no such intervening operation need be performed between the receipt of a signal and the comparison of received
and expected signals, and this could only be so if the expected signal, like the received one, is encrypted. Accordingly, this
expert testimony -- which, as extrinsic evidence, plays a lesser role in the Court's claim construction effort, see Phillips, 415
F.3d at 1317 -- does not overcome the language in claim 1 itself. This language, in the Court's view, mandates a receiver that
performs encryption in order to compare received and expected signals.

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5. "comparing said signals"

KLA argues for the first time in its responsive claim construction brief that "comparing said signals" should be construed to
exclude the operation of normalization and subtraction. D.I. 414 at 30. ADE does not state a proposed meaning.

In support of its construction, KLA quotes a paragraph from a statement made by the inventors during patent prosecution:
"Neither of the references teaches or suggest comparing scattered light intensities in different angular locations. As
discussed above, Quackenbos 5 normalizes and subtracts the signals from the two sensors 28 and 48 but does not compare
the levels of the signals. …" Id. From that snippet of information, KLA asks this court to exclude entirely the operations of
normalization and subtraction from the scope of the '525 patent when signals are compared.

--- Footnotes ---

5 Quackenbos (patent number 4,794,264) was listed in the "References Cited" portion of the '525 patent as a prior art patent.

--- End Footnotes ---

This court declines to do so. KLA has taken the quoted language out of context. The inventors merely stated that
Quackenbos "normalizes and subtracts … but does not compare the levels of the signals." Id. Viewed in this fashion, it is
clear that the inventors were not attempting to surrender the functions of normalization and subtraction but, instead, were
distinguishing their own invention by arguing that Quackenbos only "normalizes and subtracts" and does not also "compare
the levels of the signals." Therefore, this court will not construe the phrase "comparing said signals" to exclude the functions
of normalization and subtraction.

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I. "Comparing The Bid To The Asks"

<table>
<thead>
<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examining a bid and ask in order to note similarities and differences.</td>
<td>A bid is compared to all of the submitted asks.</td>
</tr>
</tbody>
</table>

Defendant objects to Plaintiff's proposed construction as failing to confirm that this claim refers only to the comparison of a
single bid and the (plural) submitted asks. (See D.I. 50 at 24-25.) However, as explained above, the Court has declined to
construe the claims as being limited to only a single "bid" and more than one "ask." Defendant further objects to Plaintiff's
proposed construction as failing to confirm that the "comparing" is done to determine (1) whether the bid price and ask price are "equal" and (2) whether the bid quantity is less than or equal to the ask quantity. Defendant apparently maintains that the claim term should be construed in this manner because the claims explicitly include this requirement. (D.I. 50 at 25.) However, Defendant's own construction fails to include this requirement, and, in light of the claim language, it would be...
superfluous to include this limitation in the construction of this claim term. Accordingly, consistent with the Court's conclusion that the claims are not limited to plural "asks," the Court will construe the term "comparing the bid to the asks" to mean "examining a bid and one or more asks in order to note similarities and differences."

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3. "Comparing [the] ion output current reference value [to an] actual ion output current value"

ITW defines this method claim as: "using either a software routine or a circuit element that accepts as one input the ion output current reference value and as another input a representation of the actual ion output current value and varies its output based upon whether the values are equal." Pl.'s Revised Proposed Order Regarding Claim Construction at 2. Ion argues that it is "using a software routine that accepts as one input the ion output current reference value and as another input a binary number that corresponds to the actual ion output current value and outputs a result based upon whether the numbers are equal." Def.'s Proposed Order re Claim Construction for the '756 patent at 3.

10 ITW agrees with Ion that the ion output current reference value is digitally stored. It also agrees that, to compare two values, those values must be in the same format, i.e. digital or analog. ITW argues, however, that the comparison of the reference and actual ion output current values at issue in this claim could be performed using either digital or analog representations of the respective values. Plaintiff also claims that nothing in the specification requires that the comparison occur when the values are in digital form. For these reason, ITW asserts, the court cannot conclude that the values are necessarily digital. Pl.'s Reply Claim Construction Br. at 3-7.

Like the construction of "value," the construction for "comparing" shall reflect limitations required by language from the specification. Nonetheless, for the reasons stated earlier, analysis of the disputed term should begin with the dictionary definition and the claim language.

The key word to be defined is "compare." 11 The common dictionary definition for the word "compare" is "to examine in order to note the similarities or differences of." American Heritage Dictionary of the English Language (4th 2000). Both Ion and ITW adopt the ordinary meaning of the word "compare:" each party's construction assumes that "comparing" is noting the similarities or differences between the actual ion output current value and the ion output current reference value. Nonetheless, both parties' definitions attempt to narrow this dictionary definition. One attempt involves a dispute over the plain meaning of the claim language. The other proposes to limit the ordinary meaning based on evidence contained in the specification.

11 The only other word the parties appear to dispute is "value," insofar as Ion seeks to limit this word to a digital representation of a numerical quantity. This dispute is moot in light of my discussion in § I.A.2 above. As stated above, the word "value" is to have one construction for the entire '756 patent.
consistent with the dictionary definition and the claim language.

The second disagreement requires reference to the specification. The parties' remaining dispute is over whether or not the "comparison" is performed using software or hardware. The patent's specification only describes a digital comparison performed by a microcontroller. See '756 patent, col. 7:53, col 8:12. As discussed above, limitations from the specification should be read into the claim language only when the ordinary usage conflicts with the specification. See CCS Fitness, 288 F.3d at 1367; SciMed Life, 242 F.3d at 1340-1341. Ion presents compelling evidence for why the dictionary definition of "compare" conflicts with the intrinsic evidence. Within the specification, plaintiff repeatedly emphasizes the improvements of the '756 system over prior systems that relied on hardware component values and hardware-based balancing systems. 12 '756 patent, col. 1:54-63, col. 11:17-34. Based on this intrinsic evidence, any "comparison" step in the '756 patent should be free from the earlier imperfections. The claim language, like the patent itself, thus can only use a non-hardware-based system for comparing (or balancing) values. Consequently, the terms "comparing the ion output current reference value to an actual ion output current value" mean: "using a non-hardware-based system to a) examine the actual ion current value and the ion output current reference value and b) note any similarity or difference between the two values."

--- Footnotes ---
12 The applicable specification language reads as follows:

As discussed above, conventional automatic balancing systems have hardware-based feedback systems, and suffer from at least the following problems:

(1) Such systems cannot provide very fine balance control, since feedback signals are fixed based upon hardware component values;

(2) The overall range of balance control is limited based upon the hardware component values.

(3) Quick and inexpensive modifications are difficult to make, since the individual components are dependent upon one another for proper operation. Conventional ion current control circuitry suffers from the same problems. In contrast to conventional systems, the software-based balance and ion current control circuitry of the present invention do not suffer from any of these deficiencies.

'756 patent, col. 11:17-34 (emphasis added).

--- End Footnotes ---

10. Claim 6: Step (e)

Text:

(e) comparing the outlines of the outer surface of the lesion of the said at least one ultrasound image with the outline of the outer surface of the lesion of at least one of the diagnostic images, whereby the position of the lesion with respect to the radiation therapy device may be verified to conform to a desired position of the lesion in the radiation treatment plan.

'026 Patent, col. 12, ll. 54-61.

NOMOS's Proposed Construction:

NOMOS submits that step (e) of claim 6 is clear on its face, and may be construed in accordance with the plain meaning which is not altered by the specification of the '026 patent.

NOMOS Opening Brief at 16 (citations omitted).
ZMED’s Proposed Construction:

This step requires comparing the computer generated line drawn along the surface of the lesion in the two-dimensional ultrasound image to the computer generated line drawn along the surface of the lesion in a two dimensional image from the treatment plan.

ZMED Opening Brief at 28.

Construction:

Step (e) means “comparing the two-dimensional outlines of the outer surface of the lesion generated from the at least one ultrasound image (which has positional data regarding the third dimension), with the three-dimensional rendering outline of the outer surface of the lesion generated from the at least one of diagnostic images, whereby the position of the lesion with respect to the radiation therapy device may be verified to conform to a desired position of the lesion in the radiation treatment plan.”

Commentary:

Since step (e) is not a means plus function claim, the analysis starts and ends, if possible, with the claim language. Looking at the claim language, I interpret the outlines in question to be two-dimensional outlines compared to a three-dimensional rendering outline from the "at least one of the diagnostic images."

The second outline must be three-dimensional because of a slight difference in language:

comparing the outlines of the outer surface of the lesion of the said at least one ultrasound image with the outline of the outer surface of the lesion of at least one of the diagnostic images . . . .

'026 Patent, col. 12, ll. 54-57 (emphasis added). A single "outline of the outer surface of the lesion" can only be a three-dimensional outline (the actual surface of a lesion cannot be two-dimensional). Therefore, the second "outline" must be, from the claim language, a three-dimensional rendering generated from the initial imaging device. The specification supports this interpretation. See, e.g., '026 Patent, col. 8, ll. 60-62.

The claim language in step (e) alone does not allow for a determination of whether the first "outlines" are two-dimensional or three-dimensional because the word is plural. However, I determine that the "outlines" being discussed in step (e) are in fact two-dimensional, drawn on specific two-dimensional ultrasound images which contain positional information regarding the third dimension, despite the fact that they could be combined to create a three-dimensional rendering.

As described above in claim 6, the ultrasound probe must be a conventional, commercially available ultrasound probe that generates a two-dimensional ultrasound image. It therefore makes sense that the first "outlines" must be on two-dimensional ultrasound images. Additionally, while it is conceivable that several three-dimensional rendering "outlines" would be compared to the single three-dimensional rendering "outline" of the outer surface of the lesion generated from the diagnostic images, comparing several two-dimensional "outlines" better explains the use of the plural "outlines." Finally, I make this determination in light of claim 16 of the '026 patent, which explicitly discusses comparing a three-dimensional rendering to a three-dimensional rendering. Under the doctrine of claim differentiation, claim 6 should be construed to mean something different than claim 16, since claim 6 uses different language. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991) (explaining that different claims should be construed, when possible, to cover different inventions). 1

1 It is true that this construction is not in complete harmony with the specification, which describes converting the outlines into three-dimensional renderings. See, e.g., '026 Patent, col. 7, ll. 44-47, 52-54; col. 8, ll. 56-62. However, the claim language should control when there is an apparent conflict between the claim language and the specification.
4. STEP OF COMPARING (UID of stored license file to a record of assigned UID)

The comparing function, specified in the claim as occurring "upon locating said license file on said selected workstation," is described for the license transfer embodiment at 9:68 - 10:6 and for the license pool embodiment at 13:63 - 14:1. The comparison is identified in the claim as occurring "upon locating," a license file and the procedure delineated in the specification for ultimately comparing the located to the assigned UIDs consists of several discrete components, the Court therefore concludes that the step of comparing should be interpreted according to the mechanism of § 112 P 6. The relevant descriptions provided for the license transfer and pool embodiments are substantially the same, and yield the following construction:

"STEP OF COMPARING THE UID OF STORED LICENSE FILE TO RECORD OF ASSIGNED UID" refers to 1) asking the operating system for the UID for the license file (area of memory which contains a UID, which is on a disk and which is capable of storing at least one LICENSE) that the operating system caused to be stored in a record in the system memory at the local NODE; 2) decrypting the UID contained in the license file; 3) comparing the UID contained in the license file with the UID returned by the operating system. Equivalents of the process just described also are implicated.

1. "a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes"

In PixArt, the Court did not construe the entire phrase, but instead referred the parties to the Court's construction of "frame" as "a single image in a sequence of images" and "the correlation being upon the values in all memory array locations that correspond to overlap between the comparison frame and the other of the reference frame or sample frame" as "the operation of comparing at least one shifted sample frame or at least one shifted reference frame with the other of a reference frame or a sample frame being upon all of the values stored in memory that correspond to the area shared between the frames. The comparison provides the degree to which the frames are related. The values that are being compared are numerical representations of the digitized photo detector outputs." Avago proposes that the claim language should be construed as "at least two frames, each generated by shifting a sample frame or a reference frame, are compared with the other of a reference frame or a sample frame to provide the degree to which the frames are related. Such correlations produce numerical representations of the degree of similarity between the frames. Such correlations are also used to ascertain motion in the directions along the first and second axes. A frame refers to a single image in a sequence of images." Elan proposes the following construction: "At least two different comparison frames (images captured by the complete array of photodetectors subsequent to a first image captured by a complete array of photodetectors) compared to either the reference frame (first image) or sample frame (subsequent image) to produce a corresponding number of correlation values and ascertain motion along either axis. Each comparison frame being shifted from the first image or subsequent images with some offset within the array."

Elan's proposed definition of "comparison frames" as "images captured by the complete array of photodetectors subsequent to a first image captured by a complete array of photodetectors" is not supported by the specification. As detailed in the specification, the device may track movement "by comparing a newly captured sample frame with a previously captured reference frame to ascertain the direction and amount of movement," and this comparison may be accomplished by the use of comparison frames where "the comparison frames are temporarily shifted versions of the sample frame." Col. 3, ll. 59-65 - Col. 4, ll. 29-33. In this embodiment, the comparison frames are not limited to the image captured by the complete array of photodetectors -- rather, the comparison frames may be the product of an internal operation so that what is captured by the array of photodetectors (a reference frame or a subsequent sample frame) may be correlated to the comparison frame, or the comparison frames may be correlated with each other.
Furthermore, Elan's definition of comparison frames excludes the prediction function disclosed in the specification: "For a
hand held mouse, several successive collections of comparison frames can usually be obtained from the (16x16) reference
frame taken at . . . This shifting to accommodate prediction throws away, or removes, some of the reference frame,
reducing the size of the reference frame." Col. 5, ll. 14-25. In the prediction operation the comparison frame is derived from
the reference frame and is thus neither a complete image, nor technically, an image captured by the array of photosensors.

Accordingly, the Court construes "a plurality of comparison frames, each being a shifted version of one of the reference
frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a
corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes" as "at
least two frames, each generated by shifting a sample frame or a reference frame, are compared with the other of a reference
frame or a sample frame to provide the degree to which the frames are related. Such correlations produce numerical
representations of the degree of similarity between the frames. Such correlations are also used to ascertain motion in the
directions along the first and second axes. A frame refers to a single image in a sequence of images."

12. "compatible with said scrambling means"

The plaintiff argues that no construction of the term "compatible with said scrambling techniques" is necessary. Joint Claim
Construction Brief, Exh. B. Defendant EchoStar argues the term means for each scrambling technique selected, there is a
single, corresponding unscrambling technique. The DIRECTV defendants argue it means for each scrambling technique,
there is a particular corresponding user exchangeable card that unscrambles according to that scrambling technique.

The term appears in the following context:

  Said unscrambling means being substantially replaceable with differing unscrambling circuits . . . compatible with said
scrambling means to remove the objectionable interference or distortion . . .

'066 Patent, col. 6, lines 40-47.

I agree with the defendants, and I construe the claim term "compatible with said scrambling means" to require that for each
scrambling technique there is a single corresponding unscrambling technique.

This construction finds support in the specification, which provides that each user card incorporates an "electronic circuit
for decoding one particular scrambled signal." '066 Patent, col. 3, lines 24-26 (emphasis added). The construction finds
further support in the specification, as follows:

  The master scrambling circuit 31 would be set for a particular type of coding at this same time the user would insert an
unscrambling card 150 incorporating a complementary decoding circuit into the decoding box . . .

Id. at col. 4, lines 26-29.

I reject the DIRECTV defendants' construction requiring that the single corresponding unscrambling technique be contained
in or on the exchangeable unscrambling card. The specification makes clear that in certain embodiments it is the user card
and the decoding box acting together which accomplish the task of unscrambling. '066 Patent, col. 4, lines 14-24 (describing
that in the very complex systems "the decoding box and card would each contain various parts of sophisticated electronic
circuits, all of which would be utilized in a certain arrangement to provide decoding").
The parties dispute the construction of the term, "compiling and merging a plurality of first end user inquiries." The term at issue appears in claim elements 1(f), 3(g), and 5 of the '025 Patent. (Herbst Decl. P 5, Ex. 3.)

Plaintiffs' proposed construction of the term is "collecting and combining the results of passively monitoring requests for information." Defendants' proposed construction of the term is "dynamic computer generation of information for a demographics database by continually analyzing, organizing and combining multiple related first end user inquiries to identify distinct trends that is more than maintaining a time record, count of the length of time, or number of user inquiries." In support of their respective constructions, Plaintiffs point to the claim language, the specification, and the prosecution history, while Defendants primarily rely on the prosecution history. The Court now turns to the claim language, the specification, and the prosecution history.

Turning to the claim language, in construing "compiling and merging a plurality of first end user inquiries," the Court is guided by general principles of claim construction and begins with the phrase's ordinary meaning. See Vitronics, 90 F.3d at 1583 (instructing the court to look first at the words themselves). The Court may look to other words in the claims to provide contextual support for the proper interpretation. Faroudja Lab., Inc. v. Dwin Elecs., Inc., 76 F. Supp. 2d 999, 1007 (N.D. Cal. 1999). At first blush, this phrase appears to lack any obvious "ordinary or customary meaning." See Wolverine World Wide, Inc. v. Nike, Inc., 38 F.3d 1192, 1196 (Fed. Cir. 1994). However, its meaning becomes slightly more evident when the Court considers the phrase in context.

The Court observes that the phrase at issue, in context of the claim language, essentially refers to what is done with the information collected from the passive monitoring of the end user inquiries encompassed by the preceding claim element 1(e). Although the parties contest the construction of the preceding claim element 1(e), the parties do not appear to dispute that the phrase at issue relates to the sequential step associated with the information collected from the end user inquiries and how a demographics database is generated therefrom. The claim language supports an interpretation that describes the particular step whereby the demographics databases are generated.

The '025 Patent specification tends to support this interpretation as described in Figure 1. (Herbst Decl. P 5, Ex. 3.) The description of this diagram illustrates that certain databases at issue "consists of all qualitative inquiries generated by viewers seeking more information on specific property profiles viewed on the disclosed system," (id., at col. 7, ll. 17-20), and are "generated by viewership of any property profiles wherein the viewer may or may not be interested in pursuing the transaction but has viewed the property," (id., at col. 7, ll. 20-23). In referring to related databases at issue, the specification describes it as "compris[ing] all qualitative inquires generated by viewers seeking more information on specific goods or services advertised on the disclosed invention," (id., at col. 7, ll. 23-26), and are "generated by viewership of any advertising message wherein the viewer may or may not be interested in obtaining more information about the advertiser's goods and/or services," (id. at col. 7, ll. 26-30). Accordingly, the specification contemplates that "respective databases" would consist of, and be generated by, first end user inquiries pertaining to property or advertisements. (Id. at col. 7, l. 31.)

However, the Court's review of the claim language and the specification does not appear to support a wholesale adoption of either parties' proposed construction. In following the canons of construction, the Court now addresses the '025 Patent prosecution history.

The '025 Patent prosecution history reveals that the inventor described the claim at issue to be one that generally "collects" inquiries. The inventor stated that the phrase at issue "compiles the inquires and from the inquiries, generates a demographics database, from which consumer trends can be ascertained . . . ." (Id. P 9, Ex. 7, Amendment After Final, submitted April 11, 1995 at p. 16.) Subsequently, the inventor stated that,

it is possible to collect data about the actual behavior of the end user, using the actual behavior of the end user. By collecting data about the end users actions, as they are "retrieving and viewing . . . data" it is possible to more accurately assess actual preferences of the end user. This is a collection of data that does not require active work by the end user, like answering a questionnaire. It is the collection of data by watching the actions of the end user . . . .

(Id. P 7, Ex. 5, Response to Office Action in Ex Parte Reexamination and Request for Continued Examination, submitted March 14, 2005 at p. 30) (emphasis added.) In further describing claim 1(f) the inventor stated that "[t]he features . . . state how to use data collected by assessing the user's actions." (Id. at p. 31) (emphasis added.) In light of the prosecution history, the Court finds that the phrase at issue necessarily means the process of "collecting the results of first end user inquiries."
Both parties urge the Court to include additional words and phrases in its construction of the phrase at issue. Plaintiffs request the Court to import the words, "collecting and combining" and "passively monitoring requests." Defendants ask the Court to import the phrases, "dynamic computer generation," "by continually analyzing, organizing and combining multiple related first end user inquiries," "to identify distinct trends that is more than maintaining a time record, count of the length of time, or number of user inquiries." The only proposed additional word offered by both parties is "combining." However, the Court finds the remainder of the parties' proposed extraneous words and phrases to be unnecessary.

Regarding Plaintiffs' proposed additional words, the Court finds it unnecessary to repeat language relating to information that is "passively monitored." Such a construction would be repetitive of the Court's construction of claim term 1(e). Next, regarding Defendants' proposed additional limiting phrases, the Court finds insufficient support in the record for their use here. See Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (citing Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 950, (Fed. Cir. 1993)) ("It is improper for a court to add 'extraneous' limitations to a claim, that is, limitations added wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.") (quoting E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, (Fed. Cir. 1988)); see also Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988) ("Where a specification does not require a limitation, that limitation should not be read from the specification into the claims.") (citing Lemelson v. United States, 752 F.2d 1538, 1551-52 (Fed. Cir. 1985)); cf. Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir. 1988) (holding that the written description provided "no evidence to indicate that [ ] limitations must be imported into the claims to give meaning to disputed terms"). Defendant fails to identify applicable portions of the record that support the importation of additional limitations to the phrase at issue. For these reasons, the Court finds the parties' proposed additional language to be unnecessary.

Having considered the claims, the specification, the relevant patent prosecution history, and the parties respective use of the term, "combining," the Court construes "compiling and merging a plurality of first end user inquiries" as "collecting and combining the results of first end user inquiries."

31. Completing the execution of said branch instruction

This phrase appears in claims 1-12 of the '037 patent. Biax contends that this term means "delivering the target address of a branch instruction so that the target instruction will be the next instruction fetched for execution." ADI contends that the term means "delivering the branch target address of the next basic block to the instruction cache control." The dispute is whether the delivery must be to the instruction cache control. The court agrees with Biax that ADI's construction improperly limits the claim to the preferred embodiment. The court adopts Biax's construction for this term.

In reviewing the district court's analysis, we note that, consistent with the arguments of the parties, its claim construction was limited solely to an interpretation of claim 1. The district court concluded that, in accordance with the plain language of that claim, the host processor initiates communications with the mobile phone. Specifically, the court based its construction of the claim on the language requiring that "the host processor . . . selectively establishes a communication link . . . with" the mobile telephone. The court explained that an interpretation in which the customer initiates the claimed communication is contrary to the plain meaning of the claim. The court further rejected Telemac's argument that such a construction of claim 1 would render similar language in claim 3 duplicative, concluding that the dependent claim included limitations not found in claim 1 as construed.

Relying on both the language of the claims and the written description, the court next determined that the term "communication link" be construed to require "automatic communications." First, the court reiterated that the claim requires communications established by the host processor, not the customer. Looking to the written description, the court determined that in each embodiment in which the host processor establishes the communication, the communication is
established automatically. It further determined that in those embodiments, the communication is established to perform
activation and programming of a customer's phone. The court cited various portions of the specification in support of its
argument, including a description of the preferred embodiment in which activation of the phone is accomplished using "a
terminal interconnect" for direct machine-to-machine communication. Similarly, another section of the specification
describing "automatic" communications cited by the court recited reprogramming of the rate table over the air at the
initiation of the system provider. Thus, the court concluded that the "communication means" should be construed to
encompass automatically established communications initiated for the sole purpose of performing activation or
programming.

Rejecting Telemac's proffered construction, the court concluded that the embodiment relied on by Telemac, describing
manually established communications, functioned in accordance with the clause of the claim reciting the function of the
"payment verification means," not the "communication means." The district court also determined that whether or not the
structure of the claimed "payment verification means" uses some of the same technology employed by the "communication
means," the two means constitute distinct components of the claimed invention. Specifically, the court found that the
"communication means" functioned to establish the communication link for activating and programming the mobile phone,
whereas the "payment verification means" describes the process for updating the amount credited to the account. Based on
that reading of the specification, the district court rejected Telemac's arguments that the "communication means" should be
construed broadly to include structure for performing user initiated communications.

With respect to the claimed "complex billing algorithm," finding no clear meaning of this phrase evident from the claim
itself, the court turned to the written description to discern its meaning. The court concluded that the complex billing
algorithm is defined therein as a function that includes the means to store phone rates for local, long distance, international,
and roaming calls. The district court further determined that the algorithm includes means to identify the appropriate rate
category and to selectively apply those rates to each call.

In its February 1999 order, the district court also determined that the Wittstein patent disclosed each of the limitations
present in claim 1 of the patent as construed, as well as the limitations found in dependent claims 4, 6, 9, 18, 20-24, 29 and
30. Accordingly, the court granted Topp's motion for partial summary judgment of invalidity. In the order denying Telemac's
request for leave to file a motion for reconsideration, the district court acknowledge that "the Wittstein patent does not
expressly identify the four specific rate categories" required by the "complex billing algorithm." The district court explained
that the disputed features are necessarily present in the disclosure of the Wittstein patent.

On April 17, 1999, Topp filed a motion for summary judgment of non-infringement in which it argued that the claimed
"complex billing algorithm" and "communication means" were missing from the accused TRACFONE system. On July 1,
1999, the district court granted Topp's motion for summary judgment on the issue of non-infringement. The court found that
because the TRACFONE system, as manufactured and sold, blocks international calls, the accused device does not store
international rates in its memory and does not deduct values from the credit amount based on such rates. Instead, the court
noted that international calls cannot be completed unless the customer first calls an outside international carrier.
Accordingly, the court determined that the accused device lacked the "complex billing algorithm" limitation as construed.
The court further determined that because the accused device did not allow placement of international calls, it did not
perform substantially the same function in substantially the same way as the claimed algorithm. Thus, the court concluded
that the claims were not infringed literally or equivalently.

The court further found that the claimed "communication means for selectively establishing a communications link" was not
present in the accused device. According to the district court, the claims require communication means that automatically
establish communications with the phone via an electronic link, for performing activation and programming. In the
TRACFONE system, however, the programming and activation process is initiated manually by the user, not automatically
by the host processor using an electronic link. The court determined that the only automatic transmission of data present in
the TRACFONE system relates to replenishment of the user's credit amount, a function associated with the claimed
"payment verification means." The district court also rejected Telemac's argument that automatic and manual programming
are equivalent. The court determined that to reach such a finding, it would have to, in effect, vitiate the host initiated
automated communication requirements of the claims as construed. On August 25, 1999, the district court entered final
judgment pursuant to Rule 54(b) of Federal Rules of Civil Procedure, summarily holding the patent invalid and not
infringed. Telemac appeals the judgment of the district court.
STANDARD OF REVIEW

This court reviews a district court's grant of summary judgment without deference. Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1355, 53 U.S.P.Q.2D (BNA) 1734, 1746 (Fed. Cir. 2000). The moving party is entitled to summary judgment under Rule 56(c) "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." In reviewing the district court's grant of summary judgment, this court draws all reasonable inferences from the evidence in favor of the non-movant. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986).

Summary judgment is appropriate when it is apparent that only one conclusion as to infringement could be reached by a reasonable jury. ATD Corp. v. Lydall, Inc., 159 F.3d 534, 540, 48 U.S.P.Q.2D (BNA) 1321, 1324 (Fed. Cir. 1998). Summary judgment of noninfringement is appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, since such failure will render all other facts immaterial. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1537, 20 U.S.P.Q.2D (BNA) 1456, 1458 (Fed. Cir. 1991).


DISCUSSION

I. Claim Construction

On appeal, Telemac argues that the court misconstrued two terms of the patent. Specifically, Telemac challenges the district court's construction of the "communication means" and the "complex billing algorithm."

A. "Communication Means"

Claim 1 of the patent claims a mobile phone system having a host processor. The host processor includes a "communication means for selectively establishing a communication link with each mobile phone unit." Because this limitation is written in "means-plus-function" form, in accordance with 35 U.S.C. § 112, P 6, the claim must be construed to cover the structure disclosed in the specification as performing that function and equivalents thereof. Kahm v. General Motors Corp., 135 F.3d 1472, 1476, 45 U.S.P.Q.2D (BNA) 1608, 1610 (Fed. Cir. 1998). The first step of a 35 U.S.C. § 112, P 6 analysis is to identify the function of the claim limitation. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361, 54 U.S.P.Q.2D (BNA) 1308, 1313 (Fed. Cir. 2000). The second step requires identification of the structures disclosed in the specification and equivalents thereof that perform the claimed function. Id.

The district court observed that the claim recites the function of selectively establishing communication with each mobile phone. Based on that construction, it determined that the only structure described as performing that function corresponds to the structure found in embodiments describing selective and automatic establishment of communications for performing activation or programming of the debit phone via an electronic link. We find no error in the district court's claim construction.

We begin our analysis of this means-plus-function limitation by determining the function recited. In accordance with the plain language of the claim, the function "selectively establishing a communication link with each mobile phone unit" describes a communication established by the host processor. We cannot, as Telemac requests, read the plain language of that clause as encompassing communications established by the user, via the mobile phone. We are reminded that a construction that flies in the face of the express language of the claim is not preferred. Interactive Gift Express, Inc. v. CompuServe, Inc., 231 F.3d 859, 865, 56 U.S.P.Q.2D (BNA) 1647, 1652 (Fed. Cir. 2000). Unless something in the written description suggests that the patentee intended the unambiguous language to be construed in a manner inconsistent with its
We reject Telemac's assertions that the court's construction would render the claim inoperable. In the preferred embodiment, activation of the phone is performed using an interlink receiver for machine-to-machine communications, thereby ensuring a secure transfer of information. The '100 patent describes over the air updating of the rate table "at the initiation of the system provider." The specification describes a transmission station for establishing a wireless link to the mobile phone for reprogramming the rate table over the air at the initiation of the host processor. The patent further states that the "system requires that a communication link be established between the host processor and the mobile phone unit and may require that the phone unit be physically connected to the host processor." Thus, numerous passages from the specification identify the structure, each part of the host processor, for establishing a communication with a mobile phone.

As provided above, Telemac's challenge to the district court's construction, with an eye towards infringement, focuses upon whether the "communications means" should be construed to encompass embodiments describing communications established using toll-free calls placed by the user from the telephone. The function claimed, however, requires establishment of the link by the host processor, and not the mobile phone unit.

As a further challenge to the district court's construction, Telemac contends that embodiments describing user-initiated activation and replenishment meet the requirement that the host processor selectively establish a communication link because, in those embodiments, the host processor determines the identity of the phone establishing the communication. Telemac argues that those embodiments describe "selectively" communicating confidential information in accordance with the identity of that phone. Telemac suggests that the host processor checks the electronic serial number of the mobile phone that established the call. Moreover, Telemac suggests that the "selectively establishing" limitation of the claim can be found in the user-initiated embodiments, and that those embodiments should be encompassed within the scope of the claim.

On the record before us, we cannot agree with Telemac's assertions. As noted, both the plain language of the claim and the written description of the invention require that the link with the phone be "established" by the host processor, and not vice-versa. Telemac's reading of "selectively establishing," as encompassing a confidential communication protocol, ignores the remainder of the claim identifying the host processor as the device that initiates the communication. Thus, we conclude that Telemac's proposed construction, encompassing manually initiated communications, would render the phrase "for selectively establishing a communication link with each mobile phone unit" mere surplusage. Accordingly, we reject Telemac's proposed interpretation of that language.

Telemac further argues that the court's construction is in conflict with the doctrine of claim differentiation. Under this doctrine, claims are presumed to be of a different scope. Claim 3 provides that the host processor initiates the communication link at a "time" controlled by the system provider. Telemac contends that, under the district court's construction, the provisions of claim 3 would be negated by the court's construction limiting communications to those established automatically. We do not agree that the "time" limitation of claim 3 is negated by a construction of the "communication means" as limited to automatically established communications. Even accepting Telemac's assertions, we further note that claim 3 embraces additional limitations not encompassed within claim 1 including, "activating the communication of the record data of stored call charges from the mobile phone unit to the system provider." Therefore, the doctrine of claim differentiation does not lead us to reach a different construction.

Telemac further challenges the court's limitation of the claim to automatically established communications, on the basis that such an interpretation renders the claimed invention inoperable. First, Telemac notes that the court determined that the "communication means" performs activation and reprogramming exclusively, and that the "payment verification means" is used only for updating the account amount. Under that construction, Telemac argues, the host processor cannot automatically communicate with the phone, or perform activation or programming, until the phone has been initially programmed and assigned a telephone number. Telemac's argument, however, is contradicted by the preferred embodiment describing activation and programming via a direct connection. Based upon the written description, we reject Telemac's assertions that the court's construction would render the claim inoperable.
We conclude that only those embodiments involving communications established by the host processor meet the functional requirement of the claim. Therefore, we agree with the district court's interpretation of the phrase "communication means for selectively establishing a communication link with each mobile phone unit" to require communications established by the host processor. As the district court concluded, the disclosed embodiments describing user-initiated communications could not provide the structure or equivalent structure for performing the claimed function in accordance with 35 U.S.C. § 112, P 6. Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1267, 51 U.S.P.Q.2D (BNA) 1225, 1229 (Fed. Cir. 1999).

B. "Complex Billing Algorithm"

The district court determined from the written description that the claimed "complex billing algorithm" requires storage of phone rates for, at a minimum, local, long distance, international, and roaming calls. It further determined that the algorithm required means for identifying the appropriate rate category for each telephone call and for the application of those rates to calculate the call charges.

Initially, we note that the claim provides "program means including a complex billing algorithm and rate data for internally calculating call charges as calls are made." Because the term "complex billing algorithm" does not have an ordinary meaning, and its meaning is not clear from a plain reading of the claim, we turn to the remaining intrinsic evidence, including the written description, to aid in our construction of that term. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83, 39 U.S.P.Q.2D (BNA) 1573, 1576-77 (Fed. Cir. 1996); Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 955, 55 U.S.P.Q.2D (BNA) 1487, 1490 (Fed. Cir. 2000). The written description of the '100 patent states, "the basic complex billing algorithm calculates the call charges for the basic categories of local calls, long distance calls, international calls and roaming calls" and can be "expanded to incorporate other categories." '100 patent, col. 17, ll. 1-8. Because the district court properly followed the intrinsic evidence, we agree with the district court's construction of "complex billing algorithm."

10. Compliance signal (Claim 30)

As with other limitations related to a means plus function limitation, defendants argue that a compliance signal must be construed as the output of the corresponding means for the related means plus function term "compliance signal means." Here too, the Court rejects defendants' proposed construction. The specification clearly discloses a signal that is generated based on the whether the audience member's usage of the device has been in accordance with the predetermined usage criterion. Therefore, plaintiff's proposed construction is adopted as follows: "A signal that indicates device usage in accordance with a predetermined usage criterion."

Compliant, Compliant Layer, Compliant Material

The term "compliant" appears in the intrinsic record several times to describe materials or layers of materials with differing functions, and the parties have developed sharply divergent constructions as a result of the term's broad use. Tessera suggests that "compliant" should be defined as, "yielding to applied force," but Defendants argue that Tessera's definition is unhelpful because all materials in the universe yield to applied force, and submit that "compliant" should be defined as, "[a] layer/material, such as soft rubber, that can be appreciably compressed in the direction toward the chip sufficient to accommodate tolerances in typical semiconductor components and test equipment."

The Court finds that Tessera's construction would not provide sufficient guidance to a juror struggling to understand "compliant." See Sulzer 358 F.3d at 1366. If all known materials yield to an applied force, the term compliant provides no limitation and is effectively read out of the patent, rendering its presence superfluous and potentially confusing to a jury. See Curtiss-Wright Flow Control Corp v. Velan, Inc., 438 F.3d 1374, slip op. at 9 (Fed Cir. 2006) (rejecting a construction so
broad as to render the limitation "nearly meaningless"). In addition to being unhelpful and possibly confusing, Tessera's construction is simply a modified dictionary definition, which after Phillips, is suspect in cases where the ordinary meaning of the claim language is not readily apparent to those not skilled in the art. Phillips, 415 F.3d at 1314; see also Brown v. 3M, 265 F.3d 1349, 1352 (Fed. Cir. 2001). Here, the meaning of the term compliant is not readily apparent because the patentee has used the term idiosyncratically and the Court must look to the claims, specification, and prosecution history to determine what a person skilled in the art would understand compliant to mean. Phillips, 415 F.3d at 1314; Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (Fed.Cir. 2004).

However, arriving at an appropriate and reasonably precise construction of compliant is not easily done because the construction must be exclusive enough to be helpful while successfully accommodating the myriad of uses of the term in the patents in suit. For example, a compliant layer can facilitate movement of the terminals in a parallel or perpendicular direction with regard to the chip (ITC Order at 154; 977 Specification at 7:57-61; 977 Patent Figure 3); a compliant encapsulate allows the flexible lead to facilitate the movement of the terminal relative to the chip as the interposer buckles and wrinkles during thermal cycling (977 Specification 11:13-17); compliant material may include elastomers or elastomeric material (Id. at 17:40-42, 977 Claim 3), a compliant layer may incorporate adhesives (Id. at 22:1-2) or be incorporated by a flexible sheetlike element (977 Claims 1-2), and compliant materials can even include intermittent holes (977 Claim 4). Tessera's construction does not exclude any of these uses, but its wording is overly broad and unhelpful.

Although much of Defendants' construction is unnecessary and confusing, the concept that compliance requires compressibility is born out by the intrinsic evidence. Despite their differences, both parties' constructions embrace the idea that a compliant material or layer must yield because compliance is closely related to movement, and the Court agrees that this concept is at the heart of compliance. After reviewing the intrinsic evidence, the Court finds that compliance necessarily requires compressibility in a direction perpendicular to the substance's surface.

Tessera disputes that compliance necessarily implies compressibility, and points out that the 977 specification provides for a "compliant, compressible layer." 977 Prosecution History, 10:43-44. If compliance necessarily implied compressibility, Tessera argues, "compressibility" would not have been included. Further, 627 Claim 4 provides, "[a] chip assembly as claimed in claim 1, wherein said dielectric element includes a compliant layer of a low modulus material, said compliant layer being disposed beneath said terminals," and Claim 7 provides, "[a] chip assembly as claimed in claim 4, wherein said compliant layer is formed from a compressible foam." When a dependent claim contains a limitation, a presumption arises that the limitation was not present in the independent claim. Phillips, 415 F.3d at 1314-1315; Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). However, "that presumption can be overcome if the circumstances suggest a different explanation, or if the evidence favoring a different claim construction is strong." Medrad, 358 F.3d 910. Here, claim 7 adds the additional limitation of specifying the type of compliant material -- namely foam. Thus, Tessera's claim differentiation argument is without merit. Moreover, in this case, the evidence favoring a different construction is sufficiently clear to overcome any presumption and Tessera's reference to a "compliant, compressible layer" in the 977 specification.

Specifically, the Defendants highlight evidence from the prosecution of the parent application to the patents-in-suit and a divisional of that parent application whereby Tessera repeatedly defined that materials and layers are compliant because they deform by compressing in the direction perpendicular to their surfaces. For example, Defendants point to the prosecution history and specification of a divisional of the parent to the patents in suit, U.S. Patent No. 5,346,861 ("the 861 patent"). In Tessera's Response to the PTO distinguishing the Saito reference, it expressly defined compliant as, "compressible in the directions perpendicular to its first and second surfaces." App. No. 865,984 -- 10/26/92 Amendment and Response at 8. See also, App. No. 673,020 -- 1/10/92 Amendment and Response at 10-11 (explaining to the examiner that an ordinary sheet of note pad paper, placed atop the examiner's desk, was flexible, but not compliant because it was not appreciably compressible to forces applied perpendicular to its surface.). The 861 patent specification further provides that, "soft materials and foams provide a highly compliant interposer, i.e., an interposer which is readily compressible in the directions perpendicular to its surfaces and which therefore permits movement of the terminals in these directions." 861 Specification 14:40-46.

Defendants' evidence is express and on point, and the claims and specification require the same conclusion. It is clear that compliance is inextricably intertwined with movement, and that while compliant materials and layers can be flexible, they must be appreciably compressible in order to facilitate movement by some means other than just flexibility. Based on a thorough reading of the patents in conjunction with the express guidance in the prosecution history regarding
compressibility. The Court is of the opinion that compliance necessarily implies compressibility, and construes a compliant layer/material to mean, "a layer/material that is appreciably compressible in a direction perpendicular to its surface."

The Court finds that "comply," consistent with its ordinary meaning, means to act in accordance with standards or requirements.

B. Component

Leader's Construction

A computer-related entity, either hardware, a combination of hardware and software, software, or software in execution

Facebook's Construction

The term "component" should be construed in reference to three specific components identified in the asserted claims: "tracking component"; "storage component"; and "context component"

The term "component" appears in Claims 1-3, 5, 9, 17, 23, 29, and 32. Leader contends that its proposed construction of "component" is identical to the definition in the specification, which is dispositive because the patentee can act as his own lexicographer. (D.I. 179, at 8.) Facebook does not provide a proposed construction for the term (see D.I. 191, at 25), and does not dispute that the patentee has defined the term "component" in the specification as follows: "As used in this application, the terms "component" and "system" are intended to refer to a computer-related entity, either hardware, a combination of hardware and software, software, or software in execution." '761 patent, col. 5:54-57. Rather, Facebook contends that "component" is never used in isolation, and always appears in the phrases "context component," "tracking component," and "storage component". According to Facebook, all three terms are means-plus-function claim terms, and all three terms are indefinite because the specification fails to identify algorithms to perform the claimed functions. (D.I. 191, at 26-30.) Therefore, the parties' dispute centers on whether means-plus-function treatment is appropriate. 1

Footnotes

1 Facebook also states that the explicit definition of "component" in the specification is so "broad and amorphous . . . as to render it almost entirely meaningless." (D.I. 191, at 25.) While the definition is expansive, it is well-settled law that a patentee is free to be his or own lexicographer as long as "any special definition given to a word [is] clearly defined in the specification." E.g., Markman v. Westview Instruments, Inc., 52 F.3d 967, 980 (Fed. Cir. 1995). To the extent Facebook contends that the Court should disregard the patentee's definition of "component" solely for its breadth, Facebook has provided no authority to support such a contention.
35 U.S.C. § 112(6) provides that "an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof; and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(6). Section 112, P 6 applies only to "purely functional limitations that do not provide the structure that performs the recited function." (DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc., 469 F.3d 1005, 1023 (Fed. Cir. 2006) (citing Phillips, 415 F.3d at 1311). In determining whether a claim element is subject to Section 112, P 6, a court considers the phrasing of the element. Use of the word "means" creates the presumption that a claim is employing means-plus-function language, and therefore, that Section 116, P 6 applies. Id. Its absence creates a presumption to the contrary. Id. The presumption that a claim term is not a means-plus-function term "can be rebutted 'by showing that the claim term element recite[s] a function without reciting sufficient structure for performing that function." Id. (citing Watts v. XL Sys., Inc., 232 F.3d 877, 880 (Fed. Cir. 2000)).

Facebook recognizes that the term "means" is not used with these terms in any of the claims, which gives rise to the presumption that none of the three terms are means-plus-function terms. (D.I. 191, at 26, 28, 29.) However, Facebook contends that the presumption is overcome because "component" is a generic term that does not connote structure to one of ordinary skill in the art, and the modifying terms "context," "tracking," and "storage" do not provide additional structural identification. (Id.) In response, Leader contends that Facebook ignores both the specification and the claim language in that the patentee explicitly defined "component" in the specification, and described each of the three types of components in the claims. (D.I. 196, at 5.) Further, Leader contends that the patentee explicitly used means-plus-function language in Claim 22, and therefore, would have done so with respect to these three terms if they were intended to be means-plus-function terms. (Id. at 5-6.)

The Court concludes that Facebook has not overcome the presumption against means-plus-function treatment, and that "context component," "tracking component," and "storage component" should be not construed as means-plus-function terms. With respect to the term "context component," Claim 1 claims "a computer-implemented context component of the network-based system." '761 patent, col. 20:65-66 (emphasis added). Claim 23 claims "a computer-implemented context component of a web-based server." '761 patent, col. 23:22-23 (emphasis added). With respect to the term "tracking component," Claim 1 claims "a computer-implemented tracking component of the network-based system." '761 patent, col. 21:7-8 (emphasis added). Claim 23 claims "computer-implemented tracking component of the web-based server." '761 patent, col. 23:31-32 (emphasis added). With respect to the term "storage component," Claim 9 claims "the data and metadata stored on a storage component of the web-based computing platform." '761 patent, col. 21:44-46 (emphasis added). Claim 17 claims "storing in a storage component ordering information." '761 patent, col. 22:28 (emphasis added). Claim 23 claims "storing the context data as metadata on a storage component of the web-based server," and "storing the change information on the storage component [of the web-based server] as part of the metadata." '761 patent, col. 23:27-29, 35-36 (emphasis added). Upon consideration of the phrasing used in the Claims, the Court concludes there is sufficient structural identification for each of the three terms. Because means-plus-function treatment is not appropriate, "component" is explicitly defined in the specification, and Facebook has not otherwise proposed a construction for the term, the Court concludes that "component" means "a computer-related entity, either hardware, a combination of hardware and software, software, or software in execution."

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The parties dispute whether "component" is a means-plus-function term. The surrounding claim language indicates that the component is software that is downloaded onto a computing device.

Verimatrix argues that "component" is a generic term and the claims in which it is found are subject to 35 U.S.C. § 112(6). Verimatrix further argues that the word "component" requires context to have sufficient structure and the claims do not provide the needed context. Widevine argues that surrounding claim language provides sufficient structure to "component" and that it should be construed as "a downloadable software component." The specification's description of a decryption shim is consistent with the claims' use of the term "component." Unlike "device," "component" does not refer to a general purpose computer that is programmed to perform specified functions. "Component" refers to software that is an element of the "computer-readable storage medium" of Claim 9 or an element of the "encryption bridge" of Claim 1. The Court finds
that the claim provides sufficient structure to "component," as recited in the '831 Patent, Claims 3, 4, 11, and 12, and is therefore not governed by 35 U.S.C. § 112(6). "Component" means "a downloadable software component."

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E. "Component Identifier"

Plaintiffs seek the following claim construction for the term "component identifier":

A "component identifier" is a device that identifies, recognizes, or selects, the type of component stored in a compartment with or without analyzing indicia of the component or compartment.

(Docket Entry No. 40, p. 19). Universal argues that the term "component identifier" is in means-plus-function format and covers every possible means for identifying components. Universal seeks construction of this term under section 112, P 6. Plaintiffs respond that the term "component identifier" has a generally well-understood meaning in the art, a similar argument to that made for the terms "location indicator," "error indicator," "individual visual indicator," and "information processor."

Because the two claims involving the term "component identifier," claims 1 and 13, do not use the term "means," this court presumes that section 112, P 6 does not apply. Universal can rebut this presumption by showing that "component identifier" fails to recite sufficiently definite structure or recites a function without reciting sufficiently definite structure to carry it out. Apex, 325 F.3d 1364, 2003 WL at *5. "[T]his presumption can collapse when a limitation lacking the term 'means' nonetheless relies on functional terms rather than structure or material to describe performance of a claimed function." Id. (citing Micro Chem. Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257 (Fed. Cir. 1999)).

Unlike "location indicator," the term "component identifier" is not defined in technical dictionaries. Plaintiffs cite the use of the term "component identifier" in a publication by the Institute for Printed Circuits entitled "Sectional Requirements for Shop-Floor Equipment Communication Messages (CAMX) for Printed Circuit Board Assembly" as showing that the term "component identifier" has a well-understood meaning in the art. (Docket Entry No. 49, Ex. A, Ex. 10, pp. 37-38). In that reference, the term "componentId" is defined as the "unique component identifier" in the section of the document entitled "Dictionary of Attributes." The "componentId" is defined as a "string." The manual describes a "unique component identifier," or "componentId," as a string of characters in a computer program that identifies a particular component. Different types of components are identified by different "componentId's" within the computer program. This is consistent with the definition of the term "identifier" in the IBM DICTIONARY OF COMPUTING (10th ed. 1993) as "(1) one or more characters used to identify or name a data element and possibly to indicate certain properties of that data element; (2) in programming languages, a token that names a data object such as a variable, an array, a record, a subprogram, or a function." Unlike the definition of "detector" found in the technical dictionaries, this definition of "identifier" is not connotative of physical structure. Nor did this court find the term "identifier" in the MCGRAW-HILL ELECTRONICS DICTIONARY (6th ed. 1997). Plaintiffs' proposed construction of "component identifier" is in functional terms. Plaintiffs' expert witness, Thomas Rhyne, was unaware of any structures that bear the name "component identifier." (Docket Entry No. 49, Ex. A, Ex. 6, Deposition of Thomas Rhyne, at p. 164, 1.11-1.12).

"[T]he fact that a particular mechanism . . . is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of section 112, P6." Greenberg, 91 F.3d at 1583. The present case is distinguishable from Greenberg. The Greenberg court determined that the term "detent mechanism" was not a means-plus-function claim, even though it was defined in functional terms. The court stated that the term "detent" "denote[d] a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms." Id. Dictionaries defined "detent" as "a mechanism that temporarily keeps one part in a certain part relative to that of another, and can be released by applying force to one of the parts." The court found that so defined, "detent," "as a term for structure, ha[d] a reasonably well-understood meaning in the art." Id. (citing RANDOM HOUSE UNABRIDGED DICTIONARY 541 (2d ed. 1993)). The term "component identifier," in contrast to the term "detent," does not "denote a type of device." WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY (1983) defines "identifier" as simply "one that identifies." This definition does not connote structural meaning, as did the dictionary definitions of "detent." The technical definitions of the terms "identifier" and "component identifier" do not imply a
Universal contends that this function is carried out by the information processor in the four-element version of the

The construction of "component identifier" is also distinguishable from the construction of the term "digital detector" in Personalized Media, 161 F.3d at 705. In that case, the term "detector" did not evoke a particular structure. The term did convey to one knowledgeable in the relevant art a variety of structures known as "detectors," based on technical definitions of the term. By contrast, the technical definitions of "identifier" and "component identifier" do not connote a particular structure or a variety of structures. Rather, the term "component identifier" could be any device that identifies a component. See Mas-Hamilton, 156 F.3d at 1214 (finding that a claim for a 'lever moving element' was a means-plus-function claim). The term "component identifier" cannot be construed as covering every conceivable way of identifying components. Id.

As to the term "component identifier," Universal has rebutted the presumption that means-plus-function analysis is inapplicable. Plaintiffs define "component identifier" in functional terms and the term itself is not connotative of structure. The term recites a function without reciting sufficient structure for performing that function. Section 112, ¶ 6 applies to the term "component identifier."

Claims subject to means-plus-function analysis are interpreted to cover the structure set forth in the specification and its equivalents. 35 U.S.C. § 112, ¶ 6; Kahn, 135 F.3d at 1476. A court must identify the claimed function and the structure in the written description necessary to perform the claimed function. Micro Chemical, 194 F.3d at 1258. A court must not incorporate structure from the written description beyond that necessary to perform the claimed function and must not adopt a function different from that explicitly recited in the claim. Id.

The written description of the '943 Patent states that the component identifier serves two primary functions: it "acquires information concerning the type of component held in a compartment," and it "passes the information along to the position indicator." ('943 Patent, col. 4,1.20-1.23). The written description states that "in one embodiment, [the] component identifier is a device that identifies components by optically or magnetically reading indicia accompanying the components or indicia of the components themselves." (Id. at col. 4, 1.23-1.27). The function of determining the proper location of a component or a component compartment after it is identified by the component identifier is distributed between the component identifier and the location indicator in the three-element embodiment and is located in the information processor in the four-element embodiment. (Id. at col. 4, 1.58-1.61; col. 5,1.55-1.59).

To carry out the functions of acquiring information about the type of component held in a compartment and to pass that information to the location indicator, the component identifier must contain an optical or magnetic reader, as well as software or electronic logic. In claim 1, the component identifier analyzes indicia of the components or component compartments to determine the type of component to be positioned. However, claim 13 does not state that the component identifier operates by analyzing indicia of the components or component compartments to determine the type of component being positioned. Claim 1 contains a limitation that claim 13 does not.

Unless a patent provides otherwise, a claim term cannot be given a different meaning in the various claims of the same patent. Georgia-Pacific Corp. v. U.S. Gypsum Co., 195 F.3d 1322, 1331 (Fed. Cir. 1999); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570 (Fed. Cir. 1995). Claim 1 requires the component identifier to analyze indicia of the component or component compartment in question; claim 13 does not expressly contain this limit. However, because the "component identifier" means-plus-function claim in claims 1 and 13 covers only the structure recited in the written description, the component identifier of both claims 1 and 13 is limited to optical and magnetic readers.

Universal contends that under the written description, the component identifier of claim 1 must contain a computer that determines whether a particular component is valid for the product assembly. 6 Universal cites the language describing the proposed algorithm for the use of the invention. The written description states that "[i]n a preferred embodiment, [the] component identifier . . . is a bar code reader (connected to the computer's serial port or keyboard) reading a bar code from a reel of electronic components." (943 Patent, col. 14,1.48-1.51). That information is sent to the computer, which "compare[s] [the part] against a list of parts for the current product of manufacture." (Id. at col 14,1.53-1.54). The computer then determines whether the part belongs in the product being assembled and proceeds accordingly. (Id. at col. 14, 1.54-1.59).

--- Footnotes ---

6 Universal contends that this function is carried out by the information processor in the four-element version of the
The claims do not, however, require the component identifier of claim 1 to perform the function of determining whether the component is a valid component for assembling the product, or that the invention use the particular algorithm presented in the written description. The written description in the claims clearly states that the component identifier's two primary functions are to "acquire information concerning the type of component held in a compartment" and to "pass the information along to [the] position indicator" or the information processor. (Id. at col. 4, 1.19-1.23, col. 5, 1.50-1.52). These two functions are met by construing the component identifier as an optical or magnetic reader or equivalent, which identifies, recognizes, or selects the component or component compartment to be placed in a specific location in the assembly process. It is not necessary to have a computer running the algorithm described in the written description for the component identifier to carry out its two primary functions. Requiring a computer as part of the component identifier would adopt a function different from that explicitly recited in the claims. Plaintiffs' proposed construction gives a consistent meaning to the claim term "component identifier" throughout the '943 Patent.

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The '451 patent describes a system and method that allows for multiple tasks to be performed upon one command from the client, such as a broad user command to "plan a trip" which causes the system to make airline, hotel, and car reservations on its own and return the results of these completed tasks to the user.

The patent uses the term "component tasks" in both its independent claims (claims 1 and 8). Yodlee construes "component tasks" to mean "individual tasks that make up a multi-component task," while CashEdge construes it to mean "the distinct sub-tasks of the multi-component task." The dispute thus centers around the word "distinct." It is not clear to the Court how the addition of the word "distinct" clarifies the meaning of the term "component tasks." The prosecution history cited by CashEdge does not support the addition of the word "distinct." Accordingly, the Court adopts Yodlee's definition.

"Multi-component task" also appears in both independent claims of the '451 patent. Yodlee defines "multi-component task" as "an overall task that is made up multiple individual tasks." CashEdge defines it as meaning "a task that is accomplished by performing two or more distinct sub-tasks in unrelated areas that is more than simply gathering information and presenting the information to the end user." Again, CashEdge cites to prosecution history that does not support its addition of the words "unrelated areas that is more than simply gathering information and presenting the information the end user." There is nothing in the intrinsic evidence to support the limiting language proposed by CashEdge. The Court adopts Yodlee's definition.

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The term "composed image" appears in the sixth, eighth, ninth, and eleventh elements of independent claim 28. Adobe contends that "composed image" has the same meaning as "composed image" in claim 27, i.e., the image that results from blending two images in dependence on at least one control image, where the control image specifies the relative contribution of each input image and where the control image contains more than two possible values for specifying those relative contributions.

The court concludes that the term "composed image" appearing in claim 29 has the same meaning as the term "composed image" appearing in claim 27, i.e., a "composed image" is the image that results from compositing two images using a control image that has more than two values. The sixth element of claim 29 explicitly recites at least three values for the control image: "storing a frame of said first control pixel signals in a third addressable memory as signals having a first
value for pixels of a composed image based on one of said first pixel signals and said second pixel signals, a second value for pixels of said composed image based on the other of said first pixel signals and said second pixel signals, and intermediate values for pixels of said composed image based on combining proportions of said first pixel values and said second pixel values." See col. 16, lines 28-36 (emphasis added).

2. "Composite Gesture Action" ('053 patent, claims 1, 6)

The second term in dispute is "composite gesture action." Plaintiff's proposed construction is "a gesture action (as defined above) in which movement results from a contribution of two or more gesture actions." Defendant's proposed construction is "a gesture action (as defined above) that involves movement of several joints."

Defendant's construction is supported by the fact that the phrase "composite gesture action" appears only in claims 1 and 6 of the '053 patent, not in the specification, and the phrase found its way into those claims through an amendment that plaintiff itself introduced during the procurement process to distinguish prior art. See Tr. at 14-17, 123-24. At that time, plaintiff suggested that a "composite gesture action" is an action that "govern[s] a plurality of movements at a corresponding plurality of joints," Pl. Ex. 2 ("'053 Prosecution History") at NYU004019-20, and defendant's construction largely tracks this language. In introducing the amendment, plaintiff made no claim that "composite gesture action" meant "two or more gesture actions," and relied on the assertion of control over several joints to distinguish prior art. See Tr. 14-17, 123-24.

Plaintiff responds that regardless of the prosecution history, defendant's construction renders the clause "composite gesture action" meaningless because, as plaintiff's expert testified, a mere "gesture action," alone, may entail the movement of several joints, and the word "composite" must therefore be read to indicate "two or more gesture actions" in order to avoid redundancy. See Tr. at 13; see also Tr. at 18, 64. But the prosecution history supports defendant's construction and does not accord with plaintiff's definition. The fact that defendant's construction arguably results in a partial (but far from total) redundancy--and plaintiff's expert did not testify unequivocally on this point, see Tr. at 70-71--is an almost unavoidable function of the less than perfect precision of common English usage and therefore, of itself, an insufficient reason to reject it when the plain meaning is otherwise clear. See Tr. at 19. Moreover, plaintiff offers no other rationale for rejecting defendant's construction, see Tr. at 18 (The Court: "Why shouldn't the plaintiff be bound by the definition it gave?" Dr. Badler: "I'm not sure I have a response to that.").

Accordingly, the Court hereby adopts defendant's proposed construction of "composite gesture action."

2. "Comprehensive surveillance of a predetermined area." Used in Claims 1, 18, and 25.

E-Watch argues that no construction is needed because the term is plain and ordinary on its face. In the alternative, E-Watch suggests "careful, close, continuous, thorough, or extensive watching of a predetermined area." March Networks argues that the definition should be: "the area under surveillance has sensors with some sensors having overlapping zones of detection."

This claim language is in the preamble of Claim 1 and could be interpreted to merely state an intended use or a desired result. It might be said that the phrase does not "breathe life and meaning" into the claim or any part of it, and is not a required antecedent of any of the actual paragraphs (a)-(c). However, both parties believe the phrase is important enough to argue over, see Tr. pp. 34-35, so the court will construe it.

Defendant's construction is too limited. The "pre-determined area" is not specifically defined in the claims or specifications. In the context of the patent, it is the entire area of the facility to be protected. Nothing in the drawings or specifications requires overlap of sensors or sensor appliances, so long as all of the area is covered or monitored by at least one sensor appliance or conventional sensor. See ' 183 patent, col. 6, ll. 9-18. In other words, there could be one sensor appliance with video coverage of a court room, another with coverage of the judge's chambers, a third with coverage of the hall, and a heat
and smoke detecting unit covering the crawl space above these rooms. There is no overlap, but the entire area is monitored or protected.

E-Watch argues that "comprehensive surveillance" includes the storing of data. The specifications indicate that storage, and other uses of data occurs in the server or in the sensor appliance. ’183 patent, col. 7, ll. 38-40. The term being defined is "surveillance" of an area. The other functions are accomplished by the total system, but that does not make them part of the surveillance function.

The claim itself requires a plurality of sensor appliances,’183 patent, col.45 ll.49-50, so there must be more than one. n4
The appliances may, but do not have to, overlap in their coverage of parts of the "predetermined area." n5

-n4 For the reasons stated in Bilstad v. Wakalopulos, 386 F.3d 1116, 1122 (Fed. Cir. 2004), the court concludes that "plurality," as used in this patent, means "two or more."

-n5 Counsel for both sides agreed to this. See Tr. pp. 39-41.

The court will define this term as follows:

"Comprehensive surveillance of a predetermined area" means: "Using at least two sensor appliances, and in some cases one or more conventional security sensors, to monitor or observe the area protected by the system, so that all parts of the area are monitored or observed, although some or all parts of the area may be monitored or observed by only one sensor appliance or sensor."

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I. "compression rate" 2

2 The term "compression rate" is contained in claims 1, 2, 13, and 25 of the '104 patent and claims 1 and 9 of the '158 patent.

Defendants contend that the specification distinguishes between the term "compression rate" and "input data rate." REPLY at 3. Defendants further contend that the term "compression ratio" is not "subsumed" in "compression rate" because Plaintiff gave up that subject matter during prosecution. Id. at 4. Defendants argue that the only way to increase the effective data storage rate, as disclosed in Claim 1 of the '104 patent is by compressing the data at a compression ratio that is greater than 1, and therefore claims reciting "compression rate" are indefinite. Id.

Plaintiff contends that despite Defendants' arguments that this term is indefinite, Defendants nevertheless propose a construction showing that the term is not indefinite. RESPONSE. at 3. Plaintiff argues that the specification illustrates a proper construction for this term and even Defendants' expert has used the term in his own articles and patents. Id. at 5-6. Finally,
Plaintiff contends that claims 1 and 2 of the '104 and '158 patents use the term consistently. Id. at 8.

Claim 1 of the '104 patent discloses:

1. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for providing accelerated data storage and retrieval, said method steps comprising:

   receiving a data stream at an input data transmission rate which is greater than a data storage rate of a target storage device;

   compressing the data stream at a compression rate that increases the effective data storage rate of the data storage device; and

   storing the compressed data stream in the target storage device.

'104 patent at 18:41-52 (claim 1). Claim 2 of the '104 patent depends from claim 1 and discloses:

2. The program storage device of claim 1, wherein the compression rate is at least equal to the ratio of the input data transmission rate to the data storage rate so as to provide continuous storage of the input data stream at the input data transmission rate.

'104 patent at 18:54-58 (claim 2). Claim 1 indicates that the "compression rate" is a rate at which a data stream is compressed, such that the effective data storage rate of the data storage device is increased. Claim 2, however, indicates that the "compression rate" is the ratio of the input data transmission rate to the data storage rate. As Defendants point out, a rate is not the same as a ratio. MOTION at 6.

Moreover, the specifications of the '104 and '158 patents, as well as the prosecution history, indicate that the patentee intended these terms to have different meanings—the meanings one of ordinary skill in the art would attribute the terms. '104 patent at 3:8-13 ("the method for providing accelerated data storage and retrieval utilizes a compression ratio that is at least equal to the ratio of the input data transmission rate to the data storage rate"); id. at 5:28-32 ("the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10 is a function of the . . . the compression ratio achieved [in addition to other factors]"); id. at 9:57-65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec); see also '158 patent at 3:36-42; 11:10-17. As these portions of the specification indicate, a ratio is a unit-less indicator of relative magnitude, while a rate is expressed in terms of data per unit of time. '104 patent at 9:57-65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec). This conclusion is also supported by the parties' agreed construction of "compression ratio." CLAIM CHART at 11-12 ("ratio of the number of bits in a data block input to an encoder to the number of bits in that data block output from that encoder").

When the application for the '104 patent was filed, claim 2 originally disclosed:

2. The program storage device of claim 1, wherein the compression ratio is at least equal to the ratio of the input data transmission rate to the data storage rate, so as to provide continuous storage of the input data stream at the input data transmission rate.

MOTION, EXH. F at FH00006208 (emphasis added). 3 The PTO rejected the claim as being obvious, and in response, the applicant amended the claim to disclose a "compression rate." Id. at FH00006206-08; see also id. at FH00006208 (amending claim 1 from "compressing the data stream at a compression ratio which provides a data compression rate that is greater than the data storage rate" to "compressing the data stream at a compression rate that increases the effective data storage rate of the data storage device") (emphasis added).

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3 The '104 patent issued from application no 09/266,394 ("the '394 application"). The '158 patent was a continuation-in-part of the '394 application.
In addition to acknowledging the difference between "rate" and "ratio," in the specifications of the '104 and '158 patents the applicant specifically disclosed the intended meaning of compression ratio. The specification of the '104 patent discloses:

"In order to achieve continuous data storage acceleration, the data storage accelerator 10 must be configured to compress a given input data block at a rate that is equal to or faster than receipt of the input data. Thus, to achieve optimum throughput, the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10 is a function of the size of each input data block, the compression ratio achieved, and the bandwidth of the target storage device. For example, if the data storage device 45 . . . is capable of storing 20 megabytes per second and the data storage accelerator 10 is capable of providing an average compression ratio of 3:1, then 60 megabytes per second may be accepted as input and the data storage acceleration is precisely 3:1, equivalent to the average compression ratio."

As to claim 1 of the '104 patent, the prosecution history supports this conclusion. Claims 1 and 2 were initially rejected by the PTO as being obvious in light of the Adiletta reference. MOTION, EXH. F at FH00006203. The prosecution history indicates that the patent applicant considered the increase in the effective data storage rate as the point of novelty which made the invention patentable over Adelitta. This is because Adelitta discloses a data compression scheme which compresses all the data before storing it to memory. MOTION, EXH. F at FH00006205-06. Although Adelitta does provide a decrease in the required memory storage space, an increase in the effective data storage rate may not result because the time required to compress all of the data and subsequently store all the data could be greater than or equal to the time to merely store the uncompressed data. Id. ("the Adiletta system may realize a decrease in storage, but such system will not realize 'accelerated data storage' as contemplated by the present invention"). The applicant's modification of the language in claims 1 and 2, in light of these arguments, reflects the importance of the time required to compress the data and make it available for storage. So unlike the compression ratio, the compression rate takes into account the time period it takes to compress a certain amount of data.

The use of the term "compression rate" in claim 1 of the '104 patent is consistent with this conclusion. There, the data throughput of the compressor is great enough that it increases the effective storage rate of the data storage device. '104 patent at 18:41-53 (claim 1) ("compressing the data stream at a compression rate that increases the effective data storage rate of the data storage device"). Claims 13 and 25 of the '104 patent, along with claims 1 and 9 of the '158 patent similarly use the term "compression rate" to refer to compressor throughput at a given compression ratio. The use of term "compression rate" in claim 2 of the '104 patent, however, is not consistent with the use of the term throughout the remainder of the patent and prosecution history. Claim 2 indicates that the "compression rate" is "at least equal to the ratio of the input data transmission rate to the data storage rate." '104 patent at 18:54-58 (claim 2). As previously noted, this is inconsistent with the remainder of the claims, specification, and prosecution history.

Plaintiff argues that the term "compression rate" provides information about the amount of input data a compressor can compress per unit of time, the amount of compressed data a compressor can output per unit of time, and the amount of data that is compressed—the compression ratio. RESPONSE at 8. In other words, Plaintiff argues that the term "compression ratio" is subsumed within the term "compression rate." However, this contention is refuted by the specification, as previously noted, because the patentee explicitly distinguishes between "rates" and "ratios." See '104 patent at 3:8-13 ("the method for providing accelerated data storage and retrieval utilizes a compression ratio that is at least equal to the ratio of the input data transmission rate to the data storage rate"); id. at 5:28-32 ("the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10 is a function of the . . . the compression ratio achieved [in addition to other factors]"); id. at 9:57-65 (noting a compression ratio of 3:1 and a storage rate of 30 MB/sec); see also '158 patent at 3:36-42; 11:10-17; MOTION, EXH. F at FH00006208 (amending claim 1 from "compressing the data stream at a compression ratio which provides a data compression rate that is greater than the data storage rate" to "compressing the data stream at a compression rate that increases the effective data storage rate of the data storage device") (emphasis added). Therefore, with respect to claims 1, 13, and 25 of the '104 patent and claims 1 and 9 of the '158 patent, the Court finds that
the term "compression rate" is not indefinite and is properly construed as "compressor throughput as a measure of the amount of input data a compressor can compress and make available for storage per unit of time at a given compression ratio."

However, as previously noted, the use of the term "compression rate" in claim 2 is inconsistent with the remainder of the claims, specification, and prosecution history. It is nonsensical and one of ordinary skill would understand it as such. The limitation is directed at a "compression ratio," but discloses a "compression rate." While patents are presumed valid and claims may only be declared invalid based on clear and convincing evidence, the term "compression rate" is amendable to only one reasonable construction, rendering claim 2 nonsensical. The Court must construe the claim as the patentee has drafted it. Process Control Corp. v. Hydreclaim Corporation, 190 F.3d 1350, 1357 (Fed. Cir. 1999) ("[w]here, as here, the claim is susceptible to only one reasonable construction . . . . we must construe the claims based on the patentee's version of the claim as he himself drafted it"). As such, courts may not redraft claims to make them operable or to sustain their validity, regardless how the patentee wished they had drafted it. Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1373-74 (Fed. Cir. 2004). As a result, claim 2 of the '104 patent is invalid as being indefinite because it is not "amenable to construction," Exxon Research, 265 F.3d at 1375, and it is insolubly ambiguous and no narrowing construction can properly be adopted." Id.; see also Honeywell, 341 F.3d 1332 at 1338-39.

"Comprised of"

The district court found that the meaning of "comprised of" has not been clearly resolved in patent-specific precedent, and therefore the court held that the "ordinary and customary meaning" should be used. The court ruled that "comprised of" does not have the same open-ended meaning as "comprising," which also appears in claim 1, and that "comprised of" should be construed as a closed-end term that excludes the presence of all elements beyond those presented in the "comprised of" clause. Thus the court defined "comprised of" as "a limiting description of composition," reasoning that "[i]t is consistent with the claim construction preserves the distinction between 'comprised of' and 'comprising,' the latter of which in fact is a patent term of art when used in a transitional phrase. . . ."

We conclude that this ruling is not correct. Although "comprised of" is not used as regularly as "comprising," and "comprised of" is sometimes used other than as a "transition phrase," nonetheless it partakes of long-standing recognition as an open-ended term. See generally 3 Chisum on Patents § 8.06[1][b], at 8-180-82 (2007) (claims usually are structured with a preamble, a "transition phrase," and the elements or steps that are necessary to the right to exclude). The usual and generally consistent meaning of "comprised of," when it is used as a transition phrase, is, like "comprising," that the ensuing elements or steps are not limiting. The conventional usage of "comprising" generally also applies to "comprised of."

Alliance argues that several judicial decisions have used "comprised of" to mean "consists of." However, these rare usages do not remove from "comprised of" its conventional meaning when used as a transition term. The only patent case that illustrates this casual usage appears to be Glaxo Grp. Ltd. v. Apotex, Inc., 376 F.3d 1339, 1343 (Fed. Cir. 2004), where the invention was a "highly pure amorphous form of CA [cefoxime]," and the opinion described the accused product as "an amorphous 'co-precipitate' comprised of 90% CA, 9% sorbitol, and 1% zinc chloride by mass." This usage of "comprised of" was not as a claim transition term, but was the court's description of the defendant's product; there was no issue of whether "comprised of" was a limiting term in patent claim style. Similarly, in Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 348, 81 S. Ct. 599, 5 L. Ed. 2d 592, 1961 Dec. Comm'r Pat. 635 (1961) the Court stated: "The decisions of this Court require the conclusion that reconstruction of a patented entity, comprised of unpatented elements, is limited to such a true reconstruction of the entity . . . ."; this linguistic usage is not concerned with claim drafting; and, if anything, it is open-ended and non-limiting.

The other cases to which Alliance directs us are not patent cases, and the usage is simply as descriptive text. An example is Admiral Fin. Corp. v. United States, 329 F.3d 1372, 1377 (Fed. Cir. 2003), where the court wrote that "Admiral . . . seek[s] total restitution in the amount of $ 14,395,075, comprised of $ 11,072,075, representing capital contributions to Haven, and $ 3,323,000, representing the amount that Admiral claims it saved the government." Similarly in Nissho Iwai Am. Corp. v. United States, 982 F.2d 505, 506 n.1 (Fed. Cir. 1992) the court explained that: "The parties estimated that the cars would be comprised of 57.45% Japanese-made components and 42.55% American-made components." These cases raise no issue of
the conventional patent claim meaning of "comprised of."

In the patent claim context the term "comprising" is well understood to mean "including but not limited to." In Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc., 200 F.3d 795, 811 (Fed. Cir. 1999) the court explained that patent claims "use the signal 'comprising,' which is generally understood to signify that the claims do not exclude the presence in the accused device or method of factors in addition to those explicitly recited." In Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999) the court explained that "the terms 'comprise' and 'consist' have different meanings: . . . 'comprising' . . . is inclusive or open-ended and does not exclude additional, unrecited elements or method steps . . . . From these definitions it is clear that 'comprise' is broader than 'consist.'" Similarly, our predecessor court explained that this usage of "comprising" also embraces "comprises" and "which comprises." Application of James F. Hunter, 288 F.2d 930, 48 C.C.P.A. 887, 1961 Dec. Comm'r Pat. 289 (CPA 1961) (the term "comprises" does not limit the claim to the steps that are listed).

The contrast, in patent lexicography, is with "consisting of," not with variations of "comprises." It is equally well understood in patent usage that "comprising of" is closed-ended and conveys limitation and exclusion. See Norian Corp. v. Stryker Corp., 363 F.3d 1321, 1331 (Fed. Cir. 2004) ("comprising of is a term of patent convention meaning that the claimed invention contains only what is expressly set forth in the claim . . . [however] it does not limit aspects unrelated to the invention"); In re Gray, 53 F.2d 520, 19 C.C.P.A. 745, 1932 Dec. Comm'r Pat. 85 (CCPA 1931) (the use of the claim term "consists" is limited to the claim's enumerated alloy metals without other elements, unlike the term "comprising" which permits the inclusion of other metals than those claimed"). Robert A. Faber, Landis on Mechanics of Patent Claim Drafting § 2:5, 2-15 (5th ed. 2006) also elaborates that "[o]ther words, less often used, have been given the same meaning in patent claim interpretation as 'comprising': 'including,' 'having,' 'containing,' and even 'wherein.'"

District court cases illustrate this routine construction of "comprised of" in the same way as "comprising," as meaning "including but not limited to." E.g., SKW Americas v. Euclid Chem. Co., 231 F. Supp. 2d 626, 637 (N.D. Ohio 2002) ("Because the hydraulic cement mix is 'comprised of' the four elements listed . . . it may include other elements as well."); B.F. Goodrich Flight Sys., Inc. v. Insight Instruments Corp., 22 USPQ2d 1832, 1840, 1992 WL 193112, at *9 (S.D. Ohio Feb. 25, 1992) ("Use of the term 'comprised' renders this claim an 'open' claim which will read on devices which merely add additional elements or steps."); aff'd, 991 F.2d 810 (Fed. Cir. 1993) (Table); Univ. of Fla. Research Found., Inc. v. Orthovita, Inc., No. 1:96-CV-82-MMP, 1998 U.S. Dist. LEXIS 22648, 1998 WL 34007129 (N.D. Fla. Apr. 20, 1998) ("comprised of" is broader than "consisting essentially of" when used in patent claims).

These cases reflect the general understanding and usage of "comprised of" in patent convention as having the same meaning as "comprising." For patent claims the distinction between "comprising" and "consisting" is established, along with the meaning of "comprised of" as related to "comprising," not "consisting of." Correctly construed, "comprised of" does not of itself exclude the possible presence of additional elements or steps.

Applying an incorrect construction of "comprised of," the district court ruled that "unique authorized information . . . comprised of machine-readable code elements coded according to a detectable series" is limited to coding by a detectable series, and that since the Alliance code systems include a "secret" series along with a detectable series, the limit imposed by "comprised of" bars infringement. On the correct construction of "comprised of," this reasoning does not support the court's ruling as to "secret" series. However, as we shall discuss, the prior art and prosecution history served to limit the scope of "unique authorized information" to a "detectable series" and to exclude a series that included "secret" information.

As to DDI's second argument, we acknowledge that the term "comprising" raises a presumption that the list of elements is nonexclusive. See Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997). However, "[c]omprising' is not a weasel word with which to abrogate claim limitations." Spectrum Int'l, Inc. v. Sterilite Corp., 164 F.3d 1372, 1380 (Fed. Cir. 1998). "Comprising" appears at the beginning of the claim- "comprising the steps of"-and indicates here that an infringing process could practice other steps in addition to the ones mentioned. Those six enumerated steps must, however, all be practiced as recited in the claim for a process to infringe. The presumption raised by the term "comprising" does not reach into each of the six steps to render every word and phrase therein open-ended especially where, as here, the patentee has narrowly defined the claim term it now seeks to have broadened. The district court's limitation of the claim scope to exclude
processes that produce some irregularly shaped particles is correct.

A method for specifying a computer system comprising:

The parties initially disputed the meaning of "comprising." Dell proposed: "including, but not limited to." Lucent argued that no construction was required. The parties subsequently agreed on the construction of this term. Based upon the agreement of the parties, the court construes "comprising" as follows:

"including, but not limited to."

When a patent claim uses the word "comprising" as its transitional phrase, the use of "comprising" creates a presumption that the body of the claim is open. In the parlance of patent law, the transition "comprising" creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements. See KCI, 223 F.3d at 1356.

The transition "having" can also make a claim open. Regents of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1573, 43 U.S.P.Q.2d (BNA) 1398, 1410 (Fed. Cir. 1997). However, the term "having" does not convey the open-ended meaning as strongly as "comprising." "Having," for instance, does not create a presumption that the body of the claim is open. Therefore, this court examines the claim in its full context to determine whether Crystal's use of "having" limits claim 1 to its recited elements.

The language of claim 1 itself does not limit the term "having" to a closed meaning. The '483 patent discloses a capacitor structure that shields the sensitive plate of the capacitor from stray noise. The "Background of the Invention" describes typical prior art capacitors with a two-plate structure. Col. 1, ll. 58-68. The top plate served as a "sensitive 'virtual ground' capacitor plate" while the bottom "shielded the sensitive node from substrate noise." Id. These two-plate capacitors were "still susceptible to noise coupling onto the sensitive top plate through passivation and packaging dielectrics." Id. at 66-68. The claimed tri-layered structure improves noise shielding. The first and third layers are connected together and operate "to shield . . . the second conductive layer, from noise resulting from external sources or from the semiconductor substrate." Col. 2, ll. 19-24; col. 4, ll. 8-11 ("The upper metal plate 38 is operable to shield the shielded plate 36 from noise resulting from signals that are disposed above the plate 38.").

E. "Computer-Implemented Method/Steps."

The term "computer-implemented method" appeared in the preamble of each of claims 1-43 of the '381 patent. The preamble recited "[a] computer-implemented method for renting movies to customers." The term "computer-implemented steps" was recited in the preamble of independent claims 1, 16, and 31 of the '450 patent. Each of those claims recited "[a] method for renting items to customers, the method comprising the computer-implemented steps of . . . ."

(1) Limiting Claim Preambles.

The first issue is whether the preamble to these claims is limiting. "In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim. Conversely, a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." Catalina Marketing Intl., Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (internal citations omitted). Clear reliance on the preamble in prosecution history transforms the preamble into a
claim limitation because it indicates that the patentee used the preamble to define the claimed invention. Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1367 (Fed. Cir. 2003).

The file history of the '381 patent is instructive in this instance. In an office action dated October 29, 2004, the examiner rejected the application under 35 U.S.C. 101 for being drawn to non-statutory subject matter. The examiner explained (Ramani Decl. Exh. 11):

In the present case, claims 55-94 only recite an abstract idea. The recited steps of establishing, causing to be delivered, selecting and updating does [sic] not apply, involve, use or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper. The terms "computer-implemented" and "Internet," as claimed, do not obviate this line of reasoning . . . . The computer need not be present to execute these steps, and if executed may merely be given by hand (digital data) or orally.

It is worth noting that the phrase "computer-implemented" was present from the beginning of the prosecution of the '381 patent; it was not added in response to this rejection. The applicants traversed the examiner's rejection in the remarks saying that the examiner did not heed the express limitation that all steps of the process were performed by a computer. Specifically, they argued (id. at Exh. 12):

Technology is used to provide electronic digital information that causes attributes of movies to be displayed to the user, to establish multiple, electronic movie rental queues each associated with a particular customer, to store the movie rental queue information, to update the movie rental queue, and to cause the selection of movies to be delivered to the customer, all without any human mediation on the part of the renting enterprise.

With this statement, the applicants disclaimed any inventions teaching the use of anything other than electronic means to carry out the claimed steps.

Blockbuster argues that the specifications of both patents show that the method is not limited to rental using computers. They quote ('450 patent at col. 14:24-34; '381 patent at col. 12:54-64):

In the foregoing specification, the invention has been described as applying to an implementation anticipating Internet-based ordering and mail or other long- distance delivery of the items, where the special advantages of the method are very attractive. However, the same invention may be applied in a more conventional video, games, or music rental-store setting, where subscription customers may be allowed rentals of a specified number of movies, games, or music selections at any time, and/or in one subscription period, without rental return due dates, in exchange for a periodic rental subscription fee.

It is true that Netflix has not limited itself to ordering and delivery over the Internet. The above passage anticipates having the customer input information to the system in ways other than from their own computer. It does not indicate that any of the claimed steps of selecting items, causing items to be sent, etc., are performed by anything other than a computer. This passage addresses ordering and delivering the items; these are steps performed by the customer, not by the system. Accordingly, this order holds that the preamble reciting "computer-implemented method/steps" adds a limitation to the claims.

Blockbuster argues that some of the steps, such as delivery, cannot be performed by a computer, so the preamble should not be held to be a limitation on all of the recited steps. Defendant misstates the claims. Modern technology has of course not developed a computer that can physically deliver a DVD by itself. A computer can, however, cause a DVD to be delivered and it can select a DVD to be delivered as taught in the '381 patent. It can even provide a DVD by giving an order for it to be sent to a customer, as taught in the '450 patent.

(2) Construction.

Secondly, as with the disputed term "electronically updating," parties disagree over whether the updating function is performed by the provider's computer or by some other device under someone else's control. As with "electronically updating," it is clear that the information is coming in from the customer. The claims and the specification do not make clear that the steps are being carried out by the provider's computers. Again, Netflix reads a limitation from its preferred embodiment into the claims. Netflix's argument omits a crucial step. It contends that because all the steps occur after
information is received from a customer, it necessarily follows that the steps are performed by the provider's computer. The argument fails because the specification and the claims did not exclude the use of all other computers in performing the steps. Accordingly, this order will not import that limitation into the meaning of "computer-implemented."

Finally, Blockbuster argues that the Court should define the term "computer," another commonly-used word from the English language. As such, the term is understood to mean a programmable device that can electronically process, store and retrieve information. Merriam-Webster, Ninth New Collegiate Dictionary, 1984. Blockbuster's proposed definition would cause more confusion than it would clear up. The above definition of "computer" will be used. "Implemented" is generally understood to mean "carried out" or "accomplished."

Accordingly, this order holds that "computer-implemented" adds a limitation to each element of the claims in which it appears in the preamble. "Computer-implemented" will have its ordinary meaning, but will not be confined to the provider's computer.

(b) ... comprising the steps of...

The parties disagree whether the phrase "comprising the steps of" mandates the steps that follow to be taken in the order they are listed within the claim. The recited steps are:

a. establishing a charge for paying the lifetime payments after the account value reaches zero in accordance with the guarantee;

b. using a computer:

1. determining an initial benefit payment;

2. determining a subsequent periodic payment; and

3. periodically determining the account value;

c. periodically paying the initial payment and the subsequent payment and reporting the account value to the beneficiary.

The Defendant does not address the established usage of the phrase "comprising the steps of." Rather, it argues that the steps make sense only if they are carried out in the listed order. The Plaintiff counters this assertion by submitting a specific meaning of the phrase and by insisting that no certain order is mandated by the logic or grammar of the steps.

Generally, absent specific recitation of order, steps of a method are not construed to have particular order. See Altiris, Inc., 318 F.3d at 1369-71 (Fed. Cir. 2003). Barring the steps of determining the amount of payments, paying the payments, and determining the account value, Claim 1 is not an exception to this rule. The logic of the steps does not mandate the order in which the payments are determined. For example, there is no inherent requirement to determine the subsequent payments only after the amount of the initial payment is decided. The amounts of these payments are dependent variables but can be set in any order. Similarly, the charge for paying the lifetime payments after the account value reaches zero can be set either before or after the initial and subsequent payments have been determined. Of course, following a certain order to determine the amount of payments and charges may make better business sense, but that is different from a mandated order. A requirement for a valid patent is that it is functional, not that it is perfect.

That the order of the steps is not set in stone is also confirmed by the ordinary meaning of the phrase "comprising the steps of." This phrase connotes an open ended claim that allows additional steps. See Medichem, S.A. v. Rolabo, S.L., 353 F.3d 928, 933 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."). Since the claim is not foreclosed to additional steps, the steps themselves are not foreclosed from being carried out in a different order than stated in the claim.
1. The term "in response" in claims 3, 8, 9, 19, 20, and 25 is construed to mean "as a consequence of." 1

2. The term "off" in claims 3 and 20 is construed to mean "the lowest power state of the monitor or circuit that can be achieved by the power management system where the monitor is still able to reactivate itself."

3. The terms "general purpose computer" or "computer" in claims 9, 14, and 24 are construed to mean "a programmable electronic device that can store, retrieve, and process data."

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1. The term "in response" in claims 1, 36, 85, 98, 103, 107, 139, and 150 is construed to mean "as a consequence of."

2. The terms "general purpose computer" or "computer" in claims 1, 36, 73, 80, and 136 is construed to mean "a programmable electronic device that can store, retrieve, and process data."

12. "Computer" & "Browser"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Browser/web browser&quot;</td>
<td>Plain and ordinary meaning. Alternatively, this term means &quot;an application for browsing a network, such as the web&quot;</td>
<td>A device having a processor for processing data</td>
</tr>
<tr>
<td>&quot;computer&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Cell Phone Defendants separately propose the construction of few terms. The first dispute is over the scope of the "computer" terms. 6 Fotomedia points out that the specification discloses "any other computer capable of running a standard web browser." '774 patent, at col. 6 ll. 44-53. The Cell Phone Defendants seek to limit the term "computer" to a "personal computer" wherever it is used. The Court finds this limitation is unwarranted.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

6 The parties dispute the construction of the terms "computer," "receiving computer," and "sending computer." For each of these terms, the Cell Phone Defendants seek to limit its scope to a "personal computer."

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

A "computer" is "a device that processes data."

With regard to the "browser" terms, the Cell Phone Defendants seek to import two different limitations to the construction of the term "browser" - a personal computer and HTML documents. In response, Fotomedia notes that the specification discloses images (such as GIF or JPEG) that are also viewable in a web browser. See '774 Patent at col. 12 ll.30-33. Further, the specification discloses a Java-enabled browser. A Java-enabled browser would be capable of displaying more than just HTML pages. At a minimum, such a browser could display applications written in a version of Java. Therefore, the Court rejects the defendants' proposed construction of this term.
A "browser" is "a computer application for browsing a network, such as the internet."

1. "computer" and Related Terms

The issues regarding these terms are (1) whether the court should include a limitation, as the defendants suggest, indicating that a computer cannot be a microprocessor or microcontroller, and (2) whether all four terms should have the same general construction.

Regarding the defendants' limitation, the defendants argue that the patentee expressly disclaimed embedded microprocessors and microcontrollers. In support, they cite portions of the prosecution history in which the patentee attempts to distinguish the present invention from U.S. Patent No. 5,841,865 ("the Sudia patent"). See Ex. 16-17 of Defs.' Claim Construction Brief. The Sudia patent discusses RNGs that are interfaced to microcontrollers. See the Sudia Patent, col. 13, ll. 35-65. In response to the examiner's discussion of the Sudia patent, the patentee declared, "[a]n embedded microprocessor, or microcontroller, taught in Sudia '865, is designed for a specific task to control a particular system. The embedded microcontroller of Sudia '865 is supposed to conduct specifically programmed functions related to encryption and decryption and is not operable to conduct other functions." See Ex. 17 of Defs.' Claim Construction Brief.

Claim 1 of the '242 patent contemplates a RNG interfacing with a general-purpose computer. See '242 Patent, cl. 1. As indicated by the prosecution history, the present invention does not contemplate a scenario in which the RNG directly interfaces only with a microprocessor that performs only one function and is divorced from a general purpose computer. Indeed, both parties concede that a stand-alone microprocessor is not a computer. The operative fact of the disclaimer contained within the prosecution history is the scope of the capabilities of the microprocessor, not the fact that it is embedded, stand-alone, or otherwise. The disclaimer does not preclude an interface with a microprocessor capable of performing multiple tasks or one that is part of a general-purpose computer.

The court will not typically define a term in the negative, but in light of the parties' stipulation and the discussions contained within the prosecution history, the court will do so in this instance. See Hutchins v. Zoll Med. Corp., 492 F.3d 1377, 1381 (Fed. Cir. 2007). Such construction falls squarely in line with the court's duty to define the scope of a term, as well as its meaning, when both are contested. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351 (Fed. Cir. 2008).

The second issue is whether all of the "computer" terms have the same meaning. Quantum relies on a claim differentiation argument, while the defendants, again, cite to portions of the prosecution history. See Ex. 17-19 of Defs.' Claim Construction Brief. The court concludes that "computer" and "general purpose computer" mean the same thing. In addition, "personal computer" and "general purpose personal computer" should be construed consistently.

Accordingly, the court defines "computer" and "general purpose computer" as follows: "a programmable machine that is operable to conduct a wide variety of tasks using a variety of applications programs that can be accessed and operated. The term does not include a microprocessor or microcontroller that is operable to conduct only a single, specific task."

The court defines "personal computer" and "general purpose personal computer" as follows: "a computer designed for use by one person at a time, such as a desktop PC or a laptop."

G. "computer readable medium," as used in claims 9, 10, and 14.

In the claimed invention, a "computer readable medium" is the device in which http clients and servers house executable
program instructions and state information. In the course of the September 25, 2009 claim construction hearing, the parties sensibly agreed that "computer readable medium" means "storage device." Importantly, this construction is fully supported by the plain and ordinary meaning of the claim term, read in light of the specification. See Phillips, 415 F.3d at 1313. For example, claim 14 makes clear that storage is the key function of the computer readable memory; it houses both state information in the form of a state object and executable program instructions. See also '670 Patent Specification col. 5 11. 5-10 (confirming storage function). Accordingly, "a storage device" is an appropriate claim construction for "computer readable medium." 19

--- Footnotes ---

19 It is worth noting that both parties' initial proposed constructions run afoul of settled claim construction principles. Specifically, defendants' proposed construction, "a magnetic or optical mass storage device," relies on a specification passage that teaches: "The server will typically include . . . a computer readable medium, such as a magnetic ("hard disk") or optical mass storage device." '670 Patent Specification col. 2 11. 41-44 (emphasis added); see also id. col. 5 11. 5-10. Significantly, the use of "such as" signals the use of an example; it does not indicate that the patentee is providing a definition. See Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 811 (Fed. Cir. 2002) ("'[S]uch as' introduces an example of a broader genus rather than limiting the genus to the exemplary species."). This rule dovetails with the well-established principle that the specification cannot be used to limit patent claims. See Nazomi, 403 F.3d at 1369.

On the other hand, plaintiff's proposed construction, "memory," contravenes the presumption "that the use of . . . different terms in the claims connote different meanings." CAE Screen Plates v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000). Here, claim 14 refers to both "a memory coupled to said processor" and "a computer readable medium coupled to said processor." '670 Patent Claim 14. The claim further directs that a state object be stored "in one of said memory and said computer readable medium." Id. Consequently, the claim term "computer readable medium" cannot mean "memory" because such a definition would render part of the claim language superfluous and redundant. See In re Gabapentin Patent Litig. 503 F.3d 1254 (accepting district court's construction because it "gives full meaning to every word of the entire claim term"); Bicon, Inc. v. Straumann Co., 441 F.3d at 950 (refusing construction that would leave a claim term with no meaning).

--- End Footnotes ---

A. Claim Construction

Pickholtz argues that the district court erred when it construed the term "computer" to exclude peripherals. He urges that whether a "computer" includes peripherals is unanswered by the intrinsic evidence and that we should therefore turn to the extrinsic evidence that supports his broader construction. He argues that "computer system" and "computer," as used in his patent, are synonymous. He further argues that the court's construction is wrong because a computer without peripherals would be incapable of accepting input or yielding output and therefore would be useless.

Pickholtz also contends that the court misconstrued the phrase "located in the computer" to mean "in the CPU, main memory or on the CPU circuit board, but excluding connected peripherals." First, he argues that the court's construction is inconsistent with the claims' requirement that the PRN generator device be in a sealed casing, with the specification's teaching that the PRN generator device is installable by the user on-site, and with the depiction in Figure 1 of the PRN generator device 22 as being separate from the CPU 12 and the main memory 14. Secondly, he argues that the court's construction of the phrase "located in the computer" is inconsistent with the court's construction of the term "computer" because the latter does not include the CPU circuit board. Thirdly, he urges that he did not distinguish his invention over Thomas during prosecution on the basis of the location of the PRN generator device.

Rainbow responds that the court's construction is the unambiguous result of the intrinsic evidence. Rainbow draws attention to the fact that the patent claims refer to a "computer," whereas the specification describes a "computer system" with reference to Figure 1. Thus, according to Rainbow, a "computer" is something less than a "computer system." Rainbow also defends the court's construction of the phrase "located in the computer" by arguing that it is consistent in part with the
In summary, we construe the phrase "located in the computer" to mean "located in the CPU, main memory, the CPU or main proximity to the CPU. Certainly such a peripheral, as it indisputably connects substantially directly to the CPU circuit board and is in close proximity to the CPU, or else the phrase "in" would become meaningless. A peripheral distinctly connected reasonably cannot be "in the computer." Therefore, not everything somehow connected to a CPU can be a peripheral in the sense of being part of the "computer." At the very least, however, the term "computer" encompasses peripherals that are within a reasonable proximity to the CPU and its main memory and directly connected to the CPU or the CPU circuit board. We need not, and indeed cannot, attempt to precisely define which peripherals may be part of the "computer" as used in the '353 patent for all cases. See EMI Group N. Am. v. Intel Corp., 157 F.3d at 887, 895, 48 USPQ2d 1181, 1187 (Fed. Cir. 1998) ("It is irrelevant whether the district court achieved a technologically perfect definition, because there is no dispute that the corresponding step of the Intel process is within the literal scope of [the claim limitation]. Thus we do not attempt to decide, de novo, the correct meaning of [the claim limitation]."). The accused device in this case is certainly such a peripheral, as it indisputably connects substantially directly to the CPU circuit board and is in close proximity to the CPU.

In interpreting claims, a court "should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conectronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996). Only if a disputed claim term remains ambiguous after analysis of the intrinsic evidence should the court rely on extrinsic evidence. 90 F.3d at 1583, 39 USPQ2d at 1577. We agree with Rainbow that the proper construction of the term "computer" follows without ambiguity from the intrinsic evidence; however, that construction is not as Rainbow contends. Instead, we agree with Pickholtz that the '353 patent uses the terms "computer" and "computer system" as synonyms. Although we would typically be inclined to give meaning to the word "system," rather than regard it as surplusage, see Elekta Instrument, 214 F.3d at 1307, 54 USPQ2d at 1913, the patent in this case provides no indication that the two terms mean different things. Instead, the patent uses the term "computer system" in the specification and the term "computer" in the claims; nothing in the patent itself explicates their relationship or indicates any difference in meaning.

The remaining intrinsic evidence, the prosecution history, does not compel a different result. Pickholtz originally submitted the claims in vastly different form, referring to the invention as part of a "data processing system" and reciting "a pseudorandom number generator at the data processing system." Pickholtz changed the claims into their allowed form after the PTO rejected the claims as being obvious in light of the Thomas patent. Although Thomas clearly uses the terms "computer" and "computer system" in a part-whole relationship, '519 patent at fig. 2, col. 5, ll. 18-25, Pickholtz did not distinguish his invention over Thomas on the basis of any difference between a "computer" and a "computer system." Despite Pickholtz's argument to the PTO that Thomas lacks a "[PRN] generator device located in the computer," Thomas clearly discloses PRN generating software, and that software is located in the core "computer" part of Thomas's "computer system." '353 patent at col. 4, ll. 37-48 (disclosing that the PRN generator is software loaded into the working memory and executed by the CPU). Pickholtz's argument, although inaptly stated, can only be understood to mean that he considered Thomas's software to not contain a PRN generator at all. Thus, although Pickholtz may have been casual and gratuitous in amending his claims and making arguments to distinguish over the Thomas patent, nothing in the prosecution history convinces us that the terms "computer" and "computer system" in the '353 patent have different meanings, even if they might have in the Thomas patent.

Accordingly, the district court erred when it concluded that the intrinsic evidence unambiguously imparted different meanings to the terms "computer" and "computer system." On the contrary, they are used interchangeably in the '353 patent. Because the meaning of the term "computer" can be resolved from the intrinsic evidence alone, we need not rely on any extrinsic evidence, see Vitronics, 90 F.3d at 1582, 39 USPQ2d at 1577, which in any event is not conclusive. While Pickholtz advanced a number of technical dictionaries defining "computer" as inclusive of peripherals, as well as expert testimony to the same effect, Rainbow disputed the meaning of those technical dictionaries and offered contrary expert testimony.

Furthermore, as the patent's specification includes one peripheral, a disc "reading means," as part of the "computer system," '353 patent at col. 6, ll. 11-12; fig. 1 (disc 18), the synonymous term "computer" in the claims must include at least some peripherals. However, the term "computer" cannot be so unbounded as to include all devices connected in any way to the CPU, or else the phrase "located in the computer," and particularly the word "in," would become meaningless. A peripheral distinctly connected reasonably cannot be "in the computer." Therefore, not everything somehow connected to a CPU can be a peripheral in the sense of being part of the "computer." At the very least, however, the term "computer" encompasses peripherals that are within a reasonable proximity to the CPU and its main memory and directly connected to the CPU or the CPU circuit board. We need not, and indeed cannot, attempt to precisely define which peripherals may be part of the "computer" as used in the '353 patent for all cases. See EMI Group N. Am. v. Intel Corp., 157 F.3d 887, 895, 48 USPQ2d 1181, 1187 (Fed. Cir. 1998) ("It is irrelevant whether the district court achieved a technologically perfect definition, because there is no dispute that the corresponding step of the Intel process is within the literal scope of [the claim limitation]. Thus we do not attempt to decide, de novo, the correct meaning of [the claim limitation]."). The accused device in this case is certainly such a peripheral, as it indisputably connects substantially directly to the CPU circuit board and is in close proximity to the CPU.
memory circuit boards, or qualifying peripherals” as indicated above. In view of that construction, it necessarily follows that the Rainbow dongle, when attached to a computer port, is such a peripheral and is therefore "located in the computer." No reasonable juror could conclude otherwise.

II. "[C]omputer"

Plaintiffs fail to provide a distinct definition of the claim term "computer." (R. 82, Pls.' Mem. at 15-16.) Instead, they ask the Court to construe the term "principal market maker . . . computer," and propose the following definition: "a computer that independently performs each and every function of the principal market maker (as construed) separate from and without being incorporated into any other clearing or trading system, computer or engine (including the GLOBEX and Project A systems)." (R. 82, Pls.' App., Ex. 1.) The Court finds that this definition is not only circular with respect to its construction of the term "computer," but also seeks to import limitations that are not located in the claim language.

In support of their position, Plaintiffs first draw the Court's attention to the '923 patent's specification and argue that language contained in the specification require the "principal market maker . . . computer" to perform its functions "separate from and without being incorporated into any other clearing or trading system, computer or engine." (R. 82, Pls.' Mem. at 15.) Plaintiffs' argument fails as it improperly seeks to import a limitation from the written description. See Playtex Prods., Inc. v. Procter & Gamble Co., 400 F.3d 901, 906 (Fed. Cir. 2005) ("The court must take care in its analysis, when locating in the written description the context for a disputed term, not to import a limitation from that written description. It must use the written description for enlightenment and not to read a limitation from the specification."). Their argument based on the patent figures and their accompanying text is similarly unavailing as it impermissibly attempts to use a preferred embodiment to limit the claims without an express declaration by the patentee. See id. at 907-08 ("Claims of a patent may only be limited to a preferred embodiment by the express declaration of the patentee"). Plaintiffs do not to point to such an express declaration by Garber, and fail to do so for good reason: Garber clearly stated that the descriptions provided in the specification were "illustrative rather than limiting." '923 patent col. 10, l. 45.

Claim terms are generally given their "ordinary and customary meaning," which is the meaning the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application. Phillips, 415 F.3d at 1312-13. In some cases, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." Phillips, 415 F.3d at 1314 (citing Brown v. 3M, 265 F.3d at 1352). Where the ordinary meaning is readily apparent, the Federal Circuit has noted that general purpose dictionaries may be helpful in construing a claim term. Id.; see Vitronics, 90 F.3d at 1584 n.6 (Judges may "rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.").

Here, the Court finds that the claim term "computer" has a readily apparent meaning. As such, the Court will rely upon general purpose dictionaries and will construe "computer" as follows: "a programmable electronic device that can store, retrieve, and process data." 14

14 The Court relies upon the most relevant definitions found in the following two general purpose dictionaries: (1) Webster's Third New International Dictionary 468 (1981) (defining "computer" as "a programmable electronic device that can store, retrieve, and process data"); and (2) Merriam-Webster's Collegiate Dictionary 256 (11th ed. 2003) (defining "computer" as "a programmable usu. electronic device that can store, retrieve, and process data").
A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. #292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
<tr>
<td>&quot;Retrieving via the terminal&quot;</td>
<td>&quot;locating and returning, by means of the terminal, ID information and a card number stored on the debit card&quot;</td>
</tr>
<tr>
<td>&quot;Computer&quot; and &quot;Computer means&quot;</td>
<td>&quot;a data processing device&quot;</td>
</tr>
<tr>
<td>&quot;Transmitting to a computer&quot;</td>
<td>&quot;sending by means of a signal path to a computer&quot;</td>
</tr>
</tbody>
</table>
| "Validation" and "Valid"                       | "indication of whether the ID information stored on the debit card matches the
corresponding ID information stored on the terminal"

"Computer means disposed remotely"

"a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"

"a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means"

"transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means"

"a modem or a signal path"

"Selected from a group of ID information" (Claim 2)

"chosen from one of the following ID information"

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

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I. "computer"

Although "computer" is found without a modifier in many instances throughout the specification and claims, the term appears to be used interchangeably with "attraction computer." This conclusion is supported by the figures and the specification. In Figure 1, which is "a block diagram of a system according to the present invention," col. 4, ll. 7-8, the only computers included are attraction computers. (See also col. 5, ll. 2-4.) Similarly, Figure 6 illustrates the manner in which the attraction computer operates in accordance with the present invention. (col. 4, ll. 50-51.) As more direct evidence that the terms are synonymous, where "computer" is used in the specification instead of "attraction computer," the reference is to "computer 101" which corresponds with the attraction computer in Figures 1, 2, and 6. (col. 11, l. 66; col. 12, ll. 38, 47-48; col. 13, l. 19; col. 17, ll. 1, 35-36, 43, 57; col. 18, ll. 5, 16, 26; col. 19, l. 51.) Furthermore, in the section titled "Attraction Computer Operation," the specification alternates between "attraction computer" and the shorthand reference to "computer," thereby evidencing the fact that the two terms are interchangeable. (col. 20, l. 5 to col. 22, l.51.) Therefore, the ordinary meanings of "computer" and "attraction computer" are identical in the context of the present invention.

The specification essentially defines this term by stating that attraction computers are implemented with: (1) a microprocessor or central processing unit (CPU); (2) random-access memory; (3) disk storage; (4) input device such as a keyboard or mouse; and (5) output device such as a display screen; and (6) wireless communication hardware and software. (col. 5, ll. 15-29.) Additionally, the specification provides that the attraction computers may be: (1) components of a single computer system or group of computer systems wherein each component may be a distinct processor or processing node within the computer or group; or (2) separate computers that are physically disposed at or near the associated attractions. (col. 5, ll. 5-12.) Despite the fact that the specification describes two acceptable structures for the attraction computer, the Defendants' proposed construction limits the "attraction computer" to "a stand-alone computer physically disposed near one of the attractions." n5 On the other hand, the Plaintiff's proposed construction is consistent with the specification: "a computer system including one or more processors, storage devices, and associated hardware/software/peripheral
components, where the peripheral components may be distinct processors or processing nodes capable of processing information." Therefore, modifying the Plaintiff's construction to reflect the specification more accurately, the Court construes "computer" and "attraction computer" as "a computer system including a processing unit, random-access memory, disk storage, input and output devices, applicable wireless communication hardware and software, which may be implemented as: (1) a distinct processor or processing node within a computer system or group of computers; or (2) a separate computer physically disposed at or near its associated attraction."

n5 The Defendants do not propose a construction of "computer," deeming it inappropriate to do so out of context.
2. "computer"

This term appears in both the '366 patent and the '408 patent. It appears in the '366 patent claims 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 44, 45, 46, and 47; and in all claims 1-17 of the '408 patent.

Rackable contends that "computer" means "general purpose computer including a main board and additional components, such as a server." Supermicro contends that "computers" means "a device capable of processing information to produce a desired result."

The essence of this dispute is whether, as Rackable contends, "computer" refers to a general purpose computer like a server, or whether it is even more generic, as argued by Supermicro.

Rackable argues that the patent specification clarifies that the patent targets problems related to densely packed data centers. Because computers in data centers are general purpose computers, it asserts that its construction is consistent with the specification. Rackable contends that Supermicro's construction is contrary to the patent. It asserts that according to defendant, "computer" would include all processing devices -- not just computers in a data center environment.

Supermicro argues that its construction is consistent with the specification, and that several technical dictionaries support its construction as well. It contends that Rackable seeks to improperly read limitations into the claim terms that do not exist. It further notes that the phrase "general purpose computer," as urged by Rackable, does not exist anywhere in the specification, in a dictionary; nor is it supported by expert testimony.

At the October 4, 2006 hearing, the court indicated that it did not find either parties' constructions convincing. The court noted that Supermicro's definition was too generic, and that Rackable's attempt to limit the definition to a "general purpose" computer, a phrase not employed by or defined by the specification, was also problematic. However, because the court believed that construction is a matter for the parties in the first instance, it afforded the parties an opportunity to meet and confer regarding the term in light of the court's stated concerns. The parties subsequently notified the court that they were unable to reach an agreement regarding construction of "computer."

Accordingly, the court declines to adopt either parties' construction, and construes "computer" as a computer that functions as a server. For the reasons noted on the record at the hearing, Supermicro's construction is too generic. As for Rackable's proposed construction, it not only improperly reads in limitations from the specification, but it inserts language that improperly modifies the term "computer." Because there is nothing in the intrinsic evidence to suggest the ordinary meaning of "computer" was not meant to apply, the court finds no need to further define "computer" other than that it should function as a server.

"Computer"

The Court adopts Soverain's construction and defines "computer" to mean "a functional unit that can perform substantial computation, including numerous arithmetic operations, or logic operations without human intervention." This definition reflects the ordinary meaning to one skilled in the art. See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 192 (6th ed. 1996). The Court rejects Amazon's proposed definition, which limits a "computer" to a single device, because it is inconsistent with the IEEE definition and the specifications, which do not require the computers to be dedicated to a single unique function.
A. "Computer"

Claim 1 repeatedly uses the term "computer:" (1) col. 6, 1. 4-5 ("for use with a computer"); (2) col. 6, 1. 12 ("located in the computer"); (3) col. 6, 1. 13-14 ("located in the computer"); and (4) col. 6, 1. 23 ("located in the computer").

1. The disputed constructions

Plaintiff urges the Court to construe "computer" to mean "one or more processing units and the memory, peripherals and other devices connected electronically to and communicating with the processing units." (Emphasis added).

Defendant proposes that "computer" be defined as "the CPU and main memory on the CPU's circuit board, which, taken together, form a part of a dedicated microprocessor system capable of executing instructions on data, and which exclude connected peripheral devices." (Emphasis added).

The primary distinction between the two definitions is that plaintiff interprets "computer" to include devices electronically connected to the processor, such as printers, servers, keyboards, and monitors, while defendant's definition excludes such "peripherals."

2. Analysis

"Computer," as used in claim 1, does not include peripherals.

First, defendant's construction is consistent with the specification. Figure 1 in the specification includes a CPU (central processing unit) and main memory (which together constitute defendant's definition of "computer") as well as a disc drive (no. 18 on Fig. 1). The entire device in Figure 1 is described as a "computer system." Col. 2, 1. 66 (emphasis added); see also Col. 3, 1. 4-5 (the CPU and main memory are "preferably components of a computer system") (emphasis added); Col. 3, 1. 10-11 ("Operation of such a system is described . . .") (emphasis added). The claim, however, consistently refers to a "computer" rather than a computer "system." Thus, the plain language of the patent suggests that a "computer" is different from a "computer system."

Second, the claim also repeatedly uses the term "located in the computer," for example, the pseudorandom number ("PRN") generator device is "located in the computer." If "computer" is interpreted as broadly as plaintiff urges, "located in the computer" is unnecessary; the PRN generator device must be located in the computer, that is, it has to be connected electronically to the controller and main memory. Thus, computer as used in claim 1 cannot simply mean connected electronically to the controller and main memory.

Third, Figure 1 shows the PRN generator "located in the computer" as defendant defines the term, that is, as part of the microprocessor system.

In sum, the intrinsic evidence unambiguously demonstrates that "computer" as used in claim 1 of the '353 refers to the microprocessing system and not the microprocessing system and everything electronically connected to it, including printers, disk drives and similar devices. Since the intrinsic evidence, that is the ordinary meaning of the term as used in the patent, is unambiguous and "answers the question," the Court need not consider plaintiff's extrinsic evidence.

Plaintiff's extrinsic evidence, in any event, is ambiguous, unpersuasive or supports defendant's definition of computer. For example, plaintiff identifies a patent examiner's report dated May 1, 1991 rejecting one of defendant's own patent applications as evidence of the meaning of "computer." The examiner's report, however, confirms that "computer" in the context of the '353 is not as broad as plaintiff contends. The examiner describes the '353 as

permanently establishing a first key in a hardware device (external memory 18 of Figure 1), providing and storing a second key in a hardware device . . ., connecting the hardware device having the first key and the second key stored therein into a computer . . . for establishing a communications path between the hardware device and the computer.
May 1, 1991 Report at 3 (Exhibit 21 to Pickholtz Decl.) (emphasis added). Thus, the examiner distinguished between the hardware device (a peripheral) and a computer. One could not connect external memory into a computer if the external memory is the computer. Similarly, one cannot establish a communications path between external memory and a computer if the external memory is the computer; that would be establishing such a path between the computer and itself. Thus, this extrinsic evidence confirms the Court's construction of "computer." See also id. (stating that a person of ordinary skill in the art would have been motivated to use conventional structure for "connecting a peripheral component such as external memory to a computer") (emphasis added).

Plaintiff also contends that because the patent refers to a book, "Microprocessors and Microcomputers," col. 3, l. 12 ("Operation of such a system is described in detail in a number of available references . . ."), the definition of digital computer in the book is intrinsic evidence supporting plaintiff's broad construction of "computer." Plaintiff's argument fails.

First, the definition in the book is inadmissible extrinsic evidence which contradicts the ordinary and unambiguous meaning of "computer" as gleaned from the language of the patent. See Key Pharmaceuticals, 161 F.3d at 717. Plaintiff cites no authority for the proposition that because a patent specification states that the operation of some device is described in some book, the contents of the book convert from extrinsic to intrinsic evidence.

Second, the reference to the book in the '353 actually states that the operation of a computer system is described in detail in the book. Thus, the patent is referring the reader to the book for a definition of a computer system (as is described in Fig. 1 of the '353), not the definition of "computer" as used in Claim 1.

3. COMPUTER

Defendants object to the use of a plain meaning approach to defining computer because of a lack of specificity, pointing to questions which would not be resolved by such a general definition, such as whether a computer necessarily must be "at a workstation." Defendants are correct that a general definition of "computer" does not answer this question or many other specific questions concerning the attributes of computers. Nor does the Patent provide an answer to such questions; nor must this Court. Defendants have pointed to no instance in the specification where the term "computer" is given anything other than its ordinary meaning, notwithstanding references to the specification where the computer in Fig. 1 thereof is described as having a CPU, system memory, and an operating system. None of these attributes constitute a usage of the word "computer" which falls outside the word's normally accepted usage, requiring the Court to adopt the preferred embodiment as an idiosyncratic definition. Nor does it appear so clearly that the drafter was attempting to circumscribe the definition of "computer" with regard to each usage of the word that he should be perceived to have been exercising his role as a lexicographer.

As explained by the court in In re Paulsen, 30 F.3d 1475, claims construction does not properly involve "a post hoc attempt to redefine the claimed invention by impermissibly incorporating language appearing in the specification into the claims." The Paulsen court explains further:

Although "it is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim, … this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper. By 'extraneous,' we mean a limitation read into a claim from the specification wholly apart from any need to interpret … particular words or phrases in the claim."

Id. at 1480 quoting E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, (Fed.Cir. 1988). Conveniently, the plain meaning definition for "computer" also is found in In re Paulsen, 30 F.3d 1475 (Fed.Cir. 1994):

The term "computer" is not associated with any one fixed or rigid meaning, as confirmed by the fact that it is subject to numerous definitions and is used to describe a variety of devices with varying degrees of sophistication and complexity. However, despite the lack of any standard definition for this ubiquitous term, it is commonly understood by those skilled in the art that "at the most fundamental level, a device is a computer if it is capable of carrying out calculations."
A COMPUTER is a device capable of carrying out calculations.

A. A computer-aided design process for designing

Ricoh contends that the term means "during manufacture of a desired application specific integrated circuit (ASIC) chip . . . a process of designing the desired ASIC using a computer." Aeroflex Inc. and Synopsys, Inc. ("Aeroflex") state that the term means "a process that uses a computer for designing, as distinguished from a computer-aided manufacturing process, which uses a computer to direct and control the manufacturing process." In essence, the parties' fundamental disagreement revolves around whether the computer-aided design process described in claim 13 also encompasses the ASIC manufacturing process.

Ricoh bases it proposed construction on the text of the patent specification. Specifically, Ricoh directs the Court to language in the specification that states that "the present invention, for the first time, opens the possibility for the design and production of ASICs by designers, engineers and technicians who may not possess the specialized expert knowledge of a highly skilled VLSI design engineer." '432 patent, col. 2:15-20 (emphasis added). Ricoh also emphasizes that the present invention produces a "physical chip layout level description [that] provides the mask data needed for fabricating the chip." '432 patent, col. 1:42-44; see also '432 patent, col. 3:68 - 4:4 ("FIG. 1c illustrates a physical layout level representation of an integrated circuit design, which provides the detailed mask data necessary to actually manufacture the devices and conductors which together comprise integrated circuit.").

Aeroflex argues that Ricoh's proposed construction is contrary to the '432 patent's claims and specifications. Specifically, Aeroflex focuses on the claim language that provides that the invention is a "computer-aided design process for designing . . ." '432 patent, col. 16:34. Aeroflex also directs the Court to specification language that states the invention "relates to the design of integrated circuits, and more particularly relates to a computer-aided method . . . for designing integrated circuits." '432 patent, col. 1:9-12.

Ricoh's proposed definition is problematic because it clearly attempts to blur the line between the process of designing integrated circuits and the process of manufacturing integrated circuits. Nothing in the claim language supports Ricoh's attempt to broaden the claims to include a manufacturing process for a desired ASIC. Rather, the claim language describes a "computer-aided design process for designing an [ASIC] . . ." '432 patent, col. 16:34-35. Likewise, the specification consistently describes a design, rather than a manufacturing, process. In fact, the term "manufacture" does not appear in the claim or specification language. 3 While the "netlist" may be required to "produce the particular [ASIC]." see '432 patent, col. 2:44-49, that does not compel the conclusion that the '432 patent's design process is inherently a part of the manufacturing process of the actual ASIC chips. Given the Court's "focus . . . on the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean," Markman, 52 F.3d at 985, the Court finds that the "computer-aided design process" described in claim 13 does not include a manufacturing process for ASICs.
3 In its reply, Ricoh focuses solely on the specification language that states "the present invention, for the first time, opens
the possibility for the design and production of ASICs by designers, engineers and technicians who may not possess the
specialized expert knowledge of a highly skilled VLSI design engineer." '432 patent, col. 2:15-20 (emphasis added).
However, this language, standing alone, does little to persuade the Court that the present invention was intended to
encompass the ASIC manufacturing process. Rather, a fair reading of this language is that the present invention simply
opened up the "possibility" that non-experts could produce or manufacture ASICs at some point in the future, but not that
the present invention currently encompassed such a process.

4 This conclusion is also bolstered by the language in claim 14. Claim 14 describes "[a] process as defined in claim 13,
including generating from the netlist the mask data required to produce an integrated circuit having the desired function."
'432 patent, col. 16:66-68. This language clarifies that the generation of the netlist (the final step in claim 13) and the
production of the integrated circuit are two distinct processes.

Given these considerations, the clearest reading of "A computer-aided design process for designing" is a process that uses a
computer to direct and control the design of an ASIC chip.

1) "computer-assisted method" (Preamble to Claim 1)

There are two disputes with respect to this term: whether this phrase, appearing in the preamble, should be read as a
restriction of what the claim covers, and whether "computer-assisted" necessarily requires the participation of a human
being.

As to the first question, whether the words of a preamble may be considered "limiting" depends on the function of the
Cir.1997)):

"In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life,
meaning, and vitality' to the claim. Conversely, a preamble is not limiting 'where a patentee defines a structurally complete
invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'

Read in context, it is clear that the term "computer-assisted" is a critical feature of Claim 1, in the absence of which, Claim 1
is structurally incomplete. Thus the preamble gives "life, meaning and vitality" to the claim. Id. "Computer-assisted,"
therefore, should be read as a limitation. See id.

As to the second question, I find nothing in the claim language, specification or elsewhere to indicate that the claim requires
human involvement; a computer assisted method, for example, would well be understood by one skilled in the art to be one
in which the computer assists another device. All that the claim term suggests is that the method is one that requires some
activity by or with a computer.

After examining the term in context, see Phillips, 415 F.3d at 1314, I construe "computer-assisted method" to mean: "a
series of steps performed in part by a computer."

B. "user initiable computer … being programmed to vary the temperature of said heating and cooling system and thereby
to vary the temperature of said plurality of chambers in accordance with said polymerase chain reaction protocol upon
This claim is not in means-plus-function form. The presumption against such construction arising from the absence of the word "means" is not rebutted because the claim discloses to one skilled in the art sufficiently definite structure for programming a computer to vary the temperature of a heating and cooling system in accordance with a polymerase chain reaction protocol, namely, a computer programmed to vary the temperature of a heating and cooling system in accordance with "multiple cycles of the steps of thermal denaturation of double-stranded DNA, primer hybridization to single-stranded DNA, and template-dependent primer extension by a DNA polymerase." '493 Patent, col. 56, ll. 58-62. The prosecution history further contains evidence demonstrating that one skilled in the art would reasonably understand how to program a computer in accordance with a PCR protocol. See Applera Markman Declaration [Doc. # 678] Ex. 7 at PP 6-8, Ex. 8 at P 7.

D. '716 Patent

Claim 3 of the '716 patent is representative in pertinent part of all of the independent claims of the '716 patent at issue in this claims construction. Claim 3 reads:

A computer program product that identifies an unknown base in a sample nucleic acid sequence, comprising:

1. computer code that receives a first set of signals corresponding to a first set of probe intensities, each probe intensity in said first set indicating an extent of hybridization of a nucleic acid probe with a reference nucleic acid sequence, and each nucleic acid probe differing from each other by at least a single base;

2. computer code that receives a second set of signals corresponding to a second set of probe intensities, each probe intensity in said second set indicating an extent of hybridization of a nucleic acid probe with said sample sequence, and each nucleic acid probe differing from each other by at least a single base;

3. computer code that performs a comparison of at least one of said probe intensities in said first set and at least one of said probe intensities in said second set;

4. computer code that generates a base call identifying said unknown base according to results of said comparisons said sequence of said nucleic acid probe; and

5. a computer readable medium that stores said computer codes.

The central issue with respect to construction of the '716 patent claims concerns whether or not the disputed terms should be interpreted as "means-plus-function" terms according to 35 U.S.C. § 112, P 6. Although the disputed terms are not explicitly recited in "means-plus-function" language, Hyseq argues that claiming "computer code" followed by the function performed by the computer code still subjects these claim terms to 35 U.S.C. § 112, P 6. If § 112, P 6 is applied to the disputed terms, the terms would be limited to the specific structures or steps disclosed in the specification and their equivalents. Upon considering all of the arguments of both Hyseq and Affymetrix, the Court finds that § 112, P 6 does not apply to the terms recited in the form, "computer code that [performs x function]."

Because the disputed claim terms are not expressly recited in "means for" language, there is a presumption that § 112, P 6 does not apply. Mas-Hamilton Group v. La Gard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1996). However, this presumption may be overcome if the terms are determined to be purely functional, without the additional recital of specific structure or material for performing the stated function. Id.; see also, Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999). Hyseq asserts that "a computer code that receives a first set of signals," "a computer code that receives a second set of signals," "a computer code that performs a comparison," and "a computer code that generates a base call" are all purely functional recitations of claim elements. Specifically, Hyseq argues that "computer code" does not recite any definite structure necessary to escape § 112, P 6.

Although it is a close question, the Court disagrees with Hyseq. To overcome application of § 112, P 6, a claim term must
identify some specific structure that performs the stated function. Al-Site Corp., 174 F.3d at 1318. In Mas-Hamilton, for example, the Court held that "lever moving element" does not recite adequate structure, because a "moving element" could be any device that causes the lever to move. Mas-Hamilton, 156 F.3d at 1214. In contrast, the Federal Circuit has found that sufficient structure is recited to escape application of § 112, P 6 when the claim terms identify a type of structure that performs the stated function. See Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996) (holding "detent mechanism" denotes a type of device with a generally understood meaning in the mechanical arts); Personalized Media Communications, LLC v. International Trade Commission, 161 F.3d 696, 704-05 (Fed. Cir. 1998) (holding "digital detector" connotes structure and is not a generic structural term such as "means," "element," or "device," nor is it a coined term lacking a clear meaning, such as "widget" or "ram-a-fram").

The Court finds that "computer code" is not a generic term, but rather recites structure that is understood by those of skill in the art to be a type of device for accomplishing the stated functions. Hyseq's own expert, speaking during the tutorial that preceded the Markman hearing, clearly indicated that he understood that "computer code" is a type of device for programming a computer. (Markman hearing transcript at 89:3-24). In this way, "computer code" is more similar to terms like "detent mechanism" and "digital detector," than "element," "means," or "device." Hyseq has failed to provide any evidence or caselaw to support the proposition that "computer code" is a generic term. Rather, Hyseq has only identified cases in which application of § 112, P 6 was presumed because the claims had been recited in means-plus-function format. See WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1347 (Fed. Cir. 1999); Nilssen v. Motorola, Inc., 80 F. Supp. 2d 921, 929 (N.D. Ill. 2000).

Furthermore, the Court rejects Hyseq's argument that computer code lacks any structure because it consists of data with no physical dimensions. Hyseq has cited no cases to support this proposition. Moreover, Hyseq's proposition improperly would subject every software patent and many electronics patents to § 112, P 6. When, as here, the "means for" language is absent from a claim, the accused infringer has the burden of overcoming the presumption against application of § 112, P 6. Hyseq has failed to meet its burden. The Court therefore finds that "computer code" has sufficient structure to escape application of § 112, P 6. Hyseq concedes that, if the Court finds that § 112, P 6 does not apply to these terms, the terms should be construed according to their plain and ordinary meaning, and no further construction of these terms is required. Accordingly, the Court adopts the plain and ordinary meaning of these terms.

2. "a computer connected to control the ultrasound imaging system"

Plaintiffs' construction: no construction necessary

Defendant's construction: a remote computer linked to the ultrasound imaging system, used to provide control for the ultrasound imaging system

Plaintiffs argue that this term is clear on its face and requires no further construction. Defendant believes that the term is vague and does not accurately convey limitations included in the patent specification. I agree with plaintiffs that the term requires no additional construction. The patent specification imposes no explicit limitations on the term. Instead, the specification indicates that data may be sent from the network "to help" control the ultrasound imaging system, '447 pat. at col. 2, Ins. 19-28. Moreover, Figure 1 demonstrates that the ultrasound imaging system includes a central processing unit, which, presumably, is what receives this "help."

Court's construction: No construction necessary

III. Claims 26 and 32

Claims 26 recites a "computer displaying, in response to the scanner sensing a document, a plurality of user-selectable
Similarly the function and structure for claim 32 is identical to that of claims 1 and 20 discussed above.

Similarly, the function and structure for claim 26 is: "in response to placement of a document in the scanner, displaying a plurality of user-selectable options for processing said image data." Id. at 25:40-45. Similarly, claim 32 recites a "computer displaying, in response to said placement, a plurality of user-selectable options for processing said image data." Id. at 26:1-4. Keyscan argues that both of these claims should be construed as means-plus-function claims because "computer" is a generic term. These claims do not use traditional "means" language; consequently, they are presumptively not means-plus-function limitations.

Soque contends that the term "computer" is not a generic term, rather it denotes a particular type of device with a generally understood meaning in the mechanical arts, comparable to terms that the Federal Circuit has found sufficiently definite. For instance, Soque claims that in Linear Technology Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320 (Fed. Cir. 2004), the Federal Circuit held that the claim term, "circuit," standing alone, sufficiently connoted structure. Soque is wrong. In Linear Technology, the Federal Circuit specifically relied on the recitation of the respective circuit's operation in sufficient detail to suggest structure to persons of ordinary skill in the art." Id. at 1320-21. There, "[t]he contextual language describe[d] the objective of the 'circuit,' 'monitoring a signal from the output terminal,' and the desired output of the 'circuit,' 'generat[ing] a first feedback signal.'" Id. at 1320. This structure, recited in the claim limitation, saved the claim from being treated as a means-plus-function claim. Soque claims sufficient structure is disclosed here because the limitations of claims 26 and 32 both state that the computer: 1) communicates with the scanner; and 2) displays user-selectable options. Neither limitation, however, states how the computer communicates with the scanner, or how the computer determines which user-selectable options to display. Soque's other support is similarly unpersuasive. In Personalized Media Comm'n's v. ITC, 161 F.3d 696, 704-05 (Fed. Cir. 1998), the court held that "detector" recited sufficient structure because the term "had a well-known meaning to those of skill in the electrical arts connotative of structure, including a rectifier or demodulator." Id. The court said nothing about the term "computer." The same goes for Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996), which construed the term "detent mechanism."

Keyscan contends the presumption--that claims 26 and 32 are not means-plus-function claims--is overcome because the term "computer displaying" does not provide a definite structure, but rather refers to a generic computer and describes the computer purely by its function. If the claims were computer-implemented means-plus-function claims, they would have to disclose enough of an algorithm to make them understandable. Specifically, "[i]n cases involving a computer-implemented invention in which the inventor has invoked means-plus-function claiming, [the Federal Circuit] has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor." Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008). This is because "[f]or a patentee to claim a means for performing a particular function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming. Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to 'the corresponding structure, material, or acts' that perform the function, as required by section 112 paragraph 6." Id.; FINISAR CORP. v. DIRECTTV GROUP, INC., 523 F.3d 1323, 1340-41 (Fed. Cir. 2008) (a computer-implemented means-plus-function claim must disclose enough of an algorithm to make it understandable); NetMoney, Inc. v. Verisign, Inc., 545 F.3d 1359, 1367 (Fed. Cir. 2008). A patent owner, however, may express the algorithm in "any understandable terms." FINISAR CORP., 523 F.3d at 1340-41.

A reference to a "computer" provides no basis to distinguish the structure from any other general purpose computer; thus, "computer" does not adequately describe a specific structure. Aristocrat Techs. Austl. Pty Ltd., 521 F.3d at 1333; FINISAR CORP., 523 F.3d at 1340-41; NetMoney, Inc., 545 F.3d at 1367. The same logic applies here--if "computer" is insufficient structure for a "means" limitation, the naked term "computer" cannot describe sufficient structure when recited directly in the claim limitation. An algorithm of some nature--that discloses how the plurality of user-selectable options is generated--is necessary to save this claim from indefiniteness. Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed Cir. 1999) ("claims should be so construed, if possible, as to sustain their validity"). Here, the language of claim 32 is identical to the language in claim 1, except that "means for" has been replaced with "computer." Since no corresponding structure is taught by claim 32, the claim cannot escape means-plus-function status. Claim 26 suffers from the same flaw. Accordingly, these claims must be construed as means-plus-function claims.

The function for claim 26 is: '"in response to' placement of a document in the scanner, displaying a plurality of 'user-selectable options for processing image data.'" Id. at 26:1-4. The structure is identical to that of claims 1 and 20 discussed above. Similarly, the function and structure for claim 32 is identical to that of claims 1 and 20 discussed above.
A. Computer-Implemented Method

The Plaintiff argues that this term does not require construction, but submits "method implemented using a computer" if construction is required. The Defendants propose "a method where the steps are automatically performed by a computer without human intervention." The parties agree that the preamble of the claim is limiting.

The parties disagree whether this term requires a construction that limits the computer-implemented method to one that is "automatically performed" and that is performed "without human intervention." Advocating automatic performance and lack of human intervention, the Defendants argue that the Plaintiff's definition is so broad that it is meaningless. The Court finds the Defendants' argument unpersuasive. The Defendants are attempting to add limitations into the language of the claim. Nowhere in the phrase "computer-implemented method" is it stated or implied that a computer implements the method without human intervention or that the computer automatically implements it. The Plaintiff points to FIGS. 3B and 4A-F in the specification to show that the user is involved in the computer-implemented method. The Plaintiff also points to the specification in col. 7: 57-63, which describes the user performing actions such as selecting a communications port, capturing test results, and clicking a button.

The language in the prosecution history cited by the Defendants is also unpersuasive. In the prosecution history language quoted - from ATSER_R_0000807 - the patentees responded to the Examiner that he did not point to evidence in a Martinez reference that gave a motivation to modify the reference to meet the teachings of independent claims one or thirteen. The patentees characterized "the claimed invention of claim one and thirteen of sending information collected from the material mixture to the server; applying one or more test methodologies to the collected information; generating one or more reports from the test methodologies; and sending the one or more reports to a project manager." This is merely a repetition of the claim language of claim one and does not add in the limitations that the Defendants request. Tying claim thirteen to the broad language of claim one, without the supposed link even adding any distinguishing limitation, does not add a limitation to claim one.

Each claim in a patent is presumed to have a different scope. AllVoice Computing PLC v. Nuance Communs., Inc., 504 F.3d 1236, 1248 (Fed. Cir. 2007) (citations omitted). Claim thirteen is directed to "a system for performing quality control on a pavement construction material mixture." The disputed phrase from claim one is "computer-implemented method." Claims one and thirteen have differing scopes as shown by the different language used in each.

The Defendants also claim support from several places in the specification - the description of a system that uses one centralized resource (col. 2:34-36), that the program is run on a computer (col. 3:1-4), and that FIG. 2 shows a process on the server (col. 4:1-3). These citations do not support limiting claim one to automation and a lack of human intervention. 1 The specification supports user interaction. Col. 2:34-35 ("system allows a user to analyze material testing data from beginning to the end using one centralized resource"); col. 2:37-38 ("allows the user to control and monitor progress relating to the analysis of the materials"); col. 2:43-44 ("also highly responsive to user requests"); col. 4:3-4 ("browser based user interfaces are used to collect test result inputs"); col. 7:30 - 8:7 (as discussed above). Further, FIGS. 3, FIGS. 4A-F, and the description of those figures shows embodiments that include user interaction. Col. 7:30 - 8:7. Even without those embodiments, it would ordinarily be improper to import a claim limitation from an embodiment when that limitation is not found in the broader claim language itself. Tate Access, 222 F.3d at 966.

1 The Defendants also argue that the language the patentees used in col. 8:15-24, where the patentees stated that the invention has been described in detail to comply with the patent statutes, limits the invention to the embodiment in FIG. 2.
This argument is unconvincing since the embodiments in FIGS. 3 and 4A-F are also included in the detailed description in the specification. This is not a case where a single preferred embodiment is specifically described as the whole of the invention and so limits the claims.

The Defendants also argue that claim one is different from the embodiment shown in FIGS. 3 and FIGS. 4A-F because those embodiments apply test methodologies to "construction materials" instead of "collected information." These embodiments connect test equipment to a sample where the equipment takes measurements, which are used in the test that are run. The Defendants seek to distinguish this from a situation where the test methodologies are applied to information entered by the user. This argument is contradicted by the language of the patent. It states, for example, that the user sets up a communication port with the equipment that he has selected and selects a test type, and clicks a button to enter the information when he is ready to run a test. Col. 7:30-49. It is information that is sent in the communications port. It is information collected from the construction material that is tested. There is no requirement in the claim that the user collect the information and then let the computer implement the testing.

Construction: A method where the steps are performed using a computer.

C. The District Court's Claim Construction

The claim limitation at issue on appeal is the "computer means" limitation. The parties agreed that this limitation is a means-plus-function clause encompassed by 35 U.S.C. § 112, P 6. The district court noted that the function recited in this limitation is "correcting automatically for discrepancies between oven temperatures and desired sample temperatures." Trial Tr. at 2346. The court determined that the description in the Babil patent of the structure that performs this function "includes the calibration, the correction, and the memory means, all within the computer means." Trial Tr. at 2346. The court therefore construed this claim limitation as "including the function of interpolation." Trial Tr. at 2347-48.

Perkin-Elmer contends that the "computer means" limitation must be construed by determining what structure disclosed in the Babil patent performs the function of "correcting automatically for discrepancies between oven temperatures and desired sample temperatures." Perkin-Elmer argues that this function is performed by the circuitry shown in Figure 1 of the Babil patent, or by a microprocessor implementing this circuit. It further argues that the district court improperly construed the "computer means" limitation by adding an interpolation function to the limitation. Perkin-Elmer asserts that claims 2 and 3 of the Babil patent, which recite calibration and interpolation, demonstrate through the doctrine of claim differentiation that the "computer means" of claim 1 is not required to perform these steps.

TA responds to these arguments by asserting that the Babil patent uses the phrase "correcting automatically for discrepancies between oven temperatures and desired sample temperatures" to refer to the process of determining the correction factor for a given temperature by applying the interpolation function to the correction factors of the calibrated temperatures. Thus, TA argues, the district court correctly construed the "correcting automatically" function as requiring calibration, correction and memory, and as including interpolation. TA asserts that the structure disclosed in the Babil patent that corresponds to the "computer means for correcting automatically . . ." is the device of Figure 3, which includes the circuitry of Figure 1, a memory device, and a processor that performs the interpolation routine.

Claim construction is a question of law that we review de novo. See Markman, 52 F.3d at 979, 34 U.S.P.Q.2D (BNA) at 1329. As a preliminary matter, we agree with the parties and the district court that the "computer means" limitation is encompassed by 35 U.S.C. § 112, P 6. See Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1360, 54 U.S.P.Q.2D (BNA) 1308, 1312. Whether the language of a claim is to be interpreted according to 35 U.S.C. § 112, P 6, . . . is . . . a question of law, reviewed de novo."). In accordance with that statute, the limitation must be "construed to cover the corresponding structure . . . described in the specification and equivalents thereof." 35 U.S.C. § 112, P 6 (1994). We therefore must determine what structures described in the specification of the Babil patent perform the function of "correcting automatically for discrepancies between oven temperatures and desired sample temperatures."
The specification of the Babil patent describes two structures that perform this function. The first structure is the "automatic calibration means" shown in Figure 1. As described in the Babil patent, this structure cycles the device through the steps of commanding the oven to reach a selected temperature, permitting the sample temperature to stabilize, and comparing the sample temperature to the selected temperature, etc., until the sample temperature reaches the selected temperature. See Babil pat., col. 3, ll. 40-47, col. 3, l. 56 - col. 4, l. 5. This structure "corrects automatically for discrepancies between oven temperatures and desired sample temperatures" by adjusting the temperature the oven is commanded to reach until the sample experiences the selected temperature.

The second structure that performs the recited function is the structure shown in Figure 3, which automatically calculates a corrected temperature for each selected temperature. This structure includes the automatic calibration system of Figure 1, the memory 36 of Figure 1, and a processor that applies the interpolation function to determine the corrected temperature corresponding to each selected temperature. See id. at col. 5, l. 36 - col. 6, l. 13. This structure calibrates the device at the calibration temperatures, stores the correction factors for each calibrated temperature, interpolates a corrected temperature for each selected temperature, and commands the oven to reach the corrected temperature corresponding to the selected temperature. See id. at col. 6, ll. 1-13. This structure "corrects automatically for discrepancies between oven temperatures and desired sample temperatures" by calculating a corrected temperature corresponding to the selected temperature and commanding the oven to reach the corrected temperature so that the sample experiences the selected temperature.

Although the district court was reluctant to construe claim 1 as encompassing both the type of automatic correction performed by the automatic calibration system of Figure 1 and the type of automatic correction performed by the automatic calculation system of Figure 3, see Trial Tr. at 2346-47, claim 1 itself supports such a broad construction. The function recited in the claim is "correcting automatically," and there is no limit on how this function is performed. The specification describes two structures that perform this function, the structure of Figure 1, which corrects automatically without interpolation, and the structure of Figure 3, which corrects automatically using interpolation. Both of these structures are corresponding structures for the recited "computer means . . ." under 35 U.S.C. § 112, P 6. See Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1357, 51 U.S.P.Q.2D (BNA) 1415, 1422 (Fed. Cir. 1999) (noting that it is the recited "function alone that serves as the touchstone for identifying the disclosed, corresponding structure").

Because the district court's judgment of noninfringement of the Babil patent was based on an erroneous claim construction, we vacate that judgment and remand for further proceedings consistent with this opinion.

--- Footnotes ---
7 In so doing, we reject Perkin-Elmer's argument that we can reverse the judgment of noninfringement based on the proffer Perkin-Elmer made as to the accused device. Even if there is no dispute as to the operation of the accused device, infringement of a claim under section 112, paragraph 6, is a question of fact, see Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1268, 51 U.S.P.Q.2D (BNA) 1225, 1230 (Fed. Cir. 1999), that we will not decide in the first instance. Moreover, as TA emphasizes, TA has not had an opportunity to present any evidence on any defenses to Perkin-Elmer's infringement counter-claim. Accordingly, a reversal would not be appropriate on the present record.

--- End Footnotes ---

2. "Computer Means" Limitation

In the asserted claims, "computer means" is introduced as a means for performing a certain function, i.e., a means for controlling the store and forward facility. ('926 patent, claim 55; '302 patent, claim 24.) Catch Curve argues that the phrase "computer means" should not be construed according to the strictures of § 112, P 6, because any presumption that it is a means-plus-function limitation is rebutted by the word "computer," which recites a sufficiently definite structure for performing the claimed function.

In support of this proposition, Catch Curve argues that the term "computer" had a particular definition at the time that the '926 patent was filed. However, the Court finds that because a physical item listed has a specific definition, the structure...
requirement is overcome. In order for the means-plus-function presumption to be rebutted, the claim itself must recite sufficient structure, material or acts to perform claimed function. Apex, Inc., v. Raritan Computer, Inc., 325 F.3d 1364, 1371-72 (Fed. Cir. 2003). While every computer may have a defined structure, it does not follow that every computer has structure sufficient to control the operation of a store and forward facility. See WMS Gaming Inc. v. Int'l Game Tech., 184 F.3d 1339, 1349 (Fed. Cir. 1999) ("in a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.")

Here, Catch Curve has not met the burden of demonstrating that the claims recite sufficient structure to perform the claimed function of operating the store and forward facility. Moreover, Catch Curve's reliance on the technical dictionary definition of "computer" falls within the Texas Digital line of cases that is disfavored post-Phillips. See generally Phillips, 415 F.3d 1303, 1321-22. Accordingly, the Court finds that "computer means" is a means-plus-function phrase.

C.2.d. "computer means"

The parties disagree as to whether "computer means" should be interpreted as a means-plus-function element. Although computer connotes structure, it is insufficient, Verizon alleges, to perform the recited function of connecting calls to an operator terminal. See Verizon Brief at 75.

C.2.d.1. Applicability of Mean-Plus-Function Analysis

As discussed above, use of "means" in claim 1 of the 065 patent invokes a presumption that "computer means" is a means-plus-function element and, thus, places the burden on Katz of going forward with evidence to rebut the presumption. Apex, 325 F.3d at 1372. As Apex instructs the analysis must focus on "whether the claim term recites no function corresponding to the means or recites sufficient structure or material for performing that function." Id. Here, the claim language clearly recites at least one function to be performed (e.g., "connecting an incoming call by a caller to said operator terminal based on a condition"), requiring an identification of the claimed function(s) and analysis as to whether the claim element recites sufficient structure for performing the function(s). Rodine, 174 F.3d at 1302-03; Apex, 325 F.3d at 1373.

The structure recited in the claim element, a computer, does not appear to be sufficient, standing alone, to perform the recited functions. The functions associated with the computer means appear to include: 1) connecting an incoming call by a caller to said operator terminal based on a condition, and 2) visually displaying customer data on a selected customer. Verizon alleges that the recitation of structure in claim 1 of the 065 patent is insufficient as transmission lines are further required to connect incoming calls to the operator terminal. Katz appears to contend that the analysis should end upon the determination that "computer" connotes sufficiently definite structure. 13 See Katz Reply Brief at 26. Although a computer is sufficient to detect a condition and visually display customer data, a computer standing alone does not appear to connote sufficient structure necessary to connect incoming calls to an operator terminal. Rather, it appears that a transmission line between the computer and the interface terminal is required to connect -- i.e., join or link -- incoming calls to the operator terminal. See Waite 1/14/03 Decl. P 33; Lucantoni 1/14/03 Decl. Exs. 4, 5 (definitions for "connect"). Accordingly, "computer means" in the context of the claim appears to refer to some computerized means of performing the recited functions and therefore invokes application of 35 U.S.C. § 112, P 6. 14

13 Here, the term "computer" connotes sufficiently definite structure to one of ordinary skill in the art. However, as Apex and the cases it cites instruct, where an element uses the term "means" and recites a function to be performed, a determination must nevertheless be made whether the structure is sufficient to perform the recited functions. See 325 F.3d at 1373 ("The threshold issue for all the limitations involving the term "circuit" is whether the term itself connotes sufficient structure to one of ordinary skill in the art to perform the functions identified by each limitation.") (emphasis added). At the Claims Construction Hearing, Katz alleged that Apex supported its position since the Federal Circuit did not address the function corresponding to interface circuit once "sufficient structure" was found; however, in Apex, it appears that there was little or no question that an "interface circuit" connotes sufficient structure for receiving signals from peripheral devices.
The Court does note that the practical result of requiring transmission lines is rather curious, as the mere absence of the word "means" would most likely have changed the analysis and outcome entirely. However, the Court cannot ignore the term "means," the presumption it entails, and the requirements the Federal Circuit has set out for rebutting this presumption.

--- End Footnotes ---

2. Computer Network.

Next, the parties dispute the term "computer network." The plaintiff contends that "network" means "a group of two or more computer systems linked together." The defendants contend that term means "any set of devices or subsystems capable of linking a plurality of terminals to a host." Although the court concludes that the plaintiff's proposed construction is nearly correct, the concept of a computer network suggests the interconnection of a plurality of computers for the exchange of data or information. The court defines a computer network to mean "a plurality of computers interconnected for purposes of exchanging information."

2. Computer Network

The parties also dispute the terms "computer," "computer network," and "multinode computer network," although the parties agree that the latter two terms should be construed consistently. The plaintiff argues that the terms need no construction and, alternatively, that if the court elects to construe the term "computer," then the court should actually focus on the term "network" rather than computer. In its brief, the plaintiff urged the court to adopt a definition of computer network to mean "at least two interconnected computers." At the claim construction hearing, the plaintiff argued that based on certain invalidity positions taken by the defendants, the court should construe computer network to mean either "two computers interconnected by something other than a telephone network" or "two computers interconnected that send packets that contain computer network addressing." (Transcript of Claims Construction Hearing, at 16).

The defendant urges the court to adopt a definition of computer in connection with the definition of computer network and, in doing so, to define computer to include all devices that include a central processing unit ("CPU"). The defendant argues that the plaintiff could have chosen a narrower term when it prosecuted the patent had it desired a more focused definition.

The terms used in the claims bear a "heavy presumption" that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002); citing CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002); K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1362-63 (Fed. Cir. 1999); Johnson Worldwide Assoc.s., Inc. v. Zebo Corp., 175 F.3d 985, 989 (Fed. Cir. 1999); Specialty Composites v. Cabot Corp., 845 F.2d 981, 986 (Fed. Cir. 1988)). At the approximate time of the patent application, a "computer network" was generally understood to be "a complex consisting of two or more interconnected computer systems, terminals, or communications facilities." Webster's New World Dictionary of Computer Terms 74 (4th ed. 1992). That same source defines "network" to mean (1) the result of two or more computers being connected together to allow them to share the same software and information or (2) a system of interconnected computer systems and terminals. Id. at 278. Those of skill in the art referred to computer networks as "an interconnected collection of autonomous computers." Andrew S. Tanenbaum, Computer Networks 2 (Prentice Hall, 2d ed. 1989). Tanenbaum explains that the computers were "interconnected" if they were able to exchange information. Id. Finally, in this context, a "node" meant "an individual computer (or occasionally another type of machine) in a network." Michael Covington & Douglas Downing, Dictionary of Computer Terms 212 (Barron's 2d ed. 1989). Thus, the ordinary meaning of "computer network" or "multinode computer network," at the time of the patents in suit, would be "a system of two or more interconnected computers;" the computers were "interconnected" if they were able to exchange information.
Determining the ordinary meaning of a claim term is just the first step. The court must also review the specification to determine whether the patentee intended to define, expressly or by implication, the claim term in a manner other than according to its ordinary meaning. In this case, the court has examined the specification and discerns no such intent. A review of the specification confirms that the patentee used the terms according to their ordinary meaning. The description explicitly refers to two types of geographically-defined computer networks. In the context of Figure 5, the description states that personal computer 18 is "connected to a local area or wide area network 60 having other PCs, file servers, printers, and any other desired combination of computers and peripheral devices." '546 patent, Col., 4, ll. 55-59. These are specific types of computer networks subsumed by the ordinary meaning of the term. Accordingly, the court defines computer network and multinode computer network to mean "a system of two or more interconnected computers;" the computers are "interconnected" if the computers are able to exchange information.

The defendants urge the court also to define "computer." According to the defendants, the court should define "computer" to include any device having a CPU. In the court's view, such a construction is unnecessary. In the context of these patents, the reference to computer cannot be divorced from the reference to network, and the court is persuaded that it is more appropriate, given the intrinsic record and, specifically, the reference to local and wide area networks, to adopt instead a definition of "computer network" as set forth above.

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B. "Computer Software"

Claim 1 uses the phrase "computer software" as follows: (1) col. 6, l. 6 ("an external memory device having computer software and a first authorization code and a second authorization code"), (2) col. 6, l. 17-19 ("said first authorization code being read prior to execution of said computer software"), and (3) col. 6, l. 32-24 ("with the second authorization code for enabling execution of the computer software stored in said external memory device").

1. The disputed definitions

Plaintiff interprets "computer software" to mean "one or more instructions for execution on a computer, and may include associated data."

Defendant construes "computer software" to mean "[a] set of instructions for execution on a computer and a header which identifies the first program instruction, and may include associated data."

The parties' primary dispute is whether the "computer software" can consist of a single instruction, such as "halt," or whether it must include a "set of instructions." Defendant also contends that the software must contain a "header" which identifies the first program instruction in the "set of instructions."

2. Analysis

Defendant's interpretation of "computer software," with respect to the requirement of a "set" of instructions, is more reasonable in the context of the '353. The "computer software" referred to in Claim 1 is computer software in an "external memory device." While "software" in the abstract might consist of only one instruction, the Court's obligation is to interpret terms in the claims of the patent as they are used in the patent, and not in the abstract. The expressed purpose of the '353 is to prevent the unauthorized use of computer software, that is, software that would require protection. As plaintiff conceded at the claim construction hearing, there is little practical value to protecting single instruction software. One reading Claim 1 of the '353 would have understood that the patent refers to software that might require protection, that is, software that consists of more than a single instruction.

Moreover, plaintiff's definition of "computer software" is at odds with the parties' agreed to definition of "execution of software." The parties agreed that "execution of computer software" means "to perform, run or carry out the instructions in the computer software." Exhibit 2, Pickholtz Decl. (emphasis added). The definition does not refer to one or more instructions, but rather to instructions plural; it assumes that the "computer software" has more than one instruction.

The Court declines to adopt defendant's interpretation of "computer software" as requiring a "header" to identify the first
instruction. Nothing in the intrinsic evidence supports defendant's construction and, in fact, it has not identified anything in
the extrinsic evidence either. Instead, defendant simply states, without citation, that a header is required. Such a bald
statement is insufficient to support the construction urged by defendant.

2. "Computer System"

NetApp's construction
A system containing one or more
computers coupled in a network.

Sun's construction
A system that includes at least one computer
and that may contain a number of computers
coupled in a network.

The parties agree that this term should receive the same construction in all of the claims of the '683 and '249 patents. See
also Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("Unless otherwise
compelled, when different claims of a patent use the same language, we give that language the same effect in each claim.").
The parties also agree that a "computer system" contains one or more computers. The parties disagree, however, on whether
that system must always be networked. The sole dispute involves the instance where the computer system includes just one
computer, and whether in that instance, that computer must be "coupled in a network." Sun concedes that a computer system
containing multiple computers is coupled in a network, but asserts that a system containing one computer need not be
networked. In this invention, there are two different aspects of networking. The monitored computer system may be coupled
to other monitored computers in that same system via internal connections. In addition, the monitored system may be
coupled to another computer system, e.g., the monitoring computer system. The latter type of connection is at issue here.
Sun maintains that a single computer need not be connected to a monitoring system, while NetApp contends that it must.

As an initial observation, the patent uses the phrase "computer system" rather than the term "computer." As NetApp notes,
the specification uses the terms computer system and computer differently. See, e.g., '249 patent at 3:66-4:2 ("The
monitored [computer] system includes at least one computer and typically includes a plurality of computers."). NetApp
argues that Sun's proposal erroneously construes computer system, because Sun's construction defines a single-computer
system as a "computer," ignoring the "system" language in the claim term. NetApp's point is well taken.

NetApp's main argument is that the claimed invention of the '683 and '249 patents only makes sense if the computer system
is connected or networked to other computer systems. NetApp Op. Brief at 7:15-17. Turning to the claim language, NetApp
is correct that the majority of the claims require some type of communicating or monitoring between computers.
Independent claim 1 of the '683 patent requires a first computer system that communicates diagnostic data to a second
computer system. The next independent claim, claim 16, requires that the computer system be "monitored." Independent
claim 19 refers to a monitoring computer system. Independent claim 25 requires a "monitored computer system" and a
"monitoring computer system."

The independent claims of the '249 patent, however, do not all contain this communication language. See, e.g., claims 1-4
and 6-8 of the '249 patent. Sun's expert notes that claim 7, for example, uses the term "general computer system." Dr. Smith
argues that the fact that the monitored computer contains a network is irrelevant, as the claim addresses what is contained in
a modifiable static tree structure representing a general computer system. Smith Decl. P 48. However, Dr. Smith does not
explain how the claimed method would be able to represent the computer system without communicating. In addition, all of
these claims are method claims, which are not meant to spell out the system structure. 4 Furthermore, the '249 patent
incorporates by reference the '683 patent, which refers to monitoring in each independent claim, and independent claims 10
and 16 of the '249 patent require a "monitoring computer system."
connection between a monitored computer system and the monitoring system. The specification makes clear that regardless of whether computers "coupled in a network" relates to the connections between computers in a monitored system, as opposed to the network, and in fact expressly state that a network connection is only a preference. However, the above discussion of network connections is not the only relevant consideration. Sun argues that the patents do not define computer system as including a single computer coupled in a network, because "diagnostic data from monitored system 102 is received from modem 114 . . . "'249 patent at 4:1-4:4, 4:9-13; '683 patent at 2:14-15; '683 patent at 1:52-53, 2:9-10. The summary of the invention of the '249 patent provides that "the present invention provides a method, apparatus and computer program products to generate alerts indicating predetermined conditions exist in a computer system," id. at 2:28-30, and that a person of ordinary skill in the art would understand from this description that a connection is a required part of the computer system of the patents. Long Decl. PP 33, 35-38. According to NetApp's expert, such a system would not work without connections between systems. Id. P 38. Sun does not refute this point, and Professor Long's conclusion that connections between systems are required is persuasive.

In addition, the only embodiment disclosed in the specification includes a network connecting the monitoring and monitored computer systems. See figures 1a and 1b of both patents. In figure 1b, for example, even if one single computer were substituted for the plurality of computers "coupled in a network," that single computer would still be "connected" to the monitoring system.

At the hearing, NetApp also argued that an inventor, Mr. Chu, conceded at his deposition that the invention needs two systems. The inventor was discussing the term "remote" in the title of the patent and what he understood it meant. He was not interpreting the "computer system" phrase at issue as one skilled in the art would understand it. Sun notes that Mr. Chu did not specify whether he was referring to the claimed invention generally or to a preferred embodiment. While the Court may consider this inventor testimony only insofar as it relates to how one skilled in the art would understand the term "remote" in the context of remote monitoring, this testimony lends some further support to NetApp's assertion that even a single computer must be connected in such a way to allow remote monitoring. See Howmedica Osteonics Corp. v. Wright Med. Tech., Inc., 540 F.3d 1337, 1346-47 n.5 (Fed. Cir. 2008) (inventor testimony may be pertinent as to understanding the established meaning of particular terms in the relevant art, but inventor testimony concerning the scope of the claims is irrelevant to construction).

Sun also contends that its proposed construction is supported by the specification. However, Sun fails to distinguish internal versus external types of networking in its analysis of the specification. Specifically, Sun maintains that the patents provide near-verbatim recitation of its construction: "The monitored system includes at least one computer and typically includes a plurality of computers 104, 106, 108, 110, and 112 coupled in a network as shown in FIG. 1b . . . In exemplary computer system 100, which includes one or more computers and associated storage areas, preferably coupled in a network, incoming diagnostic data from monitored system 102 is received from modem 114 . . . "'249 patent at 4:1-4:4, 4:9-13; '683 patent at 3:44-46, 3:51-54. Sun argues that the patents do not define computer system as including a single computer coupled in a network, and in fact expressly state that a network connection is only a preference. However, the above discussion of computers "coupled in a network" relates to the connections between computers in a monitored system, as opposed to the connection between a monitored computer system and the monitoring system. The specification makes clear that regardless
of whether or not the single computer system is coupled in a network, that single computer must be able to receive incoming data "via email" or "direct modem connection" or "other communication channels." '249 patent at 4:10-17. In sum, the passages of the specification relied on by Sun merely state that the invention does not require a network between multiple computers in a monitored system, but it is the external type of connection between the monitored and monitoring systems that is in dispute here.

NetApp notes that this connection should be described as being "coupled in a network," as both parties use this phrase in their constructions and it is the term used in the art to refer to connections between computers. Sun does not argue that another term like "connected" should be used in lieu of "coupled in a network," should the Court agree that the disputed term requires connections between systems. Whenever computers communicate, they are connected by a network. Long Decl. PP 33-35; see also Microsoft Press Computer Dictionary at 327 (3d ed. 1997) (defining network as a "group of computer and associated devices that are connected by communications facilities") (Nathan Decl., Ex. 9 at NAC0109648). However, in light of potential jury confusion, and in light of the difference between connections between the monitoring and monitored system, the Court finds that using the phrase "coupled in a network" could mislead the jury. Rather, the construction should make clear that where a computer system contains only one computer, that computer must be able to communicate via email or a dedicated modem connection or another communication channel to allow remote monitoring. See '249 patent at 4:14-18.

In sum, NetApp is correct that the invention requires that even a single computer be networked or otherwise able to communicate with a monitoring system. Otherwise, the remote monitoring that is claimed would not be able to work. Sun does not tackle this argument head on. Rather, Sun argues that NetApp confuses the meaning of a "computer system" with the passing of information between two computer systems. Smith Decl. P 49. Dr. Smith notes that NetApp appears to be confusing the term "computer system" with the need for the monitored computer system to communicate with the monitoring computer system. Smith Decl. PP 47-49. However, Sun does not grapple with NetApp's point that the invention requires communication between the monitoring and monitored systems. In addition, both parties' constructions address the connections of the computers in the computer system, and the Court finds it appropriate to address these connections in construing this term. Accordingly, the Court construes "computer system" as: "A system that includes at least one computer and that may contain a number of computers coupled in a network. Even where a computer system contains only one computer, that computer must be able to communicate via email or a modem connection or another communication channel to allow remote monitoring."

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computer system

The parties disagree on the meaning of a "computer system." Dell proposed: "an information handling system which can be designed to give independent computing power to one user or a plurality of users." Lucent proposed: "a complete, working computer that includes not only the computer, but also any software (including an operating system) and peripheral devices that are necessary to make the computer function."

The court agrees with Dell's proposed construction and concludes that the term should be construed as follows:

"an information handling system which can be designed to give independent computing power to one user or a plurality of users."

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1. a computer system (Claim 1)
Keystone proposes the term "computer system" be given its ordinary meaning. Keystone contends that the inventor did not in any way redefine the term "computer system" in the patent claims or the specification. If the Court deems construction of the term necessary, Keystone's proposed construction is "a device with a processor to execute instructions." Defendants' proposed construction of the term is "a flexible, general purpose personal computer capable of running a variety of operating systems and application programs." They argue that these limitations have been defined by the inventor in the provisional application to the USPTO and in the prosecution history.

First, defendants argue that the inventor, Mr. Hindman, has defined the computer system of his invention as both flexible and general purpose. For support they point to the provisional application, wherein the inventor states in his "enabling disclosure" that the design of his invention is based on "a personal computer based architecture," and "is capable of running Microsoft Windows 3.1 and any desired software program." See U.S. Provisional App. No. 60/038,078. Further, defendants point to the patent that states that the invention augments the current capabilities available to the mobile user and facilitates the use of a variety of line replacement units ("LRUs"). See '123 Patent, 2:10-12. They argue that such architecture can only be achieved by a flexible computer. Further, defendants contend that the inventor repeatedly distinguished the architecture of the claimed computer system over the prior art during prosecution of the patent application, highlighting the flexible nature of the invention. Specifically, defendants point to the inventor's response to the examiner's rejection over U.S. Patent No. 4,758,959 ("Thoone").

Thoone's invention is not a comparable system to applicant's invention since its configuration is inflexible and predetermined... Figures 4 and 5 of applicant's invention disclose a general mobile computer platform with a flexible input/output management system... None of these specific features and functions are taught by Thoone.

1'23 File History, Response to Non-Final Office Action, at SIR0133860 (Sept. 25, 2000); see also id. at SIR0133863-64 ("Each of these patents referenced by the Examiner teaches away from Applicant's invention and away from an infinitely flexible architecture.").

The inventor repeated these argument in response to a second rejection by the examiner in light of the Thoone prior art, as well as the Haroun prior art. See '123 File History, Response to Non-Final Office Action, at SIR0133892-95 (Mar. 20, 2001). Therefore, defendants argue that the scope of this limitation should be narrowed per the inventor's own statements to the PTO. The Court agrees. See Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1021 (Fed. Cir. 1987) ("Claims may not be construed one way in order to obtain their allowance and in a contrary way against infringers.").

Keystone argues that these statements do not refer to the "computer system" limitation and are not unequivocal disavowals of scope. It contends that the statements could refer instead to just the I/O management component or to the computer architecture. Therefore, it argues, any ambiguity in the prosecution history must be resolved in favor of the inventor. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). However, as the Federal Circuit has held, prosecution history must always receive consideration in context. Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366 (Fed. Cir. 2008) (noting that where a patentee has "expressly defined a term in the specification," that definition would control over broad remarks during prosecution). There is nothing in the specification of the '123 patent that would lead the Court to consider the distinctions argued in the prosecution history to be ambiguous. Here, the inventor distinguished his invention from the prior art several times, focusing on the flexibility of the entire invention, including the computer system. Keystone's arguments that these statements referred only to the flexibility of the computer architecture or the input/output management system are not persuasive. The Court adopts the defendants' construction as below: "A flexible, general purpose computer capable of running a variety of operating systems and application programs."

GO BACK

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Computer System

Claims 1, 13-16, and 18-19 of the '516 Patent contain the term "computer system." Individual Networks contends the term means "one or more general purpose computing devices performing server and/or client functions, including a storage medium." Apple contends "computer system" means "a computer in which the client is collocated with the server." The parties disagree whether "computer system" requires the client to be located at the server.
The claims define the relationship between the computer system and the user. The claims set forth that customized media and a customized media list are stored at a computer system. The claims also set forth that the customized media list is "not stored at the user" and that the customized media is not stored "local to the user." '516 Patent, col. 13:49-14:4, col. 14:56-15:5. This language clarifies that the "computer system" is not located at the user, but the language does not limit the client to collocation with the server. Therefore, while the claims require that both the client and the server are located separate and apart from the user, the claims do not require that the client and server are collocated.

The specification of the '516 Patent discloses that "[t]he computer system 200 includes the client 235, server 225, and the server storage medium 205, or, in alternative embodiments, separate computer systems contained remotely at the client location and the server location." '516 Patent, col. 9:16-19. The specification further states that "[t]he general purpose computer, in one embodiment, acts as either the server 225 or client 235 of FIGS. 2-4, or both." '516 Patent, col. 11:23-29. In this manner, the specification provides written description support for a collocated client and server, but clearly explains that this structure is merely one embodiment of what may be covered by the claims. The embodiment provided in the specification is exemplary and does not limit the claims to a computer system wherein a client and a server are collocated. See Electro Med. Sys., S.A. v. Cooper Life Scis., Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994). In fact, the word "collocated" cannot be found anywhere in the specification. The specification, therefore, does not provide any compelling evidence for restricting the "computer system" to an arrangement wherein the client is located at the server.

Apple improperly attempts to limit the claim based on the doctrine of prosecution disclaimer. However, ambiguous prosecution history cannot be used to trump the clear terms of the claims and specification. Phillips, 415 F.3d at 1317; Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003)("[W]e have . . . consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope . . . . Rather, we have required the alleged disavowal statements to be both so clear as to show reasonable clarity and deliberateness, and so unmistakable as to be unambiguous evidence of disclaimer.") (citations omitted).

Apple derives the term "collocated" from arguments made by the Applicant in the prosecution history of the '516 Patent. During prosecution, the Applicant and the Examiner argued at length regarding patentability of the claims over the Logan prior art reference (U.S. Patent No. 5,721,827), which disclosed a structure where the client was located at the user. In particular, Applicant argued as follows:

In contrast, Applicant discloses an embodiment of a method and system for distributing personalized information where the client functionality is collocated with the server functionality, both of which are accessed by a user through a network.

'516 Patent file history, Third Supplemental Amendment, Nov. 20, 2004 at 11-12 (APP 0199-0200). Applicant set forth this argument as one embodiment covered by Applicant's claims that distinguished its claims from the Logan reference. Applicant did not, however, limit its claims to this singular embodiment. In other words, the fact that a client and server may be the same computer does not require such a result.

The manner in which Applicant limited its claims during prosecution is most clearly demonstrated by its final amendment to the claims during prosecution. In particular, Applicant added the following language to the claims in its final amendment to obtain allowance: "and wherein the customized media list is not stored at the user" and "without storing the customized media local to the user." '516 Patent file history, Response After Final With A Request for Continued Examination, Oct. 21, 2005 at 2 (APP 0261). This amendment covers the embodiment of a computer system wherein the client and server are collocated, but also covers and embodiment of a computer system wherein the client and server are located at separate and distinct network locations as long as neither the client nor the server resides at the user. In other words, the Applicant did not include and the Examiner did not insist that the Applicant include the positive limitation "collocated" to distinguish the claims from Logan. Instead, the Applicant sought to distinguish Logan with negative limitations that require the computer system to store the customized media and the customized media list at a location other than at the user. It was this final amendment, not ambiguous arguments made earlier during prosecution, that caused the claims to finally be allowed over the Logan reference. The Applicant's arguments during prosecution do not amount to a clear and unmistakable disavowal of claim scope.

For these reasons, Apple's proposed construction overly limits the term "computer system." The Court adopts Individual Networks' proposed construction and construes the term "computer system" to mean "one or more general purpose computing devices performing server and/or client functions, including a storage medium."
A. Computer Usable Medium (Claim 14)

HP contends that the term means "a tangible medium, such as a computer readable media (for example, diskette, CD-ROM, ROM, or fixed disk) or a medium for transmission to a computer system via a modem or other interface device using communications lines (for example, optical or analog communication lines) or wireless techniques (for example, microwave, infrared or other transmission techniques)." Intergraph contends that the term means "material on which computer readable code is recorded for use by a computer."

HP's proposed construction is taken directly from language in the embodiment of the patent. See '028 Patent, col. 17:11-24. HP states that the term, as used in claim 14, refers to the medium on which or through which the computer readable program code comprising the computer is delivered. HP concludes that this delivery must be through a transmission, and should include physical media and transmission media.

Intergraph offers the Court very little argument to support its proposed construction of the term. Intergraph states that the term is defined in Claim 14 as "having computer readable program code thereon." '028 Patent, col. 19:10-11. Intergraph also directs the Court to a portion of the specification that provides that "the system may be implemented as a computer program product for use with a computer system. Such implementation may include a series of computer instructions fixed either on a tangible medium such as a computer readable media . . . or transmittable to a computer system." '028 Patent, col. 17:12-18.

HP argues that Intergraph's proposed construction merely states what the computer usable medium contains - "computer readable code thereon." The Court agrees. Intergraph's proposed construction does not help explain the function or characteristics of the "computer usable medium." It is important to note that both parties direct the Court to a particular section of the specification - col. 17:12-18. It is well accepted that the specification can act as a dictionary when it expressly or impliedly defines terms used in the claims. In col. 17:13-23, it appears that the patentee has acted as a lexicographer and the Court will respect the meaning given to "computer usable medium" found therein. Therefore, the Court construes "computer usable medium" as a tangible medium, such as a computer readable media (for example, diskette, CD-ROM, ROM, or fixed disk) or a medium for transmission to a computer system via a modem or other interface device using communications lines (for example, optical or analog communication lines) or wireless techniques (for example, microwave, infrared or other transmission techniques).

6. "computer using an n-bit architecture" / "Computer using a m-bit architecture"

SuperSpeed proposes the term means "a computer whose general purpose registers are n-bits wide." 4 IBM proposes the term means "a computer that uses an address that has a length of 'n' bits to address data stored in main memory." SuperSpeed cites to the intrinsic record to support its proposal: "[t]he presently preferred embodiment of the invention uses remote disks that are connected by the Open VMS VMScluster and VAXcluster software. The VMScluster software is operable on 64-bit or 32-bit architecture computer systems. The VAXcluster software only permits 32-bit computers." ['244 Patent, 3:26-30]

--- Footnotes ---

4 The same analysis applies to "m-bit architecture." The court will refer to "n-bit architecture" for simplicity's sake.

--- End Footnotes ---

SuperSpeed has presented extrinsic evidence supporting that the "VAXcluster software," not surprisingly, was typically used...
on VAX computers that had general-purpose registers that were 32-bits wide. These computers, however, used an address with only 28 bits to address data stored in main memory. Bennett Dec., P 43. The Alpha AXP computer referred to in the specification, which had a "64-bit architecture," used an address with only 48 bits to address data stored in main memory. Bennett Dec., P 44. SuperSpeed points to other relevant extrinsic evidence to prove that it was well understood in the art that a computer having a 32 or 64 bit architecture meant the computer had general purpose registers that were 32 or 64 bits wide respectively. See Bennett Dec., P 42; see also Hennessey & Patterson's Computer Architecture: A Quantitative Approach. This is the bit-length through which a computer manipulates data in its CPU. For example, Hennessey and Patterson describe the IBM System 360 as a "32-bit machine" even though they note that it "had a 24-bit address space." Hennessey & Patterson at 148.

The intrinsic and extrinsic record support that a computer with an "n-bit architecture" or a "m-bit architecture" refers to a computer's general purpose register through which it manipulates data. The terms "computer using an n-bit architecture" and "computer using an m-bit architecture," therefore, mean "a computer whose general purpose registers are n-bits wide." and "a computer whose general purpose registers are m-bits wide," respectively.

A computerized method of selling parts for particular equipment specified by a customer

Defendants urge the Court to construe this term as "a method each step of which is performed by the computer." This limitation is not required by the claim language or the specification. Further, Defendants do not argue that "computerized method" is not likely to be understood by lay jurors. Accordingly, the Court determines that this term does not require construction.

X. "concatenating" 24

The parties dispute the meaning of the term "concatenating" in claim 1 of the '612 patent. The '612 patent specification explicitly defines "concatenation" to mean "that one bit field is juxtaposed to another." '612 patent at 4:6-7. Based on the definition provided in the specification, the parties generally agree that the claim term requires that the bit fields be linked together, the parties dispute, however, whether "concatenating" requires that the items be directly adjacent.

PACid contends that this term has a clear meaning, but if construed, should reflect the full scope of the claim term as it is commonly used in computing. OPENING at 18. PACid maintains that the Defendants' proposed construction improperly limits the claim to the manner it is used in a preferred embodiment. Id.

Defendants offer that in requiring that one bit field be placed "directly next to" another one, they are proposing a construction that comports with the patent's explicit definition. RESPONSE at 22. Referring to a dictionary definition, Defendants explain that "juxtapose" means "to place things side by side." Id. (citing CHAMBERS 21ST CENTURY DICTIONARY 737 (1996)). Defendants further cite language in the specification that implicitly describes the constant value
being placed next to the encrypted information file. Id. (citing '612 patent at 2:67-3:3; 6:61-64).

For this term, the express definition provided in the specification unquestionably governs. Phillips, 415 F.3d at 1316 (explaining that in instances where the inventor has clearly defined his own terms, the inventor's lexicography will govern during claim construction); CCS Fitness Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Identifying the inventor's definition for "concatenating" to be "one bit field juxtaposed to another," the remaining issue is whether the accepted meaning of "juxtapose" requires the bit units to be directly next to one another.

Defendants identify language in the specification describing the constant value being concatenated "at the beginning of the encrypted information file," and thus conclude that "the constant value must be directly next to the encrypted information file." RESPONSE at 23 (citing '612 patent at 6:61-64 (emphasis added)). This conclusion, however, restricts the scope of the claim to the manner in which it is used in a preferred embodiment. Even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit claim scope." Innova/Pure Water, 381 F.3d at 1117 (internal citation omitted). Failing to identify any language of manifest exclusion, the Court finds Defendants' restrictive reading of claim 1 to be incorrect.

The patentee does not offer a clear meaning for "juxtapose," therefore the specification term will be given its ordinary meaning as established through extrinsic evidence. See Phillips, 415 F.3d at 1318 ("We have especially noted the help that technical dictionaries may provide to a court "to better understand the underlying technology" and the way in which one of skill in the art might use the claim terms.") (citing Vitronics, 90 F.3d at 1584, n.6). Defendants offer a dictionary definition that understands "juxtapose" to mean "side by side," but even if afforded this definition, common use of either "juxtapose" or "concatenate" does not preclude intervening bit fields. Instead, "concatenating" is understood broadly to account for bit fields that are "side by side," but not necessarily directly next to each other in a group of side by side bit fields.25 Incorporating this understanding of "juxtaposed," the proper construction of the term "concatenating" is "placing one bit field side-by-side with another." The Court notes, however, that side by side does not require that such bit fields be directly next to one another.

25 This concept is fully illustrated through an example. In other words, if "1," "2," and "3" are "concatenated" as "123," then "1" and "3" are still "juxtaposed" within the group of numbers.

4. "to conceal a correlation"

The dispute as to the phrase "to conceal a correlation" mirrors the disagreement between the parties with regard to the terms "reduce," "restrict," and "inhibit." One party contends that "conceal a correlation" means "concealing any relationship." Another party contends that the phrase means "decorrelate."

The claimed methods of the '661 patent are designed only to reduce the signal to noise ratio "thereby increasing the number of observations required by an attacker to compromise the key." Col. 3, 1. 67 -- Col. 4, 1. 1. As used in the written description, "conceal" does not refer to a complete concealment: "This high-entropy permutation combines several previously-described aspects of the present invention, including without limitation order randomization (thus being neither input-ordered nor output-ordered) and blinding techniques (to conceal further the data being permuted)." Col. 11, ll. 34-39.

The plain and ordinary meaning of "conceal" is more than de minimus. In discussing clock skipping, the '661 patent acknowledges: "Of course, small temporal alignment variations may not be able to conceal signal characteristics that are of large amplitude or of long duration." Col. 6, ll. 57-59.

Consistent with the stated purpose of the invention in using "leak minimization and obfuscation" as "useful for improving security," '661 patent, col. 14, ll. 6-9, the Court construes "conceal a correlation" to mean "hiding a correlation, so as to
Concurrencies (claims 1 and 6); a plurality of instructions which are concurrently executable (claims 14 and 15)

The parties agree that the terms "concurrencies" and "a plurality of instructions which are concurrently executable" have the same meaning. They further agree that the terms have no special meaning in the computer field. The parties' definitions differ, however, with respect to two elements. Defendant defines the two terms as follows: "Instructions (1) for which it is determined that zero [alpha] and [beta] dependencies exist and the required functional units are available, and (2) that can be simultaneously issued for execution." Accordingly, defendant's definition of concurrencies comprises two elements: (1) the absence of [alpha] and [beta] dependencies, and (2) the availability of appropriate functional units.

Plaintiff's definition, on the other hand, requires only that the instructions be free of dependencies. Specifically, plaintiff defines the disputed terms as: "a plurality of instructions that are ready to be issued because they are dependency free." Therefore, plaintiff's definition does not refer to any particular dependencies (such as [alpha] and/or [beta] dependencies), nor does it require the availability of appropriate functional units.

The Court agrees with plaintiff's definition. First, there is no basis in the patent or the prosecution history to read the terms as requiring that the instructions be in any particular format or have a particular set of fields. Nor is there a basis to read the terms as requiring that the instructions be free of any particular type of dependency, as requiring that any particular type of dependency have previously existed, or as requiring that dependencies have been removed in any particular manner. Indeed, the Court has already construed the term "instruction" broadly to mean "an expression that specifies one or more operations and identifies the applicable operands"; this construction includes instructions which never had false ([beta]) dependencies, in which case there is no need to "determine" that no false dependencies exist.

Application of the doctrine of claim differentiation also supports this view. For example, dependent claim 7 specifies false dependencies and is thus differentiated from independent claim 6 from which it depends. Likewise, dependent claim 16 specifies false dependencies and is thus differentiated from claim 15 from which it depends. While the Court is aware that claim differentiation is not a rigid rule, see Comark, 156 F.3d at 1187, here, application of the doctrine is fully consistent with the patent as a whole.

Next, there is no basis to conclude that an appropriate functional unit must be available before instructions may constitute "concurrencies" or "a plurality of instructions which are concurrently executable." Rather, for an instruction to be ready to be executed it must simply be dependency free. This construction is supported by the separation of the detecting function and the issuing function in the means-plus-function claims (independent claims 1 and 14). In these claims, the detecting function concerns the detection of instructions which are ready to be executed because they lack dependencies. The issuing function operates on instructions which have been determined to be dependency free; the issuance of such instructions to appropriate and available functional units is a distinct function performed by a distinct structure. Similarly, the method claims (independent claims 6 and 15) describe a two-step process: first, detecting dependency free instructions, and second, issuing them to available functional units.

Plaintiff also refers the Court to the plain meaning of the words "concurrently" and "executable." The Oxford English Dictionary Online (Oxford University Press, 2003) 9 ("OED") defines concurrently as "in a concurrent or concurring manner; in concurrence." The OED definition of concurrent includes "occurring together, as events or circumstances," and the definition of concurrency includes "a running together in place or time." OED defines executable as "that can be executed, performed, or carried out." Thus, applying the ordinary meaning of the words, the terms refer to two or more instructions which are in a state of readiness to be carried out at the same time. The ordinary meaning of the words is thus consistent with the patent and supports the Court's construction.

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9 The Court is aware that this source is not contemporaneous with the patent; however, there is no reason to believe that the meanings of these non-technical words has altered since the time of the patent, nor does defendant dispute the ordinary
meanings of these words.

Accordingly, the Court reads "concurrenties" and "plurality of instructions which are concurrently executable" as meaning "a plurality of instructions that are ready to be executed at the same time because they are dependency free."

A.1.g.3. "concurrent processing"

Verizon alleges that "concurrent processing" means "processing at the same time." Verizon Brief at 24. "Concurrent processing," according to Katz, means "processing two or more calls in parallel." Based on the parties' comments, at the Claims Construction Hearing, concerning their asserted interpretations of "concurrent processing," the parties appear to agree on the substance or essential meaning of "concurrent processing," just not the words that should be used to further define it.

The term "concurrent processing" means processing two or more calls at the same time or in parallel (simultaneously). The Court's interpretation is consistent with the plain meaning of the term. See Webster's Ninth New Collegiate Dictionary at 273 (defining concurrent as "operating or occurring at the same time . . . running parallel"). The specification does not suggest a contrary interpretation. In fact, the written description of the 734 patent uses the term only twice in unrelated contexts, but in a manner consistent with its ordinary meaning. See 734 patent, Col. 8:61-64 ("In the disclosed embodiment, concurrently with the operation of further informing the caller, the interface processor 26 actuates the random number generator 40 to provide a random address for the question memory 38."); Col. 9:37-40 ("Note that in the interests of human perception, a printed record may be developed concurrently with the qualification of lottery participants."). The Court's interpretation is not intended to suggest that processing of calls associated with different formats must begin and end at the same time. See 734 patent, Col. 8:27-38 ("With the entry of a call into the common phase, the line carrying the call is connected through the coupler 24 (FIG. 1) to the interface processor 26. That is, depending on the call mode, the call is passed through one of the audio response units 18, 20 or 22 and the coupler 24 to the interface processor 26. Note that as indicated above, each of the audio response units 18, 20 and 22 is capable of accommodating a large number of asynchronous calls. Similarly, the coupler 24 is capable of connecting lines from the audio response units 18, 20 and 22 (LB1, LB 2 and LB3 respectively) to the interface processor on an individual basis through lines 37 and 39."); Col. 8:39-41 ("The interface processor 26 may comprise a relatively substantial computing capability for processing many individual calls with programmed variations.").

Microsoft contends that the concurrent limitation should include the restriction that each thread must be interrupted after a predetermined timeslice and that no thread may execute with interrupts disabled. This condition would, however, mean that the preferred embodiment disclosed by plaintiff's patents is not concurrent, because in this embodiment the editor is not interrupted after a predetermined timeslice when processing a keystroke, but is allowed to run until the keystroke is processed. To adopt the interpretation urged by Microsoft, therefore, would be to determine that plaintiff's patents are invalid by introducing a fatal disconnect between the claims and other elements of the specification.

Clearly, plaintiff intended the condition that multiple threads operate "concurrently" to mean that the user perceive them to be operating at, essentially, the same time. The question is whether this condition goes beyond a perception by the user to a requirement that no thread may control the CPU for as long as required to finish its task. The court concludes that plaintiff did not intend "concurrently" to mean that no thread could control the CPU, with interrupts disabled, while executing its task. Rather, plaintiff intended "concurrently" to be a measure of the user's perception. Consider claim two of the '603 patent, which states in part:
whereby said one thread executes interactively with the user in the foreground while another thread of the same program executes in the background concurrently with said one thread with control of the central microprocessor repeatedly switching back and forth between threads, and wherein said fast efficient preemption provided by said direct access by the threads to said memory address space enables control of the central microprocessor to be switched between the threads so rapidly that an interactive user perceives the foreground and background threads to be executing simultaneously and without any perceptible interference by the background thread with the user's interaction with the foreground thread.

The patents clearly contemplate that the modifier "concurrently" focuses on the user's perception. "Concurrently" thus refers to: A mode of operation wherein control of the CPU is alternated among executing threads of the same program at so rapid a rate that the multiple threads of execution appear to be executing simultaneously to the computer user.

EMC asserts that the term "concurrently" means operating in parallel while HP argues that it means at the same time. The term "concurrent" is defined as "running parallel" and "occurring, arising, or operating at the same time often in relationship, conjunction, association, or cooperation." Webster's Third International Dictionary, 472 (1981). Although both proposed definitions appear to be correct, the most appropriate construction depends upon the context in which the term is used.

Claim 1 of the '347 Patent states, in relevant part, said first data storage system enabling transfer of said data to said second data storage system, concurrently with said data received from said host computer, so as to nearly simultaneously maintain a concurrent copy of data stored on said first data storage system . . . .

'347 Patent, Col. 8, ll. 60-64 (emphasis added). Because the use of both "concurrently" and "concurrent" refer, generally, to the copying of data by the first data storage system to the second data storage system after such data is received from the host computer, they should be construed uniformly. See Epcon Gas, 279 F.3d at 1030-31 (where the same claim term is used consistently throughout a claim or claims, it should be given the same meaning throughout).

Given the context in which both terms are used, it is illogical to define "concurrently" and "concurrent" as "at the same time" because the phrase "nearly simultaneously" already describes the time element in the relevant claim. Moreover, to define the subject terms as "at the same time" would contradict the phrase "nearly simultaneously" because the latter term implies that one event occurs at almost the same time as another but not exactly at the same time. Accordingly, the claim terms "concurrently" and "concurrent" will be construed to mean "in parallel with" and "parallel" respectively.

Claim 11 includes the limitation "concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes." Apple and Sun contend that this phrase means "for
each of two or more independent processes, processing specific portions of the invoked routines in an overlapped fashion during the same specified interval of time, where the processing of the specific portions is not contingent upon one another. Gobeli believes that this phrase means "the independent performance of two or more data processing tasks within a specified interval." Again, neither side is completely correct.

During the Markman hearing, the parties generally agreed with what "concurrently" meant in the world of computer processing, but could not reach agreement as to how to define the term. Basically, both parties agree that if there is a single processor, the computer cannot process more than one set of instructions at exactly the same time. Instead, the computer splits the time into very small increments and cycles between different sets of instructions. The parties agreed, however, that if there were multiple processors, then a computer could execute more than one set of instructions at exactly the same time.

The largest area of disagreement concerned whether there must be overlap between the specific portions of the invoked routines or whether these portions could be run in seriatim as long as they are executed within a specified time interval. Contrary to the Plaintiff's argument, serial processing does not comport with the specification or the general understanding of the term "concurrently."

Based on the foregoing, the Court construes the phrase "concurrently, but independently, processing within said computer specific portions of invoked ones of said routines for each of a plurality of said processes" means "the independent performance of two or more specific portions of the invoked routines wherein at least one part of the two portions are run in an overlapping fashion."

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6. “Said processing being performed by said page server while said Web server concurrently processes said other requests”
“Said processing being performed by said page server while said Web server concurrently processes said other requests” is utilized in asserted claims 1 and 11 of the ‘554 Patent and 1, 15 and 29 of the ‘335 Patent. The Plaintiff asserts that the “said processing…” phrase does not need construction. Alternatively, if construed, the Plaintiff asserts that the proper construction is “said processing being performed by said page server while said Web server processes said other requests at the same time.” The Defendants assert that the phrase should be construed as “said processing being performed by said page server while said Web server executable processes other requests literally at the same time on a different machine.”

Three main points of distinction exist between the parties: the inclusion of “executable” with regard to the use of Web server, the inclusion of “literally” with regard to the “same time” language, and the inclusion of the concept of the Page server and Web servers being on different machines. With regard to the term “Web server” as utilized within the “said processing…” phrase, the Court finds that the construction the Court provided above for “Web server” is applicable, and thus the inclusion of the term executable does not need to be re-addressed with relation to the “said processing…” phrase. Similarly, with regard to the concept of different machines, the Court has addressed that concept above and does not need to re-address that concept here.

With regard to “concurrently,” both parties agree that this term includes the concept of something occurring “at the same time;” however, there is still a dispute as to whether it must be “literally at the same time.” The Defendants argue that “concurrently” should be analyzed in the context of the discussion in the patents of the prior art time-interleaved multi-threading techniques. Accordingly, the Defendants argue that if concurrently is not read to be “literally at the same time” the claims would read on time-interleaved multi-threading techniques. Once again, such arguments are more suited for invalidity assertions. Moreover, it is noted that in the passage in which the patents utilize the term “concurrently” to describe the Web server and the Page server operations, the patents also describe this concept as “to simultaneously process.” Col. 6:21-27. With regard to the prior art time-interleaved multi-threading discussion (which the Defendants assert is not literally at the same time) the patent also uses the term “simultaneously.” Col. 4:48-51. The patents do not distinguish one use of the term simultaneously from the other by the inclusion of the literal concept. The Court does not find support in the intrinsic evidence to support a requirement that “at the same
time” must be “literally at the same time.” Thus, the court construes “said processing being performed by said page server while said Web server concurrently processes said other requests” to mean “said processing being performed by said page server while said Web server processes said other requests at the same time.”

The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

The parties generally agree on the proper construction of this phrase. OPTi contends that the construction should be "while at least one of the data units is moving from the secondary memory to the bus master." nVidia's construction is similar: "while at least one of the data units is moving directly from the secondary memory to the bus master." Thus, the only dispute between the parties for the aforementioned phrase is whether the movement from the secondary memory to the bus master is limited to a direct transfer.

There is no requirement in the claims that the transfer be direct. Further, what support nVidia relies on in the specification relates to the preferred embodiment. The Court will not read limitations of the preferred embodiment into the claims. Accordingly, the Court adopts OPTi's construction.

a. "condition proportional"

Ecolux construes "condition proportional" to mean directly proportional or having "the same or constant ratio." Ecolux believes this construction requires the invention's temperature sensor 16 to be located on the LED circuit board, as opposed to somewhere else in the invention's circuitry. Relume argues that this locational requirement is an unnecessary limitation on the claimed invention. Relume believes that the scope of "condition proportional" includes temperature sensors that are sensitive to the ambient temperature surrounding the LEDs.

Claim 1 does not recite a limitation on the location of its sensor. It describes the "sensor" as performing two functions: "sensing a condition proportional to said luminous output of said LED (12) and…producing a luminous output signal." '909, 7:1-3. This language limits the possible universe of conditions that could be sensed by the sensor to those that have a "proportional" relationship to the light output of the LEDs. 17 Webster's most relevant definition of "proportional" is "having the same or a constant ratio;" this is, in fact, Ecolux's proposed definition. 18 The key to understanding its scope is in the meaning of "ratio." Webster's defines it as "the fixed or approximate relation of one thing to another." Therefore all that claim 1 requires its sensor to do is sense a condition that has a "fixed relation" to the light emitted from the LEDs; this function does not imply a locational requirement for the invention's temperature sensor.
17 A related point regarding the "condition" sensed: the claim language does not limit it to the temperature of the LEDs as Ecolux has also argued. It is worth repeating that the only limit on the "condition" sensed is whether it is "proportional to the luminous output of the LEDs." 18 Ecolux's definition comes from its expert, Barry N. Feinberg. (See Ecolux's Mem. in Support of Mot. for Summ. J. of Non-Infringement at 7 & Ex. D.) He states without explanation that it is the definition given to "proportional" by those in engineering and mathematics. (See id.) To the extent that I accept "having the same or a constant ratio" as the definition of "proportional," I do so because it is the ordinary meaning of the word (as indicated in Webster's) and not because it is the opinion of Feinberg. Furthermore, in adopting this definition, I do not also adopt the alternative, "direct proportion" definition proposed by Ecolux. The claim language uses "proportional" without any qualification.

Despite the fact that the language of claim 1 neither explicitly or implicitly recites a location for the sensor, Ecolux nevertheless argues that such a requirement exists because the preferred embodiment diagram of the temperature sensor depicts it on the LED circuit board. Aside from this diagram, I find no support in the patent's specification for a locational requirement. Ecolux's argument is therefore an attempt to restrict claim language that is broader in scope than the preferred embodiment. The rules of claim construction do not permit this. See Electro Med. Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments").

Accordingly, I hold that a person of ordinary skill in the art of LEDs would understand "condition proportional" to mean that the sensor must sense a condition that has some fixed relationship with the LEDs' light output, but would not understand the phrase to require a certain location for the sensor.
with the selected format if any conditions associated with that format are satisfied. The term in itself does not connote what happens to the call if the format conditions are not satisfied, other than the call will not be interfaced with the format.

The specification provides that after the tests have been performed, "if the call is accepted, the process moves to initiate the selected format interface as indicated by the block 40. Conversely, if the call is to be rejected, the process moves to the step indicated by block 32, i.e. reject the call as with a message and release the line." Column 6, lines 34 through 41 of the '150 patent; Column 8, lines 4 through 6 of the '285 patent (identical provision). Figure 2 of the '285 and '150 patents, which are flow diagrams illustrating the operating process of the system, indicate that if the tests are not correlated, i.e. the conditions are not met ("No" at 48), the call flows in the direction of the arrow to 32, and the caller receives a reject message (32) and the line is released (34).

The specifications indicate that one possible result from a call in which the conditions associated with the selected format are not satisfied is that the call will be rejected and the line released. However, there is nothing in the specifications or the claim language that requires a call to follow the disclosed embodiment in Figure 2 and the specifications reciting the embodied result of rejecting the call and releasing the line. Further, the term "conditionally interfacing" does not in itself raise the question as to what happens to the call if the conditions are not satisfied other than that the call is not interfaced with a format, and there is no other language in the claims that otherwise restricts what happens to a call if the conditions of a format are not satisfied. The Court will not import the limitation on the claim language proposed by the defendants from the specification because there is no "hook" in the claim language on which such a limitation can hang. See Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1248, 1252 (Fed. Cir. 1998). Thus, the Court concludes that the claims do not require that the call be terminated if the conditions are not satisfied and the call is not interfaced.

Based on the foregoing, the Court construes the term "conditionally interfacing" to mean: connecting a call to the selected format once any conditions associated with that format have been satisfied.

The parties agree that the phrase "conditioning the signal for transmission to a remote receiver" means "converting the signal . . . for transmission to a remote receiver." The dispute is over whether a conversion into a radio frequency (RF) "format" is necessary.

Plaintiff argues that the specification discloses transmission of tire pressure data by radio waves and contemplates use of an RF signal. See '516 patent, Figs. 10a-10c; col. 2, ll. 64-67; col. 13, ll. 26-56 (discussing various aspects of the invention related to RF transmissions). Further, plaintiff points out, the specification discloses an communication protocol utilizing pulse width modulation (PWM). See id. at col. 15:33-61. Therefore, plaintiff argues, the invention disclosed in the '516 patent is directed solely to a RF-based TPMS.

The defendants argue that MHL's attempt to read a limitation into the claims should be rejected. They note that the phrase "a radio frequency (RF) format" does not even appear in the specification. Defendants argue that the specification discloses several embodiments for "conditioning the signal for transmission to a remote receiver" and, therefore, this term is entitled to a broader scope. See '516 patent, col. 9, ll. 2-5, ll. 25-31; col. 12, ll. 38-65; col. 15, ll. 17-20, 33-61.

It is clear from the specification that the invention is based on the use of RF signals alone. Each of the embodiments disclosed makes use of a RF signal for transmission. Given that the focus of the invention is to be able to use the wheel of the vehicle as an antenna, the Court finds that converting the signal into an RF one is an essential component of the invention. The Court construes this term as follows: "converting the signal into a radio frequency (RF) signal to be transmitted to a remote receiver."

4. "(1.2) Conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame"
First, HTC contends that this "limitation is incapable of construction for failure to comply with paragraphs one and two of 35 U.S.C. § 112 because the phrase 'over a plurality of said time slots which comprise a frame' is insolubly ambiguous." Chart at 1-2. Section 112 provides:

The specification shall contain a written description of the invention and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.


"Because a claim is presumed valid, a claim is indefinite only if the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted."” Honeywell Int'l, Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1338-39 (Fed. Cir. 2003) (quoting Exxon Research, 265 F.3d at 1375). Claims are held to be indefinite only where a person of ordinary skill in the art could not determine the bounds of the claim. Halliburton Energy Servs. v. M-I LLC, 514 F.3d 1244, 1249 (Fed. Cir. 2008). "[C]laims are not indefinite merely because they present a difficult task of claim construction." Id. Finding a claim invalid on indefiniteness grounds requires "clear and convincing evidence that a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as [the accused infringer's] knowledge of the relevant art area." Id. at 1249-50; accord Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1377 (Fed. Cir. 2001).

The Court declines to find that the cited phrase is incapable of construction. The parties agree that a "plurality" means two or more. Tr. 2/16/10 at 51 (IPCom) & 52 (HTC); see also Cybersettle Inc. v. Nat'l Arbitration Forum, Inc., 243 Fed. Appx. 603, 606 (Fed. Cir. 2007)(the term "plurality" means two or more). The inventors have instructed that "[t]here are eight time slots to a TDMA frame." '216 Patent at 1:64-65. Thus, "a plurality of said time slots" means two or more of the eight time slots which comprise a TDMA frame.

IPCom proposes that the referenced terms be construed to mean "[c]ontrolling a process to bring the mobile station's frame timing into at least approximate step with the base station's frame timing, such as by identifying a range within which the beginning of a frame falls." Chart at 1-2. As an alternative to its indefiniteness argument, HTC proposes "[c]ontrolling a first frame synchronizing process that utilizes a corrected phase course of a detected frequency correction burst to identify a range within which the beginning of a frame falls." Chart at 2.

The '216 Patent makes clear that it is necessary "to detect approximately the frame beginning for a particular channel" in order to achieve coarse frame determination and frame synchronization. '216 Patent at 5:57-58. As described in the specification, a frequency correction burst is first recognized and converted to baseband; then the I and Q components are sent to the analog to digital converter, and thereafter to the synchronization processor. Id. at 4:66-5:15; see also id. at 6:44-45 ("[w]hen the I and Q components are measured [for coarse frame synchronization], the received signal has been converted to the baseband"). "All of the synchronization routines which take place with the help of the synchronizing processor 28 are based on the processing of the phase angles calculated from the I and Q components," Id. at 5:11-15 (referring to Fig. 2); see also id. at 6:12-14 ("the corrected phase course of the received frequency correction burst 12 makes possible the determination of the beginning of a frame") (referring to Fig. 1).

The specification explains how to determine the beginning of a frame. First, the I/Q components' incoming signals must be analyzed to locate the frequency correction burst and determine generally when the frequency correction burst began. The specification discloses that "a simple criterion for the search algorithm for recognition of the beginning of the frequency correction burst 12 is provided, as shown in Fig. 5," which "shows how the corrected phase course of the received frequency correction burst 12 makes possible the determination of the beginning of a frame." Id. at 6:8-14 (referring to Fig. 1). Figure 5 depicts a "steadily rising line [that] can be calculated back to show that the burst began at the beginning of the interval marked 1 in Fig. 5," with the time region shown below the graph. Id. at 6:36-40. "From the beginning of the burst, the
beginning of a TDMA frame can be determined with reference to the time slot assigned to the mobile telephone, when necessary." Id. at 6:40-43. Because the frequency correction burst occurs in a known time slot of a frame, knowing the beginning of that burst allows the mobile station to determine when the frame itself began.

From these statements in the specification, the Court concludes that HTC has offered the better construction. The phrase "(1.2) conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame" is construed to mean "controlling a first frame synchronizing process that utilizes a corrected phase course of a detected frequency correction burst to identify a range within which the beginning of a frame falls."

3. "Conducting a coarse frequency synchronization"

This phrase comes from substep (1.1) and may not be needed if the cell phone detects a carrier's signal that has "sufficient precision of . . . frequency tuning." Id. at 5:48-49. If the carrier signal is lacking sufficient precision of frequency tuning, this substep entails a "first frequency estimation . . . by means of the high frequency reception portion 21 of the radio receiver." Id. at 5:33-36 (referring to Fig. 3). "The result produces information of whether the frequency of the discovered carrier lies within or outside of a tolerance region TR (compare FIG. 3)." Id. at 5:36-39. "The tolerance region is variable, 10 so that the precision of the frequency estimation increases with a shrinking of the region for any particular data stream (compare FIG. 3 again)." Id. at 5:44-48. In laymen's terms, this means that the stronger the frequency signal, the more likely that frequency tuning between the mobile station and the base station occurs without substep (1.1).

10 See '216 Patent at 3:53-56 ("It is also possible . . . for the precision of the coarse frequency synchronization to be variable across the phase tolerance region (TR).")

IPCom proposes that the term be construed to mean "controlling a process to bring the mobile station's frequency into at least approximate step with the base station frequency, such as by selecting and tuning to a carrier frequency." Chart at 1. HTC counters with "having already tuned (selected) a carrier frequency, controlling a first frequency synchronizing process that estimates and refines the mobile station's frequency to within a tolerance region so as to be in approximate step with the base station's frequency." Id.

According to the '216 Patent, coarse frequency determination and synchronization do not entail "refining" the mobile station's frequency but, instead, "determin[ing]." '216 Patent at 5:31, whether a detected frequency signal from a carrier has "sufficient precision" already, id. at 5:48, or is "within or outside of a tolerance region TR," id. at 5:38, to be usable for communication. "[T]uning the coarse frequency determination" is not necessary when there is "sufficient precision of carrier frequency." Id. at 5:48-49. The parties disagree over whether, in this context, "determining" and "synchronizing" are the same thing; HTC says they are and IPCom says they are not. The Court concludes that they convey different actions. The high frequency reception 21 of the cell phone first "determines" whether the signal it detects is sufficient and then, if need be, "tunes," or synchronizes, to that signal.

The Court construes the phrase "(1.1) conducting a coarse frequency synchronization" to mean "having detected a carrier frequency, controlling a process to bring the mobile station's frequency into approximate step with the base station frequency, such as by tuning to a carrier frequency."

6. "(1.4) Conducting a fine frame synchronization over said plurality of time slots which comprise a frame"
The specification explains the need to achieve fine frame synchronization: to determine any "frame shift" resulting from delay in a signal reaching the mobile station. See '216 Patent at 2:33-42, 7:54-55, 8:20-25. "A bit accurate frame determination is possible by a pattern correlation procedure," id. at 7:24-26, which may be conducted by evaluating "the phase course of the training sequence within the synchronization burst 13." Id. at 7:35-37 (referring to Fig. 1). By matching the measured and expected phase courses of the synchronization burst, a "setting magnitude for bit synchronization" can be provided to "the central control unit 31." Id. at 7:33-34 (referring to Fig. 2); id., Figs. 4A & 4B. These procedures produce "necessary synchronization parameters (frame . . . shift)." Id. at 8:23-25. By determining how much to "shift" bits encoded in the base station signals, the mobile station ensures it can properly decode the information.

HTC first protests that this phrase is incapable of construction for failure to comply with paragraph 2 of 35 U.S.C. § 112 because the phrase "over said plurality of time slots which comprise a frame" is insolubly ambiguous. The Court rejects this argument as the claim can be construed as described below.

In the alternative, HTC proposes that the phrase be construed to mean "[c]ontrolling a second frame synchronizing process that conducts a pattern correlation of a measured phase course relative to a reference phase course to achieve a bit-accurate determination of the frame beginning." Chart at 2. IPCom proposes, instead, that the proper construction is "[c]ontrolling a process to bring the mobile station's frame timing into step with a desired operating accuracy with the base station's frame timing, such as by producing bit synchronization setting parameters." Id.

The Court finds its construction in the language of the specification provisions described above: "(1.4) conducting a fine frame synchronization over said plurality of time slots which comprise a frame" means "controlling a second frame synchronizing process that achieves bit-precision frame synchronization by recognizing and evaluating the training sequence within the synchronization burst." 823

9. "(3.2) Conducting a fine frame synchronization with fine frequency synchronization"

This phrase is the second step of extended synchronization, which "provide[s] synchronization of a mobile radiotelephone to neighboring cells of a cellular mobile radio communication system as a cell boundary is approached and crossed." '216 Patent at 8:5-7. By this process, "it is basically assured that upon leaving one radio cell the base station of that cell will not interfere with the continuation of the connection." Id. at 8:15-17. In other words, this process ensures that the on-going telephone call will not be dropped because the user is changing cell towers. Extended synchronization is provided as a "background procedure (process having lower priority) which produces the necessary synchronization parameters (frame and frequency shift) for the nearby cell in contemplation of a crossing from one cell to another." Id. at 8:21-27.

In particular, the synchronization procedure during normal operation performs a coarse frame synchronization (frequency burst beginning) 13 and a fine frame synchronization with fine frequency synchronization in which the synchronization burst 13 is used for the frame and frequency synchronization.

The relevant algorithms for the above steps correspond essentially to those designated 1.2, 1.3, 1.4 and 2.1 above, although more bits are involved in the extended training sequences.

Id. at 8:27-37.

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13 A "coarse frame synchronization" entails determining the beginning of a frequency burst.

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and neighboring base station's frame timing in step within a desired operating accuracy while bringing the mobile station and neighboring base station's frequency in step within a desired operating accuracy, such as by producing frame shift and frequency correction parameters." Id.

The specification for the '216 Patent provides, "The relevant algorithms for [extended synchronization] correspond essentially to those designated 1.2, 1.3, 1.4, and 2.1 above, although more bits are involved in the extended training sequences." '216 Patent at 8:34-37. Since the two steps for extended synchronization "correspond essentially" to steps 1.2, 1.3, 1.4, and 2.1, the construction of the terms should also correspond. Accordingly, the Court construes "(3.2) conducting a fine frame synchronization with fine frequency synchronization" to mean "controlling a process to monitor and maintain the frame timing in step between the mobile station and neighboring base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the neighboring base station, by producing frame shift and frequency correction parameters when crossing a cell boundary."

--- Footnotes ---

11 HTC conceded at the Markman hearing that the reference to "0.1 ppm" could be deleted from its proposed construction. Tr. 2/16/10 at 126 (HTC) ("I actually would be fine with striking that out."). See Conoco, Inc. v. Energy & Envtl. Int'l, L.C., 460 F.3d 1349, 1358 (Fed. Cir. 2006) ("When a claim term is expressed in general descriptive words, [courts] will not ordinarily limit the term to a numerical range that may appear in the written description or in other claims.").

--- End Footnotes ---

7. "2.1 Conducting a frame synchronization with fine frequency synchronization"

The parties jointly seek a construction of this phrase from Claim One of the '216 Patent. See '216 Patent at 9:37-38. It comes from Step 2 of the method, normal synchronization, substep 2.1, "frame synchronization with fine synchronization." Id.; see also id. at 7:45-47. HTC suggests it means "[c]ontrolling a process that, by evaluating each normal burst, produces both frame and frequency shift synchronization parameters for that burst to bring the frame timing and frequency of the mobile station in step with the base station." Chart at 2-3. IPCom prefers "[c]ontrolling a process to monitor and maintain the mobile station and base station's frame timing in step while having the mobile station and base station's frequency in step with a desired operating accuracy, such as by producing frame shift and frequency correction parameters." Id.

The patent discloses that "continuous monitoring and maintaining of the frame and frequency synchronism by the
evaluation of training [sic] sequence [sic] within the normal burst 14" assures "an error free decoding." '216 Patent at 7:49-52 (referring to Fig. 1). The "encrypted bits . . . serve to identify the training sequences." Id. at 7:53-54. "[A]ny frame shift is first determined" because the "value produced (timing pulse shift) is a necessary parameter in order to mark the pattern sequence with bit-accuracy within the data packet or sentence." Id. at 7:54-58. Because IPCom's proposal follows the specification more closely, the Court construes "(2.1) conducting a frame synchronization with fine frequency synchronization" to mean "controlling a process to monitor and maintain the frame timing in step between the mobile station and base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the base station, by producing frame shift and frequency correction parameters." 12

12 The Court does not adopt IPCom's proposal to use the phrase "such as," i.e. "such as by producing frame shift and frequency correction parameters." Chart at 2-3. As HTC pointed out at the Markman hearing, "when you put "such as" in there it doesn't have to be practiced so it doesn't mean anything. In order for it to be a limitation, in order for it to mean something for the claim you have to remove the "such as" . . . ." Tr. 2/16/10 at 128 (HTC). This is distinguishable from the construction of "(1.1) [c]onducting a course frequency synchronization," above, where "such as" is appropriate because "tuning" may not be needed if the frequency signal has sufficient precision already.

Claim One of the '216 Patent provides for three steps to be carried out in the mobile radiotelephone: (1) initial synchronization; (2) normal synchronization; and (3) extended synchronization. '216 Patent at 9:4-20. In step (1), Claim One provides for "conducting an initial synchronization by means of a frequency correction burst." '216 Patent at 9:4-5. The purpose of the initial synchronization is "to provide the initial connection between a mobile radiotelephone and a fixed station." Id. at 5:23-24. The specification gives background information:

A base station sends signals on a broadcast control channel to enable a mobile station to synchronize itself to the base station and if necessary correct its frequency standard so as to put it in line with that of the base station. The signal[s] sent by the base station for these purposes are (a) frequency correction bursts and (b) synchronization bursts. A burst is defined as an interval within which the radio frequency carrier is modulated by a predetermined data stream.

Id. at 2:7-15.

The parties dispute whether the initial synchronization is conducted before or after the mobile station (i.e., cell phone) has selected a carrier 8 frequency. HTC maintains that initial synchronization is conducted after the cell phone has selected a carrier frequency, asserting that the correct construction is: "[h]aving selected a carrier frequency, synchronizing during initial connection by performing the claimed steps (1.1), (1.2), (1.2), and (1.4) on frequency correction burst 12." Chart at 1 (referring to Fig. 1). 9 IPCom proposes a broader construction: "[c]ontrolling a process to achieve an initial, synchronized connection between a mobile station and a base station through use of one or more frequency correction bursts." Chart at 1.

8 The "carrier" is the telephone service provider.
At times, the specification refers to the components of the invention by numbers shown in Figures 1 and 2.

HTC's definition will not suffice because it requires substep (1.1), i.e., "conducting a course frequency synchronization," see '216 Patent at 9:24-25, while the specification explains that substep (1.1) is not always necessary. Once the receiver in the cell phone detects a carrier frequency, it immediately makes a "first frequency estimation" to determine "whether the frequency of the discovered carrier lies within or outside of a tolerance region TR (compare FIG. 3)." Id. at 5:34-39. "With sufficient precision of carrier frequency tuning[,] the coarse frequency determination which is burst-independent can be dispensed with; in consequence the synchronization steps designated 1.2, 1.3 and 1.4 above then suffice for the initial synchronization."Id. at 5:48-52.

Moreover, HTC's definition fails because it states that the four substeps are performed on "frequency correction burst 12" when in fact not all of the four substeps utilize a frequency correction burst. Substep (1.1.), course frequency synchronization, is "burst-independent." Id. at 5:49-52. Substep (1.4), fine frame synchronization, also does not use a frequency correction burst; instead it "takes place by the recognition and evaluation of the training sequence in the synchronization burst." Id. at 7:22-24.

"Conducting an initial synchronization by means of a frequency correction burst" is construed to mean "controlling a process to achieve an initial synchronized connection between a mobile station and a base station through use of one or more frequency correction bursts and a synchronization burst."

With regard to the various "conductive" terms, plaintiff contends that the only term that the Court needs to construe is the very term "conductive." Defendants, on the other hand, contend that the term "conductive" should not be construed in isolation. Instead they propose constructions for "conductive wheel" and "conductive portion of the housing."

Plaintiff argues that because the '516 patent invention is directed to a high frequency RF-based TPMS, alternating current ("AC") conductive paths must be included in the term "conductive" or "conductive wheel." Where the specification uses "electrical conductivity," MHL argues that a person with ordinary skill in the art would understand this term to include both direct and alternating current. MHL argues that the inventors disclosed and anticipated AC current flow from the sensor to the wheel that acts as an antenna. The plaintiff argues that the specification makes multiple references to "impedance" and "impedance matching," which would only be relevant to an AC conductive contact. Therefore, MHL argues that even plastic that may be considered a good insulator can be the dielectric material of a capacitor, thereby being "conductive" of the high frequency current envisioned by the invention of the '516 patent.

5 Plaintiff points out that the '516 patent specification discloses an "impedance matching" circuit that compensates for undesired extraneous capacitive coupling effects due to, for example, the wheel standing in water. '516 Patent, col. 12, Il. 56-65. MHL contends that unless there was a capacitive contact between the sensor and the wheel, there would be no reason to compensate for undesired extraneous capacitive coupling effects. Both an impedance matching circuit and a capacitive coupling are only relevant to alternating current -- in this case the high frequency RF signal that is to be transmitted from the sensor.

Defendants argue that it is the "housing" and the "wheel" that are "conductors." 6 According to the defendants, MHL's construction makes every material a conductor because every material allows alternating current to pass to some degree. Defendants insist that plastic is non-conductive, and the mere potential to be used as a dielectric in a capacitor does not make a material "conductive."
6 Defendants note that the IEEE dictionary defines "conductor" as "a substance or body that allows a current of electricity to pass continuously along it." See THE IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 176 (3d ed. 1984).

Volkswagen separately argues that the Court should adopt the understanding of the term "conductive" and "non-conductive" as disclosed by the specification. '516 patent, col. 10, ll. 12-14 ("Preferably, housing 154 is made of a lightweight, electrically conductive material, such as aluminum or the like."); see also id., col. 9, ll. 54-57 ("Non-conductive cap 122 includes a non-conductive spacer 130 made of a suitable material, such as plastic"). Volkswagen further points to various technical dictionary definitions of the term "conductive" as being a "material that offers a low resistance to the passage of electric current."

The Court finds plaintiff's argument persuasive with regard to conduction of high frequency AC signals in the patented invention. There is clear support in the specification that the inventor intended both the use of alternating current being conducted to the wheel and a elastomeric seal being used in the path of the current. 7 Further, the Court is not convinced that a construction that allows both DC 8 and AC 9 to pass would necessarily read out the term "conductive" from the claim. See Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). Further, given that the disclosed embodiment uses an alternating current, the Court finds no need to mandate that "conductive" be required to conduct direct current as well. See Intel Corp. v. U.S. Int'l. Trade Com'n, 946 F.2d 821, 836 (Fed. Cir. 1991) ("Where a specification does not require a limitation, that limitation should not be read from the specification into the claims." quoting Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988)).

7 Further, plaintiff has presented the Court with engineering drawings done by the inventors at the time of the invention. See Plaintiff's Reply, Keane Decl., Ex. E. The drawings confirm the inventors' understanding, at the time of the invention, that the patented system anticipated a capacitor element, Cx, introduced by "Paint, Primer, Anodize, etc." along the path of the A/C signal being transmitted to the receiver. Id. These figures, however, were not disclosed as part of the patent application and are, therefore, not a part of the intrinsic evidence that Court relies upon in coming to its construction.

8 By defendants' own proposed construction, the term "conductive" allows direct current to pass.

9 The Court appreciates the fact that a dielectric used in a capacitor may not in itself be a conductor of either type of electric current. However, it is undisputed that the path between the sensor and the wheel has to allow an alternating current to "pass" for the patented invention to work as disclosed. Therefore, the term "conductive" has to be inclusive of allowing AC to "pass."

10 For instance, Volkswagen proposes a construction for "conductive" as a "material, such as aluminum or the like." Ordinarily, aluminum would conduct both types of current.

The terms "conductive wheel," "conductive portion of the housing," and "conductive portion" may be defined based on the construction of the term "conductive."

828
1. "conductive connection means communicatively connected to said gel layer"

Claim 1 of the '884 Patent describes first and second disposable electrodes including "conductive connection means communicatively connected to said gel layer." Cardiac Science maintains that this phrase should be construed as "configured to enable electrical connection to the gel layer." Philips, on the other hand, asserts that this is a means clause subject to 35 U.S.C. § 112, P 6, and that the functions of the clause are communicatively connecting to the gel layer and extending outwardly through the envelope. Further, Philips asserts that the structure corresponding to this function is a round wire covered by an electrically insulating material, such as polyvinyl chloride, that (1) is in direct contact with the gel layer, without the use of conductive contact layer, such as a homogenous, thinly deposited metallic layer, a conductive ink material, or a flexible metal mesh; and (2) starts inside the package, and continues through and beyond the package periphery. n7

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n7 Philips asserts that this term should be construed consistently with the terms "electrically interconnected to the conductive gel layer" and "communicatively coupled to the gel layer" from the '919 and '102 Patents, respectively. Thus, some of the Court's discussion of these terms will include language regarding all three patents -- the '884, '919, and '102 Patents -- and thus will overlap.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Philips is correct in asserting that Figures 13 and 14 are the only designs disclosed in the '884 Patent that use two electrodes that are placed together in a face-to-face relationship, consistent with the language of Claim 1. ('884 Patent at sheet 4.) In this embodiment, electrodes 128 and 129 each have two layers. Electrode 128 consists of non-conductive base layer 130 and conductive gel layer 131; electrode 129 consists of non-conductive base layer 133 and conductive gel layer 134. (Id.) The two layers are sandwiched together and separated by resistive layer 137. (Id.) In these drawings, the insulated lead wires 132 and 135 connect directly to conductive gel layers 131 and 134. (Id.)

The principal dispute regarding this term, and the somewhat corresponding terms of the '919 and '102 Patents, is whether these terms are restricted to two layers, as represented in Figures 13 and 14 of each of the patents. Philips argues that during the prosecution of the '884 and '919 Patents, Cardiac Science surrendered its claims for electrodes with a conductive layer between a base and conductive gel layer, and thus the construction of these terms is limited to a two-layer embodiment.

During the prosecution of the '884 Patent, the patent examiner specifically withdrew claims of electrodes with "a second conductive layer" because they were "drawn to a non-elected species." (Axtell Ex. 25 at CSI 000076-77.) After that withdrawal, the applicants cancelled the "second conductive layer," a.k.a., the "three-layer" claims. (Id. at CSI 000105.) The applicants then added the so-called "two-layer" claims, which required the "connection means" to be "communicatively connected to said gel layer." (Id. at CSI 000087.) The application with these changes issued as the '884 Patent.

A divisional application was also filed just before the '884 Patent issued. The PTO restricted the application (Axtell Ex. 23 at CSI 0001081), and the applicants elected to prosecute claims directed to Figures 13 and 14. (Id. at CSI 0001084.) The PTO responded by stating that none of the claims read on the elected species. (Id. at CSI 0001088.) The PTO requested further clarification, stating, "Each of the independent claims recite an electrode comprising a base layer, a conductive contact layer overlying the base layer and a gel layer overlying the contact layer. The elected species does not show or disclose this three layer combination." (Id.) The applicants amended the claims to remove the additional conductive contact layer. (Id. at CSI 0001090-93.) Similar to the '884 Patent, the claims were also amended to include an insulated lead wire "electrically interconnected to the conductive gel layer." (Id. at CSI 0001090-1094.) This application issued as the '919 Patent.

Just before the '919 Patent issued, the applicants filed a continuation-in-part application that included additional text and drawings. (Axtell Ex. 27 at CSI 000302.) The application recited the same two-layer claims as the previous applications. (Id. at CSI 000322-29.) This application issued as the '102 Patent.

Philips asserts that Cardiac Science's proposed construction of the terms "communicatively connected," "electrically interconnected," and "communicatively coupled" to the gel layer are too broad. To some extent, Philips is asking the Court
to engage in an infringement analysis, as Philips asserts that its electrodes are comprised of three layers and that Cardiac Science disavowed a three-layer construction during the prosecution of the '884, '919, and '102 Patents. Cardiac Science asserts that its responses to restrictions were not disavowals of claim scope.

At least one court has held that if the record demonstrates that the PTO examiner restricted the species elected, the applicant's "subsequent election of claims may constitute an avowed understanding that those claims were directed to that subject matter." R2 Med. Sys., Inc. v. Katecho, Inc., 931 F. Supp. 1397, 1439 (N.D. Ill. 1996). The Court recognizes that R2 is not binding precedent, and that the Federal Circuit has not yet confronted this issue. And, disavowal or not, the Court has "broad power to look as a matter of law to the prosecution history of the patent in order to ascertain the true meaning of language used in the patent claims[.]" Markman, 52 F.3d at 980.

The Court has reviewed the prosecution history of the patents at issue. Here, the examiner expressly identified the elected species as being limited to two-layer embodiments, and the applicants subsequently elected two-layer claims. Although Cardiac Science did not contest the PTO's restriction or request for clarification redirecting the inventors to claims that matched Figures 13 and 14, the election of the broader, two-layer elected species did not constitute an express disavowal or disclaimer of the more specific, three-layer embodiment. See Omega Eng'g, Inc., 334 F.3d at 1323-26. Yet, the Court can consider the prosecution history to determine how the PTO and the inventor understood the patent. Philips, 415 F.3d at 1317. The Court finds that here, the claim language at issue does not require the Court to incorporate into the construction of the terms at issue whether an express disavowal of the three-layer claims occurred. This discussion will be more appropriate for an infringement analysis than directed to claim construction of the terms that are at issue.

Thus, the Court returns to the claim construction of "conductive connection means communicatively connected to said gel layer." The Court finds that this phrase is not in a means-plus-function format because there is no clearly identified function. See York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1574 (Fed. Cir. 1996)(absent an identified function, the term "means" does not trigger 35 U.S.C. § 112, ¶ 6). The "conductive connection means" describes the structure of the invention that is in contact with the electrode's gel layer. In the only embodiment of the '884 Patent that describes the two-electrode system, this phrase specifically refers to the leads that extend from the conductive gel layers. ('884 Patent at c. 7, ll: 30-47.) "Communicatively connected" refers to the manner in which the leads link the current loop from the electrodes to the AED, so that the viability of the electrodes may be tested without opening the electrode envelopes. (Id. at c. 7, ll: 48-51.) The Court finds that "conductive connection means communicatively connected to said gel layer" should be construed as "a conductive lead or leads that are configured to enable electrical connection to the gel layer."

For the purposes of this discussion, the disputed claim language can be roughly broken up into three parts. First,
"conductive leads," are identified, then the relationship between the "conductive leads" and the "electronic device" is described, and finally the relationship between the "conductive leads" and the "conductive traces" is described. In each relationship, the "conductive leads" "electrically couple" or are "electrically coupling," with the "conductive traces" and "electronic device," respectively. Properly understood, the entire phrase describes "conductive leads" acting as electrically conductive bridges between the "conductive traces" and the "electronic device." That understanding may be gained from the plain and ordinary meaning of the language, and even if it were not, the Court would not adopt Tessera's construction because it offers no more guidance than the claim language itself.

Tessera's construction tracks the three part structure described above. In describing the relationship between "conductive leads" and "an electronic device," Tessera's construction provides that "conductive leads" are "used as input/output (I/O) for connecting the package body to an external device." Compare 8:1-2 ("conductive leads for electronically coupling with an electronic device."). Essentially, Tessera substitutes "connecting" for "electrically coupling," which would not offer much assistance to a juror. See Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1366 (Fed. Cir. 2004).

The construction goes on to say that "[t]he conductive leads are connected to the conductive traces (emphasis added)" and then clarifies that the purpose of that connection is "to provide an electrical current path between the leads and the traces." Compare 8:2-3 ("conductive leads electronically couple to said conductive traces."). Here, Tessera has broken up the phrase "electrically couple" into two phrases that are longer, but not significantly more helpful, than the phrase itself. Tessera's construction is not incorrect or confusing, but it simply reorganizes the claim language without offering more guidance than the claim language itself, which makes Tessera's construction unhelpful, and therefore, improper. Sulzer, 358 F.3d at 1366.

The Court will now address the parties' arguments regarding the construction of "conductive leads." The basic disagreement concerns Tessera's requirement that "conductive leads" be "long and thin, not shaped as a mass." Micron insists that the patent does not restrict the physical shape or size of the "conductive leads," but Tessera argues that Figures 2 and 3 depict "conductive leads" as long and thin, and further argues that one skilled in the art at the time the patent was issued would understand "conductive leads" to be "long and thin, not shaped as a mass." However, the claim language does not explicitly support such a limitation, nor do the specification or extrinsic evidence compel the conclusion that "conductive leads" must take on any particular physical form.

The specification implicitly refers to the "conductive leads" only three times, calling them "input/output (I/O) leads" or just "I/O leads." 2:24-26; 3:57-60; 4:45-48. Like the claim language, the specification focuses on the role "conductive leads" play, rather than their form. 2:24-26 (describing pads on the upper surface of the shelf being electrically coupled with conductive traces which attach to input/output (I/O) leads); 3:57-60 and 4:45-48 (describing coupling traces with I/O leads by means such as side brazing). Although Figures 2 and 3 depict "conductive leads" as long and thin, the Court declines to read that limitation into the claim. Burke, Inc., v. Bruno Indep. Living Aids, Inc., 183 F.3d 1334, 1341 (Fed. Cir. 1999).

Tessera also argues that, without regard to how the term "leads" is used within the patent, the meaning of "lead" was
independently established at the time this patent issued, and any person skilled in the art would understand that "leads" were "long and thin, not shaped as a mass." Micron disputes Tessera's understanding, and the Court finds that the extrinsic evidence is not clear enough to support Tessera's limitation.

In support of its limitation, Tessera cites several patents issued around the time the '328 patent was issued that contain embodiments where "leads" are shown as relatively long and thin. However, the fact that these leads are long and thin does not necessarily require that leads in general must be "long and thin, not shaped as a mass." Tessera goes on to argue that the common understanding of "leads" excludes masses, bumps, or balls, pointing out that chip packages employing solder balls are known as "leadless packages" in the packaging industry. Micron counters that the common understanding of the word lead is much more inclusive, citing the 1989 Edition of the Electronic Materials Handbook, which defines "lead" as "[a] conductive path, usually self-supporting. That portion of an electrical component used to connect it to the outside world."

Electronic Materials Handbook, Vol. 1 at 1148 (1989). This definition is consistent with the patent's treatment of the "conductive leads," which was based primarily on the function of the "conductive leads" rather than their form. As the extrinsic evidence is conflicted, the Court is reluctant to rely on that evidence to justify Tessera's more restrictive construction of "conductive leads." Phillips v. AWH Corp., 415 F.3d 1303 (Noting that extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms."

The last point of contention concerns Micron's use of the phrase "on the outside of the body." Tessera objects to this language on the basis that "conductive leads" cannot be, at once, a part of a body and outside of that body. The Court disagrees with the logic underlying Tessera's argument, and finds that the additional language is consistent with the claim language and specification. The claim language describes a self-contained die package with "conductive leads for coupling with an electronic device (emphasis added)." The electronic device is separate from the claimed logic component, and the leads couple the package with the outside device. Thus, in order to couple with a separate device, it is seemingly necessary that the leads be on the outside of the body. The specification reinforces this understanding of the placement of the conductive leads. 3:57-59 ("the traces have means for coupling with I/O leads on the outside of the ceramic body."); 4:45-47 ("The traces have means for coupling with I/O leads on the outside of the body). Accordingly, the Court construes "conductive leads" to mean "conductive input/output (I/O) elements on the outside of the body."

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A. "a plurality of conductive lines having inherent distributed capacitance"

The '811 patent claim mentions "conductive lines" several times. Defendant contends that the term refers only to word lines in memory arrays; plaintiff asserts that it can also refer to any line capable of conducting current. In determining the meaning of "conductive lines," the Court will not apply section 112(6) because "conductive lines" are not the structure corresponding to the selecting, voltage pulse generating, transfer, or switching means. Rather, the Court is guided by normal principles of claim construction. Perceiving no "ordinary or accustomed meaning" of "conductive lines," see Wolverine World Wide, 38 F.3d at 1196, the Court turns to the specification, which supports plaintiff's broader construction. It states that:

Although this disclosure has been made with reference to raising the voltage on a word line in a memory array, those skilled in the art will recognize that other lines, such as y-lines, select lines and write lines may be pumped up to higher voltages by use of this invention.

'811 Patent, 7:28-31. Figure 4 of the specification, moreover, shows the charge pump circuits connected not only to word lines, but also to y-lines, write lines, and a sense line. '811 Patent, Fig. 4, 7:42-8:3.

Defendant argues that the phrase "conductive lines having inherent distributed capacitance," incorporated into the claim from the preamble, requires "conductive lines" to be construed as "word lines." According to this argument, capacitance is only "distributed" if it results from contact with transistors evenly spaced along the line; word lines are the only kind of conductive lines that have evenly spaced transistors. Because the specification defines the meaning of "conductive lines," however, the Court may not consider defendant's extrinsic evidence about the meaning of "distributed capacitance" and the spacing of transistors along various kinds of lines. See Vitronics, 90 F.3d at 1584. Accordingly, the Court holds that "conductive lines" refers not only to x-lines, but also to other lines that conduct current.
The parties agree that the term "plurality" means "two or more." Noting that this is the common meaning of the word, see York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1575 (Fed. Cir. 1996), the Court adopts the parties' construction.

Claim 1, with emphasis added, is representative of the asserted claims and reads as follows:

1. A capacitive displacement sensor, comprising a vessel having a wall including at least two adjacent conductive wall segments,

   means for electrically insulating said wall segments from each other,

   a dielectric coating on the interior of at least one but not all of said wall segments, the interior of at least one conductive wall segment being exposed,

   a conductive liquid-like medium contained inside said vessel covering a variable part of at least one wall segment with said dielectric coating and at least one wall segment without said dielectric coating, and electronic means electrically connected to at least one wall segment with said coating and at least one wall segment without said coating for producing an output related to the capacitance between said liquid-like medium and said one wall segment with said dielectric coating,

   whereby displacement of said vessel causes relative movement between said vessel and said liquid-like medium and a concomitant detectable change in the capacitance between said liquid-like medium and the wall segment with the dielectric coating.

Ekchian filed suit against Lucas alleging that the Lucas "Accustar" inclinometers infringe every claim of the '140 patent. The accused device uses a vessel partially filled with liquid and has a thin film coating on an interior wall. Lucas denied infringement, claiming that the liquid in the accused device acts as a dielectric across which an electric field is generated and that, in any event, its liquid is not sufficiently conductive to be covered by the claims of the patent.

On Lucas's motion for summary judgment, the district court construed the claim term "conductive liquid-like medium" as requiring a conductivity similar to the examples contained in the specification, which exceed the conductivity level of the liquid in the accused device. The court held that in light of its claim construction and based upon prosecution history estoppel, the accused device did not infringe the patent, literally or under the doctrine of equivalents.

DISCUSSION


Determining whether a patent claim has been infringed requires a two-step analysis: "First, the claim must be properly construed to determine its scope and meaning. Second, the claim as properly construed must be compared to the accused device or process." Carroll Touch, Inc. v. Electro Mechanical Sys., Inc., 15 F.3d 1573, 1576, 27 U.S.P.Q.2d (BNA) 1836, 1839 (Fed. Cir. 1993). Claim construction is a question of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 983-84, 34 U.S.P.Q.2d (BNA) 1321, 1333 (Fed. Cir. 1995) (in banc), aff'd, 134 L. Ed. 2d 577, 116 S. Ct. 1384, 38 U.S.P.Q.2d (BNA) 1461 (1996). In construing the claims, the court looks to the patent itself, the prosecution history, and, if necessary, extrinsic evidence. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83, 39 U.S.P.Q.2d (BNA) 1573, 1576-77
Application of a properly construed claim to an accused device is a question of fact. On appeal from a grant of summary judgment of noninfringement, we must determine whether, on the patentee's version of the facts, the district court correctly concluded that the patentee had failed to show that a reasonable jury could find infringement. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986); Conroy, 14 F.3d at 1575, 29 U.S.P.Q.2D (BNA) at 1377 ("The moving party . . . may discharge its burden by showing the district court that there is an absence of evidence to support the nonmoving party's case.").

In construing the claims of the '140 patent, the district court declined to adopt Ekchian's proposed definition of "conductive" as "the slightest ability to carry a current" because it concluded that such an interpretation would render the limitation meaningless, essentially reading the term "conductive" right out of the claims. Because Ekchian's proposal would "include virtually all liquids (and, indeed, all materials) on the planet," the district court sought a narrower definition that would render the term meaningful. The court concluded that, as a matter of law, the claimed conductive liquid-like medium did not extend to the liquid in the accused device. In particular, it determined that the liquid in the accused device "is vastly less conductive" than the preferred liquid mentioned in the patent specification and that the two liquids appear to be used for different purposes, the invention employing a liquid as a capacitor plate and the accused device employing a liquid as a dielectric.

Ekchian argues that the district court erred in its claim construction by reading the conductivity of the preferred embodiment into the claims. Ekchian contends that the patent does not impart any special meaning to the term "conductive" and therefore that the term's ordinary meaning to those skilled in the art should control. Lucas, on the other hand, contends that the district court properly interpreted the claim in light of the specification and that the patent defines "conductive liquid-like medium" as being limited to liquids having a conductivity equal to or greater than the examples listed in the specification. To support its proposition, Lucas relies on the following sentence in the specification which states, "Accordingly, the label 'conductive liquid-like medium' used herein shall refer to materials of whatever kind whether liquid or not, meeting the foregoing requirements of flowability, conformity, horizontal surface retention and conductivity." '140 patent, col. 5, line 66 - col. 6, line 2.

Lucas argues that the examples of conductive liquids in the specification are the only "foregoing requirements of . . . conductivity" disclosed in the patent and therefore must be read as limiting the claim term. We do not agree. Contrary to the assertion by Lucas, the expression "the foregoing requirements" also refers to the enumerated requirements immediately preceding the quotation, which include, "in addition, all points beneath the horizontal upper surface of the liquid medium must be conductive, preferably but not necessarily uniformly conductive." '140 patent, col. 5, lines 60-63. The statement thus is not a reference only to the stated examples, as Lucas asserts.

More importantly, Lucas identifies nothing further to support its contention that the term "conductive" is limited to the conductivity levels inherent in the disclosed examples. While examples disclosed in the preferred embodiment may aid in the proper interpretation of a claim term, the scope of a claim is not necessarily limited by such examples. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 U.S.P.Q.2D (BNA) 1289, 1299 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."); Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1563, 231 U.S.P.Q. (BNA) 833, 835 (Fed. Cir. 1986) ("This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification."). We therefore conclude that the term is not so limited.

Because the specification does not use the term "conductive" in a special or unique way, its ordinary meaning to one skilled in the art controls. See Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580, 36 U.S.P.Q.2D (BNA) 1162, 1165 (Fed. Cir. 1995) ("The words of a claim will be given their ordinary meaning to one of skill in the art unless the inventor appeared to use them differently."); cf. Texas Instruments, Inc. v. Cypress Semiconductor Corp., 90 F.3d 1558, 1564, 39 U.S.P.Q.2D (BNA) 1492, 1497 (Fed. Cir. 1996) ("Although the dictionary broadly defines 'conductor' as any substance that conducts an electrical charge, the patent itself belies such a broad construction.").

Ekchian contends that those skilled in the art would recognize that the term "conductive liquid-like medium" in the context of the claimed invention refers to any material that is sufficiently more conductive than the dielectric so that a capacitor is formed. We agree. There is nothing in the patent specification that suggests that Ekchian intended to limit the meaning of
that term to a specific range of conductivity. This does not mean that the claim term "conductive" is meaningless or superfluous. Both Lucas and Ekchian agree that the term "conductive" ordinarily means the ability to transport electric charge. Furthermore, it is undisputed that the specification and prosecution history both state that the liquid must act as a capacitor plate, which must necessarily store electric charge. Therefore, one skilled in the art of capacitor design would recognize that the term "conductive" modifies "liquid-like medium" in the claims to indicate that the liquid must act as a capacitor plate, i.e., that it must be sufficiently more conductive than the dielectric material so that it stores electric charge. Accordingly, we hold that the district court erred in its claim construction by incorrectly limiting the degree of conductivity permitted by the term "conductive liquid-like medium." Within the context of this patent, "conductive liquid-like medium" means a medium sufficiently conductive to perform its function as a variable capacitor plate.

2. "conductive semi-liquid gel layer"

Claim 1 of the '884 Patent discloses a "conductive semi-liquid gel layer." Philips asserts that this term should be construed as "a thickness of semi-liquid material having low resistance." Cardiac Science asserts that the term should be defined as "a thickness of conductive semi-liquid materials."

The specification refers to several brand-name compounds that share the characteristics of the conductive gel layer, as contemplated by the patent. ('884 Patent c.5, ll: 6-9.) The specification states that "generally, these compounds have low resistivities." (Id. at c. 5, ll: 6-7.) However, the Court finds no support in the patent specification to limit the conductive gel layer to a certain low resistance, as Philips suggests. (Tr. at 214.) And the term "conductive" speaks for itself. Thus, the Court finds that the term "conductive semi-liquid gel layer" is appropriately construed as "a thickness of conductive semi-liquid materials."

C. The "Conductive Shield" of a "Coaxial Cable"

The meaning of "conductive shield" is the final dimension of the parties' dispute over the meaning of a "coaxial cable having a center conductor and a conductive shield." Plaintiff proposes that "conductive shield" simply means "an enclosing conductor that reduces interference." Quest describes the shield as "an outer conductive tube that is concentric with the center conductor' and reduces the effect of external electrical interference on the voltage varying electrical signal transmitted on the center conductor.'" 9 The parties thus dispute whether the conductive shield must be a concentric conductive tube or can merely be an enclosing or outer conductor.

9 In their responsive brief, Quest offered the compromise construction of "reduces the effect of . . .," a modification of their earlier construction that the conductive shield "minimizes the effect of . . ." and Monster Cable has agreed to this clause.

The claim language does not describe the conductive shield as a tube. Rather, it only requires that the conductive shield is outside and surrounding the center conductor. The ordinary meaning of the relational terms "inner" and "outer" used in the claims, combined with this court's claim construction that conductors must share an axis, makes it clear that the center conductor passes through the conductive shield. However, the patent or the intrinsic evidence thereto does not include any further specification about the shape of the conductive shield. Nor does the ordinary meaning of the word "shield" in the context of audio electrical engineering specify that the outer conductor must be a tube or that it must be concentric with the inner conductor. See, e.g., The Audio Dictionary, Masur Decl., Exh. J (defining "shield" as "an enclosure which protects its contents against the influence of magnetic fields or electrostatic fields or both"). The outer conductor thus need not be shaped as a tube.
Adding a further limitation onto the relative location of the inner conductor or the shape of the conductive shield based on the preferred embodiment or other assumptions about the standard shape of a conductive shield would attach unwarranted limitations into the patent claims. See E-Pass Techs., Inc., 343 F.3d at 1364 (holding that where "preferred aspects" of an invention are subject to variability, references to them should not be understood as limitations on the ordinary meaning of claim terms). As discussed, the lack of a concentricity limitation on the coaxial cable element, particularly in light of the presence of the helical shape of the outer conductor in the 787 Patent's coaxial cable, demonstrates that the conductive shield need not be concentric with the inner conductor.

Thus, for the reasons stated above, the court construes the conductive shield as an "outer conductor that reduces the effect of external electrical interference on the voltage varying electrical signal transmitted on the center conductor."

3. "the conductive wire portion of which contacts said gel layer"

Claim 2 of the '884 Patent describes the "connection means" of Claim 1 as an insulated wire, "the conductive wire portion of which contacts said gel layer." Cardiac Science maintains that "conductive wire portion of which contacts said gel layer" should be construed as "electrically connected to the gel layer." Philips contends that this phrase should be construed as "conductive wire portion of insulated wire is in direct contact with the gel layer, without the use of a conductive contact layer, for example an intermediate metallic layer." Philips also renews its disclaimer arguments, as discussed in Section II.D.1, above.

The Court finds that "conductive wire portion of which contacts said gel layer" should be construed as "the conductive wire portion of the insulated wire that is in contact with the gel layer." The phrase needs no further construction.

3. Conductor

Plaintiff one or more conducting media connecting said amounts
Defendant a single conductor (rather than two or more conductors) that connects the oxidizable and reducible species and upon which the entire amounts of the oxidizable and reducible specie in each device rest, have access to, or are carried

The parties agree that the claim term "conductor" refers to a conducting medium. The parties dispute whether "conductor" means a single, common conductor, as defendant contends, or whether "conductor" means one or more conducting media, as plaintiff asserts.
The Court agrees with plaintiff's proposed construction. Contrary to defendant's proposed construction, there is nothing in the claim language that specifically states that only one conductor may be used. For example, claim 46(c) states:

one or more conducting media connecting said amounts of said oxidizable species and said reducible species, all of said amounts of said oxidizable species and said reducible species having access to a conducting medium . . . .

This claim refers to "one or more conducting media" and "a conducting medium" -- not "the conducting medium," as one would expect under defendant's proposed construction. ('014 Patent, col. 11, lines 45-58 (emphasis added).) Therefore, the Court construes the claim term "conductor" in the '014 patent to mean "one or more conducting media."

ii. Die Pad as a Conductor
Defendants argue that there can be no literal infringement of Claim 12 because their devices are not attached to a "conductor," as the Court defined the term. 6 Again, TI's response ignores the Court's claim construction. TI contended throughout trial that a conductor was "anything capable of conducting electricity and which actually functions to conduct electricity." See, e.g., TI's Revised Proposed Jury Instructions, filed May 5, 1995, p. 32. The Court rejected this definition, concluding that the term conductor was not used in this generic or "dictionary" sense in the '027 or '764 patents, but had a much more specific meaning. TI's response to Defendants' motion points to the testimony of Mr. McAlexander and Dr. Seiling as sufficient evidence of literal infringement, even under the Court's construction. The Court cannot agree.

6 Claim 12 requires "mechanically attaching a portion of [the] device to at least one of the conductors for support." PX 2, 12:29-31. The Court defined "conductor" as "those portions of the [lead frame] assembly that extend from inside the package to the outside, and connect the semiconductor device to an external circuit." Jury Charge, p. 14.

Had the Court accepted TI's proposed claim construction, the cited testimony would have been sufficient. Under the Court's construction, however, the testimony falls short. It is undisputed that, after trimming, none of Defendants' lead frames have die pads that extend from inside the plastic encapsulation package to the outside. 7 At that stage, the die pad thus cannot be a conductor under the Court's definition.

7 The testimony on this issue was somewhat confusing, due to differing definitions of what constitutes a "pinned out" die pad. In one form of pin out, which Mr. McAlexander apparently recognized, Tr. 690:1-7, the tie bar extends into a lead which goes outside of the package. This type of pin out would meet the Court's definition of a conductor, assuming the lead connected the device into an external circuit. The only example of this type of pin out shown to the jury was PX 140.22(b), a TI lead frame. Mr. McAlexander testified that Defendants did not pin out their die pad in this way. Tr. 690:1-7. Dr. Rodgers testified to the same effect. In the face of this evidence, no rational juror could conclude that Defendants used pinned out lead frames in which the die pad extended out as a lead.

Dr. Seiling, however, testified that 2/3 of Defendants' lead frames were "pinned out" or used down bonding. There is no inconsistency, because a review of the exhibits cited, see, e.g., PX 626, and the testimony, demonstrates that Dr. Seiling used a different definition, describing pin out as meaning that "the die bond pad is connected to a conductor in the central region, which will eventually end up as one of the pins on the outside of the package." Tr. 1128:22-25. Dr. Seiling made clear that the connection was by means of a whisker wire. Tr. 1129:1-5. This type of pin out does not meet the Court's definition of the term conductor, because the die pad itself does not extend from inside the package to the outside. It is merely connected to a structure that does.

The testimony becomes even more confusing however, because what Dr. Seiling calls pinning out, Mr. McAlexander calls down bonding. Tr. 616:17-25. And what Dr. Seiling calls a down bond (i.e. a whisker wire connection from a terminal to the die pad, Tr. 1127), Mr. McAlexander calls a "wire to top side bond." Tr. 626:14. The Court will adopt Dr. Seiling's terminology for the remainder of the opinion, because the evidence demonstrates that Defendants employ no other form of pinning out than that which he described.

Before trimming, it is true that the die pad does extend from inside the package to the outside, because it is connected to the rest of the lead frame. However, Mr. McAlexander's testimony that the lead frame, including the die pad, functions as a conductor during manufacture by preventing static electricity from damaging the semiconductor does not establish literal infringement under the Court's definition. Nothing in Mr. McAlexander's testimony shows that the die pad's conductivity during manufacture connects the die to an external circuit. Indeed, the import of his testimony is that during manufacture the die pad prevents the die from being connected to an external circuit. Tr. 591-92.

The remainder of Mr. McAlexander's testimony, regarding the conductive function of the die pad in conjunction with down bonding, pinning out and substrate pumps, does not and cannot establish literal infringement, because none of these techniques utilize a die pad that extends from inside to outside of the package. The fact that a whisker wire may connect the
die pad to a lead is not sufficient to establish literal infringement, because, as Mr. McAlexander conceded on cross
examination, whisker wires are not conductors within the meaning of the patent. Tr. 753:5-12. Whether Mr. McAlexander's
testimony is sufficient for infringement under the doctrine of equivalents is discussed below.

Defendants' remaining arguments in favor of JMOL on the issue of literal infringement of Claim 12 are without merit.
Contrary to Defendants' contention, Claim 12 does not require that the die be entirely on one side of the plane formed by
the conductors (as Claim 14 does), but only that it be generally on one side. Compare Jury Charge at 15 with Jury Charge at 17-
18. There was sufficient evidence for the jury to find that Defendants' devices were generally on one side of the plane, and
that the gate was located on the other side of the plane, notwithstanding Defendants' depressed die pad.

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a. The "Connecting the Device to a Conductor" Limitation of Claim 12 of the '027 Patent and Claim 16 of the '764 Patent

Both parties agree that claim 12 of the '027 patent and claim 16 of the '764 patent require the semiconductor device to be
connected to a "conductor." 4 The district court construed the term "conductor" to include "those portions of the [lead
frame] assembly that extend from inside the package to the outside, and connect the semiconductor device to an external
circuit. In other words, [conductors] are leads." Texas Instruments Inc. v. Cypress Semiconductor Corp., Civ. No. 3-90-
CV1590-H, slip op. at 10 n.6 (N.D. Tex. Sept. 6, 1995). On appeal, TI argues that the court misconstrued the term
"conductor." In particular, TI asserts that a "conductor" encompasses any element capable of conducting electricity.

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4 The process in claim 12 requires "mechanically attaching a portion of said device to at least one of the conductors for
support." The process in claim 16 also requires "conductively connecting one face of a semiconductor wafer to one of said
conductor strips in the central region."

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

We disagree. Although the dictionary broadly defines "conductor" as any substance that conducts an electrical charge, the
patent itself belies such a broad construction. See Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580, 36 USPQ2d 1162,
1165 (Fed. Cir. 1995) ("The words of a claim will be given their ordinary meaning to one of skill in the art unless the
inventor appeared to use them differently.").), cert. denied, 116 S. Ct. 1567, 134 L. Ed. 2d 666 (1996). Claim 12 states that the
"ends of the conductors extend[] from the mold cavity" and are held during the encapsulation process. In addition, claim 16
requires "enclosing the . . . assembly in plastic insulating material to surround the [semiconductor device] and parts of the
conductor strips." Thus, both claims indicate that a "conductor" for purposes of the invention extends beyond the plastic
encapsulation. The specification further supports the district court's claim construction. Figure 8 of each patent illustrates
the completed encapsulated semiconductor devices made by the claimed processes, with the conductors extending from the
device. In discussing these completed devices, the specification states that "the respective conductor wires can subsequently
be cut away to a customer's specification so that any arrangement of leads . . . can be provided for integration into
substantially any circuit." '027 patent: Col. 7, ll. 3-7; '764 patent: Col. 6, ll. 54-58 (emphasis added). Thus, the patentee did
not use the term "conductors" in the claims as the term is defined in the dictionary, i.e., any structure capable of conducting
electricity; instead, the patentee used the term in the claims to mean leads that "extend from inside the package to the
outside, and connect the semiconductor device to an external circuit." Texas Instruments, slip op. at 10 n.6. The court did
not err in so construing the claims.

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2. "Through conductors" means "through any electrically conductive material."

The phrase "through conductors" appears only in Claim 1 of the 059 Patent. The claim covers a defibrillator maintenance
method including a step that "periodically deliver[s] a test pulse in a defibrillator from an energy source through conductors

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Philips urges the court to construe "through conductors" to mean "through any electrically conductive material." Defibtech insists that the "conductors" in the phrase are limited solely to the "patient electrode leads," which are the wires connecting the defibrillator to the electrodes used to shock a patient.

The claim language establishes that the claimed conductors are a pathway between an "energy source" and a "patient simulator." There is no express or implicit requirement that the conductors lead to defibrillator electrodes. Indeed, no claim of the '059 Patent mentions "electrodes." The written description, on the other hand, frequently discloses "conductors" between the electrodes and other components. E.g., '059 Patent at 3:27 ("Conductors leading from at least two electrodes"), 3:53-54 (same), 4:9-10 (same). The written description also admits that the invention applies only to medical instruments that use electrodes. '059 Patent at 9:2-6.

Nothing in the remainder of the specification, however, requires that the electrodes and the patient electrode leads be part of the pathway between the energy source and the patient simulator. Several disclosures indicate otherwise. The schematic diagrams illustrating the invention ('059 Patent Figs. 1, 2) demonstrate connections between the patient simulator and various energy sources that do not pass through the patient electrode leads. The written description discloses that "[o]ther suitable tests" will be apparent to persons of skill in the art ('059 Patent at 3:42-43), and these may be tests that do not require the patient electrode leads. In addition to testing for various electrode related problems, the invention is capable of diagnosing problems with the "defibrillator circuit itself," a test that would not necessarily involve the electrodes. '059 Patent at 4:30-38. Because the written description shows conductive pathways that do not include the electrodes, and because there is no "clear disavowal" of conductors between the energy source and the patient simulator other than the patient electrode leads, the court declines to limit Claim 1. Liebel-Flarsheim, 358 F.3d at 908. Accordingly, "through conductors" means "through any electrically conductive material."

1. "conference controller," "through a conference controller"

<table>
<thead>
<tr>
<th>NICE's Construction</th>
<th>Witness's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A component that initiates, enables and/or establishes a conference call.</td>
<td>Device that initiates, establishes and enables a conference call.</td>
</tr>
<tr>
<td>By use of a conference controller.</td>
<td>The data packet transmissions of the IP data session pass through the conference controller.</td>
</tr>
</tbody>
</table>

The parties dispute the meaning of "conference controller" and "through a conference controller," as used in claim 1. NICE contends that the specification shows that a "conference controller" initiates, enables, and/or establishes a conference call, but all three functions only in "exemplary" situations, citing col. 5:6-col. 6:32. NICE also contends that nothing in the specification requires a "conference controller" to be limited to a device or hardware and to exclude software. Witness contends that the disputed term must initiate, enable, and establish a conference call, citing Figure 3 as demonstrating a conference controller performing all three functions.

With respect to "through a conference controller," NICE contends that Witness's proposal that data packets physically flow into and through conference controllers makes no sense based on how one skilled in the art would understand the specification. Witness contends that the use of both "through" and "using" in the claim language means each should have distinct meanings, and that "through" should not then be construed to mean "by use of." Further, Witness contends that NICE consistently used the term "through" to mean "flow through" during the prosecution, and in particular in distinguishing Rust prior art, citing '106 Pros. Hist., Resp., 21 n.5, dated Sept. 11, 2005. NICE responds that Witness's use of prosecution history is tortured and inaccurate, and that Figure 1 and the specification support its construction, citing col. 7:13-16 ("implementing the data session as a conference call through a conference controller such that said first and second communication devices are connected."). NICE further contends that the claim language and specification make clear that the conference controller serves to implement the connection of the two communication devices before there is any information flowing between them.
The Court construes "conference controller" to mean "a component that initiates, enables and/or establishes a conference call." Figure 3, which Witness bases its construction on, clearly "shows an optional flow of operations." (col. 6:17-23.) Moreover, even in Figure 3, the enabling function is only preferable. (Id., "[c]onference controller 30 enables recording device 24 to participate in the conference call, as well as preferably enabling the conference call itself.")

The Court construes "through a conference controller" to mean "the data packet transmissions of the IP data session pass through the conference controller." While NICE demonstrated that Witness's reliance on the prosecution history was misplaced, it failed to respond to Witness's contention regarding the use of both "through" and "using" in the claim language. In light of the claim language itself and the specification, the Court concludes that Witness's construction is the correct one.

III. "conferencing control" / "central control manager"

The phrases "conferencing control" and "central control manager" appear in claim 15 of the '654 patent:

15. A method of conducting a teleconference among a plurality of participants, comprising the steps of:

(a) initiating a video conference, from one of a plurality of workstations, using a video conferencing control included within each of the plurality of workstations, the video conferencing control establishing communication with a central control manager to set up AV paths along a first network over which the video conference can be conducted;

(b) capturing video images and spoken audio of the participants for transmission in the form of AV signals over the AV paths during the video conference;

(c) reproducing the video images and spoken audio on at least one first monitor, positioned near each workstation, from the AV signals received over the AV paths during the video conference;

(d) initiating a data conference, during the video conference, using a data conferencing control included within each of the plurality of workstations, the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted; and

(e) sharing data, among the plurality of participants, during the data conference, such that data received over the data paths is displayed on at least one second monitor included within each workstation.

'654 patent at 43:20-44:23. As the two terms are related to each other, the court will construe them together.

A. "conferencing control"

CPI proposes that the phrase "conferencing control" should be construed to mean "video or data conferencing software and/or hardware at a workstation." Tandberg proposes that the phrase should be construed to mean "software executed by the workstation that initiates all collaborative sessions by setting up appropriate services and paths via the central control manager." The parties' constructions differ in two respects. First, Tandberg's construction requires that the conferencing control set up all services and paths via the central control manager. Second, CPI's construction allows the conferencing control to be made up of hardware and/or software, while Tandberg's construction requires that the control be made up exclusively of software.

The phrase "conferencing control" does not appear anywhere in the specification of the patent. The parties agree, however, that the element in the preferred embodiment corresponding to the conferencing control is the Collaboration Initiator. See Spec. at 18:51-52 ("The central component of the Collaborative Multimedia Workstation software is the Collaboration Initiator 161.").
Tandberg argues that CPI's proposed construction is too vague because it says nothing about what the conferencing control does. Without some further restriction, "video conferencing software and/or hardware" might encompass any part of the workstation that is involved in a videoconference: the keyboard, the monitor, the camera, the CPU, and the operating system, as well as any special-purpose software or hardware associated exclusively with videoconferencing. CPI's construction is indeed too broad because it fails to account for the claim language. The phrase "conferencing control" has two elements. First, the term relates to "conferencing"-both videoconferencing and data conferencing. Second, the term encompasses the notion of "control." The surrounding claim language indicates that the control, at a minimum, must include setting up video and data conferences. See id. at 43:25-28 ("the videoconferencing control establishing communication with a central control manager to set up AV paths along a first network over which the video conference can be conducted") (emphasis added); id. at 44:5-9 ("the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted") (emphasis added). Moreover, "control" has broader meaning than "initiation"; the conferencing control is used to facilitate as well as initiate calls. See Spec. at 18:35-41 ("[conference control] Software 160 allows the user to initiate and manage (in conjunction with the server software) videoconferencing, data conferencing, multimedia mail and other collaborative sessions."). The court therefore finds that the conferencing control must be able to "control"-i.e., initiate and facilitate-video and data conferences.

Tandberg is also correct in arguing that the "conferencing control" must "set[] up appropriate services and paths via the central control manager." The claim language already expressly includes this limitation, however, and adding it to the definition of "conferencing control" would be redundant. See '654 patent at 43:25-28, 44:5-9.

Turning to whether the control may consist of hardware or software, the specification clearly indicates that videoconferencing functionality may be implemented in hardware as well as software. See Spec. at 18:5-8 ("Given the proximity of Side Mount device 850 to the user, and the direct access to audio/video I/O within that device, various additional controls 820 can be provided at the user's touch (all well within the capabilities of those skilled in the art)."

The "Side Mount" device is, in the preferred embodiment, a piece of additional hardware which is connected to a desktop computer or workstation. Id. at Fig 18B. Limiting the phrase "conferencing control" to software would exclude this disclosed embodiment, which is disfavored unless the claims present a compelling reason to do so.

Finally, the court notes that the hardware and software comprising the conferencing control must be present at each workstation. '654 patent at 43:23-24.

The court therefore construes the phrase "conferencing control" to mean "hardware and / or software at each workstation which is used to initiate and facilitate videoconferencing, data conferencing, and other collaborative sessions."

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K. "wherein the interface device is configured by the processor and memory to include a first command interpreter and a second command interpreter"

The Camera Manufacturers propose that the phrase "wherein the interface device is configured by the processor and memory to include a first command interpreter and a second command interpreter" in the '399 Patent means that "the processor of the interface device runs a program from its memory to determine the data transfer parameters of the interface device for the first and second command interpreters." CMs' Slides at 115. The Court will adopt this construction.

After initially proposing no construction for this phrase, at the Markman hearing Papst proposed that it be interpreted to mean that "the interface device has first and second command interpreters and that they are implemented by the processor and the memory." Papst's PowerPoint Slides [Dkt. # 244, Ex. A] ("Papst's Slides") at 79; see Tr. 2:59 (Papst). Papst contends that the use of the passive voice, in the phrase "the interface device is configured by" does not suggest the active running of a software program. But as the Camera Manufacturers note, "the first and second command interpreters have to know how to communicate with the data transmit/receive device. They have to know how to make that data transfer occur and presumably it could be different for any particular data transmit/receive device." Tr. 2:63 (CMs). Moreover, even Papst's proposed construction recognizes that the command interpreters are "implemented" by the processor and the memory, implying that the processor runs a program from its memory.
Papst argues that the Camera Manufacturers' construction would render dependent Claim Eight meaningless, and thus it should be disfavored. See Cytologix, 424 F.3d at 1173 (if possible, a court should avoid an interpretation of one claim that renders another meaningless). "[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." 35 U.S.C. § 112. In other words, a dependent claim incorporates all of the limitations of the claim from which it "depends" and adds something new; thus, a dependent claim has a narrower scope than the claim from which it depends. Further, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1315. Claim Eight provides:

An interface device according to claim 7, wherein the virtual files comprise a configuration file in text format which are stored in the memory means and using which the user can configure the interface device for a specific data transmit/receive device.

'399 Patent, col. 13:37-41. Papst contends that because Claim Eight addresses the idea of configuring the interface device, Claim One must not deal with configuring the device. Tr. 2:60 (Papst).

Papst's argument fails. Claim Eight is unrelated to the construction of the "wherein" clause regarding configuration of the interface device to include command interpreters. Claim Eight merely refers to a separate mechanism, "configuration files," that can be used to configure the interface device "on the fly." Tr. 2:65 (CMs). The phrase "[w]herein the interface device is configured by the processor and memory to include a first command interpreter and a second command interpreter" as used in the '399 Patent means that "the processor of the interface device runs a program from its memory to determine the data transfer parameters of the interface device for the first and second command interpreters."
Honeywell asserts that Sandel is again attempting to improperly limit the claim language by using the patent specification. Sandel argues that its proposed construction is consistent with the specification, as well as dictionary definitions.

In its brief, Honeywell cites two dictionary definitions which sufficiently describe "configurable." The court rejects Sandel's proposed construction because it is too narrow, and imports a limitation from the specification which is not present in the claim language.

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4. Configuration state

Claim 2 of the 651 patent imposes the limitation that the step of configuring further includes "receiving input from a configuration user" and "validating said input based on said definition, said set of relationships, and a current configuration state. . . ." The parties dispute the meaning of "configuration state."

Trilogy defines "configuration state" as "the status of the elements in the current configuration." Selectica contends that "configuration state" is defined by three types of state information-"selected," "selectable" and notSelecteable"-that track the state of parts in the configuration. Selectica argues that the patent uses "current state" and "configuration state" interchangeably and that the patent explicitly defines "current state" at col. 10, line 25:

The current state is defined by three types of state information that track the state of parts in the configuration. The current state is visible to the user. The three state types are: selected, selectable, and notSelectable.

According to Selectica, all parts options necessarily fall within one of these configuration states. Those included in the current configuration are "selected" parts. Those which could be added to the current configuration are classified as "selectable" parts. Those which cannot be used in the current configuration fall in the classification of "notSelecteable." Selectica thus contends that its definition captures all of the logical options available for the "configuration state."

Selectica's construction imports too many limitations from the preferred embodiment. After considering the parties' positions, the court construes "configuration state" to mean "the status of the elements in the current configuration."

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1. "configuration table"

HP asks the Court to construe this term as: "A data structure used to organize information regarding the assignment of certain operating parameters of the storage system." EMC proposes: "A table organized on a logical unit by-logical unit basis containing, for each logical unit, one or more data fields related to the logical unit."

The meaning of "configuration table" is unclear from the language of claim 1, which indicates that a "configuration table" may contain "entries governing one or more interactions between the logical units and the two or more host computing systems" and "an access field entry for each logical unit." Claim 3 includes a further potential characteristic of a configuration table: "a host mode entry for each logical unit."

The written description states that "the configuration tables store information relating to which host connection a particular
logical unit should communicate with, any LUN numbers offsets employed by the logical unit to communicate with a particular host, and any special host modes' employed by the array controller in communicating with a particular host."

979:3/64-4/2. Thus, the claim language and the specification indicate that the configuration table contains data that govern the interactions between logical units and host computing systems. The specification and the claims include examples of the specific types of data contained in a configuration table, including "access fields," "offset fields," and "host mode fields." See e.g., 979:4/3-36 & 5/21. However, such examples need not be imported as limitations for the purposes of defining this particular term. Indeed, claim 1 explicitly does not include an "offset field entry" limitation or a "host mode entry" limitation (these are found in dependent claims 2 and 3). Using the doctrine of claim differentiation as a guide to claim construction, Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991), it would be inappropriate for the Court to specify particular types of entries in its construction of "configuration table."

HP's proposal also is ambiguous and potentially is too broad. Under HP's construction, the configuration table would contribute to organization of "information regarding the assignment of certain operating parameters of the storage system." However, the claim and the specification indicate that the configuration table is limited to data that govern the interactions between the logical units and the host computing systems. It is unclear from the intrinsic evidence what "assignment of certain operating parameters" means. According to a dictionary cited by HP itself, "a table is a data structure used to organize information." Langraff Decl., Separate Appendix, vol. 7, p. 1221. Notably, HP concedes that "the configuration table must specify information that governs aspects of the interaction between the logical units of the storage system and the host computing systems connected to the storage system." HP's Opening Brief, pp. 39-40.

At the same time, EMC's proposal is too narrow. While certain data relating to logical units obviously are contained within the configuration table, nothing in the claim language or the specification requires limiting the configuration table to a certain internal organization ("a table organized on a logical unit by-logical unit basis").

Accordingly, the Court construes this term as "a structure organizing data that governs the interactions between logical units and host computing systems."

1. "interacting with a graphical user interface to configure said imaging system"

Plaintiffs' construction: setting up the imaging system via a graphical user interface to control the association with a remote device

Defendant's construction: inputting commands via a graphical user interface to select or activate particular functions of the imaging system to control the association with a first remote device

At the claim construction hearing, the parties agreed that the following construction of this term would be acceptable: "interacting with a graphical user interface to control the association with a first remote device." I will adopt the parties' agreed upon construction.

Court's construction: interacting with a graphical user interface to control the association with a first remote device

5. "the second end configured for electrical interconnection to a defibrillator"

Claim 1 of the '919 Patent describes an insulated lead wire with two ends, "the second end configured for electrical interconnection to a defibrillator." Claims 2, 12, and 17 contain similar language. The parties dispute the meaning of this term. Cardiac Science contends that it refers to a "wire configured to enable electrical connection to the defibrillator." Philips asserts that it should be construed as "the second end of the insulated lead wire having a connector designed to be plugged into a defibrillator."
Philips contends that the terms at issue here relate to the '919 Patent's requirement that the packaged electrodes be "interconnected to the defibrillator" -- or "pre-connected" -- prior to use. Philips relies on a decision from the United States District Court for the Central District of California, which held that the '919 Patent's claims were likely to be found invalid because the claimed invention of pre-connecting the electrode to a defibrillator was not described in the '919 Patent specification. Cardiac Science v. Zoll Med. Corp., Case No. 02-2514 SVW (CTx)(N.D. Ca. Jul. 15, 2002).

The Court finds that the decision in Cardiac Science v. Zoll Med. Corp. is neither relevant nor binding to this Court's claim construction of this term. The Court further finds that the language of the claim and the specification does not require that the insulated lead wire have a connector that can plug into a defibrillator, as Philips contends. The Court finds that the plain language of the claim merely requires that the second end of the insulated lead wire allows for electrical interconnection to the defibrillator.

2. "Configured to Encrypt"

The parties also seek an interpretation of "configured to encrypt." The ordinary meaning of this phrase is "capable of encrypting." The specification reinforces this meaning when it notes that the invention's "delivery systems have the capability of performing dynamic encryption of data as the data is downloaded onto a user's storage media." Id. at 15:11-13 (emphasis added). Audible suggests that encryption is mandatory, but the court finds no support for that contention in the intrinsic evidence.

As Digeo noted at oral argument, it might be preferable to encrypt all data transferred to an end user, but nothing in the patent requires it. "Configured to encrypt" means "capable of encrypting."

4. Construction of "Configured to Operate in either the Presence or Absence of a Bandwidth Encompassing Modem Signal"

Plaintiffs contend that the claim language "configured to operate in either the presence or absence of a bandwidth encompassing modem signal" needs no construction. Defendants contend that this claim language should be construed as requiring that the claimed invention "[be] capable of working both with and without a modem attached." n8 (Def.'s Handout p. 40.)

n8 This proposed construction differs from the one set forth in Defendant's claim construction brief. (See Def.'s Cl. Constr. Br. p. 19 (providing that this claim language should be construed as "limit[ing] the claimed invention to a device that is capable of working both in the presence of a modem signal and in the absence of a modem signal, i.e., the device must be able to work without a modem attached just as well as when a modem is attached and is in use.").)
an adequate discussion of modem signals that are bandwidth encompassing. For example, in the context of distinguishing a prior art reference, the applicant noted:

The configuration will not work if modern high speed modems are substituted since the spectrum used by modern high speed modems utilize the complete standard 300 to 3400 Hz bandwidth of a typical telephone channel (bandwidth encompassing) and would randomly trigger the detection even though a 440 Hz SAS signal may or may not be present.

(Dec. 12, 2002 Amendment p. 5.) In the context of explaining the frequency spectrums associated with "modern modems," the applicant provided:

Similarly for the above modem the 387 Hz, 1200 Hz and 2200 Hz frequencies are far enough from 440 Hz that the published configuration would work with this modem but not a modern modem (such as a US Robotics 56K which utilize the total bandwidth of a telephone channel i.e. bandwidth encompassing).

(Id. at p. 7.) Finally, in the context of explaining why their invention is novel, the applicant stated:

[B]y qualifying signals (filtering) based on duty cycle or cadence coupled with level and frequency indication to decide what signals have been encountered reliable operation is guaranteed since modern modems utilize all of the standard 300 to 3400 Hz bandwidth of a telephone channel and that includes the 440 Hz SAS frequency.

(Id.); see also Irdeto Access, 383 F.3d at 1300 ("It is well-established that the patentee can act as his own lexicographer, so long as he clearly states any special definitions of the claim terms in the patent specification or file history.") (citation omitted).

Defendants do not adequately address the prosecution history of the '771 Patent when suggesting that the meaning of the claim phrase "bandwidth encompassing modem signal" might be uncertain to one of ordinary skill in the art. (See Def.'s Handout p. 44 ("The specification is utterly silent about any 'bandwidth encompassing modem signal'") (emphasis added); see also id. at p. 45 (focusing on prosecution history remark that "[n]o modems are required.").) As noted above, the prosecution history provides considerable discussion of the "bandwidth encompassing modem signal." In addition, when read in context, there is no basis for concluding that the remark that "[n]o modems are required" limits the scope of the claim in the manner suggested by Defendants. (See Dec. 12, 2002 Amendment pp. 2-13); see also Nystrom v. TREX Co., Inc., 424 F.3d 1136, 1142 (Fed. Cir. 2005) ("The person of ordinary skill in the art views the claim term in the light of the entire intrinsic record . . . the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention . . . .") (emphasis added) (internal quotation marks and citations omitted).

Defendants also presented the following argument at the Markman hearing: (1) it is impossible to have a modem signal without a modem; therefore, (2) the phrase "the presence or absence of a bandwidth encompassing modem signal" means "the presence or absence of a modem." This argument fails for two reasons. First, the argument is based on faulty logic. It does not follow from the fact that, for example, it is impossible to have a modem signal without a related power source, that the phrase "the presence or absence of a bandwidth encompassing modem signal" also requires "the presence or absence of a power source for a modem signal." Second, the argument impermissibly removes the term "signal" from the claim language. The limitation at issue says nothing about operating in the presence or absence of a modem; instead, it focuses on operating in the presence or absence of a particular type of modem signal. See, e.g., '771 Patent, Col. 14, ll. 61-63 ("wherein the apparatus is configured to operate in either the presence or absence of a bandwidth encompassing modem signal") (emphasis added). There is simply no support in the intrinsic record for deleting "signal" from this claim limitation.

In sum, this Court rejects Defendants' argument that the claim language "configured to operate in either the presence or absence of a bandwidth encompassing modem signal" means that the claimed invention must "be capable of working both with and without a modem attached." Therefore, this Court concludes that no further construction of this claim language is necessary. This claim language is found in claims 1, 6, and 9 of the '771 Patent.
The Court agrees with Ciena’s proposed construction and construes the term as “programmed to supply service channel optical signals.” Ciena argues that the term should not be construed but offers its proposed construction in the alternative. Nortel argues that the term should be construed as “programmed to periodically supply service channel optical signals.” Nortel argues that the specification requires that each network element of the invention “periodically” transmits information to the other node control processors in the network. Nortel cites the abstract, the field of the Invention section, and the detailed description section of the ‘392 patent in support of its argument. See e.g.,Cols. 1:60-67; 7:11-19. However, a preferred embodiment of the invention indicates that the service channel optical signals are not always supplied periodically. Column 7, Lines 28 through 34 of the specification state,

Assuming that a break occurs in fiber 68, [Service Channel Modem] 26 and 32 detect the break and set the fault bit in an LSP to signify that a break has occurred. The LSP is next passed from SCM 32 to SCM 36, and from SCM 26 to SCM 22. If additional network elements were included in the span, the LSPs would be successively passed from SCM to SCM down the span until the terminals were reached.

This excerpt from the specification indicates that signals for service are sometimes sent episodically sent when a problem arises as opposed to exclusively being sent periodically. Nortel’s construction excludes this preferred embodiment. “The Court must always read the claims in view of the full specification. A claim construction that excludes a preferred embodiment . . . ‘is rarely, if ever, correct.’” SanDisk, 415 F.3d at 1285 (citing and quoting Vitronics, 90 F.3d at 1582-83). Accordingly, the Court construes “configured to supply service channel optical signals” as “programmed to supply service channel optical signals.”

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2. "configuring a flash memory storage module" (claims 1 and 6)

The plaintiff asks the court to construe this term to mean "preparing the flash memory chip to receive and respond to commands" and the defendant asks the court to construe the term to mean "setting up physical storage media and its internal data structure." The specification does not mention the term "configuring."

The defendant argues that the plaintiff's proposed construction is identical to the meaning of "initialization" as used in claim 4 and thereby violates the principle of claim differentiation. The parties agreed to a define "initialization operation" (from claim 4) to mean "an operation that prepares the data processing system and the external storage device to read and write data." The court does not agree with the defendant that the plaintiff's proposed construction is merely a restatement of the parties' construction for "initialization operation."

The defendant devotes most of its argument with respect to this claim term to attacking the plaintiff's proposed construction rather than advocating its own proposal. The defendant's proposed construction is close to a verbatim quote of the specification at col. 4, ll. 15-16. However, the defendant does not explain why the court should adopt that language as its construction apart from arguing that by "reading the claim language as a whole and in context" the "configuring limitation clearly refers to setting up physical storage media of the external storage device and its internal data structure." Defs. Resp. Brf. at 18, 21.

The original application included both method claims and device claims. Claim 21 of the original application was a device claim. App. Ser. No. 09/687/869. All claims were cancelled and the method claims were elected for prosecution and claims 21-33 were added. Claim 21 included both a "configuring clause" and an "arranging" clause as follows:

21. An electronic flash memory external storage method, wherein comprises [sic] steps

configuring a portable external storage device, which comprises an USB or IEE [sic] 1394 interface, a microprocessor, a flash memory storage module and the firmware built-in said microprocessor for implementing and controlling the request of data access operation [sic] corresponding to with USB or IEEE1394 interface standard between the flash memory storage module and data processing system;
arranging internal data storage structure of the flash memory storage module according to an uniform data block unit. . . .

April 28, 2003 Amendment.

Prosecution claim 21 was cancelled and prosecution claims 24-46 were added. Issued claim 1 corresponds to prosecution claim 34. See Sept. 2003 Amendment; Oct. 2003 Amendment. The plaintiff argues that the arranging portion of prosecution claim 21 was cancelled, so the "arranging" portion claim 21 was eliminated so that limitation should not be imported into the construction of "configuring." This position is supported by the '672 patent specification.

The specification does not disclose building blocks of memory or forming blocks of memory. Instead, the specification identifies specific chips that are manufactured by third parties that can be used to practice the '672 patent. See col. 8, ll. 19-23; col. 11, l. 50-col. 12, l.14. The intrinsic record is clear that the language "method of setting up physical storage media of the external storage device and its internal data structure" from column 4 of the '672 patent does not mean that "configuring . . . module" includes physically arranging the data setting up the storage media and its internal data structure. The defendant's proposed construction could be interpreted to include that limitation, which was disavowed by the patentees and is not supported by the specification.

In light of the intrinsic record and the plain meaning of "configuring "the term "configuring a flash memory storage module" is defined to mean "preparing a flash memory chip to receive and respond to commands." 851

"Confined multipath [transmission] environment"

The Court adopts CSIRO's proposed construction and construes the term "confined multipath [transmission] environment" to mean "an indoor environment." Buffalo argues that the Court should interpret the term more expansively to mean "a defined environment with boundaries wherein direct and/or reflected paths may be taken by radio frequency signals from a transmitter to a receiver." Though Buffalo does not dispute that "indoor environment" is consistent with the plain meaning of the claim language and concedes that the specification contains references to such an environment, Buffalo contends that neither the claim language, the specification, nor the file history limit the term's construction to only an indoor environment.

CSIRO argues that its proposed construction comes from the claims' plain meaning as well as their context in light of the specification and prosecution history, whereas Buffalo's construction is ambiguous and baseless.

Although on its face the term "confined" does not seem limited to an indoor area, that term clearly refers to an area with fixed boundaries—an attribute that Buffalo's proposed construction does not adequately capture. "Confined" and "defined" are hardly synonymous, and Buffalo's inclusion of the term "boundaries" in its construction conceivably includes anything that reflects radio waves creating an indirect transmission path—even a meteor trail or satellite. Without further narrowing of its proposed "defined environment," Buffalo's construction of "confined multipath environment" is too broad to permit one of ordinary skill in the art to understand the term's meaning.

The specification describes the specific multipath signal problem that the invention was designed to address. The specification notes how the invention was designed to ameliorate problems that occur more acutely in a wireless LAN multipath "office or indoor environment" and "typical rooms" than with telephone or long distance radio communications. 069 Patent, cols. 4:58-59,5:3-15, 8:38-40. Buffalo contends that reliance on this language improperly reads an extraneous limitation from the specification into the claims, but the specification language simply defines an existing limitation and deriving interpretive guidance from such language is proper. See Phillips, 415 F.3d at 1317 ("It is . . . entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of claims").

The prosecution history also shows that the patentees linked "confined multipath environment" to an indoor environment. After the patent examiner rejected the patentees' original claims filed with their 1993 application as obvious in light of the prior art, the patentees amended their claims and distinguished the prior art as being designed to operate over long distances instead of within "a room of an office building or the like, unlike the present invention." July 1995 Amendment to U.S. Patent Application 157,375, at 26. The prior art did not "appear[] to describe radio transmissions in a confined multipath
environment.”” Id. at 27. The prosecution history thus links "confined multipath environment" with an indoor environment. Accordingly, the Court construes "confined multipath environment" to mean "an indoor environment."

The parties dispute when this phrase calls for the invention to confirm that the hardware key is connected to a subscriber client computer. Defendants propose that it occurs "after initial authentication, but before session termination," or, in other words, during re-authentication only. Plaintiff contends that the "to thereby confirm" limitations in claims 1 and 24 are broad enough to allow the hardware key's connection to be confirmed during both initial authentication and re-authentication.

As discussed in the preceding section of this Memorandum Opinion, the specification teaches that the "identity data" of the subscriber client computer is comprised of a subscriber's username, password and, in the case of two-factor identification, a hardware key's predetermined digital identification. (Id. at col. 35, ll. 48-50). Per Claims 1 and 24, the first server computer is adapted to forward the "identity data" of the subscriber client computer "at the beginning of an operating session." (Id. at col. 35, ll. 36-40). Consistent with the Court's construction of "operating session," once the identity data is confirmed, including confirmation that the hardware key is connected, an operating session begins. It therefore follows that the claim limitations requiring forwarding of the predetermined digital identification during an operating session do not read on initial authentication.

The '416 Patent describes that the invention initially authenticates subscribers, and then re-authenticates them throughout the operating session. Initial authentication occurs at login, and results in initiating an operating session. Re-authentication occurs after initial authentication but before the operating session terminates. Therefore, pursuant to the patent language and teachings, the phrase "to thereby confirm that said hardware key is connected to said subscriber client computer" only applies to the system's efforts to confirm that the hardware key is attached during re-authentication. Accordingly, the Court construes this phrase to mean "to verify after initial authentication, but before session termination, that the hardware key remains connected to the subscriber client computer."

"congestion" is construed to mean "the occurrence of more work than can be handled in a specific period of time."

Lucent contends that this term means "the occurrence of more work than can be handled by the facility in a specific period of time." (D.I. 396 at 15.) Extreme contends that this term means "the occurrence of more work than can be handled in a specific period of time due to the formation of many paths or circuits for routing the packets at the switch node." In support of its contention, Extreme points to Lucent's discussion of congestion in the background of the patent. ('811 patent at 2:5-11.)

The Court finds that the description of the causes and results of congestion do not serve to limit the claim term. Rather, the Court adopts Lucent's proposed construction and modifies it to eliminate the reference to the term "facility," which does not appear in the claim. The Court's construction is supported by Lucent's definition of "congestion of a facility" in the specification. (Id. at 2:10-11.)

"evaluating congestion at the switch node" is construed to mean evaluating congestion anywhere within the switch node. According to Newbridge, a construction of this phrase "requires a determination of the congestion at the point in the switch node at which the dropping decision will be made on a data packet which has been prepared for transmission from the switch node." (D.I. 547 at 25). After reviewing the claim language and the specification, the Court concludes that the phrase
is not limited in the manner in which Newbridge suggests. The phrase "at the switch node" indicates that this evaluation takes place at the switch node, but does not require that the evaluation be at a specific point at the switch node. Moreover, the specification suggests that there are nodes with multiple queuing points such that independent congestion evaluations at multiple buffers within the node are not excluded. (811 Patent, col. 1, ll. 53-61). Accordingly, the Court declines to limit the phrase in the manner suggested by Newbridge.

The plaintiff contends that the terms do not need to be construed. To the extent that a construction is needed, the plaintiff proposes that "coupling" be construed as "connecting" and "connectable" be construed as "capable of being connected." The defendants propose that both terms be construed as "capable of being placed in data communication." The court has consistently construed the term "coupled" to mean "directly or indirectly connected." Accordingly, "for coupling" means "for directly or indirectly connecting." Furthermore, the court agrees with the plaintiff that "connectable" means "capable of being connected."

The term "connected" is used extensively throughout the specification and the claims. It does not appear to have a different meaning other than its plain and ordinary meaning. The Court rejects Defendants' construction to include the language "not isolated," which is a negative construction on a term that does not require a negative construction. Further, Defendants are blending separate concepts, as "isolated" is a separate term that has no relevance to the word "connected." "Connected" is simply not synonymous with "not isolated." Further, the Court finds that a "direct" connection is not required. The Court agrees with SynQor that one of ordinary skill in the art, based upon the specification and the claims, would understand the term "connected" to mean an indirect or direct electrical connection. See Texas Instruments, Inc. v. Linear Tech. Corp., No. 2:01-cv-03, Dkt. No. 133 at 13 (E.D. Tex. April 3, 2002). Thus, the Court construes the term "connected" to mean "electrically connected, directly or indirectly."

Claim 1 recites that the invention is comprised of "at least one hardware key connected to the subscriber client computer," and Claims 1 and 24 require that the subscriber client computer "forward [a] predetermined digital identification to [the] first server computer to thereby confirm that [the] hardware key is connected to said subscriber client computer." The parties agree that "hardware key" is used synonymously with the terms "access key" and "hardware access key" in the specification. (D.I. 266 at 27, D.I. 268 at 7). However, they disagree over whether the specification uses the term "connected" interchangeably with "attached."

Plaintiff contends that the hardware key does not need to be an external device, but could also be built into the subscriber
client computer. Plaintiff further contends that "connected," as used in the '416 Patent, means only that the access key interface can read the digital ID from the access key. Plaintiff contends that the patent does not require any specific kind of connection between the hardware key and the access key interface.

Defendants contend that a "hardware key connected to the subscriber client computer," as used in the context of the specification, is an external device that physically attaches to the subscriber client computer. (D.I. 268 citing '416 Patent at col. 21, ll. 39-45, col. 7, ll. 61). They further argue that Plaintiff's proposed construction, that the hardware key can be built into the computer, would eliminate the need for the invention to verify the presence of the access key.

After reviewing the term "hardware key" in the context of the specification, the Court concludes that the specification requires that the hardware key be an external hardware device. ('416 Patent, col. 21, l. 40). The Court declines to adopt Plaintiff's proposal that the key can be built into the computer, because the "major function of the [hardware key] is to uniquely identify a user," and the specification teaches that the key should be something "which is known to have been assigned and given to a specific person." n2 (Id., col. 21, ll. 45-46, col. 22, ll. 4-5). A hardware key built in to a computer is computer-specific, not user-specific.

--- Footnotes ---

n2 Plaintiff also supports its argument that the hardware key can be built into the computer by pointing to the following language in the specification: "Generally, two factor authentication provides that something is known, such as the name and password and something is held, such as the physical key that is attached to the computer, or built into the computer." (D.I. 266 at 28, citing '416 Patent, col. 21, ll. 49-53; see also Transcript of Markman Hearing, held November 9, 2006 at Pg. 44, l. 5).

This sentence, however, is a general description of two-factor authentication. As such, the sentence explains to the reader of the patent that two factor authentication is comprised of something which is known and something which is either held or built into the computer. By using the descriptive phrase "such as the physical key that is attached to the computer," in this sentence, the patentee indicated that this invention uses the combination of something held and something known-the physical key attached to the computer that had been referenced throughout the paragraph. (See id., col. 21, l. 37 - col. 22, l. 5).

--- End Footnotes ---

After reviewing the term "connected" in the context of the specification, the Court concludes that it is not synonymous with physical attachment. Though the invention's preferred embodiment involves a hardware key that is physically attached to the subscriber client computer via a port interface, the specification also lists acceptable alternatives to the preferred embodiment which need not be physically attached, including "a credit card, a key, an ATM card, or the like which is known to have been assigned and given to a specific person." (Id., col. 22, ll. 1-5). Therefore, the Court finds that the specification anticipates hardware keys which are not physically attached.

Moreover, even though the inventors did not describe any embodiment of a hardware key that connects wirelessly to the computer, patent claims are not limited to only those features described in the specification, and later-developed technology is commonly allowed to be covered by broad claim terms. Varco, L.P. v. Pason Sys. USA Corp., 436 F.3d 1368, 1375-76 (Fed. Cir. 2006)(citing Sri Int'l v. Matsushita Elec. Corp. Of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985) ("The law 'does not require than an applicant describe in his specification every conceivable and possible future embodiment of his invention.'") (en banc)). Thus, wireless devices are anticipated by the broad language in the claims and specification. Accordingly, the Court construes "connected" to mean "in communication with, inserted in, or attached to."

--- End ---
"connected and connectable" -- These terms mean "directly joined to one another within the same unitary piece of equipment without any intervening equipment."

"unified structure" -- Although not a claim term, the Court defines the term "unified structure" to mean "a consolidated structure with all components directly connected to one another."

"bypass" -- "Bypass" means "a structure and path by which data channels completely go around and in no respect go through the TST switch."

"control store" -- "A 'control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node."

"means for measuring" -- The Court finds that this term is not capable of construction.

"direction of the timing adjustment interval" -- This term means "[t]he timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow."

"connected" ( '181 patent, claims 1 and 12; '664 patent, claims 1 and 3; '768 patent, claims 1 and 19)

Defendants assert that the term "connected" refers to structures that are physically connected. However, nothing in the specification or claim language of the patents limits that term to physical connections. Absent such a limitation, it makes sense to give the term its ordinary meaning of "joined" or "linked," whether physically or otherwise. In term of function, since the claim language refers to means connected to each other for the purpose of data transfer, the definition of "connected" is simply joined or linked with the capacity of transferring data.

--- Footnotes ---

1. Defendants' argument that the term "connected" in claim 12 of the '181 patent needs to be distinguished from "in communications with" in claim 13 of the '181 patent does not lead to the conclusion that "connected" refers exclusively to a physical joining or linkage. Claim 13 refers to a "web browser in communications with the Internet connection." See the '181 patent, col. 60, 11. 50-51. It simply makes no sense to talk about a web browser "joined or linked" to the Internet connection, whether physically connected or not.

--- End Footnotes ---

"connected" is construed to mean to join. Newbridge proposes a construction of the term "connected" which limits the term to mean "electrically connected," i.e. "jointed together in a manner that allows electrical signals to flow between the components." (D.I. 547 at 48). After reviewing the specification, the Court concludes that the specification refers to both electrical and physical connections, and therefore, the Court declines to limit the term "connect" to a definition with only electrical implications. (136 Patent, FIG. 1, col. 10, ll. 6-7 (describing connection of physical cables, trunks and lines); col. 10, ll. 4-5 (describing "electrical connection" between controller and port circuits). Accordingly, the Court concludes that the construction of the term "connected" should be given its ordinary, plain meaning.

--- End Footnotes ---
Although the parties agree that "connected" and "coupled" have the same meaning, they dispute whether those terms require that electrical components be connected without intervening circuitry. MOSAID contends that "connected" may include intervening circuitry; the Defendants contend that "connected" requires that there be no intervening circuitry.

The analysis begins by ascertaining the ordinary meaning of the disputed term. Both parties submit dictionary definitions that allegedly support their proposed claim construction. Defendants submit the following dictionary definitions for "connected:"

"1. united, joined, or linked. 2. having a connection. 3. joined together in sequence; . . . ." The Random House Dict. of the English Language 431 (2d ed. 1987).

"1. conjoined; fastened or linked together." The Oxford English Dict. 745 (2d ed. 1989).

MOSAID defines "connect" as "to join, fasten, or link together usually by something intervening." Webster's Third New Int'l Dict. 480 (1986). MOSAID latches onto the phrase "something intervening" and extracts from it that two items may be connected if any number of components intervene. However, contrary to MOSAID's assertion, the Court does not believe that this dictionary definition supports MOSAID's open-ended construction. Instead, the definition uses "something intervening" to describe the means by which two things are joined, fastened or linked together. For example, two items may be connected if they are physically joined, e.g., the halves of a ziploc bag pressed together, or if they are fastened together by something intervening, e.g., a memory cell access transistor connected to a bit line by a wire. See '602 patent. Fig. 1. In fact, the dictionary even provides an example of two items that are connected by something intervening - "a bus line connects the two towns." Webster's Third New Int'l Dict. at 480.

Nothing in MOSAID's definition suggests that two items may be considered connected if there are any number of intervening components. Taken to an extreme, MOSAID's interpretation of "connected" would mean that every electrical component on a DRAM chip is connected to all the other components no matter how many millions of intervening components there are. That interpretation does not coincide with the ordinary meaning of the term.

Consequently, the ordinary meaning of the term "connected" is "united, joined, or linked together."

Next, one looks to the intrinsic evidence to see if "connected" takes on a meaning that is different than its ordinary meaning. Claim 1 of the '602 patent includes the following pertinent language:

Memory cells connected to the bit lines and word lines, each memory cell being comprised of an access field effect transistor (FET) having its source-drain connected between a bit line and a high logic level voltage V[dd] bit charge storage capacitor, the field effect transistor having a gate connected to a corresponding word line . . . . '602 patent, claim 1 (emphasis added).

Looking at Figure 1 of the '602 patent, it is clear that the claim consistently uses the term "connected" to mean that components are linked together without any intervening circuitry, a fact that MOSAID does not dispute.

The specification of the Lines and Foss patents supports the ordinary meaning of "connected." For example, in the Lines specification, the patentee states:

The output of NAND gate is connected through an inverter 9 to the gate of an N-channel FET 10. FET 10 has its source connected to ground and its drain connected to control node 8A. '602 patent, col. 2, 11. 51-54 (emphasis added).

In the second sentence, it is clear that "connected" was used to mean without any intervening circuitry. Indeed, the first sentence shows that when there was intervening circuitry, the patentee would use the phrase "connected through." The Foss specification also uses "connected" in a consistent manner:
With reference to FIG. 3, a capacitor 15 is connected in a series circuit between ground and through an N-channel field effect transistor 16, configured as a diode, with gate and drain connected to a voltage source V[dd]. '620 patent, col. 3, ll. 35-38 (emphasis added).

MOSAID contends that a broader interpretation of "connected" is warranted by how it is used in claim 1 of the '620 patent. According to MOSAID, '620 claim 1 uses the term "connected" to mean "through intervening components." MOSAID focuses on the portion of claim 1 that states the "switching circuit alternately connecting the first terminal of the boosting capacitor to the voltage supply and to the capacitive load." '620 patent, claim 1 (emphasis added). MOSAID asserts that if one looks at the embodiment set forth in Figure 3 of the '620 patent, the switching circuit connects the right side of boosting capacitor 27 to the voltage supply through transistor 23, and connects the right side of boosting capacitor 27 to the output terminal 19 through transistor 24. Thus, argues MOSAID, the boosting capacitor is connected through intervening circuitry, and if the Court adopts Defendants' narrow construction of without intervening circuitry, '620 claim 1 would not cover the preferred embodiment depicted in Figure 3.

Although MOSAID's argument may appear to be correct at first, upon closer inspection it simply does not hold up. Contrary to MOSAID's assertion, claim 1 of the '620 patent clearly supports defining "connected" as directly linked when the excerpt that MOSAID focuses on is looked at in the appropriate context. Claim 1 states in relevant part:

[A] switching circuit including a first switch between one level of the voltage supply and the first terminal of the boosting capacitor and a second switch between the first terminal of the boosting capacitor and a capacitive load, the first and second switches being driven by clock signals, the switching circuit alternatively connecting the first terminal of the boosting capacitor to the voltage supply and to the capacitive load. '620 patent, claim 1 (emphasis added).

Focusing on the relationship between the boosting capacitor and the voltage source, it is clear that the claim does not state that they are connected. In fact, the plain meaning of "alternately connecting" is that unless the switching circuit performs the act of connecting, the two components are normally disconnected. If the Court were to adopt MOSAID's construction, however, it would turn the plain meaning of the claim on its head because "electronically connected with or without intervening components" would mean that the boosting capacitor and voltage source are always connected. If they are always connected, the requirement that the switching circuit alternately connect them would be meaningless and the Foss pump would be inoperative. Accordingly, MOSAID's definition is inconsistent with the plain language of the claim.

Contrary to MOSAID's assertion, when the ordinary meaning of the term "connected" is used in '620 claim 1, the claim includes the embodiment set forth in Figure 3. The claim clearly states that the switching circuit connects the boosting capacitor to the voltage source. Inserting the ordinary meaning of "connects" into the claim, it would read that the switching circuit, i.e., a first switch or transistor 23, directly links the boosting capacitor to the voltage source without any intervening circuitry. That is exactly what Figure 3 depicts. Thus, adopting a construction that excludes intervening circuitry does not exclude the embodiment depicted in Figure 3.

The remainder of the intrinsic evidence does nothing to evince a different understanding of the term "connected." Accordingly, based on the ordinary meaning and plain language of the patent claims, the terms "connected" and "coupled" shall be construed as meaning "directly united, joined, or linked together."
one which is not interrupted by any "significant electrical characteristics" while Pericom argues that it is a connection with no intervening structures or devices. There is nothing in the claims, specification or prosecution history that defines the meaning of "connected directly," therefore extrinsic evidence must be used to define the term.

Both parties submit dictionary definitions of the word "directly." Pericom cites Webster's Unabridged Third New World Dictionary which defines "directly" as "without any intervening agency or instrumentality or determining influence: without any intermediate step." This definition, particularly the second part, supports Pericom's assertion that a direct connection is one unencumbered by any intervening elements or structures. Quality cites Webster's Ninth Collegiate Dictionary which defines "directly" as "having no compromising or impairing elements." This definition somewhat supports Quality's belief that a direct connection is one which is uncompromised by significant electrical characteristics; "compromising or impairing elements," however, could apply to intervening structures or elements as well.

Again, Quality provides the testimony of the device's inventor and Crisp to support its position. When asked what type of connection would not be considered direct, Wyland explained that a connection is direct unless "it introduces any other significant electrical characteristic beyond providing . . . an electrical connection between the two [points]." Wyland Dep. at 154:18-20, Heit Opp. Decl., at Ex. D. Similarly, Crisp states that "to a person of ordinary skill in the art, an integrated circuit's terminals would be considered connected directly to a package pin if a bond wire, among other things, are part of the signal path." Crisp Decl., at P 5. Although expert testimony may be appropriate where the patent and prosecution history shed no light on the meaning of a term in the claim, Vitronics, 90 F.3d at 1583, as noted by the Bell court, the testimony of the inventor is entitled to little or no consideration since it is often a "self-serving, after-the-fact attempt" to broaden the scope of his or her patent. Bell, 132 F.3d at 706. As before, the court views Wyland's testimony to be particularly self-serving in this instance.

In contrast to claims 4 and 6, claims 1 and 5 specify that the terminals are "connected to" the nodes, omitting the word "directly." Pericom argues that because different language is used, the phrase "connected directly to" is presumed to convey a different meaning from "connected to." Tandon Corp. v. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed.Cir. 1987). Although this assertion is correct, it sheds little light on the meaning of the word "directly." Of paramount importance are the words of the claim itself, which should generally be given their "ordinary and customary meaning." Vitronics, 90 F.3d at 1582. Although "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning," he or she may do so only if "the special definition of the term is clearly stated in the patent specification or file history." Id.

The ordinary meaning of the word "direct" connection does not encompass a connection that follows a circuitous route through multiple intervening physical structures. The testimony of the device's inventor and Quality's expert implies that no matter how many physical structures intervene between the nodes, as long as none of those structures introduce electrical resistance of their own the connection is direct. This view does not fit the dictionary definition or the way in which the word "direct" is commonly used. Therefore this court finds that "connected directly" means a connection between two points that is unimpaired by an outside electrical force and uncompromised by any intervening physical structures other than a structure that connects the two points. This finding does not preclude the possibility that the accused device infringes the patent in question based on the doctrine of equivalents, however this court does not reach this question.

C. "Electrically connected directly between said busses" (claim 1, asserted claim 5)

Claim 1 teaches that the capacitor is "electrically connected directly" between the busses. The parties dispute whether in this "direct" electrical connection, there can be any device between the capacitor and the bus. According to AMD, a "direct" connection does not preclude "passive" devices, such as resistors. AMD proposes the following definition: "The bus and the capacitor are connected without any intervening active devices, such as transistors." Samsung construes the phrase as follows: "Connected through a direct and physical electrical connection, which includes no intermediate devices, to the Vcc current bus and the Vss bus." In other words, Samsung contends that in a "direct" electrical connection, there are no intermediate devices -- active or passive.

The intrinsic evidence does not clarify whether a "direct" connection exists when a passive device such as a resistor is
located between the capacitor and bus. The specification summarizes the invention as "an improved integrated circuit structure [that] comprises a Vcc bus and Vss bus having capacitance means coupled between the busses and distributed along the length of the busses." 2:23-26. Similarly, Figures 3A and 3B illustrate the invention with no device between the bus and the capacitor.

The prosecution history cited by AMD also fails to resolve this issue. AMD cites statements the patent applicants made to the PTO after the initial rejection of their application. The applicants attempted to distinguish the '830 patent from prior art by stating that the prior art references "disclose coupling one plate of a capacitor to the source or drain of the switching device [i.e. transistor] in a memory cell while the other plate is connected to the Vcc line." Fahrenkrog Decl., ex. L (Jan. 8, 1986 Amendment) at 8-9. In other words, the applicants claimed that the prior art was distinguishable because the prior art disclosed a capacitor connected to a transistor. The applicants emphasized this point when they wrote:

While the capacitors of the memory cells of the [prior art] references each have an upper plate connected to the Vcc (power) bus, the lower plate of their memory capacitors . . . is connected directly to the . . . transistor . . ., not to the Vss (ground) bus. While the Office Action generically refers to [the prior art] . . . as connecting [the] . . . capacitor to another bus . . ., the "connection" is only an indirect capacitive coupling through a dielectric to a signal bus . . . not to the Vss (ground) bus. Applicants' capacitance, on the other hand, is connected directly between the power busses, not to the signal busses.

Id. at 9-10 (emphasis original). In this statement, the applicants pointed out that when a capacitor connects to a bus through a transistor, there is an indirect connection between the capacitor and the transistor. These statements merely demonstrate that during prosecution of this patent, the applicants considered a connection indirect when it is interrupted by a transistor. This prosecution history is not instructive because the parties agree that the presence of a transistor renders a connection indirect. There is no evidence that the patent applicants intended their "direct" connection to encompass a connection that has a resistor between the capacitor and the bus.

As the intrinsic evidence is inconclusive, the Court turns to the extrinsic evidence. AMD's expert, Eby G. Friedman, opines that one skilled in the art would interpret a connection to be "direct" so long as "there is no 'active device' (which, in the context of an integrated circuit, means a transistor, which often acts as a switch) between the two end points of the line." Friedman Decl. P 24. Samsung's expert, Marwan Hassoun, contends that one skilled in the art would understand a "direct" connection "to be a point-to-point electrical connection. If a passive device, such as a resistor, intervenes between two points, the connection is no longer point-to-point, and therefore not direct." Hassoun Decl. P 32. These competing opinions about the meaning of "directly" in the context of an electrical connection do not help resolve the dispute. However, AMD's expert also points out that "[e]very conductor that connects two points electrically necessarily has some resistance and could be thought of as a resistor." Supp. Friedman Decl. P 7. Samsung's definition would therefore mean that no connection could ever be direct and would render the insertion of the word "directly" in claim 1 meaningless. The Court finds this testimony convincing and agrees that the presence of a passive device does not render a connection indirect.

Accordingly, the Court adopts AMD's construction.

"Connected to"

The Court construes "connected to" to mean "having a link to . . . to send or receive data." Amazon's proposed definition requires the things that are "connected to" one another be directly joined. This is too limiting. Although the parties agree that the claims require the shopping cart computer to modify the shopping cart in the shopping cart database, there is no basis to require the computer and database be directly connected. All that is required is a link between the computer and database over which to send or receive data. See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 203 (6th ed. 1996) (defining "connection" (software) as "an association established between functional units for conveying information").
Claims 26, 28, and 31

Independent claim 26 of the '541 patent, from which claims 28 and 31 depend, is directed to a combination motor and controller. The controller of claim 26 has, inter alia, a microprocessor "wherein said microprocessor produces an actuation signal to direct a proportional-integral-derivative (PID) filter connected to said microprocessor." Id. col. 2, ll. 19-23 (Reexamination Certificate). The disputed claim limitation is "connected to." During trial, the district court accepted the parties' stipulation that the jury employ the ordinary meaning of the term "connected to." The court also accepted the parties' agreement that they would argue to the jury what the ordinary meaning of "connected to" was. Animatics Corp. v. Quicksilver Controls, Inc., No. C99-05133 WHA, slip op. at 2-3 (N.D. Cal. Nov. 6, 2002) ("Fourth Claim Construction Order"). When the jury was unable to decide whether claim 26 was infringed, the district court was left to construe the "connected to" limitation.

The issue, as explained by the district court in its post-trial order, is "whether the phrase requires that the PID filter and the microprocessor be two separate (but electrically connected) circuits as opposed to . . . a PID software algorithm running inside the microprocessor." Post-Trial Order at 6. In other words, the issue is whether the PID controller can be an integral part of the microprocessor, or whether the claim language requires that the controller and the microprocessor be physically separate circuits.

The district court ruled that the limitation "calls out two separate physical circuits-a microprocessor and a PID filter-which must be 'connected to' each other." Id. at 6-7. The district court thus construed the limitation as requiring "two separate circuits" that "must be electrically 'connected to' each other." Id. at 7. The circuits "can reside on the same chip . . . so long as they are electrically connected." Id.

In support of this construction, the court first relied on what it perceived to be the plain language of the claim. The district court also appeared to rely heavily on the file history, noting that the original claim 26 did not have a PID filter requirement. Id. The PID filter requirement appeared in original dependent claim 29 of the '541 patent, which was incorporated into claim 26 during reexamination. The district court thus reasoned that the original claim 26 could not have contemplated a microprocessor that included a PID function and, for this reason, the microprocessor and PID filter are required to be two separate circuits. Id. at 9.

The district court also noted that the verb "connect" was consistently used elsewhere in the '541 patent to refer to the joining or linking of "physical objects." Id. at 9 (emphasis in original). Finally, the court stated that "independent claims 70, 71 and 73 provide an instructive counterpoint." Id. at 10. The district court noted that these claims "all recite identical relevant language of the microprocessor 'having' a PID filter and software." Id. The district court thus reasoned that this "demonstrates that when the patentees wanted to claim a PID filter on par with software inside a microprocessor, they did so." Id.

Animatics argues that "connected to" should have its plain and ordinary meaning. Animatics points to Merriam-Webster's Collegiate Dictionary for a dictionary definition of "connected" as "(1) joined or linked together; or (2) having the parts or elements logically linked together." Webster's Seventh New Collegiate Dictionary at 244 (1976). Animatics contends that "the patent provides no basis to infer that the patentee discarded the broad ordinary meaning of the term 'connected' and chose to use the 'special definition' of the term imposed by the court-restricting the term 'connected' to mean 'physically separate' and 'physically and electrically connected.'" For this reason, Animatics argues that the district court erred in its construction of the claim 26 term "connected to."

We agree with Animatics that the district court erred in requiring that the microprocessor and the PID controller be physically separate circuits that are electrically connected. Claims are generally given their plain meaning unless the patentee chooses to be his own lexicographer. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). There should be a "clear and unambiguous disclaimer" of a software implemented PID filter in order to support the district court's interpretation. See Inverness Med. Switz. GmBH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1372 (Fed. Cir. 2002).
A PID controller may be implemented in a number of different ways. First, the PID filter may be an analog circuit. An analog PID filter would be a completely separate circuit from the digital microprocessor. The analog feedback signals from the motor would pass through the analog PID filter. The filtered analog signal would be passed to an analog-to-digital (A/D) converter, and then to the microprocessor for analysis.

Second, the PID filter may be a digital circuit. In this case, the analog feedback signal from the motor is first digitized with an A/D converter. The feedback signal is then passed to the PID filter, and/or the microprocessor. If the PID filter is a digital circuit, then the physical line between the microprocessor and the filter becomes blurred because the parties agree that "microprocessor" would be construed as "a device that is capable of performing digital calculations and storing digital data for positioning a motor." First Claim Construction Order at 11. A digital filter certainly performs digital calculations on the feedback data and could conceivably be located on the same chip as the microprocessor.

Finally, the PID filter may be implemented using only software. The operation of the filter is represented by a software algorithm. As with the digital circuit, the feedback from the motor is digitized with an A/D converter. The software algorithm then operates directly on the digital data to produce the desired output. If the PID filter is implemented purely in software, then the physical line between the microprocessor and PID filter completely disappears.

We find no indication in the intrinsic evidence (claims, specification, or prosecution history) clearly indicating that the inventor intended to exclude a software-only implemented PID. Indeed, there is no indication as to which of the above methods is used. In the portion of the specification entitled "Best Mode for Carrying Out the Invention," the PID filter is explicitly referred to only twice. In both instances, the PID filter is described as being included in, or part of, the microprocessor. First, the '541 patent recites "the controller 49 houses a microprocessor 50 including a proportional integral derivative (PID) filter." '541 patent, col. 3, ll. 22-25. Later in the same section, there is the statement that "the microprocessor 50 includes a proportional integral derivative (PID) filter 53 which receives information from the encoder 48 to servo control the rotor." Id. col. 5, ll. 6-10. Neither of these descriptions excludes a software implemented PID filter.

Moreover, FIG. 1 shows that the link between the microprocessor and the PID filter is different from the links between other elements of the motor-controller. In FIG. 1, the PID filter and the microprocessor are shown adjacent to each other, while the other elements of the motor controller are connected by a line presumably representing an electrical connection. Thus, FIG. 1 provides no justification for limiting the term "connected to" to being "electrically connected," as opposed to "logically connected."

Claim 26 itself supports Animatics' assertion that the district court's construction was too narrow. Claim 26 refers to "the second housing" being in "mating relation to the first housing and electrically connected to the rotor position encoder." Id. col. 2, ll. 6-7 (Reexamination Certificate) (emphasis added). This indicates that the patentee did not limit the term "connected to" to mean "electrically connected." Indeed, neither the claim nor the specification describes the connection between the microprocessor and PID filter as being electrical. Furthermore, the claim limitation does not, as the district court suggested, "call out two separate physical circuits." Indeed, the word "circuit" is not mentioned in claim 26 or in any of the embodiments described in the specification. In short, the claims, figures, and specification of the '541 patent appear to support Animatics' contention that the claim term "connected to" was too narrowly construed by the district court.

Referring to the file history, the district court correctly noted that "the meaning of 'microprocessor' and 'PID filter' did not morph together" and that the "independent meaning of these terms persisted" after the reexamination. Post-Trial Order at 9. However, we do not think this sufficient reason to assume that the "connected to" language necessarily excludes a PID filter that is purely implemented via software. Indeed, the definition of microprocessor adopted by the court, and not challenged by the parties, does not exclude a microprocessor that includes a PID filter. First Claim Construction Order at 11. The district court merely defined a microprocessor as "a device that is capable of performing digital calculations and storing digital data for positioning a motor." Id.

For the foregoing reasons, we conclude that the district court erred in construing the claim limitation "connected to" as requiring two physically separate circuits that are electrically connected, thereby precluding a software-only implementation of the PID filter. Accordingly, we reverse the JMOL of non-infringement with respect to claims 26, 28, and 31. Because, as the district court noted, "it is undisputed that, in the accused products, PID is carried out via software running in the microprocessor," Post Trial Order at 7 n.1, the case is remanded to the district court for entry of judgment of infringement of claims 26, 28, and 31 in favor of Animatics.
3. "connected to"

As before, Pulse urges "connected to" is a commonly understood term and has an apparent meaning that can be readily applied such that no construction is needed. As an alternative, Pulse offers that "connected to" means "joined together via something intervening." Mascon suggests that since claim 1 of the ‘347 patent appears to mimic Figure 2 (with a line between components), the court should construe a "direct" connection between the components as drawn. Specifically, Mascon asks that "connected to" be construed to mean "in direct contact, through a zero impedance electrical conductor, with" or "in direct contact, through an electrical conductor whose impedance is independent of frequency," or a construction that combines both of these, "in direct contact with, through a zero impedance electrical conductor or an electrical conductor whose impedance is independent of frequency." 7

--- Footnotes ---

7 Only the first of these three options was included in the parties' Joint Claim Construction Worksheet; the others were offered in Mascon's Opening Claim Construction Brief.

--- End Footnotes ---

Defining "connected to" in its ordinary sense or as meaning "joined together via something intervening" expands the claim scope beyond what is contemplated in the specifications and claims. Pulse cites to the intrinsic evidence, arguing the instances where "connected to" is used with "via" something "intervening" show that "connected to," even without a specified intermediary, necessarily includes "something intervening." However, throughout the specifications and claims, where "connected to" is used without an intervening object, one skilled in the art would recognize the contemplated connection would utilize standard electrical conductors such as wire or solder and not additional electrical components such as inductors or capacitors. (See, e.g., '347 Patent, Col. 4, ll. 51-63.) Even where "connected to" is used with an intervening object, that object is generally wiring, pins, or a plug, not a circuit component. Pulse admits as much, stating "one of ordinary skill in the art would understand that any such connection requires 'something intervening' in order to join the two components (e.g., wire, solder, PCB traces, etc.)." (Doc. No. 34 at 14.) This observation is supported by the fact that a "first-order low-pass filter section," formed by two inductors, becomes a "second-order low-pass filter section" by adding a single component (a capacitor). (Compare '347 patent, Fig. 2, with '992 patent, Fig. 5.)

At the opposite end of the spectrum, Mascon's interpretations are more narrow than what is contemplated by the intrinsic evidence and do not account for real-world aspects of building a circuit. As noted during the parties' oral arguments, any wiring or other suitable connector would have an inherent degree of impedance or frequency dependence. In addition, as before, Mascon's constructions add technical terminology, unsupported by the specification, that may not serve to enlighten the jury or clarify the scope of the claims.

For these reasons, the court adopts the following construction: "connected to" means connected without interposition of additional circuit elements, such as inductors, capacitors, or resistors.
"Connected to" means joined together or linked. See Lucantoni Decl. PP 9-11, Exs. 4, 5; see also Webster's Ninth New Collegiate Dictionary at 278 ("connected" means "joined or linked together . . . having the parts or elements logically linked together."). "Connected to" does not require that the call distributors must be physically separate from the "interface switching structures" or the "operator terminal." See Rexnord, 274 F.3d at 1342 ("unless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning as understood by an artisan of ordinary skill.")(citations omitted). However, it appears from the context and plain meaning of the language in claim 21 that at least one of the interface switching structures must be physically separate from the operator terminal, since the claim refers only to a single operator terminal and requires that the interface switching structures be disposed in different geographic locations.

HP asks the Court to construe this term as follows: "The first receiving circuit is connected to and receives electricity or is currently capable of receiving electricity from the first feed circuit and the second receiving circuit is connected to and receives electricity or is currently capable of receiving electricity from the second feed circuit." EMC proposes: "The first receiving circuit is physically connected to and is receiving electricity from the first AC feed circuit. At the same time, the second receiving circuit is physically connected to and is receiving electricity from the second AC feed circuit." Essentially, the parties dispute the meaning of the phrase "energized by." HP asks the Court to construe "energized by" as "receives electricity or is currently capable of receiving electricity." EMC argues that the correct construction is "is receiving electricity." Under EMC's proposal, claim 1 would not protect an invention in which the receiving circuit is not currently receiving electricity from its respective AC feed circuit.

The meaning of "energized by" in the claim language is ambiguous. The Court thus turns to the specification for clarification. The written description indicates that the "AC mains [are] feed circuits which provide voltage," 253:3/9-10, and that "when both AC mains are energized, all three power supplies receive voltage," 253:3/34-36. Thus, for the purposes of the claim, a person of ordinary skill in the art would understand "energize" to mean "to provide voltage to." "Energized by" thus generally means "receives voltage from."

The claim states that a receiving circuit is "connected to and energized by" a feed circuit. Accordingly, a receiving circuit is "connected to and receives voltage from a feed circuit." Nothing in the claim language indicates that a receiving circuit must constantly receive voltage from the same feed circuit. Indeed, the claim language as a whole describes a situation in which both receiving circuits are energized by the second feed circuit "in the event the first feed circuit is de-energized." The specification also suggests that a feed circuit might not always provide voltage to a receiving circuit. For example, an AC main might fail, in which case it could not provide voltage to a receiving circuit. See, e.g., 253:3/29, 4/6-14, & 4/34-45. While the prosecution history shows that the patent examiner found the term "capable of being energized" indefinite, the meaning of "energize" in the context of the claim and the specification must include scenarios in which the receiving circuit is not always energized by the same feed circuit. There is no evidence in the prosecution history that the patentees stated that a certain feed circuit must continually energize a receiving circuit. Rather, the evidence suggests that they rewrote the claims to clarify that "the receiving circuits of claim 1 . . . are connected to and energized by the respective feed circuits." See Landgraff Decl., Separate Appendix, vol. 3, p. 0386. In other words, they did not intend to claim continual energizing, but rather to clarify which circuit energizes the receiving circuit for the purposes of subparagraph (b) of claim 1.

EMC also contends that, based on the claim language and the prosecution history, the two receiving circuits must be energized "at the same time." While it is true that the patentees argued that their "invention keeps at least two load circuits energized at all times, regardless of whether one energy source fails or not," id. at 0388, nothing in the disputed claim language requires that the two be energized at the same time by distinct AC feed circuits. The claim language merely indicates that the two receiving circuits are connected to and energized by feed circuits. As noted, the receiving circuits may not always be energized by their respective feed circuits. Although EMC's argument initially appears consistent with subsection (b) of the claim and the relevant prosecution history, it nonetheless does not make sense to require the two receiving circuits to be energized at the same time by respective feed circuits because, if a receiving circuit ceases receiving voltage from a feed circuit, "automatic switching capability" permits the invention to keep at least two receiving circuits energized "at all times" through a different, functioning feed circuit. Id.
The Court thus construes this term as: "The first receiving circuit is connected to and receives electricity or is capable of receiving electricity from the first feed circuit and the second receiving circuit is connected to and receives electricity or is capable of receiving electricity from the second feed circuit."

E. Limitation 4: Source electrode

31. The next element of Claim 1 is as follows: "source electrode means connected to said source regions." Again, various examples of this are described in the '699 written specification and drawings, including source electrodes 81 and 82 in Figures 7 and 8. The specification also notes that "In carrying out the above invention, it should be noted that any type of contact material can be used to make the source and gate contacts. By way of example, aluminum could be used for the source electrodes . . . ." ('699 patent, col. 6, lines 59-62.) This element of Claim 1 is properly construed to embrace any aluminum or other contact to the source regions.

32. The claims specify that the "common source electrode" or "common source electrode means" must be "connected to" the source regions, but do not constrain the means by which such electrodes are so "connected." Claim 1 merely requires "source electrode means connected to said source regions." ('699 patent, col. 7, lines 64-65.) The claim does not require or preclude any particular structure for "connecting" the source electrode to the annular source.

D. What is a Composite Gate Electrode?

Finally, the parties interpret differently the location and method for connecting the first and second gate electrodes. Claim 1 requires, in relevant part:

- connecting each of said second gate electrodes to an individual adjacent first gate electrode to form a composite electrode for a charge coupled element.

This claim language does not restrict the manner or location of the connection. The connection, however, must form a composite gate electrode.

Figures 9, 11, and 13 in the specification depict connection of adjacent first and second gate electrodes. The specification describes forming a conducting layer over exposed portions of the first and second gate electrodes to electrically connect them. In other embodiments, the specification describes etching off portions of the second insulation layer to create an electrical connection. These illustrative examples depict connection of the first and second gate electrodes over the active region of the device, either by forming the second gate electrodes on exposed portions of the first gate electrodes or by forming a conductive layer over exposed portions of both gate electrodes. The specification does not limit the manner or location of the connection.

During prosecution of the '674 patent, in an amendment, dated May 14, 1975, Loral distinguished its connection of electrodes from United States Patent 3,735,156 ("the Krambeck reference"). The figures in the Krambeck reference show every first gate electrode connected to one bus line and every second gate electrode connected to another bus line. Consequently, Krambeck did not connect adjacent gate electrodes. In other words, Krambeck clocked adjacent gates differently.

In the remarks section of the amendment, the inventor argued: "In the present invention, an individual first gate electrode is connected to an adjacent second gate electrode to form a composite gate electrode . . . . The composite gate electrodes may be connected together in any desired pattern, e.g., in a one-phase, two-phase or three-phase clocking arrangement." The inventor distinguishes the invention because it "includes the unique and distinctive steps of connecting a single first gate
electrode to a single adjacent second gate electrode to form a composite electrode." This remark shows that the inventor considered a composite gate electrode to be adjacent gate electrodes clocked together and nothing more. The inventor made no statement to the examiner about the method or location of the connection. In sum, the prosecution history does not limit the claim to a particular manner or location of connection.

Dr. Wen testified about the understanding of one skill in the art relative to connecting adjacent gates. He persuasively recounted that the Krambeck reference does not connect adjacent first and second gate electrodes to form a composite gate electrode. He also noted that, at the time of the '674 patent, those skilled in the art knew several ways to connect electrodes together. This testimony underscores the absence of any limit in the claims on the way to make connections. Transcript at 244-48.

Consequently, the court concludes this limitation describes a process step which connects each second gate electrode to one, but not both, adjacent first gate electrodes.

1. "Connecting Electronically"

Simplification's Construction
Physically or logically coupling by way of devices, circuits, or systems utilizing electron devices.

Block's Construction
The act of establishing communication between computerized devices automatically without manual intervention from the user.

Neither party offers a great deal of assistance as to the meaning of "connecting" in the term "connecting electronically." Block relies on general purpose and technical dictionary definitions that are either undated or appear to postdate the filing of the patents-in-suit. (See D.I. 79 at 21-22.) Simplification points out correctly that the specification explains that electronic connections are established over "electronic links." (D.I. 80 at 19.) Thus, Simplification offers a construction that it contends comports with a "[n]on-limiting" list of "electronic links" provided in the specification. (Id. at 20; see also '052 patent at 5:67-6:6 (listing, for example, modem, Internet, and computer-readable medium as "electronic links").) Notably, the parties have agreed on the meaning of "electronic link," jointly defining it to be "an electronic means of communicating digital information bidirectionally." (D.I. 79 at 5.) In the Court's view, Block's proposed construction of "connecting electronically," which focuses on the establishment of "communication," aligns most naturally with this agreed upon definition. The Court further notes that Simplification's definition demands only "physical" coupling by way of an "electron device." As above, the Court finds this definition to be overbroad. Accordingly, the Court concludes that "connecting electronically" means, as Block contends, "establishing communication between computerized devices without manual intervention from the user."

J. Communication Link & Processor

The Plaintiff construes "communication link" to refer to "the connection between computers that enables data transfer" citing Microsoft Computer Dictionary 98 (4th ed. 1999). The Plaintiff defines a "processor" to be "a unit comprised of hardware and/or software that processes computer-readable instructions." The Defendants did not propose an alternative to the Plaintiff's suggested constructions of "communication link" and "processor". In the hearing, the Defendants suggested that I adopt the Plaintiff's unopposed construction, so long as I also adopt their unopposed constructions of various other terms in the other claims. Since the scope of this construction is limited to terms in dispute in Claims 1 and 12, I need not consider the proposed constructions for other terms in the other claims. But, I will adopt the Plaintiff's constructions for "communication link" and "processor". Given the Defendants' concerns with respect to local memory, however, I adopt the Plaintiff's construction of "processor" with the caveat that it is a unit of the user's computer as distinct from the "remote
server." (col. 2, l. 8)

Construction: (connecting device) a network connection, such as the Internet, used for transferring data between computers

Construction: (processor) a unit of hardware and/or software, distinct for the remote server, that processes computer-readable instructions

Connecting to the network; providing to the user a connection to the network; all forms of connect

The parties differ as to whether a connection to the network is establishing a computer on the network (MyMail's proposed definition) or establishing a link to the network (Defendants' proposed definition). The Court adopts neither definition. MyMail's definition rolls the process of a user connecting to the network into the subsequent processes of a user's presence on the network being authenticated and the user being assigned a unique IP address. The specification teaches that the process of connecting is distinct from those two very closely related subsequent steps. See Col. 7:7-19; 11:31-33. Defendants' definition improperly substitutes "link" for "connection." Although a link may be the ordinary meaning of a connection, Claim 3 of the patent uses those two words differently.

The claims of the 290 patent in which these terms appear all deal with establishing network connections between the user's computer and the network. Upon completing a network connection, the user's computer is on the network. Once on the network, the user's computer has the ability to communicate with other computers on the network. Thus, the Court defines the above family of terms as "establishing the ability to communicate with the network" since the act of connecting, in the context of the 290 patent, establishes the ability to communicate with the network.

IV. "CONNECTING TOGETHER THE CIRCLES OF ADJACENT FAMILIES OF CIRCLES HAVING AN IDENTICAL INDEX TO FORM ISOLOOPS"

The limitation at issue here, found in claims 14 and 35, is "connecting together the circles of adjacent families of circles having an identical index to form isoloops." The parties' proposed constructions are as follows:

Plaintiff's Proposal
creating loops that contain
arcs of circles with the
same index from neighboring
circle families

Defendants' Proposal
Selecting circles that have been assigned
developmental indexes and using a smoothing
technique to connect those circles to form
sets of closed loops consisting of pieces
of the original circles and smooth curves
or lines joining those pieces. Although
the resulting isoloops are used in
generating the tool path, they are not the
toolpath itself.

Plaintiff argues that neither the claim language nor the specification requires a particular technique for connecting circles to form isoloops. Although Plaintiff's position is supported by the "bare" text in claims 14 and 35, some of the limitations proposed by Defendants are supported by language elsewhere in the patent. This language is particularly relevant because the term "isoloop" did not exist until this patent was drafted. It was coined by Defendant Evan Sherbrooke to describe the method claimed by the '013 patent. See generally Altiris v. Symantec Corp., 318 F.3d 1363, 1370 (Fed. Cir. 2003) ("[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.")
Based on the analysis set forth below, the Court adopts the following construction of the contested terms, which differs somewhat from the tentative construction it circulated at the Markman hearing:

connecting together the circles of adjacent families of circles having an identical index to form isoloops -- Selecting circles that have been assigned identical indexes and connecting those circles to form sets of loops consisting of pieces of the original circles and curves or lines joining those pieces.

Each section of the analysis below begins with text from Defendants' proposed construction.

A. The Connected Circles Must Have Identical Indexes

"Selecting circles that have been assigned identical indexes . . . ."

Plaintiff's construction describes connecting circles with the "same" index. Defendants describe connecting circles with "identical" indexes. The parties thus agree on this part of the Court's construction, and neither party objected to it at the Markman hearing.

B. A "Smoothing Technique" and "Smooth Curves" Are Not Required

". . . and using a smoothing technique to connect those circles to form sets of closed loops consisting of pieces of the original circles and smooth curves or lines . . . ."

At the Markman hearing, Plaintiff's only objection to the Court's tentative construction was that it included a requirement that the method use a "smoothing technique," and that the pieces of the original circles be joined by "smooth curves or lines." Plaintiff's arguments at the hearing have persuaded the Court that including this requirement would be an improper importation of a single preferred embodiment's features.

1. The Sixth Preferred Embodiment

The claim language -- "connecting together the circles of adjacent families of circles having an identical index to form isoloops" -- does not refer to any smoothing requirement. Defendants thus rely on the specification's Sixth Preferred Embodiment, which states that

After creating the circle graph, the circles of each family are indexed by numbering the circles from the outside in an ascending scale. The circles having the same index are then joined together into isoloops, so called because the isoloops are created by joining circles of the same index together. The joining process creates some combination of arcs (pieces of the original circles) and blends joining those pieces together. FIG. 22 is an illustration of the circle families being joined by the isoloops.

Preferably, the lines joining two circles together are constructed by: [here, a technique and formulas are described] . . . . One skilled in the art would recognize that other blending techniques that would maintain a tangent continuous tool path could be used to connect the circles.

('013 patent 20:28-53) (emphasis added). Previously in the specification, before any of the preferred embodiments are described, the patent's "Definitions" section defines "tangent continuous" as "forming a smooth curve." ('013 patent 5:30). It defines "smooth curve" as "a curve in which the unit tangent to the curve is continuous at every point along the curve." ('013 patent 5:21).

Defendants argue that because the Sixth Preferred Embodiment states that "[o]ne skilled in the art would recognize that other blending techniques that would maintain a tangent continuous tool path could be used to connect the circles," and because "tangent continuous" is defined earlier as "forming a smooth curve," the patentee meant to limit its claim to methods that use a "smoothing" technique. Defendants also argue that the connections in Figure 22, which is referenced in the Sixth Preferred Embodiment, are tangent continuous and thus smooth.

The Federal Circuit has repeatedly warned against relying solely on a single embodiment to limit the scope of a claim, and
Defendants have not pointed to other sections of the patent that would compel the conclusion that a smoothing technique is required. See Saunders Group, Inc., 492 F.3d at 1332; Intamin, Ltd., 483 F.3d at 1333; Phillips, 415 F.3d at 1323. Cf. ICU Med., Inc. v. Alaris Med. Sys., Inc., 558 F.3d 1368, 1374-76 (Fed. Cir. 2009) (adopting narrow construction of claim term where specification "repeatedly and uniformly" used the narrow definition); Kinetic Concepts, Inc. v. Blue Sky Med. Group, Inc., 554 F.3d 1010, 1017-19 (Fed. Cir. 2009) (adopting narrower construction where all of the numerous examples in the specification used the narrower meaning); iLOR, LLC v. Google, Inc., 550 F.3d 1067, 1073-75 (although claim language was itself clear, for sake of argument court notes that the specification repeatedly used narrow construction of term, and prosecution history disavowed broader construction); Amazin' Raisins Int'l, Inc. v. Ocean Spray Cranberries, Inc., 306 Fed. Appx. 553, 556-58 (Fed. Cir. Oct. 31, 2008) (unpublished decision limiting claim term based upon specification's detailed description of the invention, which appeared before any preferred embodiment was discussed).

But even if the Sixth Preferred Embodiment alone provided a basis for limiting the claim language, the text upon which Defendants rely does not in fact limit the preferred embodiment to a smoothing technique or smooth connections. It states that "[o]ne skilled in the art would recognize that other blending techniques that would maintain a tangent continuous tool path could be used to connect the circles." That language does not require or imply that only techniques maintaining a tangent continuous tool path could be used to connect the circle pieces. Nor does the Sixth Preferred Embodiment define "isoloops" in a manner that compels Defendants' construction. The closest it comes to stating a definition is the statement, "[t]he circles having the same index are then joined together into isoloops, so called because the isoloops are created by joining circles of the same index together." ('013 patent at 20:30-32.) That description of "isoloops" does not require smoothing, and the next sentence does not clearly supplement the meaning of "isoloops." Defendants also point to what they argue are tangent continuous connections illustrated in Figure 22, which is referenced by the Sixth Preferred Embodiment. But it is not at all clear to the Court how Defendants determined that the lines in the illustration are tangent continuous, particularly in light of Sherbrooke's statement in his declaration that the scale of the figure is too small to tell even whether the connections are straight lines.

--- Footnotes ---

5 The next sentence reads, "The joining process creates some combination of arcs (pieces of the original circles) and blends joining those pieces together." ('013 patent at 20:32-34.) As discussed below, "blending" is a technique for creating smooth curves.

The Sixth Preferred Embodiment later discusses a method for implementing the step of "generating the tool path by blending between the isoloops." Although this section of the Embodiment says that "[t]he blends are generated using the same exact blending function used . . . above," that function is described as a "preferabl[e]" embodiment. ('013 patent at 20:37, 20:54-55.)

--- End Footnotes ---

2. Claim language

Turning to the claim language itself -- the most important source of a term's meaning -- Plaintiff points out that in contrast to the next limitation in claims 14 and 35 ("generating the tool path by blending between the isoloops"), this limitation does not mention "blending." It is reasonable to assume that if the patentee had intended to require blending in this limitation, it would have said so explicitly. Even if this were not the case, there is nothing in the claim language that supports Defendants' position.

3. Purpose of the invention

Finally, Defendants provide an illustration generated by Defendant Evan Sherbrooke that purportedly shows that connecting circles without a "smoothing technique" would allow "bizarre" loops including "self-intersections, sharp corners, and wildly varying engagement angles." Sherbrooke Decl. II at 8-9, Fig. D. Sherbrooke contends that this output would be "fundamentally contrary to the invention." But as noted above, the Court is not in a position to evaluate whether such an output would be "fundamentally contrary to the invention." Even if it were, without some basis in the text of the patent or the prosecution history, that assertion alone is not enough to justify the importation of limitations from one preferred embodiment.
For these reasons, the Court concludes that it is not appropriate to include the "smoothing" requirements in its construction of this limitation.

C. It is Not Necessary to State that the Loops Must Be Closed

"... to form sets of closed loops . . ."

Plaintiff's expert argued against incorporating this language. He cited a dictionary definition of "loop" and made the observation that "since the isoloops are connected to other isoloops in the blending step, it would be unnecessary and superfluous to require that they be 'closed.'" Potel Decl. II P 18. The Court found this argument persuasive, and omitted the language from its tentative construction. Defendants did not object at the Markman hearing to the omission, and the Court will not include it.

D. It is Not Necessary to State that Isoloops are "Not the Toolpath Itself"

"Although the resulting isoloops are used in generating the tool path, they are not the toolpath itself"

Defendants contend that the next step listed in claims 14 and 35 makes clear that the isoloops are not part of the tool path because it states that the tool path is generated by "blending between the isoloops." (emphasis added). They also assert that the Sixth Preferred Embodiment supports this conclusion, as does the prosecution history. The Court was not persuaded by these arguments and omitted the language from its tentative construction. Defendants did not object at the Markman hearing to this omission, and the Court will not include it.

GO BACK

3. connectionless communications network (claims land 3-5)

Plaintiff's Construction: A network in which data packets are routed through devices independently, based on a destination address for the packet

Defendant's Construction: A network in which data packets are forwarded through devices independently, based on a destination address for the packet.

The parties dispute one word: are data packets "routed" or "forwarded" in a connectionless communications network? Neither party explains the difference between these two terms; presumably, "routed" means that a router is used and "forwarded" is used as a more general verb that includes "routing" but is not limited to that method. In any event, the specification supports plaintiff's construction: "in a connectionless communications network, data packets are routed through devices . . ." '042 pat., col. 3, lns. 35-36. Defendant cites other passages in the patent discussing other methods of sending messages, but none of them is defining a "connectionless communications network" as is the passage cited by plaintiff. Accordingly, I will adopt plaintiff's construction: "a network in which data packets are routed through devices independently, based on a destination address for the packet."

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"one or more connections for coupling to transmission media"

The term "one or more connections for coupling to transmission media" means at least one point of connection to a transmission media such as the PSTN that is different from the "one or more connections for coupling to a telephony server and a local area network."

Claim 1 of the '639 patent describes three connections: (1) a connection from the user communications device at the remote
site to the VPS at the corporate office through the transmission media (e.g., PSTN); (2) a connection from the VPS to the telephony server (e.g., PBX); and (3) a connection from the VPS to the LAN. 156 Claim 14, which is dependent on claim 1, necessarily requires the same three connections. Claim 39 describes the first connection.

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156 '639 patent, col. 25, line 31-col.26, line 6.

--- End Footnotes ---

Plaintiff argues that even though the three separate connections are shown in the embodiments to the '639 patent, claims 1 and 14 uses only the phrase "one or more connections for coupling" and that three distinct connections are not required. 157 Plaintiff urges that the specific phrase "one or more connections for coupling" means only "at least one point of connection for a data communications path." 158 The Court cannot agree. The claims themselves require connections and the claims describe distinct connections. Claim 1 requires that the remote user dial up, using the transmission media (e.g., PSTN), the "virtual presence server communication device" (e.g., one or more modems or one or more ISDNs) to establish a connection with the VPS. 159 The VPS is separately connected to the LAN and separately connected to the PBX. 160 The connections are most significant to the '639 patent in part because the examiner distinguished prior art based on the nature of the connections. 161

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157 Plaintiff's proposed findings of fact and conclusions of law do not address the connections in claim 39 regarding this issue. Docket no. 104 at 19-20.

158 Docket no. 104 at 19-20.

159 '639 patent, col. 2, lines 38-40 and figs. 1 and 2.

160 '639 patent, col. 25, lines 44-49.

161 Dx 2 at 3, Notice of Allowability, Nov. 13, 1997 ("The prior art cited by both applicant and the examiner requires the remote user to connect through the telephony server.") The patent specification distinguished the prior art based on the fact that the '639 patent did not claim a connection through the PBX: "It is noted that the system shown in FIGS. 1 and 2 does not include a key system or PBX intervening between the [VPS] and the remote users" ( '639 patent, col. 5, lines 45-48).

--- End Footnotes ---

5. "Connections over the telephone network."

USA Video proposes "Associations between two or more endpoints on a telecommunications network for the transfer of data." Time Warner suggests "Point-to-point calls, each call to a single intended recipient over telephone lines, which calls are established before transmission of the requested program, and do not involve broadcast cable techniques." The court construed the term "telephone network" in Part III(1) supra; therefore, the court will focus on the construction of "connections" here.

USVO argues that "connection" should be given its ordinary meaning. It cites to the 1999 Edition of the IEEE Standard Dictionary, which defined "connection" as "an association established between two or more endpoints or the transfer of data." The Authoritative Dictionary of IEEE Standards Terms, Pl. Claim Const. Br., Ex. C, at 220 [Doc. # 149, p. 4 of 4]. USVO's expert, Dr. Beckmann, stated that such a definition is consistent with the way that the term was used in 1990-92. Time Warner argues that even if the court were to agree that this was how the term was used at the time of the invention, the applicants disclaimed a definition of "connection" that was this broad.
For instance, Claim 1 states that both the request and distribution interfaces are connected to the telephone network, '792 Patent, col. 7, ll. 45-46, 50-51. In order to overcome a prior art reference during prosecution, which recited a system in which video programs were transmitted over a fiber optic cable and sent to multiple recipients, the applicants stated:

The system of Claim 25 [later Claim 1 of the '792 Patent] is directed to a system which has a central data facility for storing video programs. A request interface is provided, which receives call in requests over the telephone network. A distribution interface then initiates a call to a remote unit, and transmits a compressed video program to it.

Amendment of 5/22/91, Def. Claim Const. Br., Ex. 1-A at 8 [Doc. # 152, p. 9 of 12]. The applicants go on to state that the "distribution interface initiates all calls to remote units before transmitting the video programs to them…the claimed system sends a program only to a single intended recipient." Id. The applicants clearly distinguished their own invention over the prior art on the basis of transmission to a single recipient and repeatedly used the word "call" when referring to the program requests and transmissions. 6 At the hearing, USVO agreed that the requested program is transmitted to a single customer. Tr. at p. 109, ll. 5-8.

--- Footnotes ---
6 For a discussion of this part of the prosecution history, see USA Video Tech. Corp. v. Movielink LLC, 354 F. Supp. 2d 507, 513-520 (D. Del. 2005)(construing "initiates" as "begins" and holding that the central facility initiates the new connection).
--- End Footnotes ---

While "call" is frequently used by applicants in the prosecution history, the court's concern is that jury confusion may result from its use in claim construction. A "call" implies that some voice component is involved, which is not true with respect to the program sent by the distribution interface to the remote unit. A jury is naturally inclined to assume "call" and "telephone call" are synonymous, when they clearly are not in this case. At the hearing, Time Warner suggested using the term "data call" rather than "call," Tr. at p. 109, ll. 17-19, while USVO stated that "communication" would be less confusing than "call" or "data call." Tr. at p. 109, ll. 19-23. The court is of the opinion that "communication" has the advantage of being clearer than "call" or "data call," and would also alleviate Time Warner's concerns that USVO's proposed construction attempts to re-claim subject matter surrendered during prosecution. The court will define this term as follows:

"Connections over the telephone network" means "Communications to a single intended recipient over the telephone network."

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IV. Claim Phrase of "connections through the Internet"

In the Memorandum, Windy and AOL indicate that they disagree as to how the phrase "connections through the Internet" should be construed in the '491 Patent. (Mem. 20,27). Windy contends, with respect to Claims 1 and 40 of the '491 Patent, that the phrase "connections through the Internet" should be construed as follows:

A communications path between the controller computer device(s) and each participator computer. The communication path passes through, or by way of, the Internet. In other words, the Internet forms at least one link in the chain of the overall communication path between the controller computer device(s) and each participator computer. The Internet is an electronic communications network that is formed by the interconnection of public and/or private networks and organizational computer facilities around the world.

(Mem. 20-21). AOL disagrees with Windy's proposed construction and argues that the phrase of "connections through the Internet" should be construed as the "use of non-propriety, platform-independent applications and protocols for communicating over the public, global series of interconnected TCP/IP networks independent of the control of any particular limited audience Internet service provider." (Mem. 21,27). Specifically, AOL contends that in the context of '491 Patent, the phrase "connections through the Internet" should be construed as "requiring" the "use platform independent, non-
propriety applications." (Mem. 27-31). Windy argues that AOL "has attempted to rewrite the claim language" in this regard and has proposed a construction which adds "limitations" to the claims. (Mem. 21-24).

The Federal Circuit has clearly stated that a court may examine the "interpretative context" of claims "from the specification and the prosecution history," but that a court "may not read limitations into the claims." Rambus Inc. v. Infineon Technologies Ag, 318 F.3d 1081, 1088-1089 (Fed. Cir. 2003); see also Northern Telecom Ltd. v. Samsung Electronics Co., Ltd. 215 F.3d 1281, 1290 (Fed. Cir. 2000)(stating that this "court has repeatedly and clearly held that it will not read unstated limitations into claim language."). In addition, the Federal Circuit has found that it is "improper for a court" to "add 'extraneous' limitations to a claim." Hoganas AB v. Dresser Industries, Inc., 9 F.3d 948, 950 (Fed. Cir. 1993)(quoting in part E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, (Fed.Cir. 1988)).

In support of AOL's position that Claims 1 and 40 require that "connections through the Internet" can only be made through platform independent, non-propriety applications, AOL cites to numerous dictionaries and treatises which define and interpret the word "Internet." (Mem. 27-28). AOL further contends that the specification of '491 Patent "confirms" its position with regard to the phrase "connections through the Internet." (Mem. 28). However, the evidence submitted by AOL has failed to provide the court with any basis to construe that Claims 1 and 40 require that "connections through the Internet" can only be made through platform independent, non-propriety applications. Further, since Claims 1 and 40 of the '491 Patent do not even mention whether "connections through the Internet" can be made through platform independent, non-propriety applications, we decline to add this limitation. Hoganas AB, Inc., 9 F.3d at 950.

In accordance with the guidance provided in Texas Digital, we shall utilize a dictionary to ascertain the ordinary meaning of the term "Internet" at the time the '491 Patent was "issued" in 1999. Texas Digital Systems, Inc., 308 F.3d at 1203. In 1999, the time period in which the '491 Patent was issued, the Merriam-Webster's Collegiate Dictionary defined the term "Internet" as "an electronic communications network that connects computer networks and organizational computer facilities around the world." Merriam-Webster's Collegiate Dictionary 612 (10th ed. 1999). Therefore, the phrase "connections through the Internet" shall be construed, for purposes of the '491 Patent, as a "connection through an electronic communications network, known as the Internet, that further connects computer networks and organizational computer facilities around the world."

13. Connectors.

Intergraph argues this term carries its ordinary meaning to a person skilled in the art. Intel contends "connectors" lacks a commonly understood meaning as used in the context of the claims. Relying upon Fig. 10, Intel defines "connectors" as a series of instruction word paths with regard to "first set of connectors" and a series of pipeline pathways with regard to "a second set of connectors." The Court construes "connectors" as conductors or terminals for making connections.'028 patent at 10:3-9.

The Court is of the opinion that its resolution of the meaning of the above terms resolves the parties' disputes with regard to the '028 patent and that any remaining terms need not be construed.

B. "Consisting Essentially of"

The first term to construe is "consisting essentially of and is found in the preamble of claim 2. Digital Angel argues that the phrase is a term of art in patent law that has a well established meaning. Accordingly, Digital Angel avers the term is "a non-limiting transition phrase used to indicate that the invention necessarily includes the listed claim elements and is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention." Joint Claim Constr. Statement, App. A at 1. By contrast, Defendants argue that the term means "including only those elements recited in the claim, and no additional elements that materially affect the characteristics of the claimed invention." Id.
Both parties refer to PPG Indus. v. Guardian Indus. Corp., 156 F.3d 1351 (Fed. Cir. 1998) for support. In PPG Indus., the Federal Circuit stated:

"Consisting essentially of is a transition phrase commonly used to signal a partially open claim in a patent. Typically, "consisting essentially of" precedes a list of ingredients in a composition claim or a series of steps in a process claim. By using the term "consisting essentially of," the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.

156 F.3d at 1354. In the '129 patent, claim 2 begins "[a] transponder for syringe implantation into a host animal, consisting essentially of:" and then lists materials included in the transponder. '129 patent, col. 13:41-60. "Consisting essentially of" is construed in accordance with the Federal Circuit's construction of the term in PPG Indus. to mean "the invention necessarily includes the listed claim elements but is open to unlisted claim elements that do not materially affect the basic and novel properties of the claimed invention."

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8. Supports consisting essentially of electrically conductive interconnects (claims 22, 33, 35)

Plaintiff contends that this term does not need to be construed, while Defendants contend that it means "the supports are made out of electrically conductive material and not electrically non-conductive material." The parties' primary dispute is whether the patentee limited "consisting essentially of" to mean "consisting only of" during prosecution.

Both parties acknowledge the general rule that "consisting essentially of" usually signals that the claim "is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention." PPG Indus. v. Guardian Indus. Corp., 156 F.3d 1351, 1354 (Fed. Cir. 1998); Plaintiff's Opening Brief at 22; Defendants' Opposition Brief at 23. Defendants argue, however, that the inventor unequivocally disavowed a certain meaning to obtain his patent. Defendants' Opposition Brief at 23-24 (citing Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003)).

Specifically, Defendants rely on an examiner interview summary dated November 18, 1996, where the patentee and the examiner discussed "[c]laims amended and/or added relating to the limitation regarding the mechanical support [consisting] solely (or essentially) of electrically conductive connections" in response to a rejection based on the Higashi et al. prior art reference. Defendants' Ex. 7 at 305. Subsequent to that interview, Defendants argue, the patentee amended claim 22 and stated that "[i]t is well known in the art that silicon nitride is an insulator, not a conductor. Higashi et al. do not teach or suggest a structure [having] supports that consist essentially of electrically conductive interconnects." Defendants' Ex. 7 at 323 (November 25, 1996 Amendment). Contrary to Defendants' argument, however, neither of these statements approaches a clear and unmistakable disclaimer of claim scope or an unequivocal disavowal of the ordinary meaning of "consisting essentially of." Indeed, the patentee distinguished Higashi et al. on the basis that the reference does not teach or suggest a structure having supports that consist essentially of electrically conductive interconnects. Id. Neither of the statements upon which Defendants rely purports to limit "consisting essentially of" to "consisting solely of."

Because a jury will readily understand the meaning of this term as drafted, and because the patentee did not alter the ordinary meaning of this term during prosecution of the patent, the court finds that this term does not need to be construed.

See U.S. Surgical Corp., 103 F.3d at 1568.

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1. "consisting of a steady-state component and a transient component subsequent to said arbitrary time" ('326 patent, claim 1)

AVID contends that this term should be construed as "consisting of, after the arbitrary time, a component in which one or more characteristics exhibit only negligible change over time (i.e., a steady state component) and a variable component that
The Defendants argue that the term means "consists of a component corresponding to a condition in which circuit values remain essentially constant (i.e., a steady state component) and a component caused by a sudden change in conditions and which persists for a relatively short time after the change (i.e., a transient component)." After carefully considering the parties' proposed constructions and the '326 patent, the Court is persuaded that AVID's proposed construction is correct and adopts it.

"console"

Various asserted claims of the patents-in-suit contain the term "console." ACQIS contends the term means "an enclosure with internal power and data connections for housing computer modules and other computer system components to the extent recited in the claims." Defendants originally contended the term meant "a chassis with a motherboard that connects several components of the computer system, capable of operation as a computer only upon connection to a computer module." However, at the claim construction hearing, Defendants deleted the phrase "with a motherboard" from their proposed construction. Also at the hearing, ACQIS acknowledged that it would agree to construing a "console" as "a chassis that connects several components of the computer system," but would not agree to the portion of Defendants' proposal that imports a negative limitation into the claims. Thus, the parties' dispute centers around the inclusion of "capable of operation as a computer only upon connection to a computer module."

ACQIS argues that the intrinsic evidence shows that the computer module requires a connection to a console for the computer module to operate as a computer system, but there is nothing that prevents the console itself from functioning as a computer system on its own without a computer module. ACQIS contends that the real purpose behind Defendants' proposal is to add functionality to the backplanes or chassis structures of their systems to avoid infringement. The claims themselves specify the division of a personal computer into two subsystems: the ACM and the PCON. However, the claims use the open-ended transition term "comprising," and thus an accused "console" may have additional computer functionality, yet nevertheless be a "console" as specified by the claims. Because there is nothing in the claims that limits the functionality of a console, Defendants' proposal which imports a negative limitation into the claims is improper. Accordingly, the Court construes the term "console" to mean "a chassis that connects several components of the computer system."

- "incrementing the count in the accumulator by a constant" is construed to encompass a constant whose range is typically between 0 and 1000. Newbridge contends that the constant referred to in this phrase must be a non-zero constant. After reviewing the claim language and the specification, the Court concludes that Newbridge's construction is contradicted by the specification which states that the constant can be a value between 0 and 1000. (810 Patent, col. 7, ll. 12-21). Accordingly, in the Court's view, its construction of this phrase is consistent with the express language of the specification.

2. "Power Supply Circuit"
Claims 28, 36 and 38 of the Reissue Patent incorporate a power supply circuit. The principle area of dispute, it appears, is the parties disagreement over whether terms such as "constant current" and "high impedance," as used in the context of the Reissue Patent, are too ambiguous and require a precise numerical value. In regards to the power supply circuitry of claim 28, Rockford argues that: (a) the term "constant current" is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation; (b) the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance; and (c) the phrase "increase electrical isolation between the first stage and the at least return signal" lacks definite meaning because the first stage is not isolated from the return reference potential, and the patent provides no baseline for measuring increase. (Def.'s Markman Br. at 2-3, 32-44.)

Rockford argues that the terms "constant current" and "high impedance" require some absolute numerical value because they are ambiguous and indefinite. Id. at 23-27. According to Rockford, the term "constant current" of claim 28 of the Reissue Patent is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation. (Def.'s Markman Br. at 2.) Rockford also alleges that the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance. Id. Finally, Rockford concludes that the phrase "increase electrical isolation between the first stage and the at least one return reference signal" lacks definite meaning because the first stage is not isolated from the return reference potential, and the patent provides no baseline for measuring an increase. Id. at 2-3.

Fiori counters that the intrinsic evidence clearly demonstrates that the claim language of the patents-in-suit were presented and approved by the PTO examiners, and therefore do not violate 35 U.S.C. § 112 (2) or require some absolute numerical value. (Pl.'s Markman Br. at 11.) Fiori asserts that "[t]he specification and Figures provide a complete definitional framework" for its claims. (Pl.'s Markman Br. at 20.) He contends that the Reissue Patent defines "constant current" as an exact current precisely metered through each transistor to operate the op-amps. Id. at 27. Fiori claims that the specification of the Reissue Patent teaches and defines that this power supply provides a current to the first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps (e.g., 38) so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current path. Id. According to Fiori, because the current is metered precisely, any changes and potential of the op-amp supply pins will have no bearing on the current delivered. Id. As a result, the effective impedance of the power supply is extremely high. n28 Id. Fiori further contends that "constant current," defined in the specification with precision, is a "degree term." (Pl.'s Markman Br. at 11 n.5.)

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n28 Figure 3 in the specification similarly describes an alternative power supply for providing a constant current.

--- End Footnotes ---
This Court does not agree with Rockford's position that claim 38 includes the voltage regulator circuitry found within the constant current circuits. (Def.'s Markman Br. at 2, 24-30.)

In its Markman brief, Rockford first contends that the ordinary meaning of the words of claims 36 and 38 place the "constant current" between the power supply and the first power supply circuit. Id. at 25. According to Rockford, analogous to a "farmer drawing water from a well," the first power supply circuit performs the act of drawing and the power supply circuit draws current toward itself from the power supply. Id. at 26. Thus, Rockford believes that the location of the "constant current," as described in both claims, must be restricted because the limitations refer "to the particular water the farmer takes from the well" . . . and do "not refer to water used in the barn where animals drink." Id.


In regards to the power supply circuitry of claims 36 and 38, Rockford argues that: (a) the location of the "constant current" in both claims is between the power supply and the first power supply circuit because claims 36 and 38 state that the first power supply circuit draws the current from the power supply; and (b) the elements of the voltage regulation means in claim 38 include a bias voltage circuit. (Def.'s Markman Br. at 2, 24-30.)

This Court of Appeals does not agree. As previously stated, "if the claims, read in the light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed Cir.) cert. dismissed, 474 U.S. 976, 106 S. Ct. 340, 88 L. Ed. 2d 326 (1985) (quoting Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F.2d 124, 136, cert. denied, 358 U.S. 884, 79 S. Ct. 124, 3 L. Ed. 2d 112 (1958)). Here, the term "constant current," as described in claims 36 and 38, is specifically defined in the specifications and claims and is not required to be situated between the first power supply circuit and the power supply. As such, Rockford's construction of claims 36 and 38 is too narrow in scope and its "farmer and the well" rationale is tenuous and unpersuasive. Rockford further asserts that the "voltage regulation means" of claim 38 includes the voltage regulator circuitry found within the constant current circuits. Despite the parties stipulating that "voltage means" includes transistors 22, 24, resistors 21, 25, and op-amps 23 and 26, Rockford interprets the pertinent language of the specification n30 of claim 38 to include elements 80, 82 and 84 and 85 and the op-amps requiring a bias voltage circuit. Id. at 2, 25, 27-30. According to Fiori, the first and second stage recitals of claim 38 are identical in scope to claim 36 and the power supply in claim 38 is recited as comprising a voltage regulating resistor and op-amps and zener diode 43 and 45. Id.

n30 The op-amps provide the biasing necessary for the transistors to conduct exactly that current required to produce that voltage across the resistors that match the biasing voltages produced by zener diodes 80 and 85 in combination with resistors 82 and 84. The Reissue Patent, column 5, line 18-27. Capacitors 81 and 86 are included to further reject any interference which may be present on the power supply as provided by contacts 91, 89 and 90. In this way, an exact current is precisely metered through each transistor to operate op-amps 13, 16, 38 and 41. Id. The op-amps provide the biasing necessary for the transistors to conduct exactly that current required to produce that voltage across the resistors that match the biasing voltages produced by zener diodes 80 and 85 in combination with resistors 82 and 84. Id. Capacitors 81 and 86 are included to further reject any interference which may be present on the power supply as provided by contacts 91, 89 and 90. Id. In this way, an exact current is precisely metered through each transistor to operate op-amps 13, 16, 38 and 41. Id.
constant current circuits. Rockford fails to establish the relevance or materiality its assertion serves for the purpose of this Markman process. n31

n31 Similarly, Rockford's argument that Fiori's claim constructions are unfounded in an effort to cover up the flaws of Plaintiff's case, is irrelevant for purposes of this Markman process. (Def.'s Rebuttal Br. at 25-30.)

IV. CONCLUSION

The Court concludes that the disputed terms have the following meanings:

1. "Input Portion" of claims 1 and 17 of the '148 Patent shall mean a specifically defined physical structure, connected to two conductors and recited as generating an intermediate signal.

2. "Output Portion" of claims 1 and 17 of the '148 Patent shall mean a physical structure, specifically defined as op-amp 65, which is separate, independent and isolated from the input operational amplifier and recited as generating a destination signal and a corresponding destination reference signal.

3. "Second Stage" of claim 28 of the Reissue Patent shall mean a stage, operatively coupled to the first stage, generating an output signal which is a sum of the at least one intermediate signal generated in the first stage minus a potential of the at least return reference signal plus an output return reference signal.

n32 There is no issue between the parties regarding the "first stage" of the Reissue Patent.

4. "High Impedance" of claim 28 of the Reissue Patent shall mean a mathematically sufficient term of degree for providing a constant current power supply circuit coupled to said first stage to increase electrical isolation between the first stage and the at least one return reference signal.

5. "Constant Current" of claims 28, 36 and 38 of the Reissue Patent shall mean an exact, non-absolute numerically valued current, precisely metered through each transistor to operate the op-amps, and not required to be situated between the first power supply circuit and the power supply.

6. "Power Supply Circuit" of claims 28, 36 and 38 of the Reissue Patent shall mean a first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps (e.g., 38) so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current pathway.

An appropriate order follows.
interpreted include claim terms 15 and 15a ("constant") and claim terms 9 and 31 ("continuously"). The terms as shown on
the Joint Claim Chart, in simplified form, are as follows:

9. "transmitting said electromagnetic signal continuously"
15. "constant electromagnetic signal with time"
15a. "constant calibration signal with time"
31. "whereby the depth of the boring tool can be continuously monitored as it moves from said first point to said second
point"

First, the Court looks to the terms as they appear in the context of the claims themselves. As the context of the claim terms
is particularly important for these claim terms, the Court quotes heavily from the language of the claims. Claim 1 of the '258
Patent includes the following language:

1. In a method for locating a boring tool that moves through the ground from a first point to a second point in directions
dependent on the roll orientation of the boring tool and during which time the roll orientation of the boring is controllably
changeable throughout 360 degrees of roll orientation in order to steer it between said first and second points, said method
using (1) a transmitter and power supply carried by the boring tool within an electrically conductive housing for
transmitting to an above ground location an electromagnetic signal containing information which is used in obtaining the
location of the boring tool and (2) a receiver located at said above ground location for receiving and processing said
electromagnetic signal whereby to determine the location of the boring tool, the improvement comprising the steps of:

transmitting said electromagnetic signal continuously as said boring tool moves from said first point to said second
point independent of the roll orientation of the boring tool at any point throughout its 360 degree of roll orientation,
whereby the transmitter is able to transmit and the receiver is able to receive said information containing signal irrespective
of the roll orientation of the boring tool so that the depth of the boring tool can be determined regardless of its direction of
movement from said first point to said second point; and

maintaining the strength of said signal substantially constant with time at any given point relative to said transmitter as
the signal is being continuously transmitted,

whereby the depth of the boring tool can be continuously monitored as it moves from said first point to said second
point.

(emphasis added). Similarly, Claim 4 of the same patent includes the following language:

4. In a method for locating a boring tool that moves through the ground from a first point to a second point, said method
using (1) a given transmitter . . . and (2) a receiver . . . whereby to determine the location of the boring tool, the
improvement comprising the steps of:

(a) providing a specific positional relationship between said transmitter and receiver and, while maintaining that
positional relationship, transmitting a CONSTANT electromagnetic signal with time from said transmitter and receiving
said CONSTANT signal from said receiver;

(b) obtaining distance and electromagnetic signal field strength measurements (i) based on said positional relationship
between the transmitter and receiver and (ii) based on the transmission and reception of said constant signal by said
transmitter and receiver, respectively, and using those measurements, establishing a proportionality constant k of said dipole
FOR SAID GIVEN TRANSMITTER AND RECEIVER . . .

(c) thereafter, using said proportionality constant and a CONSTANT electromagnetic signal with time, causing said
receiver to determine the depth of said boring tool.

(emphasis added). Finally, in regards to claim term 15a, Claim 9 of the same patent contains the following language:
9. In a method for locating a boring tool that moves through the ground from a first point to a second point during which time at least the roll orientation of the boring tool changes, said method using: (1) a given transmitter . . . and (2) a given receiver . . . whereby to determine the location of the boring tool, the improvement comprising the steps of:

(a) providing a specific positional relationship between said transmitter and receiver and, while maintaining that positional relationship, transmitting a CONSTANT electromagnetic calibration signal with time from said transmitter and receiving said CONSTANT signal from said receiver;

(b) obtaining distance and electromagnetic signal field strength measurements (i) based on said positional relationship between the transmitter and receiver and (ii) based on the transmission and reception of said constant signal by said transmitter and receiver, respectively, and using those measurements, establishing a proportionality constant k of said dipole FOR SAID GIVEN TRANSMITTER AND RECEIVER . . .

(c) thereafter, using said proportionality constant and a CONSTANT electromagnetic signal, causing said receiver to determine the depth of said boring tool.

(emphasis added).

Plaintiff would have these terms be limited to a continuousness or constancy of spatial orientation, in other words that the transmitter simply be capable of transmitting a signal throughout the entirety of its roll. Defendant, on the other hand, argues for an interpretation of these terms in a temporal sense. Defendant argues that "continuously" should mean that the electromagnetic signal is transmitted without interruption, and that "constant" should mean that the signal is uninterrupted and of unchanging magnitude.

The Court finds that the parties' interpretations are both in part correct and in part incorrect. First, claim term 9 "continuously" is presented in the following context: "transmitting said electromagnetic signal continuously as said boring tool moves from said first point to said second point independent of the roll orientation of the boring tool at any point throughout its 360 degree of roll orientation." '258 Patent, Claim 1 (emphasis added). The context in which the word "continuously" is found thus indicates that it relates to the spatial orientation of the boring tool. This is consistent with certain parts of the specification and prosecution history in which the inventor describes the prior art, which involved a window through which the signal could be transmitted. This design was inferior to the present design (using "slots" or "apertures") because the former design had a "blind spot" through twenty degrees of its rotation during which depth information could not be obtained, and a variation in signal strength depending on the roll angle of the boring tool. See '589 Patent, Col. 5:61 - Col. 6:4; Prosecution History of the '258 Patent, 11/19/98 Amendment at 5 (Pl's Hearing Ex. 9) ("the location of the boring tool is continuously available throughout the entire 360 degrees of its roll orientation, that is, it is independent of roll orientation."). Thus, the Court interprets the term "continuously" to mean that the signal is always available throughout the roll angle of the boring tool, in other words that the transmitter is capable of transmitting and the receiver is capable of receiving the electromagnetic signal independent of the roll angle of the boring tool.

The Court interprets claim term 31 in a similar fashion. In its proper context in Claim 1 of the '258 patent, it is clear that this claim term is describing a method in which the boring tool depth may be monitored without regard to the roll angle of the boring tool. This is shown most aptly by the language in the claim itself prior to the language of the claim term: "at any point throughout its 360 degree of roll orientation," "irrespective of the roll and orientation of the boring tool." As these claim terms are found within the same claim, they should be construed consistently. Claim term 31 refers to continuousness in a spatial sense.

Nevertheless, this interpretation does not compel an identical interpretation of the claim terms that include the word "constant." There is a distinction to be drawn between a signal that is "continuously transmitted" and one that is of "constant strength." The first instance of this word is in Claim 1 of the '258 Patent, which states: "maintaining the strength of said signal substantially constant with time at any given point relative to said transmitter as the signal is being continuously transmitted." (emphasis added). In Claims 4 and 9 of the same patent, the following phrase is seen: "transmitting a CONSTANT electromagnetic signal with time from said transmitter and receiving said CONSTANT signal." Here, the language of the claims, taken in the proper context, indicates that the signal is constant. The Court does not know how else to read the term "constant with time" other than to say that the signal remains constant with time. With a standard dictionary
definition of the word "constant" being "a value that does not change during a particular process," McGraw-Hill Dictionary of Scientific and Technical Terms, 468 (6th ed. 2003), this term does not appear to allow for a signal that is on-off keyed, such as a pulsed signal.

Other sources, both intrinsic and extrinsic, support this construction. The specification, for example, touts the invention's ability to provide the user with "precise and continuous depth and periodically updated orientation measurements." '589 Patent, Col. 6:24-26. This is consistent with DCI's own literature, describing its device as providing "depth shown continuously" (emphasis in original) and "roll updated every 1/4 second." See Def's Hearing Ex. 227. Further, this is consistent with the testimony of Dr. Mercer, both in his deposition taken during a prior case against Radiodetection Corp., and his testimony given during the claim construction hearing. First, during the Radiodetection case, Dr. Mercer was asked about the "constant electromagnetic signal with time" and how such a signal might not be constant. He replied "It could be varying on and off." Mercer Dep. 09/13/00 at 286-87. More convincing, however, is his testimony during the hearing. When asked about the carrier frequency, he explained:

Basically there is a characteristic of the signal that is unvarying with time and rotation angle. And based on that unvarying component of the signal that's being received we can determine the depth because of the one-to-one relationship between depth and signal strength.


All of the above evidence, both intrinsic and extrinsic, indicates that the terms "constant electromagnetic signal with time" and "constant electromagnetic calibration signal with time" mean that they are uninterrupted signals over time. This necessarily excludes signals that are pulsed or on-off keyed. These constructions are also consistent with the Court's interpretations of the means plus function claims above, as well as the constructions concerning the electromagnetic signals.

II. "constant value"

6 The term "constant value" is contained in claims 1, 6, and 12-16 of the '646 patent and claims 1 and 7 of the '612 patent.

6 The term "constant value" is contained in claims 1, 6, and 12-16 of the '646 patent and claims 1 and 7 of the '612 patent.

Alternatively, "a value that does not change for any given instance of generating an encryption key"

The patents-in-suit both contain the claim term "constant value." PACid advocates that a plain reading of the claims and patents-in-suit illustrates that a "constant value" is "not a universal and immutable value that does not change." OPENING at 5. Should a construction be necessary, PACid suggests: "a value that does not change for any given instance of generating an encryption key." PACid supports its alternative construction with language in the '612 specification describing examples of a constant value as having "several different components that can be changed." Id. (citing '612 patent at 6:6-21). Using the E-Key Seed ID as an example, PACid contends that the constant value can differ amongst host systems and that "different values can have different lengths." OPENING at 5.

Defendants dispute this approach, arguing for the dictionary definition of "constant value," meaning "[a] value that does not change." RESPONSE at 26. Defendants contend that the patentee never choose to be his own lexicographer and their proposed construction ascribes a meaning to "constant" that aligns with the commonly accepted meaning of the term.
short, Defendants maintain that the value does not deviate based on circumstances. Id.

As an initial matter, the differences articulated between PACid and Defendants' proposed constructions indicate uncertainty as to the claim term's scope, which is properly resolved through claim construction. O2 Micro, 521 F.3d at 1361 ("A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary meaning does not resolve the parties' dispute."). The application of "constant" throughout the patents does not indicate that the patentee chose to ascribe a special meaning to this term. Therefore, in the absence of any "special definition," one of ordinary skill in the art would understand "constant" to mean what it means in a dictionary: "unchanging, permanent, or fixed." See Comaper Corp. v. Antec, Inc., 596 F.3d 1343, 1348 (Fed. Cir. 2010) (where the patent specification does not assign or suggest a particular meaning to the claim term, the claim is to be construed as it would be understood by a person of ordinary skill in the art in light of a general dictionary definition) (internal citation omitted); see also AM. HERITAGE COLLEGE DICTIONARY 298 (3d ed. 1993).

As such, the Court finds the Defendants' proposed construction uncontroverted by the intrinsic record and affirmatively supported by the extrinsic record.

Although clearly presented, Defendants' proposed construction does not account for the particular context in which an encryption key is generated. In order to decipher the scope of the claim term, it is proper to evaluate the particular circumstances required to generate the key. See Therasense, Inc. v. Becton, Dickinson and Co., 593 F.3d 1289, 1323 (Fed. Cir. 2010) (recognizing that "patentees frequently use terms idiosyncratically," which is why persons of ordinary skill must look to the full context in which a term is used) (citing Phillips, 415 F.3d at 1314). In other words, while "a value that does not change" is an accurate depiction of how "constant value" is used throughout the patents, it is also appropriate to clarify how this general term is understood in light of the process disclosed in the claims. To that end, the Court finds that the patents-in-suit only require that the "constant value" be constant for the purpose of generating a given encryption key (regardless of how many times the key is produced), and once that key is generated, another constant may be used to generate a different encryption key.

The meaning of "constant" in the asserted claims is only fully understood through the patents' description of the larger encryption/decryption process. 7 This is unambiguously borne out in the '612 patent specification at column 6, lines 6 through 21, as well as Figure 6. The described examples, using references to the E-Key Seed ID, show that a "constant value" has different components that can be changed, and thus, disclose a different "constant value" for each encryption key. In particular, a "constant value" can include an E-Key Seed ID, and the user may choose to assign another E-Key Seed ID. See '612 patent at 6:13-18 ("When the constant value 11 is first being formed, the E-Key Seed ID is automatically entered as that of the host system. A user is prompted, however, to either accept the ID or assign another. In this manner, files may be shared between PCs, workstations, and workgroups that normally use different E-Key Seeds.").

7 The importance of the circumstances underlying this term can be aptly analogized to familiar "constant values" like Pi or the acceleration of gravity. While Pi is an immutable constant that does not vary with context, the acceleration of gravity depends upon location because gravity varies with contextual facts such as altitude and local properties of the Earth (e.g., density and shape). Yet, both Pi and the gravitational pull are true constant values. Like gravity, the constant value in these patents depends upon circumstances such as the length byte and E-Key Seed ID.
3. "power or power-spectral-density constraint"

With regard to the third disputed claim term, Plaintiff does not offer a proposed construction, but rather asserts that it is indefinite and invalid. Plaintiff interprets Defendants' proposed construction as one that is "effectively synonymous" with the meaning of "power mask." (Pl.'s Reply at 11). Based on the claim language and specification, Plaintiff asserts that the terms "power- spectral-density constraint" and "power mask" cannot be synonymous. (Pl.'s Reply at 11; Tr. at 19:15-20:5).

Plaintiff is correct. It is clear, however, that Defendants do not propose that "power constraint" and "power mask" mean the same thing. At the hearing, Defendants described the system as having a "power constraint" which serves as an overall limit to the transmitter, as well as a "power mask" which limits the power in each individual carrier. (Tr. at 17:9-13, 18:1-2).

Further, the plain language of Claim 1 clearly differentiates between the terms "power mask" and a "power or power-spectral-density constraint." Moreover, the specification also differentiates between these terms:

When given a set of initial SNR estimates of the orthogonal carriers of a multicarrier communication system, a set of target bit error rates for the carriers, and an arbitrary transmit power mask together with an overall transmit power constraint, the present invention provides a method of determining the initial bit and energy allocations, and therefore the corresponding bandwidth.

'447 Patent, col. 7, 11. 11-17 (emphases added). Therefore, these terms are not interchangeable.

Regarding the proper construction of "power or power-spectral-density constraint," Defendants propose that the term should be read in the disjunctive. Specifically, Defendants argue that the transmitter is subject to either a "power constraint" or a "power-spectral-density constraint." 7 (Tr. at 16:13-24). A plain reading of the claim language supports this proposition.

Defendants submit that "power constraint" refers to "an absolute limit on the transmitter power," and "power- spectral-density constraint" is "one that may vary by frequency." (Id.). Defendants noted at the hearing that this definition for "power constraint" directly originates from the specification. The basis of Defendants' definition for "power-spectral-density constraint," however, is unclear.

The Court agrees with Defendants' construction of "power constraint" as a limit of maximum power based on the specification. A preferred embodiment of the invention, as explained in the specification, describes an algorithm associated with the initialization procedure. This states that the mathematical term E\(_{\text{target}}\) equals the "total input energy, or power constraint at the transmitter," and E\(_{\text{max}}\) is the "maximum energy, or power, allowable in [a] carrier due to the transmit power mask." '447 Patent, col. 8, 11. 17-22; col. 9, 11. 49-54. Thus, it appears that E\(_{\text{target}}\) is the maximum amount of energy at the transmitter and E\(_{\text{max}}\) is the maximum energy that can be used by each individual carrier. Additionally, the specification states that "in no event is \(E_{\text{target}}/k\) (k being the number of used carriers) greater than the allowable amount of individual carrier transmit energy due to the power mask." '447 Patent, col. 8, 11. 25-27. This description comports with Defendants' proposed construction for "power constraint."

The Court is then left to determine the proper construction of "power-spectral-density constraint." In defining this term, the record is limited to several dictionary definitions cited by Defendants, the claim language, specification, and the opinion of Defendants' expert, Tim A. William, Ph.D. ("Dr. Williams"). Defendants' proffered construction is based on a series of dictionary definitions. Such definitions, however, are taken from dictionaries that were published well after the patent issued. The Federal Circuit noted that reliance on dictionaries and treatises should be limited to those that are contemporaneous with the patent. Brookhill-Wilk, 334 F.3d at 1299 (declining consideration of references published after the date of the patent grant because they did not reflect the definitions that would have been given to them by a person of ordinary skill in the art). In the present case, the '447 Patent was filed in May 1993 and issued in December 1995.
Defendants submitted references dated between 1998 and 2004. As such, the Court will not consider these references in its claim construction analysis.

The claim language and specification is devoid of a clear meaning for "power-spectral-density constraint." As a result, the Court is left with the expert opinion of Dr. Williams for insight as to how a skilled artisan would interpret this term. Dr. Williams opines that a person of ordinary skill in the digital communications field would interpret "power-spectral-density constraint" to mean "a limit for the maximum transmit power allowed at particular frequencies." (Williams Report, P 140). In light of the absence of contradictory evidence in the claims and the specification, the Court will accept Dr. Williams' opinion as indicative of the proper construction.

Therefore, based on the evidence set forth in the record, the Court will adopt Defendants' proposed construction for this term. Accordingly, disputed term [3] "power or power-spectral-density constraint" means "an absolute limit in the transmitter power or a limit in maximum transmit power allowed at particular frequencies."

5. "constructing a data representation of a lifetime of the telephone call using data regarding telephony events associated with the telephone call segments of the telephone call"

The parties dispute the meaning of "constructing a data representation of a lifetime of the telephone call using data regarding telephony events associated with the telephone call segments of the telephone call," as used in the '570 patent (claim 6) and '345 patent (claim 14). NICE contends that disputed terms beyond "data representation of a lifetime of the telephone call," "telephony events," "telephone call segments," and "telephone call," should be accorded their plain meaning. NICE further contends that Witness has simply rearranged words used in the claim phrase and improperly inserted a limitation to preclude the use of "an identifier or key" to form the data representation. Witness contends that its proposed construction tracks the precise definition NICE used to disclaim prior art in its prosecution history, citing '345 Pros. Hist., 2nd Prelim. Amend., 9-10. In response, NICE contends that the cited prosecution history is taken out of context and does not constitute a clear and unmistakable disavowal.

After considering the specification, relevant prosecution history, and the Court's earlier constructions, the Court concludes that "constructing a data representation of a lifetime of the telephone call using data regarding telephony events associated with the telephone call segments of the telephone call" does not require construction. The Court's construction of "data representation of a lifetime of the telephone call," in particular, obviates the need to further construe the disputed language.

3. "constructing a data stream"

Claim 8 of the '094 Patent provides in relevant part:

In a method for broadcasting data to a television set using a carrier signal such as a television or commercial radio carrier signal, the improvement comprising:
constructing a data stream from the records of a transmission database. . . .

'094 Patent, col. 22, lines 21-25 (emphasis added).

The plaintiff claims that the term "constructing a data stream" as used in claim 8 means creating a series of information. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that "constructing a data stream" means extracting records from the transmission database and forming a single, serial signal. Id.

The briefing on this issue is not particularly informative. The issue, as explained at the Markman hearing, is as follows:

Well, the difference is, Your Honor, you can do what is described, taught, enabled in the 094 patent, which is you can take some data, you can take every little piece of that data, you can send it in a serial way, you can load it up on the television signal, and it will go out in that--in that sort of--it's a simple, more--you know, less sophisticated technology. That's all this patent talks about.

There are other technologies where you do create many multiple streams. You don't set it up that sort of single serial sort of way. You have--you take your data, and maybe you put it into 10, 15, 20 different streams, and it all goes out there, and with the advent of huge computer power and enormous advances in technology, you can then reconstruct all that--you take all that data stream . . . and then it can be put back together at the other end . . . . So that's the difference. And that type of technology is not described.

Record, at pp. 82-83.

The defendants argue that "although patent claims are not necessarily limited to the preferred embodiment described in the specification, 'claims may be no broader than the supporting disclosure, and therefore . . . a narrow disclosure will limit claim breadth.'" Joint Reply Brief of Defendants . . . Regarding Claim Construction for the '094 Patent, at p. 16 (quoting Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1480 (Fed. Cir. 1998)). The defendants argue further that because the '094 Patent does not "disclose or enable a multi-stream system, the scope of the purported invention is properly limited to a single, serial transmission."

As discussed earlier, there is a "heavy presumption" that the claim terms carry the ordinary and customary meaning that would be attributed to them by one skilled in the relevant art. Texas Digital, 308 F.3d at 1202; Johnson Worldwide, 175 F.3d at 989. Here, that ordinary and customary meaning is that a "data stream" is "a sequence of data elements." The Dictionary of Computing, 127 (4th ed. 1996).

The defendants' restrictive construction is an attempt improperly to limit the scope of the claim to the preferred embodiment or specific examples disclosed in the specification. Ekchian, 104 F.3d at 1303. Although the invention may be described at times in the specification as transmitting a "sequential data stream," (col. 4, lines 39-40), or "processing . . . the serial data stream," (col. 5, lines 43-44), the specification does not always or necessarily limit the data stream to a single, serial data stream. For example, the specification discloses at col. 4, lines 13-26, a data stream that is not necessarily sequential or serial, but could be multiple:

The datacast network utilizes television signals to convey digital information for the text display at the receiver stations. In this respect, the central station generates a stream of data which is encoded into datacast packets as defined by the World Standard Teletext specification and know [sic] as Packet 31 data. This data stream is inserted into the vertical blanking interval (VBI) of the television broadcast signal transmitted from the central station and is subsequently broadcast over the ether to be received by the receiver stations at which are located display screens, such as television receiver sets or video monitors on which selected groups of received information can be displayed, and remote user interface devices, such as keypad controllers or the like.

Remembering that a patentee need not describe in the specification "every conceivable and possible future embodiment of his invention," CCS Fitness, 288 F.3d at 1366, I adopt the construction of the term "constructing a data stream" urged by the plaintiff, and I construe the term to mean creating a series of information elements.
10. "Consumable Participation Key" and "Limits on Use"

The parties have presented the terms "consumable participation key" and "limits on use" to the Court for construction. "Consumable participation key" appears in Claim 51 of the '309 patent and reads in context "qualification structure controlled by said record structure for testing caller data signals provided by a respective one of said individual callers to specify a consumable participation key for restricting the extent of access to said system to limit data stored from said respective one of said individual callers on the basis of entitlement." The term also appears in Claim 65 of the '863 patent and reads in context "qualification structure for testing caller data signals provided by at least one of said individual callers to specify a consumable participation key, said consumable participation key for use during a single predetermined period of time for restricting the extent of access to at least a portion of said system by said one of said individual callers on the basis of entitlement." The term "limit on use" or "limits on use" appears in Claims 33, 44, and 93 of the '707 patent and Claims 79 and 190 of the '863 patent. Claim 33 of the '707 patent recites in part a "qualification structure controlled by said record structure for testing said calling number identification data to specify a basis for entitlement defining a limit on use, for restricting the extent of access to said system for a respective one of said certain of said individual callers. . . . An analysis control system according to claim 26, wherein said limit on use relates to a dollar amount." The other claims in which "limits on use" appears are substantively the same; Claim 44 of the '707 is representative and reads "providing products carrying participation numbers specifying limits on use to entitle individual callers to access said operations of the interface with said telephonic communication system."

The parties agree that "consumable participation key" should be defined as a number or word that allows a caller access to a service or part of a service a predefined limited number of times and which cannot be refreshed or recharged. While the ordinary meaning of the claim language gives some indication of the meaning of "consumable participation key," the specification makes it clear. In Column 9, lines 31 through 35 of the '707 patent, the specification provides that "for example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval."

The parties disagree, however, on the meaning of "limits on use." The plaintiffs argue that "limit on use" means "a control imposed on the degree or extent to which callers may avail or utilize a service or one or more operations of a service." (Pls.' App. at 74). The plaintiffs contend that a limit on use can be any one of a range of restrictions including "limits based on the total number of permitted accesses, the time of day for permitted accesses, limits on use based on a dollar value, [and] limits on use based on a predetermined period of time." (Pls.’ App. 75-76). The defendants argue that this term has the same meaning as consumable participation key in that it is a control on the number of times a caller may enter a format in the Katz system. The defendants agree that a limit on use can be fixed by a set number of uses or a set dollar amount. However, the defendants argue that a limit on use does not perform a metering function in that it does not effect the duration of access to a format; consequently, it cannot disconnect a caller during a format for exceeding a set period of use.

The place to begin is the claim language. Claim 33 of the '707 patent provides for a limit on use that relates to a dollar amount. The plaintiffs argue that this Claim clearly shows that limit on use is not restricted to only the number of calls or accesses into the system. Although this claim does not explicitly recite that the limit on use would be a duration of time linked to the set dollar amount, e.g. $ 10.00 limit at $ 2.00 per minute, it does not explicitly recite that the dollar amount could only be linked to a set number of accesses, e.g. $ 10.00 limit at $ 2.00 per access.

The defendants argue that the limits on use are used to qualify callers for access to the operations of the interface, which necessarily has to occur before the caller enters into the Katz system. However, claim 44 of the '707 patent provides for a further step of "invalidating on-line said participation numbers after said limits on use specified by said participation numbers are reached." This claim calls out a step of utilizing the limit on use at a later point in the process after the qualification step.

The specification confirms that "limit on use" should not be restricted to set number of accesses to the Katz system. In Column 12, lines 52-57 of the '707 patent, Katz describes how a calling number may be "checked by the use-rate calculator
to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring." (emphasis added). Similarly, in Column 12, lines 22 through 26 of the '707 patent, Katz describes how a lottery format may use a limit on use and states that "for example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval." (emphasis added).

Contrary to the defendants' assertion, the Court concludes that Katz does not equate all limits on use to consumable participation keys. In Column 9, lines 32 through 35 of the '707 patent, the specification provides that "a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval." The use of the phrase "limited number of uses," which accurately describes a consumable participation key, does not indicate that all "limits on use" are consumable participation keys. Thus, it is clear from the claims and specifications that a consumable participation key is only one kind of a limit on use.

There is no indication in the Katz patents of a method of measuring a limit on use based on a dollar value. That is, neither the claims nor the specifications require that the limit on use based on a dollar value be decremented by the number of accesses to the system, i.e. $2.00 for each access. The claims and the specifications leave open the possibility that the dollar amount could be decremented by some other method of measurement, such as time spent in the Katz system; i.e. $2.00 for 10 minutes, such that the limit on use served a metering function.

The statements made by Katz in the prosecution history cited by the defendants do not require a different construction than what is clear from the plain language of the claims and specifications. During the prosecution history of the '707 patent, certain of Katz's pending claims, including pending claim 47, were rejected by the examiner in an office action as unpatentable over two patents and an article of Turbat. (Ex. 51). In an Amendment dated August 31, 1995, Katz amended pending claim 47 by substituting the phrase "one time use" with "limit on use." Katz also argued against the examiner's rejection of his pending claim 47 in a section entitled "Discussion of the Rejections of Claims 32, 37, 40, 41 and 47 under 35 U.S.C. § 103." In that section, Katz distinguishes the rejected claim 47 on the basis that "applicant's system, as claimed, is independent of both time (Barger and DeBruyn) and value (Turbat)." However, this discussion was clearly directed toward the rejection of the claim as originally written, which called for "a basis of entitlement defining a one time use," as evidenced by Katz's statement at the end of the discussion section that "the rejected claims are urged to be distinct for the reasons presented above." Based on this review of the prosecution history, the Court concludes that Katz's statements about a claim that read "one time use" do not limit the claims that were eventually accepted, which read "limit on use."

Based on the foregoing the Court concludes that "consumable participation key" means: a number or word that allows a caller access to a service or part of a service a predefined limited number of times and which cannot be refreshed or recharged. The Court concludes that "limit on use" means: a control that limits a caller's access to a service based on some predefined method of measuring the level of use. The term "limit on use" is not restricted to a specific method of measuring use, such as a limited number of accesses into the Katz system.

4. "Consumer" and "Consumer Account"

The plaintiff argues that these terms do not need construction. Alternatively, the plaintiff proposes that "consumer" means "a person or entity that acquires or uses goods or services" and that "consumer account" means "an account associated with a consumer." The defendant argues that that "consumer" means "an individual that purchases goods or services" and that "consumer account" means "an account unique to an individual." The dispute is whether the terms are limited to an individual or whether it includes businesses and organizations.

The defendant contends that the term is limited to an individual because the specification refers to a consumer's Social Security number and birth date. See '116 patent, 3:5-8. According to the defendant, an entity cannot have Social Security numbers or birth dates.

The court rejects the attempt to limit the construction to the preferred embodiment. The court construes "consumer" to mean "a person or entity that acquires goods or services for direct use or ownership rather than for resale or use in production and

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The court rejects the attempt to limit the construction to the preferred embodiment. The court construes "consumer" to mean "a person or entity that acquires goods or services for direct use or ownership rather than for resale or use in production and manufacturing." The term "consumer account" needs no additional construction.
Regarding conductivity, PMT denies that the contact layers described in the Chen Patent are limited to p+ and n+ contact layers because the claim language speaks only of a "conductivity type," meaning genus p-type or n-type, and does not specify a particular species of conductivity. (R. 26 at 20 to 27 at 22; R. 234 at 12-24). Further, PMT points out that as originally filed, the first and second contact layers were called regions, and all regions were disclosed as either p-type or n-type or simply as the species p or n. (R. 23 at 2-9) (referencing, e.g., original claim 1, Application at 15). PMT concedes that no contact layer described in the specification is other than p+ or n+, but argues that an absence of an embodiment in the specification does not build a limitation into the claims. (R. 233 at 4-12).

Thus, PMT argues that "contact" layer should be defined in terms of its function (contact) and so may include several components in one functional area, as long as everything has the same conductivity type and same function. (R. 28 at 8 to 29 at 4; R. 72 at 1-7; R. 234 at 25 to R. 235 at 11). PMT offers, by way of example of a "contact layer," items 3 and 4 from Figure 4 of the Chen Patent. (R. 73 at 19-24). PMT concedes, however, that item 2 would not be included in the "contact layer" because it is of a different conductivity type. (R. 71 at 25 to R. 72 at 1-4).

PMT urges the Court to reject defendants' proposed definitions first on the ground that a heavy doping requirement violates the doctrine of claim differentiation. (R. 231 at 22-23). Specifically, PMT contends that if the Court were to adopt a heavy doping limitation on "contact layer", claim 11 would be indistinguishable from claims 12 and 13, and claim 14 would be indistinguishable from claims 15 and 16. (R. 231 at 24 to R. 232 at 15). PMT asserts that defendants' rebuttal that claim 13 can be distinguished from claim 11 because claim 13 includes a specific polarity fails because it does not take into account claim 12, which specifies the opposite polarity. (R. 300 at 11-23). PMT thus contends that dependent claims 12 and 13, considered as a pair, cannot be differentiated from independent claim 11. Id.

PMT asserts that Chen's attack on breakdown voltage in the patent can only be reconciled with a general p-type or n-type contact layer. (R. 233 at 18-22). PMT rebuts defendants' argument that its proposed definition is indefinite by pointing out that "contact layer" in the claims is always accompanied by language specifically locating it within the device relative to the voltage sustaining layer. (R. 235 at 12 to R. 236 at 5) (referencing, e.g., Chen Patent, col. 7, In. 62-63). PMT distinguishes "contact layer" from "voltage sustaining layer" on the basis that prior art devices contain components that are not heavily doped, but which nevertheless are part of the contact layer because they take on charge from an outside source when the device is turned on. (R. 236 at 14 to 237 at 8) (referencing Coe Patent, Figure 13). PMT explains that it is a predominant function test: if the structure functions predominantly to avoid breakdown, then it is a contact layer; if it function predominantly to sustain voltage, then it is a voltage sustaining layer. (R. 237 at 3-8). In the alternative, PMT distinguishes "contact layer" from voltage sustaining layer on the basis that the voltage sustaining layer must contain alternating regions; therefore, everything above and below the area of alternating regions is contact layer. (R. 230 at 20 to R. 231 at 2) (referencing, e.g., Chen Patent, col. 7, In. 66-68).

In rebuttal of Infineon's contention that a layer must be continuous and extend over the entire device, PMT directs the Court to the figures in Chen depicting processed devices, like Figure 4, and notes that Chen describes these figures as representing his invention, and points out that they contain discontinuous contact layers. (R. 295 at 1-22) (referencing Chen Patent, col. 5, In. 19-20; col. 5, In. 50-51). Noting that the terms "continuous" or "uninterrupted" do not appear in the patent, PMT further points out that the contact layers are uninterrupted when deposited and argues that they do not have to remain uninterrupted in the finished device. (R. 296 at 17-21; R. 295 at 8-10) (referencing, e.g., Chen Patent, col. 5, In. 56-67). PMT rebuts Infineon's argument regarding the use of "layer" in association with unprocessed devices (i.e., Chen, Figures 2 & 7) versus the use of "regions" with processed devices (i.e., Chen, Figures 4, 5, & 6) on the ground that the difference goes back to the original filing and illustrates that the drafter meant the terms to be interchangeable but, just to make the orientation easier to understand, recast vertical areas as "regions" and horizontal areas as "layers." (R. 295 at 23 to 296 at 14; R. 298 at 14-23). Finally, PMT contends that Infineon's position regarding "contact layer" is inconsistent with its position on "voltage sustaining layer", which Infineon accepts as being made up of multiple regions. (R. 297 at 1-4).

In rebuttal of defendant ST's arguments under Festo, PMT argues that Festo is inapplicable to the construction of the disputed claim terms because Festo does not alter literal infringement analysis, and PMT seeks only a literal interpretation, not any equivalency. (PMT Resp. to ST Festo Br. at 2, 4) (citing Festo, 56 U.S.P.Q.2d at 1-6). PMT argues that claim terms are to be construed from the viewpoint of one of ordinary skill in the art, not from narrow definitions culled from lay dictionaries, and that Festo does not teach otherwise. (Id. at 2-3). Specifically, PMT argues that "contact layer" is literally understood in the art of semiconductor technology as not necessarily continuous, and "contacted all" is literally understood...
to denote electrical and/or physical relationships. (Id. at 5). Finally, PMT argues that Festo is also inapplicable in this case because it requires that the prosecution history "reflect a clear and unmistakable surrender of subject matter," and PMT asserts that the prosecution history is completely devoid of any such assertion. (Id. at 6) (quoting Festo, 56 U.S.P.Q.2d at 14, § III.B) (internal punctuation omitted).

2. Defendants' Interpretation 4

--- Footnotes ---

4 To the extent that the parties may have changed their positions about the meanings of some of the disputed claim terms, the Special Master has ignored earlier positions and focused instead on the parties' latest positions, represented by the arguments pressed during the August 28-29, 2000 Markman hearing. Although the Special Master restates some of the parties' latest and most relevant arguments regarding the disputed claim terms, this is not intended to be exhaustive. However, all of the arguments from the three rounds of pre-hearing briefing, the arguments presented at the Markman hearing, and the Festo supplemental briefing have been considered in this recommendation.

--- End Footnotes ---

Because independent claim 14 has been asserted against Infineon, but not against ST, Infineon's proposed definition contains elements additional to ST's proposed definition, and Infineon presents arguments in addition to the defendants' common arguments. A hybrid definition incorporating the elements common to both defendants would be, "a heavily doped layer forming an interface with the voltage sustaining layer." 5 Defendants' common arguments are addressed first, followed by Infineon's definition and additional arguments.

--- Footnotes ---

5 Infineon's specific proposed definition is, "a single thickness of n+ or p+ semiconductor material lying over or under the voltage sustaining layer." (R. 105 at 7-10). ST's specific proposed definition is, "a heavily doped layer forming an interface with the voltage sustaining layer and extending to an external surface of the semiconductor material." (ST slide # 41).

--- End Footnotes ---

Regarding conductivity, defendants argue that a "contact layer" must be heavily, as opposed to lightly, doped because a lightly doped layer would sustain voltage, i.e., have the same function as the voltage sustaining layer. (R. 107 at 10-25; R. 183 at 10-24). Thus, if a lightly doped condition were included in the definition of "contact layer," there would be no functional difference between the terms "contact layer" and "voltage sustaining layer." (R. 107 at 10-15; R. 183 at 10-24). Defendants also point out that all the embodiments in the Chen Patent, such as Figure 7, items 4 and 8, illustrate a heavily doped layer. (R. 107 at 15-19; R. 184 at 9-11). Further, Infineon claims that the only conductivity species discussed throughout the specification are the n+ and p+ species; there is no mention of n or p, or -- or p-layers. (R. 109 at 12-16). Finally, defendants urge that the Court reject PMT's proposed definition as vague or overbroad in that "capable of electrical contact" would describe every structure in the device. (R. 117 at 5-12; R. 184 at 15 to 185 at 6). Therefore, that definition would not enable one to differentiate a "contact layer" from any other structure in the device and thus read "contact layer" out of the claims, violating the principle that every word in a claim has meaning.  Id. Defendants rebut PMT's contention that their proposition that a contact layer must be heavily doped violates the principle of claim differentiation on the ground that claim 13 imposes a further limitation over claim 11 in that it identifies the specific polarity of the conductivity types. (R. 285 at 18-25).

In addition to those elements of a proposed definition it asserts in common with ST, Infineon further asserts that a contact layer should be defined as "a single thickness of n+ or p+ semiconductor material." (R. 105 at 7-10). Infineon distinguishes "layer" from "region," 6 by taking "region" to mean "a generic term for any structure on a semiconductor." (R. 11 at 14-15). In Infineon's understanding, "all layers are regions," but "only regions that extend across the entire device can be layers." (R. 112 at 5-6). By way of illustration, Infineon offers Figure 4, item 4 of the Chen Patent as an example of a layer and Figure 4, item 3, as an example of a region. (R. 112 at 10-14). Regarding the composite buffer layer (referred to in the Chen patent as the CB-layer), which it describes as comprising alternating regions of opposite conductivity, Infineon contends that "layer" does not imply a single conductivity type and can be constructed of regions. (R. 271 at 13-22). Therefore, its
definition of "contact layer" does not conflict with its definition of "voltage sustaining layer." (R. 270 at 21 to 271 at 12).

6 ST denies PMT's assertion that it proposes that a "contact layer" must physically touch the voltage sustaining layer. (R. 185 at 17-24; R. 199 at 4-19).

In support of its proposition that a "layer" should be restricted to a single thickness, Infineon points first to the amendment made during prosecution of the Chen Patent wherein the inventor added the term "layer," and, defendant contends, adopted Figure 7 as the embodiment properly illustrating "layer." (R. 105 at 23 to 106 at 2). Prior to amendment, the patent contained no reference to "layer," only to "regions," (R. 105 at 1-4), and Infineon argues that the inventor knew that the terms were not interchangeable and intentionally chose to use the ordinary, and narrower, meaning of "layer." (R. 110 at 8-12). Since the change was made in an amendment responding to a rejection of all the original patent claims in light of prior art, Infineon argues that it is implicit that the change was made specifically to overcome prior art. (R. 106 at 11-21; R. 107 at 1-9; R. 116 at 17-24). Thus, by choosing to designate the areas above and below the voltage sustaining layer as a "layer," Chen gave up the broader meaning of "region." (R. 105 at 2 to 107 at 8; R. 273 at 13-18). Infineon urges the Court to adopt the ordinary and plain meaning of "layer": "one thickness, course, or fold laid or lying over or under another." (Infineon Br. at 10) (citing WEBSTER'S NEW COLLEGIATE DICTIONARY (9th ed. 1975)). Infineon points out that all of the claims refer to a contact layer in the singular, rather than the plural, form, whereas original claims had referred to "regions" in the plural. (R. 265 at 17-24). Finally, Infineon points out that the embodiments show only a single thickness "layer," such as items 4 and 8 of Figure 7, (R. 110 at 19-22), and that the examiner chose Figure 7 showing a single thickness "layer" to put on the patent cover as representative of the invention, (R. 115 at 23-25).

In support of its proposition that a layer must extend horizontally over the entire device, Infineon points to the descriptions in claims 11 and 14 of the "contact layers" contacting all the first and second regions of the voltage sustaining layer. (R. 266 at 19-20; R. 270 at 1-5) (referencing Chen Patent, col. 7, In. 68 to col. 8, In. 5). Infineon contends that only two figures in the Chen Patent illustrate an arrangement where the second contact layer (i.e., item 8) contacts all the regions, and those are Figures 2 and 7. (R. 267 at 10-19).

In addition to the arguments it pressed at the Markman hearing, Infineon submitted supplemental briefing arguing that the Federal Circuit's recent ruling in Festo mandates adoption of its proposed definition of "contact layer." In sum, Infineon argues that the addition by amendment of the elements "layer" and "all" narrowed the scope of "contact layer" from a meaning that, as originally filed, arguably could have been construed to include discontinuous regions 2 and 3 in Figure 5 to one that, in the claims as issued, can only include a continuous layer like that represented by items 4 and 8 in Figure 7. (Infineon Supp. Br. at 1, 5-6). Specifically, Infineon argues that substitution of the singular "layer" for the plural "regions" eliminates the possibility that the first and second contact layers can be made up of more than one element (i.e., discontinuous), or of more than one conductivity type. Id. at 7. In addition, Infineon asserts that the substitution of "contacting all" or "contacting with all" for "contacted with" to describe the interfaces between the first and second contact layers and the voltage sustaining layer restricts the formation of those interfaces to "continuous and uninterrupted contact of the respective first and second layers with the alternating p and n regions of the CB-layer" because the adjective "all" requires continuous contact and, under Festo, precludes any equivalency (i.e., discontinuity). Id.

The Special Master recommends that "contact layer" 8 be defined as "the semiconductor material between the metal contacts and the voltage sustaining layer that is designed to perform two contacting functions: (a) permit ohmic contacts to be formed at the terminals (e.g., the source or emitter contacts) and (b) provide a connection between the metal contacts".
and the voltage sustaining layer such that the reverse voltage across the device terminals is sustained primarily across the 
voltage sustaining layer." (See, e.g., Chen Patent, col. 5, In. 56-61; col. 6, In. 22-26 and In. 33-36; col. 1, In. 13-16).

8 The discussion of "contact layer" and "contacting" is very limited in the patent specification because the focus of the 
patent is on the point of novelty of the invention, the design of the CB-layer.

9 For example, the source contacts in the MOSFET devices and the emitter contacts in the bipolar devices.

10 It is well known to one of ordinary skill in the art that there will be some voltage drop across the ohmic contacts and the 
contact layers.

Contact layer is defined in terms of the function that it performs in the device. The "contact layer" may include multiple 
regions that need not be continuous or contiguous, or even of the same conductivity type, unless so limited by the claims. 11 
This is illustrated by the different embodiments in the specification, where the "contact layer" is designed differently in the 
various embodiments but performs the specific functions outlined above, regardless of whether the embodiment is a vertical 
MOSFET, a bipolar transistor, or a static induction transistor. For example, see regions 3 of the contact layers in Figs. 4, 5 
and 6, and region 11 in Fig. 8, all of which are discontinuous, and the contact layers in Figs. 2 and 7 which are continuous.

11 Note that the claims of the Chen Patent do specifically limit a contact layer to a single conductivity type. (See, e.g., Chen 
Patent, col. 7, In. 59-60; col. 8, In. 27-28).

In the field of semiconductor technology, a layer is commonly understood to mean semiconductor material that is disposed 
onto a semiconductor substrate or created by standard semiconductor processing techniques, such as epitaxy, diffusion, or 
implantation. When a layer is processed, for example, by etching followed by oxide deposition, it becomes further defined 
into regions. 12 Because a layer is so processed into these regions, however, does not mean that layer ceases to have any 
meaning. These processed regions are part of the same layer. Such an understanding of layer is consistent with how that 
term is used in the patent in connection with the terms "contact layer" and "voltage sustaining layer," as both are layers that 
are further processed so that, internally, they are made up of regions. (Chen Patent, col. 5, In. 26-26; col. 5, In. 32-36).

12 For example, in Figure 1, the patentee describes the formation of layer 3, then further processing it to form regions 2 
(and so also regions 3). (Chen Patent, col. 5, In. 24-26). Similarly, in Figure 4, the patentee describes forming layer 5, then 
further processing it to regions 6 and 7 of the voltage sustaining layer. (Chen Patent, col. 5, In. 52-55).

Festo does not require a different interpretation in this situation. It is true, as Infineon states, that "an amendment that 
narrows the scope of a claim for any reason related to the statutory requirements for a patent will give rise to prosecution 
history estoppel with respect to the amended claim element." Festo, 56 U.S.P.Q.2d at preamble. "Related to the statutory 
requirements for a patent" include amendments in response to a § 112 rejection, any voluntary amendment that narrows the 
scope of a claim for a reason related to patentability, and "unexplained" amendments. Id. The Festo court held that when 
prosecution history estoppel applies, the patentee can get no equivalents for the amended elements and is restricted to literal 
infringement. Id. Any voluntary amendment, however, must evidence an intent to surrender subject matter. Id. at § III.B.

However, substituting "layer" for "regions" as the patentee did during prosecution, did not narrow the claims under the 
proposed understanding of those terms. The patentee's remarks accompanying the amendment make it clear that the patentee
made this change to "better claim the present invention" in order to overcome the § 112 objection. (Chen Patent, Amendment at 9). Later remarks about the additions of the non-uniform dopant distribution and dielectric layers to distinguish over Coe and Ploog in order to overcome the § 102(b) and § 103 rejections reinforce the conclusion that the change involving the use of "layer" was not directed to those rejections, and so the patentee was not relying on the change from "regions" to "layer" to overcome prior art. (Chen Patent, Amendment at 10).

Further, the amendments during the prosecution of the Chen patent may be deemed to have expanded the scope of the claims instead of narrowing them. In the claims which issued, the first and second contact layers are not explicitly restricted to n+ or p+ regions, as they are in the original claims. (referencing Chen Patent, original claim 1, Application at 15; issued claim 11, col. 7, In. 59 to col. 8, In. 6). In addition, the original claims as filed use a narrower term, "CB-layer", which is then amended to recite a broader term, "voltage sustaining layer." (compare, e.g., original claim 1, Application at 15, and issued claim 11, Chen Patent, col. 7, In. 62-63).

The parties dispute the proper construction of the terms "contact region," (and "electrical contact region"), "semiconductor body," and "opening." As the terms are set forth in the claims, and as evidenced by the parties' arguments regarding the proper construction of these terms, there is a strong interrelationship between them, and therefore the Court considers it appropriate to construe these terms simultaneously.

1. "contact region" (and "electrical contact region"), "semiconductor body" and "opening"

The parties argue: (1) that the term "contact region" means "an electrically conducting space or area to which another electrical conductor may be connected so as to allow current to pass"; (2) that the term "semiconductor body" means "any semiconductor material"; and (3) that the term "opening" means "a hole or void; an open space." Atmel argues: (1) that the term "contact region" means "a region of the semiconductor substrate to which electrical contact is made"; (2) that the term "semiconductor body" means "the underlying material upon which a device, circuit or epitaxial layer is fabricated" (i.e., the substrate or the silicon wafer); and (3) that the term "opening" means "a contact hole, that is, a hole in the first dielectric layer that exposes the silicon surface." The essential difference between the parties' constructions is that Atmel apparently wishes to construe the claim terms such that the claims cover only openings above contact regions which are contained within the substrate or the silicon wafer, whereas Agere wishes to construe the claim terms such that the claims cover openings above contact regions which are formed in or on any semiconductor material, including but not limited to the substrate or silicon wafer.

Agere's proposed constructions more closely comport with the general and ordinary meaning of these terms. For example, Agere provides a dictionary definition of the term "contact," which provides, in pertinent part: "the junction or touching surface of two electrical conductors through which a current passes." Webster's Third New Int'l Dictionary 490 (1986). Also, Agere provides a dictionary definition of "opening," which provides, in pertinent part: "an unobstructed or unoccupied space or place ... a void in solid matter: a gap, hole, or aperture." Random House Dictionary of the English Language 1357 (2d ed. 1987).

Moreover, the specification indicates that Atmel's proposed constructions are too narrow. The "Background of the Invention" provides:

Making electrical contact to semiconductor regions such as, e.g., source, drain, and gate regions of a field-effect transistor typically involves the deposition of a metallization over a dielectric which has been patterned to produce openings.
(windows, holes, vias) to the underlying semiconductor structure.

'827 Patent at col. 1:14-19. In addition, the "Detailed Description" of the specification provides:

Contact openings may be, e.g., to source or drain regions of field- effect transistors, or to contact regions intended for device interconnections. Typically, in the latter case, contact is made to silicon in polycrystalline form.

'827 Patent at col. 2:30-34. According to the explanation provided by Agere's expert witness, this language makes clear that the patentee contemplated using the patented process not only for contact regions which are contained within the silicon substrate (such as source and drain regions), but also for contact regions which are not contained within the silicon substrate (such as gate regions). See Tr. 12/5/02 at 94-99. Thus, Atmel's proposed construction of "contact region" as "a region of the semiconductor substrate" is too narrow, as the contact region need not be contained within the substrate.

In addition, the patent does not provide that openings must be in the first dielectric layer and must expose the silicon substrate or wafer, but only that openings must expose an "underlying semiconductor structure." '827 Patent at col. 1:18-19 (emphasis added). The patentee's decision to use the term "semiconductor structure" in the specification and the term "semiconductor body" in the claims, and not to use the term "semiconductor substrate" in either the specification or the claims, indicates a specific intention not to limit the claimed process to openings that are formed in the first dielectric layer above the silicon substrate.

Accordingly: (1) the term "contact region" is construed as "an electrically conducting space or area to which another electrical conductor may be connected so as to allow current to pass"; (2) the term "semiconductor body" is construed as "any semiconductor material"; and (3) the term "opening" is construed as "a hole, void, or open space."

B. Contacting

1. Plaintiff's Interpretation

Plaintiff PMT asserts that "contacting" should be defined as "capable of electrical contact." (R. 41 at 20-21). PMT contends that "contacting" can include physically touching, but denies that it requires physically touching, (R. 45 at 8-25; R. 59 at 19-25), on the basis that then nothing could act as a buffer or intermediate between a contact layer and any of the regions in the voltage sustaining layer, (R. 38 at 5-9). PMT argues further that any requirement for physical touching is indicated in the claims by use of the phrase "directly contacting." (R. 41 at 22-25) (referring to Chen Patent, col. 6, In. 59-60; Chen Patent, col. 8, In. 38-39); see also R. 59 at 19-24; R. 241 at 19-22). According to PMT, if "contacting" meant only "physically touching," then "directly" would be superfluous, wherein every term in a patent has meaning. (R. 42 at 1-5). Instead, PMT asserts that almost every use of "contacting" or "contact" in the Chen Patent makes sense only in the context of electrical contact and that such meaning is necessary to be consistent with the meaning of "contact layer." (R. 42 at 25 to 43 at 18; R. 240 at 21-23). Further, PMT points out that the IEEE Dictionary defines "contact" as "conducting parts that co-act with another conducting part to make or break a circuit." (R. 43 at 19-23 (citing IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 185 (Frank Jay, ed. 1984) (ANSI/IEEE Std 100-1984)). Specifically, PMT contends that the phrase "contact layer contacting" does not preclude a condition where the contact layer is electrically contacting the voltage sustaining layer through a less doped intermediate layer. (R. 243 at 15 to 244 at 19).

PMT characterizes defendants' proposed construction of this term as an impermissible attempt to back-load a limitation from the specification into the claims. (R. 43 at 23-25). Plaintiff rebuts the defendants' argument that its definition of "contacting" is indefinite on the basis that each time it is used in the claims, it is accompanied by language that structurally orients it by making clear that it means linking the voltage sustaining layer to a contact layer. (R. 241 at 9-15) (referring to Chen Patent, col. 6, In. 56-60; col. 7, In. 68 to col. 8, In. 4; col. 8, In. 35-40). Finally, PMT rebuts defendants' argument that "contacting" is limited to meaning "touching" by the prosecution history by explaining that the examiner's referenced comment can be interpreted to mean electric contact because a dielectric layer would block both physical and electric contact. (R. 44 at 15-25).
2. Defendants' Interpretation

Defendants assert that "contacting" should be defined to mean "touching." (R. 120 at 18; R. 185 at 25 to 186 at 1). They argue that the Court should reject PMT's definition on the basis that it is vague because, in an electrical device, all elements co-act with one another. (R. 120 at 20-25; R. 198 at 3-7 and ST slide # 51). Infineon explains that there is a fundamental distinction between plaintiff's and defendants' proposed definitions, that distinction being that plaintiff would have the Court adopt electrical definitions, while the defendants urge structural or physical definitions. (R. 121 at 1-4). Infineon argues for structural definitions because it regards the patent as disclosing a new structure of an electrical device. (R. 121 at 4-13).

Defendants also urge the Court to reject PMT's definition on the ground that it is erroneously based on how the noun "contact" is used in the patent in the context of a metal contact, and not on how the verb "contacting" is actually used in the patent. (R. 123 at 15-24; R. 185 at 21 to 186 at 1). Further, defendants argue that PMT is limited to "touching"as the definition of "contacting" because the examiner based a § 112 rejection upon that meaning of "contacting", and Chen acquiesced because he made no attempt to correct the examiner. (R. 124 at 1-13). Finally, ST argues that the dielectric of claim 2 prevents physical contact between the first contact layer and the second semiconductor regions and this is why claim 1 omits "contacting." (Infineon Resp. Br. at 10) (referencing Chen Patent, col. 6, In. 56-64). Therefore, "contacting" must mean physical contact. Id. ST argues that the use of "directly" in conjunction with "contacting" in certain of the claims does not alter this interpretation because there is no structural distinction for using it to describe the top interface. (R. 193 at 2-17).

3. Recommended Interpretation

The Special Master recommends that "contacting" be defined in terms of its relationship with the term "contact layer" as "permitting or enabling contact." Thus, "contacting" is not limited to physical contact and can also include electrical contact.

Throughout the claims, "contacting" is always used in conjunction with "contact layer" in the specific phrase "contact layer contacting," indicating that it is meant to describe the function of the "contact layer." (See, e.g., Chen Patent, col. 6, In. 56-67; col. 7, In. 68). The term "contacting" is never used in the claims independently, without the words "contact layer" preceding it. Read in light of the disclosure, we see that this "contacting" function of the contact layer is to permit ohmic contacts at the terminals (See, e.g., source "S" in Figure 4 or emitter "E" in Fig. 8) and to contact the voltage sustaining layer from either side (i.e., the top and bottom side). (See, e.g., Chen Patent, col. 5, In. 56-61). This is most apparent in the inventor's description of the CB-layer and its relationship to the contact layer: "Each n-region and each p-region of the CB-layer has two surfaces contacted respectively with the n+-region and the p+-region." (Chen Patent, col. 2, In. 8-10) (emphasis added). This language clearly demonstrates that "contacting" refers to the function and relationship of the contact layers to the voltage sustaining layer.

This interpretation is supported by how the term "contact" is used in the field of semiconductor technology. Specifically, "contact" is defined as, "[a] conducting part that acts with another conducting part to make or break a circuit." THE NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 249 (Christopher J. Booth ed., 5th ed. 1993) (IEEE Std 100-1992) (emphasis added). 13 As can be seen, this definition does not restrict "contact" to physical contact.

--- Footnotes ---

13 See also RUDOLF F. GRAF, MODERN DICTIONARY OF ELECTRONICS 148 (5th ed. 1977) ("To join two conductors or conducting objects in order to provide a complete path for current flow.").

--- End Footnotes ---

Defendants' "slippery slope" concern that electrically contacting is too vague a meaning because, in an electrical device all elements co-act with one another, becomes irrelevant because the definition outlined above limits itself to the specific kind of "contacting" that results from the introduction of the contact layers on either side of the voltage sustaining layer. Considered in this context, "contacting" describes the function of the "contact layer", which contacts the voltage sustaining layer on one side of the contact layer and permits ohmic contacts at the other side of the contact layer. (See, e.g., Chen Patent, col. 2, In. 8-10). As noted above, the contact layer provides a connection between the terminals of the device and the
voltage sustaining layer and sustains the reverse voltage applied between the device terminals, primarily across the voltage sustaining layer. In other words, "contacting" has meaning only when read together with the term "contact layer" as in "contact layer contacting."

Similarly, Infineon's contention that "contacting" must mean "physically touching" to distinguish Chen's claim 14 over the Lidow patent, U.S. Patent No. 4,593,302, is unpersuasive because there are other elements to claim 14 which distinguish over the prior art.

5. "Contacting Relationship"

The bringing step calls for bringing "said corresponding contact surfaces of said electrically conductive terminals into contacting relationship with said corresponding contact surfaces of said conductor elements." Thomson argues that "contacting relationship" means "physical contact;" Innovatron argues that the term is one of art, meaning "a position favorable for correct alignment and electrical contact." The Commission held:

We agree with the ALJ's construction that a contacting relationship is not established at the instant of physical contact, but instead when the card terminals and card reader elements reach a position favorable for making contact, that is, when they are roughly centered with regard to each other.

This Court is to interpret "contacting relationship" as one skilled in the art in 1978 would have understood the term. If the meaning were "physical contact" that meaning would be expressed far more readily by the phrase bringing the surfaces on the terminals "into contact" with the surfaces on the elements rather than "into contacting relationship." The term "relationship" adds a limitation. The Court holds that one skilled in the art would understand "contacting relationship" to mean that the terminals and elements are positioned favorably for good electrical contact. See also Tr. (July 2, 1998, a.m.) at 31 (testimony of Dr. Kuc).

13. a hard disk drive contained within said hand-held housing

The plaintiff contends that no construction is needed. The defendants propose "a hard disk drive fixedly or removably located within said housing." The defendants' proposed construction reads in limitations from the preferred embodiment. Accordingly, the court agrees with the plaintiff and concludes that this phrase requires no construction.

5. "Containing"

Claim 1 of the '641 Patent uses the term "containing" as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

- a printed board containing an electronic element for suppressing noise;
- a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on the printed board;
a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a wire on the printed board; and

an insulating housing for encasing the printed board.

Murata argues that "containing" means "including as a component." Murata's Opening Brief, at 28. Bel Fuse argues that "containing" means "held by or mounted on." Bel Fuse's Responsive Brief, at 23. The difference between these constructions is that Bel Fuse argues that the electronic element for suppressing noise must be physically "held by or mounted on" the printed board whereas Murata argues that "containing" is not so limited.

Bel Fuse argues that each of the three disclosed embodiments shows that the element for suppressing noise is "held by" or "mounted on" the printed board. Again, this court is wary of placing too much emphasis on the disclosure of the preferred embodiments, particularly where the specification contemplates modifications to the disclosed embodiments, because doing so may lead to improperly importing limitations from the specification into the claims. Phillips, 415 F.3d at 1323 (stating that courts should avoid "reading limitations from the specification into the claim").

Bel Fuse also argues that its construction is necessarily correct because the electronic element must be mounted on the printed board to be electrically connected to the printed wires on the printed board. However, because the court has rejected Bel Fuse's construction of "wire on the printed board" which would have required the wire to be printed, this argument no longer holds any force.

Murata's proposed construction of "containing" is supported by the Federal Circuit's decision in Mars, Inc. v. H.J. Heinz Co., L.P., 377 F.3d 1369 (Fed. Cir. 2004). In Mars, the Federal Circuit held that the term "containing" is an open-ended term which does not exclude additional, unnamed elements. Id. at 1375-76. Citing a general purpose dictionary, the court also stated that "containing" is synonymous with "comprising" and "including." Id. In this case, Bel Fuse is attempting to transform the term "containing" into a structural requirement, namely, that the printed board physically hold the component or that the component be mounted on the board. There is no indication in the patent that such a requirement is present. Rather, consistent with the Federal Circuit's holding in Mars, the court finds that "containing" is simply an open-ended term that denotes that the electronic element for suppressing noise is simply one component of the printed board. Thus, the court adopts Murata's proposed construction and holds that "containing" means "including as a component."

The critical claim in this matter is Claim 1. Claim 1 provides that the invention has a "main body portion" that "contains" an "FM transmitter" and "power/charging circuitry." '085 Patent col.6 11.1-6. "Contains" is the critical word in this claim, and nothing in the claim terms defines "contains." Furthermore, "contains" does not appear to be a technical term, and common-use dictionaries might illuminate possible relevant meanings for this every day, commonly understood word. "Contain" means "to keep within limits," "to have within," and to "enclose, bound." Merriam-Webster Online Dictionary, http://www.m-w.com/ dictionary/contains (last visited May 17, 2006); accord Webster's Seventh New Collegiate Dictionary 180 (1970). In light of these definitions, Claim 1 describes a product in which the FM transmitter and the power supply/charging assembly are "enclosed," "bound," or "kept within" the same housing unit.

This definition does not conflict with the other relevant evidence. The patent's entire content reflects that the invention has the FM transmitter and power supply/charging assembly within one unit. The patent's other language states that "[t]he present invention provides an integrated FM transmitter and power supply/charging assembly for an MP3 player." '085 Patent col.2 11.64-66 (emphasis added). "Integrated" shows that this invention's critical feature is that the FM transmitter and the power supply/charging assembly are housed within one unit. Such language is consistent with Claim 1's "contains."

This construction is also consistent with the prosecution history. In his "Reasons for Allowance," the patent examiner stated he approved the '085 Patent because the patent application described, unlike other patent applications, a product that contained the FM transmitter and power/charging circuitry within one main body. Thus, that single unit allowed not only "FM transmission . . . of audio content when played by the MP3 player in the docking cavity," but also the "transmi[ssion of] electrical power through the modular docking unit . . . for charging of a battery of the MP3 player and/or powering of the
MP3 player, as specified in the claim.” (Birdwell Decl. Ex. 16 at 4.) Thus, in communicating his reasons for allowing the patent, the patent examiner focused on the single, integrated unit having two separate functions. In light of this evidence, Claim 1’s plain language as illuminated by dictionaries, and the patent’s entire content, the ’085 Patent protects an invention where one module houses, contains, or holds within itself two separate functions: a fully functioning FM transmitter and power supply/charging assembly.

I. "[C]ontent"

A. The Special Master's Recommended Construction

The Special Master recommended that the term "'content' . . . should have the meaning provided in the glossary, namely, 'any form of digital data stream that may be supplied or sent to a computing system such as a personal computer,' and may include window object size and position information." (R&R at 140 (emphasis added to reflect the language added by the Special Master)); see also, e.g., '493 Patent col. 5 ll 46-48. The Special Master also interpreted the intrinsic evidence to exclude, from the scope of "content," data that was not sent from a server to the client computer system. (See R&R at 137-38 (stating "the patentees have used the term 'content' to broadly connote most if not all data sent from the server to the client").) Accordingly, under the Special Master's proposed construction of the term, any "size and position information provided by a user via module controls does not appear to be 'content.'" (Id.)

B. The Parties' Objections

The parties object to the Special Master's proposed construction and propose greatly varying interpretations of the term "content." CA "proposes 'content' be construed to mean 'any form of digital data stream that may be supplied or sent to a computing system such as a personal computer, regardless of the source of that data.'" (CA's Claim Construction Objections at 10.) In essence, though CA agrees with the Special Master's adoption of the glossary definition of the term "content," they disagree with the Special Master's additional restriction that "content" does not include "'size and position information provided by a user via module controls does not appear to be 'content.'" (Id. at 9-10 (quoting R&R at 138).)

Simple asserts that the meaning attributed to "Content" in its patent glossary should not be applied consistently throughout the entire patent. Instead Simple would have the Court apply the glossary definition of "content" only to instances where the capitalized term "Content" is used and apply "its ordinary and customary meaning in the context of the specification" every time the un-capitalized term "content" is used. (Simple's Claim Construction Objections at 4-5). Specifically, Simple urges that "content" be limited to "text, graphics, or 'media information such as news, data, weather, sports, and the like . . . , things that are displayed within a window object.'" (Simple's Claim Construction Objections at 5-6.) Having summarized the Special Master's proposed construction and the parties' corresponding objections, the Court will put forth its own analysis.

C. Analysis

The Court's analysis of the term "content" will entail the following steps: (1) constructing the term based upon a review of the claim language and the specifications of the patents in suit; (2) addressing the Special Master's additional language and modification of the term to exclude size and position information provided by a user; and (3) addressing the arguments raised by the parties.

1. According to the Claim Language of the Patents In Suit, the Term "content" Cannot Be Limited to the Information Displayed on Screen

The claim language of the patents in suit clearly establishes that content must include: (1) window object attributes such as size and location; (2) the address of a network client source; and of course, (3) information displayed in a content manifestation environment. According to claim 1 of the '493 Patent, "content" is processed to produce a window object. In this context, "content" includes the attributes of a window object such as size and window position which have been loaded into the host database and then sent to the client side to determine the appearance of the window object itself. E.g., '493
The system according to claim 1, wherein said associated content includes at least one address of a network content source that is configured to download information to said data processing system via said electronic data network, said information to be manifested within said at least one window within said content manifestation environment.

'493 Patent Cl.4 (emphasis added). The emphasized claim language clearly indicates that "content" is more than the information displayed on screen. A step-by-step analysis of claim 4 indicates that: (1) a user on a network client receives "content" from a remote server system over the Internet, as per claim 1; (2) this "content" includes the "address of a network content source" and other information that may be displayed on screen; (3) the network client accesses said address and downloads information; and finally (4) the received information is then displayed within a window object. Having reviewed the claim language of the patents in suit, the court will supplement its construction of the term "content" by referring to the specifications of the '493, '563, and '882 Patents.

2. According to the Specifications of the Patents in Suit, the Term "content" Cannot Be Limited to the Information Displayed on Screen

The specifications of the '493, '563, and '882 Patents indicate that: (1) "content" should not be limited to information "displayed within a window object" and (2) it can be received from any source. The specifications of the patents in suit state that "content" can include "window object instructions, content, data, and content stream data." '493 Patent col.7, ll. 64-67; '563 Patent col. 7, ll. 31-40; '882 Patent col.7, ll. 64-67. The specifications of the '493, '563, and '882 Patents also state that "content" can be "received via an electronic data network, from a local hard disk, etc." '493 Patent col. 8, ll. 57-59; '563 Patent col. 8, ll. 30-32; '882 Patent col. 8, ll. 57-59. The use of the term "etc." is noteworthy because it indicates that the patentees' list was not meant to be exhaustive. Consequently, content can be received from other sources besides "an electronic data network . . . [or] a local hard disk." An example of this additional source would be "a stream of position data coming from a mouse interface while the user moves the mouse to drag a . . . [window object] around the claimed content manifestation environment. (See CA's Claim Construction Objections at 10.) Having reviewed the relevant intrinsic evidence, the Court will define the term "content."

3. "[C]ontent" Defined

The intrinsic evidence before the Court, compels the adoption of the glossary definition of "content," specifically, "any form of digital data stream that may be supplied or sent to a computing system such as a personal computer." E.g., '493 Patent col. 5 ll 46-48. According to the patents in suit, "content" includes but is not limited to: (1) information delivered to a user; (2) window object attributes such as size and location; (3) the address of a network client source; and (4) window object instructions. In fact, the claim language of the '493, '563, and '882 Patents indicates that information displayed on screen is merely a part of what is considered "content." Additionally, "content" can be received from various sources including, but not limited to, an electronic data network and "a local hard disk." E.g., '493 Patent col. 8, ll. 57-59. Since the foregoing descriptors fall within the glossary definition of "content" found in the '493, '563, and '882 Patents, the Court will let the patentees' lexicography stand. Having construed the term "content," the Court will discuss why it disagrees, in part, with the Special Master's recommended construction and address the parties' objections.

4. The Special Master Unnecessarily Added Language to the Patentees' Glossary Definition of "content" and Then Incorrectly Modified His Definition of "content" to Exclude Data Supplied By a User

The Special Master was correct in adopting the glossary definition of "content" but his use of clarifying language is superfluous and raises the possibility of confusion. The Special Master recommended that the term "Content" . . . should have the meaning provided in the glossary, namely, 'any form of digital data stream that may be supplied or sent to a computing system such as a personal computer,' and may include window object size and position information." (R&R at 140 (emphasis added).) Although the Court agrees that the term "content" should have the meaning provided by the identical glossaries found in the '493, '563, and '882 Patents, the additional phrase "and may include window object size and position information" is counterproductive because it could be misconstrued as limiting the glossary definition of the term.
"content." Indeed, the phrase "any form of digital data" already includes "window object size and position information."

The Special Master also improperly limited the term "content" to exclude data supplied by a user. (R&R at 137-38; Special Master's Report and Recommendation Regarding Anticipation and Obviousness (Dkt. No. 592)) ("Anticipation and Obviousness R&R"). At 76.) According to the Special Master, "the patents-in-suit indicate that size and position information provided by a user, e.g., through minimizing and resizing, is not 'content' . . . [because it's] size and position information from a user is not part of a digital data stream that may be supplied or sent to a computing system such as a personal computer." (Anticipation and Obviousness R&R at 76 (quoting '493 Patent col.5, ll. 46-48); R&R at 137-38.) The Special Master also seems to narrow his definition of "content" to data sent from a server to a client over an electronic data network. (R&R at 137 (stating "the foregoing demonstrates that the patentees have used the term 'content' to broadly connote most if not all data sent from the server to the client").) However, the Special Master's focus on an electronic data network as a source of content directly contradicts statements in the specifications of the '493, '563, and '882 Patents, which provide that "content" can be "received via an electronic data network, from a local hard disk, etc." '493 col. 8, ll. 57-59; '563 Patent col. 8, ll. 30-32; '882 Patent col. 8, ll. 57-59.

The use of the phrase "received via an electronic data network, from a local hard disk, etc." is critical because it demonstrates that the patentees did not intend to limit the sources from which "content" could be received by the network client described by the patents in suit. First, the patents in suit clearly state that "content" can be received from "a local hard drive." If "content" originates from a local hard drive, it is already on the host client/computer and need not have been transferred over an electronic data network. Rather, the "content" could have arrived on the local hard drive: (1) as a result of data entry; (2) after being transferred from a CD ROM or other data storage device; or (3) as a result of certain data processing functions performed on the local hard drive. 10 The foregoing list is in no way exhaustive and could include numerous other entries. In short, "content" found on a local hard disk, as used in the context of the patents in suit, need not be transferred over an electronic data network, such as the Internet. In addition, the word "etc." indicates that: (1) the patentees did not list every source from which "content" can be received and (2) it is possible for "content" to be "supplied" by a user action such as dragging a window object across its content manifestation environment or even resizing it. 11 As the Court has just shown, explicitly listing every source from which "content" can be received would likely be an exercise in futility. As such, the Court finds that the Special Master incorrectly limited the scope of "content" by indicating that it must be sent over an electronic data network and that it cannot be supplied by a user.

--- Footnotes ---

10 An example of this data processing could be when calculations are performed, which produce a great deal of coordinates and data points as output. These coordinates and data points could then be displayed on screen as a graph or chart.

11 Dragging a window object across its content manifestation environment would produce a string of coordinates, indicating its new position. The coordinates would change for every new location of the window object. Accordingly, dragging a window object can produce a stream of "content" in the form of multiple position coordinate values. For example, a window object can initially be positioned at a value of 100 on the "X" or horizontal axis and 100 on the "Y" or vertical axis. If the new X and Y coordinates were 50 and 50, the act of dragging a window object across a screen would produce coordinate position values from 100 down to 50 for both the X and Y axes.

In addition, when a user resizes a window object, its size information changes. For example, if a window object has size values of: (1) length = 10 and (2) width = 10, these values would be altered every time a user adjusted the size of a window object. However, a user will not likely be able to instantly shrink the size from values of (1) length = 10 and (2) width = 10, to values of (1) length = 5 and (2) width = 5. Rather the data values will likely change incrementally from 10 to 5.

--- End Footnotes ---

According to the Special Master, "the patents-in-suit indicate that size and position information provided by a user, e.g., through minimizing and resizing, is not 'content'. . . . [because] size and position information from a user is not part of a digital data stream that may be supplied or sent to a computing system such as a personal computer." (Anticipation and Obviousness R&R at 75-76 (citing '493 Patent col.5, ll. 46-48) (emphasis in original); R&R at 137-38.) The Court sees no reason to find that the position and size information attributed to a particular window object is no longer "content" once it is altered by a user. (Contra Anticipation and Obviousness R&R at 76 (stating that "... [S]ize and position information from a
5. CA's Arguments and Proposed Construction

The Court agrees, almost entirely, with CA's objections to the Special Master's construction of the term "content," but will not go so far as to stray from the patentees' lexicography. CA is correct in asserting that "content:" (1) can include any form of digital data stream and (2) can be sent from any source. (CA's Claim Construction Objections at 9-10.) However, adding the phrase "regardless of the source of that data" is unnecessary since it is already subsumed within the glossary definition of "any form of digital data stream that may be supplied or sent to a computing system such as a personal computer." E.g., '493 Patent col. 5, ll. 46-48.

6. Simple's Arguments

Simple's assertion that "content" should be defined differently when it is capitalized is inconsistent with the '493, '563, and '882 Patents. To wit, the capitalized term "Content" is only used four times in the '493 Patent. One instance is the glossary entry for "Content" and another instance is the glossary definition of "Content Manifestation Environment." The other two instances are as the first word of a sentence. However the un-capitalized term "content" is used hundreds of times throughout the '493 Patent. This pattern of usage is also consistent with the '563 and '882 Patents. Were the Court to apply Simple's reasoning, the only time "content" would have the meaning assigned to it would be the entry in the patent glossary which defines it. In other instances, one of ordinary skill in the art would be left to guess whether "content" had its ordinary meaning or the special definition ascribed to it in the patent specification.

In support of their assertion that the term "content" should be treated differently when it is capitalized, Simple cites Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998), for the proposition that "[w]ithout an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning." (Simple's Claim Construction Objections at 5.) However, this reliance is misplaced because Renishaw expressly provides that "where there are several common meanings for a claim term, an inventor's claim terms take on their ordinary meaning." 158 F.3d at 1250. Indeed as Simple has acknowledged, Renishaw also states that a patentee's own lexicography should govern when she has defined a term "with reasonable clarity, deliberateness, and precision." (Simple's Claim Construction Objections at 5 (citing Renishaw, 158 F.3d at 1249)); see also Phillips, 415 F.3d at 1316; Durel Corp. v. Osram Sylvania Inc., 256 F.3d 1298, 1303-04 (Fed. Cir. 2001); Sinorgchem, 511 F.3d at 1136-39; Abraxis Bioscience, Inc. v. Mayne Pharma Inc., 467 F.3d 1370, 1376 (Fed. Cir. 2006); PC Connector Solutions LLC v. SmartDisk Corp., 406 F.3d 1359, 1363 (Fed. Cir. 2005). In this instance, the patentees have clearly defined their terms in a glossary. As such, the Court must look to this definition when faced with the "several common meanings" which can be attributed to "content."

D. The Court's Ruling on the Term "content"

CA's objection to the Special Master's construction of "content" is granted in part while Simple's objection is denied. The Court defines "content" exactly as the glossaries of the '493, '563, and '882 Patents do, to wit, "any form of digital data stream that may be supplied or sent to a computing system such as a personal computer." E.g., '493 Patent col.5, ll.46-48.

6. "Content instructions": Plaintiff has proposed the construction "Instructions to select data required by an application program from the electronic form of a document." Joint Claims Chart, Dkt. # 134-2, p. 11. Plaintiff cites as intrinsic evidence a section of specification titled "Summary of the Invention." Placed in context, the cited portion reads,

The invention provides an application program interface which inputs a diversity of hard copy documents using an automated digitizing unit and which stores information from the hard copy documents in a memory as stored document
information. Portions of the stored document information are selected in accordance with content instructions which define portions of the stored document information required by a particular application unit. Selected stored document information is then formatted into the transmission format used by the particular application program based on transmission format instructions. The transmission formatted selected stored document information is then transmitted to the particular application program. The hard copy documents may contain textual information or image information or both.

'697 Patent, col. 2, lines 48-62. The bolded section is the language cited by plaintiff.

The Court finds that the language of the specification cited by plaintiff contains sufficient definition of the term. That is, content instructions are "instructions which define portions of the stored document information required by a particular application unit."

D. "Content of Information"

This term appears in all claims of the '511, '382, and '392 patents, as well as claims 11-26 of the '617 patent and claims 19-23 of the '694 patent. In each claim where the term "content of information" appears, the term is used in the context of obtaining information about the data structure of a data source by "automatically accessing content of information stored" in the data source. See, e.g., '511 patent, claim 1 (emphasis added).

Timeline's proposed construction of "content of information" is "information in a data source such as data values, information about structure or other information." ProClarity's proposed construction is "value and type of data."

Timeline argues that ProClarity's proposed construction is too narrow because it limits "content of information" to two specific categories of data (data value and data type), and would not include information about data structure. Timeline maintains that "because every claim in which the phrase 'content of information' appears in the patents requires that information about data structure be obtained by accessing the 'content of information stored in [first] data source,' 'content of information' must include 'information about data structure.'" Pl.'s Opening Brief at 7. Timeline points to language in the '694 patent specification which states that "a procedure is first done in which all or a majority of the data and structure in the data source is accessed and saved to the new databases."'694 patent, Col. 13:67 -- 14:3 (emphasis added); see also '511 patent, Col. 11:63-66 (same). Timeline also observes that the specification describes a procedure in which "general information is loaded" and where "general information includes information about the structure of the data in the data source." '694 patent, Col. 16:27-39; see also '511 patent, Col. 13:46-58 (same).

Ex. A to Pl.'s Opening Brief at 4.

In response, ProClarity correctly observes that Judge Coughenour's ruling is not binding on this court. However, Judge Coughenour's construction may be regarded as instructive and is not inconsistent with the proposed construction offered by
ProClarity also contends that the prosecution history contradicts Timeline's proposed construction. ProClarity argues that the term "content of information stored in said [first] data source" was added to distinguish the '511 patent from a piece of prior art, which the parties refer to as the "Lu" patent. Timeline acknowledges that this term was added to overcome Lu. During the prosecution of the '511 patent, Timeline argued that Lu obtained information about data structure by using information about a data source's "format," rather than its content. Therefore, Timeline maintains that it added the term "content of information" to clarify that the invention did not solely access information about a data source's "format" to obtain information about a data source's structure. See, e.g., Dkt. No. 73, '511 patent history at 91 ("obtaining information about data structure involves obtaining information about the content of the database, not just its format.") (emphasis in original).

As noted earlier, prosecution history is generally less useful for claim construction purposes than the claims and specification. A court should limit claims based on prosecution history only if the "alleged disavowing actions or statements made during prosecution [are] both clear and unmistakable." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1326 (Fed. Cir. 2003). Here, the prosecution history does not clearly and unmistakably show that Timeline limited the term "content of information" to simply mean "value and type of data."

The court also agrees with Timeline's position that the term "content of information" should be construed to include information such as data values and information about structure. Both sides agree that the term encompasses data values. In addition, Timeline's argument that the term includes information about structure finds support in the intrinsic evidence. As discussed above, the specifications indicate that "[a] procedure is first done in which all or a majority of the data and structure in the data source is accessed and saved to the new databases." '694 patent, Col. 13:67-14:3 (emphasis added); see also '511 patent, Col. 11:63-66 (same). This suggests that "content of information" includes both data and information about structure.

Therefore, the Court construes the term "content of information" to mean "information in a data source such as data values and information about structure." Although Timeline seeks to include the words "and other information" at the end of this phrase, the court omits those words because they add nothing of substance.

Step 2

The parties' dispute over construction of Step 2 mirrors their dispute over construction of Step 1. Step 2 provides for "creating content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source." Amazon's proposed construction of "content profiles indicating the degree of content of said predetermined characteristics in data from each data source" parallels its "customer profile" construction rejected by the court. Amazon construes this phrase to mean "a list of mathematical values indicating the degree to which predetermined characteristics that describe the contents of data are contained in the data provided by each data source."

Amazon relies on two general dictionaries, its expert witness, and the specification. As above, "profile" is defined as "a formal summary or analysis of data, often in the form of a graph or table, representing distinctive features or characteristics." Def. Mem. at 18 (quoting The American Heritage Dictionary of the English Language (4th ed. 2000)). "Content" means "the topics, ideas, facts, or statements in a book, document or letter" and "the amount of specified material contained, present or yielded." Id. (quoting Webster's Third New International Dictionary of the English Language Unabridged (Philip Babcock Gove et al. eds, 1993)). Amazon modifies these general definitions with reference to its expert witness' declaration: "in content-based filtering, . . . a content profile of an item is a set of mathematical values representing the degree to which the item contains particular characteristics." Id. (citing Resnick Decl. at P 58). Amazon also contends the patent specification lends support by describing "content profiles" as "a collection of mathematical values representing the weighted significance of several predetermined characteristics." Def. Mem. at 19, Ex. 1, Col. 10.

Amazon's construction is not limited to the phrase "content profile." Amazon also interprets the phrase "degree of content." According to Amazon, "degree" means "a grade or point marking the attainment or existence of more or less of a quality,
acquiescence or aspect: [its] relative intensity." Def. Mem. at 20 (quoting Webster's Third New International Dictionary of the English Language Unabridged (Philip Babcock Gove et al. eds., 1993)). Amazon contends that "degree" cannot mean "presence," but instead signifies measurement of a certain characteristic, such as violence, on a range of 0-10. Amazon relies on the claims of the '722 patent in which presence is purportedly distinguished from degree: "said content profile indicating at least one of the presence and the degree of content of said predetermined characteristics in data of each of said data object[,]" Def. Mem. at Ex. 2, Col. 53-43, Claim 1 (emphasis added). Amazon's construction also relies on the foreign prosecution history of the '722 patent counterpart.

Pinpoint's proposed construction of "content profile" also parallels its proposed construction of "customer profile." Pinpoint construes "content profiles for each data source of said data, said content profiles indicating the degree of content of predetermined characteristics in data from each data source" as "data that describes the significant characteristics of a data source, indicating the degree to which predetermined characteristics are contained in the data from the data source." Pl. Opp. Mem. at 15. Specifically, Pinpoint contends a "content profile" is a "profile of the data source of said data" and contains "information that describes the significant characteristics of the item of interest." Id. Pinpoint uses the patent specification to support this proposed construction. Pinpoint emphasizes that the specification does not restrict "content profiles" to mathematical values or constructs, but rather includes other non-mathematical values not indicative of a range, such as "the director of a program, . . . the rating given to a movie by a third -party, such as the MPAA . . . [or] whether a stock is owned by a customer." Id. at 15-16 (citing Def. Mem. Ex. 1, Cols. 11, 51).

Pinpoint disputes Amazon's construction of "degree of content," contending that "presence is . . . a special case of degree." Pl. Opp. Mem. at 17. Pinpoint refers to the patent specification in support of this construction. Id. at 16, citing Def. Mem. Ex. 1, Col. 11 ("Of course, as in the Strubbe system, the values could simply be '0' or '1' to indicate the presence or absence of a characteristic"). Pinpoint refutes Amazon's claim that the '722 patent distinguishes presence from degree with reference to the prosecution history. According to Pinpoint, the inventors merely sought to clarify the claim language: "Claims 1 and 11 [of the '722 patent] have been amended to recite that the content profiles indicate either the 'degree of content' or the 'presence' of predetermined characteristics in the data." Id. at 17, App. 8 (AMZN 002689-90). Pinpoint argues that the foreign prosecution history actually supports its proposed claim construction of "degree of content." Specifically, the foreign examiner noted "the claim is silent as to how this 'degree' of measure is obtained. A simple on/off measure (e.g., binary flag representing presence or absence) is also included within the scope of these extremely broad terms." Id. at 18, App. 9 (AMZN 030073) (emphasis added).

Amazon's proposed construction of "content profiles" fails on the same grounds as its construction of "customer profiles." Simply put, neither the claim language nor the patent specification supports Amazon's contention that a "content profile" is always a "mathematical construct." A comparison of the claim language of the asserted claims to the claim language of non-asserted claims is instructive. Compare Def. Mem. at Ex. 1, Col. 52, Claim 1 ("relating said selected customer profile with the content profiles for the data available from each data source to the customer at a particular time by determining the distance between a customer profile and a content profile in a characteristic space by calculating an agreement scalar for common characteristics, ac, between said selected customer profile, cv, and said content profiles, cp, in accordance with the relationship: . . . ") with Claim 43 ("relating said at least one customer profile with the content profiles for the data available from each data source to the customer"). See Vitrinos, 90 F.3d at 1582 ("first, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope"). The patent specification also supports a construction broader than "a list of mathematical values;" neither a program director nor stock ownership is a mathematical value.

Amazon's proposed construction of "degree of content" is flawed. Contrary to Amazon's assertion, the patent specification supports a broader reading of "degree." As Pinpoint argues, the specification contemplates content profiles containing information describing the range of a particular characteristic, like violence of a particular program between 0-10, as well as information describing the presence or absence of a particular characteristic. Def. Mem. Ex. 1, Col. 13 ("Of course, other simpler techniques such as one which simply determines the presence or absence of particular characteristics may be used within the scope of the invention"). Pinpoint's construction of "degree" as including "presence" is bolstered by the specification; Amazon's unsupported construction must therefore fail. Vitrinos, 90 F.3d at 1582 (specification "is usually dispositive; it is the single best guide to the meaning of a disputed term"). Indeed, the specification buttresses Pinpoint's contention that adding the term "presence" to the '722 patent claims was merely for clarification purposes. Moreover, the foreign patent prosecution history actually lends itself to Pinpoint's construction. Accordingly, the court construes "creating content profiles for each data source of said data, said content profiles indicating the degree of content of said predetermined characteristics in data from each data source" as "data that describes the significant characteristics of a data source, indicating the degree to which predetermined characteristics are contained in the data from the data source."
source, indicating the degree to which predetermined characteristics are contained in the data from the data source.

A. Context

<table>
<thead>
<tr>
<th>Leader's Construction</th>
<th>Facebook's Construction</th>
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<tbody>
<tr>
<td>Environment</td>
<td>A collection of interrelated webs</td>
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The term "context" appears in Claims 1-8, 23-26, 29, and 31-34. Leader contends that the meaning of the term "context" can be understood by reference to the intrinsic evidence. (D.I. 179, at 6-7.) Specifically, Leader contends that the terms "context" and "environment" are used interchangeably throughout the specification. (Id.) Facebook responds that "context" and "environment" are not used interchangeably in the specification, and further, that the doctrine of claim differentiation dictates that these two terms must have different meanings. (D.I. 191, at 13-14.) Facebook contends that the specification actually supports its proposed construction, and makes clear that "contexts" are used to organize the interrelated webs that sit beneath them. (Id. at 13.)

In the Court's view, Leader's proposed construction has stronger support in the specification. In describing Figure 9, the specification states, "[u]nder the context level 904 is the web level 906 that associates one or more of the webs with one or more of the contexts of the context level 904." '761 patent col. 12:10-20. Facebook argues this supports defining "context" to mean "a collection of interrelated webs."

While the specification clearly dictates that the one or more of the contexts of the context level associates with one or more of the webs of the web level, it is not clear that the associated webs must be "interrelated," or that there must be a "collection" of webs. In contrast, Leader's proposed construction of "context" is supported by this language in the specification:

'[W]hen a user logs-in to the system 100, user data 102 is generated and associated with at least the user and the login process. The user automatically enters into a user workspace or a first context 104 (also denoted CONTEXT.sub.1) or environment. This environment can be a default user workspace, or a workspace environment predesignated by the user or an administrator after login, for example.

'761 patent, col. 6:26-333. Facebook focuses on the word "or" to contend that the three terms are not used as synonyms, but rather, as different constructs. Facebook's position is untenable, however, when this portion of the specification is read as a whole.

Turning to Facebook's claim differentiation argument, the doctrine of claim differentiation is "based on 'the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scopes.'" Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1369 (Fed. Cir. 2007) (citing Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999)). The Federal Circuit has observed that two considerations generally govern the doctrine of claim differentiation when applied to two independent claims: "(1) claim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous; and (2) claim differentiation 'can not broaden claims beyond their correct scope.'" Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1381 (Fed. Cir. 2006)(citing Fantasy Sports Props. v. Sportsline.com, 287 F.3d 1108, 1115-15 (Fed. Cir. 2002)).

In relevant part, Claim 1 of the '761 patent claims:

1. A computer-implemented network-based system that facilitates management of data, comprising:

   a computer-implemented context component of the network-based systems for capturing context information . . . created by user interaction of a user in a first context of the network-based system, the context component dynamically storing the context information in metadata associated with the user-defined data . . .; and
a computer-implemented tracking component . . . for tracking a change of the user from the first context to a second context of the network-based system . . . wherein the user accesses the data from the second context.

'761 patent, col. 20:63-321:21 (emphasis added). In relevant part, Claim 9 of the '761 patent claims:

9. A computer-implemented method of managing data, comprising computer-executable acts of:

creating data within a user environment of a web-based computing platform via user interaction with the user environment by a user using an application . . .;

dynamically associating metadata with the data, . . ., the metadata includes information related to the user, the data, the application, and the user environment;

tracking movement of the user from the user environment of the web-based computing platform to a second user environment of the web-based computing platform; and

dynamically updating the stored metadata with an association of the data, the application, and the second user environment, wherein the user employs at least one of the application and the data from the second environment.

'761 patent, col. 21:38-58 (emphasis added).

Facebook contends that, under the doctrine of claim differentiation, the use of different terms in these Claims indicates that the terms "context" and "environment" should have different meanings. (D.I. 191, at 14.) Leader responds that Claim 9 refers to "user environment," not simply "environment." (D.I. 196, at 7.) Further, Leader notes that dependent Claim 4 requires that "context information" includes "user environment." '761 patent, col. 21:22-24. According to Leader, because Claim 1 is necessarily broader than Claim 4, "context" (i.e., "environment") is broader than, and not identical to, "user environment." (D.I. 196, at 7.)

The Court is not persuaded that Leader's proposed construction runs afoul of the doctrine of claim differentiation. First, if every reference to "context" in Claim 1 is replaced with "environment," the scope of Claim 1 does not appear to be broadened. Second, if every reference to "context" in Claim 1 is replaced with "environment," Claims 1 and 9 do not appear to be totally identical in scope. As noted by Leader, Claim 9 specifically references "user environment" rather than merely "environment," and dependent Claim 4 dictates that "context" information (or "environment" information, if Leader's proposed construction is adopted) includes a relationship between the user and user environment. Third, even if independent Claims 1 and 9 were made to have similar scopes as a result of construing "context" to mean "environment," case law suggests that the doctrine of claim differentiation does not necessarily prevent two independent claims which use different terminology from having similar scopes. See Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990)(noting that, although the doctrine of claim differentiation is well-established, it "cannot overshadow the express and contrary intentions of the patent draftsman. It is not unusual that separate claims may define the invention using different terminology, especially where (as here) independent claims are involved.") Finally, claim differentiation is "not a hard and fast rule and will be overcome by a contrary construction dictated by the written description of prosecution history." Seachange Int'l, Inc. v. C-COR, Inc., 413 F.3d 1361, 1369 (Fed. Cir. 2005). For the reasons set forth above, the Court concludes that construing "context" to mean "environment" is dictated by the specification, and thus, the specification should prevail over claim differentiation principles. Accordingly, the Court concludes that "context" means "environment.

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Context

Claims 1, 2, 3, 4, 15, 16, 18, 19, 20, 21, 24, 27, 28, 30, 31, 32, and 40 contain the term "context." Though this term was originally disputed, during the hearing both sides agreed that the definition of the term is "information already existing within the system that becomes relevant upon the occurrence of an event." This definition is in conformity with the claim language, specification, and prosecution history and is adopted accordingly.
21. Context free

The next term in dispute is "context free." This term appears in claims 11, 13, and 32 of the '755 patent and in claim 33 of the '945 patent. Claim 11 of the '755 patent is illustrative and recites "a plurality of individual context free processor elements (PEs)." The plaintiff defines a "context free processor element" to mean that "the processor element does not retain execution state information from execution of prior instructions and that execution state information is directly accessible by other processor elements." Intel and ADI argue that context free means "containing no execution state information from the execution of previous instructions."

In the original specification, the patentees included the following language:

The term "context free" means that the processor elements contain no state information, e.g., condition codes, registers, program status words, flags, etc.

The corrected specifications omit this language. Intel and ADI contend that the court should nevertheless use this definition of "context free" in the construction of claim 11.

The court disagrees. The applicable portion of the specification attached to the issued patent does not include the language relied upon by the defendants. During prosecution, the patentees described the "context free" concept of the invention and stated:

The present invention further executes the basic blocks containing the added intelligence on a system using a plurality of identical processor elements each of which is incapable of retaining execution state information from prior operations. Hence, all processor elements are context free and this feature is not found in any of the above references . . . .

(Petition to Make Special, attached to Defendants' Responsive Brief, Exh. W, p. 22).

The court accordingly defines "context free processor element" as "a processor element that retains no execution state information from prior operations."

(1) contiguous

The crux of the dispute over the construction of this term is whether "immediately" is warranted as a limitation. N-Data argues that the inclusion of "immediately" improperly limits the term and finds no support in either the claims or specification. Dell argues that, without the limitation, there would be no distinguishing characteristics between "contiguous" and "noncontiguous." Both N-Data and Dell point to Figure 11 of the '261 patent for support; indeed, the interpretation of what the patentee intended Figure 11 to represent provides the ultimate enlightenment as to the meaning of the present term.

The court agrees with Dell. As discussed in the claims construction hearing, it is the court's opinion that N-Data's proposed definition does not distinguish between "contiguous" data 458 and "non-contiguous" data 456. The '261 patent states as follows:

Referring to Table I, and FIG. 11, after the output of the first 4 bits of Ethernet data 452, there will be a wait of 0.2441 sec (during which, isochronous data 454 will be output). This pattern will be repeated six times 456, after which, there will be a transmission of five nibbles of Ethernet data contiguously 458. Thereafter, there will be another wait of 0.2441 sec 460 and so forth. '261 Patent, col. 7, ll. 54-61.
As the previous passage suggests, there is a distinction between contiguous and noncontiguous data transfer, a distinction not captured in N-Data's proposed construction. Under N-Data's construction, e.g., the data transferred on 450 would be contiguous with the data that is transferred at the first part of 458, something obviously not intended by the specification.

As such, the court defines "contiguous" as "immediately preceding or following in time and sequence."

3. continually detecting the instantaneous flow rate

This phrase is found in Claims 3 and 24 of the '802 Patent and Claims 9, 44, and 53 of the '193 Patent.

Phrase: continually detecting the instantaneous flow rate

Construction: Without interruption, creating a signal corresponding to the flow rate at a particular point of time.

Reasoning: At its core, there is little dispute between the parties as to the meaning of this phrase. Both parties agree that the computer circuitry detects the instantaneous flow rate by creating a signal corresponding to the instantaneous flow rate. The real dispute between the parties is over the meaning of "flow rate", which we have already construed above.

16. The next element of Claim 3 is: "said lattice being continuous and uninterrupted." An example of a "continuous and uninterrupted" lattice is shown in Figures 3 and 4 of the specification, where the semiconductor material in the space between the hexagonal base regions forms the continuous and uninterrupted three-dimensional lattice. "Continuous and uninterrupted" means that it is possible to travel from any point to any other point within the claimed lattice (the semiconductor material between the bases of the first conductivity type) while staying within the lattice.

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9 The language "continuous and uninterrupted" was added to the claims during the first reexamination of the '725 patent in response to the examiner's argument that the Yoshida et al. reference otherwise included a lattice. The examiner viewed Yoshida et al. as an array of square base regions, but with each corner of each square base overlapping (i.e., merged at) the corner of each adjacent "square" base. (Reexam. Control No. 90/002/478, Order Granting Request for Reexam., pp. 4-5; Reexam Interview Summary Form dated 9/11/92.) Because what the examiner viewed as square base regions overlapped one another, in reality there was only one base region and the space not occupied by the overlapping square bases consisted of separate regions isolated from one another by the overlapping square bases. (Reexam. Interview Summary Form dated 9/11/92.) Thus, in Yoshida et al. as viewed by the examiner, the space not occupied by the overlapping square base regions was not continuous and uninterrupted. Yoshida et al is comparable to a checkerboard, where the regions of the first and second semiconductor type were laid out like the red and black squares (except that the "black squares" representing the base were slightly oversized so that they overlapped each other at the corners). It was impossible to move from one "red square" of this checkerboard to another "red square" at the first surface without traveling through a "black square."

10 The phrase "continuous and uninterrupted" has the same meaning in Claim 10 of the '767 patent; and the above construction is equally applicable to that phrase in Claim 8 of the '725 patent and Claim 11 of the '767 patent, but with the substitution of the phrase "surface of said common conduction region" for the word "lattice."

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
Continuous source of illumination

The phrase "continuous source of illumination" appears in the '823 and '302 patents. Gekko's proposed construction is "illumination with an uninterrupted source of current." Gekko contends that for illumination to be continuous, the source of current must be uninterrupted. Gekko offers no intrinsic evidence to support its construction; it only offers its expert's assertion that "[Gekko's definition] is consistent with the specification of the '823 and '310 patent specification."

An expert's conclusory allegations are entirely unhelpful to the Court. Phillips, 415 F.3d at 1317. Because neither Gekko nor its expert offers any supporting evidence to show how its construction is consistent with the specifications, the assertion is conclusory and unhelpful.

Gekko's proposed construction would render the '823 patent's Claim 1 incompatible with dependent Claim 2. Although Claim 2 is not asserted, it is helpful in construing this phrase. See Phillips, 415 F.3d at 1314 (usage of a term in one claim can often illuminate the meaning of the same term in other claims). Claim 2 is dependant upon Claim 1, which requires the light elements' illumination level to be controlled using pulse width modulation ("PWM"). '823 patent, Col. 31:2-17. Neither party disputes that PWM involves interrupting the power current. Claim 2 requires the light elements to provide a "continuous source of illumination." Id. at Col. 31:18-20. Applying Gekko's construction of "uninterrupted current" would render Claim 1 incompatible with Claim 2.

Gekko's construction focuses on the power source for the illumination, but the intrinsic evidence does not support this view. The proper focus is the visible effect not the power source. The specification discusses controlling visible effects, such as "strobing," "dimming," "pulsation," and "pattern generation." See id. at Cols. 19:7-52; 20:36-38. In one embodiment, the specification teaches "the lighting assembly 4600 can provide continuous light or, if applicable, various lighting effects." Id. at Col. 22:40-44. The positioning of continuous light as an alternative to "various lighting effects" further supports that the specification focuses on the effect as perceived by the eye and not on the power source.

The specification does not prescribe a special meaning for "continuous source of illumination." As Gekko stated in its moving papers, one skilled in the art of photography lighting would readily understand this phrase. Also, a lay juror would have no problem understanding what "continuous source of illumination" means. Therefore, the Court does not construe this term.

5. The term "CONTINUOUSLY" (claim 1) means that the tonal frequency changes constantly as the quantity being measured changes.
10. The network client according to claim 6, wherein said content includes at least one address of a network content source that is configured to download information to said data processing system via said electronic data network, said information to be dynamically and continuously manifested within said at least one corresponding window object within said content manifestation environment.

'563 Patent Cl. 10. In short, the Special Master's recommended construction of the phrase "continuously manifested" is at issue.

A. The Special Master's Recommended Construction

The Special Master recommended that "said information to be dynamically and continuously manifested within said * * * window object" be interpreted to mean "that the display of information or content changes over time and . . . [that] information is displayed without interruption within 'said * * * window object' while the 'content display section' of the 'window object' is visible." (R&R at 143 (emphasis added).) The Special Master interpreted the relevant intrinsic evidence to mean that information is to be "manifested" within the content display sections found in window objects. (Id. at 142.) The Special Master then used a common dictionary definition of "manifest" as being "readily perceived by the senses and especially by the sight." (Id. at 143 n.58. (using an Internet based dictionary to define the term "manifest").) Although the dictionary used by the Special Master did not explicitly limit manifestation to visual perception, the Special Master chose to do so. (Id. at 143.)

'Manifest,' of course, simply means 'readily perceived by the senses and especially by the sight,' and in the context of the claim, the information is to be displayed, i.e., visually manifested to the user. For the information to be displayed, the 'content display section' must be visible to the user. To meet that particular limitation of the claim, therefore, (1) the 'content display section' of the 'window object' must be visible, and (2) the information must be displayed therein. Put another way, the information is to be manifested within the window object while the content display section is visible.

(Id. (footnotes omitted.) Based on this analysis, the Special Master required that information in a content display section be "visible to the user" in order for it to be manifested. (Id. at 142-43.) Having summarized the Special Master's recommended construction of "continuously manifested," the Court will summarize the parties' corresponding objections and counter arguments.

B. Simple's Objection and CA's Counter Argument

Simple asserts that the Special Master "improperly limits the 'continuously manifested' requirement on a durational basis to the period while the content display section is visible without any explicit support in the intrinsic record." (Simple's Claim Construction Objections at 15.) Simple goes on to argue that the proper definition of "continuously manifested" should be "displayed without interruption." (Id. at 16.) Conversely, CA argues that the Special Master's recommended construction is supported by (1) the plain meaning of the terms at issue and (2) the specifications of the patents in suit. (CA's Resp. to Simple's Objections to Claim Construction R&R (Dkt. No. 583) ("CA's Claim Construction Response"), at 16-17.) Having summarized the parties arguments, the Court will put forth its own analysis.

C. Analysis

The Court's analysis of the phrase "continuously manifested" will entail the following steps: (1) constructing the term based upon a review of the claim language and the specifications of the patents in suit; (2) addressing the deficiencies in the Special Master's interpretation of the phrase; and (3) addressing the arguments raised by the parties. The Court will focus its analysis on whether the Special Master correctly emphasized the visual aspect of content manifestation. Indeed, this issue lies at the heart of resolving Simple's objection.

1. The Intrinsic Evidence Before the Court Indicates That Manifestation Should Not Be Limited to a User's Visual Perception

A step-by-step analysis of claim 5 of the '493 Patent indicates the following process: (1) a user on a client side network client receives content from a remote server system over the Internet; (2) this content includes the address of a network content source; (3) the network client accesses said address and downloads information; and finally (4) said information or a
portion thereof is continuously manifested within a window object. None of the relevant claim language makes any mention of whether or not information must be seen to be manifested. Accordingly, the Court must turn to the specifications of the patents in suit to determine whether or not information or content must be seen to be manifested.

The manifestation of information should not be confined to visual perception since: (1) user actions may lead to the manifestation of sound; (2) the parties do not dispute that window objects can manifest sound (see R&R at 115 (citation omitted)); and (3) window objects are equipped to manifest content which may extend beyond what can be shown at one specific moment. The specifications of the '493, '563, and '882 Patents state that the "manifestation of content is a broader concept than simple screen display." E.g., '493 Patent col. 9, ll. 22-30. For example, a window object may display a hyperlink within its content display section, "to invite a user click to cause sound to be manifested." Id. Since neither party disputes this finding, it also follows that a window object can deliver sound as content. See id. Additionally, the specifications of the '493, '563, and '882 Patents all describe window objects equipped with a scrolling functionality that allows for the manifestation of content which may extend beyond the visible portion of a content display area. E.g., '563 Patent col. 8, ll. 55-61 (specifically mentioning the use of "OCX files and systems to derive a customized WWW browser...[capable of supporting] an 'overflow:auto' CSS (cascading style sheet) property which applies to facilitate scroll bars, . . . to allow management of content that extends beyond a bottom edge of a visible area of a selected module"). In short, the specifications of the '493, '563, and '882 Patents clearly indicate that manifestation is more than what is seen.

2. "[C]ontinuously manifested" Defined

The Court interprets the phrase "continuously manifested" to mean: delivered without interruption. Accordingly, the phrase "said information to be dynamically and continuously manifested within said * * * window object" will be interpreted to mean that the display of information or content changes over time and that information is delivered without interruption within "said * * * window object." This construction is based on the fact that content need not be seen to be manifested. The patents in suit indicate that content is "any form of digital data." See '493 Patent col. 5, ll. 46-48; '563 Patent col. 5, ll. 32-34; '882 Patent col. 5, ll. 49-51. To assume that: (1) content cannot include audio as well as visual media and (2) that content must be seen to be delivered, would contradict the term's clearly established glossary definition as well as the scrolling functionality taught by the patents in suit. Accordingly, the concept of content delivery as opposed to a mere visual representation is more appropriate in the context of the '493, '563, and '882 Patents.

D. The Court's Ruling on the Term "continuously manifested"

Simple's objection is granted in part because the Special Master's construction seems to limit content manifestation to visual perception. The Special Master's application of the dictionary definition of "manifest" is countered by the patent specifications, which should be given greater weight in claim construction. Phillips, 415 F.3d at 1316, 1318. Nonetheless, instead of adopting Simple's proposed construction, the Court will use the term "delivered" because the specifications of the '493, '563, and '882 Patents indicate that the manifestation of content is more than what appears on screen. Indeed, content delivery better comports with this conception of manifestation than the visual emphasis placed on the term by the Special Master or the term "display," as suggested by Simple.

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Claim Element 1c

coupled for continuously providing

The parties disagree on the meaning of "coupled for continuously providing."

Dell proposed: "providing multiple times daily."

Lucent proposed: "inputting at all times."

The court construes "coupled for continuously providing" as follows:
"continuously connected such that the first user can update the web site as new information becomes available."

The parties disagree on the meaning of "continuously updating." Dell proposed: "maintaining current by multiple daily updates." Lucent proposed: "bringing up to date at all times."

The court construes "continuously updating" as follows:

"bringing up to date as new information becomes available."

Claims 7 and 8 refer to downloading or licensing under "control" of the respective components. NCI argues directly for the equation of the terms "control" and "coordinate," essentially contending that the terms have no functional difference within the context of the patent. Alternatively, NCI argues that "control" means "to direct, guide or manage the transfer or delivery of electronic data." Microsoft again argues for an interpretation that includes the exercise of a dominating influence in the download or licensing process.

The Court finds that the terms "coordinate" and "control" can not be equated. NCI used different language in different claims. The difference is presumed to be intentional, and therefore should be given effect. Yet the Court finds nothing in the claim language, patent specification or prosecution history that mandates such a narrow, limited definition as that proposed by Microsoft.

The Court therefore adopts NCI's alternative definition. To "control" means to direct, guide or manage the transfer or delivery of electronic data. This is an active term, not a passive one. This interpretation is consistent with the ordinary meaning of the claim language, the patent specification, and dictionary definitions submitted by NCI. Fisher Decl. Ex. M.

"Control," in plaintiff's view, is "the authority to guide or manage." "Possession" is "to have and to hold as property." Plaintiff maintains that these terms should be accorded these meanings wherever used, including when they are used in combination or separately.

Defendants, on the other hand, seek to have each of the following phrases construed as meaning the same thing: "controlling use and possession," "in control and possession," "in possession and control," "controlling," and "controlling use." These must each be construed, in defendants' view, to mean "in physical control and ownership." Therefore, there are two disputes here which are interwoven. The court must determine what the terms mean and whether they are being used interchangeably.
Initially, it must be noted that both Sightsound and CDnow offer definitions for each term. "Control" in defendants' view is "physical control" while "possession" is "ownership." These terms may be measured against Sightsound's proposed definitions, and then the question whether they are being used interchangeably in the patent may be addressed.

A useful starting point for construing these terms is Claim 1 of the ‘573 patent:

1. A method of transmitting a desired digital audio signal stored on a first memory of a first party to a second memory of a second party comprising the steps of:

   - transferring money electronically via a telecommunications lien [sic] to the first party at a location remote from the second memory and controlling use of the first memory from the second party financially distinct from the first party, said second party controlling use and in possession of the second memory;
   - connecting electronically via a telecommunications line in the first memory with the second memory such that the desired digital audio signal can pass therebetween;
   - transmitting the desired digital audio signal from the first memory with a transmitter in control and possession of the first party to a receiver having the second memory at a location determined by the second party, said receiver in possession and control of the second party; and
   - storing the digital audio signal in the second memory.

(Docket # 69, Tab J, Claim 1) (emphasis added).

The dictionary defines "control" as meaning "exercise authority or influence over: direct" (Docket # 69, Exhibit E, The 1995 Webster's II New College Dictionary). "Possess" is defined as "to hold as property or occupy in person; have as something that belongs to one; own" (Webster's New World Dictionary, Third College Edition, 1988). "Possession" is defined as "a possessing or being possessed, as by ownership or occupancy; hold" (Id.). That these dictionary definitions offer slight but important variations of the meaning for the term "possess," only comports, in the court's view, with the common understanding of this prosaic term. One can "possess" one's house as a renter, with a possessory interest assertable against the whole world except, under some circumstances, against the owner, who also enjoys a possessory interest. "Possession" thus does not mean "ownership"; it means "holding as property."

The dispute with respect to "control," however, is whether or not the patents require that physical control be exercised over a particular object, or if the authority to direct the use of the object is sufficient. A review of the claims in suit does not reveal any support for defendants' assertion that physical control over any particular object is required as opposed to the authority to direct the use of that object. Therefore, physical control is not a requirement where the term "control," or any derivation thereof, is used in the claims-in-suit. 12

12 Defendants also make the argument that referring to the "plain meaning" of the terms used would end in an absurd result (which, in any event, defendants profess would be acceptable to them). Specifically, defendants allude to the third paragraph of Claim 1 of the ‘573 patent, where the receiver "is in possession and control of the second party." A "plain reading" of this language, in defendants' view, would require the receiver to possess and control the second party, rather than the other way around (Docket # 65 at 21-22). The court disagrees. At most, defendants have pointed out the infelicitous placement of a verb. This does not, however, establish that the meaning of the terms in issue are ambiguous. Rather, a reader of normal skill in the art, and with a normal understanding of the English language, will not be confused by the claims which place (or misplace) the terms "possession" and "control." In fact, it does not take one skilled in any art, past a common understanding of English, to understand that "a transmitter in control and possession of the first party" means that the first party controls and possesses the transmitter.

The issue of the interchangeability of the terms is largely disposed of by recognition that the terms do have generally
accepted meanings which are distinct. Thus, in Claim 1 of '573 patent, the first party has "controlling use" of the first memory, while the terms possession and control are used together with respect to the first party vis-a-vis a transmitter, and the second party vis-a-vis both the second memory and a receiver. The claim clearly makes a distinction, with respect to possession, between the first party's memory and the first party's transmitter.

Indeed, being in control of a thing, however, is not the same as being in possession of that same thing. The language of the '573 patent does not indicate to the court, nor would it to one skilled in the art, that the party is "in physical control and ownership" when the party is merely "controlling use" of the first memory.

In the court's view, the fact that the terms control and possession have common meanings which are not identical, and that they are not used jointly in all of the relevant patent claims, is strong evidence that each term is intended to convey its own meaning. Also, the dispute is limited in this case to several instances where the first party is asserted to be either "controlling" or "controlling use" of the first memory.

13 Defendants also assert that the term "controlling" is used individually with respect to the second party controlling the second memory in Claim 3 of the '573 patent (Docket # 65, Appendix B at 3. However, that claim is a dependent claim, which includes the limitation from Claim 1 that "said second party controlling use and in possession of the second memory." (Emphasis supplied). Thus, Claim 3, by definition, includes the restriction that the second party controls the use and possesses the second memory. This is, therefore, a non-issue with respect to Claim 3 of the '573 patent.

In Claim 4 of the '734 patent, by contrast, the phrase "possession and control" is used only once, and that is in reference to the second party possessing and controlling the second memory (Docket # 66, Exhibit 2 at Claim 4, column 10, lines 3-5). Claim 11, by contrast, places the first memory "in possession and control of the first party," and the second memory "in possession and control of the second party." (Id., Column 10, lines 54-56).

Defendants point to the '734 patent specification where it is stated that "the receiver is in possession and control of the second party. The receiver is placed by the second party at a second party location determined by the second party." (Docket # 66, Exhibit 2, '734 Patent at 5:56-59). Defendants argue that this, too, evidences that control and possession are required when either term is used in a claim. However, defendants fail to note that this language is used in describing the preferred embodiment of the invention. Indeed, the first portion of the first sentence cited by defendants reads in relevant part "preferably having the second memory while the receiver is in possession and control of the second party," (Id., 5:54-55). Further, the cited portion of the specification is addressed to the second party and the second memory. As noted above, the only disputed used of "control" are with reference to the first party and the first memory. Thus, this is not persuasive evidence supporting defendants' argument.

Further, to the extent that any ambiguity might exist, resort to the prosecution history establishes that the examiner, a person skilled in the art, understood "control" to mean "authority to guide or manage." (Docket # 70, '573 File History, Tab 13 at 3). This was expressed in the course of explaining the term "control" in light of prior art, the Lightner patent. Likewise, the term "possession" was explained by the applicant in 1991, in the course of distinguishing the patent from the Hughes patent:

[The] Hughes' receiver, although located in the user's home is taught to be owned by the owner of the transmitter and is thus 'in possession' of the owner.

(Id., Tab 34 at 9). Thus, the prosecution history also informs the court that control and possession are separate terms, that possession has an element of holding as property attached to it, and that physical control is not necessary.

The court therefore agrees that the terms control and possession have the meanings of "authority to direct" and "holding as property," respectively. Further, the court finds that the terms are not used interchangeably in the claims in suit.
4. "control . . . information," "control data"

Having considered the parties' proposals, the Court disagrees with both proposals. Thus, the Court construes these terms as "data specifying a desired operation by a POL regulator." See '125 patent, col.6:44-55.

3. "Control apparatus" in claims 1 and 7

IMS contends that the district court erred when, based on the preambles of claims 1 and 7, it limited those claims to a "control system for machine tools rather than an entire machine tool apparatus." To the extent that the district court's claim interpretation precludes a finding of infringement by a machine tool apparatus that includes the claimed control-related limitations, we agree that the district court improperly limited the claims.

"[A] claim preamble has the import that the claim as a whole suggests for it." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 U.S.P.Q.2D (BNA) 1816, 1820 (Fed. Cir. 1995). If the preamble adds no limitations to those in the body of the claim, the preamble is not itself a claim limitation and is irrelevant to proper construction of the claim. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 U.S.P.Q.2D (BNA) 1161, 1165-66 (Fed. Cir. 1999). That is the case here. The phrase "control apparatus" in the preamble merely gives a descriptive name to the set of limitations in the body of the claim that completely set forth the invention. Its use does not limit the claims, as Haas contends, to a control apparatus that is separate from the machine tool. The claim is infringed by any apparatus encompassing all of the limitations in the body of the claim. Such an infringing apparatus may be a machine tool apparatus that includes the claimed control features or a control apparatus that is separate from and communicates with a machine tool apparatus.

The prosecution history is consistent with this interpretation. In a restriction requirement, the PTO recognized that the claimed invention, a machine tool control, was part of a machine tool. In sum, the applicant's choice to elect claims directed to machine tool control rather than machine control structure does not limit the scope of the claims to a control apparatus that is separate from the machine tool itself.

1. "Control apparatus for displaying a computer-generated image" (claims 17, 21, 38, 41)

PolyVision's proposed construction
A controller for displaying a computer generated image.

Smart's proposed construction
Asserts that plain and ordinary meaning is: Hardware and/or software for displaying a computer-generated image.

PolyVision argues that this phrase requires construction because the term "control apparatus" is not defined anywhere in the specification, although it is clear that claim 1 is directed to the controller 3 referenced throughout the specification (for example in Fig. 1). Smart contends that the language is clear and its plain and ordinary meaning must, under Federal Circuit law discussed above, include hardware and/or software for displaying the image. Although Smart contends that PolyVision's construction improperly limits the claim to structure, when the controller must also include software, the Court concludes that PolyVision's construction correctly identifies the control apparatus as the "controller 3" without excluding the software for the controller from the scope of the claim.
6. "Control Circuit"

Plustek argues for "an electronic circuit that is located outside of the main case and that receives system control signals from the computing device and generates logical control signals for the image sensing module and motion mechanism."

Syscan argues for "a circuit that receives system control signals from the computing device and generates logical control signals for the image sensing module and motion mechanism."

The specification repeatedly and clearly distinguishes the patented scanner from the prior art on the basis of the patented scanner's minimalist approach. More specifically, the specification states that "fundamentally different from the scanners in the market, there is no microcontroller and other electronic components in main module 402 to control the operation of the image sensor and the illumination source." See Dang Decl., P 2, Ex. A ('124 Patent), 7:3-7, emphasis added. The patent's express exclusion dictates that the image sensor (or image sensing module) and the motion mechanism must be controlled by electronic components located outside of the patented scanner. SciMed Life Systems, Inc., 242 F.3d at 1341 ("where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question"); see also CCS Fitness, 288 F.3d at 1366-67 ("a claim term will not receive its ordinary meaning if the intrinsic evidence shows that the patentee distinguished the term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention.").

The interface engine and the control circuit are electronic components that control the operation of the image sensor and the illumination source as well as the motion mechanism. See e.g., Dang Decl., P 2, Ex. A ('124 Patent), Fig. 3, 6:32-34, 11:9-13 (claim 5), Fig. 5. Therefore, the interface engine and the control circuit must be located outside of the main case. SciMed Life Systems, Inc., 242 F.3d at 1341; see also CCS Fitness, 288 F.3d at 1367.

The Court construes this claim as "an electronic circuit that is located outside of the main case and that receives system control signals from the computing device and generates logical control signals for the image sensing module and motion mechanism."
structure only indicated what function the recited "means" element performed rather than its structure).

Here, Claim 1 appears to recite sufficient structure to avoid application of section 112, paragraph 6. As in Greenburg, the "control circuit" element is not drafted in means-plus-function form. Additionally, Imperial has cited nothing in the prosecution history or elsewhere which indicates that the inventors of the '402 patent intended to invoke section 112, paragraph 6. Furthermore, the "control circuit" element is supported by structure. Claim 1 specifies that the "control circuit" comprises a first port, second port, a first control line, and a second control line and defines their structural relationship. See Col. 67:1-8. The term "circuit" alone indicates sufficient structure to avoid application of section 112, paragraph 6. Accordingly, the "wherein" clauses merely provide functional limitations to the structure specified in the claims. The control circuit also has two ports. The first port is coupled to volatile memory and the second port to the hard disk drive.

14. "control circuit which controls duty cycle of the primary winding circuit" ('021 patent)

While there was an initial dispute as to whether this term is a means-plus-function limitation or not, SynQor has stated that Defendants are apparently not contending that it is a means-plus-function limitation. Further, Defendants did not provide any arguments in the briefs or during oral arguments for this term. Thus, there is no dispute as to the construction of this term. Nonetheless, the Court finds that, because the claim element "control circuit which controls..." does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the "control circuit" term recites sufficient structure and has a reasonably well understood meaning. The Court finds that there has been no rebuttal of the presumption. Thus, it is not a means-plus-function limitation governed by 35 U.S.C. § 112 P 6. SynQor argues that no construction of this phrase is required besides the term "primary winding circuit." Defendants have not argued anything to the contrary for this term. Thus, in this instance, the Court finds that "primary winding circuit" means the agreed upon definition for "primary transformer winding circuit."

15. "control circuitry determining when the power MOSFET switches are turned on and off in a switching cycle at a switching frequency" ('083 and '702 patents)

While there was an initial dispute as to whether this term is a means-plus-function limitation or not, SynQor has stated that Defendants are apparently not contending that it is a means-plus-function limitation. Further, Defendants did not provide any arguments in the briefs or during oral arguments for this term. Thus, there is no dispute as to the construction of this term. Nonetheless, the Court finds that, because the claim element "control circuit determining..." does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the "control circuit" term recites sufficient structure and has a reasonably well understood meaning. The Court finds that there has been no rebuttal of the presumption. Thus, it is not a means-plus-function limitation governed by 35 U.S.C. § 112 P 6. The parties have not provided any terms within the phrase that need to be construed. Thus, the Court finds that this phrase does not need a construction.

7. "control commands"

TiVo argues no construction of "control commands" is needed, or, if construed, should mean "commands that control the DVR system." TiVo's Opening Br. at 12; '389 patent at cols. 12:65-67, 15:47-49. EchoStar argues "control commands" means "commands that are accepted and sent through the system" and "affect the flow of said MPEG stream, including, for example, reverse, fast forward, play-pause, fast/slow reverse play, and fast/slow play." 4 See '389 patent at col. 2:33-37; EchoStar's Response Br. at 14.
4 EchoStar argues that "said MPEG stream" is indefinite and cannot be construed due to a lack of antecedent basis for the term. EchoStar's Opening Br. at 20-21; EchoStar's Slide Presentation at 134-36. EchoStar also argues claim 32 is indefinite because it combines apparatus and process limitations in a single claim. EchoStar Opening Br. at 21-22. As discussed above in footnote 1, definiteness is a validity challenge that should be raised by summary judgment motion.

The court finds "control commands" is defined clearly by claims 1 and 32, with no indication from the specification that any specific meaning should attach. Therefore, for purposes of clarification, the Court defines "control commands" as "commands that control the system."

D. "control data passing"

The term "control data passing" is found in the preamble of claim 25: "wherein the user's rule set contains at least one of a plurality of functions used to control data passing between the user and a public network." The term "control data passing" is not found in the specification. According to Linksmart, the ordinary meaning of this term is self-evident and no construction is necessary. The defendants' proposed construction is "filter and redirect data sent."

The Summary of the Invention describes the purpose of the invention: "The present invention allows for creating and implementing dynamically changing rules, to allow the redirection, blocking, or allowing, of specific data traffic for specific users, as a function of database entries and the user's activity." (118 patent, 2:61-65) (emphasis added). Other text in the specification confirms this functionality: "The redirection server . . . is programed to implement . . . checking data packets and blocking or allowing the packets . . . [and] performing the physical redirection of data packets . . . ." (118 patent, 4:59-65). These passages indicate how the claimed invention enables control of the data passing through the redirection server. As such, the court construes this term to mean "redirect, allow, or block data traffic."

1. at least one control key for initiating the predetermined operations relating to said digital camera memory module

The plaintiff proposes a construction of "not less than one key for initiating predetermined operations relating to said digital camera memory module." However, the main dispute involves the term "control key." Instead of proposing a construction for the entire disputed phrase, the defendants only propose a construction for "control key" to mean "a one-touch key that can be manually depressed by a user and that, in response to a single touch, causes the repository device to copy, or erase or reformat, a flash memory module." To support their proposed construction, the defendants cite to examples of "control keys" in the specification. The claim phrase is broader than the examples of the preferred embodiment cited by the defendants; nevertheless, the terms are readily understandable and the court concludes that this phrase requires no construction.
7. receipt … at a control input

The ordinary meaning of the term "control input" is an I/O port of a computer, where the instruction initiating the control of that computer is input. Thus, the computer located within the switching system receives the first, second and third switch commands at an I/O input. See supra § II.A.4 (describing remote control by switch commands).

2. Claims 12 and 24

The parties disagree whether Section 112, paragraph 6 is applicable to the "control means" element in claims 12 and 24. Goss argues the statute does not apply to either claim because they "explicitly include[] the structure for performing the [recited] function." Pl. Memo. at 28, 32. According to Goss, the "control means" function varies the speed of the motors in the article feeder means and the motor in the conveyor drive means. Id. The claims specify the structures necessary to perform the function: a main controller and a plurality of sheet material feeder controllers which are connected with the main controller. Id. Goss contends these are known structures to persons of ordinary skill in the art. Id. at 28-29. Goss supports its argument by citing to the claim language, specification, and a technical dictionary. Id.

K&M argues Goss has not rebutted the presumption in favor of means-plus-function analysis. As to claim 12, K&M contends that Goss is attempting to improperly "swap out" the restrictive definition of "control means" in claim 1, for a construction that does not contain any means-plus-function elements. Def. Resp. at 11-12. K&M argues that claim 12 is limited by Section 112, paragraph 6, because it is dependant on claim 1, which is governed by means-plus-function analysis. Id. Goss' construction is an attempt to broaden the claim beyond the specification. Id. As for claim 24, K&M contends the "control means" element is described in the "classic 'means for' format." Def. Resp. at 12. K&M asserts the claim does not recite sufficient structure to perform the specified function. Id. at 13. "Main controller" and "a plurality of sheet material feed controller" are functional terms; they provide no indication of their structure to a person of ordinary skill in the art. Id. at 28-29. Goss supports its argument by citing to the claim language, specification, and a technical dictionary. Id.

K&M's argument that Goss' construction of claim 12 is contrary to settled law is similarly unavailing. K&M relies on Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991), to argue that Goss' construction renders dependant claim 12 broader than independent claim 1. Def. Resp. at 10-11. While K&M is generally correct that a dependant claim cannot be construed more broadly than the claim on which it depends, that is not a concern here. Application of Section 112, paragraph 6 to claim 1's "control means" element results in a construction "cover[ing] the structure described in the specification [i.e., a main controller and a plurality of sheet material feed controllers] and equivalents thereof." Laitram, 939
F.2d at 1538 (emphasis in original). Because Section 112, paragraph 6 does not apply to claim 12's "control means," the element is not construed to include equivalents. Thus, claim 12 is "literally" narrower than claim 1. Id. The Laitram case weakens, rather than strengthens, K&M's position.

### 932

b. "Control Means"

The Defendants object to Special Master Harmon's conclusion that the "control means" limitation does not necessarily include an algorithm. In their Objections, the Defendants argue for the fourth time that WMS Gaming Inc. v. Int'l Game Tech., 184 F.3d 1339 (Fed. Cir. 1999), and Aristocrat Techs. Australia Pty Limited v. Int'l Game Tech., 521 F.3d 1328 (Fed. Cir. 2008) compel a construction of "control means" that requires an algorithm. This construction has been rejected by Magistrate Judge Valdez, Judge Manning, and now Special Master Harmon.

The WMS Gaming line of cases holds that a general purpose computer alone cannot provide sufficient structure for a means-plus-function claim. See WMS Gaming, 184 F.3d at 1348. Instead, what must be claimed is a "special purpose computer," which is what a general purpose computer becomes when an appropriate algorithm is used. Id. at 1349. Here, however, a controller is a known structure that is a type of special purpose computer. See, e.g., Comprehensive Dictionary of Electrical Engineering, 139 (Phillip A. Laplante ed., CRC Press 1999) ("Controller — (1) the entity that enforces the desired behavior—as specified by the control objectives—of the controlled process by adjusting the manipulated inputs."). Specifically, as Judge Manning previously noted, these controllers may not even require any algorithms at all if they consist of only circuitry to perform their specific purpose. (R. 320 at 14.) Magistrate Judge Valdez, Judge Manning, and Special Master Harmon have all addressed this issue at length and all three have concluded that no algorithm needs to be included in the structure for the construction of the term "control means." The Defendants' fourth attempt to challenge the construction of "control means" is unpersuasive. Therefore, the Court overrules the Defendants' objection to the construction of this term.

### 933

3. Claim 8(f) -- "pipe path control means"

Limitation (f) of claim 8 states "pipe path control means for determining a pipe path within said piping between a pair selected from among said first and second containers, said filter unit and said first and second coupling attachments". (Dkt. entry no. 1, Ex. A, '511 patent, at col. 12, lines 11-15.) The parties agree that this language is subject to a means-plus-function analysis. (RTI Br., at 28; Defs. Br., at 29.) However, the parties disagree about the structure that corresponds to the recited function of determining a pipe path within the piping. RTI asserts that 'the 'pipe path control means' recited as element (f) of claim 8 encompasses any manual or electrical system that performs the recited function of determining a pipe path within the piping between a pair of structures selected from the first and second containers, the filter unit, and the first and second attachments." (RTI Br., at 28.) In contrast, the Defendants contend that the mental process of determining a pipe path cannot be claimed, and thus, the Court must limit its interpretation of "pipe path control means" to a plurality of electrically operated valves and a microprocessor based controller for sending operating signals to those valves to select a pipe path. (Defs. Br., at 29.)

The function explicitly recited in limitation (f) of claim 8 is determining a pipe path within the piping between a pair selected from the first and second containers, the filter unit, and the first and second coupling attachments. See Versa Corp., 66 Fed.Appx. at 855. The specification contains the following statements, which reference structures corresponding to this recited function:

- Selecting the pipe path selected for an appropriate cycle can be accomplished either by manually opening and closing appropriate valves as is discussed below, or electronically through a controller such as a panel controller that provides signals to the appropriate valves when a particular cycle is selected. Microprocessor controls for controlling the opening and closing solenoid operated valves are well known. (Dkt. entry no. 1, Ex. A, '511 patent, at col. 6 lines 46-53.)
The various operation cycles and manually operated valves may be completely or partially automated, using microprocessor based controls. (Id. at col. 10, lines 46-49.)

See Omega Eng’g, Inc., 334 F.3d at 1322 (explaining that once the function is identified, the Court must determine what structures disclosed in the specification correspond to that function); Epcos Gas Sys., Inc., 279 F.3d at 1032 (explaining same). Accordingly, the specification indicates that manually or electronically operated valves are the structures that correspond to the recited function of determining a pipe path. See Linear Tech. Corp., 379 F.3d at 1322 (noting that Section 112, paragraph 6 permits a claim element to embrace alternative described structures for performing a claimed function).

The Court notes, as previously discussed, that some level of human intervention is permissible in a patent's claims as long as a human is not a claimed structure, but instead merely operates a claimed structure. See Default Proof Credit Card Sys., 412 F.3d at 1300 (stating that a human being cannot constitute a "means", and noting that it must determine what structure the human being operates to perform the recited function). Here, the '511 patent's specification describes a manual system where a human being will operate a structure such as a knob, which in turn opens or closes a valve that determines or selects a pipe path between certain structures. Therefore, construing limitation (f) of claim 8 as encompassing manual as well as electronic systems for performing the recited function does not infer that human intervention is claimed as part of the corresponding structure.

The independent claims at issue in the present case recite as follows:

13. A device comprising a passage; binding means in said device for binding a species substantially specifically, said binding means being in fluid communication with said passage; exposure means in said device for exposing said species to said binding means and for preventing said binding means from leaving said device; closed regeneration means for separating said species from said binding means for reuse of said binding means in said device; valving for selectively connecting said closed regeneration means in fluid communication with said binding means, and control means for automatically operating said valving.

40. A closed regeneration device for separating a molecule bound substantially specifically to a binding species for reuse of said binding species said regeneration device comprising a first reagent, a first valve selectively connecting said first reagent in fluid communication with said molecule bound to the binding species to separate said molecule from said binding species, a second reagent, a second valve selectively connecting said second reagent in fluid communication with said binding species to return said binding species to a regenerated condition, and control means for automatically operating said valves.

'502 patent col.13 ll.25-35, col.16 ll.20-31 (claim terms at issue emphasized). n2 Claims 14-17 are dependent from claim 13.

n2 The parties treat "control means for automatically operating said valving" and "control means for automatically operating said valves" as identical.

The district court began its construction of the term "control means" with the observation that if a claim element contains the term "means" and recites a function, there is a presumption that § 112, P 6 applies. Biomedino, slip op. at 8. Concluding that the inclusion of the word "control" did not identify structure and thus did not overcome the presumption that the claim limitation was a means-plus-function limitation, the district court began a § 112, P 6 analysis.

The only references in the specification to the "control means" are a box labeled "Control" in Figure 6 and a statement that the regeneration process of the invention "may be controlled automatically by known differential pressure, valving and control equipment." '502 patent col.11 ll.55-58. From this, the district court concluded:
The specification says nothing more than that unspecified equipment may be used to control the regeneration process. The fact that one skilled in the art could envision various types of equipment capable of automatically operating valves does not change the fact that no structure capable of performing that function was disclosed by the inventor.

Biomedino, slip op. at 11. As a result, the court held that "[t]he failure to disclose a structure corresponding to the 'control means' function makes claims 13-17 and claim 40 of indefinite scope in violation of § 112, P 2 of the Patent Act." Id.

Biomedino appeals, and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II

"A determination that a patent claim is invalid for failure to meet the definiteness requirement of 35 U.S.C § 112, paragraph 2, is 'a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims[, and i]ndefiniteness, therefore, like claim construction, is a question of law that we review de novo.'" Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308, 1318 (Fed. Cir. 2003) (quoting Atmel, 198 F.3d at 1378).

III

A

As an initial matter, we address Biomedino's assertion that use of the term "control" to describe "means" takes the phrase "control means" outside the realm in which § 112, P 6 applies. This argument is based on the premise that "control means" recites sufficient structure on its own such that it obviates the need for § 112, P 6. Biomedino argues that a "control" is a precise structure well understood by those of skill in the art, and thus, the word "means" in claims 13 and 40 can be ignored. Additionally, Biomedino contends that "control" is analogous to the term "controller" and conveys, to one skilled in the art, structure for controlling the valves and other equipment. We disagree.

When a claim uses the term "means" to describe a limitation, a presumption inheres that the inventor used the term to invoke § 112, P 6. Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1375 (Fed. Cir. 2003). "This presumption can be rebutted when the claim, in addition to the functional language, recites structure sufficient to perform the claimed function in its entirety." Id. Claims 13 and 40 recite no such structure. As the district court noted, the "reference to 'control' is simply an adjective describing 'means:' [sic] it is not a structure or material capable of performing the identified function." Biomedino, slip op. at 12. We agree with the district court and hold that Biomedino has not rebutted the presumption that § 112, P 6 applies to "control means."

B

Once a court concludes that a claim limitation is a means-plus-function limitation, two steps of claim construction remain: 1) the court must first identify the function of the limitation; and 2) the court must then look to the specification and identify the corresponding structure for that function. Med. Instrumentation, 344 F.3d at 1205 at 1210. If there is no structure in the specification corresponding to the means-plus-function limitation in the claims, the claim will be found invalid as indefinite. See Atmel, 198 F.3d at 1378-79 (citing In re Donaldson, 16 F.3d at 1195).

While the specification must contain structure linked to claimed means, this is not a high bar: "[a]ll one needs to do in order to obtain the benefit of [§ 112, P 6] is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of [§ 112,] P 2." Atmel, 198 F.3d at 1382. Additionally, interpretation of what is disclosed in the specification must be made in light of the knowledge of one skilled in the art. Id. at 1380. Thus, in order for a means-plus-function claim to be valid under § 112, the corresponding structure of the limitation "must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation. Otherwise, one does not know what the claim means." Id. at 1382. However, "the testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification." Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc., 412 F.3d 1291, 1302 (Fed. Cir. 2005).

In the present case, there is no dispute that the claimed function is "automatically operating said valving"/"automatically
operating valves." The parties also agree that the only references in the specification to the "control means" are the box labeled "Control" in Figure 6 and a statement that the regeneration process may be "controlled automatically by known differential pressure, valving and control equipment." ’502 patent col.11 ll.55-58. Biomedino argues that the excerpt from the written description demonstrates that "known differential pressure equipment can be used to operate valves, known valving equipment may be used, or known control equipment may be used." Biomedino further argues that the only remaining inquiry is whether one skilled in the art would identify the structure from that description. To demonstrate that one skilled in the art would identify structure from the description in the written description, Biomedino points to two prior art references and the appellees' (collectively "Waters") own expert's testimony. Together, this evidence suggests that there were many known ways to operate valves, including pneumatically, hydraulically, mechanically, and electrically.

In response, Waters argues that there is no specific structure identified in the specification to correspond to the claimed function of automatically operating the valves/valving: "the reference to 'differential pressure, valving and control equipment' is not at all descriptive of specific structure by which the 'control means' will automatically operate the claimed valving." As to the prior art references and expert testimony, citing Medical Instrumentation, 344 F.3d at 1212, Waters contends that the proper inquiry for identifying the structure corresponding to the recited function is "whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing that structure."

Essentially this case asks the following question: for purposes of § 112, P 6, is sufficient corresponding structure disclosed when the specification simply recites that a claimed function can be performed by known methods or using known equipment where prior art of record and the testimony of experts suggest that known methods and equipment exist? In Medical Instrumentation, 344 F.3d 1205, we came close to answering that question in the negative. In that case the alleged infringer argued that the district court improperly included software for digital-to-digital conversion as corresponding structure for the claimed "converting means." Medical Instrumentation's expert never pointed to any disclosure of structure for digital-to-digital conversion in the specification. When asked about digital-to-digital conversion in the patents, he explained that such conversion was not disclosed or discussed in the specification presumably because it was well-known in the art and required no explanation. We observed that there was no evidence to indicate that a person skilled in the art would actually understand from the specification that software for digital-to-digital conversion was structure that corresponded to the means for converting. Id. at 1217. "Because software [wa]s not clearly linked in the specification or prosecution history to the claimed function" of converting means, we held that the district court's identification of software as a corresponding structure for § 112, P 6 purposes was erroneous. Id. at 1222.

In another similar case, Atmel, we also stated that the specification must disclose some structure but found that such a disclosure had been made. The claim limitation at issue in Atmel was "high voltage generating means disposed on said semiconductor circuit for generating a high voltage from a lower voltage power supply." 198 F.3d at 1376. The portion of the written description that pertained to the structural component of the means plus function limitation was the following: "the present invention may include high-voltage generator circuit 34. Known Circuit [sic] techniques are used to implement high-voltage circuit 34. See On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits, Vol.] SC-11, No. 3, June 1976." Id. at 1377. Additionally, the figures of the relevant patent depicted the high-voltage generator circuit as a "black box." Id. n3

n3 The first part of our analysis in Atmel involved a determination of whether the district court erred by failing to assess whether sufficient structure was disclosed in the specification to support the means-plus-function limitation based on the understanding of one skilled in the art. 198 F.3d at 1380. We answered this question in the affirmative.

We began our sufficiency of the disclosure analysis in Atmel by explaining that structure supporting a means-plus-function claim under § 112, P 6 must appear in the specification. Further, we noted that "consideration of the understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification." Id. at 1380. We said that a proper indefiniteness analysis "asks first whether structure is described in the specification, and, if so, whether one skilled in the art would identify the structure from the description." Id. at 1381. Thus, we concluded that the district court acted properly in ruling that the cited article could not take the place of structure that does not appear in the
specification.

As noted, however, the written description in Atmel sets forth the article's title, viz., "On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits." Id. at 1382. Atmel's expert had testified that the article's title alone was sufficient to indicate to one skilled in the art the precise structure of the means recited in the specification. Id. Because this testimony was unrebuted, we concluded that the court improperly granted summary judgment that the patent was invalid for indefiniteness.

There is a significant difference between the facts of Atmel and those in the present case. In Atmel it was not the fact that one skilled in the art was aware of known circuit techniques that resulted in a conclusion that sufficient structure was recited. Rather, it was the inclusion in the written description of the title of the article which itself described the structure for a "known circuit technique." Expert testimony was used to show what the title of the article would convey to one skilled in the art -- in that case it was "the precise structure of the means recited in the specification." Atmel, 198 F.3d at 1382. The expert's testimony did not create or infer the structure.

In the present case, there is nothing to suggest a structure for the claimed control means. As we have previously explained, § 112, ¶ 6 requires some disclosure of structure in the specification corresponding to the claimed means. "[W]hile it is true that the patentee need not disclose details of structures well known in the art, the specification must nonetheless disclose some structure." Default Proof, 412 F.3d at 1302; see also Atmel, 198 F.3d at 1382 ("There must be structure in the specification" and the requirements of § 112, ¶ 6 will not be met when there is "a total omission of structure."); Med. Instrumentation, 344 F.3d at 1211 ("If the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid [the price for use of the convenience of broad claiming afforded by § 112, ¶ 6] but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification. Such is impermissible under the statute."); Donaldson, 16 F.3d at 1195 ("If one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.").

The inquiry is whether one of skill in the art would understand the specification itself to disclose a structure, not simply whether that person would be capable of implementing a structure. Med. Instrumentation, 344 F.3d at 1212 (citing Atmel, 198 F.3d at 1382). Accordingly, a bare statement that known techniques or methods can be used does not disclose structure. To conclude otherwise would vitiate the language of the statute requiring "corresponding structure, material, or acts described in the specification."

IV

For the foregoing reasons, the judgment of the district court holding claims 13-17 and 40 of the '502 patent as invalid for indefiniteness is

AFFIRMED.

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"control message"

Claim 1 contains the term "control message." Sutton defines the term as "information intended to reconfigure or manage characteristics of the receiving unit." Defendants urge that the definition is "information that is intended to reconfigure or manage characteristics of a receiving unit, and does not include a subchannel identifying byte." Thus, the central dispute is whether the term embodies a negative limitation that excludes information containing a subchannel identifying byte.

The specification expressly defines a control message by noting that such a message does not contain a subchannel identifier. When describing the transmission of particular types of messages the specification provides that "[i]f the data is an information packet and not a control packet a subchannel of 0-225 is assigned." '238 Patent at 5:58-59. Again, in a section specifically describing the different types of messages, the specification provides that "[u]nlike data messages,
control messages use a different frame byte structure and do not include a subchannel indentifying byte." Id. at 9:20-23.

Sutton responds to this persuasive intrinsic evidence by noting that the claims themselves do not expressly impose the negative limitation on a "control message." The argument misses the point. "The purpose of claim construction is to determine the meaning and scope of the patent claims asserted to be infringed." O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360 (Fed. Cir. 2008) (internal quotation marks omitted). Thus, terms that are expressly defined in the specification will generally be given that meaning. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication."). Thus, the fact that the patentee did not specify, in the claim itself, that a "control message" does not contain a subchannel identifer is not dispositive in light of the specification's express definitions.

Furthermore, Sutton's argument runs afool of the maxim that claim language cannot enlarge what is patented beyond what the inventor described as the invention within the specification. See Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc., 450 F.3d 1350, 1355 (Fed. Cir. 2006); On Demand, 442 F.3d at 1340. Accordingly, Nokia's definition is correct and "control message" is defined as "information that is intended to reconfigure or manage characteristics of a receiving unit, and does not include a subchannel identifing byte." GO BACK

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a. "a control module arranged to control deployment of said occupant restraint device"

The parties agree that the court should construe this claim to include "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device and/or how to adjust the manner in which the occupant restraint device is deployed." (Chart at 6.) However, Plaintiff also wants to append to this construction the phrase "or suppressed." (Id.) This language parallels language the parties agreed upon with respect to airbag deployment rather than that of an "occupant restraint device"; however, the agreed-upon language for airbag deployment does not include the appended phrase, "or suppressed," as proposed by Plaintiff.

Neither party offers argument for inclusion or exclusion of this phrase, and the court will not include it in its construction of this phrase. The ordinary meaning of "suppression" can mean either the opposite of "deployment" as "stopping," Dictionary.com Unabridged (v. 1.1), Random House, Inc., available at http://dictionary.reference.com/browse/suppress (last visited Jul. 7, 2009), or "restraining from a usual course or action," Merriam-Webster, available at http://www.merriam-webster.com/dictionary/suppress (last visited Jul. 7, 2009). However, throughout the specification, "suppression" is used as the opposite of "deployment." For example, one embodiment states:

If the occupant restraint device is an airbag, e.g., a frontal airbag or a side airbag, control of the airbag deployment may entail not only suppression of the deployment but also depowered deployment, adjustment of the orientation of the airbag, adjustment of the inflation rate or inflation time and/or adjustment of the deflation rate of time.

945 Patent col. 210 l.23-29. The specification clarifies that "suppression" is used in a sense directly opposed to that of "deployment" because the specification offers "suppression" as an alternative to "deployment" and further distinguishes "suppression" from "depowered deployment." See Bell Communications Research, Inc. v. Vitalink Communications, Corp., 55 F.3d 615, 620 (Fed. Cir. 1995) ("[I]t is equally fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the invention." (quoting United States v. Adams, 383 U.S. 39, 49, 86 S. Ct. 708, 15 L. Ed. 2d 572, 174 Ct. Cl. 1293 (1966)).

Nonetheless, the specification also demonstrates that the phrase to be construed, "control . . . deployment," "may entail not only suppression of the deployment but also depowered deployment, adjustment of the orientation of the airbag, adjustment of the inflation rate or inflation time and or adjustment of the deflation rate of time." 945 Patent col. 210 l.25-29. Accordingly, "control . . . deployment" contemplates (1) "suppression," or no deployment, (2) deployment, and (3) if the airbag is deployed, various rates and modes of deployment. See id. However, any adjustment has to do with whether the airbag is suppressed or deployed, and does not mean that there are multiple ways in which to suppress the airbag, even if there are multiple inputs that could result in such an outcome. Moreover, the specification discusses: "In all of these cases, the position of the occupant is used to affect the deployment of the airbag either as to whether or not it should be deployed
at all, the time of deployment and/or the rate of inflation.” '945 Patent col. 210 l.1-4.

As a result, the parties are correct to construe the phrase as "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device and/or how to adjust the manner in which the occupant restraint device is deployed," and the court will not construe the phrase to include "or suppressed" at the end. Because the specification shows that an airbag can be suppressed, deployed, and deployed in multiple ways, the court finds that it should not append the phrase "or suppressed" to the phrase to be construed because it would be superfluous to render the phrase "and/or how to adjust the manner in which the occupant restraint device is deployed or suppressed." The specification reveals multiple ways in which the airbag could be deployed but does not show multiple ways in which the airbag could be suppressed, and the rules of claim construction proscribe an interpretation that renders a term superfluous. See Primos, Inc. v. Hunter's Specialties, Inc., 451 F.3d 841, 848 (Fed. Cir. 2006) (holding that a court cannot interpret claim terms such that one is rendered superfluous).

Accordingly, the court will construe the phrase "a control module arranged to control deployment of said occupant restraint device" as "a control module that issues a command or commands to control whether to deploy or suppress the occupant restraint device, and if deployed, how to adjust the manner in which the occupant restraint device is deployed."

7. "control object"

TiVo argues no construction of this term beyond a definition for "object" is necessary, or, if construed, the term should mean "the portion of a computer program that (1) 'receives commands from a user, said commands control the flow of the broadcast data through the system'; and (2) 'sends flow command events to said source, transform, and sink objects.'" See TiVo's Op. Br. at 23-24; '389 patent at cols. 7:48-50, 8:39-40, 15:11-16, 18:26-30; TiVo's Markman Slides at 140-49, 163-65.

EchoStar argues "control object" should have the same construction as "control commands."

The Court finds that persons of ordinary skill in the art readily understand the meaning of "control object" upon a reading of the claim language and its context in the specification. See '389 patent at cols. 7:48-50, 8:9-18, 15:10-12, 18:28-29. Therefore, in accordance with its ordinary meaning, the Court construes "control object" as "a collection of data and operations that receives commands from a user that control the flow of broadcast data."

7. Disputed term in AMD's '879 patent: Control panel (asserted claims 11-24)

11. A video graphics processor comprising:

   a processing unit; and

   memory that stores programming instructions that, when read by the processing unit, causes the processing unit to (a) provide a video control icon that is visible on the display, wherein the video control icon relates to live video that is being presented as a background on a display; (b) detect selection of the video control icon; (c) provide a control panel while the live video remains in the background and an application that was in focus remains in focus when the video control icon has been selected, wherein the control panel includes at least one of the following: a volume adjust icon, a mute icon, a pause icon, a rewind icon, and a fast-forward icon.

12. The video graphics processor of claim 11 further comprises, within the memory, programming instructions that, when read by the processing unit, causes the processing unit to provide, as the control panel, at least one of: volume adjust icon, mute icon, channel up icon, channel down icon, numerical channel display, and alpha-numeric channel display.
13. The video graphics processor of claim 11 comprises, within the memory, programming instructions that, when read by the processing unit, causes the processing unit to remove the control panel when another displayed element is selected.

14. A video graphics processor comprising:

a processing unit; and

memory that stores programming instructions that, when read by the processing unit, causes the processing unit to (a) detect selection of a video control icon, wherein the video control icon relates to live video that is being presented as a background on a display; (b) provide a control panel while the live video remain the background and an application that was in focus remains in focus when the video control icon has been selected; and (c) adjust at least one attribute of the live video based on an input received via the control panel, wherein the at least one attribute included: volume, mute, pause, rewind, and fast-forward.

15. The video graphics processor of claim 14 further comprises, within the memory, programming instructions that, when read by the processing unit, causes the processing unit to adjust the at least one attribute by adjusting at least one of: volume, mute, channel up, and channel down.

16. The video graphics processor of claim 14 further comprises, within the memory, programming instructions that, when read by the processing unit, causes the processing unit to remove the control panel when another displayed element is selected.

17. A digital storage device that stores programming instructions that, when read by a processing unit, causes the processing unit to provide control of background video, the digital storage device comprises:

first storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to provide a video control icon that is visible on the display, wherein the video control icon relates to live video that is being presented as a background on a display;

second storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to detect selection of the video control icon; and

third storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to provide a control panel while the live video remains in the background and an application that was in focus remains in focus when the video control icon has been selected.

18. The digital storage device of claim 17 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to provide, as the control panel, at least one of: volume adjust icon, mute icon, pause icon, rewind icon, and fast-forward icon.

19. The digital storage device of claim 17 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to provide, as the control panel, at least one of: volume adjust icon, mute icon, channel up icon, channel down icon, numerical channel display, and alpha-numeric channel display.

20. The digital storage device of claim 17 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to remove the control panel when another displayed element is selected.

21. A digital storage device that stores programming instructions that, when read by a processing unit, causes the processing unit to provide control of background video, the digital storage device comprises:

first storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to detect selection of a video control icon, wherein the video control icon relates to live video that is being presented as a background on a display;
second storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to provide a control panel while the live video remains in the background and an application that was in focus remains in focus when the video control icon has been selected; and

second storage means for storing programming instructions that, when read by the processing unit, causes the processing unit to adjust at least one attribute of the live video based on an input received via the control panel.

22. The digital storage device of claim 21 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to adjust the at least one attribute by adjusting at least one of: volume, mute, pause, rewind, and fast-forward.

23. The digital storage device of claim 21 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to adjust the at least one attribute by adjusting at least one of: volume, mute, channel up, and channel down.

24. The digital storage device of claim 21 further comprises means for storing programming instructions that, when read by the processing unit, causes the processing unit to remove the control panel when another displayed element is selected.

The '879 patent is entitled "Method and Apparatus for Providing Control of Background Video." The disclosed invention allows users to control video that is playing in the background while applications in the foreground remain in focus. See Abstract. The parties agree that the "control panel" disclosed in asserted claims 11-24 teaches a screen that contains control functions. They dispute whether the control panel is limited to the screens of personal computers. AMD argues that the term "control panel" need not be construed. Alternatively, AMD proposes construing this term as: "Area of the screen containing control functions." Samsung's construction limits the control panel to something that appears on the screen of a personal computer: "An area of the personal computer screen containing control functions."

AMD is correct that the claim language does not expressly limit control panels to personal computer screens. The Court must read the claims in light of the specification, however. See Phillips, 415 F.3d at 1321 (specification is "the single best guide to the meaning of a disputed term") (quotation omitted). The specification of the '879 patent unequivocally limits this invention to computers. The abstract begins, "A method and apparatus for controlling background video on a computer display is accomplished by providing a video control icon, which is visible on the display." The specification describes the technical field of the invention as follows: "This invention relates generally to computer displays and more particularly to providing control of background video," 1:7-9. The "background of the invention" section of the specification begins with a description of computers ("Computers are known to include a central processing unit, cache memory, hard drive memory . . .") and describes three means of displaying live video on a "computer monitor." 1:12-15; 1:23-33. The specification summarizes the problem addressed by the invention as follows:

When an attribute of the live video [i.e. the video displayed on the computer monitor] is to be changed, other applications that were in focus (i.e., actively being displayed and/or being worked upon) must go into a background mode (i.e., taken out of focus). As such, the adjusting of attributes of the live video consume[s] the activity of the computer until such attributes have been changed and the live video is returned to the background mode. As one can readily appreciate, this can be someone burdensome to the user and is an ineffective use of the computer system.

Therefore, a need exists for a method and apparatus for providing control of background video while the video remains in the background.

1:41-53. The section headed "detailed description of the drawings" begins, "Generally, the present invention provides a method and apparatus for controlling background video on a computer display." 2:2-4. Figure 1 of the patent illustrates the control panel on a screen. The specification explains that Figure 1 illustrates "a graphical representation of a computer screen." 2:19-20. The specification concludes with the following summary:

The preceding discussion has presented a method and apparatus for controlling background video. By providing a video control icon which, when selected, pops up a control panel, live video can remain in the background while its attributes are changed via the control panel. This allows a user to simply adjust the attributes of the live background video without having to bring it in focus. As such, the overall operation[] of a computer system is improved.
This intrinsic evidence leaves no doubt that the inventor was working in the field of video displayed by a computer; there is no suggestion in the specification that the invention can be implemented without a computer. As the patentee consistently uses "control panel" in the specification to denote a mechanism for controlling video on a computer display, this understanding of the term is incorporated into the claim language. See Bell Atlantic Network Servs., Inc. v. Covad Commun'cns Group, 262 F.3d 1258, 1271 (Fed. Cir. 2001) (citation omitted) ("[W]hen a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication.")

AMD argues that invention taught in the '879 patent also encompasses user interfaces in devices such as digital cameras, camcorders, and cell phones. None of the intrinsic evidence cited by AMD supports this conclusion. First, AMD cites claim 12, which discloses the following options on the control panel: "volume adjust icon, mute icon, channel up icon, channel down icon . . . ." 4:59-60. (Claim 15 teaches control over the same attributes. 5:15-19; see also claims 19 & 23.) AMD points out that "channel up" and "channel down" displays make more on a television than on a computer. The specification explains, however, that the live video controlled by the control panel may be "sourced" from "a live television broadcast, satellite television, or cable television." 2:36-38. In other words, while the video is displayed on a computer screen, 2:21, the computer can be connected to a television, which is the source for the video, 2:37. The specification also provides that the source of the video could be a DVD player or VCR, 2:39-40, in which case the control panel on the computer screen would display "at least one of a volume adjust icon, a mute icon, a pause icon, a re-wind icon, and a fast forward icon," 2:40-41. Contrary to AMD's contention, the reference to channel controls in some claims does not establish that the control panel can be displayed on a television without a computer.

AMD also cites dependent claim 5, which provides: "The method of claim 1 further comprises, within step (a), providing the live video as the background on a computer display, a television, or a monitor." 5:12-14. Claim 5 does not support AMD's construction. This claim describes embodiments in which other devices (such a television) may be connected to a computer and used to display the video. Claim 5 merely lists types of devices that can display the patented application when those devices are connected to a computer.

Finally, AMD objects that the intrinsic evidence does not limit the control panel application to use on a "personal" computer. On this point, the Court agrees: the specification refers repeatedly to a computer, not a personal computer. The Court will modify Samsung's construction by omitting the word "personal." The Court also finds that Samsung's construction could confuse jurors by leading them to believe that a control panel can only be displayed on a computer screen. As the foregoing discussion has established, claim 5 discloses that a television could be used for a computer display. The Court will therefore replace "screen" with "display" in Samsung's proposed construction.

Accordingly, "control panel" shall be construed as follows: "An area of the computer display containing control functions."

iv. Control processing

The next term to be construed is "control processing." Gobeli contends that "control processing" means "execution of a routine or part of a routine that controls the process (device) sending the interrupt." Sun contends that the correct construction of control processing is "advancing the state of an independent process controlled by a state machine to a new state, to a sub-state, or from a sub-state."

Once again, Sun attempts to read a "state machine" limitation into the claims. The Court has rejected this approach and will not unduly limit the claims to the preferred embodiment. Control processing is a broad term and neither the claim language nor the specification limits its construction. Accordingly, "control processing" means "executing program instructions that control a process."
8. "control program"

The term "control program" appears in independent claims 1 and 7 of the 037 Patent. Claim 1 recites a "processor unit" associated with each operating system peer-level facility "capable of executing a control program." 037 Patent, 55:22-30. Similarly, claim 7 claims, in relevant part, "a plurality of processors, each being coupled to a respective control program store." Id. at 56:29-30. As in claim 1, each of the control programs is associated with a separate processor and peer-level facility. Plaintiff again argues that the term "control program" need not be construed, while defendant requests that the court construe the term as "an explicit specification of definitions and sequences of instructions written in a particular programming language to control other system resources."

Here too, plaintiff contends that the words of the claims adequately define the disputed term. For example, plaintiff observes that claim 1 recites "a first control program portion that includes one of said distinct sets of operating system peer-level facility related functions" and "a second control program portion that provides for the implementation of the multi-tasking interface function." Id. at 55:36-43. However, this argument fails here for the same reason that the court rejected it in construing the term "multi-tasking interface": namely, that the quoted claim language describes what the control program does, and not what it is. Regardless, the control program itself is an additional claim limitation that is separate from the other claim limitations that describe its function. Accordingly, the court proceeds to construe the disputed term.

The parties cite dictionary definitions of "control," "program," and "control program" in support of their proposed constructions, or lack thereof. Plaintiff, relying on Texas Digital, argues that the scope of the disputed term should encompass all of these definitions. However, claim construction is not merely an exercise in compiling dictionary definitions for common words like "control" and "program"; rather, "[d]etermining the limits of a patent claim requires understanding its terms in the context in which they were used by the inventor, considered by the examiner, and understood in the field of invention." Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1299 (Fed. Cir. 1999). In the context of the patent in suit, each control program claimed in the 037 Patent performs tasks such as implementing one of the peer-level facilities and its associated multi-tasking interface function. 037 Patent, 55:36-43. Consistent with these functions, the AP Dictionary defines "control program" as "any of a class of programs within the operating system of a computer that controls the execution of other system resources." Id. at 514. The court concludes that this definition best represents the scope of the "control program" term as it is used in the claims of the 037 Patent. Accordingly, the court construes "control program" to mean "a program within the operating system that controls the execution of other system resources."

V. "[C]ontrol section"

Claim 2 of the '563 and '882 Patents utilizes the term "control section." The term is also described in the specification of each patent in suit. E.g., '493 Patent col. 8, ll. 25-47. Having placed the disputed term in context, the Court will summarize the Special Master's proposed construction as well as his rationale.

A. The Special Master's Recommendation

Based on his analysis of the relevant claim language and portions of the specifications of the patents in suit, the Special Master recommended that a "control section" be defined as "a portion of a window module that includes at least one module control." (R&R at 152.) In essence, the Special Master found that the relevant claim language required that a "control section" have at least one module control, and that this interpretation was consistent with the specifications of the patents in suit, which mentioned or described "control sections." Although the Special Master found that: (1) DMODs "act like any other window such as those within a windows based operating system desktop environment"; (2) the patents in suit identify Windows 98 as an example of such a "windows based operating system desktop environment"; and (3) "the windows in Windows 98 could be dragged . . . by placing the cursor of a mouse on the control section of the window, depressing the mouse button, moving the mouse to drag the window to a different location on the screen, and releasing the mouse button," he determined that it would be inappropriate to ascribe this functionality to control sections in the context of the patents in
suit because the relevant claim language was silent regarding the matter. (Id. at 151-52.) Having summarized the Special Master's reasoning and recommended construction of the term "control section," the Court turns to CA's corresponding objection and Simple's counter arguments.

B. CA's Objection and Simple's Counter Arguments

CA objects to the Special Master's recommended construction of "control section" because it obscures the fact that a user may place a cursor, controlled by a mouse, over the "control section" of a window object and then move said window object to a different location on screen by depressing the mouse button and moving said mouse. (See CA's Claim Construction Objections at 20.) For its part, Simple agrees with the Special Master's analysis and recommended construction and argues that it is consistent with the claim language and specifications of the '563 and '882 Patents. (Simple's Resp. to CA's Objections to the Claim Construction R&R (Dkt. No. 586) ("Simple's Reply to CA Objection"), at 16-17.) Simple further argues that CA's proposed construction ignores the relevant claim language of the '563 and '882 Patents which requires that a control section include at least one module control. (Id. at 17.) Having summarized the parties' objections and counter arguments, the Court will conduct its own analysis of the term "control section."

C. Analysis

As the Special Master points out, a "control section" is not expressly defined by the intrinsic evidence found in the '493, '563, and '882 Patents, but claim 2 of the '563 and '882 Patents clearly states that a "control section is . . . a portion of a window object . . . associated with control of the window object." (R&R at 146.) Specifically, claim 2 of the '563 Patent states that a control section includes "a set of at least one control corresponding to a set of attributes which operate to affect manifestation of said at least one window object and at least a portion of said content within said content display section." Id.; see also '882 Patent Cl. 2. Indeed the real dispute between the parties is over "whether the 'control section' itself -- apart from the 'control' and 'attributes' -- may be used to control the 'window object.'" (R&R at 146.)

The Court's analysis of term "control section," will entail the following steps: (1) construing the relevant claim language; (2) analyzing the relevant portions of the specifications of the '563 and '882 Patents; (3) accounting for the knowledge of one skilled in the art; and (4) addressing the deficiencies in the Special Master's proposed construction and the parties arguments.

1. The Patents in Suit Indicate That "control sections" Can Be Used to Move Window Objects

Claims 1 and 2 of the '563 and '882 Patents indicate that window objects can be moved and contain a control section. As shown by the excerpted claim language below, claim 1 of the '563 and '882 Patents indicates that a window object can be moved as a result of a "moving operation" performed on a controllable attribute. Specifically, claim 1 of the '563 Patent claims:

1. A network client . . . comprising:

   a content retrieval module . . . ; and

   a processing engine coupled to said content retrieval module configured to provide a content manifestation environment within the data processing system, to process said content to produce at least one corresponding window object . . . ,

   said at least one corresponding window object is associated with a controllable attribute, said controllable attribute configured to permit said at least one corresponding window object to be controlled as a result of performing at least one of a moving operation, a resizing operation, a minimizing operation, or a maximizing operation within said content manifestation environment.

'563 Patent Cl. 1 (emphasis added). Claim 1 of the '882 Patent claims:

1. A network client . . . comprising:

   a content retrieval module . . . ; and
a processing engine . . . , to process said content to produce at least one window object within said content manifestation environment, said at least one window object is associated with a controllable attribute, said controllable attribute configured to permit at least one window object to be controlled as a result of performing at least one of a moving operation, a resizing operation, a minimizing operation, or a maximizing operation within said content manifestation environment.

'882 Patent Cl. 1 (emphasis added). Claim 2 of the '563 and '882 Patents "depends" from claim 1 of said patents. Accordingly, the window object referenced in claim 2 of the '563 and '882 Patents can be movable. Claim 2 of the '563 and '882 Patents further refines window objects to include a content display section and a control section. As provided below, Claim 2 of the '563 Patent claims:

2. The network client according to claim 1, wherein said processing engine is further configured to process said content to produce a control section and a content display section within said at least one corresponding window object, said content display section configured to manifest at least a portion of said content therein, said control section including a set of at least one control corresponding to a set of attributes which operate to affect manifestation of said at least one window object and at least a portion of said content within said content display section.

'563 Patent Cl. 2 (emphasis added). For its part, claim 2 of the '882 Patent claims:

2. The network client according to claim 1, wherein said processing engine being further configured to process said content to produce a control section and a content display section within said at least one window object, said content display section configured to at least a portion of said content therein, said control section including a set of controls corresponding to a set of attributes which operate to affect manifestation of said at least one window object and at least a portion of said content within said content display section.

'882 Patent Cl. 2 (emphasis added). As shown above, claim 2 of the '563 and '882 Patents refers to a window object, which may be movable and contains a control section, which is distinct from its content display section. Having analyzed the claim language of the '563 and '882 Patents, the Court will turn to their specifications to further inform its construction of the term "control section."

Footnotes

20 The following may be of assistance in deciphering the meaning of the term "depends": 35 U.S.C. § 112 P 2 and 37 C.F.R. § 1.75(a) require that a patent's specification conclude with one or more claims. See Landis on the Mechanics of Patent Claim Drafting § 2:1. There are three types of claims: (1) independent; (2) dependent; and (3) multiple dependent. Id. § 2:10. Since the '493, '563, and '882 Patents only have independent and dependent claims, the Court need not discuss multiple dependent claims.

An independent claim, is one that "stands alone, includes all its necessary limitations, and is not dependent upon and does not include limitations from any other claim to make it complete." Id. Independent claims are usually the broadest claims in a patent. See generally id. In essence, they contain the fewest limitations and claim the most subject matter. See generally id.

Dependent claims depend from a single independent claim and incorporate an additional limitation. See 35 U.S.C. § 112 P 4. For example independent claim 1 Could read as follows:

We Claim:

1. A car with four wheels, four doors, and an engine that runs on gasoline.

Dependent claim 2 would read:

2. The car according to claim 1 wherein said engine also runs on electricity.

In actuality, claim 2 covers: A car with four wheels, four doors, and an engine that runs on gasoline and electricity. As one may already have deduced, a dependent claim includes every limitation found in the independent claim, from which it
According to the specifications of the '493, '563, and '882 Patents, "control sections" allow for the manipulation of modules through the use of "Module Controls." 21 The identical glossaries found in each of the patents in suit state that a module is a layer "having (1) a control section, and (2) a related content display section." E.g., '563 Patent col. 6, ll. 1-4. The "control section" hosts "Module Controls," which "control objects . . . associated with screen icons." E.g., '563 Patent col. 6, ll. 25-30. By reacting "to events, . . . [such as] mouse clicks, mouse-overs, double-clicks, etc," said objects allow a user to control certain attributes of a module, such as "minimization, maximization, closure, resizing, etc." Id. This description correlates with the ability of a "control" to affect the manifestation of a window object as specified in claim 2 of the '563 and '882 Patents. However, if the role of "control sections" were to end there, there would be no way in which a user would be able to move a module type window object such as a DMOD. This deficiency is critical since it is undisputed that certain embodiments of window objects, such as DMODs, are movable. As the following analysis of the relevant extrinsic evidence shows, control sections also allow users to move windows in windows based content manifestation environments.

2. A User Cannot Move a Module Without Utilizing its "control section"

When evaluating disputed claim terms, it is critical to note that: (1) claim interpretation is performed "from the perspective of one of ordinary skill in the pertinent art at the time of filing"; (2) claims do not stand alone and must be read in light of their accompanying specifications; and (3) it is not improper to refine a claim term in light of consistent definitive remarks within a patent specification. See Chamberlain Group, Inc., 516 F.3d at 1335; Computer Docking Station Corp., 519 F.3d at 1374; Markman, 52 F.3d at 979; Phillips, 415 F.3d at 1314. In light of the specifications of the '563 and 882 Patents, one of ordinary skill in the art at the relevant time period would understand that control sections also allow users to move window objects. The patentees and CA agree, in accordance with the relevant intrinsic evidence, that window objects such as DMODs can be dragged and acted upon "like any other window such as those within a windows based operating system desktop environment." See, e.g., '563 Patent col. 7, l. 65 - col. 8, l. 18, col. 8, ll. 4-6; '882 Patent col. 8, ll. 25 - 46, col. 9, ll. 1-6; Decl. of Danny Goodman in Supp. of the Claim Construction Brief of CA (Dkt. No. 326) ("Goodman Claim Construction Declaration"), at Attach. 22 P 28. CA's expert, Mr. Goodman, stated that Microsoft Windows, Apple Macintosh and "almost every windowed operating system environment" allow users to drag a window by placing a cursor over the title bar region, clicking and dragging. (Goodman Claim Construction Declaration P 28.) One of ordinary skill in the art would know this while interpreting the function of a control section within a window object.

Indeed, Figure 2B, supra at 17, in the '493 and '882 Patents as well as Figure 2, supra at 20, in the '563 Patent all display DMODs with titles imbedded into their control sections. '882 Patent fig. 2B, items 203 and 204, col. 8, ll. 25 - 56, col. 10, ll. 13-28; '563 Patent fig. 2, items 204, 206, 208 and 210 col. 9, l. 54 - col. 10, l2. In this context, one of ordinary skill in the art would understand that control sections are analogous to the title bar sections referred to by Mr. Goodman. In light of the undisputed facts that DMODs are movable and intended to act like windows in a "windows based operating system," the intrinsic evidence before the Court leads to the conclusion that control sections can be clicked on and dragged in order to move a window object. Having analyzed the term control section in light of the intrinsic evidence before the Court as well as the knowledge of one skilled in the art, it is clear that a control section not only contains a module control, but must also enables a user to move a movable window object.

3. "[C]ontrol section" Defined

The Court defines a "control section" as a portion of a window object that contains a module control and enables user control. The Court finds that one of ordinary skill would interpret the intrinsic evidence found in the '493, '563, and '882 Patents to mean that control sections allow users to manipulate and control window objects. Necessarily included in this
functionality is the ability to move a window object, which acts like a window in a standard operating system, such as Windows 98. The ability to move a module window object cannot be separated from the definition of a control section. Having defined the term "control section," the Court will discuss the deficiencies in the definitions proposed by the Special Master and CA.

4. The Special Master Incorrectly Narrowed the Meaning of the term "control section"

In the context of defining a "control section," the Court disagrees with the Special Master's overly narrow interpretation of claims 1 and 2 of the '563 and '882 Patents. Although it is irrefutable that the patentees intended for certain embodiments of modules to be movable, the Special Master stated that such a "method of control[, via the control section,] is simply not addressed in the claims or specification." (R&R at 152.) The Special Master rested his finding on the language of claims 1 and 2 of the '563 and '882 Patents. (Id. at 145-46, 151-52.) However, in doing so, the Special Master gave insufficient consideration to statements made consistently throughout the specifications of the patents in suit and ignored the knowledge of one skilled in the art. To that point, the Special Master does not seem to dispute that: (1) window objects are movable; (2) window objects can be and are meant to be moved like windows in the Windows 98 operating system; e.g., '882 Patent col. 9, ll. 1-6, (3) windows in Windows 98 operating system are moved by clicking on their "title bar regions" and dragging; (4) the control sections in the DMODs disclosed in the patents in suit are functionally similar to these title bar regions; (5) one skilled in the art would know of the Windows 98 operating system; and (6) the patents in suit disclose no other way of moving DMODs, apart from the inherently known method of clicking on the control section and dragging. (See generally R&R at 151-52.) Accordingly, any construction of the term "control section" must also account for the user's ability to drag a DMOD type window object and the only way to move a DMOD would be by clicking on its "control section" and dragging.

5. The Court Agrees, in Part, with CA but Declines to Adopt Its Proposed Construction

Although the Court agrees with some of CA's arguments, it declines to adopt their recommended construction in its entirety. CA correctly points out that the Special Master's recommended construction of "control section" obscures the fact that a user may move a window object by placing a mouse over its "control section" and dragging. Indeed there is ample support for this view in the specifications of the patents in suit although it may not be explicitly stated in the language of claim 2 of the '563 and '882 Patents. However, since CA's proposed construction does not explicitly state that a control section contains a module control, the Court will decline to adopt it.

6. Simple's Argument's Parallel the Special Master's Analysis and are Rejected for the Same Reasons

The thrust of Simple's response to CA's objection aligns with the Special Master's recommended construction of the term "control section." Accordingly, the Court rejects Simple's arguments for the same reasons it declines to adopt the Special Master's recommended construction of the term "control section." Having conducted its analysis, the Court will rule on the term "control section."

D. The Court's Ruling on the Term "control section"

CA's objection is granted in part and the Court defines a "control section" as a portion of a window object that contains a module control and enables user control.

III. Interpretation of the Term "Control Signal Generator"

The parties dispute the meaning of the term "control signal generator" in claims 1, 71, 83, and 97 of the 855 Patent and claims 1, 17, 22, 27, 31, 35, and 42 of the 480 Patent. The relevant claim language references "a control signal generator for generating a control signal."

The language of the disputed claims does not use the phrase "means for." Therefore, 35 U.S.C. § 112, P 6 presumptively does not apply. Harmonic Design has not pointed to a dictionary definition of "control signal generator." It does appear, however, that the term refers to a component of an electronic circuit that produces a control signal, which is defined as "any signal
that purposely affects the recording, processing, transmission or interpretation of data by a system element." IEEE Standard Dictionary, p. 218.

A review of both intrinsic and extrinsic evidence supports this conclusion. First, the language of the disputed claims specifies that the control signal generator is electrically connected to the electronic circuit, which is in turn electrically connected to the battery. See, e.g., 855 Patent, claim 1. Such language suggests that the patentee intended to recite a structural element as opposed to functional language that would invoke 35 U.S.C. § 112, P 6. See Cole, 102 F.3d at 531. Second, Figure 7 of the 480 Patent identifies a control signal generator as a component of the electronic circuitry. And third, extrinsic evidence indicates that the term "control signal generator" connotes sufficiently definite structure to one of ordinary skill in the art. See Kamm Decl., P 9 (noting that those skilled in the art would recognize that a control signal generator may refer to an electronic circuit or component, a photodiode, a phototransistor, or other devices).

Because the term "electronic circuit" connotes sufficiently definite structure to avoid application of 35 U.S.C. § 112, P 6, it follows that the term "control signal generator" also connotes sufficiently definite structure. That the term may not connote a specific structure is not dispositive. See Personalized Media Communications., 161 F.3d at 705. Accordingly, the Court finds that the term "control signal generator" connotes sufficiently definite structure to avoid application of 35 U.S.C. § 112, P 6. The Court also finds that the term "control signal generator" refers to a component of an electronic circuit that produces a control signal.

The Court also finds that the term "control signal generator" refers to a component of an electronic circuit that produces a control signal.

After holding a Markman hearing, the Court issued its Memorandum Opinion and Order on Claim Construction in which it construed six terms integral to the determination of this case and the instant motions. (doc. 270) The claims were construed as follows:

(1) "connected and connectable" -- These terms mean "directly joined to one another within the same unitary piece of equipment without any intervening equipment."

(2) "unified structure" -- Although not a claim term, the Court defines the term "unified structure" to mean "a consolidated structure with all components directly connected to one another."

(3) "bypass" -- "Bypass" means "a structure and path by which data channels completely go around and in no respect go through the TST switch."

(4) "control store" -- "A 'control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node."

(5) "means for measuring" -- The Court finds that this term is not capable of construction.

(6) "direction of the timing adjustment interval" -- This term means "[t]he timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow."

(Mem. Op. and Order on Claim Constr. at 30-31)
The plaintiffs say that "control trading" or "control subsequent trading" means "to have the option to trade additional volume of an item to the exclusion of other participants desiring to participate in the trade." (D.I. 463 at 6; D.I. 464 at 26.) The defendants' proposed construction is that to "control trading" means "to exercise authority to hold up a trade for as long as a participant continues to respond to its contra-party's size offerings, substantially as described in the '580 patent." (D.I. 463 at 6; D.I. 482 at 14.)

Claim 20 provides an example of the use of the term "control trading" in the patent, as it recites that "[a] period of exclusivity is provided during which the aggressor participant and a designated passive participant may control trading by transacting additional volume of the item with each other at the defined price to the exclusion of other participants desiring to participate in trading." (580 patent, col. 20, II. 19-24 (emphasis added).) Further, both the plaintiffs and the defendants cite the following language from the specification in support of their respective claim constructions (see D.I. 463 at 6; D.I. 464 at 27-28; D.I. 482 at 14-15):

The initial participants in the Workup State (i.e., the Aggressor 10 and the first customer on the passive side) are known as "current workers" and are vested with the authority under system control to hold up a trade for a predetermined duration of time.

(580 patent, col. 8, II.46-51.)

Current workers control the trade and can submit additional transaction volume to their contra-traders; this to the exclusion of outside customers.

(Id., col. 12, II. 48-50.)

10 An Aggressor is defined in the '580 patent as "a customer who initializes a trade". A "trade" is defined as "a string of transactions at one price initiated by a hit or lift and continuing until timed out or done". A "hit" is "accepting a pending bid (the dollar amount offered to buy a security - issue)" and a "lift" is "accepting a pending offer (the dollar amount offered to sell a security - issue)". (See '580 patent, col. 6, II.30-45.)

The defendants argue that the claim language of claim 20 supports their proposed construction of "control trading" because it "expressly notes that traders 'control' trading 'by transacting additional volume'" and that "the adverb 'by' indicates that the mechanism by which traders exercise control is by continuing to trade." (D.I. 482 at 15 (emphasis in original).) In response, the plaintiffs say that "even if 'transacting additional volume' is the 'mechanism' by which participants control trading" it does mean that a participant may control trading indefinitely by continuing to transact additional volume. (D.I. 490 at 10.) The plaintiffs also say that claim 20 clearly states that the ability to control trading only exists for a period that is "'provided' whether or not the participants exercise the option to transact additional volume." (Id.) Finally, the plaintiffs say that there is "no suggestion" in the language of claim 20 "that transacting additional volume could mean that the 'period' never ends." (Id. at 11.)

The defendants also say that the plaintiffs' proposed claim construction is too broad, as it "conflates 'control' with any period of exclusivity," and is inconsistent with the intrinsic record of the '580 patent. (D.I. 492 at 24.) They rely on the following language from claim 29, reciting

…a system trading state which (a) executes a trade transaction in accordance with the hit or lift at a defined price set by the hit or lift, (b) provides a period of exclusivity enabling the aggressor participant and a designated passive participant to control subsequent trading by executing transactions between the aggressor and designated passive participant of additional volume of the item at the defined price to the exclusion of other participants desiring to participate in the trading…

(580 patent, col. 22, II. 21-28.) The defendants also cite this language from the specification in support of their proposed claim construction:
The status of current worker dissipates upon entry of "done", or the lapsing of the trading inactivity interval. Again, this interval is a pre-set system parameter triggered via system logic. Absent such termination, current workers can trade almost indefinitely, as long as they continue to respond to their contra-party's size offerings.

(Id., col. 12, II. 58-62.) Finally, the defendants cite the prosecution history of the '580 patent, namely, declarations submitted by two of the inventors (Mr. Paul and Mr. Fraser) during prosecution wherein the defendants claim they used "the term 'control' as a synonym for the right to continue trading until 'done'…." (D.I. 482 at 15.) This, say the defendants, "demonstrates that the concept of ‘controlling’ trading encompasses more than a limited option to trade additional volume (such as for a pre-set time interval), as plaintiffs' definition implies." (Id. at 15-16) The plaintiffs say that the defendants have "distorted the content of these declarations" and that Mr. Paul's declaration emphasizes that control over a trade is temporally limited to a certain period. 11 (Id. (citing D.I. 459 at Tab 50, P 11).)

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11 The plaintiffs also say that the defendants' construction of "control trading" contradicts the use of the term "control" in the defendants' "own internal development documents and sales literature." (D.I. 464 at 30.) However, extrinsic evidence is relevant only when the intrinsic record leaves some ambiguity as to a term's scope. Vitronics, 90 F.3d at 1584. The intrinsic record here does not leave any ambiguity as to the scope of the term "control trading", and therefore I need not consider this extrinsic evidence. See id.; see also Interactive Gift, 256 F.3d at 1332.

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2. The Court's Construction

Simply stated, the parties' dispute over the construction of "control trading" hinges on whether the term is construed as a period in which participants trade to the exclusion of others for as long as they continue to respond to each other's offers and counteroffers, or if it is construed as trading to the exclusion of others for a predetermined period of time. At the claim construction hearing, counsel for the defendants said that "the [580] patent doesn't say that the rule is you only get three seconds, and then whether you've done your full volume or not, or whether you're finished or not, you're out. That was an idea that BrokerTec came up with, not these plaintiffs." (D.I. 514 at 92:12-17.) When I restated the defendants' position that the plaintiffs' "invention is limited to a system that allows the first seller and first buyer to keep trading without a time limitation, except some non-trading intervention time that might kick in. But as long as one person - that one person is selling one share, they could theoretically keep going for as long as they want," (id. at 94:11-19), plaintiffs' counsel said only that "it must be preferred embodiment" (id. at 95:3-4). In support of that assertion, the plaintiffs directed my attention to language from the specification stating that "current workers…are vested with the authority under system control to hold up a trade for a predetermined duration of time." (Id. at 95:20-96:10.)

However, that portion of the specification, together with the other intrinsic evidence cited by the plaintiffs, is not enough to overcome the plain language of the claims themselves. I agree with the defendants' argument that the claim term "control trading", as it is used in the claims, indicates that the manner in which the aggressor and the passive participant trade to the exclusion of other participants, is "by transacting additional volume of the item with each other". (See '580 patent, col. 20, II. 19-24, 46-49; col. 22, II. 19-27.) The plaintiffs say that the defendants' proposed claim construction means that the period of exclusivity never ends. (D.I. 490 at 11.) This, I think, overstates the defendants' position. The defendants do not dispute that the period of exclusivity (as in, an interval of time) eventually ends. Their position is that the period of exclusivity ends when a participant no longer responds to its contra-party's size offerings (D.I. 482 at 14-16) and not, as the plaintiffs would have it, that the period of exclusivity times out regardless of the trading activity of the participants.

The plaintiffs have not pointed out any intrinsic evidence that contradicts the defendants' proposed construction of "control trading". For that reason, and because the defendants' proposed construction is supported by the claim language and the specification of the '580 patent, I will construe "control trading" or "control subsequent trading" to mean "to exercise authority to hold up a trade for as long as a participant continues to respond to its contra-party's size offerings."
The parties also dispute the trial court's construction of several claim terms in the '509 patent. Claim 35, from which asserted claims 45 and 51 depend, contains the limitation of "a control unit for controlling the communication unit, wherein the control unit comprises a central processing unit ("CPU") and a partitioned memory system." LGÈ contends that the trial court erroneously construed the term "control unit" as a means-plus-function limitation.

"[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 AP 6 does not apply.'" Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004) (quoting CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002)). This presumption can be rebutted by showing that the claim element recite[s] a function without reciting sufficient structure for performing that function." Watts v. XL Sys., 232 F.3d 877, 880 (Fed. Cir. 2000) (citing Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999)). However, the presumption "is a strong one that is not readily overcome." Lighting World, Inc., 382 F.3d at 1358.

Here, the claim limitation at issue does not use the term "means," and the presumption against means-plus-function treatment is not overcome. The claim itself provides sufficient structure, namely "a CPU and a partitioned memory system," for performing the stated function, "controlling the communication unit." See id. at 1359-60. Thus, the proper construction of "control unit" is "a combination comprising a CPU and a partitioned memory system capable of controlling the communication unit."

Lutron contends that Term 3 means "A controllably conductive device for adjusting the status of the electrical device (which may include the on/off state, the intensity level, or both, of the electrical device)." Control4 contends the term means "A controllably conductive device for adjusting the status of the electrical device (which may include but is not limited to the on/off state, the intensity level, or both, of the electrical device)."

Lutron did not limit its patent to lighting control only. Instead, it specified its control device could be used in security systems, HVAC systems, computer systems, and audio/visual systems. Due to these inclusions, Control4 argues that status feedback may include more information than just a device's on/off state or intensity level. For example, it may include the status of a damper on a heating or cooling system.

Neither claim 1 nor the specification limits status feedback solely to the intensity level of a light or its on/off state. The construction therefore should not contain this limitation. Additionally, because "[c]laim construction is for the purpose of explaining and defining terms in the claims," it "usually requires use of words other than the words that are being defined." Based on these factors, the Court concludes the term means "A controllably conductive device for altering the condition of the electrical device (such as, the on/off state or intensity level of the electrical device)."

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Independent claims 1 and 21 include the term "controller." The parties propose the following meanings to this term:
Braun's Proposed Construction
An electronic device that actuates and/or directs the operation of other components, including being operable to selectively delay execution of the door operation commands.

VMI's Proposed Construction
A device capable of making decisions with respect to the operation or actuation of a physical system such that the physical system behaves in a desired way.

Because the specification describes a function of the controller as "intercept[ing] communications with an OEM control module . . . [and] coordinat[ing] ramp deployment and stowing operations with the OEM control module," Braun argues that "controller" is a device that actuates and directs the operation of other components within the system. Braun insists that "controller" is not a "relay based control system." (Braun Constr. Br. at 14.)

VMI, on the other hand, maintains that nothing in the specification excludes a relay logic controller as a type of "controller." VMI submits that "[i]f a device detects, intercepts, or relays signals to control and synchronize the operation of the ramp, door or kneeling motors with the rest of the vehicle to prevent accidental or operational interference between the vehicle components it would be understood by one skilled in the art reading the '628 patent to be a 'controller.'" (VMI Resp. at 8.)

The specification gives examples of "controller": "controller can be a programmable logic control system (PLC), a microprocessor, or other type of electronic controller as known by those skilled in the art. Controller can be composed of one or more components of a digital and/or analog type. Controller can be programable by software and/or firmware, a hardwired state-machine or a combination of these. In one form, controller is based on a Motorola 68C705P6 microprocessor that includes four A/D (analog-to-digital) converter channels." ('658 Patent col. 5:44-50.) These examples do not exclude a relay based control system. To the contrary, insofar as PLC closely relates to a relay logic controller (see DE 87-3 Ladder Logic), the specification contemplates a relay. And again, since the Court does not construe "communication pathway" to mean a medium able to carry only coded data, Braun's argument that relays are not part of the invention as they cannot be connected to "communication pathway" carrying only coded data is unconvincing. In summary, the Court construes "controller" as a device that actuates and/or directs the operation of other components, or is capable of making decisions with respect to the operation or actuation of those components, including being operable to selectively delay execution of the door operation commands.

### "Controller" and "controlling"

Several method claims of the shock delivery patents require "controlling" the duration of a waveform phase, while several apparatus claims require a "controller" that operates a connecting mechanism between the energy source and the electrodes. Philips offers straightforward definitions: "controlling" means "regulating," and a "controller" is a circuit or component that controls. Defibtech, on the other hand, believes that "controlling" means "operating switches or other connecting mechanism to adjust the shape of the waveform delivered to a patient in response to a patient-dependent electrical parameter measured during the delivery of the waveform."

The court adopts Philips' definition. Defibtech correctly notes that in many instances, the inventors described their "invention" (as opposed to an embodiment) as "provid[ing] a defibrillator method and apparatus for adjusting the characteristics of the defibrillator waveform in response to a real-time measurement of a patient-dependent electrical parameter." 927 Patent at 5:56-58. Defibtech does not, however, point to a single instance in which the term "controlling" or "controller" is employed inconsistently with this description of the invention. In the claims, the language surrounding the term "controller" or "controlling" is uniformly consistent with this object of the invention. E.g., 927 Patent Claim 1 ("controlling duration of the truncated exponential biphasic waveform"), Claim 6 ("a controller operating the connecting
mechanism to deliver electrical energy . . . "); 454 Patent Claim 3 ("controlling the duration of a waveform phase based on a value of the electrical parameter"). Thus, Defibtech's proposed definition is surplusage. The claim language places limitations on "controlling" or the "controller" that are consistent with the purpose of the invention. There is no need for the definitions of "controller" and "controlling" to contain those limitations.

B. Construction

i. "controller" in the '638 patent

Lexar's proposed construction: A device that interfaces between a host and flash memory

Toshiba's proposed construction: -- none --

Pretec's proposed construction: A device that interfaces between a host and nonvolatile memory

The parties' disagreement over the meaning of the term "controller" in the '638 patent is less about the meaning of the actual claim term and more about the scope of the device with which the controller interfaces. While Pretec suggests that the "controller" interfaces between the host and any kind of nonvolatile memory, Lexar proposes a narrower construction, that the controller interfaces with a specific type of nonvolatile memory -- "flash memory (or any other semiconductor having the same characteristics as flash memory)." Toshiba offers no proposed construction.

Lexar suggests that the claim language in the '997 and the specification of the '051 patent supports its construction. However, the '997 and '051 patents, wholly unrelated to the '638 patent, are irrelevant to the claim construction analysis of the term "controller" in the '638 patent for the reasons explained above.

Pretec argues that claims 31 and 34 support construing "controller" as interfacing with a broader range of semiconductors: all nonvolatile memory. The Court agrees. In Claim 31 (dependent from Claim 18 in which a "controller" is first claimed), "flash memory" is expressly claimed as one form of nonvolatile memory with which the controller may interface. Dependent Claim 31 alone, according to the doctrine of claim differentiation, creates the presumption that the claim from which Claim 31 is dependent (independent Claim 18) is broader than flash memory; otherwise, it is assumed, the inventor need not state the additional limitation in the dependent claim. However, the Court need not rely solely on the claim differentiation presumption here because another dependent claim, Claim 34, claims that the controller may alternatively interface with E<2>PROM cells. That another dependent claim offers an alternative type of nonvolatile memory with which the controller may interface means that the independent claim from which claims 31 and 34 are dependent claims a broader range of nonvolatile memory. Therefore, the language of the claims themselves supports Pretec's proposed construction.

The '638 specification does nothing to limit the claims further. It might be argued that the nonvolatile memory is really limited to flash memory because the preferred embodiment uses flash memory for memory storage. ('638 patent, 3:46-47.) But in construing disputed claim terms, a limitation cannot be imported from the preferred embodiment into the claims themselves. Markman, 52 F.3d at 980. In any case, we need not even address that line of argument because the description of the preferred embodiment actually expressly embraces E<2>PROM as a form of nonvolatile memory with which the controller may interface: "In the preferred embodiment, all of the memory storage is flash EEPROM. It is possible to substitute E<2>PROM for some or all of the data bits shown." ('638 patent, 3:46-49 (emphasis added).) The specification does not limit "controller" to flash memory and in fact, serves to support Pretec's proposed broader construction.

Lexar suggests that the title of the '638 patent, "Flash Memory Mass Storage Architecture Incorporation Wear Leveling Technique," supports limiting the construction of "controller" to a device that interfaces with flash memory, rather than all non-volatile memory. But it is well-settled that the title of a patent is largely "irrelevant to claim construction." Robert L. Harmon, Patents and the Federal Circuit § 6.3(c) (6th ed. 2003). "[I]f courts do not read limitations into the claims from the specification that are not found in the claims themselves, then they certainly will not read limitations into the claims from the patent title." Id. Here, although the title of the patent suggests that the inventor intended to focus on flash memory, the Court will not allow implications from the title of the patent to override what the patent, having considered the claims
themselves and the specification, actually claims.

The Court therefore declines to adopt Lexar's proposed construction of "controller" in the '638 patent as it is unsupportably narrow and instead finds Pretec's proposed construction is the correct one. In the '638 patent, the "controller" is a device that interfaces between a host and nonvolatile memory.

ii. "controller" in the '997 patent

Lexar's proposed construction: A device that interfaces between a host and flash memory

Toshiba's proposed construction: 1. The internal controller of the flash array and control signaling from the external controller

Lexar proposes that "controller" in the '997 patent should be construed as a device that interfaces between a host and flash memory (or another semiconductor with the same characteristics). Lexar suggests three ways in which its proposed construction is supported. First, Lexar argues that the specification of the '051 patent supports its construction. Again, the '051 patent, wholly unrelated to the '997 patent, is irrelevant to the claim construction analysis of the term "controller" in the '997 patent as explained above. The '051 specification will not be considered in this discussion. Second, Lexar argues that the title of the '997 patent, "Flash Memory Leveling Architecture Having No External Latch," supports its proposed construction of "controller." As explained above, the title of a patent is largely "irrelevant to claim construction." Harmon, Patents and the Federal Circuit § 6.3(c). The Court will not ignore the title as entirely insignificant but it will not find the title dispositive either. Third, and most convincingly, Lexar suggests that the claim language in the '997 supports its construction because independent claim 1 and its corresponding dependent claims (2, 5, 7, 8, 9, 11, and 12) all expressly claim "a flash memory system comprising flash memory." (Lexar's Opening Brief at 9.) Because the '997 patent claims are expressly limited to flash memory (unlike, for example, the '638 patent discussed above), Lexar is correct. Indeed, Toshiba concurs that the controller interfaces between a host and flash memory.

But there is more to the dispute over this term than the type of nonvolatile memory with which the controller interfaces. Toshiba's disagreement with Lexar's construction of "controller" in the '997 patent is not centered on the type of memory with which the device interfaces so much as with clarifying the controller's role with respect to the internal flash controller and the control signals from the external controller. Toshiba argues that because the controller, as recited in claims 1 and 12 of the '997 patent, encompasses both the internal controller (that directly transfers data to the destination) and the control signals from the external controller (that allows the internal controller to transfer data), "controller" should be construed to include those functions. The Court finds that to do so, however, would render the portions of the claims specifying the functions of internal controller function control signals from the external controller redundant. Loading the single term "controller" with additional limitations already captured by the rest of the claims themselves is unnecessary. The Court therefore construes "controller" in the '997 patent as a device that interfaces between a host and flash memory.

iii. "controller" in the '051 patent

Lexar's proposed construction: A device that interfaces between a host and flash memory

Toshiba's proposed construction: Interfaces with nonvolatile memory

Pretec's proposed construction: A device that interfaces between a host and nonvolatile memory

Again, the dispute here is over the type of nonvolatile memory with which the controller interfaces. Lexar proposes that...
"controller" in the '051 patent be construed as a device that interfaces between a host and flash memory (or another semiconductor with the same characteristics) while Toshiba and Pretec propose that the controller interfaces with a broader range of semiconductors: all nonvolatile memory.

Lexar suggests that the claim language of the '997 patent supports its construction. The '997 and '051 patents do not share a common specification. Therefore the Court finds that the '997 patent is not particularly relevant to the construction of the term "controller" in the '051 patent. Lexar also argues that two aspects of the '051 patent itself evidence its position that the controller interfaces with flash memory only. First, Lexar argues that the title of the '051 patent, "Moving Sectors Within a Block of Information in a Flash Memory Mass Storage Architecture," supports its proposed construction of "controller." As explained above (in the context of construing "controller" in the '638 patent), limitations will not be read into the claims based solely on the patent's title. Lexar's second and more compelling argument is that the language of the claims in the '051 patent dictates that the controller interface between a host and flash memory (not, as Defendants propose, between a host and all nonvolatile memory).

For example, Claim 1, wherein a "controller" is first claimed, describes a "memory controller for use with a host requiring access to a nonvolatile memory" and then claims that "nonvolatile memory includ[es] a plurality of selectively erasable block locations." Lexar claims that nonvolatile memory other than flash memory (e.g., Electronically Erasable Programmable Read Only Memory ("EEPROM")) cannot have a plurality of selectively erasable block locations and that therefore, the controller, as claimed in the '051 patent, cannot be construed to interface with anything other than flash memory (or another semiconductor with like characteristics). To the contrary, Pretec claimed, both in its brief and at oral argument, that EEPROM can indeed be erased in blocks. (Claim Construction Hearing Transcript at 184-85; Pretec Brief, Ex. D.) Either way, the language of the preferred embodiment, absent more explicit language in the claims limiting nonvolatile memory to flash, suggests that an alternative embodiment of the invention could interface with EEPROM. (051 patent 8:34-36.) A claim construction that does not read on a preferred embodiment is "rarely, if ever, correct." Vitronics, 90 F.3d at 1583-84. Therefore, the Court cannot construe "controller" here to be limited to flash memory because the preferred embodiment allows the controller to interface with EEPROM. The appropriate construction for the '051 term "controller" is a device that interfaces between a host and nonvolatile memory.

iv. "controller" in the '314/138 patents

Lexar's proposed construction: A device that interfaces between a host and flash memory
Toshiba's proposed construction: interfaces with nonvolatile memory

- Footnotes -

2 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

- End Footnotes-

The dispute here is the same. Lexar again proposes that "controller" interfaces with flash memory only while Toshiba contends the controller interfaces with all nonvolatile memory.

The Court looks first to the language of the claims. Toshiba argues that the language of the claims themselves supports a finding that "controller" in the '314/138 patent interfaces with all nonvolatile memory. Indeed, nothing in the language of the claims themselves suggests that the "controller" interfaces with just flash. Specifically, Claim 1 of the '314 and Claims 1, 13, and 46 of the '138 recite a controller connected to a nonvolatile memory unit, and say nothing about flash memory. Toshiba additionally argues that the doctrine of claim differentiation supports its construction but that argument is without merit. According to Toshiba, Claim 11 and Claim 29 in the '138 patent, which claim that the nonvolatile memory unit is a "flash memory chip," suggests that the doctrine of claim differentiation applies here. Had the patentee intended to teach a controller that interfaces only with flash memory, the argument goes, the patentee would not have specified flash in the dependent claims only. However, as Lexar correctly pointed out at oral argument, a flash memory chip is one method of using flash memory. That a flash chip is claimed in a dependent claim does not necessarily indicate, through the doctrine of claim differentiation, that the independent claim is intended to claim all nonvolatile memory. Indeed, the dependent claim's
mention of a flash memory chip alone could very well mean that the broader, independent claim claims all forms of flash memory. Toshiba's claim differentiation argument fails. This does not mean, however, that Toshiba's construction of "controller" is wrong.

Lexar argues that the Court must look at the larger context of the patents. Flash memory, according to Lexar, is the only type of nonvolatile memory that can be erased in blocks and the patents claim only the type of nonvolatile memory that is erasable in blocks. However, even if, arguendo, being selectively erasable is what distinguishes flash memory from other types of nonvolatile memory, the '314/'138 patents do not expressly limit the claimed "controller" to interface only with selectively erasable nonvolatile memory in the same way that the '051 does. Lexar contended at oral argument that the '138 patent teaches a "block-oriented memory structure." But Lexar's characterization is a leap from claim language that expressly claims a device that interfaces with nonvolatile memory generally and neither claims that it is limited to flash memory devices nor that it is limited to nonvolatile memory that is selectively erasable. Based on the language of the claims, Toshiba has the better of the argument here.

Having determined that the claim language suggests that the broader construction of "controller" is the proper one, the Court next examines the specification to determine whether the patentee acted as his own lexicographer and assigned a construction other than the ordinary meaning as understood by a person skilled in the relevant art. In keeping with its contextual argument, Lexar contends that it is clear from the disclosures in the '138/'314 patent that the inventor intended that "nonvolatile memory" be limited to flash. Specifically, Lexar suggests that the title of the '314/'138 patent, "Increasing the Memory Performance of Flash Memory Devices By Writing Sectors Simultaneously to Multiple Flash Memory Devices," is suggestive of its limitation to flash memory. But again, while the title of the patent may be considered, it is not dispositive of the construction of a disputed claim term. Second, Lexar proposes that the block-oriented nature of the patents, as gleaned from the Abstract and the Field of the Invention sections, supports limiting the construction to flash. However, it is a strict rule of claim construction that limitations from the specification cannot be imported into the claims. Markman, 52 F.3d at 980. Moreover, nothing in the specification suggests any narrower a construction than exists in the language of the claims themselves. While the Court does not pretend that context is insignificant, the Court finds that here, the language of the claims indicates the broader construction is the right one and the specification does not compel a different result. 3

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3 Lexar again attempts to use other patents (the '997 and '051 patents) to support its construction of "controller." The '997 patent is wholly unrelated to the '314/'138 patent and does not help Lexar. While the '051 is related (in part) to the '314P138, common claim terms need not be construed consistently across patents. MSM, 259 F.3d 1335. The Court therefore declines to look to other patents to construe "controller" in the '314/'138.

--- End Footnotes ---

Not only is there no support in the specification for a narrower construction, there is, as Toshiba points out, support in the specification for the broader construction of "controller" consistent with a plain reading of the claim language. The Summary of the Invention in the '314/'138 patent states as follows:

It is an object of the present invention to increase the performance of a digital system having a controller coupled to a host for operating a nonvolatile memory bank including one or more nonvolatile memory devices, such as flash and/or EEPROM chips, by reducing the time associated with reading and writing information to the nonvolatile memory bank.

('314 patent, 3:61-65; '138 patent, 3:54-60 (emphasis added).) That EEPROM is mentioned as a type of nonvolatile memory device in the context of a description of the invention supports construing "controller" broadly, consistent with the claim language, which claims a controller that interfaces with nonvolatile memory devices generally, not just flash. Toshiba also directs the Court to the '138's specification, column 1, lines 38-40, in which EEPROM is mentioned, and argues that this suggests that the patentee considered types of nonvolatile memory, other than flash, to be encompassed by the claims. (Toshiba's Opposition at 10.) However, this portion of the specification, as well as column 1, lines 43-47 of the '314 patent, describes the prior art, not the invention itself. The claims cannot be construed solely on the basis of a prior art description. These portions of the specification merely provide the context for the problem that the inventor sought to resolve, not what is actually claimed in the patent. The misguidedness of that particular argument notwithstanding, Toshiba is right that the
The plaintiff proposes "an electronic device that can be programmed to selectively provide electric power to the devices to which it is connected." Defendants propose "a device or circuit which controls the operation of another device or circuit."

The principal dispute is whether the "controller" needs to be "programmable." The plaintiff argues that the "controller" must be a device that can be used to generate a wide variety of light signals. The plaintiff, therefore, argues that Defendants' proposed construction is too broad because it would include a simple on/off switch which would not be able to generate a wide variety of signals. The plaintiff also argues that the "controller" needs to be programmable because the dependent claims recite "a programmable external controller for programming said controller." '269 patent, claim 14. According to the plaintiff, if the controller was not programmable, then dependent claim 14 would not make sense. The plaintiff also argues that its construction is supported by the IEEE definition of controller - "a device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected." IEEE Standard Dictionary of Electric and Electronics Terms (6th ed. 1996).

Defendants contend that the IEEE definition actually supports its construction because the definition does not require programmability. Defendants also argue that the programmability of the controller is only one embodiment and should not be read into the claims. In terms of claim structure, Defendants point to the fact that, in some cases, dependent claims regarding "a programmable external controller" are also dependent on claims requiring the controller to be a "microprocessor." Defendants argue that microprocessors are inherently programmable, and, therefore, there is no need to place a programmability limitation on "controller." n3

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n3 In reply, the plaintiff notes that there other types of circuits, other than microprocessors, that are programmable, e.g., field-programmable gate arrays (FPGAs).

--- End Footnotes ---

The Court concludes that one of ordinary skill in the art would understand a "controller" to be a circuit or device that is either programmable or has a pre-determined function. In the context of the patents-in-suit, the controller is used to selectively activate LEDs. '269 patent, 4:37-38. A programmable controller is an aspect of a preferred embodiment that should not be read into the claims. Accordingly, "controller" means "a device or circuit capable of selectively activating LEDs."

As is pertinent here, in its January 24, 2005 Claims Construction Order, the Court construed certain terms of Claim 1 as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;controller&quot;</td>
<td>a device that interfaces between a host and nonvolatile memory.</td>
</tr>
<tr>
<td>&quot;host&quot;</td>
<td>interfaces, through the controller, with nonvolatile memory.</td>
</tr>
</tbody>
</table>
M. Tomar's Claim Construction Arguments

Tomar did not join in the other defendants' claim construction briefing, but separately filed its own arguments focusing on the interpretation of "controller" as represented in claim 1 of the '615 patent. n4 In summary, Tomar argues that the Court should interpret "controller" as a means-plus-function claim under 35 U.S.C. § 112, P 6 even though the claim itself does not use the term "means." The basis for Tomar's argument is that the "controller" limitation does not "particularly point out and distinctly claim" the invention as required under 35 U.S.C. § 112, P 2 because the patent fails to disclose a circuit capable of creating complex light patterns as discussed in the specification. See '743 patent, 11:59-62. Tomar contends that this renders the claim indefinite under Halliburton Oil Well Cementing Co. v. Walker, 329 U. S. 1, 67 S. Ct. 6, 91 L. Ed. 3, 1946 Dec. Comm'r Pat. 628 (1946) (superseded by the 1952 Patent Act) because "controller" is the "most crucial element" of a claimed combination described "in terms of what it will do rather than in terms of its own physical characteristics."

--- Footnotes ---
n4 The use of "controller" in claim 1 of the '615 patent is the same as the use of "controller" in claim 1 of the '269 patent and as discussed above in Section H.

--- End Footnotes ---

Tomar contends that in order to save the claim from invalidity, the Court needs to interpret "controller" as a means-plus-function limitation. To support this contention, Tomar cites to the specification's preferred embodiment stating that a controller "provides a means for activating LED's 30 individually . . . ." '743 patent, 11:59-61, 23:16-18 (emphasis added), and argues that the use of "means" in the specification is an express disclaimer of claim scope. n5

--- Footnotes ---
n5 In its response, the plaintiff points out that Tomar has not complied with the Court's docket control order requiring identification by March 16, 2006 of claim elements that should be governed by 35 U.S.C. § 112, P 6 nor the deadline of April 5, 2006 for complying with P.R. 4-2 requiring preliminary claim constructions for each element governed by 35 U.S.C. § 112, P 6. Nevertheless, the Court has considered Tomar's arguments as part of the claim construction process.

--- End Footnotes ---

The plaintiff argues that Tomar has not met its burden of rebutting the presumption that 35 U.S.C. § 112, P 6 does not apply in absence of the word "means." See Phillips v. AWH, Corp., 415 F.3d 1303, 1311 (Fed. Cir.2005). In addition, the plaintiff contends that the term "controller" would be understood by one of ordinary skill in the art to have a structural meaning, and, therefore, is not subject to 35 U.S.C. § 112, P 6. See Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004).

Claim language not containing the term "means" is presumptively not subject to means-plus-function construction under section 112 P 6. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). The presumption may be overcome if the claim term fails to recite sufficiently definite structure or recites function without reciting sufficient structure to perform that function. Id. (quoting Watts, 232 F.3d at 880). Tomar, however, fails to overcome this presumption. Here, one of ordinary skill in the art would understand "controller" to refer to a specific type of circuitry, and "circuitry" has been found in other cases to connote structure. See The Massachusetts Institute of Technology and Electronics for Imaging, Inc. v. Abacus Software, 462 F.3d 1344, 1355-56 (Fed. Cir. 2006) (stating that "circuit" combined with a description of the function of the circuit connotes sufficient structure). The claim language does not merely describe a controller, but adds further structure by describing the operation of the controller. See '578 patent, 9:14-18 (claiming that the controller is used to activate light emitting diodes and produce warning light signals). Accordingly, the description of the operation of a controller is sufficient to avoid section 112 P 6, and Tomar's indefiniteness argument is rejected.
The term "controller" is disputed by the parties. Microfil asserts that the term "controller" should be limited to a single device that controls the entire automated pill dispensing system. AutoMed, on the other hand, asserts that the modifier "single" does not appear in the claims, the specifications, or the prosecution histories and that the term should be construed to mean a device or system that regulates a process or another device. AutoMed's construction, however, is inconsistent with the written specification. In the written specification, the patentee clearly states that a control system regulates all aspects of the automated pill dispensing device. For example, the written specification states that "the control system places a refill request with the vibratory dispenser," that the "control system assigns at least one accumulation receptacle," and that the control system controls the various processes employed by the system. (927 Patent Col. 9 L 48-51, Col. 10 L. 12-14, Col. 11 L. 43-46; '671 Patent Col. 9 L. 61-63, Col. 10 L. 14-16, and Col. 11 L. 44-47).

Accordingly, while the patentee did not modify the term controller with the word single, the specification indicates that a single control system regulates the entire process.

**1. "Controller"**

We agree with the district court's initial construction, with the clarification that the "controller" need not be limited to a single device, as applied by the district court and asserted by Microfil. We see no basis in the intrinsic record to warrant reading the term "controller" to be limited to a single device or to any particular hardware or software. The specifications of the '671 and '927 patents support a broad interpretation of "controller." While the specifications differ in some respects, these differences are not material to our analysis here; we rely on text common to both specifications. Moreover, "the same term or phrase should be interpreted consistently where it appears in claims of common ancestry." Epcon Gas Sys. v. Bauer Compressors, Inc., 279 F.3d 1022, 1030 (Fed. Cir. 2002). The specifications disclose at least two structures that perform control functions: a "controller 180," which apparently controls only the rate of vibration; and a "control system 80," which seems to control many aspects of the entire process. Compare, e.g., '927 patent col.8 ll.51-59, with id. col.11 ll.43-46.

Unfortunately, the specifications fall short of clarity in outlining the exact functions and details of the control system software and hardware. Even though the relationship between these structures is not entirely clear from the written description, what is unmistakable is that no single device is disclosed which performs or is capable of performing all of the functions recited in claim 1 of the '927 patent, namely, to receive a patient's prescription information and to control the entire apparatus, including the vibratory dispenser, the container transport assembly, and the vial transport assembly. See '927 patent claim 1. To the contrary, the patents describe only in general terms the control of several distinct systems and processes. E.g., '927 patent col.8 ll.1-2 (drive unit vibration); id. col.10, ll.58-62 (vial transport); id. col.11, ll.47-63 (patient...
entry process). With all due respect to the view expressed in the dissent, a construction of the term "controller" to be "a single module or specific device which operates automatically to regulate a controlled variable or system," as argued by Microfil, would fly in the face of the specification and would engraft onto the claims an unwarranted limitation. See Phillips v. AWH Corp., 415 F.3d 1303, 1322-23 (Fed. Cir. 2005) (en banc) (cautioning that dictionary definitions cannot be used to "contradict any definition found in or ascertained by a reading of the patent documents" (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 n.6 (Fed. Cir. 1996))). Without a clear indication from the patentee that a single device must control these varied functions, it is improper to limit the term "controller" to a single device rather than a single system. Accordingly, while we affirm the district court's initial construction of "controller" to mean a "single control system that regulates the entire process," we clarify that the controller need not be limited to a single device, nor to any particular hardware or software.

1. CLAIM CONSTRUCTION

Citrix argues that the term "controller," contained in each of the independent patent claims that Mr. Orenshteyn says are infringed by Citrix products, refers to a replacement for a general purpose CPU. Because each of Citrix's accused products uses a general purpose CPU, it contends that the products do not infringe as a matter of law.

When construing a patent claim, three sources should be considered: (1) the language of the claims themselves; (2) the patents specification; and (3) the prosecution history. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995). A court may also consider extrinsic evidence, such as expert testimony as to how those skilled in the art would interpret the claims. See id. A court, however, is not required to rely on expert testimony if the intrinsic evidence establishes the proper construction of the claims. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record . . . Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.").

Additionally, a patentee is his own lexicographer, and the specification may act as a dictionary, defining terms used in the claim. See id. If the patentee does not offer a unique definition of his own, a court may refer to a dictionary to determine the proper definition of the claim. See, e.g., National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1195 (Fed. Cir. 1999) (referring to the dictionary definition of "select"); Hazani v. U.S.I.T.C., 126 F.3d 1473, 1480 (Fed. Cir. 1997) (referring to the dictionary definitions of "integral" and "in"). Finally, claim construction is a question of law for the court, and is therefore amenable to resolution on summary judgment. See Johnston v. IVAC Corp., 885 F.2d 1574, 1579-80 (Fed. Cir. 1989).

Where a patentee has clearly defined a claim term, that definition is usually dispositive. See Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1360 (Fed. Cir. 2002). In this case, Mr. Orenshteyn, in the patent specifications, has defined the term "controller" to mean something other than a general purpose CPU.

The patent specifications indicate that the term "controller," contained in each of the independent claims of the '942 and '569 patents, refers to a less expensive replacement for a general purpose CPU. For instance, the specifications state that "expensive general purpose processing CPUs are preferably replaced with inexpensive but powerful controllers, such as DSP chips." They also go on to define the purpose of the inventions as follows: "General purpose computing on the desktop, i.e., desktops having a standard OS (such as Windows 95(R)) and a microprocessor (such as the Pentium(R) chip), has to be replaced by a system which is less expensive to own and maintain but at the same time does not short-change the user by taking away features we all have come to expect from our PCs . . . ." These statements in the specifications indicate that the term "controller" means something other than a general purpose CPU.

Additionally, the specifications go on to describe two embodiments of the invention, the claimed one that features a "controller," and an unclaimed one that does not. In describing the unclaimed invention, the specification states that a general purpose CPU can be used. "It should be understood that general purpose computers will also work with the present invention (with little or no modifications), such that existing owners of PCs can access any specialized server to spawn a selected application, as desired." When describing the claimed invention that features a controller, however, the specification makes clear that "controller" does not mean a general purpose CPU:
Instead of a conventional general purpose CPU, inexpensive but powerful controller circuits will be utilized for controlling storage devices and other I/O hardware. An example of a controller is a TI TMS320C4x or C3x DSP chip. The controller or a plurality of controllers will control the client file system (file I/O logic) and low-level graphical interface logic (e.g. GUI). For example, each client may have a separate controller chip for the file system/disk controller block, the communication block and the display/human interface block of the client, or one DSP control may control all three blocks.

Motion for Summary Judgment, Exh. D-1, Col. 9, ln. 30-40 (emphasis added). Accordingly, the specification indicates that the term "controller" means something other than a general purpose CPU.

To the extent additional discussion is necessary, this definition and construction of the term "controller" in the patents also comports with the testimony of Dr. Fortes, who provided his opinion of how one of ordinary skill in the art would construe the language. Dr. Fortes' opinion was based on the patent specifications, engineering treatises, and dictionaries. He opined that the term "controller" refers to a replacement for a general purpose CPU. Additionally, although the testimony of an inventor should be given little weight in a court's claim construction, see Markman, 52 F.3d at 985, Mr. Orenshteyn clearly testified that the term "controller," as used in his patents, means a hardware device, and not a general purpose CPU:

Q. What's a controller?
A. A processing element.

Q. What's an example?
A. A processor, a chip, an integrated circuit.

Orenshteyn Deposition at 126-27.

Mr. Orenshteyn's opposition to the motion for summary judgment responds to Citrix's argument that the term "controller" means something other than a general purpose CPU in one sentence: "Indeed, Citrix's construction of the term is in direct contradiction to the patent specification." Opposition at 11. Mr. Orenshteyn, however, neither identifies any contradiction or cites to any part of the specifications which allegedly contradict Citrix's construction. Mr. Orenshteyn, therefore, has offered no viable alternative to the claim construction asserted by Citrix. Citrix's construction of the term "controller" comports with the patent specifications, and is, moreover, supported by expert testimony. Accordingly, the term "controller," contained in each of the independent claims of the '942 and '569 patents is construed as a matter of law to mean something other than a general purpose CPU.

Claim 1 of the '942 patent reads as follows:

1. A secured system for accessing application services from at least one application program, comprising:

   at least one client station having low-level application independent logics stored therein and at least one controller for controlling said low-level application independent logics, said low-level application independent logics including a user interface logic, a device control logic for controlling devices, a file system logic, and a communication interface logic, wherein said file system logic includes a file system capable of storing data corresponding to said at least one application program;

   at least one application server having high-level application logic stored in a server device for running said at least one application program, said server device being coupled to said at least one application server; and

   a low-level interface between said at least one client station and said at least one application server for connecting said at least one client station to said at least one application server,

   wherein upon accessing by said at least one client station, said at least one application server runs said at least one
application program which selectively controls said low-level application independent logics for controlling devices of said at least one client station and for accessing data of said at least one client station, and wherein said at least one application server processes said corresponding data from said at least one client station on said at least one application program without permanently storing said data in a server device coupled to said at least one application server.

(emphasis added).

As indicated above, the district court construed the term "controller" in Claim 1 "to mean something other than a general purpose CPU." Orenshteyn, 265 F. Supp. 2d at 1329-30. The court then found that because the '942 and '569 patents "use a 'controller,' which has been construed as something other than a general purpose CPU," while the accused Citrix products "all use a general purpose CPU to execute application program code," Orenshteyn had failed to show infringement. Id. at 1331

On appeal, Orenshteyn argues that the district court erred in construing the term "controller." Orenshteyn argues that, while the specification of the '942 patent discusses using controllers that are not CPUs in order to lower costs, the specification does not limit his claims to non-CPU controllers. Orenshteyn argues that the district court correctly recognized that the specification discloses an embodiment in which the controller is a CPU, but erred in finding that this embodiment was unclaimed. Orenshteyn argues that claim 2 of the '942 patent and the doctrine of claim differentiation require a construction of "controller" that includes CPUs.

We agree with Orenshteyn that Citrix is not entitled to summary judgment of noninfringement of claim 1. The district court granted Citrix's motion because the MetaFrame product uses a CPU, in contrast to its construction of the '942 patent as referring to something other than a CPU. However, as we shall demonstrate, claim 1 of the '942 patent covers products that employ a CPU, and the district court's grant of summary judgment of noninfringement was therefore erroneous.

Claim 1 of the '942 patent claims a secured system for accessing application services that is made up of a client station connected through an interface with an application server. '942 patent cl. 1. The client station consists of a controller and a number of "low-level application independent logics," such as a user interface logic, a file system logic, and a device control logic. Id. The client station accesses the application server, which runs an application program that in turn controls the application logics of the client station. Id.

Claim 2 of the '942 patent claims the system of claim 1, "wherein said at least one client station lacks a general purpose central processing unit to prevent execution of application program code on said at least one client station, so as to decrease cost and protect said at least one client station." Id. cl. 2. Claim 2 adds to claim 1 only that the "client station lacks a general purpose" CPU. Thus, claim 1, as the parent of dependent claim 2, presumably includes the possibility of a client station that possesses a general purpose CPU; otherwise claim 2 is identical to claim 1 and therefore superfluous. See Xerox Corp v. 3Com Corp., 267 F.3d 1361, 1366 (Fed. Cir. 2001) (stating that reading a limitation into a claim that would render two claims superfluous "will not do").

There can be no doubt, when looking at the specification and comparing claim 2 to claim 1, that a CPU may be included in the client station of claim 1. The district court, in granting summary judgment of noninfringement, found that because Citrix's "products all use a general purpose CPU to execute application program code," those products did not infringe claim 1 of the '942 patent because that claim required the use of a controller, which was construed as "something other than a general purpose CPU." Orenshteyn, 265 F. Supp. 2d at 1329-30. However, as we have demonstrated, because claim 2 claims a client station that "lacks a general purpose [CPU] to prevent execution of application program code," claim 1 impliedly may include just such a CPU.

In support of its decision, the district court noted the portions of the specification that seem to indicate a distinction between a "controller" and a general purpose CPU. See id. at 1329; '942 patent col.6 ll.17-20 ("expensive general purpose processing CPUs are preferably replaced with inexpensive but powerful controllers, such as DSP chips."); id. c.1 ll.65-67 -- col.2 l.1 ("General purpose computing on the desktop, i.e., desktops having a standard OS (such as Windows 95(R)) and a microprocessor (such as the Pentium(R) chip), has to be replaced by a system which is less expensive . . . ."). However, those portions of the specification do not "define" the term controller, as the district court held they do. Rather, they suggest that there are inexpensive controllers that are not CPUs; they do not indicate that all controllers are distinct from all CPUs.
Furthermore, another portion of the specification indicates that the invention can, in fact, employ a CPU. '942 patent col.9 ll.48-52 ("It should be understood that general purpose computers will also work with the present invention (with little or no modifications), such that existing owners of PCs can access any specialized server to spawn a selected application, if desired."). The court explained that portion of the specification, which appears to contradict its claim construction, by describing that portion as an "unclaimed invention." OrenshTyen, 265 F. Supp. 2d at 1329. While it is true that a specification may contain unclaimed inventions, we have shown that the claims in this case indicate that the use of a CPU is, in fact, encompassed within the claims. We therefore find that the district court erred in concluding that Citrix failed to demonstrate that there was no genuine issue of material fact concerning infringement of claim 1 of the '942 patent.

3. "Controller."

The court shall apply the ordinary definition of the word "controller" in the relevant art. Thus, the term "controller" shall be construed to mean "electronic circuitry that generates a control signal."

As to "controller," the parties have agreed to Power-One's proposal of "circuitry that controls the operation of one or more devices." As to the other terms, Power-One argues for the same construction, while Artesyn proposes "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit." The Court notes that a "power supply controller" is discussed in the '999 patent as follows:

Traditionally, POL regulators operate in conjunction with at least one power supply controller. The controller (1) activates and partially programs the POL regulator by providing data directly to the POL regulator, (2) monitors the output of the POL regulator by measuring data external to the POL regulator, and (3) allows the output of the POL regulator to be transmitted to an external load circuit. The Court finds that this language supports Artesyn's proposal and therefore, construes "power supply controller" and "system controller" as "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit."

The Court construes "primary display controller" to mean "circuitry for interfacing a primary display with a computer" and "secondary display controller" to mean "circuitry for interfacing a secondary display with a computer."

Primary display controller & Secondary display controller

At the hearing, both parties agreed that "display controller" should be construed as "circuitry for interfacing a display with a computer." The only dispute is over the use of the word "first" versus "primary" and "second" versus "secondary" to modify "display." As the Court already construed both "primary display" and "secondary display," it is unnecessary to re-construct the terms here. Therefore, the Court adopts the parties agreed language and construes "primary display controller" as "circuitry for interfacing a primary display with a computer" and "secondary display controller" as "circuitry for interfacing a secondary display with a computer."
I. "controller adapted to provide selectively modulated illumination to the illuminated LEDs/light sources"

This phrase appears in the claims of only the '865 patent. The plaintiff proposes "the controller adapted to provide illumination whose intensity is selectively varied to illuminate LEDs/light sources." Defendants propose "the controller produces incremental variation in brightness of LEDs/light sources during illumination." The main dispute is over "selectively modulated illumination" and whether it means that "intensity" is "selectively varied" or whether it means that there is "incremental variation in brightness."

The plaintiff argues that its construction allows for a full range of modulation while Defendants' construction only allows for "incremental variation." The plaintiff bases its argument on the fact that "modulation" encompasses a variety of waveforms, such as "sinusoidal" and "triangular," which could not be characterized as "incremental variation." In addition, the plaintiff points out that claim 1 of the '743 patent recites "the controller is capable of providing variable illumination intensity . . . ." Because different claim terms are presumed to mean different things, "modulated illumination" cannot mean the same thing as "variable illumination intensity." Finally, the plaintiff points to the prosecution history where the patentee distinguished prior art through the invention's modulated illumination of light sources to create strobe, flashing and/or alternating light signals. '189 application, Sept. 5, 2001 Amendment, at 5-6. According to the plaintiff, these signals are all on/off patterns, which would not be covered by "incremental variation," but would be covered by "selectively varied."

Defendants argue that the specification and prosecution history make it clear that "modulated intensity" does not include "flashing light." According to the defendants, the specification separately lists "modulated or variable intensity light" and "a flashing light." '865 patent, 5:2-5, 30-32, 38-40, etc. Defendants contend that the prosecution history disclaims "flashing light signals" because the patentee, in responding to a rejection, described the controller to be "adapted to provide selectively modulated illumination to the illuminated LEDs." '189 application, Sept. 5, 2001 Amendment, at 12.

The Court agrees with the plaintiff. One of ordinary skill in the art would understand "modulated" to include drastic variations. Therefore, something "modulated" only needs to be "varied," and is not limited to an "incremental variation." Accordingly, "controller adapted to provide selectively modulated illumination to the illuminated LEDs/light sources" means "controller adapted to provide illumination whose intensity is selectively varied to illuminate LEDs/light sources."

III. Claim Term of "controller computer"

The Communication System in the '491 Patent requires a "controller computer." (491 Patent at Claims 1,40). Windy and AOL disagree as to how the term "controller computer" should be construed. (Mem. 13-17). Windy argues that the claim term "controller computer" should be construed to include "multiple computer devices." (Mem. 14-15). Specifically, Windy argues that the claim term "controller computer," as it is used in Claims 1 and 40 of the '491 Patent, should be construed as "one or more interconnected controller computer devices that control operations in the system." (Mem. 13). AOL, on the other hand, argues that the term "controller computer" should not be construed to include the generic term "computer devices." (Mem. 17-19). AOL contends that the '491 Patent specification supports the "existence of a single controller computer." (Mem. 18-20). Accordingly, AOL argues that the term "controller computer" should be construed as "a computer that connects each of the participator computers through the Internet and performs the arbitration and distribution of messages in the system." (Mem. 13)(emphasis added).

By the terms of the '491 Patent, in both Claims 1 and 40, it is entirely clear that the inventor of '491 Patent only required one controller computer in the Communication System. ('491 Patent at Claims 1, 40). For instance, in Claim 1 of the '491 Patent, the language states that the Communication System includes "a controller computer" and "a plurality of participator computers." ('491 Patent at Claim 1)(emphasis added). In addition, in Claim 40 of the '491 Patent, the language states that one of the steps required to operate the Communications System is to program "the controller computer to control communication of the messages between the participator computers." ('491 Patent at Claim 40)(emphasis added). Further,
since there is no language anywhere in the '491 Patent to indicate that the controller computer comprises more than one device, adding the terms "one or more interconnected controller computer devices" to define the term would do nothing to benefit the claim construction and only cause confusion. Therefore, the term "a controller computer" will be construed, according to its ordinary language and use in Claims 1 and 40, as "the computer programmed to perform certain functions in the Communication System."

In the Memorandum, AOL also requests that the court determine whether the controller computer "must perform the functions of 'connecting,' 'arbitrating,' and 'distributing.'" (Mem. 17-18). Windy argues that AOL's request for the court to determine whether the controller must perform such functions is "misplaced" because "the functional language AOL wants to add is not found in the 'controller computer' element." (Mem. 16). We agree with AOL and find that it is not necessary, for purposes of the instant claim construction, to determine what functions the controller computer "must" perform in the Communication System. (Mem. 17-18). Accordingly, we decline to include a determination of whether the controller computer must perform the functions of "connecting," "arbitrating," and "distributing" in the instant claim construction.

8. "A controller, coupled to the visual display, for automatically determining when the terrain information is displayed on the visual display" 60

--- Footnotes ---

60 This construction applies to Claim 1 of the '060 Patent.

--- End Footnotes ---

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<td>This claim element is subject to analysis under § 112(6).</td>
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Honeywell argues that this claim is not written in means plus function format, and that "controller" and "automatically" should be given their plain and ordinary meaning. Again, Honeywell cites various dictionaries in support of its proposed construction. Further, Honeywell asserts that one skilled in the art would recognize the controller structure, and that contrary to defendants' assertions, "controller" does not lack a specific structure.

Sandel asserts that controller has no recognized meaning or structure in the art, noting that the only definition of controller in the aviation industry is an air-traffic controller. Additionally, Sandel argues that the term is vague and could include any number of things.

Universal asserts that the patent fails to set forth a definitive structure, so it should be limited to the controller described in the specification. The "controller" described in the specification is a computer program that corresponds to a switch.

Because the claim does not contain the term "means" it is presumed that this is not a means-plus-function claim. Therefore, it is the defendants' burden to show that Honeywell failed to show a "sufficient" structure. Once again, it is necessary for the court to evaluate the parties' arguments in light of the context of the patented invention. Honeywell claimed a system which automatically displayed the terrain information, without any action on the part of the pilot. Thus, although Sandel may be technically correct in asserting that a "controller" may be a director of air traffic, it is clear that this is not the case in the
context of the '060 patent. From reading the patent, Honeywell's description of "controller" would be clear to someone skilled in the art, as a device which governs when something else moves, acts or happens. Here, the controller governs when the terrain information will display to the pilot. Honeywell's description is sufficient to describe the structure, and thus, the court adopts its proposed construction.

The court adopts Philips' definition. Defibtech correctly notes that in many instances, the inventors described their "invention" (as opposed to an embodiment) as "provid[ing] a defibrillator method and apparatus for adjusting the characteristics of the defibrillator waveform in response to a real-time measurement of a patient-dependent electrical parameter." 927 Patent at 5:56-58. Defibtech does not, however, point to a single instance in which the term "controlling" or "controller" is employed inconsistently with this description of the invention. In the claims, the language surrounding the term "controller" or "controlling" is uniformly consistent with this object of the invention. E.g., 927 Patent Claim 1 ("controlling duration of the truncated exponential biphasic waveform"), Claim 6 ("a controller operating the connecting mechanism to deliver electrical energy . . ."); 454 Patent Claim 3 ("controlling the duration of a waveform phase based on a value of the electrical parameter"). Thus, Defibtech's proposed definition is surplusage. The claim language places limitations on "controlling" or the "controller" that are consistent with the purpose of the invention. There is no need for the definitions of "controller" and "controlling" to contain those limitations.

controlling a computer

Claims 1-18 contain the term "controlling a computer" in the preamble. Accolade contends that the body of the claim sets out the complete invention, and the preamble does not constitute or explain a claim limitation and therefore should not be construed. Alternatively, Accolade argues that "controlling a computer" means "providing input to a computer." Citrix contends that the term means "taking over the entire functionality of a host computer," and alternatively, "taking over all of the functionality of a host computer that can be controlled by a mouse or keyboard." The parties dispute whether "controlling a computer" is a limitation even though it is found only in the preamble, and if it is a limitation; whether the term limits the claimed invention to taking over all of the functionality of a computer; whether "controlling a computer" is accomplished only by a mouse or keyboard; and whether "a computer" is the "host computer." The Court construes "controlling a computer" as "taking over the functionality of the host computer that is responsive to an input device event received from a client computer."

The parties dispute whether "controlling a computer" in the preamble is a limitation. "Clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808-9 (Fed. Cir. 2002) (citations omitted). On several occasions, the applicant relied on "controlling" a computer to distinguish the claimed invention from the prior art. See Defs.' Br., Ex. 11 (8-13-01 Amendment C), 7; Defs.' Br., Ex. 15 (2-25-04 Amendment E), 9; Defs.' Br., Ex. 13 (6-18-02 Amendment D), 6. In each of these amendments, the applicant distinguished the claimed invention from the prior art by referring to the claimed invention's characteristic of controlling a host computer. 2 Accordingly, "controlling a computer" is a limitation.
"Frese teaches a method for remotely controlling an application program over a network. It does not allow for the remote control of a computer system [sic] a network as does Applicant's invention." Defs.' Br., Ex. 11 (8-13-01 Amendment C), 7.

"Frese uses a downloaded client program and a network browser program, but only to control a specific demonstration program running on a host computer. As such, it does not take over the functionality of the host computer, but simply runs a demonstration copy of an application program being offered for sale. Claim 1, as amended, specifies that the client program that is run in conjunction with the browser program encrypts the event data of the client computer and decrypts encrypted image information set by a host computer." Defs.' Br., Ex. 15 (2-25-04 Amendment E), 9.

"It is therefore very clear that Doyle does not teach the [sic] control the basic functionality of a host computer but, rather, specific applications running on remote computers." Defs.' Br., Ex. 13 (6-18-02 Amendment D), 6.

"Furthermore, the invention of Popp is very similar to that of Doyle in that it only allows the access of application programs on remote computers, rather than controlling the basic functionality of the computers." Id.

However, Citrix's construction creates limitations that are not supported by the intrinsic record. Citrix asserts that "controlling a computer" means that the "entire functionality," or in the alternative, "all of the functionality" of a host computer is controlled. Neither the patent nor the prosecution history suggest that the claims cover only situations where all of the functionality of the host computer is controlled. The prosecution history distinguishes the prior art stating only that "[Frese] does not allow for the remote control of a computer system," "[Frese] does not take over the functionality of the host computer," "Doyle does not teach the control the basic functionality of a host computer," and "[Popp] only allows the access of application programs on remote computers, rather than controlling the basic functionality of the computers." Defs.' Br., Ex. 11 (8-13-01 Amendment C), 7; Defs.' Br., Ex. 15 (2-25-04 Amendment E), 9; Defs.' Br., Ex. 13 (6-18-02 Amendment D), 6. The most limiting of these statements, "take over the functionality" and "control the basic functionality," do not require "taking over all of the functionality." Thus, Citrix's construction is too limiting as unsupported by the intrinsic record.

Citrix also proposes that "controlling a computer" is accomplished "by a mouse or keyboard." However, adding "keyboard" to the Court's construction would be repetitive of what is already in the claim. Claim 1 already states, "a client computer coupled to said TCP/IP protocol network, said client computer having a monitor, a keyboard, and a pointing device." Col 13:44-46. In regards to adding "a mouse" to the Court's construction, intrinsic evidence gives a broader meaning to "controlling a computer" than Citrix proposes. The patent uses the language, "a pointing device," in claim 1, Col. 13:46, and references to "a mouse" in the specification are only exemplary. 3 Thus, the intrinsic record does not support limiting the invention to a mouse, and the Court does not include "a mouse" in its construction. 4

3 See, e.g., Col. 3:43-46 ("Alternatively, the client computer can be used to both monitor the screen of the host computer and to provide inputs to the host computer via a keyboard, mouse, or other input device") (emphasis added); see, e.g., Col. 5:34-37 ("Each of the computer systems 14-18 typically include . . . , a keyboard, and a "pointing" device such as a mouse") (emphasis added); see, e.g., Col. 10:38-43 ("a client computer can 'control operations' of the host computer as if the keyboard, mouse, etc. of the client computer were directly coupled to the host computer. Of course, keyboards and mice . . . are just two instances of input devices") (emphasis added).

4 While claim 1 does not require a mouse, it does require a keyboard because "having . . . a keyboard" is expressly stated in the claim, and the Court does not read out this aspect of the invention. However, the "comprising" language of claim 1 permits other input devices to be used with the invention in addition to a keyboard.
The parties also dispute whether "a computer" is the host computer. "A computer" in "controlling a computer" refers to the host computer as described in the intrinsic record. Claim 1 claims a client computer, which includes a monitor and an input device, and a host computer, which is capable of being accessed by the client computer and is in fact initially accessed by the client computer. See Col. 13:44-14:15. Claim 1 states, "said host computer running a host program that is responsive to said keyboard and said pointing device due to the event data in the event queue." Col. 13:64-66. The event data is transmitted by a client computer. See Col. 13:53-55. Also, the specification refers to the host computer as capable of being accessed/controlled. See Abstract; see Col. 6:23-25; see Col. 9:31-33. For instance, the Abstract explains that "[h]aving the host computer posted on a web page creates a 'virtual computer' that can be view [sic] and/or controlled by the client computers." Furthermore, the prosecution history is consistent with the claim language and specification, stating, "Doyle does not teach the control the basic functionality of a host computer but, rather, specific applications running on remote computers." Defs.' Br. (6-18-02 Amendment D), 6; see also n.2. While the applicant did not unequivocally limit "computer" to "a host computer" in distinguishing Doyle, the consistent references in the prosecution history, see n.2 supra, and throughout the patent to controlling a host computer support the limitation. Given the relationship between the host and client computers stated in claim 1 and the intrinsic record, the computer controlled is the host computer. Accordingly, the Court construes "controlling a computer" as "taking over the functionality of the host computer that is responsive to an input device event received from a client computer."

3. "CONTROLLING THE ROUTING OF THE STREAM OF PACKETS"

AOL: "Directing the specific path (selected from multiple paths) taken by a stream of packets. Is not mere transmission of a stream from point A to B."

TWM: "Influencing at least a portion of the routing path, selected from among possible multiple paths, taken by the stream of packets."

The question here is how much control is meant by the word "controlling." TWM argues that "controlling" the routing simply means fixing an intermediate point through which a data stream must pass--hence, "influencing" the routing. (D.E. 69, pg. 11). AOL's position is that using the word "influencing" as a substitute for the word "controlling" would allow TWM to broaden the claim's scope. (D.E. 68, pgs. 3-4).

A layperson probably would associate "control" with "directing" as opposed to "influencing." Influencing is not strong enough to capture the force of "controlling." However, the Court is mandated to act as an ordinary skilled person in the field. With that in mind, a study of the claim language and the specification reveals that TWM's argument is persuasive.

Specifically, the remainder of the claim states, "controlling the routing . . . in response to selection signals received from the users." An ordinary person in the computer networking field would know that a user cannot dictate the route on which packets travel on the Internet. Instead, a user can merely mandate that a packet go through a particular intermediate server. For example, if a user in Texas starts downloading music from a company's main server in New York, he has affected the travel of packets because the New York server will send information to an intermediate server in, for example, Oklahoma--not an intermediate server in, for example, Oregon. All the user has done is require the packet to go through Oklahoma; he has no control of how the packet travels from New York to Oklahoma or from Oklahoma to Texas. The packets may zig-zag up and down the East Coast before heading to Oklahoma--the user cannot control initial zig-zag travel.

Not only does the claim language buttress TWM's argument, but the specification aids as well. Specifically, the preferred embodiment (which is contained in the specification) describes the controlling-the-routing process in the same manner as described above. The specification states that users only affect packet routes by directing them to intermediates--they do not control the entire path the packets take to or from the intermediate servers.

AOL also argues that, because TWM disclaimed the proposal it now espouses at the PTO hearings, it can no longer argue it during litigation. AOL's recitation of law is correct. Essentially, once a party concedes a definition at the prosecution hearing
it can not revive it during litigation. See, e.g., Jonsson v. The Stanley Works, 903 F.2d 812, 817-18 (Fed. Cir. 1990).

However, the statement that AOL identifies does not manifest any contradiction by TWM. TWM's PTO statement--"it is clear that the mere act of transmitting a stream so that it goes from point A to point B does not qualify as 'controlling' the 'routing'"--is not inconsistent with its argument here. TWM's statement is a self-evident; of course the Internet's transmittal of packets from A to B does not qualify as controlling the routing. That statement does not address the issue of whether users' ability to route packets through intermediate servers constitutes control or influence of those servers.

TWM's use of the word "influencing" is not strong enough to express how powerful a user's selection is in shaping the paths' travel. The Court read the following construction of the "controlling the routing of the stream of packets" claim limitation from the bench at the July 19, 2007 hearing:

"directing a portion of the routing path selected from among the possible routing paths [taken by the stream of packets] to one or more intermediate computers located in specific geographic areas."

Having reviewed the parties' summary judgment motions and subsequently re-reviewed the parties' Markman submissions and the Markman hearing transcript, however, the Court has determined that the above construction needs revision. See Pfizer, Inc. v. Teva Pharms.USA, Inc., 429 F.3d 1364, 1377 (Fed. Cir. 2005) ("We . . . recognize that 'district courts may engage in rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves.'") (quoting Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002)). Based on its review of the aforementioned materials, as well as additional review of the '187 and '005 Patent specification and claims, the Court proposes the following construction:

"directing a portion of the routing path taken by the stream of packets from one of a group of intermediate computers located in a specific geographic area to the user"

The Court invites both parties to submit objections and/or proposed alterations to this construction no later than Wednesday, August 15, 2007, at 5:00 PM. The objections and/or proposed alterations shall not exceed five pages in length.

5) "the network management system controlling when the video program is forwarded to the display unit for display" (claim 15)

Defendants argue that this term means "the network management system determines the specific time at which the video program is forwarded and displayed at the display unit of each of the receiving sites." In support of their position, Defendants cite to the specification and an exchange in the prosecution history. STV Asia argues that this term needs no further construction beyond that which is required for the term "network management system" and further objects to Defendants' proposed construction to the extent it limits the term to a "specific time." According to STV Asia, this limitation is not supported by the specification and results in an overly narrow construction of the word "when." In particular, STV Asia asserts that requiring that "when" mean a "specific time" is inconsistent with the "wheel" concept that is described in the specification. The Court concludes that Defendants have the stronger position.

Defendants assert that their proposed construction is consistent with both the ordinary meaning of the word "when" and the specification. In particular, Defendants cite the Merriam Webster dictionary, which defines "when" as "a: at or during the time that: WHILE <went fishing he was a boy> b: just at the moment that <stop writing the bell rings>." They also quote the specification, which explains that one of the benefits of the invention is its ability to "more efficiently tailor its commercial messages to particular chains, stores, times of day and geographic regions." '069 patent, col. 3, ll. 36-40.

STV Asia argues that "when" doesn't mean a specific time because that construction is inconsistent with the wheel system described in the specification. Yet it is not clear why use of a wheel system would be inconsistent with Defendants' proposed construction. The specification describes the wheel system as follows:

A "wheel" concept is used to handle the high volume of commercials and other programs which are displayed in the stores. A wheel is a cycle of time that represents the format of what will be shown on the television in the stores. For
example, if the wheel cycle is three hours, then every three hours the display would repeat itself. The network management system provides the cycling needed for this wheel concept. Multiple wheels per day allow the system to establish playlists for the entire day. Additionally, the wheel format simplifies the contract, invoicing and billing required because these can be initially based on the original wheel(s) and later changed based on the actual number of plays. Rates may be sold and set by the wheels.

'069 patent, col. 9, l. 64 - col. 10, l. 9. Given that the network management system itself creates the playlists and determines the length and content of the wheels, nothing in the above description suggests that the network management system's use of the wheel system is inconsistent with Defendants' proposed construction. To the contrary, it is apparent that the network management system does control the specific time at which video programs are forwarded to the display units.

The Court construes this claim term as follows: "the network management system determines the specific time or times at which the video program is forwarded and displayed at the display unit of each of the receiving sites."


E-Watch initially proposed "a sensor which outputs information in a format other than the Internet Protocol." March Networks suggested "a sensor that detects a predetermined event and which outputs data in a protocol other than an IP network protocol."

At the hearing the parties agreed to the following definition which, for the reasons stated on the record, is adopted by the court:

"A conventional security sensor" means: "a sensor that outputs a signal or information in a format other than an Internet Protocol."

1. Convergence criterion based upon a partition size

<table>
<thead>
<tr>
<th>Disputed Claim Language</th>
<th>Synopsys's Proposed Construction</th>
<th>Magma's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergence criterion based upon a partition size</td>
<td>a condition based upon a partition size that would, if satisfied, achieve a predetermined result in a partition</td>
<td>condition for terminating an iterative process based on the number of cells contained</td>
</tr>
<tr>
<td>Partition size</td>
<td>Number of cells in a partition or the total area of cells in a partition</td>
<td>Number of cells contained in a partition</td>
</tr>
</tbody>
</table>

The phrase "establishing a convergence criterion based upon a partition size" appears in claims 1, 6, and 11 of the '114 patent. For example, claim 1 states:

In the design of integrated circuits, a computer controlled method for placing cells in a placement area, comprising: generating a netlist through a synthesis process; establishing a convergence criterion based upon a partition size; executing a cell separation process according to the netlist; changing the netlist in response to how the cells are placed; modifying the
The example in the specification suggests, nonetheless, that the convergence criterion is intended to be a condition which, in the specific example discussed in the specification, and no party argues for such a limitation.

In the preferred embodiment of the invention, a five-step process occurs during the "rough placement process." (See id. at 3:8-15, 3:47.) The five steps are (1) cell separation, (2) changing the netlist, (3) changing the spacings, (4) partitioning the cells, and (5) determining whether the then-current placement "has successfully converged." (See id. at 3:14-61.) In the fourth step, according to the specification, "[p]artitioning refers to the process of subdividing the cells in order to better 'spread' them apart." (See id. at 3:48-49.) In step four, "the partitions are defined"; then, in step five, "a determination is made as to whether the current placement has successfully converged." (See id. at 3:47, 3:52-54.) In the preferred embodiment, convergence is achieved when each of the partitions reaches a pre-determined size. For example, the user can set the convergence point to occur whenever each of the partitions is comprised of less than twenty gates.

(See id. at 3:54-57.) If convergence has not been reached, the first four steps are repeated. (See id. at 3:57-58.) "Otherwise, once convergence has been achieved, the detailed placement and route process is performed to complete the physical layout." (See id. at 3:59-61.)

Although the description of the preferred embodiment cited above describes the size of the partitions by reference to the number of gates or cells contained therein, nothing in the specification requires partitions to be measured in that manner. See Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331 at *15 ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.") Indeed, the claims demonstrate that measuring the size of the partitions by reference to the number of cells contained therein is only one method of measuring the size of the partitions. In particular, independent claim 1 states that the convergence criterion is "based upon a partition size," without stating any particular method of determining partition size; the only difference between independent claim 1 and dependent claim 5 is that in claim 5, "the partition size is measured by the number of gates contained therein." (Compare '114 Patent at 6:56-7:3 (claim 1) with id. at 7:11-12 (claim 5).) Under the doctrine of claim differentiation, "different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope," and the doctrine "is at its strongest where the limitation sought to be read into an independent claim already appears in a dependent claim." See Seachange Int'l, Inc. v. C-Cor, Inc., 413 F.3d at 1368-69 (internal quotations and citations omitted). Were the Court to adopt Magma's proposed construction, claim 1 and claim 5 would be identical.

Moreover, the specification states that the number of cells in each partition is "approximately the same" and the area of each partition "is proportional to the area of the cells included in it." (See '114 Patent at 4:45-47.) As the '114 patent expressly notes that the sizes of cells may be changed, (see id. at 3:21-22), there can be no assumption that all cells are the same size. Consequently, there is no way to ensure that the area of the partition is "proportional to the area of the cells included in it" without, in fact, measuring the size of the partition by reference to the area of the cells. Consequently, Synopsys's proposed construction of "partition size" as being measured by either the "number of cells in a partition or the total area of cells in a partition" is supported by the specification and the Court will adopt that construction.

With respect to "convergence criterion," the specification states that, in the preferred embodiment, "convergence" is reached once the partitions reach a specified size. (See id. at 3:54-55.) Thus, in that example, the "convergence criterion" is the specified size of the partitions. In the preferred embodiment, the purpose of the "convergence criterion" is to determine when to perform "the detailed placement and route process . . . to complete the physical layout," (see id. at 3:59-61); the specification notes, however, that the invention "can be applied to any one of several phases associated with the physical route and placement of an IC design," (see id. at 3:8-10). Thus, it is clear that "convergence criterion" is not limited to the specific example discussed in the specification, and no party argues for such a limitation.

The example in the specification suggests, nonetheless, that the convergence criterion is intended to be a condition which,
when achieved, triggers the next step in the process. In the example set forth in the specification, once the steps of (1) "cell separation," (2) "tweak[ing]" the netlist, (3) "changing the spacings," and (4) "partitioning" the cells, are completed, "a determination is made as to whether the current placement has successfully converged," i.e., whether the partitions have reached the desired size. (See id. at 3:14-55.) If so, "the detailed placement and route process is performed to complete the physical layout"; if not, the first four steps are repeated until the partitions reach the desired size, i.e., the "convergence criterion." (See id. at 3:57-61.)

Magma argues that the term "convergence criterion" can only apply to an iterative process, i.e., a process that repeats until a desired result is reached. Magma's expert, Majid Sarrafzadeh, Ph.D. ("Dr. Sarrafzadeh"), attests that "the phrase 'convergence criteria' . . . necessarily refers to an iterative process" and not to a "direct process that is designed to solve the problem in one pass (i.e., in a known number of steps)." (See Sarrafzadeh Decl. PP 21-22.) Dr. Sarrafzadeh characterizes "optimization methods," such as the process of "arranging transistors in a computer chip so that the resulting layout occupies the smallest area and uses the smallest number of components," as either "direct" or "iterative." (See id. at PP 17-18.) According to Dr. Sarrafzadeh, "direct" methods are those that "produce an answer in a fixed number of computational steps," while "iterative" methods are those that "produce a sequence of approximate answers, designed to converge ever closer to an optimal solution under the proper conditions." (See id. at P 18.) An "iterative process," Dr. Sarrafzadeh attests, consists of "a sequence of steps that is repeated, or iterated, until some specified result is achieved." (See id. at P 20.) Dr. Sarrafzadeh further attests that the "rate at which an iterative process gets closer to the desired end result is called the 'convergence rate'". (See id. P 20.) Where iterative processes are used to address complex problems, Dr. Sarrafzadeh attests, there is no guarantee that the optimal point will be found in an acceptable amount of time; consequently, a "termination constraint" or "convergence criterion" must be set so that the process "will terminate when it generates an intermediate result that is close enough to the optimal point." (See id.)

According to Dr. Sarrafzadeh, a "direct process," by contrast, "does not make small improvements to the answer gradually with the goal of converging on the desired result." (See id. P 22.) Rather, Dr. Sarrafzadeh attests, a "direct process is designed to run through a known set of steps once and produce the result generated at the end of the entire process" and "[o]nly at the end of execution of the algorithm can the output be realized." (See id. P 22.) Thus, in Dr. Sarrafzadeh's opinion, "there can be no concept of establishing criteria to identify when an intermediate result has come close enough to the desired result so that the process should be terminated" and "there is no concept of convergence criteria for a direct or non-iterative process." (See id. P 23.) Further, according to Dr. Sarrafzadeh, "a person of ordinary skill in the art would have used the term 'convergence' only to refer to an iterative method, and the term 'convergence criteria' to refer to conditions for terminating an iterative process." (See id. P 29.) Dr. Sarrafzadeh notes that the "Summary of the Invention" section of the '114 patent expressly states that "[a] number of iterations of cell separation, synthesis of new netlist, size adjustment (if necessary), spacing, and partitioning are performed until the cells converge." (See '114 Patent at 2:25-28.) The specification, Dr. Sarrafzadeh notes, also describes the act of partitioning as an iterative process:

The cells are partitioned first into two groups, then into four, then into eight, and so on, until there are only a few cells in each group . . . If each of these partitions . . . is small enough to meet a particular criteria set by the user, convergence is declared.

(See id. at 4:41-43, 4:52-53.) Dr. Sarrafzadeh thus concludes that the "convergence criteria" must be defined as referring to "conditions for terminating an iterative process." (See Sarrafzadeh Decl. P 29.)

Synopsys's expert, Dr. Harris, recognizes that the inventors of the '114 patent explained to the PTO that the significance of their invention was that "the overall number of iterations required for the design of integrated circuits is minimized." (See Harris Decl. P 125 and Ex. Y at 6.) Dr. Harris argues, however, that there is no requirement in the '114 patent that the iterative process described in the '114 patent be performed more than once because, ideally, if the convergence criterion is met after the first iteration, there is no need to repeat the process. (See id. PP 126-128.) Although the Court agrees that there is no requirement that the process actually repeat before the convergence criterion is met, the process itself is still iterative in that it is designed to repeat until the convergence criterion is met. (See, e.g., '114 Patent at 3:57-58 ("If convergence has not been reached, steps 103-106 are repeated.").)

For the reasons set forth above, the Court will adopt Synopsys's proposed construction of "partition size" and Magma's proposed construction of "convergence criterion." Accordingly, the Court will construe "convergence criterion based upon a partition size" as "condition for terminating an iterative process based on the number of cells contained in a partition or the
total area of cells in a partition." For clarity, the Court will define "iterative process" as "a sequence of steps that is intended to be repeated until some specified result is achieved." (See Harris Decl. P 104; Sarrafzadeh Decl. P 20.)

1. The Term "Conversation Set"

The "Uniform Control Template Generating System and Method for Process Control Programming" relates to process monitoring and control systems in the automation of industrial processes. The control system provides multiple "views" by which employees at different stations along the process monitoring path, and having different assignments within an industrial plant, may monitor assigned aspects of a particular process. The system also permits employees at the various assigned stations to adjust the industrial process peculiar to their needs through local interaction.

Fisher-Rosemount has submitted a glossary listing proposed construction of various terms. One of the terms that appears in its glossary and that is used in both the dependent claims and the independent claims is the term "conversation-set." Claims 40 and 41 do not contain the "conversation-set" limitation and are not addressed in this discussion. The sole term for which significant dispute remains between the parties then is the term "conversation-set". As observed earlier, CSI does not dispute that other proposed constructions in the '858 patent glossary are based on the usage of the terms consistent with the claims.

Each independent claim describes the role of "conversation-set" as follows:

A 'conversation-set' associated with the process control function information and the attribute information which enables a user to interact with the attribute information in a manner specified by a selected control template view.

The specification describes "conversation-set" as defining the " . . . users interactions . . . [that] include definitions of soft keys, windows, fields, and the like, which enable the user to communicate with the template and insert new attribute values or modify old ones in the function." Fisher-Rosemount argues that the correct construction of "conversation-set" is "a system's interaction with a user" whereby the "conversation-set" defines and structures that interaction in a manner such as a dialog." See [Expert Report, Prof. Thomas Edgar]. Professor Edgar limits "conversation-set" to interactions associated with a process control function that affect all screen display views of the process control function. He goes on to describe "conversation-set" as dynamic and, therefore, customized so that it associates with customized control templates. Hence, the process monitoring and control system operates from a "plurality of conversation-sets."

CSI presents two contentions in rebuttal to Fisher-Rosemount's claim that '858 patent invents something new. First, CSI asserts that a number of disclosures in the prior art disclose "conversations" and "conversation-set" because the prior art discloses both the "dialog box" for user interaction and the structured interaction. CSI cites prior disclosures, such as the X11 and Windows 3.0 as examples of concepts that are well understood by one of ordinary skill in the art and that they were understood as such at the time that Fisher-Rosemount filed the '858 patent.

As its second assertion, CSI argues that the term "conversation-set" is not amenable to a proper construction. Therefore, CSI argues that because the term is not amenable to construction, it is hopelessly indefinite and fails due to the "law of indefiniteness." To demonstrate its indefiniteness claim, CSI questioned several of Fisher-Rosemount's witnesses concerning whether they understood the term "conversation-set." In all instances, CSI contends it was told that the term or related terms have no meaning that is attributed to them.

Professor Ananth Grama, CSI's expert, offered his opinion that "a "conversation-set" was a structured, user interaction with a control system with the objective of manipulating attribute information. Further, he opined that this method of interaction is consistent with the specification associated with the selected control template view." Based on this testimony, Fisher-Rosemount argues that Professor Grama's opinion is consistent with that of Professor Edgar's and represents a proper construction of the term, albeit a more limited construction. The evidence further shows that Professor Grama would limit the field of "persons of ordinary skill in the art" to those who also have a degree in Computer Science because the '858 patent deals with software development.

(2) Conclusion -- "Conversation Set" '858 Patent
The Court is of the opinion that CSI's claim of indefiniteness fails. As a first point, the Court returns to Professor Grama's opinion concerning the meaning of the term "conversation-set." Professor Grama's argument is clear, "conversation-set" is associated with the data type(s) that insure that attribute information (data) is manipulated in particular ways. For example, a real value attribute is never assigned a Boolean value. Nor are pre-specified bounds of a real value exceeded. Hence, the Court concludes that CSI's assertion, that the term "conversation-set" is insolubly ambiguous and not amenable to construction, fails. CSI's indefiniteness argument also fails because the inventor assigned a meaning to the term "conversation-set" that governs. See Phillips, 415 F.3d at 1316. Moreover, that assigned meaning is consistent with its use in the specification. See Ballard Med. Prods., 268 F.3d at 1359.

CSI's assertion that the '858 patent fails to invent, because the term "conversation-set" is disclosed in the prior art also fails. CSI argues that because both the use of the dialog box for user interaction and the structured interaction are disclosed nothing new is invented. In its papers, CSI and Professor Grama reference the disclosure of the X11 and Windows 3.0, as examples. These examples do not advance their argument because XII and Windows 3.0 are associated with software programs for functions unrelated to a "control system" associated with the automation of an industrial process. Without doubt, the invention uses the science of the computerized system that uses control templates or screens so that functions and alterations may be viewed. However, the '858 patent does not seek to invent a computerized system. Instead, it utilizes a computerized system to invent a "process control system."

There is yet another reason that the term "conversation-set" is not disclosed by the prior art. CSI's expert, Professor Grama testified that it is not disclosed. Specifically, he testified that the term "conversation-set" "is not defined in prior art and is not understood by one of ordinary skill." He then goes on, in his testimony, to define the term, with limited exception(s), consistent with the definition adopted by Professor Edgar's.

Finally, the evidence proffered by Fisher-Rosemount reveals that during the prosecution, the patent examiner and the inventor discussed the term "conversation-set." In this interview, the summary documents of the patent prosecution reveal the following comment from the patent examiner:

Inventor discussed the conversation set feature in detail, and Examiner agreed that said feature, along with the automatic generation of control templates, appears novel.

There is no separate evidence proffered by CSI that the claim term is ambiguous or indefinite, therefore, the Court concludes that no factual ambiguity exists. Markman, 52 F.3d at 986. The Court, therefore, adopts the construction proposed by Fisher-Rosemount and defines the term "conversation-set" as a system's interaction with a user which exchange defines and structures that interaction in a manner such as a dialog box.
that the district court ever explicitly construed this limitation. The court did conclude, however, that a MONSTR STR was a type of conversation. See Action Techs., 1997 WL 337577, at *4. The court reasoned that an STR conversation consisted of an exchange of communications regarding a particular software problem and that the course of the STR conversation was governed by a protocol. See id.

In challenging the district court's ruling, Action Tech argues that the term "type," as used in the '603 patent, refers only to the universally-applicable, generic categories of conversation types described in the patent's specification: conversations for action (CFA), and conversations for possibilities (CFP). See '603 patent, col. 7, l. 47 to col. 8, l. 33. According to Action Tech, the invention of the '603 patent requires a system that "structures communications according to generic conversation types regardless of specific subject matter." Action Tech asserts that this limitation is not met in MONSTR because MONSTR does not use either a CFA or a CFP conversation type. Novell responds that the patent does not attach any special meaning to the term "type" and that the ordinary meaning of the term therefore should apply. Thus, Novell contends, MONSTR anticipates claim 1 because it embodies a type of conversation.

The specification does provide support for the argument that the disclosed system uses the two generic conversation types. See '603 patent, col. 3, ll. 59-62 (noting that the invention performs the step of "defining all communications between a set of participants as moves in conversations for declaring specific realizable possibilities or as moves in conversations for producing actions to complete specific possibilities."). However, claim terms are generally given their ordinary meaning unless it appears from the specification or file prosecution history that they were used differently by the inventor. See Carroll Touch, Inc. v. Electro Mechanical Sys., Inc., 15 F.3d 1573, 1577, 27 U.S.P.Q.2D (BNA) 1836, 1840 (Fed. Cir. 1993). When an inventor chooses to give terms an uncommon meaning, he must set out his specialized definition in a manner sufficient to give one of ordinary skill in the art notice of the uncommon meaning. See Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387-88, 21 U.S.P.Q.2D (BNA) 1383, 1386 (Fed. Cir. 1992). The specification for the '603 patent does not indicate that the term "type" is limited to only CFA and CFP. Indeed, the specification refutes Action Tech's argument when it states:

The method of this invention contemplates general purpose embodiments which involve standard sets of permitted moves and special purpose embodiments in which customized sets of permitted moves are defined to achieve special purpose conversations within a particular organization.

'603 patent, col. 9, ll. 51-56. Moreover, it is improper to import an extraneous limitation from the specification into the claim. See E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 U.S.P.Q.2D (BNA) 1129, 1131 (Fed. Cir. 1988). In our view, "type" should be given its ordinary meaning, which is "a kind, class, or group having distinguishing characteristics in common." Webster's New World Dictionary 1446 (3d College ed. 1994). Accordingly, we construe the term "conversation type" in claim 1 to mean an exchange of communications possessing a shared set of distinguishing characteristics.

In view of the above claim construction, no reasonable juror could conclude that an STR in MONSTR was not a "conversation type." Each STR concerns software bugs and each STR is governed by the same protocol. All STR conversations share these same distinguishing characteristics, and therefore, an STR conversation is a conversation type.

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6. The '141 Patent

United States Patent No. 5,970,141 is a continuation of the '245 and '704 patents; broadly speaking, the patent discloses a means for converting words into text. The parties' disagreement on this patent concerns claims 4 and 6, which depend from claim 1. The relevant claims read as follows:

1. A transcription network utilized during a testimonial proceeding, the transcription network comprising:

   an attorney terminal;

   a converter assisting in the conversion of spoken words to text;
a remote terminal disposed at a location remote from the attorney terminal and the converter;
the converter delivering the text to the attorney terminal and to the remote terminal for real time display; and
the remote terminal supporting communication of messages regarding the real time display to the attorney terminal.

* * *

4. The transcription network of claim 1 wherein the messages are associated with portions of the text.

* * *

6. The transcription network of claim 1 further comprising an additional terminal communicatively coupled to the converter but not communicatively coupled to attorney terminal.


The parties dispute the meaning of the word "converter." Engate contends that converter can mean anything used by the CAT system to convert digital coded signals representative of verbal communications to alphabetic and numeric text. The defendants, on the other hand, contend that converter means "voice recognition software and/or hardware in the form of an A/D converter board run on a computer and connected to a microphone." Defendants' Brief, p. 15. Construing these claims to read on a network wherein the converter is a stenographic system, the defendants argue, would render claim 8 redundant. Claim 8 reads as follows:

8. A transcription network utilized during a testimonial proceeding, the transcription network comprising:

an attorney terminal;

a stenographic system assisting in the conversion of spoken words to text and in the characterization of at least portions of the text as questions and answers;

a remote terminal disposed at a location remote from the attorney terminal and the stenographic system;

at least one communication link; and

the stenographic system delivering the text for real time display at the attorney terminal and at the remote terminal via the at least one communication link.

U.S. Patent No. 5,970,141, col. 32, lines 6-17.

Even if the Court were to agree that defining "converter" to include a stenographic system renders this claim redundant -- and the additional elements of claim 8 suggest that this may not necessarily be the case -- this argument would not justify limiting "converter" to voice recognition software and hardware; at best, under defendants' theory, the word converter should be construed to mean anything, other than a stenographic system, that converts signals to text.

The defendants argue that because the specification uses "converter" to mean only voice recognition software, we should limit the term to that meaning; at the January 3 hearing they cited Scimed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337 (Fed. Cir. 2001), to support their position. The cases coming out of the Federal Circuit instruct that we must construe claims in light of the specification, but that we must never read limitations from the specification into the claims. See Advanced Cardiovascular Systems, Inc. v. Scimed Life Systems, Inc., 261 F.3d 1329, 1338 (2001). "It is the claims that measure the invention." SRI International, 775 F.2d at 1121 (emphasis in original). In Scimed, the case cited by the defendants, the court limited the claims of the patent-in-suit because the language of the specification expressly disavowed a broader interpretation: the court held that the claims read only on catheters having coaxial -- as opposed to dual -- lumens not only because those were the only lumens mentioned in the specification, but also because the patents
distinguished the prior art on the basis of the lumen type, and the specification expressly stated that the description governed "all embodiments of the present invention contemplated and disclosed herein . . . ." Scimed, 242 F.3d at 1343-44. In other words, the patentee in Scimed "clearly disclaimed subject matter that, absent the disclaimer, could have been considered to fall within the scope of the claim language." Id. at 1344. That is not the case here. It is true that, for the most part, the specification addresses an embodiment where the "converter" is the stenographic system. And the one alternative embodiment discussed is a setup where the "converter" involves voice recognition software. But the patentee did not limit the patented invention to those embodiments; on the contrary, the patentee stated that the voice recognition setup is "an alternate embodiment" -- not the alternate embodiment. U.S. Patent No. 5,970,141, col. 7, line 49. And, in marked contrast to the Scimed patent, the '141 patent wraps up with a statement that additional embodiments are not disclaimed: "Additionally, it is obvious that the embodiments of the present invention described hereinabove are merely illustrative and that other modifications and adaptations may be made without departing from the scope of the appended claims." Id., col. 31, lines 36-40. In short, the '141 patent did not expressly disclaim converters other than voice recognition software, and reading such a limitation into the claim would violate basic claim construction principles. Accordingly, we adopt Engate's construction of the "converter" element as used in claim 1 and dependent claims 4 and 6.

4. "converter for converting"

<table>
<thead>
<tr>
<th>Wi-LAN's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>converter: &quot;a device that accepts data in one form or mode and changes it to another&quot; 35 U.S.C. § 112(6).</td>
<td>This element should be construed in accordance with</td>
</tr>
<tr>
<td>Alternatively, should the Court construe this element pursuant to 35 U.S.C. § 112(6):</td>
<td>Agreed Function: &quot;converting the first stream of data symbols into plural sets of N data symbols each&quot;</td>
</tr>
<tr>
<td>Agreed Function: &quot;converting the first stream of data symbols into plural sets of N data symbols each&quot;</td>
<td>Structure: Fig. 1 (item 10), Fig. 4 (item 10), and col. 4:1-2</td>
</tr>
<tr>
<td>Structure: i) element 10 in Fig. 1 including corresponding descriptions in the specification (col. 4:1-2 and 2:36-40); ii) element 10 in Fig. 4 including corresponding descriptions in the specification (col. 4:1-2 and 2:58-62); and equivalents thereof.</td>
<td></td>
</tr>
</tbody>
</table>

The parties dispute whether the "converter" terms should be construed under 35 U.S.C. § 112 P 6, and if so, further dispute the corresponding structure. The Court finds that, because the claim element "converter for converting..." does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the Defendants have not met their burden to rebut the presumption. One of ordinary skill in the art would understand the term "converter" to recite sufficient structure and to have a reasonably well understood meaning. The term is not "simply a nonce word or a verbal construct that is not recognized as the name of structure." See Lighting World, 382 F.3d at 1359-60. The specification of the '802 patent describes the capabilities and uses of the converter. See '802 patent, 4:1-2; see also FIG. 1 (item 10). Wi-LAN has presented dictionary definitions for the term "converter" to mean "a device that accepts data in one form and converts it to another" and "a device capable of converter impulses from one mode to another, such as analog to digital, parallel to serial, or from one code to another." Consistent with these dictionary definitions, the Court finds that a person of ordinary skill understands that a "converter" has a generally understood structural meaning that, in general, means a device that accepts data in one form or mode and changes it to another. The claims expressly require that the converter convert a stream of data symbols into plural sets of data symbols. Consistent with the claims, Figure 1 of the '802
patent shows that the converter is a serial-to-parallel converter. The Court notes that the Defendants have not provided an alternative construction, and have not argued against Wi-LAN's proposed construction, if the term is not construed under § 112, P 6. Thus, the Court construes the term "converter" to mean "a device that accepts data symbols in one form or mode and changes the data symbols to another form or mode."

B. Converter Means

Converter means for converting includes any firmware, software, and/or hardware that functions to carry complimentary color control signals.

D. Converting

The term "converting" appears in claims 40 and 42. The use of the term in both claims is similar. Claim 40 reads: "Apparatus for producing a speech message comprising: … means for converting the plurality of pulse amplitude and location codes of said time interval into a signal representative of the excitation of the time interval portion of said speech message." ( '580 patent, Col. 23:25-26, 23:37-24:2) (emphasis added.) Claim 42 reads: "A method for producing a speech message comprising the steps of: … converting the plurality of pulse amplitude and location codes of said time interval into a signal representative of the excitation of the time interval portion of said speech message." ( '580 patent, Col. 24:13-15, 24:25-28) (emphasis added.) Microsoft proposes the definition "changing without the use of other values (such as 'pitch period' signals)," while AT&T argues the definition should read "changing or turning one thing into another." (Joint Letter, Ex. B.) In its Post-Hearing Brief, Microsoft also accepts the definition, "changing one thing into another without the use of other values (such as 'pitch period signals')." (Microsoft PHB at 15; Tr. at 127.)

The parties generally agree on the plain meaning of "converting," (Tr. at 123, 127; AT&T PHB at 14), but differ as to whether the term should include the limiting language "without the use of other values," as further elucidation of the word "changing." (Tr. at 128.) The parties agree that the plain meaning of "converting" to a lay person is "changing or turning one thing into another." (Tr. at 127-128.)

Webster's Dictionary defines "convert" as "to change or turn from one state to another; alter in form, substance, or quality." Webster's Third New Int'l Dictionary of the English Language Unabridged at 499 (G.&C. Merriam Co. 1981). Microsoft also cites to the technical dictionary definition of "convert" --"to transform the representation of data," and "converter" to mean one that "changes numerical formation from one form to another, as from decimal to binary …. " McGraw-Hill Dictionary of Scientific and Technical Terms at 360, 364 (3rd ed. McGraw-Hill, Inc. 1984).

This Court construes "converting" to mean "changing one thing into another." This definition to one skilled in the art is consistent with that term's use in claims 40 and 42, as well as in the specification, and coincides with both the technical and lay dictionary definitions. First, in one embodiment the specification describes that the speech signal from the microphone is "converted into a sequence of pulse samples in filter and sampler circuit 113." ( '580 patent, Col. 3:23-3:25.) See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1340-41 (Fed. Cir. 2001) (claims must be read in light of the specification); ATD Corp. v. Lydall, Inc., 159 F.3d 534, 540 (Fed. Cir. 1990) (same). "Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition." Johnson Worldwide, 175 F.3d at 991 (citing Enercon GmbH v. Int'l Trade Comm'n, 151 F.3d 1376, 1385 (Fed. Cir. 1998)). The specification's use of "converted" relates to converting speech signals into speech samples, which is varied from the use of "converting" in claims 40 and 42. Accordingly, the Court declines to apply a narrow scope to the claim term. Johnson Worldwide, 175 F.3d at 991.

Second, both dictionary definitions are consistent with each other and the plain language of the claims. See Texas Digital Sys., 308 F.3d 1203. The technical and lay definitions both contemplate "converting" as a change from one form into
another, thus the Court's definition incorporates the plain meaning of the word as one skilled in the art would understand it as well.

Third, this Court recognizes the heavy presumption that the ordinary meaning of claim terms must apply. Pourchez, 2003 U.S. Dist. LEXIS 7934, 2003 WL 21220791, at *2 (citing cases); see also Inverness Med. Switzerland, 309 F.3d at 1369 ("It is well settled that dictionaries provide evidence of a claim term's 'ordinary meaning'.") (citations omitted). Microsoft's proposed language appears nowhere in the claims or in the specification, and thus will not be incorporated into the construction of the claim term. See Altiris, 318 F.3d at 1369-71; see also Pourchez, 2003 U.S. Dist. LEXIS 7934, 2003 WL 21220791, at *9 (declining to import party's limiting language that was unsupported by intrinsic evidence). Additionally, there are neither: (1) expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope, in the intrinsic evidence; nor (2) any evidence that the patentees acted as their own lexicographers and used this claim term in a manner other than its ordinary meaning. See Inverness Med. Switzerland, 309 F.3d at 1372.

The Court declines to further limit the construction of the term with Microsoft's proposed parenthetical "such as 'pitch period' signals." Microsoft argues that this limitation is derived from the prosecution history (Pros Hist. at 110-11), which provides a disclaimer of the claim's scope. The cited prosecution history, however, does not address the term "converting" or any converting steps. See Inverness Med. Switzerland, 309 F.3d at 1372 (finding no clear and ambiguous disclaimer of broader definition of claim term). Even assuming arguendo that the prosecution history contains a disavowal by the patentees, the patentee's Office Action response concerning original claims 1-39 cannot rise to the level of a disavowal of claim scope with respect to the term "converting," which only appears in reissue claims 40 and 42. See Laitram, 143 F.3d at 1460 n.3.

8. Converting Data Relating to a Selected Matching Item And An Associated Source To Data Relating To An Item And A Different Source

'683 Patent, Claims 28, 29

According to ePlus, this term does not need construction, but, if construed, should mean: a process of cross-referencing data relating to a selected matching item and an associated source to an item and a different source. Lawson proposes that the term mean: substituting a catalog entry related to a product with a catalog entry describing the product from a different source by using matching codes in a cross-reference table for sourcing and pricing.

a. Words of the Claim

Claim 28 of the '683 Patent claims a method comprising the steps:

    maintaining at least two product catalogs in a database containing data relating to items associated with the respective sources;

    selecting the product catalogs to search;

    searching for matching items among the selected product catalogs;

    building a requisition using data relating to selected matching items and their associated source(s);

    processing the requisition to generate one or more purchase orders for the selected matching items; and

    converting data relating to a selected matching item and an associated source to data relating to an item and a different source.

b. Specification

The most significant disagreement between the parties is whether the term "converting" means "cross-referencing" or "substituting." The specification provides that "an entry in a an inventory-sourced Requisition Management screen may indicate for a requisitioned item a vendor and vendor catalog number that has been changed, from what was obtained from a catalog search, to a corresponding vendor and vendor catalog number for that item from another source." '683 Patent at 14:38-44 (emphasis added). Appendix X provides an example of a part that is replaced by a corresponding part. The specification describes the Appendix message which "indicate[s] that a part number for line 001, identified as part number 53610, was successfully added in substitution for a prior part number…These messages were generated because the originally entered part ($100-06) did not exist in the Fisher catalog, but its corresponding part number…did exist in that other catalog." Id. at 16:19-27 (emphasis added). Thus, the specification provides support for Lawson's assertion that converting means substituting.

c. Prosecution History

The prosecution history states that the applicant clarified the claims that contain the "converting" step and the "amended language properly claims identical matching items from different sources, as well as a suitable replacement for the selected matching item." (Def. Ex. K at 14 (emphasis added).) This too supports Lawson's assertion that converting requires substitution with a suitable replacement.

d. Proper Construction

The specification and prosecution history demonstrate that "converting" means "substituting." Additionally, the word "convert" is defined as (1) to change from one form or function to another, (2) to alter for more effective utilization and (3) to exchange for an equivalent. Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/convert, last visited April 7, 2010. Cross-referencing simply cannot accomplish conversion, as it is ordinarily defined, and is an inadequate construct of the claim term.

Finally, while Lawson is correct that "converting" requires more than mere "cross-referencing," it offers no support for its contention that conversion is accomplished using "catalog entries," "matching codes," or that the cross-reference table used is "for sourcing and pricing." Thus, this claim term means: "substituting data relating to a selected matching item and an associated source to data relating to an item and a different source."

B. "Converting said set of three dimensional coordinates into a set of two dimensional positions"

Claim 1 of the 406 patent claims:

A method of adding a graphic to a video representation of an environment, said method comprising the steps of:

(a) determining a set of three dimensional coordinates using information identifying a position in said environment and a three dimensional model of at least a portion of said environment, wherein said set of three dimensional coordinates corresponds to said position and includes at least one three dimensional coordinate not listed in said information;

(b) converting said set of three dimensional coordinates into a set of two dimensional positions in said video representation; and

(c) enhancing said video representation with said graphic in an area based on said set of two dimensional positions.

Sportvision contends the phrase should be construed as: "Mathematically converting the set of three data values that together identify a location into a set of two data values that together identify a position." (Sportvision's Memo at 19.)

SportsMEDIA proposes: "Mathematically converting the set of three dimensional real world space coordinates (x, y, z) into
The Court construes this phrase to mean: "Mathematically converting the set of three-dimensional coordinates (x, y, z) into a set of two-dimensional positions. The two-dimensional positions have x and y coordinates."

D. Construction of "converts the access as required for the register set and address assignment of the device."

The term at issue appears in Claim 1 as follows:

a UART emulation which in response to an access by the procedure for accessing the register set of a UART, converts the access as required for the register set and address assignment of the device

PCTEL submits that the term means, "converts the request for data from a hardware UART to a request for data from the register set and address assignment of the device." Agere contends that the term means, "chooses between accessing the registers of a hardware UART or the corresponding registers in the computer's memory."

According to PCTEL, the essence of the 305 patent is the translation of requests for data from the operating system, which is expecting a hardware UART to be present, to that of a non-UART device which is actually present. PCTEL argues that Agere's construction unduly limits the invention to systems which have a component which chooses between accessing the hardware UART registers and registers in the computer's memory. PCTEL points out that the presence of a hardware UART is optional according to the specification, thus undermining Agere's requirement that there be a component which makes such a choice. n9

n9 "Optionally, the system includes a standard device having a UART coupled to an I/O slot corresponding to a second COM port, and the COM driver contains routines for accessing the standard device." 305 Patent at 2:31-34.

PCTEL also cites the preferred embodiment, which, it argues, describes an invention closely aligned with its construction. The preferred embodiment describes a system which accesses storage in the computer's main memory in response to the operating system's request for UART data. n10 The system may have to translate the request for the particular device that is present, since each device might have its own special set of commands. According to PCTEL, the "as required" language refers to this conversion. Additionally, PCTEL argues that Agere's construction impermissibly limits the 305 invention to that which is described in the preferred embodiment section of the specification.

n10 "In one embodiment of the invention, a computer system includes a non-standard device and a COM driver for the non-standard device. The non-standard device connects to an I/O slot corresponding to a first COM port but has a register set which differs from the standard register set for a UART. The COM driver contains: a UART emulation which in response a procedure requesting access to a register of a UART at the first COM port, instead accesses storage locations in main memory of the computer system." 305 Patent, 2:20-8.
patent from the prior art by changing the words "UART emulation which . . . accesses storage locations in main memory" to the current language. Agere argues that reading the claims now to including accessing storage would expand the scope of the claim beyond what was disclaimed during the prosecution process. Finally, Agere argues that the phrase "request for data" in PCTEL's proposed construction involves a broader concept than the word "access" found in the claim terms, and would similarly enlarge the scope of the claim.

From the specification, it is clear that the system claimed by the 305 patent performs translation for non-UART devices for operating systems which are expecting UART hardware. Generally speaking, PCTEL's construction is closer to the plain meaning of the claim terms in light of the specification. However, Agere's objection that the phrase "request for data" is too broad is persuasive. Accordingly, the clearest reading of the disputed term "converts the access as required for the register set and address assignment of the device" is "converts the request for accessing the register set and address assignment of a UART to a request for accessing the register set and address assignment of the device."

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"lexical co-occurrence" and "co-occurrence of words"

Claim 1 of the '819 Patent contains the term "lexical co-occurrence," and claims 1, 25, 27, 28, and 31 contain the term "co-occurrence of words." The parties disagree as to whether the term "lexical co-occurrence," located in the preamble to claim 1, is a limitation and thus, requires construction. A preamble is limiting if it includes the "essence of the invention," Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339, 1345 (Fed. Cir. 2003), or if it is necessary to "give life, meaning, and vitality" to the claim, Intirtool, Ltd. v. Texar Corp., 369 F.3d 1289, 1295-96 (Fed. Cir. 2004). The preamble specifies that the method of generating a thesaurus of words vectors is "based on lexical co-occurrence of words within documents." '819 Patent, col. 24:39-40. In addition, the specification indicates that "the invention determines the co-occurrence patterns of words in a document to form a thesaurus of word vectors." '819 Patent, col. 1:10-12. Accordingly, the term "lexical co-occurrence" gives life, meaning, and vitality to the body of the claim by describing how the "thesaurus" is generated and thus, is a limitation.

The parties agree that the terms "lexical co-occurrence" and "co-occurrence of words" should be consolidated and construed consistently. IPI contends that the terms mean: "Two or more words or terms which appear in text within some distance of each other. Two terms lexically co-occur if they appear in text within some distance of each other." Google contends that the term means "the appearance of two words within a specified range of each other." Further, the parties' proposed constructions differ only in the phrasing of the "distance" language--IPI contends the words appear "within some distance of each other," while Google contends that the words appear "within a specified range of each other."

Google argues that IPI's proposed construction, although taken from the specification, omits a critical clause which highlights the requirement that the distance between words be a "specified range" or window of predetermined size of words: "Two terms lexically co-occur if they appear in text within some distance of each other, i.e., a window of k words." '819 Patent, col. 4:29-31. IPI argues that "[t]he distance between the two words can, but need not, be a specified range of words." In support of its argument, IPI cites to Dimensions of Meaning, where the inventor stated that "co-occurrence can be defined with respect to window of a given size or on the basis of sentence boundaries." IPI's Opening Brief, Exhibit C, at 787, § 1, col. 2. In addition, IPI argues that Google's proposed construction reads in limitations from a claim 1 limitation, which states "recording a number of times a co-occurring word co-occurs in a same document within a predetermined range of the retrieved word." '819 Patent, col. 24:45-47 (emphasis added). IPI reasons that the "predetermined range" limitation in claim 1 should not be read as a limitation because "[l]ogically, words could co-occur within some distance outside of the predetermined range," even though "[t]he claim governs which co-occurring words are recorded, i.e., those within a predetermined range." IPI's Reply Brief, at 4.

Google's use of the phrase "specified range" is overly limiting with respect to the specification's disclosure of "a window of k words." '819 Patent, col. 4:29-31. Moreover, while IPI's use of the phrase "within some distance of each other" does not adhere to the specification's disclosure of "a window of k words," the second sentence of IPI's proposed construction approximates the boundary of a window of words. However, IPI's proposed construction is unnecessarily verbose. Thus, the Court rejects both parties' proposed constructions and construes the terms "lexical co-occurrence" and "co-occurrence of words" to mean "two words that appear in text within some distance of each other."
1. "Cooperating with said first optical filter element so as to form a band-pass optical filtering system"

Said second optical filter element cooperating with said first optical filter element so as to form a bandpass optical filtering system having a narrow wavelength bandwidth positioned about said predetermined wavelength, and passing laser light reflected off said code symbol and having wavelengths only within said narrow wavelength bandwidth;

'359 Patent, col. 11, l. 1-8. The parties dispute whether either of the two filters of patents '359 and '731 may exist as a bandpass filter by itself before cooperating with the second filter, as plaintiff argues, or whether neither of the two filters may exist separately and apart from each other before the cooperation gives rise to a narrow bandpass filter, as defendant argues. Plaintiff Metrologic argues that the "cooperating . . . so as to form a band pass optical filtering system" term of Limitation 12 should be construed in the following way:

Cooperate here means that the net bandpass optical filtering system should be the combination or cooperation of the light transmission characteristics of the two spatially separated optical filtering elements. Further, this cooperation must result in a narrow bandpass optical filtering system.

Pl.'s '359 & '731 Markman Br. at 18. Thus, plaintiff advances the position that the two filters may consist of band-pass filters which can exist independently prior to cooperation.

Defendant argues that the second filter cannot be a bandpass filter before the cooperation with the first filter. Defendant PSC counters that the term

"Cooperating . . . so as to form a band pass optical filtering system" should be construed to mean that the first and second filters act together to give rise to a narrow bandpass filter. The two filters must cooperate to create a narrow bandpass filter, which does not exist before this cooperation occurs.

Def.'s '359 & '731 Br. Mot. Partial Summ. J. at 25. 7 Thus, defendant urges the Court to construe this limitation to mean that neither of the two components may act as a band-pass optical filter independently of the other, prior to the cooperation in forming the filter system. For the following reasons, the Court finds defendant's construction to be correct.

7 In the context of its summary judgment motion, defendant PSC contends that the Duet and VS800 devices contain an internal bandpass filter that is capable of existing with or without the first optical filter element (the window), and that the presence of the window has no practical effect on the operation of the internal bandpass filter. See Def.'s '359 & '731 Br. Mot. Partial Summ. J. at 36.

Looking at the claim language, the language of claim 1, as it relates to the filters that "cooperate," includes the following limitations which refer to the first and second optical filter elements: 8

[A] first optical filter element installed over said light transmission aperture disposed along a laser light return path extending through said light transmission aperture, and having wavelength-selective filtering characteristics in the visible band, said first optical filter element functioning as a scanning window in said compact housing, and preventing light having wavelengths up to slightly below a predetermined wavelength in said visible band from passing from the outside of said compact housing, through said scanning window, and into said compact housing; . . .

'359 Patent, col. 10, ll. 30-40. The claim additionally describes the second filtering element as:
[A] second optical filter element, spatially separated from said first optical filter element, disposed along said laser light return path between said first optical filter element and said laser light detection means, and having wavelength-selective filtering characteristics in said visible band. . . .

'359 Patent, col. 10, l. 64-col. 11, l. 12. The claim language provides for the first filter to prevent light having wavelengths up to a predetermined wavelength, which indicates that the first filter may be a band-pass filter which blocks out ambient light on only one side of the visible spectrum. That the second filter is spatially separated from the first filter and has wavelength-selective characteristics in the visible band is not determinative of the issue whether the two filters must cooperate together before they can form a narrow band-pass filter.

--- Footnotes ---

8 PSC has disputed neither plaintiff's claim construction of these limitations 2-4 and 10-11, nor that the accused devices meet this limitation.

--- End Footnotes ---

Turning to the claim's specification, and focusing on it within the context of the invention, the Summary of the Present Invention provides for the first optical filter to transmit only light having wavelengths from below a predetermined wavelength and greater, whereas the second element is capable of transmitting light having wavelength from slightly above a predetermined wavelength and below:

The first optical filter element is installed over the light transmission aperture of the scanner housing, and has wavelength selective properties which transmit only light having wavelengths from slightly below a predetermined wavelength in the visible band of the electromagnetic spectrum (e.g., slightly below 670 nanometers and greater). The second optical filter element is installed within the housing, . . . , and transmits only light having wavelengths from slightly above the predetermined wavelength (e.g., slightly above 670 nanometers and greater [sic]). Collectively, the first and second optical filter elements cooperate to form a narrow wavelength band-pass filtering system centered about the predetermined wavelength . . . .


Other parts of the specification language also refer to the ability of the first filter element transmitting wavelengths of only slightly below 670 nanometers and greater, and the ability of the second filter element to transmit only wavelengths only slightly above 670 nanometers and below, to cooperate to form a narrow wavelength band-pass filtering system that rejects wavelengths outside this spectral band of scanned laser beam. Id. col. 3, ll. 25-35; id. col. 6, ll. 50-52; id. col. 8, ll. 49-53, id. col. 9, ll. 23-27.

Defendant relies upon Figure 3 of the patent, see '359 patent, Pl.'s App. Ex. 2, 9 which displays a transmission curve. This transmission curve, according to defendant, shows the cooperation between a high pass and a low pass filter. The graph indicates transmission of wavelengths of a high pass and low pass filter separate and apart from the combination of the two filters. The specification states that the graph is a schematic representation graphically illustrating how the spectral transmission characteristics of these spatially-separated optical filter system elements cooperate to produce a narrow-band optical filter system centered about the characteristic wavelength of the visible laser scanning beam. '359 Patent, col. 4, ll. 9-16. The description provided here, as in the other language of the specification, supports PSC's construction that the two filters are not each a band-pass filter, but that the two filters are comprised of a high pass filter and a low pass filter, centered about a predetermined wavelength near a predetermined wavelength, each filter filtering out light of wavelengths on either side of the spectrum.

--- Footnotes ---

9 This graphic was referred to earlier as Pl.'s Markman Hrg. Ex. 1 (attached hereto as Appendix E).

--- End Footnotes ---
Consideration of the prior art supports the conclusion that neither of the two filters is a band-pass filter independently. Defendant PSC argues that the references to the internal one-piece band-pass filter throughout the specification of the patents is clear acknowledgment of the prior art, and that the patent cannot be construed so broadly as to encompass this disclosed prior art, citing to Wang Lab., Inc. v. America Online, Inc., 197 F.3d 1377 at 1382 (1999) (concluding that references to prior art was not considered an enlargement of the patent's invention). Here, the specification repeatedly contrasts the combination of the first and second filter elements, in the present invention, from the system used in prior art devices, emphasizing the "novel laser scanner construction" in which the second filter element is spatially separated from the larger first filter element, which is located at the light transmission aperture and is semi-transparent in order to hide the components from plain view. That the first filter transmits red light, at approximately 640 nanometers, allowing higher wavelength lights to pass through and thereby appearing red itself, supports this conclusion. Markman Hrg. Tr. 8/6/02, at 19. The specification refers to these two filter elements as an improvement upon the problems of prior art, in terms of manufacturability, and in terms of its ability to shield its components from plain view:

A further object of the present invention is to provide such a laser bar code symbol scanner, in which the wavelength selective components of the optical filter system are strategically installed in a spatially-separated manner in order to achieve improved scanner performance, appearance, and manufacturability, in a simple low-cost manner.

A further object of the present invention is to provide such a laser bar code symbol scanner in which the optical filtering system employed therein inherently hides from view, unappealing electro-optical components mounted within the laser scanning housing, while rejecting unwanted spectral noise outside the narrow spectral band of the laser scanning beam.

'359/’731 Patent, col. 2, ll. 45-56. Furthermore, the specification refers to the first filter, transmitting red light and light of higher wavelengths, and the second filter, referred to as "relatively small," as representing a "significant advance in the state of the art in laser scanner design and construction." '359/’731 Patent, col. 3, ll. 45-53. The continuous references to the invention as an improvement upon prior art devices in terms of manufacturability, and the spatial separation of the two filters, one of which is relatively smaller, the other which hides internal components from view due to its transmission of wavelengths of red light, support the construction that neither of the two filters is independently a band-pass filter that encompasses the characteristics of both a high-pass and a low-pass filter.

The prosecution history supports the finding that the limitation of this scope refers to filters with the selective wavelength capability, and that each is not a one-piece internal band-pass filter. The Supplemental Preliminary Amendment refers to the "simple and inexpensive" way of making a laser bar code scanner that resolves some of the problems encountered by prior art devices. See Supp. Prelim. Amendment, Palmer Decl., Pl.'s ’359/’731 Br. Ex. K, at 1, 20. The Response to Office Action and Amendment also refers to an interview with inventors Thomas Amundsen and George Rockstein, who "demonstrated how the laser scanning system of the claimed invention effectively solves such problems in an inexpensive manner." Resp. to Office Action & Amendment, Palmer Decl., Pl.'s ’359/’731 Br. Ex. K, at 1, 4-5. The two amendments thus refer to the improved cost of manufacturability of the patent, compared to the prior art devices which encountered high costs due to the singularity of the internal band-pass filter pieces. It can again be inferred that the purpose of the invention is to combat previous problems with prior art devices, which utilized the more expensive one-piece filter system design.

In conclusion, the specification language throughout the patent indicates that each of the two filters covers only part of the visual spectrum of colors, either just under and greater than 670 nanometers, or just above and less than 670 nanometers. Nowhere in the specification does the language discuss the ability of either filter component to block out ambient light measuring both above and below the 670 nanometer range. The specification readily distinguishes plaintiff's invention from internal band-pass filters of prior art devices in discussing the patent's novelty and in its overcoming the problems of laser scanners with its aesthetic appearance and the invention's use of the first optical filter element which is in the form of a red window.

This case does not resemble one in which the parties dispute the meaning of a term. Rather, this case involves the imputation of a requirement upon the terms of the claim. Much like Bell Atlantic, which construed the term "mode" to refer only to three possible modes as referred to throughout the specification, the patentee has defined the term "by implication, through the term's consistent use throughout the [] patent specification." Bell Atlantic Network Servs., Inc. v. Covad Communications Group, 262 F.3d 1258, 1273 (Fed. Cir. 2001) (citing Vitronics, 90 F.3d at 1582). The consistent use of the two filter elements as pertaining to filters with the capability of transmitting certain wavelengths of light, either above or
below the predetermined wavelength of the laser light, indicates that neither of these two elements constitutes an internal
band-pass filter that is capable of blocking out ambient light with wavelengths both above and below the predetermined
level. Plaintiff's novel invention of spatially-separated filters, which was meant to solve the problems encountered by one-
piece band-pass filters in the prior art, would be turned on its head if it were allowed to disregard the exact distinction it
meant to create by the novel invention presented in its patent. This Court recognizes that "there is sometimes 'a fine line
between reading a claim in light of the specification, and reading a limitation into the claim from the specification.'" Bell
Atlantic, 262 F.3d 1258, 1270 (Fed. Cir. 2001) (quoting Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187
(Fed. Cir. 1998)). However, in light of the consistent language of the claim and the specification, and the prosecution
history, indicating the intent of the patent holder to improve upon the poor manufacturability and transparency of the prior
art, the term "cooperating with said first optical filter element so as to form a band-pass optical filtering system" is
construed to mean the cooperation of the two band-pass filters, neither of which is itself a narrow bandpass filter. The two
filters, one of which transmits light of wavelengths just below and above a predetermined wavelength, the other transmitting
light of wavelengths just above and below the predetermined wavelength, cooperate to form a narrow band-pass optical
filter which does not exist before the cooperation between the two filters. The claim is not entitled to a broader scope.

Claims 1, 7, 11, and 14 refer to the term "coordinates" or "coordinating." The Court adopts NCI's proposed interpretation of
the term "coordinate." To "coordinate" means to harmonize, work together, or bring into a common action, effort or
condition. This interpretation is supported by the ordinary meaning of the claim language, the patent specification, see '124
word "coordinate" does not connote a "dominating influence" as Microsoft proposes, and the specification does not so limit
this term.

Defendants' navigation systems operate by downloading the coordinates for an upcoming maneuver point (sometimes called
a "driving event") and either distance or time values. In the case of the Celcico and Networks in Motion ("Celcico") system,
the server sends various information to a cell phone, including a "max-instruction distance," the coordinates of the
maneuver point, and the speed of travel. The cell phone uses some of this information to calculate a warning distance, which
is then compared to the max-instruction distance to determine when the user should receive the next instruction. Both the
warning distance and the max-instruction distance are scalars; in other words, they are what the district court called
"numeric values." Similarly, the GM OnStar(R) ("GM") system downloads driving event coordinates and up to three
distance or time offsets, each of which is also a scalar. In part because it found that numeric values like those downloaded
by Defendants' systems cannot be coordinates, the district court held that Defendants did not infringe the '743 patent.

VIP argues that the patentees did not limit the term "coordinate" in the '743 patent, and therefore the term must be "broadly
defined." And while VIP agrees that the term should be construed according to its ordinary meaning, VIP does not believe
the court's construction reflects that meaning. Instead, VIP argues that the ordinary meaning of a coordinate is "any one of a
set of numbers used in specifying the location of a point on a line, in space, or on a given plane or other surface." VIP
presses us to find that this construction allows for a numeric distance offset "so long as that offset specifies the location of a
point."

Regardless of whether the district court correctly identified the term's ordinary meaning, however, we agree with the district
The term "coordinate" appears twice in the language of independent claims 1, 23, 35, and 56. Although the first mention of the term is as a plurality ("notification coordinates"), the second time, the term is used in the singular: a direction "segment" is presented when "the location of the mobile unit substantially corresponds to a notification coordinate defining the notification region." In the '743 patent, the mobile unit's location is identified using a GPS device. '743 patent col.2 ll.64-col.3 l.1. To compare a notification coordinate to the mobile unit's location, as required by the claims, the notification coordinate necessarily must be of the same kind or type as the mobile unit location coordinates. The location of the mobile unit is expressed in terms of latitude and longitude, and cannot "substantially correspond" to a scalar value, such as 500 meters. No meaningful comparison between the two is possible. The plain language of the claims precludes the possibility that a coordinate can be a scalar.

The prosecution history lends further support to the conclusion that a scalar cannot serve as a "coordinate" as that term is used in the '743 patent. On March 14, 2001, the Examiner rejected claims 23 and 35 as being anticipated by U.S. Patent No. 5,126,941 (the "Gurmu patent"). In traversing the rejection based on the Gurmu patent, the applicants stated:

The present invention differs fundamentally from Gurmu. The present invention teaches and claims that the location of the vehicle is compared . . . to the notification coordinate. It is apparent that the location is determined independently of the notification coordinate to be able to compare the vehicle location to the notification coordinate. This fundamental difference is not taught, shown, or suggested by Gurmu.

J.A. 2191. If the location of the mobile unit must be determined independently of the notification coordinate, then the notification coordinate necessarily must provide an absolute location (as opposed to a location by reference to the mobile unit's position). VIP's argument to the effect that this is not a clear disclaimer is to no avail. See 800 Adept, Inc. v. Murex Sec., Ltd., 539 F.3d 1354, 1364-65 (Fed. Cir. 2008) (recognizing that prosecution disclaimer is "typically invoked to limit the meaning of a claim term that would otherwise be read broadly," but consulting the prosecution history in that case "as support for the construction already discerned from the claim language and confirmed by the written description").

VIP maintains that while a distance offset standing alone might not be a coordinate, "the distance offset identifies a specific location in advance of a driving event." In other words, a distance offset of 500 meters should be read as "500 meters from the maneuver point." Once armed with the maneuver point's latitude and longitude, the argument goes, the system could calculate the latitude and longitude of the distance offset—in effect, transforming a scalar value into coordinates properly comparable to those at the maneuver point. But again, this interpretation is precluded by the plain language of the claims, which require comparison between the current location and a single notification coordinate. Further, a scalar and a maneuver point taken together do not define a second point at the distance offset, but instead define a circle centered at the maneuver point with a radius equal to the scalar value. To pinpoint precisely where on that circumference the distance offset lies requires something more. For these reasons, we agree with the district court and hold that a distance offset of the type used in Defendants' systems is not a "coordinate" as the term is used in the '743 patent.
comparison. Any point described by one coordinate system may be easily converted to another coordinate system for direct comparison. Appellees contend that the plain language of the claims precludes any conversion for comparison purposes because the claim recites using only a single notification coordinate. I am not convinced because a coordinate in this usage appears to be a single unique point in space among many points that collectively define a notification region, not just part of the description of a point. Further support is found in the claims because a notification region is defined by a plurality of notification coordinates. A plurality of points is required to define a region in space. It is consistent to use coordinate in the singular to describe a single point within such a region. Also, the specification often uses coordinate in the singular in the term "geographical coordinate," which is clearly a point in space.

I therefore agree with VIP that a coordinate can be anything that describes a particular point on a line, on a plane or surface, or in space. This includes a numeric value (a scalar) describing an offset to a fixed point along a known curve.

The parties disagree as to the proper construction of the terms "x,y coordinate" and "x,y coordinate location" in claims 1 and 8 of the '110 patent and the terms "x, y coordinate location" and "x and y coordinate" in claims 1 and 7 of the '267 patent. The parties do agree, however, that whatever construction the Court adopts for any one of these terms should also be adopted for all of these "x, y terms." (See D.I. 351 at 30; D.I. 359; D.I. 384 at 16-17.) I agree. Therefore, the following analysis applies to all of the disputed "x, y" terms.

Claim 1 of the '267 patent shows how the claims use the terms "x, y coordinate location" and "x and y coordinate":

1. A system for selecting and delivering medicine package from a holding means to fill orders comprising:

   a) holding means comprised of a frame having a plurality of support rods each support rod sized for holding a plurality of medicine packages, each rod associated with a given medicine and holding medicine packages with only the same medicine each support rod having a distinct x, y coordinate location; . . .

   . . .

   c) a computer having a database containing an x, y coordinate location for all packages in the holding means, the computer able to receive orders for packages and able to direct the means for picking packages; and

   d) a supply structure having a plurality of supply support rods which extend from said structure to form an x, y coordinate system, with each supply support rod and medicine package thereon having a unique x and y coordinate, said picking means disposed to have access to said structure such that a given medicine package on an associated supply support rod can be picked by the picking means to fill a patient's prescription, or a given medicine package in the supply structure can be picked by the picking means to restock an associated rod from the holding means.

'267 patent, col. 13 lines 1-9, 16-32 (emphasis added).

McKesson proposes that the "x, y" terms be construed as "one or more points that designates the position of a package where the picking means selects, grabs and replaces packages." Swisslog, by contrast, proposes that these terms be given their plain and ordinary meaning and construed as "a location identifier 'X,Y,' in which X designates a position of the location along an X-Axis and Y designates a position of the location along a Y-Axis."

While the parties have devoted many pages to briefing this issue, their dispute essentially comes down to a single question: does the x, y plane being referred to in the claims exist only where the picking means can access packages, or may it also exist in places where the picking means cannot access packages? McKesson advocates the former position and Swisslog the latter. After careful review of the claim language, the specification, and the prosecution history, I conclude that the claims require that the x, y plane exist in an area where the picking means can access a package. Therefore, I recommend that the Court adopt McKesson's proposed construction of the x, y terms.
5 As McKesson puts it, "[b]oth parties . . . agree that these claim terms should be given ordinary and customary meaning. . . . The parties disagree, however, regarding the identification of the area, or place in space, that defines the boundaries in which the 'x, y coordinate location' may exist." (D.I. 364 at 2)

Looking first at the claim language, it is clear that the claims require a relationship between the "x, y" plane and the locations where packages are accessible to (i.e., may be picked by) the picking means. As McKesson states, "the claims consistently refer to x, y coordinates in relation to packages held in a storage area location that are accessible to the picking means." (D.I. 364 at 4; see also id. at 3-8.) For instance, element d) of claim 1 of the ’267 patent recites "a supply structure having a plurality of support rods which extend from such structure to form an x, y coordinate system, with each supply support rod and medicine package thereon having a unique x and y coordinate, said picking means disposed to have access to said structure such that a given medicine package on an associated supply support rod can be picked by the picking means." ’267 patent, col. 13 lines 22-29 (emphasis added). Similarly, element a) of claim 1 of the ’110 patent recites "a storage area comprised of a plurality of storage area locations each location having a package: . . . the packages being held in a manner so that each location can be placed into and removed from the storage area locations and . . . each location having a distinct x, y coordinate." ’110 patent, col. 12 line 66 to col. 13 line 11 (emphasis added).

Consistent with the claims, the specification also demonstrates a relationship between known "x, y" coordinates in a plane and the automated picking means. As McKesson notes, the Applicants made this relationship evident by referencing the picking means as part of the specification's explanation of the x, y coordinate system. (D.I. 351 at 15-16) The specification discloses:

The frame 28 with rod supports 32 form an X, Y coordinate system with each rod 30 and medicine packages 14 therein having a unique x, y coordinate. Packages are placed in the storage rack so that each product is located at a known X, Y coordinate. Since every product is a known X, Y location, it is possible to direct an automated picking means to any product location to select a desired item . . . .

The racks of FIGS. 3, 4, and 5 have two important features. First, the packages are held in areas having known X, Y coordinates. Those coordinates could be single X, Y values as may correspond to the position of the package holes 15 or a group of X, Y values defining an entire package. Second, there is sufficient clearance between packages to allow automated picking means to select, grab and replace individual packages.

’267 patent, col. 5 lines 18-51 (emphasis added). Additionally, while describing the actual operation of the automated system, the Applicants described the "x, y coordinate" with reference to selection of packages from the storage rack:

The system is now ready to pick the drugs 188. First, the column-type vehicle 44 goes to the rack where the drug to be selected is stored and stops at the X coordinate of that drug package. The picking means 38 then moves along the column 44 to the Y coordinate of the medicine package to be picked. It is also turned to the proper storage rack 12 which has the desired package 14. These actions may be performed simultaneously by the system 189.

’267 patent, col. 9 line 64 to col. 10 line 4 (emphasis added). As a result, one of ordinary skill in the art would comprehend that the x, y coordinate is determined relative to both the storage area locations and the action of the picking means - which acts to grab, select, and place packages. (D.I. 351 at 16) 6

6 While McKesson purports to find support for its construction in the prosecution history, see D.I. 351 at 16-17 (citing D.I. 360 Ex. E at MA000194, MA000209-10), I do not find the prosecution history to be either supportive or detrimental to either side's proposed construction of the x, y terms.
Swisslog insists that "the inventors used the terms 'X, Y coordinate,' 'X, Y coordinate location,' and 'X and Y coordinate' in accordance with their notoriously well-known, plain, and ordinary meanings as location identifiers for designating the position of various locations within the automated system of the patents-in-suit." (D.I. 349 at 18) Swisslog adds: "This customary definition, which has existed for almost four centuries, is applied routinely in the scientific arts." (D.I. 361 at 1) I do not disagree. However, as McKesson explains, Swisslog's proposal to construe the x, y terms as a sterile, dictionary definition fails to account for the context in which the terms appear in the claims of the patents-in-suit and would, if adopted, result in an incorrect elucidation of the patentees' rights. In the context of the patent claims at issue in this lawsuit, the "well-known, plain, and ordinary" x, y plane exists at locations where the picking means can pick packages. It does not, within the context of the patent claims asserted here, exist elsewhere. That is the extent of the patent right claimed by the Applicants and granted by the PTO. It will assist the jury to have this fact made clear, and McKesson's proposed construction does so.

Another Swisslog criticism of McKesson's proposed construction is that it is limited to the location of packages. (D.I. 361 at 11-12) The claim language uses the x, y terms also to refer to the location of storage area locations and support rods. '110 patent, col. 13 lines 10-11 ("each [storage area] location [has] a distinct x, y coordinate"); '267 patent, col. 13 lines 7-9 ("each support rod having a distinct X, Y coordinate location"); id. col. 14 lines 19-21 (same). While McKesson is correct that all points in the x, y plane claimed in the patent claims are locations accessible to the picking means, it is also true that this plane is identified in some portions of the claims by reference to the location of the storage rods or the storage area locations. For the reasons already given (as well as those given below with respect to the construction of "storage area location"), I agree with McKesson that the claims' references to "support rods" and "storage area locations" must also relate to locations that render the packages accessible to the picking means. Hence, Swisslog's argument does not detract from my conclusion that the x, y terms define a plane in which the packages are accessible to the picking means. Whether it is necessary to further refine the construction of the x, y terms (e.g., to sometimes refer to storage rods and not always just to packages) is a matter on which I will confer with the parties at a later date.

Thus, I recommend that the Court construe the x, y terms to mean "one or more points that designates the position of a package where the picking means selects, grabs and replaces packages."

1. "[X],y coordinate" 12

12 This disputed limitation appears in a variety of forms; however, the parties and the court agree that one construction should apply to all instances. Claims 1 and 7 of the '267 patent describes this limitation as "x, y coordinate location" and "x and y coordinate." Claims 1 and 8 of the '110 patent refer to "x,y coordinate" and "x,y coordinate location." The court refers to each of these instances through the use of "x,y coordinate."

Judge Stark construed "x,y coordinate," to mean "one or more points that designates the position of a package where the picking means selects, grabs and replaces packages." In recommending this construction of "x,y coordinate," Judge Stark agreed with McKesson's position that the x,y plane referred to in the claims must exist only where the picking means can access packages. Swisslog objects to this construction and argues that the court should construe "x,y coordinate" in accordance with its ubiquitous mathematical meaning, to wit, "a location identifier 'X,Y;' in which X designates a position of the location along an X-Axis and Y designates a position of the location along a Y-Axis."

While construing "x,y coordinate" in terms of where the picking means can access packages has intuitive appeal based on the claim language and the specification (which demonstrate a relationship between x,y coordinates and the automated picking means), Judge Stark's proposed construction goes one step further and associates the "x,y coordinate" with the
location of the packages themselves. The court declines to adopt this construction for several reasons. First, the claims themselves are replete with language requiring the accessibility of packages to the picking means. (‘267 patent at col. 13:10-14, col. 13:26-32, col. 14:23-29; ‘110 patent at col. 13:5-11, col. 13:12-23) Therefore, the construction of the "x,y coordinate" limitation need not contain a duplicate requirement. Second, and most importantly, designating a nonpermanent, movable object (i.e., package) as a location identifier runs the inherent risk of defining a transient coordinate system which varies according to the position of a given package. Neither does Swisslog's proposed construction comport with the claims or specifications of either of the patents-in-suit. Construing "x,y coordinate" according to its ubiquitous meaning fully divorces this claim limitation from the context of the patents-in-suit, which makes clear that the x, y plane exists in certain locations and not others.

In light of the above, the court concludes that the patents-in-suit contemplate a coordinate system anchored by the various means for holding the packages. With respect to the ’110 patent, designating the "package holding means" 13 as the anchor of the coordinate system resolves the permanency issues associated with the recommended construction, while simultaneously preserving the context of the invention. This understanding of "x,y coordinate" comports with the claims and specifications. Limitation a) of claim 1 of the ’110 patent recites "a storage area comprised of a plurality of storage area locations each location having a package holding means . . . each location having a distinct x, y coordinate." Dependent claim 8 of the ’110 patent further requires a "supply station . . . having a plurality of locations each location having package holding means . . . each location having a distinct x, y coordinate." (Emphasis added) In both claims, the package holding means are "sized and configured" to hold one or more medicine packages. The ’267 patent uses slightly different terminology, claiming a "holding means" and a "supply structure." Consequently, the "holding means" and "supply structure" anchor the coordinate system of the ’267 patent.

13 Judge Stark has construed "package holding means" in accordance with 35 U.S.C. § 112, P6 to have the function of holding packages and corresponding structure of the "rods, brackets, shelves and dividers as disclosed at positions 30, 25, 29 and 31 of, e.g., FIG. 3-6, and col. 5, lines 10-19 and 25-40.

In sum, the package holding means of the ’110 patent, as well as the holding means and supply structure of the ’267 patent, relate to discrete and permanent locations that render the packages accessible to the picking means. Accordingly, with respect to the ’110 patent, the court construes "x,y coordinate" to mean "one or more points that designates a position in the package holding means." With respect to the ’267 patent, the court construes "x,y coordinate" to mean "one or more points that designates a position in the holding means or supply structure."

"viewpoint coordinate data"

Claims 1 and 52 of the ’785 Patent contain the term "viewpoint coordinate data." IPI contends the term means "information representing the position of the viewpoint in a three dimensional workspace." Google contends the term means "the position on the x-axis, the y-axis, and the z-axis in a three-dimensional workspace from which the workspace is viewed." The parties disagree as to what "coordinate" means.

IPI contends that the term refers to "information representing" a position and argues that the specification supports such a construction. Specifically, IPI cites to two specific portions of the specification. First, the specification provides:

In order to present a three-dimensional workspace, a system may store data indicating "coordinates" of the position of an object, a viewpoint, or other display feature in the workspace. Data indicating coordinates of a display feature can then be used in presenting the display feature so that it is perceptible as positioned at the indicated coordinates.

that IPI's proposed construction is overly broad in that not all position information is "coordinate data." For example, Google argues that "to the left" or "above the table" is "information representing the position of the viewpoint," but they are not coordinates. Google's Responsive Brief, at 24. At the hearing, the Court indicated that "information representing" was too broad and IPI agreed to an alternate construction of "data representing the position of the viewpoint in a three-dimensional workspace."

Google's proposed construction includes a reference to Cartesian coordinates (e.g., x-axis, y-axis, and z-axis), which Google argues is supported by the specification's use of Cartesian coordinates to compute the coordinates of the viewpoint. IPI argues that Google's proposed construction seeks to limit the claims "to a preferred embodiment of an 'x,y, and z' coordinate system despite the fact that such a limitation is not called for by the claims." IPI's Reply Brief, at 7. A preferred embodiment disclosed in the specification is not a claim limitation, and the Court refuses to import the Cartesian coordinates limitation from the preferred embodiment into the claims. See Phillips, 415 F.3d at 1323. In addition, as indicated by IPI's cited portions of the specification, the specification does not limit "viewpoint coordinate data" to Cartesian coordinates. Instead, the specification simply describes the invention in terms of coordinates in a three-dimensional workspace. See '785 Patent, col. 14:9-15 and col. 6:56-62.

Google's proposed construction is too narrow in light of the specification. Thus, in order to give the term the greatest amount of breadth consistent with the specification, the Court construes the term "viewpoint coordinate data" to mean "data representing the position of the viewpoint in a three dimensional workspace."

E. Coordinates in the Terrain

The Plaintiff construes the phrase "coordinates in the terrain" to mean "any of a group of one or more numbers used to determine a position in the terrain, such as x, y, longitude, latitude, height, and/or resolution level." The Defendants counter that "coordinates in the terrain" must refer to "a pair of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain." Before turning to the heart of the dispute, I note that resolution level is not within the meaning of the "coordinates in the terrain". Claim 1 and various parts of the specification refer to the "coordinates in the terrain" and the "resolution level" as separate variables.

The debate with respect to the term coordinates is a consequence of the fact that the term connotes two different meanings, as understood by a person of skill in the art that may be readily apparent even to lay judges, and that the term appears to be used in the two different ways within the patent specification. Thus, my task requires choosing the most appropriate meaning as used in the claims in light of the two uses in the specification.

A coordinate typically refers to an individual value, such as an x-coordinate, which along with another coordinate on a
different axis (y), would locate a point in a two-dimensional plane. Thus, a longitude coordinate and a latitude coordinate would together locate a point on the Earth's surface. By adding a third coordinate (z), the three values together would specify a point in a three-dimensional space. Consequently, with respect to storing a proposed flight plan, the specification speaks of inputting "three-coordinate points which describe the route. The three coordinates preferably represent longitudinal, latitudinal, and height coordinates of the points along the course[.]" (col. 10, 11. 39-41) Similarly, "each block is referenced using longitudinal and latitudinal (x, y) coordinates of one of the points in the block, such as the top right corner pixel, together with the resolution level of the block." (col. 9, 11. 35-38) However, the term coordinates' can also be used to refer to a set of two or more values used to determine the position of a point on a plane or in space. In this sense, the statement that "each object is preferably accompanied by coordinates which state the position of the object within sub-block" can be thought of as referring to a set of at least two coordinate elements that together identify the object's location. (col. 8, 11. 43-44) From this perspective, the plural form of coordinates' simply contemplates that more than one data block may be requested at a time and that to identify each block one needs a set of coordinates. Consequently, coordinates' may refer to the plural of coordinate' or to the set made up of at least a pair of coordinate points.

The question, then, becomes whether "one or more coordinates in the terrain" refers to one coordinate, such as x, or more than one coordinate, such as x and y, or rather to one set of coordinates, such as x/y, or more than one set of coordinates, such as x/y and x1/y1. I find that adopting the latter understanding reconciles the claim language ("one or more") with the Defendants' concerns and the specification. This meaning also makes sense when contrasted to the reference in other claims to a "plurality of coordinates", that is to more than one set of coordinates requiring more than one data block to represent the terrain to be viewed.

If "one or more coordinates" meant that only one numerical value ('coordinate') would be sufficient, the processor could not provide the renderer with the data block(s) corresponding to the coordinates of the terrain specified. The preferred way of structuring the data blocks is to have "a header record comprising an index to the blocks", (col. 9, 11. 25-26), and to reference each block "using longitudinal and latitudinal (x, y) coordinates of one of the points in the block, such as the top right corner pixel, together with the resolution level of the block." (col. 9, 11. 35-38). Then the "renderer determines the exact blocks needed and calls for them using their (x, y) coordinates and their resolution level. Alternatively or additionally, renderer specifies, for each resolution level, the coordinates of the boundaries of the necessary areas, and cache manager determines the identities of the required blocks." (col. 14, 11.10-15) Consequently, even in the alternative scenario, the system requires multiple sets of numerical values ('coordinates') that define the boundaries of the particular area of the terrain.

Construction: (coordinates in the terrain) a set of numerical values that identifies a particular location in the terrain

3. a copy key for initiating the copying of the contents of a memory of a digital camera containing picture image data previously captured by said digital camera from said memory of said digital camera to said mass storage device

The plaintiff contends that no construction is needed. The defendants propose "a user interface key that is an exclusive copy button, which is only used for transferring images from the camera card to the system/collector etc." The defendants cite to the prosecution history and an interview summary by the examiner stating that the examiner "[d]iscussed an amendment to the claims to include the feature of having an exclusive, copy button only used for transferring images from the camera card to the system/collector etc." "927 Prosecution History, August 2, 2005 Interview Summary. The plaintiff argues that the statement does not refer to an agreement between the patentee and the examiner. The plaintiff also argues that the statement does not show conclusively that the discussion occurred prior to the patentee's amendment on July 15, 2005 because the examiner summarized interviews that occurred on July 14, 2005 (prior to amendment) and July 19, 2005 (after amendment). After careful examination of the prosecution history, the court agrees with the defendants that the patentee limited its claims during prosecution of the patent as stated in the examiner's summary. Accordingly, the court construes the phrase as "an exclusive copy button used only for copying the contents of a memory of a digital camera containing picture image data previously captured by the digital camera to the mass storage device."
12. "[C]ore:”15 “A longitudinally-extending element that separates the transmission media.” This construction is consistent with the specification. (see col. 1:8–9; col. 2:67–3:2; col. 3:11,13; col. 4:62–64) The parties' respective proposed constructions differ only by inclusion of "the." Defendants argue that this article is necessary to indicate that the core separates each twisted pair from one another, as opposed to separating some, but not all, twisted pairs. The court agrees. None of the described embodiments contain transmission media which are not individually separated by the core.

--- Footnotes ---

15 '503 patent.

--- End Footnotes ---

"corpus of documents"

Claims 1, 25, 27, 28, and 31 of the '819 Patent contain the term "corpus of documents." IPI contends that "corpus of documents" means "a collection of documents which are available to an information retrieval system." Google contends that the term means "a collection of documents on a particular subject matter or from a particular source." The parties' main dispute centers around whether "corpus of documents" should be limited to a collection of documents "on a particular subject matter or from a particular source."

IPI contends that neither the claims nor the specification of the '819 Patent support limiting the term as Google proposes. IPI further argues that Google's proposed construction seeks to limit the claimed "corpus of documents" to preferred embodiments in the specification which are directed to documents on a particular subject matter (e.g., computer science) and from a particular source (e.g., New York Times). See '819 Patent, col. 1:39-41, col. 13:35-37 and col. 16:44-46. In support of its proposed construction, Google asserts that it is not seeking to limit the claimed "corpus of documents" to a collection of documents on any particular subject or from any particular source described in the specification. Instead, Google contends it "only seeks to limit the definition to the well-known concept in the field"—that a "corpus" is a collection of documents on a particular subject matter or from a particular source. Google's Responsive Brief, at 16.

Google further argues that its proposed construction is consistent with the patent's teaching that the "thesaurus must be tuned to the corpus of documents--a concept that makes no sense if the 'collection' consists of documents unrelated to each other by source or subject matter." Id. (emphasis added). Google's argument is misplaced. The specification states that the "thesaurus must be tuned to the corpus of interest," not to the "corpus of documents." ’819 Patent, col. 1:46-47. The claim term "corpus of documents" is broader in scope than the "corpus of interest." In other words, simply because the specification states a thesaurus must be tuned to the "corpus of interest," does not mean it must be tuned to the entire "corpus of documents." The logic of Google's argument does not follow from the correct language of the specification.

Moreover, the specification identifies two problems in the prior art: an ambiguity problem and a synonymy problem. ’819 Patent, col. 1:18-26. The synonymy problem refers to the situation where a query may miss relevant documents that use words synonymous to words in the query. The ambiguity problem refers to the situation where a query may share the same ambiguous word with a document, but the words are used in a different sense. This results in a false similarity match. Google argues that the '819 Patent teaches the ambiguity problem is solved by tuning the thesauri to the "corpus of interest." However, when the specification identifies two different problems in the prior art, it is not necessary for every claim in the patent to address both problems. See Honeywell v. Victor, 298 F.3d 1317, 1325-26 (Fed. Cir. 2002); Resonate v. Alteon, 338 F.3d 1360, 1367 (Fed. Cir. 2003); Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 908 (Fed. Cir. 2004) ("The fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives."). Thus, claim 1 of the '819 is not limited to solving both the ambiguity problem and the synonymy problem.
The specification does not support the narrow focus of Google's proposed construction limiting "corpus of documents" to a collection of documents on a particular subject matter or from a particular source. Furthermore, IPI's use of the word "available" in its proposed construction is vague as it does not clarify what it means for documents to be "available" to an information retrieval system. However, in view of the claim language and the specification, it is clear that IPI's use of the term "available to" is used in the sense of "accessed by." Accordingly, the Court construes the term "corpus of documents" to mean "a collection of documents which can be accessed by an information retrieval system."

12. "correct level required to turn on a selected memory cell access transistor"

Claims 1 and 13 of the '620 patent contain the "correct level" claim limitation. Claim 1 of the '620 patent is representative and states in relevant part: "a feedback loop . . . to regulate the boosted voltage to a substantially static value . . . of a correct level required to turn on a selected memory cell access transistor." '620 patent, claim 1.

Defendants contend that "correct level" should be construed to mean the lowest voltage necessary to turn on a memory cell access transistor. MOSAID, on the other hand, contends that "correct level" is any voltage level greater than or equal to the lowest voltage necessary to turn on the access transistor so long as that voltage level will not cause damage to the access transistor. Thus, the dispute as framed by the parties is whether the "correct level" is limited to the lowest voltage necessary to turn on an access transistor, or includes higher voltages that are less than transistor damaging voltages.

Defendants assert that the ordinary meaning of the word "required" supports their claim construction. The word "require" is defined as "to have as a requisite; need," 25 "to demand as necessary or essential: have a compelling need for," 26 and "to have need of; need." 27 Recognizing that the word "necessary" is common to all of those dictionary definitions, Defendants conclude that "the voltage level that is 'required to turn on' the access transistor is the minimum voltage that is necessary." (Infineon Br. at 59).

Defendants' conclusion is wrong. None of the Defendants' dictionary definitions include the word "minimum." The ordinary meaning of "required" is "necessary," not "the minimum necessary." And if the ordinary meaning of "required" is used, the voltage level that is "required to turn on an access transistor is a voltage level that is "necessary" to turn on the access transistor. A voltage level that is necessary to turn on the access transistor can be the lowest voltage necessary, but it can also be a higher voltage that does not damage the transistor.

The claim language supports the broader construction of "correct level." When the claim term is viewed in the context of the claim, as this Court is required to do, it is clear that the "correct level" voltage is a boosted voltage of a "substantially static value." '620 patent, claim 1. A "substantially static value" is obviously not a static value and, thus, the plain language of the claims indicate that the voltage level may have some amount of variation. Regardless of the amount of variation, the fact that the claims indicate that there may be some amount undermines Defendants' contention that "correct level" must be limited to "the lowest voltage necessary," i.e., only one voltage.

Further, the claims require the voltage to be of "a" correct level. The use of the word "a" indicates that the "correct level" may be one or more voltages, not just a single voltage. KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). Accordingly, the ordinary and plain meaning of the "correct level" claim term is "a voltage level sufficient to fully
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turn on a memory cell access transistor but not so high that it will damage the transistor." 28

28 Defendants argued at the Markman hearing that if MOSAID's construction is adopted, the term is indefinite because one of ordinary skill in the art would not know what a transistor damaging voltage is. Defendants' argument is not well received because it agreed with MOSAID that the definition of "transistor damaging voltage" is "a voltage that instantaneously causes the gate oxide to rupture." (1/27/04 Chart entitled "Agreed and Partially Agreed Claim Terms" at p. 5). Thus, one of skill in the art would understand what range of voltages the "correct level" falls between and accordingly Defendants' indefiniteness argument must fail.

Defendants also contend that the patentees acted as their own lexicographers and defined the "correct level" by limiting it to the lowest voltage necessary to turn on the access transistor. After reviewing the written description, the Court disagrees. Although the patentees did describe an embodiment where the word line voltage is brought to the "exact word line supply voltage, neither too low nor too high," 29 that was a description of a specific, preferred embodiment, not all embodiments. '620 patent, col. 2, 11. 25-51. The '620 claims buttress that conclusion because that specific embodiment is not required by all of the claims. Compare '620 claim 1 with dependent claim 10. Accordingly, the patentees did not limit the meaning of "correct level" in the Foss specifications and, thus, the ordinary and plain meaning governs.

"Correlated" and "correlated noise" appear in claims 2 and 5 of the '839 Patent and claim 1 of the '180 Patent. Those claims read as follows:

2. The method of claim 1 further comprising the step of receiving said signal samples, said signal samples having signal-dependent noise, correlated noise, or both signal-dependent and correlated noise associated therewith.

5. The method of claim 4 further comprising the step of receiving said signal samples, said signal samples having signal-dependent noise, correlated noise, or both signal-dependent noise and correlated noise associated therewith.

1. A method of determining branch metric values in a detector, comprising:

   receiving a plurality of time variant signal samples, the signal samples having one of signal-dependent noise, correlated noise, and both signal dependent and correlated noise associated therewith;

   selecting a branch metric function at a certain time index;

   and

   applying the selected function to the signal samples to determine the metric values.

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CMU's proposed construction of "correlated" and "correlated noise" are:

Two items are "correlated" when they have a tendency to vary together.

"Correlated Noise" means 'noise with 'correlation' among 'signal samples,' such as that caused by coloring by front-end equalizers, media noise, media nonlinearities, and magnetoresistive (MR) head nonlinearities."

RDCTC at 5.

Marvell's proposed construction of "correlated noise" is:

"Correlated noise" means "noise having nonzero 'covariance' (see construction of 'covariance' below)."

"Covariance" means "the expected (mean) value of the product of (ri-mi) and (rj-mj), where ri and rj are observed signal samples (at time i and j, respectively) and mi and mj are the expected (mean) values of the samples (at time i and j, respectively)(i.e., E[(ri-mi)( rj-mj)])]."

RDCTC at 5, 9.

CMU's sources for its construction of "correlated" are the same dictionaries used to interpret "correlation" as discussed above. See supra at 9-10. CMU's source for "correlated noise" is from both its construction of "correlated" and language found in the specifications of the '839 and '180 Patents. Marvell, on the other hand, cites to Dr. Proakis's textbook as the source of its construction for "correlated noise" and "variance." The textbook citation reads as follows:

Two random variables are said to be uncorrelated if \( E(X_i X_j) = E(X_i)E(X_j) = \mu_{ij} \). In that case, the covariance \( \mu_{ij} = 0 \). We note that when \( X_i \) and \( X_j \) are statistically independent, they are also uncorrelated. However, if \( X_i \) and \( X_j \) are uncorrelated, they are not necessarily statistically independent.


In first looking at the claims, it would be apparent to the PHOSITA that the claim terms distinguish "correlated noise" from signal-dependent noise, but do not otherwise define the term. The term "correlated" appears only twice in the '839 Patent's specification. First, in the summary of the invention section it is stated that "noise samples corresponding to adjacent signal samples are heavily correlated as a result of front-end equalizers, media noise, and signal nonlinearities combined with nonlinear filters to cancel them." '839 Patent col. 2 ln. 3-7. Second, in the detailed description section of the '839 Patent it states that for the correlation-sensitive branch metric "[t]he noise is now considered to be both correlated and signal-dependent." '839 Patent col. 6 ln. 38-39.

CMU points out, and the Court agrees, that the language "heavily correlated" would not make sense if Marvell's construction were adopted as such language could only be understood as meaning that the noise had a heavier or greater nonzero covariance. Such a construction would not be how the PHOSITA would read "heavily correlated." CMU's construction, however, that "two items are 'correlated' when they have a tendency to vary together" would be consistent with the notion that the noise could have a greater or heavier tendency to vary together.

Furthermore, based in part on the construction adopted for "correlation," CMU points out that Marvell's construction is consistent in scope with CMU's, except that it relies on mathematical terminology. The parties agree that if variables are not related then their covariance is zero. 7 (Docket No. 81 at 7). To say that two random variables have a non-zero covariance is then to say that they have some relation between them or in the words of CMU the "variables will vary together." As a result, stripped of its mathematical terminology, Marvell's construction becomes "correlated noise" means noise that varies together with other noise samples.
It should be noted that if two random variables have a zero covariance, this does not necessarily mean they are independent variables. "If non-Gaussian random variables: it is possible for X and Y to be uncorrelated but not independent." Leon-Garcia, Probability and Random Processes for Electrical Engineering, at 234 (2d ed. 1994)(Docket No. 82-18 at 6). "The correlation of random variables X1 and X2 indicates the degree of linear dependence between the variables. If \( \rho(X_1, X_2) = 0 \), then there is no linear relation between the random variables, but there may well be some different relation between them." Polyanin and Manzhirov, Handbook of Mathematics for Engineers and Scientists, at 1061 (2007 ed.) (Docket No. 83-15 at 5).

Marvell argues that the use of the term "tendency" is too vague. CMU correctly points out, however, that terms of degree, such as "tendency" can be used in claim construction. Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1348 (Fed. Cir. 2010). Additionally, Marvell's construction is equally as broad, as any non-zero value of the covariance would be construed to be correlated. Therefore, the Court finds no issue with CMU's use of "tendency" in the proposed construction.

Marvell also finds fault with CMU's use of examples of sources of correlated noise as an attempt by CMU to erroneously import limitations into the claims. CMU's construction, however, only uses the sources as examples and does not purport to give a complete list of sources of correlated noise due to use of the words "such as." (See Docket No. 119 at 150:18-151:2) Furthermore, the examples are taken directly from the specification and would provide context for the jury to learn what correlated noise is with respect to the Patents.

As a result, the construction for "correlated" and "correlated noise" that is consistent with the intrinsic evidence and would be understood by the PHOSITA is as follows:

Correlated means two items that have a tendency to vary together.

Correlated noise means "noise with 'correlation' among 'signal samples,' such as that caused by coloring by front-end equalizers, media noise, media nonlinearities, and magnetoresistive (MR) head nonlinearities."

Avago submits that the above claim language means "comparing an arrangement of pixel values from the first image with an arrangement of pixel values from the second image. The comparison mathematically detects changes in location of common features of the environment in the successive images." Elan proposes the following construction: "Comparing the first set of pixel values with one or more subsequent sets of pixel values to recognize calculated changes in location of features viewed by the array within the three-dimensional environment in the first set of pixel values with relation to features in one or more subsequent sets of pixel values." Given the Court's determination that Claim 14 discloses a device
capable of tracking changes in a three-dimensional environment, further construction of this term is unnecessary.

F. "Correlating The Electrooxidized Electroactive Reaction Product To The Concentration Of Glucose In The Blood Sample"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiffs' Construction</th>
<th>Defendants' Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;correlating the electrooxidized electroactive reaction product to the concentration of glucose in the blood sample&quot;</td>
<td>Using a relationship between the electrooxidized reaction product and the concentration of glucose in blood.</td>
<td>Accurately determining the concentration of glucose in the blood sample.</td>
</tr>
</tbody>
</table>

Defendants contend that this claim term should be limited to the "accurate" determination of glucose concentration in the blood sample. However, the independent claims already specifically include the step of "determining . . . the glucose concentration in the blood sample." The Court sees no basis for introducing the vague and extraneous limitation that this process be done "accurately," whatever that might mean. Indeed, as Plaintiffs note, the term "accurately" has "no interpretive frame of reference in the specification, is too vague for consideration, and would create new problems," including the possibility of a party attempting to introduce some statistical or commercial standard of "accuracy." (See, D.I. 380 at 26-27.) In these circumstances, Defendants' proposed limitation is not appropriate. See, Allen Eng'g Corp. v. Bartell Indus., 299 F.3d 1336, 1346-47 (Fed. Cir. 2002) (declining to interpret the preamble term "fast steering" as a claim limitation because it was a "relative term, and no interpretive frame of reference [was] provided in any of the claims or in the specification").

To the extent Defendants criticize Plaintiffs' construction for "cover[ing] only the 'relationship' between current and the result, but omit the 'result,'" (D.I. 379 at 21), the Court notes again that the claims specifically recite "determining . . . the glucose concentration in the blood sample." Thus, it is not necessary to, as Defendants request, construe this term to require "determining the concentration of glucose in the blood sample."

Accordingly, the Court will construe the claim term "correlating the electrooxidized electroactive reaction product to the concentration of glucose in the blood sample" to mean, as Plaintiffs contend, "using a relationship between the electrooxidized reaction product and the concentration of glucose in blood.

A. Correlation; Correlation-sensitive branch metrics; Correlation-sensitive metric computation update circuit

The principal dispute between the parties for the "correlation" terms is whether "correlation" refers to a general English meaning of relatedness or if it refers to a specific statistical usage and calculation as found in technical dictionaries.

The term "correlation" as well as the terms "correlation-sensitive branch metrics" and "correlation-sensitive metric computation update circuit" appear in claims 11, 16, 19, and 23 of the '839 Patent and claim 6 of the '180 Patent. Claim 11 of the '839 Patent is illustrative of how the terms are used and it reads as follows:

11. A method for detecting a sequence that exploits the correlation between adjacent signal samples for adaptively detecting a sequence of symbols stored on a high density magnetic recording device, comprising the steps of:
(a) performing a Viterbi-like sequence detection on a plurality of signal samples using a plurality of correlation sensitive branch metrics;
(b) outputting a delayed decision on the recorded symbol;
(c) outputting a delayed signal sample;
(d) adaptively updating a plurality of noise covariance matrices in response to said delayed signal samples and delayed decisions;
(e) recalculating said plurality of correlation-sensitive branch metrics from said noise covariance matrices using subsequent signal samples; and
(f) repeating steps (a)-(e) for every new signal sample.

'839 Patent col. 15 ln. 2-17.

CMU and Marvell agree on the construction of "correlation-sensitive metric computation update circuit" except for the underlying definition of "correlation" and "correlation sensitive branch metrics." The parties' agreed construction is:

"A correlation sensitive metric computation update circuit" means "a circuit that recalculates 'correlation*-sensitive branch metrics' using statistics from the 'noise statistics tracker circuit.'"

RDCTC at 8.

CMU’s constructions of "correlation" and "correlation-sensitive branch metrics" are:

"Correlation" means "the degree to which two or more items (here, noise in signal samples) show a tendency to vary together."

"Correlation sensitive branch metrics" means "branch metrics' that use 'correlation' in signal samples in their calculation by including at least one term that involves multiplying signal samples from different time instances."

RDCTC at 6-7.

Marvell's construction of "correlation" and "correlation-sensitive branch metrics" are:

"Correlation" means "the expected (mean) value of the product of two random variables (e.g. E[rirj], where ri and rj are signal samples at time i and j, respectively)."

"Correlation sensitive branch metrics" means "branch metrics' that use 'correlation' in signal samples in their calculation."

RDCTC at 6-7.

As an initial matter, Marvell argues that its definition of "correlation" ought to be adopted because it reflects how the person having ordinary skill in the art ("PHOSITA") would understand the use of the term based in part on the fact that its definition comes from a technical dictionary and thus is closest to the term's ordinary meaning in engineering and statistics. Although CMU cited several general English dictionaries in support of its construction, CMU also cited to three statistics dictionaries. The definitions from the statistics dictionaries cited by CMU are as follows:

Correlation: A general term for interdependence between pairs of variables.

Correlation A general term used to describe the fact that two (or more) variables are related . . . Although the word 'correlation' is used loosely to describe the existence of some general relationship, it has a more specific meaning in the context of linear relations between variables. See correlation coefficient.

Correlation- A general term denoting association or relationship between two or more variables. More generally, it is the extent or degree to which two or more quantities are associated or related. It is measured by an index called correlation coefficient.
In electrical engineering, it is customary to call the $j=1$ $k=1$ moment, $E[XY]$, the correlation of $X$ and $Y$.

The second-order moment $m_{11} = E[XY]$ is called the correlation of $X$ and $Y$. It is so important to later work that we give it the symbol $R_{xy}$.

The probabilistic autocorrelation of the random process $X$, at the times $t_1$ and $t_2$, is simply the correlation of the two random variables $X(t_1)$ and $X(t_2)$, and is denoted by

$$E[X(t_1)X(t_2)] = R_{x(t_1,t_2)}.$$ 

Correlation describes a random process in a way that is impossible for the mean and the variance to do. Both the mean and variance depend on a pdf, which included time at only one instant. Correlation, on the other hand, is a bivariate parameter, and uses a bivariate pdf $[\ ]$ which included two different times: $t_1$ and $t_2$. We therefore define an autocorrelation function:

$$R_{x(t_1,t_2)} = E[X(t_1)X(t_2)]$$


CMU and Marvell agree that the PHOSITA in this case would be a person with at least a Master's degree in electrical engineering who had specialized in data detection and signal processing and had at least two years work experience in the industry. See (Docket No. 79-1, Dr. McLaughlin Declaration at ¶8); (Docket No. 84, Dr. Proakis Declaration at ¶29). Based upon the above definitions and the agreed upon qualifications of the PHOSITA, the Court concludes that the PHOSITA would be knowledgeable about both the general definition of "correlation" used by CMU as well as the more technical definition and formula used by Marvell. The question then is not which definition would the PHOSITA understand and use in the daily practice of his or her art. Rather, the issue is which definition would the PHOSITA conclude to be the most consistent with the claims, specification and prosecution history (the intrinsic evidence) of the '839 and '180 Patents. The above cited extrinsic evidence is thus only relied on to the extent that it informs the Court as to what the PHOSITA's general understanding is; however, the following treatment of the claim terms is based on only the intrinsic record.

As stated in the preamble of claim 11 of the '839 Patent, the method "exploits the correlation between adjacent signal samples." '839 Patent col. 15 In. 2-3. The purpose for exploiting the correlation is explained in the background and summary of the invention section of the '839 Patent. In the background of the invention section of the specification, it is stated that the "[prior art] methods do not take in consideration the correlation between noise samples in the readback signal. These correlations arise due to noise coloring by front-end equalizers, media noise, media nonlinearities, and magnetoresistive (MR) head nonlinearities." '839 Patent col 1 In. 57-61. In the summary of the invention section of the '839 Patent, it states:
In high density magnetic recording, noise samples corresponding to adjacent signal samples are heavily correlated as a result of front-end equalizers, media noise, and signal nonlinearities combined with nonlinear filters to cancel them. This correlation deteriorates significantly the performance of detectors at high densities.

The trellis/tree branch metric computation of the present invention is correlation-sensitive, being both signal dependent and sensitive to correlations between noise samples.

'839 Patent col. 2 ln. 2-11.

From this, a PHOSITA would conclude that there is a correlation between noise samples, that the correlation exists due to certain structures that exist in the recording circuit, and that the failure to account for the correlation between the noise samples in the prior art detracts from the performance of the prior art detectors. How the correlation between the noise samples is taken into account and "exploited" is what is discussed in the remainder of the specification.

The detailed description of the invention section of the '839 Patent discusses the prior art branch metrics before explaining how the "Correlation-sensitive branch metric" works. For the prior art Euclidian branch metric, it is stated, that "the noise samples are realizations of independent identically distributed Gaussian random variables with zero mean and variance σ2... This implies that the correlation distance is L = 0 and that the noise pdfs have the same form for all noise samples." '839 Patent col. 5 ln. 60-64 (emphasis added). L is stated to be the correlation length of the noise, that is, the number of signal samples with which the noise is considered to be correlated. (See Docket No. 79-1, McLaughlin Declaration at ¶11). As a result, the Euclidian branch metric does not consider any of the samples to be correlated with each other, therefore, they are independent and the correlation length or distance is set at zero.

For the prior art variance dependent branch metric, it is stated that "the noise samples are samples of independent Gaussian variables, but that their variance depends on the written sequence of symbols. The noise correlation length is still L = 0, but the variance of the noise samples is no longer constant for all samples." 839 Patent col. 6 ln. 16-20 (emphasis added). Since the variance dependent branch metric accounts for noise that depends on the written sequence of symbols, this branch metric is said to be signal-dependent. The variance dependent branch metric, however, still has its correlation length set to zero, thus it does not take into account noise from other signal samples.

The correlation-sensitive branch metric is first distinguished from the prior art Euclidian and variance-dependent branch metrics by indicating that the correlation length is now set at some number greater than zero. '839 Patent col. 6 ln. 36-37. As a result, the correlation-sensitive branch metric uses more than one signal sample from different time instances so as to take into account the noise at a given time that is attributable to noise from other time instances. (See Docket No. 79-1, McLaughlin Declaration at ¶11). The specification goes on to explain how the correlation-sensitive branch metric can be calculated and it is provided that the general correlation-sensitive branch metric is equation (13). '839 Patent col 6 ln. 66 - col. 7 ln. 5.

As CMU points out, in one of the embodiments, the general correlation sensitive branch metric (13) is calculated, but the correlation equation cited by Marvell is not used. According to CMU, the variance (σ 2), which is used in the 2 first logarithmic term of equation (13), is shown to be able to be calculated without using the equation cited by Marvell for correlation. See (Docket No. 90-3, McLaughlin 2nd Declaration at ¶9). CMU points to equation (23) to show that the variance used in logarithmic circuit 50 may be calculated without a correlation value or the use of a covariance matrix. '839 Patent col. 7 ln. 14-15; col. 10 ln. 12-13. Marvell does not dispute this, but rather argues that a claim need not cover every embodiment. (Docket No. 93 at 6-7) (citing Intamin, 483 F.3d at 1337). However, it is the Court's conclusion that the PHOSITA would not read the general correlation-sensitive branch metric equation (13) to become correlation insensitive if equation (23) were utilized in calculating the branch metric. Equation (13) would still account for the noise at a given time that is attributable to noise at other time instances with the utilization of equation (23). As a result, since Marvell's construction would require the use of calculating the expected (mean) value of the product of two random variables in the correlation-sensitive branch metric, it is not supported by the specification.

Support for CMU's general English construction can also be found in the detailed description. For example, a PHOSITA would read the following language to refer to the general meaning of correlation and not the formula provided by Marvell:
Although recently very popular, such a method [of employing a nonlinear filter] introduces further correlation between noise samples due to the nonlinear character of the filter.

Note that both filters add correlation to the noise.

The PR4(C2) detector performs better because it partially removes the effects of noise correlation introduced by the PR4 shaping filter.

The EPR4 shaping filter does not introduce unnecessary noise correlation.

PR4(C2) still outperforms the two other algorithms, showing the value of exploiting the correlation across signal samples.

The prosecution history adds further clarification as to what makes the branch metric in the patent correlation-sensitive. In the prosecution history, the examiner initially rejected claims as being anticipated by U.S. Patent No. 5,862,192 to Huszar et al. (Docket No. 83-1 at 9). The patentee stated that Huszar did not have a correlation-sensitive branch metric because, although the branch metric did contain signal samples from different time instances, the branch metric did not have a term that "corresponds to the correlation between ri(0) and ri(1), i.e. there is no term that involves multiplying ri(0) with ri(1)." (Docket No. 83-1 at 10). As a result, the patentee distinguished its branch metric as being correlation-sensitive from Huszar by stating that the signal samples were multiplied together in the branch metric. Id.

Marvell takes this statement to mean that the patentee required the calculating of the expected (mean) value of the product of two random variables in its correlation-sensitive branch metric. CMU points out, however, that there is nothing said in regards to the calculating of the expected value, and that it would be inappropriate to read in the requirement of calculating the expected value of the product of the signal samples. The Court agrees that adding such a limitation would be inconsistent with the specification and how the applicants sought to distinguish the correlation-sensitive branch metric from the branch metric in Huszar. Marvell cites to other sections of the specification of the '839 Patent where the term "expected value" is used; however, those sections do not refer to the expected values of the product of random variables.

In considering all of the intrinsic evidence and extrinsic sources provided by the parties, the PHOSITA would find that "correlation," as used throughout the patent refers to the general English meaning. Marvell argues that CMU's construction comes from an amalgam of sources. The Court, however, is satisfied that CMU's construction both reflects how the PHOSITA would understand the term and is construed in a way to aid a jury in understanding the claims.

While CMU's construction for "correlation sensitive branch metrics" does contain the requirement that multiple signal samples are multiplied together, further clarification should be added to the construction to make the requirement of using more than one signal sample explicit. This requirement would be understood by the PHOSITA as the result of setting the correlation length to a number greater than zero (L > 0). To that end, the Court's construction of "correlation sensitive branch metrics" amends CMU's construction to reflect this requirement.

As a result, the Court concludes that the construction of the terms "correlation," "correlation sensitive branch metrics," and "correlation sensitive metric computation update circuit" are as follows:

Correlation means the "degree to which two or more items (here, noise in signal samples) show a tendency to vary together."

Correlation sensitive branch metrics means "'branch metrics' that account for 'correlation' in the signal samples by using multiple signal samples from different time instances and including at least one term in the branch metric calculation that involves multiplying signal samples from different time instances together."
A correlation sensitive metric computation update circuit means "a circuit that recalculates 'correlation-sensitive branch metrics' using statistics from the 'noise statistics tracker circuit.'"

"correlation coefficient"

Claims 25, 27, 28, and 31 of the '819 Patent contain the term "correlation coefficient." IPI contends the term means "a value representing or corresponding to the degree to which two variables are similar, e.g., the degree of difference or similarity between a query context vector and a context vector for a given document." Google contends the term means "a calculated number using a cosine function comparing the context vector of the words in a query and the context vector of the words in a document in the corpus of documents." The parties disagree as to whether "correlation coefficient" should be limited to a "cosine function."

IPI contends that the "correlation coefficient" is "simply a determination of the relative similarity and difference between the query or document context vectors" that is used to rank the documents. IPI's Opening Brief, at 15. IPI argues that although the "value" used to rank the documents can be a number, there are other ways to represent the similarity and differences, such as "a Boolean condition, a logic statement, or a log." Id. Thus, IPI opposes limiting "correlation coefficient" to a number, and particularly to a "number using a cosine function."

Google argues that "[w]here as here, the specification makes clear that a claim term necessarily involves a certain feature, Phillips requires the claim construction to include that feature." Google's Responsive Brief, at 19. Google contends that the specification consistently shows that a "correlation coefficient" is computed using a cosine function, '819 Patent, col. 18:26-33, and further cites to extrinsic evidence confirming the use of a cosine function. However, a preferred embodiment disclosed in the specification is not a claim limitation, and the Court refuses to import the cosine function limitation from the preferred embodiment into the claims. See Phillips, 415 F.3d at 1323.

Further, IPI asserts that the doctrine of claim differentiation precludes limiting the "correlation coefficient" as Google suggests. Although claim 25 does not specifically require that the "correlation coefficient" be calculated using a cosine function, dependent claim 26 does require computation using a cosine function. Thus, IPI contends that the "correlation coefficient" in independent claim 25 should not be limited to the specific embodiment claimed in claim 26. Because courts presume a difference in meaning and scope when a patentee uses different phrases in separate claims, the doctrine of claim differentiation applies in this case and "correlation coefficient" is not limited to calculation by only a cosine function. See Phillips, 415 F.3d at 1314-15.

IPI's proposed construction is consistent with the specification and the claim language, but the attached example is unnecessary because the claim language clearly indicates that the "correlation coefficient" compares the query context vector and the context vector for a given document. Accordingly, the Court construes the term "correlation coefficient" to mean "a value representing or corresponding to the degree to which two variables are similar."

14. "correlator"

Wi-LAN's Proposed Construction

"a device that measures the degree of similarity between the received signal and each code from a set of more than one and up to M codes, where M is the number of chips per code"

Defendants' Proposed Construction

Invalid for failure to meet 35 U.S.C. § 112, if M does not equal N

Alternatively, "a correlator for correlating each modulated data"
symbol from the received sequence of modulated data symbols with a code from a set of more than one and up to M codes, where M is the number of chips per code and where M equals N"

Claim 12 requires a correlator for correlating, where M is the number of chips per code. The specification provides that "[t]he dot product in FIG. 2 can be implemented as a correlator." '802 patent, 4:15-16. The specification further states: "The computing means 24 shown in FIG. 2 includes a correlator 26 for correlating each I modulated data symbol from the received sequence of modulated data symbols with the I code symbol from the set of N code symbols and a detector 28 for detecting an estimate of the data symbols from output of the correlator 26." '802 patent, 4:22-28. Similar to the "first computing means" term of claim 33, Defendants argue that the "correlator" term in claim 12 is indefinite, and thus renders claim 12 invalid, if M does not equal N. Defendants argue that, like independent claim 33, dependent claim 12 is invalid because the specification does not provide structure corresponding to the "M" chips per code function. Similar to its previous findings, the Court finds that changing N to M for certain terms is not an impermissible broadening of the claims during reissue. The Court finds that M need not equal N, and conversely, the Court is not convinced that M cannot be a different number than N. Thus, the Court rejects Defendants' arguments that claims 2, 4, 12, and 33 reciting the term "M" is invalid if M does not equal N. The Court further rejects Defendants' argument that this dependent claim is broader than claim 1 by eliminating the fixed numerical relationship between the number of data symbols and chips per code. The Court finds that the ordinary meaning of the term "correlate" is to put or bring into mutual, complementary, parallel, or reciprocal relation; related by a correlation; having corresponding characteristics. Wi-LAN proposes a definition for the term "correlator" that is consistent with the ordinary meaning of that term, while Defendants do not provide a definition and only argue that M must equal N. The parties have not disputed the meaning of other claims that use the terms "correlator" or "correlating." Claim 12 specifically requires a detector for detecting an estimate of the data symbols from output of the correlator, implying that the correlator correlates for the purpose of "detecting an estimate of the data symbols." Thus, the Court construes the term "correlator" to mean "a device that measures the degree of similarity between the modulated data symbols and a code."

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c. "Displaying Pixels Which Correspond To"

The district court construed the words "correspond to" in context to mean that the pixels illuminated on the display screen must pictorially represent the threat object or the part thereof that caused the radiation response. The district court explained that it was applying the ordinary meaning of "correspond to":

Although the lit pixels may not form a complete image of the object that is x-rayed, they correspond to characteristics of that object. The pixels display information about the point at which the interaction occurred between the radiation and the object scanned. They indicate whether or not the strength of the signal from the interaction exceeds the designated level and, by shading, give some information about how far the strength of the signal exceeds the designated level. Described in another way, the pattern made by the pixels of different colors develops an image of the threat object.

Vivid Techs., 997 F. Supp. at 99. AS&E argues that the claims do not contain the limitation "image," and that "displaying pixels which correspond to" a level of radiation does not require displaying an image of the object. Vivid responds that the specification does not permit this interpretation.

The specification defines a pixel as "an elementary portion of an image that will be formed and displayed." In discussing the pixel display resulting from the radiation response, the specification states that "the intensity of the pixel can be used to represent the attenuation presented to the illumination beam by the portion of the object 40 which was illuminated when the pixel was generated," and that "the intensity of the pixel generated by the backscatter detector can be mapped to that region of the object 40 whose illumination by the penetrating pencil beam 30 produced the backscattered x-rays which generated the pixel." These and similar statements relate the pixels to the object or region thereof that produced the radiation response,
whereby the pixels display an image of that object or part thereof. In view of the statements in the specification we conclude, as did the district court, that "correspond to" means that an illuminated image of the object or part thereof is displayed.

DISCUSSION

Beasley's application pertains to a system and method for generating an image on a screen display by using a light pen. Generally speaking, when the raster beam of the display hits the light pen, the light pen stores (i.e., writes) the intensity of this event in a memory chip within the system. When the memory is read, the stored data is used to generate an appropriate image on the screen corresponding to the location of the interaction of the light pen and the display. As disclosed, each memory location corresponds to a discrete point on the display. This correspondence is effected, in the words of the claims, by "sequentially addressing the memory locations in synchronization with the position of the beam so that the memory locations correspond to different points on the screen," 1 hereinafter referred to as the "means for sequentially addressing" limitation.

1 Claim 1 reads as follows:

1. In a system for forming an image on a display screen scanned in frames by a beam:

a light pen movable relative to the screen and having a light sensing element for providing a signal when the position of the light pen coincides with the position of the beam,

a memory having a plurality of addressable storage locations,

means for sequentially addressing the memory locations in synchronization with the position of the beam so that the memory locations correspond to different points on the screen,

means responsive to the signal from the light pen for writing data into the memory at locations corresponding to the position of the light pen on the screen during successive frames,

means for reading the data out of the memory locations as they are addressed, and

means responsive to the data read out of the memory for producing an image corresponding to the points where the light pen is positioned during successive frames.

(paragraphing added). The only other independent claim is claim 4, which claims a "method of forming an image," but which is otherwise similar to claim 1 in all material respects. Beasley does not make separate arguments with regard to the patentability of claim 4, or for that matter with regard to dependent claims 3 and 6. Claims 1, 3, 4, and 6 accordingly stand or fall together. See In re Kaslow, 707 F.2d 1366, 1376, 217 U.S.P.Q. (BNA) 1089, 1096 (Fed. Cir. 1983).

* * *

Beasley argues that his invention requires mapping the entire display screen into the memory on a point-by-point basis by sequentially addressing the memory locations in synchronization with the position of the raster beam. Beasley argues that Pieters does not disclose this feature because the memory locations in Pieters do not correspond with any particular point on the screen, but rather correspond with successive interactions between the light pen and the beam, regardless of the point on the screen at which these successive interactions occur. The Patent and Trademark Office responds that the claim does not require a memory location for every point in the display.
The issue before us is one of claim construction—viz., whether the claims require a one-to-one correspondence between particular memory locations and particular points on the display. We conclude that they do not. In drawing this conclusion we rely on the premise that the PTO is required to give claims their broadest reasonable interpretation during prosecution. See, e.g., In re Morris, 127 F.3d 1048, 1054, 44 U.S.P.Q.2D (BNA) 1023, 1027 (Fed. Cir. 1997). As asserted by Beasley, the claims do require a "correspondence" between sequentially-addressed memory locations and different points on the screen, but this claim language is not sufficiently narrow to require a one-to-one correspondence in which a particular memory location corresponds to a pre-determined point on the screen display. Accordingly, the claims can be read such that Pieters anticipates. While we recognize that the system disclosed in Beasley's specification does disclose one-to-one correspondence, we cannot read this attribute of the disclosed system into the claims as a limitation. See, e.g., Paulsen, 30 F.3d at 1480, 31 U.S.P.Q.2D (BNA) at 1674.

4 We note that the "means for sequentially addressing" limitation is drafted in means-plus-function form. See 35 U.S.C. § 112, P 6 (1994). This limitation is therefore to be construed as covering structures that (1) are identical or equivalent to those disclosed in the specification for performing the claimed function, and that (2) perform a function identical to the claimed function. See Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 934, 4 U.S.P.Q.2D (BNA) 1737, 1739 (Fed. Cir. 1987) (en banc). The parties do not dispute whether Pieters discloses a structure equivalent to that disclosed in Beasley; instead they only dispute whether Pieters discloses performing the function of "sequentially addressing the memory locations in synchronization with the position of the beam so that the memory locations correspond to different points on the screen." We accordingly need not identify or consider the structures in Beasley that correspond to this function.

H. "corresponding"

1. The Parties' Proposed Constructions

Ampex asserts that "corresponding" should be construed to mean "having a working relationship." (D.I. 305 at 11.) Of the claims asserted by Ampex in this case, claim 7 recites a "corresponding reduced size version," claim 12 recites a "corresponding one of said reduced size image data sets," and claims 13 and 15 recite a "corresponding plurality of reduced size reproduction images." n6 ('121 patent at 6:29-30, 8:26-27, 8:53-54, 10:15-16.) Ampex states that, in the context of these claims, "corresponding" requires that "a relationship be maintained between each full size image and the reduced size image generated from that full size image," (D.I. 305 at 11-12.) Ampex bases its proposed construction on a dictionary definition, the specification, the purpose of the invention, the prior art cited in the '121 patent, and expert testimony. (D.I. 300 at 26-28.) Defendants, however, argue that a "corresponding" reduced size image is "one that relates to a full sized image in that it is a smaller (lower resolution) version of the full sized image." (D.I. 305 at 11.) To support their position, Defendants rely on the language of the claims and the specification. (D.I. 299 at 28-29.)

n6 Claim 10 also includes the term "corresponding," but does not use it to describe the relationship between a full size image and its reduced size version. ('121 patent at 7:36-41.)

2. The Court's Construction

Although Defendants argue otherwise, the specification of the '121 patent does establish that a "relationship" is maintained between each full size image and the reduced size image generated from that full size image. The specification explains that the full and reduced size images are stored together. ('121 patent, Abstract.) More specifically, when a "frame of video data
is transferred from [the] frame store ... to [the] disk store ... for more permanent storage, both the full resolution and the quarter resolution copy are transferred." (Id. at 4:16-19.) In order for the still store system to transfer a full size image and its reduced size copy between memory components, the two images must have a relationship that can be detected by the system. Otherwise, it would be impossible for the system to determine which two images were being transferred.

Ampex argues that the browse function of the still store system supports the existence of a working relationship. (D.I. 300 at 26.) According to Ampex, the browse function permits a user to select one of the reduced size images in a multi-image display, and the still store system will retrieve its full size version. (Id.) Although not described in much detail, the specification does support this capability. The specification states that the still store system allows "an editor ... to view and compare several images at the same time for the purpose of selecting those images which will be used in a television broadcast." ('121 patent at 1:27-34.) This statement can be understood to mean that an editor can view several reduced size images at once and then "select" which full size versions to use in the broadcast. This ability to retrieve a full size image based on its reduced size copy clearly requires that a relationship be maintained between the two versions of each image.

There is another feature of the still store system disclosed in the specification which supports Ampex's proposed construction. The specification states that "[w]hen video data received from [the] disk store ... does not contain a corresponding quarter spatial resolution copy, [the] size reducer ... may be employed to generate a quarter spatial resolution copy for subsequent transfer to either [the] frame store ... or [the] disk store ..." (Id. at 4:7-12.) Unless a relationship exists between the full and reduced size versions of an image, the still store system would not be able to determine whether a full size image already has a reduced size copy. While Ampex admits that this feature is optional and is not recited in any of the claims at issue (D.I. 300 at 28, n.12), the still store system must be able to support this function. Therefore, based on the portions the specification discussed, I will construe "corresponding" to mean that "a relationship is maintained between each full size image and the reduced size image generated from that full size image."

4. corresponding time signal (Claims 28, 29, 32, 34 and 65)

Since this term is related to the preceding means plus function term, defendants propose that this should be the output of the means defined for the previous term. As discussed earlier, the Court rejects this approach.

Plaintiff's proposed construction is reasonable. The specification indicates this is the time that corresponds to receipt of the "sense signal" that is recorded by the device. Although it is true that recordings are made only when signal changes, the claim language does not include this limitation for the term, "corresponding time signal." See, e.g., '276 Patent, Cl. 65. Therefore, the Court construes this term as: "A signal indicating the time when the sense signal is received."

B. Information "corresponding to an alignment state" (claims 1, 9)

One of the steps of the method disclosed in claim 1 is: "extracting a correction condition by extracting information corresponding to an alignment state of said process[.]" The parties dispute the scope of the limitation "corresponding to an alignment state." Samsung contends that information "corresponding to an alignment state" could include many different types of information, including identifying the equipment or tools that were used to process a particular layer of a semiconductor wafer. Samsung's proposed construction is, "relating to the alignment of a lower layer or a reference layer formed during the manufacturing process of a semiconductor device." AMD contends that the extracted information consists of a comparison of the alignments of wafers in two layers. AMD proposes construing this limitation as follows: "relating to the relative position of one layer on a semiconductor wafer as compared to another layer on the same wafer in a photolithography application."

The specification supports AMD's construction. In the preferred embodiment, the "alignment parameter … indicates the correlation between the reference layer and the layer expected to be currently performed." 4:8-12. 11 In contrast, Samsung's
broad construction of information that corresponds to an alignment state is not supported by the intrinsic evidence. Samsung argues that information "corresponding to an alignment state" could include "reflectivity of the individual wafers," Samsung Br. at 9, but offers no citation to support this construction. Samsung also contends that information "corresponding to an alignment state" could include "the identification of the particular equipment that was used to process the lower layer in the current lot." Id. Samsung cites the following language from the specification in support of this reading: "When the parameters are added for processing using the same equipment, it is possible to set more precise optimal parameters. Thereby, it is also possible to minimize errors generated in the alignment & exposure process." 5:54-57. The Court finds that nothing in this language indicates that "information corresponding to an alignment state" includes information that identifies the processing equipment. This portion of the specification follows an explanation of how the preferred embodiment derives parameters, i.e. data that will be used to reset manufacturing processes. The concluding paragraph at 5:54-57, which Samsung relies on, simply explains that accuracy is increased if the same equipment is used to control the manufacturing process and to derive the information that will be used to correct that process.

--- Footnotes ---

11 Samsung agrees with AMD that the "alignment state" limitation refers to the photolithography process. Samsung Reply at 7.

--- End Footnotes ---

Samsung also argues that "information," as it is used in claim 1, must be broader than the term "resultant value" in claim 8. Samsung's comparison of the claim language in claim 8 is inapt. Claim 1 explicitly limits the type of "information" that is extracted: this step in the method concerns only information "corresponding to an alignment state." The reference to resultant values in claim 8 is not pertinent.

Accordingly, the Court adopts AMD's construction.
In the JACCC, Joyner construes "countdown timer" as "a timer which: (1) is started 'immediately upon' initiation of the video; (2) runs for the predetermined time; and (3) triggers the signal to release the ball." JACCC (docket no. 174), at 20. ProBatter does not offer a construction in the JACCC, because it believes the plain meaning of the clause is clear.

Accordingly, in light of the court's ruling in Part V.C.1, the court shall adopt ProBatter's construction of "countdown timer."

"Coup Message"

Cisco's proposed construction for "coup message" is "communication sent from one router to another that can cause the sending router to take over as the active router." Alcatel's proposed construction is "a message that is unicast by any router only to the active router to notify such active router that the router sending the message wishes to become the active router."

The major difference between the two proposals is that Alcatel seeks to limit the coup message as used in this patent as only being unicast from the sending router to the active router, while Cisco claims that the coup message can be broadcast to more than one router at a time. Since "coup message" is not explicitly defined in the patent, nor is it a term commonly known to one of ordinary skill in the art, the Court must look to the term's use in the patent, and the overall purpose of the patent, in order to glean its proper meaning as used in the claims. See Apple Computer v. Articulate Sys., 234 F.3d at 25 ("[T]he claim must be interpreted in light of the teachings of the written description and purpose of the invention described therein."); Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 956 (Fed. Cir. 2000) (looking to the written description of the patent in order to determine the meaning of a claim term).

The specification provides support for both proposed constructions. At one point in the specification, the patent describes the "coup message" as being "broadcast . . . to the active router." Li, at 12:56-57 (emphasis added). However, elsewhere the specification states that "a coup message may only be received by the active router." Li, at 14:67-15:1 (emphasis added). Nevertheless, as used in the claim language, "coup message" is not described as being either broadcast or unicast. It is only described as being intended to "notify a current active router that the router [sending the coup message] will attempt to become the active router." Li, at 17:14-16; see also Li, at 18:4-6; 19:2-4; 20:20-23. Therefore, the Court will not limit the term "coup message" to only a unicast message, because it is not so limited in the claim language, and the preferred embodiment is not clear on whether the reference to the "coup message" being received only by the active router was meant to limit a "coup message" to a unicast transmission in all instances. See Rhine, 183 F.3d at 1346 (particular embodiments in the specification should not be read into the claims when the claim language is broader than such embodiments).

Thus, the Court construes the term "coup message" as "communication sent from one router to notify the active router that the router sending the message wishes to become the active router."

Zebco's second interpretive argument is that the term "coupled" in the phrase "[a] heading lock coupled to a trolling motor" found in the preamble of claim 1 is limited to a mechanical or physical coupling. We are unpersuaded. Even assuming—as did the district court and Zebco—that the language of the preamble of claim 1 constitutes limitations on the claim rather than mere description, see Bell Communications, 55 F.3d at 620, 34 U.S.P.Q.2D (BNA) at 1820 (Fed. Cir. 1995) ("When the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects."), Zebco cannot demonstrate that a limitation to the broad and general term "coupled" must be read into the claim.
As with "heading signal," Zebco (a) recognizes that the unmodified term "coupled" generically describes a connection, and does not require a mechanical or physical coupling; and (b) does not suggest that "coupled," as used in the preamble, lacks clarity. Instead, Zebco points to passages of the written description implying the relationship between elements of the preferred embodiment, and argues that such language constitutes a special (and limited) definition of "coupled." For example, Zebco argues that the phrase "feedback means for providing a feedback signal to the control means, wherein the feedback signal is indicative of the direction of thrust," '825 patent, col. 2, lines 32-34, defines "coupled" to mean "mechanically coupled." However, just as the preferred embodiment itself does not limit claim terms, see Renishaw, 158 F.3d at 1248, 48 U.S.P.Q.2D (BNA) at 1120, mere inferences drawn from the description of an embodiment of the invention cannot serve to limit claim terms, e.g., Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 U.S.P.Q.2D (BNA) 1057, 1064 (Fed. Cir. 1988), as they are insufficient to require a narrower definition of a disputed term.

Zebco also identifies statements in the prosecution history which purport to indicate the true (and limited) meaning of "coupled." Specifically, Zebco points to the aforementioned June 17, 1992 amendment of the '586 application, where the applicant argued that "it is not obvious to affix a compass to a propulsion device in a matter recited by [the] claims." However, as we noted above, that statement lends no support to Zebco's position, as it was made in reference to original claims 4 and 14, each of which expressly required that the compass be fixed to the trolling motor.

Because Zebco has not shown a sufficient reason to alter the clear meaning of the term "coupled," we agree with the district court that the term is not limited to a mechanical or physical coupling.

## 1008

### A. "Coupled"

#### 1. Proposed Constructions

Plaintiffs assert that "coupled" should be construed as "two things being connected in some way so that information can be transferred from one to the other." Plaintiffs' '736 Br. at 7. Plaintiffs assert that this is the ordinary meaning of the word. Id. Defendants, on the other hand, assert that "coupled" should have a much narrower construction. Defendants' '736 Br. at 8-9. They propose that "coupled" be construed to mean "directly connected via signal lines, busses, and/or multiplexers." Id. at 8. Defendants contend that the types of components that must be used to accomplish the coupling claimed are those which "allow for the flow of digital data without it being subject to an operation or processing step that would cause a state change in that digital data." Id.

#### 2. Claim Language

The word "coupled" appears in the preambles of claims 1 and 7 and in several other places in the bodies of the two claims. In claim 1, "coupled" is used in the following six ways: "a controller coupled with a MPEG decoder" ('736 patent at 10:43-44); "a first signal processor coupled to the read channel subsystem" (id. at 10:50-51); "a second signal processor coupled to the read channel subsystem", (id. at 10:56-57); "a read first-in-first-out buffer coupled to a memory data input register" (id. at 11:4-5); "a write first-in-first-out buffer coupled to a memory data output register", (id. at 11:6-8); and "a single memory cell coupled to the memory data output register and the memory data input register" (id. at 11:8-10). In claim 7, "coupled" is used in the following three ways: "a signal processor coupled to the read channel subsystem" (id. at 13:3-4); "a memory subsystem that includes a single memory cell coupled to the signal processor" (id. at 13:17-18); and "a parallel interface coupled to the MPEG FIFO interface" (id. at 13:24). In claim 5, which is not asserted in this action, "coupled" is used as follows: "a write first-in-first-out (FIFO) buffer, a read first-in-first-out (FIFO) buffer coupled to the error code correction and detection subsystem" (id. at 12:7-10).

To support the construction of the term "coupled" as meaning "two things being connected in some way so that information can be transferred from one to the other," plaintiffs contend that "coupled" is used to describe different types of connections in the claims. They point to the numerous examples of connections designated as "coupled" some involving two items directly coupled, others apparently designating as "coupled" items that are separated by an intervening component. Plaintiffs' '736 Br. at 7. By contrast, defendants argue that the claims clearly refer to two components as "coupled" only if
they are directly connected via signal lines, busses, and/or multiplexers in such a way that no operation or processing step occurs that changes the state of the digital data. Defendants' '736 Br. at 8.

3. Specification

Defendants argue that the specification, like the claims, refers to two components as "coupled" only if they are directly connected via signal lines, busses, and/or multiplexers such that no state change occurs in the digital data. Id.; see '736 patent at Fig. 1 & 1:35-52, Fig. 2 & 5:8-26, Fig. 4 & 6:40-55. Plaintiffs, however, argue that defendants are impossibly imposing limitations from the specification into the claims, particularly with respect to the portion of defendants' proposed construction that requires no state change between two coupled components. '736 Reply at 3. In support of their own proposed construction, plaintiffs argue that "coupled" is merely used in the '736 patent to describe a connection between two different components in the system. Plaintiffs' '736 Br. at 7.

Plaintiffs cite two examples they contend serve to rebut any requirement that components and systems must be directly connected to be coupled. They first note that claim 7 refers to "a memory subsystem that includes a single memory cell coupled to the signal processor. . . ." Second, based on the claim language in claim 7, they argue that the signal processor in Fig. 5 is connected to the single memory cell but only through multiple intervening components, namely elements 98 and 100, the write FIFO 108, and MDRO 112.

The court reads claim 7 as denoting that the memory subsystem is coupled to the signal processor, i.e., "a memory subsystem that includes a single memory cell coupled to the signal processor." The single memory cell is appropriately read as a component included within the memory subsystem of claim 7, not a component to which the signal processor is connected. Read appropriately, the single memory cell is not coupled to the signal processor, rather, the memory subsystem (that includes a single memory cell) is coupled to the signal processor, another subsystem.

However, even with the court's reading of the limitation, Fig. 5 illustrates the memory system 102 is coupled to the signal processors 92 and 94 via additional elements 98 and 100 located between the memory subsystem and the signal processors. 98 and 100 are described in the specification as multiplexors, neither of which is an intervening subsystem. However, they are components between the subsystems. Thus, the subsystems are not directly connected to one another without intervening components -- intervening components exist between the subsystems.

Under defendants' proposed construction, multiplexors are permissible components between "coupled" elements because, so long as no state change occurs in the digital data, multiplexors are merely connective elements. Defendants' proposed construction, however, is too narrow, as it specifies the nature of the connective elements and adds a requirement for "no state change" found nowhere in the claims or specification, thereby introducing limitations not expressly called for in the specification. The court is, however, also concerned that the plaintiffs' proposed construction is overly broad and that under plaintiffs' proposed construction, every pair of subsystems would be considered "coupled", independent of location, function, or relation to each other. Thus, it finds another construction to be appropriate.

The specification and claims designate specific subsystems as being "coupled" when they are directly connected in both prior art and the preferred embodiment, see, e.g., '736 patent at 1:49-50, 2:26, 5:24, 6:49, 6:51, 6:52 & claim 1, 2; they designate specific components as being "coupled" when they are directly connected, id. at 2:32 & claim 1, 2; and they designate specific components connected to subsystems as being "coupled" when they are directly connected, id. at 2:24, 2:38 & claim 5. Thus, the court adopts neither party's construction and construes "coupled" as describing a direct connection, specifically, a connection between subsystems without intervening subsystems, a connection between components without intervening components, and a connection between components and subsystems without any intervening components.

This court has consistently construed the term "coupled" to mean "directly or indirectly connected." Accordingly, the court adopts Lucent's construction of this term.
8. "Coupled"

The court defines the term "coupled" to mean "electrically connected, directly or indirectly."

(2) "Coupled"

EMC contends that the term "coupled" means connected by a communications path. While HP does not dispute that "coupled" means connected, it contends that the requisite connection must be direct, i.e. without the intervention or interposition of any additional system or device. The parties agree that the requisite connection may be physical or logical.

The plain and ordinary meaning of the term "coupled" is "mechanically or electrically connected." Webster's Third International Dictionary, 522 (1981). There is no requirement that such connection be direct rather than indirect. Moreover, there is no indication in the Specification that the term "coupled" is limited only to "direct" connections. The Specification states, in relevant part,

[t]he primary system controller 16 is coupled to the storage device 20 by means of a data signal path 24.

[t]he . . . second disk adaptor 36 is coupled, via a high speed communication link 40 to disk adapter 42 on a secondary data storage system controller . . . .

[u]tilizing network connections, the primary and secondary data storage system controller 16 and 44 may be connected to FDDI networks, T1 or T3 based networks and SONET networks.

'347 Patent, Col. 4, ll. 18-20, 53-56 and 62-65 (emphasis added). Although Figure 1 in the Specification of the '347 Patent depicts the aforementioned "couplings" as direct connections, EMC has not demonstrated, either in the Specification or in the prosecution history, a clear intent to disavow or disclaim the plain and ordinary meaning of the term "coupled." Consequently, the term coupled will be construed to mean connected, directly or indirectly, by a communication path.

3. Element [B] -- "Coupled"

The parties dispute the proper construction of the term "coupled" in element [B] of claim 35. WeddingChannel argues that "coupled" means connected, directly or indirectly, to allow the transfer of signals or information. The Knot interprets "coupled" to mean connected directly via an internal computer bus.

WeddingChannel argues that the term "coupled" has a well-understood meaning in the art: Computer engineers understand that one structure is "coupled" to another if signals or information can pass -- directly through a wire or indirectly through an intervening computer or circuit -- from one to the other. In support of this interpretation, WeddingChannel cites a definition of "coupling" drawn from a technical dictionary:

(3) (software) The manner and degree of interdependence between software modules…

(7) The association of two or more circuits or systems in such a way that power or signal information may be transferred from one system or circuit to another.
The IEEE 100, The Authoritative Dictionary of IEEE Standard Terms at 247 (7th ed. 2000). WeddingChannel argues that its proposed construction of the term "coupled" is also supported by relevant case law holding that the ordinary meaning of "coupled" is "connected, directly or indirectly." Silicon Graphics, Inc. v. nVIDIA Corp., 58 F. Supp. 2d 331, 346 (D. Del. 1999); see also Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478, 490 (D. Del. 2001) (stating that "coupled" is "a term of art in patent parlance that means electrically (or otherwise) connected to allow the transfer of signals").

WeddingChannel argues that the patent specification confirms that the term "coupled" should be read broadly (and according to its ordinary meaning) to include indirect coupling. The specification states that "one or more registry databases 120 may actually reside on one or more remote servers 142 that are accessible to system memory 114 through network interface 112." '753 Pat. at col. 11, ll. 34-39. WeddingChannel argues that because such data typically passes through numerous intervening computer systems as they traverse the internet, the specification necessarily contemplates indirect coupling.

The Knot argues that the generic definition of "coupling" -- i.e., the direct or indirect connection of two components so that information or power can be passed between them -- is not applicable to the '753 patent. Rather, the Knot takes the position that the term "coupled" has different meanings depending on the patent that is being construed. See, e.g., Acacia Media Technologies Corp. v. New Destiny Internet Group, No. SA CV 02-1040-JW (MLGx), 2004 U.S. Dist. LEXIS 13415 at *42 (C.D. Cal. July 12, 2004). 4 The Knot argues that any construction of the term "coupled" must take into consideration the following: (1) that in the '753 claims, only the "central processing unit" and the "memory" are recited as being "coupled," and (2) that in the specification, the only connection shown or described between the central processing unit and the memory is computer bus 138, a direct physical connection. ('753 Pat. at col. 4, ll. 25-29; Fig. 1).

The Knot disputes WeddingChannel's contention that the specification provides that remote servers are "coupled" across the internet to system memory 114 through intervening network interface 112. Rather, the Knot argues that the specification merely states that one or more remote servers are "accessible" to system memory 114 through network interface 112.

The Knot argues that this intrinsic evidence must be consulted "to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." Tex. Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002). 5

The Knot's construction of the term "coupled" is based on the incorrect assumption that the '753 patent only recites the CPU and "memory" as being coupled. As discussed above, element [B] provides that the CPU is also coupled to registries from database providers. As demonstrated in the specification, the connection between the CPU and the registries from database providers is necessarily indirect. Therefore, the term "coupled" must encompass both direct and indirect connections. On this basis, WeddingChannel's construction of the term "coupled" is adopted.

--- Footnotes ---

4 The Knot points out that in Acacia, the court found that the ordinary meaning of the phrase "coupled to" was "directly connected or attached to." Acacia, 2004 U.S. Dist. LEXIS 13415 at *42. It should be noted that the Acacia court read the directness requirement into the definition; there is no such directness requirement contained in the dictionary definition cited by the Acacia court. Id. (stating that Webster's Ninth New Collegiate Dictionary (1991) defines "couple" to mean 'to connect for consideration together'").

--- End Footnotes ---

5 The Texas Digital Systems court also stated that "if more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings." Tex. Digital Sys., 308 at 1203. (quoting Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1343 (Fed. Cir. 2001)).

--- End Footnotes ---

--- WeddingChannel's construction of the term "coupled" is adopted. ---
Verizon asserts that the term "coupled" means "separate from but operatively connected for electrical communication." Verizon Brief at 25. According to Katz, no special construction of "coupled" is necessary. Katz, however, also provides a definition: "two things are coupled if they are associated in such a way that power or signal information may be transferred from one to another." Katz Brief at 40.

"Coupled" means associated in such a way that power or signal information may be transferred from one to another. It appears that one of ordinary skill in the art understands the term "coupled" to connote a broad range of associations between two things. The plain meaning of coupled, as understood by someone ordinarily skilled in the art, does not require that the "coupled" components be necessarily physically separate from one another. See Lucanoni 1/15/03 Decl. PP 6-8, & Exs. 2, 3; see also Webster's Ninth New Collegiate Dictionary at 298 ("couple" means "to join together for combined effect"). Verizon points to nothing in the specification or prosecution history of the 734 patent that justifies deviating from the broad meaning of "coupled" as understood by one of ordinary skill in the art. At the Claims Construction Hearing, Verizon alleged that two elements must have an interface between them to be "coupled" within the proper meaning of the term. Verizon's contention, however, begs the question as to whether this interface must be physically defined or defined purely by software.

Fairchild contends that the term "coupled" should be given its plain and ordinary meaning. Specifically, Fairchild contends that "two circuits are coupled when they are configured such that signals pass from one to the other." (D.I. 152 at 10). Fairchild contends that Power Integrations' construction of this term seeks to imply a requirement that the connection be a direct connection, or a connection without any intermediate circuit elements. Fairchild contends that such a construction is inappropriate and is driven by Power Integrations' concern that the claims may be found invalid in light of the prior art.

Power Integrations contends that "two circuits are coupled when they are connected such that voltage, current, or control signals pass from one to another." (D.I. 152 at 10; D.I. 164 at 17-18). According to Power Integrations its construction of the term "coupled" does not require a direct connection as Fairchild contends. Rather, Power Integrations contends that its construction reflects more accurately the nature of the coupling recited in the patent, because the recited coupling is present "for the purposes of control (i.e., 'digital to analog converter coupled to the control input for varying the switching frequency' and 'counter coupled to the . . . digital to analog converter, the counter causing the digital to analog converter to adjust...')" (D.I. 152 at 10).

Construing the term "coupled" in light of the claim language and specification, the Court concludes that "two circuits are coupled when they are connected such that voltage, current or control signals pass from one to another." In reaching this determination, the Court concludes that Fairchild's construction is overly broad and generic and fails to consider the term "coupled" in the context of the invention. In the Court's view, its construction of the term "coupled" is consistent with the claim language and the context of the specification which describes the purpose for which various parts of the claimed invention are coupled. (876 patent, claim 1, col. 8, ll. 48-49, 50-52). However, the Court's construction of the term "coupled" should not be read to imply or necessitate a direct connection, as the Court does not read the patent to require a direct connection or to preclude the use of intermediate circuit elements.

25. Coupled
This term appears in claims 3 and 17 of the '313 patent. The plaintiff argues that this term needs no construction. The defendants contend that the term means "totally coupled," which is a variant of the position that the claims (even the non-means-plus-function claims) are limited a network that provides each processor full access to each storage register in a non-blocking manner. This position is rejected. The term "coupled" means "connected, directly or indirectly."


Intergraph again argues this term carries its ordinary meaning "in connection with." Intel argues "coupled" means electrically connected. The Court construes "coupled" as connected, directly or indirectly.

(2) coupled

The issue here is whether "coupled" describes a direct connection, indirect connection, or both. Dell argues that the patents use the term throughout the specification as meaning a "direct physical connection." Contrary to Dell's assertion, claims 14 and 94 of the '216 patent, read together with the specification, suggest that "coupled" can include an indirect connection. Claims 14 and 94 state the following:

At least a first updatable switchtable in said first station for storing information indicating at least the destination of data;

a microprocessor operating according to a first clock, coupled to said updatable switchtable, said updatable switchtable operating according to a second clock asynchronously with said first clock;

a register coupled to said microprocessor for receiving update data from said microprocessor during a first time period at a data rate corresponding to said first clock and coupled to said first updatable switchtable for outputting said update data to said first updatable switchtable. '216 Patent, cl. 14 (emphasis added).

Looking to the specification, claims 14 and 94 of the '216 patent appear to be shown in Figure 12. As discussed in the specification, "FIG. 12 depicts another configuration which permits the processor 138a to update the receive and transmit switch tables 140, 162 without such inefficiency." '216 Patent, col. 15, ll. 5-7. The processor is not directly connected to the switchtable. The claims, when read in light of the specification, indicate that "coupled" means more than a "direct physical connection."

As such, the court defines "coupled" to mean the following: "connected directly or indirectly."

"Coupled" means "the transfer of energy over a conductive or dielectric medium, such as an optical waveguide or wire."

3. What is the Proper Construction of the Term "Coupled" in Claim 1 of the '481 Patent?

Claim 1 of the '481 patent uses the term "coupled." Silicon Graphics contends the term "coupled" requires that the specified components be coupled or connected, directly or indirectly. This would encompass any electrical connection that allows a
signal to travel from one circuit to another, whether directly or indirectly. nVidia contends the term "coupled" means "directly coupled" or "directly connected." Under nVidia's proposed construction, "coupled" would include, for example, a wire between points A and B with no other components in between.

Neither the claim nor the specification defines the term "coupled." Both parties refer to dictionary definitions to support their proposed constructions. For example, Silicon Graphics cites a technical dictionary of electronics, which defines the term "couple" as "to connect two circuits so signals are transferred from one to the other." Sclater, N. and Markus, J., McGraw-Hill Electronics Dictionary (6th Ed. 1997). nVidia counters with definitions of "couple" that include: (1) "to link together; connect," from The American Heritage College Dictionary, (3d Ed.) at 318; and (2) "a rather vague term, used to indicate that systems which might operate separately are actually being used in some form of cooperative mode. . . ." from the Dictionary of Computing, (4th Ed. 1996)

The Federal Circuit teaches that "a court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms." Johnson Worldwide Associates, Inc. v. Zebco Corp., 1999 WL 243570, *3; see also Hoganas AB v. Dresser Industries, Inc., 9 F.3d 948, 951 (Fed. Cir. 1993) ("Although a patentee can be his own lexicographer, as we have repeatedly said, the words of a claim 'will be given their ordinary meaning, unless it appears that the inventor used them differently.'"); Intelicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387 (Fed. Cir. 1992). The court notes that the ordinary and accustomed meaning of the term "couple," even when used in an electronics context does not solely mean "directly coupled."

The specification of the '481 patent sheds some light on the meaning of "coupled." For example, Claim 1 recites that the cache is coupled to the input. Figure 2 is a block diagram of a TRAM as an embodiment of the inventions claimed in the patent. In this diagram, the cache is not directly connected to the input line, instead there is a DRAM array and an input buffer between the cache and input line. This arrangement suggests that "coupled" means directly or indirectly connected.

The specification and claims of the '709 patent also support this construction. Claim 1 of the '709 patent recites "an interpolator coupled to said main memory and said cache memory." Figure 2 of the specification is a diagram similar to Figure 2 of the '481 patent that shows the interpolator directly connected to the cache but not to the main memory. The Federal Circuit teaches that the prosecution history of a parent application may be considered by the court in its interpretation. See, e.g., Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1027 (Fed. Cir.) modified, 131 F.3d 1009 (Fed. Cir. 1997) (noting statements in the parent application may be considered but must be confined to their proper context). The Federal Circuit has explained that an inventor is not likely to define the invention in a way that excludes the preferred embodiment. Hoechst Celanese Corp. v. BP Chemicals, Ltd., 78 F.3d at 1581.

The court finds no reason not to apply the ordinary meaning of the term "couple," and determines that the ordinary meaning in this context is "coupled or connected, directly or indirectly."


Claim 1 of the '481 patent states "an output coupled to said interpolator for outputting said output rendered pixel . . . ." Claim 10 of the '481 patent states "outputting said output rendered pixel from said semiconductor chip . . . ." The parties dispute the meaning of the terms "output," and "outputting" and "output rendered pixel."

All of nVidia's arguments concerning the meaning of these terms flow from the underlying premise that the '481 patent does not claim further processing of the pixel on the semiconductor chip after the interpolator has performed its texture mapping functions and rendered a value. To support this position, nVidia contends that outputting from the interpolator and from the semiconductor are one in the same, and that an output rendered pixel is the texture mapped pixel output by the interpolator that has not received further on-chip processing. nVidia bases its argument upon statements made in the '481 patent's specification and the prosecution history.

Silicon Graphics, on the other hand, contends the phrases at issue can be understood according to the ordinary meaning of their terms. Silicon Graphics argues the phrase "an output coupled to said interpolator for outputting said output rendered pixel" in Claim 1 describes an output and outputting from the interpolator, and not necessarily from the semiconductor.
Similarly, Silicon Graphics contends the phrase "outputting said output rendered pixel from said semiconductor chip" in Claim 10 describes outputting from the semiconductor, and not necessarily from the interpolator. Silicon Graphics also argues the claims encompass other on-chip processing in addition to texture mapping.

This claim construction dispute underlies the literal infringement dispute. nVidia's allegedly infringing graphics chips perform processing in addition to mapping texture onto a pixel before outputting the pixel from the chip. For example, additional on-chip processing maps lighting and fogging effects on the pixel. According to Silicon Graphics's claim construction, a graphics chip which performs on-chip processing in addition to mapping texture onto the pixel may literally infringe Claims 1 and 10. According to nVidia's interpretation, a chip which performs on-chip processing of a pixel after the pixel is output by the interpolator does not literally infringe either Claim 1 or Claim 10.

a. What is the meaning of the phrase "an output coupled to said interpolator for outputting said output rendered pixel" in Claim 1 of the '481 patent?

The plain language of Claim 1 does not suggest that outputting or the output from the interpolator must be the same as outputting or the output from the semiconductor chip. Neither does the claim language define "output rendered pixel" as a rendered pixel output from the semiconductor with no processing other than the texture mapping performed by the interpolator.

nVidia argues that the inventors understood the output and outputting from the interpolator to be the same as the output and outputting from the semiconductor, and that they understood an "output rendered pixel" to be a texture mapped pixel that had not been further processed before being output by both the interpolator and the semiconductor. nVidia cites the '481 patent's "Summary of Invention," which states: "also included within the same semiconductor chip is one or more interpolators. These interpolators produce an output texel by interpolating from the textures stored in memory. The interpolated texel value is output by the semiconductor chip for display."

nVidia argues that, based upon this understanding of the invention, the applicants limited the meaning of the term "output rendered pixel" during prosecution. During the prosecution of the '709 patent, the applicants amended pending Claims 1 and 19, replacing the word "texel" with the phrase "output rendered pixel." With respect to this amendment, the applicants stated: "the word 'texel' as used in the claims refers to a pixel element of an object to which the texture pattern has been mapped, the pixel element being available at the chip's output as a 'rendered pixel.'"

These combined statements lead to the conclusion that the applicants understood that the pixel processed by the interpolator would be output from the semiconductor chip. These statements do not lead to the conclusion, however, that the inventors thought the patent did not disclose mapping additional data onto the pixel after the pixel is output from the interpolator but before the pixel is output from the semiconductor.

nVidia argues the patent's specification discloses that the "output rendered pixel" undergoes further processing in addition to texture mapping only after being output from the TRAM. In support, nVidia cites the specification, which reads: "the pixel data is sent to the raster subsystem, whereupon the z-buffering, blending, texturing and anti-aliasing functions [additional processing functions] are performed. The resulting pixel values are stored in frame buffer 109. The display subsystem reads frame buffer and displays the image on display monitor" U.S. Patent No. 5,706,481, col. 4, ll. 16-21.

The language nVidia cites refers to the specific example of a computer system utilizing the invention depicted in Figure 1 of the '481 patent. The Federal Circuit teaches that particular embodiments appearing in a specification should not be read into the claims when the claim language is broader than such embodiments. See, e.g., Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994). Accordingly, the court finds that this statement does not disclaim processing on the TRAM in addition to the texture mapping performed by the interpolator.

Because nVidia has not demonstrated that the claim, specification, or prosecution history limits the meaning of the phrase at issue, the court construes it according to the ordinary meaning of its terms. Johnson Worldwide Associates, Inc. v. Zebo Co., 1999 WL 243570, *3. The court finds the phrase "an output coupled to said interpolator for outputting said output rendered pixel" in Claim 1 of the '481 patent means an output coupled to the interpolator for outputting the output rendered pixel. The court finds that outputting the output rendered pixel from the interpolator, as described in Claim 1, does not have to be the same step as outputting the output rendered pixel from the semiconductor. The court also finds that an "output
rendered pixel" may undergo further on-chip processing in addition to texture mapping.

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10. Coupled/Coupled To

The terms "coupled" and "coupled to," as used in Claims 1, 8, and 13, are not defined in the claims or specification and therefore must be construed in accordance with their ordinary meaning to a person skilled in the art. Citec's proposed construction is supported in part by reference to the Random House Unabridged Dictionary (2d ed. 1993), which defines the verb "couple" as "to fasten, associate or link together" or "to join or associate by means of a coupler." However, Citec's proposed definition of "functionally, operatively, or communicatively linked" seeks to introduce limitations not suggested by the specifications. Similarly, Romtec's interpretation of the term "coupled to" as used with "user actuated switching means" improperly seeks to read into the term a limitation in the specification. Therefore, the Court construes the terms "coupled" and "coupled to" to mean linked together.

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4. "coupled between"

Claims 1, 4, 7, 10, 15, 18 and 21 contain the phrase "coupled between." Toshiba contends that no construction is necessary and the ordinary meaning of the phrase should apply. Jt Cl Const, Ex B at 9. Alternatively, Toshiba proposes that the phrase means "a current path permitting signals to be transferred between two points." Id. Hynix construes "coupled between" as ". . . residing between distinct elements and connecting the distinct elements directly or indirectly." Id. Hynix illuminates the court with the following statement: "The phrase 'coupled between [sic] has two aspects: it must couple two elements and it must be between those two elements." Hynix Br at 17 (emphasis in original). While the court cannot disagree with Hynix's tautological reasoning, Hynix has not provided any reason why its far more cumbersome construction would assist a jury perform its duties better than the simple term "coupled between." Accordingly, the court declines to construe this term.

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c. "A control coupled only to said preprogrammed memory for selectively communicating said preprogrammed memory to said electronic control module."

According to Plaintiff, this phrase means "a control coupled to a physical structure containing at least one additional program, for the sole purpose of communicating contents of that preprogrammed memory to the ECM." Defendants advance the following construction: "a control physically connected only to the preprogrammed memory and to nothing else, for the purpose of physically switching a physical memory to a physical computer, not merely transferring the program contents of that memory to another memory." The first point of contention here is whether the word "only," as situated within the phrase at issue, refers to the elements being connected or to the purpose of the connection. Plaintiff argues that the word indicates that the coupling is intended only to communicate the memory. Defendant contends that the claim allows coupling only between the control and the preprogrammed memory. The second disputed issue is whether the memory conveyed consists of the contents of the memory module (i.e., the software) or the physical memory itself (i.e., the hardware). Plaintiff takes the former position, while Defendant advances the latter.

Mr. Lundell recommends that "only" be read to refer to the purpose of the connection and not to the components involved. He suggests that the Court construe "only . . . for" to mean "for the sole purpose of." The Court agrees with Mr. Lundell's construction, which -- unlike Defendants' interpretation -- has the advantage of encompassing the embodiments described in the patent.
Mr. Lundell further recommends that the Court read "selectively communicating said preprogrammed memory" to mean "the transfer of information from the preprogrammed memory to the electronic control module at different times and for different purposes." This construction permits the transfer of either the contents of a memory or the physical memory itself and is consistent with the Court's holding that the device must be permanently affixed to the vehicle. Accordingly, the Court adopts the following construction: "a control coupled to the preprogrammed memory for the sole purpose of permitting the transfer of information from the preprogrammed memory to the electronic control module at different times and for different purposes."

F. "A control coupled only to said preprogrammed memory for selectively communicating said preprogrammed memory to said electronic control module, operation of said vehicle being changed by said control according to said additional program in said selected preprogrammed memory in lieu of said originally provided program."

This term means that the external module includes a control circuit that is connected only to the preprogrammed memories and to nothing else. The control circuit is used to regulate or guide the operation of the vehicle. The control circuit regulates or guides the operation of the vehicle according to the additional program within the preprogrammed memory in lieu of, that is, instead of, the original program within the fixed system's memory.

In Adrain's proposed construction, the word "only" refers to the phrase "selectively communicating." However, such a construction goes against and distorts the plain language of the claim. The language of the claim recites that the "control is coupled only to said preprogrammed memory . . . ." The word "only" directly follows the word "coupled" and is directly followed by the phrase "preprogrammed memory." Adrain's construction would require that the word "only" follow the phrase "selectively communicating," which it does not do. The word "only", then, clearly refers to where the control is coupled, that is, the preprogrammed memory. It does not refer to "selectively communicating."

This same language is found in the Brief Summary of the Invention section of the 948 patent: "A control circuit is coupled only to the plurality of preprogrammed memories and selectively communicates one of the plurality of preprogrammed memories to the electronic control module." (948 Patent, col. 2, ln. 39-42). Again, "only" immediately follows "coupled" and obviously refers to where the control circuit is coupled.

2. Whether or Not the Processor Means Must be "Coupled to" the Memory Key During a Test

Biosite, and to a certain extent Apex/HDI, n8 contend that the "coupled to" limitation of the "processor means" element necessitates that the processor means be connected to the memory key means during a test. Biosite argues that all the experts in the case agree that the "processor means" accesses data on the pluggable memory key means during the test. Moreover, Biosite continues, the experts agree that the "coupled to" limitation in claim 4 also means that the "processor means" is connected to the pluggable memory key means during the test, therefore, the same meaning should apply the to term in claim 1. To further support its position, Biosite points to language in the specification that implies that the "processor means" must be able to access data during a test: "Because the amount of random access memory (RAM) contained within microprocessor 59 is limited, data from ROM key 30 is loaded into RAM by microprocessor 59 only on an as needed basis, after which it is discarded, with new data taking its place." n9 Id. col. 6, ll. 14-18.

n8 Apex/HDI contend that the corresponding algorithm for what they have interpreted as an "accessing" function of the "processor means" requires the microprocessor to access parameter values and procedure routine specifications on a real-time basis during execution of the entire algorithm. In effect, this is the same argument that Biosite makes regarding the "coupled to" limitation.
Roche contends that a continuous connection is not required by the term "coupled to." Roche argues that Biosite takes Dr. Dunsmore's testimony out of context, and that the expert did not opine that the "processor means" has access to the pluggable memory key means during the test. Furthermore, Roche argues that the embodiment of the invention that includes using a cyclic redundancy check ("CRC") indicates that all the necessary data is downloaded to the microprocessor before the test is run. See id. col. 8, ll. 16-29; id. Fig. 8. A definition for "coupled to" that requires the "processor means" to be connected to the pluggable memory key means during the test would obviate this embodiment.

The Court finds that the plain meaning of the term "coupled to" is: joined or connected to during performance of the algorithm. The claim language itself implies that the "processor means" responds to data on the pluggable memory key means during performance of the algorithm that controls the sense means, and calculates an analyte value. Claim 1 states, "processor means coupled to said memory key means and responsive to parameter values and procedure routine specifications accessed from said pluggable memory key means, for controlling operation of said sense means in accordance with said algorithm and for calculating . . . a concentration value. . . ." Id. col. 9, ll. 4-11. The language of claim 4 is equally persuasive. See id. col. 9, ll. 52-68 (describing how the processor means uses data from the pluggable memory key means to execute the test procedure).

The specification supports the conclusion that the invention of the 609 patent, as disclosed to one of ordinary skill in the art at the time of the inventions, would have read the limitation "coupled to" to require some connection between the "processor means" and the "pluggable memory key means" during execution of the algorithm. As pointed out by both Biosite and Apex/HDI, the description of the preferred embodiment indicates that the "processor means" is connected to or communicating with the pluggable memory key means during the test. The specification teaches that information is loaded from the pluggable memory key means by the processor "only on an as needed basis." Id. col. 6, ll. 14-18.

Roche argues that the disclosure of another embodiment that uses a CRC necessitates a different result; the second invention requires all data to be read from the pluggable memory key means at once, the test is run, then the values are read again. The invention described by Figure 8 and the text of the specification that describes the algorithm in Figure 8 suggests that "all data is read from ROM key 30 and a CRC checksum is calculated therefrom . . . [and] the CRC checksum is stored in RAM in microprocessor 59 and the test continues until a glucose value has been calculated. . . ." Id. col. 8, ll. 19-27. Then, "all data is again read from ROM key 30 and a CRC checksum is again calculated. . . ." Id. col. 8, ll. 28-29; id. Fig. 8. Roche's reading of this passage and Figure 8 ignores the subtlety of this disclosure. It is clear from the passage in column 8 that all the data is read, a CRC value is calculated from the data, but only the CRC value is stored. As taught by the other description of the invention found earlier in the patent, the data is only used as needed, then it is discarded. Id. col. 6, ll. 16-18. Therefore, all the values are used to calculate the CRC value, but then they are discarded. The claim, however, requires that "processor means" access the parameter values and procedure routine specifications to run the algorithm. If the microprocessor does not store all the values it needs to run the algorithm, and it must access them to run the algorithm, then the "processor means" must be connected to the pluggable memory key means during the test. Roche tries to broaden the claim language too far to insist otherwise.

For the foregoing reasons, the Court concludes that the "coupled to" limitation means: joined or connected to during performance of the algorithm.
This term raises only one question: to be "coupled to" each other, how close must the connection be between the message transmitting processor and the message receiving processor? I agree with defendant that the two processors do not have to be adjoining; there may be an intermediate link in between them. This is shown in the specification, which states that different items may be "coupled to one another by the backplane bus," '181 pat., col. 2, lns. 66-68 (emphasis added). Figure 1 below provides an example of this in which one processor 20 is "coupled to" another processor 20 by a backplane bus 14:

Any further construction at this point would be both unnecessary and unhelpful. The terms "direct" and "indirect" are themselves ambiguous. Thus, adopting one of the parties' constructions would only invite further debate at summary judgment regarding the meaning of those terms.

NeoMagic argues that the common and ordinary meaning of the term 'coupled to' within claims 7 and 18, which recite "a memory portion coupled to said logic portion," should apply. They argue that the Federal Circuit's construction of the term 'coupling' from the '955 patent should not apply to the term 'coupled to' of the '806 patent because the claim in the '955 patent had an additional limitation within the claim language that required the 'coupling' to be "determined by a voltage of said underlying substrate." 46 They argue that 'coupled' requires that the memory and graphics (logic) portions electrically communicate, which is consistent with the use of the term 'coupled' in the asserted claims, with the common and ordinary meaning of the term 'coupled' and with the specification.

Trident argues that the disputed term 'coupled' should be construed consistently with the Federal Circuit's construction of the term in the '955 patent. They assert that the terms 'coupled' and 'coupling' between these two related patents are essentially identical and that one skilled in the art would understand that the way in which the memory portion is 'coupled to' the logic portion is "determined by the voltage of the underlying substrate." Further they contend that 'coupled to' cannot simply mean 'connected to' because both terms are present in the disputed claims and because in claims 1 and 4 of the '806 patent, 'connected to' is used to describe a simple connection. Lastly, Trident argues that its construction is consistent with the rest of the language of the claim ("negative with respect to") as interpreted by the Federal Circuit.

The Federal Circuit held that the ordinary meaning of 'coupling' refers to "an electrical communication--the transfer of energy--between two circuits … See New IEEE Standard Dictionary of Electrical and Electronics Terms 277 (5th ed. 1993) (defining coupling as 'the association of two or more circuits or systems in such a way that power or signal information may be transferred from one to another')." 47 Furthermore, the Federal Circuit stated that the parties agree that "coupling" refers to electrical communication between the two specified components. Their position is consistent with the technical definition of coupling, which means "[a] mutual relation between two circuits that permits energy transfer from one to another, through a wire, resistor, transformer, capacitor, or other device." McGraw-Hill Dictionary of Scientific and Technical Terms 474 (5th ed. 1994); see also Rudolf F. Graf, Modern Dictionary of Electronics 157 (7th ed. 1999) (defining coupling as "the association or mutual relationship of two or more circuits or systems in such a
way that power may be transferred from one to the other"). 48

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47 Id. at 1071.
48 Id. at 1072.
- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Neither the District Court in its previous decisions nor the Federal Circuit construed the term 'coupled to' in reference to the '806 patent. Judge McKelvie's and the Federal Circuit's previous constructions started with the plain meaning of the term, just described above, then further limited the meaning of 'coupling' in the '955 patent to the language of its claim which includes the limitation "determined by a voltage of said underlying substrate regions." This limiting language of the '955 patent is not present in the disputed claims of the '806 patent.

The analysis starts with the language of the claims of the '806 patent. Claims 7 and 18 simply recite "a memory portion coupled to said logic portion" without any additional limitation. The technical definition stated above, to which the parties agree, delimitates the term 'coupled' as an electrical communication between the two specified components, here being the memory portion and the logic portion of the integrated circuit. There is a "heavy presumption" that a claim term carries its ordinary and customary meaning. 49 The limitation that Trident would like to read into the claim language is based on the Federal Circuit's interpretation of the term 'coupling' in the '955 patent. Even though both the '955 and the '806 patents share the same specification, they recite two separate inventions, which is supported by the prosecution history outlined in detail in Judge McKelvie's previous decision. 50 The two coupled components of the '955 patent are the logic gates and the substrate, whereas the two coupled components in the '806 patent are the memory portion and the logic portion of the integrated circuit. Furthermore the limitation of the '955 patent requiring that the 'coupling' be "determined by a voltage of said underlying substrate regions" is not within the language of the '806 patent claims. These are two separate inventions. The ordinary meaning of the terms of the claims of the patent at issue are controlling.

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49 Zelinski, 185 F.3d at 1315.
50 NeoMagic Corp., 98 F. Supp. 2d at 545-49.
- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Therefore, as already elaborated in detail in previous decisions of this court and the Federal Circuit, the term 'coupled to' means an electrical communication between the two specified components, here being the memory portion and the logic portion of the integrated circuit.

4) "Coupled To"

MKS contends that the phrase "coupled to" in claim 1 and claim 24 means "connected in a fashion that allows for the transfer of power." (D.I. 103 at 28). Advanced Energy contends that the phrase "coupled to" cannot "be construed so as to include the use of an impedance matching network," that is, the term must be construed to mean directly connected to the primary winding, without intervening components. (D.I. 110 at 22).

Again, with regard to the term "coupled to," the parties' dispute centers on the absence or presence of an impedance matching network. As discussed previously, based on the patent specification and prosecution, the Court concludes that the invention was not intended to encompass an impedance matching network. (D.I. 94 N.J.L. 480, 111 A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). Accordingly, the term "coupled to" means connected.
not through an impedance matching network, but in a fashion that allows for the transfer of power.

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c. "coupled to"

The Court construes the phrase "coupled to" to have its plain and ordinary meaning, which is "directly connected to or attached to." See e.g. Webster's Ninth New Collegiate Dictionary 298 (1991) (defining "couple" to mean: to connect for consideration together); see also CCS Fitness, 288 F.3d at 1366 (holding that there is a heavy presumption that a claim term carries its ordinary and customary meaning). The term "coupled to" as used in the claims and specification means two elements are directly attached to one another such that using a diskette to transfer information from one to another would mean that the two computers are not "coupled to" one another. 17

17 Similarly, transferring a diskette from one computer to another would not make the two computers "in data communication with" one another. See '702 patent claims.

I. Limitation 8: Drain electrode

36. The next element of Claim 1 is as follows: "a drain electrode coupled to said drain conductive region." For example, in Figure 8 "further region" 83 is "coupled" to the electrode (the unnumbered cross-hatched structure) at the bottom surface of the wafer and top electrode 85 is "coupled" to N+ region 95 and buried layer 84. Similarly, in the Figure 2 embodiment, electrode 26 is "coupled" to the unnumbered substrate layer. This claim element is properly construed to include any electrode electrically coupled to the "drain conductive region." This "coupling" is properly construed to indicate device current flowing through both the drain conductive region and the electrode.

3. "coupled to a telephone"

Klausner proposes "connected to a telephone so that signals are transferred from one to the other," while Vonage proposes "connected to the called party's telephone line." The primary dispute here is whether the telephone access device ("TAD") is connected to the "called party's telephone line." Vonage argues that the TAD must be connected to the "called party's telephone line" because the specification limits the invention to the answer mode described in Figures 3A and 3B. For the reasons discussed above, the Court rejects this argument. In light of the preamble's description of the method as one of "automatically answering incoming telephone calls and storing and retrieving information from the incoming telephone calls," the Court finds Klausner’s proposal to be deficient as well. The patent specification simply describes the telephone answering device as being connected to the telephone line that receives an incoming call. '576 patent, col. 5:41-44. Accordingly, the Court construes this term as "connected to a telephone receiving an incoming call."

6. "a data bus coupled to the computer system and the unit for transferring unit data information" (Claim 1)
Defendants propose the following construction of the term: "A common communications pathway connecting multiple devices that allows for the transfer of address, control and data information between the devices."

Keystone's proposed construction is "one or more wires or electrical connections between the computer system and the unit for transferring data from the unit." Keystone points out that the central disagreement between the parties is whether the data bus allows for transfer of all three types of information, namely address, control and data information. Defendants argue that this is the understanding of the term "bus" in the art. Moreover, it argues the specification discloses that the data bus and I/O discrete line network includes "address, control and data connections" to connect the I/O processor to a unit. See '123 Patent, 6:43-45.

Keystone responds by arguing that this description simply discloses one embodiment of a data bus structure that can transfer a combination of address, control and data information. It argues the claim scope should not be limited require a combination of all three. It notes that in another part of the specification, the data bus is listed as providing only data to and from the I/O processor. See '123 Patent, 8:59-62. Even though similar claims in the '592 patent use the language "for transferring a combination of address, control and data information," Keystone argues that the inventor intended to include this limitation in the claims of that patent, but not here. Keystone's arguments are not persuasive as to require the Court to exclude the transmission of any address or control information on the data bus, in contrast to what the inventor has disclosed in the specification common to both the patents. The Court construes this term as: "A communications pathway connecting the computer system to one or more units that allows for the transfer of address, control and data information between the computer system and each of the units."

The parties dispute the meaning of the term "a device coupled to the local bus" which appears in Claim 1 of the 305 patent:

A. Construction of "a device coupled to the local bus"

1. A system comprising: a computer having a processing unit, a main memory, and a local bus; a device coupled to the local bus, wherein the device occupies an I/O slot that corresponds to a first communications port on the local bus . . .

PCTEL contends that the term means "[a] device arranged so that electrical signals can pass between the device and the local bus", whereas Agere proposes that the term means "a device directly connected to the local bus." PCTEL argues that the term "coupled" does not necessarily imply a physical connection, asserting that such an interpretation is more suited in the field of mechanical engineering, rather than to the relevant field of art, electrical engineering. PCTEL urges the Court to adopt a definition of coupling which focuses on the passing of signals rather than physical attachment. To support its position, PCTEL points to the following language from Claim 1,

"a software modem adapted to convert digital samples from the device to data values transmitted to the UART emulation and adapted to convert data values from the UART emulation to digital samples for the device."

PCTEL also cites the claim language "the device occupies an I/O slot" to support the conclusion that the device is not directly connected to the bus. According to PCTEL the relevant physical connection is between the bus and the I/O slot and not between the bus and the device. Therefore, PCTEL argues, the device is indirectly connected to the bus through the I/O slot. PCTEL supports it argument with dictionary definitions for the word "couple" which focus on the meaning of the word with respect to the transfer of energy, rather than any physical connection. n1

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n1 PCTEL offers the following dictionary definition for the word "coupling":

"coupling: The association of two or more circuits or systems in such a way that power or signal information may be transferred from one to another. IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS (1988)"
couples: "The association or mutual relationship of two or more circuits or systems in such a way that power may be transferred from one to another."


Agere disputes PCTEL's construction, pointing to the prosecution history of the 305 patent for support. n2 During prosecution, the PTO rejected PCTEL's submission based upon Patent Number 5,408,614 ("Thornton patent") which claimed a similar system, except that the Thornton invention was connected to the computer through a parallel port. Declaration of Jordan N. Malz ("Malz Declaration"), Ex. 6 at 17643. The patent examiner noted that the major difference between the Thornton patent and the 305 patent was that the former was "coupled to the parallel port" and the latter had a "direct connection to the control/address/data bus within the PC." Id. (emphasis added) The patent examiner deemed it obvious to "couple a device to the local bus" in light of Thornton. In response, PCTEL sought to distinguish the 305 patent from the Thornton patent arguing that Thornton, "teaches away from connecting a device to the local bus."

n2 Agere also cites dictionary definitions that support its interpretation of the term "coupling".

PCTEL's construction is problematic. The first place a Court must look to construe the meaning of a patent are the words of the claim itself. Vitronics, 90 F.3d at 1582. Immediately following the phrase "coupled to the local bus" is the phrase "wherein the device occupies an I/O slot." The use of the word "occupies" elaborates upon the phrase "coupled to the local bus" and strongly suggests a direct, physical connection to the local bus through the I/O slot.

This interpretation is supported by language the specification itself, which notes that "[t]his invention relates to a . . . device having a non-standard I/O interface coupled to a local bus . . . common devices connected to a . . . bus include serial I/O devices such as . . . a modem. . . . [t]he non-standard device connects to an I/O slot . . ." (305 Patent, Description, 2). n3 The claims and the specification indicate that the inventor understood the I/O slot to be physical entry-point on the local bus through which the device would be coupled, and therefore directly connected, to the local bus.

n3 Emphasis is added unless otherwise indicated.

The prosecution history also supports this reading. There is evidence that the patent examiner understood "coupled to" to mean "directly connected to." The Court finds the patent examiner's rejection of PCTEL's claims, on the basis of Thornton prior art, particularly instructive. The Thornton patent taught an invention similar to the 305 patent, but which was connected to a parallel port, whereas the 305 patent was connected to the bus through an I/O slot. In rejecting PCTEL's claims, the patent examiner stated, "the Thornton device is coupled to the parallel port . . . [i]t would have been obvious for one of ordinary skill in the art to have [the] device coupled to the local bus because it would have a [a] direct connection to the control/address/data bus within the PC." (Malz Decl., at 17643). This implies that the examiner understood the phrase "coupled to" to mean "directly connected to" since the Thornton device was directly connected to the parallel port, and the patent examiner referred to it as "coupled" to the parallel port; similarly, PCTEL's device was "coupled" to the local bus through the I/O slot and the examiner referred to it as "directly connected . . . to the bus." PCTEL's own papers acknowledge the fungibility of these terms as used during the prosecution, stating that "[o]ne distinction debated in the prosecution history was that the 305 device would not connect externally through a parallel port, but would connect internally with the local bus. "(Reply, 4). PCTEL thereby acknowledged that the issue involved "connecting" devices to the local bus, despite the fact that the examiner used the word "coupling" as well as "connecting."

The intrinsic evidence supports a finding that the inventor had this same understanding of the word "coupled", namely, that
that the multiplexer circuit connects 2:1 TGMs in series. Thus, under the terms of the patent, an N:1 multiplexer connects
connected in series. While claim 47 specifies a 4:1 multiplexer, claim 48 specifies a 5:1 multiplexer. Both claims specify
Representative claim 47, like representative claim 48, clearly claims a multiplexer circuit with a number of 2:1 TGMs
Id. at 1315. (internal quotations omitted). The specification "is the single best guide to the meaning of a disputed term." Id.
the art in question." Id. at 1313. For this reason, "claims must be read in view of the specification, of which they are a part.
construction. According to that decision, the words of a claim "are generally given their ordinary and customary meaning." Id.
proposed constructions of both parties. "A claim should not rise or fall based upon . . . the court's independent decision,
uninformed by the specification, to rely on one dictionary rather than another." Phillips, 415 F.3d at 1322. Accordingly,
given the language of the claims and the inventor's understanding of these terms during the prosecution history, the Court
finds that the clearest reading of "a device coupled to the local bus" is a "device directly connected to the local bus".
The Court gives more weight to the intrinsic evidence of the specification and prosecution history than to PCTEL's extrinsic
dictionary evidence. PCTEL's reliance on dictionaries is problematic as there are dictionary definitions supporting the
proposed constructions of both parties. "A claim should not rise or fall based upon . . . the court's independent decision,
uninformed by the specification, to rely on one dictionary rather than another." Phillips, 415 F.3d at 1322. Accordingly,
given the language of the claims and the inventor's understanding of these terms during the prosecution history, the Court
finds that the clearest reading of "a device coupled to the local bus" is a "device directly connected to the local bus".
Translogic puts forth three major arguments that the Board erred in holding the claims of the '666 patent obvious over Gorai
in view of Weste. First, Translogic contends that the Board incorrectly construed the claim term "coupled to receive." Second,
Translogic contends that the Gorai reference is not relevant prior art with respect to the '666 patent. Third,
Translogic contends that the Gorai reference does not disclose that each input and control input terminal must receive a variable signal from a different source. Thus, according to Translogic, the Weste
reference merely describes TGMs but does not suggest their use in this purported inventive combination.
The Board construed the term "coupled to receive" signals to mean terminals merely "capable of receiving" signals.
Translogic argues that the Board should follow the claim construction in the companion infringement case from the United States District Court for the District of Oregon. The Oregon District Court determined that "signal input terminal 'coupled to receive' an input variable" would mean "connected to receive an input variable, directly or through one or more intervening inverters or buffers." Translogic Tech., Inc. v. Hitachi, Ltd., Civ. No. 99-407-PA, 2005 U.S. Dist. LEXIS 45724 (D. Or. May 12, 2005) (Claim Construction Chart). Under this construction, representative claims 47 and 48 require each input and control input terminal to be connected to receive a variable signal from a different source. Thus, according to Translogic, the Gorai reference does not disclose that each input and control input terminal must receive a variable signal from a different source. Instead, according to Translogic, Gorai teaches logic circuits with input terminals coupled to share signals and receive constants.
In Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc), this court set forth the best practices for claim
construction. According to that decision, the words of a claim "are generally given their ordinary and customary meaning." Id. at 1312. The ordinary and customary meaning "is the meaning that the term would have to a person of ordinary skill in the art in question." Id. at 1313. For this reason, "claims must be read in view of the specification, of which they are a part." Id. at 1315. (internal quotations omitted). The specification "is the single best guide to the meaning of a disputed term." Id.
Representative claim 47, like representative claim 48, clearly claims a multiplexer circuit with a number of 2:1 TGMs
connected in series. While claim 47 specifies a 4:1 multiplexer, claim 48 specifies a 5:1 multiplexer. Both claims specify
that the multiplexer circuit connects 2:1 TGMs in series. Thus, under the terms of the patent, an N:1 multiplexer connects
(N-1) TGMs in series with each TGM controlled by a corresponding (N-1) control input signal. ’666 Patent col.3 ll.63-66. Fig. 3 from the ’666 patent shows the claimed circuit for the 4:1 multiplexer.

The words of the claim coupled with the specification define the term "input terminals 'coupled to receive' first and second input variables." First, the claim terms do not specify any structural connection for the input terminals. Furthermore, Fig. 3 of the ’666 patent and the other figures show no structural connection for the input terminals (i.e., I0, I1, I(N-1)) or the control input terminals (i.e., S1, S2, S3). In fact, Translogic admits, as is proper for a structural circuit, that the input variables (i.e., signals) are not part of the claimed invention.

A claim language comparison also shows the proper construction for the term at issue for the ’666 patent. Claim 47 has two similar, but significantly different phrases, "coupled to receive" and "coupled to." The term "coupled to" in the phrase "second stage input terminal 'coupled to' the first stage output terminal" defines a connection between the TGMs. In other words, "coupled to" in the context of this claim phrase defines the connection between two of the TGMs essential for a series multiplexer.

On the other hand, the term "coupled to receive" in the phrase "input terminals 'coupled to receive' first and second input variables" does not specify a particular connection. In other words, the claimed circuit does not require any specific input or connection. Instead, like any logic circuit, this part of the circuit only accepts inputs from an external source. As such, "coupled to" and "coupled to receive" are clearly different in the claimed ’666 patent multiplexer circuit. As shown in Fig. 3 of the ’666 patent, the input terminals (i.e., I0, I1, I(N-1)) only need to be "capable of receiving" an input variable for the multiplexer circuit as claimed in the ’666 patent. Even if the input terminals are not connected, the circuit claimed in the ’666 patent defines a series multiplexer. Therefore, this court agrees with the Board's construction that "coupled to receive" means "capable of receiving." With the disputed term limitation decided, this court now turns to obviousness.

"coupling" or "coupled"

The term "coupling" or "coupled" refers to the direct connection of two or more circuits or systems in such a way that power or signal information may be transferred from one to the other.

Lucent proposes that "coupling" or "coupled" requires a direct connection. 149 Plaintiff argues that this construction is contrary to a recent Federal Circuit case in which "coupled" was not limited to a mechanical or physical coupling. 150 Rather, plaintiff argues that coupling merely requires an association such that information may be exchanged. 151 Plaintiff further argues that if Lucent's definition were accepted, the remote user could never "couple" to the VPS because of the numerous intermediate hops within the PSTN.

149 Docket no. 76 at 10. Weiss testified that "coupling . . .[is] even stronger than connected. Coupling [means] literally cabled together" (Tr. 1494).

150 Johnson v. Worldwide Assocs., Inc., 175 F.3d at 992.151 Docket no. 104 at 18-19; docket no. 114 at 3.

Although the ’639 patent discusses "coupling through a communication mechanism or channel" 152 which, arguably, suggests intermediate connections or "hops," the patent also discusses the VPS having "connections" that are adapted for "coupling" to a transmission media, the telephony server and the LAN and the patent refers to the user communications device as being adapted for "coupling" to the transmission media. 153 These "couplings" imply direct connections between the elements, without unnecessary intervening connections between the elements, as illustrated by figure 2 of the patent, 154 but do not exclude intermediate "hops" within an element, for example, within the PSTN. The direct connections also
do not exclude the logical connections proposed by plaintiff. 155 This construction is not inconsistent with the teaching of Johnson Worldwide Associates, Inc.

152 '639 patent, col. 4, lines 35-37.

153 See '639 patent, col. 4, lines 40-58.

154 Autogiro Co. v. United States, 384 F.2d at 398 ("in those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification").

155 Docket no. 108 at 8.

4. "coupling"

Coupling refers to the "plurality of signal lines" and the nature of the connection between the claimed multiplexed "address data buses" and the "host platform." The parties dispute whether "coupling" refers to a direct connection between the host platform and signal lines or whether the connection must be done electronically.

There is nothing in the specification requiring an electrical connection. The terms "electrical," "electric," and "electronic" never even appear in the specification. The figures and the specification repeatedly show the host platform directly connected to peripheral devices by a plurality of signal lines. See Figs. 1 and 8; '807, 4:53-5:12, 7:14-17, 12:13-24, 13:23-27; '141, 4:57-5:16, 7:17-21, 12:20-30, 13:29-33. Defendants argue that the patentee explicitly used "directly" when necessary and used "coupling" when an indirect connection is permissible. 11 Defendants' example, however, does not pertain to multiplexing which in the context of the claims, is the purpose of "coupling" a plurality of signal lines to the host platform. '807, 4:56-67; '141 4:60-5:4. Further, an indirect connection would not allow multiplexing to occur. Multiplexing requires streams of data to "take turns" using a common signal line. An indirect connection would interrupt this process. It is precisely the direct connection of the signal lines to the host platform that drives the number of pins whose reduction is a principal goal of the patent. Accordingly, the court construes the term "coupling" to mean "directly connecting."

11 "Connecting speaker 895 directly to line 805 would cause the line to begin a transition when it was tri-stated. Therefore, speaker 895 should be further coupled with a high impedance input 892..." '807, 13:21-24.

B. "coupling"

The term "coupling" appears in one of the asserted claims of the '955 patent. Claim 1 of the '955 patent requires "logic gates with a voltage supply having a coupling to said underlying substrate regions determined by a voltage of said underlying substrate regions." NeoMagic contends that "coupling" means coupled or connected, directly or indirectly. Trident, on the other hand, argues that the term "coupling" requires a voltage potential in the substrate that is different than the voltage potential in the logic gates.
In the specification of the '955 and '806 patents, the inventors describe their method for reverse biasing the substrate to solve the noise problem. According to the specification, the logic circuits are redesigned to decouple the V[SS] line connected to the source terminals of the N-channel pulldown transistors from the P-substrate tap. The specification further provides that the logic circuit is connected to a V[SS] line at 0 volts, while the substrate is tapped by a V[BB] line at -1.5 volts. By reverse biasing the substrate in this manner, excess charge carriers flow away from the logic and memory portions of the graphics controller.

NeoMagic's proposed construction of "coupling" to mean "connection," is inconsistent with this explanation in the specification. Moreover, NeoMagic's proposed construction of the term is also inconsistent with the claim language. Claim 1 of the '955 patent states that the logic gates have "a voltage supply having a coupling . . . determined by a voltage of said underlying substrate." In accordance with the specification, this language requires that the reference potential, V[SS], for the logic gates must be different from the voltage potential, V[BB], that is applied to the substrate. Otherwise, the phrase "determined by a voltage of said underlying substrate" would be superfluous and meaningless.

Therefore, as advocated by Trident, the court finds that "coupling" requires a voltage potential in the substrate that is different than the voltage potential in the logic gates.

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We begin, as always, with the language of the claim. The patent claims logic gates "having a coupling to said underlying substrate regions. . . ." As noted above, the parties agree that "coupling" refers to electrical communication between the two specified components. Their position is consistent with the technical definition of coupling, which means "[a] mutual relation between two circuits that permits energy transfer from one to another, through a wire, resistor, transformer, capacitor, or other device." McGraw-Hill Dictionary of Scientific and Technical Terms 474 (5th ed. 1994); see also Rudolf F. Graf, Modern Dictionary of Electronics 157 (7th ed. 1999) (defining coupling as "the association or mutual relationship of two or more circuits or systems in such a way that power may be transferred from one to the other"). The claim further states that the coupling is "determined by a voltage of said underlying substrate." This indicates, of course, that the voltage applied to the substrate will affect the degree--and possibly the existence of--the claimed coupling between the substrate and the gate. However, this language does not help differentiate between the proposed definitions of NeoMagic and Trident because in both definitions the coupling depends upon the voltage applied to the substrate. In the case of junction capacitance, proffered as the proper definition by NeoMagic, assuming a constant voltage applied to the logic gate circuit, variations in the voltage at the substrate will affect the junction capacitance, thereby altering the capacitive coupling between the two components. In Trident's formulation, the degree of coupling depends upon the potential difference between the two components, and--again, assuming constant voltage to the logic gate--altering the voltage applied to the substrate obviously changes the potential difference between it and the logic gate. Because the language of the claim does not speak with clarity, we turn to the specification to improve our understanding of the meaning of "coupling." Robotic Vision Sys., Inc. v. View Eng'g, Inc., 189 F.3d 1370, 1375, 51 USPQ2d 1948, 1952-53 (Fed. Cir. 1999).

The specification describes the redesigned logic gate by reference to the figure shown below.

GET DRAWING SHEET 3 OF 6

The specification explains that "the logic circuits of the integrated circuit are redesigned to decouple the VSS line connected to the source terminals of the N-channel, pulldown transistors from the P-substrate tap." '955 Patent, col. 4, lines 34-37. In other words, the supply line for the N-channel transistor of the logic circuit is different from that for the substrate. By itself, this explanation would be consistent with either party's explanation of the term "coupling." However, the specification then expressly teaches a design in which the voltage supply lines for the two components are at different voltages: "As shown in FIG. 4, the source of the N-channel, pulldown transistor 35 of a representational logic circuit is connected to a VSS line 45 (at 0 volts), while the substrate is tapped by a VBB line 47 (at -1.5 volts)." '955 Patent, col. 4, lines 38-42. While it would be improper to limit the claims to the particular voltages used in the preferred embodiment (zero and -1.5 volts), it is perfectly clear that the specification contemplates that the two voltages be different from each other, regardless of their absolute value. Notably, this is the only place in which the specification describes the interaction of the logic circuitry and the substrate, and it specifically requires that different voltages be applied to the substrate and the logic circuit. As Trident notes, this description is fully consistent with its proposed definition of the term "coupling" because, under Trident's definition,
coupling is attenuated if the two circuits are at different potentials, thereby achieving the object of the invention: permitting substantial amounts of memory and logic to operate on the same integrated circuit without interfering with one another. We agree, and hold that, consistent with the specification, the term coupling requires that the voltage applied to the substrate be different from that applied to the logic circuit. Thus, the coupling is "determined by a voltage of said underlying substrate regions" because the extent of electrical coupling is dependent upon the voltage difference applied between the substrate and the logic circuit.

Under this construction of "coupling," the accused devices do not infringe the '955 patent as a matter of law. This is so because Trident's devices tap both the substrate and the logic circuit at the same voltage: VSS--zero volts. Therefore, we affirm the district court's judgment that Trident's devices do not have the claimed coupling limitation and do not infringe the '955 patent.

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C. Noise Covariance Matrices

The dispute between the parties for "noise covariance matrices" centers around whether the patentee acted as a lexicographer 8 and gave a definition of "noise covariance matrices" in the specification.

-- Footnotes --

8 "An applicant is entitled to be his or her own lexicographer and may rebut the presumption that claim terms are to be given their ordinary and customary meaning by clearly setting forth a definition of the term that is different from its ordinary and customary meaning(s)." Manual for Patent Examining Procedure § 2111.01 IV. (8th ed., rev. July 2010).

-- End Footnotes --

The term "noise covariance matrices" is used in claims 11, 16, 19, and 23 of the '839 Patent and claim 6 of the '180 Patent. Claim 19 of the '839 Patent is illustrative of how the term is used and it reads as follows:

19. A detector circuit for detecting a plurality of data from a plurality of signal samples read from a recording medium comprising:

   a Viterbi-like detector circuit, said Viterbi-like detector circuit for producing a plurality of delayed decisions and a plurality of delayed signal samples from a plurality of signal samples;
   a noise statistics tracker circuit responsive to said Viterbi-like detector circuit for updating a plurality of noise covariance matrices in response to said delayed decisions and said delayed signal samples; and
   a correlation-sensitive metric computation update circuit responsive to said noise statistics tracker circuit for recalculating a plurality of correlation-sensitive branch metrics from said noise covariance matrices, said branch metrics output to said Viterbi-like detector circuit.

'839 Patent col. 15 ln. 50-66.

CMU's construction for "noise covariance matrices" is:

"Noise covariance matrices" means "noise statistics used to calculate the 'correlation-sensitive branch metrics.'"

RDCTC at 11.

Marvell separately provides constructions of "covariance" and "covariance matrices" in addition to its construction of "noise covariance matrices" all of which are as follows:

"Covariance" means "the expected (mean) value of the product of (ri-mi) and (rj-mj), where ri and rj are observed signal samples (at time i and j, respectively) and mi and mj are the expected (mean) values of the samples (at time i and j,
respectively)(i.e., E[(ri-mi)( rj-mj)])."

"Covariance matrices" means "arrays of covariance of pairs of signal samples, e.g.:

[SEE ILLUSTRATION IN ORIGINAL]

"Noise covariance matrices" means "covariance matrices of signal samples (where the signal samples include noise)."

RDCTC at 9-11.

CMU's source for its construction is from the specification, which CMU argues is an explicit definition for "noise covariance matrices," that reads:

A noise statistics tracker circuit 34 uses the delayed samples and detector decisions to update the noise statistics, i.e., to update the noise covariance matrices.

'839 Patent col. 3 ln. 36-38. CMU then argues that the use of "i.e." equates "noise covariance matrices" to noise statistics and cites Abbott Labs v. Novopharm Ltd., 323 F.3d 1324 (Fed. Cir. 2003), in support.

Marvell states that its construction is the plain meaning of the term "noise covariance matrices," and Marvell's sources for its construction are technical dictionaries and textbooks. Marvell cites the following as an example of the ordinary meaning for "covariance matrix":

covariance matrix - A square array that represents all the pairs of covariances of a set of random variables. A covariance matrix is a square matrix in which main diagonal elements represent variances of the variables and off-diagonal elements are the covariance. Moreover, like the correlation matrix, a covariance matrix is also symmetrical about the diagonal. Pocket Dictionary of Statistics at 66 (2002)(Docket No. 82-16 at 4-5).

As stated above, "the specification is 'the single best guide to the meaning of a disputed term,'" and consistent with that general principle "the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." Phillips, 415 F.3d 1303, 1321 (quoting Vitronics, 90 F.3d at 1582; citing CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002)). The Court of Appeals for the Federal Circuit has recognized that a patentee can act as a lexicographer with the use of "i.e. 9" followed by a definition of the term. Pfizer, Inc. v. Teva Pharmaceuticals USA, Inc., 429 F.3d 1364, 1373 (Fed. Cir. 2005). The Court of Appeals cautioned, however, that a person of ordinary skill in the art is always considered to have read the claims in light of the full specification. Id. (citing SanDisk Corp v. Memorex Prods., Inc., 415 F.3d 1278, 1285 (Fed. Cir. 2005); Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1379-80 (Fed. Cir. 2001)). As a result, support for an alternative construction found elsewhere in the specification may indicate that the patentee did not use "i.e." in a lexicographical manner and thus, the proper construction will be found elsewhere in the patent. Pfizer, 429 F.3d at 1373-74.

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9 "i.e. is an abbreviation for the Latin id est and means 'that is.'" Webster's Dictionary of English Usage (1989)(Docket No. 94-1 at 4).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

In Pfizer, the Court of Appeals found that "saccharides (i.e. sugars)" did not constitute an explicit definition of saccharides because elsewhere in the specification the patentee explained what saccharides meant. Id. at 1373-75. In the specification, there was a section entitled "SACCHARIDES" that gave context to the term that was inconsistent with equating saccharides with sugars only. Id. The Court of Appeals stated, however, "[p]roperly understood, then, these sections do not define the exact meaning of 'saccharides' and 'excipients.'" Id. at 1374. Rather, since the section left an open ended meaning that was inconsistent with equating saccharides to sugars, the Court of Appeals was left to conclude that the "i.e." was not definitional. As a result, if a person of ordinary skill in the art would find the purported "i.e." definition inconsistent with the
rest of the patent, the court will not find the "i.e." to be used to define the term that precedes it. This is consistent with the cases that have found "i.e." to be used to create a definition, because in those cases, either the specification added further support to the definition, or the only use of the term in the specification was in conjunction with the "i.e." See Abbott, 323 F.3d at 1330 ("Moreover, the inclusion of the word 'intimate' in the definition, together with the fact that fenofibrate and SLS are the only ingredients present in every co-micronized mixture described in the '726 patent's specification, makes it abundantly clear that [what followed the i.e. is definitional]"); Tidel Engineering L.P. v. Fire Kind International, Inc., 613 F. Supp. 2d 823, 829 (E.D. Texas Jan. 6, 2009)("Indeed, the term 'economy safe' is not used but one time in the specification. Following that only instance is the parenthetical (i.e., comprised of just a safe and a unit 16, without a PC board and printer."); Caritas Technologies, Inc. v. Comcast Corp., No. 2:05-CV-339-DF, 2006 U.S. Dist. LEXIS 98006, 2006 WL 6112191 at *16 (E.D. Texas Oct. 18, 2006)("Therefore, the specification does not teach any other meaning of 'connection status information' besides that taught after 'i.e.' introduces a definition."); ESN, LLC v. Cisco Sys., Inc., 685 F. Supp. 2d 631, 2009 WL 2849742 ("[T]he specification does not identify "SIP User Agent" other than in connection with an endpoint, so the use of "i.e." cited above is especially probative of the meaning of "SIP User Agent."")

In the '839 Patent, the term "noise covariance matrices" appears elsewhere in the patent, not only with the purported "i.e" definition, and it is used as follows:

Because the noise statistics are non-stationary, the noise sensitive branch metrics are adaptively computed by estimating the noise covariance matrices from the read-back data.

A noise statistics tracker circuit 34 uses the delayed samples and detector decisions to update the noise statistics, i.e., to update the noise covariance matrices.

The focus is shifted to tracking the noise covariance matrices needed in the computation of the branch metrics (13).

'839 Patent col. 2 ln. 15-18; col. 3 ln. 36-38; col. 9 ln. 21-23.

The term "noise statistics" which CMU argues is equated with "noise covariances matrices" is used elsewhere in the specification, as follows:

Specific expressions for the branch metrics that result under different assumptions on the noise statistics are next considered.

Also, the signal and noise statistics will be different if a head is flying slightly off-track or if it is flying directly over the track.

The past samples and detector decisions are used to update the noise statistics at step 44.

'839 Patent col. 5 ln. 56-58; col. 8 ln. 31-33; col. 11 ln. 16-18

In reading the entire patent, the PHOSITA would not read the "i.e." cited by CMU to define "noise covariance matrices" as meaning "noise statistics" because the term's usage elsewhere in the specification indicates they are separate concepts with separate definitions. For instance, the phrase "[t]he focus is shifted to tracking the noise covariance matrices needed in the computation of the branch metrics (13)" would indicate that the noise covariance matrices can be found in equation (13). '839 Patent col. 9 ln. 21-23. The general correlation-sensitive metric equation (13) reads:

[SEE ILLUSTRATION IN ORIGINAL]

'839 Patent col. 7 ln. 1-5. Prior to equation (13), it is stated that "[t]he (L+1)x(L+1) matrix Ci is the covariance matrix of the data samples ri, ri+1, . . . , ri+L, when a sequence of symbols ai-Kl, . . . ai+L+Kt is written." '839 Patent col. 6 ln. 53-55.

The PHOSITA would take this to mean that the covariance matrix of the data samples Ci used in equation (13) is the "noise covariance matrices" being referred to by the language "the noise covariance matrices needed in the computation of the branch metrics (13)". '839 Patent col. 9 ln. 21-23. Furthermore, the covariance matrices and the "noise covariance matrices" are equated in the summary of the invention section. It states that "[b]ecause the noise statistics are non-stationary, the noise sensitive branch metrics are adaptively computed by estimating the noise covariance matrices from the read-back data.
These covariance matrices are different for each branch of the tree/trellis due to the signal-dependent structure of the media noise. '839 Patent col. 2 ln. 15-20.

"Noise statistics" can be shown not to have the same meaning as "noise covariances matrices" in the wording "specific expressions for the branch metrics that result under different assumptions on the noise statistics are next considered." '839 Patent col. 5 ln. 56-58. In this instance, the assumptions on the "noise statistics" are the prior art assumptions of white Gaussian noise and variance dependent noise as well as the novel assumption that the noise is correlated and signal-dependent for the correlation-sensitive branch metric. Because the term "noise statistics" has a broad enough meaning, as used by the patentee, to encompass both the prior art noise assumptions as well as the correlated and signal-dependent noise assumptions, the intrinsic evidence does not support equating "noise statistics" with "noise covariance matrices" and the PHOSITA would not define "noise covariance matrices" as "noise statistics." To do so would allow the prior art noise assumptions to be used in the correlation-sensitive branch metric which the PHOSITA would understand to be inapposite to the purpose of the invention.

CMU argues that the language "[t]he past samples and detector decisions are used to update the noise statistics at step 44" provides a second intrinsic example of where the patentee explicitly defines "noise covariance matrices" as "noise statistics." '839 Patent col. 11 ln. 16-18. Step 44 of Fig. 6 shows:

[SSEE FIG. 6 IN ORIGINAL]

'839 Patent Fig. 6. CMU argues that updating the "noise statistics" at step 44 means that "noise statistics" and "noise covariance matrices" are the same thing. The text "[t]he past samples and detector decisions are used to update the noise statistics at step 44" and Fig. 6 are consistent with the language "[a] noise statistics tracker circuit 34 uses the delayed samples and detector decisions to update the noise statistics, i.e., to update the noise covariance matrices." '839 Patent col. 11 ln. 16-18; col. 3 ln. 36-38. However, the PHOSITA would not read either section of the Patent to be providing a definition of "noise covariance matrices." Rather, both statements would be read as meaning when the "noise statistics" are updated, this has the effect of updating the "noise covariance matrices." This understanding is consistent with the notion that the "noise covariance matrices" are derived from the data samples that contain noise. See '839 Patent col. 6 ln. 53-55.

CMU also points out that alternative embodiments contained in the specification do not require the use of a covariance matrix in order to calculate the correlation-sensitive branch metric. (See Docket No. 90-3, McLaughlin's 2 Declaration nd at ¶¶ 9-12). It is true that "[a] claim construction that excludes a preferred embodiment . . . is 'rarely, if ever correct.'" Pfizer, 429 F.3d at 1374 (citing SanDisk Corp., 415 F.3d at 1285; Vitronics, 90 F.3d at 1583). However, at the hearing, Marvell stated that the alternative embodiment mentioned by CMU would be covered by another set of claims, citing specifically claim 20, to which CMU agreed that all embodiments would be covered by at least one claim under Marvell's construction. (Docket No. 118 at 180:7-12, 204:15-17). "A patentee may draft different claims to cover different embodiments." Intamin, 483 F.3d at 1337. Since the alternative embodiment that calculates the correlation-sensitive branch metric is covered by another claim, the PHOSITA would not have reason to read "noise covariance matrices" as meaning "noise statistics."

Turning to Marvell's construction, when the Court asked CMU if separate definitions were adopted for "covariance" and "covariance matrices," what would its constructions be, CMU responded that Marvell's constructions were appropriate. (Docket No. 118 at 178:19-179:12). As stated above, the specification says that "Ci is the covariance matrix of the data samples" and Ci is the noise covariance matrix used in equation (13). '839 Patent col. 6 ln. 53-55. This language from the specification is directly reflected in Marvell's construction.

As a result, the construction of the terms "covariance," "covariance matrices and "noise covariance matrices" is as follows:

Covariance means "the expected (mean) value of the product of (ri-mi) and (rj-mj), where ri and rj are observed signal samples (at time i and j, respectively) and mi and mj are the expected (mean) values of the samples (at time i and j, respectively)(i.e., E[(ri-mi)(rj-mj)])."

Covariance matrices means "arrays of covariance of pairs of signal samples, e.g.:

[SEE ILLUSTRATION IN ORIGINAL]
Noise covariance matrices mean "covariance matrices of signal samples (where the signal samples include noise.)."

A. Creating.

The plaintiff contends that "creating" should be defined as "selecting, forming, or making." The defendants contend that the term should be defined as "making or bringing into existence, in real time, something new." The court defines the term "creating" as "forming or making."

A. "Creating a Circle"

The parties' proposed constructions are as follows:

<table>
<thead>
<tr>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>creating a circle: calculating values that define the set of all points in a plane equidistant from a center point</td>
<td>circle: A closed curve of all points within the same plane that are equidistant from a fixed center point. An arc is not a circle unless all its points are equidistant from a center point and the arc spans a full 360 degrees. A point and a distance by themselves are not a circle. In the context of a computer program, an object need not have been physically plotted in order to constitute a circle, but the program must at least have designated the object as an object with the attributes and behavior of a circle.</td>
</tr>
</tbody>
</table>

The underlying dispute over this heavily contested term was central to the motion for a preliminary injunction: whether or not the creation of an arc is equivalent to the creation of a circle. In light of the parties' briefs and their arguments at the Markman hearing, the Court adopts the following construction:

creating a circle -- Calculating values that define the set of all points in a plane equidistant from a center point, and specifying that the values represent all such points. Merely calculating a center point and a distance (or "radius") would not create or comprise a circle. Points equidistant from a center point that would constitute an "arc" if reduced to tangible form would not become a circle until and unless the points extended a full 360 degrees and all of the points were equidistant from the center point.

The reasons for adopting this construction are discussed below. Both sides relied primarily on extrinsic evidence in support of their constructions, and the Court consequently bases its conclusion largely on those sources.

1. Dictionary definitions of "circle" 2

2 I begin with the dictionary definition of "circle" because it is logical to pin down a definition of "circle" before looking to
the intrinsic evidence to understand what it means to "create" a circle by means of a computer program, which is the crux of the parties' dispute. See Phillips, 415 F.3d at 1324 ("[A] judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term. The sequence of steps used by the judge in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law.")

Both sides draw on dictionaries to define the term "circle." The only difference in their approach is that Defendants rely on general purpose dictionaries, while Plaintiff draws from mathematical dictionaries. Defendants' preferred definition is "a closed plane curve every point of which is equidistant from a fixed point within the curve." Merriam-Webster's Collegiate Dictionary (10th ed. 1996). Plaintiff's preferred definition is "the set of all points in a plane equidistant from a center point." Potel Decl. I P 10; Potel Decl. II P 7. Plaintiff's sources are more authoritative because the parties agree that the patent describes a mathematical process. The Court thus adopts this definition of "circle."

2. The specification

"The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." Phillips, 415 F.3d at 1313. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim . . . but in the context of the entire patent, including the specification . . . ." Id. The Federal Circuit has urged district courts to look to the patent specification to illuminate the meaning of terms used in the claims. See id. at 1315 ("the specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive . . . .") (citation omitted).

Defendants rely on the patent's specification to argue that (1) the patent makes clear distinctions between arcs (or semicircles) and circles; and (2) the patentee intended "circle" to entail a "closed plane curve." Plaintiff objects to this reliance on the specifications, but its vague and general analysis is not helpful. I conclude that Defendants' reliance on the specifications is acceptable because they have not "imported" limitations from the specifications into the claims. Rather, they have identified repeated uses of the disputed language in the specification that illuminate the term's meaning.

As to Defendants' first argument concerning distinctions made in the patent between circles and arcs, the patent's Definitions section, the descriptions of the preferred embodiments, and language in other claims are revealing. For example, the patent's "Definitions" section, which is under the "Detailed Description of the Invention," defines a "circular arc" as "the set of all points equidistant from a fixed point called the center, i.e. a portion of a circle." (013 patent 4:55) (emphasis added). In the description of the Sixth Preferred Embodiment, the patent defines arcs as "pieces of the original circles." Id. at 20:33-34 (emphasis added). Defendants cite several other spots in the specifications and the claims themselves containing or reflecting distinctions between circles and arcs, and circles and radii or center points. See Ds' Brief at 8:28-9:17; 11:12-25. Some are more probative than others, but together these distinctions show that the specification cannot be reconciled with a definition that would encompass the creation of a circular arc. Nowhere does the specification confute the creation of an "arc" and the creation of a "circle." See Intamin, 483 F.3d at 1336 (finding support for court's construction in fact that patent specification used term consistent with the construction).

However, as to Defendants' second argument, concerning whether a circle entails a closed curve, the specifications do not support the conclusion that the patentee intended "circle" to entail a "closed plane curve." Although figures in the specification show closed curves, those figures are obviously for illustrative purposes. I also agree with Plaintiffs that "closed" suggests a visual representation of a circle, which is not appropriate in the context of computer software creation (discussed below).

3. The ordinary and customary meaning of "creating circles" in the field of software development

Although claim 14 refers only to a method for creating a tool path, claim 35 claims a software program that is to perform the claimed methods. Furthermore, the opening paragraph of the "Field of the Invention" section of the '013 patent states, "[t]his invention relates to computer aided manufacturing and more specifically to a method and apparatus for generating a computer numerical control program for controlling a numerical control machine." (013 patent 1:15-18.) The parties thus
agree that the terms should be construed in the context of creating software.

Both sides enlisted competing experts to educate the Court on the ordinary and customary meaning of "creating circles" in the field of software design. Plaintiff's expert, Michael J. Potel, Ph.D. has significant experience in software development and "computer graphics." Defendants' expert, Professor Gerald Farin, has a great deal of experience in the field of computer aided design: he has designed CAD software; authored 100 papers and authored/edited over 20 books in the field of geometric modeling, including leading textbooks on Computer Aided Design; is the editor-in-chief of the journal Computer Aided Geometric Design; received an award for achievements in computer aided geometric design; teaches courses in computer aided geometric design; and has many other relevant credentials. See Farin Decl. PP 4-8. Defendants also rely on expert declarations from Defendant Evan Sherbrooke, who created the allegedly infringing software and previously participated in developing Plaintiff's embodiment of the '013 patent.

Farin's declaration for Defendants explains that when a software program "creates" a circle, it requires two things: (a) a center point and a radius that define the set of all points in a plane equidistant from a center point; and (b) some indication that those values are meant to create a circle, such as an associated method or algorithm. Without such an indication, a center point and a radius could be used to define many different shapes, including an equilateral triangle, a regular pentagon, or any other regular polygon. They could also be used to define three-dimensional objects, such as spheres and cubes. Farin Decl. PP 13-20.

Based on the above considerations, I conclude that the evidence of the ordinary and customary meaning of "creating a circle" in the field of software development requires a construction that specifies that creating a circle involves not just "calculating values that define" a circle, but specifying that those values comprise a circle, as opposed to some other figure.

4. Prosecution history

Defendants contend that during the application process the patentee argued to the United States Patent and Trade Office that its invention was not obvious because previous patents that involved the use of "medial axis transforms" did not entail the creation of families of concentric indexed circles. Therefore, they assert, Plaintiff cannot now argue that merely specifying a radius and center is equivalent to "creating a circle." Plaintiff contests this conclusion, but even if Plaintiff is correct on this issue, its analysis would show only that the prosecution history does not support either side's preferred construction. Thus, because the factors above compel the conclusion that specifying a radius and center per se is not equivalent to "creating a circle," the Court need not reach this issue.

For these reasons, the Court adopts the above construction, which incorporates elements of Plaintiff's and Defendants' proposals.

C. The Dispute Over the Creation of Concentric Indexed Circles

Independent claims 14 and 35 of the '013 patent describe the same first step:

creating a family of concentric indexed circles at each of two or more separate and distinct selected points within the
Defendants argue that VoluMill's process does not create any circle at all, much less "a family of concentric indexed circles." The Court finds that Plaintiff has not established that it is likely that it can prove that VoluMill's process does create the claimed circles.

5 This limitation is referred to herein as "the concentric circle limitation."

1. Claim construction

Defendants use a dictionary definition to define a "circle" as "a closed plane curve every point of which is equidistant from a fixed point within the curve." Merriam Webster's Collegiate Dictionary (10th ed. 1996); see also Oxford English Dictionary (2d ed. 1989) ("a plane figure bounded by a single curved line, called the circumference, which is everywhere equally distant from a point within, called the centre. But often applied to the circumference alone, without the included space."). 6 Defendants assert that a circle "family" "consists of multiple circles that have the same center but where the closed loops that define the circles are located at different distances from the center." Taken as a whole, Defendants contend that "this limitation means practicing the step of selecting two or more centers, constructing concentric circle families around those centers, and assigning each circle within a family a number, or index."

6 At the hearing on this motion, Plaintiff suggested for the first time that a "circle" should be defined as "the set of points equidistant from a center point." If the Court used that definition instead of the dictionary definition suggested in Defendants' papers, the analysis in this Order would be the same because Plaintiff has not shown that VoluMill creates the set of points equidistant from a center point, or that it creates families of concentric sets of points equidistant from a center point.

Plaintiff did not offer a construction of any of the terms in this concentric circle limitation in its opening motion. It is curious that even in its Reply, Plaintiff did not challenge Defendants' construction of the term "circle" nor offer any construction of the term "creating," even though, as discussed below, Plaintiff's theory of infringement turns on the contention that VoluMill is "creating" circles. The dictionary definition of the term "create" is "to bring into existence." Merriam Webster's Collegiate Dictionary (10th ed. 1996). Plaintiff points to nothing in the patent or prosecution history that would suggest a different construction of that term, and that is the construction the Court adopts for the purposes of this motion only.

The Court finds that Defendants' constructions of the other terms in the limitation are consistent with well-recognized principles of claim construction and adopts them for the purpose of this motion only. See Vitronics, supra. In short, the concentric circle limitation means the following: "practicing the step of selecting two or more centers, bringing into existence multiple circles that have the same center but where the circles are located at different distances from the center, and assigning each circle a number, or index." 7

7 This construction adopts and assumes the dictionary definition of "circle" stated above.
E. "Creating an Error Detection Code (EDC1) by Coding"

The patent defines error detection coding as coding "in such a manner as to permit detection of changes." (‘148 patent, col. 5, ll. 41-43) Thus, the term "creating an error detection code (EDC1) by coding" shall be construed to mean "creating an error detection code (EDC1) by applying an algorithm to information in such a manner as to permit detection of changes but without complete recovery of the original information."

Claim 8 recites, in relevant part:

8. A method of producing an instrument face having functional indicia thereon, utilizing a computer and printer, comprising the steps of:

(a) creating the instrument face with functional indicia thereon in the computer in electronic format . . . .

Col. 8, ll. 1-5 (emphases added). While claim 3 has the broader language "creating or providing," claim 8 recites only "creating." Nonetheless, the district court interpreted both claims to require "creating or providing in a computer a multicolor logo and hour markings to comprise the face of an instrument." (Emphasis added.) The district court found that the Sweda catalogue inherently anticipated "creating or providing" as required by its claim construction. Because claim 8 requires "creating" rather than "creating or providing," the district court erred in its construction of that claim and in its corresponding determination of inherent anticipation.

The ‘717 patent does not define expressly "creating" or "providing." The two terms, however, have distinct meanings. Each term appears in claim language. Each therefore imparts a different scope to the claim in which it appears. See, e.g., Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562, 19 U.S.P.Q.2D (BNA) 1500, 1503 (Fed. Cir. 1991) ("The fact that mitered linear border pieces meet to form a right angle corner does not make them right angle corner pieces, when the claim separately recites both linear border pieces and right angle corner border pieces."").

In its teachings, the specification treats the two terms differently. For example, with respect to preparing an instrument face for printing, the specification describes a two step process: "The artwork . . . is created in electronic format in the computer. Information may initially be inputted into the computer for this purpose from a conventional scanner or a CD ROM." Col. 4, ll. 7-11 (emphasis added). In sum, the patent recognizes that information may be provided (input) into the computer after creation elsewhere or, alternatively, may be created in the computer from scratch. Regarding the creating step, the specification further teaches that "commercially available software programs" may be used to "produce almost any design desired on an instrument face." Col. 4, ll. 11-14, 18. In view of these teachings, this court construes "creating" to require more than simply using the computer as a conduit to convey information to the printer from a scanner or a CD ROM. Creating requires, rather, a substantive addition or modification of the artwork in the computer, such as when graphics software adds a design to an instrument face.

I. "Credential"

Defendants attempt to import limitations from examples in the specification. Defendants' construction would require a physical credential and thus, the physical presence of the parties. The specification, however, recites that "until the present invention, it has not been possible to verify the identity and to secure the interests of . . . absent parties to a transaction." (‘148 patent, col. 2, ll. 2-5) Importing defendants' limitation would be improper. Thus, the term "credential" shall be construed to mean "a document or information obtained from a trusted source that is transferred or presented to establish the
H. "credential"

This term appears in claims 7, 47, and 53 of the '302 patent. The parties primarily dispute whether a credential must conclusively establish the identity of a party and whether it must be non-secret. Defendants offer the Delaware court's construction of this term.

Plaintiff argues that a credential need not conclusively establish the identity of a party. A credential is only used to establish a party's identity. Pl. Brief at 26. "[A] credential is presented as evidence or proof of identity, and the receiving party or system uses the credential for that purpose." Id. Plaintiff also argues that the credential must be non-secret because it must be "publicly presented for purposes of identifying a party." A credential, according to Plaintiff, cannot be a password.

In addition to making collateral estoppel arguments, Defendants argue that a credential is not merely used to authenticate a party but does authenticate a party. Def. Brief at 31. Defendants point to the specification, which states, "As part of the credential authentication process, the identity of the user is authenticated." '302 patent, 12:27-40. Defendants also argue that Plaintiff's proposal would make a credential overbroad and would read on a business card. Def. Brief at 32. If the credential were only required to be presented for purposes of determining the identity of a party, according to Defendant a business card would serve as a credential.

Both parties agree that part of the definition of credential includes a requirement that it come from a "trusted source." A mere business card, without more, would not serve as a credential under either proposal. Also, as used in the patent, a credential is intended to be a document or information presented to another for review. As such, it would make sense that the credential cannot be secret. Nonetheless, in the '302 patent, Claim 7, the inventor specifies that the credential has non-secret information. If the Court construes credential to be a non-secret document, this limitation would be meaningless. The Court is therefore of the opinion that "non-secret" should not be part of the definition of credential.

The Court now turns to the issue of whether a credential "establishes" identity. Although a driver's license or a passport is often used to establish identity, social security cards and birth certificates cannot by themselves establish the identity of the bearer. Yet the patent refers to a social security card as a credential. See '302 patent, 8:54-58. This is one of those instances in which the interests of comity yield to this Court's view of its independent obligation to give the correct meaning to claim terms. The Court construes the term to mean, "a document or information obtained from a trusted source that is transferred or presented for purposes of determining the identity of a party."
2. "credit"

The parties dispute the meaning of the term "credit" in the phrase "storing a credit at the subscriber location" of claim 1. Echostar argues that "credit" is limited to prepaid credit, whereas IPPV argues that "credit" also includes an amount of value placed by the system operator at the disposal of a subscriber to purchase television programming.

In support of its proposed construction, Echostar points to the prosecution history and in particular, to the April 4, 1984 amendment in which the inventors explained in response to a rejection based on prior art, that the references cited by the examiner were "not . . . pre-paid and stored credit system[s] as in the present invention." Echostar argues that the inventors should have disclosed the advance credit method in their amendment distinguishing the prior art, and because they did not, the doctrine of prosecution history estoppel limits the meaning of "credit" to prepaid credit.

IPPV argues in response that the plain and ordinary meaning of "credit" includes different forms of credit. It also cites portions of the specification as evidence of the broad meaning of "credit." One passage states that "with the illustrated system, the station operator has the option of allowing the subscriber to continue to purchase . . . programs until the credit is completely used up, an option which may be desirable if the credit is prepaid by the subscriber. On the other hand, if the . . . credit is an advance credit given to the subscriber without prepayment, the operator has other options." Another passage states that "the credit initially may represent an amount actually prepaid by the subscriber or an advance credit provided by the pay television operator against future use by the subscriber."

With regard to Echostar's prosecution history estoppel argument, IPPV argues that the inventors' statement must be read in the context of the entire prosecution history, including the application, the references cited by the examiner and the applicants' whole remarks. Furthermore, it urges the court to not only consider the statement, but why the statement was made.

IPPV explains that the two references cited by the examiner against claim 1, Loew and Mountjoy, disclose systems for controlling the distribution of programming, where prepayment in advance of viewing is required. The examiner rejected claim 1 because it covers an embodiment in which the credit represents an amount of value that is prepaid by the subscriber. IPPV further explains that in order to overcome the rejection, the applicants distinguished the prepaid credit embodiment covered by claim 1 from the payment systems described in the cited references on the basis that they did not store credit. Instead, the cited references were real time payment systems. Thus, IPPV argues that the examiner's rejection was limited to prepaid systems, and as such the advance credit system was not relevant to the rejection. It therefore contends that the inventors had no reason to include the advance credit system in their response, and as a result, to amendment should not serve to limit the meaning of "credit" to prepaid credit under the doctrine of prosecution history estoppel.

Having reviewed the specification and the prosecution history, the court finds that "credit" includes advanced credit as well as prepaid credit. The court further finds that the advance credit system was not relevant to the examiner's rejection based on Loew and Mountjoy. As such, the doctrine of prosecution history estoppel does not apply in this instance. The court therefore concludes that "credit," as used in claim 1, includes prepaid credit and an amount of value placed by the system operator at the disposal of a subscriber to purchase television programming.

3. "credit"

The parties disagree about the meaning of the term "credit" in the phrase "storing, at the subscriber location a credit indicating an amount for future payment of charges for access to information in the transmission" of claim 13. Echostar again argues that "credit" should be limited to prepaid credit, while IPPV argues that "credit" should not be limited to any specific type of credit.

In support of its position, Echostar contends that the plain and ordinary meaning of the term "charges" limits the meaning of credit. It explains that a "charge" is a debt or an entity in an account recording a debt. Applying this plain meaning, Echostar argues that "credit" cannot include advanced credit because one cannot pay a debt using credit advanced by the same party. It analogizes an advanced credit system to paying a credit card bill with the same credit card, and therefore contends that the
advanced credit system does not make sense. Finally, Echostar points to one of the embodiments of the specification that, it argues, illustrates the prepaid credit method as a limitation on the meaning of "credit."

In response, IPPV argues that the words "future payment of charges" mean payment for charges that occur in the future. Based on this meaning, IPPV contends that there is no reason to limit "credit" to prepaid credit, and that "credit" should therefore be construed to mean credit available for future use, whether prepaid or advanced.

After reviewing the parties' proposed constructions and the specification, the court finds that there is no reason to limit the meaning of "credit" to prepaid credit. The credit card analogy is inaccurate because it does not take into account the fact that in this instance, the credit card bank is providing the service. That is, it is true that a credit card holder would not pay a credit card bill with the same credit card, but a better question is whether the holder would pay for services or goods rendered by the credit card bank with the same credit card. This happens all the time, and the best example is a cash advance.

The bank issues the cash advance and charges the amount against the holder's available credit. In essence, the holder initially satisfies the cash advance charge with credit from the same bank. At a later date, the holder pays the bill reflecting the accumulated charges.

The specification makes clear that the invention contemplates the same system. A program charge is initially satisfied with advanced credit from the program provider, and the subscriber later pays a bill reflecting the charges. Thus, the court construes "credit" in accordance with its plain meaning and does not limit the term to any particular type of credit.

6. "Credit Account"

Walker proposes that the claim term "credit account" be construed to mean "[a]n account that allows a customer to buy goods or services from a merchant without cash and pay the issuer of the account at a later date." Capital One disagrees with Walker's proposed construction and offers the alternative construction of "[a]n account wherein a lender (such as a bank) advances an amount of money in accordance with certain terms." The crux of the argument as it relates to this claim term is whether or not the term, as used in the Walker Patents, should be construed broadly enough to include credit accounts other than those used to purchase goods or services. Thus, under Capital One's proposed construction, a "credit account" would include a mortgage account, a home-equity line of credit, and a personal loan. The court finds that a person of ordinary skill in the art at the time of the invention would not read this claim term so broadly in the context of the entire patent, including the specification.

The Walker Patents speak in terms of credit accounts that are "used throughout the world for non-cash payments of goods and services." (478 patent, Col. 1:10-11). In addition, although the independent claims refer only to "credit accounts," the specification describes these accounts as those that are used to purchase goods and services with payment to be made at a later date. It is important to note that the independent claims are not limited to credit cards. Rather they are defined in such a way that non-credit card credit accounts, such as a line of credit at a store, are also included. Every example in the Walker Patents related to the meaning of a "credit account" refers to those used to purchase goods and services. For these reasons, the court construes the term "credit account" to mean "an account that allows a customer to buy goods or services without cash and pay the issuer of the account at a later date." 2

2 Capital One argues that the inclusion of "merchant" in Walker's proposed construction is improper because merchants do not sell services. In response Walker believes this is "harmless" but has suggested including "or service provider" in its proposed definition. The court finds that neither merchant nor service provider should be included in the definition to be presented to the jury.

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GO BACK
I. "credit authorization provider"

CAT proposes that the term "credit authorization provider" means "a service provider that maintains the intrinsic value of the debit styled card in a central database identified by the card." CAT contends this term requires construction because otherwise it might be misinterpreted by a jury to mean only a Visa/MasterCard credit card processor. (D.I. 44 at 33-34) SVS, on the other hand, proposes that the term "credit authorization provider" be accorded its plain meaning. (D.I. 47 at 32) I conclude that neither proposal is satisfactory.

Adopting CAT's construction would have the result of importing the constructions it proposes for other disputed claim terms into this term. For instance, the portion of CAT's proposed construction that reads "the intrinsic value of the debit styled card" incorporates CAT's proposed construction of the terms "debit styled card" and "debit purchase transaction," which I have recommended that the Court reject.

Although I reject CAT's proposed construction, I agree that the term "credit authorization provider" may be confusing to the jury. Accordingly, I recommend that the Court construe the term "credit authorization provider" according to its plain meaning, which is "a service provider that maintains the value associated with a debit styled card.”

1. "Merchant-Specific Credit Value," "Merchant-Specific Credit Rate," "Merchant-Selected Credit Rate," "Credit Rate," and "Credit Value"

Independent claim 14 requires "determining a merchant-specific credit value for the transactions from a merchant-specific credit rate and the purchase amount." Claim 15, which depends from claim 14, requires that the credit value be "determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." The parties' principal dispute concerns the meaning of these terms.

The defendant proposes that "merchant-selected credit rate" means "a rate selected by a merchant, irrespective of any other merchant and independent of a central authority." The defendant further argues that "merchant-specific credit rate" should have the same construction as "merchant-selected credit rate." If, however, the court determines that "merchant-specific credit rate" means something different, then the defendant proposes "a credit rate selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." With respect to the term "merchant-specific credit value," the defendant proposes that it means "a credit value selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." The defendant also contends that the terms "credit rate" and "credit value" refer to the antecedent terms "merchant-selected credit rate" and "merchant-specific credit value," respectively. Therefore, according to the defendant, "credit rate" and "credit value" must have the same meaning as "merchant-selected credit rate" and "merchant-specific credit value," respectively. If the court determines otherwise, however, the defendant proposes that "credit value" means "a portion of a purchase amount that is to be credited to a consumer's account, regardless of how the transaction is paid for. The credit value is determined at the point of sale by applying a credit rate selected by that merchant irrespective of any other merchant and independent of a central authority, to the purchase amount of the transaction and is then transmitted to a central system." The defendant appears to agree with the plaintiff that "credit rate" means "a rate used along with a purchase amount to determine a credit value."
The plaintiff, on the other hand, proposes that "merchant-selected credit rate" means "a credit rate selected by a particular merchant," "merchant-specific credit rate" means "a credit rate determined for a particular merchant," and "merchant-specific credit value" means "a credit value determined using either a merchant-specific credit rate or a merchant-selected credit rate." According to the plaintiff, "credit rate" means "a rate used along with a purchase amount to determine a credit value," and "credit value" means "a value determined in connection with point-of-sale transactions." The principal disputes are 1) whether a third party may set the credit value and/or credit rate, and 2) whether there are any limitations on how the credit value is determined.

a. Third Party Determination

In support of its proposed constructions that a third party may not set the credit value and/or credit rate, the defendant argues that the patentee defined "merchant-specific credit value" in the prosecution history by stating that "the salient point [is] that the merchant may select or otherwise indicate the desired credit value (in some claims, by reference to a 'credit rate')." Combined Reissue Declaration and Power of Attorney, February 15, 1996, at 2. In addition, the defendant argues that the patentee distinguished his invention over prior art by stating that the prior art "fails to disclose or suggest . . . the concept of permitting each of several merchants to select a merchant-specific rate . . . ." Response to Office Action, February 26, 1997, at 10. The defendant points to this statement and also contends that the Examiner used the terms "merchant-selected credit rate" and "merchant-specific credit rate" interchangeably when it issued an Interview Summary referring to "the limitation of 'merchant-specific credit rate' from Claim 15, . . . ." even though Claim 15 actually used the phrase "merchant-selected credit rate." Interview Summary, March 12, 1998 (emphasis added). Finally, the defendant argues that the Examiner, in his Notice of Allowance, stated that "the prior art of record, neither singularly nor in combination, discloses a rebate system whereby a consumer receives a cash rebate, based on the amount of purchases made and a credit rate that is determined by the merchant." Notice of Allowability, May 22, 1998, at 2. Because the patentee did not respond to this notice, the defendant argues that the patentee acquiesced in the examiner's statement.

The plaintiff argues that, under the doctrine of claim differentiation, "merchant-specific credit rate" and "merchant-selected credit rate" cannot mean the same thing. The plaintiff also argues that the specification does not require that the merchant actually assign the rate in all circumstances. The plaintiff points to passages in the specification which state that the rate "may be selected" by the merchant and "the credit rate for one merchant is preferably selected by a third merchant and not by any other merchant or the central system." '116 patent, 1:39-42, 3:38-40 (emphasis added). In addition, the plaintiff points to the prosecution history and urges that the applicant distinguished between "merchant-specific" and "merchant-selected." See Response to Office Action, February 26, 1997, at 10-11. Finally, the plaintiff argues the failure to respond to the notice of allowability does not represent a clear disavowal of claim scope. See 37 C.F.R. § 1.104(e) (1998); Salazar v. Proctor & Gamble Co., 414 F.3d 1342, 1345 (Fed. Cir. 2005).

Although it is a close issue, application of the rules governing claim construction supports the plaintiff's proposed constructions. It is a general principle of claim construction that different words in a claim have different meanings. Innova/Pure Water, Inc., 381 F.3d at 1119 ("[W]hen an applicant uses different terms in a claim it is permissible to infer that he intended his choice of different terms to reflect a differentiation in the meaning of those terms."). Without question, the two phrases "merchant-selected" and "merchant-specific" are different. The former connotes that it is the merchant who selects the applicable rates; the latter implies that, although the applicable rate is keyed to a particular merchant, a third party (or the merchant) may specify the rate. Under Phillips, the language of the claims supports the plaintiff's argument.

The court has also considered the claims in light of the specification. As the plaintiff correctly notes, the written description does not equate the term "merchant-selected" with the term "merchant-specific." Moreover, the specification explicitly states that the merchant "may" select the applicable rate. The cited passages in the specification, although not conclusive, further support the plaintiff's proposed construction.

Finally, the court has examined the prosecution history. There is no clear statement in the prosecution history in which the applicant explicitly defined "merchant-specific" to mean "merchant-selected." To the contrary, the applicant stated that "[i]ndependent claim 14 includes the slightly different limitation of 'determining a merchant-specific credit value for the transaction' . . . ." Response to Office Action, February 26, 1997, at 11 (emphasis added). It does not appear that the applicant made a clear disavowal of claim scope and, therefore, the credit rate of claim 14 may be assigned by a third party.
b. Credit Value

Next, the court examines the term "credit value." The defendant contends that the credit value must be 1) determined at the merchant location, 2) determined by multiplying the credit rate by the purchase amount, and 3) can be determined regardless of how the consumer pays for it.

i. Merchant Location

The defendant contends that the patentee disclaimed any system and method for determining credit value other than at the merchant's location in his appeal brief. In that brief, the patentee stated that claims 1, 14, 22, and 35 "clearly recite electronic capture of . . . credit value at the merchant location and its electronic transmission to the central system . . . ." Appeal Brief, June 12, 2006, at 13.

In reply, the plaintiff points out that the appeal brief also states that "[t]he prior art fails to disclose the electronic delivery of credit values and/or account numbers to a central system . . . ." Appeal Brief, June 12, 2006, at 18 (emphasis added). According to the plaintiff, this does not require that the credit value be determined at the merchant location.

There is no clear disclaimer of claim scope. The patentee chose to include this limitation in some claims, but not others. For example, claims 1, 8, and 35 specifically require the credit value to be calculated at the merchant location while claims 22 and 31 do not require the credit value to be calculated at the merchant location. Accordingly, this limitation should not be included in the construction of these terms because imposing this limitation would be redundant in some claims and, without a clear disclaimer, would be improper in the other claims.

ii. Multiplying Credit Rate by Purchase Amount

Next, the defendant contends that the only method for determining a credit value in the '090 specification is multiplying the credit rate by the purchase amount. The defendant attempts to limit the intrinsic evidence to the specification of a different patent and to import a limitation from a preferred embodiment into the construction of a claim term. Furthermore, dependent claim 15 states that "the credit value is determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." Therefore, the court concludes that the term "credit value" is broader, standing alone, than the limitation in the dependent claim. The proposed limitation is rejected.

iii. Determination Regardless of How a Product is Paid For

Finally, the defendant contends that the inventor's notes disclaimed any system which is dependent on the form of payment. Defendant's Responsive Claim Construction Brief, Ex. B., at PS 11339. The defendant also cites to the specification which states "consumers build up cash value by buying products from participating merchants independent of how that product is paid for . . . ." '116 patent, 2:22-24. Again, the defendant attempts to import a limitation from a preferred embodiment. The court rejects this limitation.

c. Constructions

Based on the foregoing discussion, the court issues the following constructions:

"Merchant-selected credit rate" means "a credit rate selected by a particular merchant."

"Merchant-specific credit rate" means "a credit rate associated with a particular merchant."

"Merchant-specific credit value" means "a credit value associated with a particular merchant."

"Credit rate" means "a rate used along with a purchase amount to determine a credit value."

The term "credit value" has been defined in the prosecution history as proposed by the plaintiff. See Response to Office Action, February 26, 1997, at 3. "Credit value" means "a value determined in connection with point-of-sale transactions."
6. Cross-Reference Table

516 Patent, Claims 21, 22, 29

ePlus asserts that the Court need not construe this term, but if it does, it should mean: a reference from one part of an index to another for additional information. Lawson proposes that the term mean: a table including reference or identification codes used to link vendor items by catalog number between two or more different vendors determined by a Distributor to be equivalent.

a. Words of the Claims

Claims 21 and 22 of the '516 Patent claim an electronic sourcing system comprising:

- a requisition module including data fields, user-generated criteria entered into at least one of said data fields to generate at least partial criteria corresponding to a desired item;

- a catalog collection searching module, said searching module including a collection of catalogs of items stored in an electronic format, a catalog selection criteria used to select less than said entire collection, said searching module being used to generate additional search-module criteria for said data fields of said requisition module;

- a multiple purchase order generation module, said purchase order generation module creating multiple purchase orders from a single requisition created with said user-generated criteria and said search-module criteria;

- wherein each of at least two catalogs include a generally equivalent item from a different source, said requisition module working in combination with said catalog searching module to determine multiple sources for said item;

- wherein said multiple sources is limited by said catalog searching module providing a match according to said user-generated criteria, said search-module criteria and a determination system that located items are generally equivalent; and

- wherein said determination system includes a cross-reference table matching an identification code from a first located item and a second identification code from a second located item.

516 Patent at 25:56-26:18 (emphasis added). Claims 21 and 22 make clear that the cross-reference table operates within a determination system that locates generally equivalent items. Claim 29 provides for an electronic sourcing system comprising:

- a collection of catalogs of items stored in an electronic format;

- a first set of pre-determined criteria associated with said collection of catalogs;

- a second set of pre-determined criteria associated with items each of said catalogs;

- a catalog selection protocol, said catalog selection protocol relying on first set of pre-determined criteria to select less then said entire collection of catalogs, and including a matching vendor identification code with a subset of said collection of catalogs, wherein said subset of catalogs includes both a vendor catalog from a predetermined vendor and a second catalog from a predetermined third party;

- a search program, said search program relying on said second set of criteria to select specific items from said catalogs determined from said catalog selection protocol; and

- a cross-reference table linking a vendor item catalog number from said vendor catalog with an item catalog number from said predetermined third party.

b. Specification

ePlus asserts that Lawson's proposed construction imports an improper limitation by requiring a distributor to determine equivalency. According to Lawson, this requirement come from U.S. Patent No. 5,712,989 (the "'989 Patent"), which is incorporated by reference into the Patents-in-Suit. A patent incorporated by reference "becomes effectively part of the host document as if it were explicitly contained therein." Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1329 (Fed. Cir. 2001). The '989 Patent provides:

The Host Cross-Reference Table includes, for each item regularly stocked or supplied by the Distributor…a list of the corresponding part numbers of Distributor's vendor and other distributors… for items which have been determined to be equivalent. This relational database is created by the Distributor by, for example, reviewing the catalogs of other distributors and determining which items are equivalent to items in the Distributor catalog.

'989 Patent at 32:14-24. And says, Lawson, it is essential that "determined to be equivalent" be included in the construction of the term, because without it, what is cross-referenced has no meaning or context. (Def. Reply at 27.)

c. Proper Construction

Lawson's proposed construction improperly imports unnecessary limitations. Specifically, the claims at issue demonstrate that it is not necessary that items be linked by catalog number because the '516 Patent links items by identification code. And, while the Patents-in-Suit do not require that a distributor determine equivalency, Claims 21 and 22 do state that the cross-reference table operates within a determination system that locates equivalent items. As Lawson correctly observes, the '989 Patent, incorporated by reference, provides that it is the Distributor that determines equivalency. However, as the claim terms and specification make clear, and as the parties have agreed, a "Distributor" is but one kind of vendor. To define the term "cross-reference table" solely with reference to the incorporated '989 Patent would inappropriately limit the term. Considering the Patents-in-Suit as a whole, the incorporated limitation from the '989 Patent is the concept of determined equivalency, not the limitation that a Distributor determines the equivalency. It would truly distort the plain meaning of the patent and the specification to impose the limitation that the Distributor is the sole determiner of equivalency. Thus, the term "cross-reference table" means a table that links vendors items determined to be equivalent between two or more different vendors.


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Maintaining a consistent position, Intergraph argues "crossbar" or "crossbar switch" carries its ordinary meaning to one skilled in the art. Intel claims the terms "crossbar, associative crossbar, and associative crossbar switch" are all synonymous and mean a switch located within the scalar cache, that has a set of connectors in electrical contact with the storage, is controlled solely by pipeline identifiers embedded by the compiler within each of the software-scheduled instructions being routed through the switch, and has another set of connectors in electrical contact with the processing pipelines. Intel arrives at this definition by, again, placing specific requirements from one or more claims into the definition of the term itself. The Court cannot embrace this method of defining terms, as the claim requirements vary from claim to claim. Accordingly, the Court construed "crossbar" and "crossbar switch" as a switch that selectively couples a group of instructions from the very long instruction word storage to the processing pipelines. '028 patent at 3:11-18; 9:66-10:9.

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D. "Crossbar"
Intel also challenges the district court's construction of the "crossbar" limitation in the '003 patent, arguing that the recited crossbar must be implemented within the cache. Intel asserts that the claim language, the specification, and the prosecution history all require that the crossbar be physically located within the cache. Intel further argues that there can be no infringement under its proposed definition of the term "crossbar" because the accused devices have significant decoding and processing circuitry located between the cache and the crossbar.

Intergraph responds that nothing in the claim language, the specification, or the prosecution history specifies the location or the position of the crossbar in the claimed invention. Intergraph further maintains that the district court's finding that the accused microprocessors satisfy the "crossbar" limitations should be affirmed because there was no claim construction error.

We agree with Intergraph that the district court did not err in construing the asserted claims of the '003 patent as not requiring the crossbar to be located within the cache. Claims 1 and 22 recite a "super-scaler cache comprising . . . an associative crossbar," while claim 6 refers to "an associative crossbar switch in a super-scaler cache." Intel argues that the plain meaning of the words "in" and "comprising" mandates that the crossbar be located within the cache. We disagree, as neither "comprising" nor "in" necessarily conveys information about the location or position of the crossbar relative to the cache. The word "comprising" in claims 1 and 22 is a term of art that simply means that the crossbar is an essential, but not necessarily the only, element of the cache. See Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997). The word "in" may similarly be used to indicate that the crossbar is a constituent of the cache; or it may be used to indicate that the crossbar is within the bounds or area of the cache. See Webster's New World Dictionary 680 (3d college ed. 1988). Nothing in the claim language, however, clearly points to one particular meaning over another for that ordinary word. We therefore conclude that the claim language does not compel Intel's proposed claim construction.

The specification of the '003 patent likewise does not require the crossbar to be located within the cache. Indeed, Figures 2, 4, and 5 depict the instruction cache and the crossbar as two distinct entities; they certainly do not show the crossbar as being located within the cache. And the specification, at most, suggests that the preferred embodiment places the crossbar in the cache, stating only that the placement of the crossbar switch earlier in the instruction pipeline "allows the crossbar to be a part of the cache itself." '003 patent, col. 1, ll. 46-47 (emphasis added), and that "in a preferred embodiment of this invention the associative crossbar is implemented in the instruction cache," id., col. 2, ll. 22-23. Without more, however, we will not read that purported aspect of the preferred embodiment into the broader claim language. See RF Del., Inc. v. Pac. Keystone Techs., Inc., 326 F.3d 1255, 1263 (Fed. Cir. 2003).

The prosecution history of the '003 patent also fails to convince us that the recited crossbar must be located within the cache. Intel asserts that Intergraph distinguished the prior art during prosecution on the basis that the claimed invention places the associative crossbar within the cache. However, the prosecution history shows that Intergraph distinguished the Blaner and Hiller references by arguing that neither disclosed using an associative crossbar switch, let alone a cache that includes an associative crossbar switch. The prosecution history also shows that Intergraph distinguished the Rustad reference by pointing out that it did not disclose the recited means and steps for forming and storing groups of software-scheduled instructions. 8 Intergraph's other prosecution history remarks regarding the recited associative crossbar switch largely repeat the language found in the specification of the '003 patent, which we have already found to be unconvincing. We therefore do not read Intergraph's prosecution history statements as clearly disclaiming crossbars that are not physically located within the cache.

8 During prosecution Intergraph did state: "Figure 1 is the only figure in Rustad et al. that illustrates a crossbar switch in conjunction with a cache. Furthermore, the crossbar switch is not within a cache." That Figure 1 was of a prior art reference cited in Rustad and depicted an instruction cache and a crossbar in nearly the same way as do the block diagrams in the '003 patent. Intergraph did not meaningfully explain what distinction, if any, existed between its claimed invention and Rustad's Figure 1 and, in any event, did not rely on any such distinction to overcome the examiner's § 103 rejection, which was based on Rustad itself. Intergraph's one vague statement regarding Figure 1 therefore does not amount to a clear disavowal of claim scope.

Having affirmed the district court's claim construction, we discern no clear error in the court's factual finding that the
accused devices satisfy the "crossbar" limitations. Intel essentially concedes as much. We therefore affirm the court's finding that the accused devices have "crossbars" as claimed in the '003 patent.

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"enabling a secure communication mode of communication at the [a] first computer without a user entering any cryptographic information for establishing the secure communication mode of communication"

The '759 patent, claims 1 and 16 contain the phrase "enabling a secure communication mode of communication at the [a] first computer without a user entering any cryptographic information for establishing the secure communication mode of communication." VirnetX contends that this phrase means "providing to the first computer at least one resource necessary for a virtual private network communication, based on a domain name service (DNS) that provides the resource according to user identity, without user input of encoding or decoding information." Microsoft contends that the phrase does not require construction. Alternatively, Microsoft contends that only "cryptographic information" requires construction and means "information used for encryption." The parties dispute whether construction is necessary, and if construction is necessary, what limitations to apply.

The only term that requires construction in "enabling a secure communication mode of communication at the [a] first computer without a user entering any cryptographic information for establishing the secure communication mode of communication" is "cryptographic information" as a jury may not understand the meaning of "cryptographic." VirnetX argues that "cryptographic information" is encoding or decoding information. Microsoft argues that "cryptographic information" is information used for encryption. Microsoft contends that "encoding or decoding" is too broad because all information stored on a computer or transmitted over the Internet is encoded or decoded. VirnetX contests that "encryption" is too narrow because "encryption" does not account for the "decryption" aspect of "cryptographic information."

The Court construes "cryptographic information" as "information that is encoded/decoded or encrypted to ensure secrecy." This construction addresses both VirnetX's request to use "encoding or decoding" and Microsoft's request to use "encryption" to construe "cryptographic information." Also, Microsoft's concern that "encoding or decoding" is too broad because all information is encoded and decoded is addressed by the Court's construction language "to ensure secrecy," which modifies both "encoded/decoded" and "encrypted." Additionally, extrinsic evidence is consistent with the Court's construction. "Cryptographic" is defined as "in an encrypted form; using a code or cipher." ACADEMIC PRESS DICTIONARY OF SCIENCE AND TECHNOLOGY 556 (1992) (second definition). This supports the most limiting portion of the Court's construction that states "cryptographic information" is information that is "encrypted."

VirnetX contends that the additional terms--"enabling," "establishing," and "secure communication mode of communication"--require construction. VirnetX argues that these terms require constructions because they do not by themselves explain how the claimed invention is carried out. However, the claims do not need to state how to perform the claimed invention. See SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985) ("Specifications teach. Claims claim."). Limitations from the specification do not have to be imported just because the claims do not state how to perform the invention. Furthermore, VirnetX's citations describe only particular aspects and embodiments. See Pl.'s Br. (Docket No. 194) at 34; see Col. 6:37, 44. "Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." Comark, 156 F.3d 1182, 1187. Accordingly, the Court does not adopt VirnetX's proposed limitations and construes only "cryptographic information" as "information that is encoded/decoded or encrypted to ensure secrecy."

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1. "cryptographic processing; cryptographic operation"

The parties dispute over the meaning of the phrase "cryptographic operation," which appears in various claims throughout the asserted patents. The dispute also encompasses the related terms "cryptographic processing operation," "cryptographic
processing," and "cryptographically processed."

One aspect of the dispute is whether the phrase "cryptographic operation" should be limited to encryption and decryption.

The specification refers to "cryptographic operations" as including more than simply encryption and decryption. For example, in the '442 patent: "Such keys are used in connection with various cryptographic operations including, without limitation, symmetric encryption using DES, triple DES, IDEA, SEAL, and RC4; public key (asymmetric) encryption and decryption using, RSA and ElGamal; digital signatures using, DES, ElGamal, and RSA; and Diffie-Hellman key agreement protocols." Col. 1, ll. 27-33.

The language of certain dependent claims also supports a broader definition. In the '699 patent, for example, Claim 9 provides "The cryptographic token of claim 7, wherein said cryptographic operations include DSA signing operations." Col. 22, ll. 7-8. Similarly, Claim 20 of the '658 patent provides: "The method of claim 19 where said asymmetric cryptographic operation includes a digital signing operation." Col. 24, ll. 30-31. Thus, "cryptographic operation" includes digital signing and cryptographic hashing.

The Court construes the phrase "cryptographic operation" to mean: "an operation within a class of techniques or algorithms used to secure data and avoid digital identity misrepresentations."

C. "Cue" and "Select Code"

Beery contends that the word "cue" refers to a list or grouping of one or more channel tuning designations located within a memory. Beery's proposed definition must be rejected because it fails to reflect the definition of the word "cue" in the specification, which states:

'Cue' is the listing in memory of the various programmed entries made by the viewer, wherein each select code is stored along with its corresponding channel code and display code.

(Doc. # 1, Exh. A at col. 6).

Beery's proposed definition is broader than the definition set forth in the specification because Beery's definition does not require a viewer to program the list of entries in the memory. By choosing to be his own lexicographer in the specification, Beery set the definition of the term "cue" by which he must live. See Zebco Corp., 175 F.3d at 990. He is bound to his written word, and he may not broaden its meaning beyond the one he wrote in the specification.

Beery contends that the term "cue" is not limited in the claim language by the requirement that a viewer must enter the select code or the display code. This is seen, Beery maintains, in the memory means of claims 8, 9, 20, and 29, which contain no requirement that a viewer must enter information into the cue. This leads Beery to conclude that a cue may contain information entered not only by a viewer but also by a third party such as a cable service provider. This contention lacks merit upon review of the memory means in claims 8, 9, 20, 29, even though the memory means in each of these claims does not specifically use the word viewer as the person who must enter information into the cue. Having specifically defined the term "cue" in the specification, the '952 patent claim language must be understood in light of that definition in each of its claims. Indeed, one reason for permitting an inventor to act as his or her own lexicographer is to make claim language more concise, and hence more easily understood. Such definitions accomplish concision by allowing the inventor to write claim language using the term or phrase without repeating its definition in each claim. However, once an inventor chooses a particular definition, and explicitly and clearly writes it into the specification, a claim term or phrase thus defined may not be expanded unless other claim language presents a basis for doing so. As a result, because the specification's explicit and clear definition of the word "cue" requires a viewer to make programmed entries, the absence of a reference to a "viewer" in claims 8, 9, 20, 29 does not provide a basis for altering the specification's definition.

Turning to the phrase "select code," Thomson contends that the specification's definition of the phrase "select code" applies. As with the term "cue," Beery acted as his own lexicographer by specifically defining the phrase "select code." He is
therefore limited to the specific definition of this phrase as it appears in the specification. See Zebco Corp., 175 F.3d at 990.

Accordingly, the word "cue" in the '952 patent is "the listing in memory of the various programmed entries made by the viewer, wherein each select code is stored along with its corresponding channel code and display code." (Doc. # 1, Exh. A at col. 6). The phrase "select code" in the '952 patent refers to "the channel designation chosen by the viewer for subsequent use in selecting a particular channel." Id.

8. "cumulative index of revisions"

Disputed Term "The system of claim 8 wherein the technical database further comprises a cumulative index of revisions to publications….

Plaintiff's Construction no construction needed due to plain meaning

Defendant's Construction the list of all changes made since the first change, but excluding merely updated information

Plaintiff contends that "cumulative index of revisions" has a "plain meaning" and thus requires no construction. (Jt. Stmt. at 25.) In contrast, Defendant argues that this claim term means "the list of all changes made since the first change, but excluding merely updated information." (Id.) The Court disagrees with Plaintiff's unsupported assertion that the meaning of "cumulative index of revisions" is sufficiently clear to obviate the need for construction. See United States Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir.1997) (claim construction appropriate "when the meaning or scope of technical terms and words of art is unclear and in dispute and requires resolution to determine"). Therefore, the question remains whether Defendant's proposed construction is appropriate.

Defendant cites the preferred embodiment, which notes that "[t]he revision letter index is cumulative in that it includes all changes, not just the changes since the last CD-ROM release." (‘806 Patent at 61:32-34.) This supports Defendant's contention that the "cumulative index of revisions" necessarily includes "the list of all changes made since the first change…." (Jt. Stmt. at 25.) However, it does not support the second aspect of Defendant's proposed construction, as it makes no mention of "excluding merely updated information." To the contrary, the preferred embodiment specifies that the cumulative list includes "all" changes, and not only the most recent changes. 4 As such, the Court construes the claim limitation "cumulative index of revisions" to mean "the list of all changes made to publications since the first change."

4 Equally unhelpful is Defendant's citation to Mr. Sandifer's expert report which, as noted, was submitted during the reexamination process of the '806 Patent. (Jt. Stmt. at 26; Lavorga Decl. Ex. 17.) Defendant cites generally to twenty pages of the report without identifying specifically what and where in the report Defendant's proposed construction of "cumulative index of revisions" is supported. (Lavorga Decl. Ex. 17 at 69-89.) Nevertheless, the Court has independently reviewed the cited pages of the Sandifer report and has found no support for Defendant's position.

D. Current Bandwidth Metric (claims 10, 14, 28 and 29 of the '700 patent)

Plaintiff's Construction: The present measurement of a moving average of transmission capacity

Defendant's Construction: The moving average over a preselected number of measuring time periods of the bandwidth achieved by a particular queue. The measuring time period is some preselected number of packets transmitted by all queues
from the port

At the claim construction hearing, defendant withdrew its proposed limitation "achieved by a particular queue," Cl. Const. Tr., dkt. # 48, at 39, so I need not consider plaintiff's arguments that the limitation is improper. In addition, plaintiff said that it had "removed" the term "capacity" from its construction (without explaining why). Id. at 27. This still leaves several disputes.

The precise nature of the parties' remaining disputes is somewhat elusive with respect to this term because each party characterizes the disputes differently. For example, plaintiff says that defendant's construction omits any reference to "metric," which plaintiff addresses in its construction with the word "measurement." Plaintiff stated repeatedly at the claim construction hearing that it was adopting the ordinary meaning of "metric" even while acknowledging that the ordinary meaning of "metric" is not a "measurement" but a standard of measurement. (Neither side proposed a construction that reflected that understanding of "metric." Plaintiff came closest when it explained at the hearing that "you have to take a measurement of that . . . moving average" in order to "compare that moving average to the minimum bandwidth as the claim contemplates." Cl. Constr. Tr., dkt. # 48, at 30.) In any event, it is nonsensical to speak of a "measurement" of an average; an average is not "measured" but calculated.

Although defendant recognized that the average is calculated, the construction it proposed does not simply replace "present measurement" with "present calculation" of the average. Apparently (defendant did not make the argument explicitly), defendant believes that "current" does not mean simply "present." Rather, defendant's construction assumes the relevant time is a "preselected number of measuring time periods." Defendant says it is taking this part of its construction from a portion of the specification that states "[t]he current bandwidth should not be mistaken for a bandwidth at an instant in time, rather the current bandwidth is a moving average that is updated periodically upon the expiration of a predetermined time period." '700 pat., col. 10, lns. 3-7.

There are number of problems with defendant's reliance on this passage. First, as plaintiff points out, this is a description of "current bandwidth," not "current bandwidth metric." Defendant never distinguishes these two terms but treats them as interchangeable. Second, the passage refers to a "predetermined time period" (singular) not a "preselected number of measuring time periods" (plural). Third, the passage addresses only how often the moving average is updated; it says nothing about the time interval for calculating the moving average.

Nevertheless, as plaintiff acknowledges in its brief, by its nature, an "average" must take into account some notion of time because it is the result of multiple figures. Even if the calculation is the "present" one, any construction must include the time period over which the average is calculated. Accordingly, I will adopt the following construction: "the present calculation of a moving average of bandwidth over a predetermined time period."

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1. "Current metering circuitry [for monitoring the positive and negative ion output current]"

ITW proposes that the court define this element of the claim as: "circuitry used to measure a value corresponding to the amount of current." Pl.'s Revised Proposed Order Regarding Claim Construction at 3. Ion argues that it means: "circuitry used to produce a binary number corresponding to the amount of current." Def.'s Proposed Order re Claim Construction for the '756 patent at 2.

The parties' chief disagreement is over whether the circuitry "measures" or "produces" the value that corresponds to the amount of current. 6 Neither side discusses why one word is superior to the other, nor why either of these words should replace the language of the claim itself: monitoring. The word "monitor" is consistent with the specification. See '756 patent, col. 7:42-42. The word "measure" is not. The specification says that the current metering circuitry can "amplify" the voltage that draws a current through a resistor and "pass" this signal to the A/D converter. '756 patent, col. 8:5-8. The words "amplify" and "pass" could resemble the verb "to produce." On the other hand, "to measure" implies a degree of computation or calculation. 7 There is no intrinsic evidence that supports the inference of measurement or calculation. The word that appears consistently throughout the patent's language is "monitor" and, therefore, "monitor" will be used in the construction. Insofar as there is evidence for Ion's preferred verb as well, I will also include "produce" in the claim.
6 Ion, foreshadowing the parties' debate over how to construe "ion output current reference value," asserts that the word "value" should be defined as a "binary number." Because the word "value" is not part of the term "current metering circuitry," it would be premature to construe it now. I will discuss the proper construction of the word "value" in § 2 directly below.

7 Dictionary definitions for the verb "to measure" include: "to ascertain the dimensions, quantity, or capacity of" and "to estimate by evaluation or comparison." American Heritage Dictionary of the English Language (4th 2000). Acts of ascertaining or estimating require analysis, whereas "passing" and "amplifying" do not.

The term "current metering circuitry," for purposes of the '756 patent shall mean: "circuitry used to monitor or produce a value corresponding to the amount of current." The meaning of the word "value" in this construction shall be consistent with the definition given to the word in § 2 directly below.

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e. "current patient condition parameter"

MiniMed argues that the term "current patient condition parameter" means "a recent patient condition parameter, such as a patient's recently measured glucose level using a test strip in a glucose meter." (D.I. 214 at 29.) Smiths argues that during the prosecution of the '065 patent, the patentee made clear that the "current patient condition parameter" was a real time glucose reading because the patentee used such language to distinguish prior art. (D.I. 190 at 25-26.) The office action that Smiths cites to support this argument, however, does not require that conclusion.

In that office action, the patentee wrote that the reference "does not contemplate automatic or substantially continuous blood glucose readings, for example, by means of an implanted sensor. Instead … the blood glucose readings are taken manually by enzyme test strips or the like." (D.I. 192, Ex. 24 at 6.) A further examination of that paragraph reveals, however, that the patentee was distinguishing the reference because the reference contemplated "a recommendation with regard to timing for taking the next blood glucose reading," not with respect to recommending a modified dispensing protocol. (Id. at 6-7.) Thus the reference to "manually" taking a blood glucose reading was to highlight the fact that the prior art reference alerted the user to take such a reading. It was not to highlight that the invention used real time glucose monitoring. Read in context, the office action cited by Smiths provides no reason to limit "current patient condition parameter" to a real time reading. Consequently, I hold that the meaning of the term is "a recent patient condition parameter."

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2. "Current-status information"

The parties ask the court to construe the phrase "current-status information," which appears multiple times in Claim 1 of the patent, including in the transmitting, calculating, and displaying steps. See '877 Patent col.32 ll.36, 39-40, 42-43.

Papyrus alleges that it acted as lexicographer by providing the following definition in the specification:

As used herein, "status" refers to the stage of the transaction, that is, whether a quotation has been received in response to a quotation request and whether an order has been completely filled. If the quotation has yet to be received, or an order remains unfilled, or only partially filled, the status is "pending."
Based on this language, Papyrus suggests that "current-status information" means "information indicating whether an instruction is pending." Pl. PCCO 2; Pl. Br. 14.

According to Papyrus, the written description provides that several types of information may qualify as current status information: (1) volley codes indicating the order's stage; (2) a leaves quantity indicating the pending status of an order, and (3) volley codes indicating the request's stage. See '877 Patent col.9 ll.33-38, col.10 ll.17-21, col.18 ll.16-53, col.23 l.16-col.25 l.49. Further, Figure 1 in the '877 Patent illustrates several types of current-status information for quotation requests (symbols "Q," "A," "R," "S," and "U"), for orders (symbols "*" and ",r"), and for leaves quantities (numeric values). '877 Patent Fig. 1.

Papyrus contends that a leaves quantity exemplifies current-status information in that a zero quantity indicates a completely filled order and a non-zero quantity denotes an unfilled or partially filled order.

Although NYSE also relies on the language of the specification, NYSE concludes that "current-status information" means "characters or digital means conveying the stage of a transaction." Def. PCCO 4; Def. MHSP 99. Specifically, NYSE relies on language stating that "status' refers to the stage of the transaction" and that the "system utilizes volley codes to define the present stage of the transaction or instruction." 8 '877 Patent col.9 ll.33-34, col.18 ll.17-18 (emphasis added).

Although NYSE cites the '002 Patent col. 10 ll.3-6 and col.18 ll.40-41, identical language appears in the '877 Patent at col. 9 ll.33-34 and col. 18 ll.17-18.

When construing terms, the court generally "begin[s] with the presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims." Fin Control Sys. Pty, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). Furthermore, "a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent." Rextord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). Where "a patentee defines a claim term, the patentee's definition governs, even if it is contrary to the conventional meaning of the term." Honeywell Int'l., Inc. v. Universal Avionics Sys. Corp., 493 F.3d 1358, 1361 (Fed. Cir. 2007). Indeed, "the specification is the single best guide to the meaning of a disputed term, and . . . acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Phillips, 415 F.3d at 1321 (quotations & citation omitted).

In light of the case law and language in the specification, there are several issues that the court must balance in construing the term "current-status information." First, the court must adopt a construction consistent with the definition in the specification because Papyrus demonstrated an intent to act as lexicographer by defining the term "status." Second, the court is reluctant to adopt a construction, like that suggested by NYSE, which does not reflect the definition in its entirety. Crucially, the specification explains that "status" is more than just the "stage of the transaction." The specification clearly states that instructions are either pending or not pending, i.e., either a broker has not received a quotation or not completely filled an order, or the broker has carried out the instruction in its entirety. See '877 Patent col. 9 ll.33-38. Third, because multiple types of information may denote the "status" of an instruction, e.g., volley codes and leaves, the court must avoid a construction that overlaps the respective meanings of several terms or which uses terms to define each other. 9 Fourth, because the specification uses "stage" to explain the meanings of the terms "status" and "volley codes," confusion may arise from a construction that employs the term "stage." '877 Patent col.9 ll.33-34, col.18 ll.17-18. Any construction of "status" must therefore make clear the subtle but important difference between "stage of the transaction" and the "stage" of an instruction as denoted by volley codes, such as whether an instruction has been sent, received, or cancelled. 10 '877 Patent
col.18 ll.16-53, col.23 ll.16-col.25 l.49. Thus, the court finds that "current-status information" means "information indicating whether an instruction is pending or not pending."

9 The court notes that NYSE's suggested construction for "current-status information" is markedly similar to its proposed definition for "volley codes." Def. PCCO 3-4. In addition, during oral argument NYSE argued that the "volley code defines the stage of the transaction." Def. MHSP 100. NYSE's proposed construction would in effect use the term "volley code" to define "status," thereby indicating that it is used for that function only.10 For the full discussion and construction of the term "volley codes," see discussion infra part III(C)(4).

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7. Current Web site (First appearing in claim 1 at col. 12, l. 56, and as used thereafter in claims 1-31)

Websidestory contends that the term "current website" does not require construction, while Netratings construes the term to mean "the website providing the page requested by the network browser." See Joint Claims Construction Chart at 3-4. Netratings contends that the use of this term in claim 1 of the '479 Patent requires the adoption of its construction. Websidestory contends that the meaning of "current website" would be clear to an ordinary person skilled in the art in 1999, and does not need to be construed by the Court. If the Court requires construction of "current website," Websidestory proposes that "current" should be construed to mean "belonging to the present," and "website" should be construed to mean "a collection of thematically related, hyperlinked World Wide Web services, mainly HTML documents, usually located on a specific Web server and reachable through a URL assigned to the site." Joint Claims Construction Chart at 3-4.

The term "current website" is neither defined nor mentioned in the specification, and appears for the first time in the second element of claim 1 of the '479 Patent as follows:

receiving a request from a network browser for a page at a website, the page having at least one graphical element having an image source attribute that specifies a website traffic path analysis data location;

detecting if the website page request includes a website cookie having website traffic path analysis data from the network browser for the current website;

producing a website cookie in response . . ., wherein the website cookie contains data . . . for the current website.

Patent at col. 12, ll. 50-61 (Emphasis added.). The term appears in a similar context in other claims. After considering the language of the claims, and particularly the context within which the terms "current website" and "current website visit" are used in the claims, the Court concludes that it would be readily apparent to a person of ordinary skill in the art in question at the time of the invention that the term "current website" is used to refer to the web page which is requested by a visitor's network browser. The Court adopts Netratings' proposed construction for "current website," and concludes that the acquired meaning of "current website" is: "the website providing the page requested by the network browser."

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11. Current website visit (First Appearing in claim 1 at col. 12, l. 1, and as used thereafter in claims 1-31)

The invention embodied in the '479 Patent utilizes website cookies to track a website's usage in real-time, thereby providing a website operator with, among other things, information regarding visitor traffic patterns. While the use of website cookies in this manner has many advantages, one, in particular, is that a cookie can be programmed to expire, allowing the invention to differentiate between multiple visits to a website by the same browser. Claim 1 describes this aspect of the invention as
determining if the cookie for the current website has expired, if a website cookie for the current website was detected; setting the traffic path analysis data of the website cookie to initial values if the website cookie has expired, and otherwise updating traffic path analysis data for a current website visit by the network browser by adding the current requested website page.

Patent at col. 12, l. 63 - col. 13, l. 5 (Emphasis added.) As noted in the specification, allowing for the expiration of cookies "keeps the traffic path data analysis more valid, so that separate visits are not calculated as one." Patent at col. 8, ll. 58-64.

The chief dispute regarding the term "current website visit," centers on the related idea of a cookie "expiring." See Joint Claims Construction Chart at 5. Netratings contends that a determination as to whether a visit is "current" is solely based on the time between visits to a website by a web browser. Accordingly, Netratings contends that "current website visit" should be construed as, "a visit to a website containing multiple web pages during which no more than a preselected time limit elapses between requests for a page at the particular website." In support, Netratings cites to numerous references in the specification. Joint Claims Construction Chart at 5. Websidestory contends that the term "current website visit" does not need construction, and notes that Netratings' construction improperly limits the scope of the '479 Patent. Joint Claims Construction Chart at 5. Specifically, Websidestory argued at oral argument and in their briefs that a cookie could expire in ways unrelated to the passage of time.

The specification states that, "[i]n the preferred embodiment, a current visit is defined as a visit during which no more than 15 minutes elapses between requests for a page at a particular website. Other time limits may be selected, as desired." Patent at col. 9, ll. 46-50. Netratings argues that this language amounts to a specific and binding definition of "current website visit." In addition, Netratings points to the following language in the specification:

In the preferred embodiment, the time between visits to the website is tracked by checking the timestamp data that is placed in request header information . . . . If a cookie has a timestamp value that indicates a sufficiently large amount of time has elapsed since the previous visit to the website, then that cookie is deemed expired. . . . A typical expiration time for a cookie will be approximately 15 minutes.

Patent at col. 8, ll. 53-63. Netratings contends that this language specifically defines the way a cookie expires in the '479 Patent. Netratings correctly notes that the specification is "the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315-16.

Websidestory contends that Netratings' proposed construction with reference to the specification improperly limits the scope of the '479 Patent. Websidestory contends that other methods of expiration are possible and within the scope of the invention, and notes that adopting Netratings' proposed construction would improperly read limitations from the specification into the claim. Websidestory's Rebuttal Brief at 9; see also Callicrate, 427 F.3d at 1368; Phillips, 415 F.3d at 1312. Websidestory contends that no construction is necessary, but proposes dictionary definitions of the words "current," "website," and "visit," in the alternative, and urges the Court to adopt those meanings as the acquired meaning of "current website visit" if the Court determines that construction is necessary. Websidestory also cites the '479 Patent's notice of allowability, and notes that it does not indicate a particular methodology for expiring patents. Swinton Decl. at Ex 4.

As noted in InnovalPure Water, it is often difficult to apply two of claims constructions' most important axioms, "that (a) a claim must be read in view of the specification and (b) a court may not read a limitation into a claim from the specification." 381 F.3d at 1117; see also Leibel-Flarsheim, 358 F.3d at 904-05. Here, the '479 Patent specification could be read to shed light on the term "current website visit," or limit the term. In determining the proper construction for "current website visit," however, the Court finds instructive White v. Dunbar, 119 U.S. 47 (1886), where Justice Bradley stated that:

Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what its words express. The context may, undoubtedly, be resorted to, and often is resorted to, for the purpose of

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better understanding the meaning of the claim; but not for the purpose of changing it, and making it different from what it is. The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.

119 U.S. at 51-52. Evident from this language is the import of construing the claims as they are written, and the idea that the claims themselves are what defines the invention. "[P] articular embodiments appearing in the written description will not be used to limit claim language that has broader effect . . . even where a patent describes only a single embodiment." Innova/Pure Water, 381 F.3d at 1117; see also Electro Scientific Industries, Inc. v. Dynamic Details, 307 F.3d 1343, 1349 (Fed. Cir. 2002).

After reviewing the use of the phrase "current website visit" in the claims of the '479 Patent, the Patent specification, as well as the prosecution history, the Court concludes that Netratings' proposed construction of "current website visit" improperly limits the scope of the '479 Patent by reference to the specification. See Lucent Technologies v. Extreme Networks, 367 F. Supp. 2d 649, 657-59 (D. Del. 2005). In addition, the doctrine of claim differentiation, with particular respect here to claims 2 and 3, supports this conclusion. See Liebel-Flarsheim Co., 358 F.3d at 910.

Though the meaning of "current website visit" is not tied to the passage of time, it would be readily apparent to a person of ordinary skill in the art at the time of the invention that the claim language limits the phrase to a cookie which has not expired. Accordingly, the Court concludes that the acquired meaning of "current website visit" is: "a visit to a website in which the website cookie is not expired."

Claim One of the '399 Patent recites:

wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device . . .


For purposes of construing the contested meaning here, the differences between the '399 Patent and the '449 Patent are not relevant. The '449 Patent states:

wherein the interface device is configured by the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the storage device customary in a host device . . .

'449 Patent, col. 11:59-67 & col. 12:1-3 (emphases added to identify words not present in the '399 Patent). For clarity, the Court omits reference to the "storage device" in the '449 Patent in the remainder of this discussion.

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Claim One first states that the interface device sends a signal to the computer that it is "an input/output device customary in a host device" and then that the computer communicates by means of the "driver for the input/output device customary in a host device." Id. The parties agree that the "input/output device" must be "customary in a host device." But they disagree about what "customary in a host device" means and about whether the adjectival phrase "customary in a host device" modifies "driver." The Camera Manufacturers contend that the phrase modifies both -- "an input/output device customary in a host device" means a "data input/output [ ] that was normally present within the chassis of most commercially available computers at the time of the invention," Tr. 2:85 (CMs), and "the driver for the input/output device customary in a host device" means "the driver normally present in most commercially available computers at the time of the invention." CMs' Markman Br. at 26.

According to Papst, the phrase "customary in a host device" modifies "input/output device" and not "driver." Papst's Reply at 24-25; Papst's Slides at 105. Papst asserts that the phrase "an input/output device customary in a host device" means "a hardware device that inputs or outputs data with respect to a host computer, and is a device that is sufficiently common such that software drivers for communicating with the input/output device are typically provided with the host computer as it is purchased. Input/output devices customary in a host device include, for example, hard disk drives, floppy disk drives, CD-ROM drives, tape drives or printers." Papst's App. at 4. Papst proposes that "the driver for the input/output device customary in a host device" should be construed in context to mean "upon receiving the 'signal,' the host device automatically uses one or more software driver for use with the input/output devices to communicate with the interface device." Id.

The phrase "customary in a host device" raises three questions: (1) what does "customary" mean?; (2) "customary" as of when?; and (3) what does "in" a host device mean? Tr.2:85 (CMs). First, the specification expressly defines "customary" as "normally present in most commercially available host devices" as follows:

The present invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized. Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices.

'399 Patent, col. 4:23-27; '449 Patent, col. 3:27-31. When a specification expressly defines a term, as it does here, it acts as a dictionary. See Vitronics, 90 F.3d at 1582. Accordingly, "customary" means "normally present in most commercially available host devices."

The next question -- customary as of when? -- must be answered: as of 1998 when Mr. Tasler applied for the '399 Patent. A court must interpret the words of a contested claim from the perspective of one skilled in the art at the time of invention. See Phillips, 415 F.3d at 1313. The word "customary" is time-dependent, like the word "conventional" construed by the court in Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1326 (Fed. Cir. 2008). There, the court determined that "conventional" when modifying the term "internet browser" meant web browsers in existence at the time of the invention. See id.; accord PC Connector Solutions LLC v. SmartDisk Corp., 406 F.3d 1359, 1363-64 (Fed. Cir. 2005) (input/output port "normally" connectible to a computer port meant technology existing at the time of the invention). A claim cannot be interpreted to have different meanings at different times. See PC Connector, 406 F.3d at 1363. The word "customary" means customary in a host computer at the time of the invention. 18

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18 The Camera Manufacturers argue that Papst conceded that customary is a time-dependent term. Tr. 2:86 (CMs) ("Mr. Kuwala said this very morning that customary is a time dependent term and therefore, it has to be customary at the time of the invention."). Papst did not concede this issue, however. It merely noted that you "might argue" that the word "customary" imposes a time limitation. Tr. 2:41 (Papst).

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With regard to the third question -- what does "in" a host device mean? -- the answer is straightforward in the context of the phrase "the driver for the input/output device customary in a host device." The Camera Manufacturers assert that "in" means "in," that is, within the chassis of the host computer. Tr. 2:86 (CMs). The specification makes it clear that certain "drivers"
are "normally present in most commercially available host devices," i.e., are normally inside most computers:

The present invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized. Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices . . . . [T]he hard disk driver is utilized in the preferred embodiment of the interface device of the present invention. Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized in order to implement the interface device according to the present invention.

'399 Patent, col. 4:23-39 (emphases added); '449 Patent, col. 3:26-43 (same). As the specification further explains, the interface device sends a signal to the computer that the computer is communicating with an input/output device, and the interface device then communicates with the computer using either a driver present in the computer's BIOS system or a specific driver for the multi-purpose interface. See '399 Patent, col. 5:5-20; '449 Patent, col. 4:9-24.

The interface device according to the present invention therefore simulates, both in terms of hardware and software, the way in which a conventional input/output device functions, preferably that of a hard disk drive. As support for hard disks is implemented as standard in all commercially available host systems, the simulation of a hard disk, for example, can provide host device-independent use. The interface device according to the present invention therefore no longer communicates with the host device or computer by means of a specially designed driver but by means of a program which is present in the BIOS system (Basic Input/Output System) and is normally precisely matched to the specific computer system on which it is installed, or by means of a specific program for the multi-purpose interface.

'399 Patent, col. 5:5-20; '449 Patent, col. 4:9-24 (same). Thus, what is "in" the computer are the drivers for internal computer components (such as the multi-purpose interface or an internal hard disk drive) and for various peripherals, some of which are always outside the computer such as printers.

The Patent requires "drivers" to be "customary." Again, the parties agree that the "input/output device" must be "customary in a host device." Since every input/output device has its own driver, for every input/output device that is "customary" there must also be a driver that is "customary." This explains the statement in the specification that "[d]rivers for I/O devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices." '399 Patent, col. 4:27-30; '449 Patent, col. 3:31-34. Because all input/output devices must have individual drivers to function, and because Mr. Tasler referenced "customary input/output devices," the Court concludes that when he also referenced "drivers for the input/output device customary in a host device," he meant that such drivers themselves must be customary in a host device.

The question -- what does "in" a host device mean? -- is more difficult in the context of the phrase "an input/output device customary in a host device." The Camera Manufacturers again assert that "in" means "within the chassis of the host computer." CMs' Markman Br. 29. Papst suggests that an input/output device "in" a computer should be construed more broadly to mean "with respect to," as in "a hardware device that inputs or outputs data with respect to a host computer." Papst's App. at 4. "We don't read in as requiring it to be inside. It means part of the system." Tr. 2:80 (Papst).

The parties' conflicting interpretations arise from the garbled language of the Claims. The specification clarifies that drivers must be internal to the host device: "[d]rivers for I/O devices customary in a host device which are found in practically all host devices." 399 Patent, col. 4:27-30; 449 Patent, col. 3:31-34. But in describing such drivers, the specification refers to drivers for printers. The parties agree that printers are not inside a computer. Tr. 2:80 (Papst); Tr. 2:87 (CMs).

The specification expressly defines "drivers customary in a host device" in relation to the devices that such drivers direct. Those devices described are both inside and outside a computer. However, the interface device "signals to the host device that it is an input/output device customary in a host device." The phrase "customary in a host device" refers to the immediately antecedent noun "device;" there is no other antecedent word that the phrase reasonably could modify. Thus, the input/output must be "customary in a computer." And the word "in" should be construed in accordance with its ordinary meaning to mean "within," not "with respect to" as Papst proposes. Papst's construction ignores the word "in," rendering it superfluous, and such a construction is disfavored. See Merck, 395 F.3d at 1372 (a construction that gives meaning to all the terms of the claim is preferred over one that does not). Papst's assertion -- that the Patent must mean input/output devices
customary in a computer system because the specification refers to drivers for devices both inside and outside the chassis of the computer -- might be what the inventor meant to say when he wrote his Patent. But the Patent does not say that the interface device "signals to the host device that it is an input/output device for which the host device has drivers that are customary in a host device." The Court must construe the claims of the Patent as they are written.

Accordingly, the Court finds that "an input/output device customary in a host device" must be construed similarly to the phrase "the driver for the input/output device customary in a host device." "An input/output device customary in a host device" in the '399 Patent means a "data input/output device that was normally present within the chassis of most commercially available computers at the time of the invention," and "the driver for the input/output device customary in a host device" means "the customary driver(s) in a host device used to communicate with customary internal and external input/output device(s), which driver(s) were normally present within the chassis of most commercially available computers at the time of the invention." Thus, "a storage device customary in a host device" in the '449 Patent means a "storage device that was normally present within the chassis of most commercially available computers at the time of the invention," and "the driver for the storage device customary in a host device" means "the customary driver(s) in a host device used to communicate with customary internal and external storage device(s), which driver(s) were normally present within the chassis of most commercially available computers at the time of the invention."

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n2 The Court also notes that in their proposed construction of "plurality of customer answers," Defendants do not contend that "plurality" modifies "customer," instead they argue plurality modifies "answers."

--- End Footnotes ---

Customer

Defendants urge the Court to construe the term to mean: "The potential purchaser of a product for whom the proposal is customized. The customer is not the person using the computer to customize the proposal for the customer." Thus, Defendants argue that the customer and user cannot be the same person.

The claims do distinguish between the roles of customer and user: "presenting to a user of the computer a plurality of questions . . . inputting into the computer a plurality of customer answers to the questions. . . ." Col. 39:56-60; see also col. 41:65-42:2. Thus, according to the claim language, the user is the person using the computer and the customer is the person who answers the plurality of questions relating to the product's features and uses. But the claims do not require that different people fulfill the roles of customer and user.

Defendants argue that the claim language does require that the user and customer be different people because claim 1 is drawn to a method "for selling products to particular customers" by "presenting to a user" a plurality of questions. Defendants contend the claim is directed to a situation where one user operates a computer in an effort to sell products to multiple customers. The claim language belies Defendants' argument. Claim 1 goes on to describe "inputting . . . a plurality of customer answers n2 . . ., the answers specifying a customer's desired product features and uses." Col. 40:57-60 (emphasis added). Thus, the steps of the claim do not require multiple customers.

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n2 The Court also notes that in their proposed construction of "plurality of customer answers," Defendants do not contend that "plurality" modifies "customer," instead they argue plurality modifies "answers."

--- End Footnotes ---

Defendants also contend the specification describes the user and customer as different individuals. See e.g., col. 8:46-53 ("When a user begins to deal with a customer, the user will typically want to gather specific customer and product information. . . ."). Although in the preferred embodiment, the user and customer may be different individuals, Defendants have not shown that this limitation of different individuals as opposed to different roles should be imported into the claim language. Accordingly, the Court does not adopt it. "Customer" is not used in the claims in any manner different from that of its ordinary meaning in the art, which is no different than its ordinary lay meaning. "Customer" does not require construction.
Third, Lockwood argues that the word "customer" should be construed to mean "someone with whom you do business" and therefore that American's "customers" are the travel agents that use SABREvision. American counters that the patent itself explicitly excludes travel agents from the definition of "customer." We agree. The specification states that the purpose of the invention is to replace travel agents so that the customer can purchase travel-related goods and services directly. It is "a new device capable of performing the promotion and sales of services such as those commonly dispensed by travel agencies, in a fully automated fashion and from easily accessible locations." Given the patent specification's use of the term "customer," it is clear that the accused device lacks this essential limitation. SABREvision is not used by, nor is it designed to be used by, the customers who are purchasing the goods and services. Lockwood does not genuinely dispute American's contention that SABREvision uses a command structure that requires experience to operate, nor does he argue that SABREvision is suitable for self-service operation by the consumers of the travel related goods and services.


The defendants argue that their orders come only from resellers, not from individual purchasers, and that printing is at a remote factory, not at the customer's site. They point out that the Ross specification describes the customer as a consumer who, upon choosing a book, sets in motion the "high speed manufacture of a single copy of a selected book on the immediate premises while the customer waits for a very short time." Col. 3, lines 7-15. The defendants argue that the district court, in refusing to include this limitation of "customer" in its Markman definition and jury instruction, placed too much weight on a dictionary definition of "customer" that is out of context.

ODMC argues that the patentee did not disavow the standard dictionary meaning of "customer," and that the Ross invention is not limited to any specific kind of customer. However, when the scope of the invention is clearly stated in the specification, and is described as the advantage and distinction of the invention, it is not necessary to disavow explicitly a different scope. See AstraZeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1339-40 (Fed. Cir. 2004) ("Where the general summary or description of the invention describes a feature of the invention (here, micelles formed by the solubilizer) and criticizes other products (here, other solubilizers, including co-solvents) that lack that same feature, this operates as a clear disavowal of those other products"); Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268-69, 1271 (Fed. Cir. 2001) ("the written description 'can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.'" (quoting SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001)).

The Ross specification repeatedly reinforces its usage of the term "customer" as the retail consumer. See col. 7, lines 24-25 ("All customer actions are conducted within customer console 103"); col. 15, lines 59-60 ("the customer seats himself or herself in front of computer screen 157" as depicted in Fig. 2); col. 2, lines 8-12 ("if the consumer wishes to purchase a book, he may either pay for the book through a store clerk . . . or the consumer may enter his credit card into the system"). The specification distinguishes "general purpose machines . . . not specifically designed to be consumer operated for the on demand, automatic manufacturing of a single book at the point of sale." Col. 10, lines 37-43.

In Phillips, 415 F.3d at 1321, the en banc court explained that the role of the specification is to describe and enable the
invention. In turn, the claims cannot be of broader scope than the invention that is set forth in the specification. Although we agree with the district court that the Ross invention does not concern itself with whether the "customer" reads the book or obtains it for resale, the focus of the Ross patent is immediate single-copy printing and binding initiated by the customer and conducted at the customer's site. The district court's definition of "customer" cannot eliminate these constraints in order to embrace the remote large-scale production of books for publishers and retailers.

E. "entering a customer authorization code for authorizing access to a customer data base of a host data processor"

SVS asks that the term "entering a customer authorization code for authorizing access to a customer data base of a host data processor" be construed to mean "the customer enters via the keypad a personal identification number for authorizing access to a customer data base of a host data processor." (D.I. 43 at 15) CAT proposes instead "a series of numbers and/or letters, or a combination thereof, on the card for authorizing access to a customer data base of a host data processor." (D.I. 44 at 21-22) CAT contends that SVS's construction would improperly import four limitations not found in the plain language of the claims, namely limitations that: 1) the customer know the code, 2) the customer physically enter the code, 3) the customer enter the code through the keypad, and 4) the code be a PIN (i.e., personal identification number). (D.I. 44 at 22) SVS responds by challenging CAT's insistence that the code is found "on the card" as this would exclude a preferred embodiment. (D.I. 47 at 19) I conclude that both parties, to some extent, are correct.

First, I find that the customer authorization code is not limited to a PIN. SVS argues that the "customer authorization code" is a PIN based on the following disclosure:

The customer selects a product, takes it to the sales counter for checkout, then as illustrated with reference to FIG. 2 provides input, by way of example, by swiping 101 the ATM/debit card through the card reader 20 of the terminal unit 12 described earlier with reference to FIG. 1. The display 14 of the terminal unit 12 will prompt 102 the user to enter their PIN. The PIN is entered by the customer.

('859 patent, col. 3 lines 28-34) CAT responds that it would be improper to import the limitation of a PIN into the claims on the basis of its usage in one embodiment when other embodiments do not detail entry of a PIN. (D.I. 44 at 24) CAT is correct. The Federal Circuit has warned against confining the claims to specific embodiments described in the specification. See Phillips, 415 F.3d at 1312-13. While the ATM card embodiment requires the customer to enter a PIN, the phone card and prepaid card embodiments do not.

I turn next to how the customer authorization code is entered. In contrast to SVS's proposal that the customer enters the code via the keypad, CAT's proposal that the customer authorization code is located "on the card" implies that any party, through a swipe of the debit styled card, may enter the code. CAT finds support for its construction in the specification's "Gold Card Program," an example of a prepaid debit card embodiment. (D.I. 46 at 9) The patent states:

6. After the card purchase, customer goes to cash register to place order. Clerk rings up order and customer presents his Gold Card for payment.

7. Clerk swipes card through register terminal. Register terminal calls host. Host checks the card value against the original card purchase amount. Host then deducts current purchase and sends back balance remaining which is printed out on customer receipt.

('859 patent, col. 6 lines 38-44) In CAT's view, this passage indicates that the customer authorization code is located on the card and is entered by the clerk who swipes the card through the terminal. (D.I. 60 at 157-58) However, as SVS points out, requiring the customer authorization code to be on the card would improperly exclude the ATM card preferred embodiment. (D.I. 47 at 19)

SVS instead proposes that a customer authorization code must be entered by a customer through the keypad of the terminal unit, reasoning that since the claim language states the purpose of the keypad is "for data entry," a customer would necessarily enter her authorization code through it. (D.I. 43 at 16) This, SVS contends, is in keeping with portions of the
specification that describe "a keypad 18 for entry of Personal Identification Numbers (PIN)." (’859 patent, col. 2 lines 59-60 & Abstract) However, the patent contemplates data other than just the authorization codes being entered through the keypad. For example, claim 1 recites the step of "entering transaction data to the computer through the keypad data entry." (’859 patent, col. 7 lines 54-55)

SVS also argues that prosecution history estoppel limits entry of the customer authorization code to "via the keypad." (D.I. 47 at 22-26) I do not agree. The file history shows that original independent claims 30 and 40 recited the element "entering an authorization code through the keypad for having the computer initiate communication with a host data processor." (D.I. 43 Ex. E (Sept. 8, 1999 Amendment) at SVS000201-02) Original claims 30 and 40 were rejected as anticipated by the Gutman patent, which taught entry of an authorization code through a keypad for having the computer initiate communication with a host data processor. (D.I. 43 Ex. D (March 8, 1999 Office Action) at SVS000190) In the same office action, the examiner indicated that dependent claims 31 and 43, which depended from claims 30 and 40 and recited the steps of "entering a customer authorization code for authorizing access to a customer data base of a host data processor" and "entering a clerk authorization code for initiating a debit purchase transaction," would be allowable if rewritten in independent form to include all the limitations of the rejected base claims. (Id. at SVS000193) Instead, the applicants cancelled claims 31 and 43 and rewrote independent claims 30 and 40, substituting the steps of "entering a customer authorization code for authorizing access to a customer data base of a host data processor" and "entering a clerk authorization code for initiating a debit purchase transaction" for the rejected element "entering an authorization code through the keypad for having the computer initiate communication with a host data processor." (D.I. 43 Ex. E (Sept. 8, 1999 Amendment) at SVS000201-02)

This prosecution history does not support an estoppel argument. The examiner's indication of allowability regarding the customer and clerk code elements shows that the examiner viewed the customer, clerk, and authorization codes as distinct elements with distinct functions. Neither the customer nor clerk code elements ever recited the "via the keypad" limitation. The applicants did not accept the examiner's invitation to rewrite the rejected dependent claims, and were thus not required to import the limitations of the rejected base claim into them. Instead, the applicants permissibly rewrote the rejected independent claims by deleting the anticipated subject matter in favor of subject matter identified by the examiner as allowable. See Festo v. Shoketsu, 344 F.3d 1359, 1382 n.2 (Fed. Cir. 2003) (concurring opinion) ("It is customary to present broad and successively narrow claims, to rewrite or cancel claims, and to move elements between dependent and independent claims.").

Accordingly, the intrinsic evidence indicates that the customer authorization code is neither limited to being on the card nor to being entered via the keypad. I thus recommend that the Court construe the term "entering a customer authorization code for authorizing access to a customer data base of a host data processor" to mean "a series of numbers and/or letters, or a combination thereof, which may be entered via the keypad by the customer or may be on the card itself, for authorizing access to a customer data base of a host data processor."

GO BACK

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Customer Identifier

Plaintiff proposes the construction, "any information submitted to a merchant or its designee for payment of goods or services." Defendant advances a construction of "unique identifying account number." However, Plaintiff argues that while an account number may serve as a customer identifier, one of ordinary skill in the art would clearly understand from reading the claims and the specification of the ’281 patent that an account number is only one kind of identifying information that can be submitted to a merchant as payment for goods and services as recited in claims 1 and 10. Plaintiff discounts any attempts by Defendant to limit this term to a single specific embodiment disclosed in the ’281 specification.

Defendant counters that the ’281 specification consistently explains that the invention is concerned with the use of unique identifying account numbers. Defendant points to Column 1, lines 31-32, in the ’281 specification which provides several examples of "unique identifying account numbers" as "e.g., credit, debit, charge, payment, smart, etc. card numbers."

Indeed, the ’281 specification notes that the payment information that is forwarded to the merchant processor "relates to a customer identifier" and "that identifier can be the account number associated with, for example, a debit card, a smart card,
a credit card (e.g., a Visa or MasterCard card), a charge card (e.g., an American Express card), etc." Col. 1, lines 55-61. The '281 patent identifies card transactions as the basic starting point of the invention. The summary of the invention also emphasizes that the invention is based on transactions involving unique identifying account numbers, particularly card account numbers. See Col. 1, lines 17-25 and lines 29-33.

Because the '281 specification consistently refers to the use of account numbers, rather than just "any information," when explaining the loan repayment process, see Col. 2, lines 44-48, the Court finds Defendants to be correct that Plaintiff's construction is overly broad and is incompatible with the environment within which the invention operates. Thus, the Court adopts Defendant's construction and construes the term customer identifier as "unique identifying account number."

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2. "Customer Information"

Walker proposes that this term should be construed to mean "[i]nformation which identifies the account of the customer," Capital One has since withdrawn its objection to Walker's proposed construction. The court has reviewed this claim term as used in claims 9, 17 and 19 of the '478 patent and the specification and finds that Walker's proposed construction is supported by the intrinsic evidence presented to the court and is consistent with what a person of ordinary skill in the art would have ascertained from the intrinsic evidence. For that reason, the court construes "customer information" to mean "facts about a customer or a customer's credit account."

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The parties also dispute the meaning of "customer interface," as this term appears in claims 1 and 15. Plaintiffs do not appear to dispute defendant's definition regarding the purpose of the customer interface as "communicating information about the status of the vending machine to the customer." (Def.'s Rebuttal Claim Construction Br. 21). The parties' disagreement instead rises from plaintiffs' definition of interface as "the place where two different systems meet and interact with each other," for example, "a GUI (graphic user interface, the display on a computer screen," with the vending machine as one system and the user as a second system. (Pls.' Mem. On Claim Construction 14). Defendant disputes this definition to the extent that it would allow a vending machine's customer interface to be located elsewhere than in the machine. Plaintiffs argue that support for the remote location of an interface comes from specification language providing that "[a]lternatively, the user interface can be present inside or uploaded to the user's laptop or other device thereby obviating the need for an interface within the vending machine unit." ('400 Patent 6:20-23). Defendant's expert correctly clarifies, however, that this provision "describes an arrangement where the vending machine does not have a customer interface." Cooley Aff. P 43. Indeed, the specification clarifies that presence of the interface on a user's computer "obviat[es] the need for an interface within the vending machine unit." ('400 Patent 6:22).

I construe the disputed claim language as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer interface</td>
<td>A part of the vending machine for communicating information about the status of the vending machine to the customer</td>
</tr>
</tbody>
</table>

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D. "payment instructions"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
</table>
"payment instructions" data entered by the customer that may include information such as a selected method or source of payment, a payment account number or other identifier, payment amount, comments or initiation date data relating to a customer's authorized payment to an invoicer, which includes at least an invoice number and a customer payment account

The parties agree that this phrase should be construed as data relating to the customer's authorized payment. However, the parties dispute the content of these instructions. Cable One contends that the "customer payment instructions" must include two pieces of information—the invoice account number and the customer payment account, while Emergis contends that the data can include any combination related to the customer's payment. Emergis states that the customer may, but is not required, to include the invoice account number or customer payment account.

Claim 1 reads: "transmit the customer payment instructions from the customer directly to said invoicer, said payment instructions including at least a customer invoice account number and an associated customer payment account." n86 Claim 36 similarly states that the remote electronic customer authorization interface is a "means for transmitting the customer payment instructions from the customer directly to said invoicer, said payment instructions including at least a customer invoice account number and an associated customer payment account." n87 According to the claim language, the construction should include at least both of these pieces of information.

The specification shows that the customer payment instructions may, but need not always, include this information. However, in the preferred embodiment, both the customer invoice number and customer payment account are included in the customer payment instructions. The specification states that "[t]he information included in this electronic authorization could include the customer invoice number and an associated customer payment account. In the preferred embodiment, both these items of information are submitted simultaneously with the authorization." n88 Therefore, based on the plain meaning of the claim language and the preferred embodiment of the specification, the Court finds that "customer payment instructions" includes at least these two pieces of information. The Court will construe "customer payment instructions" as "data relating to a customer's authorized payment to an invoicer, which includes at least an invoice number and a customer payment account."

The parties proffer differing constructions of Step 1, which provides "creating at least one customer profile for each eligible recipient of said data, said customer profile indicating the customer's preferences for data having predetermined
characteristics." Amazon narrowly construes "customer profile indicating the customer's preferences for data having predetermined characteristics" as "a list of mathematical values indicating the customer's preferences for predetermined characteristics that describe the content of data." Def. Mem. at 16. Amazon relies on a general purpose dictionary, its expert witness, and the patent specification. Amazon generally defines "profile" as "a formal summary of analysis of data, often in the form of a graph or table, representing distinctive features or characteristics." Def. Mem. at 16 (quoting The American Heritage Dictionary of the English Language (4th ed. 2000)). Amazon then submits its expert witness' declaration that "in the specific field of these patents, information filtering, customer profile is understood to mean the user profile in an information filtering system that indicates a user's preferences for characteristics of the content of the items being filtered . . . as a numerical value for a corresponding characteristic in the user and item profiles." Def. Mem. at 16 (citing Resnick Decl. at P. 59). Amazon contends the patent specification confirms this construction: "The content profiles and the customer profiles are thus described as a collection of mathematical values representing the weighted significance of several predetermined characteristics of the video programming." Def. Mem. at 16, Ex. 1, Col. 10.

Unlike Amazon, Pinpoint proffers separate constructions for each key term in the phrase "customer profile indicating the customer's preferences for data having predetermined characteristics." According to Pinpoint, "customer profile" means "a set of information related to a specific customer that describes significant characteristics of the customer;" "indicating the customer's preferences for data having predetermined characteristics" means "the customer profile points out or shows indirectly the customer's preferences for certain kinds of information or items of interest;" and "predetermined" means "the characteristics are established before the system practices the method claimed." Pinpoint relies on the IBM Dictionary of Computing and the Merriam-Webster Dictionary, which provide respective definitions of "profile" as "data that describes the significant characteristics of a user, a group of users, or one or more computer resources" and "indicate" as "to point out" or "to show indirectly."

The parties' disputed claim construction primarily focuses on whether customer profiles use mathematical values to express customer preferences. Amazon asserts that "[mathematical] constructs are core to what is described as the invention," while Pinpoint counters that Amazon is "just limiting the claim terms to the preferred embodiment." Neither the plain language of the asserted claims nor the patent specification supports Amazon's proposed construction of "customer profile" as a "mathematical construct." Unlike other '257 patent claims, the plain language of Pinpoint's asserted claims do not reveal a narrow "mathematical construct." Compare Def. Mem. at Ex. 1, Col 52, Claim 1 ("relating said selected customer profile with the content profiles for the data available from each data source to the customer at a particular time by determining a distance between a customer profile and a content profile in a characteristic space by calculating an agreement scalar for common characteristics, ac, between said selected customer profile, cv, and said content profiles, cp, in accordance with the relationship . . . ") with Claim 43 ("relating said at least one customer profile with the content profiles for the data available from each data source to the customer"). The existence of narrower claims requiring application of specific mathematical equations is suggestive of a broader construction of the term "customer profile" in the asserted claims of the '257 and '722 patents. Arlington Industries, Inc., 345 F.3d at 1327.

Nor is the court persuaded by Amazon's insistence that "customer and content profiles are sets of numbers associated with the same set of characteristics." Def. Reply at 3. See also Def. Mem. at 18 ("The patent claims a specific method that requires particular constructs, e.g., 'content profiles' and 'customer profiles' that are themselves made up of particular information, i.e., degrees of, or relative preferences for, predetermined characteristics") (emphasis added). This cannot be right. As Pinpoint correctly argues, not all the asserted claims refer to "predetermined characteristics." Compare Def. Mem., Ex. 1 at Col. 55, Claim 17 ("creating at least one customer profile for each eligible recipient of said data, said customer profile indicating the customer's preferences for data having predetermined characteristics") with Claim 43 ("creating at least one customer profile for each eligible recipient of said data, said customer profile including a profile of data previously accessed by said customer"). This suggests a broader construction of customer profiles, not all solely made up of "predetermined characteristics." Vitrionics, 90 F.3d at 1582 ("first, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope").

The specification also refutes Amazon's narrow construction. Contrary to Amazon's contention, the specification contemplates instances where a customer profile using mathematical values to indicate range is not required. Instead, the customer profile may simply indicate whether a characteristic is "liked" or "disliked." See Def. Mem. Ex. 1 at Col. 11 ("On the other hand, as in the Strubbe system, the weights could simply indicate a 'like' or 'dislike' value for each characteristic"). Accordingly, Pinpoint's broader construction, which is based on the plain and ordinary meaning of the disputed language, will be adopted. Superguide Corp. v. DirecTV Enterprises, Inc. et al., 358 F.3d 870, 875 (Fed. Cir. 2004) ("dictionaries are
often helpful in ascertaining the plain and ordinary meaning of claim language). The court construes customer profile as "a set of information related to a specific customer that describes significant characteristics of the customer"; indicating the customer's preferences for data having predetermined characteristics as "the customer profile points out or shows indirectly the customer's preferences for certain kinds of information or items of interest"; and predetermined as "the characteristics are established before the system practices the method claimed."

1. "Customer Specified Credit Parameter" and "Customer-Selected Account Parameter"

Walker proposes that the court construe these claim terms to mean: "[a] term of a credit account that is chosen by a customer." Capital One originally proposed that these claim terms be construed to mean "[a] term of a desired credit account that is chosen by a customer." However, in its opposition to Walker's Markman motion, Capital One states that it is willing to stipulate to Walker's proposed construction of these two claim terms. The court has reviewed these claim terms as used in claims 8, 16 and 18 of the '478 patent and claim 12 of the '230 patent and the specification and finds that Walker's proposed construction is supported by the intrinsic evidence presented to the court and is consistent with what a person of ordinary skill in the art would have ascertained from the intrinsic evidence. As such, the court construes "customer specified credit parameter" and "customer-selected account parameter" to mean "a term of a credit account that is chosen by a customer."

Customer Terminal Means

Furnace Brook contends that "customer terminal means" should be construed in the same way as "telephone terminal," which they assert means "a customer's terminal, whether hard wired or portable." Overstock contends that "customer terminal means" is a "standard customer telephone unit which may be hardwired or portable and has a standard commercial handset, a touchtone pad, a display unit and an audio unit, such that it is not a computer system or personal computer, or alternatively is an interactive hookup with a touchtone telephone and a cable TV system to selectively display the requested catalog data and menu on a particular TV channel."

"Customer Terminal Means" first appears in Claim Five, which recites, in part:

An improved interactive computerized catalog system comprising: central data processing means for storing and selectively addressing digitized graphic catalog data, a plurality of customer terminal means for displaying alphanumeric data during interactive communications between the terminal and central data processor means, switchable communication means activated by individual ones of said plurality of customer terminal means for selectively interconnecting ones of said plurality of customer terminal means with said central data processing means, ...

'832 Patent at 11: 32-44. Claim Seven recites:

The improved interactive computer catalog system of claim 5 wherein said customer terminal means comprise display means for displaying alphanumeric and graphic data and further including data entry means including a key pad for entering alphanumeric data for transmission to said central data processor means.

'832 Patent at 12: 4-9. "Customer terminal means" also appears several other times in Claim Eight.

Overstock contends, and the Court agrees, that the claim does not provide the structure for performing the function "for displaying alphanumeric data," or "for displaying alphanumeric and graphic data," and that this term is therefore a "means-plus-function" element, and that the claim scope is therefore limited to the structures disclosed in the specification, and their equivalents.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without
the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112. See also Intel Corp. v. VIA Techs., 319 F.3d 1357, 1367 (Fed. Cir. 2003) (means-plus-function claims are allowed, but their scope is limited to the specific structures disclosed in the specification and their equivalents). "Means-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function." Phillips v. AWH Corp., 415 F.3d 1303, 1311 (Fed. Cir. 2005)(citation omitted). The specification provides:

The user terminal may be the type described in conjunction with FIG. 1 or alternatively may be an interactive hookup with a touch tone telephone and a cable TV system to selectively display the requested catalog data and menu etc. on a particular TV channel."


The only structures disclosed for the user terminal, which the Court reads to be the same as the customer terminal means, are the "telephone terminal" in figure 1 and the "interactive hookup with a touch tone telephone and a cable TV system." The patent includes references to dialing toll-free 800 numbers, and connecting via a telephone exchange. Because this term is subject to Paragraph 6 of Section 112 of the Patent Law, the Court accordingly limits the term to corresponding structures disclosed in the specification and their equivalents.

The Court concludes that a "customer terminal means" is "either a standard landline telephone unit, which has a standard commercial handset, a touchtone pad, a display unit and an audio unit, and which may have a cordless handset, or is an interactive hookup with a touchtone telephone and a cable TV system to selectively display the requested catalog data and menu on a particular TV channel."

2. With respect to claim 5, the critical limitation recites a "customer terminal means" that activates a communication means to connect with a central data processing means. '832 patent, col. 11, ll. 39-43. Because the customer terminal means limitation uses the term "means" and because the phrase "customer terminal" identifies no significant structure, the district court correctly interpreted the limitation as a means-plus-function limitation in accordance with 35 U.S.C. § 112, P 6. The district court identified two means disclosed in the specification for performing the claimed function: a "standard landline telephone unit" and a "touchtone telephone" connected to a television for displaying catalog data. Furnace Brook asserts that the district court ignored as a disclosed means a device communicating over an "online interactive communications network" (shown in figure 4 of the patent), which Furnace Brook defines as a device in "connection to, or communication with, a computer." The label "online interactive communications network," however, identifies no specific structure for performing the claimed function; it describes only a generic class of structures and was thus properly ignored. See Fonar Corp. v. GE, 107 F.3d 1543, 1551-52 (Fed. Cir. 1997) (holding that the disclosed wave forms for performing a claimed function included a wave form specifically identified in the specification but did not include the nonspecific set of "other wave forms" mentioned only generically in the specification as suitable for performing the claimed function).

Furnace Brook also faults the district court for not stating that the literal scope of the critical limitation includes equivalents of the disclosed means. According to Furnace Brook, those equivalents include Internet-enabled cellular telephones and personal computers. The district court, however, stated in its claim construction order that the scope of a means-plus-function limitation "is . . . limited to the structures disclosed in the specification, and their equivalents," which indicates that the court understood the requirements of section 112, paragraph 6. The district court then addressed the issue of equivalent means at the summary judgment stage, holding that "no reasonable juror could find an insubstantial difference between the [c]ustomer [t]erminal [m]eans' disclosed in the '832 patent and an Internet-enabled cellular telephone or personal computer. As explained above in connection with claim 1, that ruling is correct. Dr. Stevenson's declaration and Dr. Nemes's deposition testimony do not address the equivalence of communication with a server over the Internet and communication with a server by dialing the server over telephone networks. Furnace Brook offered no other evidence of equivalence. Furthermore, Furnace Brook proffered no evidence that the Internet is an after-arising technology that could be within the reach of the doctrine of equivalents as applied to the disputed means-plus-function limitation. See Chiuminatta Concrete
Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1310-11 (Fed. Cir. 1998). Because Furnace Brook's evidence of equivalence was insufficient to survive summary judgment, we uphold the judgment of noninfringement as to claim 5.

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Customized Proposal

The Staples parties agreed that "customized proposal" did not require additional construction. Since the Court had already construed "proposal" as "information intended for conveyance to a potential customer," the Court agreed that "customized proposal" was not a term with special meaning in the art or in this patent. The Court reasoned that it is an everyday term that the jury will be sufficiently familiar with.

Hyundai argues that "customized proposal" was given a special meaning in the specification and during prosecution and should now be construed as "the utilization of a customer's answers to questions to select product pictures, product environment pictures, and text segments and compile this information for conveyance to a potential customer."

Hyundai's proposed construction is unnecessary as it merely restates what is elsewhere in the claim. Accordingly, for the reasons given in its Staples opinion, the Court construes "proposal" as "information intended for conveyance to a potential customer," and "customized proposal" does not require further construction.

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E. Customized Software

Claim 1 provides that the device interface, network interface, and memory perform operations for "sending customized software to the client machine over the network." Digi contends that this term should be construed as "executable software, delivered to and running on the client machine, which provides device-appropriate user interface and control operations." Lantronix, on the other hand, asserts that this term should be defined as "software specific to the device that allows for the generation of device control signals and reception of device status information. By way of example only, Java applets or HTML-based control software."

The parties have clarified their positions, and it appears that the main dispute is whether the software provides "device-specific" user interface and controls, or "device-appropriate" user interface and controls. Digi argues that the term "device-appropriate" is more suitable here, as this broader term encompasses an interface that could potentially be tailored to work on more than one device. The Court agrees with Digi's construction. The claim language and specification do not limit the user interface to merely one specific device. For instance, a single interface may be suitable for use with more than one brand of copier or with more than one brand of digital camera. For this reason, the Court construes "customized software" to mean "executable software, delivered to and running on the client machine, which provides device-appropriate user interface and control operations."

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G. Customized to Characteristics of the Device

Claim 4 is a dependent claim related to the module of Claim 1. Claim 4 describes software in the module that is comprised of bytecode instructions that are "customized to characteristics of the device."

Digi maintains that "customized to characteristics of the device" should be defined as "the [bytecode] instructions are customized to characteristics of the device: the applet or similar program is designed to display on the client machine a virtual interface that has the appropriate appearance and offers the proper control options for the device." Lantronix contends that this term should be given its plain meaning, which Lantronix contends is "instructions that are specifically
customized to the characteristics of the device. By way of example only, a Java applet or HTML page."

The Court agrees with Lantronix that this term needs little construction, as its plain meaning is clear. However, the Court also sees no support for including the specific examples that Lantronix describes--a Java applet or HTML page--into the claim construction of this term. Thus, the Court construes "customized to characteristics of the device" to mean that "the bytecode instructions are specifically customized or tailored to the characteristics of the device."

B. Effect of Prior Litigation

As stated above, SunTiger prevailed in a prior patent infringement suit against Scientific Research Funding Group (SRFG) on the same patents now in question. Both SunTiger and Sunglass Products have stipulated that the claim construction in the prior suit will control here:

The patents-in-suit have already been construed by the U.S. District Court for the Eastern District of Virginia [and that] construction . . . is binding on the parties in this case. To the extent that the terms in the asserted claims were not construed in the said prior litigation, the parties are asking the Court to make a claim construction based on the arguments submitted in the summary judgment motions.

Stipulation at 1-2. "In a patent litigation action, where the parties do not dispute any relevant facts regarding the accused product but disagree over possible claim interpretations, the question of literal infringement collapses into claim construction and is amenable to summary judgment." Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1324 (Fed. Cir. 2002).

The relevant terms and their stipulated construction are as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Stipulated Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;cut-on filter&quot;</td>
<td>&quot;... an optical filter that substantially blocks all wavelengths shorter than the cut-on wavelength and substantially transmits all wavelengths that are longer than the cut-on wavelength. The cut-on wavelength is that wavelength in the transition zone at which the transmission is 1%.&quot;</td>
</tr>
<tr>
<td>&quot;portion&quot;</td>
<td>&quot;... part or share of something&quot;</td>
</tr>
</tbody>
</table>


Plaintiff SunTiger contends that this Court cannot apply the stipulated construction in a way that would contradict the finding of the Eastern District of Virginia that YE-82 infringed SunTiger's patents. Pl.'s Mot. at 1 ("[T]he YE-82 lens material must literally infringe whatever claim construction the Court adopts in this case."). In essence, SunTiger argues the following: (1) the parties have stipulated to the prior construction, (2) the decision in the prior suit does not bind this Court, but (3) any ruling that this Court issues must not be inconsistent with the fact that YE-82 was found to infringe its patents.

I disagree with this assessment. My decision is not foreordained by the result in SunTiger, Inc. v. Scientific Research Funding Group. SunTiger attempts to elevate the prior claim construction to the level of a decision. Despite the parties' agreement that the prior claim construction would be binding, that prior court's decision applying its own construction is only persuasive. Although the parties have agreed to be bound to the use of the prior construction, they have not agreed that this Court's application of that construction must be consistent with prior decisions involving a different defendant and different lenses. Indeed, were consistency with prior results necessary, that would be tantamount to an improper form of collateral estoppel against a current party, i.e., Sunglass Products, which was not a party (nor a party in privity) to SunTiger v. Scientific Research Funding Group. Cf. MCA Records, Inc. v. Charly Records, Ltd., 865 F.Supp. 649, 654 (C.D. Cal.
1994) ("[D]ue process requires that the party to be estopped must have had an identity or community of interest with, and adequate representation by, the losing party in the first action as well as that the circumstances must have been such that the party to be estopped should reasonably have expected to be bound by the prior adjudication.").

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C

The final claim interpretation issue in this case concerns the claimed term "cyclic redundancy checker." On appeal, Oak contends that the term simply refers to "any circuitry that performs a cyclic redundancy check." Intervenors align themselves with the Commission's interpretation: "The cyclic redundancy checker is hardware, commonly available in June 1994, that performs the division of a CRC generator binary polynomial into a 16,000-bit EDC code word to produce a CRC remainder."

The '715 patent document does not provide much guidance on the meaning of "cyclic redundancy checker," and only states that "these ECC and EDC-CRC circuits are commonly available as hardware used in many other applications." '715 patent, col. 6, ll. 41-43. However, based on the correct interpretation of "said assembled data" and "after," we know that only those "cyclic redundancy checkers" which operate on an entire Sector of data once the Sector of data has been processed by the "error correction circuitry" are included within the scope of the asserted claims.

Our review of the record indicates that several relevant facts are undisputed. First, there is no dispute that the common hardware implementation of a "cyclic redundancy checker" as of 1994 was a structure called a "linear feedback shift register," which was well known to ordinarily skilled artisans. Also, it is undisputed that as of 1994, certain "special case" variations of cyclic redundancy check operations were known in the art, which did not use the common linear feedback shift register. However, there is no evidence in the record that any of these alternative cyclic redundancy check operations were ever implemented in hardware. Moreover, as the Commission correctly pointed out, even the references relied upon by Oak to demonstrate the existence of these alternative embodiments explicitly admit that the "normal" way of performing a cyclic redundancy check operation is by using a linear feedback shift register. 5

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Most importantly, the definition of "cyclic redundancy checker" in this case is actually undisputed. The parties agree that the correct definition is set forth in the 1976 edition of the Encyclopedia of Computer Science:

> [In cyclic redundancy checking], all the characters in a message block are treated as a serial string of bits representing a binary number. This number is then divided modulo 2 by a predetermined binary number and the remainder of this division is appended to the block of characters as a cyclic redundancy check (CRC) character.

Oak attacks this reference on the basis that it illustrates a linear feedback shift register structure as the preferred embodiment of performing a cyclic redundancy check operation. However, Oak explicitly agrees with the Encyclopedia's mathematical definition. The Commission's claim interpretation of "cyclic redundancy checker" is consistent with this definition, and we therefore affirm it.

We also note once again that--in this case--not every structure that literally fits the definition of "cyclic redundancy checker" set forth in the Encyclopedia is covered by the claim. Only those cyclic redundancy checkers which meet the additional interactive limitations explicitly imposed by the claim language are within the properly construed scope of the claim. Specifically, the only cyclic redundancy checkers covered by the claim are those which operate on "said assembled data"
(i.e., on a Sector's worth of data) "after" all such data has been processed by the "error correction circuitry," according to the manner in which we construe those terms herein.

Oak's broad interpretation that a cyclic redundancy checker is any circuitry that performs a cyclic redundancy check must be rejected. As we have already discussed, the claim language itself imposes significant restrictions on the "cyclic redundancy checker." Specifically, due to the "said assembled data" and "after" limitations in the claim which we have already resolved in favor of Intervenors and the Commission, the only cyclic redundancy checkers which can possibly be covered by the claim language—as a matter of simple logic—are those which operate on an entire Sector of data after the Sector of data has already been processed by error correction circuitry.

A. 2D documentation package (Claims 1 and 11)

HP contends that the term means "software that can produce 2D representations of 3D objects." Intergraph states that the term means "a software package that enables a user to add annotations and/or dimensions to a 2D drawing, thereby quantifying the 2D representations."

HP bases its proposed construction on the text of the claims and specification of the patent. Specifically, HP directs the Court to language in the specification that states that a 2D documentation package "provides two dimensional (2D) representations of objects which are projections of object features onto a viewing plane." '241 patent, col. 3:65-67. It is this definition that HP primarily relies upon for its proposed construction.

Intergraph argues that there is nothing in the '241 patent or in the prosecution history that gives the term "2D documentation package" a precise meaning. Intergraph further argues that the plain language of claims 1 and 11 make clear that the 2D documentation package is a separate package distinct from the solid modeler. In order to defend its proposed construction, Intergraph directs the Court to language in the specification that states as follows: "The 2D documentation package typically contains a group of tools to both annotate a 2D drawing and to quantify different aspects of the planar projections used to depict an object . . ." '241 patent, col. 2:4-8.

HP counters that the specification provides that the 2D documentation package may "typically" provide such functions as annotation, but such functions are not required in every instance.

In essence, the parties' fundamental disagreement revolves around whether the 2D documentation package is a separate "package" from the 3D objects being modeled. HP's proposed definition clearly attempts to blur the line between the 3D object (solid model) and the 2D documentation package, and could easily lead a person to believe that the 2D documentation package is the actual software that produces the 2D representation of 3D objects. But the patent claims (1, 11) make clear that it is the "automated re-layout process," not the "2D documentation package," that produces the 2D representation of 3D objects. 1 Hence, HP's proposed construction is overly broad.

1 "The process of passing the 3D model features into the 2D documentation package will be referred to herein as 'laying out' the solid model or the 'layout process.'" '241 patent, col. 2:1-3.

Intergraph's proposed construction is also significantly flawed. The specification states that "[t]he 2D documentation package typically contains a group of tools to both annotate a 2D drawing and to quantify different aspects of the planar projections used to depict an object . . ." '241 patent, col. 2:4-8 (emphasis added). The use of the word "typically" is important, and leads to Court to conclude that the 2D documentation package does not necessarily have to include dimensioning or annotation features. Furthermore, it is important to note that first four claims of the patent do not mention dimensions or annotations. Accordingly, Intergraph has not persuaded the Court that the 2D documentation package must be a separate software program distinct from the solid modeler and the re-layout process.
Given these considerations, the clearest reading of "2D documentation package" is software that operates on a two-dimensional representation of a 3D object, and may support dimensioning, text, and other annotation features.

D. 2D representation (Claims 1, 2, 4, 5, 11, 12, 14, 15)

HP contends that the term means "a projection of one or more features of a 3D model onto a viewing plane." Intergraph states that the term means "the 2D geometric data which consists of 2D coordinates that are projections of features of a 3D model onto a viewing plane."

To support its proposed construction, HP relies upon the definition of "2D representation" provided in claim 1 of the patent - "projections of features of said objects onto a viewing plane." A similar definition is found in the patent specification. See '241 patent, col. 1:25-27 ("Two dimensional (2D) representations of objects are projections of object features onto a viewing plane, typically embodied in 2D drawings.").

Intergraph's proposed construction also relies heavily upon language in the specification. Specifically, Intergraph notes that the specification states that "[i]n addition to geometric elements, the 2D drawings may also contain text, dimensions and other supporting information[]." '241 Patent, col. 1:27-29. Intergraph relies upon this language to support its conclusion that the inventors of the '241 patent explicitly defined two-dimensional representations as including geometric data, and hence the inclusion in its proposed construction of the term "2D coordinates." Interestingly, HP reads this identical language to mean only that 2D drawings may contain a number of items including "geometric elements," "text," and "dimensions."

In essence, the disagreement between the parties becomes an issue of parsing the relevant sentence. See '241 patent, col. 1-27:29. After evaluating each parties interpretation of the sentence, the Court concludes Intergraph's interpretation is more reasonable and is more consistent with specification language generally. Accordingly, "geometric elements" must be included in the Court's construction of 2D representation. However, Intergraph has failed to persuade the Court that the 2D geometric data must be expressed using 2D coordinates. The specification does not support such a limiting definition. Therefore, the Court construes "2D representation" as the 2D geometric data that are projections of one or more features of a 3D model onto a viewing plane.

9. "DC voltage supply"

Defendants contend that "DC voltage supply" is the "external supply voltage V[dd]." MOSAID counters by arguing that Defendants' construction is far too limited because nothing in the '620 patent requires that it be limited to an external supply voltage or to the voltage V[dd].

The plain language of the claim term must be considered in the context of the claim that it arises. Claim 1 of the '620 patent is representative of the use of that term and states:

A random access memory comprising:

DC voltage supply providing plural voltage levels;

a boosting capacitor having first and second terminals;

switching circuit including a first switch between one level of the voltage supply and the first terminal of the boosting capacitor and a second switch between the first terminal of the boosting capacitor and a capacitive load, the first and second switches being driven by clock signals, the switching circuit alternately connecting the first terminal of the boosting

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a feedback loop responsive to the boosted voltage level to control the switching circuit to regulate the boosted voltage to a substantially static value greater in magnitude than the voltage levels of the DC voltage supply and of a correct level required to turn on a selected memory cell access transistor; and

a decoder circuit supplying the regulated boosted voltage to a word line and the gate of the memory cell access transistor to store a voltage on a storage capacitor of the memory. '620 patent, claim 1.

Defendants do not dispute that this plain language is not limited to an external voltage or to a voltage \( V_{dd} \). Instead, they assert that the ordinary meaning of "DC voltage supply" supports their construction.

Defendants provide dictionary definitions for the phrase "supply voltage." MOSAID contends that these definitions are inapt because "voltage supply" and "supply voltage" are two separate and distinct concepts in the art of DRAM chips. However, as Defendants point out, the '620 specification uses the terms interchangeably, see '620 patent, col. 1, 11. 27-31; col. 1, 1. 63 - col. 2, 1. 2; col. 3, 11. 49-53; col. 5, 11. 23-25; col. 5, 11. 62-64, and thus the Court will consider these definitions as informative of the ordinary meaning of the phrase "DC voltage supply."

The first definition of "supply voltage" is "the voltage, usually direct, applied by an external source to the circuit of an electrode." IEEE Standard Dict. of Electrical and Electronics Terms 968 (4th ed. 1988). The dictionary definition for "direct current (dc) supply voltage" is "the mean value of the direct voltage between the input terminals, taken over one period of the ripple voltage appearing between the input terminals." Id. at 270. In order to further understand that definition, Defendants assert that one of skill would look to the definition of the word "terminal" set forth in that dictionary, which is defined as "an externally available point of connection to one or more electrodes or elements within the device." Id. at 997. Thus, argue Defendants, the ordinary meaning of "direct current (dc) supply voltage" would inform one that it is referring to the direct voltage applied to the externally available points of connection.

Defendants then seize on the word external in the "supply voltage" and "direct current (dc) supply voltage" definitions, and argue that it means "external to the DRAM chip." However, those definitions are not that restrictive. "External" in those definitions could mean external to a circuit, e.g., pass transistor 14A, not necessarily external to the entire DRAM chip. Nothing in those definitions requires a supply voltage to be external to the DRAM chip. Thus, the Court gives the ordinary meaning of "DC voltage supply" its full range and finds that it includes both internal and external voltages.

Defendants argue that the patentees considered "DC voltage supply" to be synonymous with \( V_{dd} \). As proof, Defendants cite to the prosecution history of the '620 patent where the patentees used the phrases "the main DC supply \( V_{dd} \)" and "the DC voltage supply \( (V_{dd}) \)." Appl. No. 09/483,626, 10/31/00 Response to PTO Action at p. 4. However, those phrases are not indicative of a clear disavowal of scope for "DC voltage supply." Instead, they were used when discussing the embodiment set forth in Figure 3 of the Foss patents. Id. at 3-4. As a result, they simply show that in Figure 3 of the patent, the "DC voltage supply" is equal to \( V_{dd} \).

Further, nothing in the ordinary meaning or intrinsic evidence requires that "DC voltage supply" be limited to \( V_{dd} \) voltage levels. The plain meaning of the claims suggests that the "DC voltage supply" may provide "plural voltage levels." '620 patent, claim 1. Although this may include \( V_{dd} \) voltage levels, the plain meaning does not require that it be limited to \( V_{dd} \). Indeed, if the patentees wanted to limit "DC voltage supply" to \( V_{dd} \), they could have simply used the term \( V_{dd} \). But the patentees purposefully used the term "DC voltage supply," and absent some clear indication that it was meant to be limited to \( V_{dd} \), the Court will not find it so limited.

Accordingly, the plain and ordinary meaning of the term "DC voltage supply" is "a supply that provides two or more substantially constant output voltages." 21

--- Footnotes ---

21 The parties agree that the term "voltage supply" (‘620 patent) is related to "DC voltage supply" and thus should be resolved in an identical manner. Accordingly, "voltage supply" means "a supply that provides two or more substantially..."
constant output voltages.

7. "DNIS" and "called number identification data"

The next terms the Court must construe are "DNIS" and "called number identification data." These terms appear in many of the Analysis Control System claims, including Claim 104 of the '707 patent which reads "a system according to claim 96 for use with a communication facility having a capability (DNIS) to provide called number identification data to identify a called number from a plurality of different numbers for calling," 21 Claim 192 of the '707 patent which reads "an analysis control system according to claim 183, wherein said communication facility automatically provides called number identification data (DNIS) to identify a select called number from a plurality of called numbers," and Claim 65 of the '863 patent which reads "an interface structure . . . including means to automatically receive call number identification signals (DNIS) to identify a select format from a plurality of formats." 22

21 This language is found in Claim 103 of the '707 patent, upon which Claim 104 depends.

22 The terms "DNIS" and "called number identification data" appear in claims other than the Analysis Control System claims; the parties agree and the Court concludes that the terms have a uniform meaning across all of the claims at issue.

The parties agree that the terms "DNIS" and "called number identification data" have the same meaning and are used interchangeably in the patents. The plaintiffs contend that the terms mean "a signal representative of the number called." The defendants argue that DNIS or called number identification data must represent the full dialed number, which is seven or ten digits. The defendants also contend that DNIS or called number identification data cannot be internal routing numbers or vector directory numbers; because the claims indicate that the communication facility provides DNIS or called number identification data to the interface and the interface receives DNIS or called number identification data from the communication facility, the defendants argue that DNIS or called number identification data cannot be any signal sent internally in the communication facility.

The Court concludes that the terms "DNIS," "called number identification data," and like terms have the same meaning and are used interchangeably in the patents. The plain import of these phrases is a signal or data that identifies the number that has been called. Thus, the language of the claims does not support the defendants' argument that "DNIS" or "called number identification data" must be the full seven or ten digit dialed number. The claim language does not support the defendants' argument that "DNIS" or "called number identification data" cannot include internal routing numbers within the telephone network; indeed, such numbers are neither mentioned in nor relevant to the Court's construction of the claims at all.

The passages of the specifications to which the defendants point do not support the limited construction proposed by the defendants either. In Column 12, lines 2 through 6 of the '707 patent, Katz describes one of the structural elements that have reoccurring significance in his inventions as "utilizing the called number to select a specific operating format." The defendants emphasize that Katz lists a ten or seven digit number as an example of the called number in the specifications; in Column 6, lines 41-45 of the '707 patent, Katz explains that "receiving the call signal, the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface 20 and the switch 21 to attain connection with the specific processor . . . ." However, the mere reference to "called number" does not restrict "called number identification data" to a certain number of digits, nor is there reason to restrict the terms "DNIS" and "called number identification data" to the examples provided by Katz in the specifications.
Further, in Column 4, lines 62 through 64 of the '707 patent, Katz stated that "generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number." "Data indicating the called number" undermines the defendants' contention that the data must be the full dialed number. Similarly, in Column 10, lines 39 through 42 of the '707 patent, Katz stated that "note that the communication facility C provides the dialed number ((213) 627-4444) to the processing system P1 through well known telephonic equipment DNIS." These passages confirm that DNIS or called number identification data must only be a signal that identifies the called number and need not be only the seven or ten digit number.

The prosecution history cited by the defendants does not alter the meaning of the terms conveyed by the claim language and specifications. The first set of statements by Katz in the prosecution history, the defendants argue, indicates that DNIS or called number identification data must be the full dialed number. In an Information Disclosure Statement dated September 20, 1994 submitted during the prosecution of the '285 patent, Katz attempted to distinguish his claims from a group of patents and other references. (Ex. 50). Katz described the '012 patent to Matthews et al. as a "system identified as Direct Inward Dialing or 'DID,' which involves the capability of utilizing the last three or four digits of a called number for routing to a desired recipient's telephone" and distinguished the system as "quite different from the combinations set forth in the claims in that, neither DNIS signals were utilized nor were formats selected. Additionally the system was void of either qualification or operator control. . . . " 23

Similarly, in a Supplemental Amendment dated March 14, 1995 during the prosecution of the '734 application, Katz also distinguished the '906 patent to Matthews on the basis that the Matthews system "utilizes so called 'DID' signals for accessing an individual program . . . . However, again, the structure and operation is distinct from Applicant's techniques utilizing DNIS for format selection and further involving testing." (Ex. 61).

It is unclear from these two statements however, whether Katz was basing his distinction on the difference between the number of digits or content of a DID signal versus a DNIS or caller number identification data signal, or if he was basing his distinction on the different functions that those signals performed. What is clear is that Katz did not explicitly state that DNIS or called number identification must include all of the digits of the number dialed.

The second set of statements by Katz in the prosecution history, the defendants argue, indicate that DNIS or called number identification data cannot be internal routing numbers in the telephone network. In the September 20, 1994 Information Disclosure Statement, Katz described the '682 patent to Vij et al. as "another utilization of 'DID' operation to route calls. Again, the operation is quite distinct from DNIS operation and is further distinguished from the claims herein on the basis of testing, computer interface and so on." 24 (Ex. 50). In the same Information Disclosure Statement, Katz described the '500 patent to Binkerd et al. as "another alternative for routing calls utilizing inputs by a caller. Again the system is quite distinct from the utilization of DNIS capability." (Ex. 50). During the prosecution history of the '075 patent in the Preliminary Amendment dated July 17, 1990, Katz stated that "recognizing that the Riskin patent discloses the utilization of ANI and DNIS signals to accomplish telephone routing, it is respectfully submitted that applicant's system involves entirely different philosophical considerations and structure. The provision of an interface system utilizing these signals, not only to select an operating format but further to accomplish associative data, is submitted to involve a patentable distinction." (Ex. 40). In an Amendment dated August 31, 1995 during the prosecution of the '707 patent, Katz attempted to distinguish the '336 patent to DeBruyn for an international lottery system on the basis that the system indicated direction or routing to different processors for individual language operation in response to different dialed numbers, but "no suggestion of DNIS appears nor is the system otherwise pertinent." (Ex. 51).

24 Katz made an almost identical statement regarding the Vij patent to the PTO in the prosecution of the '734 patent. (Ex. 61).
These statements indicate that Katz distinguished his inventions from other patents on the basis of the comparative functions of the systems; the systems in the other patents use signals to route telephone calls, not select a format from a group of formats or to store data associated with those signals. However, Katz never informed the PTO that the same numbers that other systems used to route calls could not be used to identify the called number and select a format. In short, it is not clear from Katz's statements, contrary to the defendants' contention, that "internal routing numbers," to the extent they can identify the called number, could not be included in the meaning of called number identification data or DNIS, as used in the Katz patents.

Based on the foregoing, the Court concludes that the terms "DNIS" and "called number identification data" are synonymous and mean: a signal or data that identifies the number called.

A.1.c. "digital signals including DNIS"

Verizon alleges that "digital signals including DNIS" should be interpreted to mean "signals or data that indicates the number called." Verizon Brief at 17. Katz disagrees with the term "indicate" in Verizon's interpretation, preferring use of "identify."

The term "digital signals including DNIS" means digital signals or data that identify the number called. 4 DNIS appears to be a commonly understood acronym in the art for Dialed Number Identification Service, a service that identifies a dialed number. See Hopenfeld 1/31/03 Decl. Ex. B. The passages in the specification cited by Verizon do not compel adoption of its asserted interpretation. Moreover, the description in the 734 patent of both DNIS and ANI 5 technologies as "indicating" a dialed and calling number, respectively, suggests that Katz used the term "indicate" in a manner synonymously with "identify." See 734 patent, Col. 57-62 ("For example, the so-called "ANI" telephone equipment provides digital signals indicating a caller's telephone number. Equipment designated "DNIS" is similarly available to indicate the called number. Thus, digital signals may be provided telephonically to a system associated with individual calling terminals as for identification or other use.") (emphasis added).

4 Although the parties appeared to agree at the Claims Construction Hearing that "indicate" and "identify" have essentially the same meaning, the Court adopts Katz's asserted interpretation for purposes of ensuring clarity to potential jurors. 5 The parties do not dispute that ANI signals identify calling numbers.
the '301 Family specification's reference to the grouping of individual DS0s into an "Nx64 call", with the "N" apparently referring to the number of individual DS0s and the "64" referring to the bit rate for each DS0. ('301 Family at 8:54-58.) The problem with Big River's argument, however, is that the cited references may define "DS0" as a 64-kilobit-per-second signal, but they do not define a "DS0 connection." The ordinary meaning of "DS0 connection" would be a channel using DS0 signals, as the Court instructed the jury in Vonage. Big River has not provided evidence that a "DS0 connection," as the term is used in the patent claims, must relate to the use of a single DS0 signal, so that the bit rate for the entire connection is 64 kilobits per second. The Court therefore rejects Big River's proposed construction.

Big River has not challenged the Court's prior construction in any other way. Accordingly, the Court again construes "DS0 connection" to mean a channel over which DS0 communication signals (a term of art meaning Digital Signal Level 0) are transmitted or received.

F.

The final area of discussion focuses on the acronym "DVD." The dispute centers on whether the acronym should read "digital versatile disc" or "digital video disk." Mediamatics' argument relies on the association of "digital video disk" and the acronym in the specification that explains the invention. It also refers to the use of DVD in the claims. The embodiment as well as the prior art, refer to DVD as "[A] digital video disk (DVD) which has more than two data layers …." Thus, Mediamatics argues that based on the specification and manner of use in the claims, DVD should be defined as, "[A] digital video disk conforming to the standardized DVD format."

LaserDynamics refutes this definition as a limitation that it asserts is not originated in the claims of the '743 Patent. Relying on the Modern Dictionary of Electronics, 7th Ed., LaserDynamics contends that "DVD" means '[A] high capacity optical storage medium with improved capacity and bandwidth over compact disks."

Mediamatics is correct that in columns one, two and three of the specification references to DVD are limited to a digital video disk. However, this limitation does not dictate a limitation in the invention. See Tate Access Floors, Inc. v. Maxcess Tech., Inc., 222 F.3d 958, 966 (Fed. Cir. 2000). The specification in the patent-in-suite describes how the invention may be used on a digital video disk. The Court notes that in reviewing the claims, only the dependent claims 2, 4, 6, 8, 10 and 12 refer to DVD as meaning digital video disk. However, the invention also includes independent claims 1, 3, 5, 7, 9 and 11 and they refer to the invention as a "method usable with a multilayered optical disk, comprising …." Thus, the invention does not adopt the technology [invention] stated in the independent claims and chooses the digital video disk as the medium through which it is expressed. Thus, while it may be argued that the dependent claims are limited to digital video disk, it is not so with the independent claims. In fact, the Abstract describes the invention as "[A] data recording and reproducing method for an optical disk data storage system to record data compressed at different data compression rate. …" Thus, the invention is not limited to an expression on a digital video disk, but includes the digital video disk as an "optical storage medium" to express the invention in the dependent claims. The ordinary use and meaning of the acronym is "digital versatile disc" and the Court adopts this use and meaning.

Preamble to '257 and '722 Asserted Claims

The parties dispute the construction of the preamble to '257 patent claims 17, 41, 43 and '722 patent claims 1, 3, 4, 6, and 7. The first asserted claim in which this preamble language appears is Claim 17, providing "a method of scheduling customer access to data from a plurality of data sources, comprising the steps of]." Def. Mem. Ex. 1, Col. 55. The key phrases in dispute are "scheduling customer access" and "data from a plurality of data sources."

Amazon asserts "scheduling customer access" is a claim limitation that means "assigning the days and time slots when a customer will be given access." Amazon directs the court to a broadcasting definition and the patent specification.
According to Amazon, "scheduling" means "to assign a start time and duration to a broadcast program or data element." Def. Mem. at 11-12 (citing ATSC Standard: Delivery of IP Multicast Sessions over ATSC Data Broadcast (Advanced Television Systems Committee, Doc. A/92, 1/31/2002)). Amazon contends the patent specification confirms the applicability of this definition: "The introduction of time dimensions makes possible the scheduling of video programs, i.e., the assignment of programs to days and to time slots in accordance with each customer profile." Def. Mem. at Ex. 1, Col. 22:10-13. Pinpoint disagrees and argues this term is not a claim limitation subject to claim construction. Alternatively, Pinpoint advances a broader definition: "selecting and/or ordering . . . the information that will be provided to the customer." Pinpoint's alternative construction relies on the IBM Dictionary of Computing and the Merriam-Webster Dictionary, which provide respective definitions of "scheduling" as "to select jobs or tasks that are to be dispatched," and "to appoint, assign, or designate for a fixed time." Pl. Opp. Mem. at 10.

The Federal Circuit instructs that the claim preamble is deemed part of the claim that may be interpreted if it "recites limitations of the claim" or is "necessary to give life, meaning, and vitality" to the claim. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1309 (Fed. Cir. 1999). Contrary to Pinpoint's position, the preamble should not be ignored; it is vital to the meaning of the claim. At a minimum, the phrase "scheduling customer access" instructs what is to be done with the "data from a plurality of data sources," i.e., that data is scheduled for a customer's access. In the absence of the preamble, this is unclear. Instead, the claim language describes the customer profiles, the content profiles, and the method by which customer profiles are updated to better reflect the content profiles of the monitored data sources without reference to the requisite scheduling.

However, Amazon's proposed construction of "assigning the days and time slots when a customer will be given access to the data" must be rejected. Neither the claim language nor the specification are this restrictive. While Amazon is correct that the specification discusses "scheduling" as "the assignment of programs to days and to time slots in accordance with each customer profile," this discussion solely refers to the preferred embodiment of the patented invention. Amazon cannot use a preferred embodiment to limit the claim language to the field of broadcasting. Arlington Industries, Inc. v. Bridgeport Fittings, Inc., 345 F.3d 1318, 1327 (Fed. Cir. 2003). Neither '257 patent claims 17, 41, 43 nor '722 patent claims 1, 3, 4, 6, and 7 appear limited to broadcast scheduling embodiments. These claims use broad terms such as "data," "data source," and "data objects." Compare Def. Mem. Ex. 1 at Col. 55, Claim 17 ("a method for scheduling customer access to data from a plurality of data sources") with Col. 55, Claim 18 ("a method of scheduling customer access to video programs"), and Col. 61, Claim 48 ("a system as in claim 45, further comprising means for transmitting said content profiles to each customer along with electronic program guide data for upcoming television viewing periods"). In this regard, the patent specification's discussion of non-broadcasting embodiments is instructive. See, e.g., Def. Mem. Ex. 1 at Col. 1 ("The present invention relates to a system and method for controlling . . . customer access to data") (emphasis added); Col. 4 ("In accordance with the invention, a method of scheduling customer access to data from a plurality of data sources is provided. . . . The technique of the invention may be applied to match customer profiles for such disparate uses as computerized text retrieval, music and music video selection, home shopping selections, infomercials, and the like") (emphasis added); Col. 50 ("a music or book kiosk to aid in the selection of music or books"). Each of these non-broadcasting embodiments suggest "scheduling" includes broad "ordering" of customer access to data, not just narrow "assigning" of "days and time slots." Accordingly, the court construes "scheduling customer access" to mean "selecting and/or ordering . . . the information that will be provided to the customer."

--- Footnotes ---

3 In its reply, Amazon summarily argues that another patent, U.S. Pat. No. 6,020,883 (‘883), covered the kiosk embodiment, and that neither ‘257 nor ‘722 patents should be construed as covering the kiosk. This argument must be rejected. Amazon's motion for claim construction fails to include a complete copy of the '883 patent for the court's consideration. See Def. Reply. at 1 (no attachment included).

--- End Footnotes ---
In contrast, Pinpoint broadly defines "data" as "information" and "data source" as "a source of data." Pl. Opp. Mem. at 11 (quoting IBM Dictionary of Computing at 164 as defining "data" as a "representation of facts or instructions in a form suitable for communication, interpretation, or processing by human or automatic means. Data includes constants, variables, arrays, and character strings" or "information"). As Pinpoint suggests, a broad definition of "data" and "data source," with the latter including examples such as Six Feet Under or Star Trek, finds support in the claim language and patent specification. None of the asserted claims of the '257 patent [claims 17, 41, and 43] discuss "equipment" or "a cable or satellite channel." Rather, the claim language instructs that specific content profiles will be created for each data source and/or that specific data sources will be monitored to determine what was accessed by the customer. See Def. Mem. at Ex. 1, Col. 55, Claim 17 ("creating content profiles for each data source"); Claim 41 ("monitoring which data sources are actually accessed by each customer"); Claim 43 ("creating content profiles for each data source"). Amazon's contention is untenable that a program, such as Star Trek, is the "data" for which a content profile is created based on its time slot position on a "data source," such as Sci-Fi Channel. The plain language requires "creating content profiles for each data source of said data," not creating content profiles for the data on each data source." See Def. Mem. at Ex. 1, Col. 55, Claim 17. Nor does Claim 43 doom Pinpoint's proposed construction; this particular claim must contemplate multiple programs. Otherwise, neither Amazon's nor Pinpoint's proposed construction is correct. Compare Def. Reply at 2 ("data" is a "program") with Def. Mem. Ex. 1, Col. 55, Claim 17 ("presenting said subset of data to said customer for selection") (emphasis added).

Moreover, the patent specification supports a broader construction. For example, the specification details the creation of a content profile for a program such as Star Trek - a "data source" - in which its characteristics with respect to romance, high-tech, and violence are represented. Def. Mem. at Ex. 1, Col. 21. Other examples, such as references to real estate, similarly support a broader construction of "data source." Amazon's proposed construction cannot be reconciled with the claim language or the specification. Vitronics, 90 F.3d at 1583. Accordingly, the court construes "data" to mean "information" and "data source" to mean "a source of data."

1. "data acquisition unit"

The district court construed "data acquisition unit" to mean "one structure that includes the electronic positioning device and the physiological monitor." Claim Construction Op. at 5. Paragon disagrees, having argued to the district court that "data acquisition unit" meant "an assemblage of inter-related components that unify the function of acquiring data from an electronic positioning device and a physiological monitor." Id. at 2. On appeal, Paragon offers a slightly modified proposed construction: "an assemblage of inter-related components that perform the function of acquiring data from an electronic positioning device and a physiological monitor." Reply Br. of Plaintiff-Appellant Paragon Solutions, LLC at 29. Timex argues that the district court's construction was correct. The dispute between the parties thus reduces to the question of whether the data acquisition unit must be a single structure, or whether it can be made up of physically separate structures.

a. Claim Language

Each party argues that the claim language supports its construction. Timex argues that the claims "are written in structural terms," specifying a data acquisition unit that is "separate from" the display unit. Br. of Appellee Timex Corp. at 31. Paragon argues that claim 7, which depends from claim 6 and, in turn, claim 1, shows that the data acquisition unit may be made up of separate structures. Claim 6 recites "[t]he system of claim 1, wherein said electronic positioning device comprises a GPS device, and further wherein said data acquisition unit further comprises a support member, and said GPS device and said physiological monitor are provided on said support member." '759 patent col.28 ll.30-34. Thus, in claim 6, the "data acquisition unit" comprises a support member for both a GPS device (the electronic positioning device) and a physiological monitor. Claim 7 recites "[t]he system of claim 6, wherein said GPS device and said physiological monitor are removable.
secured to said support member." Id. col.28 ll.35-37 (emphasis added). Because the GPS device and the physiological monitor are each "removably secured" to the support member, it stands to reason that they may be separate structures that are separately removable from the support member. Thus, claim 7's recitation of a "removably secured" electronic positioning device and the physiological monitor suggests that the data acquisition unit may be made up of separate physical structures.

Timex next argues that the recitation in claim 29 that "said electronic positioning device is provided as part of a data acquisition unit" suggests that the data acquisition unit must be a single structure that encompasses the electronic positioning device. '759 patent col.30 ll.15-17 (emphasis added). Paragon counters by pointing out that, although claim 29 recites that the electronic positioning system is part of the data acquisition unit, by reciting "a physiological monitor" in a separate limitation, with no mention of the "data acquisition unit," it is apparent that the data acquisition unit may be separate from and need not include the physiological monitor. Contrary to Timex's argument, it is our view that the recitation of a "data acquisition unit" in claim 29 casts doubt on--rather than supports--the district court's construction of data acquisition unit as "one structure that includes the electronic positioning device and the physiological monitor." Claim Construction Op. at 5 (emphasis added).

From the foregoing, it can be appreciated that while the claim term "unit" might suggest that the data acquisition unit is a single structure, the separate recitation of a physiological monitor in claim 29 and the recitation of "removably secured" elements in claim 7 can be read to suggest persuasively that the data acquisition unit may be multiple structures. We turn next to the specification. See Phillips, 415 F.3d at 1315 ("The claims, of course, do not stand alone. Rather, they are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims. For that reason, claims must be read in view of the specification, of which they are a part.") (citations and internal quotation marks omitted).

b. Specification

In the specification, Paragon's proposed construction finds strong support in one key sentence:

"The data acquisition component of a monitoring system according to the present invention may even comprise multiple structures which are physically separate from each other."

'759 patent col.8 ll.36-39. As discussed above, the '759 patent refers interchangeably to the "data acquisition component" and the "data acquisition unit." See id. col.3 ll.15-16.

The drawings of the '759 patent--in particular figure 1 and its associated text--are also instructive. Figure 1, reproduced supra, depicts one embodiment of the exercise monitoring system. Id. col.7 ll.30-32. In that figure, only three structures are shown and described: an electronic positioning device, a physiological monitor, and a display unit. Id. fig.1. Each structure is shown separate from each of the other structures. Id. Figure 1 is consistent with and supports the conclusion that the electronic positioning device and the physiological monitor may be separate structures. Timex seeks to avoid the implications of figure 1 by arguing that the specification discloses two separate embodiments, only one of which is claimed. Specifically, Timex concedes that, in the configuration depicted in figures 1 and 2, "the electronic positioning device is separate from the physiological monitor." Br. of Appellee Timex Corp. at 32. However, according to Timex, figures 3, 4, and 5 introduce a single-structure data acquisition unit, and it is only this second embodiment--with a data acquisition unit--that is claimed. Id. But in the section that appears between the discussion of figures 2 and 3, the specification makes clear that the invention is not so limited. See '759 patent col.8 ll.6-8 ("An exercise monitoring system according to the present invention may comprise a single structure, or may be subdivided into one or more component structures."); id. col.8 ll.36-40 ("[T]he data acquisition component of a monitoring system according to the present invention may even comprise multiple structures which are physically separate from each other."). In light of this language, we disagree with Timex that the structural configuration depicted in figure 1 is nothing more than an unclaimed embodiment.

c. Prosecution History

The district court did not suggest that either the claim language or the specification compelled a construction of "data acquisition unit" that was limited to a single structure. Rather, the district court reasoned that the applicants' statements during prosecution in response to the Patent Office's "notification of problems due to the preexisting Root patent" resulted in a clear and unmistakable disavowal of "the concept of an assemblage of inter-related parts and embrace[d] a single structure
unit concept." Claim Construction Op. at 5. Specifically, the district court relied on the applicants' amendment of claim 1 "to require that the electronic positioning device and physiological monitor are provided as a 'data acquisition unit,'" and on the applicants' argument that the amendment overcame Root "by separating the data acquisition unit from the display unit which in Root are apparently provided in a single unit." Id. at 4.

We cannot agree with the district court's interpretation of the prosecution history. The examiner rejected claim 1 as anticipated by Root because Root disclosed an electronic positioning device, a physiological monitor, and a display unit. Doc. 21, Ex. 2-N (J.A. 295). Root disclosed all three elements in a single structure. See, e.g., Root fig.6. To overcome Root, the applicants amended the claims to separate out the display unit from the remaining structure. The way that the applicants chose to express this separation was to characterize the electronic positioning device and the physiological monitor collectively as a "data acquisition unit," then to add the limitation requiring that the display unit be separate from the data acquisition unit. See '759 patent col.27 ll.66-67, col.28 ll.5-6; Doc. 21, Ex. 2-P (J.A. 308) ("[C]laim 1 has been amended to require that the electronic positioning device and physiological monitor are provided as a data acquisition unit . . . . Claim 1 has also been amended to require that the display unit is separate from the data acquisition unit . . . ."). The applicants argued that this amendment overcame Root, because "the monitor described in Root is a unitary structure in which the data acquisition unit and the display screen are provided as a single unit." Doc. 21, Ex. 2-P (J.A. 308).

"[A] patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." Cohesive Techs., Inc. v. Waters Corp., 543 F.3d 1351, 1361 (Fed. Cir. 2008) (quoting Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (Fed. Cir. 2008)). By amending the claims to require a separate data acquisition unit and display unit, and by remarking that this distinguished the "unitary structure" of Root, the applicants clearly and unmistakably disavowed a single structure that encompassed an electronic positioning device, a physiological monitor, and a display unit. The claimed exercise monitoring system must be at least two structures. However, there is nothing in the amendment or the applicants' comments that clearly and unmistakably disavows a monitoring system with more than two structures. Thus, there was no clear and unmistakable disavowal of a "data acquisition unit" made up of physically separate structures.

We conclude that, read in light of the specification, the claim term "data acquisition unit" is not limited to a single structure but may comprise multiple physically separate structures, and that the applicants did not make a clear and unmistakable disavowal of multiple physically separate structures during prosecution. We therefore construe "data acquisition unit" as used in the '759 patent as "a structure or set of structures that includes at least the electronic positioning device and the physiological monitor."
whether he or she would win or lose prior to playing the amusement game.

n6 The '603 patent uses the term "games," while the '082 patent uses the term "game." ('082 patent at 11:3-6; id. at 12:7-10; '603 patent at 16:2-5.)

The specification confirms this reading of the claim language. Although GameLogic is correct in pointing out that many of the embodiments of the patent talk about "decrypting and decoding" the data, (see, e.g., '082 patent at 3:20-21), the patent also offers other ways of obscuring the data to make it unrecognizable to a player. For example, in addition to describing the codes as encrypted and encoded, the specification talks about "comparing the Destiny Code to a lookup table to determine if the number is a loser or a winner and the size of the prize, if any." ('082 patent at 9:64-66.) Furthermore, contrary to GameLogic's argument that, to be unrecognizable, the code must be encrypted, the specification also states that "[i]f the player knew the procedure to decode the Destiny Code, the player would be able to determine if the Destiny Code contained a winning chance or a losing chance." (Id. at 2:64-67.) Thus, there are references in the patent to various ways of making the code unrecognizable, and there is nothing in the specification or prosecution history that indicates the patentee intended to give up any of the scope of the word "unrecognizable." I will therefore construe the phrase "data being unrecognizable to the player" to mean "the player is not able to recognize from the data whether the player wins or loses the lottery game and amusement game."
To construe the term "data block," we look first to the claim language, the written description, and the prosecution history. See Zelinski v. Brunswick Corp., 185 F.3d 1311, 1315, 51 U.S.P.Q.2D (BNA) 1590, 1592-93 (Fed. Cir. 1999). The ordinary and customary meaning of "data block" in the context of programmable machine tools is a computer data structure containing the information needed by a machine tool to perform a single machining operation. Haas contends that the ordinary meaning does not apply because the patentee gave the term "data block" a special meaning by describing the preferred embodiment in the patent as follows: "The sequence of inquiries on the CRT screen for a data block follows the sequence: data block number, machine mode, control mode, X dimension, Y dimension, Z dimension, feed rate, pack rate and tool number." 754 patent, col. 6, ll. 4-7. We find nothing in the written description, however, that indicates this is the patentee's specialized definition of "data block." Rather, the written description merely describes the preferred embodiment, and to limit "data block" to the sequence of variables disclosed would be to impermissibly read a particular embodiment into the claim. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186-87, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998).

Haas also argues that the following statement, made by the applicant during prosecution of the '754 patent, limits the meaning of the term "data block" to the specific variables and display sequence set forth in the written description: "particular attention should be paid to the term 'data block' as used in the specification and claims when considering the scope of these claims." Joint App. at 319. This statement alone cannot narrow the scope of the claims. Haas contends further that a brochure submitted to the Examiner by the applicant limits the term "data block" to the specific variables and display sequence disclosed in the written description. This argument is also without merit, for it is clear from the prosecution history that the brochure was intended only to assist the Examiner in understanding the preferred embodiment. In sum, we hold that nothing in the written description or prosecution history is sufficient to overcome the ordinary meaning and to require that the meaning of "data block" be limited to the specific variables and display sequence disclosed in the written description as the preferred embodiment.

Another issue raised by Haas is whether other statements made during the prosecution and reexamination of the '754 patent limit a "data block" to a format that in no way relies on G- and M-codes. In distinguishing over a prior art reference, the applicant stated that the claims were "intended to focus upon a novel interactive system in which the operator was sequentially asked questions and via the display the operator in response simply answered the question rather than have to worry about how to program the device." Joint App. at 319. The applicant made two more similar statements in responding to later office actions. IMS argues that these statements were intended to convey the interactive nature of creating a parts program using the claimed invention and do not disclaim the use of prior art programming languages such as G- and M-codes so long as a program is created interactively according to the claims.

During reexamination, the patentee distinguished several other prior art references by emphasizing the interactive programming technique of the invention, including the use of nested inquiries to prompt the user to enter additional information based on the user's response to a previous inquiry. No statements regarding the prior art clearly disclaim the use of G- and M-codes as Haas contends. In the last response to the PTO during reexamination, the patentee contrasted the invention with the cumbersome prior art programming process:

    The present invention utilizes an interactive display which operates in a question and answer format without resorting to the M and G codes of the machine tool. . . . The interactive processing of the data blocks enables the machine tool operator to perform the tasks of both the programmer and machinist on the shop floor.

Joint App. at 932.

We agree with IMS that this statement, taken in context, as well as the other statements made during prosecution and reexamination, do not disclaim the use of G- and M-codes in the claimed invention. The purpose of the statements was to emphasize the interactive nature of the invention as an improvement over the prior art programming method in which a user had to create a program line-by-line using only G- and M-codes. Thus, the claimed invention does not require the creation of a G- and M-code program; at the same time, however, the invention does not preclude the creation of a G- and M-code program so long as it is created using the claimed interactive inquiry process.
Haas further argues, in support of its contention that a data block cannot be stored in G- and M-code format, that the written description never mentions the use of G- and M-codes. While it is true that the embodiment disclosed in the written description does not purport to store data blocks in G- and M-code format, the use of data blocks in the invention as claimed is independent of the storage format. The claimed invention is an apparatus and method for interactively creating a program for controlling the machine tool. That program contains data blocks, each of which, according to the customary meaning of the term, includes the information needed by a machine tool to perform one machining operation. It is irrelevant to the claimed invention whether a data block is stored as a line of G- and M-code, in a binary format, or in any other format.

In sum, we conclude that the proper construction of the term "data block" is a computer data structure containing the information needed by a machine tool to perform a single machining operation. As properly construed, a "data block" is not limited to the specific set of variables and display sequence disclosed in the written description and does not preclude the use of G- and M-codes. (Transcript, pp. 12-13) Given the principles in Phillips, I find that the most accurate construction will be one that includes the insights provided by the specification and the claims themselves.

Initially, Skyline suggested that the court construe "data block" broadly to mean "a quantity, set or amount of information or data representing a portion of the terrain." The Defendants offered instead the following narrower construction, on the premise that the patentee acted as his own lexicographer with respect to this term: "an image of a terrain area that is composed of pixels, where each data block optionally also contains data associated with the image of the terrain area, such as data describing other objects that overlay the terrain; each block has one particular resolution." At the Markman hearing, however, the Defendants did not protest Skyline's critique of equating data with image, and both parties were open to the idea of data blocks meaning something like information necessary to render graphically an image of all or part of the terrain, including any additional features overlaid thereto, at a particular resolution level. The method for preparing the database in accordance with the preferred embodiment of the present invention requires a processor, referred to as a Terra Builder, to cut up images it receives into blocks. (col. 9, 1. 55) The end result is that the user's "processor renders three-dimensional terrain images responsive to the data blocks" corresponding to the requested coordinates and viewpoints on a display. (col. 6, 11. 56-57)

These excerpts from the specification demonstrate -- despite the seemingly anomalous statement that "blocks are preferably real-life images of terrain areas received from airborne or satellite cameras" (col. 8, 11. 36-37) -- that the term does not refer to the actual images of the terrain area, but to the data or information that represents sections of the terrain in the preferred embodiment. In the preferred embodiment, the blocks may "include altitude data of the terrain" and "optional objects to be overlaid on the terrain." (col. 5, 11. 38, 40-41) These objects may "include, but are not limited to, labels, annotations, lines and 3D objects." (col. 8, 11. 38-42)

Having said that, the patent specifically disclaims the idea that the data streaming methods only describe the display of images of terrain. Rather, the patent specifies that "the data streaming methods of the present invention may be used to convey large databases of data which are to be displayed graphically, such as in graphic displays of stock values." (col. 16, 11. 20-24) Consequently, I must technically construe the term "data block" broadly as a block or collection of data or digital information, but I do so only with the understanding that the terms "data block describing three-dimensional terrain" and "image block", refer to a block or collection of data or digital information that represents or describes a section of three-dimensional terrain at a particular resolution level and that includes any additional data overlaid on the digital image of the terrain, such as altitude, labels or optional objects. I construe the subsequent references to "data blocks" in Claims 1 and 12 as referring in shorthand to "data blocks describing three-dimensional terrain", as opposed to any kind of data block,
because the scope of the claimed invention is a method and apparatus for providing data blocks describing three-dimensional terrain to a renderer.

**Construction:** (data block) A block or collection of data or digital information.

### A. Data Blocks

I begin with a term found throughout the patent -- "data blocks", often referred to simply as "blocks" in the specification.

Initially, Skyline suggested that the court construe "data block" broadly to mean "a quantity, set or amount of information or data representing a portion of the terrain." The Defendants offered instead the following narrower construction, on the premise that the patentee acted as his own lexicographer with respect to this term: "an image of a terrain area that is composed of pixels, where each data block optionally also contains data associated with the image of the terrain area, such as describing other objects that overlay the terrain; each block has one particular resolution." At the Markman hearing, however, the Defendants did not protest Skyline's critique of equating data with image, and both parties were open to the idea of data blocks meaning something like information necessary to render graphically an image of all or part of the terrain, including any additional features overlaid thereto, at a particular resolution level. (Transcript, pp. 12-13) Given the principles in Phillips, I find that the most accurate construction will be one that includes the insights provided by the specification and the claims themselves.

The specification teaches that "image blocks . . . contain data representing the terrain" (col. 8, 11. 18-20) and the claims speak of "data blocks describing three-dimensional terrain" (Claim 1, col. 16, 11. 28-29; col. 4, 1. 12), such that "each terrain area is described in a plurality of blocks at different resolution levels." (col. 3, 11. 5-6) The method for preparing the database in accordance with the preferred embodiment of the present invention requires a processor, referred to as a Terra Builder, to cut up images it receives into blocks. (col. 9, 1. 55) The end result is that the user's "processor renders three-dimensional terrain images responsive to the data blocks" corresponding to the requested coordinates and viewpoints on a display. (col. 6, 11. 56-57)

These excerpts from the specification demonstrate -- despite the seemingly anomalous statement that "blocks are preferably real-life images of terrain areas received from airborne or satellite cameras" (col. 8, 11. 36-37) -- that the term does not refer to the actual images of the terrain area, but to the data or information that represents sections of the terrain in the preferred embodiment. In the preferred embodiment, the blocks may "include altitude data of the terrain" and "optional objects to be overlaid on the terrain." (col. 5, 11. 38, 40-41) These objects may "include, but are not limited to, labels, annotations, lines and 3D objects." (col. 8, 11. 38-42)

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**Construction:** (data block) A block or collection of data or digital information.

**Construction:** (data block describing three-dimensional terrain) A block or collection of data or digital information that represents or describes a section of three-dimensional terrain at a particular resolution level and that includes any additional data overlaid on the digital image of the terrain, such as altitude, labels or optional objects.
B. Data Blocks Belonging to a Hierarchical Structure

The parties agree that this phrase, as used in the patent, would be understood by one of ordinary skill in the art to mean data blocks that are organized into multiple levels of resolution. Skyline, however, takes issue with the two additional limitations proposed by the Defendants: data blocks that are organized into multiple levels of resolution, whereby (1) each level contains data blocks at the same resolution, and (2) each successive level contains data blocks of a higher resolution than those in the preceding level.

First, in its submissions and at the Markman hearing, Skyline questioned whether or not the concept of hierarchy, as used in the patent, includes the idea of "directionality," that is whether each successive level contains data blocks of a higher resolution than those in the preceding level. Second, at the Markman hearing Skyline also questioned whether each level of the hierarchy must contain data blocks at the same resolution, contending that this construction could be interpreted as meaning that each data block must contain the same amount of data. Instead, Skyline prefers the less specific construction that the "data blocks are arranged into multiple levels of resolution, wherein each level of the structure contains blocks of a different resolution." For support, Skyline cites to col. 6, 11. 3-6 of the '583 patent.

The portion of the specification cited by Skyline describes how U.S. patent application Ser. No. 08/939,948 (now United States Patent No. 6,111,583 (the '583 Patent)), which is incorporated by reference, "uses a hierarchical database in which substantially each terrain area is described in a plurality of blocks at different resolution levels." The '583 Patent is relevant because "in some preferred embodiments of the present invention, the data is stored at the remote server in accordance with the hierarchical structure described in the 948 application." (col. 3, 11. 13-15) The '583 Patent describes arranging the units of data into an ordered hierarchy according to successive resolution levels.

FIGS. 3A and 3B . . ., taken together, are simplified pictorial illustrations of a data structure useful in storing a terrain image constructed and operative in accordance with a preferred embodiment of the present invention. A terrain image is typically stored as a hierarchy of one or more two-dimensional grids of one or more tiles, with each grid 24 representing the image at a given resolution. . . . Each grid has four times more detail then the grid preceding it in the hierarchy.

('583 Patent, col. 7, 11. 36-49)

The '189 Patent provides even more detail in describing its Fig. 2, "a schematic block diagram illustrating the data structure of images stored in a database . . . in accordance with a preferred embodiment of the present invention." (col. 7, 11. 27-31)

Blocks 42 are preferably stored in database 40. . . . Blocks 42 are classified in successive resolution levels 44 labeled 44A, 44B, etc., according to the height from which they view the terrain and, therefore, the level of detail which they include. A plurality of blocks 42A which belong to the lowest resolution level 44A, labeled "level 1," cover the largest area per block and therefore have the least detail per area unit. It is noted that the size of the geographical area covered by blocks 42A of "level 1" is dependent on the specific application of database 40 and may be very diverse. For example, in some flight applications, a single block 42A includes an image of the entire Planet Earth, while in an atom-simulation application, which shows the terrain of an atom, block 42A shows the entire atom. Blocks 42B of the next level 44B, labeled "level 2," preferably cover a quarter of the area of blocks 42A of "level 1". Thus, for substantially each block 42A, there exist four blocks 42B which cover the same area. In a similar manner, each successive level 44 comprises blocks 42 which cover a quarter of the area of the blocks 42 of the lower resolution level.

Four blocks 55 of a certain level 44C, which cover the same area as a block 57 of the preceding level 44B, are referred to as descendants of block 57. Conversely, block 57 is referred to herein as the parent of blocks 55. The parent block 59 of block 57 is referred to herein as an "ancestor" of blocks 55, and is said to be of a lower resolution level than its descendants. It is noted that in FIG. 2, the lower resolution levels appear higher on the page.

(col. 8, 11. 59-67; col. 9, 11. 1-21) (emphasis supplied)
From these descriptions, it is clear that the patent claims a database with a hierarchical structure in which each successive level contains data blocks of a higher resolution than those in the preceding level. While I recognize that Fig. 2 is only a schematic and level 1, level 2, level 3 etc. are just labels, it is important to include the successively ordered nature of the database in the construction of the term "hierarchical structure", even if a database might be arranged conceptually from the top down rather than from the bottom up.

As for Skyline's concern over describing the hierarchical structure with the limitation that each level contains data blocks at the same resolution, I disagree that the limitation erroneously suggests that each level has the same amount of data. As Skyline contends, the amount of data in a given resolution level depends on the image being depicted. Or as the specification explains, the "size of the geographical area covered by blocks of level 1' is dependent on the specific application of database and may be very diverse. For example, in some flight applications, a single block includes an image of the entire Planet Earth, while in an atom-simulation application, which shows the terrain of an atom, block shows the entire atom." (col. 8, 1. 67; col. 9, 11. 1-7)

Construction: (data blocks belonging to a hierarchical structure) data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution, and each successive level contains data blocks of a higher resolution than those in the preceding level.

Plaintiff's Construction
One or more operably connected data structures and computers used for processing or transmitting data.

Defendant's Construction
This claim term is indefinite.

"If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, [the Federal Circuit has] held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Exxon Res. & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). "A claim will be found indefinite only if it 'is insolubly ambiguous, and no narrowing construction can properly be adopted . . . ." Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008) (quoting Exxon, 265 F.3d at 1375). Thus, Defendant faces a difficult task in establishing by clear and convincing evidence that a claim term is indefinite.

The specification provides an example of a "data center," explaining that "the data center 2 preferably comprises database servers 10, web servers 12, a load balancing router 14 and a firewall 16 connected to the Internet 8." ('809 patent at 2:40-42.) The specification goes on to describe the functions of each of these components. In particular, the specification explains that (1) the firewall performs functions related to the safeguarding of data, (2) the load balancing router distributes data and tasks, (3) the web server accesses and retrieves information from the database server, and (4) the database server store information regarding venues, events, tickets, ticket status, bidders, etc. (Id.) In the Court's view, Plaintiff's proposed construction comports with this description. Accordingly, the Court will construe the term "data center" to mean, as Plaintiff contends, "[o]ne or more operably connected data structures and computers used for processing or transmitting data."

"Data changes" appears in both independent claims of the '910 patent. CashEdge asserts that the inventors have acted as their own lexicographer, and expressly defined "data changes" as meaning "data from an Internet site not matching data last accessed from an Internet site," while Yodlee contends that the term "data changes" needs no construction. The Court agrees with Yodlee; CashEdge's proposed construction does not appreciably differ from the plain and ordinary meaning of "data
"data collection application"

Claims 1, 7, and 12-15 of the '057 patent and claims 1, 4, and 10-13 of the '362 patent contain the term "data collection application." The parties agree that the term does not have a plain meaning. Typhoon defines the term as "a software application for receiving and storing data that utilizes libraries." To arrive at this definition, Typhoon relies on several phrases describing the operation of a data collection application within the specification and then reduces those descriptions to their most general form. For example, Typhoon cherry-picks general references to a data collection application's ability to collect and record data and converting them into the limitation's defining characteristic. See '057 Patent at 2:64-67 ("For data collecting and recording, the memory of the portable computer stores a data collection application . . . . ").

In fact, the patents do explain that data collection applications assist in collecting data. See id. However the description also explains that "data collection is facilitated by using displayed help fields for each question or subject, sequential and consequential libraries, and cross referencing of entered responses." '362 Patent at 3:7-10. As will be more thoroughly explained, "libraries" are generally groups "of possible responses" to questions. See id. at 3:12-17. Along these same lines, the description of the preferred embodiment details how a data collection application is formatted for "question and answer" data collection. See, e.g., id. at 12:10-14 ("The loop procedure's main function is to go to each question on the data collection screen one by one, interact with the user to get the information, validate the information, and return to the beginning of the loop or exit.").

Because the specification exclusively refers to the data collection application's ability to collect data by question and answer, Defendants urge that the term be defined as "a computer program that collects responses to a predetermined series of questions." Thus, the parties' principal dispute is whether a "data collection application" broadly "collects and stores data" or is limited by the disclosed question and answer format.

The specification provides several indications that a data collection application is limited to its disclosed "question and answer" format. First and foremost, in a paragraph entitled "[w]hat is an application?" located in an illustrative appendix to the specification, the patent recites that "[t]he basics of designing applications can be summarized in the following single sentence: 'The application is a series of multiple-choice questions.'" '057 Patent at 18:27-31. Additionally, several dependent claims contain references to "changing the flow of said data collection applications." See, e.g., '362 Patent at 17:21-21, 18:44-45. Defendants assert that "flow" has no antecedent basis in the claims, unless "flow" refers to a characteristic of a "data collection application." Defendants are correct that use of the term "flow" in reference to applications is consistent with a data collection application having a flow of questions described in the specification. See '057 patent at 3:32-36 (explaining that consequential libraries contain "actions or executable instructions . . . which change the flow of the application") (emphasis added).

Typhoon responds by arguing that a construction requiring a "question and answer" format would violate the canon of claim differentiation because claims 11 and 12 of the '057 patent contain a limitation requiring "an application generator for generating said data collection applications and . . . said application generator further comprising means for cross referencing responses to said inquiries with possible responses from one of said libraries." See '057 Patent at 32:18-22, 37-40. Typhoon asserts that this reference to "inquiries" and "responses," only found in claims 11 and 12, precludes limiting a "data collection application" to collecting the responses to predetermined questions.

However, while a data collection application may collect responses to questions, the limitation in claims 11 and 12 specifically call for a "means for cross referencing responses" to questions. The doctrine of claim differentiation does not apply. See Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380-81 (Fed. Cir. 2006) (discussing the doctrine of claim differentiation as applied to independent claims). Further, the language in claims 11 and 12 further suggest that data collection applications collect responses to predetermined questions because (as claims 11 and 12 explain) the application generator provides a means to cross reference provided responses with the stored responses contained within the libraries. Thus, the language in claims 11 and 12 assume that there are responses that have been collected by a data collection application and stored predetermined questions.
Typhoon's suggestion that the patent very generally describes a data collection application as "receiving and storing data" is incorrect. As discussed, the specification and the claims of the patent refer to a data collection application as a specific sort of data collection tool that gathers answers to a series of questions. Accordingly, "data collection application" is defined as "a computer program that collects responses to a predetermined series of questions."

"data collection unit"

Claim 14 of the '057 patent contains the term "data collection unit." The parties agree that the term has no established meaning within the art. Despite this, Typhoon advocates that the term means "a device for collecting data." Thus, Typhoon's argument is essentially that "unit" should be construed as "device" and that the patentee did not attach any specialized or restricted meaning to the term as a whole. Conversely, Defendants argue that the term means "a device that is designed to collect data for transfer to a central location." Typhoon responds by arguing that Defendants' definition is overly restrictive in requiring a "data collection unit" to "transfer to a central location."

The patentee essentially coined a phrase in using "data collection unit." The meaning given to it by the patentee is gleaned from the attributes of data collection described in the specification. The patent describes that a data collection unit "can continuously and repetitively collect data." '057 Patent at 7:56-57. Then, "the collected data is stored locally on the satellite computer." Id. at 7:59-60. "[T]he data provided from the computer . . . is uploaded to the host computer." Id. at 7:62-63. The patent also refers to the uploaded data as "transferred data." Id. at 7:67. However, the fact that the data is transferred to a "host computer" in the specification is merely illustrative and has nothing to do with the operation of a "data collection unit." By way of analogy, the patent describes that data being transferred to a host computer can be accomplished in a variety of ways, including by floppy disk, cable or satellite connection. Id. at 8:1-5. That recital, nor the recital that transferred data flows to a host computer, restricts a "data collection unit" to transferring data solely by those described methods or solely to the described recipient. Thus, the attributes essential to the patentee's use of the term "data collection unit" are collection of data and transfer of data. Accordingly, "data collection unit" is defined as "a device to collect data for transfer."

"data combiner"

The parties dispute whether "data combiner" is governed by 35 U.S.C. § 112(6). Verimatrix proposes that "data combiner" should be construed as "software on a computing device that combines different portions of input data into a single output," arguing that the specification implicitly supports its proposed construction. Verimatrix argues that "data combiner" does not connote any particular structure and the surrounding claim language does not provide the needed structure. According to Verimatrix, "data combiner" is a coined term commonly used in the art that refers to a category of structures that combine data. In Verimatrix's view, sufficient context is necessary to identify which structure of the category is intended. Verimatrix also argues that the prosecution history shows that the claim limitations were initially drafted using means-plus-function language.

The Court finds that the surrounding claim language provides the necessary structure. The parties agreed that both parser and encrypter are "software on a computing device" and, as both are elements of the apparatus of Claims 1, 58, and 70, so too is "data combiner." In that context, "data combiner" is "software on a computing device that combines different portions of input data into a single output."

(1) data communication system

This term appears in only the preambles of claims 15 and 97 of the '216 patent. N-Data argues that this term should be given
its plain and ordinary meaning. Both Dell and National assert that the specification expressly defines the term. The particular section relied on by Dell and National states, "[t]he present invention relates to communications between stations in a data communication system, such as a local area network or wide area network, and in particular to a network for transferring isochronous data via an asynchronous processor to a local switch table." '216 Patent, col. 1, ll. 13-17. The court agrees with N-Data. Given the logical reading of the above sentence, it is clear that "a network for transferring isochronous data via an asynchronous processor to a local switch table" refers back to the invention, not the data communications system. Furthermore, "a local area network or wide area network" is preceded by "such as." As discussed above, the court is not willing to limit a term to an exemplary embodiment absent clear language indicative of the patentee's intent to the contrary.

As such, the court defines the term as a "system for communicating data."

4. In data communication with

The Court lets stand its previous definition of "in data communication with" to mean two or more devices connected such that data is being transferred between the devices in real time. During the September hearing, questions arose as to the meaning of "in real time" after the previous order was issued. The Court defines "in real time" to mean that the receiving system receives the data in the same electronic time frame as the transmission system sends the data.

20. Data communication with one or more of the plurality of data storages that may be different than the one or more of the plurality of data storages in communication with the other session modules

The court concludes that this phrase requires no additional construction other than those previously provided for "data storage" and "session module."

I. "obtaining data concerning the fluid catalytic cracking unit in order to establish . . ." '236 patent, col. 15, ll. 50-51.

Plaintiff asserts that this phrase means "obtaining factual or other experimental information of any kind (such as by trial and error) concerning the FCC unit in order to arrive at. . . ." 9 Defendants contend that it means "gathering data from the FCC unit for which catalyst addition is sought to be controlled for the purpose of determining or setting the four parameters recited thereafter." 10 The Court will examine each of the disputed terms in turn.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

9 (Pl.'s Claim Construction Br. at 15.)

10 (Defs.' Opening Claim Construction Br. at 17.)

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A. "obtaining"

The first disputed word is "obtaining." Plaintiff contends that "obtaining" needs no construction, but it alternatively defines "obtain" as "to gain or attain possession," "to arrive at," or "attain." 11 Defendants define "obtain" as "gain or attain usu[ally] by planned action or effort." 12 However, relying upon the specification, they also define "obtaining" as
"gathering." 13

11 (Pl.'s Claim Construction Br. at 15, Ex. E at I-31101 (Webster's Third New International Dictionary (1993))).

12 (Defs.' Opening Claim Construction Br. at 16, Ex. 5 at WRG-51159 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

13 (Id. at 17 (citing '236 patent, col. 8, ll. 1-4).)

The Court finds that "obtaining" requires no construction. The Court could substitute "gaining" or "attaining" for "obtaining," as both dictionaries cited by the parties define "obtain" in those ways, or the Court could substitute "gathering" for "obtaining," as the specification states that "employment of the methods . . . of this patent disclosure will normally begin with a gathering of certain hereinafter described operating data." '236 patent, col. 8, ll. 1-4 (emphasis added). But none is an improvement over "obtaining." In fact, in a circularity common among similar words, each word is defined by the others. For example, Webster's Third New International Dictionary (1986) defines "gain" as "to get or attain" and "obtain"; it defines "attain" as "gain" and "obtain"; and it defines "gather" as "to gain gradually." Id. at 140, 928, 940. Given this circularity, the Court presumes that "obtaining" speaks for itself and carries its ordinary meaning. See Texas Digital, 308 F.3d at 1202 ("The terms used in the claims bear a 'heavy presumption' that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." (citations omitted)). Nothing in the specification or the prosecution history rebuts this presumption. See Brookhill-Wilk 1, 334 F.3d at 1298-99; Texas Digital, 308 F.3d at 1204.

B. "data"

The second disputed word is "data." Plaintiff defines "data" as "factual or other experiential information of any kind." 14 Defendants define "data" in their brief as "numerical or qualitative values derived from scientific experiments," but their proposed construction leaves "data" undefined. 15

14 (Pl.'s Claim Construction Br. at 15, 16, Ex. E I-31087 (Webster's Third New International Dictionary (1993))).

15 (Defs.' Opening Claim Construction Br. at 16, Ex. 6 at WRG-51962-63 (McGraw-Hill Dictionary of Scientific and Technical Terms (2d ed. 1978))).

The Court finds that "data" requires no construction. The word is unambiguous and there is a "'heavy presumption'" that "data" means what it says 'and [has] the ordinary meaning that would be attributed to [it] by persons skilled in the relevant art." Texas Digital, 308 F.3d at 1202. Nothing in the specification or the prosecution history rebuts this presumption of ordinary meaning. See Brookhill-Wilk 1, 334 F.3d at 1298-99; Texas Digital, 308 F.3d at 1204.

C. "in order to"

The third disputed phrase is "in order to." Plaintiff contends that "in order to" needs no construction, but it alternatively defines this phrase as "in regard or reference to" and "for the purpose of." 16 Defendants define "in order to" as "for the purpose of." 17 The Court finds that "in order to" means "for the purpose of." Both dictionaries cited by the parties define "in order to" in this way. This ordinary meaning is presumed and nothing in the specification or prosecution history rebuts this presumption. See Brookhill-Wilk 1, 334 F.3d at 1298-99; Texas Digital, 308 F.3d at 1204.

16 (Pl.'s Claim Construction Br. at 15, Ex. E I-31097 (Webster's Third New International Dictionary (1993))).

17 (Defs.' Opening Claim Construction Br. at 16, Ex. 6 at WRG-51962-63 (McGraw-Hill Dictionary of Scientific and Technical Terms (2d ed. 1978))).
16 (Pl.'s Claim Construction Br. at 19, Ex. E at 1-31093 (Webster's Third New International Dictionary (1993))).

17 (Defs.' Opening Claim Construction Br. at 17, Ex. 5 at WRG-51177 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

D. "establish"

The fourth disputed word is "establish." Plaintiff defines "establish" as, among other things, "to arrive at (as a result)." 18 It also argues that one may "establish" the four values listed thereafter by "trial and error." 19 Defendants define "establish" in various ways, 20 but at oral argument they settled on "to determine." 21

18 (Pl.'s Claim Construction Br. at 16, Ex. E at I-31088 (Webster's Third New International Dictionary (1993))).

19 (Id. at 18.)

20 (Defs.' Opening Claim Construction Br. at 17, Ex. 5 at WRG-51922 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

21 (Markman Hr'g Tr. at 75; Defs.' Hr'g Presentation at 34-37.)

The Court finds that "establish" requires no construction. There is a "'heavy presumption'" that "establish" means what it says "and [has] the ordinary meaning that would be attributed to [it] by persons skilled in the relevant art." Texas Digital, 308 F.3d at 1202. The parties' proposals, while acceptable, provide no more clarity than "establish."

The Court also finds that one may "establish" the four values listed thereafter by "trial and error." "Trial and error" is defined as "a finding out of the best way to reach a desired result or a correct solution by trying out one or more ways or means and by noting and eliminating errors or causes of failure." Webster's Third New International Dictionary 2439 (1986). The specification's teachings and prosecution history are consistent with the "trial and error" approach. For example, the specification teaches that the evaluation of "operating data" will "commence with a taking of a series of successive (e.g., every 1/2 hour) samples from the FCC unit's total bulk catalyst." '236 patent, col. 8, ll. 3, 8-10. The specification also teaches that desired "maximum and minimum levels" of a particular catalyst "can be determined by overdosing or withholding catalyst from the FCC unit under otherwise controlled conditions of operation." '236 patent, col. 8, ll. 46-49. Both the evaluation of data "with a taking of a series of successive . . . samples" and the ebb and flow of "overdosing or withholding catalyst" to reach desired maximum and minimum levels are in line with a "trial and error" view. Finally, the prosecution history refers to the "establishment' step as "empirical in nature." (Pl.'s Claim Construction Br. Ex. G at I-3151.) Although not defined in the intrinsic record, "empirical" is defined in Webster's Third New International Dictionary (1986) as "proceeding strictly experimentally or by the trial and error method." Id. at 743.

E. "concerning"

Perhaps overshadowing the previous disputes, however, is the dispute over "concerning." Claim 1 reads: "obtaining data concerning the fluid catalytic cracking unit in order to establish . . .". '236 patent, col. 15, ll. 50-51 (emphasis added). Defendants contend that data must be obtained "from the FCC unit for which catalyst addition is sought to be controlled." 22 They argue that use of the definite article "the" in "the fluid catalytic cracking unit" indicates that the denoted FCC unit was previously introduced in the preamble to the claim. 23 The preamble states, in pertinent part: "A method for controlling addition of a catalyst into a fluid catalytic cracking unit . . ." '236 patent, col. 15, ll. 45-46 (emphasis added). Thus, according to Defendants, 'the data' is obtained from the particular FCC unit into which the catalyst will be added." 24

22 (Pl.'s Claim Construction Br. at 16, Ex. E at 1-31088 (Webster's Third New International Dictionary (1993))).

23 (Id. at 18.)

24 (Defs.' Opening Claim Construction Br. at 17, Ex. 5 at WRG-51922 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

25 (Markman Hr'g Tr. at 75; Defs.' Hr'g Presentation at 34-37.)
Plaintiff contends that data need only be obtained "concerning" the FCC unit, not "from" it. 25 It argues that had the patentee intended to limit the claim by requiring that the data must come "from" the particular FCC unit to which catalyst is to be added, he would have said so and would not have said "concerning" the FCC unit. 26 It further argues that "concerning" needs no construction, but it alternatively defines "concerning" as "relating to: regarding, respecting, about." 27

Defendants are correct in asserting that "the fluid catalytic cracking unit" refers back to "a fluid catalytic cracking unit" introduced in the preamble. A patent treatise describes how a patentee refers back to elements previously named in a claim:

The first time an element or part is mentioned, it should not be preceded by a definite article ("the") or by "said." Instead the indefinite article ("a" or "an") should be used, as in . . . "a container," "a base," etc. . . . When each previously identified element or part is referred to again, the definite article should be used, as "the container," "the base" . . . .

Robert C. Faber, Landis on Mechanics of Patent Claim Drafting § 23 (2002) (footnote omitted); see Zenith Elecs. Corp. v. ExZec, Inc., 1995 U.S. Dist. LEXIS 6177, at *12, No. 93 C 5041 (N.D. Ill. May 5, 1995) ("An indefinite article ('a' or 'an') is used to introduce an element. A definite article ('the' or 'said') is used when a term has already been introduced, thereby making mention of the earlier recitation of the element." (citation omitted)).

But Defendants are incorrect in asserting that data must be obtained "from" the particular FCC unit for which catalyst addition is sought to be controlled. "From" is not used in the claim language. And "from" is not a synonym for "concerning." While "concerning" means 'relating to: regarding, respecting, about," "from" is a function word indicating "a starting point," "the act, fact, or condition of removal, withdrawal," and "the source or original or moving force of something." Webster's Third New International Dictionary 470, 913 (1986). It is presumed that "concerning" carries its ordinary meaning of "relating to" and does not mean "from" as Defendants contend. See Brookhill-Wilk-1, 334 F.3d at 1298; Texas Digital, 308 F.3d at 1202. Had the patentee intended the data to be obtained "from" the particular FCC unit, he could have explicitly said so. See Superguide Corp v. DirecTV Enters., Inc., 358 F.3d 870, 880 (Fed. Cir. 2004) ("Had the patentees intended to limit the disputed claim terms to 'analog' technology, they could have easily done so by explicitly modifying the disputed claim language with the term 'analog.'"). Nothing in the specification or prosecution history rebuts the presumption that "concerning" carries its ordinary meaning of "relating to." See Brookhill-Wilk 1, 334 F.3d at 1298-99; Texas Digital, 308 F.3d at 1204.

F. Summary

Accordingly, the Court concludes that the phrase "obtaining data concerning the fluid catalytic cracking unit in order to establish . . ." means "obtaining data relating to the fluid catalytic cracking unit for the purpose of establishing (such as by trial and error). . . ."
5. Data corresponding to one or more thoroughfares

The fourth subpart of claim 1 reads:

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wherein said processor retrieves from said memory, data corresponding to one or more thoroughfares and determines a desired orientation for display of said cartographic data based upon a current location of said vehicle, a direction of travel of said vehicle, and a direction of at least one of said one or more thoroughfares corresponding to said current vehicle location, wherein said direction of said at least one of said one or more thoroughfares is determined from said retrieved cartographic data.
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The first phrase in dispute is: "wherein said processor retrieves from said memory, data corresponding to one or more thoroughfares." Plaintiff seeks to limit the definition of "data corresponding to one or more thoroughfares" to simply "thoroughfares." Defendant has proposed the better definition, which incorporates the concept of X and Y coordinates. As discussed in section E.3 above, the specification makes it clear that this invention works by detecting thoroughfares through their corresponding coordinates. There is no question that "data corresponding to one or more thoroughfares" includes not only the thoroughfares themselves but also their corresponding coordinates. I construe "data corresponding to one or more thoroughfares" to mean "the X and Y coordinates corresponding to one or more thoroughfares."

6. "First and second data couplers, each coupled to a respective one of said first and second ports, and each having a data signal port operative to pass only a data signal"

This phrase appears in claim 18 of the '280 patent. SercoNet argues that this term should be construed as: "Two data couplers, each coupled to a different port, where each such port transmits a data signal, but not a power signal." NetGear's proposed construction is: "The device has two data couplers, each coupled to a different port (the first and second port). Each data coupler is capable of separating the data from the power received at that port, and passing along the data signal."

Turning to the claim language, the claim describes: "A device for configuring a local area network in a building for the transport of power and data signals across a wiring, wherein the wiring includes at least first and second wiring segments, the device comprising: . . .

[1] first and second ports each connected to a respective one of said first and second wiring segments;

[2] first and second data couplers each coupled to a respective one of said first and second ports, and each having a data signal port operative to pass only a data signal;

[3] first and second modems each coupled to said data signal port of a respective one of said first and second data couplers, for full duplex data signal communication with a respective one of said first and second wiring segments; . . .

[5] first and second power couplers each coupled to a respective one of said first and second ports, and each having a respective one of first and second power signal ports, each signal port being operative to pass only the first power signal;

[6] a power supply coupled to the first power signal port and to at least one of said modems to be powered by the power signal and for powering said modem."

The term at issue notes that the port is "operative to pass only a data signal." The language therefore focuses on the port's ability to pass and transmit a data signal. This term does not state anything about separating data, nor does it discuss separating data from power. In fact, other portions of the claim separately deal with the passing of power signals. NetGear's
definition suggests that the port must separate data from power, and may not simply just allow data to pass without performing this separation. NetGear is apparently importing an extraneous limitation that is not suggested by the language of the claim.

NetGear, however, argues that because claim 18 as a whole describes a device that transports both power and data across the same wires, and because the data coupler passes only a data signal, this necessarily means that the coupler separates data from the power signal. While this is certainly one logical reading of the invention, it is unclear from the plain claim language that separating the signal is the only mechanism by which the coupler passes the data signal, but not the power signal.

Turning to the specification for further clarification, NetGear notes that the couplers in this claim are the power/data splitter/combiners in the specification, which decouple the data signal from the power. See '280 patent at 5:63-66 & Figure 5. However, the specification specifically states that "in some cases . . . the power/data splitter/combiner is not required, and the power lines are directly connected to the SIC power-supply while the data connects directly to the modems." Id. at 6:16-23. The specification, therefore, seems to indicate that this separating function is not a necessary part of the invention in all circumstances. And, while this portion of the specification indicates that the couplers that are at issue here might not be a part of the invention in these alternative embodiments because they are not "required," there is nothing in the specification that precludes the couplers from being part of these alternative embodiments.

As with the previous claim term, while SercoNet's definition may not be perfect, it does not import an extraneous limitation into the term, and therefore does not suffer from the same difficulties as does NetGear's proposed construction.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "First and second data couplers, each coupled to a respective one of said first and second ports, and each having a data signal port operative to pass only a data signal" and construes the term as: "Two data couplers, each coupled to a different port, where each such port transmits a data signal, but not a power signal."

1106

Instruction does not have any data dependencies with preceding issued instructions which have not yet been completed (claims 8 and 17)

Defendant argues that claims 8 and 17 are limited to "data dependencies" which include both essential and false dependencies. Defendant relies on the facts that claim 8 depends from claim 7, and claim 7 specifies both essential and false dependencies. Therefore, claim 8 must include both as well. The same argument applies to claim 17, which depends from claim 16.

Plaintiff's position on this issue is not clear. In its proposed Findings of Fact and Conclusions of Law plaintiff proposes that "data dependencies" in claims 8 and 17 be construed as meaning "an instruction that depends for its issuance on a value in another instruction." In this regard, plaintiff argues that defendant improperly imports into claims 8 and 17 the requirement of both essential and false dependencies. Plaintiff's argument is supported by application of the doctrine of claim differentiation to claims 8 and 17 and the claims which depend from them (claims 9, 10, 18 and 19). Plaintiff's proposed construction of dispatch stack for claims 8 and 17, however, includes both essential and false dependencies.

The Court is aware that claim differentiation is not a rigid rule, see Comark, 156 F.3d at 1187, and, in light of the fact that claims 8 and 17 depend from claims which recite both essential and false dependencies, the Court adopts defendant's construction. Accordingly, the Court construes the phrase "instruction does not have any data dependencies with preceding issued instructions which have not yet been completed" in claims 8 and 17 as meaning "an instruction that is free of [alpha] and [beta] dependencies."

1107
2. "data download circuit"

3Com proposes "a circuit that retrieves data from memory." Doc # 81 (05-0098) at 31. Realtek proposes "the circuitry that downloads data corresponding to the frame segment descriptor." Id. The court looks to intrinsic evidence to ascertain the meaning.

The specification discloses that the "data download circuit [is] coupled to the segmentation circuit to receive the frame segment descriptors." '446 patent at 2:31-33. The specification also discloses that the "data download circuit uses the frame segment descriptor to retrieve the data from memory." '446 patent at 10:60-61. Given this evidence, a person of ordinary skill in the art would interpret the coined term "data download circuit" to refer to a structure that downloads data corresponding to the frame segment descriptor.

3Com objects to Realtek's narrow proposed construction because "sometimes the data download circuit downloads data that corresponds to descriptors that are not frame segment descriptors. Doc # 340 at 19. But claim 26 requires the data download circuit to download data corresponding to a descriptor signal. '446 patent at 14:13-22. If the data download circuit downloads other data, it would not be within the method described by claim 26. Accordingly, the court adopts Realtek's proposed construction "the circuitry that downloads data corresponding to the frame segment descriptor."

A. "Data Error Detection and Correction Circuitry"

1. Proposed Constructions

Plaintiffs argue that "data error detection and correction circuitry" should be construed to mean "any error detection and correction circuitry." Defendants, on the other hand, assert that the term should be construed as "circuitry that first performs Reed-Solomon error correction, followed by error detection with a cyclic redundancy checker." There are three fundamental construction disputes between the parties: (1) whether the term implies any temporal requirements, (2) whether the error correction must be done using only Reed-Solomon error correction codes, and (3) whether error detection must be done with a cyclic redundancy checker. Plaintiffs contend that there is no sequence implied by the claim term; defendants argue that the vagueness of the term mandates reference to the specification, which clearly sets forth the sequence of operations performed by the "error detection and correction circuitry" and further requires error correction to be done according to the Reed-Solomon error correction codes and error detection to be done by a cyclic redundancy checker.

2. Claim Language and Prior Construction of Similar Terms

The term "data error detection and correction circuitry" appears in claims 1 and 2 of the 527 patent. The Federal Circuit construed "data error detection and correction means" as claimed in the 715 patent to require both Reed-Solomon error correction codes and error detection using a cyclic redundancy checker. Plaintiffs contend that, contrary to defendants' assertions otherwise, this construction is not warranted with regard to the "data error detection and correction circuitry" in claims 1 and 2 of the 527 patent. Plaintiffs illustrate the limitations set forth in the 715 patent claim term that are inappropriate to the 527 by setting the claims side-by-side and underlining the limitations they contend that defendants seek to impermissibly import:

<table>
<thead>
<tr>
<th>'527 patent term</th>
<th>'715 patent term</th>
</tr>
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<tbody>
<tr>
<td>&quot;data error detection and correction means for correcting said assembled data, said detection and correction means including error correction for performing error correction on said assembled data, and a cyclic redundancy checker for detecting errors in said assembled&quot;</td>
<td>&quot;data error detection and correction circuitry, said detection and correction circuitry including: error correction on data received from said interface and detecting errors in data prior to&quot;</td>
</tr>
</tbody>
</table>
The court agrees that these limitations require different constructions. First, the Federal Circuit noted in affirming the ITC's construction requiring error correction before error detection, Reed-Solomon error correction codes, and the cyclic redundancy checker "that the plain language of the disputed limitation of claim 1 explicitly requires certain interactions between the error correction circuitry, the cyclic redundancy checker and said assembled data." Oak v. ITC, 248 F.3d 1316, 1325 (Fed. Cir. 2001). In limiting the claim to a particular sequence of error correction and detection, the Federal Circuit appropriately relied upon the language in the 715 claim providing for the use of a cyclic redundancy checker to detect errors in the assembled data after the correction circuitry had provided corrected data. However, the Federal Circuit also recognized that "[t]he sequential limitation is imposed by the claim language itself, and the written description simply confirms this understanding." Id. at 1328-29. By contrast, the language at issue in the 527 patent utilizes no language requiring interactions between the components indicating sequential operation of the error correction and detection circuitry, except that errors must be detected prior to transmission to host computer.

n6 Notably, the Federal Circuit did not construe the "data error detection and correction means" as a means-plus-function claim under 35 U.S.C. § 112 P 6. The parties stated at oral argument that Oak and UMC had stipulated that this claim limitation was not to be construed as means-plus-function.

Defendants rely upon the Federal Circuit's statement that the intrinsic record of embodiments in the shared specification provides no discussion of "error detection and correction means' which do not operate in a straightforward sequential manner" and that "if such a disclosure existed, these embodiments would not be covered by the language selected by the claim drafter." Id. at 1329. However, there is little question claim drafter for the 527 patent chose different language. It is that language, not the claim language of the 715 patent, that this court must construe.

3. Specification

The specification discusses the "error detection and correction circuitry" in several places. The abstract of the 527 patent states that "an error correction code (ECC) data corrector, an error detection and correction (EDC) device employing cyclical redundancy checking techniques (EDC/CRC) . . . are described." 527 patent, Abstract. The Summary of the Invention of the 527 patent specification discloses that

'[t]he digital signal processor interface of the CDDC [compact disk drive controller] further comprises an error correction circuit to perform error correction on said digital information. That error correction circuit could employ Reed-Solomon codes. The digital signal processor interface of the CDDC further comprises a cyclic redundancy checker for detecting errors in the digital information after correction of the digital information by the error code correction circuit. 527 patent 3:20-28. The patent specification describes the error correction and detection circuitry referring to Fig. 2:

The error correction circuitry would first perform Reed-Solomon error correction on each block of data. Reed-Solomon codes are random single-or multiple-symbol error correcting codes operation on symbols which are elements of a finite field. All encoding, decoding, and correction computations are performed in the field. Then, a cyclic redundancy check of the corrected data would be performed. Since each codeword contains two parity bytes the drive controller of this invention can correct one error in each codeword. These ECC and EDC/CRC circuits are commonly available as hardware used in many other applications. The host control allows the corrected data to be transferred from the RAM to the host.

Id. at 6:26-41. The parties do not dispute that the specification only expressly discloses one method of error correction and detection in the preferred embodiment. In this method, the error correction is implemented using the Reed-Solomon error codes and is performed prior to error detection (which is implemented by way of a cyclic redundancy checker). The court agrees with the Federal Circuit that there is no specific discussion of error code detection and correction that operates in a
different sequence than that suggested by the defendants. However, "although the specification often describes very specific embodiments of the invention, [the Federal Circuit has] repeatedly warned against confining the claims to those embodiments." Phillips, 415 F.3d at 1323 (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906-08 (Fed. Cir. 2004); also citing Nazomi Communications, Inc. v. ARM Holdings, PLC, 403 F.3d 1364, 1369 (Fed. Cir. 2005) for the proposition that claims may embrace "different subject matter than is illustrated in the specific embodiments in the specification").

In addition, the specification, by stating that "error correction circuit could employ Reed-Solomon codes," id. at 3:22-23 (emphasis added), makes it reasonably clear that the Reed-Solomon is one option for error correction, but not the only one. Furthermore, as pointed out by plaintiffs at the claim construction hearing and in their response to defendants' sur-reply, the specification cites a text, Practical Error Correction Design for Engineers, which describes various error correction codes and techniques. Plaintiffs attach excerpts of this text, published in 1991, to their declaration in support of their response to defendants' sur-reply. Reed-Solomon is one of the techniques, indeed, the preferred technique, disclosed for error correction and detection for optical drives but there are others. See Neil Glover & Trent Dudley, Practical Error Correction Design for Engineers (2d ed. Cirrus Logic 1991), Decl. of William Goldman Supp. Resp. Sur-reply, Ex. A. at pp. 158, 272, 276-77.

Similarly, the discussion of a "cyclic redundancy checker" in the patent specification indicates that a cyclic redundancy checker may not always be required in an error code detection and correction system. As with Reed-Solomon codes, the specification indicates that a cyclic redundancy checker in an alternate embodiment. The specification states that the "digital processor interface of the CDDC further comprises a cyclic redundancy checker for checking errors in the digital information after correction of the digital information by the error correction code circuit." 527 patent at 3:23. This indicates that the cyclic redundancy checker need not necessarily be present nor need error detection be performed in a particular sequence with respect to error correction. The "further comprises" language also demonstrates that the specification is disclosing an embodiment rather than establishing the outer boundary of claim scope.

4. Prosecution History

The prosecution history of the 527 patent includes exchanges regarding the "error detection and correction circuitry." Applicants filed original claim 25, which issued as claim 1, as a preliminary amendment to a continuation application under 37 C.F.R. 1.62. The relevant portion of original claim 25 read:

    data error detection and correction circuitry, said detection and correction circuitry including error correction circuitry for performing error correction on said data received from said interface and generating corrected data therefrom, and a cyclic redundancy checker for detecting errors in said data or in said corrected data

'527 Prosecution History ("'527 PH"), Schwartz Decl., Ex. C at ZC12000. The preliminary amendment also included claim 30, dependent upon original claim 25 which read, "[t]he drive controller of claim 25, wherein said error correction circuitry performs Reed-Solomon error correction on said data received from said interface." Id. at ZC001201.

On June 13, 2000, the applicants amended claim 25 in response to a January 13, 2000 office action. n7 The amendment to claim 25 removed the cyclic redundancy checker limitation, replacing the words "a cyclic redundancy checker" with "error detection circuitry." The amendment also removed "or in said corrected data", replacing it with "prior to transmission to said computer." Id. at ZC001502. n8 The accompanying comments read

    Applicant has also amended claim 25 to further clarify that with regard to the timing of error detection operations, it is only required that data errors be detected before the data is transferred to the host computer. Moreover, any kind of error detection circuitry may be employed, regardless of whether or not it uses a cyclical redundancy code or error detection codes other than a cyclical redundancy check code.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

n7 The January 13, 2000 office action is found at ZC001229.

n8 These amendments to original claim 25 modified the language to that with which it ultimately issued as claim 1 to the 527 patent:
data error detection and correction circuitry, said detection and correction circuitry including: error correction circuitry for performing error correction on said data received from said interface and generating corrected data, and error detection circuitry for detecting errors in data prior to transmission to said host computer.

--- End Footnotes ---

A notice of allowability was issued on the 327 application on December 4, 2000. Id. at ZC001510. In the reasons for allowance issued with that notice, the examiner took official notice that

the claimed invention requires that the data errors must be detected and corrected before the data is transferred to the host computer and the error correction must occur before the data error detection. The Official position is that the scope of all the independent claims . . . are interpreted in view of the embodiment disclosed in the specification. In particular, see Specification, page 8, lines 3-9 . . . and page 9 after line 8 . . .

Id. at ZC001511. He also noted with regard to error detection circuitry that

Applicant stated in the Remarks that "any kind of error detection circuitry may be employed, regardless of whether or not it uses a cyclical redundancy code or error detection codes other than a cyclical redundancy check code." Official notice is taken that the only kind of error detection circuitry disclosed in the Specification is a cyclical redundancy check (CRC) circuitry. . . Official notice is taken that, at the time of the invention, the only one specific type of EDC-CRC commonly available as hardware used in many other applications was a linear feedback shift register.

Id. at ZC001512. Thereafter, applicants filed a continued prosecution application that included "comments on statements of reasons for allowance." In those comments, the applicants disagreed with the examiner's December 2000 statement for reasons of allowance, stating

The "Statement of Reasons for Allowance" relies upon a decision of the ITC . . . that Applicant is currently appealing . . . . For the same reasons asserted by the Applicant in this appeal, the Applicant respectfully disagrees with the "Statement of Reasons for Allowance."

Id. at ZC001621. On August 7, 2001, the applicants filed original claim 35, which issued as claim 2 to the 527 patent. Along with that claim the applicants again addressed the December 4, 2000 notice of allowability, referring to the Federal Circuit's opinion in ITC II:

The claim language relied upon by the Federal Circuit is not present in the now pending claims and there is no basis for restricting these claims in this manner. . . . Applicant traverses paragraph 3 of the "Statement of Reasons for Allowance" because it inappropriately takes Official notice that "the claimed invention requires that the data errors must be detected and corrected before the data is transferred to the host computer and that the error correction must occur before the data error detection." . . . Similarly, Applicant traverses paragraph 4 of the "Statement of Reasons for Allowance" because it also reads limitations of the specification into claim 25. In this regard, the Federal Circuit decision clearly based its decision on the language in the claims of U.S. Patent 5,581,715, which language clearly is not present in the now pending claims of this application. As such, Applicant respectfully requests withdrawal of the "Statement of Reasons for Allowance" and reconsideration of the new pending claims.

Id. at ZC001741-43.

The examiner rejected claims 25 and 35 in an office action dated July 8, 2002. He based the rejection in part on obviousness under 35 U.S.C. § 103(a) in light of the Yellow Book specification, stating "Based on Yellow Book' specification, one of ordinary skill in the art would recognize that the error correction process is performed before the error detection process." Id. at ZC001827. Applicants responded by stating, "With regard to claims 25 and 35, there is no limitation that the error correction process is performed before the error detection process' . . ." Id. at ZC001938. Plaintiffs argue that these broadening statements clarify the knowledge of one of skill in the art and demonstrate that they did not acquiesce to the examiner's statement regarding Reed-Solomon and cyclic redundancy checker being the only techniques known to one of skill in the art. Plaintiffs' 527 Reply Br. at 5. They argue that the inventors' traverse prevented any disavowal of claim scope.
Cf. Salazar, 414 F.3d at 1347.

a. "Cyclic Redundancy Checker" Removed During Prosecution

When construing claims, courts may rely on unissued claims to determine the scope of a claim term. Cf. Lemelson v. TRW, Inc., 760 F.2d 1254, 1262 (Fed. Cir. 1985). As evidence that defendants' attempt to require the "error detection and correction circuitry" use a cyclic redundancy checker is improper, plaintiffs point out that the limitation "cyclic redundancy checker" was removed during prosecution and replaced with "error detection circuitry." Hence, they contend that defendants' attempt to narrow their claim by substituting "cyclic redundancy checker" back into the claim for "error detection circuitry" impermissibly narrows a claim broadened during prosecution. U.S. v. Telectronics, Inc., 857 F.2d 778, 783 (Fed. Cir. 1988) ("courts are not permitted to read back into the claims limitations which were originally there and were removed during prosecution of the application through the Patent Office.").

b. Claim Differentiation

Plaintiffs also argue that the claim cannot be construed to require Reed-Solomon error correction because the prosecution history demonstrates that pending claim 25 (now claim 1) was accompanied by pending dependent claim 30, which provided that error correction would be done via Reed-Solomon codes. According to plaintiffs, this indicates that claim 25 did not require Reed-Solomon correction, and likewise did not include a requirement that error correction precede error detection before the corrected data was transferred to the MPEG decoder. Long-established principles of claim differentiation support plaintiffs' contention. Cf. Wright Medical Technology, Inc. v. Osteonics Corp., 122 F.3d 1440, 1445 (Fed. Cir. 1997) ("we must not interpret an independent claim in a way that is inconsistent with a claim which depends from it.").

c. Understanding of One of Skill in the Art

Defendants contend that the only method of error correction known to one of skill in the art as of the effective filing date of the patent application was Reed-Solomon correction. See Phillips, 415 F.3d at 1313 ("We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application."). They contend that this level of understanding at the time of filing was confirmed by the Federal Circuit in Oak v. ITC, and again by the examiner when he took official notice that Reed-Solomon and the cyclic redundancy checker were the only methods at the time of filing that were known to one of skill in the art for error correction and detection respectively. Thus, according to defendants, the only possible way to construe "error detection and correction circuitry" would require error correction by Reed-Solomon error code prior to error detection using a cyclic redundancy checker.

5. Jepson Claim Format

Their sur-reply, defendants contend, based loosely on Phillips, that the Jepson form of claim 3 of the 527 patent demonstrates that the error detection and correction circuitry requires the Reed-Solomon, cyclic redundancy checker, and temporal limitations. Notably, the "error detection and correction circuitry" limitation appears nowhere in claim 3. Instead, defendants contend that the term "optical drive controller," which appears in the preamble, requires error detection and correction circuitry according to the specification. Because the preamble of a Jepson claim defines structural limitations that are conventional or known, Rowe v. Dror, 112 F.3d 473, 479 (Fed. Cir. 1997), defendants contend that the optical drive controller includes error detection and correction circuitry as would have been known in the art at the time the parent application was filed. Because they contend that the only such circuitry known in the art would have used Reed-Solomon and a cyclic redundancy checker, they assert that the form of claim 3 supports their construction of the "error detection and correction circuitry" limitation.

The court finds defendants' argument to be without merit. First, nothing in Phillips justifies the late assertion of defendants' Jepson argument. The argument is a relatively transparent attempt to advance a new claim construction theory on the eve of the claim construction hearing. Second, defendants' attempt to fix the knowledge of one of skill in the art with respect to a term that does not appear in the claim (error detection and correction circuitry) though a prior art term (optical drive controller) by asserting that the structure of the optical drive controller requires error detection and correction circuitry is an unwarranted stretch. Construing "error detection and correction circuitry" through the "optical drive controller" cited in the
preamble of a Jepson claim by reference to the required element of a prior art optical drive controller is attenuated at best, particularly given that the term explicitly appears in claims 1 and 2 of the 527 patent. Third, as set forth above, plaintiffs have presented evidence that techniques other that Reed-Solomon where known by one of skill in the art at least as of 1991 when the second edition of Practical Error Correction Design for Engineers was published.

6. Conclusion

The court declines to narrowly construe the term based on the understanding of one of skill in the art as set forth by the Federal Circuit in Oak v. ITC and by the examiner of the 527 patent in the examiner's notice. As set forth above, the claim language does not limit error detection and correction circuitry to using Reed-Solomon or a cyclic redundancy checker. The specification leaves open the possibility that Reed-Solomon is but one possible error correction method and that cyclic redundancy checker is one error detection method. Likewise, the indication in the specification that the error correction circuitry "further comprises" a cyclic redundancy checker indicates that error detection need be accomplished by a cyclic redundancy checker nor need it occur in any particular sequence in the error detection and correction subsystem. Further, during prosecution, the applicants clearly asserted that error correction and detection could be done either in the sequence disclosed or another sequence. The applicants stated that error detection and correction could be accomplished by any means, specifically challenging the PTO's "Statement for Reasons of Allowance" on the grounds that neither a cyclic redundancy checker nor error detection after correction were required. None of these assertions is at all ambiguous. Finally, plaintiffs have presented extrinsic evidence cited in the specification itself that corroborates that techniques for performing error correction with techniques other than Reed-Solomon may have been known (although potentially not employed) at the time the parent application was filed. Thus, the court finds "data error detection and correction circuitry" means, as plaintiffs contend, "any error detection and correction circuitry."

n9 The court's decision on this matter does not necessarily mean the claim is valid. For example, claims having this limitation may suffer from enablement problems, but that is a separate inquiry. See Phillips, 415 F.3d at 1335 ("While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction.") (citing Nazomi, 403 F.3d at 1368-69); see also, Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1196 (Fed. Cir. 1999) (separating the claim construction and enablement inquiry).

A. Data Flow Diagram.

The parties' single biggest dispute is over the meaning of the term "data flow diagram." The parties now agree that the term "data flow diagram" means more than simply a graphical construct that displays a procedure. The parties also agree that the term "data flow diagram" incorporates certain semantic principles. The claim language does not specifically contain the semantic principles but the specifications are replete with references to these concepts.

4 The parties agree that "data flow diagram" is used interchangeably throughout the four patents-in-suit with "block diagram," "diagram," "diagram display . . . graphically displays data flow," "user defined data flow diagram," and "diagram display which displays . . . graphical representation and . . . data flow structure representation." Although National initially asserted that "data flow diagram" meant "a block diagram that displays lines that connect function blocks and indicates that data produced by one block is used by another block," in its reply brief and at the claim construction hearing, National abandoned that construction in favor of one that contained certain semantic limitations. Mathworks, as the briefing evolved, settled on a definition similar to the one National proposed in its reply brief. There are two aspects to any computer programming language: syntax and semantics. The syntax defines how the program is expressed and the semantics define what those expressions mean.
The parties' proposed definitions vary slightly. National proposes that the court's construction of data flow diagram should incorporate four semantic principles:

1. Nodes are connected by lines indicating data dependency;
2. Nodes execute after data is available; and
3. The complete order of execution is not necessarily specified by the user; and
4. Nodes which do not depend on each other for data could be executed in any order, or in parallel on parallel-processing hardware.

Mathworks urges the court to construe data flow diagram as incorporating the following four semantic principles:

1. The order of operations is not specifically specified by the user;
2. The order of operations is implied by data interdependencies;
3. A node may only execute once it has received all necessary inputs; and
4. All outputs are generated after a node executes.

The question is how one skilled in the art would construe "data flow diagram" in the context of these patents in light of the intrinsic evidence. In this case, the inventors used the terms "data flow" and "data flow diagram," throughout the specifications, the claims, and in the descriptions of the inventions in a manner that incorporates very specific characteristics. The court adopts these characteristics and concludes that "data flow diagram" as used in the patents in suit, incorporates the following four semantic limitations:

1. the order of operations is not completely specified by the user;
2. the order of operations is implied by data interdependencies;
3. a node may only execute after all necessary inputs have become available; and
4. outputs are generated after a node completes execution.

The intrinsic record supports this approach. First, the court is mindful that it is not addressing data flow diagramming in the abstract. The inventors made it plain that their inventions sought to make data flow programming friendlier while recognizing that conventional data flow diagramming had certain shortcomings. Meanwhile, these inventors sought to preserve certain advantages -- namely speed -- that resulted from data flow programming's parallel data processing method. In the Background of the Invention portion of the patents, the inventors state that "[a] general type of program design technique involves data flow diagramming." (221 Patent, Col. 3, 11. 18-19)(emphasis added). The inventors noted advantages of data flow programming -- namely speed -- but recognized that data flow diagramming had difficulty representing certain functions and was difficult to implement. Id. at Col. 3, 11. 22-37. The inventors recognized a need for a system which employed data flow techniques and overcame the difficulties in representing conditional and iterative functions. They urged that "the present invention meets these needs." Id. at Col. 3, 11. 41-47 (emphasis added). In these passages, the inventors are not referring to the preferred or sole embodiment of the invention but to the invention itself.

The written description of the invention sets forth the appropriate semantic principles. To be sure, the written description provides no explicit definition of the terms "data flow" and "data flow diagram;" however, these terms are used throughout the description in a consistent way and they have but one meaning in the context of these patents. The inventors taught that "data flow programming typically involves an ordering of operations which is not specifically specified by a user but which
is implied by data interdependencies." Id. at Col. 3, 11. 19-22. Moreover, the inventors made repeated statements to the effect that the concept of "data flow" means that a node may only execute after all necessary inputs have become available and outputs are generated after a node completes execution. See, e.g., 221 Patent, Col. 10, 11. 13-18 ("in accordance with data-flow principles, used in the preferred embodiments of the present invention, the sequence structure does not begin execution until all incoming signal paths have data available, and none of the outgoing signal paths produce data until all diagrams have completed execution.")(emphasis added). The description goes on to illustrate that "in accordance with data flow principles, all inputs must be available to start execution of an iteration loop. Furthermore, all outputs are generated after execution completes." 221 Patent, Col. 11, 11. 15-18 (emphasis added). At least three other portions of the specifications provide like limitations. E.g., 221 Patent, Col. 11, 11. 43-46; Col. 12, 11. 18-22; Col. 13, 11. 17-30. The specifications demonstrate that the inventors used the term data flow diagram to include the various semantic principles included in the court's construction. A review of the claim language together with the intrinsic evidence discloses no ambiguity; accordingly, the court need not consult any extrinsic definitions.

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The technology of the patents in suit concerns the creation of model systems (generally known as "data flow diagrams") through building diagrams on a computer screen by pointing and clicking with a mouse, rather than writing traditional lines of code. Relying upon the intrinsic evidence of record, the trial court interpreted the disputed claim term "data flow diagrams" as a graphical computer program whose execution follows a set of semantic or operational rules as follows:

1. the order of operations is not completely specified by the user;

2. the order of operations is implied by data interdependencies;

3. a node may only execute after all necessary inputs have become available, and;

4. outputs are generated after a node completes execution.

Nat'l Instruments Corp. v. Mathworks, Inc., 2002 U.S. Dist. LEXIS 27577, No. 2:01-CV-11 (E.D. Tex. May 24, 2002) ("Claim Construction Opinion and Order") (emphasis added). The trial court determined that the written description did not provide an explicit definition of the terms "data flow" and "data flow diagram," but the disclosure did use the terms according to the semantic principles in a consistent way. MathWorks contends only that the word "necessary" was erroneously added to the court's interpretation and that the proper construction should require "all inputs" to be available before a given block may start and complete execution.

The trial court did not adopt the proposed definition offered by either party but instead drafted its own based upon the intrinsic evidence. We agree with the court's interpretation. MathWorks proffered the word "necessary" as a qualifier for "inputs" throughout its claim construction briefing. MathWorks proposed that "a node may only execute once it has received all necessary inputs," and "an operation may only execute once it has all necessary inputs available." As to part three of the semantic principles, the trial court essentially adopted MathWorks' proposed definition, which MathWorks now attempts to disavow or modify. See Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1364 (Fed. Cir. 2004) (a party will be judicially estopped from asserting a claim construction inconsistent with a position it advocated at trial and persuaded the trial court to adopt). We agree with the trial court that the inclusion of "necessary" was proper given that the ordinary meaning of "data flow" and "data flow diagram" does not limit the scope of the terms to await inputs that may be unnecessary for execution, and, likewise, the specification does not limit semantic limitation three to require "all inputs" to be available before execution.

The portions of the specification relied upon by MathWorks concerned embodiments that describe the operation of certain nodes as "in accordance with data flow principles." See, e.g., 221 patent, col. 11, ll. 43-44. This language, directed to certain embodiments, is insufficient to limit "data flow" or "data flow diagrams" because the patents do not manifest an intent to impart a special meaning to the terms and the broader language of the claims only require that nodes wait for inputs that are then needed, not "all inputs." See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("unless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning as understood by an artisan of ordinary skill").
d. “data for servicing and/or programming”

Plaintiffs contend that the term “data for servicing and/or programming of said at least one multimedia box” should be given its plain and ordinary meaning: “data used to service and/or program one or more multimedia boxes.” Opening Brief at 28. Defendants' proposed construction is “data exclusively transferred over the third data link to service and program the multimedia box.” Resp. Brief at 29.

Defendants base their proposed construction on the same arguments used to support their proposed construction of the phrase “third data link.” As described above, see Section 7(c) supra, the Court has rejected defendants' proposed construction of that term. The claim cannot be limited to allowing servicing and programming data to travel only over the third communication link when a preferred embodiment of the third link is composed of the first and second link in series.

In addition, defendants' proposed construction would unnecessarily import limitations that do not appear in the claim. The claim says that the third data link “can” carry data for servicing and programming. Opening Brief, Ex. 7 at 6:65. It does not define the data as being carried only over the third link. Finally, as described above, plaintiffs did not adopt this limitation during prosecution. See Section 7(c) supra. The Court construes the term as meaning “data used to service and/or program one or more multimedia boxes.”

H. "Data Gathering System" ('042 Patent)

The '042 patent discloses a system and method for generating reports based on data gathered from multiple Internet sites. "Data gathering system" appears in both independent claims (claims 1 and 8) of the '042 patent. CashEdge asserts in the joint claim construction statement that "data gathering system operating on the portal system, gathering data from multiple Internet sites specifically associated to, and storing secured information person to the requesting user" should be construed as being written in means-plus-function format, although its brief contains no argument on this. Yodlee asserts that it is not written in means-plus-function form, and proposes that "data gathering system" be construed to mean "a gatherer or software gathering agents, which is a software component and/or related data that once processed can be employed to locate and retrieve information from Internet destinations based on user or enterprise request." The presumption against means-plus-function analysis applies given that the language above is not written in means-plus-function language. In light of this presumption, the Court believes that there is sufficient structure in claim 1 of the '010 patent to establish that the "data gathering system" is software. Accordingly, the Court does not construe this claim in means-plus-function terms.

Yodlee's construction is similar to its construction for "gatherer" from the '077 patent. The Court agrees that the term "data
E) "data communication facility"

Citrix asserts that this is a mean-plus-function pursuant to 35 U.S.C. Section 112, paragraph 6.

Use of the term "means" creates a presumption that the element is to be construed in accordance with Section 112, paragraph 6. This presumption may be rebutted, however, when claim element recites sufficiently definite structure or material to perform the claimed function. Absence of the term 'means' creates a presumption that the element is not to be construed in accordance with Section 112, paragraph 6. However, this presumption may be rebutted when the claim element does not recite sufficiently definite structure or material to perform the claimed function. In determining whether these presumptions have been rebutted by a preponderance of the evidence, the court may examine the intrinsic evidence and any relevant extrinsic evidence.

Schwartz, supra, § 5.III.C.

There are four permutations of "communication facility" at issue here, and Citrix asserts that all of them are subject to Section 112, paragraph 6. The court disagrees. The four permutations are as follows: 1) "Data Communication Facility"; 2) "Location Facility"; 3) Communication Facility"; 4) "Data Generating Facilities."

None of these four permutations use the word "means" and Citrix fails to rebut the presumption that this is not a means-plus function by a preponderance of the evidence. The court agrees that the specification provides a clear description of the "facilities" and particularly the "data communication facility" as a computer software product. Indeed, the specification provides that "a number of computer program facilities are described in this invention as separate facilities for the sake of describing the invention." '479 Patent, col. 10, lines 11-13. Therefore, the court concludes that 01 Communique's proposed construction is correct, which is "Computer software associated with the personal computer."

T) "data generating facilities"

As detailed in section E), the court agrees with 01 Communique that the appropriate proposed construction is "Computer software that generates data, such as voice message reception, fax reception, e-mail retrieval, alarm monitoring facilities, child monitoring facilities and the like."

The defendants support a narrow definition of "data in digital form," limiting it according to the specification to "measurement data," or numbers taken from measurements of the lip positions of the foreign face and the actor/translator's face. 4 This argument encompasses two purported limitations: first, that the data is derived from manual measurements, and second, that the "control points" which define the standard curves are not included in the definition. Bloomstein argues that limitations of the preferred embodiment should not be imported into the claims so the data need not have been developed from manual measurements, and that data in digital form includes control points.

--- Footnotes ---

4 The defendants rely on the following language from the specification:

The actor with the new language records the new language on a recording medium 4 . . . and at the same time the lip movements and configurations of that actor are video-taped, displayed and measured. This information is converted into
digital form. Similarly, the head and lip movements of the actor in the film are measured together with head movements. This information is converted into digital form. The two groups of data are compared in a programmed computer to provide a measure of the amount of correction that must be made to the lip movements of the foreign film actor to bring those lip movements, along with facial movements, into positions which correspond to the new language sound to the new actor.

Joint Memorandum, Ex. A at column 4:24-37. Bloomstein's identification of the lip movement measurements as "data" after conversion to "digital form" does not compel the conclusion that data in digital form can be comprised only of the measurement data. This excerpt is equally consistent with measurement data being merely a type of data in digital form.

The Federal Circuit has held that "particular embodiments in a specification will not be read into the claims when the language is broader than such embodiments." Electro Medical Sys. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994). Absent ambiguous language in the claims that lends itself to the defendants' narrow construction, the court declines to limit "data in digital form" to data developed from manual measurements (or automated measurements, for that matter). The defendants argue, and Bloomstein does not dispute, that the only preferred embodiment disclosed uses manual measurements to record the lip movements of both the face in the unaltered cinematic work and the face of the translator/actor. However, the claim language is unambiguously broader than the embodiment described in the specification, so the court declines to read the limitations of the specification into the claim. "Data in digital form" should not be limited to data derived from measurements of the foreign face or the actor/translator's face. The question remains, however, whether "control points" are included in the definition of data in digital form.

The language of the claim itself is ambiguous as to whether control point data is included in the definition. Claim 1 begins by describing a method for altering a motion picture to conform to a new facial display with "lip movements" significantly different from the original. The specification consistently uses the term "lip movements" to refer to the lip positions, not the control points of the standard or working curves. However, the subsequent language refers more broadly to the "configuration" of the facial displays. The ordinary meaning of "configuration" is "a relative arrangement of parts." Webster's New Collegiate Dictionary 237. This definition could easily include both the lip movements and the standard curves of the foreign face's lips, which are represented by control points.

The defendant's primary contextual argument is that "data in digital form" must mean the same thing when it modifies the "second facial display" as it does when it modifies the "first facial display." In other words, they argue that because "data in digital form representing the configuration of the second facial display" refers only to the measurements of the actor/translator's lip positions, "data in digital form representing the configuration of the first facial display" must be similarly limited to measurements of the foreign face's lip positions and cannot possibly include control point data. Defendant reaches this result only by conveniently truncating the phrases before they diverge and refer to the different facial displays. By identifying the different uses of the two facial displays, the specification contradicts defendant's construction. While the second facial display is used only to calculate the lip position data corresponding to the new language, the first facial display is used to develop both lip position data and control point data for the standard curves. 5 The court construes "data in digital form representing the configuration of the first display" to include both lip position data and control point data. "Data in digital form representing the configuration of the second display" is construed to include only lip position data.

5 It has been found that only a limited number of measurements need be taken on the new language lip movements, as shown in FIG. 3. Generally speaking the measurements taken are upper height 26, lower height 28, inner width 30 and outer width 32.

The existing or "foreign" head and lip movements on the film are measured by the operator viewing the frames from the film or from the screen projection of a video tape. . . . Like the lip movements of the new language referred to previously, the existing lip movements are measured to include the same measurements as in FIG. 3.
Before introducing the data relative to the lip movement measurements shown in FIGS. 3 and 4, the operator identifies and defines control points for standard curves to characterize the actor in the section of the film being processed. While the new and original lip movement measurements will be used to control the amount of alteration of each frame the standard facial curves will control the location of the alterations. Only a small number of control points need be defined to characterize the actors [sic] face in the film for resynchronization to the new sound.

The standard curves are defined by measuring and transcribing the X, Y coordinates of operator-selected control points shown for example in FIG. 8 with respect to the open upper lip curve 94. The same procedure is followed with respect to the other [standard] curves. Normally, control points for the lip curves include a blend point at the cheeks 1a, 7a, the corners 2a, 6a, the center 4a and one or two points on either side of the center end corner 3a, 5a.

The operator can measure the X, Y coordinates of the standard curve control points in a manner similar to measuring the head and lip movements earlier described.


6 Contrary to defendants' argument, the court's construction does not attribute two different meanings to the same language. "Data in digital form" is given the same, ordinary meaning in each clause. In other words, that phrase alone could include both control point data and lip position data for both facial displays. However, the specification clarifies that only the first facial display need be characterized by control point data to define its standard curves. No standard curves are required for the second facial display. The claim clearly allows such a divergence in construction by providing separate "generating" steps for the first and second facial displays.

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e. data in packetized format from any of said sources is written into any available empty payload field of any of said frames

In disputing the meaning of this phrase, Bellcore contends that this phrase means that packetized data can be placed into the payload field of any frame interval whenever a complete data packet becomes available. To this effect, Bellcore contends that the circuit does not wait for a particular frame or predetermined time to output the packet. Bellcore relies on Figures 4 and 12 of the '306 Patent in support of its argument. (D.I. 142 at 29).

In response to Bellcore's interpretation, FORE contends that this language means that packets are only put in frames that have zero data in their payload. FORE directs the Court to the "Summary of the Invention" section of the specification, which provides:

Illustratively, a DTDM multiplexer may be used to merge traffic from three different communications sources or tributaries into a single DTDM bit stream. The available frames are shared by the three tributaries by giving higher priority to the circuit tributary, and allowing the voice and graphics tributaries to contend on a first-come, first-served basis. The circuit tributary seizes one out of every three empty frames passing by... In this case the voice tributary will on average seize one out of every 2,160 frames. Similarly, at a rate of 1 Megabit per second, the graphics tributary will fill one frame out of 150. In this way, three diverse data streams are multiplexed into a single bit stream.

( '306 Patent, col. 5, lines 13-38 (emphasis added)). According to FORE, this description of the invention makes it clear that each source detects and then "seizes" empty frames. FORE contends that once a packet is inserted into a frame, it is no longer empty so other sources will not seize the filled frame. Rather, if another source has a packet to send, it will insert its packet into the next "available empty frame."

The Court agrees with FORE's proposed construction. Indeed, this construction is consistent with the Court's conclusion that an empty payload field has zero data in it. In addition, the Court believes this interpretation is consistent with the description of the invention contained in the "Summary of the Invention" section of the specification of the '306 Patent. In the Court's
view accepting Bellcore's proposed construction of this phrase would read the word "empty" out of the claim language. In Bellcore's own words its construction would allow "any packet to be written into any frame." (D.I. 142 at 29). This construction is at odds with the claim's express language which requires the data to be written into "any available empty payload field of any of said frames." Accordingly, the Court concludes that the phrase "data in packetized format from any of said sources is written into any available empty payload field of any of said frames" means that packets are only put in frames which are empty, i.e. which have zero data in their payloads.

I. "said advertisement data includes at least one time for said at least one advertisement to be run"

The dispute regarding this term centers on the definition of the words "at least one time." Touchtunes proposes that term be construed as "at least one predetermined time," whereas Arachnid proposes that it be construed as "data which permits a determination of a time within which, or event in relation to which, said advertisement will be run." Touchtunes notes that the patents describe the object of "the present invention" as having the jukebox run downloaded advertisements "at specified times." '398 Patent 2:43-48; '834 Patent 2:52-57. In discussing the only embodiment relating to the "at least one time" (or "when") the advertisement is to be run, the patents teach that the management system tells the jukebox "at what times" the advertisement should be run and that "[t]he advertisements can then be displayed at the predetermined times on the visual display 125." '398 Patent 9:4-8. While "at least one time" (or "when") could refer to a specific time of day, nothing in the language cited by Touchtunes requires such a limitation: it is clear that "at least one time" can refer to a time related to an event, not merely a time of day. The specification even contemplates the possibility that an advertisement may not be run at all. See '398 Patent 9:17-21. This suggests that "at least one time" must include an event in relation to which the advertisement should be run, such that if the event does not occur, the advertisement does not run.

Furthermore, it is improper to import the limitations from the preferred embodiment cited by Touchtunes into the claim term. See Phillips, 415 F.3d at 1320.

For these reasons, the Court agrees with Arachnid and construes the term as "data which permits a determination of a time within which, or event in relation to which, the advertisement will be run."

4. "Data loading mechanism for loading at least fact data from the relational data store"

For the same reasons as for the previous terms, the court concludes that the term "data loading mechanism" as used in claims 4, 5, 17 and 18 would connote sufficient structure to one skilled in the art to build that component. Accordingly, the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term.

6. "data mart"

The term "data mart" appears in several claims of the '374 patent (claims 1-5, 7-12). Informatica proposes the construction "Software that extracts, transforms and loads data into one or more databases, where the database(s) contain a subset of corporate data useful for decision support for an aspect of a business." BODI proposes the construction "An analytical database containing a subset of corporate information useful for decision support for an aspect of a business."

The crux of the parties' dispute is whether a data mart in the context of the '374 patent is limited to a passive database or incorporates both the end product target database and the associated metadata and applications used to build and maintain a
data mart database, i.e. a data mart environment. Informatica posits that the term data mart and the term data mart application should be construed similarly. The Court finds that there is no support in the patent for this proposition and declines to adopt Informatica's proposal. In addition, while the Court is mindful that the patent as a whole teaches a "method and system for accessing and sharing metadata amongst a number of data marts through the use of object referencing," neither the specification nor the claims describe data marts as having software functionality.

--- Footnotes ---

2 The parties previously reached an agreement regarding the construction of data mart application. They agree that a data mart application is software that extracts, transforms and loads data into one or more databases, where the database(s) contain a subset of corporate data useful for decision support of an aspect of a business.

--- End Footnotes ---

The specification states that a "data warehouse is comprised of an analytical database containing information useful for decision support." "Data marts are similar to data warehouses, except that data marts usually contain only a subset of corporate data which is directed towards a singles aspect of that business (e.g., a separate finance data mart, sales data mart, human resources data mart, etc.)." BODI's proposed construction combines these two concepts and moreover, comports with the ordinary meaning as understood by one skilled in the art.

The Court adopts BODI's construction and construes the phrase "data mart" to mean: An analytical database containing a subset of corporate information useful for decision support for an aspect of a business.

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TERM # 8: "data messages" - Again, this is not a complex technical term, and is assigned no special meaning by the intrinsic record. Defendants' citation to intrinsic evidence does not support their proposed construction to limit the content of the messages to the bid itself. In the context of the patent, this phrase means: "information associated with an electronic auction in a form suitable for processing by a computer."

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A. Data Objects (Claims 8, 10, 11)

HP contends that the term means "data records and their associated manipulative programs." Intergraph states that the term means "a data record containing at least one other data record and a link to the other data record's manipulative programs."

HP's proposed construction relies heavily on the definitions of "data objects" found in the '208 specification. The specification states that "[a] data-object is a data record that has a link to its manipulative programs." '208 Patent, col. 4:65-67. The specification also states that "each data record and its manipulative programs . . . still function as a data-object." '208 Patent, col. 5:11-12. HP contends that the '208 Patent inventors clearly intended to act as a lexicographer and give express definition to the term "data objects."

Intergraph's proposed construction relies heavily upon the language in Claim 8 of the '208 Patent. Claim 8 states that a computer graphics program for designing a system includes "a plurality of data objects, each having data records representing primitive elements in said system and a plurality of manipulative programs linked to each data record . . ." Based on this language, Intergraph concludes that a data object must contain multiple data records and that a "link" must exist between a data record and its corresponding manipulative program.

The Court disagrees with Intergraph's interpretation that a data object must contain more than one data record. Contrary to Intergraph's argument, this interpretation is not supported by the claim or specification language. The specification often refers to a data object as manipulative programs that are linked to a single, as opposed to multiple, data records. See '208
With regard to Claim 1 of the '002 Patent, the parties request that the court begin by construing the term "data packet," which appears throughout the text of the claim. 18 Papyrus contends that the term "data packet" means "a unit of data sent across or over a network," a definition consistent with the varied use of the term in the written description of the patent. Pl. PCCO 3; Pl. Br. 22, 24; Markman Hr'g Tr. vol. 2 at 23. According to Papyrus, because the written description employs the term "data packet" in various contexts, the term denotes different units of data at different points in the communication process. Pl. Br. 24. For example, Papyrus argues that "data packet" refers to (a) an execution report, '002 Patent col. 17 ll.47-51; (b) a unit of data containing a broker identification number, id. at Fig. 14 step 720; (c) a transmission packet, id. at Fig. 15 step 740; and (d) a network packet, id. at Fig. 16 step 782. In addition, Papyrus also argues that a data packet may not necessarily be ready for transmission. Markman Hr'g Tr. vol. 2 at 31. As Figure 14 shows, it is only when the data packet is ready for transmission that the device adds a broker identification number to the packet so that it can be addressed to the broker. See '002 Patent Fig. 14 step 720. That step 738 of Figure 15 also shows the addition of address information to an outbound packet also indicates that the packet does not necessarily contain address information at all times. See '002 Patent Fig. 15 step 738.

18 Although they propose different constructions, the parties agree that "data packet" and "packet" are synonymous. Pl. MHSP vol. 2 at 4.

NYSE proposes a definition in which "data packet" is construed as "a group of binary digits, including data and control elements." Def. PCCO 3. During oral argument, NYSE maintained that the minimum unit of data that can be transmitted necessarily includes address information. Def. MHSP 135. To illustrate this point, NYSE analogized data to the contents of a letter and "data packet" to the envelope and letter together, where the letter cannot be delivered if the envelope has no address. Id. at 136; Markman Hr'g Tr. vol. 2 at 39.

Because neither party cites a portion of the patent specification or the prosecution history to support its arguments, the court is left with the task of construing an ambiguous term. Where ambiguity surrounds a term in the patent, the court may employ extrinsic evidence, such as dictionary definitions to guide its analysis. See Vitronics Corp., 90 F.3d at 1583. In this case, Papyrus relies on several dictionary definitions of "packet" to support its position. See Comprehensive Dictionary of Electrical Engineering (1st ed. 1999) ("EE Dictionary"), Pl. App. Ex. 53 at 521 ("a unit of data which is sent over a network"); Free On-Line Dictionary of Computing (1993), Pl. App. Ex. 54 at 520 ("[t]he unit of data sent across a network"); Newton's Telecom Dictionary (8th ed. 1994), Pl. App. Ex. 52 at 516 ("[a] bundle of data, usually in binary form, organized in a specific way for transmission"); Internet User's Glossary 37 (1993), Pl. App. Ex. 55 at 522 ("a unit of data sent across a network"); Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1308 (Fed. Cir. 2003) (holding that "varied use of a disputed term in the written description attests to the breadth of a term rather than providing a limiting definition.").

NYSE, in contrast, cites only to The New IEEE Standard Dictionary of Electrical and Electronic Terms (5th ed. 1993) ("5th IEEE Dictionary"), which defines "packet" as "[a] group of binary digits including data and control elements which is switched and transmitted as a composite whole." 19 Pl. App. Ex. 56 at 530.
Papyrus challenges NYSE's choice of dictionaries, arguing that the court should instead consider The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1997) ("6th IEEE Dictionary"), which defines "packet" as "a group of binary digits including data and control elements which is switched and transmitted as a composite whole" where "[t]he data and control elements and possibly error control information are arranged in a specified format." Pl. App. Ex. 57 at 541. Papyrus claims that NYSE's definition from the fifth edition is "narrow" and "context-dependent" on the facsimile field, based on its reference to standard # 168-1956, which was limited to the facsimile field and later withdrawn. 20 Pl. Br. 23.


While the origins of the definition arguably do not apply to the field at hand, the court may still consider the IEEE definition during its claim construction. The court need only consider those dictionary definitions that were "publicly available at the time the patent is issued," as they will be "reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art." Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002). That the definition specifically includes the parenthetical "data communication," also suggests that the definition applies in all data communication contexts, not just those related to facsimiles. See Pl. App. Ex. 56 at 530.

Even if the IEEE definition did not apply in this context because of its origins, Papyrus's other dictionary sources also indicate that a data packet contains address and control elements. For example, in its entirety, Newton's Telecom Dictionary defines "packet" as

[a] bundle of data, usually in binary form, organized in a specific way for transmission. Three principal elements are included in the packet: 1. Control information -- destination, origin, length of packet, etc., 2. the data to be transmitted and 3. Error detection and correction bits.

Pl. App. Ex. 52 at 516 (emphasis added). Similarly, the complete definition in the EE Dictionary states that a "packet" is "a unit of data which is sent over a network. A packet comprises a payload containing some data, and either a header or a trailer containing control information." Pl. App. Ex. 53 at 521 (emphasis added).

"[B]ecause words often have multiple dictionary definitions . . . the intrinsic record must always be consulted to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." Texas Digital Sys., Inc., 308 F.3d at 1203. Should "more than one dictionary definition [be] consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings." Id. Taking into consideration the patent specification and the multiple definitions cited, the court construes the phrase as "data in binary form, including address and control elements."
The parties request construction of three different types of "paths," as well as resolution of a global issue pertaining to all "paths" in the asserted claims. The three disputed uses of the term "path" appear in Claim 1 of the '654 patent:

1. A teleconferencing system for conducting a teleconference among a plurality of participants, comprising:
   (a) a plurality of workstations, each workstation having first and second monitors and in communication with audio and video (AV) capture capabilities;
   (b) a data path in communication with the plurality of workstations, over which data can be shared among the plurality of participants; and
   (c) an AV path in communication with the plurality of workstations, along which AV signals, representing video images and spoken audio of the participants, can be carried;

   wherein, the system is configured to reproduce images, based on data signals shared along the data path, on at least two first monitors so as to permit participants associated with the workstations having the two first monitors to interactively share the reproduced images and reproduce participant video images, based on AV signals carried along the second path, on at least two second monitors.

'654 patent at 41:36-55.

A. "path"

Tandberg argues that each type of claimed path must be "defined" or specified before data or AV signals are transmitted. Tandberg argues that the claim language compels this finding. For example, claim 15 states that the data conferencing control establishes "communications with the central control manager to set up requested data paths along a second network over which the data conference can be conducted." '654 patent at 44:3-9. According to Tandberg, once the central control manager has "set up" the path (which occurs before transmission takes place), the path has been defined.

This argument depends on the meaning of "set up." For Tandberg's argument to be valid, "set up" must mean "define." The phrase "set up," however, encompasses other meanings, such as "establish" or "make ready." See, e.g., Webster's Third New International Dictionary of the English Language Unabridged 2079 (1993) ("to put (a machine) in readiness or adjustment"); Random House Unabridged Dictionary 1751 (2d ed. 1993) ("to be assembled or made ready for use") (emphasis added). Moreover, as discussed below, Tandberg's narrow construction would exclude all of the embodiments disclosed in the specification, which unquestionably make use of opportunistic routing and do not require predefined paths.

Tandberg next points to Figure 4 of the patent, which depicts different routes that an AV signal may take through the Wide Area Network ("WAN"). The portion of the Specification corresponding to Figure 4 states that "[t]he system also provides optimal routes for audio/video signals through the WAN. For example, in Figure 4, location A can take either a direct route to location D via path 47, or a two hop route through location C via paths 48 and 49." Spec. at 10:55-59. The fact that data can take one of two routes, however, says nothing about whether the choice of route is predetermined. Indeed, Tandberg observed at argument that in packet-switched networks such as those described in the Specification, the route through the WAN could change during the middle of a transmission, depending on network load and other factors. The routing of each packet through a packet-switched network is individually determined and can change to adapt to changing network conditions. See Spec. at 10:63-66 ("In a more complex network, several multi-hop routes are typically available, in which case the routing system handles the decision making, which for example can be based on network loading considerations.").

Tandberg's remaining arguments in support of its contention that all paths must be predefined relate to a different question—whether the AV and data paths must lie on physically separate wires. The court considers these arguments below. The fact that signals may travel on different wires, however, is not determinative of whether the path for each signal individually is pre-defined. The court will therefore not limit the claim terms as Tandberg requests, and construes "path" to mean "a route or course."

B. "AV path"
CPI argues that the "AV path" should be construed to mean "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery." Tandberg does not expressly offer a construction of "AV path," but suggests in its papers that the AV path must be physically separate from the data path.

In an earlier litigation involving the '654 and '547 patents, Judge Chesney of this district has already construed the terms "AV path" and "data path" and rejected the very argument which Tandberg advances in this case. Collaboration Props., Inc. v. Polycom, Inc., No. C 02-04591, slip op. at 27 (N.D. Cal. Mar. 23, 2004). The Polycom court reviewed the intrinsic record and concluded that the claimed inventions cover both the preferred embodiment, in which AV and data signals travel over two separate physical paths, and alternate embodiments in which the AV and data signals travel on the same wire through the use of multiplexing. Id. at 26. With respect to arguments already presented to the Polycom court, this court has not been given a compelling reason to revisit them. See, e.g., id. at 25 (noting that "claim 29 of the '547 patent requires the data path and AV path to be on a single set of wires."). This court further notes that the AV and data paths may pass through a common "switch"; a physically separate AV switch is not required. The Specification makes clear that in an all-digital implementation, "a common switching vehicle (e.g. ATM) could be used." Spec. at 7:16-18. The court therefore adopts the Polycom court's finding, as augmented above, that the AV and data signals may travel on logically separate "paths," via multiplexing, while traveling over the same physical wires and while being routed through the same switching mechanism.

Tandberg offers several additional arguments not discussed by the Polycom court. First, Tandberg argues that CPI conceded during prosecution that AV and data signals are transmitted along two different network paths. The examiner rejected certain claims for indefiniteness because "applicant should clarify the nature of the associations as claimed in respective claims where the word 'associated' is used This is especially true where there are two different network paths and two monitors in the system." Day Dec., Exh. F P 20. According to Tandberg, CPI did not dispute the examiner's characterization, and cannot now allege that AV and data signals may travel along the same path. This argument is unavailing because, among other reasons, the examiner's observation that there are two "paths" says nothing about whether the two paths must travel on two separate physical wires. As the Polycom court noted, claim 29 of the '547 patent expressly covers two logical "paths" on the same physical wire: "A method for conducting a teleconference . . . over at least one unshielded twisted pair of wires defining both a UTP data path and a UTP AV path." '547 patent at 45:1-4 (emphasis added).

Second, Tandberg argues that CPI conceded that physical separation is required in response to another rejection by the PTO, in which the examiner challenged claims in which data and video were displayed on two separate monitors. In response to the rejection, CPI identified Figure 18B of the patent, which shows separate physical connections from the AV and data networks. As CPI points out, however, the examiner was concerned with the narrow question of how the display could be split between two monitors, and not the broader question of whether AV and data signals could travel along the same physical wire at some point. See Supplemental Frahn Dec., Exh. 1(a) at 4-5.

Third, Tandberg argues that CPI limited the scope of the invention in the '654 patent in response to a restriction requirement which compelled CPI to choose between inventions with two physical paths and inventions with one physical path. The restriction which the examiner imposed divides the claims into two groups: a group "drawn to a teleconferencing system having two networks and two monitors" and a group "drawn to a teleconferencing apparatus having a unitary housing." Id. at 2. The '654 patent issued from the first group.

Tandberg's reliance on this portion of the prosecution history is misplaced. As an initial matter, it is not clear from this restriction what the salient difference between the two groups is. The description of the second group suggests that the important distinction is the number of monitors-requiring a "unitary housing" as opposed to "two monitors." The second group is not limited to a single network. Also, as CPI points out, the applicants submitted amended claims in response to the examiner's rejection in which they eliminated the requirement of a first and second network. Id., Exh. 1(b) at 2. The final claims on the '654 patent issued in substantially the same form. Finally, to the extent the restriction requires two separate "networks," it does not require that the networks make use of separate physical wires.

Fourth, Tandberg argues that the multiplexing embodiment, in which data and AV signals travel over the same wire, is not enabled, and therefore should not be included within the claims. As CPI points out, however, it is now clearly established law that claims should not be construed to preserve validity unless they are truly ambiguous in all other respects. See Phillips, 415 F.3d at 1327 ("we have limited the maxim [that claims should be construed to preserve their validity] to cases in which 'the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.'"). Here, in particular, claim 29 of the '547 clearly requires that both paths travel along the same physical wire.
LizardTech, Inc. v. Earth Resource Mapping, Inc., 424 F.3d 1336 (Fed. Cir. 2005), reh'g en banc denied, 433 F.3d 1373 (Fed. Cir. 2006), cited by Tandberg, is not to the contrary. The LizardTech court invalidated a patent for lack of enablement rather than revise the claim construction to exclude the non-enabled subject matter. Id. at 1346-47 ("Therefore, we affirm the district court's judgment that claims 21-25 and 27-28 are invalid for failure to satisfy the requirements of section 112."). Tandberg has the burden of proving lack of enablement at a later date, by clear and convincing evidence.

Finally, Tandberg argues that the Polycom claim construction is inconsistent in that it provides both for paths that are physically separate and paths that are not. The Polycom court only noted, however, that certain claims expressly require varying degrees of physical separation while others do not. Nothing about this holding is inconsistent.

The court therefore adopts the Polycom construction; "AV path" means "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery."

C. "data path"

Tandberg offers the same arguments with respect to "data path." Having rejected them, the court adopts the Polycom construction: "a route or course over which information represented in a form suitable for processing by computer can travel, but such information does not include AV signals."

28. Data path

The term "data path" is construed to mean "the buses and circuit elements that convey data."

5. Disputed term in AMD's '200 patent: Data pattern (claims 1-3, 5-8, 11-13, 15-17, 19)

1. A configuration register for controlling a logic testing circuit, said logic testing circuit being coupled to a logic module for testing the integrity of said logic module, said logic testing circuit having a normal state and a low power state, said configuration register comprising:

   a key input disposed to receive a key signal;

   a reset input disposed to receive a reset signal;

   an output coupled to said logic testing circuit;

   a key logic circuit coupled to said key input, said reset input, and said output, said key logic circuit generating to said logic testing circuit, through said output, a control signal responsive to said key signal and said reset signal;

   wherein said control signal drives said logic testing circuit to said low power state when said reset input is triggered by said reset signal; and

   wherein said control signal drives said logic testing circuit to said normal state when said key signal matches a predetermined data pattern.

2. The configuration register of claim 1 wherein said control signal is a clock signal when said key signal matches said predetermined pattern, and wherein said output is coupled to a clock port of said logic testing circuit.
3. The configuration register of claim 2 further comprising a clock input coupled to a clock signal source, said clock signal being generated responsive to a signal generated by said clock signal source.

5. The configuration register of claim 3 further comprising a NOR gate, wherein said key logic circuit and said clock input are coupled to said output through said NOR gate.

6. A circuit arrangement comprising:

a logic component having a logic module and a built-in logic testing circuit, said logic testing circuit being coupled to said logic module for testing the integrity of said logic module and having a normal state and a low power state, wherein said logic testing circuit may be disabled to save power when testing operations are not being performed;

a configuration register for controlling said logic testing circuit, said configuration register comprising

- a key input disposed to receive a key signal,
- a reset input disposed to receive a reset signal,
- an output coupled to said logic testing circuit, and
- a key logic circuit coupled to said key input, said reset input, and said output, said key logic circuit generating to said logic testing circuit, through said output, a control signal responsive to said key signal and said reset signal;

wherein said control signal drives said logic testing circuit to said low power state when said reset input is triggered by said reset signal; and

wherein said control signal drives said logic testing circuit to said normal state when said key signal matches a predetermined data pattern.

7. The arrangement of claim 6 wherein said control signal is a clock signal when said key signal matches said predetermined data pattern, and wherein said output is coupled to a clock port of said logic testing circuit.

8. The arrangement of claim 7 further comprising a clock signal source, wherein said configuration register further comprises a clock input disposed to receive said clock signal from said clock signal source.

11. The arrangement of claim 6 wherein said logic testing circuit has a clock port and wherein the state of said logic testing circuit is responsive to a signal at said clock port.

12. The arrangement of claim 11 wherein said output is coupled to said clock port, said logic testing circuit is driven to said low power state when a LOW is applied to a clock port, and wherein said control signal is LOW when said reset input is triggered by said reset signal.

13. The arrangement of claim 11 wherein said output is coupled to said clock port, said logic testing circuit is driven to said normal state when a clock signal is applied to a clock port, and wherein said control signal is a clock signal when said key signal matches said predetermined data pattern.

15. A circuit arrangement comprising:

a logic component having a logic module and a built-in logic testing circuit for testing the integrity of said logic module, said logic testing circuit being coupled to said logic module and having a normal state and a low power state, said logic testing circuit further having a clock port, wherein the state of said logic testing circuit is responsive to a control signal applied at said clock port, wherein said logic testing circuit may be disabled to save power when testing operations are not being performed;

a configuration register for controlling said logic testing circuit, said configuration register comprising
a key input disposed to receive a key signal,

a reset input disposed to receive a reset signal,

a clock input disposed to receive a clock signal,

a signal output coupled to the clock port of said logic testing circuit,

a key logic circuit coupled to said key input and said reset input, wherein said key logic circuit generates a mode signal responsive to said key signal and said reset signal,

wherein said mode signal is a disable signal when said reset input is triggered by said reset signal, and wherein said mode signal is an enable signal when said key signal matches a predetermined data pattern, and

a logic gate having inputs coupled to said clock input and said key logic circuit and an output coupled to said signal output, said logic gate generating at said signal output said control signal responsive to said clock signal and said mode signal; and

wherein said control signal drives said logic testing circuit to a low power state when said mode signal is said disable signal, and wherein said control signal drives said logic testing circuit to said normal state when said mode signal is said enable signal.

17. The arrangement of claim 15 further comprising a clock signal source coupled to said clock input, said clock signal source generating said clock signal.

19. The arrangement of claim 15 wherein said key input is a multi-bit digital input and wherein said predetermined data pattern is determined by the configuration of the components of said key logic circuit.

AMD's '200 patent is entitled "Power Saving Feature for Components Having Built-In Testing Logic." The '200 patent relates to the field of "built-in testing logic" on electronic devices. 1:6-8. Built-in self testing ("BIST") logic provides a way to test whether the components of computer systems are working properly. 1:13-20. A problem with the prior art was that BIST consumed power whether or not it was being used to run a test. 1:37:45. As a result, BIST-equipped components were less efficient. Id.

The claimed invention of the '200 patent is a "configuration register" that controls a component's BIST. 1:55-57. The configuration register includes a "key logic." 1:61-63. The key logic generates a signal that puts the BIST in a low power state when it is not being used. The key logic also generates a signal that puts the BIST in a "normal" state "when the key signal matches a predetermined data pattern." 1:66-2:2. The parties dispute the meaning of "data pattern."

Both parties agree that the data pattern functions like a key and turns on a component's internal testing system. They also agree that a data pattern consists of a pattern of bits, which represent information. The dispute concerns whether (1) it is accurate to characterize the pattern as a "sequence" and (2) whether "data" can include addresses and instructions. AMD contends that data pattern should be construed as "bit sequence." Samsung's proposal is: "A pattern of bits representing information and not representing an address or an instruction."

The Court agrees with Samsung on the first disputed point. The ordinary meaning of "sequence" is "the following of one thing after another." The use of this word could suggest to the jury that the information in a data pattern arrives successively, rather than all at once. AMD does not contest that this interpretation would be incorrect because it would exclude the preferred embodiment. See 3:40-44. It is undisputed that in the context of the '200 patent, a data pattern consists of an ordered, predetermined set of data. The word "pattern" captures this ordered relationship and needs no construction.

On the second point, the Court agrees with AMD. Samsung points to no intrinsic evidence in support of the negative limitation it seeks to impose on the word "data." Instead, Samsung cites three dictionary definitions that purportedly establish that in the computer arts, the word data excludes addresses and instructions. See Haskett Decl., exs. 20-22. This
extrinsic evidence does not persuade the Court that the word "data" is includes this negative limitation. One of the dictionaries cited by Samsung defines data as: "a general term for information; also used to distinguish input and output information from instructions." See id., ex. 22 at 35. As AMD points out, this definition supports AMD's view that "data" can have a general meaning. The claims and specification place no limitations on the word data, and the Court declines to do so.

Accordingly, the Court construes "data pattern" as "a pattern of bits representing information."

4. Data Processing Device

a. The Parties' Constructions

LPL also argues that "data processing device" should be accorded its ordinary and customary meaning. Defendants urge limiting "data processing device" to a portable computer.

b. The Special Master's Constructions

Having already concluded that the invention is not restricted to a portable computer, and, additionally, the term "data processing device" not being specifically defined in either the claim language itself or the common specification of the patents, the Special Master concludes that "data processing device" should be given its ordinary and customary meaning. Vitronics, 90 F.3d at 1582.

The term "data processing device" is well known in the art. The IEEE Standard Computer Dictionary (1991) defines "data processing" as "the systematic performance of operations on data" n18 and "device" as "a mechanism or piece of equipment designed to serve a purpose or perform a function."

\[\text{Footnotes}\]

At the same time, the Special Master is of the view that the Defendants raise the meritorious argument that LPL’s construction is improper because one of ordinary skill in the art would conclude that it is not physically possible to mount a flat-panel display device to a component that is contained within the flat-panel display device -- if so, the "housing of the data processing device" would in reality be the housing of the flat-panel display device. The Special Master concludes therefore that the plain claim language "flat panel display device capable of being mounted to a data processing device ... the flat display panel ... being fixed to a housing of the data processing device" ('641 patent, claim 35) mandates that the flat-panel display device be separate from the "data processing device" so as to be able to be fixed to the housing of the "data processing device."

Accordingly, the Special Master's construction is as follows:

<table>
<thead>
<tr>
<th>CLAIM TERM</th>
<th>SPECIAL MASTER CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>data processing device</td>
<td>A mechanism or piece of equipment separate from the flat-panel display device that systematically performs operations upon data</td>
</tr>
</tbody>
</table>
A "data reference," is a term of art in the patents which the inventor defines and explains in the ’321 patent specification at column 8, ln. 30-39:

DR column 30 includes a list of DRs. A DR is a unique phrase or word which may be used in a record to refer to another record or record segment. In the context of a medical facility an exemplary DR may be as simple as "medication given", "ECG report", or "Admission NMR heartbeat". As explained in more detail below, when a processor linking feature is selected, processor 14 searches for DRs in a specified record and, when a DR is identified, links the DR to a record or record segment associated with the DR via a hyperlink or other mechanism.

It is apparent that this definition is intended to generally define "data reference" as the term is used throughout the patents in suit.

The unmistakable meaning of these terms is that there be a reference to a single, specific record which the created link retrieves. In each case the claim element includes the singular form -- "a second data record" -- clearly implying only one such record. The phrase retrieving "said record" suggests that there is a particular record to be retrieved. ’321 patent claim 1, subpart (ii)(c) requires "identifying the referenced record," further confirming that the intent to claim a reference to one particular second record.

The patent specifications unequivocally confirm the inventor's intent to limit the claims in this manner. Every example in the preferred embodiments involves the use of data references (or a data reference in conjunction with modifying references) to identify a single medical record (or record segment) for a particular patient. For example, at col. 16, ln. 28-54, describes the referencing and retrieving of the particular patient's "Admission ECG," clearly a single specific record. Column 8, ln. 34 of the ’321 patent, refers to exemplary DRs "medication given", "ECG report", or "Admission NMR heartbeat" which, in the context of a medical record with patient identification numbers and dates, point to one particular record. Column 10, ln. 32-34 explains how the invention "constructs an address identifying the referenced record and links the address to the identified DR," leaving no doubt of the requirement that one and only one record is retrievable by use of the DR.

A. Claim Construction

We here only review the district court's construction of the term "data reference." The parties do not raise on appeal any other claim construction issue, including regarding the term "address format." Upon review, we conclude that the district court erred by unduly narrowing the scope of the term "data reference" and improperly importing from the specification the limitation that the data reference only refer to one and only one possible data record.

We begin with the parties' agreement, and district court's holding, that the terms "data reference," "record reference," "specifying reference," and "reference," as used throughout the Patents-In-Suit, are interchangeable and have the same meaning. We agree. The claims and specifications of the Patents-In-Suit all indicate to a person of ordinary skill in the art that these terms are interchangeable.

As a result, we are led, as the district court was, to the explicit definition of "data reference" set forth in the ’321 patent: "A [data reference] is a unique phrase or word which may be used in a record to refer to another record or record segment." ’321 patent col.8 ll.30-32. It is well settled that a patentee may choose to be his own lexicographer and that definitions so provided will govern. See, e.g., CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("A claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.") Thus we adopt this definition as the correct construction of "data reference."

The district court's error, however, was in going beyond this explicit definition to hold that a data reference may only refer to one and only one possible record. We first reject the district court's reading of the language of the asserted claims, which the court held supported its narrow construction. See Summary Judgment Order at 18. For example, claim 1 of the ’889
between records, it is a "modifier reference" and not a "data reference" according to the patent. While the word "admission" is being "used in the process" of creating a link, a "ECG" can be coupled with a modifier reference such as "admission" to specify a particular ECG record, i.e., the ‘321 patent discloses a "modifier reference" element separate and distinct from "data references" that is generally "used in the process" in the ‘321 patent requires that the reference itself refer to a record. See ‘321 patent col.8 ll.30-32. Further, the ‘321 patent simply being generally "used in the process" of creating a link between records is insufficient because the stated definition of a "modifier reference" is "one and only one," typically encompasses both singular and plural possibilities. E.g., Scanner Techs. Corp. v. ICOS Vision Sys. Corp., 365 F.3d 1299, 1304 (Fed. Cir. 2004); Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999). Claim language such as "references to the first record," ‘298 patent cl.1 (emphasis added), and "the referenced record," ‘321 patent cl.1 (emphasis added), similarly do not support the district court's narrow claim construction.

An intent to claim more narrowly and limit singular elements to one and only one such element can of course also be expressed in the specification and/or prosecution history. But the patentee did not do so here. The district court relies heavily on its observation that "[e]very example in the preferred embodiments involves the use of data references . . . to identify a single medical record (or record segment) for a particular patient." Summary Judgment Order at 18 (emphasis added). But this observation is not entirely accurate. For example, Figures 14C-E in the '889 patent depict an embodiment of the invention that shows the use of a data reference referring to multiple records. Figure 14C depicts a "conventional text document," which in this embodiment is a medical record. ‘889 patent fig.14C; id. col.10 ll.60-63. Figure 14D illustrates how the text "Catheterization Reports" in Figure 14C is replaced by hyperlinks to two other medical records, a "Radiology Catheterization Report" and a "Hemodynamic Catheterization Report." Id. fig.14D. It becomes clear from the context of the specification that the original text "Catheterization Reports" is a data reference. The specification discloses that Figures 14C-E demonstrate how "hypertext links 744 may be inserted based upon the recognition of phrases or special character sequences, such as 'Catheterization Reports' 728," and that a user can then use those hyperlinks to access either of the two referenced records. Id. col.10 l.67-col.11 l.5. Clearly, the text "Catheterization Reports" is a "unique phrase . . . used in a record to refer to another record or record segment." See ‘321 patent col.8 ll.30-32 (defining "data reference"). Equally clear is that this data reference does not refer to one and only one record but rather refers to multiple records, two in this example. In fact, not only does "Catheterization Reports" contemplate and refer to multiple possible records, but that data reference is then actually linked to multiple records in this embodiment.

Although the specifications of the Patents-In-Suit disclose embodiments in which data references refer to multiple records, the district court's claim construction would exclude those embodiments from the scope of the patents. A claim construction that excludes an embodiment of the relevant claim(s) is typically incorrect. See Vitronics Corp. v. Conception Inc., 90 F.3d 1576, 1583-84 (Fed. Cir. 1996); see also SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1285 (Fed. Cir. 2005). And while many of the embodiments do indeed illustrate data references referring to single records, the district court's adoption of that limitation here constituted an improper importation of that limitation from the specification into the claims, especially given that other embodiments refute that limitation. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1117 (Fed. Cir. 2004) ("[P]articular embodiments appearing in the written description will not be used to limit claim language that has broader effect.").

In sum, we hold that the district court erred in its claim construction of the term "data reference." We hold that the correct construction is "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record.

5 While we agree with Hyperphrase that the district court's claim construction was erroneous in this one respect, we do not adopt Hyperphrase's proposed claim construction: "Hypertext links, multi-media requests, key words or phrases which may be parsed from a record, temporarily stored, and used during the process of creating a link to another contextually related record." See Pet. Br. at 14. This definition is overbroad and is not supported by the claim language or the specification. Simply being generally "used in the process" of creating a link between records is insufficient because the stated definition in the '321 patent requires that the reference itself refer to a record. See ‘321 patent col.8 ll.30-32. Further, the ‘321 patent discloses a "modifier reference" element separate and distinct from "data references" that is generally "used in the process" of creating links but does not itself refer to a record. See, e.g., id. cl.1. For example, the patent teaches that the data reference "ECG" can be coupled with a modifier reference such as "admission" to specify a particular ECG record, i.e., the patient's admission ECG. Id. col.12 ll.1-8. While the word "admission" is being "used in the process" of creating a link between records, it is a "modifier reference" and not a "data reference" according to the patent.
2. Construction of the phrase "Reflecting/Concerning a Particular Selection of Dialysate"

The parties agree that the validity of most of the asserted claims of the '027 Patent hinges on the construction of the claim term "data reflecting/concerning a particular selection of dialysate to be circulated," which appears in claims 1 and 7. As such, the Court must construe this disputed claim term.

Claim 1 recites:

A kidney dialysis machine comprising:

(a) means for circulating dialysate at a dialysate conductivity through a dialysate circuit including a dialysate compartment for a dialyzer;

(b) means for circulating blood from a dialysis patient through an extracorporeal blood circuit including a blood compartment of the dialyzer; and

(c) control means operable to receive chemical-composition data reflecting a particular selection of dialysate to be circulated and to calculate from the data an expected conductivity reading of the dialysate and to automatically set conductivity alarm limits around the expected conductivity reading.

027.1 (emphasis added).

Claim 7 recites:

7. A kidney dialysis machine, comprising:

(a) a dialysate pump for circulating dialysate at a dialysate conductivity through a dialysate circuit including a dialysate compartment for a dialyzer; and

(b) a controller operable to receive non-conductivity data concerning a particular selection of dialysate to be circulated and to calculate from the data an expected conductivity reading of the dialysate.

027.7 (emphasis added).

Fresenius contends that the phrase "data reflecting/concerning a particular selection of dialysate to be circulated" should be given its plain and ordinary meaning. Baxter contends, however, that the phrase "particular selection of dialysate" means: "brand of dialysate concentrate." The Court hereby rejects Baxter's narrow construction and finds that the phrase shall be given its plain and ordinary meaning.

Baxter first argues that its construction is correct because "the specification and prosecution history of the '027 Patent establish that the microprocessor of Claims 1 and 7 receives data reflecting the particular selection of brand of dialysate concentrate in order to calculate the expected conductivity." Baxter is correct that the specification refers to the dialysate "brand." For example, the specification provides:

The software controlling the operation of the machine's microprocessor includes a routine for predicting correct dialysate conductivity. Such predictions automatically reflect the particular brand of concentrate being used, since different groups of concentrate brands require different proportioning to yield a dialysate having a correct ionic strength and electrolytic profile.

See 027:26:66-27:5 (emphasis added). However, although the Court may examine a specification when construing claims, a court is not allowed to read limitations from the specification into the claims. See Burke, Inc., 183 F.3d at 1340. In fact, it is well established that limitations unintended by the patentee cannot be imported from examples, figures, or preferred
embodiments. Phillips v. A WH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc). Thus, even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope. Innova/Pure Water, Inc., 381 F.3d at 1117 (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed Cir. 2004)). Importantly, as Fresenius points out, Baxter has not shown that the specification ascribes any special meaning to the phrase "data reflecting/concerning a particular selection of dialysate to be circulated." In fact, the term "a particular selection of dialysate to be circulated" does not appear anywhere in the specification.

Baxter's argument that the prosecution history supports its claim construction is also unavailing. For instance, Baxter claims that the prosecution history supports its narrow construction because the examiner requested that the language "reflecting a particular selection of dialysate to be circulated" be added to the pending claims and cited this amendment in his "Reasons for Allowance." Abernathy Decl. at Ex. 3. However, there is no indication in the record that the applicants expressly adopted the examiner's reasons for allowance or agreed that the amendments made by the examiner were made to overcome prior art. "Although prosecution history can be a useful tool for interpreting claim terms, it cannot be used to limit the scope of a claim unless the applicant took a position before the PTO that would lead a competitor to believe that the applicant had disavowed coverage of the relevant subject matter." Schwing GmbH v. Putzmeister Aktiengesellschaft, 305 F.3d 1318, 1324 (Fed. Cir.2002). Here, Baxter has simply not shown that the inventors made a clear disavowal of claim scope during prosecution.

It is also significant that Baxter's current claim construction conflicts with the construction offered by Baxter's expert, Dr. Ferraro, on the issue of infringement. For example, in his expert report, Dr. Ferraro opined that "a particular selection of dialysate" could refer to "concentration parameters of the dialysate." See McLenahan Decl. at Ex. 32. The law is clear that Baxter cannot assert that one meaning should be ascribed to a claim for the purposes of an infringement analysis and then later contend that another meaning should apply for the purposes of the validity analysis. See Amazon.com, Inc. v. BarnesandNoble.com, 239 F.3d 1343, 1351 (Fed. Cir. 2001).

Accordingly, Fresenius' argument that the disputed phrase should be given its plain and ordinary meaning is persuasive. This construction is in accord with the Federal Circuit's mandate that a court is to indulge a "heavy presumption" that claim terms carry their full ordinary and customary meaning unless the patentee unequivocally imparted a novel meaning to those terms or expressly relinquished claim scope during prosecution. Omega Engineering, Inc, v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003).

Data Regarding an Order Transaction

Furnace Brook's proposed construction for this term is "information relating to a customer's order." Overstock's proposed construction for this term is "customer name, address and order placed."

Furnace Brook argues, and the Court agrees, the language of the specification indicates that a customer may first authorize the addition of his name and address to a customer data file, and secondly, may authorize an update of the customer profile data to include any order then placed. Specifically, the specification provides:

"Preferably as part of the initial menu displayed at the customer's telephone terminal, a request for the customer's approval to include the customer's name and address in a customer data file is made. If the customer signals his approval, e.g., by depressing an appropriate key at the customer terminal, the customer's name and address will be automatically added to the customer data file. In addition, if authorized by the customer, the customer's profile data would be updated to include any order placed at that time."

'832 Patent at 8:10-19.

The specification teaches that a customer who has agreed to have his name and address recorded by the retailer, may additionally agree to have a profile updated to record the order placed. Accordingly, "data regarding an order transaction" is "the order placed by the customer."
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4. "data representation(s) of a lifetime(s) of the telephone call"

NICE's Construction  
Data (e.g., voice information and/or metadata) representing an entire telephone call.

Witness's Construction  
Call-centric data record of the telephone call that includes a detailed cumulative start-to-finish history of a telephone call, including all telephony events and participants. The data representation represents only the telephone call, is not event-centric, and is not construed on a 1-to-1 basis for the events during the total lifetime of a call.

The parties dispute the meaning of "data representation(s)" and "data representation(s) of a lifetime(s) of the telephone call," as used in the '570 patent (claim 6) and '345 patent (claim 14). NICE contends that Witness impermissibly seeks to import the preferred embodiment's management of recording in a "call-centric" fashion into the claim. Witness contends that the specification shows that the invention's sine qua non is its creation of a "single call record . . . [where] the call's entire history is contained in the call record," citing '570 Pat., col. 7:12-16. Further, Witness contends that NICE emphasized the event-centric versus call-centric distinction as the distinguishing feature between NICE's invention and the prior art, citing '570 Pat., col. 20:34-64 ("Previous recording systems . . . mimicked the event-oriented interfaces . . . constructed on a 1-to-1 basis for the events occurring during the total lifetime of a phone call.").

After considering the claim language and the specifications, the Court construes (1) "data representation(s)" to mean "digital representation of data," and (2) "data representation(s) of a lifetime(s) of the telephone call" to mean "Call-centric data record of the telephone call that includes a detailed cumulative start-to-finish history of a telephone call, including all telephony events and participants." Though not explicit in the abstract or summary of the '570 patent, the Court concludes that the specification reveals a call-centric compilation of data to be an indispensable element of the invention, and not merely an element of the preferred embodiment. See, e.g., ('570 Pat., col. 7:12-16; col. 26:10-20 ("The Call Record Generator (CRG) in accordance with the present invention . . . is responsible for collecting data from different sources with respect to portions of a call on various recording input channels, and merging them together into a unified call record. . . .")) (emphasis added); col. 20:34-64.) In the Court's view, the additional language proposed by Witness beyond that adopted in the Court's construction is unnecessary.

GO BACK

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3. "data representing a complete copy of at least one item of . . . information"

Claim 14 provides:

transmitting compressed, digitized data representing a complete copy of at least one item of audio/video information at a non-real time rate from a central processing location.

The parties dispute the proper construction of the phrase "data representing a complete copy of at least one item of information" as that phrase is used in Claim 14 of the '863 patent. The Court has already defined the phrases, "items containing information" and "information from items" in its December 14 Order. (See December 14 Order at Section 1A7-8.)
In the '863 Patent, the written description, at times, equates "items of information" with "items having information."
However, in the context of Claim 14, the Court construes "items of … information" to mean "information derived from items." With respect to the remaining words of the phrase, the Court finds that skilled artisans, reading the patent claim and written description, would give those words their ordinary and customary meanings.

The Court construes the phrase "data representing a complete copy of at least one item of information" as follows: a complete copy of information from items.

5. "data representing text, a universal resource locator, an image, and a user-selected category"

The plaintiff argues that this term means that "the information submitted to the database by the user communicating over a computer network includes text, a universal resource locator, an image, and a user-selected category." The defendant argues that the term means "data representing (I) text, (ii) the Web address of a document or other resource, (iii) an image, and (iv) a category capable of being selected and defined without limitation by the user. The parties' disagreement with respect to this term concerns the universal resource locator ("URL"). Defendant argues that the URL should be limited to a Web address. Plaintiff proposes that a universal resource locator is a unique address for a file that is accessible on the internet.

This dispute focuses on the breadth of the computer network. Defendant argues that URL should be limited to a Web address. This limitation would necessarily limit the computer network to the World Wide Web, which requires importing a limitation from the preferred embodiment to the claims. The written description, however, states that the term "computer network" is broader than the World Wide Web. See 3:65-67. Consequently, the court construes the term to mean "data representing text, a universal resource locator, an image, and a user-selected category."

a. "data representing the identity ..."

Plaintiffs contend that the term "data representing the identity of each of said advertisements" is clear and describes data that identifies an advertisement. Defendants point to language in the specification that states, "[t]he downloading and storing of advertisements is completed by the same apparatus and method as described above in connection with FIGS. 1 through 5." Id. at 9:34-36. Figures 1 through 5 refer to the downloading, storing, and use of digitized songs. They argue that "data representing the identity of each of said advertisements" is analogous to "data representing the identity of each of said songs," which appears in claim 1 of the 302 patent, and must be construed the same way. They contend that the proper construction of "data representing the identity of each of said advertisements" requires data from each of the seven fields in figure 2 of the 398 patent.

The Court rejects defendants' proposed construction. First, as explained earlier, Section 1(b) supra, song data does not need to include information in each of the fields in figure 2. Rather, it need only include data in one or more of the fields. Second, figure 2 quite clearly relates only to
song record; it says as much on the diagram. If the inventors had intended figure 2 to apply to other data such as advertisements, they would have labeled the diagram differently.

For these reasons, plaintiffs' proposed construction is not inconsistent with the specification. The language in the specification stating that advertisements are downloaded and stored using the same method “described above in connection with FIGS. 1 through 5” appears to be nothing more than a general statement that teaches how advertising data fits into the overall scheme of the computer jukebox and computer jukebox network. In any event, the limitations proposed by defendants are not part of the claim language. Even if the specification included such limitations (which it does not), it would be impermissible to import them into the claim. The Court construes “data representing the identity of each of said advertisements” as “data that identifies each advertisement.” The term has the same meaning in the 834 patent.

b. “data representing when and number of times”

Plaintiffs contend that the term “data representing when and number of times each of said advertisements is to be run” means “data associated with an advertisement that provides ... a period of time within which, or event in relation to which, the advertisement will be run; and permits a calculation of the frequency an advertisement is run within a given period.” Opening Brief at 22. Defendants contend that the proper construction is “data representing the time of day and how many times each of said advertisements is to be run.” Resp. Brief, Ex. E at 3. They argue that “when” means “the time of day” and “the number of times” means “how many times a day” based on language in the specification which states, “the header [which is downloaded with the advertisement] contains information about the advertisement including how many times a day the advertisement should be run and at what times.” Opening Brief, Ex. 5 at 9:4-8. The Court sees no proper basis to read into the claim the limitations proposed by defendants. One meaning of the word “when” is “at or during the time that.” Opening Brief, Ex. 15. This common definition plainly makes sense in the context of the claim. Defendants' attempt to define “when” as “time of day” fails; they are again trying to import
limitations from a preferred embodiment into the claim. Moreover, the specification teaches that “when” can refer to a time related to an event, not merely a time of day. Opening Brief, Ex. 5 at 2:48-51, 9:38-42. Similarly, “the number of times” is not limited to “how many times a day.” Defendants correctly point out, however, that the claim language is forward-looking. It limits the data to that which shows when, in the future, an advertisement is to run. See id. at 9:51-54 (“data representing when ... each of said advertisements is to be run”) (emphasis added). Plaintiffs' proposed construction is backward-looking, and would allow the data to include information regarding when advertisements were run (“the central management system can track the total number of times each advertisement was actually run ....”). Id. at 23 (emphasis added). Claim terms must be construed as they are used in the context of the claim itself. Phillips, 415 F.3d at 1313. The claim language is not broad enough to allow the backward-looking data proposed by plaintiffs. The Court, therefore, construes “data representing when and number of times ...” as “data associated with an advertisement that provides a period of time within which, or event in relation to which, the advertisement will be run and permits a calculation of the frequency an advertisement will be run within a given period.” The term has the same meaning in the 834 patent.

The term "data representing when and the number of times each of said advertisements is to be run" Touchtunes' proposed construction for this claim term, "data that tells the jukebox at what predetermined time each advertisement is to be run and the total amount of times the jukebox is to run each advertisement," renders the "number of times" language superfluous. If the specific time for each advertisement were included in the data, there would be no need to include data regarding the "number of times" the advertisement should be run. A construction that renders claim language superfluous is contrary to basic claim construction principles. See, e.g., British Telecomms. PLC v. Prodigy Commc'ns Corp., 189 F. Supp. 2d 101, 113 (S.D.N.Y. 2002) ("[N]o claim language may be interpreted as mere surplusage.").

The term "when" in this claim is used in a similar way as the term "at least one time" in the previous claim term and is therefore construed as "a time within which, or event in relation to which" the advertisement is to be run, as Arachnid proposes. While this may include a predetermined time of day, it may also include information describing the time to run the advertisement by reference to an event, such as before, during, or after the event.

Touchtunes proposes that "number of times" be construed as "the total amount of times the jukebox is to run each advertisement," again seeking to import limitations from preferred embodiments into the claim. Arachnid proposes instead that it be construed as "the frequency an advertisement will be run within a given period." Touchtunes correctly points out that a frequency is determined by the number of occurrences over a given period of time, and that Arachnid's construction therefore contains a redundancy. However, the jukebox's ability to track the number of times an advertisement has actually run, see '398 Patent 9:17-29, supports Arachnid's proposition that "number of times" refers to the frequency with which the advertisement will be run. If "number of times" were construed as how many times a day, as Touchtunes proposes, there
would be no reason to track the number of times an advertisement has actually run.

This term is therefore construed as "data which permits a determination of a time within which, or event in relation to
which, the advertisement will be run and the frequency an advertisement will be run." This construction eliminates the
redundant "within a given period" in Arachnid's proposed construction.

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B

Although this case concerns whether defendants' accused products infringe independent claims 1 and 5 and dependent
claims 3, 4 and 7 of the '273 patent, defendants' summary judgment motions only address independent claims 1 and 5. They
claim as follows:

1. A system for providing a built-in function in an ISA-compatible computer in response to activation of a selected
combination of user activated keys, comprising:

   a keyboard having a set of conventional alphanumeric and function keys and further having at least one additional
function key;

   a keyboard controller connected to said keyboard to monitor said conventional keys and said additional function key to
detect when at least one of said keys is activated, said keyboard controller having first and second interrupt signal lines
connected to said ISA-compatible computer, said keyboard controller responsive to an activation of at least one of said
conventional keys to activate a first interrupt signal to said ISA-compatible computer on said first interrupt signal line, said
keyboard controller responsive to an activation of said additional function key in combination with at least one of said
conventional alphanumeric keys to generate a second interrupt signal to said ISA-compatible computer on said second
interrupt signal line;

   a first conventional interrupt handling routine within said ISA-compatible computer responsive to said first interrupt
signal from said keyboard controller to input data scan codes from said keyboard; and

   a second non-conventional interrupt handling routine within said ISA-compatible computer responsive to said second
interrupt signal from said keyboard controller to input an identification of said activated alphanumeric key and to perform a
predetermined function selected by said identified alphanumeric key.

5. A system for servicing keyboard interrupts in an ISA-compatible computer, comprising:

   a keyboard having a plurality of keys including conventional alphanumeric keys, conventional symbol keys,
conventional function keys and conventional cursor control keys, said keyboard further including at least one non-
conventional function key, said keyboard generating a scan code in response to an activation of at least one of said keys,
said scan code varying depending upon which of said keys is activated; and

   a keyboard controller coupled to said keyboard, said keyboard controller further coupled to said ISA-compatible
computer by first and second interrupt signal lines, said keyboard controller generating a first interrupt signal on said first
interrupt signal line upon receipt of a scan code corresponding to one of said conventional keys, said ISA-compatible
computer programmed to execute a program to input said scan code in response to said first interrupt signal, said keyboard
controller generating a second interrupt signal on said second interrupt signal line upon receipt of a scan code corresponding
to said non-conventional function key, said ISA-compatible computer programmed to execute at least one special routine
upon receipt of said second interrupt signal.

Defendants first argue that their notebook computers do not infringe the claims because they do not meet the "keyboard"
and "keyboard controller" limitations required by independent claims 1 and 5. Doc # 359 at 11; Doc # 341 at 6. Prior to the
court's claim construction order, the parties agreed upon the construction of "keyboard" to mean:

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An input apparatus containing internal circuitry to output or generate data scan codes." Doc # 227 at 16.

The parties also agreed that these scan codes are sent to a "keyboard controller" for processing, which then transmits interrupts to the computer. Id. Hence, the court construed the term "keyboard controller" to mean:

A component, electronically or functionally distinct from the keyboard, that activates interrupt signals in response to receipt of data scan codes from the keyboard, and, upon request, transmits data scan codes to the computer.

Both of these definitions incorporate the phrase "data scan codes"--a term the parties hotly disputed in the Markman hearing. Id at 11-16. In short, at that hearing, Samsung argued that row and column signals--i.e., the electrical signals generated from the grid of wires that underlays the keys of the keyboard--can constitute a scan code; defendants argued that they cannot. Id at 11. Ultimately, the court sided with defendants, defining the term as:

A code number that the keyboard generates whenever a key is depressed or released, said code number created by converting a pairing of a row signal and a column signal in the keyboard matrix. Id at 16.

As the court noted, this construction order makes clear that "row and column signals [produced by keyboards] are not scan codes." Doc # 227 at 15.

6. "address set," "command set," "data set"

The dispute with regard to these terms is whether a "set" can contain a single bit, as Power-One proposes, or, as Artesyn suggests, whether it must contain two or more bits. Power-One concedes that the examples of sets given in the specification are multi-bit sets. See, e.g., '916 patent, col. 4:19-25. However, the '916 specification provides that "communication cycles containing more or less information and/or bits is within the spirit and scope of the present invention." Id. at col. 4:30-33. Although the '916 specification provides examples of multi-bit sets, this does not mean that a "set" referred to in the claims must contain more than one bit. See, e.g., Varco, L.P. v. Pason Systems USA, Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) ("In examining the specification for proper context . . . this court will not at any time import limitations from the specification into the claims."). Accordingly, the Court declines to narrow the definition of set and construes these terms as follows:

Address set: A set of one or more bits in a message specifying the address of one or more devices connected to a bus.

Command set: A set of one or more bits in a message specifying a given command operation.

Data set: A set of one or more bits in a message reflecting data that is read from or written to a device.

2. "data set"

The term "data set" is used in four of the six steps enumerated in Claim 1. 311 patent, col. 10, ln. 59 - col. 11, ln. 3. They are:

Step 1: "transferring a data set from each of the plurality of data sources to the multi-function card;"

Step 2: "storing said transferred data set from each of the plurality of data sources in the multi-function card;"

Step 5: "selecting with said activated multi-function card a select one of said data sets;" and
Step 6: "displaying on the multi-function card in at least one predetermined display area the data of said selected data set."

Id. While the claim language itself suggests that a "data set" is information derived from a single-purpose card, the parties offer differing constructions as to the content of the information needed to create a "data set." Plaintiff construes "data set" to mean a collection of information representing a particular single-purpose card, document, key or the like. Joint Stmt. at App. A, p. 2. Defendants, on the other hand, state that "[a] data set is any collection of information transferred from a data source." Id.

Plaintiff explains in the Joint Statement that

the collection of information is unique to that particular single purpose card, document, key or the like. The collection of information includes the logo of the issuer of that particular single purpose card, document, key or the like and other information to enable the electronic multi-function card to be converted to and operate as that particular single purpose card, document, key or the like.

Pl. Op. at 11. Defendants' construction differs, including "any collection of information transferred from a data source." Joint Stmt. at App. A, p. 2; see infra construction of "plurality of data sources," at 25-31. Defendants dispute plaintiff's inclusion of items, such as a logo, as being a necessary part of a data set. Def. Resp. at 20-21. The correct construction of "data set" lies somewhere in between the parties' proposed constructions.

The specification itself provides guidance, stating that the electronic multi-function card

...can be converted without any problem to different single-purpose cards by calling up other data sets, the card reproducing in each case the special information or logo of the issuing company or bank, the card number and the date of expiry, any stored photos or, if desired, other machine-readable data and the user's signature.

311 patent, col. 3, lns. 26-32 (emphasis added). This description of what it means to pull up a data set clearly suggests that the composition of a data set will differ, depending on what information the single-purpose card contains. The specification recognizes that single-purpose cards contain "special information" that may differ from card to card. Id. Examples are provided, such as a logo, card number, date of expiry, photos, and the user's signature. Id.

The phrase "or, if desired" is critical to the construction of this term. Id. This phrase demonstrates that the list of components for a data set may contain some of the examples set forth, all of the examples, or others not listed. This view is confirmed by the extrinsic evidence. See Ex. 25, Hennige Dep. Tr., p. 389, ln. 16 - p. 390, ln. 21 (in response to an inquiry regarding what constitutes a data set, Hennige answers that it would depend). In other words, the list provides neither a floor nor ceiling for the extent of information necessary to make up a data set.

The above quoted passage, taken in its entirety, suggests that in answering the question: what is a "data set?," the focus should be on the single-purpose card. That information which is necessary to effectuate a transaction using the single-purpose card is the "data set" that needs to be transferred to the electronic multi-function card in order for the multi-function card to be able to convert itself, in form and function, as a substitute for the single-purpose card. Any attempts to be more specific will result in either an under or over-inclusion of components.

Accordingly, the Court construes "data set" to mean "Any collection of information representing a particular single-purpose card which is necessary to allow the electronic multi-function card to act as a substitute, in both form and function, for that particular single-purpose card."

5. Data slots

The term "data slots" is recited in all of the asserted claims of the 096 patent. The plaintiff submits that "data slots" are "times during which data may be transferred to or from the SDRAM." The defendants propose that "data slots" are
"SDRAM clock cycles for transferring data." The plaintiff contends that the defendants propose "a highly specific construction of data slot related to the SDRAM clock cycle" that is not supported by or disclosed in the specification. However, the defendants argue that the '096 patent makes clear that the "data slots correspond to SDRAM clock cycles in Figs. 4(a-c) and does not disclose any other time period from which a data slot may be defined." Defendants' Sur-reply Brief at 20. After considering the submissions of counsel, the court construes the term "data slots" to mean "SDRAM clock cycles available for transferring data."

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B. "Data Source"

The term "data source" appears in all claims for all five patents. In general, the term is used in the claims to describe the source from which data or information is accessed. For example, claim 1 of the '511 patent describes a method of accessing "data" stored in "data sources," while claim 2 describes using a driver to store "information" from a "data source."

Timeline's proposed construction of "data source" is "a collection of computer readable information such as a data file," including "a flat file, a hierarchal database, a relational database, a spreadsheet, and the like." ProClarity's proposed construction is virtually identical. The key difference is that Timeline's proposed construction is "collection of computer readable information," while ProClarity proposes a "collection of computer readable data."

Timeline supports its proposed construction by arguing that the patent specification defines "data source" to include "information." For example, the '511 patent specification states:

'Timeline's proposed construction of "data source" is "a collection of computer readable information such as a data file," including "a flat file, a hierarchal database, a relational database, a spreadsheet, and the like." ProClarity's proposed construction is virtually identical. The key difference is that Timeline's proposed construction is "collection of computer readable information," while ProClarity proposes a "collection of computer readable data."

Timeline supports its proposed construction by arguing that the patent specification defines "data source" to include "information." For example, the '511 patent specification states:

The source data 806A through 806d depicted in FIG. 8 may, in general, be any computer readable information source. Examples include flat file source data, hierarchal databases, relational databases, spreadsheets, and the like.

'511 patent, Col. 9:49-51 (emphasis added); see also '694 Patent, Col. 9:56-59 (same). Timeline also notes that the patent specifications frequently use the words "data" and "information" interchangeably, pointing to multiple examples of such usage. For example, Figure 8 in the '511 patent includes a drawing in which items 806a through 806d are labeled as "information sources." However, the specification refers to the "information sources" in the drawing as "data sources." '511 patent, Col. 9:53-58. Considering this example and the numerous other examples noted by Timeline, it is apparent that the inventor did not draw a sharp distinction between the terms "data" and "information" in the patents.

Because the patents often use the terms "information" and "data" interchangeably, the meaning of the term "data source" is likely to be the same regardless of whether it is construed as a collection of computer readable "information" or "data." However, the court regards Timeline's proposed construction as more consistent with the implied definition of the term in the '511 patent specification. See '511 patent, Col. 9:49-51 (indicating that "source data" may, in general, be any computer readable information source).

Therefore, the court construes "data source" to mean "a collection of computer readable information such as a data file." A data source may be a flat file, a hierarchal database, a relational database, a spreadsheet, and the like.

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(4) sources and sinks, data source, data sink

National asserts that the above terms need no construction. N-Data proposes a construction for "sources and sinks," but seeks to give "data source" and "data sink" their plain and ordinary meaning. Dell asserts that the term "sources and sinks" does not require construction in light of the other construed terms. The issue regarding "data source" and "data sink" is whether these terms should be limited to a "physical device" as Dell argues.

The court agrees with Dell regarding "sources and sinks." As to the other terms, the court agrees with N-Data's alternative
constructions; the term "physical" does not provide clear and unambiguous guidance as to its meaning.

The term "data source" is defined as "circuitry that generates data."

The term "data sink" is defined as "circuitry that consumes data."

3. "plurality of data sources"

The preamble to Claim 1 states:

A method for enabling a user of an electronic multi-function card to select data from a plurality of data sources such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys . . .

311 patent, col. 10, ins. 54-58 (emphasis added). Plaintiff argues that "plurality of data sources" means "two or more different single purpose cards, documents, keys or the like." Joint Stmt. at App. A, p. 3; Pl. Op. at 14. Defendants, on the other hand, construe the term to mean "at least two different types of single-purpose cards from the group of the following types: credit cards, check cards, customer cards, identity cards, keys, access information, and master keys." Joint Stmt. at App. A, p. 3 (emphasis added); Def. Resp. at 17.

There are a couple of differences in the parties' formulations. First, defendants' construction calls for two different "types" (or categories) of single-purpose cards, whereas plaintiff construes data sources to mean any two single purpose-cards (e.g. check card, gas card, etc.), regardless of whether they are the same type (or category) of card. Second, defendants seek to limit the category of cards that may qualify as a data source. In particular, defendants argue that plaintiff's inclusion of "documents" and "or the like" as data sources broaden the scope of this term beyond what was allowed when the patent was granted. Each of these issues will be addressed in turn.

a. Whether plurality of data sources means at least two different "types" of data sources.

Defendants contend that "a plurality of data sources" must include at least two different "types" of data sources. Def. Resp. at 17. Defendants make clear that under this view, two credit cards, for instance, would not qualify as different types of data sources, but a credit card and an identification card would. See id. Plaintiff's proposed construction is closer to the mark.

Interestingly, the term "data source" is only found in the claims, not in the specification. As already cited, the preamble to Claim 1 sets forth examples of sources "such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys . . . ." 311 patent, col. 10, ins. 56-58. From this passage alone, one cannot discern with certainty whether a "plurality of data sources" means that the data sets must derive from at least two different categories of cards, or whether the unique data sets can come from the same category of cards (e.g., Visa and Master Card). However, nothing in the claim or specification limits "plurality of data sources" in a way that is consistent with defendant's proposed construction. Thus, it appears that one could transfer data sets from two different single-purpose cards, regardless of whether the data sets derive from the same category of cards.

This interpretation is also consistent with the Court's construction of "multi-function card," which the Court construes in significant agreement with defendants' proposed construction. Defendants proposed that a "multi-function card" will convert the card "to the form and function of at least two different single-purpose cards." Joint Stmt. at App. A, p. 1. That proposed construction says nothing that would require the single-purpose cards to derive from at least two different categories of cards. To be consistent with the Court's construction of multi-purpose card, plurality of data sources must be construed as two or more different single-purpose cards even if derived from the same category of cards.

Furthermore, the Court's previous construction of "data set" is also consistent with a construction of "data sources" that does not differentiate between categories of cards. Claim 1 sets forth the transferring and storing of data sets from each of a plurality of data sources. 311 patent, col. 10, ins. 59-62. Since a data set derives from a data source, and a data set is information from one single-purpose card, it follows that a data source must be a single-purpose card containing...
information that will be transferred as a data set.

Defendants, however, argue that the prosecution history mandates that "plurality of data sources" mean different categories of cards. Def. Resp. at 17. As a general rule, the prosecution history cannot be used to broaden the ordinary meaning of the terms used in the claims and specification. See Multiform Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998). In addition, the prosecution history is more consistent with plaintiff's construction. The Patent Examiner appears to have initially rejected the claim as obvious in light of prior art (the Yoshida patent in particular) that disclosed the claimed invention using a plurality of financial transaction cards (i.e., all of the same category cards) as its data source. See Prosecution History of 311 patent, Office Action of Jan. 29, 1991, p.2; Ex. 33. In response, Hennige distinguished the 311 patent claims from the Yoshida patent, stating:

Yoshida does not disclose or suggest transferring data to the IC card from a plurality of different types of sources such as credit cards, check cards, customer cards, documents and so forth having different associated data sets for storing the data on the IC card itself.

Id. (emphasis added). Based on Hennige's response, defendants define "plurality of sources" to mean "at least two types of single-purpose cards from the group of the following types . . . ." Joint Stmt. at App. A, p. 3. The Court rejects this interpretation, instead interpreting Hennige's response to mean that the multi-function card need only be capable of transferring data sets from at least two different categories of cards. Thus, the patented device need only be capable of transferring data sets from a plurality of data sources. So for example, where the first step in Claim 1 calls for "transferring a data set from each of the plurality of data sources to the multi-function card," this step is satisfied where the device is capable of transferring data sets from more than one category of cards. This interpretation is consistent with the prior discussion on the relationship between "plurality of sources" and "multi-function card."

b. Whether "documents" can constitute a "data source"

The word "documents" is used in the preamble of Claim 1 as an example of a type of data source. 311 patent, col. 10, ln. 57. Defendants correctly note that "documents" is not used anywhere in the specification and that the term may be broad and vague. Def. Resp. at 19. Nevertheless, the Court will not "read out" this term from the claim. Neither of the parties identified, in the Joint Statement, "documents" as a contested term requiring construction. Defendants are now attempting to bootstrap a construction of this term under the guise of the "plurality of data sources" construction. The claim language is clear: "documents" is a type of data source. 311 patent, col. 10, ln. 57.

c. Whether "or the like" is included within the definition of "plurality of data sources"

Plaintiff construes a "plurality of data sources" to mean "two or more different single purpose cards, documents, keys or the like." Joint Stmt. at App. A, p. 3 (emphasis added). As previously mentioned, Claim 1 describes a method for enabling a user of an electronic multi-function card to select data from a plurality of data sources such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys . . .

311 patent, col. 10, Ins. 54-58 (emphasis added). The "such as" language above indicates that the examples that follow represent a non-exhaustive list. The term "or the like" is not included, nor is it found anywhere else in Claim 1.

Furthermore, plaintiff's response brief fails to respond to defendant's argument that use of "or the like" is an invalid expansion of what it means to be a "data source." Since "or the like" is not in the claim itself, and the term "such as" already implies a non-exhaustive list, "or the like" will not be used in the claim construction.

Accordingly, the Court construes "plurality of data sources" to mean "Two or more different single-purpose cards, such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys, regardless of whether the single-purpose cards are from the same category or from different categories."
4. Data storage

The court construes this term to mean "a device that holds data."

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2. Data Storage Device

The first element of claim 10 also provides:

… for controlling one of a seek time of the data storage device and an acoustic noise level of the data storage device;

(emphasis added)

The term "data storage device" is used several times in claim 10. The interpretation of this term is linked with the interpretation of "outputting," below. Plaintiffs assert that the data storage device comprises the electromechanical components of the disk drive that perform commands specified by a controller. Defendants assert that "data storage device" should be understood to mean a hard disk drive, including controller electronics. Defendants' construction would exclude from the scope of the claim those devices where shaped commands were generated within the drive itself.

The meaning adduced by both parties to "data storage device" is that it is a disk drive. Plaintiff states that those skilled in the art of control systems typically use a term to refer to that which is controlled, and that therefore what a layperson considers a disk drive would be characterized by a control engineer as a disk drive and a controller. (Pls.' Claim Construction Br. For U.S. Patent No.'s '635, '267, and '473 at 26). The specification supports such a construction. The patent in Col 10:1-21 describes a preferred embodiment of the control of a disk drive. Included in this description is the possibility that the processor controlling the disk drive is located in the PC, or, "alternatively, a separate controller dedicated to the disk drive which receives commands from [that] processor." '473 patent Col 10:6-8. Defendants claim that the specification discloses only two possible structures which can control the disk drive: the first is a processor within the PC, and the second is a controller which receives "commands" from that processor. (Defs.' Responsive. Claim Construction Br. for '473 Patent at 5).

Since the third element of claim 10 uses the term "command" to refer to shaped inputs, defendant infers that the commands must be shaped by the processor located within the PC. Defendant combines a context-specific use within one claim with a more general use in the specification. The term "command" as it is used in the specification refers to signals communicated from a keyboard or mouse (Col. 6:19), to a signal which will be shaped (Col. 8:12), and to signals in a disk drive generally (Col. 2:22-28). Claim 10 refers to a specific kind of "command," one that has been shaped by a processor. The command referred to in Col. 10:6-8 could therefore be a signal which has been shaped by a disk drive engine running on a processor in the PC, or an unshaped signal from the PC which will be shaped by a processor dedicated to the disk drive and not located in the PC. Defendants argue that since "disk drives," as lay people use the term, commonly include on-board electronics dedicated to controlling the drive, a construction that permits on-board electronics to send "commands" is not supported. Such a configuration is within the scope of the claim. Accordingly, the term "data storage device," as used in claim 10, is interpreted to mean:

"a computer disk drive, including all electronic and mechanical components, which receives shaped commands from a processor which may be integrated into the drive."

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5. data storage means (Claim 1)

Plaintiff argues that even though this limitation includes the word "means," this need not be construed as a means plus function limitation. "If, in addition to the word 'means' and the functional language, the claim recites sufficient structure for performing the described functions in their entirety, the presumption of § 112 P 6 is overcome--the limitation is not a means-plus-function limitation." TriMed, Inc. v. Stryker Corp., 514 F.3d 1256, 1259 (Fed. Cir. 2008) (citing Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004)). The Federal Circuit has also held that if a term, as the
name for a structure, has a reasonably well understood meaning in the art, there may be sufficient structure recited by such a term. Watts v. XL Sys., Inc., 232 F.3d 877, 880-81 (Fed. Cir. 2000). Arbitron argues that term "data storage means" is reasonably well understood in the art and should be construed to mean "a memory." In support of its argument, it points to the fact that the Federal Circuit has previously held that the term "storage" has a reasonably well understood meaning in the art as "[a] device capable of receiving data, retaining them for an indefinite period of time, and supplying them upon command." Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n, 383 F.3d 1352, 1372 (Fed. Cir. 2004). It argues that the term "data storage" here should also fall within the definition provided by Gemstar.

Defendants note that the Federal Circuit did not decide a dispute over a § 112 (6) term in Gemstar and therefore argue that this Court is required to presume a means plus function limitation here. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002) ("A claim limitation that actually uses the word 'means' will invoke a rebuttable presumption that § 112 P 6 applies."). It insists that the claim language alone needs to disclose sufficient structure to perform the entirety of the described function before a court can find that § 112 (6) does not apply. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1375 (Fed. Cir. 2003) ("This [means plus function] presumption can be rebutted where the claim, in addition to the functional language, recites structure sufficient to perform the claimed function in its entirety"). The defendants' proposed construction for the means supporting the function is "A physical memory device 116."

The Court agrees with the defendants. In Gemstar, the Federal Circuit construed the term "storage means in a data processor" to mean "a device capable of retaining data located within a data processing device or system." Gemstar-TV, 383 F.3d at 1372. First, as defendants point out, neither party in that case had argued that there could be § 112 P 6 presumption, or how such a presumption could be overcome. Second, the Federal Circuit noted that there was abundant prosecution history to indicate that the inventor of that patent had intended to define "storage means" as an electronic memory. See id. at 1371 (noting that the inventor had unsuccessfully proposed several reexamination amendments attempting to define "storage means" as an electronic memory). There is no such support for Arbitron's argument here. Finally, the Federal Circuit in Gemstar had included in its analysis the fact that ITC had failed to consider whether the specific expression, "data processor" had an ordinary meaning to one skilled in the art that would have provided insight and context for the claim language "storage means in a data processor." Id. at 1372. In this case, the term is used in conjunction with the "device for storing the sense signal and the corresponding time signal." '276 Patent, Claim 1. Here, the Court has considered the ordinary meaning of "device" to one skilled in the art and concludes that there is not sufficient structure defined by the term "data storage means" to overcome the presumption that it is a means plus function limitation. TriMed, Inc. v. Stryker Corp., 514 F.3d 1256, 1259-60 (Fed. Cir 2008) ("Sufficient structure exists when the claim language specifies the exact structure that performs the functions in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure."). Hence, construing "data storage means" simply as "a memory" would be contrary to Federal Circuit law.

Lastly, the parties dispute the possible locations of the corresponding means for this term. Plaintiff proposes that the means include the physical memory in the docking station as well as that in the device. However, both the claims as well as the specification recite that the storage means is included with the device. Arbitron argues that "with the device," is not the same as "in the device," and that the docking station, as a part of the system, is provided "with" the device. However, this is a stretched construction of the word "with" as used in this context. The defendants' proposed construction is hereby adopted for his term: "A physical memory device 116, or equivalents thereof"

Plaintiff's Proposed Construction

The maximum sustained rate at which data

Defendants' Proposed Construction

The maximum rate at which data
can be written to the data storage device, including, in the case of hard drives, seek time and rotational latency can be stored on the data storage device 9

--- Footnotes ---

9 In the alternative, Blue Coat proposed the construction: "For hard disk drives, the maximum sustained rate at which data can be written to the data storage device means the internal transfer rates set forth in the manufacturer's specification sheets."

--- End Footnotes ---

The parties' primary dispute lies in whether the construction of "data storage rate" should include performance factors such as seek time and rotational latency in addition to the time associated with the internal transfer rate. As indicated in the initial Claim Construction Order, the asserted claims of the '104 and '158 are informed by what the patentee, at the time of the invention, called a "fundamental problem" of limited data storage rates. CLAIM CONSTRUCTION ORDER at 14; '104 patent at 2:33-34. Importantly, the specification of the patent reads: "magnetic disk mass storage devices . . . suffer from significant seek-time access delays along with profound read/write data rate limitations." '104 patent at 2:14-28 (emphasis added). This language persuades the Court that one of ordinary skill in the art, reading the claim term "data storage rate" in the context of the '104 patent, would conclude that the rate is determined by the entire write operation following receipt of a write request, which includes seek access time and rotational latency.

Blue Coat asks that the Court narrowly understand the term "write" to include only the limited transfer of information from the drive head to the disk. In light of the '104 patent's specification, however, the Court construes "data storage rate" to include the parameters impacting the overall data storage process set forth in the claimed invention. One of ordinary skill in the art would read column 2 of the specification to necessarily include practical limitations affecting a data storage process that goes beyond just the transfer of data from the drive head to the disk. REALTIME SUPP. BRIEF at 4. Further, a person of ordinary skill in the art would understand that in order to minimize the bottleneck problem of hard disk drives discussed in the '104 patent, a construction of "data storage rate" must encompass the entire write operation (address lookup, seek operation, rotation of disk platter, data transfer). See also REALTIME SUPP. RESPONSE at 2. Accordingly, the Court reads the specification to disclose a series of steps that are directed toward removing bottleneck(s) and that ultimately affects the performance of the data storage process.

Thus, the Court rejects Blue Coat's interpretation of "write" as being the internal transfer rate listed in the hard disk drive manufacturer's data sheet because it is not consistent with the '104 patent's specification. The initial Claim Construction Order previously recognized that seek time is involved in the write operation, CLAIM CONSTRUCTION ORDER at 14, and the language of the patent is dealing with real world practical considerations. See also '104 patent at 2:23-37 (using "data rate" and "data transfer rate" to inform an understanding of "write" that means a write operation process that includes seek time and rotational latency). A supplemental construction for "data storage rate," therefore, should acknowledge that a number of seek operations may have to be performed when a disk is functioning in a fragmented state, which causes a reduction in the data storage rate of a hard disk drive.

As explained by Realtime, (1) disk fragmentation occurs over time; and (2) the number of seek operations will increase as the disk becomes fragmented. REALTIME SUPP. BRIEF at 8. This effect will necessarily impact the data storage rate. Blue Coat discredits the effect of fragmentation by arguing that data sheet specifications provide definitive information in determining the "data storage rate," BLUE COAT SUPP. RESPONSE at 5, but again, the Court disagrees. The Court finds that the data storage rate of a hard disk drive is determined through "actual real-world performance" as it would vary according to "real world operating conditions." REALTIME SUPP. RESPONSE at 3 (internal citations omitted). Therefore, when considering the effect of fragmentation, the Court adopts a construction that allows for the "data storage rate" of a device to be determined by testing it as deployed at steady state fragmentation, an objectively testable parameter. 10

--- Footnotes ---

10 The Court rejects Realtime's proposed construction of "maximum sustained rate . . . as measured at maximum fragmentation of the hard disk drive when deployed for its intended use" as incomprehensible. See Doc. Nos. 682, 683.
One of ordinary skill in the art would understand "significant seek access delays along with profound read/write limitations" to refer to disk fragmentation, and moreover, one skilled in the art would further understand that the slowest speed at which the (maximum sustained) data storage rate would occur is with the hard disk drive at steady state fragmentation. 11 See '104 patent at 2:20-23. Specifically, the Court finds that the maximum sustained storage rate will be determined in a manner that is inclusive of seek time and fragmentation, and will objectively base "data storage rate" on measurements that are taken once a storage device reaches steady state fragmentation. 12 Accordingly, the supplemental construction accounts for performance factors affecting the claimed invention as it would function in the real world where one of ordinary skill in the art could test the hard drive and calculate the "data storage rate" once it has achieved steady state fragmentation. Moreover, determining the data storage rate, as construed, of an accused device at a condition of steady state fragmentation on the hard disk drive provides an objective standard by which one skilled in the art can determine infringement or non-infringement. Blue Coat contends that the condition of fragmentation of a hard disk drive will vary depending upon each particular installation and manner of using the accused devices. See BLUE COAT SUPP. RESPONSE at 5. Nevertheless, a condition that can expectedly be achieved in the ordinary use of the accused devices is steady state fragmentation, as shown by Blue Coat's own testing. In this regard, the Court also gives due recognition to the principle that an accused product that sometimes, but not always, embodies a claimed method nonetheless infringes. See, e.g., Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp., 55 F.3d 615, 623 (Fed. Cir. 1995).

11 "Steady state," an established engineering principle, is a concept that has a plain and ordinary meaning to a person of ordinary skill in the art.

12 Steady state fragmentation in the accused ProxySG devices occurs after approximately 18 hours. REALTIME SUPP. RESPONSE at 4 (citing TOAST testing performed by Blue Coat performance engineer, Mr. Gary McAlpine).

Thus, in order to solve the problem of limited data storage rates of data storage devices by providing an effective increase in the data storage rate, this term must refer to the maximum sustained rate at which the device can operate to store data and must include the practical limitations disclosed in the specification of the '104 patent. For the foregoing reasons, the Court finds that the proper construction for "data storage rate" is "maximum sustained rate at which data can be written to the data storage device, including, in the case of hard disk drives, seek time, rotational latency, and data transfer in a condition of steady state fragmentation of the disk drive."

EMC contends that a "data storage system" is a set of associated components housed in one or more enclosures and working together to store data and a "data storage system controller," is a device that controls one or more data storage operations. HP claims, on the other hand, that (1) the term "data storage system" is so broad that it requires review of the specification for further definition and (2) in the relevant specifications, a data storage system is described as including a controller which contains cache memory. The primary dispute between the parties, therefore, is whether a data storage system or, more specifically, a data storage system controller is required to contain, as a component, cache memory. 3

As a threshold matter, it is undisputed that the plain and ordinary meaning of the terms "data storage system" and "data storage system controller," do not require cache memory. 4 Indeed, a "system" is defined as "a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose." Webster's Third International Dictionary, 2322 (1981). In this case, that common purpose is data storage. In a more technical context, a "controller" is defined as

[t]he control logic in a storage subsystem that performs command transformation and routing, aggregation (RAID,
mirroring, striping, or other), high-level error recovery, and performance optimization for multiple storage devices.

Dictionary of Storage Networking Technology, http://www/snia.org/education/dictionary/c/. In this case, the controller performs its various functions within the data storage system. Therefore, the plain meanings of neither the term "data storage system" nor the term "controller" require, as a component, cache memory.

3 Although it was once in dispute, at the Markman hearing the parties agreed that the components of a "data storage system" are not required to be housed together in the same enclosure.

As a threshold matter, it is undisputed that the plain and ordinary meaning of the terms "data storage system" and "data storage system controller," do not require cache memory. Indeed, a "system" is defined as "a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose." Webster's Third International Dictionary, 2322 (1981). In this case, that common purpose is data storage. In a more technical context, a "controller" is defined as [the control logic in a storage subsystem that performs command transformation and routing, aggregation (RAID, mirroring, striping, or other), high-level error recovery, and performance optimization for multiple storage devices.

Dictionary of Storage Networking Technology, http://www/snia.org/education/dictionary/c/. In this case, the controller performs its various functions within the data storage system. Therefore, the plain meanings of neither the term "data storage system" nor the term "controller" require, as a component, cache memory.

4 Even if, as HP contends, the phrase "data storage system," as a whole, is so broad as to lack a common meaning, this court is not inclined to "abandon its quest" for such and "disregard the meanings of the individual words." Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1372 (Fed. Cir. 2003)(holding that district court erred in disregarding the common meaning of the terms "boot" and "selection" after concluding that the disputed phrase "boot selection flag" was, as a whole, unclear on its face).

The only remaining question is whether EMC has acted as its own "lexicographer" by defining the terms "data storage system" and "data storage system controller" to require, as a component, cache memory. Before turning to the patent specifications, there is evidence in other claim language that EMC has not demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term . . . [by] using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.

Sunrace, 336 F.3d at 1304. (internal quotation marks omitted). Claim 10 of the '792 Patent, an independent method claim, contains the term "data storage system" with no reference to cache memory. Claim 12 of the '792 Patent (a dependent claim), however, discloses the method as claimed in Claim 10 wherein said data storage system contains a cache memory and a disk data storage device . . . .

'792 Patent, Col. 62, ll. 52-54. Because, by virtue of the doctrine of claim differentiation, limitations from one claim cannot generally be read into another, there is a rebuttable presumption that, with respect to the '347 and '792 Patents, the term "data storage system" does not require cache memory.

As HP aptly contends, Claim 10 is also distinguishable from Claim 12 in that it discloses a data storage system including a "disk data storage device." That additional limitation does not, however, negate the presumption that the term "data storage
system" as used in Claim 10 is not limited in scope to a system which requires cache. See Sunrace, 336 F.3d at 1302-03. Common sense, moreover, reinforces that presumption because if cache were a required component of a "data storage system" or a "data storage system controller", its inclusion in dependent Claim 12 would be wholly redundant.

That evidence notwithstanding, the Specifications of the ’347 and ’792 Patents provide significant support for HP’s contention that a "data storage system" requires cache memory. In the “Detailed Description of the Invention,” the Specification of the ’347 Patent states, in relevant part,

The present invention is shown generally at 10, FIG 1, and includes at site A . . . .

The primary data storage system controller 16 includes at least 1 channel adaptor (C.A.) 26 which is well known to those skilled in the art and interfaces with host processing system 12. Data received from the host is typically stored in cache 28 before being transferred through disk adaptor(D.A.) 30 over data signal path 24 to the primary storage device 20. The primary data storage controller 16 also includes . . . cache memory . . . .

The secondary data storage system controller 44 also includes cache memory . . . .

’347 Patent, Col. 4, ll. 6-7, 21-30, Col. 5, ll. 64-65. (emphasis added). Furthermore, in Figure 1 of the Specification of the ’347 Patent, described as a block diagram illustrating "the system with remote data mirroring according to the present invention," the controller is depicted as including cache memory. Those references, in addition to similar references in the Specification of the ’792 Patent, HP contends, demonstrate that EMC has acted as its own lexicographer and specifically defined a data storage system to include cache memory.

5 Because similar claim terms must be construed uniformly in the ’347 and ’792 Patents, for purposes of efficiency this Court will cite only to the Specification of the ’347 Patent in construing such terms.

First, a simple comparison of other "definitions" in the Specification of the ’347 Patent confirms that EMC has not explicitly redefined data storage system to include cache memory, i.e. by using definitional language. In "defining" the term "geographically removed site," for example, the Specification states, in relevant part,

[for this Patent Application, geographically removed site means not within the same building as the primary data storage system.

’347 Patent, Col. 4, ll. 6-7 - Col. 5, ln. 2. Nowhere in the Specification of the ’347 Patent does EMC so explicitly define the term "data storage system" or "data storage system controller."

A patentee, however, can implicitly supply new meanings for claim terms. Here, HP contends, EMC has implicitly redefined the term "data storage system" by consistently describing the "present invention" as including cache memory. Although "clear language characterizing the present invention may limit the ordinary meaning of claim terms," such language must be read in context of the entire specification and the prosecution history to determine whether the patentee clearly limited the plain meaning of a claim. Rambus, 318 F.3d at 1095.

In Brookhill-Wilk, for example, the patentee disclosed only one embodiment in the patent specification which was referred to therein as "the present invention". See U.S. Patent 5,217,003. In fact, the only figure in that specification was described as "a diagram . . . in accordance with the present invention" and the "Detailed Description" section specifically described the illustration in that figure. Id. Nonetheless, the Federal Circuit Court of Appeals reversed the district court's decision to limit the claim scope on the basis of the sole embodiment disclosed in the specification holding that

[t]he statements from the description of the preferred embodiment are simply that--descriptions of a preferred embodiment . . . . Those statements do not indicate that the invention can only be used in such a manner. Absent a clear disclaimer of particular subject matter, the fact that the inventor anticipated that the invention may be used in a particular
manner does not limit the scope to that narrow context.

Brookhill-Wilk, 326 F.3d at 1223 (emphasis added). Notwithstanding the Federal Circuit's obvious and continuous reference to the patentee's "preferred embodiment", where that term is not used in the patent specification, the Court makes clear that a patentee must clearly disclaim a particular subject matter before the plain meaning of the claim terms are so limited.

Similarly, in Rambus, the district court found that the patentees had acted as their own lexicographers by redefining the claim term "bus" to be a "multiplexed bus". Rambus, 318 F.3d at 1094. Although the patentees had described the "present invention" at various times throughout the specification as including a multiplexed bus, the Federal Circuit reversed the district court's decision and held that while "clear language characterizing the present invention may limit the ordinary meaning of claim terms," the remainder of the specification and the prosecution history did not evince a clear intent to disclaim or disavow the plain and ordinary meaning of the term "bus." Id. at 1094-95. See also Sunrace, 336 F.3d at 1304-05 (patentee did not clearly redefine the term "shift actuator" to include "cam" where, in patent specification, he stated that each shift actuator "contains a . . . cam member" and that "[a] rotary cam member . . . is the heart of the rear handgrip shift actuator").

HP contends that this case is, however, distinguishable from Brookhill-Wilk and Rambus because, in those cases, the Federal Circuit found that parts of the specification and the prosecution history supported a broader construction of the disputed claim terms. Here, HP claims, the subject specifications implicitly define a "data storage system" as including cache memory. There are at least three problems with that contention:

1. Although the relevant specifications do, in various places, refer to a data storage system as including cache, in each instance the patentee is clearly describing "the present invention . . . shown generally at 10, FIG. 1." See '347 Patent, Col. 4, ln. 6. As the Federal Circuit impliedly found in Brookhill-Wilk, EMC's use of the term "present invention" can be considered synonymous with "preferred embodiment" and the fact that the patent discloses only one embodiment does not necessarily limit the claim terms to a description thereof. Moreover, it is well-established that limits from the preferred embodiment are not to be read into the claim terms. See RF Delaware, 326 F.3d at 1263.

2. The Specification of the '347 Patent is not without its ambiguities with respect to whether the terms "data storage system" and "data storage system controller" must be defined to include cache memory. As both parties note, the Specification states, at one point, that

[...]

3. The prosecution history reveals that the PTO considered, as prior art, numerous patents disclosing controllers that did not include cache memory. The PTO did not, however, distinguish EMC's invention on those grounds. Although not dispositive, such evidence indicates that EMC did not clearly disclaim or disavow data storage systems without cache memory during the prosecution of the subject patents.

For each of those reasons and because of the presumption that different patent claims are to be accorded a different scope, EMC has not, either implicitly or explicitly, demonstrated "an intent to deviate from the ordinary and accustomed meaning" of the term "data storage system" or "data storage system controller" by "using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." See Sunrace, 336 F.3d at 1304. In accordance with its plain and ordinary meaning, therefore, a "data storage system" is a set of associated components working together to store data and a "data storage system controller" is a device that controls data storage operations. Neither is required to include cache memory.
2. "Data structure"

The parties also request that the court construe the meaning of the data structure limitation as it appears in Claims 1 and 8. 21 See '002 Patent col.33 ll.30-34, col.34 ll.19-24. The limitation states: "a data structure . . . including: a plurality of data packets stored in said local computer-readable memory . . . ." Id. col.33 ll.30-34. Papyrus argues that the court should construe the phrases to mean "a data structure accommodating a plurality of data packets, which the local computer-readable memory may store sequentially or simultaneously." Pl. PCCO 3.

21 Because Claim 8 addresses the communication between the computer-readable memory in the HHD and the booth clerk's programmed computer, the text of the limitation is modified to reflect the storage of data in the data structures of each device. See '002 Patent col.30 ll.60-63; Pl. TD 79. The limitation in Claim 8 states: "a data structure . . . including a plurality of data packets stored in said computer-readable memories . . . ." '002 Patent, col.34 ll.19-24. As the two devices appear to employ data structures similarly, the court's construction will apply to the phrases in both claims.

According to Papyrus, the data structure acts as a template to arrange data for later use, and is an organizational element that exits regardless of whether data is present or absent from the structure. Pl. Reply Br. 15. In general, the invention provides that the booth clerk's local computer-readable memory ("LCRM") stores, processes, and then sends data packets to a separate storage device. Pl. TD at 64-85. Specifically, the patent provides that "each data packet that is formulated or constructed is stored in a computer-readable memory, and may be transmitted across a two-way [sic] wireless network, as a data structure." 22 '002 Patent col.22 ll.53-56. Thus, the LCRM stores data packets in the data structure of the local memory, using appropriate routines to process each packet. Pl. TD at 81; see '002 Patent col.21 ll.56-59. Papyrus also argues that because the computer program executes different steps for different transaction types, the invention permits sequential storage of data packets and processes the packets on a packet-by-packet basis. Pl. MHSP vol. 2 at 27-28. The specification teaches that in processing newly received information data packets are removed from the local memory and sent to storage. Pl. MHSP vol. 2 at 29. At that point, a "many-to-one relationship" exists between the order and execution data packets even though they are not stored in the LCRM at the same time, but rather, in the separate storage device. Pl. TD at 82; Markman Hr'g Tr. vol. 2 at 53; see '002 Patent col.30 ll.58-63.

22 The data structure includes a header with each of the data packets that contains the badge number of the floor broker, the sequence number of the transaction, the transaction type and subtype, the stock symbol, date, and the time, regardless of whether the communication originates at the programmed computer or the HHD. '002 Patent col.21 ll.34-42.

In addition, Papyrus emphasizes not only that the patent language evinces no intent to limit the claim with a simultaneous storage requirement, i.e., that a particular data packet be stored in both the local memory and the separate storage computer, but that the simultaneous storage in the local memory is not the mechanism for establishing the many-to-one relationship. Markman Hr'g Tr. vol. 2 at 53. Rather, it is "[t]hrough the use of hierarchical volley codes and sequence codes, the claimed data structure enables an electronic matching of multiple, small executions against a single, larger order." Amendment in Application Serial No. 08/478,286 (Apr. 25, 1997), Pl. App. 16 at 231. Papyrus also contends that had the inventors intended to limit the claim, then they would have included the word "simultaneously" in the specification, as in Claim 1 of the '877 Patent. Pl. Reply Br. 16. As written, the computer must process each packet separately because it cannot hold order data packets and execution data packets simultaneously. See '002 Patent col.20 ll.46-col.21 l.33. Moreover, the specification discloses serial storage by expressly stating that the data packet is "sent to storage" rather than "copied to storage" to indicate removal from the data structure in the local memory. Id. col.30 ll.60, 62-63; Pl. Reply Br. 17.

Papyrus also relies on extrinsic evidence from dictionaries to help define the limitation with its ordinary meaning of "a particular way of organizing a group of data." Pl. Br. 25; Pl. MHSP vol.2 at 23. First, Papyrus cites the EE Dictionary, which defines data structure as "a particular way of organizing a group of data, usually optimized for efficient storage, fast search,
fast retrieval, and/or fast modification." Pl. App. Ex. 53 at 520. Second, the Merriam-Webster's Collegiate Dictionary, defines "data structure" as "any of various methods of organizing data items (as records) in a computer." Pl. App. Ex. 49 at 483. Third, Papyrus referenced the 5th IEEE Dictionary during prosecution to explain that "data structure" is a "physical or logical relationship among data elements, designed to support specific data manipulation functions." Pl. App. Ex. 56 at 529; Pl. App. Ex. 16 at 231-32.

NYSE proposes an alternative construction of "a data structure having the plurality of data packets present in the local computer readable memory at the same time." Def. PCCO 3. NYSE argues that the plain meaning of the claim language at issue is that the plurality of data packets are present in the memory at the same time. Def. Br. 29; see '002 Patent col.34 ll.19-24. Because the patent says nothing about removal to a remote storage device -- only that it is stored or sent to storage -- the invention could store the data packets in the local memory. Markman Hr'g vol. 2 at 60; see '002 Patent col.28 l.23, col.29 l.16, col.30 l.63 & col.31 l.23. NYSE also argues that the many-to-one relationship between an order data packet and several execution data packets can exist only if all are simultaneously present in the local computer-readable memory. Def. Br. 29; see Markman Hr'g Tr. vol. 2 at 64.

With regard to extrinsic evidence, NYSE points to the deposition of Dr. Lee A. Hollaar, who answered negatively when asked whether the limitation could mean storage at different points in time, and affirmatively when asked whether it was necessary "to have at one time a plurality of data packets stored." Excerpts from Hollaar Dep., Gaspar Decl. Ex. 4 at 228; Def. Reply Br. 15-16. 23 Based on this testimony, NYSE contends that Dr. Hollaar admitted that multiple packets had to be in the memory at the same time. Def. MHSP 150-51.

23 Following a request for Dr. Hollaar to interpret the phrase "a plurality of data packets stored in said local computer-readable memory," the testimony was as follows:

A: [It] [means] that it stores more than one data packet in the memory.

Q: [Could this phrase mean storage at] different points in time, so if it first stores one data packet and then later stores another data packet, that satisfies having a plurality of data packets stored in memory?

A. Well, certainly not.

Q: Okay. So you have to have at one time a plurality of data packet stored; right?

A. Right.

Gaspar Decl. Ex. 4 at 228.

Papyrus counters, noting that Dr. Hollaar amended his testimony because the questions were allegedly ambiguous. Indeed, Dr. Hollaar changed his responses from "certainly not" and "Right" to "Maybe." Pl. MHSP vol. 2 at 38. Further, Dr. Hollaar testified that "[the patent] says that there has to be a plurality of data packers stored in the local computer memory. That means more than one is stored. It doesn't necessarily say simultaneously." Pl. MHSP vol. 2 at 36.

The Federal Circuit has held that "when the specification describes the invention in broad terms, accompanied by specific examples or embodiments, the claims are generally not restricted to the specific examples or the preferred embodiments unless that scope was limited during prosecution." Kinik Co. v. ITC, 362 F.3d 1359, 1364-1365 (Fed. Cir. 2004). The court therefore need not restrict the meaning of the limitation to the preferred embodiment. Nonetheless, "while it is of course improper to limit the claims to the particular preferred embodiments described in the specification, the patentee's choice of preferred embodiments can shed light on the intended scope of the claims." Astrazeneca AB, Aktiebolaget Hassle, KBI-E, Inc. v. Mut. Pharm. Co., Inc., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

In this case, the only mention in the specification of external storage appears in the explanation of the programmed
computer's functions. During a receive routine, if the transaction sequence number is known, then the file record for that instruction is received at step 792 from a storage area 794 (illustrated as a magnetic storage device, but the storage area could equally be a computer readable memory containing the data that corresponds to that transaction sequence number in the data structure) . . . .

'002 Patent col.29 ll.57-62 (emphasis added). That Figures 14-18 all have illustrations similar to that appearing in Fig. 16 step 794 implies that steps 724, 760, 810, 844, 894 and 906 may also be either separate magnetic storage devices or local computer-readable memories. As the specification seems to specifically allow for either type of device, the court is reluctant to limit the claim by requiring a specific type of storage device. Nevertheless, the court is persuaded by Figures 1 and 7 of the patent, which illustrate the simultaneous display of numerous data packets. See '002 Patent Fig. 1 steps 324, 328 & 342; id. Fig. 7 steps 424, 430, 432. Presumably, to display numerous data packets on the display of either the HHD or the programmed computer, the local computer-readable memories of each device must store the data packets simultaneously for display and access by the user. Additionally, the court notes that Claims 1 and 8 of the patent references "said local computer-readable memory," "a computer-readable memory," and "said computer-readable memories" and not separate storage devices. See '002 Patent col.33 ll.33-34, col.34 ll.14-15, 18-20. Thus, the court agrees with NYSE and finds that the term "data structure" means "a data structure having the plurality of data packets present in the local computer-readable memory at the same time."

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E. "Data Structure"

The term "data structure" appears in all claims of the '511, '382, and '617 patents and in claims 10-15 and 19-25 of the '392 patent. In these claims, the term is generally used to describe a driver obtaining information about the "data structure" of a data source.

The parties agree that the term "data structure" refers to the way data is organized. However, Timeline argues that the term refers to the "logical organization of data such as tables, columns, or rows" while ProClarity asserts that the term means "organizational scheme between content of information."

The term "data structure" is not expressly defined in the specifications. However, Timeline notes that the specifications refer several times to the "logical structure" and "logical organization" of data. For example, the '511 patent refers to "[t]he data organized in the logical structure of depicted in FIG. 1." '511 patent, Col. 6:12-13; see also id. Col. 5:64-65 (noting that "FIG 1. is intended to depict the logical structure of the data organized into a plurality of files"). As a result, there is some support in the intrinsic evidence for construing data structure as a "logical organization" of data.

By contrast, ProClarity's proposed construction is somewhat vague and is not well-supported by the intrinsic evidence. Although ProClarity suggests that Timeline's proposed construction is deficient because it would not encompass the physical layout of data, Timeline's proposed construction specifies that the term includes tables, columns, or rows.

Therefore, the court construes the term "data structure" to mean "the logical organization of data such as table, columns, or rows."

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5. Data Successfully Received

The Court's Construction: Data from the data file transferred from the server computer to the client computer. Markman Tr. 30:13-15.

RealNetworks did not raise an objection to the Court's construction of this term. n6 Ethos argued "data is successfully
received when it is available for storage." Id. 31:14-15. This construction was not supported by the specifications.

n6 At the Markman hearing the Court construed this term as part of its construction of the entire phrase "storing said data successfully received." Markman Tr. 31:22. RealNetworks objected to the Court's construction of "storing" but not the Court's construction of "data successfully received." Id. 32:16-23.

The specifications use this language in the following manner:

Data received from the server computer as a stream of data in response to the request for the data file is monitored to detect termination of the download of the data file and to track an amount of data from the data file successfully received by the client. The amount of data successfully received by the client is stored when an error is detected that terminates the download.

'892 patent col.3 11.43-51; '709 patent col.3 11.51-58.

In one embodiment, the download is monitored by tracking an amount of data from the data file successfully received by the client. The amount of data successfully received is stored when an error is detected that terminates the download.

'892 patent col.4 11.19-23; '709 patent col.4 11.26-30.

The patent specifications indicate that successful receipt of data is equivalent to the successful transfer of data, whether or not it is available for storage. According to the embodiments described, data successfully received is stored only after an error is detected, indicating that data is still considered successfully received even if it is not available for storage because an error had not occurred. Ethos' construction is therefore inconsistent with the specifications' description of the embodiments of the invention and must be rejected.

4. "Data Terminal." Used in '114 patent, Claims 1-7; '768 patent, Claims 1, 3, and 5.

TGIP states that this claim does not need to be construed. If it is construed, TGIP proposes "a device capable of receiving data and transmitting data." Defendants suggest "a device for on-site point-of-sale activation and recharging of prepaid calling cards."

As the parties agreed at the hearing, the data terminals described in these patents are connected to the host computer and transmit information, specifically charging and recharging information, between the terminal and the host computer. Tr. p. 79-80; see '114 patent, col. 2, 11. 60-61; '114 patent, col. 4,11. 13-15. The only dispute between the parties is whether a data terminal must always be used for activation and for recharging of a card.

The specification states: "The data terminals allow for point-of-sale variable authorization and recharging of calling cards." '114 patent, col. 4, 11. 44-45. This implies that the devices have the capability to do both. Both sides agreed to this. Tr. pp. 81-83, 87. But "allows for" is permissive, not mandatory.

Just because the device "allows for" charging and recharging does not mean that it has to be used for both. A data terminal at a kiosk in a mall which was always available for recharging by those who already had a card might be used for activation only when an employee was available to manually hand out the cards themselves. How the data terminal is actually used will depend on the language of the claim under consideration. The court will define this term as follows:

"Data terminal" means "a device that can transmit and receive data to a host computer to allow for charging and recharging a calling card or calling card account."
6. Data terminal equipment; remote devices

The term "data terminal equipment" appears in claims 11 and 24 of the '774 patent. The term "remote devices" appears in claims 16 and 26 of the '727 patent. The plaintiff asks the court to construe the terms to mean "equipment that processes upper layer protocols including network and transport layer protocols" or, in the alternative, "computer." The defendants ask the court to construe the terms to mean "end-user equipment that receives high speed data addressed to a remote link adapter for routing to data terminal equipment in contrast to using the media access layer." The written description of each patent fails to shed much light on the meaning of each of the terms at hand, as the terms appear primarily within the claims. The court construes each of the above terms to mean "end-user computer equipment."

"data traffic" is construed to mean "transmitted data packets."

Lucent contends that this term should be construed to mean "packets of data traffic." (D.I. 396 at 26.) Extreme contends that this term means "packets of data whose content is not necessarily organized into blocks of droppable bits." In support of its contention, Extreme cites various points in the written description and drawings. (D.I. 395 at 21, citing the '650 patent at 2:66-3:2, 4:30-32, 5:8-11, Fig. 1.)

The Court finds that Lucent has not redefined the term "data traffic" in any of the places Extreme cites. Thus, the Court concludes that Lucent has not made a clear disavowal of claim scope. Further, the Court finds that the parties agree that the ordinary meaning of the term "traffic" is "the information or signals transmitted over a communications system: MESSAGES." (D.I. 379 at 29; D.I. 399 at 21.) The Court finds that the parties also agree that data traffic is generally comprised of "packets of data" or "data packets." (D.I. at 379 at 29; D.I. 399 at 20.) Further, the Court finds that the specification references the transmission of data packets several times in the Summary of the Invention ('650 patent at 3:4-16.) Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

10. data transfer circuitry for controlling the transfer of data stored in said digital camera flash memory module inserted into said memory input port to said hard disk drive n6

The corresponding phrases are "circuitry [contained within said hand-held housing] for controlling the transfer of data stored in said digital [camera flash] memory module [inserted into said memory input port] to said hard disk drive;" and "circuitry embodied in said housing for controlling the transfer of data to and from said mass storage device."

The plaintiff contends that this phrase does not need construction. To the extent that it needs to be construed, the plaintiff proposes "circuitry for controlling the transfer of data stored in said digital camera flash memory modules inserted into said memory input port to said hard disk drive." The defendants propose "circuitry that can copy files from a digital camera's memory and delete them from the digital camera's memory." The claim phrase is broader than the limitations from the preferred embodiment cited by the defendants. Therefore, the court rejects the defendants' proposed limitations. The court incorporates by reference its construction of "port," and concludes that the balance of the phrase requires no construction.
6. data transfer system (Claim 17)

Defendants contend that the inventors have provided a specific definition of this term in the specification and Court should adopt this definition. Defendants propose that the inventors have defined a "data transfer system" as "a docking station and hub including a power source, battery charger, battery status detector, backup battery, communications interface to the device, clock processor, memory, bus switch, sound generator, LCD, LED and communication interface to the PSTN."

Arbitron argues that the specification discloses many ways of transferring data, including cellular telephony as well as physically delivering the devices to the centralized data processing facility. '276 Patent, 4:49-50. Further, they argue that the customary meaning of "data transfer system" is well known in the art and the Court should adopt that meaning. The court agrees. See Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (stating that it is "an evasion of the law to construe [a claim] in a manner different from the plain import of its terms."). Given the clear disclosure in the specification, defendants' argument that inventors defined data transfer means as a narrow collection of communication components is not persuasive. The Court construes this term as "a system or mechanism that transfers data."

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Data transformation rule sets

JuxtaComm proposes that the Court construe "data transformation rule sets" as "a collection of rules for transforming data." Defendants propose "a collection of rules used to transform a data bag in one format into another data bag of a different format."

To support their additional limitations, Defendants rely on the specification, which they contend defines the term: "Rule sets 54 (Fig. 5) are collections of rules within the present invention. Rule sets are used to transform a data bag in one format into another data bag of a different format." Col. 5:20-22. Defendants also rely other parts of the specification, which they contend describe the data transformation rule set as operating on the data bags. See col. 7:7-9, 8:29-32, 8:54-55. Finally, Defendants contend that the claims require that the "rule set processor" is "for manipulating a data bag for storing imported data and a data bag for storing exported data." See claim 1.

Similar to "rule," the definition in the specification only specifies that the term means "a collection of rules." The additional statements express what the rules are used to do but do not further define what the rules are and are therefore not properly part of the definition. As the specification does not expressly limit the claim language, the claim language is controlling. The claim language does not require that these rule sets operate on the data bags, but on the data. Had the patentees intended to claim otherwise, they could have claimed "data bag transformation rule sets." That the rule set processor, a separate claim element, is "responsive to said script processor for manipulating a data bag for storing imported data and a data bag for storing exported data" does not affect the meaning of "data transformation rule sets."

Accordingly, the Court construes "data transformation rules sets" as "a collection of rules for transforming data."

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1. Data Transmission Device of the Portable Unit

PHT, Invivodata, and CRF's proposed constructions for this phrase are similar to their proposed constructions for the phrase "data transmission device capable of connecting directly" in claim 22. eTrials proposes that the court construe the phrase to mean "a device that transmits data and is included within the portable unit."

--- Footnotes ---
8 eTrials' proposed construction does not include a direct connection between the data transmission device and the network for two reasons: (a) claim 34 does not explicitly cite the "direct connection" requirement; and (b) when the patent applicants compared claim 34 to claim 1 (which contains similar language to claim 22), they told the patent examiner that the data transmission devices of the two claims are different. (D.I. 40, at 27 n.11.) eTrials, however, states that "to the extent the court is inclined to construe claims 22 and 34 to require a direct connection, Etrials believes that the construction urged by invivodata and CRF should be adopted." (Id.)

The court has already construed the phrase "data transmission device" and the phrase "part of a single, unified portable unit." As previously stated, the court should construe claim terms consistently. See Southwall Techs., 54 F.3d at 1579. The court, therefore, will construe the term "data transmission device" consistent with its construction of that term in claim 22 to mean "a device that transmits data." The court will not construe the term "data transmission device" as used in claim 34 to include a direct connection, as claim 34 does not include the "direct connection" requirement. In addition, the court will construe the term "of the portable unit" consistent with the phrase "part of a single, unified portable unit" in claim 22 to mean "part of a coherent group or whole that is capable of being carried." Thus, the court will construe "data transmission device of the portable unit" to mean "a device that transmits data and is part of a coherent group or whole that is capable of being carried."
Claim One of the '399 Patent uses the words "to" or "from" when discussing one-way communication. See, e.g., '399 Patent, col. 13:8-13 ("wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.") (emphases added).

Figures 1 and 2 that accompany both Patents show bidirectional arrows connecting the invention to the data transmit/receive device. 12 Figure 1 "shows a general block diagram of the interface device according to the present invention" and Figure 2 shows a "detailed block diagram of an interface device according to a preferred embodiment of the present invention." '399 Patent, col. 5:38-42; '449 Patent, col. 4:41-44 (emphases added); see '399 col. 9:29-30 ("In the preferred embodiment of the interface device 10 shown in FIG. 2 . . . ."); '449, col. 8:29-30 (same); but see '399 col. 9:15-16 ("Figure 2 shows a detailed block diagram of an interface device, according to the present invention") (emphasis added); '449, col. 8:15-16 (same). Again, the description of features of "the present invention" limits the scope of the invention. Verizon, 503 F.3d at 1308. In explaining the invention, Mr. Tasler specified that "[t]he digital signal processor 13 and the memory means 14 are also attached to a second connecting device 15 by means of bidirectional communication lines (shown for all lines by means of two directional arrows)." '399 Patent, col.5:49-56; '449 Patent, col. 4:51-55 (same except "bidirectional" is spelled "bi-directional"). In other words, communication goes in both directions.

12 While Figure 2 shows bidirectional arrows between the interface device and the transmit/receive device, the other portions of Figure 2 reveal unidirectional interaction, with single direction arrows flowing from the sample and hold circuit (which receives data from the transmit/receive device) toward the other components of the interface device, including the analog to digital converter and the digital signal processor. See '399 Patent, Sheet 2; '449 Patent, Sheet 2.

Additionally, in providing background to the invention, the specification states that "[t]he devices from which data is to be acquired cover the entire electrical engineering spectrum" and constitute "very different electrical or electronic systems." '399 Patent, col. 1:34-35, 56-59; '449 Patent, col. 1:36-37, 57-60; see also '399 Patent, col. 12:37-40 (the specification concludes, "[t]he interface device thus provides a universal solution which can cover the entire spectrum of possible data transmit/receive devices."); '449 Patent, col. 11:41-44 (same).

Even more pointed language in the specification describes Figure 1 as showing:

The second connecting device can be attached by means of an output line 16 to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device. The data transmit/receive device itself can also communicate actively with the host device via the first and second connecting device . . . .

'399 Patent, col. 5:56-62; '449 Patent, col. 4:55-61. This language supports the conclusion that, as its name implies, the data transmit/receive device is to "receive data from the host device," or it is the site "from which data is to be read" and it "can also communicate actively with the host device." Id. The specification also notes an "important advantage of the interface device of the present invention" is the "extremely high data transfer rates by using, for data interchange, the host device own [sic] BIOS routines." '399 Patent, col: 8:43-46; '449 Patent, col. 7:43-47 (emphasis added).

In every instance, the Claims, Figures, and specification refer to data transmit/receive devices and not to "data transmit devices" or "data transmit or receive devices." In fact, the name of the interface device itself emphasizes that both data transfer and receipt are important attributes of the data transfer/receive device: the invention is a "flexible interface for communication between a host and an analog I/O device," i.e., the data transmit/receive device is an input and output device. '399 Patent, Title; '449 Patent, Title. While the data transmit/receive device does not engage in two-way communication at all times, the Claims and specification require it to have the capability of two-way communication. The Court thus construes the term "data transmit/receive device" to mean "a device that is capable of transmitting data to and
receiving data from the host device when connected to the host device by the interface device."

C. "data type"

<table>
<thead>
<tr>
<th>Term</th>
<th>Widevine Construction</th>
<th>Verimatrix Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data type</td>
<td>Data that corresponds to a particular type or format of data.</td>
<td>format by which the content in the payload portion is organized.</td>
</tr>
</tbody>
</table>

There is very little intrinsic evidence to guide the Court's construction of "data type." The specification uses "data type" in only a few places, but each time equating "data type" with a multimedia or streaming format, like Windows Media format. 1 The abstract does not use "data type," but uses the word "media format" in a manner that is consistent with the claims' use of "data type." 2

--- Footnotes ---

1 "[I]f the encryption unit does not see a data type that it specifically recognizes, then it ignores it, but if the encryption unit sees a data type that it does recognize (e.g. Multimedia content), then it selectively encrypts only the recognized portion of the data stream." '175 patent, 5:27-32. "[T]he EB system provides parsing and encryption for a variety of data types and streams including but not limited to Windows Media format and RTP/RTSP using TCP, TCP/UDP or http delivery." '175 patent, 7:17-20.

2 "The apparatus is platform independent in terms of media format and data protocol. The encryption unit encrypts data transparently to the client based on the media format." '175, Abstract. The claim language describes this selective encryption based on "data type" rather than "media format."

--- End Footnotes ---

Widevine urges the Court to reject a definition of data type that means "format" or its equivalent. Widevine points to the prosecution history, in which the applicant thrice amended the language immediately surrounding "data type." The language in '175 patent, claim 1 changed from the following text in June 2004:

an encrypter configured to determine if the first portion of the data is to be encrypted based on a format of the first portion of the data, and if it is to be encrypted, to encrypt the first portion of the data

to this in March 2005:


an encrypter configured to determine if the first portion of the data is to be encrypted [O] based on a format of <O] by inspecting the first portion of the data, the inspection being independent of a packet header, and if it is to be encrypted, to encrypt the first portion of the data

and finally, in July 2005, became:


an encrypter configured to determine if the [O] first <O] payload portion of the data is to be encrypted by [O] inspecting <O] examining the [O] first <O] payload portion of the data to recognize a predefined data type, [O] the
inspection being independent of a packet header, and if it is to be encrypted, to encrypt the payload portion of the data.

According to Widevine, these amendments are inconsistent with defining "data type" to be "format." The Court disagrees that the prosecution history indicates such a rejection of "format." The amendments increase the specificity in the claim language regarding how the invention performs selective encryption. The language in the July 2005 amendment, "encrypted by examining the payload portion of the data to recognize a predefined data type," is a more explicit way of saying that which appears in the June 2004 amendment, "encrypted based on a format of the first portion of the data."

Furthermore, Widevine's proposal incorrectly equates "data type" with data. A "data type" is not data. Rather, it is the manner in which data is stored. The Court construes "data type" to be "format by which the content in the payload portion is organized."

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2. "Database"

Defendants assert "database" should be construed to mean "a collection of information organized in such a way that a computer program can quickly access desired pieces of data." Defendants' construction is drawn directly from the definition of "database" provided in the Background of the Invention of the specification. Col. 1, lines 48-51 ("A database (DB) is a collection of information organized in such a way that a computer program can quickly access desired pieces of data."). Plaintiff asserts the term is entitled to its ordinary meaning, but if the Court deems construction necessary, "database" should be construed to mean "a SQL-compatible or other relational database."

The Court agrees with Defendants that Plaintiff acted as his own lexicographer by defining "database" in the specification. Where a patentee explicitly defines a claim term in the specification, he acts as his own lexicographer and that definition trumps others. Sinorgchem Co., Shandong v. Int'l Trade Comm'n, 511 F.3d 1132, 1136 (Fed. Cir. 2007) ("the patentee must be bound by the express definition.") (citations omitted). "The patentee's lexicography must, of course, appear 'with reasonable clarity, deliberateness, and precision' before it can affect the claim." Renishaw PLC v. Marposs Societa per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Here, Plaintiff's definition of "database" was deliberate and clear. In addition, there is nothing in the claims or specification that limits "database" to "a SQL-compatible or other relational database."

"Absent a special and particular definition created by the patent applicant, terms in a claim are to be given their ordinary and accustomed meaning." Id. at 1249-50. Thus, when a claim term is expressed in general descriptive words, the Court may not "add a narrowing modifier before an otherwise general term that stands unmodified in a claim." Id. Moreover, Plaintiff's construction does not actually define "database," but rather specifies a particular type of database.

Therefore, the Court construes "database" to mean "a collection of information organized in such a way that a computer program can quickly access desired pieces of data."

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M. "database"

Claim 1 contains the term "database": "a database with entries correlating each of a plurality of user IDs with an individualized rule set." The term "database" appears throughout the specification. The plaintiff asserts that no construction of "database" is necessary. If a construction is required, the plaintiff proposes "a structured set of data held in a computer." In contrast, BWI contends that this term means a "relational database that stores data in a collection of records wherein each record has at least one field common to other records."

BWI argues that "database" must be construed as a relational database. In support of its proposed construction, BWI quotes the following language from the specification: "The database 206 is a relational database which stores the system data." ('118 patent, 4:33-34) (emphasis added). BWI contends that this language does not state that the database could be or may be
a relational database; instead, it says that the database is a relational database. But the quoted sentence is located within the "Detailed Description of the Invention"; this section begins with "[i]n the following embodiments of the invention." ('118 patent, 3:45). Figure 2 and the "database 206," discussed in the Detailed Description, illustrate embodiments of the claimed invention. Although relational databases are a preferred embodiment, nothing in the claims or specification exclude other forms of data storage, such as a flat file. Therefore, the court construes "database" to mean "a structured set of data held in a computer."

9. "database"

This word appears within the phrase "communicating over a network the monitored patient data elements to a remote command center, the remote command center comprising a database and a work station."

Plaintiff requests the construction, "an organized collection of electronic information." Defendants propose, "a device for storing an organized collection of all patient data elements." In short, the dispute is over whether the construction should be a collection of organized information or a device.

Plaintiff submitted the un-rebutted declaration of Dr. Jeff C. Goldsmith, which states that a person of ordinary skill in the art at the time of the inventions would understand a database to be a collection of digital information, not a physical device. In their brief, defendants argue that a database is a physical device and the specification refers to a database server, which is also a physical device. However, defendants point to no intrinsic or extrinsic evidence which would justify using the word "device." Thus, relying in part on the Goldsmith Declaration, we adopt plaintiff's construction. The term is construed as: "an organized collection of electronic information."

G. "Database"

With the exception of claims 1-2 and 4-7 of the '617 patent, the term "database" appears in all claims of every patent. The term is primarily used in the patent claims to describe a database that is created by the invention. For example, claim 1 of the '511 patent describes using information to define a structure for a "first database" that did not previously exist, while claim 2 of the '511 patent describes using a driver to store at least some information from a data source into the "first database." In a different context, the '382 patent also uses the term "database" to describe a type of "data source" from which information may be retrieved. See '382 patent, claim 24.

Timeline's proposed construction of "database" is "a collection of organized information accessible through computer software. A database is not to be confused with a data repository which is a file or other data storage structure in which the database is stored." ProClarity's proposed construction is "a recorded reference to a database repository which serves as the location where the information loaded from the data source or sources will be saved into data tables."

As Timeline notes, its proposed construction finds support in contemporaneous dictionary definitions of the term. See, e.g., American Heritage Dictionary (2d ed. 1985) (defining "database" as "a comprehensive collection of related data organized for convenient access, generally in a computer"); The Computer Glossary (1995) (defining database as ":(1) a set of interrelated files that is created and managed by a DBMS [database management system]. (2) Any electronically-stored collection of data"). However, Timeline's proposed construction is also extremely broad. Conceivably, it could encompass virtually any collection of information stored on a computer-including information collected in "flat file" forms such as a spreadsheet. As ProClarity notes, the specification for the '511 patent explicitly observes that information "may be stored in forms that are not, strictly speaking, database forms such as storing data in a 'flat file' form, as a spreadsheet, and the like." '511 patent, Col. 2:20-23. In addition, the '511 patent specification acknowledges that "at least according to some usage, 'flat file' information storage is not a true database system." '511 patent, Col. 5:52-54.
ProClarity also argues that a "database" as used in the claims is essentially a container in which data is stored (i.e., a repository), rather than the actual collection of information itself. In a similar vein, ProClarity contends that Timeline's proposed construction is deficient because it would fail to account for an "empty database." In response, Timeline argues that the patent claims distinguish a "database" from a "repository." For example, Timeline points to claim 17 of the '382 patent, which claims "'[a] method . . . further comprising creating a database repository without first forming said new database." '382 patent, Col. 24:41-43. Timeline also argues that a database must contain data, noting that claim 24 of the '382 patent uses the term "database" to describe a particular type of data source.

The court declines to adopt either parties' proposed construction in full. The court agrees with Timeline that the term "database" cannot be construed as a "recorded reference to a database repository where information from a data source will be stored." This proposed construction finds little support in the intrinsic evidence and such a cramped construction would not fairly encompass the term as it is used in the patents. By contrast, Timeline's proposal that a database is a "collection of organized information" is consistent with the ordinary meaning of the term. Although ProClarity suggests that the term should be construed to allow for an "empty database," a logical reading of the term would dictate that a database includes data. The patents plainly describe the creation of databases that contain data from various sources. For example, the '511 specification notes that the invention "may create one or more new databases 808, containing data from one or more of the various data sources. . . ." '511 patent, Col. 10:16-18.

However, the court also agrees with ProClarity's argument that a database, as the term is used in the patents, does not include a collection of information stored in a "flat file" form such as a spreadsheet. As discussed above, the specification for the '511 patent expressly noted that "information may be stored in forms that are not, strictly speaking, database forms such as storing data in a 'flat file' form, as a spreadsheet, and the like." The '511 patent specification includes other examples contrasting "flat file" systems to database systems. See, e.g., '511 patent, Col. 8:23-42 (comparing scientific or technical information stored in a flat file system to information stored in a relational database system). In light of such language in the specification, a person of ordinary skill in the art who reviewed the '511 patent would likely conclude that the patentee did not intend the term "database" to encompass a collection of information stored in a "flat file" form.

Therefore, the court construes the term "database" to mean "a collection of organized information accessible through computer software, distinguishable from a collection of information stored in a flat file form such as a spreadsheet."

The Court construes "database" to mean "a collection of logically related data stored together in one or more computerized files." See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 251 (6th ed. 1996) (defining "database"). The parties dispute the relevance of "stored together" in the IEEE Dictionary definition. Sovereign's proposed construction would not limit a database to data stored together. This is too broad to reflect the ordinary and accustomed meaning to one of ordinary skill in the art. Amazon's proposed construction limits a database to data records maintained in a single file. This is too narrow.

The court agrees with 01 Communique that no construction of this phrase is required.
Judge Hubel construed the term "database field" to mean "the space reserved in a database for storage of a particular type of data." Construction Order 1 at 46. Defendant has presented evidence that the XAP System does not reserve space for all of the data to be stored.

Defendant previously requested Judge Hubel and this Court to construe this limitation to mean "each record capable of storing information corresponding to each of the database fields." If so construed, "every record has space reserved for storage for all of the application information fields stored in the database." This Court, like Judge Hubel, rejected Defendant's construction and indicated the issue should "be developed on summary judgment."

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<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendant's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) a database interface unit having inputs and outputs, for retrieving and storing data in the relational system</td>
<td>Plaintiff contends these phrases do not require construction. In the alternative only, Plaintiff contends these phrases should be accorded the meanings that would have been understood by one of ordinary skill in the art at the time of the invention, which are: (a) &quot;Unit having the input interface(s) and output interface(s), for retrieving and storing data in the relational system.&quot; (b) &quot;Unit used to retrieve and store data, including metadata, in the relational system.&quot; Alternatively, if these statements on the relational system are not considered means-plus-function limitations: (a) A unit having inputs interface with a database by retrieving and storing data in the relational system. (b) A unit that interfaces</td>
<td>Defendant contends these limitations are means-plus-function limitation under 35 U.S.C. § 112, paragraph are propose the following constructions:</td>
</tr>
<tr>
<td>Claim 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) a database interface unit for retrieving and storing data in the relational system</td>
<td>(a) Function: &quot;retrieving and storing data in the relational system&quot; Structure: Not disclosed.</td>
<td></td>
</tr>
<tr>
<td>Claim 57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) a database interface unit for applying the statements on the relational system</td>
<td>(a) &quot;Unit having the input interface(s) and output interface(s), for retrieving and storing data in a relational database system, and to apply statements to the database.&quot; (b) &quot;Unit used to retrieve and store data in a relational database system, and to apply statements to the database.&quot; and outputs that Plaintiff further contends these limitations are not governed by 35 U.S.C. § 112(6). In the alternative only, the following constructions are proposed: with a database by</td>
<td>(b) Function: &quot;retrieving and storing data and metadata in the relational system&quot; Structure: Not disclosed.</td>
</tr>
<tr>
<td>Claims 6, 44, 48</td>
<td></td>
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</tbody>
</table>
(a) Function: retrieve and store data in a relational database system. 
(c) A unit having inputs Structure: the Database Interface Unit with input interface(s) and output interface(s) as illustrated in Figs. 4, 5, 6, 7, 8, and 9 of various embodiments.

(b) Function: retrieve and store data, including metadata, in a relational database system Structure: the Database Interface Unit with input interface(s) and output interface(s) as illustrated in Figs. 4, 5, 6, 7, 8, and 9 of the various embodiments disclosed in the patent, and their equivalents.

(c) Function: retrieve and store data in a relational database system, and to apply statements to the database. Structure: the Database Interface Unit with input interface(s) and output interface(s) as illustrated in Figs. 4, 5, 6, 7, 8, and 9 of various embodiments.

"[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 P 6 does not apply." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). "This presumption can be rebutted 'by showing that the claim element recite[s] a function without reciting sufficient structure for performing that function.'" DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc., 469 F.3d 1005, 1023 (Fed. Cir. 2006) (quoting Watts v. XL Sys., Inc., 232 F.3d 877, 880-81 (Fed. Cir. 2000)). 

Defendant attempts to rebut the law's strong presumption by arguing "[t]he phrase 'database interface unit . . . for' is a means-plus-function limitation under § 112 P 6 because it recites function without 'sufficiently definite' structure." DEF.'S RESP. at 19. Defendant further argues "unit" is a nonce word and that "database interface unit" does not have a generally understood, non-generic meaning to a skilled artisan. DEF.'S RESP. at 19-20; DEF.'S REPLY at 7-8. Plaintiff responds, arguing the "database interface unit" terms connote sufficient structure such that the presumption that § 112 P 6 does not apply cannot be overcome. PL.'S BR. at 27-28.

Although the "database interface unit" terms connote some function, they more prominently connote structure and are stated
as structure. Indeed, a skilled artisan would understand their implementation as a well-known and definite structure within a software architecture. The written description of the invention describes a software architecture for accomplishing the claimed invention. See generally '776 Patent 4:39-20:67. Particular figures and their accompanying text detail the software components that makeup this overall architecture. See, e.g., id. at 9:66-10:27 (describing the functions performed by and the connections to Database Exchange Unit 210). These components consist of smaller modules or routines which operate in a specifically claimed concert with other modules or routines to perform the described functions. See, e.g., id. at 10:28-44 (describing the modular makeup of Database Exchange Unit 210). The "database interface unit" terms describe a particular module utilized by the Database Exchange Unit, the Schema Generator, and the Schema Reverse Engineering Unit. See id. at Figures 5-9, 10:28-14:34. Throughout the written description and the claim language, the terms are used to signify a software structure or module, connected to other software structures and possessing a specific place in the overall software architecture. See, e.g., id. at 21:29-32 (claiming "a database interface unit having inputs and outputs . . coupled to the relational system and the mapping unit"). In each instance, a "database interface unit" is simply the module or component that interacts with the relational database. E.g., id. Accordingly, the terms recite sufficient structure and the presumption that § 112 P 6 does not apply is not rebutted. One of ordinary skill in the art would understand the database interface unit connotes structure and would further understand the nature of that structure in the overall claimed architecture. See Alcatel USA Res., Inc. v. Microsoft Corp., No. 6:06-cv-500, 2008 U.S. Dist. LEXIS 49615, 2008 WL 2625852, at *17-18 (E.D. Tex. June 27, 2008).

Therefore, the Court finds these terms are not means-plus-function claims subject to interpretation under § 112 P 6. Having resolved the parties' dispute, the Court finds the terms do not require construction because their meanings are clear in the context of the claim and will be readily understandable to the jury. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008); Fenner Inv. Ltd. v. Microsoft Corp., No. 6:07-cv-8, 2008 U.S. Dist. LEXIS 65686, 2008 WL 3981838 at *3 (E.D. Tex. Aug. 22, 2008) (finding that a court need not construe a disputed term as long as it has resolved the claim scope dispute between the parties). The Court recognizes the terms, standing alone, would be difficult for a lay jury to understand. Read in context, however, the claim language explains what a database interface unit is and what it does. 2 Although the Court does not construe these terms, the parties may not interpret them in a manner that is inconsistent with this opinion.

2 The Court's conclusion is further supported by the parties' alternative proposals, which essentially restate the claim language. The Court finds a restatement of the claim language unnecessary.
The Court agrees that this definition, with some adaptation based on the plain language of the claim, more accurately defines the "database server" depicted in Plaintiff's invention. The Court finds that a person skilled in the art would understand "database server" to mean "network device dedicated to storing and providing access to a shared database, including data and forms."

The plain language of claim 1 and the specification support this construction. Browser-based subscribers gain access to the database server, labeled "32" in Figure 1 of the '229 patent, through the home page of a website via an internet service provider ("ISP"). ('229 patent, col. 5, ll. 55-58). Data entered on forms is entered into the database server, which utilizes software to produce billing invoices and statements to clients and customers of subscribers. (Id., col. 5, l. 65-col. 6, l. 4).

The specification explains that the subscriber enters data into the forms which are then entered into the database server:

"Forms are completed and transferred from the corresponding subscriber area for forwarding into a database server which is of the open database compliant type (ODBC)." (Id., col. 3, ll. 58-60). "Data entered via forms processing is transferred into the database server which utilizes appropriate application software therein to produce billing invoices and statements to clients and customers of each corresponding browser-based subscriber." (Id., col. 2, ll. 59-63).

The specification also indicates that subscribers can access information stored in the database server:

"These query forms provide each subscriber with access to the database server which, in combination with drop-down lists, select the desired account for access to the database of the data server 32 to retrieve the requested information to the screen of the remote PC." (Id., col. 4, ll. 9-13).

Subscribers can also access forms from the database server. The specification provides that forms are transferred into the database server from Billingnetwork PCs:

"Input and query forms are developed within the system 11 by billing network PC work stations 38 which are connected at hub 36, all forms and information input being subject to business rules and logic at 34 before entered into the database server 32." (Id., col 4, ll. 13-18).

Next, the specification provides that "once into the particular browser-based subscriber area 80 within the system 71, each browser-based subscriber 72 will have access to one of several customized forms that they will complete electronically at their work station and transfer to the database server 90. Form development and customization will be done within the system at internal work stations 106 by employees of the system." (Id., col. 5, ll. 12-18). Figure 1 shows that the forms must pass through the database server to reach the subscriber areas. As Plaintiff and Defendants suggest by their proposed constructions, the database server stores information and provides access to the database and to the forms.

Plaintiff describes the server as a "computer system on a network," based on the cited dictionary definition. However, the '229 patent specification refers to the "browser-based subscriber system" as encompassing the subscriber PC, homepage, subscriber areas, database server and Billingnetwork PCs, among other components. (Id. at Fig. 1)(emphasis added). Accordingly, the Court finds that the term "system" is inconsistent with the patent specification, as the database server is not a "system."

Defendants' use of the word "device" stems from their cited definition of a database server as "[a] network node, or station, dedicated to storing and providing access to a shared database." (See Dkt. 68 at Ex. B)(emphasis added). As the database server is but one component of the described "system," the Court finds that the term "device" is consistent with the patent specification, utilizing the definitions in the Microsoft Computer Dictionary (Dkt. 68, Ex. B). n2 Further, in accordance with both parties' suggested constructions and the specification descriptions, the purpose of this device is to store a database and provide access to the database and to forms. Accordingly, the Court construes the term "database server" to mean "network device dedicated to storing and providing access to a shared database, including data and forms."

--- Footnotes ---

n2 That dictionary defines a "database server" as a "network node." "Node" is defined as a "device."
2. "database server"

The parties dispute the meaning of the term "database server" as that term is used in claim 1. Manheim argues that "database server" should mean "a computer or program that responds to commands from a client that contains data." This definition is too broad, and would plainly encompass much more than the "database server" claimed. Moreover, it appears in conflict with the declaration of Manheim's expert, who stated that "database server" is a term well known to those of ordinary skill in the art, and means "[a] network node, or station, dedicated to storing and providing access to a shared database." (Bailey Decl. P 21 (quoting Computer Dictionary (3d ed. 1997) at 129).)

AMS and BidSoft contend that the term should be construed to mean "relational database software implemented on a computer," and offer two bases in the intrinsic record to support their construction. First, they note that the claim language itself supports this reading because the ability to "select," "locate" and "organize" data as claimed implies a functionality inherent to relational database systems. (See Alexander Decl. P 67; '873 patent, col. 11, ll 15-21.)

Second, they contend that this reading is supported by the specification, which states in the Summary of the Invention that the "system of the present invention" includes a "[a]n SQL server attached to the host network contain[ing] a relational database of auction information." ('873 patent, col. 2, ll. 8-10.)

Manheim counters that the definition proposed by AMS and BidSoft improperly reads a limitation into the claim from the preferred embodiment, and argues that their interpretation of the claim language as requiring a relational database is nothing more than an unsupported assertion. (See Manheim Resp. Br. [381-1] at 19-20.) Additionally, Manheim argues that there is nothing in the specification which indicates a clear disavowal or disclaimer of database servers other than relational database servers. (See id. at 17-19.)

Contrary to Manheim's position that the interpretation of the claim language offered by AMS and Bidsoft is nothing more than a "bald assertion," Dr. Alexander stated in his declaration:

claim 1, clause (d) provides:

command options selectable by the user to generate the user commands, whereby the selected portions of the auction data stored on the host computer network are located, organized, and transmitted over the communications network to a workstation in response to one or more particular user commands

See '873 patent at col. 11, ll. 15-21 (emphasis added).

The use of terminology relating to "selected portions of the auction data" being "located and organized" indicates that a software program running on a computer on the host network is capable of record selection and the manipulation of data contained within files. It implies functionality such as that found in a relational database, and rules out more trivial database forms such as simple file servers, which are incapable of this form of such behavior in their native form.

(Alexander Decl. P 67.) However, to say that something implies a functionality found in relational databases, is not to say that this functionality is limited to relational databases. To be sure, a relational database may be ideally suited for the task. Indeed, this would explain why the preferred embodiment discloses a relational database. But, simply because the patentee chose to disclose the ideal means for practicing the invention does not mean that the scope of the patent is so limited.

Because the Court can neither conclude that the patentee chose to define "database" as a relational database, nor that the claim language requires the use of a relational database, the court declines to adopt AMS and BidSoft's proposed definition of "database server." Therefore the Court cannot accept AMS's proposed construction. Similarly, because the definition proffered by Manheim is far too broad, and would plainly encompass much more than the "database server" claimed, the Court cannot accept Manheim's proposed definition. Instead, the Court adopts a plain meaning definition, wherein the term

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"database server" in claim 1 shall mean a "network device dedicated to storing and providing access to a shared database."

2. "database synchronization process" Used in independent Claims 1, 9, 16, 24 and 27.

The importance of this term is indicated by the prosecution history. The original application for the '600 patent contained Claims 1-29. The applicant filed an amendment, which cancelled these claims and added new Claims 30-49. The PTO Examiner rejected these claims for obviousness. The applicant responded by amending Claims 30, 37, and 43 (now Claims 1, 9, and 16 respectively) to include the language "to initiate a database synchronization process for configuration information of the network element in response to the received trap being out-of-sequence." The applicant also included the new phrase, "for initiating a database synchronization process" in Claims 53 and 58 of the amendment (now Claims 24 and 27 respectively). The Examiner indicated in the Statement of Reasons for Allowance that this distinguished the invention from prior art. Notice of Allowance, July 17, 2001, p. 2, Bates stamped 00000259, Exhibit D part 3 of Cisco's Opening Claim Construction Brief, [Doc. # 49, Attachment # 2, p. 18 of 25].

To define the term "database synchronization process" Cisco proposes:

"updating configuration information stored at a location other than at a network element with configuration information obtained from the network element."

Telcordia suggests:

"a process that reconciles configuration information of a network element with the configuration information for that network element stored in the network manager database."

The parties have agreed that the "network manager" is hardware and/or software that manages and coordinates the operation of network elements in a communication network.

The parties also agree that "configuration information" is any information maintained in a Management Information Base (MIB) of a network element, and any communications from network elements using a management network. The specification states that the network manager (or server) maintains at least portions of configuration information stored in the MIB of each network element in a memory. This memory may be in the form of one or more caches and/or one or more databases. '600 patent, col. 3, ll. 59-64. Maintaining selected configuration information in one or more caches, as well as maintaining full configuration information in a database, improves access to the information. '600 patent, col. 2, ll. 13-17.

--- Footnotes ---

6 One of ordinary skill in the art would know that cache memory or cache refers to a memory from which data can be accessed more quickly than from a database, and is usually of a more temporary nature. See '600 patent col. 4, ll. 6-8. See IEEE Standard Dictionary of Electrical and Electronics Terms 124 (6th ed. 1990); Steven M. Kaplan, Wiley Electrical and Electronics and Engineering Dictionary 89 (1st ed. 2004).

--- End Footnotes ---

The specification states that configuration information in a network element can change for a number of reasons. '600 patent, col. 4, ll. 29-33. The network manager keeps track of these changes "to maintain a consistent and accurate view of the managed network element." '600 patent, col. 2, ll. 20-21. In the claims, this process is called the "database synchronization process." '600 patent, col. 13, ll. 19-22.

Telcordia's proposed construction, as written, implies that changes could be made at the MIB of the network element. This is probably not what Telcordia intended, because its brief states: "the specification is clear, and Cisco's brief repeatedly admits, that the copy of the configuration information being updated is stored at the network manager." Telcordia's Responsive Claim Construction Brief, [Doc. # 57, Attachment # 1, p. 14 of 29].
On the other hand, Cisco's suggestion that information being updated is stored "at a location other than at a network element" seems unnecessarily coy. The configuration information is not being stored in a closet - it is stored in one or more databases. As described repeatedly in the patent it is the network manager or server that maintains the configuration information. See the Abstract; '600 patent, col. 1, ll. 64-67; '600 patent, col. 2, ll. 1-4.

The server "may receive configuration information" in the form of traps, by polling the network elements, or from another network management device or system. '600 patent, col. 2, ll. 18-30. "The present invention manages all of this information to achieve a consistent and accurate view of the network element in both a cache of information immediately available to clients and a database." '600 patent, col. 2, ll. 30-34. Nothing in the claim language, the specification, or the prosecution history, even hints that configuration information from a network element is stored anywhere else.

At the hearing, the court discussed with the parties the possibility that this disputed term referred to updating configuration information being stored in a cache memory. However, the inventors chose the term "database synchronization process." Neither the claim language nor the specification indicates that the inventors chose to specially define "database," as including "cache." To the contrary, the specification consistently distinguishes between the two by describing them separately. "[T]he server maintains one or more caches of selected configuration information readily available to clients, as well as a persistent storage of full configuration information in a database." '600 patent, col. 2, ll. 13-17 (emphasis added). See also '600 Patent, col. 2, ll. 30-34.

The specification notes that configuration information stored in an MIB for a network element is maintained "in a memory, which may include one or more selected caches 30 (referred to generally as cache 30) and one or more databases 32 (referred to generally as database 32)." '600 patent, col. 3, ll. 59-64. (emphasis added) The "cache" includes selected information that is readily accessible, whereas database 32 includes a complete and persistent copy of configuration information stored in MIB 24. '600 patent, col. 3, l. 67 - col. 4, l. 1.

While "database" and "cache" are both used in their normal sense as part of the memory of the system, the inventors did not claim a "memory synchronization process" or a "cache synchronization process." Nothing in the claim language, the specification, or the prosecution history indicates an intent to define "database," as used in this disputed term, as including cache memory. The court will define this term as follows:

"Database synchronization process" means "updating configuration information that is stored by the network manager in one or more databases, based upon the values stored in the MIB of the network elements."

As such, the court defines "receive datapath" as "path of received data." The court defines "transmit datapath" as "path of transmitted data."

EMC asks the Court to construe this term as: "Arranging the computer system such that the faulted component is functionally removed from the system." HP proposes (in its opposition brief): "Functionally removing a non-redundant
faulted component from the computer system such that the function performed by the faulted component is not replaced. De-configuring the computer system does not include the step of replacing the faulted component or the functionality performed by the faulted component with a redundant component or with equivalent functionality."

Nothing in the claim language indicates that only a "non-redundant" component or functionality is removed, and HP's attempt to limit this term on the basis of the prosecution history is unsupported by the record. The inventors did not state that only "non-redundant" components are removed. Rather, in the cited portion of the prosecution history, they stated that in the claimed invention "a faulted component is not replaced by another redundant component nor is the system re-configured." Derringer Decl., Separate Appendix, vol. IX, p. 2611 (file history to U.S. Pat. No. 6,122,756).

The claim language indicates that one result of "de-configuring the computer system" is the removal of the identified faulted component from the computer system. Nothing in the claim language indicates that the component or its functionality is not replaced, although it is true that such replacement is not expressly claimed. Assuming for the sake of argument that the inventor disclaimed a "re-configuration" limitation in the course of prosecution, such an event would lead the Court only to omit such a limitation from protection by the claim at issue. It would not result in defining the "de-configuration" step by reference to a lack of "re-configuration." The claim simply does not refer in any way to replacement of functionality or components.

Accordingly, the Court construes this term as "functionally removing a faulted component from the computer system."

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11. "Selectively deactivating" ('771, Claim 1)

The parties agree that "selectively" means "by choice," but they disagree as to the meaning of "deactivate," which Agere defines as "turn off" and Broadcom defines as "make inactive." Broadcom provides two dictionary definitions of "deactivate" that directly support its construction. (Broadcom Reply at 29 (citing Webster's definition, "to make inactive," and OED definition, "to render inactive or less reactive").) By contrast, Agere begins its convoluted dictionary interpretation with a definition of "activate," adds to this the definition of the prefix "de-," and then asserts, purely as an ipse dixit, that the resulting 'definition'--"to stop an operation"--means "to turn off." Agere provides no explanation of why, even if its methodology were proper, the definition "to stop an operation" would support Agere's construction rather than Broadcom's. Thus, the Court finds that Agere's dictionary citations do not support its construction, and therefore the Court credits the testimony of Dr. Acampora and Broadcom's dictionary citations that the customary meaning of "deactivate" to a person of skill in the art is "to make inactive."

The specifications provide no reason to abandon the customary meaning. There is no dispute that the patent uses a variety of different phrases to refer to the transceiver when it is deactivated, including "sleep state" ('771 patent, Abstract), "dormant" (id., col. 52, ll. 54-56), "powered down" (id., col. 34, ll. 34-35), and "turned off" (id., col. 56, ll. 9-10). Agere argues that all of these terms are synonyms meaning "turned off," while Broadcom contends that they describe various points on a spectrum of "inactive" modes. The Court finds that, at the very least, the use of these various terms leads to ambiguity, which falls far short of the "express disclaimer" that would be required to overcome the presumption in favor of the term's customary meaning. Furthermore, even if the Court were to resolve this ambiguity, it would almost certainly be resolved in Broadcom's favor. The patent Abstract, which appears to contain the only explicitly definitional reference to the term "deactivate," states that "the terminal may deactivate the transceiver, i.e., place it in a sleep state." The use of the term "sleep" to describe the transceiver's deactivation strongly suggests a mode that lies between "on" and "off," rather than the complete shut-down suggested by Agere. 45 Thus, the Court finds that the specifications are consistent with the customary meaning of the term, and Broadcom's proposed construction is therefore adopted.

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45 The Court notes the common use of the term "sleep" to refer to the inactive, but not off, state used by laptop computers to preserve battery life. However, because the Court is uncertain regarding whether this usage is applicable to the time of the '771 patent, it is not a basis for the Court's holding.
There are two terms in Claim 1(d) that require construction: "deactivating" and "reset signal."

With respect to the "deactivating" term, Agrizap argues that it should be construed as:

any manner of deactivating the generator at the end of the predetermined time period or in response to a reset signal, the end of the predetermined time frame being determined in any manner and the reset signal being produced and sensed in any manner including hardware, software/ firmware or any combination thereof. (Agrizap's Reply Br., at 14).

Woodstream argues that "deactivating means stopping the activated generator" and that "the generator can be deactivated only upon the two enumerated conditions and not any other conditions, i.e., deactivating can occur only upon expiration of the predetermined time period or in response to a reset signal" and "the generator must be capable of being deactivated under both [of these] recited conditions." (Woodstream's Reply Br., at 10-11). In response, Agrizap argues that requiring the deactivation to be performed only by these two conditions and requiring that the generator must be capable of performing both of these conditions are unsupported and unrelated limitations to this claim construction.

This Court will construe "deactivating" as:

the stopping of the activated generator either upon the expiration of the predetermined time period or in response to a reset signal. The activated generator can be deactivated only upon either of these two conditions (expiration of predetermined time period or in response to a reset signal) and the generator must be capable of being deactivated by both of these conditions.

First, the ordinary and customary meaning of "deactivating" means making the activated generator inactive, or more simply, stopping the activated generator. See Webster's 3d. New Int'l Dictionary 579 (3d ed. 1993) (defining "deactivate" as "to make inactive or ineffective"). The essential disagreement between the parties, however, is not about what "deactivating" means, but rather about how "deactivating" of the activated generator occurs. The words of Claim 1(d) themselves clearly state that deactivation occurs "only" upon (1) the expiration of the predetermined time period or (2) in response to a reset signal. See Phillips, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."). Therefore, deactivation can occur only upon these two conditions and the generator must be capable of being deactivated by both of these conditions.

Dealer interface

The Court agrees with Autobytel's construction and construes the term as "a hardware/software module used by a dealer to access the Data Center system." Dealix argues that the term should be construed as a "mechanism through which a dealer accesses his exclusive database region of the system database." During the Markman hearing, Dealix agreed to "hardware/software module" in place of "mechanism." However, Dealix still argues that the specification and claim language indicate that the module gives the dealer access specifically to his exclusive database region as opposed to the Data Center system in general. In support of its argument, Dealix points to language in the specification that states, "The dealer access module 612 provides a dealer an interface into the Data Center system. . . . More particularly, a dealer may directly access its exclusive database region, and the information contained therein, by logging into the Data Center system through the dealer access module 612." Col. 17:37-44. Autobytel argues that this same language from the specification supports its construction. Specifically, Autobytel points to the first sentence of the section cited by Dealix, which states, "The dealer access module 612 provides a dealer an interface into the Data Center system. . . ." The second sentence, which Dealix relies on, does not express a limitation of the dealer's access, but clarifies how the dealer gains access to its exclusive database region. Autobytel contends that this first sentence cited by Dealix sufficiently describes the "dealer interface" and that inclusion of the term

- 1614 -
"exclusive database region" only adds unnecessary confusion because the Court is separately construing that term. The Court is persuaded by Autobytel's arguments and construes the term in accordance with Autobytel's proposed construction.

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored&quot;</td>
<td>&quot;data stored on the terminal in&quot;</td>
</tr>
</tbody>
</table>
on the terminal"

"Stored thereon prior to the transaction"

"Relates . . . in a predetermined manner"

"Matching" and "Matched"

"Retrieving via the terminal"

"Computer" and "Computer means"

"Transmitting to a computer"

"Validation" and "Valid"

"Computer means disposed remotely"

"Card reader means"

"Communication means" function

"Communication means" structure

"Selected from a group of ID information" (Claim 2)

--- Footnotes ---

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."
C. "debit purchase transaction"

The parties' dispute with respect to the proper construction "debit purchase transaction" is identical to their dispute over "debit styled card." Essentially, the parties again dispute whether this term includes ATM card transactions. SVS proposes that "debit purchase transaction" means "a transaction made using a debit styled card," with "debit styled card" having the meaning SVS has proposed, which includes ATM cards. (D.I. 47 at 9) CAT proposes that "debit purchase transaction" instead be construed as "a purchase transaction using funds that have been, or are being, assigned to the intrinsic value of a card/account." (D.I. 44 at 10)

For the reasons discussed in connection with the dispute over the "debit styled card" term, I agree that a "debit purchase transaction" includes a purchase transaction made using an ATM card. Accordingly, I recommend that the term "debit purchase transaction" be construed to mean "a purchase transaction made using a debit styled card," with debit styled card construed as I have previously recommended. 6

6 The parties agree that "debit purchase transaction" does not include a credit card transaction. (D.I. 60 at 95, 98)

B. "debit styled card"

SVS proposes that the term "debit styled card," as used in each of the four independent claims of the '859 patent, means "a card having a value in an associated account or a value stored on the card itself." (D.I. 43 at 11) CAT, by contrast, construes the term to mean "a prepaid card having an intrinsic value." (D.I. 44 at 19) The parties' competing constructions reflect their disagreement as to whether the term "debit styled card" includes ATM cards. 3 I agree with SVS that a "debit styled card" includes ATM cards and, therefore, recommend that the Court adopt SVS's proposed construction.

3 The parties agree that the term does not include credit cards. (D.I. 47 at 8; D.I. 46 at 8)

In CAT's view, the '859 patent discloses three distinct inventions: 1) an apparatus; 2) a method for activation of debit cards, cellular phones, and cellular accounts; and 3) a method relating to prepaid debit systems. (D.I. 60 at 26-27) CAT asserts that while the apparatus disclosed may be capable of processing purchase transactions using ATM cards, the method of processing of such cards is not claimed by the patent. (D.I. 46 at 8; D.I. 60 at 29) This is because while the patent was initially filed with apparatus claims, the applicant withdrew those claims during prosecution, and the patent subsequently issued with only method claims. (D.I. 43 Ex. C (Sept. 15, 1997 Preliminary Amendment)) Nothing in the record indicates that the specification was ever amended to reflect that the apparatus claims were withdrawn. (D.I. 60 at 32)

Relying on its expert, CAT contends that while the '859 patent generally discloses three types of point-of-sale transactions utilizing a card -- termed "pay before" (e.g., a prepaid gift card), "pay now" (ATM card), and "pay later" (credit card) -- the patent only claims transactions utilizing pay before (i.e., prepaid) cards. (D.I. 44 at 19-20 Ex. 5 (Grimes Decl.) P 44) CAT submits that references to ATM cards in the patent refer to either the subject matter of the abandoned apparatus claims 4 or
the different payment forms that may be used to purchase a prepaid card. (D.I. 60 at 33; D.I. 44 at 20-21)

4 The abandoned apparatus claims included original dependent claim 10, which generally claimed a counter top terminal system useful in processing debit purchase transactions, the system comprising, among other things, "a phone card, a debit card, and an ATM card." (D.I. 43 Ex. C (Sept. 15, 1997 Preliminary Amendment) at SVS000175-176)

According to SVS, CAT's construction improperly excludes the preferred embodiment relating to ATM cards. (D.I. 47 at 2; D.I. 60 at 53) The portion of the specification that SVS contends details the ATM card embodiment reads:

By way of example, and as illustrated with reference to FIG. 2, ATM/Debit transactions 100 are performed in a manner that is familiar to the customer using their ATM or debit card. The customer selects a product, takes it to the sales counter for checkout, then as illustrated with reference to FIG. 2 provides input, by way of example, by swiping 101 the ATM/Debit card through the card reader 20 of the terminal unit 12 described earlier with reference to FIG. 1.

('859 patent, col. 3 lines 25-33) CAT's response -- that this portion of the specification is limited to the abandoned apparatus claims -- is unpersuasive. The "Detailed Description of the Preferred Embodiments" section is divided into two subparts: "The System" and "In Operation." ('859 patent, col. 2 line 53 & col. 3 line 24) The description of the system (i.e., apparatus) for processing debit purchase transactions immediately follows the subheader "The System," whereas the preferred embodiments of the different methods of processing debit purchase transactions, including the quoted language above, follow the subheader "In Operation." Hence, the quoted language is not limited to a description of the apparatus; rather, it also relates to the issued method claims.

CAT also argues that processing ATM cards is shown not to be part of the claimed invention because the specification describes the system as "capable of performing ATM transactions" ('859 patent, col. 2 lines 2-3), instead of saying processing ATM cards is "another feature of the system" or "yet another application," the language with which the "Summary of Invention" describes activation of prepaid debit cards (id. col. 2 lines 3-6). (D.I. 60 at 26, 29) However, the specification does not use these terms uniformly in the manner CAT's argument requires. Sometimes a "capability" (e.g., the "capability of receiving cash back from the store") is described as "[a]n additional feature" of the invention. ('859 patent, col. 3 lines 47-48) Other times part of the invention (e.g., the "Summary of the Invention's" introduction of the phone card embodiment) is described as merely being "useful." ('859 patent, col. 1 lines 64-66) Thus, the applicants did not use the words "feature" and "application" solely to introduce preferred embodiments of the invention; moreover, their use of word "capability" does not exclude ATM cards from the claimed embodiments.

Moreover, the independent claims of the '859 patent are facially broad enough to encompass the processing of ATM cards and there is nothing in the prosecution history from which one could find that the applicants disclaimed the processing of ATM cards when they disclaimed the apparatus. (D.I. 60 at 92-93, 99)

Furthermore, the problem the inventor was trying to solve supports that a debit styled card includes an ATM card. The "Background of the Invention" indicates that the inventor was trying to develop an inexpensive way of providing purchasing options to customers without the need for high capital investment by retailers, to allow smaller retail stores to capture the business of the 224 million ATM cardholders in the United States. ('859 patent, col. 1 lines 20 to 51) The specification goes on to detail the advantages to the merchant of point-of-sale debit transactions, which include guaranteed payment and a flat low fee for ATM transactions. ('859 patent, col. 2 lines 13-18) These goals indicate that the inventor envisioned that the debit styled card essential to the processing of debit purchase transactions includes ATM cards.

CAT faults SVS's construction for requiring the debit styled card to be associated with an account. (D.I. 44 at 21) However, the specification plainly envisions that the phone card and prepaid card embodiments are associated with an account. ('859 patent, col. 3 lines 53-60 ("For phone card transactions ... the present invention provides for a method whereby card stock in a store has no real value and only upon sale of the debit card 22 will an account be created and activated . . . .") (emphasis added); id. col. 5 lines 10-25 ("[F]or prepaid debit transactions . . . [t]he host keeps a record of the account balances . . . . Alternatively, in applications using smart cards (chip cards), the balance is kept on the card . . . .") (emphasis added))
Likewise, it is undisputed that an ATM card is associated with an account. (D.I. 44 at 21; D.I. 43 at 14)

Finally, CAT's expert, Mr. Grimes, somewhat undermines CAT's contention that debit styled cards do not include ATM cards. In related litigation, CAT submitted a declaration by Grimes that is best read as stating that "debit styled card," as that term is used in the '859 patent, includes "ATM/debit cards." Grimes' 2008 declaration in the related case states, in pertinent part:

44. . . . The specification clearly limits the term "debit styled card" to debit cards, or cards having a value identified in a central database or stored on the card.

45. The interpretation of the phrase "debit styled card" is consistent with the proper interpretation of the phrase "purchasing value of a card." A debit styled card is a card that maintains a purchasing value either in a central database or on the card itself and the value is debited at the time of the purchase.

46. The examples given in the specification, as to which [CAT] agrees, are an ATM/debit card, a gift card and a phone card. The term "debit card" simply does not include credit cards.

(D.I. 47 Ex. H (Feb. 1, 2008 Grimes Decl.) PP 44-46) The subsequent declaration Grimes filed in the instant action in 2010 (D.I. 44 Ex. 5 (Jan. 20, 2010 Grimes Decl.) P 44), which contends that ATM/debit cards are excluded from "debit styled cards," is inconsistent with his prior declaration. 5

5 I recognize that in his 2008 declaration, Grimes was primarily opining that "debit styled card" did not include credit cards, a point not in dispute in the present action. Nonetheless, Grimes did also state in his 2008 declaration that examples of debit styled cards in the '859 patent's specification include ATM/debit cards. I do not agree with CAT's attorney's contention that in this portion of the 2008 declaration Grimes was stating only that ATM cards are a subset of "debit card," and not also a subset of "debit styled cards." (D.I. 60 at 76, 80)

Accordingly, I recommend that the Court construe the term "debit styled card" in the manner proposed by SVS, which is "a card having a value in an associated account or a value stored on the card itself."

1. debit/medical services card (Claim 32)

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Alexsam's Proposed Construction</th>
<th>Humana's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>debit/medical services card</td>
<td>a card that can function as both a debit card and a medical services card</td>
<td>a card that can be used as both a debit card and as a medical card</td>
</tr>
</tbody>
</table>

The dispute between the parties concerning the construction of this term centers around the meaning of "medical services." Alexsam argues that Humana seeks to limit it to the use of the card only to obtain medical information. Alexsam contends that the patent discloses other examples of medical services that can be provided by the card. See, e.g. '608 patent, 10:40-47 ("In order to allow a cardholder to keep track of medical savings accounts or various other means for paying for medical services (e.g., Medicare), the system 108 also allows access to a database which maintains the medical funds for the cardholder."). Alexsam also makes a claim differentiation argument, pointing to other claims where the patentee repeatedly used "medical information card" rather than a "medical services card." See id., Cl. 14-15, 56, 58-59.

Humana points out that the specification discloses a need for a medical information card that allows medical providers, such as those in an emergency room, to access medical history information of a cardholder by swiping the card through a POS.
Humana argues that "medical card" function of Claim 32 must be "medical information" because it is the only type of "non-debit" medical services/card disclosed in the '608 patent. The Court disagrees. Contrary to Humana's argument, the specification of the '608 patent does not "repeatedly reinforce" the usage of the term "medical services" to mean "medical information" that would relate only to a patient's medical history. Cf. On Demand Mach. Corp. v. Ingram Indus., Inc., 442 F.3d 1331, 1340 (Fed. Cir. 2006). The Court finds sufficient support in the specification to adopt plaintiff's proposed construction.

The Court further finds Humana's proposed phrase "can be used" is less appropriate for the construction of this term. The Court notes that the patent consistently describes the cards as capable of performing "functions."

A "debit/medical services card" is, therefore, construed as "a card that can function as both a debit card and a medical services card."

Claim 13 of the 298 Patent describes a method of "debiting the entered payment amount from the account associated with the entered payment number[.]" (Plf. App., Exh. 1 at 17) (emphasis added). Claim 1 of the 298 Patent and Claims 1 and 6 of the 456 Patent refer to "charging the entered payment amount against the account associated with the entered payment number[.]" (Id., Exh. 1 at 16 & Exh. 3 at 42-43) (emphasis added). The dictionary definition of "debit" is "to charge with a debt". THE SHORTER OXFORD ENGLISH DICTIONARY at 461 (3d ed. 1968). The definition of "charge" is "to impose or record as a financial obligation." MERRIAM WEBSTER COLLEGIATE DICTIONARY at 192. Paymentech argues that these terms should be construed to mean "to charge with a debt during the connection." (Def. Op. Br. at 16) (emphasis added).

It is clear from the express language of the claims and the patent specifications that the act of recording a payment as a debt must be performed during the call. Claim 1 of the 298 Patent specifically describes a method comprising the steps of, inter alia:

- responsive to a determination that a payment amount has been entered and further responsive to a determination that the entered account number and payment number are valid, and during the call:
  - -- accessing a remote payment network associated with the entered payment number, the accessed remote payment network determining, during the call, whether sufficient available credit or funds exist in an account associated with the entered payment number to complete the payment transaction;
  - -- responsive to a determination that sufficient available credit or funds exist in the associated account, charging the entered payment amount against the account associated with the entered payment number, adding the entered payment amount to an account associated with the entered account number, informing the caller that the payment transaction has been authorized, and storing the account number, payment number and payment amount in a transaction log file of the system during the call[.]

(Plf.App., Exh. 1 at 16) (emphasis added). The 456 Patent uses the term "during the session" in lieu of "during the call." (See id., Exh. 3 at 42). Thus, the limitation suggested by Paymentech would be superfluous. See Power Mosfet Technologies, 378 F.3d at 1410.
Moreover, the intrinsic evidence indicates that the actual transfer of funds does not necessarily occur during the call. Rather, as the preferred embodiment illustrates, the remote debit card network moves the funds electronically after the close of the business day. (Plf. App., Exh. 1 at 15). The court therefore determines that terms "debiting" and "charging [ ] against" should be construed to mean "recording as a debt or financial obligation against the accessed account and not the actual transfer of funds from the account."

3. Decoded Data Which Has Not Been Displayed (Claims 1 and 8)

Matsushita argues "decoded data which has not been displayed" should be construed as "data that has been decoded, corresponding to pictures that have not been displayed." Mediatek argues "decoded data which has not been displayed" should be construed as "a decoded forward predictive picture (P picture frame) that has not been displayed." 5

The Court finds, for the reasons stated by Matsushita, that "decoded data which has not been displayed" is properly construed as "data that has been decoded, corresponding to pictures that have not been displayed."

C. "Decoder"

Claims 1 and 5 of the '364 Patent also contain a "decoder" element. Lynx maintains that as properly construed, "decoder" means a stand-alone device that takes a signal encoded in quaternary format and decodes that signal into binary format. Chamberlain disputes this construction, asserting that "decoder" means a "subsystem which can receive the output of the radio receiver and convert it into a form wherein the data contained in the received transmissions can be interpreted by the microprocessor." The disputed construction of "decoder" raises two issues: (1) is the term as properly construed a stand-alone device; and (2) is it a device that decodes quaternary format into binary format.

1. Is the "decoder" a stand-alone device?

In Figure 2 of the '364 Patent, the patented invention is depicted in block form. As depicted in this drawing, the decoder device is a stand-alone or separate device from both the microprocessor and the receiver. In addition, the decoder device is identified in Figure 2 with the number 43. In referring to the decoder device in the written description of the patented invention, the decoder device is regularly referred to as "decoder 43" in reference to the decoder device as depicted in Figure 2. According to Lynx, Chamberlain has only referred to the decoder device in relation to Figure 2 as "decoder 43" and thus Chamberlain has defined the term by implication to be a stand-alone device. For example, in one instance, the specifications state, "as illustrated in FIG. 2 the garage door operator includes a receiver 41 which has a suitable antenna 42 for receiving radio frequency transmission from the transmitters 26 and 28 and supplies an input to a decoder 43 which provides an output to a microprocessor unit 44."

The court notes that the words "stand-alone device" are not used in the written description or claim language to define the
The decoder. On the contrary, the Summary of the Invention section of the '364 Patent states "in the present invention the decoder module in the receiver will be capable of learning several different transmitter codes . . ." (The '364 Patent, col. 1, lines 54-55) (emphasis added). This statement contradicts Lynx's proposed claim construction that the decoder is a stand-alone device. Thus, the term decoder has been used in more than one manner and has not been defined by implication. Bell Atlantic Network Services, 262 F.3d at 1270 (a patentee will be found to have defined a term by implication if the "patentee uses a claim term throughout the entire specification, in a manner consistent with only a single meaning.") In addition, the court notes that although claims are to be "read in light of the specifications . . . limitations from the specifications are not be read into the claims." Id. The court concludes that the decoder is not required to be a stand-alone device.

2. Is the "decoder" limited to a device that decodes quaternary format into binary format?

According to Lynx, in the '364 Patent, the inventors described a particular encoding/decoding scheme to be utilized by the invention. Specifically, Lynx claims that the decoder in the patented invention "takes a signal encoded in quaternary format and decodes that signal into binary format." (Lynx Memo, at 24.) Lynx cites a number of sources in support of this claim construction, but does not address how the Federal Circuit's decision in Overhead Door Corp. relates to this claim construction. Because the court finds the Federal Circuit's decision dispositive, the court does not need to address the parties' arguments at great length.

In Overhead Door Corp. the Federal Circuit stated:

"The claims, however, do not require that the memory store the exact sequence of coded bits transmitted from the transmitter as its identifying signal. This reading of the claim language finds support in the written description, which explains that a code is associated with a transmitter. [The '364 Patent] does not describe any particular format, encryption, or alteration in transmitted and stored codes." 194 F.3d at 1274-75. The Federal Circuit's observation that the '364 Patent does not describe any particular format militates against imposition of the additional claim limitations proposed by Lynx.

The court will, instead, adopt what it believes is the ordinary meaning of the term "decoder." Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1332 n.1 (Fed. Cir. 2001). In determining this ordinary meaning, the court notes that both parties have claimed that their construction comports with the Institute of Electrical and Electronics Engineers (IEEE) definition of "decode" which is "to recover the original message from a coded form of the message." (IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS, at 231.) The court will rely on this agreed definition in construing this claim. Interactive Gift Express Inc., 256 F.3d at 1332 n.1 ("dictionaries, which are a form of extrinsic evidence, hold a special place and may sometimes be considered along with the intrinsic evidence"). Because the court finds that Chamberlain's proposed claim construction most closely conforms with the ordinary meaning, the court adopts its proposed construction: "a subsystem which can receive the output of the radio receiver and convert it into a form wherein the data contained in the received transmissions can be interpreted by the microprocessor."

6. "decoding" ( '181 patent, claim 1; '664 patent, claims 1 and 3, '768 patent, claim 1 and 19)

Defendants seek to limit the term "decoding" to the extraction of URLs that were previously encoded in a television or video programming signal. But as already discussed with reference to "programming," supra, such a limitation is not only at variance with the ordinary meaning of the term but also would render certain claims of the patents nonsensical. For example, claim 1 of the '664 patent expressly encompasses both a means for receiving programming containing a video and audio signal and a second means for receiving one or more uniform resource locators. The third paragraph of the same claims a "means for decoding, connected to the second receiving means" (emphasis added). Based on this language alone, "decoding" must include the extraction of some URLs not encoded in video or television signals.

Furthermore, defendants' definition of decoding would limit the patent claims to the first preferred embodiment. Only in the first preferred embodiment are the URLs encoded in video or television programming upon receipt by the user. In all of the other embodiments in all three patents, the URLs have either been extracted from the video or television programming prior
to receipt by the user or never encoded into the video or television programming at all. Since the "means for decoding" is, in all three patents, linked to the "means for receiving," "receiving means," or "receiver," the term "decoding" must refer broadly to extraction or retrieval of data from any data stream -- not necessarily a video or audio signal -- based on a predetermined format or encoding scheme.

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2. "decoding NFS requests"/"encoding NFS reply messages"

The terms "decoding NFS requests" and "encoding NFS reply messages" appear in claims 1, 5, and 8 of the 366 Patent, as well as in claims 1 and 4 of the 918 Patent. Claim 1 of the 366 Patent recites a second processing unit that performs the functions of "decoding NFS requests from a [data] network" and "encoding NFS reply messages for return transmission on said network." 366 Patent, 51:42-47. The remaining claims recite a "means for decoding NFS [or file server] requests" and a "means for encoding NFS [or file server] reply messages for return transmission" on a data network. See, e.g., id., 52:47, 52:51-52. Again, plaintiff takes the position that no construction is required because the phrases "decoding NFS requests" and "encoding NFS reply messages" are unambiguous. In contrast, defendant contends that the terms should be construed to limit the scope of the claims to a processing unit or a means for "processing all protocol layers of NFS requests from the network to extract the NFS messages" and "processing all protocol layers for converting data into NFS messages for network transmission."

In support of its view that the disputed terms need not be construed, plaintiff cites general-purpose dictionary definitions of the words "encode" and "decode." See Joint Claim Construction Statement at A-2 (citing Merriam's Webster's Collegiate Dictionary 299, 380 (10th ed. 1997)). However, the Federal Circuit has repeatedly cautioned against indiscriminate reliance on non-technical dictionaries for defining technical words, observing that "dictionary definitions of ordinary words are rarely dispositive of their meanings in a technical context. A word describing patented technology takes its definition from the context in which it was used by the inventor." Anderson v. Int'l Eng'g & Mfg., Inc., 160 F.3d 1345, 1348-49 (Fed. Cir. 1998). Plaintiff's proposed construction (or lack thereof) improperly attempts to purge the technological context of the invention from the meaning of the words "decoding" and "encoding."

To provide context for the disputed claim terms, the court turns to the claims and specifications of the 366 and 918 Patents. Texas Digital, 308 F.3d at 1204. In the patented inventions, "encoding" and "decoding" are necessary steps for responding to file requests from a data network. See, e.g., 366 Patent, 51:42-48. To perform these steps, the preferred embodiments of the inventions employ a "network controller" that determines whether an incoming data packet is an NFS packet, and if so, identifies the nature of the request. Id. at 9:34-42; see also id. at 6:31-32 (identifying an "XDR/RPC layer" that "provides the decoding necessary to permit a client machine to execute a procedure on the server"). The network controller then determines what procedures must be performed to process the NFS request and dispatches procedure calls accordingly. Id. at 6:33-37. When processing of the request is complete, the network controller generates a "reply message" that is sent over the network to the client computer. Id. at 6:37-40.

Generalizing from the disclosures in the preferred embodiments, the "decoding" and "encoding" functions of the patented inventions are best described as a process of translation. The court finds further support for this view in the AP Dictionary, a technical reference cited and relied on by both parties. The AP Dictionary defines "encode" as "to convert data into code according to a specified coding scheme;" conversely, "decode" is defined as "to convert data by reversing the effect of some previous encoding." Id. at 596, 743. Like the specifications, the dictionary definitions of "encode" and "decode" imply a process of translating or converting data from one format to another. Applying these definitions in the context of the disputed language, the court construes "decoding NFS requests" to mean "converting NFS requests from the format received from the network to another, decoded data format." Similarly, "encoding NFS reply messages" should be construed to mean "converting NFS reply messages from a decoded data format to the format used for transmission on the network."

Although this choice of words is generally consistent with the spirit, if not the letter, of defendant's proposed construction, defendant urges the court to adopt the phrase "processing all protocol layers" as an additional limitation in the "decoding" and "encoding" terms. Defendant relies on a statement in the specifications explaining that the network controller performs "full protocol processing" on "NFS-destined packets." See, e.g., 366 Patent, 9:36-38. However, in describing what full protocol processing entails, the specifications identify one of the protocols as "XDR decoding" -- i.e., a process that
"provides the decoding necessary to permit a client machine to execute a procedure on the server." Id. at 6:31-32, 9:41. Defendant's definition therefore implies that "decoding" refers to both processing a single protocol layer and to "full protocol processing." The court declines to adopt such a strained interpretation of the term. In any event, the limitation "all protocol layers" appears in neither the claim language nor in the specifications of the patents in suit. Accordingly, the court declines to read this limitation into the claim. Thus, for the reasons stated above, the court construes "decoding NFS requests" as "converting NFS requests from the format received from the network to another, decoded format." In addition, the court construes "encoding NFS reply messages" to mean "converting NFS reply messages from a decoded data format to the format used for transmission on the network."

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g. "decoding said at least one instruction to determine said predetermined position"

The plaintiffs contend that the term means "interpreting an instruction, in particular the portion thereof that signifies the operation to be performed, in order to identify a position relative to the beginning or end of the instruction group that includes the operand or instruction being accessed, without reference to the operand or address bits in the instruction being interpreted." The defendants propose "interpreting an instruction, in particular the portion thereof that signifies the operation to be performed, in order to identify a position relative to the beginning or end of the current instruction group."

The Court construes the term to mean "interpreting an instruction, in particular the portion thereof that signifies the operation to be performed, in order to identify a position relative to the beginning or end of the instruction group that includes the operand or instruction being accessed."

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D. "Decoding Said Data Establishing A Limit"

The parties' dispute over this term follows from their dispute over the "data stream" claim terms. Briefly Defendant contends that because the limiting data and "video product" are transmitted together in a single, continuous "data stream," the "decoding" limitation must, at the very least, refer to the "extraction" or "separation" of the limiting data from the "data stream." (See D.I. 69 at 54:23-55:19.) In further support of this construction, Defendant notes that the specification states that "[r]eferring now to FIG. 3 in addition to FIG. 2, in operation, the limit data is decoded from the down-loaded data stream . . . ." ('402 patent at 4:30-32 (emphasis added).)

Plaintiff responds that Defendant's construction would improperly exclude embodiments in which the limiting data and video product are not transmitted together in a single continuous "data stream." (D.I. 66 at 23.) Plaintiff further remarks that it is not aware of any definition for "decoding" that includes "separating" and any suggestion in the specification that the limiting data needs to be "decoded from" the "data stream" is merely a description of a specific embodiment.

The Court agrees with Plaintiff that language in the specification referring to data being "decoded from" the "data stream" is a description of a specific embodiment. (See '402 patent at 4:30-32.) However, in view of the patentee's unambiguous
statements in the prosecution history confirming that the limiting data and "video product" are transmitted together, the Court finds that this language does in fact refer to the claimed embodiments. Likewise, in view of the prosecution history, other disclosed embodiments, including those in which limiting data is "permanently stored at the customer site" so that the "down-loaded data need not include such user limitation data," do not correspond to claimed embodiments. (‘402 patent at 3:65-68.) Thus, the Court agrees with the Defendant that the "decoding," as used in the claims, must include some "extraction" of the limiting data from the "data stream." Accordingly, the Court construes the claim term "decoding said data establishing a limit" to mean, as Defendant contends, "at the user site, extracting the data establishing a limit for authorized viewing of the video product from the downloaded digital data stream in order to separate the data establishing the authorized viewing limit from the video product."  

2 This construction is not intended to exclude the presence of additional steps that may be related to the decoding process.

Claims 1, 4 and 14 are the independent claims of the ’927 patent, and read as follows:

1. A method for emulating the instruction set of a target computer on a RISC architecture computer, comprising the steps of:

   1) fetching a target instruction of a format compatible with the instruction set of the target computer;

   2) parsing and decoding said instruction into fields designating an opcode and operands;

   3) converting said opcode into an address pointing to a sequence of one or more microcoded instructions;

   4) decoding said microcoded instruction into a LHS instruction having fields essentially compatible with a RISC architecture and a RHS instruction having fields to select a plurality of indirect registers pointing to emulated registers;

   5) processing said emulated registers with an arithmetic logic unit;

   6) calculating a condition code as a function of the operation of said arithmetic logic unit and a selection field within said microcoded instruction;

   7) storing a result of said processing by said arithmetic logic unit;

   8) storing a result of said condition code calculation; and

   9) repeating steps 4-8 with a next microcoded instruction until an end of said microcoded sequence is encountered and then continuing at step 1 with a next target instruction.

’927 patent, col. 52, l. 64 to col. 53, l. 23.

4. A RISC architecture computer having a native instruction width of N bits configured for emulating target instructions from the instruction set of a target computer, comprising:

   a plurality of emulation registers capable of corresponding to registers in the target computer and having data widths greater than or equal to the data widths of the registers in the target computer;

   a plurality of indirect registers for selection of said emulation registers; parsing means to extract a plurality of data fields from a target instruction, at least one said fields including an opcode;
dispatching means using said opcode to direct the RISC architecture computer to select at least one M+N bit expanded RISC instruction from a microcode memory;

an expanded instruction decoder for using said M bits from each said expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer, wherein said M bits define fields, said fields comprising a width field for designating the data width of said emulation registers and the data width of an arithmetic function, an indirect register field for designating said indirect registers, and a condition code field for designating a condition code emulation mode; and

condition code calculation means for determining the condition code for an arithmetic function according to said condition code field.

'927 patent, col. 53, ll. 33-61.

14. A RISC architecture computer having a native instruction width of N bits configured for emulating target instructions from the instruction set of a target computer, comprising:

a plurality of emulation registers capable of corresponding to registers in the target computer and having data widths greater than or equal to the data widths of the registers in the target computer;

a plurality of indirect registers for selection of said emulation registers; parsing means to extract a plurality of data fields from a target instruction, at least one said field including an opcode;

dispatching means using said opcode to direct the RISC architecture computer to select at least one M+N bit expanded RISC instruction from a microcode memory;

an expanded instruction decoder for using said M bits from each said expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer; and condition code calculation means for determining the

condition code for an arithmetic function in accordance with the target computer.

'927 patent, col. 54, ll. 19-43.

As claimed, the invention includes a system or method for using a RISC architecture computer having a native instruction set including, inter alia, instructions of a width of N bits configured for emulating instructions from the instruction set of a target computer; a plurality of emulation registers for simulating registers of the target computer; a plurality of indirect registers for selecting the emulation registers; structure for extracting the data fields of a target instruction, including an opcode field; structure for using the opcode to direct the RISC architecture computer to select at least one M+N bit expanded RISC instruction from memory; an expanded instruction decoder for using M bits from the expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer; a condition code field for designating a condition code emulation mode; and structure for determining the condition code for an arithmetic function according to a condition code field.

Intel's x86 CISC microprocessors share instructions, adding new instructions to those which comprise the instruction set of the previously issued microprocessor. In other words, with the introduction of each new member of the Intel x86 family of microprocessors, new instructions are added to the CISC x86 instruction set of the previous version of the microprocessors. Thus, the P6 instruction set includes instructions unique to that version of the processors, as well as those used by the P5 microprocessor. Like the P6, the P5 instruction set includes all of the instructions found in the instruction set of the 486 microprocessor, as well as each additional instruction unique to the P5. Thus, each new processor executes all of the instructions of its predecessor, without modification, as well as the new instructions unique to that device.

After working on several versions of the 3250, IMS's attempts to produce the microprocessor commercially failed. TechSearch purchased the '927 patent as an asset in the IMS bankruptcy proceeding. Subsequently, TechSearch filed a complaint against Intel in September 1998 alleging that Intel's P6 line of microprocessors infringed the claims of the '927 patent.
The district court held a Markman hearing in August 1999 and issued a Memorandum Decision and Order on November 1, 1999. Recognizing that one skilled in the art would typically identify a computer as RISC- or CISC-based upon its published instructions rather than the microinstructions, the court concluded that, in the context of the patented invention, the classification of the microprocessor was properly assessed from the microcode level. The court concluded that the claims themselves confirm that it is the microcode, not the machine code (or "macro" level), that is relevant to whether a microprocessor is a CISC or RISC microprocessor, and is therefore covered by the patent's claims.

With regard to the term "emulation," the district court referenced the written description that defines the term as "a process in which one computer X behave identically to another computer Y, as X executes the instructions of Y, where the internal architectures of computers X and Y are different." '927 patent, col. 2, ll. 30-33. Concerning the "LHS" (left-hand side) and "RHS" (right-hand side) of the coded instruction recited in claim 1, the court determined that those terms refer to the native instruction of a RISC microprocessor configured for emulation of a target computer's microprocessor. Thus, the court concluded that the LHS and RHS are two subdivisions of a single RISC microinstruction.

Independent claims 4 and 14 refer to the coded instruction as an M+N bit expanded RISC instruction. The court concluded that the M+N bit expanded RISC instruction is composed of N bits corresponding to the native instruction, or the instruction of the host microprocessor's instruction set used when the microprocessor is not in emulation mode, and M bits "which redefines the N bits" in the expanded RISC instruction, thereby enabling the host microprocessor to emulate a target computer.

The district court defined the term "condition code" as a summary of the effects of recently emulated target instructions. Although worded differently, the district court noted that the parties agreed that each independent claim requires a selection field within the microinstruction identifying the particular target computer being emulated so that the condition code matches the operation that would have been performed had the same calculation been performed within the target computer. Finally, the district court interpreted the "expanded instruction decoder" as simply a decoder used in the execution of an M+N bit RISC instruction.

Subsequently, the parties filed cross-motions for summary judgment. On January 31, 2000, the district court issued a Memorandum Decision and Order granting Intel's motion for summary judgment of noninfringement. The district court concluded that to prove infringement of claim 1, TechSearch must show that the P6 microprocessors have "a plurality of indirect registers pointing to emulated registers," and that the accused products process the emulated registers with an arithmetic logic unit. TechSearch had maintained that the macro alias register file ("MAR") found in the P6 corresponds to the claimed indirect registers. The court determined that, even assuming that to be true, there is no dispute that the MAR does not point to emulated registers as required and that there are no registers in the P6 that are both pointed to by the indirect registers and processed with an arithmetic logic unit ("ALU"). Specifically, the court noted that the MAR does not point to any registers or to anything processed by the ALU and that the MAR are logical registers, which are not actual registers but merely references. Nor was the court persuaded that TechSearch had established that there are any emulated registers in the accused device. Therefore, the court determined that claim 1 is not infringed literally or under the doctrine of equivalents.

The court further concluded that the P6 microprocessors are not "configured to emulate the instruction set of a target computer" in accordance with claims 1, 4 and 14. The district court found that "it is beyond dispute that the P6 microprocessors are not configured to emulate in the manner claimed," TechSearch-Judgment, slip op. at 9, and therefore do no infringe. The court noted that "the patent specification makes clear that its emulation scheme entails modifying preexisting native instructions of a RISC architecture computer" such that when the computer is emulating, "the native instructions are redefined by M bits in order to form an M+N bit expanded instruction that enables the host system to emulate the target system." Id. at 9-10. Accordingly, the court determined that to infringe claims 4 and 14, TechSearch must prove that the P6 microprocessor has both a native instruction of N bits and an expanded RISC instruction comprised of M+N bits to be used when the computer is emulating, or their equivalents.

The court determined that no reasonable jury could find that the P6 microprocessors have microinstructions comprised only of N bit instructions when operating in the native mode of the host processor, i.e., when not emulating, and microinstructions comprised of an M+N bit RISC instruction when emulating. The court noted that the format of the instructions that the P6 microprocessors use when executing an instruction from an "earlier version" of Intel's x86 instruction set are indistinguishable from the format of the instructions originating with the "current version." The court
concluded that even were the testimony of TechSearch's expert to be accepted, asserting that the P6 microprocessors emulate, TechSearch has not shown infringement because it is "beyond question" that the P6 runs only one instruction set. Therefore, the court concluded that the P6 microprocessor does not emulate in the manner required by claims 4 and 14.

The district court further determined, in the alternative, that the P6 products do not have an "expanded instruction decoder" using M bits from each expanded RISC instruction to "redefine" the RISC architecture computer in terms of the target computer during emulation. Thus, the court concluded that it is "beyond cavil" that the P6 microprocessor does not infringe.

The court stated that to prove infringement of claims 4 and 14 TechSearch must prove that: (1) the P6 microprocessor has an expanded instruction decoder; and (2) that the expanded instruction decoder uses M bits from each expanded RISC instruction to "redefine" the RISC architecture computer in terms of the target computer during emulation. The district court concluded that the P6 microprocessor does not have a decoder that can decode expanded instructions.

The court concluded that the P6 "alias multiplexer," alleged by TechSearch to correspond to the claimed decoder, differs materially from the decoder contemplated by the patent. Specifically, the court noted that the claimed invention translates the instructions into a form for processing by the ALU in a manner involving considerable interaction between the various elements of the microinstruction. Contrarily, the inputs of the multiplexer are simply routed to its outputs. The court noted that one of ordinary skill in the art would know that decoders and multiplexers perform substantially different functions and consist of substantially different structure.

The court noted that TechSearch's expert, Dr. Hoevel, did not contend that the multiplexer in the P6 microprocessor operates as a decoder and did not dispute that the function of multiplexing differs from the decoding claimed. While the court concluded that the claimed decoder combines the input signals to produce outputs that cause selection of the direct, indirect or emulation registers, it found that TechSearch did not dispute that the P6 microprocessor's alias multiplexer architecture does not combine input signals, but simply steers each signal to the appropriate output field. The court, therefore, found Dr. Hoevel's testimony, and TechSearch's arguments based thereon, insufficient to avoid a grant of summary judgment of noninfringement.

Similarly, the court determined that TechSearch had failed to create a triable issue of fact by arguing that a multiplexer is capable of acting as a decoder, noting that TechSearch failed to provide evidence to explain how the multiplexer of the P6 functions in the manner describing the claimed decoder. The district court further concluded that Hoevel's conclusory allegations failed to raise a genuine issue of material fact.

Finally, noting that the claimed instruction decoder operates to "redefine" the microprocessor when emulating and that no redefinition of instructions is performed by the "decoder" in the P6 microprocessor, the court concluded that no part of the P6 can be found to infringe the instruction decoder recited in claims 4 and 14. Specifically, the court concluded that the P6 microprocessor does not use an additional M bits to redefine N bits of the instruction when "emulating." Although Hoevel asserted that the microinstructions found in P6 microprocessors, known as "Cuops," contain fields for performing register indirection, the court noted that in the P6 microprocessors those instructions are always the same size and use all of its bits, regardless of the version of microprocessor with which they were first introduced. Thus, the court determined that the Cuops microinstruction, and thus the P6 microprocessor instruction set, does not redefine or expand the microinstructions as claimed. Therefore, the court concluded that no reasonable jury could find that the Cuops are redefined "in any way."

In a Memorandum Decision and Order dated November 9, 1999, issued after the Markman hearing but before the grant of summary judgment, the district court informed the parties that it had decided to appoint its own "technical advisor." The court recognized that such appointments should be reserved for the exceptional case, but deemed it appropriate in this particular case because infringement would be "a highly technical [issue] far beyond the boundaries of the normal questions of fact and law with which judges routinely grapple." The court noted that technical advisors "are not witnesses, and may not contribute evidence." As such, the court concluded that a technical advisor is not subject to the requirements set forth in Rule 706 of the Federal Rules of Evidence regulating the appointment of expert witnesses. The district court further explained that "[a] judge may not appoint a technical advisor to brief him on legal issues, or to find facts outside the record of the case; the advisor's role is to acquaint the judge with the jargon and theory disclosed by the testimony and to help think through certain of the critical technical problems." TechSearch, L.L.C. v. Intel Corp., No. 98-CV-03484, slip op. at 4 (N.D. Cal. November 9, 1999) (memorandum decision and order appointing technical advisor) ("TechSearch-Appointment"). Anticipating the difficulty in evaluating the "extremely complicated" technical evidence submitted by the parties involving
"highly technical electrical engineering and microprocessor design," which the district court had to process to formulate its claim construction, the court retained the technical advisor to assist with evaluation of the technical matters before it when resolving pretrial motions, as well as during trial. Specifically, the court recognized that it would be "faced with expert testimony, scientific articles, and patents" the technology of which the court "urgently required" the assistance of a technical advisor to understand. As an example, the court stated that evaluation of the prior art required consideration of technical concepts beyond normal questions of fact regularly addressed by the court.

The court determined that its technical expert, Dr. Hearn, was a neutral third party, and explained its reasoning for that determination in its memorandum decision. TechSearch-Appointment, slip op. at 5-7. The court reiterated that Dr. Hearn had "agreed that he will not engage in any independent investigation of the underlying litigation, provide evidence to the Court, or contact any party or witness in this action." The court further agreed to identify any material relied upon by Dr. Hearn, other than that submitted by the parties or "those upon which a person versed in the relevant field of knowledge would be reasonably expected to rely." The court stated that Dr. Hearn would execute an affidavit indicating his understanding of that order before beginning his engagement, and would file an affidavit attesting to his compliance with its terms at the conclusion of his employment.

TechSearch appeals the district court's judgment. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

STANDARD OF REVIEW

This court reviews a district court's grant of summary judgment without deference. Cortland Line Co. v. Orvis Co., 203 F.3d 1351, 1355, 53 USPQ2d 1734, 1746 (Fed. Cir. 2000). The moving party is entitled to summary judgment "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). In reviewing the district court's grant of summary judgment, this court draws all reasonable inferences from the evidence in favor of the non-movant. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). Summary judgment is appropriate when it is apparent that only one conclusion as to infringement could be reached by a reasonable jury. ATD Corp. v. Lydall, Inc., 159 F.3d 534, 540, 48 USPQ2d 1321, 1324 (Fed. Cir. 1998). Summary judgment of noninfringement is also appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, because such failure will render all other facts immaterial. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1537, 20 USPQ2d 1456, 1458 (Fed. Cir. 1991).

A patent infringement analysis involves two steps: 1) claim construction; and 2) application of the properly construed claim to the accused product. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). The first step, claim construction, is a matter of law that this court reviews without deference. Cybor Corp. v. FAS Tech., Inc., 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed. Cir. 1998) (en banc). Whether the accused device contains an element corresponding to each claim limitation or its equivalent is a question of fact, which, on summary judgment, is a question we review to determine whether a material factual issue remains genuinely in dispute. Roton Barrier, Inc. v. Stanley Works, 79 F.3d 1112, 1125, 37 USPQ2d 1816, 1826 (Fed. Cir. 1996).

DISCUSSION

I. Claim Construction

While the parties dispute the court's construction of many of the claim terms at issue before the district court, we address the construction of only those terms essential for disposition of this appeal.

The independent claims of the '927 patent recite a method or computer for "emulating" target instructions of the instruction set of a target computer using, inter alia, "emulation registers" capable of corresponding to registers in the target computer. The written description defines the term "emulation" generally as "a process in which one computer X behaves identically to another computer Y, as X executes the instructions of Y, where the internal architectures of computers X and Y are different." '927 patent, col. 2, ll. 30-33. We adopt this construction and conclude that the district court correctly interpreted this term.
Clams 4 and 14 define the particular manner in which the claimed processor emulates. Specifically, both claims require a "M+N bit expanded RISC instruction" with N bits defining the "native instruction . . . configured for emulating target instructions from the instruction set of a target computer." Consistently, the claims require an expanded instruction decoder that uses "M bits from each said expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer." The written description of the '927 patent defines N bits of an expanded RISC instruction, also referred to as the LHS (left-hand side) of the instruction, as the number of bits of the instruction that the microprocessor uses "in its native mode." '927 patent, col. 5, ll. 1-2. With regard to the M bits of the expanded RISC instruction, also referred to as the RHS (right-hand side) of the instruction, the '927 patent states that "contained within the additional M bits [of the expanded RISC instruction] and used in conjunction with the N bits are directions on the use of resources within the RISC computer, peculiar to each emulated instruction." '927 patent, col. 5, ll. 6-9. The written description of the '927 patent explains that the M bits, or RHS, of the expanded RISC instruction are used "to redefine, during emulation of a target processor operation, the register data paths . . . of the LHS [or N bits of the expanded RISC instruction] to correspond to the target processor instruction being emulated, permitting the host processor to mirror, without physical changes, the target processor architecture being emulated." '927 patent, col. 8, ll. 31-37. Consistently, TechSearch's expert, Dr. Hoevel, recognizes that to emulate, "the host computer has to interpret and execute the target instruction set used in the target computer . . . and claims 1 through 3 of the '927 patent reveal the advantages of the special kind of emulation and backwards compatibility found in the '927 patent."

We conclude, as the district court did, that the M+N bit expanded RISC instruction recited in claims 4 and 14 includes N bits corresponding to an instruction of the host microprocessor's instruction set, and M bits which work with the N bits to "redefine" or "translate" the expanded RISC instruction to "emulate" the instructions of the microprocessor of the target computer. We further conclude that the claimed "expanded instruction decoder" is a decoder that "redefines" or "translates" the native instruction identified as N bits of the expanded RISC instruction, using M bits of the expanded RISC instruction, thereby enabling the instruction set of the microprocessor of the computer to emulate the instructions of a target computer.

As noted, the '927 patent defines the LHS and RHS instructions recited in claim 1, as synonymous with the N bits and M bits of the expanded RISC instruction of claims 4 and 14. The '927 patent states, "the native N bits are referred to as the LHS (left-hand side) of the instruction while the M bits are referred to as the RHS (right-hand side) of the instruction." '927 patent, col. 5, ll. 9-12. Consistent with the M+N bit expanded RISC instruction of claims 4 and 14, method claim 1 includes the step of "decoding said microcoded instruction into a LHS instruction having fields essentially compatible with a RISC architecture and a RHS instruction having fields to select a plurality of indirect registers pointing to emulated registers," and "processing said emulated registers with an arithmetic logic unit." For the reasons provided supra, we conclude that the claimed "decoding" step requires "redefining" or "translating" the native instruction, identified in claim 1 as LHS of the instruction, using the fields of the RHS of the instruction to emulate the instruction of a target computer.

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2. "[D]ecomposed into a plurality of levels:" 2 "Broken down into two or more structured set(s) of information." The parties agree that decomposed into levels means "broken down into structured sets of information," but dispute the meaning of "plurality." The term "plurality" is consistent with a construction that requires more than one structured set of information. See Bowers v. Baystate Techs., 320 F.3d 1317, 1332 (Fed. Cir. 2003). This construction is consistent with col. 84:34-37 of the specification.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

2 '284 patent, claim 1 (and dependent claims).

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -
The parties disagree on the meaning of "clock decorrelator" and the construction of "cannot be reliably predicted." The parties dispute whether clock decorrelation is limited to causing the skipping of random clock cycles, or whether clock decorrelation is a broader term.

Dependent Claim 16 claims "the device of claim 15 wherein said clock decorrelator comprises a clock skipping module which selects a subset of the cycle of said external clock signal to use as said internal clock signal based on said unpredictable information." '661 patent, col. 16, ll. 39-43. The inclusion in Claim 16 indicates that the clock decorrelator, as referred to in Claim 15 is not limited to the particular clock skipping module described in Claim 16. See Phillips v. AWH Corp., 415 F.3d 1303, 1324 (Fed. Cir. 2005).

In describing clock skipping, the written description appears to equate clock skipping with clock decorrelation: "[W]hat will be referred to herein as clock skipping (or clock decorrelation)," '661 patent, col 6, l. 17. Cf. Novacor Chems., Inc. v. U.S., 171 F.3d 1376, 1381 (Fed. Cir. 1999) (recognizing that "general principles of construction support the view that a parenthetical is the definition of the term which it follows" in interpreting a United States Customs regulation). See also, '661 patent, col. 5-10 ("Clock skipping involves decorrelating cryptographic operations from the normal [external] clock cycles").

Whether referred to as "clock skipping" or "clock decorrelation," however, the specification describes a technique not limited to literally "caus[ing] random clock cycles to be skipped" as Visa proposes:

Within clock skipping module 240, random output 205 is used to select cycles of clock signal 220 to skip in order to produce clock signal 260. Alternatively, random output 205 can be used to select the closest corresponding cycles of clock signal 220 to be used as clock signal 260, or random output 205 can even be used as clock signal 260 itself. Still other approaches are possible, as will be appreciated by those skilled in the art; the basic point being that clock signal 260 be (partially or wholly) decorrelated from external clock signal 220 via random output.

The Court construes "clock decorrelator" to mean "a device that generates an internal clock signal that varies in a randomized way."
The district court limited its claim construction to observing that claims 21 and 24 involve "producing a modulator drive signal which decreases the time that the signal is above threshold." Optical Disc, slip op. at 9. **Claim 24 is representative of the Time Above Threshold Claims and recites, in pertinent part, the step of:**

producing a shaped modulator drive signal by increasing the peak power of the writing beam responsive to the occurrence of said leading edges, **decreasing the time said shaped modulator drive signal is above threshold** to maintain a prescribed duty cycle in the track of surface effects in the moving recording medium, and producing a symmetrical geometry at the leading and trailing edges of said track of said surface effects.

'129 patent, col. 16, ll. 59-67 (emphasis added). The plain meaning of "decreasing" is "becoming less and less." Webster's Third New International Dictionary 588 (1986). Thus, as the district court recognized, the use of the word "decreasing" indicates that the inventors intended to shorten the time the modulator drive signal is above threshold.

More specifically, referring to the waveform of the modulator drive signal, the "SUMMARY OF THE INVENTION" states that "the amplitude of the steep leading edges of the shaped modulator drive signal represent increased peak recording power, while the selection of the point at which the slope of the trailing edges passes threshold relative to the steep leading edge sets the duty cycle of the recorded indicia (pits)." '129 patent, col. 7, ll. 19-22. The "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT" states that "the timing of its trailing edge is purposely foreshortened to compensate for the increased length of the pit due to the higher-than-normal power level [of the leading edge boost]." Id. at col. 9, ll. 49-52 (emphasis added). Thus, the time the modulator drive signal is above threshold is decreased by shortening the timing of the trailing edge of the modulator drive signal relative to the leading edge.

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D. "decryption shim" or "shim"

<table>
<thead>
<tr>
<th>Term</th>
<th>Widevine Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decryption shim</td>
<td>A software component that is downloaded to or pre-installed on the client machine and used to decrypt incoming data stream from the encryption bridge on its way to the media player software.</td>
</tr>
<tr>
<td>shim</td>
<td>Verimatrix Construction</td>
</tr>
<tr>
<td>Decryption shim</td>
<td>transparent software that is downloaded to or pre-installed on the client machine and used to decrypt incoming data stream from the encryption bridge on its way to the media player software.</td>
</tr>
</tbody>
</table>

The parties dispute whether the construction for "decryption shim" should include the word "transparent." The language the parties agree upon comes from the specification, which Verimatrix contends is an express definition:

"The invention further provides a client system, also referred to as a decryption shim or simply a shim, which is a piece of transparent software that is downloaded to or pre-installed on the client machine (e.g. personal computer, network appliance or other network capable device) and used to decrypt incoming data streams from the EB on its way to the media player software."

'175 patent, 9:50-56. The issue is whether "transparent" would be an unnecessary limitation imported from the specification into the claims.

Widevine argues, under the doctrine of claim differentiation, that including "transparent" in the definition of "shim" would make that word meaningless in Claim 57, which recites "the shim being configured so that the negotiating and exchanging of the key thereby and the decrypting of the data thereby is transparent to the user." See '175 patent, Claim 57. Apparatus
Claim 81, on the other hand, only uses the word "shim" in the preamble, but does not use the word "transparent" in the body. According to Widevine, Claim 81 is implicitly transparent and the limitations teach how the shim operates transparently. However, "claim differentiation is not a 'hard and fast rule of construction,' and cannot be relied upon to 'broaden claims beyond their correct scope.'" Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001). The intrinsic evidence convinces the Court that the inventor intended the "shim" to be transparent, notwithstanding the doctrine of claim differentiation. See Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1370 (Fed.Cir.2007) ("the written description and prosecution history overcome any presumption arising from the doctrine of claim differentiation").

The Court does, however, need to clarify the definition provided by the patentee in the specification. While the definition of "shim" is express, a mere two paragraphs later in the specification, the patentee explains some exceptions to the software's transparency:

The installation of the decryption shim is transparent to the user and does not cause a reboot, restart of the user's browser or require interaction. Some exception such as the Mac OS TM and Windos N TM or Windows 2000 TM in secure environments or Linux or Unix based client machines because transparent installation requires administrative user privileges on the client machine and the ability of the client machine to receive programs via the Active-X TM mechanism.

'175 patent, 10:27-36. The specification recognizes a distinction between installation and operation and indicates that the shim will operate transparently, but may not install transparently. To account for this exception, yet remain consistent with the patentee's express definition, the Court construes "shim" and "decryption shim" to mean "software that is downloaded to or pre-installed on the client machine and used to decrypt transparently incoming data stream from the encryption bridge on its way to the media player software."

10. Dedicated Character Memory in Circuitry Controlling Said Output Device

The "dedicated character memory" must be part of the character-based output device and must be used exclusively for the purpose of storing a set of monochromatic characters.

32. Dedicated memory

The term "dedicated memory" appears in all of the claims of the 321 patent. In its reply brief, the plaintiff proposes that "dedicated memory" should be construed to mean "memory that is within the media processor that is accessible only through memory circuitry associated with the media processor." The defendants contend that under the plaintiff's construction, the memory is not dedicated because it is accessible by circuitry associated with the media processor and associated with another processor. Thus, the defendants insist that "dedicated memory" means "memory that is within the media processor that is accessible only through the media processor." Mindful that the claim language requires a "dedicated" memory, the court adopts the defendants' construction of "dedicated memory" and construes this term accordingly.

3. "[D]educting from the initial prepayment amount the running cost of the call"

Step (h) calls for "deducting from the initial prepayment amount the running cost of the call." The parties differ over when this happens. Telco contends that "[t]he running cost is deducted from the prepayment amount at the end of the call" (Joint Claim Chart, at 22), while Aerotel contends the claim does not speak to when the deduction occurs (see id.). The Court
agrees with Telco.

The most natural reading of steps (f), (g), and (h) is that the cost of a call is deducted from an account's available balance after a call is disconnected. As discussed in the following section, claim 23 uses "initial prepayment amount" and "current initial prepayment amount" to refer to the account's balance. Consistent with this usage: step (f) calls for "monitoring the running cost of the call in accordance with its duration;" step (g) calls for disconnecting the call "when the running cost of the call exceeds the current initial prepayment amount" (account balance); and step (h) calls for "deducting from the initial prepayment amount the running cost of the call." The comparison contemplated by step (g) requires that the "running cost" increase over time until the end of the call, whether that is effectuated by the caller hanging up or by the "running cost" eventually increasing to match the account balance. If the latter described comparison causes the end of the call, the immediately following deduction envisioned by step (h) brings the account balance to zero. If the caller simply hangs up then the running cost is deducted to create the new account balance. In both of those scenarios the deduction occurs at the end of the call. This is consistent with the Court's conclusion, supra, that steps (a) through (h) are to be performed sequentially, which requires that step (h) happens after step (g).

Aerotel's only argument for allowing the amount to be deducted during the call is that the patent's drawings and abstract refer to deducting credit "as the call progresses." ('275 patent, at [57]; see Pl.'s Opening Br. 26). But of course, "the words of the claims define the scope of the patented invention." Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1373 (Fed. Cir. 2008); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Where those words clearly describe the functions claimed, the Court will not expand the claim by reference to the specification and drawings. The Court finds, as the Washington Court did, Washington Court at 27, that "deducting from the initial prepayment amount the running cost of the call" means that the cost of the call is deducted from the initial account balance after the end of the call.

A. The Plain Meaning of the Words in the Claim Support a Construction of "Circumventing a Copy Protection Process to Produce a Watchable Copy"

"The words of the claims themselves define the scope of the patented invention. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); see also Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998). In this case, the words "the effects" do not specify or exclude any specific types of effects. Instead, the term "the effects" is plural and all inclusive. Thus, it follows that "the effects" means all the effects, and the words of the claim provide no basis for interpreting "the effects" to mean "some or all of the effects."

Macrovision objects to this construction because it requires the addition of the words "to produce a watchable copy." Macrovision's argument is unavailing in light of the additional words in the construction that it asserts. Macrovision urges adding the words "and includes reducing the effects of a video copy process." The plain meaning of the words does not support this construction because it not only adds words, it adds a new concept, that of decreasing negative unintended side effects. Macrovision also asserts that this construction is invalid because it improperly adds a modifier "all" to the term "the effects." This construction, however, does not add a modifier. Instead, it recognizes that the word "the" modifies "effects," to produce a phrase that is all-inclusive. Accordingly, the plain meaning favors the construction "circumventing a copy protection process to produce a watchable copy."

B. The Different Words Used in Claim One and Claim Six Do Not Require Different Constructions

Macrovision argues that a comparison of Claims One and Six shows that the defeating phrase in Claim One should not be construed to mean "to produce a watchable copy." The preamble to Claim One asserts "[a] method of defeating the effects of a video anti-copy process" while Claim Six covers "[a] method of defeating a video copy protection process . . . thereby enabling recording a viewable copy of the video signal." Macrovision asserts that these differences were intentional and intended to make Claim One broader than Claim Six.

1. Claim Differentiation Doctrine Does Not Apply

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The doctrine of Claim Differentiation assumes that different claims have different scopes, and creates a presumption that different words have different meanings. The presumption that different words have different meanings, however, only applies if the absence of the different meanings would render one claim superfluous. Tandon Corp. v. U.S. International Trade Commission, 831 F.2d 1017, 1023 (Fed. Cir. 1987). In this case, the presumption does not apply because construing the preamble of Claim One to have the same meaning as the preamble of Claim Six would not render either claim superfluous as multiple differences exist between the two claims. Moreover, the intrinsic and extrinsic evidence in this case show that "defeating the effects of a video anti-copy process" and "defeating a video copy protection process" have the same meaning and overcomes any presumption that would have been created by the doctrine of claim differentiation.

--- Footnotes ---

1 Claim one states "A method of defeating the effects of a video anti-copy process that adds pulses to blanking intervals of a video signal comprising replacing a back porch portion of the video signal having an amplitude at blanking level with a signal having an amplitude below the blanking level." In contrast, Claim Six states: "A method of defeating a video copy protection process that adds paired negative and positive going pulses to blanking intervals of a video signal, the method thereby enabling recording a viewable copy of the video signal comprising the steps of: determining a particular portion of at least some video lines of the video signal, the added pulses being present in the particular portion; and reducing a level of the particular portion to below a blanking level of the video signal."

--- End Footnotes ---

2. The Different Words In Claims One and Six Do Not Require Different Meanings

Although it is unclear whether Macrovision argues that claim differentiation applies, it is clear that Macrovision attempts to rely upon the logic underlying the claim differentiation doctrine. Macrovision argues that it is invoking the "common sense notion" underlying the claim differentiation doctrine that "different words or phrases used in separate claims are presumed to indicate that the claims have different meaning and scope." (Mot. to Modify at 5: 26-6: 2, quoting Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed. Cir. 1999). The notion that different claims are presumed to have different meanings, however, does not mean that different words must have different meanings. In fact, courts have recognized that different words do not require different interpretations:

That the patentee chose several words in drafting a particular limitation of one claim, but fewer (though similar) words in drafting the corresponding limitation in another, does not mandate different interpretations of the two limitations, since "defining a state of affairs with multiple terms should help, rather than hinder, understanding." Bell & Howell Doc. Management Prods. Co. v. Altek Sys., 132 F.3d 701, 707, 45 U.S.P.Q.2d (BNA) 1033, 1039 (Fed.Cir.1997). Moreover, that the claims are presumed to differ in scope does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ. See Mantech Envtl. Corp. v. Hudson Envtl. Servs., 152 F.3d 1368, 1376, 47 U.S.P.Q.2d (BNA) 1732, 1739 (Fed.Cir. 1998)

Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000). Thus, the fact that Claim One uses different words from Claim Six does not require that the difference have meaning. See also Tandon, 831 F.2d at 1023 (construing "relatively fixed," "fixed" and "fixedly coupled" all to mean "fixed in all directions.")

C. The Specification Supports the "Circumventing a Copy Protection Process to Produce a Watchable Copy" Construction

The specification is properly used to define claims terms. Vitronics Corp, 90 F.3d at 1582. In the '927 specification, several passages are directed to circumventing the copy protection process. For example, the specification states that "disclosed herein in accordance with the invention are several methods and apparatuses for removal of or 'defeat' of the above-described video signal modifications, to permit unhampered copying and viewing thereof." ( '927 patent, col 5, lines 26- 29)(emphasis added). Similarly, the specification states that figure 15:

shows a two step circuit and method for removing all the above-described anticopy protection signals. A video signal . . . is first input on terminal 228 into the circuitry. . . to defeat the effects of the AGC pulses and pseudo-sync pulses. Second, the output signal from circuitry 230 is input into the enhancement remover 234 which defeats the checker and vertical pulses, and also defeats sync narrowing and any residual AGC pulse of pseudo-sync pulses in the horizontal blanking
interval. The video and signal at terminal 236 is thus free of all effects of copy protection signals.

( '927 patent, col 23:14-26.) (emphasis added.) See also '927 patent, col 23:14-26 ("the circuit of FIG. 39a reduces or removes the effect of the PPS pulses, rendering the video signal recordable").

Macrovision argues that the specification supports its construction. As support for this position, Macrovision points to column 32, which states:

Method and Apparatus for Reducing Effects of Basic Anticopy Process Signals

The following describes a method and apparatus in which the basic anti-copy process signals consisting of pseudo sync and AGC (i.e. basic anticopy process) added pulses (as described above) are reduced in effectiveness without altering these added pulses. Unlike the above described previous methods for altering the added pulses via amplitude attenuation, level shifting or pulse narrowing to offset the added pulses' effect, the present method reduces the effects of added pulses by further adding other pulses that counteract the gain reduction caused by the AGC and pseudosync pulses.

( '927 patent, col 32, lines 19-31.) Macrovision argues that the use of the words "reducing" and "reduced" mandate the inclusion of a partial elimination in order to improve watchability of the original tape. This construction is not supported by the language of the specification. The gain reduction discussed refers to the technology in U.S. Patent number 4,631,603 ("the '603 patent") which affects the automatic gain control system in a VCR to cause an unacceptable recording of the video signal. ( '603 Patent Col 2:21-29, Exh. 6 to Dwight Cavendish's Response to Opening Claim construction Brief) Thus, when read in context, the cited portion refers to defeating the copy protection process, and not to negative side effects on the original tape. 2 Accordingly, the specification supports the "circumventing a copy protection process to produce a watchable copy" construction.

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2 Macrovision also argues that Dwight Cavendish's expert, Bernard Lechner, agreed with Macrovision's construction that reducing the effects is covered by claim one. (Reply at 2:15-28.) However, the expert testified that reducing meant "reducing sufficiently that the resulting signal is acceptable for viewing." Lechner Dep. at 114:25-115:20 Thus, Dwight Cavendish's expert did not contradict the "circumventing a copy protection process to produce a watchable copy" construction. Instead, his testimony is consistent with this construction and provides no assistance to the construction which would include reducing unintended side effects on the original tape.

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D. The "Circumventing a Copy Protection Process to Produce a Watchable Copy" Construction Does Not Improperly Limit Claim One to Examples in the Specification

Macrovision argues that the construction of "Circumventing a Copy Protection Process to Produce a Watchable Copy" improperly limits Claim One to the examples in the specification. While it would be incorrect to limit Claim One to examples in the specification, it is equally true that the specification acts as a dictionary for the claim terms. Vitronics, 90 F.3d at 1582; Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998). In this case, the specification of the '927 patent uses the term "defeating the effects" in only one way-to mean circumventing copy protection. In fact, Macrovision conceded at the claim construction hearing that the specification does not support interpreting "defeating the effects" to mean reducing side effects on the original tape. Macrovision stated: "And we will concede, as Dwight Cavendish pointed out, there isn't a portion of the specification that we can say here is a section of the specification that talks about reducing the effects to improve the playability of the original tape. That's not in the specification and we're not contending that it is." (Joint App. Exh. B, Hearing Tr. at 30:23-31:4). Thus, the "Circumventing a Copy Protection Process to Produce a Watchable Copy" construction does not improperly limit Claim One to examples in the specification. Instead, it refuses to expand claim one in a manner inconsistent with the use of the term throughout the entire contents of the specification. 3

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The file history also contains no support for the construing "defeating the effects" to mean defeating or reducing some or all of the effects. The Patent Examiner treated "defeating the effects of a video anti-copy process" as synonymous with "defeating" copy protection. Thus, the court's construction is consistent with both the specification and the file history.

E. The Extrinsic Evidence Supports the "Circumventing a Copy Protection Process to Produce a Watchable Copy" Construction

Extrinsic evidence may be used to ensure that the claim construction based on intrinsic evidence is not inconsistent with how a person skilled in the art would understand the claim terms. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1308-09 (Fed. Cir. 1999). In connection with several other patents, Macrovision has used the term "defeating the effects" to refer to circumventing copy protection. For example, in relation to U.S. Patent No. 5,953,417 ("the '417 patent"), Macrovision told the Patent Office that "defeating the effects" means circumventing copy protection to create a watchable copy. Specifically, the '417 patent states:

'It is to be understood that herein the terms "copiable" and "recordable" both mean that the resulting video signal, when recorded by a VCR and then played back, provides a viewable television picture without substantial hue defects due to the color stripe process [i.e. another form of copy protection]. Thus these terms refer to effective elimination (defeat) of the effect of the color stripe process in terms of viewability of the video signal."

'523 patent, col 10, lines 54-60 (emphasis added). Thus, the extrinsic evidence is consistent with the plain meaning of "defeating the effects of a video anti-copy process" as "circumventing copy protection process to produce a watchable copy."

V. ORDER

For the foregoing reasons, the phrase "defeating the effects of a video anti-copy process" is construed to mean: "circumventing a copy protection process to produce a watchable copy." Accordingly, it is hereby ORDERED that the Motion of Dwight Cavendish to Enter the Report of the Special Master is GRANTED and the Motion of Macrovision to Modify the Report of the Special Master is DENIED.

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5. "defective floppy diskette controller"

The Special Master found that this term "needs no construction, for its ordinary meaning is clear." He pointed out that the term "floppy diskette controller" has already been construed and that, in light of the construction, a jury would have no difficulty understanding what is meant by "defective."
He rejected Defendants' argument that the defect in the FDC must relate to an inability or failure to detect an error caused by "a delay in the transfer of the last byte of a sector" for two reasons: First, it would be "an egregious example of improperly reading limitations from the specifications into the claim." 102 Second, it would "violate the doctrine of claim differentiation, which creates a presumption that each claim in a patent has a different scope." 103

In the '002 patent, claim 4 is ultimately dependent upon claim 1, through dependence upon claims 2 and 3. But claim 4 adds this language: "wherein the underrun error comprises a delay in transferring a last byte in the transfer." Consequently, if one were to import into claim 1 the "last byte" limitation, it would be present as well in dependent claims 2 and 3, and dependent claim 4 would have the same scope as claim 3. The same correspondence holds true for claims 1, 3, 4, and 5 of the '222 patent; importation of that limitation into claim 1 would result in claim 5 having the same scope as claim 4. 104

102 Id. at 57.
103 Id.
104 Id.

He reasoned that Defendants' proffered claim construction would be presumptively unreasonable because it would result in one claim having the same scope as another claim. 105

105 Id. (citing Beachcombers v. Wildewood Creative Prods., Inc., 31 F.3d 1154 (Fed. Cir. 1994)).

Defendants now argue that the ordinary meaning does not reflect the proper scope of the patents. They assert that the last byte error is the sole problem the patents purport to identify and solve and, therefore, the presumption of claim differentiation is overcome. They also object that the Special Master has not construed an FDC to require that it be a hardware device--again objecting to a passing footnote reference to Eolas and arguing that Defendant described FDCs in the '002 and '222 patents as hardware.

Plaintiff argues that the last byte error is not the sole problem of the patents and that a close reading of Defendants' cites reveals the inventor did not label FDCs as hardware devices.

Defendants' arguments do not convince the Court that the common meaning of the term does not reflect the scope of the patents. Plaintiff did not label the FDCs as hardware devices, and Defendants have not overcome the presumption of claim differentiation.

The Court adopts the following claim construction: The term "defective floppy diskette controller" needs no construction, for its ordinary meaning is clear.
phrase "define an updated form line" should be construed to mean "computing terrestrial locations of a vehicle while the vehicle is diverted from steering guidance by the operator to accommodate a terrain feature on the field." Defendants, by contrast, contend that the phrase should be construed to mean "recompute a previously computed path across the area to be treated."

Defendants' arguments once more prevail. "Form line" has been construed to mean "path across the area to be treated," and "defining" it has been construed to mean "computing" it. Accordingly, to define an updated form line can only mean to "recompute a previously computed path across the area to be treated." This construction logically results from construing the disputed phrase consistently with other disputed phrases construed by the court herein.

Moreover, Trimble does not truly challenge this construction. Its objection to defendants' proposed construction is not based on the fact that defendant interprets the phrase "define an updated form line" to mean "recompute a previously computed" form line, but rather to defendants' construction of "form line," which is construed to mean "path across the area to be treated." This objection has already been taken into account, and resolved, by the court's construction of the term "form line" as noted at the outset.

Accordingly, the court construes the term "define an updated form line" as: "recompute a previously computed path across the area to be treated."

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iii. Defined routines

Gobeli asserts that this phrase should be given its plain and ordinary meaning. Gobeli argues that the term should be construed to mean "one or more program instructions associated with an interrupt cause." Defendants contend that the proper construction is "program instructions that, when executed, remedy a specific interrupt cause." Both sides agree that the defined routines are program instructions, but Defendants assert that the additional limitation "remedy" must be part of the claim term. The Court disagrees.

The Gobeli patent does not require the defined routines to remedy the interrupt cause. Instead, the patent uses the word "service." See, e.g., Gobeli patent, Col. 1, 11. 42-43. This Court refuses to incorporate limitations into the claims that do not appear in the specification or in the claims. The patentee at no time limits the claimed invention to remedying the interrupt cause.

However, the Court's analysis does not end at whether or not remedy must be part of the construction. In subsequent clauses in Claim 11, the patentee references specific portions of the routines that are associated with a process. Thus, the defined routines are not tied to the stimulus or interrupt cause, but are instead tied to the device or device subsystem. Instead, it is the "specific portions" of the defined routines that are tied to the actual interrupt cause or stimulus. Accordingly, the court construes "defined routines" as "program instructions that are associated with a device or device subsystem."

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3. "defining a second form line using positioning data derived from GPS data and a swathing offset" (Claim 1)

This phrase appears in claim 1. See Tang Decl., Ex. A at 12:34-49, Ex. D at 2 (amended Claim 1). Trimble contends that the above phrase should be construed to mean "comparing two or more terrestrial locations on the field based upon the computed terrestrial locations of the previous form line and a distance determined by an effective width of a towed implement to provide steering guidance." Defendants contend that the phrase should be construed to mean "computing a second path across the area to be treated using geographical positions computed using GPS satellite data transmissions and a distance determined by the effective width of a towed implement."

The disputed phrase here is focused on what it means to define a "second form line" in accordance with the contour
guidance system claimed by plaintiff. Preliminarily, as defendants point out, much of the phrase has already been construed. For example, the term "form line" has been construed to mean a "path across the area to be treated," and "defining" a form line has been construed to mean "computing" it. As such, and putting those terms together to be read consistently, "defining a second form line" must be construed, as defendants propose, to mean "computing a second path across the area to be treated." Defendants also correctly note that the parties previously agreed that "swathing offset" should be construed as "a distance determined by the effective width of a towed implement." See Joint Claim Construction Statement, Appendix C. All of which leaves only one segment of the phrase at issue here that requires construction -- that portion which states "using positioning data derived from GPS data." Plaintiff's proposal construes this as meaning "based upon the computed terrestrial locations of the previous form line," while defendants opt for the construction, "using geographical positions computed using GPS satellite data transmissions."

In construing this portion of the phrase, the specification of the '383 patent is helpful, and argues in favor of defendants' proposed construction. In referring to the guidance system's method for defining the second form line, the specification refers to the process of defining second and subsequent form lines with reference to GPS satellite data, rather than more generalized "terrestrial locations." See Tang Decl., Ex. A at 7:33-8:19 ("if additional form lines are to be sprayed, a decision made at step 114, GPS receiver 60 (or the separate processor) computes a new form line (or swath), based on the GPS data collected while sprayer rig 30 traversed across the first form line path."); 2:17-21 ("the present invention provides a form line following apparatus which includes a vehicle fitted with a GPS receiver configured to receive GPS data and GPS correction information and to compute position information therefrom").

Furthermore, the specification's description of the drawings also refers to a form line following process that is dependent upon GPS data transmissions. Figure 5, for example, depicts the process of computing form lines subsequent to the first form line, and expressly states at step 116 that these subsequent form lines are computed "based on GPS data." See id. at Ex. A, Fig. 5; 7:57-61 ("in figure 5 ..., at step 118, the operator begins the next form line. In general, the operator follows the guidance information computed by GPS receiver 60 and displayed on moving map display 64 and heading indicator 70 and also on light bar 72"); see also id. at 5:40-43 (describing Figure 4 and stating that "GPS receiver 60 uses the GPS data provided through antenna 44 from the GPS satellites 46 and the differential GPS information received through antenna 48 to compute position information for sprayer rig 30"). Accordingly, based on these references to GPS data in connection with the definition of subsequent form lines, defendants' proposed construction -- that "using positioning data derived from GPS data" should be construed as "using geographical positions computed using GPS satellite data transmissions" -- makes the most sense.

The court therefore construes "defining a second form line using positioning data derived from GPS data and a swathing offset" as: "computing a second path across the area to be treated using geographical positions computed using GPS satellite data transmissions and a distance determined by the effective width of a towed implement."

1. "defining an intensity distribution of the illumination light on the Fourier transform plane in the illumination optical system with respect to a pattern on the mask to have increased intensity portions apart from an optical axis"

Distilled to its essence, the parties' disagreement over this prolix claim term centers on two words: "defining" and "on." ASML reads "on" to modify "defining" such that the phrase "defining an intensity distribution of the illumination light on the Fourier transform plane" necessarily places the act of defining "on" the Fourier transform plane itself; for its part, Nikon argues that the claim language demands no such placement, connoting only the existence of "an intensity distribution of the illumination light on the Fourier transform plane in the illumination optical system."

At least in part, basic principles of grammar 20 contradict Nikon's parsing of the claim text. The claim language's use of a gerund-form verb (viz., "defining") unequivocally implies an act. See Anhydrides & Chemicals, Inc. v. United States, 130 F.3d 1481, 1483 (Fed. Cir. 1997) (applying the basic rules of grammar when evaluating a statute); Gen. Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1274 (Fed. Cir. 1992) ("Each claim is an entity that must be considered as a whole."). When claim 12 uses the word "defining," it denotes the act of assigning a definition to an intensity distribution of an illumination light; Nikon cannot construe the claim such that this act does not occur.
Yet precisely where this act of "defining" occurs presents a substantially more difficult question. In its proposed construction, ASML asks the court to place the act of "defining" directly on the "Fourier transform plane," arguing that the location of a particular prepositional phrase (viz., "on the Fourier . . . .") in the claim text compels the court to place the act on the relative position of the plane between the pattern and the light source. As the court reads claim 12, however, the pivotal prepositional phrase could be read to modify the act of "defining" (as ASML suggests), or it could be read to modify the occurrence of the illumination light, but not necessarily one, the other, or both. See '041 Patent at 19:14-20:3 (". . . defining [] an intensity distribution of the illumination light on the Fourier transform plane"). It is simply not clear that the act must occur where ASML says it does, nor that it ever does.

In fact, intrinsic evidence and the core technology suggest that it does not, i.e., that the prepositional phrase modifies the illumination light, not the act of defining alone. Indeed, much in the intrinsic record suggests that the Fourier transform plane functions as a location at which light may exhibit particular characteristics, not that it is where the "defining" must take place. See, e.g., '041 Patent at 3:30-40 & 4:20-5:11. And to say as much does not exclude the embodiment in figure 2; the disclosed embodiment is sufficiently incorporated through a definition denoting the core act itself. Consistent with the claim text and the lessons of the intrinsic record, the court construes "defining an intensity distribution of the illumination light on the Fourier transform plane in the illumination optical system with respect to a pattern on the mask to have increased intensity portions apart from an optical axis" to mean "quantifying or shaping of increased intensity portions of the illumination light, as those portions appear on the Fourier transform plane, in the illumination optical system."
For the reasons already discussed in connection with the proper construction to be given the term "form line," the disputed term here must also be construed as a computed path across the area to be treated, which is based on the new geographical positions recorded while the operator deviated from the original second form line. In addition, the '383 patent's language and specification support a construction that deviating from the second form line while following it, as referred to in the disputed term here, means a process whereby: (a) the operator deviates from the previously computed second form line path; and (b) GPS data records the new geographical positions of the operator associated with the deviations. This GPS recording of the new geographical positions corresponding with the deviated second form line is what it means to "update" the second form line. Only after updating the second form line with the new GPS data, is the updated second form line "defined," by computing an updated path to extend across the area to be treated, based on the new GPS data that recorded the deviated second form line path taken by the operator. See Tang Decl., Ex. A at Abstract ("The updating generally occurs by following the second form line as defined by the positioning data and the swathing offset and then deviating from the second form line to accommodate one or more terrain features. New GPS data is collected during these steps of following and deviating from the second form line and new positions are computed from the new GPS data. Finally, the updated second form line is defined using the new positions computed from the new GPS data."); 3:20-25 ("GPS data may be collected during the steps of following and deviating from the computed second form line path and one or more positions computed therefrom. An updated second form line may then be defined using the computed positions.").

Given this description of the process by which the second form line is updated and then defined, the ordinary plain meaning of the disputed term here is in line with defendants' proposed construction. Accordingly, the court construes "defining an updated second form line according to one or more deviations from said second form line while following said second form line" should be construed as: "recomputing the previously computed second path across the area to be treated using new geographical positions computed while deviating from the previously computed second path across the area to be treated."

f. Defining at least time and yield characteristics of each process step

According to ITI, the limitation "defining at least time and yield characteristics of each process step" should be construed as determining the duration of a stage of manufacturing and the portion of the parts or lots that successfully complete that stage, where the duration and portion can vary in a random manner. Defendants propose that the correct interpretation is: for each process step, fixing distinctly at least the standard process time, set-up time, and yield, and the probability characteristics of fluctuations in the standard process time, set-up time, and yield. The Court believes that both proposals contain superfluous language.

As already mentioned, "process step" is defined in the specification as the fundamental operation performed on a machine. Defendants seem to assume that all process steps include certain attributes, namely, a process time, a vector of parameters describing conditional setup times, a standard yield, and parameters for random yield distributions. But the relevant part of the specification states, "in this embodiment, the attributes of each process step include a process time, a vector of parameters describing conditional setup times, a standard yield, and parameters for distribution describing random yield and process-time fluctuations." U.S. Patent No. 4,796,194, col. 11, lines 30-34 (emphasis added). Clearly, the patent leaves open the possibility that other embodiments of the invention might contain process steps with different attributes. The limitation at issue should not be defined using attributes that might apply only to certain embodiments of the invention.

It is relatively clear from the specification that "yield," here used as a noun, is used in a way consistent with its common meaning: the result or quantity produced. Taking together the definitions of "process step" and "yield," the Court interprets the limitation to mean determining at least the duration of, and the result or quantity produced by, each fundamental operation performed on a machine.
Macromedia contends that the phrase "defining element" should be construed to mean "an element from which derived elements are generated." (D.I. 470 at 6). Adobe contends that the phrase "defining element" should be construed in accordance with the definition expressly provided in the specification, namely "an element that can be used to calculate the essential information required to construct other elements." (D.I. 479 at 12).

In construing the phrase "defining element," the Court has considered the specification of the '443 Patent. ( '443 Patent, Col. 2, lines 37-39). Because the specification expressly defines the phrase "defining element" as Adobe contends, the Court construes the phrase "defining element" to mean "an element that can be used to calculate the essential information required to construct other elements."

b. Defining lots of parts manufactured in the plant

ITI requests that the Court construe "defining lots of parts manufactured in the plant" to mean determining attributes of groups of like parts. According to defendants, the phrase should be interpreted to mean fixing distinctly the essential qualities of the components, not the finished products, that are manufactured in the plant.

The specification states that "lots are composed of like parts and follow a fabrication-sequence." U.S. Patent No. 4,796,194, col. 10, lines 66-68. The patent discusses lots in terms of their "attributes" at least twice. See id., col. 11, lines 1, 5. Thus, ITI's construction is more in keeping with the use of "lots" in the specification. Similarly, defendants' addition of "essential qualities" is unnecessary. Defendants cite the following definition of "defining": "to determine or identify the essential qualities or meaning of." Webster's Ninth New Collegiate Dictionary 333 (1986). Reliance on a dictionary definition is secondary to defining the term in the context in which it is used within the patent itself. Moreover, "essential qualities" is not indispensable language even within the cited definition, and "attributes" conveys the same sentiment.

To define "parts" would confuse the issue, as "lots" are defined in terms of parts and the word "parts" already appears separately in the limitation. The Court is confident that the jury will have no trouble understanding that a part is not equivalent to a finished product.

In sum, the Court adopts the following construction: determining attributes of groups of like parts manufactured in the plant.
7. Access Time/ Access Time Register/ Delay Time

a. Proposed constructions

To optimize transmissions over the bus, the invention attempts to coordinate individual DRAM outputs by injecting a certain time delay before each device responds to a request. A value representing the amount of time the device is to delay is stored in one or more access time registers on each device.

Rambus and Hynix dispute the construction of three related terms: (1) access time register, (2) access time; and (3) delay time. These terms are conceptually interrelated which requires they be construed jointly. "Access time register" is used in '214 patent, claim 18 and the '918 patent, claim 24. The parties have agreed to the construction of "register" as "a data storage element or group of data storage elements not part of a memory array that can store one or more bits of information." Rambus proposes "access time register" be construed as "[a] data storage element to store a value representative of an access time delay." Hynix proposes it be construed as "[a] register programmable to store information representing a particular access time." JCCS, Ex. A at 24.

"Access time" is used throughout the patents yet never as a separate term in the asserted claims. Hynix argues the term should be separately construed by the court because the parties have agreed to a construction of "register," and because both parties use the term in their proposed constructions of several other terms. Hynix proposes "access time" be construed as "the time between the initiation of a memory access and the availability of data at the outputs." JCCS, Ex. A at 22. Rambus opposes a construction of "access time" because the term is only used within the asserted claims as part of "access time register." Although Rambus's briefing contains several arguments in opposition to Hynix's proposed definition, Rambus does not provide a proposed construction for "access time." JCCS, Ex. A at 22.

"Delay time" is used in the '263, '918, '365, and '195 patents. Hynix proposes the term be construed as "the time between the initiation of a memory access and the availability of data at the outputs." JCCS, Ex. A at 25. Rambus proposes "an amount of time before commencing a subsequent action." Id.

b. Access Time Register

i. Claim Language

Two asserted claims use the term "access time register." Each provides significant context for construing the term. Claim 18 of the '214 patent states:

The method of claim 15 [describing the read and output of data synchronously with respect to a first and second external clock signal] further including storing a code in an access time register, the code being representative of a number of clock cycles of the first and second external clock signals to transpire before data is output onto the bus in response to the first read request, wherein the first amount of data corresponding to the first block size information is output after the number of clock cycles transpire.

Claim 24 of the '918 patent states:

The method of claim 18 [describing the read and output of data synchronously with respect to the external clock signal] further including storing a delay time code in an access time register, the delay time code being representative of a number of clock cycles to transpire before data is output onto the bus after receipt of a read request and wherein the first amount of data corresponding to the first block size information is output after the number of clock cycles transpire.

Throughout the patents-in-suit various phrases are used to describe what the value in the "access time register" is meant to represent. Hynix offers "a particular access time." Rambus offers "an access time delay." For purposes of this subsection, in an effort to avoid confusion, the court will use the term "delay time code."
ii. Ordinary meaning

Hynix argues that the contents of the access time register should be defined as a value representing a time equivalent to the ordinary meaning of "access time." The ordinary meaning of "access time" is "the time interval between the instant at which data are called for from a storage device and the instant delivery is completed, that is, the read time." THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 7 (7th ed. 2001). Hynix's proposed construction of "access time" is substantially similar to its ordinary meaning.

Rambus contends that the claims asserted use the term "access time" as simply a label for that type of register. The label, according to Rambus, does not thereby define the contents of the register. The claims' explicit statement that the access time register stores a delay time code supports Rambus's argument. Delay time, as discussed below, is not necessarily equal to Hynix's construction of "access time." Therefore, the ordinary meaning of the label "access time register" does not control the construction of its contents.

iii. Specification

Hynix seeks to limit the delay time code to "a particular access time." Hynix further seeks to precisely define how such "access time" is measured. JCCS, Ex. A at 22. Rambus argues the claims should not be limited to registers where the delay time (represented by the delay time code) is equal to the access time as measured by Hynix.

Hynix's construction of "access time" appears to describe the physically minimum access time. As Rambus observes, in one sense, "access time" describes a physical characteristic of the memory device. It is the minimum amount of time in which it is physically possible for a device to receive a request and then complete its response, whether that response be to write a block of data or to output a block of data through the output pins. See THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 7 (7th ed. 2001). As noted during the tutorial, the physical access time of a device is typically a fixed constant, predetermined by the access mode, the physics of the chip, and the interaction with external variables such as temperature or voltage.

First, in a preferred embodiment, the specification teaches:

The value stored in a slave access-time register 173 is preferably one-half the number of bus cycles for which the slave device should wait before using the bus in response to a request.

'263 patent, cl. 15, 11. 57-60. As this passage illustrates, the access time register changes the amount of time in which a memory device returns data depending on the value stored in the register. Murphy Reply Decl. P 25. The critical technical aspect of this concept, that is not necessarily included in Hynix's proposed construction of "access time," is the injection of a potential and variable delay in the device's response.

Second, the specification reveals that it would be improper to limit the delay time, or the value stored in the access time register, to any single value. The specification states:

The configuration master should choose and set an access time in each access-time register 173 in each slave to a period sufficiently long to allow the slave to perform an actual, desired memory access. For example, for a normal DRAM access, this time must be longer than the row address strobe (RAS) access time. If this condition is not met, the slave may not deliver the correct data. The value stored in a slave access-time register 173 is preferably one-half the number of bus cycles for which the slave device should wait before using the bus in response to a request. Thus an access time value of 1' would indicate that the slave should not access the bus until at least two cycles after the last byte of the request packet has been received. The value of AccessReg0 is preferably fixed at 8 (cycles) to facilitate access to control registers. '263 patent, cl. 15, 11. 51-65.
Thus, the patent contemplates that the user can set the delay time to any desired value. The preferred embodiment takes steps to teach what the patentee believed to be the optimal delay times for the various access modes. However, the consistent use of terms such as "should," "preferably," and "choose" demonstrates the user is not required to set the delay time to any fixed or pre-determined value. Therefore, this court will not read such a limitation from the preferred embodiment into the construction of "access time register."

Similarly, it would be improper to limit the measurement of the delay time to ending at any specific pre-defined event. The specification explains:

[A] slave should preferably respond to a request in a specified time, sufficient to allow the slave to begin or possibly complete a device-internal phase including any internal actions that must precede the subsequent bus access phase.

'263 patent, cl. 8, 11. 39-42 (emph. added).

This passage demonstrates the patent contemplates the possibility that the delay time could be set to end either before or after the completion of a device internal phase. Rambus, however, agreed at the hearing that the time can be limited to commencing when the device receives a transaction request. Tr. 118:21. 19

--- Footnotes ---

19 In the construction of "access time register" the court adopts below, the court uses the phrase "receiving a transaction request" to describe the starting point of this time delay. To the extent this phrase contains any ambiguity, the court notes that the claims using "access time register" often describe the starting and ending events used to measure this delay time code. The court intends for its construction to be interpreted as a generic term which is further defined by the specific claims at issue. Tr. 117:2-118:4.

--- End Footnotes ---

iv. Rambus's construction is ambiguous

Rambus proposes the value in the access time register be construed as representing "access time delay." JCCS, Ex. A at 24. Hynix objects that this construction is circular and ambiguous. Notably, Rambus made similar objections to Hynix's proposed construction of "access time." Those same objections undermine the soundness of using "access time delay" in the construction. Having found that the ordinary meaning of "access time" does not necessarily equal the delay time, the court finds "access time delay" provides little guidance when evaluating possible infringement.

In searching for a clearer way to define the value stored in the access time register, the court finds the specification's description to be accurate and clear. Therefore, "access time register" is construed as "a data storage element to store a value representative of a time a device must wait from receiving a transaction request before responding to a transaction request." Tr. 118:18-20.

c. Delay Time

Hynix proposes "delay time" be construed using the same definition it proposed for "access time." For the reasons discussed in reference to the "access time register," "delay time" cannot be limited to equaling any fixed access time, nor can it be precisely measured in the fashion Hynix proposes. In addition, Hynix includes in its definition of delay time, "the availability of data at the outputs." Yet, the claims using "delay time" separately already set forth the action that occurs after the delay time expires. For example, claim 1 of the '263 patent involves "a programmable register to store a value which is representative of a delay time after which the memory responds to a read request." (emphasis added) Adopting Hynix's construction of delay time would render the representative claim 1's expression of the subsequent action (emphasized in quotation) superfluous.

Since each claim in which "delay time" is used as a separate term (as opposed to "delay time code") provides sufficient context to ascertain the purpose and functionality of the concept, "delay time" shall simply be construed "as an amount of
time that must transpire before commencing an action." The court finds this construction to comply most closely with the term's ordinary meaning. See OXFORD ENGLISH DICTIONARY (2d ed. 1989).

b. Delineating a set of factory operating rules

ITI contends that the limitation "delineating a set of factory operating rules" means to set forth a group of prescribed guides for conduct or action in manufacturing. According to defendants, the language should be construed as meaning to set forth in detail a group of prescribed guides for how a manufacturing plant works. The sole point of contention is the phrase "in detail" inserted by defendants, who argue that this is necessary to give the word "delineating" its ordinary meaning. See Pl's Reply at 5 ("The defendants' proposal is acceptable without the words 'in detail.'"). In its reply, ITI maintains that the meaning of delineating is straightforward and that substituting an everyday word with its definition is pointless.

The term "delineate" fits within the category of non-technical terms that have widely accepted meanings and do not require elaborate interpretation. See Phillips, 415 F.3d at 1314. In such situations, the Federal Circuit has approved the use of general purpose dictionaries to help determine the ordinary meaning of the terms. Id. Defendants provide the Court with Webster's definition of "delineate": to describe, portray, or set forth with accuracy or in detail. Webster's Ninth New Collegiate Dictionary 336 (1986). The definition ITI cites also includes the language "set forth with accuracy or detail." See Pl's brief at 5. Because the parties agree on the appropriate definition of delineate, and ITI points to no intrinsic evidence showing that the patentee intended a different meaning for the term, the Court adopts the following construction of the limitation: setting forth with accuracy, or in detail, a group of prescribed guides for how a manufacturing plant works.

2. "Demodulated Aural Signal"

Comark argues that the term "demodulated aural signal" means "an aural signal that has been amplitude or frequency demodulated." Harris contends that the term means "an aural signal that has been FM demodulated."

Step two of Claim 14 provides for "demodulating the commonly amplified television transmission signal to provide a demodulated aural signal[]" (Ex. DMX-1 at col. 8, lines 4-6.) Step three of Claim 14 provides for "performing a spectral analysis of the demodulated aural signal to determine the presence and frequency of unwanted aural signal noise resulting from unwanted aural carrier modulation[]." Id. at col. 8, lines 11-16.)

One of ordinary skill in the art, upon reading the '904 patent, would understand that there are both amplitude and phase components of unwanted noise that have been cross-modulated onto the aural signal. (Tr. 10/21/96 at 106, 127.) To identify the amplitude components of the unwanted noise, one of ordinary skill in the art would perform an amplitude demodulation of the aural signal. Id. at 106, 127. To identify the phase components of the unwanted noise, one of ordinary skill in the art would perform a frequency demodulation of the aural signal. Id. at 106, 127.

The court will adopt Comark's proposed construction.

3. "Non-Linear Phase Domain Video Signal"

In Part II.B.3. supra, the court stated that it will adopt Comark's proposed construction. Thus, the term "non-linear phase
domain video signal" means a video signal which is distorted in a non-linear way and fed to a phase modulator in order to phase modulate another signal.

* * *

The term "demodulated aural signal" in Claim 14 means an aural signal that has been amplitude demodulated or frequency demodulated.

A. Parties' Construction Arguments

The terms "demodulation" and "demodulator" do not appear in the specification of the '323 patent, and the term "demodulate" does not appear in the patent at all. Nevertheless, Plaintiff claims the intrinsic evidence clearly supports Plaintiff's construction of "demodulation circuitry" as "circuitry used to reconvert modulated data into its original, pre-modulated form." The most relevant intrinsic evidence is Claim 24 which provides that "demodulator circuitry" receives a "modulated data signal on the loop." Plaintiff also argues that the extrinsic evidence supports Plaintiff's construction, but Plaintiff's citations to extrinsic evidence, such as an IEEE Standard dictionary definition, reflect Defendants' construction nearly as much as Plaintiff's construction. The IEEE Standard Dictionary of Electrical and Electronics Terms 270 (6th ed. 1996) ("demodulation — (4) The reconversion of a modulated signal into its original form by extracting the data from the modulated data signal on the loop").

Defendants argue that when considering Claim 24 states that "demodulator circuitry" receives a "modulated data signal on the loop" and that the parties have agreed that "not a modulated data signal" means "not a signal conveying data through variation of amplitude, frequency, and/or phase," this broad construction and language supports Defendants' construction of "circuitry that extracts data from a modulated carrier." Defendants then cite a number of dictionary definitions for support, including the definition Plaintiff cites, that define "demodulate," for example, as "to extract (information) from a modulated carrier wave" or "to extract the information from (a modulated signal)." See American Heritage Dictionary of the English Language 483 (4th ed. 2000); Merriam-Webster's Collegiate Dictionary 332 (11th ed. 2003).

B. Analysis

The Court believes that both of the parties' constructions constitute the partial definition of the "demodulation circuitry" or "demodulator circuitry." There is little intrinsic record aside from Claim 24, which states that "demodulator circuitry is coupled to the connector to receive a modulated data signal on the loop," '323 patent, 10:5-6. So the intrinsic record only makes clear that the demodulator circuitry does something with respect to a "modulated data signal on the loop." Thus, since the intrinsic record is not clear by itself regarding the "demodulator circuitry," the Court also considers the extrinsic evidence. Both parties cite, and presumably agree with, the definition from the IEEE Standard Dictionary that states "demodulation — (4) The reconversion of a modulated signal back into its original form by extracting the data from the modulated carrier." The IEEE Standard Dictionary of Electrical and Electronics Terms 270 (6th ed. 1996). There are two parts of this definition that are separated by the word "by." Plaintiff's construction focuses on the first part and Defendants' construction focuses on the second part. As indicated from the word "by," the first part of the definition explains what demodulation is and the second part explains how the process of demodulation is performed. Hence, Plaintiff seeks a construction that explains what is occurring in the demodulation circuitry and Defendants seek a construction that explains how it occurs.

The Court believes that the construction should explain both what demodulation circuitry is and how it occurs in order to be most helpful to the jury. Therefore, the Court's construction uses parts of both Defendants' and Plaintiff's constructions, which are partially derived from the IEEE Standard Dictionary, and then supplements them with the information in the intrinsic record from Claim 24. So the Court construes "demodulation circuitry" as "circuitry used to reconvert a modulated data signal back into its original form by extracting the data from the modulated data signal on the loop."
7. "Demographic Conditions"

Claim 15 of the '150 patent recites "[a] process according to claim 11 wherein said step of fetching control data includes fetching data to specify demographic conditions." The parties disagree over the construction of the term "demographic conditions." The plaintiffs argue that "demographic conditions" refers to conditions based on the geographic location of the caller. The defendants contend that "demographic conditions" pertain only to the area code of the caller.

It is clear from the specification that the term "demographic conditions" does not have its ordinary and common meaning in the context of the Katz patents, as both parties agree. In the context of discussing various tests or conditions that may be imposed, the specification provides that "moving from the historic considerations, demographic tests may be specified as in relation to the geographic area manifest by the area code of the calling number." Column 6, lines 24 through 27 of the '150 patent. See also Column 12, lines 19 through 25 of the '150 patent. Katz lists several examples of "demographic conditions" in Column 7, lines 61 through 68 of the '150 patent. While all of the examples are conditions limiting calls based on a particular area code, one of the examples is a condition that limits calls to ANIs from a particular area code with particular prefix numerals.

The Court concludes that although the specification discusses demographic conditions in terms the area codes of the calling numbers, there is nothing in the specification that indicates that an area code can be the only basis for a demographic condition. Indeed, in one of the examples provided in the specification by Katz, the callers' area codes are used in conjunction with the prefix numerals of the calling numbers to indicate the callers' geographic area and limit the calls from a particular area. This convinces the Court that "demographic conditions" are not restricted to conditions based on the callers' area codes only. Thus, the Court construes the term "demographic conditions" to mean: conditions used to limit a call based on the caller's geographic area.

2. "demographics"

The parties dispute the construction of the term, "demographics." "Demographics" is a term that appears in each of the independent claims of the '025 Patent. (Herbst Decl. P 5, Ex. 3.)

Plaintiffs' proposed construction of "demographics" is "characteristics of human populations and population segments, especially when used to identify consumer markets." Defendants proposed construction of the term is "physical characteristics of human populations and population segments, such as age, occupation, income, sex, and marital status, to identify consumer markets." Thus, the parties' proposed constructions are similar to the extent they both define "demographics" in terms of "characteristics of human populations and population segments" that can "identify consumer markets." However, the parties proposed constructions are different to extent that Defendants' construction proposes the use of additional terms. Defendants use the additional term, "physical," as a method of limiting the meaning of the subsequent phrase, "characteristics of human populations." Defendants also use the additional phrase, "such as age, occupation, income, sex, and marital status," as means of providing examples of "characteristics of human populations and population segments." The Court now turns the parties' arguments in support of their respective constructions.

Initially, in support of their construction, Plaintiffs attack Defendants' construction on grounds that it adds unnecessary terms thereby rendering Defendants' construction internally inconsistent and confusing. In addressing Defendants' use of the term, "physical," Plaintiffs emphasize that none of the intrinsic evidence make reference to the term as a way of describing the "characteristics of human populations." Plaintiffs also argue that Defendants' use of the examples "age, occupation, income, sex, and marital status" is internally inconsistent because some of the examples are non-physical in nature, such as occupation, income, and marital status.
Next, Plaintiffs point to the prosecution history wherein Keithley consistently defined "demographics" in exact accordance with Plaintiffs' proposed construction. In April 1995, Keithley stated, "[t]he term demographics has a clear and definite meaning, based on standard dictionary usage and the explanations in the instant application. Demographics means the characteristics of human populations and population segments, especially when used to identify consumer markets. (American Heritage Dictionary.)" (Herbst Decl. ¶ 9, Ex. 7, Amendment After Final, submitted April 11, 1995 at p. 15.) In July 1995, Keithley again stated that "demographics" meant the characteristics of human populations and population segments, especially when used to identify consumer markets. (American Heritage Dictionary.)" (Id. ¶ 10, Ex. 8, Second Preliminary Amendment, submitted July 20, 1995 at p. 6.)

Conversely, in support of Defendants' construction, Defendants accuse Plaintiffs of ignoring critical statements made by the applicants during the prosecution history. Defendants argue that Plaintiffs' definition "was insufficient to obtain allowance of the '025 Patent" and that Plaintiffs ultimately submitted four articles 2 to the examiner that provided "additional information and examples of demographics." (Def.'s Claim Construction Br. 10:3-8; Pluene Decl. PP 4, 7, 8, 11, 13-16, Exs. C, F, G, J, L, M, N, O.) Pointing to the express demographic examples taken from the four articles submitted by Plaintiffs, Defendants argue that similar examples should be included in the construction of the term at issue. Defendants fail to provide factual citations that would support the importation of the demographic examples found in Defendants' proposed construction. However, the Court's independent review of the prosecution history reveals that the cited articles generally describe "demographics" as including such dimensions as age, sex, family size, income, occupation, education, family life cycle, religion, race, nationality, and social class. (Pluene Decl. PP 15, 16, Exs. N, O.)

In examining the parties' respective constructions of "demographics," the Court finds that Defendants' additional limitation ("physical") and extra exemplary language ("such as age, occupation, income, sex, and marital status"), are both unnecessary. The Court now addresses Defendants' proposed constructions in turn.

a. "physical"

Defendants' proposal of limiting the "characteristics of human populations and population segments" to only those that are "physical" fails for two reasons. First, it would effectively require the Court to read in an unsupported additional limitation. Defendant has not cited, and the Court has not located, any support for such a limitation in the claim language, the specification, or the prosecution history. Because neither the claim language, the specification, nor the prosecution history include such a specific limitation, the Court shall not impose one. See e.g., Cargill, Inc. v. Sears Petroleum & Transport Corp., 334 F. Supp.2d 197, 214 (N.D.N.Y. 2004) (quoting Cornell Univ. v. Hewlett-Packard Co., 313 F. Supp. 2d 114, 126 (N.D.N.Y. 2004)); Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 289 F. Supp. 2d 1347, 1351 (M.D. Fla. 2003), vacated & remanded, 381 F.3d 1111, 72 USPQ 2d 1001 (Fed. Cir. 2004) ("Adding limitations neither required by claim terms nor unambiguously required by either the specification or the prosecution history of a patent is impermissible."); Bristol-Myers Squibb Co. v. Teva Pharmaceuticals USA, Inc., 288 F. Supp. 2d 562 (S.D.N.Y. 2003); Intertrust Technologies Corp. v. Microsoft Corp., 275 F. Supp. 2d 1031, 1056 (N.D. Cal. 2003) ("the Court is wary of reading into claims a limitation that is not expressly there."); ICN Pharms., Inc. v. Geneva Pharms. Tech. Corp., 272 F. Supp. 2d 1028, 1039 (C.D. Cal. 2003) ("while the specification and prosecution history may provide interpretive context for the claims, the court may not read limitations into the claims.").

The second reason that Defendants' proposed limitation fails is because it creates a facial inconsistency when read in conjunction with the rest of Defendants' proposed construction. In particular, Defendant urges the Court to limit the "characteristics of human populations and population segments" to only those that are "physical" in nature. Defendant then encourages the Court to include a list of examples of such characteristics. However, Defendants' own proposed list includes examples that are non-physical in nature, such as occupation, income, and marital status.

For these reasons, the Court finds Defendants' proposed construction of limiting "characteristics" to only those that are
"physical" in nature to be unconvincing.

b. Exemplary language--"such as age, occupation, income, sex, and marital status"

Defendants' proposal of further describing the "characteristics of human populations and population segments" with a non-exhaustive list that includes "age, occupation, income, sex, and marital status" could create unnecessary confusion. While Defendants' examples are certainly within the dimensions of the term, "demographics," their list is by no means exhaustive of what the term encompasses. By including such a list, a jury could mistakenly interpret the scope of the term to be narrower than intended by: (1) finding the list of examples to be exhaustive; or (2) finding that the term is somehow limited to a subset of the items on the list. Defendant fails to explain how the proposed exemplary language would aid in the determination of infringement. Accordingly, the Court finds that Defendants' proposed exemplary language is superfluous.

Having considered the claims, the specification, and the relevant patent prosecution history, the Court construes "demographics" as "characteristics of human populations and population segments, especially when used to identify consumer markets."

4. "demographic(s) information"

The parties dispute the construction of the term, "demographic(s) information." The term appears in claim elements 1(f), 1(g), 2, 4, and 5, of the '025 Patent. (Herbst Decl. P 5, Ex. 3.)

--- Footnotes ---

3 Plaintiff identifies the term in plural form as "demographics information," while Defendant identifies the term in singular form as "demographic information." At the outset the Court notes that the parties are referring to the same term and that the term's construction does not depend on the Court adopting one form of the term over the other. (See Joint Claim Construction Stmt. at 41) (referring to singular and plural form of the term as the same term at issue.)

--- End Footnotes ---

The parties appear to agree that the term, "demographics information," generally refers to the information that populates the database that is subsequently made available to a second end user. (Id.) However, the parties do not agree on how to define such "demographic information." Plaintiffs' proposed construction of the term is "information from which interests or preferences can be assessed." Defendants proposed construction of the term is "a collection of analyzed and processed user inquiries that identify distinct trends or profiles regarding certain physical characteristics of human populations and population segments, such as age, occupation, income, sex, and marital status, to identify consumer markets. Such a collection results in something more than a time period, count of the length of time, or number of user inquiries." In support of their respective constructions, both parties primarily rely on the specification and the prosecution history. However, before turning to the parties' reliance on the specification and the prosecution history, the Court first addresses the claim language.

In examining the claim language, a claim term is to be given its ordinary meaning unless the patentee has explicitly redefined the term, or the term itself is so ambiguous it is incapable of being understood without reference to the specification. See Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990, 991 (Fed. Cir. 1999) ("A court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms."). Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001); CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1159 (Fed. Cir. 1997). Here, the Court notes that it has previously construed the claim term, "demographics." The Court construed the claim term in accordance with its ordinary meaning as, "characteristics of human populations and population segments, especially when used to identify consumer markets." As such, the Court is compelled to build on its previous construction of "demographics" unless there is evidence the patentee has otherwise redefined "demographics information" as having a wholly independent and unrelated meaning. In order to determine whether the patentee has done so here, the Court now
Turning to the '025 Patent specification, Plaintiff argues for a broad definition of "demographic information." Plaintiff points to portions of the specification whereby the patentee has described the invention as relating to a broad array of consumer trends such as, "design trends, new housing development, and competitive practices," (Herbst Decl. P 5, Ex. 3 at col. 5 ll. 51-55), "market trends and research as well as targeting advertising messages," and "increasing demand for housing . . . which could bring new deposit account relationship as well as the opportunity to book new mortgages," (id. at col. 11, ll. 37-46). Plaintiff contends that these examples are evidence that the term, "demographic information," relates broadly to trends that reflect market interest and preferences of the end user. 4

4 After a review of the '025 Patent specification, the Court does not find any evidence that the inventor intended the term, "demographics information," to be wholly independent from the previously defined term, "demographics."

Defendants do not address the specification's impact on the construction of the term at issue. Instead, Defendants focus on the '025 Patent's prosecution history.

Turning to the '025 Patent prosecution history, the Court denotes that the parties have differing interpretations regarding its impact in construing, "demographics information." Defendants aver that the patentee made certain relevant representations in an effort to avoid prior art. Specifically, Defendants point to the patentee's March 1995 remarks wherein he described the invention as one that "analyzed," "processed," and "created profiles of," "inquiries." (Pluene Decl. P 8, Ex. G; P 11, Ex. J.) According to Defendants, the patentee expressly carved out certain functions that are not "demographics information"--such as the "maintaining a time record, a count of the length of time, or the number of user inquiries." As such, Defendants insist that the construction of the term at issue must be narrowed to include only such information that is "analyzed, processed, and created" from the first end user inquiries.

Plaintiffs disagree that prosecution history requires such a limited definition of the term at issue. Plaintiffs maintain that "demographics information" is broad so as to include "the trend in popularity of houses in a particular price range, or style or location, or type of windows, or types of appliances," (Herbst Decl. P 9, Ex. 7 at p. 16), and "consumer trends," (id.), and "forecast[s] [of] demand for public goods and services," (id. at p. 22). Accordingly, Plaintiffs argue that the limitations in Defendants' construction are unnecessary.

To the extent, Defendants' construction consists of a second attempt to add a "physical" characteristic limitation, or to add exemplary language to the term at issue, the Court finds Defendants' construction unavailing. However, in light of the patentee's descriptions of the term in the prosecution history, the Court finds that Plaintiffs' construction is similarly unavailing. In the prosecution history it is evident that the information at issue was more than a report of the time spent, or number of inquiries made by, the first end user. Accordingly, the construction "demographics information" lies somewhere between the parties' competing interpretations.

Having considered the claim terms, the specification, and the relevant patent prosecution history, the Court construes "demographics information" as "characteristics of human populations and population segments, especially when used to identify consumer markets, that are created from the collection of first end user inquiries that identify distinct trends in interests or preferences."

The phrase "selecting a set of stored functions in dependence upon a received format identifier and said read user information" means selecting one or more functions based upon a received format identifier and said read user information. "Set" has a plain meaning of "one or more." As explained above, a "function" is an identifiable set of computer instructions, and a "type of formatting" is a layout or presentation of text and/or graphics on a page. Dow Jones proposes that "a set of stored functions" means "a particular stored and indexed function string." This construction accurately describes the meaning of "set of stored functions" in the preferred embodiment, but it ignores the second, "template" embodiment, '737
Patent, Col. 11, ll. 21-26. Moreover, there is no indication in the specification that the applicants attempted to limit the meaning of "function" or disavowed any other meaning. See Phillips, 415 F.3d at 1323 ("[P]ersons of ordinary skills in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.").

8 Dow Jones also seeks to add the phrase "wherein the selection is dependent on both a received format identifier and said read user information, which are separate and distinct, and the format identifier is included in said identified request for specified content data." Dow Jones Opening Br. at 36. As discussed above, although the format identifier is included in the request under the preferred embodiment, this limitation of the claim scope is not justified by the claim language, specification, or prosecution history.

Consistent with the above construction of "network monitor," software is configured and hardware is installed.

The specification describes the formation of an active layer by deposition of GaAs and InAs with no post-growth steps. See col. 5, l. 9-17 (describing the deposition of InAs after a deposition of GaAs); col. 5, l. 33-35 ("After each deposition of inclusions in a plane, the epitaxial growth of GaAs is again performed so as to form another active sub-layer"). Further, the preferred embodiment discloses sub-layers deposited one on top of another, right after each other. The specification mentions other heterostructures besides the one discussed in the preferred embodiment. Col. 6, l. 19-21. However, the specification does not describe a deviation from the method employed to create the sub-layers with the inclusions. Col. 6, l. 25-26 ("InAs inclusions can be fabricated here according to the method embodying the invention.").

In addition, to overcome prior art references, the patentee indicated that the deposition of inclusions "is realized during semiconductor crystal growth." Pl. Br., Doc. # 53, Ex. 5 (Prosecution File History), Response to First Office Action at 4-5. The prior art references used post-growth steps, such as masking, annealing, and injecting ions, to create quantum boxes which serve the same function as the inclusions. Id. at 4-5.

Therefore, the court will construe the term as follows:

"sub-layers deposited successively during growth of said one layer, each of said sub-layer having . . . inclusions" means "the layer is formed by growing sub-layers, each of which has inclusions, one at a time, with each sub-layer forming on the
The parties agreed with this definition, subject to their dispute over the definition of "sub-layer," which is discussed above. Tr. at p. 158, l. 20-25; Tr. at p. 161, l. 9 - p. 162, l. 2.

D. Claim 21 of the '092 Patent

Claim 21 provides:

The device of claim 20 wherein said at least one memory further contains a depth parameter D and where said processor is configured to select said at least one cryptographic transformation based on the current value of said index parameter and said parameter D.

The parties dispute the construction of the phrase "depth parameter D." The written description discusses the D parameter:

An additional parameter is an index depth D. The value of D may also be non-secret, and (for example) may be client-specific or may be a system-wide global constant. The value of D determines the cycle length of the key update process. ('092 Patent, Col. 3:54-60.)

In the context of Claim 21, the reference to parameter D concerns the usage of parameter D in the key update process of the client device, not the server device. 6 The specification states, "D determines the cycle length." The parties dispute whether the inventor's use of the word "determines" means that D is used in the process of the secret key transformation operation to determine the cycle length or whether D is the cycle length value. In this regard, the specification provides:

In the client cryptographic update operations parameter D is used for two purposes:

Note that each iteration of the process of FIG. 2 corresponds to moving down one level in the drawing of FIG. 1, until the correct update operation is determined. Thus, the number of iterations of the loop cannot exceed D. ('092 Patent, Col. 6:38-41.) Thus parameter D represents the maximum number of iterations a transformation operation may have to iterate until a new updated secret parameter is found.

6 The Court declines the constructions of the parties which apply this claim to the "receiving device." The Court finds that the claim applies to a client device.

In addition, parameter D is also used to determine which update function to use during the transformation operation:

At step 230, the device tests whether the variable V is equal to the quantity 2.sup.N -3. If equal, function F.sub.A.sup.-1 should be applied, and processing proceeds to step 235 where the device increments C and updates K.sub.C by computing K.sub.C.rarw.F.sub.A.sup.-1 (K.sub.C). Otherwise, at step 240, the device tests whether the variable V is equal to the quantity 2(2.sup.N -2). If equal, function F.sub.B.sup.-1 should be applied, and processing proceeds to step 245 where the device increments C and updates K.sub.C by computing K.sub.C.rarw.F.sub.B.sup.-1 (K.sub.C). . .

('092 Patent, Col. 6:8-16.) A person of ordinary skill in the art reading the patent documents at the time of the invention would understand that the inventor used the word "determines" to mean that D is used in the cycle length calculation and that D itself is not the cycle length.

Accordingly, the Court construes "depth parameter D" in the context of Claim 21 to mean: a system parameter used to...
determine which transformation function to use in the secret state transformation process, and a parameter whose value is
greater than or equal to the number of transformation iterations in a transformation operation.

6. "value derivable from said secret state"

The "applying step" contains two substeps. Substep (I) discloses performing the "applying" step: "having associated
therewith an updated secret cryptographic value derivable from said secret state." The parties dispute the construction of the
word "derivable" as it is used in substep (I).

The word "derive" and the related term "derivable" have plain and ordinary meanings; they are: obtain or obtainable from a
source. See Webster's New Twentieth Century Dictionary, 491 (2d ed. 1983). This broad definition does not exclude
copying or any other means for deriving a value.

In the '092 Patent, the word "derive" is used with its plain ordinary meaning. For example, the "Summary of the Invention"
states:

The server then performs a series of operations to determine the sequence of transformations needed to re-derive the
correct session key from the client's initial secret value. These transformations are then performed, and the result is used as a
transaction session key (or used to derive a session key).

* * *

Using methods that will be described in detail below, such update functions are applied by the client in a sequence that
assures that any single secret value is never used or derived more than a fixed number of times (for example, three).

('092 Patent, Col. 2:48-65.) Since the patentee did not define derive or derivable, the Court finds that the plain and ordinary
meaning controls. Accordingly, the Court declines to construe the word "derivable."

d. "Derived Element"

Macromedia contends that the phrase "derived element" should be construed to mean "an element that is generated based on
one or more defining elements." (D.I. 470 at 6). Adobe contends that the phrase "derived element" should be construed in
accordance with the definition expressly provided in the specification, namely "an element which is calculated from the
defining element(s) via a present mathematical relationship." (D.I. 479 at 13).

In construing the phrase "derived element," the Court has considered the specification of the '443 Patent. ( '443 Patent, Col.
2, lines 39-43). Because the specification expressly defines the phrase "derived element" as Adobe contends, the Court
construes the phrase "derived element" to mean "an element which is calculated from the defining element(s) via a present
mathematical relationship."

(a) "Deriving" 28

Footnotes

28 In its Motion for Summary Judgment, Defendant Ion Beam refers to a larger phrase, "Deriving a beam path configuration
signal," and argues the entire phrase is indefinite (Ion Beam P.&A. at p. 23:14-18.). However, Ion Beam rests its argument on a bald assertion, with no argument, facts or legal citation supplied in support. (See id.) Accordingly, Ion Beam has not carried its burden on this point as a matter of law. See, e.g., Celotex, 477 U.S. at 322-325; see also Matsushita, 475 U.S. at 586.

Moreover, the claim term "beam path configuration signal" has already been defined, leaving only the term "deriving" to adjudicate.

Finally, Ion Beam argues the term "means for deriving a beam path configuration signal from said beam request signal" is indefinite. But that argument is rejected for the same reasons. (See Ion Beam P.&A. at 23-24.)

--- End Footnotes ---

Plaintiff Optivus argues "deriving" has the ordinary meaning of "arriving at." (Optivus P.&A. at p. 24.) In support of its argument Optivus relies on the definition found in Random House: "to receive or obtain from a source or an origin." (Airhart Decl. Ex. H. at 129.) Optivus also relies on the definition found in Webster's Third: "to obtain or gain through heredity or by transmission… 3. to gather or arrive at (as a conclusion) by reasoning and observation a to obtain inductively <<ideas <ITALICS>derived from nature>[.]" (Id., Ex. N at 211.) Similarly the Oxford English Dictionary defines "derive" as "to hand down" or "pass by descent or transmission," and more pertinently "[t]o draw, fetch, get, gain, obtain (a thing from a source);" as well as "[t]o obtain (a compound) from another, as by partial replacement;" and "to obtain by some process of reasoning, inference or deduction"; and finally "[t]o arise, spring, come from something as its source; to take its origin from." OXFORD ENGLISH DICTIONARY (2d ed. 1989) (emphasis in original).

In light of the common dictionary definitions, and the context of Claim 1, it appears "deriving" means "to obtain something from another thing or source." The relevant portion of Claim 1 recites "deriving a beam path configuration signal from said beam request signal." (Rosenberg Decl. Ex. 3, the '642 Patent at 15:6-7.) In other words, a beam path configuration signal ("x") is derived or obtained from the (previously mentioned) beam request signal ("y"). (See id.)

The court therefore rejects Plaintiff's proffered construction of "arriving at" for the term "deriving" because Plaintiff's construction does not make sense in the context of the claim term, and otherwise does not correspond with the common meaning of the term "to derive" or "deriving." On the other hand, Defendant Ion Beam's construction is overly limited. (See Ion Beam P.&A. at 25:3-4.) Ion Beam proposes the term "deriving" be defined as "computing or obtaining data from other data by application of a specified procedure." (Id.) While it appears the term "deriving" means "to obtain something from another source," the court is not persuaded it should import the limitations suggested by Defendant Ion Beam, i.e., "by application of a specified procedure."

The patent specification reinforces the court's conclusion that "deriving" be defined as "to obtain something from another source." (See, e.g., Rosenberg Decl. Ex. 3, the '642 Patent at 2:30-34, and 6:37-46.) For example, the specification describes "a method of radiation beam security [that] comprises receiving a beam request signal from a selected treatment location. The specification goes on to state "[a] beam path configuration signal is derived from the beam request signal and used to select the switchyard and beam transport system configuration." (Id. at 2:30-34.) More specifically, the specification also teaches:

a beam request is provided by control computer 52 and transferred to the dipole switch controller via interface 51. The dipole switch controller 60 encodes the beam request address into digital command signals specifying the selected dipole switch positions. Switch instructions are transferred via the interfaces…. The instructions are communicated to … the switches so that the switches are connected in the preselected orientations….

( Id. at 6:37-46.) Accordingly, the court hereby finds the claim term to mean "a beam path configuration signal is obtained from a beam request signal," wherein the term "beam path configuration signal" means "a detectable message indicating the arrangement of beam elements or physical properties of the beam"; and the term "beam request signal" means "a detectable message indicating a desire for the beam."
8. Deriving a Reference Cell Value

The term "deriving a reference cell value" means generating a value solely from the words comprising a cell, which value represents the words of the cell.

A. "a set of menus describing the database" 1

1 This term "a set of menus describing the database" is used in claim 1 of the '195 patent. See Declaration of Matthew Rawlinson ("Rawlinson Decl."), Exh. 4 ('195 patent). In their papers, the parties both assert that the disputed term is "a set of menus describing the stored database." Motion at 4:5-7; Opposition at 2:15-26. However, the word "stored" does not appear in the disputed term.

The Court has already construed the term "database" to mean "a conventional hierarchical database in which data [is] organized into records, known as segments, that represent nodes in a hierarchy or tree." April Order at 9:16-17 (emphasis added). Necessary to the Court's construction of the term "database" was a finding that the "set of menus"--which describes the "data"--is also hierarchical. 2 Thus, "describing" is the only word in the disputed term that remains unresolved.

2 The April Order states: "Specifically, Defendant points to the fact that the inventor sought to overcome prior art by providing 'a set of hierarchical menus describing the data, and for accepting selections from the menus.' Jefferson Decl., Ex. 3 at CA 00414 (quotation omitted). During the hearing on this matter, Defendant argued that the "set of menus" is directly related to the type of 'database.' The Court agrees." Id. at 9:1-5.

Plaintiff argues that the parties stipulated to a definition of "set of menus" that was not necessarily hierarchical--"a collection more than one menu." See Joint Claim Construction, Exh. A at 5. However, in light of the Court's prior construction of "database" this fact is of no moment.

Plaintiff contends that the ordinary meaning of "a set of menus describing the database" is a "'set of menus' that includes items descriptive of portions of the stored 'database'" Motion at 4:18-20 (emphasis added). Defendant, on the other hand, asserts that the term is properly defined as "a set of menus in which the individual menus and menu selections correspond with segments of the stored hierarchical database." Opposition at 2:13-15 (emphasis added).

Defendant argues that Plaintiff's definition allows too loose a relationship between the "database" and the "set of menus." Specifically, Defendant contends that, under Plaintiff's construction, the "set of menus" would not necessarily have to describe the entire "database." Opposition at 3:12-14 ("[i]n [Plaintiff's] view, if just two items in a set of menus are 'descriptive' of two pieces of data in the database, the limitation is met, no matter how many other items are included in the menus, and no matter how small a part of the database those two pieces of data constitute") 3 The Court agrees.

3 Defendant also implies that there is a substantive difference between "describing" (used in the disputed term) and
"descriptive" (used in Plaintiff's proposed construction). The Court disagrees. See Declaration of Susan Baker Manning ("Baker Decl."), Exh A (American Heritage College Dictionary (Third Edition), Houghton Mifflin Company) at 376 ("describe…1. [t]o give an account of in speech or writing. 2. [t]o convey and idea or impression of; characterize…"); "descriptive…1. [i]nvolved or characterized by description; serving to describe.") (emphasis added).

Because the term "describing" is not modified by any limiting language, it implies that the "set of menus" must collectively describe the entire database. Although Plaintiff's proposed construction can be read in a manner consistent with this requirement (i.e., each "portion of the stored database" is described by an "item" from the "set of menus"), it is not limited to such a reading. However, Defendant's proposed construction is also problematic in that the word "correspond" (used in Defendant's proposed construction) is not synonymous with "describing." Therefore, the Court must fashion its own construction.

4 Although menu items must necessarily correspond with portions of the database, the term is not limited to the "one-to-one" relationship suggested by Defendant's proposed construction.

Because the word "describing" is not a term of art, the Court may look to standard English dictionaries for the word's ordinary meaning. Texas Digital Systems, 308 F.3d at 1202-3. The American Heritage College Dictionary defines "describe," in the relevant context, as (1) "[t]o give an account of in speech or writing;" or (2) "[t]o convey and idea or impression of; characterize." Baker Decl., Exh. A. Similarly, the Oxford English Dictionary Online (Oxford University Press, 2003) defines "describe" in the following manner: "[t]o set forth in words, written or spoken, by reference to qualities, recognizable features, or characteristic marks; to give a detailed or graphic account of." Rawlinson Decl., Exh. 15.

Because nothing in the specification or prosecution history manifestly excludes, or even puts into question, the ordinary meaning of the word "describe," the Court construes "a set of menus describing the database" to mean the following: "a set of menus that, when taken as a whole (i.e., collectively), give an account, or convey an idea or impression, of the entire database."

d. Describing the parameters in terms of data structures of the chosen model

ITI proposes that the limitation "describing the parameters in terms of data structures of the chosen model" means: a data structure is a table of data including structural relationships, or an organizational scheme, such as a list or record or array, applied to data so that it can be used. Defendants suggest that the Court adopt the following construction: representing the parameters by a table of data including structural relationships, or an organizational scheme, such as a list or record or array.

The parties' constructions are virtually identical; no true dispute exists. The only term either party defines with any elaboration is "data structures," and the parties appear to be in full agreement on the appropriate meaning of this term. Thus, the Court construes the limitation to mean describing the parameters using a table of data, including structural relationships or an organizational scheme, such as a list, record, or array.
16 The term "description of a product" is in claim 1.

Plaintiff's Proposed Construction
information sufficient to identify a product or service

Defendants' Proposed Construction
information sufficient to identify a particular product

"data representing a plurality of products" 17

Plaintiff's Proposed Construction
data sufficient to identify two or more products or services

Defendants' Proposed Construction
data sufficient to identify two or more particular products

Plaintiff argues that the only difference between the parties' proposed constructions--the insertion of a single word by Defendants--is not supported by the claim language. OPENING at 30. Defendants argue that as a matter of logic, the claims require that a particular product be selected. RESPONSE at 22-23. Defendants also point to portions of the specification which refer to "the product," in support of their argument that a particular product must be identified or selected. Id. at 23-24.

Claim 1 of the '253 patent discloses:

1. A method of doing business over a global communications network comprising the steps:

   communicating to a buyer via the global communications network, a description of a product;

   accepting a first request from the buyer to buy the product for a price to be determined within a price range;

   accepting a second request from the buyer to allow the price to be determined based upon a performance of the buyer while participating in a Price-Determining-Activity (PDA);

   receiving data from the buyer over the global communications network, said data representing the performance of the buyer during the PDA; and

   determining the price of the product based at least partially upon the data received, said price being within the price range and scaled to the performance of the buyer.

'253 patent at 9:31-49 (claim 1). Claim 18 discloses:

18. A method of determining a price of a product using a global communications network, comprising the steps:

   communicating to a buyer via the global communications network, data representing a plurality of products available, said plurality of products including a first product;

   accepting acknowledgment from the buyer representing an intent of the buyer to buy the first product at a price to be determined upon a performance of the buyer while participating in a Price-Determining-Activity (PDA), said acknowledgment being communicated over the global communications network;
determining the performance of the buyer; and

assigning a price to the product, said price being scaled to the performance of the buyer.

'253 patent at 10:34-47 (claim 18). Neither of these claims indicate that a "particular" product is identified. Moreover, claim 1 recites "a description of a product." It is a fundamental principle of patent law that the term "a" in a patent claim means "one or more." See Baldwin Graphics Sys., Inc. v. Siebert, 512 F.3d 1338, 1343 (Fed. Cir. 2008); Free Motion Fitness, Inc. v. Cybex Intern., Inc., 423 F.3d 1343, 1350-51 (Fed. Cir. 2005); Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V., 365 F.3d 1299, 1305-1306 (Fed. Cir. 2004); Crystal Semiconductor Corp. v. TriTech Microelectronics Intern., Inc., 246 F.3d 1336, 1347 (Fed. Cir. 2001). Absent the indication of a clear intent to limit the article, this language can be read as "one or more descriptions of one or more products." Thus, to construe this term to require a "particular" product could be misleading to the jury. Further, the specification fails to indicate that a "particular" product must be identified. The specification refers to identifying "a product" or "the product," but there is no support for Defendants' proposal. Therefore, the Court finds that the proper construction of the term "description of a product" is "information sufficient to identify a product or service." The Court finds that the proper construction of the term "data representing a plurality of products" is "data sufficient to identify two or more products or services."

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3. "a descriptor signal which corresponds to data stored within memory"

3Com proposes "a descriptor signal which describes data stored within host memory." Doc # 81 (05-0098) at 34. Realtek proposes "a signal indicating where the corresponding data is in the host memory." Doc # 81 (05-0098) at 34.

3Com argues that this term should be given its ordinary meaning. Doc # 340 (03-2177) at 15. Realtek, however, criticizes 3Com's proposal as "so broad as to be meaningless." Doc # 333 (03-2177) at 28. The court agrees that this definition is likely too broad to be helpful.

Realtek argues that "the specification uses 'descriptor signal' and 'descriptor' as synonyms." Doc # 333 (03-2177) at 26. Realtek compares claim twenty-six's statement of "using said descriptor signal to generate a frame segment descriptor using a segmentation circuit" with claim one's statement that "said segmentation circuit utilizes said descriptor to generate a frame segment descriptor." '446 patent at 12:51-53; 14:18-19. This evidence shows that the "descriptor" and "descriptor signal" are closely related. It is not, however, sufficient to show that the "descriptor" and "descriptor signal" are synonyms.

3Com argues that the "first signal" from claim fifteen is the same as the "descriptor signal." Doc # 340 at 16. Given the common designation "signal," the lack of any other signal and the similar function performed by these two signals, the court finds this argument is persuasive. Further, 3Com's position that the "descriptor signal indicates where a descriptor is stored within the host memory" is consistent with the observation above that the descriptor signal and descriptor are closely related. '446 patent at 13:35-36. 3Com's argument, however, appears to support Realtek's proposal. If the "descriptor signal indicates where a descriptor is stored within the host memory," the descriptor signal surely corresponds to the descriptor. Further, the descriptor is stored in host memory. Accordingly, the descriptor signal is "a signal indicating where the corresponding data are in the host memory."

The court is, therefore, in the strange position of accepting 3Com's argument and Realtek's proposal. The court adopts the construction "a signal indicating where the corresponding data are in the host memory."

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F. "Design or style standards"

Claim 62 of the '025 patent states, "The computer system of claim 45, wherein the presentation rules of the internet media venue comprise design or style standards, further comprising a computer program design filter to automatically apply or
compare the internet media venue design or style standards to the information input by the seller or the advertisement to
to control look and feel of the advertisement to be displayed on the internet media venue. FM proposes that
"design or style standards" should be construed as "presentation rules which control the look and feel of an advertisement."

Google
Enhanced Coverage Linking
Google -Search using:

* Company Profile
* News, Most Recent 60 Days
* Company Dossier

does not offer a proposed construction because it contends that the claim is indefinite. The claim is indefinite, according to
Google, due to the multiple cascading "or"s in the claim language and because the proposed construction is purely
functional.

To support its multiple "or"s argument, Google cites In re Archbold, 151 F.2d 350, 33 C.C.P.A. 725, 1946 Dec. Comm'r Pat.
63 (C.C.P.A. 1945), which held that the use of multiple "or"s in the term "volatile solvent of the class of a lower alcohol,
ketones, acetone, or ethyl acetate, benzene, or ether" rendered the claim indefinite because it "introduced the element of
uncertainty as to the scope to be attached to the members of the group." Id. at 351-52 (emphasis added). Archbold is
distinguishable from the present case, because the disputed claim term in Archbold was a Markush group; the multiple uses
of "or" introduced uncertainty as to which elements were members of the group. Id. at 352. In claim 62, the use of "or" in
"design or style," "apply or compare," and "the information . . . or the advertisement" presents a binary choice between two
options--an ordinary skilled artisan would not find any uncertainty in these choices. Thus, the court finds no indefiniteness
due to the use of the word "or."

Google also contends that the claim is indefinite because it uses purely functional language. But "apparatus claims are not
necessarily indefinite for using functional language." Microprocessor Enhancement Corp. v. Tex. Instruments Inc., 520 F.3d
1367, 1375 (Fed. Cir. 2008). Functional language may be used as a limitation in an apparatus claim. K-2 Corp. v. Salomon
S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999). Similarly in this case, the functional language modifies an apparatus, "the
computer system," which was defined in previous claims. The court is not persuaded that the claim's use of functional
language renders it indefinite. The court defines "design or style standards" as "presentation rules which control the look
and feel of an advertisement."

5. "designating a combinations [sic] of a plurality of but less than all of said multiple sectors to be erased" ('808 pat., cl. 16)

For this claim term, the parties disagree about whether the claimed "designation" requires setting a tag in a dedicated
register for each sector. Defendants say it must, relying in part on their view that the claim requires the ability to designate
"any combination" of sectors. The parties disagree on whether this limitation applies.

As to the question whether the device must be capable of setting "any combination" of sectors for erase, defendants have the
better argument. The claim language calls for only "a combination[1][n]" of more than one but less than all sectors. However, at
times language used in the specification may require a particular limitation to be read into the claim language, such as when
the specification includes "repeated and definitive remarks" that a particular limitation applies to the claims. Computer
Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (Fed. Cir. 2008). Moreover, describing a limitation as part of "the
present invention" or "the invention" is strong evidence that the claims should be so limited. Trading Technologies
International, Inc. v. eSpeed, Inc., 595 F.3d 1340, 1353-54 (Fed. Cir. 2010); see also Honeywell International, Inc. v. ITT
Industries, Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (four references to a fuel filter as "this invention" or "the present
invention" warranted limiting the invention to a fuel filter). This case includes precisely such limiting language in the
specification. For example, the specification states that "[t]he invention allows any combination of sectors among the chips
to be selected and then erased simultaneously," '808 pat., col. 1, ins. 65-66, and "allows any combination of sectors selected
for erase to be deselected," id., col. 2, ins. 3-4. The specification later repeats this sentiment:
In the present invention, the Flash Eeprom memory is divided into sectors where all cells within each sector are erasable together. Each sector can be addressed separately and selected for erase. One important feature is the ability to select any combination of sectors for erase together. This will allow for a much faster system erase than by doing each one independently as in prior art.

Id., col. 4, lns. 51-55. Plaintiff responds that the specification describes the "present invention" in permissive terms ("the present invention allows"), so it should not be considered a limitation. This is a misreading of the specification. The cited language does not suggest that the present invention may include the "any combination" feature, it says it does. What makes the language appear permissive is the fact that the feature itself is a description of what the system is capable of doing (selecting any combination), not what it is actively doing (selecting a given combination). Because the specification repeatedly describes "the present invention" as one capable of selecting any combination of sectors for erase together, this limitation must be part of the claim.

It is a separate question whether the claimed designation requires setting a tag in a dedicated register for each sector, as defendants contend. According to defendants, this limitation is warranted both because there is no other way to insure erasure of "any combination" of sectors and because the only embodiment disclosed in the patent uses designated registers. As to the first point, defendants fail to establish that tagging designated registers is the only possible method for selecting any combination of sectors. More important, there is no need to decide this question. If defendants are correct, the question of infringement of their products should rise or fall according to whether they are capable of designating "any combination" of sectors.

As for the argument that the only embodiment disclosed uses registers, defendants fail to tie the embodiment to any intent to limit the claims to the contours of the embodiment. Indeed, the specification refers to the embodiment, Fig. 3A, as merely "illustrat[ing]" the claimed feature. Defendants add that the dedicated erase register was a "novel inventive concept" identified by an inventor of the '808 patent, but this is irrelevant; the inventors received a patent describing the invention in broader terms.

Moreover, as plaintiff points out, requiring designation to include setting tag bits in a dedicated register would make some of the language in dependent claim 18 superfluous. Claim 18, which depends (indirectly) from claim 16, adds "setting a tag bit for individual ones of the sectors to be erased"; if claim 16 already included this limitation, it would make no sense to repeat this limitation in claim 18.

In conclusion, "designating a combinations [sic] of a plurality of but less than all of said multiple sectors to be erased" requires the ability to designate "any combination" of sectors for erase but does not require setting a tag in a dedicated register for each sector to be erased.

Designating at least one category
The Court agrees with Sklar that the term has its plain ordinary meaning and does not require construction. Microsoft argues the term should be construed to mean "making each of one or more categories an open category." As an alternative to its position that no construction is necessary, Sklar proposes "the processor designates at least one category." Microsoft objects to Sklar's proposal that this step be performed by a processor. The specification does mention a processor determining which categories to open. '843 patent, Col. 10:54-60. The claim language, however, does not require such a limitation. Defining this term will very likely cause more confusion than it will solve. Any attempted construction will amount to defining the word "designate," which is a common and simple enough term that a lay juror would easily understand its meaning. Therefore, the Court does not construe this term.

Designing
The dispute over the meaning of the word "designing" concerns whether it should be read as meaning only automatic designing. First Graphics argues that "designing" should be given its ordinary meaning, which it claims is simply "to prepare the plans for something." Plaintiff's Claim Construction Brief at 15-16. M.E.P. asserts that "designing," as used in the claims, does "not include use of an object oriented computer aided drafting program where the user has input as to the relative location of an object, or group of objects, with a cursor, such as a mouse." Defendant's Claim Construction Brief at 4. Rather, it argues, the invention is a computer program "which automatically computes a layout through a series of steps limited to the practical application of checking for compliance with the requirements of a building standard during the design, without: (1) user input as to the relative location of the objects, or group of objects, in the drawing; (2) user input as to the route that the piping will take; or (3) the use of a list of objects to [be] placed in the drawing." Id. at 5. This interpretation is buttressed by citations to the specifications of all three patents. By way of example, the specification of the '983 patent states in relevant part that the

invention is a method and apparatus for designing a distribution system for a building. The distribution system can be any system used in a building including plumbing, electrical, sprinkling, ventilating and related systems or any combination of such systems. Information about the distribution system elements and various standard requirements is stored into a memory of a computer. Information about the building elements and adjuncts including location of walls and similar obstructions are entered into a computer... The user also selects the particular standard which is applicable to the building being constructed... The computer program then computes the layout needed for the distribution system based upon the selected standard. '983 patent, col. 2, l. 57 - col. 3, l. 13.

First Graphics notes, correctly, that limitations should not be read into the claim language from the specification, Vitronics, 90 F.3d at 1582, and it points out that some of the claims specifically contemplate user input. It cites to claim 27(f) of the '537 patent, which covers a method of "designing a layout for the sprinkler system in each section to comply with the selected standard, the designing including:... (4) notifying a user when no unobstructed position is determined so that the user can manually edit the position of the heads or pipes or one of the elements or adjuncts of the building." '537 patent, claim 27, col. 38, l. 11-24.

Though we agree with First Graphics that reading limitations from the specification into the term "designing" would be inappropriate, there is no question that the claims, read in their entirety, contemplate that the designing of the distribution system will be done, at least to a large extent, electronically or automatically after the software user inputs certain data. This understanding of the claims comes not just from the specification, but also from the prosecution history. For example, during the prosecution of the '537 patent, First Graphics distinguished a patent cited by the examiner (Watanabe, U.S. Pat. No. 4,700,317), on the grounds that that patent "does not teach electronically designing a layout automatically as recited in amended claim 1." As M.E.P. argues, First Graphics may not obtain in claim construction features that it previously disclaimed--whether by amendment of claims or by arguments made to obtain allowance of claims--during the prosecution of its patent application. E.g., Pharmacia & Upjohn Co. v. Mylan Pharmaceuticals, Inc., 170 F.3d 1373, 1376-77 (Fed. Cir. 1999).

But this description of the patents in toto does not control the meaning of the single word "designing," the particular term that the parties have asked the Court to construe. Indeed, "designing" is consistently used in the claims of the '983 and '537 patents together with the word "electronically" and/or "automatically." To read "designing," standing alone, as including those concepts would render those terms superfluous, contrary to the rules governing claim construction. E.g., Wright Medical Technology, Inc. v. Osteonics Corp., 122 F.3d 1440, 1444 (Fed. Cir. 1997) (noting that a claim construction rendering ordinary terms "mere surplusage" would eviscerate them).

The plain meaning of designing is "to plan out in systematic, usually graphic form." American Heritage Dictionary of the English Language (4th ed. 2000). The Court finds that "designing," as used in the claims, means to prepare the plans for something such as a fire sprinkler system. 1

--- Footnotes ---

1 M.E.P. points to prior art in the form of software called FireSolutions. The Court previously excluded this evidence, see March 20, 2001 Order, as M.E.P. failed to produce the prior art software in accordance with the schedule set by the Court. Accordingly, it is not part of the record and we decline to address it. In any event, prior art that was not relied considered during prosecution of the patent cannot be used in claim construction. Karsten Manufacturing Corp. v. Cleveland Golf Co.,
B. "the spectral light distribution of a desired daylight"

TLI argues that the term "the spectral light distribution of a desired daylight" should be given its ordinary and customary meaning in the art. See TLI's Br. at 9. 3 Specifically, TLI contends that the term "desired" is known in the art as "a selection or reference" and should be accorded its ordinary and customary meaning. See id. Moreover, TLI asserts that the term "daylight" should be construed according to its ordinary and customary meaning. See id. at 11. According to TLI, daylight spectral light distributions have been standardized and are known in the art, which is why it requires no construction. See id.

3 TLI contends that the term "spectral" has its ordinary meaning of, relating to, or made by a spectrum. Further, the term "distribution" has its ordinary meaning as the frequency of an occurrence over a range. In addition, the term "light" has its ordinary meaning as "any radiation capable of causing a visual sensation directly." See Id.

Sylvania contends that nothing in the '017 patent provides any indication as to how a "desired daylight" may be objectively determined or selected. See Sylvania's Br. at 7. Further, Sylvania argues that the term "desired" is dependent on a particular person's subjective opinion 4 and when it is used to modify the term "daylight," it results in a purely subjective choice of infinite possibilities. See id. at 8. As a result, Sylvania asserts that the term "desired daylight" cannot be construed, and is thus indefinite. See id.

4 TLI contends that Sylvania's argument that the term "desired" is a subjective term, is without merit and disingenuous. See TLI's Br. at 10. According to TLI, a search of U.S. Patents and U.S. Patent Applications published by the U.S. Patent and Trademark Office filed on or after January 1, 2005 shows that almost 15,000 patents and patent applications contain the term "desired" in at least one claim. See id. Further, Sylvania is listed as an assignee on more than a dozen patents and patent applications containing the word "desired" in at least one claim. See id.

Finally, the last element of Claim 1 is the "desired format" for viewing the television programming information: "a subset of at least said updated television programming information being output to said mixer so as to provide on the television screen television programming information desired by the viewer in a desired format." Defendants maintain the format is limited to that chosen by the viewer and may not include preselections determined by the service provider. SuperGuide and Gemstar claim the format includes selections by the user, the system designer or the service provider. SuperGuide bases this
conclusion on the fact that the system is preprogramed for a full screen, window or overlay format. Thus, it argues the system designer has "selected" those formats.

The specification provides the following:

Indeed, if desired, mass media advertising could be accomplished according to the invention. An advertiser could arrange to have a message included in information downloaded into the RAM of microcontroller 60. The message might be accompanied by digital sound information [...]. In this manner, a jingle or theme song might accompany the advertising message.

The next command of the viewer at 105 might indicate whether the viewer wished to see all of the information contained in the RAM, e.g., a complete dump of the RAM, or whether a subset of that information was desired. If a complete dump was requested, the microcontroller would direct the viewer to choose a format of display. [...] [If] the viewer has directed the microcontroller to perform [a] subset search, the viewer is directed to determine the format output of the information found. Thus, at 145, the viewer is asked whether an entire screen format is desired. If not, at 150, the viewer is asked whether a window format is desired. If not, the viewer is supplied at 155 with a television overlay format. [...] In addition, at 160 and 165, the mixer is told by the viewer, via instructions of the microcontroller, whether to scroll the desired information, or whether and when to display new full windows or screens of information.

Id., at Col. 5 ll. 45-54, 67-68; Col. 6 ll. 1-5, 29-36, 48-51. Thus, the invention provides at least three formats: entire screen, window or overlay. The viewer must select one of the first two options or the third "overlay" is provided. Thus, by not selecting one of the first two choices, the viewer in fact selects the "overlay" format. The undersigned does not construe this language so broadly as to encompass other formats, as opposed to additional information, preselected by the service provider. The specification clearly states that although additional information may be included in RAM, such as the advertising jingle, the format in which it is viewed is selected by the viewer.

This invention was designed for viewer selection of the format in which he desired to view the television programming information. The choice of formats of necessity is included within the system by the system designer. The fact that the system designer provides certain choices does not mean that it "select" a desired format. The term "desired format" means a user selected format for the display of the results of the search performed by the system. Although additional information may be provided to the system by the service provider, the format for viewing that information is viewer directed.

The court next considers the term "desired input," which is found in step four of Claim One: "selecting keys on the keyboard to provide the desired input." It is also found in step five, but the parties have agreed to a construction of that step that includes the term without alteration. The principal dispute over construction of "desired input" is whether the user or the computer is the actor doing the desiring. Plaintiff says it is the computer and suggests construing the term as "information requested by a computer application or program for processing." Defendants say it is the user and suggest construing the term as "user's complete input in the plurality of data input fields."

As support for their proposed constructions, both sides rely on language from the patent specification that they believe shows the word "desired" being used as they define it. Abbott Labs v. Sandoz, Inc., 566 F.3d 1282, 1288-89 (Fed. Cir. 2009) ("The Federal Circuit's emphasis on the importance of the specification has been repeatedly stated."). The patent specification uses some form of the word "desired" in six places. In some uses, it is obvious that the user is the actor doing
the desiring. ('873 Patent, col. 2, ll. 50-53) ("Computers with touch-screen displays, allowing a user to simply press on a desired location."). In others, it is obvious that the computer is the actor doing the desiring. (Id. col. 3, ll. 30-32) ("[I]f the software in which user input is desired is primarily financial software, the keyboard may include only numbers.") And in others, it is ambiguous just which actor is doing the desiring. (Id., col. 1, ll. 49-50) ("An on-screen keyboard may be necessary to provide the desired input."). The parties' references to the specification, therefore, do not answer the question of which actor is doing the desiring in step four of Claim One.

Looking only at the language of the Claim, Plaintiff argues that the antecedent of "desired input" in step four is "user input is sought" in step one. (Pl's Resp., at 11.) The parties agree that the computer program is the actor in step one, so the computer is the one seeking the input there. Thus, according to Plaintiff, it follows that the computer is the one "desiring" the input in steps four and five as well. Defendants argue that the antecedent of "desired input" is "user input" only, so the Claim links "desired input" and "user." (Def's Br., at 12.) A link between the user and the input does not necessarily mean that the user is the one doing the desiring in step four, though. Indeed, the specification's discussion of "software in which user input is desired" links user and input but, in that context, the software is the actor doing the desiring. ('873 Patent, col. 3, ll. 30-32.) Accordingly, the court finds that Plaintiff's reading of the claim is the better one.

Plaintiff's reading is further bolstered by considering how "desired input" is used in step five. Paragon Solutions, 566 F.3d at 1087 (presuming that when same term is used in different portions of the claim it has the same meaning). Step five reads as follows: "automatically terminating the graphical keyboard area after the desired input is received in the input area." ('873 Patent, col. 2, ll. 50-53.) In most cases, the user and the computer program desire the same input, but when the user misunderstands what input the computer program has requested, she may try to terminate the keyboard before providing that input. Allowing the user to mistakenly close the input area in such a situation is one of the problems that the invention is meant to solve. ('873 Patent, col. 2, ll. 27-29.) Thus, treating "desired input" as user's desired input would contradict one purpose of the invention.

For all these reasons, the court accepts Plaintiff's argument that it is the computer program doing the desiring in steps four and five. Nevertheless, the court does not adopt wholesale Plaintiff's proposed construction because Plaintiff provides no support for adding "for processing" to the end of its construction. The court adopts the following construction for "desired input:" "information requested by a computer application or program."
X. "a plurality of despreading devices for detecting, at each receiver antenna of the plurality of receiver antennas, the first spread-spectrum signal and the second spread-spectrum signal, as a first plurality of detected spread-spectrum signals and a second plurality of detected spread-spectrum signals, respectively" 

24 The term "a plurality of despreading devices for detecting, at each receiver antenna of the plurality of receiver antennas, the first spread-spectrum signal and the second spread-spectrum signal, as a first plurality of detected spread-spectrum signals and a second plurality of detected spread-spectrum signals, respectively" is contained in claims 9 and 33.

Plaintiff's Proposed Construction

The phrase "despreading device" means "a device in the receiver that reverses the spreading operation that occurred in the transmitter."

The phrase "detecting, at each receiver antenna of the plurality of receiver antennas" means "process of determining the presence of, and recovering the multipath spread spectrum signals received at each antenna port."

Defendant's Proposed Construction

This phrase is a means plus function claim element. The corresponding structure that performs the function of "detecting, at each receiver antenna of the plurality of receiver antennas, the first spread-spectrum signal and the second spread-spectrum signal" is a plurality of matched filters matched to the plurality of pseudonoise (PN) chip sequences.

Linex does not believe that the construction of this phrase should be governed by 35 U.S.C. § 112(6).

Plaintiff notes that in the preferred embodiment, the matched filters detect the presence of the transmitted spread-spectrum signals and despread the signals. OPENING at 22. However, Plaintiff argues that the design implementation for the detector is not so limited. Id. Plaintiff also argues that Defendant attempts to import a means-plus-function analysis from claim 33 to claim 9, based solely on a mistaken representation by Linex's prosecution counsel. REPLY at 10. Further, Plaintiff and Defendant both present the same arguments discussed in the previous section.

As previously noted, Linex's prosecution counsel explicitly noted that "claims 33 and 41 employ means plus function, as elements in the claims." RESP., EXH. C at 219. Based on this representation, Defendant argues that claims 9 and 33 both include a means-plus-function claim limitation because they both recite the "plurality of despreading devices . . ." term. Having previously concluded that claim 33 is not in means-plus-function format, Defendant's attempt to extend this argument to claim 9 is also rejected. Therefore, for all the same reasons set forth in section IX, supra, the Court finds no justification for construing this term as being in means-plus-function format. Therefore, the term "a plurality of despreading devices for detecting, at each receiver antenna of the plurality of receiver antennas, the first spread-spectrum signal and the second spread-spectrum signal, as a first plurality of detected spread-spectrum signals and a second plurality of detected spread-spectrum signals, respectively" is properly construed as "a plurality of devices in the receiver that reverses the spreading operation that occurred in the transmitter for determining the presence of and recovering both the first multipath spread-spectrum signal and second multipath spread-spectrum signal received at each antenna port."
Finally, Vonage challenges the district court's failure to construe the term "destination" in the phrase "destination address" in asserted claims 15 and 20 of the '711 patent so that it refers only to a final destination, and not an intermediate destination. The district court did not instruct the jury with respect to the meaning of this term, and did not adopt Vonage's proposed construction. Vonage proposed the following construction: "Destination address means an identifier of an endpoint in the public packet data network." 3 J.A. at 68, 2727. Vonage argues that, because of the district court's failure to construe the term "destination," Verizon was able to argue to the jury that intermediate points in Vonage's system (e.g., RTP relays) qualify as destinations within the meaning of the '711 patent.

3 The asserted claims of the '711 patent refer to a "destination address" multiple times:

15. A method comprising:

receiving a name translation request at a server coupled to a public packet data network;

executing a conditional analysis in response to the name translation request;

if the conditional analysis produces a first result, translating a name included in the name translation request into a first destination address;

if the conditional analysis produces a second result, translating the name included in the name translation request into a second destination address; and

transmitting a response message containing the first or the second destination address to a calling device for use in establishing communication at least partially through the public packet data network.

20. A method as in claim 15, wherein:

the first and second destination address includes a numeric Internet Protocol address; and

the second destination address further includes information relating to call routing via a public switched telephone network.

'711 patent (emphasis added).

We see no error in the district court's decision not to adopt Vonage's proposed construction. Vonage principally relies on a passage in the specification that it claims defines "destination address" to mean a final endpoint, and not an intermediate destination. See '711 patent col.2 ll.26-37. That passage is excerpted not from a description of the invention of the '711 patent, but rather from a description, in the "Background Art" section of the patent, of how the internet works in general. Moreover, the cited passage describes how a "packet [of data] bearing a destination address" is forwarded through the internet until it arrives at a "destination computer." There is no reason to think that the same packet of data cannot then be forwarded again to another destination, until it reaches its final destination. Vonage's interpretation assumes that the "destination computer" must be a final endpoint. But it could just as easily be an intermediate endpoint, and the packet of data could then be forwarded to another "destination computer." Thus the cited passage does not redefine "destination" to mean "final destination." The cited passage also does not address the meaning of "destination address" within the patented invention, but only within the context of the general operation of the internet, and is of limited utility. Further, the ordinary meaning of the term "destination" is not limited to a final destination. In fact, Webster's Dictionary defines "destination" as "a place which is set for the end of a journey or to which something is sent: place or point aimed at [, e.g.,] when buying your plane tickets always buy through to your farthest [destination]." Webster's Third New International Dictionary 614 (2002) (emphasis added).
Finally, Vonage's proposed construction of "destination address" fails for another reason. As Verizon points out, Vonage's proposed construction requires that the destination be part of the "public packet data network," i.e., the internet. This reading would exclude several examples in the specification where the "destination address" is a telephone number only, and thus not a point in the internet. '711 patent col.10 l.67 to col.11 l.3 (destination address "may be . . . [a] telephone number"); col.5 l.52-54 ("In the preferred embodiment, the domain name server transmits different destination address information (IP address and/or telephone number).") (emphasis added). We normally do not interpret claim terms in a way that excludes disclosed examples in the specification. MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1333 (Fed. Cir. 2007) ("[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.") (internal citation omitted). Since Vonage's proposed construction was wrong by failing to account for the possibility that telephone numbers could be destinations, Vonage has failed to show error in the district court's failure to adopt it. See Biodex Corp. v. Loredan Biomed., Inc., 946 F.2d 850, 854 (Fed. Cir. 1991) (holding that the party challenging jury instructions must "demonstrate . . . that the requested instruction was proper") (emphasis added); see also Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1281 (Fed. Cir. 2000) ("A party seeking to alter a judgment based on erroneous jury instructions must establish that [the proposed instruction] would have remedied the error.").

--- Footnotes ---

4 Vonage proposed the following construction: "Destination address means an identifier of an endpoint in the public packet data network." J.A. at 68, 2727 (emphasis added).

--- End Footnotes ---

7. **Destination Processor**: Any one of the constituent processors in an electronic mail system to which information is transmitted by the system. Said processor is identified by an address, in order to initiate the transmission of the originated information from the originating processor.

**Claim Term** | **Plaintiff's Proposed Construction** | **Defendants' Proposed Construction**
--- | --- | ---
"destination signal" | "a data signal providing passenger conveying information that identifies the boarding floor and/or the destination floor" | The claim term is indefinite and cannot be construed.

('861 Patent, claims 1 and 11) | ('465 Patent, claim 1)

Plaintiff's position is that the specification supports a construction of "destination signal" as a signal that directs movement of the elevator car to a boarding and destination floor. Plaintiff cites the following language in support:

The control signal comprises at least one first destination signal which is communicated by way of the data bus 37 to the device 36, 36'. According to this first destination signal the device 36, 36' issues by way of an electrical line a first call report to the elevator control 14, 14'. According to this first call report the elevator control 14, 14' controls the drive 12, 12' and moves the elevator car 11, 11' to the boarding floor. After the elevator car 11, 11' has reached the boarding floor, the user boards the elevator car. The control signal comprises at least one second signal which is communicated by way of the data bus 37 to the device, 36, 36'. According to this second destination signal the device 36, 36' issues a second call report to the elevator control, 14, 14' by way of an electrical line. According to this second call report the elevator control 14, 14' controls the drive 12, 12' and moves the elevator car 11, 11' from the boarding floor to the destination floor.
Plaintiff contends that reading the term "destination signal" in the context of this specification makes clear that it constitutes a signal conveying data as to boarding and destination floors.

Defendants respond that the language relied upon by Plaintiff relates to two distinct destination signals, one which is associated with the boarding floor and one which is associated with the destination floor. Defendants contend that the term "destination call reports" (which the parties agree means "a data signal providing passenger conveying information that identifies the boarding floor and the destination floor") requires both the boarding and destination floor, and therefore, a destination signal would necessarily require both the boarding floor and the destination floor. Because the language of the specification cited by Plaintiff contemplates two distinct destination signals, then either the boarding floor or destination floor information is missing from the term "destination signal," therefore Defendants assert the claim is rendered indefinite.

Defendants argue that the claim language itself describes a "destination signal" as an output from the computing unit, ('465 Patent, col. 11:17-18); which the modernization device reads and converts the destination signal into a call report. (Id. col. 11:19-25.) Defendants contend that the definition is limited by this basic description and therefore does not contain any explanation of what information the signal contains. Thus, the term is too indefinite and cannot be construed.

11 The full text cited provides:
[INSTALLING AT LEAST ONE COMPUTING UNIT AND CONNECTING THE AT LEAST ONE COMPUTING UNIT TO SAID FLOOR TERMINALS FOR AT LEAST ONE OF EVALUATING THE DESTINATION CALL REPORTS AND ASSOCIATION OF DESTINATION FLOORS WITH RECOGNIZED ONCE OF THE IDENTIFICATION CODES AND FOR THE OUTPUT OF AT LEAST ONE DESTINATION SIGNAL.

(Id.) (emphasis added).

12 The full text cited provides:
[INSTALLING AT LEAST ONE MODERNIZING DEVICE AND CONNECTING THE AT LEAST ONE MODERNIZING DEVICE TO SAID FLOOR TERMINALS AND SAID AT LEAST ONE COMPUTING UNIT FOR READING THE DESTINATION SIGNAL, FOR CONVERTING THE DESTINATION SIGNAL INTO AT LEAST ONE CALL REPORT AND FOR CONTROLLING THE ELEVATOR CONTROL BY WAY OF THE CALL REPORT.

(Id.) (emphasis added).

The Court disagrees with Defendants' indefiniteness argument. Where the meaning of a claim is discernible, even if reasonable persons may disagree over the conclusions, the claim is sufficiently clear to be deemed definite. Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1350 (Fed. Cir. 2010) (citation omitted). The specification cited above clearly implies that the signal that is the output from the computing unit and converted into a call report contains the boarding and/or destination floor information for a particular passenger. Plaintiff's proposed construction, although not derived from the plain language of the claims themselves, is supplemented by the meaning provided in the specification. Accordingly, the Court will adopt Plaintiff's proposed construction that "destination signal" means "a data signal providing passenger conveying information that identifies the boarding floor and/or the destination floor."
A path oriented routing method for packet switching networks, wherein said network is comprised of a plurality of interconnected packet switches wherein at any given period of time each said packet switch can be functioning as a destination switch, an originating switch, a tandem switch, or any combination of the preceding, . . .

arguing that the preamble’s use of the word “comprised” indicates that the path oriented routing method includes non-path-oriented switches. Col. 5:37-43.

Ciena contends that the Nortel has coined the terms “path-oriented switch” and “non-path-oriented switch.” As the preamble to claim 1 indicates, the patent discloses a path-oriented routing method for “packet switches.” See Col. 5:37-39. The patent discusses the method’s use of packet switches in significant detail. See Cols. 6:10-13; 6:10-13; 6:27-29; 1:30-31. However, the term “path-oriented switch” does not appear anywhere in the patent. The Court rejects Nortel’s use of the term “path-oriented switch” because its use is not supported by the intrinsic record. See Phillips, 415 F.3d at 1315. Furthermore, the language of claim 1 indicates that any packet switch in the network can function as a destination switch at any given time and does not support the distinction between path-oriented and non-path-oriented switches. See Col. 5:37-43.

Ciena argues that the clear language of the specification supports its construction. In support of its argument, Ciena cites Column 2, Lines 8 through 10 that state, “the preferred path identifier to use to send messages to it destined ultimately for the destination packet switch,” and Column 2, Lines 15 through 18 that state, “a path identifier being associated with each packet at the source packet switch and carried by the packet as it traverses through the network to the destination switch.” The Court agrees with Ciena and construes the term “destination switch” as a “packet switch for which a packet is destined.”

### 3. Detectable Series

Claims 1-12 describe each particular object as being associated with unique authorized information comprised of machine-readable code elements "coded according to a detectable series." n88 The specification does not define "detectable series" and discusses "series" in the context of a binary embodiment. n89 While the inventors did not define "detectable series" explicitly during prosecution, they listed "sequential serial numbers" as an example in several places. n90 Further, they contrasted the term with the results of "secret algorithms" and noted that in McNeight, which uses a secret algorithm as its means of counterfeit detection, "serial numbers are of no value." n91

n88 See '422 Patent at 49:41-51:14. Claim 16 describes the designation method of Claim 15 "wherein said n sets of unique information are a detectable series." Id. at 52:40-41.

n89 See generally id.

n90 E.g., '422 File History, Tab 8 at 2, 4, 6, 7.

n91 Id. at 5.

Against this intrinsic evidence, CIAS offers its expert's opinion that, to one skilled in the art, "detectable series" means "information in which a pattern, relationship, or arrangement may be detected through examination of a practical number of samples in the context in which the invention is used." n92
Accordingly, the term "detectable series" is construed to mean "information in which a pattern, relationship, or arrangement may be detected through examination of a practical number of samples in the context in which the invention is used." This definition is consistent with the inventors' description in the prosecution history, including the inclusion of "sequential serial numbers" and the exclusion of the results of "secret algorithms." n97

n97 See id. at 1317.

3. "detected phase angle signal"

GK contends that the phrase "detected phase angle signal" means "representation of the actually occurring phase angle between the shafts." CVE responds that it means "the representation corresponding to the relationship between the phase angles present on different rotating shafts."

Initially, GK's construction seems apt: it comports with language in the claim that a "detected phase angle signal correspond[s] to real time phase angle existing between said first and second shafts." But other language in claim 5 strongly implies that the phase angle signal reflects the relationship of phase angles on different shafts. First, elsewhere in claim 5 the "predetermined phase angle signal" is said to represent "a value of a phase angle relationship between said first and second phase elements." (763 patent col. 8, lin 21-24.) Second, claim 5 explains that the resultant vibratory force is determined by that "relative phase angle relationship," and that it can be substantially the same as the predetermined vibratory force if the "detected" and "predetermined" phase angle signals are approximately the same value. In other words, each phase angle signal corresponds to a relative phase angle relationship.

The specification also supports CVE's construction. The portion of the specification upon which GK relies explicitly says that the controller receives the "position information" of the rotating shafts and then "generates a real phase angle signal corresponding to the phase angle difference of the shafts." (763 patent col. 4 lin. 46-50) (emphasis added). Although the difference between two angles is an angle itself, GK's construction unhelpfully suggests that the signal corresponds to a
shared angle, rather than a comparison of angles. The court agrees with DiEuliis that CVE's construction captures this nuance, while GK's does not. CVE's construction therefore comports best with the language of claim 5, the rest of the specification, and, again, DiEuliis's testimony. Accordingly, the court adopts CVE's construction.

C. "Detecting"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiffs' Construction</th>
<th>Defendants' Construction</th>
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<td>&quot;detecting&quot;</td>
<td>Discovering or ascertaining the presence of.</td>
<td>Applying a DC voltage potential across the working and counter electrodes and then going to an open circuit or delay period, during which no potential is applied, after a blood sample contacts the working and counter electrodes and gives rise to a current response.</td>
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The dispute between the parties is whether the "detecting" step of the claims requires the use of a "DC voltage potential" followed by a "delay period" (Defendants' position) or not (Plaintiffs' position). Every embodiment disclosed in the patents-in-suit sets forth a detection step involving the application of a DC potential followed by a delay period. See, e.g., '146 patent at 23:60-24:23. However, this does not justify limiting the claims. See, Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.") (quotations omitted).

As noted above, a patentee may disavow claim scope "by clearly characterizing the invention in a way to try to overcome rejections based on prior art." Computer Docking Station Corp., 519 F.3d at 1374. Defendants contend that Plaintiffs did this by arguing during prosecution that, in an obviousness analysis, prior art disclosing amperometric detection methods could not be combined with prior art disclosing coulometric because the former methods require a delay period while the latter methods do not. (See, D.I. 359 at 25-27.) On reviewing the relevant sections of the prosecution history (see, D.I. 362, Exh. U at 12, 20; id., Exh. V at 24; id., Exh. W at 8; id., Exh. Z at 21), the Court concludes that while the patentee argued that coulometric methods and amperometric were distinguishable on the basis of amperometric methods requiring a delay period, the patentee did not state that the invention was limited to only amperometric methods. Accordingly, the patentee did not limit the claims to only detection methods that require a delay period.

In addition, the Federal Circuit has explained that "[d]ifferences among claims can also be a useful guide in understanding the meaning of particular claim terms." Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005). As Plaintiffs note, dependent claims of both the '146 and '147 patent include an explicit "delay period" requirement. See, '146 patent at Claim 58; '147 patent at Claim 64. Thus, the doctrine of claim differentiation counsels against limiting all the claims of the patents-in-suit to the use of a delay period. Accordingly, the Court will construe the term "detecting" to mean, as Plaintiffs contend, "discovering or ascertaining the presence of."
Trademark Office Board of Patent Appeals and Interferences, affirming the examiner's rejection of claims 1-3, 5-9, 11-15, 17-20, and 22-24 of Chatani's application, No. 10/211,128 (the "128 application"), as anticipated by U.S. patent number 6,560,636 (the "636 patent") to Cohen et al. Ex Parte Masayuki Chatani and Glen Van Datta, Appeal No. 2006-2251 (Oct. 18, 2006). Because the board properly construed Chatani's claim and found it anticipated by Cohen, we affirm.

BACKGROUND

The '128 application claims a method for a multi-user application that manages participants in an online session so that if the first participant (the "host") exits the session, the system detects the departure, notifies the other participants, and re-assigns host functionality to a remaining participant so the session continues without interruption. The crux of the parties' dispute is whether the steps in representative claim 1, reproduced here, must be performed sequentially.

1. A method of managing participants in an online session of a multi-user application, comprising:

- initiating an online session of the multi-user application, the online session including two or more participants comprised of network computers that are communicatively linked to a computer network;
- detecting that a first participant has disconnected from the online session, wherein the first participant is responsible for managing certain managerial functionality associated with the running of the multi-user application;
- broadcasting a notification to existing participants of the online session over the communication network, thereby notifying the existing participants that the first participant has disconnected from the online session;
- re-assigning the functionality associated with the first participant to an existing participant of the online session.

The board relied on the disclosure of Cohen as a single prior art reference disclosing each and every element of the claimed invention. Cohen likewise teaches a method for transferring managerial responsibility from an exiting host to a remaining participant in an online session. Chatani asserted a difference between his invention, which detects that a first participant has disconnected from the online session, and Cohen's invention, which requires that a host change packet be sent to other participants before disconnection. The board appreciated the difference between the two inventions, but nevertheless found the claimed condition was drafted broadly enough to read on the other condition.

On appeal, Chatani reiterates that his invention is novel because it solves the "unexpected departure problem" by alerting online participants to the host's departure without requiring any affirmative action on the part of the host. He argues that the claim requires performance in the order written, and because Cohen does not require each element in the '636 patent to be performed in a particular order, the claim is not anticipated by Cohen. The Solicitor disagrees, arguing that (i) the method's steps do not recite an order, (ii) the logic and grammar of the claim language does not require performance in the order written, and (iii) the specification neither requires nor suggests such a narrow construction of the claim.

DISCUSSION

Claim construction is reviewed de novo on appeal. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc). During prosecution, claims must be given their "broadest reasonable interpretation," In re Hyatt, 211 F.3d 1367, 1372 (Fed. Cir. 2000), so this court reviews the board's interpretation of disputed claim language to determine whether it is "reasonable" in light of the evidence before the board. In re Morris, 127 F.3d 1048, 1055 (Fed. Cir. 1997). There is no dispute that the claimed method does not recite an order of performance, and we agree with the board that Chatani's claim need not be read sequentially.

The board correctly determined that the claimed condition broadly recites detecting disconnection from the online session. The claim does not dictate whether a non-human system or online participants perform the "broadcasting" or "detecting" steps. An artisan in the field could read the claim to include a scenario in which the host sends a broadcast notification that he or she "has disconnected" to the other participants and then disconnects; receipt of the notification leads the other participants to detect or discern that the host composition has changed. So the claim language on its face does not require sequential performance, and we decline to infer what should have been made explicit in the claim during prosecution. To arrive at Chatani's proposed construction would require improperly reading limitations into the claim.

GO BACK
Detecting the existence of concurrencies in instructions stored in said dispatch stack (claim 6); detecting the existence of a plurality of instructions which are concurrently executable from those instructions stored in said dispatch stack (claim 15)

The parties agree that these are "method" claims. Defendant defines the terms as follows:

Scanning the Dispatch Stack from top to bottom to identify instructions for which the sum of all [alpha] and [beta] dependencies, called the Issue Index (I<2>), is determined to be equal to zero and verifying that the required functional unit for each identified instruction is available using a reservation circuit, where reservation circuit is defined as a component that has OP, Issue Index, and Functional Unit Status inputs, and an Issue output.

Defendant's construction includes I<2>, and, because defendant defines I<2> as counting both essential and false dependencies, defendant's construction includes false dependencies as well as essential dependencies.

The Court agrees with plaintiff that the two terms under consideration, "detecting the existence of concurrencies in instructions stored in said dispatch stack" and "detecting the existence of a plurality of instructions which are concurrently executable from those instructions stored in said dispatch stack," simply mean "determining the existence of a plurality of dependency free instructions stored in the dispatch stack." The Court further agrees that nothing in the patent requires the inclusion of I<2> and/or false dependencies in the definition of these two terms. As discussed above, I<2> is not necessarily a counter, but rather a computed value derived from the values [alpha](Si) (essential dependencies), and, if false dependencies are being tracked, [beta] (D) as well.

Further, for the reasons set forth above in the discussion of the phrase "concurrently executable instructions," the Court finds that the two terms do not require that the instructions be free of any particular type of dependency or that any particular type of dependency have previously existed and been removed. Therefore, there is no basis to construe the terms as teaching a dispatch stack which necessarily has a field for false dependencies. The doctrine of claim differentiation supports the conclusion that false dependencies are not a limitation in claims 6 and 15; false dependencies, while not limitations in independent claims 6 and 15, are specified as limitations in dependent claims 7 and 16.

Moreover, defendant improperly reads a reservation circuit into the detecting function. As discussed above in connection with claims 1 and 14, the reservation circuit serves an issuing function, not a detecting function. Thus, the Court rejects defendant's position and reads the terms as meaning "determining the existence of a plurality of dependency free instructions stored in the dispatch stack."

4. "detecting whether buffer overflow is threatened by the storage of further cells arriving for transmission on said virtual path"

The plaintiff contends that no construction is needed because all the technical terms ("buffer," "cells," and "virtual path") have agreed definitions. In the alternative, the plaintiff proposes that the phrase, as a whole, means "detecting whether buffer overflow is threatened by the storage of further cells arriving for transmission on the virtual path." Defendants have proposed three different constructions, set forth, below.

a. Nortel, Lucent, and Alcatel's construction

Defendants Nortel, Lucent, and Alcatel propose that the phrase means "detecting whether the storage of arriving cells would exceed a selected level of occupancy less than the maximum capacity of the buffer for that VPC." The court has previously rejected the argument that the claim limitation should be construed to require a "buffer for that VPC." With respect to the remaining portions of the definition proposed by these defendants, the plaintiff argues that limiting the claim to detecting "a
selected level of occupancy less than the maximum capacity" is too restrictive because the specification allows for detecting 1) whether a ceiling has been exceeded, and 2) whether the number of unoccupied locations has fallen beneath a floor. The plaintiff also invokes the doctrine of claim differentiation, urging that because dependent claims 2 and 3 describe assessing the number of unoccupied locations falling below a threshold, the court should construe claim 1 broadly enough to cover the situation of falling below a floor.

b. Cisco's construction

Defendant Cisco proposes that the phrase means "determining whether the storage of cells arriving on the specified VPC might cause the buffer to exceed its maximum storage capacity." Cisco contends that this construction applies the ordinary meaning of "threatened," which means that a possible future adverse event is likely to occur. In addition, Cisco contends that this limitation requires an assessment of whether the buffer for that virtual path is likely to overflow.

The plaintiff, argues that Cisco is rewriting "detecting" with "determining." According to the plaintiff, there is no ambiguity in the claim that would necessitate a rewriting. Furthermore, the plaintiff argues that Cisco's construction improperly adds a limitation about the connection on which the cells arrive, i.e., "the specified VPC." The plaintiff contends that there is no basis for adding this requirement.

c. Juniper's construction

Finally, Juniper suggests that the claim limitation means "detecting whether the storage of arriving cells would exceed a selected level of occupancy less than the maximum capacity of the buffer storage for that virtual path whereby the level is selected to allow for storage sufficient to accommodate the continuation of frames that have cells which were already stored in the buffer at the time the threshold is exceeded." Juniper argues that the threat of buffer overflow cannot simply be indicated by an arbitrary threshold below the maximum capacity of the buffer, but sufficient space must be available to, admit cells from a frame already admitted into the buffer.

In response, the plaintiff argues that the attempt to tie buffer storage to a particular VPC and restricting the detection to a "ceiling" is improper. Furthermore, the plaintiff argues that Juniper is attempting to limit the claim unnecessarily with language from the specification. See '499 Patent, 9:26-29.

d. Conclusion

The court has previously rejected the defendants' attempt to limit the claim language to a buffer assigned to a particular VPC. In light of the parties' constructions of the technical terms, the court concludes that no additional construction of this phrase is appropriate. In doing so, the court rejects the defendants' efforts to restrict the "detecting" step to a particular manner of detecting, such as detecting "a selected level of occupancy less than the maximum, capacity." As the plaintiff observes, dependent claims 2 and 3 call out 'additional limitations that restrict the manner in which the detecting step must be performed.

2. Detection Means (Claim 2)

Matsushita argues that "detection means" is not subject to means-plus function construction, and should be construed as "a detector." Alternatively, Matsushita argues that, if the term is subject to means-plus function construction, the structure corresponding to the function recited in Claim 2 is the "detection circuit" identified in the specification. Mediatek argues that "detection means" is subject to means-plus function construction and that the specification does not sufficiently disclose any structure corresponding to the function recited in Claim 2.

The Court finds, for the reasons stated by Mediatek, that "detection means" is subject to means-plus function construction. The Court further finds, for the reasons stated by Matsushita, that the structure corresponding to the function "outputting a reset signal in response to a predetermined condition" is the "detection circuit" identified in the specification, specifically, a "detection circuit" that sets a "reset signal [ ] at a low level only when it detects a predetermined condition," which
predetermined condition "includes a condition where a clock having a frequency one-hundredth or less of the frequency of the base clock (for example, 25 kHz) is input into the PPL circuit [] and a condition where all function blocks in a semiconductor device do not need a clock, " see 249 Patent col. 10 II. 39-47, and equivalents thereof. See, e.g., Linear Tech. Corp. v. Impala Linear Corp., 379 F. 3d 1311, 1320 (Fed. Cir. 2004) (holding that because "circuit" is "structure-connoting term," where specification identifies "circuit" by "language reciting [circuit's] objectives or operations," such language constitutes sufficient disclosure of structure to person of ordinary skill in art). 2

2 The Court provides this citation, as it was not referenced in the briefing submitted by the parties.

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C. Claim Construction of "Detector"

Claim 1 of the '454 Patent claims an "apparatus for chemical polishing (CMP) of a wafer comprising: . . . (c) an endpoint detector." Defendants seek to have the term "detector" construed as the detection component of a laser interferometer because the specification only uses the term "endpoint detector" to refer to the detection component of a laser interferometer. Plaintiff's argue that the term "detector" should be given its plain and ordinary meaning as a device used in determining when the polishing or planarization process should be terminated.

To construe the term "detector," Plaintiff points to the Background section of the '454 Patent that discusses the early devices and methods used in prior art to perform in situ detection of endpoints during the CMP process. None of the discussed devices or methods involve the use of lasers. ('454 Patent, Col. 2, lines 23-43). On the other hand, Defendants argue that the summary section of the specification expressly describes the "endpoint detector" as a component of CMP that includes a laser interferometer.

The intrinsic evidence does not provide much guidance as to the proper construction of the term "detector." A "detector" is only mentioned in Claims 1 and 22 without much description. As Defendants point out, the specification describes the endpoint detector as a component of the laser interferometer. However, as with the construction of the term "light," the term "detector" cannot be narrowly construed based on the preferred embodiment of the patent. Phillips, 415 F.3d at 1323. Accordingly, the Court deems it proper to consult extrinsic evidence to define the term "detector." Defendants' expert, Dr. Gutmann, agreed that "a person of ordinary skill in the art would understand from reading the '454 specification that there were other end-point detector devices other than a laser interferometer device." (Gutmann Transcript at 210.) Additionally, Merriam-Webster defines "detector" as a device for detecting the presence of electromagnetic waves. Both of these sources provides broader definitions than that proffered by Defendants. Accordingly, the Court FINDS that the term "detector" refers to a device for detecting the presence of electromagnetic waves and is not confined to the detection component of a laser interferometer.

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3. Detector

The parties also disagree as to whether the "detector" elements of claims 4, 8, 11, and 15 should be construed as structural or means-plus-function claims. Trilithic argues that the elements are written in structural form and that it has adequately described the detector structure. In contrast, Wavetek contends that "detector" is a generic term that fails to connote a structure, and therefore, the "detector" elements are written in terms of what a detector does instead of what a detector is. As a result, Wavetek believes the "detector" elements should be construed under 35 U.S.C. § 112, P 6, as a means-plus-function limitation and accordingly limited to the leakage detector described in the specification and its equivalents. All of the listed claims read:
the improvement of claim . . . further comprising a detector for receiving a signal representative of leakage from the communication circuit, for extracting from the signal representative of the leakage the variably attenuated, program material-modulated carrier frequency, for detecting in the variably attenuated, program material-modulated carrier frequency the oscillator output signal frequency, and for producing an indication of detection of the oscillator output signal frequency.

'428 patent, col. 9, ln. 43-50.

In Personalized Media, the Federal Circuit reviewed an initial determination made by an Administrative Law Judge ("ALJ") of a patent regarding systems used in television broadcasting. 161 F.3d at 698, 700. The ALJ had determined that the claim limitation "a digital detector for . . . ", which appeared in all the asserted claims, constituted a means-plus-function limitation that needed to be construed under 35 U.S.C. § 112, P 6. Id. at 700. After consulting dictionaries and determining that the definitions of "detector" and "digital" and "digital circuit" did not resolve the issue of whether the "digital detector" conveyed an ordinary meaning to a person of ordinary skill in the art, the ALJ determined that the specification lacked specific structure and was only described in functional terms. Id.

The Federal Circuit reversed the ALJ's decision and held that the "digital detector" limitation was a structural limitation and therefore not subject to 35 U.S.C. § 112, P 6. Id. at 704. First, the court noted that because the limitation did not include the word "means," the presumption was that 35 U.S.C. § 112, P 6 was not implicated. Then the court confirmed that neither intrinsic nor extrinsic evidence rebutted that presumption. Id. The court held that "detector" is not "a generic structural term such as 'means,' 'element,' or 'device'; nor is it a coined term lacking a clear meaning such as 'widget' or 'ram-a-fram.'" Id. Explaining that "detector" has a well known meaning to a person of ordinary skill in the art that is connotative of structure, the court reasoned that the definiteness of the "detector" structure is not detracted from because "detector" is neither defined by its functions nor "connote[s] a precise physical structure in the minds of those of ordinary skill in the art." Id. at 705. In coming to this conclusion, the court accepted the definitions the ALJ noted including "(1) a device for determining the presence of a signal; (2) a rectifier of high-frequency current; (3) a device for extracting intelligence from a signal; (4) DEMODULATOR 1." Id. at 705 n. 12. The court found the claim sufficiently conveyed to a person of ordinary skill in the art a variety of structures known as detectors, even though it did not describe a particular detector structure. Id. at 705. Placement of the word "digital" in front of "detector" did not alter the court's analysis, as it noted that "digital" only "further narrows the scope of those structures covered by the claim and makes the claim more definite." Id.

Faced with a claim similar to the one found in Personalized Media, the Court comes to a similar conclusion; the "detector" language in the disputed claims is not means-plus-function language. The claim language at issue here does not contain the word "means." Again, the Court notes the means-plus-function limitation presumption; if the word "means" is not used in the language of the claim, the presumption is that 35 U.S.C. § 112, P 6 is not applicable. Here, the intrinsic evidence does not overcome that presumption. The claim does contain functional language. The detector will serve the function of "receiving a signal representative of leakage . . . extracting from the signal . . . the variably attenuated, program material-modulated carrier signal . . . detecting . . . the carrier frequency the oscillator output signal frequency and . . . producing an indication of detection of the oscillator output signal frequency." '428 patent, col. 9, ln. 43-50; col. 10, ln.23-30; col.11, ln. 7-14; col.12, ln.18-25. However, using functional language does not automatically mean the claim is a means-plus-function limitation. As previously discussed, if the claim contains functional language, but also discloses the structure within the language of the claim, 35 U.S.C. § 112, P 6 is not applicable. As the Federal Circuit determined in Personalized Media, "detector" has a meaning for those of ordinary skill in the art. According the McGraw-Hill Dictionary, a detector is "the stage in a receiver at which demodulation takes place; . . . also known as demodulator, envelope detector." Pltf.'s Ex. 9 at 550. These definitions are similar to the ones accepted by the Federal Circuit in Personalized Media. See 161 F.3d at 705.

Wavetek's argument that without the functional language a person of ordinary skill in the art cannot determine the meaning of detector is misplaced for two reasons. First, the Court must look at the claim as a whole. Though both Silva and Large may have agreed that if the functional language was covered up, a person knowledgeable in the art may not know which type of detector to use, the fact remains that the functional language is there to assist a knowledgeable person in determining which type of detector would be appropriate. See Tr. at 155-56 (Silva), 226-28 (Large). Both experts acknowledged that upon reading the text of the claims in their entireties in the context of a patent, a person of ordinary skill in the art would know what type of detector is being referenced in the claims. Tr. at 98-99 (Silva), 272 (Large). Secondly, as the Personalized Media court noted, the use of the term "detector" indicates a structure, and the fact that the claim does not evoke a specific detector does not mean the patentee failed to disclose a structure. See 161 F.3d at 705. The term "detector" provides a
sufficient description of a type of structure. The functional language that follows "detector" is not a detriment to the structural definition but instead narrows the scope of possible applicable detectors, such as the term "digital" did in Personalized Media. Id. In fact, here the patentee has provided greater functional detail than did the patentee in Personalized Media. The claim discloses both a structure and the function of the structure and therefore may not be construed under 35 U.S.C. § 112, P 6.

The plain and ordinary meaning of "detector" may apply to the claim because the specification does not provide an indication that any special meaning was to be given to the term "detector." The specification states that "the detection system of the present invention will now be discussed with particular references to FIGS. 2a-c. FIG 2a illustrates to a substantial extent a presently commercially available SEARCHER+ leak detector available from Trilithic . . . ." '428 patent, col. 4, ln. 23-27. The specification continues to explain the detection system as noted in the figures. Though the claim needs to be construed in light of the specification, the description of the detection system as a leakage detection system does not limit the scope of the claims to a leakage detection system. The limitations from the specification are not to be imposed on the claims. Comark, 156 F.3d at 1186. Moreover, as was discussed, the "detector" claims are not in means-plus-function format and therefore are not limited to the corresponding structure of the leakage detector that is disclosed in the specification and its equivalents. A person of ordinary skill in the art would know that the SEARCHER + leakage detector described in the patent performs in the same manner as the detectors described in claims 4, 11, 18, and 25. Tr. at 99. The "detector" claims are structural claims and their scopes are not limited by the leakage detector description in the specification.

E. "detector operable to detect a fluorescence optical signal"

In its claim construction brief, Stratagene urged the court to construe "operable" as meaning "capable of being used." However, the claim is perfectly clear on its face, and there is no significant disagreement between the parties as to its meaning. Stratagene has done little to argue that this term needs to be construed, and it does not press this point in its post-hearing brief. Therefore, it is unnecessary to construe this term.

b. determinator for determining an output brightness level

AUO contends that this term means "logic, such as a circuitry, for determining an output brightness value. D.I. 376 at Exh. M--3. LGD contends that this phrase should be defined as "circuit or logic that determines the output brightness level by applying an offset to the next brightness level that is predetermined based on a difference in quantity of light between the actual and ideal response characteristics of the liquid crystal cell. D.I. 1388 at P 395.

The parties are in agreement that this term refers to logic or circuitry. Their disagreement arises from LGD's additional limitations which purport to limit the manner in which the determinator determines the output brightness. The Court has reviewed the claim language in light of the specification, and concludes that such additional limitations are not required. Accordingly, the Court adopts AUO's proposed construction of the phrase "determinator for determining an output brightness level" as "logic, such as a circuitry, for determining an output brightness value."

1. Determining - Claim 8(a)

(a). The Parties' Proposed Constructions.

Neither party contends that the word "determining" is a term of art in speech recognition or that any technical expertise is
required to construe this word. Indeed, their experts agree that the word "determine" should be accorded its ordinary meaning in everyday speech; that is, to identify or ascertain, as after "consideration, investigation, or calculation." (Docket Nos. 182, Ex. Q at 7 (Groner) and 193 P 39 (Stern).) Despite this apparent agreement, the parties do dispute the appropriate construction of this term as it applies to claim 8.

Although plaintiff patent holders typically advance the broadest possible construction of a claim term, here Davis contends that he expressly restricted the "determining" step of claim 8(a) to "consciously identifying actual sources of false-acceptance error." (See Docket Nos. 169 at 2, 8-9; and 182 Ex. D). In other words, Davis urges that the "determining" step requires prior observation of the occurrence of a specific matching error. Under this proposed construction, one could not meet the "determining" step by applying knowledge of error sources gained while working on other systems or by analyzing the research of others working in the field of speech recognition to identify incoming speech patterns that tend to cause errors.

SWI seeks a broader construction that is not limited to empirical observation of prior errors, but allows for analysis, computation and consideration of a variety of sources of information. In advancing this construction, SWI points to the "determining" and "creating" steps of claim 8, which both discuss "incoming pattern templates which tend to be erroneously matched" to reference templates ('231 patent, col. 8:63-67), and to the specification, which states that "]o]nce those words which are potentially a source of error are identified, their patterns can be intentionally introduced into the system as error templates . . . " (Id., col. 3:6-8). Those modifiers, SWI argues, do not support a construction requiring specific observation of a prior error, which would result in a known, rather than a potential, erroneous match. n4

--- Footnotes ---
n4 SWI describes Davis' proposed construction of "determining" as the "has caused error" definition and its own proposed construction as the "can cause error" definition.

--- End Footnotes ---

Davis contends that his narrower proposed construction is supported by the specification, which first teaches that the introduction of "random" error templates actually increases the number of false rejection errors and then directs the reader away from their use toward those error templates that are "consciously identified." In addition, he claims that he explicitly narrowed the scope of the "determining" step during prosecution. Davis' proposed construction is rejected for the reasons stated below.

(b). The Court's Construction.

With regard to the specification, "claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from [such a] meaning . . . by redefining the term or characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of the claim scope." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). To act as his own lexicographer, a patentee must "define[] the specific terms used to describe the invention 'with reasonable clarity, deliberateness and precision.'" Id. at 1325 (quoting In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994)). If he does not, there is a "heavy presumption" in favor of a term's ordinary meaning. Id. at 1327.

Davis argues that the following passage from the specification limits the scope of the claim 8 "determining" step because it teaches away from the use of "random" error templates:

In a speech recognition system which is designed to recognize a finite number of words through the mechanism of template matching, the error rate can be dramatically reduced by introducing one or more "Error Templates" which correspond to speech patterns that are not within the system vocabulary. Consider, for example, a system having a one-word reference vocabulary. If another word, randomly chosen, is introduced as an error template, then each word would have an equal chance of being matched to a third, randomly chosen, incoming word. As more randomly chosen error templates are introduced into the system, the probability (P) that an incoming word will match the reference word decreases proportionally as
P = \frac{1}{1 + \text{NET}}

where NET is the number of error templates.

Once those words which are potentially a source of error are identified, their patterns can be intentionally introduced into the system as error templates to shunt incoming words which would otherwise be mismatched.

Since language words fall into a finite number of sets, the error templates should be chosen from as great a variety of these sets as possible. The number of error templates may be reduced by combining them together in such a way as to retain in the composite a significant amount of the unique features of the individuals.

'231 patent, col. 2:54-3:18 (emphasis supplied).

First, this Court notes that the foregoing passage is of limited relevance to the extent Davis suggests that an error template "determined" by any means other than empirical observation is "random." A random occurrence is one without aim, reason or pattern. Such a definition does not comport with SWI's proposed construction of "determining," nor does it comport with any common understanding of either term.

Moreover, the passage on which Davis relies does not, as he contends, teach that the use of "random" error templates increases the number of false rejection errors. In Davis' example, a false acceptance error n5 occurs when a randomly chosen incoming word is incorrectly matched to the reference vocabulary word. Based on the cited formula, the chance of such a false acceptance error occurring decreases continuously with the introduction of each additional random error template. Indeed, that is precisely what Davis posits in the introductory sentence; "the error rate can be dramatically reduced" (col. 2:56-57).

--- Footnotes ---
n5 The '231 patent uses the term "External Positive Substitution," defined as the error that occurs when "an incoming word that is external to the system's vocabulary erroneously matches to a vocabulary word." Col. 2:42-44.

--- End Footnotes ---

Contrary to Davis' assertion in his opposing memorandum (Docket No. 169 at 5), this passage does not address false rejection errors n6 at all; that is, where the incoming word is the same as the vocabulary word and should be recognized as a match, but is not. In sum, this passage does not, as Davis claims, teach away from the use of error templates that are created from any source of knowledge other than empirical observation.

--- Footnotes ---
n6 The '231 patent uses the term "Non-Recognition," defined as the error that occurs when "an incoming word which is internal to the system's vocabulary does not match any vocabulary word." Col. 2:41, 49-51; Docket No. 169 at 7.

--- End Footnotes ---

Reading the claims and specification as a whole, as this Court must, there are numerous other references that weigh strongly against narrowing the construction of "determining" as Davis suggests. For example, as highlighted above in the passage on which Davis relies, he speaks of identifying words which are potentially a source of error, thereby indicating that such identification is not limited to empirical observation of a known error. Similarly, Davis notes that language words fall into finite "sets" (something that he presents as a given and known in the art), and encourages the reader to choose error templates from a variety of sets. This, too, suggests a "determination" of sources of error based on something other or more than empirical observation.

A bit further in the specification, Davis explains that:

[I]n order to generate error templates to protect reference templates from the largest variety of non-matching words, it is
desirable to have error templates which deviate from the reference template in a given direction and by a given distance in generalized template space. Since such a template may not correspond to a known, or even utterable word, it poses some problem as to how such a template may be formulated.

'231 patent, col. 5:24-32 (emphasis supplied). Concepts of direction and distance in template space, deviation, generation and formulation, do not remotely suggest the limitation on "determining" that Davis urges.

Having reviewed the patent in its entirety, this Court concludes that Davis did not act as his own lexicographer here, and that "determining" should be accorded the ordinary meaning advanced by SWI unless a limitation is apparent from the prosecution history.

The prosecution history consists of the complete record of the proceedings before the Patent and Trademark Office ("PTO") and includes the prior art cited during the examination of the patent. Phillips, 415 F.3d at 1317 (citation omitted). "[B]ecause the prosecution history represents an ongoing negotiation between the PTO and the applicant, . . . it often lacks the clarity of the specification and thus is less useful for claim construction purposes. Id. (citing Inverness Med. Switz. GmbH v. Warner Lambert Co., 309 F.3d 1373, 1380-82 (Fed. Cir. 2002)). Nevertheless, the prosecution history can inform the meaning of the claim by revealing, among other things, whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. Vitronics, 90 F.3d at 1582-83.

This Court first notes that Davis has not made the entire prosecution history part of the record, but only the portion he believes will assist him on this question. Apparently, Davis' patent application initially was rejected by the PTO as being anticipated by three prior art references. n7 Davis argues that in distinguishing his invention from one of those references, U.S. Patent No. 4,713,778 ("the Baker patent"), he expressly disclaimed any interpretation of the "determining" step that would cover "guessing, conjecture or speculation." (Docket Nos. 169 at 8-9; 182, Ex. D.)

This Court again points out that, "guessing, conjecture or speculation" is not the construction of "determining" advanced by SWI, nor does it comport with any common understanding of that term. The question then, is whether Davis limited the "determining" step of claim 8 so as to include only knowledge gained from empirical observation. In support of his argument, Davis provides his letter response to the PTO's rejection of his application and highlights certain phrases which he contends narrows the scope of the patent. n8 (Docket No. 170 at 13-14.)

n7 Davis provides his response to the PTO's rejection, but not the underlying PTO communication.

n8 Davis directs the Court to two phrases, emphasized as follows:

. . . in accordance with the present invention, error templates corresponding to erroneously matched features or words are created and stored along with the usual reference templates . . . ; and

Thus, the Baker recognition system is more typical of the prior art approach in that it increases recognition accuracy by better defining patterns being looked for rather than defining those patterns which cause errors, as does the present invention.

In addition to the obvious concern over the unavailability of the complete prosecution history, this Court finds Davis' argument to be without merit. It is readily apparent from Davis' response to the PTO that he sought to distinguish his invention from the Baker patent on the ground that his uses error templates to improve speech recognition while the Baker patent does not. Based on this very rudimentary distinction--error templates versus no error templates--there was no need for Davis to describe in detail or distinguish how his error templates work, much less the manner in which they are
"determined." This Court is unwilling to read a purported limitation that does not comport with the patent language from a generalized description of the invention that appears in a single, isolated communication with the PTO.

For all of the reasons stated, this Court finds that the intrinsic record does not reveal any special definition for the term "determining." Beyond that, the parties' experts agree that the term should be construed in its ordinary sense. Therefore, it is accorded its ordinary meaning here--to identify or ascertain, as after consideration, investigation, or calculation.

n9 Indeed, Davis' expert, Gabriel Groner, acknowledged that a "determination" "would have to include knowledge of how errors occur, but it may not necessarily have to include knowledge of specific errors." (Docket No. 195, Ex. 2 at 194.) (emphasis supplied).

Because the remaining disputed terms do not factor into the parties' validity arguments, this Court will move on to that analysis and will construe the remaining terms further herein, as necessary.

9. "determine"

Power-One seeks no construction of this term, while Artesyn proposes that the term be construed as "calculate." The Court agrees with Power-One that the term needs no construction. The parties have agreed that the term "calculate" as used in the patents means "ascertain based on calculations." Artesyn fails to adequately explain why the term "determine" should have the same definition as "calculate." Further, the passages from the '999 patent Artesyn cites, col. 2:28-34 and col. 4:23-33, do not support narrowing the meaning of "determine." See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (noting that courts will not impose additional limitations from the specification onto the claims). Both passages actually use the term "calculate" showing that "calculate" means something different than "determine."

C.3.a.1. "to determine said individual caller's credit"

Verizon alleges that "to determine the individual caller's credit" means "to determine whether the caller has enough available account resources to access the format." Verizon Brief at 92. Katz asserts that "credit" enjoys a much broader meaning than determining the amount of credit associated with a given caller. Katz Brief at 93.

The limitation "to determine the individual caller's credit" means "to determine the caller's credit standing," and is not limited to determining whether a caller has sufficient account resources. The plain meaning of credit appears to enjoy a broad range of meanings, many of which are consistent with the use of "credit" in claim 41 of the 762 patent. See Moore 1/14/03 Decl. Ex. 26 ("1 a: the balance in a person's favor in an account; also: an amount or limit to the extent of which a person may receive goods or money for payment in the future . . . STANDING . . . financial or commercial trustworthiness") (emphasis in original); see also Texas Digital, 308 F.3d at 1203 ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings."). The Court's interpretation is consistent with the 762 patent specification which discloses determining a caller's credit without determining an amount of available credit. See 762 patent, Col. 11:26-35 (checking credit card account against negative file).
6. "user's role determined from the request"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;the user's role is determined from the request&quot;</td>
<td>Role is determined from information related to the request</td>
<td>the user's role is determined from a user ID, class ID, group ID or information about access type contained in the request</td>
</tr>
</tbody>
</table>

The defendants argue that the scope of the term should be limited to the only "types" of information that is disclosed in the specification. They point out that the specification indicates that the user ID, the class ID, the group ID and the information about access type are all information "from the request" that are used to determine a user's role. See '231 Patent, at col. 3, ll. 61-65, col. 4, ll. 64-67. Defendants argue that Fotomedia's proposed definition encompassing any "information related to the request" is too broad. The claim language uses the words "from the request," not from any information that is somehow "related."

Fotomedia points out that the specification describes that "[i]n response to receiving a request for access to the metadata by a particular user, the user's role is determined from the request and the user's role is compared to the roles associated with the metadata elements to determine which metadata elements to make available to the user." '231 Patent, col. 2, ll. 3-5. Therefore, Fotomedia argues, a user's role is not limited to being determined from a particular type of data. Fotomedia further argues that because claim 1 states that the user's role is determined "from the request," the Court should not limit the construction of this term to information "in" the request.

After considering the parties' positions, the Court concludes that the role information is contained within the request itself and should be limited to at least the categories of identifiers listed in the specification, rather than the broad construction that Fotomedia seeks. The user's role is determined from a user ID, class ID, group ID or information about access type contained in the request.

The phrase "the user's role is determined from the request" means that "the user's role is determined from a user ID, class ID, group ID or information about access type contained in the request."

F. "if the at least a portion of the received funds transfer information and the VAN are determined to be authentic"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a third party for determining whether the at least a portion of the received funds transfer information is authentic by using the VAN; and transferring funds from the first account of the first party to the second account of the second party if the at least a portion of the received funds transfer information and the VAN are determined to be authentic.&quot;</td>
<td>If the at least a portion of the received funds transfer information and the VAN are determined to be unchanged.</td>
<td>(1) A verification that the received funds transfer information has not changed or is unaltered; and (2) verifying the identity of the first party.</td>
</tr>
</tbody>
</table>

This limitation appears in claim 41. Continuing with the authentication disputes, the parties dispute whether this limitation requires verifying the identity of the first party. Plaintiff argues that requiring verification of a party's identity would import a limitation from the specification. Defendants argue that the language "and the VAN" means nothing in this claim if it does not authenticate the party. The Court has construed VAN such that it is "used in verifying the identity of a party or the
integrity of information or both." The claim already recites authenticating the funds transfer information that is included within the VAN. If, in this claim, the first party is not required to be authenticated, this claim would disclose authenticating the funds transfer information twice. Defendants argue that authenticating the VAN means that the identity of the first party is authenticated.

Plaintiff's argument is convincing. The Court agrees that this claim does not require party authentication. Verifying that the VAN is unchanged, however, as Plaintiff proposes, does little if the VAN was created fraudulently. By requiring the VAN to be authentic, this limitation requires the VAN to represent what it purports to represent. The Court construes this limitation to mean, "if the at least a portion of the received funds transfer information is unchanged and the VAN is not fraudulent."

H. "determines the size of the pits and particles" and "groups the pits and particles based at least in part on the determination of size" 33

Although the parties identified the phrases "determines the size of the pits and particles" and "groups the pits and particles based at least in part on the determination of size" as contested claim terminology, they limited their argument to a construction of the word "size" as it appears in these phrases. (See D.I. 594 at 22, D.I. 613 at 19-20.) Accordingly, the Court will also focus its discussion on the word "size."

1. ADE's Position

ADE proposes that the Court construe "size" "to mean that, 'the size may be actual size, PSL equivalent size or size based on some other scale or measure.'" 34 (D.I. 613 at 19.) In support, ADE argues that this construction is consistent with the plain meaning of the word and asserts that the '259 specification does not use the word inconsistently. (Id.)

2. KLA's Position

KLA counters by suggesting that the Court construe "size" to mean "determining a PSL (polystyrene latex) equivalent size of the pits and particles." (D.I. 594 at 22.) KLA argues that this is the appropriate construction of the word since the '259 specification is silent as to the meaning, this was the common art understanding of the word in the surface inspection industry at the time of the '259 priority date, and the inventors understood the word "size" as referring to a PSL equivalent size when using the word in the claims of the '259 patent. (Id.)

3. Analysis

The word "size" has a readily understood, ordinary meaning. As to the '259 patent and its inventors, the specification and prosecution history not use the word inconsistently with its ordinary meaning, and the Court is not persuaded by KLA's
arguments for altering that ordinary meaning. Accordingly, the Court construes the word to mean a physical magnitude or
dimension. See MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 1095 (10th ed. 2002). Thus, the phrase
"determines the size of the pits and particles" means determines the physical magnitude or dimension of the pits and
particles, and the phrase "groups the pits and particles based at least in part on the determination of size" means groups the
pits and particles based at least in part on the determination of physical magnitude or dimension.

1. Determining geographic coordinates corresponding to the property identification data.

The first disputed phrase appears in the 326 patent and is "determining geographic coordinates corresponding to the
property identification data." The parties agree that "geographic coordinates" means "latitude and longitude or other
coordinate set that defines the position of the property on the earth's surface." The dispute concerns the term "determining."
The plaintiff suggests that the term needs no construction. Alternatively, the plaintiff suggests that the term means
"identifying." The defendants contend that the term "determining" means "converting" such that the phase means
"converting" the received property identification data into geographic coordinates. The court rejects the defendants' position.
As the plaintiff points out, in other portions of the defendants' brief, the defendants define "determining" synonymously
with "identifying." The court agrees with the plaintiff's alternate construction and construes the term "determining" to mean
"identifying."

3. Step (B): "Determining"

Defendants claim that "determining," as used in Step (B), means "receiving a total wager amount from the central system
and storing it in memory." (Def. Resp. at 4.) Plaintiff claims that "determining" means "fixing," "deciding upon," and
"set[ting] to a desired amount needed to finance the average prize value . . . without regard to the mathematical exact
combinations or pay tables of any of the linked gaming devices." (Pl. Br. at 21.) Plaintiff uses the terms "fixing," "deciding
upon," and "setting," interchangeably.

Defendants primarily contend that "determining" must include "receiving and storing," because they claim that the fact that
an amount is received and stored is what is special about the patent and Claim 11, and Step (B) should be the appropriate
place for that to happen. (Def. Resp. at 5-7.) Defendants' authority for this proposition comes from the prosecution history
wherein the applicant distinguished Patent '460 from prior art by stating "the function being claimed in Claim 11 for the
central system is the ability to record a total wager amount for a progressive prize." (Def. Br. Appendix, tab. 8 at 141.)
However, the claim being addressed by that particular statement was the prior claim 11 of the application, which later
became Claim 8 in the actual '460 patent, once claims 1-3 were removed. Indeed, Claim 8, step A, does specifically disclose
the recording of the total wager amount. ('460 patent, col 23 at 30-31.) We have not found any reference in the specification
of Claim 11 that indicates that storing is a particular characteristic of Claim 11.

Plaintiffs more persuasively contend that receiving and storing capabilities are device-specific, not invention-specific, and
are addressed in other claims. Some devices will store the total wager amount, while others would not need to, and the
invention is a system for linking all of those different devices. Devices that store would have a free play apparatus, which is
discussed in separate claims, such as Claim 8 (discussed above), Claim 14 ("[t]he method of claim 11 further comprising
providing a free play apparatus . . .") and Claim 16 ("[a] free play apparatus . . . comprising . . . (B) at least one processor,
the processor being adapted to perform at least the following: (a) store information about a progressive prize, including total
wager amount.") The fact that "storing" is specifically mentioned in other claims, but is not mentioned in Claim 11, supports
a finding that "determining" does not encompass the meaning "storing." See Phillips at 1315 ("the presence of a dependent
claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the
independent claim.")
Because we find that the role of "storing" is not disclosed in Claim 11, and it is disclosed in other claims, and because the specification supports a reading of Claim 11 that would not require the disclosure of "storing," we do not construe the meaning of "determining" to include the role of "storing." Therefore, we adopt a version of Plaintiff's proposed construction as follows: "determining" means "setting to a desired amount needed to finance the average prize value." n3

n3 From Plaintiff's three proposed terms, we adopt the one with the simplest and most neutral meaning: setting.

CPI argues that the district court incorrectly construed clause (a) of claims 1 and 4:

(a) determining a condition of the heart from among a plurality of conditions of the heart.

The court held that clause (a) is in the step-plus-function form of § 112 P6. 3 Implementing that holding, the court ruled that clause (a) "is limited to detecting and distinguishing among arrhythmia by analyzing the outputs of rate circuitry and PDF [probability density function] circuitry," the process in the '288 specification. The jury was instructed that unless a combination of rate output and PDF circuitry or the equivalent thereof was used in the St. Jude device, the claim was not infringed.

CPI states that this claim construction is incorrect, that clause (a) is not in § 112 P6 form and is not converted to that form simply because the preamble of the claim states that the invention is "the method comprising the steps of:". See claim 1, ante. CPI states that clause (a) simply recites a step that is part of the claimed method, and that absent the signal "step for" there is a presumption that a step does not invoke § 112 P6. The district court disagreed, stating that if clause (a) were construed as CPI proposes, it would "allow[] CPI to claim all possible methods of detecting heart arrhythmia." Concluding that the patent would thus "sweep[] too broadly," the court ruled that clause (a) covers only the specific procedures in the specification for determining the condition of the heart, and technologic equivalents of those procedures.

CPI is correct that "claiming a step by itself, or even a series of steps, does not implicate § 112 P6," as explained in O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582 (Fed. Cir. 1997). Thus clause (a) was inappropriately assigned to § 112 P6. However, removal of clause (a) from § 112 P6 does not automatically convert it into an open-ended step without limits. A claim limitation is always construed in light of the specification, whatever the form of the claim. See, e.g., Kinik Co. v. U.S. International Trade Comm'n, 362 F.3d 1359, 1365 (Fed. Cir. 2004) ("The words of patent claims have the meaning and scope with which they are used in the specification and the prosecution history."); Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998) ("The best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history."); Grain Processing Corp. v. American Maize Products Co., 840 F.2d 902, 908 (Fed. Cir. 1988) ("All claims must be construed in light of the specification and the prosecution history.").

CPI argues that upon the correct claim construction the "determining" step is not limited to any particular procedure, because the specification makes clear that various methods may be used to determine the condition of the heart. The specification, after describing the PDF circuitry, states that "conventional logic circuitry" can be used:
It is also to be noted that conventional logic circuitry can be provided for determining, based on the previously discussed inputs, the existence of various medical conditions, for example, ventricular tachycardia, ventricular fibrillation and supraventricular tachycardia. Such conventional logic circuitry can be provided either in the dedicated cardiac state evaluation circuit 34, or in one of the processors/controllers to be discussed below.

'288 patent, col. 10, lines 19-28 (emphasis added). CPI argues that the invention is not based on how the cardiac condition is determined, but on the treatment that is applied to that condition. CPI states that the rate plus PDF method is simply a preferred embodiment, and that this limitation should not be imported into the claim.

We conclude that the district court erred in applying § 112 P6. Method claims necessarily recite the steps of the method, and the preamble words that "the method comprises the steps of" do not automatically convert each ensuing step into the form of § 112 P6. Nor does the preamble usage "steps of" create a presumption that each ensuing step is in step-plus-function form; to the contrary, the absence of the signal "step for" creates the contrary presumption. The district court's claim construction is modified accordingly; the "determining" step must be construed, as for all claim steps, in light of the specification and the prosecution history. We remand to the district court for that purpose.

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B. '288 Claim 1 and 4: "determining a condition of the heart from among a plurality of conditions of the heart"

Claim 1 is incorporated by reference into Claim 4 of the 288 patent. Before the first trial, the court construed the "determining" step as a step-plus-function element that was illuminated by the patent's specification. The specification described the use of a combination of circuitry that measured the heart's rate and that used a technique known as probability density function, or "PDF." Using the step-plus-function approach, the court held before the first trial that the "determining" step was limited to methods using PDF as part of the process. The use of the step-plus-function approach was the reversible error at the heart of the Federal Circuit's remand.

Without using the mistaken step-plus-function mode of interpretation, the "determining" step is straightforward. The court intends to define "determining a condition of the heart from among a plurality of conditions of the heart" from Claim 1 for the jury as follows:

Detecting which one of a number of heart arrhythmias exists, i.e., whether there exists, e.g., tachycardia, fibrillation, or bradycardia, or whether there exists a normal sinus rhythm. This step of "determining" may merely analyze heart rate to determine the condition of the heart.

This construction very nearly reflects the claim construction proposed by CPI. n3

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

n3 The heart's condition should usually be determined as "normal," so the court has revised CPI's proposed construction to account for this happy circumstance.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

CPI's proposed construction is well-supported by the claim language. The "determining" step is the first step of a method for treating arrhythmias, rhythm disorders that typically result from problems with the heart's electrical system. The claim preamble calls for a device "capable of detecting a plurality of arrhythmias." The "determining" step is the only step in the claim that could address that basic requirement for the ICD. The "determining" step itself is not novel -- it merely represents the initial step where one learns whether anything is wrong with the heart's rhythm, and if so what the problem is.

St. Jude argues that CPI's construction equates "determining a condition of the heart" with "detecting an arrhythmia," and that this is contrary to the claim language, specification, and prosecution history of the 288 patent. St. Jude argues that a "condition," as opposed to an "arrhythmia," can be determined only by logically analyzing both rate and PDF inputs.
St. Jude's proposed construction tries to complicate a simple element of the claim. Although the use of different claim terms can create a presumption of different meanings, see CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000), this principle does not dictate the outcome here. The ordinary meaning of an "arrhythmia" is an irregular heartbeat. Remand Docket No. 107, CPI Ex. 13 at 7 (Dr. Berger's report: to one of ordinary skill in the art, "the only difference between an arrhythmia and a condition of the heart is that the term condition of the heart' would include a normal condition "). At the time of invention, several methods for detecting arrhythmias were well-known, and prior art had disclosed the use of rate circuitry alone. See Remand Docket No. 107, CPI Ex. 13 at 8-10 (Dr. Berger's report); Remand Docket No. 120, CPI Ex. 15 at 51-55 (Dr. Mihran's testimony that rate detector circuitry can detect conditions of bradycardia, tachycardia, and fibrillation).

The specification also supports CPI's proposed construction. The specification repeatedly refers to an "arrhythmia" as a "heart disorder." See 288 patent, col. 1, ll. 23-28, 38, 53-54, 62-63; col. 4, ll. 8-10; col. 7, ll. 23-33 (describing object of invention to provide device and method capable of electrical heart stimulation "in response to detection of the occurrence of various heart disorders or arrhythmias"). Most important, CPI's proposed construction avoids, and St. Jude's invites, "one of the cardinal sins of patent law" -- reading specific limitations in a specification's disclosed embodiment into the broader claim. See Phillips, 415 F.3d at 1320, 1323. The 288 specification discloses an embodiment that uses both rate and PDF detection circuitry to determine a heart's condition. See 288 patent, col. 9, l. 59 -- col. 10, l. 28. However, apart from the rejected step-plus-function mode of interpretation, there is no indication that this disclosed embodiment was meant to exclude or disclaim devices that use rate circuitry alone. As CPI points out, no particular circuitry is discussed in the patent's abstract, background of the invention, summary of the invention, or objects of the invention.

This case is readily distinguishable from both SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337 (Fed. Cir. 2001), and Wang Laboratories, Inc. v. America Online, Inc., 197 F.3d 1377 (Fed. Cir. 1999), where the court held that the patentees intended to claim only the preferred embodiments disclosed in their respective specifications. In SciMed, the patent specification criticized a dual lumen structure for catheters and stated that a coaxial lumen structure, the only alternative, was "the basic sleeve structure for all embodiments of the present invention contemplated and disclosed herein." 242 F.3d at 1339. Based on this language in the specification, the Federal Circuit held that SciMed had disclaimed dual lumen catheters. Id. at 1343-44. Similarly, in Wang Laboratories, the court held that only the specified protocol was claimed, since the specification would not be understood by a person skilled in the field of the invention as including the other possible embodiment. 197 F.3d at 1382. Although the parties in Wang Laboratories agreed that the term "frame" could theoretically apply to either character-based or bit-mapped display systems, the specification's consistent illustration of "frame" using character-based protocol and the patent's prosecution history indicated that the claim referred only to character-based systems. Id. at 1382-84.

In this case, the 288 patent's claim language, specification, and prosecution history do not disclaim detection methods that are not "rate plus PDF." See, e.g., 288 patent, col. 10, ll. 19-23 (stating that "conventional logic circuitry can be provided for determining, based on the previously discussed inputs, the existence of various medical conditions, for example, ventricular tachycardia, ventricular fibrillation and super-ventricular tachycardia"). Absent specific reasons dictating a narrow claim construction, a particular embodiment in a specification will not limit broader claim language. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 907 (Fed. Cir. 2004).

St. Jude also contends that CPI's proposed construction of Claim 4 would render it invalid, and St. Jude points out that a claim ordinarily should not be construed in a manner that would render it invalid. See Phillips, 415 F.3d at 1327; Carman Indus., Inc. v. Wahl, 724 F.2d 932 (Fed. Cir. 1983). St. Jude argues that CPI's construction places no limit on how a heart condition is determined and therefore poses a host of invalidity problems, such as indefiniteness, failure to meet written description requirements, failure to enable, and anticipation. St. Jude argues that acceptance of CPI's construction for the "determining" step would allow non-ICD devices such as pressure monitors, stethoscopes, and oxygen monitors to fall within the claim.

The claim language and specification strongly support CPI's broader construction of the "determining" step element of Claim 4. Moreover, it is not clear at this point that CPI's construction will lead to invalidity of the claim. The preference for claim constructions supporting validity is essentially a last resort, to be used only when the other tools for interpreting ambiguous claims have been exhausted. See Phillips, 415 F.3d at 1327-28 (noting that the doctrine of construing claims to preserve their validity is of "limited utility" and applies only when claim is ambiguous after applying all other tools of claim
construction); see also Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356 (Fed. Cir. 1999) (doctrine not applicable where claim is reasonably susceptible of only one meaning). The consequences of the court's adopted construction are best addressed in the context of St. Jude's pending motion for summary judgment of invalidity or at trial.

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4. Claim 1: Step (c)

Text:

determining a first position of a second imaging device with respect to the second coordinate system of the operation site;


ZMED'S Proposed Construction:

Determining the position of the second imaging device (e.g., the ultrasound probe) relative to the second coordinate system (the treatment device coordinate system, the second device coordinate system, etc.).

ZMED Opening Brief at 8.

NOMOS's Proposed Construction:

NOMOS agreed at oral argument with ZMED's construction up to the point at which ZMED suggests that the second imaging device would be placed relative to a second coordinate system, "(the treatment device coordinate system, the second device coordinate system, etc.)." Oral Argument at 67.

Construction:

Step (c) means "determining the position of the second imaging device (e.g., the ultrasound probe) relative to the second coordinate system."

Commentary:

The additional detail that ZMED wants, "(the treatment device coordinate system, the second device coordinate system, etc.)," is unnecessary and not within the claim language, and therefore is omitted.

1263

Determining a number of categories which are to be represented in a display and Determining a number of categories which are to be represented in the display

The Court agrees with Sklar that the terms have their plain ordinary meaning and do not require construction. Microsoft argues the terms should be construed to mean "determining the number of categories which contain one or more items. Each of those categories shall be shown in the display with a category label."

Microsoft's proposed construction has two parts. The first part requires "determining the number of categories which contain one or more items." Sklar concedes that all categories have one or more items. Sklar does argue, however, that Microsoft's proposed construction seeks to change the claim language. The '843 patent claim language recites "determining a number of categories which are to be represented in a display" and not as Microsoft argues "which contain one or more items." Instead of "determining [which categories] are to be represented in the display," Microsoft requires an additional step of "determining" how many categories have one or more items and those categories would then be represented in the display. This additional step is not supported by the claim language and
the Court rejects Microsoft's argument.

The second part of Microsoft's proposed construction requires that "each category which is to be represented in a display" actually be shown in the display with a category label. Microsoft argues that the patents-in-suit specifications are consistent with its construction that all category labels, open and unopen, be represented in the display. Microsoft points to Fig. 11 of the '843 patent that shows category labels for an unopened category and for an opened category. Additionally, Microsoft points to the patents-in-suit specifications for support:

To automatically determine which categories to open, a processor, such as the CPU shown in Fig. 5 and described above, determines how much space is available after the display of the category labels, and then opens categories beginning with the smallest category, until there is no space left in the display to open another category.

'843 patent, Col. 10:54-60 (emphasis added). Claim 5, however, of the '843 patent states:

5. A method of presenting a user with selection of items, wherein each item is characterized as being a member of one category selected from a plurality of categories, the method comprising the steps of:

. . .

determining how much of the display area would be left over area, if any, after display of category labels representing items;

. . .
displaying an item label for each item in the at least one open category and other open categories, if any, and a category label for each unopen category.

'843 patent, Col. 12:9-25 (emphasis added). Microsoft's construction attempts to require that which Sklar specifically left out of the claims. The patents-in-suit claim language requires display of category labels for unopen categories that represent items. The claim language specifically does not require the display of category labels for opened categories since all of the items in the opened category are represented by item labels in the display. Therefore, Microsoft's argument is rejected because it seeks to add limitations that are not supported in the claim language of the patents-in-suit.

The words are so common and simple that a lay juror would have no difficulty in understanding them. See Philips, 415 F.3d at 1314. It is difficult to conceive of a more clear way to convey the meaning of these terms. Accordingly, the Court does not construe these terms.

1264

3. "determining a rescue stage from the measured resistance"  

Claim 27 of the '281 Patent discloses a method of monitoring the stage of a rescue procedure of an AED including a step of "determining a rescue stage from the measured resistance." The parties dispute the meaning of this phrase. Philips asserts that the phrase should be construed as "measuring the impedance at the electrodes and comparing the measured impedance to stored values to determine which of the five rescue stages the AED is in." Cardiac Science contends that the word "stage" means "step," and that no further construction is necessary.

The specification teaches that the impedance values indicate the stage of a rescue procedure. ('281 Patent at c. 9, ll: 1-5.) Specifically, the AED compares the impedance values to stored values and then determines the stage of rescue. (Id. at c. 9, ll: 17-46.) Thus, the Court construes "determining a rescue stage from the measured resistance" as "measuring the impedance at the electrodes and comparing the measured impedance to stored impedance values to determine which stage the AED is at during a rescue procedure."
A. "Determining a set of three dimensional coordinates using information identifying a position in said environment and a three dimensional model of at least a portion of said environment"

Claim 1 of the 406 patent claims:

A method of adding a graphic to a video representation of an environment, said method comprising the steps of:

(a) determining a set of three dimensional coordinates using information identifying a position in said environment and a three dimensional model of at least a portion of said environment, wherein said set of three dimensional coordinates corresponds to said position and includes at least one three dimensional coordinate not listed in said information;

(b) converting said set of three dimensional coordinates into a set of two dimensional positions in said video representation; and

(c) enhancing said video representation with said graphic in an area based on said set of two dimensional positions.

Sportvision contends the phrase should be construed as: "A set of three data values that together identify a location are determined based on data about a position, and a model that describes at least a portion of the environment seen in the video." (Sportvision's Memo at 17.)

SportsMEDIA proposes the following construction: "Determining a set of three dimensional coordinates using information identifying a position in said environment and a three dimensional model of at least a portion of said environment." (SportsMEDIA's Memo at 20.)

The 406 patent description calls for the three dimensions to be represented by the letters x, y, and z:

In one embodiment, each data point includes x, y and z values. Any method can be used to obtain these x, y and z values. One example of a suitable method is to use a laser plane for z values and a laser range finder for x and y values, or other surveying devices.

'406 patent, 9:36-43.

This description is also a common convention in geometry.

Accordingly, the Court construes the phrase to mean: "Determining a set of three-dimensional coordinates (x, y, z), using information identifying a position in the environment and using a three-dimensional model (represented in x, y and z coordinates) of at least a portion of the environment."
Pinpoint's citation to claims in the '257 patent with highly particularized mathematical algorithms for finding a subset of data is instructive. Compare Def. Mem. at Ex. 1, Col. 52, Claim 1 ("relating said selected customer profile with the content profiles for the data available from each data source to the customer at a particular time by determining a distance between a customer profile and a content profile in a characteristic space by calculating an agreement scalar for common characteristics, ac, between said selected customer profile, cv, and said content profiles, cp, in accordance with [a] relationship [determined with reference to a specific mathematical equation]") with Def. Mem. at Ex. 1, Col. 55, Claim 43 ("relating said at least one customer profile with the content profiles for the data available from each data source to the customer"). The non-restrictive language of Claim 43 dooms Amazon's proposed construction and counsels a broader construction. The term "match" is construed not with reference to specific mathematic algorithms, but in accord with its general definition of "a suitable pairing of persons or objects." Pl. Opp. Mem. at 23 (quoting Webster Dictionary at 455). The court construes the disputed phrase as "finding the subset of data having content profiles that comprise the most suitable pairings to the customer profile."

1267

5. Determining a total cost of the transaction that includes a price of the product

--- Footnotes ---
n6 This term is also used in Claim 13 of the '020 Patent.

--- End Footnotes ---

DE contends that "determining a total cost of the transaction that includes a price of the product" means "determining a total cost of the transaction for obtaining a selected product at a selected destination that includes a price of the product." Dell asserts that the phrase means "calculating all costs, including the price of the product." As the parties recognized at the Markman hearing, they are generally in agreement on the meaning of this term. See Hearing Tr. vol 2, 119, Nov. 9, 2005.

The court cannot broaden or narrow claims in a way that gives the patentee a different claim than he has set forth. Texas Instruments v. United States ITC, 988 F.2d 1165, 1171 (Fed. Cir. 1993). The court therefore rejects Dell's replacement of the word "determining," with "calculating."

Dell also proposes that all costs must be determined at this step; DE stresses that while the total cost must be determined, all component costs do not have to be determined at this stage. DE recognizes that such a determination would render element (f) of Claim 1, "determining a total cost of the transaction that includes a price of the product," superfluous because element (e), "calculating costs involved in moving such product to said destination," would have involved the determination of some of these costs. The court must presume that all claim terms have some meaning in a claim, and therefore declines to adopt Dell's construction. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1119 (Fed. Cir. 2004).

The court agrees with DE's construction, and construes this phrase as "determining the total cost of the transaction borne by the buyer for obtaining a selected product at a selected destination that includes the price of the product."

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(1) determining a twist of clothes being washed in a washer

The parties dispute the term "determining a twist of clothes being washed in a washer," which appears in Claims 1, 3, and 4. LG proposes construing the term to mean "determining a bundling [i.e., uneven distribution] of clothes being washed in a washer." (Chart at 1.) Whirlpool proposes instead that the term be construed to mean "deciding whether clothes being washed in a washer are entwined together." (Id.)

In arguing that the term "determining" should be construed as "deciding," Whirlpool refers to the written description, which
states that "[w]hen the correlation coefficient of Y(n) has been determined to be higher than the [] reference value . . . , the clothes is determined as having been twisted . . . ." (474 Patent, col. 9, ll. 19-22.) The Court finds nothing in that description to support Whirlpool's argument that the term "determining" means "deciding," rather than its plain meaning. The Court therefore rejects that aspect of Whirlpool's proposed construction.

With respect to the term "a twist of clothes," however, the Court agrees with Whirlpool that the term should be construed to mean "clothes . . . entwined together." The background section of the patent states that "cloths of the clothes may be damaged when operations in the washing mode and the rinsing mode are continued under a condition that the clothes has been twisted . . . ." (Id., col. 1, ll. 40-43.) "Moreover, there is a problem that the washing degree is degraded at the twisted portion of clothes." (Id., col. 1, ll. 44-46.) The summary section states that "an object of the invention is to provide an apparatus for and a method of determining a twist of clothes being washed in a washer, . . . . so that when the clothes twist signal is a meaningful signal, an operation in a clothes untwisting mode is carried out for minimizing a damage of the clothes . . . ." (Id., col. 1, ll. 49-57.) The written description states that the invention makes it "possible to minimize a damage of clothes and improve the washing degree degraded at the twisted portion of clothes." (Id., col. 9, ll. 32-35.) It is clear, then, that "a twist of clothes" was understood to result in damage to the clothes and degradation of the washing degree at the twisted portion. That limitation comports with Whirlpool's proposed construction, "clothes . . . entwined together." In contrast, LG fails to explain how "bundling [i.e., uneven distribution]" of clothes would result in damage at a bundled, unevenly distributed portion of clothes.

The Court therefore construes the term "determining a twist of clothes being washed in a washer" as "determining whether clothes being washed in a washer are entwined together."

Sub-step (b)(1) of Claim 1 is "determining an initial benefit payment." The parties' disagreement regarding this phrase rests with the difference on whether the first benefit payment should be defined to occur in the post-annuitization phase of the contract. The Defendant argues that it should be. It also narrows the term by submitting that the first payment is based upon pre-existing formulas. The Plaintiff denies a requirement of any pre-existing formulas and defines the term "first benefit payment" as "a first amount of money to be paid under the annuity contract." (Pl. Br. at 25; DE 34.)

For the reasons stated above, the Court declines the Defendant's invitation to import into Claim 1 the concept of pre-existing formulas. As to the parties' second contention, the Court notes that, by definition, the first payment, since it is not a withdrawal, must take place in the distribution phase, also known as payout or post-annuitization phase. The same is true of "subsequent periodic benefit payment."

StorageTek's proposed construction of this element is "selecting a particular network policy from a pre-existing group of such policies." Cisco's proposed construction is "selecting a particular network policy from a pre-programmed group of such policies." The parties agree that in the claimed invention there is a group of network policies from which a particular network policy is selected after a PDU is received and that the policies must exist before a PDU is processed. The dispute is whether the group of policies must be "pre-existing" or "pre-programmed." StorageTek objects to the word "pre-programmed" because use of that word evokes "connotations that are not relevant to the claimed invention." See StorageTek 040 Brief at 10. Cisco responds that StorageTek's construction is inconsistent with the 040 patent which incorporates the word pre-programmed with respect to the network policies and the prosecution history which discusses the network policies as having been "programmed" into the device. See 040 Patent, Col. 2, In. 19-21 ("network policies which have been programmed into the device"); Declaration of Theodore T. Herhold ("Herhold Decl."), Exh. E., 5/8/98 Response at 4 (quoting background of invention portion of specification mentioning "programmed"). 15 Additionally, StorageTek does not
adequately explain to the Court why the term pre-programmed, which is used in the summary of invention part of the specification, is inconsistent with the claim language.

15 Cisco also argues that this construction is consistent with the inventor testimony of Mr. Olson. See Declaration of Steve A. Olson PP 12-15. To the extent that Mr. Hughes' inventor testimony is inconsistent with Cisco's use of the word "pre-programmed," see Hughes Decl. P 20 ("policies can be created by making policy lists, also known as access control lists"), Cisco argues that Mr. Hughes' declaration testimony is inconsistent with his deposition testimony and therefore, should be discounted. See Herhold Decl., Exh. D, Deposition of James Hughes at 51:12-14 ("we did not implement access control lists, we implemented access control policy, which was a program that contained, tests, branches and actions"). While StorageTek argues that Cisco "selectively" cropped the Hughes' deposition testimony, StorageTek does not provide the Court a copy of the earlier deposition testimony relied on by StorageTek to demonstrate why the Court should not find Mr. Hughes' deposition testimony inconsistent with his declaration.

Therefore, the Court finds that "determining an instance of protocol data unit (PDU) network policy from a plurality of policies" should be construed as:

selecting a particular network policy from a pre-programmed group of such policies
Flow argues for the following construction: "Creating movement directives that compensate for lead and taper errors. Adjusting does not require readjusting after the motion control commands have been determined and generated (e.g. after the program is built and sent for execution)." Omax argues that it should be understood to mean: "the motion control commands are changed or altered after having been determined and generated."

The argument here stems from the meaning of the word adjusted. Flow argues that the determining and generating process "adjusts" the instructions so that, when that process is done, they are already "adjusted" to compensate for errors. Omax argues that adjusted means modified, and suggests that after the instructions are determined and generated, they are then adjusted to compensate. Contrary to Omax's argument, both uses of this word constitute "plain meaning": "adjusted adj 1 a: accommodated, altered or revised to suit a particular set of circumstances or requirements b: having achieved a harmonious relationship with the environment or with other individuals." Webster's Third New International Dictionary 27 (1981). Because both approaches are consonant with the word's plain meaning, the Court looks to the specification for guidance. Phillips, 415 F.3d at 1313 ("[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.").

The specification supports Flow's approach, which construes "adjusted" as signifying that the motion instructions are already adjusted upon their determination and generation. According to the specification, after the "optimal values for the taper and lead angles at each endpoint of each drawing entity as a function of the speed of the cutting head at that point" are generated, the Dynamic Waterjet Control System ("DWCS") then "builds the final motion program making adjustments to the motion program data structure as necessary for the particular jet controller in use." '452 Patent, col. 8, 11. 2-21. In figure 5 of the '452 patent, the building process occurs in step 507, and afterward instructions are sent to the controller for execution. Thus, there is no adjustment after the determination and generation of the instructions. The Court adopts Flow's proposed construction.

We next address method claim 1 of the '997 patent. It includes a determining step rather than a determination means, but it is not drafted in "step plus function" form. That is because it does not recite a function. See 35 U.S.C. § 112, P 6 (1994). Rather, it recites only the act of determining a last-dialed digit. Therefore, we must simply apply the claim language to the accused devices free from the limiting requirements of section 112, P 6. It is clear from the specification that the determining step determines when a last digit is dialed, as explained above. The accused Dial Jack device and MiniDial version I and II devices perform that step, which is the only limitation arguably in question. Serrano also does not dispute that the accused devices contain the limitations of the asserted dependent claims of the '997 patent. There is thus no genuine issue of material fact concerning whether the accused Dial Jack device and MiniDial version I and II devices are within the scope of any of the asserted claims of the '997 patent.

Determining how much of the display area would be left over area, if any, after display of category labels representing items

The Court agrees with Sklar that the term has its plain ordinary meaning and does not require construction. Microsoft argues the term should be construed to mean "determining the area remaining after display of category labels for all categories containing one or more items."

The primary dispute centers on whether category labels for both open and closed categories must be displayed. Microsoft contends the specification supports its argument:

To automatically determine which categories to open, a processor, such as a CPU shown in Fig. 5 and described above, determines how much space is available after display of the category labels, and then opens categories beginning with the smallest category, until there is no space left in the display to open another category.
'843 patent, Col. 10:54-60 (emphasis added). This statement, however, does not make any clear distinction between open and closed categories when determining the space available after the display of category labels. Microsoft also points to Fig. 11 that displays category labels for an opened category 904a as well as for closed categories 904. As discussed earlier, however, the claim language does not require the display of category labels for opened categories. Sklar specifically left out this requirement from the claim language. Therefore, Microsoft's argument that opened category labels must be used in the determination of how much display area would be left over after the display of opened categories is not supported by the teachings of the specification and contrary to the claim language.

The term is so common and simple that a lay juror would have no difficulty in understanding it. See Philips, 415 F.3d at 1314. It is difficult to conceive of a more clear way to convey the meaning of this term. Accordingly, the Court does not construe this term.

i. Determining if an image element is defective

Based on the joint chart, it appears that the parties' views align regarding the phrase "determining if an image element is defective." IPI construes the term "defective" to mean an element lacking the desired value, such as an image element having an artifact. Sony proposes that the phrase in its entirety should be construed as deciding whether or not an image element is defective. IPI's definition does not account for the term "determining" and Sony fails to define the term "defective." Combining the two definitions, the Court adopts the following construction of this phrase: deciding whether or not an image element lacks the desired value.

12. Determining if the cookie for the current web site visit has expired (First appearing in claim 1 at col. 12, ll. 62-64, and as similarly appearing thereafter in claims 1-31, e.g. "determines if the cookie . . ." appearing in claim 22)

Websidestory contends that the term "determining if the cookie for the current website visit has expired" does not require construction. Joint Claims Construction Chart at 5. Netratings contends that the term should be construed to mean "determining whether a preselected time limit has elapsed between requests for a page at the particular website to distinguish separate visits to the same website." Joint Claims Construction Chart at 5. Netratings further contends that without construction of this term, it will be impossible to determine whether a website visit is "current." Websidestory rejects Netratings' proposed construction as improperly using the specification to limit the scope of the '479 Patent.

The Court has already construed the term "current website visit," and the Court has rejected Netratings' argument that the expiration of a cookie must be tied to the passage of time. Accordingly, in order to construe the term "determining if the cookie for the current website visit has expired," the court need only construe the phrase "determining if the cookie . . . has expired." With respect to this language, however, the Court concludes that the meaning is readily apparent, and no construction is necessary. Phillips, 415 F.3d at 1313; see also Lucent Technologies, 367 F. Supp. 2d at 657-59 (in accordance with their ordinary meanings, "marking" is construed to mean "marking," and "bytes" is construed to mean "bytes").

5. "Determining that an operating characteristic of said method should be scaled from a first level to a second level based on said feedback signal received from said receiver" (Claim 1)

This phrase is the source of four distinct disputes between the parties. For ease of analysis, the Court addresses each component separately.
The first dispute is whether the decision to scale an operating characteristic must be based on only one feedback signal, as Broadcom contends, or whether it can be based on more than one feedback signal, as Agere contends. In the claim text, this dispute concerns the meaning of the phrase "said feedback signal" and its referent, "a feedback signal." Claim 1 is a method claim that recites three steps for "providing communication signals according to operating parameters" using OFDM. ('550 patent, col. 10, ll. 58-60.) The three enumerated steps are introduced in the claim language by the transition word "comprising" and generally consist of: (1) receiving a feedback signal; (2) determining that an operating characteristic should be scaled; and (3) dynamically scaling the operating characteristic. (Id., col. 10, l. 64-col. 11, l. 8.) In method claims, the transition "comprising" is a term of art that indicates to patent practitioners that the claim is "open-ended and allows for additional steps." Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368 (Fed. Cir. 2003). Thus, when the "comprising" transition is used, steps beyond those recited in the claims may be performed. Id.

In claim 1, the first two steps in the method described consist of "receiving a feedback signal from a receiver" and determining that an operating characteristic should be scaled "based on said feedback signal." ('550 patent, col. 10, ll. 64, 66.) As claim 1 is a comprising claim in which steps beyond those recited may be performed, the system described may receive additional feedback signals before the second step, i.e., the determination to scale, occurs. Notably, however, the claim language states that the second step, i.e., the determination to scale, must be based on "said feedback signal." The singular form of the phrase "said feedback signal" in the second step and its referent, "a feedback signal" implies that although many feedback signals may be received by the receiver, only one feedback signal is the basis for the decision to scale. 9 Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1024 (Fed. Cir. 1997) (finding, in context of comprising claim, that "this term itself, 'said chamber,' reinforces the singular nature of the chamber"); see also N. Am. Vaccine, Inc. v. Am. Cyanamid Co., 7 F.3d 1571, 1575-76 (Fed. Cir. 1993) (acknowledging that patent parlance construes "a" to connote "one or more," yet holding that "there is no indication in the patent specification that the inventors here intended it to have other than its normal singular meaning").

9 Agere agreed with this conclusion in its reply brief, stating that, "accordingly, the claim allows many other feedback signals to be used by the receiver. The claim merely demands that one of them be used as a basis for making a determination." (Agere Reply at 14.)

At the Markman hearing, Agere argued that Broadcom's expert, Dr. Cox, admitted in his deposition that the determination to scale could be based on multiple feedback signals. (R. 58 (May 7, 2004).) In support, Agere quoted a portion of Dr. Cox's deposition in which he stated: "It could be more than one feedback signal, and each - well, if there is more than one feedback signal, the transmitter could evaluate more than one feedback signal." (Agere's Post-Markman Br. Ex. 2 (quoting Cox Dep. at 28-29).) The excerpt, however, does not lead the Court to the conclusion Agere suggests. In context, Dr. Cox is referring to Broadcom's proposed construction, which, in relevant part, states that "the transmitter evaluates one feedback signal as it is received from a receiver, and based on that evaluation makes a decision that at least one operating characteristic . . . must be scaled." In other words, the transmitter can evaluate a feedback signal, or even several feedback signals, without making the determination to scale. Thus, Dr. Cox's admission that more than one feedback signal can be evaluated does not necessarily lead to the conclusion that the determination to scale an operating parameter, which, according to the claim language, is "based on said feedback signal," could be based on more than one feedback signal. Rather, as noted previously, the patent contemplates that, while multiple feedback signals may be received, only one feedback signal may be the basis for the decision to scale. Furthermore, Agere's own expert stated in his report that "one of ordinary skill in the art would understand that 'based on said feedback signal' means that the determination of whether the operating characteristic in question should be scaled is based, in part, on the feedback signal." (Goodman Rep. P 13 (emphasis added).) Therefore, according to the claim language, although the transmitter may receive more than one feedback signal, the determination to scale an operating parameter must be based on one feedback signal.

b. "determining that"
The second dispute is whether there must be a scaling event after each evaluation of a feedback signal by the transmitter, as Broadcom contends. Broadcom's argument is based on a comparison of the language used in the "determining" step of claim 1 to that used in the "determining" steps of claims 15 and 21. Claim 1 teaches a transmitter "determining that an operating characteristic . . . should be scaled," whereas the transmitters of claims 15 and 21 "determine[] whether" scaling should occur. (‘550 patent, col. 10, l. 65, col. 12, ll. 11, 63.) According to Broadcom, the phrase "determining that" suggests that an affirmative decision to scale must occur after each feedback signal is received.

The Court rejects Broadcom's position. First, the conclusion that the evaluation of a feedback signal does not necessarily result in a scaling event is a necessary corollary of the Court's determination above that the transmitter may receive multiple feedback signals before the decision to scale occurs. Second, Broadcom's argument is belied by the claim language because the word "determining" itself suggests that, after the evaluation of a feedback signal, the system may either: (1) decide to scale; or (2) decide not to scale. (See Goodman Rep. P 8 (citing Webster's II New College Dictionary definition of "to decide or settle").) Accordingly, the claim does not require that a scaling event occur after each evaluation of a feedback signal.

c. "from a first level to a second level"

The third dispute concerns whether the phrase "from a first level to a second level" should be construed to mean "from a current level to a second level," as Broadcom contends, or should not be construed at all, as Agere argues. The Court agrees with Agere that the plain language of this claim term is clear to both skilled artisans and laypersons alike. As Agere's expert stated, one of ordinary skill in the art "would understand 'first level' and a 'second level' to refer to two different levels, the 'first level' being the level of the operating characteristic before the operating characteristic is scaled and the 'second level' being the level of the operating characteristic after the operating characteristic is scaled." (Id. P 11.)

Despite Dr. Goodman's explanation, which seems eminently logical to the Court, Broadcom asks the Court to construe the phrase "first level" to mean "current level." Broadcom, however, fails to offer any specific support for its construction, merely stating, "if the claimed 'first level' is not the 'current level,' what else could it be?" 10 (Broadcom Resp. at 35.) As there is no clearer way to define this claim term than the language of the claim itself, and as Broadcom has offered no support for its differing construction, the Court finds that the term does not need construction. See, e.g., W.E. Hall Co. v. Atlanta Corrugating, LLC, 370 F.3d 1343, 1350 (Fed. Cir. 2004) (affirming district court determination that term "single piece" was "sufficiently clear to make even resort to the dictionary unnecessary"); Applera Corp. v. Micromass UK Ltd., 186 F. Supp. 2d 487, 508 (D. Del. 2002) ("[Plaintiff] believes such a construction by the court to be unnecessary because 'a rod is a rod.' The court agrees and believes the proper construction of rod to be self-evident."); ASM Am., Inc. v. Genus, Inc., 260 F. Supp. 2d 827, 850 (N.D. Cal. 2002) ("The Court agrees with [plaintiff] that there is no better way to define 'generally circular' than to simply say 'generally circular.' Accordingly, the Court declines to construe the term.").

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10 In fact, Broadcom's expert, Dr. Cox, does not even address this term in his expert report.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

d. "feedback signal"

The Court construes "feedback signal" as discussed above. See supra Part II.B.1.

e. Conclusion

The following construction is adopted: "Deciding whether an operating characteristic should be scaled from a first level to a second level based on the feedback signal from the receiver."

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i. Determining the difference between image elements . . . such surrounding image elements
IPI construes the limitation "determining the difference between image elements . . . such surrounding image elements" to mean calculating the difference between two or more surrounding image elements to determine their similarity. Sony urges the Court to construe the limitation as involving subtracting a value representing at least one of the image elements provided by the providing step, from a value representing at least another of the image elements provided by the providing step, for the purpose of deciding how similar to one another such image elements are. These proposed constructions differ only slightly, as "calculating the difference" can suggest a subtraction function. The Court adopts IPI's proposed construction because it presents a more streamlined definition, and the specification discusses the calculation in terms of "computing pair differences" and "to determine the relative difference." U.S. Patent No. 6,529,637, col. 17, lines 14-18 (emphasis added).

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(5) In Claim 1 of the '132 patent, "determining the duration of the color stripe burst" means "determining the duration of the color stripe burst, which may include obtaining an average phase signal from the color burst."

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2. "determining positions of the increased intensity portions"

Much of the foregoing explication of the "defining . . . axis" term applies to this claim term as well. Like "defining," "determining" connotes an act; like "defining," "determining" must occur at some location; and like "defining," "determining" is not hitched to a particular physical location, including the Fourier transform plane. The plain language of claim 12 requires only that positions of increased intensity portions be determined in accordance with the mask pattern such that a first- and second-diffracted light passes through a common area of the projection optical system. In this, claim 12's focus is largely spatial, articulating, inter alia, a general structure of planes and portions and patterns. But the claim does not demand that the "determining" occur at any particular location. See, e.g., '041 Patent at 3:52-4:17; id. at 13:55-14:43; see also id. at figs. 2-4. Where no limitations exist in the claim language, and where no limitations are otherwise required to construe a claim properly, the court is reluctant to import claim-text limits. For this reason, the court will not import the "on the Fourier transform plane" language ASML sets forth. Instead, adhering to the plain meaning of the claim term, the court construes "determining the position of the increased intensity portions" to mean "setting or ascertaining the spatial arrangement of increased intensity portions of light."

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5. "DETERMINING THE TOTAL DELIVERY TIME . . . TO THE USER"

AOL: "Determining the time between the start and end of receipt by the user."

TWM: No construction required.

In the alternative, "Determining the time between the start of transmission and the end of transmission to the user."

The parties agree that the sole dispute is over the meaning of the word "delivery." The Court must decide if it means "receipt" or "transmission." AOL argues that "delivery" means "receipt"; TWM argues that "delivery" means "transmission." (See D.E. 68, pg. 9).

AOL states that the claim and specification are equivocal and thus, the Court should examine the prosecution history. TWM argues that an examination of the specification impels the Court to side with its definition. As noted above, claims are decided based on the language of the claims and the specification. See, e.g., Vitronics, 90 F.3d at 1582. The reason the Federal Circuit is loath to give deference to prosecution history is because the prosecution history represents an "ongoing negotiation between the PTO and the applicant . . . it often lacks the clarity of the specification and thus is less useful for
claim construction purposes." Phillips, 415 F.3d at 1317.  

Here, the customary definition of "delivery" is the carrying and turning over of goods to a particular recipient or the act of conveying. THE AMERICAN HERITAGE DICTIONARY 378 (2d College ed. 1982). TWM argues it uses the word "delivery" in the same manner, although in the context of computer networking. An inspection of the claim language and the specification reveals that TWM is correct. Specifically, it states: "In the preferred embodiment, the information being delivered is high-quality audio." (D.E. 1, Exh. A, col. 2). The specification later states that users will be "receiving the information being delivered" by the computer network. Id. Substituting the word "receipt" in place of "delivered" in the specification would render the sentences incoherent.  

The Federal Circuit has cautioned that constructions that would exclude coverage of the preferred embodiment are "rarely, if ever, correct." Vitronics, 90 F.3d at 1583. AOL's argument, that delivery means receipt, would exclude the preferred embodiment and thus violate of this rule. 

Because an ordinary skilled person in the computer networking field would understand "delivery" as the carrying and turning over of data, the Court rules that no construction is required on this disputed term.  

1. "Determining when the cruise control is engaged"

With respect to the second element of Claim 1, Detroit Diesel contends that the cruise control must be either engaged or not engaged, that the cruise control is engaged when the on/off switch is closed, and is not engaged when the switch is open or the brake or clutch is depressed. To support the meaning it ascribes to the word "engaged," Detroit Diesel refers the court to the portions of the specification that explain that "when the switch 48 is closed, a signal is passed to the road speed limit and cruise control 44 to engage the cruise control mode of operation," col. 4, lines 29-31, and that "when either the brake pedal 52 or clutch 54 is depressed," the "cruise control mode of operation" is "disengaged." Detroit Diesel also refers the court to Figure 1 of the '597 patent, in which switch (48) is represented as "ON/OFF."  

Caterpillar asserts that the cruise control is engaged when the on/off switch is activated, a vehicle speed is entered, and vehicle speed control is released from the throttle to the engine controller. To support its definition of "engaged," Caterpillar refers the court to the "set" step (50) in the patent's Figure 1, and to the affidavit of Michael Moncelle, the first named inventor of the '597 patent. Mr. Moncelle explains that "it is common and accepted knowledge to one of ordinary skill in the art for engine cruise control systems that an engine cruise control is 'engaged' when it is activated and capable of controlling the engine to maintain a specified vehicle speed," which occurs "only after the cruise control has been activated by turning the feature on, and the vehicle speed has been entered through the set or resume functions." Moncelle Aff., P 4. Caterpillar also cites the affidavit of its expert, James Amend, who explains that "the only interpretation of the word 'engage' in Claim 1 which is consistent with how a cruise control works, the purpose of the invention and the preamble to Claim 1, is that it means: on and set above the minimum, and not disengaged by depressing the brake or clutch." Amend Aff., P 29.  

Although the portion of the specification that states that "when the switch 48 is closed, a signal is passed to the road speed limit and cruise control 44 to engage the cruise control mode of operation," col. 4, lines 29-31, appears to define the cruise control as "engaged" when the switch (48) is "on," reference to the entire specification confirms that the second element of Claim 1 uses "engaged" in its ordinary sense, i.e., "employed." American Heritage Dictionary of the English Language 433 (1981). The cruise control is engaged when it is operating to control the vehicle's speed. This definition is consistent with the patent's preamble, which describes the invention as a "method of operating a vehicle engine (12) equipped with a cruise control (44) which is engageable to control the speed of the vehicle . . . ." It is also consistent with the patent's purpose, described in the specification: "Thus, when the cruise control is engaged, a higher engine output power is available, if needed, so that an operator is less likely to have to downshift in order to provide the torque required to maintain the actual vehicle speed at the desired vehicle speed." The use of "engaged" in this context cannot simply mean that the on/off switch is closed; the purpose of the patent is to make more torque available when the cruise control is actually in use, i.e., controlling vehicle speed, to encourage the use of cruise control and decrease the need to downshift. These purposes would not be served if the higher torque were available simply based on the cruise control on/off switch.
The specification describes the cruise control's operation, see col. 4, lines 20-44, and Figure 1 shows the inputs the cruise control receives. The operation of the cruise control as depicted in the specification, including Figure 1, is consistent with the explanation of Caterpillar's expert James Amend. In his affidavit, Mr. Amend explains that one of ordinary skill in the art would know that a cruise control feature on a manual transmission vehicle could have six operational states: (1) activation switch off; (2) activation switch on; no vehicle speed set; (3) activation switch on and speed set, but the set speed is below a pre-programmed minimum set speed; (4) activation switch on and speed set above minimum, but operator pressed the clutch or the brake; (5) activation switch and speed set above minimum, but operator used throttle to exceed set speed; and (6) activation switch on, speed set above minimum, and operator neither presses brake or clutch, nor exceeds set speed through use of throttle. Amend Aff., P 26; see also Moncelle Aff., P 4. The cruise control is "engaged," i.e. controlling the vehicle speed, only in the final state.

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14. "Determining whether the difference between the short-term statistical profile and the long-term statistical profile indicates suspicious network activity": n14 Using the result of the comparison to decide whether the monitored activity is suspicious.

--- Footnotes ---

n14 '338 patent, claims 1, 11, 21, 24 and 25)

--- End Footnotes ---

('338 patent, col. 12, ll. 47-65)

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"Determining whether the DNS request transmitted in step (1) is requesting access to a secure web site"

The '135 patent, claim 1 contains the phrase "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site." VirnetX contends that this phrase does not require construction. Alternatively, VirnetX contends that the phrase means "determining whether the DNS request transmitted in step (1) is requesting VPN communication with a secure web site." Microsoft contends that the phrase means "the computer receiving the DNS request checks the request to determine whether access to a secure web site was requested." The parties dispute whether the phrase at issue requires a construction, and if so, what performs the determining step.

No construction is necessary beyond the terms already construed in the phrase "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site." The Court has construed "DNS" and "secure web site." "Determining whether the . . . transmitted in step (1) is requesting access to a" has an ordinary meaning that a jury would understand without construction. Accordingly, the Court does not construe "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site."

However, the parties dispute whether "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site" must be performed by the computer receiving the DNS request. Microsoft argues that it does not make sense for the client computer to generate a DNS request as stated in step 1 and then perform the subsequent "determining" step in step 2. VirnetX argues that nothing in the claim limits which computers perform the "determining" step. VirnetX also argues that there are circumstances where a client computer may have one program that transmits the DNS request to a second program on the same client computer, and the second program performs the "determining" step on the same client computer. Finally, VirnetX argues that the doctrine of claim differentiation between claims 1 and 2 of the '135 patent shows that the "determining" step may be performed by the client computer.

The client computer can perform the "determining" step. Nothing in claim 1 of the '135 patent prevents the client computer
from "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site." See Col. 47:20-32. Also, the doctrine of claim differentiation shows that the client computer may perform the "determining" step. Courts presume a difference in meaning and scope when a patentee uses different phrases in separate claims. Phillips, 415 F.3d at 1314-15. Claim 2 states "The method of claim 1, wherein steps (2) and (3) are performed at a DNS server separate from the client computer." Col. 47:33-35 (emphasis added). Claim 2 states the limitation "separate from the client computer" whereas claim 1 does not. Thus, presumably this limitation is not found in claim 1. This presumption cannot be rebutted because there is no language in claim 1 that limits the "determining" step to computers other than the client computer. Accordingly, "determining whether the DNS request transmitted in step (1) is requesting access to a secure web site" is not limited to being performed by the computer that receives the DNS request.

The instant claim construction dispute concerns the meaning of the term "deterministic function algorithm" as used in claim 2 of the '954 patent. While the parties agree that a "deterministic function algorithm" is a formula or a series of steps such that, for a certain input, there is always the same output, the parties disagree as to whether a deterministic function algorithm, as used in claim 2, necessarily means a hash function that, when applied to a digital document, compresses the document. Plaintiffs assert that, in the '954 patent, "deterministic function algorithm" and "hash" are synonymous; defendant, on the other hand, argues that a hash function is a subset of the universe of deterministic function algorithms, and as a result the terms may not be used interchangeably.

It is settled law that the principal guide to the interpretation of claim language is intrinsic evidence, i.e., the claims, the specification and the so-called "file wrapper." See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83 (Fed. Cir. 1996). If the intrinsic evidence provides a clear meaning for a term, the inquiry is at an end. See id. Typically, extrinsic evidence may only be used in aid of understanding the general technology, not to vary or contradict the terms of the claims. See id. at 1584 n. 6. 5 Claim language will be given its plain meaning unless the inventor, choosing to be his or her own lexicographer, uses terms in a manner other than their ordinary meaning and clearly discloses these special or alternative meanings in the patent specification or file history. id. at 1582; Beachcombers v. Wildwood Creative Prods., Inc., 31 F.3d 1154, 1158 (Fed. Cir. 1994). An important principle in aid of claim construction is the doctrine of claim differentiation, which presumes that there is "a difference in meaning and scope when different words or phrases are used in separate claims." Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987).

Analysis of the intrinsic evidence focuses first on the plain language of the claims. See Vitronics, 90 F.3d at 1582. Here, the plain language is neither dispositive, nor especially helpful because the meaning of "deterministic function algorithm" is technical. In these circumstances, the next step in the claim analysis is to examine the patent specification, which often, as here, provides the answer to the meaning of the claim term. The specification of the '954 patent clearly reveals that the inventors of the '954 patent intended that claim 2 would add to claim 1 the step of condensing or "hashing" the document to be time-stamped. Thus, in discussing the hash-and-sign method claimed in claims 2, 3 and 4, the specification notes that, while claim 1 does not require any condensation of the document prior to its transmission to the outside agency for time-stamping, such a step would be highly desirable both to keep the contents of the document secret and to reduce the digital bandwidth of the transmission. 5 According to the specification, such a step could be achieved through the application of a deterministic function, "which may, for example, be any one of a number of algorithms known in the art as "one way hash functions." This language clearly reveals that the inventors of the '954 patent used deterministic function algorithm and hash
function interchangeably, and that the purpose of the application of the deterministic function algorithm in claim 2 is to condense the document prior to transmission, a step that would be accomplished through the application of a hash function. Indeed, the specification is so clear on this issue that, prior to trial, both parties regarded a deterministic function algorithm to be the same as a hash function. 7

6 The specification states in pertinent part:

To ensure against interception of confidential document information during transmission, and to reduce the digital bandwidth required for transmission of the entire document, the author may optimally convert the digital document string to a unique number having vastly reduced digital size by means of a deterministic function which may, for example, be any one of a number of algorithms known in the art as "oneway [sic] hash functions."

U.S. Pat. No. 34, 954, col. 3, ll. 11-19.

7 Defendant, in its summary judgment brief, stated that claim 2 "simply adds the additional limitation to claim 1 that the transmission from the originator to the outside agent is hashed." The word "hash" never appears in claim 2; only the words "deterministic function algorithm" are used. But, as defendant's brief reflects, it is clear that in the context of the '954 patent, a deterministic function algorithm means a hash function.

Because the specification of the '954 patent makes clear that the inventors used the terms "deterministic function algorithm" and "hash" interchangeably, the inquiry is at an end. This is an instance, in other words, where the inventors plainly manifested their intent to act as the lexicographers of this term as used in their patent. Although extrinsic evidence, such as a technical treatise or dictionary, might reveal that, in the realm of pure mathematics, a hash function is a subset of the universe of deterministic function algorithms, under the rule in Vitronics, such evidence cannot be used to vary the meaning of "deterministic function algorithm" that the inventors of the '954 patent intended to use. See Vitronics 90 F.3d at 1582-83. Thus, the proper interpretation of "deterministic function algorithm" in the context of the '954 patent is that it is synonymous with hashing. This definition "fully comports with the specification and claims and so will preserve the patent's internal coherence." Markman, 517 U.S. at 389.

The principle of claim differentiation confirms this result. In claim 1 of the '954 patent, a representation of the digital document is transmitted to the outside agency to be time-stamped; there is no requirement that the digital form of the document be altered prior to transmission. Claim 2 adds to claim 1 the step of applying a deterministic function algorithm to the digital document prior to transmission. The specification clearly reveals that the goal of this step is to condense, and thereby encrypt, the digital document. Under defendant's proffered broad definition of deterministic function algorithm, however, the function "1 x" would qualify as a deterministic function algorithm. Yet, such a function would not alter the document in any way. If the step disclosed in claim 2 does not by definition alter the digital document, it would not add anything to claim 1, a result inimical to the doctrine of claim differentiation, which presumes that there is "a difference in meaning and scope when different words or phrases are used in separate claims." Tandon Corp., 831 F.2d at 1023. The absence of any difference in the meaning or scope of claims 1 and 2 would make claim 2 superfluous; under the doctrine of claim differentiation, it must be presumed that such a difference exists. Consequently, claim 2 must be interpreted to add to claim 1 the step of altering, or in this case condensing, the digital document.

In conclusion, a deterministic function algorithm as used in claim 2 of the '954 patent is defined as "a formula or series of steps such that for a certain input there is always the same output, and that condenses, or hashes, the digital document." An appropriate order has issued.

1. The Term "Development System"
The dispute between the parties centers on whether the term "development system" should be directed toward an "object-oriented" user interface as opposed to a computer program written using object-oriented source code. The Court is of the opinion that when claim 1 speaks of an object-oriented development system, object-oriented modifies or defines the type of computer program that is invented. Therefore, "development system" refers to a control system project [computer program] consisting of the hardware and software that supports the construction of other software as an end product within a development as opposed to an operating environment. The Court is further of the opinion that "development system," as used in the preamble language, is consistent with the specification and prosecution history. See Catalina Mktg. Int'l, Inc. v. Coolsavings Com., Inc., 289 F.3d 801, 808 (Fed. Cir. 2002).

Development Support Functions

The Court adopts Motorola's proposed construction of the term "development support functions" and construes the term as "functions in support of a development system to debug hardware and/or software of the data processor." The Court finds that Motorola's proposed construction more accurately reflects a person of ordinary skill in the art's understanding. Additionally, the Court rejects ST's proposed construction because the Court does not find that the prosecution history warrants the additional limitations ST proposes.

9. "deviating from the previously computed form line to accommodate one or more terrain features" (Claims 1, 3, 6, 11)

This phrase appears in claims 1, 3, 6, and 11. See Tang Decl., Ex. A at 12:34-49; 12:53-63; 13:6-15; 14:4-14; Ex. D at 2 (amended Claims 1, 3). Once again, the precise wording of each claim's phrase differs, but the parties agree that the phrases all have the same meaning, and that the wording of claims 3 and 6 is representative. Trimble contends that above phrases should be construed to mean "altering the direction of travel provided by steering guidance to avoid obstacle or terrain features." 3 Defendants contend that the phrase should be construed to mean "deviating from a previously computed path across the area to be treated in order to avoid at least one terrain feature."

3 Prior to the claim construction hearing, defendants submitted an administrative request calling the court's attention to the fact that plaintiff's reply brief for the first time changed the word "avoid" in plaintiff's proposed construction to "accommodate." As the court indicated at the hearing, plaintiff's introduction of new arguments and terms on reply, without the filing of a jointly revised claim construction statement, is improper, and plaintiff's alternative unilateral filing of a revised claim construction statement (filed one day prior to the hearing) is rejected. Although the court allowed plaintiff to make their revised arguments at the hearing, the court nonetheless GRANTS defendants' administrative motion to exclude plaintiff's new arguments, and plaintiff is restricted to the proposed construction it set forth in the Joint Claim Construction Statement.

In view of the court's prior constructions, there is very little to be construed here. In accordance with those constructions, "deviating from the previously computed form line" must be construed, as defendants propose, to mean "deviating from a previously computed path across the area to be treated." The only issue is therefore what it means to "accommodate one or more terrain features."

The specification supports defendants' arguments that "accommodate" means "avoid." For in referring to the process of deviating from a prior computed path in order to accommodate obstacles, the specification specifically states in several places that such deviations are undertaken in order to "avoid" or to go "around" obstacles. See, e.g., Tang Decl., Ex. A at 4:39-45 ("Field 32 also includes a number of terrain features or obstacles such as rocks or boulders... During spraying
operations, sprayer rig 30 must avoid these obstacles

As such, the proper construction of "accommodate" is, as defendants argue, "avoid." To that end, and consistently with the other constructions adopted by the court herein, the court construes the term "deviating from the previously computed form line to accommodate one or more terrain features" as: "deviating from a previously computed path across the area to be treated in order to avoid at least one terrain feature."

"First device" and "second device" appear in the '831 patent, Claims 16 and 17. The parties dispute whether these terms require construction. Widevine argues that these terms need no construction and should be given their plain and ordinary meaning: networked computing devices. Verimatrix argues that the claims are means-plus-function claims because "device" is a generic term. Claim 16 in its entirety follows:

A system for managing data securely over a network, comprising: a first device that is operative to perform actions, including:

receiving a packet;

examining a payload portion of the packet for a predefined data type, and if the payload portion includes the predefined data type, selectively encrypting the payload portion and;

communicating the selectively encrypted portions over the network in a packet; and

a second device that is operative to perform actions, including:

receiving the communicated packet,

parsing the received packet into the payload and the non-payload portion, and

decrypting the selectively encrypted payload portion.

Verimatrix points to a number of extrinsic references showing that "device" is used indiscriminately to refer to any type of electronic thing and argues that the surrounding claim language does not identify any structure. The Court agrees. The claim provides no structural context and describes each "device" by the functions that it performs, which means that "one of skill in the art would have no recourse but to turn to the [patent's] specification to derive a structural connotation." Welker Bearing Co. v. PHD, Inc., 550 F.3d 1090, 1096 (Fed. Cir. 2008). Therefore, the Court is of the opinion that "first device" and "second device" are means-plus-function limitations and are therefore governed by 35 U.S.C. § 112(6).

The Court must now identify, if any, "the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(6). "For computer-implemented means-plus-function claims where the disclosed structure is a computer programmed to implement an algorithm, 'the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.'" Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1340 (quoting WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339, 1349 (Fed. Cir. 1999)). Specifically, the corresponding structure to be found in the specification is the algorithm that performs the claimed function. Harris Corp. v. Ericsson, Inc., 417 F.3d 1241, 1253 (Fed. Cir. 2005). The algorithm must provide sufficient structure to allow a person of ordinary skill in the art to program the computer to perform the functions. Id. at 1340-41. It is "important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing the structure." See Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1382 (Fed.Cir.1999). The Federal Circuit "does not impose a lofty standard in its indefiniteness cases." Finisar, 523 F.3d at 1341 (citing Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1214 (Fed. Cir. 2003)).
Notwithstanding the relatively low standard, this Court finds that the '831 patent, Claim 16 lacks supporting structure in the specification for each of the claimed functions. The Court agrees with Verimatrix that the "first device" is the "encryption bridge implemented on a computer system which is located between the multiple servers and clients. ('831 Patent, 6:4-35, 6:41:45; 7:51-60; 7:25-31.)" and that the "second device" is the "decryption shim which is deployed to the client by the encryption bridge, is implemented via pluggable/exchangeable architecture, receives, parses, and decrypts the payload portion of the packet. The decryption shim negotiates and exchanges a key. ('831 Patent, 7:3-5; 9:58-10:56; Fig. 3-330, 340, 360; Fig 5 - 510.)." Defendant's Brief, Ex. 1. However, the Court is unable to find a sufficiently detailed algorithm within the specification to provide the necessary structure for all of the functions claimed in Claim 16. The only algorithms identified by either party are the RSA, DES-X, or Blowfish algorithms for encryption that are discussed in the specification. '175 patent, 8:6-17. These algorithms provide supporting structure for the function of "selectively encrypting the payload portion." Because there are no other algorithms in the specification, the remaining functions in Claims 16 and 17 lack the necessary supporting structure.

In addition to a dearth of briefing on the topic of whether the specification discloses an algorithm for the functions claimed, lacking before the Court is the expert testimony upon which it ordinarily relies when construing means-plus-function terms. While the specification does recite the functions in Claim 16, the specification fails to explain sufficiently how one skilled in the art might perform those functions. See '831 Patent, 8:27-58; 9:58-10:50; Finisar, 523 F.3d at 1340 (failing to find an algorithm where the specification "provides nothing more than a restatement of the function, as recited in the claim") (internal quotations omitted). Independent claim 16 and dependent claim 17 of the '831 Patent are invalid for indefiniteness.

A. Preamble: "A repeater management device for communication networks, the repeater management device controlling repeaters and routing data packets between a receiving port and a destination port, comprising:"

The parties agree that the preamble of Claim 1 should be construed as a claim limitation because it is essential to understand the invention and the claimed elements. "No litmus test defines when a preamble limits the claim scope." Catalina Mktg. Int'l Inc. v. Coolsavings.com Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). "Whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." Storage Tech. Corp., 329 F.3d 823, 2003 WL 21058359 at *8.

"In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality to the claim.'" 3 Catalina Mktg. Int'l Inc., 289 F.3d at 808 (citation omitted). "Thus, [it must be] determined whether the preamble breathes life and meaning into the claim, and is incorporated by reference because of language appearing later in the claim, making it a limitation of the claim." General Elec. Co. v. Nintendo Co., Ltd., 179 F.3d 1350, 1361 (Fed. Cir. 1999).

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3 "Conversely, a preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'" Catalina Mktg. Int'l Inc., 289 F.3d at 808 (citation omitted).

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The words in the preamble, "A repeater management device" recite essential structure by requiring the inclusion of repeater management, bridging support and media access controller functions in a single device. These words in conjunction with the term "comprising" evince that the inventors relied on the preamble phrase to breathe life into the claim. "The word 'comprising' is an open transition phrase," which means that the claim's "scope may cover [a] device[] that employ[s] additional, unrecited elements." AFG Indus., Inc. v. Cardinal IG Co., 239 F.3d 1239, 1244 (Fed. Cir. 2001). Since the preamble to claim 1 is "essential to understand limitations or terms in the claim body," it limits the scope of the claim. Id.

The preamble describes a repeater management device ("RMD") as a single device that controls more than one repeater and routes data packets between a receiving port and a destination port. The patent's "summary of the invention" states "the
The present invention discloses a system which combines the functions of repeater management, ethernet MAC, and network bridging support into a single device. (603 patent at col. 2:31-33.) Intel argues that "device" should be interpreted to mean "a chip or a circuit board." (Level One Proposed Claim Construction P1.) However, no particular physical manifestation is articulated in the claim or the specification; therefore, the term "device" is not limited to these physical manifestations.  

C. "Device"

Claim 3 describes the invention, in pertinent part, as consisting of "a power unit supported on the chassis to supply power to the device and the display screen . . . wherein the device is a computing device." (the '178 patent, claim 3). The Plaintiff seeks to classify the "device" as a computer. The Defendant argues that the term "device" is indefinite in claim 1. The parties agree that the term in claim 3 is dependent upon the term in claim 1. Claim 1 does not describe "the device" in any way.

The Defendant relies on 35 U.S.C. § 112 for the proposition that a patent applicant must draft claims "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." Because claim 1 is indefinite, the Defendant argues, claim 3 must also be indefinite. However, such a cursory dismissal of the term would be counter to the presumption that each claim of a patent is presumed valid independent of other claims. 35 U.S.C. § 282. A claim is presumed valid "even though [the dependent claim is] dependent upon an invalid claim." Id. In fact, only clear and convincing evidence of indefiniteness can overcome this presumption. Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1348 (Fed. Cir. 2005). Even "a difficult issue of claim construction does not ipso facto result in a holding of indefiniteness." Id. at 1347. Thus, "the failure to provide explicit antecedent basis for terms does not always render a claim indefinite." Energizer Holdings, Inc. v. International Trade Com'n, 435 F.3d 1366, 1370 (Fed. Cir. 2006) (quoting The Manual of Patent Examining Procedure § 2173.05 (8th ed. 2004)). Further, a claim will not be invalid for lack of an antecedent basis if the meaning of the claim could reasonably be understood by persons of ordinary skill when read in light of the specification. Energizer Holdings, Inc., 435 F.3d at 1370. "Intrinsic evidence in the form of the patent specification and file history should guide a court toward an acceptable claim construction." Datamize, LLC, 417 F.3d at 1348.

The intrinsic evidence shows that the claim should not fail for indefiniteness. Throughout the patent, it is clear that the device refers to a computer. For instance, the horizontal tray could support "a computer terminal having a display screen." (the '178 patent, Col. 6, lines 2-3). The "horizontal tray [supports] the wireless computer terminal." (the '178 patent, Col. 6, lines 65-67). The specifications describe a workstation with a power unit and battery charger for a "wireless computer terminal." (the '178 patent, Col. 7, lines 20-23). The keyboard within the work station "communicates with the computer terminal through a conventional electrical connection so that the keyboard can be easily connected to the computer terminal whenever the wireless computer terminal is stored within the mobile workstation." (the '178 patent, Col. 7, lines 49-53).

Although indefinite on its face, the weight of intrinsic evidence that the device was meant to be a computer does not even make this "a difficult issue of claim construction." Datamize, LLC, 417 F.3d at 1348. The device should be defined as a computing device.  

F. First Device/Second Device

Visto argues that the term "device" in the context of the '221 patent means "an electronic device for storing workspace data." Seven imports a location limitation and argues that the term "first device" means "an electronic device (e.g. a personal computer) located within a firewall-protected corporate LAN." According to Seven, the term "second device," means "an electronic device capable of storing workspace data located outside a firewall-protected corporate LAN." The court adopts Visto's definition of device, with a slight modification. The term means "an electronic device on which workspace data is stored." "First" and "second" need no construction.
1. "device"

In the "Field of Invention" portion of the '740 patent, "the present invention" is described as "related to a projection exposure apparatus for use to form a pattern of a semiconductor integrated circuit, or liquid crystal device, or the like." See Patent '740 at 1:16-18. Claim 10 repeats this use of "device," discussing a "method of producing a device, comprising . . . using an exposing method recited in claim 8." Id. at 46:3-5. As with any other term, the court must read "device" in accord with its claim- and specification-language context, both of which suggest that "device" means something more particular than the superficially generic "object or item" phrase ASML forwards. The claim language denotes a particular lithography-related "device," viz., the device produced through the lithographic process of transferring a pattern to a workpiece. Specification language, in turn, refers repeatedly to the imaging of a "circuit" "pattern" onto a substrate, typically in reference to various patent figures. See, e.g., 39:41-46 & 42:52-58; figures 29 & 32. Congruent with this intrinsic evidence, the court thus construes "device" to mean "an integrated circuit or similar item."

C. Device Control Circuitry

The term "device control circuitry" appears in Claim 1 of the '192 Patent. Digi contends that "device control circuitry" should be construed as "the mechanism within the device that controls it, for example, by implementing the device's main functionality, or by causing the device to deliver data, take defined actions, or otherwise respond to command signals." Lantronix asserts that this term should be given its plain meaning, "circuitry that controls the device."

The Court agrees with Lantronix's contention that the words "circuitry" and "mechanism" (in Digi's proposed construction) are not synonymous. The claim language and specification do not support such a construction. Moreover, the Court agrees with Lantronix that the meaning of this term is obvious and requires very little construction. Thus, the Court construes "device control circuitry" to mean "circuitry that controls the device."

4. The Term "Device Diagram"

Finally, the Court addresses the parties' dispute concerning the term "device diagram." CSI defines "device diagram" as "a graphical description of a control scheme, created using the device programming means, hence, [it is] a combined representation of the physical description [ ] and the logical definition of the facility." Fisher-Rosemount agrees with this definition with the caveat that both the physical and logical information appear on a single screen.

CSI's expert does not define this term. However, Fisher-Rosemount's expert does. In his opinion the "device diagram" provides a combined representation of the physical description of the facility and the logical definition of the facility, consistent with CSI's description. The specification supports this definition. The result is that a control engineer, using a "device diagram" can understand both the definition of the physical facility, i.e., what equipment is present and how it is connected, as well as the logical definition of control instructions that operate the interconnected equipment. See Specifications; (Col. 15:17-21). The Court, therefore, adopts CSI's proffered definition with the proviso that both the physical and logical information appear on a single screen.
The issue regarding this term is whether the court should construe the term in such a way as to allow the "device driver" to be a component of an application program. The defendants' proposed construction would define the term as "a software component." In this situation, the patent specification makes a distinction between a "device driver" and other types of interfaces.

The use of a device driver as the interface is a feature of the invention. . . . Many other interfaces with the circuit 100 are possible. For example, the interface may be incorporated into an application program, a program intermediate between operating system programs and applications, such as Windows TM, a program placed in a bios 1620 on a memory board 1600 (FIG. 16), wired into firmware, or designed in any other way that computer peripherals may be interfaced with. Interfaces other than a device driver may also be used. '242 Patent, col. 24, ll. 17-33 (emphasis added).

In other passages, however, the specification also suggests that the device driver may be a component of an operating system.

As can be seen from the above, the applications program 1222 communicates with the RNG module 1102 via the device driver. The device driver software 1200 is preferably part of the operating system of the computer and is typically stored on the hard disk 1165. '242 Patent, col. 22, ll. 63-67.

During the claim construction hearing, Quantum stipulated to the defendants' construction so long as the court replaced "permits a computer system" with "provides a standard interface." The court agrees with Quantum's argument regarding the distinction between a device driver and other interfaces, but concludes that its proposed stipulated construction fails to clarify the claim language in light of the previous construction of the interface terms. Additionally, the court agrees with the defendants that nothing in the intrinsic record restricts a "device driver" from being incorporated into an application program.

As such, the court defines "device driver" as "software that permits a computer system to communicate with a device."

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D. "a device for capturing the symbol, identifying the object from the symbol information"

Defendants present an email dated June 27, 2007, in which counsel for Cognex agrees to the following construction of this limitation: "a device that captures symbol image and identifies an object upon which the symbol is affixed, attached, etched, and/or engraved from the information contained within the symbol." Cognex now seeks to append the following phrase to the agreed-upon construction: ", regardless of whether or not the device can do this at substantially any orientation of capture."

The Court declines to adopt Cognex's proposed amendment. The language of the agreed construction is derived from the language of the '524 Patent claims. See, e.g., '524 Patent, claim 1 ("a device for capturing the symbol, identifying the object from the symbol information"). The Court finds no justification in the language of the claims or the specification for the addition of the orientation-related language proposed by Cognex. The Court construes this disputed term as "a device that captures symbol image and identifies an object upon which the symbol is affixed, attached, etched, and/or engraved from the information contained within the symbol."

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2. The Term "Device Object"

Next, the parties dispute the definition and limitation of the term "device object." CSI defines "device objects" as a
"software construct comprising the set of data associated with a "device" and the procedures used to manipulate that data." Fisher-Rosemount defines "device" as a physical or logical entity used in a facility. It defines "object" as a set of data encapsulated by a set of procedures that provides the only access to an allowable operation on that data. CSI contends that Fisher-Rosemount's definition fails because neither the claim language nor the specification supports the limitation that the "object" provides the sole access to a set of data.

The specification teaches that a "device object" contains device symbols or physical representations, logical instructions and configuration information pertaining to each device. "Each device may be of its own unique type." Therefore, all device characteristics are encapsulated within the device. Viewing Figure 14, the Court concludes that a "device object" encapsulates device logic, device tag definitions, device diagram symbols and graphic screen symbols and dynamics. Hence, the encapsulation is the improvement, but it is also the limitation, providing the only access to the data set. Moreover, there is no indication in any claim or the specification that the term "device" has more than one meaning.

The district court first construed the term "device-specific style" during a Markman proceeding. During that proceeding, MicroStrategy argued that the term meant "one or more parameters that designate the format in which a particular type of output device receives service outputs." After a careful review of the claim language and relevant statements in the specification and file wrapper, the district court largely adopted MicroStrategy's proposed definition. Thus, the district court construed "device-specific style" to mean "the format in which a particular type of output device receives and displays service output, consisting of values of a plurality of parameters." MicroStrategy, Inc. v. Business Objects, S.A., Civil Action No. 2:01cv826, slip op. at 27 (E.D. Va. Mar. 18, 2004) (Claim Construction Order).

The district court construed the remaining claim language on summary judgment. Patent Judgment, 331 F. Supp. 2d at 439. Based on the claim language, the district court "concluded . . . that the system or method [must] function on a device-by-device basis." Id. at 440. The district court's interpretation focused on two aspects common to the three independent claims: "(1) each user device is associated with a device-specific style, and (2) output is created for each user device according to the style specified for the user output device." Id. (emphasis in original). Thus, the district court concluded that the claim language requires association of output devices with a device-specific style on an individual, device-by-device basis. Id. In other words, the invention requires a particular format and presentation for one device, e.g. mobile phone data, that could differ from the format for a second device, e.g., electronic mail data. The district court summarized its conclusion as follows:

The patent covers methods and systems that retain associations between individual devices and device styles . . . because only in that manner does the patent cover systems that handle multiple device types or customization of subscription features on a subscriber-by-subscriber or device-by-device basis . . . While it is not necessary that the devices always be different, the system or method described in the claims is structured to facilitate the transmission of the same output to multiple device types.

Id. at 442-43.

This court recently restated: "It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." Id. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id.

All three of the '050 patent's independent claims recite the term "device-specific style." As previously noted, the district court construed this term as part of its Markman proceedings to mean "the format in which a particular type of output device receives and displays service output, consisting of values for a plurality of parameters." Claim Construction Order, slip op. at 27. This construction accurately reflects the claim language and the context supplied by the specification. See '050 patent, col. 4, ll. 49-63.
While accepting the district court's Markman construction, the parties dispute its meaning. MicroStrategy argues that this Markman construction and the context of the invention do not require support for more than one type of output device. In particular, MicroStrategy notes that the specification contemplates a system with "one or more" output devices. See id., col. 5, ll. 4-6. Thus, MicroStrategy reads the claim and the district court's Markman construction to permit a system with support for just one type of user device.

To the contrary, as noted in the district court's summary judgment order, all three independent claims require that each user output device subscribed to a service be associated with a device-specific style. See id., col. 17, ll. 58-62; col. 18, l. 65-col. 19, l. 2; col. 20, ll. 21-25. The term "associated" implies that the system creates a link between user output devices and corresponding "styles." In other words, the system must identify and track in some manner the "style" in which a particular user output device receives and displays output. This claim language further requires a direct link between each user output device, individually, and a corresponding "device-specific" style.

In addition, the claims require a device-specific formatted output according to a style specified for each device. See id., col. 17, l. 66-col. 18, l. 10; col. 19, ll. 6-11; col. 20, ll. 30-35. As noted by the district court, the words "specified" and "each" reaffirm that these claims require individual, device-by-device association. Moreover, the ultimate creation of a "device-specific" format requires at least two different device-specific styles. Otherwise, the references in the claims to individualized, device-by-device association of styles with user output devices and corresponding creation of a device-specific formatted output would be meaningless.

The specification supports this construction as well. The specification reads:

> According to one embodiment of the present invention, a system for automatically generating output from an on-line analytical processing system based on scheduled services specified by subscribers of the system is provided. The system processes scheduled services in an on-line analytical processing system with each service comprising at least one query to be performed by the on-line analytical processing system. The system then automatically forwards output from the services to one or more subscriber output devices specified for that service. Users may define new services, including the schedule of the services and the type, such as alert services or scheduled services, and may also subscribe to the services provided by the system. . . . The output devices the system may forward output to may comprise electronic mailbox, facsimile, printer, mobile phone, telephone, pager, PDA or web pages.

Id., col. 4, l. 64-col. 5, l. 22 (emphases added).

While this paragraph does state the system may ultimately forward output to only "one" output device, it does not address at all a minimum capacity to support a number of output formats (e.g., only one). Instead, this paragraph is open to an interpretation requiring support for multiple types of subscriber output devices, see id., col. 5, ll. 19-22, even though, in practice, all the subscribers may receive their subscription via only one format (e.g., e-mail or another suitable for mat). Therefore, this paragraph does not conflict with a claim construction requiring support for multiple device types or an association of styles with devices on an individual, device-by-device basis. The district court read the specification correctly in its well-reasoned decision. See Patent Judgment, 331 F. Supp. 2d at 443 (commenting that, while the system must be structured to support multiple device types, in operation, it is not necessary for the output devices to be different). In sum, based on the claim language in proper context and the specification that supplies much of that context, the district court correctly interpreted the claims.
The Court is of the opinion that the specification reveals "device symbols" as equipment or control functions. Hence, it is a physical representation that also conveys logical information, thereby requiring connection points in order that a control engineer may make functional connections. "Device symbols" are shown as part of the device diagram — [a graphical representation of a control scheme]; therefore, it makes sense that "device symbols" have functional connection points, otherwise, there is no functionality in the facility.

This conclusion is supported by Figure 33, which teaches that "when a user clicks on [a] connection point and holds down, the connection drawing is started." And, the same function "completes the connection from the tank to the pump . . . [and] . . . from the switch to the tank." As well, physical representations are device symbols that represent physical information.

The Court, therefore, rejects CSI's combined definition of "device" and "symbol" because its definition does not require that "device symbols" have specific connection points. These connection points are not cosmetic but "facilitate the interrelation of device symbols in a device diagram." In the Court's opinion, a person of ordinary skill in the art would read the claim to include specific connection. See Cook Biotech, Inc. v. Acell, Inc., 460 F.3d 1365, 1373 (Fed. Cir. 2006).

B. The Meaning of "Diagnose" -- "diagnose an operation"/ "diagnostic operation"

The second overarching claim construction issue concerns the meaning of the term "diagnose." In particular, the parties dispute the meanings of the claim terms "diagnose an operation" and "diagnostic operation" which appear in claims 57 and 58 of the '554 Patent. Ricoh proposes that the terms mean "to display or process state data received from the office machine system in order to identify or characterize the operational state of the office machine system." (Chart at 7). Pitney asserts that the terms mean "to analyze the cause or nature of errors in software or hardware." (Id.). In light of these constructions, the disputed issue is whether diagnosing requires an error.

Ricoh's construction is primarily based on the specification and Figure 5 of the patent. Additionally, Ricoh also relies on statements made by the patentee during prosecution whereby he distinguished his invention from the Patel prior art. The patentee stated that the prior art did "not have reference to a system which controls and diagnoses an office device in the context of not only identifying the device and its mechanical state of operation, but also of providing information with regard to the dynamic state of the device itself." ('779 Patent Prosecution History, Oct. 23, 1992 Amendment at 8).

In response, Pitney argues that Figure 5 of the patent merely shows codes, and does not illustrate the use of an "intelligent diagnostics" as Ricoh claims. Additionally, Pitney asserts that Ricoh's reliance on the patentee's statements during prosecution is misplaced since it does not define the term "diagnose an operation." Rather, Pitney contends that its construction should be adopted based on the plain language of the claim and the ordinary meaning of the word "diagnose."

Based on a review of the intrinsic evidence, the Court concludes that the construction for these terms do not require the presence of an error in software or hardware. The relevant portion of the claim language reads:

"A diagnostic processor, connected to a second end of said communication line, which processes said state data received from said office machine system to diagnose an operation of the office machine system and to communicate interactively with the office machine system . . . ."

'554 Patent, Claim 57 (emphases added). Based on the plain language, it appears that the diagnostic processor processes state data after it receives it from the office machine system. There is no mention in the claim language requiring the presence of an error before a diagnostic operation takes place. Further, as Ricoh correctly notes, state data includes static state data which does not change during the life of the device. Thus, the diagnostic operation proceeds even after processing static state data which need not involve errors in software or hardware. Accordingly, the Court does not find a basis in the claim language for importing the limitation Pitney seeks to adopt, and therefore adopts Ricoh's construction.

Consequently, "diagnose an operation" and "diagnostic operation" mean "to display or process state data received from the
office machine system in order to identify or characterize the operational state of the office machine system."

Claim 13 of the 720 patent depends from independent claim 12. Both claims are reproduced below, with the pertinent claim terms emphasized:

12 A water control system for bathing, comprising:

an open container for holding water for bathing;

a heater element for heating said water;

a temperature sensor for monitoring the temperature of the water in said container;

a control panel positioned adjacent said container for controlling the temperature of said water;

a microprocessor electrically coupled to said control panel, said microprocessor programmable by a user via said control panel to control the operation of said heater element, said microprocessor also being capable of diagnosing failures in said water control system and providing an output signal to the control panel indicative of a source of the failures.

13 A system as in claim 12, wherein said microprocessor comprises an 8-bit CMOS device.

In its opinion accompanying the order granting the preliminary injunction, the district court construed the phrase "diagnosing failures in said water control system" to mean "displaying error codes when there is a failure in the water control system." The district court also construed the phrase "indicative of a source of the failures" to require that "the system be capable of displaying multiple error codes dependent on the source of the failures, such as, for example, heater not heating, pump not operating, lack of water flow, or a microcomputer failure."

As this appeal arises from the grant of a preliminary injunction, we recognize that the district court's claim construction may evolve with greater understanding of the dispute. Although we agree generally with the district court's claim construction, we suggest the following clarifications subject, of course, to the district court's plenary consideration during subsequent proceedings.

First, it would seem that the phrase "diagnosing failures" connotes the process of detecting the causes or symptoms of failures in the water control system. Second, the phrase "indicative of a source" connotes the ability to indicate where in the water control system the failures might be occurring. The minor differences between our claim construction and the district court's, however, are not sufficient to convince us that the district court abused its discretion in granting a preliminary injunction. In particular, we agree with the aspect of the district court's claim construction that is most relevant to this appeal, i.e., the court's determination that the plural form of the word "failures" requires that the microprocessor be capable of diagnosing and indicating a source of more than one failure in the system.

2. "diagnostic processor"

The next disputed term in this category appears in Claims 57 and 58 of the '554 Patent. Ricoh contends that "diagnostic processor" should be construed as:

An intelligent device for communicating with and diagnosing the operation of the office machine system. A diagnostic processor is not part of the office machine system. It includes a microprocessor and a communication capability for communicating with the modular office machine system that itself includes intelligent modules that can interact with the
diagnostic processor. The intelligent modules of the office machine system and the diagnostic processor each make use of intelligent communication protocols. These intelligent protocols allow the diagnostic processor to communicate with a variety of models and products.

(Chart at 3). Pitney offers the following construction:

The diagnostic processor is part of the Remote Diagnostic Station, which is remotely located from the office machine system. It communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system. The diagnostic processor is not a passive system or a data collection site.

(Id.). Based on these constructions, the parties agree that the "diagnostic processor" is a device that communicates with the "office machine system," but is not part of the "office machine system." This much is clear from the plain language of the claim. In particular, Claim 57 recites:

A system, comprising:

an office machine system communicating with a first end of a communication line . . .; and

a diagnostic processor, connected to a second end of said communication line, which processes said state data received from said office machine system to diagnose an operation of the office machine system and to communicate interactively with the office machine system

wherein:

said diagnostic processor includes means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system; and

data is transmitted from the office machine system to the diagnostic processor over the communication line after the diagnostic operation is initiated.

'554 Patent, Claim 57 (emphases added). Thus, the claim language reveals that two separate elements, i.e., the office machine system and the diagnostic processor, comprise the claimed system.

The Court further finds that a number of limitations contained in Pitney's proposed construction find support directly in the claim language and will therefore adopt them. This includes the limitation that the "diagnostic processor" interactively communicates with the "office machine system" via a communication line to which it is connected. Id. The claim further specifies that the "diagnostic processor" receives and processes state data from the "office machine system," which is then used to diagnose an operation of the "office machine system." n4 Id. Additional support is also found in the written description to include these limitations. Specifically, the written description provides that "Diagnostic Process 302 is an intelligent process which can communicate interactively with the Copier Engine 10 based upon the responses it receives and data accumulated in the Data Base 303." '554 Patent, col. 3, ll. 33-36. Consequently, the Court will include these limitations in its construction.

n4 The parties agree that "state data" means "any one of static state data, semi-static state data, and dynamic state data." (Tr. of Markman Hr'g at 49:4-11).

Turning to the remainder of Pitney's proposed construction, the Court will now determine whether the "diagnostic processor" is remotely located from the office machine system. Pitney argues that it is, relying on Figures 1 and 2 of the patent, the patent's Abstract, and the prosecution history. As it contended with regard to the previous claim term, Ricoh argues that there is no basis to import the additional limitation that the diagnostic processor is remotely located from the office machine system.
Based on the intrinsic evidence, the Court concludes that Pitney again has the stronger argument. The intrinsic evidence supports the conclusion that the patentee intended the diagnostic processor to be remotely located from the office machine system. Notably, during prosecution the patentee represented to the PTO that "the limitations recited in Claim 64 reciting that the diagnostic processor is located in a diagnostic station which is remote from said office machine system is supported by Figures 1 and 2." ([554 Patent Prosecution History, Sept. 13, 1995 Amendment at 24] (emphasis added). Figures 1 and 2 depict the Diagnostic Process 302 as part of the Remote Diagnostic Station 30 which is remotely located from the Copier Engine 10. [554 Patent, Figs. 1 & 2. The patent's Abstract also reflects this construction. See id., Abstract ("a remote diagnostics station can provide remote diagnostics of the target device.") (emphases added).

Other aspects of the prosecution history provide additional support for this construction. During prosecution, the Examiner rejected Application Claim 64 on grounds of obviousness-type double patenting in light of Claim 29 of the '779 Patent. The Examiner explained that although Claim 29 itself did not indicate that the diagnostic processor is remotely located from the office device, the claim in combination with the specification would yield an "obvious variation of the patented claim." ([554 Patent Prosecution History, Jan. 4, 1996 Examiner's Action at 6). In particular, the Examiner stated that it would have been obvious "to locate the diagnostic processor in a remote location as shown in Figs. 1 and 2 of the patent," implicitly stating that the Application Claim 64 of the '554 Patent application requires a remote location. (Id. at 7). To overcome the double patenting rejection, the patentee filed a terminal disclaimer. ([554 Patent Prosecution History, Feb. 1, 1996 Response at 13). Although the patentee noted that he did not agree with the rejection, he did not argue that the Examiner was incorrect in concluding that the claim requires a remote diagnostic processor. As such, this part of the prosecution history provides additional support for the conclusion that the diagnostic processor is located in a remote location.

At another point during prosecution of the patent, the Examiner rejected original claims 43 and 47 because the term "remote terminal" lacked proper antecedent basis. The patentee amended the claim by replacing the term "remote terminal" with "diagnostic processor." The Court finds this to be yet another indication in the intrinsic evidence that the patentee intended that the "diagnostic processor" be remotely located from the office machine system. ([554 Patent Prosecution History, Apr. 24, 1995 Prelim. Amendment at 11-12; July 26, 1995 Examiner's Action at 2; Sept. 13, 1995 Amendment at 5-7, 23). In light of these conclusions, the Court will include this limitation in its construction.

Lastly, Pitney further seeks to include the limitation that "the diagnostic processor is not a passive system or a data collection site." (Chart at 3). Pitney argues that the patentee disclaimed this type of diagnostic processor during prosecution of the '779 Patent in an effort to overcome a rejection based on the Weinberger reference. The prosecution history reveals that the patentee described the invention of the Weinberger reference as a "passive system which gathers specific information regarding the devices associated with a remote terminal." ([779 Patent Prosecution History, May 4, 1993 Amendment at 3). Thus, Pitney argues that Ricoh cannot now attempt to reclaim this subject matter. In response, Ricoh asserts that patentee's statements regarding the Weinberger reference were not characterizations of the invention "that uses words of manifest exclusion or restriction representing a clear disavowal of claim scope that is required in order [to] give rise to a prosecution disclaimer." (Ricoh Reply at 12 n.5).

It is well-settled that "the prosecution history may not be used to infer the intentional narrowing of a claim absent the applicant's clear disavowal of claim coverage." SuperGuide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 875 (Fed. Cir. 2004) (citations and quotations omitted). "To be given effect, such a disclaimer must be made with reasonable clarity and deliberateness." Id. In this instance, the Court agrees with Ricoh that the patentee did not clearly and deliberately disclaim the claim scope at issue. The patentee distinguished its invention over the Weinberger reference by stating that the reference only used one-way communication between the data top to the translator. n5 Moreover, the patentee argued that the Weinberger reference did not "show exchanges of data between the office device and operation terminal." Id. The patentee further stated that his invention "includes office equipment that store static, dynamic and control information and communicates the data to a remote location which includes an operation terminal that processes the information." Id. The Court finds, however, that the patentee's arguments did not clearly disavow claim scope with respect to the diagnostic processor, as it fails to specifically reference this term. Rather, the patentee's arguments were focused on the operation terminal. Thus, the Court concludes that importing this limitation is unwarranted in light of the prosecution history.

--- Footnotes ---

N5 The data top was described as the device "which transmits signals applied to the display on control panel 12 to the
With regard to Ricoh's proposed construction, the Court again finds that Ricoh's construction fails to accurately define the "diagnostic processor." Rather, it provides a general description of one aspect of the invention. The Court finds Pitney's construction, except for the last limitation, to be a more appropriate interpretation of this specific term because it is clearly supported by the intrinsic evidence. Consequently, the Court will adopt Pitney's construction in part. Accordingly, the "diagnostic processor" is part of the Remote Diagnostic Station, which is remotely located from the office machine system and communicates interactively with the office machine system, via a communication line, to process data and then diagnose the office machine system.

1304

F. "dial-up network server"

The term "dial-up network server" is found in claim 1: "a dial-up network server that receives user IDs from users' computers" and "wherein the dial-up network server communicates a first user ID for one of the users' computers and a temporarily assigned network address for the first user ID to the authentication accounting server." "Dial-up network server" is described in the following passage from the specification:

The PC [ ] first connects to the dial-up network server[]. The connection is typically created using a computer modem, however a local area network (LAN) or other communications link can be employed. The dial-up network server[] is used to establish a communications link with the user's PC[] using a standard communications protocol.

('118 patent, 3:57-63). Linksmart's proposed construction is "a server that is used to establish a temporary link to a network." Thedefendants contend that this term means "a server on the network that receives a connection via a modem, or establishes a connection via a modem, where the modem dials a phone number over a telephone line."

The defendants argue that the commonly understood meaning of "dial-up" requires the use of a modem to establish a dial-up connection over a telephone line. The defendants also note that the box labeled "Modem Array & Built-in dialup networking software" in Figure 2 of the '014 application corresponds to the "Dial-up Networking Server" in Figure 2 of the '118 patent. In response, Linksmart points to the language of the specification, quoted above, which explains that the connection to the dial-up network server "is typically created using a computer modem, however a local area network (LAN) or other communications link can be employed." ('118 patent, 3:58-60) (emphasis added). The court must 'adopt a definition that is different from the ordinary meaning [of a claim term] when 'the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.'" Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1329 (Fed. Cir. 2009)(quoting CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366-67 (Fed. Cir. 2002)). Here, the specification clearly teaches that connections to the dial-up networking server are not limited to the use of a modem, but may also include other types of connections. Because the patentee defined "dial-up networking server" in a manner that differs from its ordinary meaning, this term is not limited to dial-up or modem connections. Therefore the court construes "dial-up network server" to mean "a server that is used to establish a communications link with the user's PC."

1305

9. "Dialing"

"Calling"

Cygnus advocates a broad construction of "dialing" and "calling," while defendants seek a narrow interpretation. Specifically, defendants wish to limit dialing or calling to the use of DTMF tones (which the defendants describe as "touch
IGC is the assignee of U.S. Patent No. 5,361,765 ("the '765 patent"). At issue in the present case are independent claims 1 and 5. With respect to claim 1, IGC argues that the district court erred when it construed the claim limitation "at least one diametric conductor" to refer to a segment connecting two sides of a coil through its center. According to IGC, the limitation "diametric conductor" encompasses any structure that divides a coil into two loops and thereby enables electric current to flow around the coil in opposite directions. Appellant asserts that the district court imprecisely focused on the definition of "diametric" in the sense of "diameter of a circle" rather than acknowledging that the word could also denote "diametrically opposed." In IGC's view, the district court's construction imprecisely imported limitations from the preferred embodiment and the prosecution history into the claim and erroneously led the court to conclude that USAI's devices do not literally infringe the '765 patent. Additionally, Appellant argues that the district court improperly held that the doctrine of equivalents requires the presence of each literal claim element in the accused device.

We agree with USAI that the district court properly granted summary judgment that USAI's devices do not infringe the '765 patent. Further, we agree that the district court construed claim 1 correctly. In construing patent claims, we look first to the intrinsic evidence of record - the claims, the specification, and, if in evidence, the prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Claim 1, in relevant part, is directed to a "second coil having at least one diametric conductor to divide the second coil into a pair of loops . . . ." The claim is therefore limited to devices that have one or more diametric conductors. The plain language of the claim suggests that such a conductor is a single segment dividing a coil into two loops at its center. As claim 1 states, the diametric conductor exists "to divide the second coil into a pair of loops . . . ." '765 patent, col. 9, ll. 33-34. On appeal, IGC attempts to alter the meaning of this plain language by arguing that the term "at least one diametric conductor" includes anything that bisects a coil into two loops in order to allow for counter-cyclic current flow. The claim language, however, is not directed to current flow, and IGC's argument is without merit.

As the district court correctly found, the specification also supports the construction of "diametric conductor" as a segment that bifurcates a coil at its center. IGC-Medical at 10. The Summary of the Invention states that "a second loop, opposed substantially symmetrically to the first loop about the imaging volume, has a diametric conductor to divide it into a pair of coils." '765 patent, col. 3, ll. 36-39 (emphasis added). Figures 3, 5, and 7 of the patent disclose coils with precisely this configuration: all three figures show two loops, one of which is divided by a straight line running through the middle. Finally, the Detailed Description of the Preferred Embodiment describes the diametric conductor as a "simple straight segment" between the segments of the loop coil. Id. at col. 9, l. 6. On appeal, IGC argues that this analysis imprecisely limits claim 1 to its preferred embodiment. Although "references to a preferred embodiment, such as those often present in a specification, are not claim limitations," Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 USPQ2d 1289, 1299 (Fed. Cir. 1988), this court has repeatedly held that a claim must be read in light of the specification. Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116, 1 USPQ2d 1563, 1566 (Fed. Cir. 1987) ("Claims are not interpreted in a vacuum, but are part of and are read in light of the specification."). We therefore conclude that claim 1 should be interpreted to cover only coil pairs where the second coil is bisected by at least one segment running through its center.

If ambiguity remains after consideration of the intrinsic evidence, "extrinsic evidence may also be considered, if needed to assist in determining the meaning or scope of technical terms in the claims." Pall Corp. v. Micron Separations, Inc., 66 F.3d
1211, 1216, 36 USPQ2d 1225, 1228 (Fed. Cir. 1995). In the instant case, we view the intrinsic evidence regarding diametric conductors as unambiguous and consequently need not discuss the extrinsic evidence.

**1307**

6) "Dielectric"

The parties agree that the term "dielectric" should be construed according to its ordinary meaning. Though the parties submit different constructions, Advanced contends that the submitted meanings are synonymous. The Court construes "dielectric" according to its ordinary meaning to mean "electrically insulating."

7) "Dielectric Spacer"

The term "dielectric spacer" appears in the '296 and '628 patent. MKS contends that "dielectric spacer" should be construed to mean "an insulating material inserted between two components to keep them electrically apart." (D.I. 53 at 1.) Advanced contends that "dielectric spacer" should be construed to mean "any component or device that holds two parts at a distance from each other." (D.I. 56 at 8.) The parties primarily dispute the physical properties of a dielectric spacer. While the terms "dielectric" and "spacer" are individually capable of ordinary and common construction, "dielectric spacer" is not a term of common or ordinary usage. After reviewing the patent claims, specification, and prosecution history, the Court construes "dielectric spacer" to mean "an insulating material or device that keeps components electrically apart."

**1308**

2. "[D]ielectric pair separator" 3 "Pair separator that serves as a dielectric medium." This construction is consistent with the claim language of the '095 patent. ('095 patent at claims 1, 10, 14-17, 27, 31; '537 patent at claim 19) For example, claim 24 discloses "a dielectric pair separator consisting of a dielectric layer and a conductive layer" while other claims disclose a dielectric pair separator "consisting of" only a dielectric layer. Conversely claims 27 and 31 of the '095 patent simply recite a "dielectric pair separator." This construction is also consistent with the claim language of the '537 patent. Claim 19 recites a "dielectric separator that consists of nonconductive, dielectric materials" including a "foamed polymer." The language "consists of" serves to narrow this term to require purely nonconductive materials. Neither the '095 patent nor the '537 patent support plaintiffs' narrow understanding of this limitation to mean a "non-conductive separator." Accordingly, the claims of both patents demonstrate that the patentee understood this limitation broadly and narrowed it when necessary with further limiting language. See Phillips, 415 F.3d at 1314.

3 '095and '537 patents.
"Different Codes" - Claims 1 and 5

The district court also addressed the "different codes" element of claims 1 and 5, and found these elements literally present in the Intellicode. In particular, the district court construed "different codes" to mean "factory-defined codes stored within the radio transmitters which uniquely identify each different transmitter and are not selectable or modifiable by the user of the garage door opener ("GDO") system." The district court's interpretation of this term is consistent with the claim language and finds support in the written description. The claim language requires association of each code with a different transmitter. The written description notes that each code uniquely identifies a transmitter. The specification adds that the codes are set in a factory and remain unchangeable by the user "to eliminate the requirements for code selection switches in the transmitters." '364 patent, col. 1, ll. 53-54.

The claim language does not supply any further constraints on the meaning of "codes." See Vitronics, 90 F.3d at 1582. Claims 1 and 5 do not require an identical code in the transmitter and the receiver. The language of both claims recite "that the code of said first transmitter will be stored in said memory means." Properly construed, this language requires the memory to retain the code it associates with the "first transmitter." The claims, however, do not require that the memory store the exact sequence of coded bits transmitted from the transmitter as its identifying signal. This reading of the claim language finds support in the written description, which explains that a code is associated with a transmitter. It does not describe any particular format, encryption, or alteration in transmitted and stored codes. The district court thus avoided interpreting "codes" so narrowly that any simple reformatting or addition of a single bit at the end of the code before storage would avoid the literal scope of claims 1 and 5.

In the Intellicode system, the unique, fixed, factory-programmed string of binary numbers in the transmitter do not match exactly the bits stored in the microprocessor's memory. Rather the Intellicode encrypts the transmitter code for transmission creating a different string of bits, the so-called "hopping code." The Intellicode microprocessor in "program" mode stores a secret key (yet another string of bits), and thereafter in "operate" mode uses the secret key to verify authorized (i.e. previously learned) transmitters. These features of the Intellicode, as explained above, however, do not avoid literal infringement of the "different codes" element. Thus, this court affirms the district court's construction of the "different codes" element and its finding that this element is literally present in the Intellicode.

"Each of a Different Color"

Finally, Defendants contend that the claim term "each of a different color" — which appears in each of the independent asserted claims — is indefinite because it is not clear what constitutes a "different color" for purposes of that limitation. For example, according to Defendants, it is not clear whether different shades of a particular color (e.g., magenta and light magenta) would be considered sufficiently different. Plaintiff responds that the different colors are the six claimed colors. According to Plaintiff, "each of a different color" should be construed as requiring at least four colors to be different.

The Court concludes that the phrase "each of a different color" is not indefinite. Rather, it means that each colored material in a particular color printing system must be of a different color. The claim term "color" in that phrase refers to the six claimed colors plus black and white. See '018 patent, abstract (describing the claim invention as "[a] color printing system * * * wherein these colors are selected from (1) an orange-red; (2) a violet-red; (3) a violet-blue; (4) a green-blue; (5) a green-yellow; and (6) an orange-yellow; as well as white and black"). Both magenta and light magenta are violet-reds, and therefore are not "different colors" for purposes of the asserted claims.
Types Of Computer Architectures

1. The '459 patent, claim 16: "plurality of different data formats for different types of computer apparatus"

Claim 16 of the '459 patent, in relevant part, describes a camera that stores images in a "plurality of different data formats for different types of computer apparatus." (D.I. 486, Ex. 4.) The parties dispute whether the reference in this element to "different data formats" is limited to formats relating to different computer architectures (e.g. formats for IBM or Apple computers) or can also include formats relating to different computer software (e.g. formats for GIFF or PICT software). The parties' dispute as to this element of claim 16 of the '459 patent is representative of their dispute over similarly worded phrases in the '219, '010, and '899 patents.

Fuji and Canon (collectively "Defendants") contend that "data formats" should be construed to mean formats that are different because they correspond to different types of computer architectures. Defendants contend that the M59 patent only provides for a camera with compatibility between different types of computer architectures and does not provide for a camera with compatibility between different types of software. Defendants contend that this issue is distinct from the issues considered by the Court in Sony.

Conversely, St. Clair contends that the Court resolved the meaning of the disputed phrase in Sony when it construed the key terms comprising the phrase, and St. Clair contends that there is no reason to reverse the Court's prior decision. St. Clair contends that the '459 patent discloses a camera compatible with different types of computer software, in addition to a camera compatible with different types of computer architecture.

After reviewing the parties' arguments in light of the claim language and specification of the '459 patent, the Court agrees with the construction advanced by St. Clair. In Sony, the Court issued a claim construction for both of the key terms in the phrase "a plurality of different data formats for different types of computer apparatus." Specifically, the Court defined the term "data format" to mean "the arrangement of digital data in a file" and the term "computer apparatus" to mean "a computer and any operating system or application software loaded on the computer." Sony, 2002 U.S. Dist. LEXIS 17871, *4, Civ. Act. No. 01-557-JJF, order at P 1. The Court concludes that these definitions are correct and should be applied to the construction of the phrase in dispute, so that the different formats referred to in this claim element may correspond to different architectures or different software.

Defendants contend that the use of the phrase "different types of" in the context of "different types of computer apparatus" limits the phrase to different types of computers. The Court is not persuaded by Defendants' argument. Neither the plain language of claim 16 nor the specification of the '459 patent support a construction as narrow as Defendants propose. Defendants' proposed construction ignores the plain language of the disputed element by excising the word "apparatus" from the phrase. The plain language of the disputed phrase refers to "different types of computer apparatus" and not just different types of computers, and the phrase "computer apparatus" includes different application software loaded on the computers, as well as different computers and operating systems. Thus, the Court's construction is supported by the plain language of the claim.

In addition, the Court's claim construction is supported by the specification of the '459 patent. The specification of the '459 patent explains that the patent is directed to the incorporation of digital image files into different software applications. As the Background of the Invention explains:

"The digital diskette is removable from the electronic camera for direct insertion into a PC which contains the previously loaded corresponding decompression algorithm whereby the digital image is in a format compatible for immediate use with word processing, desk top publishing, data base, and multi-media applications."

'459 patent, col. 1, 11. 19-25 (emphasis added). Describing the problem addressed by the '459 patent and distinguishing the claimed invention from the prior art, the specification further explains that "with the current state of the art, it is expensive and time consuming to convert the analog image equivalent to a digital format for direct utilization with PC software applications." (D.I. 986, col. 1, 11. 57-60 (emphasis added).) The objective of the patent to provide compatibility with different types of software is also confirmed in the Summary of the Invention, which explains that "it is a further object of this invention to provide an improved electronic still camera that provides digital image files for immediate and direct incorporation into popular word processing, desktop publishing, and other software programs on PCs." (D.I. 986, col. 2,
A. Whether the patents require one-to-one correspondence of file format with computer hardware architecture?

(Construction of category (1) claim terms: "plurality of different data formats for different types of computer apparatus" and variations thereof)

The parties' first dispute centers on whether the patents-in-suit require what has been referred to as a "one-to-one correspondence" between file formats and computer hardware architecture. St. Clair contends that the claim terms are not limited to such a one-to-one correspondence. Therefore, St. Clair proposes that the disputed claim term "plurality of different data formats for different types of computer apparatus" be construed as:

a plurality of different data formats for different types of computer apparatus where: (1) a 'data format' is the arrangement of digital data in a file including image, audio, text or other data and includes, at least, MPEG, JPEG, GIF, TIFF, PICT, BMP, JFIF, DCF, TXT, DOC, WPD and WAV, and (2) a 'computer apparatus' is a computer and any operating system or application software loaded on the computer.

Defendants, on the other hand, insist that the patents require the one-to-one correspondence. Accordingly, they propose that "plurality of different data formats for different types of computer apparatus" be construed as "two or more different arrangements of digital data in a file, wherein each different arrangement is in one-to-one correspondence with a particular type of computer architecture (e.g., IBM PC/Clone or Apple Macintosh)." (D.I. 259 at 7)

On this dispute I agree with St. Clair. Having reviewed the claims, the specification, the prosecution history (including that generated during the re-examinations), and the extrinsic evidence of record, I conclude that the patents-in-suit are not limited to the one-to-one correspondence Defendants propose.

As an initial matter, Defendants are correct that Judge Farnan's two prior claim construction rulings are not dispositive. Among the Defendants contesting claim construction here are parties who were not parties to the prior actions and who are not barred by collateral estoppel or res judicata from pursuing their proposed constructions here. See Novartis Pharms. Corp. v. Abbott Labs., 375 F.3d 1328, 1333 (Fed. Cir. 2006). 3 Also, Defendants here have a non-frivolous argument that the intrinsic evidence has expanded -- due to reexamination proceedings with respect to four of the patents-in-suit -- and that the applicable legal framework may have changed as well (since both the Sony Construction and the Canon Construction pre-date Phillips). Hence, I have undertaken my own analysis and have reached my own conclusions. Having conducted my own review, I find that I agree with Judge Farnan's prior conclusion and, like him, I reject Defendants' proposed limitation of a one-to-one correspondence.

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3 I make no ruling at this time as to whether any party before the Court in the current actions who was also a party in a prior action is bound by a claim construction order entered in a prior case.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - - -

Importantly, there is no reference in the asserted claims to a "one-to-one correspondence" between a file format and a particular type of computer architecture. Indeed, as St. Clair emphasizes, the claims "don't mention IBM, don't mention Macintosh, don't mention architecture." Tr. at 67. Hence, there is no indication in the claims themselves that the claims require a one-to-one correspondence.

Nor does the specification mention a "one-to-one correspondence." To the contrary, the specification demonstrates that the inventors understood that while certain relationships were predominant between particular file formats and particular computer architectures, these predominant relationships were not the only relationships the claimed invention could accommodate. 4 The specification states:

The compressed digital frame is then formatted into either an IBM PC/Clone (such as GIFF) or Apple Macintosh (such as PICT II) image file format depending on the setting selected by the operator for a user switch 17 . . . .

'010 patent, col. 4 lines 61-65 (emphasis added). In writing that an IBM PC user, for instance, would want data files in a format "such as GIFF," the inventors recognized that while an IBM PC user might likely want data files in a GIFF format, she might also want them in a format other than GIFF.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

4 Defendants observe that in connection with claim construction in the Canon litigation, St. Clair stated: "in the experience of most consumers of digital photography in 1990 . . . IBM equal[ed] GIF and Apple equal[ed] PICT." (D.I. 282 at Defs. Ex. E at 8) This marketplace reality is neither disputed nor relevant. The issue is not what a consumer thought in 1990; rather, it is how one having ordinary skill in the art would have read the asserted claims of the Roberts Patents at that time.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -
Similarly, the specification states:

It should be noted that a large number of image formats for PCs exist. PICT and GIF are the most common for the Apple and IBM PC's and are therefore the preferred formats for the present invention although other formats can be easily incorporated into the design by changing the software format routines. These software image formats are commercially available from many sources most notably Apple computers for PICT and IBM for GIF.

'459 patent, col. 11 lines 36-44 (emphasis added)

As St. Clair explains, the Roberts Patents are addressed to resolving multiple problems in the prior art: one involving software and one involving hardware:

The inventors identified two distinct shortcomings in the prior art. First, the inability of digital cameras to allow users a choice of multiple image files for immediate use in various computer applications. Second, hardware incompatibilities such as different storage or memory formats between IBM and Apple computers. The inventors sought and obtained different claims which separately address each short-coming.

(D.I. 172 at 15) "[T]he asserted claims address the first shortcoming, i.e., the failure of prior art cameras[. . .] to allow users the ability to select in the camera between at least two of many common image file formats such as JPEG, GIF, TIFF, PICT, MPEG, BMP, and JFIF which are designed for use by any number of computer programs." Id. Other -- unasserted -- claims relate to the second issue: hardware incompatibility. 5 In this way, the specification again supports St. Clair: software and hardware problems are addressed separately by separate claims of the Roberts Patents; nowhere is the software problem addressed by requiring a one-to-one correspondence between a file format and a type of computer architecture. There is no requirement that the asserted claims accomplish all of the objectives of the patents-in-suit. See Phillips, 415 F.3d at 1327 ("We have held that the fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives.") (internal quotation marks and citations omitted).

5 See, e.g., D.I. 172 at 20 (citing '222 patent, claims 1-12, ensuring diskette in camera is compatible with "memory format" used with particular hardware brand); '459 patent, claims 7 and 11; '219 patent, claims 7, 11, 14, and 15; '757 patent, claim 10 (all foregoing being dependent claims focusing on selection of particular memory, data storage, or hardware formats)).

On this point, too, I agree with Judge Farnan. In the Canon Construction, Judge Farnan wrote:

. . . The specification of the '459 patent explains that the patent is directed to the incorporation of digital image files into different software applications. As the Background of the Invention explains:

The digital diskette is removable from the electronic camera for direct insertion into a PC which contains the previously loaded corresponding decompression algorithm whereby the digital image is in a format compatible for immediate use with word processing, desk top publishing, data base, and multi-media applications.

'459 patent, col. 1, 11. 19-25 (emphasis added). Describing the problem addressed by the '459 patent and distinguishing the claimed invention from the prior art, the specification further explains that "with the current state of the art, it is expensive and time consuming to convert the analog image equivalent to a digital format for direct utilization with PC software applications." '459 patent, col. 1, 11. 57-60 (emphasis added). The objective of the patent to provide compatibility with different types of software is also confirmed in the Summary of the Invention, which explains that "[t]he purpose of the invention is to provide an improved electronic still camera with a digital image file for immediate and direct incorporation into popular word processing, desktop publishing, and other software programs on PCs." '459 patent, col. 2, 11. 15-19. The specification goes on to discuss the selection of software formats in the patented camera, further demonstrating that the patent is not limited to the computer architecture problem. '459 patent, col. 4, 1. 68-col. 5, 1. 9; col. 11, ll. 32-49.
Defendants point to Figure 6 of the specification, which depicts switch 17 as enabling the user to choose between "IBM" and "Apple" formats, as purported support for their construction. (D.I. 259 at 16) (citing '459 patent, JCCC Ex. A at STCLR000006) However, Figure 6 is a preferred embodiment. See '459 patent, col. 3 lines 23-24 ("FIG. 6 is an example of the control panel logic in accordance with one aspect of the present invention."); id. col. 3 lines 62-63 & col. 6 lines 42-54 (stating, in "DESCRIPTION OF THE PREFERRED EMBODIMENT," "The user must then select the desired PC format (IBM PC/Clone or Apple Macintosh, etc.) via switch 17 (FIG. 6) on the control panel 2."). It would be improper to import this feature of the preferred embodiment into the claim. See Liebel-Flarsheim, 358 F.3d at 906.

Defendants also find support for their proposed construction in the prosecution history, most particularly in the reexaminations of four of the Roberts Patents that occurred subsequent to Judge Farnan's issuance of the Sony Construction and the Canon Construction. In the course of these reexaminations, various PTO Examiners stated or suggested that they disagreed with this Court's construction of the "plurality of data formats" terms. 6 The PTO allowed the claims to emerge from reexamination without amendment based, at least in part, on the PTO's interpretation of the claims as being limited to a one-to-one correspondence.

--- Footnotes ---

6 The '459 and '219 patents proceeded through reexamination at approximately the same time as one another. Tr. at 89. In allowing the reexamined claims to stand, the PTO noted in its "Statement of Reasons for Patentability and/or Confirmation:"

Roberts et al. explicitly state that switch 17 on the control logic panel of figure 6 is provided for allowing a user to select between image file formats (PICT II, GIFF, etc.) for formatting a compressed digital image into a selected file format, wherein the image file formats provided for selection (PICT II or GIFF) are in one-to-one correspondence with a particular type of computer system (Apple Macintosh or IBM PC, respectively). . . . In other words, Roberts et al. DO NOT provide selecting between various sub-species on the same computer species . . . . Roberts et al. disclose and precisely claim selecting an image file format (PICT II, GIFF, etc.) from a plurality of image file formats for formatting a digital image into the selected image file format, wherein each of the image file formats provided for selection (PICT II or GIFF) are in one-to-one correspondence with a particular type of computer system (Apple Macintosh or IBM PC).

JCCC,Defs. Ex. 6 at PP 3, 6.

The '010 and '899 patents proceeded on essentially the same schedule as one another. See Tr. at 89, 115. They emerged from reexamination without amendment -- but only after the PTO expressly distinguished its claim construction from that previously adopted by this Court. See JCCC Defs. Ex. 30 at 2-3 ("[I]n light of the disclosure a very different interpretation that[that] adopted by the court must be made. . . . [I]n light of the specification, the claim limitation 'formatting the digital image signal in one of a plurality of computer image formats' is interpreted to mean formatting the image signal as one of an IBM PC/Clone, Apple Macintosh, or other PC Format.") (emphasis added). At no point did the patentees indicate agreement with the PTO's construction.

--- End Footnotes ---

I agree with Defendants that the reexamination history needs to be considered in connection with construing the claims. See, e.g., Tr. at 111 ("[W]e're not suggesting that you are bound [by what] happened in the re-exam. But we are suggesting that it's an important part of the intrinsic record."). I do not, however, agree with the conclusion Defendants would have this Court draw from that history.

Statements by patentees and Examiners are part of a patent's prosecution history, which is intrinsic evidence a court should consider in construing patent claims. See SRAM Corp. v. AD-II Eng'g, Inc., 465 F.3d 1351, 1359 (Fed. Cir. 2006); Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1345 (Fed. Cir. 2005). This is as true of statements made during a reexamination as it is of statements made during the initial prosecution. See Laitram Corp. v. NEC Corp., 952 F.2d 1357, 1361 (Fed. Cir. 1999). This is one reason courts sometimes stay patent litigation pending the resolution of a simultaneous reexamination. See, e.g., Procter & Gamble Co. v. Kraft Foods Global, Inc., 549 F.3d 842, 848 (Fed. Cir. 2008). Also consistent with this
conclusion is the Federal Circuit's guidance to district courts (at least in the context of preliminary injunction motions) to "monitor the proceedings before the PTO to ascertain whether its construction of any of the claims has been impacted by further action at the PTO or any subsequent proceedings." Kraft, 549 F.3d at 848.

There are important differences, however, between the legal standard applicable to claim construction before the PTO and claim construction before an Article III Court. A PTO Examiner construing claims is required apply the broadest reasonable construction consistent with the specification. See In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997); see also In re American Academy of Science Tech Center, 367 F.3d 1359, 1364 (Fed. Cir. 2004) ("The broadest reasonable construction rule applies to reexamination as well as initial examinations.") (internal quotation marks omitted). Courts do not apply this "broadest reasonable construction" rule. Also, before the PTO, any ambiguity or excessive breadth in a patent claim may be corrected by amending the claim. See Burlington Indus. Inc. v. Quigg, 822 F.2d 1581, 1583 (Fed. Cir. 1987). This is not a possible outcome of judicial claim construction.

That the PTO is required by law to apply the broadest reasonable construction does not mean, however, that the PTO's claim construction is, per se, the broadest reasonable construction. The PTO -- like a court -- may make mistakes. See SRAM, 465 F.3d at 1351, 1359 (Fed. Cir. 2006) (finding that PTO "paradoxically" failed to give disputed claim term its broadest reasonable construction and construed claim in an improperly narrow manner).

Hence, once claim construction is before a court, the court is obligated to construe claims de novo as a matter of law, without according any deference to the PTO's construction. See SRAM, 465 F.3d at 1359 (noting de novo standard of judicial review and rejecting construction adopted by district court and by PTO Examiner -- after three reexaminations); see also Salazar, 414 F.3d at 1343, 1347-48 ("[T]he examiner's unilateral remarks did not alter the scope of the claim. An examiner's statements cannot amend a claim."); Inverness Med. Switzerland v. Princeton Biomeditech Corp., 309 F.3d 1365, 1372-73 (Fed. Cir. 2002) (rejecting contention that statement in examiner's Reasons for Allowance governed construction of disputed claim term). 7

Footnotes

7 Of course, a district court can -- and must -- adopt the same construction as the PTO when the court concludes for itself that the PTO's construction is correct. See, e.g., Biogen, Inc. v. Berlex Labs., Inc., 318 F.3d 1132, 1140 (Fed. Cir. 2003) (affirming district court's construction, which itself was consistent with PTO Examiner's view that scope of disputed term had been limited during prosecution, as advocated by alleged infringer).

Having reviewed the extensive prosecution history here, including especially the history generated during the reexaminations, I conclude that the "plurality of data formats" terms should be construed in a manner so as to not require the one-to-one correspondence proposed by Defendants. 8 I have considered the portions of the specification on which the PTO relied in reaching its contrary conclusion and continue to believe, as this Court has previously ruled, that the patent does not require a one-to-one correspondence. 9 Although the PTO appears to have found such a limitation in construing the disputed claims under the "broadest reasonable construction" standard, I accord the PTO's views on claim construction no deference. 9 I do not find support in the claims or the specification for the one-to-one correspondence limitation and I am not persuaded by the reexamination history that I am wrong.

Footnotes

8 See JCCCDefs. Ex. 30 at 2 &Defs. Ex. 27 at 2 ("Examiner believes the confusion of the interpretation of the claim language arises out of the apparent disclosure that a user is selecting between two different image file types, such as between GIFF or PICT II. However, upon further inspection of the disclosure this is not found to be the case. Examiner notes that the disclosure goes on to teach that the user selects 'the desired PC format (IBM PC/Clone or Apple Macintosh, etc.) via switch 17 (Fig. 6) on the control panel 2.' (column 6, lines 42-25) As such, a user is selecting between the PC format by using switch 17, not the image file type."); JCCCDefs. Ex. 30 at 3 &Defs. Ex. 27 at 3 ("In looking at the disclosure on the whole a user is given an option for selecting between PC formats by using switch 17, wherein a particular image file type is assigned to each of the PC formats. . . . There is no disclosure in the Roberts et al. patents to suggest that once the user selects that the image is to be output as an IBM PC/Clone, for example, that the user is further given the
option of selecting between various image file formats such as GIFF, TIFF, BMP, JFIF, etc.

9 Defendants observe that given the evident disagreement between the PTO and this Court as to the proper construction of the disputed claim terms, if this Court adheres to its construction there is a risk that, at trial, Plaintiffs will obtain a greater-than-appropriate benefit from the presumption of patent validity. See D.I. 258 at 11 n.9 (citing Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc., 98 F.3d 1563, 1569 (Fed. Cir. 1996)). That is, on Defendants' reading of the prosecution history, it is plain that the PTO does not view the patents-in-suit as validly extending beyond a one-to-one correspondence; without a one-to-one correspondence limitation, the PTO would find these patents invalid. It seems to me that this risk is inherent in the legal relationship between the PTO and district courts: while the PTO has sole authority to grant patent rights in the first instance, once the PTO does so a district court asked to construe claim terms is required to determine, de novo, as a matter of law, the scope of the patent protection granted by the PTO (in accord with how one having ordinary skill in the art would read the claims in light of the intrinsic evidence). In any event, Defendants' concern is not one that affects claim construction. It may be necessary, however, to consider this issue in connection with jury instructions.

Accordingly, I recommend that the Court construe the disputed "plurality of data formats" claim terms in the manner proposed by St. Clair, and reject the one-to-one correspondence limitation proposed by Defendants. 10

10 The specific constructions are set out in full at the end of this Report and Recommendation. See infra Part IV. 1.

F. Different Distinct and Independent Games

<table>
<thead>
<tr>
<th>Plaintiff FortuNet's Proposed Construction</th>
<th>Defendants Melange and Planet Bingo's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more games that have different rules and random factors. regard to the status of the other. Each game must operate with unique rules of play and unique random factors from the other. For example, the games cannot share a random number generator or ball blower.</td>
<td>Two very dissimilar games able to reach a winning stage independently, without</td>
</tr>
</tbody>
</table>

Defendants argue the claim term "different distinct and independent games" does not permit playing two games of the same type because during prosecution the patentee continually narrowed the term in response to the PTO's rejections based on prior art. Defendants argue the patentee narrowed the claim in three ways: (1) by listing the types of different distinct and independent games; (2) by differentiating a single bingo game as using a different random number generator; and (3) by describing the different distinct and independent games as "very dissimilar."

FortuNet argues this Court previously interpreted the claim to mean if the two games have a difference in rules and random factors they are unique. FortuNet asserts the two games can be of the same type, such as concurrently playing two bingo
games, particularly because the specification uses the example of two concurrent bingo games. FortuNet denies the patentee narrowed or abandoned this meaning during prosecution.

In the Stuart litigation, this Court interpreted "different distinct and independent games" as follows:

If the games have a difference in the rules of play and random factors, they are unique. Both the rules of play and random factors must contain a difference, a game with different rules of play and nonunique random factors would not be covered by the language of the claim.

(Pls.' App. to Markman Claim Construction Br., Ex. H at 35.) The Court concludes this remains the proper construction of this claim limitation. With respect to playing two of the same type of game, the specification itself states that the patent contemplates the player playing two different bingo games at the same time. (JA0011, Col. 5 at 37-43.)

Although during patent prosecution the patentee refined this term to overcome the patent examiner's rejection of the claim, a review of this history does not suggest the patentee abandoned the simultaneous play of two games of the same type. The initial patent application disclosed the limitation of playing two games simultaneously. (JA0022.) The patent examiner rejected this language, stating prior art taught the simultaneous play of two games over a network. (JA0036.) In response, the patentee added the words "distinct and independent" to describe the games. (JA0044.) The examiner again rejected the claims, explaining that "distinct and independent games" was covered by a prior Itkis patent which allows a player to play two separate bingo cards. (JA0048; JA0050-51; JA0082.) The examiner stated that the "games are distinct because they are on two different cards. They are independent in that matches occur on each card independent of the other card." (Id.) The examiner noted that because the application did not define the word "games," the claim language was broad enough to include two bingo cards within the same overall bingo game. (JA0050-51.) The patentee again amended the claim by adding "different" to the distinct and independent games, as well as including additional new language regarding the unique rules of play and unique random factors and listing the types of games. (JA0054.) The PTO thereafter approved the application. (JA0085.)

Viewing this prosecution history, the patentee did not surrender playing two bingo games at the same time, so long as those bingo games had unique rules of play and unique random factors. The patentee listed the types of games to overcome the patent examiner's interpretation that two bingo cards within a single bingo game could constitute "games" under the patent because the patent did not define "games." The patentee defined "games" to include bingo, poker, etc., to show that "games" did not include two bingo cards within the same bingo game.

This determination is consistent with this Court's ruling in the Stuart litigation in which the Court found the defendant's device which permitted simultaneous play of two different distinct and independent bingo games infringed claim 1 of the '787 patent. The Stuart litigation involved the play of regular bingo along with a game called bonanza bingo. The Court found the defendant's device infringed the '787 patent because it permitted the play of both regular and bonanza bingo at the same time. (Defs.' App., Ex. 3.) Although both games were bingo games, regular bingo and bonanza bingo had different rules and different random factors, thus making them different distinct and independent under claim 1. (Id.)

Defendants also argue that even if claim 1 includes the simultaneous play of two bingo games, to be different distinct and independent games, the two bingo games cannot use the same blower or random number generator. Defendants argue that the patent cannot cover two bingo games using the same blower or random number generator because during prosecution, the patentee specifically noted that a single bingo game would not use the same blower or number generator as another bingo game:

A single (bingo) game is defined as a unique game distinct and independent from another bingo game or any other (non-bingo) game by a number of factors including but not limited to a single random number generator ("ball blower") and a single prize ("pot") to be shared by all the winners. The fact that a player may possess more than one bingo card does not convert a single game into a plurality of distinct and independent games. Similarly, the fact that two or more players simultaneously play the same (bingo) game does not convert this game into a plurality of distinct and independent bingo games.

The difference between a single bingo game and a single poker game is even more obvious than the difference between two bingo games being played at different times and/or in different places (assuming independent prizes and independent
random number generator processes for the bingo games).

(JA0045.)

The claim language does not support Defendants' position. Nothing in claim 1 indicates two bingo games must use different random number generators to be different distinct and independent. The specification does not make this distinction either. This Court rejected Defendants' position in the Stuart litigation where the Court found infringement even though the regular bingo game and the bonanza bingo game used the same blower. (Defs.' App., Ex. 3 at 14.) The Court noted that although the games shared the same blower for selecting numbers, bonanza bingo had a different random factor because players could swap out their bingo cards during the bonanza bingo game, which they could not do during the regular bingo game. This created a unique random factor between the games, thus satisfying the patent language. Consequently, the bingo games need not have a separate bingo ball blower or random number generator so long as they have another difference in random factors and rules of play.

The prosecution history does not alter this conclusion. The patentee noted that a single bingo game is distinct from another by a number of factors "including but not limited to" a single random number generator and prize pot. (JA0045.) Reviewing this comment in the context of the prosecution, the patentee was attempting to distinguish a bingo game from the individual bingo cards being played within that game. It is not evident that the patentee was attempting to identify different random number generators as the only way to differentiate one bingo game from another bingo game. The Court will not impose a limitation which is not expressed by the claim language and is contrary to the specification based on an isolated comment in the ongoing negotiation between the patentee and the PTO. This is particularly appropriate when the statement is viewed contextually. It is unclear whether the patentee intended to narrow the scope of his claimed invention or was attempting to explain to the examiner the difference between two bingo games as opposed to the difference between a bingo game and a bingo card. Furthermore, in a subsequent amendment the patentee added the language requiring the two games to have unique random factors and unique rules. (JA0054.) The patentee thereby clarified through specific claim language what distinguishes two different distinct and independent games.

Finally, Defendants argue that during prosecution, the patentee surrendered the play of two bingo games because he stated the two different games must be "very dissimilar," and then listed the type of games, such as bingo, poker, keno, etc. Defendants thus argue to be "very dissimilar," the games must be of a completely different type. However, two bingo games could be "very dissimilar" if they had different rules of play and random factors.

The Court therefore holds that "different distinct and independent games" means "the games are unique if they have a difference in the rules of play and random factors. Both the rules of play and random factors must contain a difference. A game with different rules of play and nonunique random factors would not be covered by the claim language. The two games can be of the same type and can use the same ball blower or random number generator so long as some other difference in the rules of play and random factors exists."

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1. "A first predetermined wavelength" and "a second predetermined wavelength different from said first predetermined wavelength".

There is no dispute between the parties that "a first predetermined wavelength" refers to an optical communication signal and that "a second predetermined wavelength" refers to an optical service signal. The crux of the matter is how different is "different". Ciena argues that the two wavelengths must be "substantially different". Pirelli refutes this contention by saying "different" means "sufficiently different" so that an optical coupler can properly separate the two wavelengths. There is also no dispute that neither prosecution history nor extrinsic evidence shed any light on how this specific language should be construed.

(a) The Claim Language

As dictated by the foregoing claim construction principles, the Court starts with the language of the claim itself. In both claim 1 and claim 7 of the '459 Patent, the claim, in relevant part, reads: "An optical communication signal transmitter for
transmitting optical communication signals of a first predetermined wavelength; . . . a second predetermined wavelength different from said first predetermined wavelength . . ." Col.7, lines 57-59 and Col.8, lines 19-21 (claim 1); Col.9, lines 1-3 and 29-31 (claim 7) (emphasis added).

Pirelli's position is that the term "different" is clear and unambiguous from the claim. Pirelli construes "different" as "any two optical wavelengths sufficiently different so that they can be separated from one another." See D.I. 79, at 10. In particular, Pirelli points out that the word "different" is not further characterized anywhere else in the claim and there is no basis in the claim language itself for the limitation supplied by the word "substantially".

(b) The Specification

Ciena relies on the language of the specification for the argument that the two wavelengths must be "substantially different". Specifically, Ciena cites the following language:

In order for such couplers to operate correctly, with a complete separation between the extracted signals and the unaltered signal and with a reduced attenuation of the signals themselves, they must operate between wavelengths that are substantially different whereas optical communications are accomplished in a fairly narrow range of wavelengths where the transmission characteristics of the fiber are better.

Col.1, line 68 through Col.2, line 8 (emphasis added). This "substantially different" language is found again in the specification, see Col.2, lines 25-30, and in another section where the two wavelengths are selected to be "appreciably different" from one another. See Col.4, lines 57-60. Ciena concludes that this limitation found in the specification language precludes the use of closely spaced wavelengths for the service and communication signals.

In rebuttal, Pirelli points to another section of the specification which states that, "a different wavelength . . . may be adopted for the service signals . . . as long as it is sufficiently far from the range of transmission signal wavelengths as to allow the making of the corresponding optical couplers." Col.7, lines 30-38. Further, Pirelli advances two other arguments. First, it is impermissible to read limitations from the specifications into the clear language of the claims, especially where a claim term does not say it must have a particular definition. Second, Pirelli asserts that under the rule of claim differentiation, independent claims 1 and 7 should not include the limitations sought to be read into them because those limitations already appear in dependent claims 4 and 5.

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5 Claim 4 of the '459 Patent reads:

An optical fiber transmission system as set forth in claim 1 wherein said second wavelength is selected to be substantially equal to a wavelength at which the attenuation in the sections of optical fiber line is less than the attenuation at adjacent wavelengths.

Col. 8, lines 51-55.

Claim 5 of the '459 Patent reads:

An optical fiber transmission system as set forth in claim 1 wherein said first determined wavelength is in the range from about 1500 nm to about 1600 nm, said second predetermined wavelength is in the range from about 1200 nm to about 1400 nm and said service signals have a rate substantially less than 300 kilobits per second.

Col. 8, lines 56-62.

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(c) Claim Construction

As discussed above, when the meaning of words in a claim are in dispute, the specification can provide relevant information
about the scope and meaning of the claim. See Electro Medical Systems v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994). For the most part, however, "claims are not to be interpreted by adding limitations appearing only in the specification." Id. This is so because "no matter how great the temptations of fairness or policy making, courts do not rework claims. They only interpret them." See Intervet Am. v. Kee-Vet Lab., 887 F.2d 1050, 1053 (Fed. Cir.1989). Ciena suggests the language in the specification that, "[the two wavelengths] must operate between wavelengths that are substantially different . . . " Col.2, lines 2-5 (emphasis added), should be read into the meaning of the claim. See Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988) ("Where specification does not require limitation, that limitation should not be read from specification into claims of patent.").

The Court is unpersuaded. Even if, arguendo, the "substantially different" language could be read into the claim, there is no guidance in the claim itself how "substantially" should be defined. Ciena suggests that the Court might define the communication signal as being in the third window of the silica gel attenuation curve and the service signal as being in the second window of the curve. The Court declines this invitation for three reasons. First, "although the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Electro Medical, 34 F.3d at 1054. While Ciena's attenuation curve suggestion is found in the preferred embodiment, see Col. 4, line 61 through Col. 5, line 10, it is does not mean the preferred embodiment should be used to limit the broad language of the claim. See CVI/Beta Ventures, 112 F.3d at 1158 ("As a general matter, the claims of a patent are not limited by preferred embodiments").

In addition, the Court is counseled by the rule of claim differentiation. Under this "fixed, long and well established" rule, a limitation cannot be read into a claim that already appears in another claim. See D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir.1985). Ciena's suggestion to define "substantially different" by reference to the various windows of the silica gel fiber attenuation curve is found almost verbatim in dependent claim 5. "Where some claims are broad and others narrow, claim limitations cannot be read into the broad . . . " Deere & Co. v. Int'l Harvester Co., 658 F.2d 1137, 1141 (7th Cir.), cert. denied, 454 U.S. 969, 70 L. Ed. 2d 386, 102 S. Ct. 514 (1981). Therefore, the word "different" in independent claim 1 and 7 of the '459 Patent cannot be limited by reference to language found in dependent claim 5.

Third, Ciena's last ditch argument that "different" should mean "substantially different" is based on the proposition that optical couplers were available when the patent issued that allowed separation of signals not substantially apart and yet, Pirelli's specification language only refers to optical couplers that work with signals "substantially different". Therefore, by negative inference, Ciena asserts Pirelli cannot now claim that its invention was intended to work with optical couplers that can differentiate wavelengths not "substantially different". Pirelli contends that a patent should be read based on the current technology, not on what was in existence at the time of the invention of the patent.

The Federal Circuit recently declared in Eastman Kodak: "As a general rule, the construing court interprets words in a claim as one of skill in the art at the time of the invention would understand them." Eastman Kodak, 114 F.3d at 1555 (emphasis added); Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed. Cir. 1995) (en banc), aff'd 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996) ("The focus in construing disputed terms in claim language is not the subjective intent of the parties . . . rather the focus is on the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean."); see also SRI International v. Matsushita Electric Corp. of America, 775 F.2d 1107, 1122 (Fed. Cir. 1985) ("It is not necessary to embrace in the claims . . . all possible forms in which the claimed principle may be reduced to practice.").

At the time of the '459 Patent invention, it is Ciena's assertion, and it is unrefuted by Pirelli, that optical couplers existed that could separate wavelengths of almost any difference. Therefore, "one of skill in the art at the time of the invention" would understand these claims in the '459 Patent to include optical couplers that could separate wavelengths that did not have to be "substantially different". Thus, by Ciena's own admission, Pirelli is entitled to claim as part of its invention optical couplers that are able to differentiate wavelengths that are not "substantially different".

The Court therefore construes the word "different" in the claim language "the second predetermined wavelength different from said first predetermined wavelength" (emphasis added), to mean any difference in wavelength that allows for signal separation by optical couplers that existed at the time of the invention. 6 This definition in effect adopts the "sufficiently far" specification language that Pirelli has espoused, but does so in terms intelligible to a jury.
6 It is appropriate to define a claim in terms of some other element or structure. See, e.g., In re Benson, 57 C.C.P.A. 797, 418 F.2d 1251, 1254 (C.C.P.A. 1969); Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 403-04 (Ct. Cl. 1967). Both decisions of the former U.S. Court of Customs and Patent Appeals and the U.S. Court of Claims are binding precedent in matters of patent law. See UMC Electronics Co. v. United States, 816 F.2d 647, 652 n.6 (Fed. Cir. 1987).

B. "different light signals"

The plaintiff proposes "light signals produced according to different timing patterns." Defendants propose "two or more light emissions that convey information and are not identical." The main issue is whether "different" means different timing patterns or "not identical."

The plaintiff argues that light signals with different timing patterns are clearly different from each other, and that the specifications refer to different light signals in terms of timing patterns, e.g., flashing, strobing, alternating, etc. See '865 patent, 19:21-25, '269 patent, 4:37-41.

Defendants argue that the patents-in-suit distinguish signals based on color, intensity, and position. Defendants also contend that the plaintiff's construction would not classify a wide range of light signals (e.g., amber warning lights on utility vehicles, red and/or blue warning lights on police vehicles, etc.) as "different light signals."

In reply, the plaintiff points to claim 15 of the '865 patent describing the ability to selectively illuminate LEDs on different sides as a way to create different light signals, and claim 3 (and other claims) of the '269 patent disclosing the independent control of LEDs on two exterior surfaces. The plaintiff argues that if "position" made light signals different, then there would be no need to independently control LEDs on each side or surface in order to create different light signals. Second, the plaintiff argues that "color" does not create "different light signals" because "color" is an attribute of "light signal," but does not define "light signal." The plaintiff further argues that, in the prosecution history, the examiner did not cite the combination of prior art with different color LEDs as reciting "at least two different light signals."

The plaintiff's proposed construction is too narrow. Nothing in the specification limits "different light signals" only to "light signals" with different timing patterns. Accordingly, "different light signals" means "two or more light signals that are not identical." The Court incorporates by reference its definition of "light signal."

E. "different types of visually distinct warning light signals"

The plaintiff proposes "different kinds or categories of visually distinguishable warning light signals." Defendants propose "different categories of visually distinguishable warning light signals, each having attributes establishing it as an exclusive group (e.g., steady-on, flashing, oscillating, rotating, character, or symbols)." The main dispute centers around Defendants' further limitation of "exclusive."

The plaintiff argues that the ordinary meaning of "type" should be used because nothing in the specification or prosecution history indicates a deviation from the dictionary definition or the need to include the word "exclusive." The plaintiff further argues that the defendants' parenthetical list is unnecessary because a lay person would understand that a "kind" or "category" of signals would have some common attributes.

Defendants argue that the phrase is indefinite because the claims, specification, and prosecution history do not provide a standard or objective means for one of ordinary skill in the art to determine whether or not a product infringed. In addition,
Defendants argue that claim scope was limited during prosecution. Defendants contend that the patentee abandoned previous claim language from "a plurality of visually distinctive warning light signals" and narrowed the claims to "more than two different types of visually distinct warning light signals" produced either "simultaneously" or "in at least one combination." See Dec. 13, 2001 Amendment, at 1-4; June 13, 2002 Amendment, at 1-5; Feb. 19, 2004 Amendment, at 2-4; Feb. 20, 2004 Amendment, at 2-7; Dec. 6, 2004 Amendment, at 2-4. In addition, throughout the prosecution, the patentee referred to "constant on," "flashing," and "sequencing" as "single and exclusive types of light signals." See Feb. 19, 2004 Amendment, at 9; Feb. 20, 2004 Amendment, at 6; Dec. 6, 2004 Amendment, at 6. Defendants, therefore, contend that a "simple flash" is a different type of light signal from a "triple flash" because they are both "flashing" light signals.

In reply, the plaintiff argues that whether a "single flash" is a different type of signal from a "triple flash" is a question for the jury to decide.

The Court disagrees with Defendants' attempt to limit the phrase to "exclusive" groups. There is nothing in the claims or specification to suggest such a limitation. The Court also disagrees with Defendants' indefiniteness argument because one of ordinary skill in the art would understand that different types of a "visually distinct warning light signal" refers to different categories or kinds of warning light signals. Accordingly, the Court adopts the plaintiff's proposed construction, and "different types of visually distinct warning light signals" means "different kinds or categories of visually distinguishable warning light signals."

D. "different warning light signals"

The plaintiff proposes "warning light signals produced according to different timing patterns." Defendants propose "two or more light emissions that convey warning information and are not identical." The parties make the same arguments as above for the construction of "different light signals" and "light signals."

For essentially the same reasons as discussed in Section B, the Court concludes that "different warning light signals" means "two or more warning light signals that are not identical." The Court incorporates by reference its definition of "warning light signals."

(2) Claim Construction of the '934 Patent. One part of the '818 device, namely, the "real image projecting system" built around the "beam splitter," is covered by the '934 Patent. Claim One of the '934 Patent states:

1. In a real image projecting system including a concave mirror for reflecting a virtual image of an object and an aperture through which is projected a real image of the object into space, a beam splitter interposed the mirror and the aperture comprising:

   a planar expanse having a front surface facing the aperture and rear surface facing the mirror, the plane of said expanse being oriented at an angle to an axis defined between the mirror and the aperture;

   said expanse having differential light transmissivity in either direction along the axis characterized by relatively high transmissivity of light incident thereon from the mirror and relatively low transmissivity of light incident thereon from the aperture, thereby reducing reflected external object image visibility that would clutter the view of such a projected real image.

'934 Patent Specifications, Col. 6, Lines 24-38. The key dispute here centers on the meaning of "differential light transmissivity." OPD argues that this term should be interpreted as referring to a special effect achieved by use of the beam splitter to enable more light to pass through it from the mirror than from the aperture. DMA argues, by contrast, that "differential light transmissivity" describes an effect produced by the functioning of the image-projecting system as a whole.
rather than a special property of the beam splitter alone. According to DMA, the image-projecting system described by the '934 Patent simply exploits the fact that light passing through the beam splitter twice--first on its way from the aperture to the mirror and then back from the mirror to the aperture--will be more attenuated than light only passing through once, thus decreasing the visual clutter around the projected image. In other words, OPD says that the '934 Patent describes a system in which the beam splitter causes the differential in light transmissivity, whereas DMA says it describes a system that takes advantage of a naturally occurring differential in light transmissivity.

In the broader perspective of this litigation, it is hard to see the practical significance of this somewhat semantic debate. If OPD's interpretation is correct, then its own products do not infringe the '934 Patent since they do not include a beam splitter that causes this special effect. But if DMA's interpretation is correct, the ultimate result is likely the same, for the '934 Patent very likely then suffers from the same defect of "obviousness" that invalidates the '818 Patent, see infra.

Given the subsequent stipulations of the parties, however, the only issue the Court has been called upon to determine regarding the '934 Patent is the issue of claim construction. And as to that issue, it is clear that, whatever DMA may have meant to say about the beam splitter, what is actually described by the '934 Patent is a beam splitter that causes the differential in light transmissivity. Thus, the plain language of Claim One states that it is the "expanse" of the beam splitter, rather than the entire image-projecting system, which has the characteristic of "differential light transmissivity." So, too, the "Background of the Invention," Col. 1, Lines 13-22, describes the beam splitter as having "unique directionally differential transmissive properties." Likewise, the "Summary of the Invention" recites that it is the principal object of the invention to provide, in an image projecting system including an image projecting concave mirror and an aperture, an improved piano-beam splitter by the use of which the virtual images of objects external to the system's enclosure do not superimpose on the real image projected through the aperture into a space external to the enclosure.

Col. 1, Lines 25-31 (emphasis added). The clear focus of the '934 Patent is thus on the specific "improvement" of the beam splitter, rather than on some known property of light that the system exploits, and this "improvement" is the beam splitter's "differential light transmissivity."

1 Similarly, subordinate claims Two through Six repeatedly use the term "expanse" to refer to the beam splitter, rather than the overall system.

Conversely, there is no mention in the patent specifications of the relatively greater attenuation of light from external objects reflected off the mirror within the enclosure. In fact, the specifications claim that the beam splitter's relative absorption and reflectivity vis-a-vis this external light can be increased to such an extent that "most light entering [the] aperture . . . fails to reach the concave mirror." Col. 6, Lines 4-7.

Accordingly, the Court interprets the term "differential light transmissivity" in the '934 Patent to mean the claimed ability of the beam splitter to "reflect[] light entering the aperture and striking the outer surface of the beam splitter, while transmitting therethrough light that is projected from the concave mirror toward the aperture." Col. 2, Lines 2-5. While, as DMA now asserts, its beam splitter does not actually do this, OPD had a right to rely on the language of the '934 Patent in developing what it therefore could reasonably believe was a product that did not infringe that patent.
(b) differentially thermally growing an oxide to serve as an implant mask having controlled thickness on both the top and sides of the gate electrode whereby a relatively thicker layer of oxide is developed on the top and sides of the gate electrode and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate; then

(c) anisotropically etching said oxide;

(d) implanting a source/drain region in the substrate such that said implant mask shields an underlying portion of the substrate from implantation to result in a gap between a side edge of the gate electrode and a side edge of the implanted region; and then

(e) heat driving the implanted source/drain region until its side edge is substantially aligned with the previously separated side edge of the gate electrode, whereby the source/drain edge is aligned with the gate electrode edge and there is substantially zero overlap.

The parties do not dispute any additional language in dependent claims 2 and 3.

During this litigation, the parties have presented the following issues of claim construction with respect to claim 1 of the '943 patent:

1) Must the gate electrode be doped prior to differentially thermally growing an oxide layer over the gate electrode?

2) How much oxide must be grown on the top and sides of the gate electrode versus on the substrate for the oxide to be "differentially" grown as required by step (b)?

3) What is the meaning of the word "gap" in step (d)?

4) What are the meanings of the phrases "substantially aligned" and "substantially zero overlap" in step (e)?

Prior to the hearing on June 10 and 11, 1996, both parties submitted briefs, expert reports, and documentary evidence outlining their positions with respect to these disputed issues. In its May 28, 1996 Opinion, the court decided the first issue in the affirmative. In other words, the court construed claim 1 to require doping the gate electrode prior to differentially thermally growing an oxide layer over the gate electrode.

At the conclusion of the claim construction hearing on June 10 and 11, 1996, the court announced its resolution of the remaining claim construction issues. The court construed the phrases "differentially thermally growing," "relatively thicker," and "relatively thinner" to require three elements:

1) the grown oxide must be thick enough on top of the gate electrode to serve as a mask for the implant of step (d);

2) the grown oxide must be thick enough on the side of the gate electrode to block the implant of step (d), thereby making a "gap;" and

3) the top oxide thickness must be in a proportion of at least 1.77 to 1 to the substrate oxide thickness.

*   *   *

1. To what extent must the oxide growth of step (b) be "differential"?

At the conclusion of the claim construction hearing on June 10 and 11, 1996, the court set out three requirements that are implied by the following phrases in step (b) of claim 1: "differentially thermally growing," "relatively thicker," and "relatively thinner." In its answering brief in opposition to Intel's motion for summary judgment, TENA raises arguments against each of these requirements. The court will first explain its basis for a particular construction of the claim language. It will then address TENA's arguments in opposition to that construction.
a. "The grown oxide must be thick enough on top of the gate electrode to serve as a mask for the implant of step (d)"

The plain language of claim 1 and the prosecution history support the requirement that the grown oxide must be thick enough on top of the gate electrode to serve as a mask for the implant of step (d). Step (b) of claim 1 specifically recites "growing an oxide to serve as an implant mask having controlled thickness on both the top and sides of the gate electrode." Step (d) of claim 1 defines the term "implant mask" as a device that "shields an underlying portion of the substrate from implantation" of the source and drain regions. Thus, the claim language states that a grown oxide mask alone must be sufficient to block implantation. Furthermore, the prosecuting attorney, Edward Manzo, added in his First Proposed Amendment after Final Rejection the limitation that the mask must consist of a grown oxide, rather than a deposited oxide or other deposited material.

TENA merely seeks to clarify this part of the court's construction in light of an alleged ambiguity. TENA believes that this construction might imply that the oxide layer must remain on top of the gate during the implant of step (d). Intel has never asserted this contention. In fact, Dr. Chung specifically testified at the claim construction hearing that the oxide layer may be removed after it is grown. Moreover, requiring the oxide layer to remain on top of the gate would be inconsistent with the anisotropic etching step in claim 1, which suggests that the oxide layer may be removed, and dependent claim 4, which explicitly requires the oxide layer to remain on top of the gate. Thus, to the extent the court's construction has caused any ambiguity, the construction is not meant to imply that the oxide layer must remain on top of the gate during implantation.

b. "The grown oxide must be thick enough on the side of the gate electrode to block the implant of step (d), thereby making a 'gap'"

The requirement that the grown oxide must be thick enough on the side of the gate electrode to block the implant of step (d), thereby making a "gap" is also straightforward. According to step (d) of claim 1, the oxide mask "shields an underlying portion of the substrate from implantation to result in a gap between a side edge of the gate electrode and a side edge of the implanted region." Likewise, the specification, at column 3, lines 42-44, states that the oxide on the sides of the gate electrode must be thick enough to act as the implant mask of step (d) "to shield underlying portions of the substrate from implantation." Thus, the oxide mask on the sides of the gate electrode must be thick enough by itself to block implantation of the source and drain regions.

TENA argues that "if this construction means that the grown oxide alone must be thick enough to block the implant of step (d) thereby making a gap, it is erroneous for the reasons earlier discussed." TENA does not explicitly state the "earlier reasons" to which it is referring. It appears that TENA is arguing the following. The three requirements set out in the court's construction of the phrases "differentially thermally growing," "relatively thicker," and "relatively thinner" are interdependent. If the first requirement is that the oxide on the top of the gate electrode must remain on the top during the implant of step (d), that requirement is erroneous. Therefore, the requirement that the oxide mask on the sides of the gate electrode must be thick enough alone to block implantation is erroneous.

TENA's argument is inapposite for two reasons. First, as set out above, the court has never construed claim 1 to require that the oxide mask remain on the top of the gate electrode during the implant of step (d). Second, the three requirements set out by the court are not interdependent in the way that TENA seeks to imply. Separate evidence from the claims, specification, and prosecution history supports each requirement independently. In finding each requirement, the court does not rely on a separate finding with respect to claim construction. For example, in finding that the oxide alone must be thick enough on the sides to block the implant of step (d), the court does not rely on its finding that the oxide on the top of the gate electrode must be thick enough to serve as an implant mask, or even its finding that doping the gate electrode must precede differential growth. These separate findings are consistent, but they do not interlock such that all fail if one is incorrect.

c. "The top oxide thickness must be in a proportion of at least 1.77 to 1 to the substrate oxide thickness"

The limitation that the top oxide thickness must be in a proportion of at least 1.77 to 1 to the substrate oxide thickness derives entirely from the prosecution history. As initially filed, claim 1 did not contain any reference to differential thermal growth. In subsequent amendments, however, Manzo added a differential growth limitation to dependent claims 2 and 3. The examiner nevertheless issued a final rejection of all of the claims as obvious in light of the combination of the Cohen and Steinmaier patents. Referring to the process of the Steinmaier patent, the examiner stated, among other things, that "the
thermally grown oxide is inherently thicker on the top and sides of the polysilicon gate than on the silicon substrate."

In his First Proposed Amendment After Final Rejection, Manzo amended claim 1 to state in relevant part:

....

(b) differentially thermally growing an implant mask of oxide of a controlled thickness on both the sides and on the top of the gate electrode including controlling ambient conditions to promote a high rate of oxidation on the top and sides of the doped polysilicon gate compared to the silicon substrate, whereby a relatively thicker layer of oxide is developed on the top and sides of the gate and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate; then . . . . (emphasis added to show amendments to claim)

Manzo observed, citing the Kamins article, that the inherent differential growth observable in Steinmaier would result in only a 7% to 9% differential. Manzo emphasized that the differential growth of the '943 patent contemplated, in its preferred embodiment, a differential of 300%. See also First Proposed Amendment at 14 ("Clearly the application inherently supports the use in the claims of 'a high differential' because a ratio of 3 to 1 is certainly high compared to 1.07 to 1.").

In his subsequent File Wrapper Continuing Application, Manzo continued to distinguish the differential growth of the Steinmaier patent. Manzo stated:

Further, the oxidation in a dry atmosphere at 950 [degrees] C for a mere 50 minutes would not lead to an appreciably different thickness because, as Table I of Kamins establishes, the differential will be a factor of only 1.77, and that is when 375 minutes of dry oxidation occurs. . . . Thus, the offset which would result from the process specified in Steinmaier, even if the ordinarily skilled artisan inadvertently practiced the method with doped poly, would be quite small.

Thus, Manzo thought that a differential of "only 1.77" would result in an offset that is "quite small" compared the offset obtained by the differential growth required to practice the inventions of the '943 patent.

After the submission of the First Proposed Amendment and the File Wrapper Continuing Application, the examiner interviewed Manzo to discuss claim 1 in light of the Cohen and Steinmaier patents. The examiner stated the following in his "Examiner Interview Summary Record" ("EISR"): "Mr. Manzo to submit preliminary amendment to place case in condition for allowance. Anisotropic etching limitation to be added to claim[ ] 1 . . . ."

Manzo subsequently submitted a Voluntary Amendment in which he added an anisotropic etching step to claim 1 and removed the following language from that claim: "controlling ambient conditions to promote a high rate of oxidation on the top and sides of the doped polysilicon gate compared to the silicon substrate." Manzo left in the requirement that the oxide be "differentially thermally grown," however. In addition, he left in the requirement that the oxide on the top and sides of the gate electrode be "relatively thicker" than the oxide on the substrate, which is to be "relatively thinner." Therefore, it appears that differential growth is still important to claim 1 of the '943 patent and that a minimum differential of 77% is still required.

TENA makes three arguments in opposition to this limitation. First, TENA asserts that by removing the "ambient conditions" language, Manzo removed the limitation in claim 1 requiring a "high rate" of oxidation. Thus, TENA argues that the court's construction impermissibly resurrects that removed limitation. TENA is correct that Manzo removed the "high rate" limitation from claim 1. The court's construction requiring a 1.77 differential does not resurrect this limitation, however.

TENA fails to acknowledge that the "high differential" of claims 6, 10, and 15 is most likely the 300% differential identified in the specification, at column 3, lines 26-33, and in the First Proposed Amendment. Thus, while claim 1 may no longer require a 3 to 1 ratio, the removal of the "ambient conditions" language does not suggest what ratio is required. Moreover, Manzo did not remove all of the limitations directed to differential growth added in the First Proposed Amendment. Thus, TENA's argument only establishes that the differential required by claim 1 is less than 300%. A 77% differential is substantially smaller than the "high differential" of 300%. Therefore, the court is not resurrecting a limitation that was specifically removed from the claims. Rather, it is construing the claims consistently with Manzo's representations to the examiner.
TENA's second argument is that Manzo was not speaking about the oxide on the top of the gate electrode when he referred to the 1.77 differential. Instead, he was arguing that the 1.77 differential was an advantage for the side oxide in order to create a sufficient gap between the edges of the source and drain regions and the edges of the gate electrode. TENA's argument appears correct but irrelevant. The patent does not teach, and none of the experts have explained, how one skilled in the art of making MOS transistors could achieve differential growth as between the top and sides of the gate electrode, which are made of the same material. Testimony at the hearing established that during the heating stage the oxide on the top of the gate electrode should grow at approximately the same rate as the oxide on the sides of the gate electrode. Therefore, a limitation that the oxide on the sides of the gate electrode must be 77% bigger than the oxide over the substrate as a practical matter is a limitation that the oxide on the top of the gate electrode must be 77% bigger as well.

TENA's third argument is that Manzo made a mistake in interpreting the Steinmaier patent in light of the Kamins article. Citing In re Eskild, 55 C.C.P.A. 807, 387 F.2d 987, 989 (C.C.P.A. 1968), TENA argues that the true content of Steinmaier and Kamins "must necessarily result from an inquiry made from the objective standpoint of...one of ordinary skill in the art." Manzo's statement does not appear to be properly characterized as a mistake, however. Rather, it appears that Manzo was defining the differential growth required to practice the patent by speaking in hypothetical terms about Steinmaier in light of Kamins. For example, the Steinmaier process involves oxidation of an undoped gate electrode in a dry atmosphere at 950 [degrees] C for 50 minutes. Manzo's hypothetical, based on the Kamins article, involved dry oxidation of a doped gate electrode for 375 minutes. Manzo obviously was aware that the Kamins article did not accurately reflect the process taught by Steinmaier ("Thus, the offset which would result from the process specified in Steinmaier, even if the ordinarily skilled artisan inadvertently practiced the method with doped poly, would be quite small." (emphasis added)). Manzo clearly had in mind that even if Steinmaier resulted in 77% differential growth, such differential growth would not create a sufficient "gap" in order to practice the inventions of the '943 patent.

1. "apparatus arranged for differently encoding a plurality of data signals"

The first disputed term of the '604 Patent is found in Claims 1 to 14 and 22. Claim 1, a representative claim, provides:

1. A data transmission system using multicarrier modulation, comprising:

   FECC (forward error correction code) coding and codeword interleaving [24] apparatus arranged for differently encoding a plurality of data signals to provide a plurality of encoded data signals with different delays through the coding and interleaving apparatus, the coding and interleaving apparatus comprises a plurality of data paths providing the encoded data signals with different delays, and a switch for switching different data signals to different data paths; and a modulator arranged to modulate bits of the encoded data signals onto multiple carriers of the transmission system, different numbers of bits in each transmission

   system symbol period being allocated to different carriers.

'604 Patent, col. 11, ll. 6-20 (emphasis added). Plaintiff offered the following proposed construction in the Chart: "the apparatus implementing the encoding is actually arranged to carry out at least two types of encoding that are not the same." (Chart at 7). Defendants argue that the term must be construed as an "apparatus having the capability of encoding more than one data signal using encoding that is not the same." Id. Thus, the dispute centers around the construction of the phrase "arranged for." 18

18 The parties agreed that there is no dispute concerning "a plurality of data signals." The phrase should be construed to mean "more than one" data signal. (Tr. at 114:7-20).

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Plaintiff asserts that the term must be construed as "actually arranged." According to Plaintiff, "actually" is required to modify "arranged" to signify the "degree" of arrangement required by the claim. (Tr. at 116:10). Plaintiff states that the specification explains that hardware and software must be arranged in a particular manner in order to carry out particular functions. (Pl.'s Opening Br. at 31). It states: "The various units in the transceivers 10 and 12 can be implemented in various ways, using arrangements of hardware and/or software." '604 Patent, col. 8, ll. 35-37. Plaintiff asserts that Defendants' construction, which incorporates the phrase "capable of," is without meaning. (Tr. at 116:13).

Defendants argue that the ordinary meaning for the term "arranged" should be adopted. Defendants offer two definitions from dictionaries that were published before the date the patent issued. First, "arrange" can mean "to put in the correct, proper or suitable order," or "to make ready; prepare or plan." WEBSTER'S NEW WORLD DICTIONARY 76 (1991). Second, "arrange" can mean "to put into a proper order or into a correct or suitable sequence, relationship, or adjustment." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 64 (1993).

The Court concludes that the ordinary meaning of the term "arranged" should be adopted. There is no evidence in the specification that the patentees chose to define the term in a different way. Interestingly, the Court finds that Plaintiff's reasoning more closely reflects the ordinary meaning than Defendants' proposed construction. Plaintiff's assertion that the apparatus must be arranged in a proper or suitable order to perform the particular functions comports with the plain meaning of "arranged." Defendants have not demonstrated that "capable of" is synonymous with "arranged." Thus, the Court adopts the ordinary meaning "to put into a proper or suitable order," but for the sake of simplicity, will use a simpler term that adequately reflects this definition. The Court concludes that the term "configured" serves this purpose, and will use it in its construction.

Accordingly, the Court concludes that disputed term [24] "apparatus arranged for differently encoding a plurality of data signals" means "the apparatus implementing the encoding is configured in such a way that it encodes more than one data signal by using at least two types of encoding that are not the same."

The parties disputed six terms used in the claims of the '843 patent. The Court has construed those terms as follows:

a) "Waveguiding structure" is used interchangeably with "waveguide" and is defined as: "A structure formed by a waveguiding film and a substrate and containing a diffraction grating";

b) "Waveguide film" means: "A film which, in combination with a sample having a lower index of refraction and a substrate can guide light along a path";

c) "Diffraction grating" means: "Any arrangement in the waveguiding structure that imposes a periodic variation of amplitude and/or phase on an incident wave";

d) "Wavelength" means: "A wavelength of light at which the optical sensor, including the waveguiding structure, waveguiding film, and diffraction grating, detects chemical, biochemical or biological substances in the sample";

e) "Effective index" means: "A number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum";

f) "Measuring the effective index and effective index change" means: "determining the effective index" and "determining the effective index change."

(D.I. 156).
Diffractive Follow-on Track

The parties dispute whether the "diffractive follow-on track" includes any portion of the disc's area that does not lie physically within the disc's grooves. The area in between the grooves is known as the "lands of the disc." Philips argues that the track is simply the groove itself, while Defendants argue that it is the groove and a portion of the lands on each side of the groove, which they refer to as "track pitch." See Tr. at 17 ("It is impossible to read the width of the groove as also encompassing the lands on either side of the groove. . ."); at 46 ("It is the defendants' position that this diffractive follow-on track includes not only the groove, but also includes the land adjacent to the groove."). Defendants' argument is again one of functionality. They assert that an insufficient amount of light will be diffracted if the track does not include a portion of the land on each side of the groove. See id. at 46 ("Our argument on this issue, your Honor, if that if you don't take these lands into account, because the lands directly adjacent to the groove are what provide this diffractive pattern with sufficient intensity so that they will be able to read, if you don't have that, it will not work.").

The claims are clear that the "diffractive follow-on track" is a groove that exists to guide the radiation beam as it writes information on the disc. See Claim 1 of '209:

... said record carrier body having a radiation-sensitive layer on which the information to be recorded is written with the write beam and a continuous, generally circular, diffractive follow-on track extending about the center of said disc-shaped record carrier body for guiding the write beam during recording of the information, said follow-on track being configured to diffract radiation incident thereon when scanned with a spot of radiation of a predetermined size and having a width which is smaller than the dimension of the spot in the width direction.

Claim 11 of '493 states:

... the information to be recorded is written with the write beam and a diffractive follow-on track in the form of an elongated groove formed in said record carrier body for guiding the write beam during recording of the information, said groove being configured to diffract radiation incident thereon when scanned with a spot of radiation of a predetermined size and having a width which is smaller than the dimension of the spot in the width dimension.

Defendants' argument that the "track" includes a portion of the lands is inconsistent with the language of the patent, which explains that the track is a groove. What is a groove? The Oxford English Dictionary, Second Edition 1989 defines a groove as:

1. A mining shaft; a mine, pit;
2. A channel or hollow, cut by artificial means, in metal, wood, etc.; e.g. the spiral rifling of a gun, one of the air-passages leading from the wind-chest to the pipes of an organ, etc.;
3. A channel or furrow of natural formation.

As noted in the above definition, a groove is synonymous with a furrow. A furrow is defined as:

1. A narrow trench made in the earth with a plough, esp. for the reception of seed;
2. In extended sense: A trench, drain;
3. A quantity (of land) having the length or breadth of a furrow;
4. Anything resembling a furrow; a. generally, e.g. a rut or track, a groove, indentation, or depression narrow in proportion to its length.

A furrow or groove, cannot exist without the existence of sidewalls as well as a floor. The sides are formed by portions of the adjoining "lands." A groove by its very definition is comprised of only a floor and sidewalls extending up from the floor of the groove to the "ground level" on each side of the groove. It would defy all customary usages of the word "groove" to include land outside of the indentation itself as being part of the groove.
The patent specifications also support the view that the "track" does not include any part of the surrounding "lands." '209 1:55-61 states:

The record carrier body according to the invention is characterized in that the follow-on track is a flat track, and that follow-on track influences the direction of a radiation beam in the same way as, but the radiation distribution over the beam section in a different way, than the rest of the surface of the record carrier body on which the information is to be written.

The patent differentiates clearly the groove itself from the area between the grooves. It also makes clear that the track's radiation distribution differs from its surrounding "lands." See also '209 17-22

For example, the reflection coefficient or the absorption coefficient of the follow-on track may differ from its surrounding, so that the intensity of a beam which emerges from the record carrier body differs according to whether the beam has or has not interacted with the track.

Defendants' assertion that the "diffractive follow-on track" must include a portion of the adjoining lands due to functional necessity to achieve a sufficient level of diffraction does not find support in either the claim language itself or in the patent specifications. The Court is bound by the plain language of the patent. The patent differentiates between the track, which is a groove, and the area surrounding the track, known as the land. The patent teaches that diffraction occurs when the radiation beam strikes the narrower groove. Accordingly, the Court interprets "diffractive follow-on track" as meaning "the groove in between the lands on a optical storage disc, which is narrower than a spot of radiation."

3. Digest (claims 1-2, 6-8) / network protocol processing information (claims 1 and 8)

Plaintiff's Construction:

. digest: A predefined portion of a message which is generated by a receiving processor and transmitted to a transmitting processor instead of the entire data link layer and which contains preselected network protocol processing information for the particular message, obtained via sequential byte processing of the message at the time of the reception of the message, which is necessary to permit the transmitting processor to process each byte of the data packet in sequence.

. network protocol processing information: All network protocol information that is necessary for the completion of the processing tasks to be performed by the processor of the transmitting processor.

Defendant's Construction:

. digest: Collected information relating to network protocol processing of a particular message.

. network protocol processing information: Information utilized when employing a particular network protocol for message transmit processing.

I will consider these two terms together because they are so closely related. As discussed further below, the central dispute for both of these terms is whether the digest must contain all of the information necessary to perform certain tasks.

Plaintiff's proposed construction of the term "digest" is its most massive. It contains so many clauses and limitations that even plaintiff does not try to justify some parts of it. Although many patent lawyers might be reluctant to admit it, Occam's Razor applies no less in the context of claim construction than it does to any other walk of life. It is clear that plaintiff has struggled with this term; originally it proposed an even longer construction with now abandoned limitations such as "compliant with all IEEE 802 standards" and "the digest is not sent to the management processor." With such a bloated and fluid construction, a skeptical judge might think that plaintiff's proposal is not a genuine effort to explain an ambiguous term, but merely an attempt to define the term around its own products.
Defendant's proposed construction of "digest" suffers from the opposite problem: it says nothing at all. Claim 1 itself says that the digest "contain[s] network protocol processing information for message transmit processing." The only real change in defendant's construction is to unjustifiably broaden the contents of the digest to include not just "network protocol processing information" but also information "relating to" network protocol processing. But that is not what the claim says. Although defendant points to parts of the specification and prosecution history that use the "relating to" language, these references cannot expand the scope of the claims. United States v. Adams, 383 U.S. 39, 48-49, 86 S. Ct. 708, 15 L. Ed. 2d 572, 174 Ct. Cl. 1293(1966) ("the claims of a patent limit the invention, and specifications cannot be utilized to expand the patent monopoly").

The question remains whether any part of plaintiff's construction is appropriate for adoption. Plaintiff devoted much of its argument to the proposition that the digest must contain all the necessary information so that certain tasks may be performed. I say "certain" tasks because the precise nature of these tasks changed throughout plaintiff's briefs and at the hearing. In the context of its "digest" construction, plaintiff says that digest must include all "network protocol processing information . . . necessary to permit the transmitting processor to process each byte of the data packet in sequence." But as plaintiff points out, that alleged limitation comes from one embodiment in the specification, '181 pat., col. 11, lns. 31-33. It is not part of the invention as a whole.

Plaintiff changes the type of information the digest must contain in the context of its construction for "network protocol processing information" to information that is "necessary for the completion of the processing tasks to be performed by the processor of the transmitting processor." In support of its argument, plaintiff cites a passage that appears in both the abstract and the summary of the invention: "The information placed into the digest is information that is necessary for the completion of the processing tasks to be performed by the processor of the transmitting line card." '181 pat., abstract; col. 4, lns. 62-65. But this passage says only that the information in the digest is necessary for completing the processing tasks; it does not say that the digest contains all the necessary information for completing those tasks. In other words, plaintiff's argument is that the information in the digest must be sufficient to perform the task but the cited passage supports only the proposition that the information in the digest is necessary to perform the task.

Plaintiff suggested another alternative, not included in its construction, that the digest must include all the information needed to "permit it [the invention] to process and transmit the message." Pkt's Br., dkt. # 31, at 28. See also Cl. Const. Tr., dkt. # 48, at 100 ("[T]he digest has to contain all of the information necessary to allow the transmitting processor to forward the message.") Plaintiff argues that this construction is necessary because (1) one of the steps of the invention is to forward the message; (2) without the information necessary to forward the message, the invention fails; (3) if the invention fails, it is not patentable.

Plaintiff's argument fails on its third premise. It is true, as the case plaintiff cites says, that an invention is not patentable if it is not "operative," In re Lemuel Wooddy, 331 F.2d 636, 639, 51 C.C.P.A. 1317, 1964 Dec. Comm'r Pat. 617 (CCPA 1964), but there is a significant and obvious difference between a device that does not work as intended in all instances and a device that never works at all. The specification makes it clear that "in most instances" there is sufficient information to allow the transmitting processor to route the message. '181 pat., col. 5, lns. 7-10. Because the patent does not require perfection, I cannot read such a limitation into the claims.

Plaintiff repeats the same arguments in the context of its construction for "operating to perform the first preselected processing of a message received by the message receiving process." I conclude that the parties have failed to show that any of these three terms would benefit from judicial construction.

1325
1. The term "digital assistant module" in claim 34 is construed as "a small portable computing device;"

1326
A. "Digital Audio Signal"
This term appears in each of the patents, beginning with the '573 patent in Claim 1, which begins "A method for transmitting a desired digital audio signal stored on a first memory . . ." (Docket # 69, Exhibit J at 6) (italics added). Plaintiff maintains that this term should be construed to mean "a sound wave converted to binary form." (Docket # 69 at 11). Defendants assert that the term's proper construction should be thus:

A representation of audio in binary form intended to produce an audible sound. It can be recorded sound, a sound effect, or instructions for producing a sound, and need not be a complete song. (Docket # 65 at 15). The essence of the dispute in this instance is whether or not the term "digital audio signal" includes MIDI instructions or computer software programs as opposed to simply digital representations of audible sounds.

MIDI is a means of creating musical sounds by instructing a computer to play a synthesizer to produce a specified tone. By contrast, Pulse Code Modulation, or PCM, is a means of converting a sound wave into binary form so that the same sound wave (or one so close to the original so as to be indistinguishable by the human ear) may be produced when the binary language is interpreted by a computer and sent through a digital/analog converter to a speaker.

Sightsound asserts that the phrase "digital audio music" does not include MIDI representations. Resort to contemporaneous dictionary definitions for those skilled in the art supports this conclusion. The IEEE 6 Standard Dictionary of Electrical and Electronics Terms in 1988 defined "audio" in the context of data transmission as "pertaining to frequencies corresponding to a normally audible sound wave - roughly 15Hz-20Hz." (Docket # 69, Exhibit A). "Digital" is defined as "pertaining to data in the form of digits." (Id., Exhibit B). "Signal," again as employed in the context of data transmission, is "(a) a visual, audible or other indication used to convey information; (b) the intelligence, message or effect to be conveyed over a communication system; (c) a signal wave; the physical embodiment of a message." (Id., Exhibit C).

6 The Institute of Electrical and Electronic Engineers, which is part of an American National Standard (ANSI).

Defendants argue that the phrase "sound wave," which is part of Sightsound's proposed definition of "digital audio signal," is nowhere to be found in the specification. While this is true, "sound wave" is part of the IEEE definition of "audio," and is a source to which one skilled in the art would refer in construing the claim terms. Indeed, Sightsound persuasively argues that, relying upon contemporaneous trade definitions, the term "digital audio signal" refers to "a normally audible sound wave" which has been represented as "data in the form of digits" for purposes of sending or conveying it.

Resort to the specification for purposes of determining if a different meaning was intended by the patentee does nothing to change the meaning of the phrase. The specification of all three patents provides several clues concerning the meaning of "digital audio signal." A review of the specification in some detail at this point will serve to provide needed background for this term, as well as for the other terms which remained to be construed.

First, in rather graceless language in common to the species, the specification contains a description of the field of the invention:

The present invention is related to a method for the electronic sales and distribution of digital audio or video signals, and more particularly, to a method which a user may purchase and receive digital audio or video signal from any location which the user has access to a telecommunication line. (Docket # 70, Tab 51, '573 Patent at col. 1, lines 9-14). What follows is a description of the then-existing "medium" or "hardware units" of music, which include records, tapes and compact discs (Id., lines 17-68). Throughout this discussion, the disadvantages inherent in the use of "hardware units" for storing, selling and playing back music are discussed. Then, the advent of digitizing sound is discussed:

QUALITY: Until the recent invention of Digital Audio Music, as used on Compact Discs, distortion free transfer from the
hardware units to the stereo system was virtually impossible. Digital Audio Music is simply music converted into a very basic computer language known as binary. A series of commands known as zeros and ones encode the music for future playback. Use of laser retrieval of the binary commands results in distortion free transfer of the music from the compact disc to the stereo system . . . .

(Id., lines 50-59). With respect to copyright protection of musical pieces, the specification indicates that, "if music exists on hardware units, it can be copied." (Id., col. 2 lines 8-9).

Thus, the objectives of the invention are listed as providing a new "methodology/system" to: (1) "electronically sell and distribute Digital Electronic Music"; (2) "electronically storing and retrieving Digital Audio Music"; (3) electronically sorting, cuing and selecting Digital Audio Music; and (4) preventing "unauthorized electronic copying" of Digital Audio Music. (Id., lines 10-23).

The specification goes on to explain that Digital Audio Music, in the disclosed invention, is stored on only one piece of "hardware," that being a hard disk (Id., lines 31-34). This eliminates the former types of "hardware" identified in the specification, namely "records, tapes, or compact discs." (Id., line 34). The reader is further informed that, "inasmuch as Digital Audio Music is software and this invention electronically transfers and stores such music, electronic sales and distribution of the music can take place via telephone lines onto a hard disk." (Id., lines 63-67). A more concise description of the invention is then provided:

The present invention is a method for transmitting a desired digital video or audio signal stored on a first memory of a first party to a second memory of a second party. The method comprises the steps of transferring money via a telecommunications line to the first party from the second party. Additionally, the method comprises the step of then connecting electronically via a telecommunications line the first memory with the second memory such that the desired digital signal can pass there between. Next, there is the step of transmitting desired digital signal from the first memory with a transmitter in control and in possession of the first party to a receiver having the second memory at a location determined by the second party. The receiver is in possession and in control of the second party. There is also the step of then storing the digital signal in the second memory.

(Id., col. 3, lines 3-19). This description is repeated after the preferred embodiment is set forth (Id., col. 5 lines 29-45).

Again, it is helpful to focus the court's inquiry on the crux of the dispute between the parties. Defendants assert that any means of directing a computer to make sound through use of binary code is acceptable as a "digital audio signal" for purposes of the invention. This is so, defendants argue, because the specification identifies "digital audio music" as "music converted into a very basic computer language known as binary" and because the specification refers to Digital Audio Music as "software." (Docket # 65 at 16). MIDI is a form of computer "software" in that it consists of instructions, stored in binary form, which will produce sound when interpreted by the computer. "Instructions" to produce sound are, in defendants' view, part of the claimed invention.

Sightsound responds that software programs, such as MIDI, are not properly within the scope of the term "digital audio signal." The manner in which the terms "hardware" and "software" are used in the specification are, Sightsound argues, the most important indicia of the meaning of those terms. The specification consistently refers to any physical storage medium for sound, whether in binary form or not, as "hardware." Such storage units including records, tapes, compact discs and even the hard drive of a computer. The specification explains that the key advantage to storing music as digital signals is that the digital signal is "software," i.e., it can be transferred to a purchaser without also transferring along with the signal some type of "hardware" unit on which the signal is stored.

There are repeated references in the specification to "music" and "songs." Likewise, the patentee refers to storing music on other media, such as records and tapes, which do not normally contain computer instructions. These references from the specification lead the court to conclude that Sightsound's definition is the preferred one in this case, and that "digital audio signal" does not include all types of computer software or, more specifically, MIDI. 7 Rather, it includes only digital representations of sound waves.
7 This conclusion has been reached without reference to extrinsic evidence, with the exception of dictionary references. Further, evidence presented by defendants addressed to the ability of the technology available to the normal consumer in 1988 to handle the transfer of PCM songs is not, at this stage, relevant.

The court understands that, in order to play these digital representations of sound waves, a computer must have instructions for converting the binary into analog form. Hence, as Dr. Moorer pointed out, compact discs include, along with a digital representation of sound waves, instructions concerning how those digital representations are to be interpreted. This, however, does not alter the nature of what is being represented: a recorded sound as opposed to an instruction to a computer to play an instrument which, in turn, will produce a sound.

The specification does not, therefore, support the construction proffered by defendants that "digital audio signal" includes "software programs." The specification does not refer to such programs, and clearly uses "software" in a sense different from what is commonly understood when used to refer to "software programs." 8 Further, the specification focuses upon the common practice of selling musical recordings, and does not mention storing or transferring instructions for playing music.

The parties dispute the meaning of "digital audio tape," as used in claim 1 of the '371 patent. NICE contends that Witness seeks to read in limitations not supported by the claim language or specification, and that the specification does not support the contention that the tape must be "magnetic" or "designed" for storage. Witness contends that NICE's construction improperly reads out the term "audio," and that one skilled in the art in 1993 (when the '371 patent was filed) would have understood DAT to mean a magnetic medium designed for audio (citing Dictionary of Multimedia, 52 (1997)(DAT "records and plays back digital audio on magnetic tape cassettes that are smaller than common audio cassettes.")). NICE responds that a person of ordinary skill would have understood DAT as being capable of non-audio storage, as evinced by the contemporaneously-filed '005 patent-in-suit (col. 3:65), which stores computer "time-data" on a DAT.

Considering the only intrinsic evidence cited, the language of the disputed term, and the extrinsic evidence cited by both parties, the Court concludes that digital audio tape means "magnetic tape designed for storage of audio in digital form." NICE has not persuaded the Court that the claim or specification support a reading of "digital audio tape" that gives no meaning to "audio," a term included in the disputed phrase. Further, the Court accords more probative value to a technical dictionary definition than to a contemporaneously-filed patent, finding that the former is more representative of the understandings of a person of ordinary skill in the art than the latter.
"digital camera electronics"

Claims 3, 10, 17, 24, and 29 of the ’869 patent contain the term "digital camera electronics." Defendants argue that the term in claim 10 (the only one of these claims asserted against Defendants) is indefinite because it is not defined in the specification. While Defendants are correct that the term "digital camera electronics" is not used in the specification and only appears in the summary of the invention and the claims themselves, the term "digital camera components" appears multiple times throughout the specification. For instance, the specification recites examples of "digital camera components including a light sensitive chip and one or more outputs (such as video output outputs or a USB port) for outputting the digital images to a TV, a computer, or a storage device." ’868 patents at 6:50-55. The specification further explains that "[a] digital camera can also include a removable or permanent flash memory card to hold images. In one example, an 8 Mbyte flash memory is provided to hold up to 116 images." Id. at 54-57; see also ’868 patents at 9:52-58; 7:52-57.

Defendants do not argue that one skilled in the art would lack understanding of the specification's term "digital camera components." Rather, they argue that the doctrine of claim differentiation requires that the term be defined differently than "digital camera electronics" used in the claims. Defendants' argument misunderstands and misapplies the law of claim differentiation.

Claim differentiation creates a presumption that each claim in a patent has a different scope and is "not a hard and fast rule of construction." Comark Commc'ns, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998). Furthermore, as the Federal Circuit has explained, "claim differentiation refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim. Thus, the claim differentiation tool works best in the relationship between independent and dependent claims." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380-81 (Fed. Cir. 2006). Because the term "digital camera components" is not used in the claim language, but rather the specification, the doctrine of claim differentiation does not apply.

Instead, it is clear from the specification's use of the term "digital camera components" that the term is synonymous with the claim term "digital camera electronics." In fact, the specification's detailed explanation of "digital camera components" is highly relevant in understanding the definition of "digital camera electronics." See Phillips, 415 F.3d at 1314-15 ("[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term."). Though the term "component" used in the specification is different from the term "electronics" in the claims, it is exceedingly clear from the context of those terms that their meanings are synonymous. See Nystrom v. TREX Co., 424 F.3d 1136, 1143-46 (Fed. Cir. 2005) ("Different terms or phrases in separate claims may be construed to cover the same subject matter where the written description and prosecution history indicate that such a reading of the terms or phrases is proper."). Thus the term "digital camera electronics" is not ambiguous or unexplained in the specification because it simply refers to "digital camera components" which are thoroughly explained and referenced in the patent's specification. Accordingly, Defendants' motion for summary judgment is denied with regard to claim 10 of the ’868 patents.

--- Footnotes ---

1 Defendants also argue that claim 17 of the ’387 patent and claim 10 of the ’868 patents are invalid for lack of an adequate written description or for lack of enablement. However Defendants' briefing on these issues simply incorporates their indefiniteness arguments under different headings. Since neither of these claims are indefinite, Defendants' arguments regarding written description and enablement are similarly rejected.

--- End Footnotes ---
"Digital data file" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that "digital data file" means "a self-contained electronic representation of information, i.e., a document, graphic, or database record, created by a user or copied by a user from another source, which has a unique file name by which it can be accessed by a user" (Doc. 62 at 10). The plaintiff argues that one of ordinary skill in the art would understand "digital data file" to mean merely "an aggregate of digital data" (Doc. 60 at 18).

The plaintiff's interpretation of "digital data file" presumably encompasses the digest or digital fingerprint that results from a hashed file, which digest is next transmitted to a third party for time-stamping in a conventional DTS. However, this construction contradicts the use of "digital data file" in the patents' claims, which repeatedly depict "digital data file" and "digest" as distinct. For example, the disputed claims of the 709 Patent describe "hashing said digital data file to produce a digest" (709 Patent: 1, 17). If a "digital data file" is a digest (as urged by the plaintiff), the phrase "hashing said digital data file to produce a digest" becomes unintelligible. Also, the disputed claims of the 536 patent distinguish a "saved file" from a digest (536 Patent: 1,6). Likewise, as the defendants persuasively argue (Doc. 70 at 11), the plaintiff's proposed construction ("an aggregate of digital data") impermissibly renders the word "file" superfluous within the phrase "digital data file," which phrase preposterously becomes, under the plaintiff's definition, a "file file." See Primos, Inc. v. Hunter's Spec., Inc., 451 F.3d 841, 847-48 (Fed. Cir. 2006).

Further, both patents repeatedly distinguish the patented invention over prior art on the basis that a conventional DTS time-stamps the digest of a digital file but not the file itself (Patent 536 at 12:4-8; Patent 709 at 11:60-64). Highlighting the advantages of his invention over a conventional DTS, the patentee discloses a means to avoid "counterfeiting" problems by time-stamping the actual digital data file as opposed to time-stamping merely the digest that results from the hashed file (Patent 536 at 12:52-64; Patent 709 at 12:40-52). The patentee also observes that time-stamping a digest, as opposed to time-stamping a file, certifies the date the DTS received the digest but not the date the actual document was accessed, created, modified, or transmitted (536 Patent at 12:4-9; 709 Patent at 11:60-64). Having disclaimed in the specifications the time-stamping of a digest, the patentee's claims may not be read to construe "digital data file" to encompass a digest.

Finally, the patents' prosecution history reveals that a "digital data file" is either created by a user or copied by a user from another source. The Examiner's Amendment, distinguishing prior art, explains that the applicant's time-stamp confirms the time at which "said file" is "accessed, created, modified, received, or transmitted by the user" (Doc. 99). This language confirms that time-stamping a digest reveals when the file associated with the digest existed but not when the file was accessed, created, modified, or transmitted by the user. This written description further distinguishes time-stamping a "digital data file" from the conventional DTS practice of merely time-stamping a digest.

Nothing in the patents' language or history supports equating a "digital data file" to a mere "aggregate of digital data." The patents' consistent use of "digital data file" and "digest" as distinct terms (536 Patent: 1,6; 709 Patent: 1, 17), the patents' express disavowal of the time-stamping of digests as an important aspect of the invention (536 Patent at 12:4-9; 709 Patent at 11:60-64), and the patents' prosecution history decisively disfavor the broad construction urged by the plaintiff. Accordingly, "digital data file" means "a collection of digital data stored as a self-contained unit, either created by a user or copied by a user from another source, and containing a unique file name by which it can be accessed by a user."
the dependent claims comprise different "communication networks," the patent uses the term "digital data network" to mean something other than a telephone network. (Id.) With respect to claim 1, the defendants contend that the applicants argued patentability to the patent examiner by stating that claim 34 is limited to a "digital data network," whereas claim 1 recites a broader "communication network." According to the defendants, if the court accepted PHT’s construction then the "digital data network" of claim 34 would be superfluous -- that is, the "digital data network" would be the same as the "communication network" recited in claims 1 and 22. (04-821 D.I. 42, at 12-13.)

--- Footnotes ---

9 Claim 46 reads:

A personal health tracking system according to claim 43 wherein the communication network comprises a public telephone network and the portable unit comprises a modem that is directly connectable to the telephone network.

Claim 47 reads:

A personal health tracking system according to claim 43 wherein the communication network comprises a digital data network and the portable unit is connectable directly to the data network a local data network access connection.

--- End Footnotes ---

The defendants further contend that their proposed construction is supported by the specification because the specification "expressly distinguishes between a telephone network and the 'alternative,' a data network." (Id. at 12.) The defendants reason that if a data network, as used in the '985 patent, included a telephone network, "there would be no need for the applicants to describe the use of a 'combination of a telephone network and a data network,'" as is recited in the specification.

PHT asserts that its construction is correct because the patent describes transmitting information from the health tracker to a central database using various types of networks. (D.I. 39, at 18.) In addition, PHT asserts that a telephone network "can be a data network," providing two examples: (1) telephone communications carried over computer networks utilizing a voice over Internet protocol ("VoIP") system, or system that converts standard telephone audio into digital data so it can be sent over a computer network; and (2) digital information transmitted over traditional telephone lines using digital subscriber line ("DSL") technology. (Id.) According to PHT, "so long as the network is capable of transmitting digital data, the network is a digital data network, even if... [it] is also capable of transmitting telephone communications." (Id.)

PHT asserts that although "digital data network" and "telephone network" may have different meanings in claims 46 and 47, it does not follow that the terms are mutually exclusive. (D.I. 45, at 7.) PHT further asserts that "although telephone networks typically utilize digital data networks, not all digital data networks are telephone networks." (Id.) Lastly, PHT points to claim 39, which depends from claim 34, and is directed to "[a] personal health tracking system... wherein the connection device comprises a modem that is connectable directly to a public telephone network." (Col. 31, 11. 46-48.) PHT maintains that because claim 39 is encompassed by claim 34, the "digital data network" recited in claim 34 cannot exclude the "public telephone network" of claim 39. (D.I. 45, at 7.)

The court is persuaded by PHT's argument that, as used in the '985 patent, the term "digital data network" does not exclude a telephone network. The plain meaning of the term "digital data network" is "a network that transmits digital data." As PHT correctly asserts, a telephone network is a network that transmits digital data, for example, through a VoIP system or DSL technology. Thus, the plain and ordinary meaning of "digital data network" includes a telephone network. In addition, while the terms "digital data network" and "telephone network" in claims 46 and 47 have a different meaning, the court agrees with PHT that none of the language recited in those claims suggests that the terms are mutually exclusive.

The specification does not rebut the presumption that the plain and ordinary meaning of "digital data network" applies. The patent applicants have not acted as their own lexicographers, as they have not clearly set forth a definition of "digital data network" in the specification or prosecution history. See CCS Fitness, 288 F.3d at 1366; Johnson Worldwide, 175 F.3d at 990. The specification does provide that the preferred embodiment uses "some combination of a telephone network and a data network." (Col. 5, 11. 23-24.) As previously discussed, the defendants contend that the description of the preferred

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embodiment "expressly" distinguishes a telephone network from a digital network in the specification. The court does not agree. The language cited by the defendants to support their contention may be limiting. However, it is improper to read a limitation from the specification into the claim, especially when, as here, the specification does not expressly or implicitly limit the scope of the invention to a digital data network that excludes a telephone network. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904, 908 (Fed. Cir. 2004). for example, the specification states that "those skilled in the art will recognize that there is a variety of means to transfer data from site to site." (Col. 5, ll. 29-31.) This statement certainly contemplates the use of a telephone network that transmits digital data.

Lastly, the prosecution history does not support the conclusion that the patentees distinguished the term "digital data network" from the prior art on the basis that a telephone network was excluded, disclaimed a telephone network, or described an embodiment that excluded a telephone network as important to the invention. As previously stated, the defendants contend that the difference between claim 1 and claim 34 that the applicants referred to is that claim 1 is directed to a broad "communication network," while claim 34 is limited to a "digital data network." Again, the court disagrees and concludes that the applicants distinguished claim 34 from claim 1 by adding a limitation to what the "data transmission device" could do. In other words, when describing the amendments to claim 1, the applicants stated that the claim was amended "to specify that the handheld device includes a data transmission device that is capable of connecting directly to a communication network," thereby broadly defining "data transmission device." When distinguishing claim 1 from claim 34, however, the applicants told the patent examiner that claim 34 is "similar to claim 1, but is limited to a data transmission device that transmits data to a remote data storage location via a digital data network," thereby limiting the properties of the "data transmission device." (See D.I. 42 Ex. C, at 13.) Thus, the statements that the applicants made during prosecution do not support a construction of "digital data network" different from its plain and ordinary meaning. The court, therefore, construes "digital data network" to mean "a network that transmits digital data." 10

--- Footnotes ---

10 The court will construe the term "digital data network" in claim 37 consistently with its construction of "digital data network" in claim 34. Thus, for the reasons stated above, the court construes the term "digital data network" in claim 37 to mean "a network that transmits digital data."

--- End Footnotes ---

A. Applicability of 35 U.S.C. § 112, P 6

PMC argues that the Commission erred in construing the "digital detector" limitation as a means-plus-function limitation under 35 U.S.C. § 112, P 6. In support, PMC contends that the term "digital detector" recites sufficiently definite structure to prevent the application of § 112, P 6 under our case law. PMC also points out that our case law makes clear that § 112, P 6 should not be invoked merely because this structure takes its name in accordance with its function. Finally, PMC argues that the lack of the term "means" in this limitation invokes a presumption that § 112, P 6 does not apply. The Commission responds that the evidence of record makes it clear that one of ordinary skill in the electrical arts would not have understood the term "digital detector" to connote a definite structure, and therefore that this limitation is defined entirely by the functional language that follows the language "digital detector for ..." Accordingly, they contend that § 112, P 6 is applicable to this limitation.

Section § 112, P 6 provides that

an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof; and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, P 6 (1994) (emphasis added). Thus, § 112, P 6 operates to restrict claim limitations drafted in such functional language to those structures, materials, or acts disclosed in the specification (and their equivalents) that perform the claimed function.

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We have had several recent opportunities to assess whether certain claim language has invoked § 112, P 6. In Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 39 U.S.P.Q.2D (BNA) 1783 (Fed. Cir. 1996), we were presented with the claim language "detent mechanism defining conjoint rotation of said shafts." In deciding that § 112, P 6 was not invoked, we stated

The fact that a particular mechanism--here "detent mechanism"--is defined in functional terms is not sufficient to convert a claim element containing that term into a "means for performing a specified function" within the meaning of [§ 112, P6]. Many devices take their names from the functions they perform. The examples are innumerable, such as "filter," "brake," "clamp," "screwdriver," or "lock." . . .

"Detent" (or its equivalent "detent mechanism") is just such a term. Dictionary definitions make clear that the noun "detent" denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms. It is true that "detent" does not call to mind a single well-defined structure, but the same could be said of other commonplace structural terms such as "clamp" or "container." What is important is not simply that a "detent" or "detent mechanism" is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art.

Greenberg, 91 F.3d at 1583, 39 U.S.P.Q.2D (BNA) at 1786 (citations omitted). We also made clear that use of the term "means" is central to the analysis: "the use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' (particularly as used in the phrase 'means for') generally invokes [§ 112, P 6] and that the use of a different formulation generally does not." Id. at 1584, 39 U.S.P.Q.2D (BNA) at 1787.

Subsequent cases have clarified that use of the word "means" creates a presumption that § 112, P 6 applies, see York Prods., Inc. v. Central Tractor, 99 F.3d 1568, 1574, 40 U.S.P.Q.2D (BNA) 1619, 1623 (Fed. Cir. 1996) ("In determining whether to apply the statutory procedures of [§ 112, P 6], the use of the word 'means' triggers a presumption that the inventor used this term advisedly to invoke the statutory mandates for means-plus-function clauses."); 9 and that the failure to use the word "means" creates a presumption that § 112, P 6 does not apply, see Mas-Hamilton, 156 F.3d at 1213, 48 U.S.P.Q.2D (BNA) at 1016. These presumptions can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant. 10 See, e.g., Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531, 41 U.S.P.Q.2D (BNA) 1001, 1006 (Fed. Cir. 1996) (noting that whether § 112, P 6 is invoked involves an analysis of the "patent and the prosecution history," and consulting a dictionary definition of "perforation" to understand if one of skill in the art would understand this term to connote structure). In deciding whether either presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112, P 6. See Sage Prods. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28, 44 U.S.P.Q.2D (BNA) 1103, 1109 (Fed. Cir. 1997) ("Where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format" even if the claim uses the term "means").

9 See also Unidynamics Corp. v. Automatic Prods. Int'l, Ltd., 157 F.3d 1311, 1319, 48 U.S.P.Q.2D (BNA) 1099, 1104 (Fed. Cir. 1998) (holding that the claim language "spring means tending to keep the door closed" invokes § 112, P 6: "the recitation of 'spring,' which is structural language, [does not take] the limitation out of the ambit of the construction dictate of § 112, P 6."); Serrano v. Telular Corp., 111 F.3d 1578, 1582, 42 U.S.P.Q.2D (BNA) 1538, 1541 (Fed. Cir. 1997) (holding that the claim language "determination means . . . for determining" invokes § 112, P 6); Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536, 19 U.S.P.Q.2D (BNA) 1367, 1369 (Fed. Cir. 1991) (holding that the claim language "means for joining said pluralities [of link ends] to one another so that the axes of [certain holes are arranged in certain configurations]" invokes § 112, P 6: "The recitation of some structure in a means-plus-function element does not preclude the applicability of [§ 112, P 6 when it] merely serves to further specify the function of the means. The recited structure tells only what the means-for-joining does, not what it is structurally.") (emphasis in original).

10 See, e.g., Mas-Hamilton, 156 F.3d at 1214, 48 U.S.P.Q.2D (BNA) at 1017 (holding that the claim language "lever moving element for moving the lever" invokes § 112, P 6: "even though the catch phrase ['means for'] is not used, the limitation's language does not provide any structure. The limitation is drafted as a function to be performed rather than
1. The Whereby Clause

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A. Whether the Whereby Clause is a Claim Limitation

DTL argues that the language, "whereby said acoustic signal is converted to a digital signal, transmitted to said remote receiver in digital form, and utilized by said digital system located at said remote location such that said digital system at said remote location receives a highly faithful digital representation of said acoustic signal" should not be construed as part of the function because it adds nothing substantive to the claim limitation. Cingular's position is that the whereby clause is meaningful and limiting.

Where the words following "whereby" simply state a result, they are not considered to be part of the function, or even a claim limitation because it adds nothing to the patentability or substance of the claim. Lockheed Martin Corp. v. Space Sys./Coral Inc., 324 F.3d 1308, 1319 (Fed. Cir. 2003); In re Krodel, 223 F.2d 285, 42 C.C.P.A. 993, 1955 Dec. Comm'r Pat. 305 (Cust. & Pat.App. 1955). On the other hand, a whereby clause limits a claim when it recites a capability that was "an integral part of the invention" based on the specification and prosecution history. See Hoffr v. Microsoft Corp., 405 F.3d 1326, 1330 (Fed. Cir. 2005)(per curium). The terms of a whereby clause must be regarded as an essential feature of the invention if it is used to distinguish the invention over the prior art during prosecution of the patent. Eltech Sys. v. PPG Indus. Inc., 710 F.Supp. 622, 633 (W.D.La. 1988), aff'd 903 F.2d 805 (Fed. Cir. 1990).

It is clear from the prosecution history that the terms of the whereby clause was used to overcome the prior art, namely U.S. Patent No. 4,370,523 ("the Bader patent"). In particular, the applicants repeatedly argued that the fidelity of transmission was a critical feature distinguishing their invention over that of Bader:

The fidelity of Bader's conversion is inherently very poor, in contrast to the nearly perfect transmission of applicant's invention. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-00089 P 8 [Doc. # 60, Attachment #4, p. 81 of 175].

The Bader reference alone or modified as suggested is incapable of fulfilling the essential objective of high quality, high resolution conversion accurately representing the incoming sounds. In contrast to Bader, Applicant's claimed invention is capable of 90 - 120 dB of dynamic rage, .1 dB frequency response to 20kHz, and distortion better than .005%. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-00095 P 22 [Doc. # 60, Attachment # 4, p. 87 of 175].

Bader, even with the suggested modifications, produces a low quality conversion, with poor fidelity, bad frequency response and little dynamic range . . . Applicant's claimed invention produces the new and unexpected result of a self-contained, hand-held microphone with high quality professional audio reproduction. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000105 P 42 [Doc. # 60, Attachment # 4, p. 97 of 175].

The language in the specification is consistent with the statements in the prosecution history that the listed features in the whereby clause are required, rather than a hoped-for result of the invention or a laudatory phrase. When describing the prior art, the specification states: "The fidelity of analog transmission is restricted by interference, such as noise, . . . etc. The limited dynamic range (60-70dB) and high (up to 3%) harmonic distortion of the analog recording and reproduction process has hitherto masked the transmission effects." '799 patent, col. 1, ll. 44-50. The specification proclaims that one object of the invention is to "provide[] for the most accurate possible reproduction of the transducer output." '799 patent, col. 2, ll. 60-62. To achieve that objective, the patent states: "Virtually any form of varying energy could be transduced and transmitted over any distance with real life fidelity of up to 96-140 dB of dynamic range, and with virtually no distortion, using the present invention." '799 patent, col. 3, ll. 29-33 (emphasis added). The whereby clause in Claim 18 does not merely state a result, but rather, delimits how accurate the reproduction of the input must be.

DTL points to the examiner's statement that "there is no claim limitations [sic] addressing fidelity or frequency response" in support of its argument that the whereby clause only states the result of the prior limitations. 3 Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000118 P 7 [Doc. # 60, Attachment # 4, p. 110 of 175]. It is the applicants' statements that matter when construing the scope of an invention, not whether the examiner accepted or rejected them. See Lifesream Diagnostics, Inc. v. Polymer Tech. Sys., Inc., 109 Fed. Appx. 411, 414 (Fed. Cir. 2004)(stating that the "public notice function of a patent and its prosecution history requires that a patentee be held to what he declares during the prosecution of his patent.")
3 The court notes that in Claim 15, the claim states, not in a whereby clause, that "said transmission will be performed in a highly faithful manner." '799 patent, Col. 14, ll. 67-68.

In fact, the patent examiner held an interview with the applicants to discuss Claim 1, which also has a whereby clause that its system is able to transmit the input "faithfully." At the interview, the examiner reiterated that Claim 1 "did not have specific language showing a functional conclusion of accurate reproduction." Exhibit A of PI's Opening Claim Construction Brief, DTL-000128 P 3 [Doc. # 60, Attachment # 4, p. 120 of 175]. In response, the applicant "argued that the word 'faithfully' in the conclusion of the claim . . . implies sufficient frequency response and good fidelity for accurate reproduction of the input." Exhibit A of PI's Opening Claim Construction Brief, DTL-000129 P 18 [Doc. # 60, Attachment # 4, p. 121 of 175]. At the hearing, DTL admitted that "[t]here is not a distinction between 'highly faithful' and 'faithful.'" Trans. at p. 32. Because the applicants consistently argued during the prosecution of their patent application that the invention required an accurate reproduction of the analog signal, the court finds that when the patent containing the whereby clause ultimately issued, the terms of the whereby clause are interpreted as a limitation on the scope of the patent that was granted.

B. Whether the Term "Highly Faithful Digital Representation" is Indefinite

Cingular asserts that the term is indefinite and, hence, invalid under 35 U.S.C. § 112 P 2. To invalidate a patent for indefiniteness, the Federal Circuit has stated that the evidence must be shown by "clear and convincing evidence." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1348 (Fed. Cir. 2005). In determining whether the claim at issue "particularly point[s] out and distinctly claim[s] the subject matter which the applicant regards as his invention," the claim should be construed in light of the specification as interpreted consistent with the level of the ordinary skill in the art practiced in the invention. See Eibel Process Col. v. Minnesota & Ontario Paper Co., 261 U.S. 45, 65-66, 43 S. Ct. 322, 67 L. Ed. 523, 1923 Dec. Comm'r Pat. 623 (1923). That some claim language may not be precise, however, does not automatically render a claim invalid. Seattle Box Co. Inc. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984).

Looking to the specification of the '799 patent, the phrase "highly faithful digital representation" is given defining limits first, by describing the object of the invention: "It is therefore an object of the present invention to provide better audio reproduction with increased dynamic range, and reduced distortion and noise." '799 patent, col. 2, ll. 50-53. The reproduction is "virtually perfect, and there is no effect of any interference or noise in the transmission process." '799 patent, col. 6, ll. 55-60. Given the problem addressed by the invention and the specification language describing the '799 patent's solution to the problem, the phrase "highly faithful digital representation" is sufficiently defined to those skilled in the art to avoid invalidity.

c. Construction of the Whereby Clause

The parties focus on three terms within the whereby clause, "said remote receiver," "digital form," and "highly faithful digital representation." Of the three terms, the parties agreed on the definitions of "said remote receiver" and "digital form" if the court considers the whereby clause to be a limitation. Therefore, only "highly faithful digital representation" requires discussion.

The specification states that DTL argues that "highly faithful digital representation" should be construed as "a digital signal that is an accurate representation of the original analog signal." This is a generic definition that fails to differentiate "highly faithful" requirement in Claim 18 from "faithful" in Claim 1. '799 patent, col. 2, ll. 60-62. The applicants had argued that the word "faithfully" implies "accurate reproduction" of the input. By stating that the whereby clause requirement of a "faithful" transmission in Claim 1 imposed an "accurate" reproduction, a "highly faithful" transmission must, a fortiori, impose at least greater fidelity and frequency response requirements.

Cingular proposes "highly faithful digital representation" requires "representation with at least: a) 90 dB dynamic range, b) 0.1 dB frequency response to 20 kHz, and c) distortion better than 0.005%." There are several fallacies in Cingular's formulation. One is that it focuses upon the application of the invention, which is beyond the control of the inventors, rather
than the structure of the invention itself. The specification teaches that if an A/D converter with 20 bit resolution is used, the
dynamic range of signals can be greater than 118dB. '799 patent, col. 9, ll. 25-27. If a low cost, low power integrated
circuit converter is used, the performance would be lessened by noise and distortion of 5-10dB. '799 patent, col. 9, ll. 41-45.
The specifications detail a preferred embodiment using a 16 bit A/D converter to provide a theoretical 144 dB (24 bit)
dynamic range. '799 patent, col. 10, ll. 25-27.

Cingular analyses the prosecution history in isolation from the specification and claim language. It is perhaps true that the
applicants' claimed invention is "capable of 90-120 dB of dynamic range, .1 dB frequency response to 20kHz, and distortion
better than .005%," but that is not required by the claim language. (emphasis added). The applicants may merely have been
indicating that the Bader patent could not achieve such reproduction, unlike the present invention. Exhibit A of Pl.'s
Opening Claim Construction Brief, DTL-00995 P 22 [Doc. # 60, Attachment # 4, p. 87 of 175]. Neither the language of the
claim nor the specification requires, or even hints, that such a narrow definition must be adopted for this claim term.

The specification states that patent creates a reproduction that "is virtually perfect, and there is no effect of any interference
or noise in the transmission process. '799 patent, col. 6, ll. 57-60. Accordingly, the court defines the terms as follows:

"Said remote receiver" means: a receiver.

"Digital form" means: a format that represents data by numerical digits or discrete units.

"Highly faithful digital representation. . ." means: the representation that is virtually perfect, with no effect of any
interference or noise in the transmission process.

Verizon alleges that "digital input means" means "a panel of push buttons on the remote terminal for inputting digital
signals." Katz alleges that "digital input means" means "a telephone keypad or computer keyboard."

Despite use of the words "means" and the presumption it entails, both parties appear to believe that "digital input means"
connotes sufficient structure to avoid application of 35 U.S.C. § 112, P 6. The Court agrees as "digital input means" in the
context of the surrounding claim language and in light of the 285 patent specification, appears to connote sufficient
structure. Accordingly, the term "digital input means" means "a panel of push buttons or keypad on the remote terminal for
inputting digital signals." As used in the claims, "digital input means" is described as being part of a "conventional
telephone instrument," which appears to exclude a computer keyboard as asserted by Katz. See also 285 patent, Col. 2:14-
17 ("e.g. conventional telephone instruments including voice communication means, and digital input means in the form of
alphanumeric buttons for providing data"); Col. 4:4-9 ("the exemplary telephone terminal T1 includes a handpiece 10
(microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in a conventional
configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus.").

2. "digital logger"

NICE's Construction Witness's Construction
A device, system or software for recording, in digital form, audio data representing multiple concurrent telephone calls.
A device, system or software for recording audio in digital form.
The parties dispute the meaning of "digital logger," as used in claims 1, 16, and 21 of the '920 patent. NICE contends that the claim language itself supports its proposal that a logger can record from multiple input sources, citing claims 1 and 16 ("A method for accessing information in at least one digital logger storing data associated with input from a plurality of input channels,..."). Witness contends that the claim language demonstrates that multiple input sources can be recorded by the logger, but does support the proposal that "at least one digital logger" must record more than one call concurrently.

The Court construes "digital logger" to mean "a device, system or software for recording audio in digital form." The claim language states that a digital logger can record from a variety of input types, but makes no mention of whether those recordings are done concurrently. Further, NICE cites no other intrinsic or extrinsic evidence to support its proposed construction.

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3. Digital Sample: Echometer's proffered construction of digital sample is a digital representation of the instantaneous value of an electrical signal, while Lufkin's position is that a digital sample is derived from the return signal, which contains the rate of collar reflections as the most important information of the signal. As discussed previously, a return signal does not necessarily contain the rate of collar reflections. Without this important distinction between the two constructions, the Court finds the parties definitions in harmony with each other and the '399 Patent specification. '399 Patent, at 23 (col. 2, 1. 57-59) ("the return signal is digitized to produce a set of digital samples representing the return signal."). Thus, a digital sample is a digital representation of the instantaneous value of the return signal.

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3. "[D]igital signal processing means."

DTL contends that this limitation is not a means-plus-function limitation under § 112, P 6 and should be construed as "a digital signal processor." Cingular states that if the court does not consider the limitation to be a means-plus-function limitation, the term should be construed as "a digital signal processing microcomputer with a word length of at least 16 bits."

DTL's counsel admitted at the hearing that the means-plus-function presumption is harder to rebut for this term that the previous term involving an A/D converter. DTL argues that the gerund form of the word "processing," namely a digital signal "processor," recites sufficient structure to overcome the means-plus-function presumption. Neither the verb "processing" nor the gerund "processor" recites sufficient structure, material, or acts to overcome the presumption despite DTL's plea that all digital signal processors would modify sequences of groups of digital bits. The word "said" refers to groups of digital bits that are converted from an A/D converter and represent values of analog electrical output signals. See '799 patent, col. 15, l. 25-28; Eastman Chem. Co. v. BASF Aktiengesellschaft, 47 Fed. Appx. 566, 570, 573-574 (Fed. Cir. 2002)(explaining construction of "said" based on prior antecedents.) Because claim 18 does not recite limited and definable structure, the court will construe this language as a means-plus-function limitation.

DTL argues that should the court consider it a means-plus-function limitation, the function is "modifying the sequence of groups of digital bits." Cingular contends that the function is "modifying the sequence of groups of digital bits output from the analog-to-digital converter means." The parties substantially agree on the function. DTL agrees that the sequence of digital bits are outputs from the analog-to-digital converter means, but believes that such language is surplusage. Trans. at p. 132. Cingular agrees that the digital signal processing means need not receive the sequence of digital bits directly from the analog-to-digital converter means. Despite its concession, Cingular's construction may mislead a juror into thinking that elements between the analog-to-digital converter means and the digital signal processing means cannot exist. For the purposes of clarifying both parties' construction for the jury, the court finds that the function is "modifying the sequence of groups of digital bits that are received, directly or indirectly, from the analog-to-digital converter means."
Having identified the function of the means, the court now turns to the specification to define the structure corresponding to this claimed function. Although the specifications mention the generic term "digital signal processor" numerous times, the specification clearly sets forth the structure for performing the claimed function:

This system shown in Fig. 3 will digitally process the transduced signal, prior to its transmission as digital data. This is done by placing a digital processing integrated circuit, such as the Motorola DSP56001, inside of the transducer housing. '799 patent, col. 8, ll. 33-38.

However, DTL, noting the number of occasions where the generic term "digital signal processor" is used, argues that the corresponding structure is "a digital signal processor programmed to modify or digitally process the bits representing the acoustic signal, and equivalents thereof." DTL points to '799 patent, col. 9, ll. 8-22, which references a generic digital signal processor. The general digital signal processor, however, identifies no specific structure for performing the claimed function; it only describes a generic class of structures and cannot be included. Moreover, this construction ignores the clear language of the specification set forth above.

DTL argues that the patent teaches that the digital signal processor may be in the form of an integrated circuit, citing the court to '799 patent, col. 12, ll. 3-10. However, this portion of the specifications merely summarizes that the invention may include within the transducer housing a digital signal processor, in the form of an integrated circuit, to process the signal. It does not, as DTL argues, suggest that an integrated circuit is but one form of a digital signal processor which may be used.

It should be stressed that the court is not limiting the structure to the structure of a preferred embodiment. This is not an instance where the patent teaches that a general "digital signal processor" may be used and an integrated circuit is utilized in the preferred embodiment. In that case, the court would read the claim element to embrace distinct and alternative structures disclosed in the specifications for performing the recited function. Again, the specifications clearly state that a digital signal processing integrated circuit, such as the Motorola DSP56001 is placed inside the transducer housing to perform the recited function.

Turning to the competing proposal, Cingular argues that the corresponding structure is "a digital signal processing microcomputer with word lengths of 24 bits or more such as the Motorola DSP 56001, or a substantially equivalent structure in existence as of September 1991." Cingular points only to a preferred embodiment in '799 patent, col. 9, ll. 30-32. There is no evidence that the digital signal processing microcomputer must be a 24-bit processor to perform the recited function. In fact, Cingular acknowledges that some 16-bit digital signal processors can perform the claimed function. Def.'s Responsive Claim Construction Brief, p. 23 n. 26 [Doc. # 63]. Accordingly, the court rejects Cingular's assertion that the corresponding structure must be a microcomputer "with word lengths of 24 bits or more." The court concludes that the structure associated with this means-plus-function term is "a digital signal processing integrated circuit, such as the Motorola DSP56001, or equivalents thereof."
Papst is correct that the "digital signal processor" in Claim Five cannot be any kind of microprocessor. Claim Five is a dependent claim. Thus, it includes the limitations of Claim One, but also adds something new, rendering it more narrow than Claim One. See 35 U.S.C. § 112; Tr. 3:38. Claim One is broad. It recites that interface device includes a "processor." '399 Patent, col. 12:48. The specification expressly notes that while a preferred embodiment would include a digital signal processor, it could include any type of processor: "In a preferred embodiment of the present invention, the digital signal processor 13, which need not necessarily be implemented as a digital signal processor but may be any other kind of microprocessor . . . ." '399 Patent, col. 6:48-51 (emphasis added); see also id., col. 9:18-19 ("[T]he DSP can be any DSP"). Because "processor" in Claim One means any kind of processor, the term "processor" in Claim Five must be more limited. See 35 U.S.C. § 112 ("[A] claim in dependent form shall . . . specify a further limitation of the subject matter claimed."). To interpret Claim Five as coextensive with Claim One would render Claim Five meaningless. Such a construction is disfavored. See Cytologix, 424 F.3d at 1173. The Court adopts, with some modification, Papst's proposed construction: a "digital signal processor" as specified in Claim Five of the '399 Patent means a "processor optimized to perform repetitive computations used in digital signal processing such as multiply-accumulates."

The parties' dispute with respect to term one is a dispute as to whether the '672 patent applies only to video signals or also to other types of signals (including, significantly, still images). Plaintiff argues that term one should be construed as: "A sequence of data to be runlength encoded, having multiple values and a predetermined length." Defendants argue that this term should be construed as: "A digital signal or processed signal is a set of data representing frames of a video." As Defendants argue, in the context of the "typical[]" utilization of the ordered redundancy coding system, the specification of the '672 patent clarifies that "processed signals" include only video signals: "The processed signals are in the form of a plurality of multivalued digital numbers, X(k), typically one number X(k), for each frame." '672 Patent col.3 11.49-56 (emphasis added). Plaintiff argues that the foregoing definition must include a typographical error because there are necessarily many numbers in a block and many blocks in a frame. Tr. 117:3-10. However, because the specification makes clear that "X(k)" represents a series of values, n3 the foregoing description of "processed signals" is consistent with Plaintiff's view that there are many numbers in a block. Accordingly, as explained in the specification, "processed signals" typically are comprised of plural frames, thus indicating that processed signals are video signals.

n3 "In general, a K-valued digital number, X(k), is formed by a series of K values, x(k), as follows: X(k) = x(1), x(2), x(3), . . . x(K), . . ., x(K) where 1=k=K." '672 Patent col.12 11.38-43.

Plaintiff contends that its construction of "processed signals" and "digital signals" is supported by the doctrine of claim differentiation. This doctrine "refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006); see also Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir., 2004) ("the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim."). While claim 19 is limited to "input signals represent[ing] images . . . presented in sequential frames," claim 6, which addresses "processed signals" and upon which claim nineteen is dependent, does not include such a restriction. '672 Patent col.24 11.13-16; col.25 11.52-65. Plaintiff argues that this necessarily means that claim six does not include a requirement that the signals be video signals. However, "that the claims are presumed to differ in scope does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ." Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000). As Defendants point out, because claim 19 adds limitations that are not in claim 6-the steps of forming the mean-square difference and error and selecting a mode-
the doctrine of claim differentiation does not compel the Court to read out the restriction that the processed signals in claim 6 are video signals.

Although the specification does not provide a similar explanation of "digital signals," the parties initially agreed "that the Court should construe the terms 'processed signals' and 'digital signals' identically for the purposes of the claims at issue." n4 Defendants and Declaratory Judgment Plaintiffs' Responsive Markman Brief, p. 7 n.3. Because "processed signals" are a subset of "digital signals," the Court was hesitant to apply the above explanation of "processed signals" also to "digital signals." Accordingly, the Court requested and received supplemental briefing addressing the question of whether "digital signals" and "processed signals" should be given the same construction and, if so, why.

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n4 Plaintiff's expert, Dr. Sheila Hemami, indicated that both "digital signals" and "processed signals" have a special meaning: "The terms 'digital signals' and 'processed signals' normally have a very broad meaning, but those terms are given a special and more particular meaning in the specification of the '672 Patent and as they are used [in] the claims." Declaration of Tibor L. Nagy ("Nagy Decl."), Ex. 2, p. 18. During oral argument, Plaintiff's counsel indicated that this was an "error" and that Dr. Hemami and Plaintiff's counsel "both regret having opened this can of worms [that Plaintiff conceded that the term 'processed signals' is not being used in the patent in accordance with how those ordinarily skilled in the art would commonly understand it] by suggesting that there is some special meaning to 'digital processed signals.'" Tr. 109:4-20. While the Court finds it somewhat instructive that Dr. Hemami wrote that "digital signals" and "processed signals" have a special and particular meaning in the '672 patent, the Court's construction of these terms does not turn on her statement.

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Plaintiff argues in its supplemental brief that, if the Court gives the above construction to "processed signals," n5 "digital signals" should not be similarly limited. Plaintiff emphasizes that "processed signals" are a subset of "digital signals," pointing out that "digital signals" are equivalent to "input signals" n6 and "input signals" are processed to form "processed signals." n7 Plaintiff argues also that the "processing" referred to in claims 1 and 38 is different than the "processing" in claim 6. However, assuming arguingo that "digital signals" are not video signals, Plaintiff does not provide any explanation for how the processing of "digital signals" to create "processed signals" converts non-video signals into video signals. As Defendants argue, if "processed signals" are video signals, and processing does not convert non-video signals into video signals, the input signals or "digital signals" must also be video signals. In light of Plaintiff's initial concession that the terms should be construed identically, and in the absence of a persuasive argument as to how processing "digital signals" would convert non-video signals into video signals, the Court concludes that, if "processed signals" are video signals, "digital signals" must be given the same restriction.

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n5 Plaintiff disputes that "processed signals" should be limited to video signals in its supplemental brief. Plaintiff's Second Supplemental Brief, p. 1.

n6 "Digital signals to be processed are input on lines 5 to the transmitter 2. The input signals on lines 5 are processed in one of a number of different modes so as to efficiently compress the data input signals to form processed signals for transmission to a receiver." '672 Patent col.4 11.33-37.

n7 Claim 6 describes "[a] method for processing input signals to reduce the amount of data utilized to represent the input signals, the steps comprising, processing the input signals to form processed signals where the processed signals are digital numbers having first values, second values, and other values." '672 Patent col.24 11.10-16; see also id.

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Considering that the above explanation of "processed signals" is given in the context of a "typical[]" system, it does not on its own persuade the Court that "processed signals" and "digital signals" must be construed as video signals. However, this clear explanation of "processed signals," combined with numerous other indications that the patent applies exclusively to video signals, most logically supports such a construction. As noted above, where "the specification makes clear at various
points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claim." Alloc, 342 F.3d at 1370.

The abstract of the '672 patent indicates that the patent is limited to video data: "The present invention specifically relates to methods and apparatus useful in video compression systems." '672 Patent, abstract; Hill-Rom Co., Inc. v. Kinetic Concepts, Inc., 209 F.3d 1337, 1341 (Fed. Cir. 2000) ("We have frequently looked to the abstract to determine the scope of the invention, [citations], and we are aware of no legal principle that would require us to disregard that potentially helpful source of intrinsic evidence as to the meaning of claims."). The location of a statement within the specification "can signal the likelihood that the statement will support a limiting definition of a claim term." C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004). Specifically, "]statements that describe the invention as a whole [which are more likely to be found in certain sections of the specification], rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term." Id. Although "certain sections of the specification are more likely to contain statements that support a limiting definition of a claim term than other sections," the Court must determine the significance of language in the specification "on a case-by-case basis." Id. Because the abstract of the '672 patent states that it is "useful in video compression systems," this language in itself does not necessarily limit the patent to video data. However, the language is another significant factor supporting the Court's conclusion that the patent applies specifically to video signals.

Another such factor is the explanation in the specification that the '672 patent was designed to solve a problem specific to video data. "In construing claims, the problem the inventor was attempting to solve, as discerned from the specification and the prosecution history, is a relevant consideration." CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed. Cir. 1997). The patent specification describes the need that the '672 patent was designed to meet:

> If the communications link is an earth satellite, an unprocessed video signal typically occupies nearly the entire bandwidth of the satellite, with very few channels, if any, left over for other uses. A T1 communication channel is typical and has only a 1.5 megabit per second bandwidth. A practical yet effective way to reduce the bandwidth of digitalized television signals is needed so that fewer channels are required for transmission over a communications path and so that the quality of transmitted signals is maintained even when reduced bandwidth transmission is employed.

'672 Patent col.1 11.34-44 (emphasis added).

Plaintiff argues that video data is referred to in the specification as an example of how the ordered redundancy coding system may be applied. n8 However, Plaintiff does not identify any examples in the patent that do not involve video data. Plaintiff's argument that the specified application of the patent to the "intraframe mode" demonstrates that the patent was intended to be applied to still images is not persuasive. The specification explains that "[t]he decision as to which mode to select is made based upon an analysis of the frame-to-frame differences (motion) between the current input signals and the previous input signals." '672 Patent, col.3 11.61-64. While the specification describes a "single image frame" in intraframe coding, it does so in the broader context of describing video:

-------- Footnotes --------

n8 See, e.g., "The present invention specifically relates to methods and apparatus useful in video compression systems," '672 Patent, col.1 ll.19-20; "The ordered redundancy coding of the present invention is typically utilized in a system that processes input signals, such as spatial domain image signals occurring in successive frames, to form processed signals for each frame," id. col. 3 11.49-53.

-------- End Footnotes --------

The U.S. Pat. No. 4,302,775 patents reduces redundancy by employing intraframe coding techniques utilizing intraframe comparisons of cosine transform coefficients. While the patent provides significant improvement over other techniques, there is a need for even greater compression.

In addition to intraframe coding techniques, interframe coding techniques have been used to reduce the rate required for video transmission as described, for example, in the above-identified application. Typically, each video frame is held in memory at both the transmitter and the receiver and only frame-to-frame changes are transmitted over the communication link. In contrast to intraframe coding schemes in which the quality of coded images is dependent upon the amount of detail
in each single image frame, the quality of the coded image in interframe coding is dependent upon the differences from frame to frame. Frame-to-frame differences are often referred to as "motion."

'672 Patent, col.2 11.12-31 (emphasis added). Nor is Plaintiff's argument that Defendants' proposed construction excludes intraframe coding persuasive, as intraframe coding is a type of video coding.

Considered together, the explanation that "processed signals" typically are comprised of plural frames, the language of the abstract, the purpose of the invention, and the absence of any example expressly identified as applying to still images all point to the conclusion that the '672 patent applies exclusively to video data. Defendants note that Plaintiff's conduct over the past two decades n9 is persuasive extrinsic evidence that the '672 patent applies exclusively to video data. This line of argument is unnecessary to support the Court's conclusion that "digital signals" and "processed signals" are video signals and is in the outer bounds of the type of extrinsic evidence that a Court should consider in construing patent claims. Accordingly, while evidence that Plaintiff may have delayed asserting that the use of JPEGs infringes the '672 patent would be highly relevant to a defense of laches at a later stage of litigation, the Court need not and does not rely on this argument in construing term one.

--- Footnotes ---

n9 For example, Defendants argue that even though Plaintiff was aware of the work being done by JPEG standard-setting committee and itself voted to approve the JPEG standard, it neither disclosed the '672 patent to the committee nor sought to license it. See Scarsi Decl., Ex. 2, pp. 202-204; Ex. 3, pp.153-56; Ex. 15. In contrast, Plaintiff was involved in the MPEG committee and disclosed the '672 patent to that committee. See, e.g., Scarsi Decl., Exs. 12 and 13.

--- End Footnotes ---

For the reasons stated above, the Court adopts Defendants' proposed construction of term one.

1339

4. Digital Words

A digital word is a digital value for representing the grey scale or color of a portion of the non-digital signal.

1340

1. "digitally-encoded messages"

The phrase appears in claims 13 and 21 (and parent claims) of the '414 patent, and claims 1, 2, 15 and 19 of the '399 patent. Claim 15 of the '399 patent is representative (the disputed term is in boldface):

15. A method for automatically distributing digitally-encoded messages that are input to an automatic message distribution system that includes a resource load containing a plurality of resources, comprising the steps of:

(a) storing each of said digitally-encoded messages in one or more distributed message queues;

(b) storing resource information concerning said resources in a resource information table that enables the automatic message distribution system to determine which of said resources is available to a digitally-encoded message stored in said one or more distributed message queues;

(c) storing a set of routing rules in a distribution routing table that control distribution of said digitally-encoded message to the resources; and
(d) automatically routing a digitally-encoded message stored in said one or more distributed message queues.

[a] The Parties' Proposed Constructions

The parties propose the following constructions:

<table>
<thead>
<tr>
<th>eBay</th>
<th>IDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>The content of a communication from a sender that has been converted into digital form, not simply an identification of the type of information to be communicated.</td>
<td>Digitally-encoded information from a message sender to one or more message receivers.</td>
</tr>
</tbody>
</table>

*2*See Doc. No. 99 at 62 (JCCC Exhibit 1 at 60).

Net2Phone urges that the specification of the '414 and '399 patents defines the term, and thus that is the definition that should control, citing Phillips, 415 F.3d at 1316. (Doc. No. 83 at 11). Specifically, Net2Phone contends that the specification of the patents use "message" and "digitally-encoded message" interchangeably and expressly defines "message" as:

As used herein the term "message" includes any digitally-encoded information that can be transmitted by a sender to a receiver.

'414 patent, col. 4, lines 24-27. Net2Phone urges that eBay's proposed construction improperly imports a "content of a communication" limitation. (Doc. No. 83 at 12).

eBay urges that its proposed construction "follows directly from how the 'invention' is repeatedly characterized and distinguished over prior art systems in the intrinsic record." (Doc. No. 87 at 19). eBay contends that the patents "expressly distinguish prior art systems from the 'present invention' on the ground that prior art systems were only able to base routing decisions on the 'type of information that will be discussed,' whereas the 'AMD system of the present invention' receives and stores 'digitally-encoded messages,' and thus can base routing decisions on 'message content information.' "Id. (citing '399 patent, col. 1, lines 54-65, col. 2, lines 55-56, col. 3, lines 9-12; Open Port's Provisions Appl. at 1, 2, 4.) eBay also points to the Summary of the Invention explaining "'[t]he AMD of the present invention processes information that is received in message format rather than as a telephone call, and therefore can base routing decisions on message content.'" (Doc. No. 87 at 19) (emphasis by eBay), (citing '399 patent, col. 2, lines 51-56, and col. 3, lines 9-12) ("Because the messages are stored, the present invention can extract content information from the messages for routing purposes that is not available to conventional AMD or ACD systems.").(emphasis by eBay).

eBay argues that "[i]n characterizing the 'present invention' as a content-based message routing system and distinguishing the prior art on this basis, Open Port excluded from the scope of a 'digitally-encoded message' the mere identification of the 'type of information' to be communicated." (Doc. No. 87 at 20) (citing Curtiss-Wright Flow Corp. v. Velan, Inc., 438 F.3d 1374, 1378-80 (Fed. Cir. 2006), and Honeywell Int'l, Inc. v. ITT Indus., 452 F.3d 1312, 1318-19 (Fed. Cir. 2006)).

eBay also argues that its proposed construction "makes clear that a 'digitally-encoded message' refers to the content of a communication that has been converted into digital form. This follows from both the description of the invention in the intrinsic record as well as the plain meaning of the term 'digitally-encoded' itself," pointing to the IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) at 168, defining "encoded data" as "[d]ata that has been converted from one form of representation to another, using a set of rules." (Doc. No. 87 at 21) (emphasis added). eBay urges that "'[d]igitally-encoded' data, then, is data that has been converted into digital form so that it can be read and manipulated by a computer." Id. (citing '399 patent, col. 2, lines 37-48).

In response to Net2Phone's proposed construction, eBay says that the specification does not define "digitally-encoded message," but even if so, "it cannot trump how the Summary of the Invention repeated characterizes the invention and distinguishes the invention over the prior art." (Doc. No. 87 at 21-22). eBay also urges that the sentence Net2Phone relies is taken out of the overall context of the specification, which "runs afoul of the fundamental principal that the claims of a patent may not be construed broader than how the patentee characterized the 'present invention' in the intrinsic record."
Net2Phone responds that eBay's proposed construction "suggests that messages are digitally-encoded after receipt into a distribution system." Net2Phone urges that according to the '414 and '399 patents, messages are "digitally-encoded" when they are transmitted from a message sender to a receiver. (Doc. No. 92 at 5).

Net2Phone also says that "information" in its proposed construction refers to the many types of information that are part of a message, for example, "the identity of the sender, the type of information to be communicated, mail headers, addresses, priority of the messages, amount of time the message have been in the system, and any other information sent by the message sender, such as the actual substantive content of the communication." (Doc. No. 92 at 6). Limiting the "digitally-encoded message" to "content of a communication," Net2Phone argues, ignores the other information that the patents disclose is in the message.

With respect to distinguishing the prior art, Net2Phone argues that "when the Patents distinguished the prior art ACD systems, they were not limiting the scope of a digitally-encoded message to the actual substantive content of the communication, as eBay asserts. Rather, the Patents made clear that, unlike the prior art ACD systems, the invention can also use the actual substantive content of the communication to distribute a message, which was unavailable in the old ACD system." Id.

In its sur-reply, eBay reiterates that the patents "repeatedly distinguish the prior art Automatic Call Distribution ('ACD') systems on the ground that they were only able to base routing decisions on the 'type of information' to be communicated, whereas the 'AMD system of the present invention' receives and stores 'digitally-encoded messages,' and thus can base routing decisions on the actual 'message content' itself." (Doc. No. 95 at 4-5) (citing '399 patent, col. 1, lines 54-65, col. 2, lines 55-56, col. 3, lines 9-12; provisional app. at 1, 2, 4).

eBay further characterizes Net2Phone's argument that "the Patents made clear that, unlike the prior art ACD systems, the invention can also use the actual substantive content of the communication to distribute a message, which was unavailable in the old ACD system," (emphasis by eBay) as a "critical admission" and "exactly right." eBay urges that "[w]hat Net2Phone overlooks, however, is that the message distribution system can do so only because a 'digitally-encoded message' contains the 'actual substantive content of the communication.'" (Doc. No. 95 at 5).

eBay further disputes that it's proposed construction limits a digitally-encoded message to the "content of a communication." eBay argues that under its proposed construction a "digitally-encoded message" must contain the "actual substantive content of a communication," but it may also contain other information such as e-mail headers etc. Id. at 6.

eBay also disputes Net2Phone's contention that messages are "digitally-encoded" before receipt by the distribution system. eBay contends that facsimile messages are transmitted in analog form, and then digitally encoded after they are received into the distribution system, citing the '399 patent, col. 2, lines 37-48: "The message can assume one of a number of manipulatable forms. For example, in the case of facsimile (fax) data, messages can be stored in one of the TIFF, PCX or DCX formats." Id. at 6-7.

b) Discussion

Beginning as always with the terms of the claim, and using claim 15 of the '399 patent as representative:

15. A method for automatically distributing digitally-encoded messages that are input to an automatic message distribution system that includes a resource load containing a plurality of resources, comprising the steps of:

(a) storing each of said digitally-encoded messages in one or more distributed message queues;

(b) storing resource information concerning said resources in a resource information table that enables the automatic message distribution system to determine which of said resources is available to a digitally-encoded message stored in said one or more distributed message queues;

(c) storing a set of routing rules in a distribution routing table that control distribution of said digitally-encoded message
to the resources; and

(d) automatically routing a digitally-encoded message stored in said one or more distributed message queues.
[paragraphing added by the parties]

eBay points to nothing in the claim language, other than the term itself, that requires that "digitally-encoded messages" include the "content of a communication from a sender." eBay further does not rely on any arguments made during prosecution. eBay relies exclusively on statements made in the "Background" and "Summary of the Invention" portions of the specifications of the patents-in-suit. And Curtiss-Wright and Honeywell.

In Curtiss-Wright, the patent-in-suit was drawn to a coke drum de-heading system. One of the claim limitations called for "an adjustable dynamic, live loaded seat coupled to said main body." The district court, in construing "adjustable," (1) began with the ordinary meaning of "adjustable": "capable of making a change to something or capable of being changed," (2) determined that a narrower construction of "adjustable" would be inconsistent with other claims, and (3) explained that any construction of the term "adjustable" that requires the presence of an adjustment mechanism disclosed in the patent-in-suit would impermissibly narrow the claim to the preferred embodiment. The district court accordingly construed "adjustable" as, inter alia, "not limited by any time, place, manner, or means of adjustment." The Federal Circuit reversed commenting that the district court's construction "places too much emphasis on the ordinary meaning of "adjustable" without adequate grounding of that term within the context of the specification . . ." and misapplied the doctrine/guideline of claim differentiation. 438 F.3d at 1378.

The Federal Circuit explained that "the specification of the [patent-in-suit] consistently, and without exception, describes adjustment that occurs during operation of the de-header system," and that the district court's construction "which includes a structure that requires dismantling of the valve to perform the adjustment, finds no support in the overall context of the . . . specification." The Federal Circuit further commented that "the district court's construction of 'adjustable' renders that limitation nearly meaningless. This court finds it difficult, if not impossible, to imagine any mechanical device that is not 'adjustable,' under the ordinary meaning of that term adopted by the district court." Id. at 1379.

In Honeywell, the patent-in-suit disclosed a fuel filter that was specially made for use with electronic fuel injection systems, i.e., it addressed an "arcing" problem. Although the specification disclosed a fuel filter, the asserted claim was drawn to a "fuel injection system component." The accused products were "quick connects" used to join various components of a fuel injection system together. The district court construed "fuel injection system component" to mean "a fuel filter" finding that the written description of the patent-in-suit limited the "fuel injection system component" to a fuel filter. On appeal, the Federal Circuit affirmed commenting: "Here, the written description uses language that leads us to the conclusion that a fuel filter is the only 'fuel injection system component' that the claims cover, and that a fuel filter was not merely discussed as a preferred embodiment. On at least four occasions, the written description refers to the fuel filter as 'this invention' or 'the present invention' . . . ." 452 F.3d at 1318. See also, Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1398 (Fed. Cir. 2008)("We agree with Netcraft that use of the phrase 'the present invention' does not 'automatically' limit the meaning of claim terms in all circumstances, and that such language must be read in the context of the entire specification and prosecution history. . . . For the reasons below, however, we agree with the district court that the common specification's repeated use of the phrase 'the present invention' describes the invention as a whole, . . ."). Cf., Rambus Inc. v. Infineon Techs. AG, 318 F.3d 1081, 1094 (Fed. Cir. 2003)("While clear language characterizing 'the present invention' may limit the ordinary meaning of claim terms, . . . such language must be read in context of the entire specification and the prosecution history.").

Turning then to the specification, the first portion of the specification that eBay relies on, '399 patent, col. 1, lines 52-67, appears in the "Background" portion of the specification, and explains in context:

A second conventional message processing system is used in telephone call distribution systems. FIG. 2 is a schematic diagram of an automated call distribution (ACD) system 200 for distributing telephone calls received by the ACD system 200. In the ACD system 200, the only information that is known about the telephone call at the time the telephone call is answered is the type of information that will be discussed during the call (e.g., the caller dials a number for customer service for a particular product line), the identification of the caller (e.g., the caller's telephony system identifier), or both. Such systems are limited because the information content of a telephone call is unknown at the time of call receipt by the ACD system 200. Thus, such content cannot be used in the routing process. As a result, information based on the content of the message, the telephone call, cannot be used to determine the ultimate receiver of the call.
In short, in the prior art ACD system illustrated in Fig. 2:

GET DRAWING SHEET 2 OF 7

because these were telephone calls, when the call was answered there was as yet no information about the actual content of the telephone call -- the only information known was (1) the general type of information -- discerned from the caller having called customer service for a particular product, (2) an identification of the caller, e.g., the caller's telephone identifier, or (3) both. Without knowing the content of the telephone call, content could clearly not be used to further route the call.

The second portion of the specification that eBay relies on, '399 patent, col. 2, lines 55-56, appears under the heading "Summary of the Invention," and explains that "[m]essage content information is not available to conventional ACD systems as described above." Before turning to putting that statement in context, though, it is useful to review the actual disclosure of the '414 and '399 patents.

Under the heading "Background of the Invention," the patents explain that:

Generally, a message distribution system distributes information in the form of one or more messages from a message sender to a message receiver. The message sender combines data representing the information content of the messages into a form that can be transmitted to the message receiver. A variety of communication media exist over which messages can be transmitted, including telephone, wireless communication systems and computer networks. There are several conventional message distribution systems currently in use for delivering messages from a message sender to a message receiver.

'399 patent, col. 1, lines 19-30 (emphasis added).

The first of the "conventional message distribution systems" described in the "Background" is an automated message routing (AMR) system, illustrated in Fig. 1. The patents explain that this is a point-to-point message distribution system, i.e., messages are distributed by establishing a direct path between a message sender and a message receiver:

GET DRAWING SHEET 2 OF 7

In that prior art AMR system 100, the patents explain, "a message sender 1s sends a message to a message receiver 1r along a direct path 101. The message receiver 1r is located at logical address 102. Both the message recipient 1r and the route through which the AMR system 100 delivers the message are predetermined by the respective addresses of the message sender 1s and the message receiver 1r. Common forms of addresses for the message sender 1s and the message receiver 1r include a dialed telephone number and an identified mailbox address." '399 patent, col. 1, lines 37-46.

The patents further explain, however, that the AMR system is limited "because it does not select the route over which to transmit a message. Rather, the particular route is determined solely by the respective addresses of the message sender and the message receiver." Id. at lines 47-51.

A second of the "conventional message distribution systems" described in the "Background" is an automated call distribution (ACD) system 200 illustrated in Fig. 2 above. As noted above, that system is limited to telephone calls, and thus the content of the call is not known when the call is answered.

A third of the "conventional message distribution systems" described in the "Background" is an automated message distribution (AMD) system illustrated in Fig. 3 below. The patents explain that "[c]onventional AMD systems place inbound messages in one or more general-purpose mail-boxes that correspond to known pieces of information, and "[i]n an AMD system, the only information known prior to receipt of the message is similar to that of the ACD system described above, i.e., type of information to be discussed and caller identification data." '399 patent, col. 2, lines 1-8.

However, the patents explain, "because the information is in a message format, rather than a telephone call, the rules for message distribution in an AMD system can differ substantially from those for distributing calls in an ACD system. For example, conventional content processing mechanisms, including mail header parsers, addressing parsers, and optical mark recognition (OMR) and optical character recognition (OCR), can add further information to the routing decision." '399
The patents explain that "AMD system 300 has a mailbox subsystem 302, a content processing subsystem 304 and a message distributor subsystem 306. The mailbox subsystem 304 receives a message from a message sender 1s-6s. The message is received in message format and stored in the mailbox subsystem 302. The content processing subsystem 304 then derives information from a message stored in the mailbox subsystem 302. This information can be passed to the message distributor subsystem 306 to help distribute the message to an appropriate message receiver 1r-4r." '399 patent, col. 2, lines 17-28 (emphasis added).

According to the patents, therefore, deriving content information from received messages, using "conventional content processing mechanisms," and then using that information to appropriately route the messages to the proper recipient, was known in "conventional" AMD systems. "However," the patents explain, "the information stored in conventional mailbox-based AMD systems is not sufficient to determine optimal routing of the mailbox messages to an appropriate message receiver. This is because no information regarding the priority of the message, the amount of time the message has been in the mailbox subsystem 302, nor the status of the mailbox subsystem 302 potential recipients is monitored in the conventional mailbox system." '399 patent, col. 2, lines 27-34 (emphasis added).

The discussion in the patents then turns to the "Summary of the Invention."

Returning to the second portion of the specification that eBay relies on, '399 patent, col. 2, lines 55-56, that portion once again explains that "[m]essage content information is not available to conventional ACD systems as described above." That is true because, as discussed above, ACD systems were call processing systems and content of a telephone call is not known at the time a telephone is answered. However, the invention disclosed in the '414 and '399 patents is not an ACD system, but rather an AMD system -- i.e., a message distribution system of the variety illustrated in Fig. 3. In those AMD systems, according to the foregoing description, content information was known, and such content information could be used to route the messages to the proper recipients.

Putting the portion of the specification that eBay relies on in context, this portion of the specification first explains:

The present invention is an AMD system that is optimized for distributing digitally-encoded messages (DEMs) received from a number of sources through a computer network and initially stored in one or more distributed message queues (DMQs). The DEMs can be received from a database, over a LAN or WAN or other communication media. Using the present invention, message distribution is optimized according to a set of configurable distribution rules. The message can assume one of a number of manipulatable forms. For example, in the case of facsimile (fax) data, messages can be stored in one of the TIFF, PCX or DCX formats.

'399 patent, col. 2, lines 37-48. Given the foregoing discussion of Fig. 3, it seems clear that "digitally-encoded messages (DEMs)" necessarily include "content information."

The patents go on to explain that:

Unlike conventional AMD systems described above, neither the message receiver's identity nor the route by which the message should be distributed is predetermined.

'399 patent, col. 2, lines 49-52. The reason, of course, is that the invention of the patents-in-suit adds further routing features to the conventional AMD, for example the use of a "distribution rule table (DRT)" that may be used to distribute messages on information other than content.

Nevertheless, the patents further explain in the portion (emphasized) that eBay relies on:

- 1765 -
The AMD of the present invention processes information that is received in message format rather than as a telephone call, and therefore can base routing decisions on message content. Message content information is not available to conventional ACD systems as described above.

'399 patent, col. 2, lines 51-56 (emphasis added).

eBay points to the above emphasized portion as distinguishing the "present invention" from the "prior art." That is not what the patents are saying at this juncture. It is true that message content was not available on conventional prior art ACD (telephone call) systems, but message content information was available on "conventional AMD system 300" of Fig. 3. Nevertheless, as already noted, it seems clear that "digitally-encoded messages (DEMs)" necessarily include "content information," and that is reinforced by the disclosure preceding that which eBay relies on, i.e., "[t]he AMD of the present invention processes information that is received in message format rather than as a telephone call, and therefore can base routing decisions on message content."

On the other hand, it is also clear that routing may be based on other factors. For example, the patents explain that:

The present invention uses a distribution rule table (DRT) in which a set of configurable distribution rules are stored. The distribution rules determine various information regarding the AMD system. Using this information, the message distributor of the present AMD system can route received messages to appropriate message recipients in an optional manner. For example, it may be desirable to evenly distribute messages to available message recipients. In this case, the distribution rules in the table would be chosen such to effectuate even distribution of messages to message recipients.

The DRT operates in conjunction with a resource information table (RIT). The RIT maintains information corresponding to the availability of resources that are able to process DEMs that are stored in the DMQs. Thus, the present invention uses the DRT in conjunction with the RIT to optimally route incoming DEMs that are initially stored in the DMQs to resources that are able to process the DEMs.

'399 patent, col. 2, line 57-col. 3, line 7.

The third portion of the specification that eBay relies on, col. 3, lines 9-12, explains that "[b]ecause the messages are stored, the present invention can extract content information from the messages for routing purposes that is not available to conventional AMD or ACD systems." Although it is not entirely clear what "content" information vis-a-vis a conventional AMD system this portion of the specification is referring to, nonetheless it is clear that the invention is capable of using content information for routing purposes.

As for IDT's contention that the specification "defines" "digitally-encoded messages," the entire paragraph reads:

The present invention provides a mechanism whereby an operator can optimize the distribution of transmitted messages to appropriate receivers in an AMD system. Preferably, the messages are digitally-encoded messages (DEMs). As used herein the term "message" includes any digitally-encoded information that can be transmitted by a sender to a receiver.

'414 patent, col. 4, lines 21-27. It is true that defines "message" and indirectly "digitally-encoded messages." However, it is also clear that is in the context of an AMD system. As discussed above, the patents explain that in an AMD system, "because the information is in a message format, rather than a telephone call, the rules for message distribution in an AMD system can differ substantially from those for distributing calls in an ACD system. For example, conventional content processing mechanisms, including mail header parsers, addressing parsers, and optical mark recognition (OMR) and optical character recognition (OCR), can add further information to the routing decision." '399 patent, col. 2, lines 8-15.

Accordingly, IDT's proposed construction, "[d]igitally-encoded information from a message sender to one or more message receivers," must be rejected. The patents use "digitally-encoded message" in a more limited manner.

With respect to eBay's proposed construction, "[t]he content of a communication from a sender that has been converted into digital form, not simply an identification of the type of information to be communicated," the exclusion "not simply an identification of the type of information to be communicated" -- which could be garnered in ACD systems, as the patents point out, from the number called -- "the caller dials a number for customer service for a particular product line" -- is
understood. However, the precise scope of what eBay intends by the "content of a communication," which eBay sometimes refers to as "the actual substantive content of the communication," (Doc No. 95 at 5), is less clear.

Once again, the patents in connection with AMD systems explain that "conventional content processing mechanisms, including mail header parsers, addressing parsers, and optical mark recognition (OMR) and optical character recognition (OCR), can add further information to the routing decision." In context, the patents appear to include "mail header parsers, addressing parsers" etc. within the scope of "content information" that is available in an AMD system, and which is not available in an ACD system. Yet, eBay's arguments would seem to exclude the same from "content information." See (Doc. No. 95 at 6) ("While a 'digitally-encoded message' must contain the actual substantive content of a communication, it may also contain other information, such as mail headers, addresses, and the like.") In light of eBay's arguments, the Court must likewise reject eBay's proposed construction.

Rather, the Court believes that one of ordinary skill in the art, having reviewed the claims and specification of the '414 and '399 patents, would understand "digitally-encoded message" to mean "digitally-encoded information from a message sender to one or more message receivers that includes message content information, for example mail header parsers, addressing parsers, and the like, which may be used in making routing decisions, rather than simply an identification of the type of information (analogous to a caller dialing a number for customer service for a particular product line.)"

c) Conclusion

In view the foregoing, the Court concludes that:

"In the context of the '414 and '399 patents, "digitally-encoded message" means "digitally-encoded information from a message sender to one or more message receivers that includes message content information, for example substantive content, mail header parsers, addressing parsers, marks, and the like, which may be used in making routing decisions, rather than simply an identification of the type of information, analogous to a caller dialing a number for customer service for a particular product line.""

B. Claim 29

Claim 29 is dependent on claim 22 and reads as follows:

A portable personal health tracker according to claim 22 further comprising a tactile input device on which the subject may write and the subject's writing is detected, said tactile input device generating a digitized representation of the detected writing.

The parties dispute the meaning of "digitized representation of the detected writing." The defendants contend that this term should be limited to a subject's handwriting, and proposes that the term be construed as "digital data that represents the subject's handwriting." (D.I. 41, at 30-31.) According to the defendants, the specification supports their construction because it differentiates between any input on a touch-sensitive screen by a pen and handwriting. Additionally, the specification "makes clear that 'writing' refers not to any record of tactile input by a subject, but instead specifically to the subject's handwriting." (Id. at 32.)

Conversely, PHT requests the court to adopt a broad construction of the term. PHT proposes that the term means "a digital record of a pattern created on a tactile input device of the health tracker." (D.I. 39, at 14.) PHT asserts that the defendants' proposed limitation is not justified by the specification or the prosecution history. The court agrees. However, the court also concludes that PHT's proposed construction is too broad.

The patent specification describes the writing as follows:

Shown in FIG. 20A is a message screen of the subjective data logger in which a space is provided where the patient may write a message to a person who reviews his or her database records, such as a reviewing physician. In the preferred
embodiment, the message is transmitted as bit-mapped data, such that... when displayed by the recipient, it appears in the handwriting of the patient. Although software is available which could be used to convert the message into characters, the handwriting itself may be of use to a reviewing physician in assessing the patient's medical condition and in establishing the authenticity of the record.

(Col. 26, 11. 44-55.) As previously discussed, there is a "heavy presumption" that a claim term carries its ordinary and customary meaning. CCS Fitness, 288 F.3d at 1366. Here, the ordinary meaning of the term "writing" is broad: "letters or characters formed on a surface that serve as visible signs of ideas, words or symbols." Webster's Third New International Dictionary 2641 (1993). While accused infringers may rebut the "heavy presumption" to limit a claim term, they "cannot do so simply by pointing to the preferred embodiment." CCS Fitness, 288 F.3d at 1366. Moreover, "where a specification does not require a limitation, that limitation should not be read from the specification into the claims." Intel Corp. v. United States Int'l Trade Comm'n, 946 F.2d 821, 836 (Fed Cir. 1991) (citation omitted). In addition, "just as the preferred embodiment itself does not limit claim terms, . . . mere inferences drawn from the description of an embodiment of the invention cannot serve to limit claim terms." Johnson Worldwide, 175 F.3d at 992.

Here, the defendants merely point to the preferred embodiment and state that nothing in the claim suggests that it covers anything but handwriting. However, neither the claim nor the specification require that the term "writing" be limited to "handwriting." Indeed, the specification explains that software is available that can convert the message into characters. (Col. 26, 11. 51-52.) Thus, the patent postulates that a "digitized representation of the detected writing" can include more than just a subject's handwriting. Accordingly, the court will construe the phrase "digitized representation of the detected writing" as having its plain and ordinary meaning -- specifically "digital data that represents the subject's writing." 6

6 The phrase "digitized representation of the subject's writing" in claim 30 should be construed consistently with the term "digitized representation of the detected writing" in claim 29. See Southwall Techs., 54 F.3d at 1579. Thus, for the reasons stated above, the court construes the term "digitized representation of the subject's writing" to mean "digital data the represents the subject's writing."

GO BACK

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9. "digitizer"

The parties dispute the construction of the term, "digitizer." The term at issue appears in Claim 5 of the '025 Patent as follows:

5. A system of tracking real estate and real estate related demographic information using a computer network system comprising:

   a media unit, said media unit having:

       a multimedia computer;

       a digitizer, said digitizer receiving information from outside said network system and within said multimedia computer;

       i/o means, . . . .

   (Herbst Decl. P 5, Ex. 3 at col. 15, ll. 57-66.)

Plaintiffs' proposed construction of the term is "a device that converts information in analog form to digital form." Defendants' proposed construction of the term is "hardware device for converting analog audio, video, text, photograph and
graphics to a digital format." Thus, the parties agree that the claimed "digitizer" functions to convert information from analog format to digital format. However, the parties disagree as to whether the claimed function should be limited to converting only particular types of analog data into digital data.

Here, the Court finds that Defendants' proposed construction is improper for two primary reasons. First, by limiting the claimed function to "analog audio, video, text, photograph and graphics," the proposed construction improperly imports limitations from the specification. (Herbst Decl. P 5, Ex. 3 at col. 7, ll. 39-45); See, e.g., Phillips, 415 F.3d at 1323. Second, by restricting the claim in such a manner, the proposed construction also improperly limits the claimed function to the preferred embodiment. (See Herbst Decl. P 5, Ex. 3 at col. 7, ll. 39-45); See Northern Telecom Ltd., 215 F.3d at 1292; see also Kemco, 208 F.3d at 1362.

For this reason, and after having considered the intrinsic evidence before the Court, the Court construes "digitizer" as "a device that converts information in analog form to digital form."

E. "Digitizing"

Multi-Tech finally argues that the district court improperly construed the term "digitizing," found in claim 7 of the '627 patent, as necessarily being performed by the codec circuit that is disclosed in the specification's preferred embodiment. Microsoft responds that the court did not interpret the term "digitizing" as necessarily being performed by the codec circuit. Thus, there is no dispute regarding this term, and we affirm the district court's construction of the term "digitizing" as meaning simply "converting analog signals into digital signals."

3. Digitizing

Digitizing is the process of creating a digital representation of a non-digital signal by converting, or encoding, the non-digital signal into digital words.
3. "Direct inward dial telephone number"

The court previously determined that, in the contexts of the patents-in-suit, "direct inward dial number" means "the last four or five numbers dialed by a subscriber which are passed to the system over a trunk line capable of carrying a direct inward dial number." Order (dkt. # 263 2) at 21. Although Cygnus has repeatedly objected to the court's construction of "direct inward dial number," Cygnus's contentions in support of revising that construction are unpersuasive. In summary, the court's previous construction was based on several factors. First, the specification of each patent contains an identical definition of "direct inward dial number":

Accordingly, the present invention advantageously utilizes the Direct Inward Dial (DID) numbers. Under LEC [local exchange company] tariffs it is possible to lease a block, or group, of telephone numbers. The size of the groups may vary between LECs, but a group of one hundred numbers is often a typical group. When these numbers are sequential, they are commonly referred to as blocks, but groups of random numbers are also used.

For purposes of this invention, sequential numbering is not required. The customer leasing the numbers from an exchange does not have to lease a corresponding terminating circuit for each number in the group in order to place a call to each number. Instead, the customer leases local facilities in quantities the customer feels are adequate to handle traffic from the leased numbers. When a caller dials one of the numbers in the group, the central office of the terminating LEC (the LEC that assigned the numbers) will complete the call over any of the leased local facilities that are available and also pass the last four, sometimes five, numbers that the called party dialed. The numbers that are passed are called the Direct Inward Dial, or DID, numbers.

'964 patent at 5:63-6:16; '027 patent at 5:66-6:18 (emphasis added). Second, telecom dictionaries dating from 1990 to 2000 describe "direct inward dialing" as a feature of certain phone systems that allowed the phones of a company to be connected so that they could call each other by dialing sequences of fewer than seven digits. Dkt. # 263 at 20. These definitions are consistent with the quoted language of the patent specifications and the inventor apparently contemplated leasing blocks of numbers analogous to a block of numbers used by a large office. Third, during prosecution of both applications, the examiner rejected the claiming of identifying a subscriber via giving him an "assigned number" for calling the service. Id. at 25. In response, the patentee limited the claims to identification using DID numbers, which the PTO allowed, so the plaintiff is now estopped from attempting to expand the claims of the patents to identifying a subscriber via assigned numbers other than DID numbers. Id.

--- Footnotes ---
2 Except where otherwise noted, all docket numbers in this order are those of the master docket for MDL 1423.
--- End Footnotes ---

Cygnus now contends that a DID number cannot be four or five digits because one cannot complete a phone call by dialing less than seven digits. However, Cygnus overlooks the specification of the patents-in-suit, which explain that while a subscriber dials a seven or ten digit phone number sufficient to complete a call, the local exchange carrier passes along only "the last four, sometimes five, numbers that the called party dialed," which is enough to determine which number in the rented block of numbers a subscriber called. Cygnus also argues that if a provider rents telephone numbers in different area codes, blocks of non-sequential telephone numbers, or block of more than telephone 100,000 numbers, four or five digits may not provide enough information to reliably distinguish all the rented numbers. Although Cygnus has pointed out potential problems with practicing the invention on a large scale, this does not overcome the definition of "direct inward dial number" provided by the inventor. Although Cygnus identifies Call Interactive (a company with which Cygnus contracted) planned to have more than 10,000 subscribers, which would have required consideration of at least five digits to distinguish subscribers. Call Interactive's method of operation is not disclosed in the specifications of the patents-in-suit and is not relevant to the construction of the claims.

In its previous order, the court ruled that claims covering all methods of identifying a subscriber based just on the number he dialed had been surrendered during prosecution, and that Cygnus was estopped from expanding the claims beyond using
any method other than a direct inward dial number to identify a subscriber. Cygnus has not explained why the court's ruling that it is limited by its narrowing argument made during prosecution is incorrect.

The court reaffirms its prior order; "direct inward dial telephone number" means "the last four or five numbers dialed by a subscriber which are passed to the system over a trunk line capable of carrying a direct inward dial number."

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3. "direct sequence spread spectrum codes"

<table>
<thead>
<tr>
<th>Wi-LAN's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;codes over which information bits are spread&quot;</td>
<td>&quot;pseudo random noise sequences over which information bits are spread&quot;</td>
</tr>
</tbody>
</table>

The parties' constructions are in agreement with respect to the phrase "over which information bits are spread." Thus, the dispute turns on whether the term "direct sequence spread spectrum codes" should be construed as "codes …" as Wi-LAN proposes or "pseudo random noise sequences …" as the Defendants propose.

The Court finds that the specification and the claims provide for various kinds of "codes." Certain claims, such as independent claims 17, 23, and 33, require "more than one and up to M direct sequence spread spectrum codes." On the other hand, claims 1, 4, and 12 just require "more than one and up to M codes." Thus, some claims require the more limited "direct sequence spread codes" while others merely require the broader "codes." The Court finds this difference in the claim language is controlling in this instance. Further, the Court finds that the applicant made the decision to claim these "different" codes in the claims during the reissue application. For example, during the prosecution of the reissue application, the applicants amended the phrase "spreading of each ith data symbol over a separate code symbol" in claim 4 to the phrase "spreading of each data symbol over a separate code selected from a set of more than one and up to M codes, …" In contrast, during the prosecution of the reissue application, the applicants amended the phrase "invertible randomized spreading of each set of N data symbols over N code symbols" in claim 17 to the phrase "invertible randomized spreading of each set of N data symbols over more than one and up to M direct sequence spread spectrum codes." See also reissue amendments in claim 12 as compared to claim 21. Thus, the Court finds that the applicants made a choice to claim "M codes" in some claims and to claim "M direct sequence spread spectrum codes" in other claims. The Court cannot ignore this different terminology in the claims.

The specification confirms this different use of terminology. The specification states that in a direct sequence spread spectrum (DSSS) system it is customary to use noise-like codes called pseudo random noise (PN) sequences. '802 patent, 1:27-30. In the descriptions of Figures 1 and 2 the spreading code is described as the "ith code." '802 patent, 2:36-45. The specification states that the computing means shown in Figure 1 includes "a source 16 of N direct sequence spread spectrum code symbols." '802 patent, 4:8-9. In the descriptions of Figures 13, 14, 17, and 18, the code is described as the "DSSS code." '802 patent, 3:29-37; 3:47-54. Referencing Figures 13, 14, 17, and 18, the specification uses the term PN code in relation to the referenced DSSS codes. The specification also states that "[i]n this patent, we introduce new codes, which we refer to as 'MC' codes," and then generally describes some advantages of using the "MC codes." '802 patent, 2:15-33. Figure 3 "is a schematic showing of the ith MC code c(i)." '802 patent, 2:54-55. The specification further states that Figure 3 "illustartes the code generator of the MC codes." '802 patent, 2:29-34. Figures 4 and 5 describe an alternate transmitter and receiver "using MC codes generated in Figure 3." '802 patent, 2:58-67. The specification further confirms that the transmitter and receiver illustrated in Figures 4 and 5 use the "MC codes" generated using the code generator in Figure 3. '802 patent, 4:35-46. Thus, the Court finds that the specification and the claims provide for various kinds of "codes."

Defendants have provided ample evidence in the form of dictionary definitions, treatises, and expert opinion that the term "direct sequence spread spectrum code" had a well-known meaning at the time the application leading to the '802 patent was filed. The Court finds that one of ordinary skill in the art would consider that the codes used in a DSSS system would have noise-like properties or would be a pseudo-random code sequence. Further, as part of its intrinsic record the '802 patent cites an authoritative text, the Proakis reference, that explains that pseudo-random or pseudo-noise sequences are basic elements of spread spectrum systems. '802 patent, 1:22-32. Still further, inventor Fattouche wrote an article that confirmed that "[a]ll spread spectrum techniques use a repeating pseudo-random sequence to spread the spectrum of the data signal to be
transmitted" and that the data signal is multiplied by a "pseudo-random code sequence." In light of the substantial evidence that one of ordinary skill in the art would view the term "direct sequence spread spectrum code" to be a pseudo random code or noise sequence, and when there is nothing in the specification that clearly indicates that the term direct sequence spread spectrum code should have a different meaning, the Court rejects Wi-LAN's arguments that "direct sequence spread spectrum codes" should not be pseudo-random. The Court finds that the specification's use of the term "MC codes" does not change the well-known definition of DSSS codes, particularly when the specification and claims refer to different types of codes.

The specification provides that "DSSS is a communication scheme in which information bits are spread over code bits (generally called chips)." '802 patent, 1:25-27. Both parties agree that the codes are those "over which information bits are spread." Thus, the Court construes the term "direct sequence spread spectrum codes" as "pseudo random codes over which information bits are spread."

7. Direction of at least one of said . . . thoroughfares

The next phrase in dispute in the fourth subpart of claim 1 is: "direction of at least one of said one or more thoroughfares corresponding to said current vehicle location." The dispute is over the meaning of "direction." Defendant contends that plaintiff originally agreed to define the term "direction" as "the compass heading," but that after the claims construction hearing plaintiff indicated that it did not agree to this construction. Exh. 7 at 4 n.1. Now plaintiff contends that the term "direction" requires no construction. Defendant argues that plaintiff "has waived any right to challenge this construction ["the compass heading"] by agreeing to the construction and not briefing it timely." Id. I am not persuaded by defendant's argument. Both parties' pre-hearing submissions were pretty much useless because they failed to inform the court precisely which terms were in dispute. It appeared that the parties had not met to discuss claims construction; their briefs contained only speculation as to the other party's positions, based on prior correspondence exchanged. At the claims construction hearing I ordered the parties to prepare and submit a joint list of disputed terms. That list (submitted as eight exhibits, one for each patent in dispute), dkt. # 61, is presently before the court and is the basis for this opinion. The list includes multiple disputed terms that were not presented to the court in the parties' original pre-hearing briefs. I am considering all of the terms and arguments presented in dkt. # 61, including plaintiff's position that the term "direction" requires no construction. I agree with plaintiff that the term "direction" is clear and requires no judicial construction.

3. Directly

As stated above, the multi-room controller discussed in claim 1 controls "a plurality of individual light controls, each light control adapted to control directly lighting within an associated room of partitionable space..." (emphasis added). Genlyte proposes that the Court construe "directly" to mean "independently of a central controller," where "central controller" means "a single hub from which all commands exclusively come." Lutron argues that no construction is necessary.

Genlyte and Lutron agree that "directly" refers to the ability of an individual light control to control the light intensity in the room where the individual control is located without the need of the multi-room controller. Both parties acknowledge the patent history of the '731 patent, which states that "applicants' apparatus has many individual controllers that each acts independently to directly control its own lighting until linked via the multi-room controller." See September 25, 1987 Amendment (emphasis in original).

Citing the dictionary definition of "directly," which reads "without divergence from the source," Lutron argues that "no construction of the term is needed, as the meaning of the word 'directly' in the claims is no different from the commonly understood meaning of the word." Genlyte argues that "if 'directly' merely had its 'commonly understood meaning,' then the reason for adding the limitations 'directly' and 'indirectly' to the claims and the arguments that the applicants made to the U.S. PTO in connection with adding those limitations to the claims would be rendered meaningless."
Ultimately, both parties agree that "directly" means "independent of a central controller," an important distinction which distinguished the '731 patent from the prior art of U.S. Patent Number 4,489,385, also known as the "Miller" patent. This distinction is part of the intrinsic evidence, and shows the special meaning which the applicants intended to use through the word "directly." Therefore, "directly" is construed to mean "independently of a central controller."

3. "directly"

The parties dispute the ordinary meaning of the word "directly." Claim 1 of the '602 patent states in pertinent part: "means . . . for applying the V[pp] supply voltage level directly to the word line through the source-drain circuit of an FET." '620 patent, claim 1 (emphasis added). Defendants argue that "directly" means that the FET must apply the voltage to the word line without any intervening circuitry. MOSAID argues that "directly" does not exclude intervening circuitry as long as the voltage level does not change between the FET and the word line.

The Court begins its analysis by looking to the language of the claims. The claim language is clear on its face that a voltage level is applied directly through a FET to the word line. Based on that clear language, the word "directly" and its context demonstrate that there simply is no room for intervening circuitry. MOSAID's construction would not only read the word "directly" out of the claim, but the words "to" and "through" as well. As a result, the ordinary meaning of "directly" is "without intervening circuitry."

The dictionary definitions submitted by the parties support that ordinary meaning of the claim term. The definition of "directly" is "in a direct way or line; straight . . . without a person or thing coming between; immediately." Webster's New World Dict. 399 (2d ed. 1980). Two other dictionary definitions of "directly" were also provided by the parties:

1a: without any intervening space or time: next in order:
SQUARELY, EXACTLY

2c: without divergence from the source of the original

Webster's Third New Int'l Dict. 641 (1986). Defendants contend that all three of the definitions support an ordinary meaning of "a direct line . . . without anything or anyone intervening." MOSAID does not address the first two definitions. Instead, MOSAID asserts that the ordinary meaning of "directly" is definition 2c above - "without divergence from the source of the original."

The Court agrees with Defendants and finds that the ordinary meaning does not allow for any intervening circuitry. Even if the Court adopted definition 2c above as the ordinary meaning, it still would not change the plain meaning of the claim. "Without divergence from the source of the original" connotes a straight line between two points without branching off on a different course. MOSAID's interpretation of that definition would effectively require this Court to rewrite the term "directly" as "without changing the voltage level." Although the patentee could have acted as her own lexicographer, she did not. It is not the Court's obligation to rewrite the claims to reflect what the patentee may have been able to claim, but to ascertain the ordinary meaning of the claim language she did in fact use.

The intrinsic evidence does not alter the ordinary meaning of "directly." During prosecution of the '602 patent application, the patentee added the word "directly" to distinguish the Lines invention from a prior art reference that included a capacitor between the pass transistor and the word line. The patentee explained the purpose of adding the word "directly" by stating:

In order to distinguish even more clearly, applicant has added the word "directly" in line 14 of claim 1, thus specifying even more clearly that the voltage supply level is applied "directly" to the word line through the source drain circuit of an FET.
The applicant claims in claim 7, and in all of the other claims, an invention which provides a word line voltage that does not include a capacitor type bootstrap circuit and applies that voltage directly from a power supply. Appl. No. 07/680,746, 2/13/92 Response to PTO Action at pp. 11, 15.

MOSAID claims that those remarks were an attempt to distinguish a prior art reference that used circuitry to boost the supply voltage before it was applied to the word line. Thus, according to MOSAID, the word "directly" was added to emphasize that the voltage level being applied to the word line remains unchanged from the voltage level leaving the FET.

MOSAID's position is unconvincing. Those remarks were made to distinguish the Lines invention from a reference that had a circuit between the pass transistor and the word line. The patentee clarified that the word "directly" was added to demonstrate that there was no intervening circuitry, such as a capacitor, between the pass transistor and the word line. This is evident from another remark made by the patentee earlier in that same response:

Contrast this with applicant's invention as shown in Figure 1. The voltage to be applied to the word line is received from a power supply at a desired voltage \( V_{pp} \) directly through transistor 14A. The word line is switched between ground and \( V_{pp} \) by means of transistors 13A and 14A. There is no slow-charging bootstrap circuit required. There is no capacitor connected to the word line which must be charged to provide the word line voltage in a bootstrap circuit, and as shown in both Figures 2 and 3 of Tran. Appl. No. 07/680,746, 2/13/92 Response to PTO Action at p. 10 (emphasis added, underline in original).

Accordingly, "directly" means "without any intervening circuitry."

B. Directly

The term "directly" appears in Claim 1 of the '192 Patent. Digi maintains that "directly" should be defined as "providing the only link between the device control circuitry and the client machine, requiring no intermediate devices or application-specific processing. In other words, allowing the client machine to interface with the device control circuitry of the device without any additional intermediating device or entity." Lantronix, on the other hand, contends that "directly interfacing" should be construed as "the module can interface the device's control circuitry to a computer network without the need of additional hardware components."

The term "directly" was added to the preamble of Claim 1 during the prosecution of the '192 Patent along with the following explanation:

Claim 1 is amended, without prejudice and without adding new matter, to more specifically point out the scope of the invention of the present application. "Directly" has been added to the preamble to more specifically point out the fact that the module directly interfaces (without intermediate devices) the device control circuitry of a device and a client machine.

(Reply to Office Action at 7.) In addition, in an attempt to distinguish prior art, the Reply to Office Action stated:

In the present application the single module is the only link between a remote device and the Internet. In addition, the module of the present application is also the only and direct interface between device control circuitry of a device and a client machine with its own programming interface through an API.

(Id. at 6 (emphasis in original).)

The specification states:

Because this single chip is the only link between the remote device and the Internet, it provides an extremely simple and inexpensive solution to remote monitoring and control. The simplicity of this direct interface has the additionally important benefit that the number of possible points of failure between the device and the network is minimized. Prior art solutions, in contrast, typically have multiple intermediary devices, such as gateway servers in combination with device hardware.
Moreover, the specification states:

the architecture of the present invention links the remote device/equipment 34 to the high performance network 32 without any expensive intermediary server machine.

(Id. at c. 5, 11: 1-4.)

The Court agrees that this language supports a definition of "directly" to mean that the module provides the only link between the device control circuitry and the client machine without the need of additional intermediate devices. Consistent with the Court's discussion of Digi's proposed construction of the term "autonomous," the Court finds no support for Digi's assertion that the module requires no application-specific processing. As a result, the Court construes the term "directly" as "the module interfaces or links the device control circuitry of a device to a client machine without the need of intermediate devices."

B. "directly"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;directly&quot;</td>
<td>the customer communicates payment instructions to the invoicer without reliance upon a third party acting provider independently from the invoicer</td>
<td>the customer communicates payment instructions to the invoicer without reliance upon or through a third party service provider</td>
</tr>
</tbody>
</table>

The parties dispute the term "directly," a term that appears initially in Claim 1 and throughout the other claims. Emergis contends that the term includes an invoicer's use of a third party service provider, like Crescent Systems, because such third party does not act "independently" from the invoicer. Conversely, Cable One argues that the term precludes any third party from assisting the invoicer or the customer where the customer communicates payment instructions to the invoicer. In support of their construction, the parties point the Court to the claim language, the specification, and the prosecution history. As explained below, because these three sources support Cable One's proposed construction, the Court construes "directly" as "the customer communicates payment instructions to the invoicer without reliance upon or through a third party service provider."

Claim Language

Claim 1 describes the automated billing system as "providing remote customer review of automated billing from an invoicer, wherein the customer payment instructions are sent from the customer directly to the invoicer." Cable One argues that the plain and ordinary meaning of "directly" supports its construction. "Directly" is defined in the dictionary as "without the intervention of a medium or agent; immediately; by a direct process or mode." n47 Cable One argues that the patent inventor used "directly," meaning that the invoicer uses the automated billing system without the intervention of a medium or agent.

--- Footnotes ---

n47 OXFORD ENGLISH DICTIONARY ONLINE, Def. no. 5 (2d ed. 1989).

--- End Footnotes ---
Emergis's proposed construction ignores the claim language and its plain meaning. Further, Emergis's proposed construction uses language that cannot be found anywhere in the claim, specification, or prosecution history. Among the intrinsic evidence, the language, "third parties acting independently from the invoicer," cannot be found. "'[T]he words of a claim are generally given their ordinary and accustomed meaning, unless it appears from the specification or the file history that they were used differently by the inventor." n48 As shown below, the specification and the prosecution history, do not support an alternative meaning to the term, "directly." Thus, the Court will construe "directly" as it is ordinarily defined, and as Cable One suggests. Because the claim language uses the term, "directly," and does not specifically exclude "third parties acting independently from the invoicer," the Court finds that the claim language supports Cable One's proposed construction.

--- Footnotes ---


--- End Footnotes ---

Specification

Emergis contends that Cable One's definition conflicts with the inventor's preferred embodiment, and that this preferred embodiment is supported by the specification. At the hearing, Emergis described the history of EIPP technology leading up to Mr. Neely's invention of the '362 patent. Mr. Neely ("the inventor") developed the '362 patent in light of prior art, known as the Electronic Consolidator Model. Under this system, a third party service provider presents an invoice to a customer on behalf of a business. The customer then directs payment from an account to the third party service provider. Emergis contends that businesses did not like this system because it allows a third party to insert itself into the relationship between the business and the customer. This Electronic Consolidator Model is disclosed in the specification as Figure 1:

In the '362 patent, the inventor disclosed United States Patent Number 5,465,206, invented by James J. Hilt ("the Hilt reference," n49 as an early example of a consolidator model. In the system described by the Hilt reference, participating customers can pay bills to participating invoicers via an existing payment network, such as a bank. The payment network coordinates the exchange of data and information between banks or other service providers acting on behalf of each participating customer and invoicer. Under this system, an invoicer sends the customer a bill that specifies payment amounts, due dates, account number, or other invoicer reference numbers. Afterwards, customers initiate payment transactions to their banks or other service providers identifying the invoicers to whom payment should be sent, payment account information, payment amounts, and payment dates for each bill to be paid. Unlike the system disclosed in the '362 patent, customers do not transmit their payment instructions to invoicers or other entities acting specifically on behalf of invoicers. Hilt described his invention as: "Customers and billers participate in the bill pay system, but they need not deal with the many consumers or billers directly. Instead, they need only deal with their bank, or other participating financial institution." n50

--- Footnotes ---

n49 (Doc. 61, Ex. 2.)

n50 (Doc. 61, Ex. 2 at 12:47-50.)

--- End Footnotes ---

[SEE FIGURE 1 IN ORIGINAL]

In the language of the specification, the inventor contrasted his invention with these consolidator models. The inventor explained the need for his system because systems using third party service providers to receive and transmit payment instructions between invoicers and customers added "a great deal of complexity and no small amount of expense to the process." n51 The inventor stated: "Thus, there exists a need for a simple, straight forward system and method of automated electronic invoicing and payment that directly involves the invoicer and the customer while, at the same time, does not
require a third party service provider. . ." n52 The inventor referred to the system as described in Figure 1 as "cumbersome and time/labor intensive." n53

n51 (1:31-32.)
n52 (1:53-57) (emphasis added).
n53 (4:18-19.)

The inventor also distinguished his invention from another patented invention issued to Anderson ("Anderson patent"). n54 In the Anderson patent, n55 the inventor stated that his invention could be used by third party bill payment services to collect payment from customers on behalf of product and service providers. n56 Cable One contends that since the '362 patent inventor distinguished his invention from the Anderson patent, the '362 patent does not include a claim to a system where a third party service provider acts on behalf of an invoicer to collect payment from customers.

n54 (1:32-38.)
n55 (Doc. 62, Ex. C.)
n56 (Id. at 4:53-65.)

With the disclaimers of the Hilt reference and the Anderson patent, the inventor of the '362 patent created an EIPP system that allowed invoicers to deal directly with customers. His system is shown in Figure 2:

[SEE FIGURE 2 IN ORIGINAL]

While this system in the '362 patent omits the use of a third party service provider, Emergis contends that the language of the specification shows that the inventor allowed for outsourcing of certain functions of this system. The specification reads: "[A]n invoicer may choose to outsource webserver hosting or webserver and remittance processing to an outside company on behalf of the invoicer." n57 Thus, Emergis argues that when an invoicer outsources the EIPP services, payment transactions are processed by and through a vendor of the invoicer, who was selected by that invoicer rather than the customer, and who stands in the shoes of the invoicer for purposes of the EIPP transactions. Emergis argues that when this transaction occurs, the customer is interacting "directly" with the invoicer. Cable One refutes this argument by claiming that Emergis is reading this part of the specification out of context, and this text refers to outsourcing the information-technology function of hosting a webserver, not any arrangement where the customer transmits payment instructions to third party service providers. The language of the specification does not refer to the outsourcing of payment instructions. If the language did refer to such a system, a third party would be introduced, and the system in the '362 patent would function much like the consolidator systems that the inventor of the '362 patent disclaimed. Thus, the Court agrees that while the specification allows for the outsourcing of certain functions of the EIPP system, the specification does not envision the outsourcing of the receipt of payment instructions.

n57 (8:31-35.)
As another example, Emergis notes that the specification reads: "In another embodiment, the electronic consumer authorization interface is a digital computer with the billing data and the payment request instructions presented by e-mail to the customer with an email reply for relaying customer payment instructions to the invoice presentation electronics." n58 Emergis argues that Cable One's construction would exclude this EIPP system from the invention when a third party email service provider is involved. However, the specification does not refer to the outsourcing of the email function as it would occur in the above-mentioned embodiment. The specification only speaks to outsourcing webserver hosting or webserver and remittance processing. Thus, this portion of the specification does not support Emergis's construction.

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n58 (6:8-13.)

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Finally, Emergis also claims that its construction of "directly" is the preferred embodiment of the claim in that it includes a third party vended system. The inventor of the '362 patent was the founder and president of InvoiceLink, a third party provider of vended EIPP services to various invoicers in several industries. Thus, Emergis argues that the inventor's use of the patent was the preferred embodiment of the claim. However, such evidence is extrinsic evidence, and the Court may not rely on this evidence to contradict the meaning of claims discernible from the intrinsic evidence. n59 Emergis argues that claim interpretation that causes the preferred embodiment to fall outside of the patent claim is "rarely, if ever, correct and would require highly persuasive evidentiary support, which is wholly absent in this case." n60 However, the Court can distinguish Vitronics from this case. In Vitronics, the court refused to accept the proposed claim construction when it would exclude the only embodiment in the claim. n61 In this case, the '362 patent discloses other embodiments, such as a system in which the invoicer operates the EIPP system on its own. Thus, unlike Vitronics, an exclusion of this embodiment would still allow coverage of other embodiments. Thus, the Court finds that the specification history supports Cable One's proposed construction for the term, "directly."

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n60 Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

n61 Id.

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Prosecution History

In the original application for the '362 patent, the inventor's claims did not include the term, "directly." The inventor added this term after his first application was rejected by the Examiner as unpatentable over the Hilt reference. In response to the First Office Action, rejecting the inventor's patent application, the inventor interviewed with the patent examiner on January 25, 1999. During this meeting, the parties agreed that the pending claims should be amended "to reflect that customer is directly communicating the invoice related matter with the invoicer." n62 On February 12, 1999, the inventor filed an amendment, incorporating this agreement. Each of the independent claims of the application was amended to require that customer payment instructions be transmitted "directly" to its invoicer. n63 In this amendment, the inventor explained:

Consistent with the above interview, the independent claims have been amended to recite that the customer directly communicates the invoice related matter to the invoicer. As discussed during the interview, unlike the prior art of record, the present invention eliminates the problems associated with using a third party service provider. n64

The above language supports Cable One's proposed construction in that the inventor, by adding the term, "directly," disclaimed all third party systems, not just third party service providers acting on behalf of customers.

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In the Second Office Action, the Examiner again rejected all of claims as being obvious over the Hilt reference, finding that the inventor's amendment and accompanying arguments were "not persuasive." n65 Referring to the Hilt reference, the Examiner found that it would have been obvious to one of ordinary skill in the art to modify the disclosed invention of Hilt to provide for direct communication from customers to invoicers, because such direct communications would be preferred by customers, would be more convenient and faster, and would eliminate the need for intervention by third parties. n66

In response to the Final Office Action, the inventor again amended his application and distinguished the claimed inventions from the Hilt reference. Discussing the addition of the term, "directly," the inventor reminded the Examiner that the claims require direct communication of invoice-related matter to the invoicer, and for that reason, "unlike the [consolidation model of the Hilt reference], the present invention eliminates the problems associated with using a third party service provider." n67

In an Advisory Action, the Examiner acknowledged that the inventor had previously argued that the present invention required direct communication from a customer to an invoicer, but that he had failed to submit appropriate amendments regarding that limitation. n68 Without such limitation, the Examiner would not allow the claims. Afterwards, the applicant submitted supplemental amendments to all independent claims to include the "directly" language in the claims. n69 Based on these amendments, the Examiner issued a Notice of Allowability for all pending claims, and the '362 patent was issued on March 28, 2000.

Emergis contends that these amendments and arguments were made solely for the purposes of more clearly distinguishing the prior art--a system in which a customer might initiate payment transactions to several invoicers via a customer-selected third-party service provider such as the customer's bank. Emergis contrasts the system in the '362 patent because it requires that customers communicate "directly" with the invoicer for purposes of receiving and reviewing invoice information,
for initiating appropriate payment transactions. Emergis contends that the ‘362 patent does not preclude an invoicer's use of a third-party vendor to operate an EIPP system on behalf of that invoicer. In fact, Emergis argues that the patent specifically contemplates that this is the preferred way to practice the invention. Thus, Emergis argues, to the extent the relationship between the invoicer and its third-party EIPP vendor is more or less transparent to the customers of the invoicer, such a facility clearly falls within the scope of the claims.

However, the prosecution history fails to support Emergis's arguments. There is nothing in the prosecution history that states when a third-party EIPP vendor is transparent to the customer, such a system falls within the scope of the claim. The inventor inserted the term, "directly," in order to gain patent approval by the Examiner. Throughout the prosecution history, there is no clarification by the inventor that the term, "directly," should be construed as "without reliance upon a third party acting independently from the invoicer." Instead, when the inventor added the term, "directly," the Examiner approved this amendment and provided the following statement for his reasons: "[t]he prior art does not teach or suggest: . . . transmitting said instruction directly to the invoicer. . . ." n70 After the Examiner made this statement, the inventor made no further amendments nor did he seek to clarify the Examiner's statement to ensure that invoicers acting "without reliance upon a third party acting independently from the invoicer" were included within the scope of the claim. n71 Because the prosecution history shows that the claims were approved with the understanding that no third parties were involved in this process, Cable One's proposed construction of "directly" is the more appropriate construction.

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n70 (Doc. 62, Ex. 1 at 4.)

n71 See Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1375 (Fed. Cir. 2004) (declining to "rewrite unambiguous patent claim language" when "[t]he patentee made no attempt to have such an error corrected, either by obtaining a certificate of correction from the Patent and Trademark Office pursuant to 35 U.S.C. § 255, or by action of the district court.") (citation omitted).

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The Court notes Emergis's argument that its construction of "directly" is more appropriate because it is the same definition used by Cable One in its automated billing system. Emergis points the Court to Cable One's website, which tells customers: "Your payment goes directly from your bank to Cable One." Although Crescent Systems is involved in this process, Emergis argues that even Cable One uses the term, "directly" to describe this EIPP system. However, this evidence is extrinsic evidence that the Court may not rely on "to contradict the meaning of claims discernible from thoughtful examination of the claims, the written description, and the prosecution history--the intrinsic evidence." n72 Because the intrinsic evidence supports Cable One's proposed construction, the Court will not look to such extrinsic evidence to contradict the meaning of this term.

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Disclaimer of Subject Matter

Emergis also contends that by including the "directly" language, the inventor never disclaimed the use of a third-party vendor by an invoicer to maintain an EIPP system on behalf of the invoicer. ""[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender."" n73 But Emergis contends that it did not unequivocally disclaim the use of a third-party vendor. However, there is nothing the prosecution history to support this limited disclaimer with the addition of the term, "directly." The inventor could have made a statement during the prosecution that the "directly" amendments were meant only to exclude "third party service providers acting independently from the invoicer," rather than any third party vendor. But no such statement was made. The Federal Circuit has found that:
it frequently happens that patentees surrender more through amendment than may have been absolutely necessary to avoid particular prior art. In such cases, we have held the patentees to the scope of what they ultimately claim, and we have not allowed them to assert that claims should be interpreted as if they had surrendered only what they had to. n74

n73 Liquid Dynamics Corp. v. Vaughan Co., 355 F.3d 1361, 1368 (Fed. Cir. 2004) (quoting Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003)).

n74 Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1362 (Fed. Cir. 2005).

In this case, the inventor amended the claims to include the term, "directly," and thereby disclaimed the use of third parties in this invention. Because the inventor did not clarify that the term, "directly," should be construed as Emergis suggests, there is no support in the prosecution history for such a construction. The Court finds that Cable One's proposed construction is supported by the prosecution history, as well as the claim language and the specification. Therefore, the Court will construe the term, "directly," as "the customer communicates payment instructions to the invoicer without reliance upon or through a third party service provider."
In light of the prosecution history as a whole, it would be inappropriate to construe the term "directly" in the way proposed by Defendants. Furthermore, although the drawing in the '121 patent does not show any circuitry between the two memory components (see '121 patent), I will not limit the meaning of the term "directly" based on the embodiment depicted in a single block diagram. See, e.g., Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 724 (Fed. Cir. 2002) (holding that, in light of other language in the written description, the figures depicting a single preferred embodiment will not be construed as limiting the claim terms). The statements made by the applicant during prosecution indicate that "directly" was intended to mean the transfer of data without intervening size reduction or, by logical extension, other similar processing. (D.I. 346 at 17.) Therefore, I will construe the term "directly" to mean "the transfer of data without intervening processing."

3. "directly accessing" (claims 1 and 6)

The plaintiff asks the court to construe this term to mean "communicating with the flash memory storage module using USB or IEEE 1394 bus protocol without a communication protocol conversion" while the defendant proposes to define the term to mean "accessing the physical addresses of the flash memory without a format conversion." The parties' central dispute regarding this term is whether it requires a format conversion.

"Directly accessing" is not defined in the specification. The parties rely on the prosecution history concerning United States Patent No. 6,199,122 (the "Kobayashi Patent") to support their arguments.

The Kobayashi Patent discloses a connection between the USB port and a memory card operating via the ATA standard. Kobayashi required an ATA controller for communicating with the memory card and required a conversion controller for translating between the USB and the ATA formats. The patent examiner cited the Kobayashi Patent in a January 2003 office action. The '672 applicants argued to the examiner that the '672 patent directly accessed the memory module from the USB port without the standard/protocol conversion that the Kobayashi Patent required. See April 2003 Amendment; September 2003 Amendment; October 2003 Amendment. "Direct access" was addressed with the examiner within the framework of a conversion from USB-ATA standard/protocol conversion. In fact, the prosecution history passages cited by the defendant make this point clear:

One of the functions of the external storage device [in Kobayashi] is as a conversion device for providing a conversion operation between the data format of a computer interface (USB) and that of a removable storage card (ATA). . . That means, a data conversion step and a connector based on ATA standards are necessary for accessing data in the removable storage card [of Kobayashi].

In the present invention . . . [t]he data or information access operation to the flash memory storage module of the external storage device is implemented directly based on the USB or IEEE 1394 standards, i.e., the conversion step contain [sic] in Kobayashi's patent is not necessary for accessing data in the flash memory storage module of the external storage device claimed in claim 34.

Moreover, no directly accessing data in the flash memory is disclosed in Kobayashi. In Kobayashi, any data access must go through USB/ATA data conversion. . . while the claimed invention provides that users can directly access data in the flash memory from host computer without any data format conversion since the data exchange channel [is] based on one standard either USB or IEEE 1394. . .[T]hus, upon plugging in, the flash memory can be directly accessed from the host computer."

September 2003 Amendment

The '672 applicants further distinguished their application from the Kobayashi Patent using the following language:
[Kobayashi] is used for converting a command of USB specification sent from a USB interface of the computer into a command of ATA specification

April 2003 Amendment

[In Kobayashi there is a conversion operation between the data format of a computer interface (USB) and that of a removable storage card (ATA) . . . converting a command of USB specifications]

September 2003 Amendment

In Kobayashi, any data access must go through USB/ATA data conversion while the claimed invention provides that users can directly access data in the flash memory from host computer without any data format conversion since the data exchange channel [is] based on one standard either USB or IEEE 1394

October 2003 Amendment

The defendant correctly notes that the patentee chose to use the words "without any data format conversion" in the prosecution history. But that statement must be placed in context and viewed in light of all relevant portions of the intrinsic record. Another passage from the September 2003 Amendment provides guidance:

The data or information access operation to the flash memory module of the external storage device is implemented directly based on the USB or IEEE 1394 standards, i.e., the data conversion step contained in Kobayashi's patent is not necessary for accessing data in the flash memory storage module of the external storage device claimed in claim 34.

September 2003 Amendment

The prosecution history shows that the '672 applicants waived/disclaimed the conversion from the ATA protocol to the USB or IEEE 1394 Protocol to overcome the Kobayashi Patent.

The specification also supports the plaintiff's construction. At col. 4, ll. 27-30, in describing the preferred embodiment, the specification states that the storage method includes firmware that resides in the flash memory external device and directly controls the access of flash memory. See also col. 3, ll. 26-35. A user could not practice the claimed method on the preferred embodiment using the defendant's proposed construction because some format conversion must occur to access the flash memory storage device by implementing and processing the requests issued by users as claim 1 requires.

The court defines "directly accessing" to mean "communicating with the flash memory storage module using USB or IEEE1394 bus protocol without a communication protocol conversion such as a USB to ATA conversion."

(i) "directly connected"

The parties also contest the construction of "directly connected." Premier asserts that "directly connected" means "joined by a single wire without deviation." (Def. Opp. Mot. Prelim. Injun. at 11.) Advanced contends that Premier's reading of that term is too narrow. As discussed, there is a hierarchy to the evidence to be considered in claim construction: the claim language first, then the patent specification and finally the file history. Vitronics, 90 F.3d at 1582-85. Based upon the claim's language, the specification and the prosecution history, the court construes the term "directly connected" to mean connected by non-switched connections not involving a local area network or wide area network.

The plain language of the claim supports this understanding of "directly connected." The relevant portion of element (c) reads: "preview station means, said preview station interface means separate from and directly connected to said data control means and said at least two preview stations by non-switched connections not involving a local area network or wide area network." (Helget Aff., Ex. A, Col. 8, Ins. 25-31.) The patent language itself therefore defines the term "directly
connected" to mean connected "by non-switched connections not involving a local area network or wide area network."

The specification also supports that definition of "directly connected." The specification language emphasizes that the term is used to distinguish the claim from an implementation which would use a preview station microcontroller to process the video data. The specification provides: "The video display 80 does not transfer data or information through the preview station microcontroller 26 but rather is directly connected to a video display interface means 82 through a high gauge wire 83 having RC connectors at either end." (Helget Aff., Ex. A, Col. 5, Ln. 65- Col 6 Ln 2.) The specification does not state that "directly connected" means only connected by a single wire, as Premier asserts. Such an understanding would erroneously read the limitations of a particular embodiment into the claim language. Instead, the specification provides that "the present invention may be embodied in other specific forms without departing from the spirit of the essential attributes thereof…." (Helget Aff., Ex. A, Col. 8, Lns. 6-12.)

Moreover, the prosecution history supports the court's construction of "directly connected" and undermines Premier's construction. During prosecution, Advanced argued that "direct connections do not involve switching software and hardware like a local area network." (Tolliver Decl., Ex. K at 3.) Although "directly connected" was added during prosecution, the words were added to distinguish this patent from a prior art that showed a LAN between the display device and the server. (Tolliver Decl., Ex. I at 10, 12; K at 2-5.) The words were not added to narrow claim 1 to a single wire implementation.

1356

12. Directly Connected

A connection that runs from the driver IC directly, without any intervening connections, to the center memory chip in the chip clusters on the memory module.

1357

C. "For directly controlling a recording device"

We next turn to the phrase "for directly controlling a recording device." In construing this phrase, the district court reasoned that the purpose of the present invention was to provide a commercially viable system by use of a "small nonvolatile memory" to turn on or control the recording device. SuperGuide Corp., 169 F. Supp. 2d at 525. The district court therefore construed this phrase as meaning that "the event timer sequences [stored in the nonvolatile memory of an event timer] are used to turn on or control the recording device; however, only the [sic] those sequences are so used and stored." Id. at 529-30.

According to Gemstar, the disputed phrase means that the "event timer information sequences stored in an event timer are used to provide the information and generate the signals that are necessary to control a recording device." Thus, Gemstar maintains that the court's construction, as modified by its summary judgment ruling, erroneously interpreted the instant phrase as excluding electronic signals generated by the "event timer information sequences" to control the recording device, including infrared signals. Gemstar also contends that the asserted claim does not require that recording be "directly controlled" from non-volatile memory.

Agreeing with the district court's construction, Thomson argues that "directly controlling" means that the event timer information sequences, not the program schedule information, control the recording device. Thomson further contends that the event timer information sequences control recording completely independent from the program schedule information after the "event timer" is loaded. Accepting that there is no generally accepted meaning in the art for the phrase "directly controlling," Thomson maintains that the specification and prosecution history show that the '357 patentee used "directly controlling" to mean that only event timer information sequences are used to control the recording device. In addition, Thomson asserts that Gemstar agreed before the district court that "no additional schedule information from the stored television program schedule information beyond that loaded into the event timer is used to control the recording device."
Lastly, in response to Gemstar's argument, Thomson asserts that nothing in the court's construction excludes the use of infrared activation signals in the process of "directly controlling"; it only excludes the use of program guide information to control recording.

The phrase "directly controlling" does not have an accepted meaning in the art and we therefore look to the specification for the necessary guidance in interpreting this phrase. The asserted claim requires that recording be "directly controlled" from the nonvolatile event timer memory rather than the schedule listings contained in volatile memory. Indeed, this is the purpose of the '357 patent. The specification teaches that the claimed system does not control the recording device directly from the schedule information. '357 patent, col. 3, ll. 39-41. Rather, this information is used to load an event timer with "event timer information." Id. at col. 3, ll. 41-43. "The event timer then controls the [recording device]." Id. at col. 3, l. 43.

In order to maintain unattended control of recording by the VCR after a power interruption, only the event timer need be made of nonvolatile memory. See Id. at col. 3, ll. 58-60. The specification further explains that because the event timer only requires time and channel information for a limited number of events, the nonvolatile memory can be small and thus not prohibitively expensive. Id. at col. 3, ll. 60-65.

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18 We note that Thomson agrees that the disputed phrase does not exclude the use of activation signals, such as infrared signals, to control recording. Thomson does argue that this construction was not a basis for the court's non-infringement finding. Because we are remanding this case for further proceedings, we do not find it necessary to resolve this factual dispute.

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In addition, although the event timer must control the recording device, the claim does not exclude the event timer from referring back to or accessing the schedule information before recording occurs. The patent emphasizes that the "VCR event timer information exists independent of the information in the TV schedule listings." Id. at col. 6, ll. 18-20 (emphasis added). Thus, the ability to record the designated program is not lost if the TV schedule listings are lost or discarded. Id. at col. 6, ll. 8-18. Further, if the TV schedule listings are updated, the event timer information sequences are not automatically updated and may not reflect the updated schedule listings. Id. at col. 6, ll. 13-17. The patent does not, however, exclude the event timer from referring back to or accessing the stored schedule information before controlling the recording device, e.g., to update the event timer information sequences. The claim only requires that the VCR control information exist independently of the program listing information and that at the time of recording "the event timer . . . controls the [recording device]." Id. at col. 3, l. 43.

Nothing in the prosecution history dissuades us from this construction. Thomson notes that the '357 patentee distinguished Kinghorn during prosecution because it did not describe television schedule listings which are free of information for directly controlling a recording device. This distinction only confirms that in the claimed invention the VCR control information exists independently from the program listing information.

Accordingly, we adopt Gemstar's definition of "for directly controlling a recording device" as meaning that the "event timer information sequences stored in an event timer are used to provide the information and generate the signals that are necessary to control a recording device." The district court's construction is modified to the extent discussed above.

XIV. "directly correlating" -- '638 patent claim 37

Lexar's proposed constr: Toshiba's proposed construction: Pretec's proposed construction:
without any a logical address assigned to a linking, in one
intermediate single block containing superseded data map, without any
mapping or must be directly associated with the intermediate
Calculation physical address of the block containing the corresponding
calculation
updated data in one map, without any intermediate mapping or calculation, where the map is not uniquely addressable by the logical address.

Lexar first suggests that this term need not be construed. In the alternative, Lexar proposes the simple construction "without any intermediate mapping or calculation." Pretec, citing the '638 prosecution history, proposes a similar construction but with two additional limitations: first, to include the word "linking" and second, that the linking occur "in one map." The Court addresses "linking" first. Lexar's proposed construction does not provide an explanation of the word "correlating" (presumably because it finds the term needs no additional construction). To substitute Lexar's proposed construction into claim 37 would make it incomprehensible. "Linking" should therefore be included in the construction of "directly correlating."

With respect to Pretec's proposed "in one map" limitation, Lexar argues that the Examiner said nothing in the Office Action (wherein "directly" was added to claim 37 reciting the step of "correlating a logical address assigned to a block of superseded data to a physical address of a corresponding block of updated data") that would require direct correlation to occur in one map. The Court agrees. The amendment to claim 37, adding "directly," distinguished the prior art of Ban and Wells because that prior art required an intermediate mapping step. Adding "directly" satisfied the Examiner that the intermediate mapping step was unnecessary in the patentee's invention and thereby distinguished from the prior art. The Examiner explained that "[w]ith directly correlating, no intermediate address mapping or table walking is required . . . which contrasts with the teachings of Ban and Wells et al." ('638 file history, paper 12 at 3-4.) Neither the Examiner nor the patentee suggested that the direct correlation occur in one map and that that feature is what sets the patentee's invention apart from prior art. The mere fact that there is no intermediate step is what makes this patented invention different. The Court rejects Pretec's proposed "in one map" limitation.

Toshiba proposes a complex 47-word construction for "directly correlating." Pretec does not address Toshiba's construction at all and Lexar only addresses it in its Opening Brief. There, Lexar disagrees with Toshiba's construction but only on the grounds that the construction is too long and includes restrictions and requirements that are not present in the claim. Toshiba contends that its construction is the proper because the specification and prosecution history in an unrelated patent, the '313 patent, distinguished the '638 patent by explaining that the '638 "includes a programmable map" and "does not disclose a correlation map that is addressable by logical block addresses." Toshiba's reliance here on a wholly unrelated patent and its file history is misplaced and the Court finds that the '313 patent does not limit the construction of this term. The '638 patent claim language and its own prosecution history explain adequately that the proper construction of "directly correlating" here is as follows: linking without any intermediate mapping or calculation.

5) "Directly Coupled"

MKS contends that the term "directly coupled" in method claim 31 means "coupled via a relatively simple pathway versus a complex pathway; without undue complication of the circuit, in a non-circuituous pathway." (D.I. 103 at 33). Advanced Energy contends that the term means "connection with no circuitry or components between the switches and the primary winding." (D.I. 110 at 25).

In construing the term "directly coupled" the Court has reviewed the specification and the prosecution history. (See D.I. 111, A9 col. 2 ln. 21-67, A10 col. 3-4, A11 col. 5 ln. 1-21). Based upon a review of these sources, the Court concludes that the specification contains neither a definition of the term, nor a suggestion that the term should be assigned a meaning other than its ordinary and accustomed meaning. Accordingly, the Court construes the ordinary and accustomed meaning of "directly coupled" to be a connection with no circuitry or components between the switches and the primary winding.
C. Claim 11: "directly from the body-worn tracking device to remote associated notification devices"

While Claim 1 describes what the invention is, Claim 11 describes what the invention does. In simple terms, the purpose of the monitoring device is to send information regarding the location of the offender wearing the device to the intended recipients, such as law enforcement and victims. The two terms of the most concern are "directly" and "remote associated notification devices."

STOP argues that Claim 11 should be construed to mean that a signal gets sent from the tracking device to the intended recipient without first going through the central database. STOP's proposed construction would also exclude the central database as a remote associated notification device. This construction, however, is inconsistent with the context of the patent as a whole.

Consideration of the prior art is especially important in construing Claim 11. As discussed in detail above, prior tracking devices were two piece designs; a body worn piece and a tracking piece either based in the home or carried by the offender. The body worn piece sent a signal to the tracking piece, which then sent a signal to the remote associated notification devices either going through the central database or without going through the central database.

The change from the prior art to the '080 patent is the combination of the earlier two piece devices into a one piece all body-worn device. The pathway of the signal has only changed in that the signal in the '080 patent is sent from the body-worn device to remote associated devices, including the central database, without going through a second carried tracking piece. In this context, it becomes clear that "directly" means without passing through a second piece carried by the offender.

The next question is whether the central database is a "remote associated notification device." Claim 7 of the '080 patent enumerates the group of remote associated devices. This group includes "victim devices, central database, supervisory agency, and law enforcement." '080 patent, column 9, lines 48-49. STOP argues that the central database is not a remote associated notification device because the "patent carefully avoids calling the central data base a 'notification device.'" (Dkt. 44, at p. 17)

STOP's argument is hyper-technical. In addition to the list of remote associated devices given in Claim 7, the specification also includes the central database among the list of notification devices. The specification claims the "body-worn tracking devices transmits rule violations…to the supervising agency's notification device 132,150, the law enforcement agency's notification device 132, 164, the central database system 132, 128, 148, 152, and the victim's notification device." '080 Patent at column 8, lines 17-25. This statement is the same as saying that notifications of rule violations are sent to the listed devices. The patent clearly intended for these devices to receive the notices of rule violations, which, in plain English, makes all of these devices, including the central database, notification devices. Therefore, Claim 11 is construed to mean sending signals directly from the starting point of the body-worn tracking device in a pathway with a destination of remote associated notification devices, which includes the central database.

5. Directly manipulate

Several of the disputed terms relate to the manipulation of data on the client. The term "directly manipulate" appears in the '542 patent. Seven argues that the term means "causing tasks to occur, such as querying, adding, or removing data, by commands sent to the client." Visto argues that the term means "to control without any intervening agency or step."

The specification provides guidance. The patent refers to "Remote Database APIs" and states:

These calls are used to directly manipulate the client database during a connection. When invoking Remote Database APIs from services, corresponding events will be passed back to the services that generated the call.
'542 patent, col. 8, ll. 59-62.

Seven points to this passage, as well as other portions of the specification, to argue that the proper construction of “directly manipulate” is the use of software calls or commands to perform certain actions on the client database. The court agrees with this view and holds that Visto's proposed definition does not account for the meaning of the term read in light of the specification. Accordingly, the court defines the term "directly manipulate" to mean "causing tasks to occur, such as querying, adding, or removing data, by commands sent to the client."

6. Directly manipulate the associated client database

For similar reasons as those expressed with respect to the previous term, the court construes "directly manipulate the associated client database" to mean "causing tasks to occur on a client database, such as querying, adding, or removing data from that client database, by commands sent to the client."

After holding a Markman hearing, the Court issued its Memorandum Opinion and Order on Claim Construction in which it construed six terms integral to the determination of this case and the instant motions. (doc. 270) The claims were construed as follows:

(1) "connected and connectable" -- These terms mean "directly joined to one another within the same unitary piece of equipment without any intervening equipment."

(2) "unified structure" -- Although not a claim term, the Court defines the term "unified structure" to mean "a consolidated structure with all components directly connected to one another."

(3) "bypass" -- "Bypass" means "a structure and path by which data channels completely go around and in no respect go through the TST switch."

(4) "control store" -- "A 'control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node."

(5) "means for measuring" -- The Court finds that this term is not capable of construction.

(6) "direction of the timing adjustment interval" -- This term means "[t]he timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow."

(Mem. Op. and Order on Claim Constr. at 30-31)

2. "Directory"

The word "Directory" is used throughout the Claims of the '531 Patent. For example, Claim One recites:
A method for entering new information on a recordable CDROM operatively connected [to] an operating system of a computer system having an updatable memory comprising:

a) opening a directory in an updatable memory, said directory being identifiable with a directory on a CDROM, said directory in the updatable memory constituting a working directory,

b) storing the data on the CDROM and updating the working directory to reflect the data on the CDROM,

c) upon completion of the data entry, copying the working directory from the updatable memory to the track on the CDROM containing the last entered data, writing a track information map, and closing the track where the data is entered, such that an operating system accessing data stored on the CDROM is routed by the working directory directly to the latest revision of such data on the CDROM, any previous versions of said data which are still present on the CDROM being transparent to the operating system.

Each party's proposed claim construction of "Directory" is as follows:

<table>
<thead>
<tr>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Construction</td>
</tr>
<tr>
<td>&quot;Directory&quot;</td>
<td>A set of records containing the locations of and other information about files and other directories.</td>
</tr>
</tbody>
</table>

Roxio's proposed construction of "Directory" is derived from the "Definitions" section of the '531 Patent, which states the following:

The Recording Technique ends each track with two special data structures; a directory and a track info map. The directory on any given track occupies one or more packets and contains the cumulative location of all files and operating system information for the disc up to and including the track on which it resides.

('531 Patent, col. 3, ll. 16-21).

Optima, however, argues that this language should be ignored because the term "Directory" is well understood and "has been used for decades." (Pl.'s Opening Markman Brief, p. 11.) Rather, Optima contends, the term should be given its ordinary meaning. (Id. at p. 12.)

The Court rejects Optima's proposed construction because it finds that Optima acted as its own lexicographer when it included a definition of "Directory" in the '531 Patent. 3 The Court believes that the inclusion of the quoted language above, particularly in a section of the '531 Patent labeled "Definitions," is sufficient to provide notice of the term's intended meaning to an individual of skill in the art. 4 See In Re Paulsen, 30 F.3d at 1480. At the hearing for the instant motion, however, Optima urged the Court to consider the following language, which immediately precedes the "Definitions" section:

"The new recording technique embodying features of the invention . . . uses existing recordable CD elements in a unique way. These elements are defined in detail in various standards documentation addressing recordable CD, the primary standard referred to by the industry as the Orange Book. The definitions of several elements are summarized below and the method of using these elements in the invention are set forth.

('531 Patent, col. 2, ll. 49-57) (emphasis added.) Optima contends that this language disclaims any definition found in the next section of the patent.
Roxio's Markman Brief, p. 2. This proposed analysis is unsupported by case law, which clearly indicates that the ordinary meaning of a term will be modified if the patentee acts as its own lexicographer. Nystrom v. Trex Co., Inc., 374 F.3d 1105, 1111 (Fed. Cir. 2004) ("The ordinary and customary definition will be overcome if the patentee has acted as his or her own lexicographer in explicitly setting forth a definition of a claim term distinct from its ordinary meaning . . . ."); K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999).

4 This conclusion is bolstered further by noting that the word "definition" itself is defined as "The act or process of stating a precise meaning or significance; formulation of a meaning." AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed) (emphasis added.)

The Court rejects Optima's argument. It may be true that some of the terms found in the "Definitions" section of the '531 Patent are defined in detail elsewhere; however, the very reason that inventors are permitted to act as lexicographers in the patent context is because the public may not be familiar with particular technical terms used, or there may not be a singular meaning for the concept that is claimed. Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Therefore, the Court finds, notwithstanding the precedent language that Optima acted as a lexicographer by including the "Definitions" section of the IN so doing, Optima provided notice to the public of the meaning of terms contained therein and clarified any ambiguities in definitions that may be found elsewhere.

The Court also rejects Roxio's proposed construction as inconsistent with the definition of "Directory" provided in the '531 Patent. The Court agrees with Optima that Roxio's proposed construction is too narrow because it is limited to tracking only files on the CD and does not include files that may be subsequently written onto the CD from a working directory, as described in Claims 1, 2, 5, and 6. (Pl.'s Opening Markman Brief, p. 12.)

Therefore, the Court rejects both parties' proposed constructions and finds that, since Optima acted as its own lexicographer, the language included in the '531 Patent and quoted above controls. See Voice Techs. Group v. VMC Sys., 164 F.3d 605, 613-14 (Fed. Cir. 1999) ("When the meaning of a term as used in a patent is clear, that is the meaning that must be applied in the construction of the claim . . . .").

5 The Court notes that the parties stipulated to the Court's construction of the terms "track," "directory," and "session" at the hearing for the instant motion. Pursuant to Local Rule 7-1, this stipulation is binding. C.D.Cal. L.R. 7-1 ("Stipulations will be recognized as binding . . . when made in open court . . . ."). Optima, however, now urges the Court to revisit these constructions. (Optima's Supplemental Brief, pp. 3-6.) Even if the Court disregards the stipulation, which it does not, the result is the same because the Court finds that Optima acted as a lexicographer with respect to these terms.

"When enabled," "to enable" and "disable"

For "when enabled" and "to enable," Plaintiff proposes "when activated" and "to activate," respectively. Defendants suggest "when power is supplied, i.e., when the device is turned on." On the flip side, Plaintiff argues that "disable" should be defined as "to deactivate." Defendants submit that the construction of "disable" should be "to switch off power, i.e., to turn off."

Claim 3 uses the terms "enabled," "to enable" and "disabled," but the specification includes no special definition of these terms. Plaintiff argues first that no definition is needed, and that the "plain and ordinary" meaning of the terms should suffice. As with so many patents involving electronic devices, "plain and ordinary" is not so easy to discern.

Defendants correctly argue that these terms are used in the specification in connection with a power management feature of...
the invention. At times, the described devices (the location signal generating device and the telemetry transmitter) use no power, i.e. they are turned off. When a signal is received, power is turned on, and they are able to operated. In other words, according to Defendants, the claim merely describes devices similar to a common electric lamp. When the switch is in the "on" position, the light bulb is illuminated. When in the "off" position, the bulb is dark.

LunarEye asserts that the claim language should not be so limited. LunarEye would interpret the claim to also describe devices which continuously receive power, although they might be in a "low" power condition, so that power consumption is minimized. This would be similar to the "hibernation" state observed in some computers and cell phones, which have a blank screen when not used for a certain period of time, although they are still using some power.

Defendants argue that because the specification and prosecution history do not disclose any embodiment that does not involve power being turned off and on, the claim must be so defined. See Wang Laboratories, Inc. v. America Online, Inc., 197 F.3d 1377 (Fed. Cir. 1999). Plaintiff naturally reminds the court that limitations may not be imported into the claim from the specification. See Teleflex, Inc., 299 F.3d 1313, 1327-28 (Fed. Cir. 2002)

But review of contradictory axioms is not analysis. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F3d 898, 904 (Fed. Cir. 2004). The court must determine if there is either a limitation in the claim language itself, or a clear intent to limit the claim expressed in the specification or prosecution history.

The claim simply refers to devices being "enabled" and "an enable controller" configured "to disable" devices. This could mean, as Defendants argue, that the devices have all power supply turned off. But anyone who owns a computer or a cell phone, let alone someone skilled in the art, would be aware that such devices can be in a "hibernation" or "sleep" mode, in which they receive a small amount of power.

The question then becomes whether the applicant expressed a clear intent to limit the claim scope. According to the specification, the invention's operational sequence may begin "[u]pon receipt of a page or the occurrence of another triggering action . . . ." Col. 1, L. 63-64. This does not indicate whether the device is already using some low level of power. The "method may include applying power to a GPS receiver and a cellular transmitter upon receipt of the page, and disconnecting power from the GPS receiver and the cellular telemetry transmitter upon transmission of the location of the object." Col. 2, L. 39-43. "Disconnecting power" implies that all power is shut off. But, this is just a description of one variation of the invention.

A flow chart of the power management system is provided by Figure 3 of the patent. The verbal description of the flow chart states that the "[t]he controller wakes up the GPS receiver . . . .," which then "wakes up" the cellular network transmitter. Col. 6, L. 26-28. The prosecution history contains a communication from the Patent Examiner with the following references:

"a controller 25 (enable controller) configured to wake-up (enable) the LDS . . . ."

"to put back to sleep (disable) the LDS receiver/processor . . . ."

See Independent Witness' Brief, Ex. 2, [Doc. # 84-3] p. 7. There seems to be little dispute that "enable," as used by the inventor, and as understood by the Examiner, is synonymous with "wake up." Similarly, "disable" can be used interchangeably with "put to sleep."

Together, these references indicate that "to enable" and "when enabled" (or "waking up") requires the application of power. Conversely, "to disable" (or "put to sleep"), involves the removal or reduction of power.

The question still remains: Does the claim describe only a device which receives no power until it is "enabled?" In an Office Action (Date Mailed: 07/12/01) the Examiner compared Claim 26 of Allen's application, (which later became the Claim 3 now in dispute) with language in an earlier, related, patent, U.S. Patent No. 5,777,580 (Janky) Col. 11, L. 26-40. As a basis for rejecting Claim 26 of Allen's application, the Examiner states that "Janky et. al. clearly show and disclose a vehicle location system (triggerable location-reporting apparatus)" with the same features disclosed in Allen's Claim 26. See Independent Witness Brief, DX 2 [Doc. # 84-3] p. 7 of 15.
The Examiner noted that Janky already taught an enable controller configured to "wake-up (enable)" the LDS system receiver/processor (location signal generating device) and the telemetry transmitter when it receives a trigger signal, and, inherently, to "put back to sleep (disable)" the location signal generating device and the telemetry transmitter. See DX 2, [Doc. # 84-3] p. 7 of 15. (Emphasis added)

--- Footnotes ---

n2 In Janky, an LDS is a "Location Determination System" such as GPS, GLONASS, Loran or an inertial navigation system that receives LDS signals from two or more sources. See Janky, Abstract.

--- End Footnotes ---

On the next page of the Office Action, the Examiner stated: "Janky et. al. further disclose that the GPS processor is in a 'sleeper' mode (power is not applied) until the system receives a page (column 11 lines 35-40)." (Emphasis added). Nothing in the record indicates that Allen ever tried to contradict or correct the Examiner's obvious understanding that "disable" meant "put back to sleep" and "sleeper mode" meant "power is not applied." On the other hand, whether or not power was being turned off, or merely reduced, was not the focus of the interchange between the Examiner and Allen.

The "Response To Final Office Action" states that "the enable controller in Janky does not necessarily disable the location-signal generating device and the telemetry transmitter after the telemetry transmitter transmits the location signal, as required by claim 26 [now claim 3 in the patent before the court], and Janky does not inherently include this limitation." (Emphasis in the original) [IW's Brief, EX. 4, Doc. # 84-4, p. 10 of 18]. The Response explained to the Examiner that Claim 26 [now claim3] can be distinguished from Janky because the system in Janky "may leave the system enabled" until it is "unenabled" sic by a person performing an action such as removing power, rather than by the enabler itself. In other words, Allen distinguished his patent by asserting that the controller would accomplish a task performed by a person. But there was no clear statement that the task could not be a reduction of power.

The argument that "sleep" or "sleeper mode" means "no power" could be supported by the specification's description of the power management flow chart, Figure 3.

The controller then goes back to sleep. 72 With this power management approach, significant power is being used only when position information is being transmitted over the cellular network. The rest of the time the only drain on system power is the page receiver, which has a very low power requirement . . .

Col. 6, L. 33-38. (Emphasis added). If the "only drain" is the page receiver, then the GPS and the transmitter must be using no power at all. This conclusion is supported by the following at Col. 5, L. 62-64: "When the page receiver 34 receives a page over antenna 44 that is addressed to the page receiver 34, the page receiver 34 transmits a "power-on" signal 46 to the controller 36." (Emphasis added).

The foregoing are the strongest arguments for defining "enabled" as meaning that power is supplied or "tuned on." But none is a "clear disclaimer" of other possibilities. There is no statement that the GPS the (location signal generating device) or the telemetry transmitter could not be, or would not be in a low power state. The single statement by the patent examiner about a GPS processor in a "sleeper mode (power is not applied)" referred specifically to Janky and how much power was being applied or removed was not the focus of debate. The court can not merely assume or infer a "clear disclaimer."

The claim language is broad enough to encompass an enable controller which turns the devices completely on and off, or a system in which in which at least some power is continuously applied to the devices. While only one embodiment (the preferred embodiment) is described in the specification, there is no clear statement disclaiming other embodiments or limiting the devices. The court therefore defines these terms as follows:

"Enabled" means "fully operational and performing its function."

"To enable" means "to place into a condition which is fully operational and performing its function."

"To disable" means "to place into a condition which is not fully operational and performing its function."
1. "disable request signal"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
<th>Claims 5, 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;disable request signal&quot;</td>
<td>a signal to initiate entry into a</td>
<td>a signal that requests the system to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>shut-down mode</td>
<td>stop the output clock signal and that</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>starts the predetermined length of time</td>
<td></td>
</tr>
</tbody>
</table>

Saxon argues that the "disable request signal" corresponds with signal 48 of Figure 1. PL.'S BR. at 5. Defendants argue that the language of claim 5 requires that the "disable request signal" correspond with signal 48 and the SDENTR signal of Figure 1. DEF.'S BR. at 2. They point out that claim 1 describes two separate signals: a "shut-down entry request signal" which corresponds with signal 48, and a "disable activation signal" which corresponds with the SDENTR signal. Claim 5, on the other hand, only recites one signal by name—a "disable request signal." Defendants argue that because this is the only signal identified in claim 5, it must perform both of the functions of the signals identified in claim 1.

Regardless of the merits of Defendants' interpretation of claim 1, Defendants' interpretation of claim 5 is not supported by the plain language of the claim. Claim 5 recites the step of "stopping said at least one output clock signal . . . after receiving said disable request signal" wherein this signal is processed only if it satisfies a predetermined protocol requirement. In other words, claim 5 recites the steps of (1) receiving a disable request signal, (2) verifying it, and (3) stopping the output clock signal only after the disable request signal has been received and verified and a predetermined length of time has elapsed. 2 There is no requirement that the disable request signal must start the predetermined length of time. In fact, Defendants' interpretation would exclude the figure 1 embodiment, which shows a separate signal initiating the predetermined length of time after signal 48 is verified, from the scope of this claim. See Globetrotter Software, Inc., 362 F.3d at 1381 ("A claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever correct."). Thus, the Court rejects Defendants' proposed construction to the extent that it requires the disable request signal to start the predetermined length of time.

--- Footnotes ---

2 At the hearing, Defendants argued that, because claim 5 requires that the predetermined length of time begin "after" the disable request signal is received, the predetermined length of time must begin immediately after the disable request signal is received. Defendants further argued that this requirement is equivalent to the requirement that the disable request signal initiate the predetermined length of time. However, Defendants offer no support for the idea that the word "after" means "immediately after" or "in response to."

--- End Footnotes ---

Having resolved the parties' claim scope dispute, the Court must determine how best to construe this term for a lay jury. Defendants argue that Saxon's proposed construction contains two needlessly ambiguous terms: "shut-down mode," and "initiate entry into." Although the term "shutdown mode" does not appear in the language of claim 5, it is adequately described throughout the '689 Patent. The title of this patent is "Clock Generator Capable of Shut-Down Mode and Clock Generation Method." Furthermore, the patent specification consistently describes "shutdown mode" as a power saving mode in which "the clock generator does not generate any clock signals." '689 Pat. at 3:11-15. Therefore, the Court finds that the term "shutdown mode" is not ambiguous. The term "initiate," on the other hand, is more problematic. The patent specification uses this term in a number of different contexts. See '689 Pat. at 7:59-64, 8:49-52.
The Court finds that the proper construction of this term is "a signal requesting the system enter into shut-down mode."

1. disabling

In the only office action sent by the Patent and Trademark Office ("PTO"), the patent examiner suggested changing the term "disenabling" to "disabling." He did not provide a reason for the change. Nonetheless, the patentees complied with this request. Neither the language of the claims nor the patent specification provide a definition for the term disabling. Instead, the term is used in phrases to describe the status of the second microphone while the first microphone is activated. [See e.g., claims 1 (d)&(e), 8(a)&(b), 9, 13(b), 19(d)&(f) and 26(d)]. In the description accompanying the claims, the patent provides:

At any point in time where there is an attempt by the party in the interior environment to transmit, that party will immediately assume transmit control over the line and the party in the exterior environment will only be in a receive mode. (501 patent, col. 3:46-50).

* * *

During each monitor of the phone line, the external microphone is temporarily disabled so that any signal on the line cannot be the result of external noise or someone talking on the external microphone. (501 patent, col. 4:7-10).

Plaintiff relies on Webster's II New College Dictionary to construct its definition. Plaintiff defines disabling as "to suppress, to make incapable or ineffective; synonymous with the word weaken." (Plaintiff's Supplemental Reply, at 1). Plaintiff further asserts that any written responses during the course of the patent prosecution which define disabling are irrelevant. (Plaintiff's Supplemental Reply, at 3 n.2).

--- Footnotes ---

4 Although defendants do not rely on a dictionary, they contend that disabling "is such that transmission cannot occur from the second (exterior) microphone when audible sounds are generated at the other microphone (see, for example, claims 1, 13, and 19), and occurs whenever audible sound is to be transmitted by the [interior] location (e.g., Claims 8 and 16)." (Defendants' Supplemental Reply at 3). This definition while more detailed is consistent with the Court's understanding of the claim term "disabling."

--- End Footnotes ---

The patentees' attorney's comments, in this instance however, were made to overcome prior art objections. As a result, the prosecution history is highly relevant to defining the term disabling. For example, in describing how plaintiff's device operates differently from U.S. Patent No. 3,588,360 (the "Knox patent"), patentees' counsel wrote in response to the Office Action, dated October 2, 1985:

In accordance with the present invention, one of the microphones is literally de-activated and that is the microphone in the noisy area for the purposes of monitoring the telephone line. This clearly does not exist in the case of the Knox patent.

Defendants' Exh. C at 152. Thus, the patent attorney represented to the patent examiner that disabling with respect to plaintiff's device meant the external microphone is "literally de-activated."

In response to the Patent Examiner's objection raised by U.S. Patent No. 4,513,177 (the "Nashino patent"), the patent attorney stated:

Of primary importance is the fact that Nashino et al does not cut off a microphone or a speaker at any time. In other words, the microphone and the speaker are always on. However, Nashino et al merely attenuate for the background noise and for the noise from the speaker which might otherwise be coupled into the microphone.
Defendants' Exh. C at 154 (emphasis added). Here, the patent attorney explained that the patentees' device disables or "cuts off" the external microphone unlike the Nashino device which does not "cut off" a microphone at any time.

The patentees' counsel concluded his response to the Office Action by stating that:

Applicant has amended the claims to insure that they patently define over the references of record. Claim 1 has been amended to recite the monitor means for monitoring the telephone line to determine if audible sounds are being generated at the first microphone or at the second microphone while temporarily disabling one of the microphones. The references of record do not even remotely suggest the disabling of any one of the microphones to determine if audible sounds are being carried over the telephone line. In addition, Claim 1 calls for the control means which is responsive to the monitor means for disabling one of the microphones such that transmission cannot occur through that microphone.

Defendants' Exh. C at 155 (emphasis added). Again, the patent attorney made clear distinctions between the prior art cited by the patent examiner and the claimed invention which disables "one of the microphones such that transmission cannot occur through that microphone." Id. Thus, the prosecuting attorney's aforementioned statements clearly define disabling as literally de-activated or cut off in order to secure allowance of the patent.

While plaintiff may wish to retract the representations made by the patentees' attorney or explain the subjective intent behind making the statements, assertions made during the patent prosecution can be used to define or limit a claim term. Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985); see also, Southwall Technologies Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution."); Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997) (holding that a court may use statements made in an Information Disclosure Statement to interpret the scope of the claims of a patent); Spectrum Int'l, Inc. v. Sterlize Corp., 164 F.3d 1372, 49 U.S.P.Q.2D (BNA) 1065, 1998 WL 854715 *5 (Fed. Cir. December 9, 1998) (noting rule that "explicit statements made by a patent applicant during prosecution to distinguish a claimed invention over prior art may serve to narrow the scope of a claim"). Moreover, the standard for reviewing the subject matter surrendered during prosecution is objective and depends upon what a competitor reading the prosecution history would reasonably conclude was given up by the applicant. Insituform Technologies, Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1107-08 (Fed. Cir. 1996). The subjective intent of what the patentee intended to convey during prosecution is not relevant to the Court's inquiry. Id. 99 F.3d at 1107.

Plaintiff also contends, in effect, that the patent attorney's statements were unnecessary because the prior art was distinguishable for other reasons than by limiting the scope of disabling. However, the public record is clear and cannot be disregarded by the Court. Plaintiff cannot urge the Court to ignore statements made by the prosecuting attorney simply because the plaintiff realizes in hindsight that these statements were unnecessary or a mistake. Spectrum Int'l, 164 F.3d 1372, 1998 U.S. App. LEXIS 30992, 1998 WL 854715 at *5 (noting that the public has a right to depend on definitive statements made during prosecution); see generally, Vitronics, 90 F.3d at 1583 (competitors must be able to rely on the public record to determine the scope of a patent).

In sum, the file history reflects that the patent examiner suggested the change of dissembling to disabling and rejected claims as anticipated by the Knox, Nashino and Warman patents. To overcome these objections, the patent attorney distinguished the Knox patent by asserting that one microphone is literally de-activated. He distinguished the Warman patent by noting that only one person could obtain transmit control. Finally, the patent attorney distinguished the Nashino patent by emphasizing that it merely attenuates for background noise rather than cutting off a microphone or speaker at any time.

Accordingly, the Court concludes that disabling as used in the 501 patent means: to de-activate, or cut-off, not mere attenuation. This definition applies to all the claims of the 501 patent.

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I. Claim Construction

The first step in an infringement analysis is the proper construction of the asserted claims. The claims at issue include means
plus function limitations. The dispute is not whether the accused devices contain structure equivalent to the claimed means but whether the accused devices perform the function recited in the means plus function limitations. In its February 1999, claim construction order, the district court construed the term "disabling" that is found in the disputed claims. Claim 1, for example, recites "control means responsive to said monitor means for . . . disabling said second microphone such that transmission cannot occur through said second microphone when audible sounds are generated at said first microphone . . . ." '501 patent, col. 10, ll. 15-20. The claims define the first microphone as being at a "generally quiet location," i.e., the tenant's apartment, and the second microphone as being at a location "which may have relatively substantial background noise," i.e., the visitor location. After discussing the language of the claims themselves, the specification, and the prosecution history, the district court held that "disabling as used in the '501 patent means: to de-activate, or cut-off, not mere attenuation." DoorKing I, slip op. at 10. DoorKing asserts that the district court erred in its claim construction, and that "disabling should be construed to have its ordinary dictionary meaning."

Citing one dictionary meaning, DoorKing urges that "disabling" should be construed to mean "to suppress, to make incapable or ineffective," and that the term is synonymous with the word "weaken." For example, Webster's Dictionary defines disable: "to make incapable or ineffective" and lists "weaken" as a synonym for "disable." Webster's New International Dictionary 642 (3d ed. 1968). Standard dictionary definitions indicate ordinary meaning. See, e.g., MSM Investments Co. v. Carolwood Corp., 259 F.3d 1335, 2001 WL 893890, at *4 n.1 (Fed. Cir. 2001). Of course, it is appropriate to look to the dictionary to help determine the ordinary meaning of "disable."

However, Sentex urges that the specification and prosecution require a narrower interpretation of "disabling." Of course, claim language must be interpreted in light of the specification and prosecution history. Biovail Corp. Int'l v. Andrx Pharms., Inc., 239 F.3d 1297, 1301, 57 U.S.P.Q.2d (BNA) 1813, 1816 (Fed. Cir. 2001). Sentex first directs our attention to the specification. The specification states that: "During each monitor of the phone line, the external microphone is temporarily disabled so that any signal on the line cannot be the result of external noise or someone talking on the external microphone." '501 patent, col. 4, ll. 6-10. Sentex urges that this portion of the specification requires a narrower interpretation.

Sentex also argues that the prosecution history requires the term "disabling" to mean that one of the microphones must be literally de-activated or cut-off. During prosecution of the patent, several claims, including the later allowed claim 1, were rejected as being anticipated by three separate prior art references: United States Patent No. 3,588,360 to Knox, U.S. Patent No. 4,467,143 to Warman, and U.S. Patent No. 4,513,177 to Nishino. In response to the rejection, DoorKing amended its claims, added new ones, and made several statements about the prior art. In distinguishing the invention from Knox, DoorKing stated: "In accordance with the present invention, one of the microphones is literally de-activated and that is the microphone in the noisy area for purposes of monitoring the telephone line. This clearly does not exist in the case of the Knox patent." With respect to Warman, DoorKing stated, in part, that: "In distinction, the system of the present invention is obviously quite different in that only one person can obtain transmit control." With respect to Nishino, DoorKing stated that:

Of primary importance is the fact that Nishino et al. does not cut off a microphone or a speaker at any time. In other words, the microphone and the speaker are always on. . . . The references of record do not even remotely suggest the disabling of any one of the microphones to determine if audible sounds are being carried over the telephone line. In addition, Claim 1 calls for the control means which is responsive to the monitor means for disabling one of the microphones such that transmission cannot occur through that microphone.

Like the district court, we find that the prosecution history at least requires a narrower interpretation of the claim language than indicated by the dictionary definition. The proper interpretation is that "disabling" means "to make incapable or ineffective," but not "to weaken." The prosecution history is not consistent with a broad interpretation of disabling that includes merely weakening the signal from the visitor microphone. We construe "disabling" as requiring that the visitor microphone be rendered incapable of: (a) transmitting a signal that is audible at the tenant location; and (b) preventing the tenant microphone from controlling the system. This construction is similar to but not identical to the district court's construction.
coherently caching I/O devices available for shared access on a network comprising . . . disabling cache operations upon finding that a new computer joined the network; and enabling caching operations at each computer after each computer has connections in place with the cache software of every other computer on the network." (‘136 Patent, at 26:17-22) (emphasis added). The parties agree that "enabling caching operations" is the opposite of "disabling cache operations" and that the two terms should be construed together. (Instrument No. 69, at 28; Instrument No. 77, at 15). There is also no dispute that "cache operations" and "caching operations" are the same. (Id.).

The parties also appear to agree that the term "disable" means "prohibit," and the term "enable" means "permit." (Instrument No. 69, at 29; Instrument No. 77, at 15). In order to assist the Court, both parties refer to the IEEE DICTIONARY definition of "disable" and "enable." (Id.). The IEEE DICTIONARY defines "disable" as "[a] command or condition that prohibits some specific event from proceeding." IEEE DICTIONARY at 299. (emphasis added). As a corollary, the IEEE DICTIONARY defines "enable" as "[a] command or condition that permits some specific event to occur [or] to proceed." (Instrument No. 69, at 29) (emphasis added). In this case the specific event is "cache operations" or "caching operations." The parties have agreed that the term "cache" means "a portion of system main memory (e.g., RAM) used for temporary storage of data." (Instrument No. 69, at 9-10). The parties have further agreed that the term "caching" means "storing in cache." (Id.). The parties dispute whether the term "caching" is the same as "cache operations," or whether "caching" is just one of several different "cache operations." The parties further dispute whether the duration of the prohibited or permitted cache operations should be reflected in the construction of the terms "disabling cache operations" and "enabling caching operations."

With regard to the duration of prohibited or permitted cache operations, Claim 1 of the ’136 Patent implies that the disabling of cache operations is only temporary, because cache operations are only disabled "upon finding that a new computer joined the network." (’136 Patent, at 26:18-19). "After each computer has connections in place with the cache software of every other computer on the network," cache operations are enabled again. (Id. at 26:20-22). The specifications of the ’136 Patent further confirm the temporary nature of disabling cache operations, and explain that "the 'disable' flag is used to indicate that the remote computer connections are inconsistent, which will temporarily disable caching operations until the remote computer connections are completely formed in a consistent state." (Id. at 7:10-11; 8:52-53) (emphasis added).

Superspeed argues that "while the '136 claim 1 does not explicitly require 'temporarily disabling' it does explicitly contemplate that the disabled operations will be subsequently enabled." (Instrument No. 69, at 29). Thus, Superspeed argues that the term "disabling cache operations" means "temporarily prohibiting (i.e., suspending) cache operations," and "enabling caching operations" is "continuing or resuming those caching operations." (Id.). Although the terms "suspending" and "resuming" may constitute a convenient short-form to reflect the temporary nature of prohibiting or permitting cache operations, the Court finds that it is unnecessary to use these specific terms in the construction. Because the specifications specifically provide for operations to be "temporarily disabled," the Court finds that the term "temporarily prohibiting" cache operations is a preferable construction. Because the specifications do not specifically state that "enabling caching operations" is temporary in nature, the Court finds that the term "permitting" caching operations is a preferable construction. However, the Court must also determine what specific cache operations are temporarily prohibited or permitted.

Superspeed contends that the specifications and flow chart figures of the ’136 Patent indicate that "if cache operations are disabled . . . data cannot be read from the cache nor placed into the cache from the disk." (Instrument No. 69, at 31). Specifically, the specifications provide:

Referring to FIG. 5C, the "read data" (440) program flow will now be described. . . . The program checks whether the cache status flag 'disable' is set (452), if so, the program exits. . . . The cache status flag 'disable' indicates that some Open VMS system in the VMScluster . . . does not have the cache driver . . . of the invention loaded. This normally would indicate that some Open VMS system is currently joining the VMScluster . . . and has not yet successfully loaded the cache software of the invention. . . . [T]he cache status flag 'disable' indicates an inconsistent view of the cache for the invention across the VMScluster and VAXcluster, preventing active cache operations (and possible subsequent corruption) of the data contained in a disk I/O device."

(‘ 136 Patent, at 17:46-18:9) (emphasis added). Figure 5C of the ’136 Patent further indicates that the "read data" program flow checks whether the cache status flag "disable" is set. (Id. at FIG. 5C).

The specifications do not specifically define the term "active cache operations." However, the parties appear to agree that
the active cache operations that are disabled include: the reading of data from the cache, and the storing of data into the cache. Superspeed admits that "placing data into the cache for rapid access and then accessing it from the processor" are operations that are prohibited while caching operations are disabled. (Instrument No. 69, at 31). Oracle agrees that the "plain meaning of 'cache operations' exceeds just storing data in a cache and includes reading data from a cache (a prerequisite to using the cached data), and writing data to the cache." (Instrument No. 77, at 16). According to the demonstrative exhibit that Oracle presented in oral argument, Oracle uses the term "writing data" from the disk to cache synonymously with "caching" or "storing data" in cache. (DX 1, at 60). Accordingly, the parties agree that disabling cache operations prohibits reading data from the cache, and storing data in a cache.

However, disabling cache operations does not prohibit all cache operations. Superspeed argues that even while caching operations are disabled, some operations on the cache may still be undertaken. Specifically, Superspeed contends that "the software continues to check the free memory and can release cache if the memory used in the cache is needed elsewhere." (Instrument No. 69, at 30). This allows the program to modify the size of the cache for small, medium, or large cache data buckets. (Instrument No. 69, Exh C, at 8:61-65). Superspeed further contends that the system can "unload" or clear cache data in the system when cache operations are "disabled." (Instrument No. 69, at 30; Exh C, at 17:31-36, FIG. 5B). Finally, Superspeed contends that the software can invalidate cache data when writing to an I/O device. (Id.; Exh C, at 17:40-45, 21:58-22:27, FIG. 5K). Oracle does not dispute that the program can modify the size of cache, clear the cache, and invalidate cache data while caching operations are disabled. (Instrument No. 77, at 20). This interpretation appears to be consistent with the specifications and flow chart figures described in the '136 Patent.

Because "disabling cache operations" does not prohibit the use of all cache operations, a construction that the term "disabling cache operations" means "prohibiting use of data in the cache" would be too broad. However, a construction of the term "disabling cache operations" to mean "suspending caching" does not indicate that reading data from the cache is also prohibited, and would thus be too narrow. Taking into consideration the duration of prohibited cache operations and the specific cache operations that are prohibited by "disabling cache operations," the Court finds that the term "disabling cache operations" means "temporarily prohibiting the storing and reading of data on the cache," and that the term "enabling caching operations" means "permitting the storing and reading of data on the cache."
A "disabling device that disables . . . after loading" is a device that disables the assembly machine, after loading of the machine has been completed, if any compartment is removed from a location, and that enables said machine once all emptied locations have been filled with corresponding components.

(Docket Entry No. 40, p. 23). Plaintiffs propose the following construction of the term "disabling device that disables . . . at the beginning of a loading operation" found in claim 19:

A "disabling device that disables . . . at the beginning . . . " is a device that disables the assembly machine at the beginning of a loading operation, and that enables said machine after all compartments are placed in corresponding locations.

(Docket Entry No. 40, p. 26). Universal contends that the claim terms for "disabling devices" are in means-plus-function format; plaintiffs dispute that section 112, P 6 applies.

The word "means" does not appear in the "disabling device" claims, giving rise to the presumption that those claims are not in means-plus-function format. Universal can rebut this presumption by showing that "disabling device" fails to recite sufficiently definite structure or recites a function without reciting sufficiently definite structure to perform the function. Apex, 325 F.3d 1364, 2003 WL at *5. [T]his presumption can collapse when a limitation lacking the term 'means' nonetheless relies on functional terms rather than structure or material to describe performance of a claimed function." Id. (citing Micro Chemical, 194 F.3d at 1257).

Unlike the term "indicator," which is defined in technical dictionaries, the term "disabling device" is not defined in standard or technical dictionaries in a way that connotes sufficient structure to avoid the application of section 112, P 6. This court has found no definition of the term "disabling device" after searching technical dictionaries of the electronic and mechanical arts. Standard dictionaries define the term "device" as "a piece of equipment or a mechanism designed to serve a special purpose or perform a special function." WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY (1983). This definition reveals that the term "device" is generic and does not connote structure to one skilled in the relevant art. See Personalized Media, 161 F.3d at 704 (stating that the term "detector" is "not a generic structural term such as . . . 'device').

The Federal Circuit has held that similar generic terms lack sufficient structure to avoid means-plus-function status. See Mas-Hamilton, 156 F.3d at 1214 (stating that the term "lever moving element" was a generic term that could apply to any device that caused a lever to move, if section 112, P 6 was not applied). The Federal Circuit has found such seemingly generic terms as "reciprocating member" and "detent mechanism" sufficiently connotative of structure to avoid application of section 112, P 6. In such cases, the court found that the dictionary definitions of the terms and the surrounding claim language connoted sufficient structure. See CCS Fitness, 288 F.3d at 1369-70 (construing the claim term "reciprocating member," the court found that the definition of the term "member" as "a structural unit such as a . . . beam or tie, or a combination of these" and as a "distinct part of a whole" and the presence of additional structural language in the claim avoided the ambit of section 112, P 6); Greenberg, 91 F.3d at 1583 (finding that an English dictionary definition of "detent" as "a mechanism that temporarily keeps one part in a certain position relative to that of another, and can be released by applying force to one of the parts" and a technical dictionary definition of "detent" as a "catch or checking device, the removal of which allows machinery to work such as the detent which regulates the striking of a clock" provided sufficient structure to avoid application of section 112, P 6 to the term "detent"). There are no such dictionary definitions connoting structure for the term "device" or "disabling device." Claims 7 and 20 do not contain additional structure, necessary to avoid application of section 112, P 6. If section 112, P 6 does not apply, the claimed "disabling devices" would cover any device that disables.

Claims 6, 7, 19, and 20 do not recite structure that would prevent the application of section 112, P 6. Id. This court finds that section 112, P 6 applies to the claim terms "disabling device that disables . . . after loading" and "disabling device that disables . . . at the beginning of a loading operation," limiting those terms to the structures disclosed in the specification and their equivalents.

Under section 112, P 6, this court must identify the claimed function of the "disabling devices" and the structure that is described to perform the claimed functions. Micro Chemical, 194 F.3d at 1258. The written description clearly identifies the claimed function for the disabling device: it "operates to prevent the operation of the assembly machine until all components
or compartments have been loaded in their proper location. The device acts to disable the assembly machine prior to loading, and to enable the machine after it is determined that all compartments have been loaded into their proper locations." ('943 Patent, claim 6, claim 19, col. 6, 1.26-1.34). The disabling device also disables the assembly machine if a compartment is removed from its proper location and enables the assembly machine once all compartments are returned to their proper location. (Id. at claim 7, claim 20, col. 8, 1.54-1.64).

After identifying the function of the means-plus-function element, a court looks to the written description to identify the structure corresponding to that function. Micro Chemical, 194 F.3d 1250, 1258. A means-plus-function claim encompasses all structure in the specification corresponding to that element and equivalent structures. Id. A court must not incorporate structure from the written description beyond that necessary to perform the claimed function and must not adopt a function different from that explicitly recited in the claim. Id.

The written description states that "in one embodiment, the disabling device comprises a relay." ('943 Patent, col. 6, 1.35-1.36). The written description also states that "Nil the three element embodiment, the relay is responsive to each applicable element . . . individually. . . . In the four element embodiment, the relay is responsive to the information processor. Since the information processor is responsive to all elements, the relay can respond to any applicable situation in the process." (Id. at col. 6, 1.35-1.42).

Universal contends that the claimed disabling device of claim 19 must include a computer programmed to disable the assembly machine at the beginning of the compartment loading by turning off this relay and turning the relay back on after all the components are loaded. 7 Universal also contends that the disabling devices of claims 7 and 20 must include a computer programmed to: (1) disable the assembly machine after loading if a compartment is removed from a location; and (2) enable the assembly machine after all the locations are filled with corresponding compartments by turning on the relay. (Docket Entry No. 46, p. 58). Universal points to the fact that the written description of the '943 Patent links the relay and a computer programmed to enable and disable the assembly machine in accordance with the algorithm presented in Figures 8B and 8C. The written description states that "[i]f at block 832 [of the algorithm in Figure 8B], it is determined that all necessary compartments are present then control moves forward to 'turn on the relay sensor' block 833 [of the algorithm in Figure 8C]. Here, the computer [element 202 in Fig. 2] sends a signal through I/O card 204, to a relay which enables the assembly machine." ('943 Patent, col. 16, 1.39-1.44). If a necessary compartment is missing, "the computer 202 [in Fig. 2] prompts the relay to disable the assembly machine 101 [in Figure 2]." (Id. at col. 17,1.19-1.21).

7 Universal has not challenged the use of the term "disabling device" in claim 6, and plaintiffs have not alleged that defendants infringed claim 6. Claim 6 and claim 19 are virtually identical, except that claim 6 depends on claim 1, the three-element embodiment of the invention, and claim 19 depends on claim 13, the four-element embodiment of the invention. The disabling devices of both claims 6 and 19 disable the assembly machine until all compartments are in their proper location. (Id. at claim 7, claim 20, col. 8, 1.54-1.64). The disabling device also disables the assembly machine if a compartment is removed from its proper location and enables the assembly machine once all compartments are returned to their proper location. (Id. at claim 7, claim 20, col. 8, 1.54-1.64).

The fact that the relay is controlled by the computer in the embodiment recited in the written description does not, however, mean that the disabling device of claims 6, 7, 19, and 20 must contain a computer. The written description shows that the computer is an embodiment of the information processor of the four-element version of the invention, separate from the relay. The block diagram of the invention in Figure 2 is a preferred embodiment of the invention. ('943 Patent, col. 7, 1.34-1.36). The computer, element 202 in Figure 2, is an embodiment of the information processor of the four-element embodiment. ('943 Patent, col. 5, 1.19-1.25). As analyzed earlier in this Memorandum and Opinion, the claimed information processor is not limited to a computer. The relay is connected to the computer through the I/O card (element 204 in Figure 2). The computer -- the information processor of the preferred embodiment -- sends an enabling signal through the I/O card to the relay after all the compartments are loaded. (Id. at col. 8, 1.48-1.50). Importantly, the information processor, which in the preferred embodiment is the computer and not the relay, determines whether the compartments are properly loaded. (Id. at col. 8, 1.22-1.33). The information processor, in this case the computer, and not the relay, determines if a compartment is missing. (Id. at col. 8, 1.55-1.64).

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Based on the written description, the relay of the four-element embodiment does not contain a computer or other information processing structure. Rather, the relay responds to commands from the information processor, which determines whether all components are properly loaded and the assembly machine should be enabled. In the three-element embodiment, the functions of the information processor are distributed between the compartment identifier and the location indicator. The relay comprising the disabling device is responsive to the "applicable elements." Which elements are "applicable" depends on the distribution of the function of the information processor between the location indicator and component identifier. (943 Patent, col. 6, 1.8-1.10; col. 6, 1.36-1.38). This court construes the claim term "disabling device" in claims 19 and 20 (which depend on claim 13, the four-element version of the invention) as a relay, or equivalent structure, connected to the information processor and the assembly machine, which disables or enables the assembly machine in response to commands from the information processor. This court construes the term "disabling device" in claims 6 and 7 (which depends on claim 1, the three-element version of the invention) as a relay, or equivalent structure, connected to the location indicator, the component identifier, and the assembly machine, which disables or enables the assembly machine in response to commands from either or both the location indicator and component identifier, depending upon the distribution of the functions of the information processor between the location indicator and the component identifier.

Mediatek argues "disabling said EFM decoder" should be construed as "stopping the flow of EFM decoded audio data." Matsushita argues "disabling said EFM decoder" should be construed as "deactivating the EFM decoder."

The Court finds, for the reasons stated by Mediatek, that "disabling said EFM decoder" is properly construed as "stopping the flow of EFM decoded audio data."
invention to a switch that completely interrupts the flow of electrical current between the network and the telephone jack. MediaCom argues that the ordinary meaning of the terms used indicate a switch that shunts the telephone from the network's electrical current to the local current source that is part of the call rating device. Rates counters that the telephone can and must remain electrically connected to the network at all times during the call in order for the telephone to work properly, noting that a claim construction that has the effect of excluding the preferred embodiment in the specification from coverage by the claims is "rarely, if ever, correct." Vitronics, 90 F.3d at 1583. Rates urges a construction that is limited to the disabling of signaling between the telephone and the network, while the telephone remains electrically connected.

The Court looks to the specification, and particularly to the wiring diagram at Fig. 2, to guide the resolution of this disagreement. See Vitronics, 90 F.3d at 1582 (stating that the specification "is the single best guide to the meaning of a disputed term"). The diagram is found as Appendix A to this opinion. The Court has already ruled that no special definition appears in the specification to indicate that the words "switch" or "disconnect" are to be given any other than their ordinary meanings. See MediaCom, 4 F. Supp. 2d at 27; see generally Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388 (Fed. Cir. 1992). The Court has further ruled that the "switch means" element is not a means-plus-function claim element governed by the sixth paragraph of 35 U.S.C. § 112. See MediaCom, 4 F. Supp. 2d at 27; see generally Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996).

There are two switch elements represented on the diagram as being operatively connected to the first, or telephone jack. One switch means is represented as No. 36 on the diagram, a "2 From C" switch. In the written specification, the switch is referred to as a "2 Form C" switch. See Col. 3, 1. 52. The Court concludes that the specification identifies a "2 Form C" switch. "Form C", in the parlance of electrical circuitry, refers to a "single pole, double throw" switch. Single pole indicates that only one wire from the element being switched is connected to the switch. Double throw means that the element may be switched to either of two different connections. This type of switch is distinguishable from a switch which has only on or off states, as opposed to two alternative on states. The 2 in "2 Form C" switch means that there are two switches in the configuration labeled No. 36 in Fig. 2, each having one wire that may be switched and two possible connections that may be made. This interpretation of "2 Form C" is consistent with the explanation offered by Rates' expert, Stephen Burns, Ph.D., see Declaration of Stephen K. Burns, Ph.D. at P 12, and has not been the subject of dispute in this action. See also Charles J. Baer & John R. Ottoway, Electrical and Electronic Drawing, (5th ed. 1986) 86 Fig. 3-9. 2

--- Footnotes ---

2 It is important to note that the "switch means" element of the claim is not at issue here, and it is not limited to the "2 Form C" variety of switch identified in the specification. See MediaCom, 4 F. Supp. 2d at 27 ("switch means" is not a means-plus-function claim). It is useful, however, to identify the particular switch identified in the specification, because the Court may thereby gain insight into the operation of the invention and its preferred embodiment.

--- End Footnotes ---

With the understanding that the 2 Form C configuration controls one pair of wires from the element to be switched and two pairs of wires each representing one possible connection, the Court returns to the diagram at Fig. 2. The switch configuration is connected to seven different wires. One pair leads to the network, or central office (25). One pair leads to the telephone (24). A third pair leads to the local central office (CO) current source (38). The remaining wire leads to an array consisting of the micro-processing unit (50), the RAM chip (52), the EPROM chip (54), and the real time clock (56). Specifically, the wire is connected to the input/output (I/O) bus (66). See Fig. 2. 3

--- Footnotes ---

3 The seventh wire represents a relay. A relay is an "automatic electromagnetic or electromechanical device that responds to a small current or voltage change by activating switches or other devices in an electric circuit." See American Heritage Dictionary Second College Edition; see also Electrical and Electronic Drawing 84. Such a current or voltage change is produced by the micro-processor when the phone is off-hook, but there is no ring detected, that is, when the user lifts the handset not in response to a ring signal but because he wishes to place a call. See Fig. 3; Col. 5, 11. 16-25. The relay is the mechanism by which the device, in effect, tells the switch to operate.

--- End Footnotes ---
According to the specification, the function of the switch (36) is to disconnect the telephone from the network and connect it to the device. See Col. 3, Lns. 52-54. Logically, it follows that the pair of wires leading to the telephone jack (24) may be connected by the switch to either the pair of wires leading to the network jack (25) or to the pair of wires leading to the local CO current source (38). The switch thus connects the telephone pair either to the network or to the local CO current source, but not to both.

The specification indicates that the switch (36) is connected to a "local CO (central office) current source (38) which generates a current corresponding to the current supplied by the . . . network." Col. 3, 11. 54-55. The local CO current source in turn is connected to a "power supply" (76). Col. 4, Lns. 22-24. Current is thereby supplied to the telephone when it is disconnected from the pair of wires leading to the network. In addition, the switch (36) connects to the DTMF tone detect (88), which "detects the tones generated from the first phone." Col.4, 11. 41-43. When the user dials a series of digits, the electrical impulses thus pass from the telephone jack (24), through the switch (36), and on to the DTMF tone detect (88), so that the device can identify the telephone number and determine which carrier access code to dial. See Col.5, 11. 16-18, 28-31.

The second switch is represented by the gate-like configuration in the line current detect (40). See Electrical and Electronic Drawing 86 Fig. 3-9. According to the specification, the device "connects to the central office (phone network)." Col. 5, 11. 19-20. This connection is made by means of two additional components: "A combination polarity guard (42) and Direct Access Arrangement (44) (DAA) interfaces and allows communication to the network." Col. 3, 11.64-66. The connection is made when the line current detect (40) senses that the telephone is off-hook, but the ring detect (74) does not sense a ring signal indicating an incoming call.

It is evident from the diagrams and written specification that when a user lifts the telephone handset, two things occur. The switch (36) breaks the circuit that had existed between the telephone and the network, and establishes a new circuit between the telephone and the device. The device itself, however, establishes a new connection with the network, by means of the second switch at the line current detect (40). In broad terms, the device becomes interposed between the telephone and the network by operation of the two switches. Only the switch that disconnects the telephone from the network, however, is claimed.

Rates chooses to characterize this operation as the disabling of the signaling function. While this may be an accurate description of the end result, it is insufficiently complete and precise to allow the finder of fact to evaluate Rates' infringement claim. Yet it is clear that MediaCom's suggestion that there must be a complete interruption of electrical current between the network and the telephone overstates the claim. When one connection is broken, another is established, and it is not possible to establish on the basis of the diagram or the claim language whether or not the telephone remains connected to the network through some other path.

Thus, the term "disconnecting" is not susceptible to either party's proffered construction. Rather, the term "disconnecting" in the context of this patent refers to the interruption of the electrical circuit between the telephone and the network. In the preferred embodiment, the disconnecting is accompanied by the establishment of other circuits; one between the telephone and the device, and another between the device and the network. Those aspects of the preferred embodiment, however, are not claimed as part of the invention. An accused device may, but need not, contain a mechanism for establishing an alternate connection. The Court therefore construes the "disconnecting" element of Claim 1 of the '085 patent to require the interruption -- the breaking or opening -- of the electrical circuit between the telephone jack and the network.
an application. and providing the information in a specified format.

The parties have three main disputes: whether the language proposed by Sun -- "for discovering information about devices on a fabric network" -- should be included in the term's construction; whether the term "discovery interface" requires a direct connection to a fabric driver as proposed by NetApp; and whether the term should refer to an "application" as proposed by NetApp or a "specified format" as proposed by Sun. 6

6 The parties originally disputed whether the interface is "software" or a "software module." At the hearing, however, the parties agreed that the interface was "one or more software modules."

Regarding the first issue, Sun argues that the patent specification consistently describes discovery interfaces as providing the ability to discover information about the devices on a fabric network. For example, the summary of the invention section notes that device centric and transport centric discovery interfaces 7 "may provide an interface to the fabric driver to obtain information about the devices in the fabric network" and are "configured to provide" such an interface. '951 patent at 2:5-7, 21-24. See also id. at 6:50-52 (device centric discovery interface "may allow a user . . . to discover information about fabric devices . . ."); 6:65-68 (interface to fabric driver may include transport centric discovery interface "to provide fabric device discovery information"). While the specification describes this function of a discovery interface, this language is duplicative of the language already present in the claims. For example, claim 1 provides for "a device centric discovery interface configured to provide an interface to the fabric driver to obtain information about the devices in the fabric network." Id. at 14:25-28. Claim 6 also describes the discovery interface as one that obtains "information about the devices in the fabric network." Id. at 15:12-14. Claims 3 and 9 are dependant on claim 1. Therefore, while Sun argues that NetApp's construction is flawed due to its silence on this point, Sun's proposed description is redundant of language already present in the claims.

7 These two types of discovery interfaces differ in the format of the information sent and received through the interfaces. NetApp Op. Brief at 19, Sun Opp. Brief at 20.

As to whether the term requires a direct connection, the claim language does not indicate that such a connection is required. Claims 1 and 6 call for a "discovery interface configured to provide an interface to the fabric driver," which indicates that the fabric driver is the object to which the discovery interface is connected. While one may infer that this is a direct connection, the claim language by no means requires such an inference.

Turning to the specification, NetApp argues that the only examples in the specification show interfaces that are connected directly to the fabric driver and receive information directly from the fabric driver. In Figure 5, interface 503 contains discovery interfaces 520 and 522, as well as interfaces 524 and 526. In that figure, interface 503 is connected to fabric driver 504, and the figure depicts these connections with two arrows, one going from interface 503 to the fabric driver, and one going from the fabric driver to the interface. There is also an additional arrow pointing to the interface from the fabric driver labeled "events." The figure also shows a connection between interface 503 and administrative application 502, depicted by two arrows pointing from interface to application and vice versa. The written description describes interface 503 as providing "an interface between the administration application 502 and the fabric driver 504." '951 patent at 6:37-39.

NetApp's expert Professor Long maintains that a person of ordinary skill in the art would understand from this statement that the discovery interface is connected directly to the fabric driver and receives information directly from the fabric driver. Long Decl. P 89. However, Sun's expert explains that one of ordinary skill in the art would conclude that the arrows in the software architecture diagram in Figure 5 indicate a connection, but not necessarily a direct connection between the connected components. Declaration of Dr. Martin Kaliski PP 35-36. In other words, while the components are conceptually connected and there is some mechanism by which the two components may communicate, the components need not be
directly connected. In fact, at the Markman hearing, Professor Long himself conceded that the arrows in Figure 5 show that information flows in both ways, but do not necessarily reveal a direct connection; rather, the arrows are ambiguous in this respect.

The Court concludes that the specification does not require a direct connection. The arrows in Figure 5 portray a general conceptual connection. In addition, only interface 503 -- not the discovery interfaces contained in the subset of interfaces inside of it -- is shown as connected to the fabric driver in Figure 5. Moreover, the arrows between the fabric driver and the interface are labeled events, indicating that the arrows show what is being communicated rather than the physical means by which the communication is accomplished. Finally, the description of Figure 5 states that the discovery interface "may" provide or return information, revealing that this figure is just one embodiment of the invention. See, e.g., '951 patent at 6:46-65 ("discovery interface may return device centric discovery information", "discovery interface . . . may provide . . . discovery information"). See also Liebel-Flarsheim Co., 358 F.3d at 906 (noting that even if the specification describes a single embodiment, the claims of the patent are not to be read restrictively absent clear intention to limit claim scope).

Sun also points out that the specification provides an example of an interface that does not provide such a direct connection: "the host system may include a fabric driver configured to interface the system to the fabric network through the host adapter ports." '951 patent at 2:2-11. While this portion of the specification discusses interfacing more generally as opposed to the "discovery interface" at issue, it indicates that the term "interface" need not involve a direct connection, because in the example given, the fabric driver is interfaced to the system, but is connected indirectly through host adapter ports. Since NetApp argues that the plain meaning of the term "interface" implies a direct connection as discussed below, this portion of the specification significantly weakens NetApp's position.

Sun also relies on the fact that the specification uses the term interface in the context of a "user interface," but these portions of the specification do not discuss whether such an interface is direct. '951 patent at 9:42-44, 10:1-3, 12:27-31. Sun's expert Dr. Kaliski notes that a user interface provides an interface between a user and an application, but connects that user to the application indirectly via intermediate components, such as a keyboard or mouse. Kaliski Decl. P 30. This argument, while marginally helpful to Sun, is somewhat attenuated since the specification is discussing a different type of interface and does not focus on whether such an interface is directly connecting two things.

In looking at the claim language and specification as a whole, Sun is correct that the interface is not specifically described or defined as requiring a direct connection. See Kaliski Decl. P 25. The specification simply requires that information about devices on fabric networks be discoverable, and indirect discovery is not explicitly ruled out. Id. The patent, therefore, does not support NetApp's argument for importing the term "directly" into this claim phrase.

The parties also argue over the significance of a statement by the applicant made during patent prosecution:

In the current Office Action dated November 12, 2004, the Examiner states "it is clear that in the species of Fig. 4, the Fabric Driver (504) communicates directly with the Administration Application (502) whereas in the species of Fig. 5, the Fabric Driver (504) communicates with the Administration Application (502) via a dedicated interface (503)." However, the Applicant's specification does not state that the Fabric Driver (504) shown in Fig. 4 can only communicate directly with the Administration Application (502). The phrases "communicates directly" and "dedicated interface" used by the Examiner are not found in the Applicant's specification.

Williamson Decl., Ex. A (February 17, 2005 petition at 2-3) (emphasis in original). This portion of the prosecution history is a side detour that is not particularly helpful, because it involves Figure 4, which does not show the discovery interface, not Figure 5. NetApp points out that the patent examiner determined that the systems shown in Figures 4 and 5 were patentably distinct species, and therefore mutually exclusive. Weber Decl., Ex. 2 (August 3, 2004 Office Action at 2). The Examiner then directed the applicant to choose one of the two species for prosecution. The Examiner explained in the next office action that he made this determination because Figure 4 showed a direct communication between Fabric Driver 504 and Administrative Application 502, while Figure 5 showed communication through Interface 503. Weber Decl., Ex. 3 (November 12, 2004 Office Action at 2).

NetApp argues that applying the Examiner's reasoning to Figure 5, the Fabric Driver 504 must be directly connected to Interface 503, which includes the discovery interfaces. NetApp's argument is not persuasive for a number of reasons. First, as noted above, the Examiner was discussing Figure 4, not Figure 5. Second, as Sun noted at the hearing, while the
Examiner at one point stated that the patentee had to choose between the inventions claimed in the two figures, the
Examiner nonetheless ended up allowing all claims. The Examiner's statements comparing the two figures, therefore, are
largely irrelevant. Third, Figure 5 has arrows labeled events between the interface and the fabric driver, distinguishing it
from Figure 4. Finally, the Examiner simply did not focus on whether anything other than the interface could be contained
in the communication channel in Figure 5. If anything, this prosecution history supports Sun's argument that there is no
requirement of a direct connection, as the applicant pointed out that such a phrase is not included in the specification.

The parties also rely on a great deal of extrinsic evidence -- namely dictionary definitions -- in support of their arguments.
NetApp argues that the patent does not provide a specialized meaning for the word "interface," so the term is subject to the
rule that "[i]n general, words used in a claim are accorded their ordinary and customary meaning." Cat Tech LLC v.
Tubemaster, Inc., 528 F.3d 871, 884 (Fed. Cir. 2008) (using standard dictionary definitions to construe term) (internal
citations omitted).

While NetApp's argument hinges largely on the common meaning of "interface," the proffered definitions do not require
NetApp's construction. NetApp relies on a number of dictionary and technical dictionary definitions generally defining
"interface" as a boundary: Webster's New World College Dictionary 3rd ed. 1997, p. 704) ("a plane forming the common
boundary between two parts of matter or space"); The American Heritage Dictionary (2nd College Edition 1991, p. 669) ("a
608-09) ("a mechanism for communicating between two devices" that "specifies the nature of the boundary between two
devices and determines the procedures and protocols that make it possible for the devices to exchange data"). NetApp's
expert notes that a person of ordinary skill in the art would understand that "just as a boundary is the edge of an object, that
an interface is directly connected to and directly communicates with the object." Long Decl. P 87. However, as Sun notes,
none of the proffered dictionary definitions include the word "directly" or any similar requirement. In addition, Sun offers
its own secondary dictionary definitions that do not discuss a single boundary or direct connection between two objects. See
Webster's New World College Dictionary (3rd ed. 1997, p. 704) ("a point or means of interaction between two systems");
Microsoft Computer Dictionary (5th ed. 2002, p. 279) ("software that enables a program to work with the user (the user
interface, which can be a command-line interface, menu-drive interface, or graphical user interface), with another program
such as the operating system, or with the computer's hardware").

The above definitions are not particularly helpful, as there is significant variation between them. In addition, some of
NetApp's dictionary definitions apply to physical interfaces, not software, as software is an intangible series of computer
instructions -- not a physical object with a "surface," nor one capable of forming a "plane." Kaliski Decl. P 34. The parties
agree that the discovery interface is a software interface. For this reason, Dr. Kaliski maintains that one of ordinary skill in
the art would not understand software to include a boundary. Id. Professor Long disagrees with this conclusion, giving a few
examples of software interfaces that provide a boundary and direct connection. Long Reply Decl. P 22. But Professor
Long's opinion is significantly undercut by his concession that there may be software between the discovery interface and
the fabric driver in this invention. Specifically, Professor Long stated that there could be "some steps in between [the
discovery interface and the fabric driver] provided by something else," although he noted that such steps or code provide no
additional functionality or transformation of the data. Hearing Tr. at 120-21. As Dr. Kaliski noted, Professor Long's
conclusion that an interface requires a logical direct connection does not flow from NetApp's proffered dictionary
definitions, which involve a physical connection. In fact, Professor Long acknowledged that attributing physical
characteristics to software does not make sense. Id. at 120 ("physical-proximity requirement of instructions . . . doesn't make
any sense inside a computer's memory"). In sum, neither the intrinsic nor the extrinsic evidence supports including a
directness requirement.

Turning to whether or not the phrase should be construed as providing information to an "application" or providing
information in a "specified format," NetApp notes that Figure 5 shows that interface 503 (containing discovery interfaces
520 and 522) provides information to administrative application 502, yet Sun's proposed construction omits stating that the
discovery interface provides information to an application. Sun responds that the proposed "application" requirement
violates the doctrine of claim differentiation, because independent claim 1 includes no reference to an "application," but
dependent claim 3 includes the limitation "wherein the processor is further configured to execute an application configured
to request the device centric discovery interface to provide a list of fabric devices attached to the fabric . . . ." '951 patent at
14:38-43. However, claim 3 gives a much more detailed description of "application" -- in fact, as NetApp points out, the
claim adds nineteen lines of additional requirements to those stated in claim 1. It does not merely add a generalized
"application" requirement. Therefore, reading this requirement into the term's meaning would not render the dependent

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claim superfluous. See Sinorgchem, 511 F.3d at 1139–40 (characterizing doctrine of claim differentiation as the "presumption that each claim in a patent has a different scope").

The Court agrees with NetApp that Sun's requirement that the discovery interface provide information "in a specified format," without stating what that format is, is confusing. Sun argues that reference to the specific format is clear, because of the surrounding claim language. Sun notes that the term "discovery interface" is prefaced by either "device centric" or "transport centric" in the claims. '951 patent at 14:24, 27, 41, 44, 15:10-11, 13, 26-27. Because these two types of discovery interfaces differ in the format of device information, the claims require that the discovery interface provide the information in a specified format, depending on the type of discovery interface. However, since the claims already specify that format, see, e.g., claims 13 and 21 referring to "device centric format," Sun's proposed language is redundant and potentially confusing.

In sum, the Court adopts a hybrid of the parties' constructions of the term "discovery interface" and construes the term as: "One or more software modules that receive information from a fabric driver and provide the information to an application."

PART THREE

The Disputed Claims

Avocent contends that ClearCube's accused products infringe claim 1 of the '997 patent, and claims 1, 6, and 16-18 of the '919 patent. n31 Claim 1 of the '997 patent, and claims 1, 16, and 18 of the '919 patent, are independent claims. Claim 6 of the '919 patent is dependent on claim 1, and claim 17 of the same patent is dependent on claim 16. Claim 1 of the '997 Patent recites:

1. A system for transmission of analog color video signals between a source of said signals and a video monitor, being at spaced locations, comprising: n32

   a plurality of computers, each providing, as a set, said color video signals;

   a switch receiving said sets of said color video signals, each with respect to a common reference, from said computers and providing a selected said set of said color video signals as an output;

   a signal transmitter at a first location responsive to said output of a set of said color video signals, said transmitter, including n33 an amplifier for each said color video signal of one of said sets for providing a color video signal output and wherein n34 at least a high frequency portion of each said color video signal has been amplified as a direct function of frequency and providing both an inverting and non-inverting signal, available as an output;

   a plurality of video transmission circuits, each said circuit having first and second ends, respectively, one circuit for each of said color video signals of one of said sets and each said circuit having an input responsive to an output of said transmitter at said first end, and each said circuit having a responsive signal output at said second end;

   a signal receiver at a second location responsive to each of said transmitted signal outputs and color video signal at said second end, including an amplifier for each said color video signal for providing a discrete color video signal with respect to a common reference; and

   signal means responsive to said receiver for providing each said color signal, each with respect to a common reference, to an analog color video monitor: n35

Claim 1 of the '919 Patent recites:

1. An extended-in-length computer video communications link for transmitting computer video signals comprising:
a source of computer video signals including red, green, and blue video signals,

a video transmitter comprising a plurality of amplifiers, one of each said amplifiers for each of said red, green, and blue video signals, each said amplifier comprising:

a signal input for receiving a one of said red, green and blue video signals,

frequency sensitive compensating circuitry responsive to a said video signal so that said amplifier provides a first video signal that increases in amplitude with increasing frequency at a first output and a second video signal that is an inverse of said first video signal at a second output,

a twisted pair of conductors for each said amplifier, with first and second conductors of said twisted pair coupled at one end to respective said first and second outputs of said amplifier,

an adapter for each of said twisted pair of conductors, each said adapter coupled to an opposite end of a respective one of said twisted pair of conductors, each said adapter receiving said first video signal and said second video signal and providing a respective said video signal as a single ended output, and further configured to provide a ground reference potential for said transmitter at said adapter, whereby need for a reference ground conductor between said transmitter and said adapter is eliminated. n36

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n31 Doc. no. 1 (complaint); see also doc. no. 125 (Avocent Huntsville's Summary and Background of the Technology Embodied in the Claims of the Patents-in-Suit), at 1.

n32 The word "comprising" is a term of art in Patent law that means the claim includes all of the elements that follow in the body of the claim statement, but does not exclude additional, unrecited elements. See, e.g., Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999). Claims that use "comprising" are sometimes referred to as "open claims." See, e.g., Vivid Techs. v. American Science & Eng'g, 200 F.3d 795, 811 (Fed. Cir. 1999).

n33 The word "including" is another term that, like "comprising," signals the claim statement encompasses all of the elements that follow, but does not exclude additional, un-recited elements. See Robert C. Faber, LANDIS ON MECHANICS OF PATENT DRAFTING § 7 (4th ed. 1999).

n34 The word "wherein" is another term of Patent art that customarily signals the claim includes all the elements that follow, but does not necessarily exclude additional, unrecited elements. See id.

n35 '997 patent, col. 13 & line 14 through col. 14 & line 15. A copy of the '997 patent is located, among many other places in the record, at doc. no. 79 (Avocent's Combined Memorandum), Ex. A(2).

n36 '919 patent, col. 18, lines 12-41. The '919 patent is located, among many other places in the record, at doc. no. 79 (Avocent's Combined Memorandum), Ex. A(1).

--- End Footnotes---

Claim 6 of the '919 Patent, which is dependent to claim 1 above, recites "[a] video communications link as set forth in claim 1 wherein said source of video signals comprises a termination point of another video communications link." n37

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n37 Id., col. 19, lines 5-7.

--- End Footnotes---

Claim 16 of the '919 Patent recites:
16. A computer video signal communications system for selectively coupling sets of R, G, B computer color video signals from one of a plurality of computers to a separately located color monitor, said system comprising:

   a transmitter including:

   switching means for selectively providing a said set of said color video signals from a selected said computer, and

   a first signal format converter responsive to each said color signal of a said set of color signals from said switching means for converting a signal format of each said color signal from single ended format to a balanced format;

   a plurality of sets of twisted pair conductors, each set of said conductors having a first end and second end, with a said first end of each of said sets of conductors receiving a discrete color video signal from said transmitter;

   a receiver coupled to said second ends of said sets of said twisted pair conductors and including:

   a plurality of second signal format converters for converting a said balanced format of each said discrete color video signal from each said set of conductors from balanced to unbalanced format; and

   signal means responsive to unbalanced format signals from said receiver for coupling color video signals to a color video monitor.

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n38 Id., col. 20 & line 48 through col. 21 & line 7.

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Claim 17 of the '919 Patent, which is dependent to claim 16 above, recites "[a] system as set forth in claim 16 wherein said receiver includes frequency compensation means for boosting a frequency response of at least one said color video signal directly as a function of frequency." n39

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n39 Id., col. 21, lines 8-11.

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Claim 18 of the '919 Patent recites:

18. A computer video signal communications system for selectively coupling a set of R, G, and B computer color video signals from one of a plurality of computers to a separately located color monitor, said system comprising:

   a transmitter including:

   switching means for selectively providing said set of R, G, and B computer color video signals from a selected said computer, and

   a first signal format converter responsive to each said R, G and B color video signal for converting a signal format of each said R, G and B color video signal from single ended format to a balanced format;

   a set of twisted pair conductors for each said balanced format R, G, and B color video signals, each said set of twisted pair conductors having a first end and a second end, with a said first end of each of said sets of twisted pair conductors receiving a discrete one of said balanced format R, G, and B color video signals from said transmitter;
a receiver coupled to said second ends of said sets of twisted pair conductors and including:

- frequency compensation means for boosting a frequency response of each said R, G and B color video signal directly as a function of frequency;
- a plurality of second signal format converters for converting said balanced format of each said R, G and B color video signal from each said set of twisted pair conductors from balanced to unbalanced format; and
- signal means responsive to said unbalanced format signals from said receiver for coupling said R, G and B color video signals to a color video monitor. n40

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n40 Id., col. 21, lines 12-44.

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PART FOUR

Claim Construction Decisions

A claim construction hearing was held on February 22 and 23, 2006. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 372, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996) (holding that the first issue in any patent infringement case is that of "claim construction": the interpretation of words used in a patent's claim, "the portion of the patent document that defines the scope of the patentee's rights"); see also, e.g., Rockwell International Corporation v. United States, 147 F.3d 1358, 1362 (Fed. Cir. 1998) ("The first step in any invalidity or infringement analysis is claim construction.") (citations omitted). The memorandum opinion and order entered on March 15, 2006, set forth this court's interpretation of the following, disputed, claim terms. n41

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n41 See doc. nos. 133 (memorandum opinion) and 134 (order).

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"Twisted pair" wiring, which is used in the '919 patented invention to conduct analog video signals, may be either "shielded" or "unshielded."

The term "amplifier," as it is claimed in both the '997 and '919 patents, was defined as "a circuit (or a device when connected in a circuit) that draws power from a source other than the input signal and provides an output signal that reproduces the essential features of the input signal."

The term "discrete," as it is used in the claims of both patents, simply means that a color video signal (e.g., red) is separate or distinct from the other two color video signals (e.g., green and blue).

Finally, the phrase "for said transmitter," as recited in claim 1 of the '919 patent, was construed as meaning "from the signals received from the transmitter."

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In order to prevail in its argument for an on-sale bar, defendants must show that the subject matter sold or offered for sale fully anticipated each patent claim or would have rendered each claim obvious. Plaintiff contends that the Intelliguard 500 did not fully anticipate the patent's claim as to the utilization of a "discrete coded signal." '867 Patent Claim 1. Specifically,
plaintiff contends that the use of the term "discrete coded signal" in its claim encompasses a limitation requiring the use of a coded signal with a "button signature." Whereas each of the Intelliguard 500's transmitters has a set code which is fixed in relation to a specific button on the transmitter, plaintiff alleges that it has claimed a limitation requiring that the transmitter be button programmable so that the signal reflects the pressing of a particular button or series of buttons. In support of their respective positions, the parties offer conflicting "expert" declarations construing the meaning of "discrete coded signal" as used in the patent's claims.

The Federal Circuit has held,

Claim interpretation is a question of law amenable to summary judgment, and disagreement over the meaning of a term within a claim does not necessarily create a genuine issue of material fact. The terms in a claim are given their ordinary meaning to one of skill in the art unless it appears from the patent and file history that the terms were used differently by the inventors. Thus, where a disputed term would be understood to have its ordinary meaning by one of skill in the art from the patent and its history, extrinsic evidence that the inventor may have subjectively intended a different meaning does not preclude summary judgment. In such instance, there is no genuine dispute respecting a material fact.

Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387 (Fed. Cir.1992) (citations omitted) (emphasis in original). The Federal Circuit has also held,

a patentee can be his own lexicographer provided the patentee's definition, to the extent it differs from the conventional definition, is clearly set forth in the specification.

As to the term "discrete coded signal" in the instant patent claims, the Court agrees with the decision of the ITC Administrative Law Judge that "there is nothing in the common meaning of the words . . . which requires the use of a so-called 'button signature.'" Defendants' Brief Ex. A at 16. Having reviewed all the materials properly before the Court, the Court finds that there is no genuine issue of material fact as to whether the '867 patent's claims can be interpreted to require a "button signature."

The language of the '867 patent's specification compels the above result. As noted by the Administrative Law Judge, the '867 patent states:

In one embodiment, a first discrete code is hardwired in a transmitter and provides one code out of up to 65,536 separate codes which is specific to that transmitter. In another embodiment, the transmitter means includes a control means and a memory means for storing the discrete code.

'867 Patent col. 2, lines 49-54. The use of the term "discrete code" to denote a code which is "hardwired" into a transmitter embodiment strongly suggests that the term not be given the special meaning suggested by the plaintiff. According to plaintiff, the "button signature" limitation allegedly encompassed within the meaning of "discrete coded signal" requires that the button functionality be programmable rather than preset. See Second Declaration of Peter J. Stouffer ¶ 5. In the language quoted above, the patent specification clearly uses the term "discrete code" to represent a preset code. Such usage, as well as the patentee's failure to "clearly set forth in the specification" a differing definition, forecloses upon plaintiff's argument. Accordingly, the Court finds that the Intelliguard 500 anticipates every claim of the '867 patent. Therefore, under 35 U.S.C. § 102 (b), the '867 patent is invalid.

On appeal, NCR challenges, among other things, the district court's construction of the claim limitations a "plurality of discrete switches" and "means for entering data." Claim construction is a question of law that we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). We begin our analysis with the words of the
claim. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). "In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to particularly point out and distinctly claim the subject matter which the patentee regards as his invention." Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001) (citations omitted). The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources, including "the claims themselves; dictionaries and treatises; and the written description, the drawings, and the prosecution history." Ferguson Beauregard v. Mega Sys., LLC, 350 F.3d 1327, 1338 (Fed. Cir. 2003) (citations omitted).

The limitation "plurality of discrete switches" appears in the '845 patent in claims 1-7, 9, and 12-15, and in the '478 patent in claims 6-9 and 11. The district court construed "plurality of discrete switches" to mean "two or more distinct and separate manual or mechanically actuated devices for making, breaking, or changing the connections in an electric circuit" (for shorthand, the "physical switch" definition). NCR, 217 F. Supp. 2d at 508. NCR argues that the proper construction of "plurality of discrete switches" is "more than one individually distinct programmed device for indicating that one of alternative states or conditions have been chosen" (for shorthand, the "programmed device" definition).

NCR asserts that the district court improperly construed "plurality of discrete switches" because the court adopted one dictionary definition of "switch" (as a physical switch) and ignored alternate definitions of the term "switch" in the same dictionary. See Tex. Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002) ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings."). NCR also asserts that the specification supports its proposed construction of "plurality of discrete switches" as programmed devices.

We agree with the district court's construction of "plurality of discrete switches." Preliminarily, we see a fundamental difficulty with NCR's arguments with respect to this claim limitation: the fact that the claimed invention contains various programmed components, some of which are programmed to respond to the closure of simple mechanical-electrical switches, does not in turn make the switches themselves "programmed." Nor does the fact that multiple components are necessary for the operation of the device's entire display system mean that all of such components are part of the "plurality of discrete switches," as that term is used in the patent claims. We think that one skilled in the art, reading both the plain language of the claims and the specification, would conclude that the "plurality of discrete switches" is nothing more than a set of simple switches, and that separate components are programmed to respond to the actuation of those switches. These separately claimed components all work together to enable dynamic interaction with the user.

We begin with the language of the claims. See Nystrom v. Trex Co., 374 F.3d 1105, 1120 (Fed. Cir. 2004). Taking claim 1 of the '845 patent as an example, the claims recite various elements, including:

- a plurality of discrete switches for entering data when actuated;
- said discrete display elements and said discrete switches being positioned in overlapping relationship relative to said panel to enable said switches to be actuated from said panel;
- control means for controlling the operation of said device including said discrete display elements and said discrete switches so as to facilitate the displaying and entry of data;
- said control means comprising:
  - means for storing data and a plurality of machine instructions; and
  - means for executing said machine instructions including means for selectively energizing said display elements so as to present on said panel that key information and those of said user instructions which are associated with those of said discrete switches which are to be used in association with said machine instructions being executed so as to present to said user a variable user instruction format and a variable key format which are a function of said machine instructions being executed as said machine instructions are executed so as to facilitate the entry of data[.]

'845 patent, col. 14, l. 67 - col. 15, l. 23.
NCR asserts that software is "integrated" into the "plurality of discrete switches" to reconfigure the key areas for the user. See Brief of Appellant, at 34 ("When the user actuates that yellow area, software reconfigures the active key switch areas and reassigns different functions to those areas[].").

However, this is contradicted by the claim language. The claims indicate that the invention includes "a plurality of discrete switches" and a separate "control means" for controlling, among other things, the "plurality of discrete switches." According to the claims, it is the "control means" for the "plurality of discrete switches," and not the "plurality of discrete switches" itself, that stores "machine instructions" (i.e., software) and reacts to a switch in the "plurality of discrete switches." The "means for executing said machine instructions" within the "control means," and not the "plurality of discrete switches," presents on said panel that key information and those of said user instructions which are associated with those of said discrete switches...so as to present to [the] user a variable user instruction format and a variable key format." (emphasis added). The reconfiguring of the keys in a "variable user instruction format," recited in the claims as part of the "control means," contradicts NCR's assertion that this is performed by programming within the "plurality of discrete switches." This type of construction is disfavored. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("While not an absolute rule, all claim terms are presumed to have meaning in a claim.").

Thus, we think that one skilled in the art, reading the claim language, would recognize that the invention includes a dynamic display arrangement, which functions with the help of several separately claimed elements. A "means for executing said machine instructions" energizes certain "display elements" on the handheld's panel, with different display elements representing a menu option or a particular task that the user wishes to perform. The "control means" contains software to energize the proper display elements. Accordingly, the plain language of the claims indicates that a "control means" and a "means for executing said machine instructions" are programmed to cause the display elements to be selectively energized. The "plurality of discrete switches" is separate from the "control means" and its programming.

In addition to the fact that a separate claim element performs what NCR claims that the "plurality of discrete switches" is "programmed" to do, other claim limitations support the district court's interpretation that "plurality of discrete switches" means an array of physical switches. All of the asserted claims containing the "plurality of discrete switches" limitation also contain a limitation similar to that in claim 1 of the '845 patent:

sought discrete display elements and said discrete switches being positioned in overlapping relationship relative to said panel to enable said switches to be actuated from said panel..

'845 patent, col. 15, ll. 1-4; see also id. col. 16, ll. 39-42 (independent claim 16); '478 patent, col. 16, ll. 34-37 (independent claim 6); id. col. 18, ll. 7-10 (independent claim 11). This limitation also comports with the district court's physical switch interpretation, as it indicates to one skilled in the art that the switches are precisely located physical components. It would be strange to describe the switches, with software, as in "overlapping relationship" to anything, because there would be no precise place where a "switch" would be located. An entire component of the switches—the software component—would be stored in memory and only rendered by software. 1 The plain language of the claims stands as an obstacle in NCR's attempt to import separate claim limitations into the "plurality of discrete switches" limitation in an effort to broaden the meaning of that term.

--- Footnotes ---

1 In addition, NCR has not pointed to any part of the specification that describes where the programming for the "plurality of discrete switches" is stored. The only memory elements disclosed are part of the "means for controlling the P terminal 12" shown in Figure 8, see '845 patent, col. 8, l. 31 - col. 9, l. 21, i.e., they are part of the "means for controlling the operation of said device." See '478 patent, col. 15, ll. 5-7 (claim 1).

--- End Footnotes ---

The specification confirms the understanding found in the claim language that the switches are simple physical switches which are coupled with separate programmed components to make the entire overall display system functional for the user. In short, the specification discloses an array of transparent switches that are no more "programmed" than a simple mechanical "on/off" light-switch. It is other components that are programmed to dynamically "highlight" the appropriate physical switches that the user should actuate to perform a desired task, and to respond to the switch closures resulting from
a user's pressure on a key area.

The preferred embodiment, shown in Figure 7 of both the '845 and '478 patents, discloses an array of simple open/closed physical switches that are fabricated as a set:

GET DRAWING SHEET 4 OF 14

The specification unambiguously recites those elements that are included in the "plurality of switches:"

The upper compartment 38-2 contains those elements included in the plurality of switches 30 and they are included in the bracket 30-1 in FIG. 7.

… The plurality of switches 30 included in the bracket 30-1 in FIG. 7 is comprised of a top, transparent, flexible, plastic-film layer 50 such as Mylar. … The lower side of the layer 50 has five, equally spaced, transparent strips or conductors 52-1, 52-2, 52-3, 52-4, and 52-5 [.

… The plurality of switches 30 (FIG. 7) also includes a thin, bottom, transparent, plastic-film layer 54, and this layer has nine equally-spaced, transparent strips or conductors 56-1, 56-2, 56-3, 56-4, 56-5, 56-6, 56-7, 56-8, and 56-9 deposited on the top surface of layer 54. … A spacer layer 58 is positioned between the top layer 50 and the bottom layer 54 to provide insulation between the conductors. … The layer 58 has a plurality of holes therein, with each hole being located at an intersection between one of the conductors 52-1 through 52-5 and one of the conductors 56-1 through 56-9.

'845 patent, col. 6, ll. 8-10, 24-29, 35-48 (emphasis added). No software is disclosed as part of the "plurality of switches 30." It is logical that none would be, because the above figure and description make clear that the "plurality of switches 30" is comprised merely of a few plastic-film layers and strips of conductive material. A spacer layer separates the conductors, and holes in the spacer layer allow the top and bottom conductive strips to contact each other at different points, thus forming a set of discrete open/closed, mechanical-electrical switches.

Figure 7 and its related description undermine NCR's arguments with respect to the specification. NCR has not explained how, without more, the disclosed pieces of plastic and conductive strips can be "programmed," as well as what the switches would be programmed to do that is not performed by elements separately claimed and disclosed apart from the "plurality of switches 30." Although NCR is correct that programming appears to be an integral part of the device's overall operation, the specification's description of switch actuation reinforces the point that the "plurality of switches" is merely a set of open/closed, mechanical-electrical switches:

When a user wishes to actuate one of the plurality of switches 30, as for example that one associated with key area 28-9 in FIG. 4, the user simply depresses that area 28-9 causing the conductor 52-5 in FIG. 7 to pass through the hole 60-9 and thereby contact the conductor 56-9.

'845 patent, col. 6, ll. 58-63. Thus, a switch in the "plurality of switches 30" is a mechanical-electrical switch that is either open (when the upper and lower conductive strips are not in contact through a particular hole) or closed (when the pressure from a user's finger or stylus causes two conductors to contact through a particular hole to form a circuit). The handheld also includes a separate "keyboard interface 106" which "includes a set of drivers. … to scan the rows of switches in the keyboard array 64 and to inform the microprocessor 46 of the switch closures." Id. col. 9, ll. 14-17 (emphasis added). The specification thus comports with the district court's understanding that the patents disclose "the use of a plurality of discrete physical switches whose closures are recorded by a microprocessor." NCR, 217 F. Supp. 2d at 529.

NCR proffers other passages from the specification as supporting its programmed device definition of "plurality of discrete switches." First, NCR cites the following passage:

It should also be noted that the key areas themselves have no captions or labels on them in the usual sense. The labels or designations are provided by the display 26 which lies below the plurality of switches 30.

'845 patent, col. 5, ll. 46-50. This statement does not support NCR's contention that "software creates a switch" 2 that is in the "plurality of switches." This merely explains how the display 26 is dynamically "re-labeled," so that the user is directed
to the proper physical switches to actuate (which are transparent and lie above the corresponding display element) in order to complete various tasks.

2 NCR's argument conflates "actuation" of a switch with whether other components in turn respond to switch actuation. The fact that a separate component is "programmed" to do something (or, in some cases, to do nothing) in response to the actuation of a simple mechanical-electrical switch does not logically make that switch itself a "programmed device."

Second, NCR argues that a related passage supports its construction:

While the actual (physical) switches in the plurality of switches 30 are always present on the top panel 24, they are outlined or highlighted only when they become necessary for a particular function or instruction being executed by the P Terminal 12[.]

'845 patent, col. 5, ll. 48-54. We think that this statement undermines, rather than supports, NCR's proposed construction. As discussed supra, the "plurality of switches 30" is unambiguously described as a set of open/closed mechanical switches which are actuated by contacting two pieces of conductive material through a hole to complete a circuit. The above-quoted statement merely observes that certain physical switches in the plurality of switches 30 are not always "highlighted." In reading the above statement, one must bear in mind how the switches are, in fact, highlighted. The specification explains that the key areas are "outlined or highlighted" by the display 26 positioned beneath the plurality of switches 30. Id. col. 6, ll. 63-65. Thus, the above-quoted statement merely explains that, when certain switches are not necessary for a particular function, those switches are not highlighted, i.e., the microprocessor does not send a signal to energize the display elements lying below those particular transparent switches. 3 We find nothing in that description to indicate that there is some type of software or logic within the switch itself. Rather, it further confirms that the switches themselves are of the simple mechanical-electrical variety, and that the only way to make the entire display apparatus appear dynamic to the user is to have software to alter the state of separately claimed components, such as the display elements, rather than the plurality of switches 30.

3 See, e.g., '845 patent, col. 7, l. 59 - col. 8, l. 4 (discussing "pixel selection" by the microprocessor).

NCR also would have us infer that the language "the actual (physical) switches in the plurality of switches 30," id. col. 5, ll. 50-51, means that the physical switches are only "part" of a broader, more abstract set of switches that includes software. Breaking this argument into its logical components, NCR argues that (1) the "plurality of switches 30" contains something more than the physical switches; and (2) that the "something more" is software.

We can accept the first proposition, but must reject the second. The language "actual (physical) switches in the plurality of switches 30" indicates that the specification is distinguishing certain physical switches from the entire plurality of switches 30, which, in the preferred embodiment, is a set of switches that is fabricated together. In Figure 7, there is indeed something more to the "plurality of switches 30" than the actual physical switches, but this "something more" is not software. In the preferred embodiment, each of the switches in the "plurality of switches 30" is fabricated from a layer of transparent plastic and conductive material. Consequently, portions of the top layer 50, and all of the spacer layer 58, for example, are part of the "plurality of switches 30" yet conceptually are not part of any one particular physical switch.

NCR points to a third statement in the specification in support of its position:

Although the fabrication of switches 30 has been described in a specific manner, it is not intended to exclude other alternative methodologies to fabricate "transparent" switches such as homogeneous or discrete capacitive-film switches and electrostatic-sensitive switches, for example.
'845 patent, col. 7, ll. 5-10. We do not see how this passage shows that there is a software component to the claimed switches. The quoted statement does not mention programming or software; it only refers to physical fabrication methods of discrete physical switches.

NCR also proffers extrinsic evidence in support of its proposed definition of "plurality of discrete switches," quoting an article titled "Back to Basics: How Touchscreens Work":

All touchscreen systems have three components. To process a user's selection, a sensor unit [physical switch] and a controller sense the touch and its location, and a software device driver transmits the touch coordinates to the computer's operating system.

NCR concludes from this description that (1) the patented display system is a "touchscreen" system and (2) consequently, the "plurality of discrete switches" must include software. Defendants urge us not to consider this extrinsic evidence, citing Elkay Manufacturing. Co. v. Ebco Manufacturing. Co., 192 F.3d 973, 976-77 (Fed. Cir. 1999).

Assuming arguendo that we should consider this extrinsic evidence, it does not support NCR's construction of "plurality of discrete switches." The patents claim a "touchscreen" not by using that term, but rather by claiming its separate components, namely: "a plurality of discrete display elements" (which display items for the user); "a plurality of discrete switches" (a set of physical switches); and a "control means" (including a set of drivers). 4 This separation of the "touchscreen" into different claim limitations within the claims is mirrored by the specification's separation of the elements: a "display 26"; a separate "plurality of switches 30"; and a separate "keyboard interface 106" which "includes a set of drivers... to scan the rows of switches in the keyboard array 64 and to inform the microprocessor 46 of the switch closures." '845 patent, col. 9, ll. 14-17. Thus, NCR's extrinsic evidence confirms that a software driver is not considered part of the switches. Rather, according to this definition, both the switches and drivers are separate components of a "touchscreen."

--- Footnotes ---

4 The drivers are described in the context of Figure 8, which discloses the "means for controlling" the "P terminal" or handheld, and are not disclosed as part of the "plurality of discrete switches." See '845 patent, col. 2, ll. 33-35; id. col. 8, ll. 31-33; id. col. 9, ll. 14-17.

--- End Footnotes ---

For these reasons, we affirm the district court's construction of "plurality of discrete switches" as "two or more distinct and separate manual or mechanically actuated devices for making, breaking, or changing the connections in an electric circuit."

1377

B. Role of "Disk Platform"

Veritas' next question deals with the role of the "disk platform." The preamble of claim 1 states:

In a mass storage mechanism for a system having mass storage devices . . . wherein the system includes a host processor including memory and disk management facilities and a disk platform connected from the host processor and controlling a plurality of disk drive units comprising the mass storage devices.

Id. at 18 (col. 20, l. 47-53). The claim later recites "a memory management mechanism for controlling operations of the disk platform for writing data blocks and parity blocks into the disk drive." Id. at 19 (col. 21, l. 3-5). Those are the only references to the disk platform in claim 1. The disk platform is mentioned elsewhere in the specification, for example:

To accomplish its unique improvements over the prior art, the disk platform 28 includes its own computing capability as represented by the computer block 40. As will be seen shortly, the computer 40 may, in fact, comprise multiple processing units; but, for the present it is sufficient to note that the disk platform 28 is not the "dumb" controller 14 of the prior art.
Id. at 12 (col. 7, l. 48-54).

Initially, SCC argues that the disk platform is not an element of the invention, but is rather a "workpiece," a part of the environment in which the invention operates, but not an actual element of the invention, citing ROBERT C. FABER, LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING § 16A (4th ed. 1996). The Court agrees that stylistically, "disk platform" is recited more in the manner of context, rather than a claimed element. Drafting style, however, is not dispositive of the question.

The determination of whether preamble recitations are structural limitations or mere statements of purpose or use "can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." The inquiry involves examination of the entire patent record to determine what invention the patentee intended to define and protect. Gerber Garment Tech., Inc. [v. Lectra Sys, Inc.] 916 F.2d 683, 689 (Fed. Cir. 1990) (noting that preamble recitations provided antecedent basis for terms used in body of claim); Corning Glass Works v. Sumitomo Electric U.S.A.,, 868 F.2d 1251, 1257 (considering the specification's statement of the problems with the prior art) . . . .


In this instance, the disk platform is discussed in the specification as a part of the invention. It likewise is included not only in the preamble, but also in the claim language. Furthermore, as the language quoted above from the specification indicates, the disk platform was cited by the patentee as addressing problems with the prior art. Accordingly, the Court holds that the disk platform is a limitation of the claim.

This raises the subsidiary question of what constitutes a disk platform. The parties agree that "disk platform" is not a term commonly used in the art, or expressly defined in the patent. It is, however, implicitly defined in pertinent part by the language quoted above. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (in construing claim courts should look to "intrinsic" evidence of the claims themselves, the patent specification, and the patent's prosecution history). Although not a complete definition of "disk platform," the Court holds that the specification requires that a disk platform includes its own computing capability and is not the "dumb" controller of the prior art.

C. "Display"/"Present"

The parties appear to agree that "display" and "present" mean to make visible to a human user. The only dispute is whether this meaning is sufficiently clear from the claim language, as PAN contends, or requires clarification, as asserted by Fortinet. The court finds that clarifying the meaning of "display" and "present" may be helpful to the jury and thus construes "display" and "present" as make visible to a human user.

Display and Display Device mean "an output device on which display images can be represented."

13. "display" ('702 patent)
The Court finds that claim 53 expressly requires "a display of an advertising presentation" in addition to "a display of one of the corresponding service representations," both displays occurring concurrently. The Court finds that the fact that an advertisement can be displayed in a window does not necessarily limit a display to "a single window." The Court finds that Defendants' attempt to limit "display" to a single window is an impermissible attempt to limit the term to an embodiment in the specification. Thus, the Court construes the term "display" as "a visual representation of."

The term "display" is used in claims 1, 21, 24, 38, 44, 49, 56, and 59 of the '412 patent, claims 1 and 8 of the '521 patent, and claims 1, 3, and 12 of the '183 patent. IPI defines the term as "an image that includes a collection of display objects together with spatial display relations between them." Defendants suggest that the term means "device that can be attached to a computer in order present images." The parties agree that the term should have the same definition in all three patents. The principal dispute is whether "display" refers to an "image" or a "device."

The patents' claims contain conclusive evidence that the term "display" refers to a physical device. Most notably, claim 1 of the '183 patent calls for "a data processor that receives input signals from the user input device and provides output signals to the display; the output signals causing the display to present images that include display objects." '183 Patent at 43:62-65. An "image" cannot "present images" nor can it receive "output signals."

Nevertheless, IPI argues that a "display" is akin to a visual representation of a workspace that, in turn, can contain other "displays." IPI justifies this theory by pointing to Figure 5, element 100, which shows essentially a desktop filled with different workspaces. See '412 Patent at Figure 5; 6:39-40. Further, there are instances within the specification that use the word "display" to mean an image. See '412 Patent at 30:36-52 ("the implementation of exit workspace procedure 204 described above updates the workspace data structure to include data necessary for regenerating substantially the same display at a later time"). IPI suggests that this usage evidences the patentee's overall intention to use "display" consistently throughout the claims as meaning an "image."

The patents' various usages of the word "display" does not support this conclusion. First, the specification confusingly uses the word "display" as a noun, an adjective, and a verb. In addition, the word "display" is combined with other words to create a variety of different specialized terms such as "display system object," "display object," and "workspace display." Given the wide and varying uses of the term, the patentee clearly had no intention of using the term "display" consistently throughout the specification. As noted, the claims themselves do not support IPI's definition. Accordingly, consistent with the usage of "display" in the claims, the Court defines the term as a "device that can be attached to a computer in order to present images."

Defendants have moved for summary judgment on the limited ground that none of the accused products infringe claims 1, 2, 4, 5, 6 or 9 of the '327 patent because they do not contain a "display," which defendants contend is required by each asserted claim. The parties do not appear to dispute that the term "display," as used in the claims, should be given its ordinary meaning. However, they offer no suggestions about what the ordinary meaning is. By their silence on the matter, I understand them to suggest that this is a case where the "ordinary meaning of the claim language" is "readily apparent even
to lay judges." Phillips, 415 F.3d at 1314. Therefore, I turn to general purpose dictionaries for the "widely accepted meaning" of this "commonly understood" word. Id. Using a broad definition of "display," I construe the term to mean "a visual representation of information." American Heritage Dictionary, 521 (4th ed. 2000) (defining "display" as visual representation of information); Webster's New World Dictionary 415 (4th College ed. 2001) (defining "display" as visual representation of data, as on computer video screen).

**1383**

Display area

The Court construes the term "display area" to mean "an area of display that is defined prior to the step of determining how much display area would be left over." Microsoft argues the term should be construed to mean "a display is the entire screen capable of showing visual information to a user." Microsoft removed portions of its earlier construction at the claim construction hearing. Sklar proposes the phrase should be construed to mean "a defined area on the display screen for displaying item labels and category labels."

Sklar argues "display" is an adjective that modifies the noun "area." Sklar contends that Microsoft's proposed construction seeks to separately construe the words "display" and "area" as nouns, thereby, changing the term "display area" to "the display's area."

The specification describes a display 900 ('843 patent, Fig. 11) but does not require that display 900 be the entire screen surface of a computer monitor. The specification describes a computer monitor 20 that has a display surface 22 ('843 patent, Fig. 4). The specification does not make any inference that display 900 is the entire display surface 22 of the computer monitor 20. If that were the result intended, the terms would have been referenced as one instead of separately. Furthermore, display 900 in Fig. 11 has dynamic data fields 906 and navigation buttons along the bottom of the display 900. These additional items take up space on display 900 that cannot be used to display category and item labels. The specification consistently uses the term "display area" as an area for displaying and not the entire screen surface of a monitor.

The actual term "display area" is used in the specification only a few times. Alternatively, the processor might set a threshold count and tentatively open each category having a number of items equal to or less than the threshold count and then adjust the threshold count to shrink or expand the list to best fit the display area.

Using the category labels and item labels, a display area can be efficiently populated, while giving the user an indication of the overall organization of the data in the database.

'843 patent, Cols. 10:60-64, 11:8-10 (emphasis added). The patents-in-suit specifically refer to the area where items are to be displayed. The Court rejects Microsoft's argument as the specification does not require the "display area" to include the entire screen. Alternatively, Sklar's proposed construction provides little guidance about how much of the display is used. Therefore, the Court's construction clearly calls out the sequence required by the claims of the patents-in-suit.

**1384**

Display Data

"Display data" is "information that defines the size, position, and content of each displayed window or window portion." All three uses of the term in the specification refer to the substantive content of a display that is generated by a first process and is ultimately reflected in a display list. Col. 6:6-9; Col. 8:60-62, and Col. 9:1-7. Therefore, to the extent a window is displayed, the display data indicates content. Furthermore, according to the literal claim language, the display data also indicates the positions and sizes, as defined by the subrectangle list, of the windows to be displayed.
C. DISPLAY DEVICE

This term appears throughout the specification and the claims of the '788 patent. MCT argues that a display device converts electrical signals to images while DisplayLink argues that the display device as claimed in the '788 patent is limited to representing VGA signals. The parties propose the following constructions:

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>display device</td>
<td>Electronic device for visually</td>
<td>Device that converts electrical</td>
</tr>
<tr>
<td></td>
<td>representing VGA signals</td>
<td>signals to images</td>
</tr>
</tbody>
</table>

Claims must be construed in the context of the invention. Phillips, 415 F.3d at 1314. All of the claims in the '788 patent refer to displaying VGA signals. For example, claim 1 states that a VGA controller is "connected to the display device for conveying VGA signals to the display device." '788 patent at 4:66-67. The specification states that "[t]he VGA controller in turn forwards the VGA signals to the display device for display by the display device." Id. at 2:38-40. Further, the specification notes that "an object of the present invention is to provide a USB-to-VGA converter which converts USB based display signals issued from a host computer into VGA signals that can be received and recognized by a display device whereby images to be displayed can be transmitted from the host computer in USB form." Id. at col.1:31-36. Thus, the patent claims and the specification only refer to the display device with respect to the display of VGA images. In the context of the '788 patent, the display device is a device used to display the VGA signals. Dr. Min confirmed this in his testimony:

Q. Regarding the display device, does the '788 patent disclose anything other than a VGA?

A. No.

Min depo. at 51:10-16.

DisplayLink appears to suggest in discussing its proposed construction that the display device can only display VGA images. There is no basis for limiting "display device" to one that can only display VGA images. It only must be able to display VGA images. The court's adoption of DisplayLink's proposed construction should not be construed to imply that a display device must exclusively display VGA images.

The court construes "display device" as follows:

"Display device" is an "electronic device for visually representing VGA signals."

Display list comprising data defining a display in accordance with said output data produced by the corresponding first process

The Court modifies Microsoft's proposed construction and construes this term to mean "a set of instructions and/or data defining a display of a first process." AVG proposes that one of ordinary skill in the art would interpret this term as requiring both text data and graphics data. Microsoft disagrees, noting that such a construction excludes the preferred embodiment, which describes separate display lists for text and graphics. See Col. 7:26-36, 9:57-62, 10:22-30. Microsoft further proposes that one of ordinary skill would interpret the display list as necessarily comprising "instructions." The Court is not persuaded by either party's arguments because they provide no basis to deviate from the plain and ordinary meaning of the term, which affirmatively requires neither instructions nor the combination of text and graphics data.
Nonin and BCI agree that the term "display means" in Claim 2 of the '052 Patent is presumptively written in means-plus-function format. Nonin argues that the presumption is rebutted, however, because the '052 Patent uses "display" as a noun and the term would be so understood by one skilled in the relevant art. BCI contends that the claim does not recite sufficient structure to perform the function of "displaying the sensed and determined blood oxygen saturation level" and that the term "display means" should be construed as limited to an LED display, which is the corresponding structure in the written description.

The Court here agrees with Nonin that the word "display" as used in the '052 Patent is a structural term. The OED includes a noun definition of "display" as "a visual presentation of data from a computer," and that is the sense in which the '052 Patent uses the term "display." The Court accordingly adopts Nonin's proposed construction of the term "display means," which is "a visual presentation of the sensed and determined blood oxygen saturation level."

IPI construes the term "display means" as a camera, scanner, television, laser printer, fax machine, or the like that is coupled to the video fill circuit and displays the enhanced image. The only mention of this term in Sony's materials that the Court was able to locate indicates that Sony interprets this term in accordance with its ordinary meaning. See Joint Claim Construction Chart at 24. Because Sony does not appear to contest IPI's definition, the Court adopts IPI's proposal.

With respect to the display of the dynamic bid and ask regions, and static price axis, we construe "display of a plurality of bids and a plurality of asks" and "displaying the bid and ask display regions" as "a display of one or more bids and one or more asks," eSpecd encourages us to limit the display to information that is displayed in a single window. We decline to do so. The claim contains no such limitation and while the preferred embodiment does suggest a single window display, we will not import such limitations into the claims. See Wilson Sporting Goods, Co., 442 F.3d at 1329 ("This court...declines to read a limitation from the written description into the claims"); Ionova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1117 (Fed.Cir. 2004) ("particular embodiments appearing in the written description will not be used to limit claim language that has broader effect").

Finally, plaintiff requests that we reconsider our construction of the term "plurality," in the '132 patent. In our previous order we construed "display of a plurality of bids and plurality of asks," and "displaying the bid and ask display regions," as "a display of one or more bids and one or more asks." TT Markman I, 2006 U.S. Dist. LEXIS 80153, 2006 WL 3147697, at *9. Suggesting that "[i]t is well established in patent law that the term of art 'a plurality' calls for 'more than one,' and thus precludes 'one' from the definition" (TT's motion, at 14), TT argues that we erred in our construction. None of the defendants addressed plaintiff's contentions and, therefore, we assume none has a strong disagreement with plaintiff's construction. n6 As the term "plurality" has been previously construed in patents to mean "more than one," "at least two," and "two or more" (Bilstad v. Wakalopoulos, 386 F.3d 1116, 1123 (Fed.Cir.2004); ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1383 (Fed.Cir.2003); York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1575 (Fed.Cir.1996); NCR Corp. v. Palm, Inc., 217 F.Supp.2d 491, 508 (D.Del.2002)), and the ordinary meaning of plurality is
"[t]he state or fact of being plural" (WEBSTER'S II NEW COLLEGE DICTIONARY (2001)), we grant plaintiff's motion to reconsider. We construe "display of a plurality of bids and plurality of asks" as "a display of more than one bid and more than one ask."

n6 CQG includes an unenlightening footnote on the subject. It reads, in relevant part: "To the extent that the Court decides it is appropriate to reconsider 'plurality' as it is used in terms such as 'dynamic display of a plurality of bids and a plurality of asks,' CQG asserts that its proposed construction of the greater term properly reflects the meaning of plurality as subsumed by the larger term."

2. "display unit"

The district court construed "display unit" to mean "a unit for displaying real-time data provided by the data acquisition unit." Claim Construction Op. at 7. Paragon disagrees. Paragon argued to the district court that "a display unit" should be construed as "an assemblage of inter-related components that unify the function of displaying data from the electronic positioning device and the physiological monitor." Id. at 5. On appeal, Paragon argues that the district court's construction was wrong in three respects, each of which we address in turn.

First, Paragon argues that the district court was wrong to construe "display unit" as displaying data "provided by the data acquisition unit." Rather, Paragon argues, the claim language permits the data to be provided by the individual components of the data acquisition unit--namely, the electronic positioning device and the physiological monitor. We agree with Paragon. Claim 1 recites "a display unit configured for displaying real-time data provided by said electronic positioning device and said physiological monitor." '759 patent col.28 ll.3-5 (emphasis added). The claim unambiguously states that the data provided to the display unit comes from both the electronic positioning device and the physiological monitor. Likewise, the specification makes clear that the electronic positioning device and the physiological monitor may be independently in communication with the display unit, to provide data used in the display. See, e.g., id. col.3 ll.3-5 (disclosing "a display unit (or component) configured for displaying data provided by the electronic positioning device and the physiological monitor"); id. col.7 ll.32-34 ("The system of FIG. 1 generally comprises an electronic positioning device 5 and a physiological monitor 6, both of which are in electrical communication with a display unit 7."); id. figs.1 & 2. Nothing identified by the parties in the prosecution history undermines the conclusion that the display unit displays data provided either independently or over a common transmission path from both the electronic positioning device and the physiological monitor.

The district court's construction combined the sources of data by incorrectly substituting "data acquisition unit" for "said electronic positioning device and said physiological monitor." Because we have determined that the data acquisition unit may be made up of multiple structures, it is important to make clear that the data displayed by the display unit may be obtained from the claimed electronic positioning device and the claimed physiological monitor either separately or over a common transmission path.

Second, Paragon argues that "display unit" should not be limited to a single structure, just as "data acquisition unit" should not be limited to a single structure. Preliminarily, we note that there is nothing in the district court's construction that would appear to limit "display unit" to a single structure. The district court merely concluded that the display unit must be a "unit"--which is the exact claim term. Moreover, there is no reason why the word "unit" in the term "display unit" would be limited to a single structure, when the patentee used the word "unit" in "data acquisition unit" to refer to one or more structures. "We apply a presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims." PODS, Inc. v. Porta Stor, Inc., 484 F.3d 1359, 1366 (Fed. Cir. 2007) (quoting Fin Control Sys. Pty., Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001)); see also, e.g., Phillips, 415 F.3d at 1314 ("Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the
meaning of the same term in other claims."). The parties have identified nothing in the claims, the specification, or the prosecution history that would suggest that "unit" in "display unit" means anything different from "unit" in "data acquisition unit." The claimed "display unit" may therefore be multiple structures.

Finally, Paragon argues that "display unit" should not have been construed to require "displaying real-time data," because the claim recites merely that the display unit is "configured for displaying real-time data." '759 patent col.28 l.3 (emphasis added). Contrary to Paragon's argument, the district court did not construe "display unit" to require "displaying real-time data." Rather, it construed "display unit" as "a unit for displaying real-time data." Claim Construction Op. at 7 (emphasis added). The district court explained further that "for' denotes a function for which the display unit is configured." Id. Paragon was therefore wrong to characterize the district court's construction as requiring the display unit to actually "display[] real-time data," rather than merely to be configured to do so.

In sum, we modify the district court's construction of "display unit" and construe "display unit" as used in the '759 patent as "a structure or set of structures, separate from the data acquisition unit, for displaying real-time data provided by both the electronic positioning device and the physiological monitor independently or over a common transmission path."

b. "Displayed Image"

For the term "displayed image" in claim 146, IP proposes the following construction: an image presented by a display device. Lexmark and Dell propose this definition: an image displayed on a display device. Lexmark and Dell's proposed definition excludes printers as a permissible type of display device. As discussed above, we conclude that printers are within the scope of the 780 patent. Therefore, we construe this term to mean an image presented by a display device.

12. displaying a plurality of . . . play lists; displaying a plurality of . . . lists

The term "displaying a plurality of . . . play lists" appears in claims 3 and 7 of the '725 patent. The term "displaying a plurality of . . . lists" is found in claim 74 of the '725 patent. The plaintiff proposes a construction of "concurrently displaying more than one play list" for each of the above terms. The defendant's counter-proposal is "using a display to identify a plurality of [play]lists." The parties' dispute, as set forth in the briefs, is whether the contents of the list must be displayed (the plaintiff's construction) or whether it is sufficient that only the titles of a plurality of lists be displayed (the defendant's construction). The patent discloses the display of a plurality of play list titles (and titles alone) in Figure 4J. Based on this disclosure, it appears that this term embraces the situation where only the titles of the play lists are displayed. As a result, the court construes this term to mean "the simultaneous display of at least the titles of two or more play lists."

Displaying an item label for each item in the at least one open category and other open categories, if any, and a category label for each unopen category

The Court accepts Sklar's proposed construction and construes the term to mean "at least one category is designated as open and an item label is displayed for each item in this open category and any other open categories. A category label is displayed for each unopen category." Microsoft argues the term should be construed to mean "showing in the display an item label for every item in every open category and a category label for every unopen category. An 'item label' is all text and/or graphics used in the display to represent an individual item. A 'category label' is all text and/or graphics used in the display to represent a category of items."

At the Court's claim construction hearing, Microsoft agreed to remove the last two sentences of its proposed
construction related to defining an "item label" and a "category label" as all text and/or graphics to eliminate Sklar's concerns over their inclusion in the definition. Thus, the primary area of dispute between the parties has been resolved. The Court, however, adopts Sklar's proposed construction finding it better clarifies and simplifies the term.

21. "[D]isplaying in the second set of fields, the information identified by selection of fields of the first set of fields:" This construction flows from the plain and ordinary meaning of the limitations, and is illuminated by the construction of "field" supra.

TERM # 14: "and displaying, on said issuer's computer display, information associated with said bid including said computed interest cost value" - Defendants' proposed construction is an admitted restatement of the argument they lost on summary judgment. We will not revisit that issue. Based on our earlier constructions, this phrase means: "showing information associated with the submitted bid, including the bid's previously computed interest cost value, on the issuer's computer display."

"displaying … options and … choices"

JVL contends "displaying … options and … choices" means "simultaneously displaying both all video game menu options and separately displaying all video game menu choices when the video game menu options are available for selection." Def.'s '717 Presentation at 23. The principal disagreement is whether, as JVL argues, the options and choices must be "simultaneously" displayed.

JVL's reliance on the claim language to support its construction is misplaced. Indeed, the differences in the language in elements (b) and (c) contradict JVL's position. The term "displaying … options and … choices" is in element (b) of claim 1, describing a video display. The language also appears in element (c), describing a display controller. Claim limitation (b) of claim 1 reads "A video display for displaying and selecting the video game menu options and choices, the video game menu options being available for selection as video game menu choices." Nothing in the cited language suggests the "options" and "choices" must be displayed simultaneously.

Claim 1(c) states "a display controller for simultaneously displaying video game menu options and video game menu choices on the video display when the mode selector is in the programming mode, and for displaying video game menu choices when the mode selector is in the menu choice selection mode." The patentee's specific use of the word "simultaneously" in limitation (c) to indicate that the options and choices are displayed at the same time when in the programming mode undermines JVL's argument that "displaying … options and … choices" must always be read to be done simultaneously. See Phillips, 415 F.3d at 1314. Claim terms are presumed to be used consistently throughout the patent claims. Research Plastics, Inc. v. Fed. Packaging Corp., 421 F.3d 1290, 1295 (Fed. Cir. 2005). The insertion of "simultaneously" into JVL's construction would render 1(c) redundant and infuse 1(b) with unfounded meaning.

The prosecution history does not support JVL's construction. As discussed above, Merit distinguished its invention from the
Super Duper Casino prior art by noting that claim 1 of the '717 patent "discloses simultaneously listing all of the selectable games as options … and separately listing all of the games which are choices." Def.'s Suppl. Br., Ex. E at 15. Like JVL's construction, this statement describes "simultaneously" listing "all" options and choices, but it was not made to limit the invention to that capability. Rather, it was made to distinguish the '717 system from the programming setup of the Super Duper Casino prior art which provides a single list of all games and allows for each game to be switched "on" or "off." It does not include a separate list of "video game menu choices" in the programming mode. Id.

In certain instances "displaying … options and … choices" may mean, as JVL posits, the simultaneous and separate display of those options and choices. But, in those instances, such meaning is clear from the surrounding claim language. There is no basis for imposing JVL's suggested meaning on this term throughout the claims regardless of the context in which it appears. The term "displaying … options and … choices" as used in the '717 patent does not have a technical meaning that must be deciphered. The constructions for "video game menu options" and "video game menu choices" have already been discussed and the term "displaying" is unambiguous. Its plain and ordinary meaning is clear. Thus, construction of this language is unnecessary.

B. The Disputed Limitations

On the merits, the parties dispute the meaning of two related limitations in the '982 patent, "distributing" and "displaying" a combined order book to a trader. Independent claim 9 recites both limitations:

9. A data processing method for providing trading information to traders in a security or commodity from two or more alternative trading systems, comprising the steps of:

   receiving order book information from each participating alternative trading system in order book information protocols native to the particular alternative trading system;

   converting the information to a common system order book protocol;

   integrating the order book information from each alternative trading system into a single order book;

   distributing the combined order book to the traders in the common system order book protocol; and

   displaying said combined order book to the traders.

'982 patent, col. 14, ll. 1-14 (emphasis added). The district court construed the disputed limitations during a Markman hearing without issuing a formal claim construction order. Instead, the district court stated its claim construction from the bench at the close of the hearing. A district court retains discretion to rule in this manner, but in this instance the trial court's oral recitation provides a very sparse explanation of the findings and reasoning supporting the claim construction.

Regarding the distributing limitation, the district court concluded that it "simply means distributing the combined order book -- that means in terms of the specification the consolidated order book -- pertaining to all orders from all ECN members." Claim Construction Order at 442-43. In other words, the distributing limitation requires the distribution of the whole combined order book to the trader. The district court similarly construed the displaying limitation, concluding the system must display the whole combined order book for the trader. Upon review, the district court's interpretation of the "distributing" and "displaying" limitations conflicts with the plain meaning of claim 9 and excludes embodiments disclosed in the specification.

According to its preamble, claim 9 "provides trading information to traders in a security or commodity" rather than "all" securities or commodities. '982 patent, col. 14, ll. 1-2 (emphasis added). By selecting the word "a" instead of "all," the Applicant set forth a method wherein the traders may request and receive information for only a subset of the securities (i.e., one or more). See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (the word "a" generally means "one or more" in open-ended claims). Thus, the language of the claim itself does not require the system to distribute or
display the whole combined order book.

Furthermore, the specification discloses embodiments that distribute and display information for only a subset of the combined order book. As an example, the specification describes one embodiment in which

the CCS 100 collects orders from each ECN, (ECN150 and ECN251) and electronic exchanges (NASDAQ 52), distributes a composite order book to the customers according to each customer's memberships in the ECNs and rights to use an electronic exchange. Thus customer 10 may only receive a subset of the complete order book compiled by the CCS 100 corresponding to where the customer 10 is permissioned.

'982 patent, col. 6, ll. 59-66 (emphasis added). n1 According to this embodiment the customer only receives a "subset" of the combined/complete order book from the system. Thus, this embodiment must also make the system capable of "distributing" less than the whole combined order book to the customer - i.e., a subset of the combined order book.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n1 While NASDAQ information comes from a particular electronic exchange rather than an alternative trading system, claim 9 is an open-ended claim that encompasses more than simply information from alternative trading systems. See U.S. Patent No. 6,278,982, col. 2, ll. 16-29, col. 14, l. 3.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

The specification also discloses an embodiment in which bid and offer prices for Dell, a single security, are displayed on a market data screen:

Fig. 4 depicts a typical market data screen 250 of the present invention. Such screens can be customized as to data or order to conform to the customer's trading style. . . . The security under review is Dell Computer Corp. It was elected by inserting its ticker symbol DELL in space 252.

'982 patent, col. 8, ll. 47-54. This embodiment is further described in reference to Figure 5:

FIG. 5 shows pricing data that would be available to a customer of the present invention. Here, space 251 has been checked on screen 280 and ECN information integrated into the display. Screen 280 shows not only NASDAQ Level II data but also the full order book for the following three ECNs: Instinet, Island and Strike. For these ECN's, there are multiple bids and offers available for DELL, as opposed to just the best bid and offer. . . . Screen 280, thus, offers access to a greater amount of pricing information (thus greater liquidity), consolidated in one display. Thus, the entire order books of all ECN members and the market makers' bids and offers are consolidated into a single informative screen for any particular security. This additionally provides the customer with the ability to take advantage of price variations in a rapidly changing environment.

Id. at col. 9, ll. 9-25. Hence, the specification discloses embodiments that distribute and display information for only a subset of the securities (e.g., one in the embodiment of Figures 4 and 5) in the combined order book.

Reading the claim language and these embodiments in the specification, one of ordinary skill in this art would not limit the distributing and displaying limitations in the manner suggested by the district court. See Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc) ("Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification."). Rather, one of ordinary skill in the art would construe the distributing and displaying limitations as covering an embodiment that distributes and displays information for only a subset of the combined order book.

For at least these reasons, this court sets aside the district court's claim construction. Because the final judgment orders are premised on the flawed claim construction, they too must be set aside. The case is remanded to the district court for further proceedings consistent with this opinion.
9. Displaying Said Monochromatic Characters on Said Character-based Output Device

The phrase "displaying said monochromatic characters on said character-based output device" means transmitting the monochromatic characters to a character-based output device for display.

6. Displaying the cartographic data

The third subpart of claim 1 reads: "a display connected to the processor and capable of displaying the cartographic data." The disputed phrase is underlined. Plaintiff defines "displaying" as "graphically depicting." Defendant maintains that the term needs no construction, or in the alternative, that it should be construed as "showing." Defendant's definition is consistent with the ordinary meaning of the term "display." ("To show or exhibit; make visible." Webster's College Dictionary 380 (2d ed. 1999)). To define "displaying" as "graphically depicting" would add unnecessary confusion to an otherwise straightforward concept. Graphically depicting suggests that there may be graphs involved in the display and graphs come in a variety of forms. Plaintiff argues that, "[t]he phrase 'capable of displaying the cartographic data' is contextually defined in the specification of the '873 patent and should be construed consistent with such disclosure," dkt. # 56 at 28-29, but there is nothing in the claim or the specification to support or explain the use of the term "graphically." I construe the phrase, "displaying the cartographic data" as "showing the cartographic data."

4) "playlist" (claims 1, 15, 16)

STV Asia asserts that "playlist" means "program selection." In its Reply, it proposes in the alternative, "a list of selected audiovisual clips" or "selected audiovisual clips." Defendants assert the term should be construed as follows: "a list of video clips that are to be displayed at a retail store or stores. The playlist is created by a user who is located in a distribution center." The parties agree that a "playlist" at least includes the ordering or sequencing of audiovisual material. They disagree, however, as to whether a "playlist" also includes the sequenced audiovisual material itself. STV Asia asserts that it does, while Defendants argue it does not.

Defendants assert that the term "playlist" is defined in the specification and that that definition should be adopted by the Court in construing the term. In particular, the specification states that "[p]laylists are lists of video clips that are to be displayed at each of the retail stores," '069 patent, col. 9, ll. 44-45, and that "a playlist is a particular program sequence requested by a user who is located in the distribution center." '069 patent, col. 2, l. 67 - col. 3, l. 2.

STV Asia, however, points to the latter statement as evidence that the playlist includes not only the sequencing of audiovisual materials but also the actual audiovisual materials themselves. It also points to the following statements in the specification that it asserts support such a dual meaning of the term:

.. "The Playlist Database has . . . a contents table for each playlist that gives information on the clips (e.g. clip sequence number) included in each playlist." '069 patent, col. 11, ll. 16-24.

.. "When playlists or [sic] created or updated, the program determines which additional video clips are needed at the stores and sets a pending flag." '069 patent, col. 12, ll. 17-20.

.. "After the clips have been received and stored in the receiving sites, the system's software scheme performs the on-line program formation automatically in order to form the playlists. In the preferred embodiment, users enter the desired playlists for each receiving site into the system from the technical operation center. The user may enter one set of playlists
for many stores, etc. For each individual receiving site, the software assembles the desired playlist with the clips stored in that receiving site, and then forwards the clips to monitors for display." '069 patent, col. 5, ll. 5-15.

STV Asia also points to the usage of the word "playlist" in the claims. In particular, STV Asia asserts that while claim 16 appears to use the term "playlist" to refer only to include the sequencing of the audiovisual material, claims 1 and 15 use the term in a manner that suggests it may include the sequencing or the content.

A number of the citations to the specification offered by STV Asia in support of its proposed construction are not persuasive. It is unclear, for example, why the statement "The Playlist Database has . . . a contents table for each playlist that gives information on the clips (e.g. clip sequence number) included in each playlist" shows that the "playlist" includes the content of the playlist. See '069 patent, col. 11, ll. 16-24. Similarly, the statement "When playlists or [sic] created or updated, the program determines which additional video clips are needed at the stores and sets a pending flag" does not provide strong support for STV Asia's position. '069 patent, col. 12, ll. 17-20.

Nonetheless, the Court finds support for STV Asia's proposed construction in at least one statement in the specification, found in col. 5, ll. 5-15 (quoted above), and in claim 1. In both places, the inventor appears to have used the word "playlist" as a shorthand to refer to the assembled audiovisual clips on the playlist. Claim 1 refers to a "network management system forming playlists" and "display units for displaying the playlists." While the first usage of "playlist" appears to refer to the list of audiovisual clips, it seems fairly clear that the second use of the term "playlist" refers not to the sequencing of the clips but rather, to the assembled audiovisual clips themselves. Similarly, when the specification states that the software "assembles" the "playlist with the clips stored in that receiving site," '069 patent, col. 5, ll. 13-14, the common-sense reading of that statement is that the "playlist" is the audiovisual clips themselves.

In reaching this conclusion, the Court is mindful of the general presumption that "the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and the prosecution history that the terms have different meanings at different portions of the claim." Fin Control Sys. PTY, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). Here, however, the Court concludes, based on the description of the invention in the specification, that the inventors used the term "playlist" both to refer to the sequencing of audiovisual material and as a shorthand for the sequenced material itself. In particular, when the inventors used the phrase "displaying the playlists" in claim 1, they were referring to the audiovisual clips themselves. All other references to "playlists" in the disputed claims are to the sequencing of the audiovisual clips.

The Court construes the claim term "playlist" as follows: "a particular program sequence requested by a user who is located in the distribution center." The Court construes the phrase "displaying the playlists" as "displaying the audiovisual content listed in the playlists."
Rate Map that may be used to make a flood zone determination for the real property." The defendants contend that the clause means "FEMA designations that may be used to make a flood zone determination for the real property." Although the two definitions are close, the plaintiff's construction is too limiting. The claim language only requires data that "may be used" to make a flood zone determination. As a result, the defendants' construction appears proper, and the court adopts it.

1403

G. "disposed above"

The final claim of the '776 patent requires that there be a "second conductive gate disposed above and insulated from said first conductive gate." '776 patent, 14:6-7. Although defendant originally asserted in the joint claim construction statement that the upper gate had to be "aligned" above the lower gate, it did not argue that position in its briefs. The parties now appear to agree that although the second conductive gate must be "above" and separated from the first conductive gate, it need not be perfectly aligned. Seeing no evidence to suggest that the gates must be aligned, the Court agrees that this is the ordinary interpretation of this phrase and construes the claim accordingly.

1404

C. Claim Construction of "Window Disposed Adjacent to the Hole"

Claim 1 refers to a rotatable platen "having a hole formed therethrough" and an endpoint detector compromising "a window disposed adjacent to the hole formed through the platen, the window rotating with the platen and intermittently providing a pathway for the light beam to impinge on the wafer." ('454 Patent, Col. 16, lines 26-28, 35-38). Plaintiff argues that the claim only requires that the window rotate with the polishing pad. Specifically, Plaintiff points to the three (3) figures that are a part of the patent specification. Figures 3A-3C represent simplified cross-sectional views of respective embodiments of the windows. Figure 3A shows a window as an insert made of light transmissive material which is mounted securely in a hole in the platen.

[SEE FIG. 3A IN ORIGINAL]

Figure 3B represents an embodiment that allows the pad itself to be used as a window. The light is transmitted through the hole in the platen and through a light-transmissive portion of the polishing pad surface, thereby allowing light to transmit through the pad.

[SEE FIG. 3B IN ORIGINAL]

Figure 3C - the window is essentially a plug that is inserted into the pad.

[SEE FIG. 3C IN ORIGINAL]

Defendants argue that Figure 3A does not conform with the specification because the claim requires that the window be a part of the pad. Defendants focus on the limitation that the "window moves with the polishing pad." Defendants' interpretation would require that when the pad is removed from the machine, the window must still be attached.

The Court does not interpret the claim the same. Looking at the claim language, it is clear that Plaintiff intended to incorporate all three figures as part of the patent. Dependent Claim 2 states "wherein the window compromises an insert mounted within the hole in the platen, the insert being transmissive to the light beam" and is depicted as Figure 3A. Dependent Claim 6 describes the window as comprising "a portion of the polishing pad, the portion being at least partially transmissive to the light beam" as depicted in Figures 3B and 3C. ('454 Patent, Co. 16, lines 57-59). Several other dependent claims also refer to both embodiments of the window:

. Dependent Claim 14: "wherein the window comprises a light-transmitting insert mounted in a hole through the platen."
Dependent Claim 18: "wherein the window comprises a light-transmitting portion of the polishing pad." ('454 Patent, Col. 17, lines 39-40).

Dependent Claim 25: "wherein the polishing pad support comprises a metal portion and the window comprises a hole through the metal portion of the polishing pad support." ('454 Patent, Col. 18, lines 17-20).

Dependent Claim 26: "wherein the window comprises a light-transmitting portion of the polishing pad." ('454 Patent, Col. 18, lines 22-24).

Defendants' construction is inconsistent with the claim language and seeks to limit the claim language only to the embodiment in dependent Claim 6.

Additionally, the specification clearly describes Figures 3A-3C as part of the preferred embodiments of the apparatus. The specification goes into great detail to explain the difference in the figures and how to achieve the results as tested in the embodiment. ('454 Patent, Cols. 6-7). There is no additional evidence provided by the prosecution history.

The plain and ordinary meaning, which is not contradicted by the intrinsic evidence, would leave a person to conclude that the window must move with the polishing pad while the machine is in motion. Accordingly, the Court FINDS that the "window disposed adjacent to the hole formed through the platen" encompasses windows that are both in and near the hole of the platen.

F. "disposed entirely over"

The '750 patent requires "a second gate electrode . . . disposed entirely over said first gate electrode." '750 patent, 13:1-3. The parties have raised the same arguments as with the "disposed above" term of the '776 patent. The addition of the term "entirely" in this patent, however, requires that the phrase be construed differently. If the upper gate electrode overhangs the lower gate electrode, it is not "entirely over" in the normal meaning of that phrase. The Court holds that the '750 patent requires that the second gate electrode must be located above the first gate, and that no portion of the second gate electrode may extend horizontally beyond the edge of the first gate electrode.

C. "a plurality of pixel electrodes disposed on cross points"

Plaintiff argues that "a plurality of pixel electrodes disposed on cross points" should be construed to mean "pixel electrodes arranged such that each transistor controlling a pixel electrode is located at the intersection of a signal and a scanning line"; plaintiff contends that the word "on" should be construed in the sense of "on the corner" of two streets. Defendants argue that the phrase should be construed to mean "pixel electrodes atop the intersection of the signal and scanning lines." The parties' constructions differ in only one relevant respect. In plaintiff's construction, it is the transistor controlling each pixel that is located at the intersection of the lines. In defendants' construction, the pixel electrode itself must not only be at the intersection, but "atop"—i.e., directly above—the intersection.

The use of the word "on" in the claims, rather than "at," strongly favors defendants' proposed construction. Plaintiff's gas station analogy notwithstanding, the word "on" generally denotes more than just proximity; an object is "on" another object when it is above or supported by that object.

The specification is fully consistent with defendants' proposed construction. Several passages are relevant to the geometry of the electrodes. The first passage appears at column 2, line 62 to column 3, line 1:

- 1830 -
Also, in the pixel element, a most projected portion is in a region where the scanning lines and the signal lines are superimposed one on another, and in the region, not only the scanning line, the signal line, an inter-layer insulation film for separating those lines from each other, but also a pixel electrode, a black matrix and so on are laminated one on another.

Id. at 2:62-3:1 (emphasis added). The second passage, between column 4, line 62 and column 5, line 2, states as follows:

Id. at 4:62-5:2 (emphasis added). These two passages describe the points of highest elevation on the lower substrate, where the circuit elements in the middle of the matrix are stacked so high that "the scanning lines and the signal lines are short-circuited between the top and the bottom through the spacers, thereby causing the point defect and the line defect." Id. at 3:12-14. In order to accommodate the high elevation, within the interval correction means "the first support members 301, 302 and 303 and the second support members 701 are designed so as to be superimposed one on the other, thereby being capable of making the step of the substrate interval maintaining means nearly equal to the height of the region in which the thickness of the matrix circuit is maximum." Id. at 4:51-56. The cited language corresponds to embodiments 4 and 5 in the patent, as depicted in Figures 12 through 15. In embodiments 4 and 5, the pixel electrode is disposed "atop" the intersection of signal and scanning lines.

The third relevant passage consists of Figure 2 and its accompanying narrative, which shows how the matrix circuit is formed in Embodiment 1. Of particular note is Figure 2E, showing the completed pixel circuit. In Figure 2E the pixel electrode, 228, is located directly above the gate electrode, 209, of the pixel TFT. See also id. Fig. 2A. The gate electrode, in turn, is a part of the scanning line 302. Id. at 8:10-12. Similarly, the other electrodes for the pixel TFT, 224 and 225, which are also located directly below the pixel electrode, are part of the signal lines 303. Id. at 9:28-40. In Embodiment 1, as well as in Embodiments 4 and 5, the pixel electrode thus appears to be directly atop the intersection of the signal and scanning lines.

The court therefore adopts defendants' proposed construction: "a plurality of pixel electrodes disposed on cross points" is construed to mean "pixel electrodes atop the intersection of the signal and scanning lines."
## A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>ID information [stored on the debit card]</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>ID information [stored on the terminal]</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>Stored thereon prior to the transaction</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
<tr>
<td>Retrieving via the terminal</td>
<td>&quot;locating and returning, by means of the terminal, ID information and a card number stored on the debit card&quot;</td>
</tr>
<tr>
<td>Computer&quot; and &quot;Computer means&quot;</td>
<td>&quot;a data processing device&quot;</td>
</tr>
<tr>
<td>Transmitting to a computer&quot;</td>
<td>&quot;sending by means of a signal path to a computer&quot;</td>
</tr>
<tr>
<td>Validation&quot; and &quot;Valid&quot;</td>
<td>&quot;indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal&quot;</td>
</tr>
</tbody>
</table>
"Computer means disposed remotely"  "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"  "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means function"  "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means structure"  "a modem or a signal path"

"Selected from a group of ID information" (Claim 2)  "chosen from one of the following ID information"

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

--- Footnotes ---

51 Pl.’s App. at 431 (Liu Dep. 94:15-24).

1409

Claim Language  Fast Memory's Proposed Construction  Defendants' Proposed Construction

"a first doped region disposed under the edge of the stacked gate"  a part of the doped source region located beneath the edge of the stacked gate the part of the doped source  region located directly under the edge of the stacked gate

The parties agree that the first doped region must be near the edge of the stacked gate, in order to effectively redirect the current away from the damaged area. This dispute concerns whether the first doped region must be located directly under the edge of the stacked gate, or merely under it. Fast Memory argues that the gouge caused by the SAS etch removes silicon on the substrate and makes it impossible for the source side substrate to be directly under the edge of the stacked gate.

Expert testimony does not resolve the technical question of whether the SAS etch gouge prevents the first doped region from being located directly under the edge of the stacked gate. In his deposition, Dr. Liu stated that the etch may remove the silicon from the edge of the stacked gate and that the doped source region will be lower than "directly under the stack[ed] gate etch." 51 Dr. Liu concluded that locating the source region directly under the stacked gate would render the patented invention unworkable. 52 Defendants' expert, Dr. Taylor, states that the first doped region must be located directly under the stacked gate edge, because locating the first doped region away from the surface of the source exponentially diminishes the strength of the electric field, thereby reducing the ability of the doped regions to redirect the erase current. 53 However, Dr. Taylor does not address whether the SAS gouge prevents the first doped region from being located directly under the edge of the stacked gate.

--- Footnotes ---

51 Pl.'s App. at 431 (Liu Dep. 94:15-24).
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Fast Memory contends that the claim language provides for all possible locations of the first doped region. In response, Defendants cite to a preferred embodiment, which states that the first doped region is located "directly under the edge of the stacked gate." 54 Yet, the specification also describes the implanted source region as disposed "under the edge of the stacked gate." 55 Neither do the figures in the patent conclusively show that the first doped region must be located directly under the edge of the stacked gate. 56 The mixed evidence in the record does not show that the "character of the invention requires the limitation be a part of every embodiment," and the Court declines to import the "directly under" limitation urged by the Defendants into the claim. 57 The Court construes "a first doped region disposed under the edge of the stacked gate" as: "a part of the doped source region located beneath the edge of the stacked gate."

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

54 '959 Patent 8:55-58. See also '959 Patent 9:41-43 (noting that the source regions are adjacent to the stacked gate). But see '959 Patent 8:48-51 ("The first source implant region and the second source implant region are located below the spacer and the edge of the stacked gate") (internal citations omitted).

55 '959 Patent 3:48-52; 4:5-9; 4:40-44.

56 Plaintiff contends that Figure 14B is incorrectly labeled and imprecisely drawn, since it does not show the SAS gouge.

57 Alloc, 342 F.3d at 1370.

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any electrically conductive layers that may be disposed upon the passivating layer; and 3) to provide a flat, level surface so as to assure a uniform thickness for any layer of liquid crystal material disposed thereon.

Id. (emphasis added). DNP has proposed that this term means:

Placing a separate and distinct, continuous layer of transparent, electrically insulating material on top of and separate from the layer of material that prevents passage of light and the light influencing material, wherein the passivating material is adapted to, and must be deposited to a depth sufficient to perform the following critical functions: 1) to level the underlying filter and opaque layers to a continuous, flat surface to serve as a base upon which subsequent layers may be formed; 2) to electrically insulate the light influencing element from any electrically conductive layers that may be disposed upon the passivating layer; and 3) to provide a flat, level surface so as to assure a uniform thickness for any layer of liquid crystal material disposed thereon.

Dkt. No. 117 at 42-43 (emphasis added).

a. Objections

DNP argues that "the passivating material also itself must be electrically insulating because that's the plain ordinary meaning of that claim [sic, term]." Objections Tr. at 20:10-15; see also Dkt. No. 126 at 6-7. DNP submits that while the written description specifies three functions of the passivating layer, the Order merely requires that any two of these three functions be satisfied. Objections Tr. at 21:19-22:8; see also Dkt. No. 126 (citing Pharmacia & Upjohn Co. v. Mylan Pharms., Inc., 170 F.3d 1373, 1377 (Fed. Cir. 1999) & Heuft Systemtechnik GMBH v. Indus. Dynamics Co., Ltd., Nos. 2007-1417, 2007-1462, 282 Fed. Appx. 836, 2008 WL 2518562, at *4 (Fed. Cir. June 25, 2008). As further support, DNP notes that the requirement of a continuous passivating layer indicates that the passivating layer is electrically insulating because continuity is required to achieve electrical insulation. Id. at 23:4-8; Dkt. No. 126 at 9-10. DNP also argues that as to prosecution history, "the electrically insulating function of ATI's passivating layer was the only possible grounds for patentability over Haneda. Dkt. No. 126 at 10. DNP further argues that the list of "two critical functions" in the specification is really a list of two functions, despite including a three-part list, because two parts of that list refer to leveling to create a flat surface. Id. at 8-9. Therefore, DNP argues, the specification presents "two critical functions," including electrically insulating, that must be claim limitations. Id. at 9. DNP also submits that "[t]he Order erred . . . by deleting the word 'critical' and adding the words 'of the following,' thereby incorrectly making critical functions optional." Id.

ATI responds that "[t]he specification says that the passivating material must perform at least two of three functions, only one of which is insulating." Id. at 31:12-14; Dkt. No. 130 at 5. ATI submits that the patentee "acted as his own lexicographer" in defining the passivating material. Dkt. No. 130 at 6-7. ATI also submits that "DNP incorrectly concludes that if the layer is continuous it must insulate." Id. at 7. As to prosecution history, ATI argues that "[n]either that inventor nor the USPTO examiner ever stated that the optional insulating function of the passivating layer was a point of distinction over Haneda." Id. at 8. ATI also argues that because several differences existed between rejected and allowed claims, no clear disavowal of claim scope occurred by amendment. Id. at 8-9.

DNP replies that "the specification clearly says that all three of those [listed] elements are critical. . . . [T]he ['critical'] adjective precedes the list." Id. at 33:15-17. DNP also asks the Court to "consider and rely on the dictionary definition offered by DNP." Dkt. No. 140 at 4. DNP also argues that "[r]ecognizing electrical insulation as a 'critical function' also avoids the mistake of interpreting the phrase 'critical functions' as 'optional functions' . . ., and further avoids the Order's error of replacing the phrase 'two critical functions' with the unsupported phrase 'two of the following.'" Dkt. No. 140 at 5. DNP further argues that "disclosure of only insulating materials supports that the passivating layer is electrically insulating."
In sur-reply, regarding prosecution history, ATI argues that allowed application claim 15 recites a "liquid crystal subassembly" that "includes both the color filter and the transparent conductive layer" while "the Haneda patent is limited to a color filter but does not disclose a subassembly with electrodes." Dkt. No. 147 at 2. Regarding the Certificate, ATI submits that "even assuming arguendo that the correction did not broaden the claim, whether a broadening correction would have been apparent to one of ordinary skill in the art, and thus allowed under 35 U.S.C. § 255, is a question of fact for the jury." Id. at 3 (citing Arthocare Corp. v. Smith & Nephew, Inc., 406 F.3d 1365, 1374-75 (Fed. Cir. 2005)).

b. Discussion

The parties agree that the patentee provided meaning for "passivating material" where the specification discloses as follows regarding the "passivating material 26":

'T71 Patent at 7:22-31; see ATT's Opening Brief Regarding Claim Construction, Dkt. No. 81 at 15-16; Sharp's Response Claim Construction Brief, Dkt. No. 83 at 12; DNP's Response Claim Construction Brief, Dkt. No. 84 at 6 and 15. The specification thus discloses that the passivating material "must be [] deposited to a depth sufficient to perform at least two critical functions." Id. (emphasis added). Although a person or skill in the art could speculate that the patentee intended all three of functions "1)," "2)," and "3)" to be described as "critical" but erroneously stated "two critical functions" instead of "three critical functions," the actual text of the specification should be given weight. Further, the specification does not elsewhere clarify whether or not all three of the "critical functions" must be performed by the passivating material 26. Because the parties agree that the specification defines "passivating material" and because the specification describes certain functions as "critical," the Court's construction should parallel the specification by requiring that the "passivating material" is configured such that "at least two" of the "critical" functions are satisfied. 'T71 Patent at 7:23.

As to the prosecution history, no prosecution disclaimer occurred at least because the patentee did not amend or argue over Haneda. Instead, the examiner allowed application claim 15 as originally filed and the patentee simply amended claims to depend therefrom. See 3/17/1993 Office Action and 3/30/199[3] Amendment, Dkt. No. 84 at Ex. D.

As the Order found, "[h]ad the inventor intended to require that all three functions be required and were 'critical' to be a passivating layer, then he could have used the word 'three.'" Dkt. No. 117 at 37. The Order properly found that the three functions of the "passivating layer" are distinct functions. In particular, the Order found that function "1)" and function "3)" are separate because these functions are listed separately, affect different layers, and are directed to different purposes. Id. at 41-42. The Order also properly found that the description of a "transparent, insulating, passivating material 26" is identified as a "preferred embodiment" and that the electrically insulating function is not required. Id. at 37-38. Further, the Order properly found that "[r]ecognizing the fact that the inventor required a conductive layer be placed on the passivating layer does not lead to the conclusion that the passivating layer cannot be conductive." Id. at 38. Finally, the Order properly found no prosecution disclaimer requiring that the passivating layer be electrically insulating. Id. at 39-40.

The Order construed "passivating material" to mean "a material that performs two of the following functions," but neither the Order nor the specification indicate that two and only two functions are performed. Instead, the specification itself discloses that "at least two critical functions" are performed. For clarity, the construction of "passivating material" should include "a material that performs at least two of the following functions." As to whether the word "critical" should be included in the construction, the specification uses the word "critical," but including the functions in the construction already requires that these functions must be satisfied. The term "critical" should accordingly be omitted to avoid surplusage and to avoid confusion about the meaning of "critical."

For at least the foregoing reasons, the Court should construe the term "disposing a continuous layer of transparent, passivating material atop said layer of opaque material and said light influencing material" to mean "placing a continuous,
separate layer of transparent, passivating material atop the separate layer of opaque material and the light influencing material, where the passivating material is a material that performs at least two of the following functions: 1) levels the underlying filter and opaque layers to a continuous, flat surface to serve as a base upon which subsequent layers may be formed; 2) electrically insulates the light influencing element from any electrically conductive layers that may be disposed upon the passivating layer; and 3) provides a flat, level surface so as to assure a uniform thickness for any layer of liquid crystal material disposed thereon."

II. Claim Construction

On appeal, we must decide whether the district court properly construed the claim term "distinct." In the asserted claims, the term "distinct" is used to describe how the metacode map and the mapped content are stored. Specifically, the claims say the metacode map is stored in "distinct map storage means" or "distinct storage means." See, e.g., '449 Patent col.16 ll.20, 25-26, 53-54. Analogously, the document's content is stored in "mapped content storage," id. at col.16 ll.22-23, or "mapped content distinct storage means." Id. at col. 15 l.51 (emphasis added).

Before the district court, Microsoft argued that "distinct" added two requirements: (1) storing the metacode map and mapped content in separate files, not just separate portions of the computer's memory; and (2) the ability to independently edit the document's content and its metacode map "independently and without access" to each other.

The district court rejected both of Microsoft's proposed limitations. Based on its review of the claim language, the specification, and prosecution history, the district court concluded that "distinct" did not require storage in separate files. Similarly, it concluded that the user's ability to independently edit the document's structure or content was a benefit of separate storage, not a claim limitation. The district court then defined "distinct map storage means" in more general terms, as "a portion of memory for storing a metacode map." "Mapped content distinct storage means" was defined as "a portion of memory for storing mapped content."

On appeal, Microsoft renews both arguments about the meaning of "distinct." We review the district court's claim construction de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454-55 (Fed. Cir. 1998) (en banc). To ascertain the scope and meaning of the asserted claims, we look to the words of the claims themselves, the specification, and the prosecution history. Phillips v. AWH Corp., 415 F.3d 1111, 1115-16 (Fed. Cir. 2004) (holding that the claims are not "presumed" to be restricted to the embodiments disclosed in the specification). We conclude that the district court properly rejected both of Microsoft's proposed limitations.

A. Separate Files

To determine whether "distinct" adds the requirement of storage in separate files, we begin with the claim language. See Phillips, 415 F.3d at 1312. In this case, the claim's plain language does not require storage of the metacode map and mapped content in separate files. The term "file" appears nowhere in the '449 patent. Instead, the claims use "storage means"; the specification uses "structures." '449 Patent col.16 ll.22-26, 53; see also id. at col.4 ll.7-13, 21-24. Both "storage means" and "structures" are broader terms than "file," suggesting no particular format. At trial, i4i's expert testified that a person of ordinary skill in the art would understand "structures" to store and organize data, but not as limited to a particular storage format. Indeed, the specification arguably renounces particular formats by defining "document" as a "non-random aggregation of data irrespective of its mode of storage or presentation." Id. at col.4 ll.57-59 (emphasis added).

Turning to the specification, we similarly see no "clear intent[] to limit the claim scope" to storage in files. Abbott Labs. v. Sandoz, Inc., 566 F.3d 1282, 1288 (Fed. Cir. 2009). The sample algorithms do not say the storage means is restricted to "files." '449 Patent col.8 ll.53-62; see Innova/Pure Water, 381 F.3d at 1121-22. Instead, they use the more generic term "storage space," creating one for the mapped content and another for the metacode map.

As for the prosecution history, we do not read it as limiting storage to files. During prosecution, i4i distinguished its invention from U.S. Patent No. 5,280,574 ("Mizuta") prior art in part because Mizuta stored "all document information …
in one file … the document file." But this is not all i4i said. i4i then explained that Mizuta "lacked any notion of a metacode map" or "distinct storage means." In evaluating whether a patentee has disavowed claim scope, context matters. Together, these statements make clear that what distinguished the Mizuta prior art was not the storage type (file or no file), but rather the separation of a document's content and structure. The statements Microsoft now plucks from the prosecution history do not "clear[ly] and unmistakabl[ely] disavow" storage means that are not files. Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (Fed. Cir. 2008) (citing Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006)).

Because the claims themselves do not use the word "file" and the specification discloses embodiments where the storage format is not a file, we conclude that "distinct" does not require storage in separate files. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 907-08 (Fed. Cir. 2004) (declining to limit the invention's scope to the disclosed embodiments when the specification did "not expressly or by clear implication reject the scope of the invention" to those embodiments); see also Boston Scientific Scimed, Inc. v. Cordis Corp., 554 F.3d 982, 987 (Fed. Cir. 2009).

B. Independent Manipulation

The closer question is whether "distinct" requires independent manipulation of the metacode map and mapped content. Several of the embodiments in the '449 patent allow the user to manipulate only the metacode map or mapped content. '449 Patent figs. 4, 5, 6, 8. However, based on our review of the claim language, the specification, and the prosecution history, we conclude that the claims are not limited to these particular embodiments.

Generally, a claim is not limited to the embodiments described in the specification unless the patentee has demonstrated a "clear intention" to limit the claim's scope with "words or expressions of manifest exclusion or restriction." Liebel-Flarsheim, 358 F.3d at 906; see also Teleflex, Inc. v. Ficsa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). By the same token, not every benefit flowing from an invention is a claim limitation. See Computer Docking, 519 F.3d at 1374; Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1302-03 (Fed. Cir. 2007).

We begin again with the claim language. None of the claims mention "independent manipulation" of the mapped content and metacode map, an omission we find significant. Had the inventors intended this limitation, they could have drafted the claims to expressly include it.

Similarly, the specification refers to "separate," rather than "independent," manipulation of the document's architecture and content. The specification goes on to describe the storage of the metacode map and content as "distinct and separate." "Distinct" and "separate" are not the same as "independent." Moreover, the specification teaches that "separate manipulation" describes the user's ability to work on only the metacode map or content. Behind the scenes, the invention keeps the metacode map and content synchronized. For example, Figure 9 teaches that updates to the content may require the invention to make corresponding changes to the metacode map. '449 Patent col. 14 l.49-col. 15 l.5.

Microsoft is correct that the specification refers to working on "solely" the document's structure (metacode map):

The present invention provides the ability to work solely on metacodes. The process allows changes to be made to the structure of a document without requiring the content. A metacode map could be edited directly without the mapped content. Additionally a new map can be created based solely on an existing map without requiring the content.

Id. at col.7 ll.6-11 (emphases added). Read as a whole, however, these statements are best understood as describing the advantages of separate storage, the real claim limitation. See Abbott Labs., 566 F.3d at 1289-90. The specification's permissive language, "could be edited," "can be created," and "ability to work," does not clearly disclaim systems lacking these benefits.

An examination of the prosecution history similarly reveals no statements that unequivocally narrow the claims to require independent manipulation. Initially, the examiner rejected several claims as obvious, explaining that "[s]torage is always distinct, even if at distinct addresses." In response, i4i stated:

[T]he architecture of a document can be treated as a separate entity from the content of the document. Thus, the architecture of the document can be treated as an entity having distinct storage from the content of the document. This
separation allows distinct processes to operate on the content and the architecture, with or without knowledge of the other. In other words, using the present invention, one could change the architecture, (layout, structure, or presentation formation) of a document without even having access to the actual content of the document. This is achieved by extracting the metacodes from an existing document and creating a map of the location of the metacodes in the document and then storing the map and the content of the document separately.

The reason for the examiner's rejection helps us understand i4i's response. In context, i4i's response is best read as clarifying why the invention's "storage means" are more than just "distinct addresses." i4i's subsequent discussion of the benefits of separate storage is not sufficiently "clear and unmistakable" to disavow embodiments lacking independent manipulation. Purdue Pharma, 438 F.3d at 1136.

In light of the specification's permissive language, the prosecution history, and the claim language, we conclude that "independent manipulation" is a benefit of separate storage, but not itself a limitation.

C. Different Operating System

Veritas next argues that the operating systems on the first and second microprocessors must be of different types, i.e., they could not both be UNIX. The language of claim 1 requires that "said second microprocessor employs a second operating system distinct from said first operating system." SCC argues that this language requires only that both microprocessors do not share a single instance of the operating system, i.e., not be a multiprocessor operating system where both microprocessors are under the direction of a single instance of the operating system.

Veritas supports its view by citing to the repeated references in the specification and file wrapper indicating that the principal purpose of the invention was to permit computers of different, incompatible types to coexist on the same network and to use the same storage system. The implication is that the invention has no point if the client and storage server have the same variety of operating system.

SCC replies that the incompatibilities the invention was to accommodate were incompatibilities in the client operating systems. The invention enables a variety of clients with otherwise mutually incompatible operating systems to communicate with a single storage server; nothing in the invention precludes the idea that one or more of those clients might use the same species of operating system as the storage server. SCC notes the specification expressly acknowledges that possibility. E.g., id. at 82 (col. 4, l. 65-67) ("More particularly, if the client computer and storage management system both utilize the same operating system . . . ."); id. at 84 (col. 8, l. 22-25) ("the storage management system may utilize the same file format and operating system utilized by the majority of client computers connected thereto . . . .").

The Court holds that the specification supports SCC's construction and that "distinct" should be construed and meaning a different instance, and not a different type.
Both parties' proposed claim construction for Term 2 are deficient. Akamai's proposal essentially reads out the limitations in the claim requiring the DNS established by the service provider to be "alternative" and "distinct," while Limelight's proposed construction does not read on the preferred embodiment.

The Brief Summary of the Invention describes the "object of the present invention" as "provid[ing] a network architecture that moves content closer to the user." ('645 Patent, col.2 11.49-50.) This is accomplished by "replicating content over a large network of distributed servers." (Id. col.2 ll.46-47.) The task of determining which of this multiplicity of servers should supply content to a particular user's request is handled by the alternate and distinct DNS system:

The determination of which hosting server to use to serve a given embedded object is effected by other resources in the hosting framework. In particular, the framework includes a second set of servers (or server resources) that are configured to provide top level Domain Name Service (DNS). In addition, the framework also includes a third set of servers (or server resources) that are configured to provide low level DNS functionality. 4

To locate the appropriate hosting servers to use, the top-level DNS server determines the user's location in the network to identify a given low-level DNS server to respond to the request for the embedded object. The top-level DNS server then redirects the request to the identified low-level DNS server that, in turn, resolves the request into an IP address for the given hosting server that serves the object back to the client.

(Id. col.3 11.29-36, 42-49 (Summary of the Invention) (emphasis added.).) The specification emphasizes the difference between the invention and the operation of "regular DNS servers" which return the Internet Protocol ("IP") addresses of one or more DNS or content servers without any consideration of where the user or the server is located:

[T]he global hosting architecture of the present invention manipulates the DNS system so that the name is resolved to one of the ghosts that is near the client and is likely to have the page already. . . . The top level DNS servers [for the inventive global hosting framework] have a special function that is different from regular DNS servers like those of the .com domain. The top level DNS servers include appropriate control routines that are used to determine where in the network a user is located, and then to direct the user to . . . a low level DNS[.] server that is close-by.

(Id. col.9 11.40-44, 49-55 (emphasis added.).) Akamai confirmed the character of this alternative, distinct DNS at the Markman hearing:

. . . the Domain Name System described in the patent is, one, something that is established by, set up by, run by the content delivery network. And, second, it is different in that it has intelligence that will direct -- that will inform the translation of character strings into IP addresses. 5

(Hr'g Tr., 59:10-15, May 17, 2007 (emphasis added.).) Thus, read in the context of the specification, the meaning of "distinct" and "alternative" describes a domain name system established and controlled by a content delivery network service provider, which includes control routines "different from regular DNS servers like those of the .com domain." ('645 Patent, col.9 11.50-51.)

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4 The first set of servers are the framework's hosting servers (also referred to as ghost servers or ghosts). (See '645 Patent, col.5 11.65-67.)

5 In addition to the intelligence in the top-level DNS servers that determines the location of the user and chooses a particular close-by low-level DNS server to service that user, the specification also describes intelligence in the low-level DNS servers, not present in regular DNS servers, which provides other claimed functionality. (See '645 Patent, col.11 11.53-55 ("The low-level DNS servers monitor the various ghost servers to take into account their loads while translating virtual ghost names into real addresses.") (emphasis added.).)

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E. "Said Preprogrammed Memory . . . for use in controlling operation of said vehicle in a distinguishable protocol in addition to those provided by said originally provided program and in lieu of control provided by said originally provided program"

This term means that the additional program within the preprogrammed memory not only controls the operation of the vehicle but it does so in a different manner than the original program. Again, Hypertech's proposed additional limitation of "while the vehicle is in normal operation" is not supported either by the written description or the prosecution history cited and goes beyond the court's conclusion that an "in transit" limitation must be read into the claims.

b. Construction of "distributed along said busses"

The second disputed phrase, "distributed along said busses," acquires different meanings depending on whether there is "one," or there are "more [than one]" MOS capacitors comprising the capacitance means. See '830 patent at 6:21. The ordinary meaning of "distributed" is dispersed, spread, or meted out. Where the word is used to describe a single substance or article, it connotes that the substance or article is spread out. In the context of the claims, the capacitance means, that is, the capacitor plates, would be spread out along (and underneath) the busses. In the alternate case of a plurality of capacitance means, the plain meaning is that the capacitors are located at various positions along (and underneath) the busses. Also implicit in this terminology is the suggestion that the longer of the lateral dimensions of the capacitor plates is along the direction of the bus wires, and the transverse dimension is shorter. This suggestion is strongest when there is only one capacitor, but as the number of different capacitors distributed along the device increases, the weight of the meaning imparted to "distributed along" shifts to the connotation that the individual parts are dispersed, not just anywhere over the chip, but along the busses.

The specification does not discuss in any detail what is meant by "distributed along said busses" so as to substantively limit the plain meaning of the claim. There is no teaching with respect to the meaning of distributed when there is only one capacitor. For example, the disclosure does not imply, as AMD contends, that a single capacitor must run underneath the entire length, or a substantial part of the busses. The specification does allow for "empirical observations" to guide the practitioner in determining how much capacitance might be needed in a particular circumstance. '830 patent at 5:10. The disclosure simply does not teach what minimum level of distribution of capacitance means is required by the claims.

The Court construes the term "distributed along said busses" to mean either multiple capacitance means located at various points along, and in a layer beneath, the busses, or a single capacitance means having plates whose long dimension is spread out along, and in a layer beneath, the busses. The Court does not read in any minimum fraction of the length a bus along which capacitance means must be deployed. The disclosure instructs that empirical observation may be the guide.

2. "distributed computer system"

The district court construed "distributed computer system" to require that there be "a stand alone computer in each processor system." SeaChange, 313 F. Supp. 2d at 398. The phrase "distributed computer system" appears in the preamble of method claim 37. Thus, a preliminary question exists as to whether "distributed computer system" is a claim limitation. See Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 807-08 (Fed. Cir. 2002). "In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." Id. at 808 (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). "If the preamble helps to determine the scope of the patent claim, then it is construed as part of the claimed invention." NTP, Inc. v. Research In Motion, Ltd., 392 F.3d 1336, 1358 (Fed. Cir. 2004).
In this case, the preamble notes that the claimed method is for storing data in a "distributed computer system" which has "at least three processor systems." '312 patent, col. 22, ll. 17-18. The preamble further describes the components of a "processor system" to be "at least one central processing unit" and "at least one mass storage subsystem." Id., col. 22, ll. 19-20. The body outlines the claimed method, the steps of which repeatedly involve "said processor systems." Id., col. 22, ll. 22-29 (emphasis added). The preamble provides the only antecedent basis and thus the context essential to understand the meaning of "processor system"; therefore, the preamble, including the phrase "distributed computer system," limits the scope of the claimed invention. NTP, 392 F.3d at 1358-59 (relying on preamble of method claim to define scope of limitations that derived their antecedent basis from preamble).

The issue then is how, if at all, the preamble phrase "distributed computer system" impacts the scope of "processor system." The parties agree that the ordinary meaning of "distributed computer system" is a "computer system in which several interconnected computers share the computing tasks assigned to the system." IEEE 375 (defining "distributed system"). The parties dispute whether a "distributed computer system" requires that each processor within the system operate on its own power supply and clock, i.e., that each processor "stand-alone." Seachange argues that the IEEE definition implies multiple "stand-alone" computers and that "stand-alone" computers are necessary to implement RAID-5 at the system level. However, the IEEE definition does not say that computers must have a separate clock and power supply. Furthermore, Seachange points to nothing in the specification to suggest that the processors must "stand-alone" in order to achieve redundancy at the system level. Indeed, neither the claim nor the written description states such a requirement. See, e.g., '312 patent, col. 22, ll. 17-29; col. 2, ll. 17-23; col. 3, ll. 27-35; col. 4, ll. 36-44; col. 5, ll. 52-58. The written description describes a system where if one processor fails, another can perform the task that the failed processor was performing. See, e.g., id., col. 16, ll. 23-27. Such a system is consistent with the requirement that the processors "share computing tasks."

Because it is improper to import a limitation into a claim where the limitation has no basis in the intrinsic record, Ecolab, Inc. v. Envirotech, Inc., 264 F.3d 1358, 1366 (Fed. Cir. 2001), we conclude that the district court erred in requiring that each processor system "stand-alone," i.e., have a separate clock and power supply. "Distributed computer system" should be given its ordinary meaning, which both parties agree is "a computer system in which several interconnected computers share computing tasks assigned to the system."

1417

a. Distributed manufacturing plant

ITI suggests that the phrase "distributed manufacturing plant" appears in the preamble and appears to argue that the language does not constitute a claim limitation. A preamble is considered a claim limitation only if, when read in the context of the claim as a whole, it recites essential structure or steps or is "necessary to give life, meaning, and vitality" to the claim. Eaton Corp. v. Rockwell Intern. Corp., 323 F.3d 1332, 1339 (Fed. Cir. 2003) (quoting Catalina Mktg. Int'l, Inc. v. CoolSavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002)). If, therefore, the limitations in the body of the claim "rely upon and derive antecedent basis from the preamble," then the preamble acts as a necessary component of the claimed invention and constitutes a limitation. Id. Several limitations within claim 18 derive antecedent basis from the "distributed manufacturing plant" language in the preamble. Specifically, the claim mentions "the plant," six times, which clearly refers to the "distributed manufacturing plant" language in the preamble. Accordingly, the phrase constitutes a claim limitation and must be construed.

ITI contends that the limitation refers to a plant which makes a variety of products using different machines. Defendants counter that the phrase means a manufacturing plant consisting of unconnected machines that are spread out over the manufacturing plant. Defendants claim that the patent supports its inclusion of "unconnected" in the definition. They cite a sentence under the section "Description of the Prior Art" that states, "Most manufacturing plants or factories are distributed in that they consist of heterogeneous, unconnected workstations." U.S. Patent No. 4,796,194, col. 1, lines 21-23. Because this sentence appears within a discussion describing prior art and the term does not appear elsewhere in the patent, the Court is hesitant to conclude that the claim phrase denotes a manufacturing plant with unconnected workstations. When defining terms, courts are directed to give words their broadest reasonable construction that is consistent with the use of the term in the patent. See In re Am. Acad. of Sci. Tech Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004). In short, the Court sees no reason to limit distributed manufacturing plants to those with unconnected workstations.
Later in the section describing prior technology, the specification states in general terms that "[a] distributed manufacturing plant is capable of fabricating a variety of products through ordered-process sequences of process steps. Each process step can be performed by at least one workstation in the factory." U.S. Patent No. 4,796,194, col. 1, lines 27-30. The Court concludes that "distributed manufacturing plant" should be construed as a factory that makes a variety of products using machines in workstations throughout the plant.

1418

5. "distributed packet manager"

The next term is "distributed packet manager." The plaintiff argues that this term means "a device, process or algorithm that is located within each packet data source, that controls how the packet data source accesses a portion of the bandwidth assigned to the packet data." The defendants propose "a decentralized mechanism that performs all the functions required to aggregate and synchronize packet data to the time-division multiplexed bus and to prevent packet collisions." The defendants' proposed construction limits the claim by requiring, essentially, an entirely decentralized mechanism for performing "all" of the functions required to aggregate and synchronize packet data to the bus. In addition, the defendants' construction requires the packet manager to prevent packet collisions.

The court is not persuaded that either limitation is appropriate. The specification does not require the elimination of all of the central control functions. Moreover, the doctrine of claim differentiation counsels against the requirement that the packet manager prevent packet collisions. Claim 9 recites "only one of the plurality of packet data sources accesses the . . . predefined bandwidth at a time" whereas claim 7 does not require that "only one" packet data source can access the bus at a time. Claim 9 thus expresses the concept of preventing packet collisions by allowing only one of the packet data sources to access the predefined bandwidth at a time. The defendants' proposed construction would incorporate limitations from the preferred embodiment that are not required by the language of the claims. As such, the court construes the term to mean "a device, process or algorithm located within each packet data source, that controls how the packet data source accesses the time-division multiplexed bus."

1419

"Distributed Switching Network"

NT proposes the following construction for "distributed switching network": "A network in which the switching function is distributed over a number of switching or routing elements, components or devices." Peerless's proposed construction is:

"a routing tandem network that links tandem access points and tandem switches together so as to provide an end to end managed tandem network that provides alternative routing and call completion management capabilities which is both competitor neutral and technology neutral, not part of a proprietary network or a competitor network and is not reliant upon one particular technology platform, is without end users, and provides tandem switching and transport services."

Peerless argues that the terms "distributed switching network" and Neutral Tandem Network are synonymous and that both should therefore have the same limitations. However, those limitations with respect to the term Neutral Tandem Network have been rejected, as set out above. Also, the report of Dr. Arthur Brody, Plaintiff's expert, confirms that Plaintiff's construction is consistent with how one skilled in the art would understand the term. Therefore, the term "distributed switching network" is construed as "a network in which the switching function is distributed over a number of switching or routing elements, components or devices."

1420

3. "distributed Viterbi decoder"
The process of Viterbi decoding is used to decode a trellis encoded signal. Claims 9 and 19 of the '627 patent require a "distributed Viterbi decoder." The plaintiff proposes that this term means "a Viterbi decoder having multiple Viterbi decoding processes operating on separate portions of a stream of data to be decoded." The defendants argue that the term means "two or more Viterbi decoders operating in round-robin fashion on separate portions of a stream of encoded data." The issue is whether there needs to be more than one Viterbi decoder operating in round-robin fashion.

The defendants point to the specification which shows separate Viterbi decoders that are accessed sequentially. '627 patent, Fig. 4, 3:13-20. The plaintiff, on the other hand, contends that the defendants are attempting to limit the term to a preferred embodiment. According to the plaintiff, a distributed Viterbi decoder can be implemented as a single Viterbi decoder that emulates through software the function of multiple devices. The relevant passage from the specification supports the plaintiff's argument. '627 patent, 9:61-66 ("multiple trellis encoders and decoders can be realized using a single program routine which, through the mechanism of indirect addressing of multiple arrays within memory, serves to provide the functions of each of the multiple devices.").

In light of this passage from the specification, the court is persuaded that the plaintiff's construction is correct. The court concludes that this term means "a Viterbi decoder having multiple Viterbi decoding processes operating on separate portions of a stream of data to be decoded."

B. The Disputed Limitations

On the merits, the parties dispute the meaning of two related limitations in the '982 patent, "distributing" and "displaying" a combined order book to a trader. Independent claim 9 recites both limitations:

9. A data processing method for providing trading information to traders in a security or commodity from two or more alternative trading systems, comprising the steps of:

   receiving order book information from each participating alternative trading system in order book information protocols native to the particular alternative trading system;

   converting the information to a common system order book protocol;

   integrating the order book information from each alternative trading system into a single order book;

   distributing the combined order book to the traders in the common system order book protocol; and

   displaying said combined order book to the traders.

'982 patent, col. 14, ll. 1-14 (emphasis added). The district court construed the disputed limitations during a Markman hearing without issuing a formal claim construction order. Instead, the district court stated its claim construction from the bench at the close of the hearing. A district court retains discretion to rule in this manner, but in this instance the trial court's oral recitation provides a very sparse explanation of the findings and reasoning supporting the claim construction.

Regarding the distributing limitation, the district court concluded that it "simply means distributing the combined order book -- that means in terms of the specification the consolidated order book -- pertaining to all orders from all ECN members." Claim Construction Order at 442-43. In other words, the distributing limitation requires the distribution of the whole combined order book to the trader. The district court similarly construed the displaying limitation, concluding the system must display the whole combined order book for the trader. Upon review, the district court's interpretation of the "distributing" and "displaying" limitations conflicts with the plain meaning of claim 9 and excludes embodiments disclosed in the specification.

According to its preamble, claim 9 "provides trading information to traders in a security or commodity" rather than "all"
securities or commodities. '982 patent, col. 14, ll. 1-2 (emphasis added). By selecting the word "a" instead of "all," the Applicant set forth a method wherein the traders may request and receive information for only a subset of the securities (i.e., one or more). See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (the word "a" generally means "one or more" in open-ended claims). Thus, the language of the claim itself does not require the system to distribute or display the whole combined order book.

Furthermore, the specification discloses embodiments that distribute and display information for only a subset of the combined order book. As an example, the specification describes an embodiment in which

the CCS 100 collects orders from each ECN, (ECN150 and ECN251) and electronic exchanges (NASDAQ 52), distributes a composite order book to the customers according to each customer's memberships in the ECNs and rights to use an electronic exchange. Thus customer 10 may only receive a subset of the complete order book compiled by the CCS 100 corresponding to where the customer 10 is permissioned.

'n82 patent, col. 6, ll. 59-66 (emphasis added). n1 According to this embodiment the customer only receives a "subset" of the combined/complete order book from the system. Thus, this embodiment must also make the system capable of "distributing" less than the whole combined order book to the customer - i.e., a subset of the combined order book.

The specification also discloses an embodiment in which bid and offer prices for Dell, a single security, are displayed on a market data screen:

Fig. 4 depicts a typical market data screen 250 of the present invention. Such screens can be customized as to data or order to conform to the customer's trading style. . . . The security under review is Dell Computer Corp. It was elected by inserting its ticker symbol DELL in space 252.

'id at col. 9, ll. 9-25. Hence, the specification discloses embodiments that distribute and display information for only a subset of the securities (e.g., one in the embodiment of Figures 4 and 5) in the combined order book.

Reading the claim language and these embodiments in the specification, one of ordinary skill in this art would not limit the distributing and displaying limitations in the manner suggested by the district court. See Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc) ("Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification."). Rather, one of ordinary skill in the art would construe the distributing and displaying limitations as covering an embodiment that distributes and displays information for only a subset of the combined order book.
For at least these reasons, this court sets aside the district court's claim construction. Because the final judgment orders are premised on the flawed claim construction, they too must be set aside. The case is remanded to the district court for further proceedings consistent with this opinion.

4. "Distribution interface."

The technical background of "interface" and much of the analysis of "request interface" applies to this term. USVO proposes to define "distribution interface" as "hardware and/or software that allows two elements (a central data facility and a switched telephone network) to work together in the manner recited in the claim." Time Warner suggests:

A device (distinct from the request interface) that is connected to the central data facility and that (1) initiates a connection over the switched telephone network with each remote recipient, in response to requests for video programs received by the request interface, and (2) downloads each requested video program over the network to a single intended remote recipient.

Claim 1 describes a distribution interface, connected to the central data facility and the telephone network, which "initiates connections over the telephone network with remote locations in response to requests received," by the request interface and transmits to the remote location the compressed video programs previously requested through the request interface. As with request interface, Time Warner argues that the distribution interface must be a hardware device and is separate from the request interface.

Time Warner also takes the position that the distribution interface only performs two functions, and that these two functions can only be done with respect to a single remote viewer at a time. USVO again argues that "interface" should be given its common meaning and that the distribution interface does not have to be distinct from the request interface.

The court has already addressed Time Warner's arguments that the distribution and request interfaces are separate, that an interface must be a hardware device, 5 and that every embodiment must allow for remote requesting in the context of request interface. Time Warner's position that the construction should recite two functions performed by the distribution interface would be overly repetitive, as Claim 1 already states what the distribution interface does. "792 Patent, col. 7, ll. 50-59.

5 Defendants' strenuous argument in connection with the next disputed term, that the phrase "said distribution interface initiates" means that the distribution interface itself begins calls over the distribution network, is at odds with their position that the interface is merely hardware. Hardware without a program is not likely to receive a signal, choose a recipient, and initiate a call.

Time Warner's final point is that the program must be transmitted to a single recipient. While Time Warner did not agree with the court's proposed definition for this term at the hearing, Tr. at p. 93, l. 19- p. 94, l. 8, this definition adequately addresses Time Warner's concern that the program is transmitted only to the requesting customer. At the hearing, USVO agreed with the court's proposed construction of this term. Tr. at p. 93, ll. 15-16. The court will define this term as follows:

"Distribution interface" means "the connection that permits data to be conveyed from the central processor through the telephone network to the requesting customer."
2. "distribution stage"

NICE's Construction

The stage that serves for retrieval of recorded information and providing it in a human recognizable form and/or serves for archiving the recorded information to removable storage.

Witness's Construction

Plain meaning.

The parties dispute the meaning of "distribution stage," as used in claim 1 of the '372 patent. NICE contends that the specification supports its construction, citing col. 11:40-48:

Generally, the distribution stage serves for retrieval of recorded information and providing it in a humanly recognizable form, i.e., as an image, a printout, a sound clip or others. In a preferred embodiment, the distribution stage also serves for archiving the recorded information to a removable storage, such as magnetic tape, magnito-optical storage device, DVD, or others.

(col. 11:42-48.) Witness contends that NICE's proposed "and/or" language makes the retrieval element of the term optional, which is not supported by the specification.

In light of the claim language and specification, the Court construes "distribution stage" to mean "The stage that serves for retrieval of recorded information, providing it in a human recognizable form, and, in some instances, archiving the recorded information to removable storage." NICE's proposed "and/or" language is not supported by the patent's specification.

A. First and second row groups

Claims 1, 6, 7, and 8 of the '865 patent describe the relevant memory cell array as "being divided into first and second row groups." NEC argues that this language does not require any physical division between the first and second row groups and that, as a result, Hyundai's DRAM devices, in which the "groups" are physically intermingled, infringe the '865 patent. Put another way, NEC contends that the terms of the '865 patent include "folded bit line" architecture, while Hyundai argues that the "first and second row groups" language narrows the patent so that it necessarily requires "open bit line" architecture. The issue is significant as the accused Hyundai product employs folded bit line architecture.

Open bit line architecture and folded bit line architecture refer to two different methods of arranging bit lines in a memory cell array. In such an array, pairs of bit lines extend from circuits commonly called sense amplifiers (but called "differential amplifiers" in the '865 patent) to connect a column of memory cells. The differential sense amplifier is the circuit that must detect and amplify small electrical signals in a DRAM chip. In early DRAM chips, differential sense amplifiers were placed in the center of an array of memory cells, with one bit line extending up and one bit line extending down from each differential sense amplifier to connect a column of memory cells. This architecture is called "open bit line."

As discussed above, word lines run across and perpendicular to bit lines and control access to all the memory cells in a particular row. In open bit architecture, any given word line crosses only one of the two bit lines entering a differential sense amplifier. When the word line is activated to access the row of memory cells, it creates electrical "noise" in every bit line it crosses. The noise can cause the differential sense amplifier to supply erroneous information. To reduce or eliminate this problem, folded bit lines were introduced in the 1970s. With folded bit lines, the row of differential sense amplifiers is placed on one side of an array of memory cells, and both bit lines extend from the same side of each differential amplifier to the corresponding column of memory cells. This way, every word line crosses both bit lines entering a differential sense amplifier, and equal amounts of electrical noise are introduced to each bit line. Because the differential sense amplifier responds to the difference in voltage between the two bit lines, adding the same electrical noise to each one has no effect.
6 Folded bit line architecture was introduced in U.S. Patent 4,025,907 (the '907 patent), issued on May 24, 1977. Hyundai contends that the device described in the '907 patent should be considered prior art to the '865 patent, since testimony indicates that the circuitry disclosed in the '907 patent was developed in the fall of 1974, several months before the '865 patent's effective April 30, 1975, filing date in Japan. See 35 U.S.C. § 102(g). NEC argues that this testimony is not sufficiently corroborated to establish the '907 patent as prior art.7 A diagram comparing open bit line and folded bit line architecture may be found in Appendix 3 to this opinion.

In open bit line architecture, then, word lines (and thus row columns lying along word lines) are physically divided into two groups: those lying above and those lying below the differential sense amplifier. In folded bit line architecture, the differential sense amplifiers do not so divide the word lines, though the word lines are functionally and electrically identical in folded bit line and open bit line architecture. NEC contends that the reference in claim 1 of the '865 patent to first and second row groups merely refers to two sets of word lines identified by distinct functions. In other words, according to NEC, a "group" of word lines (as that word is used in the '865 patent) refers to any set of word lines that shares a common characteristic. While in open bit line architecture, one group of word lines connects to those memory cells above the differential sense amplifiers and one group connects to those below the differential sense amplifiers, in folded bit line architecture one "group" of word lines controls memory cells connected to the right side of each differential sense amplifier and one "group" of word lines controls memory cells connected to the left side of each differential sense amplifier. NEC argues that the fact that the row groups are physically intermixed in folded bit line architecture does nothing to mask their separate identities.

The starting point in the analysis is the language of the claim, which makes clear that it is the memory array itself—in other words, the two-dimensional arrangement of memory cells—that is divided into first and second row groups. If the division of the array into row groups is understood as a physical division, in which one set of row groups arranged along word lines is physically separate and distinct from the second set of row groups arranged along word lines, the claims must necessarily cover only open bit line architecture.

Figures 1 of the '865 patent discloses the "prior art" as understood by the '865 inventor, while Figure 4 represents the invention. NEC concedes that both figures depict open bit line architecture. Nor is this depiction of the invention surprising, since claim 1 of the '865 patent appears to contemplate open bit line architecture. First, claim 1 requires "a plurality of memory cells arranged in an array of rows and columns," and goes on to require that the "said memory cell array [be] divided into first and second row groups." Thus, the claim requires the division of the physical, two-dimensional arrangement of cells that is the array into two parts; such language strongly suggests physical division. The language of claim 1 in combination with the illustrations of the invention in Figures 4-6 of the '865 patent indicate that the inventor intended to include only open bit line structures or architecture within the terms of the patent.

Moreover, claim 1 of the '865 patent requires that each differential sense amplifier have a first input terminal connected to memory cells in the first row group in one column, and a second input terminal connected to memory cells in the second row group in the "same column as that connected to said first terminal." Looking at Figure 4 of the '865 patent, for example, this requires that the left-most sense amplifier (12) be connected to the left-most column of memory cells (10, 10'), which runs from the top to bottom of the page through input terminals (1, 2) connected to the left-most bit lines (16, 16'). Again, the language of the claims and the patent figures suggest that the half bit lines must be connected to half bit lines extending to memory cells in separate row groups in the same column. Such construction is inconsistent with folded bit line architecture. Thus, the "said memory array being divided into first and second row groups" element in claims 1, 6, 7, and 8 is correctly understood as referring to two physically separated rows of word lines and hence includes only open bit line structures or architecture.

A different conclusion in this regard would entail the somewhat surprising result that the scope of the '865 patent would include a feature not yet publicly known at the time of the '865's filing. According to the parties, folded bit line architecture was first disclosed in U.S. Patent No. 4,025,907, filed on July 10, 1975, months after the April 30, 1975, filing date for the '865 patent.
Given this construction, Hyundai's accused devices do not literally infringe the '865 patent as they employ folded bit line architecture. Whether the devices infringe under the doctrine of equivalents is a question of fact that remains open for trial.

2. "dividing said first image frame of pixel intensity data into a regular grid of kernels forming a plurality of rows"

Plaintiffs' construction: dividing the frame of image data acquired during the first scan of the subject into an ordered grid of curved or rectilinear cells arranged in multiple rows

Defendant's construction: dividing the frame of image data acquired during the first scan of the subject into a ordered grid of curved or rectilinear zones arranged in multiple rows and columns, each zone containing multiple pixels of data of varying intensity

At the claim construction hearing, plaintiffs said that they "could live with" defendant's construction, with two modifications. Instead of "multiple rows," the modified construction uses the phrase "one or more rows." In addition, in the modified construction, the adverb "potentially" is inserted before the words "vary intensity." Plaintiffs indicated that defendant agreed that these modifications were appropriate and defendant did not dispute this characterization. Accordingly, I will adopt the modified construction.

Court's construction: dividing the frame of image data acquired during the first scan of the subject into a ordered grid of curved or rectilinear zones arranged in one or more rows and columns, each zone containing multiple pixels of data of potentially varying intensity

"Dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate." Used in claims 1 and 16.

The specification describes a division of the database into "tiers" or groups for transmission at different times depending on the anticipated, and the requested, demand for the information. 505 patent, col. 13, 11. 63 -- col. 14, 11. 51. Root information, which provides an index to the information database, is transmitted most frequently. Depending on their priorities, other groups of the information are transmitted at less frequent intervals.

n3 The court is aware that a patent is presumed to be valid. To that end the court considered whether a disclosure of a microprocessor plus software, without any algorithm other than a repetition of the function might have been sufficient in 1995 when the patent was issued. As an analogy, qualified immunity of officers is based upon the law at the time of their action, not the law at the time of trial. The Court examines patents through the eyes of one of ordinary skill in the art at the time the patent is issued, not based upon later advances of science. But even in 1995 it was clear that patentees should have known that in means-plus-function cases, where the structure linked to the recited function was a computer, the patentee had to disclose not only that there was a computer with software, but also disclose the steps, formula, or equation (the "algorithm") the software performed. See eg. In Re Alappat, 33 F.3d 1526, 1543 (Fed. Cir. 1994), Freeman, 573 F.2d at 1245-47 (1978).
with the deletion of "exclusively" and the substitution of "designated" for "specified."

There is no indication that the word "dividing" had a special meaning to one skilled in the art. Nothing in the claim language, nor in the specification, indicates that the same information could not be part of a "first tier," transmitted, say four times an hour, and also part of a "fifth tier," transmitted perhaps only once every twenty-four hours.

DirecTV argued that the ordinary and common meaning of the word "dividing" implies an exclusive partition. But under an "ordinary and common meaning" approach, if A is the set of all of the information in the system, it could be divided into subsets B, C, and D. Subset B could have some elements in common with C and D, while, at the same time subset C might have no overlap with D. The court concludes that adding the word "exclusively" improperly places a limit on the claim, which is found neither in the claim language nor in the specification.

The parties also differed over whether "designated repetition rate" or "specified repetition rate" should be used to define the claim term "corresponding repetition rate." The claim states that the portions of information in each tier are "transmitted at a corresponding repetition rate." Table 1 at col. 14, 11. 20-33 gives an example of tiers with corresponding rates of transmission. The specification also provides the following: "The particular repetition rates associated with each tier of data and the amount of data allocated to each tier are selectable parameters that will need to be carefully considered in order to maximize the utility of the system for most subscribers." 505 patent, col 14, 11. 37-41.

While "specified" and "designated" mean almost the same thing, they could imply, especially to a lay juror for whom the terms are defined, that there is a required or unchanging repetition rate. "Selectable" as used in the specification, implies some choice, and that change is possible. The disputed term will be defined as follows:

"Dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" means "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate."

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"Dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" means "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate."

1. dividing said tracks into a plurality of concentric annular blocks (claim 1)

Plaintiff's construction: "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk"

Defendants' construction: "segregating the tracks into non-overlapping, ring-shaped regions on an optical disk, in which no track ever belongs to more than one block"
for example, be in zone one at one time and be in zone two at the second time, according to the claim which also requires that the "f" be different between blocks, that you would have two "f"s for the same track and the claim does not allow that. The claim requires that the "f" be changed according to the radius of the track which never changes, and therefore it follows that the "f" never changes and it follows that the block -- the division never changes.

Dkt. # 186, at 91. As claim 1 indicates, "f" is the reproduction speed.

If I understand it correctly, defendants' argument has several premises on which their conclusion relies: (1) the position of each track on a disk is constant; (2) because the position of the tracks is constant, the radius for that track is constant; (3) because the radius is constant, the reproduction speed is constant; (4) because the reproduction speed is constant, the blocks must be permanently fixed. Defendants' logical procession is far from self evident. In particular, the fourth and final premise appears to be a non sequitur. The patent says only that the reproduction speed, or "f" is constant within a particular block. It is silent (and therefore neutral) on the question whether the virtual boundaries must be drawn the same way each time the disk is rewritten. Because the patent does not prohibit the invention in claim 1 from changing the blocks with respect to each recording, I cannot read in the limitation that defendants propose. Although one could argue that no construction of this term is needed, I will adopt plaintiff's construction because it is written in language that a jury might find a bit more accessible than the language of the claim itself.

Court's construction: "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk"

6. Dividing the Digitized Broad Band Information

The term "dividing the digitized broad band information" means grouping, or segmenting, the digitized information into a predetermined cell structure where each cell contains the same pre-selected number of digital words.

5. The term "docking with the host computer" in claim 34 is construed as "plugging or inserting into the host computer without the use of an intermediate bus structure;"

2. "Document": Plaintiff proposes the meaning "a discrete collection of textual and/or graphic information, which may be electronic." Defendant proposes "a hard copy document or a nontextual electronic representation of a hard copy document (e.g. a scanned hard copy document stored on a hard drive.)"
7. "Domain monitor": n7 A network monitor that receives and analyzes data from service monitors.

'n7 '203, '212 and '615 patents, multiple claims.

('203 patent, col. 3, ll. 23-27)

"domain name"

The '135 patent, claims 1 and 10 and the '180 patent, claims 1, 17, and 33 contain the term "domain name." VirnetX contends that "domain name" means "a series of characters that corresponds to an address of a computer or group of computers that is to be sent to a domain name service (DNS)." Microsoft contends that "domain name" means "a hierarchical name for a computer (such as www.utexas.edu) that the Domain Name Service converts into an IP address."
The parties dispute whether "domain name" can correspond to a group of computers or only a single computer, whether "domain name" is a hierarchical name for a computer, whether "domain name" is limited to web site names, and whether "domain name" is limited to a computer name being converted into an IP address.

The claims themselves describe "domain name." Claim 1 states "a Domain Name Service (DNS) request that requests an IP address corresponding to a domain name associated with the target computer." Col. 47:23-26. Also, claim 10 states "a DNS proxy server that receives a request from the client computer to look up an IP address for a domain name." Col. 48:6-7. In both claim 1 and claim 10 an IP address corresponds to a domain name. Thus, the domain name corresponds to an IP address. Accordingly, the Court construes "domain name" as "a name corresponding to an IP address."

VirnetX proposes that "domain name" corresponds to a group of computers (IP addresses) or a single computer because claims 1 and 10 of the '135 patent refer to IP address using the indefinite article "an." The Federal Circuit has stated, An indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.' That "a" or "an" can mean "one or more" is best described as a rule, rather than merely as a presumption or even a convention. The exceptions to [the "indefinite article"] rule are extremely limited: a patentee must "evince [] a clear intent" to limit "a" or "an" to "one."
The subsequent use of definite articles "the" or "said" in a claim to refer back to the same claim term does not change the general plural rule, but simply reinvokes that non-singular meaning. An exception to the general rule that "a" or "an" means more than one only arises where the language of the claims themselves, the specification, or the prosecution history necessitate a departure from the rule.

Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (citations omitted). Claims 1 and 10 of the '135 patent are open-ended construction claims using the word "comprising" and use the indefinite article "an" to refer to "IP address." See Col. 47:20-26; see Col. 48:3-7. By the "one or more" rule, these claims allow for one or more IP addresses. Any subsequent use of the definite article "the" to refer to "IP address" simply refers back to the previously used "IP address" and thus reinvokes the non-singular meaning. See Col. 47:39-40; see Col. 48:8. Microsoft does not assert any evidence to show that an exception to the "one or more" rule exists. Thus, there may be more than one IP address, and thus more than one computer, that corresponds with the domain name. This would allow for a situation where the IP address that corresponds to the domain name is not the IP address of the target computer. See Col. 38:23-42. Accordingly, "domain name" can correspond to more than one computer.

Microsoft contends that the patents limit "domain name" to a hierarchical name for a computer under traditional hierarchical
DNS format. However, Microsoft relies largely on extrinsic evidence—including expert testimony and Microsoft's own technology tutorial—to support its contentions, which does not carry great weight in light of the fact that claim language provides guidance on the meaning of "domain name." Also, where Microsoft uses intrinsic evidence for support, Microsoft only refers to non-limiting language from the specification. For instance, Microsoft suggests that the examples used in the specification for domain names, which include "Yahoo.com" and "Target.com," show that the patents use "domain name" in its traditional hierarchical DNS format. Microsoft further suggests that "domain name" is limited to a traditional hierarchical name because the patents do not provide a single example of "domain name" that is not written in traditional hierarchical DNS format. However, Microsoft argues only the presence and absence of examples rather than any enforceable language of limitation. The specification's disclosure or omission of examples does not create limitations on claims. Accordingly, Microsoft does not offer sufficient support for limiting "domain name" to a hierarchical name for a computer.

Microsoft also contends that the patents limit "domain name" to web site names. However, no such limitation is found in the claims, and Microsoft merely references its arguments on construing "web site" without showing how "domain name" is necessarily linked to web site names. Accordingly, "domain name" is not limited to web site names.

Finally, Microsoft contends that "domain name" is limited to a computer name being converted into an IP address. Microsoft supports this proposed limitation by arguing that a "domain name" has the capacity to be converted by DNS into an IP address and that the specification emphasizes this point by describing that identical DNS requests may result in conventional domain name resolution, "host unknown" error messages, or VPN initiation, depending not on whether something is a "domain name" but on what type of web site was requested. However, Microsoft incorrectly argues that a "capacity" to be converted by DNS into an IP address demonstrates a required limitation. A mere capacity to perform an act does not make that act necessary. Thus, Microsoft has not sufficiently supported limiting "domain name" to a computer name being converted into an IP address. Accordingly, the Court construes "domain name" as "a name corresponding to an IP address."

Akamai describes the domain name portion of a URL as "an expression that identifies the content provider's servers." (Docket # 81 Ex. A, 26.) This is broader than the normal use of the term to describe the address of a particular host or server that can be resolved to establish a network connection with that server. 17 (Cf. Akamai Technologies, Inc. Tutorial -- Corrected Version (Docket # 84), 20 ("The first portion of a URL relates to the computer or a group of computers on which a resource may be located. This is the portion of the URL that is resolved by a domain name service to an IP address."). There is nothing in the specification or claims to indicate that the term is being redefined by the patent to be broader than its

### Term 13 (703 Patent, Claims 5, 15) 16

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

16 The term to be construed appears in claim 15 and claim 1, upon which claim 5 depends.

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… domain name and path …</td>
<td>… a name or other identifier that defines a network connection to the embedded object at a content provider server and is used to retrieve the object in the absence of a content delivery network …</td>
</tr>
</tbody>
</table>

- 1853 -
normal usage. At the Markman hearing, Akamai conceded that the domain name "has to be something recognized by the Domain Name System . . . ." (Hr'g Tr., 187:25 - 188:3, May 17, 2007.)

17 To support its construction of the term "domain name," Akamai cites to the glossary definition of the term "domain" alone at an obscure ISP site. (See Docket # 68, 37 n.13). Not only is "domain" a different term than "domain name," but the popular dictionary definition of "domain name" eschewed by Akamai for its proposed construction is very close to Limelight's proposed construction. See Webster's II New College Dictionary 337 (2001) (defining "domain name" as "[a] series of alphanumerical strings separated by periods, such as www.hmco.com, that is the address of a computer network connection and that identifies the owner of the address.").

The path contains the name and location of the file, e.g., the object, on the server. (Docket # 81 Ex. A, 26.) Together, the domain name and path form the URL which provides a client computer with the information necessary to identify the server and retrieve the object from that server on the network. Both claims describe "modifying" the URL of an embedded object and claim 15 describes the domain name and path as "content provider-supplied." ('703 Patent, Claims 5, 15 (emphasis added.).) Read in light of the specification explaining that "according to the present invention, a virtual server hostname is prepended into the URL for a given embedded object," the terms domain name and path in claims 5 and 15 would be understood by one skilled in the art to refer to the URL used to retrieve the embedded object in the absence of a content delivery network. (Id. col.7 11.24-28 (emphasis added.).)

"Domain Name Service"

The '135 patent, claims 1 and 10 and the '180 patent, claims 1, 17, and 33 contain the term "Domain Name Service" ("DNS"). VirnetX contends that "Domain Name Service" means "a service that receives requests for computer network addresses corresponding to domain names, and which provides responses." Microsoft contends that "Domain Name Service" means "the conventional lookup service defined by the Internet Engineering Task Force ("IETF") that returns the IP address of a requested computer or host." The parties dispute whether "Domain Name Service" is limited by the definition given in the IETF that defines Domain Name Service as the conventional scheme or if it more broadly includes both conventional and modified Domain Name Service that is described in the specification.

The specification's description of DNS is consistent with construing DNS as "a lookup service that returns an IP address for a requested domain name." The specification states

Conventional Domain Name Servers (DNSs) provide a look-up function that returns the IP address of a requested computer or host. For example, when a computer user types in the web name "Yahoo.com," the user's web browser transmits a request to a DNS, which converts the name into a four-part IP address that is returned to the user's browser and then used by the browser to contact the destination web site.

Col. 37:22-29. According to this excerpt, a DNS "provides a look-up function" and "returns the IP address of a requested computer or host." A "computer or host" includes domain names as exemplified by the specification's reference to "Yahoo.com" and "destination web site" as "a requested computer or host." Accordingly, the Court construes "DNS" as "a lookup service that returns an IP address for a requested domain name." 5

5 See below for the Court's construction of "domain name."
### Door Control System

The '628 Patent includes the term "door control system." The parties propose the following meanings for this term:

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>An electronic system for controlling movement of a vehicle door.</td>
<td>A combination of a door, a door motor, a driver, a controller to control the door motor and a communication pathway used together to operate the vehicle door.</td>
</tr>
</tbody>
</table>

Braun claims that its proposed definition is based on the ordinary and customary meaning of the words "door control system." It gives no further justification for its position. VMI submits that a door control system without a door, a door motor, a driver, a controller to control the door, and a communication pathway is not a door control system; all these parts are necessary.

VMI's proposed construction does not comport to the language of claim 1. This claim recites an invention comprising, among other things, a controller coupled to a communication pathway and a door control system. According to claim 1, door control system is separate from the controller and communication pathway. Moreover, since "door control system" controls the operation of the door while the ramp is being operated, door control system is separate from a door; it is a system that affects the door. However, it is consistent with the language of the claims to construe "door control system" to include a door motor and a driver. Hence, the Court finds that "door control system" is an electronic system, that also includes a door motor and a driver, for controlling movement of a vehicle door.

### Door Operation Commands

Independent claims 1 and 11 and their dependent claims use the term "door operation commands." The parties propose the following meanings to this term:

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions in the form of coded data that cause a door function, such as lock, unlock, open, or close, to occur.</td>
<td>Door control system specific signals sent to the controller that controls door functions, such as, open, close, lock/unlock.</td>
</tr>
</tbody>
</table>

The principal disagreement between the parties is over the word "commands." Citing to Webopedia Computer Dictionary, Braun insists that "[a] 'command' is 'an instruction to a computer or device to perform a specific task.' An 'instruction' is defined as 'a code that tells a computer to perform a particular operation.'" From this Braun concludes that "[w]hen these definitions are combined 'door operation commands' means 'instructions in the form of coded data that cause a door function, such as lock, unlock, open, or close, to occur.'" (Braun Claim Constr. Br. at 7.) Moreover, Braun points out that the embodiment in Figure 26 illustrates that "door operation commands" are sent and received in coded data. Finally, Braun
relied on prosecution history to claim that "door operation commands" are instructions in the form of coded data.

VMI argues that "door operation commands" are not limited to coded data and that Braun's definition is too narrow. VMI refers to the specification illustrating Chrysler Town & Country minivan and points out that its Body Builder's Guide Manual shows lock and unlock commands as electric door operations commands, not coded commands. In addition, VMI argues that, since Figure 26 is a later added embodiment, "door operation commands" cannot be limited to just binary signals. Finally, VMI insists that the examiner of the '628 Patent gave no reason to believe that the current invention was distinguished from prior art by the insertion of "door operation commands" to mean coded data.

The Court finds that Braun's proposed definition is too narrow; rather, "door operation commands" are not limited to coded data instructions but include other manners of instruction as generally known to those skilled in the art. Braun relies on that portion of the specification that explains that a "door command" is "a serial data signal in binary form" that controls the operation of door features such as opening and closing. (The '628 Patent cols. 4:57-5:4; 5:11-15.) However, the very next sentence of the specification states that "[i]t is contemplated that receiver can communicate with control module in other manners as generally known by those skilled in the art." (Id. at col. 5:14-16.) This sentence refers specifically to the transmission of door commands from the receiver to the control module, which the previous sentence described as communicating in binary form. Thus, by inserting it immediately after the description of the coded signals, the inventors sought to avoid the narrow interpretation that door commands are only coded data signals.

Similarly, while Figure 26 refers to a bidirectional serial bus on which the commands would be coded, this embodiment does not exclude other forms of commands, and the independent claims are not limited to a serial bus.

Braun's reliance on Webopedia Computer Dictionary is not convincing. Braun derives the definition from an "online encyclopedia dedicated to computer technology," (see Ex. 3 at 1.), thus presuming that the word "command" is an exclusively computer related word. Moreover, Webopedia's definition of the word contemplates computer and internet technology applications not car or wheelchair access mechanism parts, albeit containing computer parts.

Finally, Braun's reference to the prosecution history does not establish that the examiner narrowly interpreted "door operation commands" as coded data. Braun argues that claims 1-10 were immediately allowed as they included the claim limitation "door operation commands," but claims 11-16 were initially rejected as not including the term and that after adding "door operation commands" they were allowed. Yet, claim 1 also included the term "selectively delay execution" of the door operation commands, which claim 11-16 did not include. Braun added the term "selectively delay execution" of the door operation commands to all of the rejected claims and a Notice of Allowance followed. Therefore, there is no absolute basis to hold that the examiner allowed the claims because he narrowly read door operation commands to include only coded data operation commands. The prosecution history is not convincing enough to override the language of the claims that is broader in scope than Braun's proposed interpretation. Therefore, the Court adopts VMI's proposed construction:

"door operation commands" are door control system specific signals sent to the controller that controls door functions, such as, open, close, lock and unlock.

3. "having said third dopant concentration"

Claim 1 of the '046 Patent claims, in pertinent part:

a second region formed in said semiconductor material, said second region being of said first conductivity type and having a third dopant concentration greater than said second dopant concentration to form a drain region . . .

a fourth region formed in said semiconductor material, said fourth region being of said first conductivity type and having said third dopant concentration to form a source region.

(See '046 Patent at 7:34-54.) MPS contends that "having said third dopant concentration" should be construed to mean "intending to have the same dopant concentration as the second region and implanted at the same time as the second region." Micrel initially argued that "having said third dopant concentration" should be construed to mean "having
substantially the same dopant concentration as the second region." However, at the hearing Micrel informed the Court that it agreed with the portion of MPS's proposed construction defining the disputed term as "intending to have the same dopant concentration as the second region." Thus, the only issue for the Court is whether the disputed term should also be construed to as "implanted at the same time as the second region."

In support of its proposed construction, MPS points to a reference in the specification regarding one preferred embodiment stating "[a] second phosphorus or implantation process is then used to form the N+ source 32 and N+ drain region 34." The specification merely provides that the source and drain regions may be formed by using the same doping or implantation process, but cannot be read to require or limit the '046 Patent to this method. MPS also relies on the figures in the '046 Patent showing the source and drain regions (the second and fourth regions) at the same depth. However, Micrel explained at the hearing that there are methods to ensure that the source and the drain regions form at the same depth other than by doping those regions at the same time. For example, the depth of the source and the drain could be controlled by the energy level at which these regions are created. Therefore, the Court concludes that the intrinsic evidence does not support MPS's proposed construction to require that the source and drain regions (the second and forth regions) be formed at the same time, and thus limits the construction of the disputed term to "intending to have the same dopant concentration as the second region."

D. "first doped region" and "second doped region"

The parties agree that the claimed memory device must have a drain region and a source region. Defendant argues that the "first doped region" must be the drain and the "second doped region" the source of the device. Plaintiff argues that each term can refer to either the drain or the source.

The specification supports defendant's construction. The claim states that a portion of the third doped region must "extend[] from" the first doped region. "Extension from" describes physical contact. Figure 5 of the specification, an alternative embodiment, shows the third doped region (labeled as region 33) touching only the drain (region 18), not the source (region 16). If the claim were construed to allow the first doped region to be the source, then the specification would depict a device in which no portion of the third doped region "extended from" the first doped region, a device not covered by the claim language.

The same analysis holds true for the preferred embodiment, depicted in Figure 1 of the specification. Although that diagram shows portions of the third doped region touching both the source (region 16) and the drain (region 18), region 33b, the portion of the third doped region depicted as touching the source region, is described as optional, whereas region 33a, the region depicted as contacting the drain, is required. '776 patent, 10:6-9. If the optional portion is absent, and the claim were construed to allow the first doped region to be the source, then this preferred embodiment would also not be covered by the claim language because no portion of the third doped region would extend from the first doped region. It is "rarely, if ever, correct and would require highly persuasive evidentiary support" to construe a claim such that the preferred embodiment in the specification falls outside the scope of the patent. Vitronics, 90 F.3d at 1583. Here, plaintiff's construction could exclude both the preferred and the alternative embodiments.

Plaintiff's argument in response is based on an amendment to the claim. The claim originally required "spaced apart doped source and drain regions . . . [and] a third doped region . . . electrically connected to said drain region." Hudson Decl. Ex. C at 27. During the proceedings before the patent office, the applicants amended the claim to read "spaced apart first and
second doped regions . . . [and] a third doped region . . . extending from said first doped region." '776 patent, 12:51-65. The Court is not certain whether this amendment was made to broaden the claim or for some other purpose, such as to avoid confusion with the use of the term "source" to describe the third doped region as a source of charge carriers for the floating gate. The Court therefore finds that there is not the kind of "highly persuasive evidentiary support" required by Vitronics, and holds that the "first doped region" must be the drain, and the "second doped region," by extension, the source.

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H. "third doped region"

The '776 patent requires "a third doped region . . . a portion of said third region extending from said first doped region into said substrate area between said first and second doped regions to define the length of said channel, another portion of said third doped region extending appreciably under the edges of said field stop regions." '776 patent, 12:60-13:1. Defendant argues that this requires a single contiguous third doped region (called the "tunnel implant region"); plaintiff argues that the region may be "segmented."

Plaintiff is correct. The patent specification states that the tunnel implant region "may consist of two segments," which are depicted in Figure 1 as being non-contiguous. '776 patent, 10:4. The patent should only be construed to forbid such an embodiment on the basis of "highly persuasive" evidence. Vitronics, 90 F.3d at 1583. Defendant's arguments do not rise to that level. The use of the term "region" in the singular in the claim does not indicate that the region must be contiguous, given the contrary use of the term in the specification. Nor does the Court accept defendant's argument that the claim language requires the second doped region to define only one end of the channel. Even if the third doped region defines both ends of the channel, as depicted in Figure 1, the portion of the third doped region extending from the first doped region can still be described as extending into the area between the first and the second doped regions. The Court holds that the "third doped region" need not be contiguous, but can be as depicted in Figure 1.

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2. "doping . . . with . . . atomic hydrogen"

This term is part of the phrase "selectively doping the semiconductor substrate with an effective amount of dopant to induce acceptable conductivity, together with an effective amount of atomic hydrogen to act as a compensator and block unacceptably high occurrences of other compensators" which appears in claim 10 of the '499 patent. The Court construed this term to mean "incorporating atomic hydrogen not produced by disintegration of ambient gases."

As plaintiff points out (Pl. Mem. at 13, n.8), this construction was contrary to the Court's first, intuitive reaction to the term, expressed at the Markman hearing "I think, read literally, as long as you dope the semiconductor with atomic hydrogen together with a suitable dopant, or effective amount of dopant to induce acceptable conductivity, it doesn't make any difference whether that atomic hydrogen started out as molecular hydrogen or started out as an element of ammonia." (Tr. 128:10-15.). The Court was persuaded to change this initial, literal construction of the term on the primary basis of an argument made by plaintiff during prosecution of the application for the '499 patent. The Examiner rejected application claim 20 (patent claim 10) as unpatentable over a prior publication of Fan, et al., stating, "Since in the Fan process the crystal is grown in a hydrogen ambient it is believed that hydrogen is inherently incorporated into the ZnSe layer." (Cree Op. Br., Ex. B at 5.) Plaintiff did not challenge the Examiner's statement about the inherent creation and incorporation of hydrogen in Fan's process, but instead responded by arguing, "Fan describes the use of molecular hydrogen (H gas). Claim 20 specifically describes the use of atomic hydrogen." (Id., Ex. F at 2.) The Court concluded that this response implied a construction of the claim term to exclude processes of the type disclosed in Fan, in which an ambient hydrogen-containing gas could inherently disintegrate under the conditions present in the reaction vessel, creating atomic hydrogen, which could dope the semiconductor crystal being grown therein.

This implication was reinforced by the fact that the specification of the '499 patent did not mention the possibility of obtaining atomic hydrogen from the disintegration of ambient hydrogen-containing gases, but instead disclosed (at 3:62 to
4:9) two more cumbersome (and presumably more expensive) processes for generating atomic hydrogen. Thus the Court ruled that plaintiff had effectively disclaimed the use of atomic hydrogen derived from the disintegration of ambient hydrogen-containing gases.

Now, after reconsideration, the Court believes that its initial, literal construction of this claim term (Tr.128:10-15) was correct and that the construction set forth in the Opinion and Order of May 3, 2007 should be withdrawn. A careful analysis of the controlling decisions relating to prosecution history estoppel convinces this Court that plaintiff's response to the rejection based on the Fan, et al., publication did not constitute such a clear, unambiguous and deliberate disavowal of claim coverage as to require modification of the plain meaning of the claim term by the addition of exclusionary language.

In Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1323-26 (Fed. Cir. 2003), the Court thoroughly reviewed the relevant decisions of the Supreme Court and the Federal Circuit and summarized the applicable law as follows:

We indulge a "heavy presumption" that claim terms carry their full ordinary and customary meaning, CCS Fitness [v. Brunswick Corp.], 288 F.3d [1359] at 1366 [(Fed. Cir. 2002)], . . . unless the patentee unequivocally imparted a novel meaning to those terms or expressly relinquished claim scope during prosecution, see Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325-26 (Fed. Cir. 2002). . . . To balance the importance of public notice . . ., we have thus consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope. E.g., Schwing GmbH v. Putzmeister AG, 305 F.3d 1318, 1324-25 (Fed. Cir. 2002). . . . Rather we have required the alleged disavowing statements to be both so clear as to show reasonable clarity and deliberateness . . . Consequently, for prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable.

(Footnote omitted.) In Northern Telecom Ltd. v. Samsung Electronics, Co., 215 F.3d 1281, 1294-95 (Fed. Cir. 2000), the Court stated:

In sum, we find that the prosecution history fails to prove Samsung's assertion that "plasma etching" in claim 1 of the '967 patent requires the exclusion of ion bombardment. That is, under these circumstances, we cannot conclude that Samsung has demonstrated that the patentees-with reasonable clarity and deliberateness, see In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994)-defined "plasma etching" as excluding ion bombardment. See Johnson Worldwide [v. Zebeo Corp.], 175 F.3d [985] at 989 [(Fed. Cir. 1999)] (noting the "heavy presumption in favor of the ordinary meaning of claim language").

In the present case, in response to the Examiner's rejection of the claim as unpatentable over the Fan reference, plaintiff merely stated that "Fan describes the use of molecular hydrogen (H gas). Claim 20 specifically describes the use of atomic hydrogen." (Cree Op. Br. Ex. F at 2.) The essential message of these two sentences is that Fan does not describe the use of atomic hydrogen, which is undeniable true. Even if molecular hydrogen, under the conditions in Fan's reaction chamber, inherently breaks down to create atomic hydrogen, this was not "described" by Fan. Nor is there the slightest indication that Fan was aware that this would happen or that it could result in doping of the semiconductor or that such doping would serve any useful purpose. Thus Fan also does not describe the "use" of atomic hydrogen. This reading of plaintiff's response is eminently reasonable.

This response was surely not a "clear and unambiguous" disavowal of coverage of processes in which the atomic hydrogen is derived from the breakdown of hydrogen-containing gases. And it surely was not a "deliberate" disavowal of such coverage, because this would render claim 10 and all the claims dependent on it a practical nullity. As plaintiff points out (Pl. Mem. at 13), atomic hydrogen cannot be not found in nature (at least on this earth) and can only be obtained from the disintegration of hydrogen-containing compounds. Even the two exemplary methods of generating atomic hydrogen mentioned in the specification of the '499 patent necessarily involve the disintegration of hydrogen-containing compounds (unless some modern alchemist has discovered a way to transmute atoms of other elements into hydrogen atoms). Clearly plaintiff did not deliberately disclaim the use of atomic hydrogen produced in the simplest and cheapest way-the disintegration of ambient hydrogen-containing gases. She obviously realized that, if the claims of her patent excluded coverage of that convenient source of atomic hydrogen, commercial producers of LEDs using the methods taught by her patent would not likely rely on any other source. She was certainly not trying to persuade the Examiner to allow claims she knew would be worthless.

Without a clear, unambiguous and deliberate disavowal of the excluded coverage, the prosecution history furnishes no
justification for disregarding the plain and ordinary meaning of the words of the claim. The Court's previous failure to give due consideration to the controlling precedents discussed above furnishes ample—indeed compelling—basis for granting in part plaintiff's motion for reconsideration.

The Court therefore withdraws its previous construction of the term "doping . . . with . . . atomic hydrogen" and now construes it to mean:

doping with atomic hydrogen (from any source).

b. "a double layered metal gate"

LGD contends that the term "a double layered metal gate" means "a patterned structure of an electrically conductive material that includes two sequentially deposited metal layers and includes a portion that controls current flow through the channel between the source electrode and drain electrode." D.I. 376 at Exh. G-4. According to LGD, the use of the term "includes" in the claim language and in its proposed construction is open-ended and permits the inclusion of additional features, such as additional layers, which LGD contends the specification does not exclude.

AUO contends that this term means "a gate electrode having a two-layered step structure." D.I. 378 at 44; D.I. 376 at Exh. G-4. According to AUO, its construction is consistent with the specification because it captures the key features the inventors sought to claim with respect to the gate structure: (1) that it is composed of two layers, and (2) at the edges, the layers have a stepped structure with each other and with the substrate upon which they rest. AUO contends that the patentee's choice of the term "double-layered" denotes only two layers in a step structure.

CMO contends that this term means "a gate that has only two metal layers." Like AUO, CMO contends that the claim does not recite a structure with a triple layer or with a plurality of layers. CMO further contends that the patentee distinguished the claimed two layer gate from a three layered gate in the prior art, and therefore, a three-layered or multi-layered gate is not within the scope of the claims.

Reviewing the claim language in light of the specification, the Court concludes that "a double layered metal gate" means "a patterned structure of an electrically conductive material that includes two sequentially deposited metal layers and includes a portion that controls current flow through the channel between the source electrode and drain electrode." In reaching this conclusion, the Court does not read the patent as precluding the possibility that additional layers could be added to the double layered gate. CMO cites to the patentee's statement in an office action distinguishing prior art to suggest that the patentee disavowed a double gate structure with additional layers, but the Court does not read the patentee's remarks in that manner. Rather, the patentee distinguished Miyago on other grounds and in so doing, recognized that Miyago starts with a double-layered gate:

Miyago does use an aluminum layer in a double-layered gate and does recognize a hillock problem which occurs along a top surface of a bottom aluminum layer located between the aluminum layer and a top layer. Miyago provides an entirely different solution by providing a clad structure for causing the top-surface hillock problem to be reduced. More specifically, Miyago teaches that in order to solve the top-surface hillock problem, a first tantalum layer is put on the Al-Mo double layer structure then a TaOx layer is put on the Ta layer.

JX F1 (Response dated November 17, 1998 at 3). Accordingly, the Court cannot find a clear disavowal of the possibility that additional layers can be added to the double gate structure. In addition, the Court does not find support in the specification or claim language for adding the "step structure" limitation proposed by AUO.

10. "down converter" ('190 and '021 patents)
SynQor's Proposed Construction
"a switching regulator where
the output voltage is lower
than the input voltage"

Defendants' Proposed Construction
"a converter where the output
voltage is lower than the input
voltage"

The parties have very similar constructions, but disagree as to whether the down converter is a "converter" or a "switching regulator." Both parties agree that it is an item "where the output voltage is lower than the input voltage." SynQor argues that the specification defines the down converter at issue as a non-isolated switching regulator as illustrated in Figure 2. See '190 patent, 4:51-53. SynQor argues that the "regulation stage" is a non-isolated switching regulator that steps-down the input voltage to a lower output voltage. Id. at Fig. 2. Defendants argue that because the claimed phrase specifies a "down converter," that the construction should use the term converter, not a different switching regulator.

The Court finds that the specification never equates a "converter" to a "switching regulator." In addition, the dependent claims of the patents-in-suit show that there is a difference between "switching regulators" and "down converters." For example, dependent claim 2 of the '190 patent requires that the regulation stages of claim 1 be switching regulators, whereas claim 3 requires that the regulation stages of dependent claim 2 (i.e., switching regulators) be down converters. Further, while claim 2 of the '190 patent states that the regulations stages are "switching regulators," other claims also using the term "down converter," such as claims 21 of the '190 and '021 patents, do not have the "switching regulator" limitation. Thus, requiring a "down converter" to be a "switching regulator" is not only without support in the specification but is inconsistent with the claims. Thus, the Court construes the term "down converter" to mean "a converter where the output voltage is lower than the input voltage."

GO BACK

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A

Network Commerce objects to the district court's construction of the term "download component "and appears to support the construction it argued to the district court: "any part of a computer system - including a program, an application, or a data or text file - that安排s for, or works together with one or more other parts of the system to arrange for, the transfer or delivery of the requested electronic data from one computer or server to another." Network I, 260 F. Supp. 2d at 1039. Under this construction, Network Commerce argues that both the metafiles and the Windows Media Player satisfy the claim limitation because each "works together with one or more other parts of the system to arrange for, the transfer or delivery of the requested electronic data from one computer or server to another." We reject this proposed construction, and agree substantially with the district court's construction of the term. n4

n4 Network Commerce also argues that the district court changed its construction of "download component" on summary judgment by requiring that the download component coordinate or control the download of information on its own. We reject this argument. The district court simply clarified its previous construction in the summary judgment order, wherein it had already rejected the contention "that the 'download component' could possibly be a completely inactive data file or that the active functions referred to in the claims could be carried out by some other component." Network Commerce, Inc. v. Microsoft Corp., 260 F. Supp. 2d 1034, 1040 (W.D. Wash. 2002).

We start with the language of the claims. The '124 patent has four independent claims, all with similar requirements. Each independent claim of the '124 patent (that is, claims 1, 7, 11, and 14) uses the term "download component." First, each independent claim states that the download component is either sent to or received by a computer in response to a request for electronic data. n5 Second, the download component must coordinate the download of electronic data. n6 Finally, the download component must request electronic data from (or control the download of electronic data from) a computer other than the computer from which the download component was sent or received. n7 Thus, the claims define how the download component is obtained and in general terms what the download component does.

- 1861 -
 customer's computer "extracts [from the download file] the executable boot program and component list." See id. at col. 9, merchant "downloads and installs the download file" on the customer's computer. This file when downloaded into the
specification explains that the download file resides in the computer of an online merchant or is accessible to that computer.
not use the term "download component," presumably because this claim terminology was added during prosecution after the
specification had been prepared. The specification does describe a "download file." n8 It appears from the function and
description of the "download file" that this item corresponds most closely to the download component of the claims. The
parties seem to agree that Windows Media Player and metafiles taken together would constitute a "download component" if downloaded
together from a store computer. They differ, however, as to whether metafiles or Windows Media Player standing alone
constitutes a "download component." The claims also assume that the "download component" is a component of a larger software system, that is, the download component does not alone direct the computer hardware to perform the designated tasks. The difficulty is that the claim
language is not clear as to what other programs are to be used with the "download component." At oral argument (though
unfortunately not in the briefs) the parties agreed that the download component at least operates in conjunction with the
computer's basic operating system, and that the operating system is not part of the download component. The parties also
agree that Windows Media Player and metafiles taken together would constitute a "download component" if downloaded
together from a store computer. They differ, however, as to whether metafiles or Windows Media Player standing alone
constitutes a "download component." We construe a claim term as having its "ordinary and customary meaning," that is, "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips, 415 F.3d at 1313. In some cases, it is possible to construe a claim term by applying "the widely accepted meaning of commonly understood words." Id. at 1314. "Download component" is not a claim term amenable to construction in this manner because it has no commonly
understood meaning reflected in general dictionaries or similar sources. We may also rely on a term's "particular meaning in a field of art" when construing claims. Id. As the parties seem to agree, the term "download component" does not have a specialized meaning in the relevant art. Microsoft urges that "download component" does not have a particular meaning in the computer art; and that the term does not appear in computer dictionaries and treatises. Network Commerce also agrees that a definition of the term "download component" as a whole does not exist, but invites the court to combine individual
dictionary definitions of "download" and "component." Under that construction, any part of a system involved in the transfer of data from one computer to another would be a download component. This is not a tenable theory in light of the specification.

B

In general "the specification necessarily informs the proper construction of the claims" and it is "appropriate for a court . . . to rely heavily on the written description for guidance as to the meaning of claims." Id. at 1317. Here, the specification does not use the term "download component," presumably because this claim terminology was added during prosecution after the specification had been prepared. The specification does describe a "download file." n8 It appears from the function and
description of the "download file" that this item corresponds most closely to the download component of the claims. The
specification explains that the download file resides in the computer of an online merchant or is accessible to that computer. See '124 patent at col. 9, ll. 34-37 & Fig. 3. When the merchant receives an online request for electronic content, the online merchant "downloads and installs the download file" on the customer's computer. This file when downloaded into the customer's computer "extracts [from the download file] the executable boot program and component list." See id. at col. 9,
ll. 37-39. n9 The specification defines the capability of the boot program to include the ability to read "the component list to determine what [electronic content] . . . to download . . . from the appropriate contents supplier server," and the ability to request the appropriate content from the supplier server. Id. at col. 9, ll. 41-45. Thus, while the download file may contain different things, the specification indicates that it must contain at least the boot program.

The specification describes no programs mediating between the boot program and the operating system. Moreover, figure 8 identifies the boot program as a file called "SAFEBoot.exe." An "exe file" is a file in "binary code" and "a Windows exe file (e.g., the Windows Media Player application) is an executable file because it is a sequence of bits arranged in such a way that it can be executed by . . . the computer's operating system." (J.A. at 1494-95.)

In summary, the specification makes clear that the download component must include a boot program, and that the boot program interacts directly with the operating system of the computer without the assistance of any other program. Accordingly, we construe "download component" to mean a file or program either sent to or received by a computer in response to a request for electronic data that 1) requests (or controls the download of) electronic data from a computer other than the computer from which the program was sent or received; 2) coordinates the download of electronic data; and 3) interacts directly with the operating system of the computer without another program mediating between it and the operating system. This construction of the term "download component" is similar to the definition of "application" adopted in Eolas Technologies, Inc. v. Microsoft Corp., 399 F.3d 1325 (Fed. Cir. 2005). There we approved the district court's construction of "application" to mean "a computer program, that is not the operating system or a utility, that is designed to allow an end-user to perform some specific task." Id. at 1336. In addition, we see nothing in the prosecution history that remotely suggests that our interpretation of "download component" is incorrect.

Network Commerce relies on the declaration of its expert, Theodore Coombs, for the proposition that the "download component" need not contain the boot program. In his declaration, Coombs quotes various passages from the specification, and concludes: "I understand [these passages] to mean that there are possible embodiments of this invention that use a 'download component' that does not contain a boot program or executable code." (J.A. at 1035.) Coombs' declaration provides scant support for Network Commerce's position. As we recently reaffirmed in Phillips, "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court." Phillips, 415 F.3d at 1318. Here Coombs does not support his conclusion with any references to industry publications or other independent sources. Moreover, expert testimony at odds with the intrinsic evidence must be disregarded. Id. ("[A] court should discount any expert testimony that is clearly at odds with the claim construction mandated by . . . the written record of the patent.") (internal quotations and citation omitted). That is the case here. n10

Network Commerce also argues that there is an embodiment of the invention disclosed in the specification wherein the boot program already resides on the customer's computer when the download component is received by the customer computer, and that the term "download component" should therefore not be construed to include the boot program. In support of this argument, it points to language in the specification stating that "a minimum number of components are
downloaded" and that "embodiments of the invention also support the secure execution of requested merchandise and minimize the number of components needed to securely download, license, and execute the requested merchandise." '124 patent, col. 4, ll. 64-65 & col. 8, ll. 17-20. However, the specification makes clear that the boot program must be downloaded from the merchant computer in response to a request for electronic content at least once. Download of the boot program is discussed repeatedly, and no other method of obtaining the boot program is disclosed.

Downloadable code storage

Lantronix contends "downloadable code storage" should be construed as "a device on which instructions/software are kept and can be retrieved/accessed and into which the instructions/software can be transferred to a remote source." Digi contends the term should be construed as "a component or set of components on which instructions or software are kept and from which the instructions or software can be retrieved or accessed from a remote source." Lantronix says it would adopt Digi's construction except that Digi's construction does not account for the code storage being "downloadable." Digi criticizes Lantronix's construction because "into which the instructions/software can be transferred from a remote source" is not mentioned in any cited intrinsic evidence.

During the hearing the parties agreed this term should be construed as "a component or set of components on which instructions or software are kept, from which the instructions or software can be retrieved or accessed, and into which the instructions or software can be transferred." The Court agrees that this compromise construction appropriately reflects the term's meaning.

13. "Downloader": "A computer that retrieves web pages and embedded objects from the internet." This construction is consistent with claim 16 and the specification: col. 2, ll. 45-55. Although in preferred embodiments downloaders may store web pages and embedded objects for later use, storage is not required by the claim language. Storage may occur in an "image server database" instead.

1. Downloading

The term "downloading" is found throughout the '189 patent, which, at its core, concerns a method and apparatus for transferring data structured in particular ways from one computer, generally a server, to another, generally a personal computer with limited storage capacity. Skyline fails to provide a specific proposed definition of "downloading" in either of its claim construction briefs, but Google characterizes Skyline's proposed construction as "transferring from a remote server to a local computer." Since this definition seems to comport with Skyline's understanding of the "plain and ordinary meaning" of the term discussed in its Reply brief and because the parties appear to have engaged in negotiations over disputed terms, I will accept this definition as an accurate reflection of Skyline's position. Google argues for a more specific and narrow definition, namely "requesting over a network and receiving in local memory from a separate computer." n4

n4 At the November 1, 2006 Claim Construction Hearing, Google indicated a willingness to drop "local memory" in favor of simply requiring a download to the local computer. See Nov. 1, 2006 Transcript, p. 7:8-23; Defendants' Claim Construction Hearing Slides, p. 10 ("Requesting over a network and receiving by the user's computer from a separate computer' is an acceptable and accurate construction.").
Google's proposed definition would add several limitations. First, it would make clear that nothing is "downloaded" until it has actually been received by the requesting computer. This limitation comports with the ordinary meaning of the term as it would have been understood by one skilled in the art, and it corresponds to the way the term is used at various points in the '189 patent. n5 Use of the term "transferring" would, by contrast, be ambiguous as to whether the files transferred must necessarily be received by the target computer to be considered "downloaded." Because I find that the data must be received for the download to be complete, I adopt a construction of this element of the term that makes both "requesting" and "receiving" critical steps in the download process.

Google originally sought a limitation that the requested data blocks be received in "local memory" to be considered downloaded. As a matter of construction, this initially appeared to present a close question. Such a specific limitation is not necessarily imposed by the phrase "downloading," when used in a general context. One skilled in the art seems likely to have understood "downloading" as a phrase that required additional information, namely where the downloaded material would be sent (downloaded to a hard drive, etc.). The end point would in many cases be the local memory of a machine (RAM, cache memory, virtual memory, or other local memory options), but it could also be a disk drive, hard drive, or other storage device.

As used in the '189 patent, however, it is clear from the claims and specifications that "downloading" necessarily means that the data blocks arrive in the "local memory." The clearest indication that this is the case is in Claim 12 (and repeated verbatim in Claims 13, 14, 15, 16, and 18), which describes the apparatus covered by the patent. The claimed apparatus has three parts: a local memory, a communication link, and a processor. The communication link is described as something "through which the memory receives the data blocks from a remote server" (col. 18, 11. 19-20) (emphasis supplied). The only reasonable construction of this phrase is that "the memory" refers to the "local memory" that is part of the apparatus described immediately above. The apparatus as described contains no other memory, so there is no non-local memory for the communication link to access. Consequently, the communication link must download into the local memory.

This reading is supported by Claim 7, discussed in more detail below, which describes "downloading . . . excess blocks . . . to fill up the local memory." (col. 17, 11. 58-60) No claim makes reference to downloading excess blocks for any other purpose, and Fig. 8 clearly indicates that excess blocks are discarded when the local cache memory is full, not moved to more permanent storage locations. n6 Although "downloading" could theoretically mean something other than "downloading to the local memory," the fact remains that any time the term is qualified in the '189 patent, it specifies or strongly implies the use of local memory. Regardless, since both parties have agreed that "local memory" is not a necessary component of the claim construction, I will omit this term.

Google argues that Fig. 8 supports this position but I disagree. As noted in the patent, Fig. 8 "is a flow chart illustrating the actions of cache manager. . . ." The cache manager is described in the specification as something that preferably "manages a group of blocks and/or sub-blocks in a cache memory." (col. 11, 11. 39-40) Cache memory is "used [in the '189 patent] generally to refer to any relatively small memory which can be accessed rapidly by the processor and is used to save data which is most likely to be used by the processor." (col. 11, 11. 59-61) Based on this definition, cache memory is quintessentially local memory, because the entire purpose of local memory is to store often-used data for rapid access.

The description of Fig. 8 indicates that the cache manager starts by "downloading the first batch of level 1 blocks" and then moves into a wait state. Skyline reads this statement to imply that the initial download is received into something other than...
"local memory." However, this proposition fails to take into account the character of the cache manager. As Fig. 5 makes clear, the cache manager is part of the processor on the local machine, so any memory to which it has rapid access is fundamentally "local memory" as well, particularly as the term was initially construed. Skyline Software Sys. v. Keyhole, Inc., 421 F.Supp.2d 371, 389 (D. Mass. 2006) ("Memory easily accessible to the user's processor . . . and distinct from the memory of the remote server from which data must be downloaded."). Skyline does not specify where it thinks the block in Fig. 8 is downloaded when it first enters the cache manager, but it seems clear that, wherever the downloaded block is initially held, it must be within the realm of local memory as previously construed. The apparatus descriptions in Claims 12, 13, 14, 15, 16, and 18 further reinforce the notion that the processor and cache manager are closely linked, by assigning tasks to the processor (providing data blocks to the renderer, etc.) that the cache manager is described as performing in various preferred embodiments.

--- End Footnotes ---

Construction: (downloading) Requesting over a network from a separate computer and receiving on a local computer

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3. Downloading . . . if the provided block from the local memory is not at the indicated resolution level [if the first block is not from the indicated level]

Google argues that the conditional nature of these phrases requires the requesting computer make a determination as to whether the condition has been satisfied before taking any action, and proposes a construction of "downloading . . . upon a determination of whether the first data block is not of the indicated resolution level." Skyline proposes "downloading . . . when the first data block is not of the indicated resolution level."

Basic logic, as manifested in computer programming, makes clear that Google's argument must be correct. Although Skyline argues that the proposition "[w]hen an action is conditional, a computer program must make a determination as to whether the specified condition is met in order to take appropriate action" is not true, its rationale for this argument is unconvincing. Skyline attempts to read into "make a determination" a requirement that the computer test directly whether the conditional is satisfied. No such limitation is implied. The necessary determination may be made indirectly, by testing for a related condition, for example, or by forcing the conditional always to be satisfied, but these indirect tests do not eliminate the need to make some determination as to whether the conditional is satisfied before actions predicated on it are taken. n10 Computers are logic-based machines -- they do not just "know" when a condition X is true without testing for X in some manner. Therefore, I find that some determination, although not necessarily a direct test, is necessary before conditional actions are undertaken.

--- Footnotes ---

n10 Skyline acknowledged at the November 1, 2006 Claim Construction Hearing that some determination was necessary, but disagreed with the functional approach Google described. See Nov. 1, 2006 Transcript, pp. 19:1-20:7.

--- End Footnotes ---
E. "Downloading Into A Memory Storage Device."

Finisar contends that this term should mean "transferring data into a memory storage device." In contrast, Comcast argues that the term should mean "transferring the data packets into a device whose purpose is to save them indefinitely until the subscriber retrieves them." "Storage" is a commonly understood word even in the context of computers. Information comes to rest at a certain place for some amount of time so that it can be accessed later. "Downloading" is similarly understood as a transfer of data from one system or location to another.

--- Footnotes ---

5 The Texas Court first addressed this term in claim construction, where it held that "downloading into a memory storage device" meant "the data filter transfers into a memory storage device the data packets specified in the filter data." Later, on a motion for clarification of the construction of the phrase, the Court held the term as used in claim 16, asserted herein, to mean "transferring into a memory storage device the data packets specified in the filter data" (Melgar Decl. Exh. D at 4).

--- End Footnotes ---

This term appears as a limitation in several of the independent claims, including claim 16. In part, it recited (col. 21:34-68):

16. An information transmission system comprising the steps of:

* * *

- receiving said transmitted stream of data packets at subscriber stations;

- at each subscriber stations, storing filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets; and

- at each subscriber station, downloading into a memory storage device those of said received data packets which match said specified set of requested data packets.

Finisar contends that any construction of this term should be broad enough to encompass temporary storage in a buffer. Comcast would require the data packets to be stored so as to be retrievable later.

Claim 26, which depended from claim 16, helps to illuminate what was meant by this term. It recited (col. 23:15-27):

26. The information transmission of claim 16, said receiving and downloading steps including:

- at each subscriber stations, temporarily storing received data packets in a buffer, storing a filter list comprising said filter data referencing said specified set of requested data packets, comparing said data packets temporarily stored in said buffer with said filter data and then forwarding those data packets in said buffer which match said filter data to a predefined destination;

- whereby each subscriber station receives all transmitted data packets but forwards only requested data packets to said predefined destination.

Claim 26 added the limitation of storing the data packets temporarily in a buffer before forwarding them to a predefined destination. While temporarily stored in the buffer, the incoming data packets are matched up to a filter list that specifies the requested data packets and sends them on to a predefined destination. Claim 26 depended from Claim 16. Therefore, all of the limitations of claim 16 were part of claim 26, and the claim 26 limitations simply narrowed further the scope of the claim 26 invention. The further limitations in claim 26 narrowed the "receiving" and "downloading" steps. The first claim 26 limitation narrowed the "receiving" step of claim 16 to call out expressly the temporary storage of the received data packets in a buffer and comparing the packets stored in the buffer against the filter list and then forwarding the packets that match to "a predefined location." The "downloading" step was narrowed to transmission of requested data packets to the predefined destination.
This order holds that the term "predefined destination" must be a "memory storage device." This follows as a matter of law due to the dependence of claim 26 from claim 16. Significantly, the use of the buffer in claim 26 was not as a memory storage device. Rather, it was a refinement on the filtering step.

Claim 16 called out two distinct steps (at the subscriber station). One was the filtering step. The other was the downloading step -- very specifically "downloading into a memory storage device." The specification consistently separated the two steps. It consistently referred to the second step as storage in "the memory of the subscriber's workstation," or another "computer," "host computer," or "tape recorder" (col 5:30-35; col 8:31-46; col 11:34-57; col 16:53-64). Anyone skilled in the art would understand that the filtering step utilizes the buffer and the downloading step utilizes a different and separate memory storage device capable of retaining the received data packets until they are desired for further use by the subscriber's system.

Finisar argues that a "memory storage device" should not be limited to any particular device. In support, it points out that the specification taught that the data could be downloaded to RAM, or random-access memory, on a subscriber's computer (col. 5:31-35, Fig 2). RAM is volatile memory that can be overwritten, however, RAM can still be accessed again after the information has been downloaded. Storage need not be permanent, but being able to view content at a time after it has been downloaded is a key feature of this invention (col. 1:53-66; 6:15-26; 17:1-10).

Comcast argues that a "view-it-or-lose-it" system, such as streaming data or video, is not a storage device. The problem is that the Court does not yet know how the accused system works. Possibly the streaming utilizes some form of downloading to a memory storage device, even if the information is retained only briefly. The Court is unwilling on this record to speculate. All that can be said with assurance at this point is that the buffer used in the filter step will not do double duty as the storage memory device for the downloading step. Whether or not some other buffer can serve as the memory storage device remains to be seen.

This order takes pains to point out that the limitation requires that the "received data packets" be downloaded. The patentee made clear what he meant by a "data packet" as described in Figure 6 of the patent. It includes the data itself, as well as a packet ID, function code, timestamp, and an error detection code. This raises the possibility that a system similar to the claimed system could download only part of the received data packets. Some portions in the packet described by Figure 6 could be omitted, or possibly replaced with other information or error correction codes. This would presumably avoid literal infringement of claim 16.

Accordingly, this claim construction order holds that "downloading into a memory storage device" means transferring the desired data into a device capable of saving it for later access.

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11. download(ed)

The term "downloaded" appears in claims 96 and 112 of the '725 patent and claims 43 and 68 of the '345 patent. The term "downloading" appears in claims 45, 46, and 74 of the '725 patent and claims 32, 57, 87, and 93 of the '345 patent. The term "downloads" appears in claims 9, 22, 46, and 84 of the '725 patent. With respect to the term "downloaded," the plaintiff proposes a construction of "some collection of data transferred from a memory to another memory via a communications link." The defendant proposes "retrieved and stored in a disk or other non-volatile storage." With respect to the term "downloading," the plaintiff proposes a construction of "transferring some collection of data from a memory to another memory via a communication link." The defendant proposes "retrieving and storing in a disk or other non-volatile storage." With respect to the term "downloads," the plaintiff proposes a construction of "transfers some collection of data from a memory to another memory via a communications link." The defendant proposes "retrieves and stores in a disk or other non-volatile storage."

The dispute between the parties is whether downloading includes streaming. Although the defendant cites cases that draw a distinction between downloading and streaming in the copyright context, the terms of these patents use downloading in a manner that includes streaming. For instance, claim 49 of the '725 patent recites "wherein for at least some of the media items the processor downloads media items from the remote inventory via the communications link at substantially the same
time the corresponding media item is presented to the user." This language captures the essence of streaming, which is a process for transmitting information from a host site over a communications link and presenting it to the user at substantially the same rate (i.e. the same time) it is transmitted. As such, the court construes the term "downloads" to mean "retrieves and stores in volatile or non-volatile storage."

"Downloads into a memory storage device those of said received data packets which match said specified set of requested data packets." Used in claims 1, 16, 37, 39, and 44.

This dispute is somewhat unusual in that it does not depend on definitions of technical terms, but rather on grammatical construction. The parties agree that "downloads" means "transfers." They also agree that what is transferred are data packets, and that the data packets are transferred to a memory device.

The claim states that the data filter is part of the subscriber station, and that the data filter stores filter data. See Claim 1, 505 patent, col. 18, 11. 28-30. The filter data specifies the requested data packets. col. 18, 11. 31-33. The specification describes this process in more detail, but gives no indication that the claim language should be given anything but the ordinary and customary meaning. See col. 8, 11.37-46, col. 11, 11. 34-57 and Figure 7.

Finisar argues that the data packets to be transferred are "specified" by the filter data. DirecTV argues that the data filter actually transfers the data packets to the memory device. Both are, in a sense, correct.

Claim terms are to be read according to the rules of ordinary English grammar. In re Hyatt, 708 F2d 712, 714 (Fed. Cir. 1983). Accordingly, it is the data filter "that stores filter data . . . and that downloads into a memory storage device . . ." the data packets. col. 18, 11. 30-35. On the other hand, the claim and specification also make it clear that the data packets to be downloaded are those specified or requested in the filter data. This term will be defined as follows:

"Downloads into a memory storage device those of said received data packets which match said specified set of requested data packets" means "the data filter transfers into a memory storage device the data packets specified in the filter data."

H. Limitation 7: drain conductive region

35. The next element of Claim 1 is as follows: "a drain conductive region remote from said common region and separated therefrom by said relatively lightly doped major body portion." An example of this "further region" is the N+ substrate on which the lightly doped epitaxial layer is formed. (col. 3, lines 64-65.) This claim element is properly construed to include any region carrying a substantial portion of device current that is separated from the common conduction region (between the bases) by the lightly doped layer.

B. "Drive Bay Slot"

Comaper suggests that this term means "the relatively narrow opening in the housing of a computer that leads to the drive bay." (Pl.'s Constr. Mem. at 4.) Comaper arrives at this definition by interpreting the individual meaning of the words within the term. A "slot", Comaper contends, is a well-known term for an opening or passage; a "drive bay" is a common term for the particular space inside a computer that is dedicated to accommodate a drive. Id. Comaper further argues that there is no special meaning ascribed to the term "slot" in the intrinsic record, and therefore the plain and ordinary meaning should prevail in its interpretation. Id. at 5.
Antec interprets the term "drive bay slot" to mean "the area inside a computer enclosure having an independent opening capable of housing a drive." (Defs.' Constr. Mem. at 10.) Antec contends that Comaper's construction contradicts its use of the term in Claim 1 which recites "a case configured to mount within said drive bay slot of said computer such that said case occupies substantially the entire drive bay slot." Id. According to Antec, a case would be "far larger" than the narrow slot leading to the drive bay. Id. Antec also reasons that the term "slot" cannot mean opening because opening was used during the application process, and yet the Examiner still insisted on inserting the term opening. (Defs.' Reply. Mem. at 11.) Using Antec's construction would result in "drive bay slot" and "drive bay" meaning the same thing. This was not the intent of the patentee.

The Court concludes that the term "drive bay slot" means "the relatively narrow opening in the housing of the computer that leads to the drive bay." The prosecution history supports this construction. As stated above, courts are free to consider the prosecution history, the record of correspondence and communications between the inventor and the PTO, which is kept on file at the PTO and made available for public inspection. "Although the prosecution history can and should be used to understand the language used in the claims, it too cannot 'enlarge, diminish, or vary' the limitations in the claims." Markman, 52 F.3d at 980 (citation omitted). "If a patentee takes a position before the PTO, such that a 'competitor would reasonably believe that the applicant had surrendered the relevant subject matter,' the patentee may be barred from asserting an inconsistent position on claim construction." Katz v. AT&T Corp., 63 F. Supp. 2d 583, 591 (E.D. Pa. 1999) (citing Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 1457 (Fed. Cir. 1998)); see also Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996).

The parties agree that the term "slot" was added during prosecution at the Examiner's insistence. (See Pl.'s Constr. Mem. at 4; Defs.' Reply Mem. at 11.) Furthermore, Comaper concedes that the term was added as a way to distinguish the '955 Patent from the device in Pollard. (Pl.'s Constr. Mem. at 4.) It is also clear that the term "opening" existed elsewhere in the patent language and the use of the term "slot" was to convey a different meaning than a mere opening.

Omax proposes that this phrase should be construed as the "portion of a machine tool that receives motor commands and electronically controls motor functions. It may or may not include one or more controllers that interpret and adjust motor commands." Flow's interpretation uses the same first sentence, and then continues: "The drive circuit may contain a force command interpreter, a position command differentiator, or a position command interpreter, as defined in the patent. The drive circuit does not include add-in cards or intermediate command interpreting controllers."

This Court already has concluded that "the specification as a whole does not suggest 'that the very character of the invention requires the [direct connection] limitation [suggested by defendant] to be part of every embodiment.'" Order, Dkt. # 52 at 6 (quoting Alloc, Inc. v. Int'l Trade Comm'n, 342 F.3d 1361, 1370 (Fed. Cir. 2003)). Flow has attempted to account for this conclusion by suggesting that the claim be construed as allowing certain intermediate connectors, but not the add-in card or other controllers that are the hallmark of the Flow device. The Court continues to hold that the character of the invention does not require the absence of the intermediate steps that Flow attempts to preclude through its proposed construction. The Court therefore adopts Omax's proposed construction.

The parties agree that a controller may consist of a device or group of devices to control the communication of data between a host computer and drive electronics. Defendants' 527 Br. at 18; Plaintiffs' Reply at 11. Plaintiffs ask the court to construe the term "drive controller" to exclude external translation circuitry, insisting that the patent specification and prosecution history teach away from the use of translation circuitry. Defendants, by contrast, argue that a controller is not defined by...
physical boundaries, but by elements necessary to accomplish the purpose of the controller. Id. at 19. Accordingly, they assert that, absent any express intention to exclude translation circuitry in the claims, specification, or prosecution history, translation circuitry may be included in the construction of "drive controller" where translation circuitry is employed to accomplish the purpose of the controller.

Defendants contend that if plaintiffs' construction is adopted, such that a "drive controller" excludes translation circuitry, the result would be that none of the accused devices would be infringing because they all comply with ATAPI. They assert that all ATAPI devices must engage in translation as sector addresses in CD-ROM devices are recorded in "minutes, seconds and fractions" ("MSF") format. However, because the host computer sends ATAPI commands in logical block address ("LBA") format, the communication between host computer and an ATAPI CD-ROM requires translation of address information in ATAPI command packets from LBA format to MSF format. In response to this argument, plaintiffs clarify that their proposed construction does not seek to exclude all translation circuitry, rather it seeks to exclude external translation circuitry, such as the external interface or host adapter card which the invention expressly sought to eliminate. See, e.g., 527 patent at 2:41-3 ("This would obviate the need for an additional host adapter card and associated electronics.").

Plaintiffs support their position by pointing to several disclaimers found in the specification. The 527 patent states as the purpose of the invention that "it would be desirable to provide a CD drive with built-in controller functionality and a standard connection. This would obviate the need for an additional host adapter card and associated electronics." 527 patent at 2:39-43. It also emphasizes, "This invention reduces the cost of a host adapter card or additional ISA bus interface electronics." Id. at 5:45-48; see also id. at 7:24-32. They also point to a disavowal of claim scope in the prosecution history. In response to a December 3, 2001 office action, the inventors stated with regard to a "host interface" that "directly" connects that "the quoted limitations cannot be met where a controller requires a translator card or other intervening circuitry between the controller and the IDE bus to translate or manipulate command data due to the inability of the controller to properly handle native ATA command." Schwartz Decl., Ex. C at ZC001817.

Plaintiffs contend that the inventors were distinguishing prior art translation devices such as the Mitsumi prototype created by Oak prior to its development of the OTI-11, which had an external card housing the translation circuitry. In their sur-reply briefing, the parties dispute whether the Mitsumi prototype was overcome during patent prosecution. The court finds that this discussion is unhelpful to the determination of whether the inventors disclaimed external translation circuitry.

The court finds that the inventors disclaimed external translation circuitry. Thus, the proper construction of "drive controller" includes translation circuitry but excludes circuitry necessarily located on an external adapter card.

First, Nintendo argues that the definition of "drive signals" is unclear from the claim language. It is true that the term "drive signal" is a fairly generic term of art. However, the language of the claims in the '659 patent limits the claimed "drive signals" to those "phase-related to said clock pulses." '659 pat., col. 18, l. 64. Nintendo argues that we must look to the written description for a further definition of the claim limitation "drive signals." In particular, Nintendo argues that "drive signals" are defined in the '659 written description as:

The HORIZONTAL DRIVE/CHROMA signal is produced during each horizontal synchronizing interval and is used to trigger the horizontal deflection circuitry in the television camera. . . .
The VERTICAL DRIVE signal is used to trigger the vertical deflection circuitry in the television camera.

'659 pat., col. 6-7, ll. 56-46 (emphasis added). We hold that the meaning of the term "drive signals," as claimed in the '659 patent, is broader and is clear from the language of the claims. The phrases cited by Nintendo above are not a definition of the term "drive signal." Nintendo is, essentially, arguing that we should import one example from the written description into the claims as the complete definition of a claim term. This we cannot do, as "what is patented is not restricted to the examples, but is defined by the words in the claims . . . ." Specialty Composites v. Cabot Corp., 845 F.2d 981, 987, 6 U.S.P.Q.2D (BNA) 1601, 1604 (Fed. Cir. 1988). The passage from the '659 written description quoted above is but one example of the use of a drive signal, and is not a further limitation to be imported into the claims. The words in the claims do not specify a television camera, and Nintendo's argument that the accused systems, lacking a television camera, cannot infringe is therefore incorrect. The accused systems clearly do produce drive signals as contemplated by the claim language. GO BACK

1456

M. "the driver"

The term "driver" is recited in Claims One, Two, Eleven, Fourteen, and Fifteen of the '399 Patent: in Claim One, the host device "comprises drivers for input/output devices customary in a host device," col. 12:43-44; in Claim Two, "the drivers for input/output drivers customary in a host device comprise a hard disk driver," col. 13:14-15; in Claim Eleven, the host device "comprises a multi-purpose interface and a specific driver for this interface," col. 13:52-53, and "the host device communicates with the interface device by means of the specific driver for the multi-purpose interface," col. 14:13-15; in Claim Fourteen, the host device "comprises drivers for input/output devices customary in a host device," col. 14:32-33, and "the host device communicates with the interface device by means of the usual driver for the input/output device" customary in a host device, col. 14:55-57; and in Claim Fifteen, "the drivers for input/output devices customary in a host device comprise a driver for a storage device and in particular for a hard disk drive," col. 14: 63-65. The '449 Patent references "driver(s)" multiple times as well: in Claim One, the host device "comprises drivers for input/output devices customary in a host device," col. 11:47-48; in Claim Seventeen, the host device "comprises a multi-purpose interface and a specific driver for this interface," col. 13:15-16, and "the host device communicates with the interface device by means of the specific driver for the multi-purpose interface," col. 14:1-3; and, in Claim Eighteen, the host device "comprises drivers for input/output devices customary in a host device," col. 14:9-10.

The Camera Manufacturers propose that the word "driver" be construed to mean "the set of software routines used to control an input/output device." CMs' Markman Br. at 24. They note the IEEE Dictionary definition for driver "as a computer program, i.e., a set of software routines that controls a peripheral device and reformats data for transfer to and from the device." Id., see The New IEEE Standard Dictionary of Electrical & Electronics Terms 387 (5th ed. 1993) ("New IEEE Dictionary") (attached to CMs' Markman Br. as Ex. G). According to the Camera Manufacturers, "the driver must be what actually enables the host device to communicate with and control an input/output device." CMs' Markman Br. at 25.

Papst disagrees, noting that not all IEEE definitions for the word "driver" contain the word "control" because "control is possible but not necessary." Papst's Reply at 26. Papst urges the Court to consider the definition offered by its expert, Dr. Locke: "A driver translates generic commands (such as to 'read' or 'write' a file) from high level computer programs into a sequence of very specific commands that a particular hardware device can understand (such as 'seek' or 'load register')." Id. at 27.

As the Court explained above in the discussion of "host device," drivers are software programs used to communicate with hardware:

[T]he host device must have internal drivers, i.e., software, to instruct hardware how to operate. As Papst acknowledged, drivers "are the software programs that are used by the computer[ ] to communicate with the hardware that's attached to the computer. So for each and every hardware device that you connect to a computer there has to be a driver that allows the computer to communicate with that hardware device." Tr. 1:5 (Papst). The specification explains that such drivers can instruct a hard drive (the preferred embodiment) that is internal to the computer, or such drivers can instruct a printer that is external to the computer. In all instances, the driver instructs the how and when of hardware operation and thus directs it.
In addition, the specification makes it clear that a driver is a set of routines required to drive a device. See '399 Patent, col. 12:14-16 ("using a driver software for the multi-purpose interface which comprises the BIOS routines customary in host device"); '449 Patent, col. 11:16-18 (same); see also '399 Patent, col. 11:32-42 (the hardware-oriented side of the "ASPI manager" is matched to an interface and the other side is the user software side); '449 Patent, col. 10:32-42 (same). Accordingly, the Court construes "driver" to mean "the set of software routines used to direct a device, for example, an input/output device or a multi-purpose interface."

A. Driver

The term "driver" appears in all claims for the '511, '392, and '694 patents. It also is used in claims 1 and 2 of the '382 patent, as well as claims 1-3, 5, 9-17, and 25-26 of the '617 patent.

The claims indicate that a driver may perform a variety of functions. These functions include accessing and storing information. See '511 patent, claims 1 and 2. Claim 10 of the '511 patent lists other functions that a driver may perform, including:

* selecting directories where data sources are located;
* searching directories for data files;
* displaying data to be input or updated;
* loading general information and data definitions from data sources;
* creating database tables configured for storing information from data sources;
* saving general information and data definitions from data sources;
* loading data definitions codes, "rollup information," and data into a database.

See also '511 patent, Col. 10:47-51 ("Each driver includes a plurality of defined processes or functions 901 through 909. Each function may include computer program instructions 912, e.g., to implement and carry out one or more of the steps described below and depicted in FIG. 10."). The '511 patent specification also notes (at least in the context of one embodiment) that the drivers "are processes having multiple functions for analyzing and accessing" different types of source data. '511 Pat., Col. 9:31-32.

Timeline's proposed construction of the term "driver" is both simple and broad: "Computer software which performs functions such as accessing, processing, or storing data." ProClarity's proposed construction is considerably more detailed: "A self-contained set of multiple functions, distinguishable from and connected to an application level program, performed by a computer including the ability to perform analysis and intelligent interrogation of a data source and which can identify what is required to store a standard form of the data source, e.g. for reporting and analysis." Timeline's proposed construction, although quite broad, is not inconsistent with the use of the term "driver" in the claims themselves. The claims plainly indicate that a driver may perform a variety of functions, including but not limited to accessing and storing data. n2

Footnotes:

n2 Timeline also notes that a computer dictionary from 1995 defines the term "database driver" as "a software routine that accesses a database. It allows an application or compiler to access a particular database format." The Computer Glossary (7th ed. 1995). However, the claims use the term "driver," not the term "database driver." In addition, the dictionary
definition offered by Timeline only indicates that a database driver "accesses" a database. It makes no mention of "storing" or "processing" data, much less the other functions that the claims indicate that a driver may perform. As a result, the dictionary definition offered by Timeline does not lend significant support to its proposed construction.

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ProClarity's more narrow construction of "driver" includes a number of limitations. For example, ProClarity asserts that a driver must be "self-contained." n3 ProClarity does not cite any language from the specification that uses the term "self-contained" in connection with the term "driver." However, ProClarity argues:

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n3 ProClarity also suggests that a driver must be "distinguishable from and connected to the application level program." However, ProClarity offers only a cursory argument in support of this limitation in its opening brief and does not explicitly address this limitation in its rebuttal brief.

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The patent describes drivers as "function modules 804a through 804d" and clarifies that each driver is a "different module[]." '511 Pat., 12:34, 53-54. A module, in the context of software, is a self-contained unit. Thus, the driver of the patent must be "self-contained."

Def.'s Opening Brief at 20. In response, Timeline argues that this language from the '511 patent simply describes a preferred embodiment in which the drivers are modular. Timeline notes that a characteristic described in a preferred embodiment cannot be read as a claim limitation. See, e.g., Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 2002) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.") Timeline also points out that the '511 patent specification expressly states:

Although in the above description, the various drivers 804 can be provided as separate DLL [dynamic link library] files and are dynamic in the sense that as many as desired can be added simply by storing additional DLL files in the proper directory, it would also be possible to make an operable version of the invention in which the function performed by the function modules are provided as portions of or subroutines called by the main procedure 802 rather than being separately stored modules.

'511 patent, Col. 19:28-32.

ProClarity also argues that a driver must have the ability to perform "intelligent interrogation" of a data source. ProClarity bases this argument on language from the '511 patent specification, which states:

Preferably, loading of the data definition includes interrogation of the data to obtain information. . . . The interrogation of the data in the "load data definition" step is intelligent interrogation in the sense that it can conform to virtually any data source and identify what is required to store a standard form of the data source, e.g. for reporting and analysis.

'511 patent, Col. 14:23-34. As before, Timeline argues that this language describes a preferred embodiment of the '511 patent and cannot be construed as a claim limitation.

The court agrees that ProClarity's proposed construction would improperly limit the scope of the term "driver" based on preferred embodiments described in the specification. The claims themselves do not include the limitations that a driver must be "self-contained" or must perform "intelligent interrogation."

However, Timeline's proposed construction is also not ideal. Timeline's proposed construction is not only quite broad, but also differs somewhat from a proposed construction that Timeline advanced in prior litigation in this court involving the '511 patent. In the Timeline v. Sagent case, the court observed that "[t]he parties agree that drivers are 'processes performed by computer software having multiple functions for analyzing and processing data.'" See Ex. A to Pl.'s Opening Brief at 3. Here, Timeline proposes that a driver performs functions "such as accessing, processing, and storing data," but does not
include "analyzing" data.

At the same time, it is difficult to construe the term "driver" with great precision, given the variety of functions that a driver may perform. For example, in claim 1 of the '511 patent, the driver is used to "access" information. In claim 2, the driver is used to "store" information. Claim 10 lists multiple other functions that a driver may perform. The specification also indicates that in at least some embodiments, a driver "analyzes" data. As a result, a broad construction of the term may be necessary in order to ensure that the meaning of the term is the same in all claims in which it appears. See Nazomi Comm'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005) (noting that claim term that appears in more than one claim must be construed the same in each).

Therefore, the court construes the term "driver" to mean "computer software which performs functions." The functions performed by a driver may include accessing, storing, and analyzing data, as well as selecting and searching directories, displaying data, loading general information and data definitions, creating database tables, saving general information and data definitions, and loading data definitions codes, rollup information and data. Therefore, the court construes the term "driver" to mean "computer software which performs functions." The functions performed by a driver may include accessing, storing, and analyzing data, as well as selecting and searching directories, displaying data, loading general information and data definitions, creating database tables, saving general information and data definitions, and loading data definitions codes, rollup information and data.

PolyVision's proposed construction

A software program that receives and processes control signals and, in response, generates a command to a selected application program for updating the screen video display in accordance with the pressure applied to the touch-sensitive display screen.

Smart's proposed construction

A driver structure and/or steps in a computer that receives control signals and, in response to the control signals, generates a command to a selected application program for updating the screen video display in accordance with the pressure applied to the touch-sensitive display screen, and structural equivalents thereof.

This is a means-plus-function limitation, requiring the Court to examine the specification for the structure for performing the specified function. Referring to Fig. 19, the specification states that "a memory resident device driver is loaded." (Col. 11, ll. 50-51.) It further states, referring to Fig. 9 and the installation and testing steps of the custom network structure, that "on entry (700), the software driver for the custom network adaptor or controller (located in computer 5) is loaded (701)." (Col. 7, ll. 25-27.) Essentially, the specification calls for a driver, which, as used in the ordinary sense by one skilled in the art, is a program that controls a device. PolyVision's construction, which identifies the driver means as software, is an accurate definition.

MKS contends that the phrases "driving current in the primary winding" and "driving the primary winding of the transformer with a current" used in independent claims 1, 19, 29, 42, and 44 of the patent in suit means "the power supply producing alternating current that drives current in the primary winding." (D.I. 103 at 6). MKS further contends that "whether there is an electronic component between the power supply and the load is not relevant." (D.I. 103 at 30). Advanced Energy contends that the disputed phrases "do not include driving current through an impedance matching network." (D.I. 110 at 21-23).
With regard to these phrases, the parties' dispute centers on the absence or presence of an impedance matching network. As discussed previously, after reviewing the patent specification and prosecution history, the Court concludes that the invention was not intended to encompass an impedance matching network. (D.I. 94 N.J.L. 480, 111 A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). Accordingly, the phrases "driving current in the primary winding" and "driving the primary winding of the transformer with a current" mean the power supply producing alternating current that drives current in the primary winding and not through an impedance matching network.

"Dropping Packets When the Detected Congestion Exceeds a Predetermined Severe Congestion Threshold"

Alcatel's proposed construction of this term is "dropping packets after the detected congestion exceeds the predetermined severe congestion threshold." Cisco's proposed construction is "beginning to drop packets for the purpose of reducing congestion only after the detected congestion exceeds the predetermined severe congestion threshold." The difference in the constructions turns on whether the claim allows the packets to be dropped before the detected congestion exceeds the predetermined severe congestion threshold, as Alcatel proposes, or only after the predetermined severe congestion threshold is detected, as Cisco proposes.

Alcatel argues that the specification discloses situations where packets are dropped other than when the severe congestion threshold is exceeded. Specifically, the specifications describe a scenario in which frames are queued in a "holding queue" that has a maximum length. "When that length is exceeded, frames are dropped." Watt, at 4:27-32.

Cisco argues that the plain meaning of the claim language supports its construction. "As we have often stated before, as a general rule, all terms in a patent claim are to be given their plain, ordinary and accustomed meaning to one of ordinary skill in the relevant art." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001); see also Toro Co. v. White Consol. Indus., Inc., 199 F.3d at 1299 ("[W]ords in patent claims are given their ordinary meaning in the usage of the field of the invention, unless the text of the patent makes clear that a word was used with a special meaning."). In claim 1, the claim language shows that the dropping of packets is the last step in a three-step progression of dealing with increasing congestion in the network. Additionally, the specification describes the dropping of frames as starting after a frame-relay link is severely congested. See Watt, at 6:17-20. However, the specification also contains language describing frames as being dropped when "the addition of the frame would cause the link output queue to exceed the severe congestion threshold . . . " Watt, at 6:26-30 (emphasis added). In this situation, the language indicates that the frame is dropped when its addition would cause the severe congestion threshold to be exceeded. Therefore, in this scenario, the initial dropping of the frame must necessarily take place before the severe congestion threshold has been exceeded.

Thus, although the claim language indicates that packets will be dropped after the detected congestion exceeds a predetermined severe congestion threshold, nowhere in the plain meaning of the language does the claim require packets to begin being dropped only after such a threshold is exceeded. In fact, in looking to the specification, the patent indicates instances where packets are in fact dropped prior to exceeding the threshold. Therefore, the Court construes the term "dropping packets when the detected congestion exceeds a predetermined severe congestion threshold" as "dropping packets after the detected congestion exceeds the predetermined severe congestion threshold."

[Noise] Due to Independent Operation of Said Transistors

The Court adopts ST's proposed construction of "[noise] due to independent operation of said transistors" and construes the term to mean "noise caused by operation of a plurality of on-chip transistors whose operation is not contingent upon operation of the memory array." The Court agrees that the transistors are on-chip and that "independent operation" refers to the relationship between the transistors and memory array. Moreover, the Court rejects Motorola's proposed definition in part because of the term "asynchronous." As discussed supra, the Edwards patent discusses independent operation, and the
LGD contends that the term "dummy conductive patterns" means "portions of the layer that do not receive or convey voltages or signals." D.I. 1388 at P 133. Refining this construction further, LGD contends that this construction requires that the dummy patterns do not conduct or convey signals "at least during testing or operation of the display." D.I. 1387 at 6. In this regard, LGD further contends that dummy patterns are structures that are put into the design of a product to aid in the manufacturing of the product, but do not have a function during the operation of the display. D.I. 1388 at P 136-138. LGD contends that AUO has changed its position on the construction of this term, and that this change in position demonstrates that AUO's currently proposed definition should not be accepted.

AUO contends that the term "dummy conductive patterns" refers to "one or more metal patterns in the specified region that are not in contact with any of the wiring." D.I. 1384 at 24. AUO acknowledges that this construction is different than its previously proposed construction which was "a metal pattern that does not conduct signals or current used in the operation of the display." Id. at 25. However, AUO contends that its previous construction was too restrictive. In this regard, AUO contends that the wiring recited in the claims connects the connection pads to the transistors in the TFT array. AUO contends that dummy patterns are not needed for the operation of the transistors of the TFT array, and therefore, they "are not in contact with any of the wiring" that is "in communication with at least one of the transistors in the TFT array." Id., citing '629 patent, col. 8, ll. 14-19. However, AUO maintains that there is nothing in the intrinsic evidence that precludes the dummy conductive patterns from performing some function, such as conducting a voltage or signal used in the operation of a display, so long as they are not in contact with the TFT wiring. AUO points out that even under its prior construction, nothing required dummy conductive patterns to be unable to receive any voltages or signals, and that the dummy conductive patterns could still be connected to a ground or voltage supply. D.I. 1384 at 24-26.

As the Federal Circuit has recognized, the Court's task in claim construction is not to decide which of the adversaries is correct, but to independently determine the meaning of disputed claims. Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1556 (Fed. Cir. 1995). For this reason, the Court does not take AUO's change in its claim construction position to be indicative of the merits of its current argument.

Reviewing the disputed term in light of the claim language and specification, the Court concludes that the term "dummy conductive patterns" is properly construed to mean "conductive patterns in the specified region that are not in contact with any of the wiring." The claim terms expressly state that the dummy conductive patterns must comprise "at least about 30% of the area" and "are not in contact with any of the wiring." '629 patent, col. 8, ll. 13-19, 57-63. The Court does not read the claims or the specification from precluding the dummy conductive patterns from performing some function, so long as that they are not in contact with the TFT wiring. Accordingly, the Court concludes that LGD's claim construction and AUO's prior claim construction were both too restrictive, and that "dummy conductive patterns" are "conductive patterns in the specified region that are not in contact with any of the wiring."

The parties agree that this term should be construed consistently with the prior term. (D.E. 68, pg. 23). For the reasons
detailed in the "determining the total delivery time" section, the Court does not construe this claim.

**1464**

D. "during iterative processing"

As to this term, this Court ordered the following claim construction:

The claimed steps can be repeatedly performed by the automated negotiations engine while performing multiple rounds of bargaining involving an offer and multiple counteroffers between two participants where each round is related to prior rounds.

Tr. 26:24-27:8.

**1465**

E. "During Variation of the Number of Channels in the WDM Optical Signal"

For the following reasons, the court construes the term "during variation of the number of channels in the WDM optical signal" in claims 2, 7, 10, and 15 to mean:

While the number of channels in the WDM optical signal changes.

Fujitsu first presented this term for construction as, "during the process of changing the number of optical channels in the WDM optical signal." (Dkt. No. 90, Ex. B at 1.) Fujitsu then proposed the following clarifying construction: "During the process of changing the number of optical channels in the WDM optical signal (including before the variation in the number of channels is complete)." (Dkt. No. 92, Ex. B at 1.) Tellabs construed the term in its rebuttal as, "while the number of channels changes." (Dkt. No. 91, Ex. A.)

A review of the specification reveals that each channel is associated with a different wavelength and that the number of channels can change. ('681 patent, col. 2:10-13.) Several problems, however, arise when the number of channels is changed. The specification refers to the time when the number of channels changes as, "during the variation (that is, before the variation in the number of channels is complete)." (681 patent, col. 2:13-17.) Thus, during variation, which includes the time before the variation in the number of channels is complete, simply means, "while the number of channels in the WDM optical signal changes."

**1466**

3. multi-pulse portion having a given duty ratio z = t2/(t2+t3)(claim 1)

Plaintiff's construction: "a multi-pulse portion has a given ratio, z, where z is the result of dividing (i) the pulse width at high power (t2), by (ii) the sum of the pulse width at high power (t2) plus the pulse width at low power (t3)"

Defendants' construction: the entire multi-pulse portion having a given ratio of pulse duration to pulse period equal to z = t2/(t2+t3)

Plaintiff's proposed construction is a primarily a translation of the equation into word form. Defendants' version is substantially different from plaintiff's, but the only part of their own proposed construction for which they advance an argument is the word "entire." Defendants say that, whatever the multi-pulse portion is, the entire portion must have the same "duty ratio." It is not clear whether plaintiff disputes defendants' position because plaintiff combined its argument for this term with its argument for "multi-pulse portion," which also involved the word "entire" but in a different context. To the
extent that plaintiff intended to object to inclusion of the word "entire" in the construction of this term, I agree with
defendants that the word should be included.

The claim itself does not specify whether the "entire" multi-pulse portion has a given ratio or whether only a part of it does,
but in context it is clear the claim implies that all of the multi-pulse portion has the same ratio. When one says that
something has a particular property, the natural inference is that all of it has that property unless it is otherwise specified.
For example, if someone says that "the ball is red," this would suggest that all of the ball was red, rather than half red and
half another color. Or if one made a statement that "the ratio of women to men in the class was three to one," this would
mean that if one counted all of the women and all of the men in the class, there would be three times as many women. If a
particular subset of men and women were intended, this would be specified ("the ratio of women in the class with blonde
hair to men with blonde hair was three to one"). Similarly, one would expect that the inventor would have specified that
only a part of the multi-pulse portion had the given ratio if that is what the inventor intended. The claim says that "the"
multi-pulse portion has the ratio, not a part of it.

However, I cannot adopt the rest of defendants' proposed construction. The phrases "pulse period" and "pulse duration" are
not included in the claim or anywhere else in the patent and defendants do not otherwise explain why those terms should be
introduced. Accordingly, I will adopt plaintiff's construction, with the exception that I will add the word "entire."

Court's construction: "the entire multi-pulse portion has a given ratio, z, where z is the result of dividing (i) the pulse width
at high power (t2), by (ii) the sum of the pulse width at high power (t2) plus the pulse width at low power (t3)"

F. Dynamically

Leader's Construction  Facebook's Construction
plain and ordinary meaning  Automatically and in response
to the preceding event

The term "dynamically" appears in Claims 1, 9, 17, 21-23, and the dependent claims thereof. Leader contends that the term
"dynamically" requires no construction because it is commonly used in the computer science field, and one of ordinary skill
in the art understands its meaning. (D.I. 179, at 25.) Leader agrees that the ordinary meaning of "dynamically" can be
"automatically," but contends that the rest of Facebook's proposed construction reads limitations into the term which are not
supported by the intrinsic record. (Id.) Facebook contends that the term "dynamically" cannot be understood without
reference to how the automatic action is triggered. (D.I. 191, at 20.) According to Facebook, the intrinsic record supports its
proposed construction because "[n]owhere in the claims or specification does the '761 patent identify an action taking place
'dynamically' without such action being in response to the preceding action by the user." (Id.) Further, Facebook contends
that the file history, which shows that occurrences of the term "automatically" in each independent claim were replaced with
the term "dynamically," confirms that "dynamically" means more than just "automatically." (Id. at 21-22.) Because the
parties agree that "dynamically" means "automatically," the only issue to be decided by the Court is whether the term
"dynamically" contains Facebook's proposed limitation of "in response to the preceding event."

When read in the context of the entire '761 patent, including the specification, the Court concludes that the term
"dynamically" means "automatically and in response to the preceding event."
Admittedly, neither the phrase "in response to
the preceding event" nor the terms comprising that phrase explicitly appear in the Claims or the specification. However, in
each of the Claims, the actions identified as taking place "dynamically" only occur after some identified action by the user.
The specification provides further support for this limitation. "As a user creates a context, or moves from one context to at
least one other context, the data created and applications used previously by the user automatically follows the user to the
next context. The change in user context is captured dynamically." '761 patent, col. 3:1-5. Thus, a change in context is
captured "automatically," but it is only automatic upon the user creating a context or moving from one context to another.
Accordingly, the Court concludes that "dynamically" means "automatically and in response to the preceding event."
Dynamic Display/Dynamically Displaying

The parties dispute the meaning of the term "dynamic" in the claim language "dynamic display" and "dynamically displaying." The defendants argue that "dynamic" requires movement, up or down the price axis, for example. Plaintiff contends that "dynamic" is captured by the updating of the bid and ask quantities as new information is received from the market. Based on our understanding of the record, we construe "dynamic display" to be "[a] display of a plurality of bids and asks that are updated in response to new market information such that the bids and asks change positions relative to the static display of prices when the market changes." Updates based on the changing market data cause the displayed quantities of bids and asks to appear to move along the static price axis. Similarly, we construe "dynamically displaying" as "[u]pdating the first (second) indicator in response to new market information such that the first (second) indicator changes positions relative to the common static price axis when the market changes."

Defendants argue that plaintiff disclaimed use of the term "update" during the prosecution of the patents. During that time, patentee's counsel distinguished patentee's invention from the Silverman et al prior art:

The present invention, as claimed, is patentable over the Silverman et al references. As described above, the present invention includes a dynamic display for a plurality of bids and for a plurality of asks in the market for a given commodity and a static display of prices corresponding to the plurality of bids and asks for the commodity...While it appears that both the central system book and the keystation book of the Silverman et al references show a plurality of bids and asks for a given traded commodity, in contrast to the present invention, the references disclose that these pluralities are displayed "dynamically" only in the sense that the bids and offers are updated....There is no disclosure that the listing of bids and asks actually move along any axis.

(Petition to Make Special, eSpeed claim construction, exh. F, eS64848-9). Based on this language, defendants argue that plaintiff cannot now reclaim in construction something patentee disclaimed during prosecution. They are correct in theory. See SanDisk Corp. v Memorex Products, Inc., 415 F.3d 1278, 1286 (Fed.Cir. 2005) ("The court must always consult the prosecution history, when offered in evidence, to determine if the inventor surrendered disputed claim coverage"). We do not think, however, that the patentee disclaimed the use of "update" in this case. The Petition to Make Special continues:

Furthermore, unlike the present invention, neither the central system book nor the keystation hook of the Silverman et al references includes a static display of prices corresponding to a plurality of bids and asks for a traded commodity. There being no static display of prices, the references also do not disclose that the pluralities of bids and asks are dynamically displayed in alignment with the prices corresponding thereto.

(eSpeed claim construction, exh. F, at eS64849). Unlike plaintiff's invention, the Silverman prior art did not combine the static display of prices with the dynamic display of bids and asks. Therefore, it only updated the prices. The present invention, by contrast, not only updates the prices, but because the bid and ask values are shown relative to the static price axis, the user can visually track the movement of the market by the movement of the bids and asks along the price axis. That visual shift, in addition to the updating, is what makes the plaintiff's invention distinguishable from the Silverman et al references.

Once we allow use of the term "updating" in construction of the claims, we address defendants' additional arguments. Defendants point to such language as "[t]he values in the Bid and Ask columns however, are dynamic; that is, they move up and down (in the vertical example) to reflect the market depth for the given commodity" (amend, and reply, eSpeed claim construction, exh. E, eS64873). They argue that such language proves that the term "dynamic" must indicate movement specifically. We decline to adopt such language in the construction. Like the specification language, "The 'Mercury' display and trading method of the present invention ensure fast and accurate execution of trade by displaying market depth on a vertical or horizontal plane, which fluctuates logically up or down, left or right across the place as the market price fluctuates," the prosecution history focuses "movement" on the market depth. Such a focus allows that the term "dynamic" alone can refer to updates received from the market, and the movement occurs simply because changed bid or ask values correspond to different prices in the static price display. Therefore, we construe "dynamic display" as "[a] display of a plurality of bids and asks that are updated in response to new market information such that the bids and asks change
positions relative to the static display of prices when the market changes." We construe "dynamically displaying" as "[u]pdating the first (second) indicator in response to new market information such that the first (second) indicator changes positions relative to the common static price axis when the market changes." We construe "indicator" in its plain and ordinary meaning as "something that indicates."

4. Capable of dynamic partitioning

All of the asserted claims of the media processor patents recite the phrase "dynamic partitioning" or a similar limitation. The plaintiff urges that "capable of dynamic partitioning" means "able to divide the data into separate and distinct operands on an instruction by instruction basis." The defendants contend that the disputed phrase means "capable of dividing width-wise into a variable number of elements for simultaneous parallel processing of any combination or permutation of media data types in any size."

The parties' briefs and their hearing presentation focused on whether the court could (or should) consider an Appendix filed with the PTO in connection with this term. The court has concluded that resort to the Appendix is unnecessary, and that the specification is sufficiently illuminating to permit construction of this term. The specification of the 840 patent shows a Table I. Table I is an illustration of an instruction set for the media processor. That table illustrates data can be partitioned into byte-sized portions. Table I does not show partitioning of data on any basis other than a byte, or 8-bit level, nor does it show an instruction set capable of operating on data divided into different partition widths in the data path for any given 32-bits of data. Although Table I does not necessarily exclude a processor with the capability to partition data to the extent required by the defendants' proposed construction, Table I is more consistent with the plaintiff's proposed definition, as it illustrates precisely the type of dynamic partitioning that the plaintiff's construction permits. After considering the submissions of counsel and the intrinsic record, the court construes "capable of dynamic partitioning" to mean "capable of dividing width-wise into a variable number of elements."

10. Dynamically adding information

Claim 37 of the '755 patent recites:

A plurality of logical resource drivers, each said logical resource driver being operative on at least one said programs for dynamically adding information during program execution to instructions of said one program, said information identifying at least the user context file for said one program . . . .

The next dispute is whether the "dynamically adding information" language requires the addition of specific types of information, beyond that set forth in the claim. Biax contends that this term requires no additional instruction. The defendants contend that "dynamically adding information" means "dynamically adding to each instruction during program execution information composed of (1) the context/LRD identifier that is issuing the instruction, (2) the current procedural level of the instruction, and (3) the process identifier of the current instruction stream."

To support their construction, the defendants point to the description of the preferred embodiment found in columns 34-35 of the patent. The claim language, however, is not limited to the preferred embodiment and in fact states that the information need only identify "the user context file for said one program." As a result, the court rejects the defendants' attempt to further limit this term.

9. *dynamically modifiable library of code* (claim 20)
Flow argues that this phrase should be construed as a "potentially changeable code in a collection of code." Omax argues that this phrase appears "to indicate a group of source code that is modifiable on the fly in real time by the user." The Court construes the term "dynamically" consistent with its prior definition of the term, and therefore adopts Flow's proposed construction.

7. Dynamically partition data received from the data path to account for an elemental width of the data wherein the elemental width of the data is equal to or narrower than the data path

The court construes "dynamically partition data received from the data path to account for an elemental width of the data wherein the elemental width of the data is equal to or narrower than the data path" to mean "dividing width-wise into a variable number of elements no wider than the data path, based upon the size of the data elements received from the data path."

8. Dynamically partitionable arithmetic unit

The court construes "dynamically partitionable arithmetic unit" to mean "the arithmetic unit can be divided into a variable number of elements."

3. Dynamically receiving data

Claim 9 describes "[a] navigation aid method for performing a detour route calculation, comprising . . . ." The first subpart of claim 9 reads: "dynamically receiving data relating to a portion of a particular thoroughfare in a route." The parties agree that "dynamically receiving" means "receiving in real time." The dispute is whether to insert the term "user-selected" prior to "portion," as plaintiff advocates. According to plaintiff, the only possible type of "dynamically received data" is "data input by a user of the device." Plt's Br., dkt. # 56 at 26. Plaintiff is wrong. Plaintiff bases its argument on a portion of the specification which states:

By way of example and not by way of limitation, the additionally received dynamic data can include dynamic data input by a user of the device indicating that the user is not satisfied with the new route . . . .

"615 pat., col. 9, Ins. 40-43. This does not suggest that the only way the device can receive data is via user input. It would be inappropriate to insert this proposed limitation into the claim, particularly when it does not appear explicitly in the specification. As defendant points out, dkt. # 54, at 91, the specification makes it clear that the navigational device may communicate with remote servers via various communications channels ("615 pat., col. 7, Ins. 1-32). I construe "dynamically receiving data relating to a portion of a particular thoroughfare in a route" to mean "receiving in real time data relating to a portion of a particular thoroughfare in a route."

10. Each said thoroughfare . . . intersects

Claim 6 reads:
The navigation device as set forth in claim 5, wherein each said thoroughfare in said first set of thoroughfares intersects said thoroughfare upon which said vehicle is being navigated, and wherein said selected one of said sets is said first set.

The disputed phrase is underlined. Plaintiff contends that the only construction necessary is for "thoroughfare." Defendant's proposed construction ("every road, waterway, and channel in the first set crosses the road, waterway or channel on which the car is traveling") amounts to unnecessary and unsubstantial rewording of the claim language. In particular, defendant seeks to replace the word "each" with "every." The claim language is clear as written. Aside from construing "thoroughfare," I leave the claim language undisturbed.

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4. "Each channel having a separate control circuit that is adapted to control the operation of its associated transceiver to complete radio frequency communication paths to mobile units as instructed by the telephone switch." Each channel is operated via a separate control circuit consistent with the instructions downloaded from the central control station. (554 patent, col. 5, lns. 3-13; col. 14, lns. 61-68; col. 31, lns. 1-5; col. 32, lns. 16-42)

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2. "time slot assigned to each of said application programs"

Claim 1 also requires that the remote units receive messages from the master unit and respond in a "time slot assigned to each of said application programs." The parties' dispute concerns whether the "assignment" function must occur at initialization of the application program (the defendants' construction) or whether it may occur at any time. The plaintiff argues that the defendants' construction is inconsistent with the disclosure because the remote units can request additional time slots during data transmission, which is after initialization. See '819 patent, 2:18-26, 3:7-11. The defendants argue that the specification repeatedly discloses time slots assigned to applications at initialization. See '819 patent, 2:46-49, 5:42-43, Fig. 6, Fig. 7.

Although the specification refers to the assignment of time slots during initialization, there is nothing in the patent that requires the claims to be limited in this manner. The court construes "time slot" to mean "an interval of time during which data from an application program is transmitted." All other terms have their plain and ordinary meaning.

3. "dividing a period of a clock in said master unit into a number of subframes, dividing each subframes into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs"

This phrase appears in claim 14 of the '819 patent. The defendants contend that the phrase needs clarification because it is not clear what "each" refers to. They also urge that the file history indicates a disclaimer that messages sent from the master unit to the remote units are not packetized. The court has reviewed the cited portions of the prosecution history and is not persuaded that the patentee limited the claim to outbound non-packetized messages from the master unit. The court therefore construes "each corresponding to transmission times" to mean "each subframe corresponding to transmission times." All other terms have their plain and ordinary meaning.

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Matters are trickier when considering the pre-Springwood products, because there is no evidence contradicting TM's conclusion that IBM's and TM's switches operate identically to the extent that a particular message's designated output circuit is free. TM is of course correct that there is a doctrine known as part-time infringement, and that if a claim reads on a part of an accused device, the device infringes. See Suntiger, Inc. v. Scientific Research Funding Group, Inc. 189 F.3d 1327, 1336 (Fed. Cir. 1999), citing Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 623
IBM does not deny the existence of the part-time infringement doctrine (which was recognized in this Circuit nearly a century ago, see Wright Co. v. Herring-Curtiss Co., 211 F. 654, 655 (2d Cir. 1914)). Nor does it deny that its pre-Springwood products infringe TM's patent if one focuses solely on the operation of the crossbar in non-contention situations. Instead, IBM argues that part-time infringement is precluded in the case of the '773 patent by the very terms of the claim limitation language.

IBM's argument derives from Claim 1's use of the phrase "for each message." As noted above, the claim language does require that the switch perform the decoding, establishing and maintaining functions for each message that arrives at an input circuit. IBM contends that this claim language requires that one look at how the product functions in connection with each and every message that passes through the system (i.e., in both contention and non-contention situations), so that if its products do not literally infringe all of the time (i.e., in connection with the routing of each message), they do not infringe at all. Since IBM argues that there is no evidence from which a reasonable juror could conclude that messages which are diverted to the central queue literally infringe Claim 1 -- a proposition with which I have already indicated agreement -- IBM concludes that its product does not infringe Claim 1 of the '773 patent. In IBM's view, only a device that infringes with respect to each message can infringe the '773 patent.

These arguments point to a gaping hole in the Court's Markman decision. At the Markman hearing, the parties did not focus on the meaning of the word "each" in the phrase "for each message," and the Court did not discuss that term in its opinion (having no idea that it was disputed). Indeed, the parties appeared to agree that "all of the recited functions of the 'switch' claim must be performed on each and every message, without exception." (IBM 10/4/00 Letter at Ex. 5, citing, inter alia, Pl's Reply Mem. at 39, n.34.) However, it has become clear to me as I worked my way through the papers submitted on the instant motion that the parties do dispute, quite vigorously, what is meant by the term "each" in the phrase "for each message."

IBM contends that the word must be read literally; that is, that the switch, having decoded the address element of each and every message, must designate its path to the output circuit ("establish" the path) and maintain the same. Under such a reading, as far as I can discern, the only embodiment that would fall under the claim language is one in which a message where a direct path to the output circuit is in use would nonetheless have a path established by the switch, would then be buffered, and once released from the buffer would proceed to the path set for it by the switch before it was buffered.

TM argues that IBM's reading of the term "each" is overly restrictive. It contends that the invention claimed in Claim 1 will work only in the non-contention situation, when in fact each message can be routed directly to its designated output along a maintained path, and that one must proceed to Claim 2 in order to address the message contention situation. Indeed, TM notes that even the preferred embodiment shows a system in which the switch (1) established a path to the designated output when there is no contention for that output circuit, but (2) established a path to the buffer (the structure added in dependent Claim 2) in contention situations. TM's affidavits reveal that, when the designated output circuit is free, the message does not necessarily proceed out of the buffer and to the output along a path that was set by the switch prior to the message's arrival at the buffer. (See, e.g., Kuszmaul Aff. P 5.)

This newly-crystallized dispute adds a wrinkle to the situation. However, I must side with IBM on this issue, because it is not possible to read the word "each" in a way that supports TM's claim of part-time infringement. Doing so would violate the first maxim of the Markman decision.

The first principle undergirding the Markman hearing was set forth as follows:

"In construing the patent . . . I have adopted the principle that, where the language of the claim is clear and unambiguous, I will read nothing additional into it."

TM Patents, LLP v. IBM Corp., 72 F. Supp. 2d at 380. There is nothing unclear of ambiguous about the words "for each message." Each is not synonymous with "every." Thus, had I been aware at the Markman phase that the parties disputed the meaning of the word "each," I would have given it a literal interpretation -- notwithstanding the fact that the preferred
embodiment apparently does not establish and maintain a path to the output circuit for each message in a contention situation. The Markman decision is deemed amended accordingly.

Reading "each" as "some" would also allow TM to recapture certain elements that it disclaimed in order to obtain allowance of the '773 patent. In claim element iii of Claim 1 of the '773 patent, TM originally used the following language:

(iii) a switch connected to said input circuits for decoding at least one address element of each message received by said input circuits to identify therefor an output circuit, said switch establishing a path from at least some of said input circuits to the output circuits identified for the messages received thereby to facilitate the transfer of message elements there between. . . .

As allowed, the relevant claim language reads as follows:

(iii) a switch connected to said input circuits for, for each message received by said input circuits, decoding one address element of the message to identify therefor an output circuit, said switch establishing a path for said message between the input circuit which received the message and the identified output circuit to facilitate the transfer of message elements of said message there between. . . . 20

--- Footnotes ---

20 I here highlight the language that is relevant to my analysis of the parties' arguments. I note that, at the Markman hearing, the parties focused on the meaning of the word "one," used elsewhere in this limitation. That issue is discussed extensively in the Markman opinion and is also the subject of a supplemental order, dated December 17, 1999 (which supplemental order ought to be appended to the published Markman decision -- an omission the Court will rectify). That language is omitted from this discussion, because it has nothing to do with the dispute here identified.

--- End Footnotes ---

TM added the words that limited claim (iii) to "each message received by said input circuits" after the patent had been rejected by the Examiner on the basis of prior art -- specifically, the Lawrence patent. This rejection is discussed in some detail in the Markman opinion. See TM Patents, L.P. v. IBM Corp., 77 F. Supp. 2d 480 (S.D.N.Y. 1999) (unpublished) ("Supplemental Markman Ruling").

In making this and other changes to the claim in order to avoid rejection, TM made the following representation to the Examiner:

One benefit of the invention recited in claim 35 [now claim 1] is that a router node can, when it receives enough of a message to determine an output circuit over which it will transmit the message, will establish a path from the input circuit to the output circuit, which it will maintain until the entire message has been transmitted. . . .

It should be noted that this explanation does not focus on the use of the phrase "for each message." But, fairly read, it supports the Court's prior finding that paths must be established all the way from input circuit to output circuit as soon as the router node receives enough of a message to decode its address. The claim does use the language "for each message," and there is no indication in either the claim or in the prosecution history that this benefit of the invention applies only to some of the messages that are passing through the system.

The Examiner, as noted in the Markman decision, distinguished Lawrence when it finally issued the patent. However, he did not do so on the basis of the addition of the "for each message" language. He did so because Lawrence taught a "store and forward" system of message routing, rather than a wormhole routing system. See Supplemental Markman Ruling at 3. While he sets forth the very language from TM's "persuasive" response to his prior rejection that I have quoted above, he says nothing explicit about the need for this system to apply to "each" message. Thus, nothing in the language on which I relied in the Markman decision would support a finding that the "for each message" language was inserted to overcome Lawrence.

However, Lawrence is not the only prior art of relevance. IBM points the Court to additional prior art that was neither
focused on at the Markman hearing nor specifically mentioned by the Examiner. Specifically, it calls my attention to an article by Lermani and Kleinrock, "Virtual Cut-Through: A New Computer Communication Technique," (IBM 11/13/00 at Ex. 5), which TM cited to the Patent Office in a September 24, 1992 Information Disclosure Statement. Having reviewed Kermani and Kleinrock, I conclude that it disclosed a system in which a path is established for at least some messages. (See id. at "Abstract" and p. 268). Just two months after receiving this prior art citation from TM, the Examiner stated, "The art of record fails to teach or remotely suggest the claims in their verbatim as they states and/or as argued by the applicant in his response. . . ." (emphasis added) "In their verbatim," the claims apply to each message, not just to some messages. In view of the fact that the art of record includes a system that establishes a path for some messages, I see no way around the conclusion that TM's invention is limited to a system that establishes a path "for each message," and that the insertion of that precise language was done to overcome the impact of prior art. It has long been settled that a patentee cannot recapture subject matter that was surrendered during prosecution of the patent, and that post-hoc, litigation inspired argument cannot be used to reclaim subject matter that the record in the PTO clearly shows has been abandoned. See Desper Prods., Inc., v. QSound Labs, Inc., 157 F.3d 1325, 1340 (Fed. Cir. 1998).

In its briefs and at the hearing, TM revealed that the switch in the preferred embodiment does not establish a path between the input and output circuits when there is message contention, but only establishes a path from the input circuit to the buffer. But this does not resurrect its abandoned claim; it merely indicates that the preferred embodiment set forth in the patent file teaches both Claims 1 and 2, and does not show a system that embodies only Claim 1. To the extent that the Court made any statement in its Markman opinion which suggested it was adopting the logical fallacy TM propounds here, 21 I can only apologize and correct my error here.

21 TM points to the following Markman opinion sentence, "If that identified circuit is busy, then the head of the message must proceed to a message buffer, which will be discussed later," to support its claim that the Court, either explicitly or sub silentio, recognized that the word "each" meant "some." If my language left this impression, I apologize. As noted above, this aspect of the claim language was not the subject of argument by the parties and was not thought about, let alone addressed, by this Court. Frankly, I was too busy trying to make sense of what the parties were arguing to hypothesize about what they might have argued.

Therefore, I must reject TM's "part-time infringement" argument. IBM is correct that no reasonable trier of fact, in view of the claimed requirement that the switch establish and maintain a path all the way to the output circuit for each message, rather than for some messages, could define the "switch" as the crossbar, or could look to the operation of IBM's message routing products in non-competition situations alone. The logic used in the pre-Springwood chips when there is message contention and the central queue is used is identical to that used in the post-Springwood chips -- that is, messages are transmitted in chunks; paths consisting of wires and logic are established and maintained only as long as a particular chunk is in transit, and certainly are not maintained until the "last of the serially-received message elements for the message have been transferred to the identified output circuit." Therefore, because the part-time infringement doctrine cannot be applied in this unique case, there is no literal infringement of the patent by IBM's products. 22

22 In addition to patent estoppel, IBM argues that TM is trying to stand the concept of independent and dependent claim on its head, by positing a situation in which the dependent claim was broader, not narrower, than its associated independent claim. It argues that, because the dependent claim covers both contention and non-contention situations, while the independent claim covers only non-contention situations, the dependent claim is broader than the independent claim.

Of course, it is well settled that a dependent patent claim must be narrower than its associated independent claim, see 35 U.S.C. § 112, P 4, and must incorporate by reference all of the limitations of the independent claim from which it refers. See Slater Elec., Inc., v. Thyssen-Bornemisza Inc., 650 F. Supp. 444, 464 (S.D.N.Y. 1986). However, IBM's superficially appealing argument is logically fallacious. A dependent claim may well be "narrower" (i.e., more restrictive) than its associated independent claim while nonetheless expanding on the type of situation in which the patent would be infringed. For example, suppose a patent has the following two claims:
1. An automobile having an engine, four wheels and a drive train for transmitting driving power to at least one opposed pair of said wheels.

2. An automobile as described in Claim 1 in which said drive train includes both forward and reverse gears and means for shifting between said gears to cause the driven wheels to be driven in either the forward or reverse direction as desired.

Obviously Claim 2 is narrower than Claim 1. Yet Claim 1 will be infringed by an automobile which can be driven only in the forward direction, while Claim 2 is infringed (only) by an automobile which can be driven in either direction.

Thus a narrower (dependent) claim may, and frequently does, cover a device capable of more types of operation (handling more "situations") than a device that would be covered by a broader (independent) claim.

--- End Footnotes ---

I emphasize that it is only because I reached my conclusion about the meaning of the phrase "for each message" and the reason for its use in the patent that I find no literal infringement by the pre-Springwood products. If I am wrong about the inapplicability of part-time infringement in this case, then I would have reached the opposite result, because no reasonable juror could possibly conclude that the patent was not literally infringed in non-contention cases. Indeed, I search IBM's voluminous papers in vain for a single suggestion that this is not the case.

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ii. Claim Construction of "by at least 5 \( \mu \) m"

Of the two Kurachi patents, only the ’694 patent recites the limitation "wherein each of said impurity diffusion layers of said buffer MOSFETs is separated from one of said impurity diffusion layers of said protection MOSFETs by at least 5 \( \mu \) m."

’694 patent at claim 1.

The "by at least 5 \( \mu \) m" limitation is a "wherein" clause that further defines the scope of the claim with respect to "said impurity diffusion layers" of both the buffer MOSFETs and the protection MOSFETs. Therefore, the interpretation of the clause must be made in view of the previous limitations already introduced for all the elements involved. See Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co., 730 F.2d 1452, 1459 (Fed. Cir. 1984) (holding that claims are not to be treated as "mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning").

In its Supplemental Reply, AMD sets forth two arguments in support of its claim interpretation. The first is that the key word in this limitation is "one," which means "one' rather than 'all' or 'every.'" Suppl. Reply Br. at 31. AMD contends that this limitation simply requires that each buffer MOSFET impurity diffusion layer be separated by the recited distance from any one of the impurity diffusion layers of the protection MOSFETs; therefore the 5 \( \mu \) m limitation can be satisfied by any random pair of buffer and protection MOSFETs on the chip. So long as one pair of impurity diffusion layers are sufficiently separated, any other pair need not meet this limitation, that is, other pairs may be more closely spaced, including there being no separation.

AMD also contends that the "open" format of the independent claim (the claim elements are introduced using the word "comprising") permits the addition of extra elements. According to this alternative construction, impurity diffusion layers that lie within 5 \( \mu \) m of another are such "extra elements." Instead of bringing the device outside the claim scope, devices with impurity diffusion layers of protection and buffer MOSFETs within 5 \( \mu \) m of one another fall within the scope of the claim by virtue of the open claim language, provided at least one buffer MOSFET is separated by at least 5 \( \mu \) m from one protection MOSFET.

In contrast, Oki contends that "each buffer MOSFET impurity diffusion layer must be separated from any one of the diffusion layers in each of the protection MOSFETs" by the recited distance. Suppl. Opp. Br. at 20-21. More simply, the minimum separation between each buffer MOSFET impurity diffusion layer and any protection MOSFET impurity

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diffusion layer must be at least 5 [μ m].

The plain meaning of the claim adheres to neither of these proposed constructions. First, as noted above, the interpretation of this limitation must be consistent with the other limitations of the claim. AMD's construction would negate the "interposed field oxide film" limitation because it would allow for no separation between the impurity diffusion layers at issue. Oki's interpretation, that a 5 [μ m] separation is required as a minimum separation between all relevant diffusion layers, does not negate the earlier limitation, but the plain meaning of the limitation is not so restrictive.

The plain meaning of the claim does not preclude a smaller separation distance from a second impurity diffusion layer. "One" means one. The claim does not read, for example, that "each of said impurity diffusion layers of said buffer MOSFETs is separated from the nearest one of said impurity diffusion layers," which implies a claim scope closer to that advanced by Oki. The claim calls for no more than that one of said impurity diffusion layers of the protection MOSFETs is separated, by the requisite distance, from each of the impurity diffusion layers of those buffer MOSFETs.

The specification of the '694 patent is not inconsistent with the plain meaning inferred from the claim language. As stated earlier, one of the thrusts of the invention is the separation of the impurity diffusion layers from one another. This general idea is manifested in the "field oxide film" limitation. The more specific limitation regarding the separation distance ("interval") between impurity diffusion layers is only addressed in a short passage in the specification. See '694 patent at 6:55-67. Referring to Fig. 3, the specification teaches that, with respect to the distances between the diffusion layers of two different buffer MOSFETs and the diffusion layers of a protection MOSFET, "each of the intervals t1 and t2 may preferably be set to at least 5 [μ m]." Id. at 6:60-61. This passage teaches that the individual intervals may differ from one another. The specification continues by stating that each interval may be "set as short as possible," demonstrating that shorter distances were contemplated by the patentee. Id. at 6:65.

The prosecution history suggests that the patentee intended to claim the more restrictive interpretation, but it does not establish that such a restrictive interpretation was actually claimed as the invention. The claim originally recited "wherein said impurity diffusion layers of said buffer MOSFETs are separated from said impurity diffusion layers of said protection MOSFETs by at least 5 [μ m]." Prelim. Amd., June 24, 1996., at 10. Upon rejection in the first office action under section 112, P 2 for indefiniteness, the patentee amended the claim by inserting "all of" before each instance of "impurity diffusion layers." Response to Office Action, May 15, 1998, at 4. The claim was allowed, but an Examiner's Amendment, consented to by the patentee, changed the language to its issued form, that is, to using the phrase "separated from one" rather than "separated from all of."

The record does not reveal whether the Examiner's amendment was entered as a condition for allowance or to clarify an ambiguity. In any event, the patentee had the opportunity to first comment on the Examiner's amendment, and then to correct the language via either a certificate of correction or through a reissue proceeding if it was not satisfied with the claim. The patentee did not pursue these options.

Claim construction cannot turn on the subjective intent of a patentee. Markman v. Westview Instruments, Inc., 52 F.3d 967, 985 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 372, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The court "must construe the claims based on the patentee's version of the claim as he himself drafted it." Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356-57 (Fed. Cir. 1999). The Court is not now to "interpret the claim differently just to cure a drafting error." Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 951 (Fed. Cir. 1993). To revive the meaning of the claim prior to the amendment would be to interfere with the function of claims, which is to put competitors on notice of what the inventor considers to be their invention. Id.

The Court thus concludes that the limitation "wherein each of said impurity diffusion layers of said buffer MOSFETs is separated from one of said impurity diffusion layers of said protection MOSFETs by at least 5 [μ m] m" requires that one of said separation distances be at least 5 [μ m], but that in no case should a field oxide film not be interposed between the impurity diffusion layers of buffer MOSFETs and protection MOSFETs, as required by the "interposed field oxide film" limitation.
A. "Each of Said Plurality of Computers"

The parties agree that the word "plural" means two or more. They disagree, however, as to what is meant by the word "each," when used to modify the phrase "of said plurality of computers." As noted above, the '377 patent describes a "computer system having a shared addressable memory space, comprising . . . a plurality of computers, each of said plurality of computers sharing the shared addressable memory space." '377 patent, 15:58-63 (emphasis supplied).

Oracle asserts that the quoted language requires all of the computers participating in the shared memory system to share the shared addressable memory space. Oracle's position rests upon its interpretation of the words which describe a "plurality of computers" participating in a shared memory system, and require that "each of said plurality" share the shared addressable memory space. In other words, according to Oracle, if the "plurality" of computers participating in the system is five, then all five of those computers (i.e., each computer making up said plurality) must share the shared addressable memory space.

Mangosoft, on the other hand, says the phrase "each of said plurality" requires only that two or more of the computers in the overall system actually share the shared addressable space. That is, Mangosoft asserts that the phrase "each of said plurality" does not modify the "plurality of computers" that form the system, but instead refers to a smaller subset of computers (i.e., a new plurality). So, according to Mangosoft, if the plurality of computers participating in the shared memory system is five, only two of those computers need actually share the shared addressable memory space. The court disagrees.

Mangosoft's interpretation of the disputed claim language is not supported by the precedent upon which it relies, nor is it consistent with customary uses of the words "each" and "said." Had Mangosoft intended the interpretation it advances here, it likely would have used language such as "comprising . . . a plurality of computers, some of which share the shared addressable memory space." Alternatively, it might have said "a plurality of which" or "two or more of which" or "a subset of which" share the memory space. It did not. Instead, the '377 patent uses very specific language, which must be given meaning. Mangosoft's interpretation of the disputed language does not give meaning to the words "said" or "each" and, instead, "render[s] the contested terms surplusage." Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1444 (Fed. Cir. 1997). See also Lantech, Inc. v. Keip Mach. Co., 32 F.3d 542, 546 (Fed. Cir. 1994) ("All limitations in a claim must be considered meaningful.").

As used in the '377 patent, the phrase "said plurality" refers to the plurality of computers that form the system. And, the word "each" refers to that same plurality of computers; it does not refer to a new, smaller subset of the original plurality of computers. Accordingly, the court construes the disputed language - "A computer system having a shared addressable memory space, comprising . . . a plurality of computers, each of said plurality of computers sharing the shared addressable memory space" - to mean: a computer system having a shared addressable memory space, comprising two or more computers, every one of which of those two or more computers participating in the system has access to, and may contribute to, the shared addressable memory space.

The court, however, agrees with Mangosoft to the extent it says that not all computers on a particular network must necessarily participate in the system described in the '377 patent. In other words, the '377 patent teaches a system in which fewer than all computers on a network may participate in the described shared addressable memory system. See, e.g., "Summary of the Invention," '377 patent at 2:22-29 ("The invention provides systems that can create and manage a virtual memory space that can be shared by each computer on a network and can span the storage space of each memory device connected to the network.") (emphasis supplied). See also "Abstract," 377 patent at page 1 ("Distributed shared memory systems and processes . . . that optionally spans across each memory device connected to the computer network. Accordingly, each node on the network having the distributed shared memory system of the invention can access the shared memory.") (emphasis supplied).
Echo Returns, Echo(es), and Reflections: Lufkin's proffered claim construction limits the definition of echo returns, echo(es), and reflections (collectively “Echo Returns”) to the process described in the '399 Patent. Lufkin argues that this Court should reject the plain meaning of Echo Returns, as submitted by Echometer, because it is too broad and general. Lufkin maintains that Echo Returns are acoustic signals created when an acoustic pulse, transmitted down a borehole, encounters tubing collars and other discontinuities located in the borehole.

Conversely, Echometer asserts that Echo Returns are acoustic signals created when an acoustic pulse encounters a discontinuity as it is transmitted through a medium. To support its position, Echometer relies on standard dictionary definitions. The Federal Circuit has indicated that "dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art." Tex. Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1202-03 (Fed. Cir. 2002).

In this instance, this Court concludes that the ordinary meaning of Echo Returns is applicable. An "echo" is defined as a "repetition of a sound by a reflection of sound waves from a surface." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (3d ed. 1992). The language of the '399 Patent does not appear to rebut the ordinary meaning of this term, rather the specification language appears to support interpreting Echo Return broadly:

When the acoustic pulse produced by gun 86 is transmitted down the annulus 54, it strikes the tubing collars, such as 42 and 44, and produces a reflection from each of the collars. A reflection is further produced by the liquid level surface 80. In addition, should there be any other objects, such as tubing anchors, within the annulus 54, a reflection will be produced by each of these objects. Anything that changes the cross sectional area of the annulus, either larger or smaller, produces a reflection that is within the return signal.

The Court therefore construes the term Echo Returns in accordance with Echometer's proffered definition; Echo Returns are acoustic signals created when an acoustic pulse, encountering a discontinuity or surface, is reflected as it is transmitted through a medium.

"edges defining the sides"

The '776 patent requires "field stop regions in said substrate having edges defining the sides of said channel." '776 patent, 12:56-57. Solely on the basis of extrinsic expert declarations, defendant argues that the term "edge" means "the point at which conduction would be stopped." In the absence of ambiguity or confusion about the meaning of the term, such reliance on extrinsic evidence is improper. See Vitronics, 90 F.3d at 1584. The Court does not believe the term "edge" is ambiguous and holds that it has its ordinary spatial meaning of "the line where an object or area begins or ends." Webster's Ninth New Collegiate Dictionary 396 (1984).

"editing"

The disputed term, "editing," appears in two claims of the '705 Patent and in multiple claims in both the '995 Patent and the
'839 Patent. Claim 2 of the '995 Patent is illustrative:

2. An audio/video transceiver apparatus as in claim 1 further comprising editing means, coupled to said random access storage means for editing the time compressed representation of said audio/video source information stored in said random access storage means and for restoring the edited time compressed representation of said audio/video source information in said random access storage means; and wherein said output means is operative for receiving the edited time compressed representation of said audio/video source information stored in said random access storage means for transmission away for said audio/video transceiver apparatus.


Both parties agree that "editing" means "modifying." The court first looks at the ordinary meaning of "editing" to determine its definition, which can be found by examining the claim. Teleflex, 299 F.3d at 1325. Editing is described in the specifications as rearranging, altering, changing, deleting, inserting, enhancing, superimposing, removing, increasing or decreasing volume or frequency components, and filtering. '995 Patent at 6:27-33 (rearranging), 6:44-48 (deleting, inserting, enhancing, selecting), 9:14-54 (superimposing, altering, removing, adding components); '839 Patent at 12:46-52 (rearranging, increasing or decreasing volume, enhancing through filtering techniques). The court finds that "modifying" encompasses all of these functions and is the proper definition of the term "editing."

Apple argues that "editing" should be narrowed to mean "modifying the representation of the audio/video source information, not including the creation of playlists or modification of metadata." The court finds no reason to carve out these two functions, and the ordinary meaning of "editing" will not bear such limitations. Both of the disputed functions could conceivably be a form of "editing" if they involve modification of some object. This determination is properly a part of infringement analysis not claim construction. "A claim is construed in the light of the claim language, the other claims, the prior art, the prosecution history, and the specification, not in light of the accused device." SRI Int'l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1118 (Fed. Cir. 1985). Thus, it would be improper for the court to construe "editing" with respect to modifying metadata or creating a playlist because these features are a part of the accused device.

Macromedia contends that this phrase (hereinafter the "editing phrase") should be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line." (D.I. 243 at 13).

Adobe contends that Macromedia's proposed construction is not supported by the express language of Claim 20. (D.I. 305 at 21). Specifically, Adobe contends that Claim 20 defines the editing phrase as displaying a sound characteristics control line, displacing it in segments, and altering the stored waveform accordingly, but not performing any of the conventional functions such as cutting, pasting, or deleting. (D.I. 305 at 21). Adobe contends that these conventional editing functions are only supported by method Claims 31-33. (D.I. 305 at 21). Because Macromedia is no longer asserting these Claims against Adobe, Adobe contends that Macromedia is improperly attempting to reclaim the scope of Claims 31-33 by broadly construing the editing phrase in Claim 20. (D.I. 305 at 21). Additionally, Adobe contends that Macromedia's proposed construction ignores the language of Claim 20 and the specification of the '998 Patent, which require that the appearance of the visually displayed waveform be changed. (D.I. 305 at 22). Adobe contends that, according to Macromedia's construction, sliding or displacing the sound characteristics control line up and/or down in linear segments suffices to edit the appearance of the visually displayed waveform, simply because the sound characteristics control line overlays the waveform in a position different from its previous position. (D.I. 305 at 22). According to Adobe, displacing the sound characteristics control line does not "alter the appearance of the waveform" because the '998 Patent specifically provides that the control line and waveform are distinct from one another. For these reasons, Adobe contends that the editing phrase should be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen by direct manipulation of a sound characteristics control line."
In construing the editing phrase, the Court has considered the specification and prosecution history of the '998 Patent, as well as the express language of the '998 Patent's claims. (D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-40, Col. 4, lines 19-40, Col. 5, lines 10-46, Col. 119, line 30 - Col. 120, line 68; D.I. 248, Ex. C). After a review of these sources, the Court concludes that the editing phrase does not exclude conventional editing functions, such as cutting pasting or deleting. In defining the step of editing, the language of Claim 20 provides "the step of editing comprises ..." While Claim 20 does not go on to specifically define editing to include conventional editing functions, the term "comprises" is a term of art in patent claim drafting which is synonymous with including, containing, or characterized by, and does not exclude additional unrecited elements. MANUAL OF PATENT EXAMINING PROCEDURES § 2111.03 (8th Ed. 2001). Because the term "comprises" is open-ended, and because neither specification nor prosecution history of the '998 Patent specifically define the step of editing to exclude conventional editing functions, the Court will construe the editing phrase to include conventional functions.

The Court also concludes that a plain reading of Claim 20 reveals that sliding or displacing the sound characteristics control line up and/or down in linear segments suffices to "edit the appearance of the visually displayed waveform." Specifically, Claim 20 provides:

wherein the step of editing comprises:

displaying a sound characteristics control line adjacent to the displayed waveform; and

displacing at least one segment of the sound characteristics control line adjacent to a portion of the displayed waveform;

wherein the step of editing comprises altering a specified characteristic of a portion of the stored waveform corresponding to the portion of the displayed waveform adjacent to the displaced line segment.

(D.I. 248, Ex. B, '998 Patent, Col. 119, lines 30-57). Because the Court is persuaded that this language defines editing to include overlaying the waveform with a sound characteristics control line and displacing the line, the Court will not construe the editing phrase to be limited to direct manipulation of the visually displayed waveform. In sum, the editing phrase will be construed to mean "altering, adapting or refining how the displayed waveform looks on the computer screen, for example, by selecting a portion of the waveform by highlighting it, cutting, pasting or deleting a selected portion, displacing the waveform along the time axis, or overlaying the waveform with a sound characteristics control line and displacing the line."

1. Educational Information

The term "educational information" 1 is used in the preamble of Claim 1 to set forth the intended use of the invention claimed. The term is also used in the recitation of the claim elements expressly and by the use of "said information." Accordingly, the term, in particular the word "education" as a modifier of "information," is part of the claim elements defining the invention. Compare Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 868 (Fed. Cir. 1985) overruled on other grounds by Nobelpharma AB v. Implant Innovations, Inc., 141 F.3d 1059 (Fed. Cir. 1998). In other words, the word "educational" modifies "information" so that the claim does not reach all information but, rather, that subset of information that is "educational."

Footnotes

1 For some reason, the examiner substituted "educational" for "instructional" and the patentee accepted the change (Tr. 19) All references to "Tr." herein are to the transcript of the claim construction hearing held on June 9, 2003.

End Footnotes

The claim refers to "educational information" as being entered, transmitted and displayed. 2 Inasmuch as the word
"educational" cannot be read out of the claim, it necessarily follows that information that can be entered, transmitted and displayed could be educational or could be non-educational. Information, per se, has no inherent character as educational or non-educational. The characterization necessarily is determined by the context in which the information is entered, transmitted and displayed.

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2 The claim also states that the information "appears on" monitors which is the same as its being "displayed."

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It may well be the case that all, or virtually all, conceivable information could be entered, transmitted and displayed in an educational context. For example, this very paragraph could be considered "educational information" if entered, transmitted and displayed in a course on how to, or perhaps how not to, write a good claim construction decision. On the other hand, the information in this paragraph cannot realistically be viewed as "educational" in its current context as part of a judicial claim construction decision that informs the parties of the Court's opinion. Thus, the Court rejects Plaintiff's contentions that any communication that informs, necessarily educates, so that any witness would be considered to be "educating" a judge and jury 3 (Tr. 36), a lawyer communicating a settlement offer would be deemed to be "teaching" opposing counsel the amount which the client will accept to settle a case, (Tr. 29) etc.

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3 It is, of course, conceivable that an expert witness in certain situations could be viewed as "educating" the judge and jury.

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A clear, but not exclusive, illustration of an educational context is provided in the '520 Patent itself. A student in a classroom 4 can enter information (such as text or a drawing) which is displayed on the student's and teacher's monitor, the teacher can add information (text or nontextual markings), which is displayed on the student's and the teacher's monitors. The information that is thus being entered, transmitted and displayed would be "educational information" as that term is used in Claim 1.

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4 Physical or virtual for that matter.

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Examples of situations in which information was being entered, transmitted and displayed in a context in which there is no teacher/student or student/teacher relationship would include lawyers negotiating by marking up a contract draft, a buyer and seller collaborating on the design of an item (e.g. a cake, a label, a microchip) etc. In such contexts the persons sharing a common whiteboard would not be entering, transmitting and displaying "educational information" as that term is used in Claim 1.

Of course, there may be factual issues as to whether information in particular contexts is, or is not, "educational" as that term is used in Claim 1. Thus, a fact finder might find that a company's display of a picture of a new product to its sales force who could respond by marking the picture would be educational and yet find that the company's display of the same picture to a customer who could place an order by marking the picture would not be.

The Court notes that it appears unlikely that there will be any material issue turning on the precise definition of "educational information." The '520 Patent makes claims for a system which has the capacity to facilitate two or more persons in the entry, transmission and display of "educational information." If a particular accused system can facilitate the entry, transmission and display of educational information, the fact that it may be able to do so for non-educational information as well does not appear to be of particular significance. 5
The Court concludes that "educational information" shall be construed to mean information that is entered, transmitted and displayed in a context in which there is a teacher/student or student/teacher relationship between a person who enters and transmits the information and a person who views the shared display of the information.

1487

The parties disputed six terms used in the claims of the '843 patent. The Court has construed those terms as follows:

a) "Waveguiding structure" is used interchangeably with "waveguide" and is defined as: "A structure formed by a waveguiding film and a substrate and containing a diffraction grating";

b) "Waveguide film" means: "A film which, in combination with a sample having a lower index of refraction and a substrate can guide light along a path";

c) "Diffraction grating" means: "Any arrangement in the waveguiding structure that imposes a periodic variation of amplitude and/or phase on an incident wave";

d) "Wavelength" means: "A wavelength of light at which the optical sensor, including the waveguiding structure, waveguiding film, and diffraction grating, detects chemical, biochemical or biological substances in the sample";

e) "Effective index" means: "A number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum";

f) "Measuring the effective index and effective index change" means: "determining the effective index" and "determining the effective index change."

(D.I. 156).

1488


The dispute regarding the first element of claims 1, 13, 25 of the '761 patent and claims 1, 10, and 21 of the '282 patent centers around the meaning of the following underlined limitation:

first operational means for storing a plurality of prescribed response messages, each of which, when played back, effectively corresponds to the voice of the operator who is on-line with and services incoming calls; and

second operational means, coupled to said first operational means and operable in conjunction with the on-line operator's servicing of an incoming call, for selectively accessing a response message from among said plurality of stored response messages in dependence upon information contained within said incoming call being serviced by said on-line operator and which is representative of the type of call to which said incoming call corresponds, and causing said selectively said accessed response message to be played back to said incoming caller.

The parties agree that claim 1 in the '761 and '282 patents is written in the "means-plus-function" form pursuant to 35
U.S.C. § 112 P 6. The parties, however, disagree how the claims should be interpreted.

Construction of a means-plus-function limitation involves two steps. First, this Court must identify the claimed function. After identifying the claimed function, the Court must then determine what structure, if any, disclosed in the specification corresponds to the claimed function. See Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 296 F.3d 1106, 1113 (Fed. Cir. 2002).

Rockwell contends that the function described in the "first operational means" is: "storing a plurality of prescribed response messages, each of which, when played back, effectively corresponds to the voice of the operator who is on-line with and services incoming calls." Docket No. 121 at 9 (emphasis added). Rockwell further contends that the structure disclosed in the specification associated with the "effectively corresponds" claimed function requires "adjustment by automatic level control circuitry" to ensure that there is effectively no difference in the audio level of the recorded voice played back to the caller and the 'live' voice spoken by the operator." Docket No. 121 at 11.

Golden Voice, however, contends that the function described in the "first operational means" is: "storing a message." Golden Voice argues that the subject phrase -- "each of which, when played back, effectively corresponds to the voice of the operator" -- describes the message that is recorded, not the function of recording the message. Golden Voice, therefore, claims that the phrase "effectively corresponds to the voice of the operator" is not limited to the structure described in the specification under 35 U.S.C. § 112 P 6. Its only requirement is that the operator record the message in his or her own voice. Docket No. 122 at 8. This Court agrees.

The function of the "first operational means" is simply "storing a message," and the subject phrase merely describes the message that is being stored. The automatic control circuitry does not relate in any way to the "storing" of a message. At the storing level, all that is required is that the operator record the message in his or her own voice. Moreover, the subject phrase -- "each of which, when played back, effectively corresponds to the voice of the operator who is on-line with and services the incoming calls" -- is not part of the second element that describes how the messages are actually played back to the caller. If the first claim element was meant to incorporate a limitation that the messages are manipulated by the same automatic level-control circuitry as the operator's voice signals when played back, that limitation would have to be included in the play-back second element of the claims, not the first. That second element (the second operational means), however, does not include any such phrase. Rather, the second element relates to the means for selectively accessing and playing a prerecorded message based on information from the incoming call.

Further, under the doctrine of claim differentiation, no limitation requiring that the voice signals and the recorded message signals be adjusted in the same manner can be read into the independent claims at issue. Each of the independent claims at issue that contain this phrase have dependent claims which further limit the way in which messages are played back through the automatic control circuitry by "adjusting in effectively the same manner, at least one prescribed characteristic of each of said voice message from the operator and the played back message." 7 See DX 1, '761 patent claims 4, 8, 11, 17, 21, 24, and 27; and DX2, '282 patent claims 4, 9, 13, 17, 20, and 23. Independent claim 33 also contains this same limitation as its added element ("c"). Because claim 33 and like dependent claims employ different language to recite a single audio interface with a voice level adjustment that is automatically applied to the recorded voice as well as the live operator voice, such a limitation should not be read into the independent claims at issue.

7 As noted earlier, the parties agree that the language "adjusting, in effectively the same manner, at least one prescribed characteristic of each of said voice message from said operator and said played back message" incorporates using automatic control circuitry to adjust the recorded voice and the operator's voice.

The specification also supports this construction of the claims. The specification does not specifically describe "effectively correspond" as requiring "adjustment by automatic level control circuitry." 8 The specification throughout, however, does describe a way for the recorded messages to compare closely to the live operator's voice -- they are recorded by that operator. DX 1, '761 patent, Abstract, 1:57 - 64, 7:33 - 38. In describing the recording of the operator's voice, the patent specification states that "because the operator is able to record his/her voice in a time frame approximate that during which
the operator will be on-line with incoming calls, characteristics of the voice as stored in memory will be substantially identical to that of the operator when the operator is on-line." DX 1, '761 patent, 7:33 - 38. Although the preferred embodiment described in the specification routes the play-back of prerecorded messages and the live voice of the operator through a common level adjustment control amplifier 103, nothing in the subject claim language requires that setup. Nor is the subject claim language written as the function of the "first operational means" in claim 1.

--- Footnotes ---

8 It is common sense that no dictionary would define "effectively correspond" as requiring "adjustment by automatic level control circuitry." "Corresponds" simply means "to compare closely." Docket No. 122, Ex. F.

--- End Footnotes ---

This Court's claim interpretation is in full conformance with the prosecution history. The claims which were modified to become the independent claims at issue contained the phrase "effectively corresponds to the voice of the operator who is on-line with and services incoming calls" in the original submission to the Patent Office. In that same submission, there were claims that depended from these claims that included the language "adjusting, in effectively the same manner, at least one prescribed characteristic of each of said voice message from said operator and said played back message." As explained above, in the first July 12, 1985, Office Action the examiner distinguished those dependent claims from the prior art and explained that the claims would be allowed if they were written in independent form.

The prosecution history shows there is a distinction between claims (such as '761 patent claim 33) which require adjusting the operator's voice signal and the played back message on a common output, i.e., having a voice-level adjustment that is automatically applied to the operator's voice and the messages, and those claims which merely recite that the stored message, when played back, "effectively corresponds to the voice of the operator who is on-line with and services incoming calls." By drafting independent claims with the limitation of "adjusting, in effectively the same manner" without any argument over the examiner's statements regarding the meaning of this phrase, the applicant accepted that meaning for those claims. Applicants further showed that the independent claims which contain the phrase "effectively corresponding . . ." do not require adjusting the voice message and the automatic message with a common automatic voice level adjustment. Applicants never argued that the claims containing this phrase were equivalent to the other claims, and therefore should be allowable under the distinction the examiner made.

The interplay between the examiner and the applicants in the prosecution history makes it clear that the phrase "effectively corresponds to the voice of the operator" simply means that the recorded message must be in the voice of the operator. In the summary of the September 17, 1985 interview with the examiner, the applicants' attorney described the invention as "stored messages plus following real-time conversation of an operator, in the same voice."

In the September 30, 1985 Amendment following the telephone interview, the applicants specifically explained that the correspondence between the operator's voice and the recorded message was as achieved "through a scheme providing response messages . . . which . . . have been previously recorded in the voice of the operator who is attending to the servicing of the call . . . the calling party hears the same voice, whether it be the live operator's voice at the servicing console or a played-back voice from the prerecorded message source."

In the November 27, 1985 second Office Action, the examiner rejected the claims containing the phrase "effectively corresponds to the voice of the operator" stating that having the voice messages recorded in the operator's own voice was simply an obvious variant over prior art answering machines. In responding to the examiner in the December 30, 1985 Amendment, the applicants did not assert that the distinction over the prior art was that the claims required adjusting both the operator's live voice and the prerecorded messages along a common output path, which the examiner had already accepted as a distinction. Instead, the applicants argued that the claims were distinguishable from the prior art because the operator who had recorded the messages was actually on-line with the caller and that, based on the information received, the operator could selectively access and play a recorded message.

Thus, the plain language of the claims, the specification, and the prosecution history establish that "effectively corresponds to the voice of the operator who is on-line with and services incoming calls" in Claims 1, 13, and 25 of the '761 patent and Claims 1, 10 and 21 of the 282 patent simply requires that the messages be recorded in the voice of the operator who is on-
Defendants' second objection is that the Magistrate's interpretation of the words "effectively corresponds" is inconsistent with the specification and reads the word "effectively" out of the claims. The limitation that the prerecorded message "effectively corresponds to the voice of the operator" appears in claims 1, 13, and 25 of the '761 patent and claims 1, 10, and 21 of '282 patent. The Report and Recommendation holds that this limitation simply means that the prerecorded message of the operator must be in the voice of the operator who is on-line with the caller. Doc. No. 140 at 28.

Defendants contend that effective correspondence means that the device itself controls the quality of the playback in such a manner that the caller does not know the recording is a recording. Defendants state that the specification makes it clear that the invention requires two things in order to accomplish this: the use of the operator's own voice and the use of automatic level control circuitry. Accordingly, Defendants argue that the proper construction of the phrase should be: "a response message that is adjusted by automatic level control circuitry to ensure that there is effectively no difference in the audio level of the recorded voice of the operator played back to the caller and the 'live' voice spoken by the same operator." Doc. No. 142, at 14.

In support of their position, Defendants cite the following descriptions provided by applicants in the "Summary of Invention" for the '761 patent:

The audio interface contains automatic level control circuitry which ensures that there is effectively no difference in the audio level of the recorded voice played back to the caller and the 'live' voice spoken by the operator. As a result, because the recorded message is in the operator's own voice and both live voice and played-back voice are coupled over the same signal flow path, the storage and retrieval system is effectively listener transparent.

DX 1 ('761 patent) at col.2, lines 25-33.

More specifically, the voice that is heard by the caller 70, whether it be the operator's own voice supplied from the operator's microphone over input link 71, or from the audio output from the synthesizer over input line 21, appears to the same voice in terms of quality and amplitude. The quality is the same because the voice message is a message in the voice of the operator who is actually providing the service at the telephone facility handling the caller's incoming call. In addition, because both the operator's voice signal supplied from his/her microphone and synthesized voice signal supplied from the digital storage equipment are coupled to the same amplification and level adjustment circuitry, there is no sharp inflection or level change between the two voice signals. Thus, the storage and retrieval and audio processing circuitry is effectively listener transparent.

Id. at col. 9, lines 50-60.

Finally, the "Summary of Invention also states:

At the same time the present invention permits the operator to follow-up the played-back message with a conversation with the caller, without the caller detecting a difference in the characteristics of the played-back voice and the "live" operator's voice so that the operator voice response message storage and retrieval system is effectively transparent to the caller.

Id. at col. 1, line 63 to col.2, line 2.

Elsewhere the specification states:

The audio interface contains automatic level control circuitry which ensures that there is effectively no difference in the recorded voice played back to the caller and the "live" voice spoken by the operator.

Id. at Abstract. see also Rockwell Initial Markman Brief at 11-15.
The Court finds this argument unpersuasive. First, as the Magistrate noted, the specification does not specifically describe "effectively correspond" as requiring "adjustment by automatic level control circuitry." Doc. No. 140 at 25. The patent specification states that "because the operator is able to record his/her own voice in a time frame approximate to that during which the operator will be on-line with incoming calls, characteristics of the voice as stored in memory will be substantially identical to that of the operator when the operator is on-line. DX 1, '761 patent, 7:33-38. Although the preferred embodiment described in the specification routes the play-back of prerecorded messages and the live voice of the operator through a common level adjustment control amplifier 103, nothing in the subject claim language requires that arrangement. Doc. No. 140 at 25.

The prosecution history also supports the Magistrate's construction. As noted above, the original patent application presented independent claims 1, 14, 27, 30, 36, and 41. Dependent claims were 4, 9, 13, 17, 22, 26, 29, 31, 37, and 42, all of which further provided: "adjusting, in the same manner, at least one prescribed characteristic of each said voice messages from said operator and said played back message." Doc. No. 122, Ex.C at 28-33 and 35-38. In the first Office Action, the examiner rejected all of the independent claims but stated that the dependent claims "would be allowable if written in independent form," recognizing that these claims "require adjustment of characteristics of messages from both the operator and the playback source." 1d. at 58-59 (emphasis added).

In their second application, filed on September 26, 1985, applicants rewrote in independent form the dependent claims the examiner had approved because they contained the above cited language. This provision was not included in the other independent claims. Those claims continued to contain the language in dispute, "which message, when played back, effectively corresponds to the voice of the operator."

Although the examiner clearly approved the original dependant claims because they required adjustment of message characteristics from both the operator and the message playback source at a common path output, Defendants argue that the limitation in claim 1 requires adjusting only the response message through the use of automatic level control circuitry so that it matches the live voice of the operator. They suggest that this could be accomplished, for example, by measuring the volume of the operator's live voice and adjusting only the volume of the response message to match the volume of the live voice. However, the communications between the examiner and the applicants show that this was never applicant's intent.

As previously described, there were several discussions between the examiner and the applicants over whether simply recording a message in the voice of the operator was precluded by prior art. Once the examiner approved the independent claims which required adjustment of both the operator and the response message at a common path output, applicants continued to press for acceptance of the pending independent claims which did not contain that language. Applicants argued that these claims were distinguishable over prior art, not because the claims required adjusting both the operator's live voice and the prerecorded messages along a common output path, or because effective correspondence could be achieved by adjusting only the response message by use of automatic level control circuitry, but because the operator who had recorded the messages was actually on-line with the caller and that, based on the information received, could selectively access and play a message recorded in his or her own voice. The patent was ultimately granted allowing applicants' language to stand.

As the Magistrate noted, the prosecution history shows that applicants made a clear distinction between claims which require adjusting the operator's voice signal and the played back message on a common output, and those claims which merely recite that the stored message, when played back, "effectively corresponds to the voice of the operator who is on-line with and services incoming calls." 8 Accordingly, the Court adopts the Magistrate's construction of the phrase.

--- Footnotes ---

8 It should also be noted that the provisions from the Summary of Invention and the specification cited by Defendants undercut their argument. Two of the four references clearly state that the effective correspondence is achieved by having both the operator's live voice and the played-back voice coupled over the same signal flow path. None of the citations state that such correspondence can be achieved by adjusting only the response message.

--- End Footnotes ---
2. "Machine processing effectiveness parameter" (claims 1, 3, 5)

TriPath urges me to construe "machine processing effectiveness parameter" according to its ordinary meaning: "a predetermined value that is an indication of whether a machine has examined the specimen properly." Cytyc argues for a more specialized construction: "a parameter, relating to a normal/abnormal diagnosis made by the machine, that describes how effectively a particular machine performs the processing." The dispute between the parties turns on whether the parameter relates to a normal/abnormal diagnosis.

The specification indicates that "machine processing effectiveness parameter" does not relate to a normal/abnormal diagnosis. Although the entire term, "machine processing effectiveness parameter," does not appear in the specification, portions of it do. These portions shed light on the term's meaning. Consider the following excerpt from the "Background of the Invention" section of the specification:

Machine effectiveness measures, such as the percentage of requested fields of view that were focused adequately or the percentage of acquired images that had saturated pixels, are measures of how well the automated cytology system has begun to process a slide and how it proceeds to process a slide.

'327 patent at col. 1, 11. 17-22. "Effectiveness" appears to be the ability to process a slide properly. The specification uses "processing parameters" and "measures" interchangeably. See id. at col. 5, 11. 41-43. Combining these terms, a "machine processing effectiveness parameter" indicates whether the machine has examined the specimen properly. It relates not to the normal/abnormal diagnosis made by the machine, but to the reliability of that diagnosis.

This construction makes sense in the context of the entire patent. The invention at its essence is a suitability testing machine. It conducts thirteen tests and computes a score indicating how accurate a diagnosis is likely to be. The "machine processing effectiveness parameter" to which claims 1, 3, and 5 refer relates to whether a slide has been suitably processed n10. It is separate from the diagnosis of normal or abnormal.

Cytyc argues that the prosecution history supports construing "machine processing effectiveness parameter" as related to a normal/abnormal diagnosis. The examiner initially rejected the claims because prior art disclosed methods of determining processing effectiveness, such as the condition of the slide and its position and movement on the microscope stage. Cytyc/Callahan Decl. Ex. 35 ('327 File History, December 18, 1995 Amendment (C0129883)). In the Amendment dated December 18, 1995, the patentee distinguished his invention by noting that the prior art did not disclose measuring and checking at least one machine processing effectiveness parameter. Id. The patentee emphasized that his invention identifies errors caused by the machine, not just the condition of the slide. Id. He further explained that "the machine processing referred to in the instant specification relates to processing the biological specimen slide to determine if the slide is normal or abnormal." Id.

Cytyc seizes upon this language to justify its proposed construction. The Amendment clearly defines machine processing as the method by which the machine arrives at a diagnosis of normal or abnormal. This, however, does not support Cytyc's definition of "machine processing effectiveness parameter." Again, the parameter is an indicator of the effectiveness of the machine processing. It relates to the ability of the machine to make a diagnosis, not the diagnosis itself.

Therefore, to be consistent with the specification and the prosecution history, the proper construction of "machine processing effectiveness parameter" is "a predetermined value that is an indication of whether a machine has examined the specimen properly."
"First plurality of egress queues"

"Second plurality of egress queues"

Cisco's proposed construction for the phrase "first plurality of egress queues" is "two or more queues consisting of the organization in memory of the first units of data (claim 1) or frames (claim 6)." Cisco's proposed construction for "second plurality of egress queues" is "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of the first units of data (claim 1) or frames (claim 6)." Alcatel's proposed construction of the two phrases are "two or more queues consisting of the organization in memory of data generated from the egress traffic of a network," and "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of data generated from the egress traffic of a network," respectively.

Since the construction of the phrase "second plurality of egress queues" is agreed upon between the parties - in that it is two or more queues that are different from the first plurality of egress queues, and incorporates the same construction of "first plurality of egress queues" as proposed by each party - the Court will adopt this agreed upon construction of "second plurality of egress queues," and simply determine the proper construction of "first plurality of egress queues."

Cisco's proposed construction effectively reads out the word "egress" from the term. Instead, Cisco proposes to construe the term based on the constructions for the terms "first units of data" and "frames." Curiously, Cisco also argues, as discussed below, that "first units of data" requires no construction. Therefore, were the Court to adopt Cisco's proposed construction, "first plurality of egress queues," as used in claim 1, would be interpreted as simply two or more queues consisting of the organization in memory of a first set of data units, without any regard for the direction that those units are traveling, which is an explicit component of the term. This Court will not ignore the word "egress" in construing the term "first plurality of egress queues." See Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562 (Fed. Cir. 1991) (recognizing that all limitations in a claim are considered meaningful).

Moreover, Cisco offers no evidence from the patent to support its proposal, other than its claim that since claim 1 refers to "first units of data" as comprising the "first plurality of egress queues," and claim 6 refers to "frames" in the same context, the term should be construed based on those terms. As mention above, construing "first plurality of egress queues" based on the terms "first units of data" and "frames" ignores the use of the word "egress" in the claim term, and therefore does not provide a proper construction of the term. Even Cisco's reliance on the testimony of its expert does not support its construction. Prof. Acampora bases the reasoning behind his proposed construction of the term, which, of course, is identical to Cisco's proposed construction, on the opinion that "one of ordinary skill in the art would be very familiar with queues, and would understand them to be logical organization of data in memory." Acampora '032 Report, at 4-5. However, this claim is not simply dealing with queues, but rather with egress queues; it is this very limitation that Cisco fails to recognize in its proposed construction.

Alcatel's proposed construction comports with the language of the claim, as well as the patent specification. In particular, the patent identifies "egress queues," and the word "egress" in general, as coming from the direction of a network. See Valizadeh, at 1:35-40, 2:60-67. Therefore, the Court adopts Alcatel's proposed construction of "first plurality of egress queues" as "two or more queues consisting of the organization in memory of data generated from the egress traffic of a network." Accordingly, the proper construction of "second plurality of egress queues" is "two or more queues, different from the first plurality of egress queues, consisting of the organization in memory of data generated from the egress traffic of a network."
phrase be construed as "data that has exited a network and is directed to customer premise equipment."

In support of its proposed construction, Alcatel points primarily to the "background" section of the patent where the egress traffic is directed towards customer premises equipment. See Valizadeh, at 1:30-38, 1:58-65. Additionally, certain other points in the specification also indicate CPE as the recipient of the traffic leaving the network. See id. at 3:66-4:2, Fig. 1. Moreover, Alcatel claims that the following statement in the background section shows a clear intention to define "egress traffic" as data being transmitted to customer premises equipment: "data received from the common carrier ATM network (i.e. 'egress traffic') is transmitted correctly to the customer premises equipment." See id. at 1:30-38.

Alcatel's arguments are unpersuasive. Aside from attempting to limit the claims to the description in the preferred embodiment, Alcatel's contention that the above sentence demonstrates a clear attempt to define "egress traffic" in accordance with Alcatel's proposed construction is incorrect. First, that sentence simply indicates that egress traffic would encompass the situation where traffic was traveling from an ATM network to CPE. It does not limit egress traffic to that situation. Second, the phrase "i.e. 'egress traffic'" is included after the phrase "data received from the common carrier ATM network." If it was intended to be limited to traffic directed to CPE, it would have been included after the phrase "transmitted correctly to the customer premises equipment." Third, the specification also indicates that it is not limiting the schemes described in the specification to the exact scenario disclosed in the specification. See Valizadeh, at 3:19-24 ("The queuing and servicing schemes described herein may be readily adapted to any system wherein additional granularity is desired . . ."). Finally, in the "Object of the Invention" section of the patent, nowhere does it state that the egress traffic must be directed toward customer premise equipment. "[I]t is an object of the present invention to provide an improved buffering and servicing scheme in the egress direction. This and other objects of the invention are provided by a method for queuing and servicing egress traffic of a network." Id. at 2:6-11.

As Cisco points out, the term "egress traffic of a network" is included in several claims (claims 1, 5, 6, 9, 12, 13, and 14), and the term is only explicitly limited to traffic moving towards customer premise equipment in claims 6 and 9. Thus, where the inventor intended to limit the patent to egress traffic moving towards CPE, he was capable of doing so explicitly. Cf. CFMT, Inc. v. Yieldup Int'l Corp., 92 F.Supp. 2d 359, 372 (D. Del. 2000) (recognizing that when one term is used in the specification and a different term was used in the claim, the inventors were capable of referring to the first term if that was what they had intended to convey). Therefore, as discussed previously, it would be improper to read the limitations from claims referring to customer premises equipment into the claims that specifically do not refer to customer premises equipment.

While the proper construction of "egress traffic of a network" in this patent does not require the traffic to be directed to customer premises equipment, there is still some dispute over whether Cisco's proposed construction is proper. Cisco proposes the construction, "traffic being transmitted out of a network." On the other hand, Cisco's expert claims that one of ordinary skill in the art would understand the phrase to mean "traffic on its way out of a network." Lumish Decl., Ex. AA ("Acampora '032 Report"), at 4. Neither of these definitions, however, allow for the existence of "transit traffic," which, according to Alcatel's expert, is "traffic that is being transmitted within the network, between the first and last node of the network." Lucantoni '032 Decl., at P 28. Essentially, under Cisco's proposed construction, all traffic eventually destined to exit the network would qualify as "egress traffic," instead of traffic that actually is exiting the network. In the patent, however, "egress traffic" is always in the process of actually exiting the network, as the entire patent is designed to create a method for queuing and servicing traffic in the process of exiting the network. Thus, the claims are clearly referring to only that traffic that has exited or is exiting the network, not all traffic that will eventually exit the network.

Furthermore, while the claim language and specification do not limit the type of "network" to an ATM network, the claims and the specification are not referring to "egress traffic of a network" as simply any traffic that has exited or is exiting any "distinct set of interconnected elements used to communicate data," as is the proper construction of the term "network," discussed above. Since all traffic in the patent is flowing from one type of network to another, all traffic is both entering and exiting a "distinct set of interconnected elements used to communicate data" at the same time, and thus Cisco's proposed construction would not limit "egress traffic of a network" to traffic flowing in any particular direction. Instead, the patent and claim language are more accurately referring to traffic flowing from a network operating at a faster data rate (such as a common-carrier ATM network) to a network operating at a slower rate, and possibly using different protocols (such as customer premises equipment comprising a Frame Relay network). See, e.g., Valencia, at 1:30-32, 37-39, 2:46-48, 3:25-29, 40-43, Figs. 1-2. Thus, when the patent discusses "egress traffic of a network," it is referring to the network operating at a faster rate, whether it is an ATM network or not.
Therefore, the proper construction of "egress traffic of a network" is "traffic that has exited or is exiting a network operating at a faster data rate and directed towards a network operating at a slower data rate."

3. The phrase "EITHER . . . OR" (claim 19) means that a minimal requirement of the signal is that a significant component is derived from at least one or the other signal. Thus, the claim language requires at least one, but does not exclude the possibility of both.

Element [d] is described as "a first electrical conductor connecting the ground mechanism to the utility box for electrically grounding the utility box." Senior Industries puts forth that the correct interpretation of this element is "a structure (possibly including several elements such as grounding wire and a clamp), which can transmit electricity from the utility box to the ground mechanism so as to ground the utility box." Thomas and Betts argues that "a ground wire connected at one end to the ground rod and at the other end to the meter box enclosure." Senior Industries interpretation is supported by the language of the specification. The specification states the following:

For example, a conduit 16 holds a large size grounding wire which is connected through a clamp 20 to an elongated grounding rod 22 sunk into the ground G. Typically, this grounding rod 22 may be six feet or more in length and is located within three feet or other close proximity to the base of the building. Ground wire 18 is then connected to a grounding bracket (not illustrated) within the electric box in a known manner.

(The '960 patent, col. 3, lines 54-62).

This passage confirms that the inventor intended the claim terms to be accorded their ordinary meaning and the specification supports Senior Industries interpretation of such. Therefore, Senior Industries's more descriptive claim construction shall be applied to element [d].

A. CONDUCTIVE PATH.

For the first, second, and third conductive path claim terms, the patent uses the word "means," followed by a recitation of function, resulting in the rebuttable presumption that the element is a means-plus function element subject to 35 U.S.C. § 112, P 6. Leviton, thus, has the burden of overcoming the presumption by showing that the claim element recites sufficiently definite structure to perform the specified function. See Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d at 1364.

The Court finds that Leviton has met its burden because the term "conductive path" connotes sufficient structure, especially when coupled with the surrounding terms that provide location and formation descriptions. In determining whether a term itself is a structural term as understood in the art, courts frequently examine dictionary definitions. See Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004) ("[W]e have looked to the dictionary to determine if a disputed term has achieved recognition as a noun denoting structure, even if the noun is derived from the function performed."); Linear Technology Corp. v. Impala Linear Corp., 379 F.3d at 1320 (consulting technical dictionary to determine whether "circuit" connotes structure); Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d at 1365 (referring to dictionary definition of word "baffle" to determine whether it is structural term). Merriam Webster's Collegiate Dictionary 241 (10th ed. 1993) defines "conductor" as "a material or object that permits an electric current to flow easily." Because the term "conductor" -- a material or object -- imparts structure, the Court finds that a person with ordinary skill in the field would understand that the related term "conductive path" also imparts structure. Cf. Linear Technology Corp. v. Impala Linear Corp., 379 F.3d at 1320 (holding that term "circuit" connotes structure).
Furthermore, the contextual claim language describes the particular structure for each conductive path. In particular, each element provides further location and formation detail apart from the function itself. The "first electrical conductive path means" element, after describing its function as "conducting electricity," further states that it must be "capable of electrically connecting to a source of electricity." This statement provides a location and formation for the conductive path, which is more than just a general description of any structure that will perform a particular function. 3 Cf. Phillips v. AWH Corp., 415 F.3d at 1311 (holding that term "baffles" is structural because claim characterizes baffles as "extend[ing] inwardly" from steel shell walls); Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996) (holding that claim which described not only the structure (perforations) but also its location (extending from leg band to waist band) and extent (extending through outer impermeable layer) recites too detailed a structure to constitute a means-plus-function element); MediaCom Corp. v. Rates Technology, Inc., 4 F.Supp.2d 17, 27 (D. Mass. 1998) (holding that "switch means operatively connected to said first jack means for disconnecting said first telephone from said network" was not a § 112, 6 means-plus-function statement because it describes structure that supports disconnecting function (i.e. a switch or switches) and describes it as connected to adjacent structure, the first jack). Similarly, the second electrical conductive path describes additional location and formation detail when it states that it is "capable of electrically connecting to at least one load when electrical continuity between said first and second electrical conductive path means is made." The third electrical conductive path also provides additional structure: "capable of electrically connecting to at least one user accessible load when electrical continuity between said first and third electrical conductive path means is made."

3 The Court disagrees with the Defendants' interpretation that this phrase describes further function, rather than structure.

Leviton's expert, Dr. Jaime De La Ree, also confirmed that a person of ordinary skill in the field would understand that the term "conductive path" connotes structure, especially in light of the contextual language following the term. That the terms may not connotate a precise physical structure does not compel a finding of insufficient structure. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d at 1370; Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d at 1583. For this reason, the Court declines to adopt the opinion of Defendants' expert, Dr. John Choma, who opined that the term "electrical conductive path" can only impart sufficient structure if the claim contains a delineation of the material used in the conductive path or a description of the geometry, shape, size, or conductive quality of the path. The case law indicates that such a precise physical structure is not required to find sufficient structure. See id. The Court also declines to adopt Dr. Choma's opinion that the term "electrical conductive path" conveys only a schematic depiction of a hard-wired connection between two arbitrary points, A and B. His opinion does not take into account the language following the term "conductive path," which conveys location information as to the connecting points for the conductive path. For example, the term "first electrical conductive path" imparts more than just a connection between two arbitrary points; rather, it imparts a hard wired connection (structure) to a source of electricity. Finally, the Court notes that Dr. Choma's opinion actually supports its finding that the term "conductive path" connotes structure, because a hard-wired connection between points imparts structure.

The Defendants primarily rely on two distinguishable cases in support of their position: Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533 (Fed. Cir. 1991), and Unidynamics Corp. v. Automatic Prods. Int'l, Ltd., 157 F.3d 1311 (Fed. Cir. 1998). In Laitram Corp. v. Rexnord, Inc., the Federal Circuit held that the claim language "means for joining said pluralities to one another so that the axes of said holes of said first plurality are arranged coaxially ..." was a means-plus-function element. 939 F.2d at 1535-36. That case is inapposite because, unlike here, the claim did not provide a specific structure for what the "means" was. In this case, the claim states a structure before the term "means," for example, "first electrical conductive path means." The term "conductive path" has a structural meaning to those skilled in the art of GFCI devices, as evidenced by its dictionary definition and by the expert opinions of both Dr. De La Ree and Dr. Choma. Furthermore, use of the term "conductive path" coupled with the additional structural language in the claim sufficiently tells a person skilled in the art what it is structurally. "Conductive path means" conveys far more structure than simply "means," and therefore, the case of Laitram Corp. v. Rexnord, Inc. is not controlling.

Unidynamics Corp. v. Automatic Prods. Int'l, Ltd. is likewise distinguishable. In that case, the Federal Circuit held that the claim phrase "spring means tending to keep the door closed" is a means-plus-function element. See 157 F.3d at 1319. In doing so, it distinguished Cole v. Kimberly Clark Corp. by reasoning that in that case the claim term not only described
sufficient structure (perforations) but also described the location and extent of the structure. See Unidynamics Corp. v. Automatic Prods. Int'l. Ltd., 157 F.3d at 1319. In contrast, in Unidynamics Corp. v. Automatic Prods. Int'l. Ltd., "spring" was the only recitation of structure, which the court found insufficient. See id. The claim phrase in this case, by contrast, not only describes sufficient structure ("conductive path"), it also describes the location and formation of the structure (e.g., "capable of electrically connecting to a source of electricity"). The holding in Unidynamics Corp. v. Automatic Prods. Int'l. Ltd. is therefore also inapplicable to this case. 4

The Defendants also cite a number of other cases in support of their position: Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420 (Fed. Cir. 1997); Sule v. Kloehn Co., 149 F.Supp.2d 115 (D.N.J. 2001); Nilsson v. Motorola, Inc., 80 F.Supp.2d 921 (N.D. Ill. 2000); and Fairchild Semiconductor Corp. v. Nintendo Co., 30 U.S.P.Q.2d 1657 (W.D. Wash. 1994) (unpublished opinion). The Court finds these cases similarly distinguishable for the following reasons: the terms "conductive path" and "circuit interrupter" impart sufficient structure, as evidenced by their ordinary definitions and by the expert opinions of Dr. De La Ree and Dr. Choma, and the language following the terms imparts additional location information that adds structural detail. The combination of these factors distinguishes the elements at issue in Claim 3 from those in the cases cited by the Defendants.

The Court additionally finds the case of Leviton Manufacturing Co., Inc. v. Universal Security Instruments, Inc., 2005 U.S. Dist. LEXIS 6911, 2005 WL 936990 (D.Md. April 22, 2005)(unpublished opinion), distinguishable. That case not only involves different claims (Claims 1, 2, and 4) of the '558 patent, but also different terms. See id.2005 U.S. Dist. LEXIS 6911 [WL] at *13-14. Moreover, in that case, Leviton's own expert stated that the term "reset lock-out" had no standard meaning in the art and that he had never used the term before his work in that litigation. See id.2005 U.S. Dist. LEXIS 6911 [WL] at *28. Leviton also produced no evidence to demonstrate that "reset mechanism" has a well understood meaning as structure to a person of ordinary skill in the art. See id. 2005 U.S. Dist. LEXIS 6911 [WL] at *36. The expert opinions in this case are in stark contrast: both experts acknowledge that the terms "conductor" and "circuit interrupter" impart structure. The expert opinions in this case in combination with the dictionary definitions set the elements at issue in Claim 3 apart from the elements in Leviton Manufacturing Co., Inc. v. Universal Security Instruments, Inc.

For all the above reasons, the Court concludes that the terms "first electrical conductive path," "second electrical conductive path," and "third electrical conductive path" are not subject to 35 U.S.C. § 112, ¶ 6. The Court will thus construe these terms using standard claim construction rules, as set forth in Leviton's Claim Construction chart.

GO BACK

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Electrical instructions are sent thereto for interpretation by the loaded program

Lantronix contends this term should be construed as "electrical signals are sent to the circuitry and are acted upon by the loaded program." Lantronix argues that the specification reveals that the functionality described in this claim phrase is not limited to one particular implementation and Lantronix's construction is intended to encompass all the implementations. Lantronix contends a number of devices can send instructions that configure the connector, see 470 patent, 2:10-32, and the instructions can be implemented in multiple ways, see 470 patent, 3:58-63,4:15-17. Lantronix objects to Digi's construction for the same reasons it objected to Digi's construction of "electronically communicate. . . ."

Digi contends the term should be construed as "the connector receives an electrical signal from an external electronic device and uses that signal to change the protocol, parameters, and pin-outs." Digi argues the "phrase describes the connector's receipt of an electrical signal from one of the external devices and subsequent use of that signal, through the loaded program, to adapt itself into a desired connecting configuration and/or function between the devices." See 470 patent, 1:21-24. As Digi previously contended, its contents here that the physical configuration is accomplished by changing the protocol, parameters or pin-outs so that the two devices can communicate with each other. See 470 patent, 2:10-14. Digi criticizes Lantronix's use of "loaded program," which is contained in the claim.

The Court construes "electrical instructions are sent thereto for interpretation by the loaded program" to mean "electrical
signals are sent to the circuitry and are acted upon by the loaded program." As discussed above, Digi's "protocol, parameters, and pin-outs" limitation is inappropriate. Lantronix's proposed construction, which the Court adopts, includes all of the invention's embodiments that are discussed in the specification.

5. "Electrical outlet"

This term appears in claims 1 and 30-31 of the '368 patent. SercoNet maintains that the definition of electrical outlet does not need construction in claim 1, as it is merely in the preamble of the patent, and the six elements of the body of the claim completely define the invention at issue. For claims 30 and 31, SercoNet proposes the customary meaning of an electrical outlet, which is "a point on the wiring system at which current is taken to supply utilization equipment" from the authoritative dictionary of the standard setting organization, the Institute of Electrical and Electronics Engineers ("IEEE"). Netgear's proposed construction for the term in all claims is "a powerline termination from which electric power can be obtained by inserting a plug." Netgear's definition derives from the McGraw-Hill Electronics Dictionary.

Starting with the claim language, claim 1 of the '368 patent describes: "An electrical outlet for configuring a local area network in a building, the network including a powerline wiring carrying frequency multiplexed power and data signals, the electrical outlet comprising..." Claims 30 and 31 of that patent refer to "the device according to claim 18 [which describes a device for configuring a LAN in a building], wherein said device is pluggable into an electrical outlet" or where the device is "attachable to an electrical outlet", respectively. Claim 31 explicitly states that a device may be attachable to an electrical outlet, as opposed to being "pluggable" into such an outlet as described in claim 31. The claim language, therefore indicates that power need not be obtained from an electrical outlet by "inserting a plug."

Turning to the specification, Figure 5 of the '368 patent shows a connection from an SIC to the electrical power main. The specification also notes that part or all of an SIC can be housed within an electrical outlet so that the electrical outlet allows connection to the local area network as well as to electrical power. '368 patent at 8:24-26. Power can be fed to an "optional" electrical appliance, and the figure shows that the appliance contains a plug. The specification also states that typical house mains have a connection to a single feeder with multiple distribution points and outlets. Id. at 9:61-63. The intrinsic evidence, therefore, seems to show that while electric power may be obtained by inserting a plug into an outlet, this is not required, and an outlet more generally described as a point of connection for electrical power.

Both parties' definitions come from technical dictionaries. Neither is really directly supported by intrinsic evidence. However, because there is nothing directly limiting an outlet to something by which a plug must be inserted to obtain power, and because the claim language clearly states that a device may either be attachable to or pluggable into an electrical outlet, NetGear's definition imports an extraneous limitation that is not supported by the claim language or specification, and SercoNet's proposed construction does not suffer from the same problem. While NetGear's definition might make more sense to a layperson, SercoNet's definition comes from an engineering standards setting organization, and therefore constitutes a plain meaning to one skilled in that art.

As for whether the term in the preamble of claim 1 of the '368 patent need be construed, the term outlet appears in the body of the claim and refers back to the term "electrical outlet" in the preamble. Therefore, the term gives life and meaning to the claim, and should be construed. See On Demand Mach. Corp., 442 F.3d at 1343.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "electrical outlet" and construes the term "electrical outlet" as: "a point on the wiring system at which current is taken to supply utilization equipment." This term shall be so construed in the both the claim preamble and the body of the claims.
On the instant motion, P3 initially argued that the term "electrical parameters" as used in Claim 1 should be construed as meaning the "direct attributes of the current" or the "measurable aspects of the electricity itself." 4 In opposition, UPM contends that "electrical parameters" should be construed as any two of the following: "present time, voltage value, current value, watt number, kilowatt-hour, apparent power value, [and] power factor." This list is taken from dependant Claim 2 of the '850 Patent, which provides that "the plurality of electrical parameters indicated on the display unit comprises present time, voltage value, current value, watt, kilowatt-hour, apparent power value, and power factor." In reply, P3 first agrees that the list of electrical parameters set forth in Claim 2 is a list of examples of "electrical parameters" as that term is used in Claim 1. P3 also notes that UPM correctly points out that some such electrical parameters are detected by the circuit, such as voltage and current, and that other parameters, such as power, kilowatt hour, and cost are calculated by the CPU based on those detected parameters. By listing cost in its reply submission, P3 shifted from its initial argument that "electrical parameters" are only the direct or measurable attributes of the electricity and do not include cost.

--- Footnotes ---

4 P3 took this position in response to UPM's invalidity contentions, which had relied on a Japanese patent application that disclosed an energy meter that displayed only costs.

--- End Footnotes ---

P3's argument in reply describes as well another part of Claim 1 -- the "display unit." P3 points out that the display unit in Claim 1 must display at least one of the plurality of electrical parameters that is "detected by the control circuit." P3 thus argues that the list of electrical parameters in Claim 2, some of which are detected by the control circuit and some of which are calculated based on those detected parameters, does not affect the requirement in Claim 1 that the display unit must display at least one of the "plurality of electrical parameters detected by the control circuit." (Emphasis supplied.) To the extent that UPM seeks to construe the term "electrical parameters" in Claim 1 to cover only any two of those parameters listed in Claim 2, it is in error. "In the patent claim context the term 'comprising' is well understood to mean 'including but not limited to.'" See, e.g. CIAS, Inc. v. Alliance Gaming Corp, 504 F.3d 1356, 1360-61 (Fed Cir. 2007) (noting also that this usage of the term "comprising" embraces the term "comprises" as well). Thus, the term "electrical parameters" in Claim 1 is not limited to only those specific parameters listed in Claim 2, but could include additional parameters as well. Rather, the intrinsic record evidence demonstrates that the ordinary meaning of "electrical parameters" is the measurable attributes of electricity and the attributes that can be calculated from such attributes and other data.

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B. "Electrical Potential"

Defendants seek construction of the claim limitation "electrical potential." Defendants resort to Webster's New World Dictionary of the American Language (2d ed. 1972) to determine the ordinary and customary meaning of "electrical potential." The dictionary describes "potential" as "Elec. the relative voltage at some point in an electric circuit or field with respect to some reference point in the same circuit or field." Defendants therefore submit the proper construction of the claim limitation "electrical potential" should be "the relative voltage at some point in an electric circuit or field with respect to some reference point in the same circuit or field." Defendants contend the '166 patent specification is consistent with this definition because the specification figures use voltmeters in each invention embodiment. Moreover, defendants assert nothing in the prosecution history contradicts their proposed construction.

Dicon argues that by asserting a voltmeter must be used to measure electrical potential, defendants improperly import a particular embodiment into claim 1 and misconstrue the specification. Dicon contends the patent description provides means other than a voltmeter, including potentiometric, galvanostatic and amperiometric means, for sensing electrical potential. See Def. Mot. at Ex. A, Col. 7, Ins. 21-26. Dicon further asserts the "electrical potential" language is contained in a "whereby" clause; therefore, the claim does not require that a change in electrical potential be created. Rather, Dicon contends the clause states that if a change in electrical potential is created, the means used for electrical measurement must detect that change.
Again, Dicon criticizes defendants' claim construction without offering a claim construction of its own. Further, Dicon's arguments miss the mark. The issue here is not the means by which electrical potential changes must be measured. Rather, the issue is the proper construction of the term "electrical potential," regardless of how electrical potential is measured. Defendants' construction of "electrical potential" is sound and consistent with the intrinsic evidence. The phrase must be given its ordinary and customary meaning. Johnson Worldwide Assocs., Inc., v. Zebco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999). Therefore, the court construes "electrical potential" to mean "the relative voltage at some point in an electric circuit or field with respect to some reference point in the same circuit or field."

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We disagree, however, with the district court's construction of the claim term "electrically conductive fibers" to the extent that it encompasses carbon fibers. This court has recognized that "[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." Scimed Life Sys. v. Advanced Cardiovascular Sys., 242 F.3d 1337, 1341 (Fed. Cir. 2001). It is true, as the district court noted, that the '879 patent's written description did not expressly define "electrically conductive fibers," as it did for "fuel injection system component." Nevertheless, based on the disclosure in the written description, which demeaned the properties of carbon fibers, we conclude that the patentee thereby disavowed carbon fibers from the scope of the '879 patent's claims.

The written description contains the following disclosure:

Stainless steel also has the advantage of requiring smaller quantities for providing the required conductivity than other conductive fillers, such as carbon black. '879 Patent, col.3 ll.56-60 (emphasis added).

Other electrically conductive fillers, such as the aforementioned carbon, act as stress concentrators and, at the relatively high filler loadings required to achieve conductivity, restrict the ability of the resin matrix to yield under stress. Id., col.4 ll.1-5 (emphasis added).

Also, stainless steel fibers are ductile and non-rigid unlike straight or metallized carbon fibers. . . . This allows stainless steel fibers to maintain their integrity better during melt-processing. Id., col.4 ll.5-10 (emphasis added).

Unlike the non-metallic fibers, stainless steel fibers also do not increase mechanical strength or stiffness of the base resin significantly. Other metal fibers with high aspect ratios can be satisfactorily substituted for stainless steel. Id., col.4 ll.10-14 (emphasis added).

In making the above statements, the patentee informed its readers specifically why carbon fibers would not be suitable as "electrically conductive fibers" in the claimed invention. If the written description could talk, it would say, "Do not use carbon fibers." There is no other way to interpret the written description's listing of all the reasons that metal fibers fare better than carbon fibers for use in the claimed invention, even though both materials are electrically conductive, viz., that metal fibers require smaller quantities to achieve the desired conductivity than carbon fibers, create less stress concentration, are more ductile, are less rigid, and increase the mechanical strength of the polymer housing. Contrary to the district court's understanding, the written description has gone beyond expressing the patentee's preference for one material over another. Its repeated derogatory statements concerning one type of material are the equivalent of disavowal of that subject matter from the scope of the patent's claims.

In reaching this decision, we reject Honeywell's argument in support of the district court's construction of "electrically conductive fibers." Honeywell argues that the written description did identify carbon fibers as electrically conductive fibers, and that stainless steel fibers were merely preferred embodiments. Honeywell's argument misses the point. It is precisely because the written description has identified carbon fibers as electrically conductive, and yet it denigrated carbon fibers' applicability to the claimed invention, that we find a disavowal of that subject matter. Moreover, it is irrelevant whether stainless steel fibers are a preferred embodiment of the claimed invention. We are not here modifying the district court's claim construction to limit its scope to stainless steel fibers. We only modify it to exclude carbon fibers from the scope of the '879 patent claims.
4. The "electrically conductive layer" limitation

The accused Nevamar products are of two classes: those using a phenolic resin and those using a melamine resin in the conductive layers. Making all reasonable inferences in favor of Charleswater, the resistivity of the conductive layers containing phenolic resin is as low as 4,200 ohms per square and the resistivity of the layers containing melamine resin is 145,000 ohms per square or greater.

2 Nevamar argues that the resistivity of the phenolic resin-impregnated paper is at least 88,000 ohms per square and that the resistivity of the melamine resin-impregnated paper is at least 108 ohms per square.

The district court construed the "electrically conductive layer" limitation to mean that the measured resistivity of the layer in the final product must be less than 30,000 ohms per square. The district court based this construction on the definition of "conductive" provided in the written description of the '040 patent as well as this court's previous construction of the term "nonconductive" as used in the '040 patent to mean "resistivity greater than 30,000 ohms [per square]." See Charleswater Prod. Inc. v. Spaulding Fibre Co., 12 U.S.P.Q.2D (BNA) 1916, 1918 (Fed. Cir. 1989) (nonprecedential). Based on this construction, the court concluded that the "electrically conductive" limitation does not read on the accused Nevamar products in which the alleged conductive layer comprises a melamine resin, either literally or under the doctrine of equivalents, because the lowest measured resistivity of the layer in the finished product is higher than 30,000 ohms per square. The district court also concluded that a genuine issue of material fact exists as to whether this limitation reads on the accused products in which the alleged conductive layer comprises a phenolic resin and denied Nevamar's noninfringement summary judgment motion concerning those products. We hold that the district court's judgment concerning this limitation is correct with respect to both classes of products.

a. Literal infringement

Charleswater argues that the district court erred in construing the "electrically conductive" limitation and asserts that determining whether an alleged layer is electrically conductive is properly based on "indicia of conductivity." Charleswater also appears to argue in the alternative that determining whether a layer is conductive or not should be done by determining the relative conductivities of the alleged conductive and nonconductive layers. Both of these arguments fail.

The written description of the '040 patent states that a layer is conductive if its resistivity is less than about 30,000 ohms per square. See '040 patent, col. 1, ll. 15-17 ("approximately 30,000 ohms per square surface resistivity or less, for example, 5,000 ohms"); id. at ll. 38-42 ("less than about 30,000 ohms/square inch; for example, 10,000 or 5,000 ohms/square inch of surface resistance"). Charleswater cannot avoid this definition by its argument that "indicia of conductivity" is an equivalent or more accurate method of determining whether a layer is conductive, because the resistivity definition is in the written description and the "indicia" definition is not. Similarly, determining whether a layer is conductive or not by comparing its resistivity to the resistivity of the nonconductive layer is not discussed in the written description. Whether technically plausible or not, these arguments cannot overcome the resistivity measurement-based definition of a conductive layer provided in the written description. See Unidynamics, 157 F.3d at 1317, 48 U.S.P.Q.2D (BNA) at 1103 ("In defining the meaning of key terms in a claim, the court may refer to the specification, the prosecution history of a patent, prior art, and other claims.").

Viewing the evidence and making all reasonable inferences in favor of Charleswater, there is no genuine issue of material fact as to whether the "conductive layer" limitation literally reads on the accused products in which the conductive layer comprises a melamine resin because their lowest measured resistivity is 145,000 ohms per square. As a matter of law, this claim limitation does not literally encompass those products. However, because the lowest measured resistivity of the conductive layer in the accused products containing a melamine resin is less than 30,000 ohms per square, there is a genuine
issue of material fact as to whether the "conductive layer" limitation literally encompasses those products.

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3. "An electrically conductive layer embedded in said first contact hole up to a level higher than the gate electrode such as to be contacted with said electrically conductive layer"

For this very long "term," Toshiba proposes an even longer construction: "An electrically conductive layer is deposited in the first contact hole of an insulating film, with the electrically conductive layer covering the first contact hole. Thereafter, the electrically conductive layer is etched to expose the surface of the insulating film in which the first contact hole is formed with the electrically conductive layer left in the first contact hole at a height that is higher than the gate electrode. The electrically conductive layer is in contact with the 'second contact hole.'" Jt Cl Const, Ex A at 19. Hynix contends that this phrase should not construed because it is indefinite but alternatively proposes replacing "embedded" with "fixed firmly." Id.

Hynix contends that this term is indefinite because "one skilled in the art would not understand what structure of the claimed device must be 'contacted with said electrically conductive layer.'" In particular, Hynix contends it is unclear whether the "electrically conductive layer" is claim 1 is in contact with itself, the "first inter-layer insulating film," "first contact hole," "second inter-layer insulating film," "second contact hole" or the "gate electrode." Hynix Br at 9.

While the court agrees that this "term" is quite poorly written, its meaning is not ambiguous if read in light of the specification. The clause in which this term appears states in full (with the term emphasized):

wherein at least one of said storage node contact hole and bit line contact hole includes a first contact hole made in a first inter-layer insulating film formed over said gate electrode and a second contact hole made in a second inter-layer insulating film formed over an electrically conductive layer embedded in said first contact hole up to a level higher than the gate electrode such as to be contacted with said electrically conductive layer.

Figure 1(b) depicts an embodiment encompassed by this claim; Figures 2(b), 3(b), 4(b), 5(b), 6(b), 7(b) and 8(b) and their accompanying text describe how the embodiment pictured in Figure 1(b) was created. First, a metal-oxide semiconductor field-effect transistor (MOSFET) is formed on a substrate, with a gate electrode 6 and source and drain regions 4a and 4b. See FIGS 1(b), 2(b). An inter-layer insulating film 13 (corresponding to the "first inter-layer insulating film" in the claim) is then laid on top of the MOSFET. See FIG 3(b). The inter-layer insulating film 13 is then etched to create a first storage node contact hole 14 and a first bit line contact hole 15 (corresponding to the "first contact hole" in the claim). See FIG 4(b). The contact holes are then filled with a heavily doped polycrystalline silicon film 16 (corresponding to the "electrically conductive layer" in the claim) up to a level higher than the gate electrode. See FIG 5(b). A storage node electrode 20, capacitor insulating film 21, plate electrode 22 and inter-layer insulating film 23 (corresponding to the "second inter-layer insulating film") are then laid on top of the polycrystalline silicon film 16. FIG 7(b). Finally, the inter-layer insulating film 23 is etched to create a bit line contact 24 (corresponding to the "second contact hole" in the claim). Accordingly, this embodiment makes clear that, as Toshiba argues, claim 1 teaches that the "second contact hole" is "contacted with said electrically conductive layer." The other embodiments in the specification appear to be mere variations on this first embodiment and also support this conclusion. See, e.g., '579 patent at 12:38-43. (Embodiment 6: "Provided on the MOSFET is an inter-layer insulating film 23 which in turn is opened with a contact hole. The polycrystalline silicon layer 16 as the embedded layer is formed as contacted with the n-type diffusion layers 4a and 4b through the contact hole opened in the inter-layer insulating film 23."). See also Allen Engineering Corp v Bartell Industries, Inc, 299 F3d 1336, 1348 (Fed Cir 2002) ("[O]ne skilled in the art would understand the bounds of the claim when read in light of the specification.").

Turning to the construction of the "term," Hynix contends that "embedded" should receive its purported ordinary meaning of "fixed firmly." Hynix Br at 8-9. Toshiba instead contends that "embedded" has a special meaning in this patent because the specification "describes two [different] methods of filling the contact hole with electrically conductive material -- by an 'embedding' process or by a 'selective growth' process." Toshiba Br at 8. See, e.g., '579 patent at 8:1-5 ("Although the polycrystalline silicon film has been embedded all over and then again subjected to the etching in the foregoing steps, the polycrystalline or monocrystalline silicon film may be selectively grown only in the contact cavities as an example."); id at 14:32-35 ("Although the polycrystalline silicon film has been embedded all over and then again subjected to the etching in
the foregoing steps, the polycrystalline or monocrystalline silicon film may be selectively grown only in the contact cavities as an example."); id at 16:64-68 (same).

Nonetheless, the court cannot conclude that these embodiments necessarily indicate that the patentees intended to "act[ ] as [their] own lexicographer[s] and clearly set forth a definition of the disputed claim." CCS Fitness, 288 F3d at 1366. Indeed, dependent claim 7 suggests that the term "embedded" encompasses both "embedding" and "selective growth" processes. That claim states:

7. A semiconductor memory device as set forth in any of claims 1 to 5, wherein said electrically conductive layer is grown to have a thickness larger than a depth of said first contact hole and to be expanded over a top of the first contact hole.

The patentees' use of the word "grown" here suggests that the "embedded" film in claim 1 could be deposited through a "selective growth" process. Hence, the court rejects Toshiba's construction.

The court also rejects Hynix's proposed substitution of "fixed firmly" for "embedded" given that the ordinary meaning of "embedded" is sufficiently clear and need not be redefined.

In sum, the court finds that the present term is not indefinite and declines to construe the term.

A. The Claims and Specification

SPI contends that the claims in the '285 Patent contain a common limitation. Both Claim 1 and Claim 6, the only independent claims in the patent, include a description of the material of the first strip as follows: "a first strip formed of a first electrically conductive material having a resistance, . . ., the first material being carbon." SPI argues that the only proper interpretation of this language is that the strip must be formed of carbon and nothing else. Stowe concedes that the claims should be construed to require the conductive material in the first strip to be carbon. However, Stowe contends that nothing in the claims or specification requires that the entire first strip be formed only of carbon.

In addition to the language in the claims themselves noted above, SPI points to language in the specification in support of its suggested construction. The specification describes the first strip as "preferably formed of a homogeneous, constant property material" and states "preferably, the strip is formed of carbon." SPI concludes that this language must mean that the strip is formed of carbon, and no other material.

Stowe responds that SPI is attempting to import the term "formed entirely of" into this claim and its specification. As Stowe points out, it did use the term "formed entirely of" in other portions of the specification which described embodiments of the invention that were not pursued with the patent office. For example, in describing an embodiment in Fig. 11 and Fig. 12 of the '285 Patent, the specification states: "The ink traces 43 and 45 are formed entirely of highly conductive material such as silver." Ex. A 22:17-18. The specification goes on to state: "According to one embodiment, the ink traces 47 and 49 may be formed entirely of force sensitive resistive material having a low saturation value relative to the anticipated nip load." Ex. A 22:37-40. Thus, the term "formed entirely of" was used in other portions of the specification, while only the term "formed of" was used in the specification for the pursued embodiment. Based on this distinction, it would be understood that there was no intent for the claim to include such a limitation.

With regard to its use of the term homogenous in the specification, Stowe asserts that it used that term to describe the conductive material alone, rather than the material of the entire strip. More importantly, however, Stowe contends that one of ordinary skill in the art would know that carbon inks, and thus carbon strips, must contain more than just carbon. First, Stowe attempts to introduce several excerpts from the book Polymer Thick Film, published in 1996 by Ken Gilleo in an attempt to help "the court understand the technology and how one of ordinary skill uses terms." The court finds, however, that these excerpts are inadmissible hearsay evidence in that Stowe has failed to present a witness to testify that a person skilled in the art would consider the text to be authoritative. See Fed. R. Evid. 803(18).
Stowe next points to the use of the term "carbon" by Constantin Trantzas, an employee of CIR Systems, Inc., the supplier of the accused E-Nip device for SPI. Stowe notes that in certain pre-litigation documents, Trantzas, who invented certain of the components of the E-Nip system, referred to one of the strips used in the E-Nip device as the "carbon" strip and the material used on the strip as the "carbon mixture." SPI responds that Stowe is improperly attempting to refer to the alleged infringing product to define what Stowe meant in its claims. See SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1118 (Fed. Cir. 1985) (en banc). The court disagrees. The reference to "carbon" by Trantzas simply indicates how someone skilled in the art, as Trantzas presumably is, would describe such a strip made of carbon as well as other materials. Though Trantzas does refer to the material as a "carbon mixture," he also describes it as only "carbon," though the strip in the E-Nip device is composed primarily of other materials in addition to a smaller percentage of carbon. Such a reference supports Stowe's argument that a person of ordinary skill in the art would understand that the first strip described in the '285 Patent would include carbon as the key conductive material, but that it could contain other materials as well.

With regard to the claim and specification, Stowe finally contends that SPI's proposed claim construction would not cover the preferred embodiments in the '285 Patent. The Federal Circuit has stated that a "claim construction that does not encompass a disclosed embodiment is . . . rarely, if ever, correct." Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1320 (Fed. Cir. 2005) (quoting Johns Hopkins Univ. v. CellPro, 152 F.3d 1342, 1355 (Fed. Cir. 1998)). Stowe asserts that carbon itself is not an ink and is not able to adhere to a plastic surface. Thus, because it must have some adhesive to stick to the strips of the invention, carbon in its pure form could not be used. In addition, carbon itself is not flexible and would break if used on the sensor alone, even if it could adhere to the plastic. Therefore, Stowe concludes that a claim construction that required a sensor made only of carbon would not cover the preferred embodiment.

SPI contends that, even if Stowe's assertions are true, the patent would be invalid for failure to disclose the best mode, that is, the use of carbon plus an adhesive. See 35 U.S.C. § 112, P1 ("The specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention."). In the '285 Patent, however, the claims appear to be identifying only the crucial conductive material and those skilled in the art would understand that an adhesive is needed to get that material, carbon, to stick to the strip. Thus, the adhesive would not necessarily be key to the invention or part of the best mode of its application, rather the key would be the use of carbon as the crucial conductive material.

B. Prosecution History

Along with the claims and the specification, a court may also properly consider the prosecution history of a patent in construing a claim. As previously described, Stowe's original patent application included a broader description of the first and second strips and failed to specify the materials of which the sensors would be composed. After the patent examiner rejected Stowe's patent claims based on the prior art, including the Goldman patent, Stowe amended its claims to specify the material for both strips. SPI contends that this amendment was made solely to distinguish Stowe's claims from the Goldman patent, which disclosed a mixed carbon material sensor that combined carbon with other materials. Though SPI acknowledges that Stowe was compelled to make an additional amendment related to the sensor width to obtain final approval, it points to the earlier amendment as well as Stowe's response in regard to the patent office's later action based on double patentability to support its contention that Stowe had narrowed its claims to include a sensor material for the first strip composed entirely of carbon.

Specifically, SPI points to the language of the amendment itself: "the first material being carbon." Ex. B at 220 (emphasis added). This language remains in the final claims of the '285 Patent. SPI also notes Stowe's attorney's statement during prosecution that "applicants submit that neither of these references can fairly suggest strips of the materials recited in amended Claim 1, i.e. that the first electrically conductive material is carbon and the second electrically conductive material is selected from the group consisting of silver and gold." Ex. B. at 217 (emphasis added). Finally, SPI cites Stowe's attorney's defense to the issue of double patentability: "All of the pending claims recite, inter alia, 'a first strip formed of a material selected from the group consisting of silver and gold.'" Ex. B at 258 (emphasis added). SPI contends that, throughout the prosecution history, Stowe took pains to describe the material as carbon and nothing else, both to distinguish its claims from those in the Goldman patent and from its own claims in the previous patent. Thus, SPI concludes that this history supports its proposed construction of the claims in the '285 Patent to include a first strip with a material of 100% carbon and forecloses any of Stowe's present assertions to the contrary.

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The court recognizes that, even if the narrowing amendments were not actually necessary to overcome the prior art, plaintiff would nevertheless remain bound by the narrower scope. See Springs Window Fashions LP v. Novo Indus., LP, 323 F.3d 989, 995 (Fed. Cir. 2003).

Stowe first responds that SPI has incorrectly read the prosecution history. Stowe admits that it added the specific materials to its claims to distinguish them from those of the Goldman patent. Stowe contends, however, that the distinction is not between pure carbon and a carbon-based material but between two strips composed of the same material, as in Goldman, and two strips composed of different materials with different conductivity, as in the '285 Patent. In Goldman, the specification describes two thin, flexible backing sheets or substrates, each of which is provided with a suitable conductive electrode pattern. U.S. Patent 5,821,433 at 2:44-48. That conductive pattern "may be silver deposited from a silver-based ink that may be screen-printed, for example, on the substrates." U.S. Patent 5,821,433 at 2:48-51. Then,

A layer of pressure sensitive resistive material 309, 409 is deposited over each of the conductive patterns 302, 402. The pressure sensitive resistive material may be a carbon molybdenum disulfide material in a polyester binder. Other pressure sensitive resistive materials and high temperature thermoplastic binders may be used as well.

U.S. Patent 5,821,433 at 2:56-61. Thus, Stowe contends that it amended its claims to state that the first material was composed of carbon and the second of silver or gold to distinguish from Goldman which described two conductive patterns where both are composed of silver and the layer of pressure sensitive resistive material in between is composed of a carbon-based material.

Stowe also asserts that its comments to the patent office in regard to the issue of double patentability did not state that the material at issue was entirely carbon. Instead, Stowe contends that it was noting that Moore's prior patent had failed to mention any materials, whereas the current claims did include a description of the materials.

The court finds Stowe's arguments compelling. First, the attorney's statement during prosecution, "the first electrically conductive material is carbon," simply seems to indicate that the conductive material in the first strip is carbon, not necessarily that the entire strip must be made of 100% carbon. Moreover, the patent examiner stated the following in comparing the proposed claims to the Goldman patent:

Also, since layers 302, 402 may be silver deposited from a silver-based ink and layers 309, 409 may be a carbon based material, the measuring area may be silver, carbon or any suitable conductive pattern of material thus the reference still stands.

With this language, the patent examiner rejected the application. The patent examiner may have failed to see the distinction raised by Stowe between the two strips formed of the same material in the Goldman patent and the two strips in the proposed invention which were formed of different conductive materials, i.e. carbon and either silver or gold. Regardless, the court believes that this language indicates that the patent examiner also failed to see a distinction between a material described as carbon based and one described simply as carbon.

In conclusion, the court finds that, as a matter of law, it cannot hold that SPI's proposed construction of the '285 Patent is supported by the intrinsic evidence. Instead, the intrinsic evidence, as well as the extrinsic evidence of Trantzas's use of the term "carbon," supports a construction of the '285 Patent wherein the conductive material in the first sensor is carbon. The language of the claims states the following: "a first strip formed of a first electrically conductive material having a resistance . . ., the first material being carbon." The "first material" refers to the first electrically conductive material, not to the entire first strip which may also include adhesives, fillers, or other materials, so long as they are not the primary conductive material.

Nevertheless, SPI's E-Nip sensor is composed of more than simply carbon and an adhesive. In fact, the sensor is composed of approximately 70% titanium dioxide in addition to either carbon or graphite. Constantin Trantzas has previously testified that titanium dioxide as well as graphite are the components that determine the resistivity of the resistive electrode in the E-Nip sensor. Thus, because titanium dioxide is not simply an adhesive, but acts in conjunction with the conductive carbon, SPI concludes that the accused infringing device does not infringe on the '285 Patent. Stowe responds, however, that the
titanium dioxide is used only to counter the conductive qualities of the carbon on the more resistive electrode. Thus, according to Stowe, the primary conductive material in the E-Nip sensor is still carbon, which would infringe upon the claims of the '285 Patent. Though the construction of the '285 Patent claims is a matter of law for the court, this dispute regarding literal infringement raises factual questions that are not appropriate on a motion for summary judgment. Furthermore, even if SPI is correct that there is no literal infringement based on its use of titanium dioxide in the E-Nip sensor, there could still be a claim for infringement under the doctrine of equivalents, unless it were deemed barred by prosecution estoppel.

The court notes that SPI has claimed that, because Stowe has not presented any specific evidence of literal infringement or infringement under the doctrine of equivalents, Stowe cannot meet its burden of demonstrating infringement and, in fact, has conceded the issue. The court does not believe that Stowe was required to present evidence of infringement under either theory in responding to SPI's motion for partial summary judgment. Such evidence would have been properly submitted had Stowe filed its own cross motion for partial summary judgment of infringement of the '285 Patent. Yet, Stowe did not file such a motion. SPI's motion for partial summary judgment of noninfringement was based solely on the theory that the material of the first strip should be construed to be carbon alone. Stowe has properly responded to that issue. To the extent that SPI briefly addressed the issue of whether carbon plus titanium dioxide is equivalent to carbon plus adhesive or filler, Stowe's response raises factual issues to be decided at a later time, as noted above. Therefore, Stowe remains free to pursue its claims of infringement under either doctrine.

IV. Whether Prosecution Estoppel Bars Stowe's Use of the Doctrine of Equivalents

If a claim is not literally infringed, there can still be liability under the doctrine of equivalents. Prosecution history estoppel may serve as a bar to use of the doctrine of equivalents, however, with regard to subject matter surrendered by the patentee during prosecution. See Cybor Corp. v. FAS Technics., Inc., 138 F.3d 1448, 1460 (Fed. Cir. 1998). In other words,

Prosecution history estoppel limits infringement by otherwise equivalent structures, by barring recapture by the patentee of scope that was surrendered in order to obtain allowance of the claims. Thus, by actions taken during patent prosecution the patentee can be estopped from reaching subject matter that otherwise meets the criteria of equivalency.


SPI contends that Stowe narrowed its claims during the prosecution history as described above, both in the amendment made to include the materials for the first and second strips and through the argument made by Stowe's attorney during the prosecution. SPI also asserts that the amendment was made to overcome the prior art. SPI finally argues that the materials used in the E-Nip sensor's resistive electrode, i.e. titanium dioxide and either carbon or graphite, were well known at the time of the prosecution and amendment and thus were plainly foreseeable at the time of the amendment. See Glaxo Wellcome, Inc. v. Impax Labs, Inc., 356 F.3d 1348, 1352 (Fed. Cir. 2004) (patentee's narrowing amendment bars foreseeable equivalents existing at the time of amendment). Thus, if the court had construed the material in the claims of the '285 Patent to be 100% carbon based upon Stowe's amendment and statements during prosecution of the patent, SPI's product could not be deemed infringing under the doctrine of equivalents, even if the change in its product is unimportant and insubstantial when compared to that described in the '285 Patent, so long as the material used is not 100% carbon.

For the reasons stated previously, however, the court has construed the material in the first strip described in the '285 Patent to be carbon plus some adhesive, filler or other material, so long as carbon is the primary conductive material. The court agrees that Stowe would be estopped by the prosecution history of the '285 Patent to claim that a product infringed under the doctrine of equivalents if carbon was not the primary conductive material in one strip or electrode of an allegedly infringing product. However, Stowe would not be barred from making such a claim with regard to a strip wherein carbon is the primary conductive material, even if it is not composed entirely of carbon.
reading of the public record." See Vitronics Corp., 90 F.3d at 1584. If it can, then the Court is not permitted to consider extrinsic evidence. If it cannot, then the Court may consider extrinsic evidence so long as it is not "used to vary claim terms from how they are defined, even implicitly, in the specification or file history." See id. at 1584-1585.

The Special Master discussed the intrinsic evidence in Section III(C)(1) of his December 14, 2009, R&R, and concluded that "the intrinsic evidence alone does not provide a compelling basis to conclude whether 'electrically connected' encompasses a connection created by means of electromagnetic induction." December 14, 2009, R&R at 19. 6 Accordingly, the Special Master proceeded to consider extrinsic evidence.

6 When quoting the Special Master's R&R throughout this Opinion and Order, the Court deletes all emphasis used by the Special Master unless otherwise noted.

In its first objection, Microsoft contends that it was reversible error for the Special Master to consider extrinsic evidence because the intrinsic evidence is unambiguous regarding the meaning of "electrically connected." According to Microsoft, "[t]he intrinsic evidence points to one conclusion. 'Electrically connected' . . . does not include connections through electromagnetic induction." Microsoft's Objections to December 14, 2009, R&R at 8 (docket entry 520).

In order to evaluate Microsoft's initial objection, it is necessary to set forth the reasoning underlying the Special Master's conclusion that "the intrinsic evidence alone does not provide a compelling basis to conclude whether 'electrically connected' encompasses a connection created by means of electromagnetic induction, as in an isolating transformer." December 14, 2009, R&R at 19.

The Special Master began his analysis by examining the language used in the patent, noting that

[w]ith the exception of the title of the invention, every disclosed connection that the patent describes as an "electrical connection" is a connection in the form of an electrically conductive wire or line, without any non-conductive gap as occurs in the case of a transformer (utilizing electromagnetic induction) or a capacitor. It is never used in the patent to describe or claim a connection that includes a non-conductive gap, such as exists in isolation transformers that function using electromagnetic induction.

Id. at 14 (footnote omitted). The Special Master is saying essentially two things. First, the term "electrically connected" is used consistently throughout the patent (except in the title of the invention) to describe the same kind of connection - a connection in the form of an electrically conductive wire or line. Second, the term "electrically connected" is never used to describe a connection utilizing electromagnetic induction.

In reaching this conclusion, the Special Master noted significant facts. First, the Special Master noted that "[a]sserted claim 39 used the phrase 'electrically connected' three times to describe the relationship between various claimed components," December 14, 2009, R&R at 8, and that "[i]n every one of th[ose] uses of the term, . . . the corresponding 'electrical connection' disclosed in the specification and drawings is by means of electrically conductive wire or line, with no disclosed gap as would exist if there were a capacitor or transformer interposed between the connected components." Id. at 9-10.

Second, the Special Master noted that "[t]he phrase ['electrically connected'] was apparently not used during the prosecution history of the '125 Patent." Id. at 9.

Third, the Special Master noted that "['e]lectrically connected" (or 'electrically connecting') is used just four times outside of the claims." Id. The first two times it is used outside of the claims is in the title of the invention, which appears twice in the patent.

In accordance with Pitney Bowes, supra, the Special Master correctly recognized that "the title of a patent is entitled to little if any weight in claim construction analysis," id. at 11, while at the same time noting that the context in which the title appears supports Hochstein's position that electromagnetic induction should be included within the scope of "electrically
connected." Ultimately, the Special Master concluded that "[i]n view of the Pitney Bowes holding, . . . the patent's title, though supporting Hochstein's arguments concerning claim construction, is entitled to limited weight in this claim construction analysis." Id. at 12-13.

With regard to the third "electrically connected" reference found outside of the claims, the Special Master concluded that there is "no indication in the specification or in Figures 2 and 3 that the connection described . . . is anything other than an electrically conductive wire or line." Id. at 13. The Special Master reached the same conclusion with regard to the fourth "electrically connected" reference found outside of the claims. Id.

Summarizing the intrinsic evidence as it relates to the use of the phrase "electrically connected" in the patent, the Special Master stated:

[w]ith the exception of the title of the invention, every disclosed connection that the patent describes as an "electrical connection" is a connection in the form of an electrically conductive wire or line, without any non-conductive gap as occurs in the case of a transformer (utilizing electromagnetic induction) or a capacitor. It is never used in the patent to describe or claim a connection that includes a non-conductive gap, such as exists in isolation transformers that function using electromagnetic induction.

Id. at 14 (footnote omitted).

Next, the Special Master proceeded to examine the language in the patent used to describe connections utilizing electromagnetic induction. The Special Master noted, "it is particularly significant to the present analysis to consider the terminology that the patent did use to describe [connections utilizing electromagnetic induction]" since "[t]his phenomenon is at the heart of the present claim construction controversy." December 14, 2009, R&R at 14 (emphasis retained). After closely examining the language used in the patent, the Special Master correctly noted that the specification and claims use all of the following words to describe the connections formed by electromagnetic induction: "couplers," "coupling," "connect," "connecting," and "directly connecting." Id. at 19. Accordingly, the Special Master wrote:

the pattern of using terminology other than "electrically connected" to describe the connection of the isolation transformers to associated elements, coupled with the use of the term only to describe direct and conductive connections, weighs against Hochstein's interpretation that "electrically connected" should encompass electromagnetic induction and isolation transformers.

Id. at 16.

Next, Special Master Grauer consider[ed] other portions of the patent where some form of 'connected' is used dozens of times to refer to connections via current-carrying conductors, without the associated 'electrically' qualifier." Id. In other words, the Special Master proceeded to examine how the term "connected" is used in the patent, either alone or with a qualifier other than "electrically." The Special Master noted that "connected" is used in the patent to describe the same type of connection that is described elsewhere in the patent as "electrically connected." Id. at 16-17. That is, "connected" is sometimes used to describe connections by an electrically conductive wire or line. And, as discussed above, "connected" is also used to describe connections formed by electromagnetic induction. Because "connected" is used in the patent to describe both electrically conductive and non-conductive connections, the Special Master concluded that "the patent is not consistent in its use of [the terms 'connected' and 'electrically connected'], there being some arbitrariness in the choice of terms both in the specification . . . and in claim 39 itself." Id. at 16-17. For this reason, the Special Master thought it necessary to consult extrinsic evidence to aid in the construction of the disputed term "electrically connected."

C. The Parties' Positions Regarding the Admissibility of Extrinsic Evidence

1. Microsoft's Position

In its first and second objections to the Special Master's December 14, 2009, R&R, Microsoft argues that the Special Master should not have considered extrinsic evidence; he should have concluded his analysis after finding that (1) "electrically connected" is used consistently, with the exception of the title of the invention, to describe a connection in the form of an electrically conductive line or wire, (2) "electrically connected" is never used to describe a connection utilizing
electromagnetic induction, and (3) other terms—and not the term "electrically connected"—are used to describe connections utilizing electromagnetic induction.

Microsoft faults the Special Master for allowing the patent's use of a broader term, "connected," to create an ambiguity with regard to the meaning of a narrower term, "electrically connected," when it claims the narrower term, "electrically connected," is used consistently throughout the patent to describe one type of connection (one by a electrically conductivewire or line) that does not involve electromagnetic induction:

The Special Master's stated reason for not resolving the controversy on the basis of the intrinsic evidence alone was his observation that a different term — "connected" — is used in the patent to describe both electrically conductive and non-conductive connections. But this is irrelevant as a matter of both law and logic: "electrically connected" is a subset of "connected." . . . Whenever the patent discussed "electrical connections," the Special Master found that "electrical connections" referred consistently to electrically conductive connections. The fact that the patent also generically refers to them as "connections" is in no way inconsistent, and certainly does not undercut the clear meaning of "electrically connected."

Microsoft's Objections to December 14, 2009, R&R at 3-4 (docket entry 520). In other words, Microsoft argues that it is not inconsistent, as the Special Master found, for the patentee to use a broad term ("connected") to describe two narrower terms (direct connections using a line or wire, and connections utilizing electromagnetic induction), both of which fall under the broader "connected" umbrella. Because, according to Microsoft, the Special Master's decision to consider extrinsic evidence "rests [solely] upon [this] non-existent inconsistency," Microsoft argues that extrinsic evidence—which is what led the Special Master to reach his recommended claim construction—is inadmissible.

2. Hochstein's Position

Hochstein concurs with the Special Master's analysis and conclusion regarding the admissibility of extrinsic evidence to aid in the construction of the disputed term "electrically connected." According to Hochstein, "the Special Master correctly recognized that the intrinsic evidence does not define electrically connected and does not address whether 'electrically connected' includes or excludes electromagnetic induction." Hochstein's Resp. to Microsoft's Objections to December 14, 2009, R&R at 1 (docket entry 522).

D. The Special Master's April 4, 2010, Supplement to the R&R of December 14, 2009

Special Master Grauer's supplement dated April 4, 2010, reaches the same conclusion as his December 14, 2009, R&R; that "electrically connected" should be construed to encompass connections via electromagnetic induction. 7 The April 4, 2010, Supplement addresses, inter alia, the FederalCircuit's 2001 decision in Bell Atlantic.

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7 As noted supra, this conclusion is contrary to Special Master Grauer's Report and Recommendation of June 30, 2009, which recommended that electromagnetic induction be excluded from the scope of the term "electrically connected."

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E. Bell Atlantic & Its Progeny

In Bell Atlantic, the Federal Circuit reviewed the trial court's decision to construe the disputed claim term "mode" narrowly, despite the fact that "[i]t may be true that the ordinary meaning of the word . . . supports a broader meaning." 262 F.3d at 1269. The court considered whether to alter the meaning of a disputed claim term that may have had a broader ordinary and accustomed meaning. Because "the patentee may act as his own lexicographer by using the specification to define terms either expressly or 'by implication,'" the court "look[ed] at the intrinsic evidence to determine whether the patentee ha[d] given the term an unconventional meaning." Id. An examination of the intrinsic evidence revealed that the disputed term was consistently used narrowly throughout the specification. Id. at 1272-1273. The prosecution history of the patent also supported a narrower definition of the disputed term. See id. at 1273-1274. Because the term was used consistently, the Federal Circuit found that "the patentees [had] defined the term 'mode' by implication, through the term's consistent use
throughout the . . . patent specification." Id. at 1273. The Federal Circuit reached this conclusion despite the fact that the ordinary and accustomed meaning of the disputed term may have been broader.

Several Federal Circuit cases have applied the Bell Atlantic holding, and each of them inform this Court's analysis. First, in Nystrom v. TREX Co., 424 F.3d 1136, 1142 (Fed. Cir. 2005), the parties disputed whether the claim term "board" should be construed broadly to include planks made from any material, or narrowly to include planks made from wood only. Both parties acknowledged that the latter (narrow) construction reflected the ordinary meaning of the term. Id. at 1145. Although there was no language expressly limiting the term "board" to planks made from wood, the Federal Circuit noted that "[t]he written description and prosecution history consistently use the term 'board' to refer to wood decking materials cut from a [wooden] log." Id. Thus, even though there was "no disavowal of [claim]scope in the written description or prosecution history," id., the Federal Circuit concluded that the presumption in favor of the term's ordinary meaning had not been rebutted and that the disputed term had been defined through its consistent narrow usage in the patent: "Broadening of the ordinary meaning of a term in the absence of support in the intrinsic record indicating that such a broad meaning was intended violates the principles articulated in Phillips." Id. at 1145-1146.

Second, as summarized by the Federal Circuit in Nystrom, the court had recently stated, in AquaTex Indus., Inc. v. Techniche Solutions, 419 F.3d 1374 (Fed. Cir. 2005):

[T]he patentee consistently used the term "fiberfill" throughout the written description to refer to synthetic materials. Although the written description indicated that the composition of the fiberfill was not known to be critical, we held that "the context of the specification 'makes clear that the patentee did not intend the term [fiberfill] to encompass' natural materials." In particular, we noted that "[n]one of the patents [incorporated by reference] discusses the possibility of using natural fibers as commercial fiberfill batting." Although there was no disavowal of natural materials, we held that the consistent use of the term "fiberfill" to refer to synthetic materials and the extrinsic definitions supporting that interpretation led to the conclusion that a person of ordinary skill in the art would have understood the term to be limited to synthetic materials.

Nystrom, 424 F.3d at 1145 (citations omitted).

Third, in Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004), the parties disputed whether the term "group key" should be construed broadly to include all subscribers or narrowly to include only subsets of all subscribers. The court noted that the disputed term had no accepted meaning in the art and, relying on J.T. Eaton & Co., Inc. v. Atl. Paste & Glue Co., 106 F.3d 1563, 1570 (Fed. Cir. 1997), emphasized that "absent such an accepted meaning, we construe a claim term only as broadly as provided for by the patent itself." Irdeto Access, 383 F.3d at 1300. The court then examined the specification and determined that it "consistently uses the term 'group' to refer to a subset of all subscribers." Id. at 1301. Thus, the Federal Circuit construed the term narrowly in accordance with Bell Atlantic's holding that a claim term may be implicitly defined by consistent usage in the specification:

while the specification does not contain any statements of explicit disavowal or words of manifest exclusion, it repeatedly, consistently, and exclusively uses "group" to denote fewer than all subscribers, manifesting the patentee's clear intent to so limit the term.

Id. at 1303. See also id. at 1302 (discussing two additional Federal Circuit cases (Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898 (Fed. Cir. 2004), and Brookhill-Wilk 1, LLC. v. Intuitive Surgical, Inc., 334 F.3d 1294 (Fed. Cir. 2003)), both of which apply the Bell Atlantic holding).

F. The Special Master Improperly Considered Extrinsic Evidence

Both parties agree with the Special Master's determination that, excluding the title of the patent, "'electrically connected' is used in the specification and claims only to describe connections by means of electrically conductive wires." December 14, 2009, R&R at 18-19. The parties further agree that, excluding the title of the patent, the disputed term, "electrically connected," "is never used to describe a connection with an intervening gap, such as occurs in an isolating transformer that utilizes electromagnetic induction to couple two circuits across a gap." Id. Instead, other words—such as "connected" or "couple"—are used in the patent to describe connections through electromagnetic induction.
Microsoft argues that the Court should not consider extrinsic evidence in light of these undisputed conclusions because "electrically connected" is defined implicitly through its consistent, narrow usage throughout the patent. Hochstein, on the other hand, emphasizes the Special Master's determination, also undisputed, that "nothing in the patent . . . explicitly excludes electromagnetic induction from the scope of "electrically connected," or . . . requires a conclusion that it should be so excluded," December 14, 2009, R&R at 18, since the disputed term is not explicitly defined in the patent. However, under Bell Atlantic, a claim term may be implicitly defined through consistent use. Thus, the Special Master's conclusion, and Hochstein's argument in favor of it, do not honor the Bell Atlantic holding.

Hochstein also contends that the manner in which the disputed term is used in the title of the patent is inconsistent with how it is used consistently elsewhere, thereby precluding a finding that the claim term is consistently used "throughout the entire patent specification." See Bell Atlantic, 262 F.3d at 1271. But that contention just emphasizes the reality that "electrically connected" is used consistently throughout the patent to describe a connection by an electrically conductive wire or line; it is not used more broadly to describe other kinds of connections, such as a connection by means of electromagnetic induction.

The title of the patent, which appears twice in the specification, reads: "Apparatus and Method for Electrically Connecting Remotely Located Video Games." In his December 14, 2009, R&R, the Special Master analyzed in great detail whether the manner in which "electrically connecting" is used in the title is inconsistent with the way it is used elsewhere. See December 14, 2009, R&R at 10-13. Although the Special Master ultimately accorded "limited weight" to the title in accordance with Pitney Bowes, he nevertheless found probate merit to Hochstein's argument that a claim construction that excludes electromagnetic induction from the scope of "electrically connected" would render the title of the patent inaccurate:

In my opinion, the context provided by the Background and Summary sections of the '125 Patent specification strongly favors Hochstein's interpretation of the patent's title. The second sentence of the Background section states that "the subject invention relates to the coordination of a computer game from more than one location" (1:9-11, emphasis added).

The Background goes on to say that:

A problem with the modern video games is that virtually all video games are designed to be played locally . . . . in order for a player to compete with someone other than the computer, that person must leave the home or have someone come into the game-owner's home.

1: 21-30. The Summary of the Invention section concludes:

The advantage of the subject invention is the ability of two or more players playing the same video game to compete with each other without using the same physical video game which alleviates the necessity of proximity of the players.

2:39-43 (emphasis added). In my opinion, that context removes any doubt as to the meaning of the title: it states that the disclosed invention concerns video games that are remote from each other but nevertheless "electrically connected" to each other. That was the solution to the stated problem that the inventors were trying to solve, and therefore the fact and method of connection of the games was a logical subject for the title of their patent.

December 14, 2009, R&R at 11. Simply put, the Special Master is concluding that the proper reading is that it was never intended that connection from one player to the other distant player would be through a long electrical cord that could extend miles, or even hundreds of miles.

Microsoft disagrees with the Special Master's analysis and conclusion regarding the title, and argues that "the title of the '125 patent is consistent with the patentees' use of 'electrically connected' in the rest of the patent exclusively to describe electrically conductive connections." Microsoft reasons, as the Special Master noted in his December 14, 2009, R&R, "that the title does not specifically say that the local and remote video games are "electrically connected" to each other; the title could mean, as in the first sentence of the Abstract, that each of the two games is "electrically connected" to the video game communicator." December 14, 2009, R&R at 10-11 (underlined emphasis retained).

The Special Master considered Microsoft's argument and rejected it, stating that "the context provided by the Background
and Summary sections of the '125 Patent specification strongly favors Hochstein's interpretation of the patent's title."

Id. at 11. Thus, the Special Master concluded that the manner in which "electrically connecting" is used in the title is likely inconsistent with how the term is used elsewhere in the patent. According to the Special Master and Hochstein, the disputed term is used more broadly in the title to describe a connection that does not involve an electrically conductive line or wire; elsewhere, it is used narrowly to describe only connections by means of electrically conductive lines or wires. Thus, Hochstein and the Special Master believe that the manner in which the disputed term is used in the title of the patent "destroys" the otherwise consistent manner in which the patentee used the term elsewhere in the patent.

The Court finds there to be genuine ambiguity with regard to how the disputed term is used in the title; the way in which the title is worded is ambiguous because it does not state to what the "remotely located video games" are being electrically connected. Given the entire context of the patent, the Special Master asserts that remotely located video games are being connected to each other, a connection that would involve electromagnetic induction. Microsoft argues that the title could mean that each remotely located game is "electrically connected" to the video game communicator, a connection that would not involve electromagnetic induction. It is impossible to conclude with ample certainty which interpretation was intended. Any effort to do so is, in the end, a guess. The title is simply ambiguous in its use of the disputed term.

In addition, the Court must reiterate that the Federal Circuit has explicitly stated that the title is "near[ly] irrelevan[tl] to claim construction and that it is "only aware of one case from [the Federal Circuit] in which the patent title was accorded any significance whatsoever in a claim construction." See Pitney Bowes, 182 F.3d at 1312. Based on the Court's reading of Pitney Bowes, it is improper to place any reliance on the title of the patent in this claim construction analysis. This Court ascribes no weight to the title in this claim construction analysis due to both its vagueness in its use of the disputed term, and in its near irrelevancy pursuant to Pitney Bowes. 8

8 In his April 4, 2010, Supplement to the December 14, 2009, R&R, the Special Master writes that he is "inclined to give [the title] a little more weight than [he] earlier stated [in his December 14, 2009, R&R]." April 4, 2010, Supplement to R&R of December 14, 2009, at 3. The Court rejects this approach to claim construction as inconsistent with the clearly established authority in Pitney Bowes.

In the end, the Court agrees with Microsoft that the '125 patent always uses the term "electrically connected" to describe electrically conductive connections that lack any inductive element interrupting the conductive connection. The '125 patent used different terms when it intends to include inductive connections.

Microsoft's Objections to April 4, 2010, Supplement to R&R of December 14, 2009, at 6 (docket entry 526). Stated differently,

when the patentees intended to permit the use of electromagnetic induction, they dropped the limiting modifier "electrically" and used different and broader terms - "connected" and couples" - to convey that different and broader meaning. That consistent usage in the claims and specification defines "electrically connected,"and none of the extrinsic evidence and arguments cited by the Special Master, even if they could properly be considered (and they cannot), can override that intrinsic evidence.

Id. at 1-2.

Once the Special Master made the correct and undisputed findings that the patentee (1) consistently used the term "electrically connected" to describe only electrically conductive connections, (2) never used the term "electrically connected" to describe connections utilizing electromagnetic induction, and (3) consistently used terms other than "electrically connected" to describe connections utilizing electromagnetic induction, the Court finds that he should have concluded his analysis utilizing intrinsic evidence alone. The Special Master erred when he proceeded to analyze how the broader term "connected" is used in the patent without the limiting modifier "electrically." It was this erroneous step that led
the Special Master to his conclusion that "the intrinsic evidence alone does not provide a compelling basis to conclude whether 'electrically connected' encompasses a connection created by means of electromagnetic induction." December 14, 2009, R&R at 19. In turn, it was the extrinsic evidencethat ultimately led the Special Master to his final claim construction recommendation. The Court believes that the Special Master's decision to continue his extrinsic analysis led him to reach an erroneous result. See Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002).

Hochstein points out that "Bell Atlantic is about 'redefining' a claim term to have an 'unconventional meaning' different from the term's ordinary meaning." Hochstein's Resp. to Microsoft's Objections to April 4, 2010, Supplement to R&R of December 14, 2009, at 5 (docket entry 527). This is a correct statement. It is also correct, as Hochstein asserts, that this case does not involve such a scenario. However, Bell Atlantic does not apply only to situations where a court is considering a deviation from the ordinary meaning of a claim term. The reach of Bell Atlantic is wider; it applies whenever a claim term, though not explicitly defined, is used "throughout the entire patent specification, in a manner consistent with only a single meaning." Bell Atlantic, 262 F.3d at 1271. For example, in Irdeto Access, discussed above, the Federal Circuit held that the disputed claim term, which had no ordinary and accepted meaning in the art, was implicitly defined through consistent use in accordance with Bell Atlantic. See 383 F.3d at 1301. Here, the patentee consistently used "electrically connected" only in a narrow sense to describe electrically conductive connections. Moreover, the patentee consistently used other terms, such as "connected" (without the "electrically" qualifier) and "coupled" to describe connections over a gap in a transformer. Pursuant to Bell Atlantic, the Court finds that this consistent usage (and non-usage) of the disputed term evinces the patentee's "clear intention[]" to exclude electromagnetic induction from the scope of "electrically connected." See Teleflex, 299 F.3d at 1327. See also Harmon, Patents & the Federal Circuit, supra, at § 6.2, pp. 352-353 ("[a]bsent . . . an accepted meaning, a claim term is construed only as broadly as provided for by the patent itself").

For all these reasons, the Court finds that the disputed term, "electrically connected," has been implicitly defined by consistent use in the patent pursuant to Bell Atlantic and its progeny, such that resort to extrinsic evidence is unnecessary. Notwithstanding this determination, however, the Court has closely examined the extrinsic evidence of record in this case and, for the reasons discussed in the next section of this Opinion and Order, finds all of it unhelpful. Thus, even if the Court were inclined to consider such evidence, the outcome of this claim construction dispute would remain unchanged.

G. The Extrinsic Evidence

As discussed above,

extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises. This evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history.

Markman, 52 F.3d at 980. Moreover,

the use of extrinsic evidence as to the true meaning of the claim language is discretionary with the trial court. It can accept evidence it finds helpful, and reject other evidence as unhelpful, and resolve disputes en route to pronouncing the meaning of the claim language as a matter of law based on the patent documents themselves.

Harmon, Patents & the Federal Circuit, supra, at § 6.1, pp. 331-332 (footnote omitted). However, reliance on [extrinsic] evidence is unnecessary, and indeed improper, when the disputed terms can be understood from a careful reading of the public record. Nor may [extrinsic evidence] be used to vary claim terms from how they are defined, even implicitly, in the specification or file history.

Vitronics Corp., 90 F.3d at 1584-1585 (citations omitted). See also Markman, 52 F.3d at 981 ("[e]xtrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims"); Harmon, Patents & the Federal Circuit, supra, at § 6.4, p. 386 ("[i]f the meaning of the claim limitations is apparent from the totality of the intrinsic evidence, then the claim has been construed").

In his R&R dated December 14, 2009, and his supplement dated April 4, 2010, the Special Master considered three types of purported extrinsic evidence: (1) the testimony of the parties' experts, Dr. Macedonia for Microsoft, and Dr. Matheson for
Hochstein; (2) dictionary definitions of the disputed term; and (3) the litigation conduct of Microsoft.

The Court addresses each, in turn.

1. Expert Testimony

Not surprisingly, Dr. Matheson, on behalf of Hochstein, and Dr. Macedonia, on behalf of Microsoft, disagree with regard to the ultimate question here - whether a person of ordinary skill in the art, at the time of the invention, would consider a connection by means of electromagnetic induction to be an "electrical connection." The Special Master urges the Court to give "enhanced credibility" and "additional weight" to the testimony of Microsoft's expert, Dr. Macedonia, elicited before the present dispute involving electromagnetic induction arose:

   I find particularly illuminating the opinions that Microsoft's expert, Dr. Macedonia, expressed (or failed to express) before the focus shifted from waves in wireless controllers to electromagnetic induction in isolation transformers. Because of that timing, it is my opinion that those original positions carry enhanced credibility and are entitled to additional weight.

December 14, 2009, R&R at 21. Before the focus of the parties' attention shifted from wireless connections (radio waves) to electromagnetic induction, Microsoft urged the Court to adopt one of the following constructions of "electrically connected":

   1. "[A] connection that allows an electrical current to flow between the connected components." Docket entry 507-2, ¶ 38.
   2. "[C]onnection in a way that allows for the flow of electricity between the two things being connected." Docket entry 469, p. 8.

All three of these proposed constructions say the same thing - that an "electrical connection" must involve the flow of current/electricity between the two items being connected.

The Special Master concludes that these [proposed constructions] are admissions by Microsoft that the criterion [for "electrically connected"] is whether electricity flows between two connected elements, notwithstanding that there may be an interposed gap in the conductors, such as the internal gap in an isolation transformer or capacitor, wherein electrical signals (but not literally current) cross the gap by the phenomenon of electromagnetic induction or capacitance, respectively.


The Court disagrees with the Special Master and Hochstein, and finds that Microsoft has never conceded or admitted that electromagnetic induction falls within the ambit of "electrically connected." It is true that, by offering the proposed constructions above, Microsoft admitted that an "electrical connection" is one that allows for current/electricity to flow between the two things being connected. However, the problem with the position of the Special Master and Hochstein is that Microsoft has never admitted that electricity or current flows between the gap in a transformer. In fact, Microsoft, through its expert, advances the exact opposite position:

   In the case of electromagnetic induction, there is no direct current path or electrically conductive connector across the related coils. Alternating current flowing in one coil can induce a current in the other, but no current flows between the coils and there is not an electrical connection.

Docket entry 488-2, ¶ 14 (emphasis added). Neither the Special Master nor Hochstein direct the Court's attention to anywhere in this record where Microsoft admitted that electricity or current flows between the gap in a transformer. 9 Thus, so far as the Court is aware, there is simply no support for the latter clause of the Special Master's statement (beginning with "notwithstanding") that Microsoft, by offering the three constructions above, admitted that "the criterion [for
"electrically connected"] is whether electricity flows between two connected elements, notwithstanding that there may be an interposed gap in the conductors." April 4, 2010, Supplement to R&R of December 14, 2009, at 1-2 (emphasis added). True, Microsoft has admitted that "the criterion [for "electrically connected"] is whether electricity flows between two connected elements," but it has never admitted that electricity or current flows over the gap in a transformer. Because Microsoft has never admitted that current/electricity flows over the gap in a transformer, the proffered three constructions, above, which were urged by Microsoft before the present dispute involving electromagnetic induction arose, do not constitute an "admission" that electromagnetic induction falls within the ambit of "electrically connected."

9 Microsoft has, however, admitted that current flows over the gap in a capacitor. See docket entry 516, October 23, 2009, Hr'g Tr. at 25, wherein Mr. Cederoth, on behalf of Microsoft, stated: "In electrical engineering, current flows through a capacitor." According to the Special Master, "isolation transformers . . . should be considered as providing no less of an electrical connection than the connection provided by a capacitor." December 14, 2009, R&R at 30. The Special Master explains this conclusion at pages 27-30 of his December 14, 2009, R&R and page 4, paragraph 10 of his April 4, 2010, Supplement. Hochstein agrees with it; Microsoft objects and urges the Court to disregard the Special Master's analysis regarding capacitors because the argument that transformers and capacitors are analogous was raised for the first time at oral argument on October 23, 2009, with no support in the record. Microsoft maintains that transformers and capacitors are materially different because, while they both have a gap, current flows over the gap in the case of a capacitor but not in the case of a transformer.

The Court agrees with Microsoft that the Special Master's analysis regarding capacitors should be disregarded because the record is undeveloped with regard to whether capacitors and transformers are analogous in the sense asserted by the Special Master and Hochstein.

2. Dictionary Definitions

At the onset, the Court notes, as did the Special Master in his December 14, 2009, R&R, that the Federal Circuit has cautioned against placing "heavy reliance" on dictionary definitions:

The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent. Properly viewed, the "ordinary meaning" of a claim term is its meaning to the ordinary artisan after reading the entire patent. Yet heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification. The patent system is based on the proposition that claims cover only the invented subject matter. As the Supreme Court has stated, "[i]t seems to us that nothing can be more just and fair, both to the patentee and the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent." Merrill v. Yeomans, 94 U.S. [568, 573-74, 24 L. Ed. 235, 1877 Dec. Comm'r Pat. 279 (1876)]. The use of a dictionary definition can conflict with that directive because the patent applicant did not create the dictionary to describe the invention. Thus, there may be a disconnect between the patentee's responsibility to describe and claim his invention, and the dictionary editors' objective of aggregating all possible definitions for particular words.

Phillips, 415 F.3d at 1321.

Regarding the "battle of the dictionaries," the Special Master concludes, after a thorough discussion in his December 14, 2009, R&R, that "it is inappropriate to place any reliance on [the dictionary definitions proffered by the parties] for claim construction guidance." December 14, 2009, R&R at 27.

Microsoft offers the following dictionary definition of "electrically connected":

Joined through a conducting path or a capacitor, as distinguished from being joined merely through electromagnetic induction. Modern Dictionary of Electronics, Robert F. Graf, 7th ed. (1999), at p. 235.
Everyone agrees that this definition, by its express terms, excludes electromagnetic induction from the scope of "electrically connected."

Hochstein, on the other hand, stresses Phillips' de-emphasis on dictionary definitions, but offers the following definition, which it contends contradicts Microsoft's proffered definition:

Connected via direct path, such as through a wire, resistance, inductance or capacitance. Illustrated Dictionary of Electronics, 5th ed. (1990).

Hochstein argues that its definition, unlike Microsoft's definition, encompasses electromagnetic induction within the meaning of "electrically connected." The Special Master, however, rejected Hochstein's argument, concluding that "there is no contradiction" between the two definitions since:

the two dictionaries are talking about different arrangements of elements. The first dictionary [Microsoft's] is technically accurate as to the absence of a direct path for electricity between paired inductors via electromagnetic induction (as in an isolation transformer); the second dictionary is more generic and does not specifically address electromagnetic induction or isolation transformers. However, the two dictionaries are in agreement to the extent they associate "electrically connected" with a "conducting path" or a "direct path."

December 14, 2009, R&R at 26-27 (underlined emphasis retained). Hochstein objects to the Special Master's conclusion that the two definitions are not inconsistent. Hochstein argues that the Special Master "misread" its proffered definition because he "apparently . . . read [the first two commas in the definition] as serial commas, believing that the definition of 'electrically connected' was merely 'connected via direct path'" and that "'a wire, resistance, inductance or capacitance' are merely examples of direct paths." Hochstein's Resp. to Microsoft's Objections to December 14, 2009, R&R at 11 (docket entry 522). Thus, Hochstein's proffered definition of "electrically connected" is "[c]onnected via direct path, such as through a wire, resistance, inductance or capacitance." Illustrated Dictionary of Electronics, 5th ed. (1990). Hochstein argues that this dictionary definition should be read as follows:

- connected via direct path, such as through a wire
- connected via resistance,
- connected via inductance or
- connected via capacitance

The Court does not agree, and finds Hochstein's rewriting of the dictionary definition to be flawed. The Court reads the terms "wire," "resistance," and "inductance or capacitance" as examples of direct paths, not as separate connections. However, even if Hochstein's reading is the correct/intended one, the definition remains ambiguous with regard whether electromagnetic induction is encompassed within the meaning of "electrically connected" since, as the Special Master found, Hochstein's definition "is more generic and does not specifically address electromagnetic induction or isolation transformers." December 14, 2009, R&R at 26.

The Court agrees with the Special Master's conclusions regarding the "battle of the dictionaries" in this case:

Summarizing this battle of the dictionaries: Hochstein asserts that its dictionary definition broadly encompasses electromagnetic induction and isolation transformers within the definition of "electrically connected," and that such definition contradicts Microsoft's dictionary definition; Microsoft asserts that the two definitions do not contradict because Hochstein's only refers to single inductors or coils, while Microsoft's is limited to paired inductors or coils, as in a transformer. Thus, the two experts do not even agree on what is meant by Hochstein's proffered dictionary definition. On the present contested state of the record concerning dictionary definitions, and particularly in view of Phillips' de-emphasis of this form of extrinsic evidence, it is inappropriate to place any reliance on such definitions for claim construction guidance.

December 14, 2009, R&R at 27.
3. Litigation Conduct of Microsoft

The Special Master considered the litigation conduct of Microsoft - specifically, the timing of its claim construction arguments, as extrinsic evidence in this matter. The Special Master believes that Microsoft's failure to raise the present non-infringement defense for several years is strongly suggestive of the conclusion that "the ordinary artisan after reading the entire patent" would conclude that "electrically connected" does encompass connections that indirectly transmit and couple signals and electrical energy through . . . isolation transformers.

December 14, 2009, R&R at 24 (citation omitted). Because of its importance to this discussion, the Court sets forth the Special Master's discussion of Microsoft's litigation conduct:

According to Hochstein's present motion papers, Hochstein has for more than four years asserted that Microsoft's wired connections between the modem and microprocessor satisfied the "electrically connected" limitation of claim 39. In three cited expert reports and interrogatory answers spanning March, 2005 to March, 2009, Hochstein explicitly identified as the infringing structure the wired Ethernet cable connection between the microprocessor-containing Xbox/Xbox360 consoles and the modem, using excerpts from Microsoft's written instructions and diagrams. Throughout this period, Microsoft has not denied knowledge that its accused consoles had an isolation transformer between the console's Ethernet port and the microprocessor.

During this period, Microsoft's technical expert, Dr. Macedonia, filed ten expert reports. Hochstein asserts that Dr. Macedonia never, in any of those Reports, contended that Microsoft's wired modem-to-microprocessor connections were not "electrically connected" or that an isolation transformer or electromagnetic induction was not a form of "electrical connection." Dr. Macedonia's silence on this point until July 6, 2009 is particularly telling for two reasons.

• First, four of Dr. Macedonia's earlier Reports were issued after a March 27, 2009 Expert Report from Hochstein's technical expert, Dr. Matheson, spelled out that an isolation transformer "couples a signal by converting the signal from an electrical signal on one circuit into a magnetic signal, and then back into an electrical signal on a different circuit." Thus, although (1) Microsoft was fully aware of the presence of an isolation transformer in the accused products;(2) its own expert and others on its litigation team must have read Dr. Matheson's description of how such common devices work to indirectly couple two conductors separated by a gap; and (3) the presence of such gap is undeniably inconsistent with Microsoft's originally proposed claim construction ("a connection that is in the form of electrically conductive connectors"), Microsoft failed for four years to raise this new-found non-infringement defense.

• Second, in the same Report where Dr. Macedonia's attention was focused on "electrically connected" as his basis for concluding (1) that wireless controllers are not covered by claim 39 because they use radio frequency waves to transmit data (Dkt. 507-2, ¶ 38), and (2) that wireless modem-to-microprocessor connections similarly did not infringe, he did not assert that "electrically connected" also did not cover the wired modem-to-microprocessor accused products that included an isolation transformer in that connection, although they, too, would avoid infringement under Microsoft's proposed claim construction, namely, a "connection that is in the form of electrically conductive connectors."

Dr. Macedonia holds three degrees in electrical engineering, telecommunications and computer science. It is not credible that he and the entire Microsoft litigation team, after repeatedly focusing on the meaning of "electrically connected" and other non-infringement defenses based on that claim limitation, would overlook this newly raised one if, as they now allege, the "the ordinary artisan after reading the entire patent" would conclude that "electrically connected" does not encompass a connection including an isolation transformer located inside the Xbox/Xbox360 consoles. In fact, on June 22, 2009, the day before Hochstein requested, and the Court ordered, a claim construction of "electrically connected," Microsoft asserted that it "is not a complicated term." So uncomplicated and apparent did Microsoft think this task that its original claim construction brief on this term asserted this to be one of those cases where "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than application of the widely accepted meaning of commonly understood words." Yet it was not apparent to Dr. Macedonia and the Microsoft litigation team until July 6, 2009.
The history and context of Microsoft's positions on the construction of "electrically connected" are strongly suggestive of the conclusion that "the ordinary artisan after reading the entire patent" would conclude that "electrically connected" does encompass connections that indirectly transmit or couple signals and electrical energy through capacitors and isolation transformers, these components being commonly used in equipment of the type disclosed in the '125 Patent. Indeed, even Dr. Macedonia and the Microsoft litigation team, who undoubtedly had been repeatedly scrutinizing and dissecting the relevant language of this patent throughout this litigation, seem to have so concluded during this four-year period. It is not plausible that "the ordinary artisan" would have undertaken the highly sophisticated analysis of indirect connection or coupling versus direct connection that underlies Microsoft's new-found positions on this issue.

December 14, 2009, R&R at 21-24 (citations and footnotes omitted).

Microsoft objects to this entire discussion by the Special Master "as irrelevant and not proper extrinsic evidence at all." Microsoft's Objectionsto December 14, 2009, R&R at 15 (docket entry 520). As stated by Microsoft,

this is not a situation where an expert asserted one position and then reversed himself. Rather, . . . Dr. Macedonia did not say anything one way or the other. What an expert did not say is not evidence. The Special Master improperly relied on Dr. Macedonia's and Microsoft's

seeming "failure" as being "strongly suggestive of the conclusion that the ordinary artisan after reading the entire patent would conclude that "electrically connected" does encompass connections that indirectly transmit or couple signals and electrical energy through capacitors and isolation transformers."

Id. at 16. Microsoft continues:

the Special Master relied on this "silence," to in effect, declare, sua sponte, that Microsoft somehow waived its right to benefit from the Special Master's original claim construction simply because Microsoft's earlier expert reports were silent on that issue. The Special Master cites no authority for the novel proposition that a defendant's failure to articulate a particular claim construction argument to support a non-infringement defense at an earlier stage in the litigation can be taken as evidence, indeed, conclusive evidence, that the position is incorrect.

Id. at 17.

The Federal Circuit has stated that

extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.

Markman, 52 F.3d at 980.

True, the three forms of extrinsic evidence listed by the Markman court (testimony, dictionaries, and treatises) do not constitute an exhaustive list of allowable extrinsic evidence. However, neither the Special Master nor Hochstein cite any legal authority that would permit the Court to consider a party's litigation conduct—namely, a party's silence regarding a potential defense that it had no affirmative duty to raise previously—as extrinsic evidence against that party in a claim construction analysis. Subsequently, in Phillips, the Federal Circuit elaborated, that where the

claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." Those sources include "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art."

415 F.3d at 1314 (citations omitted). This list does not include litigation conduct.
The Court is unaware of any court that has considered a party's silence in this regard as evidence, nor does Harmon, in his treatise, mention litigation conduct in his discussion of allowable extrinsic evidence. See Harmon, Patents & the Federal Circuit, supra, at § 6.4, pp. 385-394 (discussing allowable extrinsic evidence). This is not a contracts case where the legal maxim "silence is acceptance," might apply. See Restatement (Second) of Contracts § 69 (1981).

Microsoft's failure to raise the present non-infringement defense earlier is not proper extrinsic evidence. The Court sustains Microsoft's third objection regarding its litigation conduct.

III. SUMMARY

The evidence in this case consists of intrinsic evidence, and extrinsic evidence in the form of expert testimony, dictionary definitions, and, purportedly, Microsoft's litigation conduct.

A. Intrinsic Evidence

With regard to the intrinsic evidence, the disputed term "electrically connected" is used seven times in the patent. In five of the seven uses, the term is used consistently in a narrow manner to describe a specific type of connection - one by an electrically conductive wire or line.

The two remaining uses of the term appear in the title of the patent, "Apparatus and Method for Electrically Connecting Remotely Located Video Games." Hochstein argues that the disputed term is used in the title to describe a connection utilizing electromagnetic induction, and therefore the title's use of the term is inconsistent with how the term is used elsewhere. Microsoft, on the other hand, argues that the title is not relevant to the definition, but in any event the term is not used in the title to describe a connection by means of electromagnetic induction; rather, the manner in which the term is used in the title is fully consistent with how it is used elsewhere. The Special Master "strongly favors" Hochstein's position, but concludes:

my own experience as a patent examiner and practitioner is that relatively little attention is directed to the title by the inventor, his attorney or the patent examiner. In my opinion, the subtlety of the technical question here (which will become more apparent as this analysis proceeds), and its probable insignificance to the examiner's evaluation of the patentability of the claims, make it unlikely that a busy patent examiner would have even noticed it, let alone be concerned about it. In view of the Pitney Bowes holding, I conclude that the patent's title, though supporting Hochstein's arguments concerning claim construction, is entitled to limited weight in this claim construction analysis, particularly as it concerns "electromagnetic induction."


In his April 4, 2010, Supplement to the December 14, 2009, R&R, the Special Master states that, "upon further reflection, [he is] inclined to give [the title] a little more weight." April 4, 2010, Supplement to December 14, 2009, R&R at 3. The Court is not so inclined. The way in which the title is worded is ambiguous because it does not say to what the "remotely located video games" are being electrically connected. Given the context of the patent, the Special Master asserts that remotely located video games are being connected to each other, a connection that must involve electromagnetic induction. Microsoft argues the title could mean that each remotely located game is "electrically connected" to the video game communicator, a connection that would not involve electromagnetic induction. It is not possible to conclude with ample certainty which interpretation was intended. The title is ambiguous in its use of the disputed term. In any event, the Court is not permitted to rest its claim construction analysis on the title. See Pitney Bowes, 182 F.3d at 1312-1313.

The Court reiterates that it need not look to extrinsic evidence, and that intrinsic evidence supports its conclusion.

B. Extrinsic Evidence

The extrinsic evidence consists of (1) the parties' technical experts, Dr. Macedonia for Microsoft, and Dr. Matheson for Hochstein, (2) dictionary definitions, and (3) the litigation conduct of Microsoft. Taking these three sources in reverse order, the Court does not give any weight to the litigation conduct of Microsoft because no one has cited any authority whatsoever that permits the Court to consider this.
The dictionary definitions are minimally helpful and, in any event, are not entitled to great weight in accordance with Phillips. One definition (Microsoft's) unequivocally excludes electromagnetic induction from the scope of "electrically connected." It is not clear from the other definition—the one offered by Hochstein—whether electromagnetic induction is encompassed within the meaning of "electrically connected" since the definition "is more generic and does not specifically address electromagnetic induction or isolation transformers." December 14, 2009, R&R at 26.

With regard to expert testimony, the Special Master and Hochstein assert that Dr. Macedonia admitted, before the dispute shifted from radio waves to electromagnetic induction, that "electrically connected" encompasses electromagnetic induction. For the reasons stated above, the Court does not agree. In the end, the Court is left with the rival opinions of two experts who stay true to the litigation positions of their respective clients.

IV. CONCLUSION AND ORDER

For the reasons stated above, the Court construes the term "electrically connected" to exclude "electromagnetic induction" from its scope. This is because, as the Special Master correctly found in his December 14, 2009, R&R, the patent consistently uses the term "electrically connected" in a narrow sense to describe a specific type of connection that does not involve a gap, the patent never uses the term "electrically connected" to describe a connection by means of electromagnetic induction, and the patent consistently uses terms other than "electrically connected," such as "connected" (without the "electrically" qualifier) or "coupled," to describe connections over a gap in a transformer. Moreover, the extrinsic evidence in this case, even if admissible, does not aid the Court in its understanding of the disputed term.

6) "Electrically Connected"

MKS contends that the term "electrically connected" in Claim 19 means "coupled to the primary winding such that power is transferred by electrical current flow." (D.I. 103 at 32). Advanced Energy contends that the term cannot "be construed so as to include the use of an impedance matching network," that is, the term must be construed to mean directly electrically connected to the primary winding, without intervening components. (D.I. 110 at 22).

Again, with regard to the term "electrically connected," the parties' dispute centers on the absence or presence of an impedance matching network. As previously discussed, based on the patent specification and prosecution, the Court concludes that the invention was not intended to encompass an impedance matching network. (D.I. 94 N.J.L. 480, 111 A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). Accordingly, the Court construes "electrically connected" to mean directly coupled to the primary winding, not through an impedance matching network, such that power is transferred by electrical current flow.

1. electrically controlled birefringence type ('028 patent); electrically controlled birefringence effect ('412 patent) 6

5 415 F.3d 1303 (Fed. Cir. 2005).6 At oral argument the parties agreed that these two terms should be given the same construction. See D.I. 1053 at 76-78.

CEA's proposed construction is: "a category of liquid crystal cells distinguished from the helical nematic type (i.e., the twisted nematic type) in which the molecules have a homeotropic direction when no voltage is applied between the electrodes."
Samsung's proposed construction is: "a type of liquid crystal cell wherein the liquid crystal molecules have a homeotropic structure in the absence of an electric field, and when the cell is excited the molecules are all inclined in the same direction to form an angle with the homeotropy direction."

The court adopts CEA's proposed construction.

The parties agree that the proper construction of this term includes reference to the state when no voltage is applied. Samsung's proposed construction also includes reference to the cell state when voltage is applied.

Samsung argues that CEA's proposed construction improperly excludes TN devices. CEA counters that in a French patent application, from which the '028 patent claims priority date, and in a October 28, 1985 Prior Art Statement submitted to the United States Patent and Trademark Office ("PTO") in connection with the prosecution of the '028 patent, the patent applicants specifically distinguished the claimed inventions from twisted helical nematic type cells. CEA also argues that Samsung's proposed construction includes the unwarranted limitation that "when the cell is excited the molecules are all inclined in the same direction to form an angle with the homeotropy direction."

The court agrees with CEA that during the prosecution of the French priority application, and during the prosecution of the '028 patent before the PTO, the inventors disavowed coverage of TN cells. 7

--- Footnotes ---
--- End Footnotes ---

The specifications also make clear that the liquid crystal cells addressed in the patents-in-suit are not TN cells. The '028 patent specification describes differences between known liquid crystal cells of the electronically controlled birefringence (ECB) type and those of the helical nematic, or twisted nematic, (TN) type. 8 That specification, however, states: "[m]ore specifically, according to the invention, the cell is of the electrically controlled birefringence type . . . ." 9

--- Footnotes ---
8 '028 patent, 1:13-53.9 '028 patent, 2:24-25. Similarly, the '412 patent begins with the statement that "[t]he present invention relates to a liquid crystal cell using the electricity controlled birefringence effect and to processes for producing the cell and a negative optical anisotropy uniaxial medium usable therein." '412 patent, 9-12.
--- End Footnotes ---

Therefore, the court agrees with CEA that the patents-in-suit do not include helical nematic type cells. The court also agrees with CEA that the additional limitation proposed by Samsung that "when the cell is excited the molecules are all inclined in the same direction to form an angle with the homeotropy direction" improperly imports a limitation from preferred embodiments described in the specification. 10

--- Footnotes ---
10 See Comark Communications v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998) ("[w]hile . . . claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims.").
--- End Footnotes ---

Therefore, the court adopts CEA's proposed construction: "a category of liquid crystal cells distinguished from the helical nematic type (i.e., the twisted nematic type) in which the molecules have a homeotropic direction when no voltage is applied between the electrodes."
1. "Electrically Coupled"

Defendants ask me to construe "electrically coupled" as "directly, electrically connected currents or circuits where each current or circuit always has equal electrical potential (voltage)." Plaintiffs seek a broader construction of the terms to mean "electrically connected," but not requiring a direct electrical connection or the same voltage. I agree with plaintiffs.

a. Intrinsic Evidence

Since this combined term is not defined in the specification, both parties point to the context in which the term is used in the claim in support of their arguments. According to defendants, the plain language in claim 1 and 8 must be taken together and requires that "electrical coupling" occur only through direct wire-to-wire connections in which each electrical current always has an equal potential. Specifically, defendants point to the language in claim 1 which states

wherein the second cable assembly is adapted to electrically couple the[sic] at least one of the plurality of electronic devices to the end of the first cable assembly, and

wherein the first cable assembly is configured to be electrically coupled to each of the plurality of cable assemblies via the modular connector.

Defendants read both references to the term together, arguing it requires that the second cable assembly and first cable assembly electrically couple by way of the modular connector of the first cable assembly. Defendants further argue that claim 8 has a similar structure as claim 1, but adapted to the two groups of cable assemblies instead of the two individual cable assemblies claimed in claim 1. Therefore, the same interpretation should apply.

Plaintiffs' construction of claim 1 is grounded on a different reading of the same text. Plaintiffs point out that "the second cable assembly is adapted to electrically couple the electronic device to the end of the first cable assembly . . . ." Accordingly, "electrically couple" cannot be limited to a direct wire to wire connection, as the electronic device and the first cable assembly are connected by the second cable assembly and are not in direct contact as described in the claim. As set forth in the claim and the specification, the second cable assembly physically separates the electronic device from the first cable assembly; therefore the electronic device is not directly coupled to the first cable assembly. Next, plaintiffs read "and wherein the first cable assembly is configured to be electrically coupled to each of the plurality of cable assemblies via the modular connector" as stating that the first cable assembly is electrically coupled to the second cable assembly, despite not being in direct physical contact.

Overall, the claims at issue do not contain language limiting the term to require direct wire-to-wire coupling or equal voltage. The claim language, setting forth the structure of the invention, is not compatible with defendants' construction. Furthermore, the fact that this is a combined term of the words "electrically" in addition to "couple" weighs in favor of plaintiffs' construction. The use of the word "electrically" suggests the combined term here has a meaning different than just "coupled." See, e.g., Phillips, 415 F.3d at 1314 (the term "steel baffles . . . strongly implies that the term "baffles" does not inherently mean objects made of steel") (citing Mars, Inc. v. H. J. Heinz Co., 377 F.3d 1369, 1374 (Fed. Cir. 2004) (claim term "ingredients" construed in light of the use of the term "mixture" in the same claim phrase); Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356 (Fed. Cir. 1999) (claim term "discharge rate" construed in light of the use of the same term in another limitation of the same claim). The claim language here provides "a firm basis for construing the term." Id. at 1314. The nature of the electrical connection is not restricted by the claim language to direct physical coupling or with respect to voltage.

Defendants invoke the remainder of the specification in support of their proposed construction. They argue the preferred embodiments, illustrated in figures 1 and 2 of the '994 patent, describe examples of electrical coupling with wire-to-wire electrical connections with equal voltage on both sides of the connection. The weight to be afforded this argument is limited, however. The Federal Circuit has "repeatedly warned against confining claims to [the preferred] embodiments." Id. at 1323 (citing Nazomi Communications, Inc. v. ARM Holdings, PLC, 403 F.3d 1364, 1369 (Fed. Cir. 2005); Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906-08 (Fed. Cir. 2004); Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002).
2. Electrically Distinct Contacts

Contacts along the edge of a printed circuit board in which the contacts on the first side of the printed circuit board and the contacts on the second side of the printed circuit board are not connected across the printed circuit board edge but may be electrically connected away from the edge.
1. "electrically interconnected to the conductive gel layer"

Claims 1, 12, and 17 of the ’919 Patent describe an insulated lead wire that is "electrically interconnected to the conductive gel layer." Philips asserts that this phrase should be construed as "in direct contact with the gel layer, without the use of a conductive contact layer, such as a homogeneous thinly deposited metallic layer, a conductive ink material, or a flexible metal mesh." Philips renews its disclaimer arguments set forth in Section II.D.1, above. Cardiac Science contends that the term should be defined as "configured to enable electrical connection to the gel layer."

The Court finds that "electrically interconnected to the conductive gel layer" merely means that one end of the insulated lead wire enables electrical connection to the gel layer.

electrically separated from

Claim 1 contains the term "electrically separated from." Lonestar contends that the term means "the 'second layer of conducting strips' is separated from 'the first layer of conducting strips' by an insulating layer." Nintendo contends "electrically separated from" means "not electrically connected." The parties' dispute regards the extent of separation required by "electrically separated from."

The Court construes "electrically separated from" as "the 'second layer of conducting strips' is separated from the 'first layer of conducting strips' by a nonconducting layer." Nintendo's construction suggests an absolute electrical separation that is inconsistent with claim 1 and the specification. "Electrically separated from" is used in the context of the surrounding claim 1 language of "said second layer of conducting strips overlying, electrically separated from and substantially congruent to said first layer of conducting strips." Col. 7:2-4. Thus, the claim refers to the second layer conducting strips and the first layer conducting strips as being electrically separated. Claim 1 then continues by stating:

said first layer of conducting strips alternately connected to a first node and a second node, said second layer of conducting strips alternately connected to said first node and said second node in such a manner that each first layer conducting strip and a second layer conducting strip overlying said first layer conducting strip are connected to different nodes.

Col. 7:6-13. The claim states that both the first layer and second layer must be connected to the first node and second node. As a result, some strips in each layer are electrically connected. The strips in the first layer connected to the first node are electrically connected to the strips in the second layer that are also connected to the first node. The same is true for the strips in the first and second layers connected to the second node. These connections are also disclosed in the specification. The specification states, "All the strips 24A of the first layer and the strips 26A of the second layer are connected to form a common node. Likewise, the strips 24B of the first layer and the strips 26B of the second are connected to form a second common node." Col. 2:40-44. Thus, Nintendo's proposal that "electrically separated from" means "not electrically connected" is untenable in light of claim 1 and the specification.

The Court's construction includes that a nonconducting layer separates the first and second layers. The specification discloses a distance "d" between the first and second layers. Col. 3:9-10; Figure 3. The specification also discloses an insulating silicon dioxide layer separating the first and second layers. See Col. 5:50-57. An insulating layer is understood by those of ordinary skill in the art to be nonconducting. This is consistent with the specification and claims. The specification and claims define the first and second layers as "conducting" and by implication the separation layer is nonconducting. In the context of the terminology of the specification and claims, "nonconducting" is more appropriate than Lonestar's proposed term "insulating," which may need its own construction. The ’725 patent discloses examples of nonconducting materials, for instance, silicon dioxide and lantanium-modified lead zirconate tantalate. Col. 5:50-53, 58-61. Any of these...
materials may be used to separate the first and second layers. See Col. 5:39-61 (describing the process of forming a first layer of conducting strips and then depositing a layer of material over the first layer of conducting strips). Thus, the specification supports that the first and second layers are separated by nonconducting materials. Accordingly, the Court construes "electrically separated from" as "the second layer of conducting strips is separated from the first layer of conducting strips by a nonconducting layer.

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J. "Electro-Optical Conversion"

For the following reasons, this court construes the claim term "electro-optical conversion" found in claims 6, 7, 14, and 15 of patent '772 to mean:

The conversion of an electrical signal into an optical signal and/or the conversion of an optical signal into an electrical signal.

The parties presented nearly identical constructions as to the term "electro-optical conversion." Fujitsu proposed that "electro-optical conversion" be construed as "the conversion of an electrical signal into an optical signal, and/or an optical signal into an electrical signal." (Dkt. No. 90, Ex. C at 8-9.) Tellabs proposed: "the conversion of an electrical (optical) signal into an optical (electrical) signal." (Dkt. No. 91, Ex. C at 3.) Both constructions construe electro-optical conversion to be the conversion of an optical signal to an electrical signal, or an electrical signal to an optical signal. Consequently, this claim is not in dispute and needs no further construction by the court.

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C. Construction of "Electrode"

Claim construction is a matter of law and is reviewed de novo on appeal. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (en banc).

1.

During the district court proceedings, the parties vigorously disputed the proper construction of the claim term "electrode." The district court construed this term in its Markman hearing approximately four months before trial, as "any conductive surface, including a metal chamber wall or other surface, coupled to the plasma." Opinion, slip op. at 6 (quoting the Markman order). The district court then defined "coupled" to mean "electrically connected or connected by a conductive path, capacitively, inductively, or by any other means of transferring energy." Id. at 6 (quoting the Markman order).

TEA argues that an "electrode" must participate in generating the electrical field that forms the plasma, and not merely be coupled to the plasma. TEA also asserts that Tegal made, and relied upon, such a distinction in the prosecution history to secure allowance of the '223 patent. TEA further argues that the district court improperly relied on extrinsic evidence in construing "electrode."

Tegal defends the district court's construction. Tegal also asserts that "coupling to the plasma" and "generating the electric field" have the same general result that the electrodes "act together to create AC electric fields that charge the gas." Tegal argues, however, that characterizing an electrode as being coupled to the plasma is "more faithful to the specification and the claim language."

2.

We need not address each of the parties' claim construction arguments directly. Rather, we construe the term "electrode" according to the normal rules of claim construction.
First, we look to the claim language. Then we look to the rest of the intrinsic evidence, beginning with the specification and concluding with the prosecution history, if in evidence.

If the claim language is clear on its face, then our consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of the claims is specified. . . .

. . . . Relying on extrinsic evidence to construe a claim is proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence. . . .

. . . But extrinsic evidence may never be used for the purpose of varying or contradicting the terms in the claims.

Throughout the construction process, it is important to bear in mind that the viewing glass through which the claims are construed is that of a person skilled in the art.


Looking first to the claims, we observe that the term "electrode" is used throughout the claims, particularly claims 1 and 7, and is used in a broad sense. It is also clear that "electrode" is a term of art susceptible to various meanings, and so we go to the specification, as indeed the parties direct us, to determine the scope of this term.

The specification also supports a broad construction, focusing primarily on the fact that electrodes are coupled to an electric potential or source. The specification introduces the term "electrode" in the summary section by merely describing the electric potential or the electrical, or electromagnetic, source to which a given electrode is "coupled." n6 '223 patent, col. 1, ll. 50-55 ("One of the electrodes is held at ground while the second is selectively coupled to a high frequency AC source and the third is selectively coupled to a low frequency AC source."). The specification then states that electric fields are established between the electrodes. Id. at col. 1, ll. 55-57.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n6 Regarding the term "coupled," we note that the parties do not dispute the district court's construction, and we accept it.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

A subsequent section of the specification, entitled Detailed Description of Preferred Embodiments, continues this focus on electric potential or source by noting that the electrodes must have "electrical isolation" between them. Id. at col. 2, l. 39. That section goes on to describe the electrodes of the preferred embodiment in terms of the electric potential or source to which they are coupled. Id. at col. 2, ll. 58-66 (stating that "a high frequency power supply 30 and a low frequency power supply 36 are coupled to the second and third electrodes" and "the top electrode 10 is coupled to ground"). The specification, therefore, broadly describes an "electrode," and imposes no limitations beyond its having an electric potential or source coupled to it, and the implicit requirement that it be a conductive surface so that electric fields can be established between electrodes.

Examining the prosecution history, we note that Tegal distinguished over the prior art by asserting that the '223 invention produced a single discharge among three electrodes. Tegal asserted, for example, that "there is nothing in [the cited prior art references] which would lead one of ordinary skill in the art to connect the AC sources to produce a single discharge[, that is, plasma,] from three electrodes." (Emphasis omitted). Accordingly, the word "electrode" must be read to reflect this position. However, the parties disagree as to how best to characterize this position. In essence, they debate whether "producing" the plasma "from three electrodes" requires that the three electrodes actually generate the plasma.

We conclude that the prosecution history is more accurately described as requiring the electrodes to be "coupled to the plasma," and not, as argued by TEA, as requiring the electrodes to generate the plasma. The inaccuracy of TEA's
characterization is revealed by the specification, which instructs us that a plasma is "generated by the high and/or low frequency electric fields established between the electrodes." '223 patent, col. 1, ll. 55-57. Thus, the electric fields, and not the electrodes, generate the plasma. However, it is undisputed that the electrodes will be coupled to the plasma due to the presence of ions, and a current, in the plasma.

In the prosecution history, Tegal also distinguished over the Cotton reference by stating that "the electrodes claimed in the present invention are not the same as those disclosed in Cotton," which Tegal described as being spiked electrodes. Accordingly, the term "electrode" must be construed so as not to cover a spiked electrode.

In sum, we construe an electrode as any conductive surface, including a metal chamber wall or other surface except a spike, coupled to the plasma, and having an electric potential or source coupled to it. Further, because claim 1 recites it, at least one of the electrodes must be "adapted for holding a workpiece." '223 Reexam. Cert., col. 1, ll. 36-37. Because the phrase "having an electric potential or source coupled to it" is duplicative of other limitations in the asserted claims, our construction diverges from the district court's only in explicitly excluding a spiked electrode.

E. "ELECTRODE"

Inverness disputes the breadth of the term "electrode" as it is used in the 268 patent. Inverness argues that the 268 patent does not disclose the use of carbon as a material for the reference electrode disclosed in the patent. Inverness Br., Addendum B, at 3-4. Specifically, Inverness avers that the specification merely teaches that the electrodes should be made from noble metals or metallized plastic. Id. at 4. Further, Inverness argues that prior art does not disclose the use of carbon as a reference electrode material for this type of chemical cell.

In contrast, Roche argues that there is no reason to vary the meaning of electrode from its ordinary meaning: "any piece of conductive material through which an electric current enters or leaves a medium such as a liquid solution." Roche's Reply Br. at 34. Roche avers that the 268 patent need not teach that which was well known in the art. Id. (citing Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384 (Fed. Cir. 1986), cert. denied, 480 U.S. 947, 94 L. Ed. 2d 792, 107 S. Ct. 1606 (1987)). Specifically, the use of carbon electrodes in test strips was well known in the art prior to the 268 patented invention. Id. (citing Roche Reply App. Exh. 1, Exh. 313, C.R. Lowe, Biosensors: Concepts & Applications (University of Cambridge, U.K) (undated), at 27 & 34). See also Roche Resp. to Inverness' Surreply, at 16-17 (citing U.S. Patent No. 4,897,173, to Shiro Nankai et al., Jan. 30, 1990, at col. 7, ll. 50-53; col. 7, ll. 3-5 (the "Nankai patent")) (stating that the Nankai patent discloses in the claims and elsewhere a reference electrode made from carbon). Roche avers that U.S. Patent No. 4,897,173, to Shiro Nankai et al., Jan. 30, 1990 (the "Nankai patent"), discloses the use of carbon for a reference electrode in an electrochemical cell. The Nankai patent was listed as relevant prior art in the 268 patent. 268 Patent, at 2.

The Court finds that in the context of the 268 patent, electrode should be given its ordinary meaning: any piece of conductive material through which an electric current enters or leaves a medium such as a liquid solution. Starting with the language of the claims, there is nothing to suggest that the term "electrode" means anything extraordinary or requires special materials. See, e.g., id. col. 13, ll. 60-61; id. col. 14, ll. 62-63. The patent specification does state that the "disposable cells according to the present invention are preferably laminated layers of metallized plastic and nonconducting material. The metallized layers provide the working and reference electrodes . . . ." 268 Patent, col. 3, ll. 5-8. Further, the specification describes a process for metallizing the "polyimide Kapton" with silver-silver chloride for use as the reference electrode. Id. col. 5, ll. 52-67 to col. 6, ll. 10. The specification also teaches that "the reference electrode may also be of the type generally known as a 'pseudo' reference electrode which relies upon the large excess of the oxidizing species to establish a known potential at a noble metal electrode." Id. col. 6, ll. 11-15. But, none of the language in the patent suggests that these are the only materials that would work for the reference electrode. Moreover, the remaining descriptions of the reference electrode do not specify material. See id. col. 6, ll. 35-61.

As Roche suggests, the 268 patent need not teach what was well known at the time of the invention. Hybritech, 802 F.2d at 1384 (citing Lindemann Maschinenfabrik v. American Hoist & Derrick, 730 F.2d 1452, 1463 (Fed. Cir. 1984)). Claims 1 and 2 of the Nankai patent disclose:
1. A biosensor for electrochemically detecting concentration variations of a substrate in a liquid sample, comprising:

an insulating base;

an electrode system provided on said insulating base, said electrode system being primarily made of carbon and comprising, at least, a measuring electrode and a counter electrode . . .

* * *

2. A biosensor according to claim 1, wherein said electrode system includes the measuring electrode, the counter electrode and a reference electrode.

Nankai Patent, col. 6, ll. 46-53 to col. 7, ll. 3-5. These claims teach a reference electrode made from carbon used in a system designed to measure concentration electrochemically. There was no need for the 268 patent to teach carbon as a potential material for the reference electrode of its electrochemical cell; the Nankai patent had already taught it.

For these reasons, the Court finds that "electrode" in the context of the 268 patent has its ordinary meaning: any piece of conductive material through which an electric current enters or leaves a medium such as a liquid solution.

3. "electrode compartment"

Claim 1 of the '969 Patent describes an "electrode compartment." Philips asserts that this term should be defined as "a part of an enclosed space within the defibrillator case to hold the electrodes." Cardiac Science contends that the term "compartment" is commonly understood and need not be construed. Alternatively, Cardiac Science asserts that the term should be construed as "a defined space for containing electrodes."

The heart of the parties' dispute is whether the space of the compartment needs to be completely enclosed or not. Philips asserts that the defibrillator case lid 28 encloses the electrode compartment in the '969 Patent. ('969 Patent at c. 2, ll: 26-33.) However, Cardiac Science maintains that the space need not be enclosed. Specifically, Cardiac Science asserts that the electrode compartment is still referred to as a compartment even when the lid is open, thus demonstrating that Philips' construction is inappropriate. (Id. at c. 2, ll: 26-29.) The dictionary definition could support either party's construction. Merriam-Webster's defines "compartment" both as "a separate division or section" and "one of the parts into which an enclosed space is divided." Merriam-Webster's Collegiate Dictionary 252 (11th ed. 2003).

The Court finds that Philips' proposed construction is misguided. The "enclosed space" to which Philips refers, if anything, is that of the defibrillator case. Even following the dictionary definition of "compartment" that Philips advances, the electrode compartment would merely be a division of an enclosed space, that enclosed space being the defibrillator case. But the compartment itself need not be enclosed, as Cardiac Science is correct in asserting that the electrode compartment still remains a "compartment" even when the lid is open.

With these considerations in mind, the Court construes the term "electrode compartment" to mean "a section within the defibrillator case that contains the electrodes."

a. Construction of "electrode means"

The first term in dispute concerns the "electrode means" for connecting one of the capacitor plates to the circuit. The full claim limitation reads: "electrode means comprising a source/drain in said substrate contiguous with said doped region and electrically connecting said doped region of said MOS capacitor to the other of said busses." '830 at 6:32-35. Despite use of
the term of art "means," this limitation is not a means-plus-function limitation subject to interpretation under 35 U.S.C. section 112, P 6 because the language thereafter provides a sufficient substantive description of the electrode structure. Micro Chem. Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257 (Fed. Cir. 1999) (the presumption that section 112, P 6 applies "collapses, however, if the claim itself recites sufficient structure, material, or acts to perform the claimed function").

The plain meaning of "source/drain" is not fully apparent from the claim itself, but its location and function is readily understood from the whole of the claim. The "source/drain" is understood to be embedded in the substrate. The "doped region," whose antecedent basis is found in element (b) of claim 1, likewise is embedded in the substrate, being formed in the substrate at a location beneath a gate electrode. The limitation that the source/drain is contiguous with the doped region introduces the notion that not only are they both within the substrate, but the two regions meet at an interface. Furthermore, this interface provides electrical communication between the two regions because the claim also requires that the doped region be electrically connected to one of the busses via the source/drain.

Claim 1 marks the only recitation of "source/drain" in the entire patent, but the phrase is readily understood to refer to, in the aggregate, the source and drain "regions" described in the specification. The terminology of source and drain is borrowed from transistor technology, and the analogy is further strengthened by the choice of a capacitor in the form of a "MOS capacitor" to illustrate the invention. The figures used to illustrate an embodiment of the invention show what would be the source, drain, channel, insulating oxide layer and gate of an MOS transistor, but used in the invention to function as a capacitor.

The analogy between the capacitor of the invention and a transistor, however, has its limits. In another embodiment, an additional region is embedded in the substrate that interconnects the source and drain regions-a feature that would render a transistor nonfunctional. This embodiment is said to offer the additional advantages of lowered resistance in the pathway between the lower capacitor plate and the bus, as well as alternate locations at which to form the connection to the bus. Thus, one skilled in the art would understand that the terms source and drain do not impart the limitations appurtenant to transistors, but instead loosely indicate the method of formation (doping), and the general location (within the substrate contacting a channel--here called the "doped region"), of these regions. The term "source/drain," coined specifically in claim 1, reflects the teaching of the specification that the otherwise distinct regions may be connected and function as one aggregate.

Based on the foregoing, the Court construed the phrase "electrode means comprising a source/drain" to mean a region or regions embedded in a semiconductor substrate that forms an interface with the lower capacitor plate, which is the doped region embedded in the substrate that lies beneath the gate electrode, and the region or regions electrically connect the lower plate to one of the busses.

C. '472 Claim 1: "delivery electrode means for discharging"

The third disputed phrase in Claim 1 identifies "delivery electrode means for discharging the stored energy into the heart of a wearer of the device." '472 Patent, col. 8, ll. 67-68. CPI asserts that 35 U.S.C. § 112 P 6 does not apply to "delivery electrode means for discharging," while St. Jude contends that the phrase is a means-plus-function statement and that the disclosed structure is "an electrode that is implanted in the atrium of the patient's heart." Def. Prop. Conc. of Law at 2.

The claim element is stated in means-plus-function form with "means for" language, so the presumption is that 35 U.S.C. § 112 P 6 applies. CPI argues that there is a basis for departing from the presumption in his instance because one skilled in the art would understand the term "delivery electrode" to connote sufficiently definite structure (i.e., an electrode) to perform the stated function. See, e.g., Personalized Media, 161 F.3d at 703-05 (holding that the term "digital detector" recited sufficient structure to avoid 35 U.S.C. § 112 P 6; claim did not use word "means"); MediaCom Corp. v. Rates Technology, Inc., 4 F. Supp. 2d 17, 27 (D. Mass. 1998) (holding that "switch means operatively connected to said first jack means for disconnecting said first telephone from said network" was not a 35 U.S.C. § 112 P 6 means-plus-function statement "because it describes the structure that supports the disconnecting function (i.e. a switch or switches).").

The court disagrees that the "delivery electrode means" element recites sufficient structural detail to overcome the
presumption that 35 U.S.C. § 112 P 6 controls. In cases where the Federal Circuit has departed from the presumption established by the use of "means for," the court has emphasized that the claim language provided detail beyond some minimal statement of structure. See, e.g., Environ Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1365 (Fed. Cir. 2000) (finding that "second baffle means" rebuts the presumption that 35 U.S.C. § 112 P 6 applies because the term "baffle" itself imparted structure and because the claim gave further location and formational details); Rodime PLC v. Seagate Technology, Inc., 174 F.3d 1294, 1303-04 (Fed. Cir. 1999) ("The claim also recites the specific location and interconnection of each of these structural sub-elements. . . . This detailed recitation of structure for performing the moving function takes this claim element out of the scope of 35 U.S.C. § 112, P 6."); Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996) (finding that the claim language described definite structure as well as the location and extent of the structure).

Further, in Unidynamics Corp. v. Automatic Products Int'l, Ltd., the Federal Circuit adhered to the presumption established by use of the term "means" and found that the claim element "spring means tending to keep the door closed" invoked 35 U.S.C. § 112 P 6. 157 F.3d 1311, 1319 (Fed. Cir. 1998). The court distinguished Cole v. Kimberly-Clark on the basis that the claim in Cole had not only described definite structure but also described the location and extent of the structure. See id.

St. Jude's proposed construction, which requires the electrode to be implanted in the atrium of the patient's heart, is also faulty. The function to be performed -- "discharging the stored energy into the heart of a wearer of the device" -- is stated in terms broad enough to include both atrial and ventricular therapies. A limitation requiring the discharging end of the electrode to be implanted in the atrium would import structural detail of the disclosed devices beyond what is required to perform the recited function. See Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc., 145 F.3d 1303, 1308 (Fed. Cir. 1998) (claim construction properly omitted details of the embodiment that defined structure unrelated to the recited function).

The use of an atrial catheter electrode is necessary to the disclosed embodiments, but not necessary to the function recited in the claim. The claim element is concerned more broadly with a means by which to transfer energy from the device to any point in the heart where the electrical therapy is to be delivered. See '472 Patent, col. 7, ll. 39-43 ("AND gate 82 switches the discharge switch 84 to its conductive state, thereby discharging the storage and discharge capacitor 78 through the heart 76 by way of a catheter 72 implanted in or about the heart, as in the right atrium 74.").

The court intends to define "delivery electrode means" as "structure identical or equivalent to a catheter-type electrode extending from the implanted device to the heart, such that the point of discharge is located at the point where the electrical therapy is to be delivered."

The element "delivery electrodes for discharging said stored energy into the heart of the wearer" in Claim 18 recites another structural element that must be included in the implanted "electronic package." As was the case for the term "delivery electrode means" in Claim 1, St. Jude contends that the "delivery electrodes" element in Claim 18 is a means-plus-function element and that the specification limits the scope of the claim to electrodes implanted in the atrium.

Although the phrase in Claim 18 omits the word "means," the element is otherwise not different from the "delivery electrode means" element in Claim 1. The phrase in Claim 18 also identifies a function, and it provides no more illumination than the parallel element of Claim 1. The court sees no valid basis for finding that "delivery electrode means" discloses less structure than the phrase "delivery electrodes." The court finds that the element is subject to 35 U.S.C. § 112 P 6 and intends to define "delivery electrodes" as "structure identical or equivalent to a catheter-type electrode extending from the implanted device.
to the heart, such that the point of discharge is located at the point where the electrical therapy is to be delivered."

D. "electronic access"

Plaintiff, citing The Computer Glossary 129 (9th Ed. 2001) and the Dictionary of Computer and Internet Words at page 1, argues that the term "electronic access" should be construed as "the ability to gain entry to or use a computer or other devices." (Dkt. 86 at Ex. 1, p. 2). Plaintiff also relies on the Shames declaration. n5 Defendants have not proposed an alternate construction.

n5 Shames opines that "[a] Skilled Person would understand that the term 'electronic access' means 'the ability to gain entry to or use a computer or other devices' in the '229 patent." (Dkt. 73 at p.9).

The plain language of the claim provides that browser-based subscribers have electronic access to a home page via a modem and the ISP. ('229 patent, col. 5, ll. 57-59). The Court finds that Plaintiff's use of the phrase "or other devices" unnecessarily expands the scope of the plain language of the claim itself. The claim only requires a computer for access to the billing system. Accordingly, the Court finds that a person skilled in the art would understand the phrase "electronic access" as used in Claim 1 to be "the ability to gain entry to or use a computer."

As an initial matter, we find that construction of the preamble is necessary. The preamble describes the components of "an electronic auction system". The components are used in the steps that comprise the "electronic auctioning process." The entire claim must be read as a whole.

TERM # 1: "electronic auction system" - Defendants reiterate the temporal limitation argument that they lost on summary judgment. We need not address it again. This term means: "The equipment and procedure used to sell fixed income financial instruments to the highest bidder using computers."  

TERM # 9: "an electronic auctioning process for auctioning fixed income financial instruments" - Defendants' proposed construction is an admitted restatement of the argument they lost on summary judgment. We will not revisit that issue. Based on our earlier constructions, this phrase means: "a process for selling fixed income financial instruments to the highest bidder using computers."

3. "Electronic Chip"

The district court provided the jury with the following construction of "electronic chip" (emphasis added):

"Chip" is not used in whatever technical sense it may have; here, it means the same thing as an electrical component, whether it is a complex integrated circuit of several subparts or a single resistor. A resistor itself is made of two leads, case,
and resistant core, at a minimum, making it a packaged electronic component.

Although we do not agree with the district court's construction, for it appears from the definition given to the jury that the district court was confusing a "packaged electronic component" (i.e., the claimed invention as a whole) with an "electronic chip" (i.e., an element of the claimed invention), this aspect does not appear to have been material to the result, and any error appears to have been harmless.

II. Interpretation of the Term "Electronic Circuit"


The parties vigorously disagree as to whether the relevant claim language is written in means-plus-function format. Claim 1 of the 855 Patent is representative of a disputed claim in which the term "electronic circuit" appears. That claim provides in part:

A window covering with actuator, comprising: . . . an electronic circuit electrically connected to the control signal generator and the battery for processing the control signal to cause the battery to energize the motor to move the rod.


Finally, claims 1, 71, 83, and 97 of the 855 Patent and claims 1, 22, 31, 35, and 42 of the 480 Patent identify the physical location of the electronic circuit as "electrically connected to the control signal generator and the battery." Claim 1 of the 958 Patent indicates that the electronic circuit is electrically connected to the light sensor and the battery. Language identifying physical location suggests that a patentee intended to recite a structural element. See Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996). While claims 18 and 28 of the 480 Patent do not indicate the physical location of the electronic circuit, the Court is persuaded for the reasons above that the language of these two claims is not written in means-plus-function format.

Accordingly, the Court finds that the term "electronic circuit" does not invoke 35 U.S.C. § 112, P 6. Furthermore, the Court finds that a person of ordinary skill in the art of electronic circuits would understand the term "electronic circuit" to mean "an arrangement of interconnected electronic components that can perform specific functions upon application of proper voltages and signals." 2

Footnotes

2 Hunter Douglas argues that the term "electronic circuit" does not connote sufficiently definite structure because it is a generic term that refers to a multitude of structures. The test, however, is not whether a claim term connotes a precise physical structure. On the contrary, 35 U.S.C. § 112, P 6 is inapplicable even where the claim term denotes a variety of structures to one knowledgeable in the art. See Personalized Media Communications, 161 F.3d at 705.
B. A Microprocessor Is a Type of Electronic Circuit

The parties disagree over whether a microprocessor is an example of an electronic circuit as that term is used in the disputed claims. Hunter Douglas appears to agree that, in general, a microprocessor is a type of electronic circuit. But it argues that Harmonic Design is not entitled to a broad claim scope because the specifications and the prosecution history of the patents at issue teach "a very narrow solution to the problem of saving battery power" that is at odds with the use of microprocessors. See Def.’s Construction Brief, at 20.

Harmonic Design used the term "non-logical CMOS component" in dependent claim 18 of U.S. Patent No. 5,444,339, an older patent related to the patents at issue here. To overcome an obviousness rejection to that particular claim by the U.S. Patent Office, Harmonic Design had distinguished the term "non-logical CMOS component" from a microprocessor taught by the prior art. Harmonic Design argued that a microprocessor, unlike a non-logical CMOS component, consumes a relatively large amount of power. Because a stated object of the patents at issue here is to provide a window covering device that "consumes relatively little power," Hunter Douglas argues that the Court should interpret the term "electronic circuit" to exclude microprocessors.

Harmonic Design limited its comments to the U.S. Patent Office regarding microprocessors to a single, dependent claim. Harmonic Design did not argue that the broad term "electronic circuit" does not include microprocessors. Moreover, no claim in the patents at issue refer to a non-logical CMOS component. Finally, none of the disputed claims appear to require battery-conserving features. This fact is significant since other claims appear to provide for battery-conserving features. See, e.g., 855 Patent, claims 14, 99; 480 Patent, claims 40, 43. For the above reasons, it appears that Harmonic Design never intended to exclude microprocessors from the scope of term "electronic circuit."

The ultimate issue, therefore, is whether the term "electronic circuit" includes microprocessors. As mentioned above, Hunter Douglas apparently agrees that it does. In any event, the Court notes that one of ordinary skill in the art of electronic circuits would understand that a microprocessor is a type of electronic circuit. The term "microprocessor" is defined as "an integrated circuit that contains the logic elements for manipulating data and for making decisions." IEEE Standard Dictionary, p. 653. And the term "integrated circuit" is defined as a "combination of connected circuit elements (such as transistors, diodes, resistors, and capacitors) inseparably associated on or within a continuous substrate." IEEE Standard Dictionary, p. 536. It follows from these definitions that a microprocessor is a type of electronic circuit. See also Decl. of Lawrence J. Kamm, P 12.

For the above reasons, the Court finds that the term "electronic circuit" includes microprocessors.

E. "electronic commerce" or "electronic commerce transaction"

The magistrate judge rejected the parties' suggestions that the terms "electronic commerce" and "electronic commerce transaction" should have separate definitions, finding that "they should be construed applying a single definition[.]" First Report at 4. The magistrate judge recommended that "electronic commerce" and "electronic commerce transaction" should be construed as "a sequence of one or more related electronic transmissions that facilitate the purchase of and payment for goods and services between an originator and a recipient." Id. at 4, 11. No objections have been filed with respect to the magistrate judge's proposed construction. After careful review of the magistrate judge's findings and conclusions, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "electronic commerce" and "electronic commerce transaction" in patent '878 is correct, and it is hereby accepted as the court's construction of "electronic commerce" and "electronic commerce transaction."
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a. "electronic commerce"

Claims 1, 7, 11, and 14 refer to computers and systems for conducting and coordinating "electronic commerce." Microsoft argues that "electronic commerce" should be limited to the "purchase and download" of electronic data over an electronic network. This interpretation is based entirely on one description in the patent specification of buying selling software over the internet, this being known as "digital commerce." '124 Patent, 1:30-37; 1:21-25.

NCI correctly responds that this definition is not in the part of the specification that describes the invention, but rather is part of a preamble describing the prior art. Instead, NCI proposes a construction that includes any commercial activity conducted by means of computer through a network.

The Court adopts NCI's interpretation. Microsoft's interpretation would not only be contrary to the ordinary meaning of the phrase, it would also improperly import a limitation from the specification. Electronic commerce is commercial activity - including, for example, licensing and purchasing transactions - conducted over an electronic network, such as the Internet. This interpretation is consistent with the ordinary meaning of the phrase and is supported by the specification. '124 Patent, 1:45-51, 4:23-27, 5:62-64, 15: 40-43, 24: 38-28:2.

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15. "Electronic Communications Network"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "a network in which data or information is communicated electronically." The defendant proposes "a system of electronic circuits, electronic components, electronic devices, electronic equipment, computers, transmission channels, and related sources which are interconnected together to exchange information."

After considering the parties' positions, the court concludes that this term does not have a technical definition and no construction is necessary.

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"an electronic control system"

an electronic circuit that controls the brake system

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F. "electronic display means" / "electronic display"

The final limitation of claim 1 reads, "electronic display means for displaying information, by the teacher to the students." The defendants contend that "electronic display means" is a means plus function term; the term's function is "displaying information by the teacher to the students" and its corresponding structure is "a liquid crystal display (LCD), a video projector, a student terminal display, a television, a television projector, a monochrome display, and their equivalents." In contrast, the plaintiff argues that "electronic display" should be construed, and this term is not a means plus function term. Because this term is commonly understood, Better Education believes that "electronic display" requires no construction.

When the word "means" is used in a claim term, there is a presumption that § 112, ¶ 6 applies. Personalized Media
4. "Electronic element for suppressing noise"

The parties dispute the meaning of the terms "electronic element" and "suppressing" as they are used in the phrase "electronic element for suppressing noise." These terms appear in claims 1, 2, and 4 of the ’641 patent as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

   a printed board containing an electronic element for suppressing noise:

   a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on the printed board;

   a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a wire on the printed board; and

   An insulating housing for encasing the printed board.

2. A modular jack as claimed in claim 1, wherein the noise suppressing electronic element is an array of common mode choke coils.

4. A modular jack as claimed in claim 1, wherein the noise suppressing electronic element is a chip capacitor.

a. "Electronic element"

Murata argues that "electronic element" should be construed simply as "an electronic component." Murata's Opening Brief, at 25. Bel Fuse argues that "electronic element" should be limited to "an electronic component (not including wound toroidal cores) such as a chip-type element." Bel Fuse's Responsive Brief, at 18. To support this limitation, Bel Fuse argues that one of the objects of the invention of the '641 Patent is to make the jack "compact," and if wound toroidal cores are used as the electronic element for suppressing noise, the jack cannot be compact. Bel Fuse also argues that since the specification discloses only embodiments that contain chip-type elements (an array of common mode choke coils, a chip inductor, and a chip capacitor), wound toroidal cores are not considered part of the invention.

In the background of the invention, the '641 Patent describes U.S. Patent No. 5,015,204 ("the '204 Patent") as prior art. '641 Patent, col. 1, 11. 33-56. The '204 Patent discloses a modular jack which contains a common-mode choke coil. See Ex. 3 to Bel Fuse's Responsive Brief. One end of the wire wound on the coil is the contactor which contacts with the plug, and the other end acts as a lead to connect with a printed board external to the modular jack. The '641 Patent states that the design of the '204 Patent has the following disadvantages: (1) since the contactor, terminal and coil are a single unit, they must be plated together which can result in unnecessary plating of the coil; (2) additional common mode choke coils are needed to increase the number of signal circuits, resulting in the jack not being compact; and (3) the pitch among the terminals is more than the 1.02 mm pitch of an ordinary circuit board, requiring a newly designed circuit board. '641 Patent, col. 1, ll. 33-56. The '641 Patent teaches that it has several advantages when compared to the prior art: (1) it is compact and economical; (2) the pitch among terminals can be set to the ordinary pitch of 1.02 mm or another value; (3) the contactor and terminal can
be plated separately and with different metals; and (4) a change in wire patterns on the printed board can accommodate an increase in the number of signal circuits. Id. at col. 1, 1.59-col. 2, 1.21.

Murata argues that these advantages are realized by the insertion of the printed board, rather than the elimination of wound toroidal cores. The court agrees. While the specification of the '641 Patent criticizes the configuration of the '204 Patent, that configuration is different from the disclosure of the '641 patent, not merely because the '204 Patent teaches use of a wound core but more importantly because it does not teach the inclusion of a printed board within the modular jack.

Additionally, there is no reason to limit the scope of "electronic element" to the embodiments disclosed in the '641 Patent. The '641 Patent discloses three preferred embodiments, each using a different electronic element for suppressing noise. The first embodiment teaches use of a common mode choke coil array. '641 Patent, col. 3, 11. 15-22. This array is placed on a base plate of ceramic material, thus making it a chip type element. Id. at col. 3, 11. 15-19. The second embodiment teaches a chip inductor, and the third embodiment teaches a chip capacitor. Id. at col. 4,11. 20-22, 35-37. The three disclosed embodiments teach the specific electronic elements for suppressing noise that are claimed in dependent claims 2 (array of common mode choke coils), 3 (chip inductor), and 4 (chip capacitor). Therefore, the electronic element for suppressing noise of independent claim 1 must be broader than merely those three examples. Phillips, 415 F.3d at 1315 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.") (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004)). However, the application of this maxim to this case does not support Murata's construction because it does not necessarily follow that claim 1 must be broad enough to include all electronic elements for suppressing noise. For example, claim 1 would be broader than dependent claims 2, 3, and 4 if claim 1 included all chip type elements beyond the three claimed in the dependent claims.

That being said, there is nothing in the specification or description of the prior art to indicate that the "electronic element" is limited to chip type elements or excludes wound toroidal cores. While the specification suggests that chip-type elements might be preferred, as discussed above, the specification speaks inclusively of other embodiments:

Although the present invention has been described in conjunction with the embodiments above, it is to be noted that various changes and modifications are apparent to those who are skilled in the art. Such changes and modification are to be understood as included within the scope of the present invention defined by the appended claims. . . . [T]he method of providing an electronic element such as the common mode choke coil array 20, the chip inductors 40, the chip capacitors 50 or the like for the printed board 30, 41 and 51 . . . may be determined arbitrarily.


Additionally, even if using wound cores would make the modular jack somewhat less compact than using other noise suppressing elements, the other objects of the invention could still be satisfied, such as allowing the pitch among the terminals to be set to the ordinary pitch of 1.02 mm or another value and allowing the contactor and terminal to be plated separately and with different metals. Phillips, 415 F.3d at 1327 ("We have held that '[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives.'").

For these reasons, the court finds that one of ordinary skill in the art would not have interpreted "electronic element" as used in the claims of the '641 patent, in light of the specification, as excluding wound toroidal cores or being limited to chip-type elements. Thus, the court construes "electronic element" as an "electronic component."

1. "Electronic Element"

This term will be defined as "a device or thing that has (1) distinct characteristics related to electricity; together with (2) terminals at which it may be connected to other distinctly electrical devices or things in order to form a circuit (3) in which electrons move through devices called semiconductors."
The phrase "electronic element" appears in claim 1 of each of the four Patents: "A process for incorporating at least one electronic element in the manufacture of a plastic card . . . positioning said at least one electronic element in the absence of a non-electronic carrier directly between said first and second plastic core sheets to form a plastic core. . . ." '207 Patent, Claim 1; '155 Patent, Claim 1; '099 Patent, Claim 1; '367 Patent, Claim 1; '367 Patent, Claim 20. (See also Cohen Decl., Exh. L.)

It also appears in the following language of the '207 and '155 patents: "Positioning at least one electronic element in the absence of a non-electronic carrier directly between said first and second plastic core sheets. . . ." '207 Patent, claim 16 and '155 Patent, Claim 15. (See also Cohen Decl., Exh. L.) "Electronic element may take a wide variety of forms and perform a wide variety of functions. As shown . . . electronic element may be provided by a micro-chip and a circuit board antenna, a read/write micro-chip and a wire coil antenna, or any other suitable electronic element." '207 Patent, Specification, col. 3:46-52 (internal references omitted).

The specification of the '099 patent states that the "electronic element may take a wide variety of forms (microprocessor chip, circuit board, transponder, etc. )." (Pl. Br. at 15-16, quoting the '099 Patent at col. 4:35-37.)

Plaintiff urges that an "electronic element" in all of the patents in suit should be construed to mean "a device having distinct electrical characteristics and having terminals at which it may be connected to other elements to form a circuit that utilizes a semiconductor device." (Pl. Br. at 14).

Defendant urges that the term be construed to mean "A microchip and an antenna" in the '207 and '155 patents. Defendant further contends that the term is ambiguous in the context of the '099 and '367 patents, and thus cannot be defined at all.

Because this is the most hotly contested term, and its definition is critical to the construction of the patents, I will summarize the parties' arguments in some detail.

Definitional Sources:

Plain Meaning: Both parties place great reliance on dictionary definitions. Yet while using the same dictionary, they come up with two different "plain" meanings for this key phrase.

Plaintiff notes that the Dictionary of Scientific and Technical Terms (McGraw Hill 5th ed. 1994) ("McGraw Hill") does not contain a definition for the phrase "electronic element." But it does define both the word "electronic" and the word "element." 2 So Plaintiff puts those two definitions together and argues that the "definitions of the words that make up this term provide a clear ordinary meaning." (Pl. Br. at 14).

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Plaintiff cites to the definition the word "element," as "component," which in turn is defined as, "any electric device . . . having distinct electrical characteristics and having terminals at which it may be connected to other components to form a circuit." Id. at 424. McGraw Hill defines "electronic" as "pertaining . . . to circuits . . . utilizing electron devices . . ." id. at 661, and defines "electron device" as "a device in which conduction is principally by electrons moving through a vacuum, gas, or semiconductor." Id. at 660. Observing that vacuum and gas conduction are irrelevant to the patents in suit, Plaintiff notes that McGraw Hill defines the term "semiconductor device" as an "electronic device in which the characteristic distinguishing electronic conduction takes place within a semiconductor." Id. at 1790. (McGraw Hill (6th ed. 2003), p. 1895 also defines "semiconductor" to mean, "A solid crystalline material whose electrical conductivity is intermediate between that of a conductor and an insulator, ranging from about 10^<5> mhos to 10^<7> mho per meter, and is usually strongly temperature-dependent." Plaintiff makes no reference to this definition.)

Defendants agree with Plaintiff's definition of the word "electronic" and also with Plaintiff's observation that the word "element" is synonymous with "component." But taking off from that, they observe that McGraw Hill -- while lacking a definition for the phrase "electronic element" -- does contain a definition for the phrase "electronic component." And it is
not the same as the combined definition of the words "electronic" and "element" crafted by Plaintiff. Rather, "electronic component" means, "A component which is able to amplify or control voltages or current without mechanical or other non-electrical command, or to switch currents or voltages without mechanical switches; examples include electron tubes, transistors, and other solid-state devices." McGraw Hill at 701. Defendant argues that this is superior to a definition that combines the separate definitions for the terms "electronic" and "component" because, inter alia, the term "component" as defined by McGraw Hill relates to the wrong field -- Electricity as opposed to Electronics -- and is therefore not apt. 3

--- Footnotes ---

3 I find it interesting that McGraw Hill contains no definition for the term "element" -- the admitted synonym for "component" (and the word Leighton actually uses in the patent) - that falls within the field of Electronics, either. Indeed, the "element-component" synonym that Defendant invokes in order to turn my attention to the phrase "electronic component" (which is not the phrase used in the patent) is found under the heading Electricity, not Electronics, which turns Defendant's argument back on itself!

--- End Footnotes ---

It is important to Defendant that I prefer the definition of "electronic component" over Plaintiff's combined definition of the separate terms "electronic" plus "component" because the definition of "electronic component" incorporates (and, according to Defendant, is limited to) "solid-state devices." That term is defined by McGraw Hill to mean, "A device, other than a conductor, which uses magnetic, electrical and other properties of solid materials, as opposed to vacuum or gaseous devices." The italicized language (which appears to limit "electronic components" to solid-state devices, such as micro-chips) is critical to Defendant for two reasons. First, Defendant argues that the only solid state device that satisfies the criteria of the patent is a micro-chip. Second, in the '099 and '367 patents, a bare antenna, which is a conductor (and thus not a solid state device), is embedded. It is that, Defendant argues, which renders the term "electronic element" indefinable in connection with those two patents.

The fact that both parties agree that the word "component" is synonymous with the patentee's chosen word "element," and that there is a definition for the phrase "electronic component" in McGraw Hill, might be thought to solve the definitional conundrum. Indeed, there is a certain Occam's Razor kind of elegance to Defendant's point.

However, there are two serious flaws with this argument. First, defining "electronic element" to exclude a conductor, like an antenna, reads a disclosed embodiment (in the case of the '099 patent, the preferred embodiment) out of the patent. Adopting that definition is thus inconsistent with the rules that claims are to be construed so as to (1) make sense and (2) be consistent with the specifications.

Second, as is so often the case with scientific and technical definitions, Defendant's proposed definition is tautological -- that is, it contains the very word ("component") that it purports to define. To be useful to a jury, the construction of the phrase "electronic component" cannot define the word "component" as "a component." 4 Since there is no clue within the definition of "electronic component" to what a "component" might be (other than a non-exhaustive list of examples, about which more in a moment), one could only craft a workable definition of "electronic component" by incorporating into it the definition of the undefined word -- "component" -- that appears elsewhere in the McGraw Hill Dictionary. Of course, Defendant does not want me to do that, because then we would end up with Plaintiff's definition (or its functional equivalent)!

--- Footnotes ---

4 Since Defendant insists (and Plaintiff agrees) that "component" is synonymous with "element," I could turn to yet another dictionary -- the Oxford English Dictionary, which is used by persons not skilled in any art except the art of looking up words -- and find a definition of "element" that fits quite nicely into the language of the patent: "a constituent part." However, that definition would be far too broad to fit within Plaintiff's claimed invention (see below at 23).

--- End Footnotes ---

What should be obvious from all of the above is that I cannot fashion a so-called "ordinary meaning" definition of the term
"electronic element" by using a dictionary alone. Nor should I. When interpreting terms used in a patent, one is required to look at how the term is used in the patent itself and in its prosecution history, to see if that use is consistent or inconsistent with any dictionary definition. It is to that exercise that we now turn.

Specifications: The specifications for the '207 patent certainly do not suggest that the term "electronic element" should be defined as narrowly as Defendant urges. For example, it says:

Electronic element 20 may take a wide variety of forms and perform a wide variety of functions…[It may include] a micro-chip 22 including a wire antenna 24 connected thereto, a micro-chip 22' and a circuit board antenna 24', a read/write micro-chip 22" and a wire coil antenna 24", or any other suitable electronic element.

Similarly, in the related '099 patent, "Electronic element 20 may take a wide variety of forms (microprocessor chip, circuit board, transponder, etc.)." And as noted above, Fig. 4, one of the disclosed embodiments of the '099 patent, shows the electronic element to be a bare antenna.

Plaintiff has specifically disclaimed to the court any effort to invoke patent rights in whatever the "electronic element" might be. However, Plaintiff's use of broad language in the specifications clearly evinces an attempt to include any sort of electronic element that presently can or might in the future be usefully implanted in a smart card -- not just micro-chips and antennas, which appear to be the preferred embodiment given today's technology.

Defendant correctly notes that all of the disclosed embodiments in the '207 and '155 patents are variations on the "micro-chip plus antenna" theme, and all the disclosed embodiments in the '099 and '367 patents are variations on the "micro-chip or antenna" theme. But it is hornbook law that a patent is not limited to its disclosed embodiments. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (unless patentee specifically indicates such a limitation, claims should not be construed as limited to embodiments of invention having a particular feature simply because all embodiments disclosed in the specifications share that feature). A review of the file wrapper does not disclose anything suggesting that Leighton ever disclaimed the use of any type of electronic device in connection with its process during the prosecution of the patent, so Oberthur cannot invoke any patent estoppel to limit the patent's scope to the disclosed embodiments.

Plaintiff further argues that construing "electronic element" to mean "micro-chip and antenna" with respect to the '207 and '155 patents would violate the doctrine of claim differentiation. Under this doctrine, each claim in a patent is presumed to have a different scope. See, e.g., Versa Corp. v. Ag-Bag Int'l Ltd., 392 F.3d 1325, 1329-30 (Fed. Cir. 2004). "The difference in meaning and scope between claims is presumed to be significant 'to the extent that the absence of such difference in meaning and scope would make a claim superfluous.'" Id. (quoting Tandon Corp. v. U.S. International Trade Com., 831 F.2d 1017, 1023 (Fed. Cir. 1987)). Therefore, limitations of dependent claims are not read onto independent claims, because to do so would render the independent claims superfluous as duplicative of the dependent claims.

In the '207 patent, dependent claims 13 and 14 of the '207 patent narrow the scope of the term "electronic element" as it appears in independent claim 1 by specifying that the "electronic element" must be "a micro-chip and an associated wire antenna" (claim 13) or "a micro-chip and an associated circuit board antenna" (claim 14). Defining "electronic element" to mean only "a micro-chip and an antenna" would improperly impose the limitations of dependent claims 13 and 14 onto independent claim 1. Defendant fails to refute this argument.

Prosecution History: Plaintiff also argues that the prosecution history of these patents demonstrates that the term "electronic element" as used in the patents in suit should be read as broadly as Plaintiffs urge -- and, moreover, that a person of ordinary skill in the art would so read it.

One of the critical prior art patents is U.S. Patent No. 5,519,201, a prior art patent that is cited in the prosecution history of the '367 patent. This patent relates relate to "smart card" technology. Persons skilled in the art would be expected to be familiar with this patent.

The '201 patent contains the following language concerning the electronics that make smart cards work:

Some identification cards include an integrated circuit and are known as 'integrated circuit cards' or 'Smart Cards.' More generally, herein, 'Smart Card' refers to any portable card-like device which includes one or more electronic components,
i.e., active components such as integrated circuits, transistors and diodes, and passive components such as resistors, capacitors and inductors.

Col. 1:32-38.

Elsewhere in the '201 Patent, the inventor states that electronic elements (or components, as he calls them) can include:

- integrated circuit modules, transistors, diodes, and passive components such as resistors, inductors and capacitors.
- Further, an integrated circuit module for use with the invention can be a printed circuit board to which is attached one or more integrated circuit chips, a printed circuit board without an integrated circuit chip attached, or just an integrated circuit chip.

(Pl. Br. at 16, quoting the '201 patent at col. 2:55-64.) This language is extremely broad and does not at all suggest that "electronic elements" in "smart cards" are limited to micro-chips and their antennas. Nor does it support Defendant's argument that the term "electronic element" as used in the '367 and '099 patents is indefinable because an antenna -- which all parties agree is a "passive component" or an "inductor" -- falls outside the ambit of "electronic elements." Defendant urges the Court to read these passages (in particular the former passage) such that only "active components" are encompassed within the reach of the term "electronic components," but such a reading defies logic as well as basic principles of English grammar.

--- Footnotes ---

5 Similarly, the prior art U.S. Patent No. 5,412,192, cited in the provisional application for the '207 patent and teaching a system for changing the activation status of a data card, such as a charge card, uses the phrase "internal electronics" to refer to the "wire coil antenna and micro chip" of the '207 provisional application and defines that phrase in an extremely broad manner to include "battery, fuses, crystal display, and photocell." ('207 Provisional Application at 19).

6 The quoted language in the '201 patent also indicates that Defendant's proposed use of the McGraw Hill definition of "electronic component" for the patents in suit is misplaced since it would read out the "passive components" included within the category of "electronic component" used in the '201 patent.

--- End Footnotes ---

Defendant argues that an antenna cannot possibly be an electronic device because it is an electromagnetic device (according to McGraw Hill), which is something entirely different. However, as noted above, the word "electronic" mean "pertaining to electron devices." Antennas "pertain" or relate to "electron devices" by functioning with them to complete the circuitry that embodies the "smart card" technology.

Moreover, the prior art patents draw a distinction between active and passive electronic devices, with the latter plainly including devices that function using electromagnetic action. For example, the '201 patent notes that "electronic components" can include "passive components" such as "inductors," which would encompass antennas. '201 patent, col. 1:32-38.

Result

It is easy to reject Defendant's proposed definition of "electronic element" as "a combination of a microchip and an antenna" with regard to the '207 and '155 patents. Such a construction, as Plaintiff correctly observes, would violate almost every rule of claim construction. It is inconsistent with the broad language used in the specifications. It is inconsistent with prior art patents that use the same term. And it is far narrower than even the dictionary definition of the phrase "electronic component" that Defendant advances.

It is equally easy to reject Defendant's argument that the term "electronic element" is used differently in the '376 and '099 patents, and cannot be defined at all as used in those patents because one disclosed embodiment identifies something (an antenna) that is not, in fact, an electronic element. Defendant's thesis that this term is used differently in the latter two patents is entirely dependent on acceptance of its extremely narrow construction of the term "electronic element," which
limits that term to a combination of a microchip and an antenna." Since I have rejected that narrow construction, I must reject the argument based thereon. And the preceding discussion highlights the flaws in Defendant's claim that the term cannot be defined.

7 Specifically, Oberthur claims that because the '099 patent and '367 patents indicate that the embedded "electronic element" is only an antenna--not a micro-chip and antenna--this distinction renders the term ambiguous. (Def. Br. at 51.) Unless the definition of "electronic element" is confined to "microchip and antenna" -- an argument I decline to accept -- this argument makes no sense.

This leaves me with the task of deciding whether Plaintiff's proposed definition (or some variant on it) is the correct construction of the term, based solely on intrinsic evidence. As I make this decision, I must keep in mind that claim construction is essentially the crafting of a jury instruction, so the term definition must be comprehensible by a lay juror as well as one skilled in the art.

Leighton's proposed definition is "a device having distinct electrical characteristics and having terminals at which it may be connected to other elements to form a circuit that utilizes a semiconductor device." This combines the following definitions (from McGraw Hill):

Electronic: pertaining…to circuits….utilizing electronic devices

Electron devices: a device in which conduction is principally be electrons moving through a….semiconductor

Semiconductor Device: an electronic device in which the distinguishing electronic conduction takes place within a semiconductor

Component: any electric device…having distinct electrical characteristics and having terminals at which it may be connected to other components to form a circuit.

Plaintiff's invocation of the McGraw Hill definition of "component" rules out the use of a broader, less technical definition for the word element, such as "a constituent part." This is consistent with the argument made in Plaintiff's brief that, because the word "electronic" modifies "element," the patentee claims use of just one specific type of circuit -- one that uses a semiconductor device.

Coupling this with the broad wording of the specification ("Electronic element 20 may take a wide variety of forms….") and the equally broad use of the term electronic element and the analogous term electronic component in critical prior art patents, I conclude that to construe this term with reference solely to intrinsic evidence we must define additional terms (from McGraw Hill):

Semiconductor: a solid crystalline material whose electrical conductivity is intermediate between that of a conductor and an insulator…

Conductor: a wire, cable or other body or medium that is suitable for carrying electric current.

Insulator: a device having high electrical resistance and used for supporting or separating conductors to prevent undesired flow of current from them to other objects.

Electrical: related to or associated with electricity, but not containing or having its properties or characteristics.

I craft the following instruction to give to the jury concerning the phrase "electronic element":

Ladies and gentlemen, the first term that I must define for you is "Electronic element." That is a technical term. The word
"electronic" means "pertaining to circuits that use something called electron devices." An electron device, for the purposes of this patent, is a device or thing in which electrical current is carried ("conducted" is the technical term) principally by electrons moving through something called a semiconductor. So electronic means "pertaining to circuits utilizing a semiconductor device." An "element" is the same thing as a "component," and a "component" is an electrical device (something that has distinct characteristics related to or associated with electricity) and that has terminals, or end points, at which it can be connected to other components to form a "circuit," which is a combination of electrically interconnected components. So "electronic element" means "a device or thing that has distinct characteristics related to electricity, and that also has terminals at which it may be connected to other distinctly electrical devices or things in order to form a circuit, in which electrons move through devices called semiconductors."

B "Electronic Mail Message"

I adopt the following definition: "A digital text message that is sent over a communications network from one device to another."

Plaintiffs offer, "A message sent and received electronically." Defendants offer, "A letter or memo or other text message sent through a communication network from one computer to another."

Both parties use the word "message" in their definition of "electronic mail message," and neither defines it. I assume from this that the parties take the position that "message" need not be construed. I agree, and so decline to construe that word.

Electronic mail is one of the many forms of communication that may be used to transmit a signal from the central processing unit to the holder of the account, notifying the holder of the transaction and seeking authorization. The patentee clearly intended that the invention be compatible with any and every sort of device through which a message could be conveyed to the holder, and with every medium for the transmission of information. Indeed, the patentee lists "electronic mail message" among a number of types of information transmissions:

The signal utilized could be in the form of a communication transmission, depending on the communication medium utilized, a telephone call, a voice message, a beeper and/or a pager message, an electronic mail message, a fax transmission, and/or any other mode of communcation which may be utilized with any of the apparatuses, devices and/or components described herein…"

"725 Patent, col. 10: 45-52 (Emphasis added). The apparatuses, devices and components described herein included in the patentee's definition of "cardholder (or account holder) communications device" include landline and cellular telephones, beepers, pagers, fax machines, personal computers, answering machines, PDAs or handheld devices, and any other apparatus that communicates via "telecommunication systems, satellite communications systems, radio communications systems, digital satellite communications systems, personal communications services communications systems" and "any other appropriate communications system." ("725 Patent, col. 4:39-44).

The list of communications devices is intended to be exhaustive and anticipatory. The patentee obviously understood that rapid advances in the electronics industry had the potential to render existing means of communications obsolete and drafted the patent so that the invention was not dependent on the use of any particular type of communications device. it

The term "electronic mail message" (or e-mail message) has a common non-technical meaning to the user of these various communications device. The term as used colloquially means a readable (text) message that is sent to a communications device. E-mail messages are commonly understood to be "electronic letters" -- that is, they deliver the message in readable form, rather than via sound or video. And they are sent from device to device. These devices are generally computers, but these days they can also be PDAs (Blackberry being the obvious example) or cellular telephones that have a text messaging feature. They are sent and received digitally, rather than in analog form. Electronic mail messages are not beeps or pages; they are not voicemails or messages left on telephone machines; they are not faxes. You know them when you see them.

The breadth of the patentee's definition of "communications system" and "communications transmission" suggests that
"electronic mail message" as used in the claims in suit ought to be understood in its colloquial sense, as opposed to some technical sense.

That being so, I see no reason why I should not define "electronic mail messages," in accordance with its commonly-understood meaning: "A digital text message that is sent over an communications network from one device to another."

There is absolutely no indication that the patentee intended any particular technical meaning for the term "electronic mail message" in the patent, or that he did not intend the term to have its ordinary, colloquial meaning. I see no need to resort to technical dictionaries to define this term, since its meaning it readily apparent from the language used in the patent to describe the invention.

Plaintiffs' proposed definition, "a message sent and received electronically," is far too broad, since it would encompass messages sent via pagers and voice mail as well as electronic text messages.

4. Electronic Mail Message: A formatted text message that is transmitted over a communication system. As originally inputted to an electronic mail system by the sender, the electronic mail message includes the following characteristics: (a) a destination address identifying the person(s), place(s) or object(s) to which the message is directed; (b) an indication of the sender (which may be added automatically by the electronic mail programming); (c) a subject field (which maybe blank); and (d) the inputted message text. The term "electronic mail message" encompasses all forms of the message as it moves through the communication system (information may be added or deleted to facilitate further transmission as it proceeds through the system).

5. Electronic Mail Programming: An application program specially designed to create, send, access and manage electronic mail messages. Electronic mail programming may operate on a variety of different types of processors (e.g., desktop computer, email server, handheld device, mainframe computer).

A. "Electronic Mail System"

The term "electronic mail system" appears in all of the asserted claims of the '960, '670, and '172 patents. For simplicity, we will use system claim 1 (from which disputed claim 15 depends) and method claim 18 (from which disputed claims 32 and 34 depend) of the '960 patent as exemplars. Claim 1 of the '960 patent reads as follows:

1. A system for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising:

   at least one gateway switch in the electronic mail system, one of the at least one gateway switch receiving the originated information and storing the originated information prior to transmission of the originated information to the at least one of the plurality of destination processors;

   a RF information transmission network for transmitting the originated information to at least one RF receiver which transfers the originated information to the at least one of the plurality of destination processors;

   at least one interface switch, one of the at least one interface switch connecting at least one of the at least one gateway switch to the RF information transmission network and transmitting the originated information received from the gateway switch to the RF information transmission network; and wherein
the originated information is transmitted to the one interface switch by the one gateway switch in response to an address of the one interface switch added to the originated information at the one of the plurality of originating processors or by the electronic mail system and the originated information is transmitted from the one interface switch to the RF information transmission network with an address of the at least one of the plurality of destination processors to receive the originated information added at the originating processor, or by either the electronic mail system or the one interface switch; and

the electronic mail system transmits other originated information from one of the plurality of originating processors in the electronic mail system to at least one of the plurality of destination processors in the electronic mail system through a wireline without transmission using the RF information transmission network.

960 patent, col. 49, ll. 2-45 (emphases added). Claim 18 of the '960 patent reads as follows:

18. A method for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising:

transmitting the originated information originating from the one of the plurality of originating processors to a gateway switch within the electronic mail system;

transmitting the originated information from the gateway switch to an interface switch;

transmitting the originated information received from the gateway switch from the interface switch to a RF information transmission network;

transmitting the originated information by using the RF information transmission network to at least one RF receiver which transfers the originated information to the at least one of the plurality of destination processors; and

transmitting other originated information with the electronic mail system from one of the plurality originating processors in the electronic mail system to at least one of the plurality of destination processors in the electronic mail system through a wireline without transmission using the RF information transmission network; and wherein

the originated information is transmitted to the interface switch by the gateway switch in response to an address of the interface switch which has been added to the originated information at the one of the plurality of originating processors or by the electronic mail system and the originated information is transmitted from the interface switch to the RF information transmission network with an address of the at least one of the plurality of destination processors to receive the originated information which has been added at the originating processor or by either the electronic mail system or the interface switch.

960 patent, col. 52, ll. 11-49 (emphases added).

The district court construed "electronic mail system" as:

A type of communication system which includes a plurality of processors running electronic mail programming wherein the processors and the electronic mail programming are configured to permit communication by way of electronic mail messages among recognized users of the electronic mail system. The various constituent processors in the electronic mail system typically function as both "originating processors" and "destination processors.["]

Claim Construction Order, slip op. at 4.

RIM argues there are two ordinary meanings of "electronic mail system": a broad definition that encompasses "communicating word processors, PCs, telex, facsimile, videotex, voicemail and radio paging systems (beepers)" and a narrow definition that defines the term in the context of "pull" technology. Asserting that Campana endorsed the pull technology definition during prosecution, RIM argues that "electronic mail system" includes a pull technology requirement. RIM also argues that during prosecution Campana characterized an "electronic mail system" as a wireline system to
distinguish over the Zabarsky reference. Thus, RIM argues that "electronic mail system" requires a processor interconnected with other processors to serve the common purpose of providing electronic mail services to end users through pull technology while utilizing wireline, point-to-point connections.

NTP responds that the district court's claim construction of "electronic mail system" is correct and is consistent with the written description. NTP contends that RIM's proposed construction of "electronic mail system" as requiring pull technology contravenes the plain language of the claim and is inconsistent with Campana's disclosure. Further, NTP argues that RIM never raised its pull technology claim construction at the Markman hearing, but in fact argued the opposite. Finally, NTP argues that RIM's requirement that "electronic mail system" be limited to a wireline only system simply cites the prior art description of those terms, and not Campana's use of the term as including wireless connections.

At the outset, we note that NTP correctly points out that RIM did not argue its pull technology construction before the district court, instead arguing that an electronic mail system is limited to a wireline only system. See J.A. at 2821-22 (arguing that "electronic mail system" should be construed as "a system of single processors or groups of processors linked by a wire line system, such as the PSTN ("Public Switch Telephone Network"), that provides a system for transmitting information between at least two computers"). We have previously held that presenting proposed claim constructions which alter claim scope for the first time on appeal invokes the doctrine of waiver as to the new claim constructions. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1370 (Fed. Cir. 2002) ("[A] waiver may occur if a party raises a new issue on appeal, as by, e.g., presenting a new question of claim scope ...." (internal quotation marks omitted)); Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1346 (Fed. Cir. 2001) ("As it relates to claim construction, the doctrine [of waiver] has been applied to preclude a party from adopting a new claim construction position on appeal."). For the first time on appeal, RIM is attempting to add a pull technology limitation to the claim that it did not raise before the district court. Because RIM failed to raise before the district court the argument that the claim should be limited to pull technology, the argument was waived, and we decline to address it on the merits.

The district court's claim construction, which includes various architectures of single processors and groups of processors, is correct. The claims themselves recite that an "electronic mail system" includes various configurations of originating processors and destination processors that communicate via wireline connections or over an RF transmission network. See, e.g., '960 patent, claim 1. Moreover, the written description recognizes that electronic mail systems may have various processor architectures. See, e.g., id. at col. 1, l. 60 - col. 2, l. 22; id. at col. 2, ll. 13-17 ("It should be understood that the illustrated architecture of the single and associated groups of processors is only representative of the state of the art with numerous variations being utilized."); see also '670 patent, col. 1, l. 64 - col. 2, l. 25; '172 patent, col.1, l. 65 - col. 2, l. 25.

RIM's premise that the "electronic mail system" is limited to a wireline only system is flawed. The plain language of the claim 1 preamble recites that the claimed system transmits originated information "from one of a plurality of originating processors and destination processors that communicate via wireline connections or over an RF transmission network. See, e.g., '960 patent, claim 1. Thus, all of the originating and destination processors are recited in the claims as being contained in the "electronic mail system." This language, however, is not helpful in determining whether the "electronic mail system" may include wireless connections. Accordingly, we turn to the written description.

The written description expressly indicates that the "electronic mail system" in the patent claims may include wireless connections. Campana described prior art "electronic mail services" as "basically a wire line-to-wire line, point-to-point type of communications" system. Id. at col. 1, ll. 52-54 (emphasis added). The use of the term "basically" suggests that an electronic mail system may include other types of connections, including wireless connections. Moreover, Campana provided an example of one prior art electronic mail system in commercial use, stating "FIG. 1 illustrates a block diagram of a typical electronic mail system in commercial use such as by AT&T Corporation." Id. at col. 1, ll. 60-62. In this prior art electronic mail system, "groups of processors ...may be distributed at locations which are linked by the [PSTN]. The individual processors may be portable computers with a modem which are linked to the [PSTN] through wired or RF communications as indicated by a dotted line." Id. at col. 1, l. 66 - col. 2, l. 4 (emphasis added). Figure 1 depicts various processors that are all connected to the PSTN via either wired or wireless links. The prior art electronic mail system depicted in Figure 1 is incorporated into Figure 8, which Campana describes as a "block diagram of an electronic mail system in accordance with the present invention." n5 Id. at col. 22, ll. 60-61. Accordingly, because RIM's argument that the term "electronic mail system" cannot include wireless connections contradicts the text and figures of the written description, it must be rejected.
Importantly, when a retail customer decides to participate in the system, the retail customer, after browsing and searching, customer. Id., col. 16, ll. 41-42. retail price and a wholesale price into the system. Id., col. 16, ll. 40-41. The retail price may then be displayed to the retail an item, he may choose to sell to other retail dealers or to retail customers. In that situation, the retail dealer may enter a reserve price indicator" that is not accessible to retail purchasers. Id., col. 16, ll. 31-33. However, if a retail dealer purchases provides that "[a] dealer may be provided with special logon identifications and passwords to view the reserve price ... and may be used to structure the two-tiered market of dealer-to-dealer and retail markets." '176 patent, col. 16, ll. 27-29. It further reserve to a local store customer." Id., col. 1, ll. 49-51. The specification provides that "the price and reserve price fields dealer price[,] and an authorized dealer has pre-approved access to the dealer-to-dealer price and may charge and display the '176 patent is designed in part to provide a system that allows participants to speculate, i.e., to buy an item and then promptly sell it at a higher price. That is the purpose to which Half.com alludes in contending that the patent requires the electronic market to be able to handle not only buying but also selling. The specification makes clear, however, that speculation is not the only use for the system, and that there are other purposes for the system in the context of "the two-tiered market of dealer-to-dealer and retail markets."'176 patent, col. 16, ll. 28-29. One of the main purposes of the patented system is to create a double-tiered market for goods, "where the first tier is a retail price and the second tier is a wholesale or dealer to dealer price[,] and an authorized dealer has pre-approved access to the dealer-to-dealer price and may charge and display the retail price to a local store customer." Id., col. 1, ll. 49-51. The specification provides that "the price and reserve price fields may be used to structure the two-tiered market of dealer-to-dealer and retail markets." Id., col. 16, ll. 27-29. It further provides that "[a] dealer may be provided with special logon identifications and passwords to view the reserve price ... and reserve price indicator" that is not accessible to retail purchasers. Id., col. 16, ll. 31-33. However, if a retail dealer purchases an item, he may choose to sell to other retail dealers or to retail customers. In that situation, the retail dealer may enter a retail price and a wholesale price into the system. Id., col. 16, ll. 40-41. The retail price may then be displayed to the retail customer. Id., col. 16, ll. 41-42. Importantly, when a retail customer decides to participate in the system, the retail customer, after browsing and searching,
has only the option of purchasing goods. The customer is not allowed to sell goods to the retail dealer. That is, while dealers
are able to act as participants in the dealer-to-dealer market by buying from and selling to other dealers, customers in the
retailer-to-customer market are not allowed the same freedom. The description of the retail-to-retail market discloses two
types of electronic markets--those in which a participant can buy, browse, and search, and those in which a participant can
sell, browse, and search. The description of the use of the invention for speculation discloses a third type of electronic
market—one in which a participant can buy and sell as well as browse and search. Accordingly, we agree with the district
court's definition of electronic markets as markets in which the participants, in addition to browsing and searching, may
either buy or sell or do both.

4. "Electronic Marketplace"

Liquidnet defines "electronic marketplace" broadly as "any combination of computer hardware and/or software for
receiving and processing, for potential execution, data representative of orders received from an OMS database." ITG/Pulse proposes a narrow definition that defines the term as "an electronic destination where non-binding indications are matched and negotiated." Because the intrinsic evidence supports elements found in both definitions, I construe "electronic marketplace" to have a different meaning than that provided by either of the parties. An "electronic marketplace" is an electronic destination that (1) receives and processes non-binding indications, (2) allows for the matching of non-binding indications with their contra interests and for the negotiation and execution of trades, and (3) has the capacity to record trades if and when they are executed.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

107 Liquidnet Br. at 25.
108 ITG/Pulse Br. at 20.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Each element of this definition is supported by intrinsic evidence. The specification states: that "[t]he ETM includes an
OMS data integration module (ODIM) for receiving and processing data representative of orders received from the OIMs";
109 that "[t]raders can communicate with the ETM to anonymously negotiate trades of securities"; 110 and that "[a] transaction history module records transactions performed by the ETM in the ETM database." 111 As for the capacity to allow matching, claim two contemplates the "matching [of] at least one non-binding indication sent to the electronic marketplace with a contra interest[.]" 112 Because claim two expressly adds this limitation to the method described in claim one, 113 claim two evidences that the ETM described in claim one has the capacity to match non-binding indications.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

109 Patent '834 col. 2 ll. 61-63.
110 Id. col. 2 ll. 52-53 (emphasis added).
111 Id. col. 3 ll. 13-15.
112 Id. col. 13 ll. 16-18.
113 See id. col. 13 ll. 16-19 (beginning claim two by incorporating "[t]he method of claim 1" and then adding the "further" limitation of "matching at least one non-binding indication sent to the electronic marketplace with a contra interest and providing an indication of the match"). In the vernacular of patent law, claim two is dependent on claim one.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
Within the securities trading context, the term "electronic marketplace" suggests an electronic destination where trades are executed. The specification clarifies how these trades occur: the ETM receives and processes non-binding indications; it allows for the matching of non-binding indications and for the negotiation and execution of trades; and it records those trades if and when executed.

Liquidnet objects to the incorporation of a "negotiation requirement" in this definition on the grounds that the specification "discloses a host of other modules and features that may optionally be incorporated into the electronic marketplace, and the negotiations module is not described as being any more fundamental to the operation of the electronic marketplace than any of these features." 114 However, the sections of the specification that I have cited are from the "Disclosure of the Invention" section of the patent. The other modules mentioned by Liquidnet are either from the "Detailed Description of the Preferred Embodiments" section, which expressly states that "the present invention can lack one or more of the modules described herein," 115 or are described as preferable aspects of the invention. 116 Thus, the specification's disclosure of the patented method's negotiation aspect is properly distinguished from these other possible aspects of the patented method.

Accordingly, I construe the term "electronic marketplace" to mean "an electronic destination that (1) receives and processes non-binding indications, (2) allows for the matching of non-binding indications with their contra interests and for the negotiation and execution of trades; and it records those trades if and when executed.

--- Footnotes ---

114 Liquidnet Reply at 18.

115 Patent '834 col. 6 ll.62-63. Liquidnet suggests that this statement within the "Detailed Descriptions of the Preferred Embodiments" section means that all modules described throughout the entire specification are not required elements of the patented method. See Liquidnet Reply at 17. However, it is far from obvious that this statement applies to the entire specification. Moreover, the main aspect of my construction to which Liquidnet objects is the inclusion of language referring to negotiation. The specification does not just say that the claimed method includes a negotiation module. It flatly states that "[t]raders can communicate with the ETM to anonymously negotiate traders of securities." Patent '834 col. 2 ll. 52-53 (emphasis added).

116 See, e.g., Patent '834 col. 3 ll.15-18 ("The transaction history module also preferably records other data processed by the ETM including, for example, the orders received from and sent to the trading systems and the conducted negotiations." (emphasis added)).

--- End Footnotes ---

Liquidnet has one other objection that must be addressed. 117 It asserts that ITG/Pulse's construction is precluded by the claim differentiation doctrine because "dependent claim 2 of the '834 Patent depends directly from claim 1 and adds the additional step of 'matching at least one non-binding indication sent to the electronic marketplace with a contra interest and providing an indication of the match.'" 118 While claim two is dependent on claim one -- and this is an appropriate context to apply the claim differentiation doctrine -- 119 Liquidnet's argument fails. My construction only states that the "electronic marketplace" allows for the matching of non-binding indications; it does not require that an instance of such matching must occur.

--- Footnotes ---

117 Liquidnet also points to evidence in the prosecution history suggesting that an "electronic marketplace" does not have to allow for negotiation. See Liquidnet Reply at 19. However, this evidence is insufficient to overcome statements in the specification showing that the capacity to permit negotiation is a necessary feature of an "electronic marketplace" as the term is used in claim one of Patent '834.

118 Liquidnet Br. at 27 (quoting Patent '834 col. 13 ll. 16-19).

119 See Curtiss-Wright Flow Control Corp., 438 F.3d at 1380.

--- End Footnotes ---

Accordingly, I construe the term "electronic marketplace" to mean "an electronic destination that (1) receives and processes non-binding indications, (2) allows for the matching of non-binding indications with their contra interests and for the
negotiation and execution of trades, and (3) has the capacity to record trades if and when they are executed."

1537

The next term for construction is "an electronic medium" which also is used in Claim 1, Element (a); "said RAM of said microcontroller being updateable via an electronic medium. . . ." SuperGuide contends the term includes any electronically generated signal regardless of its source. Gemstar and Defendants agree that the phrase means any electronic medium that can be used to update the up-dateable memory of the microcontroller, including, as the specification discloses, digital information for the storage of programming information in the RAM. SuperGuide's construction appears to agree with that of the Defendants and Gemstar.

The specification provides:

As indicated in FIG. 2, the random access memory or updateable memory of microcontroller 60 is subject to updating via electronic media. The particular medium chosen could be radio or television subcarrier 67a (via antenna 22 and RF section 64 if desired), telephone link 67b, magnetic cards or floppy disks 67c, or equivalents to any or all of the above. Regardless of the method of updating the RAM of microcontroller 60, the system 10 must additionally include suitable hardware and/or software for the updating task, such as a modem if telephone link 67b is utilized.

Reiter '578, at Col. 4, ll. 29-39. The Court therefore construes the term "electronic medium" as an electronic medium that can be used to update the up-dateable memory of the microcontroller.

1538

4. Electronic navigational aid device

Claims 1 and 10 describe the components of an "electronic navigational aid device." Although plaintiff maintains that the term "electronic navigational aid device" requires no construction, defendant asks the court to define it as "any electronic device designed to provide information used for navigation, including an in-vehicle system, hand-held system, etc."

Although the term is not particularly ambiguous, I construe it for clarity as, "any electronic device designed to provide information used for in-vehicle navigation." Neither the claim language or the specification limits the device to a "hand-held system" or any other system, so there is no need to add any such limitations to the claim.

1539

TERM # 7: "said computers being coupled to at least one electronic network for communicating data messages between said computers" - The real dispute regarding the meaning of this term is whether the "electronic network" can be a closed, or direct-dial, network, or is limited only to public networks, such as the Internet. Again, defendants have not supported their proposal to require use of the Internet for all steps of the auction process. In fact, the patent explicitly states that it requires that only one step be performed via the Internet. This allows other electronic networks to perform the remaining steps. This phrase means: "said computers being connected to at least one network for communicating data messages between said computers, such connection being at least partially via the Internet."

1540

11. "electronic postcard"

Claim Language FotoMedia's Proposed Defendants' Proposed
The defendants argue that the patent specification teaches only how the individual image elements of a postcard can be compressed together into two fixed image files, each representing the front and back of an electronic postcard. The defendants argue that because there is no other formatting disclosed, the claimed postcard should be limited to this format. As Fotomedia points out, the specification discloses that the post card is at least composed of HTML pages. See '936 patent, at col.6, ll.19-22. Therefore, the Court finds that an electronic postcard should not be limited to images. The Court construes "electronic postcard" as an "electronic display that contains graphics and/or text representing a postcard."

1541

7. Electronic Sourcing System

'683 Patent, Claims 3, 6

'516 Patent, Claims 1, 2, 6, 9, 21, 22, 29

'172 Patent, Claim 1

ePlus asserts that "electronic sourcing system" means: an electronic system for use by a prospective buyer to locate and find items to purchase from sources, suppliers or vendors. Lawson argues that the term does not need to be construed because it is a preamble statement of purpose or intended use that is not a limitation on the scope of the claim. However, if the Court should interpret the phrase, Lawson argues that it should mean: a system for determining what inventory will be used to fulfill requests for items.

A preamble "limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." Catalina Mktg Int'l, Inc. v. Coolsavings. com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). "Electronic sourcing system" limits the invention because it gives meaning to the claim. Thus, the Court must construe the disputed claim term.

a. Words of the Claims

"Electronic sourcing system" is included in the preamble of numerous claims in the Patents-in-Suit. The majority of the claims describe the system is relation to selecting the catalogs to search, searching the catalogs, and generating a requisition and purchase order. Significantly, the claims at issue never mention "inventory."

b. Specification

The specification provides that the electronic sourcing system provides "a user with the capability of searching a database containing data…relating to items available from at least two vendor product catalogs." '683 Patent at 2:47-52; ‘516 Patent at 2:51-56. This supports ePlus' proposed construction because it demonstrates that the system is used to locate items to purchase from vendors.

The specification also provides support for Lawson's definition. For example, it describes the use of the Fisher RIMS system to determine what inventory will be used to fill requests for orders. See '683 Patent at 14:6-15:19. This demonstrates that part of the electronic sourcing system involves the process of determining what inventory will fill a request for an item.

c. Proper Construction
Lawson's proposed construction is simply too limiting, describing only one part of the electronic sourcing system, which significantly, does not even appear in the words of the claims. Thus, "electronic sourcing system" means: an electronic system for use by a prospective buyer to locate and find items to purchase from sources, suppliers or vendors. That construction is consistent with the words of the claim and the specification. It is also consistent with construction of the term in ePlus, Inc. v. SAP America, Inc., Civil Action No. 3:05cv281 (E.D. Va. 2006).

1542

C. "Electronic Storage Media" is "Memory Configured to Store Information in a Format that an Electronic Device Can Read" and "Storing, in Electronic Form, Information" Means "Storing Information in a Format that An Electronic Device Can Read."

The terms "electronic storage media" and "storing, in electronic form, information" appear in asserted claims 1,3,6, and 19. In each of these claims, the unit in communication with the central information bank contains a "memory for storing, in electronic form, information transmitted to" the unit from the central information bank.

The unit in turn is configured to transfer information to the "electronic storage media" of system users. The parties' proposed definitions are equivalent -- both agree that the terms refer to the storage of information in an electronic format. The parties disagree sharply, however, over the meaning of "electronic." Digeo contends that "electronic" is a generic term that covers a wide variety of storage media, including but not limited to computer hard drives, floppy disks, magnetic tapes, and compact disks. Audible contends that "electronic," as it is used in the claims, covers only memory that stores information in the form of "electrical signals," and excludes all other memory, including magnetic memories (such as hard disks, floppy disks, and magnetic tapes) and optical memories (such as compact disks).

Digeo's interpretation of the term "electronic" seems to the court to be consistent with the ordinary meaning of the term and its use in the claim language. Audible's interpretation seems strained, but as the court is not of skill in the art of networked information systems, the court looks to the specification to illuminate the ordinary meaning.

The court finds the specification inconsistent with Audible's narrow interpretation. The patentees were aware of a broad range of storage mediums, including "tapes, diskettes, cartridges, laser disk[s]," and "compact disk[s]." 823 Patent at 1:22-23. In a list of storage mediums on which publishers might provide content for the invention, the patentees mentioned "magnetic or electronic disks, cartridges, or tape reels or compact disks, laser disks, tape cassettes, etc." Id. at 3:62-63. Audible seizes upon the first "or" in the phrase, insisting that the patentees drew a distinction between "magnetic" media and "electronic" media. In Audible's view, because the patentees only claimed "electronic" media, they surrendered all else.

In its briefs, Digeo contended that Audible's interpretation of "electronic storage media . . . would exclude any known computer-readable storage device." Digeo Reply Br. at 11. When the court echoed that concern at oral argument, Audible responded with a 12-page supplemental brief (Dkt. # 41) with extrinsic evidence showing that there is a species of media that is electronic, but not magnetic or optical, and that this species was known in the art during the prosecution of the 823 Patent. With apologies to Shakespeare, the court finds that Audible doth protest too much. The question is not whether specialized "electronic" media existed, but whether the patentees intended to limit the practice of their invention solely to such media. If they had so intended, one would expect the specification to indicate this choice with something other than a single ambiguous use of the word "or." If the patentees had so intended, one would expect the intrinsic evidence to contain a reference to the specialized "electronic" media. If the inventors intended to exclude the most common storage mediums (i.e., hard disks, floppy disks, and compact disks), the court expects that the inventors would have said so.

Moreover, the claims themselves suggest that the patentees were not concerned with specialized "electronic" media. Although several claims refer to the end user's media as "electronic storage media," e.g., Claims 1-5, several others refer simply to "storage media," e.g., Claims 11-14, 17-18, whereas others use the term "memory unit," e.g., Claims 6-10, 27, 29-30. In Claim 19, the inventors simultaneously claimed the more general "storage media" with the supposedly more specific "electronic storage media." In claims depending from Claim 19, the patentees continued to switch between the two terms without explanation. If the court were to follow Audible's logic, it would be forced to conclude patentees sometimes chose to exclude a vast array of media, and sometimes did not, and did so with no explanation whatsoever. The court finds this implausible.
Audible also points to the prosecution history in support of its proposed construction, but again asks the court to read too much into the inventors' choice of words. In a preliminary amendment at the outset of the 292 Application, the patentees inserted the word "electronic" to modify "storage media" in the claims. PH at 500-618-23. Nowhere in the history, however, is there a suggestion that the patentees were making a distinction between "electronic" media in the sense that Audible uses the term and other forms of media. n5 The patentees did not make the distinction in their remarks accompanying the preliminary amendment. PH at 500-628-33. The PTO did not acknowledge the distinction in rejecting the preliminary amendment. PH at 500-638-42. The patentees did not make the distinction in their response to the rejection. PH at 500-645-653. The PTO did not note any distinction when it allowed the claims as drafted in the preliminary amendment. PH at 500-655-56. As the court has already noted, there can be no prosecution disclaimer absent a clear and unambiguous disavowal of claim scope. The court finds no disavowal of claim scope inherent in the patentee's use of the word "electronic."

n5 Although Audible does not acknowledge it, the patentees used the phrase "storing, in electronic form" in their claims since they filed the 056 Application. PH at 500-435. This casts more doubt on Audible's assertion that they surrendered claim scope when they later added the word "electronic" to the claim phrase "storage media."

For the reasons stated above, the court concludes that "electronic storage media" means "memory configured to store information in a format that an electronic device can read," and that "storing, in electronic form, information" means "storing information in a format that an electronic device can read." The term "electronic" does not exclude magnetic or optical media such as hard drives, floppy disks, or compact disks.

D. "Electronic Tax Return"

Simplification's Construction Block's Construction
A statement of tax liability A completed computerized tax
or tax-related information in return ready for submission to
a form prescribed by a taxing authority, in an electronic a governmental tax agency.

The parties main dispute is whether the term "electronic tax return" should be understood to refer to a "completed" document. Block contends that the essential utility of the patents-in-suit is that they "automatically complete one's tax return." (D.I. 84 at 14.) Construing the claims in a manner that does not clearly require this, Block contends, would allow the claims to "drift" into the partially automated systems that Simplification distinguished during prosecution. Block also raises the same arguments it raised in support of its position that the term "preparing" should, in the context of the patents-in-suit, be equated with "completing." See supra Part II.C.4. Simplification's proposed construction does not include a "completeness" requirement. Rather, Simplification focuses on the meaning of "tax return," and proposes a construction based on definitions contained in U.S. Treasury Regulations. (See D.I. 80 at 31.)

For the reasons set forth above, the Court agrees with Block that, given the intrinsic evidence, the term "electronic tax return" should be construed to refer to a "complete" document. However, Block's construction fails to elucidate the meaning of "tax return." Though it is unclear whether the parties have genuine differences over the definition of "tax return," the Court will nevertheless adopt Simplification's proposed construction, which Block does not appear to dispute. Because a general definition of "tax return" is not provided in the intrinsic record, the Court concludes that it is not inappropriate to, as Simplification contends, look to U.S. Treasury Regulations for assistance in construing certain terms of the patents-in-suit. Indeed, with regard to "electronic tax returns," the specification explains that they are prepared with "respect to the particular taxing authorities," and lists the IRS From 1040 and Form 1040EZ as examples. Thus, adopting a general definition of "tax return" based on a description provided by a key "taxing authority" is, in the Court's view, in line with the
specification. Accordingly, the Court will construe "electronic tax return" to mean "a completed computerized statement of tax liability or tax-related information ready for submission to a governmental tax agency."

B. "Electronically"

<table>
<thead>
<tr>
<th>Simplification's Construction</th>
<th>Block's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>By way of devices, circuits, or systems utilizing electron devices, intervention from the user.</td>
<td>Performed on a computer automatically without manual intervention from the user.</td>
</tr>
</tbody>
</table>

The dispute between the parties boils down to whether the term "electronically" should be construed in a manner similar to "automatic tax reporting." Based on statements Simplification made during the BPAI hearing, Block contends that it should. Simplification, on the other hand, asks for a broader construction based on a definition from the IEEE Standard Dictionary of Electrical and Electronics Terms.

The Court concludes, as Block contends, that the prosecution history mandates that the term "electronically" be understood in a manner similar to "automatic tax reporting." Indeed, during the BPAI hearing, the Board explained to counsel for Simplification that "when I look through your arguments, it seems like you're equating electronic, automatic, and no manual input all to be the same. I could put equal signs in between." (D.I. 79, Exh. F at 24:15-18.) Simplification did not dispute this assertion, but unequivocally confirmed it as follows:

JUDGE MEDLEY: But you don't claim automatic everywhere.

MR. SARTORI: We do not claim- that's right. We do not claim - I'm sorry. I'm sorry.

JUDGE MEDLEY: So electronic - see, that's why I'm kind of having a problem. Because I read your brief -

MR. SARTORI: I thought you were on the '052 for a second. You're on the '787. I'm sorry,

JUDGE MEDLEY: But you do. You sort of mix the issues. I read what you say, and it seems like you're saying automatic is electronic, is not entering manually information. You're equating all three.

MR. SARTORI: That's right. In the context of the '052 patent, which recites "automatic" in all the claims, "automatic" needs to be given its ordinary meaning and weight. In those ones, I think it's clear with regard to the Beamer reference.

In the '787 we have two independent claims, 1 and 10, which do not recite "automatic." The rest of the independent claims recite "automatic." And so those ones, I think it's clear that the Beamer doesn't teach it. We're focusing on claims 1 and 10.

And there are two reasons that I said previously that the Beamer article does not teach it. One is they're connecting electronically. And yes, we are saying electronically means that there's no manual input. You have to - we're saying you need to read it in light of the specification.

(Id. at 28:9-29:5 (emphasis added.) ) Thus, during the BPAI hearing Simplification expressly stated that "electronically means that there's no manual input" and that this followed from a reading of the claims "in light of the specification." As above, the Court finds this to be a clear and unmistakable disavowal of claim scope, which, rather than being taken out of context, is buttressed by subsequent statements that Simplification made to the BPAI. Specifically, the transcript of the BPAI hearing reveals that the Board was, in fact, reluctant to accept Simplification's assertion that "electronically means that there's no manual input." Thus, following the exchange above, the, Board continued to question Simplification on the issue:

JUDGE LEE: Isn't the way you're interpreting it contrary to just logic or common sense? You know, simply saying this is made of wool doesn't mean it doesn't have other components.
MR. SARTORI: I'm sorry. You lost me, sir.

JUDGE LEE: Saying something is electronic doesn't necessarily exclude any kind of manual contribution.

MR. SARTORI: The claim recites connecting electronically to a tax data provider, and then collecting electronically from a tax data provider. And that needs to be done electronically. The -

JUDGE LEE: Yeah. But why does that exclude any kind of manual input? I mean, that's crux to the issue.

MR. SARTORI: Yes, for Claims 1 and 10 of the '787 patent.

JUDGE LEE: You just say that it does, but I don't get it.

MR. SARTORI: In the context of the step which refers to - that recitation of collecting electronically refers to step 12 of the patent. And there it talks about, as I said before, the invention eliminates the current requirement that a taxpayer manually collect the tax data, and that the taxpayer - it eliminates the current requirement that the taxpayer manually enter the tax data onto the tax return or into the computer. And by collecting electronically, you're eliminating those requirements. And to the extent that Beamer makes you do those things, or the system requires you do those things, it doesn't anticipate the claim.

(Id. at 29:9-30:3).

Understanding the Board's motivation behind these lines of questions is helpful to capture the significance of these exchanges. Specifically, from the outset of the hearing, the Board's questions reveal that it was concerned because, although Simplification had distinguished its invention from the prior art on the basis of the prior art requiring manual entry, Simplification had nevertheless pursued claims that recited only an "electronically" limitation and not an "automatic" limitation. (See id. at 5:22-23 ("But not all of your claims require automatic collecting. I see quite a few that don't require automatic collection.").) Faced with these questions, Simplification took the position, set forth above, that "electronically" should be understood similarly to "automatic." The Court concurs with that position. Indeed, the evidence set forth above in support of the Court's construction for "automatic tax reporting" is relevant to and informs the construction of "electronically" also. (See supra Part II.A.) Accordingly, the Court concludes, as Block contends, that the term "electronically" means "performed on a computer without manual intervention from the user."

In support of their proposed construction, Simplification points to a dictionary definition from The IEEE Standard Dictionary of Electrical and Electronics Terms, which defines "electronic" to mean "[o]f or pertaining to devices, circuits, or systems utilizing electron devices." (D.I. 80, Exh. D.) This dictionary, in turn, defines "electron device" to be "[a] device in which conduction is principally by electrons moving through a vacuum, gas, or semiconductor." (Id.) In the Court's view, these definitions are vague, overbroad, and poorly suited to the context of the patents-in-suit. Indeed, the patent defines the "electronic intermediary" that carries out the steps of the claimed invention to be, in part, a "general purpose computer and a computer program." ('052 patent at 4:39-42.) If anything, this suggests that the term "electronic" is connected to the use of a computer. The Court finds nothing in the specification or prosecution history supporting an expansive construction based on the term "electron device."

Simplification further relies on the doctrine of claim differentiation for the position that the term "electronically" must be understood differently than the term "automatically." (See D.I. 85 at 17-18.) However, claim construction positions based on claim differentiation are rebuttable, taking a secondary role if an alternate construction is dictated by the written description or prosecution history. See Regents of the Univ. of Cal. v. DakoCytomation Cal., Inc., 517 F.3d 1364, 1375 (Fed. Cir. 2008). For the reasons set forth above, the Court concludes that, in this case, the prosecution history and specification trump claim differentiation.

Finally, Simplification notes that the specification explains that certain steps of the claimed method could be performed

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using certain prior art software that does not provide a fully automated tax preparation system, such as TurboTax. (See D.I. 85 at 15-16, 23-24.) Based on this, Simplification contends, one of skill in the art would understand that the invention of the patents-in-suit, like the prior art, requires "manual intervention and input at several points," such that Block's construction of "electronically" should be rejected. (Id. at 15.) The full portion of the specification relied upon by Simplification is as follows:

In the present invention, step 13 can be implemented using a computer program similar to the computer programs currently available in the market place, such as TurboTax, which is a registered trademark of Intuit, Inc. Although step 13 can be implemented with current technology, the current technology requires that the tax data and other information relevant to the taxpayer be inputted manually. With the present invention, this information is obtained as described above in steps 11 and 12.

('052 patent at 6:33-41.) In the Court's view, this passage does not embrace the use of prior art methods that required manual input. On the contrary, this passage disparages prior art software specifically on the basis of it requiring manual input and explains that this is overcome in the "present invention." To the extent this passage suggests that certain steps of the claimed method could be done using software "similar" to prior art software, such statements appear to be only for the purpose of setting the stage for distinguishing such art. Accordingly, after reviewing the portion of the specification relied upon by Simplification, the Court is reluctant to place much weight on references to prior art software in the specification.

Electronically communicate with each other as desired and communication between the connected devices as desired

Lantronix argues these terms should be construed to mean "transmission and/or receipt of electronic information between linked devices in a manner that the information can be utilized by the receiving device." Lantronix contends "communication . . . as desired" requires transmission of information and the receiver's understanding of the information received. If the recipient lacks understanding or is unable to use the information, then the information has not been effectively communicated. Alternatively, Lantronix contends the terms should not be construed and the jury should apply the terms' plain meanings.

Digi proposes the terms be construed to mean "electronically communicate using pre-arranged and mutually agreeable protocol, parameters, and pin-outs." Digi argues that when the invented automatic configuration process is completed, the connector is reconfigured by a simple instruction for changing protocol, parameters, and pin-outs. Digi contends the specification uses "different interface functions," "changing protocol, parameters, and pin-outs," "requisite interface function," and "nature of the connection interface" interchangeably to describe the result of the physical connection being modified such that the communication between the devices can take place as desired. See 470 patent, 2:2-22.

Lantronix criticizes Digi's proposed construction on several grounds. First, Lantronix contends the concept of "protocol, parameters or pin outs" will be unfamiliar to the jury. Second, Lantronix contends Digi has imported the limitation of "protocol, parameters or pin outs" from the specification without any basis for doing so. Finally, Lantronix argues that Digi's proposed language is inappropriate. The specification describes four methods for configuring the connector: (1) a microprocessor with EPROM (1:67-2:7); (2) a programmable logic array (2:7-14); (3) an external input device (2:14-19); and (4) self-programming of the connector (2:19-24). Changing protocol, parameters, and pin-outs relates only to a programmable logic array. This is a specific embodiment recited in claim 9. Therefore, according to claim differentiation principles, claim 1 should not be construed to contain this limitation.

The Court adopts Lantronix's proposed construction and construes this term to mean "transmission and/or receipt of electronic information between linked devices in a manner that the information can be utilized by the receiving device." This construction comports with the plain meaning of the claim language and is in concert with the description contained in the specification. Lantronix is correct that Digi's limitation of "protocol, parameters, and pin-outs" impermissibly limits the claim to only one of the disclosed embodiments. Further, as claim 9 is limited to the programmable logic array, which utilizes changing the protocol, parameters, and pin-outs, claim differentiation principles do not support Digi's limitation.
K. "electrical communication/electronically connected"

These terms are used in several claims in the '734 patent and claims 13-15 of the '440 patent, such as in claim 4 of the '734 patent referring to a "first party control unit" which has "a sales random access memory chip electronically connected to the first party hard disk . . ." (Docket # 69, Exhibit I, Column 9, lines 44-48). Claim 5 describes "the second memory" which includes "a playback random access memory chip electronically connected to the second party hard disk . . ." (Id., Column 10, lines 7, 10-12). Claim 11 discloses a "means or a mechanism for connecting electronically via the telecommunications lines the first memory with the second memory such that the desired digital video or digital audio signals can pass therebetween, said connecting means or mechanism in electrical connection with the transferring means or mechanism. . . ."

Defendants assert that the ordinary and accustomed meaning of "electrical communication" is a connection through "a hard-wired conduction path." Defendants further point out that Figure 1 of the patents illustrates a hard-wired conduction path between all of the elements.

Sightsound responds, first, that even if a hard-wired conduction path is necessary, there is no basis in the claims or specification for requiring that it be "single," as opposed to multiple, hard-wired conduction paths. The court agrees. The term "single" cannot be part of the definition.

Second, Sightsound notes that defendants' definition would require that the parties' respective control units be in a hard-wired conduction path with one another. The court has already analyzed the term "connecting through telecommunications lines," and the court agrees, for the reasons set forth above, that the control units need not be in a hard-wired conduction path while "electronically connected over telecommunications lines."

What remains, however, is a determination of whether the individual components of the first party memory must be connected by a hard-wired conduction path, and whether the same is true for the components of the second party memory. Sightsound states that, as to invention elements at the same site, "the language of the claims specifically uses these terms to link related elements and it does so by clear and express recitations." (Docket # 74, at 30). Thus, the parties are in agreement that, as to invention elements at the same location, "electronically connected" and "electrical communication" each require a hard-wired conduction path.

8. "Electronically Providing"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "furnishing or providing data or information using an electronic system or device." The defendant argues that the term means "electronically transmitting."

According to the defendant, in the context of the patent, information is transmitted to a central system. The plaintiff argues that nothing in the intrinsic evidence requires that "providing" necessarily includes "transmitting." The plaintiff also argues, that under the doctrine of claim differentiation, "electronically providing" cannot mean "electronically transmitting" because "electronically transmitted" is used in a different claim. See '116 patent, claim 16.

The plaintiff has the better argument. Accordingly, the court declines to construe this term, other than to reject the defendant's construction that "providing" requires "transmission."

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Electronically specifying information identifying a plurality of parts and specifications for the parts

The Staples Defendants originally submitted this term for construction, but they withdrew the term during the hearing. Orion contended the term did not, and does not, require construction. Thus, the Court did not construe the term.

Hyundai argues that the claim term "electronically specifying information identifying a plurality of parts and specifications for the parts" in the '627 patent is "undefined, insolubly ambiguous, and not amenable to construction." Hyundai argues that "electronically specifying" (1) lacks an ordinary meaning in the art, as evidenced by the inventor's testimony, (2) does not appear in the text of the specification, and (3) could cover a number of different functions disclosed in the specification. The ultimate question, however, is "whether a person experienced in the field of the invention would understand the scope of the claim when read in light of the specification." That is satisfied here.

The specification explains that "computer system 100 incorporates a display apparatus 102, a data storage device 104, a part selection device 106 and a user interface mechanism 108." '627 patent, col. 6:19-21. The specification further explains, in conjunction with Fig. 1A that "data storage device 104 electronically stores both graphic and textual part-related information 112 including specifications 124, features 132 and customer benefits 134. The specifications 124 may further include a manufacturers part number 126, a particular part's attributes 128 and a product description 130." '627 patent, col. 6:30-35.

The Staples Defendants pointed out that the prosecution history indicated that method claim 1 of the '627 patent was in some respects similar to apparatus claim 1 of parent U.S. Patent No. 5,283,865. Claim 1 of the '865 patent calls for "storage means for electronically specifying information identifying a plurality of parts and specifications for parts." According to the Staples Defendants, "claim 1 in the parent patent made clear that it was the 'storage means' that provided the 'electronically specifying' function." The Staples Defendants suggested that the specification disclosed a "data storage device" that "might be" the "storage means" of claim 1 of the '865 patent, but supposed that "the idea of a storage device 'specifying' something . . . seems different from the idea of a storage device "stor[ing]' something . . . ," and suggested that the difference was "not clear."

The Staples Defendants, although also contending that "electronically specifying" rendered the claim indefinite, proposed construing the limitation to mean "electronically providing information identifying a plurality of parts and specifications for parts." The Staples Defendants arrived at that conclusion based on the foregoing prosecution history and dictionary definitions for "specify." The Staples Defendants, however, withdrew that term from the list of disputed terms during the prior Markman hearing, and the Court, as a result, concluded that because there was no longer any dispute among the parties, the term did not require construction.

Hyundai now argues that, in the progression of the claim language from the parent application (now patent) to the current patent, deleting "storage means for" rendered the scope of claim 1 of the '627 patent "indefinite because the functional language used to define the purpose of a structural element does not translate into a comprehensible, free-standing step in a method claim." Hyundai argues that "[t]he term 'electronically specifying' loses all clarity of definition when it is divorced from the term 'storage means for' and arguably remains in Claim 1 of the '627 patent due to careless claim-drafting." Hyundai Opening Brief at 42.

Hyundai acknowledges that the Staples Defendants had proposed that the disputed limitation meant "electronically specifying information identifying a plurality of parts and specifications for parts," but, apparently, does not agree with that proposed construction. Specifically, Hyundai argues that the problem with the Staples Defendants' proposed construction is that the subject limitation could, according to Hyundai, refer to a number of other functions disclosed in the specification. In particular, Hyundai argues that "[b]ecause the step of 'electronically specifying information identifying a plurality of parts . . . falls between the steps of 'receiving information' and 'associating at least one of the parts . . . ', it is unclear exactly what is being electronically specified, how such specification is performed, and why it is being performed." Hyundai Opening Brief at 41.

Hyundai's argument is based on the faulty premise that step b) must come after step a) and before step c). "Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one." Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1343 (Fed. Cir. 2001). "[S]uch a result can ensue when the method steps implicitly require that they be performed in the order written." Id. The Federal Circuit has adopted "a two-part test for determining if the steps
of a method claim that do not otherwise recite an order, must nonetheless be performed in the order in which they are written." Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-70 (Fed. Cir. 2003). First, the court "look[s] to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written." Id. If not, the court secondly "look[s] to the rest of the specification to determine whether it 'directly or implicitly requires such a narrow construction.'" Id. "If not, the sequence in which such steps are written is not a requirement." Id.

In the context of claim 1 of the '627 patent nothing in terms of logic or grammar requires that step b) be performed between steps a) and c) or after step a). Further, nothing in the specification directly or implicitly requires the same. Although step c) refers to "the plurality of parts" referenced in step b) and "customer's requirements" referenced in step a), and therefore suggests that step c) occur after steps a) and b), there is no similar language in step b) requiring performance of that step after step a). As noted above, the Staples Defendants drew a parallel between claim 1 of the '865 patent and claim 1 of the '627 patent, and noted that the "storage means" may refer to the "data storage device" disclosed in the specification. The specification suggests that parts-related information may be stored in the "data storage device" before the step of "receiving information" in step a). See e.g., the abstract.

Hyundai also contends that the deposition of the sole inventor of the '627 patent indicated that he was not aware of an ordinary meaning for "electronically specifying." However, Hyundai overlooks his immediately preceding testimony:

Q. What does "electronically specify" mean, sir?

... 
A. Electronically specify information. So the key words you are asking is electronically specify?

Q. Yes. What does that mean?

... 
A. Electronic format.

Q. But what is an example of an electronic format?

... 
A. It is not on paper.

Dep. Jerome Johnson, July 1, 2005, p. 219:10-24. Thus, although Mr. Johnson may not have been aware of an "ordinary meaning" for "electronically specify," he knew what the term meant.

Hyundai argues that the claim "is unclear exactly what is being electronically specified, how such specification is performed, and why it is being performed," but those things are not required by § 112(2). The claims are not required to "describe the invention, which is the role of the disclosure portion of the specification, not the role of the claims," and § 112's 'full, clear, concise, and exact' requirement applies only to the disclosure portion of the specification, not to the claims. Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1575 Cir. 1986). And, in actuality, contrary to Hyundai's argument, the claim actually does set out "what is being electronically specified"--namely, "information identifying a plurality of parts and specifications for the parts.

Moreover, contrary to Hyundai's further arguments, "electronically specifying information identifying a plurality of parts and specifications for the parts" is not analogous to "aesthetically pleasing look and feel" found to have rendered the claims indefinite in Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342 (Fed Cir. 2005). The problem in Datamize was that "aesthetically pleasing' does not just include a subjective element, it is completely dependent on a person's subjective opinion." Id. at 1350. Whether or not one is practicing the method step of "electronically specifying information identifying a plurality of parts and specifications for the parts" does not depend on "a person's subjective opinion."

Nor is "electronically specifying information identifying a plurality of parts and specifications for the parts" analogous to "comparing . . . characterizing information" found to have rendered the claims indefinite in Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684 (Fed. Cir. 2001), another case that Hyundai relies on. In Union Pacific, it was not clear whether "comparing" was being used as a technical or scientific term to refer to a complex process of "stretching and squeezing" a data log in a method related to drilling for oil and natural gas, or whether it was being used in a colloquial sense to mean "to examine in order to note the similarities or differences of." Id. at 692. Hyundai posits no analogous question here.
"Only claims 'not amenable to construction' or 'insolubly ambiguous' are indefinite." Datamize, 417 F.3d at 1347; see also Marley Mouldings, Ltd. v. Mikron Indus., 417 F.3d 1356, 1361 (Fed. Cir. 2005)(when a claim "is not insolubly ambiguous, it is not invalid for indefiniteness"); Bancorp Servs., L.L.C. v Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004) ("We have held that a claim is not indefinite merely because it poses a difficult issue of claim construction; if the claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness."). "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of patent validity, see 35 U.S.C. § 282, and 'we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal.' . . . Thus, 'close questions of indefiniteness in litigation involving issued patents are properly resolved in favor of the patentee.'": Bancorp, 359 F.3d at 1372 (quoting Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375, 1380 (Fed. Cir. 2001)). Also "[c]laim definiteness is analyzed 'not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.'" Energizer Holdings v. US. Intl Trade Comm'n, 435 F.3d 1366, 1370 (Fed. Cir. 2006) (quoting In re Moore, 439 F.2d 1232, 1235, 58 C.C.P.A. 1042 (CCPA 1971)).

Here it is clear that in the context of the '627 patent, as well as claim 1, "information identifying a plurality of parts and specifications for the parts" is in an electronic form that permits practice of the claimed "computerized method of selling parts for particular equipment." Indeed, that is what the claim says, i.e., "electronically specifying."

The Court concludes that one of ordinary skill in the art would understand that "electronically specifying information identifying a plurality of parts and specifications for the parts" means "information identifying a plurality of parts and specifications for the parts that is in an electronic form."

D. "Electronically Updating."

This term was used at least once in each independent claim of the '381 patent. For example, claim 34 recited (col. 15:34-55):

34. A computer-implemented method for renting movies to customers, the method comprising:

establishing over the Internet a rental agreement with a customer that provides for charging the customer a periodic fee;

providing electronic digital information that causes one or more attributes of movies to be displayed;

establishing, in electronic digital form, from electronic digital information received over the Internet, a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer;

causing to be delivered to the customer up to a specified number of movies based on the list;

in response to one or more delivery criteria being satisfied, if the customer is current on the periodic fee, selecting another movie based upon the order of the list and causing the selected movie to be delivered to the customer; and

in response to other electronic digital information received from the customer over the Internet, electronically updating the movie rental queue.

The same final limitation appeared in each of the independent claims of the '381 patent. Netflix and Blockbuster seem to agree that "updating" means "changing." They part company on the meaning of "electronically." Specifically, Netflix contends that "electronically," when read in the context of the claims and the specification, requires that the provider's computer perform the updating function. Blockbuster argues that the updating function can be performed by "any device that uses a flow of electrons in a vacuum, in gaseous media, or in a semiconductor."

Here, the independent claims of the '381 patent are instructive because the phrase was not used in the specification. The claims indicated that information is received from the customer. This indicates that the device doing the updating receives
information; it does not address exactly which device performs the updating function.

The specification and claims of the '381 patent simply do not teach the requirement that only the provider's computer can be used to update the information. In fact, the specification goes to great lengths to state that (col. 10:12-19):

[t]he approach described herein for renting items to customers is applicable to any type of rental application and (without limitation) is particularly well suited for Internet-based rental applications for renting movies and music to customers. The invention may be implemented in hardware circuitry, in computer software, or a combination of hardware circuitry and computer software and is not limited to a particular hardware or software implementation.

Other portions of the specification teach a variety of computer hardware and software systems and specifically do not confine the system itself to a computer in any particular location or under any particular entity's control. For instance, the specification contemplates the use of software that could operate on the customer's computer or in some other remote setting.

The use of the term in the claims does limit the term "electronically updating" further than what Blockbuster would propose. The claim itself required that the updating be done "in response to other electronic digital information received from the customer over the Internet." Clearly, the device that performs the function must be able to receive information in this manner. This limitation does not, however, mean that the only device capable of doing so is the provider's computer. Netflix is attempting to confine this phrase to the embodiment of the invention that it practices which is expressly not allowed in claim construction. On the other hand, "electronic" is a commonly-understood word which needs no clarification. Blockbuster's proposed definition's discussion of electrons and vacuums would likely cause more confusion than leaving the term to its common meaning.

Accordingly, this order holds that "electronically updating" means changing based on information received from the customer via the Internet using an electronic device. "Electronic" is given its plain-language meaning.

Anascape contends that these limitations are not means-plus-function limitations under § 112, P 6. Anascape states that if the court considers these limitations to be a means-plus-function limitation, it agrees with Microsoft that the corresponding function is the function listed after the "means for" language and that the corresponding structure is an "ASIC or micro-controller integrated circuitry, and equivalents thereof."

Each of the seven phrases incorporates the "means for" language that gives rise to a presumption that the patentee used the
term advisedly to invoke §112 P6. Rodime PLC v. Seagate Tech. Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999), cert. denied, 528 U.S. 1115, 120 S. Ct. 933, 145 L. Ed. 2d 812 (2000). If a claim term recites no function this presumption disappears. Id. In each of these claims the phrase "means for" is followed by a verb describing what the "means" does - a function of the invention.

The court must next determine whether the claim language recites sufficient structure for performing the function. Id. Anascape argues that "electronics" preceding "means" in four of the claims, and "active electronic" preceding "means" in the other three terms sufficiently recite the structure.

In Rodime, the "means for" language was followed by a list of structural items, which together performed the function. See Rodime 175 F.3d at 1303. In the present case none of the seven claims at issue recite such a list. Similarly, "a pair of rotatable shafts projecting downwardly from said frame means and defining a biaxial plane" sufficiently describes "gearbox means for rotating said blade means." Allen Engineering Corp. V. Bartell Indus., 299 F.3d 1336, 1348 (Fed. Cir. 2002). The seven claims at issue do not have such a description.

The term "second baffle means" was held to recite sufficient structure because the word "baffle" is a structural term. Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364-65 (Fed. Cir. 2000). Anascape argues that the word "electronics," used in four of the claim terms, recites sufficient structure to overcome the means-plus-function presumption. The word "electronics" is a generic word that could refer to technology ranging from a vacuum tube to semiconductors. See McGraw-Hill Dictionary of Scientific and Technical Terms 627 (4th ed. 1989)(defining "electronics" as "study, control, and application of the conduction of electricity through gasses or vacuum or through semiconducting or conducting materials").

Anascape points to claim 70 of the '991 patent in support of its argument that "electronics" recites sufficient structure. The means-plus-function presumption can be overcome only if the "claim itself" recites sufficient structure "to perform entirely the recited function." Sage Prods., Inc. v. Devon Indus., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997). Claim 70 is a different claim that does not contain the "means for" language. Whether Claim 70 describes sufficient structure is irrelevant.

Because the four terms that begin with "electronics means . . ." do not recite limited and definable structure, the court concludes that they are means-plus-function limitations. Given this finding, Anascape agrees with Microsoft that the structure is "ASIC or micro-controller integrated circuitry, and equivalents thereof."

The other three terms claims use "active electronic means for interpreting . . ." Anascape states that this discloses sufficient structure to overcome the means-plus-function presumption. The specification defines the term: "Active electronics 46 (i.e., ASIC or microcontroller integrated circuitry, etc.) which in addition to having normal circuitry of a typical game controller such as a prior art controller also has circuitry for interpreting the analog output of sensor material 36 and converting it into a digital signal. . . ." '991 patent, col. 11, ll. 10-15.

Microsoft argues that it is improper to look to the specification to determine whether a term in a phrase using "means" recites structure. A patentee can be his own lexicographer. There seems little difference between the Enviroco Court's discerning structure from a word with a common structural definition, such as "baffle," and making the same use of a phrase defined in the specification. Phillips could be used to argue that looking to the specification for a definition is preferable to consulting a general use dictionary.

As with "baffle" in Enviroco, "active electronic" imparts structure. The three claims that include "active electronic means" are not means-plus-function clauses. Evidently recognizing the definition in the specification, neither party argues for an alternative construction of "active electronic."

1. "the electrotherapy device can provide at least six [nine] electrical [therapeutic electrical] shocks to the [a] patient before the battery is depleted"

Claims 69, 70, 81, and 82, the only claims asserted in the '961 Patent, state that "the electrotherapy device can provide at least six [nine] electrical [therapeutical electrical] shocks to the [a] patient before the battery is depleted." The parties dispute the meaning of this term. Philips asserts that the term should be construed as "a defibrillator battery has enough
charge to delivery to a patient, six [nine] defibrillation shocks across the normal operating temperature range." Cardiac Science proposes that the term be defined as "when the battery low warning is given, the battery is able to deliver at least six [nine] therapeutic electrical shocks to the patient." Thus, the dispute centers on whether the six [or nine] shocks remaining must be provided "across the normal operating temperature range" of the defibrillator.

Neither the claim language nor the specification supports a construction that includes the phrase "across the normal operating temperature range" of the defibrillator. Philips' attempts to rely upon extrinsic evidence to support its construction are unavailing. The Court construes "the electrotherapy device can provide at least six [nine] electrical [therapeutical electrical] shocks to the [a] patient before the battery is depleted" as "when the battery low warning is given, the battery is able to deliver at least six [nine] therapeutic electrical shocks to the patient."

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Image Element means "the smallest element of an image that can be assigned independent characteristics."

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A. "an element substrate having / an element substrate . . . having"

Defendants propose that the phrase "element substrate" should be construed to mean "a single piece of material on which the matrix and peripheral drive circuits are integrally formed." Plaintiff proposes that the phrase should be construed to mean "the substrate with thin-film transistors." The parties' constructions differ in two relevant respects. First, defendants' construction requires that the matrix and peripheral drive circuits be "integrally formed" on the substrate. Second, defendants' construction requires that the element substrate be made of a "single piece of material."

1. Integrally Formed

Although the parties dispute whether the matrix and peripheral drive circuits must be "integrally" formed on the element substrate, it is not clear from the intrinsic record what the term "integrally" means. The patent appears to use the word and its variants in two senses. Claims 11 and 20 illustrate the first sense, which suggests that two elements are formed at the same time or as part of the same fabrication step. Claim 11 requires that the external wiring elements be "formed integrally with said first conductive layer"—in other words, that the external wiring be formed as part of the same fabrication step during which the first conductive layer is formed. 189 patent at 17:66-67. The first sense does not appear to apply to defendants' proposed construction, which relates to the peripheral circuit as a whole and not to any single circuit element.

The word "integral" and its variants are used in a second, broader sense in several places in the specification. The "Field of the Invention" section describes the patented invention as relating to "a peripheral circuit integral type liquid-crystal display device." Id. at 1:9-10 (emphasis added). The description of related art describes the prior art giving rise to the need for the patented invention as having "a peripheral drive circuit and a display section [which] are integrated on a panel." Id. at 1:65-66 (emphasis added). The prior art is also described as follows: "the peripheral drive circuit integral type active matrix liquid-crystal display device in accordance with the second conventional example shown in FIG. 17 has a peripheral drive circuit disposed inside the sealing material region 17." Id. at 2:35-39. The Summary of Invention states that "an object of the present invention is to provide a peripheral drive circuit integral type liquid-crystal display device which is excellent in image quality and high in reliability." Id. at 3:19-21. Also, the beginning of the detailed description states as follows: "FIG. 1 is a front view showing an outline of an element substrate of an active matrix type liquid-crystal display device in accordance with embodiments 1 to 5 of the present invention, in which a peripheral drive circuit is integral with a display section." Id. at 5:25-29. In contrast, the specification describes an alternate prior art configuration in which "the peripheral drive circuit which is made up of a semiconductor integrated circuit is attached externally to a liquid-crystal panel through the tape automatic bonding (TAB) technique or the chip on glass (COG) technique." Id. at 1:27-30.

Based on the preceding examples, "integral type" LCD suggests at least two separate meanings. The first suggests that the peripheral circuits are deposited directly on the glass, rather than attached through the "tape automatic bonding" or "chip on
glass" techniques. The second suggests that the peripheral circuit is located inside the sealing material—thus "integrated" within the LCD rather than connected externally via wiring the extends out through the sealing region.

At oral argument, defendants clarified that their proposed construction seeks to impose the first requirement—that the peripheral drive circuits be "integratedly formed" (directly deposited) on the same transparent material that underlies the matrix of pixel electrodes. Neither party took a position on whether the peripheral circuit must be located inside the sealing material. The court will therefore limit its discussion to whether the peripheral circuit must be directly deposited on the same material that underlies the electrodes.

The full claim element in dispute, including sub-elements, reads as follows: "an element substrate having: a matrix circuit; a peripheral drive circuit driving said matrix circuit." Id. at 50-52. This language, without any further construction, indicates that the element substrate must "have" both a matrix circuit and a peripheral drive circuit—in other words, that the peripheral drive circuit and matrix circuits are included within the element substrate. See, e.g., Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, 246 F.3d 1336, 1348 (Fed. Cir. 2001) (noting that "having" is a transitional term of art, denoting inclusion, which may be either open-or closed-ended). The claim does not, however, expressly require that the peripheral drive circuit or matrix circuit be incorporated into the substrate in any particular way.

Turning to the specification, although several passages characterize the claimed device as an "integral-type" LCD, nothing in the specification limits the claims to that type of device. The invention, rather, is limited to displays with asymmetrical wiring crossing the sealing region; without an asymmetry, there is nothing to "correct." Although defendants argue that the asymmetry only exists when "the drive and matrix circuits are integral to the same substrate," nothing in the specification supports such a broad assertion. See Defs.' Brief in Opposition at 20.

Defendants also argue that the prosecution history supports their construction. In the Notice of Allowance, the examiner distinguished a piece of prior art, U.S. Patent No. 5,396,356 ("Fukuchi") on the grounds that "either of Fukuchi's LCD substrates -- alone—does not appear to contain a matrix circuit (rather, the electrodes on both substrates in combination form a matrix circuit), a peripheral drive circuit (i.e., such circuit must be formed on the same substrate that the matrix circuit is formed)." Mosko Dec., Exh. S at 3. In the quoted passage, the examiner does not appear to have been considering the precise question currently before the court—exactly how the drive circuit is incorporated into the substrate—but the separate question of whether the drive circuit is part of the TFT substrate at all, or is located on the opposing substrate. Based on the claim language, as the examiner correctly noted, both the matrix circuit and the peripheral circuit must be incorporated into the element (TFT) substrate.

In sum, nothing in the intrinsic record before the court supports defendants' contention that the drive circuit be "integratedly formed" on the substrate.

2. Single Piece of Material

Based on the papers submitted in connection with the claim construction hearing, defendants' contention that the substrate must be made of a "single piece of material" is ambiguous. The court can conceive of two possible meanings. First, defendants may be contending that "substrate" refers only to the transparent sheet on which the circuitry for the LCD is formed, and not to the final panel that is assembled into the LCD (which includes circuit elements, including the peripheral drive circuit and the matrix circuit). Second, defendants may be contending that the transparent sheet must in all cases be made from a single piece of material, as opposed to a composite or laminate, or multiple pieces of material arranged horizontally like floor tiles or squares on a chessboard.

With respect to the first meaning, as just discussed, the claims require that the element substrate "have"—that is, incorporate—the peripheral drive circuit and the matrix circuit. Defendants do not suggest that the matrix circuit and peripheral drive circuit are made of a single material; indeed, as discussed in connection with the 258 patent, the circuitry typically consists of many layers of conductive and insulating material. The "substrate" contemplated by the claim thus consists of multiple pieces of material.

It is true that some language in the specification appears to equate "substrate" with the transparent material on which the circuit elements are formed. See, e.g., 189 patent at 7:22-23 ("a substrate 201 such as a quartz substrate or a glass substrate"). As with the 995 patent, discussed infra, the word "substrate" is used to refer interchangeably to the clear
material on which circuit elements are formed and to the final component of the LCD panel that consists of the clear material and any circuitry attached or deposited thereon.

With respect to the second meaning, at oral argument defendants clarified that their proposed construction focuses on the question of whether the substrate can be made of multiple pieces of material arranged horizontally, like tiles. The only evidence provided by defendants in support of this construction are the portions of the specification describing the type of material from which the substrate is made, such as quartz or glass, and a dictionary entry which defines substrate as "[t]he underlying material upon which a device, circuit, or epitaxial layer is fabricated." Mosko Dec., Exh. R at 515. None of these references makes any mention of the number of pieces of material that may make up a substrate. The court therefore declines to limit the phrase "element substrate" to a "single piece of material."

Neither party offers a convincing argument why the claim language would benefit from further definition. The court therefore adopts a construction based on the claim language. The court construes the phrase "element substrate" to mean "the substrate having a matrix circuit and a peripheral drive circuit driving said matrix circuit." See 189 patent at 16:51-53.

b. "Elements"

Macromedia contends that the term "elements" should be construed to mean "a representation of a shape, including attributes such as color, line width, and fill properties, that could be displayed on a computer screen." (D.I. 470 at 6). Adobe contends that the term "elements" should be construed in accordance with the definition expressly provided in the specification, namely "a shape together with its graphical attributes, such as color, line width, fill properties, and line properties." (D.I. 479 at 12).

In construing the term "elements," the Court has considered the specification of the '443 Patent. ('443 Patent, Col. 2, lines 32-34). Because the specification expressly defines the term "elements" as Adobe contends, the Court construes the term "elements" to mean "a shape together with its graphical attributes, such as color, line width, fill properties, and line properties."

7. Embedded.

Intel defines "embedded" or "embedding" by reference to the word "encapsulating." However, Intel offers no argument or support for its position that "embedded" means "encapsulated," despite being asked directly about this matter at the claim construction hearing. In the Joint Claim Construction Statement, Intel attempts to define "embedded" by reference to what it believes is embedded within an instruction. Contending the term carries no special meaning, Intergraph offers a dictionary definition of "embedded." The Court construes "embedded" as introduced as or made an integral part thereof. '028 patent 7:9-45; Fig. 6 & 7 (defining by way of description); Webster's II New College Dictionary 366-67 (1995).

In the '404 patent, the parties dispute the district court's interpretation of two limitations: (1) embedded in a series of interrelated screens (the embedded limitation); and (2) operatively connected (the operatively connected limitation). The embedded limitation appears in all three of the '404 patent's independent claims. Claim 1 is representative:

1. An interactive computer software system permitting a user to take a pre-selected computer course or access a pictorial data base, comprising:

(c) a graphics computer sub-system operatively connected to said host computer sub-system, said graphics computer sub-
system executing said course upon interrogation by said host computer sub-system wherein said course includes a series of interrelated pictures displayed by said graphics computer sub-system, said series of pictures defining a course responsive to input data from the user and interactively dialoguing with the user as the user progresses through said pre-selected course or data base; and

(d) wherein said pre-selected computer course comprises a distributed program embedded in said series of interrelated pictures.

'404 patent, col. 8, l. 49-col. 9, l. 3 (emphasis added). The district concluded:

In claims 1, 11, and 14 of the '404 Patent, "embedded in a series of interrelated screens" means:

The patent covers a program whose graphic elements include their instructions in a single file for each screen with all of the control codes being directly accessible on the consumer screen.

Amended Claim Construction Order, slip op. at 1 (emphasis added).

The specification supports the district court's interpretation. Turning first to the background section, prior art systems suffered from a saving format that was unalterable during the use of the program. '404 patent, col. 1, ll. 11-15. Specifically, "references to pictures [in prior art systems] are embedded in the control program along with all the other programming codes necessary to create a functional course." Id., col. 1, ll. 40-43 (emphasis added). In contrast:

The present invention inverts the normal construction of a course. Where prior art systems embed picture references into a control program, thus, producing a large executable file containing thousands of programming language command lines, the present invention embeds the control commands necessary to run the course into the graphic pictures the author and operator see. These control commands are called microscripts, and may be visible or invisible graphical elements of the complete picture presented to the human operator.

Id., col. 1, ll. 51-60 (emphasis added). Thus, "the invention. . . executes the distributed 'program' that is embedded into the numerous pictures or screens, as opposed to the more universal 'compiled' program[of prior art systems]." Id., col. 5, ll. 40-50 (emphasis added). These pictures or screens may, in turn, be stored on a disk as individual ASCII coded files, though each picture file is to be totally self-contained such that modification of one does not affect the others. Id., col. 1, l. 68-col. 2, l. 3; col. 2, ll. 28-29.

Thus, the inventor specified that "the invention" requires an association of command codes with individual pictures or screens. Moreover the invention permits alteration of each picture or screen (e.g., by changing the associated command codes) without affecting the other pictures or screens. The district court properly articulated that the invention's graphic elements (i.e., pictures and screens) must include their own instructions, which allows independent modification of each graphic element.

In addition, the district court also properly determined that the instructions (i.e., command codes) for a given picture or screen must be stored in a single file. IP Innovation concedes that the specification only discloses a "single file" embodiment, see id., col. 1, l. 68-col. 2, l. 3, but argues against importing this limitation into the language of the claims. The '404 patent, however, repeatedly uses the phrase "the present invention" or "the invention of the present disclosure" in describing its inventive features (including the embedded limitation), rather than the phrase "in the present embodiment" or "in one embodiment." See, e.g., id., col. 1, ll. 51-52; col. 2, ll. 16-20, 53-59, 62-64; col. 3, ll. 11, 45-47, 56-60; col. 5, ll. 47-50, 57-58; col. 7, ll. 17-25. In contrast, the '404 patent uses the term "embodiment" in reference to non-inventive features, such as the graphic monitor and memory components. See, e.g., id., col. 4, ll. 63-66. The only other reference to "embodiments" in the '404 patent is common boilerplate language that does not specifically address the inventive features in any detail. Id., col. 4, ll. 17-28; col. 8, ll. 43-47.

Thus, the '404 patent does not disclose multiple embodiments having different implementations of the embedded limitation as suggested by IP Innovation. Rather, the 404 patent's narrow characterization of what "the invention" covers in reference to the embedded limitation supports a construction requiring location of all of the command codes for a given picture or screen within a single file.
Finally, the district court also properly determined that the command codes for a given picture or screen must be directly accessible from the computer screen. IP Innovation contends that this feature has absolutely no relation to the term "embedded." To the contrary, the '404 patent states: "the microscript may be embedded anywhere in the pixel pattern of the screen." Id., col. 2, ll. 30-31 (emphasis added). Embedding the microscript in the pixel pattern of the screen means that it must be directly accessible without reference to another file. In other words, a user need not access another file to obtain the command code when it is already present in the pixel pattern of the screen. This discussion in the specification supports the district court's requirement that the code be directly assessable on the screen.

The prosecution history confirms the district court's interpretation. During prosecution, the '404 patent applicant amended the claims to incorporate the "embedded" limitation to traverse a prior art rejection. The applicant also included remarks that distinguished the claimed invention over prior art touch screen displays, which allegedly did not disclose the "MicroScript principle as disclosed and claimed by the Applicant[.]"] Contrasting the claimed invention from these prior art displays, the '404 patent applicant explained: "this invention visibly, physically, and electronically connects the button to its command, embodied as a MicroScript" by embedding the MicroScript code in each picture or screen. This explanation reaffirms the district court's construction requiring direct accessibility of the command code.

In brief, the district court properly construed the embedded limitation to mean providing graphical elements (i.e., individual pictures or screens) with corresponding instructions (i.e., command code) in a single file for each graphical element, such that all of the control codes for a given graphical element are directly accessible on the consumer screen. The narrow characterization of the invention in the specification and file wrapper do not permit IP Innovation's broader interpretation.

Disputed Claim Term 2: First Code Module Embedded [as in a web page]

The parties agree that a "code module" is a bundle of code that a computer can read -- or, more simply, a computer program. And in the context of this patent, where two separate code modules are needed for the invention to function, the "first" code module is the first of the two computer programs to download onto the end user's platform (computer) and to "execute" -- that is, to run, or to carry out its programming instructions.

Where the parties disagree is over the meaning of the word "embedded." I conclude that Tacoda has the upper hand in this argument.

There are times when "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." Phillips v. AWH Corporation, 415 F. 3d 1303, 1314 (Fed. Cir. 2005), citing Brown v. 3M, 265 F. 3d 1349, 1354 (Fed. Cir. 2001). Such is the case with the word "embedded." One need not refer to a dictionary to know the common meaning of that common English word: something is "embedded" in something else when it is planted inside, and so is physically contained within, that something else. Neither party suggests that "embedded" is some sort of technical term. Therefore, the word's plain meaning should control.

Tacoda adopts that plain English meaning of the word "embedded" when it defines "first code module embedded" as "a computer-readable program that is contained within the HTML code of a web page." (HTML -- HyperText Markup Language -- is the predominant markup language for Web pages on the World Wide Web)

Modavox urges that "embedded" refers either to a code module that is physically planted and contained within the web page or to a code module that, while not physically present, is referenced in the web page for future insertion.

I reject Modavox's effort to broaden the scope of the language it used in its patents. Computer code is not "embedded" within a web page when it is merely referenced for future insertion into the web page. Rather, an embedded code is a code that has already been placed into the architecture of the web page. Every principle of claim construction supports such an interpretation.
1. Tacoda's interpretation conforms to the ordinary meaning of the word "embedded," Phillips, supra, 415 F. 3d at 1321 (Fed. Cir. 2005).

2. It also makes sense in the immediate context of the claim term. It is axiomatic that the immediate context is highly instructive to a person skilled in the art in construing the claim term. Phillips, supra., 415 F. 3d at 1312. Therefore, one must look closely at how the word is used in its context. While "embedded" functions as an adjective in the patents (i.e., it describes the first code module), that adjective derives from a verb that is in the past tense, thereby suggesting that the act of embedding the code module has already occurred. Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F. 3d 1547, 1553 (Fed. Cir. 1997). This becomes clearer when one reads the entire clause in which the word "embedded" appears; its says: "When said Web page is downloaded, automatically executing a first code module embedded in said Web page." Nothing in that language suggests that the first code module could be referenced in some link that is embedded in the Web page, called up and then incorporated into the already-downloaded Web page. It is the code module itself, not a link to the code module, that must be embedded, so that it can execute AUTOMATICALLY (i.e., without any further action by anyone) when the Web page is downloaded. Modavox's suggested reading of the language would read the "embedded" out of the patent. Chef. Am. Inc., v. Lamb-Weston, Inc., 358 F. 3d 1371, 1374 (Fed. Cir. 2004) READ.

3. Tacoda's proposed meaning conforms to the specification. The specification is the best source of the meaning of a disputed term, and provides the primary basis for construing the claim. Phillips, supra., 415 F. 3d at 1315-17. Here, the specification contains a Figure that shows the first code module as entirely contained within the architecture of the web page (Fig. 1, Items 34, 36). Furthermore, the language of the specification reveals that the first code module is "embedded in the HTML of the web page when a Web page developer designs the Web page (Emphasis added) and "may be copies and pasted into a web page during Web page development" (5:3-5). Modavox has not cited, and the court has not located, anything in the patent that discloses any other concept of embeddedness, or suggests that the code can be "embedded" by being linked into the Web page well after the page has been designed by its developer. In a case decided only two months ago, the Federal Circuit ruled that where nothing in the specification suggested any that any alternative embodiment fell within the scope of the claim, construction of a claim term should be limited by what was disclosed in the specification. Netcraft Corp. v. Ebay, Inc., 549 F. 3d 1394, 1399 (Fed. Cir. 2008).

Modavox's rejoinder to Tacoda's argument is that "embedded" need not mean "entirely contained within" because such an interpretation would violate the doctrine of claim differentiation. This doctrine stems from the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope. Seachange Int'l, Inc. v. C-COR, Inc., 413 F. 3d 1361, 1368 (Fed. Cir. 2005). The presumption is, however, rebuttable, and can be overcome by a contrary construction dictated by the written description [contained in the specification] or prosecution history." Id. at 1369. While two claims of a patent are presumptively of different scope, the doctrine of claim differentiation cannot broaden claims beyond their permissible scope, or supplant other canons of construction that compel a narrower construction. Tate Access Floors, Inc., v. Maxxess Technologies, Inc., 222 F. 3d 958, 967-68 (Fed. Cir. 2000); Bristol-Myers Squibb Co., v. Ben Venue Labs., Inc., 246 F. 3d 1368, 1376 (Fed. Cir. 2001).

Modavox argues that Dependent Claim 2 in the '636 patent would be redundant of Independent Claim 1 if the meaning of "embedded" were limited in the way suggested by Tacoda. To be precise, it notes that this dependent claim describes a method where the first code module "issues said first command" to retrieve a second code module "from a server via the network connection." 15:1-3. Plaintiff argues that this demonstrates that the embedded code module claimed in Independent Claim 1 "can issue a command that retrieves a code module from a server system using the Internet." (Modavox's Opening Claim Construction Brief at 8)

However, as Tacoda points out in its responsive brief, Independent Claim 1 of the '636 patent, which recites that the first code module "issues a first command to retrieve a second code module," is silent about where that second code module might be found. Dependent Claim 2 of the same patent specifies that the second code module be retrieved "from a server system via a network connection." The reference to the server system and the internet adds a new and different requirement that is not found in Independent Claim 1, where the word "embedded" appears. Thus, there is no risk of redundancy between the two claims if the word "embedded" is given its common sense meaning. That, as the Federal Circuit has recently instructed, renders the doctrine of claim differentiation inapplicable. Netcraft, supra., 549 F. 3d at 1400.

Finally, Modavox's contention that the first code module would be "embedded" if it included code referenced or loaded via a link in the Web page also renders the claim language ambiguous. Tacoda offers an excellent example. If the first code
module consisted of a reference to a link to the second code module, then the second code module would be part of the first code module. That, of course, would render it superfluous to "retrieve" the second code module -- because the second code module would already be "embedded" in the web page by virtue of its being referenced via link to the first code module! Such a construction is nonsensical.

Accordingly, I accept Tacoda's interpretation of the word "embedded" and I will define for the jury the phrase "Web page including a first code module embedded therein" as follows:

"Embedded means contained within the programming architecture (technically known as its "HTML code") of a computer-readable program (the technical name for which is "code module").
Therefore, nothing in the '306 patent restricts the bit signals in the empty payload field to ones that serve no purpose other than place-holding. The specification includes the explanatory phrase "i.e. garbage bits," which, according to the parties, limits the "bit signals of some kind" to bits that serve no purpose other than place-holding.

For the reasons discussed above, "emitter module," for purposes of the '756 patent, means "a self-contained assembly of electronic components and circuitry that contains at least one electrical ionizer and that gives or sends out ions." This construction shall govern construction of the term throughout the patent.

For the reasons discussed above, "emitter module," for purposes of the '756 patent, means "a self-contained assembly of electronic components and circuitry that contains at least one electrical ionizer and that gives or sends out ions." This construction shall govern construction of the term throughout the patent.

B.

As noted, claims 1, 3, and 4 of the '306 patent claim "a transmission overhead field containing frame timing information and an empty payload field." The district court construed the term "empty payload field" to mean "a payload field that is empty of source data, but including bit signals of some kind, i.e. garbage bits." Telcordia Techs., Inc. v. Cisco Sys., Inc., No. 04-cv-876, slip. op. at 6 (D. Del. June 22, 2006) ("Claim Construction Order"). The parties dispute whether the claim construction includes the explanatory phrase "i.e. garbage bits," which, according to the parties, limits the "bit signals of some kind" to "bits that serve no purpose other than place-holding."

The empty payload fields are "empty" of data packets and therefore have non-source bit signals only. The specification explains that "a train of DTDM frames with empty payload fields . . . has a bit rate which defines a basic backbone transmission rate for the DTDM system." '306 patent col.7 ll.27-30. Therefore, the bit signals help the DTDM system maintain a bit stream even when it is not transmitting data from an information source. The specification does not specify where in the frame the "bit rate" is stored nor does it specify the type of non-source bits used to maintain the bit rate. Therefore, nothing in the '306 patent restricts the bit signals in the empty payload field to ones that serve no purpose other
The district court apparently took the explanatory phrase from an ad lib comment made during an oral hearing at the Federal Circuit. In Bell Communications Research, Inc. v. FORE Systems, Inc., 62 Fed. Appx. 951, 2003 WL 1720080 (Fed. Cir. 2003), Bell Communications Research, Inc., now known as Telcordia, asserted the '306 patent against another defendant. This court reviewed a district court's construction of the term "empty payload field" in the '306 patent. In that case, the district court had explained that "a frame's payload has zero data in it." 62 Fed. Appx. 951, Id. at *6. During oral hearing, Bell Communications agreed with Circuit Judge Bryson's characterization of bits in the "empty payload fields" as "garbage:"

Judge Clevenger: Can we come back to the empty payload field? "Empty" seems to me . . . the common meaning of the word "empty" means there is nothing there. So, you are saying that there is something in the written description that tells me what empty means?

Bell Communications's Counsel: I am saying . . .

Judge Clevenger: Where in the written description?

Bell Communications' Counsel: A144, column 7, lines 29-35. And, what you will see there at that point . . .

Judge Clevenger: There is a bit rate.

Bell Communications's Counsel: It says, "this train." It is talking about empty payload field. "This train 10 has a bit rate." In other words, it's empty, but it has a bit rate. Because in order to have . . . sometimes there won't be a packet ready. The stream must continue. There must be a bit in the stream. It just won't be a data bit, it won't be a source data bit. It will be a bit. And it will have information in it, but it won't be source information.

Judge Bryson: It would just be garbage, I take it. I mean it will just be 1's and 0's that have no relationship to the stream of any information that's coming in from the source.

Bell Communications's Counsel: Exactly, Your Honor.

The issue on appeal, at least initially, seemed to be whether the district court actually meant "no bit signals of any kind" when it said "zero data." Id. At oral hearing, however, Fore Systems, Inc. stated its understanding that "'zero data' encompassed various bit signals that might maintain the stated transmission rate of a bit stream, including 'placeholders' or 'garbage bits.'" Bell Commc'n's, 62 Fed. Appx. 951, 2003 WL 1720080, at *6. Because the parties' agreement on this broader interpretation of "zero data" rendered the claim construction issue moot, this court declined to refine the district court's construction. Id.

The claim construction issue on appeal in the present case--whether the empty payload field only has bits that act as placeholders--is different from the one in Bell Communications--whether the empty payload field has any bits at all. Circuit Judge Bryson's comments, therefore, are not directly relevant to the specific issue in the present case. The district court erred by limiting the claim scope based on the ad lib comment from the bench.

In addition, contrary to Cisco's assertion, Telcordia has not changed its proposed claim construction of "empty payload field." In Bell Communications, Telcordia agreed that the empty payload fields only have "garbage bits" because it understood the phrase "garbage bits" to mean bits with "no relationship to the stream of any information that's coming in from the source." In the present case, Telcordia disputes the claim construction with the phrase "garbage bits" because the district court apparently meant "non-source bit signals that serve no purpose other than place-holding." Thus, Telcordia is not precluded from making the claim construction arguments that it makes now.

Accordingly, "empty payload field" means "a payload field that is empty of source data, but includes bit signals of some kind."
I. Claim Construction

While the parties dispute the court's construction of many of the claim terms at issue before the district court, we address the construction of only those terms essential for disposition of this appeal.

The independent claims of the '927 patent recite a method or computer for "emulating" target instructions of the instruction set of a target computer using, inter alia, "emulation registers" capable of corresponding to registers in the target computer. The written description defines the term "emulation" generally as "a process in which one computer X behaves identically to another computer Y, as X executes the instructions of Y, where the internal architectures of computers X and Y are different." '927 patent, col. 2, ll. 30-33. We adopt this construction and conclude that the district court correctly interpreted this term.

Claims 4 and 14 define the particular manner in which the claimed processor emulates. Specifically, both claims require a "M+N bit expanded RISC instruction" with N bits defining the "native instruction . . . configured for emulating target instructions from the instruction set of a target computer." Consistently, the claims require an expanded instruction decoder that uses "M bits from each said expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer." The written description of the '927 patent defines N bits of an expanded RISC instruction, also referred to as the LHS (left-hand side) of the instruction, as the number of bits of the instruction that the microprocessor uses "in its native mode." '927 patent, col. 5, ll. 1-2. With regard to the M bits of the expanded RISC instruction, also referred to as the RHS (right-hand side) of the instruction, the '927 patent states that "contained within the additional M bits [of the expanded RISC instruction] and used in conjunction with the N bits are directions on the use of resources within the RISC computer, peculiar to each emulated instruction." '927 patent, col. 5, ll. 6-9. The written description of the '927 patent explains that the M bits, or RHS, of the expanded RISC instruction are used "to redefine, during emulation of a target processor operation, the register data paths . . . of the LHS [or N bits of the expanded RISC instruction] to correspond to the target processor instruction being emulated, permitting the host processor to mirror, without physical changes, the target processor architecture being emulated." '927 patent, col. 8, ll. 31-37. Consistently, TechSearch's expert, Dr. Hoevel, recognizes that to emulate, "the host computer has to interpret and execute the target instruction set used in the target computer . . . and claims 1 through 3 of the '927 patent reveal the advantages of the special kind of emulation and backwards compatibility found in the '927 patent."

We conclude, as the district court did, that the M+N bit expanded RISC instruction recited in claims 4 and 14 includes N bits corresponding to an instruction of the host microprocessor's instruction set, and M bits which work with the N bits to "redefine" or "translate" the expanded RISC instruction to "emulate" the instructions of the microprocessor of the target computer. We further conclude that the claimed "expanded instruction decoder" is a decoder that "redefines" or "translates" the native instruction identified as N bits of the expanded RISC instruction, using M bits of the expanded RISC instruction, thereby enabling the instruction set of the microprocessor of the computer to emulate the instructions of a target computer.

C. Construction of "a UART emulation which"

Next the parties dispute the meaning of "a UART emulation which", appearing in Claim 1 of the 305 patent as follows:

a UART emulation which in response to an access by the procedure for accessing the register set of a UART, converts the access as required for the register set and address assignment of the device;

PCTEL contends that the term means "software that responds to the operating system as a hardware UART would respond in that it." Agere counters with the construction, "a software mimicking of the data and control registers of a UART, and not simply accessing a non-UART device by bypassing the communications driver that handles UART devices, which."
PCTEL argues the context of the term explains the meaning of "UART emulation." According to PCTEL, the remainder of the claim teaches that UART emulation consists of responding to requests by the operating system for the UART register set data. The requests are then converted to contend with the non-UART devices that may actually be present according. PCTEL contends that their construction represents the functionality described in the 305 patent.

Agere's reading of "UART emulation" focuses on access to the data and control registers of the UART. Agere argues that to the extent to which the 305 patent teaches UART emulation, it only teaches the "mimicking" of the data and control registers of a hardware UART. Agere points to portions of the specification detailing the manner in which data is structured and formatted to emulate the UART standard. n8 Agere also points out that PCTEL disclaimed certain characteristics of UART emulation during the prosecution history and reexamination of the patent. The patent examiner noted that UART emulation was already disclosed in prior art Patent Number 5,678,059 ("Ramaswamy patent"). In distinguishing the 305 patent from the prior art, PCTEL asserted that the Ramaswamy patent taught away from 305's UART emulation because Ramaswamy bypassed the COM driver when it accessed non-UART devices. Malz Declaration, Ex. 15 at 26008-09. Therefore, according to Agere, PCTEL disclaimer implies that the 305 patent includes a limitation requiring that the system access the COM driver. Agere urges the Court to adopt a construction of "UART emulation" in line with this requirement.

--- Footnotes ---

n8 "The data and control values are formatted for a standard UART device so that whether software modem 223 is a standard modem containing a hardware UART or a software modem is completely transparent to application 140 and operating environment 130." 305 Patent, 7:17-22; Also, Agere cites the appendix in which the structures of the control register are detailed. 305 Patent, Appendix A, 1:1-20.

--- End Footnotes ---

PCTEL's construction is closer to the plain meaning of the term "UART emulation." However, as currently presented, PCTEL's proposed construction would broaden the scope of the claim beyond what was actually understood in light of PCTEL's disclaimers throughout the prosecution history and reexamination record. The Court agrees with Agere's contention that the UART emulation, as actually taught by the 305 patent, is narrower than that which is asserted by PCTEL. However, the Court does not agree with Agere's argument that the COM driver limitation was necessarily adopted by PCTEL during prosecution. Accordingly, the clearest reading of "a UART emulation which" is "software that responds to the operating system as a hardware UART would respond, with respect to UART control and register data, which."

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"When enabled," "To enable" and "Disable"

For "when enabled" and "to enable," Plaintiff proposes "when activated" and "to activate," respectively. Defendants suggest "when power is supplied, i.e., when the device is turned on." On the flip side, Plaintiff argues that "disable" should be defined as "to deactivate." Defendants submit that the construction of "disable" should be "to switch off power, i.e., to turn off."

Claim 3 uses the terms "enabled," "to enable" and "disabled," but the specification includes no special definition of these terms. Plaintiff argues first that no definition is needed, and that the "plain and ordinary" meaning of the terms should suffice. As with so many patents involving electronic devices, "plain and ordinary" is not so easy to discern.

Defendants correctly argue that these terms are used in the specification in connection with a power management feature of the invention. At times, the described devices (the location signal generating device and the telemetry transmitter) use no power, i.e. they are turned off: When a signal is received, power is turned on, and they are able to operated. In other words, according to Defendants, the claim merely describes devices similar to a common electric lamp. When the switch is in the "on" position, the light bulb is illuminated. When in the "off" position, the bulb is dark.

LunarEye asserts that the claim language should not be so limited. LunarEye would interpret the claim to also describe devices which continuously receive power, although they might be in a "low" power condition, so that power consumption
is minimized. This would be similar to the "hibernation" state observed in some computers and cell phones, which have a blank screen when not used for a certain period of time, although they are still using some power.

Defendants argue that because the specification and prosecution history do not disclose any embodiment that does not involve power being turned off and on, the claim must be so defined. See Wang Laboratories, Inc. V. America Online, Inc., 197 F.3d 1377 (Fed. Cir. 1999). Plaintiff naturally reminds the court that limitations may not be imported into the claim from the specification. See Teleflex, Inc., 299 F.3d 1313, 1327-28 (Fed. Cir. 2002)

But review of contradictory axioms is not analysis. Liebel-Flarsheim Co. V. Medrad, Inc., 358 F3d 898, 904 (Fed. Cir. 2004). The court must determine if there is either a limitation in the claim language itself, or a clear intent to limit the claim expressed in the specification or prosecution history.

The claim simply refers to devices being "enabled" and "an enable controller" configured "to disable" devices. This could mean, as Defendants argue, that the devices have all power supply turned off. But anyone who owns a computer or a cell phone, let alone someone skilled in the art, would be aware that such devices can be in a "hibernation" or "sleep" mode, in which they receive a small amount of power.

The question then becomes whether the applicant expressed a clear intent to limit the claim scope. According to the specification, the invention's operational sequence may begin "[u]pon receipt of a page or the occurrence of another triggering action . . . ." Col. 1, L. 63-64. This does not indicate whether the device is already using some low level of power. The "method may include applying power to a GPS receiver and a cellular transmitter upon receipt of the page, and disconnecting power from the GPS receiver and the cellular telemetry transmitter upon transmission of the location of the object." Col. 2, L. 39-43. "Disconnecting power" implies that all power is shut off. But, this is just a description of one variation of the invention.

A flow chart of the power management system is provided by Figure 3 of the patent. The verbal description of the flow chart states that the "[t]he controller wakes up the GPS receiver . . . .," which then "wakes up" the cellular network transmitter. Col. 6, L. 26-28. The prosecution history contains a communication from the Patent Examiner with the following references:

"a controller 25 (enable controller) configured to wake-up (enable) the LDS . . . ."

"to put back to sleep (disable) the LDS receiver/processor . . . ."

See Independent Witness' Brief, Ex. 2, [Doc. # 84-3] p. 7. There seems to be little dispute that "enable," as used by the inventor, and as understood by the Examiner, is synonymous with "wake up." Similarly, "disable" can be used interchangeably with "put to sleep."

Together, these references indicate that "to enable" and "when enabled" (or "waking up") requires the application of power. Conversely, "to disable" (or "put to sleep"), involves the removal or reduction of power.

The question still remains: Does the claim describe only a device which receives no power until it is "enabled?" In an Office Action (Date Mailed: 07/12/01) the Examiner compared Claim 26 of Allen's application, (which later became the Claim 3 now in dispute) with language in an earlier, related, patent, U.S. Patent No. 5,777,580 (Janky) Col. 11, L. 26-40. As a basis for rejecting Claim 26 of Allen's application, the Examiner states that "Janky et. al. clearly show and disclose a vehicle location system (triggerable location-reporting apparatus)" with the same features disclosed in Allen's Claim 26. See Independent Witness Brief, DX 2 [Doc. # 84-3] p. 7 of 15.

The Examiner noted that Janky already taught an enable controller configured to "wake-up (enable)" the LDS n2 receiver/processor (location signal generating device) and the telemetry transmitter when it receives a trigger signal, and, inherently, to "put back to sleep (disable)" the location signal generating device and the telemetry transmitter. See DX 2, [Doc. # 84-3] p. 7 of 15. (Emphasis added)

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On the next page of the Office Action, the Examiner stated: "Janky et al. further disclose that the GPS processor is in a 'sleeper' mode (power is not applied) until the system receives a page (column 11 lines 35-40)." (Emphasis added). Nothing in the record indicates that Allen ever tried to contradict or correct the Examiner's obvious understanding that "disable" meant "put back to sleep" and "sleeper mode" meant "power is not applied." On the other hand, whether or not power was being turned off, or merely reduced, was not the focus of the interchange between the Examiner and Allen.

The "Response To Final Office Action" states that "the enable controller in Janky does not necessarily disable the location-signal generating device and the telemetry transmitter after the telemetry transmitter transmits the location signal, as required by claim 26 [now claim 3 in the patent before the court], and Janky does not inherently include this limitation." (Emphasis in the original) [IW's Brief, EX. 4, Doc. # 84-4, p. 10 of 18]. The Response explained to the Examiner that Claim 26 [now claim 3] can be distinguished from Janky because the system in Janky "may leave the system enabled" until it is "unenabled" sic by a person performing an action such as removing power, rather than by the enabler itself. In other words, Allen distinguished his patent by asserting that the controller would accomplish a task performed by a person. But there was no clear statement that the task could not be a reduction of power.

The argument that "sleep" or "sleeper mode" means "no power" could be supported by the specification's description of the power management flow chart, Figure 3.

The controller then goes back to sleep. 72 With this power management approach, significant power is being used only when position information is being transmitted over the cellular network. The rest of the time the only drain on system power is the page receiver, which has a very low power requirement . . .

Col. 6, L. 33-38. (Emphasis added). If the "only drain" is the page receiver, then the GPS and the transmitter must be using no power at all. This conclusion is supported by the following at Col. 5, L. 62-64: "When the page receiver 34 receives a page over antenna 44 that is addressed to the page receiver 34, the page receiver 34 transmits a "power-on" signal 46 to the controller 36." (Emphasis added).

The foregoing are the strongest arguments for defining "enabled" as meaning that power is supplied or "tuned on." But none is a "clear disclaimer" of other possibilities. There is no statement that the GPS (location signal generating device) or the telemetry transmitter could not be, or would not be in a low power state. The single statement by the patent examiner about a GPS processor in a "sleeper mode (power is not applied)" referred specifically to Janky and how much power was being applied or removed was not the focus of debate. The court can not merely assume or infer a "clear disclaimer."

The claim language is broad enough to encompass an enable controller which turns the devices completely on and off, or a system in which at least some power is continuously 9 applied to the devices. While only one embodiment (the preferred embodiment) is described in the specification, there is no clear statement disclaiming other embodiments or limiting the devices. The court therefore defines these terms as follows:

"Enabled" means "fully operational and performing its function."

"To enable" means "to place into a condition which is fully operational and performing its function."

"To disable" means "to place into a condition which is not fully operational and performing its function."

For this term, Plaintiff proposes, "a microprocessor or other computing device." Defendants suggest, "a microprocessor or
other computing device that is configured to perform and actually performs specified tasks."

The parties do not dispute that the term "enable controller" means "a microprocessor or other computing device." The parties also agree that the enable controller must be configured to perform specified tasks, but Plaintiff argues that additional claim language already defines what the enable controller is required to do.

If the court inserts Defendants' proposed construction, an "enable controller" would be defined as "a microprocessor or other computing device that is configured to perform and actually performs specific tasks configured to enable the location-signal generating device and the telemetry transmitter when it receives a trigger signal . . .." This proposed definition is both confusing and unnecessary. It is clear that the functionality required by the enable controller is already defined by the remainder of the claim limitation. Therefore, those limitations do not need to be imported into the construction of "enable controller" itself.

The court will define the term as follows:

"Enable controller" means "a microprocessor or other computing device."

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6. "to enable the second end to be interconnected to a defibrillator"

Likewise, Claim 1 of the '919 Patent describes an insulated lead wire that extends from the package "to enable the second end to be interconnected to a defibrillator prior to the opening of the package and use of the first electrode." Claims 2, 12, and 17 contain similar language. Philips construes this language to mean "such that the connector on the end of the lead wire is outside the package, allowing it to be plugged into a defibrillator." Cardiac Science, on the other hand, asserts that the term "interconnect" means "connect" and that this clause "provides a functional definition of 'extending from the package,' the preceding term."

Similar to the Court's discussion of the previous term, the Court finds no support in Philips' argument that this term should be construed to include some kind of "plugging in" requirement. The clause in which the phrase appears already recognizes that the second lead wire extends from the package. The term otherwise requires that the lead wire extends from the package in a manner that allows for interconnection to the defibrillator prior to use of the electrode. No further construction is required.

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"When enabled," "To enable" and "Disable"

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LunarEye asserts that the claim language should not be so limited. LunarEye would interpret the claim to also describe devices which continuously receive power, although they might be in a "low" power condition, so that power consumption is minimized. This would be similar to the "hibernation" state observed in some computers and cell phones, which have a blank screen when not used for a certain period of time, although they are still using some power.

Defendants argue that because the specification and prosecution history do not disclose any embodiment that does not involve power being turned off and on, the claim must be so defined. See Wang Laboratories, Inc. V. America Online, Inc., 197 F.3d 1377 (Fed. Cir. 1999). Plaintiff naturally reminds the court that limitations may not be imported into the claim from the specification. See Teleflex, Inc., 299 F.3d 1313, 1327-28 (Fed. Cir. 2002)

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The question then becomes whether the applicant expressed a clear intent to limit the claim scope. According to the specification, the invention's operational sequence may begin "[u]pon receipt of a page or the occurrence of another triggering action . . . ." Col. 1, L. 63-64. This does not indicate whether the device is already using some low level of power. The "method may include applying power to a GPS receiver and a cellular transmitter upon receipt of the page, and disconnecting power from the GPS receiver and the cellular telemetry transmitter upon transmission of the location of the object." Col. 2, L. 39-43. "Disconnecting power" implies that all power is shut off. But, this is just a description of one variation of the invention.

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The question still remains: Does the claim describe only a device which receives no power until it is "enabled?" In an Office Action (Date Mailed: 07/12/01) the Examiner compared Claim 26 of Allen's application, (which later became the Claim 3 now in dispute) with language in an earlier, related, patent, U.S. Patent No. 5,777,580 (Janky) Col. 11, L. 26-40. As a basis for rejecting Claim 26 of Allen's application, the Examiner states that "Janky et. al. clearly show and disclose a vehicle location system (triggerable location-reporting apparatus)" with the same features disclosed in Allen's Claim 26. See Independent Witness Brief, DX 2 [Doc. # 84-3] p. 7 of 15.

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On the next page of the Office Action, the Examiner stated: "Janky et. al. further disclose that the GPS processor is in a 'sleeper' mode (power is not applied) until the system receives a page (column 11 lines 35-40)." (Emphasis added). Nothing in the record indicates that Allen ever tried to contradict or correct the Examiner's obvious understanding that "disable" meant "put back to sleep" and "sleeper mode" meant "power is not applied." On the other hand, whether or not power was being turned off, or merely reduced, was not the focus of the interchange between the Examiner and Allen.

The "Response To Final Office Action" states that "the enable controller in Janky does not necessarily disable the location-signal generating device and the telemetry transmitter after the telemetry transmitter transmits the location signal, as required by claim 26 [now claim 3 in the patent before the court], and Janky does not inherently include this limitation." (Emphasis in the original) [IW's Brief, EX. 4, Doc. # 84-4, p. 10 of 18]. The Response explained to the Examiner that Claim 26 [now claim 3] can be distinguished from Janky because the system in Janky "may leave the system enabled" until it is "unenabled" sic by a person performing an action such as removing power, rather than by the enabler itself. In other words, Allen distinguished his patent by asserting that the controller would accomplish a task performed by a person. But there was no clear statement that the task could not be a reduction of power.

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The foregoing are the strongest arguments for defining "enabled" as meaning that power is supplied or "tuned on." But none is a "clear disclaimer" of other possibilities. There is no statement that the GPS the (location signal generating device) or the telemetry transmitter could not be, or would not be in a low power state. The single statement by the patent examiner about a GPS processor in a "sleeper mode (power is not applied)" referred specifically to Janky and how much power was being applied or removed was not the focus of debate. The court can not merely assume or infer a "clear disclaimer."

The claim language is broad enough to encompass an enable controller which turns the devices completely on and off, or a system in which in which at least some power is continuously applied to the devices. While only one embodiment (the preferred embodiment) is described in the specification, there is no clear statement disclaiming other embodiments or limiting the devices. The court therefore defines these terms as follows:

"Enabled" means "fully operational and performing its function."

"To enable" means "to place into a condition which is fully operational and performing its function."

"To disable" means "to place into a condition which is not fully operational and performing its function."
The terms "disabling cache operations" and "enabling caching operations" are found in Claim 1 of the '136 Patent. The terms do not appear in the contested claims of the '226 or '244 Patents. Claim 1 of the '136 Patent describes "[a] method for coherently caching I/O devices available for shared access on a network comprising . . . disabling cache operations upon finding that a new computer joined the network; and enabling caching operations at each computer after each computer has connections in place with the cache software of every other computer on the network." (Id. at FIG. 5C) (emphasis added). The parties agree that "enabling caching operations" is the opposite of "disabling cache operations" and that the two terms should be construed together. (Instrument No. 69, at 28; Instrument No. 77, at 15). There is also no dispute that "cache operations" and "caching operations" are the same. (Id.).

The parties also agree that the term "disable" means "prohibit," and the term "enable" means "permit." (Instrument No. 69, at 29; Instrument No. 77, at 15). In order to assist the Court, both parties refer to the IEEE DICTIONARY definition of "disable" and "enable." (Id.). The IEEE DICTIONARY defines "disable" as "[a] command or condition that prohibits some specific event from occurring." (IEEE DICTIONARY at 299) (emphasis added). As a corollary, the IEEE DICTIONARY defines "enable" as "[a] command or condition that permits some specific event to occur [or] to proceed." (Instrument No. 69, at 29) (emphasis added). In this case the specific event is "cache operations" or "caching operations." The parties have agreed that the term "cache" means "a portion of system main memory (e.g., RAM) used for temporary storage of data." (Instrument No. 69, at 9-10). The parties have further argued that the term "caching" means "storing in cache." (Id.). The parties dispute whether the term "caching" is the same as "cache operations," or whether "caching" is just one of several different "cache operations." The parties further dispute whether the duration of the prohibited or permitted cache operations should be reflected in the construction of the terms "disabling cache operations" and "enabling caching operations."

With regard to the duration of prohibited or permitted cache operations, Claim 1 of the '136 Patent implies that the disabling of cache operations is only temporary, because cache operations are only disabled "upon finding that a new computer joined the network." (Id. at FIG. 5C) (emphasis added). Thus, Superspeed argues that the term "disabling cache operations" means "temporarily prohibiting (i.e., suspending) cache operations" and "enabling caching operations" is "continuing or resuming those caching operations." (Id.). Although the terms "suspending" and "resuming" may constitute a convenient short-form to reflect the temporary nature of prohibiting or permitting cache operations, the Court finds that it is unnecessary to use these specific terms in the construction. Because the specifications specifically provide for operations to be "temporarily disabled," the Court finds that the term "temporarily prohibiting" cache operations is a preferable construction. Because the specifications do not specifically state that "enabling caching operations" is temporary in nature, the Court finds that the term "permitting" caching operations is a preferable construction. However, the Court must also determine what specific cache operations are temporarily prohibited or permitted.

Superspeed contends that the specifications and flow chart figures of the '136 Patent indicate that "if cache operations are disabled . . . data cannot be read from the cache nor placed into the cache from the disk." (Instrument No. 69, at 31). Specifically, the specifications provide:

"Referring to FIG. 5C, the "read data" (440) program flow will now be described. . . . The program checks whether the cache status flag 'disable' is set (452), if so, the program exits. . . . The cache status flag 'disable' indicates that some Open VMS system in the VMScluster . . . does not have the cache driver . . . of the invention loaded. This normally would indicate that some Open VMS system is currently joining the VMScluster . . . and has not yet successfully loaded the cache software of the invention. . . . [T]he cache status flag 'disable' indicates an inconsistent view of the cache for the invention across the VMScluster and VAXcluster, preventing active cache operations (and possible subsequent corruption) of the data contained in a disk I/O device."

(136 Patent, at 17:46-18:9) (emphasis added). Figure 5C of the '136 Patent further indicates that the "read data" program flow checks whether the cache status flag "disable" is set. (Id. at FIG. 5C).
The specifications do not specifically define the term "active cache operations." However, the parties appear to agree that the active cache operations that are disabled include: the reading of data from the cache, and the storing of data into the cache. Superspeed admits that "placing data into the cache for rapid access and then accessing it from the processor" are operations that are prohibited while caching operations are disabled. (Instrument No. 69, at 31). Oracle agrees that the "plain meaning of 'cache operations' exceeds just storing data in a cache and includes reading data from a cache (a prerequisite to using the cached data), and writing data to the cache." (Instrument No. 77, at 16). According to the demonstrative exhibit that Oracle presented in oral argument, Oracle uses the term "writing data" from the disk to cache synonymously with "caching" or "storing data" in cache. (DX 1, at 60). Accordingly, the parties agree that disabling cache operations prohibits reading data from the cache, and storing data in a cache.

However, disabling cache operations does not prohibit all cache operations. Superspeed argues that even while caching operations are disabled, some operations on the cache may still be undertaken. Specifically, Superspeed contends that "the software continues to check the free memory and can release cache if the memory used in the cache is needed elsewhere." (Instrument No. 69, at 30). This allows the program to modify the size of the cache for small, medium, or large cache data buckets. (Instrument No. 69, Exh C, at 8:61-65). Superspeed further contends that the system can "unload" or clear cache data in the system when cache operations are "disabled." (Instrument No. 69, at 30; Exh C, at 17:31-36, FIG. 5B). Finally, Superspeed contends that the software can invalidate cache data when writing to an I/O device. (Id.; Exh C, at 17:40-45, 21:58-22:27, FIG. 5K). Oracle does not dispute that the program can modify the size of cache, clear the cache, and invalidate cache data while caching operations are disabled. (Instrument No. 77, at 20). This interpretation appears to be consistent with the specifications and flow chart figures described in the '136 Patent.

Because "disabling cache operations" does not prohibit the use of all cache operations, a construction that the term "disabling cache operations" means "prohibiting use of data in the cache" would be too broad. However, a construction of the term "disabling cache operations" to mean "suspending caching" does not indicate that reading data from the cache is also prohibited, and would thus be too narrow. Taking into consideration the duration of prohibited cache operations and the specific cache operations that are prohibited by "disabling cache operations," the Court finds that the term "disabling cache operations" means "temporarily prohibiting the storing and reading of data on the cache," and that the term "enabling caching operations" means "permitting the storing and reading of data on the cache."
2. Enabling Said EFM Decoder (Claims 1 and 6)

Mediatek argues "enabling said EFM decoder" should be construed as "restarting the flow of EFM decoded audio data." Matsushita argues "enabling said EFM encoder" should be construed as "activating the EFM decoder."

The Court finds, for the reasons stated by Mediatek, that "enabling said EFM decoder" is properly construed as "restarting the flow of EFM decoded audio data."

"Encapsulates the Point-To-Point Link Level Session in a Forwarding Protocol Header"

"Encapsulates the Point-To-Point Protocol Session in the Layer 2 Forwarding Protocol Header"

Alcatel contends that these terms do not comply with the requirements of 35 U.S.C. § 112 P 2, and thus are unable to be construed. Cisco argues that these terms are plain on their face, with no special or uncommon meaning, and thus should not be construed by the Court.

As Alcatel points out, and Cisco does not refute, it is nonsensical for a point-to-point link level session and a point-to-point protocol session to be encapsulated in a header. A header, as discussed above, is "the first part of the message, which contains controlling data, such as originating and destination stations, message type and priority level." 69 The Computer Desktop Encyclopedia, at 395; see also The New IEEE Standard Dictionary (5th ed. 1992), at 589 (defining "header" as "Identification or control information placed at the beginning of a file or message."). The parties also agree that the "point-to-point protocol sessions" means "a communication connection between a source and destination pair using the point to point protocol." Revised Joint Statement, Ex. F, at 78. Therefore, according to this claim term, a communication between a source and destination would be encapsulated solely in the first part of the packet. However, as can be seen from the patent, a packet contains more than simply the header, and thus it appears illogical that an entire communication would be placed in the initial portion of the packet containing only the identifying or control information. See, e.g., Valencia, Figs. 5, 9.

69 The Court has previously construed the terms "layer 2 forwarding protocol header" and "forwarding protocol header" as "initial information fields of a packet operating according to a layer 2 forwarding protocol."

Nevertheless, Cisco argues that, since the parties agree that one of ordinary skill in the art would understand "encapsulating the link level protocol in the forwarding protocol" to be "placing a packet formatted according to the link level protocol in the layer 2 forwarding protocol packet," 70 then one would understand the above terms to mean placing the packets comprising a point-to-point (link level) protocol session in the header of a (layer 2) forwarding protocol packet. See Cisco's '019 Opening Brief, at 24.


Even if this interpretation is essentially illogical, as Alcatel contends, the Court need not concern itself at this stage with whether the processes identified by the claim terms are capable of being achieved (i.e. enablement); during claim construction, under 35 U.S.C. § 112 P 2, the Court must determined whether the terms are capable of being understood (i.e. definiteness).

[D]efiniteness and enablement are analytically distinct requirements, even though both concepts are contained in 35
U.S.C. § 112. The definiteness requirement of 35 U.S.C. § 112, P 2 is a legal requirement, based on the court's role as construer of patent claims. Definiteness requires the language of the claim to set forth clearly the domain over which the applicant seeks exclusive rights. The test for whether a claim meets the definiteness requirement is 'whether one skilled in the art would understand the bounds of the claim when read in light of the specification.'

Process Control Corp. v. Hydreclaim Corp., 190 F.3d at 1358 n.2; see also 3 Donald S. Chisum, Chisum on Patents, § 8.03 at 8-14 (2001) (noting the difference between the requirements of "definiteness, which claims must meet, from the requirements of enablement, which the disclosures of the specification must meet").

Therefore, the Court does not find the above claim terms indefinite. Instead, the Court construes the term "encapsulates the point-to-point link level session in a forwarding protocol header" as "placing a communication connection between a source and destination pair using the point to point link level protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol." Similarly, the Court construes the term "encapsulates the point-to-point protocol session in the layer 2 forwarding protocol header" as "placing a communication connection between a source and destination pair using the point to point protocol in the initial information fields of a packet operating according to a layer 2 forwarding protocol."

The parties dispute the meaning of two key limitations in the '805 patent claims: "enciphered" and "unenciphered." The court construes enciphered as follows:

Transmission of information in a secure mode; i.e., the transmitted output is encoded (as by logically scrambling the signal).

('805 patent, col. 2, Ins. 30-46, 54-58; col. 3, Ins. 20-24; col. 5, Ins. 9-11; D.I. 435 at Tab B, pp. 68, 78, 79-80) The court construes unenciphered as follows:

Transmission of information in a clear, not secure mode; i.e., the transmitted output is uncoded.

('805 patent, col. 1, Ins. 28-29; col. 3, Ins. 18-19; D.I. 435 at Tab B, pp. 68, 78, 209)

The claims, written description, and prosecution history, when read together, clearly show Harris equated unenciphered transmissions with being "clear" and uncoded and equated enciphered transmissions with being encoded. The patent specification explicitly defines "clear" with the term "unenciphered." ('805 patent, col. 3, 18-19) In addition, Harris used the term "encoded" in place of "unenciphered" when describing signaling transmissions during patent prosecution. Harris did this to distinguish the invention from prior art in which signaling transmissions were "encoded." (D.I. 435 at Tab B, pp. 68, 209)

In the '805 patent specification, the term enciphered is equated with being encoded, whether by a unique code assigned to each mobile or by a common code. (See '805 patent, col. 2, Ins. 30-46, 54-58; col. 3, Ins. 20-24) Harris also used the term "coded" in place of the term "enciphered" during patent prosecution. (D.I. 435 at Tab B, pp. 68, 78, 79-80)

Plaintiff argues that the construction of unenciphered and enciphered should reflect the level of security that a transmission provides, such that the difference between the two terms depends on how "readily detected and monitored" a transmission is. (D.I. 433 at 3) Plaintiff claims that enciphered transmissions necessarily include "some significant attribute of security or privacy" and that, to provide significant security, transmissions "cannot easily be detected and monitored by others." (Id. at 21-2)(emphasis added)

The court disagrees. Plaintiff's suggested constructions of the limitations are subjective and do not comport with Harris' own use of the terms in the patent and during patent prosecution. Harris recognized that different types of codes provided differing levels of security, but Harris never suggested that this defined the difference between the terms "unenciphered" or "enciphered." Rather, Harris drew the line between "unenciphered" and "enciphered" as being either insecure or secure, not at some subjective level of security that would vary with the sophistication of potential eavesdroppers.
5. "enciphering/deciphering algorithm"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;enciphering algorithm&quot;</td>
<td>a prescribed set of well-defined rules or processes for the solution of a problem in a finite number of steps</td>
</tr>
<tr>
<td>Claims 10, 26, 45, 51</td>
<td></td>
</tr>
<tr>
<td>&quot;deciphering algorithm&quot;</td>
<td>a prescribed set of well-defined rules or processes for the solution of a problem in a finite number of steps</td>
</tr>
<tr>
<td>Claim 46</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;enciphering algorithm&quot;</td>
<td>a series of steps for encrypting signals</td>
</tr>
<tr>
<td>Claims 10, 26, 45, 51</td>
<td></td>
</tr>
<tr>
<td>&quot;deciphering algorithm&quot;</td>
<td>a series of steps for decrypting signals</td>
</tr>
<tr>
<td>Claim 46</td>
<td></td>
</tr>
</tbody>
</table>

The primary dispute with regard to this term is the meaning of the word "algorithm." At the hearing, Saxon proposed that the construction of this word be based on the dictionary definitions cited by Defendants. See Markman Hr'g Tr. at 106:4-15; Newton's Telecom Dictionary (10th ed. 1996)) (defining algorithm as "[a] prescribed finite set of well defined rules or processes for the solution of a problem in a finite number of steps."); IEEE Standard Dictionary of Electrical and Electronic Terms (1988) (defining algorithm as "[a] prescribed set of well-defined rules or processes for the solution of a problem in a finite number of steps"). Defendants argued that their proposal would be easier for a jury to understand.

3 The only evidence cited by Defendants to support their proposals are the dictionary definitions cited above. The Court finds these definitions to be inconsistent with Defendants' proposals.

The Court finds that the dictionary definition offered by Defendants may be easily understood by a jury. However, the Court's construction need not include the general purpose of an algorithm, e.g., "for the solution of a problem in a finite number of steps," because the claim terms specify specific purposes. Accordingly, the Court construes "enciphering algorithm" as "a prescribed set of well defined rules or processes for encrypting signals." The Court construes "deciphering algorithm" as "a prescribed set of well defined rules or processes for decrypting signals."

D. "an enclosed lamp envelope"

TLI asserts that the term "an enclosed lamp envelope" simply means an enclosure and should be given its ordinary and customary meaning. See TLI's Br. at 13. Sylvania, however, contends that the term envelope should be construed to require that the envelope be either elliptical or spherical in shape. In support of this construction, Sylvania argues that the only
envelope shapes disclosed in the '017 patent are spherical or elliptical, and therefore the patent should be limited to those restrictions. See Sylvania's Br. at 11.

The description of the preferred embodiment or the invention provides that the "lamp envelope … preferably has a substantially elliptical shape." '017 patent, col. 18, lines 57-59. (Emphasis added). The description of the preferred embodiment further states that "[a]s will be apparent to those skilled in the art, regardless of whether the elliptical or spherical shape is used, the geometry of [the] lamp envelope … provides the maximum amount of reflectance back to [the] light-emitting element … and thus provides more heat to [the] element … to, in turn, generate more light." '017 patent col. 19 lines 19-25. (Emphasis added). Notably, the specification simply indicates a preference for an elliptical or spherical shaped lamp envelope, but does not specifically limit the envelope to those two shapes. The specification describes only one or two preferred or potential embodiments of the patented invention. See Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1293 (Fed. Cir. 2000)(indicating that the Federal Circuit Court of Appeals "consistently declines to construe claim terms according to the preferred embodiment.") Unless there is limiting language in the specification suggesting that the patented invention would not work absent a sphere or ellipses, or that the sphere or ellipses is an improvement over the prior art that warranted issuance of the patent, then any "enclosure," with its broadest ordinary meaning supported by the specification, is acceptable. Because the specification and prosecution history of the '017 patent do not exclude or limit the shape of the lamp envelope in any way, I find that the term "an enclosed lamp envelope" means "an enclosure."

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Encoded; encoders; configured to encode; encoding

The Court adopts Ciena's proposed construction and construes the terms respectively as "adding coding bits; component(s) for adding coding bits; configured to add coding bits; having coding bits added."

Nortel argues that the terms should be construed such that "the coding referred to in each of the terms involves appending a bit stream containing coding bits."

Nortel argues that the '176 patent teaches a method for encoding FEC bits in an optical signal that increases the bit rate of the optical signal. Nortel contends that the patent requires that FEC bits are encoded into an overhead bit stream. Nortel claims that the specification supports its construction by offering the sole explanation of how to encode FEC bits through adding them to individual optical channels. See Col. 6:28-32. Nortel argues that Column 6, Lines 47 through 52 of the specification further "explains that the addition of FEC ‘enables’ a channel trace function that also ‘encodes’ channel identification, source, and destination into a ‘small overhead bit stream.’" Nortel contends that the term “appended” more accurately describes the addition of FEC bits to the existing data signal in this context than the term “added.” Ciena argues that the term encoding has a well understood meaning in the art, which is “adding coding bits.”

The specification of the '176 patent indicates that: “Optionally, remodulators 30 include forward error correction (FEC) encoders 45. The addition of forward error correction to a wavelength division multiplexing optical communication system advantageously decreases the bit error rate by adding redundancy, e.g., coding bits, to the individual optical channels which comprise the [wavelength division multiplexing] signal.” Col. 6:26-32. This language from the specification indicates that the “encoding” performed by encoders refers to adding coding bits. Although this example appears in a preferred embodiment, the term “append” or “appending” is not found anywhere in the '176 patent. Furthermore, the term “appending” potentially introduces unnecessary ambiguity to the claim term. The parties do not dispute that the addition of the bits required by the claim is not location specific. However, the word “append” tends to connote location, specifically adding to the posterior portion of that which is being appended. Accordingly, the Court construes the terms respectively as “adding coding bits; components for adding coding bits; configured to add coding bits; having coding bits added.”

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2. encoded information (claim 1)

Plaintiff's construction: "information provided by the encoder of the optical disc drive to be sent to the recording circuit of the optical disc drive"
Defendants' construction: No construction needed

Defendants object to plaintiff's proposed construction because they say it imposes a limitation that encoded information must be in the encoder; once it is transferred to the recording circuit, it becomes something else. Plaintiff says that defendants have misread their proposal; "[w]hat matters is that the information has been encoded for writing to the disc (as contrasted with, e.g., information in a different format as sent from a host computer)." Dkt. # 181, at 28.

I agree with defendants that plaintiff's use of the phrase "to be sent" suggests that the data cannot be "encoded information" once it is sent. Further, plaintiff provides no support for its construction. Accordingly, I conclude that this claim cannot be construed at this time.

Court's construction: No construction needed

GO BACK

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1. "Encrypt"

The 823 Patent elaborates the meaning of "encrypt" in its discussion of the three levels of encryption it provides. 823 Patent at 15:18-20. The first is "pre-transport" encryption of information by publishers before it is placed into the network system. Id. at 15:19-23. The second level is encryption by the network before transmitting data to the "book bank" or other local units. Id. at 15:23-24. The third level is an encryption process that occurs when information is transferred from the book bank or local unit onto a user's storage media. Id. at 15:29-31.

The patent devotes little discussion to the first two levels of encryption. Pre-transport encryption receives no attention. The second level of encryption, which is the initial encryption that the patented system performs, is intended to "make the data ready for being transmitted with less risk of unauthorized use while being transmitted through a communications network." Id. at 5:64-66. The inventors note that "standard available encryption protocols" are available to perform this level of encryption. Id. at 6:1-3. The discussion of these "well-known encryption algorithms" shows that encryption is not merely protecting data from access with a password or authorization code. Id. at 15:59-6:9. Encryption requires enciphering the information.

The patentees often described the third-level encryption process as "dynamic encryption." Dynamic encryption is a process that combines disparate sources of authorization into an encryption format that one can only decipher by reproducing the same combination of sources. The patent describes this concept in several ways:

A "dynamic" encryption process is utilized so that only the electronic reader associated with the user card used to access the information from the Book Bank and download the information to the user storage cartridge can be utilized to display the information in an understandable text format.

Id. at 4:11-16.

Dynamic encryption refers to the process in which the Book Bank works together with the storage media to perform a proprietary encryption of downloaded data.

Id. at 15:18-20.

Specifically, [dynamic encryption ensures that] data storage medium accessible from one reader/computer will not be accessible using another reader/computer unless such access has been prearranged. . . .

Id. at 15:53-58.

The patent provides a single example of how to implement a dynamic encryption system, although it notes that many other methods are available. Id. at 16:10-12. The example provides for numbering the letters of the alphabet from 1 to 26, and
then "shifting" each number a fixed number of spaces based on the last digit of a serial number electronically embedded in the user's storage media. Id. at 16:12-43. The user's password is then converted to a number that dictates intervals at which the code is re-shifted. Id. at 16:43-67. No one could decode the resulting data without both the user's password and the last digit of the electronic serial number from the user's storage media.

The court notes that although the asserted claims of the patent are focused on the final level of encryption, that encryption process need not be the dynamic encryption process described above. Under the doctrine of claim differentiation, the court must construe an independent claim to avoid nullifying claims that depend from it, unless there is compelling evidence for a nullifying construction. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004) ("[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim."). Claim 1 requires a local unit "configured to encrypt" information at time of transfer to a user, whereas Claim 3, which depends from Claim 1, requires that the local unit be "further configured to utilize information stored on the electronic storage media to encrypt," which is the defining feature of the "dynamic encryption" illustrated in the patent. 823 Patent at 15:14-16 ("Dynamic encryption refers to the process in which the Book Bank works together with the storage media to perform a proprietary encryption of the downloaded data."). Thus, if Claim 1 required the dynamic encryption method exemplified in the written description, then Claim 3 would be at least partially redundant. The court concludes that the bare term "encrypt" is not coextensive with "dynamic encryption."

The patent's discussion of encryption reveals that while an encryption process can employ a password, it must ultimately encode information, not merely create a barrier to accessing the information. A process that merely required a password without altering information would not encrypt information. The patent claims do not, however, specify a particular type of "information" to be encoded, see supra Part III.D, and the court finds no basis in the intrinsic evidence for imposing such a limitation. The court therefore construes the term "encrypt" to mean "to encipher or encode by altering information."

**1580**

F. "to encrypt the payload portion of the packet data" and its variants

<table>
<thead>
<tr>
<th>Term</th>
<th>Widevine Construction</th>
<th>Verimatrix Construction</th>
</tr>
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<tbody>
<tr>
<td>to encrypt the payload</td>
<td>Plain and ordinary meaning based on construction of &quot;encrypt&quot; and &quot;payload portion.&quot; Insertion of &quot;only&quot; is extraneous and contrary to the plain language of the claim.</td>
<td>to encrypt only the examined payload portion of the packet data</td>
</tr>
<tr>
<td>portion of the packet data</td>
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<td></td>
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</tbody>
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The parties dispute how much of a packet the invention encrypts. Verimatrix seeks to add "only the examined" to every limitation that recites encryption of the payload portion. Under Widevine's proposal, on the other hand, the encryption bridge is capable of encrypting the entire packet.

The common specification of the '175 and '831 patents criticizes the prior art for encrypting an entire packet and explains the benefits of the invention's ability to encrypt only the payload portion of the packet:

With current encryption solutions that encrypt data less discriminately, the data is unable to be delivered across unmodified firewalls, proxy servers and NATs. For instance, when a user requests data from a streaming server, that data stream is organized into packets that have specific data for identifying the target use. Without accurately parsing the data into payload and non-payload parts, the user specific data is readily damaged or scrambled during the encryption process, making it impossible for the firewall, proxy server or NAT to deliver the data to the requesting user. In contrast, the present invention accurately separates the payload and non-payload parts, encrypting only the payload part.

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'175 patent, 18:65-67. Similar language appears in the abstract, as well: "encrypting only the first portion of the data . . . wherein the second portion of the data is not encrypted." '175 patent, Abstract. As a solution to the problem created by encrypting an entire packet, the invention uses "selective encryption" to leave the non-payload portion of a packet intact. See '175 patent, 5:18-24. Yet another excerpt from the specification unambiguously describes the invention as encrypting only the payload portion of a packet:

[T]he invention provides a software bridge that examines network data passing through, parses the network data and only encrypts the relevant payload part, leaving the non-payload part that may include data such as routing, size and other header data surrounding the payload part entirely untouched.

'T175 patent, 8:18-25.

This is one of those cases where the "specification makes clear that the invention does not include a particular feature." SciMed Life Sys. V. Advanced Cardiovascular Sys., 242 F.3d 1337, 1341 (Fed. Cir. 2001). Here, the invention does not include the feature of encrypting anything more than the payload portion of a packet and permits the Court to interpret the claim term more narrowly than it otherwise would. See Honeywell Int'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1319-20 (Fed. Cir. 2006). The Court construes the phrase "to encrypt the payload portion of the packet," and its variants, to mean "to encrypt only the payload portion of the packet."

2. "encrypting"

The parties dispute the meaning of the term "encrypting" in the phrase "encrypting said television signal in accordance with said pseudo-random signal" of claim 21. IPPV argues that "encrypting" includes any and all forms of encryption, while Echostar argues that "encrypting" is limited to a certain form of encryption and does not include a method of encryption called inversion.

In support of its position, Echostar contends that because "encrypting" is sometimes used interchangeably with the terms scrambling and encoding, the plain meaning of "encrypting" is unclear. Thus, the court must look to the specification to determine the proper meaning. Echostar argues that the specification makes clear that "encryption" does not include encrypted event data

Claim 1 contains the term "encrypted event data." Accolade contends that "encrypted event data" means "information representing an action or occurrence coded to be unintelligible without decoding information, commonly a key or a password." Citrix contends that the term means "the event data that was encrypted by the client program."

The Court construes "encrypted event data" as "event data coded to be unintelligible without decoding information, commonly a key or a password." The parties' main dispute is whether the client program encrypts the encrypted event data. Claim 1 itself states, "said client program encrypting event data and transmitting said encrypted event data over said TCP/IP protocol network." Col. 13:53-55 (emphasis added). Thus, claim 1 expressly requires that the client program encrypts event data. Because it is not necessary to repeat in the claim construction what is already clarified in the claims, the Court accordingly constructs "encrypted event data" without reference to a client performing the encryption. Furthermore, the Court applies Accolade's language "unintelligible without decoding information, commonly a key or a password," which will help the jury to understand what is meant by "encrypted." "Event data" does not require further construction because lay jurors would understand the plain meaning of "event data" as simply information regarding an event. The intrinsic evidence does contradict this plain meaning. Accordingly, the Court construes "encrypted event data" as "event data coded to be unintelligible without decoding information, commonly a key or a password."
More specifically, as noted in the introductory portion of the specification, the present invention is based upon an

the differences between analog and digital types of delays, as might be implied from the rejection. Rather the rejected

Claims 1, 13 and 23 were rejected under 35 U.S.C. § 102 as being anticipated by the Block et al. patent. The rejection

as follows:

other parts. In the March 15, 1984 amendment reference by Echostar, the inventors distinguished their application by stating

"encryption," it cannot be applied to the term as used in the 1980s or before. The court, therefore, will look to the

Sherwood went on to testify, "I think encryption was used to make it sound a little more high tech than it really was. But,

deposition that encryption is a component of scrambling, but "the term ["encryption"] was used rather loosely in the '80s."

IPPV responds by arguing that "encrypting" should be construed in accordance with its plain meaning, which is to encode or

scramble information to prevent unauthorized access. It contends that particular embodiments appearing in the specification

should not be read into the claims, and that the specification does not explicitly provide a definition that is contrary to the

plain meaning of the term "encrypting." According to IPPV, the specification describes a preferred embodiment, which
describes encryption of a television signal by rearranging portions thereof with a cyclic encoder, and an alternative

embodiment, which describes encryption of a program signal by randomly rearranging portions thereof with a non-cyclic
encoder. The specification further states that "any type of encoder that is capable of operating in two or more modes under
control of the . . . signal can be successfully employed."

IPPV also argues that the prosecution history does not limit "encrypting." It contends that the inventors' statements
distinguishing the prior art do not refer to claim 21, but rather to claims 1, 13 and 23. Moreover, IPPV contends that claims
1, 13 and 23 contain terminology that expressly or implicitly limits the process of encrypting to rearranging portions of the
television program signal. Specifically, claim 1 refers to a "plurality of delay elements," claim 13 refers to "an encoding
device for rearranging parts of the video signal" and claim 23 refers to "a plurality of analog delay elements." IPPV argues
that these claims are directed at the "cost savings" aspect of the invention, whereas claim 21 is directed at the security aspect
of the invention, which is not concerned with a specific encryption technique.

The essence of the dispute over "encryption" is whether the term includes inversion, a specific method of encryption. As a
preliminary matter, the court concludes that there was no established plain meaning for the term "encryption" when the '942
patent was issued. In distinguishing encrypting from scrambling, Robert A. Sherwood, an expert for IPPV, testified at his
deposition that encryption is a component of scrambling, but "the term ["encryption"] was used rather loosely in the '80s." Sherwood went on to testify, "I think encryption was used to make it sound a little more high tech than it really was. But, generally, they were used interchangeably in the industry." Thus, even if there is currently an accepted plain meaning for "encryption," it cannot be applied to the term as used in the 1980s or before. The court, therefore, will look to the

specification and prosecution history to construe "encryption."

The prosecution history reveals that "encryption" describes a method by which parts of a signal are rearranged relative to
other parts. In the March 15, 1984 amendment reference by Echostar, the inventors distinguished their application by stating
as follows:

Claims 1, 13 and 23 were rejected under 35 U.S.C. § 102 as being anticipated by the Block et al. patent. The rejection
states that the Block patent teaches the delay of a video signal in analog form and the encryption of an encode signal. It is
respectfully submitted, however, that the distinctions between the rejected claims and the Block patent do not lie merely in
the differences between analog and digital types of delays, as might be implied from the rejection. Rather the rejected
claims are directed to a different type of encoding technique than that which is disclosed in the Block patent.

More specifically, as noted in the introductory portion of the specification, the present invention is based upon an

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improvement to the system disclosed in the Block patent. Both the system of the Block patent and that of the present invention operate in the same general fashion to encode a television program signal, i.e. by rearranging parts of the signal relative to other parts thereof.

(emphasis added). IPPV argues that this entire passage refers to claims 1, 13 and 23, and not to claim 21. The court, however, finds that in the second paragraph, the inventors are referring to the invention as a whole and not specific claims. Thus, the court further finds that the inventors defined "encryption" in the present invention as involving the rearranging of parts of the signal relative to other parts.

The specification also reveals that the method of inversion is not included in "encryption." The specification reads as follows:

Other approaches to television signal scrambling have proven to be more secure . . . . One such approach is to invert lines or fields of video information on some basis that can be reproduced at a subscriber location . . . .

Security tends to be adequate in approaches to video scrambling in which the video information is randomly inverted and a secure code is transmitted with the video so that the decoder can properly reinvert, but difficulties arise with respect to picture quality . . . .

Various measures have been employed to eliminate or at least reduce this problem with varying degrees of success . . . .

It is accordingly a general object of the present invention to provide a novel method and system for scrambling or encoding television signals wherein the difficulties of the prior art systems above are obviated.

From this, the court determines that the inventors intended the invention to be a new method of encryption that obviated the drawbacks of inversion. The court therefore concludes that "encryption" does not include the method of inversion. Thus, the term "encryption" of claim 21 describes a method wherein parts of the signal are rearranged relative to other parts. "Encryption" does not include the method of inversion.

The term "end of access control signal" means a signal generated by the requesting agent and transmitted over the system bus to indicate completion of memory access. It need not occur at the end of the memory access as long as it indicates when the memory access is to be complete.

The term "end of access system bus control signal" means a signal transmitted over the system bus to indicate completion of memory access. It need not occur at the end of the memory access as long as it indicates when the memory access is to be complete.

The parties dispute the meaning of the term, "said end user inquiries being the retrieving and viewing of text and/or graphic data from a database" which appears in Claim 1(e) and Claim 3(f) of the '025 Patent. The claim term reads as follows:

accessing data files by said first end users, said accessing data files by said first end users being a plurality of inquiries from individual first end users, said end user inquiries being the retrieving and viewing of text and/or graphic data from a
Plaintiffs contend that the proper construction of the term is "said end user inquiries being requests for information that are passively monitored." Defendants propose that the proper construction of the term is "said end user inquiries being the opening and viewing data received by an end user in response to one or more requests for data from a database." Both parties' proposed constructions restate the initial claim language, "said end user inquiries being." Accordingly, putting aside this restated initial claim language, the parties' dispute centers on the meaning of the remaining claim phrase, "the retrieving and viewing of text and/or graphic data from a database." As discussed more fully below, the Court finds that the available evidence supports Plaintiffs' proposed construction of the term at issue.

In support of their construction, Plaintiffs initially argue that Defendants' proposed construction is not a construction at all, but is only a slightly revised restatement of the claim language that adds an unnecessary limitation. Specifically, Plaintiffs state that Defendants' proposed construction unnecessarily adds a limitation that the "end user inquiries" must consist of data "received by an end user in response to one or more requests for data." Plaintiffs insist that reading such a limitation into the claim construction is improper.

Next, Plaintiffs rely on the '025 Patent prosecution reexamination history. Specifically, Plaintiffs point to Keithley's March 2005 and April 2005 representations to the PTO, made during reexamination of the '025 Patent. (Herbst Decl. P 7, Ex. 5, Response to Office Action in Ex Parte Reexamination and Request for Continued Examination, submitted March 14, 2005 at P. 28-30; P 8, Ex. 6, Response to Office Action in Ex Parte Reexamination and Request for Continued Examination, submitted April 14, 2005 at P. 30-32.) In Keithley's March 2005 representation to the PTO, in an attempt to differentiate the '025 Patent from other prior art, he explained the difference between "actively" collecting data--as taught by prior art, and "passively" collecting data--as taught by the '025 Patent. (Herbst Decl. P 7, Ex. 5 at P. 28-30.) There, Keithley conceded that claim elements 1(c) and 1(d) include an initial form of collecting data that is similar to the "active" data collection feature found in the prior art because the data is collected by having the end user answer specific questions. (Id.) However, Keithley further explained that claim element 1(e) teaches a second form of collecting data, not found in the prior art. (Id.) In particular, Keithley stated that claim element 1(e) relates only to the system "passively" collecting data by watching the end user, rather than requiring the end user to respond to questions. (Id.) In his March 2005 reexamination representation, Keithley stated, "Claim 1 [ ] claims a second form of collecting data, which is a relatively PASSIVE collection . . . Thus, a second set of data may be collected by PASSIVELY watching the inquiries of the first end user as they 'retrieve and view text and/or graphic data.' . . . It is the collection of data by watching the actions of the end user." (Id. P. 29-30.) Keithley made an nearly identical reexamination representation to the PTO in April 2005. (Id. P 8, Ex. 6 at P. 30-32.)

Conversely, in support of their construction, Defendants similarly point to the '025 Patent prosecution reexamination history. (Pleune Decl. P 25, Ex. X, Response to Office Action in Ex Parte Reexamination and Request for Continued Examination, submitted April 14, 2005 at P. 30-33.) 1 Defendants accord significance to Keithley's distinction between "active" and "passive" data collection by focusing on the term, "inquiries," and argue that Plaintiffs' election to focus on the second form of data collection, at the exclusion of the first form of data collection, is somehow improper. However, Defendants fail to adequately explain how Plaintiffs' data collection distinction supports Defendants' proposed construction over Plaintiffs'.

1 In their joint claims construction statement, the parties generally cite to the same portions of the specification in support of their respective constructions. (Jt. Claims Construction Statement 3-7) (containing parallel citations to: col. 1, ll. 12-45; col. 4, ll. 23-26; col. 7, ll. 17-30; col. 11, ll. 16-20.) As noted above, the parties also generally cite to the same portions of the '025 Patent prosecution history and re-examination history. (Id. 5-12) (containing parallel citations to: '025 Patent Prosecution History: Second Preliminary Amendment, filed 7/20/95, p. 10; Reexam History: Response filed 3/14/05 and Response filed 4/14/05.) However, with the exception of the '025 Patent prosecution reexamination history explained above, neither party provides analysis as to how their citations support their respective construction of the term at issue.
express clarification that the claim term at issue focuses on "watching the actions of the end user" and monitoring "the behavior of the first end user as they surf through the database." (Herbst Decl. Ex. 5, P. 30, 32.) Accordingly, the Court finds Defendants' reliance on the '025 Patent prosecution reexamination history to be unsupportive of their proposed construction.

Lastly, without citing legal authority, Defendants argue against Plaintiffs' proposed construction on grounds that it would require the Court to further interpret the phrase, "passively monitored." However, because "courts construe claim terms in order to assign a fixed, unambiguous, legally operative meaning to the claim," the Court finds Defendants' argument unconvincing. Chimie v. PPG Indus., 402 F.3d 1371, 1377 (Fed. Cir. 2005).

In reviewing the current record, the Court finds Keithley's statements during the '025 Patent prosecution reexamination history to be compelling evidence in support of Plaintiffs' proposed construction. Plaintiffs' proposed construction incorporates the term "passively monitored." To that end, it is undisputed that Keithley consistently explained in March 2005, and again in April 2005, that Claim 1(e) relates only to the system "passively" collecting data by watching the end user, rather than requiring the end user to respond to questions. Because the prosecution history is compelling and because Defendants' arguments to the contrary lack merit, the Court finds that the prosecution history weighs heavily in favor of Plaintiffs' proposed construction.

Additionally, although not specifically addressed by the parties in their claims construction briefs, the Court notes that the other claims in the '025 Patent also tend to support Plaintiffs' proposed construction of the term at issue. As to the other claims, claims 1(c) explicitly refers to obtaining "end user information from a first end user . . . ." (Herbst Decl. P 5, Ex. 3, '025 Patent at col. 14, ll. 46-47) (emphasis added.) Claim 1(d) explicitly refers to the act of the "end user" "providing" "digital electronic end user information. (Id. at col. 14, ll. 49-53) (emphasis added.) Thus, in comparing the volitional nature of the contemplated conduct in the claim terms, it is apparent that Claim 1(c) and Claim 1(d) envision more affirmative conduct than does Claim 1(e). Both Claim 1(c) and Claim 1(d) indicate that information will be taken "from," or "provided" by, the end user. In contrast, Claim 1(e) indicates no such requirement on the part of the end user.

Finally, although the specification does not conclusively resolve the construction of the term at issue, the Court finds that it tends to weigh in favor of Plaintiffs' proposed construction. Although not specifically addressed by the parties in their claims construction briefs, the Court notes that the specification states that "the instant invention provides detailed data on all aspects of viewership and response." (Id. at col. 1, ll. 37-38.) Accordingly, the specification contemplates both the passive act of observing the end user's viewership, along with the more active conduct of eliciting a response. This reasoning in consistent with Plaintiffs' repeated explanation between the passive conduct associated with Claim 1(e), and the more active conduct associated with Claim 1(c) and Claim 1(d).

Taking into account the claims, the specification, and the relevant patent prosecution history, the Court construes "said end user inquiries being the retrieving and viewing of test and/or graphic data from a database" as "said end user inquiries being requests for information that are passively monitored."

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(2) endpoint, hub, physical layer device

N-Data seeks to give these terms their plain and ordinary meaning. Dell seeks to limit "endpoint" and "hub" to a "network" and "physical device," and it seeks to limit "physical layer device" to a "physical medium." The term "endpoint" appears in only the '216 patent and patent application titled "Network Link Endpoint Capability Detection," incorporated into the patent by reference. '216 Patent, col. 9, ll. 7-10; '261 Patent, col. 13, ll. 17-20. For the reasons discussed above, the court adopts "network" as a part of the definition. The intrinsic record, however, does not support Dell's limitation of the terms to require "physical."

As such, the court defines "endpoint" as a "device at the termination of a network link."

"Hub" is defined to mean "circuitry that connects multiple nodes over data links."

A "physical layer device" is defined as "a device for transmitting or receiving data over a medium."
In construing patent claims, a court should give the terms their plain, ordinary, and accustomed meaning to one of ordinary skill in the relevant art. Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). A term's ordinary meaning, however, must be considered in the context of all intrinsic evidence, namely the claims, the specification, and the prosecution history. See id. at 1342-43; Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The specification is "the single best guide to the meaning of a disputed term." Vitronics Corp., 90 F.3d at 1582.

Claim 1 recites:

1. A treatment apparatus, comprising: an energy delivery device including at least a light energy member an RF energy member, and at least one energy delivery surface, the at least one energy delivery surface configured to deliver energy from the light energy member and the RF energy member to and through a skin surface and create a tissue effect at the skin surface or at a site below the skin surface; and a cooling member coupled to the energy delivery device.

Col. 23, 11. 1-10.

The claim requires that both light and RF energy must be delivered through the same energy delivery surface. However, the patent does not define the term "energy delivery surface." At oral argument, plaintiff defined "energy delivery surface" as the outer surface of the energy delivery device through which energy is delivered toward the patient. Relying on the American Heritage definition of surface, defendants define an energy delivery surface as the "layer forming the outer boundary of an object that is designed to deliver both RF and light energy through a single surface to and through the skin." The differences between the definitions are apparent when applied to the Polaris WR system.

The Polaris WR system consists of a console, hand piece (or applicator), and software. The applicator includes a light energy source (diode laser) and an RF energy source (pair of electrodes). See Kreindel Decl. P 12. The two RF electrodes are located at the distal end of the applicator and are spaced apart to deliver RF energy at a depth of 2.5 mm. See id. Between the RF electrodes is a sapphire crystal light guide which delivers laser energy. Id. The tips of the two electrodes extend slightly beyond the end of the light guide. Id., fig. 1; Grundfest Decl. P 45.

Plaintiff argues that the tips of the RF electrodes and light guide jointly form one energy delivery surface. Reitman Decl. PP 23-24. In the words of plaintiff's expert, "the energy delivery surface (c) is arranged with the light energy member (a) positioned between the RF electrodes (b)." Id. The RF electrodes create an electrical current through which light energy passes.

In contrast, defendants argue that the RF electrodes and light guide each have their own energy delivery surfaces. Thus, the Polaris WR system is comprised of three distinct energy delivery surfaces: the end of the light guide and the tips of each of the RF electrodes. Grundfest Decl. PP 44-46. In other words, the applicator end is made up of three different objects, each with their own energy delivery surface. Under defendants' narrower construction, the Polaris WR system does not infringe plaintiff's patent because each energy delivery surface transmits only type of energy: the RF electrodes transmit RF energy and the light guide transmits light energy. See Kreindel Decl. P 12.

The patent specification supports plaintiff's construction. For example, the specification directly contradicts defendants' position that the RF electrodes each form their own energy delivery surface. The specification states, "energy delivery devices suited to this purpose include one or more RF electrodes. Accordingly, energy delivery device 18 can include a plurality of electrodes with or without insulation. The non-insulated sections of the RF electrodes collectively form template energy delivery surface 20." Col. 15, 11. 14-19 (emphasis added). Further, the specification states that "one or more energy delivery devices 18 can form an energy delivery surface 20 in template 12." Col. 6, ll. 64-65.

Additionally, dependent claims support plaintiff's interpretation. For example, dependent claims 8-10 describe an apparatus in which the energy delivery surface is divided into multiple sections. Col. 23, 11. 29-36. The surface of an RF energy
member (electrode) and the surface of a light energy member comprise sections 1 and 2, respectively of the energy delivery surface. Id. The dependent claims lend further support that an "energy delivery surface" can be composed of both RF electrodes and a light guide. Claim 1 must be broad enough to encompass these dependent claims.

The Court accepts plaintiff's definition of energy delivery surface as the outer surface of the energy delivery device through which energy is delivered toward the patient. Defendants' Polaris WR system literally infringes this element of claim 1 because both light energy (from the light guide) and RF energy (from the electrodes) pass through the outer surface or boundary of the energy delivery device (tip of the Polaris WR applicator).

1587

1. "Energy Signal."

Consistent with the intrinsic evidence of the '508 patent, "energy signal" means "a signal representative of the electrical energy determination made by the first processor, such as watthour delivered/received, volt amp reactive hour delivered/received, or volt amp hour delivered/received."

1588
d. "Energy source"

Where the term "energy source" appears in a claim in the shock delivery patents, the patent invariably describes it as connected to the defibrillator electrodes and/or discharged across the electrodes. Thus, whatever the energy source is, it must be a source that is capable of delivering a therapeutic shock to a patient. The court therefore construes "energy source" to mean "a source of energy that is capable of delivering a therapeutic shock to a patient." The parties' main dispute seems to be whether a battery is such an energy source. The patent indicates that a battery can be part of such an energy source. E.g., 454 Patent Claim 23 ("the energy source comprises a battery"). However, if a battery is incapable of delivering a therapeutic shock, it is also incapable of serving as an "energy source" on its own. At oral argument, Defibtech claimed (without evidence) that a battery is incapable of delivering enough shock in a short enough period of time to have therapeutic use, and that only a capacitor or set of capacitors could accomplish the task. The court need not resolve this issue. The claimed "energy source" is one capable of delivering a therapeutic shock. Determining which sources of energy meet this requirement is a question for another day.

1589

2. "enhanced drift region"

Claim 1 of the '046 Patent claims, in pertinent part:

a first region formed completely within said semiconductor material of said first conductivity type, said first region being self-aligned with said conductive gate when forming said first region, and said first region being of first conductivity type and having a second dopant concentration to form an enhanced drift region of said DMOS transistor, wherein said second dopant concentration is greater than said first dopant concentration;

wherein said first region acts to reduce an ON-resistance of said DMOS transistor as compared to said DMOS transistor lacking said first region.

(See '046 Patent at 7:26-58.) Micrel contends that "enhanced drift region" is a label for the region defined by the claim limitations and therefore needs no further construction. MPS proposes that this term be construed as: "region, distinct from the second region, which is more highly doped than the drift region formed by the semiconductor material and substantially reduces on-resistance (e.g. 20-30%)."
The crux of the dispute between the parties is whether the '046 Patent requires the enhanced drift region to reduce the on-resistance by a certain degree, e.g. "significantly" or "substantially," or whether it merely requires some reduction. The claim language at issue does specify that the enhanced drift region "significantly reduce" or "substantially reduce" the on-resistance, but rather, merely provides that it "reduce" the on-resistance. (See '046 Patent at 7:56-58.) Although a court may limit the claim language if the specification clearly sets forth a definition of the disputed term, see CCS Fitness, 288 F.3d at 1366, the specification here does not do so. In most places where the function or purpose of the "enhanced drift region" is discussed, the specification of the '046 Patent teaches that it "significantly" or "substantially" reduces on-resistance. (See '046 Patent at Abstract, 1:64-65, 3:22-24, 5:24-25.) However, in discussing the implantation of phosphorus ions to create the enhanced drift region, the specification also teaches that the dosage may be as low as 5E11 "for advantageous results to occur." (See id. at 3:29-30.) Thus, the Court concludes that the specification does not provide sufficient support to read a limitation into the claim language to require that the enhanced drift region reduce on-resistance to a significant or substantial degree.

In addition to construing "enhanced drift region" to reduce on-resistance substantially, MPS argues that this term should be construed as a "region, distinct from the second region, which is more highly doped than the drift region formed by the semiconductor material." Micrel does not dispute that the enhanced drift region is distinct from the second region and that the second region is more highly doped than the enhanced drift region. Rather, Micrel argues that construing the enhanced drift region in this manner would be redundant because the claim language already make clear that the second region is distinct from and more highly doped than the enhanced drift region (the first region). (See '046 Patent at 7:26-37.) The Court agrees. Therefore, the Court will not define "enhanced drift region" beyond how it is already described in Claim 1.

1590

F. "entering a clerk authorization code for initiating a debit purchase transaction"

CAT construes the term "entering a clerk authorization code for initiating a debit purchase transaction" to mean "the clerk enters a series of numbers and/or letters, or a combination thereof, which permits the initiation of a debit purchase transaction." (D.I. 44 at 24) SVS agrees that the code "permits the initiation of a debit purchase transaction" but construes the phrase "entering a clerk authorization code" to mean "the clerk enters via the keypad a code." (D.I. 47 at 27) Notably, CAT does not dispute that the clerk must enter the authorization code, and SVS does not dispute the format of the code. See, e.g., D.I. 60 at 156 (CAT's attorney: "I think . . . logic would tell me that the clerk has to enter the codes."). Thus, the only disputed issue is whether the clerk must enter the code "via the keypad." I agree with CAT that the clerk does not have to enter the clerk authorization code via the keypad.

SVS repeats the same arguments for the "via a keypad" limitation that I already rejected in connection with the "entering a customer authorization code" term above. (D.I. 43 at 17-18) SVS also contends that the preferred embodiment relating to cell phone activation -- which describes the clerk "entering an authorization 206 code on the remote keypad" -- mandates adoption of its proposed construction. (D.I. 43 at 18) However, as already explained, claim terms are not necessarily limited to a single preferred embodiment. (D.I. 47 at 27) Also, in the prosecution history, the "clerk authorization code" element never contained the "keypad" limitation, nor were the applicants obliged to insert it into the amended claims.

Therefore, I recommend that the Court construe the term "entering a clerk authorization code for initiating a debit purchase transaction" to mean "the clerk enters a series of numbers and/or letters, or a combination thereof, which permits the initiation of a debit purchase transaction."

1591

5. "entering said secret code into the multi-function card to activate the same.

Step 4 of Claim 1 provides for "entering said secret code into the multi-function card to activate the same." 311 patent, col. 10, Ins. 65-66. Plaintiff argues that this term should be construed as
a step of the method recited in claim 1 that means manipulating the multi-function card in some manner to put the secret code assigned in the previous step into the multi-function card in order to activate it. The activation of the multi-function card enables access to the data set of a particular single purpose card, document, key or the like in order to convert the multi-function card in form and function to that particular single purpose card, document, key or the like.

Joint Stmt. at App. A, p. 5. Defendants argue that the Court should construe this term as "entering a code before the electronic multi-function card is turned on, and thus before the electronic multi-function card displays any information." Id. Thus, the primary dispute arises out of what "activated" means and at what point the user enters the secret code.

The terms "to activate", "activated" or "activation" are used throughout the patent, but they are not specifically defined. The first mention states that the multi-function card will be "capable of differentiating between an activated and a non-activated, i.e. neutral, state." 311 patent, col. 2, lns. 12-14. "Neutral" is also a term which is not defined in the patent.

The term "activated" is also used to show that the card is activated when the card holder has entered a secret code. Id., col. 2, lns. 46-48. Perhaps the most specific definition of "activated" provided in the patent is the following:

when not activated, [the card] is a neutral electronic card and, when activated in a particular way, [it] will display the logo of the issuing institute, the holder's photo, his signature and other relevant data in a visible matter. . . . In the non-activated state, which is illustrated in Fig. 1a [sic, 1b] 1, such a card may be regarded as a blank page . . . .

311 patent, col. 4, lns. 39-40. The patent also provides that the user "has to activate the electronic multi-function card . . . by entering his secret code and to decide thereafter which of the available individual cards is to be used." 311 patent, col. 7, lns. 10-13.

Moreover, the patent provides that the "first activation process" is during the initial loading of the multi-function card when the signature and photo become visible for the first time. Id., col. 8, lns. 17-22. Because the patent links the term "activation" to being able to see the signature and photo, and loading single cards onto the multi-function card, "activation," as the term is used in reference to the secret code, requires the state of being able to see, and therefore "access" these things. Simply put, data sets can not be accessed until the user enters in the secret code.

Defendants contend that the user enters the secret code before the multi-function card is turned on. In contrast, plaintiff argues that the secret code is entered to access the data, but the code is not entered before the user turns on the card's power. The patent does not speak to the issue of when the card's power is turned on and off. Instead, it simply provides that the card is not "activated" until the secret code is entered.

Thus, the Court adopts the following definition of "Entering said secret code into the multi-function card to activate the same": "The user activates the electronic multi-function-card by entering the secret code. 'Activated' means the point at which the user has entered in the secret code so that she is able to access a data set."

Defendants contend that the user enters the secret code before the multi-function card is turned on. In contrast, plaintiff argues that the secret code is entered to access the data, but the code is not entered before the user turns on the card's power. The patent does not speak to the issue of when the card's power is turned on and off. Instead, it simply provides that the card is not "activated" until the secret code is entered.

Thus, the Court adopts the following definition of "Entering said secret code into the multi-function card to activate the same": "The user activates the electronic multi-function-card by entering the secret code. 'Activated' means the point at which the user has entered in the secret code so that she is able to access a data set."

Plaintiff contends that this phrase means "causing the information concerning the FCC unit to go into or be received into a programmed computer in order to settle or decide by a choice of alternatives. . . ." 55 Defendants contend that it means "the
act of inputting the data obtained previously in Step I into a computer that contains a sequence of coded instructions for the purpose of fixing, by way of calculating, the recited parameters of the injection schedule." 56 The Court will examine several words and phrases in turn.

--- Footnotes ---

55 (Pl.'s Claim Construction Br. at 30.)
56 (Defs.' Opening Claim Construction Br. at 25.)

--- End Footnotes ---

A. "entering"

Plaintiff defines "enter" as "to cause to go into or be received into something" as in "<. .a boy at a school>." 57 Defendants define "enter" as "put in: insert" as in "<. .the new data into the computer>" and ultimately propose "inputting." 58 "Input" is defined by Webster's Third New International Dictionary (1986) as, among other things, "data or similar information fed into a computer or accounting machine." Id. at 1167. It is clear from the claim's context that Defendants' definition is most consistent with the patentee's use of the word and the intrinsic record. See Ferguson, 350 F.3d at 1338 ("The words used in the claims must be considered in context. . . ."). The claim speaks of "entering the data . . . into a programmed computer." '236 patent, col. 15, ll. 62-63. And the specification teaches that "by inserting [certain] known values into the following equations [as provided], an individual or computer program can determine an initial or primary schedule for the introduction of catalyst X." '236 patent, col. 10, ll. 20-23 (emphasis added). Given this context, the Court finds that "entering" means "inputting."

--- Footnotes ---

57 (Pl.'s Claim Construction Br. at 30, Ex. E at I-31104 (Webster's Third New International Dictionary (1993))).
58 (Defs.' Opening Claim Construction Br. at 24, Ex. 5 at WRG-51174 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

--- End Footnotes ---

B. "data"

The Court has previously found that "data" requires no construction. See supra Analysis Part I.B. Because this word is used consistently throughout the claim, no construction is needed here. See Phonometrics, Inc., 133 F.3d at 1465.

C. "concerning the FCC unit"

The Court has previously found that "concerning" carries its ordinary meaning of "relating to." See supra Analysis Part I.E. Because this word is used consistently throughout the claim, the Court gives it the same construction here. See Phonometrics, Inc., 133 F.3d at 1465.

D. "programmed computer"

The parties have agreed that "computer" means "a programmable electronic device that can store, retrieve, and process data." 59 The Court has no quarrel with this definition, but finds it unnecessarily cumbersome and will provide no construction here.

--- Footnotes ---

59 (Joint Claim Construction Br. at 1.)

--- End Footnotes ---

E. "in order to"
The Court has previously construed "in order to" to mean "for the purpose of." See supra Analysis Part I.C. Because this phrase is used consistently throughout the claim, the Court gives it the same construction here. See Phonometrics, Inc., 133 F.3d at 1465.

F. "determine"

Plaintiff defines "determine" as, among other things, "to settle or decide by choice of alternatives or possibilities" and "to fix the form or character of beforehand." 60 Defendants define "determine" as "to fix the form, position, or character of beforehand: ordain" and "to find out or come to a decision about by . . . calculation." 61 They ultimately propose that "determine" be construed as "fixing, by way of calculating, the recited parameters of the injection schedule." 62

Because "determine" has multiple dictionary definitions, "some having no relation to the claimed invention, the intrinsic record must . . . be consulted to identify which of the different possible dictionary meanings . . . is most consistent with the use of the words by the inventor." Texas Digital, 308 F.3d at 1203 (citations omitted). "[A] common meaning, such as one expressed in a relevant dictionary, that flies in the face of the patent disclosure is undeserving of fealty." Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998). Consulting the intrinsic record, it is clear that Plaintiff's first proposed definition--"to settle or decide by choice of alternatives or possibilities"--is inadequate. It is too broad and it fails to consider the involvement of a computer. See Ferguson, 350 F.3d at 1338 ("The words used in the claims must be considered in context. . ."). Considering that the stipulated definition of "computer" is "a programmable electronic device that can store, retrieve, and process data," 63 expanding the definition to encompass "settle[ing] or deciding" would be inappropriate. In contrast, Plaintiff's second proposed definition, which is nearly identical to Defendants' first proposed definition--"to fix the form or character of beforehand"--is more consistent with the patentee's intended use. Thus, the Court concludes that "determine" means "to fix."

The parties also disagree over whether the "determination" requires a computer calculation. Defendants argue that a computer calculation is required. 64 Plaintiff is not so categorical. It argues that the "determination can come by way of a "computer calculation of raw data" or by way of a "computer implementation of [an individual's] mental assessment" of the data. 65

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60 (Pl.'s Claim Construction Br. at 30-32, Ex. E at I-31091 (Webster's Third New International Dictionary (1993))).

61 (Defs.' Opening Claim Construction Br. at 24, Ex. 5 at WRG-51178 (Merriam Webster's Collegiate Dictionary (10th ed. 1995))).

62 (Id. at 25.)

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

63 (Joint Claim Construction Br. at 1.)

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

64 (See Defs.' Opening Claim Construction Br. at 24; Defs.' Reply Br. at 5.)

65 (Pl.'s Markman Presentation at 10 (emphasis in original); Pl.'s Claim Construction Br. at 30-32; Markman Hr'g Tr. at 11-12.)

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -
The Court agrees with Plaintiff's view. The claim states that data concerning the FCC unit is inputted into a computer "in order to determine" an injection schedule composed of "a basic cycle time," "a first period of the basic cycle time," "a second period of the basic cycle time," and "an addition amount of the catalyst." '236 patent, col. 15, ll. 64, 66, col. 16, ll. 1, 3. The claim does not state, however, that a computer calculation or a computer implementation of an individual's mental assessment is necessary to achieve this result. But the specification teaches that either may be performed. For instance, the specification states that the "basic cycle time is used to establish (by engineering calculations and/or computer programs) a regular schedule of introduction for a particular catalyst ingredient in a FCC unit being used for a given FCC task." '236 patent, col. 8, l. 65-col. 9, l. 1 (emphasis added). It also states that "by inserting the[ ] known values into . . . equations, an individual or computer program can determine an initial or primary schedule for the introduction of catalyst X." Id., col. 10, ll. 20-24 (emphasis added). In both instances, the specification contemplates that a computer or an individual will perform certain calculations to determine the injection cycle. Thus, a "determination" may be carried out by way of a computer calculation of the data or a computer implementation of an individual's calculation of the data.

G. Summary

Accordingly, the Court concludes that the phrase "entering the data concerning the FCC unit into a programmed computer in order to determine . . ." means "inputting the data relating to the FCC unit into a programmed computer for the purpose of fixing, by way of a computer calculation of the data or a computer implementation of an individual's calculation of the data . . .".

3. "entering the recording device to said conference call as an additional participant"

NICE's Construction | Witness's Construction
--- | ---
Plain meaning. | Joining the recording device to the conference call as an additional participant after the conference call has been established between the first and second participants.

The parties dispute the meaning of "entering the recording device to said conference call as an additional participant," as used in claim 1. NICE contends that, following the Court's construction of "recording device" and "conference call," the disputed term has plain meaning that does not require construction. Witness's timing limitation, NICE contends, has no basis in the claim language or specification. Witness contends that the text and structure of the claims require the recording device to be entered after the conference call has already been established between the original participants, citing claim 1 ("entering the recording device to said conference call as an additional participant." (emphasis added)). NICE responds that claim 2, which is dependent on claim 1, makes clear that the recording device is entered at the same time as the data session is initiated:

"[T]he method of claim 1, wherein the step of selectively entering the recording device to said conference call includes the step of directing the recording device to enter said conference call as the additional participant when a data session has been initiated.

(col. 7:27-31 (emphasis added).)

The Court concludes that "entering the recording device to said conference call as an additional participant" does not require construction. Though claim 1 might be read to reveal a sequential ordering of activities by the method, with the recording device entered last, claim 2 clearly shows that this sequential ordering is not required.
8. "Enterprise monitor": an A network monitor that receives and analyzes data from domain monitors.

n8 '203, '212 and '615 patents, multiple claims.

12. "Enters"

Defendants argue that "enters" means "inputting the DTMF digits of the called party number by the subscriber using the keypad of the telephone handset," while Cygnus argues that "enters" means "dials" or "calls." "Enters" appears in claims 1, 6, and 11 of the '027 patent as part of the phrase "the subscriber enters the [telephone] number of the called party." "Enters" appears in the specification once, in the description of the preferred embodiment: "When the subscriber enters a called party number, CRU 20 seizes a second outbound circuit 25. DTMF Generator 26 recognizes the called party number DTMF digits entered by the subscriber and outpulses those digits over the second seized circuit." '027 patent, col. 7, 11. 50-54. While in the preferred embodiment, the "called party number" is clearly sent by the subscriber as "DTMF digits," the claim is not so restricted.

"Enters" means "dials."

d. "an entire ring oscillator variable speed system clock in said integrated circuit"

The plaintiffs argue that this term means "a ring oscillator that generates the signal(s) used for timing the operation of the CPU, capable of operating at speeds that can change, where the ring oscillator is located entirely on the same semiconductor substrate as the CPU." The defendants' proposed construction is "a [ring oscillator variable speed system clock] that is completely on-chip and does not rely on a control signal or an external crystal/clock generator." The dispute is whether the ring oscillator may rely on a control signal or an external crystal/clock generator.

In support of their construction, the defendants argue that the applicant disclaimed use of a control signal and an external crystal/clock generator in order to distinguish over prior art. The plaintiffs contend that it did not disclaim all types of control signals, such as voltage and current controlled oscillators; there was only a disclaimer of the more narrow "command input." In addition, the plaintiffs argue that, although an external crystal is not directly used to generate a system clock signal, the external crystal can be used as a reference signal to account for delay across certain circuit elements.

The Court agrees with the defendants that the applicant disclaimed the use of an input control signal and an external crystal/clock generator to generate a clock signal. See Response to Office Action, April 11, 1996, at 8; Response to Office Action, January 13, 1997, at 4; Response to Office Action, July 7, 1997, at 3-4. Accordingly, the Court construes the term to mean "a ring oscillator variable speed system clock that is located entirely on the same semiconductor substrate as the CPU and does not directly rely on a command input control signal or an external crystal/clock generator to generate a clock signal."
N. "entries"

Claim 1 contains the term "entries": "a database with entries correlating each of a plurality of user IDs with an individualized rule set." The specification states that "[t]he present invention allows for creating and implementing dynamically changing rules, to allow the redirection, blocking, or allowing, of specific data traffic for specific users, as a function of database entries and the user's activity." Linksmart states that no construction is necessary, or alternatively, proposes "records in a database." BWI asserts the following construction: "records in a database, each record including a user ID and a unique rule set individualized for the user ID."

According to BWI, the rule set must be unique and individualized for each user ID. But claim 7, which depends from claim 1, explains that the entries correlate a plurality of users' IDs with a common individualized rule set. As such, the term "entries" does not require the entries to correlate a unique rule set to each user ID. BWI also asserts that each record must include a user ID and a rule set. BWI relies on a portion of the specification that illustrates a record containing a user ID and rule set. (‘118 patent, 6:11-22). This portion of the specification describes an embodiment, however. The claim language states that the entries correlate, not include, the user IDs and rule sets. Nothing in the patent excludes a database with user IDs and rule sets stored in separate tables. Finally, the remainder of BWI's construction merely restates what is required in the claim language--the correlation of user IDs with rule sets. As such, the court construes "entries" to mean "records in a database."

2 At the May 25, 2010 claim construction hearing, counsel for BWI appeared to argue that the court should not consider claim 7 when construing "entries" because "claim 7 hasn't been asserted in this lawsuit." A person of ordinary skill reading the '118 patent would discern, however, that claim 7 is intrinsic evidence regardless of whether Linksmart would later decline to assert that claim. See also Phillips, 415 F.3d at 1315 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.").

2. The '562 patent

As for the phrases "an entry initiate key" and "entry initiate signal," the district court acknowledged that an indefinite article normally means "one or more" in open-ended claims, but found sufficient evidence in the specification of the '562 patent and the prosecution history to limit "an" to the singular. We agree that "a" or "an" normally carries the meaning of "one or more" in claims containing the transitional phrase "comprising." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). Here, however, the patentee clearly intended the use of only one entry initiate key.

Looking first to the language of Claim 9 itself, the phrase "user activation of an entry initiate key" is immediately followed by a reference to "said entry initiate key," which reinforces the singular meaning. See Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023-24 (Fed. Cir. 1997). Likewise, Claim 1 refers to a "keyboard means having a plurality of keys for providing respective keyboard output signals upon user activation of respective one of said keys . . . said keyboard output signals further comprising an entry initiate signal." The patent thus contemplates pressing only one key at a time to provide keyboard output signals, including the entry initiate signal. Significantly, during prosecution, the claim language was amended from "ones of said keys" to "one of said keys," a disclaimer of the plural.

The specification further confirms that the patented invention only uses one entry initiate key. In describing how a particular embodiment could incorporate the inventions described by the '359 patent as well as the '562 patent, the specification states that pressing more than one key simultaneously would initiate a routine "which is irrelevant to an understanding of the
present invention," i.e., the "learn" or "scan" method which is described in the '359 patent. ’562 Patent, col. 5, ll. 7-21.

In any case, if the number of keys pressed exceeds one, the routine is not part of the present invention and will not be described in detail herein.

If the number of keys pressed is equal to one, the microprocessor first tests whether this is the record key. If the user has pressed the record key (herein also referred to as the enter initiate key), he has taken the initial step for implementing the present invention, i.e., for entering the necessary data for identifying a particular manufacturer and model number directly on the keyboard.

Id. at col. 5, ll. 21-31 (emphasis added). We thus agree with the district court that "an entry initiate key" means "one entry initiate key" and "entry initiate signal" means "the keyboard output signal generated by the entry initiate key."

Because it is undisputed that the accused device required a user to press two keys simultaneously to initiate the code entry programming sequence, a routine that was expressly disclaimed by the '562 patent, we must affirm the summary judgment of non-infringement.

D. "Alert Envelope"

Honeywell appeals the district court's claim construction of the term "alert envelope." Claim 1 of the '080 patent calls for a "first alert envelope" and a "second alert envelope." According to the claim, these indicate a first and second terrain threat. The district court construed "first alert envelope" as a "term of art in avionics and means an at least 2-dimensional region in the vertical plane surrounded by a continuous boundary." Claim Construction Decision, 264 F. Supp. 2d at 148. For the term "second alert envelope," the district court required "two distinct alert zones, the boundaries of which are independently determined by distinct first and second functions of the same variables; specifically flight path angle, look ahead distance, and terrain floor boundary." Id. The district court construed the terms according to its reading of "the language set forth in the claim." Id.

Claim 1 of the '080 patent describes the "first alert envelope" as a determination of the "first function of the flight path angle, said look ahead distance and said terrain floor boundary." Claim 1 of the '080 patent describes the "second alert envelope" as "indicative of a second severity of terrain threat, wherein boundaries of said second alert envelope are determined as a second function of the flight path angle, said look ahead distance and said terrain floor boundary" and "outputting an alert signal when a subset of the stored terrain information is located within the boundaries of at least one of said first and second alert envelopes."

Once again, the claim itself provides considerable information about its meaning. In part, the district court correctly defined the "alert envelope" as a two dimensional region of space with some detail about the way to determine the boundaries of each envelope. The district court, however, incorrectly added the limitations not found in the specific language of the claim. Specifically, the trial court read in requirements that the alert envelope appear "in the vertical plane" and "surrounded by a continuous boundary." The claim itself explains that "alert envelope" encompasses "an at least two dimensional region whose boundaries are determined as a function of the flight path angle, look ahead distance and terrain floor boundary." In sum, one of skill in this art would agree that the claim defines this term adequately without additional limitations.
encompasses a system that uses distance as an operative warning parameter; that is, the court's construction allowed claim 1 of the '436 patent to cover a system that uses the distance of an airplane from an airport not just as a trigger to enable the warning system, but as one of the operative warning parameters in the warning system itself. Universal characterizes the warning system of its accused device as being "always on" and therefore not being "enabled" based on the distance of the airplane from an airport. Universal contends that its system does not fall within the scope of claim 1, as properly construed, because the claim should have been construed to encompass only the use of "an enclosed boundary for activating or turning on a warning system as a function of distance of the aircraft with respect to the airport and wherein the warning system does not itself use that distance as an operative warning parameter."

The language of claim 1 is broad enough to cover any system that creates an area within a particular distance from an airport in which a ground proximity warning system will operate to give a warning when another parameter is triggered, such as the aircraft's height above the ground. Moreover, nothing in the specification requires that the term "enabling envelope" be given a narrower construction. Universal notes that the specification describes a system that uses some indicator other than flap position to enable a warning system and that distance was not used as a parameter in the prior art warning systems described in the specification. While that is true, the specification is not at odds with the court's construction of the term "enabling envelope," which referred to "activating or turning on" a set of limitations for safe operation of the aircraft.

Relying on a passage from the prosecution history, Universal contends that during prosecution the applicants disclaimed a ground proximity warning system that uses airport distance in determining whether to issue a ground proximity warning, as the warning system of the accused device does. The purported disclaimer came in the course of one of the applicants' responses to the examiner's rejection of several claims as obvious in light of an article by Jeffrey Parnau about aircraft systems that warn pilots that they are about to enter restricted airspace. The Parnau reference disclosed a system that would give a warning based on an aircraft's distance from a specific point. The examiner found it obvious from that reference to make that point the center of an airport runway and to use the aircraft's distance from that point to determine when the airplane is on final approach to the runway.

In response, the applicants distinguished their final-approach detection system from the Parnau warning system as follows:

While the applicants agree with the Examiner's characterization of the Parnau reference, it is equally clear that the warning system referred to in the Parnau reference relies on distance as an operative warning parameter. . . However, such a warning is based solely on the distance of the aircraft from the restricted airspace. In contradistinction, the warning system recited in the claims at issue recites a 'warning of a hazardous flight condition' enabled 'as a function of the distance between the aircraft and a reference point.' Thus, it should be clear that contrary to the teachings of Parnau, the warning system recited in the claims at issue does not utilize distance as an operative warning parameter, but merely to enable the warning system.

Focusing on the applicants' use of the indefinite article "an" in referring to the term "operative warning parameter," Universal argues that the applicants disclaimed any system in which distance was used as one factor in determining whether to issue a warning.

Honeywell argues that the passage in question distinguishes Parnau on the ground that it issues a warning based "solely on the distance of the aircraft from the restricted airspace." Thus, according to Honeywell, the warning in Parnau is triggered solely by distance, whereas in the applicants' claims, distance both enables the warning system and may be used, in conjunction with some additional factor or factors such as aircraft altitude, to trigger a warning.

The passage in question can be read either way. The reference to Parnau's warning as based "solely on . . . distance" supports Honeywell's interpretation of the passage, while the reference to the application claims as "not utiliz[ing] distance as an operative warning parameter" supports Universal's interpretation. In context, however, it is plausible to read the phrase "an operative warning parameter" as referring to the sole parameter that triggers a warning, particularly in light of the fact that in Parnau itself distance is the sole operative warning parameter. The quoted passage can thus be understood to distinguish Parnau as a system in which distance is used not to enable the system, but to trigger a warning; read that way, the passage would not exclude a system in which distance is used to enable and also as a parameter in determining whether a warning should issue. Because the passage is ambiguous, we conclude that it does not constitute a sufficiently clear and deliberate statement to meet the high standard for finding a disclaimer of claim scope. See, e.g., N. Am. Container, Inc. v. N. Am. Container, Inc. v.
Plastipak Packaging, Inc., 415 F.3d 1335, 1345--46 (Fed. Cir. 2005). We therefore reject Universal's argument that the trial court's construction of the claim term "enabling envelope" was impermissibly broad. 1

1 Universal also argues that the claim term "envelope" should be construed to have its plain meaning of "a boundary that encloses." Although the district court defined "enabling envelope" for the jury as "activating or turning on a set of limitations within which an aircraft can perform safely and effectively," that construction more accurately defines the claim term "enabling the warning system." It is not clear that Universal preserved an objection to that aspect of the jury instruction, but in any event because nothing turns on the precise definition of "enabling envelope," that minor semantic issue is not a basis for overturning the verdict.

Datapoint next contends that it was error for the Master to construe the claim term "equal peers" in claim 31 of the 732 patent to mean that nodes must have direct access to all other nodes in the network so that all data frames transmitted by each node are "heard" by all other nodes. It contends that this claim construction is incorrect because it (1) excludes the preferred embodiment, insofar as the basic nodes in Figure 1 above, cannot "hear" the communication between the enhanced nodes, and (2) improperly limits the invention to the preferred embodiment, insofar as it requires direct access to all other nodes in the network through a single logical point. Alternatively, Datapoint asserts that it was error for the Master to define "equal peers" when that term already had been defined in the patent specification.

The phrase "equal peers," appearing first in the 732 patent specification as a part of the amendment referred to above, explains the method by which the various nodes communicate:

Each node of a bus-type LAN may directly address and communicate with all of the other nodes as equal peers through the single logical point . . . The nodes are equal peers because none of them have a higher hierarchical status than the others for purposes of communicating in accordance with the predetermined logical connectivity pattern over the single network configuration.

732 patent, col. 4, lines 54-65. This amendatory language was accompanied by Datapoint's remarks distinguishing two prior art patents, Beierle and Coden. Datapoint distinguished Beierle by noting that some nodes, particularly in Beierle's disclosed star configuration, existed at a higher hierarchy:

The Beierle reference discloses a network in which all of the nodes are connected in a plurality of different network configurations and in which communications occur in accordance with different logical connectivity patterns . . . . [A] 'master' node in the star network has a higher hierarchy than the other nodes in order to effect the star logical connectivity pattern, and indeed some of Beierle's network configurations themselves appear to have greater hierarchy than other network configurations, even though the same nodes appear to be involved. The nodes do not, therefore, appear to be equal peers.

Similarly, Datapoint distinguished the Coden reference in a manner that sheds light on the intended meaning of "equal peers":

[Coden] appears to be a network [that] uses a bus in order to also effectuate a ring. In order to do so, the ring nodes appear to communicate with the bus nodes through an interface [that] resembles a bridge. Thus, it would appear that the ring nodes and bus nodes have different hierarchical levels and are not peers, because a ring node cannot directly communicate with another ring node, except by passing communications through bus nodes.

In effect, Datapoint urges that we determine the meaning of "equal peers" from only the amendatory language that appears
in the specification. Although one may begin to glean some meaning of the term from the specification, it was entirely appropriate for the Special Master (and now for us) to look also to the prosecution history to aid in our interpretation of "equal peers." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 U.S.P.Q.2D (BNA) 1673, 1676 (Fed. Cir. 1995) ("Arguments and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims."). This presents the classic example of why reference to the prosecution history is not only appropriate but often is necessary. To suggest in this instance, as Datapoint does, that the definition in the specification is sufficient -- "The nodes are equal peers because none of them have a higher hierarchical status than the others" -- simply begs the question of what is meant by the phrase "higher hierarchical status." We therefore do not agree that the Master erred by refusing to limit his construction of "equal peers" to the "definition" in the specification.

Considering the above-excerpted quotes distinguishing Beierle and Coden, in light of the specification, we are satisfied that the Master's construction of "equal peers" was correct. Nevertheless, Datapoint argues that it was error to require all nodes to "hear" each communication, because "the claim language does not require a communication to traverse the entire medium." App. Br. at 32 (quoting 879 patent, col. 22, lines 45-50 ("New hubs capable of transmitting data at the enhanced rate must be presenting those segments of the network where enhanced frames are communicated, but basic hubs may continue to be used on branches of the network which contain basic nodes."). Read in context, this excerpt does not support the proposition for which it is cited.

To the contrary, the 732 patent specification makes quite clear that (1) all data being sent over the network have a source and destination address, and (2) all nodes review the data to determine whether they are the intended recipient of the transmitted message. See, e.g., 732 patent, col. 5, lines 12-17 ("Since all of the other nodes on the LAN also receive the signals transmitted by the source node, the address of the destination node is utilized by each node on the network to recognize and accept only those transmissions addressed to it, while discarding or not recognizing the other transmissions not addressed to it.") (emphases added). Thus, the Master's construction requiring that each node "hear" (as opposed to process or otherwise manipulate) every communication, simply reflects the inherent fact that each node must "hear" a communication before it can "recognize and accept only those transmissions addressed to it." Viewed through this prism, we agree with the Master's construction.

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MStar also argues that the Commission erred in construing the "equality" limitation. Claim 1 requires that "said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame." '867 patent, col. 22, ll. 15-18. In the 481 Investigation, the Commission determined that this required an "equality of the periods to receive the source image frame and to provide the destination image frame." 481 Commission Decision, slip. op. at 9. The ALJ adopted the same construction for the 491 Investigation, although the parties disputed the meaning of "image frame." However, both the ALJ and the Commission agreed with Genesis that this construction "mean[t] an equality of full frame periods," i.e., there must be equality of the periods of time to input and output active pixel data, horizontal blanking pixel data and vertical blanking pixel data.

On appeal, MStar argues that the "period to provide said plurality of destination pixel data" (which is "representative of said destination image frame") should not include the time to provide vertical blanking pixel data. First of all, MStar notes that the ALJ had construed the phrase "pixel data" as used elsewhere in the claim language to include only active pixel data, and not blanking pixel data. Thus, MStar argues that the "period to provide said plurality of destination pixel data" only includes the time to provide active pixel data. However, MStar concedes that because horizontal blanking pixel data is interspersed between active pixel data, the "period to provide said plurality of destination pixel data" must include the time period to provide both active pixel data and horizontal blanking pixel data. In other words, it is impossible to determine the period to input or output the active pixel data of an image frame without including the time to provide the horizontal blanking pixel data. However, because vertical blanking pixel data is at the end of an image frame, after all the active pixels, it is possible to time the input or output of active pixel data and horizontal blanking pixel data without including vertical blanking pixel data. Thus, MStar proposes a construction that would include the time to provide active pixel data and horizontal blanking pixel data, but not vertical blanking pixel data.
Not only is such a construction strained, but it also ignores the fact that the claim language refers to the "period to provide said plurality of destination pixel data," which is "representative of said destination image frame." MStar argues that because "pixel data" as used elsewhere refers only to active pixel data, the "destination pixel data . . . representative of said destination image frame" must include only active pixel data. However, while the blanking pixel data is not visible on the monitors, it is part of the "destination image frame" as it affects the timing of the pixel data flow. Indeed, MStar concedes that "upscalers must recognize the fact of vertical blanking lines." Appellant's Reply Br. at 21. In response to the charge that its construction of the claim is "technologically implausible," MStar argues to no avail "that upscalers must operate in a given way does not mean that the claim language must cover that [necessary] operation." Id. Finally, we note that the whole specification refers to equal frame rates (i.e., frames per second in versus frames per second out). The specification does not teach that the inventor or one skilled in the art would seek to measure the strained subset advanced by MStar. Thus, because vertical blanking pixel data is necessary to make an image appear on the screen properly, the "destination pixel data" which is "representative of said destination image frame" must include active pixel data, horizontal blanking pixel data and vertical blanking pixel data. MStar has failed to show any error in the Commission's claim construction.

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Equipment

Defendants argue "equipment" should be construed as "implements such as machinery or tools used in an operation or activity." Again, the Court agrees with Orion that this term does not require construction. "Equipment" is not used in a manner inconsistent with its ordinary lay meaning. Like "parts," "equipment" is a common word that any jury will understand. Further, Defendants' construction is again likely to be misleading. As Defendants point out, Figure 29 lists "industrial, road & misc. equipment, farm equipment, light trucks & vans, passenger cars, trucks, buses & coaches" as examples of equipment. It may not be obvious to a jury that they are to consider light trucks and vans, passenger cars, trucks, and buses to be "implements."

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G. "Erasing Said Video Product"

Plaintiff's Construction

To remove or obliterate the downloaded and stored video data from the storage locations where the video data is stored, such as to clear, overwrite or designate as deleted such storage locations.

Defendant's Construction

At the user site, deleting the video product from memory entirely; this does not include scrambling or other methods of limiting access to the video product.

Defendant agrees with Plaintiff that this claim term refers, at least, to removing or obliterating the downloaded and stored video data. (See D.I. 65 at 13.) Furthermore, Plaintiff does not appear to take issue with Defendant's position that the erasing must take place at the "user site." Thus, the dispute between the parties is whether this claim term also refers to "scrambling" or "designating as deleted" (Plaintiff's position) or not (Defendant's position).

Plaintiff draws its proposed construction largely from the Federal Standard 1037C Glossary of Telecommunications Terms, which defines "erase" as "[t]o obliterate information from a storage medium, such as to clear or to overwrite." (D.I. 64, Exh. L.) Plaintiff further points to the Merriam-Webster OnLine Dictionary, which sets forth a quaternary definition for "erase" as "to delete from a computer storage device." (Id., Exh. M.) Based on this, Plaintiff apparently contends that the claim term should be defined to also encompass designating storage locations as being deleted. Notably, both of Plaintiff's dictionary
definitions postdate the filing of the '402 patent.

In response, Defendant points to the following excerpts from the specification:

. "In one embodiment, the control system erases or scrambles the stored program after it has been viewed a predetermined number of times (e.g., once), and in other embodiment the program is erased or scrambled after a predetermined interval (e.g., 24 hours)." ('402 patent at 2:21-26 (emphasis added).)

. "Control unit 22 also erases or otherwise (e.g., scrambles) limits access to the stored data after a use limit specified by the central station or fixed at the customer site have been met or exceeded . . . " (Id. at 3:22-25 (emphasis added).)

. "If the result of the comparison step at block 54 is affirmative, the microprocessor 30 issues a command to controller 44 to erase the video data stored in memory 20 or to otherwise block access to the data by the television set 18." (Id. at 4:44-49 (emphasis added).)

Based on these excerpts, Defendant contends that the specification distinguishes erasing of the data from other methods of limiting access, such as scrambling.

The Court agrees with Defendant that the specification clearly distinguishes "erasing" from scrambling and other methods of blocking access. In light of this intrinsic evidence, which speaks directly to the dispute between the parties, the Court is reluctant to rely on Plaintiff's dictionary definitions. Indeed, both dictionary definitions postdate the filing of the patent. Furthermore, in the Court's view, neither of the definitions legitimately support the notion that "erasing" should include designating storage locations as being deleted. Because the parties agree that this claim term refers to "removing or obliterating the downloaded and stored video data," the Court will define it as such. In addition, the Court will clarify that this term does not refer to scrambling or other methods of blocking access. Finally, the Court notes that Defendant's proposed construction requires that the "erasing" take place at the "user site." In reviewing Plaintiff's briefing on this term, the Court does not detect any opposition to this position. Furthermore, as explained above, because the claims explicitly call for the video product to be transmitted to the "user site," it must be that the "video product" is also ultimately erased at the "user site." Accordingly, the Court will construe "erasing said video product" to mean "at the user site, removing or obliterating the downloaded and stored video data; this does not include scrambling or other methods of limiting access to the video product."

E. "Error Code Correction And Detection (ECC) Subsystem"

1. Proposed Constructions

Plaintiffs' proposed construction of "an error code correction and detection subsystem" or "ECC subsystem" is "a portion of a larger system that performs error correction and detection." Plaintiffs' '736 Br. at 14. Defendants, however, propose that "error code correction and detection subsystem" should be construed according to its ordinary meaning, which they contend is: "one subsystem that performs all error correction and detection on two different formats of processed data, such as CD and DVD format processed data, according to applicable standards or specifications, to produce corrected data which is to be transferred to a MPEG decoder." Defendants' '736 Br. at 12. Thus, the main dispute between the parties is whether there is one subsystem that utilizes the same circuitry to perform all error correction and detection on two different formats of processed data, or whether the claim supports multiple error correction and detection subsystems.

2. Claim Language 8

The parties do not contest that claims 1 and 7 use the phrase "error code correction and detection subsystem" even though the process carried out by that subsystem is generally described as "error correction and detection." Plaintiffs' '736 Br. at 14; Defendants' '736 Br. at 12-14. The parties further agree that "error code correction and detection" is abbreviated as "ECC" in
the patent and that this abbreviation is common for systems that perform error correction and detection. Id. at 14-15, n. 7.

Defendants contend that the claims require that the ECC subsystem perform error correction and detection on the processed data to produce corrected data, which is transferred by the parallel interface to the MPEG decoder. Defendants' '736 Br. at 12. Furthermore, as mentioned earlier, defendants assert that the ordinary meaning of the claims requires their proposed construction of "ECC subsystem" as "one subsystem that performs all error correction and detection on two different formats of processed data, such as CD and DVD format processed data, according to applicable standards or specifications, to produce corrected data which is to be transferred to a MPEG decoder." Id.; '736 patent at Figs. 4 & 5, 3:62-4:15, 4:30-35, 8:15-26. 9

9 Plaintiffs argue that the '736 patent at 3:66-4:15 contradicts defendant's narrow construction because that embodiment's error code correction and detection operations are not associated with any standards although that embodiment's sync detection and demodulation for CD and DVD data are described with reference to standards. Reply at 6. Plaintiffs also contend that Figure 4 does not limit the invention because the specification states that Figure 4 depicts "an embodiment of DVD/CD controller 62." Id.; see '736 patent at 6:40-41. Lastly, plaintiffs assert that the '736 patent at Figure 5, 7:38-8:1, and 8:15-18 relate to the embodiment of Figure 4 as signified by the reference numeral "96" used for the ECC subsystem. Reply at 6.

On the other hand, plaintiffs assert that because the claims use the transitional term "comprising" with the indefinite article "an," the article "an" is an open-ended claim limitation meaning "at least one." Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V., 365 F.3d 1299, 1304 (Fed. Cir. 2004); Crystal Semiconductor v. Tri Tech Microelectronics Int'l, Inc., 246 F.3d 1336 (Fed. Cir. 2001). To rebut plaintiff's claim that "an" is an open-ended claim limitation, defendants contend that their construction is not based on the term "an." Defendants' '736 Br. at 13, n.12.

d. Specification

Citing to '736 patent specification at 3:8-23 and 3:50-58, defendants argue that there can only be one ECC subsystem because the claimed benefit of the patent in reducing the number of subsystems would not be accomplished under plaintiffs' assertion that the claims allow for multiple ECC subsystems. Id. Plaintiffs, however, assert that neither of the passages cited by defendants nor any other passage in the specification attributes the claimed benefit in reducing the number of subsystems to the ECC subsystem. Reply at 6. According to plaintiffs, the patent instead identifies the shared memory and parallel interface as permitting a reduction in number of subsystems. Id.; see '736 patent at 4:30-39, 8:47-56, 9:7-11; 10:12-16

According to defendants, the specification further supports their construction of "ECC subsystem" because it requires one ECC subsystem that is responsible for performing error detection and correction for both CD and DVD data. Defendants' '736 Br. at 12; see '736 patent at 7:38-39 ("ECC subsystem 96 is responsible for performing error detection and correction for both CD and DVD data"). Plaintiffs, on the other hand, argue that the specification does not support defendants' construction. Plaintiffs' '736 Reply Br. at 6; see '736 patent at 3:66-4:15, 6:40-41, 7:38-8:1, 8:15-18, Figs. 4 & 5.

e. Extrinsic Evidence

Defendants contend that inventor testimony supports their contention that the ordinary meaning of error code correction and detection subsystem requires one subsystem that performs all error correction and detection on two different formats of processed data. Inventor Hsu, who was responsible for the error code correction and detection subsystem, testified that his invention combined the error correction for CD data and DVD data into a single subsystem implemented in a single circuit block. Deposition of Wen Hsu, O'Callaghan Decl., Ex. 12 at 147:15-19, 157:9-25, 53:24-54:11, 56:10-15, 56:23-25.

f. Conclusion
Defendants' argument that a single subsystem wherein the identical circuitry within the subsystem must be capable of performing error correction and detection on all formats of data is rejected. The claims do not specify that the identical circuitry has to be used for all processing, independent of data format. Nor does Hsu's testimony support this asserted limitation, as he established only that his invention combined error correction for CD and DVD data into a single subsystem. However, the specification and Hsu's consistent testimony, do support defendants' argument that the ECC subsystem must be capable of performing error correction and detection on at least two data formats. Thus, the court construes "an error code correction and detection subsystem" as "a subsystem capable of performing error correction and detection on two different data formats." The circuitry within the subsystem for performing the correction and detection functions on the different data formats may be different and there may be multiple ECC subsystems.

V. Claim Five: "The repeater management device of claim 1 wherein the media access controller further comprises means for generating preambles and error correcting codes, means for detecting error correcting codes, means for handling deferrals and collisions, means for controlling and handling backoff conditions, and means for retrying data transmission." Claim 5 is dependent on claim 1. Claim 5 requires a MAC that generates and detects error correcting codes. One skilled in the art would perceive "error correction coding [as] 'an encoding of data and redundant check bits that enables decoding hardware to reconstruct the original data in the presence of a data-bit or check-bit error.'" (Witness Statement of Howard Frazier at 23 (quoting IEEE Dictionary 395 (7th ed. 2000)).) Altima's expert Mr. Frazier explained:

An error correcting code adds additional information to data that is being transmitted. You transmit the data that you want to send and then you generally append some redundant bits, some additional bits, to that data which would enable hardware at the receiving or decoding end to recreate, reconstruct the original data, and correct it in the presence of noise or byte errors. So, if error had been introduced in the data during transmission, the error correcting code information can be used to reconstruct the data and restore it.

(Intel argues that the patentees acted as their own lexicographers in Claim 5 and the phrase "generating . . . error correcting codes" refers to CRC generation. (Level One's Reply at 39.) As such, the claim specifies a MAC that uses "a particular cyclic redundancy code designed for error detection and not error correction." (Id.) However, this construction is not supported by the prosecution history. Application claim 6 required the MAC to comprise "means for generating preambles and error correcting codes, means for detecting error correcting codes . . . ." Application claim 13, which was expressly canceled, required the MAC to comprise "means for generating preambles and cyclic redundancy checks (CRCs) for the data packets. . . ." These two claims used different terms to require different functions. The prosecution history reveals that the patentees did not mean CRC generation when they used the phrase "generating . . . error correcting codes." Although one skilled in the art may view the reference to "correcting" instead of "detecting" as an obvious error, the claim cannot be rewritten by the Court to correct this error. Cf. Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1349 (Fed. Cir. 2002) ("It is not [the court's] function to rewrite claims to preserve their validity."). Therefore, claim 5 requires a MAC to generate and detect error correcting codes.

1. Principles of claim construction

Claim construction of a patent, including terms of art within claims, is exclusively within the province of the court, not the

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. See Markman, 52 F.3d at 979, 34 U.S.P.Q. 2d at 1329. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.


The first step is to look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Id. Second, it is necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. Id.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. Id. "Claims must be read in view of the specification, of which they are a part." Id. (citing Markman, 52 F.3d at 979). The specification is always highly relevant to the claim construction analysis, and usually, it is dispositive; it is the single best guide to the meaning of a disputed term. Id. The drawings or figures of the patent are considered with the specification in interpreting claim language. Wright Medical Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed. Cir. 1997).

Third, the court may also consider the prosecution history of the patent, if in evidence. Vitronics Corp., 90 F.3d at 1582.

In addition, the Court should not read into a patent limitations that do not exist in the claims. As the Federal Circuit recently held, "[t]he danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed Cir. 2003) (internal citations omitted).

Moreover, like contract interpretation, the Court should first give claim terms their ordinary and accustomed meanings.

Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic evidence using words or expressions of manifest exclusion or restriction, representing clear, disavowal of claim scope.

Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1377 (Fed. Cir. 2003) (emphasis added) (citation omitted).

In fact, the Federal Circuit has issued a ruling instructive on this issue. In Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1343-44 (Fed. Cir. 2001) the Federal Circuit overruled the district court's holding that the claim term "portion" was to be accorded a meaning narrower than its customary meaning, by finding that the district court had improperly relied on the preferred embodiment, the drawings, and one passage in the prosecution history to "overcome the presumption.

Finally, if an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence. Id. at 1583. Extrinsic evidence is that evidence which is external to the patent and its file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles. Id. at 1584. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. Id.

This approach was affirmed in the Federal Circuit's most en banc decision, Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). In that case, the Court reiterated that "[w]e have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms." Id.

Following this guidance and framework, this Court finds that the '252 Patent's Claim and the specification establish that the "error correcting means" refers to a circuit or portion of the computer chip geared towards error correction: Reading the Claim 1 and the patent language as a whole it is clear that the terms using the "means" language are used in their ordinary and customary meaning throughout the patent to mean "circuit" or "portion" of the chip. As such Claim 1 provides sufficient
structure and section 112, paragraph 6 does not apply to the analysis.

This Court rejects Mediatek's argument that Claim 1 requires a specific sequential order. Nothing in the claim language, the specification, or the patent prosecution gives rise to the limitation that the "error correction means" must happen in a specific sequential order. Rather, the circuit or portion must simply be able to "read, detect, correct, and write." While Claim 1's language demonstrates the processes that will take place, it does not require a specific order. Most importantly, it does not specify when detection of errors must take place or when correction must take place - arguably either could come first. Claim 1's specifications simply provide an example of how this could work. Defendant Mediatek's argument impermissibly would limit Claim 1's "error correcting means" to a sequential order requirement not included in the patent's claim. This is just the type of limitation the Federal Circuit has warned against.

1608

4. "Scan processing error flags" (claims 1, 3)

TriPath defines "scan processing error flags as "an indication by the system (i.e. an issued flag or signal) that an error has occurred during scan processing." Cyttyc agrees with this definition, except that it would strike the words "or signal." Cyttyc argues that "scan processing error flags" are not generic signals, but specific computer software mechanisms. TriPath responds that its definition is more clear and precise because a flag is an electronic signal.

TriPath is correct that an error flag is an electronic signal. However, adding the word "signal" into the definition of "scan processing error flag" unduly expands the scope of the claims.

Beginning with the claim language, the words "scan processing" modify "error flags." This indicates that the error flags are related to the image processing process. Claim 3 explains how they are related: the "scan processing error flags are generated by checking if the at least one machine processing effectiveness parameter is within a range." 327 patent at col. 8, 11. 58-61. In other words, when the invention detects that a slide is not suitable for processing or has been processed improperly, it generates an error flag.

The specification, in the preferred embodiment, describes two types of error flags. Id. at col. 5, 11. 48-48; col. 6, 11. 53-61; Table 2. These flags are numerical values issued when errors are found at two different magnifications, 20X and 40X. Id. These two "algorithm processing error flags" are the only two of the thirteen suitability measures explicitly labelled "error flags." Id.

However, this alone does not support a narrow reading of "scan processing error flags." The Abstract refers to other types of flags: magnification error flags, staining flags, main optical density flags. Id. at Abstract. The specification also appears to use "flag", "measure", and "test" as related and sometimes interchangeable nouns. See, e.g., id. at col. 1, 11. 35-37 ("The [suitability] tests include machine processing error flags, staining measures . . . "); col. 5, 11. 58-59 ("Table 2[, which lists the 20X and 40X error flags mentioned above,] provides a short description of each measure used to test slide suitability").

These flags, measures, and tests mentioned in the written description are indeed signals. However, they are particular types of signals used for a particular purpose. A computer conducts the image processing and slide suitability scoring, so the signals must be electronic. The thirteen suitability tests are, at their essence, computer software mechanisms that indicate when an error has been detected. To construe "scan processing error flags" to include any other type of signal, is inconsistent with the specification and the claims.

1609

B. "Error Indicator"

Plaintiffs propose the following construction of "error indicator":

- 2016 -
An "error indicator" is a device that indicates if a compartment has not been placed in a location, or if the compartment has not been placed in a location within a predetermined amount of time.

(Docket Entry No. 40, p. 21). Universal also contends that the claim term "error indicator" is in means-plus-function format because it lacks sufficient structure and impermissibly covers each and every device for indicating error.

Like the disputed claim term "location indicator," the term "indicator" has a well-known meaning connotative of structure to those of skill in the art. Plaintiffs' construction of the term "error indicator" is consistent with the term's use in the specification. The ordinary meaning of the term "error" is undisputed. In this invention, an "error" occurs when a compartment is placed in an incorrect location. The term "error" is an adjectival qualification placing an additional functional constraint on the term "indicator," which connotes structure. The addition of this functional constraint does not reduce the definiteness of the structure connoted by the term "indicator," such that section 112, P 6 applies. See Personalized Media, 161 F.3d at 705; Apex, 325 F.3d 1364, 2003 WL at *7. In the context of the invention covered by the '943 Patent, the possible errors include placing components or component compartments in an incorrect location, or failing to load compartments within a certain time. ('943 Patent, col. 6, 1.58-col. 7, 1.2). This court adopts plaintiffs' construction of the term "error indicator."

1610

Thomcast's lead argument is that the claims of the '944 patent, when properly construed, do not require any sort of fine modulation of the amplifier output. Thomcast thus asserts that the district court's conclusion of invalidity for failure to disclose the best mode of fine modulation cannot stand. We agree with Thomcast. Claim 7 lacks any explicit requirement for fine modulation and contains no explicitly recited structure for achieving such modulation. The parties, however, focus on the following claim language: "having an output providing an amplified signal that has essentially the same wave shape as the input signal." The parties dispute whether this functional language necessarily requires that the claims only cover devices that achieve fine modulation of the output signal or whether the language merely states the normal function of any amplifier, i.e., creating an output signal that is similar to, but larger than, an input signal. We conclude that it is the latter.

From the language, "essentially the same," it is not clear the extent to which the patent requires the output signal to match the input signal. On the one hand, the quoted claim language undoubtedly refers to the quality of the amplifier output. On the other hand, the term "essentially" broadens the requirement that the signals be "the same." To determine what the patent means by "essentially the same," we must look outside the claims. See, e.g., Slimfold Mfg. Co. v. Kinkead Indus. Inc., 810 F.2d 1113, 1116 (Fed. Cir. 1987) ("Claims are not interpreted in a vacuum, but are part of and are read in light of the specification.").

When read in the context of the entire patent, it becomes apparent that the quoted phrase cannot support the interpretation the defendants would place on it. The written description does not indicate that there is any signal smoothing circuitry required to make the input and output signals have "essentially the same waveform." As the district court specifically noted: "Nowhere in the application was mention made of fine modulation or pulse width modulation." Indeed, the defendants recognize in their brief that the patent does not mention any type of smoothing circuitry for filling in between the steps of the raw amplifier output.

The written description merely describes, in extensive detail, the electrical circuitry required for the "first-on, first-off" switching scheme. When speaking of switching amplifiers in general, the Description of the Prior Art states: "An essential feature of the known amplifier is the fixed association between the voltage steps of the input signal range and the corresponding switching stages on the output side." Col. 1, lines 29-32. In this statement, Furrer defines an amplifier as the circuitry between an input side and an output side, with the output side defined by switching stages without further smoothing circuitry. He also indicates how the input steps are related to the output steps. With respect to these features, Furrer did not distinguish his invention from the prior art.

The detailed description of the invention also indicates that any contemplated smoothing circuitry is separate from the claimed amplifier. Referring to Figure 1, the patent states: "A block diagram of an embodiment of the switching amplifier according to the invention and an additional monitoring unit is represented." Col. 3, lines 26-28. Figure 1 indicates a "Load," which is shown external to the amplifier and which "can be constructed as the RF output stage of a broadcast
transmitter and can additionally be provided with a low-pass filter for smoothing purposes." Col. 3, lines 51-54. This passage confirms that any contemplated smoothing hardware is not part of the claimed amplifier, but instead is part of a broader transmitter that includes the amplifier and other components. Nor does the written description indicate that the switching stages that make up the claimed amplifier must be modified to produce smoothed output, such as by remainder processing PWM. 2

2 The written description does state, in a single instance, that the switching stages produce a "staircase voltage which, after a smoothing process, corresponds to the amplified input signal." Col. 7, lines 43-45. This language describing the relationship between the input signal and the output signal differs from the claim language on which the district court relied, i.e., "having essentially the same wave shape." Furthermore, we cannot say that this single citation can transform the claims' tangential reference to signal shape into a structural claim limitation, especially in light of the patent's otherwise singular focus on the "first-on, first-off" switching scheme.

The prosecution history also supports this conclusion. The claims in Furrer's original application were all denied by the Examiner. Furrer then added the claims which ultimately became claims 7 through 9 of the '944 patent. In the "Remarks" accompanying his amendment, Furrer cited the "first-on, first-off" switching scheme as the patentable aspect of his claimed invention, distinguishable from the prior art. He never mentioned fine modulation. The patent was granted after the amendment. Thus, the prosecution history does not indicate that Furrer limited his claims to an amplifier that includes fine modulation circuitry.

In light of the written description's almost universal focus on the "first-on, first-off" switching scheme and on that scheme's ability to generate a stepped output that corresponds to the input signal, we conclude that the claims are directed to an amplifier with the structure explicitly recited and that no further smoothing circuitry is required. Signal fidelity is a very real concern for a designer of broadcast transmitters, and the evidence seems to indicate that signal fidelity was also one of Furrer's concerns during his engineering work. Nonetheless, Furrer's claimed invention, which we look to in our analysis, is directed toward a switching amplifier that is but a component of a larger broadcast transmitter. The amplifier, as claimed, does not require fine modulation or circuitry to achieve fine modulation.

1611

(c) Establishing a charge for paying lifetime payments after the account value reaches zero in accordance with the guarantee.

The first step of Claim 1 speaks of "establishing a charge for paying lifetime payments after the account value reaches zero in accordance with the guarantee." The parties disagree on what "establishing a charge" means. The Plaintiff proposes to "define 'establishing a charge' as the 'creation or establishment' of a charge, which is the 'cost or fee paid to the entity offering the annuity to guarantee periodic payments after such payment and/or charges have exhausted the account value . . . '" (Pl. Br. at 21; DE 34.) The Defendant contends that "establishing" means calculating a fee in one of three ways set forth in the patent, said fee to be paid by the owner for the contract guarantee of lifetime payments." (Df. Br. at 25; De 39-2.) The Defendant cites the specification (815 Patent 10:33-35) in support of its interpretation. In addition, the Defendant asserts that the word "charge" "as used in the '815 Patent means a fee paid by the owner thereby making the account value available in the post-annuitization phase." (Df. Br. at 25; DE 39-2.)

The '815 Patent does not limit the establishment of charge to only the three methods listed in column 10 of the specification. Column 10 states:

In certain embodiments of the present invention, the cost of the lifetime guarantee may be charged by one or more of three methods. The first method is a front-end charge, or 'premium load' . . . . The second method is a charge which is deducted from each benefit payment as it is paid. . . . The third method is an asset charge which is deducted daily from the account value. . . .
('815 Patent, 10:33-48.) At first glance, this may appear as a complete list of available methods to impose a charge for the guarantee of lifetime benefits. However, an earlier reference to the cost of the lifetime guarantee makes clear that the three methods are not exclusive:

The charge for the guarantee of lifetime payments may be established in various ways, including determining a front end charge and deducting the front end charge from an initial deposit, determining a charge to be deducted from each periodic benefit payment, or determining an asset charge and periodically deducting the asset charge from the account value.

('815 Patent, 6:8-15 (emphasis added.).) But most importantly, as discussed above, the term of art used in Claim 1--"comprising the steps of"--signifies that the claim is open-ended. In light of this evidence, the Court construes the term "establishing a charge" not to be limited to the three methods noted in column 10:33-55.

The Defendant's argument regarding the meaning of the word "charge" need not be addressed. The Defendant does argue that a charge is not what the Plaintiff claims it to be, that is, a cost or fee for the benefit provided. Rather, the Defendant merely reiterates its position that the account value is limited to the post-annuitization phase of the contract. Since the Court has already addressed the scope of the account value, and the parties agree what a charge is, no further discussion is necessary.

D. "establish a communication link between said remote home base and said plurality of various job sites"

The term "establish a communication link between said remote home base and said plurality of various job sites" is found in claim 1 of the '490 patent: "said modem adapted to link said memory to a remote home base to establish a communication link between said remote home base and said plurality of various job sites at which said retractable and self-contained mobile repair unit is working." The exact term is not found in the specification. But the specification does describe the following: "Monitor 48 converts signal 94 to a digital value, stores it in a memory 96, associates it with a real time stamp, and eventually communicates the data to a remote home base 100 by way of a modem 98. . . . An operator at a home base 100 remote from the work site at which repair unit 20 is operating accesses the data stored in circuit 124 by way of a PC-based modem 98 and a cellular phone 136." ('490 patent, 3:52-55, 4:28-31). Key argues that "establish a communication link between said remote home base and said plurality of various job sites" requires no construction. On the other hand, the defendants contend that this term means "to create a tie or bond that allows the exchange of information between the location where the operator of the mobile repair unit receives data related to the repair unit, and such location is removed from the multiple diverse kinds of work sites at which the repair unit is operating."

The defendants argue that the claim language requires a single communication link that connects the remote home base to each of the plurality of job sites. Forbes and Petron emphasize that the plurality of job sites necessarily requires more than one job site. The claim is not limited to a single communications link, however; when used with an open-ended transition, the indefinite article "a" means "one or more" except in rare circumstances where the patentee clearly intended to limit the term to a single item. Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008). Nothing in the patent indicates that the inventor intended to limit the claimed system to a single communications link. Thus, there may be more than one communications link connecting the remote home base and plurality of job sites. This reading of the claim language is reinforced by the use of the word "between." If the patentee had intended for a single communications link to connect the remote home base to each of the plurality of job sites, presumably he would have used the word "among" instead of "between."

In further support of their proposed single communication link construction, the defendants contend that each mobile repair unit could have a modem that communicates to a single central memory, which in turn communicates to the remote home base. This configuration would not satisfy the claim language, however. The claim requires a "self-contained mobile repair unit . . . comprising: . . . a memory . . . and a modem electrically coupleable to said memory." The defendants' depiction of three mobile repair units at three job sites sharing a single memory would not satisfy the requirements of claim 1; each mobile repair unit must have its own memory. As such, the court is persuaded that each communication link is required to connect only one job site to the remote home base. Therefore, the term "establish a communication link between said remote
home base and said plurality of various job sites” is construed to mean “establish communication connections between the remote base and each of the various job sites.”

1613

11. "establish[ing] patient-specific rules associated with each of the geographically dispersed hospitalized patients"

The parties agree on plaintiff’s proposed language: "establish[ing] patient-specific rules for each of the individual, geographically dispersed hospitalized patients." Plaintiff proposes this language as the entirety of the construction. Defendants seek to add three additional components to this phrase: "at the remote center," at the beginning of the construction; the word "customized" to modify "patient specific rules;" and "who are being monitored" at the end of the phrase. Thus, defendants' complete proposed construction would read: "establish[ing] at the remote command center customized patient-specific rules for each of the individual, geographically dispersed hospitalized patients who are being monitored." We address each in turn.

First, defendants seek to insert a limitation requiring that the establish[ing] patient-specific rules step occur at the remote command center. The claims in question specifically identifies which step occurs at the remote command center and that step relates to the determination of whether a rule has been contravened. This appears to be inconsistent with defendants' proposal. Additionally, the remote command center language defendants propose to add appears nowhere in the phrase at issue which pertains to "rules." The remote command center language was available to the inventors regarding the "establishing rules" step and they chose not to insert this limitation. Thus, we find from the context of the claims that the absence of the "at the remote command center" limitation in the claim terms requires its absence in the construction at issue.

The Court also rejects defendants' request to insert the word "customized," because it is redundant. Defendants agree that "customized" is interchangeable with "tailored." "Patient-specific rules" has already been construed as "a rule tailored to the medical condition of a patient." (See § III.B.10.) Adding the word "customized" would only confuse a jury.

Finally, defendants propose to add "who are being monitored" to the end of the construction. For the reasons set forth below (see § III.B.12) we decline to add this additional language. Thus, "establish[ing] patient-specific rules associated with each of the geographically dispersed hospitalized patients" is construed as: "establish[ing] patient-specific rules for each of the individual, geographically dispersed hospitalized patients."

1614

The relevant issue on appeal with respect to the second disputed term, "establishing the spatial relationship," is whether the district court properly excluded "the use of an optical reference system" from its construction. Claim Construction Op. at 7. Referencing the specification, the district court noted that the specification describes "an acoustic or ultrasonic range finding system" as well as "an electromagnetic position and orientation system" to track the movement of an object. Id. at 6 (citing '056 patent, col.6 l.48-col.11 l.18, col.11 l.18-col.12 l.32). The court further noted that although the specification mentions the use of an optical system, the statements were "too general in nature" to support Medtronic's broad proposed construction. Id.

We agree with the district court's reasoning. Similar to the '454 patent, the specification of the '056 patent discloses that the spatial relationship is established by using an acoustic tracking system or an "ultrasonic range finder or reference system" that uses spark gaps that emit "energy in the form of sound pulses which are received by (at least) three microphones." Id. col.6 ll.48-58. The specification also describes in detail the use of "an electromagnetic position and orientation system." Id. col.11 ll.18-20. Medtronic's argument for inclusion of an optical tracking system is largely premised on a single statement that appears in the specification, i.e., that "[a]n optical system can be used as an alternative to the acoustic system described earlier." Id. col.12 ll.33-34.

We agree with the district court that this passing reference to an optical tracking system fails to support an interpretation broader than that adopted by the court. A claim is to be construed in light of the written description that supports it. Phillips
v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc). And it is true that the minimal one sentence reference to an optical tracking system is a mention of an optical tracking system. However, the remainder of the specification describes acoustic systems. There is no enabling description of how to make and use an optical tracking system, and claims are best construed to preserve their validity. Tate Access Floors, Inc. v. Interface Architectural, 279 F.3d 1357, 1369 (Fed. Cir. 2002); see also Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1557 (Fed. Cir. 1996) (overruled on other grounds); Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996). Because this case is one in which ambiguity as to the scope of the claim language can be "resolved in a manner that would preserve the patent's validity," Phillips, 415 F.3d at 1327, that principle can properly be applied here. Moreover, the inventor himself stated, in answer to a series of questions regarding whether an optical tracking unit was available to him at the time of his invention of the acoustic system that "[w]e weren't aware of any commercial optical tracking system that was available" and "[i]t seemed at the time that this would be an obvious development, that it would be coming in time. It was just that at this time that we were writing this, that such a system wasn't available to us." J.A. at 6562 (emphasis added). Thus, rather than being a disclosure of an optical system sufficient to support an interpretation of a claim as including an optical system, it was merely "an attempt to preempt the future before it has arrived." Fiers v. Revel, 984 F.2d 1164, 1171 (Fed. Cir. 1993). Such a minimal dropping of an unenabled reference to an undeveloped system does not support a claim to it.

We accordingly conclude that the court did not err by excluding an optical tracking system from its claim construction.

GO BACK

4. "subcarrier-indexed estimates of transmission quality"

The next disputed term appears in both the preamble and body of Claim 1. The issue presented with respect to this term is whether the "subcarrier-indexed estimates of transmission quality" must be measured by the four factors appearing in the preamble, namely channel gains, channel noises, desired carrier bit-error-rates, and the programmed power mask. (See Tr. at 24:1-19, 28:8-20).

Plaintiff contends that this term is a claim limitation because the antecedent basis for the term appearing in the body of the claim, specifically in step (a), is derived from the term in the preamble. '447 Patent, col. 13, 11. 2-6. At the hearing, Plaintiff introduced the prosecution history for the '447 Patent in support of its proposition. 8 The prosecution history shows that Claims 1 through 15 of the '447 Patent were initially rejected by the PTO under 35 U.S.C. § 112. The PTO indicated that the original term that appeared in the body of the claim, namely "the measured subscriber channel quality estimates," lacked a clear antecedent basis. See Office Action dated June 21, 1994 at 2. In response to the Office Action, the patentees amended the claim by adding "subcarrier-indexed estimates of the transmission quality" to both the preamble and body of the claim.

8 The Court notes that this evidence was not contained in the record prior to the Markman hearing. Neither Plaintiff nor Defendants relied on any prosecution history evidence to support their claim construction arguments, despite having been given an opportunity to revise their written submissions prior to the hearing. Although Globespan submits this evidence at a late stage, the Court will nonetheless consider it, particularly since Defendants did not object at the hearing. (See Tr. 29:1-31:10).

Unfortunately, what the PTO's reaction was to that amendment remains a mystery. Did the PTO allow the claims, recognizing that the amendment added sufficient specificity to the claims? Or, did the PTO require more? Because Plaintiff failed to submit the complete prosecution history, the Court does not know the answer to these simple, but potentially dispositive questions. Nonetheless, assuming arguendo the answer to the first question is in the affirmative, Plaintiff then argues that the method encompassed by Claim 1 incorporates the limitations associated with the term as set forth in the preamble. Plaintiff characterizes this as a "clear prescribed method [] for determining sub-carrier quality estimates." (Tr. at 28:8-10). Thus, Plaintiff argues that the claim requires the estimates of transmission quality be determined "by reference to channel gains, channel noises, desired carrier bit-error-rates, and the programmed power mask." (Tr. at 28:17-20; see also Chart at 2).
Conversely, Defendants argue that the claim does not require the estimates to be based on these four factors. Rather, Defendants assert that the subcarrier-indexed estimates may be measured using a variety of methods, some of which may include all or none of the factors listed in the preamble. According to Defendants, estimates may be measured simply by SNRs. Defendants contend that the specification clearly supports their argument. It states the following:

When given a set of initial SNR estimates of the orthogonal carriers of a multicarrier communication system, a set of target bit error rates for the carriers, and an arbitrary transmit power mask together with an overall transmit power constraint, the present invention provides a method of determining the initial bit and energy allocations, and therefore the corresponding transmission bandwidth.

'447 Patent, col. 7, 11. 10-17 (emphasis added). Defendants argue that nothing in the specification suggests that the "set of initial SNR estimates" must be measured by channel gains, channel noises, desired carrier bit-error-rates, and the programmed power mask - factors which only appear in the preamble.

This Court agrees with Defendants. Generally, a preamble is a limitation of the invention if it "recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quotations omitted). However, if the patentee's use of the preamble merely states an intended purpose or use, and the patentee defined a structurally complete invention in the body of the claim, the preamble is not limiting. Id. Furthermore, although claim scope may be limited if a particular disputed term derives antecedent basis from the preamble, the Court's determination must be based on an examination of the patent as a whole, "to gain an understanding of what the inventors actually invented and intended to encompass by the claim." Id. (citing Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989).

This Court concludes that "subcarrier-indexed estimates of transmission quality" need not be measured by any of the four factors listed in the preamble. Although the prosecution history suggests that the claim was amended to include an antecedent basis in the preamble for the disputed term, this alone does not support Plaintiff's contention that the claim should be read to require the four factors. Simply because the term appears in the preamble, the Court is not required to import all the words surrounding the term. Plaintiff has not cited any case law that would suggest otherwise. Additionally, and perhaps more importantly, the claim language itself, specifically the language contained in Claims 5 and 6, indicate that subcarrier quality estimates may be made "through the computation of an average signal-to-noise measure on a subcarrier . . . [or] . . . the computation of an average signal-to-noise ratio multiplied by a subcarrier dependent programmed reliability factor . . . ." '447 Patent, col. 13, 1.65 - col. 14, 1.10. Thus, the claims themselves demonstrate that subcarrier-indexed estimates of transmission quality need not be measured by four factors, but may be measured, for example, through the computation of SNRs. This comports with Defendants' assertion.

Furthermore, one of the preferred embodiments described in the specification shows why Plaintiff's argument is incorrect. The preferred embodiment describes an algorithm consisting of several steps involved in the initialization procedure. '447 Patent, col. 7, 1.35 - col. 8, 1.56. The first step involves computing SNR estimates, or estimates of transmission quality. The fifth step involves the maximum energy allowable in the carrier as defined by the power mask. Plaintiff's requirement that the estimates be measured based on, among other things, the power mask would effectively exclude this preferred embodiment from the claim scope, since it is not until after the calculation of estimates that the power mask comes into play.

As the Federal Circuit has articulated, "a claim construction that would exclude the preferred embodiment 'is rarely, if ever, correct and would require highly persuasive evidentiary support.'" Rexnord Corp. v. Laitram Corp, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996)). Plaintiff has not shown sufficient evidence to support its narrow construction. Accordingly, it must be rejected. Therefore, this Court concludes that disputed term [4] "subcarrier-indexed estimates of transmission quality" does not require that the measurements of the estimates be determined by any of the four factors enumerated in the preamble.
The Court agrees with Samsung and construes the term "etch" in claim 11 of the '339 patent and claim 3 of the '442 patent as "a process or processes for removing one or more materials using chemical and/or physical means." MEI's proposed construction--"a chemical or plasma used to remove material from the claimed insulating layer and the claimed first soft mask or second soft mask in one step"--adds the limitations that an etch must be done in one step, includes only a chemical or plasma mechanism, and is used to remove material from an insulating layer. MEI's proposed construction is overly narrow. The specification discloses that an "etch" step may be done with various chemical and physical processes, may combine more than one process as part of a single etch "step," and may be used to remove soft masks and insulating materials. See '339 Pat. col. 4:36-50 (disclosing chemical and physical etch methods); col. 4:30-32; col. 8:9-21 (disclosing multiple etch processes used as part of a single etch step).

Whether Chemical Mechanical Polishing is Vertical Anisotropic Etching.

In the claims construction, the Court ruled that etching is defined as removing material. Boning's position is that the process used by Tower and UMC is chemical-mechanical polishing. He explains that this is a method for removing elevated portions of the exposed surface of a wafer. It is used primarily for the purposes of planarizing the wafer surface of defining structures. The mechanization process operates to chemically soften (often through oxidation) a shallow layer of the exposed surfaces of the wafer and then remove the softened layer by making sub-microscopic scratches across the oxidized surface using the abrasive particles of the slurry. The chemical agent in the slurry modifies only the exposed surfaces of the wafer surface. Only after the abrasive particles have removed the top exposed layer can the oxidizing agent modify the newly exposed wafer material, and the next layer can then be "scratched" away. In essence, he defines this process as a horizontal process rather than a vertical process.

Boning contends that the CMP process is not an "etch" process. Only the top layer of material is removed in this process. The court has already defined "etch" as "removing material." Therefore, the process Boning defines is one that removes material. However, the key issue is whether it removes said material by vertical anisotropic etching which is defined as "etching which removes material significantly faster in the vertical direction than in the horizontal direction." Boning states that CMP is not a vertical anisotropic process. He states that the process actually removes material faster in the horizontal direction than in the vertical direction. CMP continues to remove material across the wafer surface until the process is terminated, as the CMP pad encounters a material that resists removal (a polish stop) which in the case of tungsten is commonly a silicon dioxide layer. He states that there nevertheless may be a residual shallow removal from areas not covered by the polish stop -- dishing.

Unless CMP can also remove the adjacent material, CMP cannot effectively remove material from a given point on the wafer surface, which confirms the horizontal nature of CMP. He also states that, in contrast to CMP, vertical anisotropic etching is predominantly carried out in the presence of resistant material. In contrast to CMP, he claims that vertical anisotropic etching also attacks all exposed surfaces regardless of their relative height. Boning also points out that in the accused processes there is an additional step not found in the '802 patent. He states that a silicon dioxide insulating layer must be planarized using CMP prior to the etch step in which the contact (or via) openings are formed.

Boning further contends that the accused processes use sputtering as opposed to vacuum evaporation in depositing the interconnection metal. Vacuum evaporation is a method for depositing a thin film by applying heat to the source of film material, thereby causing evaporation. Sputtering, in contrast, uses a plasma to generate ions which mechanically dislodge particles from the source of the film material. The dislodged particles fly in a line-of-sight fashion to strike and adhere to the wafer surface, in time forming a thin film of the sputtered material. He claims that the two processes are distinct and that the sputtering process cannot infringe Claims 1 and 2. Boning acknowledges that the Court's construction of sputtering would fall within the definition of vacuum evaporation.

Gwozdz states that CMP in a wafer fab is usually arranged as a vertical anisotropic etch, removing material significantly faster in the vertical direction than in the horizontal direction. His assertion that the Tower and UMC processes infringe is primarily based on the testimony of two witnesses, Buchbinder for Tower and Chien for UMC. From this testimony, he constructs charts which he claims support his contention of infringement (Buchbinder at A-2, I, J). Citing Buckbinder's deposition, he claims that the tungsten etching process is done by CMP, which is vertical anisotropic etching. However,
Buchbinder merely states that the process is done by CMP.

No question is ever asked of the witness as to whether the process is isotropic or anisotropic. The questioning of the witness sheds no light on the question of vertical or horizontal etching. Apparently Gwozdz is able to make this synapse in reasoning based on his unwavering assertion that half of all fab labs employ CMP, which is, in his opinion, vertical anisotropic etching. STM also states that any "horizontal process" "is really a vertical process" since layering is really etching vertically. Such simplistic reasoning would also mean that any vertical process is also a horizontal process since etching vertically has a layering effect.

Gwozdz apparently discredits the results of the CMP process as demonstrating that there is not literal infringement. The patent teaches that, on vertical anisotropic etching, there is a uniform etching process with the result that the insulating layer is laid bare while the contact opening is left practically filled with the conductive material. Claim 1 teaches that the conductive material is removed outside the opening. Boning maintains that CMP does not remove all of the material. He argues that recess regions of the wafer are not affected by CMP and hence there is not a uniform removal process across the wafer (Boning at 20).

Gwozdz's Puzzling Statement

Gwozdz steadfastly maintains that CMP is vertical anisotropic etching. However, in his deposition, Gwozdz states that CMP cannot etch the narrow contact opening mentioned in Claim 1 by the preferred method, vertical anisotropic etching. The Court assumes that the question is directed to etching of the insulating layer and not etching of the conductive plug. The patent states that vertical anisotropic etching is the preferred method of etching the contact hole in the insulating layer. Gwozdz's comment that CMP is vertical anisotropic etching leaves the Court with the impression that it is not a true etching process called for by the patent or only an etching process with limited parameters. He does state that CMP can be used for removing the overburdened tungsten. The critical distinction is whether the material is removed significantly faster in the vertical rather than the horizontal direction. Although Gwozdz states that such is the case, he does not give any support to his conclusion. "Significant" means "having meaning" or "distinctive." The New Britannica-Webster Dictionary and Reference Guide, 856 (1981). STM has belatedly furnished deposition excerpts of Buchbinder's deposition demonstrating that tungsten is removed from the contact hole in the tungsten etch. However, this still does not resolve the issue of whether STM has produced any evidence that CMP removes material significantly faster vertically as opposed to horizontally.

Chien was the designated representative for UMC. The questions and answers given are no model of clarity. When asked whether the tungsten CMP process removed material from within the contact opening, Chien replied: "We hope not, yeah." When later questioned, he stated that it removes material as small as possible. Chien also testified about another process called plasma etch back, which appears to apply to older products. In any event, the depositions of the two witnesses demonstrate that there are still some "holes" in the final analysis of whether CMP is vertical anisotropic etching. If it is not, there is no literal infringement. As to the questioning of both Buchbinder and Chien, the Court is sympathetic to the plight of the court reporter taking Chien's deposition: "What I've got doesn't quite make sense because I'm missing words here and there." The Court is in total agreement. Much of the testimony presented is not helpful on the key issue before the Court.

The Court is left with the task of determining whether there are fact issues as to infringement. The testimony of the various witnesses, as well as Boning and even Gwozdz, indicates that the CMP process produces voids or seams in the conductive material in the contact holes. Sandisk claims that this is contrary to the teaching of the '802 patent. The patent does not mention voids or seams or even indicate that the process is undertaken to avoid such a result. However, the patent does indicate that the entire volume of the narrow contact openings is filled. Figure 4 of the patent also indicates that the entire volume of the narrow contact opening has been filled with conductive material. The witnesses for Tower and UMC also indicate that this appears to be an expected consequence of the tungsten process. Gwozdz's assessment is that nothing in claim 1 or 2 of the patent excludes a process that produces seams or voids. The Court finds that, as to voids, there is a fact issue presented.

More troubling is whether STM has sufficiently shown that CMP, as that process is practiced by Tower and UMC, is vertical anisotropic etching. Other than Gwozdz's assertion, the Court can find no support for STM's position. STM maintains that this single unsubstantiated assertion is enough to create a fact issue. Gwozdz states that Buchbinder's deposition by itself explicitly documents all the elements of Claims 1 and 2 demonstrating infringement. Yet, as noted, Buchbinder admits that CMP is used and that a small portion of material is removed from the contact hole in the process. According to STM's
lawyers, this is an unintended consequence of the etching process. Yet, no witness confirms that CMP etches significantly faster vertically. Only Gwozdz makes this statement with no support to his assertion. As Boning points out, not all material is removed in the tungsten etch. He states that the process known as dishing demonstrates that the process is not vertical anisotropic etching.

The question for the Court is whether STM has produced any evidence that the CMP process, as practiced by Tower and UMC, fits within the definition of vertical anisotropic etching. To do so, the Court must undertake an analysis of Gwozdz's reasoning. STM attached excerpts of his report. First, he states that probably more than 50% of fabrication processes practice the '802 patent with excess tungsten removed by CMP. Second, he states that CMP parameters are adjusted so that the etch rate, in addition to being sensitive to surface orientation, is also sensitive to local topography, in such a manner that the etch rate at the bottom of small depressions is very slow. He states that although conductive material is necessarily removed from the opening due to a rapid vertical etch rate, only a small portion of the conductive material is removed from the opening. This "explanation" adds little to the inquiry of whether CMP actually removes material significantly faster vertically. In fact, his explanation of the slow etch rate at the bottom of small depressions would seem to detract from a concept of a significantly faster vertical etch rate in CMP.

Boning brings out two differences in CMP and vertical anisotropic etch not addressed by Gwozdz. First, Boning states that vertical anisotropic etch enables engineers to remove material from select portions of the wafer while leaving other portions, those covered by resist, unaffected. As Boning explains, this allows the contact hole to be etched in the first etching process, a process that even Gwozdz admits CMP cannot perform. Second, in contrast to CMP, the vertical anisotropic process attacks all the exposed horizontal wafer surfaces, regardless of their relative height. The process removes both raised and recessed exposed regions of a given material at the same rate and, thus, conserves the differences in height between raised and recessed regions of the wafer surface. Boning points out that Gwozdz's testimony regarding the slow etch rate at bottom of the depressions in CMP demonstrates that the action of CMP is not uniform across all regions of the wafer surface.

Sandisk has also attached articles outlining the Tungsten CMP process (Exh. D to Motion). One article notes that, in the lower areas of the wafer surface, etching is inhibited by the surface film and removal is slow, while in the high areas, etching occurs due to the absence of the surface film and the removal rate is high.

The Court notes that Gwozdz's rebuttal report does not address any of Boning's opinions or conclusions. Buchbinder and Chien's deposition testimony provides no grounds for Gwozdz's apparent naked assertion that CMP is actually vertical anisotropic etching. Whether material is removed faster vertically or horizontally is never asked. The removal rate features of the process are simply not addressed. The Court has also reviewed Gwozdz's deposition excerpts. Gwozdz gives no underlying rationale to support his conclusion. He claims to have some expertise in CMP as it relates to tungsten plugs. Other than a couple of conclusory statements, he states no facts to support his position that CMP is vertical anisotropic etching.

STM contends that Gwozdz's statement is enough to preserve a fact issue for resolution in this case. In the end analysis, the void created is in Gwozdz's testimony. There are no substantive facts to back up his conclusory opinion and, as such, STM cannot carry its burden on infringement. Shaboon v. Duncan, 252 F.3d 722, 736 (5th Cir. 2001); Orthopedic & Sports Injury Clinic v. Wang Labs., Inc., 922 F.2d 220, 225 (5th Cir. 1991). The Court finds that Sandisk's Motion for Summary Judgment on Noninfringement should be granted.

6. "etching"

Agere argues that the term "etching" should be construed as "removing material through chemical reaction and/or physical action." Atmel presently argues that the term "etching" should be construed as "the process for removing material in a specified area through a wet or dry chemical reaction, or by physical removal, such as by sputter etch." The Court notes that Atmel's present proposed construction provides that "etching" can include removing material by physical action, see Def.'s Post-Hearing Brief at 9, whereas Atmel's proposed construction prior to the Markman hearing provided that etching only applied to removing material through chemical reaction and not through physical action, see Atmel Corporation's Claim Construction Brief Filed Pursuant to the Court's Order of October 18, 2002 ("Def.'s Second Brief") at 32. Prior to the
Markman hearing, this was the only significant difference between the parties' proposed constructions. There now appears to be no significant difference between the proposed constructions. The Court finds that either construction would be acceptable, but concludes that Atmel's present proposed construction is slightly preferable as it appears to be precisely the definition provided in the treatise Microchip Fabrication, see Peter Van Zant, Microchip Fabrication 507 (2d ed. 1990), which treatise was relied upon as authoritative by Agere's expert witnesses, see Tr. 12/05/02 at 53-54. Accordingly, the Court construes the term "etching" as "the process for removing material in a specified area through a wet or dry chemical reaction, or by physical removal, such as by sputter etch."

Etching

Etching is the removal of material.

Ethernet

The Court agrees with Ciena and construes the term as "data communications protocol available in 10 Mbits/s, 100 Mbits/s and 1 GigaBits/s versions." Nortel argues that the term should be construed as "a network protocol defined by the IEEE 802.3 standard." Nortel relies on several dictionary definitions for its construction and further contends that its construction is consistent with how the term is used in the specification. Arguing that the specification supports its construction, Nortel cites Column 2, Lines 8 through 13 of the specification, which discuss the different protocols used in the data communications industry and state that the industry "developed using a completely different set of interfaces and protocols, for example carrier sense multiple access collision detection CSMA/CD systems, subject of IEEE standard 802.3, and Ethernet which is available in 10 M/Bits/s, 100 M/Bits/s and 1 GigaBits/s versions." However, this excerpt from the specification draws a distinction between the CSMA/CD protocol, which it states is subject to IEEE standard 802.3, and Ethernet, which it does not connect to the IEEE standard.

Furthermore, Nortel cites Column 7, Lines 52 through 54 of the specification, which state, "Ethernet ports operating at 10 MBit/s; and 100 MBit/s in accordance with IEEE standard 802.3" arguing that it supports Nortel's definition of “Ethernet.” However, the fact that the ports are in accordance with the IEEE standard does not indicate that the patentee meant to define “Ethernet” as “a network protocol defined by the IEEE 802.3 standard.”

Ciena's construction is supported by the specification. The specification indicates that Ethernet is a protocol used in the data communications industry, as opposed to the telecommunications industry. See Col. 1:66-2:16. The specification also references bit rates of 10 MBit/s, 100 MBit/s and 1 GigaBit/s in reference to the Ethernet protocol. See Col. 2:12-13. “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” Phillips, 415 F.3d at 1315. Accordingly, the Court construes the term in accordance with the specification.
The preamble of claim 1 of the '196 Patent discloses 'a currency counting and evaluation device for receiving a stack of currency bills, rapidly counting and evaluating all the bills in the stack and then re-stacking the bills . . .' '196 Patent, Col. 31, ll. 41-46. Cummins argues that as a word in the preamble, the word "evaluating" should not be given any specific limiting meaning. To the extent it requires limitation, however, Cummins argues that the dictionary meaning of "evaluating" is synonymous with "denominating." Glory argues that this word means both the evaluation of the value of the bill and the evaluation of the genuine vs. counterfeit bills. The parties agree that any construction of "evaluating" applies to both the '196 Patent and the '806 Patent.

While the word "evaluation" appears only in the preamble of claim 1 of the '196 Patent, the claims of the '806 Patent provide more guidance. The '806 Patent use both "evaluate" and "denominating" in the same independent claim, claim 16. When two terms are used together in the same claim, they are presumed to have different meanings. Bancorp Services, L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1373 (Fed. Cir. 2004) (use of two terms in "close proximity in the same claim gives rise to an inference that a different meaning should be assigned to each"). Glory's position is consistent with this principle. Additionally, Cummins has claimed a patent for a machine that both (i) determines whether a bill is genuine or spurious, and (ii) attaches a denomination to those bills that the machine finds to be genuine. Given the presence of these two functions, the Court agrees with Glory that "evaluating" encompasses determining for each bill whether that bill's value can be determined.

Claim construction is a legal determination that we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455-56 (Fed. Cir. 1998) (en banc). The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art in question at the time of the invention when read in the context of the specification and prosecution history. See Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Lucky Litter argues that the Commission erroneously construed claim 33 as having a "cat exit" limitation and that without this added limitation, claim 33 is invalid as anticipated or obvious. Claim 33 reads:

33. A self-cleaning cat litter box comprising:
   a pan-shaped housing defining an upwardly open litter chamber to be filled to a given fill level with cat litter;
   a comb drive coupled to the housing;
   a comb extending between two opposed sidewalls and being coupled to the comb drive and movable between a storage position and a discharge position, the comb projecting down into the litter chamber to a level below the fill level so that the comb engages clumps in the litter and moves such clumps toward the discharge position; and
   a mode selector switch operatively connected to said comb drive, the switch being moveable between a manual operation position wherein an operator causes the comb to move toward the discharge position and an automatic operation position wherein the comb moves toward the discharge position automatically upon the occurrence of a predetermined event.

'847 patent, claim 33 (emphasis added). The Administrative Law Judge (ALJ) construed the "automatic operation position" of claim 33 as "a position of the mode selector switch where combing is initiated in response to a cat exit," ALJ Decision at 48, and the Commission declined to review this decision, Commission Decision at 5.
The appellants argue that this construction conflicts with the plain language of the claim, which refers to a predetermined event, not to a cat exit. The appellants explain that in Applica's request for reissue, Applica stated that claim 1 contained "recitations regarding a cat exit sensor and a delay means which are too limiting of the invention." J.A. 37238-39. The appellants point out that claim 33 was added during reissue and does not contain the "cat exit" language of claim 1.

The Commission responds that the specification distinguishes the invention over the prior art in terms of cat exit: "The present invention provides effective improvement for the rake drive of the Carlisi [U.S. Patent No. 5,048,665] device so that movement of the comb or rake through the litter can be made responsive to entry and exit of the cat from the litter box." '847 patent col.1 ll.47-50. The Commission argues that the broader plain language interpretation of the "predetermined event" would jeopardize the validity of claim 33 by encompassing the periodic combing described in Carlisi. The Commission asserts that the specification emphasizes that the litterbox is "directly responsive to the exit of a cat from the litter box." Id. col.1. l.62. The Commission argues that the patent clearly disavows automatic operation on a timed basis because the specification discloses that an object of the invention is to provide an improved rake or comb drive that "does not operate on a periodical basis so that there is no substantial possibility that the comb mechanism will carry out a cleaning operation while a cat is present in the box." Id. col.1 l.63-col.2 l.2.

We conclude that the "automatic operation position" of claim 33 must be construed in accordance with its plain meaning. Claim 33 requires "an automatic operation position wherein the comb moves toward the discharge position automatically upon the occurrence of a predetermined event." On its face, the claim does not limit the predetermined event to a cat exit. The words of a claim are generally given their ordinary and customary meaning, absent a clear indication otherwise from the specification or prosecution history, as where the patentee acts as his own lexicographer or clearly disavows claim scope. Here, the specification does not support limiting the term to a cat exit. This is not a case where the patentee acted as his own lexicographer and defined the term "predetermined event"; in fact, the words "predetermined event" appear nowhere in the specification. Thus, the specification does not clearly indicate the patentee's intent to impart a unique meaning to "predetermined event." See Helmsdorfer v. Bobrick Washroom Equip., Inc., 527 F.3d 1379, 1381 (Fed. Cir. 2008) ("A patentee may act as its own lexicographer and assign to a term a unique definition that is different from its ordinary and customary meaning; however, a patentee must clearly express that intent in the written description."). In addition, nothing in the specification clearly and unmistakably disavows predetermined events other than cat exit. The Commission asserted that the specification disavowed periodic cleaning, such that claim 33 should require a cat exit, by the statement: "Another object of the invention is to provide a new and improved comb drive for a self-cleaning cat litter box that is capable of remaining in[] operation for extended periods of time without attention from the cat owner and that does not operate on a periodical basis so that there is no substantial possibility that the comb mechanism will carry out a cleaning operation while a cat is present in the box." '847 patent col.1 l.63-col.2 l.2. This statement falls short of the type of clear and unmistakable disavowal required to limit the ordinary meaning of a claim term.

Moreover, the prosecution history shows that the patentee viewed his invention more broadly and sought reissue to remove "cat exit sensor and delay means which are too limiting of the invention." J.A. 37238. Although the original claim set included claims requiring "a cat exit sensor" for actuating the self-cleaning operation after "sensing exit of a cat from the litter chamber," claim 33, which was added during reissue, does not contain this limitation. Claim 33 makes no mention of a cat exiting the litter box. We will not read in a cat exit limitation into this claim. In short, nothing in the claim language, specification, or prosecution history requires a cat exit limitation. The "automatic operation position" of claim 33 requires only that the "comb move[] toward the discharge position automatically upon the occurrence of a predetermined event." '847 patent, claim 33.
The last disputed phrase we address is "event timer." Based on the same reasoning it relied upon in construing the disputed phrase discussed above, the district court construed "event timer" to mean "nonvolatile memory for storing the event timer information sequences used to control directly the recording of the selected television program. It does not include multiple memories." SuperGuide Corp., 169 F. Supp. 2d at 525, 529-30.

According to Gemstar, this phrase means "at least nonvolatile memory and logic for storing 'event timer information sequences' that are used to control the recording of a television program. It may include additional information and memories as well, including volatile memory." Gemstar contends that the court erred in holding that the claimed "event timer" may store only "event timer information sequences" because claim 1 is a "comprising" claim. In support of its proffered construction, Gemstar first argues that the plain language of claim 1 does not limit the type or number of memories used by the event timer. Gemstar also points out that claim 1 is a "comprising" claim. With respect to the specification, Gemstar contends that the district court inserted the requirement of a single, nonvolatile memory by relying solely on one embodiment while ignoring another embodiment, Figure 2, which discloses an event timer with two memories.

According to Thomson, the "event timer" element requires non-volatile memory for storing the event timer information sequences which directly control the recording device. Thus, Thomson maintains that the court's construction does not exclude multiple event timers, but the particular event timer that controls recording must be nonvolatile. In support,
Thomson relies on the specification and prosecution history to point out that one of the primary objectives of the '357 patent is to store VCR control information in the nonvolatile memory of the event timer so that it is not lost in the event of a power failure. Lastly, in response to Gemstar's argument about Figure 2, Thomson explains that it is an embodiment of claim 4, which depends on claim 1, and covers a second event timer located externally to the recording device.

As with the previous phrase, the disputed phrase "event timer" does not have a plain and ordinary meaning in the art. The claim language does not limit the "event timer" from consisting of multiple memories or event timers. In addition, the specification teaches that the event timer that directly controls the recording device must consist of nonvolatile memory. As we discussed above, the specification emphasizes that storage of the event timer information in nonvolatile memory is necessary if the system is to control recording even if the memory containing the program schedule listings is erased by a power interruption. See '357 patent, col. 3, ll. 47-65. Furthermore, Figure 2, which is an embodiment of claim 4, consists of two event timers. However, the specification teaches that one of the event timers consists of nonvolatile memory and it is this memory that controls the recording device. Id. at col. 6, ll. 20-39.

The prosecution history further supports this construction. During prosecution, the '357 patentee emphasized that in the claimed invention the schedule listings are automatically converted into event timer information and stored in the event timer such that if the schedule information is lost, the VCR programming information will not be lost. This purpose can be fulfilled only if the event timer memory that controls the recording device consists of nonvolatile memory.

Accordingly, we accept Gemstar's construction and define "event timer" as meaning "at least nonvolatile memory and logic for storing 'event timer information sequences' that are used to control the recording of a television program." The event timer also may include additional information and memories, including volatile memory. However, the nonvolatile event timer memory containing the event timer information sequences must directly control the recording device.

Event Manager

Claims 1, 40, 41, and 42 contain the term "event manager." SFA suggests that the term means "hardware and/or software that takes or directs an action relative to an event." It argues that the term must encapsulate a variety of functions including determining when an event has occurred, determining an event's context, and initiating automatic operations. Furthermore, SFA urges that its definition is in agreement with the standard dictionary definition of "manage" meaning "to direct or control." 2 Conversely, Infor defines the term as "a hardware and/or software module functionally separate and apart from the subsystems that intelligently controls the flow of information between the subsystems." Infor contends that since every description of the "event manager" in the specification has it separated from the variety of subsystems, the definition should include this separation. Further, Infor argues that "intelligent control" was heavily relied upon by the patentee during prosecution to distinguish the invention from the Negrino Reference.

Both sides' definitions redundantly provide for general descriptions of the function of the "event manager" when a more specific description of its function is provided for in the claim language itself. First, Infor's inclusion of the relationship between the "event manager" and the subsystems is unnecessary. Independent claims 1 and 40 describe "an event manager, coupled to the subsystems." The term "coupled to" necessarily implies that the event manager is separate from the various subsystems. Adding an additional "separation" limitation would only be redundant and confusing to the jury. Likewise, both sides attempt to incorporate the general function of the "event manager" in their definitions. Ultimately, these descriptions are vague and redundant of the claim language. Claim 1 provides that the "event manager detect[s] . . . infer[s] . . . and automatically initiat[es] an operation in one or more particular subsystems." Claim 40 has almost identical language. Both Infor's and SFA's definitions are too broad in light of the very specific functions provided for in the claim language. Further, Infor's term, "intelligently controls," is vague and would require even further definition. The claim language already
provides for the "event manager's" relationship with the subsystems as well as its various functions. No additional limitations are necessary beyond the agreed limitation that the event manager must be "hardware and/or software." Accordingly, the Court construes the term as "hardware and/or software."

9. "[E]vent trigger:" "Notification or indication that an event has happened." The parties agree with this construction. The court's construction is consistent with Figure 1 of the specification, which depicts the event processor notifying the task engine that an event has occurred.

7. "non-time based events"

After the Markman hearing, the parties conferred regarding the construction of the term "non-time based events" which appears in both Claims 1 and 2. While they were unable to reach agreement, they now propose identical constructions of this claim term, with the exception that AMS's construction includes language specifying that the term "non-time based events" excludes the use of delays, buffers, and time windows to control bid acceptances in order to control the amount of processing.

"The doctrine of prosecution disclaimer precludes patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." SanDisk Corp. v. Memorex Products, Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005) (quotations and alterations omitted). Thus, "where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). But, an ambiguous disclaimer does not serve a public notice function. Therefore, a disclaimer which is not "clear and unmistakable," but rather which is "amenable to multiple reasonable interpretations" will not serve to limit the scope of the claims. See SanDisk, 415 F.3d at 1287.

The Court finds that AMS's disclaimer was not sufficiently clear and unambiguous to be read to disclaim delays, buffers, and time windows entirely. When read in context, the prosecution history reveals that in every instance where the inventors distinguished their invention from that disclosed in Dinwoodie, they did so on the basis that Dinwoodie taught the use of a "predetermined delay" to establish a "bidding acceptance window of time" in order to "control['] subsequent bid acceptances to prevent system overruns." (J. Ex. C. at 571, 572.) This is no less true for the statement relied upon by Defendants. (See id. at 572 (quoting Dinwoodie as stating: "In this manner, processor 26 controls subsequent bid acceptances to prevent an overrunning of system 10," and pointing out that the use of such "delays, buffers and time windows" was common in the field to control system throughput). The fact that the inventors mentioned buffers on a single occasion in reference to common techniques in the industry does not change this conclusion. Buffers were not disclosed by Dinwoodie and thus, disclaiming buffers was unnecessary to distinguish that art. Therefore, a disclaimer of buffers was not required in order to obtain claim allowance, and any mention of buffers was sufficiently ambiguous to avoid a finding of prosecution disclaimer.

Accordingly, for the above stated reasons, the Court construes "non-time based events" to mean "changing states when prompted by events that are not based on time and excluding the use of delays, buffers and time windows to control bid acceptances in order to control the amount of processing."
A. Does the court's construction of the claim term "default format" mean that every node on the network must be able to communicate with every other node on the network?

The relevant portion of claim 1 of the 830 patent recites:

A computer communications system for transferring data between a plurality of nodes comprising:

(a) a communications medium; (b) a plurality of nodes coupled to said communication medium …

wherein each of said nodes has a format set comprised of one or more formats …[and]

wherein each of said format sets includes at least one default format.

..[and] wherein at least one default format is included in the format sets of each of said nodes. 830 patent, col. 11: 23-55.

It is clear from the language of claim 1 that each of the above "wherein" clauses refers to limitations directed at the "said" --meaning above-mentioned--"plurality of nodes." The term "plurality of nodes" was construed by the court to require "at least three nodes," two of which are supplemented nodes and one of which is a default node. '830 Markman, 172 F. Supp. 2d 478, 2001 WL 1388437 at *10. Because the element of the claimed "communications system" at issue here is satisfied when there are three nodes coupled to a communication medium which can all communicate to each other using the "default format," the fact that other nodes are connected to the medium which cannot "talk to each other" is not relevant to whether that network infringes claim 1. The appropriate inquiry is therefore directed only at the "plurality of nodes" covered by the patent.

It appears that Broadcom has drawn from the following statements the proposition that under the court's '830 Markman ruling, claim 1 requires that all nodes on a network must share a common format:

"The 830 invention, as a whole, is directed at enabling all nodes to communicate with each other using a compatible and optimal transfer format." Id. at *27.

(emphasis added).

"The court finds that the meaning of the term "default format" is a common format that every node coupled to the communication medium can use to transfer data to every other node coupled to that medium." Id. (emphasis added). While the court did not explicitly state so in these lines, the use of the term "nodes" in both statements refers not to all nodes on a given network, but to those nodes included in the claimed "plurality of nodes," which was construed to require at least three nodes. Because all of the wherein phrases in claim 1 are directed at the "plurality of nodes," latter constructions of the terms within those phrases apply requirements only to those nodes. In sum, because the claimed invention is directed only to a computer communications system comprised of a plurality of nodes, these are the only relevant nodes for the purposes of claim 1. The first statement above is a general statement about the purpose of the 830 invention. There is, however, no requirement imposed by the claim language that all nodes on a network be included in the "plurality of nodes" claimed. Rather, the claims only require the inquiry to focus on "at least three" nodes having the claimed characteristics. In the second statement above, the phrase "every node coupled to the communication medium" is meant to refer only to nodes that are included in the "plurality of nodes" that is called for by the claim language. Characteristics of other nodes on the network that are not included in the "plurality of nodes" are irrelevant to the claimed "computer communication system."
Claim 1 of the '611 patent contains the term "exact geographic location": "determining the exact geographic location of the mobile unit place the call requesting emergency service." This term is discussed in the specification: "The exact location of each mobile unit is determined using a Global Positioning System (GPS), LORAN, or other position determining system." ('611 patent, 3:36-39) (emphasis added). "[T]he mobile unit uses the GPS receiver 24 and GPS satellite 22 and to determine its exact geographic coordinates, such as longitude and latitude." ('611 patent, 6:22-24) (emphasis added). EMSAT and LBS assert that this term means "a position in longitude and latitude having a degree of accuracy and precision typical of that obtained from a Global Positioning System (GPS), LORAN, or other position determining system." Centennial argues that "exact geographic location" is indefinite. Alternatively, Centennial proposes "a precise and accurate position in latitude and longitude that is not determined using cell site location, cell site ID, coverage area, signal strength, two-way ranging, or hyperbolic ranging."

Centennial first contends that this term is insolubly ambiguous because the patent provides no objective standard from which to determine how "exact" the geographic location must be. In support of its argument, the defendant cites Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342 (Fed. Cir. 2005), in which the Federal Circuit held that "aesthetically pleasing" failed to provide one of ordinary skill in the art any criteria to determine whether this limitation is met. Id. at 1349. But unlike Datamize, in which the specification provided no objective criteria, the '611 patent explains that the exact geographic location is calculated using GPS, LORAN, or other position determining systems. Although "other position determining systems" does not delineate how exact the determination must be, one of skill in the art would know how accurate and precise GPS and LORAN were. Thus, "exact" refers to the degree of accuracy and precision provided by the specified position determining systems, GPS and LORAN, at the time of the invention.

Second, Centennial argues that "exact geographic location" does not include the following position determining methods: cell site location, cell site ID, coverage area, signal strength, two-way ranging, or hyperbolic ranging. According to the defendant, the patentees disclaimed these position determining methods because they do not provide exact geographic location. In response to a PTO rejection for obviousness in view of the Schaible, Comroe, Freeny, Ito, and Frost references, the applicants amended the claims to add the limitation "exact" before "geographic location" and argued that the cited references are distinguishable. (Dkt. No. 138, Ex. 9). The applicants distinguished Schaible because it uses signal strength, which is merely an "indication of location," and Comroe because it uses cell site location. In response to Centennial's prosecution history disclaimer argument, the plaintiffs contend that the applicants distinguished Schaible and Comroe because they merely estimate distance rather than providing longitude and latitude. But the addition of the modifier "exact" indicates that the applicants were distinguishing based on the prior art's lack of precision and accuracy. The plaintiffs' relative position versus longitude and latitude argument is not apparent anywhere in the applicants' response to the PTO. And, even if the applicants did distinguish Schaible and Comroe based on their failure to provide longitude and latitude, their arguments criticized Schaible's and Comroe's position determination technologies due to this alleged shortcoming. Thus, the applicants disclaimed signal strength and cell site location techniques. On the other hand, the court concludes that the applicants did not clearly and unmistakably disclaim the other position determining methods disclosed by the prior art references, i.e., cell site ID, coverage area, two-way ranging, or hyperbolic ranging. In all, the court construes this term to mean "a position in longitude and latitude, not determined using signal strength or cell site location techniques, having a degree of accuracy and precision typical of GPS and LORAN systems available at the time of invention."

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2. Examination Component-Disputed Terms Rooted in "Examination Data"

The parties also disagree on constructions for the root term "examination data" and the branch terms "storing an examination data in a memory," "comparing the examination data to a set of examination criteria to define an examination code," "examination criteria," and "computing a component examination code based on said input and a set of stored examination criteria."

"Examination data"

Like in the case of "historical data," both sides derive their competing constructions of "examination data" from a single sentence in the specification: "The examination component is the actual physical examination by the physician and any tests
or procedures ordered or provided.” '443 Patent, col 4:8-10.

Based on this language, Prompt construes "examination data" to mean "information including the actual physical examination by the physician and/or any tests or procedures ordered or provided that become the basis for the patient's medical record and required documentation." Defendants proposed the construction "information that consists of the actual physical examination by the physician and any tests or procedures ordered or provided that becomes the basis for the patient's medical record and required documentation." Defendants noted that they chose the language "that consists of" solely "for the sake of readability and consistency in [their] proposed constructions." As such, Defendants stated they would not oppose replacing "that consists of" with the word "is" to conform more precisely to the specification's original language.

Like for its argument regarding the nature of the history component, Prompt argues that the nature of the examination component requires its proposed construction. Prompt again cites to the AMA publication to show how the examination component, like the history component, is broken down into different types of patient history analysis, characterized by their level of detail -- specifically, "problem focused exams," "expanded problem focused exams," "detailed exams," and "comprehensive exams." See CPT '95 at 7. Prompt also cites to language from the specification describing Figure 2:

Vision 204 is the first section of the Examination component and if the criteria 204 is not met, Examination-component Code F 242 results. If the criteria associated with Vision is met, the Visual Field section 206 is gathered.

See '443 Patent, col. 8:25-28. Prompt argues that this language exemplifies the fact that physicians require flexibility in the examination process, because certain initial criteria must be met before proceeding with the examination. For reasons similar to those Prompt articulated with respect to Defendants' original construction of "historical data," Prompt contends that Defendants' construction of "examination data" excludes preferred embodiments because it prohibits physicians from being able to choose whether to conduct an examination without additional tests and procedures.

Prompt is mistaken. In using the verb "is," the sentence in column 4, lines 8 to 10—which both sides agree is the source skilled artisans will use to construe "examination data" unambiguously identifies what constitutes the examination component. The language requires the physician to conduct the actual physical examination and provides him or her the option of ordering or providing more tests or procedures. Nothing in Prompt's intrinsic citation would lead a skilled artisan to believe that the sentence in column 4, lines 8 to 10 describes an examination component that does not require an actual physical examination. Although this restricts a physician's flexibility, it is the result of the patentees having acted as their own lexicographers and clearly disavowing any intent to make the actual physical examination an optional aspect of the examination component. See Schoenhaus, 440 F.3d at 1358; Phillips, 415 F.3d at 1316.

Moreover, as Defendants indicate, it strains credibility for Prompt to contend that "examination data" need not always require information obtained from an actual examination. Prompt protests this assertion, citing to a passage from the AMA's publication that indicates CPT codes embrace physician consultations where the original physician seeks a second opinion. But Prompt's extrinsic citation is irrelevant because Prompt does not even contend that consultation constitutes an examination. Insofar as the parties seek to define "examination data," and by extension to memorialize the examination component of the patient encounter, they are bound by the language the patentees chose. Further, even if Prompt's extrinsic citation were relevant, the Court has no cause to consider it for purposes of construing the claims, given the clarity with which the specification identifies what the examination component involves. See Phillips, 415 F.3d at 1324 (noting that the court may consider extrinsic sources, but only if the sources are not used to contradict claim meanings that are unambiguous in light of the intrinsic evidence); Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1332 (Fed. Cir. 2001) ("Relying on extrinsic evidence to construe a claim is proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence.") (internal quotes omitted).

Accordingly, the Court construes "examination data" to mean "information that is the actual physical examination by the physician and any tests or procedures ordered or provided that becomes the basis for the patient's medical record and required documentation." Similar to the case of "historical data," using the verb conjugation "becomes" here helps ensure that the patient's medical record and required documentation are based on all the information that makes up examination data, not merely the tests or procedures. Unlike in the case of "historical data," however, there appears to be no feasible way to ameliorate the redundant occurrence of the word "that" without sacrificing the crucial word "is."
D. First Examination Results/Second Examination Results

With respect to these terms, used in the '192 and the '131 patents, Visto argues that the court should simply construe the term "examination results" and not the words "first" and "second." Visto contends that the term "examination results" means "information regarding one or more workspace elements obtained by examining those workspace elements or related data." Seven argues that the term "first examination results" means "a determination, based on a comparison of a last synchronization signature to first version information stored within a firewall-protected corporate LAN, whether the content of an associated first workspace element stored within the firewall-protected corporate LAN has been modified." Seven further argues that the term "second examination results" means a determination, based on a comparison of a last synchronization signature, whether the content of an independently modifiable copy of a workspace element has been modified.

Seven asserts that the patentee used these terms in the specification in accordance with only these definitions. Again, these definitions incorporate Seven's "content" limitation such that the examination results indicate whether the "content" of a first workspace element or its copy has been modified. Seven's definition also incorporates several of the limitations of the disclosed embodiments (i.e. firewall-protected corporate LAN). The court rejects this approach and therefore adopts Visto's proposed definition of the term "examination results" with a slight modification and defines it to mean "information regarding one or more workspace elements obtained by examining those workspace elements." The terms "first" and "second" require no construction.

E. "examining the payload portion of the packet data" and its variants

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<tr>
<th>Term</th>
<th>Widevine Construction</th>
<th>Verimatrix Construction</th>
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<tr>
<td>Examining the payload portion of the packet data</td>
<td>Plain and ordinary meaning based on construction of &quot;packet&quot; and &quot;payload portion.&quot;</td>
<td>examining only the payload portion of the packet data</td>
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<td>Insertion of &quot;only&quot; is extraneous and contrary to</td>
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<td>the plain language of the claims.</td>
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The parties dispute whether the invention examines the payload portion of the packet to the exclusion of the non-payload portion when it decides to encrypt a packet. Widevine argues that the claims allow the invention to encrypt based upon an examination of non-payload information as well. Verimatrix argues that the patentee, overcoming a prior art rejection, disavowed that claim scope during prosecution. See Verimatrix Brief at 12-13.

The Court does not see any disavowal of claim scope. The statements the patentee made to the patent examiner are not inconsistent with examining both the payload and non-payload portions of a packet because the references that the patentee overcame did not examine the payload at all. The distinction over the prior art is that the invention does examine the payload, not that it examines the payload exclusively. The Court construes the phrase "examining the payload portion of the packet data," and its variants, to be "examining at least the payload portion of the packet data."
At the center of this dispute is the meaning of the phrase "excess cash payment." EPC's patents describe a method for "apportioning . . . a part of [an] excess cash payment among a number of predetermined accounts" (emphasis added). Again, we "focus[] at the outset on how the patentee used the claim term in the claims, specification, and prosecution history, rather than starting with a broad definition and whittling it down." Phillips, 415 F.3d at 1321. Of particular relevance is the patent specification, which we have described as "the primary basis for construing the claims." Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985); see also Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1360 (Fed. Cir. 2004) ("In most cases, the best source for discerning the proper context of claim terms is the patent specification . . . .").

The patents-in-suit are related. For simplicity we refer to the disclosure of U.S. Patent No. 5,621,640. The other patents-in-suit are U.S. Patent Nos. 6,088,682; 6,876,976; and 7,171,370.

In the present case, the patent specification strongly supports the construction of "excess cash" that the district court ultimately adopted. The specification describes the patent as a method "for conveniently and frequently donating to qualified charities and savings or other accounts." This method, in turn, is further described as follows:

In current shopping situations a clerk inputs the price of all items in a cash register and the latter totals the price. The consumer offers either the exact amount of cash or a sum exceeding the price, and the clerk enters that amount. The cash register then subtracts the price from the cash.

The excess cash offers the customers an opportunity to save small amounts of money painlessly. It also affords the consumer to donate [sic] small amounts of money to charity.

The portion of the specification quoted above tells us what "excess cash" means in the context of the patent claim: "excess cash" is what is left over after the merchant subtracts the price of the items the consumer wishes to buy from the cash the consumer tenders to complete the sale. Where the consumer does not offer a sum in excess of the total displayed on the cash register, then there is no excess cash. All this is captured quite well by the construction of "excess cash" that the district court ultimately adopted, according to which "excess cash" refers to "an amount selected by the payor beyond the total amount owed at the point of sale."

EPC has surprisingly little to say about what it alleges is substantively wrong with the district court's construction, or why its proposed construction would be better on the merits. Instead, it attempts to assign error to the district court's construction on a number of procedural grounds. Principally, it argues that the court erred by (1) spending a portion of the claim construction hearing considering the meaning of the phrase "sales price," which was not a disputed claim term; and (2) using the accused products to tailor a construction of the patent claims that would make it impossible for EPC to prove infringement. Neither of these arguments has merit.

EPC's first argument is that the district court erred by spending a portion of the claim construction hearing considering the meaning of the phrase "sales price," which was not a disputed claim term. This argument is somewhat puzzling, since it was EPC's own proposed construction that raised questions concerning the meaning of "sales price." EPC proposed to construe "excess cash" as "an amount . . . offered in excess of the sale price of merchandise" (emphasis added). It admitted, however, that the parties disagree about what constitutes a "sale." According to the defendants, a sale occurs when cash changes hands at the cash register. According to EPC, by contrast, to call a transaction a sale is to imply that the merchant would treat the cash the consumer tenders as income on its accounting statements. EPC also insists--without offering any evidence--that when a consumer purchases a gift card, a merchant would not consider this to be a sale.

In the light of this acknowledged disagreement over the meaning of "sales price," the fact that EPC would both propose to define its patent claims in terms of this phrase and then fault the court for attempting to clarify the phrase's meaning is at best ironic and at worst disingenuous. Again, the court's obligation is to ensure that questions of the scope of the patent claims are not left to the jury. O2 Micro, 521 F.3d at 1361-62. In order to fulfill this obligation, the court must see to it that disputes concerning the scope of the patent claims are fully resolved. Id. In the present case, to evaluate EPC's proposal
concerning the scope of its claims, the court first had to understand this proposal. If the court had adopted EPC's proposed construction without first assigning a fixed meaning to this construction, then it would quite clearly have failed to assign "a fixed, unambiguous, legally operative meaning to the claim." Liquid Dynamics Corp. v. Vaughan Co., 355 F.3d 1361, 1367 (Fed. Cir. 2004). Thus, there was nothing improper about the fact that the court interpreted EPC's (quite slippery) proposed construction. As Michel de Montaigne has said, there are times when "[w]e need to interpret interpretations more than to interpret things." Jacques Derrida, Structure, Sign and Play in the Discourse of the Human Sciences, in Writing and Difference 278 (Alan Bass, trans. 1980) (quoting Montaigne).

Equally without merit is EPC's argument that the district court erred by "tailoring its claim construction to fit the dimensions of the accused product." A court may not use the accused products for the sole purpose of arriving at a construction of the claim terms that would make it impossible for the plaintiff to prove infringement. See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1331 (Fed. Cir. 2006). But that is not what the court did here. To the contrary, the court quite properly invited the parties' views of what they thought "excess cash" meant in the context of a series of hypothetical transactions, some of which involved the accused products. For example, the court described a situation in which a consumer tenders $50 for a grocery store gift card with a face value of $50, and then asked the parties to identify whether there was any "excess cash" in that transaction, and if so, what portion of the amount tendered constitutes the "excess." In other words, the court considered the accused products only to elicit the parties' views about what the claim term means in the context of a concrete transaction involving these products. EPC's suggestion that this was improper is way wide of the mark. See id. at 1326-27 ("While a trial court should certainly not prejudge the ultimate infringement analysis by construing claims with an aim to include or exclude an accused product or process, knowledge of that product or process provides meaningful context for the first step of the infringement analysis, claim construction."); Aero Prods. Int'l, Inc. v. Intex Recreation Corp., 466 F.3d 1000, 1012 n.6 (Fed. Cir. 2006) ("Although the court revealed an awareness of the accused device, the court's awareness of the accused device is permissible.").

In short, the district court correctly construed the claim terms in EPC's patents. EPC's attempts to assign error to the process by which the court arrived at its construction cannot succeed.

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D. "Exchanging"

Lucent contends that this term should be construed in accordance with its ordinary meaning as "a packet transmitted at a rate greater than the subscribed rate." (D.I. 396 at 6.) Extreme contends that this phrase should be construed to mean "a packet from a customer transmitted at a rate greater than the subscribed rate for the virtual circuit connection to which the packet belongs." (D.I. 395 at 18.) Foundry contends that the phrase means "a packet from a customer transmitted at a rate greater than the subscribed rate where the subscribed rate is a rate described in terms of an average rate and burstiness factor over a virtual circuit to which the packet belongs." (D.I. 385 at 10.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects Extreme's proposed construction and that part of Foundry's construction that relies on the presence of a virtual circuit.

With regard to the part of Foundry's proposed construction where the rate is described in terms of an average rate and burstiness factor, the Court finds that the subscribed bandwidth is described in these terms in a preferred embodiment of the invention. ('810 patent at 5:60-64.) Thus, the Court concludes that Foundry impermissibly tries to restrict the claim to the particular subscribed rate used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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D. "Exchanging"
Defendant contends that this claim term should be limited to an "exchange-type format," which Defendant explains "is essentially a market system that, like the New York Stock Exchange or the Nasdaq, compares offers to buy and sell and completes transactions automatically as soon as a match is found." (D.I. 50 at 14.) However, "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (quotations omitted). Thus, where, as here, the specification describes multiple embodiments, the Court is particularly cautious in limiting the claims to a single embodiment, unless such a construction is otherwise dictated by the claim language. Here, the specification describes, in addition to an "exchange type format," an "auction-type format," a "reverse auction-type format," the sale of tickets for a fixed price, and combinations of these methods. See '809 patent at 4:1-24, 4:51-62. In the Court's view, there is nothing about the ordinary word "exchanging" to suggest that it should be limited to only the "exchange-type format." Accordingly, the Court will construe the term "exchanging" to mean, as Plaintiff contends, "giving up something for something else."

Defendant contends that the term "exchanging" should be limited to an "exchange-type format" because the overall claim is structured in such a way that it can encompass only this format. Specifically, Defendant notes that (1) the claims refer to a "bid," but there is no "bid" in a fixed-price sale, (2) the claims call for "comparing the bid to the asks," but a fixed price sale involves, at most, a comparison with only one ask, and (3) the claims call for completing a sale "when the bid price equals the ask," but auctions are completed at the highest bid price, not when a bid price equals an ask price. (D.I. 57 at 10.) However, the parties have proposed competing constructions for all these claim terms. If, as Defendant contends, these are the actual claim terms that limit the scope of the claims to an "exchange-type format," this contention should be addressed within the context of construing these specific terms. Defendant further contends that the claims are limited to an "exchange-type format" because, in the specification, the claim term "asks" is used only in connection with an "exchange-type format." (See D.I. 50 at 15-16 (citing '809 patent at 4:25-50).) However, this is incorrect: the Summary Of The Invention uses the term "asks" to describe the invention, yet does not explicitly refer to an "exchange-type format." Furthermore, on reviewing the specification, the Court concludes that the mere use of the term "asks" to describe the "exchange-type format" does not amount to either an explicit or implicit definition, nor does it establish "a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim, 358 F.3d at 906.

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E. Excitation

The term "excitation" appears throughout the claims of the '580 patent, including in claims 29-31, 34, 37, and 40-43. AT&T proposes two separate definitions: "(noun) an input signal of a system or apparatus; (adjective) relating to an input of a system or an apparatus." (Joint Letter, Ex. B.) Microsoft asserts the definition should be "values that by themselves without other values (such as "pitch period signals" or "voiced and unvoiced amplitudes") replace the difference between actual and predicted speech values." (Joint Letter, Ex. B.) The main difference between the parties is whether an excitation is limited to a single, particular signal.

The plain meaning of "excitation" is defined in a treatise that both parties offer:

A digital processing system acts on a digital input signal and produces a digital output signal. In other words, it establishes a cause-and-effect relationship. The input signal is called the excitation signal or simply excitation. The output signal is called the response of the system to the considered excitation.

(Murat Kunt, Digital Signal Processing at 22 (Artech House, Inc. 1980) (emphasis in original).) Accordingly, an "excitation signal," as contemplated by the treatise is "an input signal." There is nothing in the language of the '580 patent claims to indicate that the plain meaning of "excitation" should not apply.

The claim must also be read in light of the specification and prosecution history to determine whether the patentees chose to
assign to the term "excitation" a definition or scope other than its plain meaning. See Union Carbide Chems. & Plastics Tech. Corp., 308 F.3d at 1177. The specification does not define "excitation." Although the parties agree that the Figure 1 embodiment does not disclose more than one excitation signal being used in a single frame (Tr. at 162), there is nothing in the language of the claims themselves to support a reading that more than one value cannot be associated with the excitation. It is inappropriate to import any limitation from that embodiment into the claims. Teleflex, 299 F.3d at 1325; Brookhill-Wilk 1, 326 F.3d at 1223. Thus, the specification's use of the term "excitation" does not rebut the presumption of plain meaning.

Microsoft asserts that the patentees disavowed the use of "other values" such as "pitch period signals" or "voiced and unvoiced amplitudes" during prosecution:

[In the Atal '302 patent] voiced/unvoiced signals are required to define the type of excitation to be applied to the decoding filter and a noise generator is needed to substitute for unvoiced excitation. All these signals are coded and utilized to construct a replica of the speech pattern. The excitation signal of the instant application is completely distinguished from the multitude of signals required in Atal '302 to perform the same function and advantageously provides improved operation in which voiced, unvoiced and partially voiced intervals may be accurately constructed using a single excitation signal.

(Pros. Hist. at 110-11.)

The cited prosecution history shows that AT&T disavowed any definition of "excitation" requiring the use of multiple signals. The prosecution history states that "the excitation signal of the instant application is completely distinguished from the multitude of signals required in Atal '302." (Pros. Hist. at 111 (emphasis added).) When read in context, that phrase strongly supports limiting the definition of "excitation" to a single input signal, without additional values. That passage also uses equivocal language: "voiced, unvoiced and partially voiced intervals may be accurately constructed using a single excitation signal [in the claimed invention]." (Pros. Hist. at 111 (emphasis added).) Reading the prosecution history as a whole, however, this Court finds that the patentees represented to the examining attorney that the '580 patent's use of "a single excitation signal," rather than voiced/unvoiced signals and a noise generator, distinguished it from the prior art. Other sections of the prosecution history support this conclusion. The patentees represented to the examining attorney that "the voiced/unvoiced coded signal and noise generator are eliminated and more exact replicas can be synthesized at bit rates lower than required for residual signal encoding," (Pros. Hist. at 112), and that the creation of the excitation signal in the invention under review is, again, "completely distinguished from Atal '302." (Pros. Hist. at 113.)

AT&T asserts that the prosecution history does not limit the claim to merely a single excitation signal (Tr. at 147-48), but instead contemplates an invention which may optionally use multiple or a single excitation signal. (Tr. at 150.) However, as noted, AT&T's proposed construction does not comport with the prosecution history's use of unequivocal language to distinguish and disavow the multiple signals feature of the prior art. (Pros. Hist. at 110-11.)

Accordingly, based on the plain meaning of the term "excitation," the specification's written descriptions, and the prosecution history, this Court defines "excitation" as a noun to mean "an input signal of a system or apparatus without additional values," and as an adjective to mean "relating to an input signal of a system or an apparatus without additional values."

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On June 24, 2003, this Court issued a Memorandum and Order on claim construction that, inter alia, construed the term "excitation" in the 580 patent to mean "an input signal of a system or apparatus without additional values," as a noun, and "relating to an input signal of a system or an apparatus without additional values" when used as an adjective. AT&T Corp. v. Microsoft Corp., 2003 U.S. Dist. LEXIS 10716, 01 Civ. 4872 (WHP), 2003 WL 2145973, at *14-16 (S.D.N.Y. June 24, 2003). AT&T asks this Court to reconsider its construction of the claim term "excitation," on the ground that "the Court added a negative limitation ('without additional values') not supported by the prosecution history." (AT&T Opposition to Microsoft's Motion for Summary Judgment of Noninfringement ("AT&T Opp.") at 20.) For the reasons set forth below, AT&T's application for reconsideration is granted. 4
During an August 29, 2003 pre-motion conference, AT&T requested that this Court reconsider its construction of the term "excitation." At the parties' request, this Court allowed the parties to address AT&T's application for reconsideration in their summary judgment briefing. Accordingly, the parties addressed construction of the term "excitation" in their memoranda on Microsoft's Motion for Summary Judgment of Noninfringement.

This Memorandum and Order memorializes a ruling made during a conference call with the parties on February 17, 2004.

"To be entitled to reconsideration, the movant must demonstrate that the Court overlooked controlling decisions or factual matters that were put before it on the underlying motion, which, had they been considered 'might reasonably have altered the result reached by the court.'" Chere Amie, Inc. v. Windstar Apparel, Corp., 2002 U.S. Dist. LEXIS 17825, 01 Civ. 0040 (WHP), 2002 WL 31108187, at *1 (S.D.N.Y. Sept. 23, 2002) (quoting Consol. Gold Fields v. Anglo Am. Corp., 713 F. Supp. 1457, 1476 (S.D.N.Y. 1989)); accord Local Civil Rule 6.3. Reconsideration is within the sound discretion of the district court. Dietrich v. Bauer, 76 F. Supp. 2d 312, 327 (S.D.N.Y. 1999). Because it appears that this Court "overlooked certain technical distinctions made in the prosecution history statements" during claim construction, reconsideration is appropriate here. (AT&T Opp. at 20.)

The facts underlying this Court's construction of the term "excitation" were set forth in detail in this Court's Memoranda and Order, dated June 24, 2003. AT&T, 2003 U.S. Dist. LEXIS 10716, 2003 WL 21459573, at *14-15. AT&T contends that this Court's addition of the phrase "without additional values" in its construction is not supported by the prosecution history of the 580 patent. AT&T proposes that this Court construe "excitation" to mean "an input signal of a system or apparatus that does not require use of voiced/unvoiced coded signals and a noise generator," because nothing in the prosecution history prohibits the use of all "additional values." (AT&T Opp. at 23 (emphasis added); Transcript of Oral Argument, dated Dec. 22, 2003 ("Tr.") at 4.) Microsoft urges this Court to maintain its current construction of "excitation", and include the phrase "without additional values." This Court agrees with AT&T that the inclusion of the phrase "without additional values" renders its construction of the term "excitation" overbroad.

During prosecution, the patentees attempted to distinguish their invention from U.S. Patent No. 3,324,302 (the "Atal '302") :

Atal '302 . . . discloses a linear prediction speech analysis and synthesis arrangement in which predictive parameters [1] for a speech pattern interval are generated. Pitch period signals [2] representative of the location of glottal pulses in the applied speech pattern are independently generated. Signals corresponding to voiced and unvoiced amplitudes [3] are produced responsive to the pitch period and prediction parameter signals. Voiced/unvoiced signals are required to define the type of excitation to be applied to the decoding filter and a noise generator is needed to substitute for unvoiced excitation. All these signals are coded and utilized to construct a replica of the speech pattern [5]. The excitation signal of the instant application is completely distinguished from the multitude of signals required in Atal 302 to perform the same function and advantageously provides improved operation in which voiced, unvoiced and partially voiced intervals may be accurately constructed using a single excitation signal.

(MS Ex. 2: Pros. Hist. 110-11 (emphasis added).) As this Court noted in its June 24, 2003 Memorandum and Order, the patentees used both equivocal and unequivocal language in differentiating their invention from the prior art. AT&T, 2003 U.S. Dist. LEXIS 10716, 2003 WL 21459573, at *14-15. This Court found that viewing the prosecution history as a whole, however, the patentees disavowed the use of all multiple signals. AT&T, 2003 U.S. Dist. LEXIS 10716, 2003 WL 21459573, at *14-15. In making that finding, this Court also looked to other sections of the prosecution history:

The voiced/unvoiced coded signal and noise generator are eliminated and more exact replicas can be synthesized at bit rates lower than required for residual signal encoding.

(MS Ex. 2: Pros. Hist. at 112.)

The decoding receiver of Atal '302 requires a noise generator, and a switching arrangement responsive to a voiced/unvoiced decision signal to provide the pitch pulse excitation signal for voiced periods and a noise excitation signal for unvoiced periods. The instant invention advantageously eliminates voiced/unvoiced coding, noise generation for
unvoiced intervals and switching between such intervals and provides better quality speech reconstruction at selectable bit rates and is completely distinguished from Atal '302.

(MS Ex. 2: Pros. Hist. at 112-13.) See AT&T, 2003 U.S. Dist. LEXIS 10716, 2003 WL 21459573, at *15. Upon reconsideration, however, the cited portions of the prosecution history support a more limited disclaimer of scope.

A court must consider the prosecution history of the patent "to determine whether the applicant clearly and unambiguously 'disclaimed or disavowed [any interpretation] during prosecution in order to obtain a claim allowance." Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed. Cir. 2002) (quoting Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985)) (alteration in original). Disclaimer during prosecution of the patent may include instances where "the patentee distinguished [a] term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359 at 1366-67. Prosecution disclaimer must be narrowly tailored, however, to exclude only claim scope that has been "clearly and unmistakably" disclaimed. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324-26 (Fed. Cir. 2003) ("For prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable."); accord Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1306-07 (Fed. Cir. 2003). "Where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of surrender." Omega Eng'g, 334 F.3d at 1324-26 (Fed. Cir. 2003) (finding that the prosecution history indicated a "clear and unmistakable," narrow disclaimer of claim scope); accord Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1310-11 (Fed. Cir. 2003).

This Court's earlier construction of the term "excitation" is overbroad, and must be limited to encompass only the extent to which the patentees clearly and unmistakably disavowed a particular claim scope. Omega Eng'g, 334 F.3d at 1324-26. The prosecution history teaches that AT&T only unequivocally disavowed a definition of "excitation" requiring the use of the particular combination of signals essential to practice the Atal 302 patent, which includes use of voiced/unvoiced signals and a noise generator. Indeed, the patentees averred that their invention was "completely distinguished" from the Atal 302 patent's combination of signals. (MS Ex. 2: Pros. Hist. at 110-11.) However, in reference to the 580 patent's use of single or multiple signals, the patentee's averred language in the prosecution history to explain the 580 patent's use of single and/or multiple signals is not the type of clear and unmistakable disavowal essential to limit the use of all types of additional values from the claim scope. Omega Eng'g, 334 F.3d at 1324-26 (noting that "the doctrine of prosecution disclaimer" does not apply "where the alleged disavowal of claim scope is ambiguous"); Anchor Wall, 340 F.3d at 1310-11 (same). The prosecution history undeniably supports the contention that the patentees never unequivocally disclaimed use of all "additional values" in the prosecution history. (MS Ex. 2: Pros. Hist. 110-13.) Indeed, during prosecution of the 580 patent, the patentees only clearly disavowed use of voiced/unvoiced coded signals and a noise generator, which are essential to practice the Atal '302 patent. (MS Ex. 2: Pros. Hist. at 110-13.) Because the prosecution history supports a limited disclaimer of claim scope, construction of the term "excitation" may only be limited to provide that the 580 patent does not require voiced/unvoiced coded signals and a noise generator. (MS Ex. 2: Pros Hist. 110-13.) Omega Eng'g, 334 F.3d at 1324-26.

CONCLUSION

AT&T's application for reconsideration of this Court's construction of the term "excitation" in the 580 patent is granted.

Upon reconsideration, this Court reconstrues the term "excitation" when used as a noun to mean "an input signal of a system or apparatus that does not require use of voiced/unvoiced coded signals and a noise generator," and when used as an adjective to mean "relating to an input signal of a system or apparatus that does not require use of voiced/unvoiced coded signals and a noise generator."
The parties have grouped these terms together. The dispute is whether the "relationship" language requires a construction which imposes a "left-hand side" and "right-hand side" limitation to the terms. Trilogy contends that the term "includes relationship" means "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Selectica contends that the term "includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included."

In discussing the relationship terms, the patents state "[a] relationship relates a first set of parts with a second set of parts." 651 patent, col. 2, 11. 13-14. The patents also state:

Preferably, the part relationships are: included, excluded, removed, and requires choice. An included part is included automatically. A part is excluded from the configuration when it inclusion would result in an invalid configuration. A part may be removed when another part is added. Thus, when a first part exists in the configuration and a second part is added, the first part is removed from the configuration. The requires choice relationship is used to allow a set of choices to be made from a group of parts.

'651 patent, col. 2, 11. 23-31. For essentially the reasons discussed previously, the court adopts the following constructions of these terms:

"includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included;"

"excludes relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be excluded when all elements of the left-hand side are already included;"

"requires choice relationship" means "a relationship in which a number of elements must be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included;"

"removed relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be removed when all elements of the left-hand side are already included;" and

"optional relationship" means "a relationship in which a number of elements may be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included."

C. "Exclusion" and "exclusion criteria"

Claims 18 and 50 of the 550 patent claim:

Claim 18:
A method according to claim 16, further including the steps of:

selecting a second portion of said first image or another image; and

creating an exclusion based on said portion.

Claim 50:
A method for blending images, comprising the steps of:

receiving video of an environment;
selecting a first region in said video, said first region includes a first set of different color values;

creating inclusion criteria describing said first set of different color values;

selecting a second region in said video, said second region includes a second set of one or more color values;

creating exclusion criteria describing said second set of one or more color values, said first set of color values overlap with said second set of color values;

identifying a target area in said video after said steps of creating inclusion criteria and creating exclusion criteria;

comparing said color data for said target area to said inclusion criteria and said exclusion criteria; and

blending a graphic with said target area at least partially based on said inclusion criteria and said exclusion criteria.

Sportvision's definition is "An exclusion is a set of characteristics that describe a class of pixels that cannot be modified in video." (Sportvision's Memo at 15.)

SportsMEDIA's definition is "A set of characteristics that describe a set of pixels that are not to be modified in the video." (SportsMEDIA's Memo at 19.)

The written description provides the following definition for the term:

An exclusion is a color range for a pixel that should not be enhanced using the present invention. During operation, the operator can set up one or more inclusions and/or one or more exclusions. For example, the operator may decide that a yard line can be drawn over white (the original yard lines), green (grass) and brown (dirt). Additionally, the operator may want to set up an exclusion so that a line is not drawn over a specific color (e.g. team's uniforms). In an alternate embodiment of the present invention, exclusions also include video frame pixel locations that are not to be enhanced.

'550 patent, 9:6-16.

This description defines "exclusion" as (a) a color range which specifies whether a pixel cannot be modified, or (b) a color range which specifies whether a pixel cannot be modified and a video frame location which cannot be modified. Definition (a) has one criterium for determining whether a pixel color value can be modified and definition (b) has two criteria (color range and location). Sportvision's definition only covers case (a). SportsMEDIA's definition only covers the case in which pixel locations for exclusion are stored.

Consistently with the specification, the Court defines the term "exclusion" to mean: "A color range or a color range in combination with pixel locations that determines which pixels are not to be enhanced."

GO BACK

1643

CLAIM CONSTRUCTION

When interpreting disputed claim terms, this court accords claim terms their customary meaning in the art at the time of invention. Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1355 (Fed. Cir. 2004). Further, a construing court should consult the specification to determine whether the patentee gave a claim term a meaning inconsistent with that customary meaning in the proper technological and temporal context. Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1360 (Fed. Cir. 2004).

The district court construed "executable application" to mean "any computer program code, that is not the operating system or a utility, that is launched to enable an end user to directly interact with data." Microsoft asserts that this term should be construed as "standalone programs." Because, absent a disclaimer, the claims of the '906 patent are not limited to the embodiments listed in the specification, this court affirms the district court's construction.
As construed by the district court, "executable application" includes applications or components that are not standalone, i.e., DLLs such as spell check. Such applications or components can only run when invoked by some other application. Microsoft asserts that its construction is consistent with the ordinary meaning of the term and that the specification does not otherwise define the term. Microsoft correctly points out that all of the disclosed embodiments in the specification describe standalone programs (i.e., word processors and spreadsheets). Nonetheless, absent a clear disclaimer in the specification, the embodiments in the specification do not limit broader claim language. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 907-08 (Fed. Cir. 2004).

The record shows that the term "executable application" does not have a customary meaning in the computer science field. Therefore, the district court appropriately declined to impose a sharp limitation on its scope. Accordingly, the trial court correctly perceived that "application" means "a computer program, that is not the operating system or a utility, that is designed to allow an end-user to perform some specific task." The district court also found support for this meaning in technical dictionaries. For instance, the 1994 Microsoft Press Computer Dictionary defined "application" as "a computer program designed to help people perform a certain type of work. An application thus differs from an operating system (which runs a computer), a utility (which performs maintenance or general-purpose chores), and a language (with which computer programs are created). ..." Microsoft Press Computer Dictionary 23-24 (2d ed. 1994). A few years later, the same dictionary defined "application" as "a program designed to assist in the performance of a specific task, such as word processing, accounting, or inventory management. Compare utility." Microsoft Press Computer Dictionary 27 (3d ed. 1997).

Still another source on the meaning of technical language defines "application" as a "program or group of programs designed for end users." ZD Webopædia, at http://www.zdwebopedia.com/TERM/a/application.html.

Neither the specification nor the prosecution history disclaims the district court's construction of "executable application." The '906 patent makes no reference to the phrase "executable application" except in the claims. See generally the '906 patent. In addition, the specification repeatedly indicates that the preferred embodiment is only one possibility for practice of the invention. Id. Because this court "consistently declines to construe claims according to the preferred embodiment," this court agrees with the district court that Microsoft's proposed construction, limiting "executable application" to standalone programs, does not comport with the entire technological and temporal context for this term. N. Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1293 (Fed. Cir. 2000).

The prosecution history does not disclaim the district court's construction of "executable application," and thus supports the trial court's reading of the term. According to Microsoft, the applicants argued that the Khoi patent used library routines (i.e., components), while their invention did not. In addition, Microsoft claims the applicants argued the Koppolu patent taught away from using standalone applications. A review of the prosecution history does not show any disclaimer as Microsoft contends.

The applicants distinguished Khoi on the grounds that the display of the data object provided by the Khoi functionality was not interactive, and in the '906 invention such interactivity could be achieved "without requiring Khoi-like capabilities in the operating system." Thus, the applicants distinguished Khoi on the feature of interactivity, not on its use of standalone programs. While the applicants included language about library routines and DLLs in their response, they did not distinguish the '906 invention based on these features, rather such features were merely included in language that outlined Khoi's operation. Similarly, the applicants distinguished Koppolu by pointing out that the particular kind of object handlers of Koppolu did not allow interactive processing of the object, because Koppolu did not enable such editing of the object.

In light of the applicant's arguments distinguishing Khoi and Koppolu, the examiner's statement that "the claimed external executable application is not a code library extension nor object handler (e.g. windows dll and OLE) as pointed out in applicant's argument. (Paper # 19 pages 12-14)," appears in the context of the applicant's narrow argument. Thus, the examiner's statement also does not evince a clear disclaimer. The arguments the examiner cited in the Reasons for Allowance simply describe OLE object handlers. The applicants cite problems with OLE object handlers, but do not disclaim anything. They simply argue that the cited references do "not disclose or suggest the missing features." In addition, the applicant has "no obligation to respond to an examiner's statement of Reasons for Allowance, and the statement of an examiner will not necessarily limit a claim." ACCO Brands, Inc. v. Micro Sec. Devices, 346 F.3d 1075, 1079 (Fed. Cir. 2003); see also N. Telecom Ltd., 215 F.3d at 1294 (requiring that prosecution history statements have "reasonable clarity and deliberateness" to narrow claim scope). Overall, without a narrow customary ordinary meaning for "executable application," the district court correctly gleaned the proper definition of the term from the intrinsic evidence including the
1644  
4. **executable code**

Plaintiffs' construction: no construction proposed  
Defendant's construction: a type of software that a processor or hardware device can directly execute  

Only defendant has proposed a construction of this term. In support of its construction, defendant cites expert testimony and a technical dictionary. Plaintiffs argue that it is unnecessary to construe the term separately, but they do not argue that defendant's construction is wrong. Therefore, I will adopt defendant's construction of the term "executable code."

**Court's construction:** a type of software that a processor or hardware device can directly execute

1645  
Claim 1i  
associating an executable file with the part number of the selected choice, the executable file for use during manufacture of the computer system  

The parties disagree on the meaning of the above-stated language.  
For the term "executable file", Dell proposed: "a computer program that is ready to run, such as a spreadsheet or word processor."

For the entire phrase, Lucent proposed: "associating a program containing manufacturing instructions that is ready to run on a computer with the part number of the selected choice using the data file generated during the specifying session, which program is employed during manufacturing of the computer system and cannot be a macro (i.e., a symbol, name, or key that represents a list of commands, actions, or keystrokes) or query (i.e., a request for information from a database)."

The court agrees with Lucent's construction of the claim term, as modified, and construes the above-stated claim term as follows:

"associating a program that is ready to run on a computer with the part number of the selected choice which program is used during manufacturing of the computer system and cannot be a macro (i.e., a symbol, name, or key that represents a list of commands, actions, or keystrokes) or query (i.e., a request for information from a database)."

1646  
4. executable play list  

This term appears in claim 1 of the '345 patent. The plaintiff's proposed construction is the same as its proposed construction for the term "play list," namely "a list of works, selected from an inventory of works, that can be stored, retrieved and sequentially played." The defendant's proposed construction of "a list of works that can be played automatically" adds the term "automatically" to its proposed "play list" definition. For essentially the reasons stated with respect to the previous terms, the court defines the term "executable play list" to mean "a play list that can be played automatically."
8. "[E]xecutable portions" 10 are root modules or overlay modules. This construction is consistent with the specification: col. 9:44-57; col. 12:56-58; col. 14:28-31.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -
10 '499 patent, claim 15 (and dependent claims).
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - - -

H. "executable program instructions," as used in claims 9, 10, and 14.

Plaintiff asserts that no construction of "executable program instructions" is necessary and accordingly offers none. Defendants propose that "executable program instructions" must be construed as "object code (i.e., source code that has been compiled)." Here, application of the dispositive claim construction principle—that claim terms must presumptively be given their ordinary meaning as understood by a person of ordinary skill in the art, see Phillips, 415 F.3d at 1313—points persuasively to the construction, "a computer program that directs a client or server to perform certain operations."

In this case, both the claims (Nos. 9, 10, and 14) and the specification make clear that "executable program instructions" are located on both a client's and server's computer readable medium. These claims further teach that the role of the "executable program instructions" is to facilitate a client or server computer's transfer, receipt, or storage of state information or files. See '670 Patent Specification col. 2 11. 41-53 ("[T]he computer readable medium of the server contains computer program instructions for transmitting the file from the server system to the client system and for transmitting the state object to the client system."). In addition, it is plain that "executable program instructions" can take various forms and contain various directives, structured in a certain sequence. For instance, the "executable program instructions" in claim 9 direct the computer to request, receive and store; the "executable program instructions" in claim 10 direct the computer to receive and then transmit.

Neither the claim language nor any other intrinsic evidence supports defendants' proposed construction, which uses the words "compiled" and "object code." These words are arguably technical in their own right and would require further construction. Thus, accepting defendants' construction would undermine the central purpose of claim construction, namely, "elaborating the normally terse claim language[] in order to understand and explain . . . the scope of the claims." Embrex, Inc. v. Serv. Eng'g Corp., 216 F.3d 1343, 1347 (Fed. Cir. 2000) (first alteration in original) (quoting Scripps Clinic v. Genentech, Inc., 927 F.2d 1565, 1580 (Fed. Cir. 1991)).

Accordingly, the most sensible reading of the claim term "executable program instruction" is "a computer program that directs a client or server to perform certain operations."

A. "[E]xecute"

TRG, relying upon a technical definition of the word "execution," asks the Court to construe the term "execute" as meaning to "carry out a trade." (R. 85, Def.'s Mem. at 18.) Plaintiffs, on the other hand, fail to provide a specific definition of the term. Instead, they ask the Court to construe the phrases "execute trades and orders," "execute trades," and "executing trades and orders" to "meancompleting a transaction of buying or selling a stock, a bond, or a commodity future contract through the process of offer and acceptance; executed trades are then cleared." (R. 82, Pls.' Mem., Ex. 1 at 4.) The Court rejects both of these proposed constructions.
To start, the Court notes that Plaintiffs' proposal fails to provide a specific definition of the term "execute." (See R. 82, Pls.' Mem. at 19.) The Court will not attempt to extricate a construction of this specific claim term from its proposed construction of the phrases "execute trades and orders," "execute trades," and "executing trades and orders." Further, the Court rejects TRG's proposed construction as it improperly narrows the definition of the term "execute" to trades. (See R. 85, Def.'s Mem. at 18 ("Execute means to 'carry out a trade.'").) As evident in the claims, the verb "execute" applies to both trades and orders. See, e.g., '923 patent, col. 11, ll. 14-17 ("a principal market maker futures computer operative to receive and automatically execute . . . trades and orders").

17 Plaintiffs also ask the Court to add the following limitation to these phrases: "The PMM computers, not the electronic trading systemssuch as the GLOBEX or Project A systems, execute trades and orders." (R. 82, Pls.' Mem., Ex. 1 at 4.) In support of their request, Plaintiffs point to the specification and portions of the '923 patent's prosecution history. (See R. 82, Pls.' Mem. at 19.) The Court finds it unnecessary to import these limitations to properly construe the term "execute."

The parties both rely on dictionary definitions in their proposed constructions. In the absence of any intrinsic evidence suggesting a different meaning, the Court will also look to dictionary definitions to construe the term "execute." Relying upon its definition in general purpose dictionaries, along with the definition of the term "execution" in a technical dictionary, the Court will construe the term "execute" as follows: "to carry out fully and completely."

18 The Court specifically relies upon the most relevant definitions found in the following dictionaries: (1) Webster's Third New International Dictionary 794 (1981) (defining "execute" as "to put into effect: carry out fully and completely"); (2) Merriam-Webster's Collegiate Dictionary 436 (11th ed. 2003) (defining "execute" as "to carry out fully: put completely into effect"); and (3) Barron's Dictionary of Finance and Investment Terms 172 (4th ed. 1995) (defining "execution" as "carrying out a trade. A broker who buys or sells shares is said to have executed an order.").
It is another object of the invention to enable user-defined transactions to be completed with a reduced number of inputs from the user at the time the transaction is executed.

Typically, the execution of a transaction requires providing user identification information to the system, providing verification information to verify the user is an authorized user, selecting a type of transaction or function, and selecting one or more transaction parameter (e.g., accounts, dollar amounts, etc.) and causing the transaction to be executed.

Upon the user's selection of a desired menu choice, the associated transaction is then executed without the need for further inputs or selections by the user or with limited additional inputs or selections, thereby minimizing the number of selections, inputs or entries required by a user to execute a desired transaction.

The Court construes the terms "execute a financial transaction" and "executing a financial transaction" as meaning:

To fully carry Out a financial transaction.

C. Executing Concurrently

Plaintiff FortuNet's
Defendants Melange and Planet Bingo's

Proposed Construction
Proposed Construction

Executing a computer
Playing simultaneously.

The Court construes the terms "execute a financial transaction" and "executing a financial transaction" as meaning:

To fully carry Out a financial transaction.

Defendants argue the patent specification and prosecution history use the terms "execute" and "concurrently" interchangeably with "play" and "simultaneously." Defendants also assert this Court previously ruled "execute concurrently" means "play simultaneously" in the Stuart litigation. Defendants contend that during prosecution, the patentee distinguished prior art on the basis that the '787 patent discloses the limitation of playing more than one game at a time. Defendants thus argue this term cannot mean play consecutively or play in turn. Additionally, Defendants note that during the Stuart litigation, FortuNet argued that the patent defined concurrent play as the device concurrently executing two games. Defendants therefore argue FortuNet is judicially estopped from arguing otherwise. In response to FortuNet's proposed construction, Defendants assert FortuNet improperly relies on dictionary definitions, i.e. extrinsic evidence, rather than intrinsic evidence. Defendants note that FortuNet's terms of "computer program" and "interval of time" do not appear in the patent claim language, the specification, or the prosecution history.

FortuNet argues its definition is consistent with computer dictionary definitions of "execute" and "concurrent."
asserts the computer need not actually perform the commands simultaneously, but rather within the same interval of time, because a computer executes only one software command at a time, even if it appears to the player that it is happening simultaneously. FortuNet also argues this Court previously interpreted this term to mean both games need not be displayed at the same time. One game can be played in automatic mode in the background without human interaction or display.

The claim language does not define "execute concurrently." However, the specification and prosecution history frequently use the terms "execute" and "concurrently" interchangeably with "play" and "simultaneously." (See, e.g., JA0001; JA0009, Col.1 at 25-35 & 50-53, Col. 2 at 12-16; JA0011, Col. 5 at 37-43; JA0044-45; JA0074-75; JA0161.) The patent claim language, the specification, and the prosecution history do not refer to executing a computer program over the "same interval of time."

The specification's reference to the invention's computer aspects states that the master game device runs under a multitasking operating system where each task is executing a separate game, such as bingo or keno. (JA0010, Col. 3 at 13-25.) Additionally, each game could be displayed in a separate display window on the display screen. (JA0010, Col. 3 at 25-34.) The specification further states that because of "the wide availability of plentiful information in multitasking operating systems and display windowing techniques, we omit the details of implementation of the operating system 14, the concurrent tasks 15, and the windows 20, 24, 26, and 28." n2 (JA0010, Col. 3 at 40-45.)

In finding the defendant in the Stuart litigation infringed the '787 patent, this Court stated that the '787 patent's use of the term executing concurrently "requires that the device play two games at once." (Defs.' App., Ex. 3 at 12.) In re-examining this claim term, the Court reaches the same conclusion. The phrase "execute concurrently" means playing two games simultaneously, or at once. The specification and prosecution history are replete with examples of the patentee interchangeably using these terms. However, the Court also finds "play simultaneously" must be viewed in context of the specification, which states a multitasking operating system where each task is a game achieves simultaneous play. The Court therefore holds "execute concurrently" means "play simultaneously, i.e. at once, through a multitasking operating system where each task is a game. One of those games could operate in the background while the other is played with human interaction." (See Pls.' App. to Markman Claim Construction Br. (Doc. #20), Ex. H at 33-34.)

VIII. "[E]xecutes within"

The phrase "executes within" expressly appears in claims 1 and 2 of the '493 Patent, claim 7 of the '563 Patent, and claims 7 and 16 of the '882 Patent.

A. The Special Master's Proposed Construction

The Special Master interpreted the phrase "[a] window object executes within . . . said web browser client" to mean "that the window object runs inside the [web browser] client." (R&R at 161-62 (emphasis added).) According to the Special Master, there was no issue over whether "within" meant "inside." (Id. at 161.) The Special Master then noted that the "phrase 'executes within,' . . . does not refer to where a window object appears on the web browser screen." (Id.) Rather, as the Special Master pointed out, the "phrase is recited in the context of a 'web browser client,' e.g., 'wherein said each window object executes within' and is directly controlled by said web browser client which operates within said data processing system' called for in claim 1 of the '493 [P]atent." (Id. at 161-62 (also citing '563 Patent Cl. 7 for the proposition that "'The network client according to claim 6, wherein said at least one corresponding window object executes within the network client.'".) This led the Special Master to construe the phrase "in the context of computers"; in other words, as it was commonly understood by one skilled in the art. (Id. at 162.) Citing from various technical dictionaries, the Special Master
then concluded that "'[e]xecute,' in the context of computers, simply means 'run,' 'perform' or 'operate.'" (Id. (citing Computer & Internet Dictionary 200, 488 (3d ed. 1999); Microsoft Computer Dictionary 173 (4th ed. 1999))). In further clarifying his interpretation, the Special Master stated that "'essentially, the web browser client causes, i.e., processes some set of instructions or performs some action, the window object to be manifested within the CME.'" (Id. at 162.) This clarifying language was not however part of the Special Master's final construction of the phrase "executes within," rather it was included to add context. Having summarized the Special Master's proposed construction, the Court will discuss CA's objection and Simple's corresponding counter arguments.

B. CA's Objection and Simple's Counter Argument

CA objects to the Special Master's definition because it may confuse a jury and instead recommends that his clarifying language also be adopted, "verbatim." (CA's Claim Construction Objections at 19 (stating that the Special Mater's "recommended construction -- 'the window object runs inside the client' -- may inadvertently obscure its meaning because a jury may be confused by how a 'window object' can be said to 'run inside the client.'"); CA International, Inc.'s Reply In Support of Objections To Special Master's Report and Recommendation Regarding Claim Construction (Dkt. No. 599) ("CA's Claim Construction Objections Reply"), at 9-10.) In affect, CA argues that rather than merely construing "executes within" as "runs inside the [web browser] client," the Special Master should have defined the phrase in greater detail and incorporated his clarifying language as follows: "'the web browser client causes, i.e., processes some set of instructions or performs some action, the window object to be manifested within the CME.'" (CA's Claim Construction Objections Reply at 10 (citing R&R at 162).) For its part, Simple argues that the Special Master's proposed construction is clear and need not be altered as suggested by CA. (Simple's Reply to CA's Objection at 14-16.)

C. Analysis

The Court's analysis of "executes within" will focus on the plain meaning of the term at the date of invention.

1. One Skilled in the Art at the Time the '493 Patent Was Filed Would Interpret "executes within" to Mean "Runs Inside"

Since the relevant claim language does not indicate that the phrase "executes within" should be given a special meaning, the Court will define the phrase as it would be understood by one of ordinary skill in the art. In fact, the record lacks any evidence that the term "executes within" should be construed other than as it was by one skilled in the art, when the patents in suit were filed. Symantec, 522 F.3d at 1291 (stating that if a patent "specification does not reveal any special definition for… [a term, it must be construed] according to [its]… ordinary meaning").

As implied by the term "executes," the phrase "executes within" does not refer to where a window object appears on a web browser screen. Rather, the Court will turn to technical dictionaries to understand the plain meaning of the term since no special meaning has been indicated by the intrinsic evidence on record. As the Special Master observed, "'[e]xecute,' in the context of computers, simply means 'run,' 'perform' or 'operate.'" (R&R at 162, citing Computer & Internet Dictionary at 200 and 488 (defining 'execute' as ' . . . RUN. Execute means to perform an action, as in executing a program or a command;' defining 'run as '1. To execute a program. 2. To operate.'); Microsoft Computer Dictionary at 173 (defining 'execute' as 'to perform an instruction.).) Neither the parties nor the Special Master had any issue with construing the term "within" as inside. (Id. at 161.) Accordingly, a window object will not act as a separate application on the operating system, rather it will run inside a web browser. For example, a web browser hosting a single content manifestation environment with three window objects will count as one application level program if each window object executes within the web browser. However, if the window objects did not execute within the web browser, there would be at least four application level programs running, one of which would be the web browser while the other three would be the window objects running separately on the operating system, as opposed to executing within the web browser client.

2. "[E]xecutes within" Defined

In light of the foregoing analysis, the Court adopts the Special Master's interpretation of "executes within." Accordingly, the phrase "a window object executes within . . . said web browser client" means "that the window object runs inside the client." (R&R at 161-62 (emphasis added).)

3. Since the Special Master Correctly Focused on the Functional Properties of Window Objects as They Would Be
Understood by One Skilled in the Art, There is No Need to Incorporate His "Clarifying" Language

Since the relevant claim language does not indicate that the term "executes within" should be given a special meaning, the Special Master was correct in defining the term as it would be understood by one of ordinary skill in the art. In addition, the Special Master correctly pointed out that the term "executes within" does not refer to where a window object appears on the web browser screen. (Id. at 161.) Accordingly, the Court will adopt the Special Master's recommended construction of the phrase "executes within," without needlessly incorporating his "clarifying" language.

D. The Court's Ruling on the Phrase "executes within"

CA's objection is denied since the Special Master's proposed construction of "executes within" as "runs inside" is sufficiently clear when viewed in context of the relevant claim language.

B. Claim Construction and Anticipatory Bar

Having concluded that TEXCEN was indeed "on sale" for purposes of assessing the validity of the '643 patent claims, we turn to whether TEXCEN bars those claims. The answer to the question turns on how the claims are construed. We agree with NASDAQ that the district court correctly construed the "executing" step of claim 1. In pertinent part, claim 1 states:

1. A method for trading securities between individuals, comprising:

***

executing a trade of the security based on information contained in the offer for consideration specified in the reply to the offer, whereby the security is traded efficiently between the first [offering] individual and the second [replying] individual;

***.

'643 patent, col. 15, ll. 55-59 (emphasis added). The court construed this step to mean "changing a memory location to indicate that an agreement had been reached between the two [trading] individuals," as Minton had initially proposed and as NASDAQ did not dispute. Minton, 226 F. Supp. 2d at 865 (citing an earlier Markman order). However, in Minton's opposition to NASDAQ's motion for summary judgment of invalidity, Minton argued for a different construction, urging that the court interpret the phrases "between individuals" and "traded efficiently" so as to create distinctions between the claimed invention and TEXCEN.

NASDAQ first contends that Minton's shifting claim construction arguments in the district court should not be accepted, and it argues that we should therefore not entertain the construction he proffered after the Markman hearing. We disagree. However suspect Minton's tactics may appear, the district court in this case did consider Minton's arguments in favor of a new construction before rendering summary judgment. As such, we will review the district court's decision regarding those arguments.

The court did not err in rejecting Minton's arguments in favor of a new construction, Minton contends that the phrase "between individuals" excludes systems like TEXCEN, which required that a broker affirmatively intervene to execute the trade after ensuring that the trade complied with certain conditions, such as the "best execution rule." * We begin our construction of the phrase "between individuals" with the language of the claim itself. Tex. Digital Sys., Inc. v. Tellegenx, Inc., 308 F.3d 1193, 1201 (Fed. Cir. 2002). That phrase appears in two places: in the preamble ("trading securities between individuals") and in a whereby clause of the executing step ("the security is traded . . . between the first individual and the second individual"). Even assuming that we should give weight to both occurrences of the phrase, the phrase does not speak to the questions of how the trade is executed or who or what performs the execution; it simply indicates that a security is traded between individuals -- in other words, that ownership of a security passes from one individual to another. The plain language of the claim itself therefore does not exclude the scenario in which the broker has the "last say" in executing the trade.

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* The best execution rule required brokers to fill a client's order at the best available price. Because an individual user of TEXCEN may select an offer that is not at the best available price, a broker whose client was using TEXCEN may in some instances have overridden the client's selection of an offer to trade and executed the trade at a different, more favorable price.

Moreover, the written description of the invention confirms what the plain language of the claim says. See id. at 1203-04 ("Because words often have multiple dictionary definitions, . . . the intrinsic evidence must always be considered."). The '643 patent describes an embodiment in which a broker's involvement during trade execution is substantial. In particular, the specification describes that a broker will validate that the seller has the security and the buyer has adequate funds before a trade is executed. '643 patent, col. 12, ll. 39-49; col. 12, l. 61 - col. 13, l. 6; col. 13, ll. 26- 31. The district court's construction encompasses that embodiment of the invention, whereas the construction urged by Minton attempts to draw a distinction (i.e., allowing broker pre-approval of the consideration on each side of the trade but not allowing possible broker preemption based on the best execution rule) that the claim language does not support. Even if there were instances in which the best execution rule altered the trading price and parties such that the claimed method was not followed in those instances, the claim would nonetheless have been practiced in instances in which the best execution rule was not invoked to alter the trading price or parties. In those instances, TEXCEN performed the executing step exactly as stated.

The district court was also correct in not giving weight to the "traded efficiently" phrase in the whereby clause of the executing step. A whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited. Tex. Instruments Inc. v. United States ITC, 988 F.2d 1165, 1172 (Fed. Cir. 1993). That is the case here. The term "efficiently" on its face does not inform the mechanics of how the trade is executed, and nothing in the specification or the prosecution history suggests otherwise. Rather, the term "efficiently" is a laudatory one characterizing the result of the executing step. We therefore hold that the district court correctly declined to give the term the meaning Minton has proposed.

In sum, Minton's arguments in favor of a different construction of the "executing" step are not persuasive, and we perceive no other error in the court's construction of that step. Minton conceded in the district court that TEXCEN performed the trade execution step as construed by the district court and by this court. See Minton, 226 F. Supp. 2d at 867. Minton's validity arguments on appeal are only premised on his proposed construction of the claims, which we have rejected. Given that the court's construction of the "executing" step is correct, it follows that TEXCEN is an anticipatory statutory bar. We therefore affirm the district court's grant of summary judgment that the claims of the '643 patent are invalid under § 102(b).

Executing an installation process that generates at the client a permission that is locked uniquely to the client and that may be found by a later execution of the access checking process

Defendants offer a construction for the entire term, but Digital Reg contends that only "a permission" and "a permission that is locked uniquely to the client" require construction. 3 Thus, the first dispute is whether the executing step should be construed as a whole or whether only portions of it should be construed. Digital Reg argues that Defendants' approach and lengthy construction do not simplify the meaning of the limitation to the jury and adds a number of limitations to the term that are not recited in the claim. Defendants contend that a piecemeal approach will not resolve the parties' disputes. The Court agrees that a piecemeal approach will not address all of the parties' disputes and will construe the term as a whole as well as construe the individual terms that Digital Reg contends require construction.

3 Initially Digital Reg also proposed a construction for "executing an installation process," but the parties have now agreed that this term should be given its plain and ordinary meaning.
Defendants contend "executing an installation process that generates at the client a permission that is locked uniquely to the client and that may be found by a later execution of the access checking process" should be construed as "Running an installation program that generates a permission, which permission is both (1) locked uniquely to the client and (2) may be located in memory by a later execution of the access checking process. This permission must be generated locally, at that particular client, as opposed to occurring across a network or at a central computer. The term 'generates at the client a permission that is locked uniquely to the client' does not cover the storage of a permission or the recalculation of a permission, or any combination thereof, occurring at the client." Digital Reg contends that portions of Defendants' construction mirrors the claim language, but objects to Defendants' limitations that (1) the permission "may be located in memory," (2) that the permission "must be generated locally, at that particular client, as opposed to occurring across a network or at a central computer," and (3) "generates at the client a permission that is locked uniquely to the client' does not cover the storage of a permission or the recalculation of permission, or any combination thereof, occurring at the client."

located in memory and generated locally

At the hearing, the parties resolved their disputes over the first two issues by agreeing to construe the term as "running an installation program that creates a permission locally, which permission is (1) locked uniquely to the client and (2) capable of being found locally by a later execution of the access checking process."

storage of a permission or recalculation of a permission

Defendants contend that "generates at the client a permission that is locked uniquely to the client' does not cover the storage of a permission or the recalculation of a permission, or any combination therefore, occurring at the client." Defendants contend that during prosecution, the applicant distinguished the client-based operations of Wolfe, i.e. storage and recalculation, from the claimed generation of permission at the client.

The examiner's rejection and the arguments made to distinguish Wolfe did not implicate "client-side" activities, but only "server-side" activities. Therefore, specifying that the generation is done "locally" is sufficient, and Defendants' remaining language is not appropriate.

Accordingly, the Court construes "executing an installation process that generates at the client a permission that is locked uniquely to the client and that may be found by a later execution of the access checking process" as "running an installation program that creates a permission locally, which permission is (1) locked uniquely to the client and (2) capable of being found locally by a later execution of the access checking process."

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B. "executing said student tasks"

Claim 1 describes "a plurality of student terminals . . . for receiving said student tasks from said central computer, for executing said student tasks by students to provide said responses, for transmitting said responses to said central computer, and for providing feedback to the students." (emphasis added). Better Education contends that this term means "performing student tasks." On the other hand, eInstruction and Qwisdom assert that the proper construction is "enabling the students to access and perform downloaded student tasks and to enter responses."

According to the plaintiff, the specification supports its proposed construction: "It also is an object of the invention to provide classroom facilities for students to perform computer based instructional exercises . . . ." (491 patent, 3:17-19). The defendants argue that the execution of student tasks must occur at the student terminals; this is correct, but this term's construction does not need to reflect the location of execution, as the claim language already states, "a plurality of student terminals . . . for executing said student tasks." The defendants also contend that the student, and not the student terminal, is the entity that actually executes the student tasks. Again, the defendants' position is supported by the claim language, "executing said student tasks by students." As the claim limitation clearly demonstrates that the students perform the task,
there is no need to import this requirement into the claim construction. Finally, "said student tasks" refers back to "student tasks," which has already been construed. As such, the court construes "executing said student tasks" to mean "performing student tasks."

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3. executing the play list; presenting the works on a . . . play list

These terms, or variations of them, are found in claims 3, 74, and 112 of the '725 patent and claims 19, 31, 57, and 93 of the '345 patent. The plaintiff's proposed construction is "sequentially playing the works in the play list." The defendant's counter-construction is "automatically playing the works on a play list." The parties agree that the term "executing the play list" means "playing the play list." The parties' dispute is whether the play list must continue playing in its entirety, e.g. upon pushing the play button, or whether the play list must only partially play, in some sequence.

The claim language at issue is "executing the play list" (emphasis added). This suggests that once playback is initiated, either at the beginning of the list or with a selected song, playback continues automatically until the user intervenes or the list is concluded. Moreover, the specification does not disclose a different meaning. The embodiment disclosed in Figure 31 incorporates a flow of operation whereby the execution of the list causes the list to continue to play through the conclusion of the list or until the user stops playback. As a result, the court concludes that Apple's proposed construction is correct and adopts it. The court defines this term to mean "automatically playing the works in the play list."

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3. "Execution"

The final element that the court must construe in this case is the term "execution" in Claim 1 of the '981 Patent. Papyrus argues that the term has its ordinary meaning of "carrying out a trade." Pl. PCCO 3. Papyrus contends that the specification uses the term "execute" in various ways, including "an execution report," "a completed trade," and "carrying out a trade," which demonstrates a more expansive meaning rather than a particular definition. 29 Pl. Br. 35; see N. Telecom Ltd. v. Samsung Elecs. Co., Ltd., 215 F.3d 1281, 1291 (Fed. Cir. 2000) ("[T]he 'varied use of a disputed term in the written description  demonstrates the breadth of the term rather than providing a limited definition.'" (quoting Johnson Worldwide Assocs. v. Zebo Corp., 175 F.3d 985, 991 (Fed. Cir. 1999))). Additionally, Papyrus cites the Dictionary of Financial and Investment Terms (6th ed. 2003), to argue that "execution" in the securities context means "carrying out a trade" and that a "broker who buys or sells shares is said to have executed an order." Pl. App. Ex. 47 at 451.

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29 That Papyrus cites the patent in its entirety rather than providing specific examples of the alleged uses weakens this argument.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Although NYSE does not put forth any specific arguments regarding the definition of "execution," it contends that the term means "the consummation of a trade." Def. PCCO 4.

In this case, the court is persuaded by Papyrus's own statements during prosecution that "the cross-trade occurs at the point of sale" and that the "selective transmission is the step by which the cross-trade is done." Pl. App. Ex. 23 at 274 (emphasis added); see Webster's NID 1561 (defining "occur" as "2: to present itself : come to pass : take place : happen"); id. at 664-65 (defining "do" as "2: to bring to pass, carry out . . . 4: to perform (as an action) by oneself or before another: execute . . . 6: to bring to an end: complete, finish"). Moreover, Papyrus's amendment clearly states that the trade is completed at the time the floor broker selectively transmits the cross-trade to the booth clerk. Pl. App. Ex. 23 at 274. Accordingly, the court construes "execution" as "the consummation of a trade."
4. Claim 12 requires that the executable software itself actually generate and transmit the return receipt

With regard to the generation and transmission of the return receipt, claim 12 states: "said opening further causing the execution of the executable software to initiate automatic generation and transmission of said return receipt to said first computer." '688 Patent at col. 10:67, 11:1-3. PostX argues that the plain language of the claim "merely requires the transmitted JavaScript [in the case of SendAnywhere] to initiate the automatic generation of the return receipt, and because the JavaScript clearly initiates the process of requesting a key from the Key Server for the decryption process, thus automatically causing a return receipt to be transmitted to the sender, facts show that this claim limitation is met." Pl.'s Opp'n at 16:4-8 (emphasis in original).

Sigaba argues, correctly in the Court's view, that PostX has failed to show that there is an "automatic" generation of a "return receipt" when an e-mail of the HTML attachment has been opened. Def.'s Reply Br. at 6:17-20. "On the contrary, human interaction is required before any alleged 'return receipt' can be or is generated." Id. at 6:23-24 citing Chakraborty Decl. at PP 6-7. Sigaba cites "manual entry," "human steps," and "human action" or "interaction" to demonstrate their necessity in producing the key request advisement, i.e., the alleged "return receipt."

As a matter of law, "human judgement . . . is . . . neither identical to nor the equivalent of the computer." Clintec Nutrition C. v. Baxa Corp., 988 F. Supp. 1109, 1115 (N.D.Ill. 1997), citing Davies v. United States, 31 Fed.Cl. 769, 778-79 (1994) (granting summary judgment to the defendant on literal infringement, the court held that where "a human being substitutes for a part of the claimed structure," the infringement standard under 35 U.S.C. § 112, P 6, that the structure be same as or equivalent to that disclosed in the specification, is not met).

Sigaba's software operates as follows: "Human steps are required after the HTML attachment is opened and after the JavaScript runs. If and only if this further human action takes place does the Sigaba software then attempt to authenticate the recipient, and only if this is successfully completed does the software attempt to retrieve the decryption key. Only after and if this retrieval is successful is the key request advisement (which is what PostX alleges is the 'return receipt') sent back to the e-mail sender's computer." Def.'s Reply Br. at 6:26 - 7:3, citing Reply Chakraborty Decl. at P 7. PostX and its expert do not refute that human interaction is required. The Court finds that such action is not equal nor equivalent to the automatic transmission of the return receipt.

IV. "Existing Routing Mechanisms"

Claim 1 describes the default path as the path that is "derived by means of one or more existing routing mechanisms of the communications network." Plaintiff argues that the existing routing mechanisms are "the routing mechanisms used by the underlying network." As such, the default path is the one that the message would travel along if there were no overlay network.

Defendant proposes that "existing routing mechanisms" refers to "a prior art system or process employed to select a path to transmit the message from the source to the destination." Defendant thus seeks to limit "existing routing mechanisms" to "a prior art system or process," such that the only routing mechanisms that qualify as "existing routing mechanisms" are those that were in existence on the day the patent issued. Defendant points to nothing in the patent or prosecution history, however, that supports this construction of the claim.

Accordingly, the Court will adopt plaintiff's proposed construction of this phrase.
D. "Existing Schedule"

The penultimate step in Claim 11 involves "locating financial card offers, said offers including said financial card term data selected by comparing said [applicant] rating with an existing schedule assigned to said financial card term data." As explained in the Preferred Embodiments, "[t]he selection criteria as embodied in each financial institution's selection matrix is reviewed to locate the financial card offers appropriate for the applicant." Col. 6, lines 9-11. This "existing schedule," then, is a form of organizing the financial card terms in a manner that allows the assignment of mandatory or minimum applicant ratings for each particular combination or set of financial card terms. Defendant ascribes more to the phrase because of the Preferred Embodiments' used of the word "matrix." In addition to the sentence quoted earlier in this paragraph, the Preferred Embodiments utilize this word when discussing the Table in Column 4. Defendant points to the use of this word to justify its definition of "existing schedule" as "participating financial institutions' selection criteria organized in a matrix as exemplified and disclosed in col. 4, ll. 20-43 of the specification." Defendant's Markman Brief at 21.

The use of the term "matrix" does not suggest any particular form for the chart or other organizing mechanism; in common usage, a matrix only requires an arrangement of numbers bearing a relationship with each other. E.g., The American Heritage Dictionary of the English Language 1110 (3d ed. 1992); Webster's II New Riverside University Dictionary 733 (3d ed. 1994). In this context, the terms "matrix" and "schedule" are synonymous.

The true import of Defendant's suggestion comes from its requirement that the matrix or schedule take the particular form appearing in the Preferred Embodiments set forth on the Table in Column 4. The Preferred Embodiments' declare that the Table is only an example. Col. 4, lines 27-30. Defendant is attempting to the limit the Claims by relying on examples presented in the Preferred Embodiments, but this is not permitted. E.g., In re Omeprazole Patent Litig., 483 F.3d 1364, 1372 (Fed. Cir. 2007); Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1366 (Fed. Cir. 2000). Nothing in the '645 Patent's Claims requires the matrix or schedule to take any particular form; all that is required is an established relationship between financial card terms and the corresponding and necessary applicant rating.

Defendant also contends the prosecution history supports its definition. On September 23, 2005, the PTO issued its Notice of Intent to Issue Ex Parte Reexamination Certificate indicating, inter alia, that certain claims would be allowed. In allowing Claims 11-22 and 26-31, the examiner wrote that he "interprets . . . the term 'existing schedule assigned to the financial card term data' to read participating institution's selection criteria organized in a ma[tr]ix as exemplified and disclosed in col. 4 L 20-43 of the specification." Shortly thereafter, Plaintiff responded by indicating it "agree[d] with the Examiner's statement to the extent the term 'matrix' relates to the general concept of data associations." In March 2006, the PTO issued a Supplemental Notice that contained the exact same language about Claims 11-22 and 26-31. From this sequence of events Defendant concludes the PTO rejected Plaintiff's interpretation as expressed in its October 2005 submission. There are several problems with Defendant's position. First, the Court finds it difficult to conclude the March 2006 Supplemental Notice was intended to reject Plaintiff's interpretation because it does not even reference it. The cover sheet for the Supplemental Notice provides a summary of the action taken, and it also does not mention Plaintiff's October 2005 submission. In fact, the only difference between the Supplemental Notice and the original September 2005 Notice is an indication that the former "[c]orrects a typo in item 1(h)(1) and 1(h)(2) from the [Notice] mailed 9/23/05." The referenced error relates to the identification of Claims approved as written and Claims approved as amended. This sequence of events does not persuade the Court that the Supplemental Notice was intended to address Plaintiff's October 2005 submission. Cf. Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005), cert. denied, 546 U.S. 1170, 126 S. Ct. 1332, 164 L. Ed. 2d 49 (2006) (ambiguity in the prosecution history may render it unhelpful as a resource in aid of claim construction). Regardless, the PTO indicated the Table in Column 4 "exemplified" the matrix it intended to describe -- that is, it is an example and not the prescribed form.

Plaintiff's suggested definition -- "an association of selection criteria with financial term data" -- is closer to the appropriate definition. The Court's only disagreement is with the use of the phrase "selection criteria." The schedule is not merely an association of selection criteria to the financial card's terms, but an association of various applicant ratings to the financial card's terms. This interpretation is gleaned from Claim 11(f), which describes the process for locating an offer (itself consisting of financial card terms) by comparing the applicant's rating to the existing schedule. The existing schedule must associate the financial card terms with the applicant ratings established by the financial institution as necessary to qualify.
for those terms; otherwise, Claim 11(f) would permit comparing applicant ratings to something else entirely. The Court therefore concludes the proper definition of "existing schedule" is "an association of financial card term data with the applicant ratings established by the financial institution as necessary to become eligible for those particular financial card terms."

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1. Exit Station (Claims 1 and 21)

1 As to all of the terms construed, where the Court has adopted a party's proposed construction, that construction is set forth below without further discussion. Where the Court has adopted one party's construction, but with some modification, or has not adopted either party's proposed construction, an explanation is provided.

The Court finds "exit station" is properly construed as "a portion of the processing machine where wafers are moved after processing and from which said wafers exit the processing machine."

2 Unless otherwise indicated, the parties' respective proposed constructions as set forth herein are taken from the Joint Claim Construction Statement filed May 1, 2006.

The Court finds "exit station" is properly construed as "a portion of the processing machine where wafers are moved after processing and from which said wafers exit the processing machine."

3 The Court has not adopted either party's proposed construction. Plaintiff's proposed construction is overly broad because it does not require that wafers "exit" from the "exit station." Defendant's proposed construction is too narrow; assuming, arguendo, the "exit station" described in the specification is "dedicated" to the removal function, defendant fails to show why the claims are limited to the preferred embodiments.

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I. Claim Construction

While the parties dispute the court's construction of many of the claim terms at issue before the district court, we address the construction of only those terms essential for disposition of this appeal.

The independent claims of the '927 patent recite a method or computer for "emulating" target instructions of the instruction set of a target computer using, inter alia, "emulation registers" capable of corresponding to registers in the target computer. The written description defines the term "emulation" generally as "a process in which one computer X behaves identically to another computer Y, as X executes the instructions of Y, where the internal architectures of computers X and Y are different." '927 patent, col. 2, ll. 30-33. We adopt this construction and conclude that the district court correctly interpreted
this term.

Claims 4 and 14 define the particular manner in which the claimed processor emulates. Specifically, both claims require a "M+N bit expanded RISC instruction" with N bits defining the "native instruction . . . configured for emulating target instructions from the instruction set of a target computer." Consistently, the claims require an expanded instruction decoder that uses "M bits from each said expanded RISC instruction to redefine the RISC architecture computer in terms of the target computer." The written description of the '927 patent defines N bits of an expanded RISC instruction, also referred to as the LHS (left-hand side) of the instruction, as the number of bits of the instruction that the microprocessor uses "in its native mode." '927 patent, col. 5, ll. 1-2. With regard to the M bits of the expanded RISC instruction, also referred to as the RHS (right-hand side) of the instruction, the '927 patent states that "contained within the additional M bits [of the expanded RISC instruction] and used in conjunction with the N bits are directions on the use of resources within the RISC computer, peculiar to each emulated instruction." '927 patent, col. 5, ll. 6-9. The written description of the '927 patent explains that the M bits, or RHS, of the expanded RISC instruction are used "to redefine, during emulation of a target processor operation, the register data paths . . . of the LHS [or N bits of the expanded RISC instruction] to correspond to the target processor instruction being emulated, permitting the host processor to mirror, without physical changes, the target processor architecture being emulated." '927 patent, col. 8, ll. 31-37. Consistently, TechSearch's expert, Dr. Hoevel, recognizes that to emulate, "the host computer has to interpret and execute the target instruction set used in the target computer . . . and claims 1 through 3 of the '927 patent reveal the advantages of the special kind of emulation and backwards compatibility found in the '927 patent."

We conclude, as the district court did, that the M+N bit expanded RISC instruction recited in claims 4 and 14 includes N bits corresponding to an instruction of the host microprocessor's instruction set, and M bits which work with the N bits to "redefine" or "translate" the expanded RISC instruction to "emulate" the instructions of the microprocessor of the target computer. We further conclude that the claimed "expanded instruction decoder" is a decoder that "redefines" or "translates" the native instruction identified as N bits of the expanded RISC instruction, using M bits of the expanded RISC instruction, thereby enabling the instruction set of the microprocessor of the computer to emulate the instructions of a target computer.

9. Expanding the Received Set of Reference Cell Values

The term "expanding the received set of reference cell values" means a process for generating a complete set of values for the digital words based on the reference cell values that have been received up to that point in time.

Expert System

Claims 41 and 42 of the '525 Patent contain the term "expert system." SFA cites to a host of dictionary definitions and proposes that the term should be defined as "a system that learns successful actions and automatically implements them in the future" in conformity with those definitions. Infor counters that SFA's definition describes the "expert system's" purpose rather than its structural function. Infor claims that the prosecution history along with the specification require that the term be defined as "a system that includes an inference engine to provide rules-based decision making using a knowledge base and a set of rules." As discussed below, the proper construction of "expert system" in accordance with the specification is "a software program operating on a set of rules which can be automatically updated based upon successful sales approaches."

Infor is correct in noting that SFA's definition fails to disclose anything about an "expert system's" structure. Rather, SFA's definition describes very generally the result that an "expert system" seeks to obtain. Patent system claims protect the system's structure and not its effect. See Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1468 (Fed. Cir. 1990) (explaining that apparatus claims "cover what a device is, not what a device does"). As a result, SFA's definition is too broad and must be rejected.
Conversely, Infor seeks to narrow the scope of "expert system" by requiring that the system necessarily contain an inference engine. The specification clearly suggests an inference engine "in accordance with one embodiment," but there is no support in the specification for the proposition that an expert system must contain an inference engine. See '525 Patent at 34:23-44. Regardless, Infor claims that the prosecution history suggests that the patentee disclaimed all embodiments of an expert system that do not contain an inference engine.

An inference engine is a particular type of software program. As it is described in the '525 Patent, an inference engine relies upon a number rules that take the general form of the statement IF X THEN Y. Based upon a series of these rules, the inference engine is able to determine whether a particular action should be taken in light of the existence of a set of conditions. See id. The term "expert system" only appears in dependent claims 41 and 42. Those claims refer to independent claim 40 which was amended during prosecution to include the step of "infer[ring] occurrence of the event and a context" after the examiner's rejection of all the initial claims in light of the Negrino Reference. See Plaintiff's Opening Ex. 2, Amendment of December 10, 1997. Infor contends that because the only mention of the word "infer" in the specification occurs during explanation of the inference engine, the inference engine is the only disclosed structure capable of "inferring." Infor concedes that this argument has the result of collapsing claims 40-42 and violates the presumption of claim differentiation. See Phillips, 415 F.3d at 1314-15.

While the presumption of claim differentiation may be rebutted if a patent's specification makes clear that independent and dependent claims share the same scope, the specification in this case is careful to do just the opposite. See Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1370 (Fed. Cir. 2007). For example, the specification provides not only that an inference engine is applicable in "one embodiment," but refers to the inference engine several times as an "example." '525 Patent at 33:63. The specification clearly indicates that the inference engine is a component of a particular embodiment of an expert system and not required. Id. at 34:23-26. Further, claim 42 teaches "[a] system as recited in claim 40, wherein the event manager comprises an expert system configured to automatically monitor events occurring in the sales process, identify which events lead to a desired outcome in a use of the sales system, and produce a knowledge database for use in subsequent operations as the prior sales experience using the sales system." None of these functions necessarily requires an inference engine as described in the specification. To include that additional limitation would be improper.

Finally, Infor's argument concerning the addition of the word "infer" in claim 40 would not only require an inference engine to necessarily be included in claims 41-42, but would mandate that an inference engine be included wherever the word "infer" appeared in the patent. This would require that all claims in the '525 Patent include an inference engine. As further explained below, there is no evidence in the specification or the prosecution history that such a limitation is warranted. Thus, Infor's definition is rejected.

The specification describes an expert system's structure. An expert system may be "programmed to monitor the sales process for desired (successful) sales events." '525 Patent at 33:34-36. Thus, the expert system is a computer program. Further, the expert system is identified as operating on a set of rules. Id. at 33:44-47, 34:44-46. Finally, the specification indicates that the rules are automatically updated in a way that targets the most successful sales approaches. Id. at 33:41-46. Thus, the specification identifies an expert system as "a software program operating on a set of rules which can be automatically updated based upon successful sales approaches."

1665

E. expert system knowledge base

Ricoh contends that the term means "a database used to store expert knowledge of highly skilled VLSI designers." Aeroflex defines "expert system" and "knowledge base" separately. Aeroflex states that "expert system" should be defined as "software that solves problems through selective application of the rules in the knowledge base by an inference engine, as distinguished from conventional software, which uses a predefined step-by-step procedure (algorithm) to solve problems." Aeroflex asserts that a knowledge base is a "portion of the expert system software having a set of rules, each rule having an antecedent portion (e.g. IF) and a consequent portion (e.g., THEN), and embodying the knowledge of expert designers for application specific integrated circuits."

Ricoh's proposed construction relies heavily on the '432 patent's specification. Specifically, the specification states that
"[t]he knowledge base 35 contains ASIC design expert knowledge required for data path synthesis and cell selection." '432 patent, col. 5:6-8. "Using a rule based expert system with a knowledge base 35 extracted from expert ASIC designers, the KBSC system selects from the cell library 34 the optimum cell for carrying out the desired function." '432 patent, col. 5:25-29. Based on these passages, Ricoh argues that an "expert system knowledge base" is a collection of data that represents knowledge obtained from experts in ASIC design.

Aeroflex dismisses Ricoh's proposed construction as overly simplistic. Aeroflex argues that a person of ordinary skill in the art in 1988 would have known that two distinct approaches existed for selecting hardware cells: 1) rule-based expert system software; and 2) conventional algorithmic software. Aeroflex further contends that a person of ordinary skill in the art would have understood that rule-based expert system software must contain an inference engine, a knowledge base, and a working memory, which enable the inference engine to selectively apply the rules stored in the knowledge base to what is stored in the working memory (as distinguished from conventional algorithmic software, which uses a predefined step-by-step procedure). To support its argument, Aeroflex cites to a technical dictionary entitled "Artificial Intelligence Terminology" that states: "An expert system will generally consist of a rule base, an inference engine and a user interface (which will generally provide an explanation facility)." Aeroflex also cites the Court to the Dunn Patent 4,656,603 ("the '603 patent"). The '603 patent speaks in general terms regarding the distinction between the two types of software and states that since rule-based expert systems "often make conclusions based on incomplete or uncertain information, they differ substantially from conventional computer programs which solve problems in accordance with pre-defined algorithms and complete data sets." '603 patent, col. 1:44-49.

Aeroflex also argues that the distinction between the rule-based expert system approach and the conventional algorithmic approach is evident from the prior art that the patentee distinguished in the patent's file history. In the November 1989 Amendment, the patentee added the following language to application claim 5 (patent claim 1): "said cell selection means comprising an expert system including a knowledge base containing rules for selecting hardware cells from said cell library and inference engine means for selecting appropriate hardware cells from said cell library in accordance with the rules of said knowledge base." November 1989 Amendment at 2. The patentee stated that application claim 5 (patent claim 1) was amended to "clearly distinguish it over the cited prior art by more clearly defining the expert system aspects of applicant's invention including the provision of a knowledge base containing rules for selecting hardware cells, inference engine means for selecting appropriate hardware cells, and netlist generator means for generating a netlist defining the hardware . . ." November 1989 Amendment at 8. Although this amendment applied only to application claim 5 (patent claim 1), the patentee also amended application claim 20 (patent claim 13) to include "applying . . . a set of cell selection rules stored in said expert system knowledge base . . . ." The patentee explained that this language was added to "emphasize the expert system aspects of applicants' method." November 1989 Amendment at 9. Thus, Aeroflex is essentially arguing that the description of an expert system in patent claim 1 (including an inference engine) should also be read to encompass the expert system described in patent claim 13.

Ricoh responds that the patentee's statement in the November 1989 Amendment only further proves its point. Ricoh argues that this statement does not establish that an "expert system" had become an element of claim 13, but merely confirmed the patentee intent to claim certain aspects (i.e., the claimed "expert system knowledge base") of an expert system - not an expert system itself. 8 Moreover, Ricoh argues that even if the Court finds that the patentee intended to encompass both an "expert system" and a "knowledge base," there is nothing in the claim language, specification, or prosecution history that requires that an expert system contain an inference engine and a working memory.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

8 In other words, Ricoh is arguing that the term "expert system" is grammatically read as an adjective or other modifier for the noun "knowledge base."

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Initially, the Court finds no support for Ricoh's argument that "expert system" is simply an adjective modifying the noun "knowledge base." The patentee explicitly stated that claim 13 was "amended to emphasize the expert system aspects of applicant's method." November 1989 Amendment at 9. Therefore, the Court finds that "expert system" was an element of claim 13.
Next, the Court finds that Aeroflex's assertion that a person of ordinary skill in the art would have understood that rule-based expert system software must contain an inference engine, a knowledge base, and a working memory is simply not supported by the intrinsic evidence. As noted by Ricoh, claims one through nine of the '432 patent specifically claim an inference engine, while claim 13 does not make such a claim. Aeroflex's attempt to have the Court read the description of an expert system from patent claim 1 onto the expert system described in patent claim 13 is unpersuasive. Additionally, the technical dictionary definition provided by Aeroflex states that an inference engine is "generally" an element of an expert system. Given the qualified language of the definition, in combination with the fact that claim 13 makes no mention of an "inference engine," the Court finds the technical dictionary definition unhelpful in this context. Finally, Aeroflex's reference to the '603 patent is ultimately unhelpful, as the "603 patent describes an intentional expert system, as opposed to a knowledge-based expert system, and makes no mention of an inference engine. "603 patent, col. 5:53-56. Given these considerations, the Court defines "expert system" and "knowledge base" separately. "Expert system" should be defined as software that solves problems through selective application of rules in the knowledge base. "Knowledge base" should be defined as a portion of an expert system software having a set of rules and embodying expert knowledge of highly skilled VLSI designers.

4. Claim 17. "A method as set forth in claim 1 further including the step of: after said fuse portion forming step, removing said fuse portion from said interconnect by directing a laser light on said exposed optically absorptive layer to melt said fuse portion."

Cypress asks the court to construe the meaning of the term "exposed." Claim 17 derives from, and is identical to, the language of claim 20 of the original patent application. As written, claim 20 of the application depends from claim 1 of the application. Claim 20's term "said exposed optically absorptive layer," however, lacks an antecedent basis, as claim 1 of the application makes no reference to such an exposed layer. The examiner apparently overlooked this defect.

The meaning of the term "said exposed optically absorptive layer" is ambiguous. The word "exposed" is used twice in the application's claims. In one context, "exposed" means "exposed to laser light." This use of the word "exposed" is found in claims 12, 17, and 18. In a second context, "exposed" is used to refer to the state of the absorptive layer once the overlying passivation layer has been etched away. This use of the word "exposed" is found in claims 15 and 19.

The language of claim 20 indicates that "exposed," as used therein, means exposed from the etching of the passivation layer, as recited in claim 19 of the application. Claim 20 reads "directing a laser light on said exposed . . . layer." Since there is only one laser light at use in the claimed process, the "exposed layer" must first become exposed through etching if it is then to have a laser light directed upon it.

EMI argues that claim 17 of the patent derives its antecedent basis from claim 1 of the patent, and as such means "exposed to the directed energy source." Claim 1 of the patent, however, did not acquire the word "exposed" until after the claim was twice amended. The court declines to find that amending claim 1 to overcome rejections on other grounds somehow redefined the antecedent basis of application claim 20, which was not a focus of the prosecution history. Moreover, to posit that the term "exposed" of claim 17 derives its antecedent basis from claim 1 leaves a nonsensical claim, as claim 17 recites directing a laser light upon an "exposed" absorptive layer. Since the claims recite the use of only one laser, the absorptive layer cannot be "exposed" prior to having a laser light directed upon it, unless it is exposed through etching.

The court rules that "exposed," as used in claim 17 of the patent, means "exposed by removal of the overlying passivation layer."

1667

1. "exposure apparatus"

The patent specifications note that the '336 patent "invention relates to a projection exposure apparatus for use to form a
pattern of a semiconductor integrated circuit, or a liquid crystal device, or the like." See Patent '336 at 1:17-21. Throughout the '336 patent specifications, the "exposure apparatus" is described as an entity that forms a pattern of a semiconductor integrated circuit, liquid crystal device, or the like on a substrate. See, e.g., '041 Patent at 1:17-21; 12:10-14:14; 26:52-28:13; 40:59-42:6. Nothing persuades the court to ignore this teaching, and much in the caselaw of the Federal Circuit counsels reliance on it. See, e.g., Vitronics, 90 F.3d at 1582; Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001) (noting that specification language can "act as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication") (internal quotation marks and citation omitted). Neither ASML's entirely pleonastic construction nor Nikon's elliptical alternative persuade the court otherwise; thus, the court construes "exposure apparatus" to mean "a structure used in the photolithographic projection processes to form or to transfer a pattern of a semiconductor integrated circuit, or a liquid crystal device, or the like on a substrate." GO BACK

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2. Expressions

The first element of claim 1 provides: "establishing expressions quantifying the unwanted dynamics of the physical system" ('635 patent Col. 10 lines 44-45) (emphasis added).

Plaintiffs argue that the term "expression" indicates any means of symbolizing, and so in this context, an "expression" would be anything that quantifies the unwanted dynamics of the system. (Pls.' Claim Construction Br. For U.S. Patent No.'s '635, '267, and '473 at 40). Plaintiffs base this meaning on the dictionary definition of an expression. The dictionary definition most relevant to the context of the patent is: "A sign or a character or a finite sequence of signs or characters (as logical or mathematical symbols) representing a quantity or operation." Merriam-Webster's Third New International Dictionary Unabridged, Merriam-Webster, Inc., 1993. Defendants insist that the meaning be limited to mathematical equations which are in the time domain. (Defs.' Proposed Claim Construction Order for U.S. Patent Nos. '635, '267, and '473 at 1). A mathematical equation in the time domain is one which expresses some value, here the unwanted dynamic, as a function of time.

The correct interpretation must be consistent with the use of the term in the specification. See Texas Digital, 308 F.3d at 1202. The terms "expression" and "expressing" or "expressed" appear several times in the specification: "establishing expressions quantifying the unwanted dynamics" ('635 patent Col. 3 lines 62-63); "a system's unwanted dynamic response will be expressed as a function of its transient input" ('635 patent Col. 4 lines 54-57); "the same result can be obtained mathematically by adding two impulse responses and expressing the result for all times greater than the duration of the input" ('635 patent Col. 5 lines 17-21); "elimination of vibration after the input has ended requires that the expression for Aamp equal zero at the time at which the input ends..." ('635 patent Col. 5 lines 44-46); "in order to quantify the residual vibration level for a system, a vibration-error expression must be defined..." ('635 patent Col. 6 lines 1-3); "it can be shown that the same expressions that guarantee zero derivatives with respect to frequency also guarantee zero derivatives with respect to damping ratio" ('635 patent Col. 6 lines 41-44); "these sequences can be obtained by expressing the same (or some other equivalent) constraint equations..." ('635 patent Col. 7 lines 10-12).

Imposing defendants' "time domain" limitation would be inappropriate. While many of the "expressions" discussed in the specification are solved for time, see, i.e., '635, Col. 5, lines 44-46; '635, Col. 5, lines 44-45, all of these examples occur in the preferred embodiment of the specification. Since limitations cannot be imposed based solely on the preferred embodiment, defendants' argument requires that the patentee evinced a clear intent to act as his own lexicographer. Consistent and explicit use of a claim term in the specification to mean something other than the ordinary meaning indicates this intent. See Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388 (Fed. Cir. 1992) (noting "so long as the meaning of an expression is made reasonably clear and its use is consistent within a patent disclosure, an inventor is permitted to define the terms of his claims.") The patentee did not consistently and uniformly use "expression" to unambiguously refer to time-domain equations, See, i.e., '635, Col. 6, lines 46-48 (referring to a graph in the frequency domain as "the vibration-error expression for the same three sequences of impulses ...") The use in the specification is not sufficiently definite to demonstrate the necessary "unequivocal intent," therefore the plain and ordinary meaning is presumed.

Within the context of the specification, and to be consistent with the plain meaning, "expression" cannot include all possible methods that quantifies a dynamic. There must be a solution that minimizes that which is quantified expression. ('635, Col.

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10, lines 50-52). The only type of "expression" offered by plaintiffs which quantifies and can be solved is a mathematical characterization. (Pls.' Reply to Defs.' Responsive Claim Construction Br. for U.S. Patent Nos. '635 and '267 at 3). Plaintiff has argued that "expression" should not be limited to "equations where there must be an equal sign" (Transcript of Proceedings Held on 3/31/2004 at 262). Given the character of the invention, which is designed to meet or exceed a threshold level of unwanted dynamics, there is no reason to impose a requirement for "an equal sign." Accordingly, the term "expression," as used in independent claim 1 is interpreted to mean: "a mathematical characterization that quantifies." 7

7 This interpretation was not offered by either party. The Court of Appeals for the Federal Circuit permits adoption of claim constructions not offered by either party when they are consistent with the standards of claim construction. See, e.g., Bilstad v. Wakalopoulos, 386 F.3d 1116, 1121-1123 (Fed. Cir. 2004).

1669

18. Extended mathematical element

The plaintiff proposes that "extended mathematical element" be construed to mean "a unit that performs additional mathematical operations that are specialized operations for efficient media processing." The defendants object to the plaintiff's use of the language "specialized operations for efficient media processing." They also contend that the specification of the 840 patent provides that "operations performed by the extended mathematical unit are higher level' than those performed by the ALU . . ." Defendants' Sur-reply Brief at 13. Thus, the defendants urge that "extended mathematical element" be construed to mean "a unit that performs higher level mathematical operations than the arithmetic unit." After considering the submissions of counsel, the court construes "extended mathematical element" to mean "a unit that performs additional mathematical operations other than addition, subtraction, multiplication, division, and other floating point operations."

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19. An extended mathematical element coupled to the data path and programmable to implement additional mathematical operations at substantially peak data throughput

The court construes "an extended mathematical element coupled to the data path and programmable to implement additional mathematical operations at substantially peak data throughput" to mean "a programmable unit coupled to the data path that performs additional mathematical operations other than addition, subtraction, multiplication, division, and other floating point operations at substantially peak data throughput."

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D. How does the charge sink means extend laterally?

Finally, the parties interpret differently the phrase "extending laterally from said contact toward said light sensing element." The term "extending laterally" conveys a directional meaning. The specification and prosecution history provide little guidance for detecting the precise compass reading for this direction. However, that direction must run from the contact toward the light sensing element. Thus, the charge sink means, as interpreted by the court, must extend parallel to the top surface and perpendicular to a contact toward the light sensing element.
The plaintiffs propose "a clock not derived from the first clock, and which is not originated on the same semiconductor substrate upon which the entire variable speed clock is located." The defendants contend that no construction is necessary, but if a construction is necessary, then they propose "a clock not on the integrated circuit substrate."

As discussed previously, the defendants appear to agree that, like the second clock, the external clock is independent of the first clock. The plaintiffs' proposed construction includes limitations already in the claims. The Court construes "external clock" to mean "a clock not on the integrated circuit substrate."

1673

External clock signal

The Court construes "external clock signal" as "a single timing signal from outside of a device." MEI argues that the term should be construed as "a clock signal from outside of a device." Samsung argues that the construction should be "a single external timing signal provided to a single input pin." MEI acknowledged in its brief that a clock signal provides timing information. MEI Claim Const. Br. at 7 (Docket No. 112). Samsung's argument that the external clock signal is limited to a single input pin is presumably based only on an amendment to claim 1. See Response to Examiner at 113-14 (Exh. 5, Docket No. 120). This statement is not sufficient to establish a waiver of claim scope.

Samsung also argues that the term is limited to a single clock signal. The Court agrees. The specification of the patents-at-issue consistently emphasize and disclose the use of a single clock signal on the random port. See '921 Patent col. 2:17-19 (distinguishing the invention on the basis that it uses a single clock signal); col. 2:25-29 ("Under the teachings of the present invention, a single clock pulse drives an internal state machine to provide the control pulses thereby minimizing the number of signal paths to and from the chip . . . .") (emphasis added); col. 3:31-34 (stating that a single clock pulse is used); col. 7:36-40; col. 8:13-15; col. 9:57-58; col. 14:14-18; col. 15:38-40. Furthermore, the patentees responded to the examiner's rejection by distinguishing their claimed invention from the Target Specification because the Target Specification did not operate on a single random port clock input: "the Target Specification does not operate in response to a single clock as claimed in claim 1 . . . . The Target Spec [sic] . . . . requires more than one clock to perform this function." Response to Examiner at 115 (Exh. 5, Docket No. 120). A construction limiting clock signal to a single timing signal is consistent with the express purpose of the invention, the specification, and the prosecution history.

1674

C. "External Memory Device"

Claim 1 of the '353 uses the phrase "external memory device." For example, it discloses an apparatus comprising: "an external memory device having computer software," col. 6, l. 6, and "means for reading said external memory device, said reading means located in the computer." Id., l. 12.

1. Disputed Definitions

Plaintiff defines "external memory device" as "computer memory other than the main, relatively fast, memory of the computer which is generally erased when the power is removed, and includes magnetic disks, tapes and CD-ROMS."

Defendant defines "external memory device" as "[a] disc (or other transportable recording medium) on which an executable software program and first and second authorization codes are stored."
2. Analysis

Plaintiff's proposed definition ignores the word "external." He contends that "external" simply means memory which is generally erased when the power is removed and claims further that his definition is consistent with the Rosenberg Dictionary definition of external storage: "storage that is accessible by a computer only through input-output channels." The Rosenberg definition makes clear, however, that the storage, that is, the external memory device, is something separate from the computer (as the Court has defined it above) since it cannot be "accessible by the computer" if it is part of the computer. At the claim construction hearing the defendant stated that it agreed with the Rosenberg definition, provided "computer" is interpreted as defendant has urged. Since the Court has concluded that the intrinsic evidence compels defendant's construction of "computer," the Court will adopt the Rosenberg Dictionary definition of external memory, a definition proffered by plaintiff.

Plaintiff's extrinsic evidence is not inconsistent with external memory being defined as memory that is connected to, but not part of, the computer. For example, the Computing Course Materials identified by plaintiff describe "main memory" as "the working memory of the CPU, with fast access and limited numbers of bytes being transferred," and "external memory" as the "long term storage of information." The definition thus distinguishes between the memory of the computer (as the Court has defined it) and memory outside the computer.

The Court is not construing "external memory" to require that the memory be housed in a different casing from the microprocessor system. Rather, external memory is memory that is connected to the computer (as "computer" is used in claim 1), that is, it is external to the computer, not external to the casing in which the computer is housed. Thus a disk drive or CD ROM which is "housed" in the same casing as the computer would still be external memory under the Court's interpretation since it is not part of the computer, but rather is accessible to the computer.

"External modulator" means "a modulator that acts on the optical carrier signal output from a signal emitter, as opposed to acting on the signal emitter itself."

b. "Externally coupled to said bus."

Plaintiff argues that this phrase means, in the context of the 948 patent, "externally coupled to said bus via any of a number of known means, including, but not limited to, a diagnostic port or the engine wiring harness." Defendants contend that the appropriate construction is "externally coupled to said bus through a diagnostic port." Mr. Lundell's recommended construction is "externally coupled to said bus via either the diagnostic port or the wiring harness."

The Court finds Mr. Lundell's construction to be the appropriate reading of the term. As Mr. Lundell points out, the 948 patent specification discloses two embodiments, one using the diagnostic port and the other using the wiring harness. Because the claim language can plausibly be read as encompassing both embodiments, the Court adopts the following construction of "externally coupled to said bus": "externally coupled to said bus via either the diagnostic port or the wiring harness."

B. "A module externally coupled to said bus"

The plain language of this term means that the module is physically connected to the bus of the fixed system by a direct connection from outside of the fixed system. Hypertech's proposed construction would add the phrase "and stays connected during the normal operation of the vehicle." (Dft.'s Claim Construction Statement at 10). Such an addition is unnecessary.
and unsupported by the plain language of the term.

**1678**

4. "Extract": Plaintiff has proposed the meaning "to select and obtain specific information from a file." However, the intrinsic evidence offered by plaintiff is a selection from the '697 Patent specification, stating "Portions of the stored document information are selected in accordance with content instruction." '697 Patent, col. 2, lines 52-53 (emphasis added). Because the claims and specifications of the '697 patent and others refer to extracting information from documents, the Court adopts the construction proposed by defendant, with modifications: "to select and obtain nontextual electronic information from a hard copy document (e.g., scanning a hard copy document) and/or to convert nontextual electronic information into a textual form."

**1679**

B. Extracting

3M asserts the term "extracting" should be construed as "obtaining" -- as the term is used to refer to the act of obtaining the preemption request and the identification code from the signal that is sent to the phase selector. 3M further asserts this construction is supported by the specification's discussion of Figure 9, "a step 106 extracts a data packet from the data field 82 and sends the data packet . . . to the main phase selector microprocessor." Id. 14:4-6. This construction is also consistent with the dictionary definition of "extract" -- "to derive or obtain (information, for example) from a source." Ex. 18 at 485.

Tomar does not provide a specific construction for "extracting" in its Markman briefs. In its discussion of the specific limitation that includes "extracting", Tomar does not appear to dispute the argument that "extracting" should be construed as "obtaining". See Tomar Proposed Claim Interpretations Brief, p. 30-31; Reply Brief, p. 18. Accordingly, the term "extracting" will be construed to mean "obtaining."

**1680**

C. "Extracting a correction condition" (claims 1, 6, 9)

As noted in the foregoing section, one of the steps of the method disclosed in claim 1 is: "extracting a correction condition by extracting information corresponding to an alignment state of said process[]." The parties dispute the scope of another limitation in this step: "extracting a correction condition."

The parties agree that "extracting a correction condition" is a step in the photolithography process that involves obtaining information that is used to correct the "optimal working condition" in order to arrive at the "current working condition." 6:11-18. Samsung's proposed construction is: "Creating a value or data set to be used to affect the determination of a current working condition." AMD proposes the following construction: "Subtracting an objective value from a resultant value so that, when this difference value is added to the optimal working condition, a process can be performed without error."

The Court finds that Samsung's construction accurately conveys the function of the "correction condition" as it is taught in the claim language. The Court rejects AMD's construction for two reasons. First, it adds terminology -- "resultant value" and "difference value" -- that is unlikely to be clear to a jury. Second, AMD's proposed language is taken from the section of the preferred embodiment that teaches calculating an "optimal condition." 3:31. The preferred embodiment supplies the following equation for this calculation: The specification teaches that in this equation, the italicized E "indicates a correction element obtained by subtracting an objective value from a resultant value." 3:43-44. AMD argues that this explanation of the equation should be used to construe "correction condition." The Court disagrees. Claim 1 makes clear that the steps of "extracting an optimal working condition" and "extracting a correction condition" are distinct. 6:7-11. AMD provides no reason for defining "correction condition" by using the preferred embodiment's description of how to calculate the "optimal condition."
Accordingly, the Court adopts Samsung's construction of this term.

A VID argues that the term should mean "extracting information from the measure of the variation in the magnetic field as a function of time utilizing the association being employed, wherein the association functions to relate a variation in the magnetic field with an item of information." According to A VID, the specification explains that the multi-mode reader can extract information from a magnetic field in accordance with multiple protocols in order to read tags of different designs and tags from different manufacturers.

Once again, the Defendants argue that the claim should be construed under 35 U.S.C. § 112 P 6 as a step-plus-function limitation. They also argue that the claim is drafted in purely functional terms, without any hint as to the acts required to extract information. According to the Defendants, the corresponding structure includes a reconfigurably programmable microprocessor 170 programmed to perform six routines (i.e., the algorithm) for extracting information. The acts performed by these routines constitute the corresponding acts of the extracting information limitation of claim 73.

After carefully considering the parties' proposed constructions and the '326 patent, the Court adopts A VID’s proposed construction. The absence of the signal "step-for" creates a presumption that a method claim is not in step-plus function form. Cardiac Pacemakers, Inc., 381 F.3d at 1382. The Defendants have not overcome this presumption and the Court adopts A VID’s construction.

Extraction circuit outputting a plurality of data segments, each of which being selected from a respective one of said plurality of data frames; extraction circuit selecting each of a plurality of data segments from a respective one of said plurality of frames

The Court adopts Ciena’s proposed construction and construes the terms as a “circuit extracting a data segment from each of a plurality of data frames.” Ciena again argues that the terms do not need to be construed and offers its proposed construction in the alternative. Nortel argues that the terms should be construed as “circuit extracting a data segment from each of a plurality of successful data frames.” Nortel presents the same arguments in support of its proposed construction here as it did in support of its construction of the “extracting each of a . . . plurality of data segments from a respective one of a . . . plurality of frames; extracting each of a plurality of data segments from a respective one of a plurality of data frames” terms discussed above. For the same reasons discussed above in reference to the terms “extracting each of a . . . plurality of data segments from a respective one of a . . . plurality of frames; extracting each of a plurality of data segments from a respective one of a plurality of data frames,” the Court construes these terms as a “circuit extracting data segment from each of a plurality of data frames” without modifying the data frames with the word “successful.”

"Extracts data" appears in independent claim 1 of the '077 patent. Yodlee seeks to construe the term as meaning to "locate and retrieve data from a web site in a way that allows summarization and/or aggregation," asserting that is necessary to clarify that "extract" means to "copy" data, rather than "to pull out" as would be consonant with the normal definition of the
term "extract." CashEdge asserts that this term needs no construction. The Court agrees with CashEdge that no reasonable person, and certainly not someone with ordinary skill in the art, would think that the term "extract" as used in the patent involves erasure. **This term need not be construed.**

### 1684

**J. "facilitates" / "allowing"**

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<th>Defendants' Definition</th>
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<td>If the Court concludes that a construction is required, the term should be construed as: &quot;permitting&quot;</td>
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The disputed terms are located in each of the asserted independent claims: "wherein the application software facilitates the generation of the second menu by allowing selection of categories and items from the first menu." The plaintiff argues that its proposals "reflect that the application software is configured or enabled to perform certain recited functions, but that those functions are not required to be performed." Plaintiff's Brief at 26. Plaintiff's assessment of facilitates, at least as it is used in Claim 1 of the '850 patent, is not entirely accurate. The language of claim 1 reads,

>[A]pplication software for generating a second menu from said first menu and transmitting said second menu to a wireless handheld computing device or Web page, wherein the application software facilitates the generation of the second menu by allowing selection of categories and items from the first menu, addition of menu categories to the second menu, addition of menu items to the second menu and assignment of parameters to items in the second menu . . . .

The parties have agreed that the preamble is a limitation. Therefore, the apparatus of the claims has the purpose of "generating and transmitting menus," and the application software must perform the recited functions of generating and transmitting a second menu.

The plaintiff is correct that the "allow[ed]" functions, namely selection, addition, and assignment, as recited by the claims, are not required to be performed. However, those functions are not what the application software facilitates. The application software facilitates the generation of the second menu--which the claim requires--by permitting one or more of the optional functions of selection, addition, or assignment. The plaintiff's proposal "configured to perform" would make the generation of the second menu optional. The court therefore adopts the defendant's construction for "facilitates." The court adopts the plaintiff's construction for "allowing."

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**3. "Store and Forward Facility" Limitation 7**

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**Footnotes**
7 The SAFF is also referred to as the "call handling facility." The parties have agreed that "SAFF" and "call handling facility" should have identical constructions.

The term "store and forward facility" is not written in standard "means" format and is thus presumptively not subject to § 112, P 6. However, even where the words "means" or "step(s) for" are absent, § 112, P 6, will still apply if the claim phrase fails to provide sufficient structure or acts for performing its function. See, e.g., Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213-14 (Fed. Cir. 1998). Accordingly, Defendants argue that because the "SAFF" is comprised of two means-plus-function phrases (computer means and mass storage means) and the claims do not recite sufficiently definite structure, the "SAFF" should also be construed as a means-plus-function limitation.

The Court finds that the means-plus-framework applies to the "SAFF" because the claim term is written as a functional term and has no inherent structure. n8 The "SAFF" has numerous functions in the claims, all related to receiving facsimile messages, storing them, and determining when and where to transmit, them. (926 patent, claim 55.) The corresponding structure is the structure to be used for performing these functions, including both the physical hardware and the software required performance.

Catch Curve again relies on the dictionary definitions of the terms "facility" and "store and forward" as proof that the "SAFF" has a definite structure associated with it. However, even these definitions describe the function of storing in more detail than the structure that does the storing. Given that the "SAFF" is characterized by two means-plus-function terms and the claims do not recite a definite structure, the Court finds that it is also a means-plus-function term. It is therefore limited to the structure disclosed in the specification.

A. Facsimile/Facsimile Protocol

Catch Curve argues that "facsimile protocol" should be construed as a "format and procedure that governs the transmission of facsimile messages from an originating facsimile machine to a call handling facility." Catch Curve contends that because the term "facsimile protocol" is recited only in one claim, it should not be imported as a limitation on all use of the word "facsimile."

Defendants argue that although the term "facsimile protocol" only appears explicitly in claim 69 of the '021 patent, the concept of "facsimile protocol" is necessarily present in all of the claim limitations that discuss fax machines or fax messages. To hold otherwise, Defendant argue, would give Catch Curve the rights to technology outside the scope of its invention. Accordingly, Defendants request that the Court adopt a definition of the word "facsimile" that limits it to the protocol that defined the word at the effective filing date.

To resolve this dispute, the Court first turns to language of the claims themselves. According to the claim language, the fax messages are transmitted by a facsimile machine to the SAFF. The SAFF then forwards the fax messages to recipient facsimile machines. Because the patentees claimed their invention in terms of this particular kind of transmitting machine and this particular kind of message, it is important to give meaning to these limitations in the claims. For a machine to be a "fax" machine that sends "fax" messages, it must use a certain protocol - what the parties often refer to as a "digital dialogue" - to communicate. Otherwise, nothing distinguishes these, machines from any other machine used for communication.

Another component of all of the asserted claims that confirms that the fax-related terms require the use of facsimile protocol is the "SAFF." In the claims, the SAFF is the facility that receives the fax message from the transmitting fax machine, stores it, then forwards it to a recipient fax machine. Catch Curve admits that, in so doing, the SAFF acts "as a proxy" for the fax machines. Given that these fax machines - to be called as such - must necessarily engage in the protocol unique to facsimile communications - the SAFF, which simply forwards the message from one fax machine to the next, must similarly engage in facsimile protocol to send and receive the fax.
The preambles to the claims are additional intrinsic evidence that the fax-related terms contemplate the use of facsimile protocol. Courts determine whether a preamble limits a claim on a case-by-case basis in light of "the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history." Allen Eng'g v. Bartell Indus., 299 F.3d 1336 (Fed. Cir. 2002). Although no litmus test defines when a preamble limits claim scope, Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002), the general rule is that preamble language acts as a limitation on the claim when it is necessary to give life, meaning, and vitality to it. Kropa v. Robie, 187 F.2d 150, 152, 38 C.C.P.A. 858, 1951 Dec. Comm'r Pat. 177 (CCPA 1951). Moreover, if it helps to determine the scope of the patent claim, then it is construed as part of the claimed invention. NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1305 (Fed. Cir. 2005).

Here, Venali has requested that the Court consider the preambles to the claims as additional evidence that the asserted claims require the use of facsimile protocol. The preambles to claim 55 of the '926 patent and claim 24 of the '302 patent are identical, describing the inventions as "a method for facilitating facsimile communications between a transmitting facsimile machine and at least one intended facsimile machine." The preamble to claims 30 and 48 of the '584 patent and the preamble to claim 1 of the '034 patents describe the inventions as "a method for operating a facsimile store and forward facility to facilitate facsimile communications." This preamble language constitutes a limitation on the asserted claims because it sets forth a fundamental characteristic of the invention - a system for fax machine to fax machine communication. Because the preambles help determine the scope of the claims, the Court construes them as part of the claimed invention. NTP, 418 F.3d at 1305.

Given the foregoing, the Court finds that it is clear from the language of the claims that "facsimile protocol" means the standardized procedure that governs the transmitting and receiving of facsimile messages, excluding other protocols whereby the substance of a facsimile message is converted into a different format and then retransmitted using some other protocol. However, mindful of the instruction in Phillips that "the specification is always highly relevant to the claim construction analysis" and is "the single best guide to the meaning of a disputed term," the Court has also reviewed the specifications in this case to reach this conclusion. Phillips, 415 F.3d at 1315.

According to the specifications, "all fax transmissions initiated by a subscriber to the fax management system are first intercepted by an originator SAFF." The SAFF then "engages the originating machine in the same digital dialogue that would have occurred if a direct connection to the destination machine had actually been made . . ." thereby ". . . agreeing to accept the fax format requested by the originating machine." Finally, the SAFF "engages the destination machine in the necessary preliminary digital dialogue." 4 This language makes clear that, at the transmitting and receiving ends of the communication and at the SAFF, the fax messages are transmitted and received using the "digital dialogue" that is the core feature of facsimile protocol. As the Federal Circuit emphasized in Phillips. "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Phillips, 415 F.3d at 1316.

Moreover, the specifications contain no indication that the inventors ever considered that their patents covered anything more than fax-to-fax services. The specifications make clear that the scope of the invention was limited to transmission of messages over a telephone line from an originating fax machine to a destination fax machine, with the benefit of a store and forward facility as part of the switched telephone network. (926 patent, col. 2.) The specifications emphasize that in order to receive a fax message from the SAFF, the receiving device must operate using "fax mode or format." (302 patent, col. 16.) Although the specifications and each of the figures address facsimile machines and computers connected to telephone lines, 5 the specifications are devoid of any reference communicating faxes using other means than facsimile protocol. This is the case because the invention was based on communications between fax machines conducted over the switched telephone network, not a packet switched network.
Finally, the Court has reviewed the file history, which also confirms that the technology requires the use of fax protocol. Significantly, the PTO initially rejected draft claims from the '926 patent because of the existence of technology that received messages in digital teletype protocols and converted those messages into fax protocols so that the receiving fax machine could receive the message. However, the '926 patent was eventually approved specifically because Catch Curve argued that the existing technology could not "accept, process, or communicate a message originating from a fax machine."

In short, Catch Curve used the distinction between fax and other protocols to obtain its patents. The Court construes the claims now in such a way as to render the patents invalid.

In an attempt to persuade the Court that the claims are not restricted by the use of facsimile protocol, Catch Curve makes several arguments. First, Catch Curve argues that Defendants' position is inconsistent with their descriptions of their own products and services. Catch Curve points to several of Defendants' advertisements describing Defendants' fax-to-e-mail services as enabling customers to receive "faxes" in their e-mail inboxes. (Pls. Reply at 7.) Thus, Catch Curve contends, even Defendants recognize that a "fax" can be received through the use of non-facsimile protocol.

The Court disagrees with Catch Curve's characterization of the Defendants' advertisements - which, it notes, are the type of extrinsic evidence that carries little weight in claim construction. A brief review of these advertisements reveals that they do not use the term "fax" in the same way that it would have been used by a person of ordinary skill in the art in question at the effective filing date of these patents. Instead, they use contemporary a lay definition of "fax" that does not comport with its meaning for the purpose of claim construction.

In further support of the idea that the patents-in-suit describe fax "conversion," Catch Curve invokes the doctrine of claim differentiation. Catch Curve contends, that because the term "facsimile protocol" only appears in one claim - claim 69 of the '021 patent - then that term must be limited to that claim. Catch Curve argues that its patents require the use of facsimile protocol only with respect to the transmission of the fax message from the transmitting fax machine to the call handling facility, i.e., the SAFF, and not with respect to the forwarding of the fax message from the SAFF to the recipient fax machine. Thus, Catch Curve argues, its claims are not limited to the use of facsimile protocol unless that term is explicitly stated.

As an initial matter, the Court notes that the doctrine of claim differentiation only applies when the failure to differentiate would render a claim - not a limitation - superfluous. Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1302 (Fed. Cir. 1999) (doctrine applies "[t]o the extent that the absence of such difference in meaning and scope would make a claim superfluous). Because Catch Curve is not arguing that claim 69 of the '021 patent would be superfluous if "facsimile" requires the use of a facsimile protocol, the doctrine of claim differentiation appears inapplicable.

Moreover, there is nothing in the claims to suggest that the transmitting fax machine of claim 69 of the '021 patent is different from the transmitting fax machine of the other asserted claims. Catch Curve's position that they are different - one uses fax protocol, the other does not - violates the principle that when all patents "derive from the same parent application and share many common terms," the courts must "interpret the claims consistently across all asserted patents." NTP, 418 F.3d at 1293.

In addition, when the claims contemplate conversion from one protocol to another, the claims say so. For example, the '302 patent, claim 9, claims "converting facsimile message signals received from said store and forward facility into suitable video display signals for display on the normal television set." The '302 patent, claim 13 claims "a video display generator and RF modulator means for converting facsimile messages received from a store and forward facility." Claim 34 of the '302 patent claims "a conversion means for converting facsimile signals received from said store and forward facility into suitable video display signals for display on the normal television set." Given that the patentee was capable of specifying when a claim required conversion, it follows that where no conversion is specified, none is contemplated.

Finally, in support of its position that SAFF "outbound" communication need not use facsimile protocol or be transmitted on a switched telephone network, Catch Curve argues that some of the claims fail to recite the words "switched telephone
network" to limit the outbound transmission. However, the failure to recite these words in describing the outbound
transmission does not indicate that the inventor contemplated that this transmission might take any or all forms. The use of
the word "facsimile" in the same claims clearly indicates that the scope of possible formats for the outbound was limited to
facsimile protocol.

For the foregoing reasons, the Court proposes the following construction of "facsimile":

CONSTRUCTION: image data transmitted using facsimile protocol on the switched telephone network

The Court proposes the following construction of facsimile protocol:

CONSTRUCTION: the standardized procedure that governs the transmitting and receiving of facsimile messages over the
switched telephone network

Catch Curve argues that the district court erred by limiting the claims to a specific protocol. It asserts that a "facsimile
message" or "facsimile communication" should be construed to refer to the image data that is initially transmitted by a
facsimile machine, and that the communication remains a "facsimile message" or "facsimile communication" regardless of
any subsequent changes in the format used to convey that data after it is sent. Venali, on the other hand, contends that the
district court properly limited the claims because the patents use the terms "fax message" and "fax communication" to mean
messages that are communicated in fax protocol over a switched telephone network, and because those terms do not include
messages that are converted into different formats for transmission over the Internet.

The district court correctly noted that "[f]or a machine to be a 'fax' machine that sends 'fax' messages, it must use a certain
protocol . . . to communicate. Otherwise, nothing distinguishes these machines from any other machine used for
communication." In the common specification of the five patents, the inventors made clear that they used the term
"facsimile communications" to refer to communications between conventional fax machines or their proxies over a switched
telephone network. The specification describes the subject matter of the patents as "'[t]he electronic transmission of
documents by way of facsimile (fax) systems, employing public and private switched telephone networks," '021 patent, col.
1, ll. 29-31, and it describes the inventions generally as consisting of "a system and method for providing a comprehensive
interactive facsimile message management system embedded in a switched telephone network," id., col. 21, ll. 27-29. The
disclosed method, according to the specification, is designed "to achieve this in a way which is fundamentally compatible
with existing fax terminal machines." Id., col. 3, ll. 2-3. The "basic approach," the specification adds, "is to provide special
computer-based fax Store And Forward Facilities (SAFFs) as an integral part of a switched telephone network system." Id.,
col. 3, ll. 3-6. Because the specification was first filed in 1988, the reference to "existing fax terminal machines," like the
references to other features of fax technology, pertains to the technology as it existed at that time.

Nothing in the specification suggests that the fax messages of the invention are converted to a different format and
transmitted to the recipient over a medium other than a switched telephone network. If the destination fax machine is within
the service region of the SAFF that first receives the fax message from the sending fax machine, the system temporarily
stores the fax message and attempts to call the destination fax machine. If contact is established, the SAFF delivers the fax
message immediately. '021 patent, col. 3, ll. 13-16. If the destination fax machine is within the service area of a different
SAFF, "the system forwards the fax document data to that facility by long-distance lines, in which case the second facility
attempts to call the destination machine" so as to deliver the fax message. Id., col. 3, ll. 16-24. If the attempt to deliver the
fax message to the destination machine fails on the first try, the message is stored at the second SAFF and subsequent
attempts are made to deliver the message from that SAFF. Id., col. 3, ll. 25-56.

Although Catch Curve contends that the term "fax message" refers to any image data that replicates the original fax
communication, regardless of what format is used to communicate or store that data and regardless of what medium is used
to transmit the data, that is not the way the patents use the terms "fax messages" or "fax transmissions." Rather, the common
specification makes clear that the fax messages that are the subject of the patent are sent and received by conventional fax
machines or their proxies over a switched telephone network using fax protocol. When the specification refers to devices other than traditional fax machines that can be adapted to receive fax communications, such as computers or ordinary television sets, it explains that those devices can be made to function as "paperless fax terminals." In describing the computer that can serve as a "paperless fax terminal" to receive fax messages from the SAFF mailbox, the specification makes clear that the computer uses a computer communications code to initiate telephonic contact with the Mail Box Service Control and that the Mail Box Service Control switches the computer from computer terminal mode to fax terminal mode for delivery of the requested fax messages over a telephone network, after which the fax message is delivered just as it would be to a traditional fax machine. '021 patent, col. 15, ll. 57-65. There is nothing in the specification to suggest that the fax message is converted to a different protocol for purposes of transmission, nor is there anything to suggest that the fax message is transmitted to its destination over a system quite different from a switched telephone network, such as the Internet.

Catch Curve argues that fax protocol must be used for the communication of image data between a fax machine and a SAFF, but need not be used for the communication of image data between two SAFFs. Because the SAFFs are computers, not fax machines, Catch Curve contends that the communication between the two SAFFs must be in a digital language. While that may be, the common specification makes it clear that the SAFFs are required to communicate with one another over a switched telephone network. For example, the patent teaches that the two SAFF machines communicate "through a long-distance interface over long-distance circuits." '021 patent, col. 8, ll. 24-25; see also id., col. 12, ll. 33-36 (noting that the invention "can significantly enhance the efficiency of the . . . long-distance and local telephone circuits"). Therefore, even if the district court's claim construction was unduly restrictive with respect to the use of fax protocol in every phase of the communication process, it was not in error with respect to the requirements that the communications take place over a switched telephone network and that the fax messages be delivered to a traditional fax machine or a proxy for such a machine by fax protocol over a switched telephone network.

Venali's accused system operates in a fundamentally different manner. Venali's system converts messages into formats other than fax protocol before storing or forwarding the messages and then transmits the messages to their intended destinations via SMTP, HTTP, or HTTPS protocol over the Internet. The messages are not sent to, and are not retrievable by, a conventional fax machine or a "paperless fax terminal" operating in fax protocol. Thus, all the data storage and transfer functions in Venali's system, after the initial receipt and conversion of the fax message, are inconsistent with fax protocol. In particular, Venali's Internet transmissions are quite different from the claimed transmissions of fax message signals over a switched telephone network. The district court therefore correctly concluded that Venali does not practice the methods or systems that are disclosed in the asserted patents and claimed in the numerous claims originally asserted by Catch Curve.

2. Facsimile Machine

Catch Curve argues that the "facsimile machine"/"fax device" term should be construed as "equipment for receiving or transmitting facsimile messages." Venali argues that it should be construed as "a device that uses facsimile protocol to transmit and receive fax messages over a telephone call," and Protus argues that it should be construed as "a machine that, transmits and receives messages over a switched telephone network using facsimile protocol."

For the reasons described above," Catch Curve's definition is too broad. Accordingly, the Court construes this term as follows:

CONSTRUCTION: A machine for transmitting or receiving messages while using facsimile protocol

Catch Curve argues that this term means "image data for facsimiles." Defendants argue that this term means either "a
message transmitted and received using facsimile protocol," or "a message transmitted and received over a switched telephone network using facsimile protocol."

Under Catch Curve's litigation position, any further transmission of a document that was once transmitted by a facsimile machine remains a fax transmission. This position cannot be reconciled with the patents that the PTO issued. For a fax message to be a "fax" message within the meaning of the patents, it must be:

CONSTRUCTION: A message transmitted and received by facsimile protocol

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2. "Facsimile Transceiver"

The first portion of dispute in claim 1 is the term "facsimile transceiver" which is found in the language, "An information station comprising … a facsimile transceiver for converting printed information into digital electronic signals and for converting digital electronic signals into printed information." The parties offer differing constructions of the term "facsimile transceiver." Plaintiffs propose the following construction:

A facsimile transceiver is used which includes a scanner that scans a printed image on a piece of paper and turns the image into digitized information. The facsimile transceiver also has a printer which allows the facsimile transceiver to take digitized information, such as a digitized picture or words, and print the picture or words on a piece of paper.

Joint Claim Construction Statement at 4.

In comparison, Defendants claim that "facsimile transceiver" should be constructed as follows:

The facsimile transceiver must be capable of scanning printed information (e.g., printed text, pictures, photographs, and graphics) on a piece of paper, and digitizing the printed information into digital electronic signals representing the printed information, and transmitted the digital electronic signals to a destination outside the facsimile transceiver.

The facsimile transceiver also must have the capability of receiving digital electronic signals representing printed information (e.g., printed text, pictures, photographs, and graphics) from a source outside the facsimile transceiver, and printing the printed information in human readable form on a piece of paper.

The facsimile transceiver converts printed documents into digital signals and converts digital signals into printed documents. Within the context of the '911 patent claims and specification, these digital signals are necessarily encoded by a modem into analog signals for transmission over the telephone lines, and the analog signals are decoded by a modem into digital signals.

The facsimile transceiver must have the capability of communicating with a public telephone network through a modem.

Id. at 5.

While acknowledging that the two constructions are similar, Plaintiffs argue that Defendants' proposed construction is nonetheless unsupported by the claim language, the patent specification, and the prosecution history of the patent. See Pls.' Br. in Resp. to Defs.' Joint Brief in Supp. of Claim Construction at 5 (hereinafter referred to as "Pls.' Resp. Br."). Specifically, Plaintiff contends that Defendants improperly import several limitations into the claim: "First, Defendants appear to argue that (sic) 'facsimile transceiver' limitation must he read to encompass only so-called 'conventional' facsimile transceivers. Second, Defendants' construction appears to improperly require that any communications to or from the facsimile transceiver pass through a modem in the facsimile transceiver." Id. at 5-6.

Citing Defendants' Joint Brief in Supp. of Claim Construction, Plaintiffs state that Defendants, while not expressly using the term "conventional" to describe the facsimile transceiver in their proposed construction, "pointedly try to convey the impression that the scope of the 'facsimile transceiver' limitation should somehow be limited to 'conventional' facsimile
transceivers." Id. at 6. Plaintiffs argue that the word "conventional" is too ambiguous to be used to describe the type of facsimile transceiver contemplated by the claim. In Plaintiffs' estimation, the U.S. Patent and Trademark Office would likely have rejected the claim under 35 U.S.C. 112 as too indefinite had it used to word "conventional." Id.

Defendants argue that the specifications and prosecution history, as dictated by the claim language, describe a conventional facsimile transceiver that requires a modem-to-modem connection. See Defs.' Joint Reply Br. in Supp. of Claim Construction at 3 (hereinafter referred to as "Defs.' Joint Reply Br."). Because the specifications refer to a Fujitsu Model 2010 facsimile transceiver, which is only capable of modem-to-modem serial communication of analog signals through a telephone-compatible port and over a telephone line, Defendants argue that Plaintiffs' claim should be limited to facsimile transceivers with the same type of structure and functionality. Defendants further argue that "[t]he specification, and Kirsch during prosecution of the patent, explained that the invention was to use a conventional fax, and add a switch to enable the fax to connect directly to the computer's modem without any modification to the fax."

The Court is not persuaded by Defendants' argument. The specifications note that the claimed invention could be used with a "commercially available" facsimile transceiver. The Fujitsu Model 2010 is one "commercially available" unit. The Fujitsu Model 2010 referred to in the specifications, and others of similar make, require a modem-to-modem connection. The specifications merely acknowledge this fact and describe the claimed invention as being within the unit, and the unit being attached to a telephone line. However, there is no indication that other types of "commercially available units" did not exist at the time of patent prosecution. Indeed, "Defendants have identified numerous examples of alleged prior art facsimile transceivers—and, therefore, 'conventional' facsimile transceivers—having structure and/or functionality different than the exemplary model cited in the Kirsch patent." Pls.' Resp. Br. at 7; see Defs.' Joint Reply Br. at 17-19. The Court is not convinced that Kirsch intended to limit his claim to devices such as the Fujitsu Model 2010.

Defendants claims that the prosecution history supports its construction because Kirsch explained that his "invention can be implemented using conventional facsimile transceivers and without requiring such transceivers to be modified." Defs,' Joint Br. in Supp. of Claim Construction at 23 (hereinafter referred to as "Defs.' Br.") (emphasis in original) (citing Rosso Decl., Ex. 2c, p. 3). Again, the Court is not convinced that Kirsch's use of the term "conventional facsimile transceivers" was intended to limit his claim. There were other "conventional facsimile transceivers" in existence at the time patent prosecution; Kirsch chose to describe the use of his invention in one.

The specifications state that "[t]he facsimile transceiver … may be a commercially available unit." (Emphasis added). The prosecution history reveals that his "invention can be implemented using conventional facsimile transceivers and without requiring such transceivers to be modified." The Court concludes that the specifications do not identify the Fujitsu Model 2010, which was but one type of "commercially available unit," to the exclusion of others. The specifications describe but one embodiment, albeit the "Preferred Embodiment" in this instance, of Plaintiffs' invention. A patentee is not required to disclose every embodiment of his invention, SRI Int'l v. Matsushita Elec. Corp. of Amer., 775 F.2d 1107, 1121-22 (Fed. Cir. 1985)(en banc). The Court accepts Plaintiffs' construction of the term "facsimile transceiver."

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"Fair Allocation of Bandwidth"

Alcatel argues that the term should be construed as "an algorithm or policy to share the available bandwidth." Cisco argues that this term is indefinite, under 35 U.S.C. § 112 P. 2.

Alcatel claims that the patent specifications describe a fair allocation of bandwidth as a forced sharing of link capacity between active conversations, even during periods of severe congestion. See Watt Supp., col. 2, 11. 1-9 (hereinafter Watt, at 2:1-9). However, the patent indicates that it is up to the user to determine exactly how that link capacity is to be shared, by way of selecting particular policies, and setting values to reflect those policies. See id., at 4:16-27. The patent discusses the method of "express queuing," as well as "an ever-so-slightly modified form of express queuing" called "fair queuing." See id., at 5:59-6:16, Fig. 4.

Cisco contends that the patent does not describe what is meant by "fair," and thus is indefinite. "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant..."
regards as his invention." 35 U.S.C. § 112 P 2. As stated in Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684 (Fed. Cir. 2001), "The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Id. at 692. See also Personalized Media v. ITC, 161 F.3d 696, 705 (Fed. Cir. 1998) ("If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more."); Exxon Research v. United States, 265 F.3d 1371, 1376-80 (Fed. Cir. 2001).

A canon of claim construction instructs that, if possible, claims should be construed so as to preserve their validity. See Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1556 (Fed. Cir. 1997) (finding that the court "seeks to interpret claims to preserve, rather than defeat, their validity"); Carman Indus., Inc. v. Wahl, 724 F.2d 932, 937 n.5 (Fed. Cir. 1983). However, "if the only claim construction that is consistent with the claim's language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply invalid." Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999).

Cisco argues that Alcatel's proposed construction reads the term "fair" out of the claimed "fair allocation of bandwidth." In doing so, Alcatel has arguably failed to properly acknowledge the significance of the term in limiting the scope of the claim. See Lantech, Inc. v. Keip Machine Co., 32 F.3d 542, 546 (Fed. Cir. 1994) ("All limitations in a claim must be considered meaningful."); Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1444 (Fed. Cir. 1997). The crux of Cisco's argument therefore relies on its notion that the term "fair" must be properly defined so that one with ordinary skill in the art would know the limitations of the claim.

Cisco attempts to demonstrate that one with ordinary skill in the art would not know what is meant by "fair allocation of bandwidth" by relying on the testimony of its expert (see Lumish Decl., Ex. C ("Acampora '532 Report"), at 6-7), as well as the testimony of the inventor himself. Essentially, through the use of this extrinsic evidence, Cisco has demonstrated that what exactly "fair" means is not uniform, but rather changes over time in response to particular user needs as well as market expectations. See Watt Depo., at 87:13-88:3, 90:17-91:2.

Nevertheless, the exact definition as to what is "fair" is not necessary in order to properly construe the limitations of this term. As Alcatel points out, "fair allocation of bandwidth" is a term of art used both now and in 1993 when the foreign patent first issued. See Lucantoni '532 Decl., at PP 26-35. Several technical papers had been published at that time that included discussions on what constitutes fair in the context of allocating bandwidth, as well as proposing queuing algorithms for achieving that fair allocation. See id., at P 27. In fact, one of those articles is referenced directly in the patent specification. See id., at P 33; Watt, at 4:4-7. It is not necessary to determine what precisely constitutes "fair," as that definition will vary depending on the user's desired result. The notion of "fair allocation of bandwidth," however, is understood by someone with ordinary skill in the art as a concept by which multiple conversations share the available bandwidth along a common link in a manner specified by the user, but generally in a way that does not allow a heavy usage application to dominate the available bandwidth simply by virtue of its greater load.

Therefore, in light of the presumption of validity in construing a claim, and the determination that one with ordinary skill in the art could understand what is implied by the term "fair allocation of bandwidth," the Court finds that the term is not indefinite. Thus, the Court construes the term "fair allocation of bandwidth" as "an algorithm or policy to share the available bandwidth."

11. "fault monitoring data"

Power-One proposes this term be construed as "data concerning the status of one or more POL regulators in a distributed power system or surrounding conditions," while Artesyn suggests "information about a possible fault of the POL regulator or its output obtained through systematic measurements using an external device or sensor circuit." Again, the Court finds Artesyn's proposal too limiting and not justified in view of the specification. The '798 specification is clear that "fault monitoring data" is not limited to data "about a possible fault" as Artesyn proposes. See '798 patent, col. 5:40-46. Further, there is nothing in the '798 specification requiring that data be obtained through "systematic measurements." Concerning Power-One's proposal, the Court finds that the phrase "surrounding conditions" is not supported by the specification. The
Court construes "fault-monitoring data" as "data concerning the status or operating condition of one or more POL regulators used to determine if there is a fault."

10. "fault protection data"

Power-One suggests this term should be construed to mean "data concerning identification of or response to faults," while Artesyn proposes a construction of "a form of monitoring data provided by a POL regulator in which each datum is a value reflecting a characteristic of the POL regulator sending the message, such as the temperature, output voltage, or output current of the sending POL regulator." To support its proposal, Artesyn relies on column 2, lines 20-28 and column 5, lines 20-23 of the '916 patent. However, to construe these terms as Artesyn advocates would suggest that the term is limited to examples provided in the specification. Indeed, these passages use "e.g." showing that types of fault protection data discussed are exemplary only. See Varco, 436 F.3d at 1375. Artesyn's proposal also includes limitations, i.e., "form of monitoring data" and "each datum is a value reflecting a characteristic of the POL regulator," that are unnecessarily vague and find no support in the cited passages. Thus, the Court construes "fault protection data" as "data concerning identification of or response to faults."

6. "feature activation mode"

Plaintiffs' construction: a mode in which aspects of the system can be made active

Defendant's construction: the system has exited its previous state and has entered a suspended state in which the system is incapable of imaging and is waiting for feature key data to be inputted

Plaintiffs argue that this term has an ordinary and customary meaning, which can be gleaned from dictionary definitions. Defendant contends that "feature activation mode" means the same thing as "feature key activation mode," a term used in other claims of the '225 patent. Both approaches leave something to be desired. Although defendant is correct that the two terms are used in somewhat similar ways, this is not sufficient to demonstrate that they mean the same thing. Next, even if plaintiffs are correct and "feature activation mode" has an ordinary and customary meaning, they have not shown that their construction is proper. Rather than presenting the court with a widely accepted technical definition for the term as a whole, plaintiffs attempt to cobble together a construction from dictionary definitions of the individual words. Because both constructions are flawed, I conclude that the term "feature activation mode" would not benefit from either construction.

8. Feedback and feedback signal.

The defendants ask the court to limit the terms "feedback" and "feedback signal" to signals that can be used to determine current through the load. The court rejects this position. Although Samsung correctly contends that certain claim limitations add language that further describes the feedback signal, the terms, standing alone, are not limited to feedback signals that can be used to determine current through the load. Instead, as O2 correctly observes, the term "feedback signal" simply connotes a signal that is indicative of feedback.
The key issue raised by the parties' competing constructions of this term is whether the feedback signal must be an actual electronic signal, i.e., a series of bits, as Broadcom suggests, or whether the term may also include the absence of a signal, as Agere contends.

Review of the claim language clearly demonstrates that the term "feedback signal" must contain actual information. Claim 1 states that the feedback signal is "receive[ed]" from a receiver, and that the determination of whether to scale an operating characteristic from a first to a second level must be "based on said feedback signal received from a receiver." (‘550 patent, col. 10, ll. 64, 67 (emphasis added).) Claim 15 states that the feedback signal is "generat[ed] . . . based on said OFDM signal" and "provid[ed]" to "dynamic control circuitry." (Id., col. 12, ll. 8-10 (emphasis added).) It would be anomalous to speak of a device "receiving," "generating," or "providing" the absence of a signal. (See Cox Dep. at 128.) In fact, in response to direct questioning from the Court at the Markman hearing, Agere's counsel was unable, despite tenacious efforts, to explain how a receiver could "generate" the absence of a signal. (R. at 30-35 (May 7, 2004).)

Agere argues that one portion of the specifications supports its construction. This specification describes how the signal quality of a transmission line can be measured "by one of the following: received signal strength, received signal to noise plus interference ratio, detected errors (CRC), the presence of acknowledgments (lack of acknowledgments the link for communication signals is bad)." (‘550 patent, col. 7, ll. 56-61.) Agere correctly notes that the non-parenthetical portion of the quoted language lists types of feedback that can be used by the dynamic control circuitry to assess transmission signal quality. (See Goodman Rep. P 22.) The text within the parenthetical, however, does not also constitute a "feedback signal" as that term is used in the claim language. Rather, it is an independent, albeit inarticulate, clause indicating that the lack of an acknowledgment may also convey information to the transmitter, i.e., that the link for communication signals is bad. Accordingly, this portion of the specifications does not alter the clear meaning of the term "feedback signal" as evidenced by the claim language.

Agere advances the additional argument that its construction is supported by dictionary definitions, specifically the definitions of "feedback" and "signal." 3 The Academic Press Dictionary of Science and Technology defines "feedback" as "the return of information about a system or process that may effect a change in the process." 4 ACADEMIC PRESS DICTIONARY OF SCIENCE AND TECHNOLOGY 812 (Christopher Morris ed., 1992). The Sixth Edition of the IEEE Standard Dictionary of Electrical and Electronics Terms defines "signal" as "a visual, audible or other indication used to convey information." (Goodman Rep. P 20.) Agere combines these two definitions to arrive at its proposed construction: "An indication depending in part on an original signal." Agere's combined definition, however, does not resolve the key dispute noted above regarding whether an "indication" includes the absence of a signal. Agere merely asserts that the indication "could come in the form of an acknowledgment (indicating that the message was received by the receiver accurately) or the absence of an acknowledgment (indicating that the message was not received by the receiver accurately)." (Id. P 21; Agere Opening at 24.) Neither the dictionary definitions nor Agere's combined definition, however, compels this conclusion. In fact, the IEEE Dictionary definition of "signal" cited above could be plausibly read to require an actual physical signal and the IEEE definition of "feedback" definitely so requires. Seesupra n.4. Furthermore, even if the dictionary definition of "feedback signal" includes the absence of a signal, that definition would be contrary to the clear import of the claim text.

--- Footnotes ---

3 Agere argues that it was necessary to examine the definitions of "feedback" and "signal" separately because, although the IEEE Standard Dictionary of Electrical and Electronics Terms defines the composite term "feedback signal" as it relates to "control system" applications, that definition does not comport with how the term is used by communications engineers in relation to OFDM transmissions. (Goodman Rep. P 19.)

4 Notably, Agere's expert's report utilizes the IEEE definition of "feedback," which is "the returning of a fraction of the output of the input." (Goodman Rep. P 20.) Presumably, Agere abandoned this definition of "feedback" because, as Dr. Goodman admitted at the Markman hearing, it contradicts Agere's proposed construction. (R. at 6 (May 7, 2004) (noting that IEEE definition "required [an] electronic signal, an actual signal, not the absence of a signal . . . because [it] required returning a fraction of the original signal").)
In light of the foregoing analysis, the Court finds that the "feedback signal" must contain an actual electronic signal. Broadcom's proposed construction, however, includes the further limitation that a "feedback signal" is a "series of bits." Broadcom's only support for this language is its expert's assertion, which is unsupported by a dictionary definition or reference to the intrinsic record. (Broadcom's Resp. at 18.) Instead, the Court adopts the broader construction proposed at the Markman hearing: "An actual electronic signal constituting information about the communication environment which allows an originating source to adapt in response to that information." 5

5 Broadcom indicated at the Markman hearing that it would be willing to accept this revised construction. (See R. at 41 (May 7, 2004) ("A signal means actually sending some electronic form of signal.").)

The parties dispute whether the term "article feeder means" in claims 1, 20, and 24 is governed by Section 112, paragraph 6. Goss argues the statute does not apply despite the presumption that attaches because the word "means" is used in the claim. Pl. Memo. at 11. Goss contends the term "article feeder" recites sufficient structure on its own to rebut the presumption. Id. In addition, Goss argues the claim sets forth sufficient structure because it contains detailed descriptions of the location and components of the article feeder means. Id. at 12. Goss draws support for its construction from the specification, the patent examiner's repeated use of the term "feeder" without discussion of its function, and a dictionary definition of the term. Id. at 13. According to Goss, a person of ordinary skill in the art would understand the term to describe a known structure. Id.

K&M responds that Goss has not rebutted the presumption in favor of means-plus-function analysis. K&M contends that the only structure identified to perform the function of "feeding sheet material articles to said receiving locations" is a variable speed motor. Def. Memo. at 10; Pat. at col. 14, ll. 51-53. But an article feeder requires structures in addition to a variable speed motor to move the sheet material to the pockets, such as a hopper, feed drum, sucker mechanism, gripper, variable speed feed motor, and feed motor drive circuit. Id. at 12; Pat. at Fig. 4 (included within the dashed line denoting the "sheet material article feeder 54" is a host of structures other than variable speed motor). K&M concludes the element is functional and falls under Section 112, paragraph 6. Id. at 13. Employing means-plus-function analysis, K&M argues for a construction that includes all the structures necessary to determine the position of the pockets and transport the sheet material to them. Id. at 13.

The "article feeder means" element is not governed by Section 112, paragraph 6. Although use of the term "means" presumes application of the statute, that presumption may be overcome if the claim recites structure sufficient to perform the claimed function. See Altiris, 318 F.3d at 1375. That structure is apparent. First, the term "article feeder" provides enough structural detail on its own to render Section 112, paragraph 6 inapplicable. In MIT v. Abacus Software, the court
found means-plus-function analysis did not apply to the term "aesthetic correction circuitry." 462 F.3d 1344, 1355 (Fed. Cir. 2006). The court determined the word "'circuitry,' by itself, connotes structure." Id. The court based its decision on general-usage and technical dictionaries defining the term. Id. "Article feeder," like "circuitry," describes a known structure. The specification is rife with references to different types of feeders. See e.g., col 1, ll. 34-38; col. 2, ll. 46-47. None of the references are described functionally. In addition, the prosecution history makes clear that the patentees and the patent examiner understood the term "article feeder" to identify a specific item. See Pl. Memo. at Ex. B, PAT00185 (term is used without explanation or qualification in discussion of the Maoploski patent, which is referenced as prior art in the '724 patent). Moreover, as in MIT, dictionaries identify a "feeder" as a known device consistent with the '724 patent's use of the term. Id. at Ex. C, Ex. 7 ("feeder" defined as a "device that feeds materials into a machine for further processing"). See also Cole, 102 F.3d at 531 ("perforation means . . . for tearing" was not means-plus-function element because the element's precise structural character was defined by its own description).

Second, aside from the element's description, the claims set forth structure sufficient to overcome application of Section 112, paragraph 6. The claims describe the location of the article feeder means ("disposed along said conveyer") and some of its components ("each one of said article feeder means includes a variable speed motor"). Pat. at col. 14, ll. 52-54. By doing so, the claims do not merely depict the article feeder means as a function, they describe the element's structure by explaining its operation. When a structural term is coupled with operational terms, "sufficient structural meaning will generally be conveyed to persons of ordinary skill in the art." Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320 (Fed. Cir. 2004); see also MIT, 462 F.3d at 1356 (structural term "circuit" described by reference to additional operational structure); Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1304-05 (Fed. Cir. 1999) ("positioning means" was not means-plus-function element because claim recited additional structures for performing function).

K&M argues the element's description does not embody all the structures necessary to perform the element's function; therefore, the presumption in favor of means-plus-function analysis is not rebutted. This argument is unavailing. "It is well established that it is not necessary to claim in a patent every device required to enable the invention to be used." Asyst Techs., Inc. v. Empak, Inc., 268 F.3d 1364, 1371 (Fed. Cir. 2001). Thus, it is not fatal to Goss' position that the claim recites a variable speed motor as additional structure, but fails to recite more. Id. The recitation of operational components and the article feeder means' location indicates the element is structural.

In any event, K&M's proposed construction fails because it commits a cardinal sin of claim construction: it seeks to import structures unnecessary to perform the element's function. See Wegner, 239 F.3d at 1233. The majority of structures K&M includes in its construction relate to controlling the specific location sheet material is delivered to the pockets, e.g., feed motor position sensor, operator advance/retard control, home position and receiving location proximity sensors, etc. Def. Memo. at 14; Pat. at Fig. 3. But these structures are not necessary for the article feeders means to perform the limited function of "feeding sheet material articles to said receiving locations." Pat. at col. 14, ll. 51-53. The structures K&M adds enable or enhance, rather than perform, the specified function. See Asyst Tech., 268 F.3d at 1371. The court cannot construe claims in a way that adds unnecessary structures. Wegner, 239 F.3d at 1233. To be sure, the patent's drawings create some ambiguity regarding what structures are contained in the article feeder means. Pat. at Fig. 3 (item 54, identified as a "sheet material article feeder," drawn to include all structures within dotted-line); Fig 4 (item 54 points to unspecified group of structures). However, the specification clearly sets forth the element's function. Claim language, not the drawings, define the scope of the patent. See Cummins Engine Co. v. Gen. Motors Corp., 299 F. Supp. 59, 88 (D.C. Md. 1969).

Further, K&M's construction would violate the doctrine of claim differentiation, which requires the court to construe independent claims in a way to avoid nullifying dependent claims. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 908 (Fed. Cir. 2004). Many of the structures K&M includes as part of claim 1's "article feeder means" element are recited as separate elements in dependent claims. See e.g., Pat at col. 15, ll. 62-65 (construction of claim 1 includes sensors, but "sensor means" are described in claim 9). Adopting K&M's construction would render many dependant claims redundant. Therefore, the court construes the "article feeder means" element in claims 1, 20, and 24 consistent with Goss's proposed constructions.
Fargo  ferromagnetic: of or relating to a class of substances characterized by abnormally high magnetic permeability, definite saturation point, and appreciable residual magnetism and hysteresis
magnetic material pins: pins made of a magnetic material
unmagnetized magnetic material: magnetizable material that is not permanently magnetized

Iris  ferromagnetic: a material that exhibits ferromagnetism, but is not magnetized
magnetic material pins: pins made of a material that is capable of being magnetized, but is not magnetized
unmagnetized magnetic material: material that is capable of being magnetized but, in the absence of an applied external magnetic field, is not magnetized

n5 Iris offered this proposed construction at oral argument.

The focus of Iris's arguments regarding these terms is that, within the context of the patent, they all refer to material that is capable of being magnetized, but is not magnetized. Iris highlights evidence in the prosecution history where the applicant sought to distinguish prior art on the basis that the supply rolls have "no magnets." (Fink Aff., Ex. C, pt. 4, at C61-C62.) The document states:

Claim 11 [issued Claim 8] is specific to the positioning of the identifier indicia, using an unmagnetized magnetic material. This feature is very important, again, from a pollution control standpoint, because there are no magnetic materials that are utilized on the roll, but yet the reliability of a magnetic sensor can be utilized using one stationary detector of the present invention.

* * *

With the present invention the magnetic material pins are cheap, they are non-polluting, and since there are no magnets, there are no plurality [sic] requirement. They can be placed on the supports or inserted into the apertures without regard to polarity.

The doctrine of prosecution disclaimer prevents a patentee from recapturing a specific meaning that it disclaimed during prosecution. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003). The disclaimer must have been clear and unambiguous for the doctrine to apply. Id. at 1324. Fargo argues that there is no clear and unmistakable disavowal of the ordinary and customary meaning of "magnetic material pins." The problem with Fargo's argument, however, is that its proposed construction for "magnetic material pins" is "pins made of a magnetic material." Yet the prosecution history clearly indicates that the "invention" has "no magnets." Neither Fargo's arguments nor its proposed definition help explain how "material" that is "magnetic" is nevertheless not a "magnet."

At oral argument, Iris offered a new definition for "unmagnetized magnetic material" to counter any objection that its previous definition might have excluded the pins in the patent because they are briefly magnetized as they pass through the magnetic field that is part of the sensor. The resulting definition, "material that is capable of being magnetized but in the absence of an applied external magnetic field is not magnetized," is a better definition than Fargo's because it avoids the ambiguity of the word "permanent." In light of the prosecution history indicating that the supply rolls have "no magnets," the Court will adopt this definition for "unmagnetized magnetic material" and a similar definition for "magnetic material pins:" "pins made of material that is capable of being magnetized but in the absence of an applied external magnetic field is not magnetized." In so doing, the Court is aware that it is defining different terms to have essentially the same meaning. Although a patentee's use of different terms normally indicates that it intended those terms to carry different meanings, a reading of the patent and prosecution history does not reveal what that difference might be in this case, and Fargo's
objections to Iris's proposed definitions ignore the clear statement in the prosecution history regarding the lack of magnets.

Finally, in light of that same prosecution history, the Court will adopt Iris's definition of "ferromagnetic," modified as follows: "a material that exhibits ferromagnetism, but, in the absence of an applied external magnetic field, is not magnetized." Because Iris concedes that Fargo's definition of "ferromagnetic" is correct "in the abstract," the Court will adopt Fargo's definition of "ferromagnetic" insofar as it is necessary to define the word "ferromagnetism" in Iris's definition of "ferromagnetic."

a. Meaning of the phrase "objects fetched from said clients"

Defendants interpret the phrase "objects fetched from said clients" to mean that "the clients are the source of the objects." Defs.' Mot. for Invalidity of Claim 29 at 12:25; Danzig Decl I P 33. Plaintiff does not dispute that, as drafted, the phrase "objects fetched from said clients" means that objects come from clients. Instead, plaintiff interprets the "ordinary meaning of the phrase to be "fetched from said servers" or "fetched for said clients." Pl.'s Opp'n at 12:10 (emphasis in original). Plaintiff states that the phrase is the result of "an unambiguous typographical error," and that a person of ordinary skill in the art would identify and understand it as such. Id. at 13:9-10 (emphasis in original). For this proposition, plaintiff relies on the testimony of its expert, Dr. Frederick Hayes-Roth. Id. at 13:22-14:25. Plaintiff urges the Court to make one of two corrections to the claim language: either change the word "from" to the word "for," or change the word "clients" to the word "servers."

The Court finds that, even if this phrase contains a typographical error, it cannot re-draft the claim language to render claim 29 valid. It is true that patents are presumed valid, and this presumption of validity may only be overcome by clear and convincing evidence. 35 U.S.C. § 282; Eli Lilly & Co. v. Barr Labs., 251 F.3d 955, 962 (Fed. Cir. 2001). Moreover, as plaintiff correctly points out, "where claims are amenable to more than one construction, they should where reasonably possible be interpreted so as to preserve their validity." Process Control Corp. v. Hydrelclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999), citing Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, in this case, the Court finds that the language of claim 29 is susceptible to only one meaning, and that the strict prohibition against courts re-drafting claims prevents it from "correcting" the error to conform the language to plaintiff's proposed interpretation.

The language of element (b) of claim 29 clearly states that objects are being "fetched from said clients." The dictionary definition of "from" is "a function word to indicate starting point" or "source, cause, agent, or basis." Webster's New Collegiate Dictionary (1981). The word "fetch" means "to cause to come." Id. The Court agrees with defendants that, interpreted literally, the phrase "from said clients" indicates that the clients are the starting point or source of the objects. The words, in this context, "mean exactly what they say." Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1373 (Fed. Cir. 2004). Defendants' expert testifies that this is also the plain meaning of the phrase to persons of skill in the art. Danzig Decl. I P 33.

In the absence of the patentee's clear intent to give claim terms some other, special meaning, the ordinary meaning controls. Chef America, Inc., 358 F.3d at 1374, citing Process Control. 190 F.3d at 1357. Courts look to the claims, specification, and prosecution history to discern whether some other meaning was intended. The testimony of the inventor about his or her subjective intent "is of little or no probative weight in determining the scope of the claim." Markman v. Westview Instruments, Inc., 52 F.3d 967, 985 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1976). In addition, if a party states that the claims have special meaning to those of ordinary skill in the art, that party must explain how the words would convey that special meaning. See Chef America Inc., 358 F.3d at 1375.

Here, there is no intrinsic evidence that the patentees themselves defined "from" as "for" or "clients" as "servers." The prosecution history indicates that the patentees understood "client" and "server" to mean different things, because the applicants amended another claim, claim 36, which depends upon claim 29, by changing the word "server" to "client" in two places. Cooper Decl. on Non-infringement, Ex. C, Tab 9 at INKT0074741. Plaintiff's evidence that the claims carry this special meaning to those of ordinary skill is the testimony of Dr. Frederick Hayes-Roth, one of the patent's inventors, who testified that "fetched from said clients" is equivalent to "fetched for the clients or fetched by the clients." Pl.'s Opp'n at 14:4-5. But this testimony, in addition to lacking probative weight, does not create a genuine issue of material fact because it
does not explain how the word "from" could be read to mean "for" or "client" could be read to mean "server." The testimony is no more than a "restatement of [plaintiff's] basic contention "that unless [the Court] rewrites the claim, the patented process cannot perform its intended function." Chef America Inc., 358 F.3d at 1375

The Court "must construe the claims based on the patentee's version of the claim as he himself drafted it." Process Control Corp., 190 F.3d at 1356-57. Consequently, the Court finds that the phrase "objects fetched from said clients" has only one plain meaning to those of skill in the art: that clients are the source of the objects.

b. Typographical error

Plaintiff's contention that the claim contains a typographical error does not alter this conclusion. Plaintiff actually proposes two possible typographical errors, only one of which needs to be corrected: either the preposition "from" should be changed to "for," or the noun "clients" should be changed to "servers." Plaintiff then attempts to distinguish the Federal Circuit authority relied on by defendants on grounds that the cited cases deal with purposeful drafting errors rather than inadvertent, typographical errors. Plaintiff does not demonstrate that this is a distinction with a difference in this case, and the Court cannot conclude that it is one. 1

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1 Defendants argue that this is not a typographical error as a matter of law. For purposes of summary judgment, viewing the evidence in the light most favorable to the non-moving party, the Court will assume that the error is typographical, and instead assess whether it can correct the error under these circumstances.

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The Federal Circuit has acknowledged that "not all clerical or typographical mistakes are immediately apparent, and even where the mistake is apparent, it may not be clear how the mistake should be corrected." Superior Fireplace Co. v. Majestic Products Co., 270 F.3d 1358, 1370. 2 In Novo Industries, L.P. v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed. Cir. 2003), the Federal Circuit addressed "whether a district court can act to correct an error in a patent by interpretation of the patent where no certificate of correction has been issued," and held that "a district court can do so only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims." Id. at 1354.

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2 Plaintiff distinguishes Superior Fireplace, where the court concluded that the error was not typographical because the claim language had been changed from "rear wall" to "rear walls" by an examiner's amendment, and thus the patentee could not have it changed back by a certificate of correction. The Court does not rely on Superior Fireplace, and recognizes that here, the language has never been altered at all. However, the issue is whether this language (if a typo) can be corrected by the Court.

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Here, the correction is clearly subject to reasonable debate. Plaintiff itself proposes two possibilities for the correction. In addition, as defendants point out, three co-inventors of the patent have offered different interpretations of the claim. Dr. Hayes-Roth considers "from the clients" to be equivalent to "for the clients" or "by the clients." Pl.'s Opp'n at 14:3-4. Chris McMahon testified that the language does not include a typographical error and that the word "from" need not be read as "for." Supplemental Declaration of Monte M.F. Cooper in Support of Defs.' Mot. for Summ. J. of Invalidity and Non-infringement of Claim 29 ("Supp. Cooper Decl."), Ex. G (Rough Tr. of Depo. Chris McMahon) at 78:5-6, 9; 76:17-18. James Manley stated that "clients" was intended to mean "servers." Id., Ex. H (Rough Tr. of Depo. James Manley) at 80:17-19.

In addition, the prosecution history does not support an inference that the claim should be interpreted as urged by plaintiff. When the 175 Patent was filed on October 26, 1995, it had ten claims, none of which contained the language of claim 29. Cooper Decl. on Non-infringement, Ex. B. The applicants filed a non-provisional application in June 1996, which included
65 claims, one of which was claim 29, then identified as claim 33. Id., Ex. C, Tab 1 at INKT0074641. The applicants made a "preliminary amendment" to correct typographical errors in the new application. Id., Tab 4 at INKT0074715-17. Claim 29 was one of 17 claims allowed by the PTO. After the patent issued, the applicants filed a formal "certificate of correction" under 35 U.S.C. § 254 to correct typographical errors in six of the claims. Id., Tab 16 at INKT0074960-61. Claim 29 was not changed. The applicants never made changes to this language, while they did change the word "server" to the word "client" twice in another claim. Plaintiff contends that because it never altered this claim language, the language contained a mistake from the beginning, and the failure to correct the mistake shows that it was inadvertent. Pl.'s Opp'n at 13:10-17. But the Court is not persuaded, and there is no evidence, that plaintiff's inaction means what plaintiff says it does. The Court finds nothing in the patent's prosecution history that suggests a different interpretation than the ordinary meaning of the language as drafted.

c. The Court cannot re-draft this claim language

The clear line of Federal Circuit authority dictates that this Court may not re-draft claims to change their ordinary meaning, even if the ordinary meaning produces a nonsensical result. See Chef America Inc., 358 F.3d at 1374; Process Control Corp., 190 F.3d at 1357. The language "objects fetched from said clients," according to its ordinary meaning, conveys that objects will be fetched from clients. Viewing the evidence in the light most favorable to plaintiff, and even assuming that this was a typographical error, the Court cannot redraft the claim to render it operable.

The purpose of claim language is to "put[] competitors on notice of the scope of the claimed invention, and to "prevent[] unduly burdening competitors who must determine the scope of the claimed invention based on an erroneously drafted claim." Hoganas AB v. Dresser Industries, Inc., 9 F.3d 948, 951 (Fed. Cir. 1993); Process Control Corp., 190 F.3d at 1357. In the recent Federal Circuit decision of Chef America, the district court granted summary judgment and interpreted literally claim language requiring "heating the resulting batter-coated dough to a temperature in the range of about 400 [degrees] F. to 850 [degrees] F.," instead of adopting the plaintiff's interpretation of the claim as requiring "heating the . . . dough at a temperature of (meaning that the oven should reach that temperature rather than the dough itself). Chef America, Inc., 358 F.3d at 1373. The Federal Circuit affirmed, despite the fact that the claim language, as written, produced the result of burning the dough to a crisp. Id.

Here, the Court agrees with defendants that the claim language, as written, produces the nonsensical result of making the clients the source of the objects, which does not make sense in the context of the claim and the invention. 3 Defs.' Mot. on Invalidity of Claim 29 at 14:10. The Federal Circuit "repeatedly and consistently has recognized that courts may not redraft claims, whether to make them operable or to sustain their validity." Chef America, Inc., 358 F.3d at 1374. "It is the job of the patentee, and not the court, to write patents carefully and consistently, "and this Court must construe the claim "as written, not as the patentees wish they had written it." Id. at 1373. The Court cannot substitute the word "for" for the word "from" or the word "server" for the word "client" to change the nonsensical result.

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3 Defendants argue that plaintiff's contention that the claim contains a typographical error is "an admission that the language as drafted is, in fact, nonsensical." Defs.' Reply in Support of Mot. for Summ. J. of Invalidity and Non-infringement of Claim 29 ("Defs.' Reply on Invalidity of Claim 29") at 6:17-18.

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b. "field of view"

In the field of optics, "field of view" has a commonly understood meaning to persons of skill in the art. The Court examines the patent documents to determine if the inventors used the phrase in any specialized way. In the written description, the inventor uses the phrase "field of view" to describe the environment which is detectable by the full photosensor array.

The sensor array and the processing circuitry 18 are mounted on the front of the controller device 10 with the array facing outwardly. A lens 26 is shown in FIG. 1 as being partially cutaway in order to expose the array and circuitry. The lens may be an inexpensive plastic lens that is molded to the integrated circuit package 12. The focus of the lens is set nominally at infinity. The lens provides an image of a region of the surrounding environment to the sensor array 16.

('804 Patent, Col. 5:23-30.)

The width of the field of view for imaging the environment is a matter of balancing the desire of capturing as much visible detail as possible with the requirement of avoiding excessive distortion. A 64 [degrees] field of view provides a reasonable compromise between the two concerns. The dashed lines 28 in FIG. 1 represent the field of view for the sensor array 16. The arrangement of the optics and the sensor array may be selected to reduce any adverse effects of curvilinear distortion of the attitude-tracking approach of the invention.

('804 Patent, Col. 5:38-47.)

The inventor also uses the phrase "field of view" when discussing the environment which is detectable by each individual photosensor:

As previously noted, the field of view 28 is contemplated to be approximately 64 [degrees]. In a sensor array of 32X32 photosensors, a single pixel will have an approximately 2 [degrees] field of view (64 [degrees] /32 pixels).

('804 Patent, Col. 6:34-37)

In both instances the inventor is using the phrase with its customary and ordinary meaning. A person of ordinary skill in the art would understand that the inventor used the phrase "field of view" to mean the region of the environment optoelectrically detectable by the array of photosensors.

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D. "Field of view information from a camera"

Claim 70 of the 406 Patent claims:

An apparatus comprising:

a set of one or more field view sensors adapted to sense field of view information from a camera;
one or more storage devices; and

one or more processors in communication with said one or more storage devices and said set of one or more field view sensors, said one or more processors perform a method of adding a graphic to a video representation of an environment originating from said camera, said method comprising the steps of . . .

Sportvision contends the phrase should be defined as: "Information about which is viewed by the camera." (Sportvision's Memo at 21.)

SportsMEDIA proposes: "Information describing the pan, tilt and/or zoom of the camera, and the location of the camera." (SportsMEDIA's Memo at 25.)

"Field of view information" is "information" (or "data" as described in the 553 patent) which is used to determine the field of view of the camera. (See Section C above). The 553 patent refers to "field of view information" in the same context as "field of view data":

The signal sent by multiplexer 206 to processor 200 includes the information from the field of view sensors.

1704
9. "field oxide"

All three parties offer different definitions of "field oxide." UniRAM's proposed definition is "oxide that physically and electrically isolates active areas." Jt Cl Const, Ex B at 8. TSMC adds in the requirement that the field oxide must be "grown;" MoSys contends that the field oxide must be "grown" and "thick." Id.

Although the patent often uses field oxide to define a trench capacitor's edges, field oxide formation is only described once: "The first step is to define active area 1502, and grow isolation field oxide 1504 to separate those [sic] active area." 229 patent at 19:50-52. This intrinsic evidence indicates that the field oxide is isolated and is "grown." But this passage is one of many that describes alternative manufacturing procedures for the invention. Id at 19:52-21:4. Limiting field oxide to that which is "grown" would improperly import limitations from the specification to the claim. Phillips, 415 F3d at 1323.

Moreover, there is no intrinsic evidence suggesting that the field oxide must be "thick." Accordingly, the court adopts UniRAM's proposed construction.

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B. "sides of said channel" and "field stop regions"

The '776 patent requires "field stop regions in said substrate having edges defining the sides of said channel for said memory device and for separating each of said memory cells from others of said memory cells in said array."
One dispute about the field stop regions involves whether they must enclose all four edges of the memory cell, as defendant claims, or whether they must only define the sides of the cell and not necessarily the ends, as plaintiff claims. The word "sides" in the claim language might conceivably mean any edge (as in the phrase "a square has four sides") or might mean "side" as opposed to "end" (as in the phrase "the sides of a truck"). The specification uses the word "side" in the latter sense, suggesting that that is what is meant by the claim as well. See '776 patent, 5:14-15 ("memory cells may be separated . . . from one another at the channel ends . . . and at the channel sides . . ."); Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561-62 (Fed. Cir. 1991) (court may use specification to ascertain the meaning of the claim). The specification also describes groups of memory cells with no "channel end field oxide regions . . . separating individual cells at the channel ends." '776 patent, 5:20-23. Defendant's proposed reading would make impossible such mirror cells. Despite defendant's contention to the contrary, plaintiff's construction of "sides" is consistent with the claim language requiring the field stop region separate "each cell" from "others" in the array. This language can be read to mean that the region must separate the cell from "some others," not from "all others." The specification of the '776 patent therefore strongly supports plaintiff's construction.

Defendant argues that the term "field stop regions" in the '776 patent should be construed consistently with the term "field oxide regions" in the '750 patent. See Abtox v. Exitron Corp., 122 F.3d 1019, amended 131 F.3d 1009 (Fed. Cir. 1997) (requiring consistent construction of "indisputably interchangeable" terms in patents with a common ancestor). With this argument, defendant seeks to import the requirement of the '750 patent that there be "four opposed field oxide regions." '750 patent, 12:53. The Court is not convinced that "field stop regions" and "field oxide regions" are indisputably interchangeable terms. Even if they were, Abtox would not require that device claimed in the '776 patent have four such regions as opposed to two. In Abtox, the Federal Circuit held that it was inconsistent to construe the singular term "gas-confining chamber" to mean "a single chamber" in one patent but "multiple chambers" in a related patent. See Abtox, 122 F.3d at 1022. Abtox would control the outcome here if both patents claimed a singular "region," and the parties were disputing whether a "region" encompassed four sub-regions or two subregions. The patents in this case, however, both describe multiple "regions." The fact that the patents happen to require different numbers of such regions does not mean that the term "regions" is being construed inconsistently. The Court therefore holds that the field stop regions in the '776 patent need only define the sides, and not necessarily the ends, of the memory cell.

A second dispute involves what substances may compose the field stop region, and where the region may be located. Plaintiff argues the field stop region may be "any oxide which functions to partially or completely separate one structure from another." This proposed definition is too broad. The claim language does not suggest that the field stop regions can separate any structures; rather, it specifies that field stop regions must separate memory cells from other memory cells. Nor does plaintiff provide any convincing argument for why "separate" can mean "partially separate." It would be improper to limit the device to the preferred embodiment described in the specification. Nor has defendant provided anything other than expert testimony as an explanation for why the claim language means that the field stop regions cannot encroach upon the "active region." Under Vitrionic, in the absence of an ambiguity, this is not a permissible way to interpret the claim language.

The Court holds that the claim means neither more nor less than what it actually says. The patent requires that there must be field stop regions located in the substrate that define the channel sides and that completely separate cells from at least some other cells.

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C. "Field view sensors"

Claim 70 reads:
An apparatus comprising:

- a set of one or more field view sensors adapted to sense field of view information from a camera...

Sportvision defines the phrase as: "Sensors that provide information about that which is viewed by the camera [adapted to sense]." (Sportvision's Memo at 20.)

SportsMEDIA contends that this phrase is vague, indefinite and incapable of construction, as the phrase is not used in the patent and does not have a known standard meaning. (SportsMEDIA's Memo at 24.)

The 406 patent does not directly identify what "field view sensors" are. However, given the limitations in Claim 70, the Court finds that one skilled in the art would have known what field view sensors are.

The specification provides:

A set of camera view sensors can include one or more of the following: a zoom sensor, a pan sensor and/or a tilt sensor.

'406 patent, 5:40-42.

From the claim language and specification, the Court finds that these sensors are used to obtain view of field information from the camera(s).

Though the Court is satisfied that the intrinsic record is sufficient to define "field view sensors," the Court refers to extrinsic evidence to resolve any doubt with respect to the exact meaning of the phrase. Vitronics, 90 F.3d at 1583, 1585; Digital Biometrics Inc. v. Identix Inc., 149 F.3d 1335 (Fed. Cir. 1998) (extrinsic evidence may be considered to enable the court to construe disputed claim terms.) In the CROSS-REFERENCES TO RELATED APPLICATIONS section of the 406 patent specification, the 5,917,553 patent (A Method And Apparatus For Enhancing The Broadcast Of A Live Event) is included by reference. The 553 patent describes "field of view sensors" as:

- One embodiment of the present invention includes one or more field of view sensors coupled to a camera such that the sensors can detect data from which the field of view of the camera can be determined. The field of view sensors could include pan, tilt and/or zoom sensors.

'553 patent, 2:33-37.

Accordingly, the Court construes the term "field view sensors" to mean: "Sensors that provide information about the area being viewed by the camera."

### 1707

**B. Plurality of data input fields**

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>plurality of data input fields</td>
<td>data input fields, occurring at various locations, as requested by the computer application or program</td>
</tr>
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<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>plurality of data input fields</td>
<td>more than one simultaneously appearing data input field</td>
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</tbody>
</table>

- 2088 -
The first term for which the parties offer different constructions—"plurality of data input fields"—is found within the following step of Claim One: "Invoking an input area, including a plurality of data input fields." The parties agree that "plurality" refers to more than one data input field, but they disagree as to how the multiple fields can be displayed. Plaintiff's proposed construction would allow a broad range of display options, allowing for fields "occurring at various locations." Defendants' proposed construction is narrower, requiring that the data input fields appear "simultaneously."

Defendants support their proposed construction, first, by reading "an input area" as "one input area." (Defs' Br., at 21.) If the plurality of data input fields must be included in a single input area, then they must appear simultaneously. Plaintiff responds that in this context, an open-ended claim containing the transitional word "comprising," "a" or "an" must be read as "one or more." (Pl's Resp., at 1-2, citing Baldwin Graphic Systems, Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008).) Based on that reading, the plurality of data input fields may appear in one or more input areas, that is, not simultaneously. Plaintiff also urges that the input area should not be confused with the device's display. (Pl's Resp., at 2-3.) As the Patent's abstract explains, "The input area is created by a computer program on a display capable of receiving touch-screen input." (873 Patent, at 1.)

Defendants next argue that even though the word "simultaneously" does not appear in the specification, their proposed construction is supported by the intrinsic record. (Def's Br., at 22.) They point, first, to the preferred embodiment of the claim, which displays seven data input fields simultaneously. That the preferred embodiment seems to display all data input fields simultaneously is not dispositive, however. It is well recognized that "the fact that the specification describes only a single embodiment, standing alone, is insufficient to limit otherwise broad claim language." Howmedica Osteonics Corp. v. Wright Medical Technology, Inc., 540 F.3d 1337, 1345 (Fed. Cir. 2008). Defendants attempt to overcome this rule by pointing out that the specification calls the embodiment "a pictorial representation . . . of the present invention." (873 Patent, col. 2, ll. 55-58.) But describing a figure as "a" representation does not demonstrate a "clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.' " Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (quoting Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002)). As Defendants conceded at the Markman hearing, the preferred embodiment does not limit the invention to uses that have seven data input fields. Similarly, it does not limit the invention to uses where all data input fields appear simultaneously.

Defendants also argue that their construction is consistent with arguments the inventors made regarding the Buxton Patent. (Def's Br., at 22-23.) According to Defendants, the inventors successfully distinguished the '873 Patent from Buxton by arguing that Buxton had only one data input field while the '873 Patent had a plurality of data input fields. (Id.) In support of their contention, Defendants cite a statement by the inventors in an amendment filed in response to a rejection by the PTO:

The graphical keyboard is always present with the "plurality of data input fields" of claim 1. Thus, where input is required for the data input fields, the graphical keyboard is always present as the user cannot accidentally terminate the graphical keyboard.

(P's Ex. 2, at 177. 3) As the court reads that statement, it does not support Defendants' argument; the statement says nothing about displaying multiple input fields simultaneously. Instead, it emphasizes that, in contrast to Buxton, the keyboard described in the '873 Patent cannot be accidentally terminated. And that is especially clear when the selection is read in context with the remainder of the amendment (id.) and the patent official's rejection that preceded it. (Id. at 164-74.) For these reasons, the court declines to adopt Defendants' proposed construction of "plurality of data inputs."

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3 In their briefs, Defendants refer to documents within the more than 250 pages of prosecution history by the documents' titles only. The court cites instead to the record material provided by Plaintiff—specifically, a Bates-stamped copy of the prosecution history, permitting references to the individual pages by Bates numbers.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

The court thus turns to Plaintiff's proposed construction—"data input fields, occurring at various locations, as requested by the computer application or program." This construction relies principally on language from the specification: "The application may ask for user input at various locations through the use of text boxes or other fields." (873 Patent, col. 3, ll.
Defendants argue that this language—presumably, the word "may"—does not support the proposed construction because it is optional as opposed to mandatory. (Def's Br., at 24.) Defendants' argument is that Plaintiff's construction requires something that the specification states is optional. In fact, however, Plaintiff's proposed construction does not require that the input fields occur at various locations. It only allows for that possibility.

Defendants also contend that Plaintiff's proposed construction is inconsistent with the reading of the word "plurality" in another part of Claim One. (Def's Br., at 24.) The court presumes that when the same term appears in different portions of the claim it has the same meaning. Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075, 1087 (Fed. Cir. 2009). According to Defendants, when Claim One refers to a "graphical keyboard having a plurality of keys," it refers to a keyboard on which all keys appear simultaneously. Aside from the preferred embodiment, Defendants provide no support for this argument, however. The court has already explained why it is not relying on the preferred embodiment in this context. Moreover, anyone who has used a touch-screen keyboard knows that some keys—for example keys representing numbers, symbols, or even emoticons—may be displayed on separate screens. For these reasons, Defendants' argument against Plaintiff's construction fail.

Accordingly, the court adopts Plaintiff's proposed construction of "plurality of data input fields" as "data input fields, occurring at various locations, as requested by the computer application or program."

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8. "File"

Plaintiff asserts that the term "file" is entitled to its ordinary meaning, but if the Court deems construction necessary, "file" should be construed to mean "a complete, named collection of information." Plaintiff's construction is based on the definition of "file" in the Microsoft Computer Dictionary (Joint app., Ex. I.), and is consistent with the use of the term in the claims and specification. The Court, as well as Defendants, agree with Plaintiff's construction. (Defs.' Opening, at 12:4-5.) Therefore, the Court construes "file" to mean "a complete, named collection of information."

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F. "file," as used in claims 1, 9, 10, and 14.

Plaintiff first asserts that no construction of "file" is necessary; alternatively, it proposes the construction, "information, such as data or a program, associated with an identifier or name." Defendants' proposed construction defines "file" as an "HTML document" in claims 1, 9, and 10, and simply a "document" in claim 14 because that claim does not refer specifically to the http context. Here, the dispositive claim construction principles are (i) the prohibition against using embodiments or limitations found in the specification to narrow the scope of the claim terms, and (ii) the rule of internal consistency. Application of these principles here compels the conclusion that "file" means "electronically stored or transmitted information or data" wherever that term appears in the '670 patent claims.

Both the plain language of the claims and the specification support this construction. In common computer parlance, "file" is widely understood to include electronically stored information or data in the form of text, images, documents, videos, other media, or even whole programs. As figure 2 indicates, a requested "file" under the '670 patent may be text or an image.

Defendants' proposed construction limits "file" to "html document," which defendants derive from references in the specification to an "HTML document." See, e.g., '670 Patent Specification col. 12 11. 14-17 ("The merchant Web server responds to the request with an HTML document . . . ."). Yet, defining "file" in this manner commits the "cardinal sin" of "reading a limitation from the written description into the claims." SciMed Life Sys., 242 F.3d at 1340-41; see also Phillips, 415 F.3d at 1323 ("[W]e have repeatedly warned against confining the claims to . . . embodiments."). Thus, while some embodiments in the '670 patent do refer to an html document, the claims may nonetheless "embrac[e] different subject matter than is illustrated in the specific embodiments in the specification." Nazomi Commc'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1369-70 (Fed. Cir. 2005).
In addition, defendants attempt to bifurcate their construction of "file," giving the claim term one meaning in claim 14 and a separate meaning in the remaining disputed claims. Yet, this proposal contravenes the well settled claim construction principle requiring consistent interpretation of claim terms. See Rexnord Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001); Chamberlain Group, Inc., 516 F.3d at 1337; PODS, Inc. v. Porta Stor, Inc., 484 F.3d 1359, 1366 (Fed. Cir. 2007); Phillips, 415 F.3d at 1314. Defendants present no intrinsic evidence, nor do they forecast any extrinsic evidence, justifying a departure from this rule of internal consistency and supporting a bifurcated approach to claim construction. Accordingly, the claim term "file" must have a singular meaning, applicable in all instances.

Finally, plaintiff's proposed construction, "data," is unpersuasive because it does not fulfill the mandate of the Supreme Court's Markman decision, which essentially tasks a court undertaking claim construction with "elaborating the normally terse claim language[] in order to understand and explain . . . the scope of the claims." Embrex, Inc. v. Serv. Eng'g Corp., 216 F.3d 1343, 1347 (Fed. Cir. 2000) (first alteration in original) (quoting Scripps Clinic v. Genentech, Inc., 927 F.2d 1565, 1580 (Fed. Cir. 1991)). It follows that claim construction must aid the jury in resolving the parties' dispute. In this case, substituting the single word "data" for the claim term "file" does not provide clarification, and would amount to little more than an "exercise in redundancy." O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360-63 (Fed. Cir. 2008).

In sum, the claim term "file" is not limited to an "html document" because such a narrow construction would impermissibly use an embodiment to limit the claim term's scope. Accordingly, the claim term "file" is construed to mean "electronically stored or transmitted information or data."

IX. "information file" or "message file" 23

23 The term "information file" is contained in claim 1 of the '612 patent.
The parties dispute the meaning of the term "information file" in claim 1 of the ’612 patent. The parties generally dispute the meaning of "file" as it is used in the ’612 patent specification: "a method and system for protecting an information file from unauthorized access, and more specifically to the encryption of a message or file..." ’612 patent at 1:8-10 (emphasis added). The same passage additionally states that ",[a] method and system is disclosed for protecting sensitive information files and messages from access by unauthorized parties..." ’612 patent at 3:12-14 (emphasis added).

PACid contends that this specification language supports a generalized definition of "information file." PACid argues that the limitations imposed in Defendants' proposed construction find no support in the specification and narrows the claim term to a meaning that is inconsistent with what would be understood in the context of the patents-in-suit and the relevant art. OPENING at 16.

Defendants respond that the ’612 patent specification "consistently distinguishes" between an "information file" and a "message" by referring to the two terms in conjunctive form. RESPONSE at 20. Defendants further contend that "message" should not be a part of the construction because during the prosecution history, the inventor amended claim 1 to differentiate between "information file" and "message." Id. (citing RESPONSE, EXH. 10, ’612 PROS. HIST. (12/28/98 AMENDMENT)). Arguing that this claim term was not provided with a "special definition" in the patent, Defendants suggest that a contemporaneous dictionary definition should be used to understand the meaning of "file." Id. at 21.

As the claim term is used in the specification, the patentee did not ascribe any special meaning to "information file," nor is there any explicit disclaimer in the file history that limits the meaning to the specific requirements suggested by Defendants. Cordis Corp. v. Boston Scientific Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009) (holding that unclear prosecution history cannot be used to limit the plain language of the claims). Defendants must overcome the "heavy presumption" in favor of giving the claim terms their ordinary meaning, as expressed in the ’612 specification, fails to confine an "information file" to a collection of information with "a unique name." Phillips, 415 F.3d at 1312-13, 1323; Liebel-Flarsheim, 358 F.3d at 913 (finding that claim terms must be given their ordinary meaning unless the claim language is overcome by statements of "clear disclaimer" expressly indicating "manifest exclusion or restriction"). To the contrary, the requirement of a "unique name" is wholly absent from the intrinsic record, and therefore, the patentee is entitled to the full scope of the claim language. Home Diagnostics, 381 F.3d at 1358.

To that end, when determining the scope of the claims, there is indication that the ’612 patent uses "file" in a broad sense, but PACid's proposed construction does not define the claim term with sufficient particularity to be readily applied by a jury. For the sake of clarity, the dual terms "information file" and "message" are defined separately to reflect differences in the type of data being accessed, as well as the conjunctive form in which they appear in the specification. Accordingly, in the absence of an intrinsic definition for these terms, the Court adapts the dictionary definition provided by Defendants to include the ordinary meaning that a file may be accessed and manipulated as a single unit. This definition determines the ordinary meaning of the terms according to how one of ordinary skill in the art would read the claim language, but without the unsupported limitation that the data be "identified by a unique name."

The proper construction for "information file" is "an organized collection of information that can be accessed and manipulated as a single named unit." Similarly, the proper construction for "message file" is "a message that can be accessed and manipulated as a single named unit."

3. "file retrieval requests prepared"/"preparing file retrieval requests"/"preparing reply messages"

The term "file retrieval requests prepared" appears in claims 10 and 14 of the 366 Patent and claims 7 and 12 of the 918 Patent. For example, claim 10 of the 366 Patent recites:

[a] network file server for use with a data network and message storage device, said network file server comprising...
a communication path coupled directly between [a] network control module and [a] file system control module, said communication path carrying file retrieval requests prepared by said network control module in response to received NFS requests to retrieve specified retrieval data from the mass storage device . . .


Once again, plaintiff asserts that no construction is required because the disputed terms have an unambiguous meaning to persons ordinarily skilled in the relevant art. Defendant largely rehashes its arguments advanced in favor of its construction of "decoding NFS requests" and "encoding NFS reply messages," arguing that "file retrieval requests prepared" should be construed to mean "requests created by the network control module by processing all layers of a request from the network and converting them into different format." Similarly, for the term "preparing reply messages," defendant proposes the construction "processing all protocol layers and converting data into reply messages ready for network transmission."

As an initial matter, the court notes that defendant's proposed construction of the terms at issue here is substantially identical to its favored construction of the terms "decoding NFS requests" and "encoding NFS reply messages." However, the scope of procedures encompassed by the verb "to prepare" is much broader than the encoding and decoding process discussed above. While decoding and encoding necessarily involve a process of translation or conversion, no such requirement is inherent in the process of preparation. Moreover, under the doctrine of claim differentiation, different claim terms "are presumed to reflect difference in the scope of the claims." Forest Labs., Inc. v. Abbott Labs., Inc., 239 F.3d 1305, 1310 (Fed. Cir. 2001). Thus, absent a strong showing that the same meaning is intended by the different claim terms, importing the limitations from claims containing the "decoding" and "encoding" terms into claims that contain the "file retrieval requests prepared" and "preparing reply messages" limitations is improper.

To rebut the presumption that "preparing" has a meaning distinct from that of "decoding" and "encoding," defendant relies heavily on the preferred embodiments disclosed in the specifications of the 366 and 918 Patents, which reveal a method for preparing file retrieval requests and reply messages that involves decoding NFS requests sent from clients on a networked Unix system and encoding NFS reply message to be sent to those clients. If the preferred embodiment defined the scope of the claimed invention, it is indeed possible that the term "preparing file retrieval requests" could have the same meaning as "decoding NFS requests." However, the Federal Circuit has repeatedly cautioned against limiting the scope of the claimed invention to the embodiments disclosed in the specification. See, e.g., Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (collecting cases); see also CCS Fitness, 288 F.3d at 1366 (noting that "simply . . . pointing to the preferred embodiment or other structures or steps disclosed in the specification" is not sufficient to narrow the meaning of an unambiguous claim term). Because defendant has done nothing more than suggest that "file retrieval requests prepared" and "preparing reply messages" should be construed according to the preferred embodiment, the court declines its invitation to read these limitations into the disputed claim terms.

Having rejected defendant's attempt to limit the claim to the preferred embodiment of the invention, the court returns to -- and here, agrees with -- plaintiff's argument that the terms "file retrieval requests prepared" and "preparing reply messages" are unambiguous and need not be construed by the court. Unlike the terms "encoding" and "decoding," the word of the claim terms at issue here do not involve technical terms of art. Indeed, the technical definitions of "retrieval" and "request" differ little from the ordinary meaning of the terms as used in everyday English. See IEEE Dictionary at 553 (defining "information retrieval" as "[t]he techniques used to recover information from an organized body of knowledge"); id. at 966 (defining "request" as, inter alia, "a command generated by a requester, to initiate an action on a responder"). Where there is no better way to define a disputed claim term than the claim language itself, there is no need for the court to construe the term. Johnson Worldwide Assocs., 175 F.3d at 989-90 ("[C]laim terms cannot be narrowed by reference to the written description or prosecution history unless the language of the claims invites reference to those sources.") Accordingly, the court holds that construction of the terms "file retrieval requests prepared" and "preparing reply messages" is unnecessary.
7. "file server means for receiving data from said media means, receiving data inquiries and transmitting data in response to said data inquiries"

The parties dispute the construction of the term, "file server means." The term appears in claim elements 1, 1(b), 3, 3(b), 3(c), and 3(d). (Herbst Decl. P 5, Ex. 3.) Within Claim 1, the term appears as follows:

1. A method of acquiring and displaying real estate information utilizing an information processing system containing file server means for serving files, said file server means having i/o means for receiving and transmitting data, and database storage means for storing information in database files, the method comprising the steps of:

   . . .

   b) storing digitized real estate data and related information as information records in said database storage means of said file server means in a manner in which data can be selectively accessed . . . .

(Id.) The complete phrase at issue appears in Claim 3 as follows:

3. A method of acquiring and displaying property related information utilizing an information processing system containing media means for receiving analog and digitized data and transmitting digitized data; file server means for receiving data from said media means, receiving data inquiries and transmitting data in response to said data inquiries; databases and database storage means for sorting, storing and retrieving information received, the method comprising the steps of: . . . .

   . . .

   b) transmitting said property related information in appropriate format to said file server means;

   c) said file server means analyzing said property related information and storing said property related information in related database storage means,

   . . .

   d) said file server means receiving an information request from multiple end users relating to the end users' information needs, the extent of information available to said end users being determined by said end users' access code . . . .

(Id.)

a. Is the term at issue a means-plus-function element?

The threshold issue is whether "file server means" constitutes a mean-plus-function element subject to Section 112(6). The parties dispute whether the phrase is a means-plus-function element.

As previously discussed, Section 112(6) applies to a limitation expressed as a "means or step for performing a specified function without the recital of structure, material, or acts in support therefor." 35 U.S.C. § 112, P 6. A means-plus-function claim "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." Id. However, a means-plus-function claim is limited to the structure, and equivalents, disclosed in the specification for performing that function. Default Proof Credit Card Sys., Inc., 412 F.3d at 1298. Thus, a court first must determine whether Paragraph 6 applies. Apple Computer v. Burst.com, Inc., 2007 U.S. Dist. LEXIS 33863, 2007 WL 1342504 at * 18 (N.D. Cal. 2007). Where it applies, the court must then identify the claimed function and the corresponding structure. Id. (citing Medical Instr. & Diag. Corp. v. Elekta AB, 344 F.3d 1205, 1210 (Fed. Cir. 2003). As noted above, the use of the word "means" in a term creates a presumption that Paragraph 6 applies. Id. However, that presumption is rebuttable by evidence that the limitation "recites sufficient structure or material for performing [the] function." Id. (citing
In determining whether section 112(6) applies here, the Court notes that the disputed phrase uses the word "means" combined with another term: "file server." Thus, as a threshold matter, the Court must determine whether Plaintiffs have overcome the presumption that section 112(6) applies. Plaintiffs contend that the presumption "fails" because the term, "file server," connotes a structure to a person of ordinary skill in the art, citing Cole and Envirco Corp. Defendants, in turn, argue that the presumption does apply, citing WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339 (Fed. Cir. 1999).

In Cole, the issue was whether section 112(6) applied. There, the Federal Circuit affirmed the district court's conclusion that the term "perforation means … for tearing" was not a means-plus-function clause, because the claim sufficiently described a structure (i.e., the perforation itself) to perform the function of tearing. Cole, 102 F.3d at 531. Relying on the dictionary definition for the word "perforation," the court construed the term, "perforation means … for tearing" to mean "perforations." Id.

Similarly, in Envirco Corp., the issue was whether section 112(6) applied. There, the Federal Circuit held that the word "baffle" alone constituted sufficient structure, and trumped the use of the word "means." Envirco Corp., 209 F.3d at 1364-65. Relying on the dictionary definition of "baffle," the court stated "[b]ecause the term 'baffle' itself imparts structure, meaning a surface which deflects air, its use in the claims rebuts the presumption that § 112, P 6 applies." Id. at 1365. Accordingly, the court determined that the district court erred in construing the "second baffle means" as a means-plus-function claim element under § 112, P 6. Id.

However, in WMS Gaming, the Federal Circuit addressed a different issue. There, Federal Circuit had already determined that section 112(6) applied, and subsequently held that the district court erred by identifying the corresponding structure for a means-plus-function limitation as "an algorithm executed by a computer." WMS Gaming, 184 F.3d at 1349. The court held that this identification of structure was overly broad because it was not limited to the algorithm disclosed in the specification. Id. at 1348. Specifically, the court stated, "[i]n a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." WMS Gaming, 184 F.3d at 1349.

Here, the Court finds Defendants have misapplied WMS Gaming. Unlike the current case, in WMS Gaming, the issue was not whether section 112(6) applied. There, the court had already determined that section 116(6) applied. Id. Rather, the issue there was whether the patent sufficiently disclosed the corresponding structure. Id. Because the issue in the current case is whether section 112(6) applies, the Court finds that WMS Gaming is factually inapposite.

The current case is more analogous to Cole and Envirco Corp. because there the courts considered the same issue now before this Court—whether section 112(6) applies. Similar to Cole and Envirco Corp., this Court finds the dictionary definition of the term at issue to be instructive here. As noted above, the relevant dictionary definitions of "server" are: (1) "a computer that manages centralized data storage or network communications resources. A server provides and organizes access to these resources for other computers linked to it." American Heritage Science Dictionary (2007); and (2) "On a local area network, a computer running administrative software that controls access to all or part of the network and its resources (such as disk drives or printers). A computer acting as a server makes resources available to computers acting as workstations on the network." Microsoft Computer Dictionary (4th Ed. 1994); see also American Heritage Dictionary (2007) (defining "file server" as "[a] computer that controls a central repository of data that can be downloaded or manipulated in some manner by a client."). Thus, the relevant dictionary definitions connote an inherent structure in the term, "file server."

Additionally, reviewing the operative claims on an element-by-element basis, the Court concludes that "server means" is not a means-plus-function term. Each of the functions recited as part of the claimed method have a corresponding structure that is evident from the language of Claim 1 itself or from Claim 3. First, it is clear from the patent and Claim 1 that the "file server" has "[input/output] means for receiving and transmitting data, and database storage means for storing information in database files." (Herbst Decl., P 5, Ex. 3.) Second, Claim 3 provides that the "file server" "receive[s] data . . . , and
transmit[s] data in response to said data inquiries." (Id.) Thus, consistent with the relevant dictionary definitions the term "file server" inherently connotes a sufficient structure such that the section 112(6) presumption does not apply here. Because the "file server means" element does not qualify for section 112(6) treatment, it is not limited to the structure corresponding to the claimed function as "described in the specification and equivalents thereof." 35 U.S.C. § 112, P 6. Instead, this Court construes the term in accordance with standard claim construction rules.

b. "file server"

The parties' proposed constructions are as follows. Plaintiffs' proposed construction for the term, "file server," is "a server that receives property related information, analyzes and stores that information in files, and provides data derived from one or more files responsive to requests." Plaintiffs' proposed construction for "file server" is inconsistent with their previous proposed construction for "server." As noted above, in construing "server" Plaintiffs opposed Defendants' importation of a "digital property information" limitation. However, in their proposed construction of "file server," Plaintiffs now seek a construction that imports a "property related information" limitation. Because Defendants argue that "file server" is a means-plus-function element, they do not offer an alternative construction. In construing "file server," the Court now turns to the claim language, the specification, and the prosecution history.

As to the claim language, the Court initially emphasizes that it has previously construed part of the term at issue when it construed the term, "server," as "computer system that receives, stores, and provides data." Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. See Rexnord Corp., 274 F.3d at 1342; CVI/Beta Ventures, Inc., 112 F.3d at 1159. As such, from the outset, the Court is partially guided by its previous construction of "server." To that end, a claim term is to be given its ordinary meaning unless the patentee has explicitly redefined the term, or the term itself is so ambiguous it is incapable of being understood without reference to the specification. See Johnson Worldwide Assocs., Inc., 175 F.3d at 991. Therefore, this Court will look to the ordinary meaning of "file server" unless there is evidence the patentee has otherwise redefined "file server" as having a wholly independent and unrelated meaning. In considering the term's ordinary meaning, the Court finds that "file server" does have an ordinary meaning as set forth in the relevant dictionary definitions, as noted above.

However, before turning to the '025 Patent specification, the Court does recognize that the claims at issue do limit themselves to "real estate information," (Herbst Decl. P 5, Ex. 3 at col. 14, ll. 34-36, Claim 1), and "property related information," (id. at col. 15, ll. 3-4, Claim 3).

Turning to the '025 Patent specification, the Court again finds that the specification's description of the term, "server," is compelling. (Herbst Decl. P 5, Ex. 3 at col. 5, ll. 23-25); see Vitronics, 90 F.3d at 1582 ("Usually, [the specification] is dispositive; it is the single best guide to the meaning of a disputed term."). The specification also references "file" and "server" together. The specification reads "]each file sent [from the Media's multimedia device 100] to the Server's computer 412 is designated a location, ensuring that it will be stored with other similar files on the database in the Server's computer 412. (Herbst Decl. P 5, Ex. 3 at col. 7, ll. 67-col. 8, ll. 3.) Consequently, if the Court is to construe "file server" differently than "server," the specification supports only a slight modification.

Turning to the '025 Patent prosecution history, the Court has not located, and the parties have not provided, guidance as to how to construe "file server."

Thus, having considered the claim terms and the specification, the Court construes "file server" as "computer system that receives, stores, and provides data. Said file server that stores data in the form of files and provides data responsive to user requests."
3. "filesystem facility"/"filesystem utility"

The term "filesystem facility" (or "filesystem utility") appears in claims 2, 3, 5, 8, 9, 10, and 13 of the 037 Patent. Following the pattern set out in its proposed construction of the term "network communications facility," plaintiff urges the court to define "filesystem facility" as "a facility that provides for the performance of a pre-determined filesystem function." For its part, defendant seeks to limit the disputed term to "the peer-level facility that consists of the file system and its associated multi-tasking interface function."

Because the court has determined that a multi-tasking interface function is a separate element of the claimed invention and not a component of any of the peer-level facilities, the sole remaining issue in construing the filesystem facility term is whether the filesystem facility's function must be "pre-determined," as plaintiff's proposed construction requires. The source of this limitation appears to be claim 5 of the 037 Patent, a dependent claim that recites a "filesystem facility [that] provides for the performance of [a] predetermined filesystem function." 037 Pat, 56:15-17. However, no such limitation appears in connection with use of the term in claim 2, a claim on which claim 5 depends. Generally, it is improper to read a limitation from a dependent claim into the independent claim on which it depends. See, e.g., Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1304 (Fed. Cir. 1999), cert. denied, 528 U.S. 1115, 145 L. Ed. 2d 812, 120 S. Ct. 933 (2000) (noting that if the patentee "intended or desired" to include a claim limitation present in a dependent claim in a broader, independent claim, "it could have done so explicitly"). The court sees no reason why it should do so in the instant case, and thus declines to read the "predetermined" limitation that appears in claim 5 of the 037 Patent into the filesystem facility term.

Reading the claim in light of the specification, the court concludes that the function performed by the filesystem facility is best described as "file system control." See 037 Patent, 3:53-3:56. The court therefore construes "filesystem facility" as "a peer-level facility for performing file system control functions."

5. "Filing Electronically"

Simplification's Construction
Submitting or transmitting to a taxing authority by way of devices, circuits, or systems utilizing electron devices.

Block's Construction
The act of entering a legal record by means of a computer automatically without manual intervention from the user.

With regard to the meaning of "filing," Block relies on a definition from Merriam-Webster's Online Dictionary. (D.I. 79 at 29.) Simplification, on the other hand, notes that in describing the process of filing the tax return ("Step 15" in the specification), the specification explains that the "electronic intermediary" "transmits the electronic forms to the taxing authorities." (052 patent at 6:66-67.) The Court concludes that Block's dictionary definition is not suitable. First, as Simplification notes, tax return information is confidential. 26 U.S.C. § 6103 ("Returns and return information shall be confidential . . . ."). Thus, construing "filing" to include entering into the "public record" would be inappropriate in the context of the patents-in-suit. Second, the Court's review of the claims reveals that the term "filing electronically" is used exclusively in conjunction with the term "tax return." Thus, as with the term "collecting electronically," see supra Part II.C.2, the Court sees no need to include the vague term "legal document" in its construction of "filing." Accordingly, the Court shall construe "filing" to mean, as Simplification contends, "submitting or transmitting to a taxing authority," a definition that is well supported by the specification's description of the electronic filing process. The Court shall further construe the term "filing electronically" to mean "submitting or transmitting to a taxing authority by means of a computer without manual intervention from the user."
d. filling the empty payload fields in said frames with data in packetized format

According to Bellcore, an "empty payload field" means "bits or time periods representing an absence of source data to be transmitted." (D.I. 144 at 11). Consistent with its definition of "empty payload field," Bellcore contends that "filling the empty payload fields" refers to outputting source data when it is available during a payload field interval. In support of its position, Bellcore directs the Court to Figure 12 of the '306 Patent and that portion of the specification which provides: "if the particular DTDM frame is empty and data is available at the parallel input, a signal is applied by the control to the tristate device to enable the data to be inserted into the particular DTDM frame via bus before it leaves the framer unit." ('306 Patent, col. 16, lines 49-55 (emphasis added)).

In response to Bellcore's proposed construction, FORE contends that an "empty payload field" means that a frame's payload has zero data in it. (D.I. 144 at 12). Consistent with its proposed construction of the term "empty payload field," FORE contends that "filling the empty payload fields in said frames" requires two steps: (1) that a complete empty frame is first created; and (2) after creation of the empty frame, the frame's payload is 100% filled with a packet. FORE contends that its construction is supported by the plain and ordinary meaning of the words used in the claim, as well as by the specification and prosecution history of the '306 Patent. For example, FORE points out that the language of Claim 1 contemplates generating multiple empty frames with frame timing information that can subsequently be filled with packets. 2 FORE also points out that Figure 2 of the '306 Patent shows a generated train of empty frames entering the DTDM assembler. In addition, the language accompanying Figure 2 provides: "[A] train 10 of DTDM frames with empty payload fields is generated" and "each of the frames in the train 10 has an occupied transmission overhead field (T)." ('306 Patent, col. 7, lines 27-28). FORE further points out that Figure 4 and its accompanying text illustrates how the train of empty frames is generated in the first instance. The text provides: "The topmost framer 52 in Figure 4 does not have any input service connected to it. It generates the train of empty DTDM frames which are sent to the following framers 53." ('306 Patent, col. 9, line 59-61).

2 Fore relies on that portion of Claim 1 providing:

- generating a bit stream comprising a sequence of frames, each of said frames including . . . frame timing information and an empty payload field, and

  filling the empty payload fields in said frames with data in packetized format. . . .

( '306 Patent, col. 17, lines 47-52 (emphasis added)).

In addition to the claim language and specification, FORE also directs the Court to the prosecution history of the '306 Patent. FORE contends that Bellcore distinguished prior art known as the Baran patent by stressing that the '306 Patent requires the generation of a sequence of empty frames first, and then filling the frames. Distinguishing Baran during the prosecution of the '306 Patent, Bellcore explained:

The transmission bit streams are formed entirely differently in the claimed invention in Baran et al. Thus, as indicated above, the transmission stream of the claimed invention is formed by first generating a bit stream comprised of frames with empty payload fields. Data from a plurality of sources which have access to the transmission stream are packetized. The packets are then inserted into the empty payload fields of the frames. The Baran reference in no way discloses the formation of a transmission bit stream by generating a sequence of frames with empty payload fields and picking up packets from a plurality of sources to fill the payload fields.

(D.I. 147, Ex. 7 at FSI001338 (emphasis added)). Similarly, Bellcore explained the '306 Patent during the prosecution with
the following analogy:

The stream of empty frames may be analogized to a train of empty freight cars. The empty freight cars are filled with data in packetized format from various sources which have access to the train of freight cars. The train, with its now filled freight cars, transmits the data to remote locations.

(D.I. 147, Ex. 7 at FSI001333 (emphasis added)).

After reviewing the parties' arguments in the context of the claim language, specification and prosecution history of the '306 Patent, the Court agrees with FORE's construction of the phrase "filling the empty payload fields in said frames with data in packetized format." The grammatical structure of the claim language confirms that multiple empty payload fields are generated, and then the empty payload fields are detected and then filled with packets. Stated another way, the frames cannot be filled until after they are generated and empty frames are detected. Indeed, the Court believes that this interpretation is consistent with Figures 2 and 4 of the patent specification and consistent with the position stressed by Bellcore during the prosecution of the '306 Patent. Accordingly, the Court construes the term "empty payload field" to mean that a frame's payload has zero data in it. The Court further construes "filling the empty payload fields" to mean that first the empty frames must be generated, and second the frames' empty payloads are filled with data.

The first and most salient dispute over construction of the '306 claims is whether a complete frame must be generated before a framer may begin filling it with data (FORE's position), or whether the framer can begin filling the "front" part of the frame with data while the "rear" end is still being generated (Bellcore's position). Although the district court's claim construction does not explicitly require that a "complete" frame must be generated before the payload fields are filled with data, we accept the parties' interpretation that the district court so held. Thus, the question before us is whether the first claim step ("generating") must be completed, for at least one frame, before the second step ("filling") can begin.

We conclude that it does not. FORE, citing several cases in which we have construed method claims to require sequential performance of their steps, seems to suggest a general principle that method claims should be construed to require sequential performance of their recited steps. The precise question here is not whether the first step must be performed before the second step is performed, but whether it must be completed before the second step is begun. Regardless, as we recently reiterated in Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-71, 65 USPQ2d 1865, 1869-70 (Fed. Cir. 2003), the steps of a method claim need not be performed in the order written unless logic, grammar, or the content of the specification dictates otherwise. See also Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1342, 59 USPQ2d 1401, 1416 (Fed. Cir. 2000) ("Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one.").

In the case of the '306 patent, neither logic, grammar, nor the specification compels the conclusion that "generating" must be complete before "filling" may begin. It is undisputed that some "generating" must precede "filling," because at least part of a frame must be generated before it can begin receiving data. But unlike railroad boxcars, in which filling of a partially generated car might pose some problems, frames are capable of receiving data even if they are only partially generated. Consequently, logic does not demand that the filling process must wait until the rear boundaries of the frame have been generated.

Nor does grammar demand such a result. Because both "generating" and "filling" are continuous and concurrent processes in the method of the claims, it makes little sense to speak of the generating process being "complete" before filling begins. Indeed, as Bellcore notes, a strict grammatical requirement that the first step be complete before the second begins would lead to an unreasonable interpretation of the claim. The first step of the claim recites generation not of a single frame, but a "bit stream comprising a sequence of frames." If the first step must be completed before the second step begins, then all the frames, not just one, must be generated before any data may be inserted into the bit stream. While such a mode is theoretically possible, it would be manifestly unsuitable for continuous transmission of data in a telecommunications network.

Nor does the specification teach that generating must be completed before filling can begin. It is fair to say that the
specification is silent on the subject of whether frames are generated "byte-by-byte," as Bellcore suggests, or whether complete frames are generated before data insertion begins, as FORE contends. FORE argues that Figures 2 and 4 of the specification indicate that empty frames must be generated before they can be filled. However, we agree with Bellcore that Figure 2 depicts the claimed process only schematically, not literally. While Figure 2 does show a train of pre-generated frames entering a "DTDM assembler," Figure 2 obviously does not attempt to explain how frames arise, because Figure 2 shows frames arriving from an undepicted source. Moreover, despite FORE's argument to the contrary, Figure 4 of the patent clearly depicts a "DTDM assembler" comprising a framer (52) that generates empty frames. Thus, to interpret Figure 2 literally would set it at odds with Figure 4: Figure 4 indicates that a "DTDM assembler" generates empty frames internally, instead of receiving them from an external source as depicted in Figure 2. Figures 2 and 4 therefore do not compel FORE's interpretation.

Nor does the specification describe any circuitry or algorithm that would delay the filling process until a complete empty frame was generated or received, or any indication that frames are passed from framer to framer as frame-long chunks of data rather than byte-by-byte. Such features might be expected if FORE's interpretation were correct. However, the specification does disclose a feature that would allow a framer to begin filling frames before generation was complete. According to the specification, each frame comprises a "transmission overhead field" containing information about the contents of the frame. Included in the overhead field may be a flag indicating whether the frame is empty or full. '306 patent, col. 6, ll. 61-65. Because the transmission overhead field is shown preceding the payload field in the bit stream, see id. Fig. 1, a framer can determine whether an incoming frame is "empty" or "full" when it receives the overhead field, even if the remainder of the frame has yet to be generated. Accordingly, the embodiment described in the specification permits a framer to begin inserting data once it has received the overhead field and the first bytes of the payload field, without complete generation of an empty frame. This description supports Bellcore's interpretation.

Finally, FORE contends that Bellcore limited itself to a "sequential" interpretation of the claims during prosecution. When distinguishing the pending claims from the prior art (the Baran reference), Bellcore described the claimed method as "first generating a bit stream comprised of frames," and "then" inserting packets "into the empty payload fields of the frames." Statements in the prosecution history will limit claim terms to exclude interpretations disclaimed during prosecution. Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 USPQ2d 1673, 1676-77 (Fed. Cir. 1995). However, no such disclaimer took place here. The Baran reference which Bellcore was traversing used a completely different system of multiplexing. Bellcore did not disclaim coverage to concurrent generating and filling to overcome Baran, nor did Bellcore distinguish Baran by arguing that its invention required complete generation of the frames before filling could begin. The prosecution history therefore does not address whether generation of an entire frame must be completed before filling begins.

In summary, neither precedent, grammar, logic, specification, nor prosecution history dictates that a complete frame be generated before the filling process may begin. Given that the specification discloses features of the overhead field that would permit filling to begin before generation is complete, it would be error to impose upon the claims a requirement that filling cannot begin until one or more empty frames are generated completely. We therefore agree with Bellcore that the claims encompass the insertion of data into a frame's empty payload field while the frame is still being generated.

MAYER, Chief Judge, dissenting.

While I do not take issue with the court's construction of the simultaneous transmission language or the empty payload field requirement, Bell Communications ("Belcore") conceded that under the district court's claim construction, it could not prove infringement of these limitations as well as the frame limitation of claims 1, 3, and 4 of United States Patent No. 4,893,306 ("'306 patent"). Because the district court correctly concluded that the '306 patent requires generation of a complete frame prior to filling, however, I would affirm the judgment of non-infringement.

Claim 1 of the '306 patent requires, inter alia, "generating a bit stream comprising a sequence of frames, each of said frames including a transmission overhead field containing frame timing information and an empty payload field, and filling the empty payload fields in said frames with data in packetized format from a plurality of sources ... " '306 patent, col. 17, ll. 47-53, (emphasis added). While the steps of method claims may not necessarily have to be performed sequentially or each
step fully completed before the next begins, there are method claims that require full completion of each step prior to the start of the next and a strict adherence to the sequential order. The plain meaning of the claims themselves, the place that all claim construction must begin, mandates that the generating step must be completed prior to the beginning of the filling step. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366, 62 USPQ2d 1658, 1662 (Fed. Cir. 2002) (There is a heavy presumption that the plain meaning of the claim language controls and can only be overcome in limited circumstances.).

"Fill" is defined as "to supply with as much as can be held or contained; to put or pour something into (a receptacle) till no more can be received." 5 Oxford English Dictionary 908 (2nd ed. 1989). The Webster's Dictionary provides almost the identical definition. Webster's Third New International Dictionary 849 (1993). Logic dictates that an incomplete container or frame cannot be filled because filling requires a finite volume. The patentee could have chosen alternative language to convey partial frame filling, whether by expressly stating the possibility or using a verb such as "placing" which would not require a finite volume, but did not do so. The prosecution history confirms this construction. In overcoming the Baran reference, the patentee stated that the claims require "first generating a bit stream comprised of frames with empty payload fields. . . . The packets are then inserted into the empty payload fields . . . " The patentee stated that first frames, plural, are generated and then data is inserted. The patentee makes no mention of generating the transmission overhead field of a frame and the first boundary of the payload field and then inserting data on a byte-by-byte basis. And the fact that Baran uses a different type of multiplexing is of no matter. Clear assertions made during prosecution in support of patentability, whether or not actually required to secure allowance of the claim, can create an estoppel. Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 988 F.2d 1165, 1174 (Fed.Cir.1993).

The court frames the issue as whether the specification or the prosecution history obviates the construction that filling could begin into a partially generated frame and answers in the negative. While the specification may not expressly exclude such a construction, nothing supports it either. The specification only speaks of generated frames and is silent as to anything less.

The court cites to a paragraph in the specification and argues that it presents a possible mechanism for byte-by-byte insertion prior to completion of the frame. Ante, at 8-9. The cited portion of the specification states: "Typically, the bit rate of the DTDM bit stream illustrated in FIG. 1 is about 150 Megabits/sec. The following information may be available in the overhead field of every DTDM frame; frame alignment word for frame timing, empty/full status of the frame, and span identification." '306 patent, col. 6, ll. 61-65. This statement offers nothing more than the components that make up a frame and certainly does not provide support for partial frame filling. While the court is correct that it is fair to say that the specification is silent about whether frames are generated byte-by-byte or whether complete frames are generated before data insertion begins, the patentee should bear the burden for the lack of information and the plain meaning of the language chosen by the patentee should control.

2. Film

A film is a thin layer of material. A film may have voids, cracks, or other discontinuities.

J. Filter Conditions: Defendants propose the following definition of "filter conditions":

Limitations or conditions that determine which of the network vendors will receive a buyer's request for quotation and/or which buyers will receive a response from a network vendor.

The limitations or conditions included in the RFQ and/or the response are filter conditions, but they certainly are not the only filter conditions described in the '328 patent. For example, the specification also refers to additional filter conditions that the network adds that prevent all sellers and all buyers from being matched equally when the buyer and seller filter conditions match each other (e.g., Col. 7, ll. 19-47). These filter conditions are not typically in the request or response, and thus are not part of the discussion at column 8 of the '328 patent relied upon by Defendants.
This definition is consistent with the language of the specification and applies regardless of whether the filter conditions are set by a buyer, vendor, or network software. For example:

filter conditions determine which of the network sellers will receive a buyer's request for quotation

Col. 1, ll. 14-16.

Alternatively, or in addition, the vendor responses may likewise be filtered to satisfy conditions of the vendors responding or in accordance with predefined conditions for facilitating a linkage between the prospective buyer and an acceptable seller.

Col. 8, ll. 16-20

The buyer and vendor filters may represent in their simplest form defined classes of suppliers and/or buyers and may extend to delineate conditions of sale and/or purchase. Limitations or conditions included in the RFQ and/or in the response are defined for purposes of the present application as filter information or simply "filters". Filtering performed by a quotation system computer may simply involve limiting the network members to whom the RFQ is given and/or to whom responses are given or may be a more complex selection process.

Col. 5, ll. 15-25 (emphasis added).

It is SST's contention that the term "filter conditions" must exclude product information. In its opening brief SST expressed the belief that "defendants will try to claim that the buyer filter conditions may consist merely of a code or label that specifies the product or class of products that the buyer wants to buy. In other words, if the buyer merely states he is interested in purchasing light bulbs, defendants are expected to argue that the code designating light bulbs in the RFQ is a buyer filter condition, and thus meets the language of the claim." (at p. 16).

Defendants disavow such a narrow meaning of filter conditions imposed by the buyer: "Defendants' argument is not that a filter condition set by a buyer must be a product code. Defendants acknowledge that the specification describes filter conditions other than product codes (e.g., geographical limitations, quantity limitations, etc.), but there is simply no support for SST's contention that the intrinsic record requires that the buyer-set filter conditions exclude product information." (Defs' Opening Br. at p. 6). (emphasis in original). Thus the issue is whether filter conditions can include product designation, as Defendants contend or whether filter conditions must exclude product designation, or SST contends.

The term "filter condition" is used extensively in the claims. At no point are specific goods and services excluded from being selected as filter conditions. SST argues that the language of claims 12 and 13 demonstrates that the product cannot be a filter condition. Claim 12 of the '328 patent specifies that the filter means filters a buyer's RFQ to determine which sellers can supply the goods and services specified in the RFQ. Claim 13 which is dependent on claim 12 adds the additional "step of accepting filtering conditions from said potential buyer, and utilizing said filter conditions in said step of filtering to determine a subset of potentially capable sellers." SST contends that Defendants position that goods and services specified in the RFQ are buyer filter conditions cannot be correct because then claim 13 would be rendered superfluous. If the product of claim 12 were a filter condition, claim 13, which adds the step of accepting filtering conditions from the buyers, would add nothing to claim 12. Defendants respond that there is nothing inconsistent with having a product serve as a filter condition in both contexts with other filter conditions added in the claim 13 context.

Relying upon preferred embodiments in the specification, SST proffers examples that are consistent with its contention that a product cannot be a filter condition. Fig. 7 shows a separate line for "Product Identification" and below it has a line reading "Vendor Qualifications (Filter Conditions)." A note at the bottom reads: "Buyer Filter Conditions Might Include Language Spoken, Currency of Quotation, Type of Vendor (e.g. Manufacturer, Distributor, Retailer, Etc.). Or Location of Vendor."

Fig. 2A of the patent includes a flow chart. In the box representing the second step it is stated that "The Buyer Next Selects A Product Type, e.g.: Computer Products, Appliances, Electronic Parts and Components, Et Cetera." In the box representing the fourth step it is stated: "The Quotation System Processes The Request by Selecting a Class of Vendors Who Sell The
Requested Product(s) and Meet The Filter Requirements Of The Buyer, Vendor and The Quotation System." SST argues that his demonstrates that simply designating a product does not constitute specifying a filter condition.

SST relies upon the steps designated in Fig. 5 and Fig. 6 for the same purpose. These examples cannot serve to define filter conditions. Fig. 7 does not state that filter conditions cannot include product identification. It may be a preferred embodiment, but a preferred embodiment may not be used to narrow a claim construction.

SST quotes from the Summary of the invention to support its contention that filter conditions are optional: "selecting one or more appropriate vendors to receive the buyer's request for quotation based on filter conditions, if any, set by the buyer, vendor and the network software." (Col. 2, ll. 2-4). Read in its entirety the Summary of the Invention portrays the selection of vendors strictly through the use of filter conditions. The "if any" probably reflects that the network and the vendor might not set filter conditions, but the process must be through the use of filter conditions.

The claims themselves do not exclude the product from the term "filter condition." The specification includes goods and services as a category of filter condition. Use of filter conditions by a vendor is described as follows:

When a vendor wants to receive requests for quotation over the network, the vendor notifies the network of the class of goods or services in which the vendor deals (a "request for quotation class definition"). This can be communicated by voice, telephone, fax, et cetera, or by use of programming provided for that purpose, but the preferred method is to use programming provided for that purpose by the network. The request for quotation class definition is transmitted to the network and the network uses that definition to filter all requests for quotation routed to the vendor, i.e., to the class defined by a buyer of which the vendor is a member. In this way the vendor receives only those requests for quotation which conform to the vendor's request for quotation definition. The number of vendors within a class to receive a request for quotation may be very large. To keep the process manageable network software may be arranged to limit the number of vendors to receive a request for quotation.

Col. 7, ll. 31-47 (emphasis added).

Here the vendor first defines a class of goods or services in which the vendor deals. The network then uses that class definition to filter requests for quotation routed to the vendor. The class of goods and services set by the vendor is a filter condition as that term is used in the specification.

Defendants' definition of "filter condition" is the proper one.

G. Filter Means: The term "filter means" appears in claims 1, 4 and 12.

Claim 1 recites:

filter means for filtering the network members in said storage to determine which network members are to receive said request for quotation based upon filter conditions set up by the network buyer in said request for quotation or by the central processing unit in accordance with preestablished conditions.

Claim 4 recites:

filter and broadcast means for receiving, over said data network, requests from said requestor to engage in transactions with unspecified vendor terminals, and for filtering said requests to determine with which vendor terminals said requests should be matched.

Claim 12 recites; in pertinent part:

- 2103 -
communicating, over said data network, to a filter means, at least one request for a quotation from a potential buyer of said goods or services

filtering, at said filter means, the at least one request in order to ascertain a set of sellers potentially capable of supplying said goods or services.

The parties agree that these limitations are written in means - plus - function format, making applicable 35 U.S.C. § 112, P 6 (1994). "Under that provision, '[a]n element of a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.' We have stated that 'for a means-plus-function limitation to read [literally] on an accused device, the accused device must employ means identical to or the equivalent of the structures, material, or acts described in the patent specification. . .'."

WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1347 (Fed. Cir. 1999).

The "filter means" terms are means-plus-function limitations, and because the claims limitations in each of these claims do not by themselves provide any structure, the term is subject to construction under 35 U.S.C. § 112, P 6.

Defendants contend that these claims fail the § 112 test as applied in WMS Gaming, Inc., 184 F.3d at 1349: "[i]n a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programed to perform the disclosed algorithm."

The next step in construing a means-plus-function claim limitation is to look to the specification and identify the corresponding structure, if any, for the function. Med. Instrumentation & Diagnostics Corp. v. Elektra AB, 344 F.3d 1205, 1210 (Fed. Cir. 2003).

There is an initial question whether one evaluates the recital of the structure that implements the means through the eyes of a lay person or through the eyes of one skilled in the art. At the Markman hearing counsel for defendants argued that skill in the art is irrelevant in this inquiry and that it is an English test, not a technical test:

This patent doesn't use a means plus function test once, it uses it repeatedly. And, the price of using means plus function is that you must in fact describe what is the mechanism that actually performs the function. You can't just say any old means. You can't say, well, anybody of ordinary skill would know that a computer could store or could write a computer program to sort or could write a computer program to select. That may be true. But, . . . that isn't the issue.

The issue is whether the patentee, in the specification, has described it in sufficient detail that it could be built, not that it's anyway that you could do it but the way, and he limits it to the way he discloses it.

Finally, the skill [in] the art. Your Honor has made it clear, from your earliest questions, that you're influenced by what, how skilled somebody of ordinary skill would be in trying to decide could you use a computer to store this. I think that may be true but it's irrelevant to the issue. Because, the question is not whether a rocket scientist or a computer expert or simply a purchasing agent would understand that you could use a computer memory or hard drive to store things, we'll stipulate that. The issue is whether there's any linkage to the function of storing the membership described in the specification. That's an English test. That's not a technical test. And, in fact, there is no such linkage that is found here.

Transcript, March 31, 2006 hearing, pp. 94, 96.

Defendants' linkage analysis is based upon a faulty premise. The determination of whether the specification has described the structure in sufficient detail is not simply an English test; it is a technical test in that the sufficiency of the disclosure of
the structure is based on the understanding of one skilled in the art.

We have previously observed that an analysis under § 112, P 2 is inextricably intertwined with claim construction, and that in the § 112, P 6 context, a court's determination of the structure that corresponds to a particular means-plus-function limitation is indeed a matter of claim construction. As it is well established that claims are to be construed in view of the understanding of one skilled in the art, the closely related issue concerning whether sufficient structure has in fact been disclosed to support a means-plus-function limitation should be analyzed under the same standard.

For the reasons outlined above, we thus conclude that the District Court erred by failing to assess whether sufficient structure was disclosed in the specification to support the high-voltage means limitation based on the understanding of one skilled in the art.


Turning to the claim 1 function, "filtering the network members . . . to determine which network members are to receive said request for quotation," Defendants argue that the only structure disclosed in the '328 patent that corresponds to this function is the software running on the computer system, i.e., specific flow chart/algorithm illustrated in Figures 5 and 6, rather than the quotation system computer itself.

Defendants submit as the structure related to filtering function of claim: "the algorithm set forth in Figures 5 and 6 but not including or using a central data base that contains more information than is required to determine which network vendors should receive an RFQ." The court has already construed the disclaimer upon which Defendants rely to support the "but not including" portion of this proposed structure. SST argues that the algorithm disclosed in Figures 5 and 6 is not the only filter means disclosed in the specification and that the term "filter means" should be more broadly construed as "a computer programmed to apply or compare specified conditions to an item(s) of information to determine if the condition is met or not by the item(s) of information." (Pl.'s Responsive Br. at 6).

In WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339 (Fed. Cir. 1999) the court noted that 35 U.S.C. § 112 permits the use of means-plus-function language in claims with the proviso that the claims are limited to the structure, material, or acts disclosed in the specification and their equivalents. The Federal Circuit determined that the District Court had erred in construing the claim in question to cover any table, formula, or algorithm that performed the recited function rather than limiting the claim to the specific algorithm disclosed in the specification.

As the Federal Circuit stated, "[t]he written description of the . . . patent [was] almost completely devoid of any structure to support [the] limitation of the claim. The district court apparently took [that] lack of disclosure to indicate that the limitation read[] on any means for performing the recited function. However, [such a] construction is at odds with the requirements of 35 U.S.C. § 112." Thus, the structure in the present case must be limited to the tables, formulas, and algorithms recited in the specification.

Defendants argue that the algorithm in Figures 5 and 6 is the only relevant structure disclosed in the specification. SST disagrees with that proposition and cites several examples of other structures.

For example, SST cites to Col. 7, ll. 3-2, of the '328 Patent as an example of additional filter means recited in the specification. That section describes filters for time sequencing the transmission of RFQ's based upon distance, and for transmitting RFQ's based upon type of service selected by a vendor.

Additionally, Figure 2A is a flowchart that describes the system's user interface and how a user (buyer or vendor), and the network, might set filter conditions. The chart further demonstrates that filtering consists of comparing information to various conditions in order to see if those conditions are satisfied.

Figure 3 also pertains to filter means. It describes a process by which vendors can send specific offers to buyers that meet certain filter conditions that can be set by the vendor, buyer, and quotation system.

Thus, filter means cannot be limited to the algorithm in Figures 5 and 6. Rather, the definition of that term must encompass each of the various descriptions of the structure found throughout the specification. Moreover, the various figures described
above demonstrate that the algorithm operates to compare filter conditions set by the buyer, vendor and system, to various pieces of information provided by those same parties, to determine whether the conditions have been satisfied. As such, the court accepts SST's definition of filter means: "A computer programmed to apply or compare specified conditions to an item(s) of information to determine if the condition is met or not by the item(s) of information."

Finally, Defendants argue that "[b]ecause the function associated with the 'filter means' recitation in each of [the three] claims is slightly different, a separate claim construction analysis is appropriate for each of the claims reciting 'filter means.'" (Defs.'Opening Br. at 9). However, as stated above, when interpreting a claim term, one should read it not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. Moreover, claim terms are normally used consistently throughout the patent. Thus, the above definition applies to filter means as it is used in each claim.

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10. "Final results file"

The parties dispute the meaning of the term "final results file." Defendants assert "final results file" should be construed to mean "a persistently saved file that includes all the records present in the first and second intermediate results files." Plaintiff contends the term is entitled to its ordinary meaning, but if the Court deems construction necessary, "final results file" should be construed to mean "a file that includes one or more records or fields from the first intermediate results file and one or more records from the second intermediate results file."

Because "final results file" has no ordinary meaning, this term must be construed. As discussed above, the claims and specification do not support a construction limiting a "final results file" to a file that is "persistently saved." The Court further finds neither the claims nor specification limits a "final results file" to a file that includes "all the records" from the intermediate results files. The specification explains that the "final results file" may go through post-processing so that "only unique instances of the records satisfying the query" are returned. Col. 18, lines 9-13. Therefore, the Court adopts Plaintiff's construction and construes "final results file" to mean "a file that includes one or more records or fields from the first intermediate results file and one or more records from the second intermediate results file."

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A. "Financial Card"

This term is used throughout the '645 patent. Plaintiff suggests the proper definition of the phrase is "any medium issued to a holder that provides access to financial benefits and resources." The Court agrees that Defendant's definition - "a tangible piece of plastic or similar material issued by a financial institution that authorizes the cardholder to purchase goods and services on credit or by debiting a bank account, for example, a credit card or debit card" - is more consistent with the intrinsic evidence.

Plaintiff's definition utilizes the broader - and more ambiguous - term "medium." This is an attempt to define an ordinary term that is readily understood in a manner that improperly expands the meaning beyond its customary understanding. A "financial card" is not a technical term; it is one understood by ordinary people, and the Court has little difficulty concluding that the ordinary meaning of this phrase refers to a tangible piece of plastic or other material, possession and ownership of which entitles the owner to credit or other sources of money.

This ordinary understanding of the phrase is confirmed by its usage in the patent and other components of the prosecution history. The '645 Patent's Abstract describes the invention as a "system . . . for presenting financial card (e.g., credit card, debit card) offers to potential customers." The Background of the Invention compares the invention to the use of direct mail campaigns to solicit customers, and observes the shortcomings of such efforts include the need for prospective customers to "complete the applications manually, mail them back to the financial institutions, wait for them to be processed, and then wait for the financial card to arrive in the mail." Col. 1, lines 47-51 (emphasis supplied). The Detailed Description of
Preferred Embodiments ("Preferred Embodiments") summarizes the process as concluding when "[t]he financial institution . . . processes the application and makes arrangements to send the financial card to the applicant." Col. 5, lines 3-5. The Summary of Invention describes the final step of the process as occurring when "a financial card in accordance with accepted offer terms is sent to the user." Col. 2, lines 28-29. This is reiterated in Claim 25, which consists of "[t]he method of claim 24 further comprising the step of sending to said applicant a financial card in accordance with said offer accepted by said applicant." Col. 8, lines 18-20. All of these references contemplate the "financial card" as a tangible item, and further contemplate the receipt of the financial card as both a necessary part of, and the culmination of, the process. In context, the card does not merely represent a token confirming a financial relationship, but is the means by which financial transactions are to be conducted. Therefore, not all acquisitions of credit (or other accesses to money) are described; only those that can be accessed via the use of a "financial card" are described.

Some of Plaintiff's statements during the initial examination process confirm the meaning gleaned from the patent itself. The PTO initially indicated it was rejecting certain claims because it regarded a financial card as "an abstract concept" and "merely a representation of the abstraction and therefore merely a model." In insisting "that the distribution, review, and acceptance or rejection of financial card offers is a real world activity," Plaintiff discussed current practices in the credit card industry and noted "[i]t is very difficult for credit card companies to determine if their marketing efforts are effective and whether they are soliciting appropriate candidates." Amendment to Patent Application filed February 2, 1999. This is merely one example; Plaintiff's response to the PTO is replete with references to the "credit card industry." At no time did Plaintiff suggest its invention could be used for other financial products, nor did Plaintiff utilize a term with greater breadth than "financial card." Indeed, to now argue for a more abstract understanding of the phrase appears inconsistent with the position Plaintiff took to persuade the PTO to reverse its initial rejection of the patent.

The Court also notes the '645 Patent, as approved on reexamination, included new claims 34 and 35. New Claim 34 consists of "[t]he method of claim 11 wherein said financial card is selected from the group consisting of credit cards and debit cards." Reexamination Certificate, Col. 2, lines 13-15. Claim 11 refers to "[a]n electronic method for applying for a financial card comprising" certain specified steps. Col. 7, lines 18-19. In supporting Claim 34 before the PTO, Plaintiff explained that "New Claim 34 depends from claim 11 and is directed to the type of financial cards for which an applicant may apply." Plaintiff's Response to Official Action dated December 3, 2003 at 5 (hereafter "Plaintiff's 2003 Response"). Thus, in declaring the invention selects financial cards from credit cards and debit cards - and not from anything else - the definition of financial cards is limited in the manner indicated by the Court.

Finally, by means of confirmation, the Court observes the prior art's use of the phrase is consistent with the Court's interpretation. See Arthur A. Collins, Inc. v. Northern Telecom Ltd., 216 F.3d 1042, 1044-45 (Fed. Cir. 2000) ("Even when prior art is not cited in the written description or the prosecution history, it may assist in ascertaining the meaning of a term to a person skilled in the art."). For instance, Patent No. 5,619,559 - Financial Card Authorization System - "relates generally . . . to a system for authorization of financial card transactions." The Background and Summary of the Invention explains that "[f]inancial cards, usually credit cards, are commonly used by purchasers in retail establishments," and proceeds to explain the use of an electronic device to obtain information from the card and transmit it to a financial institution to insure verification of the card and approval for the transaction. Col. 1, lines 14-28. Patent No. 5,038,022 - Apparatus and Method for Providing Credit for Operating a Gaming Machine - describes a device that "enables the player to obtain credit without having to leave his place at the [gaming] machine with the use of a financial card of the type such as any well known credit card or a debit card such as an ATM card." Col. 3, lines 15-19. The patent elsewhere discusses use of an electronic reader that transfers data to and from the magnetic strip on the card. These and other examples 2 confirm not only that a financial card is a tangible object, but also that the tangible object is more than a mere talisman confirming a contractual relationship between the customer and the financial institution.

--- Footnotes ---

2 A non-exhaustive list of additional prior art using the term "financial card" in the same or similar manner includes Patent Numbers 5,530,232, 5,884,289, 5,608,203 and 5,650,604.

--- End Footnotes ---
the phrase in the manner Defendant suggests, which is true - but this does not mean the definition of "financial card" is not already limited in light of the meaning it already has.

Plaintiff also contends the PTO understood the term to be as broad as Plaintiff now suggests, but the Court is not persuaded. First, Plaintiff points to the Examiner's initial rejection on reexamination of all the '645 Patent's claims based on Patent No. 5,878,403 - Computer Implemented Automated Credit Application Analysis and Decision Routing System (referred to by the parties as either "the '403 Patent" or "DeFranscisco"). DeFranscisco's Summary of the Invention describes "a centralized credit application entry and routing system which accepts applications from, for example, automotive dealerships, electronically and selectively forwards them to funding sources, including funding sources having computerized credit application systems." Col. 8, lines 60-67. In seeking reexamination of the '645 Patent, Defendant argued before the PTO that DeFranscisco already broadly described or anticipated all computerized applications for credit, including the '645 Patent. Plaintiff discerns some meaning from the initial rejection of the '645 Patent based on DeFranscisco, contending that because DeFranscisco did not involve a "tangible plastic card" the Examiner must have understood the '645 patent also did not require a "tangible plastic card." The Court believes Plaintiff reads too much into the sequence of events. Plaintiff's invention can be understood as a means for applying for a particular type or form of credit. In citing DeFranscisco, the PTO indicated Plaintiff's invention was anticipated and embraced by a prior invention designed to allow for the computerized application for a broader universe of credit, regardless of whether a financial card is involved. This is supported by language from DeFranscisco, most notably where it states "[t]he present invention allows a bank to have one standardized network and application interface . . . however as would be readily appreciated by one skilled in the art, this can be expanded to include non-automotive customers." Col. 31, lines 36-40. The involvement of a "financial card" was simply not relevant to the PTO's citation to DeFranscisco. Moreover, the PTO - at Plaintiff's urging - reversed itself and determined DeFranscisco did not anticipate the '645 Patent. Assuming any meaning can be gleaned from the PTO's initial position, that meaning ceased to be relevant when the PTO's position changed.

3 Plaintiff insists Defendant must explain its "position shift." The Court discerns no position shift. Defendant initially contended DeFranscisco is so broad that it encompassed Plaintiff's invention. That position was rejected because, essentially, Plaintiff's invention is different from DeFranscisco. Defendant now contends the scope of Plaintiff's invention is narrower than Plaintiff asserts. These positions are not inconsistent.

Finally, Plaintiff relies on another communication from the PTO dated July 16, 2004, that rejected certain claims in the '645 Patent due to obviousness. On page four the PTO referenced that portion of DeFranscisco indicating "[e]ach funding source is able to send back additional information, such as score, grade, etc., . . . . There is also a comment field to enter more complex things, for example, a list of rate/term options.' Col. 13, lines 65- Col. 14 line 2." The PTO then referred to Figure 3Q from DeFranscisco "which shows financial card (i.e. loan) term data from a plurality of financial institutions." This reference does not clearly indicate the PTO interpreted "financial card" as coextensive with or more broadly than the word "loan." In fact, considering the context, it appears the PTO considered the term "loan" to be broader than and encompassing of "financial card," such that a "financial card" is only one type of a loan arrangement. At best, the PTO's usage on July 16, 2004, is ambiguous, and is insufficient to overcome the other clear sources cited above.

B. "Financial Card Terms"

The parties' competing definitions of this phrase are remarkably similar. Plaintiff suggests the phrase refers to "terms that relate to a financial card offer, e.g., type of offer, interest rate, fees, amounts, etc." Defendant advances a definition limited to "material terms of a financial card offer (such as APR, annual fees, etc.) that are pre-set by each financial institution and can be presented to consumers." The crux of Defendant's argument seems to be its belief that the phrase is limited to terms of the card offered to customers, and not to requirements or restrictions imposed by the financial institution. Defendant's Markman Brief at 16. Plaintiff does not attempt to include such concepts within the rubric of "financial card terms," but insists the phrase may "include detailed information concerning how the applicant can proceed with the transaction" or
"details about the incentive program involved with the offer." Plaintiff's Reply Brief at 15. The Court agrees with both parties.

Language in the '645 Patent suggests the "terms" consist of information perused and considered by the consumer, not the financial institution. For instance, "[t]he applicant may peruse, via the computer display, the 'federal box' and other details of each of the offers to find the one that is most attractive..." Col. 4, lines 65-67. Claim 28 comprises an apparatus "for presenting to said applicant...financial card term data..." Col 8, lines 61-63. This understanding is further confirmed by Plaintiff's explanation to the PTO. Plaintiff's 2003 Response at 19. In the absence of any argument to the contrary, the Court agrees the phrase "financial card terms" does not include eligibility policies or requirements imposed by the financial institution. Finally, without disagreement from Plaintiff, Defendant contends financial card terms are pre-set by the financial institution for presentation to consumers. In fact, Plaintiff does not even address this aspect of Defendant's argument, and it serves to reinforce the limitation acknowledged above.

On the other hand, aspects of Defendant's definition are unduly narrow. There is no support for further limiting "financial card terms" to the interest rate, APR, annual fees, and other information specifically detailed as examples in various places within the Patent. E.g., Col. 4, lines 31-43.

With these conclusions, "financial card terms" are "terms that relate to a financial card offer, e.g., type of offer, interest rate, fees, APR, credit limit, incentive programs, etc., that are pre-set by the financial institution and presented to consumers for consideration in deciding whether to accept the offer." This definition contains the breadth necessary (and to which Plaintiff is entitled) to include information about the offer that may be important or enticing to a potential customer. It also excludes requirements imposed by the financial institutions before a particular offer may be presented to a particular consumer.

A. "Financial Instrument"

EBS argues that when taken together, the prosecution history and the ordinary meaning of the term, "financial instrument" requires the broadest of definitions:

Any instrument (e.g., note, contract, agreement) having monetary value.

(Gingerer, Att'y for Pl., Decl., Ex. 2 at 1.) EBS comes to this conclusion by synthesizing definitions from two financial dictionaries, the Dictionary of Banking and Financial Services, 294 (2d ed. 1985), and the Dictionary of Financial and Investment Terms, 202 (3d ed. 1991).

Conversely, ICE argues that EBS's construction is overbroad, outside the scope of the '627 Patent, and should be more narrowly construed. ICE emphasizes a definition of "financial instrument" constrained by the understanding of one skilled in the art of finance and trading at the time the '627 Patent was issued. (Harrison, Att'y for Def., Hr'g Tr. 15: 6-9.) According to ICE, one skilled in the art would understand a "financial instrument" to mean "a contract involving currency, equities, securities, fixed securities, or indexes thereof." (Harrison, Att'y for Def., Hr'g Tr. 13: 6-8.) In other words, a financial instrument "must have some underlying financial asset." (Harrison, Att'y for Def., Hr'g Tr. 13: 10-11.) In particular, ICE maintains that "financial instrument" does not include "commodities" and points to the fact that the Commodities and Futures Trading Commission (CFTC) website distinguishes between "commodities" and "financial instruments." (Harrison, Att'y for Def., Hr'g Tr. 53: 11-17.)

The industry to which the '627 Patent relates is that of "traders dealing in financial instruments." n3 U.S. Patent No. 6,014,627 (issued Jan. 11, 2000). In general, the term, "financial instruments," does not appear to include only those instruments directly tied to an underlying financial asset. For example, the Dictionary of Banking and Finance, 159 (Standard Chartered Bank, 1st Ed., 1998), defines financial instrument as:

A contractual claim held by one party on another, such as a security, currency, or derivatives contract. A financial instrument entitles the other to be paid in cash or with another financial instrument.
The Handbook of International Financial Terms, 220 (Oxford Univ. Press, 1st Ed., 1997), maintains an even broader definition:

Generic term for those securities or contracts which provide the holder with a claim on an obligor. Such instruments include common stock, preferred stock, bonds, loans, money market instruments, and other contractually binding obligations. The common feature which differentiates a financial instrument from a commercial or trade credit is the right to receive cash or another financial instrument from the obligor and/or the ability to exchange for cash the instrument with another entity. The definition can also include instruments where the claim is contingent, as with derivatives.


An enforceable contract obligating one party to pay money or transfer property to another. Credit documents, (e.g. drafts, bonds, etc.) are instruments, as are documents of title, such as deeds or stock certificates.

--- Footnotes ---

n3 This Court, like other courts in this district, notes that the Federal Circuit is currently examining the role of dictionaries in claim interpretation. See Phillips v. AWH Corp., 376 F.3d 1382 (Fed. Cir. 2004); see also Astrazeneca Pharma., LP v. Mayne Pharma., Inc., 352 F. Supp. 2d 403 (S.D.N.Y. 2004).

--- End Footnotes ---

The aforementioned dictionaries do not limit or restrict the definition of "financial instrument" to the characteristics of an intangible asset. While financial instruments are as a rule created to raise capital, the definition of a financial instrument is not contingent upon the underlying asset being a physical asset such as currency. For instance, the Department of the Treasury, 12 C.F.R. §§ 563, 567, simply provides that:

A fundamental characteristic of all financial instruments is that they give rise to cash flows. The value of any financial instrument can be estimated by projecting the amount and timing of future net cash flows associated with the instrument, and discounting those cash flows with appropriate discount rates.

See 12 C.F.R. §§ 563; 567. As such, reading the '627 Patent in light of the relevant industry standards and the ordinary meaning of the terms, at least insofar as current dictionary definitions are concerned, the contested language must be construed as:

Any enforceable instrument having a monetary value.

OutlookSoft is correct that, in many respects, Hyperion chose to act as its own lexicographer for the term "financial schedule." The statements made during prosecution of the Hyperion patents clearly act to define "financial schedule" as a type of document. However, Hyperion did not surrender electronic documents in this definition. Accordingly, "financial schedule" is "a kind of document (whether a paper document or electronic file) that data comes from."

Claim Construction: "Financial Transaction"

A clear definition of "financial transaction" as used in the preamble is necessary to a determination of the meaning of many of claim 1's elements. The first reference to "financial transaction" in claim 1 appears in the claim's preamble, and many of claim 1's elements contain additional references to "transactions," including "transaction type," "transaction parameters" and "transaction information."

In their claim construction briefs, both parties agree that in this case, the preamble of claim 1 provides a limitation pursuant to Federal Circuit case law. See e.g., Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir.1989); Phillips Petroleum Co. v. Huntsman Polymers Corp., 157 F.3d 866, 872 (Fed. Cir. 1998). The parties vigorously dispute, however, the meaning of the critical phrase "financial transaction;" contained in the preamble to claim 1. Amazon generally contends that the phrase limits the claim to cover only transactions performed using electronic fund transfer systems, whereas IPXL generally contends that the phrase allows the claim to cover a much broader array of transactions. For the reasons set forth below, the Court finds Amazon's more narrow construction to be correct.

The language of the claim's preamble itself assigns two characteristics to "transactions

the transactions being characterized by a transaction type and a plurality of transaction parameters.

As such, each reference in claim 1 to "transaction" invokes both a "transaction type" and a "plurality of transaction parameters." An understanding that a claim 1's "transaction" is composed of a "transaction type" and a "Plurality of transaction parameters," while helpful when interpreting the limitations of claim 1, only affords a circular and incomplete understanding of "financial transaction"

Reference to the additional intrinsic evidence, namely the specification and the prosecution history, is required to further define claim 1's "financial transaction" limitation.

The '055 specification dictates that:

Except as otherwise used in connection with a specific activity, the term "transaction" is intended to broadly describe a wide variety of activities that are or may be performed using an EFT system. By way of example, but without limitation, this includes withdrawing cash, travelers' checks, bonds, and other negotiable instruments or other articles, depositing cash, checks, other negotiable instruments or other articles, transferring funds from one account to another, paying bills, credit card balances; or loan payments, casing checks or other negotiable instruments, obtaining account balance information, paying for the purchase of goods or services, operating gaming devices (e.g., casino games, lottery games) and performing a wide variety of other activities.

Col. 5, 11. 36-49.

Although this passage sets forth broad and sweeping language when defining "transaction," it is clear from the patentee's express definition that a "transaction" must be limited to "activities that are or may be performed using an EFT system." In this case, "the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in . . . the specification. . ." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Because the patentee, in the
specification, has expressly incorporated "activities that are or may be performed using an EFT system" into the definition of "transaction," it is that definition that controls. Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998).

Consistent with the patentee's express incorporation of "EFT systems" into the definition of "financial transaction," the patent specification generally speaks of the invention as relating to EFT systems:

."ELECTRONIC FUND TRANSFER OR TRANSACTION SYSTEM." Invention Title.

."An electronic fund transfer (EFT) system" . . . Abstract (first words).

. electronic fund transfer systems such as automated teller machines." Col. I, ll. 12-13.

Moreover, the patentee has also given express guidance as to the meaning of "EFT system." In addition to the examples set forth at Col. 5, ll. 36-49, all of which the patentee claims "are or may be performed using an EFT system," the specification provides further guidance concerning the nature of an EFT system:

Electronic fund transfer (EFT) systems in general are well known. One example of an EFT system is an automated teller machine (ATM).

Col. 1. ll. 22-24.

EFT systems also include point-of-sale terminals and a number of other systems. Point-of-sale (POS) or point of interaction terminals (collectively referred to herein as "POS terminals") are used for example at grocery checkouts, gas station pumps and other retail locations to enable a user to pay for a purchase by using an ATM card, a credit card, a debit card or other similar methods. POS terminals also typically require a number of user inputs and transaction parameters to effect a transaction.

Col. 2, ll. 29-37.

Unsurprisingly, at least one unifying characteristic is found in every example of an EFT system set forth in the patent: each system directly and promptly allows the user to transfer or inquire about funds. This characteristic of allowing for direct and prompt transfer of or inquiry about funds is consistent with the plain meaning of "EFT system" and with the dictionary definitions offered to support that plain meaning.

Footnotes

1 The Court's understanding of the plain meaning of "EFT system" is supported and confirmed by the following dictionary definitions in accordance with Texas Digital Systems, Inc. v. TelegemixInc., 308 F.3d 1193, 1202 (Fed. Cir. 2002):

Electronic Funds Transfer: electronic funds transfer (EFT) utilizes computer and electronic components in order to transfer money or other financial assets. The New Palgrave Dictionary of Money & Finance (1992) at 745.

Electronic Fund Transfer System (EFTs): A variety of systems and technologies for transferring funds electronically rather than by check. The Language of Banking (1994) at 55.


These definitions are taken from specialized finance and banking dictionaries. As such, the risk of arriving at an "absurd result" from "indiscriminate reliance on definitions found in dictionaries" remains minimal. Liebscher v. Boothroyd 258 F.2d 948, 951, 46 C.C.P. A. 701, 1958 Dec. Comm'ty Pat. 437 (CCPA 1958). The '055 invention is generally directed to financial transaction systems and discloses a common banking and transaction system, an ATM system, as its preferred embodiment. Indeed, definitions taken from finance and banking dictionaries are particularly well-suited to analysis of the '055.
The Court finds further support for its interpretation of "transaction" from the prosecution history, which includes several statements by the patentee limiting his invention to only those transactions involving ATM machines. For example, in response to a January 6, 1999, office action rejecting the application's claims under 35 U.S.C. § 103 in view of prior art references Nadan and Martino, the applicant argued that Madan is not directed to an ATM machine as recited in claim 1. . . Neither Madan nor Martino discloses an ATM that enables a user to select from a single Screen transaction type and transaction parameters. Madan is not an ATM machine and does not address the same problems as those addressed by the present invention.

Such comments might suggest that the applicant intended the "transactions" related to his invention to include only ATM machine transactions in particular, rather than EFT systems in general. Despite these comments, the Court is not inclined to prescribe such a narrow construction of "financial transaction" so as to limit the claim to covering only transactions involving ATM machines. The Court does, however, note the apparent inconsistency between the positions taken by the applicant during his prosecution of the patent and the carefully hedged language of the '055 specification, which indicates that ATM systems stand as only the preferred embodiment and that other EFT systems may also be covered.

In light of the express definitions chosen by the patentee the prosecution history of the patent in suit, and the plain meaning of the term EFT, the Court construes the term "financial transaction" as follows:

The electronic transfer of funds, or the electronic inquiry as to funds, using an electronic funds transfer ("EFT") system such as an ATM system or a point of sale ("POS") system. Such electronic transfer of funds, or electronic inquiry as to funds, being characterized by both a transaction type and a plurality of transaction parameters.

The claim language of the '192 patent was construed in recent litigation in the Eastern District of Texas. See Mot. at 6; Khaliq Decl., P 2 and Ex. A (April 20, 2005 Claim Construction Order in Visto Corp. v. Seven Networks, Inc., Civil Action No. 2:03-CV-333 (Ward, J.)). Judge Ward's order is persuasive and highly relevant here, though not issue-preclusive against Sproqit or otherwise binding. See Verizon California Inc. v. Katz Technology Licensing, 326 F. Supp.2d 1060, 1069 (C.D. Cal. 2003). For the purposes of the motion for preliminary injunction (and only for purposes of the instant motion), the parties stipulate to adopting Judge Ward's Claim Construction Order, with the exception of the construction of the claim term "firewall." 4 Accordingly, for purposes of this motion, the Court adopts Judge Ward's Claim Construction Order per the stipulation.

4 Visto challenges Judge Ward's construction of the term "firewall" as incomplete for failing to exclude validation and authentication features, which are separate security features from firewalls. Mot. at 8-9. This issue was not raised before Judge Ward in the Eastern District of Texas litigation, but is raised here for the first time. Id. at 9 n.14. Visto suggests an alternate construction of the term "firewall" based on the Microsoft Computer Dictionary definition to exclude validation and authentication features. Motion at 10; Khaliq Decl., Ex. E. Sproqit does not oppose Visto's proposed construction or suggest an alternative.

Given there was no opposition in connection with the instant motion to Visto's proposed construction of the claim term "firewall," the Court adopts the following construction of the term:

software and/or hardware for protecting an organization's network against external threats, such as hackers, coming from another network, such as the Internet. A firewall prevents computers in the organization's network from communicating directly with computers external to the network and vice versa by routing all communications through a proxy server outside of the organization's network for a determination whether a particular message or file will be permitted to pass through to the organization's network.

Kahliq Decl., Ex. A ("Claim Construction Order") at 14-15; Mot. at 8, 10; Khaliq Decl., Ex. E (The Microsoft Computer
E. Firewall

Visto contends that the term "firewall," as used in the claims of the '708 patent and the '192 patent, means "software and/or hardware for protecting a network against external threats coming from another network, which allows or blocks packets of information traveling between the networks." Seven argues that the term has a broader meaning and maintains that the court should define the term as "software and/or hardware for protecting an organization's network against external threats, such as hackers, coming from another network, such as the Internet." With respect to this term, it is Visto, rather than Seven, who is attempting to narrow the scope of the claim. Seven's definition is appropriate, as there is no suggestion that the inventors intended to disavow the scope of this claim term. The court therefore adopts Seven's proposed definition and defines "firewall" to mean "software and/or hardware for protecting an organization's network against external threats, such as hackers, coming from another network, such as the Internet."

26. Firing time information

This term is used in the '037 patent, asserted against only ADI. Biax contends this term means information pertaining to the time when an instruction is to be executed. ADI argues that it means a line of computer code providing the specific time when an instruction is to be executed. The court construes the term "firing time information" to mean "intelligence used to indicate when a given instruction may be executed." This construction is consistent with the court's prior construction of "instruction firing time."

7. "first" and "second" ('702 patent)

Beneficial's Proposed Construction

Defendants' Proposed Construction

The terms "first" and "second" are used in the claim to distinguish two instances of the same thing. For example, "first user" means a user other than a "second user." The terms "first" and "second" do not refer to time sequence. The Court essentially agrees with the proposed construction and arguments by Beneficial. The Court notes that the Defendants do not provide any argument on these terms. The Court finds that in this case "first" and "second" should be instances of the same thing. See Free Motion Fitness, Inc. v. Cybex Intern., Inc., 423 F.3d 1343, 1348 (Fed. Cir. 2005) ("[t]he use of the terms 'first' and 'second' is a common patent-law convention to distinguish between repeated instances of an element or limitation."). Thus, consistent with Beneficial's proposal, the Court construes the terms "first" and "second" as follows: "the terms 'first' and 'second' are used to distinguish repeated instances of the same element or limitation."

IV. "first" and "second" 10
10 The terms "first" and "second" are in claims 1, 11, 12, and 18.

11 While Plaintiff has provided a modified proposal regarding claim 18, PL. SUPP. at 2, the Court finds no reason to depart from the parties' original agreement as to claim 18 for the purposes of this litigation. Plaintiff has indicated that it agreed because the dispute did not matter for the purposes of infringement. PL. SUPP. at 1. Thus, the Court will address claim 18 only as necessary to properly resolve the parties' dispute as to claims 1 and 30.

Looking first to claim 1, this claim discloses:

1. A method of doing business over a global communications network comprising the steps:
   communicating to a buyer via the global communications network, a description of a product;
   accepting a first request from the buyer to buy the product for a price to be determined within a price range;
   accepting a second request from the buyer to allow the price to be determined based upon a performance of the buyer while participating in a Price-Determining-Activity (PDA);
   receiving data from the buyer over the global communications network, said data representing the performance of the buyer during the PDA; and
determining the price of the product based at least partially upon the data received, said price being within the price range and scaled to the performance of the buyer.

'253 patent at 9:31-49 (claim 1). Nothing in this claim precludes step [a] from occurring at any points during the claimed method, nor steps [b], [c], or [d] from occurring at any time before step [e]. There are no explicit, nor inherent disclosures in the claim that require a particular order.

Moreover, logic does not require Defendants' proposed sequential limitation. Without support or citation, Defendants assert that "[i]n order for the system to 'accept' a first request from the buyer to buy the product for a price to be determined within a price range,' the product must first be communicated to the buyer in step [a]." RESPONSE at 27; see also D. SUPP. at 2. In the Background section of the '253 patent, the patentee discloses that "Priceline.com uses a model which allows the buyer to present a bid or offer price they wish to pay for a product or service, and a seller then accepts the buyer's offer to enter into a binding contract, typically as the result of a reverse auction process." '253 patent at 1:31-35. In this example--a reverse auction--the seller first accepts a request from the buyer to buy a type of product or service, and then after the seller accepts the buyer's offer, a description of the particular product or service is communicated to the buyer. Such reverse auctions are noted within the specification as optional business models that can be incorporated into the claimed invention.

The present invention thus may be used independently of other business models, or in combination therewith, to form binding contracts. For example, using the auction or reverse auction models, the buyer may be entitled to a further discount of the auction or reverse auction price, which discount may be greater if the buyer performs well at the PDA, and not so great if the buyer performs poorly.

'253 patent at 4:36-43. In such a situation, step [a] would not necessarily occur first, as Defendants propose.

While Defendants are correct that the preferred embodiments disclose methods that are performed in an order that corresponds to that expressed in the claims, D. SUPP. at 2-3, the specification fails to indicate that this order is required. In fact, referring to one disclosed embodiment, the specification expressly indicates that the step where the buyer provides payment information "may occur at any stage in the process." '253 patent at 5:13-15. The specification adds that "[w]hile certain embodiments are illustrated in the drawings and are described herein, including preferred embodiments, it will be apparent to those skilled in the art that the specific embodiments described herein may be modified without departing from the inventive concepts described. . . . Accordingly, the invention is not to be restricted except by the claims which follow." Id. at 9:11-28.

Defendants--citing to E-Pass Techs. v. 3Com Corp.--argue that if a few of the steps must be performed in a certain order, as Plaintiff concedes, then all of the steps must be performed in order. D. SUPP. at 3-4 (citing E-Pass, 473 F.3d 1213, 1222 (Fed. Cir. 2007)). However in E-Pass, the parties' dispute was whether summary judgment of non-infringement was properly granted--whether the steps of the claim must be performed in order. The passing statement made by the Federal Circuit--and cited by Defendants--cites to Mantech Environmental Corp. v. Hudson Environmental Services, Inc. 152 F.3d 1368, 1375-76 (Fed. Cir. 1998). There, the Federal Circuit held that due to the sequential nature of the limitations of the claim, the method logically required that the steps be performed in order. Id. at 1376-1377. Here, as discussed above, the claim language fails to set forth such a required logical or sequential order.

Moreover, the use of the terms "first" and "second" do not impose a temporal limitation, but instead are used as a common patent-law convention to distinguish between repeated instances of an element or limitation. 3M Innovative Properties Co. v. Avery Dennison Corp., 350 F.3d 1365, 1371 (Fed. Cir. 2003). Defendants cite to LifeNet, Inc. v. Musculoskeletal Transplant Foundation, No. 3:06cv6876, 2007 U.S. Dist. LEXIS 45172, 2007 WL 1815629, *8 (E.D. Va. June 21, 2007) in support of the argument that the recitation of "first" and "second" requests necessarily requires a sequential order. RESPONSE at 26. In LifeNet, the claim language indicated that such a sequential limitation was intended by the patentee. For example, dependent claim 20 of the asserted patent disclosed the step of "sonicating said second cleaned bone graft with sterile water prior to sonicating with said third solvent." LifeNet, 2007 U.S. Dist. LEXIS 45172, 2007 WL 1815629 at *8. This limitation explicitly indicates that the second bone graft must be sonicated prior to the third. Id. Similarly, dependent claim 19 disclosed that a second bone graft is sonicated to produce a third bone graft. Because the second bone graft must be sonicated prior to the third and the third bone graft is produced from sonicating the second bone graft, the order of steps...
is necessarily implied. Here, claim 1 includes no such language, nor implication.

Turning to claim 30, this claim discloses a "system for conducting e-commerce over a global communications network" which is comprised of a computer server with particular functionality. '253 patent at 11:13-23, 12:1-7 (claim 30). Defendants argue that because Plaintiff agrees that the steps of claim 18 must be performed in order, it follows that the steps of claim 30 must be performed in order as well because claim 30 discloses a computer system that performs the steps disclosed in claim 18. RESPONSE at 27. Plaintiff has indicated--and Defendants do not dispute--that the accused products perform the steps of claim 18 in the order recited, and this is why Plaintiff does not dispute that the steps of claim 18 must be performed in order. PL. SUPP. at 1. This agreement, alone, is not a justifiable basis for holding that claim 30 has a sequential limitation.

Moreover, claim 30 discloses a system that performs certain functions. Unlike the cases cited by Defendants, the functions disclosed in claim 30 need not be performed in order. In Oak Tech., Inc. v. Int'l Trade Com'n--like LifeNet, discussed above--the claim language indicated that such a sequential limitation was intended by the patentee. 248 F.3d 1316, 1325 (Fed. Cir. 2001). In Versata Software, Inc. v. SAP Am., Inc., the system claims disclosed steps that were "essentially similar" to those disclosed by a method claim that had a required order. No. 2:07-cv-153, 2009 U.S. Dist. LEXIS 45751, 2009 WL 1408520, *13 (E.D. Tex. May 19, 2009). In Visto Corp. v. Good Tech., Inc., the claims at issue were method claims--not system claims. No. 2:06-cv-039, 2008 U.S. Dist. LEXIS 3244, 2008 WL 163576, *6 (E.D. Tex. Jan. 16, 2008). Here, claim 30 discloses a system for conducting e-commerce, and the recited steps have no explicit, implicit, or logical required order for all the reasons set forth regarding claim 1. Therefore, the Court finds that the steps of claim 1 may be performed before, at the same time as, or after any other step, except that steps [b], [c], and [d] must occur before step [e]. Pursuant to the parties' agreement, the Court also finds that he steps of claim 18 must be performed in order, however, claim 30 does not have a sequential limitation. Further, the terms "first" and "second" also do not impose a sequential limitation.

1734

a. "first . . . and [] second light beam"

In the photolithographic pattern-transfer process, two light beams (viz., the "first light beam" and the "second light beam") illuminate a pattern from no fewer than twelve different directions. Upon contact with the pattern, the two beams are diffracted into distinct orders of diffracted beams; these diffracted beams, in turn, travel through the projection optical system along a shared optical path. To differentiate between these two beams, the claim refers to "first" and "second" "light beams." According to Nikon, the "first . . . and [] second light beam" claim language should be construed to denote "beams of light that are, at least during some portion of their paths, separate and discrete." ASML does not contest inclusion of the concluding phrase of Nikon's construction, but ASML offers a substantially more specific alternative; according to ASML, the court should construe "first" and "second light beams" to mean "separate and discrete beams, as are produced by the disclosed spatial filter, emanating from discrete areas on the Fourier transform plane (like holes in the spatial filter)."

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14 Aware that courts are, in general, not permitted to import exogenous limitations into a claim, ASML posits its construction as an illustrative one, using the word "like" to suggest that the limit is simply an example of the type of beams the claim language contemplates. According to ASML, in fact, its construction best comports with the '041 patent specification because the specification denotes the "spatial filter" as part of the underlying "invention."

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The court does not disagree with ASML's presentation of the relevant technology; the beams do indeed emanate from discrete areas, interacting at a point with spatial filters. But the court cannot adopt ASML's expansive reading of "first . . . and [] second light beam" to mean "separate and discrete beams, as are produced by the disclosed spatial filter, emanating from discrete areas on the Fourier transform plane (like holes in the spatial filter)." As the court understands the intrinsic record and the claim language, all that is at issue is two separate light beams that are, for at least part of their lengths, separate. See, e.g., '041 Patent at 13:55-14:17. Nothing in the patent specifications undercut the thrust of this understanding, and the court thus construes "first . . . and [] second light beam" to mean "two beams of light that are, for
some portion of their paths, separate and discrete."

In construing the claims, the district court explained: "The integrated circuit must have at least one common reference clock (either digital or analog . . .)." The district court further stated: "[The phrase] 'first clock signal' . . . indicates the analog circuit clock signal comes prior to the 'second' digital circuit clock signal. Again, this language does not limit the claims construction to one clock."

As the district court correctly noted, "a first clock signal" does not require a single clock signal to control sampling. As previously discussed, the word "comprising" in the transitional phrase of a patent claim creates a presumption that the body of the claim is open. Because claim 4 uses "comprising," it encompasses more than one clock unless the written description or the prosecution history clearly limits claim 4 to its recited elements. Similarly, the article "a" in "a first clock signal" generally suggests one or more clocks. The written description and figures of the '899 patent actually disclose two analog clocks, ACLK1 and ACLK2, in the preferred embodiment. See, e.g., col. 2, ll. 52-56; col. 4, ll. 16-26; Fig. 3. According to the preferred embodiment, analog clock ACLK1 accepts the analog input voltage (the charge), analog clock ACLK2 transfers the charge to or from the feedback capacitor.

Although ACLK1 provides the first clock signal for controlling the sampling of an analog input voltage, neither the written description nor the prosecution history precludes more than one clock or clock signal.

### 1735

**D. "First and Second External Clock Signals"**

The parties agree that the bus of the invention carries two external clock signals which pace the exchange of information over the bus and provide timing synchronization for the memory system. The dispute arises over whether the second external clock signal must contain information that is different from the timing information sent by the first clock signal.

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36 As has been the convention of both the patent documents and the parties, the terms "clock signal" and "clock" are used interchangeably.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

Although referred to as a "clock" by one skilled in the art, the clock of a memory chip is actually a set of timing information derived from an oscillating reference voltage ("V[REF]") which cycles between two voltage levels. Rambus' proposed definitions do not require that the two signals contain different timing information, while Infineon's proposed definitions require that the second signal contain different information from the first.

1. The Claim Language

Every asserted claim in the '214 patent (the double data rate invention) and the '804 patent (the delayed lock loop invention) contains the terms "first external clock signal" and "second external clock signal." 37 Most of the claims simply indicate that data is to be output on the bus in response to the first and second external clock signals. Three claims, however, reveal that the two clock signals can be used by the memory device to create an internal clock:

25. The method of claim 15 further including generating at least one internal clock signal using the first and second external clock signals wherein the first amount of data corresponding to the first block size information is output onto the bus synchronously with respect to at least one internal clock signal.
'214 patent, claim 25.

26. The method of claim 25 further including generating a first internal clock signal using a delay locked loop and the first and second external clock signals.

'214 patent, claim 26.

26. An integrated circuit device having at least one memory section which includes a plurality of memory cells, wherein the integrated circuit device outputs data on an external bus synchronously with respect to first and second external clock signals, the integrated circuit device comprises:

. . . .

Delay locked loop circuitry to generate an internal clock signal using the first and second external clock signals . . .

'804 patent, claim 26.

--- Footnotes ---

37 See claims 1, 2, 4, 9, 10, 11, 15, 16, 18, 24, 25, and 26 of the '214 patent and claim 26 of the '804 patent.

--- End Footnotes ---

The claim language thus indicates that somehow the memory device is to use the information derived from the first and second clock signal to create in internal signal. One must consult the specification to understand how this is accomplished.

2. The Specification

In the "Background of the Invention" section, the specification relates that one "object of this invention is to provide a clocking scheme to permit high speed clock signals to be sent along the bus with minimal clock skew between devices." '918 patent, col. 3, ll. 27-29. "The two clocks together provide a synchronized high speed clock for all the devices on the bus." '918 patent, col. 8, ll. 29-30. Most significantly, in the "Clocking" subsection of the "Detailed Description," the inventors explain:

Clocking a high speed bus accurately without introducing error due to propagation delays can be implemented by having each device monitor two bus clock signals and then derive internally a device clock, the true system clock. The bus clock information can be sent on one or two lines to provide a mechanism for each bused device to generate an internal device clock with zero skew relative to all the other device clocks.

'918 patent, col. 18, l. 63 through col. 19, l. 4. This idea of clock skew can be best understood by reference to Figures 8a and 8b of the specification.

[SEE FIG. 8A IN ORIGINAL]

[SEE FIG. 8B IN ORIGINAL]

The specification clearly demonstrates how these figures represent the two clock signals:

Referring to FIG. 8a, in the preferred implementation, a bus clock generator 50 at one end of the bus propagates an early bus clock signal in one direction along the bus, for example on line 53 from right to left, to the far end of the bus. The same clock signal then is passed through the direct connection shown to a second line 54, and returns as a late bus clock signal along the bus from the far end to the origin, propagating from left to right. A single bus clock line can be used if it is left unterminated at the far end of the bus, allowing the early bus clock signal to reflect back along the same line as a late bus clock signal.
FIG. 8b illustrates how each device 51, 52 receives each of the two bus clock signals at a different time (because of propagation delay along the wires), with constant midpoint in time between the two bus clocks along the bus. At each device 51, 52, the rising edge 55 of Clock1 53 is followed by the rising edge of 56 of Clock2 54. Similarly, the falling edge 57 of Clock1 53 is followed by the falling edge 58 of Clock2 54. This waveform relationship is observed at all other devices along the bus. Devices which are closer to the clock generator have a greater separation between Clock1 and Clock2 relative to devices farther from the generator because of the longer time required for each clock pulse to traverse the bus and return along line 54, but the midpoint in time 59, 60 between corresponding rising of falling edges is fixed because, for any given device, the length of each clock line between the far end of the bus and that device is equal. Each device must sample the two bus clocks and generate its own internal device clock at the midpoint of the two.

'918 patent, col. 19, ll. 4-32. See also Fig. 13 of the '918 patent (showing how the rising and falling edges of the two bus clocks can be synchronized).

In essence, this portion of the specification explains how chips N and O, which are located in different positions along the bus lines, receive the clock signals at different points in time due to their locations relative to the origin of the clock signal. By reflecting the signal along a second line, the memory system can compensate for this delay and create a second clock signal. From these two signals, chips N and O create an internal clock signal which corrects the clock skew caused by propagation delay. In order to correct the skew, the two signals must necessarily contain different information, as Rambus' expert admitted. See Markman Hearing, Tr. pp. 296-298 (testimony of Dr. Huber). Although the specification lists this clocking scheme as a preferred embodiment, it is actually the only embodiment of the clock in the entire specification. As with the analysis of the term "bus," it is significant that the specification limits the clock to a single embodiment. See generally Wang, 197 F.3d at 1380; Toro, 199 F.3d at 1301; O.I. Corp., 115 F.3d 1576 at 1581.

3. The Extrinsic Evidence

The constructions taught by the specification are confirmed by the testimony of Mr. McAlexander who explained that to one ordinarily skilled in the art that the Rambus clock scheme allows the memory devices to sample each clock signal as it is received over the line and then averages the two signals such that every device is operating off the same clock, regardless of that device's location relative to the origin of the clock signal. Markman Hearing, Tr. pg. 457, line 2 to pg. 458, line 1 (testimony of Mr. McAlexander). Thus "the timing information and the difference between them is essential to this inventive concept of the clock design." Id. 38

--- Footnotes ---
38 Mr. McAlexander's testimony also explains how the clocking scheme comes full circle to the primary objective of the invention and the use of a multiplexed bus:

In the prior art where the address information goes down one bus and data is responded to the bus on a totally different bus - so you have a data bus that's separate and distinct from the address bus - you could send down the control [or] the address information to a chip, activate it, . . . it goes in, finds the data from the storage cells and immediately sends it out to the data bus which is a separate bus.

In the multiplexed design, the data must share the same bus as the address information. And so the . . . controlling system must assure that at no time does address or control information reside on the bus at the same time that data . . . is coming back on the bus; otherwise, you would end up with a collision. . . .

So in order to arbitrate that and to make sure that nothing is on the bus when it's not supposed to be, the whole system has to be in sync. Every system, every . . . chip, every component on the bus has to be operating under the exact same timing constraints.

That's why it's important and valuable . . . to use a clock design that will synchronize everything together.

Markman Hearing, Tr. pg. 465 l. 6 to pg. 466, l. 10.
--- End Footnotes ---
In the interpretation of these terms, Rambus once again eschews the language of the specification, choosing to rely instead on the testimony of its expert who says that one skilled in the art would recognize that the first and second external clock signal can have, but does not need to have, different timing information in each signal. Therefore, according to Rambus, it is unnecessary to tie the claim definition to the language of the specification. 39 This approach runs afoul of the principle that the patent specification must always be reviewed to see if the patentee used the terms in a manner other than their ordinary meaning. Vitronics, 90 F.3d at 1582. Thus, even if one accepted Rambus' contention that the ordinary and accustomed meaning of first and external clock signals would be known to one of skill in the trade, the patent specification only describes a clocking scheme which corrects clock skew by creating an internal clock based on differing external clock signals.

--- Footnotes ---

39 See Testimony of Dr. Huber, pg. 302, l. 25 - pg. 303 l. 2 ("I don't need to go to the patent to interpret the term. Clock signal is a well known term").

--- End Footnotes ---

4. Construction

Based on the claim language and the specification the term "first external clock signal" is construed to mean "a periodic signal received by the memory device from an external source to provide first timing information." The term "second external clock signal" is construed to mean "a periodic signal received by the memory device from an external source to provide second timing information that is different from the first timing information."

1737

11. "First External Clock" and "Second External Clock"

a. Proposed constructions

Hynix contends that "first external clock" should be construed as "a periodic signal received by the memory device from an external source to provide first timing information." See Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL 34138091 at *26. Rambus proposes that the term should be construed the same as "external clock signal" -- "a periodic signal from a source external to the device to provide timing information."

Similarly, Hynix contends that "second external clock" should mean "a periodic signal received by the memory device from an external source to provide second timing information that is different from the first timing information." See Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL 34138091 at *26. Rambus, in contrast, proposes second external clock signal to be interpreted as "another external clock signal."

The parties agree that "external clock signal" should be construed as "a periodic signal from a source external to the device to provide timing information." JCCS at 3. They disagree over whether the terms "first" and "second" refer to timing, or whether they refer to two separate signals without reference to time. "Although referred to as a clock' by one skilled in the art, the clock of a memory chip is actually a set of timing information derived from an oscillating reference voltage ("VREF") which cycles between two voltage levels." Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL 34138091 at *24. As Rambus claimed in Infineon I, Rambus's proposed definitions here "do not require that the two signals contain different timing information," while Hynix's construction requires "that the second signal contain different information from the first." Id.

In a July 28, 2003 order, this court vacated in its entirety its previous November 21, 2001 order granting partial summary judgment to Hynix finding, inter alia, that "the elements of collateral estoppel are no longer met in this case." Order of 7/25/03 at 3. Besides briefing the collateral estoppel issue extensively, Rambus offers in support of its construction the IEEE Dictionary definitions for "clock" and "signal." See JCCS at 17.
To operate the Rambus bus architecture at high speed, "every system, every . . . chip, every component on the bus has to be operating under the exact same timing constraints. That's why it's important and valuable . . . to use a clock design that will synchronize everything together." Infineon I, 2001 U.S. Dist. LEXIS 10990, 2001 WL at 34138091 at *26 n.38. Reviewing figures 8A and 8B of the '918 patent, the court first explained that chips N and O were located in different positions along the bus lines, and therefore received the "clock signals at different points in time due to their locations relative to the origin of the clock signal." 2001 U.S. Dist. LEXIS 10990, [WL] at *25. In order to correct this delay, the memory system reflects a signal along a second line to create a second clock signal, and from these two signals "chips N and O create an internal clock signal which corrects the clock skew caused by propagation delay." Id. Notably, Rambus's expert in Infineon admitted that in order to correct the skew, the two signals must contain different information. Id. The district court went on to note that the only embodiment of the clock in the entire specification required two external signals containing different information in order to create an internal clock, thus correcting the clock skew problem. See 2001 U.S. Dist. LEXIS 10990, [WL] at *26.

--- Footnotes ---

20 U.S. Patent No. 6,034,918. These figures are the same for the '152 and '263 patents.

--- End Footnotes ---

Besides introducing evidence from the IEEE Dictionary defining the terms "clock" and "signal," Rambus does not address the Infineon district court's analysis. Rambus also fails to suggest an alternative embodiment in the specification under its proposed construction that would address the clock skew problem. "Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." Scimed Life Sys. v. Adv. Cardiovascular Sys., 242 F.3d 1337, 1341 (Fed. Cir. 2001); Watts v. XL Sys., Inc., 232 F.3d 877, 883 (Fed. Cir. 2000) (where specification describes only one method to achieve sealing connection, claim limited to that disclosed method); Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1301 (Fed. Cir. 1999) (limiting claims to preferred embodiment, and noting the "specification shows only a structure whereby the restriction ring is part of the cover, in permanent attachment. This is not simply the preferred embodiment; it is the only embodiment.").

The court construes "first external clock" as "a periodic signal received by the memory device from an external source to provide first timing information," and "second external clock" as "a periodic signal received by the memory device from an external source to provide second timing information that is different from the first timing information."

A First Fraction Of A Clock Pulse Interval

Defendants also argue that "a first fraction of a clock pulse interval" must begin at the rising edge of the clock pulse interval. (Def. Br. at 31.) Again, Defendants' interpretation is unsupported by the claim language and '740 specification. The '740 patent describes the start signal as "a transition on the data wire from '1' to '0', while the signal on the clock wire [remains '1']." (740 patent, Col. 4, lines 19-21.) Thus, the key requirement is that the signals on the clock and data wires must be high (or "1") for some fraction of time--a "first" fraction--before the transition on the data wire. After the transition on the data wire, the signal on the data wire must be low (or "0") for some fraction of time--a "second" fraction--while the clock wire remains high (or "1"). Those fractions of time are illustrated below on Figure 3 of the '740 patent:

[SEE Transmitting A Start Signal IN ORIGINAL]

Thus, the term "first" does not refer to the beginning of a clock pulse interval. Instead, it refers to the first "fraction," that is, before another "fraction" in time. The dictionary definition for "first" is completely consistent with this interpretation: "1: a: before another in time, space, or importance b: for the first time 2: in preference to something else: SOONER." (Webster's at 466, Reply Br., Ex. D.)
Defendants' interpretation would require the clock to switch to low after each stop signal and then back to high before the next start signal. There is nothing in the claims or the '740 specification that would require this unnecessary switching. Indeed, the '740 patent describes the exact opposite—that after a stop signal, the clock and data wires remain high ("1") until the next start signal is issued. (See, e.g., '740 patent, Col. 4, lines 64-66.) Thus, Defendants' interpretation is incorrect, because it would exclude this preferred embodiment of a clock pulse. See, e.g., Burke Inc. v. Bruno Indep. Living Aids Inc., 183 F.3d 1334, 1341 (Fed. Cir. 1999) ("The district court's claim interpretation [] would exclude the preferred embodiment described in the specification and, thus, cannot be sustained."); Johns Hopkins Univ. v. Cellpro Inc., 152 F.3d 1342, 1355 (Fed. Cir. 1998). Accordingly, I find Philips' construction to be correct.

2. First, Second, Third, and Fourth Frame Store Means

Claim 5 discloses a "first frame store means," a "second frame store means," a "third frame store means," and a "fourth frame store" for storing frames. Adobe seeks a declaration from the court that the recitation of four frame store means requires four separate corresponding structures. Quantel argues that there is nothing in the claim language or the specification to suggest that the four frame store means recited must be separate structures, and that the claim's recitation of four frame store means does not exclude a shared, or even combined, physical storage structure, or some other combination of physical units.

Although it is true that a single structure may satisfy more than one means element of a claim, see, e.g., Sun Studs, Inc. v. ATA Equip. Leasing, Inc., 872 F.2d 978, 989 (Fed. Cir. 1989) ("An apparatus claim describing a combination of components does not require that the function of each be performed by a separate structure in the apparatus."). Quantel's argument is contradicted by the clear language of claim 5, which recites four frame store means. If claim 5 did not contemplate four separate structures, it could simply recite "frame store means" for storing each of the frames disclosed, rather than enumerate four separate frame store means. Accordingly, the court concludes that claim 5 requires four separate structures corresponding to the first, second, third, and fourth frame store means disclosed in claim 5.

3. "first manipulation of a first operator input device"

Plaintiffs' construction: a first operation of an operator input device

Defendant's construction: first manipulating a first keyboard, trackball, pushbutton, knob, or other device, such as a "Print/Store" button, which a user manipulates to provide input to the imaging system

Neither parties' proposed construction of the term "first manipulation of a first operator input device" is helpful. Plaintiffs turn immediately to a general dictionary to define the term "manipulation" as "operation." Defendant cites the patent specification, which identifies "a keyboard, a trackball," "pushbuttons" and "knobs" as examples of "operator input devices" '327 pat., col. 6, Ins. 64-68. Although I agree with defendant that these are examples of operator input devices, including this list of examples into the claim language is of little value, especially because the patent specification explains that "other input devices" are used as well. Id. at ln. 67. Therefore, I conclude that both parties' proposals are flawed and that the term "first manipulation of a first operator input device" would not benefit from either construction.

5. "first-order low-pass filter section" ('347 patent, claim 1) and "second-order low-pass filter section" ('992 patent, claim 1)

Pulse offers that these disputed terms do not require specific construction because the required elements are expressly
defined in the claims. In contrast, Mascon argues they cannot be construed because they are indefinite. The court notes any potential open-ended interpretation of these terms to include additional electrical components is mitigated by its construction of the modifiers "formed of" and "connected to."

Mascon's first supporting argument refers to Pulse's Infringement Contentions. (Doc. No. 33 at 21) The court may not properly consider the alleged infringing device during a Markman analysis. See Ferguson Beauregard/Logic Controls, Div. of Dover Res., Inc. v. Mega Sys., LLC, 350 F.3d 1327, 1340 (Fed. Cir. 2003)(finding the district court erred in claim construction "because it was influenced by the structure and function of the alleged infringing device."). In its second argument, Mascon contends "first-order low-pass filter section," as used in claim 1 of the '347 patent, is indefinite because the connection of the "fourth inductor" to the "fourth output pin" and the "third capacitor," also connected to the "fourth output pin," creates a short across the inductor. This issue is addressed in section 6, supra, and the court finds it does not render the claim term indefinite.

These terms are not "insolubly ambiguous," and thus, the court finds they are not indefinite and they do not require specific construction by the court.

A.1.d. "first/second response unit means"

Despite the use of "means" language, the parties appear to agree that the term "response unit means" connotes sufficiently definite structure to avoid the interpretational mandates of 35 U.S.C. § 112, P 6. In addition, both parties agree that "response unit means" is an audio response unit. See Verizon Brief at 18:8-10; Katz Brief at 26:26-27. Verizon asserts, however, that the first and second response unit means must be embodied in physically separate structures. See Verizon Brief at 18.

While the claim language requires two functionally distinct response units, the claim language does not appear to require that the first and second response unit means reside in physically separate structures. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) (refusing to interpret "portion" as requiring separate structures, where disclosed embodiments featured physically separate parts, but plain meaning of "portion" encompassed both separate and integral parts). The specification of the 734 patent appears to be consistent with this interpretation. See 734 patent, Col. 4:3-13 ("three separate audio response units are illustrated . . . Alternatively, a single composite unit might be utilized."). Verizon points to nothing in the specification or prosecution history of the 734 patent that requires deviating from the plain and ordinary meaning of the claim terms to require that the first and second response unit means be embodied in physically separate structures.

A first signal part and a second signal part

Claims 18 and 19 of the '714 Patent contain the term "a first signal part and a second signal part," which is preceded by "to separate the unmodulated optical signal into" and "separating an optical signal into," respectively. Cheetah contends that the term means "to separate the optical signal into at least two parts, for example, into two or more wavelengths," while Mitsubishi contends that it means "first and second copies of the 'unmodulated optical signal.'" The parties disagree whether the term "a first signal part and a second signal part" requires separation into two identical copies.

The relevant embodiment of Claims 18 and 19 is Figure 15, as cited by both parties, which is described as:

Fiber optic tap 1018 receives optical signals 1012 and sends one copy of the signal including at least header information 1014 to demultiplexer 1024, and sends another copy of the signal including at least payload information 1016 to delay line 1022.
'714 Patent, col. 21:6-10. Cheetah asserts that the two portions of the signal may be different from each other, as one may be only the header and the other may be only the payload portion of the signal. According to Cheetah, the specification confirms that "copy" does not mean the separated portions are the same, but merely portions of the whole. Cheetah also asserts that the prosecution history confirms its construction because the prior art cited by the Patent Office examiner did not have identical copies. Mitsubishi counters that the specification makes clear that the signal is split into copies and that nothing suggests the copies are different from each other.

The passage from the specification cited by both Cheetah and Mitsubishi makes clear that what is separated need not be identical "copies" and may contain different information, because the fiber optic tap may send one copy that includes at least header information and one copy that includes at least payload information. Furthermore, Figure 15 below shows the header 1014 alone at the input to DEMUX 1024 and the payload 1016 alone at the input to the DEMUX 1032. '714 Patent, fig. 5.

The specification also describes the electronic processor 1028 processing the header information 1014 and the optical add/drop multiplexer array 1030 processing the payload 1016. '714 Patent, col. 21:11-32.

Mitsubishi's use of the term "copies" causes confusion as to whether the copies need to be identical or not, particularly in light of the specification that discloses the portions do not need to be identical. Additionally, Cheetah has not provided support for the inclusion of "two or more wavelengths," other than asserting that it is known to those of skill in the art that headers and payloads may be distinguished by wavelength. Accordingly,

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4. remotely controlled (...) by (...) first, second and third (channel) switch commands

The switching system is controlled by switch commands that are generated at the remote control center, which is at a location that is remote, or separate, from the switch system. 12 A "command" is an instruction to a computer; in the context of these claims, the instruction tells the computer in the switch system which of three video signals to select and apply as the output signal of the switch. 13 Consistent with the specifications in both the '883 and '825 Patents, the "first, second, and third switch commands" would be understood to be three distinct commands. Thus, the first switch command is an instruction that directs the video switch to select the programmed channel video signal as the output from the video switch; the second switch command directs the video switch to select the commercial insert video signal as its output; and the third switch command directs the switch to select the local video signal (locally generated video signal) as its output.

12 Defendants state that "remote" is described throughout the patents as being at a distance requiring a satellite or fiber optic cable transmission, as opposed to switch commands generated locally at the head-ends, which would be referred to as being 'local.'" SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language, at 18. Although the switch commands are generated externally to the switching system, there is no specified minimum distance between the source of the commands that effectuate the control and the switch system. Nothing in the patent documents indicates that a certain distance is necessary for the patented invention to function. The fact that the inventors may have assumed that a significant distance might exist between the remote control center and the headend in an implementation of the invention is not grounds for importing such a limitation into the claim. Thus, while the court agrees that the commands are not generated at the headend, the court does not agree that the commands are generated at a significant distance from the headend.

13 Defendants offer the following dictionary definition of "command": "An expression that can be input to a computer system to initiate an action or affect the execution of a computer program." IEEE Standard Computer Dictionary 44 (Institute of Electrical and Electronics Engineers ed., 1990).
The switch commands are sent to the switching system via the second telecommunications network from the remote control center. As described in the specifications, the remote control center has a monitoring device that detects cue tones in the programmed channel signal. The remote control center generates the switch commands in response to those cue tones, and then sends the switch commands to the switching system. See '883 Patent, col.6, 11.15-38; '825 Patent, col.4, 11.16-23. Thus, the commands are sent to the switch in real time; i.e., the switch commands, which determine which video signal will be output by the switch, are sent to the switching system as the cue tones signal an upcoming local avail. 14

14 For example, the specification of the ’883 Patent explains that the computer at the switch is fast enough to process the commands in response to the cue tones so that the commercial insert signal or local video signal can be inserted at the appropriate time. See ’883 Patent, col.6, 11.45-54; id. col.7, 11.12-21.

Beam Laser objects to the inclusion of these additional limitations in the asserted claims. While acknowledging that "real time" remote control is disclosed in the preferred embodiments of both patents, Beam Laser argues that this does not imply that "real time" control is a limitation in the asserted claims. Furthermore, Beam Laser argues that whether the control is in real time or not is a matter pertaining to the operation of the control center, which is the subject of a separate claim, and not the switching system, which is the subject of the asserted claims. All that is required of the switching system, according to Beam Laser, is that the system be capable of being remotely controlled.

The claim language itself indicates that the commands are generated at a location other than the switch system: All asserted claims state that the switch commands are sent to the switch system via the second telecommunications system, and the commands are received at a control input of each switch. Thus, it is not necessary to resort to the specifications to understand that the commands are generated outside the switching system, i.e., the commands are not generated at the headend. In any case, nothing in the specifications suggests that the commands are generated at the switching system. The court must look outside the claims covering the switching system to understand how the remote control, which is an express limitation in the asserted claims, is effected, because the asserted claims are incomplete in this regard. In particular, the timing of the control cannot be determined from the asserted claims alone. The court must not lose sight of the purpose of the invention: the automated insertion of commercial spots into a programmed channel signal. A person of ordinary skill in the pertinent art would understand that the insertion of commercials into the program channel signal is controlled by cue tones. Thus, although not an explicit limitation in the asserted claims, it is clear that the switch commands must be tied in some way to the cue tones that signal the time avails. Only by looking to the specifications can the timing of the control be determined. The court is not importing limitations from the specifications into the claims; rather, the court is looking to the specifications to understand a limitation implicit in the asserted claims.

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"First units of data"

Alcatel's proposed construction is "the units of data generated from the data received from the receive channels." 18 Cisco believes this term is plain on its face and has no special or uncommon meaning, and thus should not be construed by the Court.

18 The parties have agreed that the term "receive channels" should be construed as "logical channels of data received by the network." Revised Joint Statement, Ex. C, at 43.
Alcatel argues that its proposed construction is supported by the specification, in particular Figure 3 and its description. See Valizadeh, at 4:5-9, Fig. 3. However, Alcatel's construction is not supported by the claim language. 19 First, the word "generated" does not appear as part of the specification referenced by Alcatel, or in the claim language in claim 1. In fact, it is only in dependent claims 2 and 3 where the claim language specifically discusses the notion of generating the first units of data described in claim 1. Thus, there is no support for using the language from a dependent claim to interpret the term in an independent claim, when such language is absent from the independent claim. Second, Alcatel's proposed construction would render the language of claim 14 to effectively read as follows: "A plurality of receive channels to receive [the units of data generated from the data received from the receive channels.]" The Court will not unnecessarily construe a term to create that type of confusion and inconsistency in the reading of a claim. Moreover, the claim language specifically refers to the origin of the "first units of data" in claims 1 and 2 as the receive channels, again making it unnecessary to construe this claim in order to incorporate that concept into the claim.

The only apparent reason why the term "first units of data" was used instead of simply "units of data" was to distinguish it from "second units of data," which is found in claims 2 and 3. Thus, there is no additional meaning ascribed to that term that would require construction. Therefore, the Court agrees with Cisco that the term "first units of data" requires no further construction in order to describe its origin.

F. The '529 Patent (Claim 29)

Claim 29 of the '529 patent differs from claim 27 in two important respects. First, it does not require the second control image specifying the foreground object, as recited in the dependent portion of claim 27. Second, it specifically requires in the dependent portion that the first and only control image be created by painting using "inherently non-aliased strokes."

Claim 29 depends from independent claim 28. The claims read as follows, the disputed terms and phrase appearing in italics:

28. A method comprising:

providing first pixel signals representing pixels forming a first image;

storing a frame of said first pixel signals in a first addressable memory area;

providing second pixel signals representing pixels forming a second image;

storing a frame of said second pixel signals in a second addressable memory area;

providing first control pixel signals representing pixels forming a first control image;

storing a frame of said first control pixel signals in a third addressable memory as signals having a first value for pixels of a composed image based on one of said first pixel signals and said second pixel signals, a second value for pixels of said composed image based on the other of said first pixel signals and said second pixel signals, and intermediate values for pixels of said composed image based on combining proportions of said first pixel values and said second pixel values;

providing addresses for writing and reading said first and second pixel signals and said first control pixel signals into and from selected addresses of the respective memory area to maintain upon reading the respective pixel signals a desired pixel
relationship between said second pixel signals and said first control pixel signals;

forming composed pixel signals representing the pixels of said composed image by: (a) selectively outputting pixel signals read from one or from the other of said first memory area and said second memory area when the first control pixel signals have respectively said first values or said second value; and (b) selectively combining said first and said second pixel signals output from said first memory area and said second memory area in proportions dependent upon the first control pixel values when said first control pixel signals have said intermediate values;

displaying said composed image;

and manually controlling the step of providing addresses to cause the spatial relationship of the second image together with the first control image to be smoothly and selectively modified relative to the first image;

whereby the second image from the second memory area, as defined by said first control image, moves progressively and selectively relative to the first image from the first memory area by said manual control of the addressing while the corresponding selective and progressive spatial changes of the displayed composed image are observable.

29. A method according to claim 28 including the step of painting with an electronic brush said first control image, said electronic brush having a shape in one or both of intensity and color to paint in inherently non-aliased strokes, and storing the image resulting from said painting step in said step of storing a frame of said first control pixel signal as said first control image.

1. "Addressable Memory Area"

Claim 29 recites several steps whereby frames of pixel signals are stored in addressable memory areas. Adobe contends that the term "addressable memory area" has the same meaning as the term "addressable memory portion" in claim 27, i.e., an "addressable memory area" is sufficiently large enough to store data representing an entire frame of video and is a contiguous portions of random-access memory in which the pixels representing a frame are stored in the same order in which the display is scanned by its electron gun. Again, by "contiguous" Adobe means only that the "addressable memory portion" be capable of supplying pixels representing a frame to the display monitor in the same order in which they are scanned by the electron gun.

The court will construe "addressable memory area" as it construed the term "addressable memory portion" in claim 27. First, the language of claim 29 confirms that an "addressable memory area" must be capable of storing an entire frame. For example, the second element recites the step of "storing a frame of said first pixel signals in a first addressable memory area." In addition, Dr. Phillips' testimony that a "frame" is data representing an entire screen of video is uncontroverted, and Quantel has not challenged Adobe's contention that an "addressable memory area" be capable of supplying pixels representing a frame to the display monitor in the same order in which they are scanned by the electron gun.

2. First, Second, And Third Addressable Memory Areas

Claim 29 recites a first, second, and third addressable memory area for storing frames of pixel signals. Adobe once again seeks confirmation that such a recitation requires three separate structures. As discussed above, the plain language of the claim controls. Claim 29 requires three separate addressable memory areas.

1. "first command interpreter" and "sends a signal regardless of the type of data transmit/receive device"

These terms are used in the context of the '399 Patent as follows: "the first command interpreter . . . , when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device

The Camera Manufacturers would define "first command interpreter" as a "software program for interpreting an inquiry from a host device and sending a signal to the host device in response to the inquiry that 'lies to the host computer as to the real nature of the data transmit/receive device.'" CMs' Slides at 96. They argue:

Because the first command interpreter is expressed as being "include[d]" in the interface device as a result of "configure[ing]" by the processor and memory, and that it is "configured in such a way" to respond to any inquiry, the first command interpreter must be a software program or module. Then, when receiving an inquiry from the host device, the first command interpreter sends a signal in response, which necessarily requires that it must have interpreted the inquiry to determine what signal to send. This part of the construction appears to be undisputed by Papst. See Papst [Markman] Br. at 18.

CMs' Markman Br. at 18-19. Papst says that "[t]he first command interpreter should be construed to be capable of receiving an 'inquiry' from the computer ('host device'). An 'inquiry' should be construed to mean an instruction seeking information concerning the type of the device attached to a computer." Papst's Markman Br. at 18. Papst contends that the phrase "sends a signal . . . to the host device" means that "the signal sent by the first command interpreter in response to the inquiry [is] consistent with a signal that an input/output device customary in a host device would provide in response to that inquiry, and that such [a] response is not based on what data transmit/receive devices may be associated with the interface device."

Papst's App. at 3-4.

In its briefs, Papst initially explained, "The patent attorney for the '399 patent argued that the claims were allowable over the cited prior art because, among other things, 'when asked by the host device to the type of device connected to the interface, [the first command interpreter] lies to the host computer as to the real nature of the data transmit/receive device.'" Id. at 19 (emphasis added). In its Reply brief, Papst shifted its position. It now insists that "the CMs mistakenly argue that the first command interpreter 'lies' to the host computer as to the true nature of the data transmit/receive device. However, that is not what the claim says . . . . The signal sent in response to the inquiry identifies the interface device as an input/output device customary in a host device, regardless of what data transmit/receive device may be attached." Papst's Reply at 18 (emphasis added). Disavowing its initial interpretation, Papst argues that it is not necessary for the invention to lie, id., and then states that, "by identifying itself as an input/output device customary in a host device, the interface device could be said to 'lie' about the data transmit/receive device because customary devices (disk drivers, CD-ROMs, etc.) do not have data transmit/receive devices." Id. Papst urges the Court to "give effect to the claims of the patent as finally worded, not to the remarks of an attorney." Id. at 20.

To bring the critical language back to the discussion, Claim One of the '399 Patent states:

wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the device data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device . . . .

'399 Patent, col. 12:64-67 & col.13:1-8 (emphases added). Since the parties do not dispute that the first command interpreter is a software program or module that, when receiving an inquiry from the host device, interprets the inquiry and sends a signal in response, the Court need only construe the antecedent of "it" in the sixth line of the quote above.

Papst's Reply argument is correct -- the interface device sends a signal that it, the interface device, is an input/output device that can communicate with the computer by way of a driver that is customary in the computer. Notably, it is the interface device itself that is "attached to the multi-purpose interface of the host device." '399 Patent, col. 12:67 & col. 13:1. However, this fact does not fully resolve the issue because both the interface device and the data transmit/receive device can be said to be attached to the computer -- by way of the first and second connecting devices. The data transmit/receive device is merely the point of data origin and the computer is merely the point of data destination (or the reverse) along a single continuum effected by the invention. See id., col. 4:60-62 ("The data transmit/receive device itself can also communicative actively with the host device via the first and second connecting device . . . .").
The '399 Patent specification informs how the invention would work. When the interface device is connected between a computer and a data transmit/receive device and the computer is booted up, the normal BIOS routines of the computer issue an INQUIRY instruction. See id., col. 5:2-15. "The digital signal processor 13 in the interface device receives this inquiry instruction via the first connecting device and generates a signal" to the computer. Id., col. 6:10-12. This signal indicates to the computer that, for example, a hard disk drive is attached. Id. Upon receiving this response, the computer asks to read the boot sequence of a customary hard disk drive and the interface device's digital signal processor sends a virtual boot sequence. Id., col. 5:19-32. "Once the host device has received this data, it assumes that the interface device . . . is a hard disk drive." Id., col. 5:32-35 (emphasis added); see also id., col. 5:58-59 ("As described above, the interface device appears to the host device as a hard disk" in the preferred embodiment.). While this description relates most precisely to the preferred embodiment of a hard disk drive, its description of how the interface device operates provides clarity to define the "it" from the quote above. "It" must be the interface device and not the data transmit/receive device. Any question about which device is "it" is further answered by the fact that data does not begin to be sent from the data transmit/receive device to the interface device until the computer and the interface device have established communication; only then does the second command interpreter begin "to transfer data from the data transmit/receive device via the second connecting device" where analog data is sampled and converted to digital data, then on to "the first connecting device and via the line 11 to the host device." Id., col. 5:64-67.

In arguing that "it" refers to the data transmit/receive device and not the invented interface device, the Camera Manufacturers rely on the prosecution history. Mr. Tasler specifically distinguished the '399 Patent over prior art (the McNeill Patent, U.S. Patent No. 5,499,378), by stating, "[McNeill] does not include a first command interpreter that . . . lies to the host computer as to the real nature of the data transmit/receive device." 399 File History at 6 (emphasis added). Mr. Tasler also told the PTO, "[In McNeill,] the initiator asks for a hard disk and the target states that there is a hard disk" and, unlike the invention, the McNeill device "does not lie as to the true type of the data transmit/receive device." Id. (emphasis added). The Claims and specification for the '399 Patent control, however, with prosecution history a third, but less important, leg to the stool. "An applicant's inaccurate statement cannot override the claim language itself, which controls the bounds of the claim." Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 832 (Fed. Cir. 2003).

The Court thus construes "first command interpreter" in the '399 Patent to be "a software program for interpreting an inquiry from a host device and sending a signal to the host device in response to the inquiry, which signal tells the host computer that the interface device is an input/output device customary in a host device regardless of the type of transmit/receive device attached to the interface device."

J. "second command interpreter"

While Papst suggests that "a second command interpreter is capable of receiving a data request command from the host device, and to initiate [sic] the transfer of digital data to the computer," Papst's App. at 4, the Camera Manufacturers propose to construe "second command interpreter" in the '399 Patent as "a software program for translating data request commands from the host into data transfer commands understandable by a plurality of dissimilar data transmit/receive devices." CMs' Markman Br. at 20.

More specifically, Papst objects to defining the second command interpreter as a software program for "translating" data request commands for use by another device. Tr. 2:127 (Papst). But Papst concedes that the command interpreter "decodes" such commands: "[S]o what the command interpreter does is it takes those numbers and it decodes them and it figures out what it's been asked to do and then it does it . . . . It's not something that translates it into use by another device." Id.

The '399 Patent contemplates "translating" by describing in the specification that the second command interpreter interprets and decodes commands from the host computer:

[T]he second command interpreter carries out the read/write assignment to specific functions. If the user now wishes to read data from the data transmit/receive device via the line 16, the host device sends a command, for example "read file xy", to the interface device. As described above, the interface device appears to the host device as a hard disk. The second command interpreter of the digital signal processor now interprets the read command of the host processor as a data transfer command, by decoding whether "xy" denotes, for example, a "real-time input" file, a "configuration" file or an executable file, whereby the same begins to transfer data from the data transmit/receive device via the second connecting device and
via the line 11 to the host device.

'399 Patent, col. 6:53-67 (emphases added).

The construction proposed by the Camera Manufacturers is clearer and derives directly from the Claims and specification. Therefore, the Court construes "second command interpreter" in the '399 Patent to mean "a software program for translating data request commands from the host device into data transfer commands understandable by a plurality of dissimilar data transmit/receive devices."

G. "a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device"

The parties part ways dramatically on the construction of the term "the first connecting device" in the phrase "a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device." See '399 Patent, col. 12:51-53; '449 Patent, col. 11:53-55. The Camera Manufacturers propose that the "first connecting device" is "a physical plug or socket for permitting a user to readily attach and detach the interface device with the host device." CMs' Slides at 77. Papst does not construe the term "connecting device" as an object, but jumps instead to the interfacing function of the first connecting device and proposes that the first connecting device be construed to mean "the circuit device used to couple the interface device to the multi-purpose interface of a computer." Papst's App. at 3 (emphasis added). Papst asserts that "the first connecting device needs to be interpreted along with the entire paragraph . . . and it's the connecting device for interfacing with the multi-purpose interface." Tr. 2:12 (Papst). Papst then goes on to describe its interpretation of "interfacing:"

[Interfacing] means adhering to the protocols for the electrical signals and the formatting of the data as it goes out [and] when it's being transmitted from one device to another. And that's how you achieve interfacing in the context of this claim.

. . .

So while the software is generating the information that gets sent, the connecting device is what actually, . . . that's where the information gets turned into a signal and in the case of a SCSI [small computer system interface] interface gets put on a wire . . . [T]hat's what is meant by interfacing and this is getting the right electrical signals in the right order with the right voltages with the right timing.

Id. at 12-13 (Papst).

The Claims, Figure 2, and the specification do not support Papst's definition as it would apply to "first connecting device." The Claims explain that the first connecting device is used "for interfacing," for establishing communication as defined above. That function does not describe the physical nature of the first connecting device itself. Taken into a different context, Papst's proposed construction would confuse a wall socket that accepts the plug from a lamp with the function that, once a plug is entered into a wall socket, the wall socket allows alternating current to reach the lamp and light its bulb. Despite this function, no one could confuse the wall socket itself with the current that flows after a plug is inserted.

The specification illustrates the physical nature of the first connecting device. The specification describes the first connecting device as containing various devices which require a physical, wired connection:

In the preferred embodiment of the interface device 10 shown in FIG. 2, the first connecting device 12 of FIG. 1 contains the following components: an SCSI interface 1220 and a 50-pin SCSI connector 1240 for attachment to an SCSI interface present on most host devices or laptops. The SCSI (small computer system interface) 1220 translates the data received via the SCSI connector 1240 into data understood by the DSP 1300, as known by those skilled in the art. Further, the first connecting device 12 comprises an EPP (enhanced parallel port) with a data transfer rate of approx. 1 MBps which delivers a more moderate data transfer rate of 1 MBps by comparison to the data transfer rate of 10 MBps of the SCSI interface. The EPP 1260 is connected to a 25-pin D-shell connector 1280 to permit attachment to a printer interface of a host device for
example. Optionally, the first connecting device 12 also comprises a 25-pin connector 1282 which permits the attachment of 8 digital outputs and 8 digital inputs 1284 at the host device.

'399 Patent, col. 9:29-47; '449 Patent, col. 8:30-48. Figure 2 shows a "25-pin connector," a "25-pin D-shell connector," and a "50-pin SCSI connector" for connecting a cable between the interface device and the host device/computer. See '399 Patent, Sheet 2; '449 Patent, Sheet 2; see also Tr.1:164-65 (Papst) (the SCSI device shown in Figure 2 would require a wired connection).

Further, the specification refers to "attachment" of various types of transmit/receive devices, via the interface device, to a host computer. See '399 Patent, col. 1:56-59 ("It is therefore desirable that an interface be sufficiently flexible to permit attachment of very different electrical or electronic systems to a host device by means of the interface.") (emphasis added); '449 Patent, col. 1:57-60 (same). And, the specification refers to a "line" connecting the host computer and the interface device: "whereby the [second command interpreter] begins to transfer data from the data transmit/receive device via the second connecting device and via the line 11 to the host device." '399 Patent, col. 6:53-67 (emphasis added). The terms "attachment"and "line" connote a physical connection.

The "first connecting device" is, therefore, a socket with a varying physical arrangement of pins (connectors) that allows different cables -- whatever cable would allow connection to the relevant host device/computer -- to be plugged into the interface device. The socket's pin arrangement could change as the nature of cables changed. The applicable cables that were known to those trained in the art as of 1998, when Mr. Tasler applied for the '399 Patent, were exhibited to the Court during the tutorial and were physical objects that required physical pin receptors to connect to a device. 15

A similar assortment of connectors, although considerably smaller, can be seen on the back and sides of today's laptop computers.

A socket is the opposite of a plug; that is, a socket is the "female" end of a connection and a plug is the "male" end. While Figure 2 illustrates sockets with pins that allow cables to connect the host device/computer with the invented interface device, such an arrangement is only a preferred embodiment and its opposite might also be anticipated to comply fully with the invention. Thus, a first connecting device may be either a physical socket or a plug. See, e.g., CMs' Markman Br., Ex. D, Am. Heritage Dictionary of Computer and Internet Words 59 (2001) (connector defined as "A coupler used to join two cables or to plug a cable into a port or interface."); id., Ex. E, Am. Heritage Dictionary of Computer Words 54 (1995) (same). 16

Papst contends that a first connecting device does not need to be a physical plug or socket because the patented device could use a wireless multi-purpose interface. Tr. 1:159-61 (Papst). Papst confuses "interfacing" and "connecting device." The former concerns "the protocols for the electrical signals and the formatting of the data," Tr. 2:12 (Papst), while the latter is a physical device in these Patents. Accordingly, the Court construes "first connecting device" to mean "a physical socket or plug for permitting a user to attach and detach the interface device to and from a host device/computer."
The parties construe the "second connecting device" in ways similar to their constructions of the term "first connecting device." The Camera Manufacturers propose a "physical plug or socket for permitting a user to readily attach and detach the interface device with a plurality of dissimilar data transmit/receive devices." CMs' Slides at 87. Papst distinguishes between the '399 and '449 Patents in its definition: Papst would define the "second connecting device" in the '449 Patent just like it would define the term "first connecting device" as "the circuit device used to couple the data transmit/receive device to the interface device" -- and Papst would interpret the term "second connecting device" in the '399 Patent as the structure recited in the Claim, that is, "a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data samples by the sampling circuit into digital data." Papst App. 3 & 9-10; see '399 Patent, col. 12:55-60. Papst contends that the second connecting device in the '399 Patent is a device for sampling and converting analog to digital, not a mere connector.

It is unlikely that the same term, used in different parts of essentially the same patent, should have entirely different meanings. See Fin Control Sys. Pty. Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001) (there is a presumption that the same term used in multiple patent claims has the same meaning). In the '399 Patent, Papst would substitute specific functions that the second connecting device performs in the stead of its physical reality while the Camera Manufacturers would omit altogether any reference to the necessary capabilities. For the '449 Patent, Papst again retreats to the electronic circuitry that is operable when the second connecting device of the interface device is attached to the transmit/receive device by defining the second connecting device by its function and ignoring the physical nature of the connecting device itself.

The prosecution history is helpful. As initially presented to the PTO, Claim One of the '399 Patent referred to a second connecting device for interfacing. Tr. 1:185 (CMs). To avoid prior art, Mr. Tasler later amended his patent by inserting the language specifying that the second connecting device included a sampling circuit and an analog to digital converter. '399 File History at 7 (version with markings to show changes). This history indicates that the processing capabilities of the second connecting device, although present and critical in the interface device, do not detract from its fundamental status as a physical connector.

The "second connecting device" itself is a plug or socket that accepts the "output line" and allows the connection to be made between the invented interface device and the data transmit/receive device. The specification states that the second connecting device "can be attached by means of an output line 16 to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device." '399 Patent, col. 5:56-60 (emphases added); '449 Patent, col. 4:55-59 (same). The specification again refers to physical "attachment" via a "line" when it describes the flexibility of the interface device: "[U]sers of the interface device 10 are able to perform essentially identical operator actions for almost any data transmit/receive devices which can be attached to the second connecting device via the line 16, thus eliminating a source of error arising from users having to know many different command codes for different applications." '399 Patent, col. 7:39-43 (emphasis added); '449 Patent, col. 6:39-42 (same). The preferred embodiment of the second connecting device is a BNC [Bayonet Neill-Conselman] input. See '399 Patent, col. 9:49-53 ("Preferably, the second connecting device comprises 8 BNC inputs . . . ."); '449 Patent, col. 8:49-53 (same). The specification underscores the physical nature of the second connecting device by referring to the "actual hardware required to attach the interface device 10 to the data transmit/receive device," '399 Patent, col. 7:26-27; '449 Patent, col. 7:26-27, and the "specific hardware symbolized by the second connecting device." '399 Patent, col. 8:34; '449 Patent, col. 7:34.

The Court construes the "second connecting device" in the '399 Patent to mean "a physical plug or socket for permitting a user readily to attach and detach the interface device with a plurality of dissimilar data transmit/receive devices, including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data." In the '449 Patent, the "second connecting device" means "a physical plug or socket for permitting a user readily to attach and detach the interface device with a plurality of dissimilar data transmit/receive devices."

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IV. First Data Processing Element
Claim 1 of the ’846 Patent and Claim 1 of the ’835 Patent each recite a "first data processing element, coupled to the system bus [means], for processing data from primary memory." Intergraph claims that this does not require construction, but proposes the construction: "a device that is coupled to the system bus and that processes data communicated from the primary memory through the system bus." Additionally, Toshiba claims that the term to be construed is the broader term "first data processing element coupled to the system bus for processing data from the main memory." In any case, the dispute once again boils down to whether all communication from the primary memory must be conducted over the system bus. Because this issue has been resolved via the construction of "system bus," no construction of "first data processing element" or "first data processing element coupled to the system bus for processing data from the main memory" is necessary.

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A. "first header having parameters stored therein for use by said audio player in decoding said digitally encoded music stored in said memory"

This order will start with the phrase "first header having parameters stored therein for use by said audio player in decoding said digitally encoded music stored in said memory," found in independent claim 1 of the patent. The parties indicated at the claim construction hearing that it is the most important phrase targeted by this order. Proposed constructions are shown below:

<table>
<thead>
<tr>
<th>LSI'S PROPOSED CONSTRUCTION</th>
<th>SANDISK'S PROPOSED CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OF &quot;FIRST HEADER . . .&quot;</td>
<td>OF &quot;FIRST HEADER . . .&quot;</td>
</tr>
<tr>
<td>&quot;A data structure that includes information used by the audio player to decode digitally encoded music stored in memory&quot;</td>
<td>&quot;A single data structure that precedes digitally encoded music and contains information used by the audio player in decoding all digitally encoded music stored in memory&quot;</td>
</tr>
</tbody>
</table>

The term "data structure" -- used by both sides -- simply refers to the fact that the "first header" consists of structured data. FIG. 2 below illustrates what a data structure looks like in a preferred embodiment of the invention. The portion labeled (22) in FIG. 2 is what the specification called a "global header." As explained below, a "global header" is similar in many ways to a "first header." The "global header" in FIG. 2 provides a good example of why the term "data structure" is used: data, such as algorithm, bitrate, distributor, and other information, in stored in a structured, organized manner.

[SEE FIG. 2 IN ORIGINAL]

The constructions proposed by the parties present three key questions: (1) whether the "data format" of claim 1 allows for multiple "first headers" or just a single "first header," (2) whether the "first header" must precede the digitally encoded music, and (3) whether the "first header" must contain information to decode all digitally encoded music stored in memory. All of these questions stem from the fact that the term "first header" never appeared in the specification! Rather, the term "first header" appeared solely in claims 1 through 17. In other words, after five columns of discussion and disclosure by the patentee, the claims introduced -- for the first time -- a term never previously seen in the patent.

At oral argument, two explanations were put forth by the parties for the absence of "first header" from the specification: LSI argued that the term "first header" was simply used by the patentee as common patent parlance (i.e. standard drafting language) for listing multiple elements in a claim, as in "first means" and "second means," for example. The existence of a "second header" alongside the "first header" in claim 1 was cited in support of this argument. SanDisk, however, asserted that the absence of any reference to "first header" in the specification meant that it was the same as the "global header," a term used frequently and exclusively within the specification. To support their position, SanDisk pointed to the prosecution history, wherein LSI -- at times -- used "global header" and "first header" interchangeably.

Having considered both sides, this order finds that LSI's rationale for the patente's use of "first header" and "second
header" carries more weight, and a person having ordinary skill in the relevant art at the time the patent application was filed would have understood "first header" to be broader in scope than the disclosed "global header." As explained below, however, this does not mean LSI's proposed construction will be adopted in full.

i. "Single" Data Structure

While this order has concluded that "first header" is entitled to a broader construction than "global header," this breadth is not unlimited. Indeed, the claims cannot encompass more than what the patentee invented, which was a hierarchical approach to storing digitally encoded audio on a music chip (col 2:25-27). Here, LSI asks the Court to allow multiple "first headers" to be used in claim 1. SanDisk argues that there can only be a single "first header." As explained below, SanDisk's position on this issue seems to be correct.

The language used by the patentee in claim 1 strongly supports limiting the "first header" to a single data structure. Phillips, 415 F.3d at 1314. Indeed, as the undersigned noted at the claim construction hearing, the patentee's choice to use the phrase "first header," but then the phrase "at least one second header," supports a presumption that the "first header" was intended to be a single data structure.

An examination of the purpose of the "first header" in the context of the present invention further supports this limitation. As the specification explained, "[t]he present invention is a protocol . . . includ[ing] a hierarchical arrangement of headers about selections on the chip and the method in which they were coded" (col. 1:47-51) (emphasis added). The specification disclosed a particular two-tiered embodiment of this hierarchy. At the top of the hierarchy was the aforementioned "global header," and at the bottom were "individual headers" (see cols. 1:51-65). The "global header" -- exactly like the "first header" as described in claim 1 -- contained information to decode the digitally encoded music stored in memory (e.g., encoding algorithm, bitrate, etc.). The "individual headers" -- exactly like the "second headers" described in claim 1 -- contained information about individual music tracks (e.g., artist, album, genre, etc.).

Given this intrinsic evidence, a person having ordinary skill in the relevant art at the time the patent application was filed would have understood the "first header" and "second headers" as arranged in a similar hierarchy as the "global header" and "individual headers." Supporting this conclusion is the fact that neither the specification nor the prosecution history discussed the possibility of using multiple "global headers" or "first headers." Indeed, the intrinsic evidence never explains how the headers would still be hierarchical if this were possible.

LSI's best argument, made at the claim construction hearing, involved the "MP3" digital audio encoding format, which existed at the time the patent application was filed. In the MP3 data format, there are actually multiple "decoding" headers (called "frame headers") within every music track. A single music track may contain thousands of these frame headers. Thus, argued LSI, a person having ordinary skill in the relevant art at the time the patent was filed would have understood, having knowledge of the MP3 format, that multiple "first headers" (which claim 1 described as including "decoding" information) could be associated with a single "second header" (which, LSI argued, are "ID3" data tags associated with individual MP3 music tracks).

This argument, however, cannot overcome the great weight of intrinsic evidence showing a clear intent by the patentee to limit the invention to a hierarchy of headers, where multiple "music-track-specific" headers corresponded to a single "decoding" header. True, claim 1 uses the open-ended term "including." See CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360-61 (Fed. Cir. 2007) ("including" means "comprising"). The Federal Circuit, however, explained in Elkay Mfg. Co. v. Ebeco Mfg. Co., 192 F.3d 973, 977-79 (Fed. Cir. 1999), and Abtox, Inc. v. Exitrion Corp., 122 F.3d 1019, 1023-27 (Fed. Cir. 1997), that a term in a "comprising" claim may nevertheless be limited to "one" rather than "more than one" when the specification or the prosecution history showed that the term was "used in its singular sense." See Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1359 (Fed. Cir. 2005).

As discussed above, the patentee's choice of claim language between "first header" and "at least one second header" reflected such an intent. See id. at 1358-59. Moreover, the specification disclosed no embodiments other than the "global header," which always was described in singular form. Finally, in a response to a USPTO office action dated June 17, 1996, the patent holder described the "first header" as containing "algorithm, bit rate, distributor of music, label, and copyright" information (Liu Decl. Exh. 7 at 10) (emphasis added). If the patentee truly intended the "first header" to be used as a "frame header" in an MP3 bitstream, the patentee would not have described the first header as containing information...
pertaining to the distributor of music, label, or copyright. Such information would have served no purpose in thousands of frame headers within a single music track. Additionally, all references to "first header" and "global header" in the prosecution history provided to the Court were used in a singular sense.

In sum, the intrinsic evidence demonstrates that a "single data structure" was clearly intended. See LiebelFlarsheim Co. v. Medrad, Inc., 358 F.3d 898, 905 (Fed. Cir. 2004); see also ICU Medical, Inc. v. Alaris Medical Systems, Inc., 558 F.3d 1368, 1375 (Fed. Cir. 2009).

ii. "Precedes" the Digitally Encoded Music

This proposed limitation by SanDisk is curious. The claim language says nothing about the "first header" preceding the digitally encoded music. Perhaps more problematic, however, is that it is not entirely clear what "precedes" even means in this context. Does it mean "precedes the digitally encoded music" in a bitstream? Or does it mean "precedes the digitally encoded music" in memory? At the claim construction hearing, the parties were asked this very question, and each gave a different answer.

Claim 1, however, provides a clear answer. It discusses a data format for digitally encoded music stored in memory. Unlike data presented in a bitstream, where the data is read sequentially as the stream is processed bit-by-bit, data stored in memory does not have to be read from the start of memory to the end of memory. Instead, data stored in memory can be accessed based upon its address. For example, the specification described the "global header" as located at "the very start of memory, presumably at 0x0" (cols. 1:51-54, 2:42-44). "0x0" is the lowest possible address for data storage in memory.

There is no reason, however, why the "first header" must be stored at this or any particular address in memory. For example, the "first header" could be stored at memory address "0xFFFF0" or 0xF0FF0." All that matters is that the audio player knows the memory address of the "first header" so that it can read the data stored therein. Given this backdrop, a person having ordinary skill in the relevant art at the time the patent application was filed would have understood that the "first header" need not "precede" the digitally encoded music stored in memory.

iii. "All" Digital Music

The final question pertaining to this phrase is whether the "first header" must contain decoding information for all digitally encoded music in memory. On this issue, nothing in the claim language compels this limitation.

Claim 1 merely set forth a hierarchical data format for storing digital music in memory. It did not require that the claimed format extend across the full scope of memory on a music chip. Indeed, a person having ordinary skill in the relevant art at the time the application was filed would have understood that memory can be partitioned and subdivided in various ways. For example, the memory on a music chip could be divided in half, each half storing a different set of music, each set encoded with different bit rates and algorithms. Under such a scenario, each set of music could have its own "first header" and corresponding "second headers." In sum, nothing in the claim language or intrinsic evidence restricts the possibility that multiple iterations of the claimed data format could be present on the same music chip.

iv. Final Construction

Based upon the preceding analysis, this order construes the phrase "first header having parameters stored therein for use by said audio player in decoding said digitally encoded music stored in said memory" as "a single data structure that includes information used by the audio player to decode digitally encoded music stored in memory." This construction is consistent with an earlier construction given to "first header" by the district court in Agere Systems Inc. v. Sony Corporation, 2008 U.S. Dist. LEXIS 39605, 2008 WL 2078308, at *1 (E.D. Tex. May 15, 2008) -- a decision to which both parties cited for various aspects of their arguments (Br. 6, Resp. 5-6, Reply 3-4). 1

1 The Sony construction, which involved a different accused infringer and for which there is no Federal Circuit opinion, is not binding on this court. See Comcast Cable Commec'ms Corp. v. Finisar Corp., 2007 U.S. Dist. LEXIS 28994, 2007 WL 1042821, at *2 (N.D. Cal. Apr. 6, 2007). This court is free to perform an independent construction of the disputed claim.
A "first layer to be etched" is a layer of a semiconductor device from which some amount of material is removed in order to create a pattern in the layer. The first layer may consist of any type of material and need not be present in the completed device.

M. "First Message"

Claim 18 of the '932 patent recites the claim term "first message." Sprint contends that this claim term should be construed to mean a signaling message that is distinct from the claimed second message. Vonage contends that it should be construed to mean a narrowband signaling message.

Vonage argues that the specification recognizes that the first signal is a narrowband signaling message. A careful review of these excerpts, however, reveals that none of them contain the word "narrowband." Moreover, as Sprint points out, the claim language refers to "a call having a first message," '932 Patent at 23:20-21, which is not necessarily synonymous with the "first signal" referred to in the specification. As to Vonage's prosecution disclaimer argument, Vonage has not presented evidence establishing a clear and unmistakable disavowal of claim scope. Vonage cites comments from an amendment to the '605 application, purportedly relating to "claim 121." The court is unable to determine from the record presented that the emphasized language has any relationship to claim 18 of the '932 patent, let alone whether it is pertinent to the "first message" recited in that claim. Given this lack of clarity in the prosecution history submitted by Vonage, the court does not find any valid basis to import the limitation urged by Vonage. The court therefore rejects Vonage's arguments on that basis.

Turning to Sprint's argument, Sprint contends that the claimed "first message" should be construed to mean that it is distinct from the second message. In support of this argument, Sprint relies on the language of the claim itself. The claim recites a communications system for handling a call having "a first message" in which the system is comprised of (1) a processing system that is configured to process and receive "the first message" and to generate and transmit "a second message," and (2) an asynchronous communication system configured to receive "the second message." This claim language seems to reflect, as argued by Sprint, that the claim uses the terms "first" and "second" messages essentially as terms to distinguish between the respective roles of the two messages within the communications system. Because the claim construction urged by Sprint is an accurate characterization of the claim term "first message" according to the language of the claim itself, then, the court construes this claim term to mean a signaling message that is distinct from the second message.

F. "A first metallization layer comprising aluminum being defined overlying said gate region" ('419 patent, claim 1)

1. APT's suggested "In electrical contact"

Mapping its argument above, APT again suggests that this court read the requirement of electrical contact between the first metallization layer and the polysilicon layer into the claim. For the reasons described above, the court declines to do so.

2. "Overlying said gate region"
Both parties agree that the "gate region" consists, in relevant part, of a polysilicon layer overlying channel regions, and possibly other areas. See '419 patent, 7:59-60; '715 patent, 5:22-26. Their disagreement stems from the question of whether this claim should be understood to require that the first metallization layer overly the gate region as part of the requirement that it overly the gate region. APT would seem to argue that the gate region consists of only that part of the polysilicon that overlies the channel region, which would imply that the first metallization layer must be found directly above the channel region in order to literally overly the gate region. See '419 patent, 7:59-60 (the gate region is "defined overlying said channel region."). However, as discussed above, the word "overlying" here does not imply exclusivity: the gate region may include portions of the gate polysilicon that overly other areas in addition to the channel region. The '715 patent, a sibling of the '419 patent, makes this point when it discusses "portions overlying the channel and field region." '715 patent, 6:10-11. The court thus finds it inappropriate to limit the gate region to that area that overlies only the channel region, and at the same time inappropriate to extend the gate region to anything covered by the polysilicon gate layer. In order to overly the gate region, the first metallization must overly either the channel region or the field region.

3. "Being Defined"

Regrettably for a court that is not as skilled in the art of MOSFET design as the parties to this case, neither side's submission regarding the terminology "being defined" is a model of clarity. In its reply brief, Ixys urges that the construction of this term retain the word "defined" because such a word is well known in the art, but does not elucidate what the word actually means. APT urges that "defining" a layer necessarily means using a mask, and points to several places within the specifications in which a mask is used to define a particular alignment. However, none of these specifications appear to contemplate a mask as the sole means of defining a layer, and Ixys notes that the specifications of the '715 patent reference a non-mask method for defining a layer. '715 patent, 5:46-49.

APT's reference to the '715 patent's prosecution history is similarly inconclusive; the submission to the examiner states that Korman et. al and Jones et. al failed to suggest "defining such first metallization layer to form a portion overlying a portion of said polysilicon layer." Catalano Dec. Exh. 11, at 5. Yet contrary to APT's assertion, the distinction is drawn not between the current invention and prior art that used a "selective process" and thus failed to "define" a layer using a mask, but between the present invention that defines a first metallization layer overlying silicon oxide as well as polysilicon and prior art that defines it overlying only the latter.

Divining the proper interpretation of "defining" from these legal hieroglyphs is far from a straightforward task. As best as this court can determine, to "define" a layer is to determine where that layer will be deposited--a layer may be "defined" by any number of different processes, including mask patterning or via the physical structure of the substrate itself.

4. Step-Plus-Function

In the alternative, APT suggests that Claim 1 be read as a "Step-Plus-Function" claim element under 35 U.S.C. § 112, P6. The steps-plus-function analysis "is implicated only when steps plus function without acts are present." O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1583 (Fed. Cir. 1997). This claim does not use the phrase "steps for;" the omission creates a strong presumption that it is not claiming a steps-plus-function element. Id. Moreover, this claim includes descriptions of acts to be taken, rather than the functioning of the invention at issue. APT is unable to point to any "function" being described within the claim language. Hence, it would be inappropriate to treat this claim as step-plus-function.

The court construes the claim language to mean: "A metallization layer that includes aluminum, at least a portion of which is specifically deposited overlying at least a portion of the polysilicon layer directly above either the channel or field region."

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E. "A first metallization layer comprising aluminum having portion overlying said polysilicon layer" ('715 patent, claim 1)

"A first metallization layer comprising aluminum having a portion overlying a portion of said polysilicon layer" ('715 patent, claim 23; '419 patent, claim 11)
The construction of these claim terms involves the necessary resolution of several issues, each of which are considered in turn below.

1. "Comprising aluminum"

The parties agree that an element "comprising aluminum" includes some amount of aluminum but may additionally include other materials. Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997). APT argues further that the aluminum must be in electrical contact with the layer of polysilicon. However, despite noting one section of the specifications that describe an embodiment of the invention that involves electrical contact between the first metallization layer and the polysilicon, APT cites to no language within the claim itself that could reasonably be understood to require such contact. 3 The Federal Circuit has "cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313, 1328 (Fed. Cir. 2002).

2. Whether the aluminum must overly the entirety of the polysilicon layer, and whether the entirety of aluminum may overly polysilicon

The parties disagree on two issues relating to Ixys' use of the word "portion" in two places within this claim language. The first question is whether, in the context of the language found in claim 1 of the '715 patent (the first phrase listed under "E." above), the aluminum layer must completely cover the polysilicon layer, or whether it may only overlay a portion of that layer. APT constructs a compelling linguistic argument that this court must read a meaningful difference into the fact that Ixys used the phrase "overlying said polysilicon layer" in claim 1 of the '715 patent and the phrase "overlying a portion of said polysilicon layer" in claim 23 of that patent and claim 11 of the '419 patent. In the course of construing claims, a court must endeavor to give meaning to every word of the claim language. See, e.g., Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14, 25 (Fed. Cir. 2000); Harris Corp. v. Ixys Corp., 114 F.3d 1149, 1152 (Fed. Cir. 1997) (holding that a construction that effectively rendered certain terms of a claim irrelevant "would contribute nothing but meaningless verbiage to the definition of the claimed invention" and is therefore disfavored). APT therefore urges this court to construe the "overlying said polysilicon layer" to mean that the metallization must overly the entire layer, in order to give meaning to the phrase "overlying a portion" that appears in later claim language.

Ixys counters by pointing to Figure 2B of its patent, which it says describes a preferred embodiment of the invention, and which distinctly shows a metallization layer that covers some, but not all, of the polysilicon. '715 patent, Fig. 2B. A claim construction that would not cover a preferred embodiment in the specification "is rarely, if ever, correct and would require highly persuasive evidentiary support." Vitronics, 90 F.3d at 1583. APT argues that Claim 1 does not reference Figure 2B, but only Figure 2A, and that Figure 2B must be therefore linked to some other claim language, such as Claim 23. Yet this argument is belied by the language of the specifications: "FIG. 2B is a top view showing an interconnections [sic] 120 for the improved device of FIG. 2A." '715 patent, 5:66-6:2. Although this court is extremely reluctant to adopt a construction that effectively renders the second "portion" meaningless, APT's showing does not constitute the necessary "highly persuasive evidentiary support" required by Vitronics to overcome the presumption created by the preferred embodiment.

A similar pattern of argument repeats itself over the question of whether the language requiring a metallization layer "having [a] portion overlying" the polysilicon demands that only a portion of the metallization overly the polysilicon (in other words, that there be some of the metallization layer that does not overly the polysilicon) or whether all of the metallization layer may overly the polysilicon (in other words, at least a portion of the metallization layer must overly the polysilicon). APT points out that Ixys was well aware of how to use the phrase "at least" in this type of context; Claim 1 of the '715 patent itself contains the phrase "a source bus overlying at least said insulating layer." '715 patent, 8:8-9. This time, however, APT must contend with both Figure 2A and Figure 2B of the '715 patent, which appear to show the entirety of the metallization layer overlying a polysilicon layer, which is to say that there is not one portion of the metallization layer that does not overly the polysilicon.
In an attempt to adduce the "highly persuasive evidentiary support" demanded by Vitronics as a necessary predicate to construing claim language away from a preferred embodiment, APT points also to Ixys' argument before the patent examiner. Under established law, there exists a "heavy presumption that claim terms carry their full ordinary and customary meaning" unless the patentee has "expressly relinquished claim scope during prosecution." Omega Eng'g., Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003) (emphasis added). APT claims that Ixys did precisely this before the patent examiner in the course of distinguishing its own invention from the prior art of Korman et al. APT argues that the patentability of Ixys' device over Korman's prior art rests upon the fact that Korman used a "selective process" to deposit metal on polysilicon, while Ixys employed a mask-patterned method in which metal was deposited "often over portions of silicon oxide [not just polysilicon], and then masked and etched to form the desired patterns." Catalano Dec. Exh. 11, at 4.

The language of Ixys' letter to the patent examiner (from which the above-quoted line is drawn) is rather convoluted, and its interpretation bears upon several related questions involved in the construction of this claim term. It is worth reproducing the passage referenced by APT in its entirety:

Specifically, Korman et al. advocate the use of "selectively forming silicide layers only on the exposed surfaces of the polysilicon gate electrode and the source/body regions." (emphasis added) Korman et al., col. 3, lines 40-45. As previously noted, Applicant asserts such selective formation of silicide suggests away from the claimed combination with the first metallization layer comprising aluminum having a portion overlying the polysilicon layer portion, often not a selective process.

In addition, when a metal layer other than metal silicide layer is used, Korman et al. emphasize that such metal is "deposited using a process which deposits the metal on the single crystalline or polycrystalline silicon, but not on silicon oxide," that is, a selective process. (emphasis added). Korman et al., col. 3, lines 50-55. Applicant asserts such metal layer other than metal silicide as taught by Korman et al. cannot be aluminum because the claimed metallization layer comprising aluminum is typically deposited overlying a top surface of a semiconductor often over portions of silicon oxide, and then masked and etched to form the desired patterns. Accordingly, Applicant asserts Korman et al. suggest away from the claimed aluminum having a portion overlying the polysilicon layer portion, which may often be formed over silicon oxide."

Feeman Decl. Exh. 6, at 4 (In re Application of Nathan Zommer) (italics added) (all other emphases and alterations in original). APT argues that the presence of aluminum over other parts of the substrate in addition to the polysilicon was precisely the "improvement" that allowed Ixys to patent its invention over Korman's prior art; an interpretation of claim language that allowed Ixys to recapture devices in which the aluminum overlies only polysilicon would effectively return to Ixys that which it was forced to relinquish in the course of putting forth a patentable device.

What APT has put forth is a potentially persuasive case regarding invalidity, not a winning argument of claim construction. Under the Omega Engineering standard, the court may properly narrow claim scope only when a patentee "expressly relinquished claim scope during prosecution," and Ixys, whatever else the above language might appear to indicate, has not done that. Omega Eng'g., 334 F.3d at 1323. Only "definitive statements" of claim scope abandonment are judicially cognizable at this stage of the proceedings, as the Federal Circuit has "declined to apply the doctrine of prosecution disclaimer where the alleged disavowal of claim scope is ambiguous." Id. at 1324.

APT's case for claim scope relinquishment is felled by the ambiguity permeating the patent amendment excerpted above. Several times within the quoted paragraphs, Nathan Zommer, the inventor of the '715 and '419 patents, suggests that the claimed invention is distinct from the prior art of Korman et al. by virtue of the fact that the first metal aluminum is deposited not just overlying polysilicon, but over silicon oxide (an insulator) as well. See Feeman Decl. Exh. 6, at 4. APT argues that these references lead ineluctably to the conclusion that the inventor had disclaimed inventions in which the first metallization layer overlay only polysilicon, and not other materials. However, each instance in which this potential limitation is described is preceded by the word "often." See id. ("Accordingly, Applicant asserts Korman et al. suggest away from the claimed aluminum having a portion overlying the polysilicon layer portion, which may often be formed over silicon oxide."). This language simply does not constitute an "ambiguous" and "express" relinquishing of claim scope; the presence of the hedging term "often" lodges it firmly within a realm of ambiguity. The prosecution history lacks the definite and unmistakable abandonment of claim scope necessary to limit the full ordinary and customary meaning that claim terms would otherwise carry.
3. Mask-patterning

Much in line with the previous discussion, APT next asserts that APT's claims must be limited to cover only metallization layers that have been deposited using mask-patterning. There is no particular language within the claim itself that would indicate that mask-patterning is necessary. Rather, APT again argues that Ixys specifically relied upon a mask-patterning process to distinguish its invention from that of Korman et al. The process used to deposit the first metallization layer is discussed twice within the portion of the amended application quoted above: "... Applicant asserts such selective formation of silicide suggests away from the claimed combination with the first metallization layer comprising aluminum having a portion overlying the polysilicon layer portion, often not a selective process."; "... the claimed metallization layer comprising aluminum is typically deposited overlying a top surface of a semiconductor often over portions of silicon oxide, and then masked and etched to form the desired patterns." Feeman Dec. Exh. 6, at 4 (underlining in original) (italics added).

APT claims that this represents an "explicit relinquishment" of the claim scope at issue; Ixys argues in response that the distinction being drawn in that discussion regards aluminum vs. metal silicides as a metallization material.

The court believes that neither party is fully correct. While Ixys is certainly attempting to distinguish between Korman's use of metal silicide and its own invention's employment of aluminum, the distinction rests in part on the question of how the material was deposited; the quoted language ties the type of metal used (aluminum) to the method by which it is deposited ("masked and etched"). However, although it is certainly possible to read into this language an implied disclaimer of "selective processes" and a limitation based on mask-patterning, that disclaimer is far from explicit. See Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1367 (Fed. Cir. 2003). As with the sections referring to the placement of metal over silicon oxide in addition to polysilicon (discussed above), each mention of mask-patterning is accompanied by a linguistic hedge: "often not a selective process;" "typically deposited... and then masked and etched." Feeman Dec. Exh. 6, at 4. (emphasis added).

4 A moderate amount of discussion took place during oral argument regarding whether the word "typically" in the sentence at issue here ("Applicant asserts such metal layer other than metal silicide as taught by Korman et al. cannot be aluminum because the claimed metallization layer comprising aluminum is typically deposited overlying a top surface of a semiconductor often over portions of silicon oxide, and then masked and etched to form the desired patterns.") is meant to refer only to the clause that immediately succeeds it ("deposited overlying a top surface of a semiconductor...") or to the entire phrase, including the reference to masking and etching. This is a linguistic dilemma without a clear answer, but that fact is itself dispositive--the line in question does not represent an unambiguous disclaimer of claim scope.

Regardless of whether or not the Ixys patents are novel over prior art only to the extent that they require mask-patterning, the prosecution history APT cites simply does not contain a sufficiently definite and express statement of relinquished claim scope to legitimate a narrowing of those claims at this stage of the proceedings. APT has, in essence, asked this court to peek ahead and adjudicate the invalidity of these claims in the course of construing them. Although in close cases it is preferable to construe claims in such a manner as to sustain their validity, a court must not depart from a claim's otherwise appropriate meaning in an attempt to preserve it. Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999) ("We have admonished against judicial rewriting of claims to preserve validity."). This court declines APT's invitation to save Ixys' claim term by such round-about means.

The court construes the claim language found in claims 1 and 23 of the '715 patent and in claim 11 of the '419 patent to mean: "A metallization layer that contains aluminum at least a portion of which is overlying at least a portion of the polysilicon layer.

D. "first state of circuit operation" and "second state of circuit operation"

We now reach the parties' dispute concerning the claim limitations "first state of circuit operation" and "second state of
circuit operation," which are required by claims 2, 3, 34, and 35. The Commission construed these terms to mean "that the first state of operation can be linked to high load currents, and the second state can be linked to low load currents, although the states of operation do not necessarily have to be linked to a high or low load current." Final Determination, 2007 ITC LEXIS 1108 at *35. AATI contends that the "first state" should "occur[] at high load currents," while the "second state" should "occur[] only at low load currents." AATI argues that its construction is supported by the '258 patent's specification and by statements Linear made in prosecuting similar claims in the parent '178 patent. Linear and the Commission contend that the current constructions of these terms are correct, arguing that neither the specification of the '258 patent nor the prosecution history of the parent '178 patent clearly disavow any claim scope.

We decline to disturb the Commission's constructions of "first state of circuit operation" and "second state of circuit operation." While the '258 patent specification provides examples and embodiments where the "first state of circuit operation" may occur at high load currents and the "second state of circuit operation" may occur at low load currents, there is no "clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction,'" which is necessary to further narrow the claim language. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (quoting Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002)); see also Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1301 (Fed. Cir. 2003) ("Absent a clear disclaimer of particular subject matter, the fact that the inventor anticipated that the invention may be used in a particular manner does not limit the scope to that narrow context."). We have repeatedly held that, even in situations when only one embodiment is disclosed, the claims generally should not be narrowed to cover only the disclosed embodiments or examples in the specification. See, e.g., Liebel-Flarsheim, 358 F.3d at 906 ("Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope . . . ."); Brookhill-Wilk 1, 334 F.3d at 1301 ("The statements from the description of the preferred embodiment are simply that--descriptions of a preferred embodiment . . . [which] do not indicate that the invention can only be used in such a manner."). In fact, the '258 patent specification discloses situations contrary to AATI's suggested construction--operating in the "first state of circuit operation" at low load currents. For example, at low load current levels when the output capacitor has fully discharged--thus being incapable of maintaining the regulated voltage--the "first mode of circuit operation" is initiated to "vary the duty cycle of the switching transistors" in order to turn the top transistor 16 ON long enough to "recharge" the output capacitor. See, e.g., '258 patent col.9 1.63-col.10 1.10.

Nor do the statements made during prosecution of the parent '178 patent evince a "clear and unmistakable" disavowal of claim scope that would compel a result different than the claim language. ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1383 (Fed. Cir. 2003). As an initial matter, the statements made in the prosecution of the parent '178 patent do not remotely relate to the "first state of circuit operation" and, as such, do not narrow this limitation, as urged by AATI. See, e.g., id. (finding no "clear and unmistakable" disavowal of claim scope where the prosecution history of the parent patent did not address the same claim limitations); Advanced Cardiovascular Sys., Inc. v. Medtronic, Inc., 265 F.3d 1294, 1305-06 (Fed. Cir. 2001) (declining to construe a term more narrowly based on the parent patent's prosecution history because common claim terms were not in dispute). Moreover, while the prosecution history of the '178 patent does mention "low output current levels," it neither "clearly and unmistakably" addresses the "second state of circuit operation" nor limits that state to occurring only at low output load current. See, e.g., ResQNet.com, 346 F.3d at 1383; Advanced Cardiovascular Sys., 265 F.3d at 1305-06. Indeed, the claim amendments do not "clearly and unmistakably" modify "the second state of circuit operation," but instead more directly address claim language not disputed in this case. In addition, the amendments do not "clearly and unmistakably" limit the second mode to operating at only low load currents. Rather, the amendments address when the second mode is activated--specifically, when the current to the load falls lower than a predetermined threshold. In other words, the amendments specify entering the second state when the load current drops below some value in comparison to a threshold value--a value that could be relatively high or low. Thus, the amendments and statements in the parent '178 patent are plainly different than the limitations in AATI's proposed construction.

In any event, the remainder of the claim language that modifies the "first state" and "second state" of circuit operations clearly describes the terms. See, e.g., Linear Tech., 379 F.3d at 1324 (looking to the other portions of the claim language in finding that further narrowing of a limitation was unnecessary). In particular, the claim language states with specificity that the "first state of circuit operation" corresponds to when the duty cycle of the switching transistors is varying "to maintain the output at the regulated voltage." '258 patent col.16 ll.50-52. Similarly, the claim language clarifies that the "second state of circuit operation" corresponds to when the "output capacitor maintains the output substantially at the regulated voltage." Id. col.16 ll.55-57; see id. col.2 ll.42-46; id. col.6 ll.4-8 ("when the voltage at output is capable of being maintained substantially at the regulated voltage by the charge on the output capacitor"). We therefore affirm the Commission's claim.
construction of the "first state" and "second state" of circuit operation.

GO BACK

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6. "With the first terminal of the battery"

Claim 9 includes "a contactor having a spring . . . and at least one contact for electrical connection with the first terminal of the battery." '900 Patent col.11 1.36-41 (emphasis added). Invisible Fence proposes that the "first terminal of the battery" is "one of the two terminals of the battery," while Perimeter argues that a proper reading should be that the "first terminal of the battery is "the anode terminal of the battery that is positioned adjacent to the base, i.e., opposite the open end of the cup-shaped battery holder through which the battery is inserted." 18 (Joint Statement 5.)

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
18 Perimeter's inclusion of "oppose the open end of the cup-shaped battery holder through which the battery is inserted" was rejected supra, Part III.B.1, and therefore will not be considered here.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Perimeter provides no scientific or technical reason for why the first terminal must be the anode terminal, and instead relies on the Description. 19 See, e.g., '900 Patent col.7 1.14-18 ("The battery . . . is orientated inside the battery holder . . . so that the anode terminal faces the battery base . . . and the cathode terminal faces the opening of the battery holder . . . "). Because the language of claim 9 does not require that the first terminal be the anode terminal, the Court declines to read that limitation into claim 9. See Ekchian, 104 F.3d at 1303.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
19 Indeed, Perimeter does not refute Invisible Fence's argument that the orientation of the anode and cathode terminals of the battery can easily be reversed by switching the mating terminals in the receptacle of the electronic housing device.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Although the first terminal is not limited to the anode terminal, the patent does limit the orientation of the first terminal, specifically positioning it at the closed base. Although claim 9 does not explicitly furnish this limitation, the Summary provides that "the retaining ring includes a central aperture through which the second terminal of the battery is exposed at the opening . . . ". ‘900 Patent col.2 1.22-24. With the second terminal exposed at the opening, the first terminal must necessarily be positioned at the closed base. Unlike purported limitations made in the Description, statements found in the Summary can be used to limit claim language. See C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole [such as the Summary], rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term."); Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1348 (Fed. Cir. 2004) ("Those statements, some of which are found in the 'Summary of the Invention' portion of the specification, are not limited to describing a preferred embodiment, but more broadly describe the overall inventions. . . ").

The proposition that the cited language in the Summary limits the entire patent is supported by the numerous claims which describe the second terminal as exposed either at the opening or the central aperture. See ‘900 Patent col. 10 1.13-14 (claim 1), col. 10 1.24-25 (claim 2), col. 11 1.7-8 (claim 7), col.11 1.52-54 (claim 10), col.13 1.27-29 (claim 21). Moreover, the claims that specifically provide for the spring to make electrical connection at the base of the battery holder via a resilient center portion provide that this connection is made with the first terminal of the battery. See ‘900 Patent col.10 1.33-36 (claim 4), col.10 1.59-60 (claim 7), col.12 1.61-64 (claim 10), col.13 1.5-12 (claim 21). Accordingly, the patent read as a whole suggests that the "very character of the invention" requires the first terminal to be positioned at the base. 20 See Alloc, Inc., 342 F.3d at 1370.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
20 Although one could argue that the doctrine of claim differentiation creates a presumption that the cited claims are narrower than claim 9, this presumption is easily overcome. Claim differentiation "can not broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence . . . Claims that are written in different words may ultimately cover substantially the same subject matter." Seachange Int'l, 413 F.3d at 1369 (quoting Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998)). Given that the Summary and the cited claims above all describe the orientation of the second terminal of the battery as exposed at the opening, and since the specification states nothing to the contrary, it is apparent that the very nature of the invention requires this limitation.

For the foregoing reasons, the Court construes the "first terminal of the battery" as "the terminal positioned at the closed base of the battery holder."

Chamberlain encourages us to further define "fixed code" to include the clause "regardless of how it is later encrypted before or during the RF (radio frequency) transmission." Defendants disagree, arguing that not only must the make-up of the fixed code remain unchanging, but the representation of the make-up must remain also fixed, up until and through the transmission of the radio frequency signal. So, under defendants' construction, if the fixed code is 123, it must remain 123, and cannot ever be encrypted - for example, mirrored to read 321. Defendants state that because, "[i]n the only embodiment shown, the same fixed code signal is generated and transmitted with each transmitter activation," the "fixed code" must remain the same in each transmission (Lear's Markman position slides, p. 20). First, we note that both parties' arguments anticipate an infringement dispute and should not necessarily be part of the claim construction. Therefore, we decline, at this stage, to define "fixed code" beyond "a coded signal representing a fixed code generated by the processor."
In fact, the specification connects the "fixed" nature of the "fixed code" to the "actuation of the transmitter." Lear failed to point out any instance in the claims, specifications, or prosecution history, wherein the patentee clearly disclaimed encryption of the fixed code signal before or during the radio frequency transmission.

--- End Footnotes ---

1758

o. "fixed frequency"

The plaintiffs contend that no construction is necessary, but if the court determines that a construction is needed, then they propose "a non-variable frequency." The defendants propose "having a speed that is tightly controlled and varies minimally." This term is not a technical term and can be understood according to its plain and ordinary meaning. Accordingly, the Court declines to construe this term.

1759

a. "Fixed Level Control Signal"

The limitation "fixed level control signal" is found in Claim 1 of the '290 patent. '290 patent, col.6, 1.17. With little discussion, the parties agreed that "fixed" means "constant." Markman Hr'g Tr. at 8:20 to 9:16. In addition, there was no real dispute that "signal" refers to an electrical characteristic that carries information. Delta then argued that "level" pertains to a specific amplitude, such as four volts. Id. at 9:22-24. The Court was unwilling, however, to read the word "amplitude" into the claim and declined to adopt Delta's proffered definition. Id. at 10:9-11. Instead, the Court construed "fixed level" as a complete phrase meaning "a constant level which means does not vary according to external temperature." Id. at 10:14-20. Delta offered no basis for its "simplification" from the intrinsic record and the Court was unpersuaded. Indeed, reading "level" in light of the written description, the Court explained, "the reason you have a fixed level control signal [in this patent] is so that it will not vary in accordance with external temperature." Id. at 10:24-25. Ultimately, the Court presented the following definition: "Fixed level control signal [means] a constant level, that is, one which does not vary according to external temperature; and a signal simply means an electrical characteristic that carries information." Id. at 11:10-14.

1760

5. Flat-Panel Display Device/ LCD Device

a. The Parties' Constructions

LPL argues that the "flat panel display device" is simply an apparatus with at least a flat display panel and supporting frames. Defendants assert that in the context of the invention, a "flat panel display device" includes a sandwich of layers or stack of components, including the flat display panel, held together or assembled by the first and second frames. ViewSonic further asserts that the stack of components are assembled along the edges. Defendants argue that the intrinsic record mandates such a construction and specifically point to the description in the common specification of an LCD device for support. n19 ViewSonic also submits that under LPL's construction, a portable computer would be a flat-panel display device, thereby rendering superfluous the non-asserted claims' term "portable computer."

--- Footnotes ---

n19 For example, Defendants cite to the '641 patent, 1:42-45: "The LCD device 130 has an LCD panel 132, a backlight device 134 fixed to the back of the LCD panel 132, and a supporting frame 136 for assembling the LCD panel 132 and the backlight device 134 along the edge."
b. The Special Master's Constructions

Based on the express language of the claims, the Special Master does not adopt that portion of Defendants' constructions requiring multiple layers assembled or held together, along the edge or otherwise. The Special Master does agree with the Defendants, however, that the flat-panel display device includes the first and second frames.

The language of claims 55 and 56 provides a definition of flat-panel display device. '641 patent, 12:1-18. Tellingly, both claims recite that the flat-panel display device includes only three main elements, namely a first frame, a second frame, and a flat display panel disposed there between. Thus, to limit the flat-panel display device to one that includes multiple layers would be contrary to the claim language and would, in the Special Master's view, improperly read in the preferred embodiment of an LCD device. Mindful that other claims recite multiple layers, such as the backlight unit of claim 35 of the '641 patent, the Special Master adopts a construction that includes at least a flat display panel.

Additionally, the claim language further specifies that the flat display panel of the device is located between, or sandwiched by, the first and second frames. Claim 35 of the '641 patent recites, for example, that the "flat display panel is between the first and second frames." The claim term "between" does not require, however, that the panel and frames be assembled as Defendants argue. Instead the claim merely defines the location of the flat-display panel relative to the frames. The Special Master therefore concludes that requiring the frames and panel to be assembled, whether along the edges or not, improperly reads in the preferred embodiment from the common specification.

The term "LCD device," on the other hand, is specifically called out in claim 40 of the '718 patent. Because the language of claim 40 itself does not expressly define an LCD device, the common specification provides the best definition for that term. Phillips v. AWH Corp., 415 F.3d at 1315 ("The specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'") (internal citation omitted). Referring to Figures 4A-4C, the common specification defines the LCD device as an LCD panel, a backlight unit, and a supporting frame. '718 patent, 4:17-21. Also, Figure 4C shows that the backlight unit 14 and the panel 12 are disposed between the frames 14g and 16.

Accordingly, the Special Master's constructions are as follows:

<table>
<thead>
<tr>
<th>CLAIM TERM</th>
<th>SPECIAL MASTER CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>flat panel display device</td>
<td>A display device having at least a flat display panel sandwiched by the first and second frames</td>
</tr>
<tr>
<td>liquid crystal display (LCD)</td>
<td>A display device including a LCD panel and a device backlight unit both of which are sandwiched by the first and second frames</td>
</tr>
</tbody>
</table>

1761

a. The '159 Patent

The '159 patent recites a system and method for updating flight management files and providing a retrievable record of the flight performance of an aircraft. Each independent claim of the '159 patent recites a "flight management computer." Therefore, in order to infringe the '159 patent, the System must consist of a "flight management computer" or its equivalent. FedEx maintains that the System does not include a flight management computer. In response, Harris argues that summary judgment as to noninfringement is inappropriate because there are disputed issues of material fact regarding whether or not the System meets the "flight management computer" limitation under the doctrine of equivalents. 8
1. A system for updating flight management files and providing a retrievable record of the flight performance of an aircraft comprising:

   a flight management computer positioned on board the aircraft that interfaces and provides flight critical data received from flight navigation database files to a plurality of aircraft navigation and operational components located throughout the aircraft, wherein the aircraft has a unique tail number identifier;

   a ground data link unit that obtains flight performance data representative of aircraft flight performance data during flight of the aircraft and updates flight navigation database files to the flight management computer . . . .

8 Harris also argues that summary judgment is inappropriate because "there is a significant difference between counsel's strategic decision that certain claims are not worth pursuing and the absence of disputed facts." (Doc. No. 87 at 15.) While the Court notes this distinction, the Court also notes that where counsel's strategic decision not to pursue claims results in an absence of disputed facts, summary judgment is appropriate. The mere possibility that such facts could have been discovered had counsel chosen to pursue the claims is insufficient to establish a genuine factual dispute.

When a court engages in claim construction, "the claims themselves provide substantial guidance as to the meaning of particular claim terms." Phillips, 415 F.3d at 1314 (citing Vitronics, 90 F.3d at 1582); see also ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088 (Fed. Cir. 2003) ("The context of the surrounding words of the claim must be considered in determining the ordinary and customary meaning of those terms."). Independent claims 1 and 12 recite a "flight management computer positioned onboard the aircraft that interfaces and provides flight critical data received from flight navigation database files to a plurality of aircraft navigation and operational components located throughout the aircraft . . . ." U.S. Patent No. 6, 173, 159 B1 col.32 1.57-61; col.341.4-7 (filed Jun. 25, 1999). Independent claim 24 recites "a method for updating flight management files and providing a retrievable record of flight performance of an aircraft . . . comprising . . . updating a flight management computer located on board the aircraft by transferring files from ground data link unit to the flight management computer." Id. col.35-36 1.16-6.

In addition to the insight provided by the claim language, "it is fundamental that the claims are to be construed in light of the specification." Phillips. 415 F.3d at 1316 (quoting United States v. Adams. 383 U.S. 39. 49, 86 S. Ct. 708, 15 L. Ed. 2d 572, 174 Ct. Cl. 1293 (1966)). Here, the specification states that "[a] flight management computer is positioned onboard the aircraft and interfaces and provides flight critical data received from flight navigation database files to a plurality of aircraft navigation and operational components located throughout the aircraft." Id. col.2 1.36-40. The specification further recites an "aircraft data communications system that downloads flight performance data and uploads flight critical data of flight navigation database files to a flight management computer." Id. col.1 1.10-14. In light of this intrinsic evidence, the term "flight management computer" refers to a computer capable of receiving flight critical data from navigation databases files.

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1. "floppy diskette controller"

Defendants agree with the Special Master's construction of the term "floppy diskette controller" for the '414 patent, as limited to controlling the transfer of data to or from a floppy diskette, but disagree with his additional findings that, for the '002 and '222 patents, a "floppy diskette controller" can also control "other types of spinning storage media" and for the '858 patent that a "floppy diskette controller" can also control "some type of non-volatile memory storage medium." 46 In his Part A, the Special Master found that "where the term 'floppy diskette' 47 is used alone, it has a narrower meaning; but when it is used as a modifier, it may have a broader meaning." 48
47 It is used as a stand-alone term in claim 1 of the '414 patent. Defendants do not object to the Special Magistrate's construction of the term "floppy diskette."

48 R & R at 22.

--- End Footnotes ---

Defendants argue that the Special Master's construction of the meaning of "floppy diskette controller" is improper because it gives no meaning to the modifier "floppy diskette" in the term and, therefore, reads "floppy diskette" out of the claim. In support, Defendants cite Mangosoft v. Oracle Corp., 49 Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc., 50 and Apple Computer, Inc. v. Articulate Systems, Inc. 51

--- Footnotes ---

49 525 F.3d 1327, 1330-31 (Fed. Cir. 2008) (affirming trial court's claim construction because the requested claim construction would render superfluous the claim term "local" in "local persistent memory devices").

50 395 F.3d 1364, 1372 (Fed. Cir. 2005) (reversing the district court's construction of the term "about" as meaning "exactly" because it rendered "other parts of the claim superfluous").

51 234 F.3d 14, 24 (Fed. Cir. 2000) (reversing because "the district court's interpretation of 'help access window' was so broad as to read the 'help' limitation out of the claim").

--- End Footnotes ---

Those cases are distinguishable. In Mangosoft, there was "nothing in the intrinsic record [that] describe[d] or supporte[d] [the requested] expansive meaning." 52 In Teva Pharmaceuticals, the patentee did not clearly redefine "about" in the specification, 53 and therefore, the Federal Circuit held that it "should be given its ordinary and accepted meaning of 'approximately.'" 54 In Apple Computer, the term "help access window" was defined broadly, but "interpreting the claim in light of the teachings of the written description and purpose of the invention described therein" 55 revealed that it could not be given the broad interpretation adopted by the trial court.

--- Footnotes ---

52 Mangosoft, 525 F.3d at 1330.

53 Teva, 395 F.3d at 1372

54 Id.


--- End Footnotes ---

In the present case, as discussed by the Special Master, the '222, '002 and '858 patents add disclosures and must be independently evaluated. 56 The Special Master supported his finding with examples from the '002 and '222 patents. His first example, the schematic found at Figure 1 of the '002 and '222 patents, perfectly illustrates his point. In those schematics, the "floppy diskette controller (FDC)" is shown as connected to a "Media Drive (e.g. Floppy Diskette drive) designated by reference numeral 16." 57 Because a "floppy diskette drive" is used in '002 and '222 patents as only an example of the broader category of "media drives" controlled by the FDC, the '002 and '222 patents "clearly contemplated--and, indeed, claimed--portable storage media that were not limited only to traditional floppy diskettes." 58 As noted by the Special Master, this disclosure was added by the '002 and '222 patents, 59 and distinguished the meaning as used in the earlier '414 patent. The Special Master also noted the addition in the '222 patent at C13L50-59.

--- End Footnotes ---
The Court is not persuaded by Defendants' argument that because the '222 patent uses the term "controller" in claim 13 and the term "floppy diskette controllers" in the other claims that Dr. Adams must have used "controller" when he meant "media controllers." Such a construction is not supported by reading the '222 patent as a whole. Further, as pointed out by Plaintiff, Defendants did not seek to have the term "controller" in claim 13 in the '222 patent construed, despite having submitted a total number of terms "far beyond anything" that the Special Master had previously encountered.

Nor is the Court persuaded by Defendants' citation to matters in the prosecution history of an unasserted patent, U.S. Patent No. 7,409,601 (the '601 patent), issued as continuation of the '858 patent. While there are circumstances "in which statements a patentee makes in a later-filed case can impact the interpretation of the claims in an earlier-filed patent," Defendants have not shown that the present case presents such circumstances.

Defendants cite two pages of the '601 patent's prosecution history, but not the exact language they rely on, for the proposition that the "patentee expressly represented that a 'defective I/O controller' has a different scope than 'defective floppy diskette controller' to overcome an obviousness-type double patenting rejection." Plaintiff argues that the citation does not make that statement.

Reviewing the cited pages, it appears that Defendants are referring to the applicant's statements at the third and fourth paragraphs of page DEF 005704. However, as shown on those pages by the applicant's underlined emphasis of the words...
"correcting" and "detecting" in those paragraphs, the applicant's statement was focused on that difference in the patents. Thus, the Court is unable to locate any such express representation as is alleged by Defendants.

Defendants also argue that in the patent prosecution of '601, the cancellation of claims including the term "floppy diskette controller" and adding claims with the new term "I/O controller" shows the claims did not have the same meaning. However, that is far from the type of "clear disavowal or disclaimer made during prosecution" of the subsequent patent as would inform construction of the earlier patents. 64 In this case, as in TIP Systems, "the meaning of the term [floppy diskette controller in the '002, '222, and '858 patents] can be discerned from the language of the claims themselves, and is fully supported by the specification, drawings, and prosecution histories" of those patents. Further, a finding by the patent examiner that the claims of the subsequent patent application were obvious in view of the claim of the earlier '002 patent has bearing on the construction of the term in the earlier patent.

64 See e.g. TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1371 (Fed. Cir. 2008) (treating an amendment eliminating a term entirely from the claims of the subsequent patent as different from a clear disavowal or definition of the term in the subsequent patent).

The parties disagree on whether the Court should consider a statement by the Special Master regarding the meaning that the electronics industry has settled on the term "floppy diskette controller." That statement was part of a larger examination of the following statement in the '414 patent: "Specifically, data loss and/or data corruption can occur during data transfers to diskettes (or even tape drives and other media which employ the FDC)." 65

65 Id. at 24 (quoting '414 patent C1L54-57).

The Special Master, reading the '414 patent as a whole, found that the above quoted "statement tends to establish two things: the inventor considered diskettes as distinct from 'tape drive and other media' and he also contemplated that an FDC might be used to control memory other than diskettes." 66 As the Special Master further explained in a footnote:

This is an extremely important concept. Despite the name, a "floppy diskette controller" apparently can control data transfer to and from various types of storage media in addition to traditional "floppy diskettes." A better term might have been "storage media controller" but once the electronics industry settles on a name for a device it is difficult to pry them loose from it, even when it becomes misdescription. 67

66 Id. at 24 (footnote omitted).

67 Id. at n.47.

Plaintiff relies on the statement to support the position that not only did the terms "floppy diskette" and "floppy diskette controller" evolve during the prosecutions of the patents in suit, but also in the "relevant art during this twelve year period to the point where a 'floppy diskette' is now a metaphor for storage media." 68

68 Pl.'s Response at 2.
Tellingly, Defendants do not argue that the Special Master is incorrect on his understanding of how the term has evolved in the electronics industry to mean something more. Rather, they argue that his understanding should not be relied upon because he did not cite any evidence in support of this finding.

The Court need not decide the dispute over whether the statement should be considered because it finds that the Special Master's analysis of the added disclosures that claim portable storage media that are not limited to only traditional floppy diskettes is correct without the need to consider the additional support offered by the statement.

The Court adopts the Special Master's claim construction as follows: "The claims of the '002 and '222 patents are not limited to a system or method in which the FDC is controlling a 'floppy diskette' as that term was defined for '414 patent; other types of spinning storage media may be employed." 69 

69 R & R at 26.

70 Id. at 29.

"flowing process fluids sequentially and continuously" appears in Claim 1 of the '532 patent. The related phrase, "flowing process fluids in sequential steps continuously past said wafers," appears in Claims 54, 55, 57 and 58. CFMT asserts that "flowing process fluids sequentially and continuously" means that process fluids flow past the wafers one after another and contact the wafers in a uniform, spatially uninterrupted manner. YieldUP counters that the term "continuously" requires an uninterrupted flow of process fluids. According to YieldUP, CFMT's construction of the phrase would cover a process where the wafers are dipped in fluids that are stagnant as opposed to flowing.

In the prosecution of the '532 patent, McConnell and Walter asserted that their "full flow" invention differed from the open sink methods used in the prior art because in their invention, "fluids flow sequentially and continuously past the wafers." In the open sink method used in the prior art, wafers are immersed in a sink containing a fluid and then moved to a second sink containing a second fluid. Therefore, the court's construction of the phrase "flowing process fluids sequentially and continuously" should not cover a process where the wafers are dipped in fluids that are stagnant as opposed to flowing. As advocated by YieldUP, the court finds that the phrase "flowing process fluids sequentially and continuously" means that process fluids flow past the wafers one after another and that the term "continuously" requires an uninterrupted flow of the process fluids.

"following a previously computed form line having been defined using positioning information derived from earlier received GPS data and a swathing offset" (Claims 3, 6, 11)

This phrase appears in claims 3, 6, and 11, although the phrase appears in differently worded fashion in each claim. See Tang Decl., Ex. A at 12:53-63; 13:6-15; 14:4-14. The parties agree, however, that the phrases all have the same meaning despite this, and that the wording of claim 3 is representative. Trimble contends that this disputed phrase should be
construed to mean "controlling a vehicle based on steering guidance derived from previously computed terrestrial locations on the field and a swathing offset." Defendants, by contrast, contend that the phrase should be construed to mean "following a previously computed path across the area to be treated, where the path was computed using geographical positions computed from earlier received GPS satellite data transmissions and a distance determined by the effective width of a towed implement." As is the case with the majority of the terms before the court, defendants' proposed construction offers the best interpretation of the claim language.

Beginning with the claim language, and using claim 3 as representative, claim 3 covers a "form line following apparatus" that is comprised of a vehicle fitted with a GPS receiver, and a processor capable of defining updated form lines. See Tang Decl., Ex. A at 12:53-63. According to claim 3, the processor will define an updated form line according to position information computed while the vehicle was doing two things: (1) following a prior form line; and (2) deviating from the prior form line. See Tang Decl., Ex. A at 12:57-63. The disputed phrase can be found in claim 3's description of the processor, and specifically, in the description of the updated form line that the processor defines. Id. The disputed term modifies the first step in this two-step process. Specifically, it describes the prior form line that the vehicle was following, from which the vehicle deviated. In other words, the phrase describes the original expected path across the area to be treated, that the vehicle was attempting to follow. Seen from this perspective, the disputed phrase simply clarifies that this original form line was itself computed using "earlier received GPS data and a swathing offset."

With this understanding of the disputed phrase and its surrounding context in mind, and in view of the court's prior construction of "form line," it is defendants' proposed construction, as opposed to plaintiffs, that most accurately interprets the meaning of the disputed phrase. Defendants' construction describes -- as the disputed phrase is meant to do -- that "following" the original form line simply means following a previously computed path, which was in turn computed (i.e., defined) based on the geographical positions computed from earlier GPS data and a swathing offset.

The court therefore construes the term "following a previously computed form line having been defined using positioning information derived from earlier received GPS data and a swathing offset" as: "following a previously computed path across the area to be treated, where the path was computed using geographical positions computed from earlier received GPS satellite data transmissions and a distance determined by the effective width of a towed implement."

1. The Claims

a. The '462 Patent:

1. A method for producing and locating an apparent origin of a selected sound from an electrical signal corresponding to the selected sound in a predetermined and localized position anywhere within the three-dimensional space containing a listener, comprising the steps of:

   separating said electrical signal into respective first and second channel signals;

   altering the amplitude and shifting the phase of the signal in both said first and second channel signals while maintaining said phase and amplitude differential therebetween for successive discrete frequency bands across the audio spectrum and each successive phase shift being different than the preceding phase shift, relative to zero degrees, thereby producing first channel and second channel modified signals and creating a phase differential and an amplitude differential between the two channel signals;

   maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase; and

   respectively applying said first and second channel modified signals that are maintained separate and apart and that have said phase and amplitude differential therebetween to first and second transducer means located within the three-dimensional space and spaced part [sic: apart] from the listener to produce a sound apparently originating at a predetermined location in the three-dimensional space that may be different from the location of said sound transducer.
means.

7. A system for conditioning a signal for producing and locating, using two transducers located in free space, an auditory sensory illusion of an apparent origin for at least one selected sound at a predetermined localized position located within the three-dimensional space containing a listener from a single electrical signal corresponding to the selected sound, comprising: first and second channel means both receiving the same single electrical signal, said first and signal second channel means including respective first and second sound processor means each for altering the amplitude and shifting the phase angle of the respective electrical signal on a frequency dependent basis for successive discrete frequency intervals across the audio spectrum to produce a respective modified signal wherein the amplitude alteration differential and the phase angle shift differential occurring between the two channels are respective predetermined values for each said successive frequency interval of the audio spectrum, said sound processor means shifting the phase angle such that each successive phase angle shift is different and independent of a preceding phase angle shift relative to zero degrees, and said first and second channels being maintained separate and apart prior to being fed to the two transducers.

b. The '860 Patent:

1. A method for producing and locating an apparent origin of a selected sound from an input monaural signal corresponding to the selected sound in a predetermined and localized position anywhere within the three-dimensional space containing a listener, comprising the steps of:

   separating said input monaural signal into respective first and second channel signals;

   providing a sound position control signal derived independently of the input monaural signal for making amplitude and phase adjustments at each of a number of discrete frequency bands over the audio spectrum and relating to a sound location determined by azimuth, height, and depth;

   altering the amplitude and shifting the phase of the signal in at least one of said first and second channels in response to said sound position control signal, both altering and shifting being done on a predetermined frequency dependent basis for successive discrete frequency bands across the audio spectrum and each successive phase shift being different than the preceding phase shift relative to zero degrees, thereby producing at least a first channel or a second channel modified signal and creating a continuous phase differential and a continuous amplitude differential between the two channel signals that varies for each of said discrete frequency bands;

   maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase; and

   respectively applying at least first and second channel modified signals that are maintained separate and apart and that have said phase and amplitude differential therebetween to first and second transducer means located with the three-dimensional space and spaced apart from the listener to produce a sound apparently originating at a predetermined location in the three dimensional space that may be different from the location of said sound transducer means.

5. A system for conditioning a signal for producing and locating, using two transducers located in free space, an auditory sensory illusion of an apparent origin for at least one selected sound at a predetermined localized position located within the three-dimensional space containing a listener from a single monaural input signal corresponding to be selected sound, comprising: first and second channel means both receiving the same single monaural input signal, one of said first and signal channel means including sound processor means connected to receive a sound position control signal derived independently of the input monaural signal for controlling amplitude and phase adjustments at each of a number of selected frequency intervals of the audio spectrum and relating to a sound location determined by azimuth, height, and depth for altering the amplitude and shifting the phase angle of the respective signal on a frequency dependent basis for successive discrete frequency intervals across the audio spectrum to produce a respective modified signal therefrom in response to said sound position control signal, wherein the amplitude alterations and the phase shifts form a continuous differential between the two channels that varies for each said successive frequency interval of the audio spectrum, said sound processor means shifting the phase angle such that each phase angle shift is different relative to zero degrees, and said first and second channels being maintained separate and apart prior to being fed to the two transducers.
2. The Claim Construction

The first claim at issue of each of the patents is a method claim, while the second claim at issue of each of the patents is a claim to a "system." After examining the prosecution history, the special master gave the phrase "being maintained separate and apart" its ordinary, literal meaning. He distinguished, however, between the term "following" that appears in claim 1 of the '462 and the '860 patents and the phrase "prior to" that appears in claim 7 of the '462 patent and claim 5 of the '860 patent.

The special master interpreted "prior to" as simply requiring that the two signals be kept separate and apart "merely immediately before the loudspeakers [i.e., the 'transducers'] where the signals are clearly separate and apart." "Following," however, was deemed more restrictive. The special master interpreted that term to require the two signals to be kept "separate and apart" from each other immediately after the two signals are initially altered.

Because the two channel signals in the accused Spatializer device are combined after their phase and amplitudes are altered, but are separated immediately before they are fed to the speakers, the special master recommended that the Spatializer does not infringe the "following" claims but potentially could infringe the "prior to" claims. As indicated above, the district court adopted the special master's recommendations as to the "following" claims but not the "prior to" claims. The district court held that Desper was entitled to summary judgment of non-infringement on the "prior to" claims as well as the "following" claims. On appeal, QSound challenges the district court's interpretation of both "following" and "prior to." 2

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2 QSound also challenges the interpretation of "discrete" and "independent," as it must to ultimately prevail. Given our interpretation of "maintained separate and apart," "following," and "prior to," however, we need not reach these issues.

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DISCUSSION

"The law governing summary judgment is well established." C.R. Bard, Inc. v. Advanced Cardiovascular, Inc., 911 F.2d 670, 672, 15 U.S.P.Q.2D (BNA) 1540, 1542 (Fed. Cir. 1990), "Summary judgment is as appropriate in a patent case as it is in any other case." Id. Under the Federal Rules of Civil Procedure, a motion for summary judgment should properly be granted when "there is no genuine issue as to any material fact and . . . the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c).

The determination of whether an accused product or process infringes a claim of a patent is universally understood to involve two steps. First, we construe the asserted claim to determine its meaning and scope. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 U.S.P.Q.2D (BNA) 1321, 1326 (Fed. Cir. 1995) (in banc), aff'd, 517 U.S. 370, 38 U.S.P.Q.2D (BNA) 1461, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). In the second step, we compare the accused product or process to the properly construed claim. See id.

Whether a product or process infringes the properly construed claims of a patent, literally or under the doctrine of equivalents, is a question of fact. See Tanabe Seiyaku Co. v. United States Int'l Trade Comm'n, 109 F.3d 726, 731, 41 U.S.P.Q.2D (BNA) 1976, 1981 (Fed. Cir. 1997). Often, as in this case, the composition of the allegedly infringing process or product is undisputed. In such a case, literal infringement collapses into claim construction--a matter of law--amenable to summary judgment. See Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1578, 37 U.S.P.Q.2D (BNA) 1365, 1370 (Fed. Cir. 1996).

To determine the meaning and scope of a claim, we first examine the claim language, the specification, and, if in evidence, the prosecution history. See Vitrionics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). Extrinsic evidence, that is, evidence outside the record before the United States Patent and Trademark Office ("PTO"), such as expert testimony about how those skilled in the art would interpret certain language in the claim, may also be considered when appropriate as an inherent part of the process of claim construction and as an aid in arriving at the proper construction of the claim, but may not be used to vary or contradict the otherwise unambiguous meaning of the claim. See id. at 1582, 39 U.S.P.Q.2D (BNA) at 1577. The proper interpretation of a claim is a legal conclusion, over which
we exercise plenary review. See Cybor Corp. v. FAS Tech., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (in banc) ("We review claim construction de novo on appeal including any allegedly fact-based questions relating to claim construction.").

I. "Following"

We start first with the claim language itself. See Thermalloy, Inc. v. Aavid Eng'g, Inc., 121 F.3d 691, 692, 43 U.S.P.Q.2D (BNA) 1846, 1848 (Fed. Cir. 1997) ("Throughout the interpretation process, the focus remains on the meaning of claim language."). The first claims of both the '462 patent and the '860 patent require that the system "maintain[] the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase" (emphasis added). The plain meaning of "following" is "subsequent to, after in time" or "next after," depending on the context. Webster's Third New International Dictionary 883 (1986). The problem in this case is that this definition does not tell us how close in time to the "altering" step the signals must be maintained separate and apart. To answer that question we consult the specifications.

Though not definitive, the specifications support an interpretation that requires the two signals to be maintained separate and apart beginning immediately after the amplitude is initially altered and the phase is initially shifted. The word "following" appears only twice in each of the written descriptions and is not used with reference to the channel signals. (The same is true of the phrase "prior to," discussed infra.) The drawings, Fig. 16 and Fig. 18a (pictured supra), however, graphically demonstrate that once the two channel signals are separated they are thereafter kept separate. Thus, the drawings support the interpretation that, immediately after the amplitude and phase of the channels signals are initially altered by the filter, they thereafter must be maintained separate and apart.

QSound points to an isolated passage in the written description to support its proposed claim construction that it is only after the alteration of the amplitude and the shifting of the phase by filters and summers are complete that the signals are required to be maintained separate and apart. The passage upon which QSound relies simply indicates that the sound processor "may include some or all of the following circuit elements: filters, delays, [inverters], summers, amplifiers, and phase shifters." '462 patent, col. 11, ll. 11-12. The passage sheds no light as to when the signals must be maintained separate and apart.

In contrast, the prosecution history confirms our claim construction. The limitation that the channel signals be maintained separate and apart was not in the original claim language. The original claims of what is now the '462 patent were rejected as obvious under § 103 in light of British patent No. 942,459. The original application (Ser. No. 07/398,988) was then abandoned in favor of a File Wrapper Continuation ("FWC") (Ser. No. 07/696,989). See 37 C.F.R. § 1.62 (1997). The limitation that the channel signals be maintained separate and apart was then added in a preliminary amendment dated June 12, 1991. In the remarks accompanying that amendment, the patent applicants' attorney stated:

In fact, according to the present invention, once the monaural signal is split into the two channel signals, those signals are forever after isolated one from another and are never combined or commingled. Various operations may take place in each channel provided by the present invention, yet the signals being operated upon are never recombined or mixed. This is in direct distinction to the teaching of the British patent. . . .

(Emphasis added.) In his closing remarks, the attorney further stressed in urging reconsideration:

In view of the amendments to the claims hereby, as well as the above remarks, it is respectfully submitted that a method and apparatus for producing two sound signals derived from a single monaural input signal in which an amplitude and phase shift is provided with such signals being maintained separate and apart up until the actual production of the sounds at the speakers, as taught by the present invention and as recited in the amended claims, is neither shown nor suggested in any of the cited references, alone or in combination.

(Emphasis added). Rather than wait for a formal, written response, the applicants conducted a personal examiner interview. In the resulting "Examiner Interview Summary Record," the examiner indicated that the amended claims "appear to distinguish over art of record in prior case (FR 1,512,059 & B 942,459)." However, the examiner did come up with a new reference on which to base another prior art rejection. Despite this new reference, the examiner indicated that two dependent claims would be allowable if they were to be rewritten in independent form. In response, the applicants abandoned the original independent claims and took what the examiner allowed. The rewritten claims were subsequently allowed and
issued as part of the '462 patent.

The prosecution history of the '860 patents tells much the same story. The '860 patent was originally filed as a Rule 60 divisional of the FWC (Ser. No. 07/696,989). See 37 C.F.R. § 1.60 (1997). In a preliminary amendment dated October 31, 1991, after the parent application had been rejected in view of the British patent, the applicants amended all the independent claims to include the limitation that the channel signals be maintained separate and apart. In an office action dated February 5, 1992, the examiner rejected the amended claims as obvious in light of another reference. The applicants' attorney responded with further amendments to the claims, and accompanying remarks in which the attorney distinguished the claimed invention from the cited reference. This amendment was sufficient to overcome the rejection, and the amended claims were issued as part of the '860 patent. Thus, in the file history of both patents, the limitation that the channel signals be maintained separate and apart was added to overcome the prior art rejection based on the British reference, and in both cases it succeeded.

QSound does not argue on appeal that its attorney's comments do not, on their face, limit the scope of the asserted claims. Rather, QSound argues that the prosecuting attorney's remarks should not be used to interpret the disputed claim language because the remarks, according to QSound, were both erroneous and extraneous -- erroneous because they are contrary to the express teaching of the patent itself and extraneous because they did not become part of the claim. We disagree on both accounts.

Fig. 18a (pictured supra), according to QSound, "proves . . . that counsel's statement was erroneous." Brief for Appellant at 33. In particular, QSound argues that "after the signals pass through the points labeled 1657 and 1658, figure 18[a] shows that the signals cross, and are commingled, at the point labeled 1659." Brief for Appellant at 34. This post-hoc argument flies in the face of the entirety of the written description and the operation of a switch as well understood in the art. The symbol for 1659 shows a broken, diagonal line with a continuous, diagonal line passing through the opening therein. This notation is used, as is well known in the art, to indicate that the two conductors within the switch are not connected. The switch, according to the written description, "allows the filter signals to be fed directly or interchanged, to first inputs of summing elements 1660 and 1670." '462 patent, col. 13, lines 12-14. Thus, reversible switch 1659 does not, as QSound alleges, "commingle" the two channel signals, but, instead, re-routes the respective signals to either summing element 1660 or 1670 depending on the switch setting. Switch 1659 therefore gives the operator the ability to create a mirror image of the sound illusion by simply flipping the switch. This reading is consistent with the normal operation of a reversible switch. Counsel's argument to the contrary is disingenuous at best and blatantly false at worst.

Following oral argument, during which counsel's characterization of the switch was challenged, QSound attempted to bolster its untenable position with a submission of testimony from its expert, ostensibly pursuant to Fed. R. App. P. 28(j). Rule 28(j), however, permits a party to bring supplemental authorities to the court's attention, not supplemental argument. Accordingly, QSound's submission was improper. Even were we to consider the proffered testimony, it does not prove QSound's point. None of the cited testimony establishes that reversible switch 1659 commingles the two channel signals. QSound's attempt to sacrifice the prosecuting attorney who wrote and prosecuted the application before the PTO, and who presumably was in the best position at the time to understand the true nature of the invention -- for the sake of its case here -- is unavailing.

QSound also argues that the prosecuting attorney's remarks were "extraneous" in that "they did not become part of the claim." In essence, QSound argues our interpretation would import into the claim the attorney's "erroneous" remarks. In support of this proposition QSound relies primarily on Intervet America, Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 12 U.S.P.Q.2d (BNA) 1474 (Fed. Cir. 1989). Intervet provides no such support. In Intervet, the trial court read two limitations into the claims ("single administration" and "attenuation") based on the remarks of the prosecuting attorney. The "single administration" limitation was, in fact, an express limitation in one of the independent claims but not the others. During prosecution, "the attorney made the unqualified and now admittedly untrue statement that 'the claims are restricted to a single vaccination scheme.'" Id. at 1054, 12 U.S.P.Q.2d (BNA) at 1477. This court, not surprisingly, held that the independent claims in which the "single administration" limitation did not appear were not limited to a "single administration," the attorney's remarks notwithstanding. Id. This court also reversed the trial court's construction that required the claims to include an "attenuation" limitation based on the attorney's remarks, even though that word did not appear in any of the claims. Id. at 1055, 12 U.S.P.Q.2d (BNA) at 1478 ("We have set forth the asserted claims in full above and it is clear that they make no reference whatever to attenuation.").
The differences between Intervet and this case are apparent. First, the dispute in this case involves the proper interpretation of language that is in the claims, in particular, the words "following" and "prior to." We are interpreting explicit claim language, not importing limitations into the claim. Second, the attorney's remarks in this case were not "erroneous." As we have discussed above, the attorney accurately described the claimed invention and the cited prior art. There is no "admittedly untrue statement" in this case as in Intervet. Thus, QSound's reliance upon Intervet is misplaced.

QSound further argues that the attorney's remarks should not be used to interpret the claim language because the amendment that precipitated the remarks did not end the prosecution. In effect, QSound argues that the remarks were inconsequential because they did not result in allowance of the claims. Again, QSound relies on Intervet. What QSound fails to acknowledge, however, is that the amendment and accompanying remarks were made for the purpose of overcoming the outstanding rejection based on the British patent. That the prosecution shifted to a different focus does not blunt the impact of those remarks made to overcome the prior rejection. The significance of the remarks in this case is no different than in a case in which the claims are allowed in response to an amendment.

We conclude that the claim construction for claim 1 of the '462 patent and of the '860 patent adopted by the district court is correct.

C. "for the first type network node" (Claim 1) & "for the second type network node" (Claim 2)

Plaintiff: Claim construction of "for the first type network node" and "for the second type network node" is unnecessary. The plain and ordinary meaning controls.

If the court concludes that "for the first/second type network node" requires construction, then the Court should construe "for the first/second type network node" within the context of the claims to mean "on behalf of one or more computer devices on a computer network."

Defendant: "for the first type network node": Designed for a participating Internet Service Provider (ISP) or organization from which a service request is received.

"for the second type network node": Designed for an Internet Content Provider (ICP).

The significant additional term in these phrases is "for." The Court agrees with Plaintiff here -- the term needs no construction. "Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement." United States Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997). Here, the term "for" is non-technical, is in plain English, and derives no special meaning from the Patent. The ordinary meaning of the term speaks for itself, and the Court will avoid paraphrasing the language. The Court finds very little risk that the ultimate factfinder will be unable to understand this term.

Defendant's proposal is rejected as importing limitations into the specification. The Patent, read as a whole, does not support adding the word "designed" in front of "for" in construing the term. The specification states both that an ICP forms customized web pages "for its participating web sites" and that web page files may be "designed for" a network node. '577 Patent at Abstract; 7:45-55; 8:55-67. Defendant claims that forming a web page "for" a network node "is so amorphous as to require guidance from the specification," but the Court is not convinced. There is no need to inject verbiage into a such a straightforward and ordinary term.
The plaintiff contends that the terms do not need to be construed. To the extent that a construction is needed, the plaintiff proposes that "coupling" be construed as "connecting" and "connectable" be construed as "capable of being connected." The defendants propose that both terms be construed as "capable of being placed in data communication." The court has consistently construed the term "coupled" to mean "directly or indirectly connected." Accordingly, "for coupling" means "for directly or indirectly connecting." Furthermore, the court agrees with the plaintiff that "connectable" means "capable of being connected."

With respect to the next 3 elements of claim 10, the parties dispute whether they are written in means-plus-function format such that they invoke the requirements of § 112, P 6. Specifically the parties dispute the meaning of the following three claim elements:

1. "a statistical decoder coupled to said I/O port for decoding variable-length-encoded compressed video signals"
2. "I/O circuitry coupled to said I/O port, for providing processed video signal to said I/O port, and for accepting a processed video signal from said I/O port"
3. "a pixel interpolator for generating values representing pixels interstitial to pixel values represented by said processed video signal"

Because the parties argue whether each of these claims are claimed in mean-plus-function format, the court will address that threshold issue before turning to the construction of the claim language for each of the three elements.

Broadcom argues that the elements "statistical decoder," "I/O circuitry," and "pixel interpolator" are means-plus-function elements, which must be construed according to § 112, P 6. Despite acknowledging that these elements do not contain the word "means," Broadcom nevertheless argues that these claim elements must be construed as means-plus-function elements because each of the elements simply recites a function but fails to recite any definite structure. See MAS Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1998) (the phrase "lever moving element for moving the lever" is a means-plus-function element governed by 112, P 6); C.R. Bard v. United States Surgical Corp., 102 F. Supp. 2d 199, 215-16 (D. Del. 2000) (the phrase "surface of said hollow plug . . . being extremely pliable, allowing localized portions of the hollow plug to adapt to irregularities" is a means-plus-function element governed by 112, P 6). According to the cases cited by Broadcom, when it is apparent that an element invokes purely functional terms without the additional recital of a specific structure for performing the function, the claim element may be a means-plus-function element despite the lack of express means-plus-function language. Broadcom argues that this is the case with respect to the three elements at issue here.

Intel argues that these elements are not means-plus-function elements. Intel first points out that when the term "means" is not used in a claim element, a presumption arises that 112, P 6 does not apply. See Personalized Media Comm. LLC v. Int'l Trade Comm'n, 161 F.3d 696, 703-04 (Fed. Cir. 1998); see also Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999) ("When an element of a claim does not use the term 'means,' treatment as a means-plus-function claim element is generally not appropriate."); Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1584 (Fed. Cir. 1996) ("The use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' . . . generally invokes 112(6) and that the use of a different formulation generally does not").

Intel next argues that the functional language used in the claims does not equate to means-plus-function. See Greenberg, 91 F.3d at 1583 ("The fact that a particular mechanism . . . is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of 112(6)"). Rather, because each of the three terms at issue "has a reasonably well understood meaning in the art" as the name for a structure, 112, P 6 should not apply. Id.; see also Personalized Media, 161 F.3d at 705 (holding that "detector" is a sufficiently definite structural term to preclude the application of 112, P 6, even though the detector was defined in terms of its function, because the term "detector" refers to a well-known structure for those knowledgeable in the art). Last, Intel contends that when a claim recites "means" language for some elements, but not others, the drafters presumably knew the difference and deliberately drafted the claim to reflect their intention that some elements should be construed as means-plus-function but that others should not be construed as means-plus-function.
As stated above, there is a rebuttable presumption in patent law that when a claim drafter fails to use "means" in a claim element that the claim element is not a means-plus-function element. See Personalized Media, 161 F.3d at 703-04; Greenberg, 91 F.3d at 1580. That presumption may be overcome if the claim element only provides functional terms without the recitation of structure for performing that function.

In determining whether the claims language recites a structural term or merely recites functional terms, the court should read the claim language in light of both the specification and prosecution history. See C.R. Bard, 102 F. Supp. 2d at 216 (stating that review of prosecution history demonstrates that the examiner would not have allowed the claim but for examiners finding that claim limitation at issue was a "means" element). Moreover, a court should examine whether the claim element at issue has a well-understood structural meaning in the art. See MAS Hamilton Group, 156 F.3d at 1213 (holding that district court correctly held that "movable link member for holding the lever . . ." was a means-plus-function element because there was no evidence that a "movable link member" had a well-understood structural meaning in the art). In this case, the court finds no reason to overcome the presumption that the three elements at issue are not means-plus-function elements. First, it is undisputed that the terms "statistical decoder," "I/O circuitry," and "pixel interpolator" had reasonably well-known structural meanings to persons skilled in the art at the time of the 201 invention was filed. Von Herzen Decl. PP 11-27. Second, there is nothing in the specification or prosecution history that precludes these three terms from being defined by referring to their well-known general structures. Therefore, the claim elements convey sufficient structure such that they are not defined purely in terms of their stated function.

Additionally, it should be noted that the claim drafters here used both means-plus-function language and non-means-plus-function language in the claims. Claim 1 recites "statistical decoding means," while claim 10 recites "statistical decoder." Claim 1 recites "input means" and "output means," while claim 10 recites "I/O circuitry." Claim 1 recites "pixel interpolating means," while claim 10 recites "pixel interpolator." In such instances, where there are no reasons for construing the latter terms as means-plus-function elements, a court should give effect to the intentional language used by the claim drafter.

The court finds that the "statistical decoder," "I/O circuitry," and "pixel interpolator" of claim 10 are not means-plus-function elements. Therefore, the court has no need to construe the function or the corresponding structure disclosed in the specification. The task for the court is merely to define those terms using ordinary claim construction rules.

5. "For electrical connection"

Claim 9 includes "a contactor having a spring . . . and at least one contact for electrical connection with the first terminal of the battery. . . ." '900 Patent col.11 1.36-44. Invisible fence says that the term "for electrical connections" means "allows for electrical connection," and Perimeter argues that it means "the spring and the elongated contact arms make electrical connection to only one terminal of the battery (i.e., the first terminal)." 16 (Joint Statement 5.)

16 Both parties ostensibly agree that Claim 9 clearly reads that the electrical connection is made with the first terminal of the battery.

The parties disagree as to what components of the contactor are required to make the electrical connection. Invisible Fence argues that any combination of contact arm(s) and/or the spring can make the electrical connection, while Perimeter argues that the pair of contact arms and the spring are all required to make the electrical connection. 17

17 Perimeter's claim that there must be a pair of contact arms was rejected supra, Part III.B.3.
As a threshold matter, the Court construes the term "for electrical connection" as modifying "a contactor" and not "at least one contact." If the term were read to modify "at least one contact," then claim 9 would curiously exclude the possibility that the spring might also make an electrical connection with the first terminal of the battery, a position neither party advocates and one clearly not supported by the Summary. See '900 Patent col.2 1.1-6 ("The flexion spring may be positioned within the battery holder so that . . . a resiliently bowed center portion is positioned for electrically contacting the first terminal of the battery. . . ").

While claim 9 provides that the contactor makes electrical connection with the first terminal of the battery, it does not specify which component makes the connection. The Summary, however, contemplates that any combination of contact arm(s) and/or the spring can make this connection:

The flexion spring may be positioned within the battery holder so that the respective ends of the spring are in contact with the base of the battery holder and a resiliently bowed center portion is positioned for electrically contacting the first terminal of the battery when the battery is inserted into the battery holder. The electrical contact may be connected with one end of the spring for electrical connection with the first terminal of the battery.

'900 Patent col.2 1.1-8 (emphasis added).

In addition, the doctrine of claim differentiation supports the proposition that the spring is not always required to make an electrical connection. Claim 20, which is ultimately dependent on claim 9, provides that the spring has a "resilient center portion for electrically contacting the first terminal of the battery." '900 Patent col.12 1.61-64. In sum, a presumption is created whereby claim 20 specifically recites that the spring must make the electrical connection, while broader claim 9 merely provides that the spring may make the electrical connection. See Seachange Int'l, Inc., 413 F.3d at 1368-69.

In light of the foregoing, the Court interprets the term "for electrical connection" to mean "any combination of contact arm(s) and/or the spring makes the electrical connection with the first terminal of the battery."

The disputed term in the '415 patent appears in claim 1, which discloses:

1. A method for color-coded imaging of blood flow velocities in a field onto a display, comprising the steps of:

   scanning an ultrasonic beam pulsed at a pulse repetition frequency across the field to provide a Dopplershifted backscattered signal from a discrete set of range cells in the field;

   sampling the backscattered signal from the range cells along the beam;

   estimating predetermined parameters from the backscattered signal from each range cell, said parameters comprising the mean frequency, the power and the bandwidth of the backscattered signal;

   assigning, on the basis of said parameters, predetermined colors for imaging the blood flow velocities on the display, such that for low bandwidth, the mean frequency is assigned to a range of selected first colors which are predeterminately varied as the mean frequency varies, in both the positive and negative sense, from zero frequency to the pulse repetition frequency of the beam, and for increasing bandwidth said first colors are gradually replaced with a single second color until, at large bandwidths, only said single second color is assigned to the display, said single second color being selected to strongly contrast with said first colors; and

   mapping the assigned colors for both positive and negative mean frequencies onto the display, whereby the displayed image presents the full range of blood flow velocities in the field such that different flow conditions may be readily distinguished.
1. "for increasing bandwidth said first colors are gradually replaced with a single second color until, at large bandwidths, only said single second color is assigned to the display"

Plaintiffs' construction: as bandwidth increases continuously or in regular steps, said first colors are replaced continuously or in regular steps, with a single second color until, at large bandwidths, only said single second color is assigned to the display.

Defendant's construction: as bandwidth increases, the first colors (e.g., blue, red, and yellow) displayed are gradually replaced with a single second color (e.g., green), until, when bandwidth meets a minimum threshold, only the second color (e.g., green) is displayed, regardless of the mean frequency.

The parties' debate about this term boils down to whether the changeover from the first to the second color occurs at "high bandwidths" or when the bandwidth reaches a "minimum threshold." The parties do not dispute that the change occurs at "high bandwidth," but defendant argues that more specific language is required as well. The term "threshold" does not appear anywhere in the claim language or the patent specification. Rather, defendant suggests that Figures 5a and 5b of the '415 patent indicate that the invention includes the limitation that there is a "minimum threshold" above which only the second color is displayed. Plaintiffs agree that Figures 5a and 5b are instructive, but disagree that either indicates that the patent discloses a specific "minimum threshold" for the display of the second color. Because much of the parties' arguments relate to these figures, I have included them below.

In Figure 5a, areas of high bandwidth appear at the center of the circle. The frequency of blood flow is represented by the angle of the arrow. In Figure 5b, the x-axis represents increasing bandwidth. The y-axis represents frequency. Defendant argues that there is a point on both figures, which it calls a "minimum threshold," at which the bandwidth is sufficiently high so that the second color is displayed for all mean frequencies. This is true. It is possible to draw a small circle inside area 502 in Figure 5a; it is possible also to draw a vertical line at a certain bandwidth on Figure 5b. Inside this circle and to the right of the line are areas of sufficiently high bandwidth that only the second color, in this case green, is displayed. However, the fact that it is possible to draw a circle or a vertical line at some point on each chart does not suggest that a reference to this "minimum threshold" line should be imported into the claim language. The term "minimum threshold" is no more definite than the term "at high bandwidths." Therefore, I conclude that it would be improper to read this limitation into claim 1 of '415 patent.

Court's construction: as bandwidth increases continuously or in regular steps, said first colors are replaced continuously or in regular steps, with a single second color until, at large bandwidths, only said single second color is assigned to the display.

The court agrees with 01 Communique that Citrix seeks to narrowly construe the term "includes" as "stored in the locator server's dynamic directory." As previously discussed, one may not import limitations from the specifications into the claims. Furthermore, the prosecution history can be distinguished because the cited paragraphs from the June 9, 2004 Request for Continued Examination (Doc. No. 39-3) describe how the claims as had been formulated up to that point distinguish themselves from a particular prior art reference. Therefore, the court rejects Citrix's proposed construction and instead adopts that of 01 Communique.
4. "For providing a generator torque command signal for commanding maneuvers"

To understand the parties' arguments about the construction of this phrase, the phrase must be read in context:

a variable speed wind turbine controller, responsive to the sensed signals indicative of generator speed and generator electrical power output, for providing a generator torque command signal for commanding maneuvers of the generator speed according to a mathematical rule defining the relationship between generator speed and generator electrical power output which maneuvers tend to cause the wind turbine to operate substantially on the wind turbine power coefficient versus velocity ratio optimum performance curve substantially at the peak thereof;

The dispute is whether the phrase "for providing a generator torque command signal for commanding maneuvers" defines the purpose for which the turbine controller is responsive to signals indicative of generator speed and power output, as defendant suggests, or whether plaintiff is correct in asserting that the phrase defines the purpose of the controller. Under plaintiff's construction, the controller need only be responsive to these sensed signals in some fashion, not necessarily for producing torque command signals. Plaintiff contends that "responsive to the sensed signals indicative of generator speed and generator electrical power output" is a non-restrictive clause because it is set off with commas. As a general rule, plaintiff is correct that non-restrictive clauses are parenthetic and should be enclosed between commas. William Strunk Jr. and E. B. White, The Elements of Style 3 (3d ed. 1979)).

However, for the reasons just explained, the variable speed controller must calculate torque command signals using a mathematical rule defining the relationship between generator speed and generator electrical power output. It would be inconsistent with this limitation to adopt plaintiff's construction, under which a controller need not be responsive to sensed signals of generator electrical power output and generator speed in any particular manner or for any particular purpose. As defendant notes, the claim specification makes clear that the figures of generator speed and power the controller uses in defining the torque command signals are provided by the sensed signals:

The variable speed wind turbine controller, by means of a signal processor, determines what the generator air gap torque should be according to a function defining sensed power versus generator speed to obtain maximum efficiency.

'S736 Pat., col. 5, Ins. 5-10. In addition, the preferred embodiments depict a system in which the sensed signals of generator speed and power are used to calculate torque command signals. E.g., Id., Figs. 2 and 5. Plaintiff has not identified any portion of the claim specification suggesting any other purpose that the patentee may have intended or even anticipated.

Furthermore, defendant's construction is consistent with the numerous pairings of "responsive to [something]" followed by "for [doing something]" found throughout the other claims of the '736 patent. In each instance, the "for [doing something]" defines the purpose for which the relevant device is "responsive [to something]." E.g., '736 Pat., col. 9, line 68 - col. 10, lines 1-2 ("frequency converter responsive to the generator torque command signal for controlling the magnitude of power flow . . ."); col. 10, lines 6-7 ("a high pass filter, responsive to the sensed generator speed signal for providing a damping signal"); col. 10, lines 8-9 ("summing junction, responsive to the generator torque command signal and the damping signal for providing an augmented generator torque command signal"); col. 10, lines 16-18 (generator speed reference schedule, responsive to the sensed generator electrical power signal for providing a generator speed reference signal"); col. 10, lines 21-25 ("integral control, responsive to a difference signal having a magnitude indicative of the difference in magnitudes between the generator speed reference signal and the generator sensed speed signal for providing the generator torque command signal"); col. 10, lines 47-49 ("integral control, responsive to a difference signal having a magnitude indicative of the difference in magnitudes between the generator speed reference signal and the generator sensed speed signal for providing the generator torque command signal"); col. 10, lines 57-59 ("electro-hydraulic aerodynamic torque control, responsive to the aerodynamic torque command signal for changing the aerodynamic torque of the turbine rotor"); col. 11, lines 3-9 ("integral control, responsive to a difference signal . . . for providing the aerodynamic torque command signal").

As noted above, it is presumed that language is to be given consistent meaning throughout different portions of the claim. Fin Control Systems, 265 F.3d at 1318. The claim specification provides no reason to deviate from this principle here. In fact, both the specification language and drawings suggest that providing torque command signals is the only purpose for
which the controller uses sensed signals of generator speed and electrical power output. Accordingly, I conclude that the variable speed controller must be responsive to sensed signals of generator velocity and electrical power output for the purpose of providing torque command signals.

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3. Category for Providing Information

The parties' proposed constructions are as follows:

Plaintiff
Category for pages that contain articles, journals, publications, or other non-commercial materials.

Defendant
A category for network pages that have as a primary purpose the provision of information, for example, network pages that contain articles, journals, or publications. In the alternative, this term is indefinite.

Plaintiff's proposed construction closely mirrors the preferred embodiment set out in the specification of the '459 patent, which states that: "Web pages involved in providing information include pages that contain articles, journals, publications, or other non-commercial materials." (5:4-6.) As discussed above, the use of the word "include" in the preferred embodiment, and the example of the fictional website www.abcde.com, which had "as its purpose" the teaching of the alphabet, as providing information (8:31-32), indicate that the preferred embodiment is not the only embodiment of the "category for providing information." Plaintiff's proposed construction, therefore, improperly limits the claim to the preferred embodiment.

As also discussed above, defendant's importation of the term "primary purpose" likewise poses the problem of not aligning with the preferred embodiment that allows for network pages to be categorized as both providing information and transacting business. Thus, the court proposes a modified construction: A category for network pages that have as a purpose the provision of information, for example, network pages that contain articles, journals, or publications. This construction encompasses the preferred embodiment and allows for other embodiments of the invention, while eliminating the potentially troublesome commercial/non-commercial distinction present in the plaintiff's proposed construction.

Defendants argue that any network page provides some form of information, and that the term "category for providing information" is indefinite so to render the patent invalid. Because every network page theoretically "provides information," defendant argues that this category could include every network page every made. Patents enjoy a presumption of validity because they have gone through the prosecution process with the Patent Office, and defendants offer no expert testimony or evidence that a person with ordinary skill in the art would not be able to determine the scope of the patents claims. This argument is therefore rejected.

Therefore, the term "category for providing information" means "A category for network pages that have as a purpose the provision of information, for example, network pages that contain articles, journals, or publications."

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C. a plurality of first signal conditioning units coupled to the workstations for receiving electronic signals produced by the keyboard and mouse and for creating a serial data packet that includes the electronic signals. a plurality of second signal conditioning units coupled to the remote computer systems, for receiving the serial data packets transmitted on one of the plurality of second communication links switch and for supplying the data packets to a keyboard and mouse input of the remote computer, the plurality of second signal conditioning units receiving video signals produced by the remote computer systems and transmitting the video signals to the central switch on one of the plurality of second communication links.
Raritan asserts that the term "signal conditioning units" does not connote structure. Raritan asserts that it has overcome the presumption against the application of § 112, P6 that arises from the absence of "means plus function language." The term "units" in the phrase "signal conditioning units" is used with the parenthetical term "pod" thereby giving it further definition as structure. (’076 Patent at Column 2, line 20.) Counsel for Raritan acknowledges that it is appropriate to consider the term "pod" in deciding whether the word "units" connotes structure. (Tr. 164.) The adjectival phrase "signal conditioning" also gives it further definition. I conclude that there is sufficient structure so as to avoid the application of § 112, P6. To a person of ordinary skill in the art it means a stand-alone entity or box that receives a signal input and translates (i.e. conditions) the signal into an output in a different format.

6. "For storing the received programs, and for subsequently playing the video programs."

USVO proposes "establishing an order of events (storing, playing) in which playing does not commence until the storing commences." Time Warner suggests "for storing the entire program within the receiver and for playing the stored program after downloading and storage of the program is complete." The key dispute between the parties over this term is in what order the storage and playing of the video program occurs: USVO's position is that the video program can be played after storage commences but before it is complete, while Time Warner argues that the video program can only be played after storage is complete.

The claim term describes two steps: (1) the program is stored ("storing the received program"), then (2) the program is played ("subsequently playing the video programs"). This plain language compels the conclusion that the program is played after it is stored. Accordingly, the court must construe "program" and decide whether it means portions of the program or the entire program.

Time Warner argues that the claims, specification, and prosecution history consistently use "program" to mean the entire program, rather than just portions of it. See, e.g., Claim 1, col. 7, ll. 46-48 ("wherein said request interface receives requests for video programs made over the telephone network"); col. 1, ll. 14-17 ("video programs include motion pictures, entertainment programs for television"); col. 5, ll. 29-31 ("[in a preferred embodiment] data is stored onto mass storage device 78 until the entire requested program has been down loaded from the central data facility 10"). Applicants also stated in the prosecution history that "the remote unit stores the program for later playback," and that the distribution interface allows for "downloading a compressed video program for later decompression and playback." Amendment of 5/22/91, Def. Claim Const. Br., Ex. 1-A at 8-9 [Doc. # 152, pp. 9-10 of 12]. Like "subsequent" in Claim 1, "later" means that the program is decompressed and played after it is downloaded and stored. There is nothing in the claims, specification, or prosecution history that would indicate that when the word "program" is used, it means something other than the entire program. There is no distinction made between a program that is remotely requested (which the court does not think can logically mean anything other than the entire program) and the program that is downloaded or stored.

USVO argues that when the patentees were referring to an embodiment where the entire program was stored before playback began, as in the preferred embodiment and in Claim 6, they clearly stated that they were doing so. See, e.g., col. 5, ll. 29-31; Claim 6, col. 8, ll. 55-58. They also take the position that Time Warner is improperly importing a limitation from the specification into the claim language, by reading the requirement of the preferred embodiment that the program be fully stored before playing into Claim 1. However, the statements made by the applicants during prosecution clearly indicate that, in order to overcome the prior art, the limitation of "subsequent" or "later" decompression and playback was added, with no hint that the program could be only partially downloaded before said decompression and playback would occur. "Program" is used consistently throughout the specification and claims in a manner that strongly suggests it refers to the entire program. The court will define this term as follows:

"For storing the received programs, and for subsequently playing the video programs" means: "For storing the entire received program and for playing the video program after storage is complete."
2. Category for Transacting Business

The parties' proposed constructions are as follows:

**Plaintiff**

Category for (1) e-commerce pages, which provide users with the ability to conduct online purchases, sales, leases, or other financial transactions, (2) pages that may be involved in transacting business, but do not enable the user to conduct the transaction on-line, and (3) other pages that contain commercial information.

**Defendant**

A category for network pages that have as a primary purpose transacting business. In the alternative, this term is indefinite.

Plaintiff's proposed construction closely mirrors the preferred embodiment set out in the specification of the '459 patent, which states that:

Web pages involved in transacting business include e-commerce pages, which provide users with the ability to conduct online purchases, sales, leases, or other financial transactions, pages that may be involved in transacting business, but do not enable the user to conduct the transaction on-line, and other pages that contain commercial information.

(4:62-5:4). The defendant argues that the plaintiff is impermissibly attempting to turn the description of the preferred embodiment into a definition, and that the term "commercial information" is ambiguous.

As to the former claim, criteria outlined in the preferred embodiment do not ordinarily serve to limit the claims of the patent to those criteria. See Anchor Wall Sys., 340 F.3d at 1306. Yet the claim terms can be defined by what is set forth in the preferred embodiment as long as that limitation properly describes the whole invention. See Honeywell Intern., Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006); Vitronics, 90 F.3d at 1582 ("Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.

The specification "acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication"); Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.") (citations omitted); see also Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed Cir. 2005) ("[T]he specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor . . . In that instance [, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive."). Often, it will be clear upon reading the specification in the context of its purpose--which is to teach and enable those of skill in the art to make and use the invention and to provide a best mode for so doing--whether the patentee is setting out specific examples of how to practice the invention or "whether the patentee intends for the claims and the embodiments in the specification to be strictly coextensive." Phillips, 415 F.3d at 1323.

In Honeywell International, the Federal Circuit found that the preferred embodiment of a fuel filter was the only embodiment of the invention because it referred to the fuel filter as "this invention" on multiple occasions in the specification. Id. ("The public is entitled to take the patentee at his word and the word was that the invention is a fuel filter."). The preferred embodiment of "category for transacting business" in this case does not expressly define the invention by its terms. Here, the preferred embodiment states that "web pages involved in transacting business include [the
three types of pages listed by the plaintiff as its proposed construction.]

" (4:62-5:4) (emphasis added). Generally, this use of the word "include" is meant to convey a minimum rather than a maximum. See Black's Law Dictionary 831 (9th ed. 2009) ("To contain as a part of something. The participle including typically indicates a partial list."). By the preferred embodiment's own language, it does not purport to limit categories for transacting business to the list of three types of web pages offered by the plaintiff as its proposed construction.

There is further support in the specification that the use of the word "include" was meant to be illustrative rather than definitional of the term "category for transacting business." The word "include" is used similarly in the preferred embodiment of another disputed term, "category for providing information." (5:4-6; see infra.) Immediately after the purported definition of "category for transacting business," the specification goes on to state: "Web pages involved in providing information include pages that contain articles, journals, publications, or other non-commercial materials." (5:4-6) (emphasis added).

The specification later, however, provides an example of how one would categorize the fictional website www.abcede.com, which had "as its purpose" the teaching of the alphabet, as providing information. (8:31-32.) This purposeful metric for categorizing pages as providing information is lacking from the alleged definition of the term "category of providing information," indicating that the preferred embodiment is not the only embodiment of that category. Nor do other uses of the word "include" in the specification imply that what follows is exclusive. (See '459 patent 4-5.) The preferred embodiment, therefore, does not clearly define the term "category for transacting business" as exclusive to the examples listed and accordingly the court will not limit the scope of the patent claim to those examples.

The defendant's proposed construction imports the term "primary purpose," which the plaintiff argues limits the term to categories with one "primary purpose" when the specification is clear that a web page can be assigned to both the transacting business and providing information categories. (5:7-9.) Such pages, asserts plaintiff, would therefore have two "primary purposes" according to the defendant's logic. The dictionary definition of the adjective "primary" applicable here is the secondary definition, "something that stands first in rank, importance, or value." Mirriam-Webster's Collegiate Dictionary 986 (11th ed. 2003). This definition of "primary" appears to exclude the possibility of multiple "primary purposes," and would exclude the preferred embodiment of the invention which has network pages categorized as both for transacting business and for providing information.

Plaintiff further asserts that defendant's proposed construction excludes the preferred embodiments of e-commerce pages and pages that contain commercial information. Concerns regarding the first embodiment are without merit, as "transacting business" would be thought to include web pages that allow users to complete online commercial and financial transactions. The second embodiment of pages that merely "contain commercial information" might be excluded if defendant's "primary purpose" construction is adopted. While the other two preferred embodiments would be included in the "primary purpose" language proposed by the defendant, the defendant's proposal would seem to exclude pages that merely "contain" commercial information but whose "primary purpose" remained the providing non-commercial information. Therefore, the defendant's proposed construction must be rejected.

Since the plaintiff and defendant both have proposed constructions that do not perfectly align with the claims and specifications of the patent, the court construes the term as: A category for network pages that have as a purpose transacting business. At oral argument both parties indicated that, while they each preferred their own proposed construction, this construction could be satisfactory. This definition is broad enough to encompass the preferred embodiment and also takes into account the purposeful analysis that the patent specification has indicated is also appropriate. Furthermore, this construction recognizes that for the patent to function the term "category for transacting business" must both be sufficiently definite to be meaningful to network page creators seeking to categorize their network pages, and be flexible enough to allow them to categorize their network pages as they best see fit. This construction also avoids the term "commercial information" proposed by plaintiff and challenged by defendant as impermissibly indefinite.

Therefore, the term "category for transacting business" means "A category for network pages that have as a purpose transacting business."
6. for use in transferring data between a flash memory module and a user's computer n2

n2 The corresponding phrases are "For use in transferring data between a removable flash memory module and a user's computer;" "to transfer said image data between a removable flash memory module of a digital camera and a user's computer;" and "For use in transferring data between a digital camera flash memory module and a user's computer."

This phrase appears in the preamble of several claims in both patents. The parties agree that this phrase should be considered a limitation of the claims. The plaintiff, however, contends that this phrase requires no construction. To the extent it does need construction, the plaintiff proposes that the phrase means "the claimed device must be able to transfer data between a flash memory module and a user's computer." The defendants propose "the principal functionality of the claimed device is to transfer data between a flash memory module and a computer." The main dispute is whether this phrase limits the claim to a "principal functionality." The defendants cite to the prosecution history where the patentee added this phrase to distinguish prior art. Although the phrase was added during prosecution, nothing in the prosecution history states that a "principal functionality" limitation was also added. Accordingly, the court concludes that this phrase requires no construction and rejects the defendants' proposed limitations.

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1. "form line"

This phrase appears in claims 1-6, and claim 11. See Tang Decl., Ex. A at 12:35-14:14; Ex. D at 2 (amended Claims 1, 3). Trimble contends that "form line" should be construed to mean "two or more computed terrestrial locations which when linked by a line approximation define a direction of travel across a field to provide steering guidance." Defendants, by contrast, contend that "form line" should be construed to mean "path across the area to be treated." Both parties agree that the term "form line" has no accepted meaning in the relevant art, and that the term must therefore be construed in a manner consistent with that provided for by the '383 patent itself, even as they disagree with the construction that the '383 patent purportedly dictates.

Preliminarily, the court notes that the construction of "form line" proves to be the single most important construction at issue before the court, as it underlies nearly every term that follows. For that reason, it follows that the majority of the constructions before the court will also be determined, at least in part, by virtue of the court's construction here.

To begin its analysis, the court first turns to the claims themselves. The term "form line" is first introduced in claim 1, which sets forth the general contour guidance method claimed by the patent. Claim 1 states that the claimed method consists of defining a "first form line," defining a "second form line," and then "updating Ethel second form line" to account for any deviations made while defining the "second form line." See Tang Decl., Ex. A at 12:35-49. The overall method claimed is generally described as a "form line following" method. Id. The claims subsequent to claim 1 generally either define the method further, or define the "form line following apparatus" that enables the form line following method to take place. Nearly all claims employ repeated reference to the phrase "form line," as it was initially set forth in claim 1.

Based on the court's review of the claim language, two things become apparent. First, the phrase "form line" is meant to have the same meaning in each claim, since there is no indication that the phrase is to be given a specific definition in any one claim versus another, and no indication that the phrase has been particularly defined, or referred to differently, in any specific claim. Second, the claim language does not actually shed light on the construction to be given the phrase "form line," since the language does not ever indicate what a form line is, merely stating at most how such "form lines" are to be defined. See Tang Decl., Ex. A at 12:35-40; Ex. D at 2 (amended Claims 1)(a first form line is to be defined "using two or more terrestrial locations," and a second form line is to be defined "using positioning data derived from GPS data and a swathing offset").

Accordingly, the court must turn to the specification for added insight. It is here that defendants' proposed construction
begins to make sense. For at various points, the specification generally refers to form lines as "paths" and "computed paths" that are defined by the operator and/or by application of GPS data and a swathing offset, and which the operator is to follow across an area. See, e.g., Tang Decl., Ex. A at 6:21-32 ("During spraying operations, LED 74 will be lit when sprayer rig 30 is following a computed form line path..."); 7:23-32 ("[GPS] positions (when linked together, e.g., by a straight or curved line approximation) will define the first form line -- that is, the path followed by sprayer rig 30 as it maneuvered across field 32"); 2:31-33 ("The display device may include a moving map display and/or a light bar display which allow an operator to follow a computed form line path") (emphasis added). These descriptions of a form line as a path that is followed by the vehicle across the field, or as having a computed path that the operator is to follow, support the construction that "form line" means a path across the area to be treated. For in order for there to be a path that has first been computed, and which an operator must then follow, it stands to reason that the path must first extend across a given area. Else, there is nothing for the operator to follow.

A further critical factor supports this construction. That is the fact that a central element of plaintiff's claimed method is the ability to update a second "form line" to account for deviations that occur in order to accommodate terrain features. See generally Tang Decl., claims 1, 3, 6, 11. If a form line were not construed, as defendants propose, as a path extending across an area to be treated, it is not wholly clear how a vehicle could deviate from it, such that an updated "form line" could be computed to take the deviations into account. In other words, a vehicle cannot deviate from any form line if the form line is not, in fact, first a path extending across an area to be treated, which the vehicle then fails to follow. Indeed, several references to the deviation process in the specification indicate that a form line is a path across an area to be treated, from which the operator may choose to deviate. See, e.g., Tang Decl., Ex. A at 1:61-2:2 ("A second form line is then computed using positioning data obtained while following the first form line and a swathing offset..."). The second form line is updated according to one or more deviations from its computed path.

The patent's figure drawings, and the specification's description of the figure drawings, also support this construction. Figure 3, for example, illustrates the "spraying rig operating in the open field crop environment in accordance with the present invention." See Tang Decl., Ex. A at 2:47-49. The specification's description of the drawing refers to "form lines" 52, 54, and 56. Turning to figure 3 to identify form lines 52, 54, and 56, each form line is portrayed as a line representing a path across the field that is treated by the vehicle. Figure 5 confirms this. It is not an illustrative drawing, but rather a chart depiction of the contour guidance method that is patented. It depicts the various steps that an operator undertakes when following the guidance method described in the '383 patent. It is significant, however, that in depicting the process for defining a "form line," figure 5 depicts the operator -- in steps 104, 106 and 110 -- as defining the first form line by beginning "contour following," at which point "GPS position data collection begins" as well. It is only when the GPS position data collection ends, that the operator is described as having "finished" the first form line. See Tang Decl., Ex. A at fig. 5. All subsequent "form lines" are then depicted as being computed based on the immediately preceding form line, which the operator then selects and "follows" until he "finishes." See id. (at steps 116, 118, 120, 122). The common sense interpretation of this chart is that a "form line" is not actually complete -- or defined -- until an operator has finished moving along his intended path, thereby defining the "form line" as a path across the area that the operator has treated. Lastly, figure 6, similar to figure 3, is an illustrative drawing that depicts different lines or paths across a field, which the specification states are "intended form lines." This language, too, supports construing the phrase "form line" as a path across an area to be treated.
Not only is defendants' proposed construction therefore supported by the language of the patent itself, as described above, but plaintiff's proposed construction also proves problematic. First, it is difficult to ascertain from it precisely what is meant, as the language employed is confusing and ambiguous. Second, and more importantly, however, plaintiff's construction does not find support in the patent's language. As plaintiff acknowledges, its proposed construction differs from defendants' in that it defines a "form line" as one that can be comprised of only a "segment" of the territory covered by a vehicle traveling across an area being treated. But the patent's figure drawings and specification point away from such a construction.

To illustrate this point, review of figure 3 is once again helpful. Figure 3 depicts "form line 52," which as noted previously, is one path that extends across the treated field as illustrated in the drawing. Form line 52, in turn, depicts several intervals that are numbered 200, 204, 206, 208, and 210. The specification states that these numbers represent "points" at which "GPS data is collected." Tang Decl., Ex. A at 7:18-21. According to the specification, "the GPS data collected at each point is processed along with the differential GPS information (or RTK corrections) and a series of terrestrial positions are computed. These positions (when linked together, e.g., by a straight or curved line approximation) will define the first form line..." Id. at 7:23-28. In other words, the points numbered 200, 204, 206, and 208 on figure 3 are the examples of points at which GPS data is collected to compute a "terrestrial position" for the points, all of which will be linked together to create a single "form line 52." The "form line" is therefore really comprised of numerous points that are not form lines in and of themselves, but are simply linked together to create a single form line. Under plaintiff's proposed construction, however, the "form line" in figure 3 could be defined as the distance between points 200 and 204 only; since its proposed construction essentially states that a form line may be "two or more computed terrestrial locations" that are "linked by a line approximation" that merely "define a direction of travel across a field." Yet, looking at figure 3, it is inconsistent, at best, to construe the distance between any of the lesser points as a form line, when the specification specifically states that the "form line" in, the drawing is the completed "form line 52."

In sum, and for all the reasons set forth above, the court adopts defendants' proposed construction of "form line," and construes the term "form line" as: a "path across the area to be treated."

8. "form line following information corresponding to the updated form line" (Claim 4)

This phrase appears in claim 4. See Tang Decl., Ex. A at 12:64-67. Trimble contends that phrase no. 8 should be construed to mean "steering guidance provided to the operator based upon terrestrial locations representing the direction or path of travel actually taken by the vehicle on the previous pass," while defendants urge that the-court construe the phrase to mean "the recomputed path across the area to be treated that is to be followed."

The language at issue appears in claim 4. Both parties agree that claim 4 is targeted at the display device that will actually provide "steering guidance" to the operator of the vehicle. They simply dispute the meaning of "updated form line." In essence, plaintiff contends that the updated form line information that will be conveyed via the display device corresponds to a form line that does not extend across the field, and defendants assert that by updated form line, the patent refers to a form line that does extend across the field.

Once again, this rehashes arguments as to "form line" that have been already resolved. Consistent with the court's prior resolution that "form line" means a path across the area to be treated, "updated" form line means a recomputed path across the area to be treated, and "form line following information corresponding to the updated form line" is therefore construed as: "the recomputed path across the area to be treated that is to be followed."

2. "form line having been defined" (Claim 11)

This phrase appears in claim 11. See Tang Decl., Ex. A at 14:4-14. Trimble contends that the phrase should be construed to mean "a form line for steering guidance based upon the computed terrestrial locations of the previous form line and a
distance determined by an effective width of a towed implement." Defendants contend that it should be construed to mean "path across the area to be treated that has been computed."

There is no dispute between the parties that the form line referred to in claim 11 -- i.e., the "form line having been defined" -- is based on "computed" locations. Plaintiff expressly acknowledged this, both in its reply, and when questioned at the hearing on the instant matter. Accordingly, there is no dispute that the phrase at issue should be construed to mean "path across the area to be treated that has been computed."

Furthermore, and as noted in the previous discussion of "form line," defendants are correct that the '383 patent specification refers in numerous places to form lines -- including subsequent form lines that take into account operator-controlled deviations from prior form lines -- that are "computed." See, e.g., Tang Decl., Ex. A at 8:6-10 ("the subsequent form line is computed based on the actual path traveled by sprayer rig 30 and not just the expected path computed after the first form line was completed."); 8:32-36 (only significant deviations from a computed form line guidance path (e.g., the second form line discussed above) will be used as decision points for displaying guidance…). This supports the conclusion that a form line that has been "defined" is a form line that has been "computed," based on prior positioning information and a swathing offset.

Moreover, as defendants point out, the prosecution history also supports this conclusion. During reexamination of the '383 patent, Trimble represented to the PTO that "defining" a form line mean's "computing" a form line. See Tang Decl., Ex. D at 4-5. Specifically, Trimble distinguished the claims of the '383 patent from the prior Korvel patent, with the statement that Korvel did not disclose or suggest "defining an updated second form line (that is, recomputing the previously computed form line) according to one or more deviations from the second form line…". See id. at 4 (emphasis added). With this statement, Trimble expressly acknowledged that "defining" a "form line" is equivalent to "computing" a "form line" -- as defendants urge here. As such, Trimble will not now be allowed to circumvent this prior definition. See Hemphill v. McNeil-PPC, Inc., 25 Fed. Appx. 915, 917-18 (Fed. Cir. 2001)(prosecution history can act like a dictionary and statements made during reexamination proceedings "are relevant prosecution history when interpreting claims")(unpub. disp.).

The court therefore adopts defendants' proposed construction, finding that it is most consistent with both the '383 patent's language, and the prosecution history. The phrase "form line having been defined" is therefore construed as: "path across the area to be treated that has been computed."

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II.

A.

The first critical issue is the correct construction of the term "form set." According to the trial court's construction, "form set" includes "single-ply" form sets, Paymaster Techs., Inc. v. United States, 54 Fed. Cl. 579, 590 (2002) ("Paymaster I"). The government argues that "form set" must be interpreted to exclude "single-ply" form sets because, it says, the claim language itself recites and the specification discloses more than one "sheet" in every form set described. Paymaster responds that, while claims 1 and 5 recite a form set including three specific "sheets," the plain language of claim 10 allows a form set that includes only one such specific "sheet." Furthermore, it asserts, the written description discloses a form set having only one specific "sheet." We agree with the trial court.

We start with the claim language. Independent claim 10 recites in relevant part:

[a] form set . . . comprising . . . at least one negotiable instrument sheet . . .

'283 patent, col. 18, ll. 5-12. In contrast, claim 1 recites in relevant part:

[a] form set . . . comprising . . . an upper negotiable instrument sheet . . , a lower customer receipt sheet, an intermediate voucher sheet. . . , a first transfer medium positioned between said upper negotiable instrument sheet and said intermediate voucher sheet, and a second transfer medium positioned between said lower customer receipt sheet and said intermediate
voucher sheet. . . .

Id. at col. 16, ll. 25-37. Claim 5 uses the exact same relevant language. Id. at col. 16, l. 60 - col. 17, l. 5.

According to its plain language, claim 10 reads on a form set that includes a negotiable instrument sheet. Under conventional construction of "comprising," a form set as recited in claim 10 may include only one negotiable instrument sheet, so long as it includes another form. See Vehicular Techs. Corp. v. Titan Wheel Int'l, Inc., 212 F.3d 1377, 1383 (Fed. Cir. 2000).

Claims 1 and 5 add the limitation that their form sets must include two specific additional sheets, a lower, customer receipt sheet and an intermediate, voucher sheet. But this limitation cannot mean that the form set of claim 10 must have these same two specific additional sheets. It merely recites that the form set of these two claims will also include these two other specified sheets.

The issue, then, is whether a form set with "at least one negotiable instrument sheet" may be "single-ply." We hold that a form set as recited by all three claims and disclosed in the specification may be single-ply. A "form set" is simply a set of forms, i.e., more than one form. For example, a negotiable instrument sheet may constitute one form, a customer receipt sheet may constitute another form, and a voucher sheet may constitute another form. Together, these forms constitute a form set. Yet each form in a form set does not have to occupy a separate layer, or ply. Rather, multiple forms in a form set may be in a single ply, as perforated, detachable forms. But there must be at least two different forms to constitute a form set.

Every relevant part of the specification accords with this meaning of the term "form set." Indeed, the key to understanding the correct construction of the term "form set" is to apprehend that the summary of the invention describes two different types of form sets: (1) a set of forms with at least one negotiable instrument sheet, and (2) a set of forms with specifically an upper negotiable instrument sheet, a lower customer receipt sheet, an intermediate voucher sheet, and transfer medium sheets positioned between.

The first two paragraphs of the Summary of the Invention describe a form set as recited in claims 1 and 5, a form set with five specific sheets - including the "upper" negotiable sheet, the "lower" customer receipt sheet, the "intermediate" voucher sheet, and the two transfer medium sheets "positioned between" these sheets. '283 patent, col. 2, ll. 10-44. Because the five specific sheets are disclosed as "upper," "lower," and "intermediate," and because the transfer medium sheets are "positioned between" the forms or sheets, id. at col. 16, ll. 40, 43, col. 17, ll. 8, 11, this type of form set has to be multi-ply. This type of form set is the type later disclosed as the preferred embodiment. Id. at col. 4, ll. 15-17.

The third paragraph of the summary of the invention, however, describes a form set as recited in claim 10 - a form set only specifying a negotiable instrument sheet. Id. at col. 2, ll. 52-53. This "negotiable instrument sheet" is not described as an "upper" negotiable instrument sheet. No transfer medium sheets are "positioned between" the negotiable instrument sheet and any other sheet. The additional form in this second type of form set may be part of a single ply. This reading of all three paragraphs of the summary of the invention - and the two different types of form sets that they describe, multi-ply and single-ply - is the key to understanding the meaning of "form set."

It is true that also disclosed in the summary of the invention are form sets with the specific three sheets as described above and their interlayered transfer medium sheets. Id. at col. 2, ll. 12-17. A "multicopy form set" comprised of a "plurality of sheets" is further disclosed in detail in the written description, id. at col. 7, ll. 17-18, but only under the heading "Description of a Preferred Embodiment." It is axiomatic that claims are only rarely, if ever, construed as limited to the preferred embodiment. See, e.g., Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 992 (Fed. Cir. 1999).
user to select among different "image file formats."

After considering the claim language, patent specification, and hearing the attorneys' arguments, the Court concludes that the patents-in-suit teach the selection of different image file formats. (D.I. 52, Ex. A, B, C, D). The Court believes that two paragraphs of the common specification support its conclusion:

(1) The compressed digital frame is then formatted into either an IBM PC/Clone (such as GIFF) or Apple Macintosh such as PICT II) image file format depending on the setting selected by the operator for a user switch 17 (Fig. 6) position on the control panel 2. After formatting, the file is written into the temporary memory buffer within the disk input/output (I/O) interface circuit 13 which, under the command of the digital control unit 9, controls the high density (1.4 Mbyte storage capacity) disk drive unit 5.

(D.I. 52, Ex. D, col. 4, ln. 61-col. 5, ln. 2) (emphasis added).

(2) As shown in FIG. 7, the output of the image compression processor 12 is routed to the RAM memory 24 where the compressed image is formatted for either the PICT II or GIFF format depending on the setting of format switch 17 (FIG. 6). It should be noted that a large number of image formats for PCs exist, PICT and GIFF are the most common for the Apple and IBM PC's and therefore the preferred formats for the present invention although other formats can be easily incorporated into the design by changing the software format routines.


From the paragraphs quoted above, as well as the claim language and remaining patent specification, the Court concludes that Switch 17 allows the user to select a particular image file format, such as PICT, GIFF, or JPEG, compatible with operating systems, such as Apple and IBM, and their required memory formats. (D.I. 52, Ex. D, col. 4, ln. 61-col. 5, ln. 2, col. 11, ln. 1-10). After the image file is formatted, per the user's selection, the image file is then written onto the memory device. In sum, the Court concludes that the term "format" relates to the image signal, and not the computer hardware. An appropriate Order will be entered.

The parties dispute the meaning of the term "format." Intel argues that the term "format," as defined in the claims and specification, is a form in which data is transmitted between nodes according to its encoding, protocol, encryption, and compression. Therefore, Intel submits that one format is different from another format if it uses different encoding, protocol, encryption, or compression, or any different combination thereof. However, one format is not different from another format if they both use the same encoding, protocol, encryption, and compression, but differ only in transmission rates.

While agreeing that the asserted claims expressly limit the format to a format "defined in terms of data architecture," Broadcom argues that Intel's construction the term "format" combines additional claim limitations that appear only in the asserted claims. Specifically, Broadcom argues that the Intel's construction combines the term "format" with two separate claim elements - "wherein said formats are defined in terms of data architecture" and "wherein said data architecture is defined in terms of at least one member of a group consisting of encoding, encryption, compression, and protocol."

According to Broadcom, the term "format," standing alone, must have a broader meaning, because it cannot include limitations that are recited only in some of the claims.

The court finds that the specification defines each of the terms relating to the definition of format. The term "format" is a data transmission characteristic that is defined in terms of "data architecture" and/or the "rate of data transmission." The "rate of data transmission" is defined in the specification as "the rate at which data bits are transmitted from source node to destination node." "Data architecture" is defined in the specification "by one or more of the following data transmission characteristics: encoding, encryption, compression, and protocol."

The phrase "wherein said formats are defined in terms of data architecture" qualifies the term format, as used in claim 1, and limits it to formats that are defined in terms of "data architecture." This means that the formats referred to in claim 1 are not defined in terms of the "rate of data transmission," but are limited to being defined in terms of "data architecture."
The phrase "wherein said data architecture is defined in terms of at least one member of a group consisting of encoding, encryption, compression, and protocol," limits the "data architecture," as used in the "format" of claim 1, to a one or more members of this group of four specific types of data architecture. Each term is defined in the specification, and each term is well-known to persons of ordinary skill in the art. The court adopts each of the meanings of the four types of data architecture, as they are set forth in the specification. "Encoding" is the waveform pattern or other waveform representation of data bits used for transmission of data on the communication medium. "Encryption" is the organization and arrangement of data into a nonintelligible form for transmission. "Compression" is the representation of data in a shorter form which requires fewer bits to represent the data. "Protocol" is the convention used for data transmission which defines frame organization and content including command codes for the protocol handler of the destination node.

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i. "format set"

The parties dispute the meaning of the term "format set." Intel claims that a format set is the collection of individual formats for a node, represented by a string of bits, where each individual bit represents a single format. Broadcom agrees that the term "format set," as used in the phrase in claim 1, "wherein each of the said nodes has a format set comprised of one or more formats," means that every node coupled to the network must have a "format set" and that the format set is a collection of individual formats for a node that contains at least "one format." Broadcom disagrees, however, that a "format set" must be represented by a string of bits, where each individual bit represents a single format.

The claims of a patent must be read as a whole. Reviewing the claims, the court finds that a format set need not be represented by a string of bits. Claims 6 and 17, which depend, respectively from claims 1 and 15, add the limitation "wherein said format sets are represented by bit strings." The term "format set" must have the same meaning in each claim. Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995) ("claim terms must be interpreted consistently"). If the stand alone term "format set" were required to be represented by a bit string, the scope of this term as used in claims 6 and 17 would be superfluous. Beachcombers, 31 F.3d at 1162. Therefore, the court finds that the term "format sets" means a collection of individual formats for a node consisting of at least one format.

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A.

In the main appeal, CollegeNet contends that, in granting JMOL of noninfringement of the '042 patent, the district court misconstrued the "in a format specified by the institution" limitation. The context of the term's usage is shown above in representative claim 16. The district court instructed the jury as follows:

User information provided to the institution by the servicer is available in an unlimited number of formats and is processed wholly by the third party forms servicer and not the institution. That is, the function is one of providing limitless formats for the transfer of user information from the servicer to the institution with no additional formatting or mapping performed by the institution.

This construction does not preclude formatting, mapping, or other manipulation of the user information data by the institution once it is received by the institution in a format specified by the institution.

Any reference to "unlimited number of formats" and "limitless formats" should be interpreted to mean that the third party forms servicer provides the user information to the institution in any format specified by the institution.

"In a format specified by the institution" means in any file format, and it may include any other type of format, specified by the institution.
The '042 patent does not expressly define these disputed claim terms. Thus, this court, like the district court, must derive the meaning of these disputed claim terms from their usage and context. This court seeks a term's usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art at the time of invention. See Phillips v. AWH Corp., 415 F.3d 1303, 2005 U.S. App. LEXIS 13954, 2005 WL 1620331 at *5 (Fed. Cir. 2005) (en banc) (citing Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004)); Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). Indeed, "the inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." Phillips, 2005 U.S. App. LEXIS 13954, 2005 WL 1620331 *5. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id. Thus, a patent applicant may use the words in the specification, prosecution history, or both "in a manner inconsistent with its ordinary meaning." Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339, 1347 (Fed. Cir. 2003) (citing Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325-26 (Fed. Cir. 2002)). In other words, a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims. See Ballard Med. Prods. v. Allegiance Healthcare Corp., 268 F.3d 1352, 1361 (Fed. Cir. 2001) (noting that an applicant may disclaim claim scope during prosecution); Middleton, Inc. v. Minn. Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed. Cir. 2002) (explaining that in order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution). In examining the specification for proper context, however, this court will not at any time import limitations from the specification into the claims. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1326 (Fed. Cir. 2002).

In this case, this court agrees with CollegeNet that the district court erred in construing the claim limitation "a format specified by the institution" to require an unlimited number of formats. First, the district court improperly read the term "format" to mean "any file format." The specification and claims use the word "format" in its customary sense to mean the arrangement of data for storage or display. See Phillips, 2005 U.S. App. LEXIS 13954, 2005 WL 1620331 at *9 ("'customary meaning' refers to the 'customary meaning in [the] art field'") (citing Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004)). For example, in describing data formatting, the '042 patent states:

Not only are the individual data elements tailored to the specifications of a particular institution, the entire data set is formatted to conform to that [institution's] needs. The data formats may include 1) comma separated values, 2) tab delimited values, 3) fixed length formats, 4) name/value pairs, and 5) EDI 189. For all of these methods, of course, the data is ordered as required (e.g., Social Security number first, last name second, high school name 33rd, etc.).

'042 patent, col. 20, l. 66 to col. 21, l. 6. By listing five exemplary data formats, this passage suggests that an institution may tailor the arrangement of data to its needs within reasonable parameters, namely within one of the supported data formats. While the particular set of supported formats may indeed be broader than those specifically listed in the specification, at no point, however, does the patent require support for an "unlimited" number of formats. Id., col. 3, ll. 52-54 ("The invention is not limited, however, to the processing of any particular type of form or to the use of any particular network or database."). Thus, the district court's definition of "format" was unnecessarily narrow.

The district court also overlooked this court's precedent on the meaning of "a." "It is well settled that the term 'a' or 'an' ordinarily means 'one or' more." Tate Access Floors, Inc. v. Interface Architectural Res., Inc., 279 F.3d 1357, 1370 (Fed. Cir. 2002). The district court replaced "a" with "any." For this proposition, the trial court relied on passages from the specification, which state that the invention "allows the information submitted by the applicant to be transmitted to each institution in any data format that the institution requests so the institution is not required to convert the data to a usable format." '042 patent, col. 8, ll. 22-26 (emphasis added). The specification also states:

The completed application is transmitted to the institution with the data in any format that the institution prefers. The institution can therefore upload the data directly into its applicant or student information system database, merging the information seamlessly into their existing work flow, thereby avoiding the additional expense and errors of re-keyboarding the information. The forms engine thus has the capability of outputting application information universally across platforms.
Id. at col. 9, ll. 4-13 (emphasis added). Based on these passages, the district court reasoned that the claim language requires an unlimited number of formats because it contains no express numeric limitation. CollegeNet, Inc., v. ApplyYourself, Inc., 2003 U.S. Dist. LEXIS 25918, Nos. CV-02-484-HU, CV-02-1359-HU, slip. op. at 8 (D. Or. Sept. 3, 2003) (Claim Construction Reconsideration).

Contrary to the district court's conclusion, the claim language's use of "a" contains the limitation of one or more. In context, the specification notes that the institution may choose any format that is "requested" and "usable." See '042 patent, col. 8, ll. 22-26. n1 In other words, the '042 patent merely requires the institution to specify an acceptable format so it does not have to convert the data to another format. The patent does not require an infinite number of format choices in advance. Instead, the patent accommodates a system that allows the institutions to choose amongst a finite set of supported format choices. This choice qualifies as "a format specified by the institution" in the words of the claim.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -n1 As quoted above, the invention "allows the information submitted by the applicant to be transmitted to each institution in any data format that the institution requests so the institution is not required to convert the data to a usable format." (Emphases added.)

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ApplyYourself points to the prosecution history to further advance its position that the district court correctly required an unlimited number of formats. During prosecution of the parent '278 application, co-inventor and CollegeNet CEO James Wolfston distinguished his invention over ApplyWeb I by stating "ApplyWeb I could not process the applicant information to put it into a form specified by the college." [A5905] Mr. Wolfston further explained that the ApplyWeb I program was "too inflexible to provide the customized application format and customized data processing uploads required by the participating institutions." Contrary to ApplyYourself's contentions, Mr. Wolfston's statements do not require his invention to offer an infinite selection of formats. Rather, Mr. Wolfston's statements merely distinguish his invention from an inflexible, non-customizable item of prior art that provides data in a single, vendor-determined format without any input, selection or other specification from the institution.

In sum, in its determination that "a format specified by the institution" requires an unlimited number of formats, the district court defined "format" too narrowly by limiting it to any "file format" and erroneously imported the term "any" into the claim language, ignoring the ordinary meaning of the term "a."

1786

(3) The words "type of formatting" in "receiving format identifiers identifying the type of formatting required" mean a layout or presentation of text and/or graphics on a page. 5 In ordinary English usage, "formatting" refers to the appearance of text or graphics on a page. A "type of formatting," then, is the layout or presentation of text and/or graphics on a page. The use of this construction in the '737 patent is supported by the specification and the prosecution history. The specification teaches that the format identifier directs the server to find and execute "particular function strings," '737 Patent, Col. 15, ll. 65-66, each of which "generate[s] a particular line of HTML code." '737 Patent, Col 13, ll. 3-4, 16-17. HTML code, the specification explains, consists of text and graphics along with "tags" that instruct the browser how to format the text or display the graphics such that "it is possible to generate a wide range of page layouts from a modest set of (HTML) tags." Id. at Col. 3, ll. 4-11. The prosecution history further clarifies the relationship between the format identifier and the "look" of the page. The applicants describe their claim as "an arrangement whereby two different clients requesting the same content data from the same server may receive differently formatted versions of the same content data depending upon a particular format identifier..." Decl. of Brian Rosenbloom, Ex. M, Amendment, Dec. 16, 2003, at 13. 6

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5 Dow Jones proposes that "receiving" not read "looking up in a database" or "reading from a database," because, in the preferred embodiment, the format identifier is received from the request. As discussed above, however, the claim language, specification, and prosecution history leave open the possibility that the server could receive a format identifier from a
source other than the request, such as a database.

6 Dow Jones proposed an additional limitation: that the identifier "was included in the request for specified content data." This proposal stems from Dow's position that the format identifier must be included in the request, which has been rejected previously.

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The construction proposed by Dow Jones - "indexed string for formatting functions" or "indexed function string" - would define "type of formatting" by the mechanism by which a particular type of formatting is created on a web page in the preferred embodiment. As described in the specification, the format identifier directs the server to a particular set of stored functions, which, when executed, creates HTML code "on the fly." The format identifier has two purposes in the claim: it is used for "identifying the type of formatting required" and for "selecting a set of stored functions." 7 Dow Jones, however, proposes to give essentially the same construction to both "type of formatting" and "set of stored functions." Dow construes the former as "indexed function string" and the latter as "a particular indexed function string." Dow Opening Br. at 13. Under Dow's construction, those purposes would be redundant.

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7 Dow Jones admits as much in its Markman presentation, which states that the format identifier "specifies the page format because [it] informs the web server which formatting function should be selected to generate the page on the fly." Dow Jones Markman Presentation, June 6, 2007, at 34 (emphasis added).

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1787

(5) The term "formatting data" in the phrase "executing said set of functions to generate viewable content comprising said selected content data and formatting data" means HTML tags, which specify the location of text and/or graphics on a page. As explained above, a "type of formatting" is a layout or presentation of text and/or graphics on a page. Within the context of the claim, the plain and ordinary meaning of "formatting data" is data used to create a type of formatting. The specification teaches that this refers specifically to HTML tags. See '737 Patent, Col. 3, ll. 10-11 ("[I]t is possible to generate a wide range of page layouts from a modest set of (HTML) tags."); Col. 3, ll. 66 - Col. 4, ll. 1 ("HTML allows sophisticated formatting structures to be added to the viewable data so as to present a substantially more appealing image to client users.").

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9 Because there are no indications in the claim language, specification, or file history that the applicants considered a markup language other than HTML, Ablaise's proposed construction that "formatting data" means "markup language, such as HTML tags" is rejected.

--- End Footnotes ---

Furthermore, although HTML tags can be used to control both location and presentation (font, color, bold, etc.), the claim language and prosecution history teach that the claim is limited to formatting data that specifies location. The preamble to claim 1 states that a page served by the method of claim 1 includes "formatting data which specifies location of said text and/or graphics within a page." Id. at Col. 20, ll. 1-2. This claim language indicates that the claim does not cover formatting data (HTML tags) that does not specify location. The file history confirms this limitation. In an amendment filed December 16, 2004, the applicants added the same limiting language after the term "formatting data" in several other claims. In the amendment, the applicants state: "The content data, itself, comprises text and/or graphics and these are located within the page as specified by the formatting data. Independent claims 2, 14, 15, and 20 have been amended to make this even more clear." Decl. of Brian Rosenbloom, Ex. M, Amendment, Dec. 16, 2003, at 14.
1788

(1) In the phrase "identifying requests from browsing devices that define a request for specified viewable data, said request including formatting type identification data," the term "formatting type identification data" means data identifying a type of formatting. As in the '737 patent, a "type of formatting" is a layout or presentation of text and/or graphics on a page. The rest of the claim language is clear and requires no additional construction. Dow Jones proposes two limitations similar to those it proposed for the '737 patent. Dow argues that the request must include "an identifier identifying certain viewable data and an identifier identifying a certain file structure" but not a "request to retrieve and execute a file identified in the request." As with the '737 patent, those limitations are rejected.

1789

(2) In the term "maintaining a plurality of formatting types of data," the phrase "formatting types of data" means "sets of HTML tags. The plain meaning of "formatting types of data" is clear when read within the context of the claim. As in the '737 patent, formatting data refers to HTML tags, which are used to specify the location of text and/or graphics on the page. The claim states that "formatting types of data" define "corresponding predetermined formats" - in other words, a particular set of HTML tags that corresponds to a particular format.

Footnotes

10 Dow Jones further argues that "maintaining" means "storing, in a table." Because claim 1 is a method claim, rather than an apparatus claim, a construction that limits the claim to a particular structure is only appropriate if other structures were disavowed by the applicants. Dow Jones points to language in the specification and file history which indicates that formatting data, at least in the preferred embodiment, would be maintained in "string list store 1103," a table within a database. '530 Patent, Col. 15, ll. 9-12; Decl. of Brian Rosenbloom, Ex. R., Amendment, Aug 20, 1999, at 5. Although the applicants did not disclose any other possible method for maintaining this data, none of the references cited by Dow Jones indicate that the applicants "ma[de] clear the invention does not include a particular feature," SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) or limited the scope of their claim by disclaiming a particular interpretation during prosecution. Biodex Corp. v. Loredan Biomed., Inc., 946 F.2d 850, 862 (Fed. Cir. 1991).

End Footnotes

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d. Claim 38

[1] A method for processing digital signals, [2] where the digital signals have first values, second values and other values, [3] where the processing reduces the amount of data utilized to represent the digital signals and [4] where the processing forms statistically coded signals such that the more frequently occurring values of digital signals are represented by shorter code lengths and the less frequently occurring values of digital signals are represented by longer code lengths, where

[5] a first code value is formed representing a set of said first values followed by said second value,

[6] a second code value is formed representing a set of said first values followed by one ore more of said other values comprising,

decoding said first code value to form a set of said first values followed by said second value,

decoding said second code value to form a set of said first values followed by one or more of said other values.

For the reasons stated above with respect to the preamble of claim 1, which is substantially similar to the first four phrases
of claim 38, the Court concludes that the first four phrases of claim 38 are limiting. Additionally, the parties dispute whether phrases [5] and [6] limit claim 38 such that it requires both encoding and decoding. The Court concludes these phrases do limit claim 38 in such a manner.

Because phrases [5] and [6] are not merely descriptions of the purpose of the claim and instead provide specific limitations and antecedents to further claim limitations, the Court concludes that these phrases are limiting. Plaintiff argues that it would be illogical to construe claim 38 such that it would require encoding and decoding in the same device. Defendants' proposed construction, however, does not require such an (arguably illogical) interpretation. Defendants argue merely that the claim requires that both steps be performed, not that the same device perform them. The plain language of the claim requires that the step of encoding is performed, not simply that the values have the characteristic of having been encoded—phrase [5] requires that "a first code value is formed" and phrase [6] requires that "a second code value is formed." Accordingly, the Court concludes that phrases [5] and [6] are limiting and, thus, that claim 38 requires both encoding and decoding.

5. "a plurality of memory cell transistors and a plurality of select transistors formed in said plurality of element regions"

This phrase appears in claims 1 and 16 of the '715 patent. Toshiba does not believe that the phrase requires construction but alternatively proposes replacing "a plurality of" and "said plurality of" with "more than one" throughout the term, changing "formed" with "are made," and changing "transistors" and "regions" to their singular forms. Jt Cl Const, Ex C at 20. Hynix argues that the phrase means "a plurality of memory cell transistors and a plurality of select transistors, each of which resides within one of the plurality of element regions." Id.

Hynix's construction requires each transistor reside "within one of the plurality of element regions." But the claim language requires only that the transistors be "formed in" these regions. Hynix appears to use "formed in" and "within" interchangeably but Toshiba correctly notes that "within" imports an additional limitation requiring a transistor to be wholly contained inside an element region, whereas a transistor might be "formed in" an element region but include components extending outside the region. Indeed, Hynix's proposed construction would impermissibly exclude the many "T-shaped floating gate" embodiments that have transistors extending laterally beyond the element regions. See '715 patent at FIGS 9G, 9H, 13B, 15A, 15B, 35, 40, 42A, 42B. Hence, Hynix's use of "within" is inappropriate because it imports a limitation supported by neither the specification nor the claim language.

Hynix also argues that each memory cell transistor or select transistor can exist only in a single element region rather than being spread over multiple regions. The language of claims 1 and 16 supports this construction. Those claims specify that "each of said plurality of memory cell transistors" is comprised of different elements stacked atop one another, the bottommost of which is "a first gate insulating film formed on a corresponding one of said plurality of first element regions." Id at 34:54-57, 37:28-31 (emphasis added). Similarly, those claims specify that "each of said plurality of select transistors" is comprised of multiple stacked elements beginning with "a third gate insulating film formed on a corresponding one of said plurality of element regions." Id at 34:67-35:2, 37:42-44 (emphasis added). Hence, while a memory cell transistor or select transistor might extend outside an element region, each transistor is formed in one, and only one, element region.

Accordingly, the court adopts a hybrid construction for this term: "a plurality of memory cell transistors and a plurality of select transistors, each transistor of which is formed in one of said plurality of element regions."

2. "formed of"

Mascon alleges the term "formed of" is indefinite. However, the court cannot conclude the term is "insolubly ambiguous," particularly as the parties have articulated several possible constructions. Pulse offers the term should be given its customary
and ordinary meaning, making construction by the court unnecessary, or, in the alternative, the term should be construed to mean "made up of the essential or basic elements of." 4 Mascon suggests "formed of" is the equivalent of "consisting of," which the court recognizes as a term of art signifying restriction and exclusion of any other components or elements. In a second recommendation, Mascon construes "formed of" to mean "including only the named elements and no others," basically synonymous with "consisting of."

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4 This proposed construction comes from Pulse's dictionary reference, a form of extrinsic evidence.

--- End Footnotes ---

Mascon relies in part on a 1913 district court case from Illinois in which the court construed "formed of" to mean "consisting of." Hoskins Mfg. Co. v. General Electric Co., 212 F. 422, 428 (N.D. Ill. 1913), aff'd 224 F. 464 (7th Cir. 1915). However, in Hoskins, the court construed the term in light of narrowing amendments in the prosecution history which precluded a broader interpretation. Mascon also looks to In re Bertsch, 132 F.2d 1014, 1019-20, 30 C.C.P.A. 813, 1943 Dec. Comm'r Pat. 224 (CCPA 1942), which quotes Hoskins for the proposition that "composed of" and "formed of" both mean "consisting of." However, the Bertsch court also acknowledged that "the words 'composed of' may under certain circumstances be given, in patent law, a broader meaning than 'consisting of'…." Id. at 820. The case law does not foreclose a partially open construction of this term. Mascon also offered extrinsic evidence in the form of testimony by its expert, Dr. Acampora, in support of its proposed constructions. However, in light of the intrinsic evidence, the court gives the expert testimony limited weight.

Pulse emphasizes that Mascon's constructions are overly restrictive, as any alarm filter circuit "would include not only the named inductors and capacitor[s], but also a variety of complementary and/or supplementary components such as wire, solder, leads, encapsulant, PCB, etc." (Doc. No. 34 at 12.) The court agrees one skilled in the art would understand materials beyond the expressly listed core elements would be required to make a filter section function as such. Indeed, one skilled in the art would recognize this fact from a straight-forward reading of the term "formed of" in the context of the specification and claims. The intrinsic evidence supports this conclusion; the specification refers, in detail, to the intended functionality of the alarm circuit as a whole and the preamble to claim 1 in each patent defines the intended use of the alarm filter circuit. One skilled in the art would understand these other materials would be necessary to build an operative device. The court agrees that Mascon's construction is too narrow because it would rule out the use of these necessary materials.

On the other hand, the nomenclature used for each section (e.g., first-order low-pass filter section) have specific functional meanings to one skilled in the art, and would limit the components to those listed for each type of section or their equivalents. 5 Mascon alleges that "connecting an additional reactive element to those that form a particular filter can, and often does, change" the function of the filter. 6 (Doc. No. 33 at 12.) From that standpoint, then, Pulse's proposed construction may be overly expansive. A more restrictive approach is supported by the choice of transitional phrases in the claims. Claim 1 in each patent defines an alarm circuit "comprising" three filter sections. "Comprising" is an "open" signal, indicating the claim encompasses all elements listed, but may also include additional, unnamed elements. The claim language then uses the transition "formed of" to describe the particular components for each section. If the inventor intended to maintain an "open" claim form for the filter sections themselves, he could have continued using "comprising" rather than changing to a more "closed" signal.

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5 The specifications contemplate embodiments beyond the preferred ones described in detail. For example, the '347 patent states, "it will be understood by those skilled in the art that various changes and modifications may be made, and equivalents may be substituted for elements thereof without departing from the true scope of the invention." ('347 Patent, Col. 6, ll. 56-59.)

6 The court notes inductors and capacitors are generally considered "passive" components rather than "reactive" ones, so Mascon's characterization may be somewhat imprecise. Nevertheless, the court understands adding additional components to a circuit could change its functionality.
In light of the intrinsic evidence, the ordinary and customary meaning of a claim term is, in fact, "the meaning that the term would have to a person of ordinary skill in the art at the time of the invention." Phillips, 415 F.3d at 1313. This conclusion is especially appropriate given the court's construction of the term, "connected to," below.

Accordingly, the court gives the term "formed of" its plain and ordinary meaning and finds no specific construction of this term is required.

III. Whether the Claim In the '285 Patent Is Limited to a "First Strip" Formed Only of Carbon

SPI's motion for partial summary judgment essentially states that Stowe cannot meet its burden of demonstrating literal infringement because the first sensor in the '285 Patent is limited to one composed exclusively of carbon, and SPI's E-Nip sensor has a strip composed of other material, in addition to carbon, or graphite. SPI contends that the language used in the claim and the specification should be construed to require the first strip to be formed only of carbon. SPI also contends that amendments made to the claims during the prosecution of the '285 Patent limit the strip to a carbon-only strip. Stowe responds that neither the claim, the specification, nor the prosecution history of the '285 Patent dictate a construction requiring the material of the first strip to be 100% carbon.

A. The Claims and Specification

SPI contends that the claims in the '285 Patent contain a common limitation. Both Claim 1 and Claim 6, the only independent claims in the patent, include a description of the material of the first strip as follows: "a first strip formed of a first electrically conductive material having a resistance, . . ., the first material being carbon." SPI argues that the only proper interpretation of this language is that the strip must be formed of carbon and nothing else. Stowe concedes that the claims should be construed to require the conductive material in the first strip to be carbon. However, Stowe contends that nothing in the claims or specification requires that the entire first strip be formed only of carbon.

In addition to the language in the claims themselves noted above, SPI points to language in the specification in support of its suggested construction. The specification describes the first strip as "preferably formed of a homogeneous, constant property material" and states "preferably, the strip is formed of carbon." SPI concludes that this language must mean that the strip is formed of carbon, and no other material.

Stowe responds that SPI is attempting to import the term "formed entirely of" into this claim and its specification. As Stowe points out, it did use the term "formed entirely of" in other portions of the specification which described embodiments of the invention that were not pursued with the patent office. For example, in describing an embodiment in Fig. 11 and Fig. 12 of the '285 Patent, the specification states: "The ink traces 43 and 45 are formed entirely of highly conductive material such as silver." Ex. A 22:17-18. The specification goes on to state: "According to one embodiment, the ink traces 47 and 49 may be formed entirely of force sensitive resistive material having a low saturation value relative to the anticipated nip load." Ex. A 22:37-40. Thus, the term "formed entirely of" was used in other portions of the specification, while only the term "formed of" was used in the specification for the pursued embodiment. Based on this distinction, it would be understood that there was no intent for the claim to include such a limitation.

With regard to its use of the term homogenous in the specification, Stowe asserts that it used that term to describe the conductive material alone, rather than the material of the entire strip. More importantly, however, Stowe contends that one of ordinary skill in the art would know that carbon inks, and thus carbon strips, must contain more than just carbon. First, Stowe attempts to introduce several excerpts from the book Polymer Thick Film, published in 1996 by Ken Gilleo in an attempt to help "the court understand the technology and how one of ordinary skill uses terms." The court finds, however, that these excerpts are inadmissible hearsay evidence in that Stowe has failed to present a witness to testify that a person skilled in the art would consider the text to be authoritative. See Fed. R. Evid. 803(18).

Stowe next points to the use of the term "carbon" by Constantin Trantzas, an employee of CIR Systems, Inc., the supplier of
the accused E-Nip device for SPI. Stowe notes that in certain pre-litigation documents, Trantzas, who invented certain of the components of the E-Nip system, referred to one of the strips used in the E-Nip device as the "carbon" strip and the material used on the strip as the "carbon mixture." SPI responds that Stowe is improperly attempting to refer to the alleged infringing product to define what Stowe meant in its claims. See SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1118 (Fed. Cir. 1985) (en banc). The court disagrees. The reference to "carbon" by Trantzas simply indicates how someone skilled in the art, as Trantzas presumably is, would describe such a strip made of carbon as well as other materials. Though Trantzas does refer to the material as a "carbon mixture," he also describes it as only "carbon," though the strip in the E-Nip device is composed primarily of other materials in addition to a smaller percentage of carbon. Such a reference supports Stowe's argument that a person of ordinary skill in the art would understand that the first strip described in the '285 Patent would include carbon as the key conductive material, but that it could contain other materials as well.

With regard to the claim and specification, Stowe finally contends that SPI's proposed claim construction would not cover the preferred embodiments in the '285 Patent. The Federal Circuit has stated that a "claim construction that does not encompass a disclosed embodiment is . . . rarely, if ever, correct." Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1320 (Fed. Cir. 2005) (quoting Johns Hopkins Univ. v. CellPro, 152 F.3d 1342, 1355 (Fed. Cir. 1998)). Stowe asserts that carbon itself is not an ink and is not able to adhere to a plastic surface. Thus, because it must have some adhesive to stick to the strips of the invention, carbon in its pure form could not be used. In addition, carbon itself is not flexible and would break if used on the sensor alone, even if it could adhere to the plastic. Therefore, Stowe concludes that a claim construction that required a sensor made only of carbon would not cover the preferred embodiment.

SPI contends that, even if Stowe's assertions are true, the patent would be invalid for failure to disclose the best mode, that is, the use of carbon plus an adhesive. See 35 U.S.C. § 112, P1 ("The specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention."). In the '285 Patent, however, the claims appear to be identifying only the crucial conductive material and those skilled in the art would understand that an adhesive is needed to get that material, carbon, to stick to the strip. Thus, the adhesive would not necessarily be key to the invention or part of the best mode of its application, rather the key would be the use of carbon as the crucial conductive material.

B. Prosecution History

Along with the claims and the specification, a court may also properly consider the prosecution history of a patent in construing a claim. As previously described, Stowe's original patent application included a broader description of the first and second strips and failed to specify the materials of which the sensors would be composed. After the patent examiner rejected Stowe's patent claims based on the prior art, including the Goldman patent, Stowe amended its claims to specify the material for both strips. SPI contends that this amendment was made solely to distinguish Stowe's claims from the Goldman patent, which disclosed a mixed carbon material sensor that combined carbon with other materials. Though SPI acknowledges that Stowe was compelled to make an additional amendment related to the sensor width to obtain final approval, it points to the earlier amendment as well as Stowe's response in regard to the patent office's later action based on double patentability to support its contention that Stowe had narrowed its claims to include a sensor material for the first strip composed entirely of carbon.

Specifically, SPI points to the language of the amendment itself: "the first material being carbon." Ex. B at 220 (emphasis added). This language remains in the final claims of the '285 Patent. SPI also notes Stowe's attorney's statement during prosecution that "applicants submit that neither of these references can fairly suggest strips of the materials recited in amended Claim 1, i.e. that the first electrically conductive material is carbon and the second electrically conductive material is selected from the group consisting of silver and gold." Ex. B at 217 (emphasis added). Finally, SPI cites Stowe's attorney's defense to the issue of double patentability: "All of the pending claims recite, inter alia, 'a first strip formed of a first electrically conductive material . . . , the first material being carbon.'" Ex. B at 258 (emphasis added). SPI contends that, throughout the prosecution history, Stowe took pains to describe the material as carbon and nothing else, both to distinguish its claims from those in the Goldman patent and from its own claims in the previous patent. 1 Thus, SPI concludes that this history supports its proposed construction of the claims in the '285 Patent to include a first strip with a material of 100% carbon and forecloses any of Stowe's present assertions to the contrary.

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1 The court recognizes that, even if the narrowing amendments were not actually necessary to overcome the prior art,
plaintiff would nevertheless remain bound by the narrower scope. See Springs Window Fashions LP v. Novo Indus., LP, 323 F.3d 989, 995 (Fed. Cir. 2003).

Stowe first responds that SPI has incorrectly read the prosecution history. Stowe admits that it added the specific materials to its claims to distinguish them from those of the Goldman patent. Stowe contends, however, that the distinction is not between pure carbon and a carbon-based material but between two strips composed of the same material, as in Goldman, and two strips composed of different materials with different conductivity, as in the '285 Patent. In Goldman, the specification describes two thin, flexible backing sheets or substrates, each of which is provided with a suitable conductive electrode pattern. U.S. Patent 5,821,433 at 2:44-48. That conductive pattern "may be silver deposited from a silver-based ink that may be screen-printed, for example, on the substrates." U.S. Patent 5,821,433 at 2:48-51. Then,

A layer of pressure sensitive resistive material 309, 409 is deposited over each of the conductive patterns 302, 402. The pressure sensitive resistive material may be a carbon molybdenum disulfide material in a polyester binder. Other pressure sensitive resistive materials and high temperature thermoplastic binders may be used as well.

U.S. Patent 5,821,433 at 2:56-61. Thus, Stowe contends that it amended its claims to state that the first material was composed of carbon and the second of silver or gold to distinguish from Goldman which described two conductive patterns where both are composed of silver and the layer of pressure sensitive resistive material in between is composed of a carbon-based material.

Stowe also asserts that its comments to the patent office in regard to the issue of double patentability did not state that the material at issue was entirely carbon. Instead, Stowe contends that it was noting that Moore's prior patent had failed to mention any materials, whereas the current claims did include a description of the materials.

The court finds Stowe's arguments compelling. First, the attorney's statement during prosecution, "the first electrically conductive material is carbon," simply seems to indicate that the conductive material in the first strip is carbon, not necessarily that the entire strip must be made of 100% carbon. Moreover, the patent examiner stated the following in comparing the proposed claims to the Goldman patent:

Also, since layers 302, 402 may be silver deposited from a silver-based ink and layers 309, 409 may be a carbon based material, the measuring area may be silver, carbon or any suitable conductive pattern of material thus the reference still stands.

With this language, the patent examiner rejected the application. The patent examiner may have failed to see the distinction raised by Stowe between the two strips formed of the same material in the Goldman patent and the two strips in the proposed invention which were formed of different conductive materials, i.e. carbon and either silver or gold. Regardless, the court believes that this language indicates that the patent examiner also failed to see a distinction between a material described as carbon based and one described simply as carbon.

In conclusion, the court finds that, as a matter of law, it cannot hold that SPI's proposed construction of the '285 Patent is supported by the intrinsic evidence. Instead, the intrinsic evidence, as well as the extrinsic evidence of Trantzas's use of the term "carbon," supports a construction of the '285 Patent wherein the conductive material in the first sensor is carbon. The language of the claims states the following: "a first strip formed of a first electrically conductive material having a resistance . . ., the first material being carbon." The "first material" refers to the first electrically conductive material, not to the entire first strip which may also include adhesives, fillers, or other materials, so long as they are not the primary conductive material.

GO BACK

1794

Formed on said layer insulating film

This phrase does not require construction. Samsung's proposed construction--"formed on a thin layer of material that is a
poor conductor of electricity"--adds additional limitations that are not supported by the claims and may themselves require construction (i.e., "thin," and "poor conductor"). MEI argues that the phrase should be construed as "arranged on the uppermost surface of the layer insulating film." However, MEI does not explain how "arranged on the uppermost layer" is more helpful to a jury than "formed on." Accordingly, the Court does not construe the term.

D. The Dixit Patent: "Contact Plug"

As noted above, the parties ask the Court to construe two phrases in the patent. The second phrase, "forming a contact plug comprising a conductive material which substantially fills said contact holes and which is in contact with said barrier layer," also comes from Claim 1 of the Dixit patent. 732 Patent col.7 ls.54-56. The parties agree that the plug substantially fills the contact holes. Oki's Response to AMD's Opening Markman Brief at 9; AMD's Markman Reply Brief at 6. The parties further agree that the plug is made of a conductive material. Oki's Response to AMD's Opening Markman Brief at 9; AMD's Markman Reply Brief at 6.

The Court must resolve one issue. The parties disagree over whether AMD disclaimed a plug that forms one, continuous structure with a metal interconnect that lies over the hole. Thus, the Court must decide whether an ambiguous reference to a prior art patent during the prosecution history disclaims subject matter that unambiguously falls within the scope of the claims and specification. It does not.

1. The Claims of the Dixit Patent as They Relate to the "Contact Plug"

The doctrine of claim differentiation indicates that Claim 1 contemplates a plug that forms a continuous unit with the interconnect that lies above it. The plain language of Claim 1 itself does not require the plug to be separate from the interconnect above. Claim 1 merely requires that the plug (1) substantially fill a contact hole and (2) contact the barrier layer that lies directly beneath it. 732 Patent col.7 ls.55-56. Claim 11 of the Dixit patent ultimately depends from Claim 1. Id. at col.8 ls.14,18. In Claim 11, the "conductive material [that formed the plug of Claim 1] is etched back to expose [the] barrier layer on [the] insulating layer but leaving [the] conductive layer substantially filling [the] contact hole, thereby preserving [the] contact plug." Id. at ls. 19-22. Claim 11 then goes on to recite laying down the interconnect directly above the contact plug. Id. at ls.23-29. This claim language shows that within the scope of Claim 1 lies a plug that forms one continuous piece with the interconnect above. The process of Claim 11 then etches back the portion of the plug that sticks out above the top of the contact hole. Then, the interconnect is laid down on top of the etched back plug. Thus, the presence of the limitation in dependent Claim 11 that the plug be formed separately from the metal interconnected over the hole implies that this limitation is not present in the Claim 1.

Claim 13, which also ultimately depends from Claim 1, expressly describes a plug that forms one continuous unit with the interconnect above. Id. at ls. 14, 33-24. Claim 13 recites a process in which the

conductive material [that forms the plug] and [the] underlying barrier layer and adhesion and contacting layer are patterned and etched to expose portions of [the] insulating layer, leaving defined patterns of [the] conductive material and [the] barrier layer and [the] adhesion and contacting layer forming interconnect regions, with [the] interconnect regions at least partially overlying [the] contact holes.

Id. at col.8 ls.33-41. Claim 13 envisions a process in which a continuous plug and interconnect (and the barrier and adhesion and contacting layers below it) are etched back to expose part of the insulating layer. However, the etching stops before the entire portion of the plug that juts out of the top of the contact hole is etched away. This leaves a plug that forms one continuous unit with the interconnect above. Because Claim 13 depends from Claim 1, it is presumed to fall within the scope of Claim 1. Thus, Claim 1 includes a plug that may be formed continuously with the metal interconnect over the hole.

2. The Specification of the Dixit Patent as It Relates to the "Contact Plug"

The specification of the Dixit patent also describes plugs that extend outside of the contact holes to form part of the overlying interconnect. In fact, the very first figure in the patent depicts such a plug. Id. at fig.1A. Describing this picture,
the specification indicates that "[s]ince the resistivity of tungsten is low enough that it could be used as an interconnect, one could pattern the as-deposited tungsten layer . . . to form the interconnect." Id. at col.5 ls.53-56. Other parts of the specification also envision a plug that forms one piece with the interconnect. Id. at fig.2; col.2 ls.57-59. Thus, the claims and the specification unambiguously include within their scope a plug that forms one piece with the interconnect.

3. The Prosecution History of the Dixit Patent as It Relates to the "Contact Plug"

Oki attempts to squeeze a disclaimer of claim scope from the prosecution history. This attempt fails because the alleged avowal of the claim scope during prosecution is too ambiguous to amount to a disclaimer. During the prosecution of the Dixit patent, the Examiner described the Mori patent as "relevant prior art." Oki's Response to AMD's Opening Markman Brief, Ex. 6 ("References Cited by Examiner") at 4. The Examiner did not reject the Dixit patent over the Mori patent. Instead, the Examiner explained that the Mori reference was relevant because "it shows a first Ti layer then a barrier layer deposited before connecting with aluminum." Id. The Examiner then went on to state that "there is no plug" in the Mori patent. Id. In response, Dixit stated that "[t]he Examiner correctly notes that there is no plug present." Based on this exchange, Oki argues that the plug in the Dixit patent cannot form one piece with the metal interconnect above. Oki asks for too much. Nothing in the text of this exchange indicates that the Examiner or the patentee believed that it was distinguishing the Dixit patent over the Mori patent based on the lack of a unitary plug-interconnect structure in the Dixit patent.

Because the prosecution history admits multiple interpretations of what the patentee intended the claim language to mean, the prosecution history does not limit the scope of the claims. The prosecution history does not reveal why the patentee and the Examiner thought that Mori did not contain a plug. If fact, the prosecution history does not even indicate whether the patentee and the Examiner agreed on the reason the Mori patent did not contain a plug. Oki submits expert testimony claiming that the reason there was no plug is that the Mori reference depicts a one-piece metal interconnect and plug (for lack of a better word) n1. Oki's Response to AMD's Opening Markman Brief, Ex. 9 ("Fonash Decl.") at P 16. AMD submits expert testimony that supports its argument that the contact holes in the Mori patent were too wide and shallow to have been considered plugged by one skilled in the art n2. See AMD's Markman Reply Brief at 7 (citing AMD's Opening Markman Brief, Ex. 4 ("Fonash Deposition") at 87-88). Both interpretations of the prosecution history are plausible. Neither of them appear in the prosecution history itself. The Court will not knit a prosecution history disclaimer from the yarn provided by experts.

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n1 In rebuttal, AMD submits expert testimony claiming that a plug can form one piece with the overlying interconnect. AMD's Opening Markman Brief, Ex. 3 ("Neikirk Decl.").

n2 In rebuttal, Oki points to expert testimony suggesting that AMD's expert could not tell how wide and shallow the contact hole in Mori was. Oki's Response to AMD's Opening Markman Brief at 11 (citing Ex. 10 ("Neikirk Deposition") at 114).

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4. Construction of Disputed Terms in the Dixit Patent

Because the prosecution history does not reveal an unambiguous disclaimer of the scope of the claims, the Court construes the phrase "forming a contact plug comprising a conductive material which substantially fills said contact holes and which is in contact with said barrier layer" of Claim 1 of the Dixit patent as follows: The hole is plugged and thereby substantially filled with a conductive material. This plug is in contact with the barrier layer.

1796

We agree with the district court's claim construction. Claim 1 of the '674 patent recites a process sequence requiring formation of the insulation layer over the first gate electrodes prior to implantation of the barrier regions. The relevant part of the claim language states:

[3] forming a first insulation layer over said plurality of first gate electrodes;
forming implanted barrier regions in said semiconductor substrate in the intervals between said plurality of spaced-apart first gate electrodes, the edges of said implanted barrier regions being aligned with the vertical edges of the insulation layer on the respective first gate electrodes;

(Emphasis added.) By the literal language of the claim, the edges of the implantation barrier regions are aligned with the edges of the insulation layer; hence, the insulation layer must already be in place in order to align the barrier regions with it during ion implantation. The specification supports this construction. The specification teaches that the "ion-implanted barrier regions . . . are vertically aligned with the respective outer edges of the thermally-grown thin oxide layer." The reference to the thermally-grown oxide layer is the insulation layer. Nowhere does the specification suggest implanting the barrier regions prior to growing the insulation layer.

The prosecution history also supports this interpretation. During prosecution, the patent applicant limited his claim to the sequence of steps enumerated:

The Examiner has rejected claims 17-24 and 26 under 35 U.S.C. § 112 as vague and indefinite. In particular, the Examiner points out that in the original claim the implanted regions are not, in fact, aligned with the first gate electrode but are aligned with the oxide surface covering the first gate electrodes. The cancellation of claim 18 and the addition of a new step to claim 17 as well as additional language in claim 17 results in the correct recitation that the implanted barriers are aligned with the vertical edges of the first insulation layer over the respective first gate electrodes.

This language clarifies what the applicant saw as his invention, namely, that the ion implanted regions are aligned with the oxide covering of the gate, not the gate itself, thereby limiting the claim to insulated gate masking - the performance of step three prior to step four. In response to a rejection under 35 U.S.C. § 102 that the claims were unpatentable over Walden, U.S. Patent No. 3,852,799, in view of Boleky, U.S. Patent No. 3,745,647, the applicant also argued that "the present invention is directed to a process sequence . . . . This sequence of steps goes far beyond the teaching of Boleky and, therefore, is not rendered obvious by it." (Emphasis added.) This language in the prosecution history supports the construction of claim 1 as limited to performance of the sequence of process steps in chronological order.

Although not every process claim is limited to the performance of its steps in the order written, the language of the claim, the specification and the prosecution history support a limiting construction in this case. Accordingly the claim was properly construed as only covering a fabrication process where insulation is formed prior to ion implantation. It is not disputed that the Sony process implants barrier regions prior to forming insulation, and we therefore affirm the district court's grant of summary judgment of no literal infringement of the '674 patent.
hydrogen into a semiconductor crystal after it is grown, but merely complied with the restriction requirement by cancelling all the product claims, which would have covered the semiconductor whether the hydrogen was introduced into the substrate during its growth or thereafter. By not refiling these claims, plaintiff effectively abandoned such coverage.

In her motion for reconsideration, plaintiff ignores the Court's primary reliance on the ordinary meaning of the words and attacks only the implications of the requirement for restriction and plaintiff's response thereto. Plaintiff argues that because the Examiner's statement referred to the introduction of hydrogen, "it was directed only to the first embodiment concerning the introduction of atomic hydrogen, not the embodiment directed to the introduction of atomic hydrogen and another dopant." (Pl. Mem. at 3.) The Court cannot agree with this strained misreading of the Examiner's statement. The Examiner did not distinguish between method claims calling for the introduction of atomic hydrogen alone and method claims calling for the introduction of atomic hydrogen together with another dopant. Instead he required restriction of the application to either the product claims or the method claims, meaning all of the method claims, including those, such as patent claims 1-9 and 22, calling merely for the introduction of atomic hydrogen and those, such as patent claims 10-21, calling for the introduction of atomic hydrogen together with another dopant. His statement referred only to the introduction of hydrogen for the obvious reason that the introduction of hydrogen was common to all of the method claims.

Plaintiff also argues (Pl. Mem. at 4-5) that because the Examiner rejected claim 20 over the Fan reference, which discloses "growing the ZnSe layer in an environment that includes hydrogen," the Examiner must have understood claim 20 to cover incorporation of hydrogen during growth of the crystal. However the rejection was based alternatively on either anticipation (35 U.S.C. § 102) or obviousness (35 U.S.C. § 103). It therefore carried no implication that the Examiner understood claim 20 to cover incorporation of hydrogen during crystal growth.

Plaintiff further argues (Pl. Mem. at 6) that the "plain meaning" of the verb "to form" is to "make or produce." That argument would have force if we were construing the word "forming" and not the phrase "forming . . . from." Plaintiff's studied disregard of the important word "from" is unpersuasive, to say the least.

There is other intrinsic evidence, not previously discussed, further reinforcing the Court's construction of the claim term in question. Claim 10 itself calls for "selectively doping the semiconductor substrate" (emphasis added). The specification of the '499 patent (at 3:48-51 and 4:33-36) teaches that such selective doping may be achieved by shielding from the hydrogen the side of the substrate that has good conductivity so that there will be "no or minimal diffusion of hydrogen into that side." Obviously such shielding can be accomplished only on a pre-existing solid crystal and not during growth of the crystal from a melt.

In sum, plaintiff has presented no valid reason for the Court to change its construction of this term. Alternatively, plaintiff seeks clarification of that construction. Although plaintiff's explanation of the need for clarification would itself benefit from clarification, plaintiff appears to argue that although the claim term in question has been construed to require doping of a pre-existing substrate, that construction "still covers growing simultaneously with doping" because the low resistivity semiconductor called for in the preamble of claim 10 is not formed until the hydrogen is removed. If that is what plaintiff is trying to say, it is a hopeless non sequitur. The fact that the semiconductor's resistivity remains high until removal of the hydrogen clearly does not mean that the term "forming . . . from . . . a . . . substrate" in the preamble must be construed to cover "forming" during growth of the substrate. The preamble's recited objective of "forming a low resistivity semiconductor from a wide band-gap semiconductor substrate" can obviously be achieved by doping a pre-existing substrate with atomic hydrogen and another dopant, for example by the joint diffusion method, as taught in the specification of the '499 patent (at 5:8-21), and later removing an effective amount of the hydrogen (as taught at 5:45 to 6:04). The range of temperatures recommended for the removal step is 100°C to 500°C. As plaintiff herself points out (Pl. Suppl. Mem. at 2-3), these temperatures are far below the melting point of the substrate material, making it clear that the removal step which completes the claimed process is not performed during growth of the substrate from a melt.

There is no apparent reason for clarification of the Court's construction of this term. It is difficult to imagine a clearer way to say that the claim term requires a pre-existing substrate and that it does not cover doping during growth of the substrate.

**Plaintiff's motion for reconsideration is denied insofar as it relates to this construction.**
1. Forming a Monochromatic Image from a Digital Representation of a Color Image

The phrase "forming a monochromatic image from a digital representation of a color image" means converting, or transforming, a digital representation of a color image into a monochromatic image as described by the steps of the method. 

5. Forming a raster image of each flood map

This limitation is found in claim 5 of the 615 patent. The plaintiff contends that it means "scanning a paper flood map." The defendants contend that the term means "creating a raster map image, defined by X, Y locations, from a paper flood map containing flood zone information." The court rejects both parties' constructions. The patentee knew how to use the term "scanning" and did so in the specification. As such, the court rejects the plaintiffs' limiting construction. The court construes the term to mean "creating a raster image of each flood map.

D. The Dixit Patent: "Adhesion and Contacting Layer"

The parties ask the Court to construe two phrases in the patent. The first phrase, "forming an adhesion and contacting layer of titanium at least in said holes, including along said walls, in contact with the underlying doped region," comes from Claim 1 of the Dixit patent. Joint Statement at 2. Based upon one of the advantages listed in the patent specification, Oki argues that the "adhesion and contacting layer" must cover the "entire insulating wall and the entire bottom of the contact hole without gaps." Oki's Response to AMD's Opening Markman Brief at 14. Oki would also have the Court impose the limitation that the layer be composed of pure elemental Titanium. Id. The Court must resolve two issues: (1) Should the Court construe an advantage the Dixit patent recites as a limitation on the scope of the claim? (2) Does the Dixit patent forbid chemical reactions between the Titanium and the contact hole after the Titanium has been deposited in the holes. The answers to both questions are no.

1. The Claims of the Dixit Patent as They Relate to the "Adhesion and Contacting Layer"

The claims provide no support for either of the limitations Oki wishes to inject into the definition. Claim 1 describes a step-by-step process for manufacturing "contacts in an integrated semiconductor circuit." 732 Patent col.7 1.35. First, doped regions are provided in a semiconductor substrate. Id. at ls.37-38. Second, an insulating layer is laid down over the substrate. Id. at ls.39-40. Third, holes are made in the insulating layer above the doped regions. Id. at ls.41-44. Claim 1 refers to these holes as "contact holes." Id. at 1.41. Fourth, "an adhesion and contacting layer of titanium [is formed] at least in said holes, including along said walls, in contact with the underlying doped region." Id. at ls.45-47. The "adhesion and contacting layer [must be] formed to a thickness insufficient to fill [the] contact holes." Id. at ls.45-47. Fifth, a "barrier layer" is laid down on top of the "adhesion and contacting layer." Id. at ls.50-51. Like the "adhesion and contacting layer," the "barrier layer" cannot be so thick that it fills the hole. Id. at ls.51-52. Finally, a plug is formed in the contact holes. Id. at ls.54-55.

Nothing in the claims requires the adhesion and contacting layer to cover the entire insulating wall and the entire bottom of the contact hole without gaps. In fact, the claim language suggests otherwise. The adhesion and contacting layer only needs to "contact . . . the underlying doped region." Id. at ls.47. The layer can contact the doped regions without covering it entirely. While slightly more ambiguous, the claim language "along said walls" does not necessarily require that the adhesion and contacting layer cover every exposed surface of the walls.

The claims are silent on what happens to the "titanium layer" after it has been formed in the contact holes. Of course, the claims require that the layer initially be formed of Titanium. What may happen after that only becomes clear upon reading the specification.
2. The Specification of the Dixit Patent as It Relates to the "Adhesion and Contacting Layer"

The fact that the Dixit patent asserts that the invention achieves several objectives does not require that Claim 1 be construed as limited to a process that is capable of achieving all of those objectives. The specification lists at least three advantages of a specific embodiment of the invention. The first is that while the material that forms the plug is being deposited into the contact holes, the chemicals "responsible for encroachment and worm hole generation never come into contact with the underlying silicon due to the presence of the adhesion and contacting layer and the barrier layer. Id. at col.5 ls.34-36. Another advantage of the invention is that the plug can be doped with an opposite polarity to the doped regions in the substrate and the barrier layer will prevent the plug and doped regions from interacting. Id. at col.5 ls.39-45. Another advantage is that the barrier layer, since it contacts the interconnect layer, can conduct current if either the plug or the interconnect fails. Id. at col.5 ls.47-52. Oki wishes to convert the first advantage into a claim limitation. According to Oki, the first claim limitation implies that the adhesion and contacting layer can never have any gaps that allow the chemicals responsible for encroachment and wormholes to contact the underlying silicon.

This argument is wrong for two reasons. First, the fact that the Dixit patent asserts preventing these harms as one of several objectives does not require that Claim 1 be construed as limited to a process that is always capable of preventing those harms. Second, even if the Court were to convert the advantage into a claim limitation contrary to Federal Circuit law, the advantage only requires that the combination of the barrier layer and the adhesion and contacting layer prevent the undesired chemical reactions, not that the adhesion and contacting layer do so alone.

The specification also contradicts Oki's suggestion that the layer of Titanium must never react with chemicals in the substrate to form other compounds. The specification refers to a combination of a Titanium (Ti) adhesion and contacting layer and a Titanium Nitride (TiN) barrier layer as "Ti/TiN." Id. at col.6 ls.31-33. The specification then describes the one way to lay down this "titanium/titanium nitride bilayer." Id. at ls.58-59. After describing the process, the specification notes "that in the Ti/TiN process, one substantially obtains TiSi [sub] x contact silicidation where titanium contacts the junction." Id. at ls.58-59. Thus, the specification clearly states that as the Titanium adhesion and contacting layer is formed, the chemical reaction silicidation occurs resulting in the product TiSi [sub] x. The specification also states that if the Titanium adhesion and contacting layer is too thick, it "may consume unacceptable amounts of silicon from the junctions due to titanium silicide formation." Id. at col.4 ls.32-33. Contrary to Oki's argument, this suggests that silicidation always occurs and that its by product reaches unacceptable levels in certain circumstances.

3. Construction of Disputed Terms in the Dixit Patent

Here, the language of the claims and the specification is dispositive. The Court construes the phrase "forming an adhesion and contacting layer of titanium at least in said holes, including along said walls, in contact with the underlying doped region" of Claim 1 to require that Titanium be deposited in the contact holes so as to form an adhesion and contacting layer. This layer runs along the walls of the holes and contacts the underlying doped regions.

G. "controlling said forms"

Plaintiff argues that construction of the term "controlling said forms" can be readily ascertained from the specification. The Court agrees, in part, if the term is considered in the context of the entire claim. Although "controlling said forms" is utilized in a description of the subscriber's "PC type computer electronically connected to said database server," the forms referred to are plainly those "billing and data entry forms" "required" by Plaintiff's "integrated internet billing, data processing, and communication system," or, as the specification describes, "a framework for data entry." In that regard, the Court agrees with Plaintiff's construction and notes that the specification uses this precise phrase in describing how the forms are utilized.

n7 "thus, the forms transferred to each subscribers PC screen provide a framework for data entry of essential data such as the person or company being billed, where the bill is to be sent and charges for services rendered." ('229 patent, col. 3, ll.
"Controlling" the forms is not readily ascertainable from the specifications, however. Plaintiff urges a construction of: "managing" a framework for data entry. (Dkt. 86 at Ex. 1, p. 1). In that regard, Plaintiff relies on the Microsoft Press Computer User's Dictionary 83 (1998) definition of "control." Defendants' suggested construction uses the phrase "develop and customize." n8

n8 Defendants argue that the entire phrase "a PC type computer electronically connected to said database server for controlling said forms as required and responding to queries entered by each browser-based subscriber" should be construed as "[a] PC type computer, as mutually defined by the parties, that: (1) is electronically connected to the database server; (2) is used to develop and customize forms; and (3) submits information requested by a browser-based subscriber in response to a specific set of instructions entered by the subscriber." (Dkt. 86 at Ex. 2, p. 3)(emphasis added). Again, the court disagrees that it is necessary to construe the entire phrase as Defendants urge.

The plain language of the claim provides that the purpose of the PC type computer electronically connected to the database server is twofold, the first being "controlling said forms as required." The referenced "forms" are the billing and data entry forms described in paragraph 3 of Claim 1. The second purpose, responding to queries, is discussed below.

The specification provides that "once into the particular browser-based subscriber area 80 within the system 71, each browser-based subscriber 72 will have access to one of several customized forms that they will complete electronically at their work station and transfer to the database server 90. (emphasis added). Further, the specification expressly provides that "Form development and customization will be done within the system at internal work stations 106 by employees of the system." (Id., col. 5, ll. 12-18)(emphasis added). This particular section references form "development and customization" at 106 in Figure 3, the Billingnetwork PC described in the plain language of Claim 1.

The specification further provides that, "input and query forms are developed within the system 11 by billing network PC work stations 38 which are connected at hub 36, all forms and information input being subject to business rules and logic at 34 before entered into the database server 32." (Id., col 4, ll. 13-18)(emphasis added). Based on these references, the Court finds that Defendants' proposed construction of "development and customization" more accurately defines the term "controlling", as opposed to "managing." Accordingly, the Court finds that a person skilled in the art would understand the term "controlling said forms" to mean "developing and customizing frameworks for data entry" and construes it accordingly.

The Court instead applies a plain language construction. Accordingly, "to the extent data required to render said at least one spreadsheet has not been previously stored by said cache, said cache formulates a single query for transmission from said client across said network to said server" means "when data needed to generate the spreadsheet is not stored in the cache, combining requests for data into one package before sending it to the server."
1803

11. Forward channel protocol; high speed downstream channel protocol

The term "forward channel protocol" is found in claims 35, 36, 37 (by virtue of its dependence on claim 35), and 38 (by virtue of its dependence on claim 36) of the '774 patent. The term "high speed downstream channel protocol" is found in claims 39 and 52 of the '121 patent and claim 119 of the '845 patent. The plaintiff's proposed construction of each of the above terms is "any set of rules for downstream transmission of high speed data which includes standard upper layer protocols." The defendants' counter-construction is "set of rules for transmission of high speed data addressed to a remote link adapter for routing to data terminal equipment in contrast to using the media access layer." The court has considered the parties' arguments and defines the phrase to mean "a set of rules for transmission of high speed data addressed to a remote link adapter."

1804

1. "Fourier transform plane"

The parties appear to agree that the term "Fourier transform plane"--itself a term of art--has a plain and ordinary meaning: The mathematically calculable grouping of points generally corresponding to or substantially near the pupil plane of a projection optical system. The patent discusses a Fourier transform plane in both spatial and functional ways, noting both where such a plane might lie and what purpose such a plane may serve in the photolithographic process. Id.

As Nikon correctly suggests, of course, the relevant specifications discuss more than the Fourier transform plane when delineating the construction of the optical system. "Optical paths," the specifications teach, are placed "substantially equidistant from the optical axis of the projection optical system at or in the vicinity of the Fourier transform plane," see '041 Patent at 3:42-46 (emphasis added); see also id. at 4:45-48 ("... equal distance from the optical axis of the projection optical system at or in the vicinity of the Fourier transform plane"), and "a spatial filter" is "arranged at the Fourier transform plane or the illumination optical system or in the vicinity of the exit end of the integrator element." Id. at 11:3-11 (emphasis added). With these lessons in mind, the court cannot doubt that the specification language contemplates both a Fourier transform plane and a plane conjugate to the pupil plane, adding that planes optically conjugate to particular Fourier transform planes operate analogously to the Fourier transform plane in the photolithographic process. Were the court required to assess the operation of the Fourier transform plane and all of its functional equivalents, then, Nikon would be correct that any definition of the "Fourier transform plane" term should embrace the appendix "or a plane conjugate to the pupil plane."

But it is not for the court to evaluate the photolithographic function of the Fourier transform plane and all of its operational equivalents. Rather, the court's task is to define "Fourier transform plane" as a distinct and independent claim term. 16 See SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc); see also DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1314 (Fed. Cir. 2001). "Fourier transform plane," as noted, has long been understood to denote a mathematically calculable plane generally corresponding to or substantially near the pupil plane of a projection optical system. 17 Nothing in the specification contravenes or expands this plain definition of "Fourier transform plane," see '041 Patent at 14:25-36; 15:23-30, and nothing in the intrinsic record suggests that, as a discrete phrase, "Fourier transform plane" includes distinct planes, whether optically conjugate to the pupil plane or not. Bounded by the scope of the parties' dispute, the court thus construes "Fourier transform plane" to mean "a mathematically calculable plane generally corresponding to or substantially near the pupil plane of a projection optical system." That the plane is so calculable does not require that the finder of fact perform the complex calculation, nor does it mean that such a plane is not measurable optically; it only attaches to the term the standard, widely-accepted definition of "Fourier transform plane."

16 Claim 2 reads in full:
A method according to claim 1, wherein: said optical path is spaced from the optical axis of said projection optical system on the Fourier transform plane in said projection optical system with respect to said pattern.

Id. at 18:27-31.

17 This construction applies to the use of "Fourier transform plane" in claims 3, 4, 5, 7, 9, 12, and 15 as well.

--- End Footnotes ---

Frame means "a spatially complete image with respect to how it is displayed on the display device and an incomplete fractional image of the image to be displayed with respect to the image seen by the viewer."

(3) frame, time frame, slot, time slot, isochronous slot, and non-isochronous slot

These terms relate to aspects of the time-division multiplexed bus. With the exception of National, the parties agree that "frames" are composed of "slots," but disagree as to whether a "slot" is fixed, predetermined, and equal. National asserts that construction is not necessary for these terms. N-Data further proposes the same definition for "frame" and "time frame," as well as "slots" and "time slot." N-Data argues that the patents expressly teach that various frame structures or templates may be used to practice the invention. See N-Data's Brief at 12 (citing '261 Patent, col. 9, l. 56-col. 10, l. 1). The '261 patent explains as follows:

The described frame structure . . . provides data rates for the isochronous and non-isochronous data. . . . Other types of frame structures could be used in connection with other isochronous and/or non-isochronous data sources and sinks such as other types of packet-based systems, . . . in which case a different frame structure or template can be used to provide an allocation of bandwidth suited for the particular purpose. '261 Patent, col. 9, l. 56-col. 10, l. 1 (emphasis added).

In support of its limitations, Dell cites to a different portion of the specification, in which the patent explains the necessity of "frames" comprised of fixed, predetermined, and equal "slots."

Since only predetermined positions of the time slots in each time frame are used for each of the various types of data, it is possible to separate the packet-sourced data from the isochronous-sourced data even though the form of the two types of data, as they travel across the physical medium, appears identical. Id. at col. 4, ll. 4-9 (emphasis added).

Dell contends that in order for a time-division multiplexed system to separate isochronous data from non-isochronous data and utilize its advantageous property of separation based on timing information, the slots of the repeating frames must be fixed, predetermined, and equal. If such is not the case, the system would be required to examine the contents of the data stream, negating any advantages of a time-division multiplexed system over other systems.

The court agrees with Dell. While N-Data's citation seems to support its construction, its reading does not support the purpose of the invention as a whole--the claim language must be read in light of the patent as a whole. Dell's cited specification reference does not imply that a frame structure or template must be flexible, but merely that there can be variable frame structures or templates according to "the particular purpose," so long as each is predetermined, fixed, and equal according to "the particular purpose." Additionally, intrinsic evidence supports giving each term varying constructions. See '261 Patent, col. 2, ll. 44-55; col. 7, ll. 52-61; col. 8, l. 64-col. 9, l. 18; col. 15, l. 66-col. 16 l. 2; Table I, Figs. 10A-10B, 11.

As such, the court defines "frame" as "format for data transmission."
The court defines "time frame" as "fixed period of time for receiving a framed signal."

The court defines "slots" as "predetermined equal length subdivisions of a frame."

The court defines "time slot" as "fixed period of time for receiving a slot signal."

The court defines "isochronous slot" as "predetermined equal length subdivision of a frame containing isochronous data."

The court defines "non-isochronous slot" as "predetermined equal length subdivision of a frame containing non-isochronous data."

The last limitation from claim 31 construed by the Master and challenged by Datapoint is the phrase "achieving a substantially different form of data frame communication over the medium between [nodes]." 2 Initially, the Special Master found that, within the phrase itself: (1) "medium" refers to the compilation of links and hubs which together form the assembly of pathways connecting all of the nodes; (2) "data frame" or "frames containing data" refers to frames formulated at or above the physical layer including both a source and destination address and comprising data communication between the nodes and not other physical layer signals that may exist on the network; and (3) "node" means a device, including an interface to receive and send signals to the network, connected to the network, which serves as a source or destination for frame communication and which includes a unique network address for this purpose. In light of these definitions, the Master concluded that "achieving a substantially different form of data frame communication over the medium between [nodes]" requires that the two different forms of data frame communication occur over the same overall assembly of links comprising the medium interconnecting all of the nodes; it does not merely mean that different modes of communication occur over separate or distinct links, zones, or sections of the system.

2 There appears to us no distinction between the terms "data frame," "frames of data," and "frames containing data." We do not understand the parties to disagree significantly with this assessment.

Datapoint disagrees with the Special Master's construction in two ways. First, it disputes the Master's conclusion that the communication must occur over the entire medium and be heard by all nodes. But based on our discussion above that the invention is limited to LANs wherein the nodes are connected as equal peers through a single logical point, we reject this contention out-of-hand. Second, Datapoint alternatively contends that "frames containing data," when properly construed, means only "a series of signals that are applied by a node to the communication medium," and that the Master allegedly erred by limiting "data frame" to a specific type of frame.

Datapoint's proposed definition is more appropriately assigned to "frames" than "frames containing data." Compare 732 patent, col. 10, lines 49-51 ("A frame is a series of signals applied to the medium."). The written description in the 732 patent facially distinguishes "frames containing data" from simply "frames":

"Link level" again refers to the standard seven layer reference model for networks, and generally relates to the sending and receiving of frames of data over the medium 42 and controlling access to the medium 42. Frames of data, as will be discussed below, relate to groupings of various physical level signals in such a way to achieve the desired network functionality. For example, all the functions involved in sending and receiving frames, including inserting starting delimiters, ending delimiters, and stripping these off once the data is received, are link level functions.

732 patent, col. 7, lines 34-44 (emphasis added). One may readily observe from this passage that "frames containing data"
are groups of frames -- e.g., inquiry frames, response frames, data packet frames, and token frames -- that achieve given certain network functionality. Consequently, it does not appear to us, as Datapoint suggests, that the Special Master's claim construction in any way limits the term "frames containing data" to a specific type of frame. Rather, it properly recognizes the inherent distinction between "frames" and "frames containing data." The Master's in-depth discussion of the prosecution history and the Markman testimony buttresses this conclusion. To be sure, Datapoint must acknowledge that the two have different meanings, as it attempted during prosecution to amend the original language claiming "frames" to further include "containing data." Cf. CAE Screenplates, Inc. v. Heinrich Fiedler GmbH, 224 F.3d 1308, 1317, 55 U.S.P.Q.2D (BNA) 1804, 1810 (Fed. Cir. 2000) ("In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings.") (citing Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987). Accordingly, the Special Master's construction of "frames containing data" was correct.

1808

1. "frame segment descriptor"

3Com's proposal of "a descriptor for a frame segment" is of little help, merely reordering the words of the term to be construed. Doc # 81 (05-0098) at 35. Realtek proposes "a descriptor identifying where the corresponding segment is in the host memory." Id.

Upon review of the intrinsic evidence, Realtek's proposal appears to describe the frame segment descriptor accurately. "The segmentation circuit utilizes the descriptor to generate other descriptors that describe each frame segment." '446 patent 2:29-31. This shows that the frame segment descriptors are created from a higher level descriptor. "[D]escriptor queue 206 serves an empty flag along with the stored descriptors to TCP segmentation state machine 208." '446 patent 6:48-50. If the descriptor must be segmented into frames, the "TCP segmentation state machine 208 creates another set of descriptors wherein each descriptor describes a fragment or a segment of the data file." '446 patent 6:59-61. Although not described explicitly as "frame segment descriptors" the "set of descriptors" mentioned above are created from higher level descriptors served to the TCP segmentation state machine and are created only when segmentation into frames is required. Accordingly, this "set of descriptors" must be a set of "frame segment descriptors." Each frame segment descriptor "describes a fragment or segment of the data file." '446 patent 6:60-61. The frame segment descriptors include "pointers to where the data file (payload) is stored within host memory." '446 patent 7:4-5. Because the intrinsic evidence is consistent with Realtek's proposal, the court adopts "a descriptor identifying where the corresponding segment is in the host memory."

1809

1. "Frame Store Means For Storing a Frame"

The second, fourth, sixth, and eighth elements of independent claim 1 recite "frame store means for storing a frame." Adobe contends that a "frame store means for storing a frame" is "a structure that consists of contiguous random-access memory that stores one complete video frame, in which data is stored in the same order that the display is scanned, and which can be addressed fast enough for its contents to be read at the refresh rate of an attached display monitor." By "contiguous," Adobe simply means "logically" contiguous -- that is, capable of supplying pixels in serial order at a sufficient rate to satisfy the refresh rate of a display monitor. Quantel has not challenged Adobe's contention that a "frame store means for storing a frame" is a memory capable of supplying pixels in the order in which they are scanned by the electron gun for display on the monitor. Rather, Quantel appears to dispute only whether a "frame store means for storing a frame" is a store capable of storing a frame of video and whether such a frame store means must be capable of being read at a rate sufficient to refresh the display on the monitor.

The specification of the '286 patent does not define the term "frame store." Thus, the term must be given the ordinary and customary meaning attributed to it by persons of ordinary skill in the art. Vitronics Corp. v. Conceptor, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). At trial, Mr. Taylor testified that a person of ordinary skill in the art at the time of the '286 invention would have understood a "frame store" to be a store capable of storing a picture, image, or frame. See Tr. at 58. As
to what such a person would have understood by the term "frame," Mr. Taylor testified only that such a person would understand that a "frame" could be any size. See Tr. at 78-79. Dr. Phillips, on the other hand, testified that, even though a "frame" may theoretically be of any size, one of ordinary skill in the art at the time of the '286 invention would have understood the term "frame" to be a frame of video. See Tr. at 191-92. He also testified that one of ordinary skill in the art at the time of the invention would have understood the term "frame store" to mean a store with the capability of having data read out "at the appropriate video rate." See Tr. at 189. Dr. Phillips' testimony on these matters was uncontroverted.

For these reasons, the court concludes that the "frame store means for storing a frame" recited in claim 5 is a store that is capable of storing data representing an entire frame of video and supplying pixels in the order in which they are scanned by the electron gun for display on the monitor at a rate sufficient to satisfy the refresh rate of the display monitor.

Bellcore argues that "frame timing information" should be construed to mean frame alignment information. (D.I. 144 at 11; D.I. 142 at 27; D.I. 151 at 8). According to Bellcore, the frame timing information permits a receiver to identify the start of a frame and synchronize to the frame boundaries. (D.I. 142 at 27). In support of its proposed construction, Bellcore cites language from the specification stating: "the overhead field includes, for example, a frame alignment word for frame timing and the empty/full status of the frame" ( '306 Patent, col. 4, lines 52-54 (emphasis added)) and "the following information may be available in the overhead field of every frame, frame alignment word for frame timing . . . ." ( '306 Patent, col. 6, lines 61-64 (emphasis added)).

Fore contends that "frame timing information should be construed to mean one or more bits that indicate the beginning of a frame." (D.I. 144 at 12; D.I. 146 at 11). Fore characterizes the question before the Court as whether "frame timing information" must be more than one bit, as Bellcore contends, or may it be one or more bits, as FORE contends. (D.I. 146 at 11). As for Bellcore's reliance on the specification's use of the phrase "frame alignment word" in discussing "frame timing," FORE contends that a "word" is composed of one or more bits just as a "word" in the English language is composed of one or more letters. (D.I. 146 at 11).

Examining the claim language and specification in light of the parties' arguments, the Court believes it is evident that there is a correlation between frame timing and frame alignment word. Indeed, based on FORE's argument, it appears that FORE agrees that the frame timing information has to do with alignment. Thus, as FORE contends, the question is whether the frame timing information must be more than one bit. The Court is not persuaded by FORE's argument that a "word" contemplates one or more bits just as "word" in the English language contemplates one or more letters. (D.I. 146 at 11). In the IEEE Standard Dictionary of Electrical and Electronic Terms, 6th Edition, there are sixteen different definitions of "word," all of which require more than one bit. (D.I. 152, Exh. M at A143-44). Accordingly, the Court concludes that "frame timing information" means frame alignment information comprised of more than one bit.

Nortel argues that the terms should be construed as “a frame corresponding to the synchronous optical network (SONET) or synchronous digital hierarchy (SDH) standard.” Nortel contends that data frame should be limited such that it only applies to the SONET and SDH standards for transmitting data frames over optical communications networks. Nortel bases its argument on the fact that the SONET standard is mentioned in the title of the patent, the abstract, and the summary of the invention. Furthermore, Nortel argues that the only embodiments of the invention in the patent describe either a SOTEN or an SDH standard. However, the specification states, While the foregoing invention has been described in terms of the embodiments discussed above, numerous variations are
possible. For example, the present invention is also applicable to synchronous digital hierarchy (SDH) formatted signals in addition to SONET signals discussed above. Accordingly, modifications and changes such as those suggested above, but not limited thereto, are considered to be within the scope of the following claims. Col. 6:60-67.

The specification clearly anticipates that other variations of the invention are possible and specifically addresses as an example that alternative formats of signals can be used with the invention.

Furthermore, the claims themselves do not contain such a limitation. Claim 1 of the patent does not mention either SONET or SDH standards. See Col. 7:2-20. Dependent claims 4 and 5 indicate that the inventor did not intend to limit the terms “data frames” and “frames” in claim 1. Claim 4 reads, “A method in accordance with claim 1, wherein each of said first plurality of data frames and each of said second plurality of data frames are in a SONET format.” Col. 7:36-38. Claim 5 reads, “A method in accordance with claim 1, wherein each of said first plurality of data frames and each of said second plurality of data frames are in an SDH format.” Col. 7:39-41. “The presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” Phillips, 415 F.3d at 1315. There is a presumption that independent claim 1 does not contain the limitation of either the SONET or the SDH format found in claims 4 and 5 respectively.

A person of ordinary skill in the art would understand the term “data frame” to have its ordinary meaning of “a frame of data” and the term “frames” as more than one frame. Accordingly, and for the reasons discussed above, the Court does not need to construe either term.
have been previously construed and the constructions of these terms are incorporated by reference in the Master's Construction for # 9. As to the remaining terms the plain meaning as understood from the evidence has been used.

REASONS

INTRINSIC EVIDENCE

The Patent Specification sets forth that "When the processor receives a freeze command, it freezes in the still frame buffer an image obtained by the input device, and when the processor receives a save command it saves a frozen image in the memory." (Col. 3, Ls. 36-39).

EXTRINSIC EVIDENCE

Branson's testimony, to the extent it covered this phase, in the Markman Hearing is consistent with the Intrinsic Evidence (Branson Tr. 75:16-21; 79:17-19).

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's construction is set forth in the (Luma May 4, 2005, p. 5).

The Master has not used Luma's proposed construction that required: "any device configured"; "response to a freeze command"; and "further configured". The plain meaning of the language of the term does not support adding the proposed words.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth in (Stryker May 23, 2005, p. 12).

Stryker argues that Luma is asking for "piecemeal" construction. The Master has addressed this issue in "# 2" above.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 10).

KSEA argues that Luma has unnecessarily cut words out of the relevant claim term. KSEA's argument with Luma's Construction appears to be the same as Stryker's argument. The Master's comments with respect to Stryker's argument are also applicable to KSEA's argument.

B. STRYKER'S AND KSEA'S REQUESTED TERMS / PHRASES FOR CONSTRUCTION (Stryker/KSEA May 4, 2005)

Stryker and KSEA have submitted a joint request for terms and phrases to be construed. Stryker/KSEA May 4, 2005, p. 1. There is a match of terms that Stryker and KSEA want construed with some exceptions noted by KSEA. (KSEA May 23, 2005, Sheet 1, Paragraph 2.) As to those terms construed, KSEA has indicated where there is agreement with Stryker on the construction of those terms. Where KSEA has disagreed with Stryker, KSEA has given its own construction. (KSEA May 23, 2005, Sheet 1, Paragraph 5.)

1814

h. "processing frequency"

The plaintiffs propose "the speed at which the CPU operates." The defendants propose "fastest safe operating speed." The issue is whether the term refers to the "fastest safe operating speed."
The plaintiffs contend that the specification uses the language "maximum possible frequency" with regard to one embodiment of the CPU. The plaintiffs also point out that "fastest safe operating speed" was mentioned in response to an office action. Response to Office Action, January 8, 1997, at 4. The response to the office action states that the present invention provides

a variable speed clock for the microprocessor, with the clock speed varying in the same way as variations in the operating characteristics of the electronic devices making up the microprocessor. This allows the microprocessor to operate at its fastest safe operating speed, given its manufacturing process or changes in its operating temperature or voltage. Id. at 3-4.

According to the plaintiffs, this does not mean that the CPU must operate at the fastest safe operating speed, but that it is capable of operating at its fastest safe operating speed.

In support of their proposed construction, the defendants point to the specification which states that the "CPU will always execute at the maximum frequency possible, but never too fast." '336 patent, 17:1-2. The defendants also point to a portion of the prosecution history which states that

these claims further state that the plurality of transistors included within the ring oscillator clock have operating characteristics which vary similarly to operating characteristics of transistors included within the microprocessor, thereby enabling the processing frequency of the microprocessor to track the speed of the ring oscillator clock: '...CPU clock 70 executes at the fastest speed possible using the adaptive ring counter clock 430. Speed may vary by a factor of four depending upon temperature, voltage, and process. Response to Office Action, April 11, 1996, at 8-9.

Frequency is not limited to the fastest safe operating speed. The portion of the prosecution history cited by the defendants refers to varying the processing frequency based on operating conditions. In the Court's view, the applicants did not clearly define or limit the term "processing frequency." Accordingly, the Court adopts the plaintiffs' proposed construction.

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a. frequency jittering

Power Integrations contends that the term "frequency jittering" means "varying the switching frequency of a switch mode power supply about a target frequency in order to reduce electromagnetic interference." (D.I. 152 at 6). Power Integrations also contends that the "jittering" or variation in the frequency signal must be controlled and predetermined. Stated another way, Power Integrations requests the Court to construe the term "frequency jittering" to mean "a controlled and predetermined change or variation in the frequency of a signal." (D.I. 152 at 8).

Fairchild contends that the Court should decline to construe the term "frequency jittering," because it appears in the preamble of the claim and is not a limitation on the claim. (D.I. 166 at 34-35). Rather, Fairchild contends that the term "frequency jittering" in the preamble only states the purpose of the invention, and gives no meaning to the claim. However, if the Court chooses to construe the term "frequency jittering," Fairchild contends that the term means "varying the frequency of operation of the pulse width modulated switch by varying the oscillation frequency of the oscillator." (D.I. 156 at 33). Fairchild contends that the term should not be limited to "controlled and predetermined" changes or variations, because the preferred embodiment should not be used to limit the claim.

Reviewing the disputed term in light of the claim language and the specification n4, the Court concludes that the term "frequency jittering" means "varying the switching frequency of a switch mode power supply about a target frequency in order to reduce electromagnetic interference." The Court further agrees with Power Integrations that changes or variations in the frequency of the signal must be controlled and predetermined to achieve the purpose of the claimed invention. n5

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n4 The specification of the '851 patent was incorporated by reference into the specification of the '876 patent.

n5 In concluding that the term "frequency jittering" requires construction, the Court further concludes that while the term
"frequency jittering" is found in the preamble, it is a term which gives meaning to the claim and defines the invention. The invention is not just a "circuit" but a "digital frequency jittering circuit." Reading the patent as a whole, the Court is persuaded that this language is not mere introductory language, but language which is meant to define the invention and limit the claim. See In re Pausen, 30 F.3d 1475, 1479 (concluding that term "computer" used in preamble was a claim limitation that gave life and meaning to the claims).

Fairchild's proposed construction for the term "frequency jittering" is derived from the following sentence in the "Background of the Invention" section of the '851 patent:

Varying the frequency of operation of the pulse width modulated switch by varying the oscillation frequency of the oscillator is referred to as frequency jitter.

('851 patent, col. 3, l. 28-30). In the context of the invention as a whole, however, the Court reads this sentence to be a generic description of "frequency jitter" and not a definition of the "frequency jittering" described in the '876 patent. The '876 patent specifically describes the purpose of the invention as "deviating or jittering the switching frequency of the switched mode power supply oscillator within a narrow range to reduce EMI noise by spreading the energy over a wider frequency range than the bandwidth measured by the EMI test equipment." (‘876 patent, Abstract) (emphasis added). As the Court understands the technology, the express purpose of the invention, namely the reduction of EMI noise, cannot be achieved if the jittering is not controlled and predetermined. In this regard, the specification further explains the advantages of the claimed invention in reducing EMI over the prior art are due to the fixed and controlled manner of the frequency jittering:

pulse width modulated switch 262 may also have frequency jitter functionality. That is, the switching frequency of the pulse width modulated switch 262 varies according to an internal frequency variation signal. This has an advantage over the frequency jitter operation of FIG. 1 [the prior art] in that the frequency range of the presently preferred pulse width modulated switch 262 is known and fixed, and is not subject to the line voltage or load magnitude variations.

('851 patent, col. 6, ll. 11-17) (emphasis added). Accordingly, the Court concludes that Fairchild's construction is overly broad and inconsistent with the specification, when it is read in the context of the claimed invention.

Frequency scaling

The Court agrees with MediaTek and construes the term as "multiplying and/or dividing a frequency by a given factor." Sanyo argues that the term should be construed as "doubling and/or dividing a given frequency by easily derived values to obtain a different frequency." Sanyo's argument is not based on the claim language. Instead, Sanyo argues again that the specification and prosecution history require minimal or simple circuitry, and therefore a contextual interpretation of the patent requires frequency scaling accomplished using "easily derived values." Finally, Sanyo argues that specification only discloses examples of frequency scaling that are consistent with using simple circuits, and that the invention "teaches away" from using the standard 74.25 MHz raster frequency, which would require relatively complex circuitry. See '486 Patent col. 8:18-21; 9:21-34; 12:46-52; 13:7-14.

As discussed above in the section construing raster clock signal, the importation of an "easily derived" limitation on this term is not supported. Sanyo's interpretation of "easily derived" as limiting multiplication to a factor of two results in an unsupported, overly-narrow reading of the specification and an improper limitation of the claim.
There are two phrases that use the term "signal." The court agrees with O2 that the patent uses the term signal according to its ordinary meaning. As such, the court defines the term "reference signal" to mean "a signal that provides a reference" and "frequency selection signal" to mean "a signal used to select a frequency."

5. Frequency selector.

The parties dispute whether this term should be construed at all. Samsung argues the court should construe the term and contends that the proper definition is "a circuit that changes the frequency of an output during operation based on a received input." Samsung points to the description, wherein the frequency selector generates a signal for setting the frequency of the PWM signal. Col. 4, ll. 59-61. Notwithstanding the description of the preferred embodiment, the court defines the term to mean "an instrumentality that changes the frequency of an output."

a. frequency variation circuit that provides a frequency variation signal

As a threshold matter, the parties agree that the term "frequency variation circuit" means "a structure that provides the frequency variation signal." (D.I. 152 at 21; D.I. 166 at 20, n.12). Thus, the parties' dispute centers on the meaning of the "frequency variation signal."

Fairchild contends that the term "frequency variation signal" should be construed in accordance with its plain meaning as "a signal that is used to vary the frequency of the oscillation signal." (D.I. 156 at 27). Fairchild contends that its construction is consistent with other claim elements like the oscillator element:

an oscillator that provides an oscillation signal having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said frequency variation signal . . .

(‘851 patent, claims 1, col. 6 ll. 25-28 and claim 11, col. 13, ll. 35-38).

Power Integrations contends that the term "frequency variation signal" means "an internal signal that cyclically varies in magnitude during a fixed period of time and is used to modulate the frequency of the oscillation signal within a predetermined frequency range." (D.I. 152 at 23). Power Integrations' proposed construction is derived from a discussion in the specification of the frequency variation signal which contrasts such a signal from the known prior art.

Reviewing the disputed claim in the context of the claim language and the specification, taken as a whole, the Court concludes that a "frequency variation signal" means "an internal signal that cyclically varies in magnitude during a fixed period of time and is used to modulate the frequency of the oscillation signal within a predetermined frequency range." The Court's construction is supported by the specification which defines the frequency variation signal in terms of a known and fixed frequency range during a fixed period of time. In this regard, the specification teaches:

Alternatively, or in addition to soft start functionality, pulse width modulated switch 262 may also have frequency jitter functionality. That is, the switching frequency of the pulse width modulated switch 262 varies according to an internal frequency variation signal. This has an advantage over the frequency jitter operation of FIG. 1 in that the frequency range of the presently preferred pulse width modulated switch 262 is known and fixed, and is not subject to the line voltage or load magnitude variations.

(‘851 patent, col. 6, ll. 10-17).

Referring to FIG. 3, frequency variation signal 400 is utilized by the pulse width modulated switch 262 to vary its
switching frequency within a frequency range. The frequency variation signal 400 is provided by frequency variation circuit 405, which preferably comprises an oscillator that operates at a lower frequency than main oscillator 465. The frequency variation signal 400 is presently preferred to be a triangular waveform that preferably oscillates between four point five (4.5) volts and one point five (1.5) volts. Although the presently preferred frequency variation signal 400 is triangular waveform, alternate frequency variation signals such as ramp signals, counter output signals or other signals that vary in magnitude during a fixed period of time may be utilized as the frequency variation signal.

('851 patent, col. 6, ll. 25-38).

If the frequency variation signal 400 is a ramp signal, the frequency would linearly rise to a peak and then immediately fall to its lowest value. In this way, the current provided to current source input 485 of PWM oscillator 480 is varied in a known fixed range that allows for easy and accurate frequency spread of the high frequency current generated by the pulse width modulated switch.

('851 patent, col. 7, ll. 43-49).

That is, the switching frequency of the regulation circuit 850 varies according to an internal frequency variation signal. This has an advantage over the frequency jitter operation of FIG. 1 in that the frequency range of the presently regulation circuit 850 is known and fixed, and is not subject to the line voltage or load magnitude variations.

('851 patent, col. 11, ll. 45-50).

Based on the specification taken as a whole, the Court concludes that Fairchild's construction of the term "frequency variation signal" is overly broad. Read in the context of the specification, the Court is persuaded that the definition of the term "frequency variation signal" should include a fixed period of time and a predetermined frequency range. Accordingly, the Court will adopt the construction proposed by Power Integrations for the term "frequency variation signal."

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J. "A Signaling Message … From a Narrowband Communication System"

Claim 1 of the ’561 patent recites the phrase "a signaling message . . . from a narrowband communication system." Sprint contends that upon construction of the claimed term "signaling message" (discussed above), this broader phrase does not require further construction and should be afforded its plain and ordinary meaning. Vonage contends that this phrase should be construed to mean a signaling message (as defined above) received in the format sent from a narrowband communication system. Thus, Vonage is essentially arguing that the claimed signaling message "from" a narrowband communication system should be construed to mean a signaling message "received in the format sent from" a narrowband communication system. In support of this argument, Vonage relies on the prosecution history.

The court looks to the prosecution history, when pointed out and placed in evidence, to determine whether it contains statements that narrow the scope of the claims. Phillips, 415 F.3d at 1317. Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution. Purdue Pharma L.P. v. Endo Pharm. Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006); see also Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) (prosecution disclaimer applies where the patentee unequivocally disavowed a certain meaning to obtain his or her patent). This may occur, for example, if the patentee explicitly characterized an aspect of his or her invention in a specific manner to overcome prior art. Purdue Pharma, 438 F.3d at 1136. Although the prosecution history is relevant to claim construction, "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Phillips, 415 F.3d at 1317. "It is inappropriate to limit a claim term based on prosecution history that is itself ambiguous." Mars, Inc. v. H.J. Heinz Co., 377 F.3d 1369, 1377 (Fed. Cir. 2004) (quotation omitted).

Thus, the court must determine whether Sprint disclaimed signaling other than that received in a format from a narrowband communication. On February 1, 2001, Sprint submitted a response to the U.S. Patent and Trademark Office (PTO) to an earlier rejection of (among others) claim 1 of the ’561 patent. At that time, the claim recited "receiving signaling formatted for a narrowband system into a processing system." That claim language was not amended in connection with the February
Claims 1 and 21 require "receiving signaling formatted for a narrowband system that is external to any communication switches" and selecting a code or a logical address in the processing system based on the narrowband signaling. La Porta '852 teaches a call processing architecture that operates using a new broadband signaling protocol. La Porta '852 does not teach the processing of signaling from narrowband systems.

(Emphasis in original.) Thus, La Porta '852 teaches the processing of broadband signaling, not narrowband signaling. In this prosecution argument, then, Sprint was making the distinction that claim 1 of the '561 patent did not disclose the processing of broadband signaling because it requires receiving signaling "formatted for" a narrowband system. The remark concluded by reasoning that La Porta '852 does not teach the processing of signaling "from" narrowband systems. In a later response dated August 7, 2002, Sprint explained that Claim 1 requires receiving signaling "from" a narrowband communication system into a processing system. Thus, by that time, the claim had apparently already been amended to the later-issued claim language "from" a narrowband communication system.

The overall thrust of Vonage's argument seems to be that Sprint essentially treated the terms "formatted for" and "from" interchangeably, and therefore the court should construe the claim term "from" to mean "received in a format sent from." The court does not, however, find adequate evidence to invoke such a prosecution disclaimer. The prosecution history is ambiguous concerning the meaning of the distinction between the original claim language signaling "formatted for" a narrowband system and the apparently subsequently amended claim language involving signaling "from" a narrowband communication system. Contrary to Vonage's argument, the prosecution does not contain anything which could be construed as a clear disavowal of claim scope or an explicit characterization of an aspect of the invention to overcome prior art that "from a narrowband system" means "received in a format sent from a narrowband system." To the contrary, Sprint was apparently permitted to amend the claim language "formatted for" to the broader claim language "from." This is simply one of those situations where the prosecution history lacks clarity and, at best, is ambiguous. Accordingly, the court rejects Vonage's argument with respect to this claim element and determines that no further claim construction is required.

2. "read and process data in the identified packets from the buffer"

Only the meaning of "from the buffer" is in dispute. 3Com posits that this term requires no construction because it means precisely what it says, "from the buffer." Doc # 330 (03-2177) at 28. D-Link and Realtek both propose "while the packets are in the buffer." Doc # 81 (05-0098) at 42. The dispute, then, turns on whether data must be processed while in the buffer.

3Com argues that "from the buffer" needs no construction. The word "from" in this claim shows that the buffer is the source of the data to "read and process." 3Com's contends that the term covers "a packet that was once in the buffer." Doc # 340 at 22. D-Link, however, argues that 3Com clearly disclaimed such a broad meaning. D-Link relies upon 3Com's characterization of the invention in the prosecution history that:

The present invention is directed to a network interface which has logic to process packets in the frame buffer that are identified by a packet filter as having a particular format, before the packets are transferred to the host processor to which they are addressed.

Doc # 339 (Gutman decl) (03-2177) ex L at 2 (emphasis added). Notably, this is a characterization of the invention as a whole and not an attempt to distinguish a prior art reference. 3Com identifies this statement as referring "to the packets from
the packet filter claim element." Doc # 88 (05-0098) at 8. 3Com's argument runs counter to the plain meaning of the statement. In this statement, the packet filter merely identifies packets to be processed. The frame buffer, by contrast, is the disclosed location where processing occurs. One of ordinary skill in the art would read the characterization of the invention in the statement above as a clear indication that the disclosed invention will "process packets in the frame buffer."

In light of '884 patent's prosecution history, the court construes "from the buffer" to mean "while the packets are in the buffer."

3. "front"

This term also appears in both the '366 patent and the '408 patent. It appears in the '366 patent claims 1, 2, 4, 6, 7, 8, 41, 44, 45, 46, and 47; and the '408 patent claims 1, 2-6, and 9-15.

Rackable contends that "front" means "the most forward panel that will face toward the user when sliding or moving the computer into or out of a rack. In a standard full depth configuration, the front panel is opposite the side having I/O connectors for connecting to peripheral equipment such as a router. In the patented configuration, the orientation of the main board in the chassis is reversed." Supermicro asserts that "front" is indefinite under 35 U.S.C. § 112(2), or alternatively, means "a panel designed to face toward the user, such as a panel designed to face forward when placed in a rack."

Rackable therefore argues for a narrow definition of "front;" while Supermicro argues that the term is either indefinite or for a broader definition.

Supermicro asserts that "front" is indefinite and ambiguous as used in the patents. It argues that it requires some frame of reference. It contends that normally, computers have a top, bottom, and four vertical sides, and that a member of the public could not determine which side of the computer is the "front" for purposes of determining infringement. Accordingly, Supermicro argues that the term is incapable of construction.

Alternatively, Supermicro argues that the '366 patent provides support for its construction of "front" -- that when a computer is placed in a rack, the "front" side is the side that faces out toward the user. However, Supermicro then argues that there is still ambiguity regarding the '408 patent since that patent does not require a "rack" in its claims, and it is difficult to determine which side of a stand-alone computer is designed to face the user.

Rackable contends that Supermicro has not shown by clear and convincing evidence that the term is indefinite. Rackable further argues that Supermicro's construction ignores the specification, and standard industry practice, which entails I/O access from the rear main board. It contends that Supermicro's "irrelevant prior art" demonstrates as much.

The court adopts in part Supermicro's construction of "front" as a panel designed to face forward when placed in a rack as applied to the '366 patent only. The court rejects both parties' constructions to the extent that they refer to a "user." Reference to a "user" is too ambiguous, as there are multiple user purposes, and the term "front" cannot be defined according to how the computer is being used. See Datamize, 417 F.3d at 1350. Although "a patentee need not define his invention with mathematical precision to satisfy the definiteness requirement," there must be some "objective anchor" by which skilled artisans can identify whether they are practicing the patented invention. Id. (concluding that term "aesthetically pleasing" was indefinite because it was too subjective). Here, as in Datamize, reference to "user" renders the term indefinite because its scope depends "solely on the unrestrained subjective [purpose] of a particular individual purportedly practicing the invention." See id.

As noted above, though, the court's construction of "front" is limited to the '366 patent. That is because the '366 patent, unlike the '408 patent, provides an "objective anchor" in terms of the existence of the "rack." Because the '408 patent lacks such an "objective anchor," the court concludes that "front" is indefinite under 35 U.S.C. § 112 as concerns the '408 patent.

The court recognizes that the finding of indefiniteness with respect to "front" as to the '408 patent only may have some adverse impact with regard to the '366 patent, which contains the same term. However, the court is unclear regarding what,
if any, impact may occur, and expects that the parties will advise the court of any such impact in their briefing on the
dispositive motions.

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On appeal, Honeywell argues that the district court erred by limiting the "fuel injection system component" limitation to a
fuel filter and including no other component of a fuel injection system. In doing so, Honeywell contends that the court
imported a limitation from the specification into the claims and thereby improperly limited the scope of the claims to the
specification's preferred embodiment. According to Honeywell, nothing in the specification explicitly limits the claim term
to a "fuel filter." Honeywell relies on a statement contained in the specification referring to "the metallic components used
in prior art systems," '879 Patent, col.1 ll.32-33, to argue that the term "component" was meant to be broad. It also cites the
patent's abstract, which summarized the invention using the term "component," and the title of the patent as amended, to
further argue that the specification did not limit the "fuel injection system component" to a fuel filter.

In addition, Honeywell points to the prosecution history in assigning error to the district court's construction of the "fuel
injection system component" limitation. According to Honeywell, the patentee stated during prosecution that the intended
scope of the claims was to include "all fuel components manufactured of the moldable material disclosed and claimed in the
specification." Honeywell also notes that the patent examiner issued a restriction requirement during prosecution of the '084
application (which also included claims to "fuel filters") because "the fuel system component [claims] do[] not specifically
require that the component be a fuel filter."

Mainly reiterating the points made by the district court in its claim construction decision, ITT/TG responds that the claim
term "fuel injection system component" was correctly limited to a fuel filter. ITT/TG also argues, however, that the court
errd in its construction of the "electrically conductive fibers" limitation. ITT/TG contends that the court should have
construed that term to include only metal fibers with a high aspect ratio, not carbon fibers. According to ITT/TG, the written
description compared the properties of metal and carbon fibers, and "disparaged" the use of the latter as an electrically
conductive fiber. ITT/TG contends that there was a clear disavowal of carbon fibers from the scope of the claims. Moreover,
because the accused quick connects are indisputably made with carbon fibers, ITT/TG asserts that there can be no
infringement either literally or under the doctrine of equivalents.

We agree with the district court that the claim term "fuel injection system component" is limited to a fuel filter. In Phillips
v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc), this court recognized that "claims 'must be read in view of
the specification, of which they are a part." We further stated that "the specification 'is always highly relevant to the claim
construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" Id. (internal
citations omitted). Here, the written description uses language that leads us to the conclusion that a fuel filter is the only
"fuel injection system component" that the claims cover, and that a fuel filter was not merely discussed as a preferred
embodiment. On at least four occasions, the written description refers to the fuel filter as "this invention" or "the present
invention":

- This invention relates to a fuel filter for use in the fuel line that delivers fuel to a motor vehicle engine. '879 Patent, col.1
  ll.8-9.

- According to the present invention, a fuel filter for a motor vehicle is made from a moldable material which may be
  safely used in vehicles equipped with electronic fuel injection system. Id., col.1 ll.40-43.

- This and other advantages of the present invention will become apparent from the following descriptions, with reference
to the accompanying drawing, the sole Figure of which is a cross-sectional view of a fuel filter made pursuant to the
  teachings of the present invention. . . . Id., col.1 ll.43-49.

- According to the present invention, an electrically conductive path is provided between the fuel within the inlet cavity 42
  [of the fuel filter] and the [vehicle] body 38. Id., col.3 ll.41-43.

The public is entitled to take the patentee at his word and the word was that the invention is a fuel filter.
Moreover, the written description does not indicate that a fuel filter is merely a preferred embodiment of the claimed invention. The fuel filter was the only component of an EFI system that the written description disclosed as having a polymer housing with electrically conductive fibers interlaced therein. The only other fuel component specifically mentioned in the written description, the fuel line, was not required by the patentee to be made of an electrically conductive polymer material, as the claims require. See id., col.1 ll.59-60 (stating that the "fuel line may also be made of a non-conductive material"). The written description's detailed discussion of the prior art problem addressed by the patented invention, viz., leakage of non-metal fuel filters in EFI systems, further supports the conclusion that the fuel filter is not a preferred embodiment, but an only embodiment. Id., col.1 ll.10-25. Given the written description's disclosure, we conclude that the patentee has limited the scope of the '879 patent claims to a fuel filter.

Nor are we persuaded by Honeywell's argument that the patentee confirmed a broader scope of his claims during prosecution. Honeywell relies mainly on the patentee's response to the examiner's indefiniteness rejection in which he stated that the claims cover "all fuel components manufactured of the moldable material disclosed and claimed in the specification." Honeywell places too much weight on that statement, as we find it to be ambiguous and possibly inconsistent with the written description. After all, the only fuel component disclosed and claimed in the patent was a fuel filter. In any event, such a broad and vague statement cannot contradict the clear statements in the specification describing the invention more narrowly.

We also do not assign much weight to the patent examiner's restriction requirement with respect to claims for a "fuel filter" and a "fuel system component" during prosecution of the '084 application. In making the restriction requirement, the examiner did not construe the claim term "fuel system component" or determine its meaning in light of the written description. He merely required that the applicant elect one aspect of his invention for prosecution without applying it to the specification.

Nevertheless, even if we were to agree with Honeywell that the patentee clearly expressed his intention during prosecution to have the "fuel injection system component" limitation include components in addition to a fuel filter, it would not change the result in this case. As we determined above, the written description provides only a fuel filter that is made with polymer housing and electrically conductive fibers interlaced therein. No other fuel injection system component with the claimed limitations is disclosed or suggested. Where, as here, the written description clearly identifies what his invention is, an expression by a patentee during prosecution that he intends his claims to cover more than what his specification discloses is entitled to little weight. See Biogen, Inc. v. Berlex Labs., 318 F.3d 1132, 1140 (Fed. Cir. 2003) (stating that "[r]epresentations during prosecution cannot enlarge the content of the specification").

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iii. Dependent Claim 13 Is Indefinite

Claim 13 reads as follows:

13. A system as recited in Claim 12 wherein said remotely transmitted signal includes a full band broadcast signal.

Citrix argues that the italicized words in Claim 13 cannot be understood by one of skill in the art and that the claim is therefore indefinite. Citrix argues that the italicized term was coined by Rothschild for use in the patent because it is not a term typically used in the computer field to describe a type of broadcast signal. To support its argument Citrix claims that the term "full band" is not defined in technical dictionary such as the Dictionary of Computer Words, the Microsoft Computer Dictionary, Barron's Dictionary of Computer and Internet Terms or even in ordinary usage dictionaries like the American Heritage of the English Language.

Rothschild proposes that the term "full band broadcast signal" be construed as "an unconstrained transmission. Rothschild cites to the '534 Patent specification in support of this proposed construction, but does not explain how the specification actually supports its construction. In fact, Rothschild has failed to identify a single dictionary or treatise explaining what a "full band broadcast signal" is. In addition, the '534 Patent does not provide any definition of "full band broadcast signal." Instead, the '534 Patent identifies it along with other types of signals -- such as broadband and interlaced -- but fails to identify what the signal is or how it differs from the other identified signals. Col. 3:29-33, Col. 12:30-34, Col. 12:65-13:15.
Although Rothschild proposes that "full band broadcast signal" be construed to mean "an unconstrained transmission," Rothschild fails to identify any such definition in the '534 Patent, or anywhere else.

The Court finds that because the claim term "full band broadcast signal" in Claim 13 has no meaning to one of skill in the art and is not defined in the '534 Patent, Claim 13 cannot be construed and is therefore indefinite. E.g., Honeywell, 341 F.3d at 1338, 1341.

Full-duplex, standing alone, means a "simultaneous two-way independent transmission in both directions." Lewis Decl. Ex. 8 (American National Dictionary for Information Processing Systems 43 (1982)) (emphasis in original). That is, a full-duplex transmission involves communication between the sender and receiver simultaneously, in both directions at once, as opposed to one direction at a time. See id. Ex. 6 (Microsoft Press Computer Dictionary 119 (1991)) (emphasis added). The prosecution history of Multi-Tech's '627 Patent reveals "full-duplex, packetized voice communications as claimed . . . requires simultaneous bi-directional independent asynchronous transmission of voice packets between two modems." Lewis Decl. Ex. 11 at 5 (November 4, 1997, Amendment & Response Under 37 C.F.R. § 1.116). "Through statements made during prosecution . . . an applicant for a patent . . . may commit to a particular meaning for a patent term, which meaning is then binding in litigation." CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1158 (Fed. Cir. 1997).

Full-duplex digital communication, therefore, is the ability to bi-directionally transmit and receive digital information simultaneously.

The term "full flow" also appears in the preamble of each of the asserted independent claims. CFMT argues that the term refers to the inventors' short hand name for a process that includes the characteristics of flowing process fluids past wafers in a process vessel that is hydraulically full. YieldUP counters that the term "full flow" is a CFMT trademark that is not explicitly defined in any part of the patent documents. If the court construes the term, YieldUP contends that it means requiring turbulent plug flow with a high volume turnover rate.

The court does not find that the term "full flow" is an undefined trademark used by CFMT strictly for its marketing purposes. YieldUP markets its own products as "full flow processors" and YieldUP's co-founder and Chief Technology Officer, Suraj Puri, has filed a patent application covering a "Full Flow Method and Apparatus for Cleaning Objects Using Dilute Ammonium Solutions." Therefore, the court finds that the term "full flow" would be understood by one of ordinary skill in the art.

The specification of the '532 patent does not suggest that "full flow" means "plug flow" as YieldUP argues. On the contrary, the two references to "plug flow" in the specification of the '532 patent suggest that if the inventors had meant to refer to "plug flow" in the patent claims, they knew how to do so, and they would not have used the term "full flow" instead. As advocated by CFMT, the court finds that the term "full flow" is a short-hand name for the method of flowing process fluids past wafers in a vessel that is hydraulically full.
6. **Full-width Data Path**

A data path on the memory module that is at least as wide as the path used by the central processing unit of the computer into which the module is installed.

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### B. Modes/mode switching means

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Uniloc's proposed construction</th>
<th>Microsoft's proposed construction</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Use mode</td>
<td>Use of the digital data or software by its execution on a platform so as to fulfill the seller's/licensor's obligations in relation to the sale or license of the right to execute the digital data or software in the use mode. The use mode is to be distinguished from what might generally be termed unlicensed modes of operation (which is not to say unauthorized modes of operation) as typified by demonstration modes.</td>
<td>Use of the digital data or software by its execution on a platform so as to fulfill the seller's/licensor's obligations in relation to the sale or license of the right to execute the digital data or software in the use mode.</td>
<td>A mode that allows full use of the digital data or software in accordance with the license</td>
</tr>
<tr>
<td>13. Fully enabled mode/full version run</td>
<td>A mode allowing full unrestricted use in accordance with the license</td>
<td>A mode/version in which the software is available</td>
<td>A mode/version that allows full use of the digital data or software in accordance with the license</td>
</tr>
<tr>
<td>14. Partly enabled or demonstration mode</td>
<td>A mode that is more restricted than a fully enabled mode</td>
<td>A mode in which some functions are disabled for purposes of demonstrating aspects of the software to a person who is not presently a licensee, but who may in the future choose to license it</td>
<td>A mode that allows partial use of the digital data or software</td>
</tr>
</tbody>
</table>
As an initial matter, the Court concludes that the terms "use mode" and "fully enabled mode/full version run" mean the same thing. At the Markman hearing, Microsoft readily agreed that these terms are synonymous. Uniloc, however, was hesitant to agree to synonymous treatment on the spot. But importantly, when pressed by the Court, Uniloc was once again unable to offer an example of a situation when "fully enabled mode" would mean anything other than "use mode." So, although Uniloc has not explicitly agreed that these terms are synonymous, Uniloc has been unable to make an argument, compelling or otherwise, that the terms deserve different treatment. Moreover, the Court observes that Uniloc's proposed constructions for these terms do not vary materially. While Uniloc has included the word "unrestricted" in its construction of the term "fully enabled mode," there is nothing to indicate that "use mode" is restricted in any way other than the scope of the license. Indeed, Uniloc's own expert, David Klausner, stated that use mode is an unrestricted mode:

One of ordinary skill in the art recognizes the patent relates to the use of software or digital data in a restricted or unrestricted mode (use mode/non-use mode). The terms "fully-enabled mode" and "full version run" are used similar to "use mode" to mean allowing unrestricted use in accordance with the license.

Klausner Decl. at P 18. Moreover, the specification discusses these terms in a similar context by explaining that they are the converse of the term "partly enabled or demonstration mode." Compare '216 Patent, col. 2, ll. 44-48 (“The use mode is to be distinguished from what might generally be termed unlicensed modes of operation (which is not to say unauthorized modes of operation) as typified by the demonstration modes later described in this specification”), with id. at col. 15, ll. 1-5 (explaining that the mode switching means switches software between a fully enabled mode on the one hand, and a partly enabled or demonstration mode on the other).

Turning then to the parties' proposed constructions, the main point of disagreement is whether the difference between the full and demonstration modes involves only functional limitations (such as limitations on the ability to save or print a document), or whether the claim terms should be construed broadly enough to encompass temporal limitations as well (such as only being able to use the software for two days). In support of its argument that the demonstration mode only involves functions being disabled, Microsoft cites portions of embodiments 1 and 5. See id. at col. 6, ll. 47-48 (explaining that "a demonstration of the software (which typically has features such as save and/or print disabled)"); id. at col. 11, ll. 14-17 (stating that the "[t]he registration code portion 38 can include a preview or demonstration related to a subset of the balance of the digital data on the CD 54 which can be executed by the platform without license"). But while these embodiments discuss characteristics which a demonstration mode can have, or typically has, the Court declines to read these examples from two embodiments to mandate that in all instances, the demonstration mode only can involve functional limitations. See generally Phillips, 415 F.3d at 1323 (the general rule is that "persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments."). For these reasons, the words "functionality" and "functions are disabled" will not be part of the Court's construction of these terms.

Instead, the Court determines that the use and fully enabled modes are best described as allowing "full use" of software "in accordance with the license." This language is consistent with the specification's explanation of the term "use mode," see '216 Patent, col. 2, ll. 40-48 (explaining that use mode refers to use of the digital data or software so as to fulfill the licensor's obligations), as well as the specification's general guidance that once the registration routine is complete, "full access to the software is allowed." Id. at col. 8, l. 28.

Accordingly, the terms "use mode" and "fully enabled mode/full version run" shall be construed as: A mode that allows full use of the digital data or software in accordance with the license. n12

--- Footnotes ---

n12 Although Microsoft agreed that the terms "use mode" and "fully enabled mode/full version run" should be treated the same, it did not specify which of its proposed constructions was preferable in that event. Nonetheless, to the extent Microsoft may have intended to press its proposed construction of "use mode," this writer notes that the Court's construction incorporates the limitation expressed therein: that use mode means using the data in accordance with the obligations imposed by the license.

--- End Footnotes ---

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1. "fully folded array"

The text of claim 1 is set forth below with the key disputed term highlighted in bold type.

In a storage system having n+1 disks arranged in a RAID array, a plurality of data blocks arranged into a plurality of data chunks, a plurality of parity blocks arranged into a plurality of parity chunks, each parity block associated with n data blocks in n data chunks, said data chunks and said parity chunks distributed over said n+1 disks, one of said parity chunks and all of said data chunks that are associated with said parity chunk forming a strip, a method of reorganizing said data chunks when one of said n+1 disks fails, comprising the steps of:

   - detecting the failure of one of said n+1 disks;
   - determining if said failed disk contains all parity chunks;
   - if said failed disk contains all parity chunks, terminating said method;
   - if said failed disk contains at least some data chunks, then for each strip containing a data chunk located on said failed disk, regenerating the data of said data chunk located on said failed disk and writing said regenerated data onto said parity chunk associated with said data chunk of said failed disk to form a fully folded array.

HP asks the Court to construe this term as: "An organization of a RAID array essentially that of a RAID-0 organized array except that the disk on which a chunk of data is stored may be unconventional." EMC proposes:

A "fully-folded array" is an array of disks that results after the completion of a "folding" process. The folding process begins after a disk in the array fails. The data of the failed disk is reconstructed and stored onto the parity chunks of the active disks in the array. The "folding" is complete when all of the parity chunks of the active disks have been overwritten with the reconstructed data of the failed disk.

The claimed invention enables continuing access to stored data even when a storage disk has failed. It does so by reconstructing the failed data and writing them onto portions containing parity data on other disks. When this occurs, the data are accessible, but the disk storage system no longer has parity data and thus no longer has redundant data storage. Any data that are lost thereafter cannot be reconstructed or regenerated. In this state, the data storage device is a "fully folded array." The user can continue to access the data until a replacement disk is added, at which time the data are "unfolded" and restored to their redundant state.

While the plain language of the claim does not explain the meaning of "fully folded array," the specification provides a sufficient explanation for purposes of claim construction. For example, the summary of the invention clearly defines a fully-folded array as one in which the level of organization of data is non-redundant and which contains regenerated data from a failed disk in the place of previously existing parity data corresponding to that regenerated data. See 453:2/35-49.

HP's proposed construction is accurate in the sense that it restates an explanation from the specification. However, it does not take advantage of the full description provided; the Court's construction seeks to define fully the terms proposed by HP. While the fully-folded array is defined partially by characteristics obtained from the process of folding, EMC improperly attempts to import the process by which the data are fully folded into the construction. At the same time, the fully-folded array contains regenerated data in places that previously contained parity data; the Court will include this property in its construction without importing method or process limitations.

Accordingly, the Court construes this term as "a memory storage array in which the level of organization of data is non-redundant and which contains regenerated data from a failed disk in the place of previously existing parity data corresponding to that regenerated data."
The word "function" in the term "storing executable functions" means an identifiable set of computer instructions. The "ordinary and customary meaning" of the word "function" to someone of "ordinary skill in the art," Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citing Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)), is a set of computer instructions. This construction is supported by the specification. '737 Patent, Col. 12, 11. 46-48 ("A format function…may be considered as the smallest unit of instructions for producing a portion of HTML code."). See also Dow Jones Reply Br., Ex. A, at 2 ("The ordinary meaning of the term "function" is a named set of instructions.").

The parties appear to agree on this point, disagreeing only on whether a function must be "named" or merely "identifiable," and whether a function must include "a set of function steps, at least one of which, when executed, creates a portion of code." The claim itself is unclear on these points. The specification for the '737 patent, however, requires only that each function be identifiable. '737 Patent, Col. 13, lines 41-45 ("At step 905 the functions required to create the particular string…are identified."). 3 Moreover, although certain functions described in the specification create portions of code, others perform different tasks, such as retrieving data from a database. Id. at Col. 15, ll. 54-58.

3 For the proposition that each function must have a name, Dow Jones relies on definitions from standard and computer programming dictionaries. Extrinsic sources such as dictionaries, however, "may not be used to vary, contradict, expand, or limit the claim language from how it is defined, even by implication, in the specification or file history." Bell Atl. Network Servs. v. Covas Commc'ns. Group, Inc., 262 F.3d 1258, 1269 (Fed. Cir. 2001).

Dow Jones argues further that "storing executable functions" requires "storing a universal set of all available functions." In support of this view, Dow points to a passage from the specification in which the preferred embodiment is described, which states "the system as a whole includes a universal family set of all available functions." Id. at Col. 12, ll. 49-50. Dow views the inclusion of the "universal family set" as an essential feature of the preferred embodiment that must be read into the claim. The Federal Circuit, however, has "repeatedly warned against confining the claims" to specific embodiments described in the specification, Phillips, 415 F.3d at 1323 (citing cases), and has "expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." Id. In order for the specification to be used to limit the claim as Dow Jones would have it, it must "disavow" the claim scope through "words or expressions of manifest exclusion" or "explicit disclaimers." Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1374 (Fed. Cir. 2005)(citing Housel Pharms., Inc. v. Astrazeneca UK Ltd., 366 F.3d 1348, 1352 (Fed. Cir. 2004)). The specification of the '737 patent lacks such an indicator of applicant intent.

H. Claim Construction of "function"

In the '072 Patent, the term "function" appears in Claims 1, 2, 3, 4, and 5, but the primary claim language can be found in Claim 1, which states "the specified combination of each scatter pixel and the transmission pixel corresponding to the scatter pixel is a linear combination of a function of the value associated with the scatter pixel and a function of the value associated with the transmission pixel."

Plaintiff argues that this term means a relationship, however derived, that represents a unique association of an output with one or more defined inputs. Defendants argue "function" means a relationship that associates a single input array variable with a unique and determinate output, wherein the relationship does not combine neighboring pixels in the input array. Defendants acknowledge that functions can depend on multiple variables, but argue that the '072 Patent always refers to
functions of a single variable.

The ordinary and customary meaning of "function" is a relationship between inputs and outputs, but beyond that, the claim language does not provide much guidance. While the claim language states that the first function is a function of the scatter value and the second function is a function of the transmission value, the claim language does not specify whether the value input consists of one variable or multiple variables.

The specification indicates that the function may be logarithmic or quadratic. ('072 Patent, Col. 2, lines 36-42.) In the description of preferred embodiments, the specification describes examples of combinations of functions of $T$ (an array of values representing the transmission image) and $S$ (an array of values representing the scatter image), with the general formula consisting of $C = f(S) + g(T)$. ('072 Patent, Col. 4, lines 3-46.)

The Court next turns to the prosecution history. In the December 20, 2001 Amendment Transmittal, the patentee stated that the claims require "forming a value $C$, for each pixel, that is a combination of a function $f(T)$ of the transmission signal $T$ at that pixel and a function $g(S)$ of the scatter signal $S$ at that same pixel." (Defs' Mem. Claim Constr., Ex. 14.) It is clear that the patentee argued that both functions are limited to functions of single entries from their respective transmission and scattering image arrays, and not containing information from other pixels. This basis, the patentee distinguished its patent from the prior art, namely, U.S. Patent No. 5,974,111 issued to Krug et al. The patentee argued that while Krug's method entailed combining and averaging values of neighboring pixels, the patentee's claims "require a method for displaying an image created from pixel-by-pixel combination of actual measured intensity values for detected transmission and scatter x-rays." (Defs' Mem. Claim Constr., Ex. 14.)

Thus, the intrinsic evidence makes clear that Plaintiff intended that "function" be limited to a function of a single variable, a value associated with either a transmission pixel or a scatter pixel. Accordingly, the Court FINDS that "function" as defined in the '072 Patent means a relationship that associates a single input array variable with an output, wherein the relationship does not combine neighboring pixels in the input array.

ix. As a function of priority

Plaintiff contends that this phrase means "using a priority scheme to determine a course of action" and asserts that the priority can be based on either time or level of importance. Apple contends that the phrase means "based on the level of importance assigned to other specific portions' relative to specific portions." Sun's construction is "based on the relative priorities of the defined routines."

The priority language is not limited to the level of importance. A plain reading of the term and a general understanding of the goal of the patented invention would allow for both level of importance and time priority. One of ordinary skill in the art would recognize that if the level of importance of two interrupts was the same, the first in time would be processed before the second.

Further, there is no modifier before "priority" in Claim 11. This is different from other claims (see claims 1, 7, 15, and 20). Because there is no modifier in Claim 11, the court will not read additional limitations into the claim. "As a function of priority" will be given its full breadth of meaning. Accordingly, the Court finds that "as a function of priority" means "based on either time or level of importance."

6. "Function of", "Function of the flight path angle", "Function of … said look ahead distance"
58 This construction applies to the '080, '592, and '570 Patents.

<table>
<thead>
<tr>
<th>Honeywell's Proposed Construction</th>
<th>Sandel's Proposed Construction</th>
<th>Universal's Proposed Construction</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A mathematical or logical relationship.</td>
<td>A mathematical expression using numerical values.</td>
<td></td>
<td>A mathematical or logical relationship.</td>
</tr>
<tr>
<td>A mathematical or logical relationship to the flight path angle.</td>
<td>The boundaries of the alert envelope are determined using a discrete numeric value of the flight path angle as a variable in their computation.</td>
<td></td>
<td>A mathematical or logical relationship to the flight path angle.</td>
</tr>
<tr>
<td>A mathematical or logical relationship to the look ahead distance.</td>
<td>The boundaries of each alert envelope are determined using the same discrete numerical value for look ahead distance as a variable in their computation.</td>
<td></td>
<td>A mathematical or logical relationship to the look ahead distance.</td>
</tr>
</tbody>
</table>

Again, Honeywell argues that this term has a plain and ordinary meaning in the art, and that Sandel is attempting to restrict that definition. Honeywell alleges that Sandel is attempting to read specific numerical values into the claim language, and urges the court to include logical relationships. Additionally, Honeywell does not object to a construction of "function of" which includes a logical relationship in addition to a mathematical relationship.

Sandel argues that "function of" is commonly used in the avionics industry, and defines, inter alia, a direct mathematical relationship between two variables. In support, it cites various dictionary definitions, and notes that both the specification and prosecution history are consistent with its proposed definition.

"Function of" is commonly known as a mathematical or logical relationship between two or more variables. That is, an unknown variable can be defined as a function of some other variable. Thus, one can determine the unknown variable by reference to another variable. Honeywell's definition includes a mathematical and logical relationship, which is consistent with the common usage. The court rejects Sandel's proposed definition because it is too narrow, and unsupported by the claim language.

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(1) A Fundamental Frequency Detector

Square D contends that the term "a fundamental frequency detector" should be construed to mean "a mechanism that
receives an input signal and generates a modified output signal representative of the fundamental frequency." EI contends that the term should be construed to mean "a frequency to square wave converter in which the high frequency components are eliminated by a low-pass filter." At the Markman hearing, Square D offered an alternative construction: "a device that detects the fundamental frequency." Thus, the real dispute here centers on whether the proper construction should require that the fundamental frequency detector must include a low pass filter device.

Based upon the plain language of the specification, the Court finds that it does. The specification states that "[i]n the present invention, the high frequency components in the signal are eliminated through the use of a low pass filter before attempting to measure the signal's fundamental frequency." Id., col. 7, lines 23-30. Square D argues that this language merely requires that a low pass filtering effect be achieved; but that is not what the specification says. Moreover, elsewhere, the patentee used other phrases to make clear that the particular description might apply to one or more embodiments, but should not be read to limit the claim language, see, e.g., col. 4, line 1 ("[i]n the illustrated embodiment"); col. 5, line 43 ("[i]n an exemplary embodiment"); col. 6, line 6 ("[i]n an exemplary embodiment"); and significantly, here, the patentee chose not to use such language, demonstrating that the limiting language requiring the use of a low pass filter would apply to every embodiment of the present invention.

Square D argues that the Court may not construe the claim language in a manner that would preclude a preferred embodiment. And this is certainly true. See, e.g., Oatey Co. v. IPS Corp., 514 F.3d 1271, 1276-77 (Fed. Cir. 2008) (ordinarily, absent a clear disclaimer in the specification or prosecution history, it is inappropriate to interpret claim terms in a way that excludes embodiments disclosed in the specification). See also Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed Cir. 1996). But Square D has not demonstrated that construing "fundamental frequency detector" in this manner does preclude a preferred embodiment. At the Markman hearing, Square D argued that the specification discusses a preferred embodiment which discloses as "a suitable fundamental frequency to square wave converter . . . the LM311D available from National Semiconductor." See U.S. Patent No. 6,185,508 B1, col. 4, lines 46-48. According to counsel for Square D, the LM311D does not use a low pass filter, which necessarily means that a low pass filter is not required. But the language of the specification that identifies the LM311D as an option also says that it should be "configured in a manner known in the art." The Court does not read this language as being inconsistent with the requirement that the device use a low-pass filter to eliminate harmonics. To the extent it is, Square D should have demonstrated as much, and it did not.

The conclusion concerning the necessity of a low pass filter is consistent with the prosecution history, which distinguishes prior art that "does not teach or suggest" that the errors associated with harmonic distortion "can be removed by the low pass filtering effect of a fundamental frequency to square wave converter." See EI's Memorandum in Support of Claim Construction, Exhibit D.

Having said all of this, the Court also rejects EI's proposed construction. EI has equated "fundamental frequency detector" with a frequency to square wave converter. But that limitation is unsupported in the claims. Claim 9, which depends from claim 1, discloses "[t]he power meter of claim 1 wherein said detector converts said fundamental frequency to a square wave." U.S. Patent No. 6,185,508 B1, col. 10, lines 21-22. Under the doctrine of claim differentiation, claim 1 is presumptively broader than this, including fundamental frequency detectors that do not convert frequency to square wave. See, e.g., Halliburton Energy Services, Inc. V. M-I LLC, 514 F.3d 1244, 1252 n.3 (Fed. Cir. 2008) ("Under the doctrine of claim differentiation, 'the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.'") (quoting Phillips, 415 F.3d at 1315).

In light of all of the above, and having considered the language of the claims and the specification, the Court construes "fundamental frequency detector" to mean "a mechanism that receives an input signal and, using a low-pass filter, generates a modified output signal representative of the fundamental frequency."
In particular, ADE contends that the '118 "gallery" has integrity or an existence independent of the images displayed therein.

D.I. 312 at 2.

Although, as ADE correctly notes in its Markman briefs, the word "gallery" is used in the '118 with reference to a graphical spreadsheet, given the context in which the word is employed throughout the '118 disclosure, it is evident to this court that the inventors did not intended to incorporate a "spreadsheet" limitation with in dependent structure into the word "gallery." This court, therefore, will not read, as ADE suggests, a graphical spreadsheet limitation into the meaning of the word "gallery." Had the inventors intended this word to incorporate a form with independent structure separate and distinct from the images being displayed, they could have done so in their claims. The word "gallery" is, therefore, construed to mean a representation of one or more items. This is not to state, however, that other limiting language in the "gallery … means" elements of claim 7 and claim 13, as provided, infra, has no bearing on this discussion.

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3. "Game"

IGT's contends that the term "game" is indefinite, rendering the claim invalid. See infra. Arguing in the alternative, IGT proposes that the term "game" be construed in the following way. Aristocrat submits that the term needs no further construction.

<table>
<thead>
<tr>
<th>Term or Language Requiring Construction</th>
<th>Aristocrat's Proposed Construction</th>
<th>IGT's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;game&quot;</td>
<td>game</td>
<td>In the context of these claims, this term is indefinite and provides no clear criteria to distinguish between what is a first game and what is a second game. At the time, a person of ordinary skill would have understood the term to mean: A gambling activity played according to a set of rules. A game does not require user interaction. A game has a distinct beginning and ending. A game begins when a player irrevocably commits a wager that is not part of any previous game. A game ends when all transactions for the game have finished, including the loss or return of the wager and award of all prizes won. Second screen bonus features, free plays and the like are not separate games.</td>
</tr>
</tbody>
</table>

IGT contends that "game" is a term of art with a technical meaning to those skilled in the art. Because, according to IGT, the specification gives insufficient guidance as to the meaning of the term "game," the court should look to industry regulations
to determine an appropriate construction. IGT CC at 5. IGT's lengthy construction is composed largely of limitations culled from a variety of gaming regulations. Id. Australian regulations define a "game" as "a gambling activity played according to a set of rules." IGT CC at 6 (citing Australia/New Zealand Gaming Machine National Standards, Rev. 1.0 §§ 3.264-65 at 3-42 (1997), attached to Irvine Decl. at Ex. L). Nevada gaming regulations require that "gaming devices" have the capacity to display complete play histories of the nine games immediately preceding the most recent one. Id. (citing State of Nevada, Regulations of the Nevada Gaming Commission and State Gaming Control Board: Technical Standards for Gaming Devices, § 1.080(7)(November 1997), attached to Irvine Decl. at Ex. O). And Australian/New Zealand gaming regulations also provide that games begin and end with a wager and either loss or payment, respectively. Australia/New Zealand Gaming Machine National Standards, Rev. 1.0 §§ 3.264-65 at 3-43. Finally, the standards promulgated by Gaming Laboratories International, called the GLI-11: Gaming Devices in Casinos, 1 define "second screen bonus features, or free plays, as all part of a single game, and not as separate games." IGT CC at 6 (citing Gaming Laboratories International, GLI-11: Gaming Devices in Casinos, Ver. 1.4 § 4.2.4 at 66 (June 30, 2006), attached to Irvine Decl. at Ex. N.).

--- Footnotes ---

1 According to IGT's brief: "Like a restatement or uniform act in the law, the GLI-11 is an industry standard having widespread acceptance and setting forth the industry usage of "game" and "completion" of a "game." IGT CC at 6 n. 4.

--- End Footnotes ---

These limitations do not appear in the specification. Rather, the specification distinguishes "games" broadly by type of game (e.g., slot machines, cards, keno, bingo, or pachinko) (’215 Patent at 5:23-24; ’603 Patent at 4:49-53), and by the different prizes available from the game (a "jackpot feature game" is played for a jackpot prize (see ’215 Patent at 6:23-28), whereas a "main game" would likely award smaller "combination-triggered" prizes (see id. at 1:64-2:2)). The court finds that the term "game" as used in the specification and claims is meant to encompass a wide variety of game types. Indeed, the specification describes flexibility in game type and jackpot award as advantages over a single-game arrangement. See id. at 5:20-30, 43-45 ("Jackpot hit rates can now be changed without making changes to the base game. This was previously not possible using combination triggered jackpots.") The court finds that limiting games to gambling activities played according to a set of rules is appropriate since the subject matter of the payment relates both to gambling and games. Further limitation is not necessary. Accordingly, the court construes the term generally, that is "a gambling activity played according to a set of rules."

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1. "Gaming machine"

Claim 1 of the ’215 Patent and Claim 1 of the ’603 Patent begin with the phrase "[i]n a network of gaming machines," and the phrase "gaming machine" appears frequently in the claims of both patents. ’215 Patent at 8:45; ’603 Patent at 8:8. The parties propose the following constructions of "gaming machines":

<table>
<thead>
<tr>
<th>Term or Language Requiring Construction</th>
<th>Aristocrat's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;gaming machine&quot;</td>
<td>gaming device (i.e., not limited to any particular type of game such as poker)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term or Language Requiring Construction</th>
<th>IGT's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;gaming machine&quot;</td>
<td>poker machine</td>
</tr>
</tbody>
</table>

IGT relies for its construction on a sentence in the introductory paragraph in each patent which states: "[t]he present invention relates to apparatus for use with a system of linked poker machines and in particular the apparatus provides an improved jackpot mechanism for use with such a poker machine system." ’215 Patent at 1:6-9; ’603 Patent at 1:9-12. IGT contends that this statement defines the invention and that "the public is entitled to take the patentee at his word and the
word was that the invention" is a poker machine. Honeywell Int'l, Inc. v. ITT Industries, Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (holding "fuel injection system component" was limited to "fuel filter" because the written description called "the present invention" a fuel filter). In Honeywell, the court wrote that, although the prosecution history contained some suggestion that the invention, a "fuel injection system component," was broader than only fuel filters, "the entire specification of [the patent], as well as the sole drawing, describe the elements and operation of a fuel filter . . . . No other parts are described." Id. at 1316 (quoting district court order in Honeywell Int'l v. ITT Indus., 330 F.Supp.2d 865, 879 (E.D.Mich. 2004)). As a result, the court held that the invention was limited to a fuel filter. Id. at 1318.

The patents here refer to "poker" only in their introductory paragraphs. The specifications include descriptions of "gaming machines" and the language strongly suggests that the term "gaming machine" should not be limited to a "poker machine." For instance, the patents state in their "Detailed Description of the Preferred Embodiments" sections:

Feature jackpots in this format exhibit significant differences over previous jackpot systems:

(i) A jackpot game is provided which is compatible with any existing game combination within an installation independent of the platform, denomination or type of game (e.g. slot machines, cards, keno, bingo or pachinko). This will allow for the linking of games combinations between game type, platform type, and denomination."

'215 Patent at 5:19-26; '603 Patent at 4:47-53. In addition to the reference to multiple types of games, the context of the statement is important. It describes some of the advantages of using a "spin and hold"-type feature game over "conventional combination-triggered jackpots." In a spin and hold type game, a set of reels spin and, when the player stops the reels by pressing a button, the feature-prize score is determined by the sum of the points that appear on the center line of those reels. '215 Patent at 5:15-19; '603 Patent at 4:42-46, 7:12-18; See also id. at Fig. 3 (depicting set of five reels). A "combination triggered" jackpot, by contrast, awards a jackpot upon the occurrence of a particular game configuration (e.g., a certain combination of symbols). '215 Patent at 1:52-55; 2:26-29; '603 Patent at 1:56-60; 2:30-34. According to the specification, using a spin and hold feature game has the advantage of being usable with different types of main games. See '215 Patent at 5:21-25; '603 Patent at 4:47-58. In light of this claimed advantage in the preferred embodiments, limiting "game machine" to "poker machine" is not supported by the specification. The court therefore construes "gaming machine" as "gaming device which is not limited to any particular type of game such as poker."

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2. What is the meaning of the word "gap"?

At the close of the claim construction hearing, the court construed "gap" in the following manner:

The area of the substrate under the oxide mask grown during step (b) that is protected by the mask from the implantation of ions that reverse the polarity of the substrate and thereby create the source and drain regions.

This construction resulted from a combination of the claim language and the expert testimony offered at the claim construction hearing. Step (d) of claim 1 states that the "gap" must exist "between a side edge of the gate electrode and a side edge of the implanted region." The "implanted region" of step (d) is the "source/drain region" of step (d) that is implanted after the oxide mask of step (b) is grown. Therefore, at a minimum, the claim language requires the oxide mask to protect the "gap" from implants that will constitute the source and drain regions. According to the testimony of both parties' experts, the source and drain regions are created by implanting ions that reverse the polarity of a portion of the substrate. Thus, the "gap" must be the area under the oxide mask that is protected by the mask from the implantation of ions that reverse the polarity of the substrate, thereby creating the source and drain regions.

The specification and the prosecution history both support this construction. The specification states:

Because of the masking effect provided by the oxide on the sides of the gate electrode 16, the source/drain regions 20 and 22 are not implanted adjacent the vertical edges of the gate electrode. Rather, a gap is provided between the gate electrode 16 and the source/drain regions to allow for subsequent diffusion of the source/drain regions.

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In other words, the oxide mask prevents the implantation next to the gate electrode of ions that would create the source and drain regions. Thus, the "gap" is the area of the substrate under the mask that is shielded from the implants that create those latter regions. Moreover, during the prosecution Manzo distinguished the Steinmaier patent, U.S. Patent No. 3,472,712, EPO publication 24 125, and EPO publication 34 508 because there was no "gap" between the sides of the gate electrode and the source and drain regions at the time of implantation. These prior art processes did not use a mask to prevent the implantation next to the gate of ions that would create the source and drain regions.

TENA objects to this construction of the word "gap." TENA argues that this construction expands the word "gap" beyond its ordinary usage, which merely implies a distance between two points. Moreover, TENA argues that this construction places limitations in the claims that are not supported by the evidence. Upon reflection, the court finds that TENA is partially correct and partially incorrect. TENA is correct that the word "gap" is not the proper source of these limitations. TENA is incorrect, however, because the claim language, the specification, the prosecution history, and the expert testimony all support these limitations. These limitations derive from reading step (d) of claim 1 as a whole, rather than just attempting to define the word "gap."

Step (d) of claim 1 states that the "gap" is "between a side edge of the gate electrode and a side edge of the implanted region." There is no dispute as to the location of the side edges of the gate electrode. In addition, there appears to be no dispute as to the location of the "side edge of the implanted region." As set out above, the source and drain regions form the "implanted region." Both parties' experts testified that the source and drain regions are regions of opposite polarity as compared to the substrate surrounding them. Thus, the side edge of a source or drain region is that area in the substrate where regions of opposite polarity meet; in other words, the side edge is where the concentration of N+ polarity equals the concentration of P+ polarity.

The logical conclusion is that the "gap" is simply the distance between the side edge of the gate electrode and the area in the substrate where the polarity reverses. Consequently, although the court's construction was correct when examining step (d) as a whole, the construction was slightly misleading in that it focused solely on the word "gap" in step (d) without also recognizing the implicit definition of the phrases "implanted region" and "a side edge of the implanted region."

In summary, the court will construe the word "gap" to have its ordinary meaning: "a distance between a side edge of the gate electrode and a side edge of the implanted region." The court will then construe the phrases "implanted region" and "source/drain region" to mean "regions of opposite polarity as compared to the substrate surrounding them." Finally, the court will construe the phrase "a side edge of the implanted region" to mean "where the concentration of N-type polarity equals the concentration of P-type polarity." This construction accurately captures the limitations of the claim as a whole while attaching each limitation to its corresponding claim language.
'419 patents. See '715 patent, 7:10-12 ("Deposit a low temperature oxide, any other desired glass dielectric..."); '419 patent, 7:1-4 (same). However, "gas dielectric" does not appear once as an isolated incidence of mistaken terminology. On the contrary, it is used twice within the claims of the '715 patent, twice within the claims of the '419 patent, and once within the specifications of each. See '715 patent, 8:22-24, 10:24-29, 5:50-52; '419 patent, 8:9-12, 8:50-53, 5:44-47.

In light of the fact that these repeated usages of "gas" have survived numerous revisions and amendments to the patents at issue, Ixys' characterization of "gas" as simply a typographical error strains credulity. Moreover, "it is important that the public be able to rely on the claims of a patent, in conjunction with the specification and file history, as indicating 'the metes and bounds of the claimed invention.'" International Visual Corp. v. Crown Metal Manufacturing Co., Inc., 991 F.2d 768, 775 (Fed. Cir. 1993) (citing London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991). By using the word "gas" repeatedly, Ixys has created a reliance interest in the public (and particularly among potential infringers such as APT) that this court is reluctant to disturb. The court thus declines to substitute "glass" for "gas" where Ixys has failed to demonstrate the clear propriety of such a measure.

The question of the proper construction of "gas dielectric" itself nevertheless remains. Fortunately, "dielectric" is a well-known technical term: a dielectric is a non-conductor of electricity, otherwise known as an insulator. According to this understanding, the court construes the term at issue as follows: "gas insulator."

b. "gate electrode" and "source electrode"

LGD contends that the term "gate electrode" means "a patterned, electrically conductive material that controls current flow through the channel between the source electrode and drain electrode." D.I. 376 at Exh. C-11. LGD further contends that the term "source electrode" means "a patterned, electrically conductive material formed over the source region. Current flows through the channel between the source electrode and the drain electrode under control of the gate electrode." D.I. 376 at Exh. C-11. LGD further contends that the term "source electrode" means "a patterned, electrically conductive material formed over the source region. Current flows through the channel between the source electrode and the drain electrode under control of the gate electrode." D.I. 376 at Exh. C-11.

CMO's construction of gate electrode is the same as LGD's proposed construction. Id. at C-11. CMO's construction of source electrode is slightly different because CMO advocates construing "a source electrode and a drain electrode" together. Thus, CMO's definition of "source electrode" adds elements relevant to the drain electrode. Specifically, CMO contends that a "source electrode" is a "patterned electrically conductive material formed over the source region and drain region, respectively of a transistor. Current flows through the channel between the source electrode and the drain electrode of the transistor under control of the gate electrode." Id. at C-18.

AUO's construction of the term "gate electrode" is also similar to LGD's construction, but varies in where the patterned electrically conductive material is formed. Specifically, AUO contends that a "gate electrode" is "a patterned electrically conductive material formed in the gate region. Current flows through the channel between the source electrode and the drain electrode under control of the gate electrode." Id. at C-11. With respect to the term "source electrode," AUO agrees with LGD's construction. Id. at C-18.
Reviewing the specification and the claim language, the Court concludes that LGD's proposed constructions are most consistent with the claim language and the specification. '449 patent, col. 1, ll. 22-38, 56-60; col. 2, ll. 37-44, 56-61; col. 3, ll. 44-49; col. 4, ll. 47-53; col. 4, l. 65 - col. 5, l. 1, col. 5, ll. 29-38, Figs. 1-3. CMO's construction of "gate electrode" adds the term "drain electrode," and the Court is not persuaded that these terms must be construed together as CMO contends. Accordingly, the Court concludes that "gate electrode" means "a patterned, electrically conductive material that controls current flow through the channel between the source electrode and drain electrode," and "source electrode" means "a patterned, electrically conductive material formed over the source region. Current flows through the channel between the source electrode and the drain electrode under the control of the gate electrode."

G. Limitation 6: Gate electrode

34. The next element of Claim 1 is as follows: "gate electrode means on said gate insulation layer means and overlying said first and second channel regions." Again, various examples of this are described in the '699 written specification and drawings, including "ring-shaped gate 80" in Figures 7 and 8. The specification also notes that the "In carrying out the above invention, it should be noted that any type of contact material can be used to make the source and gate contacts. By way of example, aluminum could be used for the source electrodes while a polysilicon material can be used for the conductive gate 80 in FIG. 8 or the conductive gate 24 in FIG. 2" ('699 patent, col. 6, lines 59-64.) This element of Claim 1 is properly construed to embrace any aluminum, polysilicon or other gate electrode.

F. Limitation 5: Gate insulation

33. The next element of Claim 1 is as follows: "gate insulation layer means on said first surface, disposed at least on said first and second channel regions." Again, various examples of this are described in the '699 written specification and drawings, including "gate oxide 88" (Figure 8). Accordingly, this element of Claim 1 is properly construed to embrace any gate insulation layer.

1. Infringement

Defendants contend that plaintiff cannot establish defendants' products infringe certain claims of the '122 Patent. Because defendants' argument is based on defendants' proposed construction of "gate line," the Court first construes that term. Plaintiff argues that "gate line" should be construed according to its ordinary meaning, which, plaintiff submits, is "a conductor that connects a plurality of gate electrodes." (See Pl.'s Opp., filed May 20, 2005, at 10:16-17). Defendants do not argue that "gate line" has an ordinary meaning different from that proffered by plaintiff; rather, defendants argue that in the instant patent, the proper construction includes an additional limitation that the "gate line" is a "separate" component from the gate electrode. (See Defs.' Mot., filed May 6, 2005, at 10:21-22).

 Defendants, in support of their argument that gate lines are "separate" components from gate electrodes, rely primarily on language in claim 1 providing for "gate lines each connecting a plurality of said gate electrodes." See '122 Patent, col. 5, lines 35-37. To the extent the word "connect" might suggest gate lines and gate electrodes are separate components, the specification, which is the "single best guide to the meaning of a disputed term," see Vitronics Corp. v. Conceptronic, Inc., 90 F. 3d 1576, 1582 (Fed. Cir. 1996), suggests otherwise. See id. (holding "specification is always highly relevant to the claim construction analysis"). Specifically, the figures illustrating the preferred embodiment show the gate line as an extension of the gate electrode and without a break between them. See '122 Patent, Figure 1a. Consistent therewith, the specification states that the gate electrode "can include a gate line." See id., col. 4, lines 14-16. In other words, the
specification teaches that the gate line and gate electrode are not two "separate" components.

Such construction is supported by the prosecution history, in which the applicant, while discussing claims later allowed as claims 8 and 15, used the terms "gate line" and "gate electrode" interchangeably. (See Dang Decl., filed May 6, 2005, Ex. 3 at SHC 000894.) Such construction is further supported by the only extrinsic evidence offered as to the meaning of the two terms to those skilled in the art. Specifically, plaintiffs expert testified that "a particular part of the gate metal may be part of both a gate electrode and a gate line." See Silzars Decl., filed May 20, 2005, P 23; Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F. 3d 1298, 1309 (Fed. Cir. 1999) (observing district court may consider extrinsic evidence "to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field").

1 The applicant stated as follows: "Further, with regard to claims 13 and 20, each gate line overlaps the periphery of a plurality of adjacent picture element electrodes, to thereby minimize light from leaking from each of the picture element electrodes. The area where each of the picture element electrodes overlaps each of the gate electrodes is preferably, as claimed in claims 13 and 20, located in a long, narrow strip fashion on the outskirts of the picture element electrodes." (See id.) (emphasis added).

2 Defendants do not offer any extrinsic evidence, from their expert or otherwise, to support a finding that persons skilled in the art would understand "gate line" and "gate electrode," as those terms are used in the '122 Patent, to refer to two separate components.

Accordingly, the Court construes "gate line" to mean "a conductor that connects a plurality of gate electrodes." Because defendants' motion for summary judgment on the issue of infringement of the '122 Patent is dependent on the Court's accepting defendants' proposed construction of "gate line," defendants are not entitled to summary judgment on the issue of infringement of the '122 Patent.

7. Gateway computer

This term is used in the '201 patent. Seven proposes that the term means "an intermediate computer." Pointing to the preferred embodiment, Visto contends that the term means "a FormLogic Server located between the client and a network having the data storage." The specification and the prosecution history refer to the gateway computer as an intermediate server between the client and the original server. Therefore, the court construes the term "gateway computer" to mean "an intermediate server between the client and the original server."

b. "Gateway Switch"

The term "gateway switch" appears only in the asserted claims 15, 32, and 34 of the '960 patent. As before the district court, RIM bases its construction of the term on its argument that Campana's "electronic mail system" implemented a "pull" email architecture. RIM contends that "a gateway switch is the mechanism for maintaining the mailboxes needed to implement the pull technology." The district court construed the term differently, as "[a processor in an electronic mail system which connects other processors in that system and has additional functions for supporting other conventional aspects of the electronic mail system such as receiving, storing, routing, and/or forwarding electronic mail messages." Claim Construction Order, slip op. at 6. As we have previously rejected RIM's argument that "pull" email architecture is required, see Section II.
A. 2. a, supra (construing "electronic mail system"), we are similarly compelled to reject its suggestion that "gateway switches" must enable this technology. In short, we agree with the district court's claim construction of "gateway switch."

A. "Gatherer","Gathering Software Agents","Gathering Cycle" ('077 and '910 Patents)

Generally speaking, the '077 claims a system and method for accessing a number of Internet sites on behalf of an end user, collecting information from those sites, and automatically downloading that information to the end user. The '910 patent is based on the same system, and claims a system and method for alerting end users when the information stored on those sites changes. For example, if a user has two bank accounts and is able to access those accounts from the Internet, the '077 patent describes a way to automatically retrieve the user's account balances from the banks' websites. The '910 patent provides a way of alerting the user when one of his bank account balances falls below a certain level. Both patents use the term "gather" to refer the process of collecting the personal information on the end user's behalf.

1. '077 Patent

"Gatherer" and "gathering software agents" appear in both independent claims (claims 1 and 7) of the '077 patent. Yodlee construes the terms to mean "a software component and/or related data that once processed can be employed to locate and retrieve information from Internet destinations based on user or enterprise request." CashEdge propose that "gatherer" be construed to mean "a summarization agent that combines data such that summary is not just an aggregated restatement of the gathered material, is programmable and is an interactive software application adapted to run on a network server." The Court finds that Yodlee's construction accurately describes the function of the gatherer. CashEdge's construction imports dependent claim 3 from the '077 patent, which deals with summarization, into claim 1; this would impermissibly render claim 3 superfluous. See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. General Electric Co., 264 F.3d 1111, 1123 (Fed. Cir. 2001).

2. '910 Patent

The '910 patent uses the term "gatherer" in independent claim 1. CashEdge asserts that this element is written in means-plus-function form and is subject to 35 U.S.C. § 112(6). The element does not use the term "means," creating a presumption that it is not subject to § 112(6). Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004). This presumption can be overcome if it is demonstrated "the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." Id. (internal quotation marks omitted). Whether the term brings to mind a particular structure is not dispositive; instead, what is important is whether the term is understood to indicate structure. Id. at 1360.

Yodlee has submitted an expert declaration stating that, based upon the use of "gatherer" in the specification, it would have been apparent to someone skilled in the art at the time of this patent that the term "gatherer" referred to a software application. Papakonstantinou Decl. PP 16-18. The Court does not believe that this is sufficient. The Federal Circuit requires that "the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure." Lighting World, 382 F.3d at 1360 (emphasis added). In fact, the Federal Circuit implied that a "coined term" such as gatherer would be appropriate for means-plus-function analysis. Id. ("[T]he term 'detector, although broad, is still structural for purposes of section 112 P 6 because it is not . . . a coined term lacking a clear meaning such as 'widget' or 'ram-a-fram.'") As it is undisputed that "gatherer" is a "coined term lacking clear meaning," the Court finds that the above element is written in means-plus-function form.
1. "a general coupon template"

Southwest argues that the term means "a general form for a coupon which can require additional parameters particular or unique to the remote location where it is printed to be completed." 3T argues that the term means "a reusable generic coupon form which includes no information about a specific location."

Southwest argues that while 3T's proposed construction could be interpreted correctly, it might mislead the jury into thinking that a general coupon template must be incomplete. Southwest argues that its construction agrees with the specification:

A site specific coupon is created by using a general coupon template and modifying the template with information specific to a particular location. Some information like the product, product logo, legal disclaimer, and the like is fixed for all coupons while other information like the discount, expiration date, location and the like is variable. A general coupon template can either be a digital representation of a complete coupon including all art work, logos, and text, or it can be an incomplete coupon with art work, logos and general text with specific information missing such as the amount of the discount, valid hours and dates, particular product or valid location. If the general coupon template is a complete coupon the site specific information used to make the site specific coupon overwrites the corresponding information on the complete coupon replacing it when the site specific coupon is printed. Likewise, if the general coupon template is an incomplete coupon the site specific information is inserted into the blanks on the template, thereby creating a complete site specific coupon.

Referring now to FIG. 5A, block 602 represents loading a general coupon template on central server 12 from FIG. 1. The general coupon template from block 602 is the necessary art work, logos and general information to appear on the final coupon. The general coupon template can be a complete coupon including all necessary information, or can be an incomplete coupons which is missing the information that is particular to each individual site.

'673 patent, 7:1-19, 21:3-10 (emphasis added). Thus, Southwest argues that the general coupon template can be complete and usable right from the start or it can require additional information particular to each location.

3T argues that the actual dispute revolves around whether the term should be construed to exclude templates that contain information specific to a particular location. 3T argues that the specification uses the term "a general coupon template" to refer to a coupon that does not have information specific to a particular location and that is capable of being used and reused by multiple locations:

Yet another object of the invention relates to creating coupons that are individualized to specific remote locations. A general coupon template is provided, and details customized to a specific location are provided that are added to the general template to form a site specific coupon.

A site specific coupon is created by using a general coupon template and modifying the template with information specific to a particular location.

'673 patent, 3:52-56, 7:1-3. Further, 3T argues that if the general coupon template already contains information particular to a specific location it would be unnecessary to combine the template with the site specific information file to make a site specific coupon as required in claim 1, because the parties have already agreed that the term "site specific information file" includes information unique to a specific location. Thus, the general coupon template should not include information about a specific location. 3T argues that Southwest's proposed construction should be rejected because it may permit the template to include site-specific information.

The Court finds that the specification is clear that the general coupon template may be complete or incomplete. See '673 patent, 21:3-10. If the coupon is complete, "the site specific information used to make the site specific coupon overwrites the corresponding information on the complete coupon replacing it when the site specific coupon is printed." '673 patent, 7:13-16. The Court also finds that claim 1 expressly requires "combining the general coupon template and the site specific information file in the processing station to create the site specific coupon." Southwest's proposed construction implies that site specific information does not have to be combined with the template, and thus makes the language of claim 1 unnecessary which requires combining the general coupon template with the site specific information file to make a site
specific coupon. See Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). On the other hand, 3T's proposed construction does not take into account the fact that a general coupon template may be a complete coupon that may have site specific information wherein such information is replaced with the relevant site specific information when printed. To give full meaning to the claim language, and to allow the general coupon template to be a complete coupon or an incomplete coupon, the Court construes "a general coupon template" to mean "a generic form for a coupon which includes no site specific information with respect to the specific location where the site specific coupon is to be printed."

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5. "general information"

Southwest argues that the term means "information not particular to a specific remote location," whereas 3T argues that the term means "the maximum amount available for money orders, signature files, store IDs, and template." The parties provide no substantive analysis or discussion for their proposed constructions. The parties appear to rely upon different portions of the specification with different meanings of the term "general information." It appears that Southwest relies on the following portion of the specification for its construction:

Referring now to FIG. 5A, block 602 represents loading a general coupon template on central server 12 from FIG. 1. The general coupon template from block 602 is the necessary art work, logos and general information to appear on the final coupon. The general coupon template can be a complete coupon including all necessary information, or can be an incomplete coupons which is missing the information that is particular to each individual site.

'673 patent, 21:3-10 (emphasis added). It appears that 3T relies on a different portion of the specification for its construction:

The source code begins with a definition of variables used in program, and then loads general information into the printer like the maximum amount available for money orders, signature files, store IDs, and templates. At this point, the program is broken down into cases or objects that are called individually when needed by the program. Cases not specifically discussed below have been reserved for future use.

'673 patent, 22:58-65 (emphasis added).

Thus, in part, the Court must decide which specification portion is more relevant to the disputed claim language to determine the term's meaning. In relevant part claim 7 states the following: "The system of claim 6 wherein the general coupon template includes artwork, logos and general information, ..." The portion of the specification in which Southwest relies upon is very similar and states the following: "The general coupon template from block 602 is the necessary art work, logos and general information to appear on the final coupon." '673 patent, 21:5-7. The Court finds that the "general information" of claim 7 is referring to the specification portion relied upon by Southwest. Further, this portion of the specification references Block 602 as the general coupon template, and the corresponding Block 602 in Figure 5A states "receive templates without location specific information." Thus, consistent with Southwest's proposed construction, the Court construes the term "general information" to mean "information not particular to a specific remote location."

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All of the '685 claims require a "general purpose computer system" that is adapted to the specified purposes. The definition of "general purpose computer" was agreed by the parties as

a computer capable of running multiple unrelated programs, which are selected by the user and loaded into the device. It must feature at least: (1) a central processing unit, (2) one or more input devices that are not specific to any one program, (3)
memory, (4) mass storage devices (such as a disk drive) for storing large amounts of data, and (5) one or more output devices.

Zoll's device contains a Hitachi SuperH RISC (Reduced Instruction Set Computer) microprocessor. The district court observed that the '685 specification is specific to a general purpose computer and that all of the claims were so limited during prosecution. The court found that it was "implausible" for a RISC microprocessor to be deemed a general purpose computer, for RISC microprocessors have limited functionality. Thus the court held that "general purpose computer," as that term is used in the '685 patent, does not read on a RISC microprocessor and that the Zoll system thereby avoids infringement. Mr. Hutchins argues that his invention is readily performed using a RISC microprocessor. He points out that the Zoll system is intended to interface and work in conjunction with a standard IBM-PC, which is a general purpose computer, and that the Zoll device includes an interface for connection to a personal computer for purposes of review and archiving of data associated with a rescue; the Zoll manual states the minimum criteria for the personal computer as "Windows . . . IBM-compatible 486 (or higher) computer, 64 MB RAM, VGA monitor or better, CD-ROM drive, IrDA port, 2MB disk space."

The district court accepted the definition of "general purpose computer" that had been agreed by the parties; the court found that a RISC microprocessor does not meet that definition, and that the potential for connecting to a personal computer did not meet the claim limitation. We do not discern error in this finding, for the term "general purpose computer" was added to Hutchins' claims during prosecution in order to distinguish the '685 invention from prior art that showed similar devices with dedicated microprocessor units. This produced an estoppel against reading the term "general purpose computer" to include a dedicated microprocessor such as a RISC, for the claims had been amended in response to the PTO rejection, thereby estopping recovery of the same subject matter that the claims had been amended to exclude. See Alloc, Inc. v. ITC, 342 F.3d 1361, 1371-72 (Fed. Cir. 2003) (statements made during prosecution surrendering subject matter binding on later interpretation of the claims); see also Festo, 535 U.S. at 725 (estoppel arises upon amendment to "surrender the particular equivalent in question"); Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1252 (Fed. Cir. 2000) (an aspect expressly disavowed during prosecution of the patent cannot be reached under the doctrine of equivalents). The district court's ruling on this aspect is affirmed.

10. General purpose media processor/ General purpose programmable media processor/ Media processor/ Programmable media processor/ General purpose [multiple precision parallel operation] programmable media processor

Next, the court turns to the construction of the media processor terms. The plaintiff contends that the "general purpose media processor" is "a general purpose processor that also does media processing." The defendants urge that "general purpose media processor" means "a single programmable processor that processes multiple media data streams without external specialized processors." There are two disputes between the parties regarding the construction of this term and the remaining "media processor" terms. The primary dispute between the parties is whether the "media processor" operates without "external specialized processors." A second issue is whether the term "programmable media processor" is a claim limitation.

After considering the submissions and arguments of counsel, the court construes each of the disputed phrases above to mean "a processor having an execution unit capable of operating on different media types and data sizes." The court is not persuaded that the claim language or the specification necessarily excludes the presence of other, external processors, from the scope of the claim, as long as the processor itself has the requisite capabilities. With respect to the term "programmable media processor," the court concludes that this term is not a claim limitation for the same reasons provided with respect to the term "unified media processing."
The limitation of the general synchronization module appears in the '131, '192 and the '708 patents. Visto proposes this term means "software routines or code that perform the task of determining whether a workspace element and/or an independently modifiable copy thereof has (or have) been modified, based on one or more criteria." Seven proposes that the term "general synchronization module" means "a computer software module, including routines for determining whether the content of a workspace element and/or the content of an independently modifiable copy of the workspace element has been modified, and routines for reacting to a determination of a modification in content, for synchronizing workspace elements." Seven further proposes that "first general synchronization module means "a computer software module, including routines for determining whether the content of the 'first workspace element' has been modified, and routines for reacting to a determination of a modification in content, for synchronizing workspace elements." Finally, Seven proposes that the term "second general synchronization module" means "a computer software module located on a global server including routines for determining whether the content of the 'second workspace element' (i.e. the independently modifiable copy of the workspace element) has been modified, and routines for reacting to a determination of a modification in content, for synchronizing workspace elements."

The primary differences relate to the inclusion in Seven's definitions of the content limitation previously discussed and, in the "second general synchronization module" the additional inclusion of the global server. The rejects Seven's arguments that the claim language should be limited by implication to the embodiment disclosed in the specification. The court therefore defines the term "general synchronization module" to mean "software routines or code that perform the task of determining whether a workspace element and/or an independently modifiable copy thereof has (or have) been modified, based on one or more criteria."

D. "Generate" and "Generating"

The parties dispute the proper construction of the terms "generate" and "generating", which are used in the context of the generation of a message by the processing system in the '429 Patent, claims 1 and 23; the '064 Patent, claims 1 and 35; the '561 Patent, claims 1 and 24; and the '932 Patent, claims 1 and 18. In Vonage, Sprint argued that the term "generate/generating a message" meant assemble/assembling information into a message for the first time in connection with setting up a call; Vonage argued that the term meant create/creating for the first time. See 518 F. Supp. 2d at 1312-13. The Court resolved that dispute as follows:

Sprint correctly points out that the language of the various claims demonstrates that the messages are generated by assembling information because each of the claims requires the generation of a message that includes some particular content. [The Court then listed examples from the claims.]

Vonage relies on language contained in the specifications which states that the signaling processor "generates new signaling." This language introduces the concept that the generated message, or signaling, must be "new". This is not inconsistent with the generally accepted meaning of the term "generate". See Webster's, supra, at 945 (defining "generate" to include, for example, to bring into existence and/or to originate). Importantly, however, this language from the specification does not indicate that the content of the message must be new, but rather that the signaling itself must be new.

Ultimately, the court believes that the overall thrust of Sprint's proposed claim construction is essentially correct. Sprint has attempted to include the concept that the message itself must be new by incorporating the language "for the first time in connection with setting up the call." But, the "for the first time" language and its proposed placement within the properly construed claim term is confusing. Additionally, the language proposed by Vonage "create/creating for the first time" is redundant and confusing as to what, precisely, must be created for the first time. In an attempt to give more clarity to the term "generate", the claim term "message" must be modified to clarify that the message is what is being newly generated based on assembled information. Accordingly, the court construes the claim terms "generate a message" and "generating a message" to mean assemble/assembling information to create a message.

Id. (citations to patents omitted).
In the present case, Sprint asks the Court to reaffirm its construction of these terms from Vonage. Big River, on the other hand, asks the Court to construe "generate" and "generating" to mean create/creating rather than forward/forwarding. Big River argues that adding the distinction between creating and forwarding is necessary because the issue arose at the Vonage trial, as Sprint's expert conceded in his testimony that the processing system does not "generate" a message if it merely forwards a message, in the sense of sending on the exact message that it has received. The Court's prior reasoning in the Vonage order, however, is not inconsistent with the distinction urged by Big River. As the Court concluded previously, the signaling (message) must be new, but the content need not be new, and the signaling is generated by the assembling of information. See id. Big River has not suggested that that reasoning is flawed in any way.

Big River seeks to add language to the construction making clear that "generating" does not include "forwarding". The ordinary meaning of "create" (used in the Court's construction), however, already incorporates the idea that there must be a new signal, and that the processing system may not simply pass along an existing signal. Just as the Court concluded that "creating for the first time" was redundant in Vonage, see id. at 1313, it also concludes that the language "creating rather than forwarding" is redundant. Big River's addition, therefore, does not add anything to the construction.

Moreover, in its presentation to the Court at the claim construction hearing, Big River identified the "key point of dispute" with respect to this term as "whether 'generating' requires creating new message content." Clearly, as the Court reasoned in Vonage, the claims require new signaling, but they do not require new content. To the extent that Big River's construction relies on a contrary answer to that key question, then, it must be rejected.

Big River's reference to the prosecution history of the patents is unavailing. In that excerpt, the prior reference was distinguished as a system that merely routed signaling; thus, the reference does not indicate that the signal cannot include pre-existing content.

Finally, Big River would replace "assemble/assembling information to create" with "create/creating", based on its argument that the assembly of information is inherent in the act of "creating". The Court disagrees, however, that Big River's change would aid a jury; to the contrary, the "assembling" language, which has support in the claims and specifications, resolves the parties' "key" dispute by clarifying that the generated message may include pre-existing content.

Accordingly, the Court construes "generate" and "generating" in this context to mean assemble/assembling information to create.

With respect to the phrase "generating a control message indicating the network code," Sprint also asks the Court to construe "the network code" to mean "the code identifying the network element." The Court finds such further construction unnecessary, however, in light of its previous treatment of the term "network code".

Accordingly, the Court construes "generate" and "generating" in this context to mean assemble/assembling information to create.

7 With respect to the phrase "generating a control message indicating the network code," Sprint also asks the Court to construe "the network code" to mean "the code identifying the network element." The Court finds such further construction unnecessary, however, in light of its previous treatment of the term "network code".

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2. Generate.

Again, O2 contends that this term needs no construction because it is readily understood. TSE, by contrast, suggests that the court should define this term to mean "to bring into existence." O2 argues that TSE's true motive in suggesting a definition of generate is to obtain new constructions of the pulse signal limitations found in the patent. As noted below, however, the court has adopted Judge Wilken's constructions of each of the pulse signal limitations, notwithstanding TSE's arguments to the contrary. With respect to the present term, the court construes "generate" in accordance with its ordinary meaning—"to bring into existence." Webster's Third International Dictionary, 1993.
B. "To Generate"

The parties are in dispute over the correct meaning of the term "to generate" in the context of the '961 patent. Lansa argues that the term takes on a special meaning as evidenced by the specification, while ResQNet insists that the term is restricted to its ordinary meaning. Vitronics, 90 F.3d at 1582; see also Markman, 52 F.3d at 979-80.

The specification of the '961 patent does not provide a technical definition of the verb "to generate," leading one to believe that the term should be given its ordinary meaning. Vitronics, 90 F.3d at 1582 ("Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history."). However, the specification discusses in detail the process of "generating" a screen ID, shedding light on the meaning of the verb in the context of the invention. The patent specification begins summarizing the invention by describing only one way of "generating" a screen ID, stating at column 3, lines 20-38:

The above and other problems of the prior art are overcome in accordance with the present invention which relates to a display routine which is based upon an algorithm which recognizes the screen by the layout and fields therein, not based solely upon the particular screen ID number. In accordance with the invention, an image recognition algorithm is utilized to recognize and display the information stored in buffer 103. The information is read from buffer 103 and processed by an algorithm which generates a unique ID number.

(emphasis added). As the discussion above concerning the information element demonstrates, the use of an algorithm is also referenced later in the description of the preferred embodiments. In introducing the one embodiment that is discussed in detail, it is stated that "the particular algorithm used to recognize the screen and generate the screen ID may vary from system to system, but a particular such algorithm will now be described." '961 Pat. at col. 5, ll. 34-36 (emphasis added). The specification then goes on to describe what it labels a "screen recognition algorithm." Id. at col. 5, l. 37. No other way "to generate" a unique screen ID is set forth in the specification, indicating that the invention of the '961 patent processes information and generates an ID via a screen recognition algorithm.

However, no other limitation or definition is provided in the specification or file history, suggesting that "to generate" should in other respects be given its ordinary meaning. The verb is commonly defined as "to bring into being" or "produce as a result of a chemical or physical process," and in the context of computer science it is defined as "to produce (a program) by instructing a computer to follow given parameters with a skeleton program." The American Heritage Dictionary of the English Language, Fourth Edition (2000). This definition is consistent with the discussion of the term in the '961 patent and with the limitations described above.

3 The parties dispute the meaning of the term "algorithm." Specifically, Lansa contends that the term must imply a mathematical process. The term is not defined in either the claim or the intrinsic evidence, and no detailed description of the process by which the screen recognition algorithm produces an ID is given in the '961 patent. Therefore, it is assumed by the Court that the term is given its common, ordinary meaning. Generally, the term is defined as "[a] step-by-step problem-solving procedure, especially an established, recursive computational procedure for solving a problem in a finite number of steps." The American Heritage Dictionary of the English Language, Fourth Edition (2000). The National Institute of Standards and Technology defines the term as "[a] computable set of steps to achieve a desired result." Paul E. Black's Dictionary of Algorithms, Data Structures, and Problems (http://www.nist.gov/dads). Accordingly, while the term certainly implies computation in a general sense, there is no specific support for otherwise labeling the process "mathematical."
8. "generate a display"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;display&quot;</td>
<td>data that may be viewed graphics and/or text</td>
<td>a fixed image that comprises graphics and/or text</td>
</tr>
<tr>
<td>&quot;generate&quot;</td>
<td>Plain and ordinary meaning. Alternatively, this term means &quot;create.&quot;</td>
<td>make a visual representation of</td>
</tr>
<tr>
<td>&quot;generate a display&quot;</td>
<td>generate data that may be viewed</td>
<td>make a visual representation of a fixed image that comprises graphics and/or text</td>
</tr>
</tbody>
</table>

The key dispute over these terms is whether the step of "generating a display" requires a process of visual representation of a fixed image. FotoMedia asks the Court to construe the terms "generate" and "display" separately.

FotoMedia's proposed construction of "display" is "data that may be viewed." FotoMedia finds support for this in the specification which teaches that the claimed system creates "custom generated HTML pages." '936 patent, col.14 ll.53-60. FotoMedia's proposed construction, however, fails to capture the visual nature of a display.

Defendants argue that the display must be a fixed image that contains graphics and/or text. Defendants contend that the specification repeatedly refers to the use of "fixed image files." See '936 Patent, col. 10, ll. 36-63, col. 12, ll. 31-67. Defendants argue that because the display may be composed of flattened image files, it too has to be is fixed. The specification discloses that the layout of the postcard is finalized as a "display" when the various data elements are compressed together in permanent image files such as a JPEG or GIF. The Court finds that these files need not necessarily be static or fixed.

"Display" is construed as an "image that comprises graphics and/or text."

The dispute over the construction of the terms "generate" and "generate a display" revolves around whether "generate" requires putting data into a visual form. FotoMedia proposes that "generate" should simply be construed as "create." Defendants, however, argue that claim 1 of the '936 patent restricts the use of a "display" for viewing purposes only. See '936 Patent, col. 14, l. 63 - col. 15, l. 2; see also id. at col. 2, ll. 62-64 ("data representing the display is in a format that allows for transmission to and viewing on a client computer"). The Court agrees that data should be in a format that allows representation of the display to the user.

Given the Court's construction of "display," the Court construes "generate a display" as "create a representation of an image that comprises graphics and/or text."

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e. "Generate a Fill Signal"

The term "generate a fill signal" appears in claim 146 of the 780 patent. IP asks the court to adopt the following definition: to generate a signal which indicates voids which may be filled by changing the image. Lexmark and Dell ask for a definition similar to the definition of "altering voids": to generate a signal which fills voids by varying the input signal without modifying the on and off times of the signal carrying the image.

As was the case for the related term "altering voids," we agree with a portion of Lexmark and Dell's argument, but they take
the concept too far. Therefore, the court adopts Lexmark and Dell's construction: to generate a signal which fills voids by varying the input signal without solely modifying the on and off times of the signal carrying the image.

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B. "Generate a Message" or "Generating a Message"

Claim 38 of the '572 patent, claim 1 of the '561 patent, claim 18 of the '932 patent, claim 1 of the '429 patent, and claim 1 of the '064 patent each recite the claim phrase "generate a message" or "generating a message." Sprint contends that these claim terms should be construed to mean assemble/assembling information into a message for the first time in connection with setting up a call. Vonage contends that they should be construed to mean create/creating for the first time.

Sprint correctly points out that the language of the various claims demonstrates that the messages are generated by assembling information because each of the claims requires the generation of a message that includes some particular content. For example, claim 38 of the '572 patent claims a processor to process signaling to select the second connection, and to "generate" first and second control messages that indicate that second connection. Claim 1 of the '561 patent claims a method for processing a signaling message to select a network code, and "generating" a control message indicating that code. Claim 18 of the '932 patent claims a communication system wherein the processing system is configured to receive and process the first message to select a narrowband switch, and to "generate" and transmit a second message based on the selected narrowband switch. Claim 1 of the '429 patent claims a method for processing information to select an identifier, and "generating" a message containing the identifier. And, claim 1 of the '064 patent claims a method for processing set-up signaling to select a DSO connection, and "generating" a message identifying the DSO connection.

Vonage relies on language contained in the specifications which states that the signaling processor "generates new signaling." See '429 Patent at 2:14-17; '572 Patent at 4:18-20. This language introduces the concept that the generated message, or signaling, must be "new." This is not inconsistent with the generally accepted meaning of the term "generate." See Webster's, supra, at 945 (defining "generate" to include, for example, to bring into existence and/or to originate). Importantly, however, this language from the specification does not indicate that the content of the message must be new, but rather that the signaling itself must be new.

Ultimately, the court believes that the overall thrust of Sprint's proposed claim construction is essentially correct. Sprint has attempted to include the concept that the message itself must be new by incorporating the language "for the first time in connection with setting up the call." But, the "for the first time" language and its proposed placement within the properly construed claim term is confusing. Additionally, the language proposed by Vonage "create/creating for the first time" is redundant and confusing as to what, precisely, must be created for the first time. In an attempt to give more clarity to the term "generate," the claim term "message" must be modified to clarify that the message is what is being newly generated based on assembled information. Accordingly, the court construes the claim terms "generate a message" and "generating a message" to mean assemble/assembling information to create a message.

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F. Generate Device Control Signals

Claim 1 provides that the device interface, network interface, and memory perform operations for sending customized software to the client machine over the network, and that such software "enables the client machine to generate device control signals . . . ." (Id. at c. 18, 11: 63-67.)

Digi asserts that this term should be defined as "to create digital data that comprise instructions for manipulating the device control circuitry." Lantronix contends that this term needs no construction beyond its plain meaning. The Court agrees that the phrase "generate device control signals" needs very little construction. The Court finds that the plain meaning of the term to a person of ordinary skill in the art would be that the software enables the client machine "to generate signals that control the device."
Specifically, representative claim 1 of the '867 patent claims:

A method of upscaling a source image frame in both vertical and horizontal directions to generate a destination image frame, the source image frame including a plurality of source scan lines, with each of said plurality of source scan lines including a plurality of source pixel data, the destination image frame including a plurality of destination lines, each of said plurality of destination lines including a plurality of destination pixel data, said method comprising the steps of:

(a) receiving said plurality of source pixel data included in said source image frame using a first clock signal;
(b) generating a second clock signal;
(c) upscaling said source image frame in both vertical and horizontal directions to generate said plurality of destination pixel data representative of said destination image frame; and
(d) providing said plurality of destination pixel data representative of said destination image frame using said second clock signal,

wherein said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame.

'867 patent, col. 21, l. 62 - col. 22, l. 18 (emphasis added).

This appeal centers on the "wherein" clause of claim 1, which states that "said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame." In the 481 Investigation the Commission determined that the "generated . . . such that" limitation required only that a second clock signal be "generated so as to be consistent with an equality of the source image frame and destination image frame periods." 481 Commission Decision, slip op. at 14-16 (emphasis added).

Further, in the 481 Investigation, the ALJ had determined that the "equality" referenced in the claim language required that the period of time to input active pixel data must equal the period of time to output active pixel data. 481 Initial Determination, slip op. at 90. However, the Commission rejected this construction, determining that the phrase required an "equality of the periods to receive the source image frame and to provide the destination image frame." 481 Commission Decision, slip op. at 12.

In the 491 Investigation, the parties disputed the meaning of "image frame;" Genesis contended that an "image frame" contains both active and blanking pixel data, while MStar contended that an "image frame" only contains active and horizontal blanking pixel data. However, the ALJ agreed with Genesis that the "equality" referenced in the claim language "mean[t] an equality of full frame periods." 491 Initial Determination, slip op. at 110. That is, the period of time required to input all the active pixel data, horizontal blanking pixel data and vertical blanking pixel data associated with an image must equal the amount of time required output all the active pixel data, horizontal blanking pixel data and vertical blanking pixel data associated with an image. The ALJ determined that, under such a construction, "it is undisputed that the accused chips maintain an equality of equal source and destination image frame periods" and that the "wherein" clause was met by the accused devices. Id., slip op at. 148. The Commission agreed with the ALJ's construction of the "wherein" clause and its infringement analysis. Consolidated Commission Decision, slip op. at 45-46.

On appeal, MStar argues that the decision below misconstrued these two aspects of the "wherein" clause of claim 1. First, MStar argues that the phrase "generated . . . such that" requires that the second clock signal "cause" the required equality. Further, MStar argues that the "equality" of periods refers to the period required to input and output active pixel data and horizontal blanking pixel data, but not vertical blanking pixel data. MStar argues that if it is correct with regard to either aspect of the construction of claim 1, it does not infringe. However, MStar does not appeal the Commission's infringement analysis under the claim construction that the Commission adopted.
We review legal conclusions of the ITC de novo SKF USA, Inc. v. ITC, 423 F.3d 1307, 1312 (Fed. Cir. 2005) (citing 5 U.S.C. § 706(2)(A) (2000); Checkpoint Sys. v. U.S. Int'l Trade Comm'n, 54 F.3d 756, 760 (Fed. Cir. 1995)). As claim construction is a question of law, Cybor Corp. v. FAS Techs. Inc., 138 F.3d 1448, 1451 (Fed. Cir. 1998), we review the Commission’s claim construction without deference.

The ‘867 patent requires that the upscaler have a second clock signal “wherein said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame.” Noting that the conjunction “such that” is defined as “having a quality to a degree to be indicated,” see Merriam-Webster’s Collegiate Dictionary 1176 (10th ed. 1997), the ALJ found during the 481 Investigation that “the plain language of the claim requires generation of a second clock consistent with an equality of active periods but does not require synchronization of the first and second clocks or ’locking the clocks’ using a PLL [phase-locked loop]. It merely requires . . . that the second clock, on average, is set so that the period to receive the source pixel data is equal to the period to provide the destination pixel data.” 481 Initial Determination, slip op. at 100. The Commission adopted this construction, determining that the “generated . . . such that” limitation requires only that a second clock signal be "generated so as to be consistent with an equality of the source image frame and destination image frame periods." 481 Commission Decision, slip op. at 14-16 (emphasis added). For the 491 Investigation, both the ALJ and Commission adopted that same construction. 491 Initial Determination, slip op. at 109-10; Consolidated Commission Decision, slip op. at 30-40.

MStar argues that this claim construction was in error. In its initial brief to this court, MStar emphasized that the "generated . . . such that" language required that the second clock “cause” the claimed equality by being "locked" to the first clock. As such, MStar argued that the ‘867 patent discloses only one method for causing equality, "the use of a second signal tightly synchronized to the first clock signal," and cited portions of the specification describing how the source and destination clocks might be locked and the formula used to lock the signals.

In response, Genesis argued that signal-lock was merely a preferred embodiment. Further, Genesis noted that if claim 1 requires that the two clock signals are locked, claim 10 is redundant, as it contains only one additional limitation, that the "second clock is locked to said first clock signal in a proportion." ‘867 patent, col. 22, ll. 54-55. In its reply brief to this court, MStar disclaimed the argument that claim 1 requires signal-lock. MStar argued that the claim language only requires that the second signal "cause" the equality and that it does not require that the signals be locked.

However, MStar failed to explain how its claim construction, which would require that the second clock signal be generated so as to "cause" the equality of the frame periods, differs in any meaningful way from the Commission's claim construction, which requires that the second clock signal be generated so as to be "consistent" with an equality of the source and destination image frame periods. Both claim constructions require a logical relationship between the second clock signal and the claimed equality without specifying precisely how that logical relationship should work. Further, MStar does not demonstrate how the Commission's claim construction is broader than its preferred claim construction; MStar does not point to any embodiment of the invention that would fall within the "consistent" claim construction, but not within the "causation" claim construction.

Finally, contrary to MStar's arguments, the Commission's claim construction does not read the "generated . . . such that" limitation out of the claim language. MStar argues that if the second clock signal need only be consistent with the claimed equality, the wherein clause could simply read "wherein the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame." However, as noted above, the "consistent" claim construction requires a logical relationship between the second clock signal and the equality of time periods. Thus, under the Commission's claim construction, it is not sufficient that the time periods are equal, as MStar contends; rather, there must be a logical relationship of some sort between the second clock signal and the equality of the time periods.

4. Phrases including the term "phased burst signal."
Samsung seeks a construction of two other phrases which include this term. These phrases are "generating a plurality of phased burst signals" and "delaying at least one of said phased pulse signals." O2 contends that "generating" and "delaying" need no construction.

The phrase "generating a plurality of phase burst signals" appears in claim 27 of the '234 patent. Samsung seeks a construction of "generating" which means "bringing into existence." After considering the parties' arguments, the court adopts that construction.

B. Generating

The plaintiff contends that this term means the same as creating, and proposes a definition of "selecting, forming, or making." The defendants again urge their real time limitation and contend that the term means "defining, in real time, by the application of one or more rules or operations to given quantities." The patents use the terms "creating" and "generating" differently. In the context of "generating," the patents use the word to connote a meaning of "producing," such as in the context of "generating route schedules." After reviewing the briefs and the intrinsic record, the court therefore defines "generating" to mean "producing."

b. generating a bit stream

The crux of the parties' dispute concerning the phrase "generating a bit stream," is whether this language encompasses a stream in only serial configuration or a stream in either serial or parallel configuration. Bellcore contends that this language means generating bits or bytes at particular time intervals. (D.I. 142 at 25). Thus, according to Bellcore, the "bit stream" can be either a serial bit stream or a parallel bit stream that is "byte wide." In support of its position, Bellcore directs the Court to the preferred embodiment shown in Figure 12 of the '306 Patent. (D.I. 151 at 7-8; D.I. 142 at 25-27).

Figure 12 illustrates the framer circuitry performing the generating step by originating and processing data as a parallel bit stream (in byte format - multiple bits at one time). Bytes are transmitted between framers in a serial bit stream. In the language of the specification

The framer unit 200 may also be utilized to generate a chain of empty DTDM packets [sic] (see e.g., framer 52 in FIG. 4). In this case the serial input 202 and associated serial-to-parallel converter 212 are not utilized. Instead, the control 210 applies a periodic signal to tristate 222 so that a frame alignment word is periodically read from frame byte ROM 224 and transmitted via bus 219 to parallel-to-serial converter 216 and serial output 206 so as to define a train of empty DTDM frames.

( '306 Patent col. 16, line 63 - col. 17, line 2 (emphasis added).

An examination of Figure 12 shows a single line used where serial data is present, for example item 206, and a double line used where parallel data is represented, for example item 219. Therefore, Bellcore argues, to construe the phrase generating a bit stream to encompass only a serial configuration would exclude the preferred embodiment set out in Figure 12. (D.I. 151 at 7).

In response to Bellcore's interpretation, Fore contends that "generating a bit stream" means creating a serial configuration of bits, or stated another way, a continuous line of bits sent one at a time from one point to another. To this effect, FORE contends that a "bit stream" is not a "byte stream." (D.I. 153 at 5-6; D.I. 146 at 10-11). In support of its position, FORE direct the Court to Figure 3 of the '306 Patent and its accompanying text in the specification which provides that:

the DTDM bit stream leaves the serial data output of framer (sdo) of framer unit 52 and enters the serial data input of the
top most framer unit 53. The DTDM bit stream leaves the topmost framer 53 via its serial data output (sdo). The DTDM bit stream then enters the serial data input (sdi) of each succeeding framer unit and leaves via the serial data output (sdo) of each framer unit.

( '306 Patent, col. 8, lines 62-66 (emphasis added)).

In addition to Figure 3, Fore also contends that the preferred embodiment in Figure 12 and its accompanying text supports its claim interpretation. Fore contends that while it is possible that bytes may be used internally in transmission equipment (D.I. 146 at 10), the frames generated and sent over transmission lines are in a serial bit configuration, as evidenced by the fact that the portion of the specification describing Figure 12 states that the empty DTDM frames are defined by sending data to parallel-to-serial converter 216 and then to serial output 206.

Additionally, FORE directs the Court to that portion of the specification describing bit stream rates. According to FORE, the specification describes bit stream rates in terms of megabits per second, confirming that a bit stream is a serial configuration of bits and not a parallel byte wide configuration. (D.I. 153 at 5, citing '306 patent, col. 2, lines 25-35; col. 5, lines 13-22).

The Court disagrees with FORE's interpretation that the phrase "generating a bit stream" is limited to a serial configuration of bits. First, there is nothing in the plain language of the claim limiting a "bit stream" to a "serial bit stream." Indeed, the claim does not utilize the modifying or limiting word "serial" in describing the "bit stream." While it is true that the language used is "bit stream" and not "byte stream," it is also true that a byte is composed of bits. Therefore, the Court cannot conclude that the use of the word bit excludes eight bits in parallel, otherwise known as a byte.

With regard to FORE's argument that the specification refers to bit stream rates in terms of megabits per second, the Court is unpersuaded. The lines cited by FORE refer to rates measured in both Mb/sec and Mbit/sec, suggesting that Mb/sec might well mean megabytes per second.

As for Figure 12 and its accompanying text, the Court concludes that these references support Bellcore's position that the bit stream generated internally in the framer circuit begins in a parallel state and is then converted to a serial state before transmission. Accordingly, the Court concludes that the phrase "generating a bit stream" encompasses the creation of either serial or parallel bit streams.

2. "generating a high voltage charge when a shockable rhythm is detected"

Claims 5, 10, and 15 of the '969 Patent describe a function of the AED as "generating a high voltage charge when a shockable rhythm is detected." Philips asserts that this phrase should be construed as "starting to charge the high voltage capacitor at the time the device recognizes fibrillation." Cardiac Science contends that the term "generating" means "producing," but does not offer further construction for the phrase.

In support of its construction, Philips points to language from the specification, which states that "when a shockable rhythm is detected, processor 74 begins a first charge sequence by initiating the generation of a 'Charging.' voice prompt, and causes high voltage generation circuit 86 to operate in the charge mode." ('969 Patent at c. 6, ll: 7-10.) Cardiac Science, however, asserts that the specification distinguishes between generating the high voltage charge and charging the capacitors. Cardiac Science also asserts that dictionaries commonly define the term "generate" as "to produce," rather than "to start." n1

n1 The parties appear to agree that an initial source of dispute, whether "generating" means "discharging," is no longer at issue, because Cardiac Science conceded at oral argument that it was not attempting to equate "generating" with "discharging." (Tr. at 60.)
The specification does not distinguish between the charge mode of the high voltage generation circuit and the charging of the capacitors. The high voltage generation circuit consists, in part, of the capacitors. As the patent specification explains:

In response to charge controls provided by the processor 74, high voltage generation circuit 86 is operated in a charge mode during which one set of semiconductor switches (not separately shown) cause a plurality of capacitors (also not shown), to be charged in parallel to the 12 V potential supplied by power generation circuit 84.

('969 Patent at c. 4, ll: 3-9.) The device looks for a shockable rhythm, or fibrillation, and when that rhythm is detected, the device has to generate a very high voltage charge so that it can attempt to defibrillate the heart. As to this claim term, the word "generating" refers to the charging of the high voltage generation circuit, including the capacitors. (Id. at c. 6, ll: 7-10.) Thus, the Court finds that the term "generating a high voltage charge when a shockable rhythm is detected" should be construed as "initiating a charge in the high voltage generation circuit at the time that the device detects a shockable rhythm (or recognizes fibrillation)."

a. "generating a signal based on the measured pressure in said chamber and providing said signal to said control module"

Plaintiff contends that no additional construction is needed regarding this phrase. (Joint Final Claim Chart ("Chart") at 1.) Defendant, however, proposes that the phrase be reworded so that "based on" is replaced by "indicating" and changing the participles to present active verbs so that the phrase would state: "the pressure sensor generates a signal indicating the measured pressure in the chamber and provides that signal to the control module." (Id.) In response, Plaintiff argues that Defendant's construction is too narrow because it requires that the signal transmit the actual pressure measure of the chamber and does not specify which control module receives the signal. (Pl.'s Br. at 17-18.)

Defendant argues that the use of "based on" leaves open the possibility that the signal could have inputs in addition to the measured pressure. (Def.'s Br. at 12.) Defendant cites support from the patent specification and the prosecution history of the '945 Patent that the signal is "indicative of" the measured pressure. In addition to "indicative of," the specification also uses "based thereon," "based on," and "indication of," in various places. For example, both parties cite:

The control system 188, e.g., a microprocessor, is arranged to receive the digital signals from the transducers 180, 181 and determine the weight of the occupying item of the seat based thereon. In other words, the signals from the transducers 180, 181 are processed by the control system 188 to provide an indication of the weight of the occupying item of the seat, i.e., the force exerted by the occupying item on the seat support structure.

'945 Patent col. 151 l.27-34 (emphasis added).

Plaintiff makes clear that its concern is to clarify that the pressure sensor takes the raw data and converts it to a "digitized" signal that is derived from, or "based on," the measured pressure, rather than directly reporting, or "indicating," the measured pressure. (Pl.'s Reply Br. at 4-5.) The court finds Defendant's use of present active verbs makes the claim more understandable; however, Plaintiff has a valid argument regarding the signal that results from the measured pressure. The court finds Defendant's argument regarding the possibility that other inputs could be included if the signal is only "based on," rather than "indicated by," the measured pressure unpersuasive. A signal "based on" the measured pressure means that the measured pressure is derived from the signal, but it does not mean that it is derived from anything else. Because "'resort must be had in the first instance to the words of the claim,' words [which are ascribed] their ordinary meaning unless it appears the investor used them otherwise," Bell Comm'n's Research, Inc., 55 F.3d at 620 (quoting Envirotech Corp., 730 F.2d at 759), the court finds that it is not necessary to further construe the terms of this claim.

Finally, the court agrees with Defendant that replacing "said" with "the" increases the readability of the claim without changing its meaning. "The" is the definite article which denotes a particularly identified object. Because the claim describes an apparatus comprising "a control module," "the" is sufficient to identify that same control module. Contrary to Plaintiff's argument, the claim does not leave open the possibility that more than one control module will be part of the apparatus.
Accordingly, the court will construe "generating a signal based on the measured pressure in said chamber and providing said signal to said control module" as "generates a signal based upon the measured pressure in the chamber and provides that signal to the control module."

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6. "generating a transaction ID corresponding to the database entry" (claims 1 & 4) and "generating a unique transaction ID corresponding to the database entry" (claim 7)

The plaintiff defines these terms to mean "that a unique identifier is generated which corresponds to the database entry allowing the user to create, access, or update an entry." The defendant's proposed construction is "generating a unique identifier of an entry." The defendant further proposes that the "generating a transaction ID" step of the method occurs before the "creating a database entry" step. Both parties try to import limitations from the written description to the claims. Plaintiff suggests that the court should construe the claim to include functional limitations that are simply not supported by the record. The record makes it clear that a unique transaction ID is generated when the user adds a new entry to the database and that ID is effective for the life of the entry. See, e.g., 9:30-46. Plaintiff asks the court to construe the term to limit the purposes for which the transaction ID may be used. That limitation is not supported by the record.

Similarly, the defendant asks the court to add a limitation that is not supported in the record. Specifically, the defendant asks the court to construe this term so that the "generating a transaction ID" step occurs before the "creating a database entry" step. The intrinsic record cited by the defendant in support of its position, however, does not support this limitation. Indeed, there is no support in the record for importing this limitation into the claim language. In fact, the patent provides that "[w]hen the user chooses to add a new entry to the database, a unique transaction ID is created for that entry..." Id. The court construes "generating a transaction ID corresponding to the database entry" to mean "generating a unique identifier for a particular database entry" and rejects Defendant's proposed limitation that the "generating a transaction ID" step of the method occurs before the "creating a database entry" step.

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1. The '459 patent: claim 16: "Generating an analog image signal corresponding to the imagewise pattern of radiant light incident on a plurality of light sensing pixel elements"

Claim 16 of the '459 patent describes a process comprising the step of "generating an analog image signal corresponding to the imagewise pattern of radiant light incident on a plurality of light sensing pixel elements." The parties dispute whether this phrase is in step-plus function form. Canon contends that this phrase is a step-plus-function element. Canon contends that the disputed phrase describes an act and is not governed by Section 112, P 6.

After reviewing the claim language in light of the parties' respective positions, the Court concludes that the disputed phrase is not in step-plus-function form. Canon contends that because the claims could be rewritten to add the phrase "step for," Section 112, P 6 has been invoked. However, the language of the claim does not use the words "step for," and therefore, this element is presumed not to be in step-plus-function form. See Masco Corp. v. United States, 303 F.3d 1316, 1327 (Fed. Cir. 2002). In the Court's view, this presumption is not overcome, because the disputed phrase recites the definite act of "generating an analog image signal corresponding to the imagewise pattern of radiant light incident on a plurality of light sensing pixel elements." See Masco, 303 F.3d 1327 (holding "that where a method claim does not contain the term 'step[s]' for, a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act"). Further, the Court concludes that, with the exception of terms previously construed by the Court, this phrase should be construed consistent with its ordinary meaning and no further construction is required by the Court.

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E. "generating at least one reservation request" and "transmitting the reservation request"

The Defendants argue that these phrases are part of the means-plus-function construction of personal communication device. As discussed above, this argument is without merit. Setting aside this argument, the Defendants agree with the Plaintiff that "transmitting" does not require further construction. (Defs.' Responsive Claim Construction Br. at 8.) Webster's Dictionary defines "generate" as "to cause to be: bring into existence." Webster's Third New International Dictionary (Unabridged) 945 (1993). Therefore, incorporating the previous construction of "reservation request," the Court construes "generating at least one reservation request" to mean "bringing into existence at least one reservation request."

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7. "GENERATING DELIVERY-COMMENCEMENT INDICATIONS OF REAL-TIME INFORMATION [FORWARDED] TO THE USER"

AOL: "Creating data indicating the start of receipt of real-time information by the user."

TWM: No construction required.

In the alternative, "Generating data signifying the start of transmission of real-time information sent to the user."

The parties agree that this term should be construed consistently with the prior term. (D.E. 68, pg. 23). For the reasons detailed in the "determining the total delivery time" section, the Court does not construe this claim.


AOL: "Creating data indicating the end of receipt of real-time information by the user."

TWM: No construction required.

In the alternative, "Generating data signifying the end of transmission of real-time information sent to the user."

The parties agree that this term should be construed consistently with the prior term. (D.E. 68, pg. 23). For the reasons detailed in the "determining the total delivery time" section, the Court does not construe this claim.

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H. Generating one or more reports from the test methodologies

This disputed phrase is found in claims one and thirteen. The Plaintiff asserts that this term does not need construction, but also offers "using a computer to generate one or more reports based on the results of the test methodologies." The Defendants propose construing the phrase as "a server report spooler automatically generating one or more reports from the results of the test methodologies and automatically storing the report in a server project specific web site directory in response to the server computation engine storing the results of the test methodologies in the server project specific database" (emphasis added).

Here again, the Defendants include nearly identical language to the disputed phrase within the proposed construction. This is because the Defendants are not construing the claim in light of the specification, but they are importing elements found in the specification into the claim language. The Defendants do not make any new arguments in support of this proposed construction beyond repeating the theory that the claims should be limited to the specific embodiment in FIG. 2 and descriptions of that figure. The arguments regarding automation and the limitation to FIG. 2 to interpret the claim language have been rejected above and are rejected for the same reasons here.
The remaining dispute is whether a computer or a server must perform the step. The Defendants’ only support that the step of report generation must occur on a server is by arguing that the step is limited to the FIG. 2 embodiment. The Plaintiff argues that claim thirteen specifies a server is used, so claim one must mean something different under the rules of claim differentiation. Claim one also specifies that the server is located on a wide-area-network and that the information collected from the pavement construction material mixture goes to the server. The omission of specificity that the server must perform the steps of applying the test methodologies, generating the reports, and sending the reports to the project manager in close proximity to steps that specify the use of a server leads this Court to believe that those steps are not restricted to performance by a server in claim one. Since the parties agree that the preamble is limiting, this means that the steps are performed on a computer in the computer-implemented method.

Construction: Using a computer to generate one or more reports based on the results of the test methodologies.

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8. "Generating the motor signals in response to the spoken instructions." The computer/controller of the robotic surgical system generates motor signals in response to the surgeon's spoken instructions.

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5. "generating via said projector means a plurality of alignment images onto said display screen at predetermined locations" (claims 1 and 4)

PolyVision's proposed definition
Generating and projecting alignment images at a known point on the touch sensitive screen.

Smart's proposed definition
The alignment images are generated and projected onto the display screen at locations that are predetermined relative to the image being projected.

The dispute here is whether the alignment images are projected on a predetermined location of the display screen, as PolyVision contends, or at locations that are predetermined relative to the image itself, as Smart asserts. PolyVision contends that the language of the claim and the specification, (Col. 8, ll., 28-29 ("The marker is projected at a known point on the touch-sensitive screen 1.")), plainly shows that the alignment images are projected onto predetermined locations on the display screen. As Smart correctly notes, however, the purpose of the calibration routine is to determine the location of the projected image on the display screen, which may be unknown due to the random position of the projected image, through the sequence of alignment marks. The specification states:

FIG. 12 represents the touch board alignment procedure which ensures that the image on the touch-sensitive screen 1 corresponds with the image appearing on the display of computer 5. The purpose of this alignment procedure is to determine the position of the projected image on the touch-sensitive screen and to determine the corrections required to compensate for image projection problems.

(Col. 8, ll. 10-17.) Given the purpose of this procedure -- to correct for image projection problems, it would make no sense for the alignment marks to be projected onto the display screen at predetermined points having no relationship to the image; there would be no need for the alignment procedure because the image would already be aligned with the display screen. Accordingly, the Court concludes that Smart's construction is correct.

L. Ref. No. 21 "Generator of a voting session identifier for each voting session."
This phrase is recited or referred to in Claims 21, 76 and 82.

Defendants refer the Court to the previous argument regarding generators. That argument, however, is based upon a means-plus-function limitation. The instant claim construction is not. Here, the Court is asked to construe the phrase set forth above and the use of the term "generator."

As noted by Plaintiff, the '730 Patent provides numerous examples of generators in both the specification and in the claims. (See Col. 5, ll. 58-62; Col. 19, ll. 19-23; Col. 24, ll. 1-19; Claims 16, 21, 82.) These examples include random number generators, pseudo random number generators, and random character generators. The Court finds Plaintiff's construction to be a fair description of the claim. The Court, however, finds Plaintiff's language "and the like" excessively broadens the definition. Moreover, the term "for each voting session" is contained in the language of the relevant claims and should be included in the claim construction.

Therefore, the Court construes the term contained in Ref. 21 as follows:

A component of the voting machine (such as a processor, random number generator, processor with a random number generator) provides a random or pseudo-random, unique identifier for each voting session.

5. Claims 1, 7, 17 & 26 -- "Geographical Vicinity"

In their claim construction brief, CIVIX states that the parties agree on the definition of the term "geographical vicinity" to be "a geographic region which includes and surrounds selected items of interest." CIVIX cites the specification's definition of this term. ('525 Patent, Col. 2 lines 8-10). In their initial construction of terms mailed September 14, 1998, Defendants jointly agreed on this definition. However, in their claim construction brief and argument to the Court, they submitted new grounds for a narrower definition.

Defendants now argue that "geographic vicinity" is a pre-defined local area consisting of a pre-defined discrete point (represented by the positional coordinates) and the surrounding area that is within a limited distance. Defendants contend that this local area is smaller than a city, and is generally within walking distance. Although Defendants point to persuasive evidence in the '525 patent specification and prosecution history, they overlook the fact that the inventor acted as his own lexicographer in this instance and clearly defined the term in a portion of the patent containing definitions for other crucial terms. See, e.g., Process Control Corp., 190 F.3d at 1357 ("a patentee can act as his own lexicographer to specifically define terms of a claim contrary to their ordinary meaning. . . . We must construe the claims based on the patentee's version of the claim as he himself drafted it."); Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1344 (Fed. Cir. 1998) ("The actual words of the claim are the controlling focus. . . . The written description is considered, in particular to determine if the patentee acted as his own lexicographer, as our law permits, and ascribed a certain meaning to those claim terms.").

The summary of the invention provides the following:

"Geographic vicinity," and "map" are used to denote a geographic region which includes and surrounds selected items of interest.

Because the inventor has specified his own definition for this term, I reject Defendants' arguments for a narrower lexicography. The Federal Circuit has held that when "a patent applicant has elected to be a lexicographer by providing an explicit definition in the specification for a claim term . . . the definition selected by the patent applicant controls." See Renishaw, 158 F.3d at 1249. The Federal Circuit tempers this rule by stating that a patentee's definition must, of course, appear with reasonable clarity, deliberateness, and precision to affect the claim. See id. However, I find that the '525 patent's definition of "geographic vicinity" is sufficiently clear, deliberate, and precise, and therefore, CIVIX' definition controls.

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1. Geometric Address Information and Corresponding to Geometric Address Information

As to the term "geometric address information," the '402 patent refers to it as head-cylinder-sector address information. Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477, 1478 (Fed. Cir. 1998) (words used in the claims are to be read in light of the specification). See generally Col. 6:8-36; see Col. 6:18-21 ("translation circuit in the disk emulator instantaneously translates the geometric addresses from the SMD disk controller, the cylinder and head address, into higher order addresses for the DRAM array in the disk emulator."); Col. 25:13-15 ("Two different means are available for translating the geometrical form of the address information to the binary structure suitable for addressing solid state memory."). In addition, the prosecution history of the '474 patent reveals a consistent definition. See Lapple Decl. Ex. D at 51 ("[A] disk controller provides geometric addresses, head, cylinder, and sector, and not a volatile memory address."). Additionally, although the court's interpretation of "geometric address information" is somewhat consistent with the interpretation asserted by defendant, the language has a broader meaning than that ascribed to it by defendant. Specifically, "geometric address information" appears to cover both embodiments described in the '402 patent. See Col. 25:13-30. More specifically, "geometric address information" refers to (1) address information which represents or characterizes the physical geometry of a particular hard disk system and (2) address information in binary form which represents the geometry of a hypothetical or imagined hard disk system having a binary number of heads, cylinders and sectors. See Col. 25:13-30; Col. 32:16-28; Col. 25:20-22 ("In this method, the software disk driver is configured so that the driven disk has a binary number of heads, sectors, and cylinders."); Col. 32:20-30 ("the disk controller addresses the disk emulator with a binary format for the number of heads, sectors, and cylinders. . . . The geometric address signals . . . in this method are used directly to address the DRAM array.").

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1. "Gesture Action" ('053 patent, claims 1, 6, 20, 22) The patented inventions may be briefly described as methods for creating realistic computer animations of characters. The first term in dispute is "gesture action." Plaintiff's proposed construction is "a defined movement of joints over time which symbolizes or emphasizes an idea, sentiment or attitude." Defendant's proposed construction is "body part undulation executed under the control of a set of coupled frequency and range signals." Plaintiff principally objects to the word "undulation" in defendant's construction on the ground that the '053 patent describes at least one gesture action, the "casual pose," that does not entail any undulation. See transcript, 12/18/06 ("Tr."); at 9; '053 patent, 6:54-7:14. Plaintiff argues that the casual pose is "driven primarily by noise," see '053 patent at 7:11-14; '132 patent at 7:14-17, so that an observer viewing a figure in the "casual pose" would perceive movement that was random, rather than undulatory, see Tr. at 50-51. However, plaintiff's expert, Dr. Norman I. Badler, admitted that it would be "very unlikely" for the casual pose not to entail at least some undulation, see Tr. at 104-05; moreover, as defendant's expert Dr. Kellogg S. Booth noted, "the noise function[] constitute[s] undulation," see Tr. at 119; see also Tr. at 122, 147. More broadly, the Court agrees with Dr. Booth's testimony that neither the fact that certain gesture actions such as the casual pose entail less undulation than others, nor the fact that any gesture action can be "stopped" before undulation takes place, changes the fact that the essential nature of gesture actions is to provide for undulation. See Tr. at 109-10, 117-19, 146-49.

Plaintiff also objects to the phrase "executed under the control of a set of coupled frequency and range signals" in defendant's construction. Defendant's use of this phrase is supported, however, by the specification of the '053 patent (and the corresponding specification of the '132 patent) that introduces the phrase "gesture action" in the following terms:

The programmer/user can specify a sequence and/or combination of different gesture actions. Each action is implemented as a set of coupled frequency and range of pseudorandom time-varying signals set to each limb. The transition from one action to the next is smooth and life-like.

'053 patent at 2:47-52 (emphasis added); see also '132 patent at 2:51-56. Defendant's construction largely tracks this
language. Although plaintiff's expert, Dr. Badler, testified that the phrase "[e]ach action" in the above-quoted passage does not necessarily refer to a "gesture action," see Tr. at 36, and that the word "of," following the word "range," is an error and should be the word "or," see Tr. at 37, 40, the Court does not credit this testimony, finding it much more likely that the language means what it says.

Further, defendant's entire construction is supported by the deposition testimony of Dr. Kenneth Perlin, the inventor of the '053 and '132 patents, who testified that the '799 application (which underlies both patents) does not anywhere describe how to create a "gesture action" that is not a "body part undulation executed under the control of a set of coupled frequency and range signals." Declaration of Dr. Kellogg S. Booth dated November 12, 2006 ("Booth Decl."), Ex. 6 ("Perlin Dep.") at 101. Plaintiff argues that Dr. Perlin recanted this testimony by testifying later in his deposition that he thought he "could create a . . . gesture which is effectively a pose" with "[n]o time varying behavior," and that "this [would] describe how to create a gesture action that is not a set of coupled frequency and range values." Declaration of Paul D. Ackerman dated November 30, 2006 ("Ackerman Decl."), Ex. A at 281 (emphasis added). But this later testimony does not amount to a recantation because it says only what Dr. Perlin could create or describe now, and not what he did create or describe in the patents.

Accordingly, the Court adopts defendant's proposed construction of "gesture action."

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A. "Given Flow Temperature"

The meaning of the disputed term "given flow temperature," used twice in claim 1 of the '584 patent, is clear from a reading of the claim itself and the patent specification. Specifically, it is the temperature at which a particular ternary doped silicon oxide, heated for a specific period of time, and in a given atmosphere, will flow across the semiconductor body to form the insulating layer. As such, the "given flow temperature" for a particular layer is a definite, quantifiable temperature which serves as the key reference point in the two heating steps described in the patent. First, the ternary doped silicon oxide layer must be heated to the "given flow temperature" so that it will flow over the semiconductor body and create an insulating layer with a relatively smooth surface. Second, and after forming the contact holes, the ternary doped silicon oxide layer must be reheated to some temperature "below the given flow temperature" to soften, and only partially reflow the layer at the edges of the contact holes.

12 For example, the specification notes that a BPSG layer having about 3-3 1/2 wt % phosphorus and about 2-2 1/2 wt % boron will flow when heated to about 900 [degrees] C, in steam, for a period of about 30 minutes. If heated in helium, nitrogen, argon, or some other inert atmosphere, however, this BPSG will flow when heated to about 950 [degrees] C for 30 minutes. Similarly, a BPSG layer having about 4-5 wt % phosphorus and about 3-4 wt % boron will flow when heated to about 800 [degrees] C in steam, and about 850 [degrees] C when heated in helium, nitrogen, argon, or some other inert atmosphere. See '584 patent, col. 2, 11. 55-68; col. 3, 11. 5-11. 13 Steps 2 and 4 in the patented process.

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9. "out of band signal"

Dependent claim 9 provides that "K2 is selected so that the out of band signal is less than a given level." Subsequent to the parties' briefing and argument on this term, the parties have agreed by letter to the Court, dated April 7, 2010, that the term "out of band signal" means "power outside the frequency band." However, Defendants still argue that claim 9 is invalid for failing to meet 35 U.S.C. § 112. The Defendants do not argue that "out of band signal" is indefinite, but that the subsequent phrase "less than a given level" is indefinite. It appears that Defendants did not contend that "less than a given level" needed to be construed, or that the specific phrase was indefinite, until the Defendants' responsive claim construction brief. Thus,
Wi-LAN did not provide any proposed construction for the term and instead argued that the term "out of band signal" was not indefinite and had a particular meaning.

The Court finds that the phrase "less than a given level" is not indefinite. A claim is indefinite only if the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted." Exxon, 265 F.3d at 1375; Honeywell, 341 F.3d at 1383-39. This term is not "insolubly ambiguous" so as to prevent construction. See Young, 492 F.3d at 1346 (claims are considered indefinite when they are "not amenable to construction or are insolubly ambiguous"). The specification contains examples from which one of ordinary skill in the art could determine the scope of the claim. For example, the "two tail slots act as guard bands to ensure that the out-of-band signal is below a certain power level" and "to ensure that the out-of-band signal is ydB or less relative to the in-band signal..." '222 patent, 5:36-44; 6:46-48. The specification then provides an explicit example of what, in a particular instance, the "less than a given level" should be: "[t]he two tail slots of 195.3 KHz each (i.e. 8 points each) ensure that the signal outside the entire band of 100.39 MHz is below -50 dB." '222 patent, 7:57-60. In addition, the specification teaches that "to allow use of the radio frequency spectrum...the system must satisfy federal regulations...[that] impose limits on the power and the frequency spread of the signals exchanged..." '222 patent, 1:50-54. The Court finds that there is sufficient guidance in the specification as to the meaning of "less than a given level" to one of ordinary skill in the art. See Exxon, 265 F.3d at 1375 ("If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.") The Court rejects Defendants' argument that because the "level" in the claim is unspecified, no meaningful bound is placed on the patent claim. Consistent with the parties' agreement, the Court construes the term "out of band signal" to mean "power outside the frequency band." The Court finds that the term "less than a given level" is not indefinite. The Court construes the term "less than a given level" to mean "less than a given power level to satisfy federal regulations."

6. **given observation plane** ('028 patent)

CEA contends that this term does not require construction, but provides a proposed construction of: "any plane of variable observations by the screen reader."

Samsung's proposed construction is "a plane perpendicular to the screen which corresponds to the most probable position of a screen reader, i.e., a vertical plane extending perpendicularly from the screen."

The court adopts Samsung's proposed construction.

The specification states, in the summary of the invention, that "[t]he compensation for a given observation plane, of the birefringence of the liquid crystal layer in its homeotropic structure, makes it possible to retain a high contrast in case of an oblique observation made in said observation plane . . . ." 21 That language indicates that there is a particular, or specific, observation plane. Figure 3 is described as "a diagrammatic view showing the observation plane of a cell according to the invention . . . ." 22 That figure "diagrammatically shows the observation plane P or main reading plane . . . . The observation plane P corresponds to the most probable position of the screen reader, the latter observing the screen under variable incidence." 23


The specification, therefore, supports Samsung's proposed construction which the court adopts: "a plane perpendicular to the screen which corresponds to the most probable position of a screen reader, i.e., a vertical plane extending perpendicularly from the screen." 24

24 The court rejects CEA's argument, with respect to this claim term, that Samsung's proposed construction improperly
imports a limitation from a preferred embodiment in light of the language of the summary of the invention section which is properly read as limiting the invention to a single viewing plane.

20 The term to be construed in claim 5 appears in claim 1, upon which claim 5 depends.

The parties both agree that a single construction is sufficient for all three claims terms. 21 Limelight seeks to add the limitation that the given content server be "a single, optimal content server." (Docket # 71, 50.) In claim 5, the contested term appears in a limitation of claim 1 requiring "the embedded object [to be] served from a given one of the content servers as identified by the first level and second level name servers." (703 Patent, Claim 1; accord id. Claim 15.) In C&W, the Federal Circuit refused to read any requirement for a load balancing mechanism into the word "identified" in this claim. C&W, 344 F.3d at 1193-94 ("[The plain meaning of the claim language] simply requires the embedded object to be served from 'the content servers as identified by the first level and second level name servers.'"). Similarly, it would be inappropriate to read a requirement for an "optimal" server into it as well.

21 The four claims use three similar terms with slightly different wording. The parties have consolidated these into two separate contested terms in their briefs; however, they each argue for the same (but different between the parties) construction for all three.

Additional language in claim 34 limits the "given one of the content servers" to a server which is "within the given region that is likely to host the embedded object and that is not overloaded." (703 Patent, Claim 34.) As discussed supra, Term 5, adding a requirement that the server be "optimal" is unnecessary and confusing, as the claim already provides a specific limitation, consistent with the specification, as to which content server's IP address should be returned to the client. Similarly, while independent claim 19 provides no particular limitations on which given content server serves the embedded object, subsequent dependent claims 20 through 22 limit the server selected in ways that would be redundant with Limelight's construction.

Akamai's proposed construction, however, reads out the word "given" from the claims. It is appropriate to construe the term as a referring to a "particular" server, to make clear that a selection is made.
K. Cladding/Glass cladding

Claim 25 recites "a waveguide having a tip with a glass cladding extending to a distal end of the tip." The parties dispute whether the Court should construe "cladding" or "glass cladding." AMS asserts that the Court should construe "cladding" and proposes as a construction "material(s) disposed between the core and the first air gap or outside medium." LP asserts that the Court should construe "glass cladding" and proposes as a construction "also known as core cladding, a layer of glass having a lower index of refraction than the fiber core that contacts the fiber core to create an interface to confine radiation at the fiber core."

The claims do not recite simply "cladding"; rather, they recite "glass cladding" and "core cladding." Claim 25 recites "a waveguide having a tip with a glass cladding." It does not contain any language indicating the meaning of "cladding" or "glass cladding." Claim 26, which depends from claim 25, recites "wherein the tip of the waveguide comprises a fiber optic segment, the fiber optic segment including a fiber core . . . and a core cladding." This difference suggests that "glass cladding" is different from "core cladding." See Phillips, 415 F.3d at 1314. The Court turns to the specification to aid in its construction.

AMS cites Figure 10 in support of its construction of "cladding" as "material(s) disposed between the core and the first air gap or outside medium." Figure 10 shows a cross-sectional view of the embodiment of Figures 9 and 9a. See '699 Patent col.11 ll.9-13. The embodiment disclosed in Figures 9 and 9a includes an additional hard plastic cladding layer and a nylon jacket which protects the hard plastic cladding from scratching or other damage, which are stripped away from the tip in that embodiment. '699 Patent col.10 ll.45-58. Consequently, the identification of the core, cladding, and air in Figure 10 does not indicate that "cladding" can be any material disposed between the core and the first air gap or medium because the nylon jacket, which the specification distinguishes from cladding, also is a "material disposed between the core and the first air gap or outside medium." AMS's reliance on the prosecution history, where the applicant distinguished a prior art reference by stating that while the reference "removed the cladding and the buffer coating" from the tip of the fiber, the claimed invention "achieved significant results by not removing these layers from the core," is unpersuasive for the same reason. Extrinsic evidence further supports the conclusion that not all materials disposed between the core and the air or external medium are "cladding." See Gerd Keiser, Optical Fiber Communications 26-27 (2d ed. 1991) (identifying the "cladding" and the "buffer coating" surrounding the cladding separately).

The specification refers to several different types of cladding, including "plastic cladding," which is removed from the distal end of the optical fiber shown in Figure 1; a "doped fused silica cladding layer," which is shown in Figures 5a-5c; and a "core cladding layer" shown in Figures 9 and 9a. 11 '699 Patent col.4 ll.59-60, col.6 ll.30-33, col.10 l.25. The first experiment described in the '699 Patent used a "micron fiber made out of pure fused silica core/doped fused silica or glass core cladding/hard plastic buffer cladding layer/nylon jacket." '699 Patent col.11 ll.45-49. This language indicates that there are many different types of "cladding."

11 LP contends the specification uses "core cladding" and "glass cladding" interchangeably. Two of the portions of the specification cited by LP, however, indicate simply that a core cladding may be made of glass. See '699 Patent col.10 ll.45-58 ("The core cladding layer 81 is constructed of glass. . .."). col.11 ll.46-48 (describing optical fiber used for experiment as "made out of pure fused silica core/doped fused silica or glass core cladding"). The other portions cited by LP, when taken in context, are abbreviated references to the "doped fused silica or glass core cladding" in the description of the experiments. See '699 Patent col.11 ll.58-62, col.11 ll.33-34. LP's reliance on these portions of the specification is unpersuasive.

In addition, when describing Figures 9 and 9a, the specification states:
The core cladding layer 81 is constructed of glass and positioned around the fiber core 82 using conventional manufacturing procedures. The "cladding" of a typical fiber optic includes an additional hard plastic cladding layer (not shown) which lies over the core cladding layer 81. The additional hard plastic cladding layer is used in case the fiber is bent so that the core cladding layer 81 suffers leakage due to increased incidence angles in the bent portion. Over the hard plastic cladding, a nylon jacket is applied to protect the hard plastic from scratching or other damage. The jacket and hard plastic cladding layer are stripped back away from the tip in this embodiment.

'699 Patent col.10 ll.45-58. This language indicates that a waveguide can have multiple layers of cladding where one layer--in the described embodiment, a hard plastic cladding--surrounds another layer--in the described embodiment, a core cladding layer made of glass. 12 This language also indicates that both cladding layers prevent leakage of electromagnetic radiation from the core. When describing the prior art optical fiber shown Figures 5a-5c, the specification states that the cladding "confin[es] radiation transmitted through the fiber to the fiber core." '699 Patent col.6 ll.39-43. This language indicates that cladding prevents leakage of electromagnetic radiation from the waveguide during communication of the electromagnetic radiation through the waveguide and protects the fiber core of the waveguide. Extrinsic evidence supports this construction. See Keiser, Optical Fiber Communications at 27 (describing the purposes of cladding as reducing scattering loss from dielectric discontinuities at the core surface, adding mechanical strength to the fiber, and protecting the core from absorbing surface contaminants).

AMS appears to argue, however, that cladding only confines light to the fiber core in the mid span of the optical fiber. In support of this argument, AMS cites Pon's testimony that "cladding could . . . in a long length of fiber, in the mid span of that length, it could help confine light within the core." Despite this testimony, nothing in the specification suggests that cladding confines electromagnetic radiation to the core only at the mid span of the waveguide; rather, the removal of the cladding in the embodiments shown in Figures 1, 6, 6a, and 6b suggests that the confining effect of cladding extends along the length of the waveguide. AMS further asserts that the cladding must not be construed as confining electromagnetic radiation within the core because electromagnetic radiation is transmitted through the cladding in certain embodiments of the invention. In those embodiments, described in Figures 9, 9a, and 10, electromagnetic radiation is transmitted through the transmitting surface after it has been reflected by the reflecting surface, not during its communication to the tip of the waveguide, and because a certain core-to-core cladding ratio exists. See '699 Patent col.10 ll.24-41, col.10 l.59-col.11 l.2. This result does not alter the cladding's purpose of confining electromagnetic radiation to the fiber core during its communication to the tip. The Court construes "glass cladding" as a "glass material that surrounds and protects a fiber core and confines electromagnetic radiation to the waveguide during its communication to the tip of the waveguide where the glass material need not contact the fiber core."

The parties dispute whether a cap or capsule fused to the cladding can constitute "cladding" or "glass cladding." 13 Insofar as the parties seek a determination of whether the capsule in the accused product constitutes glass cladding, the Court declines to prejudge the infringement analysis. See Wilson Sporting Goods, 442 F.3d at 1326-27.

AMS further contends that the cladding must be physically attached to the core. Pon testified that that "cladding could be--could be a material that was physically attached to the core." Pon's testimony as to one possible type of cladding does not support a construction requiring physical attachment of the cladding to the core.
The court finds "glass cladding" to mean "glass material that surrounds and protects a fiber core and confines electromagnetic radiation to the waveguide during its communication to the tip of the waveguide where the glass material need not contact the fiber core." The court finds "core cladding" to mean "a layer of material that surrounds a fiber core, that has an index of refraction lower than the index of refraction of the fiber core, and that is immediately adjacent to the fiber core."

Plaintiffs ask the court not to construe either term but to construe instead the general term "cladding." The claims nowhere refer to "cladding" independently; they refer only to "glass cladding" and "core cladding." Plaintiffs request that the court construe a term that does not appear in any claim, and the request is rejected.

Defendants ask the court to construe the terms "core cladding" and "glass cladding" identically. In doing so, the court would effectively find that the invention's core cladding is always made of glass and that glass cladding is never used anywhere but the core. This equation of "glass cladding" with "core cladding" is too restrictive and is rejected.

To defend their proposed construction, Defendants rely heavily on the patent specifications' occasional use of the phrase "doped fused silica" to refer to cladding. See e.g., the '699 Patent, col. 11, lines 45-57, cited in Defendants' Memorandum (Dkt. No. 89 at 17). Although it is axiomatic that "[t]he descriptive part of the specification aids in ascertaining the scope and meaning of the claims" and that "[t]he specification is, thus, the primary basis for construing the claims," Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 1303)(internal citations omitted), the cited patent language does not in fact support Defendants' conclusion. The "doped silica" specification on which Defendants rely describes an experiment that used doped fused silica as core cladding. The '699 Patent, col. 11, line 47. An experiment's materials are necessarily particular; it does not follow that the chosen material is the only material contemplated by the invention or that all inventions citing that experiment may use only the described material. Defendants' other citations of the '699 Patent's supposed "synonymous usage" are similarly unsuited to generalization.

Moreover, Defendants ignore the key role played by the stipulated claim term "comprising." The parties stipulated to the definition of "comprising" as "including but not limited to the elements of the claim." See Dkt. No. 105-2; Dkt. No. 109-3. 3 The language of the claims describes core cladding and other components "comprising" particular materials. See, e.g., Claim 5, which describes, "core cladding comprising a transmissive material," the '699 Patent, col. 15, line 35 (emphasis added). In some cases, the listed materials are glass or something similar. See, e.g., Claim 24, which describes that the "core cladding comprises doped fused quartz." The '699 Patent, col. 17, lines 24-26 (emphasis added); and Claim 25, which describes a surgical probe "comprising: a waveguide having a tip with a glass cladding extending to a distal end of the tip." The '699 Patent, col. 17, lines 28-29 (emphasis added). See also the language of the specification: "the core cladding comprises doped fuse quartz", the '699 Patent, col. 5, lines 8-9 (describing the first embodiment of the invention) (emphasis added). Under the stipulated definition of "comprising," it is clear that the listed components, those that "comprise" glass or doped fused quartz materials, may include but are not limited to those materials.

--- Footnotes ---

3 This definition comports with the well-established meaning of that phrase as a term of art in the field of patent law. See Georgia-Pacific Corp. v. U.S. Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999)("The transitional term 'comprising' … is inclusive or open-ended and does not exclude additional, unrecited elements or method steps") (citing the Manual of Patent Examining Procedure).

--- End Footnotes ---

The intrinsic evidence contained in the patent, read in light of the claim terms whose meaning Defendants have stipulated to, squarely refutes Defendants' proposed equating of core and glass cladding. The court accordingly declines to adopt the proffered construction.
Judge Ericksen, in her Laser Peripherals memo, construed the term "glass cladding" as follows:

glass material that surrounds and protects a fiber core and confines electromagnetic radiation to the waveguide during its communication to the tip of the waveguide where the glass material need not contact the fiber core.


Regarding the final clause of the construction ("where the glass material need not contact the fiber core"), Judge Ericksen noted that the term "cladding," as used in the patent, is not limited to material in immediate contact with the fiber core. The description of Figures 9 and 9a states that, in a typical fiber optic, "an additional hard plastic cladding layer . . . lies over the core cladding layer." The '699 Patent, col. 10, lines 48-50. Where the patent refers to two distinct layers as "cladding," a court should not construe the term to refer solely to the layer immediately surrounding the fiber core. If "cladding" can encompass material one layer removed from the core, it is reasonable to conclude that "glass cladding" may also encompass material located at a layer's remove.

The Minnesota District Court's construction is entirely reasonable and consistent with the intrinsic evidence of the '699 Patent. Given the awkwardness posed for the parties were different district courts to construe the same patent term differently, and the sound foundation for Judge Ericksen's construction, this court will adopt her construction of the term "glass cladding."

The Laser Peripherals memo does not construe "core cladding." This court will therefore construe the term independently.

The court bases its construction of the term "core cladding" on two key facts: (1) "core cladding," as used in the claims, consistently refers to material immediately adjacent to the fiber core, and (2) in order for the electromagnetic radiation to propagate efficiently along the waveguide core, the material immediately adjacent to and surrounding the core must have an index of refraction lower than the index of refraction of the core material. The court adopts these two observations and construes "core cladding" so as to encompass any material so situated and so constructed, as set forth at the beginning of this subsection.

2. "global control system"

This term is also used throughout the Bittleston Patents. WG proposes seeks to construe this term as "a control system that sends commands to other devices in a system (e.g. local control systems)", while Ion proposes "system that monitors the position of the streamers and provides the desired forces or desired positioning information to the local control systems." Therefore, the parties disagree as whether this term should be limited according to the kind of information that the global control system sends out, and whether it requires the presence of a local control system.

As WG points out, only some of the claims that describe the global control system in the patents-in-suit identify a corresponding local control system. Others describe the global control system but make no mention of a local control system. (See '017 Patent, col. 11 ll. 1-11.) This would suggest, therefore, that the presence of a local control system is not required by the claim language.

Turning then to the specification, the '017 Patent states "[i]n the preferred embodiment of the present invention, the control system for the birds is distributed between a global control system . . . and a local control system located within or near the birds." (’017 Patent, col. 3 ll. 36-40.) According to this language, then, the presence of both a global and local control system is only a preferred embodiment of the invention. In addition, the specification notes that "[i]n a preferred embodiment of the present invention, the global control system monitors the actual positions of each of the birds." (’017 Patent, col. 3 ll. 61-63.) Thus, a global control system that monitors the position of each of the birds is only a preferred embodiment of the patents in suit. The specification also states that the global control system "is typically connected to the seismic survey vessel's navigation system and obtains estimates of system-wide parameters." (’017 Patent, col. 3 ll. 36-44 (emphasis added).) This language also thus suggests that the described functionality of the global control system is only the preferred embodiment of the patented invention.
Ion, however, points out that the specification also states that "[t]he inventive control system is based on shared responsibilities between the global control system . . . and the local control system" ("017 Patent, col. 9 ll. 42-44) and that "the global control system is tasked with monitoring the positions of the streamers and providing desired forces or desired position information to the local control system. (Id. col. 9 ll. 45-48.) According to Ion, precedent indicates that the use of the term "inventive control system" signals the inventor's understanding of the scope of his own invention. Because its construction tracksthe way the inventor described the invention, argues Ion, it is an appropriate construction of the term.

While the Court acknowledges that Ion's construction does track the manner in which the invention is described within the specification, the Court declines to construe the term "global control system" according to this language. First, although the specification does use the phrase "inventive control system" when stating that responsibility is shared between a global and local control system, the specification also states that it is only preferable that the control system be distributed between a global and local system. Ion therefore relies too heavily on the "magic words" of Honeywell, and ignores explicit language in the specification as well as the claim language that indicates that the global control system operating vis-a-vis a local control system is only a preferred embodiment of the invention.

Secondly, while Ion's construction may be a correct description of how the global control system generally functions in the claimed invention, the Court finds it redundant to construe the term according to these specifically named operations. Throughout the patents-in-suit, the individual claims themselves describe the way in which the global control system is to function within the scope of that claim, and also, when appropriate, the extent to which the global control system communicates with the local control system to control the positions of the streamers. As WG argued during the Markman hearing, at the stage of claim construction, the Court is tasked with construing the scope of specific claim terms within the patents, not with describing the operation of the entire invention through these disputed phrases. It is the claims themselves that are the primary indicators of the way in which individual components function to achieve their purpose. Thus, many arguments as to the reach and scope of the patent claims are more appropriate for the stage of infringement determinations. Therefore, the Court concludes that it is more appropriate to assign to this term a more general construction, and to leave it to the claim language to identify how the global control system operates vis-a-vis the streamer positioning device as well as the local control systems.

WG provides just such a construction. As such, the Court adopts WG's proposed construction of this claim term of "a control system that sends commands to other devices in a system (e.g. local control systems)."

1. "global identifier"

EMC asks the Court to construe this term as: "A global identifier identifies the mass storage devices in a logical set." HP proposes (in its opposition brief and at the claim construction hearing, see Transcript of April 6, 2004 Hearing, 151:14-22): "A value or data structure stored in the array controller that is compared to membership signatures in order to identify which mass storage devices are members of a logical set of mass storage devices." Essentially, then, the parties dispute whether the term has a location limitation.

The meaning of "global identifier" can be ascertained from the claim language, which indicates that a "global identifier" serves as a reference for identifying mass storage devices included in a logical set. HP incorrectly argues that this is not a definition of "global identifier" but instead describes a use of a "global identifier." The construction in fact is a definition: the global identifier is a reference with which each storage device in a logic set identifies. In other words, knowledge of the global identifier allows the system to identify members of the set.

Nothing in the intrinsic evidence indicates that this term must be defined in part according to its location, nor is the term defined according to a process or method of comparing it to something else or according to its purpose. Accordingly, HP's proposed limitation requiring that the global identifier be stored in the array controller is inappropriate. The Court construes this term as "a reference for identifying mass storage devices included in a logical set."
7. "global repository"

The term "global repository" appears in claims one through five of the '374 patent. Informatica proposes the construction "An abstraction for a database that stores metadata that is also accessible from one or more local database repositories." BODI proposes the construction "A repository is an abstraction for a database where metadata is stored. There are three types of repositories: independent, linked, and global. A global repository is distinguished from independent and linked repositories in that it is the only repository which stores metadata that can be shared with other linked repositories." The parties agree that the general meaning of the term "repository" is "an abstraction for a database," as set forth in the specification.

--- Footnotes ---

3 Informatica indicated in its opening brief that it does not object to the use of BODI's synonymous "linked repositories" language en lieu of "local database repositories."

--- End Footnotes ---

The parties proffer similar constructions, but for BODI's proposed language regarding the three types of repositories, independent, linked, and global. The Court finds the term global repository can be construed without reference to and discussion of the other types of repositories. The Court construes the phrase "global repository" to mean: An abstraction for a database that stores metadata that can be shared with other linked repositories.

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N. Global Server

Visto contends that the term "global server" means "a computer or a related set of computers that mediate connections between data stores within and without a secure network and that may store data." Seven argues that the term means "a server that is outside a corporate LAN and inside a global firewall that is widely accessible by users and stores independently modifiable copies of workspace elements and version information." With respect to this term, Seven has incorporated a location limitation that is found in the preferred embodiment. Seven has also urged that the server be "widely accessible" by users, and has incorporated this limitation into its definition as well. Seven also contends that the global server must store independently modifiable copies of workspace elements and version information.

The parties agree that this term had no accepted meaning in the art; therefore, resort to the specification is appropriate to glean the proper construction. Read as a whole, the specification defines the global server by the various functions it performs and by its accessibility to a remote user. One function the global server must perform is storing an independently modifiable copy of selected portions of workspace data. In the Summary of the Invention, the specification states "[t]he client is configured to synchronize selected portions of the first set of workspace data (comprising workspace elements) with the global server, which stores independently modifiable copies of the selected portions. '221 Patent, Col. 2, ll. 50-54 (emphasis added). In addition, the specification states that the "base system and synchronization agent automatically establish a secure connection therebetween and synchronize the selected portions of the first set of workspace data stored on the client and the second set of workspace data stored on the global server." '221 Patent, Col. 2, ll. 10-14 (emphasis added).

The description of the preferred embodiment indicates that "the global server 115 stores workspace data 163, which includes an independently modifiable copy of each selected workspace element in the selected portions of the workspace data." '221 Patent, Col. 6, ll. 23-26. Although the court rejects many of Seven's proposed limitations, one function that must be performed by the global server is the storage of selected portions of the workspace data. It is also clear that the global server must be accessible from remote locations, although adoption of Seven's limitation that the server be "widely accessible" is too limiting. '221 Patent, Col. 7, ll. 6-9. As such, the court defines the term "global server" to mean "a server accessible from
remote locations which stores independently modifiable copies of selected portions of workspace data."

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On October 16, 2006 the court filed a Markman decision in this case, construing claim terms of U.S. Patent No. 5,758,328 ("the '328 patent). Plaintiff, Source Search Technologies, LLC ("SST"), now moves pursuant to Local Rule 7.1(i) for reconsideration of that portion of the Markman Opinion that holds that "Goods and Services" is construed to mean "standardized articles of trade and performances of work for another." The court reached this conclusion by citing Defendants' contended definition and noting that "SST has not objected to Defendants' contention, and therefore, it will be accepted." (Opinion, at 28-29).

A motion for reconsideration shall be accompanied by a brief "setting forth concisely the matter or controlling decisions which the party believes the Judge or Magistrate Judge has overlooked." Local Rule 7.1(i) Ciba-Geigy Corp. v. Alza Corp., No. 91-5286, 1993 U.S. Dist. LEXIS 3971 1993 WL 90412, at 2-3 (D.N.J. Mar. 25, 1993). Such a motion is not to be used to simply reargue the same issues already rejected, or to voice disagreement with the court's decision on the merits.

It is readily apparent that SST has established the basis for reconsideration. The court, adopting Defendants' definition of goods and services, overlooked that SST strenuously disputed that definition. Defendants contended, based on their construction of the language of the patent, for a narrow definition of that term, namely, that goods or services must be standarized. SST, on the other hand, contended that goods and services needed no construction and that "the '328 patent merely stated that in order to ensure that there was no confusion about what is being requested by a buyer, either the descriptions of the products had to be standardized, or the products had to be described with text to be clear." (SST's Responsive Markman Brief at 45).

This difference of opinion was expressed in the parties' submissions and at the Markman hearing. Yet the court overlooked it in its Markman Opinion. Therefore, SST's motion for reconsideration will be granted.

The parties submitted everything they had to say on this issue prior to the Markman hearing; they argued the question at the hearing (a transcript of which the court has); they had the opportunity to give added emphasis to their views in connection with the motion for reconsideration. Therefore the court will conduct its reconsideration on the record before it without a further hearing.

The term "goods and services" is used constantly throughout the claims of the '328 patent. For example, claim 1 begins:

A computerized system for forming a computer based network of network members inclusive of network buyers and or network vendors for processing requests for quotation for goods and services through at least one central processing unit... It is Defendants' position that the specification explicitly disclains a broad reading of goods and services, i.e., that goods and services means any goods and services. They point to the following language:

The present invention is a computerized quotation system forming a computer based communications network for processing requests for quotations for goods and services from respective buyers or vendors who broadcast such requests to network members of the computerized system. There is no central pricing database to limit the number of buyers and vendors of goods and services or to limit the number of goods and services which can be processed.

However, the goods and services must be standadized items to ensure that there is no confusion as to what buyers are requesting and what sellers are offering to buyers. Fig. 1 shows the system of this invention as configured using the Internet as the communications network.

('328 patent, col. 3, ll. 55-67) (emphasis added).

This is pretty unambiguous language: "... the goods and services must be standardized items to ensure that there is no confusion as to what buyers are requesting and what sellers are offering to buyers." The cases have distinguished between the terms "must" and "may" or "can" as used in patents. The word "must" is mandatory language; whereas "may" and "can"
are permissive terms. See BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC, 303 F. 3d 1332, 1340 (Fed. Cir. 2002).

SST asserts that the paragraph of the specification that follows the paragraph upon which Defendants rely completes the teaching on the subject. It includes the statement:

Standardization of product or service descriptions is essential to avoid confusion unless a more text oriented specification is appropriate for the product or service type.

('328 patent, col. 4, ll. 9-16) (emphasis added).

It is SST's contention that the specification provides two options for identifying the goods and services for which a quotation is sought: i) requesting a quote for a standardized product or service, or ii) requesting a quote for a product or service for which a text oriented specification is appropriate. This would open up the request for goods and services to any product or service, standardized or not.

If one follows the pertinent language of the specification which incorporates all the language upon which the parties rely ('328 patent, col. 3, l. 55 to col. 4, l. 12), it becomes clear that Defendants' interpretation is the correct one.

It starts with the paragraph containing the language, "However, the goods and services must be standard items to ensure that there is no confusion as to what buyers are requesting and what sellers are offering buyers." ('328 patent col. 3, ll. 63-65). The next paragraph describes how network members can use the computerized system. Once again there is a reference to standardized goods or services: "The programming … which enables network members to interact with the network would include information sufficient for network members to identify standard goods or services that they wish to identify in a request for quotation." ('328 patent col. 4, ll. 4-9) (emphasis added).

The next sentence, the sentence upon which SST relies, simply suggests how the network member can identify the standard goods or services that are the subject of his request: "Standardization of product or service descriptions is essential to avoid confusion unless a more text oriented specification is appropriate to the product or service type." ('328 patent col. 4, ll. 9-12). This sentence in no way suggests that the particular product for which a "text oriented specification is appropriate" is not to be standardized.

This conclusion is illustrated by Figure 8 of the '328 patent to which SST refers. The quote given in Figure 8 is for 5000 "TYPE J RESISTOR[S] 5%." Thus a text oriented specification is provided, namely 5000 and 5%. Nevertheless, the underlying product - the Type J resistor - is a standardized item.

Having corrected the deficiency of the October 16, 2006 opinion by considering the matter it previously overlooked, the court arrives at the same conclusion it arrived at in that opinion. It reaffirms its holding that "Goods and Services" is construed to mean "standardized articles of trade and performances of work for another." The court will file an order implementing this opinion.

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C. Disputed Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Proposed</th>
<th>Defendant's Proposed</th>
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<tbody>
<tr>
<td>ORM grammar</td>
<td>&quot;the extensible set of rules including syntax, for textually describing a mapping between an object-oriented system and a relational system in a declarative way&quot;</td>
<td>&quot;the extensible set of rules, that define syntax and vocabulary for generating and interpreting an ORM specification&quot;</td>
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</table>

- 2249 -
The Court begins by noting the specification states ORM grammar "define[s] the mapping between an object-oriented system and a relational system" by providing "the rules for textually describing an [ORM] in a declarative way," '776 Patent 5:42-48. The parties build on this initial definition to further clarify the term. Although they agree ORM grammar is an "extensible set of rules," they disagree as to whether it: 1) includes both syntax and vocabulary; 2) may be used to "textually describe[] a mapping . . . in a declarative way;" and 3) whether it must be used to "generate" an ORM specification.

Plaintiff argues the term "vocabulary" does not appear in the specification and therefore has no place in the Court's construction. PL.'S BR. at 7-8. Defendant cites a technical dictionary to describe a grammar as having a "set of rules" and an "alphabet" of symbols, which they analogize to syntax and vocabulary, respectively. DEF.'S BR. at 7. Defendant further cites the inventor's deposition testimony, wherein when asked "And by rules, you mean the set of vocabulary and syntax necessary to describe how you map an object to a relational database, right?" he responded, "Right, vocabulary, key words, syntax, semantics." Id. Plaintiff argues this testimony is unpersuasive because the inventor had previously described ORM Grammar as "defin[ing] the rules for textually specifying the [ORM] specification" and only used the term vocabulary in response to a leading question. PL.'S REPLY. at 2-3.

Defendant does not cite, and the Court does not find, anything in the intrinsic evidence supporting the inclusion of vocabulary in the construction of ORM grammar. Furthermore, the Court is not persuaded by Defendant's extrinsic evidence. See Phillips, 415 F.3d at 1317 (cautioning against reliance on extrinsic evidence); see also Voice Techs. Group, Inc. v. VMC Sys., Inc, 164 F.3d 605, 615 (Fed. Cir. 1999) (holding an "inventor can not by later testimony change the invention and the claims from their meaning at the time the patent was drafted and granted"). Accordingly, the Court declines to include vocabulary in its construction of the term.

Likewise, the Court is not persuaded by Defendant's argument that the phrase "The ORM Grammar 200 [sic] the rules for textually describing an [ORM] in a declarative way" describes the ORM specification, rather than the ORM grammar. DEF.'S BR. at 9-10 (quoting '776 Patent 5:46-48). Relying solely on attorney argument, Defendant states the terms "textually" and "declarative" describe the ORM specification. Despite the typographical error, the specification's meaning is clear. ORM grammar is the set of rules used to textually specify an ORM in a declarative way. '776 Patent 5:42-48. The Court finds it appropriate to include these terms in its construction.

Finally, the Court finds Defendant's proposal that the ORM grammar is "for generating and interpreting an ORM specification" overly limiting. Plaintiff argues this phrasing implies ORM grammar must be used to automatically create an ORM specification, thereby excluding disclosed embodiments where users can manually create an ORM specification. PL.'S BR. at 7 (citing '776 Patent 6:17-22). Defendant argues the specification expressly refers to using the ORM grammar to generate and interpret the ORM specification, DEF.'S BR. at 8 (citing '776 Patent 5:55-58), and contends manual creation is simply a form of "generation." Id. at 9 n.16. Defendant is correct that the specification teaches use of the ORM grammar to interpret and generate the ORM specification, see '776 Patent 5:55-58 (stating "the ORM Grammar 200 may in alternate embodiments be used to generate and interpret an ORM Specification 202")., and the Court agrees that an ORM grammar must be used to interpret or generate an ORM specification. Id. 21:10-11 (reciting the "ORM Specification [is based on an ORM Grammar]"). However, the Court agrees with Plaintiff that the word "generation" can mislead jurors by implying automation, to the exclusion of the manual creation embodiment. See '776 Patent 6:17-22 (stating "[a]ny one of a variety of text editor or graphical user interfaces can be used to create, modify and review ORM Specifications 202").

For the foregoing reasons, the Court adopts Plaintiff's proposal. In the Court's provisional claim construction order, the Court originally appended the phrase "and that may be used to generate and interpret an ORM specification" (Doc. No. 177 at 2). Having further considered the matter, the Court finds the phrase unnecessary. The Court originally suggested the phrase during the Markman hearing in an effort to find agreement between the parties' positions. The purpose of the language was to communicate that "generation," as understood to mean automated or computer-implemented, was not required in every case. Plaintiff's original proposal, however, does not use this potentially confusing word. The ORM grammar is a set of rules for textually describing an ORM specification, i.e., a textual description of a mapping between an object-oriented system and a relational system, in a declarative way. Plaintiff's original proposal accurately conveyed this meaning and this definition corresponds to the parties' agreed definition of ORM specification Accordingly, the Court revises its provisional construction and adopts Plaintiff's proposal as its final construction.

For the foregoing reasons, the Court finds the proper construction of this term is "the extensible set of rules, including syntax, for textually describing a mapping between an object-oriented system and a relational system in a declarative way."
1. "Graphical icon" (Claims 1, 17)

a. The Parties' Proposed Constructions

Motorola's Proposal: "An image that represents an object, process, concept, or function. A textual label by itself is not a graphical icon."

VTech's Proposal: "A graphical icon associated with a functional feature of a phone."

b. Discussion

Motorola argues its construction of "graphical icon" is consistent with the use of the term in claim 1. According to Motorola, the specification provides that "icons representative of work, car, home and a fax machine could be associated with entered numbers." This statement refers to Fig. 4F, which discloses pictorial images of a briefcase, car, house, and a piece of paper. Thus, Motorola asserts the "icon" portion of the term relates to something that represents something else (e.g., work phone number, car phone number, etc.) and the "graphical"portion of the term limits the "icon" to an image, not mere text. In addition, Motorola contends dictionaries and patents dated around the time the '356 patent was filed provide similar meanings for this term and its components.

Motorola argues VTech's proposed construction improperly focuses on what a "graphical icon" can represent by limiting the term to a subset of "graphical icons" that are functional, i.e., "functional icons." As described in the specification, "functional icons" are icons that represent functional features or "radio communication services" that a device can perform, e.g., phone, email, short messaging service ("SMS"). According to Motorola, these functional icons are specifically claimed in dependant claim 2 as each of the graphical icons disclosed therein must "represent[...]

Motorola also takes issue with VTech's construction because it restricts the term to only the icons described in the preferred embodiment. While the specification describes functional icons as one type of graphical icon, it also contemplates other types of icons. The Examiner stated that "[t]he graphical icons can be representative of, for example, each of the radio communication services available to the user." (Motorola Ex. PP (Paper 12 at 2))(emphasis added).

VTech asserts it has rebutted the presumption created by Motorola's claim differentiation argument. Arguing it is clear that the invention disclosed in the '356 patent is only directed toward the functional nature of the icons, VTech asserts the presumption should therefore not apply. Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1369-71 (Fed. Cir. 2007) (finding that statements in the specification and prosecution history overcame presumption of claim differentiation).

The abstract of the '356 patent states that: "The radio communication device preferably comprises a touch screen display for displaying functional icons stored with directory numbers to simplify the location of information and the transmission of messages." Under the section "Field of the Invention," the '356 patent states that: "Generally, the present invention relates to radio communications devices, and more particularly to radio communications devices having functional icons associated with stored directory number." (356, 1:5-8) (emphasis added). VTech's proposed interpretation uses similar language, but the Court is not convinced the proposal is correct.

Specifically, the Court is not convinced graphical icons must be associated with a functional feature of a phone. Although the specification gives a few examples of functional icons (telephone, email, fax, short messaging service), it later states: 

"Any number of other icons could be employed according to the present invention." (356, 2:24-25; 5:54-60). The Court disagrees with VTech that this sentence is specifically referring to other types of functional icons such as a cell phone,
That being said, the Court agrees with VTech that Motorola's construction is also incorrect as it uses terms like "process," and "concept" which might require their own construction. As for Motorola's proposed second sentence, "a textual label by itself is not a graphical icon," there is no support for this limitation in the specification. Therefore, this limitation should not be imported without further evidence from Motorola why such a limitation is warranted.

c. The Court's Construction

Accordingly, the Court construes "graphical icon" to mean: "a graphical image."

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C. Graphical keyboard area incapable of user termination independent of termination of the input area

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>graphical keyboard area incapable of user termination independent of termination of the input area</td>
<td>the graphical keyboard may not be terminated by the user unless the input area is also terminated</td>
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<tbody>
<tr>
<td>graphical keyboard area incapable of user termination independent of termination of the input area</td>
<td>a graphical keyboard area that is always present with the plurality of data input fields and cannot be removed, minimized, maximized, deleted, closed or resized independent of termination of the input area</td>
</tr>
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</table>

The next contested phrase also comes from Claim One as part of an "invoking" step of the claimed method. Plaintiff's construction is all but a verbatim quotation of the claim language: "the graphical keyboard may not be terminated by the user unless the input area is also terminated." In contrast, Defendants' construction weighs down the definition with six terms they believe are synonymous with "user termination:" "a graphical keyboard area that is always present with the plurality of data input fields and cannot be removed, minimized, maximized, deleted, closed or resized independent of termination of the input area."

The court begins with the ordinary meaning of termination: "end in time or existence" MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY at 1216 (10th ed. 1997). That ordinary meaning does not include minimizing, maximizing, or resizing. Any novice computer user, let alone someone skilled in the art, would not read "termination" to include minimizing, maximizing, or resizing. To overcome that ordinary meaning, Defendants must point to "contravening evidence from the specification or prosecution history." DSW, Inc. v. Shoe Pavilion, Inc., 537 F.3d 1342, 1347 (Fed. Cir. 2008).

Defendants believe that they have such evidence: their construction is based on a statement by the patentees to the patent examiner during prosecution: "Because the graphical keyboard of claim 1 is [incapable] of user termination independent of termination of the input area, a user cannot accidentally remove, minimize, maximize, delete, close or resize the graphical keyboard." (Pl's Ex. 2, at 177) (alteration, adopted by both sides, corrects typographical error). Plaintiff argues that the court should not rely on the statement because it was contradicted by a later statement in the prosecution. (Pl's Br., at 13.) The part of that later statement that Plaintiff emphasizes, though, that "the keyboard is provided when needed by an input area," (Pl's Ex. 2, at 221), says nothing about how to read the term "user termination."
Statements made during prosecution are part of the intrinsic evidence to be considered during claim construction, and patentees are held to what they declare during prosecution under the doctrine of prosecution disclaimer. Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374-75 (Fed. Cir. 2008). The doctrine does not apply, though, where the statement during prosecution is so ambiguous that a person of ordinary skill in the art would not rely on it. Elbe Video, Ltd. v. Sensormatic Electronics Corp., 508 F.3d 1366, 1371-72 (Fed. Cir. 2007). Before going further, the court notes that this is a relatively unusual context for the doctrine of prosecution disclaimer because Defendants are arguing that the statement expands the scope of a claim term. In contrast, the doctrine is "typically invoked to limit the meaning of a claim term that would otherwise be read broadly." 800 Adept, Inc. v. Murex Sec., Ltd., 539 F.3d 1354, 1364 (Fed. Cir. 2008).

Plaintiff argues against Defendants' construction by pointing to differences between Claim One and Claim Ten. (Pl's Br., at 14; Pl's Resp., at 5-6.) Claim One refers only to preventing "user termination," while Claim Ten refers to taking away the user's ability to "move, resize, remove, or close" the keyboard. ('873 Patent, col. 20, ll. 62-63, col. 22, ll. 13-14.) Under the doctrine of claim differentiation, differences between claims can be a "useful guide in understanding the meaning of particular claim terms." Phillips, 415 F.3d at 1314. Thus, Claim Ten suggests that if the inventors had intended for Claim One to include more than just termination, they would have said so explicitly. Plaintiff's argument also finds support in the patentees' adoption of a definition for the word "immutable" that is identical to the meaning that Defendants want to attach to "terminated." (Pl's Resp., at 5-6.) As the specification explains, "The keyboard ... may not be minimized, maximized, deleted, closed or resized and is therefore immutable." ('873 Patent, col. 3:43-46.) In cases where a patentee defines a claim term, that definition governs. Honeywell Int'l, Inc. v. Universal Avionics Systems Corp., 493 F.3d 1358, 1361-62 (Fed. Cir. 2007). Thus, Plaintiff's construction finds further support in the presumption that different terms have different meanings. Innova/Pure Water, Inc. v. Safari Filtration Systems, Inc., 381 F.3d 1111, 1119-20 (Fed. Cir. 2004).

Defendants argue that the prosecution statement is actually supported by statements in the specification, but none of those statements give meaning to the word "termination." (Def's Br., at 26-27.) Each one merely suggests that an attribute of the invention was that it prevented more than just inadvertent closing of the keyboard; it also prevented minimizing, maximizing, and resizing. In other words, Defendants' references to the specification show only that Claims One and Ten, when read together, cover inadvertent closing of the keyboard as well as inadvertent moving, resizing, and removing.

For all these reasons, the court concludes that the patentees erred in making the statement during prosecution that equated "terminate" with "remove, minimize, maximize, delete, close or resize." Although the statement purportedly referred to Claim One, it actually referred to some functionality encompassed by Claim Ten. The patentees' error is not one that would mislead a person of ordinary intelligence because, as explained, it is contrary to the ordinary meaning of the word "terminate," it is contrary to a reading of the claims, and it is not required by a reading of the specification. Viskase Corp. v. American Nat'l Can Co., 261 F.3d 1316, 1322 (Fed. Cir. 2001); Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc., 249 F.3d 1341, 1348 (Fed. Cir. 2001).

The court thus moves to Plaintiff's proposed construction, which relies on the claim language itself, but rewrites it in a few very minor ways. Plaintiff provides no explanation for its proposed revision aside from saying that it is supported by the plain and ordinary meaning of the claim's language. (Pl's Br., at 12.) The court agrees that it is so supported, but does not see any advantage that the revision provides. The court is also puzzled by Plaintiff's unexplained proposal to read "graphical keyboard area incapable of user termination independent of termination of the input area" requires no further construction. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008).

A. Construction of "said one or more visual representations comprising graphical objects"

The intrinsic evidence shows that whatever "graphical objects" means within the '801 patent, it does not include "text" alone. Beyond that, the intrinsic evidence provides little guidance to show what "graphical object" means, and so to construe
that term, the special master properly looked to extrinsic evidence. However, the court finds that the final sentence of the special master's construction is circular and modifies it in accordance with this opinion to remedy the problem.

1. Claims and Specification

Stryker argues that the claims show that "text" alone is not a type of "graphical object" under the doctrine of claim differentiation. Under this doctrine, each claim in the patent is presumptively different in scope. Intermatic Inc. v. Lamson & Sessions Co., 273 F.3d 1355, 1364 (Fed. Cir. 2001), vacated and remanded on other grounds by, 537 U.S. 1016, 123 S. Ct. 549, 154 L. Ed. 2d 423 (2002). The presumption is especially strong where, as here, there is a dispute over whether a limitation found in a dependent claim n4 should be read into an independent claim and that limitation is the only meaningful difference between the two claims. Ecolab, Inc. v. Paraclipse, Inc., 285 F.3d 1362, 1375 (Fed. Cir. 2002); Phillips v. AWH Corp., 415 F.3d 1303, 1314-15 (Fed. Cir. 2005) ("The presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim").

n4 A dependent claim refers to a previous claim and adds further limitations to it. 37 C.F.R. § 1.75(c).

Under the doctrine of claim differentiation, Claims 14 and 15 show that a "graphical object" cannot be "text" alone within the context of the '801 patent. Claim 14 n5 is an independent claim. It lays out several essential elements of the patented system and does not incorporate another claim. Claim 15 n6 is a dependent claim because it incorporates Claim 14 by reference. Thus, under the principles discussed above, Claim 15 is presumed to provide something distinct to Claim 14. The only discernable difference between the two claims is that Claim 15 allows visual representations to comprise "text." Claim 14 describes visual representations comprising "graphical objects." As the special master found, this is powerful intrinsic evidence that a person of ordinary skill in the art at the time of the invention would understand "graphical object" not to include "text" alone.

n5 Claim 14 states:

A system for acquiring images during a medical procedure and using the acquired images, comprising

at least one input device for obtaining said images,

at least one output device for using the images obtained by said input device to enable image data to be communicated to a medical practitioner,

a preference database for pre-storing, for each one of a plurality of users of said system, respective preference information that indicates one or more visual representations that said one of said plurality of users of said system prefers to be applied to said at least one output device together with said images obtained by said input device, said one or more visual representations comprising graphical objects, and

a processor for receiving an indication of an identity of one of said users, who is currently using said system, and, responsive to said indication of said identity of said one of said users who is currently using said system, for retrieving said preference information for said one of said users pre-stored in said preference database, for combining said one or more visual representations with said images obtained by said input device based on the preference information in said preference database that corresponds to said one of said users, and for applying said images to said at least one output device together with said one or more visual representations.

(Doc. No. 1, Ex. A, Claims, Col. 48, Ln. 11-37.)

n6 Claim 15 states:

A system in accordance with claim 14 wherein said one or more visual representations comprise text.
Furthermore, as Stryker points out, the patent specification and claims refer to "text" and "graphical objects" in the alternative multiple times. Thus, the specification indicates that a person of ordinary skill in the art at the time of the invention would believe that "text" alone was not a "graphical object."

Luma argues that the patent refers to "text" and "graphical objects" in the alternative because it refers primarily to operating systems using text-based (e.g. Microsoft DOS) versus graphic-based (e.g. Microsoft Windows) user interfaces. This argument was presented to the special master after Luma reviewed the master's draft report, and the master revised his construction based on it. The construction in the draft report contained the statement "graphical objects are not text." (See Doc. No. 433, Tab 10 at 2.) The master amended the construction in the final report to make clear that "text" can be a part of a "graphical object," but that it is not a "graphical object" by itself. (See Doc. No. 433 at 74.)

The special master's amendments to the draft report extend Luma's arguments as far as the evidence supports. Luma's argument supports the conclusion that "text" can be used as part of a "graphical object" created by the patented system for the user interface (e.g. in a menu). But it goes no further. Luma discusses how a software engine described in the '801 patent pulls together shapes, text, lines, buttons, backgrounds, etc. to form menus. (Doc. No. 433, Tab 10 at 3.) These form part of the program's interface with the user. But the use of text as a part of the user interface simply does not support Luma's contention that "text" alone can be a "graphical object" within the meaning of the '801 patent.

Moreover, the court finds no merit in Luma's argument that the seemingly dichotomous references to "text" and "graphical objects" within the '801 patent reflects the drafter's attempt to cover operating systems using text- as well as graphic-based user interfaces because that argument is in conflict with the intrinsic evidence. As discussed above, the intrinsic evidence treats the two terms as distinct items, though it indicates that the system can use "text" and "graphical objects" together. Therefore, based on the specification and claims, the court finds that a person skilled in the art at the time of the invention would conclude that a "graphical object" could not be "text" alone.

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2. Patent Prosecution History

The '801 patent prosecution history shows that the patent examiner treated "graphical objects" and "text" differently. The examiner rejected Proposed Claim 22, which stated, "A system in accordance with Claim 21 [Patent Claim 14's predecessor n9], wherein said one or more visual representations comprise text." (Id.) At the same time, the examiner allowed Proposed Claim 24, which stated "A system in accordance with claim 21 wherein said one or more visual representations comprise graphical objects." (Id.) The language of Proposed Claim 24 was later incorporated into Patent Claim 14, but no longer appears as a separate dependent claim in the '801 patent. (See Doc. No. 437, Ex. 5, Response to PTO Office Action at 5-6.)
n9 Proposed Claim 21 became Patent Claim 14. (See Doc No. 437, Ex. 3, Patent Application, Ln. 8-10; Ex. 4, PTO Office Action Summary at 4; Ex. 5, Response to PTO Office Action at 5.) Proposed Claim 21 stated "respective preference information that indicates one or more visual representations. . . ." (Id.) The examiner rejected the claim as anticipated by a prior patent (Wilhelm '543). (Id., Ex. 4, Office Action Summary at 4.)

This history shows that the patent examiner saw a difference between a "graphical object" and "text." A claim including "visual representations comprising text" was rejected while a claim including "visual representations comprising graphical objects" was allowed. The prosecution history evidence is particularly persuasive because it is highly indicative of the understanding as it existed at the time of the invention, the legally determinative time frame. Thus, based on the prosecution history, the court finds that one skilled in the art at the time of the invention would conclude that "text" alone could not be a "graphical object."

3. Special Master's Use of Extrinsic Evidence

Luma objects to the special master's use of extrinsic evidence in construing the term "graphical object." In Phillips v. AWH Corporation, the Federal Circuit refined its guidance on the use of dictionaries in construing patent terms. See 415 F.3d 1303, 1320-24. The Federal Circuit made clear that judges may consult dictionaries and technical treatises for meaning as long as they do not contradict the patent documents, and that the court must focus on attaching the appropriate weight to the evidence. Id. at 1322-24. The underlying policy is to avoid reading limitations from the specification into the claims and to avoid systematic overbreadth in claims. Id. at 1322-23.

While the record amply shows that the term "graphical object" does not include "text" alone, it provides the court with little guidance on what the term does include. Because the meaning of "graphical object" is unclear from the intrinsic evidence, it is appropriate to consult extrinsic evidence, such as a dictionary, to aid the court's interpretation. See Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 955 (Fed. Cir. 2000). Accordingly, the special master relied on a definition of "graphical" found in the Authoritative Dictionary of IEEE n10 Standards Terms 7th ed. (Doc. No. 433 at 77.) That definition states, "Graphical - pertaining to the pictorial representation of data." (Doc. No. 377, Ex. F.)

n10 "IEEE" stands for "Institute of Electrical and Electronics Engineers, Inc." who publishes the IEEE dictionary.

None of the parties provides a different dictionary definition or argues that the IEEE dictionary itself is contrary to the intrinsic evidence or otherwise problematic. n11 Luma offers a portion of a software treatise, which explains that an operating system using a graphic user interface displays text as pictures of text. (Doc. No. 433, Tab 10, Luma's Objection, Ex. A.) The court considered both and found that the IEEE dictionary definition of "graphical" is evidence of the pictorial nature of "graphical objects." Further, the definition was consistent with the conclusion drawn from the intrinsic evidence that "text" alone is not a graphical object. Accordingly, the court agrees with the special master that a person skilled in the art at the time of the invention would conclude that a "graphical object" pertains to a "pictorial representation of data." (See Doc. No. 433 at 74.)

n11 Luma argues that the court should not consult any extrinsic evidence, the court does not understand Luma to object to this dictionary particularly.

4. Modification of Special Master's Construction

After its de novo review, the court believes the final sentence of the special master's construction in Section 15 of the report...
is circular. Currently, that sentence states, "Text without a graphical object is not a graphical object." (Doc. No. 433 at 74.)
As stated above, the court believes the evidence shows that one skilled in the art at the time of the invention would conclude that "text" alone is not a "graphical object." To remedy the circularity in the special master's construction, and in accordance with the reasoning stated above, the court modifies the special master's construction as follows:

"'Said one or more visual representations comprising graphical objects' means one or more visual representation comprising graphical objects. A graphical object is a symbol and pertains to pictorial representations of data. Graphical objects are not text. Text is not a graphical object. A graphical object may include text. Text alone is not a graphical object."

The term "visual representations" "(# 6)" has been previously construed by the Master. That construction is incorporated in the Master's Construction of phrase "(# 15)".

REASONS

The Master has previously construed "visual representations" "(# 6)".

Phrase # 15's construction by the Master was scrutinized very closely by Luma and Stryker. Luma filed an objection (Tab # 10) to the Master's Draft Construction of phrase # 15. Stryker filed a response (Tab # 11) to Luma's objection. Luma filed a surrebuttal to Stryker's response (Tab # 12).

Luma and Stryker argued whether or not "graphical objects" must exclude text. The Master's Construction in the Master's DRAFT Report of June 30, 2005, page 71 of 97 stated that "Graphical objects are not text".

This issue, regarding the terms "graphical objects" and "text" and the relationship between the two terms, has been difficult for the Master to resolve. In view of the arguments presented by Luma and Stryker, the Master has revised the Construction in the Master's Draft Report of June 30, 2005 by adding further clarification to the construction. The Master's "Reasons" have been revised to explain the revised construction.

INTRINSIC EVIDENCE

The Patent Specification description refers to graphical objects (Col. 2, Ls. 32-35). It states that prompting is performed by, "a graphical object or a text clue imposed on the displayed image", (Col. 17, Ls. 45-48). It refers to "selects the text or graphical objects"; (Col. 19, Ls. 55-58); "the input device is also used to locate the text or graphical object on the image" (Col. 19, Ls. 59-61).

The above tells the Master that the Specification is treating "text" and "graphical objects" as two different separate items. It tells the master that "graphical objects" are different than "text".

The Master reviewed the language in claims 14 and 15 of the Patent. Claim 14 is an independent claim. Claim 15 depends upon claim 14. The result of this is that claim 15 is read to have all the limitations of claim 14 plus the further limitations of
claim 15. Claim 15 cannot eliminate an element from claim 14.

Claim 14 states (Col. 48; Ls. 23-24) "visual representations comprising graphical objects".

Claim 15 (Col. 48; Ls. 38-39) states, "A system in accordance with claim 14 wherein said one or more visual representations comprise text". Claim 15 further limits the term "visual representations". It does not further limit "graphical objects". The way this is interpreted is as follows: Claim 14 says, "visual representations comprising graphical objects." Claim 15 then, in effect, is read as -- visual representations comprise graphical objects and text --.

In order for something to come within the scope of claim 14, it must have a graphical object. In order for something to come within the scope of claim 15, it must have a graphical object and text. This tells the Master that the Patent is telling one skilled in the art "graphical objects" and "text" as the patentee used the terms at the time the patent application was filed was treating "graphical objects" and "text" as two separate items.

This same argument is presented from another perspective in Stryker's Response to Luma's Objection (Tab # 11). Stryker argues the well established doctrine of claim differentiation.

The description in the Specification is otherwise not informative to the Master to construe "graphical objects" and "text" and the relationship between the two terms.

The Master has turned to extrinsic evidence for further help to determine the meaning of "graphical objects".

EXTRINSIC EVIDENCE

Page 487 of the IEEE 100 The Authoritative Dictionary of IEEE Standards Terms 7TH Edition was offered by Stryker in Stryker Supplemental Claim Construction Brief Exhibit "F". That dictionary defines graphical as a symbol. Graphical is defined as pertaining to the pictorial representation of data.

STRYKER AND KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's and KSEA's construction is set forth in (Stryker/KSEA May 4, 2005, p. 7). Stryker argues for a construction that a "graphical object is a character symbol, excluding text".

KSEA argues the phrase should be construed as "non-text visual objects".

The Master agrees that "graphical objects" are not text for the reasons given. The Master has explained that graphical objects may include text and that a graphical object docs not cease being a graphical object if text is included.

LUMA'S POSITION WITH RESPECT TO STRYKER AND MASTER'S COMMENTS ON THAT POSITION

Luma's position is set forth in (Luma re: Stryker May 23, 2005, p. 6).

Luma argues that "graphical objects" has a commonly understood meaning and that Stryker is attempting to read a limitation ("excluding text") contrary to the plain meaning and not supported by the Patent. The Patent supports a difference between text and graphical objects. The Master explained the reasons above. The Master has construed the terms that:

(i) graphical objects are not text;

(ii) likewise, text is not a graphical object;

(iii) a graphical object may include text; and

(iv) text without a graphical object is not a graphical object as explained above.

LUMA'S POSITION WITH RESPECT TO KSEA AND MASTER'S COMMENTS ON THAT POSITION

- 2258 -
Luma's position is set forth in (Luma re: KSEA May 23, 2005, p. 6).

Luma argues that KSEA's proposed construction of "non-text visual objects" should be rejected. The Master has construed that "visual representations" #16 may include (although not limited) text as stated above. The Master has construed the term "graphical objects" that "text" is not a graphical object and that a "graphical object" may include "text" and still be considered a graphical object. This is explained above.

D. "graphical user interface"

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>graphical user interface</td>
<td>presentation of graphical representations of data on a computer display screen which enables a user to make selections of the graphically represented data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>graphical user interface</td>
<td>Defendants do not believe that a construction is required for this term.</td>
</tr>
</tbody>
</table>

If the Court concludes that a construction is required, the term should be construed as: "a type of environment that represents programs, files, and options by means of icons, menus, and dialog boxes on the screen"

The disputed term is located in each of the asserted independent claims: "an operating system including a graphical user interface." The term "graphical user interface" (or GUI), as used in the claims, is consistent with its meaning as understood by one of ordinary skill in the art. The parties' proposed definitions are different in two important respects. First, the plaintiff characterizes a GUI as a "presentation" whereas the defendant calls it an "environment." A GUI is interactive, as it is an "interface," and "presentation" only addresses one side of what a GUI is. On the other hand, "environment" does not connote the graphical nature of a GUI.

The specification explains a GUI by the manner in which it is used:

Generally, a particular application program presents information to a user through a window of a GUI by drawing images, graphics or text within the window region. The user, in turn communicates with the application by "pointing" at graphical objects in the window with a pointer that is controlled by a hand-operated pointing device, such as a mouse, or by pressing keys on a keyboard.

('850 patent, 5:10-16).

The Court adopts a hybrid of the parties' constructions. The Court construes "graphical user interface" to mean "computer environment wherein an application program presents graphical representations of data on a computer display screen and enables a user to make selections of the graphically represented data."
3. "Graphically displaying" is construed to mean "information shown by written text or pictures."

C. "graphics"

Touchtunes proposes that "graphics" be construed as "images on a computer screen." Arachnid seeks to define the term as "pictorial images created from image files."

The patents disclose both "graphics" and "pictorial graphics." As a matter of plain language, the term "pictorial graphics" describes a subset of the broader term "graphics," and therefore has a narrower meaning. Without any basis in the intrinsic record, Arachnid seeks to eliminate the distinction between these two terms, effectively proposing that the term "pictorial" be considered superfluous and that the narrower meaning of "pictorial graphics" be applied to the more general term "graphics" throughout the patents. The use of the term "pictorial graphics" means that "graphics" are not necessarily pictorial. See Phillips, 415 F.3d at 1314 (use of the term "steel baffles" "strongly implies that the term 'baffles' does not inherently mean objects made of steel"). Similarly, Arachnid's proposed restriction of graphics to "images created from image files" finds no support in any of the patents.

Consistent with the ordinary meaning of the claim term and the intrinsic evidence, "graphics" are therefore construed as "images on a computer screen."

Ground lines

The Court agrees with Samsung and construes "ground lines" in claims 1 and 3 of the '490 patent as "conducting paths that provide a connection to the ground." The parties agree that both ground lines are conducting paths. See Claim Const. Hr'g Tr. at 62. As discussed above for "power lines," MEI's construction of "ground lines"--"conducting paths, each independently providing a connection to ground"--improperly imports limitations from the preferred embodiment.

Universal next contends that the trial court erred in construing the term "ground proximity warning system" to be broader than the specific alerting systems approved by the Federal Aviation Administration at the time of the patent application, i.e., the prior art systems that were mandated for use at that time. Because the prior art systems did not use distance from an airport to trigger alerts, Universal contends that the district court's construction should have excluded any monitoring system (such as the accused system) that uses distance from an airport as a parameter to trigger a ground proximity alert.

Contrary to Universal's contention, the patent does not limit the phrase "ground proximity warning system" to the particular system or systems approved at the time of the application. The context makes it clear that the term is used generically, to describe any system that warns of ground proximity, regardless of whether the system is approved, manufactured, proposed, or otherwise. The specification refers generically to systems "that provide warning or advisory indications in the event of hazardous flight conditions," including "systems generally known as ground proximity warning systems for aircraft that serve to monitor the flight conditions of an aircraft and provide a warning if flight conditions are such that an inadvertent contact with the ground is imminent." '436 patent, col. 1, ll. 15--22. The specification further provides that the invention
"may be used to enable other warning modes and even used in control systems," id., col. 3, ll. 45--46, and "can be used in virtually any warning or control system where [a signal indicating when an aircraft is on final or missed approach] is required," id., col. 5, ll. 43--45. The claims use similarly generic language to describe ground proximity warning systems, such as "[a] warning system for use in an aircraft comprising: warning means for providing a ground proximity warning according to predetermined criteria," id., col. 7, ll. 64--66, and "warning means for providing a ground proximity warning when an aircraft encounters a hazardous flight condition," id., col. 8, ll. 19--21. In light of the language used in the specification and the absence of any contrary indication in the patent or the prosecution history, the district court properly declined to limit the term "ground proximity warning system" to any particular system, whether approved or designed to use particular factors in warning of ground proximity.

1. "Grounded" (Claim 6)

The parties agree that this term should be construed according to its plain and ordinary meaning: "Connected to ground." (See Broadcom Resp. at 12; Agere Reply at 3.)

2 Although the parties' original briefs indicated an agreement on this construction, Broadcom submitted supplemental briefing after the Markman hearing in order to "crystalize[the] dispute" regarding the term "grounded." (Broadcom's Submission of Information Requested by the Court at 3 [hereinafter Broadcom's Submission of Requested Information].) To the extent that Broadcom's post-Markman submission suggests a new proposed construction of "connected to a ground plane" that is different from plain and ordinary meaning of "connected to ground," Broadcom has failed to offer any support from the intrinsic record for such a limitation.

7. "[G]roup:" 9 "Two or more." This construction is consistent with the specification. (col. 2:12-14, 24-27) The specification refers to a "group" of conductor pairs as a plurality of conductor pairs, to wit, two or more conductor pairs. 10 (col. 2:60-66 ("The conductors of the second plurality of conductor pairs each has substantially the same conductor thickness which is different from that of the first plurality of pairs to provide a nominal characteristic impedance for each conductor pair of the second plurality which is within the desirable limits and also an acceptable signal attenuation.").

9 Id.

10 The Federal Circuit has interpreted "plurality" to mean "more than one." See, e.g., Bilstad v. Wakalopulos, 386 F.3d 1116, 1122-23 (Fed. Cir. 2004).

Consistent with the term's usage in the specification, the district court construed "group key" in claims 1 and 4 to mean a key associated with a subset of the total subscriber base. Irdeto challenges this construction on appeal, arguing that the district court departed from the ordinary meaning of the term "group." Relying on this court's pronouncements regarding the
"'heavy presumption' that [the claims] mean what they say," Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004), Irdeto proffers definitions from a general-usage dictionary to show that nothing in the "ordinary meaning" of the claim terms requires limiting "group" to fewer than all subscribers. Absent "clear disclaimer" or words of "manifest exclusion," Irdeto argues, the heavy presumption of ordinary meaning must apply. Here, Irdeto claims, the intrinsic record lacks such clear disavowal.

Echostar, on the other hand, contends that there can be no such "heavy presumption" where a disputed term lacks an accepted meaning in the art. We agree. As we held in J.T. Eaton, absent such an accepted meaning, we construe a claim term only as broadly as provided for by the patent itself. 106 F.3d at 1570. The duty thus falls on the patent applicant to provide a precise definition for the disputed term. Id. Moreover, where evidence such as expert testimony or technical dictionaries demonstrates that artisans would attach a special meaning to a claim term or would attach no meaning at all to the claim term independent of the specification "general-usage dictionaries are rendered irrelevant with respect to that term . . ." Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n, 366 F.3d 1311, 1321 (Fed. Cir. 2004). "[A] general-usage dictionary cannot overcome credible art-specific evidence of the meaning or lack of meaning of a claim term." Id. (citation omitted).

Here, applicant informed the examiner and all competitors that the "key" modifiers -- "service," "group," and "box" -- have no accepted meaning in the art and "are very adequately described in the specification." The applicant's use of those terms in the specification thus controls their scope.

Irdeto faults the district court for reading the preferred embodiment into the claims. Just because the applicant told the examiner that the terms "service," "group," and "box" modifying "key" are "very adequately described in the specification," Irdeto maintains, does not transform every aspect of the preferred embodiment into a claim limitation. Irdeto points to language such as "for example," "may," and "normally" in the following specification passage as evidence of the district court's error:

For example, there may be a group composed of those interested in adult movies, those interested in opera, those interested in specific types of sports programs. The group may be formed of those in a geographical area. The number and types of groups are almost infinite and normally each subscriber will be able to belong to a plurality of groups and will have a group key and group ID associated with each such group.

'020 patent at col. 5, ll. 28-36. All examples in the specification, Irdeto argues, are permissive rather than mandatory, illustrative rather than exhaustive, and do not necessarily or explicitly exclude a group made up of all subscribers. Echostar responds that the specification describes every group as a subscriber subset and lacks any disclosure of a group that includes all subscribers.

Indeed, the specification consistently uses the term "group" to refer to a subset of all subscribers. The specification teaches that service key change messages take place in the "group key which is common to a group of subscribers, all of whom are to receive a specific type of broadcast." 020 patent at col. 2, ll. 22-24. "There may be a substantial number of groups associated with a specific communication system and an individual subscriber may itself belong to more than one of a plurality of groups." Id. at col. 2, ll. 24-28. As subscribers' "tastes and desires in programming change," it is "necessary to change groups, to reform groups and to add or delete subscribers from a particular group." Id. at col. 2, ll. 36-39. And,

if a substantial portion of a current group is to be involved in a new group, the broadcaster may address those subscribers to form the new group in the group key but with the message being preceded by the individual IDS of those particular subscribers. Thus the broadcaster may form new groups, delete subscribers from a particular group, etc., all by communicating to the subscribers within the concept of the group identification and the group key.

Id. at col. 5, ll. 42-51. Nowhere does the specification contemplate a single group made up of the entire subscriber base.

Instead, the specification consistently equates group with a subset of all subscribers. The passage characterizing the box address/box key pair as "simply . . . another subscriber subset (group)," 020 patent at col. 3, ll. 9-11 (emphasis added), is most telling. Irdeto attempts to explain away this passage by arguing that because a group may be a subset as small as one subscriber, in that particular instance, the group key/group address and box key/box address pairs overlap. Yet Irdeto cannot explain every example in the specification, all of which consistently point to an implicit definition of group as a subset of all subscribers.
subscribers in the system. See Bell Atl., 262 F.3d at 1271 ("Thus, when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term 'by implication'."); see also Vitronics, 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.").

Irdeto argues that only statements of "clear disclaimer" in language expressly indicating "manifest exclusion or restriction" can overcome the "heavy presumption" in favor of ordinary meaning, citing our recent cases such as Liebel-Flarsheim, 358 F.3d at 913; Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1301 (Fed. Cir. 2003); Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). Relying on these cases -- with little or no analysis of their holdings -- does not help Irdeto.

The cited cases are not in conflict with Bell Atlantic, which held that terms may be redefined away from their ordinary meaning by their consistent use in the specification. In fact, Teleflex discusses Bell Atlantic without any disapproval of its methodology or result, stating that "although [in Bell Atlantic] the term's ordinary meaning may have supported a broader reading, we found that 'the patentees defined the term "mode" by implication, through the term's consistent use throughout the '786 patent specification.'" Teleflex, 299 F.3d at 1327 (citations omitted).

In Liebel-Flarsheim, the district court interpreted a claim that recited a "syringe receiving opening" to require that the claimed syringe loading system use pressure jackets, because all of the embodiments described in the specification featured such pressure jackets. 358 F.3d at 901. In reversing, this court noted that the specification did not define the term "opening" to require that the term, as used in each of the claims, be limited to an opening at the front end of a pressure jacket, nor did the court find anything in the specification that supported the district court's conclusion that the term "opening" was ambiguous as used in the patent. Moreover, the court concluded that the written description "does not contain a clear disavowal of embodiments lacking a pressure jacket" and does not "expressly or by clear implication restrict the scope of the invention to injectors using a pressure jacket." Id. at 908 (emphasis added). Once again, redefinition by implication was not criticized as a methodology.

In Liebel-Flarsheim, our construction found further support in the prosecution history, "squarely contrary" to limiting the claims to require pressure jackets. Id. at 909. Because patent applicants replaced claims referring to a pressure jacket with new claims removing all such references, we held that applicants clearly intended the asserted claims to cover injectors without pressure jackets. Id. The prosecution history thus affirmatively precluded a narrow reading of the claim language.

Similarly, in Brookhill, we declined to limit the term "remote location" to "a location outside the operating room" based on the single embodiment described in the specification, especially where amendments in the prosecution history specifically supported the broader construction. 334 F.3d at 1302. While the preferred embodiment contemplated a surgeon located outside of the operating room, the written description as a whole contained no specific parameters as to the distance between the surgeon and patient and generally taught that "a surgeon using the disclosed assembly may operate without directly touching the patient, the surgical instruments, or the endoscope -- regardless of the extent of the physical separation between the surgeon and the patient." Id. at 1300 (emphasis added). During prosecution, patentee overcame an indefiniteness rejection for the phrase "remote location beyond a range of direct visual contact," by replacing the word "visual" with "manual," clarifying that the amended text "means that the remote location is beyond the arm's reach of the patient." Id. at 1302. Accordingly, we construed "remote location beyond a range of direct manual contact" to encompass all locations where the surgeon is beyond direct physical contact with the patient, including inside the operating room, as in the accused system, and outside the operating room. As in Liebel-Flarsheim, the prosecution history specifically endorsed the broader construction.

Most importantly, neither Liebel-Flarsheim nor Brookhill nor Teleflex involved a situation where the applicant admitted that certain claim terms lacked any agreed upon meaning in the art -- i.e., ordinary meaning -- and unequivocally directed the patent examiner, as well as the public, to the specification as the complete source of meaning for the disputed terms by stating that those terms "are very adequately described in the specification and therefore there is a complete foundation for the use of those terms in the claims." Patentee's clear intent to rely on the four corners of his patent to define fully the terms at issue thus takes this case out of the "heavy presumption" regime of our cases.

In short, the district court correctly construed the term "group" in claims 1 and 4 to pertain only to a subset of all subscribers to the claimed broadcast system. A contrary result, moreover, would undermine the notice function of the patent itself. What
Irdeto, in effect, argues is that even after telling the PTO and the public that given the absence of ordinary meaning in the art for the term "group," the specification sets forth the full intended scope of that term, a patentee can nonetheless later lay claim to a broader, general-usage dictionary meaning of "group" absent explicit narrowing statements in the specification. This cannot be. Having conceded that the "key" modifiers have no accepted meaning in the art, the applicant expressly directed the public to the specification to discern that meaning and thus measure the scope of the claimed invention. And while the specification does not contain any statements of explicit disavowal or words of manifest exclusion, it repeatedly, consistently, and exclusively uses "group" to denote fewer than all subscribers, manifesting the patentee's clear intent to so limit the term. The specification also contains no affirmative indication that group can consist of all subscribers within the system. A reasonable competitor reading the patent could only understand "group" to refer to a subset of all subscribers. The claims must be limited accordingly.

Skill Group

The parties propose the following construction of "skill group:"

IEX: "Skill group" means "one or more agents, each agent having a particular sub-combination of skills."

Blue Pumpkin: "Skill Group" means a group consisting of "the set of all scheduled agents having a particular combination of skills."

The Court cannot find sufficient support in the intrinsic evidence for Blue Pumpkin's proposed construction, but can for IEX's.

The Court recommends that "skill group" be construed as "one or more agents, each agent having a particular sub-combination of skills."

Skill Group

Despite a rather clear statement in the patent's written description that "one or more agents are …organized into 'skill groups, '', the district court declined to accept the Magistrate Judge's "one or more" construction and instead determined that "skill group" referred to "a group of agents." 2003 U.S. Dist. LEXIS 26251 at *3. An interpretation that excludes a preferred embodiment is rarely, if ever, correct. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). But while IEX asserts in briefing to this court that the patent does not rule out the possibility that a particular skill group might contain only one member depending on the circumstances, it represented to the district court that "at no time …has IEX ever accused the Blue Pumpkin products of infringing based on such a theory." (J. A. at 1645.) Rather, IEX now contends that its theory of infringement has always been that Blue Pumpkin organizes agents into skill groups typically containing many members. It comes as no surprise, then, that IEX does not expressly challenge the district court's "group of agents" construction on appeal. 2 Nonetheless, "skill group" correctly interpreted includes a group of one or more agents, and the district court erred when it construed "skill group" to require more than one agent.

Footnotes

2 Counsel for IEX went so far as to assert at oral argument that "within the scope of this appeal, the consequences of that single versus multiple agent really aren't relevant because we've produced infringement proof showing that the skill groups in Blue Pumpkin's product are comprised of multiple agents. So it doesn't matter, we're not relying on saying that a group is a single agent."

End Footnotes
Next, IEX disputes two additional limitations that it alleges were read into the phrase "skill group" by the Magistrate Judge upon recommending summary judgment. First, the Magistrate Judge stated that "each agent within the skill group [must] possess the same skills." 2003 U.S. Dist. LEXIS 26252 at *16. In reviewing this construction, we note at the outset that both parties at various times throughout the litigation have framed the question as whether skill groups can overlap, but this perspective is unhelpful. There is no doubt that skill groups can overlap insomuch as group A can include, for hypothetical purposes, agents with skills 1, 2 and 3, and group B can include agents with skills 2, 3 and 5. The patent expressly says as much. See '355 patent, col. 5, II. 9-12. The question instead is whether the patent requires that each skill group include only agents having identical skills, e.g., whether the patent precludes the inclusion of an agent with skills 1, 2, 3 and 4 within our hypothetical group A. We think that it does not.

Claims 1 and 19 both specify that each skill group includes "all scheduled agents having a particular combination of skills." Id. col. 11, II. 20-21; col. 13, II. 5-6. The written description explains that a skill group includes all agents with a particular combination, or a particular subcombination, of skills. See id. col. 2, II. 43-44 ("All agents having a particular combination of skills may be deemed a 'skill group'."); col. 3, II. 32-35 ("The plurality of scheduled agents are organized into 'skill groups' with each group including all scheduled agents having a particular combination of skills."); col. 5, II. 7-9 ("One or more agents are then organized into 'skill groups', each including all scheduled agents having a particular sub-combination of skills."). If accorded their plain meaning, these statements require only that all agents within a skill group have a particular combination of skills in common, not that they each have identical skills. 3 In other words, an agent with skills 1, 2, 3 and 4 has the same combination of skills as those within our hypothetical group A, that combination being skills 1, 2 and 3.

To be sure, the patent's written description specifies that "in the preferred embodiment, skill priorities are included when organizing agents into skill groups; in a particular skill group, all agents have the same skills at the same priority levels." Id. col. 5, II. 15-18 (emphasis added). But patent scope is not confined to preferred embodiments disclosed in the patent's written description, Cordis Corp. v. Medtronic AVE, Inc., 339 F.3d 1352, 1365 (Fed. Cir. 2003), and in any event, the patent makes clear that the claimed method "requires only that the skill group divisions in the agent population be understood and available to the method." '355 patent, col. 9, II. 8-10. A call center using the claimed method thus has some flexibility in defining a "skill group" to include all agents having a particular combination of skills or all agents having identical skills, so long as that definition is made known to the claimed method.

Second, the Magistrate Judge stated in his summary judgment recommendation that the "key to the success of the program is that there be some identification of agents with skills before the process can work. In another [sic] words, the process does not identify skill groups after application, but only before application." 2003 U.S. Dist. LEXIS 26252 at *12. Though this statement is somewhat ambiguous, IEX suggests that it was made in response to Blue Pumpkin's summary judgment argument that the '355 patent claims require that "the skill group availability data for each skill group must be calculated before agents are placed into the schedule." (J.A. at 1383.) We cannot be certain from the Magistrate Judge's statement that he intended to imply that the '355 patent precluded the input of an initial schedule into the method prior to the creation of skills group availability data. We nonetheless address the issue to clarify the district court's task upon remand.

It is true that the method claimed in the patent generates net staffing data and skills group availability data, which it ultimately uses as inputs into the generation of a work schedule. It is also true that skills group availability data is an estimate of a percentage of scheduled agents from each skill group that are available to handle a call. It therefore seems logical to assume that in order for the claimed invention to compile skills group availability data, skill groups must exist in some form. This assumption, however, begs a rather large question reminiscent of the famed chicken and egg controversy. How can the invention of the '355 patent generate net staffing data based in part on the given staffing level for a particular time period, and skills group availability data that define a skill group's availability for that time period, without first having agents actually scheduled during the relevant time period? In other words, which comes first, the skill groups used to
generate skills group availability data and thus a schedule, or some form of the schedule itself, which implicitly defines certain parameters needed to develop net staffing data and skills group availability data?

The patent solves this problem in the preferred embodiment by allowing rough estimates for the net staffing data and skills group availability data. '355 patent, col. 5, ll. 51-53 ("The initial estimates for net staff values need not be extremely accurate, as they are refined in later iterations of the method as will be described."); col. 6, ll. 8-12 ("The initial estimates for values in this array need not be extremely accurate, as they are refined in later iterations of the method as will be described. Thus, for example, the initial estimate may be '0' for any skill group that is not eligible at all for a call type, and '1/2' otherwise."). But nothing in the claims themselves or in the written description precludes the use of an initial schedule as an input into the iteration. In fact, by referencing "scheduled agents" in the preamble, claims 1 and 19 seem to contemplate this very thing. See id. col. 11, ll. 15-21; col. 12, l. 66-col. 13, l. 6. We thus hold that the '355 patent does not preclude the method's use of an initial schedule prior to the creation of skills group availability data.

1905
16. Group data handling operations

The court construes "group data handling operations" to mean "data handling operations applied to a group of partitioned fields."

1906
31. Group floating point operations

The court construes "group floating point operations" to mean "floating point operations applied to a group of partitioned operands."

1907
5. Group identifier.

Intergraph contends this term too is defined in the claims as an identifier indicative of a group of individual instructions to which the individual instruction is assigned for execution in parallel. Though again employing its moving target tactic described earlier, Intel's ultimate definition of the term is a tag assigned by the compiler to each instruction that identifies instructions that will execute in parallel (i.e., issued to different and separate processing pipelines on the same clock cycle and processed simultaneously by the pipelines). Intel claims this definition is made clear in the '028 patent's specifications and prosecution history. However, as discussed with respect to pipeline identifiers, these references provide little support for Intel's proposed construction in general. The Court construes "group identifier" as a designation indicative of a group of individual instructions, as that term has been previously defined. '028 patent 3:24; 5:10-14.

1908
IV. "group of collaboration types"

The phrase "group of collaboration types" appears in two dependent claims of the '547 patent. Claim 19 is representative:

19. The system of claim 11, wherein the system is configured:

(a) to allow a first user
(i) to use a first graphical user interface
(ii) to select a user
(iii) from a plurality of users; and

(b) to allow the first user
   (i) to use a second graphical user interface
   (ii) to select a collaboration type
   (iii) from a group of collaboration types; and

(c) to respond
   (i) by establishing communication
   (ii) of the selected collaboration type
   (iii) from the first user
   (iv) to the selected user.

'547 patent at 43:44-59.

CPI argues that the phrase "group of collaboration types" should be construed to mean "types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax." Tandberg argues that the phrase should be construed to mean "a group of methods by which information is synchronously and asynchronously shared between workstations." The parties' constructions differ in one respect: Tandberg's construction requires that the group contain both synchronous and asynchronous methods of sharing information. Synchronous methods, such as videoconferencing and data conferencing, involve the sharing of information in real time. Asynchronous methods, such as multimedia mail, involve the sharing of information that can be stored locally and retrieved at some later time.

In support of its contention that the group must include both synchronous and asynchronous collaboration types, Tandberg relies on the lists of possible collaboration types in the specification. According to Tandberg, the fact that the lists always include both synchronous and asynchronous collaboration types means that a CMW must be capable of both. Although the specification consistently uses the same list of possible collaboration types, and describes embodiments in which the CMW supports both synchronous and asynchronous collaboration types, nowhere does the specification support Tandberg's position that each CMW must support each collaboration type.

Other portions of the specification weigh against such a narrow reading. Before a CMW is permitted to place calls to other CMWs on the network, it must "register the collaborative services [it] provide[s] with the Service Server." Spec. at 20:66-21:1. "Examples of these services indicate [sic: include] 'video call', 'snapshot sharing', 'conference' and 'video file sharing.'" Id. at 21:1-3. A CMW need not include every possible collaborative service in its group of registered services. For instance, the specification provides an example of a "portable laptop implementation" of the CMW which is capable of participating in "voice and data communications," as well as "remote control of mail or presentation playback," but not the videoconferencing features provided through add-on videoconferencing hardware. Id. at 18:16-31. The specification expressly provides for the flexibility to register a limited number of collaboration types, and includes at least one example of a CMW that has less than the full complement of synchronous and asynchronous collaboration capabilities.
The court therefore adopts CPI's construction. The phrase "group of collaboration types" means "a group of types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax."

1. Groups/sets of individual instructions.

Relying on plain and ordinary meaning, Intergraph contends "group of individual instructions" simply means that individual instructions are organized into groups. Intel contends the phrase imports much more than this. However, Intel seems perplexed with determining just how much more the phrase imports, as it has tendered a different definition for "group of individual instructions" in the Joint Claim Construction Statement, in its claim construction brief, and in its presentation at the Markman hearing. Putting this moving target tactic aside, Intel's latest claim interpretation argues the phrase should mean a set of instructions that the compiler has determined will be executed in parallel. Intel further delineates its position with the following restrictions: 1) groups of instructions must be within a VLIW and 2) all instructions in each set must be executed in parallel and groups cannot be split across instruction frames.

Based on a review of the claim language and the intrinsic evidence, the Court cannot embrace either of these positions in whole. The Court construes "groups/sets of individual instructions" as a collection of one or more individual instructions that can be executed simultaneously (i.e. can be dispatched to parallel pipelines simultaneously). ’028 patent at 5:10-20.

"Group Virtual Address"

Cisco's proposed construction for "group virtual address" is "an address shared by a group of real network entities and corresponding to a virtual entity." Alcatel's proposed construction is "the MAC address and network layer address of the virtual router."

Both parties essentially rely on the same arguments put forth for the construction of "virtual router." In particular, Cisco's proposed construction is identical to the definition of "virtual address" provided in the patent. See id. at 4:33-34. However, following that definition, the patent states that "one router from among a group of routers emulates a virtual router by adopting one or more virtual addresses." Id. at 4:35-37. Therefore, in light of the Court's construction of "virtual router," which defines the requirement of the "virtual address", the term "group virtual address" is more accurately defined as "the address of the virtual router."

Thus, the Court construes "group virtual address" as "the address of the virtual router."

(iii) Guarantee of lifetime payments.

The Plaintiff is correct that "a guarantee of lifetime payments" by its definition contains the annuitization concept, and adding "in the post-annuitization phase" would be redundant. The word "payments" necessarily refers to distribution, payout, or post-annuitization phase. Therefore, although the Defendant insists that the phrase be qualified by inserting "in the post-annuitization phase," the addition is unnecessary as that meaning is already apparent. The Defendant otherwise agrees with the Plaintiff that "guarantee of lifetime payments" means a guaranteed distribution of money for the lifetime of a designated individual or individuals, and that is also the definition the Court finds to be appropriate.
"guaranteeing predetermined individual minimum bandwidths" is construed to mean "guaranteeing individual minimum amounts of data that can be sent per unit of time, determined beforehand."

Lucent contends that this phrase should be given its ordinary meaning. (D.I. 396 at 27-29.) Extreme contends that this phrase means "reserving predetermined, separate portions of the overall transmission capacity of the link at the output of the multiplexer to each of voice packet traffic and data packet traffic." (D.I. 395 at 23.) In support of its contention, Extreme cites statements in the Summary of the Invention section of the specification ('650 patent at 3:25-31, 3:2-6, 3:35-28.) Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "guaranteeing predetermined individual bandwidths," representing a clear disavowal of claim scope. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

"Guard" appears in independent claim 1 of the '910 patent. As with the "gatherer" element as used in the '910 patent, the term "guard" is a "coined term" that was not known in the art. The Court therefore finds that it is subject to 35 U.S.C. § 112 P 6. Accordingly, the Court finds that the above element is restricted to the disclosures in the specification of the '910 patent. See '910 patent, col. 14, lines 18-64, col. 16, lines 38-47.

C. Construction of "Outer Electrostatic Discharge Guard Ring"

LPL's proposed construction of the phrase "outer electrostatic discharge guard ring" is "a closed or open ring, or open L or C-shaped line, outside the active matrix display to provide protection from electrostatic discharges." (D.I. 158 at 2.) CPT's proposed construction is "a ring of conductor, located external to the inner electrostatic discharge guard ring if the two rings are used together, for draining off electrostatic buildup to prevent electrostatic discharge." CPT does not dispute that the outer guard ring is "a closed or open ring, or open L or C-shaped line." (D.I. 144 at 6.) The parties do dispute whether the guard ring functions to prevent electrostatic discharge ("ESD") or only to protect against damage caused by ESD. n2 The parties also dispute the meaning of "outer."
The central dispute over the phrase "outer electrostatic discharge guard ring" is whether "outer" is used in reference to an inner ESD ring or to the entire display panel. CPT contends that "outer" must refer to the outer guard ring's position relative to the inner guard ring. (D.I. 137 at 8.) This contention is untenable. Independent claims 1 and 19 include an outer ESD guard ring, but no inner ESD guard ring. In the context of those claims, CPT's proposed construction would render the adjective "outer" meaningless.

On the other hand, LPL contends that "outer" refers to the outer guard ring's position relative to the active matrix display. CPT concedes that "active matrix display" as used in the '002 patent and in LPL's proposed construction means the entire finished display panel. (D.I. 164 at 3.) CPT argues that the Court should reject LPL's proposed construction because it is based on "the erroneous notion that the outer ring must be physically removed at the end of the manufacture." (Id.) As the Court concluded in section II.B. above, however, the intrinsic evidence indicates that physical removal of the outer guard ring is precisely what the patent teaches. Therefore, the Court will construe "outer electrostatic discharge guard ring" as "a closed or open ring, or open L or C-shaped line, outside the active matrix display to provide protection from electrostatic discharges.

6. Element [C] -- "Guest"

The parties dispute the meaning of the term "guest" in element [C] of claim 35. According to the WeddingChannel, a guest is a person seeking to purchase a gift for a registrant. According to the Knot, a guest is a purchaser of registry items.

WeddingChannel argues that the language of claim 35 includes no requirement that the guest actually purchase a gift. WeddingChannel argues that element [F] of claim 35 merely states that the shopping module comprises instructions for "identifying" an item in response to a guest's instructions; it does not say that a guest is required to purchase anything. Furthermore, WeddingChannel observes that when the inventors intended to signify that a purchase was required --e.g., in dependent claims 24 and 46 -- they stated as much explicitly. See '753 Pat. at col. 13, ll. 65-67 (stating in claim 24 that "[the method of claim 23, the method further comprising purchasing said first registry item using credit card information stored in said guest profile. . . ."] (emphasis added); id. at col 15, ll. 44-48 (stating in claim 46 that "the computer system of claim 45 wherein said resolving comprises deducting . . . those items that were purchased by said guest . . . .") (emphasis added). On this basis, WeddingChannel concludes that pursuant to claim 35, one can be a guest without purchasing a registry item.

WeddingChannel also argues that the patent specification confirms that the term "guest" does not necessarily entail a purchase of registry items or otherwise. According to WeddingChannel, the specification teaches that the term "guest" encompasses: (1) those seeking to "purchase registry items," id. at col. 5, ll. 10-11; (2) those "attempting to buy gifts for registrants," id. at col. 2, ll. 4-8; and (3) those purchasing gifts "directly from retailers without selecting a registry or accessing a registry database." Id. at col. 9, ll. 55-57.

WeddingChannel further argues that Figure 8 of the specification illustrates that the term "guest" can include one who views but does not purchase a registry item. The Knot argues that the term "guest" is expressly defined in the specification as "the purchasers of registration items from a registry," '753 Pat. at col 1, l. 45, and that this explicit definition should govern. See, e.g., Guttman, Inc. v. Kopykake Enters., 302 F.3d 1352, 1360 (Fed. Cir. 2002) (stating that ""the specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication") (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Furthermore, the Knot argues that the preamble of claim 35 -- "[a] computer system for purchasing a gift for a registrant of an event . . . " -- provides further supports its position that a "guest" is defined as one who purchases items from a registry.

The Knot argues that WeddingChannel's reliance on dependent claims 46 and 24 is misplaced. According to the Knot, these dependent claims actually support its construction: Dependent claim 24 describes how payment is affected pursuant to method claim 20, and claim 46 describes how the claim 35 computer system periodically updates the master registries maintained by registry database providers.

Finally, the Knot argues that the various excerpts from the specification quoted by the WeddingChannel, see '753 Pat. at col. - 2270 -
The specification also does not suggest any reason to deviate from the ordinary and customary meaning by imparting claim language does not imply a departure from that meaning.

As used in the specification, the term "guest" encompasses those seeking to purchase gifts for a registrant as well as those who actually purchase registry items. See 753 Pat. at col. 9, ll. 55-57; col. 5, ll. 10-11; col. 9, ll. 55-57. For example, the specification states that "when a registry is selected, it is opened, thus allowing the guest to review the registry over the Internet." Id. at col. 9, ll. 17-19. This passage, and others like it, make clear that the specification regards users of the system as guests even before they have purchased registry items. Moreover, the Knot is incorrect in its assertion that lines 44-45 of column 1 of the specification provide an explicit definition of the term "guest." These lines merely indicate that the term "guest" necessarily includes purchasers of registry items. These lines do not, however, exclude those seeking to purchase gifts from the definition of what constitutes a "guest."

On this basis, WeddingChannel's construction of the term "guest" is adopted.

Kapusta asserts that the district court erred in construing the claim term "hand-grip size case" to require the limitations that the case be "no smaller than the width of an adult palm, so that it can be grasped firmly in one's hand, no smaller than 1 inch in width, and of a rectangular shape." Kapusta contends that the court should have given the term its ordinary and customary meaning of "a case that is suited to a grip by the hand," and the court should not have added limitations for which there is no support in the intrinsic record. With respect to the "of a rectangular shape" limitation, Kapusta argues that the district court imported a limitation from the preferred embodiment of the specification into the claims. Furthermore, Kapusta argues that the district court erred by finding the term at issue to be ambiguous and then importing unnecessary limitations in order to preserve the patent's validity.

Gale counters that the added definitions of the term "hand-grip size case" are in the specification. Specifically, the figures portray the case to be of hand-grip size and of a rectangular shape. Furthermore, the specification notes that the case has a "top wall," which suggests a rectangular-shaped case. Gale also argues that the extrinsic evidence, including two prior art references introduced during litigation and expert testimony, disclose that a hand-grip size case does not encompass all portable devices smaller than Kapusta's device. According to Gale, the term at issue is ambiguous because it has an expansive meaning subject to different interpretations and thus, in light of the prior art introduced during litigation, it must be construed narrowly to preserve its validity.

We agree with Kapusta that the district court erred in its claim construction by including extraneous limitations. The court should have given the term "hand-grip size case" its ordinary and customary meaning. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (explaining that unless the intrinsic evidence compels a contrary result, a claim term should be given its ordinary and customary meaning). The ordinary and customary meaning of "hand-grip size case" is a case of a size that can be gripped in a normal hand. We see no reason to depart from that ordinary and customary meaning or to add dimensions to the term, as there is no support for the district court's limitations in the intrinsic record.

Starting with the claim language itself, we see no evidence from this source to support the court's size limitations. The claim states that the test circuit is mounted in "a hand-grip size case," implying that the case is capable of being gripped in the hand of a normal person, and not of a size with specific dimensions. The straightforward mechanical technology of the invention and the understandable claim language give that meaning to this term. See Phillips, 415 F.3d at 1314 ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words."). "Hand-grip" means what it says, i.e., capable of being gripped by the normal hand. The claim language does not imply a departure from that meaning.

The specification also does not suggest any reason to deviate from the ordinary and customary meaning by imparting
dimensions to the term. The specification consistently refers to the instrument as serving "in the hands of an operator." '663 patent, col. 1, II. 63-65, col. 2, II. 34-36. However, nowhere does the specification explicitly or implicitly ascribe numerical limitations to the case embodying the instrument. In fact, when mentioning the hand-grip size case, the specification states only that the case is "of preferred hand-grip size," suggesting that the dimensions of the case being of hand-grip size, while preferred, are not inflexible. The specification further mentions that the operator will "grasp the primary instrument," yet that description does not suggest any specific numerical dimensions of the case. '663 patent, col. 6, II. 22-25. In the few instances where the specification alludes to either the "hand-grip size case" or to grasping the instrument, it does not reference any dimensions. Because numerical dimensions are absent in the specification, it was improper for the district court to construe the claim term with the lower limit dimensions.

The district court stated that it established the size dimensions of the "hand-grip size case" from "a preferred embodiment described in the specifications and shown in the drawings. . . ." Claim Construction Order, at 5. It further appears to have determined the meaning of the "of a rectangular" shape limitation solely from figures 4-7 because that is the only place in the patent that suggests such a shape. However, we cannot accept the district court's analysis because case law is well established that, while a specification should be used to interpret the meaning of a claim, it should not be used to import unnecessary limitations into the claims. See Phillips, 415 F.3d at 1323. In particular, we have acknowledged that claims must not necessarily be restricted to those embodiments disclosed in the specification, even if a patent describes only a single embodiment. As we stated in Phillips, "although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments . . . In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." Id.

Here, the district court expressly ascertained the size limitations from a preferred embodiment and improperly construed the term to incorporate those limitations. The specification states that the figures are shown "for illustrative purposes" and thus the figures do not restrict the scope of the claims to that which is shown in the drawings. See '663 patent, col. 3, II. 66-67. The specification also states that figures 4, 5, and 6 depict "one of the featured companion test instruments," further suggesting that the scope of the claims should not be restricted exclusively to those figures. Id. at col. 5, II. 3-5. Because the specification does not indicate that the embodiment depicted in the figures is meant to be the only embodiment, and in fact implies otherwise, the claim term should not be limited to specific dimensions established from the figures.

The prosecution history also does not provide support for the addition of dimensions to the "hand-grip size case." On appeal from a rejection by the examiner, the Board of Patent Appeals and Interferences ("BPAI") rejected applicant's broad argument that the invention is distinguished over the prior art because it is "portable," but added that "there is no teaching or suggestion in [the references cited upon which the rejection was made] of a hand grip size case and therefore we will not sustain this rejection . . . ." Applicant thereafter amended claims from being only portable to incorporate the language specifying "a hand-grip size case in which said test circuit is mounted" to put the claims in condition for allowance. The BPAI implied that the invention was distinguishable over the cited prior art by the inclusion of a "hand-grip size case," but the BPAI did not ascribe any lower size dimensions to the case.

Moreover, with regard to the "of a rectangular" shape limitation, although figures 4-7 show the instrument as housed in a rectangular-shaped case, the specification never suggests that this shape is critical to the operation of the invention. An important object of the invention is to have the portable test instrument serve "in the hands of an operator." '663 patent, col. 1, II. 61-64. There is no reason why this objective could not be accomplished equally as well with a non-rectangular shaped case. As long as the instrument can serve "in the hands of an operator," it fulfills the objective of the patent, irrespective of the specific shape of the case. The specification does not assign any significance to the shape of the case, and there is otherwise no indication in the intrinsic evidence that the invention must be limited to the rectangular shape depicted in some of the figures.

Gale further contends that in addition to the figures, the reference in the specification to securing a connector to the "top wall" of the case implies that the case is rectangular. See '663 patent, col. 5, II. 32-34. We find this argument unpersuasive. Securing the connector on the "top wall" does not compel the use of only a rectangular shape because other shapes could include a top wall.

Finally, the court's finding that the term is ambiguous and should be construed to sustain its validity is without basis. The term "hand-grip size case" is not ambiguous. Although the term may be of a nonspecific size and shape, that does not render
the claim term ambiguous. Because the term is not ambiguous, the district court should not have applied the doctrine of construing claims to preserve their validity. Construing claims to sustain their validity has been limited to those cases in which "the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous." Phillips, 415 F.3d at 1327 (quoting Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 911 (Fed. Cir. 2004)). We have not applied the doctrine broadly and have "certainly not endorsed a regime in which validity analysis is a regular component of claim construction." Phillips, 415 F.3d at 1327. This is not one of those limited cases where the term cannot be construed using other available tools. Had the district court limited its construction to the ordinary and customary meaning, it would not have had to resort to construing the claim term more narrowly to preserve its validity.

In sum, we do not accept the limitations that the district court added to the term "hand-grip size case." We see no basis for incorporating specific dimensions and a specific shape into the claim construction. Because we disagree with the court's claim construction, we vacate the district court's finding of noninfringement of the '663 patent to the extent that it was based on an erroneous claim construction of the term "hand-grip size case." That term, as indicated above, simply means a case of a size that can be gripped in a normal hand. While we might, on the basis of that meaning, make our own judgment on the question of infringement, based on the record, the better practice is to have the district court make that factual determination on remand. We therefore remand for the court to redetermine whether Gale's Products meet the limitation as we have construed it.

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8. a hard disk drive ... operatively coupled to receive and store n4

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n4 The corresponding phrases are "a mass storage device ... operative coupled to receive and store;" "storing said picture image data in said hard drive;" and "to receive and store said copy of the contents of a memory of a digital camera."

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The plaintiff argues that this phrase does not need construction. In the alternative, the plaintiff proposes "a hard disk drive ... effectively connected to receive and store." The defendants propose "a hard disk drive that is accessible to receive and temporarily store image files from an inserted flash memory module but is not accessible by the device to edit, manage or display image files that are stored on the hard disk drive." The defendants' construction again includes additional limitations not supported by the intrinsic evidence. The court agrees with the plaintiff that the terms used in this phrase are readily understandable and concludes that this phrase requires no construction.

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11. Password Data Security System

The term "password data security system" appears in dependent Claims 2, 9, and 14 as a permissible structure for the "means for locking the storage means" identified in Claims 1, 8, and 13. The specification indicates that the term should not be construed in a limiting sense. Rather, it describes the term as a known security system which locks the network until it is unlocked by a password. See Col. 4, ll. 46-67. Reference is made to the system described in U.S. Patent No. 5,375,243 as an example of a password security system that may be used with the current invention. That limitation need not be read into the claim. Accordingly, the Court construes the term "password data security system" to mean a security system which locks the network until it is unlocked by a password.

12. Hardware Key Data Security System

Like the term "password data security system," the term "hardware key data security system" in dependent Claims 3, 10, and 15 is a permissible structure for locking the data storage means. For the reasons set forth in the preceding section, the
Court construes the term as a security system which locks the network until it is unlocked by a hardware key.

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B. Hardware Related [Operating] Parameter (Claims 1 and 11)

PCTEL states that the term has a plain and understood meaning, and no construction of the term is necessary. Alternatively, PCTEL contends that the term should be construed as "characteristics relating to electrical/physical properties of circuitry." To support its alternative construction, PCTEL relies solely on its expert witness Dr. Wicker.

Agere and USR contend that this term is not amenable to construction, and thus is invalid as indefinite under 35 U.S.C. § 112, P 2. Alternatively, Agere and USR propose that the term should be construed as "an operating parameter that when changed requires a change in hardware configuration and not simply a change in the use of the hardware provided."

To support their alternative construction, Agere and USR rely upon the patent's claim language and the prosecution history. Agere and USR rely upon independent claim 1 that recites the element of a "means for changing a hardware configuration of said data communication apparatus in accord with said at least one hardware related parameter value." '561 patent, col. 11:36-39. Additionally, independent claim 10 recites the element of "using said at least one hardware related operating parameter to cause said means for changing the hardware configuration to change the hardware configuration of said modem. . . ." '561 patent, col. 13:20-25. Agere and USR assert that these limitations make clear that "hardware related operating parameters" cause changes in the "hardware configuration" of the modem.

Regarding the prosecution history, Agere and USR note that the PTO rejected the claims of the '195 patent as originally submitted as unpatentable over existing art on "multi-country" communication devices. In particular, the PTO found that it would have been obvious to incorporate prior art "multi-country" telephone dialers into a modem. (Malz Decl., Ex. 5 at AL 15224-25.) To overcome the PTO's rejection, the patentee amended the claims to require a "hardware related parameter." The prosecution history discloses that "[t]he applicant has amended the claims to require that at least one hardware related parameter be stored for a plurality of countries, and that the modem include means for changing the hardware accordingly." (Malz Decl., Ex. 6 at AL 15231-32.) Furthermore, the patentee stated as follows:

   It should be recognized that software parameters (such as e.g. make/break for pulse dialing) do not change the hardware configurations. Rather, they simply change the use of the hardware as provided. However, claim 1 (and claim 13), now requires a change in the actual hardware configuration such as would be required to change the line impedance or transmit line signal level.

(Malz Decl., Ex. 6 at AL 15232.) Based on these statements, Agere and USR conclude that the patentee made clear that hardware parameters require changing the actual hardware configuration rather than simply changing the use of the hardware as provided.

Thus, it appears that the critical disagreement between the parties stems from whether the '561 patent has properly distinguished hardware parameters from any other types of parameters including software parameters. n3 Initially, the Court disagrees with PCTEL's conclusion that "hardware related parameter" has a plain and understood meaning, and that no construction of the term is necessary. PCTEL's alternative construction of "characteristics relating to the electrical/physical properties of circuitry" is also unhelpful because it provides the Court no guidance with regard to differentiating a hardware parameter from any other type of parameter. Moreover, this construction finds no support in the intrinsic evidence or the prosecution history of the patent, and therefore must be rejected.

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n3 The patent's specification certainly does not help clarify this distinction. In fact, the '561 patent specification confuses any potential distinction by stating: "[t]he terms 'hardware related parameters' and 'software parameters' should be understood in a liberal sense as the hardware related parameters described here are actually controlled by software and hence are 'hardware/software' parameters. Likewise, various of the 'software related parameters' may include hardware implementation depending on the particular product." '561 patent, col. 11:12-19.)

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The Court finds that Agere and USR's citation to the language of claim 1 and claim 10 are helpful in resolving the construction of "hardware operating parameter." The words of claim 1 indicate that the change in hardware configuration is in accordance with the operating or hardware parameter. '561 patent, col. 11:37-39. The language in claim 10 also supports this conclusion. Furthermore, the patentee explicitly identified "line impedance" and "transmit line signal level" as examples of "hardware related parameters." '561 patent, col. 10:37-54.

However, the prosecution history of the '561 patent conclusively establishes the required connection between the "hardware parameters" and the "hardware configuration." The patentee explicitly stated that "software parameters . . . do not change hardware configurations" but "simply change the use of the hardware as provided." (Malz Decl., Ex. 6 at AL 15232.) This statement strongly suggests, by negative implication, that hardware parameters must change hardware configurations and not just the use of the hardware as provided. The patentee further explained that the claims "require a change in the actual hardware configuration" in attempting to differentiate between hardware and software parameters. (Malz Decl., Ex. 6 at AL 15232.) Thus, Agere and USR's proposed construction incorporates the patentee's own explanation of the distinguishing features of the invention as well as the claim language itself. Thus, the Court construes "hardware operating parameter" as an operating parameter (such as "line impedance" or "transmit line signal level") that when changed requires a change in hardware configuration not simply a change in the use of the hardware provided.

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4. "all kernels having signal"

Plaintiffs' construction: no construction needed

Defendant's construction: all zones with an average display pixel intensity significantly greater than the average predicted noise level

At the claim construction hearing, plaintiffs indicated that this term was no longer in dispute, and that they agreed that "kernel" may be construed properly as "zone." Transcript, dkt. # 80, at 36, lns. 18-24. I will adopt the agreed-upon construction.

Court's construction: all zones with an average display pixel intensity significantly greater than the average predicted noise level

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C. "Headers"

Multi-Tech also argues that the district court erred in its construction of the term "headers" in claim 1 of the '649 patent and claims 1, 2, 5, 7, and 13 of the '627 patent. Multi-Tech maintains that the term "headers" should be given its ordinary meaning of "information structures that precede units of data, such as packets." Multi-Tech thus asserts that the headers attached to computer data packets need not identify packet type or packet length and that the headers attached to voice data packets need not identify whether the packets contain speech or silence. According to Multi-Tech, the district court improperly imported those additional limitations from the specification's preferred embodiments into the claims, despite the broader claim language.

Microsoft responds that the term "headers" has several ordinary meanings and that Multi-Tech's proposed definition is inconsistent with the specification's preferred embodiment and various dictionary definitions. Microsoft also argues that the specification requires both that the computer data packet headers identify packet type and packet length and that voice data packet headers indicate whether the packets contain speech or silence.
We agree with Multi-Tech that the district court's interpretation of the term "headers" was overly narrow. Claim 1 of the '649 patent refers to "placing headers" on the voice data packets as well as "placing headers" on the computer data packets. '649 patent, col. 47, ll. 5-13. Claims 1 and 7 of the '627 patent simply refer to voice data packets "having headers," '627 patent, col. 46, ll. 47-49; id. at col. 47, l. 14, while claim 13 recites "placing headers" on outgoing voice data packets, id. at col. 48, l. 39. We therefore start from the presumption that the term "headers" carries its ordinary meaning of "information structures that precede[] and identify the information that follows." Microsoft Computer Dictionary 215 (4th ed. 1999).

Considering both the claim language and the specification, we next conclude that the claimed "headers," at least in the '649 patent, must identify whether the packets are voice or computer data packets. To begin with, the claim language of the '649 patent separately refers to "placing headers" on voice data packets and "placing headers" on computer data packets. Moreover, the specification states that "the voice data packet information . . . uses a different header format [than does the computer data packet information] so the receiving site recognizes the difference between a data packet and a voice packet." '289 patent, col. 13, ll. 17-20. Such differentiation is necessary to enable the prioritization of voice data packets over computer data packets that, as discussed above, must occur when the two types of packets are multiplexed together. We therefore read the claim language, in light of the specification, as requiring that the "headers" of the '649 patent identify whether the following packets contain voice or computer data.

n7 In the '627 patent, the claimed "headers" need not distinguish between voice data packets and computer data packets because that patent involves only voice data packets.

We further conclude, however, that the claimed "headers" need not identify the computer data packets' type and length or whether the voice data packets contain speech or silence. To be sure, the specification does disclose a preferred embodiment in which the computer data packets begin with an "ID byte" specifying the type and length of the packet, id. at col. 20, ll. 36-43 & tbls. 3-5, and the voice data packets have a "sign byte" specifying whether the packet contains silent sound or speech information, id. at col. 34, l. 64 to col. 35, l. 2 & tbl. 15. The district court determined that such additional limitations must be read into the claims because they are necessary "for the preferred embodiment to function as specified." Markman Order, 2002 U.S. Dist. LEXIS 15960, slip op. at 37. n8 However, those statements are limited to descriptions of the "packet protocol" used in the preferred embodiments, see '289 patent, col. 18, l. 13; id. at col. 33, l. 61, and are merely illustrative of how the headers can be configured. We therefore conclude that the claimed "headers" need not identify the computer data packets' type and length or whether the voice data packets contain speech or silence.

n8 Our broader interpretation of the term "headers" does not exclude the use of the headers disclosed in the preferred embodiment; it simply does not require their use.

--- Footnotes ---

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II

Universal first argues that the district court erred in construing the term "heading of the aircraft" and that, under the proper construction, Universal is entitled as a matter of law to judgment of noninfringement. The term "heading of the aircraft" appears in the fourth and fifth limitations of the asserted claim, which reads in full as follows:

1. A system for use in an aircraft for providing an enabling envelope for a ground proximity warning system for an aircraft comprising:
[1] a first source of signals representative of the longitude and latitude of an airport;

[2] a second source of signals representative of the current longitude and latitude of said aircraft;

[3] means responsive to said first source of signals representative of the longitude and latitude of said airport and said second source of signals representative of the current longitude and latitude of said aircraft for

[a] computing the distance of said aircraft from said airport and

[b] providing an enabling envelope for enabling the warning system as a function of said distance of the aircraft with respect to said airport;

[4] a source of signals representative of the relative angular position of a particular runway with respect to the heading of the aircraft; and

[5] means responsive to said first and second sources of signals for providing a signal representative of the alignment of the aircraft with the runway by determining the angle between the runway and the heading of the aircraft.

'436 patent, col. 7, ll. 40--63. The district court concluded that the patentees used the term "heading of the aircraft" to refer to what would normally be referred to as the aircraft's "bearing," i.e., the direction to the aircraft from a runway. We agree. The conventional meaning of the terms "heading" and "bearing" is undisputed. "Heading" ordinarily refers to the direction in which an object is pointing. "Bearing" ordinarily refers to the direction from an observer to an object. The specification and prosecution history make clear, however, that the patentees used the term "heading" in a manner different from its ordinary meaning. When a patentee defines a claim term, the patentee's definition governs, even if it is contrary to the conventional meaning of the term. Phillips v. AWH Corp., 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc) ("[T]he specification is the single best guide to the meaning of a disputed term, and . . . the specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." (quotation marks omitted)); Bell Atl. NetworkServs., Inc. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001) (stating that "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning"). A claim term may be defined in a particular manner for purposes of a patent even "without an explicit statement of redefinition." Bell Atl., 262 F.3d at 1268.

The specification of the '436 patent clearly communicates the meaning the patentees have assigned to the term "heading." It does so by describing the claimed system's alignment determination as depending on the direction of the aircraft from the runway (i.e., what is conventionally known as the aircraft's bearing), not the direction in which the aircraft is pointing, resulting in "a signal which is representative of the aircraft's alignment with the particular runway." Id., col. 6, ll. 35--36. Thus, the specification makes it clear that in referring to the "alignment" of an aircraft with a runway, the patent denotes the extent to which the runway points at the aircraft, not the extent to which the aircraft points at the runway or points in the same direction that the runway points.

The specification discloses no other form of alignment. If Universal's construction were adopted, the disclosed embodiment would not relate to any limitation of the claimed invention, despite the clear link between the alignment computation discussed in the specification and the alignment computation called for by the claims. The specification refers to the calculation of the alignment of the aircraft with the runway as an "important feature of the present invention." '436 patent,
col. 6, ll. 6--7. That characterization indicates that the disclosed alignment computation is the claimed "alignment of the aircraft with the runway," and shows that the patentees used the term "heading of the aircraft" to refer to the line connecting a reference point on the runway to the position of the aircraft. Because that is the construction that "most naturally aligns with the patent's description of the invention," Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998), the district court properly held it to be the correct one.

The prosecution history confirms that when the patentees wrote "heading," they meant "bearing." Application claim 14, which became issued claim 1, initially phrased two of its limitations as follows:

- a source of signals representative of the relative angular position of a particular runway with respect to a datum and means . . . for providing a signal representative of the alignment of the aircraft with the runway.

The "source of signals" is provided by a database of the angular directions of various runways, and the reference "datum" is a direction, such as due north, against which the runway angles are determined. The specification stated, as it does now, that the alignment of an aircraft with a runway is determined by comparing the direction to the aircraft from the runway with the direction of the runway.

The examiner rejected application claim 14 based on his confusion about "how a runway is compared to a datum." In response, the patentees replaced the phrase "a datum" with "the heading of the aircraft," and they added the language "by determining the angle between the runway and the heading of the aircraft" to the last limitation. In their remarks about the amendment, the patentees explained that the claimed alignment determination requires comparing the direction of a runway against either a fixed reference line, such as a latitude or longitude line, or against the "heading" of the aircraft itself:

It should be clear that the angular position of a runway must be referenced to either a datum, for example, a reference latitude or longitude line, or to the heading of the aircraft in order for the angular difference between the heading of the aircraft and the heading of the runway to be computed to determine the alignment of the aircraft with the particular runway.

In that manner, the patentees explained that the angle used to determine alignment can be identified without mentioning a "datum" by simply identifying the two lines that form the angle: the line formed by the runway and the line from a point on the runway to the position of the aircraft (a line that the patentees called the "heading of the aircraft").

The examiner allowed application claim 14 as amended. At the same time, the examiner rejected two pending claims that claimed an alignment determination based on the position of the aircraft and the angle of the runway; those pending claims did not recite that the alignment computation involved the position of the runway or the "heading of the aircraft." In response to the examiner's rejection, the patentees added to each claim a limitation reciting that the alignment determination uses the position of the runway. They explained that the added limitation allowed the claimed invention to "determine the heading of the aircraft with respect to the nearest airport" using the trigonometric functions discussed in the specification (which, accurately labeled, compute the bearing of an aircraft from a runway). The patentees expressly stated that "the output of the arctan device [i.e., aircraft bearing] represents the heading of the aircraft."

Following a further rejection, the patentees added to those claims the same "heading of the aircraft" language that was used in application claim 14. They explained that they amended the pending claims "to conform their language to similar language contained in claims 14 and 19," thus harmonizing the relevant language of their pending claims and their allowed claims. After that amendment, the examiner allowed the pending claims without comment.

The specification and prosecution history both make clear that the patentees used the term "heading" to refer to the angular direction of an object from a point on a runway. Thus, the "heading of the aircraft" is the angular direction of the aircraft from a point on a runway, and the "heading of the runway" is the angular direction of the runway line from a point on that runway. To hold otherwise would not include within the scope of the claim a preferred embodiment that the patentees labeled an "important feature of the present invention" and would ignore the patentees' definition of the term "heading" and their consistent use of that term throughout the prosecution history. The jury's finding that Universal's accused device detects alignment by computing the "heading of the aircraft" within the meaning of the asserted claim is therefore based on a proper interpretation of that limitation.
PLAGER, Senior Circuit Judge, dissenting.

The patent in this case relates to the art of navigation, specifically the process for determining the location at any given time of a craft (airplane or ship) proceeding around the earth. This is a well-established art, in practice for centuries. In navigation, the ordinary meaning of "heading" is the compass direction in which a craft is moving, oriented to either magnetic or true north. A heading is understood to be quite different from a "bearing," which is the direction (expressed in compass terms) that one object bears from another at any given moment. It is hardly likely that the people who invented Honeywell's patented navigation system were unaware of these conventions.

Claim terms are generally given their ordinary meaning as understood by a person skilled in the art. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). While a patentee may choose to be his own lexicographer and use a term in a manner other than its ordinary meaning, and even though an "explicit statement of redefinition" is not always necessary, nevertheless the patentee must clearly express an intent to redefine the term. Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001).

In my view, the patent in this case falls far short of anything that suggests a clear redefinition of the term "heading." The term itself does not appear anywhere in the patent's written description. The majority relies on an embodiment described in the patent that determines alignment as a function of the bearing of the aircraft from the runway. But the alignment discussion in the written description does not use the term heading to describe what is conventionally known as a bearing. Moreover, there is no clear connection between that passage and the alignment determination set forth in claim 1, which does use the term heading. This is not a case like Bell Atlantic in which the patentee implicitly redefined a claim term by using it throughout the written description in a manner consistent with an unconventional meaning. 262 F.3d at 1270-73. Here the patentees did not use the term at all in the written description.

Furthermore, the prosecution history does not show a clear redefinition of the term "heading." While the applicants at times used the word "heading" to refer to what is actually the bearing of the aircraft from the runway, they used the term in its conventional sense when they referred to "the heading of the runway" in their description of the invention. This inconsistent usage undercuts the argument that the applicants intended to adopt a different definition for the term "heading." Also, it is apparent from the examiner's citation of prior art references which use "heading" in the conventional manner that he understood the term to have its ordinary meaning. The applicants, cognizant of the examiner's understanding of the term and almost certainly aware of the distinction between a heading and a bearing, did not clearly signal the necessary intent to depart from the ordinary meaning of "heading."

At best, the patent and the prosecution history show that the inventors or their representatives who drafted the claims and prosecuted the patent left considerable confusion in the record about whether the claimed invention uses heading or bearing. However, it is not the province of the courts to salvage poorly--or incorrectly--drafted patent claims.

Fair notice to the public, and to competitors, of what is claimed depends on our holding patentees to what they claim, not to what they might have claimed. It is the responsibility of those who seek the benefits of the patent system to draft claims that are clear and understandable. When courts fail to enforce that responsibility in a meaningful way they inevitably contribute an additional element of indeterminacy to the system. Sometimes being kind to a party results in being unkind to the larger interests of the society. In my view this is such a case, and I respectfully dissent from the decision.

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As we alluded to above, the crux of Zebco's argument is that the '835 patent covers only those trolling motor-autopilot systems that include a compass or other directional indicator physically attached to the trolling motor. Zebco arrives at this
conclusion by the following route: (1) Zebco considers the "heading lock" invention of the '835 patent to be concerned only with the direction and orientation of the trolling motor rather than the boat; and (2) therefore the heading lock--which, according to claim 1, includes a heading detector "disposed to transmit . . . heading signals"--must be physically attached to the trolling motor. Because the accused AutoGuide systems undisputedly contain a directional indicator (a "heading detector") in a foot pedal--attached to the trolling motor via wires rather than mechanically--Zebco argues that Johnson's infringement claim must fail.

While Zebco recognizes that claim 1, the broadest claim at issue, does not explicitly require that the "heading detector" be mechanically coupled to the trolling motor, it nonetheless suggests that a proper interpretation of the terms "heading signal" and "coupled" in the language of claim 1 compels such a limited claim scope. In doing so, Zebco points out that Figure 1 of the '835 patent, and at least some of the language in the written description, suggest that the preferred embodiment of the invention includes a compass mechanically attached to the trolling motor. This case, then, presents the question of when it is permissible to narrow the scope of broad claim language by reference to embodiments described and depicted in the balance of the specification.

A

We begin, as with all claim interpretation analyses, with the language of the claims. See Renishaw, 158 F.3d at 1248, 48 U.S.P.Q.2D (BNA) at 1120; Abtox, Inc. v. Exltron Corp., 122 F.3d 1019, 1023, 43 U.S.P.Q.2D (BNA) 1545, 1548 (Fed. Cir. 1997); Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 619-20, 34 U.S.P.Q.2D (BNA) 1816, 1819 (Fed. Cir. 1995). The general rule is, of course, that terms in the claim are to be given their ordinary and accustomed meaning. See Renishaw, 158 F.3d at 1249, 48 U.S.P.Q.2D (BNA) at 1121; York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572, 40 U.S.P.Q.2D (BNA) 1619, 1622 (Fed. Cir. 1996). General descriptive terms will ordinarily be given their full meaning; modifiers will not be added to broad terms standing alone. See, e.g., Virginia Panel Corp. v. MAC Panel Co., 133 F.3d 860, 865-66, 45 U.S.P.Q.2D (BNA) 1225, 1229 (Fed. Cir. 1997) (unmodified term "reciprocating" not limited to linear reciprocation); Bell Communications, 55 F.3d at 621-22, 34 U.S.P.Q.2D (BNA) at 1821 (unmodified term "associating" not limited to explicit association); Specialty Composites v. Cabot Corp., 845 F.2d 981, 987, 6 U.S.P.Q.2D (BNA) 1601, 1606 (Fed. Cir. 1988) (unmodified term "plasticizer" given full range of ordinary and accustomed meaning). In short, a court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms. See, e.g., Nike Inc. v. Wolverine World Wide, Inc., 43 F.3d 644, 646, 33 U.S.P.Q.2D (BNA) 1038, 1039 (Fed. Cir. 1994); E.I. Du Pont De Nemours & Co. v. Phillips Petroleum, 849 F.2d 1430, 1433, 7 U.S.P.Q.2D (BNA) 1129, 1131 (Fed. Cir. 1988); Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 U.S.P.Q. (BNA) 473, 477 (Fed. Cir. 1984).

In order to overcome this heavy presumption in favor of the ordinary meaning of claim language, it is clear that "a party wishing to use statements in the written description to confine or otherwise affect a patent's scope must, at the very least, point to a term or terms in the claim with which to draw in those statements." Renishaw, 158 F.3d at 1248, 48 U.S.P.Q.2D (BNA) at 1121. That is, claim terms cannot be narrowed by reference to the written description or prosecution history unless the language of the claims invites reference to those sources. See, e.g., McCarty v. Lehigh Valley R.R., 160 U.S. 110, 116, 40 L. Ed. 358, 16 S. Ct. 240 (1895) ("If we once begin to include elements not mentioned in the claim in order to limit such claim . . ., we should never know where to stop."); Renishaw, 158 F.3d at 1249, 48 U.S.P.Q.2D (BNA) at 1121. In other words, there must be a textual reference in the actual language of the claim with which to associate a proffered claim construction.

Our case law demonstrates two situations where a sufficient reason exists to require the entry of a definition of a claim term other than its ordinary and accustomed meaning. The first arises if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term. See In re Paulsen, 30 F.3d 1475, 1480, 31 U.S.P.Q.2D (BNA) 1671, 1674 (Fed. Cir. 1994); Intelicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387-88, 21 U.S.P.Q.2D (BNA) 1383, 1386 (Fed. Cir. 1992); Lear Siegler, Inc. v. Aeroquip Corp., 733 F.2d 881, 888-89, 221 U.S.P.Q. (BNA) 1025, 1031 (Fed. Cir. 1984). The second is where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used. See Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1554, 42 U.S.P.Q.2D (BNA) 1737, 1741 (Fed. Cir. 1997) (looking past claim language because of lack of clarity), overruled on other grounds by Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 46 U.S.P.Q.2D (BNA) 1169 (Fed. Cir. 1998) (en banc); J.T. Eaton & Co. v. Atlantic Paste & Glue Co., 106 F.3d
1563, 1564, 41 U.S.P.Q.2D (BNA) 1641, 1646 (Fed. Cir. 1997) (Because "[the disputed claim term] is a term with no previous meaning to those of ordinary skill in the prior art[,] its meaning, then, must be found [elsewhere] in the patent."); North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1576, 28 U.S.P.Q.2D (BNA) 1333, 1336 (Fed. Cir. 1993) (using the specification for guidance "when the meaning of a claim term is in doubt"); E.I. Du Pont De Nemours, 849 F.2d at 1433, 7 U.S.P.Q.2D (BNA) at 1131 (Fed. Cir. 1988) (the written description can supply understanding of unclear claim terms, but should never trump the clear meaning of claim terms). Cf. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998) ("In this case, the [disputed term] has a clear and well-defined meaning. This term is not so amorphous that one of skill in the art can only reconcile the claim language with the inventor's disclosure by recourse to the specification."). In these two circumstances, a term or terms used in the claim invites--or indeed, requires--reference to intrinsic, or in some cases, extrinsic, evidence, see Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583, 39 U.S.P.Q.2D (BNA) 1573, 1577 (Fed. Cir. 1998) (reference to extrinsic evidence is proper when intrinsic evidence cannot resolve ambiguity in claim language), to determine the scope of the claim language.

B

Here, Zebco's primary claim interpretation argument is that the term "heading" in the phrase "heading signal" refers only to the direction of the trolling motor, thus requiring that the heading detector, "being disposed to transmit said heading signals," must be affixed to the trolling motor. Zebco, of course, recognizes that the ordinary and accustomed meaning of "heading" connotes only direction, rather than being limited to the direction of the trolling motor. Thus Zebco argues, as it must, for a more limited scope of "heading," to overcome the presumption in favor of the ordinary--and, in this case, broader--meaning.

Because Zebco does not suggest that the phrase "heading signal" lacks clarity as it is used in the claim, in order to establish a reason to import a narrow definition of the term, it must instead argue that the term "heading" has been given a particular meaning by the patentee. To this end, Zebco argues that language throughout the written description and prosecution history of the '835 patent demonstrates that "heading" in the context of the '835 patent is limited to the direction of the trolling motor. We find this unpersuasive, as did the district court. First, the written description does not describe "with reasonable clarity, deliberateness, and precision" the definition of "heading" proposed by Zebco. See In re Paulsen, 30 F.3d at 1480, 31 U.S.P.Q.2D (BNA) at 1674. Indeed, the many uses of the term throughout the '835 patent are consistent with a broader definition, one encompassing the directions of both the boat and the trolling motor unit. Compare, e.g., '835 patent, col. 3, lines 58-62 ("The electronic steering system of the present invention continues to monitor the current heading of the thrust motor" (emphasis added)) with '835 patent, col. 7, lines 37-39 ("Heading detector 204 continuously monitors the current heading of the boat" (emphasis added)). Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition. See, e.g., Enercon GMBH v. International Trade Comm’n, 151 F.3d 1376, 1385, 47 U.S.P.Q.2D (BNA) 1725, 1731-32 (Fed. Cir. 1998) (refusing to limit a term used "interchangeably" in the written description to only one of the uses of the term). That the term "heading" is used at various points in the written description to refer to both the direction of the trolling motor and the boat is simply not "a special and particular definition created by the patent applicant," Renishaw, 158 F.3d at 1249, 48 U.S.P.Q.2D (BNA) at 1121, and is thus an insufficient reason to limit the scope of the term.

Contrary to Zebco's arguments, Laitram Corp. v. Morehouse Industries, Inc., 143 F.3d 1456, 46 U.S.P.Q.2D (BNA) 1609 (Fed. Cir. 1998), is inapposite. The court there held that a narrow interpretation of a disputed term was compelled because of statements in the written description that made clear that "the asserted claims will bear only one interpretation: that the 'driving surface' limitation is limited to flat driving surfaces," and that the "'driving surface' limitation ... requires flat driving surfaces." Id. at 1463, 46 U.S.P.Q.2D (BNA) at 1614-15 (emphasis added). Here, of course, there is no such unambiguous language in the written description; nothing suggests that "heading" is required to be the heading of the trolling motor. Cf. id.

Zebco also argues that the patentee ascribed a special meaning to the term "heading" in the prosecution history. See, e.g., Spectrum Int'l, Inc. v. Sterilite Corp., 164 F.3d 1372, 1378, 49 U.S.P.Q.2D (BNA) 1065, 1068-69 (Fed. Cir. 1998) (explicit meanings given to claim terms in order to overcome prior art will limit those terms accordingly); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 U.S.P.Q.2D (BNA) 1673, 1676 (Fed. Cir. 1995); Standard Oil Co. v. American Cyanamid Co. 774 F.2d 448, 452, 227 U.S.P.Q. (BNA) 293, 296 (Fed. Cir. 1985). In particular, Zebco argues that the applicant's statement, in a June 17, 1992 amendment to the '586 application, that "the heading signal . . . is dependent solely on the heading of the motor, and totally independent of the orientation of the vessel" is a clear definition of "heading signal"
as being limited to the direction of the thrust motor. However, Zebco overlooks the fact that the claims referred to in that passage, claims 4 and 14 of the '586 application, expressly included an additional limitation: that the compass be "in a substantially fixed relationship to said propulsion device," (claim 4) or likewise "in a predetermined relationship with said propulsion device" (claim 14). The argument referenced by Zebco was unquestionably focused on the requirement, in those claims, that the compass be attached to the trolling motor. The patentee's suggestion that, where the "substantially fixed relationship" or "in a predetermined relationship" claim limitation was present, the feedback signal (i.e., the heading signal) was dependent on the heading of the motor sheds no light on the meaning of "heading signal" in claims where that very limitation is not present. Rather, this exchange is an example of how carefully-crafted arguments in support of patentability can avoid creating ambiguous or adverse prosecution history. By stating clearly and particularly that the context of his remarks was in regards to claims 4 and 14, the applicant ensured that those of ordinary skill in the art—as well as courts, if need be—could evaluate the import and scope of his statements. Thus, because this argument was plainly limited to claims including a "fixed" or "predetermined" relationship between the compass and the trolling motor, it cannot be said to be a clear statement limiting the scope of "heading signal" in general. Zebco thus has not shown that sufficient reasons exist to import a limited definition of this term into the clear language of the claim.

We therefore agree with the district court that the ordinary and accustomed meaning of "heading signal" controls.  

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Claims 1-3, 5-7, and 15 of the '061 patent include a "heating station" limitation. The district court adopted Ventana's construction of the term "heating station" as to the number-of-slides limitation and provided a "glossary" to the jury that defined "heating station" as "a slide support and heating element capable of directly heating at least one microscope slide, but designed to hold and heat a number of slides by conductive heating, e.g., direct contact of a heated surface to a portion of the microscope slide to be heated." (J.A. at 30 (emphasis added).) Ventana urges on appeal that the district court's construction of "heating station" correctly requires each heating station to "hold and heat a number of slides." Under this construction, Ventana argues that the jury's verdict of infringement of claim 1 of the '061 patent is not supported by substantial evidence because each heating station of the accused devices holds and heats only a single slide. CytoLogix contends that the district court's construction of "heating station" is inconsistent with the plain language of the claims; that the correct construction covers devices in which only a single slide can be accommodated by each heating station; and that the evidence requires a verdict of infringement under this construction. n6

n6 CytoLogix also argues that substantial evidence supports the jury's verdict even under the district court's claim construction.

- - - - - - - - - - Footnotes - - - - - - - - - - -

CytoLogix is correct that the district court's claim construction conflicts with the plain language of the claims. Claim 1 of the '061 patent recites a "heating station adapted to support at least one microscope slide," meaning that a heating station that supports only one slide falls within the scope of the claim. '061 patent, col. 11, ll. 2-3. Furthermore, claim 2 recites "[a] microscope slide stainer as claimed in claim 1 wherein each of the heating stations supports a single microscope slide." Id. at col. 11, ll. 6-8. Claim 2 would be rendered meaningless if each heating station had to support multiple slides. An interpretation of one claim that renders another claim meaningless is disfavored. In re Cruciferous Sprout Litig., 301 F.3d 1343, 1349 (Fed. Cir. 2002). There is nothing in the specification that suggests a different construction. See Phillips, 415 F.3d at 1314.

Ventana points to the prosecution history of the '061 patent as support for the district court's claim construction. It argues that CytoLogix disclaimed individual slide heating. Ventana misreads the prosecution history. A precursor claim to issued claim 1 had claimed "electronic control for heating the individual heating surfaces" of the heating stations. (J.A. at 2748.) The examiner rejected the claim under 35 U.S.C. § 112 because the specification did not enable one skilled in the art to make or use the claimed "electric [sic] control for heating the individual heating surface." (J.A. at 2756.) CytoLogix amended the claim such that it recited "electronic control for the heating stations" rather than the "individual heating
surfaces." (J.A. at 2839.) CytoLogix also explained in its response that "claims 1-9 were rejected under 35 U.S.C. § 112, second paragraph, with respect to the recitation of individual heating surfaces heated or controlled individually. That feature is no longer recited in the claims." (J.A. at 2841.) The exchange during prosecution had nothing to do with the number of slides a heating station may accommodate; it only established that if a heating station accommodates more than one slide, all of the slides on that heating station must be heated as a group and not individually.

Thus, the claim term "heating station" is not limited to a device that holds and heats a number of slides. The term "heating station" is properly construed to mean "a slide support and heating element capable of directly heating at least one microscope slide by conductive heating, e.g., direct contact of a heating surface to a portion of the microscope slide to be heated."

Although the district court erroneously construed "heating station," a new trial is not required because the district court's instruction to the jury did not constitute prejudicial error. "To warrant a new trial . . . the erroneous jury instruction [must have been] in fact prejudicial. When the error in a jury instruction could not have changed the result, the erroneous instruction is harmless." Ecolab Inc. v. Paraclipse, Inc., 285 F.3d 1362, 1374 (Fed. Cir. 2002) (internal quotation marks omitted); see also Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1381 (Fed. Cir. 2005); Weinar v. Rollform Inc., 744 F.2d 797, 808 (Fed. Cir. 1984). Prejudicial error only exists if "there was sufficient evidence at trial to support a finding of [non-infringement under a correct instruction." Ecolab, 285 F.3d at 1374. Although infringement under the district court's erroneous claim construction was debatable, infringement under the proper construction was not. n7 This was so because there was no dispute that the heating stations of the accused devices supported and heated at least one slide. We sustain the jury's verdict of infringement concluding that the "heating station" limitation of claims 1-3, 5-7, and 15 of the '061 patent is satisfied.

--- Footnotes ---

n7 See also Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1560 (Fed. Cir. 1995) (jury verdict reversed where insufficient evidence to support verdict under correct construction).

--- End Footnotes ---
Therefore, the Court construes the term "hello message to notify other routers" as "a message intended at least in part to notify other routers that the sending router is operational."

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B. Claims 2 and 15

Having found claims 1 and 23 anticipated by Adobe Photoshop, the district court concluded that the other asserted claims, each dependent upon claims 1 or 23, were also anticipated by this same reference. With respect to claims 2 and 15, however, the court further noted that, while these claims defined the first window as a help access window, this additional limitation was also met by Adobe Photoshop. Apple claims legal error in the district court's failure to consider these claims individually and in its broad construction of the term "help access window." We agree.

As Apple correctly points out, each claim of a patent is "presumed valid independently of . . . the other claims" and "dependent . . . claims shall be presumed valid even though dependent upon an invalid claim." 35 U.S.C. § 282 (1994); Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 446, 230 U.S.P.Q. (BNA) 416, 418 (Fed. Cir. 1986). Thus, the district court improperly concluded that the dependent claims were invalid. Moreover, with respect to claims 2 and 15, the district court's interpretation of "help access window" was so broad as to read the "help" limitation out of the claim.

In support of the district court's construction of "help access window," Articulate points to the language of claim 2 and to the prosecution history. 8 Articulate notes that, as originally filed, claim 2 did not specify the meaning of help access window. Then, in response to an indefiniteness rejection, Apple broadly defined the help access window as: "said help access window being a window that contains one or more user interface controls for accessing information related to software that is loaded on said CPU." Having adopted such a broad definition within the text of the claim, Articulate argues, Apple cannot now narrow that definition. Accordingly, Articulate asserts that the district court's finding of anticipation of claims 2 and 15 was correct.

8 Claim 15 depends from claim 2 and incorporates its definition of help access window.

We cannot accept this argument. The claim interpretation Articulate asserts focuses on the words following "help access window" and ignores the limitation imposed by the word "help." The undeniably broad statement recited in claim 2 (and incorporated into claim 15) simply cannot read the qualifier "help" out of the definition of "help access window." Rather, the claim must be viewed as a whole. Gen. Foods Corp. v. Studiengesellschaft Kohle mb H, 972 F.2d 1272, 1274, 23 U.S.P.Q.2D (BNA) 1839, 1840 (Fed. Cir. 1992) ("each claim is an entity that must be considered as a whole"). Doing so reveals that the claimed window is not intended to access just any information on the CPU; it is intended to access help information. Moreover, the claim must be interpreted in light of the teachings of the written description and purpose of the invention described therein. Strattec Sec. Co. v. Gen. Auto. Specialty Co., Inc., 126 F.3d 1411, 1417, 44 U.S.P.Q.2D (BNA) 1030, 1034-5 (Fed. Cir. 1997) (holding that it was legal error for the district court to instruct the jury that the term "sheet" was not properly considered part of the claim); Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1479, 45 U.S.P.Q.2D (BNA) 1498, 1503 (Fed. Cir. 1998) (relying, in part, on the stated purpose of the invention in construing the claims).

Reading the claim in this context reveals that the help access window serves to access help information from a help system or database. The written description describes in great detail how the help access window of the invention allows a user to access help information from the computer system. See '540 patent, col. 7, line 61 - col. 10, line 16.

Thus, this limitation cannot be given the broad interpretation adopted by the district court, and instead should be construed...
help access window - a window that contains one or more controls for accessing help information from a help system or database that has been loaded on the central processing unit (CPU).

Applying this construction of "help access window" Adobe Photoshop cannot anticipate claims 2 and 15 since the palette window cannot be considered a help access window.

This does not end the inquiry, however, because claims 2 and 15 may still be obvious in light of Adobe Photoshop and other prior art. The district court, having found the claims anticipated, never addressed the question of obviousness. Thus, we have no holding of obviousness to review. Accordingly, we remand the question of obviousness to the district court.

1. Claim construction

The claim limitation disputed by the parties is "heterogeneous computer system," and the primary issue is whether it should be restricted to encompass only systems in which at least two host computers use a different operating system as the district court held. In determining the meaning of the disputed claim limitation, we look primarily to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence. See Phillips v. AWH Corp., 415 F.3d 1303, 1312-1317 (Fed. Cir. 2005) (en banc). Each of the asserted claims includes the "heterogeneous computer systems" limitation, but the claims do not provide guidance on what that limitation means. While the written description does not expressly define the disputed limitation, it lists examples of the monitored computer system. Specifically, the specification of the '237 patent states that

"The computer system, which is to be monitored, may take many forms. For example, the computer system may be a data center, an enterprise computing system, a network of computers, a mainframe computer, a mini-computer, a server, a workstation, and/or a personal computer. Alternatively, the computer system may be an MVS operating system-based computer (or one of its derivative like IBM's OS/390), a UNIX operating system-based computer, an IBM AS400 computer, a Microsoft Windows operating system-based computer, an Apple Macintosh operating system-based computer, an OS/2 operating system-based computer, or a DOS-based computer."

'237 patent, col. 46, l. 62-col. 47, l. 6. Contrary to Global's assertions, the first portion of the cited text does not set forth computer systems with different hardware. Rather, it merely lists different forms of computer systems. The second portion of the text, however, distinguishes computer systems running different operating systems. Thus, the written description supports the conclusion that one of ordinary skill in the art would understand "heterogeneous computer systems" to refer to systems in which at least two host computers use different operating systems. Nowhere does the written description disclose or describe the context of the claimed invention in broader terms.

The prosecution history is consistent with the conclusion noted above. As the district court observed, the "heterogeneous computer system" limitation was added during prosecution in response to rejection of the claims over the prior art. In distinguishing over the prior art, the prosecuting attorney explained that "Any monitoring features performed by [Windows] NT are not with respect to heterogeneous computer systems. For example, [Windows] NT has no facility to monitor operational processes (as provided on the system console) in a VMS and MVS system." In other words, the prosecuting attorney clarified that the prior art did not encompass monitoring host computers with different operating systems, such as a VMS and MVS system. Additionally, during prosecution of the '264 patent, the prosecuting attorney stated that "the language of the claim has been clarified to indicate that the system of the claimed invention controls the operating systems of the heterogeneous computers." Thus, the prosecution history supports the district court's conclusion that the "heterogeneous computer systems" are restricted in scope to encompass only systems in which at least two host computers use different operating systems.

Global contests the district court's reliance on expert testimony in its claim construction ruling. Specifically, the district court noted that Global's own expert "expressly defined a 'heterogeneous computer system' as one that simultaneously controls multiple computers that use different operating systems." Non-infringement Order, 2005 U.S. Dist. LEXIS 42268 at 2285.
*13. In Phillips, we reaffirmed that "extrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless it is considered in the context of the intrinsic evidence." 415 F.3d at 1319. Here, the district court considered the context of the intrinsic evidence and properly relied on the extrinsic evidence merely to support the conclusion reached on claim construction from the claims, the written description, and the prosecution history. We discern no error in the district court's analysis.

We disagree with Global's contention that the district court improperly imposed a "simultaneous" requirement in its claim construction. Indeed, we commend the district court for its thorough, careful, and precise analysis in this technically complex case. Recognizing that the two host computers are unable to communicate directly with each other because they speak different languages, the district court explained that "the monitoring and control computer must understand and speak the language of both host computers[, and thus] it simultaneously translates between the host computers." Non-infringement Order, 2005 U.S. Dist. LEXIS 42268 at *14-*15. The district court's use of the word "simultaneous" merely clarifies and explains a characteristic inherent in its claim construction of "heterogeneous computer systems," and does not further limit the claims.

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Hidden time-shared set of log-in information

In this phrase, the words "hidden" and "time-shared" are two separate modifiers to the claim term "set of log-in information," which the Court defines in a later section.

MyMail asserts that "hidden" means "not easily accessible to the user." Defendants assert that it means "unknown and inaccessible to the user." Because "hidden" is a normal, non-technical word, the Court notes that the definitions proposed by MyMail and Defendants are correct. Since the patent defines "hidden" as "not easily accessible to the user," the Court will adopt MyMail's definition. Col 18:25.

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4. "Hierarchical event monitoring [and analysis]": n4 Network monitors, arranged in two or more levels, interoperate in order to analyze and respond to network activity.

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n4 '203 and '615 patents, multiple claims.

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('203 patent, col. 2, ll. 56-65; col. 9, ll. 21-34)

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5. "Hierarchical monitor/hierarchically higher network monitor": n5 A network monitor that receives data from at least one network monitor that is at a lower level in the analysis hierarchy.

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n5 '203, '212 and '615 patents, multiple claims, and '338 patent, claim 13.

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"Hierarchically arranged." Used in claims 1 and 16.

The specification states that all of the information in the database is "tagged" with indices to form a single hierarchical structure. 505 patent, col. 2, ll. 52-55. The purpose is to allow the subscriber to access various pieces of information in the database, which is sometimes done based upon information already accessed. Figure 9 of the patent shows various levels in a sample hierarchy. The arrows show that indices do not necessarily refer just to information in "lower" levels. Reference may be to a "higher" level. Indices may be "included in the root information (the basic information transmitted most frequently), and also may be embedded in various portions of the transmitted data for the purposes of cross-referencing related information." 505 patent, col. 13, ll. 32-36. Therefore DirecTV's original suggestion that indices are classified into "successive levels" is not the best way to define this term.

For these reasons, and based upon counsels' representations at the hearing, this term will be defined as follows:

"Hierarchically arranged set of indices" means "the indices are placed in some order based upon logical relationships between or among the indices."

B. "Hierarchically Arranged Set of Indices For Referencing Data in Said Information Database."

This term appeared in independent claims 1 and 16. Again, claim 16 recited in part (col. 21:34-43):

16. An information transmission method comprising the steps of: storing an information database on one or more memory devices; generating and storing on said memory devices a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and embedding said indices in said information database;

As to this term, Comcast proposes that an index means "a list of contents, which can be used to locate the items that are indexed," such that the entire term means "that the data in the information database is made available using indices that are ranked into successive levels, such that a higher-level index is used to access multiple lower-level indices." Finisar disagrees, and advances the following construction for the term: "a set of indices placed in some order based upon logical relationships between or among the indices, wherein the indices include pieces of digital information, (each of which contains an identification value plus, in many cases, other information) used to refer to specific items of information within the database." 2

--- Footnotes ---

2 The Texas Court separately construed the terms "set of indices for referencing data in said information database" and "hierarchically arranged." "Hierarchically arranged" was held to mean "the indices are placed in some order based upon logical relationships between or among the indices." The term "set of indices for referencing data in said information database" was construed as "the pieces of digital information, (each of which contains an identification value plus, in many cases, other information) used to refer to specific items of information within the database" (Melgar Decl. Exh. B at 7-8).

--- End Footnotes ---

The word "hierarchy" is defined as "a body of persons or things ranked in grades, 8 orders, or classes, one above another; a system or series of terms of successive rank." Oxford English Dictionary (2d ed. 2001). The plain meaning of the term
shows that the indices are D ranked or placed in some order. The use of the word "hierarchy" indicates something more than a "logical relationship" as Finisar proposes. A hierarchy is a logical relationship, but here a hierarchy implies a series of menus with submenus and sub-submenus. References in the specification to a tree and leaf-like structure of the indices also support this construction (col. 12:37-49, Fig. 8). Indices are placed in successive, subdivided levels (col. 13:38-62, Fig. 9).

To be hierarchical, the index must also include more than one level. Some branches may have only one entry without further subdivisions, but the entire index cannot be a single item. That would not be a hierarchy. It would not even be an index; it would only be a title.

The parties also disagree as to the indices' function. Again, Comcast would require that the indices make the information database "searchable," while Finisar contends that the indices need only "reference" the information. The intrinsic evidence supports Finisar's view. Claim 16 recites "distinct indices for referencing distinct portions [of the information database]." Furthermore, this order has already determined above that there is no explicit requirement that the information database be searchable in the same way as a database such as Westlaw or LexisNexis. The set of indices is essential to navigating the overall database. Thus, the indices must allow the system to locate information within the overall database and find the location for information.

Comcast also argues that the prosecution history of the '505 patent shows that the inventor went to great lengths to distinguish indices used for cross-referencing data from the hierarchically arranged indices of claim 16. Claim 13 was drawn to the "smart-look ahead" feature used for anticipating subscriber requests. In a response to an office action, the patentee amended claim 13 to further define that feature. The patentee argued (Krishnan Deci. Exh. G at 26):

The transmitted data contains embedded cross-referencing indices, which are similar to hyper-links between different sets of data. The filtering means automatically adds to its set of filter data the cross-referencing indices (or corresponding filter values) so that information cross-referenced by data that the subscriber has requested is automatically downloaded into the subscriber's computer, thereby anticipating likely future information requests by the subscriber. Thus, claim 13 is not directed to a hierarchy of indices, but rather is directed to a request anticipation scheme as part of an information distribution system.

The examiner later held the amendment to be sufficient to overcome a reference teaching a hierarchical set of indices. It is true, as Comcast contends, that the patentee explicitly distinguished between cross-referencing indices and the hierarchical set of indices during prosecution. These are two separate kinds of indices. Still, this does not show that the hierarchical indices render the information database searchable in the keyword sense. The hierarchically arranged indices allow access to the successively lower levels of information, while the cross-referencing indices can access information in distant branches of the hierarchy. This distinction is based on how the indices reference information, not whether the database is searchable.

A "hierarchically arranged set of indices for referencing data in said information database" is held to mean "a set of ranked indices used to reference data within the database, with the higher-level indices giving access to the lower-level indices." An index within the hierarchy may contain a single item.

**1934**

H. "hierarchical tree format"

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>hierarchical tree format</td>
<td>configuration of information</td>
<td>a format having one or more</td>
</tr>
<tr>
<td></td>
<td>in two or more linked levels</td>
<td>sublevels branching from a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>common root</td>
</tr>
</tbody>
</table>

The disputed term is located in each of the asserted independent claims: "said first menu stored on said data storage device
and displayable in a window of said graphical user interface in a hierarchical tree format." The specification uses the term "hierarchical tree format," but does not explicitly define it. In describing Figure 1 of the '850 patent, the specification states, "A hierarchical tree structure is used to show the different relationships between the menu categories . . . , menu items . . . , menu modifiers . . . and menu sub-modifiers . . . ." ('850 patent, 6:14-21). The patent's use of "hierarchical tree format" appears consistent with the dictionary definition of that term. 1

1 See, e.g., Dictionary of Algorithms and Data Structures, available at http://www.itl.nist.gov/div897/sqg/dads/HTML/tree.html (defining "tree" as "[a] data structure accessed beginning at the root node . . . ."); Webster's Computer Dictionary at 173 (defining "hierarchical file system" as "a method of organizing files in a tree structure. The topmost level, called the root directory, contains leaves, called subdirectories, that can in turn contain further subdirectories.")

Ameranth argues that "hierarchical tree format" does not require a common root. But to one of ordinary skill in the art, a tree data structure connotes one or more branch or leaf nodes linked to a single common root node. Nothing in the specification or claims appears to contradict this ordinary definition of "tree" or "hierarchical tree format." Figure 1 depicts a hierarchical tree format in which "Menu" is the root node. (See '850 patent, 4:32-33). The written description also discloses the following statements: "Menu categories are created from the root." ('850 patent, 7:60); "When building a menu, it should be kept in mind that the menu items are stored using a tree metaphor . . . . Below is an example of how an item may be configured: . . . . In the above example, Menu is the root." ('850 patent, 6:49-66).

Because "hierarchical tree format" requires a root node, the court adopts the following construction: "a format having one or more sublevels branching from a common root."
that a "hierarchy" may encompass multiple level systems such as that described in the embodiment of the '208 Patent (see col. 5:46-62), or single level of primitive elements that are operated upon in an ordered sequence. Accordingly, the Court construes "hierarchy of primitive elements which represent said system" as a set of primitive elements arranged in a ranked or ordered series that represent the designed system.

GO BACK

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IV. POSITIONS OF THE PARTIES

A. The Parties' Prior Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band"

In its Markman briefing and at the Markman hearing, Inline consistently argued that the disputed claim terms "a high frequency band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the '596 line of patents, 24 and that the disputed claim terms "a high band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the 718 patent, 25 should each be construed as "frequencies above the telephone voice band." 26

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

24 See, e.g., ’596 patent, cl. 61; ’446 patent, cl. 1, ’585 patent, cl. 1.

25 See, e.g., 718 patent, cl. 22.

26 See, e.g., D.I. 189 at 10; D.I. 207 at 244 ("All of the claims of all of the patents refer to frequency above the telephone voice band."). Both parties argued at the Markman hearing that each of the disputed phrases quoted above (i.e., those including "high frequency band" and "high band of frequencies") should be construed identically in all four of the patents-in-suit. See Markman Opinion, 302 F. Supp. 2d at 326 n.86. Since each of the patents-in-suit are continuations of the same patent application, common construction of these terms could be proper. See Arthur A. Collins, Inc. v. Northern Telecom Ltd. 216 F.3d 1042, 1044 (Fed. Cir. 2000) (Because two patents "shared the same written description," and the second patent "is a continuation of" the first patent, the district court's "determin[ation] that a common construction of" a limitation in the claims of the two patents "was appropriate."). To avoid unnecessary repetition, the court's references to "high frequency band" in this opinion apply to each of the disputed phrases containing variations of this language.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Defendants argued at the Markman hearing that the correct construction of "high frequency band" in each of the patents-in-suit is "any of the radio frequencies between 3 and 30 MHz." 27 As noted in the Markman Opinion, this construction was first recited in defendants' responsive Markman brief and was a change in the proposed construction offered by defendants in their opening Markman brief. 28 In their opening Markman brief, defendants argued that the proper construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" as recited in the '596 line of patents is "the band of frequencies above 1 Mhz." 29 Defendants argued that the proper construction of "high band of frequencies above a telephone voice band" as recited in the 718 patent is "the band of frequencies above 6 MHz." 30

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

27 Markman Opinion, 302 F. Supp. 2d at 320. Megahertz is defined as "one million cycles per second, used esp. as a radio-frequency unit." Webster's II New Riverside University Dictionary 739 (1988). The correct abbreviation of megahertz is "MHz." The patents-in-suit and the parties' briefing sometimes abbreviates megahertz as "Mhz." In this opinion, the court uses the abbreviation "MHz" unless quoting language using the abbreviation "Mhz."

28 Markman Opinion, 302 F. Supp. 2d at 320 n.61.

29 D.I. 187 at 43 (emphasis omitted).
In its Markman Opinion, the court construed "a high frequency band of frequencies above the highest frequency of the telephone voice band" to mean "frequencies above the telephone voice band between the range of 1 and 30 MHz." 31

B. The Parties' Current Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band"

Defendants contend that the construction set forth in the Markman Opinion should not be changed because it "was correctly guided by the governing Federal Circuit law and is firmly grounded in the intrinsic records of these patents." 34

C. The Parties' Positions on Reconsideration

Inline argues that "reconsideration of the Court's construction is required to avoid manifest injustice, as the current construction excludes valuable telephone wire spectrum from the literal scope of the claims and is based upon a misapprehension of the applicability of a dictionary definition and of the embodiments and teachings of the patents." 35

First, that the dictionary definition relied upon is not relevant to the patents-in-suit because that definition "refers to specific
radio frequency spectrums used historically and today by the Federal Communications Commission ('FCC') as a frequency nomenclature for regulating and allocating spectrum for wireless transmissions, not telephone wireline communications [which the patents teach and claim].

36 Second, that a definition including an upper limit is incorrect because "a high frequency band of frequencies above the highest telephone voice band of frequencies [sic]' contains a single limitation: that the lower limit of this high band of frequencies must be somewhere above the telephone voice band of frequencies." 37

Third, that many preferred embodiments disclosed in the patent specifications are erroneously excluded as a result of the court's construction. 38

36 Id. at 2 (emphasis in original).

37 Id. (emphasis in original).

38 Id. at 3.

Defendants' first response to Inline's Motion for Reconsideration is a procedural argument that plaintiff's motion does not satisfy the standard for a party seeking to alter or amend an order pursuant to Federal Rule of Civil Procedure 59(e) and that Inline failed to address the requirements for a motion for reargument under District of Delaware Local Rule 7.1.5. 39

39 D.I. 249 at 2. As explained in Section II above, the court has determined that the unique circumstances of this case warrant a modification of the court's prior construction. This opinion is not intended to be, nor should it be, viewed as an invitation for a disappointed party to seek "a second bite at the apple" through motions for reargument and/or reconsideration anytime the court determines an issue contrary to the result advocated by a party.

Defendants attack Inline's specific arguments for reconsideration with the contentions that: "neither the dictionary relied on by the Court nor any of the other dictionaries proffered by the parties distinguish between 'wireless' and 'wireline' transmissions"; "the Federal Circuit has specifically held that the ordinary meaning for the terms 'high frequency' in the context of wireline transmissions . . . is 3 MHz-30 MHZ"; "the teaching in the patent specifications . . . are contrary to Inline's position and certainly do not provide the type of clear definition or disavowal necessary to deviate from the ordinary meaning of 'high frequency' in the manner suggested by Inline"; and "the Federal Circuit has made clear that the type of 'after the fact' extrinsic evidence offered by Inline is not a substitute for the Court's careful analysis of the intrinsic record." 40

40 Id. at 3-4.

V. DISCUSSION

A. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" is Erroneously Based on a Definition that Applies Only to Wireless Transmission

Inline's argument that the definition of "high frequency" relied upon by the court is inapplicable to the patents-in-suit for the reason that that definition "applies to wireless transmissions and broadcasts and not to telephone wires" 41 is not supported by the intrinsic record and is simply an expansion of the same argument made by plaintiff at the Markman hearing. 42
The definition of "high frequency" relied on by the court in the Markman Opinion, "any of the radio frequencies in the band between 3 and 30 MHz," is found in a dictionary entitled "Telephony's Dictionary: Defining 14,500 telecommunication words and terms" (the "Telephony's Dictionary"). 43 In its opening Markman brief, Inline proffered the Telephony's Dictionary as an appropriate reference for the court's claim construction and cited that dictionary as providing definitions supporting its proposed construction of the disputed term "a high frequency band of frequencies above the highest frequency of the telephone voice band," as well as the disputed terms "telephone exchange," and "signal interface." 44 Another technical dictionary cited by Inline in its opening Markman brief, Newton's Telecom Dictionary, 45 is consistent with the Telephony's Dictionary. That dictionary's definition of "frequency band" incorporates a chart of frequencies which includes "3-30 MHZ -HF- High Frequency" as one of "the accepted explanations of 'bands.'" 46 Inline proffered these telecommunications dictionaries for the court's claim construction during the Markman proceedings. It is hardly credible for plaintiff now to argue that particular definitions in those dictionaries which are inconsistent with its proposed construction of "high frequency band" are inapplicable to the patents-in-suit. Furthermore, the same definition of "high frequency" was relied upon by the Federal Circuit when construing the term "high frequency" in another patent concerning wireline transmissions.


44 See D.I. 189 at 11, 14, 17 (citing the Telephony's Dictionary at 86, 7, 104); D.I. 190 Ex. D. Inline consistently cited this dictionary as "Graham Langley, Telephony's Dictionary" in its opening Markman brief, see D.I. 189 at 11, 14, 17, but referred to this same reference as merely the "Graham Langley dictionary" in its Motion for Reconsideration. See D.I. 242 at 1 n.2.

45 Harry Newton, Newton's Telecom Dictionary (3rd ed. 1990) (emphasis added); See D.I. 189 at 16-17, 21, 35 (citing the definitions of "signal" and "interface" from Newton's Telecom Dictionary); D.I. 190 Ex. G. 46 D.I. 249 at 5 (quoting Newton's Telecom Dictionary at 52-53). This same chart of frequencies is also included in the definition of "radio frequency band" recited in the Telephony's Dictionary. See Telephony's Dictionary at 16; D.I. 242, Ex. A. A similar definition of "frequency band" was also included in the "Glossary of Dictionary Definitions Provided by Inline." See D.I. 176, Ex. 1 at 6. The partial quotation included in plaintiff's glossary recites: "in general the range of frequencies between specified upper and lower limits. In particular one of the following frequency ranges which are agreed internationally. . ." Id. (quoting S WAmos & R S Amos, Newnes Dictionary of Electronics 138 (3d ed. 1996)). What Inline elides through ellipses from that definition, however, is yet another chart of frequency ranges that, like the charts of frequency ranges contained in the Telephony's Dictionary and Newton's Telecom Dictionary, describes "high frequency" as "3-30 MHz." See Newnes Dictionary of Electronics at 138.

In Intellectual Property Development Corporation v. UA-Columbia Cablevision of Westchester, Inc., the Federal Circuit reviewed the district court's construction of the term "high frequency" as recited in a patent directed at "a wired broadcasting system." 47 The two sources relied upon by the district court included a technical dictionary which defined "high frequency" as "Federal Communications Commission designation for the band from 3 to 30 MHZ in the radio spectrum . . .[and a nontechnical dictionary which included] a radio frequencies table list[ing] high frequency as covering 3 to 30 megacycles." 48 The Federal Circuit held "that the district court correctly construed [the disputed term] 'high frequency' as including only any frequency between 3-30MHz," 49 Even though those definitions referred to "radio" frequencies and the invention concerned "a wired broadcast system," no distinction between wired and wireless
transmission systems was made by the Federal Circuit.

47 336 F.3d 1308, 1310 (Fed. Cir. 2003) (emphasis added).

48 Id. at 1314-15 (emphasis added) (first alteration in original) (citations omitted).

49 Id. at 1317.

Here, defendants cited Intellectual Property Development in their responsive Markman brief as supporting a definition of "high frequency band" as those frequencies from 3 MHz to 30 MHz. Defendants also argued at the Markman hearing that because the invention at issue in Intellectual Property Development concerned "a wired broadcasting system," the definition found in that case was also applicable to the wireline transmissions described in plaintiff's patents.

At the Markman hearing, Inline sought to distinguish Intellectual Property Development by arguing that the definition of "high frequency" in that case was not applicable to the patents-in-suit because the specification of the patent being construed in Intellectual Property Development did not describe particular frequency ranges where Inline's patents do contain such descriptions. Inline did not, however, attempt to distinguish Intellectual Property Development when it raised its wireline/wireless transmission argument at the Markman hearing. Since Inline was aware of defendants' reliance on that case from prior briefing and oral argument, it is telling that Intellectual Property Development was not even mentioned in its Motion for Reconsideration.

Finally, the '596 line of patents each: refer to radio frequency transmission (abbreviated RF); describe the invention as including "RF transmitters and RF receivers"; and describe the use of RF signals. Indeed, the '596 patent is titled "Two-Way RF Communication at Points of Convergence of Wire Pairs from Separate Internal Telephone Networks." "Radio frequency" is defined as "an electromagnetic wave frequency intermediate between audio frequencies and infrared frequencies used esp. in radio and television transmission." Nothing in that definition suggests a distinction between electromagnetic wave frequencies used in wireline transmission as opposed to those used in wireless transmission.
55 See, e.g., '596 patent, 9:9-54; 14:59-60 ("The solutions described herein take advantage of the improved ability of RF (radio frequency) signals . . . ."); Likewise, the '718 patent describes the use of radio frequency transmission. See, e.g., '718 patent, 9:58-62 ("In contrast to regulations covering radiation, no special legal problems are created in the U.S. by the connection of radio frequency devices to the public telephone network if those devices do not transmit energy below 6 Mhz.").


Inline acknowledges that "the term 'RF' is often used generically to describe all frequencies between audio and light frequencies" 57 but contends that "the specific frequency nomenclature relied upon by Defendants and the Court is reserved for the language of wireless spectrum allocation by the FCC." 58 Inline offers nothing other than the declaration of its expert, and other extrinsic evidence, to support this contention. Defendants correctly point out that Inline has not cited any dictionary that supports its argument that there were different ordinary and accustomed definitions of a "high frequency band" for wireline transmissions and for wireless transmissions at the time of the inventions described by the patents-in-suit. Nor has Inline pointed to any intrinsic evidence, and the court has found none, which would support that differentiation. 59

57 D.I. 242 at 2.

58 Id. (emphasis in original).

59 Inline's submission of extrinsic evidence (which post-dates the date of the invention by several years) is not needed for the court to construe "high frequency band." This is particularly evident in light of Inline's repeated assertions indicating that the intrinsic record is sufficient for the construction of the disputed terms in the patents-in-suit. See D.I. 189 at 1 (stating that the disputed claim terms "all have plain and ordinary meanings within the context of the claims in which these terms are used"); id. at 9-13 (citing only dictionary definitions and the specifications of the patents-in-suit in support of its proposed construction of "high frequency band"); D.I. 242 at 8 ("Here the claimed range of the high frequency control and video information signals . . . is readily gathered from reading the patents and their disclosure . . . ."); id. at 6 ("It cannot be argued that . . . the phrase 'a high frequency band of frequencies above the highest frequency of the telephone voice band' lacks meaning. . . ."); see also id. ("One reading the patent claims and specification would not search beyond the patents for meaning . . . . (citing the declaration of Inline's expert)). The court agrees and finds it unnecessary to address Inline's arguments that are based exclusively on a new declaration of its expert and other extrinsic evidence. See Vitronics, 90 F.3d at 1582 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence."); Bell & Howell Document Management Prods. Co. v. Altek Sys., 132 F.3d 701, 707 (Fed. Cir. 1998) ("Because the intrinsic evidence unambiguously defined the disputed claim limitation, the district court's reliance on the expert testimony . . . to contradict the intrinsic evidence when interpreting the claims was error." (citing Vitronics, 90 F.3d at 1583)). Additionally, Inline's extrinsic evidence need not be considered as that evidence is an attempt to supplement material in support of arguments already made by plaintiff and defendants at the Markman hearing. See BP Amoco Chem. Co. v. Sun Oil Co., 200 F. Supp. 2d 429, 432 (D. Del. 2002) ("[A] motion for reargument may not be used to supplement or enlarge the record on which the court made its initial decision." (citation omitted)).

Consequently, the court rejects Inline's argument that the dictionary definition of "high frequency" relied upon by the court is only applicable to wireless transmissions.

B. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" is Erroneous for Including an Upper Limit
Inline's second argument for reconsideration is that "'high frequency band of frequencies above the highest telephone voice band of frequencies' contains a single limitation: that the lower limit of the high frequency band must be somewhere above the telephone voice band of frequencies." 60 The implication is that the court erred in selecting a construction of "high frequency band" that includes an upper limit as well as a lower limit. Inline's arguments in its Motion for Reconsideration substantially rehash those made during the Markman proceedings that were rejected by the court.

60 D.I. 242 at 2 (emphasis in original).

Inline's opening Markman brief contained the following argument:

The ordinary meaning of "frequency band" is "[a] range of frequencies between upper and lower limits." Graham Langley, Telephony's Dictionary …. The word "high" modifies the words "frequency band" to create the terms "high frequency band" and "high band of frequencies" which are explicitly defined in the claim language as frequencies above the voice band. In context, therefore, the high frequency band, and the high band of frequencies, specify a range of frequencies having a lower limit above the highest frequency of the telephone voice band. No requirement is placed on the upper limit of the frequency range. 61

61 D.I. 189 at 12-13 (emphasis added).

Within this single paragraph, Inline's own proffered definition of "frequency band," "[a] range of frequencies between upper and lower limits," flatly contradicts its position that "high frequency band" should be defined to have no upper limit. The court notes that the Telephony's Dictionary does not include the definition of "frequency band" quoted by Inline. This error was pointed out by defendants in their responsive Markman brief 62 and at oral argument. 63 Inline never addressed this error or indicated the source of its proffered definition of "frequency band." Upon review of the parties' Markman submissions, however, the court discovered the source of Inline's "frequency band" definition. "A range of frequencies between upper and lower limits" is the definition recited in the Telephony's Dictionary for "band," not "frequency band." 64 This was one of several definitions of "band" included in a "Glossary of Dictionary Definitions Provided by Inline" attached as Exhibit 1 to the parties' Joint Submission Regarding Claim Construction. 65 Each of technical dictionaries included in plaintiff's glossary define "band" to have both upper and lower limits. 66

62 See D.I .200 at 20.

63 See D.I. 207 at 252-53.

64 D.I. 176, Ex. 1 at 1 (quoting the Telephony's Dictionary definition of "band").

65 See id.

66 See id. In addition to the above-quoted definition of "band" recited by the Telephony's Dictionary, the Glossary of Dictionary Definitions Provided by Inline lists the following definitions of "band":

"2. (data transmission) Range of frequency between two defined limits." The Institute of Electrical and Electronics Engineers, Inc., IEEE Standard Dictionary of Electrical and Electronics Terms 79 (Frank Jay ed., 3rd ed. 1984);
"In data communication, the frequency spectrum between two defined limits." Jerry M. Rosenberg, Computers, Data Processing & Telecommunications 39 (1984);


The only dictionary included in plaintiff's glossary that did not explicitly define "band" as including upper and lower limits was the sole nontechnical dictionary included in that section. See id. (The New Merriam-Webster Dictionary 71 (Frederick C. Mish ed. 1989) (defining "band" as "3. A range of wavelengths (as in radio)").

Finally, the intrinsic record supports the conclusion that there is an upper limit to "high frequency band." The specifications of the '596 line of patents state "as mentioned above, there is an upper limit to the frequencies that can be useful for transmission of signals across a transmission path of a given length." 67

The court concludes, therefore, that there is both an upper and lower limit to the phrase "high frequency band" and rejects Inline's argument that the court's construction of that phrase was erroneous as a result of including an upper limit.

C. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" Improperly Excludes Certain Embodiments Recited in the Patents-In-Suit

Inline contends that the court's construction of "a high frequency band of frequencies above the highest frequency of the telephone voice band" as "frequencies above the telephone voice band between the range of 1 and 30 MHz" improperly excludes several embodiments recited in the patents-in-suit. 68 Inline argues that a construction which excludes preferred embodiments from the scope of the claims is disfavored. 69 Inline's argument on this point has merit. Because the court determines that the proper construction of "high frequency band" is different for the '596 line of patents and the 718 patent, the appropriate modification of the court's prior construction for each will be discussed separately.

1. The Parties' Arguments with Regard to the '596 Line of Patents

During the Markman proceedings, Inline pointed to a control signal illustrated in figure 3a of the '596 line of patents as centered at 0.5 MHz as an example of frequencies improperly excluded from defendants' proposed construction of "high frequency band." 70
Inline reiterates this argument in its Motion for Reconsideration and also points to frequencies above 30 MHz that are excluded by the court's construction of "high frequency band." Inline again notes that figure 3a of the '596 line of patents describes an embodiment having a control signal with a lower limit at 0.25 MHz. 71 Inline cites each of the patents-in-suit as stating "the control signal is transmitted in a high frequency band." 72 Inline also contends that "the upper end, while not discussed by either party in the Markman briefs, is clearly disclosed with examples given at 100 MHZ and 5000 MHZ." 73

71 D.I. 242 at 4. The '596 line of patents describe control signals as having a 0.5 MHz bandwidth, therefore, the control signal illustrated in figure 3a spans a frequency band from 0.25 MHz to 0.75 MHz. See '596 patent, 41:12-14 & figure 8 (bandwidth examples).

72 D.I. 242 at 4 n.6 (citing '596 patent, cl. 24; '585 patent, cl. 3; '446 patent, cl. 6; '718 patent, 23:36-40).

73 Id. at 5 & 5 n.7 (citing '596 patent, 37:66-38:5 & figure 8); see also id. at 4 & 4 n.6.

Defendants' opposition to the Motion for Reconsideration never addresses Inline's argument that the court's construction of "high frequency band" improperly excludes frequencies above 30 MHz. Defendants focus solely on the lower limit of the court's construction. They argue that the patents describe the control signal disclosed in figure 3a as "Amplitude Modulation within a Low-Frequency channel." 74 Based on this language, defendants contend that this example of control signal transmission is not a "high frequency band" signal and, therefore, the court's construction of that phrase does not improperly exclude a preferred embodiment. 75 This is the same argument presented by defendants at the Markman hearing. 76

74 D.I. 249 at 9 (citing '596, patent 25:44-45 (emphasis added by defendants)).

75 See id.

76 See D.I. 207 at 256-57.

Defendants, however, have presented contradictory arguments with regard to the lower limit of the "high frequency band." In their opening Markman brief, defendants argued that "the proper construction of the phrase 'high frequency band of frequencies above the highest frequency of the telephone voice band' in these elements is 'the band of frequencies above 1 MHz.'" 77 In defendants' responsive Markman brief, they changed their proposed definition and argued for a construction of "high frequency band" having a lower limit of 3 MHz based on the definition of "high frequency" in the Telephony's Dictionary, "any of the radio frequencies in the band between 3 and 30 MHz." 78 In that same brief, defendants nevertheless conceded that "the specification is explicit that the high frequency signals are never lower than 1 MHz." 79 Although previously acknowledging that the "high frequency band" includes signals at least as low as 1 MHz, at oral argument, defendants took the position that the inventor described all frequencies below 3 MHz as "low frequency channels" and, therefore, signals below 3 MHz should not be included in the definition of "high frequency band." 80

77 D.I. 187 at 43 (emphasis omitted).

78 D.I. 200 at 20-22.

79 Id. at 22 (emphasis added).
If, as defendants now argue, the court's construction is correct in defining the lower limit of "high frequency band" to be 1 MHz, it is hard to reconcile their position that the control signal described in the same section of the specification is not also part of the "high frequency band." 84 Given defendants' inconsistent positions, the court believes it is more reasonable to accept Inline's argument that the frequencies of both the video signal component and the control signal illustrated in figures 3a and 3c are within the "high frequency band." Although not articulated by Inline, the description of "Amplitude Modulation within a Low-Frequency Channel" may be understood to refer to the lower frequencies of the "high frequency band." These figures, then, describe the use of comparatively lower frequency channels within the "high frequency band," i.e., frequencies which are lower than the transmission levels of the preferred embodiments described earlier in the patent specifications. 85

84 The court notes that defendants' argument that "the specification distinguishes between high and low frequency signals, consistently referring to signals below 1 MHz as low frequency signals," D.I. 249 at 11 n.5, and that nothing in the '596 line of patents "suggests placing such [high frequency] signals in the band below 1 MHz," id. at 10, is accurate only with respect to the transmission of video signals. The patents make clear that the invention is not limited to transmission of video signals but also includes the transmission of control, and other, signals. See '596 patent, 1:23-24 (describing the invention as "relating to a system for simultaneous two-way communication of video signals and other signals . . . ."); '596 patent, 1:56-64 ("The communication systems disclosed in the parent and first and second CIP applications are designed to simultaneously transmit telephone signals and non-telephonic signals (such as cable television signals, other video signals, audio signals, data signals, and control signals) across the active telephone wiring internal to . . . residences and other structures. The present invention adds to these techniques, providing distribution of all of these signals to a local network of active telephone wiring . . . .").

85 See '596 patent, 19:27-56 (describing preferred embodiments in the section titled "Minimum Frequency"); '596 patent, 25:10-11 (stating that the embodiments described in figures 3a and 3c "use frequencies below the lower limits suggested above[, i.e., the those described in the 'Minimum Frequencies' section]."
Because the court's prior construction of "high frequency band" excluded certain embodiments recited in the '596 line of patents, and because defendants have not argued that there is evidence that those embodiments are not covered by these patents, the court concludes that its prior construction was overly narrow and must be modified. 86

86 See Vitronics, 90 F.3d at 1583 (stating that a construction that excludes a preferred embodiment "is rarely, if ever, correct and would require highly persuasive evidentiary support."); see also Appler Corp. v. Micromass UK Ltd., 186 F. Supp. 2d 487, 504-08 (D. Del. 2002) (rejecting proposed construction that would read out preferred embodiment illustrated in figure); cf. Elekta Instrument S.A. v. O.U.R. Scientific Int'l, 214 F.3d 1302, 1308 (Fed. Cir. 2000) (illustrating "the rare case" in which the correct claim construction "excluded the preferred . . . embodiment disclosed in the specification . . . [because] the prosecution history and the unambiguous language of the amended claim" demonstrated that the preferred embodiment was not covered by the claim (citation omitted)).

2. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" for the '596 Line of Patents

In order to modify properly its prior construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," the court must first determine precisely which words in that phrase are in dispute. Once that issue is resolved, the court will determine the ordinary and accustomed meaning of the disputed term as reflected in relevant dictionaries and then examine other intrinsic evidence to see if the patentee's use of that term is consistent with its ordinary meaning. 87

87 Neither party presented arguments based on the prosecution history with respect to the term at issue in the Motion for Reconsideration.

In its Motion for Reconsideration, Inline resurrects its argument that, in each of the patents-in-suit, the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" means "the frequencies above the telephone voice band." 88 The embodiments described in the specifications of the '596 line of patents demonstrate that the lower limit of disputed phrase should include the lower limit of the control signal illustrated in figure 3a. The court must now determine which words in that phrase are in dispute and, thereafter, whether the claims should be construed as broadly as Inline suggests.

88 D.I. 242 at 10-11.
Having concluded its discussion of the first part of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," Inline stated that "'voice band' is a well-known term of art, which is a frequency 'band used on telephone equipment for the transmission of voice and data,' the highest frequency [of which] is not more than approximately 4000 Hz." 91 Plaintiff concluded that "by the plain claim language, the lower frequency limit of the high frequency band is above the voice band and is therefore above approximately 4000 Hz." 92

89 D.I. 189 at 11 (second alteration in original).
90 Id. at 11-12.
91 Id. at 12 (quoting Jerry M. Rosenberg, Computers, Data Processing & Telecommunications (1984)).
92 Id.

Defendants have consistently argued that Inline's proposed construction reads the words "high frequency" out of the claims. 93 Inline has provided no response to this argument. Defendants argue further that other claims in the '596 line of patents support its contention that "high frequency band" recited in the asserted claims can not simply mean all frequencies above the voice band. 94

93 See D.I. 207 at 258-59; D.I. 249 at 11 n.4.
94 D.I. 249 at 10-11.

For instance, Claim 1 of the '596 patent recites: "circuitry for transmitting said received video signal onto at least one of said telephone lines in a selected frequency range that is different from frequencies at which said voice signals are carried on said one telephone line . . . ." 95 Claim 13 of the '596 patent recites: "the system of claim 1 wherein said voice signals are carried by said telephone lines at voiceband frequencies and said selected frequency range exceeds said voiceband frequencies." 96 Since the asserted claims recite the more specific limitation of "high frequency band," defendants argue that Inline's proposed construction is inconsistent with other claim language used by the patentee. The court agrees with defendants on these points.

95 '596 patent, cl. 1 (emphasis added); see also '596 patent, cl. 9 (". . . a second selected frequency range that is different from said frequency range selected by said interface and different from frequencies at which said voice signals are carried on said telephone link . . . .") (emphasis added)).
96 '596 patent, cl. 11 (emphasis added); see also '596 patent, cl. 13 ("circuitry for changing the frequency of said video signal received from said telephone line to a frequency band that exceeds said voiceband frequencies . . . .") (emphasis added)).

The parties agree that the "highest frequency of the telephone voice band" is approximately 400 Hz. 97 Therefore, the dispute centers on the meaning of the words "high frequency band." Inline's argument that "high" modifies "frequency band" and, thus, that the disputed phrase simply means "frequencies above the voice band" unquestionably reads "high
frequency band" out of the claim. The entire disputed phrase reads:

"a high frequency band of frequencies above the highest frequency of the telephone voice band."

Inline's proposed construction of that phrase is:

"frequencies above the telephone voice band." 98

In essence, that construction merely excises "a high frequency band" from the disputed phrase and gives no meaning whatsoever to those words.

97 See D.I. 197 at 18 (Plaintiff states that "all parties accept that the telephone voice band is the band that carries voice telephone signals, which is commonly understood to be between approximately 0 and 4 KHz."). Defendants apparently do not challenge plaintiff's definition of "voice band." See D.I. 187 at 44 ("Because the top end of the voiceband is approximately 4KHz . . . ").

98 D.I. 189 at 10; see also D.I. 242 at 1 (suggesting modification of the court's construction to read "frequencies above the voice band" or, alternatively, "a range of frequencies above the telephone voice band").

Defining "high" as simply meaning that the "frequency band" is "above" the voice band, as Inline suggests, would make the words "high frequency band" superfluous since the entire phrase in question already requires the "high frequency band" to be limited to those "frequencies above the highest frequency of the telephone voice band." A construction that does not give meaning to all the words in a disputed phrase is disfavored. 99 The more logical construction, and the one which gives meaning to all the words in the disputed phrase, is that "high frequency" modifies "band." This construction does not render any words of the asserted claims superfluous.

99 See Pickholtz v. Rainbow Techs., Inc., 284 F.3d 1365, 1373 (Fed. Cir. 2002) ("Interpretations that render some portion of the claim language superfluous are disfavored. . . .")

Defendants' argument regarding other claim language reciting broader limitations also supports the rejection of Inline's proposed construction. Examining these other claims is consistent with the Federal Circuit's mandate that in construing claims the court is to read the disputed language in the context of the entire patent. 100 Independent claim 1 of the '596 patent includes the limitation that frequencies are transmitted "in a selected frequency range that is different from frequencies at which said voice signals are carried on said one telephone line . . . ". 101 Claim 11 of the '596 patent, which depends from claim 1, contains the narrower limitation that "said selected frequency range exceeds said voiceband frequencies." 102 The plain meaning of the limitation recited in claim 11 is the same as Inline contends this court should apply to "high frequency band" in the asserted claims. When the patentee sought to limit a claim to transmission of frequencies that are merely "different from" or "exceed" (or are "above") the voice band, he knew how to do so. 103 That is not the limitation included in the asserted claims, however. Those claims include the more specific limitation to transmissions of frequencies in the "high frequency band." 104 The court concludes, therefore, that in the disputed phrase "high frequency band," the term "high frequency" modifies the term "band." The court must now determine the ordinary and accustomed meanings of these terms.

100 See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also
must be considered in determining the ordinary and customary meaning of those terms. While dictionaries and treatises are useful resources in determining the ordinary and customary meaning or meanings of disputed claim terms, the correct meaning of a word or phrase is informed only by considering the surrounding text. This is why consulting dictionary definitions is simply a first step in the claim construction analysis and is another reason why resort must always be made to the surrounding text of the claims in question, the other claims, the written description and the prosecution history.

101 '596 patent, cl. 1 (emphasis added).

102 '596 patent, cl. 11 (emphasis added).

103 See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1304-05 (Fed. Cir. 1999) (The court rejected defendant's proposed construction as contrary to the language of the asserted independent claims and noted that a nonasserted independent claim which included the limitation argued for in the asserted claims supported this rejection. The court stated, "had [plaintiff] intended or desired to claim [the proposed limitation] in the asserted claims, it could have done it explicitly, as in claim 11. The absence of any such explicit language, however, shows that the [asserted claims] do not include [the proposed limitation]."); see also Forest Labs., Inc. v. Abbott Labs., 239 F.3d 1305, 1310 (Fed. Cir. 2001) ("Where claims use different terms, those differences are presumed to reflect a difference in the scope of the claim."); General American Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting district court's construction which rendered a particular claim requirement superfluous); RF Delaware, Inc. v. Pacific Keystone Techs., Inc., 326 F.3d 1255, 1264 (Fed. Cir. 2003) (rejecting proposed construction for asserted claim that would render "redundant or meaningless" a limitation in unasserted claims). 104 This analysis also compels the court to reject Inline's argument that the "patent specifications define high frequency as: 'high-frequency (i.e., non-voice band) signals." D.I. 242 at 7 (quoting '446 patent, 54:25; '585 patent, 54:11; and '596 patent, 53:61 (emphasis added)). That parenthetical reference is far from an explicit definition of "high frequency band" as all frequencies above the highest frequency of the telephone voice band.

Defendants contend that the proper construction of "high frequency band" is determined by the definition of "high frequency" contained in the Telephony's Dictionary; "any of the radio frequencies in the band between 3 and 30 MHz." As noted above, this definition is one of several consistent definitions recited in dictionaries proffered by Inline as appropriate for the court's construction of the disputed terms of the patents-in-suit. Inline has offered no other dictionaries available at the time of invention expanding this definition of "high frequency." 105 The definition of "band" recited in several dictionaries proffered by Inline is "a range of frequencies between upper and lower limits." 106 By combining the definitions of "high frequency" and "band," the court concludes that the ordinary and accustomed meaning of the phrase "high frequency band" at the time of the inventions at issue was "the range of radio frequencies between 3 MHz and 30 MHz." 107

105 See Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002) ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings.").

106 See footnote 66, above.

107 See Alloc, Inc. v. ITC, 342 F.3d 1361, 1368 (Fed. Cir. 2003) ("Claim language generally carries the ordinary meaning of the words in their normal usage in the field of invention at the time of the invention.").

Because the court has already determined that the intrinsic record describes certain embodiments in the '596 line of patents having frequencies outside of the range of frequencies to which the ordinary meaning of "high frequency band" is limited, the court will not construe the disputed phrase to be so limited. 108 This is not problematic, however. The Federal Circuit has stated that:

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -
the specification or the prosecution history of a patent may alter the meaning of a claim term from its conventional usage. A patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant art, thereby expanding or limiting the scope of the term in the context of the patent claims. 109

Here, the embodiments described in the specifications make clear that the patentee used the term "high frequency band" more expansively than its ordinary and accustomed meaning. Moreover, it is entirely proper to construe that term by examining the specifications' description of preferred embodiments, even if the term "high frequency band" is not explicitly defined therein. 110

--- Footnotes ---

108 See Texas Digital, 308 F.3d at 1204 ("[If] the intrinsic record . . . shows that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition . . . the inconsistent dictionary definition must be rejected.").

109 Alloc, Inc., 342 at 1368 (emphasis added); accord Genzyme Corp. v. Transkaryotic Therapies, Inc., 346 F.3d 1094, 1098 (Fed. Cir. 2004) ("In other words, a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims." (citing Ballard Med. Prods. v. Allegiance Healthcare Corp., 268 F.3d 1352, 1361 (Fed. Cir. 2001); Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed. Cir. 2002)).

110 See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001) (holding the written description of the preferred embodiment "can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format"); Vitronics 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." (emphasis added)).

--- End Footnotes ---

Inline argues only that "high frequency band" is "frequencies above the highest voice band" and defendants argue that the court's prior construction of "frequencies above the telephone voice band between the range of 1 and 30 MHz" is correct. Because the court concludes that neither party's position is correct, this leaves it to the court to determine the proper limits of the term "high frequency band" on its own. These limits can be ascertained from the intrinsic record and do not require consideration of extrinsic evidence.

Inline notes that the specifications of the '596 line of patents, recite: "to minimize the highest frequency used for transmission, it is recommended that the first channel be placed as close to the voiceband as feasible . . . ." 111 Examination of the specifications reveals the lowest "feasible" frequency contemplated by the patentee. Under the heading "Minimum Frequency," the following preferred embodiments are described: "if AM is used to transmit video signals, it is preferred that the picture carrier of the first such channel be located above 4.25 Mhz" 112 and "for FM transmission, it is preferred that the low end of the first channel be 4 Mhz." 113 These embodiments contemplate transmission of multiple channels above the voice band. The transmission of multiple channels is clearly the goal of the inventions. 114 The patents also describe more limited embodiments which are only capable of transmitting a single signal, however, and these embodiments recite the lowest transmission frequencies described in the '596 line of patents.

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112 '596 patent, 19:28-30.

113 '596 patent, 19:43-44.

114 '596 patent, 1:23-24 ("The present invention relates to a system for simultaneous two-way communication of video
In a section titled "Transmitting a Single Video Signal over Long Transmission Lengths (FIGS. 3A-3C)," the specifications state that "in these types of situations, use of extended pairs 405 to communicate multiple signals over a large frequency range many not be feasible. A system that communicates only a single video signal, however, can still be very useful in many important applications." The embodiments capable of transmitting only one video channel described in this section of the specifications represent the outer limit of transmission that is feasible. In discussing these outer-limit transmissions the patents describe "using frequencies below the lower limits suggested [in the "Minimum Frequency" section."] The patents state, with respect to figures 3a and 3c, that "there is room to transmit a narrow band of control signal between the voiceband and the video signal." The lowest frequency at which video signals are transmitted is 1 MHz and is illustrated in figure 3a. "Figure 3a shows the spectrum of such signal. The carrier frequency is 1.25 Mhz, with the lower sideband substantially suppressed below 1 Mhz."

This court is mindful of the Federal Circuit's admonition not to read limitations from patent specifications into the claims as well as that court's acknowledgment that there is "sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." For instance, in Comark the Federal Circuit determined that defendant's proposed construction seeking to limit the disputed term "to its functional purpose as disclosed in the preferred embodiment" was an improper attempt to read limitations from the specification into the claims. Conversely, the patents in this case make clear that the 1 MHz lower limit of video transmission of a "high band of frequencies" does not merely represent a functional purpose of a preferred embodiment. The patent states that "one of the disadvantages of lower frequencies is that the filtering that separates these signals from voiceband signals is more expensive because of the sharp cutoff required between the upper end of the voiceband and 1 Mhz." Rather than fulfilling the functional purpose of this embodiment, the specification makes clear that 1 MHz is a functional limitation of the invention. Therefore, the court concludes that lowest feasible frequency at which the invention can transmit "high frequency band" video signals is 1 MHz.

This court recognizes that it must interpret the claims in light of the specification, . . . yet avoid impermissibly importing limitations from the specification. . . . That balance turns on how the specification characterizes the claimed invention. . . . In this respect, this court looks to whether the specification refers to a limitation only as a part of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment." (emphasis added) (citations omitted)).

120 Comark, 156 F.3d at 1187.

This case is likewise distinguishable from the Federal Circuit's recent decision in Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352, No. 03-1052, 2004 WL 2059279, at *10 (Fed. Cir. Sept. 16, 2004). There, the defendant argued that the claim limitation "visual identification" recited in one of the patents at issue was limited to "an innovative cursor" based on language in the written description which stated "an innovative cursor 32 . . . for the irregular array . . . is required which satisfies several conflicting requirements." Id. at *8-*9 (emphasis added). The Federal Circuit rejected that argument stating that "in the context of the disclosure of the preferred embodiment of the '204 patent, the statement that 'innovative cursor 32 . . . is required,' is not the 'use [of] words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.' . . . Properly read . . . the statement merely conveys the advantages of 'innovative cursor 32' over prior art conventional cursors in the preferred embodiment." Id. at *10 (citations omitted) (alteration in original). Here, the "sharp cutoff required" below 1 MHz is not recited as a comparison to prior art. Also, while described as one of three "disadvantages" of the embodiment illustrated in figure 3a, this disadvantage was not one which might be overcome with stronger filtering or would merely be more expensive; the 1 MHz limit is a functional requirement. Cf. '596 patent, 25:65-26:4 (The patents describe two disadvantages of the lower frequency transmissions illustrated by figure 3a, in addition to the "sharp cutoff required" below 1 MHz: "[a] second disadvantage is that the harmonics of the telephone signals at lower frequencies are stronger, meaning that stronger filtering of the harmonics is required to protect against interference from these signals. A third disadvantage is that the modulation electronics becomes more expensive as the picture carrier approaches DC.").

As discussed above, it is reasonable to conclude that the control signal described in figure 3a is also included in the "high frequency band." The lower limit of this "narrow band" of signals is 0.25 MHz. Again, this appears to be the lowest limit at which it is feasible to transmit a "high frequency band" control signal. Other than Inline's insistence that the "high frequency band" includes all frequencies above the voice band, which the court has rejected, plaintiff has not pointed to any intrinsic evidence which contradicts this conclusion. 124

 Inline notes that "the upper end [of the high frequency band] . . . was not discussed by either party in the Markman briefs . . . ." 125 The failure of the parties to present arguments regarding the upper end of the high frequency band is undoubtedly due to the fact that the accused products operate at a range near the voice band and, therefore, the parties likely view the upper range of the high frequency band to be irrelevant to the question of infringement presented in these proceedings. Because the parties provided no argument at all concerning the appropriate upper limit of the "high frequency band," the court determines that it is unable to define a precise upper limit on this disputed term.
3. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Voice Band" for the '718 Patent

Although the court previously construed "high frequency band" as having the same meaning in both the '596 line of patents and the '718 patent, after a thorough review of the parties' arguments and the patents-in-suit, the court concludes that "high frequency band" must be construed more narrowly for the '718 patent than for the '596 line of patents. Having already determined that the ordinary and accustomed meaning of "high frequency band" is "the range of radio frequencies between 3 MHz and 30 MHz," the court must determine whether the intrinsic evidence demonstrates that the patentee used that term more or less expansively in the '718 patent. 126

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126 The court notes again that the disputed language in the '718 patent, "a high band of frequencies above a telephone voice band," is a slight variation of the disputed language in the '596 line of patents, "a high frequency band of frequencies above the highest frequency of the telephone voice band." Neither party argued that this distinction was relevant to the court's construction of those phrases and stated that "high band of frequencies" and "high frequency band" are interchangeable and mean the same thing. See footnote 26, above.

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As described above, defendants' opening Markman brief argued for a construction of "high frequency band" in the '718 patent as limited to those frequencies above 6 MHz and for a construction of that phrase in the '596 line of patents as limited to those frequencies above 1 MHz. Defendants then changed their proposed constructions and argued at the Markman hearing for one construction of "high frequency band" to be applied to all of the patents-in-suit. The court's review of the record reveals that, with respect to the '718 patent, defendants' initially-proposed construction is correct. 127

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127 Plaintiff had full opportunity to present arguments as to why it opposed this construction and, as plaintiff stated at the Markman hearing, the constructions set forth in defendants' opening Markman brief are those plaintiff was prepared to argue against at the Markman hearing.

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In support of that construction, defendants' opening Markman brief pointed to language in the '718 patent which states that governmental regulations restrict transmission of non-telephone signals below 6 MHz in the system described. Defendants also pointed out that the '718 patent specifically distinguishes the Tatsuzawa prior art patent on the basis that Tatsuzawa uses frequencies between 0 and 4 MHz, which "creates legal problems" 128 that are avoided by the invention described in the '718 patent.

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Plaintiff never specifically responded to either of defendants' arguments concerning the '718 patent's distinguishing of the Tatsuzawa prior art patent or that patent's references to regulations restricting transmission of signals below 6 MHz. In its opening Markman brief, Inline cited the '718 patent's statement that:

The technique disclosed herein embodies an extension designed to avoid interference with telephone signals. The extension calls for the frequency of the electrical version of the control signals to be converted to a higher band before transmission across the wiring. This band will be high enough to eliminate interference with the telephone or low-frequency communication signals. 129
Inline argued that:

It is clear from the above language that all of the patents contemplate selecting frequencies for the "high frequency band" that are sufficiently separate from the voice band to avoid causing interference with the telephone signals in the voice band during shared transmission on telephone wiring. The precise choice of frequency above the voice band is not important to the invention as long as interference is avoided with the voice band. 130

Inline contended that "there is no support in the plain language of the claims or the intrinsic evidence [to impose a 6 MHz lower limit]." 131

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129 D.I. 189 at 12 (quoting '718 patent, 13:22-31 (emphasis added by Inline)).
130 Id. at 13.
131 Id.
--- End Footnotes ---

In its responsive Markman brief, Inline argued that "the patents explicitly teach putting high frequency bands as low as possible and as close as possible to the telephone voice band to avoid signal attenuation . . . [and that] Defendants' construction would create a gap of between [sic] frequencies that is contrary to the teaching of the patents." 132 Inline responded to defendants' argument that, for the '596 line of patents, "high frequency band" should be construed as limited to frequencies above 1 MHz by pointing out that such construction would exclude the preferred embodiment illustrated in figure 3a of the '596 line of patents. 133 Again, Inline did not respond to defendants' arguments regarding regulations restricting transmission of signals below 6 MHz and the Tatsuzawa prior art patent.

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132 D.I. 197 at 18.
133 Id.
--- End Footnotes ---

Moreover, Inline failed to address directly those arguments at the Markman hearing. Inline merely stated that "a six megahertz barrier . . . is an example[, and all the '718 patent is] talking about is you configure these frequencies in a lot of ways, and here's one example [of] how you can do that …" 134 Giving plaintiff the benefit of the broadest reading possible of that statement, Inline might be understood to contend that defendants' proposed construction would improperly read the description of a preferred embodiment limitation from the specification into the claims. Even that reading is unavailing. References in the '718 patent to the 6 MHz limitation are not descriptions of a preferred embodiment selected by the patentee; they are descriptions of a restriction imposed by government regulations. The '718 patent specifically references this restriction three times.

--- Footnotes ---
134 D.I. 207 at 246.
--- End Footnotes ---

The first reference is in connection with a discussion of the Tatsuzawa prior art patent. The Tatsuzawa invention is described as:
depending on electrical characteristics particular to frequencies between 0 and 4 Mhz, limiting the transmission of frequency to that band. This creates legal problems because in the U.S., for example, regulations severely limit the RF energy below 6 Mhz that can be fed to wiring that is connected to the public telephone network. 135

135 '718 patent, 3:16-21 (emphasis added).

Next, the patent reiterates that there can be "legal problems" pertaining to electromagnetic radiation created when video signals are transmitted across telephone wiring. 136 The patent states that these legal problems are avoided by transmitting video signals above 6MHz: "in contrast to regulations covering radiation, no specific legal problems are created in the U.S. by the connection of radio frequency devices to the public telephone network if those devices do not transmit energy below 6 Mhz." 137

136 '718 patent, 9:51-55.


Finally, in discussing control signals, the '718 patent again references the regulations concerning transmission of energy below 6 MHz but notes that those regulations are not a problem for the invention described therein because "the U.S. Federal Communications Commission imposes no restrictions on signals above 6 Mhz, leaving ample room [for transmission of a control signal] between that frequency and the video signals, even if a channel below VHF 2 is used." 138

138 '718 patent, 13:52-57 (emphasis added).

The '718 patent, therefore, identifies 6 MHz as the lower limit of frequency transmission permitted by government regulations and not a merely as an example of a limitation described as part of a preferred embodiment which should not be read into the claims. This restriction is described as affecting both transmission of video and control signals. Furthermore, nothing in the intrinsic record contradicts this conclusion and no preferred embodiments are read out of the patent as a result of defining 6 MHz as the lower limit of the "high frequency band." In fact, the preferred embodiments described in the '718 patent describe transmission of video signals at frequencies significantly higher than 6 MHz.

The patent states that "the most natural choices for transmission frequencies are the channels in the low VHF range . . . [which are] VHF channels 2 through 6, which extend from 54 Mhz to 88 Mhz." 139 The lowest frequency band at which the inventors conducted video-transmission experiments was in the channel spanning from 24 MHz to 30 MHz. 140 With regard to control signals, the preferred embodiment describes transmission of a control signal at 10.7 MHz. 141 As noted above, however, the specification indicates that control signals can be transmitted in a range between 6 MHz and the lower limit of a transmitted video signal. Nowhere does the specification suggest transmission of any video or control signal below 6 MHz. 142

139 '718 patent, 10:60-63.


142 See '718 patent, 21:1-3 (In describing "Systems for RF Conversion to Achieve Transmission below VHF Channel 2," the specification states that "at the video source end, the transceiver must convert the signal from the frequency at which it is supplied to a band between 6 Mhz and 54 Mhz." (emphasis added)).

In light of plaintiff's deafening silence in response to defendants' specific argument regarding the government regulations restricting transmissions below 6 MHz, the court can only assume it had no viable argument to make. The court therefore concludes from this silence, and its review of the intrinsic evidence, that the lower limit of the "high frequency band" claimed in the '718 patent is 6 MHz. As with the '596 patent, the parties failed to present any argument concerning the upper limit of the "high frequency band" claimed in the '718 patent. This failure again precludes the court from defining the upper limit of "high frequency band" other than to note that the '718 patent includes several examples of transmission at frequencies above the limit of 30 MHz to which the court's prior construction limited this phrase. 143

Consequently, the court construes "high frequency band" as claimed in the '718 patent to mean "frequencies above the telephone voice band between 6 MHz and an undetermined upper limit." 144

143 See, e.g., '718 patent, 10:60-67; figure 3.

144 If the parties wish to present arguments to the court concerning the upper limit of the phrase "high frequency range" for any of the patents-in-suit, they may notify the court of this desire and a briefing schedule will be determined at that time. If the parties ultimately submit further briefing on the upper limit of "high frequency band" as claimed in the '596 line of patents, the court directs the parties' attention to the following language in those patents:

At higher frequencies, the 10 dB advantage of a 15 MHz FM signal may not be sufficient to overcome the extra attenuation. The solution, in that case, is to use wider FM bandwidths which produce a greater SNR improvement at the receiver. This, of course, brings one to even higher frequencies more quickly with each channel that is added. Because of this, the inventors expect that higher frequencies will not be useful beyond some point, and certainty not beyond 1000 Mhz." '596 patent 21:12-20 (emphasis added). Referencing this statement, the specification acknowledges that "as mentioned above, there is an upper limit to the frequencies that can be useful for transmission of signals across a transmission path of a given length." '596 patent 21:62-64 (emphasis added).

Any submissions should address this language and its effect on the parties' analyses.

VI. CONCLUSION

For the reasons set forth above, the court modifies its prior construction of the disputed terms of the patents in suit as follows:

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Court's Construction</th>
</tr>
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<tbody>
<tr>
<td>&quot;a high frequency band of frequencies above the highest frequency of the telephone voice band&quot;; &quot;high frequency band&quot;; and &quot;high band of</td>
<td></td>
</tr>
</tbody>
</table>

- 2310 -
frequencies" (596 line of patents)

"a high band of frequencies above a telephone voice band of frequencies"; "high frequency band"; and "high band of frequencies"

(718 patent)

1937

(2) high bandwidth bus

National asserts that this term does not need construction. N-Data and Dell agree on the general definition, but disagree as to the examples listed. N-Data incorporates all of the Dell examples and adds two additional ones—FDDI-II and P1394. The court agrees with N-Data; if multiple examples are incorporated into a definition, it would be misleading to exclude others when there are only a few that are excluded, as in this case. N-Data references two instances in the intrinsic record in which the patent expressly provides for two additional examples. See ’395 Patent, col. 3, ll. 42-43; U.S. Patent App. No. 07/969,916, col. 32, ll. 15-18.

Accordingly, the court defines "high bandwidth bus" as "a bus having a bandwidth capable of transmitting the collective isochronous data streams arriving from all nodes connected to a hub, e.g., a time slot interchange, "TSI" ring, FDDI-II, and P1394."

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24. High bandwidth external interface

The plaintiff argues that "high bandwidth external interface" means "an interface between the media processor and external sources of data capable of operating at or near a rate that maintains substantially peak operation of the media processor."

The defendants urge that "high bandwidth external interface" means "an interface between the media processor and external sources of data that operates at or near the peak data throughput rate of the execution units [sic] of the media processor."

The court construes "high bandwidth external interface" to mean "an interface between the media processor and external sources of data that is capable of operating at or near the peak data throughput rate of the execution unit of the media processor."

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4. high contrast (’028 patent)

CEA contends that this term does not require construction, but provides a proposed construction of: "a luminosity ratio between the on and off states of at least about 10:1."

Samsung argues that "high contrast" is indefinite. It contends that "contrast" is the ratio of light intensity in the bright state to light intensity in the dark state of a liquid crystal cell and that the ’028 patent does not provide information regarding what "high" means.

At oral argument, Samsung stated that if the court accepts its proposed construction of "means for polarizing" and "thickness of the [liquid crystal] layer" for the ’028 patent, it agreed with CEA that this term does not require construction. Having agreed with those definitions proposed by Samsung, the court determines that no construction of this term is necessary.

- 2311 -
Lucas claims that the Court erred as a matter of law by holding that this claim language means "that the voltage converter produces a high DC output voltage to some value relatively greater than the convertor input." Lucas Aerospace Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *12. Lucas contends the Court's construction of this language is in error because "had Unison intended the 'high' [DC output voltage] to be in reference to the 'low' voltage from the system source, then the proper way to draft the claim language would have been to use the term 'relatively high voltage.'" D.I. 394 at 15. Lucas also argues that because Unison used a relative term in the claim language, the Court must refer to the patent specification to interpret this disputed claim language. Id. at 16. Finally, Lucas argues that the Court must define the phrase "high DC output voltage" in reference to the preferred embodiment because "no other element of claim 1 addresses a boosting of the voltage to obtain the high voltage that is required to fire the plug." Id. at 17.

These arguments fail to demonstrate that the Court has erred in its interpretation of this claim language. First, Lucas offers no valid support for its proposition that "the proper way to draft the claim language would have been to use the term 'relatively high voltage.'" Id. at 15 (citing Steven A. Becker, Patent Applications Handbook 1995 Edition, Section 6.04(4] at 6-31 (1995 ed.)). As Lucas's citation to the Patent Applications Handbook suggests, when the patentee uses relative language in the patent claims, the relative language must have a point of reference for comparison. Claim 1 of the '073 patent provides a comparator for the 'high DC output voltage,' the voltage converter input received from the system source. '073 Patent, col. 15 at In. 66-68. Lucas's suggestion that Unison should have used the term 'relatively' to connote a comparison between the voltage converter output and the voltage converter input does not change the meaning of the claim language. Contrary to Lucas's suggestion, if the claim had read "a voltage converter for receiving a relatively low voltage from a system source and converting it to a relatively high DC output voltage output," the word 'relatively' would modify 'low' and 'high' in the phrase but would not provide any further datum to compare the voltage converter inputs and outputs. Furthermore, when the claim uses the phrases 'relatively slow current rise,' id. col. 16 at In. 17, and 'relatively fast di/dt,' id., col. 16 at In. 21-22, the word 'relatively' does not provide a point of reference for the comparison between the two values but modifies the rate of current rise, or 'di/dt,' just as the words 'fast' and 'slow' do.

The Court's construction of the claim also comports with language from the Patent Applications Handbook that Lucas omitted from its brief. According to the Patent Applications Handbook at 6-32 "the language, 'said inverter having a threshold within the range of .4 to .7 volt' would be favorably received by the examiner. However, this limitation is usually excessively narrow. It would be preferable to define the threshold as being relative to another level in the claim, e.g., 'said first inverter having a threshold higher than that of second inverter.'" That is exactly what Unison has done in this claim. In sum, the Court finds nothing ambiguous about this claim language that requires reference to the specification.

Citing Intervet America, Inc. v. Kee-Vet Lab., Inc., 887 F.2d 1050 (Fed. Cir. 1989), Lucas nevertheless urges the Court to interpret the claim language in light of the patent specification because the disputed claim language contains a relative term. Intervet America, Inc. v. Kee-Vet Lab. stands for a different proposition. Far from requiring a quantitative definition of all relative terms by reference to the specification, the Intervet America court found that the district court erred by reading a relative limitation into the claim that "meant nothing without knowing the reference point from which attenuation [the extraneous limitation] is being measured." Id. at 1055; see also id. ("Here again,...the court was reading limitations into the claims which cannot be found there;...it was reading them in from remarks made by the attorney in the course of arguing distinctions from a cited reference. We have set forth the asserted claims in full above and it is clear that they make no reference whatever to attenuation."). Furthermore, even if Intervet America did stand for the proposition cited by Lucas, Lucas's suggested reference to the patent specification does not support its position that "800 volts [the Lucas devices' voltage converter output] could never qualify as a 'high output voltage.'" D.I. 394 at 16 (citing '073 Patent, col. 1 at In. 47). Column 1 line 47 discusses 1000 volts as a low voltage for creating sparks at the igniter plug. In contrast, the claim language at issue involves low voltages coming from a system source and not low voltages for igniting sparks; the phrase 'low voltage' when used in the context of igniting fuel simply does not relate to the system source voltage. See also Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *3 (noting that most aircraft electronic supply voltages are 28 volts, which, when compared to either 1,000 or 2,500 volts, is 'low').
Finally, in a refinement of its earlier arguments, Lucas contends the phrase 'high DC output voltage' and the phrase 'a high voltage,' as used in the fifth element of the '073 patent, must have the same values because '073 patent inventor John Frus testified that his invention, or at least the preferred embodiment of his invention, uses approximately the same voltage at the plug as is produced at the voltage converter. The structure of claim 1 belies this assertion. First, if the patentee had desired that these two phrases have the same meaning, the patentee would have used the phrase "the high DC output voltage (or the high voltage from the voltage converter) appears across the gap of the igniter plug…." Cf. Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims") (discussing the doctrine of claim differentiation).

Second, and more importantly, claim 1 of the '073 is an open-ended claim comprised of a series of elements. As such, if an allegedly infringing device contains all of these elements, that device would be considered to infringe the patent, even if the device includes additional structures. Amstar Corp. v. Envirotech Corp., 730 F.2d 1476, 1482 (Fed. Cir.) ("Modification by mere addition of elements of functions, whenever made, cannot negate infringement") (citations omitted), cert. denied, 469 U.S. 924, 83 L. Ed. 2d 240, 105 S. Ct. 306 (1984). An additional structure to boost the voltage converter output to a higher voltage as seen at the igniter plug is not precluded by the language of claim 1. In sum, Lucas has not demonstrated that the Court has erred as a matter of law in its construction of the phrase "high DC output voltage."

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High Density Memory Array

The Court next addresses the term "high density memory array" in claim 23 of the Edwards patent. ST proposes that the term mean "a memory array having a large number of memory cells for a given area." ST's proposed construction mirrors the plain language of the term and illustrates that none of the four words in this term have a meaning of ordinary skill in the art would not understand. In contrast, Motorola proposes that the Court construe the term to mean: "an array of high density memory cells. 'High Density' memory would have been understood by one of ordinary skill in the art in the early 1980's as including high impedance resistive load SRAM, DRAM, thin film transistors and three-transistor memory cells, but not including depletion transistor loads or complimentary pull-up transistors." Whereas ST’s proposed construction simply reflects the plain meaning of the term's four words, Motorola's construction requires importing limitations from the specification and speculating on what a person of ordinary skill in the early 1980's would have thought.

The Court adopts ST's proposed construction. First, as noted above, the Court finds that ST's proposed construction mirrors the plain and ordinary meaning of the term's words. Sunrace Roots Enter. Co., LTD v. SRAM Corp., 336 F.3d 1298, 1302 (Fed. Cir. 2003) (finding a "heavy presumption" that claim terms carry their ordinary and customary meaning which is only rebutted if the patent "expresses an intention to impart novel meaning to [them]"). Second, although the specification does mention the limitations that Motorola would import, the Court finds that those limitations are examples rather than a disclaimer of claim scope. To support its construction, Motorola cites specification language declaring "this example uses static RAM cells (SRAM) using high impedance resistive load SRAM, DRAM, thin film transistors and three-transistor memory cells, but not including depletion transistor loads or complimentary pull-up transistors." Whereas ST’s proposed construction simply reflects the plain meaning of the term's four words, Motorola's construction requires importing limitations from the specification and speculating on what a person of ordinary skill in the early 1980's would have thought.

Finally, in a refinement of its earlier arguments, Lucas contends the phrase 'high DC output voltage' and the phrase 'a high voltage,' as used in the fifth element of the '073 patent, must have the same values because '073 patent inventor John Frus testified that his invention, or at least the preferred embodiment of his invention, uses approximately the same voltage at the plug as is produced at the voltage converter. The structure of claim 1 belies this assertion. First, if the patentee had desired that these two phrases have the same meaning, the patentee would have used the phrase "the high DC output voltage (or the high voltage from the voltage converter) appears across the gap of the igniter plug…." Cf. Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims") (discussing the doctrine of claim differentiation).
8. "material having a high electrical resistance"

This phrase is found in Claims 1 and 16. Plaintiff argues that this phrase should be construed as "a metal, alloy or other material, such as tungsten, molybdenum or Elkonite (copper-tungsten alloy) having a higher electrical resistance than copper." Defendants assert that the phrase need not be construed, and the Court agrees. Because the Court sees no ambiguity as to the meaning of the phrase "material having a high electrical resistance" and because its ordinary and customary meaning is clear to one skilled in the art, the Court declines to construe the phrase as it is used in the '015 Patent.

3. Application to the Instant Action

Judge Sotomayor construed "high frequency" to encompass 54 to 216 MHz, "received by conventional television receivers of the time." The opinion indicates that the "conventional television receivers" meant in the definition were those found in the United States. IPD II, 1998 U.S. Dist. LEXIS 3901, 1998 WL 142346, at *5. Cablevision and TCI assert that "high frequency" means 3 to 30 MHz. (Defs.' Br. at 5.) In short, defendants' interpretation is based on the assertions that (1) the ordinary and accustomed meaning of "high frequency" is 3-30 MHz; (2) the specification is consistent with that definition; (3) the prosecution history confirms the definition; and (4) the Canadian prosecution history and other evidence affirm that definition.

IPD and CPL contend that "high frequency" should maintain the definition as construed: 54-216 MHz. (Pls.' Br. at 1.) IPD and CPL assert that Judge Sotomayor interpreted the claim based upon intrinsic evidence, yet also assert that the Court relied on the testimony of the parties' experts. (Pls.' Br. at 3.) IPD and CPL conclude that because the definition was based on intrinsic evidence, it should not be altered by Cablevision and TCI's new extrinsic evidence.

4. The Intrinsic Evidence

a. The '202 Patent Claims

The 202 patent never defines "high frequency." Although Claim 1 employs the phrase three times, it does not provide a definition. (202 Patent, col. 4, ll. 18, 22, 26.) Nor does Claim 1 imply which frequency range was meant by "high frequency." For example, Claim 1 states that the "high frequency carrier radio wave signals modulated with video broadcast signals" are applied to a "conventional television receiver without further processing" by way of a "means coupling" the signals from the receptor position to the subscriber stations. (202 patent, col. 4 ll. 24-31.) This phrase is ambiguous because the claim fails to specify the frequencies such a television could receive, and whether the term "conventional television" refers to one found in the United States or in England, where Mr. Cutler and IPD resided and the invention originated. A person skilled in the art would recognize that while the patent was prosecuted in the United States, the claims might refer to an English television.

In addition, it is unclear whether the word "receiver" is used to indicate that the television acts as a device that "receives" the signal, or, alternatively, that the signal is applied to a receiver device in the television itself.
b. The Ordinary Meaning of "High Frequency"

Because the claims do not specify the frequency range, one skilled in the art would presume that "high frequency" would have its ordinary meaning, unless the patent applicant clearly assigns a different meaning to the term. See Vitronics Corp., 90 F.3d at 1582 (citing Hoechst Celanese Corp., 78 F.3d at 1578). Thus this Court reviews "the specification to determine whether the inventor has used [the term] in a manner inconsistent with [its] ordinary meaning." Vitronics, 90 F.3d at 1582 (citing Markman, 52 F.3d at 979).

One skilled in the art at the time of the application would have understood "high frequency" in the 202 patent to mean 3-30 MHz. A technical dictionary published in 1974 defines the term as "Federal Communications commission designation for the band from 3 to 30 MHz in the radio spectrum. Abbreviated HF." (Sirota Decl. Ex. 4: Dictionary of Scientific and Technical Terms 690 (Daniel N. Lapedes ed., McGraw-Hill 1974).) Similarly, a radio frequencies table lists high frequency as covering 3 to 30 megacycles. (Sirota Dec. Ex. 4: Webster's Seventh New Collegiate Dictionary 705 (G.& C. Merriam Co. 1967)(1961).)

In addition, CPL's statements to the Canadian patent examiner provide further understanding of how one skilled in the art would regard the term "high frequency" in 1976. Although varying legal and procedural requirements for obtaining patent protection in foreign countries might render consideration of certain types of representations inappropriate, instructions to foreign counsel and representations to foreign patent offices must be considered when such matters comprise relevant evidence. Caterpillar Tractor Co., 714 F.2d at 1116 (citing Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538-39 (Fed. Cir. 1983)); see also Tanabe Seiyaku Co. Ltd. v. U.S. Int'l Trade Com'n., 109 F.3d 726, 733 (Fed. Cir. 1997) (noting that statements made to foreign patent examiner by inventor were indicative of understanding of one skilled in the art).

Both the Canadian Patent Office and the U.S. PTO require an applicant to distinguish the claimed invention from the prior art. (See Sirota Decl. Ex. 14: Canadian Patent Office Examiner's Report at 2 (rejecting claims as obvious in light of prior art); 35 U.S.C. § 102.) IPD's patent application in Canada as of November 7, 1977 corresponded with the 202 patent's application in the United States. (See Sirota Decl. Ex. 15: Nov. 7, 1977 Response.) Thus, the discussion of prior art in the Canadian prosecution is relevant to claim interpretation in the instant action. See Caterpillar Tractor Co., 714 F.2d at 1116.

In its communications with the Canadian patent examiner, CPL made it clear that one skilled in the art would understand "high frequency" to mean 3-30 MHz. In response to an Office Action rejecting Claim 1, IPD referred to its invention as "h-f", (Sirota Decl. Ex. 17: May 31, 1978 Response), and classified high frequency as 3-30 MHz. (Sirota Decl. Ex. 19: Oct. 3, 1978 Response.) While distinguishing its invention from U.S. Patent No. 3,617,750 ("the Walker patent"), IPD represented that these systems must be in the very high or ultra high frequency range in view of the bandwidth occupied by a single television signal. The F.C.C. Official designation of frequencies classifies high frequency as covering 30-300 MHz [sic, 3-30 MHz] and classifies very high frequency as covering 30 to 300 MHz. Thus, the system set forth by Walker is completely different in its conception from that of the present invention.

(Sirota Dec. Ex. 19: Oct. 3, 1978 Response.) 5 Moreover, to avoid rejection based on obviousness in light of the very high frequencies employed by the prior art, IPD defined the range denoted by "high frequency" as that pertaining to televisions receptive to the 3-30 MHz range, such as the "HF systems which have found wide application in, for example, the United Kingdom. . . . Persons experienced in the wired CATV business would not however fail to appreciate the significance of the term 'high frequency'" (Sirota Decl. Ex. 19: Oct. 3, 1978 Response.) Lastly, to distinguish itself from the prior art, CPL advised the Canadian examiner that "the new claims are distinguished from the prior art which does not suggest H.F. carry a modulation." (Sirota Decl. Ex. 15: Nov. 7, 1977 Response.) In sum, in prosecuting its patent in Canada, CPL asserted that the ordinary meaning of "high frequency" was 3-30 MHz, and relied upon that definition to demonstrate that one skilled in the art would understand the invention of the 202 patent to employ carriers with a frequency of 3-30 MHz.

5 IPD later corrected the phrase to define high frequency as 3-30 MHz. (See Sirota Decl. Ex. 20: Letter.)
c. The Specification

The 202 patent does not define "high frequency" at variance with the ordinary meaning of 3-30 MHz. In describing the prior art upon which the 202 patent improves, the specification states that in one wired broadcasting system, "commonly the range of frequencies employed extends throughout the VHF spectrum, for example, from about 40-300 MHz." (202 patent at col. 1, ll. 14-16.) Thus the patent equates VHF, or very high frequency, with frequencies from about 40 to 300 MHz. In the following description of prior art, the specification states that "commonly the signals all have the same nominal carrier frequency somewhere in the range 2-20 MHz." (202 patent col. 1, ll. 24-26.) Thus the patent does not equate the 2-20 MHz range with VHF. In its critique of the prior art operating in the 40-300 MHz range, the patent attributes "relatively high" transmission losses to the "frequencies involved," (202 patent col. 1, ll. 29-31), and then asserts that the invention in the 202 patent is an improvement that minimizes "the disadvantages of the currently known systems." (202 patent col. 1, ll. 39-41.) Thus, the VHF range, with its attendant transmission losses will be improved upon in the 202 patent. One skilled in the art could interpret this stated improvement over the prior art to mean that the disclosed invention would not use the VHF 40-300MHz range, as a way to avoid the transmission losses. Thus, the specification loosely implies that "high frequency" would not be 40-300 MHz.

In explaining Figure 1, the specification notes that "in the event that said signals are high frequency modulated carrier waves the output signals provided by the photosensitive detectors 6, 7, may be of a form suitable for direct application to the television receivers 10, 11 if these are of a type designed for use in high frequency wired broadcasting systems." (202 patent col. 2, ll. 53-58)(emphases added.) That tentative language, including "in the event," "may" and "if," provides no guidance; the sentence fails to clarify whether the television receiver is "conventional" as described in Claim 1, or to state the frequency range for the television receivers.

The description of Figure 2 contains similarly indefinite language: "In this system it is convenient to arrange that the modulation signals applied to the line 15 comprise high frequency modulated carrier waves. In this event, the launching amplifier 19 and receivers 21, 22 may be of the kind presently employed in high frequency wired broadcasting systems. " (202 patent col. 3, ll. 6-11.) (emphases added.) That language of contingency makes it difficult to determine the MHz range of "high frequency." By referring back to the patent's description of the prior art, one might speculate that Cutler is referring to frequencies outside the 40-300 MHz range. But language inviting conjecture does not clearly define the term such that one skilled in the art would disregard the term's customary meaning. See Vitronics Corp., 90 F.3d at 1582 (citing Hoechst Celanese Corp., 78 F.3d at 1578). 6 In sum, the specification does not clearly imply or express a special definition for the term "high frequency."

6 In other instances, the specification uses the term "high frequency" without adding further clarification of its meaning. (See 202 patent col 2, ll. 4-6, 35-36, 49.)

d. The Prosecution History

During the prosecution of the 202 patent, Cutler, through his attorney, amended Claim 1 to include the phrases "a high frequency carrier in the range 40-300 MHz" and "conventional television receivers at the subscriber stations responsive to receive high frequency carriers in the range of 40-300 MHz." (Declaration of Neil P. Sirota in Support of Defendants Telecommunications, Inc.'s and UA-Columbia Cablevision of Westchester, Inc.'s Omnibus Motion for Summary Judgment ("Sirota Decl.") Ex. 5: August 10, 1977 Amendment at 2.) The Remarks portion of the amendment does not directly discuss that new definition. (Sirota Decl. Ex. 5: Amendment at 3-6.) Nine days later, Cutler retracted the amendment by deleting "in the range of 40-300 MHz." (Sirota Decl. Ex. 6: August 19, 1977 Supplemental Amendment at 2.) The Remarks section states "upon review of the amendment filed August 11, 1977, it is not seen that the Specification would adequately support the particular frequency range stated. . . It is not seen that this specific change will affect the patentability other than as above stated." (Sirota Decl. Ex. 6: Supplemental Amendment at 2.) For purposes of patentability, then, Cutler disclaimed the 40-300 MHz frequency range. During claim construction, a patent owner cannot expand the meaning of a claim to recapture subject matter disclaimed during prosecution. See Southwall Techs., 54 F.3d at 1576, Festo Corp., 234 F.3d at 576 (claim
amendments "must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers." (citing Hubbell, 179 U.S. at 82). Therefore, in the 202 patent, "high frequency" does not include 40-300 MHz.

The prior Markman decision in this action acknowledged the ambiguity surrounding Cutler's retraction of 40-300 MHz; the Remarks do not provide a detailed rationale for the retraction, nor do they specify which MHz range corresponds with the specification. IPD II, 1998 U.S. Dist. LEXIS 3901, 1998 WL 142346, at *5 n.3. Indeed, "the Remarks standing alone do not definitively answer what 'high frequency' means as recited in Claim 1." IPD II, 1998 U.S. Dist. LEXIS 3901, 1998 WL 142346, at *5 n.3. However, the new evidence related to the August 1977 amendment and retraction, and the clarification of extrinsic evidence's role in claim construction as set forth in Pitney Bowes confirm that "high frequency" means 3-30MHz in the 202 patent.

5. The New Extrinsic Evidence

In an effort to clarify the definition of "high frequency", TCI and Cablevision offer evidence regarding the prosecution of the 202 patent that surfaced after the Court issued its claim construction. (Defs.' Br. at 7-9.) CPL directed the prosecution of the 202 patent, (Sirota Decl. Ex. 21: Kenneth C. Quinton Depo. at 116: 11-19), by directing its U.S. patent prosecutor through its British patent agent. In a letter to its British patent attorney, CPL explained the invention as "having a particular frequency related to [Rediffusion's] HF receivers," and that "the HF carriers were chosen to minimize the patterning effects overcome by our previous inventions." (Sirota Dec. Ex. 8: Letter.) The U.S. patent prosecutor submitted the August 10, 1977 amendment that added "40-300MHz" without CPL's prior approval. After reviewing the amendment, CPL advised its British patent agent that (1) the frequency range should have been defined as 3-30 MHz, not 40-300 MHz and (2) Claim 1 should read "conventional HF television receivers." (Sirota Dec. Ex. 10 Telex.) The British patent agent responded that "hopefully it will be fairly easy to make the necessary corrections as the frequency range given is clearly at variance with the words 'a high frequency carrier' to which the range is intended to relate." (Sirota decl. Ex. 11 Letter.) Collectively, that evidence demonstrates that (1) the "conventional" televisions in the specification refer to Rediffusion's HF televisions and (2) the Supplemental Amendment disclaimed the 40-300 MHz range because the 3-30 MHz range complied with the specification. This new evidence confirms that 3-30 MHz is the range in the 202 patent. See Cybor Corp., 138 F.3d at 1455; Pitney Bowes, 182 F.3d at 1309.

The parties have submitted expert testimony concerning how one skilled in the art would have interpreted "high frequency" in the 202 patent. The experts present varied definitions of "high frequency." See, e.g., Decl. of Bernard J. Lechner dated February 7, 1997 at P 38; Decl. of Archer S. Taylor dated March 24, 1997 at P 21.) Thus, this claim construction relies on more objective evidence as described in Vitronics Corp., which states that expert testimony may only be relied upon if the patent documents, taken as a whole, are insufficient to enable the court to construe disputed claim terms. Such instances will rarely, if ever, occur. . . Even in those rare instances, prior art documents and dictionaries, although to a lesser extent, are more objective and reliable guides. Unlike expert testimony, these sources are accessible to the public in advance of litigation. They are to be preferred over opinion testimony.

Vitronics Corp., 90 F.3d at 1585 (citing Markman, 52 F.3d at 983). This opinion does not rely on the experts to explain the underlying technology of frequency ranges; understanding the difference between frequency ranges is not difficult, and the expert reports provide little technical information to explicate frequencies generally. Moreover, this Court's claim interpretation does not adopt any expert's legal conclusion, but rather considers both intrinsic evidence and other more objective extrinsic evidence.

Finally, IPD and CPL submit numerous patents and articles to demonstrate that engineers used the terms "high frequency" or "very high frequency" as "generic, context-dependant" terms. (Plaintiff's Trial Memorandum of Law; Markman Hearing, at 21-22.) As Judge Sotomayor observed, however, "these materials clearly specified the frequency range the author intended by the use of high frequency and Cutler did not. A person skilled in the art, however, would have understood to look to the context of Cutler's use of high frequency within the claim and prosecution history . . . ." IPD II, 1998 U.S. Dist. LEXIS 3901, 1998 WL 142346, at *9. Accordingly, this Court finds that "high frequency" in the 202 patent encompasses a range of 3-30 MHz, based on the intrinsic evidence as confirmed by the extrinsic evidence.
IPD argues that the district court erred in reconsidering Judge Sotomayor's construction of the term "high frequency carrier." Specifically, it asserts that the intrinsic evidence, including the claim language, the specification, and the prosecution history, establishes that "high frequency" encompasses any frequency at which a conventional TV receiver can receive and display a signal. It also contends that the district court erroneously resorted to selected extrinsic evidence, including dictionaries, to construe the term "high frequency."

Cablevision argues that the district court properly construed the term "high frequency carrier" in claim 1. It asserts that the intrinsic as well as extrinsic evidence supports the district court's construction. In the alternative, it argues that if IPD is correct that "high frequency" includes 3-300 MHz, then the '202 patent is invalid under 35 U.S.C. § 102(f) for lack of inventorship. As explained below, we agree with Cablevision that the district court did not err in construing "high frequency" to mean a frequency in the range of 3-30 MHz.

We begin our claim construction analysis with the words of the claim. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). "In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to 'particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.'" Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001) (citing 35 U.S.C. § 112, P 2). The words used in the claims are examined from the perspective of a person skilled in the art. Tegal Corp. v. Tokyo Electron Am., Inc., 257 F.3d 1331, 1342 (Fed. Cir. 2001). In the absence of an express intent to impart a novel meaning to claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources. Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 2003 U.S. App. LEXIS 13861, No. 02-1145, slip op. at 8-9 (Fed. Cir. June 27, 2003). Some of these sources include the claims themselves, see Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999); dictionaries and treatises, Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002); and the written description, the drawings, and the prosecution history, see, e.g., DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001).

The district court noted that because claim 1 of the '202 patent does not specify a frequency range, one skilled in the art would presume that "high frequency" would have its ordinary meaning, unless the patentee clearly assigned a different meaning to the term. Summary Judgment Order at 22. Starting from that premise, the court concluded that one skilled in the art at the time of the patent application (December 2, 1974) would have understood "high frequency" in the '202 patent to mean a frequency between 3-30 MHz. Id. The court noted two dictionary definitions that defined "high frequency" as covering frequencies between 3-30 MHz:


Id. 6

6 "Sirota Decl." refers to the declaration submitted by Neil P. Sirota in support of Cablevision's summary judgment motion.

IDP argues that the district court "put the cart before the horse" by looking at dictionary definitions first instead of the specification to determine the meaning of the term "high frequency." We disagree. As we have noted, "consulting the written description and prosecution history as a threshold step in the claim construction process, before any effort is made to discern the ordinary and customary meanings attributed to the words themselves, invites a violation of our precedent counseling
against importing limitations into the claims." Tex. Digital, 308 F.3d at 1204 (citations omitted). In fact, we have noted that
dictionaries, encyclopedias, and treatises, publicly available at the time the patent is issued, are objective resources that
serve as reliable sources of information on the established meanings that would have been attributed to the terms of the
claims by those of skill in the art:

Such references are unbiased reflections of common understanding not influenced by expert testimony or events
subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not
inspired by litigation. Indeed, these materials may be the most meaningful sources of information to aid judges in better
understanding both the technology and the terminology used by those skilled in the art to describe the technology.

Id. at 1202-03. Accordingly, the district court did not err in looking to dictionary definitions before consulting the written
description or the prosecution history to determine the meaning of the term "high frequency." Indeed, we agree with the
district court that, based on the dictionary definitions of "high frequency," one skilled in the art at the time of the patent
application would have understood "high frequency" in the '202 patent to mean a frequency between 3-30 MHz.

In addition, IPD argues that the use of dictionaries as a claim construction tool in this case is inappropriate because there are
different dictionary definitions of "high frequency," some of which place "high frequency" outside a range of 3-30 MHz.
IPD relies on the Oxford English Dictionary and notes that it defines "high frequency" as "[a] frequency . . . having a
relatively large number of cycles in a second." IPD further notes that the Oxford English Dictionary refers to the Dictionary
of Electronics and that the Dictionary of Electronics defines "high frequency" as "[a] general term used to distinguish
signals of radio frequency from those of audio frequency."

We have noted that "because words often have multiple dictionary definitions, some having no relation to the claimed
invention, the intrinsic record must always be consulted to identify which of the different possible dictionary meanings of
the claim terms in issue is most consistent with the use of the words by the inventor." Tex. Digital, 308 F.3d at 1203 (citation
omitted). In this case, as will be seen next, the dictionary definition that is most consistent with the specification and the
prosecution history is the definition that defines "high frequency" as including frequencies in the range of 3-30 MHz. See
Communications Commission designation for the band from 3 to 30 megahertz in the radio spectrum"); Webster's Seventh
New Collegiate Dictionary 705 (1967) (defining "high frequency" as "3 to 30 megacycles").

7 We note that even the dictionaries that IPD relies on have a definition for "high frequency" that is consistent with the
definition used by the district court and advanced by Cablevision. For example, the Oxford English Dictionary defines high
frequency as:

A frequency (see FREQUENCY 4b) having a relatively large number of cycles in a second. Applied esp. to an electric
current or voltage, an electromagnetic wave or a sound wave. Abbrev. H.F., esp. in radio and telecommunications, where it
also refers specifically to electromagnetic waves of 3-30 MHz.

(emphasis added). Similarly, the Dictionary of Electronics defines "high frequency" as:

(1) A general term used to distinguish signals of radio frequency from those of audio frequency. (2) A relative term used
to describe frequencies at the upper end of a particular frequency band. (3) Term of specific application to radio waves in
the frequency range between 3 and 30 Mc/s, i.e. of wavelengths from 100 m down to 10m.

(emphasis added).

The '202 patent's written description supports the district court's conclusion that "high frequency" in the claim term "high
frequency carrier" refers to a frequency in the range of 3-30 MHz. The written description should be examined in every case
to determine if the presumption of ordinary and customary meaning is rebutted. Brookhill-Wilk, slip op. at 6 (citing
Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). The presumption will be rebutted
where the patentee, acting as his or her own lexicographer, has clearly set forth a definition of a claim term that is different from the term's ordinary and customary meaning. Id. at 6-7 (citing In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994); Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387-88 (Fed. Cir. 1992)). It also will be rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. Id. at 7 (citing Teleflex, 299 F.3d at 1324).

The district court noted that the specification of the '202 patent does not define "high frequency" in a way that is at variance with the ordinary meaning of 3-30 MHz. Summary Judgment Order at 25. The court stated that "the specification does not clearly imply or express a special definition for the term 'high frequency.'" Id. at 27. We agree. Nowhere in the specification does the patentee, acting as his or her own lexicographer, clearly set forth a definition of "high frequency" different from its ordinary and customary meaning. If anything, the specification of the '202 patent supports the ordinary meaning of "high frequency" as being 3-30 MHz. It does so because it provides a definition for very high frequency, or VHF, as 40-300 MHz. '202 patent, col. 1, ll. 14-16 (stating that "commonly the range of frequencies employed extends throughout the VHF spectrum, for example, from about 40-300 MHz" (emphasis added)). Under these circumstances, we conclude that since the patentee defined a range for VHF, it certainly could have defined a range for high frequency and that, since it did not, high frequency should be given its ordinary and customary meaning of 3-30 MHz.

We have noted that, like the specification, the prosecution history may demonstrate that the patentee intended to deviate from a term's ordinary and accustomed meaning, i.e., if it shows that the patentee characterized the invention using words or expressions of manifest exclusion or restriction before the United States Patent and Trademark Office. Teleflex, 299 F.3d at 1326. The prosecution history limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance. Id. In this case, however, nothing in the prosecution history demonstrates that the patentee intended to deviate from the term "high frequency"'s ordinary and accustomed meaning of 3-30 MHz.

Lastly, IPD argues that the following language in claim 1 supports its construction that "high frequency" also includes frequencies in the VHF range: "conventional television receivers at the subscriber stations responsive to receive said high frequency carrier modulated with video broadcast signals." '202 patent, col. 4, ll. 20-23 (emphasis added). IPD relies on Judge Sotomayor's earlier claim construction ruling in support of this argument. Judge Sotomayor stated that the use of the phrase "conventional television receivers" in connection with "high frequency transmission" would have meant to a person skilled in the art that the inventor was referring to a VHF system operating in at least a range of 54 to 216 MHz. Claim Construction Ruling at 17. Judge Sotomayor reached this conclusion by noting that a person skilled in the art in the United States would have understood a reference to a conventional television receiver in the claim to mean a VHF television receiver. Id. at 18. We do not agree. In our view, the ordinary meaning of "high frequency" helps define the term "conventional television receivers," not the inverse. That is so because claim 1 refers to "conventional television receivers at the subscriber stations responsive to receive said high frequency carrier." '202 patent, col. 4, ll. 20-23 (emphasis added). The quoted language establishes that "conventional television receivers" are properly read as a subset of all television receivers, i.e., those responsive to a high frequency signal.

In sum, we hold that the district court correctly construed "high frequency" as including only any frequency between 3-30 MHz. Because we agree with the district court's construction of the term "high frequency carrier," we affirm the court's grant of summary judgment of non-infringement in favor of Cablevision. The accused systems operate in the VHF range, i.e., in the 30-300 MHz range, and thus fall outside the literal scope of the '202 patent. 8

---Footnotes---

8 As noted above, the district court also granted summary judgment of non-infringement under the doctrine of equivalents in favor of Cablevision on the ground that prosecution history estoppel precludes IPD from arguing that the "transmission means" limitation of claim 1 is infringed under the doctrine of equivalents. Summary Judgment Order at 56. Because IPD has not raised infringement of the "high frequency" limitation under the doctrine of equivalents and in view of our conclusion that the district court correctly granted summary judgment of no literal infringement with respect to the "high frequency carrier" limitation, we do not reach the issue of whether the district court correctly granted summary judgment of non-infringement under the doctrine of equivalents.

---End Footnotes---
IV. POSITIONS OF THE PARTIES

A. The Parties' Prior Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band"

In its Markman briefing and at the Markman hearing, Inline consistently argued that the disputed claim terms "a high frequency band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the '596 line of patents, 24 and that the disputed claim terms "a high band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the 718 patent, 25 should each be construed as "frequencies above the telephone voice band." 26

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

24 See, e.g., '596 patent, cl. 61; '446 patent, cl. 1, '585 patent, cl. 1.
25 See, e.g., 718 patent, cl. 22.
26 See, e.g., D.I. 189 at 10; D.I. 207 at 244 ("All of the claims of all of the patents refer to frequency above the telephone voice band."). Both parties argued at the Markman hearing that each of the disputed phrases quoted above (i.e., those including "high frequency band" and "high band of frequencies") should be construed identically in all four of the patents-in-suit. See Markman Opinion, 302 F. Supp. 2d at 326 n.86. Since each of the patents-in-suit are continuations of the same patent application, common construction of these terms could be proper. See Arthur A. Collins, Inc. v. Northern Telecom Ltd. 216 F.3d 1042, 1044 (Fed. Cir. 2000) (Because two patents "shared the same written description," and the second patent "is a continuation of" the first patent, the district court's "determination that a common construction of" a limitation in the claims of the two patents "was appropriate."). To avoid unnecessary repetition, the court's references to "high frequency band" in this opinion apply to each of the disputed phrases containing variations of this language.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Defendants argued at the Markman hearing that the correct construction of "high frequency band" in each of the patents-in-suit is "any of the radio frequencies between 3 and 30 MHz." 27 As noted in the Markman Opinion, this construction was first recited in defendants' responsive Markman brief and was a change in the proposed construction offered by defendants in their opening Markman brief. 28 In their opening Markman brief, defendants argued that the proper construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" as recited in the '596 line of patents is "the band of frequencies above 1 Mhz." 29 Defendants argued that the proper construction of "high band of frequencies above a telephone voice band" as recited in the 718 patent is "the band of frequencies above 6 MHz." 30

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27 Markman Opinion, 302 F. Supp. 2d at 320. Megahertz is defined as "one million cycles per second, used esp. as a radio-frequency unit." Webster's II New Riverside University Dictionary 739 (1988). The correct abbreviation of megahertz is "MHz." The patents-in-suit and the parties' briefing sometimes abbreviates megahertz as "Mhz." In this opinion, the court uses the abbreviation "MHz" unless quoting language using the abbreviation "Mhz."

28 Markman Opinion, 302 F. Supp. 2d at 320 n.61.
29 D.I. 187 at 43 (emphasis omitted).
30 Id. at 45 (emphasis omitted).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -
In its Markman Opinion, the court construed "a high frequency band of frequencies above the highest frequency of the
telephone voice band" to mean "frequencies above the telephone voice band between the range of 1 and 30 MHz." 31

31 Markman Opinion, 302 F. Supp. 2d at 326. This construction was applicable to both the '596 line of patents and the '718 patent.

B. The Parties' Current Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the
Highest Frequency of the Telephone Voice Band"

In its Motion for Reconsideration, Inline requests that the court modify the construction of "high frequency band" in the
Markman Opinion, "frequencies above the telephone voice band between the range of 1 and 30 MHz, " by deleting the
words "between the range of 1 and 30 MHz," or alternatively, by construing the disputed phrase as "a range of frequencies
above the telephone voice band." 32 Again, this the same construction proposed by Inline in its Markman briefing and at the
Markman hearing that was rejected by the court. 33

32 D.I. 242 at 1.

Defendants contend that the construction set forth in the Markman Opinion should not be changed because it "was correctly
guided by the governing Federal Circuit law and is firmly grounded in the intrinsic records of these patents." 34

34 D.I. 249 at 3.

C. The Parties' Positions on Reconsideration

Inline argues that "reconsideration of the Court's construction is required to avoid manifest injustice, as the current
construction excludes valuable telephone wire spectrum from the literal scope of the claims and is based upon a
misapprehension of the applicability of a dictionary definition and of the embodiments and teachings of the patents." 35

Inline sets forth three distinct arguments it believes compel modification of the court's construction.

35 D.I. 242 at 1.

First, that the dictionary definition relied upon is not relevant to the patents-in-suit because that definition "refers to specific
radio frequency spectrums used historically and today by the Federal Communications Commission ('FCC') as a frequency
nomenclature for regulating and allocating spectrum for wireless transmissions, not telephone wireline communications
[which the patents teach and claim]". 36 Second, that a definition including an upper limit is incorrect because "a high
frequency band of frequencies above the highest telephone voice band of frequencies [sic]" contains a single limitation: that
the lower limit of this high band of frequencies must be somewhere above the telephone voice band of frequencies." 37

Third, that many preferred embodiments disclosed in the patent specifications are erroneously excluded as a result of the court's construction. 38

36 Id. at 2 (emphasis in original).

37 Id. (emphasis in original).

38 Id. at 3.

Defendants' first response to Inline's Motion for Reconsideration is a procedural argument that plaintiff's motion does not satisfy the standard for a party seeking to alter or amend an order pursuant to Federal Rule of Civil Procedure 59(e) and that Inline failed to address the requirements for a motion for reargument under District of Delaware Local Rule 7.1.5. 39

39 D.I. 249 at 2. As explained in Section II above, the court has determined that the unique circumstances of this case warrant a modification of the court's prior construction. This opinion is not intended to be, nor should it be, viewed as an invitation for a disappointed party to seek "a second bite at the apple" through motions for reargument and/or reconsideration anytime the court determines an issue contrary to the result advocated by a party.

Defendants attack Inline's specific arguments for reconsideration with the contentions that: "neither the dictionary relied on by the Court nor any of the other dictionaries proffered by the parties distinguish between 'wireless' and 'wireline' transmissions"; "the Federal Circuit has specifically held that the ordinary meaning for the terms 'high frequency' in the context of wireline transmissions . . . is 3 MHz-30 MHZ"; "the teaching in the patent specifications . . . are contrary to Inline's position and certainly do not provide the type of clear definition or disavowal necessary to deviate from the ordinary meaning of 'high frequency' in the manner suggested by Inline"; and "the Federal Circuit has made clear that the type of 'after the fact' extrinsic evidence offered by Inline is not a substitute for the Court's careful analysis of the intrinsic record." 40

40 Id. at 3-4.

V. DISCUSSION

A. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" is Erroneously Based on a Definition that Applies Only to Wireless Transmission

Inline's argument that the definition of "high frequency" relied upon by the court is inapplicable to the patents-in-suit for the reason that that definition "applies to wireless transmissions and broadcasts and not to telephone wires" 41 is not supported by the intrinsic record and is simply an expansion of the same argument made by plaintiff at the Markman hearing. 42

41 D.I. 242 at 5 (emphasis in original).
The definition of "high frequency" relied on by the court in the Markman Opinion, "any of the radio frequencies in the band between 3 and 30 MHz," is found in a dictionary entitled "Telephony's Dictionary: Defining 14,500 telecommunication words and terms" (the "Telephony's Dictionary"). In its opening Markman brief, Inline proffered the Telephony's Dictionary as an appropriate reference for the court's claim construction and cited that dictionary as providing definitions supporting its proposed construction of the disputed term "a high frequency band of frequencies above the highest frequency of the telephone voice band," as well as the disputed terms "telephone exchange," and "signal interface." Another technical dictionary cited by Inline in its opening Markman brief, Newton's Telecom Dictionary, is consistent with the Telephony's Dictionary. That dictionary's definition of "frequency band" incorporating a chart of frequencies which includes "3-30 MHZ -HF- High Frequency" as one of "the accepted explanations of 'bands.'" Inline proffered these telecommunications dictionaries for the court's claim construction during the Markman proceedings. It is hardly credible for plaintiff now to argue that particular definitions in those dictionaries which are inconsistent with its proposed construction of "high frequency band" are inapplicable to the patents-in-suit. Furthermore, the same definition of "high frequency" was relied upon by the Federal Circuit when construing the term "high frequency" in another patent concerning wireline transmissions.

In Intellectual Property Development Corporation v. UA-Columbia Cablevision of Westchester, Inc., the Federal Circuit reviewed the district court's construction of the term "high frequency" as recited in a patent directed at "a wired broadcasting system." The two sources relied upon by the district court included a technical dictionary which defined "high frequency" as "Federal Communications Commission designation for the band from 3 to 30 MHZ in the radio spectrum . . . [and a nontechnical dictionary which included] a radio frequencies table listing high frequency as covering 3 to 30 megacycles." The Federal Circuit held "that the district court correctly construed [the disputed term] 'high frequency' as including only any frequency between 3-30 MHZ." Even though those definitions referred to "radio" frequencies and the invention concerned "a wired broadcast system," no distinction between wired and wireless transmission systems was made by the Federal Circuit.
Here, defendants cited Intellectual Property Development in their responsive Markman brief 50 and at the Markman hearing as supporting a definition of "high frequency band" as those frequencies from 3 MHz to 30 MHz. 51 Defendants also argued at the Markman hearing that because the invention at issue in Intellectual Property Development concerned "a wired broadcasting system," the definition found in that case was also applicable to the wireline transmissions described in plaintiff's patents. 52

At the Markman hearing, Inline sought to distinguish Intellectual Property Development by arguing that the definition of "high frequency" in that case was not applicable to the patents-in-suit because the specification of the patent being construed in Intellectual Property Development did not describe particular frequency ranges where Inline's patents do contain such descriptions. 53 Inline did not, however, attempt to distinguish Intellectual Property Development when it raised its wireline/wireless transmission argument at the Markman hearing. 54 Since Inline was aware of defendants' reliance on that case from prior briefing and oral argument, it is telling that Intellectual Property Development was not even mentioned in its Motion for Reconsideration.

At the Markman hearing, Inline sought to distinguish Intellectual Property Development by arguing that the definition of "high frequency" in that case was not applicable to the patents-in-suit because the specification of the patent being construed in Intellectual Property Development did not describe particular frequency ranges where Inline's patents do contain such descriptions. 53 Inline did not, however, attempt to distinguish Intellectual Property Development when it raised its wireline/wireless transmission argument at the Markman hearing. 54 Since Inline was aware of defendants' reliance on that case from prior briefing and oral argument, it is telling that Intellectual Property Development was not even mentioned in its Motion for Reconsideration.

Finally, the '596 line of patents each: refer to radio frequency transmission (abbreviated RF); describe the invention as including "RF transmitters and RF receivers"; and describe the use of RF signals. 55 Indeed, the '596 patent is titled "Two-Way RF Communication at Points of Convergence of Wire Pairs from Separate Internal Telephone Networks." "Radio frequency" is defined as "an electromagnetic wave frequency intermediate between audio frequencies and infrared frequencies used esp. in radio and television transmission." 56 Nothing in that definition suggests a distinction between electromagnetic wave frequencies used in wireline transmission as opposed to those used in wireless transmission.

55 See, e.g., '596 patent, 9:9-54; 14:59-60 ("The solutions described herein take advantage of the improved ability of RF
(radio frequency) signals . . . ."); Likewise, the '718 patent describes the use of radio frequency transmission. See, e.g., '718
patent, 9:58-62 ("In contrast to regulations covering radiation, no special legal problems are created in the U.S. by the
connection of radio frequency devices to the public telephone network if those devices do not transmit energy below 6
Mhz.").
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - Inline acknowledges that "the term 'RF' is often used generically to describe all frequencies between audio and light
frequencies" 57 but contends that "the specific frequency nomenclature relied upon by Defendants and the Court is reserved
for the language of wireless spectrum allocation by the FCC." 58 Inline offers nothing other than the declaration of its
expert, and other extrinsic evidence, to support this contention. Defendants correctly point out that Inline has not cited any
dictionary that supports its argument that there were different ordinary and accustomed definitions of a "high frequency
band" for wireline transmissions and for wireless transmissions at the time of the inventions described by the patents-in-suit.
Nor has Inline pointed to any intrinsic evidence, and the court has found none, which would support that differentiation. 59
- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - 57 D.I. 242 at 2.
58 Id. (emphasis in original).
59 Inline's submission of extrinsic evidence (which post-dates the date of the invention by several years) is not needed for
the court to construe "high frequency band." This is particularly evident in light of Inline's repeated assertions indicating
that the intrinsic record is sufficient for the construction of the disputed terms in the patents-in-suit. See D.I. 189 at 1
(stating that the disputed claim terms "all have plain and ordinary meanings within the context of the claims in which these
terms are used"); id. at 9-13 (citing only dictionary definitions and the specifications of the patents-in-suit in support of its
proposed construction of "high frequency band"); D.I. 242 at 8 ("Here the claimed range of the high frequency control and
video information signals . . . is readily gathered from reading the patents and their disclosure . . . ."); id. at 6 ("It cannot be
argued that . . . the phrase 'a high frequency band of frequencies above the highest frequency of the telephone voice band'
lacks meaning. . . ."); see also id. ("One reading the patent claims and specification would not search beyond the patents for
meaning . . . ." (citing the declaration of Inline's expert)). The court agrees and finds it unnecessary to address Inline's
arguments that are based exclusively on a new declaration of its expert and other extrinsic evidence. See Vitronics, 90 F.3d
at 1582 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term.
In such circumstances, it is improper to rely on extrinsic evidence."); Bell & Howell Document Management Prods. Co. v.
Altek Sys., 132 F.3d 701, 707 (Fed. Cir. 1998) ("Because the intrinsic evidence unambiguously defined the disputed claim
limitation, the district court's reliance on the expert testimony . . . to contradict the intrinsic evidence when interpreting the
claims was error." (citing Vitronics, 90 F.3d at 1583)). Additionally, Inline's extrinsic evidence need not be considered as
that evidence is an attempt to supplement material in support of arguments already made by plaintiff and defendants at the
reargument may not be used to supplement or enlarge the record' on which the court made its initial decision." (citation
omitted)).
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - Consequently, the court rejects Inline's argument that the dictionary definition of "high frequency" relied upon by the court
is only applicable to wireless transmissions.
B. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency
of the Telephone Voice Band" is Erroneous for Including an Upper Limit
Inline's second argument for reconsideration is that "'high frequency band of frequencies above the highest telephone voice
band of frequencies' contains a single limitation: that the lower limit of the high frequency band must be somewhere above
the telephone voice band of frequencies." 60 The implication is that the court erred in selecting a construction of "high

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frequency band" that includes an upper limit as well as a lower limit. Inline's arguments in its Motion for Reconsideration substantially rehash those made during the Markman proceedings that were rejected by the court.

60 D.I. 242 at 2 (emphasis in original).

Inline's opening Markman brief contained the following argument:

The ordinary meaning of "frequency band" is "[a] range of frequencies between upper and lower limits." Graham Langley, Telephony's Dictionary . . . . The word "high" modifies the words "frequency band" to create the terms "high frequency band" and "high band of frequencies" which are explicitly defined in the claim language as frequencies above the voice band. In context, therefore, the high frequency band, and the high band of frequencies, specify a range of frequencies having a lower limit above the highest frequency of the telephone voice band. No requirement is placed on the upper limit of the frequency range. 61

61 D.I. 189 at 12-13 (emphasis added).

Within this single paragraph, Inline's own proffered definition of "frequency band," "[a] range of frequencies between upper and lower limits," flatly contradicts its position that "high frequency band" should be defined to have no upper limit. The court notes that the Telephony's Dictionary does not include the definition of "frequency band" quoted by Inline. This error was pointed out by defendants in their responsive Markman brief 62 and at oral argument. 63 Inline never addressed this error or indicated the source of its proffered definition of "frequency band." Upon review of the parties' Markman submissions, however, the court discovered the source of Inline's "frequency band" definition. "A range of frequencies between upper and lower limits" is the definition recited in the Telephony's Dictionary for "band," not "frequency band." 64 This was one of several definitions of "band" included in a "Glossary of Dictionary Definitions Provided by Inline" attached as Exhibit 1 to the parties' Joint Submission Regarding Claim Construction. 65 Each of technical dictionaries included in plaintiff's glossary define "band" to have both upper and lower limits. 66


63 See D.I. 207 at 252-53.

64 D.I. 176, Ex. 1 at 1 (quoting the Telephony's Dictionary definition of "band").

65 See id.

66 See id. In addition to the above-quoted definition of "band" recited by the Telephony's Dictionary, the Glossary of Dictionary Definitions Provided by Inline lists the following definitions of "band":

"2. (data transmission) Range of frequency between two defined limits." The Institute of Electrical and Electronics Engineers, Inc., IEEE Standard Dictionary of Electrical and Electronics Terms 79 (Frank Jay ed., 3rd ed. 1984);

"2. In data communication, the frequency spectrum between two defined limits." Jerry M. Rosenberg, Computers, Data Processing & Telecommunications 39 (1984);

"Range of frequency spectrum between two limits." John Douglas-Young, Illustrated Encyclopedic Dictionary of
The only dictionary included in plaintiff's glossary that did not explicitly define "band" as including upper and lower limits was the sole nontechnical dictionary included in that section. See id. (The New Merriam-Webster Dictionary 71 (Frederick C. Mish ed. 1989) (defining "band" as "3. A range of wavelengths (as in radio)").

Finally, the intrinsic record supports the conclusion that there is an upper limit to "high frequency band." The specifications of the '596 line of patents state "as mentioned above, there is an upper limit to the frequencies that can be useful for transmission of signals across a transmission path of a given length." 67

C. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" Improperly Excludes Certain Embodiments Recited in the Patents-In-Suit

Inline contends that the court's construction of "a high frequency band of frequencies above the highest frequency of the telephone voice band" as "frequencies above the telephone voice band between the range of 1 and 30 MHz" improperly excludes several embodiments recited in the patents-in-suit. 68 Inline argues that a construction which excludes preferred embodiments from the scope of the claims is disfavored. 69 Inline's argument on this point has merit. Because the court determines that the proper construction of "high frequency band" is different for the '596 line of patents and the 718 patent, the appropriate modification of the court's prior construction for each will be discussed separately.

1. The Parties' Arguments with Regard to the '596 Line of Patents

During the Markman proceedings, Inline pointed to a control signal illustrated in figure 3a of the '596 line of patents as centered at 0.5 MHz as an example of frequencies improperly excluded from defendants' proposed construction of "high frequency band." 70

Inline reiterates this argument in its Motion for Reconsideration and also points to frequencies above 30 MHz that are excluded by the court's construction of "high frequency band." Inline again notes that figure 3a of the '596 line of patents...
describes an embodiment having a control signal with a lower limit at 0.25 MHz. 71 Inline cites each of the patents-in-suit as stating "the control signal is transmitted in a high frequency band." 72 Inline also contends that "the upper end, while not discussed by either party in the Markman briefs, is clearly disclosed with examples given at 100 MHZ and 5000 MHz." 73

--- Footnotes ---

71 D.I. 242 at 4. The '596 line of patents describe control signals as having a 0.5 MHz bandwidth, therefore, the control signal illustrated in figure 3a spans a frequency band from 0.25 MHz to 0.75 MHz. See '596 patent, 41:12-14 & figure 8 (bandwidth examples).

72 D.I. 242 at 4 n.6 (citing '596 patent, cl. 24; '585 patent, cl. 3; '446 patent, cl. 6; '718 patent, 23:36-40).

73 Id. at 5 & 5 n.7 (citing '596 patent, 37:66-38:5 & figure 8); see also id. at 4 & 4 n.6.

--- End Footnotes ---

Defendants' opposition to the Motion for Reconsideration never addresses Inline's argument that the court's construction of "high frequency band" improperly excludes frequencies above 30 MHz. Defendants focus solely on the lower limit of the court's construction. They argue that the patents describe the control signal disclosed in figure 3a as "Amplitude Modulation within a Low-Frequency channel." 74 Based on this language, defendants contend that this example of control signal transmission is not a "high frequency band" signal and, therefore, the court's construction of that phrase does not improperly exclude a preferred embodiment. 75 This is the same argument presented by defendants at the Markman hearing. 76

--- Footnotes ---

74 D.I. 249 at 9 (citing '596, patent 25:44-45 (emphasis added by defendants)).

75 See id.

76 See D.I. 207 at 256-57.

--- End Footnotes ---

Defendants, however, have presented contradictory arguments with regard to the lower limit of the "high frequency band." In their opening Markman brief, defendants argued that "the proper construction of the phrase 'high frequency band of frequencies above the highest frequency of the telephone voice band' in these elements is 'the band of frequencies above 1 MHz.'" 77 In defendants' responsive Markman brief, they changed their proposed definition and argued for a construction of "high frequency band" having a lower limit of 3 MHz based on the definition of "high frequency" in the Telephony's Dictionary, "any of the radio frequencies in the band between 3 and 30 MHz." 78 In that same brief, defendants nevertheless conceded that "the specification is explicit that the high frequency signals are never lower than 1 MHz." 79 Although previously acknowledging that the "high frequency band" includes signals at least as low as 1 MHz, at oral argument, defendants took the position that the inventor described all frequencies below 3 MHz as "low frequency channels" and, therefore, signals below 3 MHz should not be included in the definition of "high frequency band." 80

--- Footnotes ---

77 D.I. 187 at 43 (emphasis omitted).

78 D.I. 200 at 20-22.

79 Id. at 22 (emphasis added).

80 D.I. 207 at 256-57; see also id. at 256 ("If you go to the '596 patent, you are not going to find any expressed teaching in the patent that would cause one of skill in the art or cause this court to deviate from the plain meaning of high frequency being between 3 and 30 megahertz.").
In their opposition to the Motion for Reconsideration, defendants repeat this last argument stating that "this purported example of a 'high frequency' control signal being transmitted at a frequency below 3 MHz is in fact, according to the specification itself, an example of a 'low frequency transmission.'" 81 In the very next paragraph, however, defendants again contradict that assertion by arguing that "the specification distinguishes between high and low frequency signals, consistently referring to signals below 1 MHz as low frequency signals." 82 That 1 MHz limit is described in the section of the specification titled "Amplitude Modulation within a Low-Frequency Channel," 83 the same section of the specification defendants previously argued, in their opening Markman brief and conceded in their responsive Markman brief, supported a construction of "high frequency band" including signals at 1 MHz and above.

If, as defendants now argue, the court's construction is correct in defining the lower limit of "high frequency band" to be 1 MHz, it is hard to reconcile their position that the control signal described in the same section of the specification is not also part of the "high frequency band." 84 Given defendants' inconsistent positions, the court believes it is more reasonable to accept Inline's argument that the frequencies of both the video signal component and the control signal illustrated in figures 3a and 3c are within the "high frequency band." Although not articulated by Inline, the description of "Amplitude Modulation within a Low-Frequency Channel" may be understood to refer to the lower frequencies of the "high frequency band." These figures, then, describe the use of comparatively lower frequency channels within the "high frequency band," i.e., frequencies which are lower than the transmission levels of the preferred embodiments described earlier in the patent specifications. 85

81 D.I. 249 at 9.
82 Id. at 11 n.5; see also id. at 9-10 ("There is nothing in this section of the specification [concerning low-frequency channels'] or elsewhere that suggests placing such [high frequency] signals in the band below 1 MHz.").

84 The court notes that defendants' argument that "the specification distinguishes between high and low frequency signals, consistently referring to signals below 1 MHz as low frequency signals," D.I. 249 at 11 n.5, and that nothing in the '596 line of patents "suggests placing such [high frequency] signals in the band below 1 MHz," id. at 10, is accurate only with respect to the transmission of video signals. The patents make clear that the invention is not limited to transmission of video signals but also includes the transmission of control, and other, signals. See '596 patent, 1:23-24 (describing the invention as "relating to a system for simultaneous two-way communication of video signals and other signals . . . ."); '596 patent, 1:56-64 ("The communication systems disclosed in the parent and first and second CIP applications are designed to simultaneously transmit telephone signals and non-telephonic signals (such as cable television signals, other video signals, audio signals, data signals, and control signals) across the active telephone wiring internal to . . . residences and other structures. The present invention adds to these techniques, providing distribution of all of these signals to a local network of active telephone wiring . . . .").
85 See '596 patent, 19:27-56 (describing preferred embodiments in the section titled "Minimum Frequency"); '596 patent, 25:10-11 (stating that the embodiments described in figures 3a and 3c "use frequencies below the lower limits suggested above[, i.e., the those described in the 'Minimum Frequencies' section]."

Because the court's prior construction of "high frequency band" excluded certain embodiments recited in the '596 line of patents, and because defendants have not argued that there is evidence that those embodiments are not covered by these
patents, the court concludes that its prior construction was overly narrow and must be modified. 86

86 See Vitronics, 90 F.3d at 1583 (stating that a construction that excludes a preferred embodiment "is rarely, if ever, correct and would require highly persuasive evidentiary support."); see also Applera Corp. v. Micromass UK Ltd., 186 F. Supp. 2d 487, 504-08 (D. Del. 2002) (rejecting proposed construction that would read out preferred embodiment illustrated in figure); cf. Elekta Instrument S.A. v. O.U.R. Scientific Int'l, 214 F.3d 1302, 1308 (Fed. Cir. 2000) (illustrating "the rare case" in which the correct claim construction "excluded the preferred . . . embodiment disclosed in the specification . . . [because] the prosecution history and the unambiguous language of the amended claim" demonstrated that the preferred embodiment was not covered by the claim (citation omitted)).

2. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" for the '596 Line of Patents

In order to modify properly its prior construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," the court must first determine precisely which words in that phrase are in dispute. Once that issue is resolved, the court will determine the ordinary and accustomed meaning of the disputed term as reflected in relevant dictionaries and then examine other intrinsic evidence to see if the patentee's use of that term is consistent with its ordinary meaning. 87

87 Neither party presented arguments based on the prosecution history with respect to the term at issue in the Motion for Reconsideration.

In its Motion for Reconsideration, Inline resurrects its argument that, in each of the patents-in-suit, the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" means "the frequencies above the telephone voice band." 88 The embodiments described in the specifications of the '596 line of patents demonstrate that the lower limit of disputed phrase should include the lower limit of the control signal illustrated in figure 3a. The court must now determine which words in that phrase are in dispute and, thereafter, whether the claims should be construed as broadly as Inline suggests.

88 D.I. 242 at 10-11.

In prior briefing, Inline supported its proposed construction by stating that the Telephony's Dictionary provides the "ordinary meaning of 'frequency band' [as] '[a] range of frequencies between upper and lower limits.'" 89 As recited above, plaintiff argued that:

the word "high" modifies the words "frequency band" to create the terms "high frequency band" and "high band of frequencies" which are explicitly defined in the claim language as frequencies above the voice band. In context, therefore, the high frequency band, and the high band of frequencies, specify a range of frequencies having a lower limit above the highest voice frequency of the telephone band. 90

Having concluded its discussion of the first part of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," Inline stated that "'voice band' is a well-known term of art, which is a frequency 'band used on telephone equipment for the transmission of voice and data,' the highest frequency [of which] is not more than
approximately 4000 Hz." 91 Plaintiff concluded that "by the plain claim language, the lower frequency limit of the high frequency band is above the voice band and is therefore above approximately 4000 Hz." 92

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89 D.I. 189 at 11 (second alteration in original).
90 Id. at 11-12.
91 Id. at 12 (quoting Jerry M. Rosenberg, Computers, Data Processing & Telecommunications (1984)).
92 Id.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Defendants have consistently argued that Inline's proposed construction reads the words "high frequency" out of the claims. 93 Inline has provided no response to this argument. Defendants argue further that other claims in the '596 line of patents support its contention that "high frequency band" recited in the asserted claims can not simply mean all frequencies above the voice band. 94

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

93 See D.I. 207 at 258-59; D.I. 249 at 11 n.4.
94 D.I. 249 at 10-11.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

For instance, Claim 1 of the '596 patent recites: "circuitry for transmitting said received video signal onto at least one of said telephone lines in a selected frequency range that is different from frequencies at which said voice signals are carried on said one telephone line . . . ." 95 Claim 13 of the '596 patent recites: "the system of claim 1 wherein said voice signals are carried by said telephone lines at voiceband frequencies and said selected frequency range exceeds said voiceband frequencies." 96 Since the asserted claims recite the more specific limitation of "high frequency band," defendants argue that Inline's proposed construction is inconsistent with other claim language used by the patentee. The court agrees with defendants on these points.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

95 '596 patent, cl. 1 (emphasis added); see also '596 patent, cl. 9 (". . . a second selected frequency range that is different from said frequency range selected by said interface and different from frequencies at which said voice signals are carried on said telephone link . . . ." (emphasis added)).
96 '596 patent, cl. 11 (emphasis added); see also '596 patent, cl. 13 ("circuitry for changing the frequency of said video signal received from said telephone line to a frequency band that exceeds said voiceband frequencies . . . ." (emphasis added)).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

The parties agree that the "highest frequency of the telephone voice band" is approximately 400 Hz. 97 Therefore, the dispute centers on the meaning of the words "high frequency band." Inline's argument that "high" modifies "frequency band" and, thus, that the disputed phrase simply means "frequencies above the voice band" unquestionably reads "high frequency band" out of the claim. The entire disputed phrase reads:

"a high frequency band of frequencies above the highest frequency of the telephone voice band."
Inline's proposed construction of that phrase is:

"frequencies above the telephone voice band." 98

In essence, that construction merely excises "a high frequency band" from the disputed phrase and gives no meaning whatsoever to those words.

--- Footnotes ---

97 See D.I. 197 at 18 (Plaintiff states that "all parties accept that the telephone voice band is the band that carries voice telephone signals, which is commonly understood to be between approximately 0 and 4 KHz."). Defendants apparently do not challenge plaintiff's definition of "voice band." See D.I. 187 at 44 ("Because the top end of the voiceband is approximately 4KHz . . . .").

98 D.I. 189 at 10; see also D.I. 242 at 1 (suggesting modification of the court's construction to read "frequencies above the voice band" or, alternatively, "a range of frequencies above the telephone voice band").

--- End Footnotes ---

Defining "high" as simply meaning that the "frequency band" is "above" the voice band, as Inline suggests, would make the words "high frequency band" superfluous since the entire phrase in question already requires the "high frequency band" to be limited to those "frequencies above the highest frequency of the telephone voice band." A construction that does not give meaning to all the words in a disputed phrase is disfavored. 99 The more logical construction, and the one which gives meaning to all the words in the disputed phrase, is that "high frequency" modifies "band." This construction does not render any words of the asserted claims superfluous.

--- Footnotes ---

99 See Pickholtz v. Rainbow Techs., Inc., 284 F.3d 1365, 1373 (Fed. Cir. 2002) ("Interpretations that render some portion of the claim language superfluous are disfavored. . . .")

--- End Footnotes ---

Defendants' argument regarding other claim language reciting broader limitations also supports the rejection of Inline's proposed construction. Examining these other claims is consistent with the Federal Circuit's mandate that in construing claims the court is to read the disputed language in the context of the entire patent. 100 Independent claim 1 of the '596 patent includes the limitation that frequencies are transmitted "in a selected frequency range that is different from frequencies at which said voice signals are carried on said one telephone line . . . ." 101 Claim 11 of the '596 patent, which depends from claim 1, contains the narrower limitation that "said selected frequency range exceeds said voiceband frequencies." 102 The plain meaning of the limitation recited in claim 11 is the same as Inline contends this court should apply to "high frequency band" in the asserted claims. When the patentee sought to limit a claim to transmission of frequencies that are merely "different from" or "exceed" (or are "above") the voice band, he knew how to do so. 103 That is not the limitation included in the asserted claims, however. Those claims include the more specific limitation to transmissions of frequencies in the "high frequency band." 104 The court concludes, therefore, that in the disputed phrase "high frequency band," the term "high frequency" modifies the term "band." The court must now determine the ordinary and accustomed meanings of these terms.

--- Footnotes ---

100 See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 334 F.3d 1294, 1299 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms. . . ." While dictionaries and treatises are useful resources in determining the ordinary and customary meaning or meanings of disputed claim terms, the correct meaning of a word or phrase is informed only by considering the surrounding text. This is why consulting dictionary definitions is simply a first step in the claim construction analysis and is another reason why resort must always be made
the surrounding text of the claims in question, the other claims, the written description and the prosecution history.

101 '596 patent, cl. 1 (emphasis added).

102 '596 patent, cl. 11 (emphasis added).

103 See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1304-05 (Fed. Cir. 1999) (The court rejected defendant's proposed construction as contrary to the language of the asserted independent claims and noted that a nonasserted independent claim which included the limitation argued for in the asserted claims supported this rejection. The court stated, "had [plaintiff] intended or desired to claim [the proposed limitation] in the asserted claims, it could have done it explicitly, as in claim 11. The absence of any such explicit language, however, shows that the [asserted claims] do not include [the proposed limitation]."); see also Forest Labs., Inc. v. Abbott Labs., 239 F.3d 1305, 1310 (Fed. Cir. 2001) ("Where claims use different terms, those differences are presumed to reflect a difference in the scope of the claim."); General American Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting district court's construction which rendered a particular claim requirement superfluous); RF Delaware, Inc. v. Pacific Keystone Techs., Inc., 326 F.3d 1255, 1264 (Fed. Cir. 2003) (rejecting proposed construction for asserted claim that would render "redundant or meaningless" a limitation in unasserted claims). 104 This analysis also compels the court to reject Inline's argument that the "patent specifications define high frequency as: 'high-frequency (i.e., non-voice band) signals." D.I. 242 at 7 (quoting '446 patent, 54:25; '585 patent, 54:11; and '596 patent, 53:61 (emphasis added)). That parenthetical reference is far from an explicit definition of "high frequency band" as all frequencies above the highest frequency of the telephone voice band.

--- End Footnotes ---

Defendants contend that the proper construction of "high frequency band" is determined by the definition of "high frequency" contained in the Telephony's Dictionary; "any of the radio frequencies in the band between 3 and 30 MHz." As noted above, this definition is one of several consistent definitions recited in dictionaries proffered by Inline as appropriate for the court's construction of the disputed terms of the patents-in-suit. Inline has offered no other dictionaries available at the time of invention expanding this definition of "high frequency." 105 The definition of "band" recited in several dictionaries proffered by Inline is "a range of frequencies between upper and lower limits." 106 By combining the definitions of "high frequency" and "band," the court concludes that the ordinary and accustomed meaning of the phrase "high frequency band" at the time of the inventions at issue was "the range of radio frequencies between 3 MHz and 30 MHz." 107

--- Footnotes ---

105 See Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002) ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings.").

106 See footnote 66, above.

107 See Alloc, Inc. v. ITC, 342 F.3d 1361, 1368 (Fed. Cir. 2003) ("Claim language generally carries the ordinary meaning of the words in their normal usage in the field of invention at the time of the invention.").

--- End Footnotes ---

Because the court has already determined that the intrinsic record describes certain embodiments in the '596 line of patents having frequencies outside of the range of frequencies to which the ordinary meaning of "high frequency band" is limited, the court will not construe the disputed phrase to be so limited. 108 This is not problematic, however. The Federal Circuit has stated that:

the specification or the prosecution history of a patent may alter the meaning of a claim term from its conventional usage. A patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant art, thereby expanding or limiting the scope of the term in the context of the patent claims. 109
Here, the embodiments described in the specifications make clear that the patentee used the term "high frequency band" more expansively than its ordinary and accustomed meaning. Moreover, it is entirely proper to construe that term by examining the specifications' description of preferred embodiments, even if the term "high frequency band" is not explicitly defined therein. 110

108 See Texas Digital, 308 F.3d at 1204 ("[I]f the intrinsic record . . . shows that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition . . . the inconsistent dictionary definition must be rejected.").

109 Alloc, Inc., 342 at 1368 (emphasis added); accord Genzyme Corp. v. Transkaryotic Therapies, Inc., 346 F.3d 1094, 1098 (Fed. Cir. 2004) ("In other words, a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims." (citing Ballard Med. Prods. v. Allegiance Healthcare Corp., 268 F.3d 1352, 1361 (Fed. Cir. 2001); Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed. Cir. 2002)).

110 See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001) (holding the written description of the preferred embodiment "can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format"); Vitronics 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." (emphasis added)).

Inline argues only that "high frequency band" is "frequencies above the highest voice band" and defendants argue that the court's prior construction of "frequencies above the telephone voice band between the range of 1 and 30 MHz" is correct. Because the court concludes that neither party's position is correct, this leaves it to the court to determine the proper limits of the term "high frequency band" on its own. These limits can be ascertained from the intrinsic record and do not require consideration of extrinsic evidence.

Inline notes that the specifications of the '596 line of patents, recite: "to minimize the highest frequency used for transmission, it is recommended that the first channel be placed as close to the voiceband as feasible . . . ." 111 Examination of the specifications reveals the lowest "feasible" frequency contemplated by the patentee. Under the heading "Minimum Frequency," the following preferred embodiments are described: "if AM is used to transmit video signals, it is preferred that the picture carrier of the first such channel be located above 4.25 MHz" 112 and "for FM transmission, it is preferred that the low end of the first channel be 4 Mhz." 113 These embodiments contemplate transmission of multiple channels above the voice band. The transmission of multiple channels is clearly the goal of the inventions. 114 The patents also describe more limited embodiments which are only capable of transmitting a single signal, however, and these embodiments recite the lowest transmission frequencies described in the '596 line of patents.


113 ’596 patent, 19:43-44.

114 ’596 patent, 1:23-24 ("The present invention relates to a system for simultaneous two-way communication of video signals . . . ." (emphasis added)).
In a section titled "Transmitting a Single Video Signal over Long Transmission Lengths (FIGS. 3A-3C)," the specifications state that "in these types of situations, use of extended pairs 405 to communicate multiple signals over a large frequency range may not be feasible. A system that communicates only a single video signal, however, can still be very useful in many important applications." The embodiments capable of transmitting only one video channel described in this section of the specifications represent the outer limit of transmission that is feasible. In discussing these outer-limit transmissions the patents describe "us[ing] frequencies below the lower limits suggested [in the "Minimum Frequency" section]." The patents state, with respect to figures 3a and 3c, that "there is 'room' to transmit a narrow band of control signal between the voiceband and the video signal. " The lowest frequency at which video signals are transmitted is 1 MHz and is illustrated in figure 3a. "F[igure] 3a shows the spectrum of such signal. The carrier frequency is 1.25 Mhz, with the lower sideband substantially suppressed below 1 Mhz." 

--- Footnotes ---

115 '596 patent, 24:64-65 (emphasis added).
116 '596 patent, 25:1-5.

--- End Footnotes ---

This court is mindful of the Federal Circuit's admonition not to read limitations from patent specifications into the claims as well as that court's acknowledgment that there is "sometimes a fine line between reading a claim in light of the specification, and reading the limitation into the claim from the specification." For instance, in Comark the Federal Circuit determined that defendant's proposed construction seeking to limit the disputed term "to its functional purpose as disclosed in the preferred embodiment" was an improper attempt to read limitations from the specification into the claims. Conversely, the patents in this case make clear that the 1 MHz lower limit of video transmission of a "high band of frequencies" does not merely represent a functional purpose of a preferred embodiment. The patent states that "one of the disadvantages of lower frequencies is that the filtering that separates these signals from voiceband signals is more expensive because of the sharp cutoff required between the upper end of the voiceband and 1 Mhz." Rather than fulfilling the functional purpose of this embodiment, the specification makes clear that 1 MHz is a functional limitation of the invention. Therefore, the court concludes that lowest feasible frequency at which the invention can transmit "high frequency band" video signals is 1 MHz. 

--- Footnotes ---

120 Comark Communs. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998); see also Alloc, Inc., 342 F.3d at 1370 (This court recognizes that it must interpret the claims in light of the specification, . . . yet avoid impermissibly importing limitations from the specification. . . . That balance turns on how the specification characterizes the claimed invention. . . . In this respect, this court looks to whether the specification refers to a limitation only as a part of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment." (emphasis added) (citations omitted)).
121 Comark, 156 F.3d at 1187.
123 This case is likewise distinguishable from the Federal Circuit's recent decision in Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352, No. 03-1052, 2004 WL 2059279, at *10 (Fed. Cir. Sept. 16, 2004). There, the defendant argued that the claim limitation "visual identification" recited in one of the patents at issue was limited to "an innovative cursor" based on language in the written description which stated "an innovative cursor 32 . . . for the irregular array . . . is required which
satisfies several conflicting requirements." Id. at *8-*9 (emphasis added). The Federal Circuit rejected that argument stating that "in the context of the disclosure of the preferred embodiment of the '204 patent, the statement that 'innovative cursor 32 . . . is required,' is not the 'use [of] words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.' . . . Properly read . . . the statement merely conveys the advantages of 'innovative cursor 32' over prior art conventional cursors in the preferred embodiment." Id. at *10 (citations omitted) (alteration in original). Here, the "sharp cutoff required" below 1 MHz is not recited as a comparison to prior art. Also, while described as one of three "disadvantages" of the embodiment illustrated in figure 3a, this disadvantage was not one which might be overcome with stronger filtering or would merely be more expensive; the 1 MHz limit is a functional requirement. Cf. '596 patent, 25:65-26:4 (The patents describe two disadvantages of the lower frequency transmissions illustrated by figure 3a, in addition to the "sharp cutoff required" below 1 MHz: "[a] second disadvantage is that the harmonics of the telephone signals at lower frequencies are stronger, meaning that stronger filtering of the harmonics is required to protect against interference from these signals. A third disadvantage is that the modulation electronics becomes more expensive as the picture carrier approaches DC.").

As discussed above, it is reasonable to conclude that the control signal described in figure 3a is also included in the "high frequency band." The lower limit of this "narrow band" of signals is 0.25 MHz. Again, this appears to be the lowest limit at which it is feasible to transmit a "high frequency band" control signal. Other than Inline's insistence that the "high frequency band" includes all frequencies above the voice band, which the court has rejected, plaintiff has not pointed to any intrinsic evidence which contradicts this conclusion.

The video signal illustrated in figure 3a is described "a frequency slightly above voiceband." '596 patent, 25:14-15 (emphasis added). Figure 3a is also captioned "Spectrum of an Amplitude Modulated NTSC Signal Near Voiceband" (emphasis added). Figure 3c is similarly captioned "Spectrum of an FM NTSC Signal Near Voiceband" (emphasis added). In figure 3c, the control signal is centered at 1 MHz and the lower limit of the video signal is located at 3 MHz. The control signal illustrated in figure 3a is described as being near the voiceband. See '596 patent, 25:34-38 ("Because placing narrowband signals near the voiceband reduces filtering costs, . . . this is a preferred method of transmitting these signals. Thus FIGS. 3a and 3c allocate a small part of the spectrum between the voiceband and the video signal to these selection signals."). Indeed, when discussing figure 3a at the Markman hearing, Inline described the control signal centered at 0.5 MHz as "real close to that 4,000 [Hz] we looked at before." D.I. 207 at 247.

Inline notes that "the upper end [of the high frequency band] . . . was not discussed by either party in the Markman briefs . . . " 125 The failure of the parties to present arguments regarding the upper end of the high frequency band is undoubtedly due to the fact that the accused products operate at a range near the voice band and, therefore, the parties likely view the upper range of the high frequency band to be irrelevant to the question of infringement presented in these proceedings. Because the parties provided no argument at all concerning the appropriate upper limit of the "high frequency band," the court determines that it is unable to define a precise upper limit on this disputed term.

Consequently, the court construes "high frequency band" as claimed in the '596 line of patents to mean "frequencies above the telephone voice band between 0.25 MHz and an undetermined upper limit."

3. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Voice Band" for the '718 Patent

- 2337 -
Although the court previously construed "high frequency band" as having the same meaning in both the '596 line of patents and the '718 patent, after a thorough review of the parties arguments and the patents-in-suit, the court concludes that "high frequency band" must be construed more narrowly for the '718 patent than for the '596 line of patents. Having already determined that the ordinary and accustomed meaning of "high frequency band" is "the range of radio frequencies between 3 MHz and 30 MHz," the court must determine whether the intrinsic evidence demonstrates that the patentee used that term more or less expansively in the '718 patent.

As described above, defendants' opening Markman brief argued for a construction of "high frequency band" in the '718 patent as limited to those frequencies above 6 MHz and for a construction of that phrase in the '596 line of patents as limited to those frequencies above 1 MHz. Defendants then changed their proposed constructions and argued at the Markman hearing for one construction of "high frequency band" to be applied to all of the patents-in-suit. The court's review of the record reveals that, with respect to the '718 patent, defendants' initially-proposed construction is correct.

In support of that construction, defendants' opening Markman brief pointed to language in the '718 patent which states that governmental regulations restrict transmission of non-telephone signals below 6 MHz in the system described. Defendants also pointed out that the '718 patent specifically distinguishes the Tatsuzawa prior art patent on the basis that Tatsuzawa uses frequencies between 0 and 4 MHz, which "creates legal problems" that are avoided by the invention described in the '718 patent.

Plaintiff never specifically responded to either of defendants' arguments concerning the '718 patent's distinguishing of the Tatsuzawa prior art patent or that patent's references to regulations restricting transmission of signals below 6 MHz. In its opening Markman brief, Inline cited the '718 patent's statement that:

The technique disclosed herein embodies an extension designed to avoid interference with telephone signals. The extension calls for the frequency of the electrical version of the control signals to be converted to a higher band before transmission across the wiring. This band will be high enough to eliminate interference with the telephone or low-frequency communication signals.

Inline argued that:

It is clear from the above language that all of the patents contemplate selecting frequencies for the "high frequency band"
that are sufficiently separate from the voice band to avoid causing interference with the telephone signals in the voice band during shared transmission on telephone wiring. The precise choice of frequency above the voice band is not important to the invention as long as interference is avoided with the voice band. 130

Inline contended that "there is no support in the plain language of the claims or the intrinsic evidence [to impose a 6 MHz lower limit]." 131

In its responsive Markman brief, Inline argued that "the patents explicitly teach putting high frequency bands as low as possible and as close as possible to the telephone voice band to avoid signal attenuation . . . [and that] Defendants' construction would create a gap of between [sic] frequencies that is contrary to the teaching of the patents." 132 Inline responded to defendants' argument that, for the '596 line of patents, "high frequency band" should be construed as limited to frequencies above 1 MHz by pointing out that such construction would exclude the preferred embodiment illustrated in figure 3a of the '596 line of patents. 133 Again, Inline did not respond to defendants' arguments regarding regulations restricting transmission of signals below 6 MHz and the Tatsuzawa prior art patent.

Moreover, Inline failed to address directly those arguments at the Markman hearing. Inline merely stated that "a six megahertz barrier . . . [is an] example[, and all [the '718 patent is] talking about is you configure these frequencies in a lot of ways, and here's one example [of] how you can do that . . . ." 134 Giving plaintiff the benefit of the broadest reading possible of that statement, Inline might be understood to contend that defendants' proposed construction would improperly read the description of a preferred embodiment limitation from the specification into the claims. Even that reading is unavailing. References in the '718 patent to the 6 MHz limitation are not descriptions of a preferred embodiment selected by the patentee; they are descriptions of a restriction imposed by government regulations. The '718 patent specifically references this restriction three times.

The first reference is in connection with a discussion of the Tatsuzawa prior art patent. The Tatsuzawa invention is described as:

depending on electrical characteristics particular to frequencies between 0 and 4 Mhz, limiting the transmission of frequency to that band. This creates legal problems because in the U.S., for example, regulations severely limit the RF energy below 6 Mhz that can be fed to wiring that is connected to the public telephone network. 135
Next, the patent reiterates that there can be "legal problems" pertaining to electromagnetic radiation created when video signals are transmitted across telephone wiring. The patent states that these legal problems are avoided by transmitting video signals above 6 MHz: "in contrast to regulations covering radiation, no specific legal problems are created in the U.S. by the connection of radio frequency devices to the public telephone network if those devices do not transmit energy below 6 Mhz."  

Finally, in discussing control signals, the '718 patent again references the regulations concerning transmission of energy below 6 MHz but notes that those regulations are not a problem for the invention described therein because "the U.S. Federal Communications Commission imposes no restrictions on signals above 6 Mhz, leaving ample room [for transmission of a control signal] between that frequency and the video signals, even if a channel below VHF 2 is used."  

The '718 patent, therefore, identifies 6 MHz as the lower limit of frequency transmission permitted by government regulations and not as merely an example of a limitation described as part of a preferred embodiment which should not be read into the claims. This restriction is described as affecting both transmission of video and control signals. Furthermore, nothing in the intrinsic record contradicts this conclusion and no preferred embodiments are read out of the patent as a result of defining 6 MHz as the lower limit of the "high frequency band." In fact, the preferred embodiments described in the '718 patent describe transmission of video signals at frequencies significantly higher than 6 MHz. The patent states that "the most natural choices for transmission frequencies are the channels in the low VHF range . . . [which are] VHF channels 2 through 6, which extend from 54 Mhz to 88 Mhz." The lowest frequency band at which the inventors conducted video-transmission experiments was in the channel spanning from 24 MHz to 30 MHz. With regard to control signals, the preferred embodiment describes transmission of a control signal at 10.7 MHz. As noted above, however, the specification indicates that control signals can be transmitted in a range between 6 MHz and the lower limit of a transmitted video signal. Nowhere does the specification suggest transmission of any video or control signal below 6 MHz.
the specification states that "at the video source end, the transceiver must convert the signal from the frequency at which it is supplied to a band between 6 Mhz and 54 Mhz." (emphasis added)).

In light of plaintiff's deafening silence in response to defendants' specific argument regarding the government regulations restricting transmissions below 6 MHz, the court can only assume it had no viable argument to make. The court therefore concludes from this silence, and its review of the intrinsic evidence, that the lower limit of the "high frequency band" claimed in the '718 patent is 6 MHz. As with the '596 patent, the parties failed to present any argument concerning the upper limit of the "high frequency band" claimed in the '718 patent. This failure again precludes the court from defining the upper limit of "high frequency band" other than to note that the '718 patent includes several examples of transmission at frequencies above the limit of 30 MHz to which the court's prior construction limited this phrase. 143

Consequently, the court construes "high frequency band" as claimed in the '718 patent to mean "frequencies above the telephone voice band between 6 MHz and an undetermined upper limit." 144

143 See, e.g., '718 patent, 10:60-67; figure 3.

144 If the parties wish to present arguments to the court concerning the upper limit of the phrase "high frequency range" for any of the patents-in-suit, they may notify the court of this desire and a briefing schedule will be determined at that time. If the parties ultimately submit further briefing on the upper limit of "high frequency band" as claimed in the '596 line of patents, the court directs the parties' attention to the following language in those patents:

At higher frequencies, the 10 dB advantage of a 15 MHz FM signal may not be sufficient to overcome the extra attenuation. The solution, in that case, is to use wider FM bandwidths which produce a greater SNR improvement at the receiver. This, of course, brings one to even higher frequencies more quickly with each channel that is added. Because of this, the inventors expect that higher frequencies will not be useful beyond some point, and certainly not beyond 1000 MHz." '596 patent 21:12-20 (emphasis added). Referencing this statement, the specification acknowledges that "as mentioned above, there is an upper limit to the frequencies that can be useful for transmission of signals across a transmission path of a given length." '596 patent 21:62-64 (emphasis added).

Any submissions should address this language and its effect on the parties' analyses.

VI. CONCLUSION

For the reasons set forth above, the court modifies its prior construction of the disputed terms of the patents in suit as follows:

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Court's Construction</th>
</tr>
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<tbody>
<tr>
<td>&quot;a high frequency band of frequencies above the highest frequency of the telephone voice band&quot;; &quot;high frequency band&quot;; and &quot;high band of frequencies&quot;</td>
<td>Frequencies above the telephone voice band between 0.25 MHz and an undetermined upper limit</td>
</tr>
<tr>
<td>&quot;a high band of frequencies above a telephone voice band of frequencies&quot;</td>
<td>Frequencies above the telephone voice band between 6 MHz and an</td>
</tr>
</tbody>
</table>
"high frequency band"; and "high band undetermined upper limit of frequencies" ('718 patent)

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A. "A high-frequency power MOSFET device" (’715 patent, claim 23)

Both parties agree generally that a high-frequency device in this context is one that operates at between 1 Mz and 900 Mz. However, the parties disagree about what it means for a device to "operate." Defendant claims that the word operate is itself ambiguous and must therefore be defined with respect to extrinsic evidence, namely the declaration of Douglas Pike, while plaintiffs argue that it would contravene Vitronics either to engage in the construction of specification language (rather than claim language) or to employ extrinsic evidence where the meaning of a term is clear from the language and specifications of the claim itself. Vitronics, 90 F.3d at 1583.

This court is mindful of the fact that it must interpret only claim terms, not specification language, and of the fact that it must not employ extrinsic evidence (particularly expert testimony) unless language of the claims and specifications do not fully answer the questions at hand. Vitronics, 90 F.3d at 1584-85. At the same time, it would be nonsensical, not to mention hardly efficacious, for this court to employ a term that was itself materially ambiguous in construing claim language. Yet "operate" is not a particularly unclear term, even in this context, and certainly not to the degree defendant suggests. A device that "operates" in a certain frequency range is one that "functions properly" or "functions as intended" within that range, with all of the attendant limitations implied by that language. This court is reluctant to apply defendant's particularized limitation of "capable of delivering at least a 50% duty cycle" where that language may be both under- and over-inclusive of a device's "operation." The court thus adopting plaintiff's construction, minus the qualifier "about," which appears nowhere within the specification. The court construed this claim to mean: "A power MOSFET device which operates between 1 Mz and 900 Mz."

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2. "Power Supply Circuit"

Claims 28, 36 and 38 of the Reissue Patent incorporate a power supply circuit. The principle area of dispute, it appears, is the parties' disagreement over whether terms such as "constant current" and "high impedance," as used in the context of the Reissue Patent, are too ambiguous and require a precise numerical value. In regards to the power supply circuitry of claim 28, Rockford argues that: (a) the term "constant current" is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation; (b) the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance; and (c) the phrase "increase electrical isolation between the first stage and the at least return signal" lacks definite meaning because the first stage is not isolated from the return reference potential, and the patent provides no baseline for measuring increase. (Def.'s Markman Br. at 2-3, 32-44.)

Rockford argues that the terms "constant current" and "high impedance" require some absolute numerical value because they are ambiguous and indefinite. Id. at 23-27. According to Rockford, the term "constant current" of claim 28 of the Reissue Patent is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation. (Def.'s Markman Br. at 2.) Rockford also alleges that the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance. Id. Finally, Rockford concludes that the phrase "increase electrical isolation between the first stage and the at least one return reference signal" lacks definite meaning because the first stage is not isolated from the return reference potential, and the patent provides no baseline for measuring an increase. Id. at 2-3.

Fiori counters that the intrinsic evidence clearly demonstrates that the claim language of the patents-in-suit were presented and approved by the PTO examiners, and therefore do not violate 35 U.S.C. § 112 (2) or require some absolute numerical
value. (Pl.'s Markman Br. at 11.) Fiori asserts that "[t]he specification and Figures provide a complete definitional framework" for its claims. (Pl.'s Markman Br. at 20.) He contends that the Reissue Patent defines "constant current" as an exact current precisely metered through each transistor to operate the op-amps. Id. at 27. Fiori claims that the specification of the Reissue Patent teaches and defines that this power supply provides a current to the first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps (e.g., 38) so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current pathway. Id. According to Fiori, because the current is metered precisely, any changes and potential of the op-amp supply pins will have no bearing on the current delivered. Id. As a result, the effective impedance of the power supply is extremely high. n28 Id. Fiori further contends that "constant current," defined in the specification with precision, is a "degree term." (Pl.'s Markman Br. at 11 n.5.)

n28 Figure 3 in the specification similarly describes an alternative power supply for providing a constant current.

The Federal Circuit has consistently held that terms of "degree" such as "high", "low", "substantially", "significantly", "approach each other", "close to", "substantially equal", and "closely approximate" are definite under 35 U.S.C. § 112 (2) and do not require further mathematical precision. See Seattle Box Co. v. Industrial Crating & Packing, 731 F.2d 818, 826 (Fed. Cir. 1984) (citing W.L. Gore & Assoc's., Inc. v. Garlock, Inc., 721 F.2d 1540, 1557 (Fed. Cir. 1983), cert. denied, 469 U.S. 851, 105 S. Ct. 172, 83 L. Ed. 2d 107 (1984)) ("substantially equal" is a term of degree, and that its acceptability depends on "whether one of ordinary skill in the art would understand what is claimed . . . in light of the specification"); see also Shatterproof Glass Corp. v. Libbey-Owens Ford Co.,758 F.2d 613, 624 (Fed Cir. 1985) cert. denied, 474 U.S. 976, 106 S. Ct. 340, 88 L. Ed. 2d 326 (1985) (citing W.L. Gore & Assoc's., Inc. v. Garlock, Inc., 721 F.2d 1540, 1557 (Fed. Cir. 1983), cert. denied, 469 U.S. 851, 105 S. Ct. 172, 83 L. Ed. 2d 107 (1984)). The Federal Circuit has noted in Andrew Corp. v. Gabriel Electronics, Inc., 847 F.2d 819, 821 (Fed. Cir. 1988), such words are ubiquitous in patent claims. Such usages, when serving reasonably to describe the claimed subject matter to those of skill in the field of the invention, and to distinguish the claimed subject matter from the prior art, have been accepted in patent examination and upheld by the Courts. See Rosemount Inc. v. Beckman Instruments, Inc., 727 F.2d 1540 (Fed. Cir. 1984). Furthermore, when a claim term is expressed in general descriptive words, the Court will not limit the terms to a numerical range that may appear in written description or in other claims. See Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) (citation omitted). Accordingly, this Court finds that Rockford's interpretation that the terms "constant current" and "high impedance" require some absolute numerical value is unpersuasive. The general descriptive terms in which the terms are expressed are acceptable under the present state of the law.

In regards to the power supply circuitry of claims 36 and 38, Rockford argues that: (a) the location of the "constant current" in both claims is between the power supply and the first power supply circuit because claims 36 and 38 state that the first power supply circuit draws the current from the power supply; and (b) the elements of the voltage regulation means in claim 38 include a bias voltage circuit. (Def.'s Markman Br. at 24-30.)

In its Markman brief, Rockford first contends that the ordinary meaning of the words of claims 36 and 38 place the "constant current" between the power supply and the first power supply circuit. Id. at 25. According to Rockford, analogous to a "farmer drawing n29 water from a well," the first power supply circuit performs the act of drawing and the power supply circuit draws current toward itself from the power supply. Id. at 26. Thus, Rockford believes that the location of the "constant current," as described in both claims, must be restricted because the limitations refer "to the particular water the farmer takes from the well" . . . and do "not refer to water used in the barn where animals drink." Id.
This Court does not agree. As previously stated, "if the claims, read in the light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed Cir.) cert. dismissed, 474 U.S. 976, 106 S. Ct. 340, 88 L. Ed. 2d 326 (1985) (quoting Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F.2d 124, 136, cert. denied, 358 U.S. 884, 79 S. Ct. 124, 3 L. Ed. 2d 112 (1958)). Here, the term "constant current," as described in claims 36 and 38, is specifically defined in the specifications and claims and is not required to be situated between the first power supply circuit and the power supply. As such, Rockford's construction of claims 36 and 38 is too narrow in scope and its "farmer and the well" rationale is tenuous and unpersuasive. Rockford further asserts that the "voltage regulation means" of claim 38 includes the voltage regulator circuitry found within the constant current circuits. Despite the parties stipulating that "voltage means" includes transistors 22, 24, resistors 21, 25, and op-amps 23 and 26, Rockford interprets the pertinent language of the specification n30 of claim 38 to include elements 80, 82 and 84 and 85 and the op-amps requiring a bias voltage circuit. Id. at 2, 25, 27-30. According to Fiori, the first and second stage recitals of claim 38 are identical in scope to claim 36 and the power supply in claim 38 is recited as comprising a voltage regulating means for drawing the constant current from the first power supply with respect to the changes in the input source reference potential to isolate the first power supply circuit from the first stage. (Pl.'s Markman Br. at 29.) Moreover, Fiori contends that the specification describes the voltage regulation means as the transistors 47, 22, 50 and 24 in combination with the resistor and op-amps and zener diode 43 and 45. Id.

n30 The op-amps provide the biasing necessary for the transistors to conduct exactly that current required to produce that voltage across the resistors that match the biasing voltages produced by zener diodes 80 and 85 in combination with resistors 82 and 84. The Reissue Patent, column 5, line 18-27. Capacitors 81 and 86 are included to further reject any interference which may be present on the power supply as provided by contacts 91, 89 and 90. In this way, an exact current is precisely metered through each transistor to operate op-amps 13, 16, 38 and 41. Id. The op-amps provide the biasing necessary for the transistors to conduct exactly that current required to produce that voltage across the resistors that match the biasing voltages produced by zener diodes 80 and 85 in combination with resistors 82 and 84. Id. Capacitors 81 and 86 are included to further reject any interference which may be present on the power supply as provided by contacts 91, 89 and 90. Id. In this way, an exact current is precisely metered through each transistor to operate op-amps 13, 16, 38 and 41. Id.

n31 Similarly, Rockford's argument that Fiori's claim constructions are unfounded in an effort to cover up the flaws of Plaintiff's case, is irrelevant for purposes of this Markman process. (Def.'s Rebuttal Br. at 25-30.)

IV. CONCLUSION

The Court concludes that the disputed terms have the following meanings:

1. "Input Portion" of claims 1 and 17 of the '148 Patent shall mean a specifically defined physical structure, connected to two conductors and recited as generating an intermediate signal.

2. "Output Portion" of claims 1 and 17 of the '148 Patent shall mean a physical structure, specifically defined as op-amp 65, which is separate, independent and isolated from the input operational amplifier and recited as generating a destination signal and a corresponding destination reference signal.

3. "Second Stage" of claim 28 of the Reissue Patent shall mean a stage, operatively coupled to the first stage, n32 generating
an output signal which is a sum of the at least one intermediate signal generated in the first stage minus a potential of the at least return reference signal plus an output return reference signal.

4. "High Impedance" of claim 28 of the Reissue Patent shall mean a mathematically sufficient term of degree for providing a constant current power supply circuit coupled to said first stage to increase electrical isolation between the first stage and the at least one return reference signal.

6. High Impedance Condition

The parties generally agree that the term impedance is well-known to those with ordinary skill in the art, and refers to the resistance in an electrical circuit to the flow of a current. Both parties also agree that in the context of the '183 patent, the impedance is sufficiently high to disable communication between the AUI and the twisted pair link. The only disagreement between the parties with respect to this term is whether it can include an automatic switch.

Seeq, citing to the first Office Action, relies on the examiner's conclusion that an automatic switch would have been obvious from the prior art. During the Office Action, the examiner stated:

"It would have been obvious to use the automated selector of Strecker et al in place of the jumper as it is well known that manual switches may be replaced by automate switches. . . . The high impedance state would have been obvious as the selector switch of Strecker et al connects either one bus or the other, hence, the inactive bus is disconnected from the receive processing circuit in a high impedance state."

Guy Decl., Ex. B at 3.

However, Seeq fails to account for the amendment submitted by applicants discussing the invention in light of the prior art. Nor does Seeq address the fact that the amended patent application was subsequently allowed. As Level One points out, in response to the rejection by the examiner, applicants submitted that none of the prior art enabled a computer to communicate over both an Ethernet bus and a twisted pair link; rather it taught how to mediate access to the Ethernet bus to prevent monopolization of it. Plaintiff. Opp'n, App. B at 8. Applicants further noted that switches are not interchangeable, but instead, must be designed to appropriately interface the circuits that one desires to join. The Applicants' 10Base-T MAU not only provides interface signal conditioning between the AUI and the twisted pair links but also provides jabber control and collision avoidance circuitry. Thus, the Applicants' invention allows data terminal equipment to communicate with other data terminal equipment via an Ethernet bus or alternatively over a twisted pair link.

Applicants point out that Strecker does not disclose means for interfacing an attachment unit interface to a twisted pair media.

Plaintiff. Opp'n, App. B at 7. Seeq's argument that the term high impedance condition cannot include in its scope an automatic switch is based on an incomplete account of the prosecution history and is therefore unpersuasive. Seeq is correct, however, that the '183 patent is directed only to a twisted pair MAU and not a coaxial MAU and that it does not encompass a switch that operates on both MAUs. Yet the claimed invention could encompass an automatic switch that controlled the twisted pair MAU alone. Based on this court's reading of the prosecution history the term does not preclude use of an automatic switch directed to a twisted pair MAU.
Accordingly, high impedance condition is construed to mean an impedance sufficient to disable communication between the AUI and the twisted pair link.

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(5) In claims one and three, the term "high instantaneous energy." 9 Defendants argue that the term must be read in light of the entire claim and that a person of ordinary skill in the art would understand the term to mean that the light pulses from the laser have enough energy or power to produce fluorescence when two photons of long wavelength light are absorbed and their energies are combined in the fluorophore. 613 Patent 2:32-59; 3:9-22; 6:22-24. In their claim construction brief, Plaintiffs argued the term should mean about 25 milliwatts, consistent with the definition in the specification. 613 Patent 7:40.

In support of Defendants' position, Dr. Walmsley testified that one of ordinary skill in the art would understand the term to mean the "instantaneous intensity required to produce two photon fluorescence in the target material." Tr. 206. The patent demonstrates that the high instantaneous energy is determined by reference to the particular fluorophore. Tr. 208; 613 Patent 2:52 ("Because of the high instantaneous power provided by the very short duration intense pulses focused to the diffraction limit, there is an appreciable probability that a fluorophore, contained in the target material, and normally excitable by a single high energy photon having a short wavelength, typically ultraviolet, will absorb two long wavelength photons from the laser source simultaneously."). Dr. Walmsley explained that equation two in the patent demonstrates that the level of energy depends on the power of the laser, pulse duration and repetition rate. Tr. 211-13. The prosecution history also supplies a definition. It states the long wavelength pulses provide "sufficient instantaneous power to produce simultaneous absorption of two incident photons to excite fluorescence in the target material." Prosecution History at 117.

Further, Defendants' second expert, Dr. Svoboda, explained that high instantaneous energy is required to make two photon microscopy work. Tr. 319-20 (discussing 613 Patent at 2:52, 3:9, 6:22). More importantly, Dr. Svoboda explained that the 25 milliwatts referred to in the patent refers to the average power of the laser. Tr. 325; 613 Patent at 7:42. High instantaneous power refers to the "very, very high power that occurs only very, very briefly during a pulse. The average power, though, is much lower than the peak power because it's averaged over the whole time . . . ." Tr. 325. If 25 milliwatts was used as the instantaneous energy intensity, Dr. Svoboda believes it would take a week to form an image. Tr. 327.

At the Markman hearing, Plaintiffs appeared to abandon their dispute concerning this term. Dr. Fraser testified that high instantaneous energy did not have to be constrained to 25 milliwatts. Tr. 534. Accordingly, the Court interprets the terms "high instantaneous energy" and "high intensity" to mean: "The pulses of light generated by the laser produce sufficient energy so that two photons will be absorbed by the fluorophore in the target material to produce fluorescence."

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A. Meaning of "High Level Commands"

Veritas argues that the term "high level commands" in claim 1 is neither commonly understood in the art nor expressly defined in the specification. SCC relies on language in the specification that it argues defines "high level commands" by example:

The file system supervisor 32 operates to determine the appropriate file-level applications for receipt of the files received from the client computer 10. The file system supervisor implements file specific routines on a common format file system. Calls made to the file systems supervisor are high level, such as Open, Close, Read, Write, Lock, and Copy.
Id. at 82 (col. 4, l. 22-28).

Veritas responds that other parts of the specification also use "high level" to refer to volume, array and block level commands. See id. 83-84 (col. 5-7). That is true. However, as SCC points out, those references are used in the context of other parts of the patent. What is high level in one context may very well be different in another. Those alternate uses of "high level" do not detract from the explanatory force of the quoted language. The Court holds that the specification sufficiently explains the term "high level commands" as used in claim 1 as being file-level commands such as open, close, read, write, lock, and copy.

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C. High Order Commands (Claims 1, 11)

HP suggests the following construction of "high order commands": "commands that cause the performance of operations, such as, but not limited to, 'display,' 'write,' 'erase,' or 'read,' on the designated system." Intergraph proposes the following construction of the disputed phrase: "a message that has to be parsed, and once parsed, causes the performance of a necessary operation, such as display or write, on the entire design represented by the hierarchy."

HP’s proposed construction relies upon language in the preferred embodiment which states that "[a]ccess to the tree of data records is through high order commands such as those indicated at 35-38 [in Fig. 8]. These . . . perform operations, such as DISPLAY and WRITE, on the entire design which the designer has laid out." '208 patent, col. 5:62-65. HP explains that software applications implementing the '208 patent will include a set of "high order commands" unique to the particular system being designed, which invoke the various operations that are conducted on the primitive elements of the designed system.

Intergraph’s proposed construction relies heavily upon language in the specification. Intergraph argues that the concept of parsing the high-level programs is prevalent throughout the '208 Patent. See e.g., '208 Patent, col. 5:65-67 ("Note that only these high level programs need to be parsed to interpret the character string to determine what operation is to be performed."); see also col. 6:4-6 ("Only the high level commands, such as 35-38, require time for the interpretation of character strings.").

Once again, Intergraph has attempted to import a limitation from the preferred embodiment into the claims. Neither the term "message" nor the term "parsed" appear anywhere in the patent claims. Therefore, Intergraph's proposed construction is simply too narrow. Likewise, HP's proposed construction also relies too heavily upon language from the preferred embodiment by using such terms as "display" and "write." Most helpful to the Court is language from the specification that states "[a] series of high order, very simple, commands operate selected manipulative programs in the hierarchy." This language appears to mirror claim 1, which states that "high order commands . . . operate selected manipulative programs in said hierarchy." Likewise, claim 11 states that "high order commands . . . provide access to the hierarchy of data objects." Based primarily on language of claims 1 and 11, along with the cited language in the specification, the Court construes "high order commands" as commands which provide access to selected manipulative programs which cause the performance of operations on the designed system.

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(6) In claim one, the term "high repetition rate." This term is used to characterize the rate of subpicosecond laser light pulses directed at the target material. According to Defendants, the use of 80 megahertz (MHz) in the specification is only an example and not a precise definition. Rather, a high repetition rate is one in which the laser light pulses are repeated frequently enough so that a fluorophore that is normally excitable by a single high energy photon with a short wavelength will absorb two long wavelength photons from the laser source simultaneously to produce fluorescence. Plaintiffs, on the other hand, argue that the specification dictates that the rate be about 80 MHz. 613 Patent 2:48 ("repetition rate of about 80MHz"); 6:38 ("at about 80 MHz repetition rate"); 7:5 (same).
On behalf of the Defendants, Dr. Walmsley explained that the patent language demonstrates that the term relates to a stream of rapidly repeating high intensity pulses of light. Tr. 204; see e.g., 613 Patent 3:13 ("stream of fast, high intensity pulses"), equation two (demonstrating inventors understood the rate to be variable). He also explained that in his field of expertise tens of megahertz to hundreds of megahertz would be considered a high repetition rate. Tr. 205. Dr. Svoboda added that to a person of ordinary skill the term would mean a rate "sufficiently high for practical two-photon excitation microscopy." Tr. 341.

Dr. Fraser testified that a colliding pulse mode locked laser is offered as the only embodiment of the patent and it had a repetition rate of 80 megahertz. On cross examination, he admitted that the repetition rate could vary according to equation two in the patent. Tr. 532.

Again, the Court will not limit the term to the one embodiment described in the patent. Karlin, 177 F.3d at 973. As it is agreed that equation two allows for a variable repetition rate, the Court will not limit the term to 80 megahertz. Accordingly, the Court interprets the term to mean: "The light pulses produced by the laser are repeated at a rate high enough so that a fluorophore normally excitable by a single high energy photon having a short wavelength will absorb two long wavelength photons from the laser source simultaneously to produce fluorescence and an image may be acquired in a practical amount of time."

4. High speed

The term "high speed" appears in claims 12 (by its dependence from claim 11), 39, and 52 of the '121 patent, and in claim 119 of the '845 patent. The parties agree that the term "high speed" shares a common construction with the term "multi mega bit per second." Therefore, the court concludes that the term "high speed" means "an aggregate data transmission rate of 10 or more megabits per second."

5. The Preamble

The district court held that the preamble phrase "high speed manufacture of a single copy of a book" does not limit the claim to immediate printing or require that only one copy be printed, and instructed the jury that:

The phrase "high speed manufacture" in the preamble does not limit the claim to require that all other steps, such as a customer's scanning sales information, selecting a book, and then printing and binding a book must take place within a short period of time. The preamble also does not limit the claim to the manufacture of a "single copy" of a book, as opposed to manufacturing several or multiple copies. . . . and does not require that the book be bound with a cover.

The defendants argue that this instruction is incorrect, and that the preamble explicitly limits the claim, in that it states the invention to which the claim is directed. They also point out that clauses [9], [10], and [11] require a cover.

In considering whether a preamble limits a claim, the preamble is analyzed to ascertain whether it states a necessary and defining aspect of the invention, or is simply an introduction to the general field of the claim. In Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 1951 Dec. Comm'r Pat. 177 (CCPA 1951), the court aptly described the inquiry as whether the preamble is "necessary to give life, meaning and vitality to the claims or counts." See, e.g., Poly-America, L.P. v. GSE Lining Tech., Inc., 383 F.3d 1303, 1309-10 (Fed. Cir. 2004) (the specification described the "blown-film" as a fundamental characteristic of the invention, and its use in the preamble limited the claims); In re Cruciferous Sprout Litigation, 301 F.3d 1343, 1347-48 (Fed. Cir. 2002) (the preamble phrase "rich in glucosinolates" was limiting because the patentee relied on the preamble to distinguish the prior art in prosecution); General Elec. Co. v. Nintendo Co., Ltd., 179 F.3d 1350, 1361-62 (Fed. Cir. 1999) (where the specification made clear that the invention was a mode of display of binary data on a raster scanned
display device rather than all display devices, the preamble language "displaying a pattern on a raster scanned display device by mapping bits" was a claim limitation).

The preamble serves to focus the reader on the invention that is being claimed. We conclude that the preamble in this case necessarily limits the claims, in that it states the framework of the invention, whose purpose is rapid single-copy printing of a customer's selected book as stated in clauses [5], [6], [7], and [8]. The high speed manufacture of a single copy is fundamental to the Ross invention, for the specification highlights that the customer may have a printed and bound copy within "three to five minutes." Col. 2, line 33. While ODMC points out that Lightning Source's web site touts "In one week, we craft 70,000+ books, one at a time," such mass production is not the invention described and claimed by Ross.

The district court's instruction that the preamble in this case does not limit the claim was incorrect, for the entirety of the claim implements the preamble's high speed manufacture of a single copy, upon customer review of the stored sales information, promptly printing and binding the single copy in response to the customer's selection. The preamble embraces the totality of these limitations, and limits the claim to the subject matter of the preamble.

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E. Highest H[\text{max}] and lowest H[\text{min}]

Finally, Honeywell appeals the district court's claim construction of the requirement of a "highest H[\text{max}] and lowest H[\text{min}]." Claim 1 of the '009 patent requires the terrain display to include "the highest h[\text{max}] and lowest h[\text{min}] terrain levels of said portion of the terrain." The district court construed this phrase to require "that the display show a numeric value for the highest and lowest points." Claim Construction Decision, 264 F. Supp. 2d at 155. The district court stated that "without numeric values, the highest and lowest points display would be useless to the pilot because he would have no frame of reference of the terrain relative to the aircraft." Id.

Once again, as occurred with the numeric inclusion above, the district court included an unnecessary limitation in the claim. Indeed, dependent claim 21 specifically discloses a display with numeric information. '009 patent col.40 ll.8-10 ("The system of claim 1 wherein said contour means additionally displays on said cockpit display a range value.") As this court has noted, "the claims themselves provide particular meaning to claim terms." Phillips, 415 F.3d at 1314. "Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." Id. (citing Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed Cir. 1996)). Finally, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1315 (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004)). Thus, the language of claim 21 is strong evidence against limiting claim 1 to require a numeric display. As such, this court construes the claim phrase "highest h[\text{max}] and lowest h[\text{min}]" to require only an apparatus that shows the highest and lowest points of the terrain within the portion of terrain displayed.

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2. "Highly collimated projected scanning pattern"

Plaintiff Metrologic argues that "highly collimated" refers to the requirement that the infringing device must have a rich pattern into which bar coded items can be presented for reading irrespective of orientation. See Pl.'s '852 Markman Br. at 13. Plaintiff asserts that this construction follows directly from the language in Limitation 15 which reads "the code symbol is scanned omnidirectionally by said highly collimated scanning pattern . . . ." '852 Patent, col. 12, 11. 53-54. In addition, as discussed below, plaintiff relies upon the file history of the '232 patent, a parent application to the '852 patent.

PSC construes "highly collimated" to mean that the rays of light must be made as close to parallel as possible. Defendant asserts that this limitation should be construed to mean that the "scan pattern [] changes as little as is practically possible in size and shape over the entire range of distances from the window of the scanner over which a bar code may be read." Def.'s
'852 Br. Mot. Summ. J. at 18. Thus, defendant contends, the size and shape of the pattern varies very little throughout the entire operating range of the scanner, thereby creating a column-like pattern as it is projected out of the scanner. Id. at 18-19. Plaintiff specifically contests PSC's construction that the rays of light be "as close to parallel as possible," stating that the "highly collimated" phrase refers to a "rich set of lines in which a bar code can be read omnidirectionally." Pl.’s ’852 Markman Br. at 14.

The Court herein reviews the claim language, the specification, and the prosecution history. The claim language of patent ’852 states:

(h) control means within said compact housing for controlling the operation of said counter-top projection laser scanner so that, during scanner operation, the laser beam produced from said laser beam producing means passes along a portion of said central reference plane, to the first, second and third rotating light reflective surfaces of said laser beam sweeping means, and as the laser beam sequentially reflects off said first, second and third rotating light reflective surfaces, the laser beam is repeatedly swept across said first, second, third, and fourth and fifth stationary light reflective surfaces thereby producing first, second, third, and fourth and fifth groups of plural scan lines, respectively, which are projected out through said light transmission window and intersect about a projection axis within a narrowly confined scanning volume extending from adjacent said light transmission window to at least about six inches therefrom so as to produce a highly collimated projected scanning pattern within said narrowly confined scanning volume, . . .

'852 Patent, col. 12, 11. 26-45. The contours of the phrase "highly collimated projected scanning pattern" is given by the claim language directly preceding it. The "projected scanning pattern" encompasses five groups of plural scan lines, created by passing a laser beam off a central reference plane, and sweeping the laser beam off of three rotating light reflective surfaces and five stationary light reflective surfaces. These five groups of plural scan lines are projected out through the light transmission window about six inches or so and intersect about an axis. Reference to the "highly collimated projected scanning pattern" being produced within said "narrowly confined scanning volume" and extending to at least six inches from the light transmission window indicates that the pattern is projected within the narrow volume of light emitted from the scanner. Because the pattern is confined to this volume, yet is at least half a foot in length, this falls in favor of construing the term "collimated" to mean that the projection of the scanning pattern is columnar, rather than that it encompasses a rich pattern of scan lines, thereby allowing items to be read omnidirectionally, as proposed by plaintiff.

Subsection (i) of claim 1 also refers to the "highly collimated scanning pattern" as being "within" the "highly collimated scanning volume." This claim language provides:

Said compact housing being supportable relative to a counter-top surface so that, during scanner operation, said highly collimated scanning pattern is projected above said counter-top surface within said highly collimated scanning volume . . .

'852 Patent, col. 12, 11. 46-50 (emphasis added). That the term "highly collimated" describes both the scanning pattern as well as the scanning volume indicates reference to the shape of both the volume and the pattern, not that the term refers to a rich set of lines in which a bar code can be read omnidirectionally. Additionally, subsection (h)'s reference to the scanning volume as a "narrowly confined scanning volume," '852 Patent, col. 12, 11. 44-45, indicates the interchangeability of the terms "highly collimated" and "narrowly confined," and creates the strong implication that the term "highly collimated" refers to the columnar nature of both the volume and the projected pattern.

That the term "highly collimated" refers to the projected scanning pattern being as parallel as is possible is supported by the ordinary dictionary definition of the term "collimated." The ordinary meaning of the term "collimated" is "to make (as light rays) parallel," Merriam-Webster’s Collegiate Dictionary (1993), Palmer Decl. Ex. D; Def.’s Markman Ex. 34, the term "highly collimated" refers to a shape in which the light rays are as parallel as possible. The McGraw-Hill Dictionary on Scientific and Technical Terms also defines a "collimated beam" as "beam of radiation or matter whose rays or particles are nearly parallel so that the beam does not converge or diverge appreciably." Hyun Decl. P11.

Plaintiff Metrologic argues that the dictionary definition in and of itself does not give meaning to the term "highly collimated," and that the plaintiff is its own lexicographer. If plaintiff is its own lexicographer, its definition must be "clearly stated in the patent specification or file history." Vtronics, 90 F.3d at 1582 (citing Hoechst Celanese Corp., supra, 78 F.3d at 1578). Although plaintiff urges this Court to construe "highly collimated" to refer to a rich set of lines in which bar code items can be presented and read in varying orientations, there is no definition to this effect in the specification, claim
language, or file history.

Rather, with respect to the rich set of scan lines, the description of the preferred embodiment in the specification provides:

The scanning pattern of the subject invention is confined within a relatively narrow, yet diverging volume centered about a projection axis from the scanner (as will be described later) and includes plural groups of intersecting scan lines to create a "rich" pattern. This "rich" pattern ensures that sufficient lines of the pattern will sweep across the entire bar code to enable the proper reading or decoding thereof by conventional decoding means located within the scanner 20, irrespective of the orientation of the bar code within the scanning pattern. Moreover, by virtue of the fact that the volume or space in which scanning pattern is projected is somewhat narrow or confined, the amount of counter space which must be kept clear of other bar coded items to enable the proper scanning of the selected bar coded item, can be kept to a minimum.

'852 Patent, col. 4, ll. 46-60. While it is true that a purpose of the invention is to scan objects irrespective of their orientation and to prevent unintentional scanning of objects, no reference to "collimated" as being defined by the "rich" set of scan lines is made.

The specification instead supports a construction of "highly collimated" as referring to the columnar nature of the projected scanning pattern, as the Summary of the Invention provides that

The scanning pattern is generally confined within a relatively narrow, yet diverging, volume, e.g., pyramid, cone, frustum, etc., centered about a projection axis which is substantially but not precisely perpendicular to the plane of the window. '852 Patent, col. 3, ll. 15-20. Moreover, in conjunction with the claim language's usage of the terms "highly collimated" and "narrowly confined" interchangeably, discussed above, this language implies that the scanning pattern and volume share a "relatively narrow, yet diverging" shape. The specification language also refers to the term "highly collimated" as coterminous with "focused," with respect to the volume: "The highly collimated or focused volume of the scan prevents unintentional scanning of nearby objects." '852 Patent, col. 11, ll. 24-25.

Although defendant argues that "highly collimated" refers to light rays that are as close to parallel as is possible, the Summary of Invention provides that "the scanning pattern comprises plural, e.g., five, groups of plural, e.g., four, parallel scan lines." '852 Patent, col. 3, ll. 8-10. This indicates that the lines included within the scanning pattern consist of groups of scan lines, each individually consisting of parallel lines. The scanning pattern itself contains these groups of parallel lines, and, therefore, may not be completely parallel or linear, as a result of the groups of lines protruding from different angles.

As for prosecution history, defendant PSC counters that there have been 7 rejections by the PTO of the '852 patent, therefore resulting in a patent requiring very narrowly termed claims that necessarily point to "highly collimated" as referring to the laser beam shape, not the rich set of lines as plaintiff contends. Exhibit 20 from defendant PSC's presentation on the '852 patent lists 7 rejections based on prior art under 35 U.S.C. §§ 102, 103, and 112. See Def.'s '852 Markman Presentation, Slide 20; Vinti Decl. Ex. D. PSC argues that plaintiff in these amendments sought to differentiate its invention from previous inventions, and in so doing, cannot claim that which it disclaimed. Defendant's argument that Metrologic should be estopped from disputing the accuracy of that definition, citing to Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) is persuasive. In that case, the patent holder had argued in the patent prosecution that "diffuse light" refers to light emanating from multiple emitters. Although the patent holder argued that "diffuse" did not require production from multiple sources, the Federal Circuit determined that the district court did not err in its determination that he was estopped from asserting that his patent was not limited to multiple emitters. This case presents a similar situation. For example, one amendment after final rejection dated September 10, 1990, provides that plaintiff attempted to differentiate itself from prior art scanners by stating that previous "slot or counter type scanners produce a scanning pattern which is not collimated, but rather which spreads out or diverges widely."

Thus, in plaintiff's own words, "collimated" should be construed as the opposite of "diverging widely" or "spread out widely." In other words, as consistently used by plaintiff in the prosecution history, "collimated" is understood to mean that little divergence occurs. In addition, although plaintiff had used the term "substantially collimated scanning pattern," the PTO rejected this application based on prior art, thus causing plaintiff to amend the claim to read "highly collimated," rather than "substantially collimated." Thus, as defendant successfully argues, plaintiff is estopped from asserting that the claim language "highly collimated" refers to anything other than "roughly columnar," opposite from widely divergent.
Plaintiff argues that the file history of the '232 patent, a parent application to the '852 patent, mentioned above, favors its claim construction. On May 20, 1992, the Patent Examiner rejected claims in the '232 patent application on the basis of a Japanese patent to Watanuki. See Office Action in Application No. 07/580738, 5/20/92, Pl.'s '852 Markman Br. Ex. B. Plaintiff states that the Examiner concluded that Watanuki disclosed a laser scanner producing a laser light having a "generally narrow volume." Id. at 5. Plaintiff claims it overcame this rejection by distinguishing Watanuki on the basis that it did not disclose a rich set of scan lines for omnidirectional scanning, and that it was thus allowed to amend its claims by adding limitations requiring a "highly collimated projected scanning pattern within which a bar code symbol can be scanned independent of the orientation of said bar code symbol in said highly collimated scanning pattern." Id. at 4.

As the amendment and plaintiff's remarks in the prosecution history shows, it is true that plaintiff distinguished its patent from Watanuki's scanners because it did not disclose a rich set of scan lines:

As stated during the interview the subject invention constitutes a scanner which produces a rich scanning pattern of plural groups of parallel scan lines which intersect each other in a highly collimated or confined volume. That highly collimated scan pattern is projected from the scanner's window out a substantial distance, e.g., at least six inches, for reading a bar code which is merely presented to it (e.g., brought into, but not necessarily moved through, the pattern). This is to contrasted with the prior art slot or counter type scanners, like the scanner of the Watanuki reference, which require that the bar code be carried, moved, or passed through the scanning pattern . . ., typically in one direction, to ensure that the bar code is read. One reason such motion is required is that the scanning pattern is not rich with lines.


However, plaintiff explained further in the Amendment that it attempts to add the term "highly collimated" to distinguish prior art scanners which diverged widely:

Moreover, slot or counter type scanners produce a scanning pattern which is not collimated, but rather which spreads out or diverges widely. Thus, in order to ensure that the bar code is swept by the outgoing laser beam the bar code must be moved substantially through the scanning pattern to be transversed by the laser beam.

Moreover, the widely divergent scanning patterns produced by slot or counter type scanners renders such scanners unsuitable for various scanning applications, e.g., small or mid-size drug, convenience, or other retail stores, wherein various bar coded items are commonly located on the counter at the check-out site for point of sale purposes. Thus, in such applications a typical counter or slot scanner, with its widely diverging scanning pattern, could inadvertently scan a bar code item displayed on the counter adjacent the scanner.

Id. at 9. Thus, in plaintiff's own words, the term "highly collimated" refers to the fact that the scanning pattern does not diverge widely or spread out, as is the case with prior art scanners and the Watanuki scanner. Plaintiff's own remarks in explaining its invention demonstrate that the addition of a rich set of scan lines was not intended to define the term "highly collimated" in the claimed invention. Rather, Metrologic's amendment of its claim to add a rich scanning pattern of plural groups of parallel scan lines is only an additional way in which the claimed invention purportedly differed from the prior art.

Defendant asserts that a claim cannot be construed any broader than its unambiguous scope, citing Amhil Enterprises, Ltd. v. Wawa, Inc., 81 F.3d 1554, 1562 (Fed. Cir. 1996). In that case, the patentee submitted responses in the prosecution history using "substantially vertical" and "vertical" interchangeably. The Federal Circuit determined that this prosecution history provided a further indication that the patentee thought of his substantially vertically faces as essentially vertical, especially if they were created to avoid prior art that outwardly extended projections with variously sloped faces. Similarly, in this case, where the patentee contrasted the claimed invention with the prior art, which was "divergent" or "wide," the unambiguous implication is that the "highly collimated" term refers to the columnar projection of the scan lines within the scanning pattern, not to the richness of the scan lines within the scanning pattern. UnderAmhil, this indicates plaintiff's understanding of the term "highly collimated," as conveyed in its patent prosecution history, as the opposite of "widely divergent" or "spread out."

After consideration of the claim language, the specification language, and the prosecution history, this Court construes the
claim language "highly collimated projected scanning pattern" as a scanning pattern of scan lines that is columnar in nature, or as columnar as possible, given practicable design constraints. The Court does not construe "highly collimated" as referring to the richness of the scan pattern into which bar coded items can be presented for reading irrespective of orientation. Rather, "highly collimated" refers to the columnar nature of the laser light projection containing the scan pattern.

1. The Whereby Clause

A. Whether the Whereby Clause is a Claim Limitation

DTL argues that the language, "whereby said acoustic signal is converted to a digital signal, transmitted to said remote receiver in digital form, and utilized by said digital system located at said remote location such that said digital system at said remote location receives a highly faithful digital representation of said acoustic signal" should not be construed as part of the function because it adds nothing substantive to the claim limitation. Cingular's position is that the whereby clause is meaningful and limiting.

Where the words following "whereby" simply state a result, they are not considered to be part of the function, or even a claim limitation because it adds nothing to the patentability or substance of the claim. Lockheed Martin Corp. v. Space Sys./Coral Inc., 324 F.3d 1308, 1319 (Fed. Cir. 2003); In re Krodel, 223 F.2d 285, 42 C.C.P.A. 993, 1955 Dec. Comm'r Pat. 305 (Cust. & Pat.App. 1955). On the other hand, a whereby clause limits a claim when it recites a capability that was "an integral part of the invention" based on the specification and prosecution history. See Hoffer v. Microsoft Corp., 405 F.3d 1326, 1330 (Fed. Cir. 2005)(per curium). The terms of a whereby clause must be regarded as an essential feature of the invention if it is used to distinguish the invention over the prior art during prosecution of the patent. Eltech Sys. v. PPG Indus. Inc., 710 F.Supp. 622, 633 (W.D.La. 1988), aff'd 903 F.2d 805 (Fed. Cir. 1990).

It is clear from the prosecution history that the terms of the whereby clause was used to overcome the prior art, namely U.S. Patent No. 4,370,523 ("the Bader patent"). In particular, the applicants repeatedly argued that the fidelity of transmission was a critical feature distinguishing their invention over that of Bader:

The fidelity of Bader's conversion is inherently very poor, in contrast to the nearly perfect transmission of applicant's invention. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-00089 P 8 [Doc. # 60, Attachment #4, p. 81 of 175].

The Bader reference alone or modified as suggested is incapable of fulfilling the essential objective of high quality, high resolution conversion accurately representing the incoming sounds. In contrast to Bader, Applicant's claimed invention is capable of 90 - 120 dB of dynamic range, .1 dB frequency response to 20kHz, and distortion better than .005%. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-00095 P 22 [Doc. # 60, Attachment # 4, p. 87 of 175].

Bader, even with the suggested modifications, produces a low quality conversion, with poor fidelity, bad frequency response and little dynamic range . . . Applicant's claimed invention produces the new and unexpected result of a self-contained, hand-held microphone with high quality professional audio reproduction. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000105 P 42 [Doc. # 60, Attachment # 4, p. 97 of 175].

The language in the specification is consistent with the statements in the prosecution history that the listed features in the whereby clause are required, rather than a hoped-for result of the invention or a laudatory phrase. When describing the prior art, the specification states: "The fidelity of analog transmission is restricted by interference, such as noise, . . . etc. The limited dynamic range (60-70dB) and high (up to 3%) harmonic distortion of the analog recording and reproduction process has hitherto masked the transmission effects." '799 patent, col. 1, ll. 44-50. The specification proclaims that one object of the invention is to "provide[] for the most accurate possible reproduction of the transducer output." '799 patent, col. 2, ll. 60-62. To achieve that objective, the patent states: "Virtually any form of varying energy could be transduced and transmitted over any distance with real life fidelity of up to 96-140 dB of dynamic range, and with virtually no distortion, using the present invention." '799 patent, col. 3, ll. 29-33 (emphasis added). The whereby clause in Claim 18 does not merely state a result, but rather, delimits how accurate the reproduction of the input must be.
DTL points to the examiner's statement that "there is no claim limitations [sic] addressing fidelity or frequency response" in support of its argument that the whereby clause only states the result of the prior limitations. 3 Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000118 P 7 [Doc. # 60, Attachment # 4, p. 110 of 175]. It is the applicants' statements that matter when construing the scope of an invention, not whether the examiner accepted or rejected them. See Lifestream Diagnostics, Inc. v. Polymer Tech. Sys., Inc., 109 Fed. Appx. 411, 414 (Fed. Cir. 2004)(stating that the "public notice function of a patent and its prosecution history requires that a patentee be held to what he declares during the prosecution of his patent.")

--- Footnotes ---

3 The court notes that in Claim 15, the claim states, not in a whereby clause, that "said transmission will be performed in a highly faithful manner." '799 patent, Col. 14, ll. 67-68.

--- End Footnotes ---

In fact, the patent examiner held an interview with the applicants to discuss Claim 1, which also has a whereby clause that its system is able to transmit the input "faithfully." At the interview, the examiner reiterated that Claim 1 "did not have specific language showing a functional conclusion of accurate reproduction." Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000128 P 3 [Doc. # 60, Attachment # 4, p. 120 of 175]. In response, the applicant "argued that the word 'faithfully' in the conclusion of the claim . . . implies sufficient frequency response and good fidelity for accurate reproduction of the input." Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-000129 P 18 [Doc. # 60, Attachment # 4, p. 121 of 175]. At the hearing, DTL admitted that "[t]here is not a distinction between 'highly faithful' and 'faithful.'" Trans. at p. 32. Because the applicants consistently argued during the prosecution of their patent application that the invention required an accurate reproduction of the analog signal, the court finds that when the patent containing the whereby clause ultimately issued, the terms of the whereby clause are interpreted as a limitation on the scope of the patent that was granted.

B. Whether the Term "Highly Faithful Digital Representation" is Indefinite

Cingular asserts that the term is indefinite and, hence, invalid under 35 U.S.C. § 112 P 2. To invalidate a patent for indefiniteness, the Federal Circuit has stated that the evidence must be shown by "clear and convincing evidence." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1348 (Fed. Cir. 2005). In determining whether the claim at issue "particularly point[s] out and distinctly claim[s] the subject matter which the applicant regards as his invention," the claim should be construed in light of the specification as interpreted consistent with the level of the ordinary skill in the art practiced in the invention. See Eibel Process Col. v. Minnesota & Ontario Paper Co., 261 U.S. 45, 65-66, 43 S. Ct. 322, 67 L. Ed. 523, 1923 Dec. Comm'r Pat. 623 (1923). That some claim language may not be precise, however, does not automatically render a claim invalid. Seattle Box Co. Inc. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984).

Looking to the specification of the '799 patent, the phrase "highly faithful digital representation" is given defining limits first, by describing the object of the invention: "It is therefore an object of the present invention to provide better audio reproduction with increased dynamic range, and reduced distortion and noise." '799 patent, col. 2, ll. 50-53. The reproduction is "virtually perfect, and there is no effect of any interference or noise in the transmission process." '799 patent, col. 6, ll. 55-60. Given the problem addressed by the invention and the specification language describing the '799 patent's solution to the problem, the phrase "highly faithful digital representation" is sufficiently defined to those skilled in the art to avoid invalidity.

c. Construction of the Whereby Clause

The parties focus on three terms within the whereby clause, "said remote receiver," "digital form," and "highly faithful digital representation." Of the three terms, the parties agreed on the definitions of "said remote receiver" and "digital form" if the court considers the whereby clause to be a limitation. Therefore, only "highly faithful digital representation" requires discussion.
The specification states that DTL argues that "highly faithful digital representation" should be construed as "a digital signal that is an accurate representation of the original analog signal." This is a generic definition that fails to differentiate "highly faithful" requirement in Claim 18 from "faithful" in Claim 1. '799 patent, col. 2, ll. 60-62. The applicants had argued that the word "faithfully" implies "accurate reproduction" of the input. By stating that the whereby clause requirement of a "faithful" transmission in Claim 1 imposed an "accurate" reproduction, a "highly faithful" transmission must, a fortiori, impose at least greater fidelity and frequency response requirements.

Cingular proposes "highly faithful digital representation" requires "representation with at least: a) 90 dB dynamic range, b) 0.1 dB frequency response to 20 kHz, and c) distortion better than 0.005%." There are several fallacies in Cingular's formulation. One is that it focuses upon the application of the invention, which is beyond the control of the inventors, rather than the structure of the invention itself. The specification teaches that if an A/D converter with 20 bit resolution is used, the dynamic range of signals can be greater than 118dB. '799 patent, col. 9, ll. 25-27. If a low cost, low power integrated circuit converter is used, the performance would be lessened by noise and distortion of 5-10dB. '799 patent, col. 9, ll. 41-45. The specifications detail a preferred embodiment using a 16 bit A/D converter to provide a theoretical 144 dB (24 bit) dynamic range. '799 patent, col. 10, ll. 25-27.

Cingular analyses the prosecution history in isolation from the specification and claim language. It is perhaps true that the applicants' claimed invention is "capable of 90-120 dB of dynamic range, .1 dB frequency response to 20kHz, and distortion better than .005%," but that is not required by the claim language. (emphasis added). The applicants may merely have been indicating that the Bader patent could not achieve such reproduction, unlike the present invention. Exhibit A of Pl.'s Opening Claim Construction Brief, DTL-00095 P 22 [Doc. # 60, Attachment # 4, p. 87 of 175]. Neither the language of the claim nor the specification requires, or even hints, that such a narrow definition must be adopted for this claim term.

The specification states that patent creates a reproduction that "is virtually perfect, and there is no effect of any interference or noise in the transmission process. '799 patent, col. 6, ll. 57-60. Accordingly, the court defines the terms as follows:

"Said remote receiver" means: a receiver.

"Digital form" means: a format that represents data by numerical digits or discrete units.

"Highly faithful digital representation . . ." means: the representation that is virtually perfect, with no effect of any interference or noise in the transmission process.
history portion usually consists of queries about the patient's current health, previous problems and any related family or social problems." '443 Patent, col. 4:6-8. In light of this language, Prompt construes the term to mean "information including the patient's current health, previous medical problems, and/or any related family or social problems that becomes the basis of the patient's medical record and required documentation." Conversely, Defendants originally proposed the construction "information consisting of the patient's current health, previous medical problems, and any related family or social problems that becomes the basis of the patient's medical record and required documentation."

Prompt argues that the nature of the history component mandates Prompt's proposed construction. Prompt produces both intrinsic evidence and an American Medical Association ("AMA") publication to show how the historical component is broken down into different types of patient history analysis, characterized by their level of detail. A physician who conducts a "problem focused history" records the patient's chief complaint and a brief history of the present illness or problem.

CELESTE G. KIRSCHNER, ET AL., AM. MED. ASS'N, PHYSICIANS' CURRENT PROCEDURAL TERMINOLOGY: CPT '95 7 (1995) ("CPT '95"). A physician conducting an "expanded problem focused history" records the same information that is collected for a problem focused history, along with a problem pertinent system review. Id. A physician conducting a "detailed history" records the same information collected for an expanded problem focused history but extends the problem pertinent system review to "a limited number of additional systems" and also records pertinent past, family and/or social history directly related to the patient's problems. Id. Finally, a physician conducting a "comprehensive history" records the same information collected for a detailed history, except that he also reviews systems directly related to the problems identified in the present illness's history, conducts a review of all additional body systems, and obtains a complete past, family, and social history. Id. The specification lists several decision matrix charts in Appendix B that reference these different types of histories, as well as figures displaying situations where only a problem focused history is taken, but more detailed histories are possible. See '443 Patent, Figs. 1A-1C; Appendix B (decision matrix charts for new patients and established patients).

Prompt contends that because the patient encounter is a "flexible event" involving fact-sensitive inquiries and decisions, medical coding must be flexible enough to permit physicians to conduct any or all of these histories. Thus, Prompt argues that only its use of the terms "including" and "and/or" correctly sets the parameters of a medical coding technology designed to afford physicians the ability to decide which type(s) of historical information they wish to collect. Likewise, Prompt argues that Defendants' proposed construction requires physicians in all cases to obtain full-scale histories. Prompt also argues that the specification's use of "usually" requires "and/or" in the construction of "historical data." See '443 Patent, col. 4:6-8. Finally, Prompt contends Defendants' construction excludes preferred embodiments by restricting a physician's freedom to not discuss the existence of "related family or social problems" or to not ascertain more detailed aspects of a patient's history. This is because, as Prompt argues, the Patent and Trademark Office defines the "[t]he transitional phrase 'consisting of' to exclude[,] any element, step, or ingredient not specified in the claim." n2 Recognizing Prompt's concerns, Defendants proposed the following modified construction: "information consisting of the patient's current health and any taken previous medical history and/or related family or social problems that becomes the basis of the patient's medical record and required documentation." This construction, Defendants argue, avoids a construction that would require physicians in all cases to take more extensive histories, but at the same time avoids a result that would permit a physician to elicit a history without ascertaining the patient's current health -- a result that Defendants characterize as absurd. Indeed, Prompt made no convincing argument that the history component would ever not include information about a patient's current health. Thus, the parties essentially agree that a patient's current health is a necessary sub-component of the history component. Nevertheless, Prompt still argues that Defendants' modified construction unduly excludes preferred embodiments and only the use of "including" and "and/or" provides physicians appropriate flexibility.

--- Footnotes ---

n2 See MPEP § 2111.03 (internal citations omitted; second and third alterations added).

--- End Footnotes ---

Prompt's arguments are unconvincing. The specification clearly uses the terms "consists of" and "and" when describing data ascertained in the historical component. A patentee is free to act as his or her own lexicographer and is free to set forth special definitions of claim terms in the specification that disclaim other potential definitions. Schoenhaus v. Genesco, Inc., 440 F.3d 1354, 1358 (Fed. Cir. 2006); Phillips, 415 F.3d at 1316. The patentees did so here when they identified the universe of physician queries related to patient history-queries about the patient's current health, previous health problems,
and related family or social problems -- and specified that patient history "consists of" those queries. Although Prompt correctly notes that the sentence in column 4, lines 6 to 8 uses the qualifier "usually," all Prompt argues is that "the history portion usually, but not always, consists of queries." Prompt does not explain why the patentee's use of "usually" calls for a construction that employs the open-ended word "including" and disregards the language that the patentees used to follow the qualifier. The specification's use of "usually" signifies to skilled artisans that the physician may opt to utilize only a subset of the universe of queries -- for example, a physician or other health worker may opt to elicit information only about the patient's current health and previous medical problems. Further, Defendants' use of the phrase "and any taken previous medical history" n3 and modified placement of "and/or" helps to properly encapsulate a physician's option to elicit or not to elicit historical information in addition to the patient's current health.

n3 Defendants' use of "previous medical history" in lieu of the patent's less exact phrase "previous problems" does not raise concerns. Both sides' original competing constructions reflected the parties' agreement that "previous problems" meant "previous medical problems." Given that this entire construction dispute pertains to the historical component, the words "history" and "problems" seem relatively interchangeable in this instance. Moreover, the decision matrices in Appendix B of the '443 Patent specifically identify "Medical History" as one of the major areas of physician-elicited information within the historical component.

Prompt's citation to the decision matrix charts and figures 1A-1C simply does not support a construction that employs "including." Likewise, Prompt's extrinsic evidence, though informative as to the types of historical information that a physician has the option of collecting, does not alter the clear meaning of the language, which both sides agree forms the basis for the definition of "historical data." Neither the charts nor the figures, nor any other part of the patent, nor Prompt's extrinsic evidence, identify or define other queries or data that a physician may elicit in addition to the universe of queries set out in the sentence at column 4, lines 6 to 8.

Defendants indicated during oral argument that more exact language than the phrase "and any taken" could be used to reinforce the necessary and optional aspects of the historical component. Strategic placement of the adverb "optionally" reinforces those aspects more precisely. Accordingly, the Court construes the term "historical data" to mean "information consisting of the patient's current health and, optionally, any previous medical history and any related family or social problems that becomes the basis of the patient's medical record and required documentation." This construction more precisely captures the '443 Patent's expression of "historical data." The commas that bound "optionally" clarify that the adverb is to be distributed both to "any previous medical history" and "any related family or social problems." Retaining the verb conjugation "becomes" clarifies that the patient's medical record and required documentation are based on all the information that makes up "historical data," not merely information pertaining to related family or social problems. Finally, the Court opts to use the phrase "consisting of" as opposed to "that consists of" to avoid repetitive and possibly confusing use of the word "that."

F. "Hold"

The term "hold" in the context of the '725 patent means, "A notation limiting access to funds in a checking, savings or automated teller machine account."

This term appears in the claims as follows:

Wherein the central processing device determines whether a hold for prohibiting a withdrawal is placed on at least one of a checking account, a savings account, and an automated teller machine account, and further wherein the central processing device disallows the banking transaction. (Claims 135 and 164).

Plaintiffs would have this court construe the term "hold" as "something that prohibits something from happening." Again,
the proposed definition is insufficiently specific to connote anything remotely related to the patent in suit.

Noting that the invention relates to banking, defendants point out that the term "hold" is a term of art in the banking industry. The construction it proposes comes directly from the BARRONS' BUSINESS GUIDE, DICTIONARY OF BANKING TERMS (4th ed. 2000):

"A notation limiting an account owner's access to his or her funds."

Plaintiff protests that this definition is too restrictive -- even though it would qualify as the "plain and ordinary meaning" of the word to anyone familiar with the banking industry -- because their invention is intended to be used by the owner of an account to prevent others from obtaining access to his or her funds. See '725 Patent, "BACKGROUND OF THE PRESENT INVENTION," at Col. 2, line 60-Col. 3 line 35.

The confusion arises because the person not skilled in the art of banking thinks about a "stop payment" order very differently than a banker does. When the average person writes a check to someone and then directs the bank to stop payment on it, he naturally is trying to prevent the person holding the check from getting at the account owner's money. But to a person skilled in the art of banking, when a check is presented for payment, it is the owner of the account who is trying to access his own money. He is trying to access it so that it can be remitted to some third party. The check, written and signed by him, is the method by which he accesses his funds. If at some point he changes his mind, the owner of the account directs the bank to stop payment on the check. As far as the bank is concerned, the stop payment order limits the owner's ability to access the funds in his account by negating the owner's prior instruction (via the check) that the funds should be accessed.

It seems clear that plaintiffs contemplate that their invention will be used for something in addition to the traditional "stop payment" -- specifically, that an account owner will utilize it to prevent a third party from making an unauthorized withdrawal from the owner's account, most likely from an ATM machine. The unauthorized withdrawal could be innocuous, as when a child tries to use his parents' ATM card to withdraw more money from his parents' account than the parent will allow (this assumes, of course, that there are parents so foolish as to permit their children to use their ATM cards). Or it could be pernicious, as when an identity thief or computer hacker uses a fraudulent ATM card or stolen account numbers to try to empty the owner's account. In either event, the initiator of the transaction is not the account owner -- a fact that differentiates these situations from the more common "stop payment" on a check. And it appears to me that plaintiff is using the common banking word "hold" to apply to these uncommon -- potentially criminal -- transactions.

By omitting the modifier "account owner's" before the word "access" in defendants' proposed definition, we solve this problem and allow the word to make sense in all the contexts in which plaintiffs use it in their patent.

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4. "Holding in reserve . . . ; Initially causing the resources of the first base station to remain held" (Claims 1 and 18)

Claim One states that what is claimed is a "mobile station for use with a network . . . that achieves a handover from the first base station to the second base station by: storing link data . . . , holding in reserve for the link resources of the first base station, and when the link is to be handed over to the second base station: . . . initially causing the resources of the first base station to remain held in reserve . . . ." '830 Patent at 8:12-25. HTC asks that the Court find this limitation incapable of construction because "holding in reserve" is indistinguishable from "initially causing the resources of the first base station to remain held." IPCom argues that "holding in reserve" means "temporarily keeping back resources of the first base station" and that "initially causing the resources of the first base station to be held" means "at least temporarily keeping back the resources of the first base station." Neither is correct.

What is claimed, of course, is a cell phone that works within a network that includes at least two base stations. Therefore, the actions of "holding" and "initially causing" must occur within the mobile station as it implements its handover algorithms, which are the focus of the '830 Patent and are described at length in the specification. The structure of the Patent makes it clear that the first base station responds to messages (signals) from the mobile station to "hold in reserve" certain resources and the mobile station "initially cause[s]" the first base station to continue to hold those resources in reserve.
during the actual handover to the second base station. Claim One states that what is claimed is a mobile station that achieves a handover in a network by "holding in reserve for the link resources of the first base station, and . . . initially causing the resources of the first base station to remain held in reserve . . . ." '830 Patent at 8:12-25 (emphasis added). These messages from the mobile station to the base station occur at slightly different times during a handover. The mobile station first causes the first base station to store link data and to hold resource in reserve for the link; ever so slightly later, "when the link is to be handed over to the second base station," the mobile station tells the first base station to maintain the storage of the link data and causes the resources of the first base station "to remain held in reserve" until a fixed period of time expires and then the link data is deleted from the first base station. See id. at 8:19-27.

Thus, HTC incorrectly argues that these are the same limitation. IPCom incorrectly gives them the same construction. "Holding in reserve" is construed to mean "causing a first base station to preserve resources for a link." "Initially causing the resources of the first base station to remain held in reserve" is construed to mean "causing a first base station to continue to hold link resources while a handover to a second base station is attempted."

"Home Gateway"

Cisco's proposed construction for the term "home gateway" is "a method, device, or system that permits ingress to and egress from a network." Alcatel's proposed construction is "a network element running layer 2 forwarding protocol application software for performing protocol translation."

Both parties admit that the term "gateway" had meaning to one of ordinary skill in the art in 1996. According to Cisco, the term meant "the combination of hardware and software which, among other functions, decided whether data sent to a network would be allowed in, and data attempting to leave a network would be allowed out." Leifer '019 Report, at 15. According to Alcatel, the term in this context referred to a network layer relay "that stores and forwards packets between dissimilar networks." Lazar '019 Decl., at P 39. Additionally, as was known at that time, "a gateway performed a translation, so that networks running different protocols could exchange information." Id., Ex. B (Andrew S. Tanenbaum, Computer Networks (3d ed. 1996)), at 16.

Thus, while the parties disagree as to the specific functions of the "gateway," they do agree that a gateway is a combination of hardware and software that operates as an interface between networks. 67 More specifically, the gateway in the '019 patent controls access to and from a network. See Cisco's '019 Opening Brief, at 17 ("The claims of the '019 Patent use the term 'home gateway' in its ordinary sense to refer to the gateway on the local or 'home' network which employs authentication processes to decide whether or not a tunnel will be established for the purpose of sending data to and from the local network."); Alcatel's '019 Opening Brief, at 14 ("In the context of the '019 patent, the home gateway serves as the point through which the 'private local network' gains access to, and permits authorized access from, an internet."). 68

67 According to the claim language and the specification, the "home gateway" appears to serve several functions, such as authenticating remote clients, encapsulating packets, and establishing tunnel connections. See, e.g., Valencia, at 5:43-6:4, 18:39-49. Therefore, the term will not be construed to limit the home gateway to any particular function.

68 Despite its acknowledgment of the gateway's general purpose, Alcatel seeks to limit the construction of the term "home gateway" to performing only protocol translation of the layer 2 forwarding protocol. However, the language of the patent does not support such a limited construction.

Furthermore, while neither party claims that "home gateway" has an ordinary meaning, it is clear from a reading of the patent language that the word "home" was intended to refer to the gateway of the local or private network. When the term "home gateway" is introduced in both the claims and the specification, the term is used in conjunction with the terms "private network" or "local network." See Valencia, at 1:22-24 ("The home gateway includes a firewall that prevents
unauthorized external access into the private network through internet.

Therefore, the Court construes the term "home gateway" as "a combination of hardware and software that controls access to and from the local network."

"Home Gateway Name"

Cisco's proposed construction for the term "home gateway name" is "name ascribed to a home gateway." Alcatel's proposed construction is "the IP address of the home gateway."

Cisco's proposal is no more than a rearrangement of the words in the disputed term, and provides little, if any, guidance to understand the term's meaning. On the other hand, Alcatel's proposal seeks to limit the home gateway's name to only an Internet Protocol (IP) address, which may be limiting the claim language to a narrow reading of the specification. Clearly, the "home gateway name" is an identifier of the "home gateway." The only further clarification needed is to determine what type of identifier is authorized under the patent.

Alcatel argues that the identifier must be an IP address because the specification describes only a tunnel running from an internet service provider (ISP), through the Internet, to the home gateway. In this regard, the only method of identifying the home gateway from the Internet is by the use of an IP address. See Lazar '019 Decl., at PP 44-45. In contrast, Cisco correctly points out that nowhere in the patent is the address of the home gateway expressly required to be an IP address, much less limited to only an IP address.

At the outset, the Court recognizes that the "home network name" must be a network address of some kind, because its purpose is to be identified by the network access server seeking to transmit information from the remote client to the local network through an intermediary. Additionally, in claim 2, the only claim in which this term appears, the claim language specifically describes the home gateway name being transmitted from the remote client to the internet service provider. See Valencia, at 15:24-26. Accordingly, the network address must be capable of allowing the ISP to locate the home gateway. While both parties agree that an IP address satisfies this purpose, and was possibly even the only logical method for accomplishing this goal at the time, nothing in the patent suggests that another type of network address could not be used if it would be sufficient to allow the ISP to locate the home gateway.

Therefore, the Court construes the term "home gateway name" as "the network address of the home gateway."

"home page"

Plaintiff argues that the term "home page" should be construed as "the first screen containing information you see when you arrive at a website," relying on the Dictionary of Computer and Internet Words and the Shames Declaration. (Dkt. 86 at Ex. 1, p. 3). Defendants argue that the term "home page of a website" should be construed as "the entry page for a set of related HyperText Markup Language (HTML) documents on the World Wide Web." (Dkt. 86 at Ex. 2, p. 1). Defendants cite to the '229 patent specification, the Microsoft Computer Dictionary and Resonate, Inc. v. Alteon Websystems, Inc., 338 F.3d 1360, 1361-62 (Fed. Cir. 2003) (providing that "every web page has a home page, which is identified by a URL and is the first document users see when they first connect to the web site").

It is unnecessary to construe the commonly understood term "website". It is only necessary to construe the term "home page." A person skilled in the art would understand "homepage" of a website to mean "entry page" of a website.

The plain language of Claim 1 states that browser-based subscribers have electronic access to a home page which provides
access via an ISP to a database server. ('229 patent, col. 5, ll. 55-59). This home page provides only secure access to subscriber areas. (Id., col. 5, ll. 60-62). The specification reiterates that "each of the subscribers 12 and 20 enter the system 11 via a home page 18 of a website of the system 11." (Id., col. 3, ll. 51-52) (emphasis added). The specification further provides that "the home page provides secure access by each subscriber to each of a plurality of subscriber areas within the system." (Id. col. 2, ll. 54-55).

While the plain language of the claim focuses on the function of the home page once accessed, the specification illustrates that the home page is the entry point to the embodiment contained in Figure 1 and the browser-based portion of the system contained in Figure 3. The parties' proposed constructions are based largely on their respective dictionary definitions. The actual definition for "home page," as cited by Defendants, is "an entry page for a set of Web pages and other files in a Web site." (Dkt. 68 at p. 3-4 citing Microsoft Computer Dictionary 221 (4th Ed. 1999). While the parties' proposed definitions appear to be consistent with the patent specification, Defendants' use of the term "entry page" is more consistent with the patent specification. The Court construes "homepage" of a website, therefore, to mean "entry page" of a website.

3. Home Position Data

Lectrolarm proposes that "home position data" should be construed to mean "information (represented by angles of rotation, polar coordinates, or any other suitable units) necessary to specify the locations of prescribed home positions. Home position data is inputted by the user through the control pad, buttons (including the home position buttons), and switches on the operating panel." The Defendants would interpret "home position data" to mean "information identifying one or more home positions. 'Home position' is a stored position." The parties agree that "home position data" is information that specifies the position of, or identifies, home positions.

The first parenthetical in Lectrolarm's proposed definition, "(represented by angles of rotation, polar coordinates, or any other suitable units)," has no basis in the specification. The patent does not speak to the nature of the data saved to identify the home positions.

The second sentence of Lectrolarm's proposed definition, describing how "home position data" is entered into the system, is unnecessary. The court's construction of the function of the second input means already discusses the manner in which "home position data" is inputted.

The court defines "home position data" as "information identifying one or more home positions that is set through use of the structure of the second input means. 'Home position' is a stored position."

7. homeotropic direction; homeotropic structure ('028 patent and '412 patent) 25

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
25 At oral argument, the parties agreed that the same construction should apply to "homeotropic direction" and "homeotropic structure." See footnote 11.
- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

CEA's proposed construction is "substantially perpendicular to the adjacent surfaces of the substrates."

Samsung's proposed construction is "the direction perpendicular to the glass plates of the cell."

At oral argument, Samsung expressed its view that "substantially" should not be included in a phrase reciting a particular "direction," i.e., "homeotropic direction," but that it was not adverse to having "substantially" included in the construction of
the term. 26 Samsung also stated that it did not believe the parties' proposed constructions reciting "perpendicular to the adjacent surfaces of the substrates" versus "perpendicular to the glass plates of the cell" were significant differences. 27 The court agrees that the differences in the parties' proposed constructions are primarily semantic and, in light of Samsung's position at oral argument will construe "homeotropic direction" and "homeotropic structure" as meaning "the direction substantially perpendicular to the adjacent surfaces of the substrates."

26 D.I. 1053 at 81-82. 27 Id. at 82.

--- Footnotes ---

1967

2. Claims 20, 32 and 48: "hook flash signal"

a) The Parties' Proposed Construction and Arguments

Claims 20, 32 and 48 are asserted independent claims, and are reproduced in full below. The disputed language is in boldface:

20. An apparatus for use in conjunction with local telephone equipment in telecommunication with a remote telephone, wherein said remote telephone has a three-way calling service which is not associated with the apparatus, which apparatus is capable of determining whether a remote party using the remote telephone has performed a specific act that is consistent with an attempt to initiate a three-way call utilizing a hook-flash signal comprising:

   means for the detection of an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal; and

   response means for implementing a predetermined response when said energy pulse is detected.

32. An apparatus for use in conjunction with local telephone equipment in telecommunication with a remote telephone, wherein said remote telephone has a three-way calling service which is not associated with the apparatus, which apparatus is capable of determining whether a remote party using the remote telephone has performed a specific act that is consistent with an attempt to initiate a three-way call utilizing a hook-flash signal comprising:

   means for the detection of an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal;

   window analyzation means for cooperating with said energy detection means to detect a specific event(s) occurring during a predetermined time window following the detection of the energy pulse, the detection of the specific event(s) confirming whether the remote party has performed a specific act that is consistent with an attempt to initiate a three-way call; and response means for implementing a predetermined response when the remote party's performance of a specific act that is consistent with an attempt to initiate a three-way call has been confirmed.

48. A method for determining whether a remote party using a remote telephone in telecommunication with local telephone equipment, wherein said remote telephone has a three-way calling service which is not associated with the apparatus, has performed a specific act that is consistent with an attempt to initiate a three-way call utilizing a hook-flash signal comprising:

   detecting an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal; and

   responding in a predetermined manner when said energy pulse is detected.
The term "hook-flash signal," of course, appears in the claim preambles and the term "frequency characteristic of the hook flash signal" appears in the body of the patents. Global has also argued that the preamble is limiting.

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Global's Proposed Construction

A "hook flash signal" means a temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, consistent with an attempt to initiate a three-way call.

T-Netix's PowerPoint presentation at the Markman Hearing, Slide 53.

A "hook flash signal" means:

1. An electrical energy pulse having a frequency of about 270 Hz, but not more than 300 Hz, on the caller's end of the telephone line;
2. No additional sounds from the called party telephone; and
3. A return hook flash with similar sound at about 270 Hz but at a lower intensity. Global's PowerPoint presentation at the Markman Hearing, Slide 24.

b) Discussion

Whether elements recited in a preamble should be construed as limiting the scope of the claim is an issue the U.S. Court of Appeals for the Federal Circuit (CAFC) has visited on numerous occasions. One CAFC test requires a limiting construction for the preamble if it is "necessary to give life, meaning, and vitality" to the claim. The CAFC has stated, "When the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." Conversely if the "body of the claim sets out the complete invention," then the language of the preamble is "superfluous." These guidelines leave a number of unanswered questions, which we must now look for answers:

1. Can a preamble "give life, meaning and vitality" to a claim if no term in the preamble is referenced in the body of the claim? The Court answers this question in the negative.
2. If only a single term from the preamble is used in the body of a claim, then do all of the terms in the entire preamble become incorporated as limitations? The Court also answers this question in the negative.
3. If a term from the preamble is referenced in the body of the claim, is that term limited to the actual disclosure in a manner similar to a means plus function, a "means for," clause or is it given broader definition and equivalence? The Court answers this question in the negative, but would look to the disclosure for a definition of such a term.
4. Although infringement is not an issue in claim interpretation, it is still relevant to ask, "Does a term from the preamble, which has been determined to be limiting, become a claim element, or does it remain simply part of the claim environment?" In other words, does a plaintiff have to prove that the term from the preamble is included in a defendant's apparatus or method or does the plaintiff merely have to prove that the term is present when defendant's apparatus or method is in use? In the present case, since many claims of the '702 patent include "a remote telephone," in the preamble, and no defendant is likely to also make a particular remote telephone, would all defendants automatically be excluded from being direct infringers?

- 2363 -
Under Reasons for Allowance for the '702 patent, the Patent Examiner stated "The following is an Examiner's Statement of Reasons for Allowance: the preamble of the claims was given patentable weight." The Examiner did not state any specifics, but just referred to the preamble generally. We must, therefore, apply normal rules of claim construction in order to determine what makes the preamble of each claim of patentable weight by determining which terms in the preamble of each claim are used in the body of that claim. We will consider the phrase "of patentable weight" to mean that at least some term of the preamble acts as a limitation on the claim.

Within the '702 patent, the term "hook flash" is used as a single word, as two words and as a hyphenated term. All of these will be considered equivalent. When actually quoting from the patent, the words will be quoted as actually used in the quotation and considered correct for our purposes. Otherwise, the term will be used as two words. Claims 20, 32 and 48 all use the term "hook flash" in the preamble and in the body of the claim. The term "hook flash" is, therefore, at least part of what makes the preamble for those claims of patentable weight, functioning as a limitation of those claims. The term "hook flash" does not appear in the body of Claims 1, 2, 3, 6, 7, 8, 9, 12 or 13. Moreover, the body of claims 20, 32 and 48 include the expression "an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal." Emphasis added.

The term "local telephone equipment" appears in the preamble and the body of the claim in claims 1, 7, 13, 20, 32 and 48. Although the Court has not been asked to interpret that term, it does explain the Examiner's remarks with respect to the preamble of claims 1 and 7 and their dependent claims, as well as adds to the reasoning for claims 20, 32 and 48. Finally, with respect to Claim 18, the terms "limited access telephone" and "called party's telephone" appear in both the preamble and the body of the claim. The Court is thus in agreement with the Examiner with respect to the preamble of all claims being of patentable weight.

It is the position of Global that the disclosure of the term "hook flash" in the specification should be read into the term as used in the claims in which the term acts as a limitation. This would make a term from a preamble interpreted in a manner similar to that of a "means for" clause. In particular, Global asks the Court to include a specific numerical value of frequency taken from the specification into the claims for the term "hook flash." Global cites no authority for this interpretation or any compelling logic for such an interpretation. Just because a term in a preamble is used in the body of a claim does not act to limit that term, but only to limit the claim to that term. Even the expression "a frequency characteristic of the hook-flash signal" can hardly be so limited since dependent claims 21, 22, 33, 34, 49 and 50 all have numerical frequency limitations, which are less restrictive than "about 270 Hz." These are unasserted claims, claims no longer in the case, but they are still part of the patent. Claims 21, 33 and 49 include "wherein the frequency to be detected is between 100 and 300 Hz." Claims 22, 34 and 50 include "wherein the frequency to be detected is between 200 and 300 Hz." Claims 21 and 22 are dependent on Claim 20, claims 33 and 34 on Claim 32 and claims 49 and 50 on Claim 48.

Finally, there is "a heavy presumption that a claim term carries its ordinary and customary meaning."

c) Construction

In view of the foregoing, the Court concludes that:

The term "hook flash signal" means a temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, consistent with an attempt to initiate a three-way call.

1968

a. "Horizontal Deflection Circuit"

For this term, IP requests the following definition: the circuit which causes the displayed image elements to be placed in position for each horizontal row thereof. Lexmark and Dell propose: a circuit which produces a continuously variable alteration of the path of a particle beam, as distinguished from address or pixel selection as might be applied to LCD type displays.
As is apparent, neither party's definition is grounded in the plain language of the claim, and neither provides convincing argument or support why its proposed language should supplant the plain meaning of the words used within this claim and those used in claim 1, upon which it depends. Therefore, we construe this term to mean a circuit that assists selective filling of a void at an identified particular position by deflecting an image element to a new position along a horizontal plane.

As is pertinent here, in its January 24, 2005 Claims Construction Order, the Court construed certain terms of Claim 1 as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;controller&quot;</td>
<td>a device that interfaces between a host and nonvolatile memory.</td>
</tr>
<tr>
<td>&quot;host&quot;</td>
<td>interfaces, through the controller, with nonvolatile memory</td>
</tr>
</tbody>
</table>

The plaintiff contends that the term "host" means "a computer system having one or more computers." The defendants contend that the "host" is the "primary or controlling computer in the system." As used in the patents, the term "host" refers to the primary or controlling computer in a multi-computer system. As such, the court adopts the defendants' proposed definition.

Plaintiff's construction relies primarily on Figures 1, 7, and 8 in the patent specification, asserting that the host computer pictured therein is "connected to a network of bus controllers," thus justifying the importation of the term "network" into the definition of host computer. Pl. Reply at 19. As in its construction of "binary tree configuration," however, plaintiff's effort to insert terms that do not appear elsewhere in the patent is unavailing. Cf. Catalina Mktg., 289 F.3d at 807. Rather, the Figures support defendant's construction, since they establish that the "network" is better described as a "binary tree of bus controllers." See Phillips, 415 F.3d at 1316 ("The construction that stays true to the claim language and most naturally aligns with the patents description of the invention will be, in the end, the correct construction."). The specification further adds that the "host computer [ ] generates instructions . . . to control the operation of the system." '024 Patent at 3:35-38.

Plaintiff argues that this construction, by referring to the instructions to the bus controllers, imports a limitation from dependent Claim 3 into Claim 1 and thus runs afoul of the doctrine of claim differentiation. Pl. Reply at 20. Claim 3 reads "the binary tree computer system of claim 1 wherein each of said bus controllers further includes means for interpreting instructions received from the host computer." Under the doctrine of claim differentiation, limitations from a dependent claim are normally not read into the independent claim. See Phillips, 415 F.3d at 1315 ("[T]he presence of dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."). Here, however, Claim 3 is adding further detail about the bus controllers, not imposing a particular limitation on the host computer. Moreover, independent Claim 7 confirms that the host computer sends instructions to the bus controllers by defining the patent invention as "a binary tree computer system for connection to and control by a host computer"
comprised of bus controllers in a binary tree configuration in which "each of said bus controllers includ[es] means for interpreting instructions received from the host computer." '024 Patent 8:11-12, 29-30. Thus, there is no doubt that Claim 7 does not treat the bus controllers as a dependent limitation, as plaintiff asserts. See Regents of the Univ. of Cal. v. DakoCytomation Cal., Inc., 517 F.3d 1364 (Fed. Cir. 2008) ("While it is true that dependent claims can aid in interpreting the scope of claims from which they depend, they are only an aid to interpretation and are not conclusive. Indeed, the presumption created by the doctrine of claim differentiation is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.") (internal quotations marks and citations omitted).

Nor does the defendant's construction, which emphasizes the connection between the binary tree and the host computer, rely improperly on the preamble. A preamble is generally construed as a limitation "if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality to the claim.'" Catalina Mktg. Int'l, Inc., 289 F.3d at 808(quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). In Catalina Marketing, the Federal Circuit clearly found that the preamble of a patented invention, which referred to terminals located at "predesignated sites such as consumer stores," was not a limitation on the claim, since the patented invention did not depend on the location for the patent's significance or novelty and was not relied upon to distinguish prior art. Id. at 810. But that court also noted that where the preamble "is essential to understand limitations or terms in the claim body" or "when reciting additional structure or steps underscored as important by the specification," it may limit claim scope. Id. at 808. Here, the term "host computer" appears in both the preamble and the body of Claims 1, 3, and 7, and therefore reliance on the preamble does not unduly limit the scope of the claim language. See id. ([D]ependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention.); Bell Commc'ns Research v. Vitalink Commc'ns Corp., 55 F.3d 615, 620 (Fed. Cir. 1995) ("[W]hen the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined.").

In light of the unambiguous claim language and support from the specification, the Court construes "host computer" to be a computer that is connected to and controls the binary tree of bus controllers.

1972

9. Host computer; host server; server; host

The above terms are found in various claims of all of the patents in suit. The defendants' proposed construction of each of the above terms is "a source of data for presentation to data terminal equipment." The plaintiff's proposed construction is "computer that sends data downstream." Upon consideration of the parties' arguments, the court adopts the plaintiff's proposed construction.

1973

1. "host computer network"

The term "host computer network" in claim 1 shall mean "a network having attached thereto one or more remote access servers providing command-response services to computers connecting to the network from remote locations."

1974

A. Host computing device

The parties' main point of contention with respect to this term is whether the disclosed "host computing device" is required to perform the comparison of the epidermal topographical patterns. Accu-Time argues broadly that the function of the host device is to "control[] communications" among devices, regardless of "whether the devices are physically separated and operably connected, or are physically within the same unit and operably connected." Accu-Time's Mem. at 9.
TMC's argument is by far the more persuasive. The specification discloses only one device that compares epidermal topographical patterns: the host computing device. The Abstract depicts a device that generates an epidermal topographical pattern and "transmit[s] [it] to a host computer for determining access privileges." '541 Patent, Abstract. n2 The same language is employed in the Field of Invention section. Id., Col. 1, II. 12-13. Similarly, the Summary of Invention states that "[e]ach terminal scans a predetermined epidermis and generates an epidermal topographical pattern which is transmitted to a host computing device. The host computing device compares the transmitted epidermal topographical pattern with the stored epidermal topographical patterns. If a match is found, the host computer reads the information associated with the stored epidermal topographical pattern and determines whether access or egress at the current time is permissible." Id., Col. 2, II. 28-36. Clearly, this describes a comparison function performed by the host and not some other optional component. In addition, the Description of Preferred Embodiments provides that "the scanner 12 reads a portion of an individual's epidermis and generates an epidermal topographical pattern which is transmitted to the host 20 for comparison." Id., Col. 3, II. 31-34. "When an epidermis is detected (S3), the epidermal topographical scanner 12 scans the epidermis (S4), generates a digital epidermal topographical pattern signal (S5) and transmits that to the host 20 (S6). The host 20 compares the transmitted pattern with epidermal topographical patterns stored in the database 60 (S7)." Id., Col. 3, II. 41-46. In the apparatus' alternative embodiment, "[t]he identification information, along with the identification code, and epidermal topographical pattern are transmitted to the host 20 (S9). The host 20 compares the transmitted information with the information in the database (S10)." Id., Col. 5, II. 10-14.

n2 At the hearing, Accu-Time argued that defendants' reference to the abstract is not permitted in determining the scope of the invention. However, as defendants correctly point out, this is not the case. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1342 (Fed. Cir. 2001).

n3 The definition provided for "host computer" in Webster's Unabridged Dictionary 924 (2d ed. 2001) is "the main computer in a network: controls or performs certain functions for other computers." A technical dictionary, the Oxford University Dictionary of Computing 229 (4th ed. 1996), defines "host computer" as "a computer that is attached to a network and provides services other than simply acting as a store-and-forward processor or communication switch." When questioned by the court at the hearing about this definition, Accu-Time's counsel agreed that the host computer must do more than simply route messages between or among devices; rather, it must do some processing. According to Accu-Time's counsel, the host "needs to initialize." The court understands this to mean that the host must be able to recognize the external devices to which it is connected in order to expedite intra-system communications. If Accu-Time's construction is correct, then the host device adds nothing of an exceptional nature to the operation of the system.

n3 The court is aware that the Federal Circuit has cautioned against overreliance on dictionaries. "Heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." Phillips, 415 F.3d at 1321. However, "[i]n some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. . . . In such circumstances, general purpose dictionaries may be helpful." Id. at 1314 (internal citation omitted).

Accu-Time's last effort to bolster its argument resorts to prior art. Accu-Time notes that U.S. Patent No. 5,337,043 (the '043 Patent) discloses an access control system in which the comparison is performed by the processing device, rather than by the host device. Therefore, Accu-Time argues, one of ordinary skill in the art would recognize that the comparison could be
made by devices other than the host. While this may be true, Accu-Time does not identify any device or component disclosed in the '541 Patent other than the host that actually performs the comparison. Accordingly, the court adopts TMC's interpretation of this term as meaning "a processor or computer, connected to the data collection terminals through a network, that performs the comparison of the epidermal topographical pattern for a presented individual with the stored epidermal topographical patterns on behalf of a data collection terminal." n4, n5

n4 Defendants make a second convincing argument with regard to this element. They argue that the use of the word "host" in conjunction with the words "computing device" can only mean that the host performs some computing function. Defendants note that Claim 1 also describes a database that is "operatively associated" with the host. According to defendants, this necessarily means that the database is more than merely "in connection" with the host. Defendants construe the phrase "operatively associated with the host" to mean that the host accesses information stored in the database when activated.

n5 The parties agree that the court's claim construction applies to both the '541 Patent and the '455 Patent.

1975

B. "host device"

Claim One of both Patents claims "[a]n interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device . . . ." '399 Patent, col. 12:42-45 (emphasis added); '449 Patent, col. 11:46-49 (same). The Camera Manufacturers propose that "host device" be construed to mean "a general purpose computer that connects to and controls the operation of peripherals," CMs' Markman Br. at 9, while Papst proposes "a general purpose computer to which hardware devices may be attached, such as Personal Computers ("PCs") and other host computer systems as described in the patent written description, including drivers for input/output devices customary in a host device and a multi-purpose interface." Papst's Revised Appendix of Claim Constructions [Dkt. # 244, Ex. C] ("Papst's App.") at 2. Papst also objects to the phrase "controls the operation of peripherals" in the Camera Manufacturers' proposed definition. Neither Figure One nor Figure Two of the Patents shows a "host device;" the Figures only indicate where one would be connected to the invention.

The Patent Claims refer solely to a "host device," but the specification clarifies the nature of the intended host device. See '399 Patent, col. 1:9-11 ("The present invention relates to the transfer of data and in particular to interface devices for communication between a computer or host device and a data transmit/receive device . . . .") (emphasis added); '449 Patent, col. 1:13-15 (same). Thus, the "host device" is a computer, and the Court uses the terms interchangeably hereafter.

The specification identifies "common host devices which can be, for example, IBM PCs, IBM-compatible PCs, Commodore PCs, Apple computers or even workstations." '399 Patent, col. 4:31-33; '449 Patent, col. 3:34-36. The specification further requires the host device to have "a driver for an input/output device customary in a host device," such as, "drivers for hard disks, for graphics devices or for printer devices," of which the hard disk driver is the preferred embodiment. '399 Patent, col. 4:25-30, 34-36; '449 Patent, col. 3:29-34, 38-40. The Patents tout the advantage of attaching "host devices or computer systems" by means of the invention to a "device whose data is to be acquired." '399 Patent, col. 1:20-22; '449 Patent col. 1:21-23. Thus, the inventor intended his "host device" to include most computers -- PCs, Apples, workstations -- as long as they had a driver for a customary input/output device and a multi-purpose interface.

As the Camera Manufacturers suggest, there is little substantive difference between their construction of "host device" and that offered by Papst, although they argue that his definition is more clear and concise. It may be that the development of computers since the application for the '399 Patent makes it somewhat more complicated: the inventor specified customary drivers and a "multi-purpose interface" that had to be present in his "host device," intimating that not all computers of that time necessarily had such devices inside their chassis. See '399 Patent, col. 4:27-30 ("Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for
graphics devices or for printer devices.

The Court construes "host device" in the Claims of the Patents to mean "a general purpose computer that connects to and directs the operation of peripherals, including drivers for input/output devices customary in a host device and a multi-purpose interface.

As to the Camera Manufacturers' proposal that "host device" be defined as a computer that "controls the operation of peripherals," the Court finds that this aspect of a host device is critical to the ability of a host device to communicate through the invented interface device. That is, the host device must have internal drivers, i.e., software, to instruct hardware how to operate. As Papst acknowledged, drivers "are the software programs that are used by the computer[] to communicate with the hardware that's attached to the computer. So for each and every hardware device that you connect to a computer there has to be a driver to communicate with that hardware device." Tr. 1:5 (Papst). The specification explains that such drivers can instruct a hard drive (the preferred embodiment) that is internal to the computer, or such drivers can instruct a printer that is external to the computer. In all instances, the driver instructs the how and when of hardware operation and thus directs it. Further discussion of the element of "control" is found below in the construction of the term "driver."
involves the simultaneous transmission of information over separate paths.

T-Mobile responds that the only host interface mentioned in the specification is a direct parallel bus connection, and that the specification contains no disclosure of an indirect or serial interface. T-Mobile argues that there is no requirement that different claims must always be of different scope, although that is the usual case. In Tandon Corp. v. United States International Trade Comm'n, 831 F.2d 1017, 1023-24 (Fed. Cir. 1987) the court explained that the doctrine of claim differentiation means that different claims are presumed to be of different scope; however, the court pointed out that describing claim elements or limitations in different words does not invariably change the scope of the claim. The boundaries of patented inventions are set forth in the claims, construed in light of the description in the specification, as well as by the prior art and the prosecution history. Phillips v. AWH Corp. 415 F.3d 1303 (Fed. Cir. 2005) (enbanc).

T-Mobile points out that the other claims of the '079 patent contain other limitations affecting their scope; for example, each claim that contains the term "parallel bus interface" designates a particular type of parallel bus interface, a "PCMCIA parallel bus interface" (claims 2, 24, and 33). T-Mobile points out that the '079 patent itself disparages serial interfaces, referring to the "Background of the Invention" wherein the inventors state that:

A big drawback of the PDA systems being offered is the way they transfer data between a user's desktop unit, or other host, and the PDA. Known communication is by modem, by infrared communication, and by serial connection. These all require manipulation by a user, modulation on one or both ends of the communication path, and the like, which can be time-consuming, error-prone, and hardware extensive (expensive).

'079 patent, col. 1, lines 48-55. The specification further states:

It is very troublesome to have two or more sets of critical data, with differences that one must remember to correct at an appropriate time. This can cause unending grief if files are not correctly updated. At best, current PDAs must use a relatively slow compressed bus to download and upgrade files. Typically this is done through a serial port, using a linking application like Laplink.

Col. 2, lines 5-12. The '079 specification then explains that "what is needed is a small and inexpensive PDA that has a range of features that eliminate the above-described risks and problems," col. 2, lines 19-21, including low cost and small size, and states that:

A very important feature of the APDA in an aspect of the present invention is a direct parallel bus interface with a connector allowing the unit to be docked by plugging it into a docking bay in a host unit. Moreover, when the APDA is docked in the host, there needs to be a means to effectively disable the CPU in the APDA and to provide direct access to both the APDA software and data storage by the host CPU. This direct access would provide immediate ability to communicate in the fastest available fashion between the APDA and the host, and would also facilitate additional important features to be described below.

Col. 2, lines 30-40 (emphases added).

The district court correctly observed that the only host interface described in the specification is a direct parallel bus interface, and that the specification emphasizes the importance of a parallel connection in solving the problems of the previously used serial connection. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) ("Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.") Claims are construed in light of the specification, of which they are a part. See Phillips, 415 F.3d at 1315-16. Although claims need not be limited to the preferred embodiment when the invention is more broadly described, "neither do the claims enlarge what is patented beyond what the inventor has described as the invention." Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001).

The specification does show a "serial" connection in its optional "expansion bus interface." That is the interface on the other side of the PDA, intended for connection to peripheral devices such as printers and fax machines. The specification states
that the expansion bus interface takes several forms, and if necessary can be attached to a host computer via a serial port:

In another embodiment, an undocked APDA can transfer data via the optional expansion bus 40 (FIG. 3) directly to a host. In the special case of a APDA user without access to a PCMCIA interface on his host (notebook or desk-top) computer, he or she can connect to a host via an auxiliary port on the host, such as a serial port, via the expansion bus interface.

Col. 12, lines 11-17. Claim 8 is specific to this aspect of the invention, by calling for a "digital assistant module as in claim 7, wherein said expansion bus interface is adapted to connect to a serial port of said host computer."

Unlike the "expansion bus," which is separately described as providing a connection to peripheral devices, the "host interface," which is described as providing a "connection to the host in docked mode," does not contain any suggestion that a serial connection could fulfill the purposes of the invention to improve the "time-consuming, error-prone, and hardware extensive" limitations associated with the serial connections of the prior art. Col. 1, lines 54-55. The description of a serial connection in the discussion of the expansion bus interface, and the lack of any such description in the discussion of the host interface, reinforce the interpretation of the host interface as requiring a parallel bus interface, for that is the only interface described for that purpose.

The specification characterizes the direct bus interface as a "very important feature" of the invention, stating that a "direct" connection is necessary to provide "direct" access, which allows for fast communication. Col. 2, lines 30-40. The specification explains, in its "Description of the Preferred Embodiment," that the "direct" connection between the host and PDA bus allows for the "automatic updating and cross-referencing of existing files and new files in both computers, under control of the host system, with the host having direct bus access to all memory systems." Col. 11, lines 53-56. Further, in the "Summary of the Invention" the inventor states:

A host interface means comprising a host interface bus structure, which may be configured as a PCMCIA bus interface, is connected to the microcontroller and to a first portion of a host interface connector at a surface of the enclosure, and the host interface means is configured to directly connect the microcontroller to a compatible bus structure of a host computer.

Col. 3, lines 16-22. And in discussing Figure 6, a block diagram of a preferred embodiment, the inventor emphasizes the "direct" path between the PDA and host:

When a APDA unit is docked, connector 14' in FIG. 6 comprises portion 14 shown in FIGS. 1B and 3 and a mating connector portion for engaging portion 14 in port 105 (FIG. 5). The engagement of the separate portions of the connector cause bus 26 in the APDA and bus 26' in the host to become directly connected. There is then a direct bus path between microcontroller 11 and host CPU 24 (FIG. 6).

Col. 10, lines 61-67.

The prosecution history supports the interpretation of "host interface" as a direct parallel bus interface. In prosecuting the first in this series of applications, the applicants explained that their invention overcame certain limitations of known PDA devices:

[A] big drawback of the PDA systems being offered is the way they transfer data between a user's desktop unit, or other host, and the PDA. Known communication is by modem, by infrared communication, and by serial communication. These all require manipulation by the user, modulation on one or both ends of the communication path, and the like, which can be time-consuming, error-prone, and hardware extensive (expensive).

Applicants have made it abundantly clear in their specification that this interface is a full-service bus, and that it exists to allow memory accesses and control between the host and the digital assistant, and have recited in the original claim that this bus was configured to directly connect the digital assistant's bus to a compatible bus of a host computer. The Examiner has rejected the claim on the basis of [the '023 prior art], which states "In the case of remote processing, the hand-held computer may be connected to a host computer 35 via the series interface connector . . . . Applicants, in their background section, as restated above, made it clear that this is a serious drawback of the existing art, one which the present invention is intended to overcome. The provision of a direct bus between the host and the digital assistant, including memory control signals, as
in applicants' invention, overcomes this serious limitation in the prior art. To more clearly distinguish, applicants have
amended claim 1 to decidedly narrow the scope of the claim, so it does not read on series connections, as in [the prior art].


Inpro argues that this prosecution history is of limited relevance, as it does not originate from the prosecution of the
application that led to the '079 patent and is largely focused on the particular claim limitations added to overcome a specific
reference. Inpro observes that the original claim in the parent application already contained the requirement of a "direct"
connection and that the applicants overcame the cited reference by adding "parallel bus connected between the local CPU
and a host interface connector at a surface of the enclosure" to the claim. T-Mobile responds that the addition of the "parallel
bus" requirement to the claim reinforced that this invention was directed to solving problems associated with the "serial
connections" of the prior art, and that the applicant explicitly excluded serial connections.

T-Mobile also cites the prosecution of the parent application, which contained claim language nearly identical to the "host
interface" of the '079 patent ("a host interface adapted for providing communication between the digital assistant and a host
computer"). Inpro, in a brief to the Board of Patent Appeals and Interferences, described the host interface as involving a
direct connection:

The invention is a means of providing a personal digital assistant module comprising an enclosure for enclosing and
supporting internal elements . . . A host interface means comprising a host interface bus structure, which may be
configured as a PDCMCIA bus interface, is connected to the microcontroller and to a first portion of a host interface
connector at a surface of the enclosure, and the host interface means is configured to directly connect the microcontroller to
a compatible bus structure of a host computer.

Appeal Brief in Case No. P249229FWC, at 5 (July 17, 1996) (emphasis added). Inpro responds that the entire argument in
that appeal was directed to whether a reference disclosed a PDA that negotiates synchronization of files in common with the
host upon initiation by the user, a requirement of each of the claims there presented, and that the brief had nothing to do
with the scope of the "host interface" in the '079 patent.

Although arguments in the prosecution of related applications should not receive undue weight, for claims and issues and
inventions vary from case to case, here the applicant was describing the broad technologic basis of these related
applications; the usage in each application is consistent with the district court's view of "host interface" as requiring "a
direct parallel bus interface." That interface excludes the serial connection of the prior art, and requires direct parallel
connection. The district court's interpretation of this term is correct, and is affirmed.

1977

2. "host mode"

HP asks the Court to construe this term as: "An operational state that facilitates communication with a particular host."
EMC proposes: "A mode, unique to a particular operating system, that specifies the manner in which an array controller
should communicate with a host computer that is running said operating system."

Although the meaning of "host mode" is unclear from the claim language alone, a "host mode entry," according to the
Court's construction of the preceding term, must be "data that governs the interactions between logical units and host
computing systems." Indeed, according to the claim, a "host mode entry" may indicate "if a particular logical unit should
communicate with a particular host computing system" and the host mode is predetermined.

For clarification, the Court must turn to the specification, which describes embodiments in which the host mode relates to
the host's operating system. For example, "unique host modes' [are] adapted to be employed uniquely to each host operating
system to which the logical unit . . . is coupled. These unique host modes permit the array controller to be adaptable to
handle different idiosyncrasies of particular host operating systems." 979:4/31-36. Although in one embodiment the host
mode field "corresponds to the name of the operating system running on the particular host," 979:7/37-38, the host mode
entry need not be limited to data concerning only a particular host or operating system. "For example, if a particular host is
found to operate more efficiently or more smoothly in a particular mode, then based on the host operating system type, [such information can be] stored in the configuration table." 979:6/45-51. That is, although host mode entries contain information related to idiosyncrasies of a particular host, nothing in the intrinsic evidence requires each host to have a distinct or unique idiosyncrasy or associated host mode entry. Groups of hosts could share the same idiosyncrasy or host mode entry. Thus, a host mode entry could contain information about a particular operating system or the "operating system type."

The specification does not limit host mode entries solely to information relating to operating systems or operating system types. For example, the configuration table may include a data field such as "any special host modes for the particular host adapter." 979:5/11-12. The "host's adapter connects to the array controller." 979:5/41-42. This adapter contains identification information of the host, which is stored in the configuration table. 979:5/42-45. In this way, access to of the host to the logical units can be controlled. Thus, "host mode" data are additional information about the host, such as any of its "idiosyncrasies," 979:6/42-51-and not only the host's operating system.

Accordingly, a "host mode entry" may be an entry of data documenting the particular or idiosyncratic characteristics or the operational state of a host or group of hosts. This is consistent with a dictionary definition of "mode" as an "operational state of a computer or a program." Landgraff Decl., Separate Appendix, vol. 7, p. 1219 (Microsoft Computer Dictionary). Such information may be used in accordance with the invention to facilitate communication with a particular host (part of HP's proposal) or to specify the manner in which an array controller should communicate with a host computer (part of EMC's proposal). It follows that the term "host mode" relates only to the state of the host, not the purpose or use of the "host mode" data. Indeed, HP concedes that a "mode" is an "operational state of a computer." HP's Opening Brief, p. 40.

Accordingly, the Court construes this term as "the particular or idiosyncratic operational state of a host or group of hosts."

1978

1. "host platform"

The parties dispute whether certain narrowing terms such as "bus controller," "CPU or host bus," and "electrically connected" are necessary to define "host platform." To support its construction, OPTi points to this court's prior construction of the term "host platform" in the '141 patent in OPTi v. NVIDIA, Inc., 2:04-cv-377, Dkt. No. 96 (TJW) (E.D. Texas). There, the Court agreed with OPTi that "host platform" means "a bus controller to which a CPU is connected by a CPU or host bus and to which peripheral devices are connected by a peripheral bus." Defendants argue that the "host platform" is "interface circuitry electrically coupled to peripherals and a CPU." Defendants contend that "electrically" connected is the ordinary meaning of coupled in the context of electrical circuitry and that it is no broader than the court's prior construction.

The focus of the LPC patents, as described in the abstract and the specification, is directed at interfacing a host to a peripheral device. '807, 3:21-23; '141, 3:24-26. The patent does not specifically mention the term "bus controller," but does reference an ISA controller that is not part of the "host platform." 7 The ISA controller, therefore, is also a bus controller. In all instances, save for one, when the term "host platform" appears in the detailed description, the term appears as "host platform interface circuitry." '807, 4:53-5:12; 6:53-7:64; 8:17-9:18; 9:19-11:31; 11:61-13:37. "Host platform interface circuitry 115 communicates address, data, interrupt request, and DMA request information to/from a peripheral device 130 via a bidirectional address-data bus..." '807, 4:58-60; '141, 4:62-64. These signal lines link the host platform to the peripheral devices across the interface. The host platform, therefore, is the interface circuitry that allows for these communications. The only time the term "host platform" does not appear as "host platform interface circuitry" is when it appears as "host platform interface device 831," '807, 12:57; '141, 12:64. Reference numeral 831, however, refers to a peripheral device such that the "host platform interface device" is attached to the host platform, but is not the host platform itself. '807, 12:14, 17, 23, 26, 33; '141, 12:21, 24, 30, 33, 40. The court, therefore, finds that "host platform" must include interface circuitry.

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Defendants' attempt to read a requirement into the claims that the "host platform" is "electrically connected" to peripherals and a CPU is not persuasive. There is no support in the specification or the claims for an electrical connection. The terms "electrical," "electric," and "electronic" never even appear in the specification. Further, as discussed in the court's previous construction of "host platform," the "host platform" is connected to a CPU by a CPU or host bus and a peripheral device by a peripheral bus. NVIDIA, at 11-13.

Accordingly, the court adopts a modified version of its prior construction. The court defines "host platform" as "interface circuitry to which a CPU is connected by a CPU or host bus and to which peripheral devices are connected by a peripheral bus."

1979

1. host platform

OPTi contends that "host platform" is "a bus controller to which a CPU is connected by a CPU or host bus and to which peripheral devices are connected by a peripheral bus." nVidia contends that "host platform" is "a device or devices which include one or more CPUs, to which other devices (peripherals) are connected and that generally controls those devices." While using somewhat different language, the parties' proposed constructions are similar. The principal difference is whether the host platform is connected to a CPU (OPTi's construction) or whether a host platform must include a CPU (nVidia's construction).

To support its construction, nVidia first notes that in prior litigation, n1 OPTi recognized that the "host platform" included one or more CPUs. In addition, nVidia turns to Figure 1 of the 141 patent (shown below).

Based largely on Figure 1, nVidia asserts that the host platform interface circuit (115) is not the host platform. Instead, the host platform interface circuit forms the interface between the host platform and the peripheral devices. Thus, nVidia contends, the host platform interface circuit in Figure 1 is not the entire host system but is instead only a part of the host platform.

According to nVidia, the host system is the host side (105) in Figure 1 of the patent. See also 141 patent, Col. 4:59-62 ("FIG. 1 shows a host side 105 and a device side 110 of an interface 175. On the host side 105 is a host platform interface circuitry 115 coupled to CPU 120 via a CPU bus 125.").

OPTi responds by first noting that the statements by OPTi in prior litigation were made by prior OPTi counsel and that OPTi believes its prior position to have been in error. Consequently, OPTi advances what it believes to be the correct construction now. Further, OPTi notes that National Semiconductor and OPTi resolved their litigation before the Court in that case issued its claim construction opinion. Accordingly, there is no judicial estoppel. In this Court's view, claim construction is a matter of law and the Court will give OPTi's proposed construction the same consideration it provides to nVidia's proposed construction.

OPTi asserts that the intrinsic record supports its construction and also points to Figure 1 and citations in the 141 patent to support its position. OPTi contends that the CPU 120 is coupled to the host platform interface circuit and that, therefore, the
CPU and host platform must be distinct from one another.

To further support its argument, OPTi also relies on the problem the CISA patents sought to solve. The origin of the CISA patents was to design a new chipset interface so that the increasing demands of new bus architecture could be managed. Specifically, "the present invention, roughly described, is directed to an interface to be used between a host device and one or more peripheral devices." '141 patent, Col. 3:24-26.

The Court is persuaded that OPTi's construction is correct. In addition to the arguments raised by OPTi, the Court notes that the specification uses "host" and "host platform interface circuitry 115" interchangeably:

"Host platform interface circuitry 115 asserts CMD # synchronously with the rising edge of ATCLK. Host can also optionally inhibit its ISA MRD # /MWR # lines."

'141 patent, Col. 7:55-58 (emphasis added); see also Col. 9:52-54; Col. 10:1-5. Accordingly, the Court adopts OPTi's proposed construction of "host platform."

1980

B. Host Processor ('950 patent, claims 1, 8, 11, 13, 14)

PCTEL suggests the following construction of "host processor": "the CPU(s) of a computer such as a set top box, that processes digital representations(s) of signals, rather than including a digital signal processor dedicated to perform signal processing (including modulating and demodulating) in modem hardware." Agere proposes the following construction of the disputed phrase: "central processing unit of a host computer."

PCTEL's asserts that its proposed construction is accurate because a jury may believe that a computer is limited only to a "personal computer," and that devices that have names that do not include the word computer (e.g., set top box) are not computers. However, PCTEL fails to cite the disclosure of such devices in the claims, specification, or prosecution history. Agere relies upon the intrinsic record and the ordinary meaning of the term to support its construction. Agere states that its proposed construction is consistent with contemporaneous technical definitions of "host" as "[a] device, typically a personal computer, that will control the communications with attached peripherals." (Mills-Robertson Decl., Ex. 10 at AL 15385, The IEEE Standard Dictionary of Electrical and Electronics Terms (1996)). Agere also notes that the specification states that "[h]ost signal processing (HSP) modems reduce the cost of providing modem functions to a computer system by utilizing the processing power of the central processing unit (CPU) of a host computer. . . ." '950 patent, col. 12-17; '780 patent, col. 1:18-22.

Essentially, the proposed constructions of the parties are not significantly different. Although PCTEL objects to the use of the word "host," the Court agrees with Agere's conclusion that defining "host" as the "computer" or "host computer" comports with the ordinary meaning of the term. It also comports with the way in which the term is used in the patents. The specification states that "the computer system 100 includes a main or host processor 110" and that in the exemplary embodiment, "the computer 100 is an IBM compatible computer." '950 patent, col. 3:28-32; '780 patent col. 3:19-24.

Furthermore, the Court also agrees with Agere that PCTEL's inclusion of the phrase "including a specialized computer such as a set top box" is misplaced, as such language finds no support in the intrinsic evidence, prosecution history, or ordinary meaning of the term. Moreover, PCTEL's conclusion that a jury may believe that a computer is limited only to a "personal computer" is, at best, speculative.

Finally, PCTEL's proposed construction includes the phrase "rather than including a digital signal processor dedicated to perform signal processing (including modulating and demodulating) in modem hardware." The Court agrees with Agere that this language appears unnecessary as the host processor is part of the computer and not part of modem hardware.

Therefore, based on the ordinary meaning of the term and the intrinsic evidence, the Court construes "host processor" as the central processing unit of a host computer.
C. The '200 Patent

Next, defendants contend that the accused products do not infringe claims 1, 4, 5, 6, 8, 11 and 16 the '200 patent. The '200 patent discloses "an apparatus and method for utilizing multiple rendering pipes for a single 3-D display." Independent claim 1 of the '200 patent discloses a product with a "display" and independent claim 11 discloses a method for rendering an image for display; the other claims of the patent are dependent from claims 1 and 11. The parties raise all of the same arguments regarding the '200 patent they raised regarding the '327 patent with respect to its requirements for a display. In addition, defendants assert that none of their products infringe the '200 patent even when used in a system that contains a display because none contains a "host processor," which is required also by claims 1 and 11.

To establish whether any of the accused products infringe the '200 patent, the first step is to establish the meaning of the term "host processor." The parties appear to agree that the meaning of "host processor" is commonly understood. Defendants propose that it means "a processor that runs an application program and directs the rendering process." Dft.'s M. for Summ. J., dkt. # 45, p. 16. Plaintiff states that it means: "a processor for issuing high-level commands for graphics rendering." Pit's Supp. Resp. to Dft.'s M. for Summ. J., dkt. # 119, p. 12. Given the similarity of the proffered definitions, I turn to the language of the claims themselves to evaluate which most accurately reflects the meaning.

Claim 1 of the '200 patent discloses

A computer system comprising:

a plurality of rendering pipes for rendering pixels of an image, wherein each of the rendering pipes comprises a host processor having an application program issuing graphics commands, a geometry circuit coupled to the host processor for processing primitives, a rasterizer coupled to the geometry circuit for generating pixel data, a frame buffer coupled to the rasterizer which stores the pixel data, an interface coupled to the rasterizer that accepts requests from the transmission medium and outputs pixel data . . .

'200 pat., col. 7, Ins. 28-38 (emphasis added).

Claim 11 discloses,

In a computer system, a method of rendering a three-dimensional image for display comprising the computer-implemented steps of . . . executing an application program on a host processor which issues graphics commands; processing vertices by a geometry cir

Id., col. 8, Ins. 9-22 (emphasis added).

Next, the patent specification, describing one embodiment of the invention, describes the function of the host processor as follows: "A graphics application runs on the host processor and issues high-level commands and graphics data." Id., col. 3, Ins. 6-8. This is consistent with the function of the host processor described by both parties. Therefore, as used in the '200 patent, I find that a host processor is "a processor that runs a graphics program and issues high-level commands."

1. "host processor"

HP asks the Court to construe this term as "a processor that controls or accesses all or part of a user application network." EMC proposes: "a processor in a host computer that can issue read or write requests to the first and second storage media." HP argues that "the [parties'] only disagreement concerns whether or not the processor must reside in something called a
"host computer." Plaintiffs' and Counterclaim Defendants' Corrected Opening Claim Construction Brief on Key Terms ("HP's Opening Brief"), p. 6 n.4. As defined by the claim, a host processor is a processor that is capable of sending commands to a storage medium or requests for access that are received by a shadow set. HP's proposal adds a reference to a "user application network." EMC's proposed language adds the requirement that the host processor reside in a host computer.

According to HP, the dictionary meaning of "host processor" is "a processor that controls all or part of a user application network." HP's Opening Brief, p. 6; Declaration of Christopher D. Landgraff ("Landgraff Decl."), Separate Appendix, vol. 1, p. 0195. However, the claim language does not include reference to a "user application network" for the purposes of the claim would be, although it could be the claimed system as a whole. Instead, the claim language refers to commanding a storage medium and accessing a shadow set. Similarly, while the written description includes diagrams suggesting that a host processor may be part of a "host," the claim language does not include reference to a "host computer." The claim language simply has no location limitation, and while the word "host" may limit "processor," it need not do so by geography. Looking at all of the dictionary definitions provided by the parties, it is clear that a "host processor" is part of a network or system and that it controls or accesses other parts of the system. See id. The plain language of the claim indicates that "host processor" refers to a specific type of processor, one that sends commands to the memory aspects of the system. The claim language does not specify the physical location of the host processor.

Accordingly, the appropriate construction of the "host processor" as used in claim 1 is "a processor that can send a command to a storage medium or requests for access that are received by a shadow set."

1983

1. Host processor

The court adopts Judge Brewster's construction of "host processor" in the Gateway action. Accordingly, the court construes the term "host processor" to mean "a computer that communicates with one or more users to provide services such as transaction processing or database access."

1984

host program

Claim 1 contains the term "host program." Accolade contends that "host program" means "a set of instructions executed on the host computer." Citrix contends that the term means "an application program executed by the operating system of the host computer." The parties dispute whether the host program must be executed by an operating system.

The Court construes "host program" as "a set of instructions for execution by the host computer," substantially adopting Accolade's construction. "Program" has the commonly understood meaning of "a set of instructions" and is not given a special definition in the intrinsic evidence. "A set of instructions" conforms to the dictionary definition for "program," "A detailed and explicit set of directions for accomplishing some purpose, the set being expressed in some language suitable for input to a computer, or in machine language." McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 1680 (6th ed. 2003); see also THE AMERICAN HERITAGE SCIENCE DICTIONARY 504 (1st ed. 2005) ("A[n] organized system of instructions and data interpreted by a computer"). Furthermore, "host" modifies "program" in "host program," and the Court construes the modifying term "host" to mean "execution by the host computer." This is consistent with the specification, which states, "In FIG. 5, the virtual machine application 48 of FIG. 2 is illustrated in greater detail. This process will also be referred to as the 'host program[,][] since it runs on the host." Col. 10:12-14. The commonly understood meaning of "program" and the specification thus support the Court's construction.

Citrix argues that the host program must be executed by an operating system. However, no support in the intrinsic record exists for Citrix's proposed limitation. Citrix recites, "In FIG. 5, the virtual machine application 48 of FIG. 2 is illustrated in
greater detail. This process will also be referred to as the 'host program[']" since it runs on the host. The process 48 is an application program running on the computer system, e.g. on a Macintosh computer system, on a WINTEL computer system, on a workstation, etc." Defs.' Br. 27 (emphasis added by Citrix) (citing Col.10:12-17). However, this excerpt only states that the program runs on a "computer system," not necessarily an operating system. Also, even if the Court considered "Macintosh computer system" and "WINTEL computer system" as operating systems, "e.g." precedes such language rendering the systems examples rather than limiting references.

Citrix also cites, "In the process 42 of FIG. 2, an operating system of the host supports a 'system 44 extension' 46, a virtual machine application 48, and a Java Applet script 50. . . . The virtual machine application 48 is a computer program or 'process' running from a host computer system, such as computer system 14." Defs.' Br. 28 (citing Col. 7:4-30) (emphasis added by Citrix). While this excerpt refers to "an operating system of the host" that supports a computer program running from the host computer, it does not require that an operating system must execute the host program. Thus, the intrinsic record does not support limiting "host program" to being executed by an operating system. Accordingly, the Court construes "host program" as "a set of instructions for execution by the host computer."

A. Host Signal Processing (modem/communication system)

PCTEL asserts that this term does not require construction. Alternatively, PCTEL contends that the term means "an apparatus/system for transmitting and receiving signals that uses the CPU of a computer to process (including modulating and demodulating) digital representation(s) of the signals." Agere contends that the term means "a modem/communication system that utilizes the processing power of the central processing unit of a host computer to process signals rather than including a dedicated digital signal processor."

1. Preamble language

PCTEL argues that this term does not require construction because "host signal processing communication system" appears only in the preambles of claim 1 of both the '950 and '780 patents, and the term "host signal processing modem" appears only in the preambles of claims 13-15 of the '950 patent and claims 7-9 of the '780 patent. PCTEL asserts that claim 1 of the '950 and '780 patents define a structurally complete invention and therefore the preamble should not act as a limitation.

Agere responds that the term "host signal processing modem" appears in claim 3 of both patents, and therefore is not simply used as preamble language. Moreover, Agere argues that the intrinsic record reveals that these terms were necessary to define the invention of the '950 and 780 patents, and thus the preamble is properly deemed a part of the claim limitations.

"Whether to treat a preamble as a limitation is a determination 'resolved only on review of the entire[ ]' . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Corning Glass Works v. Sumitomo Electric U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989). The Catalina court stated that "[i]n general, a preamble limits the invention . . . if it is 'necessary to give life, meaning and vitality' to the claim. . . . " Id. (citation omitted). "Moreover, clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." Id. at 808. However, a preamble will not limit a claim where the body of the claim "describes a structurally complete invention such that deletion of the preamble . . . does not affect the structure . . . of the claimed invention." Id. at 809.

As an initial matter, the Court finds that "host signal processing modem" appears in claim 3 and, accordingly, is not simply used as preamble language. Further, it appears that the preamble has greater weight than PCTEL acknowledges. The prosecution history reveals that PCTEL clearly relied on the preamble language during the prosecution history. After the initial claims were rejected in light of prior art, the patentee wrote the PTO and stated that "[c]laim 1 distinguishes over Gross by reciting, 'A host signal processing communication system.'" (Mills-Robertson Decl., Ex. 7 at AL 014994.) The patentee also quoted the following specification language: "Host signal processing modems reduce the cost of providing modem functions to a computer system by utilizing the processing power of the central processing unit . . . of a host computer rather than including a dedicated signal processor . . . in modem hardware." (Mills-Robertson Decl., Ex. 7 at AL
Based on these statements to the PTO, it is clear that the patentee distinguished prior art based on the terms "host signal processing communication system" and "host signal processing modem." Thus, the Court disagrees with PCTEL that these terms are merely preamble language that do not require construction. n7 Rather, it appears that the preamble terms give "life, meaning, and vitality" to the claims.

n7 PCTEL's reliance on Intirtoo, Ltd. v. Texar Corp., 369 F.3d 1289, 1296 (Fed. Cir. 2004) is misplaced. In Intirtoo, the court refused to construe the preamble because the prosecution history distinguished the prior art based on the body of the claims, rather than on the preamble. Here, in contrast to Intirtoo, the patentee's reliance on the preamble to distinguish prior art is readily apparent. Furthermore, this conclusion remains unchanged even if, as PCTEL contends, the patentee also relied, at least in part, on limitations found in the body of the claims to distinguish prior art. See Bell Communication Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995) ("[W]hen the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.") (emphasis added).

2. Construction

The parties central dispute surrounding the construction of these terms is whether the host signal processing modem/communication system can include a dedicated signal processor. Agere's proposed construction includes the phrase "rather than including a dedicated digital signal processor," and relies upon the specification and prosecution history for this limitation. Specifically, the specification of the '950/'780 patents states that "[h]ost signal processing (HSP) modems reduce the cost of providing modem functions to a computer by utilizing the processing power of the central processing unit (CPU) of a host computer rather than including a dedicated digital signal processor (DSP) in modem hardware." '950 patent, col. 1:13-17; '780 patent, col. 1:18-22. Similarly, the prosecution history of the '950 patent confirms that in order to obtain allowance of the claims, the patentee expressly distinguished the Gross patent by stating:

"Claim 1 distinguishes over Gross by reciting, "A host signal processing communication system." As indicated in Applicant's specification, "Host signal processing modems reduce the cost of providing modem functions to a computer system by utilizing the processing power of the central processing unit . . . of a host computer rather than including a dedicated signal processor . . . in modem hardware." []In contrast, Gross describes a system including a modem digital signal processor 20 . . . ."

(Mills-Robertson Decl., Ex. 7 at AL 14994.

Based on this language, the Court finds that the patentee clearly indicated that the claims do not cover systems that include digital signal processors in modem hardware. See Springs Window Fashions LP v. Novo Indus., L.P., 323 F.3d 989 (Fed Cir. 2003) (holding that a reasonable competitor could rely on unequivocal statements of disclaimer made during the prosecution history).

Finally, during oral argument, PCTEL argued that the "signals" being processed by the central processing unit are "communication signals transmitted by the communication system/modem." The Court agrees. Thus, the Court's construction of this term closely mirrors the explicit language used by the patentee in both the specification and the prosecution history, and is as follows: a modem/communication system that utilizes the processing power of the central processing unit of a host computer to process communication signals rather than including a dedicated digital signal processor.
The term "host system" is contained in claim 12 of the '646 patent.

The parties dispute the meaning of the term "host system" in claim 12 of the '646 patent. The parties first dispute whether a "host system" is a computer. The parties agree that a host system provides command sequences, but they further dispute whether the construction should specify the recipient of the "command sequence" produced by the host system.

PACid contends that claim 12 offers a broad meaning for "host system" that identifies the "I/O interface" as receiving the command sequence. Alternatively, "a system for providing command sequences"

Defendants respond that claim 12 requires a "host system" to identify the recipient of the command sequences and further argues that the patent is directed towards protecting information stored on a computer system. Referencing intrinsic and extrinsic evidence, Defendants contend that a person of ordinary skill in the art would read "host" to mean "a computer on a network." Regarding the plain language of claim 12 does not clarify the underlying meaning of "host," but the term's use throughout the patent as a whole supports Defendants' position that "host" is referring to a computer. The Federal Circuit has clearly stated that the written description "can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format." SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001). Thus, where as here, the patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term "by implication." Vitronics, 90 F.3d at 1582; see also Hockerson-Halberstadt, Inc. v. Avia Group Intern., Inc., 222 F.3d 951, 955 (Fed. Cir. 2000). A definition by implication is provided for the claim term "host" in the context of the '646 and '612 patent. In particular, the Backgrounds of the Invention in each patent support a context in which "host" is used to explain the intricacies of a computer.

The '646 specification states that the patented technology protects information stored on a computer system or communicated over networks, '646 patent at 1:41-42, and the '612 specification particularly entitles that "with the introduction of the personal computer (PC), a migration to local computing through the use of centralized host/server systems began. Again, the conventional wisdom was that sensitive information could be protected by guarding against unauthorized access to the host/server system." 612 patent at 1:30-35. The '646 patent then links "host system" to a "computing system" that truncates the message digest and ultimately produces a symmetric and deterministic encryption key. '646 patent at 8:39-44. These passages all evidence an intrinsic representation of "host system" that aligns with a broad understanding of "computer." Since the patents-in-suit do not provide a special definition for the computer functioning as the "host" in claim 12, the Court sets forth its understanding of "computer" in light of the intrinsic record, as well as analysis provided by other courts as to a general definition of "computer." Claim 12 discloses that the I/O interface receives command sequences from the host system. Therefore, the patentee's instructions as to command sequences should be included in the construction of this term. Where the command sequences go, however, seems to be an ancillary to question of what is understood to be a computing system.

Defendants request that "host" be defined according to a dictionary definition that equates "host" to "the main computer in a system of computers" or "a computer containing data or programs that another computer can access by means of a modem or network." RESPONSE at 19 (citing AM. HERITAGE DICTIONARY 849 (4th ed. 2000) & MICROSOFT PRESS COMPUTER DICTIONARY 201 (2d ed. 1994)). Nonetheless, the meaning of computer to one of ordinary skill in the art is a recurring issue in patent infringement litigation, and therefore, it is useful to consider what other courts have emphasized.
in understanding computer functionality. The Federal Circuit has instructed that this claim term, like any other, should first be construed according to intrinsic evidence, but where such a record is not conclusive, the court understood "computer" to encompass "peripherals that are within a reasonable proximity to the CPU and it's main memory and directly connected to the CPU or the CPU circuit board." Pickholtz v. Rainbow Techs., 284 F.3d 1365, 1374 (Fed. Cir. 2002). In Pickholtz, the Federal Circuit implicitly disagreed with PACid's understanding of "host" or "computer" as being the broadest possible system, such as "any system needing an encryption key." Judge Lourie specifically noted, "[T]he term 'computer' cannot be so unbounded as to include all devices connected in any way to the CPU." Pickholtz, 284 F.3d at 1374.

Without a precise definition for "host system," in the '646 and '612 patent, the Court finds that the intrinsic record supports the implication that "host system" is synonymous with "computer." Extrinsic evidence is necessary to clarify the scope of the term and the Court adopts the dictionary definition of computer used previously in this district. See Soverain Software LLC v. Amazon.com Inc., No. 6:04-CV-14, 2005 U.S. Dist. LEXIS 46872, 2005 WL 6225276, at *9 (E.D. Tex. Apr. 7, 2005). Judge Davis consulted a technical dictionary to broadly define "computer" to mean "a functional unit that can perform substantial computation, including numerous arithmetic operations, or logic operations without human intervention." Id. (relying on IEEE STANDARD DICTIONARY OF ELEC. & ELECS. TERMS 192 (6th ed. 1996)). This understanding of "computer" is incorporated in the Court's construction of "host system" in this case. Accordingly, the disputed claim term is defined as "a computer that provides command sequences through an I/O interface."

2. "host system"

The parties dispute whether "host system" is synonymous with "host platform" or whether the "host platform" is part of the "host system." OPTi looks to this Court's construction of "host" in the NVIDIA case to support its proposal. There, the Court noted that "the specification uses "host" and "host platform interface circuitry 115" interchangeably. The court, however, found that "host" was synonymous with "host platform," not that "host system" was synonymous with "host platform."

--- Footnotes ---

8 NVIDIA, at 13 ("Host platform interface circuitry 115 asserts CMD # synchronously with the rising edge of ATCLK. Host can also optionally inhibit its ISA MRD #/MWR # lines." '141 7:55-58 (emphasis added); see also '141, 9:52-54, 10:1-5.).

--- End Footnotes ---

Defendants argue for an interpretation of "host system" that is broader than "synonymous with host platform." Defendants point to the specification where Fig. 1 is described as having a "host side" and refers to "system DRAM" which is not part of the host platform interface circuitry. '807, 8:20; '141, 8:23. Defendants further point to the prosecution history of the '807 patent. Claim 46 as filed in the original '807 application used the term "said host platform." Hsue Ex. 5, '807 Prosecution History, 9/4/97 Office Action at 4. Claim 46 depended from original claim 38, which used the term "host system." Id. The PTO Examiner objected to the term "said host platform" in Claim 46 as lacking proper antecedent basis. Id. Defendants contend that the Examiner's rejection is evidence that he did not equate the two terms. Furthermore, in response to the rejection, OPTi amended original claim 46 to replace the term "host platform" with "host system," Hsue Ex. 6, '807 Prosecution History, 2/4/98 Response at 17. Although improper antecedent basis is not necessarily indicative of the Examiner's interpretation of the term, the terms are different, and the court must construe the term as it appears in the patent. Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005); M.P.E.P. § 706.01 (objections are different from rejections and indicate a problem with a claim's form, not its substance).

The ordinary and customary meaning of a claim term "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips, 415 F.3d at 1313. The plain meaning of the term "system" implies an aggregation of smaller parts, something that the term "platform" does not. Figure 1 of the LPC patents clearly shows a host side and a device side. Contained within the host side is the host platform interface circuitry, a CPU, a clock, an IRQ/DRQ generation circuit and multiple busses connecting different devices. '807, 4:53-5:12; '141, 4:57-16. The host side, therefore, is plainly different from the host platform. However, the term "host system" does not appear in the specification, but appears solely in the claims. Even if the patentee intended "host system" to be synonymous with "host
The claim language guides the court's conclusion of host system. "Host system" only appears in claim 1 of the '807 patent. The claimed "host system" does not communicate with components contained on the host side of the interface, but only with peripheral devices. See '807 patent, claim 1. Contrarily, the "host platform" explicitly communicates with the CPU and the IRQ/DRQ generation circuit, all of which exist on the host side of the interface. '807, 5:9-12, 10:60-65, 11:8-11, 11:23-28; '141, 5:13-16, 10:65-11:3, 11:13-17, 11:22-32. Where the "host platform" communicates with components on the host side and the "host system" only communicates with peripheral devices, "host system" and "host platform" cannot be the same. Similarly, Claim 18 of the '141 patent and its subsequent dependent claims do not claim any communications between the "host system" and the components contained on the host side. Claim 1 of the '807 patent and claim 18 of the '141 patent disclose a method of interfacing a host system, synonymous with the host side shown in Figure 1, with a peripheral device. The "host system" contains at least a host platform and a CPU, but may contain other devices. The court has construed "host platform" as requiring a connection to a CPU whereas the "host system" actually contains a CPU. Accordingly, the court construes "host system" to mean "at least a host platform and a CPU."

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3. Term 12 ('703 Patent, Claims 5, 15) 15

The term to be construed appears in claim 15 and claim 1, upon which claim 5 depends.

These two patent claims describe prepending a hostname to the URL for an embedded web page object. ('703 Patent, Claims 5, 15.) As described in the remaining steps of claim 15, in response "to a browser query to resolve the hostname," the IP address of a particular one of the "set of content servers distinct from the content provider server" is returned to the client's browser. (Id. Claim 15; accord id. Claim 5.) Thus, the hostname identifies a server on the Internet which the client's DNS server can resolve into an IP address so his or her browser can fetch the object. (See id. col.9 11.20-28.) The court's construction strikes a balance between Akamai's broad proposed construction and Limelight's narrow one, opting instead to include the functional limitations described in the claims rather than one specific to the current Internet name resolution system.

1989

"Housing" terms

The Court adopts Plaintiffs' construction and construes "housing" to mean "a cover or enclosure." Defendants propose that "housing" be construed to mean "the protective outer cover of the motion detector camera, which excludes any inserts or partitions contained within such protective outer cover." Defendants' construction contains unnecessary limitations. Defendants partially rely on Figure 7 to support their construction. Defendants seem to argue that because Figure 7 shows...
an outer housing and inside the housing a motion detector and a camera, the enclosures containing the motion detector and camera are not part of the housing and, therefore, "housing" must exclude any partitions or inserts contained within such "housing." Figure 7 is only one embodiment of the invention, and there is no explicit support in the specification for applying Defendants' limitation to the claim term. Defendants also cite prior art in which, according to Defendants, the housing is not considered to include anything within itself. However, Defendants fail to cite anything within the specification or prosecution history that would indicate the examiner or applicant defined or used "housing" in that manner.

The specification broadly describes the housing as "an enclosure for holding the various components of the camera." Col. 2:54-55. Accordingly, the Court construes "housing" as "a cover or enclosure."

**Housing**

In its briefing, Lantronix argued that "housing" is used according to its plain meaning and therefore does not require construction. Alternatively, if the Court does construe the term, Lantronix argued it should be construed according to its plain meaning: "a case or enclosure."

Digi argued "housing" should be construed as "cover that provides structural and protective support for the enclosed components." Digi contended the housing serves as both a cover and a structure for the enclosed components such as the electrical pins and socket connections. If this were not the case, Digi argued, "the claim language requirement that the connector contain at least two physical interface connection elements and electronic circuitry would contradict the 320 patent, which claimed the insertion of components inside the connector itself."

Further, Digi argued, the components must be attached to the connector's structural supporting unit (the housing) in order for them to be electrically connected and functional. Digi also relied on the 320 patent's prosecution history, which acknowledged that "a housing is required to provide a structure for the connector." See 320 patent prosecution history, Amendment and Response to Official Action, 4/30/1985, p. 5. Finally, Digi contended that Figure 1 and the 470 patent's prosecution history "show that the connector has its own separate housing to distinguish it from prior art where the functional circuitry was part of, and contained within, the computer housing."

During the hearing, the parties agreed to a compromise construction: "case or enclosure to cover and protect the connector's internal components." The Court agrees with the parties' agreed construction. As before, the Court rejects Digi's argument that the 320 patent was incorporated in any way into the 470 patent.

**2. The Claims Are Not Limited to a Portable Computer**

LPL would construe the claims of the invention as not being limited to a portable computer. LPL argues that limiting the invention to a portable computer improperly reads the preferred embodiment into the claims. Additionally, LPL contends that inserting the "portable computer" limitation into the claims would contradict the plain language of the asserted claims, none of which recite the term "portable computer." Moreover, LPL asserts that reading the "portable computer" limitation into the claims would violate the doctrine of claim differentiation, which holds that "[i]t is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims." Comark Commc'ns, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998).

Defendants seek to limit the patents-in-suit to a portable computer. The crux of the Defendants' argument is that the patents describe and illustrate a portable computer and no other embodiment. As such, the portable computer is not the preferred embodiment, but is rather the only embodiment. Defendants reference numerous instances in which the patents describe or depict the invention as a portable computer including: the patents' titles, abstracts, summaries, and various places throughout the common specifications. n9
n9 Defendants note that at the conclusion of the specification, the inventors reference only a portable computer, thereby confirming that the invention is limited accordingly. '641 patent, 7:46-50.

Defendants also argue that the terms "housing" and "data processing device," as construed by them, link the claims to a portable computer. With respect to "housing," Defendants argue that, based on the prosecution history, "housing" should not be accorded its ordinary meaning. In this regard, Defendants submit that the inventors acted as lexicographers when, in response to an objection raised by the examiner, they explicitly defined "housing" in connection with a portable computer. Additionally, Defendants note that "portable computer" was specifically called out in the examiner's statement of reasons for allowance. Finally, Defendants assert that because "data processing device" is associated with the term "housing" in all of the asserted claims, it too is limited to a portable computer. n10

n10 Tatung also asserts that the ordinary and customary meaning of "data processing device" is a central processing unit of a computer.

The Special Master turns to an examination of the parties' arguments.

a. The Common Specification Is Not Limited to the Portable Computer Embodiment; Thus, the Claims Cannot Be So Limited

Claims are not necessarily limited to those embodiments disclosed in the specification, even if a patent describes only a single embodiment. See e.g., Phillips, 415 F.3d at 1323; Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004). The Phillips court said, "[t]hat is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments." Phillips, 415 F.3d at 1323.

In Liebel-Flarsheim, the Federal Circuit overturned the district court which construed all of the asserted claims to require a pressure jacket even though none of those claims expressly recited a "pressure jacket." The Federal Circuit recognized that the "pressure-jacketed injector" embodiment was the only subject matter described in the specification; however, the court rejected the conclusion that the claims must therefore be limited to that embodiment. Liebel-Flarsheim, 358 F.3d at 905, 906. The Federal Circuit reiterated that the claims should be so limited only if the patentee has demonstrated a clear intention to limit the invention using "words or expressions of manifest exclusion or restriction." Id. at 906 (quoting Teleflex Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002)). Importantly, the Federal Circuit concluded that the standard is not met by the mere absence of any reference to alternative embodiments. See id. at 906, 907. Instead what is required is a clear exclusion of other embodiments, such as by distinguishing embodiments of the prior art. Id.

Accordingly, even assuming the patents-in-suit expressly teach only one embodiment, i.e., a portable computer, under both Phillips and Liebel-Flarsheim, the asserted claims should not be limited to that one embodiment. n11 As in Liebel-Flarsheim, the common specification of the patents-in-suit is replete with descriptions of the invention with respect to a single embodiment of a portable computer, including the abstract and title. At the same time, nothing in the common specification expressly precludes other embodiments or restricts the invention to only a portable computer. Id. The mere absence of a description of alternative embodiments in the common specification such as a flat screen monitor does not, in the Special Master's view, rise to the level of "words of manifest exclusion or restriction." n12 Thus, because: (1) the asserted claims do not specifically recite "portable computer"; and (2) the intrinsic record is silent regarding alternative embodiments and therefore contains no clear disavowal of other embodiments, the Special Master concludes the invention should not be limited to a "portable computer."
n11 LPL argues that other embodiments are disclosed and cites, for example, "[a]s a flat panel type display device 111, the LCD is widely used in portable computers and flat screen monitors." '641 patent, Col. 1:32-34. However, one skilled in the art would understand that statement as merely teaching that LCDs themselves are well known.

n12 In contrast, the inventors manifestly restricted the claims to "rear mountable" by arguing rear mounting advantages over the inferior front- and side-mounting disadvantages of the prior art.

b. Two Distinct Claim Groups Demonstrate that the Invention Encompassed More than Just a Portable Computer

Two distinct groups of claims were included with the originally-filed and subsequently-issued patents-in-suit. JA at Ex. G, JA00119-128; Ex H, JA 001057-1065. The first group of claims explicitly recite a "portable computer" (claims 1-34 of the '641 patent and claims 1-32 of the '718 patent); the second group of patented claims recite a rear-mountable flat-panel display device (claims 35-56 of the '641 patent and claims 33-41 of the '718 patent) without any limitation to a portable computer. The Special Master concludes that the distinct recitations in the first and second groups of claims make it apparent that the inventors intended different scope of coverage for those two groups.

Although not argued by the parties, in the Special Master's view, as an initial matter, "[t]he claims as filed are part of the specification, and may provide or contribute to compliance with § 112." Hyatt v. Boone, 146 F.3d 1348, 1352 (Fed. Cir. 1998). In the present case, both groups of claims were filed with the original applications associated with the '641 and '718 patents, thereby qualifying as part of the common specification. n13 The two groups of claims are unquestionably distinct: one set specific to a portable computer and one set specific to a flat panel display device and silent with respect to a portable computer. The second group of claims, which do not recite "portable computer," thus teach a non-portable-computer embodiment. In the Special Master's view, this demonstrates that the inventors understood that their inventions covered more than just a portable computer.

n13 Exceptions include claim 56 of the '641 patent and claims 39-41 of the '718 patent.

Additionally, different claims of a patent presumptively have different scope. Comark, 156 F.3d at 1187.

"As a general rule a limitation cannot be read into a claim to avoid infringement" Where ... the limitation sought to be "read into" a claim already appears in another claim, the rule is far more than "general." It is fixed. It is long and well established. It enjoys an immutable and universally applicable status comparatively rare among rules of law. Without it, the entire statutory and regulatory structure governing the drafting, submission, examination, allowance, and enforceability of claims would crumble.

D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985) (citations omitted). The Special Master is of course mindful that claim differentiation may be overcome by an unequivocal disavowal of subject matter in the intrinsic evidence. See Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1367-68 (Fed. Cir. 2000) (finding the written description and prosecution history overcame any presumption arising from the doctrine of claim differentiation). That the common specification arguably teaches only a single embodiment does not in and of itself establish a clear disclaimer that would overcome the presumption. The result is, therefore, that the portable-computer limitation should not be read into the second group of claims.

In the Special Master's view, the prosecution history is consistent with the presumption of claim differentiation. Throughout the prosecution history, both the examiner and the inventors addressed each group of claims separately. For example, the examiner referred to a portable computer only when addressing the claims of group one (e.g. claims 1-34 of the '641 patent) and referred to flat-panel display device only when addressing the claims of group 2 (e.g., claims 35-43, 47-50, and 54-55 of
the '641 patent). n14 JA at Ex. G, JA00216-219, 312-315. Similarly, the inventors kept separate the patentability arguments regarding each of the two groups of claims. For instance, in the January 17, 2001 Amendment in response to the examiner's separate rejections of claims 1-34, and claims 35-43, 47-50, 54-55, the inventors characterized independent claim 1 as "drawn to a portable computer" and independent claim 35 as "drawn to a flat panel display device." See JA at Ex. G, JA00268 and JA00270. At no time did the inventors refer to a portable computer when arguing the patentability of the second group of claims.

--- Footnotes ---

n14 The examiner's reference to a portable computer in his statement of reasons for allowance of the '641 patent was, in the Special Master's view, merely a shorthand summary of the claimed invention, which included the first group of claims specifically directed to a portable computer. Moreover, the inventors' silence after the examiner's statement "cannot amount to a clear and unmistakable disavowal." Salazar v. Procter & Gamble Co. 414 F.3d 1342, 1345 (Fed. Cir. 2005).

Having stated the above, although the common specification may only describe the invention with respect to a portable computer, where the two distinct groups of claims were originally filed and granted together, the Special Master concludes that the inventors contemplated a broader scope for the invention than a portable computer, and did not clearly disavow embodiments other than a portable computer.

1992

20. a housing connectable to both a user's notebook or desktop computer

This phrase only appears in claim 13 of the '202 patent. The defendants contend that the phrase is indefinite because it is incomprehensible and the specification fails to provide meaning to this phrase. The court disagrees and finds that the phrase, read in the context of the whole patent, can be understood by one of ordinary skill in the art to refer to a connection to a flash memory module and to a user's computer. Accordingly, the defendants' indefiniteness argument is rejected and the phrase is construed to mean "a housing connectable to both a removable flash memory module and a user's notebook or desktop computer." The court incorporates by reference its definition of "connectable."

1993

18. a housing of a size to be held in the palm of a user's hands n8

The defendants contend that the phrase is indefinite because it has no discernible meaning in light of the prosecution history. The court disagrees and finds that the phrase, as written and in the context of the whole patent, can be understood by one of ordinary skill in the art. See In re Marosi, 710 F.2d 799 (Fed. Cir. 1983); Bancorp Services, L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367 (Fed. Cir. 2004). The phrase requires no construction and the court rejects the defendants' indefiniteness argument.

1994

A. "http," as used in claims 1, 9, and 10.
The parties agree that "http" is "a stateless communications protocol," but disagree on whether the claim term refers specifically to the HyperText Transfer Protocol. Accordingly, plaintiff offers the construction, "HyperText Transfer Protocol, a stateless communications protocol," and defendants offer the construction, "a stateless protocol that allows web users/clients and websites/servers to communicate with each other." The claim interpretation principle that is dispositive here is the patentee's ability to act as his own lexicographer in explicitly defining claim terms. The application of this principle to the '670 patent clearly compels the conclusion that "http" means "HyperText Transfer Protocol, a stateless communications protocol, which allows Web clients and Web servers to communicate."

It is well settled that a patentee may act as lexicographer, provided that he express a clear intent to define a claim term in the specification. See Sinorgchem Co. v. ITC, 511 F.3d 1132, 1136 (Fed. Cir. 2007). When such intent is manifest, the specification is essentially converted into a dictionary, written by the patentee, for the specific purpose of construing the disputed claim term. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The definition supplied by the patentee is given deference by a court undertaking the task of construing claims, and ordinarily is dispositive of any claim construction dispute, absent justification to depart. See ASM Am., Inc. v. Genus, Inc., 401 F.3d 1340, 1344 (Fed. Cir. 2005).

In the '670 patent, the patentee has provided the following clear definition of the claim term "http" in the specification: "Web clients and Web servers communicate using a protocol called 'HyperText Transfer Protocol' (HTTP)." '670 Patent Specification col. 11. 53-55; see also id. col. 2 11. 36-39 ("In an embodiment of the invention, the server uses a hypertext transfer protocol (http') to communicate over the network with clients; such clients also communicate with the server using the hypertext transfer protocol."). Given that "http" is plainly an acronym for "HyperText Transfer Protocol," defendants' proposed construction--inclusive of any stateless Internet communication protocol--contravenes the patentee's express definition and accordingly finds no support in the intrinsic evidence. 16

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - - - - -
16 Tellingly, defendants explicitly recognize that "[t]he patentee provided an explicit definition of the term 'http'. See col. 1, Ins., 53-55 ('Web clients and Web servers communicate using a protocol called 'HyperText Transfer Protocol' (HTTP'))." Doc. 136 at 28 n. 19. - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - - -

In addition, the patentee includes within his definition the fact that the protocol facilitates communication between Web clients and Web servers in either direction. Defining the claim term without these operative words would ignore an integral part of the definition as set forth in the specification. When the surrounding specification statements are considered, it becomes clear that the purpose of defining "http" was not only to identify the particular protocol, but also to emphasize how the protocol would be used in the invention. See Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1360 (Fed. Cir. 2004) ("In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.").

In sum, where, as here, the patentee has explicitly defined a claim term in the specification, "the inventor's lexicography governs," Phillips, 415 F.3d at 1316. Accordingly, "http" is construed to mean "HyperText Transfer Protocol, a stateless communications protocol, which allows Web clients and Web servers to communicate."

1995

D. "http client," as used in claims 1, 9, and 10.

Closely related to "http server" is the disputed claim term "http client." The parties proposed constructions essentially match those offered for "http server," with the exception of substituting the word "requestor" for the word "provider." Accordingly, plaintiff proposes "a requestor of data using http" and defendants propose "a computer that communicates (i.e., requests HTML documents) with a server over a network by using the http protocol." As before, it is clear that the claim terms must be read consistently throughout the patent. Specifically, "http client" must be read in light of the previously determined
construction of "http server," see Chamberlain Group, Inc., 516 F.3d at 1337, particularly given the claim terms' close relationship in the '670 patent, see, e.g., '670 Patent Specification col. 4 11. 27-30 (defining "client" and "server" in relation to their complimentary roles). Given the foregoing discussion relating to the construction of "server" and "http server,"--and in light of the fact that "client" is specifically defined by the patentee as "refer[ring] to a computer's general role as a requestor of data (client)," Id. col. 4 11. 27-30-- the claim term "http client" must be defined as "a computer that requests data using HyperText Transfer Protocol."

1996

5. “HTTP-complaint device”
“HTTP-complaint device” is utilized in asserted claims 15-16 and 19 of the ‘335 Patent. The Plaintiff asserts that “HTTP-complaint device” does not need construction. Alternatively, if construed, the Plaintiff asserts that the proper construction is “a device that understands HTTP and whose behavior is affected by an HTTP request.” The Defendants assert that the terms should be construed as “a machine running an executable capable of storing, locating and returning Web pages in response to Web client requests.”

The Defendants assert the same construction for the terms “Web server” and “HTTP-complaint device.” The Defendants’ construction is based upon their assertion that the term does not appear in the specification and that the specification only discloses a Web server for performing the function described in the language surrounding the use of “HTTP-compliant device.” As such, the Defendants assert that “HTTP-compliant device” should be construed the same as “Web server” as that is the only corresponding device described and enabled in the specification. To hold otherwise, assert the Defendants, would result in a claim that is overbroad and invalid for not being described and enabled.

Regarding the maxim that claims should be construed to be valid, in Phillips the Federal Circuit guidance states that this maxim is limited “to cases in which ‘the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.’” Phillips, 415 F.3d at 1327. The Court does not find that in light of the specification the term in question is ambiguous to one skilled in the art. Thus, the Defendants’ validity concerns should be more properly addressed with regard to validity motions.

The Defendants also assert that the more general construction proposed by the Plaintiff would be so broad as to even encompass a Web client. However, the claim language itself makes clear that this concern is not valid as there is substantial functional language regarding what happens at the HTTP-compliant device including the transferring of a request from the HTTP-compliant device to a page server, intercepting the request at the HTTP-compliant device, and concurrently processing other requests at the HTTP-compliant device.

The Defendants do however raise valid concerns over the Plaintiff’s definition raising additional interpretation questions with regard to the meaning of “understands HTTP” and “behavior affected by an HTTP request.” The Court agrees with the Defendants in this regard. The specification defines HTTP as “a communications protocol known as HyperText Transport Protocol (HTTP).” Col. 1:25-26. Mindful that not all terms in a claim need construction, the Court adopts a construction of “HTTP-compliant device” to mean “a device that is compliant with the communication protocol known as HyperText Transport Protocol (HTTP).”

1997

The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.
1998

3. Seven's renewed motion for judgment as a matter of law/motion for new trial.

After the verdict, Seven filed a renewed motion for judgment as a matter of law and a motion for new trial. That motion (# 385) is granted in part and denied in part. The court grants the motion insofar as it is related to claim 11 of the '192 patent. There is insufficient evidence to support a verdict that the accused products satisfy the limitation of "comprising one of an HTTP port and an SSL port." In a supplemental claim construction order, the court construed the term "HTTP port and SSL port" to mean "any port that is used to transfer information or communicate using Hyper Text Transfer Protocol (HTTP) and any port that is used to transfer information or communicate using Secure Sockets Layer (SSL) protocol." See Order Dkt. # 340. Despite Visto's arguments to the contrary, the evidence in this case is undisputed that the accused products do not use the HTTP or SSL protocols. In the words of Visto's expert, the term protocol means "the exact formatting, the syntax, and the semantics of the connection that's being made." (Tr. Transcript April 25, 2006, at 29:14-30:3.). Visto's expert conceded that the accused products use Seven's own protocol, rather than HTTP or SSL. Claim 11 requires a port that is used to transfer information or communicate using specific protocols. Viewing the evidence in the light most favorable to the jury's verdict, Visto has not met its burden to demonstrate infringement of claim 11 of the '192 patent. Seven's motion for judgment as a matter of law on this point is granted.

1999

C. "http server," as used in claims 1, 9, and 10.

The parties' proposed constructions for "http server" closely track their respective proposed constructions for "server," except here the definitions are tailored specifically to the http context. Plaintiff offers the construction "a provider of data that uses http," while defendants again offer a construction that makes reference to a computer, documents, and a communications protocol: "a computer that communicates (i.e., provides HTML documents that have been requested) with a client over a network by using the http protocol." Dispositive of the meaning of "http server" as used in the '670 patent is the claim construction principle that "a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). This principle, applied here, points persuasively to the conclusion that "http server" must be defined as "a computer that provides data using HyperText Transfer Protocol."

It is axiomatic that a district court undertaking claim construction must read claims and claim terms consistently throughout the document. See Phillips, 415 F.3d at 1314. More specifically, the Federal Circuit held in Chamberlain Group, Inc. v. Lear Corp. that, although a single word ("code") was used in conjunction with two different modifiers ("binary" and "trinary"), the word "presumptively should carry the same meaning throughout the patent." 516 F.3d 1331, 1337 (Fed. Cir. 2008). Accordingly, Chamberlain Group, Inc. stands for the proposition that a claim term ordinarily retains its singular meaning throughout the patent whether it is used alone or whether it is used in conjunction with a modifier.

This rule concerning modifiers can be squarely applied in construing "http server." Both the object and the modifier in this claim term--that is, "http" and "server"--have been previously construed, and should retain their respective constructions when used jointly. Thus, "http server" is construed to mean "a computer that provides data using HyperText Transfer Protocol."

GO BACK

2000

I. Processing Hub

\*\*Claim Term: "processing hub"

Alexsam's Proposal: the Court should adopt the definition provided in section V(5) of

IDT's Proposal: "a computer which provides front-end point of sale device management and message
the Humana Claim Construction processing for card authorizations Order (i.e., "a computer which provides front-end POS device management and message processing for card authorizations")

The Court construed this term in both the Humana and Datastream Markman orders. IDT asks the Court to revert to its construction in the Datastream Markman Order while Alexsam urges the Court to retain the construction adopted in the Humana Markman Order.

In the Datastream Order, the Court previously found that the '608 patent specification provided a definition of the "processing hub" as used in this invention. See Datastream Markman Order at 10. The Court, therefore, adopted the definition for this term as recited in the specification. Id. In the Humana Markman Order, the Court broadened the construction for "processing hub" by omitting "and activations," explaining that not all of the claims then asserted required activation. See Humana Markman Order at 15.

IDT argues that all of the claims now asserted require activation and the Court should revert to the Datastream order. The Court is not persuaded by this argument. Claim terms should have the same meaning across in all claims, mandating the Court keep the broadest possible definition. The Court does find that a processing hub could perform activations without performing authorizations. The Court construes the term to mean, "a computer which provides front-end point of sale device management and message processing for card authorizations or activations."

2001

Hue, lightness, and saturation color values

The Court construes this term to mean "computer-readable color data consisting of three numbers that represent the H value, L value, and S value (is the H, L, and S respectively) of a selected pixel." AVG proposed the following construction, "computer-readable data elements, each of which is indicative of a color's hue, lightness, and saturation." The Court disagrees because AVG's definition requires each "value" to have three components (one component for each of hue, lightness and saturation), and such requirement excludes the preferred embodiment. The claim clearly calls for "sets" of H, L and S color values, indicating that each of H, L and S has a separate value.

AVG agrees with Microsoft's definition of the individual terms of hue, lightness, and saturation, and the Court construes them as follows. "Hue" is "the attribute which determines whether the perceived color is red, yellow, green, blue or the like, and equivalents thereof." "Lightness" is "the brightness of an area judged relative to the brightness of a similarly illuminated area that appears to be white or highly transmitting, and equivalents thereof." "Saturation" is "the amounts of color and grayness in a hue that affect its vividness; that is, a hue with high saturation contains more color and less gray than a hue with a low saturation, and equivalents thereof."

2002

17. Hybrid access system

The term "hybrid access system" appears in claims 12 (by virtue of its dependency), 39, and 52 of the '121 patent. The plaintiff proposes a construction of "a device that provides active management of both upstream and downstream channels." The defendants propose "a common network management system that is separate and apart from upstream and downstream routers for controlling paths in both the upstream and downstream channels of hybrid interfaces." In accordance with the specification, the court defines a "hybrid access system" as "a system for managing upstream and downstream communications between a host computer and one or more remote clients."
2003

9. "displaying search results in hyper text markup language as a sequence of universal resource locators directed to the database entries" (claims 5 & 7)

Plaintiff argues that this term means "that when a search is performed, the search results include universal resource locators 'URLs' that point to entries in the database. 'Hyper text markup language' is a computer language used to specify the contents and format of a hypermedia document." Defendant proposes the following construction "displaying web search results in an HTML format that embeds the Web addresses linked to database entries."

Defendant's proposed construction functionally limits the computer network to the World Wide Web. The defendant's construction essentially construes an URL to mean a Web address. As discussed previously, the court does not limit the computer network in the claims of the '538 patent to the World Wide Web and does not require an URL to mean a Web address. The patent specification expressly states that the computer network in the claims is broader than the World Wide Web. 3:65-67. Consequently, the URL must be broader than a web address because the network is broader than the World Wide Web.

The court believes that it is not necessary to construe "hyper text markup language" because one of ordinary skill in the art knows what HTML means. Accordingly, the court construes "displaying search results in hyper text markup language as a sequence of universal resource locators directed to the database entries" to mean "displaying search results in hypertext markup language where the results are displayed as a sequence of universal resource locators directed to the database entries."

5. Hypertext linking reference ('461 patent, claims 49 and 53)

The parties dispute whether the phrase "hypertext linking reference" refers to the address associated with the keyword phrase (defendant's position) or to both the keyword phrase and the address associated with the keyword phrase (plaintiffs' position). Claim 49 of the '461 patent reads "said keyword phrase being associated with a hypertext linking reference." Substituting plaintiffs' proposed definition in claim 49 would produce the reading: "said keyword phrase being associated with said keyword phrase and an address." As this substitution illustrates, plaintiffs' proposed construction is nonsensical. It would result in the tautological construction that the keyword phrase would be associated with itself. Moreover, plaintiffs' proposed construction defies assertions the inventor made during the patent's prosecution. See Warner-Jenkinson, 520 U.S. at 30 (prosecution history is relevant if inventor considered particular interpretation during prosecution of patent and specifically disclaimed it); Vitronics, 90 F.3d at 1582-83. In particular, the prosecution history indicates that the inventor treated the phrase "hypertext linking reference" as synonymous with the uniform resource locator. See Aff. of Craig Smith, Exh. D, July 28, 1998 Resp. to Office Action, at 5 (remarking that "the hypertext linking reference, or URL, is fixed until the hypertext reference viewable by the user is deleted or changed") (emphasis added). Because of the prosecution history and plaintiffs' concession at the claim construction hearing that a uniform resource locator is the address, defendant's construction will be adopted. Accordingly, "hypertext linking reference" in claims 49 and 53 of the '461 patent means the address associated with the keyword phrase.

6. "Hyperlink": "A connection from one web resource to another." This term is not limited to a connection between two different web pages. No specific guidance in the intrinsic record is provided. Extrinsic evidence indicates that, in 1999, HTML was understood as providing a link between web resources (including images, video clips, sound bites, programs, and documents) and not simply web pages. (D.I. 387, ex. 139 at JA5362)
2006

2. Hyperlink (‘461 patent, claim 49 and ’505 patent, claims 15 and 19)

Plaintiffs argue that the word "hyperlink" should be construed as "a phrase, an address and information stored at each address." (Plaintiffs agreed at the claim construction hearing that "operations" may be removed from the definition they proposed in their brief.) Although defendant defined "hyperlink" as "an anchor, address and destination information" and plaintiffs defined it as "a phrase, address and information," the parties appeared to agree at the hearing that the dispute was one of nomenclature only. In fact, defendant admitted that the important point was that the term "hyperlink" be construed as having three components notwithstanding the labels on these components. Although I tend to prefer defendant's terminology, because the inventor did not use the words "anchor" or "destination information" in the patents, I will use plaintiffs' terminology (that is, a keyword phrase, an address and information stored at that address).

One final point needs to be addressed. Defendant argues that "hyperlink" includes the requirement that "upon selection of the anchor [keyword phrase] by a user, the computer directly and immediately accesses the address to retrieve the destination information and display it to the user." Plaintiffs argue that adopting a "direct and immediate" qualifier as part of the definition would limit the invention by, for example, allowing only one-click access rather than two-click access. Because the claims at issue do not limit the access as either direct or immediate, I will not read defendant's proposed limitations into the disputed claims. Accordingly, "hyperlink" in claim 49 of the ’461 patent and claims 15 and 19 of the ’505 patent means a keyword phrase, an address and information stored at that address.

2007

11. Hyperlink phrase (’505 patent, claims 15 and 19)

Defendant defines "hyperlink phrase" as equivalent to "keyword phrase" while plaintiffs define it as "an object name or phrase in text that may be highlighted." At the claim construction hearing, plaintiffs distinguished between "hyperlink phrase" and "keyword phrase" by arguing that a "keyword phrase" is a recognized text string before it is converted to a hyperlink phrase and a "hyperlink phrase" is a keyword phrase after it has been converted to hyperlink. However, plaintiffs concede that a keyword phrase is recognized in real time (in the context of defining the term "hypertext linking reference") and I have construed the claims to require that "hypertext linking reference" (the address) must also be established in real time. Therefore, in light of plaintiffs' concession and this court's construction, there is no meaningful distinction between "hyperlink phrase" and "keyword phrase." The conversion from a keyword phrase to a hyperlink occurs in real time, that is, as soon as the last word of the keyword phrase has been entered. Even a cursory reading of the ’505 patent specification reinforces this construction. See ’505 Patent, 3:5-13 ("A hyperlink phrase is related to a specific hyperlink site by an associated hyperlink address and usually is descriptive of the related site. . . . By selecting a specific hyperlink phrase, a user selects an associated hyperlink site and automatically displays the object stored at the selected site."). Accordingly, "hyperlink phrase" in claims 15 and 19 of the ’505 patent is equivalent to "keyword phrase," which is a recognized text string that serves as the hypertext link.

2008

"Hypertext pages " and "Hypertext links/links in a hypertext page"

"Hypertext pages" are "screen renderings referenced by or including hypertext links." "Hypertext links" or "links in a hypertext page" mean "a non-sequential web association which the user can use to navigate through related topics." Amazon argues that "hypertext pages" does not include pages that do not contain hypertext. This limitation is not supported by the claim language or specifications. Amazon's proposed construction of "hypertext links" is similar to that which the Court adopts, but is less straightforward.
"Hypertext transfer protocol"

"Hypertext transfer protocol" ("HTTP") is "the client/server protocol used to access information on the World Wide Web,"

The parties are in apparent agreement as to what HTTP is, but they disagree as to whether HTTP is limited to the version that existed at the time of the patent application or whether it includes future versions. On June 7, 1995, HTTP draft version 1.0 was in use; today, version 1.1 is used.

As used in this patent, HTTP is a generic term not limited to the version in use at the time the application was filed. This situation is different from that in Schering Corp. v. Amgen Inc., 222 F.3d 1347 (Fed. Cir. 2000). In Schering, the parties dispute over the claim term's meaning was essentially a dispute over the scope of what was claimed to have been discovered or invented. Id. Here, Soverain is not claiming to have invented HTTP, but only that the methods described use HTTP. There is no reason to think that one skilled in the art would think the claims were limited to only the then-current HTTP, especially since the then-current version was a "draft," which implies a subsequent version.

1. IEEE 802 compliant device (claims 1, 3-6)

Plaintiff's Construction: A device which complies with all standards set forth in IEEE 802, as those standards existed on May 27, 1997.

Defendant's Construction: Any device which is capable of transmitting or forwarding data packets in accord with any of the networking standards of IEEE 802.

The first dispute on this term is whether the device must be compliant with all standards set forth in IEEE 802 (as plaintiff says) or whether it is sufficient to comply with any IEEE 802 standard (as defendant says). Defendant's view borders on the nonsensical: how would one determine which standard was the relevant one? If it truly means "take your pick," how is that a meaningful limitation?

Also, defendant's view is not consistent with the natural reading of what it means to be compliant with a set of rules. For example, if an employer were to say that it was "Title VII compliant," this would not mean that the employer was compliant with just any part of the statute. If the employer was not discriminating on the basis of race but was discriminating on the basis of gender, the employer would not be "Title VII compliant." It may be that certain parts of the statute are inapplicable (for example, because all of the applicants for a job are members of a particular protected class), but that would not mean that the employer could pick and choose which portions of the law to follow, only that not all parts of the statute would be relevant in a particular situation. Similarly, if some standards of IEEE 802 have no application to the '042 patent, as defendant argues, this means only that those particular standards may be disregarded, not that compliance is established by any one standard.

The next question is which version or versions of the IEEE standards apply. There are three possibilities: (1) any version of the standards; (2) the standards that applied when the claims were amended to include this limitation; or (3) the standards that applied when the inventor filed the application for the '042 patent. This first option may be rejected quickly. An invention cannot comply with standards not yet in existence. Defendant argues that limiting the standards to a particular version could render the invention obsolete as the standards change. Defendant is correct, but that is not an argument for expanding the reach of a claim beyond what could have been anticipated by the inventor; it is an argument for not including as an element in a claim a set of standards that change over time. Defendant cites no authority to the contrary.

Defendant says also that it would be "illogical" to use the standards as they existed as of the date of the invention (1997) rather than the date the patent was amended to include "IEEE compliant" limitation (1999). To the extent that this is so, defendant may take that issue up with the Court of Appeals for the Federal Circuit, which has held that it is the date of the
invention and not the date of the amendment that controls for the purpose of claim construction. Phillips, 415 F.3d at 1313. I will adopt plaintiff's construction of this term: "a device which complies with all standards set forth in IEEE 802, as those standards existed on May 27, 1997."

The dispute surrounding the terms "IEEE 802 MAC header" and "MAC frame packets" is the same: whether a requirement to comply with IEEE standards means any standard from any date or whether it means all relevant standards as of the date of the invention. Because defendant advances no other arguments regarding these terms, I will adopt plaintiff's construction of "MAC frame packets" as "a connectionless Media Access Control frame packet, described in the IEEE 802.3, as that standard existed on May 27, 1997" and "an IEEE 802 MAC header" as a "Media Access Control header compliant with all IEEE 802 standards, as those standards existed on May 27, 1997."

The parties dispute the meaning of the phrase "I/O circuitry coupled to said I/O port, for providing processed video signal to said I/O port, and for accepting a processed video signal from said I/O port;"

The term "I/O circuitry" means circuitry that inputs and outputs data. Examples of such circuitry are the input and output FIFOs in Figure 2. The remainder of the disputed terms have already been construed.

The term "I/O device" is an abbreviation of the term "Input/Output device." All of the disputed claims directly or indirectly reference the term "I/O device." (Instrument No. 69, Exh D). The parties agree that the definition of "I/O device" includes "disk or other persistent storage device." Superspeed contends, however, that two additional limitations should be included in the definition of "I/O device," showing that the storage device must be "shared by multiple computer systems" and that those systems must be "in a network." (Instrument No. 69, at 15).

Claim 27 of the '226 Patent claims "each of a plurality of I/O devices connected to said network" and claim 15 of the '244 patent claims the same language. (226 Patent, at 28:17-18; '244 Patent, at 27:7) (emphasis added). Moreover, claim 1 of the '136 Patent claims "[a] method for coherently caching I/O devices available for shared access on a network." (136 Patent, at 26:33-34) (emphasis added). Although certain limitations in the claim language require the networking or sharing of I/O devices, networking or sharing is not inherent in the I/O devices themselves. In fact, the limitations of the claims relate to the utilization of I/O devices in a shared network, but do not explicitly describe networking or sharing as an intrinsic feature of an I/O device.

Because the claims explicitly state that the I/O devices are "connected to said network" or "available for shared access on a network," there is no need to define the term with an additional limitation stating that the storage device is "shared by multiple computer systems in a network." If the term "I/O device" were defined in such a way it would render the explicit limitations of the claims redundant or mere surplusage. See Texas Instruments v. United States ITC, 988 F.2d 1165, 1171 (Fed. Cir. 1993) (noting that a proposed construction would render the disputed claim language mere surplusage because "courts can neither broaden nor narrow claims to give the patentee something different than what he has set forth") (quoting Autogiro Co. of Am. v. United States, 384 F.2d 391, 396, 181 Ct. Cl. 55 (Ct. Cl. 1967). Without the additional limitation that the device is "shared by multiple computer systems in a network," the parties essentially agree that the term "I/O device" means "disk or other persistent storage device." Accordingly, the Court finds that the proper construction for the term "I/O device" is "disk or other persistent storage device"
b. "An I/O port for coupling said integrated circuit to memory means"

The parties dispute the term "an I/O port for coupling said integrated circuit to memory means." The parties generally agree that an "I/O port" is an interface on the integrated circuit through which input and output data may be transferred to and from the memory means. The court agrees and adopts this construction of I/O port.

The meaning of the terms "for coupling" and "memory means" is disputed. Broadcom asserts that the "for coupling" language requires that the I/O port couples, or electronically connects, the video processor integrated circuit to memory means that is external to the video processor chip. Broadcom then argues that because the dual-ported video random access memory (labeled VRAM 216 in Figure 2) is the only component external to the video processor chip disclosed in the patent that stores video data for the video processor chip, the meaning of the claim term "memory means" must be limited to a dual-ported video random access memory. In support of this argument, Broadcom cites the Federal Circuit case, Wang Labs, Inc. v. America Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999) for the proposition that if the only embodiment described in the specification is a particular protocol, then the claims are properly limited to that protocol. Wang Labs, Inc., 197 F.3d at 1383 (holding that term "frame" is limited to character-based frames and does not include bit-mapped frames).

The claim term "memory means" cannot be limited to the specific dual-mode VRAM that was used to describe the preferred embodiment, because the patentees did not claim "a dual mode VRAM." The patentee claimed a generic "memory means." It is undisputed that the term "memory means" is, and was at the time of the filing of the 201 patent, a term of art that is broadly defined as "memory or device where information can be stored and retrieved." Microsoft Computer Dictionary 285 (4th ed. 1999). Nothing in the specification compels a contrary or more limited construction. See Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988) ("Where a specification does not require a limitation, that limitation should not be read from the specification into the claims").

In the Wang case cited by Broadcom, the issue for claim construction was whether the claim term "frames of information" covered both character-based and bit-mapped based protocols. The preferred embodiment was directed to character-based protocol systems, although the specification acknowledged that bit-mapped protocols were part of the prior art. The Federal Circuit found that the term "frame" as used in the context of the patent necessarily was limited to character-based protocols stating that "the specification would not be so understood by a person skilled in the field of the invention" to include protocols that were not specifically included in the specification. The Federal Circuit also noted the significant impact of the prosecution history on its finding. The prosecution history of the patent at issue in Wang demonstrated that the patentee specifically distinguished the scope of the patent from prior art references relating to bit-map protocols. This confirmed the courts reading that claim's scope included only character-based protocols and not bit-map protocols.

The court reads the Wang case as standing for the proposition that patent claims should not be construed to cover embodiments that are not supported by the specification and are contradicted by the prosecution history. Wang is distinguishable from the instant case. In this case there is no such limiting prosecution history, nor does the specification compel the conclusion that the patented claims required a specific type of memory means.

Therefore, the court finds that the term "memory means" is to be accorded its ordinary meaning and defined as memory or device where information can be stored and retrieved. It is clear, however, from the claim language indicating that the I/O port is "for coupling said integrated circuit to memory means" that this "memory means" must not be contained as part of the single integrated chip, but is located off-chip. See also col. 45:3-6, 49-61 (referring to port as a location of a component for receiving data from, or sending data to, another component). If the memory means were on-chip, there would be no need to be able to couple it by using an I/O port.

With respect to the functional phrase "for coupling," the court finds that this phrase indicates only that the I/O port must be capable of being connected to an off-chip memory means and not that it is actually connected to such memory means. See, e.g., EcoLab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1366 (Fed. Cir. 2001) (functional language "for ware and hard surface washing" of the non-means-plus-function element "a three-dimensional, solid, cast, substantially uniform alkaline detergent for ware and hard surface washing" required only that the recited detergent "be capable of ware and hard surface washing").
4. "I/O request"

HP asks the Court to construe this term as: "A directive to any operation, program, or device that transfers data to or from a computer." EMC proposes: "A request issued by a host computer, such as a read or write request, to transfer data."

Although the claim indicates that I/O requests are used to aggregate data in the memory means, the meaning of the term itself is not clear from the claim language alone. The specification clarifies that I/O requests are used both to write new data to the cache and disk device and to organize and distribute data to those structures. For example, "the host 10 issues I/O requests, such as reads and writes, to transfer data between memory 11 and the disk device 20 via the bus 30 and cache 40."

"Host 10 logical' I/O write requests store the new data in the cache 40, and the physical' I/O write requests transfer the data from the cache 40 to the disk drives." 602:3/62-64. "With striping, a host I/O request distributes the data to be transferred across the disk drives." 602:3/62-64. The subsequent portions of the written description describe how the computer system determines and attempts to minimize the number of required I/O requests. Thus, the specification indicates that I/O requests are issued from the host 10, and the computer system attempts to minimize the number of required requests.

A location limitation is not required for the purpose of construing the term. This is not a means plus function term, and the claim language does not include the location from which I/O requests are issued. Instead, the claim is directed toward organizing the memory of the system, and it does not identify the particular computer components that direct such organization. Definitions from dictionaries support this view. "I/O" is defined as the process of moving data between a computer system's main memory and an external device or interface such as a storage device, display, printer, or network connected to other computer systems. I/O is a collective term for reading or moving data into a computer system's memory, and writing, or moving data from a computer system's memory to another location.

Landgraff Decl., p. 0565. An "I/O request" is a "request by an application to read or write a specified amount of data." EMC's Response, Ex. A (Dictionary of Storage Networking Terminology). Just as in the claim language, nothing in the dictionary definitions limits which components of the computer system may contain such applications or issue such requests. In contrast, consistent with the definitions, the claim language indicates that I/O requests serve to organize data; that is, data are moved among the system's components regardless of the origin of the I/O request.

Accordingly, I/O requests are "commands, such as reads and writes, used to transfer data among various components or portions of the components of the computer system."

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

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<tr>
<th>Claim Term</th>
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<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
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<tr>
<td>n² &quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the</td>
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</table>
"Terminal"  "a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface"

"ID information [stored on the terminal]"  "data stored on the terminal in the form of merchant ID, store ID, or terminal ID"

"Stored thereon prior to the transaction"  "stored on the terminal prior to the consumer presenting the debit card to the merchant"

"Relates . . . in a predetermined manner"  "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched"  "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal"  "locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means"  "a data processing device"

"Transmitting to a computer"  "sending by means of a signal path to a computer"

"Validation" and "Valid"  "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely"  "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"  "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means function"  "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means"  "a modem or a signal path"
A. Claim Construction

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"Communication means" "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" "a modem or a signal path"

"Selected from a group of ID information" (Claim 2) "chosen from one of the following ID information"

--- Footnotes ---

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

--- End Footnotes ---

2017

IP Address

Defendants n5 contend IP address should be defined as, "a fixed, unique, and unchanging identifier that has no internal structure to suggest network connection location information," and, as a compromise, Fenner submits that an IP address is "a fixed and unchanging identifier of a connection to the Internet represented by a series of numbers." Defendants maintain that an IP address must be "unique" and does not contain "internal structure to suggest network connection location information." In support of its second limitation, Defendants cite the claims, specification, and prosecution history.

--- Footnotes ---

n5 In discussing the '670 terms, the Court will refer to UTStarcom, Inc., Nortel Networks, Inc., Cisco Systems, Inc., and Alcatel USA, Inc, collectively as "Defendants."
Claims 1, 4, 6, and 14 provide for an IP address, "for identifying a mobile source of the data packet independently of the physical media over which the mobile source is communicating." One skilled in the art would understand that the IP address, as referenced in the claims, describes non-hierarchical addresses and the specification and prosecution history bear out that understanding.

During prosecution of the '670 patent's parent application, U.S. Patent No. 5,095,480 ("the '480 patent"), Fenner explicitly distinguished the prior art based on its use of hierarchical addressing. Using a telephone number as an example, Fenner explained that the area code identifies an "area of the country in which the receiver is located . . . the next three digits are an exchange that identify the switch to which a line to the receiver is connected . . . [and] the last four digits identify the line to the receiver." '480 Patent, File History at 143 (Amendment, 11/7/90 at 23). Thus, the prior art method relied on a hierarchical address made up of three sets of numbers that together identify a fixed physical location. By contrast, Fenner's method uses an address without such internal structure to identify a mobile source within a network, regardless of the physical location of that mobile source. The claim language cited above reflects this distinction, as does the specification. See 2:53-56, 4:40-47, 11:55-58, 17:35-38, 5:33-38, 6:9-13; 22:10-30.

As the prior art described a method of routing based on physical locations, a device moving from one physical location to another would be identified by a different code or address. 1:64-2:16. The IP address described in the '670 patent allows a mobile user to move within a network without changing its address. Accordingly, the address must be unique or its purpose within the invention is lost. Fenner argues that "unique" should not be read into the claims because it appears in Claims 4, 6, and 9, but does not appear in Claims 1 and 14. Defendants counter that the specification and prosecution history clearly require the IP address to be unique. See 2:40-42, 9:19-23, '480 File History at 144 (Amendment, 11/7/90 at 24). Reading the patent as a whole compels the conclusion that the IP address must be "unique."

Accordingly, the Court construes IP address to mean, "a fixed, unchanging, and unique identifier of a connection to the internet represented by a series of numbers that has no internal structure to suggest network connection location."

The parties dispute the meaning of "IP data session," as used in claim 1. NICE contends that the communication devices involved can be either IP (Internet Protocol) or non-IP telephony devices, and that in the preferred embodiment of the invention, "the IP multi-media session may also include one or more non-IP telephony devices," citing col. 3:52-56. Witness's construction would exclude the preferred embodiment, NICE contends, because non-IP telephones do not transmit or receive "data packets." Witness contends that the patent's specification and prosecution history support its construction, citing Figure 3 and '106 Pros. Hist., Resp. 6, Dec. 19, 2004. Further, Witness contends that NICE is attempting to redefine the claim term and to read "IP" out of "IP data session." The specification makes clear that all non-IP communications within the system are first "translated" into IP communications (or data packets), demonstrating, Witness contends, that its construction is correct.

The Court construes "IP data session" to mean "the plurality of data packet transmission between any two or more communication devices." Though the claimed invention clearly contemplates involving non-IP telephone devices, it also makes clear that the invention must convert those non-IP communications into IP communications.

If a telephony device 20 communicating through a PSTN 22 is contacted by IP telephone 12 to initiate the multimedia call and/or if telephony device 20 initiates the call . . . communication to and from telephony device 20 passes through a gateway 42, for example in order to translate regular PSTN 22 communication to IP-based communication.
Accordingly, the construction of "IP data session" should indicate that specifically IP-based communications are being transmitted.

2019

7. ISA command information

OPTi offers a plain language construction for "ISA command information." OPTi asserts that "ISA command information" is "information correlating to one or more of the commands recognized in the Industry Standard Architecture bus standard." nVidia asserts that "ISA command information" means "the bits that identify at least SBHE # and one of MEMR #, MEMW #, IOR #, and IOW # signals and may also identify any other command signals as defined by the ISA specification."

As nVidia's construction improperly attempts to incorporate limitations from the preferred embodiment, it is rejected. There is nothing in the specification that would limit the construction of ISA commands in the manner nVidia suggests. nVidia implicitly admits this fact as it principally relies on statements made during prosecution to support its construction. However, a review of the prosecution history makes clear that the commands nVidia seeks incorporated into the construction of "ISA commands" are merely exemplars of ISA commands.

In contrast, the device of the present invention transmits commands that correlate to ISA commands such as those shown on pages 2-4 of the present application. . . . As shown in Table 2 of the present application, the low three bits of the MAD bus can convey information that correlates to at least the following ISA signals: SBHE #, MEMR #, MEMW #, IOR #, IOW #.


In direct contrast to nVidia's proposed construction, OPTi proposes a plain language construction consistent with the specification and the claims. The Court adopts OPTi's proposed construction. "ISA command information" means "information correlating to one or more of the commands recognized in the Industry Standard Architecture bus standard."

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I

Although Quanta characterizes the instant motion as a "motion for further construction of claim term 'ISA compatible computer,'" in essence, Quanta requests the court to reconsider its prior claim construction. But Quanta did not bother to follow Civ L R 7-9(a), which provides that "[n]o party may notice a motion for reconsideration without first obtaining leave of Court to file the motion." Because Quanta filed the present motion without first requesting leave of this court, the motion is properly denied on that ground.

Nonetheless, Quanta suggests that the court's claim construction order explicitly contemplated that Quanta would be able to file the instant motion. See Add Constr Mot at 2 ("At the Court's invitation, Quanta Defendants file this motion to ask the Court to further construe the term 'ISA-compatible computer' * * * as 'a computer having an ISA bus capable of handling ISA standard defined interrupts.'") (citing Order at 10). But Quanta misconstrues that order, which permitted the parties to apply for a further construction only to define particular interrupts that a computer must handle to be considered "ISA-compatible":

The Texas construction * * * is sufficient, at least for the time being. Nothing in this language excludes the possibility that some interrupts might not be used in a given computer. Plaintiff is free to argue that point to the jury. It may be that the parties' true dispute is not over an ISA-compatible computer's ability to handle interrupts, but rather over what interrupts must be defined for a computer to be dubbed 'ISA-compatible.' If so, the parties may apply to the court for a further construction of 'ISA-compatible computer.'
Order at 10:9-14. (emphasis added). The order says nothing about allowing the parties to move the court to add an "ISA bus" as another limitation in the claim, which is the "further construction" that Quanta presently seeks. Accordingly, the court did not in any way "invite" Quanta to file the present motion.

Even putting aside these procedural details, the motion itself appears frivolous and provides no basis for altering the court's prior construction. Quanta asserts that further construction is appropriate because Phillips v AWH Corp, 415 F3d 1303 (Fed Cir 2005), "changed the focus of claim construction." Add Constr Mot at 4. Quanta continues:

While Phillips did not change the general rule that the focus in construing claims remains on the intrinsic evidence, extrinsic evidence may be considered, particularly if the intrinsic evidence is not sufficient to provide a construction. When considering extrinsic evidence, expert opinion and technical treatises are on at least an equal footing with dictionary definitions.

Samsung used dictionary definitions almost exclusively in the Texas actions to defeat a construction of ISA compatible computer that referenced an ISA bus. Following Phillips, Samsung's arguments are no longer appropriate. Id at 4-5.

Quanta's argument is flawed in many ways. First, Phillips did not fundamentally change the principles of claim construction. Characterizing its previous decision in Vitronics Corp v Conceptronic, Inc, 90 F3d 1576 (Fed Cir 1996), the Phillips court stated "we did not attempt to provide a rigid algorithm for claim construction, but simply attempted to explain why, in general, certain types of evidence are more valuable than others. Today, we adhere to that approach and reaffirm the approach to claim construction outlined in that case, in Markman v Westview Instruments, Inc, 52 F3d 967, 979-81 (Fed Cir 1995) and in Innova/Pure Water, Inc v Safari Water Filtration Systems, Inc, 381 F3d 1111 (Fed Cir 2004)." Phillips, 415 F3d at 1324 (emphasis added) (citations altered).

More importantly, even if Phillips changed the focus of claim construction, those changes would not support the further construction that Quanta presently espouses. In determining whether an "ISA-compatible computer" necessarily included an "ISA bus," the Texas district court adopted Magistrate Judge Johnson's report and recommendation (R&R) in full. The R&R relied on intrinsic evidence to decide that the term "ISA-compatible computer" as used in the '273 patent did not require the additional limitation of an ISA bus:

Defendant Arima invites the court to adopt a construction that would specify that an ISA-compatible computer must include an ISA bus as one of its components. However, the court finds no legal justification for carrying its claim construction to that level of specificity. Such a narrow definition is not required either by the claims themselves or the intrinsic evidence. Defendant Arima argues that, although no mention of the ISA bus is made in the claims, it is clear from the specification that the only portion of the ISA-compatible computer that the patent is concerned with is the system of interrupts. Therefore, following Defendant Arima's logic, the ISA bus, as a main component of the commonly used system of interrupts described as a preferred embodiment in the specification, should be included in the definition. The court cannot give credence to this argument. Limitations to the claims should not be inferred from a preferred embodiment.

Doc # 321, Ex A (R&R) at 13-14 (emphasis added). Quanta's "further" construction, on the contrary, relies primarily on extrinsic evidence, Add Constr Mot at 6, and improperly attempts to limit the claim based on an "exemplary" embodiment in the specification, id at 5. Compare Teleflex, Inc v Ficosa North Am Corp, 299 F3d 1313, 1326 (Fed Cir 2002) ("[T]he claims must be read in view of the specification, but limitations from the specification are not to be read into the claims * * *" (citations omitted)); Phillips, 415 F3d at 1323. Accordingly, because the court's prior construction of "ISA-compatible computer" comports with the principles enunciated in Phillips -- unlike Quanta's proposed construction -- there is no reason to construe that term again.

Defendant Arima invites the court to adopt a construction that would specify that an ISA-compatible computer must include an ISA bus as one of its components. However, the court finds no legal justification for carrying its claim construction to that level of specificity. Such a narrow definition is not required either by the claims themselves or the intrinsic evidence. Defendant Arima argues that, although no mention of the ISA bus is made in the claims, it is clear from the specification that the only portion of the ISA-compatible computer that the patent is concerned with is the system of interrupts. Therefore, following Defendant Arima's logic, the ISA bus, as a main component of the commonly used system of interrupts described as a preferred embodiment in the specification, should be included in the definition. The court cannot give credence to this argument. Limitations to the claims should not be inferred from a preferred embodiment.

2021

C. Input Variable-Icon/Output Variable-Icon.

The court defines "input variable-icon" to mean a graphical image that represents a symbol whose value is entered into the system by the user for processing. The court construes "output variable-icon to mean a graphical image that represents a
The Court begins its analysis with the ordinary meaning of the term. The parties do not dispute the ordinary meaning of "identical" and agree that the ordinary meaning of "identical" refers to "being the same" or "having such close resemblance as to be essentially the same," as defined in Webster's New Collegiate Dictionary (1980), at 563. See Defendant's Claim Construction Brief at 9:13-15; Plaintiff's Opening Claim Construction Brief at 9:9-11. A claim term is to be given its ordinary meaning unless the patentee has explicitly redefined the term, or the term itself is so ambiguous it is incapable of being understood without reference to the specification. See Johnson Worldwide Assocs., Inc. v. Zebo Co., 175 F.3d 985, 990, 991 (Fed. Cir. 1999) ("A court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms."). The term "identical" as used throughout the '287 patent is ambiguous so that the Court must reference the specification in order to "determine how identical is identical." See Defendant's Claim Construction Brief at 9:25-10:1. As such, Dwin asks the Court to find that "identical" in the '287 claims means either:

1. Two video fields derived from the same film frame and are both even or both odd.
2. Two video fields derived from the same film frame.

The preamble of Claim 1 states "wherein at predetermined positions in the sequence a video field is identical to the video field preceded by it by the duration of a given number of video fields[,]" '287 patent at 8:7-9 (emphasis added). The parties dispute whether the term "identical" requires further definition beyond its ordinary meaning. At one point, Dwin agrees with Faroudja that the term "identical" should be given its ordinary meaning. See Defendant's Claim Construction Brief at 9:13-14. However, Dwin seems to also contend that the term "identical" as used throughout the '287 patent is ambiguous so that the Court must reference the specification in order to "determine how identical is identical." See Defendant's Claim Construction Brief at 9:25-10:1. As such, Dwin asks the Court to find that "identical" in the '287 claims means either:

- (1) two odd video fields or two even video fields derived from the same film frame or (2) identical, within a predetermined threshold, where the threshold is predetermined so that (a) when two video fields are both odd or both even and the two video fields are derived from a film frame compared to each other they are consistently found to be identical and (b) when an odd field and an even field derived from the same film frame are compared or when a field derived from one film frame is compared with a field from another film frame, they are consistently found not to be identical.

Defendant's Claim Construction Brief at 12:25-13:3. The Court finds no support for this loquacious limitation proposed by Dwin. Accordingly, the Court interprets "identical" in the preamble, and as used throughout the '287 patent claims, as not limited to these particular conditions. Such limitations are simply not warranted by the claim language itself.

The Court also considers whether the preamble gives contextual support for the proposed limitation. The Court finds that it does not. The preamble of claim 1 refers simply to identical video fields being found at predetermined positions in the sequence. See 8:7-8. Nothing in the preamble itself requires such a garrulous interpretation of identical.

The Court also finds that the specification is not inconsistent with the ordinary meaning of "identical," but rather provides an example illustrating where identical video fields may be found. Dwin alleges that because the specification indicates "identical" video fields occur where the fields are derived from the same film frame and are both even or both odd, reading this limitation into the claim term is supported, if not required. Although the specification provides an illustration of the term "identical," the term itself is not limited to that particular illustration when its ordinary meaning conveys a clear and accurate description.

Furthermore, the patentee has not used the term in such a way so as to deviate from its customary usage. There is nothing to indicate that the patentee sought to redefine "identical" in a manner that is inconsistent with its ordinary meaning. The Court
agrees with Faroudja that "the claim was drafted using the plain terminology" and recourse to the specification to redefine the term would be improper. See Claim Construction Hearing Transcript at 59:7-8; Enercon Gmbh v. International Trade Comm’n, 151 F.3d 1376, 1384-85 (Fed. Cir. 1998) (generic claim terms should not be limited to the example disclosed in the specification absent clear redefinition of the claim term by patentee); Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed. Cir. 1984) ("words in a claim will be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently." (Citation omitted.)).

As this Court well knows, a "lawyer may create a 'dispute' about any word, but there is nothing ambiguous or linguistically obscure about [the term] as used in the present claim" to justify turning to the specification for redefinition. Senmed v. Richard-Allan Med. Indust., Inc., 888 F.2d 815, 819 (Fed. Cir. 1989). Simply because parties dispute a term it does not follow that the term itself must be ambiguous. The Court declines to treat the claim language like a "nose of wax, which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what its words express." White v. Dunbar, 119 U.S. 47, 51, 30 L. Ed. 303, 7 S. Ct. 72 (1886).

### Claim Term

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<th>Defendants' Proposed Construction</th>
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<td>&quot;identification code[s]&quot;</td>
<td>a code that unambiguously identifies each individual passenger and is associated with that passenger's destination floor</td>
</tr>
<tr>
<td>('861 Patent, claim 11)</td>
<td>('465 Patent, claim 1)</td>
</tr>
</tbody>
</table>

The dispute between the parties with respect to this term is whether the "identification code" must also include information about the passenger's destination floor. Plaintiff posits that the identification code need not necessarily identify a particular destination floor and relies on the fact that a floor terminal may include a "recognition device" that serves to recognize the identification code. The function of the recognition device is described in the specification as follows:

[T]he user carries the identification transmitter . . . and communicates an identification code to the recognition device . . . of the floor terminal . . . which identification code is recognized by the recognition device.

('465 Patent col. 8:9-14.) When the recognition device recognizes an identification code, it communicates to the computing unit an identification signal corresponding with the recognized identification code, whereby the computing unit then "assigns a predetermined destination floor to [the] identified passenger[.]" based on the identification signal. (Id. col. 8:15-19; id. col. 2:30-34.) Therefore, Plaintiff argues that it is actually the computing unit that assigns the destination floor to a particular identification code, and that the association between the passenger and the destination floor is not inherent in the "identification code" itself.

Defendants respond that a particular passenger is unambiguously identified with an "identification code" by way of a "user profile." Defendants cite to the following language in the specification describing "user profiles" generated by identification codes:

This user profile is unambiguously identifiable by way of an identification address. Exactly one identification code exists for each identification address. For example, an identification address is able to be exactly associated with an identification code when the identification address and identification code are identical.

('861 Patent, col. 6:61-67.) Defendants contend that based upon this generated user profile, an identification code unambiguously identifies both the individual passenger and the passenger's destination floor.

As no plain and ordinary meaning can be discerned from the claim itself, the Court will look to intrinsic evidence,
specifically the specification, in order to construe this claim. The Court finds that the cited language from the specification concerning "user profiles" indicates that an identification address is inherently associated with an identification code, such that it should be read as a claim limitation.

Furthermore, while Plaintiff's proposed construction may be technically accurate, Defendants' proposed construction comports with a common-sense reading of how the term "identification code" would be understood by a person skilled in the art, in that the identity of the passenger is irrelevant to the functioning of the elevator system unless the destination floor is also communicated. In other words, the only purpose of the recognition of the identity of the passenger is to determine the appropriate destination floor for the elevator, such that merely identifying the passenger is immaterial in terms of the functioning of the elevator system. See Lisle Corp. v. A.J. Mfg. Co., 398 F.3d 1306, 1313-14 (Fed. Cir. 2005) (rejecting plaintiff's "hyper-technical reading" of a claim limitation and instead relying on the specification to "attain a common-sense meaning of that claim limitation"). When read in the context of the entire Patents-in-Suit, including the specification, the Court concludes that the term "identification code" means "a code that identifies each individual passenger and is associated with that passenger's destination floor."

The Court also rejects Tomar's argument that "identification code" is defined as interleaving data pulses between priority pulses. Claim 1 includes the limitations involving interleaved data pulses, but such limitations are not included in claim 22. The doctrine of claim differentiation

is based on "the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope." Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed.Cir.1999). "To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Tandon Corp. v. U.S. Intl Trade Comm'n, 831 F.2d 1017, 1023 (Fed.Cir.1987). Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1364, 1369-70 (Fed. Cir. 2007).

Applying this doctrine here, the Court finds that reading the limitation of interleaved data pulses into claim 22 would render the claim superfluous. This construction is supported in the section of the specification that entitled "Summary of the Invention" which distinguishes the method claim and the system claim. '113 Patent, 3:29-44. Further, nowhere in the specification is "identification code" defined as Tomar's suggests. Rather, identification code is referred to as a means to uniquely identify an optical emitter. Id. 3:43-44; 5:44-45.

"[C]laims of [a] patent must not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'" Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004)(citation omitted). In this case, numerous embodiments are described, and the claims and specification do not include such "words or expressions of manifest exclusion or restriction."

E. "Identification encoder."

1. The term "identification encoder" is a coined technical term which is ambiguous.

The Court confirms its tentative finding that the term "identification encoder" had no ordinary and customary meaning to one skilled in the art at the time of the invention. Mr. Weiss, Acacia's expert witness on the meaning of the term, testified that "identification encoder" had no ordinary meaning to one skilled in the art. (TR. 64:18-21.)

Since the term has no plain meaning, the Court looks to the patent specification to see if the patentee defined the apparatus. Unlike the "sequence encoder," the written description contains references to "identification encoder." Among others, the
written description contains the following references to unrelated preferred functions of the "identification encoder" occurring at various unspecified times in the transmission system:

1. The identification encoder 112 gives a unique identification code to items stored in a compressed data library (6:34-35);

2. Performs storage encoding (giving the item a unique identification code, optionally logging details about the item, called program notes, and assigning the item a popularity code) just prior to conversion of the item for transmission to reception system, at any item after starting the conversion process, or after storing the item in the compressed data library (6:34-42);

3. Preferably assigns: a unique identification code, a file address, a popularity code and input program notes (6:43-48);

4. Inputs digital signal to digital input receiver (6:62-64);

5. Inputs analog signal to analog-to-digital converter (7:6-8);

6. Passes previously compressed items directly to the compressed data library (7:36-41);

7. Allows entry of item notes and production credits (10:45-51);

8. Maps item addresses to item names as an alternative method of accessing items (10:52-53);

9. Operates a program which updates a master item database containing facts regarding items in the compressed data library system (10:56-59);

10. Generates a unique address code which makes access to the requested data possible (10:43-44).

As the Court stated in its July 12 Order, although some of the functions of the "identification encoder" are set out, there is no description of a structure which performs those functions. Apparatus claims cover what a device is, not what a device does. See Hewlett Packard Co. v. Bausch & Lomb, Inc., 909 F.2d 1464, 1468 (Fed. Cir. 1990). Figure 2a contains a block diagram designated "112" and labeled "IDENTIFICATION ENCODING PROCESS." A label entitled "Encoding Process" is more indicative of a method claim than it is of an apparatus claim. Indeed, the 992 patent, which is based on the same specification as the 702 patent, contains a method claim 41 which discloses identification encoding not as an apparatus, but as a step in a method:

41. A method of transmitting information to remote locations, the transmission method comprising the steps, performed by a transmission system, of:

- storing items having information in a source material library;
- retrieving the information in the items from the source material library;
- assigning a unique identification code to the retrieved information;
- placing the retrieved information into a predetermined format as formatted data;
- placing the formatted data into a sequence of addressable data blocks;
- compressing the formatted and sequenced data blocks;
- storing as a file, the compressed, formatted, and sequenced data blocks with the assigned unique identification code; and
- sending at least a portion of the file to one of the remote locations.

(992 24:54-25:5)
Notwithstanding the "process" label, based on the written description the Court finds that block "112" is a diagram of what
the patentee meant by "identification encoder." However, the references to block 112 in the specification do not assist the
Court in defining what an "identification encoder" is. All that the specification does is to describe what the "identification encoder" preferably must do. The specification does not disclose a circuit, a computer operating a software algorithm, or
other apparatus which performs the functions designated for the "identification encoder."

Under certain circumstances, it may be permissible to claim invention of an apparatus and include in the specification only a
block diagram along with a description of some of its functions. However, this method of claiming an apparatus is only
permissible if the device is a conventional one, such that a person of ordinary skill would readily understand what the device
is. Claiming an apparatus using only a block diagram with functional description is indefinite when the patentee names the
device using a coined term and the various functions could be performed by an indefinite variety of devices.

Acacia's expert witness, Mr. Weiss, testified:

Q. Does the 702 patent identify any single structure for identification encoder?
A. No, it does not.

Q. Does the 702 patent require any single structure for identification encoder?
A. Does it require? No, it does not.

(QR. 146:10-15.)

* * *

Q. Take a look at column 6, line 39 through 42. What else, if anything, would the hypothetical person of ordinary skill
have understood about the identification encoder from reading that portion of the specification?
A. . . . that the identification encoder could similarly be located at any of those places in the system.

(QR. 93:5-18.)

At one point, Mr. Weiss stated that the only non-optional function of the "identification encoder" was "assigning a unique
identification code." His stated assessment was based on the wording of the patent description. On the basis of Mr. Weiss'
opinion, Acacia contends that the only function to be included in the construction of "identification encoder" is assignment
of a unique identification code. The Court, however, must also include functions which may be worded as optional, but
which would render the invention inoperable were they not included. If the Court did not do so, the patent would have no
utility. Indeed, at another point in his testimony, Mr. Weiss disagreed with the "only non-optional function" analysis, stating
that one would have to list other functions of the "identification encoder." (QR. 291-293.)

The Court confirms its earlier conclusion that at the time of the invention, one of ordinary skill in the art would not
understand the scope or bounds of the structure of the term "identification encoder" when that term is read in light of the
specification, rendering the claim term "identification encoder" indefinite. In its July 12 Order, the Court defined the term
by using its nonspecific function-encoding an identification-and defined it as an apparatus for performing that function. The
Court now concludes that this functional definition is insufficient to comply with the requirement of definiteness. The Court
finds "identification encoder" indefinite and on that basis finds claims 1, 17 and 27 invalid. As with the "sequence encoder,"
the Court leaves for later consideration the affect of this finding on dependent claims.
8-12 and 18-10 recite the step of "requesting identification information from said prospective wagerers," while claims 24 to 26 recite the step of "requesting identification from said prospective wagerers." Gtech proposes that the term identification information means that it is "information that identifies a prospective wagerer, including an account number and a personal identification number." To the contrary, Lottotron submits that identification information should encompass a much broader definition, and thus, should mean "identification information, such as an identification number." Pursuant to the intrinsic evidence, the Court shall adopt Gtech's definition.

The Court finds substantial support from the "Summary of the Invention" section. It states that "the invention provides a lottery wagering system comprising . . . second voice responsive means (wagering VRU) . . . requesting subscriber wager information . . . including an account number, a personal account number, a personal identification number." Id., col. 2, ll. 2-28. The patent goes on to explain how the system requests identification number information, including an account number and personal identification number:

As shown in FIG. 3 in the Subscriber Identification And Game Selection process, the VRU plays a welcome message to the subscriber and requests their account number as depicted in FIG. 3a. In our example, the subscriber entered '123456789098', and the VRU responded with, "You entered 123, 456, 789, 098, press 1 to confirm, 2 to re-enter". The subscriber responded with a 1 and the VRU then played the message, "Enter your personal ID". The subscriber entered '12345' and the VRU responded with "You entered 123, 45, press 1 to confirm, 2 to re-enter". The subscriber responded by pressing '1' to confirm that the number was correct. The VRU stores the subscriber ID and PIN and immediately sends a transaction to the host to validated the subscriber.

Id., col.6, ll. 5-18. As indicated from these excerpts, the patent language clearly references identification information to include an account number and personal identification number. Despite the apparent references in the patent language, Lottotron argues that there is nothing in the subject claims themselves which requires the creation of an account, and nothing that requires the generation of a personal identification number. However, Lottotron ignores that in substantially all of the embodiments of the system, it requests identification information, including an account number and a personal identification number. In fact, no other embodiment that does not require the user to provide an account number and personal identification number is even suggested in the patent. Accordingly, as claim construction begins and ends in all cases with the actual words of the claim, it is appropriate for the Court to define the terms to be limited in this respect, and construe the terms identification information and identification to mean "information that identifies a prospective wagerer, including an account number and a personal identification number." See Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (citations omitted).

"identification information" and "address information"

The term "identification information" means specific information from the user communication device that identifies that specific device, its user and where the device is located, that is stored in the VPS and that is used by the VPS to determine if the data and voice communications received by the LAN or telephony server, respectively, are intended for the remote user and used by the VPS to route such data and voice communications to the remote user.

The term "address information" means a designation of the identity of the user communication device sufficient to indicate where the user communication device can be contacted. The information is typically a telephone number.

"Identification information" must have all of the following characteristics: (1) it must be "of said user communications device;" 131 (2) it must be received by and provided to the VPS from the user communications device; 132 (3) it must be used to determine if a communication from the LAN or PBX is intended for the remote user; 133 (4) it must be used by the VPS to "route" communications received by the LAN or PBX which are intended for the user communications device to the remote user communications device; 134 and (5) it must provide the identity of the remote user. 135 In sum, identification information identifies the remote user communications device and how the remote user's computer can be contacted by the VPS.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
131 The PTO Notice of Allowability, Nov. 13, 1997, at 3 (Dx 2) stated: "the user communication device connects to the corporate office and provides identification information to the [VPS]."

132 '639 patent, col. 31, lines 40-42. 133 '639 patent, col. 34, lines 47-52. 134 '639 patent, col. 27, lines 28-34. 135 Bradner testimony, Tr. 911-15.

--- End Footnotes ---

The only example of identification information provided by the '639 patent is "caller ID" information in a description of "the preferred embodiment." 136 Mr. Bradner conceded that no other information is provided in the patent as to what is "identification information" although the patent allows that other types of identification information may be received. 137 The specification distinguishes "identification information" from "security data" 138 but does not preclude the possibility that security data could be included within identification information.

--- Footnotes ---

136 '639 patent, col. 18, lines 42-52; figs. 12 and 13.

137 '639 patent, col. 18, lines 50-52. 138 See, e.g., '639 patent, figures 12 & 13; col. 17, lines 43-52; col. 18, lines 11-18.

--- End Footnotes ---

Caller ID information may be sufficient for use as the identifier when the PSTN is the network between the VPS and the user communication device. But, if other networks are present, other identifiers would be necessary. 139 One with ordinary skill in the art would consider that "identification information" used in routing data in an IP network may include an IP address, 140 but, as Bradner conceded, cannot consist only of an IP address. 141 An IP address alone cannot meet the first and fifth criteria listed above and does not meet the third and fourth criteria with respect to voice communications. 142 Moreover, the '639 patent expressly claims an embodiment of the VPS that disconnects from the remote user and then reconnects to the remote user when the remote user receives a call at the office; 143 and IP address alone cannot be used to call the remote user and reestablish a connection between the remote user and the VPS. Significantly, the PTO distinguished prior art in which the "identification information" was an IP address, indicating that the examiner concluded that an IP address alone was not "identification information." 144

--- Footnotes ---

139 When discussing channels of communication, the specification refers to TCP/IP network protocol which a person with ordinary skill in the art would understand uses IP addresses as identifiers. Bradner testimony, Tr. 690-93; Witt testimony, Tr. 447; see '639 patent, col. 15, lines 30-34.

140 Weiss testimony, Tr. 1506, 1508-09.

141 Tr. 928-30.

142 Weiss testimony, Tr. 1401-05.

143 '639 patent, claims 11, 12, 13, col. 26, lines 61-66 to col. 27, lines 1-20; see also col. 22, lines 7-30.

144 Dx 2, PTO, Notice of Allowability, Nov. 13, 1997, at 4 (Slaughter).

--- End Footnotes ---

The term "address information" as used in claim 14 is similar to "identification information" found in claims 1 and 39. "Address information" refers to the identifier portion of identification information that indicates the identity of a user communications device sufficient to indicate where the user communications device can be contacted. Address information
received from the user communications device is stored or placed into the memory of the VPS. The VPS accesses or retrieves the stored address information from its memory to route communications received by either the LAN or the telephony server to the remote user communications device over the transmission media.

**2028**

3. First Identification Number

Both parties agree that this term refers to the "control number" used in the specification of the '909 patent. Fiala wishes to define "a first representation of said first identification number" as "something that represents or stands for the control number." (Pl. Brief at 30.) SVS argues that "first identification number" means "a control number which is uniquely associated with the metered account." (Def. Brief at 13.) Fiala has pointed out in its response that the parties "have proposed constructions for the term 'first identification number' that are similar if not identical…" (Pl. Resp. at 2.)

The dispute centers on the extent to which the first identification number must be "uniquely associated with the metered account." Fiala does not dispute this interpretation on its face, but objects on the basis that "uniquely associated" may be construed to mean that each account can correspond to only one control number. Fiala contends that the patent should be read to require that each control number can activate only one metered account. By implication, under Fiala's construction, one account could be associated with more than one control number, as long as each of these numbers is "uniquely associated" only with that account.

SVS cites to the preferred embodiments contained in the patent specification referring to a "unique" control number. U.S. Patent No. 5,918,909, Column 18:56-58, 20:39-41. To the extent that a "uniqueness" requirement exists in the preferred embodiments, it cannot be read to limit the plain language of claim 29. See Teleflex, 299 F.3d at 1326; Comark Communs. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998). Because both parties wish to incorporate the term "control number" from the specification, however, the context in which that term is used will be considered. Although the cited embodiments state that the control number is "unique," it is unclear whether the number is unique in that it is only associated with one account or whether it is unique because it is the only number associated with the account in question.

One of the embodiments cited by Defendant directly contradicts the latter interpretation: "A single company can manufacture the first card C and the package 30, and correlate, as, for example, by a correspondence table, the control number to the PIN P so that both numbers can be properly and uniquely associated with a metered account." Id., Column 19:9-13 (emphasis added). If an embodiment recommends that two different numbers can correspond so as to be "uniquely associated" with one account, "unique" cannot mean that there is only one number associated with a metered account. As a result, the characteristic of uniqueness taught by the '909 patent requires the control number to be associated with no more than one metered account.

Having reviewed the language of claim 12 in light of the specification, the court interprets the phrase "first identification number" to mean: "control number, associated with only one metered account."

**2029**

Second Identification Number

Both parties agree that "second identification number" refers to the "Personal Identification Number" ("PIN") as used in the specification. (See Pl. Brief at 37; Def. Brief at 16.) The disputed questions are whether this number must be "different from" the first identification number ("control number") and whether it must "independently provide… access to services and debiting of the metered account." In arguing that the PIN must be different from the control number, SVS cites the preferred embodiments:

Preferably, the PIN number P would be a very long sequence of digits and/or characters to ensure uniqueness and to inhibit guessing of the PIN number by a thief who otherwise could gain unauthorized access to the funds in the metered
account.

U.S. Patent No. 5,918,909, Column 5:25-34.

When the first card C has a PIN number P displayed thereon, it is desirable to obscure the PIN number P from view because any person knowing the PIN number P will have access to the metered account once the account has been activated.

Id. at Column 6:3-7.

For example, if a thief were able to collect the PIN numbers for several metered accounts before purchase activation of those accounts, the thief would simply have to wait until the card and package combination was purchased by an unsuspecting purchaser and the account was activated, and then the thief could surreptitiously drain the account of its funds by using its associated PIN to purchase goods and services.

Id. at Column 6:7-14.

Prior art methods of providing the metered account associated with a card's PIN involve the activation and crediting of the metered account before the card is distributed to a retail merchant for resale. However, a prior art scheme using such pre-activated accounts necessarily requires that such cards be stored under lock and key by the retail merchant until the moment the cards are sold because, if the cards are stolen or the PIN numbers surreptitiously discovered, the pre-activated metered accounts can be drained of funds. The method of the present invention avoids such problems by not activating the metered account until the time of purchase of the card.

Id. at Column 18:42-53. (Def. Resp. at 10) (emphasis in the original). These embodiments refer to the fact that the control number functions to activate the account, while the PIN provides access to the account after it has been activated. The described arrangement makes it advantageous that the two numbers be different: if one number could both activate and access a metered account, a thief's job would be easier. SVS therefore argues that the primary advantage of the '909 invention over the prior art - overcoming the problems associated with "hot cards" -- requires that the PIN be "different from" the control number.

Neither the specification nor the purpose of the '909 invention requires this result. In several instances, the specification states that the PIN is "preferably" different from the control number, implying that the claim itself is not so limited. See U.S. Patent No. 5,918,909, Column 19:4-8, 20: 42-45. Furthermore, claim 29 (on which claim 30 depends) refers to a first identification number which is "encoded … onto said data-encoded strip." Id., Column 24:63-64. This language indicates that, rather than being printed on the card, the control number is accessed only by mechanized reading of the data-encoded strip. Under this arrangement, surreptitious viewing of the PIN does not mean that a thief would gain knowledge of the control number, because there would be no way of knowing if the two were identical. Additionally, claim 29 speaks of activating the metered account through a "processing apparatus," implying that mere knowledge of the control number is not enough to activate the account. Id., Column 24:67-25:12. For these reasons, the court declines to interpret claim 30 to require that the PIN be different from the control number.

SVS claims that "second identification number" must be defined as "independently" providing access to the metered account. This argument appears to be based on the assertion that the PIN must be different from the control number. (Def. Brief at 16; see also Def. Reply at 11.) SVS argues, however, that the term means only that the second identification number is not dependent upon any other number or data in order to provide access to services and debiting the metered account. (Def. Reply at 11.) It is apparent from the language and context of claim 30 that providing access to the metered account is the purpose of the PIN; further clarification of the purpose is unnecessary. To the extent that the PIN may provide access "independent" of something besides the control number, claim 30 speaks for itself.

Both parties agree that the second identification number may be construed as "a personal identification number' (PIN') that 'is uniquely associated with the metered account, and provides access to services and debiting of the metered account." (Pl. Resp. at 11.) The court will construe the term accordingly. It is clear from the intrinsic evidence that "uniquely associated with a metered account" describes a relationship between the second identification number and metered account similar to that between the first identification number and metered account discussed above. Therefore, the court will similarly construe "uniquely associated with" in this context to mean "associated with only one."
Having reviewed the claim language, specification, and prosecution history, the court defines "a second identification number" as "a personal identification number, associated with only one metered account, which provides access to services and debiting of that metered account."

3. Claims 1 & 17 -- "Identification of a Position"

CIVIX argues that "position" should be given its ordinary meaning of "expression of a location." Defendants do not dispute this and, indeed, suggest the equivalent definition of "a location in space." However, CIVIX disputes Defendants' limitation that the "position" cannot be located with reference to coordinates outside of the geographic vicinity. Defendants contend that the phrase "identification of a position" means a coordinate pair uniquely defining a location relative to the positional coordinates as a reference. I am persuaded by Defendants' construction of this phrase.

The claims at issue state that the "identification of a position" is transmitted to the user. ('525 Patent, Claims 1 & 17). Within the claims, the phrase is, therefore, used as a noun rather than a verb. This supports Defendants' construction of this term as a thing specifying a position or location. Further, as noted earlier in this Order, the '525 patent and its prosecution history supports the limitation that positional coordinates uniquely define a geographic vicinity. Further, items of interest use the positional coordinates as a reference.

As I noted earlier, on October 2, 1996, the PTO rejected the thirty-seven claims pending in the '525 patent's application as indefinite under 35 U.S.C. § 112. (Office Action, CIV 0000214). In particular, the Examiner was concerned that the meaning of the term "identification of a position" was unclear. (Office Action, CIV 0000214). The Examiner presented applicants with a choice between relative positioning (i.e., positioning defined relative to a known point or points in the geographic vicinity) or absolute positioning (i.e., positioning defined in a universal manner, not relative to an arbitrary point in the geographical vicinity).

In response, on February 3, 1997, applicants amended the claims to specify the concept of relative positioning. For example, Claim 1 was amended to add the following emphasized phrase, "the transmitted portion including . . . identification of a position for each of the items of interest within the . . . geographic vicinity . . . relative to the positional coordinates and other items of interest within the vicinity . . . ." (Response, CIV 0000225) (emphasis denotes language added by amendment). In response to the amendments, the Examiner allowed each of the thirty-seven claims of the '525 patent. (Examiner's Statement of Reasons for Allowance, P 1.1, CIV 0000287). Accordingly, it is reasonable to infer that the '525 patent was issued because of the distinction of positions of items of interest defined in relative rather than absolute terms. For the above reasons, I adopt Defendants' interpretation of "identification of a position" as being coordinates defining a location using the positional coordinates of the vicinity as a reference.

2031

- "identification of a source" is construed consistently with its plain meaning as a "identification of a source." The Court declines to further interpret the phrase "identification of a source."

Lucent contends that this phrase should be given its plain English meaning, "evidence of identity of that part of a system from which messages are considered to originate." (D.I. 396 at 20).

Extreme contends that this phrase means "a fixed end user identifier, uniquely identifying the source of a data transmission, identifier assigned by a system administrator and that is independent for the end user system's physical and topological address, and that cannot be altered by the end user." (D.I. 395 at 27.)

Foundry contends that the term "source" means "a MAN name, which is a fixed end user name, that is a 32-bit MAN address, which is not an IP address, assigned by the MAN system that is independent from its physical and topological address."
The Court finds that Defendants impermissibly try to restrict the claim to the particular type of source used in the preferred embodiment. Further, the Court finds that Lucent has cited telecommunications dictionaries and dictionaries not published contemporaneously with the patent application. In the Court's view, telecommunications dictionaries may not accurately reflect the meaning of "source" to one skilled in the art in a data networking environment. Thus, the Court believes that the Court's construction is consistent with the plain language of the claim and the specification.

"identification of a destination" is construed consistently with its plain meaning as "identification of a destination." The Court declines to further interpret the phrase "identification of a destination."

Lucent contends that this phrase should be given its plain English meaning, and advances no specific construction. (D.I. 396 at 21.)

Extreme contends that this phrase means "a fixed end user identifier, uniquely identifying the destination of a data transmission, identifier assigned by a system administrator and that is independent for the end user system's physical and topological address, and that cannot be altered by the end user." (D.I. 395 at 27.)

Foundry contends that the term "destination means "a MAN name, which is a fixed end user name, that is a 32-bit MAN address, which is not an IP address, assigned by the MAN system that is independent from its physical and topological address." (D.I. 385 at 24.)

The Court finds that Defendants impermissibly try to restrict the claim to the particular type of destination used in the preferred embodiment. As Lucent has not proffered a specific construction of this term, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

5. "identified profile"

Disputed Term the technical database being structured to enable a plurality of access modes comprising name of publication, key word, and identified profile with migration capability between related records

Plaintiff's Construction data that identifies a given subject, such as a component or components

Defendant's Construction a list of one or more of the manufacturer, make and model numbers, including their synonyms

The parties dispute the meaning of "identified profile," which is used in Claim 8 as follows: "the technical database being structured to enable a plurality of access modes comprising name of publication, key word, and identified profile with migration capability between related records,..." ('806 Patent at 83:37-39.) Plaintiff contends that this claim term should be construed generally to mean data that identifies one or more components of a particular subject. In contrast, Defendant asserts that the claim imposes a limitation based specifically on the manufacturer, make and model of a particular aircraft. (Jt. Stmt. at 18-20.)

The patent specification indicates that a "profile" refers to a "component" (i.e., characteristic) or a set of components selected by the user to facilitate his or her search for information contained in the database. (Id. at 2:57-58; 31:3-5.) For instance, a user can set up the profile based on the specific make, model and serial number of an aircraft. (Id. at 2:48-49.) Alternatively, the user may customize a profile based on user-specific criteria other than the make and model of an aircraft. (Id. at 2:28, 3:312-13, 5:12-13.) This flexibility is illustrated in the preferred embodiment, which also envisions that the user may utilize an existing aircraft profile or customize a profile based on one or more data components. (Id. at 30:30-34, 30:42-44, 31:1-7.) Thus, while an "identified profile" may consist of an aircraft manufacturer, make and model number, such a profile is not limited, as Defendant suggests, exclusively to those particular criteria. Accordingly, the Court construes "identified profile" to mean "data that identifies a given subject, such as a component or components."
4. "identifier"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;identifier&quot;</td>
<td>information for identifying image data</td>
<td>information uniquely identifying particular image data</td>
</tr>
</tbody>
</table>

The issue here is whether an identifier must uniquely identify an image. Defendants contend that if the identifier did not uniquely identify a particular image, it would not be able to perform its stated purpose. Defendants point to the specification wherein the patentee refers to the data in the Card Database and the data in the Image Database being "keyed by a unique identifier," and that "[t]he URL includes the Card Key that uniquely specifies that particular electronic postcard." '774 Patent, col. 5, ll. 32-52, col 12, ll. 51-55.

Fotomedia's argument is that the specification sufficiently discloses use of the same identifier for multiple cards. The Summary of the Invention states that "one or more displays may be assigned a unique identifier." '774 Patent, col. 2, ll 54-55. Further, the specification discloses that the data in both the Card Database and the Image Database are "keyed by a unique identifier." '774 Patent, col. 5 ll. 44-46. Fotomedia suggests that these are multiple images being keyed by the same identifier. This is not the case. The specification indicates that it is in fact the same postcard data that is stored in these two databases after the postcard is sent. '774 Patent, col. 5 ll. 32-33. Further, the specification goes on to explain that "this key [is] the information required for retrieving the electronic postcard data from the Card Database and Image Database." A non-unique card key would therefore fail in its utility by the patentee's own definition.

Therefore, "identifier" is "information uniquely identifying image data."

The one term at issue in this dispute is "identifier." Although this term appears in several of the asserted claims, the Court will focus on claim 2 as an example:

2. A system, comprising:

   a server;

   computer code for working in association with a network browser including a back button, a forward button, a refresh button, and a home button, and for displaying a plurality of identifiers in a portion of a graphical user interface separate from a window in which content associated with uniform resource locators (URLs) is displayed; and

   computer code for allowing a user to select, during use of the network browser, one of the identifiers in the portion of the graphical user interface separate from the window in which the content associated with the URLs is display, for correlating, after the selection, at least one of the URLs with the selected identifier in a manner that is based on the selected identifier which is distinct with respect to the at least one URL;

   wherein the user is allowed to manually enter the selected identifier which is distinct with respect to the at least one URL;

   wherein the identifiers and the at least one URL are stored on a user device with the network browser executable thereon; and

   the server being in communication with the user device via a network, the server for storing the identifiers;
wherein the identifiers and information associated with the identifiers are stored at both the user device and the server.

'625 patent at 5:27-54 (emphasis added).

THE PARTIES' ARGUMENTS

Google proposes that the term "identifier" be construed as "database entry which identifies a specific piece of intellectual property." It argues that this construction is consistent with the narrow interpretation of this term contained in the specifications of the '625 patent and with its parent application, the '941 application. Aloft counters that no construction is necessary because the plain meaning of the term "identifier" is easily understood. It argues that Google's proposed construction impermissibly reads a feature of the preferred embodiment into the claims as a limitation.

APPLICABLE LAW

I. General Claim Construction Principles

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.' Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). In claim construction, courts examine the patent's intrinsic evidence to define the patented invention's scope. See id.; C.R. Bard, Inc. v. U.S. Surgical Corp., 588 F.3d 858, 861 (Fed. Cir. 2004); Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. See Phillips, 415 F.3d at 1314; C.R. Bard, Inc., 388 F.3d at 861.

Claim construction analysis begins with the words of the claims themselves. Phillips, 415 F.3d at 1314. A term's context in the asserted claim can be very instructive. Id. Other asserted or unasserted claims can also aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. Id. Differences among the claim terms can also assist in understanding a term's meaning. Id. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. Id. at 1314-15.

Claims "must be read in view of the specification, of which they are a part." Id. (quoting Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" Id. (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)); Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. Home Diagnostics, Inc., v. Lifescan, Inc., 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent.").

Although extrinsic evidence can be useful, it is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" Phillips, 415 F.3d at 1317 (quoting C.R. Bard, Inc., 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. Id. at 1318. Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." Id.

II. Interpreting Terms in Light of the Specification

The dispute in this case involves the proper interpretation of a claim term with a broad meaning in ordinary use, but an arguably narrow meaning in the specification. In general, courts must impose a "heavy presumption" in favor of the ordinary meaning of claim terms, which can only be overcome by statements of "clear disclaimer" expressly indicating "manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004); Brookhill-Wilk 1, LLC v. Intuitive Surgical Inc., 334 F.3d 1294, 1301 (Fed. Cir. 2003); see also Phillips, 415 F.3d at 1312-13. However, this "heavy presumption" does not arise when the patentee acts as his own lexicographer and gives a claim term a different meaning than the term would otherwise possess. See Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1301(Fed. Cir. 2004); see also Nystrom v. TREX Co., 424 F.3d 1136, 1145 (Fed. Cir. 2005). In these situations, the inventor's lexicography governs. Phillips, 415 F.3d at 1316. A patentee can define a claim term either expressly, see Irdeto
Access, 383 F.3d at 1301, or implicitly, by consistently using a term in a particular way, see Nystrom, 424 F.3d at 1145. See also Bell Atl. Network Servs., Inc. v. Covad Commc’n Group, 262 F.3d 1258, 1271 (Fed. Cir. 2001) ("when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term 'by implication'"); ICU Med., Inc. v. Alaris Med. Sys., Inc., No. 2008-1077, 558 F.3d 1368, 2009 U.S. App. LEXIS 5271, 2009 WL 635630 at *3-4 (Fed. Cir. Mar. 13, 2009) (construing a term narrowly because every disclosed embodiment was consistent with the narrow construction, and the specification never suggested a broader interpretation). Although, consistent usage may define a term, particular embodiments and examples appearing in the specification should not be read into the claims. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998); see also Phillips, 415 F.3d at 1323.

In Nystrom v. TREX Co., the parties disputed whether the term "board" is limited to only planks cut from a log, or whether the term could encompass planks made from any material. 424 F.3d at 1142. Because both parties agreed that the ordinary meaning of the term "board" is "a piece of sawed lumber," the Federal Circuit presumed that the narrower construction was appropriate. Id. at 1145-46. The Federal Circuit noted that the patentee consistently used the term board to refer to wood cut from a log, and that the specification framed the invention in the context of wooden decking materials. Id. at 1143. In addition, the prosecution history consistently used the term "board" to refer to wooden decking materials. Id. at 1144. Thus, the Court concluded that the presumption in favor of the ordinary meaning of the term "board" had not been rebutted. Id. at 1145-46. In fact, even if the ordinary meaning of "board" included non-wooden planks, the patentee had effectively defined "board" as "wooden plank." Id.

In Irdeto Access, Inc. v. Echostar Satellite Corp., the parties disputed whether the term "group" includes a group of all subscribers or whether it only includes subsets of all subscribers. 383 F.3d at 1300. The Federal Circuit found that the term "group" had no accepted meaning in the art, and thus neither party was entitled to a heavy presumption in favor of some ordinary meaning. Id. The Court began its analysis of the term "group" by analyzing the specification. Although it contained permissive language explaining that the claims should not be limited to the examples in the specification, the patent consistently used the term "group" to refer to subsets. Id. at 1301. Furthermore, during prosecution, the patentee disavowed any other meaning of the term "group" and "unequivocally directed the patent examiner, as well as the public, to the specification as the complete source of meaning for the disputed terms." Id. at 1303. Thus, the Federal Circuit found that the patentee had assigned the narrower meaning to the term. Id.

In Liebel-Flarsheim v. Medrad, Inc., the parties disputed whether the term "opening" referred to an aperture, or more narrowly, to an aperture in front of a pressure jacket. 358 F.3d at 905. Although the ordinary meaning of the term "opening" is simply an aperture, every embodiment of the invention described in the specification contained an opening in front of a pressure jacket. Id. Nonetheless, the Court cited statements in the specification which were inconsistent with the proposed narrow construction of "opening." In addition, the Court found this narrow construction inconsistent with the prosecution history because the patentee amended the claims of the patent to intentionally broaden the claims to cover products without pressure jackets. Id. at 909. The Court also found the broader construction inconsistent with the principle of claim differentiation. Id. at 910. Thus, the Federal Circuit interpreted the term broadly after determining that the patentee did not explicitly disclaim this broad scope, nor implicitly define the term narrowly through consistent use. Id. at 912; see also Acumed LLC v. Stryker Corp., 483 F.3d 800, 807 (Fed. Cir. 2007) (reaching a similar conclusion and emphasizing that the importance of not reading features of the preferred embodiment into claims as limitations).

DISCUSSION

The parties agree that the plain and ordinary meaning of the term "identifier" is something that identifies. The parties also agree that the patentee did not explicitly define the term "identifier" in the patent. Thus, unless the patentee has implicitly defined this term by using it in a consistent manner, the Court must presume that the plain and ordinary meaning governs. Liebel-Flarsheim Co., 358 F.3d at 913; Irdeto Access, Inc., 383 F.3d at 1301.

Google argues that the patentee has defined the term "identifier" because every embodiment described in the patent deals with intellectual property management. Nonetheless, while the specification only describes embodiments involving intellectual property identifiers, it contains several disclaimers explaining that these embodiments are merely exemplary and that the scope of the claims should not be limited by these examples. See '625 patent at 1:46-50, 1:51-52, 2:39-41, 4:57-60. In addition, the Abstract, Field and Background of the Invention, and Disclosure of the Invention sections of the '625 patent are not limited to intellectual property management. These sections broadly claim that the invention "relates to networking,
and more particularly to data networking interfaces." '625 patent at 1:14-15.

The claims themselves also support Aloft's broad interpretation of the term "identifier." Of the 23 claims listed in the '625 patent, only dependent claim 19 mentions intellectual property: "[a] system as recited in claim 2, wherein the information includes at least one of one or more of the URLs, the content, and information on intellectual property." '625 patent at 4:62-8:26. Because the only difference between claim 19 and claim 2 is that claim 19 is limited to the intellectual property context, the Court presumes that the term "identifier" is not inherently limited to the intellectual property context. Phillips, 415 F.3d at 1314.

Finally, the prosecution history supports Aloft's position. In an Office Action dated April 19, 2007, the Examiner relied on a version of Microsoft Internet Explorer as a basis for rejecting the pending claims. See April 19, 2007 Office Action, p. 2. In doing so, the Examiner argued that Internet Explorer's History function used "identifiers" equivalent to those described in the '625 patent. Because none of the examples of identifiers listed by the examiner identified specific pieces of intellectual property, it is clear that the examiner did not share Google's interpretation of the term "identifier."

1 Google argues that because Aloft claims priority back to the filing date of the '941 application, the Court's construction of the term "identifier" must be consistent with the invention actually disclosed in the '941 application. However, this argument relates to the appropriate priority date for the '625 patent. The most appropriate course of action is for the Court to construe the '625 patent as it issued. See Princeton Biochemicals, Inc. v. Beckman Instruments, Inc., No. 98-1525, 1999 U.S. App. LEXIS 19743, 1999 WL 641233 at *5 (Fed. Cir. Aug. 19, 1999) ("the subsequent filing of the CIP application ... counsels against applying the usual rule that the entire prosecution history, including parent and grandparent applications, be analyzed in interpreting a claim"); see, e.g., PowerOasis, Inc. v. T-Mobile USA, Inc., 522 F.3d 1299, 1306-09 (Fed. Cir. 2008) (affirming the District Court's decision to focus on the issued patent for claim construction purposes, and to then compare its construction to the disclosure of the original application for summary judgment purposes). If Google feels that the Court's construction is inconsistent with the '941 application, it may file an appropriate Motion challenging the claimed priority date of the '625 patent.

This case is distinguishable from the cases cited by Google.

Unlike Nystrom, the parties have not agreed that the plain and ordinary meaning of the term at issue is narrow. See 424 F.3d at 1145-46. Unlike Irdeto Access, the '625 patent does not direct the public to the specification as the "complete source of meaning" for the term "identifier." See 383 F.3d at 1300. In addition, whereas the intrinsic evidence in Nystrom supported a narrow construction because the specification narrowly framed the context of the invention, the intrinsic evidence of the '625 patent supports a broad construction of the term at issue. See 424 F.3d at 1143. For example, the '625 patent does not explicitly limit the claimed invention to the intellectual property context or claim that all of the benefits of the '625 patent are realized with regard to intellectual property management. See id. This case is also distinguishable from ICU Medical, Inc. v. Alaris Medical Systems, Inc., because in this case both the patent specification and prosecution history suggest a broad interpretation of the term at issue. See 2009 U.S. App. LEXIS 5271, 2009 WL 635630 at *3-4.

This case is similar to Liebel-Flarsheim: the patentee has not explicitly disclaimed the plain and ordinary meaning of the term identifier nor implicitly defined the term through consistent usage. The Court finds that Google's proposed construction impermissibly reads a feature of the preferred embodiment into the claims as a limitation. See Acumed LLC, 483 F.3d at 807. The Court further finds that because the plain and ordinary meaning of the term "identifier" is easily understood, no construction of this term is necessary.

2 Google argues that, under O2 Micro International Ltd. v. Beyond Innovation Technology Co., the Court must construe a term when the parties dispute the scope and meaning of claim language. See 521 F.3d 1351, 1362 (Fed. Cir. 2008). This Court has routinely rejected that argument. See Fenner Inv. Ltd. v. Microsoft Corp., No. 6:07-cv-8, 2008 U.S. Dist. LEXIS 65686, 2008 WL 3981838 at *3 (E.D. Tex. Aug. 22, 2008); Alcatel USA Sourcing, Inc. v. Microsoft Corp., No. 6:06-cv-499,

By rejecting Google's interpretation of the term "identifier," the Court, has resolved the parties' dispute and foreclosed any need for further construction. See O2 Micro International Ltd., 521 F.3d at 1362. The parties may not interpret the term in a manner that is inconsistent with this opinion. If Google later discovers that Aloft is presenting an inconsistent interpretation of the claims at issue, Google may object at that time. Until then, the Court sees no reason to construe a term that has a clear, easily understandable meaning.

B. "Identifier(s)"

The parties ask the Court to construe the term "identifier" or "identifiers" found in the '429 Patent, claims 1, 2, 6, 8, 23, 24, and 30, and in the '084 Patent, claim 1. In Vonage, the Court rejected Vonage's construction that would have limited the term to mean a VPI/VCI combination; the Court instead adopted Sprint's proposed construction, and construed the term "identifier" to mean data for routing information in a packet network. See 500 F. Supp. 2d at 1312-14. Sprint urges the same construction here. Big River argues that the term should be construed to mean data for routing user information in a packet network over a pre-provisioned virtual connection. Thus, Big River seeks to add language limiting the scope of the claimed invention to the use of pre-provisioned virtual connections (PPVCs). The Court rejects Big River's proposed limitation.

The Court first concludes that the language of the claims themselves does not support Big River's construction. Big River argues that because ATM technology uses virtual connections, the claims' references to the "interworking unit" necessarily refer also to virtual connections under the Court's construction of that term. The claims do not contain any language, however, indicating that those virtual connections must be pre-provisioned.

Once again, Big River relies primarily on the specification to support its proposed limitation. Big River does not point to any specific language in the specification defining or describing "identifier" with reference to PPVCs. Instead, Big River argues generally that the specification describes the claimed invention as requiring PPVCs. Specifically, Big River cites portions of the specification relating to the use of an ATM cross-connect system, and it notes that, according to the background of the specification, "connections through cross-connect systems must be pre-provisioned." ('301 Family at 1:28-29.) The specification makes clear, however, that the ATM cross-connect system represents only an exemplary embodiment of the invention. For instance, the background also states that "[s]ome ATM systems have used ATM cross-connects to provide virtual connections." ('301 Family at 1:22-23 (emphasis added).) The summary states that the system "could also include an ATM cross-connect system." ('301 Family at 2: 42-43 (emphasis added).) In reference to one drawing, the specification states: "FIG. 4 depicts virtual connections provided by the ATM cross connect system in a version of the invention, although numerous other techniques for providing virtual connections will be appreciated by one skilled in the art, and the invention contemplates any such system." ('301 Family at 8:61-65 (emphasis added).) Figure 1 is also described as showing a cross-connect system with PPVCs, but that figure also depicts only "a version of the present invention." ('301 Family at 3:36 (emphasis added).)

Thus, Big River has failed to identify any language in the specification that describes the invention generally, and not merely some embodiments, as requiring PPVCs. Nor has Big River adequately explained why the invention would require PPVCs even for versions not employing an ATM cross-connect system. Big River points to the invention's purpose, as stated in the specification, of allowing call-by-call switching without utilizing the switches' signaling and processing capabilities. (E.g., '301 Family at 2:64-67.) Big River has not shown, however, that fulfilling that purpose requires the use of PPVCs as the invention is described in the specification. The Court concludes that Big River has not shown that the
specification repeatedly or consistently describes the invention as a whole (and not merely in embodiments) as requiring the use of PPVCs, and that Big River has therefore failed to add a limitation to the otherwise-broad claim language under the Microsoft standard.

The Court also rejects Big River's argument based on the patent's prosecution history. In the cited excerpt, the applicant distinguished the prior reference as involving an ATM multiplexer that does not use signaling that identifies a selected virtual connection. That citation may support the idea that the present invention uses virtual connections; it does not support the limitation that those connections must be pre-provisioned, however.

Finally, Big River cites to deposition testimony by Sprint's expert in which the expert testified that "[t]his particular patent and in particular the written description describes preprovisioned connections," and that in "this patent family we're dealing with preprovisioned circuits" such as VCI/VPI pairs. It is clear from the specification, however, as noted above, that such a system represents only an exemplary embodiment of the claimed invention. Thus, the Court concludes that these isolated snippets from the expert's testimony is not sufficient to overcome the relevant evidence on this issue in the intrinsic record.

In its brief, Big River has attempted to divide its proposed addition to the definition of "identifier" into two separate concepts: the use of virtual connections and the requirement that those connections be pre-provisioned. The Court has rejected the insertion of the latter concept into this term. With respect to the former concept, Sprint does not dispute that virtual connections are used, a point confirmed by the summary of the specification. Big River has not explained, however, why the use of virtual connections in general should be included in this construction of "identifier". The use of virtual connections as a feature of ATM technology can be easily explained to the jury at trial. Therefore, the Court declines to incorporate that feature into the construction of this term.

For these reasons, the Court construes the term "identifier" to mean data for routing information in a packet network.

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i. "Identifier"

Beginning with the claim language itself, the claims do not indicate that the term "identifier" is limited to a VPI/VCI combination. In fact, Sprint correctly points out that the language of the claims identifies two key facts regarding the claimed "identifier": (1) it is part of a communication signal that includes user information in a packet format; and (2) it is used for routing the user information. Based on this information, Sprint urges the court to construe the claimed "identifier" to mean data for routing user information in a packet network.

Other claims of the patent are useful for understanding the ordinary meaning of claim terms. Phillips, 415 F.3d at 1314. Sprint points out that dependent claims 5, 14, 23, and 32 add the limitation that the identifier comprises an "asynchronous transfer mode [ATM] virtual identifier." It is undisputed that a person of ordinary skill in the art would understand this claim term to mean an ATM VPI/VCI pair. Thus, construing the claim term "identifier" in independent claims 1, 10, 19, and 28 to mean an ATM VPI/VCI pair would render dependent claims 5, 14, 23, and 32 duplicative of the independent claims on which they depend. This invokes the doctrine of claim differentiation. This doctrine is grounded in the notion that "[d]ifferences among claims can . . . be a useful guide in understanding the meaning of particular claim terms." Phillips, 415 F.3d at 1314. "[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Id.; see also Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006) (doctrine of claim differentiation refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim). This is because "reading an additional limitation from a dependent claim into an independent claim would not only make that additional limitation superfluous, it might render the dependent claim invalid." Curtiss-Wright Flow Control Corp., 438 F.3d at 1380. Here, the '294 Patent contains dependent claims which add the particular limitation urged by Vonage.

Consequently, a presumption arises that the "identifier" disclosed in claims 1, 10, 19, and 28 is not limited to an "asynchronous transfer mode virtual identifier," or an ATM VPI/VCI pair.

Vonage's argument that the court should construe the claim term "identifier" to mean an ATM VPI/VCI pair is based on
language contained in the specification. In addition to the overarching language concerning ATM technology discussed previously, Vonage points to language in the written description which discloses that VPI/VCI combinations are designated for the virtual connection. See ’294 Patent, col. 7, ll. 15-21; col. 9, ll. 12-29. In fact, the specification's references to VPI/VCI combinations are merely examples set forth as embodiments of the invention. The first reference to a VPI/VCI combination is contained in a portion of the written description describing Figure 2. It begins, "FIG. 2 depicts another embodiment of the invention." ’294 Patent, col. 5, at 41. In discussing the signaling received by the call/connection manager (CCM), the written description states as follows:

CCM 250 can select a virtual connection to the destination. The selection process can be accomplished through table look-ups. For example, a table could be used to translate a portion of the dialed number into a VPI. The VCI would be selected based on the available VCIs in the selected VPI. The VPI/VCI combination would correspond . . .

Id. col. 7, ll. 15-21 (emphasis added). The second discussion of VPI/VCI combinations is contained in a portion of the written description describing Figure 4, which is entitled the "ATM Cross-connect System." That portion of the written description states as follows:

FIG. 4 depicts virtual connections provided by the ATM cross connect system in a version of the invention, although numerous other techniques for providing virtual connections will be appreciated by one skilled in the art, and the invention contemplates any such system.

Id. col. 8, ll. 61-65 (emphasis added). The specification repeatedly states that drawings and the detailed descriptions of those drawings depict versions of the present invention. In fact, just prior to the claims themselves, the specification concludes as follows:

Those skilled in the art will appreciate that variations from the specific embodiments disclosed above are contemplated by the invention. The invention should not be restricted to the above embodiments, but should be measured by the following claims.

Id. col. 23, ll. 14-18.

With respect to the claim term "identifier," the court concludes that a person of skill in the art would understand the specification's reference to VPI/VCI combinations to be exemplary in nature, rather than defining the outer limits of the claim term. First, of course, the doctrine of claim differentiation gives rise to a presumption that the term is not limited to a VPI/VCI combination. Second, the references to VPI/VCI combinations in the written description fall far short of reflecting an intentional disclaimer, or disavowal, of the full scope of the claim. Instead, the written description's references to VPI/VCI combinations contain qualifiers such as the fact that Figures 2 and 4, and the related detailed descriptions, are only versions of the invention; the "[f]or example" language; the statement that numerous other techniques for providing virtual connections will be appreciated by one skilled in the art, and the invention contemplates any such system; and, finally, the statement that the invention should not be restricted to those embodiments, but instead should be measured by the claims, as the invention contemplates variations that would be recognized by one skilled in the art. Given the clarity of the language of the claim terms themselves, then, the court will not import this limitation from the specification into the claims. Instead, the court believes that a fair and accurate claim construction, which is based on the claim language itself, is the construction proposed by Sprint. As such, the court construes the claim term "identifier" to mean data for routing information in a packet network.

5. Identifier

The court adopts Judge Brewster's construction of "identifier" in the Gateway action. Accordingly, the court construes "identifier" to mean "a unique label that serves to distinctly identify each one of a plurality of input object types and, if any, each one of a plurality of group identifier types."
"Session Identifier" and "Authorization Identifier"

A "session identifier" is "a text string that identifies a session." Similarly, an "authorization identifier" is "a text string used in granting (access) rights." At the time of the '780 patent's application and issue, an identifier was understood to be "any text string used as a label." See Microsoft Press Computer Dictionary, at 205 (2d ed. 1994); Microsoft Press Computer Dictionary, at 243 (3d ed. 1997).

For both "session identifier" and "authorization identifier," Amazon proposes the construction, "a value with multiple fields whose cryptographic authentication indicates to an access-controlling server that the client identified in the session identifier is authorized to access the requested file." These constructions are too narrow and improperly import many of the limitations from the specifications and preferred embodiments into the claim language. Further, Amazon's proposed constructions do not distinguish a session identifier from an authorization identifier.

A. "peak value" and "lowest value"

In the Claim Construction Order, the Court construed sub-limitations (a)-(c) of claims 1 and 18 according to the construction proposed by the patent holder Elantech. See Claim Construction Order at 13-15. In relevant part, the Court construed "identify a...maxima" to mean "identify a...peak value" and "identify a minima" to mean "identify the lowest value." See id. Elantech argues that the construed sub-limitations (a)-(c) are met by identification of the traces with the peak (maximum) and lowest (minimum) values. Synaptics counters that the construed claims require identification of "specific" or "particular" measured capacitance values. Accordingly, methodology that does not somehow identify "particular measured values" cannot infringe.

At oral argument on October 5, 2007, Synaptics supported its reading of the terms by noting that the example method described in the '352 patent specification explicitly records the maxima and minimum measure capacitance values in a number of variables. See '352 patent at p. 22, col. 8 1. 52 - p. 23, col. 9 1. 14. However, standing alone, an embodiment disclosed in the specification does not limit the claims. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004). Even when the specification describes only a single embodiment, the claims of the patent are not to be construed as restricted to that embodiment unless the patentee demonstrates a clear intention to limit the claim scope using "words or expressions of manifest exclusion or restriction." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). Absent clear statements of scope, courts must follow the language of the claims and not that of the written description provided by the specification. Id. at 1328.

The '352 patent specification states that the example embodiment is not meant to limit the invention. See '352 patent, p. 26, col. 16 ll. 6-12. Therefore, the example itself does not support Synaptics' view that the claim scope is limited to only cover methods that explicitly identify particular measured values corresponding to maxima and minima. See Teleflex, 299 F.3d at 1327.

In addition, Synaptics' reading of the construed claims would inappropriately limit their scope. The plain language of the claims reads on identifying maxima and minima. The claims neither mention nor require any sort of operation to be performed on capacitance values. Taken literally, Synaptics reading of the claims would allow a party to escape literal infringement by transforming the measured capacitance values (e.g. trivially multiplying the finger profile values by two) before identifying minima and maxima, because the identification steps would not use the literally measured capacitance values. There is no support for such a limited reading of the claims in the patent specification or intrinsic evidence.

The construed claims require identification of peak and lowest values, corresponding to maxima and minima, respectively. This step is satisfied by methodology that scans the finger profile to identify traces that contain the peak and lowest values.
Acknowledging the circularity of the dictionary definition of this term, namely, "establishing the identity of," the plaintiff proposes that this term be defined as "establishing the presence of." The defendant proposes that the term means "action by a human to inspect and label." Each party asserts that its definition is the ordinary meaning of the term.

Relying on the dictionary definition, as the meaning that would be attributed to the term by the skilled artisan, and providing additional clarity, I construe the term "identifying" to mean: "determining or establishing the presence or identity of."

3. "maps," "providing a map," "identifying anomalies"

KLA argues that "maps" include stored sensor or output signals, "providing a map" has an ordinary meaning-to provide a map, and "identifying anomalies" means an identification of anomalies by type. D.I. 338 at 19-22; D.I. 416 at 31-34. On the other hand, ADE argues that "map" means a visual display, "providing a map" means first forming a map for the entire wafer and then processing the stored detector output in a distinct step, and "identifying anomalies" means identification of the presence or absence of anomalies. D.I. 316 at 14-17; D.I. at 2-13.

Claim 36 of the '325 patent differs from claim 43 of the '325 patent in that claim 36 is directed to an "optical system" but claim 43 is directed to an "optical method." Both claims use the language, "maps," "providing a map," and identifying anomalies." This language, as it appears in claim 36, is reproduced below for purposes of representation:

a processor providing a plurality of maps by providing a map from said stored sensor output signals from each of the two or more sensors during the scan and comparing at least two of the maps for identifying anomalies

'325 at 18:41-47.

It is evident from reading the above quoted language that "maps" are provided from "stored sensor output signals" and compared to identify anomalies. This claim language is straightforward and supported by the written description. The inventors' description provides that "the processor 500 compares the data stored in memory at addresses represented by the map shown in FIG. 7A with the data stored in memory represented by the map shown in FIG. 7B." '325 at 7:67-8:3 This data, as represented by the maps shown in Figures 7A and 7B, reproduced below, is compared using logical OR and AND operators to construct the composited maps represented by Figures 7C, 7D, and 7E. '325 at 8:3-23. Clearly, the visual display or "maps" referred to in the '325 patent include the underlying stored data because "the processor 500 compares the data stored in memory…." Id. The visual display is merely a "representation" of the data. Id.

[SEE FIGURES 7A, 7B, 7C, 7D, 7E IN ORIGINAL]

Consistent with the inventors' written description and the plain meaning in the art of the words used in the claims, this court construes the word "maps" to include the underlying stored data that is displayed visually as in Figures 7A-7E of the '325 patent. Furthermore, "providing a map" is construed to mean that different "maps" may be generated by the processor. The phrase "identifying anomalies" as used in claims 36 and 43 is construed to mean identification of the presence or absence of anomalies on the surface of silicon wafers. '325 at 14:58-15:5. Had the inventors intended a different meaning for "identifying anomalies," such as "classifying anomalies," they could have drawn such a distinction in their claims as was done in the written description where it reads that:

The processor 500 constructs maps from the signals produced by the inspection channels. … The processor compares the maps from the inspection channels either in the analog domain or digitally, by performing logical operations on the data, e.g., AND, OR and XOR, in the manner described above, to detect anomalies. The processor forms composite maps, each
representing the detected anomalies by a single group of symmetrically disposed collector channels. The composite maps are then compared so that the processor may classify the anomalies as either a pattern defect or particulate contamination.

Id.

Having failed to use the term "classify" in the claims this court will not misconstrue the word "identify[]" as used in the claims to impart a meaning inapposite to that commonly understood in plain English and in the art to which the invention is directed. This court holds, therefore, that the phrase "identifying anomalies" means just that-to identify the presence or absence, as the case may be, of anomalies on the surface of a silicon wafer or similar article.

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3. identifying from among them a benchmark from which may be determined the beginning of each of such contributory frames and, thereby, the boundaries of such frames

In disputing the meaning of this phrase, Bellcore contends that the term "benchmark" means marker and the term "boundaries" means the beginnings or ends of certain portions of a frame. Bellcore contends that the transition from F1 to F2 framing bytes serves as the "benchmark." (D.I. 252 at 15).

FORE contends that this limitation means that (1) a benchmark must be determined for each instance of higher-level frames, (2) from the benchmark the first byte of each distinct and complete higher-level frame must be determined, and (3) from that first byte, the boundary of each distinct and complete higher-level contributory frame must be determined. (D.I. 253 at 3–4). FORE does not appear to disagree with Bellcore's definition of "benchmark." Additionally, FORE agrees that the term "boundaries" means the beginning or end of a frame, but disagrees to the extent that Bellcore construes this term to mean "certain other portions" of a frame, which FORE contends is vague.

It appears to the Court that the parties central disagreement concerning the meaning of this phrase is whether the frame boundaries "must" be determined as FORE contends or "may" be determined as Bellcore contends. Reading the claim language as a whole in light of the specification, the Court agrees with FORE that this element requires the beginning of each frame, and therefore the frame boundaries, to be determined from the benchmark. As the specification states, "It is essential to the proper recovery of the original SONET frames that the byte assembly be correctly synchronized and the boundaries of each frame be identified in the bit stream transmission in order that the reconstructed bytes will duplicate each of the bytes which were interleaved to produce that serial transmission signal." ( ’768 Patent, col. 1, lines 47–53 (emphasis added)). In the Court's view, accepting Bellcore's contention renders the requirement of identifying the benchmark a useless exercise. The very purpose of identifying the benchmark is to determine the "beginning byte" and the "boundary" of each contributory frame, and therefore, the Court cannot accept a construction of the phrase "may be" which would make this function optional. Accordingly, the Court concludes that this phrase requires that (1) a benchmark must be determined for each instance of higher-level frames, (2) from the benchmark the first byte of each distinct and complete higher-level frame must be determined, and (3) from that first byte, the boundary of each distinct and complete higher-level contributory frame must be determined.

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C. "Number-of-recording planes identifying information"

Plaintiff's construction: any information capable of indicating the number of recording layers

Defendants' construction: information intended for use in identifying the number of recording planes on the recording medium

The parties have two disputes with respect to this term. First, they dispute whether "number-of-recording planes identifying information" is limited to information whose purpose is to identify recording planes. Defendants argue that this limitation is
supported by the purpose of the patent, the language of the specification and the prosecution history.

Plaintiff disagrees, contending that the claim is broad enough to encompass any information that is capable of indicating the number of recording planes. The parties' second dispute is whether the "recording planes" should be defined as "recording layers," as plaintiff suggests. I already have rejected plaintiff's attempt to construe "recording planes" as "recording layers" and will not address this issue again.

With respect to the first dispute, I will adopt defendants' construction because it is supported by the patent specification and prosecution history. Claim 1 does not provide a clear meaning for "number-of-recording planes identifying information." However, in the specification, the inventors discuss shortcomings of the prior art, noting that "conventional management information does not include information that distinguishes [various] disc types," including "specific discs, single-sided discs, and double-sided discs." Id. at 1:24-27. During prosecution, the patentee's attorney explained that such information is useful because it allows a recording or reproducing device to determine whether it can "record or reproduce from another plane of the medium once it has finished with the current plane." Marshall Decl., Ex. C, dkt. 73, at 5. In explaining why he allowed an amendment to the '966 patent, the patent examiner explained that the number-of-planes identifying information identifies the "number of recording planes on the disk:"

none of the cited prior art shows or teaches an optical recording and reproducing apparatus comprising a disk having at least one recording plane wherein each recording plane includes a data recording region and a management region including the number of recording planes identifying the number of recording planes on the disk . . . .


Thus, according to the patent specification, a purpose of the '966 patent is to provide information in the management region of a recording medium that "determines the types of a recording medium," "the number of recording sides" and the "recording surface" of the medium. '966 patent, 2:8-13. To fulfill this purpose, claim 1 of the '966 patent requires two pieces of information in the management region of the disc: (1) number-of-planes identifying information, and (2) recording-plane-identifying information that uniquely identifies that recording plane. The number-of-planes identifying information is used to identify the total number of recording planes on the recording medium. This is illustrated in Figure 2 of the specification, which states that "The number-of-disc-sides identifier 2 represents whether the disc is a double-sided disc or a single-sided disc." Id., 6:20-30.

Therefore, in light of the purpose of the patent, defendants' construction makes sense. The inventors did not include information in the management region that may identify the number of recording planes; rather, they included information with the specific purpose of identifying the number of recording planes. Thus, I will adopt defendants' construction, with a slight modification, substituting "intended" with "purpose."

- Court's construction: information whose purpose is to identify the number of recording planes on the recording medium

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20. "[T]he selection identifying information from a second set of fields:" 20 "The selection identifying the contents of one or more other components of a record not in the first set of such components." This construction flows from the plain and ordinary meaning of the limitations, and is illuminated by the construction of "field" supra.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

20 '111 patent, claim 1 (and dependent claims).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

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D. "Recording-plane identifying information that uniquely identifies that recording plane"

Plaintiff's construction: any information capable of identifying the recording layer

Defendants' construction: information intended for use in identifying the recording plane being reproduced

Similar to the previous dispute, the parties dispute whether "recording-plane identifying information that uniquely identifies that recording plane" is limited to information that the inventors intended for use in identifying the recording plane being used, or whether it includes any information capable of identifying the recording plane. Again, I am persuaded that defendants' proposed construction is more accurate in the context of the '966 patent.

"Recording-plane identifying information that uniquely identifies that recording plane" is illustrated in Figure 2 in the patent specification. Figure 2 uses an optical disc as an example and refers to the "recording-plane identifying information" as the "disc side identifier." The "disc side identifier 3 represents whether side A or side B of a double-sided disc is being reproduced." During the prosecution of the '966 patent, the patentee's attorneys explained that the purpose of the "recording-plane identifying information" was to identify uniquely to the player which side of the disc (or recording plane) was being reproduced:

Specifically, the specification clearly states that the medium according to the present invention has number of disc sides identifying information and recording side identifying information that represents the recording side. (See, e.g., Specification at 3, 4-5, 12-13, 15; Original Claims 2, 16; Original Abstract; and FIG. 2.) As illustrated in FIG. 2 and described in the Specification at 12-13, a number-of-disc-sides identifier 2 and a disc side identifier 3 are recorded in the application system region of a PVD table of the disk. It is clear that this information must be provided on each side of the disc. - i.e., each recording plane - in order for the disc side identifier 3 to serve its purpose of identifying which side is being recorded/reproduced. For example, the disc side identifier 3 for side A is set to 00H so that, when a reproducing device reads that disc side identifier 3, it can identify the side that it is reproducing as side A. Similarly, the disc side identifier 3 for side B is set to 01H so that, when a reproducing device reads that disc side identifier 3, it can identify the side that it is reproducing as side B.

Plaintiff points to no evidence suggesting that the "recording-plane identifying information" is anything other than the information whose purpose is to identify which recording plane is in use, as discussed in the specification and during the patent prosecution. On the other hand, defendants' construction is true to the claim language, which provides explicitly that the "recording-plane identifying information . . . uniquely identifies" the recording plane. Further, I agree with defendants that their construction will assist the finder of fact because it clarifies that this information is designed for the player to determine which recording plane it is reproducing. In other words, using the example in the patent, this information is used by the player to determine if the laser beam is directed at side A or side B or a double-sided disc.

Court's construction: information whose purpose is to identify the recording plane being reproduced

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g. Identifying which phenomena in the manufacturing plant are stochastic in nature

The parties agree on the meanings of the words "phenomena" and "stochastic" in the limitation "identifying which phenomena in the manufacturing plant are stochastic in nature." The central dispute appears to concern whether the limitation contains multiple steps. ITI maintains that the proper interpretation is noting observable facts or events that are random. Defendants' proffered construction includes two steps: as to those events or things that are selected to be observed in the manufacturing plant, determining which of them occur randomly. Though the Court is cognizant that the term
"which" indicates that certain phenomena will be identified from a group of phenomena, we do not believe that the claim language supports defendants' reading. Moreover, the specification does not support defendants' contention that this limitation involves two distinct steps. At the same time, ITI's definition overlooks some claim language. The proper construction is: determining which events or things in the manufacturing process occur randomly.

H. "Identity Data" as it relates to the Subscriber Client Computer and "Part Of Said Identity Data"

The parties disagree about what the term "identity data" identifies as it relates to the Subscriber Client Computer, as well as the meaning of the word "part." Thus, the Court must construe each term.

Defendants contend that the "identity data" at issue must uniquely identify the subscriber client computer, not the subscriber, because the claim language refers to identity data "of" the subscriber client computer. After considering the claim language and the specification, the Court again concludes that Defendants' are restrictively reading the word "of." The term is not limited, as Defendants have argued, to the identity data that uniquely identifies the subscriber client computer. When discussed in the '416 Patent, the identity data of the subscriber client computer is that identity data which is transmitted by the subscriber client computer and used by the invention to verify the identity of the subscriber. (See generally '416 Patent). Accordingly, the Court construes "Identity Data" as it relates to the Subscriber Client Computer to mean "data sufficient for the patented system to determine whether a person, organization, and/or computer is authentic and/or is entitled to assess said selected computer resources.

The Court will next consider whether "part of said identity data" should be construed to encompass the entirety of the identity data or whether it must refer only to a subset of the identity data. Plaintiff contends that nothing in the '416 patent or prosecution history precludes the invention from using only the hardware key's predetermined digital identification to authenticate a user. Plaintiff contends that, when the claims refer to the predetermined digital identification as being "part" of the identity data, the claims anticipate that the predetermined digital identification could be combined with other information, or could be sufficient on its own, to authenticate a subscriber. The specification, however, reveals that Plaintiff's position is inconsistent with the '416 Patent.

The '416 Patent discloses that the "identity data" needed to authenticate a subscriber depends upon the type of authentication scheme employed. The patent discloses that there can be one factor or two factor authentication. (Id. at col. 1, ll. 60-61). When using one factor authentication, the identity data is the subscriber's username and password. Id. When using two-factor authentication, the "identity data" includes the predetermined digital identification from the hardware key. (Id. at col. 1, ll. 61-63). Thus, the patent discloses that to successfully authenticate a subscriber under a one-factor scheme, that subscriber must correctly present a username and password, while successful authentication in a two-factor scheme requires the subscriber to present a username, password and the predetermined digital identification from a hardware key. Moreover, the patent never suggests the hardware key's predetermined digital identification alone could be enough to authenticate a subscriber. Rather, the specification makes clear that the optional hardware key is only used with two-factor authentication. (Id. at col. 1, ll. 58-67). In those instances where the hardware key is used for authentication, it is always in the context of two-factor identification. (See id. at col. 2, ll. 28-32, col. 3, ll. 45-47, col. 5, ll. 15-18, 50-55, col. 7, ll. 59-65, col. 13, ll. 44-46, col. 14, ll. 48-58, and col. 21, 45-49). Accordingly, the Court declines to construe "part of said identity data" as encompassing the entirety of the identity data, and instead construes it to mean "some, but not all, of the identity data of the subscriber client computer."

B. "creating a family of concentric indexed circles"

The parties contest the construction of the term "indexed":

<table>
<thead>
<tr>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>family of concentric indexed</td>
<td>creating a family of concentric circles</td>
</tr>
</tbody>
</table>

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circles: two or more circles with the same center point uniquely identified within each family  
circles: Bringing into existence two or more complete circles whose center is the same but whose points are located at different distances from that center, with each such circle numbered consecutively according to its relative distance from the boundary of the workpiece.

The Court concludes that Defendants' proposal is too narrow because it requires that the indexing be done by consecutive numbering, to the exclusion of letters or symbols. Plaintiff's construction is too broad because it does not convey that the indexing must be based upon a circle's location. At the Markman hearing, the Court circulated a tentative construction that was almost identical to the following construction, which it now adopts:

family of concentric indexed circles -- Two or more complete circles with the same center point but whose points are located at different distances from that center, with each such circle identified according to its position.

Plaintiff did not object to this construction. Defendants objected that the construction fails to specify that the indexing must be done according to a circle's location relative to the outer boundary of the workpiece and relative to other circles in the circle family. But this objection lacks support in the patent claim, specifications, or prosecution history.

--- Footnotes ---

4 The Court's tentative construction used the word "location" rather than "position." The Court has substituted "position" to make the construction more consistent with the prosecution history.

--- End Footnotes ---

1. Prosecution history

The prosecution history reveals that the patentee understood both that the index could be something other than a number and that the index would be related to a circle's location. The prosecution history does not, however, support Defendants' contention that the indexing must be done based upon the circle's position relative to the part boundary and to other circles.

The patentee stated to the patent examiner that "An index is a number or a symbol or expression to indicate a position in an arrangement . . . . [I]ndexing is a feature of an embodiment of the invention which provides the means for uniquely identifying each circle in each family of concentric circles." Trusso Decl., Exh. P., p.22 (emphasis added).

This definition of the term "index" by the patentee clearly encompasses the requirement of denoting a position, but it does not require that the position be determined relative to the outer boundary of the workpiece or other circles in the circle family.

2. The specification

Defendants point out that the patent's Sixth Preferred Embodiment describes an invention in which circles within a family are indexed by "numbering the circles from the outside in an ascending scale." ('013 patent 20:28-30). This language is consistent with the statement in the prosecution history that the circles must be numbered based on their position. This single embodiment alone does not, however, support the conclusion that numbering must be based on a circle's position relative to the part boundary or to other circles. See Phillips, 415 F.3d at 1323 ("[W]e have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.")

Defendants try to buttress the significance of this single embodiment by invoking the purpose of the invention claimed in the '013 patent. They argue that "[t]he point of indexing is to allow the identification of identically indexed circles in adjacent families so that they can be combined to form concentric isoloops. If index numbers were randomly assigned, as Surfware's proposed construction would permit, the 'isoloops' could be non-concentric and intersecting, which would yield a
bizarre tool path when blended according to the subsequent 'generating' step." Ds' Brief at 15. Defendants illustrate this argument in Figure B to Sherbrooke's declaration, which shows that "connecting circles that are merely 'uniquely identified' rather than numbered according to their relative position would allow isoloops to cross and would not ensure that the isoloops are nested as the '013 patent teaches and shows in Figure 22." Sherbrooke Decl. P 10. This argument has some force, as it is apparent that the purpose of the invention is to generate relatively efficient tool paths. But the Court has no way of judging whether the resulting tool paths would be truly "bizarre," as Defendants claim, or whether they would be consistent with the patent's purpose. (Plaintiff's expert, Dr. Potel, suggests that even if the resulting tool path would be inferior to the preferred embodiment, "persons of skill in the art would not understand such a method to be exempted from coverage by the claims as written." Potel Decl. II P 17.) Thus, the Court is in no position to conclude that this patent's purpose is inconsistent with the construction supported by the other relevant evidence.

For these reasons, the Court adopts the construction stated above.

E. '437 Patent Claim 21 - "an ignition system having the ability to diagnose the state of health of an igniter plug"

'154 Patent Claim 1 - "a diagnostic circuit responsive to the exciter and igniter plug detectors for reporting a failure of the igniter plug only when... the sparks are not being produced at the igniter plug, the diagnostic circuit including an output for reporting the state of the health of the ignition system"

'154 Patent Claim 1 - "an igniter plug detector for detecting whether the high energy pulses produce sparks at the igniter plug"

The Court construed these claims to mean that the diagnostic system must only detect an open circuit failure at the plug and need not detect all plug failures. Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *12. Lucas now argues that the Court has construed these claims in a manner that does violence to the plain meaning of the claims. See D.I. 394 at 45-46. The Court rejects this suggestion and finds no error in its claim constructions. First, as stated in the Court's earlier opinion, Lucas's contention that the claims require detection of short circuit conditions at the plug would render both patents invalid for failure to disclose the invention adequately. See Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *11. Second, with respect to both patents, what Lucas now wants to do is add a positive, or inclusive, limitation to the claims of the patent that is not found in the specification of either patent. As the Court noted previously, both the specification and the extrinsic evidence adduced at trial are consistent with the conclusion that the claim language does not require a device within the scope of the patent to detect all failures of the plug and that, consequently, a system that detects the open failure mode, or a system that determines sparks are not being produced by looking and asking the plug whether sparks are being produced, would fall within the purview of the patent.

Image means "a two dimensional representation of a scene, that depending on the context, may refer to the image to be displayed or to the image on the display device that is to be interleaved to recreate the image to be displayed."

2. The Term "Image" Means the Actual-Printed Image Excluding Registration Marks

The Court agrees with Defendants that the term "image" in Claim 29 should be construed to mean the actual printed image (i.e., a scene or picture) excluding registration marks. (Defs.' Proposed Findings of Fact, doc. no. 89, P 147.)

Defendants highlight that the stated purpose of the '577 Patent was to perform color registration without registration markers. They cite the "Background of the Investigation" section of the specification which states the primary goal of the
patent is, "to provide a system which is able to provide color-to-color registration based only upon scanning the image being printed" [and not any] "registration mark distinct from the image being printed." ('577 Patent specification at col.1, lines 36-45.) Thus, Defendants propose that the claim term "image" can only refer to a suitable area of the actual printed image or work (i.e. scene) to be printed. They claim that the "image" cannot include registration and reference marks printed outside of the boundaries of the actual printed work, because that functionality is specifically excluded from the '577 Patent.

The Court credits the declaration and testimony of HW "Buck" Crowley, an electrical engineer in the printing industry who has patented numerous inventions and products in the printing industry. As used in the '577 Patent and in Claim 29, one of ordinary skill in the art would understand the term "image" to mean a production image; that is, the actual image, such as the hand or flower depicted in Figure 2E of the '577 Patent, but not registration marks of any kind. (Defs.' Proposed Findings of Fact, doc. no. 89, P 138-140; Decl of HW Crowley, Appx. Ex. E.)

Moreover, the '577 Patent disavows the prior art's use of registration marks:

> U.S. Pat. No. 4,877,530, 9 issued to Jeffrey W. Sainio on Dec. 19, 1989, discloses a control system for adjusting the color-to-color registration of multi-color web-fed printing press system. In general, the device utilizes a registration mark distinct from the printed image to provide color-to-color registration. An optical scanner scans registration marks each associated with one color of the printed image. The optical scanner provides information to a control system which allows the control system to determine the spatial relationship of the registration marks and control the printing units of the printing press system such that registration of printed colors is corrected as necessary.

> The system of U.S. Pat. No. 4,877,530 is reliable and has proved highly useful for maintaining color-to-color registration of multi-color prints. However, the requirement of a registration mark distinct from the image being printed requires additional paper which is discarded and adds cost to the printing process. Additionally, there are certain types of printed materials which do not provide a convenient area for applying registration marks. Accordingly, it would be advantageous to provide a system which is able to provide color-to-color registration based solely on the image being printed.

('577 Patent Specification 1:20-45.)

9 The '530 patent is a prior-art issued to Jeffrey W. Sainio that discloses a color registration system that operates with registration marks. The description of how the '530 patent operates with marks is similar to how most prior-art marked registrations systems work, including the mRC System. (Defs.' Ex. 34)

The Federal Circuit has held that if "the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). Moreover, the court has recently reiterated, "[w]here the general summary or description of the invention describes a feature of the invention . . . and criticizes other products . . . that lack that same feature, this operates as a clear disavowal of these other products. . . ." Edward Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1333 (Fed. Cir. 2009) (citing Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004) (finding disavowal of resilient wires in the "background art" section of specification)).

When read in light of the specification and Background of the Invention section, Claim 29 covers a system that excludes any signals or data representative of registration marks. In the same breath, the specification praises the '530 patent as "reliable" and "highly useful" but then complains that the requirement of distinct registration marks requires additional discarded paper and adds cost. Moreover, the specification details that there are certain mediums that do not provide a convenient area for registration marks and where, theoretically, the '530 Patent method cannot operate.

Thus, the "Background of the Invention" section of the '577 Patent is clear that there are serious disadvantages of "registration marks" and that its one embodiment describes a system that bases its operation "upon an analysis of the color densities of a portion of a printed image, rather than registration marks or the dot locations of a printed image." (15:33-36.)

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Accordingly, the disavowal stems from the prior art's problematic use of registration marks distinct from the actual printed image or within the image, and the '577 Patent proposes to solve the problem. The preferred embodiment states that the invention solves all of the problems with prior-art. The disavowal and criticism of prior-art in this case is unmistakable. Consequently, this constitutes a legal disavowal of a registration system that operates within registration marks. 10 Where, "the specification may reveal an intentional disclaim, or disavowal, of claim scope by the inventor. . . . the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." Phillips, 415 F.3d at 1316 (citing SciMed Life, 242 F.3d at 1341, 1343-44.; Timken Co. v. SKF U.S.A., Inc., 193 F. Supp. 2d 813, 818 (E.D. Pa. 2002) (Robreno, J.) (granting defendant's motion for summary judgment and relying upon specification language in holding that patent was limited by disavowal in summary of the invention section).

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10 Quad/Tech argues there is no clear disavowal of markless registration control, but rather that the comments in the specification are directed to paper savings and merely point to why the markless functionality is the preferred embodiment. Quad/Tech relies primarily on two cases where the Federal Circuit discussed disavowal and found that "disparaging comments alone do not necessarily show a manifest or express disavowal of the criticized subject matter." Epistar Corp. v. Int'l Trade Com'n, 566 F.3d 1321, 1335-36 (Fed. Cir. 2009) (citing Ventana Med. Sys., Inc. v. Biogenex Labs., Inc., 473 F.3d 1173, 1180-81 (Fed. Cir. 2006)).

In Epistar, the court agreed with the ALJ that the background section only criticized the use of iridium-tin oxide ("ITO") as a front contact. Epistar, 566 F.3d at 1335. The court agreed with the ALJ that the disputed claim involved the use of ITO as a transparent window layer which "serves a distinct function in an LED [light emitting diode]." Id. For that reason, the court found that "this case does not present an instance where the inventor distinguishes an invention over prior art in an unmistakable disavowal of those prior art features." Id. at 1336. Here, no such distinction can be made. The '577 Patent describes several significant disadvantages from using the marked system. Quad/Tech now seeks to enjoin Defendants from selling a registration control system that operates solely with registration marks and cannot operate in markless mode.

In Ventana, the issue was the proper construction of the term "dispensing" in a patent claiming automated methods for staining microscope slides. Ventana, 473 F.3d at 1176. The district court construed "dispensing" to require "direct dispensing," because the embodiments in the specification involved direct dispensing. Id. at 1178. On appeal, the defendant argued that the specification, when read in its entirety, would lead to the "inescapable conclusion" that the heart of the invention involved "direct dispensing," and that the specification implicitly defined the term "dispensing" to mean "direct dispensing." The court disagreed, finding that the Background section of the patent in suit discussed different dispensing techniques, including a device that employed a "direct dispensing" technique. The court found that the defendant's argument could not be correct, because if it was, "the inventors have also disavowed coverage of 'direct dispensing,' which is the type of dispensing employed by the patent's preferred embodiment." Here, the '577 Patent does not reject a registration system that explicitly used registration marks. Thus, Ventana is distinguishable.

In the present case, the specification notes in the Background Section the benefits of a markless system and repeats its attributes. The inventors makes it clear that the attributes of the markless system are important in distinguishing the prior art. The prior art of the marked registration is clearly disparaged and disclaimed.

In sum, the Court finds that Epistar and Ventana are distinguishable because the present case involves much more than "general statements by the inventors indicating that the invention is intended to improve upon prior art . . . "Id. The present case is one like SafeTCare where the Court in construing the claims is "rely[ing] on the specification merely to understand what the patentee has claimed and disclaimed." SafeTCare Manufacturing, Inc. v. Tele-Made, Inc., 497 F.3d 1262, 1270 (Fed. Cir. 2007). The Court finds that the specification makes it clear that what was claimed was markless registration and what was disclaimed is the marked registration.

--- End Footnotes ---

Moreover, Quad/Tech's proposed construction ("the optical counterpart derived from a source" including "registration marks") contradicts the way the term "image" is used in the '577 Patent, is broader than the '577 Patent, relies on extrinsic sources and conflicts with the '577 Patent creators own admissions. Importantly, the '577 Patent inventors have described the '577 Patent as a "markless registration control system." In a sworn declaration in U.S. Patent No. 6,792,240 (240...
Patent), which is owned by QuadTech and invented by Jeffery Sainio, John Seymour and Randall Freeman, describe the '577 Patent: "The markless registration control system . . . described in U.S. Pat. No. [] 5,412,577 . . . use[s] the printed image itself as the source of registration." ('240 Patent specification 3:33-35.) Thus, Quad/tech and the patent inventors confirmed that the scope of the '577 Patent is a "markless registration control system."

In summary, after considering the relevant language of Claim 29, the ordinary and customary meaning of "image" and the written specification of the '577 Patent, the Court construes the term "image" in Claim 29 as: the actual printed image (i.e., a scene or picture) excluding registration marks. 11

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11 As described supra, the Court need not construe any of the remaining claims in Claim 29.

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C. Whether the images must be still?

(Construction of category (3) terms: "image" and related terms)

St. Clair proposes that the term "image," as used, for example, in claim 16 of the '459 patent, does not require construction and means "image." Defendants, on the other hand, argue that "image" should be construed as "still picture." I agree with St. Clair that no construction is necessary, and certainly not a construction that would limit the claims to "still pictures."

Although the Court has not been asked in the prior cases to construe the claim term "image" (D.I. 259 at 31; Tr. at 149), in resolving other issues in the Canon Construction Judge Farnan wrote: "neither the specification nor the language of the claims imposes a still picture limitation on the patented invention and the specification expressly contemplates the camera's capability to take both still and motion pictures." 2004 U.S. Dist. LEXIS 17489, 2004 WL 1941340, at *7. I agree with Judge Farnan's reading of the claims and the specification. 11

--- Footnotes ---
11 Defendants insist that Judge Farnan's conclusion was reached pursuant to a now-obsolete legal framework, and that, post-Phillips, a court may not conclude that an embodiment is within the scope of a patent claim simply based on the absence of anything in the patent excluding that embodiment. I need not decide whether Defendants have correctly stated the law. Here, as will be explained, I find sufficient affirmative indications in the patent to conclude that the inventors included movie images within the scope of the asserted claims.

--- End Footnotes ---

It is true, as Defendants observe, that the word "'image' . . . is always used in its singular form in the asserted claims of the Patents-In-Suit." (D.I. 259 at 32) However, as St. Clair responds, the Federal Circuit "has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008). Therefore, as St. Clair concludes, "the use of the term 'image' . . . in a singular form in the claim does not limit the claims to a single still image." (D.I. 283 at 36) The claim limitation "image" also includes multiple images as well as movie images that might contain other data (e.g., difference coding).

The specification contains several references to how the patented camera might be used to take movies. The specification references two movie compression schemes:

In the preferred embodiment of the present invention, the JPEG standard is the preferred algorithm chosen with the incorporation of the MPEG [Motion Picture Experts Group] standard or other similar standard in the future when available
commercially. An alternate embodiment of the present invention would be the incorporation of various proprietary compression algorithm standards such as DVI [Digital Video Interface].

'010 patent, col. 10 lines 23-29 (emphasis added). The specification also states: "a new international standard called MPEG is due to be announced in the 1991 time frame from the JPEG and should offer compression ratios of 275:1 and greater." '010 patent, col. 10 lines 20-23. A compression ratio of 275:1 is achieved only when processing movie images. (Tr. at 26 (describing plaintiff's expert's testimony); Tr. at 163 (defense counsel acknowledging JPEG does not go as high as 275:1 compression)) In light of these statements, excluding movie images from the claims would exclude a preferred embodiment, something which rarely occurs when claims are properly construed. See Chimie v. PPG Indus., Inc. 402 F.3d 1371, 1377 (Fed. Cir. 2005).

There is also much discussion in the specification about the ability of the disclosed "electronic still camera" to rapidly capture multiple images. The specification states that the camera circuitry of a preferred embodiment "allows for approximately 20 images to be captured in a one second period." '010 patent, col. 8 lines 18-19. The "object of this invention is to provide an electronic still camera device that can rapidly capture a series of images automatically as well as singularly." '010 patent, col. 2 lines 31-33. Defendants assert that, in 1990, one having ordinary skill in the art would understand that "rapid capture" of multiple still images involved a qualitatively different process than taking "full-motion video." Even assuming, however, Defendants are correct, no reason has been given for why a still camera capable of rapid capture could not also be capable of capturing "full-motion video." To the contrary, it appears that any electronic camera that can capture a single, still image is an electronic still camera, whether or not it can also perform "rapid capture" and/or capture "full-motion video." Nor have Defendants identified any portion of the claims, specification, or prosecution history suggesting that the patentees intended -- or one having ordinary skill in the art would understand them to have intended -- not to claim movie images as part of the asserted claims.

Defendants argue that construing "image" to include movie images would render the claims invalid under 35 U.S.C. § 112 for lack of adequate description, and would improperly permit Defendants to patent an invention they did not yet "possess" (since MPEG had not been introduced at the time the patent was granted). These arguments go to the validity of the patents, not claim construction. See Ampex Corp. v. Eastman Kodak Co., 460 F. Supp. 2d 541, 543 n.1 (D. Del. 2006) ("The validity of a claim is not an issue of claim construction . . . . I will not convert Defendants' claim construction argument into a motion for summary judgment."). In any event, Federal Circuit "case law allows for after-arising technology to be captured within the literal scope of valid claims that are drafted broadly enough." Innogenetics N.V. v. Abbott Labs., 512 F.3d 1363, 1371-72 (Fed. Cir. 2008).

Finally, both sides offered extrinsic evidence to support their contentions as to the import of the specification's references to MPEG and DVI. Unsurprisingly, the parties' experts do not agree with one another. Compare D.I. 260 Ex. 44 at P 16 (Plaintiff's expert, Gafford, opining that one of skill in art would read specification as suggesting inclusion of image file movie formats when available commercially) with D.I. 282 at 22 (explained that defense experts opine that one of skill in art would understand references to MPEG and DVI "as being illustrative of alternative compression algorithms" for still images, not movie images) (citing D.I. 284 Ex. O at P 4; id. Ex. Q at P 9). In reaching my conclusion, I have reviewed and considered this extrinsic evidence, but I have placed far greater weight on the intrinsic evidence in the record.

Accordingly, I agree with St. Clair that "image" and the related disputed claim terms are not limited to "still images" and do not require construction.

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1. "Image" (claims 1, 2, 21)

The parties take positions in the construction of "image" in the 182 patent similar to those they took in construction of the 377 patent. Cytyc argues for a narrow construction, "a digital representation obtained by scanning," while TriPath argues for a broad one, "a thing actually or seemingly reproducing another, such as the optical counterpart of an object produced by an optical device (a lens or mirror) or an electronic device." The debate here, however, differs from that surrounding the 377 patent in that the parties disagree only over the definition of "image" with respect to the second scan mentioned in claims 1(d) and (e), 2, and 21.
TriPath concedes that the term "first image" in claims 1(b), 2, and 21 means digital representation obtained by scanning. "First image" refers to the image captured during the initial low resolution scan of the slides described in the specification. 182 patent at col. 2, 11. 28-33. TriPath then contends that "second image", which is the image obtained by the camera during the high resolution scan, need not be a digital representation. This distinction between the first and second images is unsubstantiated.

If the first image is digital, it follows that the second must also be digital. Claim 1(b) reads "obtaining a first image." Similarly, claim 1(d) reads "obtaining a second image." Claim terms "are normally used consistently throughout the patent" Phillips, 415 F.3d at 1314, and "should be interpreted consistently", Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1345 (Fed. Cir. 1998). There is no difference in the claim language here that would suggest a different meaning for the term "image." Furthermore, both the first and second image serve identical functions in the invention: to provide a representation of the specimen upon which the processor can perform a classification. If the second image were not also digital, it could not be processed by the device.

The language of the claims make clear that the "second image" must be a digital representation. The word "obtain" used in claim 1(d) means "to gain or attain possession." Webster's Third New International Dictionary 1559 (1986). This general definition finds support in the specification, which uses "obtain" and "capture" interchangeably to describe how the invention acquires an image that is capable of processing. 182 patent at col. 2, 11. 18, 20; col. 7, 1. 12. The broad definition that TriPath calls for includes images, such as those produced by looking through the lens of a microscope, that are not fixed in any tangible fashion. They exist only when viewed by the human eye. Such an image is not capable of being "obtained" or "captured", and thus cannot be classified by an image processor or a neurocomputer as called for in the claims and the specification.

TriPath argues that the images need not be obtained in digital form; that they could be captured in some other, non-electronic medium. It insists that the digital images described in the specification are merely the preferred embodiment, and should not be imported into the claims as a limitation. See Phillips, 415 F.3d at 1323. The question for a court is "whether a person of skill in the art would understand the embodiments to define the outer limits of the claim term or merely to be exemplary in nature." Id.

A person of ordinary skill would understand that the references to digital images in the specification are not just one possible variation of the invention, but its substantive boundary. The first reference to "images" in the Detailed Description of the Invention is in the description of the camera: "a camera for obtaining electronic images from the optical microscope." 182 patent at col. 3, 11. 30-33. The specification makes a point of noting that the images obtained by the camera are electronic or digital. Id. at col. 4, 11. 14-15; col. 2, 11. 25-33; col. 7, 11. 11-13. It is these electronic images that the device uses to perform the three scans. The patent describes no other images used for any other purpose.

The Summary of the Invention, which is not a preferred embodiment, but a concise description of the entire claimed invention as conceived at the time of filing, specifically mentions digital images and repeatedly refers to images that can be processed n7. Id. at col. 1, 1. 65 -- col. 2, 1. 55. Moreover, the word "image" appears one hundred sixty-one times in the patent. Each reference either implicitly or explicitly indicates that it is a digital representation. Although it is possible that the image of the specimen viewed through the lens of the optical microscope is not digital, there is no indication in the claims or written description that the device uses those images to perform the classifications described in the claims 1 and 21.

--- Footnotes ---

n7 The Summary of Invention "should, when set forth, be commensurate with the invention as claimed and any object recited should be that of the invention as claimed . . . The brief summary, if properly written to set out the exact nature, operation, and purpose of the invention, will be of material assistance in aiding ready understanding of the patent in future searches." Manual of Patent Examining Procedure, § 608.01(d)(2004).

--- End Footnotes ---

In defense of its proposed construction, TriPath contends that the patentee in no way disavowed a broad definition of
"image" during the prosecution. Cytyc points out in response that the applicant failed to reply when the patent examiner found the invention to be novel because "[the prior art] fail to disclose obtaining and displaying a second image by scanning." 182 File History at 169, 177(emphasis added).

TriPath is correct that the applicant had no duty to respond to the patent examiner's unilateral reasons for allowance, and thus disavowed nothing. See Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1345 (2005)(holding that "an applicant's silence regarding statements made by the examiner during prosecution, without more, cannot amount to a clear and unmistakable disavowal' of claim scope.")(internal citations omitted) n8. However, the patent examiner's interpretation of the term "image" is not irrelevant to claim construction: "Statements about a claim term made by an examiner during prosecution of an application may be evidence of how one of skill in the art understood the term at the time the application was filed." Id. at 1347. The patent examiner's assumption that the image is obtained by scanning further supports the conclusion that one skilled in the art would understand the term "image" as used in claims 1, 2, and 21 to mean digital representation.

--- Footnotes ---

n8 Cytyc argues that Elkay Manufacturing Co. v. Ebco Manufacturing Co., 192 F.3d 973 (1999), applies here instead of Salazar. In Elkay, the patentee failed to respond to the Examiner's Statement of Reasons for Allowance in which the examiner explicitly approved a narrower set of claims than originally presented. Elkay then later argued for a broad claim construction that contradicted the claims as limited during prosecution. The court held that Elkay was estopped from arguing for a broad construction because he had disavowed it during prosecution. Elkay, 192 F.3d at 979.

Here, the examiner did not approve the 182 patent based on a narrow definition of "image". The examiner approved the 182 patent because it contained a second image, where the prior art contained only one. 182 File History at 177 (noting that "in the prior art of record, only one image is obtained"). Under Elkay, this record estops TriPath from arguing that the 182 patent claims only one image, but TriPath remains free to argue that the image is not necessarily obtained by scanning.

--- End Footnotes ---

Finally, returning to the claims themselves, the "usage of a term in one claim can often illuminate the meaning of the same term in other claims." Phillips, 415 F.3d at 1314. Although the claims at issue do not explicitly describe the images as digital, claim 11 does. Claim 11 reads, in relevant part:

A method of classifying objects in a cytological specimen; comprising the steps of:

a) obtaining a first digital representation of at least part of such cytological specimen;

b) storing such digital representation;

c) performing a first filtering operation to filter out images in such representation that are the approximate size of a malignant or premalignant cell or smaller to produce a second digital representation;

d) removing the images in such second representation from the images in such first representation to produce a third representation.

Id. at col. 15, 11. 13-24. (emphasis added). TriPath points out that the use of the term "digital representation" shows that the patent differentiates between "digital representation" and "image." Although true, this observation does not lead to the conclusion that an "image" cannot be digital. To the contrary, the language implies that the "image" must be digital. Claim 11(c), for example, states "to filter out images in such representation" (emphasis added). "Representation" logically refers to the "digital representation" in claim 11(b). Thus, the "image" must be a smaller part of the digital representation if it is to be "filtered out." The specification supports this reading when it describes "obtaining a first digital representation" followed by a "filtering operation to filter out images in the representation." 182 patent at col. 2, 11. 27-32.

In sum, taking a "claims up" approach, the term "image" as used in claims 1, 2, and 21 refers to a digital representation.
5. "Image" is construed to mean "the imitation of the external form of an object."

D. Ref. No. 81 "Ballot image," "image of the ballot," "image of each paper ballot," "image thereof."

These terms or phrases are recited in or referred to in Claims 13, 14, 16, 19, 33, and 47.

The Court has construed the term "imaging," "image," and "imaged" in Ref. No. 56 of the '944 Patent as follows: "Electronically capturing and reproducing images and data from a ballot in a pixilated or bitmapped format." The parties agree that the instant terms in Ref. No. 81 must be construed consistently with the Court's previous construction of variations of the term "image." The dispute here is whether the entire ballot must be imaged or only portions of the ballot must be imaged.

The specification teaches that "[o]nly the images of the [voter identifier] and mark space zones need be obtained and stored for tabulating and/or verifying voting by vote counter. Images of the [voter identifier] and mark space zones may be stored in any suitable electronic format . . . ." (Col. 15, ll. 21-25.) "The ballot reader produces a ballot image, whether of the entire ballot or only portions thereof selected in accordance with the applicable ballot template, that is preferably in a pixilated or bitmapped format, e.g., a TIFF or a BMP image, or other bitmapped format." (Col. 22, l. 65 to Col. 23, l. 2.)

The use of the term "a viewable" ballot has been discussed in Ref. No. 69 herein, and the Court found that there is no support for this term in the patent specification. Defendants' construction is supported by the specification language and intent.

Accordingly, the Court has construes the terms in Ref. No. 81 as follows:

An electronic representation of all or a portion of a paper ballot, including a representation of the jurisdiction identifier and at least one voting selection, which representation is stored in a pixilated or bitmapped format.

2. Displaying a map image with image coordinates corresponding to the geographic coordinates

The parties dispute nearly every term in this limitation. Specifically, they disagree on the meaning of "map image," "image coordinates, and "corresponding," as well as the meaning of the limitation as a whole. The court will address each of the parties' disputes.

Beginning with the term "map image," the plaintiff contends that the term means "a representation of a flood map, such as a FEMA flood map, stored as a grid of pixels." Based on the prosecution history, the defendants contend the phrase "map image with image coordinates" is limited to "a georeferenced raster map image."

With respect to the prosecution history, the plaintiff concedes that it surrendered vector maps during prosecution, yet asserts that the scope of the surrender is limited to vector maps. The court agrees. The court observes that dependent claim 5 requires a map image that is "a digital raster image." 326 patent, claim 5. Claim differentiation counsels a broader construction for independent claim 1 than for claim 5. The court therefore construes the term "map image" to mean "a representation of a flood map, such as a FEMA flood map, stored as a grid of pixels."

The next dispute involves the term "image coordinates." The plaintiff suggests that the term means "locations that define the
position of a point on an image." The defendants, building on their argument that the claim is limited to raster maps, contend that term "image coordinates" means "X, Y pixel locations (row, column intersections) that make up a raster image." The court has rejected that argument and therefore adopts the plaintiff's proposed construction of "image coordinates."

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2. "Image Data"

The third element of claim 64 recites the step of "providing an image store comprising storage for image data comprising pixel values of pixels defining an image."

Adobe interprets "image data" as "data representing the then-current state of the image being shown on the monitor, such that there is a one-to-one correspondence between pixels represented by the image data and the pixels that appear on the monitor." Quantel contends that "image data" is an electronic image stored in the image store where data can be found when needed.

Adobe's interpretation is supported by other recitations in claim 64. To wit, the fourth element of claim 64 recites that, in each processing operation, the processor retrieves image data from the store, processes the retrieved image data with brush data to combine the image and brush data, and then "stores the processed image data in said store in place of the image data used in the processing operation." Thus, it is clear that at every instant during a given stroke "image data" is data representing the current state of the image displayed on the screen that corresponds in a one-to-one relationship with the pixels on displayed on the screen.

At trial, Mr. Taylor testified that a person of ordinary skill in the art at the time of the '755 invention would have understood the term "image data" to mean data from which an image may be derived, in contrast to the term "displayed image," which such a person would have understood to mean the image appearing on the screen. Tr. at 53-53. Such extrinsic evidence, however, can never alter the meaning of a term where, as here, the claim language, on which the public has a right to rely, establishes the term's meaning. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

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b. "Image Display Device"

The next disputed term in claim 15 is "image display device." n3 IP argues that this term includes printers, whereas Lexmark and Dell contend that it encompasses only devices that display a video image on a screen. Both sides look to the prosecution history of the 780 patent to support their respective positions.

n3 IP considers the operative phrase to be only "display device," but there is no indication that a display device would display anything but an image. Accordingly, though our analysis would be the same if the term "image" were excluded, we will treat the operative phrase as consisting of the full "image display device."

During prosecution, Cooper sought to add a description of printers to the original specification, new claims that included printers, and a new figure. The original examiner more than once rejected the amendments as new matter. Cooper eventually petitioned the Commissioner for Patents to overrule the rejections, but the petition was dismissed because his request should have been directed to the Board of Patent Appeals and Interferences.

Cooper cancelled the relevant claims and figure and petitioned the Commissioner again. However, he did not remove all references to printers in the specification. This time, the Commissioner found the petition was moot because the "new
subject matters had either been deleted or cancelled by the petitioner." See S/N 07/355,461 Commissioner's Decision 1/24/94 at 1. Before the Commissioner issued this decision, Cooper filed a continuation application, which was assigned to a new examiner, who never officially withdrew the previous new matter rejections. Some of the terms the prior examiner found objectionable appear in the patent as issued. Lexmark and Dell argue that the rejections relating to printer terminology in the patent should exclude printers because the new matter rejections were never officially withdrawn. Although the prosecution history is less than pristine in this case, we disagree with Lexmark and Dell on its overall effect on this issue for several reasons.

First and foremost, Lexmark and Dell's argument would require us to ignore the references to printers within the specification, in essence writing them out of the patent entirely, which is not a proper exercise in circumstances such as these. See Purdue Pharma L.P. v. Boehringer Ingelheim GMBH, 237 F.3d 1359, 1364 (Fed. Cir. 2001) (refusing to limit claims to single-dose administrations of medication when specification made reference to both single and multiple doses). Second, the language of dependent claim 109 indicates that video monitors are but one kind of display device. n4 The doctrine of claim differentiation creates a presumption that each claim in a patent differs in scope from any other claim. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998). When applied in the context of dependent and independent claims, the doctrine generally leads to a conclusion that dependent claims are narrower than the claim on which they depend. Phillips, 415 F.3d at 1315. The presumption is extremely strong when the only meaningful difference between the independent and dependent claims is the limitation at issue, and one party is requesting that the limitation present in the dependent claim be imported into the independent claim. See Sunrace Roots Enterprise Co., Ltd. v. SRAM Corp., 336 F.3d 1298, 1303 (Fed. Cir. 2003). To construe the claims in another fashion would typically render the dependent claims superfluous, a result we must strive to avoid. See Comark, 156 F.3d at 1187. Here, the limitation that Lexmark and Dell contend to be omnipresent in the term "image display device" is the very limitation made explicit in claim 109. Thus, the presumption that "image display device" applies to devices other than video monitors weighs particularly heavily in favor of IP's construction.

Third, Lexmark and Dell's primary support for their argument comes from a definition of "display" n5 that states, in pertinent part:

1. A visible representation of information in words, numbers or drawings, as on the cathode-ray tube screen of a radar set, navigation system, or computer console.

2. The device on which the information is projected. Also known as display device.

Moreover, extrinsic evidence must be considered in the context of the intrinsic evidence. See id. at 1319. When so viewed,
the definition upon which Lexmark & Dell rely actually supports the conclusion that printers can be considered a "display device." The most natural reading of the definition reveals that the examples given are illustrative, not exhaustive. Printers, particularly laser printers, are capable of projecting a visible representation of information onto paper. Accordingly, we cannot agree with Lexmark and Dell that this definition excludes printers from its scope.

Lastly, in support of their argument, Lexmark and Dell rely on Dresser Indus., Inc. v. United States, 432 F.2d 787, 193 Ct. Cl. 140 (Ct. Cl. 1970), in which the patentee filed a § 312 amendment that redefined certain terms in a way that was inconsistent with the original specification. In that case, the court did not use the new language because it was clear that the amended text constituted new matter. Id. at 794. Here, by contrast, the history does not unequivocally indicate that a person of ordinary skill in the art would not have understood that the invention applied to printers.

Therefore, the court defines "image display device" as follows: a device for providing an image that may be viewed by a viewer. This construction will apply equally to the use of this term in claim 109 of the 780 patent.

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1. "Image server": "A computer server that stores image files and provides them, via the internet, to one or more web browsers." This construction is consistent with the specification: Figs. 1 and 2; col. 10, ll. 8-12; col. 11, ll. 8-12.

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c. "Pixel" and "Image Element"

The next two terms we must consider, "pixel" and "image element," are undeniably related, but the issue we need to decide is the extent of their similarity. IP differentiates between these two concepts; Lexmark and Dell ask that they be considered synonymous. n6 According to IP, "pixel" refers to the smallest complete element of an image, and it can be formed of subpixels that contribute to the formation of a complete element but that are not complete in themselves. IP urges a broader construction for "image element" as any element found within an image, including complete pixels, portions of pixels, and other elements of images that are not pixel-related. n7 Lexmark and Dell insist that "pixel" and "image element" are interchangeable. In their opinion, both terms refer to the smallest electronically coded part of an electronically coded input image. When the terms are used in the context of discussing a display device, Lexmark and Dell argue that they must mean the smallest addressable element of the display device.

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n6 In the joint claim construction chart, the parties also indicate that the meaning of the term "plurality" is disputed, but they offer no development of that issue. In light of the absence of a crystallized dispute, we offer no construction of that term.

n7 Examples could include the RGB components of a video signal or the yellow, cyan, and magenta components of a single pixel used in color laser printing.

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An examination of the intrinsic evidence reveals that IP has the better argument. For example, the specification of the 780 patent states that "voids in the image may be filled with all or a portion of a pixel," which is consistent with IP's position that pixels can be formed of subpixels. U.S. Patent No. 5,424,780, col. 4, Ins. 50-51; see also col. 5, Ins. 48-50 ("New pixels or pixels used for filling, substitution or replacement may be comprised of all or a portion of a pixel."). Examples could include the RGB components of a video signal or the yellow, cyan, and magenta components of a single pixel used in laser printing.

Although in many circumstances the patents use the terms interchangeably, that is not inconsistent with IP's proposed definitions, wherein all pixels are image elements, but not all image elements are pixels. Though the intrinsic evidence from
the 780 patent does not provide a great deal of illumination on these issues, the language of the 637 patent directly supports IP's position. The parties agree, and we concur, that the terms "image element" and "pixel" should be construed consistently as to both patents, so the guidance provided by the 637 patent clarifies the meaning of these terms in the 780 patent as well. Dependent claims 34, 51, 140, and 161 all have one limitation that states: "image elements are pixels." Here again, the doctrine of claim differentiation provides helpful guidance. See Comark, 156 F.3d at 1187. When applied to these four claims, the doctrine supports the conclusion that the image elements referenced in the independent claim are not always pixels, which indicates that they should not be treated as synonyms.

Furthermore, though the intrinsic evidence gives no indication that Cooper intended these terms to carry an idiosyncratic meaning, Lexmark and Dell's proposed definition adds in requirements that pixels and image elements must be an addressable element contained in electronically coded input image. They have not provided convincing support that these aspects are included in the ordinary and customary meaning of these terms, nor have they shown that Cooper intended to use these terms in an idiosyncratic way. See Phillips, 415 F.3d at 1312.

Therefore, we construe "pixel" to mean the smallest complete element of an image and "image element" to mean any element of an image, whether complete or not and whether pixel-related or not.

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ii. Image Element

The parties next dispute the meaning of "image element," as used in claims 15, 110, and 146 of the '780 patent, claims 1 and 107 of the '637 patent, and claims 4 and 10 of the '964 patent. Though the parties' interpretations vary, they concur that the Court should adopt a uniform meaning for the term.

IP defines "image element" as encompassing complete pixels, as well as sub pixels and other elements of images that are not pixel-related. It submits that although pixel is synonymous with image element, the reverse is not true, as an image element may refer to a sub-pixel or something altogether unrelated to a pixel. Sony, in contrast, urges the Court to adopt identical meanings for the terms pixel and image element, namely, the smallest part of an electronically coded picture image or the smallest addressable element in an electronic display.

The Court believes IP's definition more closely aligns with how a person of ordinary skill in the technology would understand the term "image element." Admittedly, in the context of the disputed claims, it is somewhat unclear whether the terms "pixel" and "image element" carry differing meanings. As Sony observes, the patentee appears to frequently use the two terms interchangeably. For example, Sony highlights two descriptions of figure seven in the '780 patent's specification. One describes the figure as depicting "a group of nine neighboring image elements." U.S. Patent No. 5,424,780, col. 3, lines 18-20. Another refers to the same figure as showing "a group of 9 pixels which are located on 3 scan lines of a raster." Id. at col. 7, lines 26-27. This example, however, is not necessarily inconsistent with IP's construction. As IP suggests, all pixels may be image elements, but not all image elements are necessarily pixels. Thus the fact that the patentee uses both terms to describe the items in the figure does not run counter to IP's position. Sony also argues that the patent directly equates the two terms when it describes "spatial resolution" as "the number of elements or pixels [that] make up an image." But again, this excerpt does not conclusively support Sony's position.

Moreover, the use of "image element" in unasserted claims clearly supports IP's interpretation. In the '637 patent, claim 127 repeatedly refers to the term "image elements." Claim 140 of that same patent discloses "The method of claim 127 wherein the image elements are pixels." As a dependent claim, claim 140 must be narrower in scope than claim 127. If the patent used image element and pixel interchangeably, it would violate the doctrine of claim differentiation by rendering claim 140 wholly superfluous. Furthermore, the patentee is entitled to a presumption that there is a difference in meaning and scope when different words are used in separate claims. See Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987); see also Power Mosfet Techs., L.L.C. v. Siemens AG, 378 F.3d 1396, 1410 (Fed. Cir. 2004). In particular, where "the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Tandon Corp, 831 F.2d at 1023. Finally, the Court notes that IP's interpretation is in accord with the only dictionary definition submitted by the parties n2. The Court therefore accepts IP's definition of "image element" as encompassing complete pixels, as well as sub
pixels, and other elements of images that are not pixel related.

n2 Tech-Notes Glossary of Broadcast Terms' definition of "pixel" includes the following excerpts differentiating the terms pixel and image element:

Many unskilled people, and sometimes skilled people, incorrectly use pixel and image element interchangeably, or use pixel to refer to sub-parts. Unskilled people don't know any better and the skilled people know better but because the meaning is clear from the context do so anyway. Many dictionaries also get it wrong.

Image elements is a broader term than pixels and is also highly context sensitive. Image elements includes both complete pixels as well as those various sub-parts of pixels and other elements of images which are not pixel related such as DCI coefficients. For example, it is correct to say that the red part of an RGB pixel is an image element but it is not normally considered correct to refer to the red part as a pixel itself (although persons who are not skilled in the television industry often do).

When someone says a pixel is the smallest part of an image, that statement is incorrect if the image is made up of pixels having sub-parts, but is correct if the pixel is the smallest element ... Consequently one can say something like pixels and image elements are essentially the same when talking about technology when the pixel is the smallest part but can disagree that they are the same when talking about technology when the pixels s made up of sub-parts. This tends to confuse the hell out of unskilled people who can't pick up on the intended meaning from the context of the usage.

Tech-Notes Glossary of Broadcast Terms, at http://www.tech-notes.tv. No argument has been made that it is improper to consider this online dictionary definition, however the Court notes that even if it were to disregard this definition, the same outcome would be reached.

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With these commonly agreed definitions in mind, we turn to the term "image source." There is no dispute that, as a general matter, "real objects" -- those three dimensional solids we encounter in consensual reality -- may serve as "image sources" for an image-forming optical system. See id. at 33. An apple placed before a mirror gives rise to a virtual image, and thus, in one sense, may be considered an "image source." But this is not how the term "image source" is used in the claims of the '818 Patent; and it is axiomatic that proper claim construction begins, and frequently ends, with the claim language itself. See, e.g., Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Furthermore, it is well-established that "a patentee is free to be his or her own lexicographer," provided the selected definition is made apparent in the patent specifications. Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1563 (Fed. Cir. 1990).

Claim One of the '818 Patent states that both the first and second image sources are "equipped and positioned to display" either a first or second image, which is then directed toward either the front or back of the beam splitter. Thus, only those "real objects" that are capable of generating images themselves may serve as "image sources" in the '818 Patent, for it is obvious that "real objects" like apples or baseballs do not generate or "display" images. As noted above, both sides agree that "images" are "reproductions" of objects, not the objects themselves.

While video monitors or projectors are certainly "real objects," they are distinguished by their specific ability to generate images -- what the '818 Patent defines as "screen-borne images" or "projection-based images as from a film-projector, a slide projector, or a video unit." See Detailed Description of the Invention, '818 Patent Specifications, Col. 7, Lines 24-25. Claim Nine, for example, explains that "the second image source is provided with a data stream containing three-dimensional image cues" from which it generates images. It is devices like video monitors and projectors that are so supplied with "data streams," from which they create "screen-borne" images.
Accordingly, the Court interprets the claim term "image source" in Patent '818 as denoting a device, such as a video monitor or projector, that can generate screen-borne images.

4. An image source attribute that specifies a web site traffic path analysis data location (First appearing in claim 1 at col. 12, ll. 52-53; and as used similarly in claims 8-11, 18-20, 22, 29-31)

Though characterized by the parties as a minor dispute, Websidestory and Netratings have not agreed to a construction of the term "an image source attribute that specifies a website traffic path analysis data location." See Joint Claims Construction Chart at 1. Websidestory contends the term should be construed as "the named location for the graphical element that specifies a website traffic path analysis data location." Joint Claims Construction Chart at 1. Netratings contends that the term should be construed to mean "a uniform resource locator of a location where website traffic path analysis data is sent to and received from and where the graphical element is stored." Joint Claims Construction Chart at 1.

The Court notes initially that a large part of this disputed phrase consists of the previously construed phrase "website traffic path analysis data." The Court also notes that the section of this disputed phrase which reads "that specifies a website traffic path analysis data location" is not ambiguous in light of the Court's previous construction of the term "website traffic path analysis data" and the ordinary and customary meaning of the words "specifies" and "location." The parties' primary dispute here centers on the meaning of "an image source attribute."

The parties agree that "an image source attribute" refers to the location of the graphical element, and both proposed constructions include the "location of the graphical element" as part of the definition. Netratings' proposed construction adds the language "a uniform resource locator of a location where website traffic path analysis data is sent to and received." Websidestory contends that Netratings' proposed construction improperly limits the scope of the claims, defies logic, and unnecessarily injects ambiguity into the claim. Netratings contends that the '479 Patent's claims and specification require the Court to adopt Netratings' proposed construction.

In support of their proposed constructions, both parties rely on the '479 Patent specification, and neither party cites to the claims. After reading the claims in light of this disputed phrase, the Court finds that the claims are of little help in construing "an image source attribute." The specification, on the other hand, does shed light on the meaning the phrase. Specifically, the description of the preferred embodiment section of the specification notes that, "[t]hose skilled in the art will understand that a graphical element such as an image on a web page must be specified by the location of an image source file, which the browser will request when it attempts to display the web page." Patent at col. 6, ll. 48-52. Thereafter, the specification states that a tagged web page "includes a graphical element that specifies an image source file . . . ." Patent at col. 6, ll. 54-56. After considering that language in the context of the '479 Patent's claims, the Court concludes that "an image source attribute" should be construed as "the named location for the graphical element."

The Court concludes that "an image source attribute" does not require reference to a uniform resource locator, or language describing a location where data is sent and received from. Netratings draws support for inclusion of uniform resource locator from the background section of the specification. However, uniform resource locator is used in the background section of the specification to describe the internet based analysis tools method which the '479 Patent intended to displace. Furthermore, as noted by Websidestory at oral argument, utilizing uniform resource locator could impermissibly limit the scope of the '479 Patent in regards to its use in conjunction with Intranets. Tr. at 39. The Court concludes that Netratings' proposed construction which includes language regarding a location where "data is sent to and received from" is not required by the claim language.

After considering the Patent, the parties' arguments, and the prosecution history, the Court adopts Websidestory's proposed construction of the term "an image source attribute that specifies a website traffic path analysis data location," and concludes that the acquired meaning of the term is "the named location for the graphical element that specifies a website traffic path analysis data location."
The source of disagreement is the definition of the word "image" as used in claim 18. Cytyc would limit the term to "digital representations presented to the cytologist on a display monitor." TriPath argues for a broader definition: "displaying a reproduction, such as an optical counterpart, of an object produced by an optical device (as a lens or mirror) or an electronic device."

Starting once again with the terms themselves, claim 18 claims "the step of presenting images of objects to a human corresponding to one or more of the identified locations." The word "presenting" suggests that there must be a mechanism for displaying the images to the human. This narrows the definition of "image" to representations that can be displayed by the claimed mechanisms. For example, mere objects sitting on a table viewed by the naked human eye are "images" because they are viewed through the lens of the eye, but they do not fit within claim 18 because they are not "presented." Thus, TriPath's proposed definition, which would include displays viewed by the naked eye, is overly broad.

Whether a person of ordinary skill in the art, however, would understand "images" to be limited only to digital representations is a harder question. The word "image" or "images" appears one hundred forty-five times in the patent. Of those references, only ten do not imply a digital display. Seven of these ten are used to describe the historical difficulties in processing Pap smear specimens. Id. at col. 1, 11. 43-64. The three remaining terms describe the image of the specimens on the slide as viewed through the microscope lens before a camera digitizes it. Id. at col. 13, 1. 34; col. 15, 1. 34.

Because of these three references, TriPath urges that "image" should be construed to include slides as viewed through a microscope as well as digital images. However, claim 18 does not contemplate such a construction. Claim 18 refers to images that are to be presented to a human. The camera digitizes the image immediately after focusing. Neither the claims nor the specification indicate that a human will view the slide through the microscope at any time before it is digitized.

Before limiting the definition of "image" to only digital representations, I must consider the possibility that a person of ordinary skill in the art in 1998, the year the patent application was filed, may have had a different understanding. In highly digitized 2005, it is easy to assume that all images would be digital, but it would be improper to construe the patent in the context of today's technology. See Phillips, 415 F.3d at 1313 ("a court construing a patent claim seeks to accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention." (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (2004))).

However, a survey of the prior art indicates that a person of ordinary skill in the art in 1998 would have understood the word "image" as used in claim 18 to refer to digital representations. The field of automated cytological screening relied extensively upon computer and digital technology for approximately forty years before the 377 patent application was filed. The first attempt at automated cytological screening occurred in the late 1950's. Nasseem Husain and Keith Watts, "Computerised Cell Scanners," Physics Bulletin 38, 198 (1988). Although largely unsuccessful, even this early system consisted of a scanner that attempted to digitize the image. Id. The three major precursors to the 377 patent, CYBEST, Vikers' Cytology Screening Apparatus, and LEYTAS, invented in the 1960s and 1970s, respectively, each included a computer to digitize images of the specimens and a monitor to display the images as the central components of their systems. See generally, Noboru Tanaka, et. al., "CYBEST Model 4", Analytical and Quantitative Cytology and Histology, Vol. 9, No. 5 (1987); Anneke M. J. Van Driel-Kulker & Johan S. Ploem, "The Use of LEYTAS in Analytical and Quantitative Cytology," IEEE Transactions on Biomedical Engineering, Vol. BME-29, No. 2 (1982).

This history, in addition to the use of "image" in the context of computers throughout the specification and the claims themselves lead to the conclusion that a person of ordinary skill in the field in 1998 would have understood "images" to be digital representations. Following logically, "images of objects" as used in claim 18 are digital representations on a display monitor.

GO BACK
1. Terms relating to images representing pages of a book.

The parties dispute the proper construction of the term "images representing pages of a book" used in claim 1 and the term "plurality of images . . . showing textual information" used in claims 7, 9, and 13. Harpo asserts that these terms require a digital image of the actual pages of a physical book (such as a digital photograph of the book's pages). Harpo's proposed construction is "digital representations of specified real pages of a physical book stored on a file server." Harpo Mem. in Supp. of Summ. J. at 13. ICR contends that the appropriate construction of the term is "a representation of the content of the actual pages of a book." ICR Resp. to Mot. for Summ. J. at 9.

In support of its proposed construction, Harpo argues that the specification of the '252 patent includes only one embodiment of the technology as applied to books: digital images of a physical book. Harpo Mem. in Supp. of Summ. J. at 13. Because the specification only includes one embodiment, Harpo argues, the claims should be construed to be restricted to that embodiment. Id. at 13-14.

Harpo is correct that claims must be read in the context of the specification. Phillips, 415 F.3d at 1315. However, the "particular embodiments appearing in a written description will not be used to limit claim language that has a broader effect." Innova, 381 F.3d at 1117. A claim is limited to the particular embodiment(s) in the specification only when "the intrinsic evidence shows that the patentee distinguished [it] from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention." Edwards Lifesciences LLC v. Cook, Inc., 582 F.3d 1322, 1329 (Fed. Cir. 2009) (citing CSS Fitness, Inc. v. Brunswick, Corp., 288 F.3d 1359, 1366-67 (Fed. Cir. 2002)).

Harpo cites SciMed Life Sys., Inc. v. Adv. Cardiovascular Sys., Inc., 242 F.3d 1337 (Fed. Cir. 2001), to support its view that ICR's claim should be limited to images of the actual pages of a physical book as referenced in the specification. In SciMed, the Federal Circuit affirmed the claim construction by the lower court, which had limited the patent to the embodiment described in the specification. In SciMed, however, the court found that the specification "expressly limits all embodiments of the claimed invention." The patent in this case includes no such express limitation.

Harpo also relies on Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322 (Fed. Cir. 2009). In Edwards, an alleged infringer argued that a patent for grafts should be restricted to intraluminal grafts because those were the only grafts described in the specification. The court agreed. In doing so, however, it noted that "the specification consistently [used] the words 'graft' and 'intraluminal graft' interchangeably," the claim language itself supported that interpretation, and "the preferred embodiment [was] described in the specification as the invention itself." Id. at 1329-30. Those factors are not present here. The Court therefore follows Innova's guidance and declines to limit the claims to the preferred embodiment described in the specification.

The Court also notes that elsewhere in the specification, when discussing an embodiment involving an aspirin bottle for sale, the inventor stated that a "representation" of the bottle is not limited to a photograph of the product but could include a drawing made by a computer program. '252 patent, col. 3:17-22. This, as ICR argues, undermines Harpo's argument that the disputed claim language covers only an actual image of the pages of a physical book.

Claim 1 requires "images representing pages of a book." '252 patent, col. 7:44-53 (emphasis added). This language does not support the limitation Harpo seeks; the claim describes a "representation," a term that covers more ground than an image of actual pages of a physical book. The Court concludes that the proper construction of the phrase "images representing pages of a book" is not limited to photographs of the pages of a physical book. Rather, it includes any image that includes contents from a book's pages. The correct construction is "images that show content from the pages of a book."

Harpo similarly argues that the language "plurality of images . . . showing textual information . . . representative of contents of a book" in claims 7, 9 and 13 of the '252 patent requires a digital representation of text from specified real pages of a physical book. Harpo's argument on this language is even weaker than its argument regarding claim 1. The phrase does not support an interpretation that is limited to what would amount to a photograph of the actual pages of a physical book; this would read "textual information . . . representative of contents" out of the claim. The proper construction of the term is
Harpo also asserts that the language of claim 18, properly construed, requires images to be images of the actual pages of a physical book. Claim 18 states:

An apparatus comprising: a computer, providing limited pages of books that can be viewed over a publically available network, and including a connection to the network, and which receives information indicative of at least one desired page of a book over the connection to the network; and returns information indicative of only limited images of pages of the book based on said information; and wherein said computer limits a number of pages that can be displayed.

'252 Patent, col. 9:1-10. Harpo contends that the proper construction of the phrase "receives information indicative of at least one desired page of a book . . . and returns information indicative of only limited images of pages of the book based on said information" is "a request for a page image made over a network specifying a real page of a physical book." Harpo Mem. in Supp. of Summ. J. at 17. This would read the words "indicative of" out of the claim, which is inappropriate. "Information indicative of [a] page" cannot properly be limited to a digital image showing an actual physical page. The phrase is properly read as referring to "images that include content from ages of an actual book." The rest of the language of this portion of claim 18 is self-explanatory and does not require further construction.

A. Ref. No. 56 "Imaging," "Image," and "Imaged."

These terms and phrases are recited or referred to in Claims 1-3, 5, 7, 13, 18-20, 23, 30-32, 42-44, and 49.

Plaintiff contends that these terms should be construed as "electronically reproducing a reviewable representation (image, not just data) of an optically scanned region of a document or portion of a document." Defendants propose "capturing data from a ballot in a pixilated or bitmapped format."

This is a significant dispute between the parties and the arguments are multidimensional. Citing Honeywell Int'l, Inc., 341 F.3d at 1338-40, Defendants first argue that the above terms are not amenable to construction because they are indefinite and invalid under 35 U.S.C. § 112, P 2. "The definiteness requirement of § 112, P 2 focuses on whether the claims, as interpreted in view of the written description, adequately perform their function of notifying the public of the [scope of the] patentee's right to exclude." Id. at 1338 (quoting S3 Inc. v. nVIDIA Corp., 259 F.3d 1364, 1371-72 (Fed. Cir. 2001)) (alteration in original). "Because a claim is presumed to be valid, a claim is indefinite only if the 'claim is insolubly ambiguous, and no narrowing construction can properly be adopted.'" Id., 341 F.3d at 1338-39 (quoting Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001)). The Court does not find the terms "image," "imaging" or "imaged" to be insolubly ambiguous.

Defendants further argue that the terms "image" and "read" are used in an inconsistent manner. The Court acknowledges some overlap; however, a close look at the patent and specification language resolves the issue. Column 15, lines 2-4 provide that the ballot is "read/imaged and the voting information thereon is read/decoded." The specification described Figure 8 as comprising two separate paths -- one for imaging (320a) and one for reading (320b). In addition, in the above references, imaging is associated with decoding (i.e., read/imaged - read/decoded). 7 (Col. 15, ll. 2, 3.) In Figure 8, the ballots are passed through a reader (310). They either then proceed on the imaging path (320a) and are imaged and then decoded or on the reading path where they are passed through the reader and are read (320b). This demonstrates a clear difference between "image" and "read" and connects imaging to decoding. Moreover, decoding is used throughout the patent when discussing imaging. (See Col. 15, ll. 16-32; Col. 15, ll. 51-55; Claim 3; Claim 13; Claims 31, 33, 34, 36-38.) Defendants' invalidity argument is unavailing.

7 The Court does not agree with Defendants' argument concerning Claims 1, 5, and 29. "Read" and "image" are not used interchangeably in these claims.
The patent specification provides that the ballot imaging process described in Figure 8 at 320a "acquire[s] an image of the voting information." (Col. 15, ll. 16-18.) (Alteration added.) The specification provides that the images may be stored in a suitable electronic format including ".BMP,.TIFF, or .PDF or any other suitable format." (Col. 12, ll. 36-49.) This is consistent with the teaching in the '313 Patent that ":[t]he ballot reader produces a ballot image . . . that is preferably in a pixelated or bitmapped format, e.g., a TIFF or a BMP image, or other bitmapped format. Ballot images in such format may be produced directly by a commercially available office copier or scanner or may be converted to such format . . . ." ('313 Patent, Col. 22, l. 60-Col. 23, ll. 1-6.) As noted by Defendants, in the prosecution of the '313 Patent, Plaintiff distinguished it from a pending claim in another patent, "the Stewart Patent." (Defs. Ex. 6A at 31-42.) "Nothing in Stewart describes or suggests imaging a ballot or imaging a ballot in a pixelated or bitmapped format. Nothing is [sic] Stewart describes or suggests determining from an image a jurisdiction identifier and then selecting a template based thereon, or decoding voting selections from the image of the ballot." (Id. at 35.) This is evidence of Plaintiff's reliance on the pixelated and bitmapped formats and evidence that "imaging" includes a viewable electronic reproduction of the ballots.

--- Footnotes ---
8 The parties agree that the term "image" should be construed to mean the same in both the '944 and '313 Patents.

--- End Footnotes ---

In summary, Defendants' indefiniteness argument fails. Reading and imaging are two separate functions and are distinguishable as set out in Figure 8 and in the specification of the patent. And, as set forth above, there is support for use of the term "capturing" in the context of imaging and the ballot reader and for the need of an electronic reproduction of the ballot.

Accordingly, the Court construes the terms in Ref. No. 56 as: Electronically capturing and reproducing images and data from a ballot in a pixilated or bitmapped format.

--- Footnotes ---
35 The parties' disagreement concerning which delays are inherent and which merely arise from specific embodiments need not be resolved at this time because neither party has asked the Court to include any particular delay in its construction. Similarly, because even Agere's expert concedes that some delays are inherent, the Court need not determine the appropriateness of Broadcom's attempt to demonstrate the existence of inherent delays by reference to the '771 patent.

--- End Footnotes ---
This term is part of the recitation in claim 4 of the '846 patent of the write-through data storage mode, which the patentee defines in the specification as a simultaneous write operation to cache memory and main memory. See '846 Patent, Col. 30, ll. 37-42. The court defines the term "immediately stores said modified data in said primary memory" to mean "the CPU executes a write operation to main memory simultaneously with the writing of data to the cache memory."

In its claim construction, the Court concluded that the '628 Patent "was not intended to encompass an impedance matching network," without defining the term. (D.I. 154 at 3). However, a construction of the phrase "impedance matching network" is now required to resolve the instant motion.

MKS contends that an "impedance matching network" is "a lossless network placed between the power supply and the discharge to ensure maximum power transfer." (D.I. 179 at 1). In reply, Advanced Energy contends that an "impedance matching network" is "a collection of electrical components comprising capacitors and inductors that adjusts the impedance of a circuit." (D.I. 178 at 1). Advanced Energy contends that there is no single way to define the effect of "impedance matching network" on power, and therefore, a construction of the term should not include the effect an "impedance matching network" has on power transfer. (D.I. 178 at 5). Advanced Energy further contends that "a variance of up to ten percent 'off resonance' is acceptable for an "impedance matching network," and commercially, impedance matching networks may be operated deliberately off resonance to ensure effective power control. (D.I. 110 at 6-7).

With regard to this term, the parties' dispute centers on the characterization that an "impedance matching network," by definition, must seek to maximize power. The parties agree that an "impedance matching network" cannot be operated perfectly and at least ten percent 'off resonance' is considered acceptable for an "impedance matching network." (D.I. 111 at A330, D.I. 137 at 10). However, the parties cannot agree to what extent an "impedance matching network" may operate 'off resonance' and still be the type of "impedance matching network" the '628 Patent sought to exclude. MKS argues that the type of "impedance matching network," used in conjunction with a linear power supply and excluded by the '628 Patent, sought to maximize power and operate with as much resonance as possible. Advanced Energy argues that the construction offered by MKS is too narrow, and only encompasses one subset of the broader category of "impedance matching networks." Advanced Energy argues that the generic term "impedance matching network" includes all networks that allow a power supply to adapt to the dynamics of a load having complex (variable) impedance characteristics. Further, Advanced Energy argues that such an "impedance matching network" might be operated deliberately off resonance to ensure effective power control. (D.I. 110 at 6-7).

In construing the disputed phrase the Court has reviewed the claim language, patent specification, and prosecution history. (D.I. 111 at A9 col. 2 ln. 22-26, A12 col. 7 ln. 49-60, A13 col. 10 ln. 19-21, A121-22, 124, A169-70). The parties agree that the disputed term is not used in any of the claims and the specification does not contain a definition of the term. Based upon a review of the sources cited, the Court concludes that the term "impedance matching network" is used in the '628 Patent exclusively with reference to conventional linear power supply systems. (D.I. 111 at A9 col. 1 ln. 60-65 col. 2, ln. 23-25, col. 7 ln. 55-58, col. 10 ln. 13-12). Accordingly, the Court concludes that the patentee did not intend to exclude all "impedance matching networks" from the '628 Patent, but only those conventional "impedance matching networks" used with conventional linear power supplies. Therefore, the Court concludes that "impedance matching network" means "a lossless network placed between the power supply and the discharge to ensure maximum transfer."
suggests that this added phrase be defined to mean "making the resistance of the load equal to the internal resistance of the power supply and making the net reactance of the load and the power supply zero." (Id. at 20.)

Advanced contends that the Court's previous definition was appropriate and opposes any modification or clarification. Advanced contends that MKS's suggestion would require a perfect impedance matching network which is impossible and, in effect, no limitation on the MKS patents.

The Court concludes that its previous construction should be clarified, but the clarification does not require the level of specificity proposed by MKS. Clarified, the Court construes an "impedance matching network" to mean "a lossless network placed between the power supply and the discharge to ensure maximum power transfer by matching, although not perfectly, the impedance of the power supply and load."

2071

The "Implanted Region"

EMI states that the district court erred by equating "the implanted region" with "the source/drain region" at the stage of claim clause (b), EMI arguing that the source/drain region does not fully exist until after the heat activation step of clause (e). However, we observe that EMI's counsel as well as expert witnesses for both sides referred to this region as the source/drain region before as well as after heat activation. If there were technical error it is harmless, for there is no uncertainty as to the region of the transistor that was meant to be described.

In claim clause (d) the district court construed the phrases "implanted region" and "source/drain region" to mean "regions of opposite polarity as compared to the substrate surrounding them." This construction has not been challenged.

2072

1. "Improved Resolution"

In Claim 1 of the '594 Patent, the parties dispute the proper construction of the term "improved resolution" in the phrase "interpolation section responsive to groups of said samples to perform interpolation thereof to provide filtered samples having improved resolution." Defendant submits that "filtered samples having improved resolution" means "samples that are each represented by a larger number of bits than were the original samples generated by the sampling section." Plaintiff argues that "improved resolution" is not limited to improvements measured in numbers of bits. According to plaintiff, while bit improvements are specified in the preferred embodiment, "improved resolution" may also connote, among other things, reductions in distortions or noise. 5 Defendant does not contest the fact that reductions in distortion and noise are benefits of the process taught by the patent, but argues that these benefits are merely a side effect of the increase in bits of resolution and do not themselves constitute improved resolution.

5 Plaintiff also argues that defendant's reading of this limitation is inconsistent with the scope of the patent because the patent applies to analog as well as digital video, and analog samples are not expressed in terms of bits. The improved resolution, however, results from the process of converting analog signals into digital format. See Col. 4:50-67. Accordingly, while it is true that the patent "applies" to analog signals, the improvement in resolution that is the subject of the invention is properly measured in bits.

The patent specification is instructive in this regard. According to the specification, "the use of oversampling and interpolation to an increased number of bits of resolution is believed to be a novel feature in view of the unexpected result of reducing distortions occurring in the sampling and A-D conversion process." '594 Patent, Col. 4:63-67 (emphasis added).
This language strongly suggests that reductions in distortion are a central benefit, rather than merely a side effect, of the claimed invention. It also indicates, however, that reduction in distortion is a phenomenon distinct from, albeit complementary to, improvement in the number of bits of resolution. Accordingly, while it may be that the interpolation section provides filtered samples having not only improved resolution but also reduced distortion, the latter benefit is not, as plaintiff suggests, an inherent limitation of the claim. Adopting plaintiff's proposed construction would therefore have the effect of importing a limitation from the preferred embodiment into the claim itself, in violation of well-established rules of claim construction. See Electro Med. Sys. N.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed. Cir. 1994). The Court will thus adopt defendant's proposed construction.

2073


Claim 1 of the 948 patent is what is known as a Jepson claim, which includes (1) a preamble that sets forth all of the conventional elements of an invention and (2) a subsequent phrase describing the new or improved portion of the claimed invention. See Jepson v. Coleman, 314 F.2d 533, 50 C.C.P.A. 1051, 1963 Dec. Comm'r Pat. 304 (C.C.P.A. 1963); see also 37 C.F.R. § 1.75(e):

Where the nature of the case admits, as in the case of an improvement, any independent claim should contain in the following order: (1) a preamble comprising a general description of all the elements or steps of the claimed combination which are conventional or known, (2) a phrase such as "wherein the improvement comprises," and (3) those elements, steps and/or relationships which constitute that portion of the claimed combination which the applicant considers as the new or improved portion.

The United States Court of Appeals for the Federal Circuit has held that "Jepson claiming generally indicates intent to use the preamble to define the claimed invention, thereby limiting claim scope." Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). The phrase "an improvement in a vehicle" is the preamble to the 948 claim.

Plaintiff argues that the phrase should be read to mean "a module combined with a vehicle to create an improvement to the vehicle." Defendants contend that "an improvement in a vehicle" means "a device that is incorporated in, and becomes a part of, a vehicle." The crux of the parties' dispute concerns whether or not the invention is intended to become a permanent fixture inside of the vehicle. Mr. Lundell has answered this question in the affirmative, recommending that the Court adopt the following construction: "a module that becomes part of a vehicle and is intended to remain part of the vehicle during use."

As Mr. Lundell notes, during the prosecution of a previous patent, which described an earlier version of the invention at issue here, Plaintiff distinguished that device from the prior art by noting that the prior art was "not an improvement in a vehicle, but a stationary piece of shop equipment." See Amendment After Final dated December 30, 1991, at 7 (Bates No. JBA 008689) (cited in Superchips' Claim Constr. Br. at 10). That statement had -- and has -- the effect of narrowing the range of claimed devices. Cf. Covad, 262 F.3d at 1273-74. The Court finds, therefore, that although the patented invention may, like any other automobile part, be removed after installation, the patent and prosecution history, when read together, contemplate that the invention will remain part of the vehicle once attached. Accordingly, the Court adopts Mr. Lundell's recommended construction and holds that "an improvement in a vehicle" means "a module that becomes part of a vehicle and is intended to remain part of the vehicle during use."

2074

A. "An improvement in a vehicle having a predetermined combination of operational elements for controlling vehicular operation... said predetermined combination of operational elements being defined in a fixed system having a bus..."
preamble comprising a general description of all the elements or steps of the claimed combination which are conventional or known, (2) A phrase such as 'wherein the improvement comprises,' and (3) Those elements, steps, and/or relationships which constitute the portion of the claimed-combination which the applicant considers as the new or improved portion." 37 C.F.R. § 1.75(e). The preamble separates the prior art from the inventive portion of the claim and constitutes a limitation for purposes of determining infringement. Id.

Hypertech's proposed construction defines "an improvement in a vehicle" to "refer[] to the fact that the patented apparatus is physically incorporated into the unchanging ('fixed') electronic control system of the vehicle to control . . . the vehicle while it is moving or stopped, but otherwise in normal operation. Personal computers and other programming equipment designed for use in a shop environment are specifically excluded from the definition of 'an improvement in a vehicle.'" (Dft.'s Claim Construction Statement at 5). The language of the preamble and its meaning is fairly straightforward, and the court declines to adopt Hypertech's invitation to include various limitations in the construction of the preamble.

The plain language of this term means the following: The invention is an improvement to a vehicle. That improvement includes a predetermined combination of operational elements. These operational elements control the vehicle according to at least one originally provided program. These operational elements define a fixed system that includes a bus. That bus includes a predetermined operable design for operation of the vehicle. The operational elements of the fixed system are controlled by an ECM, in accordance with an originally provided program. The ECM is coupled to the bus and is accessible to the outside at least for diagnostic purposes.

vi. Improving the apparent resolution of the image

The parties dispute the meaning of the following limitation found in both claims 15 and 146: "thereby improving the apparent resolution of the image without requiring an increase in the number of image elements originally making up the image." IPI's proposed construction for the phrase is: improving the original image to make it appear to have a higher resolution when displayed, without actually increasing the number of image elements originally making up the image, i.e., without increasing the number of elements in the image which is to be operated on by the claimed invention. In other words, under IPI's reasoning, the language "originally making up the image" refers to the signal that is originally input into the processing circuitry device. It argues that the invention has the ability to take an image from an input signal in a lower resolution and process that image in a manner that improves the resolution. Though no image elements are added to the image carried by the input signal, it maintains that the invention teaches that new image elements may be generated during processing of the signal in the device. Thus, the invention may include, but does not require, interpolation (i.e., inserting additional elements). IPI points out that adding new elements or replacing existing elements in an image that is subsequently displayed is a stated embodiment of the invention.

In contrast, Sony asserts that the limitation means to make the image which may be displayed appear as if it has more elements than it actually has, without adding further elements to that image, through interpolation or otherwise. Thus, it asserts that IPI is incorrect to the extent that it suggests that there can be an increase in the number of pixels of the image conveyed on the signal anytime up until the image is displayed. The patent defines "spatial resolution" as "the number of elements or pixels which are used to make up an image." U.S. Patent No. 5,424,780, col. 1, lines 22-24. Thus, Sony argues that "improving the apparent resolution" of the image means to make the image appear to have more image elements than it actually does, without increasing the actual resolution by adding elements to the image carried by the signal.

Sony likewise attempts to gather support from the prosecution history. In one of several relevant excerpts cited, Sony claims that Cooper was silent in response to, and therefore acquiesced in, the examiner's comments concerning how the King '478 patent did not anticipate or render obvious claims 1 through 25:

First, King does not improve the apparent resolution of the image without requiring an increase in the number of image elements originally making up the image as required by claims 1-25. Instead, King performs interpolation which generates new pixels. Therefore, there is an increase in the number of image elements originally making up the image.

Secondly, King does not alter the size or shape of [the] central element in order to provide information for the blank or
void areas as required by claims 26-41. Interpolation generates new pixels in blank or void areas. Interpolation does not change the size or shape of one or more pixels in order to provide information for a blank area. In the King reference the size of the matrix (containing pixel elements) has increased from a 7x5 to a 13x9. However, there is no direct relationship between the size of the matrix and the size or the shape of an individual pixel element.

Examiner's response to 11/29/99 communications during reexamination of the '780 patent at 16-17.

Sony likewise suggests that Cooper disclaimed de-interlacing techniques during prosecution when he distinguished the Birch '045 patent as follows:

As previously explained, Birch is not directed towards altering "voids" of the image; Birch merely substitutes one piece of modified information present at one time for another present at another time. In addition, the resolution of Birch remains unchanged over any scan conversion type device (i.e., in both the maximum of 480 lines of data will be perceived). At most it is believed that it could be said that Birch replaces the data with interpolated values for alternatives which it believes is more logical than the true value Y). Birch does not have or teach of filling any voids.


Finally, Sony invites the Court to consider a rebuttal report that Cooper submitted during the Dell litigation, which discusses the role - or lack thereof-of interpolation in the '780 and '637 patents. Though it is permissible for a Court to consider inventor testimony as one type of extrinsic evidence, see Phillips, 415 F.3d 1303, 2005 WL 1620331, at *10, it has only minimal probative value. See. e.g., E-Pass Technologies, Inc. v. 3COM Corp., 343 F.3d 1364, 1370 n.5 (Fed. Cir. 2003). The Court has reviewed the report but does not find it to tip the balance in favor of Sony's proffered construction.

Both parties make persuasive arguments in support of their respective positions. The Court agrees with Sony that the ordinary meaning of the term "apparent" suggests that the resolution is not actually improved, but only appears to be improved. Sony's interpretation, however, is directly at odds with language in the specification that clearly indicates that one method for filling voids is to generate new pixels. Bearing in mind the principles set forth in Phillips, the Court adopts IPI's interpretation, as it is truer to the claim language when read in light of the specification. Stating that the apparent resolution is improved "without requiring" more image elements does not preclude adding image elements as one way to increase apparent resolution, so long as other methods may also be used.

For example, the '780 patent states that "it is yet still another object of this invention to provide a means and method to improve the quality of an image by inspecting a plurality of neighboring elements to selectively generate new fill elements in response thereto." U.S. Patent No. 5,424,780, col. 2, lines 41-45. Similarly, the specification later reveals that "the video fill signal may be utilized to generate additional pixels in the video signal in response to 9, thus providing pixels to fill in the blank areas of the image." Id. at col. 5, lines 33-35.

Thus, the specification unambiguously provides that generating new pixels is one way in which the invention can fill voids in the image. In addition, the Court disagrees with Sony's contention that the inventor unequivocally disclaimed or limited the invention during prosecution in a manner that would exclude IPI's interpretation. In sum, the proper construction of "improving the apparent resolution" should be read as improving the original image to make it appear to have a higher resolution when displayed, without increasing the number of elements in the image carried on the signal originally input into the processing circuitry device.

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h. "Improving the Apparent Resolution of the Image Without Requiring an Increase in the Number of Image Elements Originally Making Up the Image"

For this term, which appears in claims 15 and 146 of the 780 patent, IPI proffers the following construction: improving the original image to make it appear to have a higher resolution when displayed without actually increasing the number of image elements originally making up the image. Lexmark and Dell contend that this term means improving the electronically coded input image to make it appear to have a higher resolution when displayed, but without actually
increasing the number of image elements making up the image (without interpolation).

Lexmark and Dell's proposed definition again relies heavily on the prosecution history of the 780 patent. During prosecution, the examiner made the following statement to which Cooper apparently acquiesced:

First, King does not improve the apparent resolution of the image without requiring an increase in the number of image elements originally making up the image as required by claims 1-25. Instead, King performs interpolation which generates new pixels. Therefore, there is an increase in the number of image elements originally making up the image.

S/N 90/005,484 O.A. 5/16/00 at 16. Lexmark and Dell contend that since Cooper acquiesced to this statement by the examiner, the phrase "without interpolation" must be included. The statements made by the examiner are not inconsistent with IP's proposed definition, which includes a limitation that there is no actual increase in the number of image elements displayed. Much as was the case with respect to the term "to select voids" in claim 15, Lexmark and Dell's definition seeks to specify a distinction implicitly contained in IP's definition. Accordingly, we accept IP's construction of this term.

In the Markman hearings, Defendant urged the Court to construe the word "providing" to mean "making the generated form available to the user." The Court rejected that construction and agreed with Plaintiff that the term "is an everyday word[] used in [its] ordinary, everyday sense and, thus, [it] need[s] no construction." Construction Order 1 at 31. Nevertheless, Defendant again urges the Court to define the word "providing" to mean "make available" in this instance. Using that definition, Defendant contends the XAP System does not meet this limitation because it only "makes available" the user information in a flat-file format rather than "in a format specified by the institution." In particular, Defendant argues that uploading the applicant information to a student-information system requires colleges to convert the flat-file format provided by the XAP System into a relational database format or a proprietary database format for use in the colleges' student-information systems. Defendant points to the expert opinion of Justin Tygar, Ph.D., to support Defendant's proposition that the XAP System does not provide information in a format specified by the institution.

Plaintiff, however, asserts it is entitled to summary judgment that the XAP System meets this limitation because the information the XAP System provides can be uploaded into a particular school's information system in a format selected by the school. Indeed, some of Defendant's own witnesses acknowledge the XAP System permits an institution to use Defendant's "Export Wizard" to choose a format that will allow it to upload information into its particular system. Def.'s Mem. in Supp. of Mot. for Summ. J., Shimanovsky Decl. P 4 (Export Wizard "is a point-and-click online tool, to be used by an authorized representative of a school or university in building a layout . . . [that] can be downloaded to the college's computer."); Pl.'s Reply, Monkress Decl., Ex. 4; Wagoner Dep. at 168 (a school can use Export Wizard to choose a format that will allow it to upload information).

This Court has construed the term "in a format specified by the institution" to mean "[t]he institution chooses from a third party one or more data formats that allow the institution to use the data without having to convert it." Construction Order 2. In his expert report, Dr. Tygar states "[t]he institution must access XAP's Control Center to create projects for retrieving the applicant data through Export Wizard." Pl.'s Mem. in Supp. of Mot. for Summ. J., Monkress Decl., Ex. 4; Tygar Expert Report at 63. Contrary to Defendant's arguments, the Court concludes Dr. Tygar's statement is, in fact, consistent with the Court's construction in that the institution accesses the XAP System's Export Wizard to choose a format suitable for uploading information without having to convert it and thereby specifies the format.

On this record, the Court concludes no genuine issue of material fact exists that Defendant's XAP System meets this limitation. Accordingly, the Court grants Plaintiff's Motion for Summary Judgment (# 371) as to this limitation of Claim 16.
The Court agrees with MEI and construes the term as "two or more plug electrodes are formed." Samsung argues that the phrase cannot be understood or construed. The claim language is awkward: "wherein said plug electrode is formed in a plural manner and said plug electrodes are connected respectively to both sides . . . ." '195 Patent col. 22:47-48. The grammatical error in the claim-at-issue does not cast its meaning into doubt so as to render it indefinite. The inventor's intent here is clear--plural means more than one. The intrinsic evidence shows multiple plug electrodes connected to a fuse portion. See '195 Patent Figs. 9g, 11e. Samsung fails to demonstrate that a person of ordinary skill in the art would not understand the claim as written.

Claim 1 of the '201 Patent states that the broadcasting and resolve functions are performed each in a time on the order of the logarithm of the number of processing elements . . .

Plaintiff construes the phrase here in issue as "each operation is performed in time based on the base 2 logarithm (log2) of the total number of nodes in a tree or subtree multiplied by the time required to broadcast from a parent to a child node and the time required to determine the result data between a parent and its child nodes." Pl. Br. at 16. Defendant's construction is "the broadcasting operation is performed in one clock cycle, multiplied by the base 2 logarithm of the number of processing elements in the binary tree; the priority is determined in two clock cycles, multiplied by the base 2 logarithm of the number of processing elements in the binary tree." Def. Br. at 14. According to defendant, "broadcasting" takes one clock cycle, and priority determination (or "resolve") takes 2 cycles (one for comparison and one to propagate the result to the next level). Thus, according to defendant, each operation is performed in the time that it takes to broadcast or resolve at each level multiplied by the number of levels in the tree. The time at each level is one clock cycle for broadcasting, and two for the priority determination. Def. Reply at 14.

Plaintiff's construction is flawed to the extent it suggests that "each operation" occurs in a time that is based on both the broadcast and priority determinations functions, omitting the words "each" and "respectively." See Def. Br. at 15. The parties are nevertheless essentially in agreement except for defendant's inclusion of a specific number of clock cycles, which plaintiff asserts contradicts the specific claim language of "on the order of." Pl. Reply at 12. The patent specification indicates, with respect to the broadcast function, that "data may be broadcast to all the [processing elements] of the array with a delay of only one cycle for each level of the array . . . . Since a processor instruction cycle typically requires over twenty clock cycles, there is sufficient time in one processor instruction cycle to broadcast data to all the [processing elements]." '201 Patent at 19:35-37, 42-45.

As the patent specification indicates, a single processor instruction cycle typically requires more than twenty clock cycles, '201 Patent at 19:42-43, but the patent was intended to ensure that the I/O device "communicate data and queries from the root processing element to all other . . . processing elements in one processor instruction cycle," id. at 5:11-14. According to the prosecution history, the applicants' original claim language specified that each of the functions would take "less than an average processor instruction cycle." '201 Patent Prosecution History, Def. Br., Ex. F, at FGC 408. The USPTO rejected that language because of the inherent ambiguity of the word "average," id. at FGC 829, and the applicants further amended the claim language to specify "each in a time." Thus, the time in which each function can be performed is calculated by
multiplying the number of levels in the binary tree by the time required for the broadcast or priority determination at each level.

With respect to the resolve function, the patent specification states: "[T]he entire resolve operation can be performed in the time it takes a number offered by a [processing element] to be clocked through the comparator plus the propagation time through the tree of one clock cycle per level. If the number offered is only a byte and the processor array only has ten levels, . . . the entire resolve operation can be completed in less than twenty-clock cycles which is less than the average processor instruction cycle." '201 Patent at 21:67-22:7. Plaintiff argues that this is the preferred embodiment using the example of only a byte, with the implication that if the number were larger than a byte, the time would exceed one clock cycle. See tr., 08/20/09, at 74, 99. Yet, while the preferred embodiment here specifies a ten-level binary tree, see '201 Patent at 19:39-40, it in no way indicates that the speed at each level would vary based on the size of the number offered for processing. To the contrary, in the same section of the specification, the patent clearly states: "Advantageously, there is a delay of only a single clock cycle in performing the comparison at each level in the binary tree . . . ." '201 Patent at 21:63-65. Hence, the comparison requires only one clock cycle. The report and resolve function, or determining a priority, thus takes one cycle for the comparison and one clock cycle per level to propagate the date back up the binary tree, for a total of two clock cycles, multiplied by the number of levels in the tree.

At the Markman hearing, counsel for defendants conceded that the specification indicated that the functions were capable of being performed in that time, not that they must be performed in that time. See tr., 09/21/09, at 105-06. Accordingly, the Court's construction of the disputed term is that "the broadcasting operation is capable of being performed in one clock cycle, multiplied by the base 2 logarithm of the number of processing elements in the binary tree; the priority is capable of being determined in two clock cycles, multiplied by the base 2 logarithm of the number of processing elements in the binary tree."

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8. "in accordance with" the "command" or "message." The command or message makes the bonus available. The claims do not require that the bonus is paid "automatically" or without any subsequent withdrawal steps upon receipt of the pay command.

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B. Claim 12

As stated in the mediation report, the only dispute as to Claim 12 is whether the 10Base-T MAU claimed there must meet the requirements of the proposed standards of IEEE supplement (P802.31/D10) for LANs. 4 Plaintiff. Mem., App. F at 4. The claim discloses a "10Base-T MAU comprising an AUI port in accordance with proposed standards of IEEE supplement (P802.31/D10) for LANs . . . ." '183 Patent at 8:35-37.

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4 The parties also renew the arguments with respect to "auto-engage means" that were raised in their discussion of the term in Claim 6. The court construes that term to be the same in all relevant respects to the term in Claim 6 and interprets it accordingly.

Seeq urges the court to interpret the claim such that the MAU must meet the referenced IEEE standards, and Level One argues that only the AUI port claims to be in accordance with those standards.

Viewing the claim in isolation, the court would agree with plaintiff's reading that only the AUI port claims to be in accordance with the IEEE proposed standards. However, the specification, beginning with the second line of the abstract, states that the disclosed 10Base-T MAU will "meet[] or exceed[]" the proposed standards of the IEEE supplement (P802.31/D10) for LANs. See also '183 Patent at 2:17-19. Accordingly, the court concludes that both the MAU and the AUI port of Claim 12 must meet the referenced IEEE standards.

5 This construction of MAU holds true for the MAU disclosed in Claim 6 as well. This does not mean though, as defendant would have it, that any discussion of a twisted pair MAU in the proposed standard is automatically incorporated into the definition of the term.

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C. "In-Band Telecommunications Signaling" and "Out-of-Band Telecommunications Signaling"

Claim 38 of the '572 patent recites the term "in-band telecommunications signaling." Sprint contends that this is a term of art that should be construed to mean signaling that is sent on the same channel as that used for voice or data, whereas Vonage contends that it should be construed to mean signaling transmitted on the actual communications path. This claim also recites the term "out-of-band telecommunications signaling." Again, Sprint contends that this is a term of art which should be construed to mean signaling that is sent on a distinct channel from that used for voice or data, whereas Vonage contends that it should be construed to mean signaling message that is not transmitted on the actual communications path. The crux of the parties' dispute is whether characterization of signaling as in-band or out-of-band is determined by whether that signaling is transmitted on the same or separate channels (Sprint) or by whether it is transmitted on the same or separate communication paths (Vonage).

Vonage relies on language included in the specification which addresses the nature of in-band and out-of-band signaling, as follows:

As is known in the art, in-band signaling is typically used in many user to network connections, such as the local loop. This is because only one connection or link is typically provided to the user premises and thus, the signaling must be placed on the actual communications path. The initial network switch typically removes the signaling from the communications path and transfers it to an out-of-band signaling system. The current invention is fully operational in this context. Although the switch may receive the signaling initially, it will only route the signaling to the CCP for processing. Even if in-band signaling is used within the network, the switches could remove signaling from the communications path and route it to the CCP for processing in accord with the present invention.

'572 Patent at 7:50-63. Sprint, on the other hand, relies on Vonage's experts' understanding of the terms "in-band" and "out-of-band." Frank Koperda, Vonage's invalidity expert, stated in his expert report that "in-band' signaling is the exchange of signaling information . . . within the same channel that the telephone call itself is using" and that "'out-of-band' signaling is telecommunication signaling that is done on a channel that is dedicated for the purpose and separate from the channels used for the telephone call." Also, Joel M. Halpern, Vonage's noninfringement expert, testified in his deposition that out-of-
band signaling "has to be in a separate band, a separate recognizable channel."

The evidence from Vonage's experts clearly views the teens "in-band" and "out-of-band" as being distinguished with respect to a channel, which leads the court to believe that these might be terms of art, as Sprint contends. In an attempt to understand the distinction between a "channel" and a "communications path," the court has consulted a technical dictionary to determine the meanings of the relevant terms as they would have been understood by a person of ordinary skill in the art at the time of the invention. "In-band signaling" means "[s]ignaling made up of tones which pass within the voice frequency band and are carried along the same circuit as the talk path that is being established by the signals." Harry Newton, Newton's Telecom Dictionary 537 (7th ed. 1994). "Path" means "[t]he route a telecommunications signal follows." Id. at 773. "Out-of-band signaling" means "[s]ignaling that is separated from the channel carrying the information -- the voice, data, video, etc." Id. at 756. "Channel" means "a voice-grade transmission facility with defined frequency response, gain, and bandwidth. Also a path of communication, either electrical or electromagnetic, between two or more points." Id. at 217.

The common and ordinary meanings of these words can be harmonized with the excerpt from the specification. In discussing "in-band signaling," the specification explains that only one connection or link is typically provided to the user premises and therefore the signaling "must be placed on the actual communications path." '572 Patent at 7:52-53. The initial network switch typically removes the signaling from the communications path." Id. at 7:55-56. The specification further explains that even if in-band signaling is used within the network, the switches "could remove signaling from the communications path." Id. at 7:60-61. The technical definition of in-band signaling refers to the "talk path," and the term "path" means the route a telecommunications signal follows. With respect to the claim term "in-band," then, the intrinsic record establishes that its meaning is defined with respect to the communications path. There is no suggestion in the intrinsic record that it should be defined in terms of a channel. Consequently, the court must discount the expert opinions that are at odds with this intrinsic evidence. Accordingly, the court construes the claim term "in-band telecommunications signal" to mean signaling that is sent on the same communications path as that used for voice and/or data.

The specification does not, however, indicate that the claim term "out-of-band telecommunications signaling" must necessarily be construed as the counterpart to in-band telecommunications signaling. The specification sheds light on the meaning of the claim term "out-of-band telecommunication system," in that the network switch removes the "signaling from the communications path and transfers it to an out-of-band system." Certainly, this indicates that out-of-band means removing the signaling from the communications path. This is not inconsistent with what appears from the record to be the generally accepted meaning of the term within the telecommunications industry, which is that out-of-band signaling is signaling that is separated from the channel carrying the voice and/or data. And, defining out-of-band signaling in terms of a separate channel is also consistent with Vonage's experts' apparent understanding of this term. Thus, the court is persuaded that "out-of-band" signaling is indeed a term of art defined in terms of the channel, as suggested by Sprint. Accordingly, the court construes the claim term "out-of-band telecommunications signaling" to mean signaling that is sent on a separate channel from that used for voice and/or data.

1 The court recognizes the seeming incongruity in construing "in-band signaling" in terms of the communications path while construing "out-of-band signaling" in terms of a separate channel. But, this actually comports with the commonly understood meanings of those terms, as illustrated by the dictionary definitions set forth above. Moreover, the distinction is attributable to the "communications path" language included in the specification with respect to "in-band" signaling. In the absence of that language in the specification, the court would be inclined to construe both of the terms in light of the "channel" distinction.

3. "in circuit" (1[c], 11[b])

(i) Claim Construction

The Court has considered all of the testimony regarding interpretation of the term "in circuit." More so than with the
interpretation of other claim terms heretofore addressed, the parties' discussion of the claim term "in circuit" requires application of Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). n27 "It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" Id. at 1312 (citation omitted). "The words of a claim 'are generally given their ordinary and customary meaning'" where "the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention . . . .'" Id. Intrinsic evidence, such as the specification and the prosecution history, is key to an interpretation of claim terms, with the specification playing a slightly more important role than the prosecution history. Id. at 1315-17. However, a court should avoid reading limitations from the specification into the claim. Id. at 1323. In particular, the Federal Circuit has "expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." Id. at 1323.

--- Footnotes ---

n27 Phillips was decided after the trial in this case concluded and after the parties submitted their briefs.

--- End Footnotes ---

Extrinsic evidence, such as dictionaries, treatises, and expert testimony has a more limited role than intrinsic evidence in claim interpretation. Id. at 1317-18. The parties submitted more extrinsic evidence regarding the interpretation of the term "in circuit" than with regard to any other claim term at issue in this case. Although extrinsic evidence in the form of expert testimony can be useful . . . to provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field . . . conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court. Similarly, a court should discount any expert testimony "that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history . . . ."

Id. at 1318 (citation omitted) (emphasis added).

Claim 1 of the '903 Patent describes the first portion of the selection monitor "being connected in circuit with the vend producing means when the vend switch means are actuated." '903 Patent col. 8, lines 35-40. At trial, Mr. Kesner, Mars' expert witness, suggested that for two elements to be in circuit, a direct connection must exist between those elements. Therefore, Mars argues that this claim language requires that the product selection switch be located between the selection monitor and the vend producing means, as drawn in Figure 1, so that the first portion and vend producing means are not in circuit when the switch is not actuated. Dr. Morley, Coinco's expert witness, expressed his belief that elements in circuit shared a common completed current, and that the definition of "in circuit" had nothing to do with a direct connection between those elements. Consistent with this definition, Coinco argues that the claim language includes the situation where the vend producing means is between the selection monitor and the product selection switch.

The Court applies Phillips to determine the weight of the various sources submitted by the parties for interpretation of the term "in circuit." Therefore, the Court first considers the ordinary meaning of the language within the claims at issue. Claim 1 refers to an output signal which "establishes a circuit condition that initiates a vend operation." '903 Patent col. 8, lines 52-54. This provides evidence that the word "circuit," as used in the '903 Patent's description of the relationship between the selection monitor, selection switch, and vend producing means, refers to the flow of current.

Phillips also places strong weight on intrinsic evidence, such as the specification and prosecution history. The specification refers to "selection switches 12, 14, 16, and 18 which are connected in series, and when one of them is actuated it completes a circuit through an associated vending device 20, 22, 24, and 26." '903 Patent col. 2, lines 40-44 (emphasis added); see also '903 Patent col. 3, lines 40-46. Additionally, the specification explains that "line 62 determines that one of the vend selection switches 12, 14, 16, and 18 has been actuated . . . when a circuit has been completed through an associated one of the vend control devices 20, 22, 24, and 26 . . . ." '903 Patent col. 3, lines 29-36 (emphasis added). The specification thus provides further evidence that the requirement for an "in circuit" connection between elements refers to the ability for current to flow through all those elements.
The prosecution history contains further evidence that "in circuit" refers to the completion of a possible electrical circuit via a group of named structures through which electricity may flow. The examiner's remarks explain that:

Claim 1 also requires that the first portion be connected in circuit with the vend producing means when the vend switch means are actuated. This refers to the first portion of the circuit 58 which is the portion connected in circuit with the vend producing solenoid means when the operator actuates the associated vend switch. This establishes a circuit through the said first portion of the circuit 58 so that the second portion is actuated to operate . . . .

(Def's Ex. 471, at 47. (emphasis added)) In this case, the examiner clearly interpreted the term "in circuit" of claim 1 to refer to an action which permits the second portion to become actuated. This cannot occur unless current flows through the first portion.

Thus, following Phillips' holding regarding the importance of evidence intrinsic to the patent, the language of claim 1 itself, the specification, and the prosecution history all speak of the selection monitor and the vend producing means as "in circuit" only when current may flow between them.

Some of the trial testimony regarding the meaning of "in circuit" appeared to revolve around a discussion of "in circuit" as a defined term within the field of electrical engineering. (See, e.g., Tr. vol. 29, 151; Tr. vol. 33, 14-15.) The Court has considered this testimony and, in light of Phillips, rejects this extrinsic evidence. Although extrinsic evidence has value, Phillips holds that courts must look primarily to the intrinsic evidence to interpret claim terms. Therefore, a court need not look for supporting documentation outside of the '903 Patent if the patent itself and its prosecution history provide information necessary to properly construe a term. Additionally, Phillips also explains that single embodiments, like Figure 1, do not cause additional limitations to be read into the claim terms. Phillips, 415 F.3d at 1323. As a result, the words "in circuit" in claim 1 of the '903 Patent have not acquired the meaning that Mars urges.

Claim 11 describes "a control monitor circuit having an input control portion connected in circuit with the product selection switch and energized by actuating said product selection switch." '903 Patent col. 9, lines 64-67. Generally, the same terms in a patent should have the same meaning. Phillips, 415 F.3d at 1314. The language of claim 1, the specification, and the prosecution history all make clear that "in circuit" within claim 1 refers to the fact that current must be able to pass through all of the three named elements: the first portion, the input control portion, and the vend producing means. However, in claim 11, the term "in circuit" only refers to the selection monitor's input control portion and the product selection switch, without describing the vend producing means. Claim 11 also specifically requires that the unactuated selection switch be "in circuit" with the selection monitor at a time when current cannot flow. Because of the language used to describe these elements in claim 11, the Court agrees with Coinco, and finds no requirement that the use of "in circuit" within claim 11 places any limitation on the location of the vend producing means. The product selection switch and the selection monitor are "in circuit" here because electrical current could flow between the two of them if one chose to apply electrical current to the switch itself.

--- Footnotes ---
n28 As used in the patent, the "first portion" and the "input control portion" both appear to refer to the same element.
--- End Footnotes ---

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F. "In Communication With the Personal Information Provider" (‘245 Patent)

This term appears in independent claims 1, 2, 7, and 8 of the ‘245 patent. CashEdge asserts that "in communication with the personal information provider" should be construed to mean "the client computer communicates with the personal information provider." Yodlee asserts that no construction is necessary and that CashEdge's construction is redundant, in response to which CashEdge asks the Court to accept its construction to prevent Yodlee from taking a contrary position later in the case. The Court agrees with Yodlee that CashEdge's construction is redundant. The plain language of the claim is substantively identical to CashEdge's proposed construction, making it clear that the client computer communicates with the
The Court therefore declines to construe this phrase. The Court construes the phrase "in data communication with" as used in Claim 4 of the '720 Patent, as follows:

a reception system connected to subscriber selectable receiving stations such that data can be transferred between the devices in real time.

EMC contends that the term "in parallel with," as used in the first command, means concurrently with. HP maintains that the term is vague. The plain and ordinary meaning of the term "parallel" is marked by likeness or correspondence esp. in time, direction, course, tendency, or development: similar, analogous, or interdependent in line followed: tending toward the same point or result[.]

Webster's Third International Dictionary, 1637 (1981). Nothing in that plain meaning nor in the claim language renders the term "in parallel with" vague or indefinite in the context of the subject patent. Indeed, the claim language clearly states that, in response to a first command, the second data storage facility is attached "in parallel with" the first in order to establish a mirrored copy of the data in the second data storage system. Given the objective of the subject attachment, it would be obvious to one skilled in the art that the phrase "in parallel with" means that the two data storage devices are attached together so that they correspond to one another in time, i.e. they are attached such that a mirroring relationship is created whereby changes made to the data in the second storage facility are made concurrently with changes to the data in the first storage facility. See '497 Patent, Col. 17, In 56 - Col. 18, In. 5. Thus, the phrase "in parallel with", as used in Claim 1 of the '497 Patent, describes the result of the attachment of the two data storage devices rather than the attachment itself.

Although that construction may not be obvious from a cursory review of the claim terms, because one of ordinary skill in the art would likely understand such use of the disputed term, the phrase "in parallel with" is not "insolubly ambiguous" and HP has not met its weighty burden of proving that a claim term is vague or indefinite. In accordance with the claim language and the Specification, therefore, the term "in parallel with" will be construed to mean that the two data storage systems are attached to correspond to one another in time such that a mirroring relationship is established whereby the two data storage facilities receive data from the first application concurrently.

Although used in a different context, that construction is also consistent with this Court's construction of the disputed claim term "concurrently" in the '347 and '792 Patents.
9. "In Relation to the Credit Value"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "having a relationship to the credit value." The defendant proposes "having a one-to-one correspondence or other desired relationship to the credit value."

The defendant argues that the specification describes a numerical relationship between cash value and credit value. See '116 patent, 4:37-41. Although the specification describes such a relationship, the court is not persuaded that this claim term needs construction. This term may be understood according to its plain and ordinary meaning. No further construction is necessary.
Claims 1, 7, 11, and 14 refer to various computers acting "in response to" requests. NCI argues that this phrase means "to take some action in reply to or in reaction to the request." NCI's arguments are based on the ordinary meaning of the words. Microsoft counters that the phrase should mean that the response occurs "as a direct result of" or is "directly caused by" the request. Microsoft argues further that "in response to" cannot be unlimited in time, cannot cover breaks in causation, and that NCI's construction would eliminate the Claims' requirement of what performs the response. NCI responds that Microsoft is improperly adding time and event limitations from the specification.

The ordinary meaning of the words in the claim is clear; no further interpretation is necessary. "In response to" means to take some action in reply to or in reaction to the request. Nothing in the specification or prosecution history limits the meaning of this phrase, and it is immaterial whether the response occurs immediately after the request or whether there is a time gap or intervening events prior to the response. To add limitations of time and singular causation would be to improperly import limitations from the specification. Toro Co. v. White Consol. Indus. Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999).

The parties dispute the term "in response to a query command," which appears repeatedly in the context of the phrase "determining [a join table definition] in response to a query command." Because the parties do not dispute the meaning of "a query command," the specific issue is the meaning of "in response to." Defendants assert "in response to" should be construed to mean "after receiving." Plaintiff contends this term is entitled to its ordinary meaning, and that the ordinary meaning of "in response to" is "in response to." The Court relies on the plain and ordinary meaning of "in response to." See Interactive Gift Express, Inc. v. CompuServe Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001) (where claim language is clear on its face "then our consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of the claims is specified"). Neither the specification nor prosecution history provides a different meaning for "in response to" or indicates Plaintiff used the term with a meaning other than its ordinary meaning. As Plaintiff argues, "in response to," in the context of the claims, means the join table definition must be responsive to the query command. Defendants agree that "in response to" includes a causation requirement, but Defendants' construction consists of only a temporal requirement. (Defs.' Opp'n to Pl.'s Opening, at 20:22-24.) Under Defendants' construction, it does not matter what the resulting join table definition is, as long as the join table definition comes after the query command.

In addition, the Court agrees with Plaintiff that Defendants' construction limits the claim by requiring the entire query command to be received before the system can begin processing the query command. Nothing in the intrinsic evidence limits "in response to a query command" in this manner. Indeed, the specification describes the use of "queues" and "streaming" for parallel query processing, and indicates that data may be in the form of "data streams." Col. 9, lines 10-12, Col. 14, lines 33-37.

Therefore, the Court finds "in response to a query command" is entitled to its ordinary meaning.

The '386 Patent

The administrative law judge held that the claim term, "circuit interrupter coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state" did not require construction and could be analyzed according to its plain meaning. The administrative law judge noted, however, that the circuit interrupter need only trip in response to an actuator signal generated by a fault in the reset state; it need not trip in response to a wiring state detection signal in the reset state.
On review, the Commission mostly agreed with the administrative law judge, though it noted that the claimed circuit interrupter had to be configured to trip in response to the actuator signal in the reset state. Since the asserted claim requires the actuator assembly to generate an actuator signal in response to the wiring state detection signal, it follows that generation of a wiring state detection signal ultimately causes the circuit interrupter to trip when in the reset state. Commission Op. 2009 ITC LEXIS 525 at *23. The specification teaches that a wiring state detection signal is generated when the device is properly wired. Accordingly, under the Commission's interpretation of the claim the patented device must be configured to trip in response to a signal that the device is properly wired. Id. In so holding, the Commission acknowledged that such a claim requirement was not perfectly logical, and may have been the result of a claim drafting error. Id. Under the Commission's construction, the devices at issue were found not to infringe.

On appeal, P&S challenges the Commission's interpretation by arguing that the claim does not require the device be configured to provide a wiring state detection signal in both the tripped and reset states. According to P&S, the relevant claim limitations are satisfied by a device configured to provide a fault detection signal in the reset state, even if it is not configured to provide a wiring state detection signal in the reset state. As P&S admits, a device configured in this way would never trip in response to a wiring state detection signal in the reset state, because no such triggering signal would be generated in that state. Rather, it would only trip in response to a fault detection signal in the reset state. P&S argues that the claim as drafted is perfectly logical, and that the Commission's reinterpretation and characterization to the contrary merely betray a misunderstanding of the claim language.

We disagree. The plain language of claim 1 of the '386 patent requires that the circuit interrupter be configured to trip in response to an actuator signal in the reset state. The wiring state detection circuit and the actuator assembly claim elements do not contain limitations as to the circuit state. These components of the device must therefore generate their respective signals at least once, without regard to the state of the device (i.e., reset or tripped). Construing this limitation to require generation of an actuator signal without respect to the state of the device does not conflict with any other limitations of the claim. For instance, if a wiring state detection signal is generated in the reset state, then it will trigger an actuator signal, which will then trip the device. If such a signal is generated in the tripped state, it will again trigger the actuator signal. The actuator signal will not engage the circuit interrupter, of course, because the device is already tripped.

P&S's objection to the Commission's construction primarily relies on a statement in the specification that the wiring state detection circuit operates when the line terminal is powered and the appliance is properly wired, and not when it is improperly wired. See '386 patent col.12 ll.27-30. P&S argues that it makes no sense to require a miswiring protection device be configured to trip a properly wired appliance and not an improperly wired appliance. The plain language of the claims, however, does not allow for an exception to this consequence, and the intrinsic evidence of record supports the Commission's construction. The specification contemplates embodiments in which the wiring state detection signal trips the device in the reset state only once, until a fuse or resistor is burned out. See id. col.7 l.59-col.8 l.15.

P&S's claim differentiation argument, which relies on a comparison to claim 9, is also unavailing. Claim 9 requires that the device generate a wiring state detection signal during the transition between the tripped state and the reset state, in response to the user pressing the reset button. Id. col.15 ll.29-62. Under the plain language of claim 9, this signal may be generated while the device is completing the transition between states, and thus before it has entered the reset state. This limitation in claim 9 is not present in the claim asserted here, claim 1. Claim 1 is broader. It reads on a device configured to generate a wiring state detection signal in both the tripped and reset states. Moreover, just like asserted claim 1, claim 9 requires the device to trip in response to a wiring state detection signal in the reset state. See id. col.15 ll.45-60. The problem of the device tripping when properly wired therefore affects claim 9 and claim 1 alike.

The argument that the transition term of the claim is open-ended likewise does P&S no good. Even though the device may include additional wiring state detection circuits that generate signals only in the tripped state, it must still contain at least one wiring state protection circuit that generates a signal at least once when power is applied, without respect to the state of the device. If the accused products do not contain such a circuit, as the Commission found, then they do not infringe. See Warner-Jenkinson Co., 520 U.S. at 29. We see no error in the Commission's findings on this point.

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B. Defendant's Motion for Summary Judgment of Invalidity of the '621 Patent and Plaintiff's Motion for Summary
Judgment of No Invalidity of the '621 Patent

Claim 1 of the '621 patent recites the claim limitation of "a controller connected to said switching member and to a third winding of said transformer, for generating said control signal in response to the output of said power supply." ('621 patent, col. 10, 11. 45-48)

Defendant asserts that the '621 patent is invalid because each of the asserted claims is not enabled by the specification. More specifically, defendant argues that the claim limitation "in response to the output of said power supply" is not enabled by the specification. The validity dispute is essentially a dispute regarding claim construction.

The parties agree as to the essence of the invention described in the specification of the '621 patent. The patent discloses a switching power supply. As described by the patent,

it is especially preferred for the power supply to include a transformer having first, second and third windings, wherein the voltage component is provided to the first winding and wherein the second winding defines the output of the power supply. A switching member is connected to the first winding for permitting and preventing the flow of current through the first winding. The switch member is operable in response to a control signal. A control member generates the control signal in response to the output of the power supply and is connected to the third winding. ('621 patent, col. 2, 11. 38-47) The following is a simplified diagram of figure 5 of the '621 patent that illustrates the invention described in the specification.

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Defendant argues that the claim requires the controller to operate in response to the output of the power supply (i.e., the second winding) but the specification enables a controller operating in response to the feedback winding (i.e., the third winding). Plaintiff asserts that the third winding is representative or reflective of the second winding and, thus, the controller is responding to the second winding.

Defendant's argument is buttressed by the fact that in the parent application to the '621 patent the examiner rejected similar claim language in a different claim based on lack of enablement. Claim 8 in the parent application claimed, in relevant part, "a reference current generator for generating a reference current signal in response to the output of said power supply." (D.I. 103 at 383609) The examiner rejected claim 8 "under 35 U.S.C. § 112, first paragraph, as the disclosure is enabling only for claims limited to a reference current generator responsive to the voltage across the third transformer winding." (Id. at 383641) The patentee responded to the rejection stating, "applicant has amended claim 8 to now reflect that the reference current generator generates a reference current signal in response to a signal reflective of the output of the power supply. Such language could include the third winding or some other winding. The examiner's objection is believed to be overcome." (Id. at 383659) (emphasis added) Thus, claim 8 in the '621 patent states, in relevant part, "a reference current generator for generating a reference current signal in response to a signal reflective of the output of said power supply." ('621 patent, col. 11, ll. 16-18) Claims 1 and 13 (the asserted independent claims) were not rejected by the examiner nor amended by plaintiff based on this enablement issue.

The parties have each proposed a claim construction that, if adopted, is dispositive of the issue of enablement. 1 The court has reviewed the patent and determined that the proper construction of the phrase "a controller ... generating said control signal in response to the output of said power supply" means "the controller generates the control signal based a direct reaction from the second winding."

--- Footnotes ---

1 Plaintiff argues that the claim limitation "generating said control signal in response to the output of said power supply" means "that the control signal is generated based on a signal, such as voltage, that is representative of the output of the power supply." Defendant asserts that "in response to the output of said power supply" means "in response to the output of the second winding; does not include a signal reflective or representative of the output of the second winding."

--- End Footnotes ---
This claim construction is in accord with the prosecution history of claim 8. Plaintiff argues that "all the applicants did by amending claim 8 was make express the meaning of the claim term 'in response to the output of the power supply' that was already known to one of ordinary skill in the art -- the control signals are generated in response to a signal reflective of the output of the power supply." (D.I. 116 at 28) The court disagrees. The patentee indicated during prosecution what the plain language makes clear - adding the words "reflective of" to the claim was necessary to coincide with the specification.

Furthermore, plaintiff has failed to cite any evidence that one of ordinary skill in the art would understand that in the asserted claims the control signals are generated in response to a signal reflective of the output of the power supply. 2 In the absence of facts set forth in detail in an affidavit by a knowledgeable affiant, plaintiff has failed to carry its burden of proof. See Barmag Barmer, 731 F.2d at 835-36 (internal citation omitted).

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2 Although not cited in the claim construction papers or the summary judgment briefs, the court did locate the expert report of Professor James K. Roberge. (D.I. 106, Ex. 21) The expert report of Professor Roberge simply reiterates the attorney argument presented by plaintiff in the briefing papers. The expert report does not provide any guidance for the court with respect to what one of ordinary skill in the art would understand "in response to the output of the power supply" to mean.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

While it is not clear why the examiner did not reject claims 1 and 13 on the same basis as claim 8 (or why the patentee did not amend each of the claims pursuant to the enablement rejection), the court finds claims 1 and 13 are not enabled by the specification. The claims require the controller to directly respond to the second winding. The specification, however, only enables a controller that responds to the third winding.

For the reasons stated above, defendant's motion for summary judgment of invalidity of claims 1, 2, 12, 13, 23 and 24 (D.I. 100) is granted. Plaintiff's motion for summary judgment of no invalidity of the '621 patent (D.I. 107) is denied.

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Elster argues that the district court's claim construction is not in accordance with the plain and ordinary meaning of "in response to." Specifically, Elster contends that the claim should be construed to cover a controller that generates a control signal in reaction to the output of the power supply, i.e., an indirect reaction to the output of the second winding, as reflected in the output of the third winding. Elster contends that an indirect response by the third winding to the second winding of the transformer is enabled by the specification. Schlumberger points out that even if the claim is construed to include an indirect and a direct response to the second winding, the written description must enable both. Schlumberger contends that under this construction, the summary judgment for invalidity was appropriate because the claim covers the third winding's direct response to the second winding, and the written description fails to enable such a direct response.

Claim 1 of the '621 patent provides:

1. A power supply for use in apparatus for electronically measuring or distributing electrical energy, said electrical energy defining an input voltage, said power supply comprising:

   a transformer comprising first and second windings, wherein said input voltage is provided to said first winding so that current flows through said first winding, wherein said second winding defines the output of said power supply;

   a switching member connected to said first winding, for permitting and preventing the flow of current through said first winding, wherein said switching member is operable in response to a control signal;

   a controller connected to said switching member and to a third winding of said transformer, for generating said control signal in response to the output of said power supply; and
a voltage blocking clamp, connected to said transformer and said switching member, wherein said input voltage is applied to said voltage blocking clamp, for limiting and blocking the voltage applied to said transformer, said voltage blocking clamp comprising first and second transistors and biasing means connected to said first and second transistors, wherein said biasing means biases said first and second transistors so that the voltage provided by said voltage blocking clamp does not exceed a desired level.

'621 patent, col. 10, ll. 31-58 (emphases added). The claim recites that the "controller connected . . . to a third winding" of the transformer responds "to the output of said power supply." Id. at col. 10, ll. 45-48. The claim also recites that "the output of said power supply" is defined by the second winding. Id. at col. 10, ll. 35-39. Therefore, in order to have the controller respond to the output of the power supply, the signal in the third winding must be responsive to the signal in the second winding. The district court appeared to recognize this principle by construing the claim limitation "in response to" to require the third winding directly respond to the second winding. However, this claim construction is unduly restrictive because the claim encompasses any response-either direct or indirect-by the third winding to the second winding. Nonetheless, claims 1 and 13 are not enabled because the written description fails to teach any response between the third and second windings.

10. "in response to a user selecting one of the entries' universal resource locator" (claims 5 & 7)

Plaintiff argues that this term means "that information is presented to the user after the user selects one of the search results displayed as a result of the search." Defendant proposes that the term should be construed to mean "in response to a user selecting one of the embedded web addresses." This is another instance in which the defendant asks the court to limit the computer network to the World Wide Web by requiring an URL to be limited to a Web address. That argument previously was rejected.

The construction proposed by the plaintiff is consistent with the record. The court construes "in response to a user selecting one of the entries' universal resource locator" to mean that information is presented to the user after the user selects one of the search results displayed as a result of the search."

5. "in response to the stored compressed, digitized data"

Claim 14 provides:

in response to the stored compressed, digitized data, transmitting a representation of the at least one item at a real-time rate to at least one of a plurality of subscriber receiving stations coupled to the local distribution system

The parties dispute the proper construction of the phrase transmitting "in response to the stored compressed, digitized data" as that phrase is used in Claim 14 of the '863 patent.

The word "responsive" has a plain and ordinary meaning, namely, "answering." See Webster's New Twentieth Century Dictionary, 1543 (2d ed. 1983). In the field communications field, a responsive action is one which replies to a transaction generated by a request. IEEE 100: The Authoritative Dictionary of IEEE Standards Terms, 976 (7th ed. 2000). Thus, the word "responsive" is commonly understood to describe both a "cause-effect" relationship between two events and a timing relationship between them.

4 In the "cause-effect" relationship, a second event is "responsive" to a first event if the first event causes the second event to happen. In the "timing" relationship, the second event is "responsive" if the second event happens after the first event. The Court finds that these two concepts are not mutually exclusive.
The Court finds that one of skill in the relevant art reading the patent documents would give the phrase "in response to the stored compressed data" in its plain and ordinary meaning. Accordingly, the transmitting step is caused by the storing of the compressed, digitized data and is commenced after the storing of the compressed, digitized data. 5

5 Although it is not explicitly stated as a step, because the information which is stored is the same information which is being transmitted (albeit at a real-time rate), a step of retrieving the information from the place where it is being stored is necessary before the information can be transmitted.

With respect to the timing concept included in the definition of "in response to," the parties dispute whether the responsive "transmitting" step may take place while the information is being stored in the local distribution system, or must the "transmitting" step wait to commence after the storing step has been completed. In the December 14 Order, the Court held that a step, which acts as an antecedent for a subsequent step, must commence before the succeeding step commences, and it must finish before the succeeding step can finish. However, the succeeding step can start while the antecedent step is in process. (See December 14 Order at Section IA2.) The Court gives this same interpretation to Claim 14 and finds that the responsive transmitting step can start before the antecedent storing step has been completed.

The Court construes the phrase transmitting "in response to the stored compressed, digitized data" as follows:

transmitting a representation of the at least one item which is initiated by the commencement of storing compressed, digitized data or by the completion of storing compressed, digitized data.

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7. "each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding" (’190, ’083, and ’702 patents)

* * *

SynQor argues that, contrary to the Defendants’ assertions, the terms "synchronous rectifier" and "controlled rectifier" are not synonymous. SynQor argues that the term "synchronous rectifier" may refer to a device that contains a controlled rectifier plus other things, such as a body diode that is part of the structure of the synchronous rectifier. SynQor argues that the specification describes a MOSFET "synchronous rectifier" composed of a "controlled rectifier" (e.g. a transistor) and an "uncontrolled rectifier" (e.g. a diode). See ’190 patent, 6:27-29. SynQor argues that other types of synchronous rectifiers do not include an uncontrolled rectifier. SynQor also argues that the claim language clearly indicates that the inventor did not use the terms "synchronous rectifier" and "controlled rectifier" synonymously. SynQor also argues that its proposed construction follows the same logic as the agreed upon construction for the term "uncontrolled rectifier." Defendants argue that the clarity of the claim language is such that no construction is necessary other than to note that the rectifiers required by the claim are "synchronous rectifiers." Defendants argue that the language of the claims makes it clear that there cited rectifiers are "synchronous rectifiers." Moreover, the specifications of the patents-in-suit repeatedly use the term "synchronous rectifiers" to describe the exact types of rectifiers recited in the claims. Defendants argue that the term "controlled rectifier" on its face is not limited to a "semiconductor" device and there is no language in the specification that would limit the concept of a "controlled rectifier" only to a semiconductor device. Further, Defendants argue that SynQor improperly injects "fact findings" into the proposed construction that is inconsistent with the specification and the claims. Defendants argue that while there are no references equating a MOSFET to a "controlled rectifier," there are many references discussing "MOSFET synchronous rectifiers."

The specification uses the terms "synchronous rectifier," "controlled rectifier," and "uncontrolled rectifier." In contrast, the claims only use the terms "controlled rectifier" and "uncontrolled rectifier." Defendants admitted during oral argument that a "controlled rectifier" is not always a "synchronous rectifier." Rather, Defendants essentially argue that in the context of the
claims and specificationthat the rectifiers as claimed are "synchronous rectifiers." The Court rejects this argument. The Court has consistently held that when the claims and specification use different terms, that those different terms should normally not be given the same meaning. While there are portions of the specification that indicate a relationship between controlled rectifiers and synchronous rectifiers, the Court will not equate the two terms when the claims expressly require "controlled rectifiers." Further, in certain dependent claims, such as claim 5, the "controlled rectifier" is a "voltage controlled field effect transistor," which is not necessarily a synchronous rectifier.

The claims and the specification contrast "controlled" and "uncontrolled" rectifiers. In general, a diode is an uncontrolled device. In contrast, a "controlled rectifier" is a type of active device, represented by a transistor. The background of the invention states that diodes are sometimes replaced with transistors called synchronous rectifiers, which "are typically power MOSFETs for converters switching in the 100 kHz and higher range." See '190 patent, 1:42-47. The specification provides that "the schematical drawings of Q3 and Q4 depict the need for a controlled rectifier (e.g. a transistor) and an uncontrolled rectifier (e.g. a diode) connected in parallel." Id. at 6:25-27. Thus, both in the specification and dependent claims, a controlled rectifier is represented by a "transistor." However, the specification repeatedly references a MOSFET with a synchronous rectifier. Id. at 1:45-46; 6:24-25; 12:24-26; 13:25-26; 16:8-10. While a MOSFET synchronous rectifier might be a controlled rectifier in some instances, the Court is hesitant to equate a MOSFET to a controlled rectifier in its construction when the specification treats a MOSFET as a synchronous rectifier and when SynQor ardently opposes equating a controlled rectifier with a synchronous rectifier. The parties agreed that the term "uncontrolled rectifier" means "diode (including MOSFET body diode) or other passive device used as a rectifier." The Court will adopt a similar construction for the term "controlled rectifier" as the parties did for the term "uncontrolled rectifier." Thus, the Court construes the term "controlled rectifier" to mean "transistor or other active device used as a rectifier."

Regarding the entire phrase, consistent with previous terms and for the same reasons, the Court rejects SynQor's attempt to add "during normal operation" to this term when there is no basis for it in the claims or the specification. The phrase requires the controlled rectifiers to act in synchronization with the voltage waveform across a primary winding. In general, the dictionary definition of synchronization means to occur at the same time, to operate in unison, or to cause to agree in time of occurrence. Synchronization, as used in the claims, implies that the controlled rectifiers are turned on and off at the same time as a change of the voltage waveform, not a change from one voltage stage to another. SynQor attempts to add "approximately" in its construction for the term without support in the specification, and thus the Court denies such an attempt. However, the Court notes that one of ordinary skill in the art would not view "synchronization" to mean "at exactly the same time." The Court also rejects Defendants' insertions of the limitations "each time" and "voltage state" as unnecessary limitations not based on the specification or the claims. Both parties recognize that the controlled rectifiers can be turned from onto off and from off to on. Thus, the Court construes the term "each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding" to mean "each controlled rectifier being turned from on to off or from off to on at the same time as a change of the voltage waveform across a primary winding."

C. "Based Upon The Order Of The List," "Based Upon The Desired Order," and "In The Desired Order."

Parties dispute the meaning of the above three terms. Essentially, Blockbuster argues that these three terms are interchangeable in the context of the patents in suit. The first term appeared in claim 14 of the '381 patent which recited in pertinent part (col. 13:64-14:17):

14. A computer-implemented method for renting movies to customers, the method comprising:

- providing electronic digital information that causes one or more attributes of movies to be displayed;

- establishing, in electronic digital form, from electronic digital information received over the Internet, a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer;

- causing to be delivered to the customer up to a specified number of movies based upon the order of the list, wherein the customer is not required to return the movies within a specified time associated with delivery;
in response to one or more delivery criteria being satisfied, selecting another movie based upon the order of the list and causing the selected movie to be delivered to the customer.

The second and third terms were used in claims 4 and 5 of the '450 patent (col. 14:64-15:19):

4. A method as recited in claim 1, wherein

the one or more item selection criteria indicates a desired order for the one or more items that a customer desires to rent, the step of providing to the customer up to a specified number of the one or more items indicated by the one or more item selection criteria includes providing to the customer up to a specified number of the one or more criteria in the desired order indicated by the item selection criteria; and

the step of providing to the customer one or more other items indicated by the one or more item selection criteria includes providing to the customer one or more other items indicated by the one or more selection criteria in the desired order indicated by the one or more item selection criteria.

5. A method as recited in claim 4, further comprising if a particular item from the one or more items indicated by the one or more item selection criteria is not available, then providing another item from the one or more items based upon the desired order indicated by the one or more item selection criteria.

Here, Netflix proposes that "based upon the order of the list" should, mean "so as to provide the next-available movie in the order specified by the list." Blockbuster proposes that the same term should mean "in the same sequence as that of the 'ordered list' referred to earlier in the claim." As to "based upon/in the desired order," Blockbuster argues that both terms should have the same meaning, "in the same sequence in which any person wants the items to be provided." Netflix proposes that "based upon the desired order" should mean "so as to provide' the next-available movie in the rental sequence specified by the customer," and that "in the desired order" should mean "in the rental sequence specified by the customer."

The question of whether or not the order in the "list" is the customer's order has already been addressed. As stated above, it may be the customer's order but need not be so restricted. The real dispute is over the meaning of "in" versus "based upon." Had the inventors chosen to do so, they could have used the same term, either "in" or "based upon," in both claims. They did not. The use of two different terms in close proximity gives rise to the inference that two different meanings were intended for the two different terms. Bancorp Serv., L.L.C. v. Hartford Life Ins., 359 F.3d 1367, 1373 (Fed. Cir. 2004). Looking to commonly-understood meanings, "based upon" allows some deviation from the exact, specified order, while "in" requires that the order must be followed. This inference could possibly be defeated, of course, by showing evidence to the contrary. Blockbuster fails to do so.

The use of the terms in the claims is instructive. Claim 4 of the '450 patent recited "the step of providing to the customer one or more other items indicated by the one or more item selection criteria includes providing to the customer one or more other items indicated by the one or more selection criteria in the desired order indicated by the one or more item selection criteria" (col. 15:8-12). Claim 5 depended from claim 4, and recited "further comprising if a particular item from the one or more items indicated by the one or more item selection criteria is not available, then providing another item from the one or more items based upon the desired order indicated by the one or more item selection criteria" (col. 15:13-18). Here, if the first item on the customer's list was unavailable, the system would select another item from the list. When the provider chooses an item "based upon" the order of the list, the provider does not necessarily follow the list's precise order.

Indeed, if "based upon" and "in" were given the same meaning in these two claims, the provider would have no way to continue renting items to the customer until the first item on the list were available. This reflects the reality that the provider cannot rent what it does not currently have. The specification also supports this construction. The '381 patent stated "[c]ustomers may specify priorities for the items indicated by the item selection criteria. Thus, if a particular customer's first choice is not available, or already rented, then the item having the next highest priority can be rented to the particular customer" (col. 11:18-23). Blockbuster's argument under the written-description requirement of 35 U.S.C. 112, P 1 fails because of this. Blockbuster argues that the specification teaches no other criteria for selecting movies other than those that the customer selected. The above statement shows that this is not the case. The specification explicitly contemplated considering the availability of items before renting them and does not exclude the use of other factors.
The requirement that "based upon" necessarily means the next-available item, however, is without support. Reading this limitation into the definition would render claim 5 redundant because the concept of sending the next-available item was specifically recited. Accordingly, this order holds that "based upon the order of the list" allows for some deviation from the exact order of the list. "Based upon" need not be strictly based on availability; it could be based on other factors. *In the desired order* refers to the precise order the customer selected, while "based upon the desired order" allows for some deviation from the desired order that need not be solely based on availability.

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2099

1. Inaudible (Claim 1)

Plaintiff Arbitron proposes that the Court adopt the Random House dictionary definition of the term "inaudible" as being "incapable of being heard." Ipsos points to the background section of the patent to argue that the inventors understood inaudible to mean below 40 Hz or in the range of -50 to -60 db. It further points to an amendment filed with the USPTO during prosecution to argue this narrow understanding of the term by the inventors during prosecution. Arbitron contends that the same amendment included definitions of "audibility" and "inaudible," and explained to the examiner that a sound can be inaudible based either on the frequency, the signal level or when it is masked by other sounds. The Court concludes, however, that by listing a range in their specification, the inventors have defined the scope of this term.

The Court therefore construes "inaudible" as "a sound signal that is too faint, meaning that it is approximately 50dB to 60dB below the level of its accompanying sound signals or a sound signal whose frequency is outside the range of audible frequencies, meaning that it is approximately below 40 Hz."

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2100

Although Tomar did not provide the Court proposed constructions for "includes" or "identification code", its arguments with respect to these terms appears to be an attempt to limit the '113 patent to a preferred embodiment. The Court finds, however, that Tomar has failed to demonstrate that the '113 patent should be construed so narrowly.

First, the Court notes that the Federal Circuit has provided a specific construction to the word "includes", and that such construction will be applied in this case:

As a patent law term of art, "includes" means "comprising." See, Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1344-45 (Fed.Cir.2003); Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp., Inc., 123 F.3d 1445, 1451 (Fed.Cir.1997). Neither includes, nor comprising, forecloses additional elements that need not satisfy the stated claim limitations.

SanDisk Corp. v. Memorex Products, Inc. 415 F.3d 1278, 1284 (Fed. Cir. 2005). Thus, use of the word "includes" in the claim language does not support Tomar's narrow construction.

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2101

C. "memory includes an audio recorder" / "said memory including an audio recorder mounted in said housing"

Claim 4 of the "783 patent states in part, "wherein said memory includes an audio recorder in said housing for recording sounds." Likewise, claim 77 contains the following limitation: "said memory including an audio recorder mounted in said housing." Both parties chose to construe the full term "said memory including an audio recorder mounted in said housing" in claim 77, but the shorter term "memory includes an audio recorder" in claim 4. For "said memory including an audio recorder mounted in said housing," Minerva argues that no construction is necessary, or alternatively, the term means "the memory is linked to a device within the housing for recording sounds." The defendants contend that this term means "the
memory contains a device for recording sounds that is attached to the housing." Minerva's proposed definition of "memory includes an audio recorder" is "the memory contains instructions for recording audio." The defendants assert that this term means "the memory contains a device for recording audio." The written description provides no definition of "includes" or "audio recorder," and its usage of "memory" appears to be consistent with that word's plain and ordinary meaning.

The proposed constructions differ regarding whether the audio recorder is a physical device or software instructions and whether the audio recorder is located in the memory or in the housing. The defendants argue that the plain and ordinary meaning of the term "includes" is "contains." See Merriam-Webster's Collegiate Dictionary 588 (10th ed. 1998). Thus, according to the defendants, the memory must contain the audio recording device. But the dictionary also defines "include" as "to take in or comprise as a part of a whole or group." Merriam-Webster's Collegiate Dictionary 629 (11th ed. 2006).

In contrast, Minerva contends that, according to one of skill in the art, it would make no sense to have memory—a storage medium for data—contain a separate device. See Phillips, 415 F.3d at 1312-13. Therefore, Minerva wishes to define "audio recorder" as either a set of instructions or a separate physical device linked to memory.

Defining "includes" as "contains" does not make sense, because the audio recorder would have to be contained in the memory as well as in the housing. Likewise, there is no support for defining "audio recorder" as memory instructions in claim 4, but in claim 77, defining it as a physical device. The court perceives no meaningful difference between the disputed terms in claim 4 and 77. Thus, the court defines the terms "memory includes an audio recorder in said housing" and "memory including an audio recorder mounted in said housing" to mean "the memory comprises an associated device in the housing for recording sounds."

The parties dispute the meaning of the term "includes" in the phrase "a scrambled television program signal that includes an identification code" of claim 8. IPPV contends that "includes" requires that the identification code be part of the transmitted program signal and that the identification code not overlap, in time or space, the video signal portion of the program signal. Echostar, on the other hand, argues that "includes" requires the identification code to be part of the video signal, and as such, in order to not disturb the viewable portion of the signal, it must be placed in the vertical retrace interval.

In support of its position, IPPV refers the court to the plain meaning of "include," which is to take as a part or member. IPPV argues that its proposed construction is supported by this plain meaning and is consistent with the specification, which states that "the codes [including the identification code] are preferably included in the vertical retrace interval of the video portion of the program signal," and that "during the vertical retrace interval, various equalizing and synchronization pulses are provided, and it is in this interval that the scramble and program ID codes are preferably combined with the transmitted program signal." (emphasis added). IPPV contends that the inventors' use of the term "preferably" makes clear that while the retrace interval may be the best location, there are other options.

Echostar counters by referring the court to Figures 1, 3 and 4 of the specification. It points out that in each of these figures, the identification code is placed in the vertical retrace interval of the video signal. Echostar therefore contends that claim 8 requires that the identification code be placed in the interval.

After reviewing the parties contentions and the specification, the court finds that claim 8 does not require that the identification code be placed in the vertical retrace interval. The plain language of the claim makes clear that the program signal, and not the specific video signal, includes the identification code. Moreover, the inventors' use of the term "preferably" in describing the placement of the code shows that the inventors favored the vertical retrace interval, but that there were other less advantageous alternatives. This preference explains why the figures included in the patent place the code in the interval. The preference and the figures, however, do not justify a limitation of the plain language of the claim. Thus, the court will construe "includes" to require that the identification code be part of the transmitted program signal, but the court will not limit the location of the code within the program signal to the retrace interval.
5. Includes Relationship/Excludes Relationship/Removes Relationship/Requires Choice Relationship/Optional Relationship

The parties have grouped these terms together. The dispute is whether the "relationship" language requires a construction which imposes a "left-hand side" and "right-hand side" limitation to the terms. Trilogy contends that the term "includes relationship" means "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Selectica contends that the term "includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included."

In discussing the relationship terms, the patents state "[a] relationship relates a first set of parts with a second set of parts."

651 patent, col. 2, 11. 13-14. The patents also state:

Preferably, the part relationships are: included, excluded, removed, and requires choice. An included part is included automatically. A part is excluded from the configuration when its inclusion would result in an invalid configuration. A part may be removed when another part is added. Thus, when a first part exists in the configuration and a second part is added, the first part is removed from the configuration. The requires choice relationship is used to allow a set of choices to be made from a group of parts.

'651 patent, col. 2, 11. 23-31. For essentially the reasons discussed previously, the court adopts the following constructions of these terms:

"includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included;"

"excludes relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be excluded when all elements of the left-hand side are already included;"

"requires choice relationship" means "a relationship in which a number of elements must be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included;"

"removed relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be removed when all elements of the left-hand side are already included;" and

"optional relationship" means "a relationship in which a number of elements may be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included."

Claim Element 11d

including a web page at the web site having customized information from the first user point for users at the second user point

The parties disagree on the meaning of the above-stated language.

Dell argued that the ordinary meaning should suffice. Lucent proposed: "the web site includes a web page containing a subset of the managed information that is assembled to suit the needs or preferences of users at the second user Internet point." The court concludes that no construction of this claim term is required.
2. "Inclusion" and "three-dimensional inclusion" Claims 1-5.

This term is used in each of the five claims of the '742 patent. An exemplar use in Claim 1, stating in part, with the disputed term in bold: "each of said sub-layers having three-dimensional inclusions in a semiconductor material. . . ."

Nichia argues that the proper term to construe is actually "three-dimensional inclusion" and offers the definition "islands of indium arsenide grown using three-dimensional nucleation and then buried by a different material." The specification discloses inclusions made from semiconductor materials other than indium arsenide ("InAs"). In addition, Claim 4 specifically states that the inclusions are made of InAs, while Claim 1 merely discloses the need for inclusions. Reading Claim 1 to require the inclusions to be made of InAs would render Claim 4 unnecessary. At the hearing Nichia agreed that the inclusions need not be made from InAs. Tr. at p. 50, l. 14 - p. 51, l. 25.

Seoul suggested that "inclusion" should be construed to mean "a crystal or a fragment of a crystal found within another crystal." This is somewhat broad, implying that an inclusion could be of any material.

The "Summary Of The Invention" starts off with "one of the layers comprises three-dimensional inclusions in a semiconductor material . . . ." '742 Patent, col. 2, l. 66-67. The patentees distinguished prior art, including U.S. Pat. No. 4,802,181 to Iwata which used etching and subsequent deposition to create quantum boxes and U.S. Pat. No. 4,751,194 to Cibert et al which disclosed ion-implantation and lithographic masking techniques to form quantum boxes, by stating that the inclusions were grown in the material and not inserted later. Pl. Br., Ex. 5 (Prosecution File History), Examiner's First Office Action at 3-4; Response to First Office Action at 4-5. The patentee distinguished the references on the basis that the inclusions are formed "during the semiconductor crystal growth" Id. at 5.

The only growth process discussed in the specification is three-dimensional nucleation. Col. 6, l. 37-39. Seoul contends that the specification discloses the two-dimensional growth mode as a route to the formation of inclusions. Tr. at p. 41, l. 2-9; See col. 5, l. 18-20. However, that part of the specification describes only the growth of the first monolayer of atoms. The specification then goes on to discuss a transition to a three-dimensional growth mode beginning with the second monolayer of atoms. Col. 5, l. 21-25; l. 38-40. The three-dimensional growth mode can be accomplished via different synthetic routes, such as molecular beam epitaxy, chemical vapor deposition and vapor phase epitaxy. See col. 6, l. 38-40. The fact that different techniques may be used to deposit the material that makes up the layers does not change the fact that the physical formation of the inclusions is by three-dimensional growth process.

While the parties argued about the use of "island" in any definition, the word is used a number of times within the specification. Col. 4, l. 62; col. 5, l. 25; col. 5, l. 26; col. 5, l. 28; col. 5, l. 29. It does not necessarily convey a "flat region" as argued by Seoul. Tr. at p. 63, l. 22-23 (testimony of Seoul's expert Dr. Streetman). The "Description of the Preferred Embodiments" disclosed a hemispherical shape. Col. 4, l.62 - 63 ("the inclusions 8 of InAs form islands substantially of a semi-spherical cap shape"). Further, use of the term "island" to convey three-dimensional features is consistent with the extrinsic evidence. Def. Resp., Doc. # 53, Ex. 10, J-Y Marzin, III-V Semiconductor Strained-Layer Superlattices, in Physics, Fabrication, and Application of Multilayered Structures 215, 220 (Dhez & Weisbuch eds., 1988) ("the growth process can switch from bidimensional to three-dimensional: this process results in the formation of 3D islands"); see also Def. Resp., Doc. # 53, Ex. 2, Dieter Bimberg, Marius Grundmann, and Nikolai Ledentsov, Quantum Dot Heterostructures 43 (1999) (illustrating a pyramid and prism shapes). The court will therefore construe, the term "inclusion" as follows:

"inclusion" and "three-dimensional inclusion" mean "island of semiconductor material grown by three-dimensional nucleation buried in a layer of a different semiconductor material that has a larger bandgap."

"Three-dimensional nucleation" is a process where structures form and grow in three-dimensions, but does not include two-dimensional flat layer-by-layer growth.
The word "incrementally" is used by Roxio in Claims 1, 4, 17, and 20 of its '686 Patent. The relevant language of Claims One and Seventeen is similar; both claim "A method [system] of incrementally storing data on a compact disc . . . ." ('686 Patent, col. 18, ll 65-66; col. 19, ll. 60-61). Claims Four and Twenty specify that "wherein said at least one packet is recorded in a form compatible with the Orange Book specification for linking packets recorded incrementally." ('686 Patent, cot. 19, ll. 28-30; col. 20, ll. 31-34).

Each party's proposed claim construction of "Incrementally" is as follows:

<table>
<thead>
<tr>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&quot;Incrementally&quot;</strong></td>
<td>Information Written to a CD</td>
</tr>
<tr>
<td></td>
<td>In several distinct writing</td>
</tr>
<tr>
<td></td>
<td>actions (e.g., at different</td>
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<tr>
<td></td>
<td>times, or on different</td>
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<tr>
<td></td>
<td>recorders).</td>
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</tbody>
</table>

The parties' dispute over the term "incrementally" is centered on whether the construction must be limited to a method of recording CDs using "packets" or not. Optima urges that packets necessarily are a part of incremental writing (Pl.'s Opening Markman Brief, p. 15-17); however, Roxio contends that the term should not be so limited. (Roxio's Opening Claim Construction Brief, p. 18-19).

The Court finds that Roxio did not act as its own lexicographer with respect to the term "incrementally." Therefore, the Court begins its analysis with a presumption that the term has its full ordinary or accustomed meaning. K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1362-63 (Fed. Cir. 1999); see Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 (Fed. Cir. 2003) ("In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art.")

When engaged in claim construction analysis, the Court is free to consider extrinsic evidence to educate itself about the term and relevant technology. Karlin Tech. v. Surgical Dynamics, 177 F.3d 968, 971 (Fed. Cir. 1999).

The ordinary meaning of "incremental" is "the process of increasing in number; size, quantity, or extent." AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed. 2000). The customary meaning of the term, however, can be found in § 5.2 of the Orange Book, 8 which states:

> Recording the disc in several distinct writing actions (e.g., at different times, on different recorders) is defined as Incremental Writing. In case of Incremental Writing the linking rules must be taken into account.

(ORANGE BOOK § 5.2.)

8 The "Orange Book" is a common reference to a publication entitled "Recordable Compact Disc System," Part II CD-WO, Version 2.0, System Description, January 1994. N.V. Philips and Sony Corp. Optima and Roxio both cite to § 5.2 of the Orange Book to support their proposed claim construction. (Pl. Opening Markman Brief, p. 15-17; Roxio's Opening Claim Construction Brief, p. 18-19.)

Thus, it is clear under the Orange Book definition that the linking rules must be taken into account when using Incremental Writing. Therefore, the Court refers to § 5.2.3 of the Orange Book, entitled "Data Linking," which states, among other things, that "[e]ach Data Track must contain minimum one Packet with User Data." ORANGE BOOK § 5.2.3.

The Court finds the ordinary meaning of "incremental" inapposite because it does not address the technical nature of the
The Court finds that the customary meaning of the term, as provided by the Orange Book, is proper. Optima's proposed construction, "Information written to a CD in one or more distinct writing actions using packets," thus comports with the term's customary meaning and is adopted by the Court as the correct construction.

9 The Court notes that both parties have submitted extensive expert reports to aid the Court in construing the terms at issue in this action. These reports were considered but not relied on by the Court in deciding the instant motion because the ordinary or customary definition of the terms at issue were found in dictionaries and other treatises. See Texas Digital Systems Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202-03 (2002) (explaining that dictionaries, encyclopedias; and treatises are more reliable sources of information with respect to the meaning of terms than expert testimony, which is "colored by the motives of the parties" and "inspired by litigation"). The Court acknowledges that experts views may be helpful; the Court simply did not have to do that level of analysis on the present record.

2107 3. "Independent" is construed to mean "performed by a computer algorithm(s) at least partially distinct from the algorithm(s) for computing the collective mass information, and where the computation of spiculation information is performed separately from the computation of the collective mass information."
3. "Independent communication"

SercoNet contends that "independent communication" should be construed as "communication among a pair of devices that does not effect nor preclude the communication of any other communicating pair of devices." NetGear contends the term should be construed as "capable of communicating with adjacent cells by means of different types of frames and protocols." An example of such communication, according to NetGear, is "if cell B is connected to cells A and C, cell B uses one type of frame and protocol to communicate with cell A, and a different type of frame and protocol to communicate with cell C." The parties' proposed constructions make clear that the real dispute is the meaning of the term "independent."

This term is used in claims 1-6 and 21 of the '360 patent, claim 1 of the '510 patent, and claims 18 and 36 of the '280 patent. Starting with the claim language, claim 1 of the '360 patent refers to communication channels that allow "mutually independent communication in either or both directions and comprising at least two electrical conductors, . . . " Claim 1 of the '510 patent describes communicating pairs, "each of said at least one communicating pair is operative to engage in said communication bidirectionally and independently of the communication of any other of said at least one communicating pair." Claim 36 of the '280 patent describes communication links in which the first communication link "carried data independent of said second communication link."

Reading the plain language of these claims, independent communication denotes a communication between each pair, in which such a communication operates irrespective of communications between any other communicating pair. However, the claim does not really define "independent." The language of the claims does not focus on how an invention may achieve independent communication. Rather, the claim language focuses on what it means to communicate independently. The claim language, therefore, supports SercoNet's construction of "independent communication," as NetGear's construction focuses on the means by which such communication is achieved.

Turning to the claim specification, the '280 patent notes that communication between SICs of a communicating pair is independent of the communication between SICs of any other communicating pair, in that these communications neither preclude nor affect one another in any way. See '280 patent at 4:40-45. The specification, therefore, explicitly defines the term according to SercoNet's construction. It also states that the SIC network can support two "independent communication routes simultaneously, provided different segments are used . . . for example, SIC 800 can communicate with SIC 802 while SIC 804 simultaneously communicates different data with SIC 806." The '360 patent also references communications between "adjacent PSICs in either or both directions independent of a simultaneous communication between another pair of adjacent PSICs." See '360 patent abstract; see also '360 patent at 6:28-30.

NetGear relies on part of the '510 specification which discusses differences between the circular topology defined in the invention and prior art ring topology. One difference is in framing. The ring uses the same frame structure throughout all communication links, and all cells must recognize the same framing. In the present invention, however, "each communication link (between any two connected SICs) is totally independent from all other network communication. Hence, a first SIC can communicate with a second SIC using one type of frame structure and protocol, while the same first SIC can communicate with a third SIC using a different type of frame structure and protocol."

This discussion, however, occurs in the context of discussing multiple differences between one type of topology of the invention -- the circular topology -- from the Token Ring topology of the prior art. It is not clear that using different types of frame structure and protocol is the only way of implementing independent communication. And again, this part of the specification is giving an example of how such communication can be implemented, rather than defining what it is. Finally, there is no real clarification in the specification as to what "frame structures" and "protocols" are, and construing the term with such words would not lend any clarification to the construction.

NetGear also relies on the patent prosecution history in support of its construction, noting that the inventor maintained that each communication link in the invention can be totally independent from any other and that "cell B can communicate with connected cell A using one type of frame and protocol, while its communication with cell C may use a different type of frame and protocol." See Parry Decl. Ex. 1 at 5. This construction has problems for the reasons discussed above. In addition, patent prosecution history is less important and less reliable in claim construction than the specification. See Phillips, 415 F.3d at 1317.
In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "independent communication" and construes the term "independent communication" as: "communication among a pair of devices that does not effect nor preclude the communication of any other communicating pair of devices."

10. Independent forward and return channels; upstream channel that is independent of the downstream channel; independent upstream channel

The above terms are found in various claims of the '774, '121, and '845 patents. The plaintiff's proposed construction of each term is "the downstream channel is different from the upstream channel, either in the same or a different medium." The defendants propose "forward (downstream) and return (upstream) channels which are not contingent upon one another that connect to an interface allowing for multiple types of physical media to be used on the return (upstream) channel." The court has considered the parties' arguments and adopts the plaintiff's proposed construction. The specification and prosecution history do not require the channels to use different media.

The clauses at issue in claims 61 and 67 relate to the interface's ability to perform functions "independent of" the connected application program. Claim 61 has two contested clauses: "means, independent of the one computer-related application, for forming link data linking a portion of the audio data to at least one of the recognised words independently of the one computer-related application;" and "means, independent of the one computer-related application, for updating position identifiers in response to changes in positions of the recognised words within the one computer-related application." '273 Patent col.29 ll.38-41, 48-51. Claim 64 (on which claim 67 depends) has the clause: "means, independent of the computer-related application, for determining positions of the recognised words in the computer-related application." '273 Patent col.30 ll.7-9. The district court construed "independent of" to mean essentially "isolated." Janicke Report P 56-60. According to this interpretation, the claimed interface cannot receive any information back from the application. Rather, it must keep track of the positions of words in the application without ever obtaining position data from the application.

This interpretation of the claims is not correct. Instead, the claim term "independent of" means that the interface must maintain its own position data, in its own data structures, but still have the ability to receive positional information from the application. Once again the district court went astray by taking the prosecution history out of context. As discussed earlier, AllVoice distinguished its invention during prosecution from an older software application program called Digital Dictate: "However, in contrast to the claimed invention, the 'Microsoft Word' version of Digital Dictate reviewed in the Seybold Reports 1 itself fails to include any feature that determines the positions of recognized words. Instead of including these features within its system, Digital Dictate depends on the bookmarking feature inherent to Microsoft Word, the application program targeted to receive speech input." Janicke Report P 55 (emphases in original). The district court read this passage as a disavowal of any interface ability to receive information from the application program for use in maintaining position data.

To the contrary, this passage merely requires that the AllVoice interface include a feature that "determines [the] positions of the recognized words," "within its own system." Id. This distinction does not bar the interface from receiving any information from the application. As long as the interface maintains its own internal data structure to keep track of the positions of words, neither the prosecution history nor the claim language prevents the interface from using information from the application to maintain that data structure.
Thus, the district court proceeded to assess indefiniteness with an unduly narrow claim construction. This narrow reading of the "independent of" requirement in claims 61 and 67 led to a finding that the specification did not contain structure corresponding to that narrow claimed function. With a proper reading of the claim term, however, the specification does contain adequate structure. Figure 2 and its associated description in columns 5, 6, and 7 of the patent show that memory maintains the position data separately from the application. Specifically, memory 20 stores the link data 25 (the position data stored by the interface 12) separately from the current document 26 maintained by the text processor 13. ‘273 Patent col.5 ll.44-62.

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Because neither the claim language nor the prosecution history requires more, the record shows that the district court erred in finding claims 61 and 67 indefinite on the basis of the "independent of" language.

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n. "external clock is operative at a frequency independent of a clock frequency of said oscillator"

The plaintiffs propose "a change in the frequency of the oscillator (claims 6-9) or the variable speed clock (claim 10) does not affect the frequency of the external clock." The defendants propose "an external clock wherein a change in the frequency of one of the external clock or oscillator does not affect the frequency of the other (claim 6)."

The Court construes the term to mean "an external clock wherein a change in the frequency of either the external clock or oscillator does not affect the frequency of the other."

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m. "second clock independent of said ring oscillator . . . system clock" and "second clock independent of the ring oscillator system clock"

The plaintiffs propose "a change in the frequency of the ring oscillator does not affect the frequency of the second clock." The defendants propose "a second clock wherein a change in the frequency of one of the second clock or the ring oscillator system clock does not affect the frequency of the other." The dispute is whether the term "independent" means "one-way independence" or "two-way independence."

The plaintiffs argue that the specification only refers to one-way independence because it describes the situation where the I/O clock has a fixed speed while the CPU clock has a variable speed. According to the plaintiffs, there is no discussion about the situation where the I/O clock speed can be modified without affecting the CPU clock speed; the specification only states that varying the CPU clock speed would not affect the I/O clock speed.

The defendants argue that the plaintiffs' construction would conflict with the purpose of the invention of having a first clock function independently from the second clock. According to the defendants, the specification describes the first and second clock as functioning independently from one another.

The defendants have the better argument. One of ordinary skill in the art would understand the term "independence" to mean "two-way independence." Accordingly, the Court construes the term to mean "a second clock wherein a change in the frequency of either the second clock or ring oscillator system clock does not affect the frequency of the other."

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ii. Independent processes
Plaintiff contends that "independent processes" means "devices external to the computer." Sun proposes that the term should be construed as "processes under the control of distinct (separate) state machines." Apple contends that the terms means "a group of coordinated devices (i.e. tasks) under the control of peripheral controllers, where the devices in the groups generate interrupts. Each group is independent of each other group."

With respect to the parties' positions, they appear to agree that "independent processes" is a special term to which no ordinary meaning attaches. As a result, the parties each resort to the specification for guidance. The parties also appear to agree that the independent processes are external to the computer.

The Gobeli patent states that "the interrupt handler should be capable of overseeing such devices . . . Each of these independent device subsystems should be viewed as an external process' with its own unique context." Gobeli patent, Col. 4, 11.67 -- Col. 5, 11. 4. Further, the patentee states "the combined motion of each subsystem is viewed as a process . . ." Id. at Col. 6, 11. 23-24. "The motion of each subsystem is, in effect, an external process." Id. at Col. 11., 11. 58-60. Thus, the Gobeli patent explains that independent processes are not solely limited to devices, but could also be device subsystems.

Sun's proposed construction parrots the claim term itself and includes the additional limitation of a "state machine." The Court rejects any "state machine" limitation. Certain claims of the Gobeli patent expressly mention a "state machine" limitation; however, Claim 11 does not. Moreover, although Sun asserts that the only embodiment in the Gobeli patent is a state machine interrupt handler, the specification suggests that an interrupt handler is not always equivalent to a state machine. See Gobeli patent, Col. 11, 11. 60-62 ('the interrupt handler services two external processes, each of which requires a separate state machine."") Id. at Col. 11, 11. 60-62.

Apple includes in its definition the limitation that the devices must be controlled by a "peripheral controller." Just as with Sun's construction, this is an example of the preferred embodiment. The Court finds that peripheral controllers and state machines are additional limitations related to the preferred embodiment and therefore refuses to incorporate them into the claims. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998)(cautioning against reading limitations from preferred embodiment into claims).

Accordingly, the Court finds that "independent processes" are "the part of the devices or device subsystems external to the computer that independently generate interrupts."

"the user can request viewpoint motion and point of interest motion independently"

Claim 52 of the '785 Patent contains the term "the user can request viewpoint motion and point of interest motion independently." IPI contends the term means "the user can request viewpoint motion and/or point of interest motion separately or simultaneously." Google contends the term means "the user can request viewpoint motion and point of interest motion separately and simultaneously." The parties dispute whether both requests must occur separately and simultaneously.

IPI argues that its proposed construction is supported by the specification, which states that "[u]ser input means can include one or more 'user input devices' that provide signals based on actions of a user, such as a keyboard or a mouse." '785 Patent, col. 5:57-60 (emphasis added). The specification goes on to describe how the signals are requested:

Signals from user input means can request motion of the viewpoint and motion of the POI. If the user can request viewpoint and POI motion separately and can request both types of motion simultaneously, the user input means is structured so that the user can request viewpoint motion and POI motion "independently."

'785 Patent, col. 8:5-10. IPI interprets this to mean that "the user could request viewpoint motion, point of interest motion, or viewpoint motion and point of interest motion." IPI's Opening Brief, at 24. Thus, the specification teaches that the user can request viewpoint motion and point of interest motion "independently" of each other. Google counters that IPI's proposed construction "disowns" the invention described in the specification by changing "and" to "and/or" and "or," and IPI's attempt to expand the reach of the claim limitation is simply unsupported. Google's proposed construction requires that
the user be able to request both viewpoint motion and point of interest motion separately as well as simultaneously. IPI asserts that it "is at a loss for how a claim element whose plain meaning requires that a request for motion independently must also occur simultaneously." IPI's Reply Brief, at 8-9.

It appears the parties are saying the same thing in different words. The parties only get into a semantic dispute, especially in regard to inclusion of "simultaneously" in the constructions, because the specification uses "independently" in a somewhat garbled description. In view of the specification and the claim language, it is clear that the user can request viewpoint motion and point of interest motion separately, simultaneously, or separately and simultaneously. However, neither the specification nor the claim language require that the user request viewpoint motion and point of interest motion separately and simultaneously.

The plain and ordinary meaning of "independently" as used in the claim language is "individually." The specification, particularly in view of the example given of using one hand to request point of interest motion and the other hand to request viewpoint motion (i.e., individually), is consistent with this meaning. See '785 Patent, col. 8:11-14. Thus, the Court construes the term "the user can request viewpoint motion and point of interest motion independently" to mean "the user can individually request viewpoint motion and point of interest motion." Although the Court finds that it is not necessary to include any reference to "separately" and "simultaneously" in the term's construction, it has nevertheless resolved the parties' dispute in accordance with O2 Micro International Ltd. v. Beyond Innovation Technology Co., 521 F.3d 1351 (Fed. Cir. 2008). To the extent that this claim term arises at trial, the Court instructs the parties to tailor their trial arguments to conform with this Order.

D. "Independently connected electrically" (claim 5)

Claim 5 teaches that each gate electrode segment is "independently connected electrically" to the bus. The parties dispute whether this language discloses that the gate electrode segments cannot connect to each other. AMD proposes the following construction of the phrase "independently connected electrically": "A gate segment is 'independently connected electrically' if it has its own connection or can connect without having to go through another gate segment." According to AMD, claim 5 imposes no limitation on whether the gate electrode segments can connect to each other, in addition to being connected to the bus. Samsung's proffered construction is: "Each gate electrode segment is connected through a separate electrical path that is not shared by any other gate electrode segment." Under Samsung's construction, each gate electrode segment must connect to the Vcc bus through a connection that is not shared with any other gate electrode segment.

The Court agrees with Samsung that the phrase "independently connected electrically" in claim 5 means that the gate electrode connects to the Vcc bus and not with any other gate electrode. AMD's construction is inconsistent with the innovation disclosed in claim 5. The specification explains that in a preferred embodiment of claim 5, the independent gate electrodes have "separate" connections with the bus so that the gate electrodes are "insulate[d]" from one another." 5:11-25. One advantage of this structure is that if a defect (i.e. a short) occurs between the bus and a single gate electrode, the defect is isolated. 5:33-43. The defect causes of the loss of an individual gate segment, but insulation prevents the short from spreading to the rest of the capacitor. Id.

Samsung points out that AMD's construction permits the connections illustrated in the following diagram, where the dashed line is a direct connection between the gate electrode and the bus, and the solid line represents a second connection, through another gate electrode. Samsung Opp. Br. at 29. Samsung explains that electrical current follows all paths simultaneously. Hassoun Decl. P 41. If, as AMD proposes, a gate electrode can have two connections to the bus (i.e. one that is direct and one that is through a second gate electrode), current will flow through both connections at once. In the foregoing diagram, current will necessarily flow through the direct connection (the dashed line) and the second gate electrode (the solid line). As a result, the first gate electrode will not be insulated and will not have an "independent" connection to the bus. If the direct connection shorts, the defect will not be isolated. AMD's construction is not viable because it allows for a construction that precludes the preferred embodiment of claim 5.

[SEE DIAGRAM IN ORIGINAL]
AMD objects that the phrase "connected through a separate electrical path" (emphasis added) in Samsung's construction incorrectly permits only a single electrical path between the gate electrode and the bus. AMD points out that nothing in claim 5 precludes multiple connections between the bus and gate. (Applying this embodiment to the foregoing diagram, AMD argues that there could be several dashed lines between the Vcc bus and the gate, where there is now only one dashed line.) The Court agrees that nothing the claim language or specification imposes a limitation of a single direct connection. Accordingly, the Court adopts Samsung's construction, modified as follows: "Each gate electrode segment is connected through a separate electrical path, or paths, that are not shared by any other gate electrode segment."

H. Independently modifiable copy

Visto proposes that the term "independently modifiable copy" means "a copy of a workspace element capable of being modified independent of the workspace element. The copy does not have to be an exact copy." Seven contends that the term means "a copy of a workspace element stored on a global server that has content capable of being modified independently of any modification to the content of the workspace element."

This term appears throughout the patents. Visto supports its proposed definition, particularly the last sentence, by pointing to language in the specification of the '708 patent which suggests that the copy of the workspace element may be in a different format: "The system includes a first store for storing a first workspace element in a first format [and] a second store for storing a second workspace element which is an independently modifiable copy of the first workspace element in a second format." '708 Patent, Abstract. As noted above, the '708 patent describes a global translator for maintaining data consistency when data are stored in two locations in different formats. Although the data may be stored in a different format in different locations, Visto's proposed definition appears to suggest a broader meaning of copy than the claim language supports. The court has reviewed carefully the cited portion of the specification and therefore defines the term "independently modifiable copy" to mean "a copy of a workspace element capable of being modified independent of the workspace element. The copy of the workspace element does not have to be in the same format as the workspace element."

III. "[A] layer acts independently of other content within a particular HTML document"

The phrase "a layer acts independently of other content within a particular HTML document" is not found in any claim but remains critical to defining the scope of the patents in suit because it defines an embodiment of a "Window Object." The term "Window Object" ("window object") appears in every independent claim of the '493, '563, and '882 Patents. "A window object is a Module or a Layer." E.g. '493 Patent col. 5, l. 64. A "Layer" ("layer") is defined in identical glossaries found in the '493, '563, and '882 Patents as follows:

A Layer is a WWW browser content display section produced within a content manifestation environment (CME) including, but not limited to, any object within an HTML document that may be scaled, dragged, or otherwise operated upon such as an IMG object, a SPAN object, a DIV object, a form element, etc. and which may be associated with program logic such as within a script, etc. A layer has its own properties including, but not limited to, a name, etc. within an HTML rendition model such as those defined by DHTML standards. Additionally, a layer acts independently of other content within a particular HTML document.

A. The Special Master's Recommended Construction
According to the Special Master, "a layer acts independently of other content within a particular HTML document" means that the activity associated with a layer, such as moving or resizing, does not depend on other content within a particular HTML document." (R&R at 139-40.) The Special Master's recommended construction was built upon an extensive analysis which included the following steps: (1) construing the term "window object" according to the claim language and specifications of the '493, '563, and '882 Patents; (2) describing the relevant technical background of a "layer" in the context of HTML and DHTML standards; (3) defining the attributes of a layer within the context of the specifications of the patents in suit; and (4) analyzing the source code disclosed in the '493 Patent in order to determine how certain embodiments of the claimed invention would operate in light of the requirement that a layer act independently of other content in the same HTML document. (Id. at 90-137.)

After framing the term "window object" in the context of the claim language of the patents in suit, the Special Master turned to their specifications. (See id. at 90-97 (construing the term "window object" according to claim 1 of the '493, '563, and '882 Patents).) Based on the identical glossaries found in the specifications of the '493, '563, and '882 Patents, the Special Master defined a "window object" as a "Module or Layer." (Id. at 98 (citing '493 Patent col. 5, l. 64; CCS Fitness, 228 F.3d at 1366).) Combining the teachings of the specifications with the requirements of the claim language of the patents in suit, the Special Master determined that, at the least, DMOs and TMOS were layers which had to "act independently of other content." Next, the Special Master, construed the term "layer."

As an initial matter, the Special Master established that the patentees' glossary definition of the term "layer" would control. (R&R at 99.) What remained was to resolve the parties' dispute over exactly how the glossary definition was to be interpreted. In analyzing the definition of the term "layer," the Special Master noted that a "layer" can be placed in the context of "HTML" and have properties as defined by "DHTML standards." (Id. at 99-100.) According to the Special Master, associating the properties of a "layer" with DHTML allows a window object to: (1) execute scripts that allow for their "dynamic" modification and (2) be acted upon without necessarily impacting other portions of a content manifestation environment. 14 (Id. at 111; see also id. at 106-11 (citations omitted).) Having provided a technical overview of HTML and DHTML, as they relate to the patents in suit, the Special Master turned to the specifications of the '493, '563, and '882 Patents to analyze the characteristics of a "layer." (See id. at 100-11 (discussing the HTML and DHTML standards which informed his recommended construction).)

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13 HTML and DHTML are programming languages used to develop web pages. In combination with other programs including JavaScript, HTML and DHTML can be used to create the windowed content manifestation environment claimed by the patents in suit.

14 "Dynamic" modification includes but is not limited to user actions such as moving, resizing, closing and minimizing window objects within their content manifestation environments. In the context of the patents in suit, the patentees claim that dynamic modification can be done without triggering a "refresh." In essence, DHTML contributes to the ability of a user to manipulate a window object without causing the content manifestation to be reloaded or redrawn.

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In order to construe the disputed phrase, "a layer acts independently of other content within a particular HTML document," the Special Master first determined the acts a layer was capable of performing and then determined the scope of the term "independently" as intended by the patents in suit. According to the Special Master, the claim language and specifications of the patents in suit clearly indicate that the acts of a "layer" include: (1) scaling; (2) dragging; (3) resizing; (4) minimizing; (5) maximizing; (6) being made to pop up; (7) being closed; and (8) manifesting and refreshing content such as text, video or sound. (Id. at 114-15.) However, the Special Master indicated that it was unclear as to whether or not the acts of a layer included "refreshing or reloading content." (Id. at 115-17.) Next, upon consideration of the relevant intrinsic evidence and the acts a "layer" is capable of performing, the Special Master noted that "the word 'independent' in the context in which it is used appears to mean just that -- 'not dependent.'" (Id. at 117.) Accordingly, the Special Master determined that "the phrase 'a layer acts independently of other content' merely connotes that the acts of a layer are not subject to control by other content, or do not require or rely on other content." (Id.) Next, the Special Master determined whether DMOs and TMOS "acted independently" as contemplated by the patents in suit.
The Special Master pointed out that there was little dispute over the behavior of DMODs which could be "moved independently ('freely') within the browser CME, i.e., without constraint by other content." (Id. at 118.) However, the truly debatable issue was whether TMODs "acted independently." (Id.) As the Special Master pointed out, the parties agreed that "tiled" means "arranged to be adjacent and non-overlapping" (Id. at 119.) In light of the patents in suit, the Special Master proceeded to find that, as a verb, "tile" would be understood as follows by one skilled in the art: "'[i]n an environment with multiple windows, to rearrange and resize all open windows so that they appear fully on the screen without any overlap.'" (Id. (citation omitted.).) In laymen's terms, window objects that remain tiled could be adjacent to each other but could not be placed or positioned so that they overlap each other. The next step was to determine the behavior of TMODs when they were moved.

15 Once again, in this context, "independently" means "not subject to control by other content, or . . . not requir[ing] or rely[ing] on other content." (R&R at 118.)

The Special Master concluded that, according to the specifications of the patents in suit, TMODs can be defined "'much like a tiled type window provided within an operating system environment,'" such as "'Microsoft Windows.'" (Id. at 119-20 (citing '493 Patent col. 6, ll. 25-26, col. 9, ll. 1-6, col. 11, ll. 26-35.) This is significant because of the way in which windows could be "tiled" in Microsoft Windows. (Id. at 120.) Specifically, "in the Microsoft Windows environment, tiled windows may be tiled or untiled by the user, and also dragged about the screen." (Id. (citation omitted.).) This led the Special Master to find that the specifications of the patents in suit did not "require or even suggest" that TMODs snap into predetermined rows and columns. (Id.) In essence TMODs could only behave as tiled windows in the Microsoft Windows operating system, if they were to "act independently of other content," since snapping would require that the movement of a window object be constrained by other content such as position information or other window objects in the same content manifestation environment. The Special Master then reinforced his conclusion by analyzing the specifications of the patents in suit.

16 The Special Master detailed how windows were tiled in the Microsoft Windows Operating System as follows:

There seems to be no dispute over how Microsoft Windows worked at the time of invention. Mr. Goodman, for example, has explained that "'[i]n Microsoft Windows you can place your cursor on a blank portion of the task bar (the bar with the 'Start' button), right click, and select 'Tile Windows Vertically.' If you run Excel, Word, and Adobe Acrobat applications, and select 'Tile Windows Vertically,' you will end up with a screen * * * showing Excel, Word, and Adobe Acrobat windows tiled across the screen. You can drag and resize any window independently of anything else on the screen." Goodman CC Decl. at P 26. That is, in the Microsoft Windows environment, tiled windows may be tiled or untiled by the user, and also dragged about the screen.

(R&R at 120.)

17 The Special Master defined the term "snapping" as follows:

Although the parties do not explicitly say what "snapping" is, they appear to have a common understanding of that term, namely, that automatic alignment into rows and columns, or at least with respect to other tiled elements, when moved or resized so that all of the elements remain tiled. None of the references at hand define "snapping" per se; nevertheless, it seems clear that "snapping" perhaps implies the existence of an invisible "table" or grid arrangement into which window objects are forced to avoid overlap with other windows when dragged about and imprecisely dropped by user. The MICROSOFT COMPUTER DICTIONARY (4th ed. 1999) defines "drag-and-drop" as a verb:

2. [T]o perform operations in a graphical user interface by dragging objects on the screen with the mouse. For example, to delete a document, a user can drag the document icon across the screen and drop it on the trashcan icon (Macintosh OS) or in the Recycle Bin (Windows).
Indeed, this comports with Simple's understanding of the term as applied to TMODs. "According to Simple, '[b]y definition, tiled window objects cannot be 'freely moved' independently of other window objects,' but rather "snap" into a column and row of a table of window objects,' which sometimes"causes other window objects in a 'column' to be moved." (Id. at 86-87 (quoting Defs.' Mem. of Law in Supp. of Summ. J. on Claim Construction (Dkt. No. 365), at 23).)

The Special Master found that according to the specifications of the '493, '563, and '882 Patents, one need only conclude that TMODs are "arranged in table fashion," [but] not that [they] . . . are actually arranged in a table or grid." (Id. at 122.) The Special Master reviewed the relevant portions of the specification, the relevant figures, such as Figure 2A of the '493 and '882 Patents, supra at 22, the relevant source code, such as the "module_draw.js" and "positioning_function.js" files, and questioned Simple's expert witness as to how the patents in suit specifically showed how TMODs could be made to snap into a grid formation. (Id. at 120-30.) Taking the foregoing evidence into account, the Special Master found that, at best, the ability of TMODs to snap was only implied. However, there was no direct indication or proof of this on the record. (Id. at 120-30.) Accordingly, the Special Master found that:

Overall, . . . the specification does not per se disclose or require "snapping" by TMODs, whether in the glossary, description, figures or code. The specification only provides inferences, at best. Nor has Simple pointed to anything in the prosecution histories of the patents-in-suit that requires TMODs to "snap." In short, the glossary's requirement that a "layer" "act independently * * *" is not inconsistent with the specification's disclosure of TMODs.

(Id. at 130.) Since the Court has already discussed the Special Master's proposed construction of the term "content," it will not do so again. Building upon his analysis of the term content, the Special Master concluded that "[t]he phrase 'a layer acts independently of other content within a particular HTML document' means that the activity associated with a layer, such as moving or resizing, does not depend on other content within a particular HTML document." (Id. at 139-40.) The parties however, disagree, and propose their own constructions.

B. The Parties' Objections

CA's "proposed construction would require the acts of the window object neither be affected by nor affect other content." (CA's Claim Construction Objections at 1.) Simple, for its part, attacks the Special Master's definition on various fronts. First, Simple asserts that the Special Master improperly imported a limitation from the specification into a claim term by incorporating the glossary definition of a "layer" into his construction of the term "window object." (Simple's Claim Construction Objections at 2.) Simple further contends that the Special Master improperly excluded a preferred embodiment of the claimed subject matter, TMODS, by (1) incorrectly broadening the definition of the term "content" and then (2) requiring that "the activity associated with a layer, such as moving or resizing, . . . not depend on other content within a particular HTML document." (Id. at 6 (emphasis added).) In addition, Simple asserts that the Special Master failed to consider the acts of refreshing or reloading in reaching his determination. (Id. at 13.)

C. Analysis

Since the parties have not objected to the Special Master's interpretation of "a particular HTML document" the Court need only interpret the phrase "a layer acts independently of other content." Defining exactly what a "layer" is and how it may "act" form the crux of the matter. The Court's analysis of the phrase "a layer acts independently of other content within a particular HTML document" will entail the following steps: (1) defining the terms "window object" and "layer"; (2) identifying the "acts" which can be performed by or upon a "layer"; (3) defining the term "independently" in the context of the patents in suit; (4) defining the phrase "a layer acts independently of other content"; and (5) addressing the parties' objections and arguments.

1. The Patentees' Glossary Definitions of "window object" and "layer" Control

Federal Circuit precedent and the intrinsic evidence before the Court require that: (1) a "window object" be defined as a "Module or a Layer," and similarly (2) a "layer" be defined according to the glossaries in the '493, '563, and '882 Patents. Phillips, 415 F.3d at 1316; CCS Fitness, Inc., 288 F.3d at 1366; Durel Corp., 256 F.3d at 1303-04; Sinorgchem, 511 F.3d at
The glossaries of the patents in suit fit well within the boundaries of instances where the Federal Circuit has found that a patentee's own lexicography will determine the meaning of a disputed term. For example, in Sinorgchem, the patent specification in question stated that a "controlled amount" of protic material is an amount up to that which inhibits the reaction of aniline with nitrobenzene, e.g., up to about 4% H[2]O based on the volume of the reaction mixture when aniline is utilized as the solvent. 511 F.3d at 1136 (emphasis added). According to the Federal Circuit, setting the term apart in quotation marks and following it with the word "is" was enough to "clearly, deliberately, and precisely . . . [define] the term 'controlled amount' of protic material as 'an amount up to that which inhibits . . . , e.g., up to about 4%' . . ." and require that the patentee be bound to this definition. Id. (emphasis and bracketed text added). Similarly, in Abraxis Bioscience, Inc., the Federal Circuit found that the patentee's lexicography trumped ordinary usage because a patent specification clearly defined the term "edetate" in the following passage: "By the term 'edetate' we mean ethylenediaminetetraacetic acid (EDTA) and derivatives thereof . . . ." 467 F.3d at 1376 (citation omitted).

In the case at bar, the answer is obvious. The patentees have gone so far as to use a glossary to clearly define a window object as a "Module or a Layer" and then provide a separate definition for the term "layer." E.g., '493 Patent col. 5, l. 64 - col. 6, l. 8. This level of clarity goes well beyond the quotation marks and the term "is" used in Sinorgchem. Accordingly, a window object must act as either a layer or module would. Having established that a window object is a "module or a layer," and that a "layer" will be understood as defined by the patentees' glossary, the Court will further inform its interpretation of the term "layer."

2. Identifying the "acts" of a "layer"

In order to construe the disputed phrase "a layer acts independently," the Court must first identify the qualities and "acts" of a "layer." In order to define the acts of a "layer," the Court will first identify exactly which "window objects" and embodiments fall under the scope of the term "layer." According to the specifications of the patents in suit, a layer can refer to a DMOD, TMOD, "Fixed Layer," or "Content Manifestation Layer" used to display information within a content manifestation environment in accordance with the patents in suit. See, e.g., '493 Patent col. 5, l. 65 - col. 6, l. 8, col. 6, l. 22-36. "Layers," as understood by the patents in suit, include DMODs and TMODs because a "Module" is simply a "layer" with a control section and content display section. E.g., '493 Patent col. 6, l. 13-21. Accordingly, the acts and properties of a "module" fall under the ambit of the term "layer." (See generally Markman Tr. at 74:3-15.) Consequently, a "layer" can, among other things, be: (1) scaled; (2) dragged; (3) minimized; (4) maximized; (5) restored; (6) made to-pop up; (7) display content; or (8) made to display content or host a module based on user or module operations. E.g., '493 Patent col. 5, l. 65 - col. 6, l. 8, col. 6, l. 27-30, col. 10, l. 33-51, col. 26, l. 41-47. Having listed the acts of a layer, the Court will construe the term "independently" in the context of those actions.

3. "[I]ndependently" Cannot Be Interpreted in an Absolute Sense Because Actions in One Window Object Can Impact Other Window Objects in a Content Manifestation Environment

The intrinsic evidence before the Court makes it clear that a layer can be impacted by or affect other window objects, but need not have a "global" impact on every other element in a content manifestation environment provided in accordance with the '493, '563, and '882 Patents. Any definition of "acts independently" can not require absolute autonomy on the part of all layers at all times since: (1) actions in one window object can cause a new layer to "pop-up"; (2) actions in one window object can lead directly to the display of information in another layer; and (3) certain layers are used to display information not destined for other window objects in a content manifestation environment. E.g., '493 Patent col. 6, l. 27-30, col. 10, l. 33-52. For example, one embodiment of a "layer" is a "Content Manifestation Layer or CML." E.g., '493 Patent col. 6, l. 32-36. CMLs can be made to "pop-up" "based on operations occurring within another Module" in the same content manifestation environment, such as when a user clicks on a link or scrolls her mouse over a certain portion of an active module. See id. Another embodiment of a layer is a "Fixed layer or FL," which is a "static, always visible" layer used to display information not destined for other window objects within the same content manifestation environment. '493 Patent
col.6, ll. 27-32, col. 10, ll. 33-52. For example, a FL, as described by the patents in suit, could possibly be made to display flight schedules, weather reports or other travel related information if a user were to scroll over the "BOOK A FLIGHT" link in item 203, the "TRAVEL" module, in Figure 2B, supra at 17. Accordingly, it is clear that one layer can be impacted by acts performed in another window object.

The specifications of the patents in suit also point out that when a module control is acted upon, it "need not have a global effect on the entirety of the CME in which [a] module . . . is displayed." E.g., '493 Patent col. 8, ll. 46-48. Accordingly, the Court recognizes that a user can minimize, maximize, close, restore, scroll through, or request a help screen from one window object without affecting every other window object in a CME. The Court also recognizes that a user can move, minimize, maximize, resize, or otherwise perform the acts of a layer, without being constrained by or depending on other "content" in the same HTML document. Having identified the functions and properties of a layer according to the specifications of the '493, '563, and '882 Patents, the Court will define the phrase "a layer acts independently of other content within a particular HTML document."

4. "[A] layer acts independently of other content within a particular HTML document" Defined

The Court adopts the Special Master's recommendation and finds that the phrase "a layer acts independently of other content within a particular HTML document' means that the activity associated with a layer, such as moving or resizing, does not depend on other content within a particular HTML document." (R&R at 139-40.) This definition is consistent with the Court's finding that the acts of a layer can be performed regardless of the other content within a particular HTML document but may have an impact upon other content or window objects within a particular HTML document. (See also id. at 117 (stating "the phrase 'a layer acts independently of other content' merely connotes that the acts of a layer are not subject to control by other content, or do not require or rely on other content.").) 18 In short, the Special Master's recommended construction is fully supported by the evidence before the Court. Having defined the relevant phrase, the Court will address the parties' objections and arguments below.

--- Footnotes ---

18 The Court also agrees with the Special Master's interpretation of the claim language and specifications of the '493, '563, and '882 Patents as to the acts which a layer can perform. These acts, as previously mentioned, include: (1) scaling; (2) dragging; (3) resizing; (4) minimizing; (5) maximizing; (6) being made to pop up; (7) being closed; (8) manifesting content such as text; and (9) playing sound. (R&R at 114-15.)

--- End Footnotes ---

5. CA's Argument Is Inconsistent with the Specifications of Patents in Suit

CA's assertion that the "acts of . . . [a] window object neither be affected by nor affect other content" is inconsistent with the specifications of the patents in suit. In light of the fact that the specifications of the '493, '563, and '882 Patents establish that a layer can be made to display content, host another window object or even pop-up based on user actions or merely because other window objects are active within a content manifestation environment, it is clear that a window object is affected by other content. E.g., '493 Patent col. 5, l. 65 - col. 6, l. 8., col. 6, ll. 27-36, col. 9, ll. 39-43, col. 10, ll. 33-51, col. 26, ll. 41-47. However, it is critical to note that one can move, resize, scroll through, close, or otherwise act upon a layer regardless of the other content within a particular HTML document. In short, though a layer can be impacted by user actions upon other window objects in the same content manifestation environment, the acts of a layer cannot be constrained by other content in an HTML document. Having addressed CA's objection, the Court turns to the various issues raised by Simple.

6. The Special Master Correctly Applied the Glossary Definition of the Term Window Object as Required By the Specifications of Each Patent in Suit

Simple's argument that the Special Master improperly imported a limitation from the specification into a claim term by incorporating the glossary definition of a "layer" into his construction of the term "window object" is without merit. (See Simple's Claim Construction Objections at 2.) The '493, '563, and '882 Patents contain identical glossaries. Each glossary states that "[a] window object is a Module or a Layer." E.g., '493 Patent col.5 l. 64. Additionally, a "module" is merely a "layer" with a control section and an associated content display section that can host other window objects. E.g., '493 Patent
7. The Term "Layer" Should Be Given the Same Meaning Regardless of Whether or Not It Is Capitalized

Simple's argument that the Court should ascribe a different definition to "Layer" when it is not capitalized finds no support in the intrinsic evidence before the Court. (See Simple's Claim Construction Objections at 2.) In fact, the patentees' glossary informs its definition of the term "Layer" by referring to it in an un-capitalized format. Specifically, the glossary provides that:

A Layer is a WWW browser content display section produced within a content manifestation environment (CME) including, but not limited to, any object within an HTML document that may be scaled, dragged, or otherwise operated upon such as an IMG object, a SPAN object, a DIV object, a form element, etc. and which may be associated with program logic such as within a script, etc. A layer has its own properties including, but not limited to, a name, etc. within an HTML rendition model such as those defined by DHTML standards. Additionally, a layer acts independently of other content within a particular HTML document.

E.g., '493 Patent col. 5, l. 65 - col. 6, l. 8 (emphasis added to identify each time the term "layer" is used). The Court finds it implausible that the patentees would choose to refer to a different meaning of the term "layer" in the very paragraph they were using to define the term. Indeed, the intrinsic evidence before the Court critically undermines Simple's argument. In short, the patentees have defined the term "layer" in a glossary within the patents in suit and this lexicography will govern.

If the Court were to apply Simple's rationale, one of ordinary skill in the art would be forced to guess whether the patentees meant for the term "layer" to have its specially defined meaning or its ordinary meaning in the art. For example, the capitalized term "Layer" is used four times in the specification of the '493 Patent. '493 Patent col. 5, ll. 64-66 ("A window object is a Module or a Layer. . . . A Layer is a WWW browser content display section"), col. 6, ll. 30-31 ("A Fixed Layer or FL is a layer having the same behavior as a FSR."); col. 6, l. 32 ("A Content Manifestation Layer or CML is a pop-up type layer much like a pop-up dialog box that can manifest . . . . "). The un-capitalized term "layer" is used 19 times, five of which correlate to instances where the term "layer" is used to help define other terms within the glossary of the '493 Patent. See, e.g., '493 Patent col. 5, l. 65 - col. 6, l. 8 (quoted supra, at 50). As shown below, the glossary entry for the term "module" also contains a reference to the un-capitalized term "layer."

A Module (also referred to herein as a Window Module) is a layer having (1) a control section, and (2) a related content display section which may be manifested within a CME. A module may be recursively referenced in that a particular module provided in accordance with the present invention may include other modules. In other words, the present invention makes it possible to have window objects within window objects.

E.g., '493 Patent col. 6, ll. 13-21 (emphasis added). This pattern of usage is consistent with the '563 and '882 Patents as well. Needless to say, the Court will once again decline Simple's request to add uncertainty to the art of claim construction.

8. Since TMODs Are Not Explicitly Disclosed and Contradict the Unambiguous Language of the Patents in Suit, Certain Unproven Aspects of Their Behavior May Be Excluded when Determining the Scope of Patent Claim Language

Simple asserts that the Special Master's interpretation of "acts independently" excludes the embodiment shown above in Figure 2A, supra at 22, featuring TMODs. According to Simple, TMODs must "snap into a column and row of a table of window objects." (Highly Confidential Expert Report of Richard A. Belgard (Dkt. No. 366) ("HC Belgard Expert Report"), at ex. 36 P 101.) Simple's expert witness also asserted that this snapping action may cause "other window objects in a 'column' to be moved" so as to keep a tiled appearance. (Id.) However, in light of this expert report and the specifications of the patents in suit, the Court sees no way in which a window object can remain tiled and act independently of other content in the same HTML document. Moreover, even if it were necessary for a TMOD to remain "tiled," the Court, like the Special Master, finds no express proof of this behavior in the record. The Court provides its rationale below.
When patent specifications disclose multiple embodiments, claims may be interpreted to exclude embodiments which are "inconsistent with unambiguous language in the patent's specification or prosecution history." Sinorgchem, 511 F.3d at 1138 (citing Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1326 (Fed. Cir. 2001); N. Am. Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1347 (Fed. Cir. 2005)); see also Wang Lab., Inc. v. Am. Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999) (the designation of a particular embodiment as "preferred" does not of itself broaden the claims beyond their support in the specification). Though the Court acknowledges that "[a] patent claim should be construed to encompass at least one disclosed embodiment in the written description portion of the patent specification," it is undeniable that the patents in suit fail to disclose TMODs that remain tiled. See Sinorgchem, 511 F.3d at 1138 (citing Johns Hopkins Univ. v. CellPro, Inc., 152 F.3d 1342, 1355 (Fed. Cir. 1998)) (emphasis added). Moreover, the Court has already construed the disputed claim terms to encompass a content manifestation environment featuring DMODs, one of the preferred embodiments described in the '493, '563, and '882 Patents.

The Federal Circuit's recent decision in Sinorgchem is highly analogous to the case at bar. At issue in Sinorgchem, was the definition of the term "controlled amount" as it pertained to the quantity of "protic material" necessary to inhibit a reaction of aniline with nitrobenzene. Id. at 1136. According to the patent at issue in Sinorgchem, a "controlled amount' of protic material is an amount up to that which inhibits the reaction of aniline with nitrobenzene, e.g., up to about 4% H[2]O based on the volume of the reaction mixture when aniline is utilized as the solvent." Id. (quotations omitted). In a ruling that was vacated and remanded by the Federal Circuit, the United States International Trade Commission held this definition was not controlling for two reasons, the most relevant being that it was countered by an example of a "preferred" embodiment. However, the preferred embodiment was actually one of many disclosed "preferred" examples in two related patent specifications. The example in question related to a reaction of "aniline, nitrobenzene" and another compound under specified conditions, but failed to explicitly disclose the amount of water necessary to facilitate said reaction. Id. at 1139. Due to this omission, one of ordinary skill in the art would have to perform a calculation to determine the proper amount of water used in the reaction. Id. The Federal Circuit reasoned that this inadequately described embodiment was inconsistent with the unambiguously defined term "controlled amount" and could thus be excluded from the scope of the claimed invention.

Simple's interpretation of how TMODs act is not directly shown or taught by the '493, '563, or '882 Patents and would run counter to the consistently stated definition of the terms "content" and "layer." Accordingly, the embodiment of a content manifestation environment featuring TMODs that remain "tiled" is inconsistent with the unambiguous language of the patents in suit and may be excluded when determining the claim scope of the patents in suit. Indeed, an analysis of the relevant intrinsic evidence and Simple's expert testimony only reinforces this finding.

The term "layer" can refer to both TMODs and DMODs.

SPECIAL MASTER PETERSON: Now, let's look at this definition of layer: '… a layer acts independently of other content …. 'A layer may be either a DMOD or a TMOD, right, or include a TMOD or a DMOD?

THE WITNESS [Mr. Richard A. Belgard, Simple's expert witness]: Well, actually a layer is the primitive of DHTML that a TMOD or a DMOD can be constructed of.

SPECIAL MASTER PETERSON: All right. Point being that a layer can refer to both?

THE WITNESS: Correct.

Markman Tr. at 74:3-15; see also, e.g., '493 Patent col. 6 ll 13-26. Moreover, the specifications of the patents in suit distinguish DMODs from TMODs by stating that, a TMOD must be "tiled" while a DMOD must be draggable and freely movable. See, e.g., '493 Patent, col. 6, ll. 21-26, col. 10, ll. 17-32. Yet, there is no mention that TMODs must remain tiled after they are moved. In fact, the specifications of the patents in suit make no reference to modules that "snap" into a pre-aligned grid to remain tiled at all times. Moreover, as Mr. Belgard admits, the patents in suit fail to disclose the programming source code necessary to create an executable embodiment of the claimed subject matter featuring TMODs that remain "tiled." (Markman Tr. at 71:14 - 73:25, 83:24 - 84:11.) Indeed, for TMODs such as those described by Simple to exist, they would potentially have to be repositioned every time they were moved so as to remain adjacent while not overlapping other window objects. Yet, there is no express showing that the source code disclosed in the '493 Patent will

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even perform this repositioning, as evinced by the following excerpt from the Markman hearing.

Q. [Questions posed by Mr Fram, CA's attorney, on cross examination] Before, you said there were missing parts of the code?

A. [Answers provided by Mr. Belgard] Yes.

Q. And some of that missing parts of the code affects, as you understood it, the parts of the code concerning the TMODs that we were looking at; isn't that right?

A. Well, it concerns both. It concerns positioning of the window objects on the screen.

Q. So when something is moving one way or the other positioning, that's what -- that's part of the code that's missing?

A. Yes, some of that code is missing.

(Id. at 83:24 -84:11.) In fact, a detailed analysis of the source code referred to by Mr. Belgard, Simple's expert witness, merely hints that repositioning may occur. E.g., '493 Patent cols. 41-48, 53-58; see also Markman Tr. at 71:10-14 ("[T]his is the outer JavaScript that draws the modules on the screen or helps to draw the modules on the screen, and it calls ancillary routines throughout. It's not -- It would be nice if it was fully contained here, but it's not." 19) As Mr. Belgard, Simple's expert, admits, there are certain JavaScript functions and "routines" which are not disclosed by the '493 Patent but are necessary to position TMODs in a tiled format. (Markman Tr. at 71:10-14.) In short, there is nothing on the record which expressly shows that TMODs must remain tiled or snap into a grid of rows and columns when moved, as suggested by Simple.

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19 In the testimony excerpt above, Mr. Belgard is referring to the JavaScript source code that is used to "draw modules" as they appear in the claimed content manifestation environment. (See Markman Tr. at 71:10-14.) However, as Belgard points out, the JavaScript included in the specification of the '493 Patent is incomplete because it does not disclose the source code necessary to implement TMODs that remain tiled.

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The assumption that TMODs snap into place would directly contradict the definition of a layer which must act independently of other "content" in a particular HTML document. The '493, '563, and '882 Patents all state that "content" includes the positioning information of a window object. Ensuring that a TMOD did not overlap but remained adjacent to another window object would require that the act of moving one layer be constrained by the position information of another window object. In the case at bar, just as in Sinorgchem, an inadequately disclosed "preferred" embodiment must be excluded from the scope of a claimed invention. In sum, TMODs which remain tiled are not fully disclosed and run counter to repeated and clearly stated language found throughout the patents in suit.

Even assuming that the TMODs disclosed in the '493, '563, and '882 Patents could "snap" into position after being moved, this would contradict the definition of a layer which must act "independently of other content within a particular HTML document." Indeed, other window objects would potentially have to be repositioned and the layer being moved would be constrained to snap into a specific location since something that is always "tiled" can be adjacent to but may not overlap other window objects. If TMODs were to snap, the independent acts of a layer would be limited to refreshing since resizing, minimizing, moving and maximizing functions would all be constrained by an invisible grid or the placement of other window objects. (HC Belgard Expert Report P 104.) However, the intrinsic evidence makes it clear that a layer can do more than be refreshed. In fact, the Special Master correctly points out that "the patentees consistently described refreshing content as something unnecessary and something that the layers did not cause." (R&R at 115.) In sum, Simple's argument that the Special Master's construction of the phrase "a layer acts independently of other content" is incorrect because it excludes a preferred embodiment of the patents in suit and is inconsistent with the evidence before the Court.

D. The Court's Ruling on the Phrase "a layer acts independently of other content"
Having considered the intrinsic evidence, Markman hearing transcripts, expert witness reports and technical dictionaries associated with the ‘493, ’563, and ’882 Patents, in addition to the parties' objections and counter arguments, the Court concludes that the phrase "a layer acts independently of other content within a particular HTML document" means that the acts of a layer can be performed regardless of the other content within a particular HTML document but may have an impact upon other content or window objects within a particular HTML document. Accordingly, the Court adopts the Special Master's recommended construction of "a layer acts independently of other content within a particular HTML document" and interprets the phrase, as he does, to mean "that the activity associated with a layer, such as moving or resizing, does not depend on other content within a particular HTML document." (R&R at 139-40.) In sum, for a layer to act independently, its acts cannot be constricted by other content in an HTML document.

4. "at least one of said signal processors . . ."

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;at least one of said signal processors in said plurality operates independently of other signal processors&quot;</td>
<td>one (1) or more of the signal processors of said plurality of signal processors executes instructions autonomously from another one of said signal processors</td>
</tr>
</tbody>
</table>

Claim 11

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;at least one of said signal processors in said plurality operates independently of other signal processors&quot;</td>
<td>at least one signal processor can operate without being interrupted by any of the two or more other signal processors</td>
</tr>
</tbody>
</table>

The parties dispute whether this term requires the presence of two or more signal processors or three or more signal processors. Saxon argues that because the term uses the word "plurality," the claim only requires two or more signal processors. See, e.g., Dayco Prods., Inc. v. Total Containment, Inc., 258 F.3d 1317, 1327-28 (Fed. Cir. 2001) ("'plurality,' when used in a claim refers to two or more items, absent some indication to the contrary"). Saxon argues that "[t]he actual claim language requires two or more signal processors, with one of the two or more signal processors operating independently of one or more signal processors." Defendants argue that the plain language of the term requires three or more signal processors.

Saxon's argument focuses on the word "plurality," and ignores the other limitations in the claim. While the term does recite a "plurality" of signal processors, it also states that at least one signal processor must operate independently of other signal processors. This is an undeniable "indication to the contrary," id., that, at a minimum, the claim requires one signal processor to operate independently of two signal processors. Thus, the "plurality" referred to in the term must consist of three or more signal processors. The Court adopts Defendants' proposed construction.

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Circuitry Operable Independently of the Operation of Said Memory Array

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The Court adopts ST's proposed construction and construes "circuitry operable independently of the operation of said memory array" as "circuitry whose operation is not contingent upon operation of the memory array." The Court holds that ST's proposal most clearly represents the meaning as understood by one of ordinary skill in the art. Moreover, the Court declines Motorola's proposed construction 7 for two reasons. First, the proposed limitation "located on the same chip as the memory array" appears redundant of the immediately preceding claim language "a plurality of on-chip transistors comprising." '092 Patent, 50:7-8. Second, Motorola’s proposed word "asynchronously" would interject the requirement that the components work in relation to one another. The patent discusses independent operation, and the Court finds no cause to interject asynchronous or synchronous requirements.

--- Footnotes ---

7 Motorola's proposed construction is: "circuitry operable asynchronously from the memory array and located on the same chip as the memory array."

--- End Footnotes ---

b. "independently modifiable copy"

Visto contends that Judge Ward's construction of the term "independently modifiable copy" should be adopted. According to Judge Ward, the term "independently modifiable copy" means "[a] copy of a workspace element capable of being modified independent of the workspace element. The copy of the workspace element does not have to be in the same format as the workspace element." While Sproqit proposes a construction different from that of Judge Ward, it does not dispute the accuracy of his construction. Instead, Sproqit's main argument is that, even if the copy of the workspace element does not have to be in the same format as the workspace element, the copy is otherwise an exact copy of the workspace element. Visto argues to the contrary, even though Judge Ward expressed concern with that very argument. See Ward Order at 16-17 (rejecting Visto's claim that a copy does not have to be an exact copy).

The patents at issue do not explicitly define the term "copy." However, as pointed out by Sproqit, the specifications for the '192 and '131 patents do give context to the word, stating that

In independently modifiable copy of the workspace data 185, referred to herein as workspace data 123, is stored on the global server 120 for easy access by a user from the remote terminal 105. Being a copy, the workspace data includes independently modifiable copies of each workspace element in workspace data and an independently modifiable copy of version information 255 . . , referred to herein as version information.

'192 patent, col. 3; '131 patent, col. 3 (emphasis added). The '708 specification contains similar language. See '708 patent, col. 3 ("[T]he workspace data 120 includes an independently modifiable copy of each workspace element in the selected portions of the workspace data 136 and 116 and an independently-modifiable copy of each corresponding version information 255 . . and 150.") (emphasis added). If a "copy" of workspace data must contain each workspace element making up the workspace data, then it logically follows that a "copy" of a workspace element must contain each subpart making up the workspace element -- in other words, a copy must replicate all the information that comprises the workspace element.

Visto contends still that there is support for its position in the specification for the '708 patent. However, as discussed above, the specification for the '708 patent should not be used to construe the claims of the '192 and '131 patents, at least with respect to new matter contained in the '708 specification. Visto relies on that part of the '708 specification that constitutes new matter. As noted above, the '708 patent addresses translation across different formats, thus potentially adding a new dimension to "copy" not addressed by the '192 and '131 patents.

Even if the Court could consider the new matter in the '708 specification, Visto's argument is not convincing. The part of the '708 specification on which Visto relies states as follows:
FIG. 6 illustrates an example bookmark workspace element in the global format. The global translator 122 incorporates all the information needed by both formats (Format A and Format B) to create the Global Format. For example, if a bookmark in Format A needs elements X, Y and Z and a bookmark in Format B needs elements W, X and Y, the global translator 122 incorporates elements W, X, Y and Z to create a bookmark in the Global Format. Further, the global translator 122 incorporates the information which is needed by the synchronization means such as the last modified date. Accordingly, a bookmark in the Global Format includes a user identification (ID) 605, an entry ID 610, a parent ID 615, a folder ID flag 620, a name 625, a description 630, the Uniform Resource Locator (URL) 635, the position 640, a deleted ID flag 645, a last modified date 650, a created date 655 and a separation ID flag 660.

"708 patent, col. 8.

According to Visto, the above statement "clearly illustrates that an independently modifiable copy of a workspace element need not include the same fields of the original workspace element." Op. Br. at 9. The problem for Visto is that the statement above concerns differences due to different formats. In other words, as argued by Sproqit, there may be differences between the copy and the original workspace element because the applications have different formats, but, if the applications are the same, then the copy should be a complete copy of the original workspace element.

Accordingly, for the '192 and '131 patents, the Court adopts the following construction for the term "independently modifiable copy": A copy of a workspace element capable of being modified independent of the workspace element. A copy of a workspace element is a complete replication of all the information comprising the workspace element.

For the '708 patent, the Court adopts the following construction: A copy of a workspace element capable of being modified independent of the workspace element. A copy of a workspace element is a complete replication of all the information comprising the workspace element unless the copy and workspace element are in different formats. In that case, there may be some differences between the copy and workspace element, but those differences are due to formatting only.

(3) "Index"

EMC contends that an "index" is an organized collection of information, e.g. tables, lists, hierarchical structures or directories. HP responds that, to the contrary, "index" means a single data structure that contains indicators about predetermined data elements and that the indices located on the respective data storage systems must be simultaneously maintained. HP also asserts, with respect to Claim 10 of the '792 Patent, that the four indicators described therein must be contained within "an index." As illustrated by the parties respective definitions, there are four primary disputes with respect to the claim term "index:"

(1) whether the data storage systems must "simultaneously maintain" their respective indices,

(2) whether each data storage system can contain more than one index,

(3) whether an index must be a "single data structure," and

(4) whether, in Claim 10 of the '792 Patent, the four described indicators must be contained within "an index."

The parties do not, however, dispute that an index can take multiple forms such as tables, lists or directories.

(a) "Simultaneously Maintained"

While the parties do not dispute that both the local and remote data storage systems must "maintain" an index, HP contends that those indices must be "simultaneously maintained". One need look no farther than the claim language to discredit that contention. Indeed, Claim 1 of the '347 Patent states, in relevant part,
said first data storage system enabling transfer of said data to said second data storage system, concurrently with said data received from said host computer, so as to nearly simultaneously maintain a concurrent copy of data stored on said first data storage system and on said second data storage system wherein both said first and said second data storage systems maintain an index . . . .

'347 Patent, Col. 8, ll. 60-66 (emphasis added). The phrase "simultaneously maintain" refers only to the copies of data stored on each data storage system and not to the respective indices. Although a requirement that the indices be simultaneously maintained makes sense in light of the purposes of the invention, i.e. efficient error recovery, neither the claim language, nor the Specification nor the prosecution history limits the term "index" to one that is simultaneously maintained on both systems.

(b) Whether There Can Be More Than One Index

EMC contends that the term "an index" denotes at least one index but could include more than one. Although HP does not dispute that the disclosed invention may contain more than one index, it contends that there may be only one index which contains the requisite indicators providing an indication of the validity of a predetermined data element. Claim 1 of the '347 Patent states, in relevant part,

wherein both said first and said second data storage systems maintain an index, said index including at least a first indicator . . . and at least a second indicator providing an indication of whether [a] predetermined data element . . . is valid.

'347 Patent, Col. 8, ln. 65 - Col. 9, ln. 5 (emphasis added). Similarly, other claims in the '347 and '792 Patents as well as the respective patent specifications refer to the required indices as "an index."

The Federal Circuit Court of Appeals has consistently emphasized that "the indefinite articles 'a' or 'an', when used in a patent claim, mean 'one or more' in claims containing open-ended transitional phrases such as 'comprising'.” Crystal Semiconductor Corp. v. Tritch Microelectronics Int'l, Inc., 246 F.3d 1336, 1347 (Fed. Cir. 2001). Thus, the claim limitation "a" requires a construction of "at least one." Id. 6

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6 In Crystal Semiconductor, the disputed claim contained the transitional phrase "having", which the Court found does not necessarily convey the same open-ended meaning as the phrase "comprising" but the Court construed that claim as being open-ended and found that the phrase "a capacitator having . . . a first conductive layer disposed over a portion of" meant "disposed over at least one portion." Id. at 1348.

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Here, Claim 1 of the '347 patent includes the transitional phrase "comprising," meaning, as the Federal Circuit has made clear, that it is an open-ended claim. Because nothing in the Specification or the prosecution history indicates a clear intent to limit the term "an index" to only one index, the disputed claims will be construed to include at least one index, said index having the requisite indicators which provide an indication of the validity of a predetermined data element.

(c) Whether "An Index" Must Be a Single Data Structure

EMC contends that "an index" can include multiple data structures as illustrated by the language of the Specification of the '347 Patent and Figures 2 and 3 therein. HP, on the other hand, claims that "an index" means at least one data structure, i.e. one table, one list or one directory, that contains the required indicators. 7

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7 It is noted that in its post-Markman claim construction memorandum, HP admits, in the section entitled "Said Predetermined Data Element", that "an index" can consist of multiple tables combined together.

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The plain and ordinary meaning of the term "index", that would be relevant in the context of the subject patents, is "something that serves as a pointer or indicator." Webster's Third International Dictionary, 1148 (1981). Accordingly, "an index" does not require that it consist of a single data structure.

Moreover, the language of the '347 Patent supports EMC's contention that "an index" can consist of multiple data structures. Claim 1, for example, discloses a first and second data storage system that

maintain an index, said index including at least a first indicator providing an indication of whether a predetermined data element stored on said first data storage system is valid, and at least a second indicator providing an indication of whether said predetermined data element stored on said second data storage system is valid.

'347 Patent, Col. 8, ln. 66 - Col. 9, ln. 5. Although one might, initially, presume that "an index" refers to one data structure including both required indicators, further perusal of the claim language weakens that presumption. For example, dependent Claim 8 discloses the system of Claim 5 (a dependent claim to Claim 1) wherein,

said maintained index [the index referred to in Claims 1 and 5] includes at least a list of data which must be copied from said first data storage storage [sic] to said second data storage system and, a list of data storage device storage locations for which a format command is pending and for which an invalid track exists.

'347 Patent, Col. 9, ll. 32-37 (emphasis added). Because claim terms must be construed similarly throughout the subject patent, the language of dependent Claim 8 illustrates that the term "an index" can refer to more than one data structure, i.e. at least two lists. Consequently, in Claim 1, "an index" including at least a first and at least a second indicator could be comprised of two separate structures each of which contains at least one of the required indicators.

The Specification of the '347 Patent also indicates that "an index" can be comprised of multiple data structures when it states, in relevant part,

[a]ccordingly . . . data integrity must be maintained by maintaining an index or list of various criteria including a list of data which has not been mirrored or copied, data storage locations for which a reformat operation is pending, a list of invalid data storage device locations or tracks, whether a given device is ready, or whether a device is write-disabled.

'347 Patent, Col. 7, ll. 21-28 (emphasis added). The term "include" means "to place, list, or rate as a part or component of a whole or of a larger group, class, or aggregate." Webster's Third International Dictionary, 1143 (1981). Thus, the Specification illustrates that "an index," in the context of the subject patent, can refer to more than one data structure, i.e. it may refer to at least two lists.

(d) Whether the four indicators disclosed in Claim 10 of the '792 patent must be contained within an index

HP asserts that, with respect to Claim 10 of the '792 patent, the four described indicators must be contained within "an index." The claim language, however, requires no such thing. While Claim 1 of the '792 Patent clearly discloses a "system" which maintains "an index" including at least four indicators, nothing in Claim 10, a method claim, requires the four indicators described therein to be contained within an index.

As HP aptly points out, the Specification of the '792 Patent states that the present system "maintains a list or index." Similarly, the PTO's statement of reasons for allowance of the '792 Patent provides that the applicant's instant claims set forth a system comprised of, inter alia, a first and second data storage system wherein the first data storage system controls the copying of data to the second data storage system by "maintaining an index" which includes at least four indicators. Notwithstanding the well-established premise that one cannot import limitations from the specification or prosecution history into the ordinary claim terms (unless one of the previously described specific circumstances exists), neither of the cited statements limits the terms of Claim 10 (a method claim) so as to require an index. Indeed, in utilizing the term "index," as the above-quoted portions illustrate, the Specification and the PTO specifically refer to the system described in the '792 Patent, e.g., Claim 1, and not to any of the methods disclosed therein. Because the language of Claim 10 does not require that the subject indicators be contained in an index and because neither the Specification nor the prosecution history implicitly or explicitly refute that omission, no index is required.
(e) Conclusions: "An Index"

For the foregoing reasons, the term "an index" as used in the subject patent claims will be construed to mean an organized collection of information which may be contained in one or more data structures, including but not limited to tables, lists or directories, which contains the requisite indicators providing an indication about the validity of predetermined data elements. Because the terms "a" or "an," in the context of patent claim language, mean at least one, the subject patents will be construed to include at least one index having the characteristics described above. For purposes of illustration, an index containing at least a first and second validity indicator could therefore include two lists, each containing one of the respective validity indicators. Moreover, the invention might include a second index, containing two different validity indicators comprised of two tables, each containing one of the respective validity indicators. Finally, there is no requirement for "an index" in Claim 10 of the '792 Patent.

C. Index of Refraction (Independent Claim 5; Dependent Claims 4, 21, 26)

The court finds the term "index of refraction" to mean "the ratio of the speed of light in a vacuum to the speed of light in a medium: the fraction, v<sub>vacuum</sub>/v<sub>medium</sub>";

There appears to be little dispute over the meaning of this term. Defendants adopt this fraction but wish to ensure that the term is used contextually to refer to the specific material referenced in a particular claim. However, Plaintiffs do not dispute the fact that the core, cladding, and air gap have different indices of refraction and the court will adopt the most straightforward reading of "index of refraction." 4

4 "Index of refraction" is not construed in Laser Peripherals.

With respect to the phrase "index parameter" the parties dispute whether the parameter is limited to a "transaction counter."

The phrase "index parameter" is not used in the "Detailed Description of the Invention." In the Claims, the inventor used the phrases "index parameter" and "index value" interchangeably, 3 and used the phrase "index value" in the written description. Therefore, the Court examines the inventor's definition of "index value" to define "index parameter."

3 See e.g., Claim 44: "The method of claim 40 wherein said second device also contains an index parameter, and comprising the further steps of: (a) selecting the larger index parameter of the two devices, (b) using said larger index value to secure said transaction, and (c) both of said devices incrementing and storing said larger index value for use in subsequent transactions.

A person of ordinary skill in the art at the time of the invention would understand that the phrase "index value" refers to a value which can perform the function of indexing. Transaction counting produces a value which can be used for indexing. However, the "Summary of the Invention" clearly states that the "index value" claimed in the invention is not limited to a transaction counter.
The present invention can be used in connection with a client and server using such a protocol. To perform a transaction with the client, the server obtains the client's current transaction counter (or another key index value).

The "Detailed Description of the Invention" discloses an embodiment where the value used for indexing is not limited to a transaction counter:

FIG. 3 shows an exemplary server-side process compatible with the exemplary client-side process of FIG. 2. Prior to commencing the process of FIG. 3, the server obtains the client's counter value C (typically by receiving C from the client device via a digital I/O interface), which is used as a key index. (In this exemplary embodiment, a transaction counter is used as a key index, but alternate embodiments can use a different value or representation of the key index.)

("902 Patent, Col. 6:54-61.)

Accordingly, the Court construes the phrase "index parameter" to mean: a parameter used to derive another value. For purposes of the process disclosed in Claim 1, a transaction counter can be used as an "index parameter." However, an "index parameter" is not limited to a transaction counter.

3. Tunnel Table, Indexed by Tunnel Identifiers, Used to Identify an Entry in a Connection Table

Lastly, Starent argues that summary judgment is appropriate because the ST products do not include a tunnel table which is indexed by tunnel identifiers and used to identify an entry in a connection table. Once again, our conclusion that the ST products do not use tunnel identifiers disposes of this issue because the ST products cannot have a tunnel table indexed by tunnel identifiers if the ST products do not have tunnel identifiers.

However, assuming, arguendo, that the ST products do use tunnel identifiers, we must determine whether the ST products have tunnel tables which are indexed by tunnel identifiers and used to identify entries in a connection table. The key phrase disputed by the parties is "indexed by tunnel identifiers." UTStarcom asserts that "indexed by tunnel identifiers" simply means that the entries in the tunnel table are identified and accessed using information derived from the tunnel identifiers. Starent asserts that "indexed by tunnel identifiers" means that each tunnel identifier is used to access an entry in the tunnel table directly.

Starent identifies specific references in the specification and prosecution history to support its proposed claim construction. Specifically, the specification states that the "PDSN uses the key (e.g., the GRE key) to do a direct look-up of the appropriate tunnel to the mobile node." (Def. St., Tab 2, '905 patent, col. 4, ll. 54-56.) During prosecution, UTStarcom specifically distinguished its claims from the prior art on the grounds that the tunnel table was indexed directly by tunnel identifiers. For example, UTStarcom argued:

While the present invention involves a fast lookup using the tunnel identifier to directly access the tunnel table, which is indexed by tunnel identifiers, Magret teaches an approach that involves the extra overhead of an additional tunnel header . . .

. . . Magret thus does not anticipate the direct-table-access approach of the present invention.

(Def. St., Tab 3, Prosecution History, February 15, 2006 Response to August 15, 2005 Final Office Action and January 10, 2006 Advisory Action at 19-20 (FH-0096-97).) In a later Office Action Response, UTStarcom argued:

nowhere does Verma disclose the foreign agent using that tunnel ID to directly access a tunnel table that is indexed by tunnel IDs, thereby identify an entry in a connection table, and forward the data over the connection identified by that connection-table entry. Simply using a term such as "differentiate" is not enough

(Def. St., Tab 3, Prosecution History, July 25, 2006 Response to March 15, 2006 Office Action at 17 (FH-0044).)
UTStarcom argues that the above cited passages do not rise to the level of being clear disavowals or expressions of manifest exclusion so as to warrant limiting the claim scope because the above cited passages represent only one of several ways in which UTStarcom distinguished each piece of prior art. We do not see the merits in this argument. Distinguishing prior art based on several grounds does not, in any way, minimize the limiting effect of each distinct argument. In fact, the more arguments a patentee asserts for distinguishing a specific piece of prior art, the greater the limiting effect of those arguments will be on the claim scope.

7 In its LR 56.1 Response, UTStarcom asserted that it "did not merely distinguish the independent claims in the simple manner set forth above. More precisely, UTStarcom distinguished Magret . . . in six different ways." (Pl. Res. P 61.) In regard to the Verma prior art, UTStarcom asserted that it "did not distinguish the independent claims from the prior art in the simple manner set forth above. The reference at issue in the response above was the Verma patent, which UTStarcom distinguished on multiple grounds." (Pl. P 66.)

Furthermore, during prosecution, UTStarcom also specifically distinguished hashing from using tunnel identifiers directly. In describing the prior art Leung reference, UTStarcom stated: "the FA will typically carry out a 'hash function,' where the inputs to the hash function are the mobile node's home address and HA address, and the output is an index into a table of PPP connections." (Def. St., Tab 3, Prosecution History, April 29, 2005 Response to January 11, 2005 Office Action at 16 (FH-0167).) UTStarcom went on to distinguish Leung from the claims by stating:

Claim 1, in contrast, is directed to a method where the tunnel identifier . . . perhaps just a simple integer, is merely extracted from packets sent from the HA to the FA, intended for the mobile node, and used directly to identify the correct connection to the mobile node, without the FA needing to extract both the home address and the HA address, and then perform a computation, before finally looking up the correct connection. As such, with the method of claim 1, the connection to the mobile node can be identified more quickly (i.e., a "PDSN Fast Tunnel Lookup").

(Id. at 17 (FH-0168).) This argument put forth by UTStarcom during prosecution clearly shows its intent to distinguish hashing from directly using tunnel identifiers to determine the connection. UTStarcom clearly intended the claims of the '905 patent to use tunnel identifiers directly to determine the correct connections to the mobile node. This limitation is consistent with the purpose of the '905 patent. As stated in the above passage, the '905 patent is titled "PDSN Fast Tunnel Lookup" and using tunnel identifiers directly allows for the "connection to the mobile node [to] be identified more quickly." (Id.)

UTStarcom argues that this reference to hashing in the prosecution history did not distinguish or exclude all use of "hashing" from the claimed invention because it arose as background to a discussion about the use of tunnel identifiers which was related to the "tunnel identifier" amendment that UTStarcom later withdrew. We find this argument unpersuasive. Based on a plain reading of the above mentioned passages from the prosecution history, it is clear that UTStarcom was distinguishing the hashing function from the direct use of tunnel identifiers in the claims. Furthermore, the subsequent withdrawal of the "tunnel identifier" amendment did not act to nullify this distinction. First, as we explained in our claim construction of "tunnel identifier," the withdrawal of the amendment did not nullify any disclaimers UTStarcom made as part of the original amendment because UTStarcom did not attempt to reclaim the disclaimed scope after the withdrawal was made. Second, even if the withdrawal had the effect of nullifying any disclaimer made as part of the original amendment, it still did not nullify the limitation distinguishing hashing from the direct use of tunnel identifiers because the "tunnel identifier" amendment pertained to a distinct and separate element of the claim. In other words, the withdrawal would only nullify those parts of the arguments that were specifically directed at the amendment that was later withdrawn; the withdrawal would not nullify the entire Office Action Response.

UTStarcom relies on the Authoritative Dictionary of IEEE Standard Terms and Dr. Olivier's declaration to support its proposed claim construction. Dr. Olivier's declaration regarding the claim construction of the term "indexed by tunnel identifiers" is a conclusory assertion which is unsupported by any intrinsic or extrinsic evidence. As such, we cannot give any weight to his declaration. The IEEE dictionary definition is probative but is afforded less weight than the intrinsic evidence in the claim construction analysis. Given the multiple references to direct look-up in the specification and
prosecution history, we construe the term "indexed by tunnel identifiers" to mean that each tunnel identifier is used to access an entry in the tunnel table directly.

It is undisputed that in the ST products, the address fields are entered into a hash function to find a data structure corresponding to the call. (Def. St. P 76; Olivier Decl. P 32.) Therefore, the question of literal infringement reduces to a question of claim construction. MyMail, Ltd. v. America Online, Inc., 476 F.3d 1372, 1378 (Fed. Cir. 2007). Under our claim construction of "indexed by tunnel identifiers," there is no question that the ST products do not meet the claim limitation of using the tunnel identifiers directly to access entries in the tunnel table.

UTStarcom has failed to raise any genuine issue of material fact as to whether the ST products directly use tunnel identifiers to access entries in a tunnel table leading us to conclude that the ST products do not contain this limitation. As such, the ST products do not contain every claim limitation found in the disputed claims of the '905 patent. It is therefore determined that the ST products do not infringe the '905 patent and summary judgment should accordingly be granted.

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16. "Indexed Memory Sized and Structured to Store Cash Values for a Multitude of Consumer Accounts"

The plaintiff argues that this term does not need further construction. In the alternative, the plaintiff proposes "electronic memory sized and configured to store cash values for a multitude of consumer accounts." The defendant proposes "a computer memory associated with an index. The index includes a listing of keywords and/or associated data that point to a location of more comprehensive information within the computer memory. The computer memory is sized and configured to store cash values for a multitude of consumer accounts."

Unlike the previous term, this term requires construction. The plaintiff's proposal reads out the requirement that the memory be indexed. The court therefore defines this term to mean "a computer memory associated with an index that is sized and configured to store cash values for a multitude of consumer accounts."

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3. "multiplying, modulo said modulus, said value in said accumulator by a positive integer power of said digital quantity, said integer power being indicated by said symbol"

The Preamble to Claim 1 discloses a method for cryptographically processing a "message" using a "private key including a secret exponent and an associated modulus." In step (a), a "digital quantity" representative of at least a portion of the "message" is obtained. 3 In step (c) 4, a positive integer power of the "digital quantity" is loaded into an accumulator. In step (b), the "secret exponent" of the private key is transformed into an "expanded representation" of itself, which includes a sequence of "symbols, each symbol representing a modular multiplication." Step (d) operates on each "symbol in at least a portion of the expanded representation." The step (d) operation on each "symbol" is divided into two 5 sub-steps: (d)(i), a "multiplying" sub-step; and (d)(ii), an "updating" sub-step. The "multiplying" and "updating" sub-steps are accomplished by executing microprocessor instructions as disclosed in (d)(iii).

Footnotes

3 The provision in step (a) that "said digital quantity to be cryptographically processed using an asymmetric cryptographic protocol involving a private key including a secret exponent and an associated modulus" is not a limitation on the step. This language simply expresses the intended result of the process. See Texas Instruments Inc. v. U.S. Int'l Trade Commission, 988 F.2d 1165, 1172 (Fed. Cir. 1993). 4 In tracing the method, the Court goes from step (a) to step (c) because step (b) operated on the private key disclosed in the Preamble and does not operate on the "digital quantity" disclosed in step (a). 5 Step (d) is enumerated with three subparagraphs. However, there are only two sub-steps, namely (d)(i) and (d)(ii). Subparagraph (d)(iii) limits how (d)(i) and (d)(ii) are performed.
In the "multiplying" sub-step (d)(i), a modular multiplication is performed. This sub-step contains the following limitation: "said integer power being indicated by said symbol." The parties dispute whether "indicated by" should be defined to mean "determined by" or whether it should be defined to mean "directly determined by."

The inclusion of the adverb "directly" (meaning immediately) in the construction would connote that the literal operation of the exponent must be followed. The method is not limited to literal operation of the exponent. Claim 1 discloses a cryptographic algorithm in which the exponent itself represents an algorithm. As explained in the following description of an embodiment, the exponent could be a pointer to another value:

It will also be understood by one skilled in the art that various combinations of the variations discussed here can be used in connection with the invention. For example and without limitation, the operation-based encoding schemes may be combined with the bit windowing techniques using k-ary modular exponentiation where each nonzero exponent digit could represent a power of x, while zero digits could represent squaring operations. For example, as stated above, a "1" digit denotes simple multiplication of the result accumulator by the value x (i.e. by exponentiation of x to the power 1). Similarly, a "2" digit (if used) denotes multiplication x 2 mod n, and so forth. In one embodiment of the invention, a table of pointers may be employed to indicate the value of the bit. For example, the first entry (offset zero) could be a pointer to the result accumulator R (for squaring operations), the entry at offset 1 could point to x (i.e., x 1), the entry at offset 2 (if used) could point to the precomputed value x 2 mod n, and the entry at offset 3 (if used) could point to the precomputed value x 3 mod n. The powers of x may be precomputed at the beginning of the modular exponentiation operation; even so, the performance benefit obtained by reducing the number of multiplication operations during the modular exponentiation generally more than compensates for the precomputation time. Note that x 0 (equivalent to multiplication by 1) is not used; all steps involve multiplication with a number larger than 1 because "0" digits in the encoding represent multiplication by R.

('442 Patent, Col. 7:66-8:23.)

Furthermore, an independent claim should not be interpreted in a way that is inconsistent with a claim which depends from it. Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995). Claim 2, which depends from Claim 1 discloses two types of "symbols," one of which is not directly used, but uses "a previously stored positive integer power." Thus, a construction of "indicated by" which requires "direct determination" of the integer power by the symbol arguably would invalidate Claim 2.

Therefore, in the claim element, "multiplying, modulo said modulus, said value in said accumulator by a positive integer power of said digital quantity, said integer power being indicated by said symbol," the Court construes the phrase "indicated by" to mean: directly or indirectly determined by.

4. Indicates.

The court construes the term "indicates" to mean "signifies."

10. "Said input voice command indicating a desired movement." The voice command input to the system by the surgeon indicates a desired movement of the surgical instrument.

4. "Indicating an operating status of a defibrillator" means "providing a visible or audible alert of whether the defibrillator is capable of treating a patient and possibly other indications of operational status."
Three substantially identical claims of the 374 Patent require the invention to "indicat[e] an operational status of an external defibrillator" by "indicating the operational status of the defibrillator. . . ." 374 Patent Claims 42, 44, 67 (emphasis added). Because the claims use the article "an" before "operational status," they suggest that the defibrillator need only indicate one of many possible operational statuses. See Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed. Cir. 1999). Defibtech contends that the indication of operational status is limited to "information about whether the defibrillator can be used to treat a patient." Philips' preferred construction is not clear to the court. Philips may be asserting that any indication of information on the operational status of the defibrillator would satisfy the claims, or it may contend that although the claims require an indication of whether the defibrillator can be used to treat a patient, the defibrillator may reveal additional operational statuses as well. The court adopts the latter construction.

The claim language supports a more expansive interpretation of "operational status" than Defibtech's construction, as does the written description. The inventors noted that a defibrillator should "indicat[e] not only . . . whether it will operate at all, but also verify that the defibrillator meets its established specifications." 374 Patent at 1:63-65. Thus, the invention suggests that the defibrillator must indicate whether it will operate, and may also indicate other operational statuses. Later, the patent discloses that those operating statuses are not limited to those that would indicate when the defibrillator is capable of treating a patient. The failure of any of numerous self-tests requires "an indication of an inoperable status or error status. . . ." 374 Patent at 7:8-9 (emphasis added). One suggested test is the "Stuck Button self-test" that verifies whether any of the defibrillator buttons are stuck in a closed position. 374 Patent at 13:49-53. Although a stuck button would result in a "Not OK" indicator display, id., this would not necessarily mean that the defibrillator is incapable of treating a patient. As to other self-tests, while many of them check defibrillator functionality, some also assess calibration. E.g., 374 Patent at 9:2, 9:25. It is thus possible for a self-test to indicate that the defibrillator is functional but not properly calibrated. See 374 Patent at 2:3-7 (noting importance of defibrillator calibration). Moreover, the inventors envisioned a status indicator that would allow the defibrillator to display these more complex assessments of operational status. 374 Patent at 5:41-6:10 (describing an indicator with a "separately addressable portion" indicating power and functionality in addition to a "fail-safe OK' symbol").

While the invention is not limited to displaying whether it is capable of treating a patient, it must at least provide such an indication. A defibrillator that did not display this information would not serve the purpose of the invention. Philips admits as much in stating that the "patent expressly teaches the need for a defibrillator to provide an operator with an indication of (1) whether it will operate and (2) whether the defibrillator meets its established specifications." Philips' Opening Br. at 19 (citing 364 Patent at 1:56-64) (emphasis added). Thus, the court construes these claims to require "providing a visible or audible alert of whether the defibrillator is capable of treating a patient and possibly other indications of operational status."

Claim Element 17

indicating in the computer readable data file at least one implementation operation required for the implementation of the selected choice in the computer system during manufacturing of the computer system.

The parties disagree on the meaning of the above-stated language. Dell argued that the ordinary meaning of the above-stated language should suffice. Lucent, however, proposed the following: "a complete, working computer that includes not only the computer, but also any software (including an operating system) and peripheral devices that are necessary to make the computer function."

The court construes the above-stated claim term as follows:

"indicating in the computer system readable data file at least one operation required for the implementation of hardware components and software programs on a computer system including, but not limited to, installation programs, hard-disk-drive formatting operations, testing operations and other similar operations."
6. "Indicating Signal"

Term
"indicating signal"

VIA & Intel's-Proposal
This term is indefinite. To the extent the Court opts to provide a construction, Intel and VIA offer the following alternative to CCCC's proposal: "a signal that triggers the actions of placing the generated second address together with the SNOOP signal on the second bus, receiving data from a second data storage location mapped to the generated second address, and transmitting the received data to a requesting bus master via a first bus."

CCCC's Proposal
"A signal that results when an address in a first address space has been mapped to an address in a second address space."

Via has separately moved for summary judgment that the patent is invalid for indefiniteness. It asserts, inter alia, that the term "indicating signal" cannot be construed because, aside from the claims, there is no other description of the "indicating signal" in the patent. This section addresses both Via's motion for summary judgment and the construction, if one is possible, of "indicating signal."

The term "indicating signal" appears as part of the first mapping means in the asserted claim as follows:

first mapping means coupled to said first bus for mapping first addresses within the first address space to second addresses within the second address space, for asserting an indicating signal and for generating one of said second addresses in response to one of said first addresses transmitted on said first bus from one of said first plurality of bus masters, said first mapping means also generating a SNOOP signal of a state indicating when a generated second address is mapped to one of said particular subset of the second data storage locations.

'369 patent at 13:15-14:6 (emphasis added). The parties have agreed that "indicating signal" is part of a means-plus-function claim, thus the corresponding structure must be identified to construe this term. A challenge to a claim containing a means-plus-function limitation as lacking structural support requires a finding, by a clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function. Intell. Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308, 1319 (Fed. Cir. 2003); see also Allvoice Computing, F.3d at 1347, 2007 U.S. App. LEXIS 23949, 2007 WL 2963933, *3. Where a means-plus-function claim is not "amenable to construction," it is invalid as indefinite under 35 U.S.C. § 112 P 2. Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001).

The indicating signal must satisfy requirements set forth in the claims. First, it has to be asserted by the mapping means. Second, the bus interface means has to respond to this signal as described in the last paragraph of claim 1. '369 patent at 14:3-8 ("bus interface means connected to said first and second buses for responding to the first indicating signal when said on of said first plurality of bus masters is reading data . . .").

The first step to identifying which signal is the claimed "indicating signal" is determining which structure corresponds to the "mapping means" because pursuant to the claim language, the indicating signal is asserted by the mapping means. '369 patent at 13:16-19 ("first mapping means coupled to said first bus . . . for asserting an indicating signal . . ."). As discussed above, the structure that corresponds to the mapping means for asserting the indicating signal is the mapping circuit or, in the preferred embodiment, the V-F translation circuit or address generator.
In its motion for summary judgment, Via challenges the asserted claim as indefinite because, it argues, it is not clear what the "indicating signal" refers to. As set forth in the claims, however, the indicating signal indicates a request which then initiates a sequence of steps related to arbitration and control that results in placing the translated address onto the second bus. See '369 patent at 14:3-12.

Via further contends that based on CCCC's proposed construction ("A signal that results when an address in a first address space has been mapped to an address in a second address space"), any number of the following signals discussed in the patent could be the indicating signal: the SNOOP signal, the V-LREQ request signal, the EN4 enable signal, the LOC_AS local address strobe signal, the L-FREQ request signal, the EN6 enable signal, the BT block transfer indicating signal. However, of the candidate signals suggested by Via, only SNOOP, BT, and V-LREQ are asserted by the V-F translation circuit.

Of the signals asserted by the V-F translation circuit, SNOOP could not be the indicating signal because the claim specifically distinguishes between SNOOP and indicating signal. The claim states that one of the responses to an indicating signal is "placing the generated second address and SNOOP signal on the second bus." '369 patent at 14:5-7. Because the SNOOP signal is placed in response to the indicating signal, these signals cannot be the same. The BT signal also cannot be the indicating signal because the BT signal only applies when VMEbus wishes to perform a block transfer wherein it read or write accesses a variable number of up to 256 data bytes at successive addresses on Futurebus, thus limiting it to a specific application. See '369 patent at 6:18-25.

It is suggested by both experts that V-LREQ may be the indicating signal. Indeed, this signal satisfies all the requirements that an indicating signal must have. It is asserted by the mapping circuit, it is understood to indicate a request to the VMEbus arbitration and control circuit, which then initiates a sequence of steps related to arbitration and control. The bus interface subsequently responds to this signal. This V-LREQ signal is shown in the patent figures as starting a cascade of commands that occur to place the translated address on the second bus. See Fig. 2. Thus, the court construes "indicating signal" as the "V-LREQ request signal" which is a signal that requests control of the first bus. See '369 patent at 5:5-28 ("V-F translation circuit 18 determines whether the VME address bus has been addressed to a corresponding Futurebus address, and if so, transmits a request signal V-LREQ to VMEbus arbitration and control circuit 38.").

8. "Indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number"

Aristocrat and IGT have two disputes over the construction of the limiting language "indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number." First, the parties disagree as to whether two numbers can "match" when one is less than the other. Second, they dispute whether "indicating the occurrence" of the second game trigger condition must be displayed to the user, and when that indication must occur. The parties propose the following constructions:

<table>
<thead>
<tr>
<th>Term or Language Requiring Construction</th>
<th>Aristocrat's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number</td>
<td>indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number</td>
</tr>
<tr>
<td>Term or Language Requiring Construction</td>
<td>IGT's Proposed Construction</td>
</tr>
<tr>
<td>indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number</td>
<td>If one of the allotted numbers is identical to the selected random number, alerting the</td>
</tr>
</tbody>
</table>
numbers matches the selected random number player during the first main game that a second game will appear after the first game is complete. This indication is different from and precedes the appearance and display of the second game.

a. "match"

IGT contends that one of the allotted numbers has to be identical to the selected random number in order for an indication of the second game trigger condition to occur. In other words, the numbers have to be identical. Since the court has construed "allotting a plurality of numbers" to include allotting the numbers represented by the player value, the dispute regarding the term "match" has little significance. Accordingly, even if the court were here to adopt IGT's construction, the embodiment at issue would still be covered by the claim language under the court's above construction.

Nonetheless, Aristocrat's contention that "match" does not mean "identical" based upon a dictionary definition of "match" as "a suitable pairing of persons or objects" is not persuasive. Reply CC at 14 (citing MERRIAM WEBSTER'S DICTIONARY, 334 (1995)). Numbers do not "match" in the same way as a shirt and jacket might. In the context of the claimed invention, it would be nonsensical to say that two numbers "matched" merely because they were "suitably paired." The court therefore concludes that two numbers "match" under the claim language when they are "identical."

b. "indicating the occurrence of the second game trigger condition"

IGT also argues that "indicating the occurrence of the second game trigger condition" cannot be an internal action within the software. IGT CC at 21. That is, the occurrence of the trigger condition must be indicated to the player. IGT cites a section of the specification which describes how the player is notified when the second-game trigger condition is satisfied:

Preferably, when a jackpot game is triggered, all players are alerted by a jackpot bell that a possible grand jackpot is about to be played for. This is done so that all players share in the experience of a jackpot win. Anecdotal evidence of players watching feature games being played in Australian casinos suggests that the drawing power of such games is immense.

Players are alerted by the jackpot bell instantaneously at any point during a game, but the feature game at will not appear until the current game (including base game features) are completed.

'215 Patent at 7:41-51. Aristocrat responds by citing the "Summary of the Invention" section of the specification which states that the "function of triggering a feature jackpot game may either be performed by a central feature game controller or may be performed within each console in the system." Id. at 4:4-7.

The portion of the specification cited by Aristocrat deals with whether the triggering calculation is done centrally in the game-machine network, or on the particular machine. It does not suggest that the occurrence of the second game trigger is not indicated to the player. On the other hand, the section of the specification that IGT cites from the preferred embodiments explains the purpose of indicating the occurrence of the second game trigger--attracting the attention of players. Therefore, it follows that the "indicating the occurrence" as used in the claim means indicating to the player.

GO BACK

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A. Literal Infringement Under the "Indicating" Step

In order to literally infringe, IGT's accused devices must perform every step of the claimed method. Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1328 (Fed. Cir. 2008). According to this court's claim construction, the patent requires that when the second-game trigger condition is met, the player is alerted "during the first main game that a second game will appear after the first game is complete. This indication is different from and precedes the appearance and display of the
second game." Claim Construction Order 24. IGT argues that this construction imposes two requirements on the indication to the player that a second game will appear: first, that the indication must appear during the first main game; and second, that the indicated second game must appear after the first game is complete. IGT moves for summary judgment of non-infringement on the basis that the accused device can meet one, but not both, of these claim requirements.

In support of this claim, IGT offers the declaration of Richard Michaelson who testifies to the behavior of the accused gaming machines. Decl. of Richard Michaelson ISO IGT's Mot. for Summ. J. Non-Infringement PP 2-5 ("Michaelson Decl."). The declaration attaches as Exhibit 1 a video and audio recording depicting the play associated with various outcomes of a "Fort Knox" game. Id. Michaelson states that he operated the gaming machine in the recording on May 19, 2009, at IGT's offices. Id. P 2. The video shows an electronic video screen depicting five columns of three symbols which spin like reels when the player touches the "spin" button. Id. at Exhibit 1 at time 0:09. When a player wins access to the "Fort Knox" bonus game, vault doors close across the screen from each side. Id. at time 0:16. "YOU ARE NOW ENTERING FORT KNOX!" appears in text on the screen and is spoken by a male voice. Id. at time 0:19. No notification to the player that he or she has won access to the Fort Knox bonus game appears before the closing of the vault doors. After a few seconds the vault doors part, revealing a grid of safes from which the player chooses, and which choice apparently determines the progressive prize the player wins. Id. at time 0:21-0:58. The video depicts a variety of outcomes, including whether the player has or has not won the base game and whether the player has obtained or did not obtain a Fort Knox bonus. Michaelson Decl. P 4 (describing the game outcomes in the video at particular time markers). Although the video itself only displays the play of the "Fort Knox" game, Michaelson states that "[e]ach game with a Ft. Knox, Party Time, Jackpot Hunter, or Wheelionaire bonus distributed by IGT operates similarly to the Ft. Knox game play described above and shown in the Exhibit 1 recording, in that the first indication to the player that a bonus round of any of those four kinds will appear is when the bonus round does appear and is displayed." Id. P 5.

Aristocrat first contends that Michaelson does not provide any basis for his personal knowledge for the allegation that the "recording accurately shows the operation of the [base and bonus game] as they appear, display, and play during gambling by casino patrons on IGT gaming machines programmed with the Ft. Knox bonus." Pl.'s Opp. to Mot. for Summ. J. of Non-Infringement re: "Indicating" Step 2 ("Indicating Opp."). Aristocrat also suggests that the video is of an emulator as opposed to a functioning gaming machine. Id. In Michaelson's supplemental declaration in support of IGT's reply, he states that "[t]he video and audio recording attached as Exhibit 1 to my declaration . . . shows operation of a gaming machine, not an emulator. The gaming machine was programmed with the actual code that is executed in gaming machines used in casinos." Suppl. Michaelson Decl. re: "Indicating" Step P 2 ("Suppl. Michaelson Decl."). Michaelson also states in his deposition that he is a staff engineer in IGT's legal department. Ex. A to Decl. of Robert Blanch ISO Aristocrat's Opp. 6:16-22. IGT also points out that neither Aristocrat nor Crevelt contends that the depicted game play is not representative of that which appears in casinos. IGT's Reply re: Summ. J. Based on "Indicating" Step 1 (hereinafter "Indicating Reply"). Although it is not entirely clear the personal knowledge basis on which Michaelson describes the software and devices at issue, he does state that he has personal knowledge, and Aristocrat provides no basis to doubt that assertion.

On the basis of the video, IGT contends that it cannot infringe. If the completion of the first main game occurs before the closing of the vault doors, which are the first notice to the player that a second game will appear, then no indication has been made to the player "during the first main game," and IGT does not infringe. On the other hand, if the completion of the first main game occurs after the closing of the vault doors, that completion must still occur before the second game begins, because the patent elsewhere requires that the second game "appear[] after completion of said first main game." '215 Patent at 9:12-13; '603 Patent at 8:38-39. According to IGT, no possible completion point for the first main game exists after the vault doors close but before the second game begins. Thus, argues IGT, the accused Fort Knox device cannot infringe, and IGT is entitled to summary judgment on that basis.

At the motion hearing, Aristocrat argued that summary judgment should be denied because the specific temporal limitation in this court's construction of the "indicating" step requiring that the indication appear "during the first main game" is incorrect and perhaps unintended. Aristocrat pointed out that, in the court's order on Aristocrat's motion for leave to move for reconsideration, the court's reasoning focused on the requirement that the indication precede the appearance of the second game, not whether the indication must be during the first main game. Aristocrat additionally argued that the claims and specification did not offer any support for requiring that the indication be "during" the first main game. The parties have not previously focused on the question of whether there could be some intervening period of time between the first and second games. As a result, the court's previous orders have not considered an indication appearing during the first main game and an indication appearing before the second game begins as having any significant difference.
IGT argues that the specification supports a "during" limitation. In a preferred embodiment, the specification states that "[p]layers are alerted by the jackpot bell instantaneously at any point during a game, but the feature game will not appear until the current game (including base game features) are completed." '215 Patent at 7:48-51 (emphasis added). As articulated in the court's order on Aristocrat's motion for clarification, the requirement that the indication appear before the second game arises primarily out of the claim language. Clarification Order 2-3. In contrast, there does not appear to be any specific basis in the claim language for requiring that the indication appear during the first main game. Furthermore, the cited portion of the preferred embodiment, as the court stated in its claim construction order, explains the purpose of indicating the occurrence of the second-game trigger: to attract attention of players. See Claim Construction Order 19. But attracting other players only requires that the indication appear before the second game starts; it is not critical that the first game still be in progress. Requiring the indication to occur during the first game would be improperly importing a limitation from the specification into the claim. Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fec. Cir. 2005). The court concludes therefore that the indication need not appear during the first main game. The court will clarifies its previous claim construction as follows:

<table>
<thead>
<tr>
<th>Disputed Language</th>
<th>Court's Construction</th>
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<tbody>
<tr>
<td>&quot;indicating the occurrence of the second game trigger condition if one of the allotted numbers matches the selected random number.&quot;</td>
<td>If one of the allotted numbers is identical to the selected random number, alerting the player that a second game will appear after the first game is complete. This indication is different from and precedes the appearance and display of the second game.</td>
</tr>
</tbody>
</table>

Aristocrat argues that the computer code run by the accused devices includes routines that satisfy the "indicating" step. In his declaration, Aristocrat's expert, Dwight Crevelt, states that "there are routines in the Fort Knox and Party Time! [games] that ring a bell and then play an introductory animation if one of the allotted numbers matches the selected random number." Decl. of Dwight Crevelt ISO "Indicating" Opp. P 9 (hereinafter "Crevelt Decl."). Crevelt also states that "an introductory screen indicating that the bonus round is about to start is displayed on the display screen . . . ." Id. P 10. Although Crevelt does not identify it as such, based on the court's review of the video of the Fort Knox game, the introductory screen referred to appears to be the sequence in which the vault doors close over the screen and the text "YOU ARE NOW ENTERING FORT KNOX" appears on screen. Indeed, the language used -- "You are now entering" -- implies that the player is not yet in Fort Knox, but only entering it. This vault screen and the text overlay therefore raise a genuine issue of material fact as to whether the IGT machines indicate to the player that a second-game trigger condition has been satisfied.

Aristocrat also contends that code exists to ring a bell when the second-game trigger condition is satisfied. Crevelt Decl. P 9. For the various games at issue, the parties dispute whether the bell sound begins simultaneously or before the animation introducing the second game. The ringing of a bell may satisfy the "indicating" step based upon the facts submitted, and, therefore, Aristocrat has raised a triable issue of fact with respect to the "indicating" step.

ii. Writeable Semiconductor Memory

Plaintiffs further argue that their accused systems do not meet the additional limitation of claim 5 where the remote object indicates "its ability to receive and store transmitted data by the existence of writable semiconductor memory within said object." Plaintiffs contend that TransCore fails to demonstrate the existence of a signal by their accused devices indicating the presence of a writeable semiconductor memory. TransCore responds that Plaintiffs misconstrue claim 5 since the claim does not require an additional signal indicating the presence of a writeable semiconductor memory, but only that said semiconductor memory exists within the tag.

Claim 5 reads:
The system for identifying, for writing data into and reading data out of remote objects of claim 4 further characterized by said remote object indicating to said interrogator its ability to receive and store transmitted data by the existence of writable semiconductor memory within said object.

'807 Patent 10:35-40. The plain and ordinary meaning of the claim supports that the remote object indicates its ability to perform the functions stated through or "by the existence of writable semiconductor memory," not, as Plaintiffs contend, that the remote object signals to the interrogator "the presence of writable semiconductor memory." A review of the patent specification supports this finding, where no instance of a remote object signaling to an interrogator that it has writable semiconductor memory within the remote object can be found. This Court, therefore, rejects Plaintiffs' argument regarding Claim 5. In addition, for separate reasons already discussed, because this Court already finds a genuine issue of material fact regarding Claim 4, and Claim 4 depends upon Claim 5, the Court also DENIES TransCore's motion for summary judgment of Claim 5.

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8. indication (Claims 29, 32, 34)

As with other limitations related to means plus function limitations, defendants argue that an "indication" must limited to the output of the supporting structure defined for the related "indication means." As discussed above, this is just another way to argue that a term should be limited to its disclosed embodiments. Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.").

The specification clearly discloses multiple ways of indicating to the audience member whether the audience member's usage of the device has been in accordance with the predetermined usage criterion. '276 patent, 7:33-38. Therefore, plaintiff's proposed construction is adopted by the Court. "Indication" means "a communication to the audience member." GO BACK

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G. Indication of a respective resolution level

Although the Plaintiff did not construe the phrase "indication of a respective resolution level" in its opening brief, the Plaintiff, in its Reply, took issue with the Defendants' suggestion that this phrase be construed to mean "data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks." Skyline now offers instead the following broad construction: "something that indicates, points out, or signifies a respective resolution level."

The first step of the method claimed in Claim 1 is for part of what I will refer to as "the system" to receive from the renderer "one or more coordinates in the terrain along with indication of a respective resolution level." (col. 16, 11. 32-34) That part of the system is then able to "provide the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory" and if that first block "is not at the indicated resolution level," the system downloads more data blocks corresponding to the coordinates. (col. 16, 11. 39-44) In Claim 12, it is the "processor which receives one or more specified coordinates along with indication of a respective resolution level from a renderer [and then] provides the renderer with a first data block . . . and downloads . . . one or more data blocks . . . if the first block is not from the indicated level." (col. 18, 11. 21-30) The specification describes how preferably the "renderer determines the exact blocks needed and calls for them using their (x, y) coordinates and their resolution level." (col. 14, 11. 10-12) All of these references suggest that "indication of a respective resolution level simply means the renderer indicates (to the processor) or identifies the particular resolution level or the particular level of the hierarchical database of the data required.

At the Markman hearing, the parties agreed with this construction except that Skyline questioned whether it is necessary to bring the concept of hierarchical structure into this definition. (Transcript, p. 66) Upon reflection, I find that it is
unnecessary to include hierarchical database within the construction of this term because it is already agreed that the database is organized hierarchically by resolution level.

Construction: (indication of respective resolution level) the identification of the particular resolution level of the data required

5. "Indication of the condition of the defibrillator" does not require indication of the status of the electrodes.

Similar to the 374 Patent claims described in the previous subsection, two claims of the 059 Patent require that the invention "provide[e] an indication of the condition of the defibrillator" (Claim 1), and "determine a condition of the defibrillator" (Claim 9). The parties raise two disputes. The first is a reprise of their dispute over "operational status" in the 374 Patent. Defibtech argues that the indicated "condition" is limited to whether the defibrillator is operable. The second dispute is whether, as Defibtech argues, the operability of the defibrillator electrodes is a condition that the defibrillator must indicate.

The court resolves the first dispute in the same manner it resolved the similar dispute over the "operational status" indication in the 374 Patent. The indication of "condition" must at least include whether the defibrillator can be used to treat a patient, but is not limited to this indication. Like the 374 Patent, the 059 Patent claims require "an" indication of condition (Claim 1) or "a condition" (Claim 9), and thus suggest that more than one condition or indication is possible. Although the 374 Patent and 059 Patent do not have a common written description, the 059 Patent similarly discloses statuses other than a binary operable/inoperable status. Compare 059 Patent at 3:47, 3:50, 4:3, 4:29, 4:43-44 (describing operable/inoperable indication) with 059 Patent at 5:39-40 (describing a "fault indicator" without requiring operable/inoperable indication), 5:62-64 (same), 6:65-67 (describing a test result indicator without requiring operable/inoperable indication), 8:33-35 (same). Thus, the defibrillator must at least indicate whether the defibrillator is operable, but may disclose other "conditions" as well.

As to the second dispute, the written description does not support a requirement that the "condition" include the condition of the defibrillator electrodes. Defibtech correctly notes that the 059 Patent focuses on testing the condition of the electrodes rather than other portions of the defibrillator. E.g., 059 Patent at 1:8-9 ("This invention relates generally to a method and apparatus for testing medical electrode systems"); 1:56-59 ("What is needed, therefore, is a defibrillator system providing an indication of the condition of the defibrillator and defibrillator electrodes"). The claims, however, never use the term "electrode." The parties' dispute is much like their dispute over the meaning of "through conductors" in the same patent. See supra Part III.B.2. As in that dispute, the court must reject Defibtech's limiting construction.

The court cannot accept Defibtech's construction because the 059 Patent expressly describes how its indicator can disclose the condition of non-electrode components of the defibrillator system. The 059 Patent discloses tests of conditions arising in components other than the electrodes. It teaches that an "inoperable" indication "could mean that there is a problem with the electrodes, the conductive gel on the electrodes, the electrode interface, and/or the defibrillator circuit itself." 059 Patent at 4:32-34. The indicator can thus disclose information about the defibrillator separate from the electrodes. If a user receives an inoperable indication, she can "replace the electrodes . . . and run the test again," and she will know from the result of the second test whether the problem was in the electrodes or in the remainder of the defibrillator system. 059 Patent at 4:35-39. The written description thus does not require the indication of electrode "condition," and the court therefore construes these claims in accordance with their broad language. "Indication of the condition of the defibrillator" means "indication of whether the defibrillator is capable of treating a patient, and possibly other defibrillator statuses."

K. "Providing an Indication of the Detection of a Virus from Said Searching Step"

Finally, the parties dispute the meaning of the phrase "providing an indication of the detection of a virus from said searching step." '776 Patent, col. 18, Ins. 53-54, which comprises the second step of the method claimed in Claim 18. Defendant contends that this phrase means that "the computer provides an alert to the user if a virus has been detected during the
searching step." JCCS, Appx. A, at 18 (term 69). Plaintiff counters that this step merely requires "indicating the detection of a virus, not necessarily to the user." Id. The Court adopts defendant's construction.

Plaintiff does not explain how the plain meaning of the word "indication" contemplates an alert to anything other than a human user; the alert is meaningless otherwise. Further, because it is the destination computer which on its own initiates the transfer of data under the terms of the patent claims, the only relevant user to be alerted is the user of the destination computer system on which the claimed invention is operating. The specification confirms this reading. See '776 Patent, col. 4, lns. 16-19 (emphasis added) ("If a virus signature is detected by the string search routine, the user is alerted at step 36, typically by an appropriate warning message displayed on the computer system monitor."); id., col. 7, lns. 3-6 (emphasis added) ("The virus detection function informs the user that a virus has been detected and gives the user the option to cancel the transfer by setting the VirusDetectedFlag."). Accordingly, the Court adopts defendant's proposed construction of this phrase.

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3."indication signal"

3Com proposes "a signal that indicates a subsequent action, such as an interrupt." Doc # 81 (05-0098) at 7. Realtek proposes "a signal that is not an interrupt but may be used by the host system to generate an interrupt." Id. The dispute revolves around what the indication signal indicates.

In order to evaluate the parties' proposed constructions, it is useful first to understand "interrupt." In the context of computer technology, an interrupt is a "signal to a computer that stops the execution of running program so that another action can be performed." American Heritage Dictionary of the English Language (4th ed 2000). It is clear from the specification of the '459 patent that the patentee used the term interrupt in this manner. See '459 patent at 1:49-54. With this ordinary meaning in mind, the court turns to the language of the claims.

Realtek argues that claim five shows that "the indication signal cannot be the interrupt signal; otherwise, the interrupt signal of claim five would have no meaning." Doc # 333 (03-2177) at 18. Claim five reads:

The apparatus of claim 1, wherein the network interface logic includes:

control means for generating an interrupt signal to the host processor responsive to the indication signal and posting status information which may be used by the host processor as feedback for optimizing the threshold value.

'459 patent at 43:31-38. This language shows that the indication signal and interrupt signal are different things. Nothing about this language, however, excludes the possibility that the indication signal and interrupt signal could both be interrupts. Accordingly, the court rejects Realtek's proposed construction.

3Com proposes "a signal that indicates a subsequent action, such as an interrupt." Doc # 81 (05-0098) at 7. The intrinsic evidence shows not only that the indication signal heralds the arrival of a subsequent action, but that this action is an interrupt. Claims five and twenty-two recite "generating an interrupt signal to the host processor responsive to the indication signal." '459 patent at 43:34-46; 44:46-69. Claim thirty-four includes an "indication signal, which reduces host processor interrupt latency." Id at 45:62-63. Claim forty-four, fifty and fifty-two recite "generating an interrupt signal to the host processor, responsive to the early transfer indication signal, which reduces host processor interrupt latency." Id at 47:35-38; 48:31-34. In addition, the specification discloses that it is "desirable to provide a network adapter with an optimized indication signal * * * which reduces interrupt latency." Id at 2:22-25.

Intrinsic evidence demonstrates a sole purpose for the indication signal: indicating the arrival of a subsequent interrupt. Accordingly, the court adopts the construction "a signal that indicates a subsequent interrupt."
1. The term "INDICATIONS" (claim 1) means something that represents the physiological parameters. Such a representation can be in the form of a number, a word, a symbol, or any other marker with established meaning.

Claim 13 of the 720 patent depends from independent claim 12. Both claims are reproduced below, with the pertinent claim terms emphasized:

12 A water control system for bathing, comprising:

an open container for holding water for bathing;

a heater element for heating said water;

a temperature sensor for monitoring the temperature of the water in said container;

a control panel positioned adjacent said container for controlling the temperature of said water;

a microprocessor electrically coupled to said control panel, said microprocessor programmable by a user via said control panel to control the operation of said heater element, said microprocessor also being capable of diagnosing failures in said water control system and providing an output signal to the control panel indicative of a source of the failures.

13 A system as in claim 12, wherein said microprocessor comprises an 8-bit CMOS device.

In its opinion accompanying the order granting the preliminary injunction, the district court construed the phrase "diagnosing failures in said water control system" to mean "displaying error codes when there is a failure in the water control system." The district court also construed the phrase "indicative of a source of the failures" to require that "the system be capable of displaying multiple error codes dependent on the source of the failures, such as, for example, heater not heating, pump not operating, lack of water flow, or a microcomputer failure."

As this appeal arises from the grant of a preliminary injunction, we recognize that the district court's claim construction may evolve with greater understanding of the dispute. Although we agree generally with the district court's claim construction, we suggest the following clarifications subject, of course, to the district court's plenary consideration during subsequent proceedings.

First, it would seem that the phrase "diagnosing failures" connotes the process of detecting the causes or symptoms of failures in the water control system. Second, the phrase "indicative of a source" connotes the ability to indicate where in the water control system the failures might be occurring. The minor differences between our claim construction and the district court's, however, are not sufficient to convince us that the district court abused its discretion in granting a preliminary injunction.

Dr. Tehrani argues that the term "indicative of" is broader than the term "representing" and means "suggestive." Hamilton points out, however, that the patent uses the terms "indicative of" and "representing" interchangeably and argues that they must be construed to mean the same thing. Thus, while claim 1 refers to digital output data "indicative of required ventilation and optimum frequency for a next breath of a patient," the summary of the invention refers to input data.
"representing the amount and optimum frequency of ventilation required for the next breath," '268 patent, col. 2, ll. 5-7, and the detailed description of the preferred embodiment refers to the signals "representing the total ventilation and the frequency of breathing," id., col. 3, ll. 63-64. Moreover, while claim 16 refers to data "indicative of" the levels of carbon dioxide and oxygen, the lung elastance factor, the air viscosity factor, and the barometric pressure, other portions of the patent refer to the same data as "representing" those factors. Id., col. 1, l. 68, to col. 2, l. 2; col. 7, ll. 58-60. We agree with Hamilton that the intrinsic evidence indicates that the patentee meant for those two terms to be interchangeable and to carry the same meaning within the claims.

We agree with Hamilton that the intrinsic evidence indicates that the patentee meant for those two terms to be interchangeable and to carry the same meaning within the claims.

8. Displays images indicative of said thoroughfares

The third subpart of claim 5 reads:

a display, connected to said processor, wherein said display displays images indicative of said thoroughfares and displays the names of each thoroughfare in a selected one of said sets of thoroughfares.

The disputed phrase is underlined. Defendant contends that aside from the terms "display" and "thoroughfare," this phrase needs no construction. On the other hand, plaintiff again seeks to characterize the thoroughfares as those "in the geography surrounding the vehicle." As explained in section F.5, I decline to add this limitation to the claim. I do agree with plaintiff, however, that the words "indicative of" are unnecessary. Accordingly, I construe "displays images indicative of said thoroughfares" as "shows the thoroughfares."

2. "Sensed signals indicative of ... generator electrical power output"

It is helpful to see the disputed phrase in context, along with the preceding paragraph of the claim:

sensing means, for sensing generator speed and generator electrical power output and for providing sensed signals indicative thereof;

a variable speed wind turbine controller, responsive to the sensed signals indicative of generator speed and generator electrical power output, for providing a generator torque command signal for commanding maneuvers of the generator speed according to a function defining generator speed versus generator electrical power output which maneuvers tend to cause the wind turbine to operate substantially on the wind turbine power coefficient versus velocity ratio optimum performance curve substantially at the peak thereof;

In construing the phrase, "signals indicative of ... generator electrical power output," the question is whether it include signals from which generator power can be calculated or whether signals "indicative" of speed and power are signals of actual, measured speed and actual, measured power.

The fourth limitation of claim 1 discloses a "sensing means, for sensing generator speed and generator electrical power output and for providing sensed signals indicative thereof." I understand this "sensing means" to be the sensed signals to which the phrase in element five refers when it discloses a controller responsive to the sensed signals indicative of generator speed and generator electrical power output."

The word "indicative" in preceding element four makes it clear that the signals would convey the amount of power sensed. Contrary to plaintiff's suggestion, this reading does not render the phrase "indicative of" superfluous; instead, the phrase is used to signify the content of the sensed signals.

This construction is consistent with the meaning of "indicative" as it is used in other portions of claims. In each instance, indicative is used to signify what information a particular signal relays. E.g., '736 Pat., col. 10, lines 21-24 ("a difference
signal having a magnitude indicative of the difference in magnitudes between the generator speed reference signal and the generator sensed speed signal"; lines 44-46 ("an additional sensor for sensing turbine rotor speed for providing a sensed signal indicative thereof"); col. 11, lines 14-16 ("a calculated wind speed signal indicative of effective full-disc wind speed"); col. 12 lines 2-5 ("a velocity ratio signal having a magnitude indicative of the ratio of the magnitudes of the rotor tip speed and wind speed signal"). In addition, the construction is consistent with the use of the word "indicative" in the claim specification. E.g., "737 Pat., col. 2, lines 15-18 ("[a] difference signal indicative of the difference between the speed reference signal and the sensed generator speed signal"); col. 3, lines 60-63 ("a calculated wind speed signal indicative of effective full-disc speed"); lines 64-66 ("a velocity ratio signal having a magnitude indicative of the ratio of the magnitudes of the rotor speed and calculated wind speed signals"). It is presumed that "the same terms appearing in different portions of the claims should be given the same meaning." Fin Control Systems Pty, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001) and that words are used consistently in the claim language and the specification, Autogiro Co. of Am. v. United States, 384 F.2d 391, 397, 181 Ct. Cl. 55 ("words must be used in the same way in both the claims and the specification").

C. '073 Patent Claim 17 - "a sensor incorporated into said inductive device"

The Court construed this language to mean "any inductive device incorporating a sensor 'providing a diagnostic signal having electrical characteristics that represent the electrical and magnetic events occurring at the gap of the ignitor plug during the period of energy transfer to spark across a gap of the ignitor plug' that is placed in the ignition system in accordance with the requirements of the claim." Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *12. In reaching this conclusion, the Court rejected Lucas's argument that the patent specification limits the phrase "said inductive device" to saturable core inductors. See id. at *7 Lucas now abandons this argument and contends that the Court erred in its claim constructions not because the sensor required by claim 17 must be a saturable core inductor, but because the sensor in claim 17 must be "the same inductor that is creating the 'sequence' described in claim 1." D.I. 394 at 28. Because, Lucas concludes, "claim 17 does not refer to a saturable core inductor" but instead refers to the inductor that creates the sequence of events described in claim 1, the Court's claim differentiation analysis, see Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *7, was in error.

This is the first time that Lucas has raised this argument; it did not advance this contention either at trial or in its papers on claim construction. When the Court construed claim 17, for example, Lucas never attempted to equate the inductor in claim 17 to the inductor in claim 1. Similarly, Lucas did not try its case under this theory. Nevertheless, the Court has examined the merits of Lucas's argument and finds them lacking. First, Lucas never states why it believes the inductor of claim 17 must be the same inductor as that which creates the "sequence" found in claim 1. Instead, Lucas rehashes its previous rationale for concluding that the inductor of claim 17 must be a saturable core inductor. Compare D.I. 394 at 28-29 (discussing the '073 specification at columns 9 and 10) with D.I. 367 at 6 (same). The Court has already addressed this argument and on this basis finds no error in its construction of claim 17.

Second, Lucas's suggestion that the Court's claim construction permits the patent to cover auxiliary transformers that are, according to Lucas, within the prior art is without merit. While the description of the preferred embodiment does state that auxiliary voltage transformers are "typically...used" to sense current and voltage, the description of the preferred embodiment does not state that they are typically used in igniter technology. See '073 Patent, col. 10 at ln. 2-16. In fact, the only testimony at trial as to this issue suggested that ignition exciters had never previously incorporated sensors to provide diagnostic signals as to igniter plug health. See D.I. 403 at 772-82 (noting that igniter diagnostics internal to the igniter were unknown in the art prior to Unison's invention) (testimony by inventor Frus); see also '073 Patent, col. 10 at ln. 4 (suggesting that auxiliary transformers were not then used in exciter circuits due to insertion losses and physical difficulties in placing the component within an igniter circuit).

Thus, while the description of the preferred embodiment indicates the inventor believed that a sensor incorporated into the saturable core inductor was superior to use of an auxiliary transformer, neither the claim language nor the extrinsic evidence adduced at trial suggests that use of an auxiliary transformer for sensing in an ignition exciter was obvious or common to one skilled in the art of igniter design. Because Lucas did not try the case under this theory, there is no evidence to support it, and, other than using the description of the preferred embodiment to suggest that the inductor referenced in claim 17 is the same inductor that creates the sequence of events in claim 1, i.e., the saturable core inductor, Lucas offers no basis on
which to conclude that the claim 17 inductor is the same inductor that creates the sequence in claim 1. Nothing in the structure of either claim 17 or claim 1 dictates that result. Furthermore, the fact that the preferred embodiment uses the same inductor in both roles does not dictate that result. The carefully selected claim language, passed upon by the Patent and Trademark Office, does not require a saturable core inductor. The Court finds no reason to believe that its construction of claim 17 was in error.

1. "indicator"

EMC asks the Court to construe this term as:

Information which provides a fairly certain sign or symptom of the validity of a predetermined data element. An indicator can include information about data located on a storage device, such as a track, or about data stored in an entire storage device via a device -- level indicator. The requisite first and second indicators may be organized at different levels so long as the second provides information with respect to the validity of the same predetermined data element as the first even if that information is provided indirectly.

HP proposes: "An indicator' is something that indicates,' which means points out or points to, or states or expresses briefly, with certainty."

HP's proposal is an everyday definition of the word, except for the fact that it includes the requirement of "certainty." EMC proposes a construction that would limit the term to the "validity of a predetermined data element," but, instead of requiring "certainty," would require only an "indication" that is "fairly certain." The claim language states that an "indicator" provides an indication of whether a predetermined data element stored on a first or second data storage system is valid, thus supporting EMC's proposed "predetermined data element" limitation. However, that limitation stands on its own and need not be included in the Court's specific construction of the term "indicator."

The claim language does not help to resolve the parties' dispute over the level of certainty required. Indeed, nothing in the claim language explicitly limits the term to "indicates with certainty." The word "indicate," by itself, does not necessarily require certainty; in fact, HP's addition of modifying words suggests that it seeks a particularly narrow construction. The dictionary definition of "indicate" does not include "certainty." ("Indicate" means "to point out or point to," or "to be a sign, symptom, or index of." Webster's Ninth New Collegiate Dictionary.)

Nor is there a requirement of certainty in the specification, which uses the term "indicator" according to its common meaning. For example, the "secondary data storage system controller provides an indication or acknowledgement [sic] to the primary data storage system controller that the primary data to be copied to the secondary data storage system in identical form as secondary data has been received or . . . written." 347:2/63-3/1. The invention is able to "achieve[] nearly 100 percent data integrity." 347:2/34-35. The "indicators" also indicate several measures of "validity." There are indications of "write or copy pending . . . of both the primary data . . . and the secondary data," 347:7/46-47, "pending format change," 347:7/48, and the validity of data storage location, 347:8/10-12. There are also "indicators" of whether a primary or secondary device may be written to and whether a primary and secondary track is not shown. 347:8/23-24 & 8/36. In none of these discussions of the various indicators is there a suggestion or requirement that the indicator indicate with certainty. Such a requirement likely would be a highly significant limitation and improvement, as very few (and possible no) computer systems ever function with absolute certainty.

Accordingly, the Court construes "indicator" as "something that indicates,' which means points out or points to, or to be a sign, symptom, or index of."
EMC contends that an "indicator" is information that gives an indication and an indication is a sign or suggestion of some thing or fact. HP claims that (1) an indicator is a flag bit or binary indicator which provides information about the data and is not the data itself and (2) an indicator provides information with certainty, i.e. the data storage system containing the relevant indicator treats the information provided as definitive thereby determining whether the relevant data is valid or invalid based on the indicator. Although not apparent from the alternative definitions, there are three primary disputes with respect to the claim term "indicator:"

(1) whether an indicator must indicate data validity with certainty;

(2) whether an indicator may indicate data validity not only at the track level but also at the device level; and

(3) whether the required first and second indicators on each data storage system must indicate data validity at the same level, i.e. whether they both must indicate validity at either the track or the device level.

(a) Whether an indicator must indicate data validity with certainty

The plain and ordinary meaning of the term "indicator" is "one that indicates." Webster's Third International Dictionary, 1150 (1981). The term "indicate" means to point out or point to or toward with more or less exactness: show or make known with a fair degree of certainty . . . . to show the probable presence or existence or nature or course of: give fair evidence of: be a fairly certain sign or symptom of: reveal in a fairly clear way . . . .

Id. Nothing in the dictionary definition requires an indicator to indicate data validity with certainty. Indeed, an indication, by nature, provides only a "fair degree" of certainty.

The claim language supports the plain meaning of the term "indicator." In Claim 1 of the '347 Patent, the required index includes "at least" a first and "at least" a second validity indicator with respect to a particular predetermined data element. As EMC persuasively contends, if an "indicator" provided a certain indication of data validity, the inclusion of any further indications would be unnecessary and inefficient, and the inclusion of the claim language "at least" would be surplusage.

Moreover, neither the subject specifications nor the prosecution histories explicitly or implicitly limit the term "indicator" to that which provides information with certainty. In fact, the specifications clearly illustrate numerous kinds of information related to "validity", including invalid track information, device pending information and write disable drive information. See '347 Patent, Col. 7, ln. 32 - Col. 8, ln. 29; '792 Patent, Col. 11, ln. 10 - Col. 12, ln. 7. The fact that the subject specifications contemplate more than one kind of "indicator" with respect to data validity supports EMC's contention that an indicator does not provide an indication of data validity with "certainty."

Although the described indicators provide indications of data validity at different levels, e.g. at the track and device level, the information provided may overlap. That is, the device-disabled indicator may indicate that the second data storage system is disabled and, therefore, that the data thereon is invalid. That "validity indication" may be supplemented by an invalid track indicator which indicates that all tracks on the second data storage device are invalid. See '347 Patent, Col. 8, ll. 25-27. That the subject invention envisions, in some instances, the use of overlapping indicators of data validity, is itself an "indication" that the term "indicator" does not connote certainty.

That evidence notwithstanding and as HP counters, there is some suggestion in the specifications that a validity indicator is treated as "certain" by the respective data storage systems. For example, in addressing the invalid track indicator, the Specification in the '347 Patent notes, in relevant part,

[another background task running on the data storage system such as in the service processor or storage system controller constantly checks invalid track bits on each data storage device and if a bit is found to be set, the copytask is invoked to copy the data from the known good device to the device with the invalid flag track set.]

'347 Patent, Col. 8, ll. 13-18.

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Although that excerpt indicates that the presence of one invalid flag is enough to prompt a copy response (and thus that each individual indicator is treated as certain by the data storage system on which it is maintained), that indication, to use a term with which the parties are intimately familiar, is far from certain. Indeed, the Specification merely states that

[a] background task running on the data storage system . . . checks invalid track bits on each data storage device . . . and if a bit is found to be set, the copy task is invoked to copy the data from the known good device to the device with the invalid flag track set.

347 Patent, Col. 8, ll. 13-18. That provision could be read to imply that the background task checks the indicators on both data storage devices before employing the copy function.

Moreover, even if that part of the Specification indicates that invalid track indicators are treated as certain by the data storage systems in which they reside, there is no suggestion that they or other validity indicators must be so treated. Thus, because limitations from the Specification cannot be imported into the claim language, HP's argument is unavailing.

(b) Whether an indicator indicates data validity at both the track and device levels

EMC asserts that an "indicator" may indicate data validity at either the track level or the device level. In other words, according to the patentee, the subject patents disclose validity indicators which provide information about data stored at a particular storage location on each respective storage device as well as validity indicators which provide information about a particular storage device. The device-level indicators indirectly provide information about all of the data stored on a particular data storage device. HP claims that, to the contrary, the subject patents disclose only indicators of the validity of data stored at a particular location on a storage device, e.g. data stored on a particular track or cylinder.

As a threshold matter, the claim itself does not restrict the application of the term "indicator" to that which provides information about data validity at the track (as opposed to the device) level. Moreover, the Specification of the '347 Patent clearly contemplates validity indicators that provide information about the data located on a particular "track" as well as data located on an entire data storage device. First, the Specification contemplates the inclusion of multiple data storage devices. See '347 Patent, Col 4, ll. 14-17. That fact alone supports the contention that an "indicator" not only provides information about data stored at a particular location on an individual storage device but also information about the data located on an entire storage device (because, where a system contains multiple storage devices each device is merely a larger storage location than a track).

That evidence notwithstanding, the Specification also states, in relevant part,

[a] feature of the present invention is that both the primary or secondary data storage systems maintain a table of the validity of data in the other storage system . . . . Thus, as illustrated in the partial list or table 100, FIG. 2, each data storage system maintains an indication of write or copy pending . . . . Similarly, an index is maintained of a pending format change . . . . In addition to the write pending and format pending bits described above, the present invention also includes several additional general purpose flags to assist in error recovery. As shown in FIG. 3, invalid track flags 120 . . . are utilized . . . to indicate that the data storage location such as a track, does not contain valid data . . . . Additional flags may be provided such as device ready flags . . . which serve to indicate that the device is ready. Similarly, write disable flags 132 may be provided which indicate that a particular . . . drive 136 can presently not be written to. Data can still be copied to the good or enabled drive then later copied to the disabled drive. If one drive or device is bad, the present invention will set all tracks of that drive as not valid to later cause a copy of all the data. Accordingly, each data storage device keeps data validity information about it's [sic] mirrored device.

347 Patent, Col. 7, In. 32 - Col. 8, In. 30.

That part of the Specification makes it abundantly clear that the disclosed invention contemplates validity indicators which provide information about data stored in a particular storage location as well as information about a particular data storage device. Such device-level indicators indirectly provide information about all of the data stored on a particular data storage device. Moreover, nothing in the subject specifications or prosecution histories contradicts that construction or suggests that EMC so limited the term "indicator".
EMC contends, apparently for the first time in its post-Markman claim construction memoranda, that the first and second indicators on each data storage system do not have to be organized at the same level. EMC proposes, rather, that the patent requires only that each indicator provide an indication of whether the same predetermined data element is valid. In other words, the first indicator on a data storage system could provide an indication of data validity at the track level while the second indicator provides an indication of data validity at the device level. Both indicators, so EMC asserts, are providing information about a particular track of data, the second indication is merely giving more information than necessary, i.e. information about the data on an entire storage device.

HP responds that, to the contrary, the first and second indicators on each data storage system must provide information at the same level. Under HP's proposed construction, therefore, if the first indicator on a data storage system provides an indication of data validity at the track level, the second indicator must also provide validity information at the track level.

Here the claim language itself is most instructive. Claim 1 of the '347 Patent discloses an index,

said index including at least a first indicator providing an indication of whether a predetermined data element stored on said first data storage system is valid, and at least a second indicator providing an indication of whether said predetermined data element stored on said second data storage system is valid.

Although that language makes clear that the two indicators must provide an indication of the validity of the same predetermined data element, it does not require that the two indicators be the same, i.e. that the index include two track level or two device level indicators. Moreover, nothing in the claim language requires that the indicators provide a direct, rather than an indirect, indication of data validity.

Thus, as EMC convincingly argues, one embodiment of the disclosed invention could include an index with a first indicator at the track level, indicating the validity of a piece of data on a particular track and a second indicator at the device level, indicating whether a particular storage device which contains the subject data track is disabled and, therefore, whether all of the data on that device is valid. Because the second indicator provides information with respect to all of the data stored on the second data storage device, it would, albeit indirectly, provide information about each track of data stored on that device.

--- Footnotes ---

8 Indeed, the Specification of the '347 Patent states, in relevant part,

If one drive or device is bad, the present invention will set all tracks of that drive as not valid to later cause a copy of all the data.

That provision indicates that the device-level indicators indirectly provide validity information about each individual track of data on the subject device.

--- End Footnotes ---

If the device level indicator indicated that the particular storage device was not functioning, that would be an indication that a particular track of data had not been properly stored on that device. Conversely, if the device-level indicator indicated that the subject storage device was functioning properly, that would be an indication that a particular track of data had been stored correctly in the second storage device. In short, the second device-level indicator would provide "an indication of whether said predetermined data element stored on said second storage system is valid."

Finally, there is nothing in the subject specifications or prosecution histories that requires the two indicators to be organized at the same level. Although Figures 2 and 3 of the Specifications of the '347 and '792 Patents depict such indicators, it is...
well-established that the claim terms are not to be limited by the specification unless the patentee has chosen to become his own lexicographer. See Rambus, 318 F.3d at 1088-89. There is no evidence of that here.

(d) Conclusions: "Indicator"

For the foregoing reasons, the term "indicator," as used in the subject patents, will be construed to mean information which provides a fairly certain sign or symptom of the validity of a predetermined data element. An indicator can include information about data located at a particular storage location on a storage device, such as a track, or about data stored in an entire storage device via a device-level indicator. The requisite first and second indicators may be organized at different levels so long as the second provides information with respect to the validity of the same predetermined data element as the first even if that information is provided indirectly.

5. "PIC indicator" or "indication which has a particular value"

Claim 1 of the '184 patent teaches a method wherein included in a message record is a "PIC indicator" having a value which "is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers." ('184 patent, col. 7, lns. 11-16) The specification provides that the "PIC indicator" can take various forms, such as a code that identifies the terminating subscriber's PIC or a flag "which indicates, at a minimum, whether or not the terminating subscriber's PIC is" a particular IXC. ('184 patent, col. 4, lns. 13-19) In the preferred embodiment, the value of the "PIC indicator" indicates "whether or not both the terminating and originating subscriber's PICs" are a particular IXC. ('184 patent, col. 4, lns. 21-22) Thus,

    if both of the subscribers are PIC'd to IXC 30, then PIC indicator 3419 is set. Otherwise it is not set. Certainly, then, as noted above, the value of PIC indicator 3419 does indicate whether or not the PIC of the terminating subscriber is or is not IXC 30. Specifically, if PIC indicator 3419 is set, then IXC 30 is the terminating subscriber's PIC. If it is not set, then IXC 30 is not the terminating subscriber's PIC.

    ('184 patent, col. 4, lns. 31-39)

The other asserted independent claims do not disclose inclusion of a "PIC indicator" in a message record. Instead, claim 12 requires provision in a message record of "an indication which has a particular value when the particular interexchange carrier over which said call was carried is the PIC for said terminating subscriber." ('184 patent, col. 8, lns. 24-27) Independent claim 18 also requires provision of "an indication which has a particular value" in a message record but the value of the indication disclosed therein is a function of whether the PIC over which the call was carried is the PIC for both the terminating and originating subscriber. ('184 patent, col. 8, ln. 66-col. 9, ln. 2) Similarly, claim 40 requires "establishing an indicator at a particular value" when the PIC of the terminating subscriber is "said specific interexchange carrier over whose facilities said call was routed." ('184 patent, col. 12, lns. 18-22) Thus, all of the asserted claims require the inclusion in a message of an indicator having a value that reflects, at a minimum, whether or not a particular IXC is the PIC of the particular terminating subscriber. According to the specification, the value of the indicator, "advantageously, . . . can be used in subsequent billing operations" to allow for, "for example, different billing treatments." ('184 patent, col. 4, lns. 44-46)

The court, therefore, shall construe the terms "PIC indicator" and "indication which has a particular value" as requiring a design that indicates, at a minimum, whether a specific IXC is the PIC of the terminating subscriber at the time the call is made. As noted previously, the "PIC indicator" and the "indication which has a particular value" claimed by the '184 patent are not limited to an indicator of the facilities-based IXC over whose network the subscriber's calls are carried or routed.
Claim 1 of the reexamined patent reads as follows:

1. In a computer system including a central processing unit having a keyboard entry station with a plurality of keys for data entry and a pointing device station having a pointer with at least one pointer button for data entry and responsive to positional movement of said pointer, and including system operating functions having successive layers of a main menu of selectable group functions and successive series of a first layer of sub-menus, and at least a second sub-layer of sub-menus having selectable group sub-functions, accessible by successive entries on said keyboard or said pointer to select an ultimate working function, the improvement comprising:

   a. a template for use with said pointing device

   b. indicia arranged on the template and located in a plurality of groups, one group of each corresponding to one predetermined, selectable item of said main menu and all said indica (sic) in a responsive group bearing a common group identifying characteristic;

   c. at least a second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu corresponding to an item of said main menu;

   d. means securing said templates in a fixed orientation to said tablet whereby said pointing device can select a working function with a single movement of the said button.

The parties dispute the meaning of subsections b, c and d.

II. Claim Interpretation

A. Legal Principles of Claim Construction

The determination of a patent infringement claim requires a two-step analysis. First, the court must construe the asserted claims to determine their meaning and scope. See Texas Instruments Inc. v. Cypress Semiconductor Corp., 90 F.3d 1558, 1563 (Fed. Cir. 1996). Only then may the trier of fact determine whether the properly interpreted claims encompass the accused structure. Id.

Claim construction is a question of law for the Court. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Civ. 1995) (en banc). The objective of claim construction is to ascertain the meaning that a person of ordinary skill in the art would give to the terms in dispute at the time of the application for the patent. Wiener v. NEC Electronics, Inc., 102 F.3d 534, 539 (Fed. Cir. 1996); see Haynes International, Inc. v. Jessop Steel Co., 8 F.3d 1573, 1578 n. 4 (Fed. Cir. 1993). To ascertain the meaning of claim language, the Court looks initially to the three sources of intrinsic evidence of record: 1) the claims themselves, 2) the specification, to the extent that it defines terms in a manner inconsistent with their ordinary meaning, and 3) the prosecution history of the patent, to the extent that it contains the patentee's express representations with respect to the scope of the claims. Vitronics Corp. v. Conceptoric, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Drawings from the specification may be used in interpreting the scope of a claim. See 5 Donald S. Chisum, Patents 18.03[2][c][iii] at 18-108 (1998) (citing cases).

Claim construction begins with the wording of the claims, asserted and non-asserted, which are to be examined in their entirety. Bell Communications Research, Inc. v. Vittal Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995). Unless the specification or the prosecution history indicates that the inventor expressly intended otherwise, a claim term will be accorded its ordinary and accustomed meaning. Id.; Markman, 52 F.3d at 979 (stating that "a patentee is free to be his own lexicographer" but that "any special definition given to a word must be clearly defined in the specification").

The Court may look to extrinsic evidence, such as expert testimony, dictionaries and learned treatises, to understand the technology and to construe the claims, only if the claims are ambiguous and only after consideration of all available intrinsic evidence. See Vitronics, 90 F.3d at 1584. Extrinsic evidence, however, may not be used to vary or contradict the terms of the claims. Markman, 52 F.3d at 981. While claims are to be interpreted in light of the specification and with a view to ascertaining the invention, see Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561-62 (Fed. Cir. 1991), it does not follow that limitations from the specification should be read into the claims. Sjolund v. Musland, 847 F.2d 1573, 1581 (Fed.
Therefore, it is generally improper to limit the scope of the claim to examples used in the specifications. See Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994).

B. Discussion

The parties in this case contest the meanings of several phrases used in Claim 1, specifically, those phrases in Claim 1, subsections (b), (c) and (d) and the statements made to the PTO during the reexamination proceedings related to those claim sections.

1. Claim 1(b)

a. The Original Claim

For the most part, the parties do not dispute what the language of Claim 1(b) means. Instead, they disagree about the scope of the claim's application. The dispute devolves to whether the limitations contained in Claim 1(b) apply to every group on the template (Baystate's contention) or only to some of the groups (Bowers' contention).

Baystate argues that the phrase in Claim 1(b) "one group of each corresponding to one predetermined, selectable item of said main menu", means that every group on the template must correspond to a Main Menu item in the corresponding software. Baystate notes that DRAFT-PAK contains groups for "View" and "Mask" that are not Cadkey Main Menu items.

Similarly, Baystate contends that Claim 1(b) requires that the indicia located within a particular group on a template must all be contained under the same item of Cadkey's Main Menu. For example anything located within the "Create" group on the Cadjet template must be found under Cadkey's "Create" menu. Baystate points out that DRAFT-PAK contains a function called "Calculate" within its "Files" group even though "Calculate" is not a function under the "Files" menu of Cadkey.

Moreover, Baystate asserts that every command that can be found within a particular menu on Cadkey must be grouped together on the template and share the same "group identifying characteristic." Baystate notes that DRAFT-PAK splits Cadkey's detail menu into two separate groups called "Detail/Set" and "Detail/Change."

Bowers does not contest Baystate's interpretation of the claim but rather argues that the limitations contained in it do not apply to every group on a template. Bowers asserts that the '514 Patent requires only that at least two groups meet the claim's limitations. He relies on the phrase "plurality of groups," which precedes and describes the phrases for which Baystate offers its interpretation discussed above. For example, Bowers argues that "plurality of groups" describes the phrase "one group of each corresponding to one predetermined, selectable item of said main menu", i.e. that each of at least two groups, but not all of the groups, must correspond to one predetermined, selectable item of the Main Menu.

"an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning." York Products v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1572 (Fed. Cir. 1996); Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995); Markman, 52 F.3d at 980 (a patentee is free to be his own "lexicographer" but any special definitions must be clearly defined in the specification). The '514 Patent contains no alternative definition for the term "plurality" and this Court will, therefore, apply the ordinary meaning of the term.

The dictionary definition of "plurality" is "the state or fact of being plural", American Heritage Dictionary Third Edition 1053 (3d ed. 1997), and "plural" is defined as "of, relating to or being a grammatical form that designates more than one of the things specified." Id. at 1052. Nowhere in either definition is there an indication that "all" of a particular thing is specified. The Court therefore agrees with Bowers' contention that the language of Claim 1(b) requires only that more than one group must correspond to a Main Menu item.

Bower's position is bolstered by the language contained in the specification. The specification states that indicia are arrayed "in a plurality of groups, each of which corresponds to a predetermined selectable item of the main menu." U.S. Patent No. 4,933,514 at "Brief Statement of the Invention", Column 2, lines 12-14. Although Bowers used different language in the actual claim, a claim is to be interpreted in light of the specification contained in the patent. Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561-62 (Fed. Cir. 1991). The specification of the '514 Patent clearly calls for a template on which a plurality of groups exists, each of which correspond to a Main Menu item. A template containing two or more groups, where each of those groups correspond to a Main Menu item would satisfy this limitation. Claim 1(b) does not call for a template.
Bowers offers an additional persuasive argument in support of his interpretation of "plurality". Accepting Baystate's interpretation would render the preferred embodiment outside the scope of the patent. If Claim 1(b) were construed to require that every group on the template correspond to a Cadkey Main Menu item, the preferred embodiment elaborated in the '514 Patent would fall outside the scope of the patent because the preferred embodiment (the Cadjet template) contains some groups that are not on Cadkey's Main Menu. It is clear that an interpretation of a patent that renders the preferred embodiment outside the scope of the patent claim is "rarely, if ever, correct and would require highly persuasive evidentiary support." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). The only evidence that Baystate offers in support of such a "rare" interpretation is Bowers' statement to the PTO during the reexamination proceedings. As explained in the following subsection, Bowers' statement during reexamination proceedings is misinterpreted by Baystate and this Court will not, therefore, construe the '514 Patent claims in such a way as to render them outside the scope of the preferred embodiment.

b. The Claim Post-Reexamination

Baystate contends that its interpretation of the claim is required by virtue of Bowers' statements during the reexamination proceedings before the PTO. The statement on which Baystate relies was as follows:

"Each of the groups of the Keymaster template does not correspond to one selectable item of the main menu of the Cadkey system. To illustrate, the SELECT group which is beneath the Position group on the Keymaster template is in the last sub-menu in the Cadkey system from which one selects the active function . . . ." (Bowers' Appellant Brief on Appeal to the PTO found at Tab 30, p.5 of Exhibits to Bowers' Motion for Partial Summary Judgment on the Issue of Patent Infringement).

In the second sentence, Bowers attempted to distinguish the Keymaster prior art. The Keymaster contained a group called "Select." That group was not, however, a Main Menu item in Cadkey, but rather was accessible lower down in the program's menu hierarchy.

Baystate interprets the statement made at Reexamination as meaning that Claim 1(b) requires that every group of indicia on the template must correspond to a Main Menu item in the application. It contends that Bowers distinguished the Keymaster template because the "Select" group of that template was not part of Cadkey's Main Menu. Bowers responds that he merely told the PTO that "no group on the Keymaster template meets his claim limitations" and then discussed "Select" as an example.

The dispute turns on whether Bowers' phrase "each of the groups . . . does not correspond" means "every group must correspond" (as Baystate contends) or "no groups correspond," (as Bowers contends). Contrary to both contentions, the Court finds that the phrase means only that all of the groups on the Keymaster template do not correspond to one selectable item of the Cadkey Main Menu.

When Bowers stated, "each of the groups of the Keymaster template does not correspond to one selectable item of the Main Menu of the Cadkey system," he apparently meant that 1) not all of the Keymaster's groups correspond to Cadkey's Main Menu functions and 2) some groups do correspond to Cadkey Main Menu functions, while others do not. By referring to an example of the "Select" group which did not correspond to a Main Menu function, Bowers was citing to the PTO an example of at least one group on the Keymaster template that did not correspond to a Cadkey Main Menu function. He could have pointed out other Keymaster groups that do correspond to Cadkey Main Menu functions because there are several present on the Keymaster template.

This Court concludes that Baystate misconstrues Bowers' Reexamination statement and finds that Claim 1(b) requires only that a plurality, or more than one, of the groups meet its limitations.

2. Claim 1(c)

The dispute with respect to Claim 1(c) involves, to a great extent, the divergent interpretations of Claim 1(b). Specifically, the parties dispute whether the limitations contained in Claim 1(c) apply to all of the groups on the template (Baystate) or
only to some of the groups on the template (Bowers).

Because the Court has already determined that the term "plurality" means "more than one," there is no need to elaborate on that point here. Based upon the analysis used in the interpretation of Claim 1(b), the Court applies the same meaning to the terms contained in Claim 1(c). Thus, "plurality" as used in Claim 1(c) again means "more than one."

Claim 1(c) provides for a "second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu. . . " Baystate asserts that that claim limitation applies to all functions on the template, but Bowers responds that it requires only that all of a second plurality of indicia meet the claim limitation.

The plain language of Claim 1(c) requires that a plurality, or more than one, of the indicia contained in a second level of indicia correspond to a predetermined selectable item of a sub-menu. The Court interprets Claim 1(c) in conjunction with Claim 1(b) and finds the former to be consistent with the latter. Thus, within the two or more groups meeting the limitations of Claim 1(b), more than one of the indicia contained in a second level of indicia must correspond to a predetermined selectable item of a sub-menu.

When Claim 1(c) is read in conjunction with Claim 13 (a claim added during the reexamination proceedings), it is apparent that the sub-menu to which the second plurality of indicia described in Claim 1(c) corresponds is the first sub-menu of a Main Menu item. This is so because Claim 13, as expressed in the Reexamination Certificate, states that the second plurality described in Claim 1 "corresponds to the predetermined selectable item of said first sub-layer of sub-menus...."

For example, if a template contains a "Create" group, which corresponds to a Cadkey Main Menu function, more than one of the indicia in the second level contained within that group must correspond to a selectable item of the first sub-menu under "Create." The first sub-menu under "Create" includes "Lines", "Arcs", "Circles", "Points/Conics", "Polygon/Fillet" and "Splines". Therefore, within the "Create" group, in order to meet the limitations of Claim 1(c), the second level of indicia must contain an indicia for at least two of those functions.

Again, consistent with Claim 1(b), the terms of Claim 1(c) must be met in two or more groups that correspond to Main Menu items. Therefore, Claim 1(c) requires that in the groups described by Claim 1(b), there must be a second level of indicia in which more than one of those indicia correspond to an item contained in the first sub-menu of that Main Menu item.

3. Claim 1(d)

The parties' dispute over Claim 1(d) relates to the language "said pointing device can select a working function with a single movement of the button." Baystate argues that Claim 1(d) should be interpreted to mean that all indicia on the template must lead to the selection of an ultimate working function.

Bowers responds, citing Vitronics, that Baystate's interpretation cannot be correct because it would render the preferred embodiment outside the scope of the patent. Bowers argues persuasively that the preferred embodiment contains several items that pull up sub-menus rather than activate a function.

Once again, a patent interpretation that renders the preferred embodiment outside the scope of the patent claim is "rarely, if ever, correct and would require highly persuasive evidentiary support." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). Baystate's interpretation that would require all indicia on the template to lead to the performance of a function would thrust the preferred embodiment outside the scope of the patent claim. Without clear evidentiary support, a court cannot accept such an interpretation. Id.

Baystate offers only Bowers' reexamination proceeding statement in support of its contention that "the claim precludes indicia which cause a menu to be pulled down." Bowers stated during Reexamination that the capability of "said pointing device can select a working function with a single movement of the button" was "not present in each of the groups of the Keymaster template." Appellant's Brief on Appeal at 7, found at Exhibit 30 to Memorandum in Support of Defendant/Counter-Plaintiff's Motion for Partial Summary Judgment on the Issue of Infringement of Defendant/Counter-Plaintiff's Patent. It does not necessarily follow from this representation that Bowers' claim requires all indicia on his template to activate a function with a single movement of the pointing device.
This Court concludes that Bowers reexamination statement did not limit Claim 1(d) to require all indicia to activate a working function. There is no evidentiary support for Baystate's argument that the Court interpret the patent to exclude the preferred embodiment. The phrase "said pointing device can select a working function with a single movement of the button" will, therefore, be interpreted to mean that the pointing device can, but need not, select a working function with a single movement of the button.

C. Conclusion on Claim Interpretation

Based upon the preceding analysis, this Court concludes that, with respect to contested terms as they are used in claim 1 of the '514 Patent:

1) "indicia arranged on the template and located in a plurality of groups, one group of each corresponding to one predetermined, selectable item of said main menu" means that at least two groups must appear on a template, where one group corresponds to a Main Menu item and the other corresponds to another Main Menu item;

2) "at least a second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu corresponding to an item of said Main Menu" means that at least two indicia contained in the second set of indicia contained within one of the "at least two groups of indicia" described in Claim 1(b) must correspond to an item of the first sub-menu of the Main Menu item to which the group corresponds; and

3) "said pointing device can select a working function with a single movement of the said button" means that the single movement of the pointing device's button can, but need not, select a working function.

The '514 patent describes a template that presents a single visual representation of many of the available CAD program commands. Mr. Bowers asserts claim 1, the only independent claim:

1. In a computer system including a central processing unit having a keyboard entry station with a plurality of keys for data entry and a pointing device station having a pointer with at least one pointer button for data entry and responsive to positionable movement of said pointer, and including system operating functions having successive layers of a main menu of selectable group functions and [a plurality of sub-levels of sub-menus] successive series of a first layer of sub-menus, and at least a second sub-layer of sub-menus having selectable group sub-functions, accessible by successive entries on said keyboard or said pointer to select an ultimate working function, the improvement comprising:

(a) a template for use with said pointing device;

(b) indicia arranged on the template and located in a plurality of groups, one group of each corresponding to one predetermined, selectable item of said main menu and all said indicia in a respective group bearing a common group identifying characteristic;

(c) at least a second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu corresponding to an item of said main menu;

(d) means securing said templates in a fixed orientation to said tablet whereby said pointing device can select a working function with a single movement of the said button.


Figs. 3A-D of the '514 patent illustrate a template according to claim 1 and configured to operate with CADKEY. That template is illustrated below as a composite of Figs. 3A-D. The template includes a variety of indicia that represent selected items from the CADKEY menus. For example, the template includes the main-menu indicia "CREATE" (middle) and
"TRANSFORM" (lower-right corner). In turn, other indicia are associated with those main-menu indicia (e.g., using location and color) to form main-menu indicia groups. To illustrate, the "CREATE" main-menu indicia group includes the sub-menus "Lines," "ArCs," "Arcs," "Points," "Plygns," and "Splines" (sub-menu indicia), but not the remaining "CREATE" sub-menus "Polyin," "Fillet," "Chamfer," or "Conic," see supra at pp. 15-16. In the template, each of the "CREATE" group's sub-menus has working functions in columns below. The working function indicia represent working functions dependent from the relevant sub-menu. For example, the working function indicia associated with the "Lines" sub-menu fall below that heading and include "Tan:ArcPt," "Tan:2Arcs," "Horz," "Vert," and "Horz/Vert."

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The parties dispute the meaning of paragraphs b, c, and d of claim 1. This court agrees generally with the district court's construction of paragraphs b and c. With respect to paragraph d, however, the district court erred in its construction. Under a correct construction of that paragraph, no reasonable jury could find that Baystate infringes claim 1. In view of this court's holding of noninfringement, this court does not reach the alternative ground for challenging the district court's judgment based on patent invalidity.

The district court construed paragraph b: "at least two groups must appear on a template where one group corresponds to a main menu item and the other corresponds to another main menu item." In other words, the template must include at least two main-menu indicia groups, such as the "CREATE" and "TRANSFORM" groups described above. Baystate argues, nevertheless, that the reexamination history requires that "every group of the template must correspond to a main menu item." The history of reexamination indicates otherwise.

During reexamination, Mr. Bowers noted that each group of the Keymaster template did not correspond to a main-menu item. With respect to those groups that did correspond to main-menu items, Mr. Bowers argued that those did not satisfy claim paragraphs c and d. Mr. Bowers thus admitted that a set of Keymaster template groups satisfy claim paragraph b, but he then distinguished them in view of paragraphs c and d. Specifically, Mr. Bowers stated: "Each of the groups of the Keymaster template does not correspond to one selectable item of the main menu of the Cadkey system." Baystate would read this statement to mean that the claim's reference to a "pluralitY" of groups on the template encompasses all groups on the template. In other words, Baystate reads "each" in several of Bowers' statement to mean "all." The claim, however, uses the term "pluralitY," meaning "comprising, or consisting of more than one." The Oxford English Dictionary (2d ed. 1989). Thus, Bowers' references to "each" refers to the "at least two groups" required by the claims. To read Bowers statements too strictly would exclude from claim scope the preferred embodiment of the '514 patent—a disfavored result. That embodiment includes, for example, a group "SET" that is not associated with a CADKEY main-menu item. In sum, this court agrees with the district court's interpretation of paragraph b.

With respect to paragraph c, the district court interpreted claim 1 to require "that at least two indicia contained in the second set of indicia contained within one of the at least two groups of indicia described in claim 1(b) must correspond to an item of the first submenu of the main menu item to which the group corresponds." In other words, at least one of the main-menu indicia groups paragraph b requires must include at least two indicia associated with a sub-menu of the main-menu. '514 patent at col. 4, ll. 9-16. The specification supports the trial court's interpretation. In the preferred embodiment, for example, the sub-menu "Lines" under the "CREATE" group defines two columns of indicia representing working functions. Id. at col. 4, ll. 9-16. The sub-menu indicium "Lines" and the working functions in columns below are associated with the "Lines" sub-menu of the "CREATE" main-menu, thus satisfying the claim requirement. In sum, paragraph c requires that at least one of the main-menu indicia groups include at least two indicia associated with the same sub-menu of the main-menu.

With respect to paragraph d, the district court held "that the single movement of the pointing device's button can, but need not, select a working function." Properly construed, however, this limitation requires that each of the indicia associated with the sub-menu of a main-menu group must represent a working function accessible with a single movement of the pointer button (e.g., as opposed to access through further selection via a drop-down menu). Using the "Lines" sub-menu as an
example, see Figs. 3A-D supra at p. 18, paragraph d requires that all indicia below that sub-menu must represent working functions. The specification and the reexamination history support this construction of paragraph d.

As just described with respect to the "Lines" sub-menu, the '514 patent discloses a sub-menu with one or more columns of working functions. '514 patent at col. 4, ll. 9-16. This arrangement supplies the second plurality of indicia required by paragraph c. Id. at col. 4, ll. 24-26. For example, two columns fall beneath the "Lines" sub-menu within the "CREATE" group. Each indicium in those columns, e.g., "Tan:ArcPt," "Tan:2Arcs," "Horz," "Vert," and "Horz/Vert," represents a working function that depends from the "Lines" sub-menu. Id. at col. 4, ll. 24-65 ("The individual items appearing in the rows of each of these columns [defined by the sub-menu indicia] represent an ultimate working function"). In other words, consistent with this court's construction, all the indicia associated with the sub-menus of the "CREATE" group represent working functions.

* Bowers urges in a conclusory fashion that this construction would render the preferred embodiment outside the scope of the claims, a result that requires "highly persuasive evidentiary support," Vitronics Corp. v Conceptronic, Inc., 90 F.3d 1576, 1583, 39 U.S.P.Q.2D (BNA) 1573, 1578 (Fed. Cir. 1996). Bowers has not established his premise (that the preferred embodiment is outside the claim scope), and even if he had, the reexamination history provides just that highly persuasive evidentiary support, as this court explains below.

The reexamination history also precludes this court from adopting a broader construction. Specifically, with respect to "working functions," the claim language recites only that the "pointing device can select a working function with a single movement of the said button." During the reexamination proceedings, Mr. Bowers argued that the Keymaster template did not satisfy this limitation because that template's "DETAIL" and "TRANSFORM" main-menu groups included indicia that did not represent working functions. With reference to the "DETAIL" group more specifically, that group includes sub-menus "Dim," and "Arr/Wit," and an additional indicium "Misc." The Keymaster "DETAIL" group and relevant portions of the CADKEY 3.02 menu structure are shown in the figure below. In that figure, working functions are highlighted.

[SEE THE ILLUSTRATION IN ORIGINAL]

The indicia "Dim," "Arr/Wit," and "Misc" each have a group of indicia underneath them. However, as shown above, none of those indicia groups includes only working functions. With respect to the group "Misc," Mr. Bowers made clear that the indicia "Note," "X-Hatch," "Change," and "Set," all represented additional menus rather than working functions. For example, selecting the indicium "X-Hatch" simply presents an opportunity to select the actual working cross-hatching functions of "Brick," "Steel," "Copper," "Alloys," "Aluminum," "Rubber," or "Marble" (not shown in the menu structure above). A user simply cannot access these cross-hatching functions through a single movement of the pointing device button using the Keymaster template. In like manner, as shown in the figure, the indicia groups associated with "Dim" and "Arr/Wit," respectively, also include indicia that do not represent working functions.

The '514 patent describes a template that presents a single visual representation of many of the available CAD program commands. Mr. Bowers asserts claim 1, the only independent claim:

1. In a computer system including a central processing unit having a keyboard entry station with a plurality of keys for data entry and a pointing device station having a pointer with at least one pointer button for data entry and responsive to positionable movement of said pointer, and including system operating functions having successive layers of a main menu of selectable group functions and [a plurality of sub-levels of sub-menus] successive series of a first layer of sub- menus, and at least a second sub-layer of sub-menus having selectable group sub-functions, accessible by successive entries on said keyboard or said pointer to select an ultimate working function, the improvement comprising:

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(a) a template for use with said pointing device;

(b) indicia arranged on the template and located in a plurality of groups, one group of each corresponding to one predetermined, selectable item of said main menu and all said indicia in a respective group bearing a common group identifying characteristic;

(c) at least a second plurality of indicia, each of which corresponds to a predetermined selectable item of a sub-menu corresponding to an item of said main menu;

(d) means securing said templates in a fixed orientation to said tablet whereby said pointing device can select a working function with a single movement of the said button.


Figs. 3A-D of the '514 patent illustrate a template according to claim 1 and configured to operate with CADKEY. That template is illustrated below as a composite of Figs. 3A-D. The template includes a variety of indicia that represent selected items from the CADKEY menus. For example, the template includes the main-menu indicia "CREATE" (middle) and "TRANSFORM" (lower-right corner). In turn, other indicia are associated with those main-menu indicia (e.g., using location and color) to form main-menu indicia groups. To illustrate, the "CREATE" main-menu indicia group includes the sub-menus "Lines," "Arcs," "Circ," "Points," "Plygns," and "Splines" (sub-menu indicia), but not the remaining "CREATE" sub-menus "Polyin," "Fillet," "Chamfer," or "Conic," see supra at pp. 15-16. In the template, each of the "CREATE" group's sub-menus has working functions in columns below. The working function indicia represent working functions dependent from the relevant sub-menu. For example, the working function indicia associated with the "Lines" sub-menu fall below that heading and include "Tan:ArcPt," "Tan:2Arcs," "Horz," "Vert," and "Horz/Vert."

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The parties dispute the meaning of paragraphs b, c, and d of claim 1. This court agrees generally with the district court's construction of paragraphs b and c. With respect to paragraph d, however, the district court erred in its construction. Under a correct construction of that paragraph, no reasonable jury could find that Baystate infringes claim 1. In view of this court's holding of noninfringement, this court does not reach the alternative ground for challenging the district court's judgment based on patent invalidity.

The district court construed paragraph b: "at least two groups must appear on a template where one group corresponds to a main menu item and the other corresponds to another main menu item." In other words, the template must include at least two main-menu indicia groups, such as the "CREATE" and "TRANSFORM" groups described above. Baystate argues, nevertheless, that the reexamination history requires that "every group of the template must correspond to a main menu item." The history of reexamination indicates otherwise.

During reexamination, Mr. Bowers noted that each group of the Keymaster template did not correspond to a main-menu item. With respect to those groups that did correspond to main-menu items, Mr. Bowers argued that those did not satisfy claim paragraphs c and d. Mr. Bowers thus admitted that a set of Keymaster template groups satisfy claim paragraph b, but he then distinguished them in view of paragraphs c and d. Specifically, Mr. Bowers stated: "Each of the groups of the Keymaster template does not correspond to one selectable item of the main menu of the Cadkey system." Baystate would read this statement to mean that the claim's reference to a "plurality" of groups on the template encompasses all groups on the template. In other words, Baystate reads "each" in several of Bowers' statement to mean "all." The claim, however, uses the term "plurality," meaning "comprising, or consisting of more than one." The Oxford English Dictionary (2d ed. 1989). Thus, Bowers' references to "each" refers to the "at least two groups" required by the claims. To read Bowers statements too
strictly would exclude from claim scope the preferred embodiment of the '514 patent--a disfavored result. That embodiment
includes, for example, a group "SET" that is not associated with a CADKEY main-menu item. In sum, this court agrees with
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sub-menu of the "CREATE" main-menu, thus satisfying the claim requirement. In sum, paragraph c requires that at least
one of the main-menu indicia groups include at least two indicia associated with the same sub-menu of the main-menu.

With respect to paragraph d, the district court held "that the single movement of the pointing device's button can, but need
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example, see Figs. 3A-D supra at p. 18, paragraph d requires that all indicia below that sub-menu must represent working
functions. The specification and the reexamination history support this construction of paragraph d.

As just described with respect to the "Lines" sub-menu, the '514 patent discloses a sub-menu with one or more columns of
working functions. '514 patent at col. 4, ll. 9-16. This arrangement supplies the second plurality of indicia required by
paragraph c. Id. at col. 4, ll. 9-16. The specification discloses expressly that all indicia associated with sub-menus (i.e.,
"Line," "Arcs," etc.) of the "CREATE" group represent working functions. * Id. at col. 4, ll. 24-26. For example, two
columns fall beneath the "Lines" sub-menu within the "CREATE" group. Each indicium in those columns, e.g.,
"Tan:ArcPt," "Tan:2Arcs," "Horz," "Vert," and "Horz/Vert," represents a working function that depends from the "Lines"
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using the Keymaster template. In like manner, as shown in the figure, the indicia groups associated with "Dim" and "Arr/Wit," respectively, also include indicia that do not represent working functions.

11. "[A]n indicia reader input system" 14 is a system for obtaining the information encoded in a symbol. This construction is consistent with the claims as well as the specification: col. 3:45-53, col. 4:56-57, col. 5:49-6:4, col. 6:17-21, col. 7:13-21; col. 7:63-65.

The primary argument offered by American Academy is that the '989 patent's specification limits the construction of "indirectly issuing." In particular, American Academy asks us to limit that claim term to the database simulator program of the preferred embodiment described in the specification:

The data base simulator program 118 is somewhat similar in operation to a data base manager and enables an application program 116 at the user station to call for storage or retrieval of data from the data center as though it were calling for data from a data base resident at the user station 4.

We have cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent clear disclaimer in the specification. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'"); Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002).

Rather than restricting the meaning of "indirectly issuing," the specification describes the invention broadly:

In operation, a user station initiates contact (inquires) with a data center using any of a variety of conventional protocol procedures, and the data center, which is always operating in an access mode under control of a data access control program, responds to the inquiry and communication is established.

The specification makes clear that the database simulator is a preferred embodiment, and just one of the "variety of conventional protocol procedures":

In a preferred embodiment of the present invention, the data center computer manages data bases for the independently
operating user computers by means of a data base manager program. The user computers store, retrieve, and update data items in their data bases by communicating data base calls to the data center computer. The user computers run respective user application programs to process their data and to each of which is linked a data base simulator program. When a user application program reaches a point in processing at which a data operation on a data item is needed, the user application program calls the data base simulator program and supplies it with sufficient information to issue a data base call to the data center computer to perform the required data operation.

Id., col. 3, ll. 29-44. Thus, the specification does not limit the term "indirectly issuing" to the use of a database simulator.

As it did in the case of the claim term "user computer," American Academy provided evidence in the form of declarations of Dr. Maryanski in support of its construction of "indirectly issuing." The Board found that those declarations were unpersuasive for the same reasons that they were found unpersuasive with respect to the term "user computer." As we explained above, the Board is entitled to give such weight to declarations as it deems appropriate. The Board was acting within its broad discretion in giving little weight to the declarations. Because the specification does not support American Academy's narrower construction of the claim term "indirectly issuing," the Board properly concluded that the broadest reasonable interpretation of "indirectly issuing" requires "only that a request from the host computer go through some other component before it is sent to the database."

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"Individual" and "Individuals"

The membership of "individuals" is perhaps the most contested issue of the asserted claims. Individual(s) appears both in the preamble and the body of the claim. The effect of such usage deserves comment.

Usage in the Preamble

Defendants seek to define "individuals" as it is used in the preamble, and allow that definition to filter to the rest of the claim. This may be crucial to Defendants' position since the operational use of "individual" and "individuals" in the body of the claims is possessive and relates back to the "offer(s)", thus it appears to be less important who enters the offer(s) than who the offeror and the offeree might be.


In a Jepson claim, the preamble generally recites prior art elements and has been determined to be substantive limitation of the claim. Here, the preamble text is: "A method for trading securities between individuals, comprising . . ." The focus of the inquiry is whether or not 'for trading securities between individuals' is merely a statement of intended purpose and thus merely informative and not an actual limitation. Clearly, the claim steps that follow the preamble describe just what the claim says. Security is introduced in the first step as is the concept of the trading and the individual. A fair reading of the entire claim without that phrase gives a firm idea of the nature of the invention. It certainly can not be said that the preamble text is necessary to breathe life into the claim. Thus, the Court concludes that the preamble text is a statement of intended use.

This does not end the inquiry as it does not resolve the issue of whether certain persons might be excluded from the term individual as used in the body of the claim.

In this case, the specification describes the invention as relating "specifically to systems which allow individuals to trade securities directly with other individuals who are not brokers, specialist [sic] or market makers." (c. 1, ll. 11-13) What it does not say is: "systems which allow individuals, who are not brokers; specialists; or market makers, to trade securities directly with other individuals, who also are not brokers; specialists; or market makers." 6 The description of the prior art describes the system whereby brokers profited from executing customer transactions by pocketing the "spread." The import
of the invention is to strip away this veil of secrecy, and allow the Joe Q. Individual to obtain the optimum buy/sell price by being able to view and select the best offer in the available market. Thus, when Minton describes the need for "a data processing system and a network of data processing systems whereby individuals can buy and sell directly from each other, with only minimum involvement from a broker" (c. 2, ll. 47-49) there appears to a paradox in how to define individuals.

6 Henceforth, "brokers, specialists, and market makers" will be identified solely by "brokers."

On the one hand, there appears to be two identifiable groups of individuals: one of which clearly excludes brokers and one which is silent. On the other hand, a single group of individuals which excludes brokers. However, there is a third possibility: "individuals" includes everyone who is a buyer or seller, and that brokers may be excluded based on other limitations.

The First Office Action

In his initial rejection of claims, the examiner first cited Adams, U.S. Patent No. 3,573,747 ( '747 patent) as prior art, noting that he equated the usage of individuals in the '643 application with "subscribers or buyer [sic] and sellers" in the '747 patent. 7 Defendants attack a broad interpretation of individuals by claiming that the examiner excluded brokers by this statement; however that position ignores the context of the examiner's usage, and here the context is crucial. This was not an isolated assertion but a reference for establishing how the '747 patent anticipated several claims in the '643 application. Referencing the specification of the '747 patent, the Court observes no specific reference to brokers. 8 It explicitly does include "institutional investors", which the Court interprets to include retirement plans, insurance funds, and mutual funds; some of these may be broker managed funds. The closest the '747 patent comes to broker is 'intermediary,' which is placed in the context of removing the intermediary between the institutional investor and the trader, however this is overshadowed by the purpose given in the background of the '747 that stated that the "subscribers may be any buyers and sellers desiring to trade any of said fungible properties." ( '747 c. 1, ll. 38-40) (emphasis added.) The strongest support comes from the summary that states:

7 After reading the '747 patent, the Court concludes that the examiner made a clerical errors and intended to say 'buyers' as that term appears in the '747 specification.

8 Remember that matter considered in the prosecution history is intrinsic evidence. The '747 patent was discussed explicitly in the rejection of claims, thus it is more than mere 'prior art' such as other references that may have been disclosed in the IDS.

"It is a further object…wherein the trading [of securities] can be effectuated without the necessity of a human negotiator between buyers and sellers." ( '747 c. 1, ll. 47-50).

Essentially, Adams sought to eliminate the trading floor in which brokerage houses (which include institutional investors) could engage in a preference system through their floor traders; not exclude the presence of brokers altogether.

Thus, the Court finds that the purpose of the examiner's statement was to inform Minton as to how the '747 was compared to his invention for prior art purposes, and not to place a limitation on any claim. Note also that Minton altered his claims in response to an objection, not a rejection. Thus, prosecution history estoppel does not arise against him with respect to this statement. The Court further notes that the '747 patent allowed the creation of offers without a price value and a quantity value, and thus did not teach the necessity of price and quantity in creating an efficient transaction system.

Plain Language Usage in the Claims
Defendants argue that "individual" excludes all persons who are brokers acting in any capacity. Clearly, this is incorrect as can be demonstrated here. Assume that three persons, Merrill; Lynch; and Pierce, all happen to be sitting comfortably at their home computers, and Merrill offers to buy a stock that Lynch and Pierce are both offering for sale through E-trade. The fact that they are also brokers (i.e. members of NASDAQ or NYSE) would not mean that they were not trading as individuals for their own sake. Thus, the definition for "Individuals" offered in one proposed order of construction is far too broad, resulting in far too narrow a claim.

Further, Defendants have a fundamental and clear misconception regarding the function of "an individual" in the context of the claims. In one proposed order, the first clause:

"Entering the offer of a first individual to trade a security on a first data processing system" is to be interpreted as a limitation:

"...this step requires that a first individual perform the step of entering the first individual's offer to trade in a first computer." (Def. order at 2).

Yet, nowhere in that clause is there any limitation as to who or what might enter the offer into a first computer. Nor is any such limitation created by any other clause in the asserted claim. Rather, than repeat the above example for each clause, it should be apparent that the explicit language of the claims places no restriction or limitation on the identity of the traders.

--- Footnotes ---

9 A clause supporting Defendants' position would be: "Entering the offer to trade a security of a first individual by the first individual on a first data processing system" or even, "a first individual entering the offer of the first individual to trade a security on a first data processing system."

--- End Footnotes ---

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B. "individualized rule set"

Claim 1 contains the term "individualized rule set": "wherein the authentication accounting server accesses the database and communicates the individualized rule set that correlates with the first user ID" and "wherein data . . . are processed by the redirection server according to the individualized rule set." Although "individualizedrule set" does not appear in the specification, the phrase "rule set" is used frequently:

The rule sets specify elements or conditions about the user's session. Rule sets may contain data about a type of service which may or may not be accessed, a location which may or may not be accessed, how long to keep the rule set active, under what conditions the rule set should be removed, when and how to modify the rule set during a session, and the like.

('118 patent, 4:41-47) (emphasis added).

The plaintiff defines "individualized rule set" as "elements or conditions which apply during a user's session." According to the defendants, this term means "filtering and redirection rules for a particular user ID, which apply during an authorized session." The three primary differences between the parties' proposed constructions are: (1) "elements or conditions" vs. "filtering and redirection rules"; (2) association with a specific user ID; and (3) "user's session" vs. "authorized session."

First, Linksmart argues that "individualized rule set" should be broadly construed to cover "elements or conditions." The specification explicitly states that "rule sets specify elements or conditions." ('118 patent,4:41-42) (emphasis added). In response, the defendants assert that the patent uses the phrase "filtering and redirection information" interchangeably with the term "rule set," e.g., "[t]he database also contains personalized filtering and redirection information" and "[t]he redirection server uses the filter and redirection information . . . to either allow packets to pass through . . . , block . . . , or
modify." ('118 patent, 3:3-4, 3:15-19). But the specification also explains that the rule set may contain data about "how long to keep the rule set active" and "when and how to modify the rule set during a session." ('118 patent, 4:42-47). The narrow "filtering and redirection information" construction would exclude these two alternatives. Therefore the court will adopt the "elements or conditions" construction.

Second, the defendants' proposal requires the "individualized rule set" to be associated with a particular user ID. Linksmart argues that nothing in the specification requires the rule set to be tied to a specific user ID. But the specification refers to a "rule set," while the claims use the term "individualized rule set." Because the modifier "individualized" is included, the court will construe the term to require a link to a specific user ID.

Third, the plaintiff contends that the rule set is applied during a "user's session," but the defendants assert that the rule set is applied during an "authorized session." The specification explains that "[t]he rule sets specify elements or conditions about the user's session." ('118 patent, 4:41-42) (emphasis added). "Authorized session" is not found in the specification. As such, the court is persuaded that the rule set applies during a "user's session." In all, the court construes the term "individualized rule set" as "elements or conditions for a particular user ID that apply during a user's session."

2. Claim Term 9

Claim Term 9 includes the words "the inductor," "an inductor," and "said inductor." See '349 patent, claims 5-11; '400 patent, claims 21-41. UI proposes the following construction for Claim Term 9: "one or more associated windings, with or without a magnetic core, for introducing inductance into an electric circuit." University Comparison Chart at 3-4. Fujitsu's proposed construction is as follows:

An inductor is a piece of wire that is frequently, but not always, wound into the shape of a coil, which is used to introduce inductance -- i.e., a magnetic field effect that causes the coil to oppose changes in current -- into a circuit. Each of the claims at issue is limited to a single inductor that is used for both charging and discharging the panel capacitance.

University Comparison Chart at 4. The primary dispute is whether Claim Term 9 refers to a single inductor through which charging and discharging occurs (as Fujitsu argues) or, alternatively, whether these terms allow for multiple inductors, some of which are used for charging only and others for discharging only. The parties also disagree about the definition of an inductor. UI calls an "inductance element" what Fujitsu calls an inductor, arguing that multiple "inductance elements" may constitute a single inductor.

In determining whether the words "an inductor" and "the inductor" refer to a single inductor or "one or more inductor," the Court looks in the description in the patent to determine whether it reveals a clear intent to limit the invention to a singular embodiment. See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). Although the use of the term "a" or "an" may suggest that a single element is claimed, "patent claim parlance also recognizes that an article can carry the meaning of "one or more," for example in a claim using the transitional phrase 'comprising."' Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed. Cir. 1997). Where it is unclear whether the claim covers a single element or multiple elements, courts look to the written description in the patent to determine whether there is a "clear intent" to limit the invention to a singular embodiment. KCJ Corp., 223 F.3d at 1356. The fact that there is only a single inductor in the preferred embodiments shown in the patent figures does not justify imposing such a limitation on the claims. See id. (holding that even where the embodiments suggest a single element, such a limitation will not be imposed if the claim language is broader than the embodiments).

Here, the words "an inductor" and "the inductor" follow the open-ended terms "comprising" and "including," supporting the conclusion that "an inductor" means one or more inductors. Fujitsu argues, though, that the use of the words "said inductor" reveals a clear intent on the part of the inventor to limit the term "inductor" to a singular embodiment.

A review of the cases cited by the parties on the significance of the word "said" in patent claims is instructive. In Abtox, a case on which Fujitsu relies, the court addressed whether or not the claim language in dispute provided for a single chamber or rather, whether it meant "one or more chambers." Abtox, 122 F.3d at 1023-1024. The claim provided as follows:
apparatus for sterilization of medical devices and materials in a gas plasma comprising,

(a) a metallic gas-confining chamber having a non-metallic portion;

(b) a microwave energy source including a microwave cavity positioned to couple microwave energy into said chamber through said non-metallic portion, and

(c) means for holding . . . medical devices and materials to be sterilized within said chamber volume and away from said microwave cavity, and including a perforated electrical shielding member positioned within said chamber and in close proximity to said microwave energy source to provide a portion of the internal volume of said chamber shielded from and away from said microwave energy providing a field-free zone containing said devices and materials.

Id. at 1022 (emphasis added). The Court concluded that this claim referred to a single chamber. Id. at 1027. In reaching this conclusion, the Court relied heavily on the language used in the claim, and in particular, on the repeated use of the term, "said chamber." Id at 1024. The court also found that the written description in the patent supported its construction.  Id. at 1024. Specifically, one of the figures in the patent showed a single chamber and "nothing in the written description suggested that the claim language encompassed a device with more than one gas-confining chamber." Id.


In KCJ, the court addressed whether claim language for an air mattress limited the scope of the invention to embodiments using one lower air chamber, or alternatively, whether the scope of the claims covered an embodiment with multiple chambers. 223 F.3d at 1355. The disputed claim provided as follows:

1. An air flotation, ventilated mattress apparatus comprising:

(a) means defining a lower, continuous, inflatable chamber having an air-permeable, flexible upper wall portion,

(b) said upper wall portion being constructed for substantially uniform airflow therethrough over substantially the entire plan surface area of said upper wall portion;

(c) air-permeable secondary wall means above said chamber upper wall portion and operably coupled with said chamber-defining means,

(d) said secondary wall means being constructed for substantially uniform passage of air therethrough over substantially the entire plan surface area of said secondary wall means,

(e) said secondary wall means and upper wall cooperatively defining therebetween an inflatable compartment above said chamber; and

(f) means for continuously introducing positive pressure air into said chamber in order to continuously maintain positive air pressure conditions throughout the entirety of said chamber during the entirety of operation of said mattress apparatus and to inflate both said chamber and compartment by passage of said air into said chamber and thence through said upper wall portion and thereby maintain positive air pressure conditions in said compartment, and to cause said continuous passage of air through said secondary wall means,

(g) said mattress apparatus being free of solid internal support structure for supporting a patient,

(h) said air introduction means, upper wall portion and secondary wall means being cooperatively configured and arranged for continuous passage of sufficient positive pressure airflow through the chamber, upper wall portion, compartment, and secondary wall means for even, substantially uniform flow of air from said mattress apparatus so that a person lying atop the secondary wall means is supported by said pressurized air without the presence of weight-supporting structure within said mattress apparatus.

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Id. at 1353 (emphasis added). The court concluded that the claim language provided "no support for departing from the general rule" that indefinite articles such as "a" and "an" mean one or more. Id. at 1357. It went on to note that neither the written description nor the prosecution history explicitly disclaimed the use of multiple chambers. Id. The court did not address the significance, if any, of the references to "said chamber" in the claim.

In Elkay, the court addressed whether or not a single feed tube was used both for delivering liquid from a container and admitting air into a container. 192 F.3d at 977. The claim provided for "an upstanding feed tube . . . to provide a hygienic flow path for delivering liquid from . . . and for admitting air . . . into said container to displace the liquid delivered therefrom, said feed tube having upper and lower end portions." Id. at 975-976 (emphasis added). Although the preferred embodiment used a single feed tube for both admitting air and delivering liquid, the court concluded that neither the language of the claim nor the written description conclusively established that the scope of the claim was limited to a single feed tube that was used for both functions. Id. at 978. It went on to hold, however, that in the prosecution history, the inventor had disclaimed an embodiment with separate flow paths for air and water. Id.

Finally, in Altiris, the court addressed whether the claim described a single "boot flag" or multiple boot flags. 318 F.3d at 1368. The disputed claim read as follows:

A digital computer system programmed to perform the method of gaining control of the boot procedure of a digital computer, said digital computer comprising:

(A) a central processing unit;

(B) a memory unit;

(C) a long term storage device; and

(D) a means of booting said computer, said means of booting including a first set of commands, said first set of commands resident on said storage device of said digital computer for booting said digital computer, and a second set of commands, said second set of commands resident on a storage device external to said digital computer, for booting said digital computer, the method comprising:

...testing automatically for source of said means of booting; said testing including reading a boot selection flag and comparing said boot selection flag with a known flag setting; transferring control of said computer system to said source of said means of booting; performing said external commands, if said testing automatically step indicates a boot sequence stored externally to said digital computer; setting said boot selection flag; and booting normally, if said testing automatically step indicates a boot sequence stored internal to said digital computer.

Id. at 1368 (emphasis added). The court concluded that the claim was not limited to a system that used a single boot selection flag, but rather, covered a system using more than one boot selection flag as well. Id. at 1373. The court explained its reasoning as follows:

The parties agree that "a" generally means "one or more" in open-ended claims such as those at issue here. KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 . . . (Fed.Cir.2000). Symantec, however, contends that this general rule does not apply here because the sole embodiment described in the patent uses a single flag. Once again, however, there are no statements in the specification or the prosecution history inviting, much less requiring, us to limit the claims to the only disclosed embodiment. This is merely another attempt to limit the invention to the preferred embodiment. We therefore hold that "boot selection flag", encompasses the use of multiple flags to select the boot cycle.

318 F.3d at 1373-1374.

It is apparent that the word "said" as a qualifier does not always signify that the element qualified is limited to a singular embodiment. In KCJ, the court found that the claim language covered an air mattress with multiple chambers even though the claim referred at least once to "said chamber." 223 F.3d at 1357. Similarly, in Altiris, the court found that the claim allowed for more than one boot selection flag, even though the claim language referred to "said boot selection flag." In Elkay, likewise, a reference to "said feed tube" was not found to limit that element to a singular embodiment. Conversely,
the Federal Circuit's decision in Abtox makes clear that the word "said" may be significant where, as in that case, it describes the relationship between different components of the invention covered by the claim. See Abtox, 122 F.3d at 1023. Similarly, the word "said" may reveal the relationship between two functions described in a claim. For example, in Altiris, although the court did not reach the issue, it is likely that the reference to "said boot selection flag" indicated that the boot selection flag that was to be "compared" was the same boot selection flag as was to be "read."

Applying these principles, the Court concludes that the terms "an inductor" and "the inductor" in the disputed claims allow for more than one inductor. However, the claims that describe both charging and discharging through "said" inductor make it clear that the same inductor must be used for both charging and discharging the panel capacitance. For example, claim 38 of the '400 patent refers first to "an inductor coupled to said panel electrodes for charging and discharging." '400 patent, col. 22, ll. 25-28. To the extent that there may be ambiguity as to whether the charging and discharging described by this language must be conducted through the same inductor, that ambiguity is dispelled by the limitations that follow. Those limitations require: 1) a "first switch means coupled to said inductor to enable said panel capacitance to charge through said inductor," '400 patent, col. 22, ll. 29-31; and 2) a "second switch means coupled to said inductor to enable said panel capacitance to discharge through said inductor," '400 patent, col. 22, ll. 37-39. As stated above, the word "said" means "already named or mentioned." The New Shorter Oxford English Dictionary (1993 ed.), p. 2668. Thus, the word "said" in this context reveals that the charging and discharging described in the two limitations quoted above must use the same inductor.

The parties also disagree on the issue of what constitutes a single inductor, as opposed to an "inductance element." Thus, the Court must determine the common and ordinary meaning of the term "inductor" in 1986, or, alternatively, find a clear intent in the patent description to give the word a special or different meaning. See Vitronics, 90 F.3d at 1582. UI argues that an "inductor" may encompass one or more "inductance elements." UI Claim Construction Brief at 21. In support of this position, Dr. Inan relies on the following definition of the term "inductor," from the IEEE Standard Dictionary of Electrical and Electronics Terms ("IEEE Dictionary"), published in 1984:

> A device consisting of one or more associated windings, with or without a magnetic core, for introducing inductance into an electric circuit.

IEEE Dictionary at 440, Exh. K to Nui Decl. UI goes on to cite to Dr. Inan's testimony, in which Dr. Inan states as follows:

> Inductance elements combined to constitute "an inductor" can be electrically connected in various configurations, including series and/or parallel connections. The need for or use of an electrical connection does not imply a need for or the presence of physical proximity of different windings that might be used to introduce a certain inductance value into a circuit.

Inan Report at 20. Thus, UI appears to argue that any windings that are electrically connected in a device are sufficiently "associated," under the definition in the IEEE dictionary, to constitute a single inductor. Finally, UI points to U.S. Patent No. 5,828,353, in which the term "inductance element" is used.

Fujitsu does not disagree that the IEEE definition of an "inductor" provides a starting point for construing the term. However, it argues that the word "associated" requires more than that the windings be electrically connected. Rather, Fujitsu cites to its own expert's testimony to show that the word "associated" requires that the windings share coupled magnetic field lines. Dr. Silzars explains his position as follows:

> An inductor is a device that couples magnetic field lines of associated portions of a conductor. This is called "field coupling." Two elements sitting on a table may have inductance but do not constitute a single inductor unless they intimately and mutually share coupling of their magnetic field lines. . . . I understand that Dr. Inan states that inductors he "associated windings" whether or not they share a field coupling. . . . What those of ordinary skill in the art would call "inductors," Dr. Inan would call "combinations of inductance elements sharing an electrical connection that function together to introduce the desired inductance into a circuit." . . . This is incorrect. Those of ordinary skill in the art in 1986 and indeed today, do not use the term "inductance element" to be distinguishable from an "inductor" . . .

Silzars Decl. at 69 (citations omitted). Fujitsu also cites to three patents in support of its position, U.S. Patent No. 4,070,663, U.S. Patent No. 3,931,528 and U.S. Patent No. 3,833,833, all of which refer to "inductors" rather than "inductance
elements." Finally, Fujitsu points out that UI's former expert, Dr. Bitzer, stated in his expert report in the ITC proceeding that Fujitsu's allegedly infringing device uses "separate inductors." Fujitsu Claim Construction Brief at 19, citing to Expert Report of Donald L. Bitzer, Exh. 6 to Silzars Decl.).

The Court finds no support in the '349 and '400 patents for UI's position. Rather, the description in the Patents supports Fujitsu's position that windings that do not share coupled magnetic field lines constitute separate inductors. First, the term "inductance element" is not used in either patent. Second, the '400 patent uses the word "inductors," in describing the sustain driver circuit claimed in the invention. '400 patent, col. 2, ll. 53-55. In particular, the description states that "the new sustain circuit driver uses inductors in charging and discharging the panel capacitance." Id. This use of the plural "inductors" indicates that there can be multiple "inductors" in the invention as part of the same circuit, and that multiplicity is referred to by the plural "inductors," not by the singular "inductor." This conclusion is confirmed by the figures in the patents. In Figures 5 and 7, the sustain circuit described in the invention includes two sustain drivers, one for each set of sustain electrodes. See Figs. 5, 7 of '349 and '400 patents. Each of these drivers contains a set of windings and these two sets of windings are electrically connected in the same circuit. If UI's proposed definition of an inductor were correct, these two sets of windings should have been referred to as "inductance elements" and not as "inductors" in the plural form. The fact that they were referred to as "inductors" provides strong intrinsic evidence that Fujitsu's proposed definition of an "inductor" is correct.

The Court finds that "associated" means windings that share coupled magnetic field lines. As discussed above, the intrinsic evidence requires that the multiple inductors in the invention each be referred to separately as an "inductor." Moreover, the IEEE dictionary provides not only the definition of "inductor," but also the information necessary to define "associated." In that definition the word "associated" is directly tied to the function of the inductor -- introducing inductance into a circuit. See IEEE Dictionary at 440, Exh. K to Nui Decl. An inductor uses magnetic field lines to introduce inductance into a circuit. See Silzars Decl., PP99-100. Accordingly, to be part of the same device, associated windings in an inductor must share coupled magnetic field lines. 4 Id.

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4 Because the '349 and '400 patent, read in conjunction with the IEEE dictionary, provide a sufficient basis on which to construe the meaning of the word "inductor," the Court declines to consider the Bitzer expert report and the other patents offered by the parties in support of their proposed construction. See Markman, 52 F.3d at 980 (holding that "the court may, in its discretion, receive extrinsic evidence in order to aid the court in coming to a correct conclusion"). Because the Court does not rely on Dr. Bitzer's testimony, it does not reach the question of whether that testimony is admissible as an admission under F. R. Evid. 801(d)(2).

--- End Footnotes ---

The Court defines an inductor as follows:

A device consisting of one or more associated windings for introducing inductance into a circuit. Windings are "associated" for the purposes of this definition only if they share coupled magnetic field lines.

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3. Claim 36 - "inductor means"

MagneTek does not contend that the term "inductor means" in claim 36 is in means-plus-function format but nonetheless argues that it must be construed as limited, as indicated in the specification of the '409 patent, to inductors that provide a total inductance large enough to keep the current flowing from the DC source into the inverter substantially constant. We reject this argument. As it did with regard to the term "inverter means," to accept MagneTek's argument would require us to ignore the Federal Circuit's "repeated statements that limitations from the specification are not to be read into the claims." Comark, 156 F.3d at 1186. We construe the term "inductor means" in claim 36 in accordance with its well known meaning to persons skilled in the art, that is, as denoting a coil of wire wound on magnetic material. See D. Fink & H. Beaty, Standard Handbook for Electrical Engineers at 2-10 (13th ed. 1993).
"Inductor Means" in the '409 Patent's Claims 9, 16 and 37

Claims 9, 16 and 37 of the '409 Patent pose the question of how broadly or narrowly the phrase "inductor means" should be construed. 28 N. Mem. 26 says that "inductor" has a commonly understood meaning in the art and points to its dictionary definition (Handbook 2-10):

An inductor is a circuit element whose behavior is described by the fact that it stores electromagnetic energy in its magnetic field.

* * *

In its most elementary form, an inductor is formed by winding a coil of wire--often copper--around a form that may or may not contain ferromagnetic materials.

27 Motorola cites to different numbers--to claims 9 and 36--as those at issue. That difference is due only to the tendency of patent claims to refer back to the language of prior claims. This is thus not problematic because, of course, it is the language that is at issue.

28 It is undisputed that the inductor is connected between the source of DC voltage and the inverter's input terminals.

Though that does fairly describe the universe of inductors as such, it wholly ignores (just as Nilssen's arguments blithely ignore--see both N. Mem. 27-28 and N. Resp. 27-28) Nilssen's conduct before the PTO during the '409 Patent's prosecution. In response to the PTO examiner's objection that the claim at issue represented no patentable advance because it was obvious in light of prior art that employed other types of inductors, Nilssen argued that his "inductor means" was different--that "the direction of the inductor coils in [the prior art] arrangement…is exactly opposite of the way the two coils are arranged in the claimed invention." And that latter reference was to the description in the specification.

Thus Nilssen himself urged on the PTO (indeed, more than once) the use of the specification to ascertain the meaning of "inductor means" in his invention. That calls into play the teaching of Vitronics, 90 F.3d at 1582 (emphasis added):

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.

And what Motorola now plumps for as the meaning of the term "inductor means" draws directly on that Nilssen-dictated "dictionary"--the specification--rather than one the more generic Handbook.

Thus Nilssen's generalized attempt to fall back on the general aversion to reading limitations from a specification into a claim is out of place here. Motorola asks that Nilssen be taken at his word, which he gave when it was in his interest to obtain the benefit of the patent he now seeks to sue upon, and this Court honors that request. "Inductor means" will be construed in the manner contended for by Motorola. 29

29 For a second time this opinion has parted company with Judge Kennelly's MagneTek opinion, 1999 WL 982966, at *7. But that opinion makes no reference to Nilssen's PTO representations referred to here in the text--and in the absence of that factor, this Court would also have reached the same conclusion as Judge Kennelly.
Inferring

Claims 1, 20, 22, 23, 33, 34, 35, 36, 37, 38, 39, and 40 contain the term "inferring." SFA defines the term in accordance with a general dictionary definition as "deriving based upon one or more facts or circumstances." SFA makes no effort to analyze the definition with regard to the intrinsic evidence. Claim terms do not occur in a vacuum. Kyocera Wireless Corp. v. Int'l Trade Comm'n, 545 F.3d 1340, 1347 (Fed. Cir. 2008). While technical definitions may often be helpful in understanding a commonly understood meaning, extrinsic evidence is inherently "less significant than the intrinsic record in determining the legally operative meaning of claim language." Phillips, 415 F.3d at 1317 (internal quotation marks omitted). As a result of SFA's failure to examine the intrinsic record, its definition is too broad and unhelpful in understanding the technology. SFA's construction must be rejected.

Conversely, Infor argues that "infer" and all its derivatives (discussed below) are indefinite because they are not specifically defined or discussed in the specification and are open to multiple inconsistent meanings based on the intrinsic and extrinsic evidence. Alternatively, Infor argues that "infer" should be strictly construed in light of the specification to mean "the computerized logical process by which a factual conclusion is derived from known facts by the application of logical rules using the inference engine of an expert system within the event manager." Again, Infor suggests that because the only mention of the word "infer" in the specification is in a description of an inference engine, an inference engine must be attributed to all instances of "inferring" within the claims.

Indefiniteness is a matter of claim construction, and the same principals that generally govern claim construction govern indefiniteness. Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008). "A claim satisfies the definiteness requirement of § 112 if one skilled in the art would understand the bounds of the claim when read in light of the specification." Id. (internal quotation marks omitted). A claim is indefinite only where there is clear and convincing evidence that the claim is insolubly ambiguous, and no narrowing construction can be properly adopted. Id. However, the claim is sufficiently clear to avoid indefiniteness "if the meaning of the claim is discernable, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree . . . ." Id.

In light of these principals, Infor's argument is fatally flawed. A term does not have to be specifically explained in the specification to be understood by one skilled in the art. Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1217 (Fed. Cir. 2003) (finding that though term "computer" never appeared in the specification, those skilled in the art would understand that "computer" was structure to perform the disclosed functions"); Motorola, Inc. v. Analog Devices, Inc., No. 1:03-CV-131, 2004 WL 563737 at *24 (E.D. Tex. June 7, 2004) (Clark, J.) ("In view of the essential agreement between the parties as to the plain meaning of the phrase, the fact that it is not used in the patent specification does not render the term indefinite."). Whenever the term "infer[ring]" appears in the claim, it refers to either an "occurrence of an event," "context," or both. This "inferring" only takes place upon a change in state that is characteristic of some event. Thus, the context surrounding "infer" suggests that "inferring" is a form of event recognition and analysis. This process is disclosed early in the specification as "recogniz[ing] events occurring in the system and determin[ing], on the basis of the event and the context in which the event occurs, what if any other actions or operations should be carried out by the system." S25 Patent at 8:36-39. This is also consistent with the function as it evolved in the prosecution history. Plaintiff's Opening Ex. B, Amendment of Dec. 15, 1997 at 16 (arguing that the prior art fails to teach "event recognition"). Further, the parties agree that the plain and ordinary meaning of the of term is "deriving." The only remaining inquiry is determining the process by which "inferring" is achieved.

Infor uses the ordinary technical definition of "infer" as the backbone of its suggested construction. According to that definition "infer" is a "logical process by which a factual conclusion is derived from known facts by the application of logical rules." "Inference," Free On-Line Dictionary of Computing (2008), http://foldoc.org/index.cgi?query=inference; "Inference, Computer User (2008), http://www.computeruser.com (follow "Dictionary" link, then search "inference"). This definition harmonizes with the specification's description of the "inferring" function as a type of event recognition. Furthermore, the specification provides a detailed description of the functions of the event manager (the structure responsible for "inferring"), both generally and as it relates to particular subsystems. See S25 Patent at 8:34-57. The event
manager is repeatedly described as operating on a set of rules. '525 Patent at 32:13-14, 20-21, 37-40. Thus, one skilled in the art would understand the "inferring" process as a "logical process by which a factual conclusion is derived from known facts by the application of logical rules." Since the meaning of "infer" can be readily deduced by one of ordinary skill in the art, a limiting construction, such as the one proffered by Infor requiring that "inferring" be limited to an embodiment containing an "inference engine," is unnecessary. Infor's indefiniteness objection is overruled.

C. "Information"

The claims of the '585 Patent and the '169 Patent refer to the use in their respective processes of "information" sent by an RFID tag to an RFID reader. Defendants do not contend that the term "information" is ambiguous or has a special meaning as used in the patents; rather, defendants rely on Microsoft to add limitations to the claim, as they argue that "information" should be construed to mean system or process data none of which is actual or real-time temperature measurements. TSI does not believe that any further construction of the term "information" is necessary.

Defendants do not offer any argument or citation to support the requirement that the information be "system or process data." Therefore, the Court rejects that portion of defendants' proposed construction. Defendants instead focus on its proposed limitation that the information cannot include actual temperature measurements.

With respect to the '585 Patent, defendants note that the specification describes the RFID technology as an alternative to photo sensors in determining whether the food container is in place on the heater, see '585 Patent at 6:43-7:32, and describes the information from the RFID tag as relating to the size of the container or the number or duration of trips, see id. at 24:33-53. Thus, defendants argue that the information does not include actual temperature information. Defendants also argue that the '585 specification "teaches away" from the use of actual temperature information to control the heating of the container, and that instead feedback from the RFID tag regarding impedance is used. See id. at 3:4-12, 3:30-45, 14:40-51, 19:12-44. All of these statements, however, relate to embodiments or merely list examples of information that may be sent from the RFID tag. The '585 specification never states that the information from the RFID tag cannot include temperature information; thus, the specification cannot be said to describe the invention as one using information from an RFID tag that cannot include temperature information.

Similarly, with respect to the '169 Patent, defendants cite to a portion of the specification that lists the information from the RFID tag as the identification of the object and the last step performed in the heating algorithm, see '169 Patent at 7:49-53, and they note that temperature information is not included in that list. Defendants also argue that the '169 Patent "teaches away" from using actual temperature to control the heating process, as the specification goes into great detail about how the temperature is estimated by algorithms.

Again, the Court concludes that these citations are not sufficient to support the limitation urged by defendants. The estimation discussion and the list of the types of information in the cited portion of the '169 Patent specification relate to embodiments and not to the invention as a whole. Moreover, in the cited portion, the specification states that the RFID tag should transmit "at least" those types of information--thus, the specification clearly declines to limit the allowable information to those enumerated types. See id. at 7:49-53; see also id. at 3:50 ("typically" the information relates to the object). Indeed, in discussing prior inventions, the Background section of the specification describes how temperature information from the object may be "important," but it is often not sufficient by itself for proper heating control. See id. at 2:47-3:18. Such a description certainly does not mean that temperature information cannot be used along with the additional information that benefits the process. Accordingly, the specifications of the two patents do not provide the requisite description of the invention to support the importation of defendants' no-actual-temperature-information limitation into the claims under Microsoft. 5

--- Footnotes ---

5 TSI also points to a reference in the specification for the '169 Patent to thermal switches in arguing that the patent does contemplate the use of temperature information. In that reference, however, the specification suggests that thermal switches could be used to break a circuit and thus suspend the heating operation when a predetermined temperature is reached. See
'169 Patent at 4:32-43. It did not suggest that the actual temperature could be transmitted by the RFID tag for use in the control process. Thus, the reference to thermal switches does not appear to be relevant to whether defendants' limitation that would preclude the use of actual temperature information is justified.

Defendants also cite to the statements by Mr. Clothier, the inventor, in his '919 Patent and application in which he refers to his prior '585 and '169 Patents as involving systems that do not use actual temperature information. For instance, the '919 Patent itself includes the following statement: "Unfortunately, Clothier [the '585 Patent and the '169 Patent] suffers from a number [of] limitations, including, for example, that it does not employ real-time temperature information from a sensor attached to the vessel." See '919 Patent at 2:62-66. The provisional application for the '919 Patent states: "However, Clothier's system does not employ real-time temperature information from a sensor attached to the vessel, where said sensor information is periodically communicated to the RFID reader/writer." See '919 Patent prov. applic. at 4; see also id. at 6 (noting that one difference from the device in Figure 1 of the '169 Patent is that the subject invention can read real-time temperature information from the RFID tag), 11 (one further capability of the subject invention over the invention in the '169 Patent is that it may read temperature information).

The Court is not persuaded by these citations to impose the urged limitation in claim scope. Defendants have not shown that the '919 Patent is within the same family as the patents at issue here. See Microsoft Corp. v. Multi-Tech Sys., 357 F.3d at 1350 (statements in prosecution of subsequent related patent may not effect estoppel but may be relevant to claim construction). Defendants nevertheless argue (without citation to authority) that statements in a separate patent and its prosecution history might be helpful as extrinsic evidence of the meaning intended by the inventor. "Information" is not an ambiguous or technical term, however; thus, the extrinsic statements here do not provide any evidence from the inventor as lexicographer. Moreover, the inventor's statements about his own invention are not necessarily helpful. See Howmedica Osteonics Corp. v. Wright Med. Tech., Inc., 540 F.3d 1337, 1346-47 (Fed. Cir. 2008) (inventor's understanding of his invention does not equate to an understanding of the patent claims; "inventor testimony as to the inventor's subjective intent is irrelevant to the issue of claim construction"). The statements here do not aid the Court's analysis under Microsoft, as they do not affect whether the subject patents repeatedly and consistently describe their inventions as limited. Finally, defendants have not provided any authority suggesting that an inventor can somehow disclaim or disavow claim scope in subsequent statements, and the statements here do not represent a clear disavowal of claim scope at any rate. See Conoco, Inc. v. Energy & Envtl. Int'l, L.C., 460 F.3d 1349, 1357-58 (Fed. Cir. 2006) (inventor's intention to disclaim or disavow claim scope must be clear from the specification).

For these reasons, the Court rejects defendants' proposed construction of the term "information" as used in the claims of the '585 Patent and the '169 Patent. The Court concludes that no construction of the term is necessary.

C. "Information"

The term "information" appears in all claims for all patents. The term is used in somewhat different contexts. For example, claim 1 of the '511 patent describes using a driver to obtain "first information" about the data structure of a data source by accessing "content of information" stored in a data source, while claim 6 describes using a driver to store "at least some information" from data sources into a database.

Timeline's proposed construction of the term is "facts contained in or describing some or all of a data source." ProClarity's proposed construction is "interpretation of data when seen in context so as to convey meaning."

Timeline's proposed construction of "information" is consistent with the use of the term in the patents and is broad enough to accommodate the different contexts in which the term is used. When the term is used to describe obtaining "first information" about the data structure of a data source, the ordinary meaning of the term would be obtaining facts that describe a data source. When the term is used to describe storing at least some "information" from data sources into a database, the term must be read to include facts contained in a data source.
To be sure, construing "information" to include "facts contained in . . . a data source" would effectively give the term a meaning that is synonymous with the term "data." However, as discussed above, the terms "information" and "data" are often used interchangeably in the patents. In addition, Timeline points to dictionary definitions that define the terms "information" and "data" as synonyms or as interchangeable words. See, e.g., Computer Desktop Encyclopedia (1981-2005) ("Information is the summarization of data. Technically, data are raw facts and figures that are processed into information, such as summaries and totals. But since information can also be the raw data for the next job or person, the two terms cannot be precisely defined and both are used interchangeably"); Webster's New Universal Unabridged Dictionary (1996) (listing "data" and "facts" as synonyms of "information").

By contrast, ProClarity's proposed construction -- "interpretation of data when seen in context so as to convey meaning" -- is strained and unduly narrow. This proposed construction would not accurately reflect the meaning of "information" as it is used throughout the patents, such as when it is used to describe information stored in a data source. ProClarity argues that because Timeline chose to use two different terms ("information" and "data") in its claims, a different meaning must be ascribed to each term. See CAE Screenplates, Inc. v. Heinrich Fiedler GMBH & Co., 224 F.3d 1308, 1317 (Fed. Cir. 2000) ("In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings."). However, two different terms may be construed in the same manner when they are used interchangeably by the patentee. See, e.g., Tate Access Floors v. Maxcess Techs., 222 F.3d 958, 968 (Fed. Cir. 2000). As discussed earlier, there is ample evidence that the term "information" was often used interchangeably with "data" in the patents.

Therefore, the court construes the term "information" to mean "facts contained in or describing some or all of a data source."

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D. "Information" means "Anything that Can be Represented in Electronic Form, Including Text, Sound Recordings, and Images."

Claims 1, 3, 6, 11, 17, and 19 use the term "information." The ordinary meaning of this term is readily apparent, so much so that the best definition the court can give is a tautology. "Information" means "information." Digeo's proposed definition, "anything that can be represented in electronic form, including text, numbers, sound recordings, and/or visual representations," follows the ordinary meaning and adds the limitation that the information be of the sort that one can represent in an electronic format. Audible does not argue that the ordinary meaning of the term is different, but insists that the patentees limited the claimed "information" to "content that is obtained from a publisher and that is visually perceived by a user." Audible's proposed construction presents two questions for the court: whether the invention covers only information that a user can see, and not information that a user can hear; and whether the claimed "information" is solely information that comes from a content publisher?

1. Did the Patentees Limit Their Claims to Visual Information?

The specification contradicts Audible's claim that the 823 Patent covers only visually perceptible information. In describing the "Book Bank" unit in the system, the inventors explained that "[a]lthough the term Book Bank may imply book-type' material, such term is not so limited. The material may be of many types, such as movies, music, video, audio, and computer software material." 823 Patent at 2:37-42. Nothing in the remainder of the specification suggests that the inventors reversed course and limited their invention to visually perceptible information. n6

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

n6 Although it is not dispositive of the issue, the court notes that the end user device that the 891 Patent covers contains a set of headphones. 891 Patent, Figs. 1-2. Headphones would be an unusual accessory if the patented system from which the device is to obtain information did not transmit information that a user could experience audibly.

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Again, Audible relies on the prosecution history to provide what the specification does not. In a December 1995 pro se communication, Mr. Saigh stated that his invention "relates to the transmission, storage, and encryption of the software instructions and codes that will generate a visual image upon the monitor of the user reading device . . . " PH at 500-585.

Had Mr. Saigh been distinguishing his invention from a prior art reference relating to audible information, the court might accept his statement as evidence of a surrender of claim scope. Instead, he was distinguishing a reference that described a "Visual Interface for Retrieval of Electronic Formed Books." PH at 500-584. Audible also notes that Mr. Saigh described his invention as a "network designed for the electronic transmission of intellectual properties . . . to one or more end users with the data to be viewed by the user. . . ." PH at 500-586. Once again, Mr. Saigh was distinguishing his invention over a reference describing electronic books, PH at 500-585, leaving the court with no basis to conclude that he was disclaiming coverage for non-visual information.

2. Did the Patentees Limit Their Claims to Information Acquired from Publishers?

The 823 Patent contains countless references to information of many types. One type is the media content (i.e., the "movies, music, video, audio, [or] computer software material" disclosed in Column 2) that publishers provide for distribution over the patented system. Another type is transactional information, including information related to the number of times a user copies an item on the network (e.g., Claim 7), information related to the length of time in which a user accesses an item from the network (e.g., Claim 14), and "information related to transactions performed by" the first unit of the local unit (Claim 11). Still another type is information stored on the user's storage media that assists in encrypting information. Claim 3 (disclosing a "local unit further configured to utilize information stored on the electronic storage media to encrypt information").

Each of the foregoing examples illustrates that when the patentees wished to limit "information" to information of a particular type, they did so by including explicit language in the claim. Where claims cover solely transactional or encryption-related information, the limitation is unambiguous. But in discussing the "information" to be sent from the network to the user's storage media, the patentees included no restriction limiting that information to information obtained from the publisher. For that reason, the court finds no basis for limiting the generic term "information" to information that comes from a publisher. See Johnson Worldwide, 175 F.3d at 989 ("[M]odifiers will not be added to broad terms standing alone.").

For the foregoing reasons, the court construes "information" to mean "anything that can be represented in electronic form, including text, sound recordings, and images."
dimensional directions.

The Court finds that the specification uses the terms "information" and "data" interchangeably. As the Federal Circuit has recently reaffirmed, the specification is the single best guide to the meaning of a disputed term. Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331 at *7 (Fed. Cir. 2005) (citing Vitronics Corp. v Conceptor Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).) Moreover, this result is confirmed by common usage. Merriam-Webster's online dictionary defines "information" as "facts" and "data," Merriam-Webster Online Dictionary, available at www.merriam-webster.com. At least with respect to these terms, this would appear to be a case where "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges," a setting in which "general purpose dictionaries may be helpful." Phillips, 415 F.3d 1303, 2005 WL 1620331 at *6. While "information" and "data" are interchangeable, both are equally subject, of course, to the noted storage and correlation limitations. n2

With regard to Meade's second request, that the term "data" be construed to include positional information developed by a calculation, the Court finds that such a construction is precluded, at least in part, by the identified limitations: capability of being stored in a database and correlated with three-dimensional directions. Under these limitations, the terms information and data in the '203 Patent may include the precise area of the sky, or three-dimensional direction, that a user is viewing, the exact coordinates of stars that the user may desire to view, again three-dimensional directions, and whether the three-dimensional direction a user is viewing matches the three-dimensional direction of a star that the user desires to view. The Court, however, cannot agree that the terms data and information as used in the '203 Patent covers real-time calculations about the precise relationship between the direction a user is looking and the direction a user would need move so as to place the desired stars in the field of view. Such calculations, while perhaps drawing upon data, or three-dimensional coordinates, located in the database, produce unique results each time they are run based upon many factors, including where a user is standing on the earth, the angle at which he or she is holding the device, etc. Accordingly, such results, and any directional guidance that may stem therefrom, do not constitute data or information that is capable of being stored in a database or organized by three-dimensional directions. n3 The Court, therefore, must reject Meade's proposed construction insofar as it seeks to construe these terms to include such calculations, their results or any directional guidance stemming therefrom.

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Meade also challenges the district court's construction of the term "data." The crux of the dispute over that term is whether directional arrows that guide a user to a selected object, when the device is operated in the find mode, constitute "data," as that term is used in the '203 patent. The directional arrows are overlaid on the field of view in Yamcon's device so that they are "simultaneously presented to the user as the user observes the field of view." Thus, if directional arrows constitute "data," Yamcon's device would meet the disputed limitation.

Meade argues that directional arrows constitute "data," as broadly defined, and that the district court erred by concluding that the claims use the term in a narrower sense. The problem with Meade's argument is that the claims and the specification make it clear that the claim is referring to a predetermined set of data that has been entered into the device's database, not...
merely to any abstract bit of data in the broadest sense of the term.

The disputed limitation in claim 1 refers to "the provided data." The antecedent basis in the claims for that "provided data" requires that it be taken from a database "containing data about the predetermined subject [i.e., celestial feature], the data being arranged in said database to be correlated with three-dimensional direction." Claim 15 contains a similar antecedent basis for "data." Thus, the word "data" in claims 1 and 15 refers to a preselected set of information that is entered into the database about predetermined celestial features and is then provided to the user during operation of the device.

The specification provides several examples of such data, including "such information as the equatorial coordinates of the [celestial] object, its apparent magnitude, and a label for the object." '203 patent, col. 5, ll. 65-67; see also col. 2, ll. 21-27 (discussing an embodiment that displays graphic representation and labels for prominent astronomical features); col. 11, ll. 39-47 (noting that a potential data display might read "The bright star is Betelgeuse in the constellation Orion"). Thus, as used in claims 1 and 15, the word "data" refers to preselected facts about celestial features that can be stored in the device's database and then presented to the user when the user views that particular celestial feature.

In Yamcon's device, neither the directional arrows nor the information that they represent (i.e., the direction from the user's current field of view to the relevant celestial feature) is part of any preselected set of data that is stored in the database. Rather, the directional arrows are purely the result of dynamic real-time calculations. Moreover, the claims require that the data be "about features of the subject visible in the field of view," those "subjects" being "predetermined." When Yamcon's device displays directional arrows, the only information those arrows convey is that the targeted celestial object is in the current field of view or that the device must be moved in a particular direction to put the object in the field of view. It strains the ordinary meaning of the phrase to say that such information is information "about features of the subject visible in the field of view," and it is contrary to the meaning of the phrase as used in the '203 patent.

Meade points out that all of the information displayed on the screen of the patented device is in a sense the product of calculations, just as Yamcon's directional arrows are the product of calculations. Thus, in order for the device to display the relevant educational fact (e.g., "This is Saturn, the sixth planet from the Sun"), the device must perform calculations to match the three-dimensional location of the field of view with the location of the relevant celestial object (e.g., Saturn). For that reason, Meade argues, it is inappropriate to exclude the arrows from the definition of "data" merely because the arrows are the result of calculations. That argument, however, obscures a critical distinction. In the case of matching Saturn with the field of view, the calculations involve determining which data to pull from the database by ascertaining the direction the device is pointing. The data that is ultimately displayed is information that is stored in the database about the target celestial object. Yamcon's directional arrows, on the other hand, are purely the result of a real-time calculation. They are not data that is preselected and stored in the database, and they are not "about" the target celestial object in the sense referred to in the specification. Based on that distinction, the district court correctly ruled that the directional arrows in Yamcon's device are not "data" within the meaning of claims 1 or 15.

As an alternative ground for affirmance, Yamcon argues that its SkyScout device does not meet the claim requirement that the reference data that is presented to the user must be automatically updated to correspond to where the device is being pointed. The district court found it unnecessary to address that issue, and for the same reason we decline to do so. In addition, although the district court addressed and rejected Meade's argument of infringement under the doctrine of equivalents, Meade did not raise that argument in its opening brief, and we therefore treat that argument as waived. See SmithKline Beecham Corp. v. Apotex Corp., 439 F.3d 1312, 1319 (Fed. Cir. 2006); Amoco Oil Co. v. United States, 234 F.3d 1374, 1377 (Fed. Cir. 2000).
transmitted data"

The Court finds that claim 53 of the '702 patent requires that "first information:" (i) is related to communications between the SPNAN and a user at a first network accessible node; (ii) is stored on the first network accessible node so that it can be used on subsequent network connections; and (iii) is utilized in subsequent network communications between the SPNAN and the first network accessible node. Claim 53 also requires that "first responsive information" (i) indicates the presence of the "first information" on the first network accessible node and (ii) identifies the first user. Claim 53 also requires that the "first information" is sent to the first network accessible node from the SPNAN and that the "first responsive information" is sent to the SPNAN. Unasserted claim 8 of the '702 patent, dependent upon a different independent claim, recites that the "first information" includes executable instructions for receiving advertisement information via the network." The Court finds that the patentee did not use the term "program" or "instructions," and instead used the broader term "information." The Court finds that Defendants' proposed construction to limit "first information" to a "computer program, such as a daemon" would improperly limit "first information" to an example in the specification. Further, the Court finds that the term "information" is clearly broader than Defendants' proposed construction and there is no support in the specification of the claims for limiting the term to Defendants' proposal. Beneficial has provided dictionary definitions of the term "information" of "processed, stored, or transmitted data" and "computer data at any stage of processing." Further, the parties agree that "advertising related information" means "advertising data that is processed into the advertising presentation," implying that information, by itself, is a type of data that is processed or can be processed. Thus, the Court construes the phrase "first information" to mean "first data that can be processed."

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4. "creating a database entry containing information accepted from a user" (claim 7)

This term also incorporates the court's first two claim constructions. Plaintiff argues that the term means "an entry in a database is created containing information submitted by a user over a computer network." Defendant argues that the term should be construed to mean "creating a database entry containing information accepted from a user in which the content is entirely user-controlled." For the reasons previously addressed, the court construes this term to mean "creating a database entry containing information accepted from a user over a public computer network wherein the information content and classification is entirely controlled by the user."

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"Information bearing optical signal" means "an optical signal which has been coded with any type of information; any optical signal that has been modulated constitutes an information bearing optical signal."

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XI. "information block" -- '051 patent

The disputed claim term "information block" appears only in the '051 patent. The parties propose constructions of "information block" as follows:

<table>
<thead>
<tr>
<th>Lexar's proposed construction:</th>
<th>Toshiba's proposed construction:</th>
<th>Pretec's proposed construction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>initial construction:</td>
<td>an amount of data logically</td>
<td>an individually erasable unit</td>
</tr>
<tr>
<td>data organized into units of</td>
<td>associated with a host</td>
<td>of data that may be larger than</td>
</tr>
<tr>
<td>blocks</td>
<td>provided LBA</td>
<td>one sector in size</td>
</tr>
</tbody>
</table>

compromise construction offered

- 2541 -
The invention contemplated in the '051 patent links, using an LBA, already-programmed sectors that have been designated for erasure into a single "information block" so that the ready-for-erasure sectors can be erased together. The parties propose three separate constructions for this claim phrase and here, the Court finds that a combination of the three proposed constructions best defines the term at issue here.

As Lexar points out, Toshiba's proposed language "an amount of data" adds nothing to the construction of the claim phrase because the amount of data is simply not at issue. Furthermore, the construction of "information block" need not explain that the LBA is provided by a host. To do so is unnecessary as it is made clear by surrounding claim language as well as in the construction of LBA itself. Pretec's proposed construction is a better fit because an "information block" is made up of sectors that contain data to be erased. But as Lexar points out, Pretec's construction can equally encompass a mere "block." The portion of Pretec's construction that accounts for the information block's erasability should be included but the rest of the proffered construction does not accurately define the term.

The Court now turns to Lexar's proposed construction. Lexar initially proposed that the claim phrase "information block" should be construed as "data organized into units of blocks," but at oral argument, Lexar offered a compromise construction: "a plurality of sectors that are logically associated with a group of LBAs." The Court agrees with Toshiba that Lexar's original proposed construction provides no meaning. (Claim Construction Hearing Transcript at 105.) However, Lexar's compromise construction deserves further scrutiny even though neither Toshiba nor Pretec directly addressed it at oral argument. The proposed compromise construction accounts for the portions of data included in the information block and explains how they are linked to one another. Lexar's proposed construction is better in that regard. However, Lexar's construction does not account for the erasability of the "information block." Because the purpose behind the organization of such a block is erasure, it would appear significant to include this limitation in the construction itself as well, as Pretec does. The Court finds that Lexar's proposed compromise construction, with the erasure function added in as discussed supra, works best. The Court therefore construes "information block" as a plurality of sectors that are logically associated with a group of LBAs for erasure.

1. "Information-carrying symbol(s)" (Claims 1, 7)

Neither of the parties claims that the phrase "information-carrying symbols" had a customary meaning in the field of OFDM technology at the time this patent was filed and neither purport to have found the phrase "information-carrying symbol" in a dictionary. 12 Accordingly, the Court looks to the intrinsic evidence, beginning with the claim language itself. See Vitronics, 90 F.3d at 1382.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

12 At the Markman hearing and in post-Markman briefing, Broadcom proffered the deposition testimony of Dr. Richard van Nee, the sole inventor of the '786 patent. (Broadcom's Submission of Requested Information at 4-6.) In his deposition, Dr. van Nee claims that the term "information-carrying symbol" did have a customary meaning to a person of skill in the art at the relevant time and that, in a "pure technical sense," that meaning excludes preamble symbols. (van Nee Dep. at 156, 159-60.) As two persons of skill in the art have testified that this term did not have a customary meaning and in the absence of a dictionary or other evidence supporting Dr. van Nee's testimony, the Court finds that this phrase did not have a customary meaning to a person of skill in the art at the relevant time. E-Pass Tech. v. 3Com Corp., 343 F.3d 1364, 1370 n.5 (Fed. Cir. 2003) ("This Court has often repeated that inventor testimony is of little probative value for purposes of claim construction."); see also Markman, 52 F.3d at 985 (noting that inventor's opinion regarding meaning of claim term is not accorded any added weight in claim construction).
The descriptive phrase "information-carrying" modifies the word "symbol" in the claim language. The parties' disagreement concerns how this modifying phrase limits the meaning of "symbol." Agere contends that the phrase "information-carrying" distinguishes between symbols and guard intervals. 13 (R. at 98 (May 7, 2004).) According to Agere's expert, Dr. Goodman, the term "symbol" alone may refer to both the guard time and the informational portion of the symbol together or to the informational portion of the symbol alone. (Goodman Rep. P 58.) Therefore, the prefix "information-carrying" was added to the term "symbol" in this patent to narrow the patent's reference to the informational portion only. (Id. P 58.) Dr. Goodman's argument, however, is belied by the claim language itself. Claim 1 describes a transmission scheme "wherein a guard time is interposed between successive ones of said information-carrying symbols." ('786 patent, col. 4, ll. 59-60.) As the claim language explicitly distinguishes between symbols and guard times, Agere's construction would render the "information-carrying" modifier superfluous. Thus, the phrase "information-carrying" could not have been intended to alleviate the ambiguity Agere suggests.

13 Guard intervals do not carry information that is used and therefore are purposefully ignored by the receiver. (Agere Opening at 41-42.)

According to Broadcom's expert, Dr. Cox, the phrase "information-carrying" is used to distinguish between the data portion of the transmission and preamble symbols. Preamble symbols are symbols sent by the transmitter before the data, or "payload," portion of the transmission. They consist of known symbols, based on a mathematical equation set out in the 802.11a standard, that are used by the receiver to discern characteristics of the communication channel. (Goodman Rep. P 54-55; R. at 95 (May 7, 2004).) The transmitter sends the preamble symbols to the receiver, which runs an algorithm that generates the same preamble symbols internally and then compares those generated symbols with the received symbols in order to discern whether the preamble was distorted as it traveled through the communication channel. (Goodman Rep. P 54-55; Cox Dep. at 76; R. at 92-95 (May 7, 2004).) Once the receiver has determined whether there are distortions in the channel, it takes that distortion into account when evaluating subsequent receptions. (Broadcom Resp. at 43.) With this background in mind, Dr. Cox bases his construction on a technical dictionary's definition of the term "information," which is "knowledge or intelligence unknown to the receiver before its receipt." 14 (Cox Rep. at 41-42 (citing Cambridge Dictionary of Science and Technology).) Because the preamble portion of the packet only contains known values used to discern the characteristics of the channel, and because "information" is "unknown to the receiver before its receipt," Dr. Cox concludes that it is axiomatic that the phrase "information-carrying symbols" does not include the preamble. (Id. at 42.)

14 In support of its opposing construction, Agere cites the Academic Press Dictionary of Science and Technology definition: "data that are transmitted by signals via telecommunication channels." ACADEMIC PRESS DICTIONARY OF SCIENCE AND TECHNOLOGY 1107 (Christopher Morris ed., 1992). This definition, which defines information as data, appears to support either party's proposed construction.

The Court finds that Broadcom's proposed construction for the modifier "information-carrying" is consistent with the technical dictionary definition noted above and, unlike Agere's proposal, is also consistent with the use of the term in the claim language. Therefore, Broadcom's construction is adopted, with the exception of the reference to "packet," which is omitted for reasons described in the next section. See infra Part II.C.2. Accordingly, the following construction is adopted:

"Symbol(s) containing data, but not preamble symbols."
Claim Construction

Chesapeake, as cross-appellant, contends that the district court erred in its construction of the claims of the '951 patent. Claim construction is a matter of law which this court reviews without deference. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2d (BNA) 1169, 1174 (Fed. Cir. 1998) (en banc). In its Markman ruling, the district court correctly interpreted "strata in the earth" and "said strata" to mean identifiable and distinguishable layers of material (e.g., rock) beneath the surface of the earth. Union Pac. Res. Co. v. Chesapeake, 4:96-CV-726-Y, slip op. at 7 (N.D. Tex. Nov. 30, 1998, Order Granting In Part Defendants' Motion for Claim Interpretation Based on Intrinsic Evidence) (Markman Motion). The court also correctly interpreted "information characterizes said strata," "characterizing information of said strata," and "characterizing information" to mean data produced by logging methods conventional in the industry. These conventional methods permit identification of distinguishing characteristics between layers of rock beneath the surface of the earth. Markman Motion at 7-8. In particular, these phrases can refer to information such as: (1) an X offset (east/west coordinate); (2) a Y offset (north/south coordinate); (3) a true vertical depth (TVD) or Z offset; and (4) a value from a gamma ray log. '951 patent, col. 2, ll. 5-8; col. 5, ll. 47-56.

"Information database." Used in claims 1, 2, 7, 10, 16, 17, 22, 25, 37, 39, and 44.

For this term, Finisar initially proposed "a collection of information" and gave some examples. n2 DirecTV suggested "[a] collection of non-transient data files that can be searched and retrieved." Their dispute centered on two points:

1. whether the data can be in several locations or must be "non-transient;" and
2. whether the definition must specify that the data can be "searched and retrieved."

Since the claim language alone does not resolve this dispute, the court looks to the specification.

n2 By itself "collection of information" is not very useful. Data which has been deleted from a hard drive is a collection of information, which a forensic expert could retrieve if it has not been overwritten. But it would not be considered part of a database.

The specification demonstrates that the database is not isolated. "The goal of the present invention is to provide widespread, high speed access to a virtual omniscient database . . . ." 505 patent, col. 1, 11. 54-56. (emphasis added); see also, col. 5, 11. 12-13. The specification analogizes the system to "having access" to a large collection of books in a library, even if all books are not instantly available. 505 patent, col. 2, 11. 17-23. All of the information in the database is tagged with indices to form a hierarchical structure to provide subscribers with access to various parts of the database according to different transmission schedules. 505 patent, col. 2, 11. 52-59. Accordingly, the information database is computerized information which can be accessed in some fashion.

There is no need to impose the limitation of "searched and retrieved" which implies a more specific search and retrieval system than the claims and specification describe. Nothing in the claim or specification indicates that the database must be searchable to any particular level of specificity. For example, common legal research systems allow very narrow searches, such as by case name, by judge name, and even by a particular word. In contrast, some of the data in the 505 system can only be referenced in broader terms, such as a search for a movie by title, but not necessarily by words used in a movie or group of movies.

As to the argument that the data in the database be "non-transient," it is important to note that one skilled in the art would know that computerized information is made up of electronic impulses -- the classic "ones and zeros" of the binary system. It would also be known that a database could exist on a network of computers and memory storage devices. This is
described as a possible embodiment. 505 patent, col. 6, 11. 61-64. Moreover, the use of the phrase "non-transient" will likely not be helpful to a lay jury. It is not helpful to focus on the time period during which data is being sent from the supplier station to the satellite and then to the subscriber station, as shown in Figure 1 of the patent.

This claim term will be construed as follows:

"information database" means "a collection of computerized information which can be accessed."

A. "Information Database."

The phrase "information database" was recited in each of the independent claims. By way of example, claim 16 recited in part (col. 21:34-50):

16. An information transmission system comprising the steps of: storing an information database on one or more memory devices; generating and storing on said memory devices a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and embedding said indices in said information database;

scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database one or more scheduled transmission times;

transmitting a stream of data packets containing said selected portions of said information database in accordance with said scheduled transmission times;

* * *

Comcast contends that this term should mean "a non-transient and integrated collection of data, organized so that the collection can be searched." By "non-transient," Comcast means that the information must persist for some amount of time in the database. Finisar argues that it should be construed as "a collection of computerized information which can be accessed." Finisar's proposed construction was adopted by the Texas claim construction decisions. 1

--- Footnotes ---
1 The Texas Court construed the term "information database" to mean "a collection of computerized information which can be accessed" (Melgar Decl. Exh. B at 6).
--- End Footnotes ---

Both parties agree that this term indicates some grouping of data. Lay jury members would understand the term "information," and also that a "database" is stored in some fashion. This much is clear. The parties, however, part company on three issues: (1) whether the information database stores only digital or "computerized" information; (2) whether information on the database may be transient or if it must persist for some time; and (3) whether the information database must be integrated and searchable.

(1) Digital Information.

A "database" is defined as "a structured collection of data held in computer storage." Oxford English Dictionary (2d. ed. 2001). All the claims indicated that the information is stored electronically, for instance, in a computer memory device. All sides agree that the format must be digital rather than analog.

The substance of the dispute seems to be over whether the information must be "digital," as Comcast proposes, or "computerized," as Finisar proposes. The plain meaning of the whole disputed term "information database" clearly indicates that the information is stored by a computer. Thus, using the word "computerized" adds little to the term's definition. The
term "digital" or "digitized" is sufficient to make clear that the information is not stored on the database in analog form. This order will define "information database" to mean "a structured collection of digitized data capable of being held in computer storage."

(2) Dynamic Database.

Comcast would require that the information within the database be "non-transient" while Finisar would include "transient" information. Comcast's argument seems to be that while the information within the database can be updated frequently, the information must exist in a fixed location. Finisar concurs in the idea that the database can be updated frequently, but would not require that the information exist in a fixed location. This order holds that the database can be dynamic, that is, the information within the database can be updated frequently even though the changed information is placed in the same storage location within the database as the replaced information.

In the specification, the patentee analogized his invention to the stacks of books of Widener Library at Harvard (col. 2:9-23). Both the books in a library and a database can be updated. Even a traditional set of encyclopedias in book form is updated from time to time. A librarian replaces the older set with a newer version. In the same way, a subscriber to the inventive system may want to have the latest score of the Final Four basketball games. This information would be updated very frequently. At one time, the score may be tied. Less than a second later one team may have pulled ahead by a three-point shot. The information in the database can be dynamically updated as events happen, and the new information can be sent to the subscriber. The data can be found, at any given instance, at the same location in the database, stored temporarily, for example, under a subheading called "Final Four."

This concept of a dynamic database finds support from the specification. It taught that the "basic service provides unlimited access to a base set of information, which in the preferred embodiment is about fifty gigabytes of public service information such as newspapers, weather reports and the like that are updated frequently" (col. 4:5-10). Thus, the information in the database can be dynamic.

Again, even if frequently updated, the information can still exist in the same location. Returning to the patentee's analogy, even though a book at Widener may be updated, it is still placed in the same aisle within the same stack. It is also accessible through the same catalog. In the patented system at issue here, the updated information is accessible in the same indices used to find information. This is so because even though the information may have changed, the place that the system finds it has not.

Finisar also argues that data within the database need not have a fixed location. This is correct, at least as follows. The index itself can be (but need not be) dynamic. For example, as each issue of a magazine is released, a new sublocation in the overall index can be added to isolate and refer to a single magazine issue. In this way, the current issue as well as past issues of the magazine can be found. The new, updated index can be transmitted as root information to subscribers. Depending on the subscriber's needs, the local filter system may or may not have to be adjusted in the subsection to pluck the new subindex from the transmission. Thus, the database may be dynamic not only as to the contents but also as to the indices.

(3) Integration and Searchability.

The parties also disagree as to whether the information database must be integrated and searchable. Both parties do agree, however, that the information database need not exist on a single device or in a single place. The claims provide support. Claim 1 recited "[a]n information transmission system comprising a set of one or more computer memory devices on which is stored an information database" (col. 17:68-18:2). The same limitation appeared in the first paragraph of all independent claims.

Comcast and Finisar part company on the degree to which data on the one or more computer memory devices must be integrated. Comcast contends that it must all reside within the same hierarchical structure. The specification taught that "[t]he system has a program supplier which stores an information database and tags all the information in the database with indices so as to form a single hierarchical structure which encompasses the entire database" (col. 2:52-56). Furthermore, the patentee analogized his invention to a large university library (col. 2:14-23). A single, expansive library collection may be so large that it is stored in several buildings, but it is still organized and accessible using a centralized system. Thus, the database must be integrated, that is, it must be accessible using a single structure.
Comcast contends that the information database must be "searchable," while Finisar contends that the information database must only be "accessible." Finisar's contention follows logically from the invention's purpose of sending information to subscribers. The idea that the information database is "searchable," however, is a larger leap. The claims specifically recited a system of indices embedded within the information database. The indices tag parts of the database so that those parts can be referenced. In claim 28, the indices are used to cross-reference the information, while in claim 16, asserted in this action, the indices are used to reference the information. Neither claim indicates that the information should be "searchable" beyond the navigability implied by the index itself.

Comcast further argues that the invention contemplates a system in which subscribers may request information. This is true. The requests, however, are not "word searches" a la Westlaw or LexisNexis. Rather, the requests are based on the system of indices. Thus, there is no basis to impose the additional limitation of "searchability" to this disputed term.

Accordingly, the term "information database" is construed as "a dynamic, structured collection of digitized data capable of being held in computer storage."

8. "information describing the associated/selected attraction"

The Plaintiff proposes that this phrase be construed generally to mean "data representing at least one characteristic of any aspect of the associated attraction." The Defendants contend that "information describing the associated/selected attraction" means:

Preset static information, such as attraction's capacity, throughput, description of the attraction, height and weight requirements for patrons, geographic location, hours of operation, cycle capacity, estimated throughput, estimated downtime, nominal staff; or dynamic information such as current status, current throughput, current staff, today's throughput, and today's downtime for a particular attraction selected on the user interface of the PCD and specified in the Attraction ID of the reservation request generated by the PCD.

The Plaintiff argues that this construction improperly imports specific types of information about the attraction that are not required by the claim language or specification.

The Defendants' construction mirrors a portion of the specification that discusses the system architecture, and the attraction computer in particular. Although that section describes various implementation embodiments of the attraction computer, the specification makes clear that "[e]ach attraction computer maintains information describing the associated attraction." (col. 5, ll.33-34.) The specification explains that the information maintained in the attraction computer includes "general static information such as the attraction's capacity, throughput, description of the attraction, height and weight requirements for patrons, geographic location, hours of operation, and the like." (col. 5, ll. 34-38.) The specification further states that the attraction computer "maintains information describing the current state and reservation status of the attraction." (col. 5, ll. 38-40.) In a later section, the specification describes examples of static and dynamic information associated with the attraction that are used in scheduling reservations. (col. 11, l. 18 to col. 12, l.3.) The specific types of information listed in this section, such as operating hours, cycle capacity, and current status, are "merely illustrative" of attraction information that may be stored. (col. 12, l. 8.) However, it is apparent that attraction information should include some type of static and dynamic information. Therefore, modifying the Defendants' proposed construction, the Court construes "information describing the associated/selected attraction" to mean "preset static information, such as cycle capacity, estimated throughput, and operating hours, and dynamic information, such as current status and current staff, for a particular attraction."
Claim 19 discloses a method for storing in the transmission system, "information from items" in a compressed data form. The parties dispute the proper construction of the phrase "information from items."

Given the Court's previous construction of "items containing information," the Court defines "information from items" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, "information from items" refers to audio information, video information or both audio and video information, which is derived by the transmission system from a physical item such as a tape, a film, or a computer storage disk.
As Plaintiff points out in his reply, the inventor does not need to "delineate all aspects of a functional, working system." Pl. Reply at 12 (citing Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1303 (Fed. Cir. 1999)). The text of this claim does not require specific account identification. Moreover, the information required need only be "for identifying," not "that identifies." The Court construes the term to mean, "information that is used to identify an account of the first/second party."

b. "Information Identifying" (Claim 18)

The disputed limitation at issue in claim 18 of the reissued '121 patent recites: "storing information identifying the selected programs, said stored information identifying broadcast schedule times, channels, and program titles." Re'121 patent, col. 5, ll. 25-27. The parties principally dispute whether "information identifying" should require storage of actual data, and if not, whether program titles must be separately stored.

(1) Actual Data or References to Data

Based on the plain claim language, the ITC construed "information identifying" to be broadcast schedule times, channels, and program titles, and further required "that this information is stored after the data processor selects the programs on the basis of combined user selection criteria." FID Opinion 2002 ITC LEXIS 812 at *107. Thus, the ITC rejected Gemstar's arguments that "information identifying" could include an address or software pointer to the broadcast schedule times, channels, or program titles data. Id.

Citing to definitions of "information" and "identifying" in Webster's Ninth New Collegiate Dictionary (1988), Gemstar argues that the ordinary meaning of "information identifying" is data that can establish the identity of the relevant times, channels, and titles of selected television programs, encompassing software pointers in addition to the actual data. Gemstar argues that the ITC's construction, which required the storage of actual data, was nonsensical and inconsistent with similar language in claim 57 of the '121 patent, which used the word "comprising" in place of "information identifying," to indicate the storage of actual data.

Scientific-Atlanta argues that Gemstar's proposed ordinary meaning is incorrect, because the ordinary meaning of "identify" is "to establish the identity of," which is not reflected in Gemstar's construction, "data that can establish the identity of the relevant times, channels, and titles." Further, Scientific-Atlanta contends that Gemstar's proposed construction that "information identifying" encompasses software pointers is misleading and conflicts with the prosecution history. According to Scientific-Atlanta, Gemstar's "pointers" are not limited to software pointers, but could include time and channel information that could be used to retrieve program titles from a schedule.

The claim language calls for the storage of "information identifying the selected programs, said stored information identifying broadcast schedule times, channels, and program titles." Re'121 patent, claim 18. The construction of this limitation turns on the meaning of the term "information identifying." "Information" is defined as "facts or figures ready for communication or use as distinguished from those incorporated into a formally organized branch of knowledge: DATA." Webster's Third New International Dictionary 1160 (1993). "Identifying" is defined as "to link in an inseparable fashion: make correlative with something." Id. at 1123. Thus, the ordinary meaning of storing "information identifying" broadcast schedule times, channels, and program titles is the storage of data that can be linked or correlated with broadcast schedule times, channels, and program titles. "Information identifying" is not limited to the storage of the actual broadcast schedule times, channels, and program titles data, but includes storage of either the actual data or references to the actual data, such as addresses or software pointers.

The written description does not restrict "information identifying" to the storage of actual data supplied by the user. The '121 patent describes the broadcast of "schedule information" to the television receiver, conversion to digital format, and supplying the digitized information to the CPU. See '121 patent, col. 7, ll. 33-46. Then:

The CPU 110 supplies control outputs, based on user selections, to a programmable TV tuner 132 on line 134.
Information identifying programs selected from the schedule information on the basis of the user selection criteria is stored in memory 111 by the CPU 110. The CPU retrieves the information at the appropriate time for generating the control outputs.

Id. at col. 7, ll. 60-66 (emphasis added). Thus, even in the embodiment presented in the '121 patent where "information identifying" is stored in memory, there is no additional requirement that only actual data is stored. Instead, references to the actual data could be stored and used by the CPU to look up the actual data in order to generate control outputs.

(2) Separate Storage of Program Title

After reviewing the prosecution history, the ITC held that "information identifying" must include program titles because Gemstar had repeatedly distinguished prior art on that basis. FID Opinion 2002 ITC LEXIS 812, [slip op.] at 52-55.

Scientific-Atlanta argues that the ITC's claim construction correctly requires the storage of television program titles. It argues that Gemstar is estopped from arguing otherwise, because it repeatedly argued during prosecution that claim 18 required storing program titles in addition to times and channels to overcome prior art that only required the storage of times and channels.

As the ITC correctly recognized, the prosecution history requires that "information identifying" must include the separate storage of program titles. During reexamination, Gemstar amended claim 18 to include the language, "said stored information identifying broadcast schedule times, channels, and program titles." Supplemental Amendment After Final, Feb. 25, 1993, at 7. When submitting this amendment, Gemstar referenced its prior arguments that the current claims were distinguishable over prior art systems that did not require storage of program title data:

In response to earlier arguments that claims require schedule information including program title to be stored for selected programs, the Examiner only argued that the term "schedule information" was not defined so as to require program title.

Several claims have been amended to specify the storage of program title for the selected programs and are thus believed to be allowable. As previously noted, prior art systems simply program the VCR with channels and times for selected programs; information identifying the title was not stored.

Id. at 23 (emphasis added). This statement makes clear that "information identifying" must separately reference program title, since prior art systems included storage of only broadcast schedule times and channels. Because the storage of "information identifying . . . broadcast schedule times, channels, and program titles" in claim 18 requires storage of the actual data or references to such data, each category of data must be actually stored or have its own separate reference (e.g., software pointer or address). In other words, this limitation is not met if the "information identifying" program title is derived from the storage of "information identifying" broadcast schedule times and channels. Storage of the "information identifying" program title must be storage of the actual title itself or a reference directly indicating where the stored actual program title data may be found.

In short, "information identifying" includes the storage of either the actual "broadcast schedule times, channels, and program titles" data or separate references, such as addresses or software pointers, to the location of the actual data. If references are used, there must be separate references for the broadcast schedule time, channel, and program title parameters.

5. A voice synthesis system for providing audible information "wherein said audible information comprises information indicating undesired movement of the distal end of the surgical instrument." Requires synthesized speech indicating that the distal end of the surgical instrument has moved in an undesired way.
A. "information management and synchronous communications system"

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<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
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<tbody>
<tr>
<td>information management and synchronous</td>
<td>a computerized hospitality system for maintaining the operational consistency of</td>
</tr>
<tr>
<td>communications system</td>
<td>hospitality data or information between a central computer and other system components</td>
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<tr>
<td></td>
<td>and devices involved in the real time transmission, display, sharing or exchanging</td>
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<td></td>
<td>of the data or information</td>
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<table>
<thead>
<tr>
<th>Term</th>
<th>Defendants' Definition</th>
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<tbody>
<tr>
<td>information management and synchronous</td>
<td>a system consisting of multiple devices each having a local database in which a</td>
</tr>
<tr>
<td>communications system</td>
<td>change made to any database is immediately reflected in all databases, so as to maintain</td>
</tr>
<tr>
<td></td>
<td>consistency among all copies of stored data</td>
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"Information management and synchronous communications system" is the claimed apparatus and appears in the preamble of every asserted independent claim: "An information management and synchronous communications system for generating and transmitting menus comprising . . . ." Ameranth contends that the clients may be devices or Web pages, and the clients are not required to have local databases. In contrast, the defendants argue that the point of sale clients must be hardware devices and each client must contain a local database.

Claim 1 of the ’850 patent indicates that the client is "a wireless handheld computer device or Web page." According to the defendants, "Web page" is not a software client but has been given a specialized definition in the specification: "an automated download procedure is provided to transfer the desktop database onto a handheld device and/or Web page." (’850 patent, 9:66-10:1); see 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1374 (Fed. Cir. 2003) (holding that when the patentee acts as his own lexicographer, the definition in the specification controls, not the dictionary definition). The defendants assert that this language, "transfer the desktop database onto," explicitly requires the clients to have a local database. In addition, the defendants allege that, because a database is transferred onto the Web page, the Web page cannot be a software client. Claim 12 of the ’850 patent also supports the defendants' assertion that "Web page" is not a conventional website: "at least one Web page on which hospitality applications and data are stored." (emphasis added).

Elsewhere in the specification, a traditional Web client is disclosed: "The software running on the user's client computer that enables the user to view HTML documents on the computer's video monitor and enter selections using the computer's keyboard and mouse is known as a browser." (’850 patent, 12:29-33). Furthermore, the specification consistently distinguishes "Web page" as distinct from handheld devices, e.g., "the menu can be downloaded to either a handheld device or Web page." (’850 patent, 3:37-38) (emphasis added).

As discussed above, the specification does mention transferring databases onto the clients. (See also ’850 patent, 10:34-36 ("Advanced database functions are provided in the preferred embodiment of the invention, including an automated download process onto handheld devices and/or Web sites.").) The specification discusses a central database, but does not talk about local databases on the clients, e.g., "fast synchronization between a central database and multiple handheld devices." As used by the patentee, downloading or transferring databases to clients means downloading or transferring the data from the database, but not the database itself. Thus, it is not necessary that the clients have local databases.

The defendants' proposed construction suggests synchronization between the clients: "a change made to any database is immediately reflected in all databases." However, throughout the specification and claims, the patents contemplate changes
being communicated between the clients and the central server. (E.g., '850 patent, 6:22-25 ("configuring a menu on the desktop PC and then downloading the menu configuration onto the POS interface on the handheld device"); 11:36-42 ("For example, a reservation made online is automatically communicated to the backoffice server which then synchronizes with all the wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld devices will be reflected instantaneously on the backoffice server and the other handheld devices. ")) Therefore, the term simply requires synchronization between the clients and the central server, not between the clients themselves.

For its part, Ameranth's proposal limits the scope to a "computerized hospitality system." The defendants' proposal does not limit the system to hospitality functions. The specification makes plain that the invention is not limited to use in restaurants and the hospitality industry: "While the preferred embodiment is for the generation of restaurant menus and the like, the broad scope of the invention is far greater." ('850 patent, 13:37-39). This limitation is accordingly rejected. The court construes the term to mean "a computerized system having multiple devices in which a change to data made on a central server is updated on client devices and vice versa."

III. Information Manufacturing Machine

As with the term point of sale location, the district court made several findings with regard to the construction of the term IMM. For this term, however, we disagree with most of the district court's findings. We address each below.

1.

The district court required that the IMM functionality be divided into at least the following four "separate and distinct components: (a) a Manufacturing Control Unit, (b) a Master File Unit, (c) an Information Manufacturing Unit, and (d) a Reproduction Unit." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810 (emphasis added). IGE maintains that the district court improperly read the limitations of an embodiment into the claims. The appellees respond that these four components are required because Figure 1 of the Freeny patent, which contains these components, depicts the invention and not merely an embodiment of the invention. We agree with IGE.

Again, we turn first to the claim language itself. The independent claims do not recite any of these four components and do not convey any clear meaning of an IMM to one skilled in the art. The only limitations in the exemplary independent claims pertaining to the IMM relate to its placement at a point of sale location and to certain functions that it must perform, namely, storing information to be reproduced, receiving a request reproduction code, receiving an authorization code, and reproducing the requested information in a material object. See Freeny patent, col. 28, ll. 26-47 (claim 1), col. 36, ll. 47-64 (claim 37).

The specification describes an embodiment of the IMM containing the four components noted by the district court and performing the functions recited in the claims. See id. at col. 6, ll. 27-30, col. 9, l. 39 - col. 10, l. 49. The disclosed embodiment of the IMM also performs the functions, not explicitly recited in either claim 1 or claim 37, of transmitting a request reproduction code and receiving and decoding encoded information. Of these, only five functions, namely, storing information to be reproduced, receiving and transmitting a request reproduction code, receiving an authorization code, and reproducing the requested information in a material object, are critical to the operation of the IMM as defined in the specification. See id. at col. 5, l. 21 - col. 6, l. 23. As explained below, the receiving and decoding of encoded information is not essential to the present invention. There is no general description or definition of what constitutes an IMM other than this narrow functional definition presented in the specification. That is the only definition on which the public can rely, and it is therefore reasonable to conclude that an IMM must contain these five functions. To the extent that the district court's decision, by requiring all four components of the disclosed IMM to be present, requires more than these five critical functions to be performed by the IMM, it is in error.

In its analysis, the district court looked to the specification, and specifically the embodiment depicted in Figure 1, and correctly concluded that the disclosed IMM contained each of the four functional components listed above. See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1807 (After stating that "the IMM is comprised of four separate and distinct components," the district court cited to column 6, lines 27-30, which identifies the four components in the IMM depicted in
Figure 1.). However, while the five functions identified above are required in an IMM, there is nothing in the specification that requires that these functions be performed by the particular components of Figure 1 or that such components be separate and distinct. See Freeny patent, col. 9, l. 39 - col. 10, l. 68. These five functions of the IMM are all of a type that can be performed within a computer, and it is well within the reasonable expectation of a person skilled in the art to move the boundaries between the four identified components to suit a desired application. Such movement would allow, for example, any one piece of the IMM to perform any number of the five required functions. See Intellicall, 952 F.2d at 1387, 21 U.S.P.Q.2D (BNA) at 1386.

2.

The district court also held that the IMM must "receive a 'request reproduction code,'" must "transmit the 'request reproduction code' to an 'information control machine' ('ICM')," and must "receive an 'authorization code' from the ICM." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. As just explained, we agree that an IMM must receive and transmit these codes. We further agree that the IMM must transmit the request reproduction code to, and receive the authorization code from, a central device, such as an ICM, but the device need not be restricted to an ICM.

We note first that neither claim 1 nor claim 37 recites the details of the ICM of the preferred embodiment. However, it is critical to the operation of the IMM, as defined in the specification, that the IMM send the request reproduction code to the same device that then sends the authorization code to the IMM. See Freeny patent, col. 5, l. 51 - col. 6, l. 23. While this device takes the form of an ICM in the preferred embodiment, there is nothing in the specification that would suggest to a person skilled in the art that an IMM would only work with the particular ICM defined in the specification. See id. at col. 5, ll. 32-50 (emphasizing that the ICM is located at a location remote from the IMMs); Intellicall, 952 F.2d at 1387, 21 U.S.P.Q.2D (BNA) at 1386.

Thus, we construe the term IMM to require communication with a remote device, such as but not restricted to an ICM, and hold that the district court's definition of IMM as requiring communication with an ICM is erroneous.

3.

The district court also held that the Master File Unit and the Reproduction Unit components of the IMM must, at a minimum, contain a number of detailed attributes. See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. IGE argues that the language of the claims does not recite any of these limitations. Again, we agree with IGE.

There is no recitation of the specific attributes of the Master File Unit or the Reproduction Unit in the language of the independent claims. There is also no support for these limitations in the text of the specification referenced in IGE's asserted definition of the IMM before the district court. See Freeny patent, col. 5, ll. 32-47. Further, the invention is primarily concerned with distributed reproduction, and there is nothing to suggest that a person skilled in the art would not readily understand that the invention could be practiced without the received information being encoded, without decoding the received information, or without receiving information "on a unidirectional signal path . . . in analog form." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810; see Freeny patent, col. 1, ll. 7-9, col. 4, ll. 13-18 (revealing that the invention is primarily concerned with distributed reproduction); Intellicall, 952 F.2d at 1387, 21 U.S.P.Q.2D (BNA) at 1386 (indicating that terms are construed according to the understanding of one skilled in the art). We conclude that the district court erred and impermissibly read these limitations into the claims.

4.

Accordingly, we hold that an IMM must contain one or more components for performing at least the functions of: (1) storing information to be reproduced; (2) receiving a request reproduction code; (3) transmitting a request reproduction code to a device remotely located from the IMM; (4) receiving an authorization code from the device remotely located from the IMM; and (5) reproducing the requested information in a material object in response to receiving the authorization code. An IMM need not contain the four separate and distinct components of the preferred embodiment.
Claim Construction

The first step in any invalidity or infringement analysis is claim construction. Rockwell Int'l Corp. v. United States, 147 F.3d 1358, 1362, 47 U.S.P.Q.2D (BNA) 1027, 1029 (Fed. Cir. 1998). PMC argues that in granting summary determination, the ALJ "failed to construe inferences of the meaning of 'information of a selected television programming unit' supplied by the specification in the light most favorable to PMC." We reject this argument.

As we stated in Cybor, claim construction is a purely legal question. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (in banc) (stating that questions of construction are questions of law for the judge, not questions of fact for the jury). Claim construction is reviewed de novo on appeal, including any allegedly fact-based questions relating to claim construction. Id. at 1456, 46 U.S.P.Q.2D (BNA) at 1174. Thus, there are no facts underlying claim interpretation which must be viewed in the light most favorable to the non-moving party.

In construing a claim, we look first to the intrinsic evidence, consisting of the claims themselves, the written description, and, if in evidence, the prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). Unless the patent clearly states a special definition, words in the claim are to be given their clear and ordinary meaning. Id.

Claim 35 requires a controller for storing "information of a selected television program unit" which can cause the tuner "to select a television transmission containing programming of the television unit at a specific time." A "selected television program unit" is a particular television program, such as Wall Street Week. The ordinary meaning of the claim phrase is that the controller must store information about a particular television program sufficient to enable the controller to instruct the tuner to display the selected television program. No additional limitation on the type of information is expressly stated or suggested in the claim.

PMC's argument that the doctrine of claim differentiation creates a presumption that "information" of a selected television program unit cannot mean just "channel" and "time" information is not persuasive. It is true that the use of different terms within a claim indicates that different meanings are associated with the terms. However, here "information" does have a different meaning from channel and time. Information is a generic term encompassing different types of information whereas "channel and time" are merely one type of information.

We also reject PMC's argument that functionally claim 35 requires the controller to store information that uniquely identifies the desired television program so that if the desired program is aired on a different channel or at different time, the controller can scan all channels for embedded data signals in order to determine what channel the desired program is on. The claims do not recite any scanning function. Rather, a scanning function requirement is inconsistent with the clear language of the claim which requires that the tuner select a television transmission at a specific time. The use of a scanning function to delay the tuning of a program (such as when a proceeding program, like a sporting event, runs later than expected) would take the system outside of claim 35's scope since the last clause of the claim requires that the tuning occur at "a specific time".

Neither the written description of the '277 patent nor of U.S. Patent No. 4,694,490 ("the '490 patent"), from which the '277 patent derives priority, provide a definition that alters the plain meaning of claim 35. While examples disclosed in the preferred embodiments may aid in the proper interpretation of a claim term, the particular embodiments appearing in the written description will not be read into the claims when the claim language is broader than such embodiments. Electro Med. Sys. S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054, 32 U.S.P.Q.2D (BNA) 1017, 1021 (Fed. Cir. 1994). Here, the written description does not, either explicitly or implicitly, define "information" to mean a unique programming code. The written description does not uniformly use the term "information" with respect to "a selected television program unit" in a way that requires the nonstandard definition that PMC now advocates. Rather, it simply details how the system utilizes the unique program in a single embodiment of the invention.

The written description uses the term "information" as a broad term which embraces many different types of information. For example, the written description uses "meter-monitor information" as a broad term to include different types of information such as "dates and times," "unique identifier codes for each program unit (including commercials)," "unique codes from programming (other than programming identified by program unit codes) whose use obligates users to make payments," "origins of transmissions (e.g., network source stations, broadcast stations, cable head end stations)," and
"unique codes that identify the sources and suppliers of computer data." '277 patent, col. 29:20-41 & 60-61. Similarly, the '490 patent teaches that "input information" can include the cable television system's complete programming schedule, with each discrete unit of programming identified with a unique program code, information about when and where the cable head end facility should expect to receive the programming, and information about when and on which channel or channels the head end facility should transmit each program unit. '490 patent, col. 11:18-30.

While it may be true that the patentees developed and described a system which enables a television subscriber station to automatically tune into a particular television program through the use of a unique program identifier, the claims do not recite a unique program identifier and thus are not so limited. It is the claims of a patent, not the written description, that define the scope of the patentee's right to exclude. See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 U.S.P.Q.2d (BNA) 1129, 1131 (Fed. Cir. 1988).

PMC also asserts that claim 35 cannot be interpreted to read on the Heathkit TV device because two prior art patents, United States Patent Nos. 4,081,753 (the '753 patent) and 4,170,782 (the '782 patent) disclosing devices similar to the Heathkit TV were cited during prosecution. PMC asserts that it was "incumbent upon the ALJ to recognize the importance of and to review thoroughly the prosecution history of the '277 patent as an aid to interpreting claim 35" and that the ALJ's failure to consider the prosecution history should be considered "clear error."

We reject the argument that it is clear error for the ALJ to have failed to thoroughly review each and every document cited in the patent when neither of the parties raises the specific relevance of the cited documents. PMC did not cite the '277 patent's prosecution history to support its claim interpretation either before the ALJ or the Commission in its petition for review. PMC did not specifically mention the '782 or '753 patents below or argue that the patents are relevant for claim construction purposes. To require that the ALJ thoroughly review and consider each of the over 250 references, or risk reversal due to clear error, when the parties themselves do not raise the relevance of the references, is an inefficient use of the ALJ's resources and is not required by our precedent.

Further, review of the prior art patents does not change our claim interpretation. There are over 250 references cited in the '277 patent. Other than the fact that the Examiner initialed the Initial Disclosure Statement, there is no evidence that the Examiner specifically considered the two patents when he allowed claim 35. Indeed, the fact that PMC did not discuss the two patents before the ITC and instead discussed the two patents for the first time on appeal, belies the notion that the two cited patents were considered to be pertinent to an interpretation of the disputed phrase, either by the applicant or the Examiner. Further, PMC has not demonstrated that there are no other limitations in the claim that would distinguish claim 35 over the prior art patents. Thus, we conclude that the prosecution history does not prevent the term "information of a selected television unit" from reading on channel and time information, as provided in the prior art Heathkit TV.

PMC also argues that the Final Determination should be reversed because the ALJ erroneously relied on a claim chart that PMC prepared for settlement negotiations in construing claim 35. We disagree. Even if the ALJ unnecessarily relied on extrinsic evidence when construing the claim, such reliance would constitute harmless error as we have reached the same claim construction as the ALJ, relying solely on intrinsic evidence.

We therefore hold that the ITC was correct in interpreting the term "information of a selected television unit" as including the channel and time information of a particular television program.

4. "information pertaining to the item being auctioned"

Claim 1 describes a bid system operable to, inter alia, transmit "information pertaining to the item being auctioned." Similarly, Claims 2 and 3 describe a method comprising, in part, transmitting "information about the item being auctioned" and "information regarding the item being auctioned" respectively. LGB proposes that these terms should mean "information describing the item being auctioned other than information regarding the acceptance or rejection of bids and the live video of the auction." AMS does not offer argument on this issue in its briefs, but asserted during argument that the terms of Claims 1, 2, and 3 should mean "facts or data pertaining to the item being auctioned;" "facts or data about the item being auctioned;" and "facts or data regarding the item being auctioned" respectively.
The Court agrees with LGB that these terms must be construed in light of the other claim limitations. Accordingly, the terms "information pertaining to the item being auctioned" in Claim 1, "information about the item being auctioned" in Claim 2, and "information regarding the item being auctioned" in Claim 3 shall mean "facts or data pertaining to the item being auctioned other than information regarding the acceptance or rejection of bids and the live audio and video of the auction."

D. "Information Processor"

Plaintiffs seek the following construction of the term "information processor":

An "information processor" is a computing system that processes information to determine a proper location of each identified compartment.

(Docket Entry No. 40, p. 24). Universal contends that the term "information processor" in claim 13 is in means-plus-function format because it lacks sufficiently definite structure to perform the claimed function. Universal argues that claim 13 calls for an information processor that performs the function of "determin[ing] the proper location of the identified components using preprogrammed information" and controlling the location indicator. (Docket Entry No. 46, p. 43; '943 Patent, col. 5, 1.55-1.61).

Claim 13 does not use the word "means" in claiming the information processor; this court must presume that section 112, P 6 does not apply. Technical dictionaries provide definitions of the term "information processor" that connote sufficient structure to avoid application of section 112, P 6. The NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS (5th ed. 1993) defines "processor" as "a system or mechanism that accepts a program as input, prepares it for execution, and executes the process so defined with data to produce results." (Docket Entry No. 49, Ex. A, Ex. 2). The IBM DICTIONARY OF COMPUTING (10th ed. 1993) defines "information processor" as "in a conceptual schema language, the mechanism that, in response to a command, executes an action on the conceptual schema, or on the information base." (Id. at Ex. A, Ex. 1). The term "processor" has a well-known meaning to those of skill in the electrical and computer arts. Although the term does not connote a precise physical structure, it does connote sufficient structure to avoid the application of section 112, P 6. See Personalized Media, 161 F.3d at 704-705 (term "detector" connoted sufficient structure even though it did not connote a precise structure and was defined in terms of its function); Apex, 325 F.3d 1364, 2003 WL at *7. The identifying adjective "information" provides additional structural meaning to one of ordinary skill in the art.

Universal contends that the information processor described in claim 13 does not recite sufficient structure to carry out its function in the invention. Universal cites WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339 (Fed. Cir. 1999) for the proposition that reference to a general purpose computer recites insufficient structure to perform the functions of the computer in the particular invention and that without a recitation of the programming structure or algorithm used by the computer, the claim is in means-plus-function format.

WMS Gaming is distinguishable from the facts of this case. The disputed claims in WMS Gaming were undisputedly written in means-plus-function format and properly analyzed under section 112, P 6. The issue in WMS Gaming was whether the district court's construction of the disputed terms was consistent with the structure recited in the written specification. The appellate court held that "in a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." 184 F.3d at 1349 (citing In re Alappat, 33 F.3d 1526, 1545 (Fed. Cir. 1994)). The court stated that "the instructions of the software program that carry out the algorithm electrically change the general purpose computer by creating electrical paths within the device. These electrical paths create a special purpose machine for carrying out the particular algorithm." Id.

In WMS Gaming, the court had to confine its construction of the means-plus-function claims to the structure described in the specification and its equivalents. Kahn v. GMC, 135 F.3d 1472, 1476 (Fed. Cir. 1998). In the present case, by contrast, the claims are not written in means-plus-function format. In contrast to the structure disclosed in WMS Gaming, which was
a computer programmed solely to carry out the algorithm, the structure disclosed in the '943 Patent is not limited to the disclosed algorithm. Claims that are not in means-plus-function format are not required to be limited to the preferred embodiments described in the specification. The algorithm described in the specification of the '943 Patent creates one particular set of electrical connections -- one particular structure -- for using the invention. ('943 Patent, col. 12, 1.25-col. 18, 1.31). That algorithm represents only a preferred embodiment of the invention, not the only possible embodiment. This court does not limit the term "information processor" to the single algorithm described.

Other factors also weigh against limiting the term "information processor" to the operational algorithm presented in the written description. The written description does not contain words or expressions of manifest exclusion or restriction that would clearly disavow other possible algorithms that could be used with the invention. The prosecution history reveals that the apparatus can be operated with algorithms other than the one described. This court adopts plaintiffs' proposed construction of the term "information processor," which states that an "information processor" is a computing system that process information to determine a proper location of each identified component.

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1. "creating a database entry containing information received from a user" (claim 1)

The plaintiff argues that this term means "that an entry in a database is created containing information submitted by a user over a computer network." Defendant argues that the term means "creating a database entry containing information received from a user in which the content is entirely user controlled." The disagreement between the parties is whether the claim requires that the user control the content of the information contained in a database entry.

The defendant cites to portions of the specification that expressly require the user to control the content and the classification of the information content of a database entry. See, e.g., 1:13-3:40; 10:34-42. Plaintiff's arguments ignore the plain language in the specification concerning the user's control over the content and classification of the information contained in a database entry. For example, the specification states that the "information content is entirely user-controlled" and that "the user controls both the content of an entry and the manner in which it is classified." 2:60-64; 3:22-28.

The court agrees with the defendant that the user controls the content of the information contained in the database. Consequently, the court construes the phrase to mean "creating a database entry containing information received from a user in which the user entirely controls the information content of a database entry and the manner in which the information is classified."

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First and foremost, the analytical focus of claim construction must begin, and remain centered, on the language of the claims themselves. Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201-02 (Fed. Cir. 2002) (quoting Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001)). Because the claim language is chosen by the patentee to "particularly point[ ] out and distinctly claim[ ] the subject matter" of the invention, 35 U.S.C. § 112, P 2, the claim terms chosen by the patentee carry a presumption that "they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." Tex. Digital, 308 F.3d at 1202. In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources, including the claims themselves, see Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999); dictionaries and treatises, Tex. Digital, 308 F.3d at 1202; and the written description, the drawings, and the prosecution history, see, e.g., DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001).

ACTV, in arguing that the ordinary and customary meaning of the term URL encompasses both relative and absolute URLs, provides a document entitled Request for Comments 1808 ("RFC 1808"), from the World Wide Web Consortium ("W3C"), an industry working group, as authoritative support for this position. RFC 1808 discusses both absolute and relative URLs, noting that a relative URL "is a shortened form of that for [an absolute URL]" and that a relative URL is "a compact representation of the location of a resource." In response, Disney offers an earlier document entitled Request for Comments 1738 ("RFC 1738"), from the same organization, in support of its argument that URL encompasses only absolute URLs. Specifically, RFC 1738 indicates that a URL has a typical syntax requiring both a protocol type and a resource locator. RFC 1738 also distinguishes between "relative links," in which the expression of a related resource is described "in the same place as this one except with the following relative path," and general URL syntax, which provides "an abstract identification of the resource location."

As this court has previously noted,

dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation. Indeed, these materials may be the most meaningful sources of information to aid judges in better understanding both the technology and the terminology used by those skilled in the art to describe the technology.

Tex. Digital, 308 F.3d at 1202-03.

As a preliminary matter, we consider whether the RFCs presented by the parties rise to the level of unbiased, contemporaneous reflection of the common understanding of the technical terms in question as to be considered a reliable source of information on the meaning attributed to those terms by those skilled in the art. The purpose of the W3C organization is "to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability." About the World Wide Web Consortium (W3C), at http://www.w3.org/ Consortium/ (last visited Aug. 7, 2003) ("W3C Website"). To this end, members of W3C (including various industry groups, manufacturers, and others, each with their own conceivable interests in the agenda) are involved in developing standards to describe the various building blocks of the Internet. Id. Both RFC 1738 and RFC 1808 are working papers generated during standardization discussions by one subset, or working group, within W3C. See, e.g., Uniform Resource Locators (RFC 1738), at http://www.w3.org/Addressing/rfc1738.txt (T. Berners-Lee et al. eds. Dec. 1994) ("This document specifies an Internet standards track protocol . . . ."). The purpose of the RFCs is thus to collect commentary and to select language to facilitate a common understanding, or to select a standard, from a variety of competing technologies and vocabularies and from a variety of potentially competing interests. Indeed, the acronym "RFC" suggests that end: "Request for Comments." This purpose is in sharp contrast to the role of dictionaries and treatises, which aim not to select or give meaning to a word or phrase, but to report the meaning already established and commonly understood by those skilled in the art. See, e.g., Samuel A. Thumma & Jeffrey L. Kirchmeier, The Lexicon Has Become a Fortress: The United States Supreme Court's Use of Dictionaries, 47 Buff. L. Rev. 227, 291 (1999) (stating that first resort to a dictionary may be appropriate in determining meaning because "dictionaries are designed to reflect usage." (emphasis added)).

Both parties offer these RFC documents as authoritative, unbiased sources relating to the meaning of the expression URL. Because the RFCs were not designed to reflect common usage, but rather to assign language to facilitate further conversation, and because of the seeming contradictions between RFC 1738 and RFC 1808, we conclude that both documents are extrinsic evidence, and in light of the discussion below, we decline to rely on them in our claim construction analysis. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[I]f an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . . it is improper to rely on extrinsic evidence."). It should be understood, however, that there is no general prohibition on the use of publications from standards-setting organizations to aid in determining the ordinary and customary meaning of technical terms. Where such a document reflects common usage by those skilled in the relevant art, the document may indeed be an appropriate reference. Where, as in this case, the documents of the standards-setting organizations do not reflect common usage, but purport to select language to be
used in the future, elevation of these Requests for Comments to the same authoritative, unbiased level as dictionaries is improper.

In the present case, the construction of URL is principally informed by the plain language and surrounding context of the claims themselves. See Broookhill-Wilk, 334 F.3d at 1299. The claims recite that a URL "specifies one or more Internet addresses of the information segments which relate specifically to the content of the video and audio signals of the programming." '181 patent, col. 59, ll. 8-12 (emphasis added). In construing the claim term URL, these additional terms contained in the claimed means-plus-function expressions provide context for the term URL and must themselves be construed. See, e.g., Hockerson-Halberstadt, 183 F.3d at 1374 ("Proper claim construction, however, demands interpretation of the entire claim in context, not a single element in isolation."). Thus, even though the district court's constructions of "Internet address" and "information segments" were not explicitly appealed, we must also construe those terms to properly construe the appealed term URL.

The district court's construction of "information segments" as "simply referring to parts into which information on the Internet is commonly divided" is supported by the claim language and the specification. See Markman Memorandum, 204 F. Supp. 2d at 653; '181 patent, col. 3, l. 6, col. 6, l. 12; 664 patent, col. 3, l. 31, col. 8, l. 32; 768 patent, col. 3, l. 33, col. 8, l. 55. These parts are exemplified by, but not limited to, items such as web pages, audio clips, and images. See id. However, the district court's construction of the term "Internet address," as "a particular host on the Internet, specified by a uniform resource locator that is unique to that host," Markman Memorandum, 204 F. Supp. 2d at 654, is not supported by the claim language or specification, and relies on circular reasoning related back to URL. Rather, the context of the term "Internet address" informs that it is simply a reference to a location of the information segment on the Internet. There is no support for the district court's added requirements that the "Internet address" be a particular host or that it be unique. A URL, then, as defined by the language and context of the claims, is something that identifies the location of relevant information segments. This can include web pages, audio clips, images, and the like. It can be an absolute URL or a relative URL, as long as it specifies one or more addresses of information segments relating to Internet content.

2. Information Source: A place or thing which originates electronic information concerning particular subjects without executing electronic mail programming.

3. "creating a database entry containing the information submitted via the entry form" (claim 4)

This term necessarily incorporates the court's first two claim constructions. Plaintiff argues that this term means "that an entry in a database is created containing information submitted by a user via an entry form displayed to the user over a computer network." Defendant argues that the term should be construed to mean "creating a database entry containing information in an entry form submitted by the user over the World Wide Web in which the content is entirely user-controlled." Again, the parties' disputes relate to the breadth of the network and the user's control over the information content. For the reasons outlined above, the court construes this term to mean "creating a database entry containing information submitted by a user via an entry form displayed to the user over a public computer network wherein the information content and classification is entirely controlled by the user."

On April 4, 2008, the district court construed nine disputed sets of claim limitations. Only the first set--"information transmitter" and "recognition device"--is challenged on appeal. The district court construed "information transmitter" to mean "a device that communicates with a recognition device via electromagnetic waves, after being actuated by that recognition device, without requiring any sort of personal action by the passenger." Claim Construction Order, 561 F. Supp. 2d at 362. It construed "recognition device" to mean "a device that actuates and reads data transmitted by an information
transmitter without requiring any sort of personal action by the passenger." Id. In the claim construction order, the district court declined to specify the particular kind of "personal action" prohibited under its construction, but stated that it "rules out, not just standing in front of the recognition device, or inputting data into the information transmitter by hand, but any and all types of personal action by the passenger." Id. (emphasis added).

The parties then cross-moved for summary judgment on the issue of infringement. Schindler argued that the RFID cards of the accused system are "information transmitters" and that the card readers embedded in the security turnstiles are "recognition devices." Otis countered that neither of these limitations is met because the use of a passenger's hands to bring a RFID card within the 3.5-inch effective range of a card reader constitutes prohibited "personal action."

The district court issued its summary judgment ruling on November 17, 2008. Although it had previously said that "any and all types of personal action" were prohibited under its construction, the district court refined its understanding of "personal action" on summary judgment to expressly permit "walking into the monitored area." Summary Judgment Order, 586 F. Supp. 2d at 237. The district court went on to note that a user of the accused device must "do something in order to bring the card (not just themselves) to a point at which the device embedded in the turnstiles can read it," such as taking the card out of a pocket or holding the card over the glass surface of the turnstile. Id. at 238. Accordingly, the district court held that Otis's accused system could not meet the "information transmitter" and "recognition device" limitations and thus did not infringe the '094 patent as a matter of law.


DISCUSSION
I. Standard of Review

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc) (citations omitted), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). Claim construction is a question of law, which we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). "While infringement is a question of fact, we review a district court's grant of summary judgment without deference." Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp., 533 F.3d 1362, 1367 (Fed. Cir. 2008) (internal citations omitted). Summary judgment is proper only "if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c).

II. Analysis

Schindler challenges the district court's construction of the terms "information transmitter" and "recognition device." Schindler also challenges the district court's grant of summary judgment of noninfringement, under the district court's construction and under Schindler's proposed construction.

A. Claim Construction

Schindler argues that the district court improperly limited the terms "information transmitter" and "recognition device" by requiring those devices to operate "without any sort of personal action by the passenger" and by further defining "personal action" to mean any action "other than walking into the monitored area." According to Schindler, nowhere does the intrinsic evidence prohibit a passenger from using his hands to simply bring an information transmitter within range of a recognition device. The phrase "personal action" appears only once in the specification. In Schindler's view, "personal action" encompasses the action of manually pressing buttons to actuate the transmitter or to select a destination floor, not to the initial act of bringing the transmitter within range of the recognition device. Schindler therefore requests that we remove any reference to "personal action" from each construction. 1

--- Footnotes ---

1 Schindler also requests that we strike the phrase "via electromagnetic waves" from the district court's construction of "information transmitter." But the construction of "information transmitter" that Schindler proposed to the district court
included that very phrase. We therefore decline to alter the district court's construction as it pertains to electromagnetic waves.

Otis responds that the district court correctly relied on statements in the specification and prosecution history that describe "hands-free," "automatic," and "contactless" elevator operations, as clearly disavowing all "personal action."

As we shall explain, we agree with Schindler that the district court's construction is too narrow. The statements in the specification and prosecution history on which the district court relied were directed to elevator operations that occur only after the information transmitter is already within range of the recognition device, not to the initial act of bringing the information transmitter within range of the recognition device.

A claim term is generally given its "ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). "[T]he court looks to 'those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean,' . . . includ[ing] 'the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.'" Id. at 1314 (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004)). Because the parties do not rely on any extrinsic evidence, we focus our analysis on the claim language, the specification, and the prosecution history.

1. Claim Language

"Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." Id. Here, the district court overlooked several important aspects of the claim language which themselves shed light on whether and to what extent an elevator user undertakes "personal action" in the invention.

First, "the context in which a term is used in the asserted claim can be highly instructive." Id. In claim 1, the term "information transmitter" itself suggests that the transmitter is a thing, separate and apart from an "elevator user" (a separate limitation), which transmits information. The claim also provides that "elevator calls [are] entered at an entry location by an information transmitter." Thus, at least with regard to the transmission of information and the entry of calls, it is the information transmitter--not the elevator user--that performs these tasks. Similarly, the claim provides that a "recognition device . . . actu[ates] the information transmitter" and that "a unit . . . independently reads data transmitted from the information transmitter." Accordingly, the tasks of actuating the transmitter and reading data are performed by the recognition device and the unit, respectively, not by the elevator user. The claim also explicitly provides that the transmitter is "carried by an elevator user." Carrying a transmitter is thus a type of "personal action" that is expressly required in the claims. Nowhere does claim 1 limit the act of carrying to any specific manner of carrying.

Second, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." Id. Claim 7 depends from claim 1 and adds the phrase "wherein the recognition device reads a key having a code." A "key" is disclosed in the specification as a "building key," which is embedded with an information transmitter that is actuated by a recognition device mounted near a "door lock" of a building. '094 patent col.5 ll.30-32. The door lock recognizes the building key when the passenger uses his key to open the door. Id. col.5 ll.32-33. The specification, in describing a variation of this information transmitter "key" embodiment, notes that the recognition device may be mounted near a "time clock," and an elevator is dispatched when a user clocks in or out of work. Id. col.5 ll.33-35. Because a user would need to use his hands to bring the transmitter key within range of the recognition device to unlock the door, or to clock in or out of work, these types of personal action are implicitly permitted in claim 7 and, by extension, in claim 1. Thus, the claims appear to permit at least those types of personal action that are necessary to bring the information transmitter within range of the recognition device.

2. Specification

"[C]laims 'must be read in view of the specification, of which they are a part.'" Phillips, 415 F.3d at 1315 (quoting Markman
v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" Id. (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

The phrase "personal action" is used only once in the specification, in the following sentence:

> The advantages achieved by the invention reside in the fact that the desired journey destination is communicated automatically to the elevator control by [(1)] the information transmitters carried by the elevator users or by [(2)] the recognition of features of the elevator users without any personal action being required by the passenger.  

'094 patent col.2 ll.49-54 (emphases and bracketed numbers added). Notably, this sentence refers to the patent's two disclosed embodiments: (1) the claimed "information transmitter" embodiment and (2) the unclaimed "individual features" embodiment. 2 In the latter, instead of actuating an information transmitter, the recognition device "recognizes a passenger with the aid of an individual feature, for example in an optical manner (facial contours, finger prints [sic], iris, etc.) or by reason of the speech thereof." Id. col.4 ll.48-51 (emphasis added). Because a passenger would need to place his hand on the optical recognition device for it to read his fingerprints, this cannot be the "personal action" to which the sentence refers. Instead, the structure of the sentence-- "communicated . . . by [(1)] . . . or by [(2)]"--makes clear that the two enumerated embodiments are the means by which "the desired journey destination is communicated," and that the ultimate phrase "without any personal action being required by the passenger" describes how the information is communicated. The sentence says nothing about how the passenger initially brings his transmitter (or fingerprints) within recognition range, but merely that, once in range, he need not use personal action to communicate his journey destination to the elevator control.

--- Footnotes --- End Footnotes ---

2 The concurring opinion asserts that, because the "individual features" embodiment was "abandoned," it would not be relevant to the scope of the disclaimer of "personal action." Post at 4 n.3. With all due respect, neither assertion is correct. The embodiment was not "abandoned," it simply was never claimed in the application that led to this particular patent. Moreover, because the phrase "without any personal action" applies equally to both embodiments, the latter embodiment is indeed relevant to discerning what kinds of "personal action" this sentence prohibits.

The same is true of all statements in the specification describing "hands-free," "automatic," and "contactless" elevator operations. Each time those terms are used, they modify the elevator's "call entry" operation, an operation that necessarily occurs after the information transmitter has been brought within range of the recognition device and after the transmitter has been actuated by the recognition device. Id. Abstract ("[T]he call entry taking place automatically, contactless and independent of the orientation of the information transmitter . . .").

The district court's prohibition against all actions other than walking, the specification itself provides examples where a user would need to do more than just walk to bring his transmitter into recognition range. As mentioned, the "key" embodiment of claim 7 requires a user to unlock a door using a key, and only upon "opening of the door" by the user will an elevator be dispatched. Id. col.5 ll.27-35. The transmitter "can also be mounted on any desired object," id. col.4 ll.64-65, like a "luggage or shopping cart," and an elevator is dispatched when the user pushes his cart into the vicinity of the recognition device, id. col.5 ll.1-13. Thus, unlocking a door and pushing a cart are two "personal actions," other than simply walking, which are disclosed in the specification as actions needed to bring a transmitter within range of the recognition device. Once in range, the transmitter is actuated by the recognition device and transmits its encoded data without personal action by the user.

3. Prosecution History
During prosecution, Schindler amended the claims in response to an obviousness rejection over U.S. Patent No. 5,304,752 ("Hayashi") in view of U.S. Patent No. 4,685,538 ("Kamaike"). It was at this time that Schindler first added the "information transmitter" limitation to the claims, and further required that the transmitter be "actuat[ed]" by the recognition device. J.A. 314-17 ("the recognition device . . . actuating the information transmitter" (amendment emphasized)). Schindler argued that Hayashi "fails to show calls for the elevator made by a transmitter identifying the destination of the passenger," J.A. 319, and that Kamaike, which requires a user to manually actuate a transmitter by pressing buttons, "fails to disclose or suggest . . . a recognition device actuating a transmitting device carried by the elevator user for transmitting data," J.A. 322. Schindler went on to explain:

Because the information transmitter of the present invention is not equipped with user operable keys, it is not necessary that the information transmitter be in the elevator user's hands to select the desired floor. Thus, the call commands are pre-programmed to occur automatically, contactlessly, and independently of the orientation of the information transmitter.

J.A. 320. The examiner allowed the claims to issue in amended form.

The district court reviewed the prosecution history and concluded that Schindler had surrendered coverage of its originally claimed invention and, through its arguments, had disavowed any coverage of elevator systems that do not operate "automatically" and "hands-free." Claim Construction Order, 561 F. Supp. 2d at 361. We agree with the district court that Schindler is not entitled to any interpretation that it disclaimed during prosecution. See Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) ("The purpose of consulting the prosecution history in construing a claim is to 'exclude any interpretation that was disclaimed during prosecution.'" (quoting ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580 (Fed. Cir. 1988))). But we disagree as to the extent of that disclaimer.

The doctrine of prosecution disclaimer attaches where an applicant, whether by amendment or by argument, "unequivocally disavowed a certain meaning to obtain his patent." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). For example, an amendment that clearly narrows the scope of a claim, such as by the addition of a new claim limitation, constitutes a disclaimer of any claim interpretation that would effectively eliminate the limitation or that would otherwise recapture the claim's original scope. Here, the district court construed the term "recognition device" as a device that "actuates and reads data transmitted by an information transmitter." Because this construction already provides that the recognition device--not the elevator user--actuates the transmitter, there is no risk that Schindler would recapture a broader claim scope than that existing before it added the "information transmitter" and "actuating" language to the claims.

An argument made to an examiner constitutes a disclaimer only if it is "clear and unmistakable." Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006). An "ambiguous disavowal" will not suffice. Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1375 (Fed. Cir. 2008). Here, the district court found statements in the prosecution history, similar to those in the specification, which describe the invention as operating "automatically, contactlessly, and independently of the orientation of the information transmitter." The district court read these statements as unambiguously disavowing the use of a passenger's hands for any and all purposes. We disagree. As in the specification, those terms modify actions that take place only after the passenger has brought the transmitter within range of the recognition device--specifically, the actuation of the transmitter, the entry of call commands, and the selection of a destination floor. J.A. 320 ("[I]t is not necessary that the information transmitter be in the elevator user's hands to select the desired floor." (emphasis added)); 320 ("Thus, the call commands are pre-programmed to occur automatically, contactlessly, and independently of the orientation of the information transmitter." (emphasis added)); 322 ("[N]either applied document of record discloses or suggests, inter alia, the unique hands-free, automatic, and contactless elevator call system recited in the pending claims via a recognition device that actuates a transmitting device . . . ." (emphases added)); 325 ("Because none of the applied documents of record disclose or suggest actuation of the transmitting device by the recognized device, recited in the combination of features in at least independent claim 1, to enable truly hands-free operation of elevator calls, Applicants respectfully submit that no combination of the applied documents of record can even arguably render obvious the present invention as recited in claim 7." (emphases added)). Significantly, the last of these prosecution statements is specifically directed to dependent claim 7, which recites the "key" feature. It is clear that "truly hands-free" modifies "operation of the elevator calls" and does not--indeed, can not--refer to the initial act of bringing the key within range of the recognition
device. None of these statements speaks to the role a user plays in bringing a transmitter within range of a recognition device; nor was the prior art distinguished on that basis. These prosecution statements, which, contrary to the concurrence, the applicant actually made and not merely could have made, do not constitute a "clear and unmistakable" disavowal of personal action for the limited purpose of bringing the transmitter within range of the recognition device.

Instead, we read the prosecution history in this case "as support for the construction already discerned from the claim language and confirmed by the written description." 800 Adept, Inc. v. Murex Sec., Ltd., 539 F.3d 1354, 1365 (Fed. Cir. 2008). That construction excludes coverage of systems in which an elevator user manually presses buttons to actuate the information transmitter or to select a default journey destination. Those types of personal action are properly excluded under the portions of the district court's existing construction specifying that the information transmitter is what "communicates with a recognition device via electromagnetic waves, after being actuated by that recognition device," and that the recognition device is what "actuates and reads data transmitted by an information transmitter." However, a user ought to be able to use his hands, or take other personal action, to simply bring the transmitter within the effective range of the recognition device. We therefore modify the district court's construction of "information transmitter" and "recognition device" by striking the phrase "without requiring any sort of personal action by the passenger" from each construction.

3 The concurring opinion would only allow a user to take personal action to the extent that the action is "required to gain entry to the building," but would prohibit a user from otherwise taking personal action simply to bring the transmitter within range of the recognition device. Post at 2. Respectfully, there is nothing in the language of the claims, the specification, or the prosecution history that draws such a distinction. As explained above, the intrinsic evidence speaks only to user actions taken after the transmitter is within recognition range; it is entirely unconcerned with the way in which the transmitter initially gets there.

B. Infringement

Under our modified construction of "information transmitter" and "recognition device," Schindler's evidence was sufficient to create a genuine issue of material fact that the RFID cards of the accused system communicate with a card reader via electromagnetic waves after being actuated by the card reader, and that the card reader actuates and reads data transmitted by the RFID cards. On that basis, the district court should not have granted summary judgment of noninfringement.

Below, Otis also moved for summary judgment of noninfringement under the district court's construction of two other limitations ("in the vicinity of the elevators" and "coupled between"), which the district court did not reach. The parties have not challenged the construction of those limitations on appeal. Otis's arguments that it does not infringe under the district court's construction of those two limitations thus remain open for consideration on remand.

CONCLUSION

We modify the district court's construction of "information transmitter" and "recognition device" by striking the phrase "without requiring any sort of personal action by the passenger" from each construction. We vacate the grant of summary judgment of noninfringement and remand for further proceedings consistent with this opinion.
satisfied, because using the building key to call the elevator requires no additional personal action by the user.

1 The specification provides: "A further variation consists in that information transmitter 1 is not carried along as a separate card, but executed as coded key means. For example, in a residential or in an office building, the building key can be provided with information transmitter 1. Recognition device 5 is then mounted at the door lock so that elevator control 10 also receives the destination call upon the opening of the door." '094 patent col. 5 ll.27-33.

Unfortunately, the majority is not content to rest its decision on this simple point. Rather, it interprets the claim broadly as including a swipe card device that is not tied to building access and declines to give effect to the significant disclaimer appearing in both the specification and prosecution history--disclaiming devices that are not "hands-free" and "automatic." Contrary to the majority, it seems to me that the action of swiping a card to call the elevator separate from the action required to gain entry to the building is clearly within the disclaimer of both the specification and prosecution history.

How does the majority avoid this disclaimer? The majority's theory is that there is no requirement of hands-free or automatic action until the transmitter is within range of the recognition device. In other words, the device would be "hands-free" and "automatic" even though the user has to take elaborate action to bring the device within range. See Majority Op. at 16 ("[A] user ought to be able to use his hands, or take other personal action, to simply bring the transmitter within the effective range of the recognition device"). I find this reading of the disclaimer to be inherently improbable and quite inconsistent with the language of the specification and prosecution history. The specification and prosecution history make no such distinction, and consistently emphasize the hands-free and automatic nature of the device without regard to whether it is in range or not. The specification requires that "the desired journey destination [be] communicated automatically to the elevator control by the information transmitters carried by the elevator users . . . without any personal action being required by the passenger," '094 patent col.2 ll.49-54 (emphasis added), and that the entire call entry take place "hands-free, contactless and independent of the orientation of the information transmitter," id. at col.4 ll.27-29. The prosecution history similarly distinguishes the prior art on the ground that the call commands occur "automatically, contactlessly, and independently of the orientation of the information transmitter." J.A. 320. Neither the specification nor the prosecution history distinguished between actions taken within range or out of range of the recognition device.

The patentees, unlike the majority, argue that the disclaimer has no application to devices where the signal came from the recognition device. 2 On this theory, the disclaimer is rendered entirely meaningless because the patent only covers devices in which the signal is initiated by the recognition device, and the disclaimer is read only to apply to devices in which the signal is initiated by the transmitter.

2 At oral argument, appellant stated that "]if the signal is initiated from the card, that is disclaimed by the amendment . . . . It doesn't matter whether the actuation is by buttons . . . . The point is, the initiation of the communication is initiated by the recognition device so that the card can now be passive . . . . That was the distinction [made in the prosecution history], not whether it was buttons or not, but the actuation no longer came from the information transmitter." Oral Arg. at 40:43-41:27 (emphasis added).

The prior art device involved a system whereby the user activated a transmitter by entering a code that signaled the recognition device. The applicant could have distinguished this prior art solely on the ground that the signal here goes from the recognition device to the transmitter. The applicant did not choose to rest on this ground alone (likely because this was an obvious variant of the prior art), but instead emphasized that the patented device was distinguishable both because of the signal direction and because it was hands-free and automatic. The patentee agreed at oral argument that a card swipe was no less covered by the disclaimer than the pressing of buttons.

We have repeatedly held that a disclaimer cannot be avoided simply by pointing out that the prior art could have been
distinguished on another ground. See, e.g., Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1361-62 (Fed. Cir. 2005) (holding that patentees must be held to the scope of what they ultimately claim, and are not allowed to assert that claims should be construed to surrender only what was necessary to avoid the prior art); Fantasy Sports Properties, Inc. v. Sportsline.com, Inc., 287 F.3d 1108, 1115 (Fed. Cir. 2002) ("Fantasy acquiesced in [the examiner's] rejections by canceling all claims that did not contain the 'bonus points' limitation at issue on appeal, and thus cannot now be heard to argue post hoc that it was the combination of the aforementioned limitations that rendered its invention patentable over the prior art."). Schindler's disclaimer must be based on what he said, not on what he could have said. Thus, I find Schindler's reading of the disclaimer to be just as untenable as the majority's reading.

A competitor reading the specification and the prosecution history is entitled to rely on the patent and prosecution history. In my view, the majority's claim construction artificially eliminates that disclaimer in limiting it to actions taken after the transmitter is in range of the recognition device. 3

--- Footnotes ---

3 The majority opinion also appears to rely on the unclaimed "individual features" embodiment relating to finger print recognition. See Majority Op. at 10-11. Given that this embodiment was abandoned, I do not think that it suggests anything regarding the scope of the claims that were retained. In particular, the prosecution history disclaimer cannot have been addressed to the abandoned claims.

--- End Footnotes ---

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<table>
<thead>
<tr>
<th>Claim Terms</th>
<th>Uniloc's proposed construction</th>
<th>Microsoft's proposed construction</th>
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<tr>
<td>4. Information uniquely descriptive of an intending licensee</td>
<td>Information, by itself or in combination, that identifies/associates with the intended licensee</td>
<td>One-of-a-kind information that identifies a person who is not presently a licensee, but who intends in the future to license the digital data</td>
<td>Information that is uniquely associated with a person who intends to become a licensee so as to access full functionality of the digital data</td>
</tr>
<tr>
<td>5. Information . . . which uniquely identifies an intended registered user</td>
<td>Information, . . . that uniquely identifies an intending user</td>
<td>Information, . . . that identifies an intending user</td>
<td>Information, . . . that uniquely identifies an intending user</td>
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</table>

n.7 Pursuant to the June 9, 2006 joint submission, the parties have agreed that these claim terms should be construed synonymously.

The Court's previous analysis of the term "unique" is equally applicable here, and therefore, Microsoft's "one-of-a-kind" language will not be adopted. Thus, the main point of difference focuses on Microsoft's reading of the words "intending" and "intended" to mean that the user does not become a licensee until the user completes the registration process. Without relying on intrinsic or extrinsic evidence, Uniloc objects to this theory, arguing that the term licensee is distinct from registered user because "the user must be licensed by the software vendor to load the software into his or her computer in the first place." Having agreed to treat these terms synonymously, however, Uniloc now seems to implicitly agree that a licensee is the same as a registered user - i.e., a user who has completed the registration process.

Nevertheless, even if Uniloc intends to press its objection, the Court notes that upon scrutinizing the claim terms in the
context of claims 2 and 12, the ordinary meaning of the terms at issue becomes readily apparent by applying the widely accepted definitions of the adjectives "intended" and "intending" - both of which describe a person that expects in the future to be a licensee. See Merriam-Webster's Collegiate Dictionary 607 (10th ed. 2002) (defining "intended" as "expected to be such in the future" and defining "intending" as "prospective, aspiring"). Applying these ordinary meanings, an intended/intending licensee in claims 2 and 12 clearly refers to a person who has software on his or her computer and plans on becoming a licensee by registering the software so as to access the full functionality of the software. It is logical, therefore, that the user who intends to become a licensee cannot already be a licensee as that term is used in claims 2 and 12. The remainder of the specification supports this reading by explaining that prior to registration, a person uses the software in an unlicensed mode. For instance, in the explanation of use mode, the '216 Patent unambiguously states:

In this specification, "use mode" refers to use of the digital data or software by its execution on a platform so as to fulfill the seller's/licensor's obligations in relation to the sale or license of the right to execute the digital data or software in the use mode. The use mode is to be distinguished from what might generally be termed unlicensed modes of operation (which is not to say unauthorized modes of operation) as typified by the demonstration modes later described in this specification.

See '216 Patent, col. 2, ll. 40-49 (emphasis added); see also id. at fig. 2a (illustrating that a user, after being able to try the software in a demonstration mode, then agrees to a licensing agreement upon registering).

Accordingly, the Court construes these terms as follows: Information that is uniquely associated with a person who intends to become a licensee so as to access full functionality of the digital data.

7. "inhibiting"

Substep (ii) discloses performing the "applying" step: "in a manner inhibiting leaked partial statistical information about said internal secret state from usefully describing said updated secret state." The parties dispute the construction which should be given to the word "inhibiting." The dispute centers on whether the word "inhibiting" should be construed as "prohibiting" leaked information or whether "leak resistance" is meant.

This dispute is a manifestation of the continuing dispute over the degree of security claimed by the patents-in-suit. 5 The Abstract provides:

Methods and apparatuses for increasing the leak-resistance of cryptographic systems using an indexed key update techniques are disclosed.

The "Detailed Description of the Invention" provides:

The invention enables parties to perform cryptographic operations with increased security against external monitoring attacks.

('092 Patent, Col.3:34-36.)
Next, the "inhibiting" term within Claim 1(e) requires construction. Agrizap argues that "inhibiting" means "any manner of preventing the triggering step once the high voltage and current generator has been triggered, the prohibiting provided through hardware, software/ firmware or any combination thereof." (Agrizap's Reply Br., at 15). Woodstream argues that "inhibiting" means "the triggering step is inhibited upon each and every activation of the triggering of the generator until the power on reset signal is detected; each time the high voltage generator is activated, further triggering cannot take place, at least until the power on reset signal is detected." (Woodstream's Reply Br., at 13).

This Court will adopt Woodstream's construction of the "inhibiting" term. As shown above in the construction of the "reset signal" term, the specification provides support for the construction that the triggering step is inhibited until the power on reset signal is detected. See Phillips, 415 F.3d at 1315 (stating that specification is single best guide for determining meaning of disputed term). Specifically, the specification states that "[o]nce triggered, the electronic portion 1 cannot be retriggered until power is turned off and then on again via switch 2." (636 patent, col. 6, lines 46-48). Furthermore, it states that the "Timer Module 112 remains latched even after the predetermined time has elapsed and PTIME 95 has returned to a logic low level. The logic low value of ARM 93 therefore prevents any retrigger of Timer Chip 18 until the power is cycled off and then on by the user." (636 patent, col. 9, lines 5-10). It also states that "Timer Module 112 cannot be retriggered until it is reset via an active low logic signal on POR 97. (636 patent, col. 7, lines 63-65). Therefore, the triggering step is inhibited until the power on reset signal is detected.

Having considered the parties' competing proposals on this term, the Court adopts the following compromise construction: "programming information received by a POL regulator after power-up but prior to the first generation of an output voltage." See '798 patent, col. 2:10-23; col. 4:51 - col. 5:49; col. 6:43-54; Figure 6.

The phrase "initial intended delay" appears nowhere in the specification. As Synopsys points out, however, the use of the...
Accordingly, "initial intended delay" also may change once selected. Cells, both of which are subject to change, (see, e.g., '446 Patent at 3:30-37), which further suggests that the "initial intended area" of the cells and the "initial intended lengths" of the wires connecting the cells, both of which are subject to change, (see, e.g., '446 Patent at 3:30-37), which further suggests that the "initial intended delay" that requires the delay to be fixed once chosen runs afoul of the plain language of the claims.

Magma's proposal that the "initial intended delay" must remain fixed once selected is based on language describing one embodiment of the invention. (See id. at 6:33-37.) In particular, the specification, in describing such embodiment, states that "[d]uring the library analysis 207, the delay D is determined for each gate to be used in the digital circuit," (see id. at 6:33-34), and "the gate size is adjusted after cell placement based on changes in the capacitive load in order to maintain D as 'constant.'" (See id. at 6:48-51.) The specification, however, expressly provides that descriptions of particular embodiments are "illustrative only and not in any way limiting" and that "other embodiments of the invention will readily suggest themselves to those skilled in the art." (See id. at 4:55-58.) Given that portions of the specification, as well as the claims themselves, discuss "stretching" or "compressing" the "initial intended delay," the Court agrees with Synopsys that any construction of "initial intended delay" that precludes changes to the delay once selected would be erroneous. See Phillips v. AWH Corp., 415 F.3d 1303, 2005 WL 1620331 at *15 ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments").

For the same reason, the Court disagrees with Magma's proposal that the "initial intended delay" must be determined during "library analysis." Although a discussion of "library analysis" appears in the specification in a description of a particular embodiment of the invention, (see '446 Patent at 6:26-9:9), the term "library analysis" appears in none of the claims. Moreover, the claims themselves suggest that the determination of the "initial intended delay" may occur at different stages of the process. For example, claim 1 requires that cells be selected from a cell library, and that "at least some of the selected plurality of cells" have "an initial intended delay associated therewith." (See id. at 17:14-25.) Claim 21, on the other hand, requires that cells be "selected from a cell library," and that "the electronic circuit description include[ ] an initial intended delay associated with each cell." (See id. at 18:45-56.) Synopsys's expert, David Harris, Ph.D. ("Dr. Harris"), attests that it is well known to those of ordinary skill in the art that the "initial intended delay" may be included in or derived from either the electronic circuit description or library analysis. (See Harris Decl. P 32.) According to Dr. Harris, Magma's proposed construction renders claims 21 "self-contradictory," because "an 'initial intended delay' cannot be 'determined during library analysis' and also be included within the 'electronic circuit description.'" (See id. P 49.) Indeed, the specification supports Dr. Harris's view by expressly stating that library analysis "is not dependent on the actual circuit which is being synthesized and thus can be performed separately from the circuit design process[.]" (See '446 Patent at 6:30-33.) Dr. Harris further attests that it would make "no sense, in light of the purpose of the invention, to require that the 'initial intended delay' be obtained during library analysis," because "[t]he invention would work just fine for its intended purpose regardless of whether the initial intended delay is specified in the netlist, the delay is calculated during library analysis, or the delay is obtained in some other manner." (See id. P 50.) For all of these reasons, the Court finds there is no limitation that the "initial intended delay" be determined during library analysis.

By contrast, Synopsys's construction of "initial intended delay" as a "delay set as a target" comports with the ordinary meaning of the claim language and the specification. As noted, both the specification and the claims discuss stretching and compressing the "initial intended delay," as necessary, (see, e.g., '446 Patent at 14:19-15:62; 18:14-35), which demonstrates that the "initial intended delay" is an estimate or target, rather than a fixed requirement. The Court also notes that the specification discusses the "initial intended area" of the cells and the "initial intended lengths" of the wires connecting the cells, both of which are subject to change, (see, e.g., '446 Patent at 3:30-37), which further suggests that the "initial intended delay" also may change once selected.

Accordingly, the Court will construe "initial intended delay" as "a delay set as a target."
The '479 Patent tracks a website visitor's traffic patterns through the use of a website cookie that is transferred between a server and the website visitor's browser. However, the first time a web user visits a website, the user's web browser will not have a website cookie for the requested website. In the '479 Patent, a server will produce a website cookie which contains "an initial set of traffic path analysis data for the current website" when a browser does not send a cookie along with a request for a page. Patent at col. 12, ll. 58-61.

The parties dispute the meaning of the phrase "an initial set of traffic path analysis data for the current website." Joint Claims Construction Chart at 4. Netratings contends that the phrase means "the website traffic path analysis data for the current website, including the current website page requested and cumulative values set to zero." Websidestory argues that Netratings' proposed construction improperly imports limitations from the specification, and defines the phrase as an "initial data set of traffic path analysis data." In support of its construction, Websidestory cites to a dictionary definition of "data set," as well as to the prosecution history.

In construing the phrase "an initial set of traffic path analysis data for the current website," the Court starts by examining the claims in the '479 Patent. Bell Communications Research, Inc., 55 F.3d at 620. The '479 Patent first uses the phrase at claim 1, element 3, but the language surrounding the disputed phrase does not identify or define the contents of "an initial set of traffic path analysis data for the current website." Patent at col. 12, ll. 50-61. During an updating step described in claim 1, element 5, the '479 Patent provides:

setting the traffic path analysis data of the website cookie to initial values if the website cookie has expired, and otherwise updating traffic path analysis data for a current website visit by the network browser by adding the current requested website page to the traffic path analysis data and thereby showing the complete path of website pages requested during the current website visit.

Patent at col. 12, l. 65 - col. 13, l. 5. The Court concludes that this fifth element instructs on what is included in the term "an initial set of website traffic path analysis data for the current website."

Claim 1, element 5 requires that "a complete path" of traffic analysis data be shown after the "adding the current requested page" step. Accordingly, the Court finds that the current requested page must be part of "an initial set of traffic path analysis data for the current website" as described in claim 1, element 3 at col. 12, ll. 57-62; see also col. 12, ll. 54-57. If this were not the case, it would be impossible to have the "complete path" of traffic path analysis data after execution of claim 1, element 5, because adding only the current requested page to a non-expired cookie would not indicate previous webpages visited. This conclusion is also supported by the summary of the invention portion of the specification, which states that "[f]or every website page requested by a website visitor, the state of the visitor's browser is recorded." Patent at col. 4, ll. 37-40.

Netratings contends that "an initial set of traffic path analysis data for the current website" must also include "cumulative values set to zero." Joint Claims Construction Chart at 4. In previously construing "website traffic path analysis data," the Court rejected Netratings' arguments that "website traffic path analysis data" must include cumulative values and statistics. Consistent with that construction, the Court concludes that the '479 Patent does not require cumulative values set to zero as part of "an initial set of traffic path analysis data for the current website," since neither the claims nor the specification
requires an initial set of traffic path analysis data for the current website to include cumulative values set to zero.

After reviewing the '479 Patent claims and specification, as well as the parties' arguments, the Court concludes that the acquired meaning of "an initial set of traffic path analysis data for the current website" is: "an initial set of traffic path analysis data for the current website, which includes at least the current website page requested."

Initialization NSP; initialization log-in data; initializing set of identification information

Defendants seek definitions similar to the one agreed upon for "initial use set of log-in information," where "initial" is roughly equivalent to "first time." MyMail asserts the "first time" limitation is unique to Claim 1 [the claim where "initial use set of log-in information" appears] since it does not appear in Claims 12 and 13 [the claims where the above disputed phrases appear]. In the context of Claims 12 and 13, MyMail asserts that the words "initial" and "initializing" refer to the beginning of a particular session. The Court finds MyMail's arguments to be circular and unpersuasive. The limitation in Claim 1 to which MyMail refers -- "initial use set of log-in information for initially communicating with an access SP" -- merely restates that the "initial use set" is "initially" used. It does not shed light on the meaning of "initial" in the patent.

The word "initial" and variations of that word are used consistently throughout the specification to refer to the first time the user contacts the ASP. Sec. e.g., Col. 6:50-51, 57; 13:24-25; 15:55; 16:42-45, 60. The Court therefore defines "initialization NSP" as "an NSP used the first time the user contacts the ASP," "initialization log-in data" as "log-in data used the first time the user contacts the ASP," and "initializing set of identification information" as "a set of information used the first time the user contacts the ASP."

To the extent the definition of "initial" in different claims should constitute a question of claim differentiation -- as MyMail seems to hint -- the Court notes that the "first-time" limitation is not absolute. Rather it refers to the first-time a user configures and establishes communications with an ASP or network, and distinguishes subsequent sessions where the user is simply reestablishing, without any reconfiguration, communications. Cf. Col. 6:50-51; 13:24-25. Put simply, there could be more than one first-time and the different claim language accounts for that, allowing a global definition of "initial" to suffice.

host computer is initially accessed by said client computer through a web page

Claim 1 contains the term "host computer is initially accessed by said client computer through a web page." Accolade contends that the term should be given its plain and commonly understood meaning and does not need construction. Alternatively, Accolade argues that "host computer is initially accessed by said client computer through a web page" means "client computer first interacts with the host computer by means of a web page." Citrix contends that the term means "the client computer first accesses the host computer via a web page by obtaining the internet address of the host computer from the web page." The parties dispute the meaning of "accessed" and whether the client computer must obtain the host computer's IP address.

"Host computer is initially accessed by said client computer through a web page" does not require construction. The terms, "host computer," "access," "client computer," and "web page" have been addressed above. Also, "initially" is a commonly understood word, and the intrinsic record does not contradict the commonly understood meaning of "initially." Thus, no terms in "host computer is initially accessed by said client computer through a web page" require further construction.

8 The Court addressed and resolved the parties' dispute about "access" in its discussion on "controlling a computer" and "host computer . . . being capable of being accessed by said client computer."
The remaining issue is whether the client computer must obtain the host computer's IP address. Citrix argues that the client computer must obtain the host computer's IP address because the IP address is required for the client and host computers to bypass the webpage and communicate directly. However, claim 1 states that the client and host computers can communicate "directly or indirectly." Col. 14:10-11. Because the client and host computers can communicate indirectly, they may communicate, for example, through a server that does not require transmission of the IP address. Furthermore, dependent claim 4 states that the "address" of the host computer is transmitted, creating a presumption that the independent claim does not include the limitation. Col. 14:22-24; Phillips, 415 F.3d at 1314-15. This presumption cannot be successfully rebutted in light of the claim language that expressly indicates that the client and host computers can communicate directly or indirectly. Thus, claim 1 does not require that the client computer obtain the host computer's IP address.

A. Claim Construction

USVO alleges that Movielink infringes the '792 patent by direct literal infringement, by inducing infringement, by contributing to infringement, and by infringement under the doctrine of equivalents. (D.I. 1 at P 20.) Specifically, USVO alleges that Movielink's Multi-CDN system infringes claim 1 of the '792 patent, and the parties' claim construction briefs and arguments regarding infringement are directed solely to interpreting claim 1. (D.I. 126 at 12; D.I. 131 at 1.)

Claim 1 of the '792 patent is as follows:

1. A system for transmitting video programs to remote locations over a switched telephone network, comprising:

   a central data facility having means for storing digital compressed versions of video programs;

   a request interface connected to said central data facility and to the telephone network, wherein said request interface receives requests for video programs made over the telephone network and communicates them to said central data facility;

   a distribution interface connected to said central data facility and to the telephone network, wherein said distribution interface initiates connections over the telephone network with remote locations in response to requests received by said request interface, and transmits thereto compressed versions of video programs previously requested through said request interface, such compressed versions being transmitted in less time than is required to view the programs in real time;

   a receiver at each remote location for connecting to the telephone network and receiving compressed video programs transmitted from said distribution interface, for storing the received programs, and for subsequently playing the video programs at a real time rate on a video display.

('792 patent, col. 7, II. 41-66 (emphasis added).)

While the parties have identified several terms in claim 1 as requiring construction, I have limited my discussion to interpreting one claim term which, as discussed in detail below, see infra Part IV.B.1-3, is dispositive of the outcome of this case. That term is "initiates," as noted in emphasis in the above quotation.

1. The Parties' Proposed Constructions

The parties have identified this claim term as "initiates connections" and therefore their proposed constructions encompass not only the term "initiates," but also the term "connections." (D.I. 148 at 12.) USVO proposes that I construe "initiates connections" to mean "creates an association between two or more endpoints (a distribution interface and the remote locations) for the transfer of data. (D.I. 126 at 32; D.I. 148 at 12.) Movielink proposes that I construe "initiates connections" to mean "places calls over a switched telephone network by dialing preauthorized numbers." (D.I. 131 at 22; D.I. 148 at 12.)

The arguments made by both parties in the claim construction briefing are focused on the term "connections," and not on the
term "initiates." USVO, however, recognizes that the term "initiates" is synonymous with "starts," when it states: "Even though both parties to the connection participate in forming the connection, one party starts or initiates the process." (D.I. 126 at 34 (emphasis added.))

2. The Court's Construction

The claim term "initiates" in the phrase "wherein said distribution interface initiates connections over the telephone network with remote locations in response to requests received by said request interface" (792 patent, col. 7, II. 52-56 (emphasis added)), has a plain and ordinary meaning. I will not read limitations into the claim from the specification when the term is easily construed according to its ordinary meaning as understood by a person of ordinary skill in the art. See Texas Digital Sys., Inc., 308 F.3d at 1205. According to Webster's Third New International Dictionary, "initiate" means "to begin or set going." Webster's Third New International Dictionary 1164 (3d ed. 1986). The disclosures in the patent specification and prosecution history do not suggest that any other meaning of "initiates" was intended by inventors Tindell and Crawford. See Teleflex, Inc., 299 F.3d at 1325 (internal citation omitted).

Claim 1, as represented above, was not originally included in the patent application. (D.I. 139, Tiu Dec., Ex. F at 18, Tiu Dec.,'792 patent application.) It was added by amendment (id., Ex. H at 2, Amendment) after original claim 1 was withdrawn following its rejection for, among other things, being anticipated by Cohen, a prior art patent. (Id., Ex. G at 1-6, Office Action mailed Dec. 17, 1990.) In arguments made to the Patent and Trademark Office distinguishing Cohen, the applicants stated: "The Cohen reference describes a system in which a local unit … initiates a download of a video program such as a movie. … The telephonic connection and request is made by the local unit itself. …" (Id., Ex. H at 7, Amendment (emphasis added).) The applicants argued that the invention claimed in the '792 patent, however, was distinguishable because of the function of the distribution interface: "A distribution interface … initiates a call to a remote unit, and transmits a compressed video program to it. … The distribution interface initiates all calls to remote units before transmitting the video programs to them." (Id., Ex. H at 8, Amendment (emphasis added).)

In addition, the applicants argued that their claimed system was different than the prior art because in their system, the central unit is "in control," rather than the local unit. The "control" aspect of the claimed system is directly related to the claim term "initiates" as seen in the following argument:

The difference in the claimed system as described above and the references leads to a system which is construed on entirely different philosophical lines than in the prior art. In the prior art, the local unit is in charge of the transaction, ordering and receiving a program at its convenience. In the claimed system, the user merely requests a program; the central facility ten [sic] initiates a new connection at its convenience and sends a program to the remote unit identified in the request. Since the central unit is in control rather than the remote unit, it is easier to design the central unit to make it run very efficiently.

(Id., Ex. H at 9, Amendment (emphasis added).)

Based on the applicants' arguments, it is clear that the inventors did not manifest "an express intent to depart from [the plain and ordinary] meaning." Teleflex, Inc., 299 F.3d at 1325 (internal citation omitted). Therefore, consistent with its plain and ordinary meaning, I construe "initiates" to mean "begins."

2. "initiates a diagnostic operation in the office machine system"

The next disputed claim term appears in Claims 57 and 58 of the '554 Patent. Ricoh asserts that "initiates a diagnostic operation in the office machine system" means "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation." (Chart at 9). Pitney asserts that the term should be construed as "to start a routine in the office machine system to analyze the cause or nature of errors in software or hardware." (Id.).

The Court notes that the term "initiate" appears in several of the claims of the '554 Patent. '554 Patent, Claims 50-51, 57-58.
For example, Claim 57 recites:

A system, comprising:

an office machine system . . . and

a diagnostic processor . . . wherein:

said diagnostic processor includes means for sending a command from the diagnostic processor to the office machine system over the communication line which initiates a diagnostic operation in the office machine system; and

data is transmitted from the office machine system to the diagnostic processor over the communication line after the diagnostic operation is initiated.

'554 Patent, Claim 57 (emphasis added). In these claims, the claim describes a command being sent from the diagnostic processor to the office machine system which causes a diagnostic operation to "initiate." The claims also indicate that processed data is transmitted after the initiation of the diagnostic operation. Id.

Once again, the Court finds itself in a position where minimal guidance is provided in the written description -- particularly in light of the fact the term "initiate" does not appear in the written description. As such, the Court must rely on the plain language of the claims which provide some guidance on this issue. Having concluded that "diagnostic operation" does not require the presence of error, the Court concludes that Ricoh's construction more accurately reflects the proper interpretation. Thus, the Court adopts that construction. Accordingly, "initiates a diagnostic operation in the office machine system" means "a command sent from the diagnostic processor to the office machine system causes the office machine system to begin a diagnostic operation."

4. initiating a next-line inquiry

OPTi contends that the phrase "initiating a next-line inquiry" means "sending a command to snoop the next line." nVidia asserts that "initiating a next-line inquiry" means "sending a command to snoop the next-line (e.g., asserting EADS #), without an associated request to transfer the corresponding line from secondary memory."

The parties again offer very similar constructions. The only issue for the Court to decide for this construction is whether "initiating a next-line inquiry" requires the additional limitation nVidia offers of "without an associated request to transfer the corresponding line from secondary memory."

There is no basis in the language of the claims to support nVidia's construction. Nor has nVidia pointed to a clear disavowal in the specification or prosecution history that would require adoption of this negative limitation. Accordingly, it is rejected.

The Court adopts OPTi's proposed construction.

5. initiating a next-line inquiry . . . to determine whether an N+1'th byte line of said secondary memory is cached in a modified state in said first cache memory

OPTi proposes that this phrase means "initiating a next-line inquiry to determine whether the next-line has been modified by the CPU." nVidia responds by asserting that the proposed construction of the phrase should be "initiating a next-line inquiry to determine whether the next-line has been modified by the CPU or may be read by the bus master without any further concern that the cache contains a more current copy of the data."
Once again, the parties have narrowed the dispute to a single question. In this case, the Court need only decide whether the additional limitation "or may be read by the bus master without any further concern that the cache contains a more current copy of the data" is required.

nVidia contends that OPTi's construction could allow for stale data as it is not limited in time. Thus, nVidia seeks to add the additional limitation recited above. nVidia's concern has merit as the goal of the invention is to prevent the transfer of stale data. However, nVidia's proposed construction would likely confuse the jury and is therefore rejected. The Court instead construes "initiating a next-line inquiry . . . to determine whether an N+1'th byte line of said secondary memory is cached in a modified state in said first cache memory" to mean "initiating a next-line inquiry to determine whether the next-line of data in the secondary memory is different from the corresponding data in the cache."

Pitney asserts that the claims expressly require the business office device to initiate the communication. For example, Claim 1 provides:

A method, comprising the steps of:

storing semi-static state data in a business office device, the semi-static state data including data which may change infrequently over a life of the business office device;

initiating communication between the business office device and a computer, by the business office [device];

transmitting the semi-static state data from the business office device to the computer; and

receiving the semi-static state data by the computer.

'289 Patent, Claim 1 (emphasis added). Claim 22 also claims a system that has a business office device which includes a "means for initiating communication between the business office device and the computer, before the transmitting device transmits the static state data." Id., Claim 22. Additionally, Claim 68 provides that the "business office device" includes a "means for initiating communication between the business office device and the operation terminal." Id., Claim 68. The Court agrees with Pitney that the claim language supports the conclusion that, with regard to this term, the communication is being initiated by the business office device.

Pitney further argues that its construction is consistent with the specification. Pitney references the specification which provides:

At power-on time, System Control Process 102 not only brings up the target device 10, but also establishes the communication with attached devices by first checking the physical connection and then establishing the communication by means which will be described below.

Copier engine 10 is idle until a user specifies some function through Operation Panel 20. During the idle time, however,
System Control Process 102 continuously monitors its state through Monitoring Process 104. If abnormal states are detected, System Control Process 102 sends data to Communication Process 101, which codes data and sends the coded data to the Operation panel 20 through communication media line 12. Communication Process 201 sends acknowledgment . . . .

'289 Patent, col. 2, l. 65 - col. 3, l. 10 (emphasis added). Based on this reference to the specification, Pitney argues that the claim term requires the business office device, rather than a user, to initiate communication with the operation panel. Pitney asserts that the specification distinguishes between a communication initiated by the business office device and a communication initiated by a user. The patent describes the latter as being initiated by a user only when the user specifies the function through the operation panel. According to Pitney, this was a feature that Motoyoma used to distinguish his invention from the prior art. ('289 Patent Prosecution History, Dec. 22, 1995 Amendment at 26-27).

In response, Ricoh argues that a person of ordinary skill in the art reading the patent would understand that a device initiates communication "even if a human has started a function, for example by turning power on, the properly construed claims cover the interactions between the various modules of the device." (Ricoh's Reply at 16-17). Ricoh relies on the specification and expert opinion of Adams for this proposition.

The Court concludes that Pitney's construction more accurately reflects the meaning of this specific claim term. As aforementioned, the Court agrees with Pitney that the express language of the claim requires the communication to be initiated by the business office device. See Phillips, 415 F.3d at 1312 (noting the "bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude") (quotations omitted). The claim here identifies the business office device as what initiates the communication and does not reference a user.

The Court rejects Ricoh's construction because it fails to account for the key term "initiate." For example, the limitation that the business office device has the "intelligence and capability of establishing communications" ignores the plain and ordinary meaning of the term "initiate" which is to start something. Because the claim language itself indicates what performs the "initiation," i.e., the business office device or a means contained in the business office device, this should be incorporated in the term's construction.

The Court will therefore adopt Pitney's construction. Accordingly, "initiating communication between the business office device and a computer, by the business office device" and "initiating communication between the printer and the computer by the printer" mean that "the business office device/printer itself starts or establishes communication with the computer." n7

n7 To clarify, the Court concludes that these claim terms require the business office device or printer to initiate the communication with the computer. Based on the claim language, any actions that may occur before the business office device or printer actually initiates communication, e.g. a user pressing a button, need not be included in the claim construction. As such, an act involving human intervention may read on this limitation so long as the requirement that the business office device or printer initiates the communication with the computer is met.

--- End Footnotes ---

--- Disputed Claim Term: "Initiator group (igroup)"

*2*(claims 2, 8, 18, 21, 25, 26, 29, 33)

Sun's construction: A logical named entity with a human-friendly name that is assigned to one or more addresses associated with one or more initiators. Membership

NetApp's construction: This term does not need to be construed because its plain meaning suffices and this term is already clearly defined in the body of the
in the entity can be modified at any time by adding or removing initiators.

The parties dispute whether or not the claim term needs construction in the first instance. Insofar as the Court agrees that the term needs construction, the parties' constructions present two main disputes: whether an igroup must have a human-friendly name, and whether an igroup must be capable of being modified by adding or removing initiators. Sun contends that igroups must have these characteristics.

As to the first issue, NetApp notes that the claims already define "igroup." Claim 25, cited above, describes "selecting a selectable name for the igroup, where the igroup is a logical named entity that is assigned to one or more addresses associated with the one or more clients." NetApp argues that this definition of igroup -- "a logical named entity that is assigned to one or more addresses associated with the one or more clients" -- is sufficient and complete because it explains that an igroup is assigned to one or more clients and the igroup is itself named, which permits the benefit described in the patent of referring to the igroup by its name, eliminating the need to refer to individual clients. However, as Sun points out, this definition is not included in all of the claims in which the term appears, see, e.g., Claim 8, which could mean that the term as it is used throughout the claims has a different meaning than the definition set forth in certain specific claims.

NetApp relies on TIP Systems, LLC v. Phillips & Brooks/ Gladwin, Inc., 529 F.3d 1364, 1369 (Fed. Cir. 2008), noting that the Federal Circuit upheld the District Court's construction where it relied "heavily on the claim language to construe the claim term." In that case, the court's construction was "supported by an identical definition in the specification." Id. Here, too, the specification states: "An igroup is a logical named entity that is assigned to one or more addresses associated with one or more initiators." '152 patent at 2:42-45. The use of the word "is" in the specification may "signify that a patentee is serving as its own lexicographer." Sinorgchem Co. v. ITC, 511 F.3d 1132, 1136 (Fed. Cir. 2007) (citation omitted). 11 TIP Systems is somewhat distinguishable, however, as appellant there was arguing for a construction that was contrary to the express language in the claim and specification, while Sun's proposed definition would supplement (with additional limitations), rather than contradict, the definition contained in the specification and the claim. See 529 F.3d at 1369. Despite this distinction, the Federal Circuit's analysis supports NetApp's proposed construction, but the Court turns to other portions of the specification for further guidance.

--- Footnotes ---

11 Here, unlike in Sinorgchem, the patentee did not set off the term "igroup" in quotation marks, which are an indicator of an explicit definition.

--- End Footnotes ---

Sun argues that the summary of the invention requires the human-friendly limitation. See C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term . . . . Statements that describe the invention as a whole are more likely to be found in certain sections of the specification, such as the Summary of the Invention."). The summary of the invention begins:

The present invention overcomes the disadvantages of the prior art by providing a technique that enables efficient access to logical unit numbers (luns) or virtual disks (vdisks) stored on a storage system, such as a multi-protocol storage appliance. The technique allows a grouping of initiators by a "human-friendly" logical name that is mapped to a lun or vdisk on the storage appliance. By "human-friendly" it is meant, generally, a hierarchical naming convention that may use a spoken language name including an arbitrary label selected by a user or administrator. . . .

The inventive technique enables access to the vdisk by all initiators that are members of the initiator group (igroup). An igroup is a logical named entity that is assigned to one or more addresses associated with one or more initiators. These
addresses may comprise fibre channel (FC) world wide name (WWN) or iSCSI name identifiers (IDs). Therefore, rather than having to specify these IDs when desiring access to a vdisk, an initiator need only specify the human-friendly name of the igroup.

'152 patent at 2:26-48 (emphasis added).

The summary then states: "According to the invention, the technique includes a method of creating logical igroups of initiators, each identified by a human-friendly name or label, and binding of each created igroup to one or more WWN or iSCSI IDs." Id. at 2:49-52 (emphasis added). The abstract, excerpted in the above description of the '152 patent, also discusses the human friendly name, noting that the technique of the invention allows a grouping of initiators by a human friendly logical name, so that an initiator need only specify the human friendly name of the igroup when desiring access to a vdisk.

The detailed description portion of the specification further states:

The present invention relates to a technique that allows a grouping of initiators by a "human friendly" logical name that is mapped to a lun or vdisk stored on the multi-protocol storage appliance to thereby enable access to the vdisk by all initiators that are members of the initiator group (igroup). As used herein, a "human friendly" logical name is an arbitrary label selected by the user of administrator that may be a spoken name, a path designation or include a hierarchical naming convention. An exemplary human friendly name would be "administrators" for a name of an igroup that comprises the administrators of a given network.

Id. at 10:36-47. See also id. at 10:54-58 (rather than having to specify certain name identifiers when desiring access to a vdisk, "an initiator need only specify the human friendly name of the igroup"); id. at 12:17-21 ("According to the invention, the novel technique includes a method of creating logical igroups of initiators, each identified by a human friendly name or label").

Sun argues that each of these statements in the specification establishes that the invention itself, not merely a preferred embodiment, consists of an igroup with a human friendly name. However, the specification also makes clear that the term "human friendly" does not mean user-friendly as perhaps a juror would understand the term. Rather, it has a specific meaning, which is a "hierarchical naming convention that may use a spoken language name including an arbitrary label selected by a user or administrator" or "an arbitrary label selected by the user of [sic] administrator that may be a spoken name, a path designation or include a hierarchical naming convention." '152 patent at 2:32-35, 10:36-47. A path designation, for example, is often not a simple English, user-friendly name. Therefore, at a minimum, if the construction contains the "human friendly" limitation, it must also define that term so as not to confuse a jury.

In addition, as NetApp's expert points out, the specification discusses "allowing" grouping initiators by a human friendly name, suggesting that their use is not required. Ganger Decl. P 34. However, as Sun notes, the phrase "allow" is not used in every instance cited above. In addition, despite using the word "allow" in some instances, the specification still seems to be describing the nature of the invention as a whole. "Human friendly," therefore, seems to be part of the definition of "igroup." The claim language and specification, when taken together, show that the claimed invention, at a minimum, permits a human friendly name for igroups.

NetApp also argues that the claim language and its history reveal that the "human friendly" limitation is not a requirement of the invention. The claims themselves never mention "human friendly," and instead only require that an igroup name be "selectable." See, e.g., '152 patent at 18:7 (Claim 25). Dr. Ganger notes that the claims used to contain the term "human friendly," but were amended to "user selected," which was then changed to "selectable." Ganger Decl. P 34. In other words, "human friendly" was explicitly removed from the claims, which is strong evidence that the limitation should not be imported into the construction. When the applicant filed the application for the '152 patent, some of the original claims (e.g., independent claims 1 and 6, which became 8) included the term "human-friendly." See Weber Decl., Ex. 9 (U.S. Patent Application) at NAC0000940-44. Others (e.g., independent claims 16 and 19, which became claims 18 and 21, respectively) instead simply used the phrase "initiator group (igroup) name." Id. To one of ordinary skill in the art, this history would have indicated that, for some claims, a human-friendly name was required for the initiator group and, for others, it was not. Further, in the April 4, 2006 amendment, the applicant changed several occurrences of "human-friendly" in the claims to "user selected," explicitly removing the human-friendly name requirement from the subset of claims that originally included
it. Weber Decl., Ex. 10 (April 4, 2006 Amendment) at NAC0001656-63. The applicant later changed two instances of "user selected" to "selectable." Weber Decl., Ex. 11 (August 25, 2006 Amendment) at NAC0001683-91. Ganger Decl. P 34. The patent prosecution history, therefore, indicates that the human friendly limitation may be a permissive limitation, but is not a requirement of the invention.

The Federal Circuit's analysis in Liebel-Flarsheim Co. v. Medrad, 358 F.3d 898 (Fed. Cir. 2004), sheds some light on the meaning of the specification and the prosecution history here. In Liebel-Flarsheim, the Federal Circuit considered the scope of claims in patents related to fluid injectors used during medical procedures. Id. at 900. The Court found that the language in the patent abstract did not suggest that a pressure jacket was an essential component of the invention, nor was there language in the specification that disclaimed the use of the invention in the absence of a pressure jacket. Id. at 908 (where abstract stated that an injector and method of replacing the injector was provided "in which the syringe is loadable and unloadable into and from the injector through the open front end of a pressure jacket of the injector," and the summary of invention stated that "according to the principles of the present invention, there is provided an . . . injector having a front end loadable syringe that can be loaded into and removed from the injector pressure jacket . . ."). The present case is in a somewhat different posture, insofar as the patent here distinguishes prior art on the basis that it required specifying various name identifiers when desiring access to a vdisk, unlike the igroup. See '152 patent at 2:26-48. Therefore, the specification in the present case provides somewhat stronger evidence for limiting the claim term than did the specification in Liebel-Flarsheim.

However, in Liebel-Flarsheim, the patent applicants specifically replaced claims with references to a pressure jacket with a new set of claims, many of which omitted that limitation. Id. at 909. This prosecution history is quite similar to that of the '152 patent. The Federal Circuit noted that the replacement was a "strong indication that the applicants intended those claims to reach injectors that did not use pressure jackets." Id. (emphasis added). While the prosecution history in that case contained an explicit statement of intention (lacking in this case), as applicants stated that there was not necessarily a pressure jacket in the amended claims, id., in the present case, the omission of the "human friendly" term from the claims (and replacement of that term with "user selected" and then "selectable") provides similarly strong evidence that the applicant intended to broaden its claims.

After examining the patent prosecution history, the Liebel-Flarsheim Court noted that "[t]he only remaining question is whether the applicants failed in their effort and the pressure jacket limitation remained a part of all of the claims, even those from which the reference to the pressure jacket had been removed." Id. The Court, however, was unpersuaded by that argument, especially in light of the express statement in the prosecution history. Finally, the Federal Circuit also held that "[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all the objectives." Id. at 908. Similarly, here, there are multiple objectives of the invention, and each claim need not achieve all of them. Applying Liebel-Flarsheim's analysis to the present case, the Court finds that the prosecution history, when read with the specification and claim language, indicates that igroups may, but need not, have a "human friendly" name.

As to the second issue -- whether an igroup must be capable of being modified by adding or removing members from the group -- Sun argues that an igroup cannot be static and must be capable of modification. According to Sun, NetApp's construction would permit an igroup that is incapable of being modified once it is created.

The claim language does not require or mention this "modification" characteristic. The parties' arguments primarily hinge upon the specification. NetApp notes that the summary of the invention contains a definition of igroup, which omits any reference to being modifiable. The summary states: "An igroup is a logical named entity that is assigned to on or more end loadable syringe that can be loaded into and removed from the injector pressure jacket . . ."). The present case is in a somewhat different posture, insofar as the patent here distinguishes prior art on the basis that it required specifying various name identifiers when desiring access to a vdisk, unlike the igroup. See '152 patent at 2:26-48. Therefore, the specification in the present case provides somewhat stronger evidence for limiting the claim term than did the specification in Liebel-Flarsheim.

An igroup has certain attributes, such as transport protocol type and operating system type of the member initiators. Illustratively, the igroup need not be homogeneous in terms of these attributes, i.e., an igroup can contain initiators having different combinations of FCP and/or iSCSI as a transport. For example, iSCSI and FCP initiators can be combined into a single igroup. In addition, igroup can support various operating system initiator members. This allows operations, such as graceful rolling upgrade of a FCP SAN cluster to an iSCSI cluster, with no application downtime. Moreover, membership of the igroups can be modified at any time, i.e., initiators can be added to or removed from an igroup and, as a consequence, inherit or lose the mappings of the igroup, respectively.
'152 patent at 2:64-3:10. See also id. at 3:16-20 ("e.g., when replacing an initiator in a client"), 15:18-22 (same); 14:29-33 (discussing illustrative embodiment, noting "[i]n addition, membership of the igroups can be modified at any time, i.e., initiators can be added to or removed from an igroup.").

NetApp argues that the above paragraph makes clear that the listed features, including the modifiable feature, are examples, as the paragraph uses the terms "illustratively" and "for example." However, the word preceding the modifiable discussion is "moreover," which means in addition to what has been said. Thus, the paragraph is ambiguous as to whether or not the "modifiable" feature is a necessary aspect of the igroup, or is merely an example of a characteristic of an igroup. But it is clear that the modifiable feature is just one of the many listed attributes.

Sun notes that NetApp does not challenge the facts that: (1) there is no teaching in the patent of a static igroup, and (2) the teaching of the patent is to the contrary. At the hearing, however, the parties discussed whether or not the patent contained an example of an igroup that was not capable of being modified. NetApp noted that the address change example in the patent involves an igroup that is associated with multiple vdisks and is not modified. When the initiator that is bound to the igroup is replaced, only the initiator address is changed. Therefore, the initiator address, as opposed to the igroup itself, is modified, which requires no additions, changes, or deletions to the igroup itself. See '152 patent at 14:34-60. The address change example, therefore, weighs slightly in favor of NetApp's construction, because it is an example in which the igroup does not change and the membership itself is not modified.

Sun also relies on extrinsic evidence, noting that the term "group" has a well-understood meaning in computer science consistent with its construction, as it is well-understood by those of ordinary skill in the art that groups can be modified by adding or removing members of the group. Declaration of Dr. Scott Brandt P 49. Conversely, a single-member set that is incapable of adding or removing members would not be considered to be a group. Id. P 50. Dr. Ganger, however, contests this point, noting that to one of ordinary skill in the art, a "group" is simply a named set of one or more things (its members). While groups usually allow modification of membership, this feature is not a definitional aspect. Also, neither the Microsoft computer dictionary definition nor the BSD book excerpt provided by Sun's expert Dr. Brandt mentions that groups are modifiable. See Ganger Decl. P 36; Brandt Decl. PP 48-49 & Ex. 3. Accordingly, the Court does not find Dr. Brandt's opinion to be persuasive and does not find that an igroup must be capable of being modified.

In sum, the Court construes the term "initiator group (igroup)" as "a logical named entity that may have a human friendly name assigned to one or more addresses associated with one or more initiators. As used in the patent, 'human friendly name' means an arbitrary label selected by the user or administrator that may be a spoken name, a path designation or include a hierarchical naming convention."

EMC asks the Court to construe this term as: "A command that signals to the peripheral device the beginning of the process of replacing resident microcode." EMC also is willing to add the following to its proposal: "This command is sent by the operating system to a peripheral device in response to an initiator peripheral device request sent by an application program to the operating system, and causes the peripheral device to enter a waiting state ready to receive new microcode." HP proposes (in its opposition brief):

A command sent by the operating system to a peripheral device in response to an initiator peripheral device request sent by an application program to the operating system. The command causes the peripheral device to enter a waiting state ready to receive new microcode. The command is separate and functionally different from a subsequently received transfer peripheral device command.

The initiator peripheral device command is one that an operating system sends to the peripheral device in response to a routine legitimately called by an application program (e.g., a write or read request), as opposed to a special command for the peripheral device to which an application program would not normally have access.
Although the claim language does not clearly define the term, it indicates that the peripheral device enters the waiting period in response to the initiator peripheral device command. Additionally, the initiator peripheral device command corresponds to an initiator peripheral device request sent from the application program -- executed by the computer system processor -- to the operating system routine. The written description further explains:

The operating system provides operating system routines, legitimately accessible to an application program, for providing such access. In response to a call by an application program to such an operating system routine, the operating system will send a specific peripheral device control command . . . to the peripheral device to perform the requested access.

801:2/4-10.

It is not clear from the claim language whether the transfer and initiator commands must be "separate and functionally different." The claim language indicates that the peripheral device enters a waiting state in response to the initiator peripheral device command and that transfer of microcode to the peripheral device cannot occur in the absence of a transfer peripheral device command, strongly suggesting that there are two distinct commands. The claim does not state that microcode may be transferred in response to the initiator peripheral device command or that the transfer peripheral device command can induce a waiting state. Thus, it appears from the claim language alone that the two commands are distinct. The specification strongly suggests that the transfer and initiator commands must be different commands. For example, the resident processor of the peripheral device

detect[s] a first disk control command, called the initiator command . . ., in response to which the disk drive is placed in a state waiting to receive new control microcode. When in this waiting state, a second disk control command, called the transfer command . . ., is detected which contains the new control microcode for the disk drive.

801:6/37-44. Similarly, "[w]hen the initiator command is detected, no transfer of data is performed to the disk drive platters 114. Instead, the disk drive enters a state ready to receive new microcode." 801:8/63-65. Finally, the prosecution history indicates that the patentee distinguished the invention from prior art that disclosed a "system which enters the waiting state when a single . . . command containing the complete replacement microcode is being received and processed," and the patentee referred to the present invention as using a "two command sequence . . . to download replacement microcode." Declaration of Steven E. Derringer in Support of Plaintiffs and Counterclaim Defendants' Opposition Claim Construction Brief on Key Terms ("Derringer Decl."), Separate Appendix, vol. 1, pp. 0170, 0174-75. The patentee's description is consistent with the claim language and the specification. Accordingly, in the claimed invention, the peripheral device must receive two distinct commands in order to receive microcode.

HP also proposes language excluding a "special command." The basis for the limitation is found in the prosecution history, in which the patentee distinguished the claimed invention from the prior art by stating that it allowed for updating of resident microcode via operating system routine, in contrast to special commands that would require shutting down the computer system. This statement is consistent with a construction that includes reference to operating system routines that respond to application programs, in that a special command, by definition, does not utilize this process. See Derringer Decl., Separate Appendix, Vol.1, p. App. 0170 (The "operating system forbids access to "special commands" by the application program."). Thus, the inclusion of reference to "special commands" is unnecessary.

Accordingly, the Court construes this term as "a command sent by the operating system to a peripheral device in response to an initiator peripheral device request sent by an application program to the operating system, and which causes the peripheral device to enter a waiting state ready to receive new microcode."
penetration of the ink to the back surface such that the ink resides on the back surface of the sheet - not through the back sheet. We agree with the trial court's construction that ink must reside on or at the back surface of the sheet - but does not have to permeate through the back surface of the sheet.

--- Footnotes ---
n3 In so construing this claim limitation during a hearing on summary judgment (of invalidity under the on-sale bar and of co-ownership), the trial court noted that, prior to claim construction, it had "met with the parties and received a list of those phrases and aspects of claims that were in dispute, and this was not one of them." During the summary judgment hearing, then, the court construed the limitation. "There is no question[] in my mind . . . that that claim . . . requires the ink to be on or at the back surface." While an argument could have been made that the government waived any disagreement with the court's construction, it was not made. Moreover, liability turns on the correctness of the construction. Hence, we will review it.

-- End Footnotes --

The claim language itself of the limitation "ink permeates through the sheet from said printed front surface to said back surface to provide the indicia in mirror image form on said back surface" supports the trial court's interpretation. While it is true that the claim limitation contains the term "through," this word cannot carry the government's argument. For example, claim 10 states that the ink permeates "through the sheet" - not "through the back of the sheet." Claim 10 further explains how far the permeation goes - "from said . . . front surface to said back surface." Thus, the ink travels to the back surface of the sheet - not through the back surface of the sheet. Thus, the claim language provides no support for the government's argument. Indeed, it refutes the argument.

The specification further bolsters the correctness of the trial court's construction. In the Description of a Preferred Embodiment, the written description discloses that the ink "permeat[es] from the upper to lower surface of the top sheet." '283 patent, col. 5, ll. 19-20. Later, the written description explains what "through the sheet" means and how far the ink must travel - "the ink permeates through the top sheet from its front surface to its back surface." Id. at col. 7, ll. 49-51 (emphasis added). In yet another instance, it teaches that the ink "permeat[es] through the paper sheet . . . from the front to the back." Id. at col. 7, ll. 56-57 (emphasis added). Thus, in each instance, the specification explains how far the ink permeate[s] - through the sheet, but only to the back of the sheet - not through the back of the sheet. Nor does the prosecution history require a different construction.

The extrinsic evidence of dictionary definitions supplied by Paymaster strengthens this distinction between "to" and "through" as well. "To" means: "in a direction toward," "reaching as far as," "to the degree or extent of," "towards a specific state," "in contact with," and "in front of." Webster's II New College Dictionary (2d ed. 1999) (emphasis added). These definitions indicate that "to" means something that has not penetrated through another thing, but rather something that travels "toward something" and "contacts" it to be "in front of" it. The government does not supply contrary definitions of "to" and does not offer any definitions of "through."

Moreover, the government's argument is impractical, for if the ink came out the back side of the sheet, it would smear the surface below. Therefore, it is difficult to understand how the government can expect us to accept its argument which lacks support in the claims, the written description, dictionaries, and practicality.

GO BACK

2206

1. Input

The first element of claim 1 provides: "A method for generating an input to a physical system to minimize unwanted dynamics in the physical system response ..." (635 patent Col. 10 lines 41-42) (emphasis added).

Plaintiffs allege that the term "input" encompasses any "information that is delivered to the system from outside the system", relying on the plain dictionary definition of the term. (Pls.' Claim Construction Br. At 39). The dictionary definition of "input" is "data or similar information fed into a computer or accounting machine." Merriam-Webster's Third
New International Dictionary Unabridged, Merriam-Webster, Inc., 1993. 6 Defendants respond, relying principally on the specification, that an "input" is "the second signal that is applied to a control system to cause a desired action in the control system such that the altering of the first signal to create the second signal is unaffected by the actual action of the control system." (Joint Claim Construction and Prehearing Statement at Exhibit B, '635 Patent 1). The principal distinction in defendants' definition is that the signal sent to the physical system is "an altered signal generated outside the control loop." (Defs.' Proposed Claim Construction Order for U.S. Patent Nos. '635; '267 and '473 at 10). Defendants seek to exclude situations where the input shaping is performed within the control loop. The control loop is a configuration where a system receives an input, acts in response to it, then measures whether the system reached the desired state. If the system did not respond as anticipated, then the system is adjusted repeatedly until the correct state is reached.

6 While this definition has not been offered into evidence by either party, dictionaries are usable "As resources and references to inform and aid courts and judges in the understanding of technology and terminology . . . at any stage of a litigation, regardless of whether they have been offered by a party in evidence or not." Texas Digital Sys. V. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002).

The plain meaning of "input" is consistent with its use throughout the patent. Particularly relevant are two uses in claim 11. The preamble provides: "Method for shaping an arbitrary command input to a dynamic physical system . . ." ('635 patent Col. 11 lines 17-19). The third element provides: "controlling the physical system based on the shaped command input . . ." ('635 patent Col. 11 lines 24-25). Any interpretation of the term "input" must be consistent across these uses. There is a "presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear . . . that the terms have different meanings at different portions of the claims." Fin Control Systems Pty, Ltd., v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). The use in the preamble of claim 11 clearly indicates that the "input" therein is the input to the physical system that is going to be shaped, as the second element provides that the input is shaped by "convolving the impulse sequence with the arbitrary command input." ('635 patent Col. 11 lines 22-23). The use in the third element is modified by "shaped command," indicating that the input has been shaped as disclosed in the first two elements. The plain meaning of "input" offered by plaintiffs is consistent with all these uses. "Input" covers, generally, a piece of information which is delivered to a system. In the preamble of claim 11, this input is the unshaped input to a physical system which the invention addresses. In element three, it is the shaped element produced by the invention.

Defendants offer two main arguments for their proposed construction. The first is that the patent only discloses a system where the shaped command input is generated outside the control loop. (Defs.' Responsive Claim Construction at 11). An inquiry into whether or not a patent adequately discloses an invention is a question of validity. See, e.g., Moba v. Diamond Automation, 325 F.3d 1306 (Fed. Cir. 2003). It is improper to determine validity before properly constructing the claims. See Markman, 52 F.3d 967. It is apparent that plaintiffs have not disclaimed the situation where input shaping is performed within the control loop. Whether or not they have adequately disclosed a method which can be used within the control loop is question of validity. Plaintiffs have asserted a construction that is supported by the plain language of the specification, and accordingly bear the risk that the patent will subsequently be found invalid.

Defendants' second argument is that Plaintiffs' construction "would necessarily cover an unaltered input that would result in the very unwanted vibrations the alleged inventions are intended to eliminate." (Defs.' Responsible Claim Construction at 10). This assertion lacks merit. Adopting plaintiffs' construction merely indicates that an "input" follows the plain and ordinary meaning of the term. Concerns that the patent will be broadened beyond what is claimed, "a method for generating an input . . . to minimize dynamics," are unfounded as infringement requires that each limitation of the claim be met, either literally or under the 'doctrine of equivalents.' See Frank's Casing Crew & Rental Tools, Inc., v. Weatherford Int'l, Inc., 389 F.3d 1370, 1377 (noting "literal infringement requires that each and every limitation set forth in a claim appear in an accused product"); Riles v. Shell Exploration and Production Co., 298 F.3d 1302, 1309 (stating "infringement under the doctrine of equivalents requires that the accused product contain each limitation of the claim or its equivalent.") An accused infringer must meet the other limitations of the claim in order to infringe, including that the method "minimize unwanted dynamics." If an input does not "minimize unwanted dynamics," then it is not covered by claim 1 because it has failed to meet all the elements of that claim.
Accordingly, plaintiffs' proposed construction for the term "input" is adopted. The term "input," as used in independent claims 1, 11, 21, and 24, and dependent claim 2, is interpreted to mean: "information that is delivered to the system from outside the system."

D. "an input port and an output port"

1. The Parties' Proposed Constructions

The parties' dispute whether the claim language "an input port and an output port" requires separate input and output ports, or just a single port capable of performing both input and output functions. In contrast with its argument regarding "video image," Ampex argues that "input port" and "output port" should be construed separately, rather than in the context of the phrase used in the claims. (D.I. 300 at 34.) Ampex proposes that "port" should be construed to mean "an interface between a communications channel and a unit of computer hardware." (D.I. 305 at 42.) In accordance with this construction, Ampex asserts that "input port" means "a port for inputting data into the claimed random access memory," and "output port" means "a port for outputting data from the claimed random access memory." (Id.) Ampex bases its construction on a technical dictionary definition of "port" and the ordinary meaning of "input" and "output." (D.I. 300 at 34.) Ampex also argues that a RAM with separate input and output ports had a specialized name at the time the '121 patent was filed, and that there is no intrinsic evidence to support reading that narrower term into the claims. (Id.)

Defendants assert that "an input port and an output port" should be construed as one phrase meaning a random access memory with "an input port and a separate output port." (D.I. 305 at 42.) Defendants' proposal relies on the language of the claim and the one drawing included in the specification of the '121 patent. (D.I. 299 at 16.) Defendants also set forth a claim differentiation argument in support of their claim construction. (Id. at 16-17.)

2. The Court's Construction

Although the specification does not state that the random access memory has any particular input or output structure, the language in claims 8 and 14 imposes a limitation. Claims 8 and 14 disclose an apparatus that includes a "random access memory means having an input port and an output port." (121 Patent at 6:53-54, 9:1-2.) These claim recite an input port and an output port, which suggests that the input port is "structurally distinct" from the output port. Cf. Gen. Am. Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 769-70 (Fed. Cir. 1996) (holding that claim language requiring "openings ... adjacent each of said side walls and ends walls' ... suggests that the openings adjacent to the side walls are structurally distinct from the openings adjacent to the end walls" (original emphasis)). Thus, the plain language of the claims favors Defendants' proposed construction.

Defendants' position that the language in claims 8 and 14 requires separate input and output ports is also supported by the lack of any similar language in claim 7. The doctrine of claim differentiation is often cited for "the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006). But, there is also "a presumption that two independent claims have different scope when different words or phrases are used in those claims." Seachange Int'l, Inc. v. C-Cor Inc., 413 F.3d 1361, 1369 (Fed. Cir. 2005). It must be noted that the doctrine is "'not a rigid rule,'" and it has been applied cautiously so that parties cannot "'broaden claims beyond their correct scope.'" Curtiss-Wright, 438 F.3d at 1381 (quoting Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991); Fantasy Sports Props., Inc. v. Sportsline.com, Inc., 287 F.3d 1108, 1115 (Fed. Cir. 2002)). This concern arises primarily when a party argues that one independent claim must be broader than another because of differences in the claim language. See, e.g., Seachange, 413 F.3d at 1369 (holding that the difference in claim language creates a presumption that one independent claim does not require the limitation present in another independent claim). However, in this case, Defendants argue that an independent claim must be narrower than another because it contains language that is not present in the other independent claim. Therefore, the usual concern with applying claim differentiation is not present in this case, and, as a result, the differences between the claims may serve as a "useful guide in understanding the meaning of particular claim terms." Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005).
As previously discussed, claims 8 and 14 of the '121 patent recite an apparatus comprising, among other elements, a "random access memory means having an input port and an output port." ('121 patent at 6:53-54, 9:1-2.) Claim 7 also describes an apparatus with a "random access memory means," but makes no reference to any input or output ports. (Id. at 6:27-31.) The parties appear to agree that a random access memory must have input and output capability. (D.I. 299 at 16; D.I. 300 at 34-35.) Furthermore, both parties submit that, at the time the patent was filed, a random access memory could have a single port with both input and output capability, or a separate input and output port. (D.I. 346 at 20; D.I. 348 at 29.) Therefore, according to the parties, no language was necessary to specify that the random access memory in claim 7 had input and output capability. This supports Defendants' proposition that the additional language in claims 8 and 14 serves to specify one of the available input/output structures, namely separate input and output ports.

Ampex argues that this is not the proper construction because a random access memory with separate input and output ports was called a "dual-ported RAM," and that this specialized term does not appear in any of the intrinsic evidence. (D.I. 300 at 34-35; D.I. 346 at 20.) While that is true, the language that does appear in claims 7, 8, and 14 favors Defendants' proposed claim construction. Therefore, I will construe the phrase "an input and an output port" to mean "an input port and a separate output port."

Broadcom argues that "input data" should be construed as "information received from an external source," which would include data sent directly to the two encoders but not data passing through the first encoder and entering the second. Agere argues for the construction "data-bearing bits," which would include all data other than output data. 69

69 The limitation that Agere's construction would not include output data is asserted by Agere alone and belied by the plain text of Agere's construction. Because the Court rejects this construction on other grounds, however, it need not determine whether its overbreadth is also fatal. In addition, the Court need not reach the issue of whether Agere's construction impermissibly reads the word "input" out of the claim term, but the Court notes that even Agere's own expert, Dr. Fuja, does not entirely concur with the omission of this word. (See Fuja Rep. P 33 (defining term as "'data-bearing bits' input into a particular system to attain an output" (emphasis added)).

The claim language clearly supports Broadcom's construction. Claims 1 and 11 describe a process in which some of the "input data" is redundancy encoded "to provide a first encoded signal," and other portions of the "input data" are combined with the first portion of that "first encoded signal" using another redundancy code. This language clearly differentiates between the "input data," which is that data sent directly to the two encoders, and the "first encoded signal," which is the data sent from the first encoder to the second encoder. Agere's construction attempts to obliterate this distinction by including the "first encoded signal" within the definition of "input data." Accordingly, the Court rejects Agere's construction as inconsistent with the claim text at issue.

By contrast, Broadcom's construction maintains the distinction between "input data," i.e., data from an external source, and the "first encoded signal," which would not be input data because it is produced internally. Broadcom's construction is also supported by the testimony of Dr. Heegard and at least three dictionary definitions in effect at the time of the patent. (Heegard Rep. at 19 (citing IEEE dictionary definition as "data received from an external source," McGraw-Hill dictionary definition as "information . . . from the external world," and Webster's dictionary definition as "information fed into a computer").) Agere's expert, Dr. Fuja, provides no evidence to counter Dr. Heegard's conclusions except for a dictionary citation taken from a 2001 dictionary, nine years after the '551 patent was filed. (Fuja Rep. P 33.) Accordingly, the Court credits Dr. Heegard's conclusion that a person of ordinary skill in the art would agree with Broadcom's construction, and that construction is therefore adopted. 70
70 In its supplemental brief, Agere appears to argue for a new construction of this term as "data received directly or indirectly from an external source." (Agere Supplemental Br. at 16.) This "directly or indirectly" language, however, is ambiguous and dodges the substantive issue at hand. In addition, the Court notes that Agere's oft-repeated argument that the data emerging from the first encoder is "mostly" or "almost entirely" input data (id. at 15; see also Wei Dep. at 174 (stating that first encoded signal "includes" input data)), fails because it would defy logic to construe the term to include this data when even Agere tacitly admits that is not entirely input data.

--- End Footnotes ---

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TERM # 5: "input device" - Defendants citation to intrinsic evidence does not support their proposed construction, limiting the types of devices that could be used to input data. While the specification gives specific examples of input devices, such as a mouse and a keyboard, there is no indication that the term is limited to those examples. This phrase means: "any input device used to prepare or submit bids."

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# 2209

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# 2210

# 1 -- "input device" -- (appears in claims 14, 15, 17, 19, 29, 30, 32, 34, 44 and 45) Luma's Construction (Luma May 4, 2005, p.1).

MASTER'S CONSTRUCTION

# 1 -- "input device" -- means a device for generating, obtaining or acquiring an image during a medical procedure.

REASONS

INTRINSIC EVIDENCE

The Patent claim 14 recites "input device for obtaining said images". (Col. 48, L.13). The preamble of the claims state the images are those images acquired during a medical procedure. (Col. 48, Ls. 11-12). The Specification of the Patent has a number of references to "input device". A few examples:

(i) a system for acquiring images during a medical procedure" (Col. 1, Ls. 28-30);

(ii) images obtained by an input device (Col. 1, L. 32); and

(iii) "images generated by * * * image input devices" (Col. 5, Ls. 46-47).

The ordinary meaning of the term "input device" as used in context of the Patent in the Specification and claims has been applied. This is what a person of ordinary skill in this art would understand the term to mean.

The construction is consistent with the file history. Applicant for the Patent stated operation of input devices that acquire images during a medical procedure such as an endoscopy (Applicant's Response Bates LUM 0000204) to Examiner's Action dated January 30, 1995, p. 7 under "REMARKS" P 2, Ls. 4-5, p. 8, Ls. 2-3; 3RD P, L.5; p. 9, L.5. The Examiner refers to input devices such as endoscopes for obtaining medical imaging data (Office Action (Bates LUM 0000403) dated

- 2586 -

EXTRINSIC EVIDENCE

Testimony given by Branson is consistent with the above intrinsic evidence in the Patent (Markman Hearing, Branson, Tr. 35:24 - 36:3).

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's Construction (Luma May 4, 2005, p. 1) and the Master's Construction are consistent. The Master added "generating" in the disjunctive to the construction.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth in (Stryker May 23, 2005, p. 1). Stryker states that Luma does not address the position Luma took in a summary judgment that ultrasound devices cannot be an "input device" because ultrasound devices do not obtain images. (Stryker May 23, 2005, p. 1).

Stryker points out that the Patent refers to an ultrasound device as an "input device". (Citing Patent, Col. 6, Ls. 9-19).

Interesting Issue

If an ultrasound scanner would not generate, obtain or acquire an image then an ultrasound scanner would not be within the Master's Construction of "input device". However, the intrinsic evidence (the Patent) states that "input device" includes an ultrasound scanner. The Master construes that the "input device" must be capable of either obtaining, acquiring or generating an image. The Master does not decide whether an ultrasound scanner can or cannot generate, obtain or acquire an image.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 2).

KSEA wants the word "generating" inserted into the construction. The Master agrees. "Generating" as indicated above is found in the Patent when describing the "input device". Generating is part of a function of the "input device".

KSEA proposes that in order for a dispute over the this claim element to be resolved KSEA proposes that image refers to two-dimensional representation of an object (KSEA's May 23, 2005 Sheet 2, Paragraph 2). The Master disagrees. There is nothing found in the intrinsic record (the Patent) that would require a limitation of limiting the "input device" to one generating a specific image such as a two-dimensional representation.

B. "Input Entries"

The term "input entries" as found in claim 20 presents a more contentious dispute. Defendants propose that "input entries" be construed as "[f]eatures that allow a user to enter information into a page, such as text entry fields, icons, menu items, and check-fields." MShift, by contrast, proposes that "input entries" be more broadly construed as "[f]eatures that allow a user to provide input." As its briefing makes clear, plaintiff intends its proposed construction to encompass descriptive labels that accompany text entry fields as well as hidden data not even displayed to depositors on a web page.

As a preliminary matter, both sides agree that the features encompassed by defendants' proposed construction — namely, features that "allow a user to enter information into a page, such as text entry fields, icons, menu items, and check-fields" — are "input entries" within the meaning of the '881 patent. Indeed, the specification expressly lists "text-entry fields, icons, check-fields assigning Boolean values, and selectable items provided in a menu" as specific examples of "input features"
Where the parties diverge, however, is on whether "input entries" can extend beyond "features that allow a user to enter information into a page" to labels and hidden form elements that are never displayed on a web page. As explained below, the intrinsic evidence does not support such a broad construction. First, the ordinary and customary meaning of the term "input entries" to a person having ordinary skill in the relevant art supports defendants' narrower construction. Indeed, MShift's own expert, Dr. Sandeep Chatterjee, who is proffered by plaintiff as being someone with ordinary skill in the relevant art, conceded in his declaration that "defendants' proposed construction of "input entries" provides more detail and clarity [than plaintiff's proposed construction], which is consistent with and supported by the patent" (Chatterjee Claim Const. Decl. ¶ 27). Dr. Chatterjee no doubt recognized that plaintiff's proposed construction lacked sufficient detail and clarity and could be used to improperly cover web page features that did not allow a user to enter information into a page.

Second, plaintiff's proposed construction would improperly cover features that the specification clearly indicated were not "input entries." As stated, the specification made frequent reference to mobile devices that used HDML to request and receive content from network sites. In this connection, the specification expressly recognized that HDML was "limited to displaying a single input feature per rendered network page" (col. 7:48-53) (emphasis added). Displaying multiple selectable links on the same page, however, was clearly not a problem for HDML-based mobile devices. This can be concluded because the restructuring of a plurality of input entries into multiple selectable links was exactly the workaround proposed by the '881 patent to bypass the "single input feature" problem. As such, "selectable links" are clearly not "input features" or "input entries" within the meaning of the '881 patent. The specification also made clear that the physical buttons on a mobile device and "wording or graphics" on a web page were not "input entries" (see cols. 4:5-10, 8:30-34). Plaintiff's proposed construction, however, could easily be used to cover "selectable links," "wording or graphics," and the physical buttons on a mobile device due to its overly broad wording. This would be improper. By contrast, defendants' proposed construction more closely tracks what the term "input entries" was intended to cover in light of the intrinsic evidence: features displayed on a web page, like text entry fields, menu items, and check fields, that allow a user to enter information into the page (see col. 7:50-58).

Third, the prosecution history — and in particular, MShift's representations to the USPTO to distinguish the claims of the '881 patent from the prior art — provides the final nail in the coffin for plaintiff's proposed construction. To allow MShift to expand the meaning of "input entries" beyond its HDML (or equivalent) context would enable plaintiff to recapture territory that it surrendered during the course of prosecuting the asserted patent. As stated, the Schwartz and Jamtgaard references disclosed the use of a conversion engine between mobile devices and network sites to reformat web pages, translate between different programming languages, and "break up" content into multiple pages using selectable links (see Yamashita Claim Const. Decl. Exhs. 1, 3). 10 After the USPTO repeatedly rejected its patent application due to these prior art references, MShift finally obtained the '881 patent by arguing to the patent examiner that the Schwartz and Jamtgaard references did not teach the particular "restructuring" of "input entries" — necessitated by the inherent limitations of HDML — as set forth in the claims. To allow MShift to now expand the meaning of "input entries" to encompass mere labels and other web-page features that do not allow a user to input information into the page would be improper in light of this history. See Phillips, 415 F.3d at 1318 (citations omitted).

--- Footnotes ---

10 Specifically, the USPTO recognized that Schwartz disclosed a conversion engine capable of translating between different programming languages (see Yamashita Claim Const. Decl. Exh. 6, col. 8:55-67), while Jamtgaard disclosed a system that could reformat Internet content for mobile devices by breaking the content into pieces and using selectable links to navigate between them (id. at Exh. 5, col. 18:23-39).

--- End Footnotes ---

For these reasons, this order construes "input entries" as "features displayed on a web page that allow a user to enter information into the page, like text entry fields, menu items, and check fields."
For the same reasons given above, the Court rejects both parties' proposed constructions. The Court construes "input key" to mean "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for changing the value of one of the hue, lightness, and saturation values."

a. "an input keyboard"
AMI contends that “an input keyboard” means “an interface for selecting a song to be played.” Opening Brief at 32. It contends that there is no limitation upon the form the input keyboard can take, and that the specification “expressly contemplates that the input keyboard may be an electronic keyboard with depressible keys or a touchscreen” because it teaches that “the input keyboard may also be replaced by a touchscreen.” Resp. Brief, Ex. 18 at 4:26-28. Ecast argues that the specification language cited by AMI actually differentiates an input keyboard from a touchscreen. In other words, because the specification discloses that a touchscreen is an alternative to an input keyboard, an input keyboard cannot be a touchscreen.

The specification repeatedly teaches that the keyboard is distinct from the screen. For example, “[i]nput/output unit 20 is connected by way of a line 22 with a viewing screen 24 which constitutes the display ... moreover, input/output unit 20 is connected by way of a line 26 with an input keyboard 28.” Id. at 4:13-20. “The selection instructions fed in by way of the input keyboard are displayed on viewing screen 24 ....” Id. at 4:20-21. “This jukebox includes a housing 40 which is provided with a viewing screen 24 and an input keyboard 28.” Id. at 4:50-53. In addition, figures 1 and 2 both depict the keyboard as separate from the viewing screen. For these reasons, construing the input keyboard to be the screen would be inconsistent with the specification.

The specification's teaching that the input keyboard can be replaced by a touchscreen appears to mean exactly what it says: instead of an input keyboard, the device can utilize a touchscreen. That is not the same thing as saying that the input keyboard can be a touchscreen. Nor does it mean that the patentee claimed such an invention. If AMI wanted the claim to include a visual touchscreen and a keyboard, it easily could have said so.

For these reasons, the Court construes “an input
keyboard" as used in claim 1 of the 350 patent to mean “a hardware device consisting of a number of mechanical buttons (keys) which the user presses to input characters to a computer.”

Claims 1, 3, and 12 of the '183 patent contain the term "user input device for receiving signals from a user" and claims 21, 24, 56, and 59 of the '412 patent contain the term "input means for receiving signals from a user." IPI suggests that the term "input device" means "a keyboard, mouse, or other pointer control device," and Defendants argue the term is restricted to a "mouse or keyboard." IPI further contends that "input means" should be construed the same as "input device," while Defendants urge that the term is a means-plus-function limitation with a function of "receiving signals from a user" and a structure consisting of a "mouse or keyboard, and their equivalents."

IPI first contends that "input" connotes sufficient structure to remove the term "input means" from 35 U.S.C. § 112 P 6. Essentially, IPI argues that since the phrase "input signals for receiving signals from a user" is understood by one skilled in the art, that the related phrase "input means for receiving signals from a user" should be construed similarly.

There is a presumption that terms containing the word "means" are governed by § 112 P 6. TriMed, Inc. v. Stryker Corp., 514 F.3d 1256, 1259 (Fed. Cir. 2008). IPI provides no intrinsic evidence overcoming this presumption. The simple fact that the patentee included a similar phrase in a different patent does not constitute evidence of inherent structure. Additionally, as Defendants note, IPI's reliance on Verizon California Inc. v. Ronald A. Katz Technology Licensing, L.P. is misplaced. See 326 F. Supp. 2d 1060, 1086-87 (C.D. Cal. 2003). There, the parties agreed that the term "digital input means" was not governed by § 112 P 6 and the court was not clearly presented with the issue disputed here. There is nothing in the claims or the specification to suggest that "input means for receiving signals from a user" inherently discloses sufficient structure to remove it from § 112 P 6. Thus, the Court construes the term under § 112 P 6.

The parties further disagree over whether the definition of an "input means" and "input device," should include "other pointer control devices." In addition to a keyboard and a mouse, the specification clearly discloses "other pointer control devices" as a way that a user interacts with the computer. See '412 Patent at 1:23-28; 34:38-41. Defendants' only argument for excising this phrase from the definition of the disputed terms is that the scope of the phrase is already captured by § 112 P 6 equivalence. 2 However, the applicability of § 112 P 6 requires that a means-plus-function term be given the full scope of the structure described in the specification. 35 U.S.C. § 112 P 6 ("such claim shall be construed to cover the corresponding structure, material, or acts described in the specification"). In addition, principals of claim construction generally require courts to give effect to the full scope of the invention described in the specification. Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004). Accordingly, "input means" is governed by § 112 P 6 with a function of "receiving signals from a user" and a structure of "a keyboard, mouse, or other pointer control device, and their equivalents." The term "input device" is defined as "a keyboard, a mouse, or other pointer control device."

2 Defendants' briefing discusses that the scope of "other pointer control devices" is captured by the doctrine of equivalents. However, as the doctrine of equivalents pertains to the issue of direct infringement, the Court assumes that Defendants are referring to § 112 P 6 equivalence.

1. "input means"

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2 Defendants' briefing discusses that the scope of "other pointer control devices" is captured by the doctrine of equivalents. However, as the doctrine of equivalents pertains to the issue of direct infringement, the Court assumes that Defendants are referring to § 112 P 6 equivalence.

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The term "input means" appears in six claims, in each of the '995, '932 and '705 Patents. Claim 1 from the '995 Patent is representative:

1. An audio/video transceiver apparatus comprising: input means for receiving audio/visual source information;

   compression means, coupled to said input means, for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

   random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

   output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.


In support of its view that "input means" is not a means-plus-function term, Burst asserts that the word "input" connotes a certain set of structures to one ordinarily skilled in the art, specifically an "input port or terminal capable of receiving information." It offers several dictionary definitions to support this reading. See Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996) (relying on dictionary definitions for similar purpose). These include "the device or collection of devices used for bringing data into another device." IEEE Standard Dictionary of Electrical and Electronic Terms 474 (4th ed. 1988). A second, more specific dictionary definition states that "input" is "the terminals, jack, or receptacle provided for the introduction of an electrical signal or electric power into a device or system." Modern Dictionary of Electronics at 495. Significantly, Figure 2 in the patent specifications uses "input" and "input/output ports" interchangeably; this supports Burst's contention that "input" connotes a specific type of port or device. See, e.g., '995 Patent at Fig. 2. Burst's expert, Dr. Hemami, further explains that the term "connotes a physical port or terminal on a device through which information is received" to a person of ordinary skill in the art. Hemami Report at 29-30. At the Markman hearing, the experts agreed that a certain subset of the input devices listed in the Modern Dictionary of Electronics could all perform the functions described in the claim. Apple's expert observed that one ordinarily skilled in the art would need to know the speed of the information to be received in order to select an electrical jack capable of performing the function of the input means. Burst's expert responded that information in the specification regarding the compression and the type of audio/video information would permit one ordinarily skilled in the art to select the correct jack.

Apple argues that the word "input" is not a structural term and would have the court apply section 112(6) to identify four different sets of structures for the various uses of "input means." Apple contends that "input" is insufficiently definite because it includes "every conceivable way or means" of receiving audio/video source information. Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1214 (Fed. Cir. 1998); see also Laitram, 939 F.2d at 1536. n5 The word "input" is not as indefinite as the phrase "lever moving element" which would apply to "any device that can cause the lever to move." Mas-Hamilton, 156 F.3d at 1214 (holding that section 112(6) applies to the term "lever moving element" because "moving element" does not connote sufficient structure). The dictionary definitions provided for "input" are more limited here. Moreover, even when a structure is described in terms of its function, it is still a sufficient structure if the "term, as a name for structure, has a reasonably well understood meaning in the art." Greenberg, 91 F.3d at 1583 ("detent" defined by its function but not subject to means-plus-function analysis because it has a generally understood structural meaning in the mechanical arts) (emphasis added). Here, Burst has satisfied the court that the term "input" connotes a structure in the relevant field.

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n5 In Laitram, the Federal Circuit held that the district court erred by construing what was essentially functional language as structure. 939 F.2d at 1536. The district court concluded that the following language was the structure:

   of said holes of said plurality are arranged coaxially, the axes of the holes of said second plurality are arranged coaxially and the axes or respective holes of both pluralities of link ends are substantially.
for the term "means for joining said pluralities to one another." Laitram Corp. v. Rexnord, Inc., No. 87-C-110, 1990 WL 71418, *13 (E.D. Wis. Apr. 26, 1990). It was this alleged structure that the Federal Circuit concluded was insufficient because it encompassed "any and every means" for performing the function. Laitram, 939 F.2d at 1536.

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Several other considerations weigh in favor of concluding that "input," as used in the patents, is a structural term. First, the structure of the "input" supports the described function. Here, the "input" supports the described function of "receiving of audio/video source information." Also, description of a purported structure's location supports the conclusion that section 112(6) does not apply. Cole, 102 F.3d at 53 (relying on location of the structure to conclude that lamn element with such a detailed recitation of its structure, as opposed to its function" cannot be a means-plus-function term). The specification describes the location of the "input means." Compare Cole, 102 F.3d at 531 (describing the location of the "perforation"as "extending from the leg band to the waist band") with '995 Patent at 10:62 ("compression means, coupled to said input means"). Thus, the court finds that Burst has overcome the presumption that section 112(6) applies; "input means" is not a means-plus-function term.

Apple offers no construction for "input means" other than its proposed construction of the term pursuant to section 112(6). Burst construes the phrase to mean "an input port or terminal capable of receiving audio/video source information." Burst's proposed construction is consistent with the dictionary definitions and expert testimony. Accordingly, the court adopts this construction: "input means" is "an input port or terminal capable of receiving audio/video source information."

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1. "Input Portion"

Claims 1 and 17 of the '148 Patent recite a signal conditioning apparatus containing two broad elements, an input portion and an output portion. Fiori asserts that the input portion of claims 1 and 17 are identical and clearly defined in the specification as an operational amplifier such as operational amplifier 63, which functions as a preamplifier. n9 (Pl.'s Markman Br. at 20.) The operational amplifier is configured to receive an electrical signal from a signal conductor. n10 The operational amplifier generates an intermediate signal which is proportional to the potential difference between the received electrical signal and the reference signal. Id. Fiori claims that this is illustrated and described in the specification as the output of the operational amplifier (e.g., 63) and the ground reference potential signal 18. Id.

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n9 The preamble to claim 17 recites a signal communication system including a source device, destination device and a signal conditioning device identical to claim 1 of the '148 Patent. The '148 Patent, column 9.

n10 This process is exemplified as the wire leading from element 16 and a correspondence reference signal from a signal conductor. This is shown as the ground reference potential signal conductor at point 18.

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Defendant Rockford disagrees. Rockford argues: (a) that the phrase "input portion" of claims 1 and 17 of the '148 Patent is a "means-plus-function" limitation under 35 U.S.C. § 112 (6), whose structure includes a power supply transformer because isolation is required to perform the recited function, and the transformer provides isolation; n11 (b) the term "proportional" of claims 1 and 17 permits different gain factors; and (c) the term "input portion" of claims 1 and 17 requires the signal source to be physically located in a separate mechanical housing as the source of electrical signals because the claims do not limit the location of the sources. (Def.'s Markman Br. at 11.)

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n11 Rockford further asserts that in the presence of a function and the absence of a structure, the phrase "generating an
"intermediate electrical signal" of the input portion is subject to the 35 U.S.C. § 112 (6) analysis as well. (Def.'s Markman Br. at 13.) Rockford claims that this phrase is in "means-plus-function" format even though it does not use the word "means" because the claim language fails to identify a structure for performing that function. Id. Rockford points to extrinsic evidence, such as Fiori's Proposed Markman Constructions at 7, Fiori Deposition at 2548, and Fiori's Technical Brief at 6 to assert that in order to perform the function of "generating the intermediate electrical signal," the input portion (op-amp 63) must be isolated from the output portion (op-amp 65), as well as to argue that the necessary components and corresponding structure to perform the "generating" function include op-amp 64, resistors 10, 11, transformer 32, diodes 14, 15, and capacitors 12, 13. Id. at 15.

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a. Means-Plus-Function Limitation

In certain circumstances, pursuant to 35 U.S.C. § 112(6), n12 a claim element can be expressed as a means for performing a specified function without reciting structure or material. 35 U.S.C. § 112 (6) (1984). Whether an element of a claim is in means-plus-function form is a claim construction question. Wenger Mfg. v. Coating Mach. Sys.,239 F.3d 1225, 1231 (Fed. Cir. 2001). Use of the term "means" creates a presumption that the element is to be construed in accordance with 35 U.S.C. § 112 (6). Altiris, Inc. v. Symantec Corp.,318 F.3d 1363, 1375 (Fed. Cir. 2002). This presumption may be rebutted, however, when the claim element recites sufficiently definite structure or material to perform the claimed function. Id. Conversely, absence of the term "means" creates a presumption that the element is not to be construed in accordance with 35 U.S.C. § 112 (6). Id. However, this presumption may be rebutted when the claim element does not recite sufficiently definite structure or material to perform the claimed function. Id. In determining whether these presumptions have been rebutted by a preponderance of the evidence, the court may examine the intrinsic evidence and any relevant extrinsic evidence. Personalized Media Commun., L.L.C. v. ITC, 161 F.3d 696, 704-05, (Fed. Cir. 1998).

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n12 35 U.S.C. § 112 (6) provides as follows:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

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Rockford correctly asserts that 35 U.S.C. § 112 (6) can be triggered even if the claim does not use the word "means." See Raytheon Co. v. Roper Corp., 724 F.2d 951, 957 (Fed. Cir. 1983). "Nonetheless, the use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to state that the use of the term 'means' (particularly as used in the phrase 'means for') generally invokes section 112(6) and that the use of a different formulation does not." I. Melbourne Greenberg, M.D. v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996). In the present case, "means-for-function" language is expressly used in only three instances in the five (5) claims of either of the patents-in-suit. n13

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n13 Plaintiff implements the language in a section of the output stage of claims 1 and 17 of the '148 Patent and as part of the voltage regulation of claim 38 of the Reissue Patent.

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As a matter of law, claim construction is the duty of the court. Markman, 52 F.3d at 973. This Court does not find that "input portion" is a means-plus-function limitation under 35 U.S.C. § 112 (6) whose structure includes a power supply transformer because isolation is required to perform the recited function, and the transformer provides isolation. This Court finds that the input stage of claims 1 and 17 are specifically defined physical structures. Moreover, it is defined in the specification and file history as an operational amplifier such as op-amp 63. The structure is specifically connected to two conductors.
(physical structures) and is recited as generating the intermediate signal. Nowhere is the element referred to in terms of its functionality in the specification. Accordingly, Rockford's "means-plus-function construction" of the phrase "generating an intermediate electrical signal" is erroneous. There is no evidence that Fiori "intended to claim in means-plus-function fashion" except in those places identified by Plaintiff. Id. at 1584.

TiVo argues no construction of these terms is needed, or, if construed, should be limited to the definition of "Input Section" as "hardware and/or code that changes or adapts the form or function of the TV program data to an MPEG format suitable for internal transfer and manipulation." See TiVo's Op. Br. at 8-11; '389 patent at cols. 2:13-14, 3:30-4:2, 6:26-27, 6:30-33, 12:40-42, 12:44-47; TiVo's Markman Slides at 69-84.

EchoStar argues "Input Section" is specially defined by the '389 patent as "a separate module that obtains input from outside an assembly, tunes to a signal carrying a particular television program, and includes an MPEG encoder that encodes the program into MPEG." 2 '389 patent at cols. 3:32-33, 3:43-52, 4:15, & Fig. 1; EchoStar's Opening Br. at 16-17; EchoStar's Response Br. at 15; EchoStar's Slide Presentation at 99-104.

In support of its proffered construction, EchoStar argues that the capitalization of terms in a patent indicates that the terms were specially defined by the patentee and therefore must be given a special meaning instead of their plain meaning. EchoStar argues that because three terms in the '389 patent were capitalized - Input Section, Media Switch, and Output Section - the patentee necessarily acted as his own lexicographer and that these terms cannot be construed to have a plain meaning. EchoStar Opening Br. at 15 ("By using terms that are proper nouns and not generic terms of art, the applicants acted as their own lexicographers… In order to understand what was intended by the capitalized terms, therefore, one must refer to the specification."). Notably, EchoStar does not cite any patent cases for this proposition and instead, draws an analogy to contract law wherein, EchoStar argues, capitalization of a term indicates the creation of a term of art. Id. This Court has not found this rule in patent case law and does not here create such a rule. Instead, this Court will follow Federal Circuit precedent in determining whether or not a patentee chose act as his own lexicographer. Bell Atl. Network Servs., Inc. v. Covad Communs. Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001).

EchoStar further argues "said Input Section converts said specific program to an Moving Pictures Experts Group (MPEG) formatted stream" means "the Input Section changes the format of the TV program data signal from non-MPEG to MPEG." See '389 patent at col. 2:10-14; EchoStar's Opening Br. at 9-11, 16-17; EchoStar's Response Br. at 15; EchoStar's Slide Presentation at 59-75.

The Court need look no further than the claims themselves to define these terms, as the specification does not explicitly define them. See '389 patent at cols. 12:43-46, 15:25-28. The plain and ordinary meaning of an "Input Section" is "the portion of a device that receives inputs." The claim term "converts" needs no further construction. Though EchoStar argued in favor of construing "convert" as "change," no such construction is necessary. 3

EchoStar cites Superguide Corp. v. DirectTV Enters., Inc., 358 F.3d 870, 891 (Fed. Cir. 2004) in support of its proposed construction of "convert." EchoStar argues that in that case, the Federal Circuit "[held] that in the television broadcasting field, the ordinary meaning of 'convert' is 'changing from one form or format to another.'" In Superguide, the Federal Circuit considered the construction of a claim phrase containing the term "converting." In support of their respective proposed constructions, the two parties each proposed constructions of "converting" that used the term "change" and the district court's final construction of the term construed "conversion" as "change." The construction of this term, however, was not squarely before the court. Further, though the Federal Circuit, affirmed the district court's claim construction, the court did
not hold generally that the ordinary meaning of "conversion" in the television broadcasting field is "change."

Therefore, the Court construes "providing at least one Input Section, wherein said Input Section converts said specific program to an Moving Pictures Experts Group (MPEG) formatted stream for internal transfer and manipulation" as "providing at least one portion of a device that receives inputs, wherein said portion of the device that receives inputs converts said specified frequency range to an Moving Picture Experts Group (MPEG) formatted stream for internal transfer and manipulation."

7. Claim Six

Claim 6 of the '581 patent recites: "(a) receiving a plurality of input signals comprising beam requests from the treatment rooms and a beam path configuration signal from the switchyard identifying a beam path through the switchyard to one of the treatment rooms; (b) comparing the input signals to verify the authenticity of a request from a selected one of the treatment rooms; and (c) in response to such verification, allowing beam transport to the selected treatment room."

(Rosenberg Decl. Ex. 2, the '581 Patent at 9:37-10:2.) Plaintiff offers the following definition of the terms "input signals": "detectable messages that convey information." The other claim terms have already been construed or are undisputed. (See Ion Beam Opp'n at 10:8-14.) Defendant Ion Beam, on the other hand, suggests the term "input signals" be construed as "detectable messages that are entered into a computer for processing."

As already discussed, the term "signal" means "detectable message," and that point is not disputed. (Compare id.; and Optivus P.&A. at 19:28-20:2.) Plaintiff offers the following definitions in support of its argument: (1) Microsoft defines input as "information entered into a computer for processing (Airhart Decl. Ex. P. at p. 246.); (2) Random House defines the word to mean data to be entered into a computer for processing. (Id., Ex. H at p. 132.1.) Random House also includes the following definitions: "something that is put in 2. the act or process of putting in." (Id.) Turning to the specification, the term "input signal" is discussed in the following context: "A method of including the generation and reception of a plurality of different input signals and the processing of such signals in a treatment room selection verification system . . . . a more specific method of the present invention includes a step of generating in the treatment rooms, treatment room beam request signals and beam configuration request signals." (Rosenberg Decl. Ex. 2, the '581 Patent at 5:65-6-4.) Because the claim term is used in the specification in a manner consistent with the Microsoft definition, the court hereby defines the term "input signals" to mean "detectable messages that are entered into a computer for processing."

4. "input terminal pin" and "output terminal pin"

These terms are used in the claims to define the termini of the filter circuit. Pulse offers that these terms do not require specific construction by the court because they are readily understood by one of ordinary skill in the art in the context of the patents at issue. Mascon argues these terms are indefinite because the "claim fails to identify the intended external connections" to the pins and signals would flow through the circuit in a direction opposite to that implied by the claims' nomenclature (e.g., signals actually flow in at the pins called "output" and out the pins called "input").

Analyzing the term in light of the intrinsic evidence, the court concludes these terms would be clear to one skilled in the art. First, signals across the circuit flow in both directions, and the labels merely describe the pins' positions in the circuit. For example, the "input terminal pins" are the eight on the left in Figure 2 of the '347 patent which connect to the "incoming telephone line wires." (See also, '347 patent, Col. 4, ll. 51-57; '992 patent, Col. 5, ll. 35-41 and Col. 7, ll. 49-51.) The "output terminal pins" are on the right side of the drawings and connect to the alarm panel. Even if these terms had been used in an unusual way, a specification "may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." Phillips, 415 F.3d at
The court therefore finds these terms are not "insolubly ambiguous," and thus, they are not indefinite and they do not require specific construction by the court.

5. "input/output device"

The next disputed claim term appears in Claim 43 of the '289 Patent. (Chart at 23). Ricoh proposes that the term means "a device that can input commands and display information." (Id.). Pitney contends that the proper construction is "[a] device that can input commands and display information that is separate and external from the business office device." (Id.). Based on the parties' proposed constructions, the disputed issue with respect to this term again is whether the "input/output device" is physically separate and external to the business office device. Ricoh seeks to exclude the limitation that the input/output device is physically separate from the business office device for substantially the same reasons provided for "office machine system." (Tr. of Markman Hr'g at 18:3-20:25, 29:14-30:12).

As the Court discussed in detail above, the Court disagrees with Ricoh. The intrinsic evidence indicates that the "input/output device" corresponds to the "operation panel." For example, the specification provides:

Input Process 203 receives input from a user and sends the data to System Control Process 202, which then echoes back the input through Display Process 204, so that the user can yet (sic) feedback of his/her input. The data from the user is then coded in Communication Process 201. The coded data is then sent to Copier Engine through line 12.

'289 Patent, col. 3, ll. 19-24. Moreover, the patentee clearly stated his intent during the prosecution of the '289 patent. The patentee explained to the PTO:

An input/output device is a device which both inputs commands and displays information of the business office device.

("289 Patent Prosecution History, Dec. 22, 1995 Amendment at 18). The patentee further explained that "Claim 59 requires an input/output device (which corresponds to the operation panel in the specification) connected to a business office device." (Id. at 25) (emphasis added).

For the reasons discussed above, the Court already concluded that the operation panel is physically separate and external to the business office device. See infra II.A.1. Based on the intrinsic evidence, this conclusion clearly applies to the input/output device as well, since the patentee stated that the input/output device corresponds to the operation panel. Ricoh fails to provide an additional basis for concluding otherwise. Thus, the Court adopts Pitney's proposed construction. Accordingly, "input/output device" means "[a] device that can input commands and display information that is separate and external from the business office device."

2. "An optical coupling means having an input, an input/output and an output" and "a first optical coupler having an input, an input/output and an output"

(b) Construction of Disputed Claim Language

The dispute between the parties on this matter centers on the structure of the aforementioned optical coupler referred to in both claims 1 and 7 of the '459 Patent. Specifically, at issue is whether the "input/output" connection or port of the optical coupler has to be bidirectional, i.e., has an input going in one direction and has an output going in the opposite direction. 
within the same connection. Pirelli contends that the "input/output" language should not be limited to this specific structure. Instead, Pirelli asserts that the "input/output" connection can serve as either an input or an output, or both. Whereas Ciena maintains that the "input/output" of the optical coupler can only be bidirectional.

(i) The Claim

Again, the Court starts with the language of the claim itself. Claim 1 of the '459 Patent, in relevant part, reads: "an optical coupling means having an input, an input/output and an output and having its output coupled to the input of said optical amplifier . . . ." Col.8, lines 1-3. Claim 7 reads in relevant part: "a first optical coupler having an input, an input/output and an output and having its output coupled to the input of each active fiber . . . ." Col.9, lines 14-16. As already determined, the "optical coupling means" and the "first optical coupler" will be treated identically for purposes of claim construction.

Pirelli contends the claim language mandates that one of the "ports" must be bidirectional. To lend support to this conclusion, Pirelli argues that the diagonal (/) is defined as a "mark . . . used typically to denote 'or' (as in and/or) . . . ." See Webster's New Collegiate Dictionary (1979). Ciena, on the other hand, argues that this claim element requires that one of the ports performs the function of both an input and an output and that the other ports must be input only and output only.

(ii) The Specification

Pirelli asserts that the specification also does not preclude the optical coupler from having a non-bidirectional set up. Pirelli points to the following specification language to support its argument:

Optical coupler [is] inserted in the line and [is] suitable for coupling within the line fiber and/or for extracting from it the optical service signals. With the optical amplifier, or with each optical amplifier, there is at least one means associated therewith for injecting or for extracting optical service signals.

Col.2, lines 34-37 (emphasis added). Moreover, Pirelli comments that the three-wavelength optical coupler described at Col. 6, lines 30-66 and illustrated in Figure 4 has four "ports" or connections. Lastly, Pirelli argues that this four port embodiment of the optical coupler is a preferred embodiment that should not be read out of the scope of the claim. See Vitronics, 90 F.3d at 1583.

Ciena points to patent drawing Fig. 2 for support that the coupler is only connected by three ports and therefore, one of the ports by necessity must be a dual purpose port so that both the function of putting signals into the coupler and taking signals out of the coupler can be accomplished. If this were not the case, the "connecting unit", which is shown with both an input and output on the side opposite from the optical coupler, could not operate properly. Moreover, Ciena contends the coupler's function is defined by the function of each of its three ports. Thus, the specification refers to one port connected to a fiber line from the transmitter, another port is connected to an optical amplifier and the third port is connected to a service channel device for injecting and/or extracting service signals from the optical fiber line. See Col.2, lines 16-42. Further, Ciena asserts that the necessarily bidirectionality of the input/output of the coupler is supported by a description of the preferred embodiments. See Col.6, lines 47-53.

(iii) Claim Construction

A subtle distinction exists between the use of the specification to clarify otherwise ambiguous language in the claim and the extraction of limitations from the specification to impose those limitations on the claims. See CCPI Inc. v. American Premier, Inc., 966 F. Supp. 276, 282 (D.Del. 1997) (citing CVI/Beta Ventures, 112 F.3d at 1158; Electro Medical, 34 F.3d at 1054; In re Van Geuns, 988 F.2d 1181, 1184 (Fed. Cir. 1993); Intervet Am., 887 F.2d at 1053; Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632 (Fed. Cir. 1987)). While the former is proper practice, the latter is impermissible. See id. Although the patent drawings in the specifications referred to by both parties are highly relevant in construing the "input/output" language of the claim, see CVI/Beta Ventures, 112 F.3d at 1153, "claims are not to be interpreted by adding limitations appearing only in the specification." Electro Medical, 34 F.3d at 1054.

In the case at bar, the term "input/output" is ambiguous. In addition, the language and drawings found in the specification are inconclusive and could support either a bidirectional connection or other types of connections. The Court is counseled by the well-known patent law principle that "claims are not to be interpreted by adding limitations appearing only in the
specification." See id. Further, "the claims are not limited to devices operated precisely as the specification describe[s] [the] devices operating, unless the specification requires a certain limitation." See Specialty Composites, 845 F.2d at 987 (citing Lemelson v. United States, 752 F.2d 1538, 1552 (Fed. Cir. 1985)). In the case sub judice, there is no such required limitation in the specification.

The Court is led inexorably back to the plain language of the claim. The "input/output" port or connection of the optical coupler should be read as broadly as possible within the parameters that the claim language permits. See Electro Medical Systems, 34 F.3d at 1054 ("Particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.") (emphasis added). The Court is convinced that the claim language "input/output" is broader than any of the specification language or patent drawings referred to by either party. This reading of the language is supported by the fact that a diagonal (/) is defined as typically meaning "or". See Webster's Third New International Dictionary 622 (1971). 8 It follows the "input/output" port of the optical coupler can be either a bidirectional connection or a connection that supports only an input or output connection.

--- Footnotes ---

8 Dictionaries are a favored form of extrinsic evidence and may be consulted as long as they do not contradict anything in the patent documents. See supra note 2. Here, the interpretation of the diagonal (/) causes no such contradiction.

--- End Footnotes ---

The Court holds that the optical coupler of claim 1 and claim 7 of the '459 Patent means is a device having at least three "ports" or "connections", one of which may, but need not, be bidirectional.

8. "inputting an item having information into the transmission system"

The additional limitations of Claim 14 provide:

wherein the transmitting step comprises:

inputting an item having information into the transmission system;

assigning a unique identification code to the item having information;

formatting the item having information as a sequence of addressable data blocks;

compressing the formatted and sequenced data blocks;

storing, as a file, the compressed, formatted, and sequenced data blocks with the assigned unique identification code; and

sending at least a portion of the file at the non-real time rate to the local distribution system.

The first additional limitation of the transmitting step which the Court addresses include as an element, "inputting an item having information into the transmission system." Up to this point, none of the other distribution methods of the Yurt family of patents have disclosed the act of "inputting" in an element. The Court finds that one of ordinary skill in the art reading the patent documents would understand the phrase "inputting an item" in its plain ordinary sense, i.e., "putting the item in the transmission system."

Moreover, this particular additional limitation requires that the item which is being input be "an item having information." In the December 14 Order, the Court construed the phrase "items containing information" as used in Claim 19 of the '992 Patent to mean physical items such as videotapes or computer disks, which contain audio/video information. The Court construed the phrase "items having information" as used in Claim 41 of the '992 Patent to have the same meaning as "items
containing information." (See December 14 Order at Sections IA7 and ID4.)

The Federal Circuit has held if an identical term appears in claims issuing from both a parent and a continuation application, a consistent meaning is preferred. Advanced Cardiovascular Sys., Inc. v. Medtronic, Inc., 265 F.3d 1294, 1305 (Fed. Cir. 2001). Accordingly, with respect to these additional limitations, the Court gives the phrase "inputting an item having information into the transmission system" a meaning consistent with its previous construction as follows:

In a distribution method in which compressed, digitized data is transmitted to a local distribution system, the phrase "inputting an item having information into the transmission system" means "putting physical items containing audio information or video information or both into the transmission system.

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1. d inputting contributions at said contribution accepting devices in response to said request;

To "input" means to provide computer-readable information to the system. Here, the contribution information is input to the contribution accepting devices.

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TERM # 10: "inputting data associated with at least one bid for at least one fixed income financial instrument into said bidder's computer via said input device" - Defendants contend that this phrase should be construed to require that data be defined as only "information necessary to calculate an interest cost value" and that such data be stored on the bidder's computer. We find no support for imposing such limitations on the plain words of this claim phrase. Contrary to defendants' argument, the fact that data is inputted into the bidder's computer, and the bid is submitted, in part, from bidder's computer, does not necessarily imply that the data is stored in the memory of the bidder's computer. As plaintiff correctly notes, the invention contemplates that servers can be used to make calculations and store information. This phrase means: "putting information, in a form suitable for processing by a computer, associated with a bid to buy a fixed income financial instrument into a computer used by a bidder to access an electronic auction via any input device used to prepare or submit bids."

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c inputting in the data processing system response data representing a response from the at least one party to the transmitted overt terms data; and

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L. "inquiry" and "inquiring"

Independent Claims One, Eleven, and Fourteen of the '399 Patent and independent Claims One, Seventeen, and Eighteen of the '449 Patent recite that the host device sends an "inquiry" to the interface device to determine the type of device attached to the host device. '399 Patent, col. 12:66 (Claim One), col. 14:6 (Claim Eleven) & col. 14:47 (Claim 14, using the word "inquiring" instead of "inquiry"); '449 Patent, col. 11:61 (Claim One), col. 13:28 (Claim Seventeen) & col. 14:19 (Claim Eighteen, using the word "inquiring" instead of "inquiry"). Papst asserts that "inquiry" should be defined generally to mean "an instruction seeking information concerning the type of the device attached to a computer." Papst's App. at 3. Relying on
the specification, the Camera Manufacturers contend that "inquiry" should be defined specifically as "the SCSI inquiry command" and that "inquiring" should be defined as "sending the SCSI inquiry command." CMs' Markman Br. at 33.

The specification uses the word "inquiry" as follows:

Preferably, the interface device according to the present invention simulates a hard disk with a root directory whose entries are "virtual" files which can be created for the most varied functions. When the host device system with which the interface device according to the present invention is connected is booted and a data transmit/receive device is also attached to the interface device 10, usual BIOS routines or multi-purpose interface programs issue an instruction, known by those skilled in the art as the INQUIRY instruction, to the input/output interfaces in the host device. The digital signal processor 13 receives this inquiry instruction via the first connecting device and generates a signal which is sent to the host device (not shown) again via the first connecting device 12 and the host line 11. This signal indicates to the host device that, for example, a hard disk drive is attached at the interface to which the INQUIRY instruction was sent.

The parties disagree regarding the meaning of "inquiry" when lowercase letters are used. The Camera Manufacturers assert that the word "inquiry" in the Claims must mean the SCSI inquiry because when the specification uses the lower case word "inquiry" it says "this inquiry instruction" referring back to the phrase "the INQUIRY instruction." CMs' Slides at 120. Papst would interpret "inquiry" to be broader than a SCSI INQUIRY because the Claims do not state "inquiry" in all capital letters. "[W]hen you're using lower case letters that means you are talking in normal English. In the claims here they're using the lower case version meaning it's generic." Tr. 2:78 (Papst). Papst further explains its position: "I think it's wise to follow the convention of how to use those examples that's [sic] given in the SCSI specification which does draw the distinction between using all caps and the lower case." Tr. 2:101 (Papst).

The distinction between independent and dependent claims supports Papst's construction. As explained above, a dependent claim incorporates all of the limitations of the claim from which it "depends" and adds something new. See 35 U.S.C. § 112. Thus, a dependent claim necessarily has a narrower scope than the claim from which it depends. Dependent Claim Four, not in contention here, recites that the multi-purpose interface of the computer is a SCSI interface and that the first connecting device also comprises a SCSI interface. "So that's why the . . . first command interpreter is not limited to the SCSI command set because that limitation is added by a dependent claim and you get a presumption that there must be some difference" between Claim One and Claim Four. Tr. 2:79 (Papst).

The Camera Manufacturers argue that the specification actually defines the word "inquiry," so that Mr. Tasler acted as his own lexicographer. See Vitronics, 90 F.3d at 1582. They go on to argue that this express definition trumps Papst's claim differentiation argument. See O.I. Corp., 115 F.3d at 1583; see also Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990) (the doctrine of claim differentiation "cannot overshadow the express and contrary intentions of the patent draftsman"). The Camera Manufacturers note that Mr. Tasler knew to state "for example" when merely providing an example. See '399 Patent, col. 6:14-16 ("[t]his signal indicates to the host device that, for example, a hard disk drive is attached at the interface . . . .") (emphasis added).

Despite the fact that the specification does not use the words "for example," the context of the paragraph makes it clear that the SCSI INQUIRY is discussed as an example of a preferred embodiment of the invention. The Camera Manufacturers' interpretation takes the phrase "this inquiry instruction" out of context and makes too much of it. The paragraph begins with the word "preferably," indicating that the specification is discussing a preferred embodiment. In the phrase "this inquiry device," the word "this" refers back to the example being discussed, the SCSI INQUIRY. The paragraph does not assert more -- it does not say the inquiry instruction is the SCSI INQUIRY. The language of the Claims ultimately controls, and the Claims use the lower case term "inquiry." The Court thus construes the term "inquiry" as "an instruction seeking information concerning the type of the device attached to a computer" and the term "inquiring" as "sending an instruction seeking information concerning the type of the device attached to a computer."
As provided in Claim 1 of the '825 Patent, the "insert locator data" identifies the "predetermined storage locations" at which the digitally formatted local video signals have been stored. '825 Patent, col.11, 11.12-20. Claim 1 of the '825 Patent also provides that the insert locator data is sent to the switching system, with the switch commands, over the second telecommunications network. See id. col.11, 11.7-10. Because the insert locator data is sent with the switch commands via the second telecommunications network, the insert locator data must originate from the same remote source--the remote control center--as the switch commands and the commercial insert signal.

b. "insertable storage medium having information stored therein"

"Insertable storage medium" is not a means-plus-function element. It would therefore be improper to define this term solely with reference to "corresponding structures" found in the specification.

Plaintiff believes that the correct interpretation of this phrase is simply "any insertable storage medium." Pl.'s Opp. Memo. on Claim Construction, at 6. The Court rejects plaintiff's interpretation because it does not contribute to the task of claim construction. The parties have filed numerous briefs arguing about the definition of "insertable storage medium." Its meaning is not self-evident. Plaintiff's tautological suggestion is not helpful in resolving the difficult issues presented in this case.

Plaintiff also suggests in his motion papers that the medium in which the information is stored is irrelevant to the patent: that the "software" "can come from any type of medium." Id. at 16 (emphasis in original). Similar statements were made elsewhere, for instance that "it makes absolutely no difference to the result which medium is used. The medium is as insignificant to the invention as the choice between UPS and the Postal Service is to the delivery of a package." Plaintiff's Memo. in Opposition to Defendants Motion of Non-Infringement ("Pl.'s Opp. Memo. on Infringement") at 5; see also id. at 10 ("The medium could be anything"); id. at 5 ("The medium can be a floppy disk, a hard disk, a tape, a broadcast from a cable company, or next year's favorite medium"). Plaintiff appears to be suggesting that the term "insertable storage medium" should actually be defined as "any storage medium" (or perhaps "any medium"). This is confirmed by a brief submitted by plaintiff during the prosecution of his patent, see Pl.'s Opp. Memo. on Claim Construction, Ex. 1, at 3. (arguing that some of the claims, including the one in issue here, "are broad enough to cover any storage medium"), and statements plaintiff made during oral argument. See Aug. 14, 1997 Tr. at 45 ("For whatever reason, the word 'insertable' is in there. I'm not worried about it."). To the extent plaintiff believes that "insertable storage medium" should be construed to mean "any storage medium," the Court rejects that view because it seeks to read the term "insertable" out of the claim. See Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 798 (Fed. Cir. 1990) (all limitations in a claim are material). Defining "insertable storage medium" as "any storage medium" would erase the distinction drawn in the claim between internal and insertable storage media. See, e.g., Patent '857, Figures 1 and 2 (showing insertable ROM cartridge 12 and internal RAM 24, auxiliary RAM 24a and ROM 24b). Words in a patent are to be given their ordinary meaning, unless it is clear that the patentee intended a special definition. See Vitronics Corp. v. Conceptronic Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1997). There is no indication in the patent that plaintiff used "insertable" in a special or unusual manner. To the contrary, the term is used in an ordinary manner elsewhere in the patent. For instance, the patent uses the following terminology to mean the same thing: compare "when a cartridge is first placed in the machine . . . . ", Patent '857, col. 2, line 10-11; with "when a new cartridge is inserted into the machine . . . . " col. 4, line 9; and "the cartridge is insertable into an appropriate slot in the machine . . . . " col. 3, lines 38-39. Because "insertable" is used in the ordinary sense of the word, the Court will not construe the claim language to entirely disregard a meaningful term. In addition, construing the phrase to mean "any storage medium" does not advance the cause of claim construction, because that phrase is broad to the point of ambiguity. To the extent that a broad reading of a claim renders it ambiguous, the claim should be construed against the patentee and given a narrower construction. See Chisum on Patents § 18.03[2][f][iii], at 18-149 (citing cases).
As discussed above, defendant asks to the Court to construe this claim limitation to mean "a physical device which stores information and is inserted into a machine by the user." Def.'s Reply Memo. on Claim Construction, at 1. The first place the Court will look to understand the meaning of the claim phrase is the words of the claim itself. It is clear that the phrase "insertable storage medium having information stored therein" envisions that the storage medium or storage device itself must store information. This seems indisputable -- after all, the medium is a "storage" medium, and it has "information stored therein."

It is also evident from the plain language of the claim that this information-storing medium or device is itself insertable into the machine. 3 It is not an external cable or connector that is "insertable," but rather the storage medium itself is "insertable." In the Court's view, the ordinary meaning of the words "insertable storage medium having information stored therein" dictates this construction: the device having the information stored on it is itself insertable. This conclusion is bolstered by the examples of insertable storage media that the specification and claims disclose: a video game cartridge and a disc. 4 See Patent '857, col. 1., lines 52-58. The way that the patent uses the term "inserted" and "insertable" also supports this reading of the claim language. Both parties agree that a video game cartridge is an example of an insertable storage medium. Such a cartridge is clearly conceived of as a physical, memory-storing device that is itself placed into the machine by the user. See id., col. 1, lines 13-15 ("a cartridge, containing a ROM, is inserted in a slot provided for this purpose"); col. 2, line 10-11 ("When a cartridge is first placed in the machine . . ."); col. 4, line 9 ("When a new cartridge is inserted into the machine . . ."). The specification then states that not only cartridges, but "other types of insertable storage media" may be used to implement the invention. Col. 1, line 55. The other type of "insertable storage medium" disclosed is a "program[] furnished on discs designed for use with a microcomputer." Col. 1., lines 57-58. The clear implication of this is that insertable storage media are information-holding physical devices that are themselves "inserted into" or "placed in" the machine. Defendant's expert, Dr. Thomas A. Berson, also agrees with this interpretation. See Berson Declaration P 9.

3 The word "machine" is used extensively throughout the patent. The patent uses "machine" to mean the entire system shown by Figures 1 and 2, excluding the cartridge (12) and its contacts (15).

4 For reasons discussed below, the Court believes that the patent's reference to a "disc[]" can only be construed to mean a floppy diskette.

The conclusion that the storage medium itself is insertable, rather than merely connected to the machine by means of a cable, is further supported by the language of the specification the specification draws a distinction between a television display monitor which is "connectable" to the machine, and a memory-containing cartridge that is "insertable" into the machine. Compare Patent '857, col. 3, line 26 with col. 3, line 38; see also col. 1, lines 13-14 (a video game unit is "connected to a television receiver, and a cartridge, containing a ROM, is inserted in a slot"). Plaintiff has not pointed to any aspect of the claim, specification or prosecution history which contradicts this common-sense reading of the claim language.

The Court also finds that the claim envisions that the storage medium is a physical device that is inserted into the machine in order to operate the machine. See col. 8, lines 35-36 (machines operate "responsive to insertion of the same storage medium"); col. 8, lines 19-21 (data processing means accesses information from "inserted storage medium"). This construction of the plain language of Claim 5 is confirmed by the examples of insertable storage media given by the patentee: a video game cartridge and a "disc[]," a term which, as indicated earlier, can only be interpreted to mean floppy diskette.

Plaintiff has argued that the reference in the specification to an alternate embodiment employing a different storage medium, see col. 1., lines 56-58 ("the principles of the invention may be applied to programs furnished on discs designed for use with a microcomputer"), would call to mind, to one skilled in the art at the time of the patent application, disk drives.

The Court finds that the reference in the patent to "programs furnished on discs" must be construed to mean floppy diskettes, not disk drives. The claim language requires that the "insertable storage medium" have "information stored therein" and that the system operated "responsive to insertion" of the storage medium. However, a disk drive does not have information stored on it (only the disk itself does), see Declaration of Berson P 19, and computers do not operate in
response to disk drives, but rather in response to information on disks. See id.; see also id. P 21. In construing the language of the patent claims, the court "interprets words in a claim as one of skill in the art at the time of the invention would understand them." Eastman Kodak, 114 F.3d at 1555 (citing Intellicall, 952 F.2d at 1387); accord Markman, 52 F.3d at 986. Defendant's expert argues persuasively that in the context of a claim referring to "a plurality of mass-produced identical systems" each working "responsive to insertion of the same storage medium," the phrase "insertable storage medium" would call to mind, to one skilled in the art in 1981, a storage device such as a floppy diskette, a cartridge or a cassette, not a disk drive. See Declaration of Berson PP 10-11, 19, 22-23. Based on the foregoing and his understanding of the usage of computer terminology in the early 1980's, defendant's expert testified that one skilled in the art would not believe that the term "discs" referred to a disk drive. See id. PP 19, 24, 25.

The testimony of plaintiff's expert does not undermine this conclusion. Mr. Dubner admits in his declaration that the word disk only refers to a hard disk drive if the word is used "loosely." Dubner Declaration P 8. In the Court's view, this admission and Mr. Dubner's deposition testimony reveal that even he believes it is a bit of a stretch to contend, as plaintiff does, that "disk" equals hard disk drive. See Def.'s Reply Memo. on Infringement, Ex. S at 49-50, 52-53, 58-59. Faced with a choice between an ordinary definition of a word and a strained or "loose" definition offered only during litigation (rather than in the patent itself), the Court must -- according to well-established principles of claim construction -- adopt the ordinary definition of the word. See Digital Biometrics, 149 F.3d at 1344 ("Without an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning."); see also Quantum Corp. v. Rodime PLC, 851 F. Supp. 1382, 1385 (D. Minn. 1994) ("the meaning which the investor gives to his words can not be made to depend upon subsequent events, but should appear when the application is filed") (citations omitted), aff'd, 65 F.3d 1577 (Fed. Cir. 1995). 5

5 Although plaintiff has provided the Court with computer product catalogues and articles that use the word "disk" to refer (apparently) to a disk drive, these do not alter the proper construction of the term. The occasional use of synecdoche in popular speech does not transform the fundamental meaning of a word, especially a technical term. In addition, as defendant points out, several of the publications that plaintiff has provided the Court actually draw a distinction between a disk and a disk drive. See Def.'s Memo. in Support of Non-Infringement at 10.

Therefore, the Court finds that the phrase "insertable storage medium having information stored therein" must be construed to require that the storage medium is a physical device which itself stores information; and that the storage medium is itself inserted into the machine (rather than being connected in some other manner) in order to operate it.

The Court recognizes that during the forthcoming infringement analysis under the doctrine of equivalents, distinctions that may be found or implied in this claim construction may not be dispositive in conducting that analysis.
The parties agree that "inserter" is a term of art in the data broadcasting industry. Broadcast's Opening Claim Construction Brief, at p. 22 ("The claimed 'inserter' is a common device in the industry"); and Defendants Joint Opening Claim Construction Brief for the '094 Patent, at pp.33-34 ("The term[] 'inserter' . . . [is a term] of art in the data broadcasting industry"). They disagree, however, on whether it is limited to "a device for embedding data into the VBI lines of a video signal," as the defendants contend, id., or whether it is broader and encompasses a device that can "be used to deliver a data stream over any one of a number of known transmissions methods, " including VHF/UHF, microwave, satellite, and fibre optics, as the plaintiff contends. Broadcast's Opening Claim Construction Brief, at p. 22.

Claims are to be construed in light of the specification. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Accordingly:

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. . . . The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

Id.

The specification here describes the inserter as follows:

The datacast network utilizes television signals to convey digital information for text display at the receiver stations. In this respect, the central station 11 generates a stream of data which is encoded into datacast packets as defined by the World Standard Teletext specification and know [sic] as Packet 31 data. This data stream is inserted into the vertical blanking interval (VBI) of the television broadcast signal transmitted from the central station 11 and is subsequently broadcast over the ether to be received by the receiver stations 13 at which are located display screens 15, such as television receiver sets or video monitors. . . .

* * *

The file server 17 is connected to a processing means in the form of a data broadcast inserter. The inserter 19 is adapted to extract digital records in the form of database data from the file server 17 and generate a sequential data stream from this database data for distribution. Importantly, the inserter is adapted to insert this data stream into the VBI of the broadcast television signal. This combined signal is passed on to a transmission means 21 which includes appropriate modulation and transmission circuitry for encoding and transmitting the sequential data stream via an antenna in accordance with conventional broadcast practice.

'094 Patent, col. 4, lines 13-22 and 30-42 (emphasis added).

The specification uses the term "inserter" to describe a device that inserts data into the vertical blanking interval of a television video signal. No other function is assigned to the inserter, and no other definition is provided by the patentee.

The plaintiff argues incorrectly that "the '094 patent also discloses embodiments where the data is inserted into a digital data stream for transmission over conventional methods, such as VHF/UHF transmission, microwave transmission or satellite transmission," citing the specification at col.15, lines 49-54. To the contrary, the specification indicates that the inserter acts on the video signal before the combined video signal with embedded data is modulated for transmission. The inserter embeds data into the VBI after the television signal is created but before it reaches any transmission means to deliver the signal, such as VHF/UHF, microwave, or satellite transmission.

Similarly, the specification uses the term "decoder" to describe a device that extracts the data from the vertical blanking interval:

The decoder means is particularly designed, to decode the transmitted data so as to reconstitute the database from the transmitted data.
'094 Patent, col. 4, lines 50-52. This is further, but consistently, described in the specification at col. 5, lines 33-54.

I construe the term "inserter" to mean a device for embedding data into the vertical blanking interval of a television video signal.

I construe the term "decoder" to mean a device for extracting data embedded into the vertical blanking interval of a television video signal or commercial radio sideband.

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1. "inserting . . . into"

The parties disagree about the meaning of the words "inserting . . . into" in the phrase "inserting a category identification signal into the scrambled program signal at the remote location for transmission thereof with the program signal" of claim 4. IPPV contends that "inserting . . . into" requires that the identification signal be within some time or space limitations of the program signal. Echostar on the other hand, argues that "inserting . . . into" requires the identification signal to be placed inside the program signal.

Having reviewed the language of the claim and the specification, the court concludes that there is no reason to modify the plain meaning of "insert," which means "to set (something) in." Webster's Their New International Dictionary 1168 (3d. ed. 1986). Thus, the court will construe "inserting . . . into" as requiring the identification signal to be placed inside the program signal.

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b. "inspecting"

For this term, IP offers the following definition: analyzing a certain element or location and one or more at least partially surrounding or neighboring elements of an image to determine the desirability of creating elements (in time or space) or modifying the location, value, brightness, shape, position, intensity or size of at least one element so as to improve the spatial and/or temporal resolution relationship between the elements, which may neighbor in time or space. Lexmark and Dell offer the following: examining or measuring to verify whether an item or activity conforms to specified requirements.

IP's definition of "inspecting" is overly broad and impermissibly reads limitations from the specification into the claim. The intrinsic evidence may disclose the subject matter of IP's definition, but the intrinsic evidence does not support the conclusion that the patentee gave a special meaning to the term "inspecting" as IP suggests. In such circumstances the ordinary and customary definition is to be used. Therefore, the court adopts Lexmark and Dell's definition: examining or measuring to verify whether an item or activity conforms to specified requirements.

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i. Inspecting

IP's proffered construction of the term "inspecting" is: analyzing a certain element or location and one or more at least partially surrounding or neighboring elements of an image to determine the desirability of creating elements (in time or space) or modifying the location, value, brightness, shape, position, intensity, or size of at least one element so as to improve the spatial and/or temporal resolution relationship between elements, which may neighbor in time or space. Sony proposes that the Court adopt its construction of the function of the "inspection means" limitation found in claim 1.

The Court agrees with Sony that the term "inspecting" should be construed consistent with the "inspection means" function of claim 1. See Phillips, 415 F.3d 1303, 2005 WL 1620331 at *7 (noting that claim terms are normally used consistently
throughout the patent). These claims share nearly identical language and context. Thus, the Court adopts the following construction of the claim term: to conduct an appraisal of at least two of the partially surrounding image elements provided by the neighboring element means in order to determine the presence of a void at a particular position in the image.

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c. "Inspecting a Plurality of Said at Least Partially Surrounding Image Elements of the Image to Determine the Presence of the Void"

IP offers the following definition for this term: inspecting two or more of the at least partially surrounding image elements of the group from the original image for the purpose of determining the presence of a void at the particular position. Lexmark and Dell propose: taking the at least partially surrounding pixels of the electronically coded input image, and examining or measuring two or more of those pixels without matching them to a pattern of elements.

Lexmark and Dell's definition seeks to add impermissible language such as "a pattern of elements" and "electronically coded." The defendant is adding the language based on the prosecution history of the 637 patent. On the hand, IP's definition reflects the ordinary and customary meaning of the term. Similar to the situation with the term "comparing a first of said selected pixels to at least a second of selected pixels" in claim 15 of the 780 patent, Lexmark and Dell's proposed definition includes limitations not found in the plain language of the claim. Therefore, we construe this term to mean inspecting two or more of the at least partially surrounding image elements of the group from the original image for the purpose of determining the presence of a void at the particular position.

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3. "instance" ('366 and '702 patents)

Beneficial's Proposed Construction
"an occurrence"

Defendants' Proposed Construction
"an occurrence of multiple user interactions stored at a server, where each interaction limits subsequent interactions"

Both parties agree that the term means occurrence, but the Defendants include additional limitations to the proposed construction. Beneficial has provided dictionary definitions that show that the definition of "instance" means "a case or occurrence of something." The Court finds that the Defendants' proposal is too limiting and is inconsistent with the ordinary meaning of the term. The specification of the '702 patent refers to "instances" as multiple occurrences of something and uses the "plural" of the term "instance." See '702 patent, 30:63-31:14. The Court finds that "instance" can be just a single occurrence of something and is not necessarily limited to plural instances. Further, requiring an "instance" to have multiple interactions would render the additional limitation of "includes a plurality of user interactions" in claim 1 meaningless. Thus, the Court construes the term "instance" as "occurrence."

2235
1. "instigating the analysis circuit simultaneously to the actuation of the charging circuit"

Claim 16 of the '085 Patent describes the method for delivering a defibrillating shock, including a step of "instigating the analysis circuit simultaneously to the actuation of the charging circuit." Philips contends that this term should be defined as "performing analysis for the first time when the high voltage capacitor begins to charge." Cardiac Science asserts that the term "instigate" should be construed as "trigger or provoke" and "actuation" means "activation." Cardiac Science offers no further construction of the phrase.
The '085 Patent specification reads:

The provision of additional safety controls to prevent the inadvertent release of a defibrillation shock reduces the need for the prior art method of sequential charging of the capacitors of the charging circuit, only after the completion of monitoring and analysis by the processor. Instead, the charging system may begin simultaneously with the monitoring and analysis function of the processor.

('085 Patent at c. 6, 11: 3-9.) However, contrary to Philips' proposed construction, neither the specification nor the claim language requires that the analysis be performed "for the first time" when the high voltage capacitor begins to charge. Rather, the word "simultaneously" in the claim language, coupled with the specification, describes the analysis occurring at the same time as the high voltage capacitor begins to charge. Thus, the Court construes the term "instigating the analysis circuit simultaneously to the actuation of the charging circuit" as "performing analysis at the same time as the high voltage capacitor begins to charge."

Construction of the term "instruction" was the primary focus of ARM's summary judgment motion. n2 Modern computers typically have a central processing unit ("CPU") that includes circuitry to fetch, decode and execute each operation specified by the instructions provided to it. The '215 patent describes this circuitry as part of a multi-stage pipeline: the "fetch" stage retrieves each successive instruction; the instruction then is passed to the "decode" stage, which recognizes each instruction and generates a control signal indicating that a particular operation or function is to be performed; and the "execute logic" stage, consisting of adders, shifters and multipliers, performs the operation or function. See '215 patent, col. 5, 11. 12-17 and fig.3. ARM argued that as used in the '215 patent, an instruction is a command provided to the CPU as input to the decode stage. ARM distinguished these instructions provided prior to the decode stage from the "control signals" generated by the decoder. In opposition to the motion, Nazomi argued that an instruction is any command that specifies or causes performance of an operation or function, including the control signals generated by the processor's decoder.

n2 The Court permitted the parties to present their arguments as to the appropriate construction of the term "instruction" in the context of ARM's motion for partial summary judgment; the Court did not hold a claim construction hearing prior to ruling on ARM's motion.

The Court did not wholly adopt ARM's proposed construction, but concluded that the '215 patent discloses "a hardware unit or subunit that converts stack-based instructions into the register-based instructions prior to the processing of those instructions by the processor in the so-called 'decode stage.' Based upon this construction, the Court granted ARM's motion for partial summary judgment. The parties then stipulated to Nazomi's dismissal of its claims of infringement by ARM's Revision 2 Jazelle products and to ARM's dismissal of its counterclaim for declaratory judgment.

On April 11, 2005, the Federal Circuit vacated this Court's grant of partial summary judgment for ARM and remanded for further proceedings after concluding that this Court had failed to construe the term instruction in sufficient detail for appellate review. This Court set a claim construction hearing and solicited briefing from the parties. The parties have confined their arguments to the term "instruction," but have reserved their rights to brief and argue other terms in the event construction of the term "instruction" does not result in disposition of the litigation.

II. LEGAL STANDARD

Claim construction analysis begins with the words of the claim. Nystrom v. Trex Co., Inc., 424 F.3d 1136, 1142 (Fed. Cir. 2005). A particular claim term generally is given its ordinary and customary meaning, that is, "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). In determining how one of ordinary skill in the art would define a claim term, the Court looks to 'the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic
evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." Id. at 1314 (quoting Innova /Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004)). The Court therefore does not determine the meaning that one skilled in the art would attribute to a particular term if he or she were operating in a vacuum, but rather the meaning that one skilled in the art would find if he or she were to view the claim term in light of the entire intrinsic record. Nystrom, 424 F.3d at 1142.

The specification may reveal that the inventor has given a claim term a special meaning that differs from the meaning it otherwise would possess. Phillips, 415 F.3d at 1316. "In such cases, the inventor's lexicography governs." Id. Alternatively, "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor." Id. The inventor's intentions as revealed in the specification are dispositive. Id. The specification is considered "the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

The prosecution history likewise provides guidance as to how the Patent and Trademark Office and the inventor understood the invention, and whether the inventor limited the invention during the course of prosecution. Phillips, 415 F.3d at 1317.

As noted above, extrinsic evidence such as technical dictionaries and expert testimony may be useful to educate the Court as to the field if the invention generally and the likely meaning that would be attributed to a particular claim term by one of ordinary skill in the art. See Phillips, 415 F.3d at 1318. However, "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful." Id. Moreover, technical dictionaries and treatises may provide multiple definitions so expansive as to extend patent protection beyond what properly should be afforded. Id. at 1321. For these and other reasons, extrinsic evidence is considered to be a less reliable guide to claim construction than are the patent and its prosecution history. Id. at 1318.

III. DISCUSSION

The '215 patent contains seventy claims, including independent claims 1, 33, 36, 39, 69 and 70. Claim 1 is representative, and is set forth in full as follows with the disputed term "instructions" highlighted in bold:

1. A system comprising:

   a central processing unit having a register file, the central processing unit adapted to execute register-based instructions; and

   a hardware unit associated with the central processing unit, the hardware unit adapted to convert stack-based instructions into register-based instructions, wherein a portion of the operand stack is stored in the register file of the central processing unit and wherein the hardware unit is adapted to produce at least one of overflow or underflow indications for the portion of the operand stack stored in the register file, wherein the hardware unit is adapted to swap parts of the operand stack in and out of the register file from a memory, the system including an indication of the depth of the portion of operand stack, wherein a overflow or underflow produces an operand transfer between the register file in the central processing unit and memory.

The essence of the patented invention is a hardware accelerator that quickly and efficiently translates Java bytecodes (stack-based instructions) into native instructions (register-based instructions) for a CPU. See '215 patent, col. 2, ll. 3-6. Claim 1 describes this invention in a fairly straightforward manner, specifying a system comprising (1) a CPU that executes register-based instructions and (2) an associated hardware unit that converts stack-based instructions into register-based instructions. The parties dispute the scope of the term "instruction."

ARM proposes the following construction: "an element of an instruction set architecture, which specifies the interface between computer programs and a processor, that element having an operation code and zero or more operand specifiers, such that the processor can recognize the instruction and perform the specified operation." As the Court understands it, the instruction set architecture ("ISA") of a particular system is the universe of native instructions recognizable at the input of the CPU's decode stage. An immediate problem with ARM's proposed construction presents itself, because Claim 1 refers not only to register-based instructions, which would be elements of the system's ISA, but also to stack-based instructions, which would not be recognizable to the CPU given the explicit statement that the CPU executes register-based instructions.
This definitional glitch notwithstanding, the thrust of ARM's contention clearly is that the "instructions" described by the claims are inputs to the CPU prior to the decode stage.

Nazomi proposes a much broader construction: "a command that specifies or causes an operation or function to be performed." Under Nazomi's proposed construction, the "instructions" described by the claims could be either inputs to the CPU prior to the decode stage or outputs of the CPU, i.e., the control signals that cause the specified operation or function to be performed. Nazomi refers to these post-decode control signals as "low-level instructions" or "microinstructions."

A. Claim Language

Applying the relevant legal standards, the Court first must determine the meaning that one of ordinary skill in the art would give the term "instruction" as used in the patent claims. The parties agree that a person of ordinary skill in the art would have a Bachelor of Science or equivalent degree in electrical engineering, computer engineering or computer science, and two or three years of experience working with computer architecture. Nazomi initially expressed concern that ARM was attempting to limit the person's work experience to programming or other experience with the external architecture of CPUs; however, ARM has clarified that it agrees with Nazomi that one of ordinary skill in the art would be knowledgeable regarding the internal architecture of CPUs as well. ARM initially argued that one of ordinary skill in the art would have at least one year of experience with Java. However, in light of Nazomi's objection to this requirement, ARM has agreed that for purposes of construing the term "instruction" Java experience is not required. Accordingly, the parties are in agreement as to the qualifications of one of ordinary skill in the art.

Predictably, both parties present extrinsic evidence to support their arguments as to how the above-described person of ordinary skill in the art would understand the term "instruction." For example, Nazomi's expert, Dr. Yalamanchili, states that "instruction" is a general term that is used to identify commands at multiple levels of the computer architecture. Yalamanchili Decl. PP 25, 27; Yalamanchili Suppl. Decl. PP 5, 8. Dr. Yalamanchili states that qualifiers such as "micro" are used before the term "instruction" (as in "microinstruction") to distinguish instructions at different levels of abstraction. Id. at P 8. ARM attacks Dr. Yalamanchili's opinion, citing deposition testimony that when teaching a class on computer basics at the Georgia Institute of Technology, Dr. Yalamanchili distinguished between "instructions" as input to the CPU's decoder and "microinstructions" as output of the decoder. Yalamanchili Depo. 111:7 - 112:7, 169:18-21. ARM also cites to various texts in support of its position that the term "instruction" generally refers to an element of the ISA.

As the Federal Circuit recently noted, "there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question. In the course of litigation, each party will naturally choose the pieces of extrinsic evidence most favorable to its cause, leaving the court with the considerable task of filtering the useful extrinsic evidence from the fluff" Phillips, 415 F.3d at 1318. The conflicting evidence submitted by the parties is not particularly useful in aiding the Court to determine how one of ordinary skill in the art would understand the term "instruction." Based upon all of the evidence in the record, this Court concludes that, at least in the abstract, one of ordinary skill in the art might understand the term "instruction" to apply to multiple levels of computer architecture. The relevant question, however, is how a person of ordinary skill in the art would understand the term "instruction" in the context of this patent. See Nystrom, 424 F.3d at 1142 (holding that "[t]he person of ordinary skill in the art views the claim term in light of the entire intrinsic record").

The problem addressed by the patent is the slow and inefficient manner in which the prior art translated Java bytecodes into native instructions that can be executed by a CPU. See '215 patent, col. 1, 11. 38-67. The essence of the patented invention is a hardware accelerator that speeds up this translation. See id., col. 2, 11. 1-7. All of the claims describe a hardware unit that translates stack-based instructions, e.g., Java bytecodes, into register-based instructions. Given this context, the Court concludes that a person of ordinary skill in the art would understand the term "instructions" to refer to Java bytecodes or the native instructions to which those bytecodes are translated. See Nystrom, 424 F.3d at 1145 (holding that the background section of the specification frames the invention in context and can implicitly limit claim terms); Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents") (citations omitted). This translation, as described by the specification, necessarily occurs upstream of the CPU's decode stage--otherwise, the CPU would not be able to process the Java bytecodes. See '215 patent, col. 1, 11. 24-38.
Nazomi points to claim 30, "wherein the central processing unit includes an execution unit to execute the register-based instructions." Nazomi also points to claim 32, "wherein register-based instructions cause the manipulation of the register file," pointing out that the register file provides input to the execute logic stage. Read literally then, these claims would appear to indicate that "instructions" exist after the decode stage. Such a reading, however, would not make sense. It appears clear from a reading of the entire specification that the register-based instructions referred to by the claims are native instructions input at the beginning of the pipeline, i.e., at the instruction fetch stage. Such instructions do not exist in the same form after the decode stage. While it acknowledges that the language of claims 30 and 32 could be confusing, the Court concludes that the most likely explanation is that the inventor was using the term "instruction" imprecisely in these two instances. Certainly, when native instructions are processed in the pipeline they "cause" a downstream effect, e.g., manipulation of the register file. The Court concludes that the inventor must have been referring to this downstream effect rather than indicating that native instructions exist after the decode stage.

B. Specification

The foregoing construction is consistent with the specification, which consistently uses the term "instruction" to refer either to Java bytecodes or to native processor instructions. The specification never indicates that the term "instruction" means the control signals that are the output of the decode stage and never uses the phrase "microinstruction" or "low level instruction." Nazomi points to the following language:

The CPU is divided into pipeline stages including the instruction fetch 26a, instruction decode 26b, execute logic 26c, memory access logic 26d, and writeback logic 26e. The execute logic 26c executes the native instructions and thus can determine whether a branch instruction is taken and issue the "branch taken" signal.

'215 patent, col. 5,11.12-17. Again, Nazomi is trying to demonstrate that "instructions" exist after the decode stage and in fact are executed by the execute logic stage. Such a literal reading would make no sense here, however; according to the background section of the specification, native instructions are the result of a compiler or Java translator and are inputs to the CPU's decode stage. See '215 patent, col. 1, 11. 13-45. Taken in context, the stray references cited by Nazomi must be shorthand for the fact that the execute logic stage carries out the operations specified by the native instructions.

Nazomi also makes reference to the following language in the specification indicating that the hardware accelerator "can be incorporated into" the CPU:

Although the Java hardware accelerator is shown in FIG. 1 as separate from the central processing unit, the Java hardware accelerator can be incorporated into a central processing unit. In that case, the central processing unit has a Java hardware accelerator subunit to translate Java bytecode into the native instructions operated on by the main portion of the CPU.

Nazomi argues that the reference to "incorporation" into the CPU refers to logical incorporation, that is, insertion of the hardware accelerator into the pipeline such that the register-based instructions that are the output of the accelerator would not be input to the decode stage. There does not appear to be any support for this argument in the specification itself, which gives no indication that the translated Java bytecodes enter the pipeline at anyplace other than the instruction fetch stage. Nazomi submits a second declaration of the inventor, Mr. Patel, providing several figures showing how the hardware accelerator could be integrated into the CPU pipeline. None of these figures appears in the patent specification, however.

The Court notes that the specification references an "embedded solution in which the hardware accelerator is positioned on the same chip as the existing CPU design." '215 patent, col. 6,11.56-59. Arguably the reference to "incorporation" refers to this "embedded" solution, in which the hardware accelerator is merely on the same chip as the CPU. Even if the reference to "incorporation" means physical incorporation into the CPU, however, the Court concludes that the specification gives no indication that the logical relationship between the hardware unit's output and the pipeline would be changed. In other words, there is no indication that the hardware unit ever is located anywhere other than upstream of the decode stage. n
n3 Nazomi devotes extensive argument to its position that the presence of the hardware unit on the same chip as the CPU, or within the CPU but upstream of the pipeline, would not satisfy the requirement of an "integrated embodiment." The patent does not use the phrase "integrated embodiment" or even the term "integrated." The term used by the patent is "incorporated." Nazomi appears to have transmuted the term "incorporated" into "integrated." The patent does not use the term "integrated."

C. Prosecution History

The Federal Circuit's remand order suggests that the Court consider the prior art references by Krall, et al. and Dickol, et al. Nazomi, 403 F.3d at 1369. Both the Krall article and the Dickol patent use the term "instruction" to refer to Java bytecodes or native instructions; neither uses the term "instruction" to refer to the control signals that are the output of the decode stage.

Nazomi cites other prior art references, Coon and Trembley. Neither were discussed by the examiner. Nazomi nonetheless argues that these references use the term "instructions" broadly to encompass multiple levels of computer architecture. As it noted above, the Court is prepared to accept the proposition that, in the abstract, the term "instruction" could have the very broad meaning attributed to it by Nazomi. The question, however, is the meaning of the term as used in this patent. Because the prosecution history does not disclose any discussion of Coon or Trembley, these references are not useful to this inquiry.

D. Appropriate Construction

As the Federal Circuit noted, and as is described above, "[i]n this patent, it appears that the inventor defined 'instructions' in an indirect manner. Specifically, the specification refers primarily to what the instructions do and where they may do it." Nazomi, 403 F.3d at 1369. Consistent with the manner in which the inventor defined the term, the Court construes the term "instruction" to mean either a stack-based instruction that is to be translated into a register-based instruction, or a register-based instructions that is input to the CPU pipeline. In either case the "instruction" must be upstream of the decode stage of the CPU pipeline. As used in the claims of the patent, "instruction" cannot mean the control signals that are the output of the decode stage.
of fields that is universally used by computer programmers.

Defendant does not challenge plaintiff's representation of the ordinary and customary meaning of the term instruction, but urges that within the four corners of the patent, the term has a specialized meaning, that is, that it is limited to the particular format of OP, S1, S2, D. Although this particular instruction format is found in the preferred embodiment, it is not found in all of the claims. It is well established that it is improper to read a particular preferred embodiment into the claims. See Texas Digital, 308 F.3d at 1203. Moreover, inasmuch as the OP, S1, S2, D instruction format is found only in some claims (e.g., dependent claim 2) but not in others (e.g., independent claim 1, from which claim 2 depends), defendant's proposed construction violates the doctrine of claim differentiation. Thus, defendant has not overcome the heavy presumption that the claim term carries its ordinary and customary meaning. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363.

The contemporaneous ordinary and customary meaning of the term "instruction" is fully consistent with the patent. There is no basis in the patent or the prosecution history to limit the instruction in claims 1, 14 and 15 to a particular format. As will be seen below, the Court construes the patent as teaching a technique for detecting dependency free computer instructions and finds no basis to construe the technique as limited to environments in which the instructions have particular formats. Thus, the Court construes the term "instruction" in independent claims 1, 14 and 15 to mean "an expression that specifies one or more operations and identifies the applicable operands."

Instruction (claim 6)

Independent claim 6 recites a specific instruction format: OP, S1, S2, D. Accordingly, the term "instruction" in claim 6 means "an expression that has a specific format (i.e., OP, S1, S2, D)."

Instruction cycle/variable number of instruction cycles

This term appears in claims 1-12 of the '037 patent. The court construes this term as proposed by Biax. The term means "the period of time between the issuing of two successive instructions." No additional construction of "variable number of instruction cycles" is required.

"a site instruction file"

Southwest argues that the term means "an electronic file containing instructions which tell the data processing system at each remote location which general coupon templates to download and which site specific information files to download," which is the agreed upon construction for the term "a location instruction file" as used in claim 1 of the '673 patent. 3T argues that the term "site instruction file" is indefinite because the term does not appear in the specification, it only appears in claim 6 of the '673 patent, and that it has no readily ascertainable meaning. Claim 6 of the '673 patent requires both a "site specific information file" and a "site instruction file." Claim 1 requires a "site specific information file" and a "site instruction file." Claim 1 has a "site specific information file" and a "location instruction file." The parties have agreed to a construction of the terms "site specific information file" and "location instruction file," but disagree as to the term "site instruction file."

The Court does not find this term to be indefinite. A claim is indefinite only if the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted." Exxon, 265 F.3d at 1375; Honeywell, 341 F.3d at 1338-39. This term is not "insolubly ambiguous" so as to prevent construction. See Young, 492 F.3d at 1346 (claims are considered indefinite when they are "not amenable to construction or are insolubly ambiguous"). While it is true that "site instruction file" is not defined or used in the specification, the terms "site" and "location" have the same meaning as found throughout the specification and as agreed upon by the parties. Thus, one of ordinary skill in the art would understand that "site instruction file" and "location instruction file" mean the same thing, and would thereby understand the metes and bounds of the claim. See Exxon, 265 F.3d at 1375 ("If the meaning of the claim is discernible, even though the task may be formidable and the
conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.

The Court finds that the term "a site instruction file" should have the same meaning as the agreed upon construction for "a location instruction file." Thus, the Court construes the term "a site instruction file" to mean "an electronic file containing instructions which tell the data processing system at each remote location which general coupon templates to download and which site specific information files to download."

6. Instruction firing time

The next dispute relates to the term "instruction firing time." The term appears in various claims of the '755 and the '945 patents. In the patents, the TOLL software adds intelligence to the instruction stream. Some of that intelligence provides an "instruction firing time" or IFT. The parties dispute whether the IFT may be a relative time or whether it must mean a specific time. The court is persuaded that the plaintiff's view of this term is more appropriate. One passage from the specification supports the view that the instruction firing time may be a relative one: "[i]n the preferred embodiment of the invention, [the added intelligence] is the assignment of an instruction's execution time relative to the execution times of the other instructions in the stream." '755 patent, col. 10,11.28-31. After considering the parties' arguments on this point, the court concludes that the definition adopted by the ITC judge in Biax's collateral proceeding against Texas Instruments is correct. The court construes the term in this case to mean "intelligence used to indicate when a given instruction may be executed."

c. "Instruction groups"

The next term is "Instruction groups." The plaintiffs' proposed construction is "sets of from 1 to a maximum number of sequential instructions, each set being provided to the instruction register as a unit and having a boundary." The defendants propose "sets of from 1 to a maximum number of sequential instructions, in which the execution of the instruction depends on each set being provided to the instruction register as a unit and in which any operand that is present must be right justified and which cannot encompass a single 32-bit traditional conventional instruction." The dispute is whether an operand that is present in the instruction group must be right justified and whether the instruction group may encompass a single 32-bit traditional conventional instruction.

The plaintiffs contend that right justified operands are a feature of the preferred embodiment. The plaintiffs also argue that the claim language was broadened during prosecution history when the language "selecting, in accordance with position in said instruction register of one of said instructions of one of said instruction groups, an operand from said one of said instruction groups" was removed from the claim. Amendment, June 12, 1997, at 6. In addition, the plaintiffs point out that the specification includes 32-bit instructions. See '584 patent, 20:41-42.

The defendants argue that the specification states that "operands must be right justified in the instruction register." '584 patent, 16:15-16. In addition, the defendants argue that the applicants limited operands in this manner to overcome prior art rejections. See Amendment, June 17, 1997, at 13; Amendment, February 5, 1998, at 7. The defendants also contend that although the specification includes 32-bit instructions, the specification never identifies a single 32-bit instruction as instruction groups. According to the defendants, the specification defines "instruction group" as "being 8-bit and 16 or 24-bit instructions." '584 patent, 23:4-7.

The specification and prosecution history refer to the fact that operands in the instruction register must be right justified. The applicants, however, did not exclude a single 32-bit instruction as an instruction group. In a preferred embodiment, a microprocessor fetches instructions "in 32-bit chunks called 4-byte instruction groups" where an "instruction group may contain from one to four instructions." '584 patent, 23:4-5, 19:18-19. If a 4-byte (or 32-bit) instruction group contains one instruction, then the instruction group may contain a single 32-bit instruction. The Court construes "instruction groups" to mean "sets of from 1 to a maximum number of sequential instructions, each set being provided to the instruction register as
2. "Instructions"

Data General contends that "instructions" means S-Instructions which are a level below high-level language instructions and
a level above conventional machine language instructions. IBM argues that "instructions" means conventional machine
instructions into which programs written in high-level user languages are compiled for execution by the processor.

Claim 1 provides in relevant part:

...instructions, each one of said instructions containing an operation code of a plurality of operations codes, said
operation codes belonging to a plurality of functionally different operation code sets, said operation codes in a given one of
said operation code sets being definable solely with reference to said given operation code set....

'797 Patent, col. 4, ll. 29-36. Claim 1 also provides that the processor means receives and responds to said instructions by
performing the operation in the instruction. See '797 Patent, col. 4, ll. 38-44.

IBM offers extrinsic evidence that "instructions," to persons skilled in the art, means executable machine language
instructions into which high-level language programs are compiled. Before relying on extrinsic evidence, however, this
Court must look to the Common Specification to understand what the drafter of the patent meant by "instructions."

The Common Specification provides that:

CS 101 is both an S-Language machine and a Name-space machine. That is, operations to be executed by CS are
expressed as S-Language Operations (SOPs) while operands are identified by Names. SOPs are of a lower, more detailed,
level than user language instructions, for example FORTRAN and COBOL, but of a higher level than conventional machine
language instructions. SOPs are specific to particular user languages rather than a particular embodiment of CS 101, while
conventional machine language instructions are specific to particular machines. SOPs are in turn interpreted and executed
by microcode. There will be a S-Language Dialect, a set of SOPs, for each user languages (sic). CS 101, for example, may
have SOP Dialects for COBOL, FORTRAN, and SPL.

'602 Specification, col. 21, l. 57 - col. 22, l. 3. (emphasis added). Thus, the Common Specification makes it clear that the
claim language referring to functionally different operation code sets refers to the S-Instructions (or SOPs) of S-Languages.

IBM's contention that Data General would have used the word "S-Instructions" rather than "instructions" if it had meant the
former is baseless. Because the concept of "S-Instructions" and a mechanism to compile high-level languages into such
instructions which are then converted into machine instructions by S-Language interpreters was a novel concept when the
patent was issued, it stands to reason that the patent drafters would explain S-Instructions in a detailed manner.

Furthermore, it is not necessarily true, as IBM implies, that the processor cannot execute S-Instructions, and that the
instructions which the processor receives from memory and responds to must therefore be conventional machine
instructions. Its implication is inaccurate because the processor receives S-Instructions and uses an S-Language interpreter
to convert them to machine instructions. Thus "instructions" received by the processor may be S-Instructions.

IBM argues that "instructions" could not mean S-Instructions because it would render superfluous all of the limitations set
forth in the claim. That argument is nonsensical. The Court does not construe "instructions" as S-Instructions, thereby
rendering the surrounding language superfluous, but rather, interprets the entire description of "instructions," including the
descriptive characteristics which follow it, as S-Instructions.

Nor does construing "instructions" to mean S-Instructions "disregard" the plain meaning of the word "said," as IBM argues.
Claim 1 first establishes that "said" instructions refer to instructions which are part of the data provided by the memory
means and then describes the characteristics of such instructions.

This Court construes "instructions" to mean "S-Instructions" which are a level below high-level language instructions and a
level above conventional machine language instructions.

8. "Instructions" (Claim 10)
Despite Broadcom's assertion that no construction is necessary, the Court finds that the technical meaning of this term in the context of the '705 patent requires some clarification for the trier-of-fact. At the Markman hearing, both parties agreed that the IEEE definition of "any executable statement in a computer program" is an accurate construction of the claim term. IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 232 (5th ed. 1996); (see R. at 331, 335 (May 6, 2004).) Accordingly, the Court adopts this definition as the construction of the term "instructions."

C. "Instructions"

Intel's next contention is that the district court erroneously construed the term "instruction," found in both the '028 and the '003 patents, to have different meanings in different parts of the claims. Intel urges us to interpret the term "instruction" to mean "a complete instruction corresponding to a traditional programmer visible command that uniquely describes one basic computer operation." Under either the district court's construction or its own proposed construction, Intel contends that the accused devices do not infringe because they do not store "instructions" with embedded pipeline identifiers or route "instructions" through the crossbar as the claims require.

Intergraph counters that the district court's construction of the term "instruction" is both consistent and correct because, at every stage, an "instruction" is the smallest unit of work capable of being processed. Intergraph further argues that the accused devices' syllables and templates are the "instructions" in the storage stage and that the accused devices' syllables are the "instructions" in the routing stage.

We agree with Intergraph that the district court did not err in construing the claim term "instruction." Claim 20 of the '028 patent and claims 1, 6, and 22 of the '003 patent refer to storing "instructions" in VLIW or super-scaler storage and then routing "instructions" to appropriate processing pipelines. Taking into account both the storage stage and the routing stage, the district court interpreted the term "instructions" to mean simply "the smallest unit of work capable of being processed at any particular stage in the computer." That construction does not run afoul of the general rule that a claim term should be interpreted consistently throughout a claim, see Phonometrics, Inc. v. N. Telecom Inc., 133 F.3d 1459, 1465 (Fed. Cir. 1998); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995), for it treats an "instruction" as always being the "smallest unit of work capable of being processed." Moreover, the patent does not require that an "instruction" contain a specific, or even unvarying, number of bits. On the contrary, the specification of the '028 patent shows that an "instruction" may contain 64 bits in the storage stage and only 57 bits in the routing stage, after the group and pipeline identifiers have been discarded. See '028 patent, col. 7, l. 56 ("As shown [in Figure 7], the instructions are expanded to 64 bit length . . . "); id., col. 9, ll. 30-62 & fig. 10 (depicting 64-bit "instructions" as each consisting of a 57-bit word, a 3-bit group identifier, and a 4-bit pipeline identifier); id., col. 10, ll. 31-32 & fig. 11 (referring to the 57-bit words as "instructions" that are executed by the processing pipelines). It is therefore irrelevant whether the number of bits composing an "instruction" is constant throughout all of the recited stages of processing. We accordingly affirm the district court's construction of the term "instructions."

We also agree with Intergraph that the district court did not clearly err in finding that the accused devices have "instructions" in both the storage and the routing stages. First, the record supports the finding that the accused devices' syllables and templates constitute "instructions" in the storage stage. To be sure, the parties offered conflicting evidence regarding whether the accused devices' templates ever reach the rotate buffer and hence ever reside in VLIW or super-scaler storage. Nonetheless, the district court reasonably chose to rely on the testimony of Intergraph's expert, who stated that, based on his review of an Intel design document, both the syllables and the templates in the accused devices are sent to the rotate buffer. See Findings and Conclusions, 2002 U.S. Dist. LEXIS 27116. Moreover, that Intel document also appears to show bundles, which include both syllables and templates, as leaving the rotator in the accused devices. It was therefore not clearly erroneous for the court to resolve this factual dispute by finding that the accused devices have "instructions," which include embedded pipeline identifiers in the form of the templates, in the storage stage. 2002 U.S. Dist. LEXIS 27116.

Second, the record also supports the finding that the accused devices' syllables constitute "instructions" in the routing stage. On this point, Intel's own expert agreed that the accused devices' syllables are the smallest units that an execution pipeline needs for processing, thereby fitting the court's definition of "instructions" in the routing stage. We therefore conclude that the district court's finding that the accused devices have the recited "instructions" was not clearly erroneous.
executable instructions for building a displayable inventory of works

This term appears in claim 1 of the '345 patent. After briefing its proposed construction of this term in its opening brief, Premier, in its reply brief, asked the court to withdraw this term from consideration. At oral argument, Apple urged the court to construe this term. The court will construe this term.

Premier's originally proposed construction of this term is "executable computer instructions for creating a displayable inventory of works, without the user having to manually transfer each song or enter information about each song." Apple's counter-construction is "instructions which cause the circuitry to create an inventory of works that can be displayed." The court construes this term to mean "computer instructions for automatically creating an inventory of works that can be displayed."

c. The "Automatic" and "Electronic" Limitations

The parties also dispute the level of user interaction required by the claims to complete the registration step and to enable the software beyond the grace period previously enabled by the initial authorization code. This dispute implicates two related limitations recited in the asserted claims. Claims 44 and 131 of the '471 patent recite "requiring the user to selectively choose either manual or electronic registration" (emphasis added), while claim 32 of the '825 patent recites "instructions for automatically contacting an authorized representative . . . to communicate registration information and obtaining authorization for continued operation" (emphasis added). Despite the difference in the language of the claims, the parties agree that for purposes of this appeal, the terms "automatic" and "electronic" may be analyzed together.

At the district court, Microsoft suggested a construction of the term "automatically" to be "without user discretion or intervention." The district court disagreed and instead construed the term to mean "instructions (i.e. a computer code) that enable a user's computer to contact an authorized representative of the software." Claim Construction Opinion at 6-8. The court did not construe the term "electronic," but noted that "[i]n open court, the parties agreed to use the claim language for this term." Id. at 8. Microsoft further agreed that it would not argue at trial 'that 'electronic' means 'without user intervention' without leave of Court." Id.

On appeal, Microsoft contends that once users choose the electronic or automatic registration mode (as contrasted with the manual mode), the initiation of the registration communication must commence without any user interaction.

We find Microsoft's claim construction arguments to be without merit. As the district court carefully observed, the claims are silent as to the initiation of the registration process, although the claims and specification "clearly contemplate[ ] a user choice as to whether registration will be automatic or manual." Id. at 6 (citing '471 patent col.7 ll.7-18 ("The user is allowed to choose between automatic or manual registration.")); see also '825 patent claims 44 & 131 ("requiring the user to selectively choose either manual or electronic registration"). Although the specification discloses that automatic registration is performed "without user intervention," '471 patent col.4 ll.50-54 (emphasis added), the claims require at least a minimal level of user interaction to select this registration mode. Indeed, nothing in the claims or specification precludes user interaction in the selection or initialization of the automatic registration. Thus, the district court correctly rejected Microsoft's attempt to exclude any user interaction from the claims, and we affirm its construction of this term. Microsoft makes no effort to argue non-infringement under this construction, and its own product documentation, which was presented to the jury, characterizes the Internet option as "automatically activating the [accused product]."

Moreover, even under Microsoft's proposed construction, its sole non-infringement argument is artificial at best. Specifically, Microsoft argues that although the accused products allow users to choose between Internet (i.e., automatic or electronic) or phone (i.e., manual) activation, if the user chooses the Internet option, "nothing happens after that manual
choice until the user additionally manually presses the 'next' button . . . " Microsoft Br. at 23. Thus, even under Microsoft's construction, a reasonable juror could find that "manually press[ing] the 'next' button" is merely part of the selection process. Therefore, we affirm the judgment of infringement with respect to these limitations as well.

7. **executable instructions for creating at least one play list by selecting works in accordance with a predetermined criterion**

This term appears in claim 31 of the '345 patent. The plaintiff's proposed construction is "executable computer instructions for automatically creating a play list by selecting works corresponding to a user-selected characteristic (as defined above), without the user having to individually select each work to be included in the play list." The defendant contends that no construction of this term is necessary. Alternatively, the defendant proposes a construction of "instructions for creating at least one play list by selecting works corresponding to a user-selected criterion, such as, for example, Artist, Genre, Beats Per Minute, and Most Played." At the Markman hearing, Apple argued that Premier's inclusion of "automatically creating a play list" in its construction was improper because such construction excludes a preferred embodiment from the claims, e.g. the creation of a play list by a user. Other claims, however, embrace the concept of a play list created with the user's intervention. See, e.g., '725 patent, cl. 1. This fact, coupled with the disclosure of Figure 4H, supports Premier's construction.

The court construes this term to mean "computer instructions for automatically creating at least one play list based on a user-selected criterion."

13. **instructions for effecting royalty payments to appropriate recipients**

This term appears in claim 84 of the '725 patent. The plaintiff proposes a construction of "computer instructions that cause royalty payments to be made to third parties entitled to royalties for the works." The defendant counters with "instructions that make royalty payments for the works." The dispute is the extent to which the instructions must automate the entire payment process. Consistent with its construction of the preceding terms relating to computer instructions, the court construes this term to mean "computer instructions that automatically cause royalty payments to be made to appropriate recipients."

6. **the circuitry includes instructions for selecting works to be included in the displayable list in accordance with a selected characteristic**

This term appears in claim 11 of the '345 patent. The plaintiff proposes a construction of "executable computer instructions for automatically selecting works to be included in the displayable play list corresponding to a user-selected characteristic (as defined above), without the user having to individually select each work to be included in the list." The defendant urges that no construction of this term is necessary. In the alternative, however, the defendant suggests the following construction: "instructions for selecting works to be included in the displayable list based on a chosen characteristic (as defined above)."

The parties dispute 1) whether a "displayable list" as used in the above term is really a "play list," and 2) whether the phrase "instructions for selecting works" means that instructions, as opposed to a user, selects the works for inclusion in the displayable list. Claim 11 of the '345 patent, in conjunction with Figure 4H, clarifies these issues. In contrast to many of the claims of the patents-in-suit, which are drawn to play lists, claim 11 of the '345 patent is drawn instead to a "displayable list." As shown in Figure 4H, the upper list, labeled "Media Inventory," is a listing of works in the media inventory. As shown by the "Source Song Selection Parameters" window in Figure 4H, a user can select characteristics and automatically generate a "displayable list" via computer instructions. The "displayable list" is a sub-set of the media inventory. It is then displayed as the source of songs from which a user may build a play list. Claim 11 is directed toward the automatic creation, via computer instructions, of a "displayable list," as opposed to a play list. For these reasons, the court construes the above
term to mean "computer instructions for automatically selecting works to be included in the displayable list based on a user-selected characteristic."

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2. Construction of "Microcontroller Set of Instructions Signals Received from the Call Progress Detector Circuitry"

For reasons stated on the record during the Markman hearing, this Court construes "microcontroller set of instructions signals received from the call progress detector circuitry" to mean "the call progress detector circuitry outputs a signal corresponding to the call waiting signal to recognition circuitry." This phrase is found in claim 1 of the '771 Patent.

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G. "instrument" and "payment instrument"

Term
"an originator party creating an instrument for transferring funds to a recipient party, the instrument information comprising (i) a variable authentication number (VAN), and (ii) one or more pieces of payment information including an amount, information for identifying the recipient party or the originator party, a date, and a check control or serial number" '148, Claim 35.

Plaintiff's Definition
Instrument: document (including paper or electronic) that is used to transfer funds to a recipient party

Defendants' Definition
A document, that is an instrument of commerce, used to transfer funds to a recipient party

Payment instrument: a document (including paper or electronic) that is used to transfer funds to a recipient party in connection with a payment.

This term appears in claims 34 and 35 of the '148 patent. The parties' essential dispute is whether the instrument can be mere instructions to pay the recipient party or whether the instrument must be commercial paper. Plaintiff argues that the specification is not limited to checks, but can include a set of instructions. Defendants argue that Plaintiff's proposal is overbroad. Defendants believe that the scope of the invention is limited to negotiable instruments.

The specification's inclusion of a cashless system indicates electronic instructions are within the scope of the invention. The Court adopts Plaintiff's construction.

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C. "Instrument" or "Payment Instrument"

The claims in the '148 patent state that an instrument is "for transferring funds." ('148 patent, col. 24, ll. 43-44; col. 28, ll. 37-38) Similarly, a payment instrument is "to make a payment." ('148 patent, col. 26, ll. 12-13) Accordingly, the term "instrument" or "payment instrument" shall be construed to mean "a document used to transfer funds to a recipient party."
8. "insulated lead wire having first and second ends"

Claims 1, 12, and 17 of the '919 Patent disclose an "insulated lead wire having first and second ends." Philips asserts that this term should be defined as "a round wire covered by an electrically insulating material, such as polyvinyl chloride, and having two ends used to connect two points in a circuit." Cardiac Science maintains that a "lead wire" is a "conductive wire, trace, or strip."

The Court finds no support for Philips' assertions that the term should be construed to include a "round" wire covered by a specific insulating material. These descriptors merely impart limitations from the preferred embodiment into the claim construction. In the specification, the "wire lead" deals with the electrical contact that is made between the gel layer and the AED. However, this need not be a lead wire with "two ends used to connect two points in a circuit." The Court finds that the term is properly described as an "insulated conductive wire."

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1. "an insulating film covering the surface of said substrate on which the MOSFET is formed"

Toshiba contends that this term does not need construction, but if construed, it means "a non-conducting film that is over a portion of the surface of a substrate on which the MOSFET is formed." Jt Cl Const, Ex A at 1. Hynix instead proposes a construction of "an insulating film that spreads over and is in contact with the entire surface of the semiconductor substrate in which source and drain regions are formed." Id.

There appear to be three points of disagreement between the parties on this term: (1) Can the film cover just a portion of the "surface of said substrate" or must the film cover the entire surface? (2) Can the film merely be over the surface or must the film be in contact with the surface? (3) Should the term "surface of said substrate on which the MOSFET if formed" be left as is or should it be redefined as the "surface of the semiconductor substrate in which source and drain regions are formed?"

Regarding the first point, the court observes that the clause in which this term appears states in full: "a bit line connected to one of the source and drain regions of said MOSFET through a bit line contact hole made in an insulating film covering the surface of said substrate on which the MOSFET is formed." Based on this language, Toshiba contends, "[T]he insulating film cannot possibly cover the entire semiconductor substrate, as the insulating film must have contact holes in it that reach to the substrate." Doc # 26 of 05-4100 VRW (Toshiba Br) at 5. Hynix counters that "[c]laim 1 only requires that the insulating film be 'covering' the substrate before the contact holes are made in it." Doc # 33 of 05-4100 VRW (Hynix Rep) at 3 (emphasis in original).

In its submission to the court in support of its Markman presentation, Toshiba admitted that Hynix is factually correct on this point, Toshiba Markman Presentation at 5, but explained that claim 1 describes a finished product; hence, to say that the insulating film spread over "the entire surface of the semiconductor substrate" is misleading. Toshiba Br at 4-5. But Toshiba's construction is also misleading because it suggests that even before the contact holes were made, the insulating film only covered a portion of the substrate surface.

Instead, the original claim language is superior to both parties' constructions. Without describing the scope of the insulating film's initial coverage of the substrate surface, the claim states that the insulating film's coverage decreases after the contact holes are made. To infer that, prior to making the contact holes, the insulating film covered either the entire surface or only a part of the surface would be impermissibly to read in a limitation from the specification. Teleflex, 299 F3d at 1326.

Accordingly, the court declines to construe the term on this point.

Turning to the second issue, Hynix cites to various portions of the specification to argue, "[T]he term 'covering' is used repeatedly to refer to a film that is spread over and in contact with the entire surface of the structure." Doc # 29 of 05-4100 VRW (Hynix Br) at 5. But in every embodiment that Hynix cites, only the MOSFET's gate electrode is in contact with the
insulating film, not the portions of the MOSFET within the semiconductor substrate (i.e., the source and drain regions). See '579 patent at 6:29-31, FIG 1(b); 10:36-38, FIG 16(b); 14:10-13, FIG 25(a). Indeed, as Toshiba notes, "if the entire surface of the substrate (including the source and drain regions) were covered and in contact with the insulating film, then the source and drain could not connect to the bit line and storage node electrode as required by the claim." Doc # 30 of 05-4100 VRW (Toshiba Rep) at 2. Because Hynix's proposed construction on this point cannot be correct and because there is no indication that the phrase "insulating film covering the surface" is necessarily limited to the situation in which the film is in contact with the surface, the court declines to construe the term on this point.

Finally, Hynix proposes equating "surface of said substrate on which the MOSFET is formed" with "surface of the semiconductor substrate in which source and drain regions are formed." Even if this proposed construction correct, it appears unnecessary. The claim states that the memory device comprises "a MOSFET including a gate electrode and source and drain regions of a second electrical conductivity type impurity material formed in a surface of a semiconductor substrate." This description clearly indicates the MOSFET's location in relation to the semiconductor surface; hence, it is unnecessary to further define what constitutes the "surface of [the] substrate on which the MOSFET is formed."

In sum, because the language for this term is both sufficiently clear and is in fact superior to the proposed constructions, the court declines to construe this term.

3. "Insulating housing"

The term "insulating housing" appears in claim 1 of the '641 patent as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

   a printed board containing an electronic element for suppressing noise;

   a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on the printed board;

   a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a wire on the printed board; and an insulating housing for encasing the printed board.

Murata argues that "insulating housing" means "a covering which has a high electrical resistance and which can serve to prevent a short circuit between components." Murata's Opening Brief, at 22. Bel Fuse argues that "insulating housing" means "an enclosure for separating a part or mechanism from an electrical conductor by means of an electrical non-conductor to prevent transfer of electricity between the part or mechanism and the conductor." Bel Fuse's Responsive Brief, at 29. The primary difference between the proposed constructions is that Murata's would require the housing to be made of non-conductive material while Bel Fuse's would not require non-conductive material as long as the housing still performed the function of insulating.

Again, the court begins with a review of the specification of the '641 Patent. When describing the first preferred embodiment, the specification states: "[A] modular jack has an insulating housing 12 which comprises a base 14 and a lid 16 which are engaged by interlocked coupling. Both the base 14 and the lid 16 are made of an insulating material such as plastic." '641 Patent, col. 3, 11 3-7. The specification is otherwise silent on the insulating properties of the housing.

Murata argues that the housing must be made of insulating material because if it were made of conductive material, the preferred embodiment would be inoperable. See, e.g., Pfizer, Inc. v. Teva Pharmaceuticals, USA, Inc., 429 F.3d 1364, 1374 (Fed. Cir. 2005) ("A claim construction that excludes a preferred embodiment is rarely, if ever, correct.") (internal quotations and punctuation omitted). As shown in Figure 1 of the '641 patent, the contactor 35 and terminals 36 are both in direct contact with the housing. Thus, if the housing were made of conductive material, the contactor and terminals would short circuit with the housing, rendering this embodiment inoperable. However, the court disagrees that Bel Fuse's proposed construction would exclude the preferred embodiment because Bel Fuse's construction permits, but does not require, the
housing to be made of conductive material. Because under Bel Fuse's proposed construction the housing could be made of non-conductive material, the preferred embodiment would still fall within the scope of the claim 1.

That being said, the court nevertheless finds that a person of ordinary skill in the art would find that an "insulating housing" as that term is used in claim 1 of the '641 Patent must be made of insulating material. Bel Fuse spends much of its brief on this term arguing the merits of its inequitable conduct defense and gives short shrift to explaining how a person of ordinary skill in the art would have interpreted this term.

Even if the court accepts Bel Fuse's grammatical argument, however, the court must still reject Bel Fuse's proposed construction. The court fails to see how a housing made of conductive material could be used for the purpose of insulating. Bel Fuse posits that the housing can still be insulating if separated from the components by a non-conductive insert or by air. However, in those cases, it seems that the insert or the air has the purpose of insulating, not the housing. For the housing to have the purpose of insulating, it must perform that function itself, and the only way it can do so is to be made from insulating material. Thus, the court finds that the "insulating housing" as used in claim 1 of the '641 Patent must be made of insulating material. This limitation is supported both by the language of the claim which requires an insulating housing and by the specification, which states that the housing of the preferred embodiment is made of an insulating material such as plastic. Accordingly, "insulating housing" means "a covering which has a high electrical resistance and which can serve to prevent a short circuit between components."

Bel Fuse has not provided any suggestion that a person of ordinary skill in the art would interpret "insulating housing" in the modular jack of the '641 Patent as being made of conductive material, and has not shown that a modular jack with a conductive housing would even be operable. Under claim 1 of the '641 Patent, the modular jack includes a contactor for contacting with a plug, and the contactor is electrically connected with electronic element for suppressing noise by a wire on the printed board. The printed board is encased in the insulated housing. It is difficult to imagine how the housing for the jack could be made of conductive material and still be insulated from the contactor; the same holds true for the terminals. Thus, the court finds that a person of ordinary skill in the art would find that "insulating housing" refers to a housing made of non-conductive material.
The Court agrees with Samsung and construes the term "insulating layer" in claim 11 of the '339 patent and claim 3 of the '442 patent as "a layer made of one or more materials that are poor conductors of electricity." MEI argues that the construction should be "a layer of one material that is a poor conductor of electricity." MEI's construction is overly narrow--the patent clearly encompasses an insulating layer composed of more than one material or sublayer. See '339 Patent Figs. 7d-7f (disclosing an insulating layer composed of two sublayers); col. 3:39-41 (disclosing an insulating layer made of two materials).

A. "Insulating Material"

The district court construed "insulating material" as follows:

- a material with poor electrical conduction that acts to suppress switching noise generated by a pulse width modulation control of the direct driving motor, thereby suppressing the video screen and audio noise caused by electrical noise produced by the capstan motor.

Daewoo argues that the court's definition of insulating material as a material having "poor electrical conduction" renders the claim construction fatally flawed because it improperly uses comparative language. Daewoo states that the district court in its claim construction merely replaced one vague term ("insulating") with an even vaguer term ("poor electrical conduction"). Daewoo argues that the word "poor" is a comparative term, raising but not answering the question of "poor relative to what?" Daewoo states that an adequate definition of "insulating material" requires a numerical resistivity limit, such as 107 ohm-cm or greater, which corresponds to the resistivity of materials illustrated in the '210 specification, in order to provide certainty and clarity to the claims. Funai responds that "poor electrical conduction" adequately describes the insulating material used in this context, and that a person of ordinary skill in the field of insulating motors and reading the specification would have no trouble understanding what is covered by the claim.

Daewoo also argues that the district court's further description of "insulating material" as a material that "acts to suppress switching noise generated by a pulse width modulation control of the direct driving motor" is "functional" and therefore "circular," and thus improper. In response Funai points to the specification's statement that the insulating material suppresses such noise, as supporting the court's construction.

The use of comparative and functional language to construe and explain a claim term is not improper. A description of what a component does may add clarity and understanding to the meaning and scope of the claim. The criterion is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention. There was evidence in the district court that persons experienced in this field would understand this description of the insulating material, in the context in which it is used, as a poor electrical conductor serving the function set forth in the claim. No error can be attributed to this use of comparative and functional explanation in construing these claims.

10. "Insulating Member."

The court shall apply the ordinary definition of the phrase "insulating member." Thus, the phrase "insulating member" shall be construed to mean "a member which provides a high degree of resistance to the passage of charge."
Insulator Member

PPC objects to Magistrate Judge Peebles' recommended construction of the term "insulator member" as: "A single piece of material surrounding all or a portion of the conductor in the female connector passageway that inhibits or prevents the flow of electricity between the conductor and the female connector." Instead, PPC proposes the following construction: "A single piece of material surrounding all or all but an insubstantial portion of the conductor in the female connector passageway that inhibits or prevents the flow of electricity between the conductor and the female connector."

2 Although Arcom argued before Magistrate Judge Peebles that the term "insulator member" should not be limited to a single piece of material, Arcom does not object to his recommendation that it be so limited.

On reading the disputed term in the context of claims 23 and 25 themselves and in the context of the entire patent, the Court finds no support for the addition of the limitation propounded by PPC. Further, upon review of the prosecution history of the patent, the Court rejects PPC's argument that Arcom disowned or relinquished an insulator member that surrounds less than "all or all but an insubstantial portion of the conductor in the female connector passageway." Nor are PPC's other arguments persuasive. On de novo review, the Court adopts Magistrate Judge Peebles' recommended construction of the term "insulator member."

"Integrated aggregation module" appears in independent claim 15. Hyperion contends the term means a "module, performing aggregation, that is contained within an RDBMS program." Joint Cl Const at 33. HyperRoll instead contends that the term should be construed as a "software module that aggregates fact data and that works with an RDBMS." Id. Accordingly, the primary dispute here appears to be whether the module is contained within the RDBMS or instead whether it merely works with the RDBMS.

Hyperion contends that the prosecution history supports its construction because a patent examiner stated in a summary of an October 16, 2001, interview that "[t]he difference between the invention and the prior art is the approach that integrates the MDDB into an RDBMS in order to gain the benefits from each while overcoming the limitations of each." Doc # 197, Ex B at 1. Hyperion's argument does not even get off the ground because it is the applicant, not the examiner, who must give up or disclaim subject matter that would otherwise fall within the scope of the claims." Sorensen v ITC, 427 F3d 1375, 1379 (Fed Cir 2005) (internal citations and quotations omitted). But even if the applicant had made the statement that Hyperion relies upon, the language is ambiguous enough to support either HyperRoll's or Hyperion's constructions. See id at 1378-79 ("Disclaimers based on disavowing actions or statements during prosecution * * * must be both clear and unmistakable.").

Moreover, Hyperion's claim construction is problematic because it introduces the term "contained within," whose meaning is unclear. Indeed, Hyperion itself provided varying definitions of "contained within" in its opening brief and its reply brief. In its opening brief, Hyperion explained: "[C]omputer code that makes up the 'aggregation module' is contained within the computer code that makes up the RDBMS program. If they are separate pieces of software, they are not be [sic] integrated." Hyperion Br at 13-14. In its reply brief, however, Hyperion proposed a somewhat different definition: "If the module cannot operate independently of the RDBMS program, [the module] is 'contained within' the RDBMS program and thus integrated within it. If [the module] can operate independently of the RDBMS program, then [the module] is not integrated within it."
Hyperion Reply Br at 7. Hence, Hyperion has provided two different definitions of "contained within:" the first focuses on the location of the software module's code whereas the second focuses on the functionality of the module. Accordingly, Hyperion's proposed construction would not clarify the meaning of the term "integrated aggregation module."

Moreover, at no point does the specification require that software code for the "integrated aggregation module" be physically located in the same software code for the RDBMS. Rather, the specification appears to describe the relationship between the "integrated aggregation module" and the components in the RDBMS in functional terms. See '604 patent at FIG 6A and accompanying discussion. Common sense also suggests that the patentees did not intend to require the code for the "integrated aggregation module" to be located physically within the RDBMS, given that it would be trivial to design around such a claimed invention; for example, a software designer could link the "integrated aggregation module" to the RDBMS to avoid including the module's code within the RDBMS but to achieve the same result.

Nonetheless, HyperRoll's definition also is problematic because it unnecessarily imports functional limitations into the definition of "integrated aggregation module." The claim language already describes the functional relationship between the "integrated aggregation module" and the other components in the RDBMS. See '604 patent at claim 15 ("providing an integrated aggregation module, operatively coupled to the relational data store, for aggregating the fact data and storing the resultant aggregated data in a non-relational multi-dimensional data store"). Hence, it would be superfluous to interpret "integrated aggregation module" as containing these functional limitations.

Although the court presently declines to construe "integrated aggregation module," it flags two issues that might become relevant later. First, although not raised by either party, the court notes that the term "integrated aggregation module" appears to be used in claim 15 in almost the identical manner in which "aggregation module" is used in claim 1. Compare '604 patent at claim 1 ("an aggregation module, operatively coupled to the relational data store, for aggregating the fact data and storing the resultant aggregated data in a non-relational multi-dimensional data store") with id at claim 15 ("providing an integrated aggregation module, operatively coupled to the relational data store, for aggregating the fact data and storing the resultant aggregated data in a non-relational multi-dimensional data store"). This suggests either that the term "integrated" adds a separate limitation in claim 15 that does not exist in claim 1 or that the patentees are essentially using "aggregation module" and "integrated aggregation module" interchangeably. If necessary, this issue could be revisited at a later stage in these proceedings.

Additionally, it is conceivable, as Hyperion suggests, that the claim language sweeps too broadly and encompasses "clearly disparate programs [that should not] be considered 'integrated' in an RDBMS." Hyperion Reply Br at 7. The proper time for Hyperion to raise this argument is at the summary judgment stage, at which time it may argue that the patent is invalid in light of the prior art.

At the present time, however, because the meaning of "integrated aggregation module" is sufficiently clear based on the claim language, the court declines to construe this term.

C. "Integrated Circuit Means" and "Integrated Circuit"

The next terms to construe are "integrated circuit means" found in claims 2, 6, 20, and 27, and "integrated circuit" found in claim 8. Digital Angel argues that the term "integrated circuit" has a well known meaning to those of skill in the art, and therefore the presumption that 35 U.S.C. § 112, P 6 applies as a result of the use of the word "means" is rebutted. n3 Digital Angel supports its contention by referencing dictionary definitions of "integrated circuit" and highlighting the absence of the word "means" with respect to "integrated circuit" in claim 8. Digital Angel averrs that the claim language and specification evince an intent by the inventors to use the term "integrated circuit" in a broad manner rather than limiting the term to a particular type of integrated circuit. The invention should not be limited by the description of the preferred embodiment, and additional limitations in some of the dependent claims demonstrate that "integrated circuit" in the independent claims is to be interpreted broadly.
Digital Angel argues that none of the terms at issue are means-plus-function elements, and therefore, 35 U.S.C. § 112, P 6 does not apply to any of the terms. Because Defendants aver that 35 U.S.C. § 112, P 6 applies to the disputed claim terms that use the word "means," Digital Angel has provided the Court with alternate claim constructions: one that applies if the terms are construed to be means-plus-function elements, and one that applies if they are not. Defendants have only provided the Court with constructions of the disputed terms that assume that the terms are means-plus-function elements.

Consequently, Digital Angel defines "integrated circuit" and "integrated circuit means" as "any complex set of electronic components and their interconnections that are etched or imprinted on a chip." Joint Claim Constr. Statement, App. A at 2, 5-6, 11, 13. Digital Angel adds to the definition by reciting the functions that the "integrated circuit" must perform: store an identification code, output the identification code upon reception of an interrogation signal by said coil means, and generate a transmission frequency signal by dividing the frequency of the interrogation signal. Id.

Digital Angel proposes an alternative construction if "integrated circuit" is treated as a means-plus-function element. Digital Angel avers the functions recited in the claims are "storing an identification code and outputting the same upon reception of an interrogation signal by said coil means, and for generating a transmission frequency by dividing the frequency of the interrogation signal; detecting said interrogation signal; and transmitting an identification signal substantially instantaneously upon detection of the interrogation signal." Id. at 2, 5, 7, 11, 14. Digital Angel avers that the structure disclosed in the specification for performing the stated functions is "integrated circuit chip 54 and equivalents thereto," and the integrated circuit chip is "a completely self-contained unit that contains all the circuitry necessary to perform the transponder functions." Id.

By contrast, Defendants argue that the inclusion of the word "means" in "integrated circuit means" activates the presumption that 35 U.S.C. § 112, P 6 applies. Additionally, the presumption that 35 U.S.C. § 112, P 6 does not apply to the term "integrated circuit" in claim 8 because the word "means" is not specifically used, is rebutted because the term "integrated circuit" fails to recite sufficient structure for performing the functions stated in the claim. Defendants aver that the "integrated circuit means" claims recite the following functions, with some of the functions being performed by more than one of the claims: "detecting an interrogation signal, storing an identification code (and outputting the same upon reception of an interrogation signal), generating a transmission frequency by dividing the frequency of the interrogation signal, and generating and transmitting an identification signal." Id. at 2, 5-7, 11, 13-14. Defendants aver that the specification discloses separate and distinct structure for performing each of the stated functions:

. The corresponding structure for detecting an interrogation signal is a full wave rectifier and voltage regulator having the structure illustrated in Fig. 12 of the '129 patent.

. The corresponding structure for storing (and outputting) an identification code is a 40-bit programmable array consisting of 40 individual cells arranged in an 8x5 matrix, each cell consisting of two transistors connected by a fusible link to one of five common bus lines, each of the fusible links structured to be "blown" or "vaporized" for storing a respective bit of the identification code.

. The corresponding structure for generating a transmission frequency by dividing the frequency of the interrogation signal (by integer division or otherwise) is a Schmitt trigger and a counter circuit coupled to the Schmitt trigger and including multiple J-K flip/flops configured to divide the interrogation signal by 100 to produce a 4kHz transmission frequency.

. The corresponding structure for transmitting and generating an identification signal is a rectifier/regulator configured to receive the "Signal +" and "Signal -" signals communicated by the integrated circuit chip to modulate the interrogation frequency in accordance with the identification signal to be transmitted to the reader.

Id.

As an initial matter, the Court must determine whether "integrated circuit means" is a means-plus-function element. While a close question, the Court determines that the term "integrated circuit" has a reasonably well understood meaning in the art and connotes sufficient structure to rebut the presumption that the term is a mean-plus-function element. See Apex, Inc. v.
Raritan Computer, Inc., 325 F.3d 1364, 1373 (Fed. Cir. 2003)("While we do not find it necessary to hold that the term 'circuit' by itself always connotes sufficient structure, the term 'circuit' with an appropriate identifier such as 'interface,' 'programming,' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art.").

"Integrated circuit" and "integrated circuit means" are construed as "any complex set of electronic components and their interconnections that are etched or imprinted on a chip and are capable of performing the functions stated in the claims, including storing an identification code, detecting an interrogation signal, outputting the identification code upon reception of an interrogation signal by said coil means, and generating a transmission frequency signal by dividing the frequency of the interrogation signal." n4 This conclusion is supported by the specification, which describes the integrated circuit and its circuitry in great detail. '129 patent, cols. 9-12. The specification also contains a specific disclaimer:

What a preferred embodiment of the invention has been described, numerous modifications and improvements can be made thereto without departure from the essential spirit and scope. The above disclosure of the invention should be considered exemplary only and not as a limitation on the invention, which is limited only by the following claims.

Id. at col. 13:1-7. While the specification describes a preferred embodiment of the invention, the claims are not limited to only the preferred embodiment, and the specification as well as the claim language indicate that any integrated circuit that can perform the stated required functions is within the scope of the invention. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005)("Although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.").

n4 The functions of the integrated circuit are summarized here, but for purposes of this invention, the integrated circuit must be capable of performing all of the functions specifically stated in the claims.

--- Footnotes ---

[is] formed as part of an integrated circuit formed on said semiconductor substrate

Claim 12 contains the term "[is] formed as part of an integrated circuit formed on said semiconductor substrate." Lonestar contends that "[is] formed as part of an integrated circuit formed on said semiconductor substrate" means "the capacitor structure is one of a combination of interconnected circuit elements etched, deposited or created on the semiconductor substrate, and formed as part of an integrated circuit fabrication process." Nintendo contends that no construction is necessary. The dispute is whether construction is necessary for the jury to understand the term, and if so, whether that construction should include Lonestar's additional limitations.

The Court construes "integrated circuit" as "a combination of multiple circuit elements." Lonestar cites to a dictionary to define "integrated circuit" as "A combination of interconnected circuit elements inseparably associated on or within a continuous substrate." THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 570 (7th ed. 2000). Nintendo on the other hand does not offer any intrinsic or extrinsic evidence on the meaning of "integrated circuit" or why the term does not require construction. Instead, the only support Nintendo's briefs offer on "integrated circuit" is a general assertion that no construction is necessary for "[is] formed as part of an integrated circuit formed on said semiconductor substrate" while not providing any support for why "integrated circuit" does not require construction. In fact, Nintendo did not make a single statement specific to "integrated circuit" in its briefs. Even when the Court prompted a discussion about the meaning of "integrated circuit" at the Markman Hearing, Nintendo still did not provide any intrinsic or extrinsic evidence to support its position on "integrated circuit." As a result, the Court has only the extrinsic evidence provided by Lonestar for guidance on construing "integrated circuit" and observes that the Court's construction is consistent with Lonestar's dictionary definition. A jury would not require further detail to understand the meaning of "integrated circuit," and the Court accordingly does not further complicate its construction.

As for the remaining portion of the claim term in question, additional construction is not needed. The Court has construed
"semiconductor substrate" as "a semiconducting base material having resistivity between a metal and an insulator." Additionally, a jury would understand "on a semiconductor substrate" to mean that elements are located on the semiconductor substrate. No further construction is necessary.

Lonestar's construction works more to complicate rather than clarify the claim term. Lonestar proposes "the capacitor structure is one of a combination of interconnected circuit elements etched, deposited or created on the semiconductor substrate, and formed as part of an integrated circuit fabrication process." Lonestar's use of "interconnected" rather than "integrated" does not substantially clarify the language. Also, Lonestar includes details of the circuit fabrication process that unnecessarily complicates the claim term, using words particular to the circuit fabrication industry like "etched." Thus, Lonestar's proposed construction would not advance the purpose of clarifying claim terms to a jury.

Furthermore, there is no support in the claim language for adding limitations regarding the circuit fabrication process. Claim 12 simply states "[is] formed as part of an integrated circuit." No further limitation is indicated. Lonestar's proposed circuit fabrication process limitations arise from the specification. See Col. 5:29-57 (applying "deposited" and "etching" language). However, "[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." Comark Commc'ns, Inc., 156 F.3d at 1187. Lonestar derives its proposed limitations from the Detailed Description of Specific Embodiments. See Col. 5:29-57. Thus, the Court declines to read in Lonestar's proposed limitations regarding the circuit fabrication process. Accordingly, the Court construes "integrated circuit" as "a combination of multiple circuit elements."

a. Preamble: "An integrated circuit for processing compressed video signal, segments of which having been encoded using different encoding processes, to provide decompressed video signal representing moving images, said integrated circuit comprising:"

Both parties agree that the preamble term "integrated circuit" means that the elements of claim 10 must be contained on a single chip. The court agrees. The ordinary meaning of "integrated circuit" is a device having a number of connected circuit elements fabricated on a single chip of semiconductor material. See Microsoft Computer Dictionary 238 (4th ed. 1999). This meaning is confirmed by the patent specification. See Col. 4:62-63 (video processing circuitry 210 is implemented as a single integrated circuit); Fig. 2 (dotted line around circuitry 210). Thus, claim 10 recites a single chip for processing a compressed video signal.

I. "Control integrated circuit"

This term appears in several claims in the '734 and '440 patents. Defendants assert that it should be defined as "a microelectronics device with at least 1 transistor." Sightsound does not contest that this is an accurate description of a control integrated circuit, but notes that this is an incomplete definition, as it potentially includes devices, such as an Operational Amplifier (Docket # 74, Exhibit B, Tab 3 at 340), which would fit this definition but would make the claimed invention inoperable. Defendants respond that the "control integrated circuits" of the claimed inventions "perform too many functions to be defined with any more specificity." The court, however, sees no need to define them any more specifically than the plain language of the patents suggest: a microelectronics device which is capable of performing the functions identified in the patents.

A. Integrated Circuit Device

The district court construed "integrated circuit device" in claim 26 of the '804 patent to include a device identification
register, interface circuitry, and comparison circuitry.

Claim 26 recites:

26. An integrated circuit device having at least one memory section which includes a plurality of memory cells, wherein the integrated circuit device outputs data on an external bus synchronously with respect to first and second external clock signals, the integrated circuit device comprises:

a first internal register to store a value which is representative of a number of clock cycles to transpire before the integrated circuit device responds to a read request;

delay locked loop circuitry to generate an internal clock signal using the first and second external clock signals; and

interface circuitry, coupled to the external bus to receive a read request, the interface circuitry includes a plurality of output drivers, coupled to the external bus, to output data on the external bus in response to the internal clock signal, synchronously with respect to the first and second external clock signals and in accordance with the value stored in the first internal register.

'804 patent, col. 28, ll. 1-21. Nothing in the claim language indicates that "integrated circuit device" necessarily includes a device identification register, interface circuitry, and comparison circuitry. The terms "comparison circuitry" and "device identification register" do not appear anywhere in the text of claim 26. n4 "Comparison circuitry" is different from the "delay locked loop circuitry" limitation recited in claim 26. Likewise, a "device identification register" is different from the limitation "first internal register to store a value which is representative of a number of clock cycles." Thus, the claim does not require comparison circuitry or a device identification register. The district court's construction did not merely clarify or construe the actual words of the claim. Without any claim language addressing comparison circuitry or a device identification register, the court's construction reads into the claim two new limitations not required by the claim language. See N. Telecom, 215 F.3d at 1290.

n4 Claim 26 does recite an "interface circuitry" limitation. While it is proper to construe claim 26 as requiring interface circuitry, it technically is not proper to read the "interface circuitry" limitation into the meaning of the term "integrated circuit device" itself. The generic term "integrated circuit device" has a broad and accepted meaning within the art that does not depend on the limitations of claim 26. Therefore, in construing the meaning of this broad generic term, this court does not include limitations from specific patent claims.

The district court erred by placing too much emphasis on a single introductory comment in the prosecution history of the '804 patent. This comment appeared in the prosecution history after the examiner rejected the pending claims in light of U.S. Patent No. 4,458,357. Responding to the rejection, the patentee submitted twenty-six new claims, four of which were independent claims. In accompanying remarks, the patentee stated:

These newly submitted claims are directed to a memory device (or an integrated circuit having memory) having (1) an internal register for storing an identification value, (2) interface circuitry to receive a request on an external bus, and (3) comparison circuitry to determine whether the identification information in the request corresponds to the identification value in the internal register - wherein when the identification information corresponds to the identification value, the memory device responds to the request.

While the first three independent claims (issued claims 1, 15, and 23) recited, with some modifications, the three limitations listed above, the fourth independent claim (issued claim 26) recited only one of the above listed limitations. Specifically, claim 26, the claim at issue here, includes only the "interface circuitry" limitation. Claim 26, however, contains two other limitations not listed above: an internal register to store a value representative of a number of clock cycles and delay locked loop circuitry.
The prosecution history statement introduces in general terms the new claims. In this sense, the statement properly introduces three features that appear in some of the claims. This general introductory statement, however, is not correct in suggesting that these features appear in each of the new claims. This incorrect statement in the prosecution history does not govern the meaning of the claims. Therefore, consistent with Intervet America, Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050, 12 USPQ2d 1474 (Fed. Cir. 1989), the imprecise statement in the prosecution history does not limit claim 26. The claim language itself controls the bounds of the claim, not a facially inaccurate remark during prosecution.

The patent at issue in Intervet involved a vaccine for a poultry disease. Id. at 1051. In that case the examiner rejected the pending claims because they were not limited to a single vaccination. The examiner said that a single vaccination limitation would distinguish the invention over the prior art. Id. at 1053-54. The prosecuting attorney amended three of the claims to recite "single administration," but did not so amend the remaining claims. Id. at 1054. In accompanying remarks, the attorney inaccurately described all the claims as "restricted to a single vaccination scheme." Id. After this erroneous remark, the examiner had two interviews with the attorney and made two examiner's amendments before allowing the claims. Id. Reviewing this prosecution history, this court in Intervet held that the claims control over a loose remark in the course of prosecution:

When it comes to the question of which should control, an erroneous remark by an attorney in the course of prosecution of an application or the claims of the patent as finally worded and issued by the [PTO] as an official grant, we think the law allows for no choice. The claims themselves control. . . . It is not for the courts to say that they contain limitations which are not in them.

Id. The Intervet court thus did not restrict all of the claims to a single vaccination. Id.; see also Hockerson-Halberstadt v. Avia Group Int'l, 222 F.3d 951, 957, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000).

The present case parallels Intervet. Here, claim 26 does not contain all the limitations found in claims 1, 15, and 23 of the '804 patent. The prosecuting attorney's incorrect description of the four new claims does not govern over the language of those claims. Moreover, in this case, the examiner made an examiner's amendment and amended each of the claims -- including claim 26 -- after this untrue remark by the prosecuting attorney. In this context, a reasonable competitor would not rely on an untrue statement in the prosecution history over the express terms of the claims. In the present case, like Intervet, this court perceives no justification for reading unstated limitations into claim 26.

The term "integrated circuit device," as used in claim 26, instead receives its ordinary meaning to one of skill in this art as a "circuit constructed on a single monolithic substrate, commonly called a 'chip.'" Rambus, Inc. v. Infineon Techs. AG, 2001 U.S. Dist. LEXIS 10990, No. 3:00cv524, slip op. at 70 (E.D. Va. March 15, 2001) (Rambus argues for this construction.); cf. The New IEEE Standard Dictionary of Electrical and Electronic Terms 662 (5th ed. 1993); IBM Dictionary of Computing 347 (10th ed. 1994); see also Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1818 (Fed. Cir. 2002).

Lastly, the parties contest the meaning of "integrated circuit device" as that term is found in claim 26 of the '804 patent. Rambus contends that the term means a "circuit constructed on a single monolithic substrate, commonly called a 'chip.'" Infineon, however, argues that representations made in the prosecution of the '804 patent limit this term to "a device composed of integrated circuits that include at least an ID register and related interface and comparison circuitry." 40

40 The parties have agreed that "integrated circuit device" is only disputed as it occurs in claim 26 of the '804 patent and not as it appears in the other patents. This is because the relevant file history limits the representations made to the PTO to only the '804 patent.
1. The Claim Language And The Specification

Neither the claim language nor the specification inform the present inquiry. Indeed, the specification mentions an integrated circuit only once.

2. The File History

The file history of this claim is the only relevant category of intrinsic evidence. During the prosecution of Claim 26 in the '804 patent, (which was at that time, U.S. Patent App. 08/798,525 or the '525 application) Rambus expressly limited its claims by adding certain restrictions in order to overcome the PTO's prior art rejections. In response to the rejections, Rambus submitted new claims -- including the claim that ultimately issued as claim 26 of the '804 patent. Rambus argued to the PTO that the newly submitted claims were different from prior art because they all contained a device ID register and relevant interface and comparison circuitry limitations:

The new claims submitted in this Supplemental Preliminary Amendment have been added to more definitely and fully protect Applicants' invention. These newly submitted claims are directed to a memory device (or an integrated circuit having memory) having (1) an internal register for storing an identification value, (2) interface circuitry to receive a request on an external bus, and (3) comparison circuitry to determine whether the identification information in the request corresponds to the identification value in the internal register - wherein when the identification information corresponds to the identification value, the memory device responds to the request.

Supplemental Preliminary Amendment, U.S. Patent App. 08/798,525, pp. 11-12. The '804 patent issued subsequently. Thus, it appears that Rambus believed that its claims did not cover devices without a device ID register and relevant interface and comparison circuitry. To allow Rambus to broaden its claim in the face of this restriction would defeat the public notice function of the patent history. In Hockerson-Halberstadt, Inc. v. Avia Group Intn'l, Inc., 222 F.3d 951 (Fed. Cir. 2000), the Federal Circuit explained:

[The inventor's] argument therefore reduces to a request for a mulligan that would erase from the prosecution history the inventor's disavowal of a particular aspect of a claim term's meaning. Such an argument is inimical to the public notice function provided by the prosecution history. The prosecution history constitutes a public record of the patentee's representations concerning the scope and meaning of the claims, and competitors are entitled to rely on those representations when ascertaining the degree of lawful conduct, such as designing around the claimed invention. . . . Were we to accept [the inventor's] position, we would undercut the public's reliance on a statement that was in the public record and upon which reasonable competitors formed their business strategies.

Id. at 957 (internal citations omitted).

"Absent qualifying language in the remarks, arguments made to obtain the allowance of one claim are relevant to interpreting other claims in the same patent." Digital Biometrics, 149 F.3d at 1347. Rambus claims to have presented such "qualifying language" in a footnote of the above-quoted representation to the PTO, which mentions two of the inventive technologies claimed in this suit:

The memory devices or integrated circuits having memory of the present invention may include additional and/or other inventive aspects, including, for example, delay lock loop circuitry and/or an internal register to store a value which is representative of a number of clock cycles to transpire before the memory device responds to a read request. This "latency" register may be employed to control the timing of the output data after receipt of, for example, a read request. However it is noted that, in light of the July 27, 1998 Office Action and the rejection based on Weymouth, these additional and/or other inventive aspects, although forming a basis of patentability in their own right, will not be the focus of these Remarks.

Supplemental Preliminary Amendment, Patent App. No. 08/798,525, p. 12, n. 1. Rambus maintains that the express exclusion of the delay locked loop system and the latency invention from the scope of the attorney's remarks makes it "preposterous" to read a device ID register limitation into the claims currently before the court. Instead, during the Markman hearing in this case, Rambus' expert Dr. Huber contended that the limitation applies to every other claim of the patent (claims 1-25) but not claim 26. This conclusion, according to Dr. Huber, is an obvious conclusion based on the fact that
claim 26 includes the inventive technologies mentioned as additional and/or inventive features in the footnote.

Notwithstanding Rambus' current attempt to carefully craft its limitations without much support in the patent history, the footnote does not imply that the statement excludes claim 26, but rather establishes that, in addition to the device ID register, Rambus believed that it claims possessed other inventive features. The last sentence of the footnote shows that Rambus chose not to rely on those additional inventive features when distinguishing the claims from prior art. See id. ("these additional and/or other inventive aspects, although forming a basis for patentability in their own rights, will not be the focus of these Remarks"). Therefore, it is appropriate to read "integrated circuit device" as containing a device ID register, interface circuitry to receive a request from an external bus, and comparison circuitry to determine whether the identification information in the request corresponds to the identification register of the device.

Moreover, Rambus' suggested requirement that the integrated device be constructed on a single monolithic substrate is not supported by the specification and actually is undermined by the doctrine of claim differentiation. Claim 182 of the Preliminary Amendment to Patent App. No. 08/222,646, claim 6 of Patent No. 5,638,334 and claim 18 of Patent No. 5,657,481 all included the limitation that the device was "on a single semiconductor substrate." Claim 26 of the 804 patent contains no such limiting language and the doctrine of claim limitation warns against reading such a limitation into the disputed claim language unless the intrinsic evidence counsels otherwise.

3. Construction

Thus, the patent history supports the construction that an integrated circuit device, as used on claim 26 of the '804 patent, must have a device ID register, interface circuitry and comparison circuitry.

2269

A. "integrated computer software application"

- Plaintiff's proposed construction: "computer codes or instructions that are compatible and interoperate"
- Defendants' proposed construction: "one or more computer applications combined to create a single program"

The term "integrated computer software application" is found in claims 1 and 18 of the '655 patent and claims 16 and 18 of the '172 patent. The parties agree that this term, found in the preamble of the above claims, acts as a limitation on those claims because the patentee relied on the term to distinguish those claims over the prior art.

Plaintiff asks the Court to construe "integrated computer software application" as "computer codes or instructions that are compatible and interoperate." To support this position, Plaintiff points to the background of the invention which describes incompatibility as a "plague" in the field and that prior art methods have required the use of multiple incompatible applications to edit and convert video information. The specification states that "the invention provides an integrated software application" that can be installed on a personal computer. The claims at issue also list a number of "codes directed to" various functions.

4 '655 Patent, 2:25-44.

Defendants argue that mere compatibility or interoperability are not sufficiently limiting for this construction. Instead, they seek to construe "integrated computer software application" as "one or more computer software applications combined to create a single program." Defendants argue that although plaintiff's construction solves the "compatibility" problem mentioned in the background to the invention, it ignores the requirements of the prior art it describes as "complex," "time
consuming," "taking up a large amount of memory," and requiring "a high degree of skill." Defendants argue that compatibility alone cannot satisfy the "integrated computer software application" and that the claim must be limited to "collections of computer programs" that "work as a unit."

Plaintiff's requested definition is too broad, and Defendants' may be misunderstood by a jury. Many modern computer programs are written as a collection of many smaller programs designed to work together and controlled by a master program or application. Defendants' definition captures this idea, but uses the terms "applications" and "program" in a way that may tend to confuse a jury. Additionally, the claims that contain this limitation also contain lists of "codes directed to" various functions and a definition that includes the term "code" will be clearer. The plaintiff indicated during the claim construction hearing that the software must function as a unit. The Court's construction captures the requirement that the integrated application be a single system or application.

--- Footnotes ---
6 See e.g. '655 patent 2:23-53.
--- End Footnotes ---

9. Integrated Data and Video Storage

The memory module has memory elements configured to store bits representing data and memory elements configured to store bits representing video information.

A. "Integrated memory" (claims 20, 22-23)

The parties dispute the meaning of "integrated memory" in independent claim 20 and dependent claims 22 and 23. Samsung argues that this term should not be construed because it appears in the preamble to claim 20 and is not a limitation on this claim. The Court disagrees. The '990 patent refers to "memory" in the preambles to claims 1-14 but refers to "integrated memory" only in claim 20, 22, and 23. The Court will assume that "integrated" was inserted before "memory" in the preamble to claim 20 in order to differentiate the type of memory disclosed in this claim. See Innova/Pure Water, Inc. v.
Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("[W]hen an applicant uses different terms in a claim it is permissible to infer that he intended his choice of different terms to reflect a differentiation in the meaning of those terms.").

The parties dispute whether the "integrated memory" in claim 20 is limited to memory that is fabricated in a single integrated circuit. AMD's proposed construction of "integrated memory" is "a memory fabricated in a single integrated circuit." Samsung proposes "a memory containing one or more integrated circuits." The Court finds that AMD's construction has more support in the intrinsic evidence.

The '990 patent discloses both memories formed in one integrated circuit and memories without this limitation. For example, independent claim 1 teaches "a memory," while dependent claim 6 teaches, "The memory of claim 1 wherein said memory is fabricated in an integrated circuit." 13:13 and 14:16-17; see also Claims 8 and 14. The specification also states that "some embodiments are not integrated into one integrated circuit." 13:8-9. Under AMD's proposed construction, the inclusion of the word "integrated" teaches that claim 20 discloses memory fabricated in a single integrated circuit. Samsung's proposed definition renders "integrated" superfluous because memory is necessarily fabricated in at least one integrated circuit. Accordingly, the Court adopts AMD's proposed construction of "integrated memory." 3

--- Footnotes ---

3 As the meaning of this term is evident from the intrinsic evidence, the Court need not consult the expert opinions offered by both parties. See Decl. of Andrew Wolfe (for AMD) and Decl. of Richard Pashley (for Samsung).

--- End Footnotes ---

"integrated voice and data multiplexer" is construed to mean "a device that combines voice and data on a single path."

Lucent contends that this phrase means "a device that combines voice and data traffic on a single path." (D.I. 396 at 27.) Extreme contends that this phrase means "a device arranged with a voice queue for storing received voice packets, a data queue for storing received data packets, and a block dropping congestion controller for dropping low order voice blocks when congestion occurs at the multiplexer." (D.I. 395 at 21.) In support of its contention, Extreme cites statements in the Summary of the invention section of the specification ('650 patent at 2:68-3:2, 3:34-36.)

Although that language can reasonably be understood as constituting a general description of the invention, the Court finds that it does not clearly define the term "integrated voice and data multiplexer," representing a clear disavowal of claim scope. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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"Integrated whole"

Intacta argues that the term "integrated whole" is properly construed to mean that "the entire file to be encoded must be present on the page and that the file cannot be compressed to eliminate portions of the file." (Def.'s Mot. for Summ. J. at 16.) Datastrip responds that "integrated whole" should be construed to mean "that the data lines encode data to be read as a unity, in contrast to information stored in particular positions that can be read or searched for individually." (Pl.'s Opp'n to Summ. J. at 19.)

Beginning with the ordinary meaning of the words, "integrated" means "composed of separate parts united together to form a more complete, harmonious, or coordinated entity." Webster's 3d New Int'l Dictionary 1174 (1976) [hereinafter "Webster's"]'). Used as a noun, "whole" means "a complete amount of sum: a number, aggregate, or totality lacking no part,
member, or element;" "something constituting a complex unity: a coherent system or organization of parts fitting or working together as one." Id. at 2611. The patent specification does not indicate that the applicant provided any alternative definition of "integrated whole;" however, Datastrip submits that the prosecution history sheds light on the meaning of the words. The Court agrees.

As originally proposed in the patent application, claim 1 did not contain the phrase "data lines being an integrated whole." (See Toone Decl. Ex. D, at D-31 (showing original language).) Instead, the claim element read, "said plurality of data lines together defining an encoded portion of said data strip." (Id.) Later, however, the Patent Office rejected claim 1, asserting that the claim was obvious in light of three prior art references: the Levasseur patent, the Gokey patent, and a Patent Cooperation Treaty publication. (Id. at D-176.) In response, the applicants amended the proposed claim, adding "integrated whole" as it exists today, and explaining:

Claim 1 is directed to the sequential, unified, and contiguous encoding of data. Thus, the claim is distinguished from a data-encoding structure which is for "look-up" reference purposes, i.e., where the structure is not read as a whole, but is used only for finding a particular item of data …. 

…

Levasseur is not a data strip to be read as a whole, but [] a microfiche film [to] look up particular information …. 

…

What Levasseur actually teaches, as set forth in our prior amendment, is that his rows and groups should be spaced. By contrast, the information portion of Applicants' invention contains a unitary block of information to be read as a whole.

(Id. at D-175 to -177 (internal citations omitted).) Consistent with the ordinary meaning of the words, the prosecution history illustrates that "integrated whole" is included in the claim to distinguish prior art that could be read in a piecemeal fashion and used "for look-up purposes." (Id. at D-177.) Unlike data stored in look-up fields, therefore, the "integrated whole" of the data strip contains a unitary block of information.

Intacta argues for a different meaning, "that the entire file to be encoded must be present on the page and that the file cannot be compressed to eliminate portions of the file." (Def.'s Mot. for Summ. J. at 24.) While Intacta acknowledges that the words "integrated whole" were added to overcome references cited by the Patent Examiner, Intacta does not reconcile the prosecution history with its requested meaning of the words. Instead, Intacta's proffered meaning places emphasis on the "file" that will be represented in a data strip, a meaning unsupported by the language, the specification, or the prosecution history. The Court concludes that the plain meaning of the words and the prosecution history support the following construction: "integrated whole" means that the data lines encode data to be read as a unity, in contrast to information stored in particular positions that can be read or searched for individually.
acts recited in the specification or their equivalents.

The Court will address the latter contention first. The text of this disputed claim is as follows:

integrating constant data related to the at least one product with the variable data related to the at least one product in the remote computer to generate the information data related to the at least one product including both constant data and variable data.

'490 Patent, Col. 22, ll. 12-16 (emphasis added). Although Compuserve failed to identify the function this step is supposed to perform, the Court has italicized the language in the step that might fill this requirement. See O.I. Corp., 115 F.3d at 1583 (unless step is "individually associated" with a function to be performed by that step, it does not implicate 35 U.S.C. § 112, P6). The emphasized text, however, does not recite a specific function with which this step is associated. Instead, it is a repetition of the statement of purpose for the overall method that is recited in the preamble of the claim, which does not constitute a function for the steps that follow. Id. The preamble for Claim 1 recites "[a] method for generating information related to a product . . . " '490 Patent, Col. 21, ll. 55-56. Thus, 35 U.S.C. § 112, P6 does not require that the Court limit "integrating" to the acts recited in the specification or their equivalent.

With respect to the "mandatory nature" of a map file, the Court does not agree. The claim does not state that the integration step is to be accomplished in accordance with some instructions located either on the main or the remote computer. It is only in the dependant claims that the idea of using a map file for positioning the data during the integration step is introduced. According to the testimony of Dr. Dunsmore, one of ordinary skill in the art would know various ways of integrating data to create a meaningful computer display. Tr., Vol. I at 96. Dr. Dunsmore summarized his definition of integrate as "bringing together the various types of data, constant data and variable data, and placing them in the viewing area so that they are meaningful and functional to the person requiring information from the electronic catalog." Id. at 99.

Although Dr. Dunsmore agreed that "merging" would be a synonym for this process, the Court finds that merging does not constitute an adequate definition of the word "integrate." This is because the intention of the inventor is to provide the customer with instantaneous access to the most up-to-date product information and to reduce on-line computer time. The latter objective is not pertinent to the integration step, because that step seems to be performed only on the remote computer. Thus, the Court finds that to provide instantaneous access to the most current product information, that information must be displayed for the customer in a meaningful and functional way. It also must be composed of the constant and variable data, which are key components of the distributed data design catalog system. The only mechanism for accomplishing this is the integrating step, which merges the constant data and variable data related to the selected product to generate the information data. For this reason, the Court construes the meaning of the claim term "integrating" to mean "merging or uniting in a meaningful way," which works when substituted in the claim as follows:

[merging or uniting] constant data . . . with the variable data . . . in the remote computer [in a meaningful way] to generate the information data . . .


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2. "integrating the received ORMS data from the ORMSs of the fulfillment partners"; "integrate the received ORMS data from the ORMSs of the fulfillment partners" 5

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5 ORMS stands for Order Request Management Systems.

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Disputed Claim Term | Versata's Proposed Construction | SAP's Proposed Construction
"integrating the received ORMS data from the ORMSs of the fulfillment partners"; "integrate the received ORMS data from the ORMSs of the fulfillment partners".

The dispute over the construction of this phrase is straightforward. Versata seeks to add language to SAP's construction and define the term by addressing its use.

As argued by Versata, the patent, in multiple instances, discusses the receipt of a single, integrated source of information. See '235 Patent, col. 7, ll. 16-21 ("integrates . . . providing a single integrated source"); col. 10, ll. 8-11 ("integrated order status"); col. 17, ll. 47-52 ("integrated to provide an overall order status"). Furthermore, Versata suggests that the specification expressly defines integration of the ORMS data as encompassing more than just the storing of information in a centralized store, but also as providing a single source of information for the order status.

The term centralized is used to describe the order request servicing system 110 not because of its physical location, but because communications between client systems 105 and order request management systems 120 pass through the order request servicing system 110. The centralized nature of the communications provides the client with a single integrated source of order information, the order request servicing system 110. '235 Patent, col. 7, ll. 66-col. 8, l. 6 (emphasis added).

SAP argues, first, that Versata is improperly defining the term by its use, rather than simply by what the term means. Second, SAP asserts that a number of Versata's examples do not support the premise for which they are cited.

SAP's arguments are unpersuasive. The claims, when read in the context of the specification, support such a construction. The inclusion of "to provide a single source of information" adequately describes the scope of the claim limitation in the context of the patent as a whole.

For these reasons, the court defines the above terms as "storing in the same database, or otherwise combining, received ORMS data to provide a single source of information."
requires the structure disclosed in the specification that comprises a circular polarizer or a quasi-circular polarizer or an equivalent structure to accomplish the function of polarizing the incident light. A circular polarizer is a linear polarizer combined with a quarter-wave delay plate wherein the in-plane principal axes of the delay plate are oriented at 45[degrees] from the transmission and absorption axes of the linear polarizer. A quasi-circular polarizer is a structure that is very close to that of a circular polarizer and results in light that is polarized very close to circularly.

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12 Samsung does not propose a construction for the entire phrase based on its argument that the entire phrase is two phrases for which Samsung provides separate proposed constructions. CEA does not propose a construction for the, two separate phrases Samsung argues must be construed based on its argument that the entire phrase requires a single construction.

--- End Footnotes ---

Samsung proposes that the second portion of the disputed phrase, "the thickness of the layer and each polarization means are intended to bring about a compensation of the birefringence of the liquid crystal layer in its homeotropic structure so that the cell has a high contrast for said structure in the case of an oblique observation performed in a given observation plane," should be construed as a separate claim term. It proposes that this phrase be construed as:

The claimed thickness of the liquid crystal layer is 2e[o]. This thickness, 2e[o], is defined as twice the thickness of the liquid crystal layer at which the polarization ellipse that is the result of an obliquely incident light wave traveling in the observation plane through a circular polarizer has its major axis rotated by the birefringence of the liquid crystal layer to align with the observation plane.

The court agrees with Samsung that the disputed phrase should be construed separately. The court adopts Samsung's proposed constructions because they are supported by the specification.

The claim language containing the disputed phrase recites, in pertinent part: "wherein the cell also comprises, at least on said side, a means for polarizing the incident light, and wherein the thickness of the layer and each polarization means are intended to bring about a compensation of the birefringence of the liquid crystal layer . . . ." 13 Samsung is correct that, grammatically, the separation of "means for polarizing" and "thickness of the [liquid crystal] layer" with commas and the inclusion of each in separate "wherein" clauses indicates that those are separate phrases requiring separate constructions.

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13 '028 patent, claim 1, 7:61-67 (emphasis added).

--- End Footnotes ---

With regard to the "means for polarizing the incident light," the structures clearly linked to the function of polarization means are circular polarizers or quasi-circular polarizers. 14 Figure 4 illustrates quarter wave delay plate 24 having principal indices L[2] and R[2] offset 45[degrees] from the absorption axis P[2]. Also, the court agrees with Samsung that a quasi-circular polarizer is not a structure distinct from a circular polarizer but "is a term that accounts for less-than-perfect circular polarization in real world, commercially-available circular polarizers." 15 Describing the quasi-circular polarization illustrated in figure 6B, the specification states:

At the exit from the first plate 23, the wave has a quasi-circular polarization and is [a] polarization ellipse, which is very close to a circle, is inscribed in a rectangle R[p] whereof the sides are substantially equal and whereof two adjacent sides respectively have as the mid perpendicular the axes X and Y (FIG. 6B). 16

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14 See, e.g., '028 patent, 2:33-35 ("[T]he cell comprises first and second polarization means on either side of said assembly and equivalent to quasi-circular polarizers . . . ."); '028 patent, 2:48-68 ("[T]he first and second polarization means
respectively comprise a first pair having a first linear polarizer and . . . a first delay plate, and a second pair having a second linear polarizer and . . . a second delay plate . . . . [T]he first and second pairs behave in the same way as quasi-circular polarizers . . . .

'T028 patent, 3:14-16 ("[T]he polarization means being able to circularly polarize an incident plane light wave propagating in the homeotropy direction . . . ."); '028 patent, 3:26-40 ("[T]he polarization means comprises a linear polarizer and . . . a delay plate . . . chosen so as to form, with the linear polarizer, a circular polarizer with respect to an incident plane light wave propagating in the homeotropy direction."). See B. Braun Med. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed. Cir. 1997) (stating that the "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim"). The court disagrees with CEA that the structures of polarizers other than circular (or quasi-circular polarizers) are described in the specification. As noted by Samsung, the alternative embodiments cited by CEA ('028 patent, 7:46-48; 7:57-8:2) could reasonably be understood as stating a material (liquid crystal) from which a quarter wave delay plate could be made or (in the combined delay plate embodiment) a rearrangement of two circular polarizers.

15 D.I. 700 at 17.


With regard to "the thickness of the [liquid crystal] layer" the specification recites: "[a] definition will now be given of the thickness of the liquid crystal layer 18 leading, combined with polarizers 21, 22 and delay plates 23, 24, to a compensation of the birefringence of the liquid crystal layer, under oblique incidence and in the observation plane P. . . . According to the invention, the thickness of the liquid crystal layer 18 is taken to be double said particular thickness e[0] . . . ."

17 '028 patent, 5:37-6:33. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (A patentee may act as "his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history."). In a prior art statement discussing U.S. Patent 3,960,438 ("the '438 patent"), the applicant stated that the '438 patent "describes reflective devices using ambient light. One of the embodiments of these devices comprises an electrically controlled birefringence cell, as well as a reflecting surface on one side of the cell and a circular polarisation [sic] means on the other side of the cell. In this document, the thickness of the liquid crystal film lays no part whereas it is of vital importance in the invention." D.I. 701, Ex. 3A at 2 (emphasis added).

18 The court disagrees with CEA's argument that Samsung's proposed construction improperly excludes other embodiments purportedly recited in the specification. The court also rejects CEA's arguments that claim differentiation precludes adoption of Samsung's proposed construction. See Laitram v. Rexnord, 939 F.2d 1533, 1538 (Fed. Cir. 1991) ("[Laitram's argument that [dependent] claim 24 prevents claim 21 from being interpreted as statutorily mandated by section 112(6) must be rejected. . . . [T]he concept of claim differentiation . . . states that claims should be presumed to cover different inventions. This means that an interpretation of a claim should be avoided if it would make the claim read like another one. Claim differentiation is a guide, not a rigid rule. If a claim will bear only one interpretation, similarity will have to be tolerated. Simply stated, the judicially developed guide to claim interpretation known as 'claim differentiation' cannot override the
The court adopts Samsung's proposed definition of "the thickness of the layer and each polarization means are intended to bring about a compensation of the birefringence of the liquid crystal layer in its homeotropic structure so that the cell has a high contrast for said structure in the case of an oblique observation performed in a given observation plane" and construes that phrase to mean:

The claimed thickness of the liquid crystal layer is 2e[ο]. This thickness, 2e[ο], is defined as twice the thickness of the liquid crystal layer at which the polarization ellipse that is the result of an obliquely incident light wave traveling in the observation plane through a circular polarizer has its major axis rotated by the birefringence of the liquid crystal layer to align with the observation plane.

D. "Intensity" as Used in Claim 11

Defendants contend that the term "intensity" in claim 11 should be construed as the Court construed that term in the context of the '339 patent — namely, as "the area under the spectrographic graph of reflectance (percent) versus wavelength occupied by the specified color." In the context of the '339 patent, the Court assumed, arguendo, that the term "intensity" has an ordinary and accepted meaning among persons of ordinary skill in the field of color science, as Plaintiff now contends. However, the Court concluded, based on the specification, that the patentee had given the term "intensity" an unconventional meaning, employing it as a synonym for the term "quantity," meaning the areas under the spectroscopic graph. [122] at 14-15. See also Bell Atlantic, 262 F.3d at 1269-70 (courts "must look at the intrinsic evidence to determine whether the patentee has given [a] term an unconventional meaning"); ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1378 (Fed. Cir. 2003) ("a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims"). The Court's construction of the term "intensity" with respect to the '339 patent was based on the statement in the specification that "[t]he relative quantities or intensities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." '339 patent, col. 3, ll. 8-11. The Court reasoned that the patentee's inclusion of the term "intensities" in that definitional sentence indicated that the patentee intended to redefine that term to mean the area under the spectroscopic graph.

The '018 patent has the same specification as the '339 patent. And the claims of the '018 patent offer no other definition of the term intensity. Therefore, the Court's prior analysis applies with equal force here. Moreover, Defendants' position that the claim term "intensity" should be construed to carry the same meaning in both the '339 patent and the '018 patent finds support in Federal Circuit precedent, which teaches that courts should "presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003) (finding that disavowal of claim scope made in parent application carried over to a first continuation-in-part application that used the same disputed term for which the disavowal applied); see also NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1293 (Fed. Cir. 2005) ("[b]ecause NTP's patents all derive from the same parent application and share many common terms, we must interpret the claims consistently across all asserted patents"); Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) ("the construction of the term 'diffuse light' contained in [the parent patent], is relevant to an understanding of 'diffuse light' as that term is used in [the continuation-in-part patent]"); but see IP Innovation L.L.C. v. Sony Electronics, Inc., 2005 U.S. Dist. LEXIS 17962, 2005 WL 2035578, at *7 (N.D. Ill. Aug. 18, 2005) (noting that the presumption that a claim term in related patents carries the same meaning may be overcome by evidence that the patentee clearly assigned different meanings to a term that appears in two related patents).

Plaintiff objects to Defendants' proposed construction, noting that it is identical to the parties' agreed upon construction of the claim limitation "area under a graph," as it is used in claim 27. According to Plaintiff, the doctrine of claim differentiation precludes the Court from construing the two claims to cover identical subject matter. The Court disagrees; as explained below, under the present circumstances, the doctrine of claim differentiation is not sufficient to overcome the presumption that the claim term "intensity" should be given the same construed meaning in the two related patents.
Claim differentiation is a claim construction tool that "takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous." Curtiss-Wright, 438 F.3d at 1381. Here, Plaintiff correctly notes that Defendants' proposed construction of claim 11 would render claim 27 superfluous. But the Federal Circuit "has acknowledged that two claims with different terminology can define the exact same subject matter." Id. at 1380. In view of that possibility, the court "has cautioned that '[c]laim differentiation is a guide, not a rigid rule.'" Id. at 1381. See also Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991) ("If a claim will bear only one interpretation, similarity will have to be tolerated.") (quoting Autogiro Co. of America v. United States, 384 F.2d 391, 404, 181 Ct. Cl. 55 (Ct. Cl. 1967)). Moreover, claim differentiation "can not broaden claims beyond their correct scope." Fantasy Sports Props. v. Sportsline.com, 287 F.3d 1108, 1115-16 (Fed. Cir. 2002) (quoting Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362 (Fed. Cir. 2000)).

Here, the specification — combined with the presumption in favor of giving claim terms the same meaning in related patents — persuades the Court to construe the term "intensity" to mean "the area under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color." The Court finds no support for Plaintiff's proposed construction of "intensity" — namely, "the amplitude or height of reflected light for a given wavelength on a spectral curve" — in the specification. Because the specification supports only one interpretation, the similarity between claims 11 and 27 must be tolerated. Laitram Corp., 939 F.2d at 1538.

7 As Defendants note, Plaintiff's claim differentiation argument is somewhat undermined by its own proposed constructions, which construe certain independent claims to have identical — or nearly identical — meanings. In particular, according to Plaintiff, both "dominant intensity" (claim 19) and "area under a graph of reflectance (percent) versus wavelength" (claim 27) are measured by calculating the area under the spectroscopic curve. See Pl. SOF at P 14. Plaintiff also proposes construing "intensity" (claim 11), "peak reflectance percentage" (claim 7), and "peak intensity" (claim 15) to mean essentially the same thing — the height of the spectroscopic curve.

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13. Interactive network sessions; interactive asymmetric communication in a session; interactive session; interactive communication

The above terms are present in certain claims of the '121 and '845 patents. The plaintiff proposes "any established communication connection between a host computer and a remote location" as a construction, while the defendants propose "connection which assigns an upstream channel to a single remote link adapter." The court has reviewed and considered the parties' arguments and construes each of the above terms to mean "an established communication connection where information or commands are exchanged between a host server and a remote client in real time."

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A.1.b. "format" and "interactive operating process format"

Kate's and Verizon's asserted interpretations of "interactive operating process format" are almost identical. Verizon contends, however, that "format" requires a single computer program operative to interact with callers, while Katz alleges that "format" may include a plurality of linked computer programs.

The term "interactive operating process format" means a call process flow implemented by at least one computer program that sets forth the content and sequence of steps to gather information from and convey information to callers through pre-recorded prompts and messages. The call process flow, according to the Court's interpretation, may be implemented by
several linked or independently -- executable computer programs. Webster's defines "format," in relevant part, as "a general plan of organization or arrangement (as of a television show)." See Webster's Ninth New Collegiate Dictionary 485 (9th ed. 1991). "Format" or "interactive operating process format," in the context the 734 patent provides, appears to refer to an interactive process implemented in computer program code, while a "plurality of interactive operating process formats" refers to multiple interactive processes, each implemented in computer program code. Specifically, the Court's review of the 734 patent specification suggests that a format refers to the call process flow itself, regardless of whether the call process flow is embodied in one or several computer programs. See 734 patent, Col. 3:20-23 ("calls are selectively accepted and interfaced so as to accomplish a desired operating format, for example, a contest or a game."); Col. 5:34-36 ("assume that the system CS is programmed to accommodate a relatively simple game format, that is, a sponsored contest for the promotion of a product."). In addition, that the processing of calls is distributed among different components in the system disclosed in the 734 patent also suggests that a "format" can be implemented by more than one computer program. Lastly, the language and structure of claim 81 of the 734 patent does not suggest a contrary interpretation. Verizon's asserted interpretation is unnecessary to resolve the alleged ambiguity resulting from Katz' interpretation of "format."

9. Interactive voice prompting

Foundry submits that "interactive voice prompting" does not require construction. Lucent, however, argues that "interactive voice prompting" should be construed to mean "audible prompts provided by a caller by the system which describe and solicit control inputs for utilizing PBX services." In support of its proposed construction, Lucent relies on a portion of the specification which provides as follows: "[I]t would be desirable to provide a telecommunication platform and network that provides voice prompting to a user, enabling the user to perform network services such as voice communication simply by following a voice prompt rather than by memorizing complex keystroke sequences." '864 patent, col. 1, ll. 51-56.

The court concludes that the specification does not support limiting "interactive voice prompting" to prompts that "describe and solicit control inputs for utilizing PBX services." In fact, the specification provides that voice prompting enables the user to perform network services such as voice communication. Accordingly, the court construes "interactive voice prompting" to mean "audible prompts provided to a user that enable the user to perform network services." See '864 patent, col. 1, ll. 51-52.

5. "intercepting"

SuperSpeed proposes the term means "to stop, deflect, or interrupt the progress or intended course of." IBM proposes the term means "cutting off from the intended destination." In the Oracle Litigation, the parties agreed to SuperSpeed's current proposal, and Judge Gilmore adopted that agreement in her claim construction ruling. IBM's construction would necessarily mean that the instruction does not reach its final destination. This is not what is disclosed in the patent.

The read and write instructions must be intercepted for the cache driver to determine which data should be read from or written to the cache. The read instruction, for example, must be sent to the disk when the data is not found in the cache. ['226 Patent, 4:47-51]. The write instruction must be sent to the I/O device to write the data to the non-volatile storage. As SuperSpeed points out, the "interception" does not cut off the instruction from the target, but only stops it or interrupts it before sending it to the appropriate I/O device. ['226 Patent, 4:47-51] (noting that, after interception, when the data sought by a read instruction is not in the cache "the disk is accessed normally for the reqd data"); and '226 23:32-45 (noting that, after interception, a write instruction is ultimately "sent to the disk I/O device"). SuperSpeed argues, therefore, IBM's proposed construction excludes the preferred embodiment. When a construction excludes the preferred embodiment, it "is rarely, if ever, correct." Vitronics, 90 F.3d at 1583.

IBM responds its proposed construction does not exclude the preferred embodiment. It argues that the "instruction" is intercepted, and then a new instruction is sent after the cache driver determines what to do with the data. IBM's argument is
unpersuasive. There is no support for IBM'S proposition that the original read or write instruction can not be passed along by the cache driver. The above passages suggest as much. IBM is correct that the specification describes a situation where the driver modifies the instruction. See '226 Fig. 5G at block 496 (showing that the invention will “adjust [the] I/O transfer request to intercept completion at 'READ COMPLETE'” for a read instruction for which no data is in the cache). That, however, is not necessary in all cases.

The term "intercepting," therefore, means "to stop, deflect, or interrupt the progress or intended course of."
The Defendants' primary support for their position is the language of the specification that states "executable processing it" should be added to the end of the definition as proposed by the Defendants. What is left for the Court to determine is whether the phrase "instead of the Web Server handling of a request at a said HTTP-compliant device." phrase "intercepting said request at said HTTP-compliant device" means at least "intercepting the handling of a request at a Web server" and the phrase "the Web server..." (claim 15 of the '554 Patent) means at least "intercepting the handling of a request at a Web server" and the phrase "intercepting said request at said Web server" (claims 1, 9, and 11 of the '554 Patent) and "intercepting said request from said Web server to a page server," and "wherein said routing step further includes the steps of intercepting said request at said Web server, routing said request from said Web server to a dispatcher, and dispatching said request to said page server." This conforms with the specification, which states that the request is initially routed from the Web Client 200 to the Web Server 201. Col. 4:54-60. Also, Figure 4 appears to show the request going to the Web server executable 201(E). A construction that has the request bypassing the Web server is therefore not appropriate.

As to whether the beginning phrase of the construction should include "stopping, deflecting, or interrupting" as proposed by the Plaintiff, the Plaintiff provides little support for such language other than a general purpose dictionary. Although the Plaintiff asserts that the Defendants’ construction requires bypassing the Web server, the Court does not interpret the phrase “diverting” to require such bypassing. However, the term “diverting” seems to carry an additional connotation that the request is sent somewhere else. When looking at the claims, however, the concept of the request being sent elsewhere is included in the “routing said request” (claims 1, 9, and 11 of the ‘554 Patent) or “transferring said request” (claim 15 of the ‘335 Patent) limitation that immediately follows the intercepting phrase. Thus, the Court does not feel that either construction adds clarity to the meaning of the concept of “intercepting” as used in the claims. Moreover, the parties have not pointed to anything in the intrinsic record that suggests which is more accurate: “diverting” or “stopping, deflecting or interrupting.” These terms are not used in the specification and each in turn may need their own construction. The Court is not convinced that the term “intercepting” needs construction itself or that the constructions proposed by the parties add any needed clarity.

More helpful would be to construe the entire intercepting phrase: “intercepting said request at said Web server” (claims 1, 9, and 11 of the ‘554 Patent) and “intercepting said request at said HTTP-compliant device” (claim 15 of the ‘554 Patent). The specification describes the Interceptor as intercepting “the handling of a request.” Col. 8:31-32. To conform with the description provided within the specification, the phrase “intercepting said request at said Web server” (claims 1, 9, and 11 of the ‘554 Patent) means at least “intercepting the handling of a request at a Web server” and the phrase “intercepting said request at said HTTP-compliant device” means at least “intercepting the handling of a request at a said HTTP-compliant device.”

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What is left for the Court to determine is whether the phrase “instead of the Web Server executable processing it” should be added to the end of the definition as proposed by the Defendants. The Defendants’ primary support for their position is the language of the specification that states
“instead of Web server executable 201(E) processing the URL request, however, interceptor 400 intercepts the request and routes it to Dispatcher 402.” Col. 4:58-60. The Defendants argue that this language provides no room for partial processing of a request by Web server executable. The Court, however, finds such language ambiguous. The Defendants would like to interpret this cited quote (“instead of the Web server executable 201(E) processing the URL request”) to mean “instead of the Web server executable 201(E) processing any of the URL request” wherein the Plaintiff would like to interpret this citation to mean “instead of the Web server executable 201(E) completely processing the URL request” The specification, however, provides little guidance.

As discussed above, however, the specification does establish that a Web server may be software. Further, the specification establishes that the Web server does perform at least some action with relation to a request, namely receiving a request. Col. 4:55-58; Col. 8:28-31; Figure 4; Figure 5. Further, it is noted that in at least one embodiment the interceptor 400 is “an extension of the Web server 201” and the interceptor 400 also performs actions on a request. Col. 4:59-62. As Defendants have asserted that their proposed claim language would exclude the Web server from any processing of the request, their proposed claim language would impermissibly exclude the embodiments disclosed within the specification. Thus, the Court declines to add the additional limitation sought by the Defendants.

For these reasons, the Court finds that “intercepting said request at said Web server” means “intercepting the handling of a request at a Web server” and the phrase “intercepting said request at said HTTP-compliant device” means at least “intercepting the handling of a request at a said HTTP-compliant device.”

The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

The plaintiff contends that the term "interchangeable with other cards requires no construction, but if construction is necessary it offers the synonym of "exchangeable with other cards." Defendant EchoStar argues that the term means that each card implements an unscrambling technique and can be physically exchanged with other cards that implement different unscrambling techniques. The DIRECTV defendants argue for a construction that the user exchangeable card that unscrambles a signal scrambled according to a particular scrambling technique can be readily exchanged with at least one other user exchangeable card that unscramble a signal scrambled according to a separate and distinct scrambling technique.

Since the scrambling circuit 31 can put out a wide variety of scrambled signals there is correspondingly a significant number of user exchangeable circuit cards 150, each card incorporating an electronic circuit 151 for decoding one particular scrambled signal.

‘066 Patent, col. 3, lines 21-25. The specification also provides that "the electronic circuit 151 provides the key for the unscrambling circuit 120, carefully chosen to decode a particular type of signal from the scrambling circuit 31." Id. at col. 3, lines 18-20 (emphasis added).

Thus, for a card to be exchanged it must be carefully chosen to incorporate a decoding circuit for the particular scrambled signal.
I construe the term "interchangeable with other cards" to mean that a user card that unscrambles a signal scrambled according to a particular scrambling technique can be readily exchanged with at least one other user card that unscrambles a signal scrambled according to a matching scrambling technique.

Verizon contends that "interconnect switch means" should be interpreted as a means-plus-function element under 35 U.S.C. § 112, P 6. The term switch under other circumstances, Verizon alleges, would normally overcome the presumption entailed by use of "means" in the claim language; however, the term switch does not connote sufficient structure for performing the additional function of "providing format data." Verizon Brief at 52; Waite 1/14/03 Decl. P 17. Katz, on the other hand, contends that "interconnect switch means" connotes sufficient structure to avoid application of 35 U.S.C. § 112, P 6.

"Interconnect switch means" means a device including hardware and associated software that can switch or route telephone calls or signals from one location or connection to another. A presumption exists that interconnect switch means is a means-plus-function element, as the element includes "means" and is linked to the functions of "providing format data" and "controlling connections." See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302-03 (Fed. Cir. 1999). However, the term "switch" connotes sufficient structure for performing the recited functions of "providing format data" and "controlling connections." See Rodime, 174 F.3d at 1304 ("This court's case law, however, does not require such an exhaustive recitation to avoid § 112, P 6. Instead, the claim need only recite "sufficient" structure to perform entirely the claimed function."); see also id. ("Rather, in the words of Laitram, the structure specified in [the] claims . . . tells what the means "is structurally.") (citations omitted); Altiris, 318 F.3d at 1376 ("In the cases where we have found sufficient structure in the claims, the claim language specifies a specific physical structure that performs the function.").

10 The language "providing format data" and "controlling connections" in this context is best understood as a functional limitation of the interconnect switch.

"Interconnected by [a computer network or public packet switched computer network]"

This term means "to be connected by a [computer network or public packet switched computer network]." Like Amazon's proposed construction of "connected to . . .", its proposed construction of "interconnected by [a computer network or public packet switched computer network]" is too restrictive because it requires that each computer be able to exchange messages with each of the other computers. This is unsupported by the intrinsic evidence.

The term "interconnecting" first appears in the following language of claim 1: "a call pod for interconnecting a plurality of headsets of the plurality of participants." (JA, Ex. 1, '611 Patent, at 3:63-64.) Callpod argues that the term means "connecting, which includes connecting physically, through the use of a cord, adaptor, or wireless connection." Defendants claim that the term means "physically connecting."

The specifications of the '611 patent provide an illustrative embodiment where the telephone "may be coupled to the call
Therefore, the plain language of the patent shows that the patent does not necessarily require a physical connection because of the permissive nature of the phrase "may be coupled . . . by use of an interconnecting cable." The cable is one potential way of accomplishing the interconnection contemplated by the '611 patent, but it is not the exclusive way. In fact, the plain and ordinary meaning of "interconnect" in the telecommunications context only refers to "the linkage used to join two or more communications units," without reference to a physical connection. (JA, Ex. 4, Ex. 5) (industry definitions from the National Communications System Technology & Standards Division's Glossary of Telecommunication Terms and the Telecom Glossary). Moreover, if the term "interconnecting" meant "physically connecting," the term "cable" would be either redundant or unnecessary in the text of the patent. Additionally, the patent expressly discloses a wireless method of interconnecting when it provides "the method includes the steps of providing a call pod for interconnecting a plurality of headsets of the plurality of participants, operably connecting a headset interface of a wireless telephone with a wireless audio interface of the call pod and forming a two-way voice path among the plurality of headsets and the wireless interface within the call pod." (JA, Ex. 1, '611 patent, at 1:44-50.) The plain language of the '611 patent does not limit the term "interconnecting" to a physical connection only. Therefore, the Court construes "interconnecting" to mean "connecting, which includes connecting physically, through the use of a cord, adaptor or wireless connection."

6. "Interconnecting said transceiver and one of said voice circuits for supplying paging signals." A single RIM connected to a single voice circuit and a single transceiver is downloaded with instructions from the central control station for operation as the central channel. (554 patent, col. 14, lns. 61-68; col. 31, lns. 23-36)

6. "interface/an interface for interfacing"

The parties dispute whether the "interface" includes circuitry. The parties further dispute what devices the "interface" connects and whether the connection is an electrical connection.

The preamble of claim 11 of the '141 patent recites an "interface for interfacing said [computer system device] with a second computer system device." Defendants contend that in the context of this claim, the interface is the signal lines that electrically connect the elements. Defendants also point to language in the Abstract, which, states that "[t]he interface includes a clock signal, a bus, an address latch enable signal, peripheral device ready signal, a command signal, a device selected back-off signal, and a reset signal." Defendants further contend that the detailed description calls for a set of distinct signal lines. '807, 4:57-5:9; '1414:61-5:13. Defendants argue that these examples support a construction that includes sets of distinct signal lines.

The term "bus" means "a set of signal lines" and throughout the claims, the term "interface" refers to a bus and, in addition, distinct signal lines. Claim 11 of the '141 patent states that the "interface" comprises "an address-data bus." Claim 16, which depends from claim 11, as well as claim 8 of the '807 patent refer to an "interface" comprising or further comprising "a bus" and other signal lines. 12 OPTi attempts to read "circuitry" into the construction, but this limitation is not supported in the claims or the specification. All circuitry, other than the interface signal lines themselves, is in the devices, not the interface. '807 Claim 1 ("method of interfacing a host system with a peripheral device..."); Claim 8 ("interface structure for interfacing a host platform with a peripheral device..."); '141 Claim 18 ("method of interfacing a host system with a peripheral device..."); Claim 11 ("interface for interfacing said device with a second computer system device..."). The specification discloses that the host platform interface circuitry is coupled to the interface, not a part of the interface. '807, 7:14-17; '141, 7:17-21. Further, claim 11 only claims that the interface "carries" multiplexed information. The claim itself does not require the interface itself to perform any multiplexing function. '141 patent, claim 11. Plaintiff, therefore, attempts to include limitations not found in the claims. Accordingly, the court construes the term "interface/an interface for interfacing" to mean "a bus for communicating between the host and peripheral devices."
12 Claim 11 of the '141 patent states that the "interface" comprises "an address-data bus." Claim 16 states that the interface further comprises "a clock signal line; an ALE signal line; an IOCHRDY signal line; a device selected backoff signal line; and a CMD # signal line." (emphasis added). Claim 8 of the '807 patent refers to an "interface" comprising "a bus" and other signal lines (emphasis added).

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c. "Interface"

Claims 1, 13, 18, 23, and 27 disclose an "interface," which is followed by varying limitations relating to the remotely controllable surgical devices, the conversion of command protocols, and the transformation of inputs into commands. See generally '539 Pat. cols.9-13.

KSEA proposes the following construction:

[The interface is] connected between the touchscreen controller and the first remotely controllable surgical device, for converting the controller command protocol to the first and second command protocols, and for transforming inputs received by the touchscreen into commands for controlling the first and second remotely controllable surgical devices.

(Proposed Constructions Chart 10.)

S&N offers as follows:

[The interface] converts the protocols used by the touchscreen controller into the protocols used by the remotely controlled devices and transforms inputs on the touchscreen into control commands for the devices, to allow remote control of the devices, even if the system was not originally designed to control those devices.

(Id.)

--- Footnotes ---

11 KSEA's opening brief proposes this construction as to Claims 1, 13, and 18, but its responsive brief additionally proposes this construction as to Claims 23 and 27.

--- End Footnotes ---

Following the Markman hearing, the Parties agreed that "interface" should be defined as a "device that enables communication." (Agreed-Upon Constructions Chart 3.) The Court adopts this construction of "interface."

Neither proposed construction appears to be appropriate, however, with regard to the claim language following "interface." KSEA's proposed construction essentially quotes Claims 1, 13, and 18. This is redundant as to those claims, and potentially inaccurate as to Claims 23, and 27. S&N contends that the "interface" allows remote control of devices even if the system was not originally designed to control those devices. This argument is based on language from the prosecution history and the specification suggesting that the system can accommodate surgical devices that were not originally designed to work with the system. S&N misreads this language to suggest instead that it is the system that was not originally designed to control those devices. S&N's reading is inconsistent with both the language itself and the premise underlying the system. Even the system's programmed ability to update its knowledge of new devices implies that the system was "originally designed" to be able to control such devices.

The Court construes "interface" as a "device that enables communication," and declines to further construe this aspect of Claims 1, 13, 18, 23, and 27 on the present record. The Parties may submit supplemental briefing on further construction of the terms within twenty-one (21) days of the entry of this Order.

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XII. "[A] communications interface operative to transmit commodity bids and offers from at least one financial institution"; "a principal market maker computer coupled to the communications interface"

Plaintiffs provide the following proposed construction for the claim term "communications interface": "an apparatus directly connecting one or more financial institutions to the principal market maker computer for communication between the financial institutions and the principal market maker computer." (R. 82, Pls.' App., Ex. 1 at 8.) TRG asks the Court to construe the terms "financial institution" and "interface." (R. 85, Def.'s Mem. at 21.) The Court rejects Plaintiffs' proposed construction and partially accepts the proposals set forth by TRG.

Plaintiffs' proposed construction is unacceptable because it imports limitations to the claim terms. Specifically, they seek to impermissibly insert the word "directly" into the construction of the claim. In their brief, Plaintiffs fail to clearly point to any support in the record indicating that a person of ordinary skill in the art would have understood the term "communications interface" as requiring an apparatus providing a direct connection. To the extent that Plaintiffs' argument depends upon a figure showing financial institutions accessing a PMM computer directly via a modem, it fails as the patent figures cannot be used to import claim limitations. See, e.g., Playtex, 400 F.3d at 907 (finding that a district court's reliance on figures to limit claim to a preferred embodiment was improper).

TRG relies upon a financial dictionary in defining the term "financial institution." (R. 85, Def.'s Mem. at 21 (citing Barron's Dictionary of Finance and Investment Terms 186-87 (4th ed. 1995).) Because this proposed construction reflects the term's ordinary and customary meaning, the Court construes "financial institution" to mean an "institution that collects funds from the public to place in financial assets such as stocks, bonds, money market instruments, bank deposits, or loans." (Id.)

Given the technical context in which it is used, the Court finds TRG's use of a general purpose dictionary to construe the term "interface" is inappropriate. 23 In the absence of any intrinsic evidence establishing its ordinary meaning, the Court relies upon a technical dictionary and construes the term "interface" as follows: "an electronic device that enables one piece of gear to communicate with or control another." 24

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23 TRG uses Merriam-Webster's Collegiate Dictionary and proposes that the term "interface" be construed to mean "the place at which independent and often unrelated systems meet and act on or communicate with each other." (R. 85, Def.'s Mem. at 21.)


--- End Footnotes ---
pointing out three figures where it asserts the interfaces are not necessarily planar:Figures 5 and 9 have interfaces with non-continuous, non-contiguous segments with curved edges, and Figure 6 has interfaces with non-continuous, non-contiguous edges. (PMTResp. Br. at 14 & n45).

2. Defendants' Interpretation

Defendants effectively assert that "interface" should be defined as "a common boundary where two surfaces touch." 21 (R. 120 at 19-20; R. 199 at 25 to R. 200 at 6). Defendants base their definition, in part, on their interpretation of language in claims 14 and 17 which describes a cross-section of the voltage sustaining layer parallel to the first and second interface. (R. 121 at 14-21; R. 201 at 3-12) (referencing Chen Patent, col. 8, In. 43-51; col. 9, In. 10 to col. 10, In. 2). Defendants argue that the terms "cross-section" and "parallel" taken together in their ordinary, 22 geometric meaning require a physical boundary between the contact layer and voltage sustaining layer. (R. 121 at 18 to 122 at 12; R. 201 at 3 to 202 at 22) (referencing Chen, col. 2, In. 1-4, 8). Further, defendants assert that the language in claim 3 describing interfaces as perpendicular to the plain of the dielectric layer are an even clearer indication that "interface" must be a structural term. (R. 291 at 20-25) (referencing Chen Patent, col. 6, In. 65-66). Finally, defendants contend that the Court should reject PMT's proposed definition of "contacting" because it is based on language in the patent where the term "contact" is used as a noun, as in metal contact, and has no reference to use in the patent of the verb "contacting." (R. 123 at 16-24; R. 205 at 1-20) (referencing, e.g., Chen Patent, col. 6, In. 25).

-- Footnotes --

21 The definition given is Infineon's exact proposed definition. ST's exact proposed definition is, "an internal surface forming a common boundary between adjacent semiconductor portions. (R. 199 at 25 to R. 200 at 1 and ST slide # 54).

22 ST urges the Court to examine the extrinsic evidence of a common dictionary to ascertain the meaning of "interface." ST proposes that the court examine WEBSTER'S COLLEGIATE DICTIONARY 610 (10th ed. 1996), wherein "interface" is defined as "a surface forming a common boundary of two bodies, spaces or phases." (R. 200 at 6-11). ST contends this is how a person of ordinary skill in the art would understand "interface." (R.200 at 4-6).

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Infineon argues separately that, during prosecution, the examiner issued a § 112 rejection based on "contact" meaning "touching," and Chen acquiesced in this definition by responding to the objection without contesting the use of the term in that way. (R. 124 at 1-13).

ST separately contends that the Court should reject PMT's proposed definition as indefinite because it imposes no structural limitation on the term "interface," which it asserts must be construed in conjunction with "contacting." (R. 200 at 12-18; R. 202 at 14-17; R. 186 at 8-11). Finally, ST points out that every figure in the Chen Patent shows "interface" as a common boundary. (R. 201 at 25 to 202 at 5 and ST slide # 58).

3. Recommended Interpretation

The Special Master recommends that "interface" be defined as it would be by one of ordinary skill in the art of semiconductor technology as, "the common boundary between regions or layers in the device." Such boundary can ordinarily be mechanical, electrical, or functional. 23 However, the term is used throughout the claims to mean the common boundary between the "contact layer" and the "voltage sustaining layer." (See, e.g., Chen Patent, col. 7, In. 68 to col. 8, In. 5). Given the overall structure of the Chen MOS devices, these two layers will touch each other, see, e.g., Chen Patent, col. 5, In. 52-58 (describing the formation and relationship of the various elements), even if that boundary is perhaps elusive because it can only be ascertained by referencing the definitions of two other elements (i.e., the contact layer and the voltage sustaining layer) that are defined in terms of their function, rather than their structure. Nevertheless, in the Chen patent, this interface is necessarily physical because it is a junction between two semiconductor layers, the contact layer and the voltage sustaining layer.

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13. Telephone network interface

The parties dispute the meaning of the term "telephone network interface." Foundry contends that the ordinary meaning of the term "interface" is "a shared boundary." Lucent argues, however, that "telephone network interface" should be construed to mean "a physical connection for communicating with a telephone network." At issue is whether an "interface" requires a physical connection. The court construes "telephone network interface" to mean "a shared boundary between a telephone network and another system or device across which information is passed." See IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1997).

5. "Interface Engine"

Plustek asks the Court to construe this term as "an interface module located outside of the main case that houses the image sensing module and the motion mechanism."

Syscan argues it should be "a control circuit that receives system control signals and electrical power from the computing device and generates logical control signals for the image sensing module and motion mechanism and provides electrical power to the image sensing module and motion mechanism."

The interface engine and the control circuit are electronic components that control the operation of the image sensor and the illumination source as well as the motion mechanism. See e.g., Dang Decl., P 2, Ex. A ('124 Patent), Fig. 3, 6:32-34, ("interface engine 312 provides an interface between image sensing module 302 and computing device 314.") 11:9-13 (claim 5) ("the interface engine provides a power supply and control signals to the image sensing module and the motion mechanism to operate when the interface engine [is] coupled to the computing device."). Fig. 5, Therefore, the interface engine and the control circuit must be located outside of the main case. SciMed Life Systems, Inc., 242 F.3d at 1341; see also CCS Fitness, 288 F.3d at 1367.

The Court construes this claim as "an interface module located outside of the main case that houses the image sensing module and the motion mechanism."

2. "interface" Terms

* * *

All of the asserted claims contain limitations relating to "interfacing" the binary true random sequence of signals to a general purpose computer.

There are three central disputes regarding the construction of the above terms. First, the defendants argue that the "interfacing" phrases require "directly conveying . . . itself to the data bus." The defendants argue that such limitation conveys to the fact finder the idea that the claims describe conveying the same true random sequence referred to earlier in the claim to the data bus, not a physical connection. Quantum argues that it improperly implies that any connection must be
physically and directly to the data bus. Although the defendants state this is not intended by their construction, the court agrees with Quantum with respect to "directly." As argued by Quantum, the preferred embodiment does not include a direct connection to the computer's data bus. '364 Patent, col. 1, ll. 50-53; '242 Patent, col. 1, ll. 58-61. Nor does the term require that the same sequence be directly conveyed to the data bus. The imposition of the limitation, "directly" on every instance of interfacing would improperly limit the scope of the claim language.

Turning to the "data bus" limitation, the defendants cite to the specification and the prosecution history for support. As argued by the defendants, the heart of the present invention is providing a computer the ability to access and use binary true random sequences when applications or hardware require it. See '242 Patent, Background of the Invention. This is accomplished via the interface between the RNG and the computer. In order for the computer to utilize such sequences, they must be readily available, as on the "data bus." However, a "data bus" is not the only type of bus utilized by a computer to transfer data; for example, computers may also use various other types of buses. Thus, one of ordinary skill in the art in 2002 would understand that the sequence is conveyed to a bus in the computer for use by the computer. See '242 Patent, col. 20, ll. 1-3; col. 8, ll. 47-50; col. 24, ll. 57-58; see also Ex. 17 to Defs.' Claim Construction Brief at A-1 (stating, "[f]or example, every computer requires a bus that transmits data from one part of the computer to another").

The second disputed issue regards the defendants' imposition of "hardware and software" as a limitation to the phrases using interface as a noun. The claims and embodiments in the specification suggest that an interface may be software, firmware, or hardware. See '242 Patent, cl. 5 (stating, "an interface selected from the group consisting of a device driver, a portion of the operating system of said general-purpose computer, a portion of a Windows TM operating system, a program stored in the bios memory of said general-purpose computer, a program in firmware, and a TSR program."); col. 20, ll. 24-28; col. 20, l. 3 (describing a connection using a parallel port connecting cable); col. 24, ll. 23-33; col. 24, ll. 55-58 (describing a connection using "connector 510").

Finally, the parties dispute the inclusion of a use limitation. The court cannot find sufficient support in either the claims or the specification to warrant requiring a particular use for the true random binary sequences. Notwithstanding the lack of support, the term suggested, "user program," is undefined and ambiguous. While "user programs" may supply the majority of the demand for the sequences, there is no such support for requiring such limitation in the context of the intrinsic evidence.

The court defines "interfacing said binary true random sequence of signals to a general purpose personal computer" and "interfacing said binary true random sequence of signals to a computer" as follows: "directly or indirectly conveying the binary true random sequence of signals to a bus in a general purpose computer."

The court defines "interface for applying said binary true random sequence of signals to said general-purpose computer" and "true random number generator circuit interface" as follows: "software, firmware, and/or hardware to directly or indirectly convey the binary true random sequence of signals to a bus in a general purpose personal computer."

Interface is "the point at which a connection is made between two elements so that they can work with each other." MICROSOFT COMPUTER DICTIONARY 257. "Menu" is "[a] list of options from which a user can make a selection in order to perform a desired action . . . ." Id. at 303. Both parties seem to agree that "interface in the form of a plurality of menus" includes a computer screen with windows and dialog boxes which contain menus. Rockwell adds "icons, pictures or symbols" as part of menu. Apropos says, "menus" exclude "icons, pictures or symbols" and adds that the term includes "successive" menus presenting lists which enable the user to make successive selections and access dialog boxes to enter instructions. Apropos relies on the specification, which certainly does describe successive menus. The claim itself uses "plurality" which is, in this context, more than one, presumably. Concerning the scope of "menus," the court relies on the specification and illustrations which refer entirely to menus as lists containing words. See, e.g., Figs. 3 and following. Rockwell has pointed to no evidence that an icon is functionally the same thing as a menu. Therefore, the court defines "interface in the form of a plurality of menus" as a connection that provides a user with one or more screens with two or more menus (but not icons, pictures or symbols) to permit the user to make selections from the menus in order to enter
1. "Interface means" in claims 1 and 7

We agree with the district court's ruling, unchallenged by the parties, that the limitation "interface means for transferring a control program and control parameters from an external medium into said alterable memory and for recording the control parameter contents of said memory onto an external medium" in claims 1 and 7 is subject to § 112, P 6. 1 IMS asserts that the district court erred in its construction of the limitation by identifying the tape cassette transport as the relevant corresponding structure found in the specification. IMS further argues that, even if the tape cassette transport is the corresponding structure, the district court erred by concluding as a matter of law that the floppy disk drive in the accused Haas controls cannot be equivalent to the disclosed tape cassette transport.

1 That the term "means" is used in a limitation does not necessarily mean that the limitation is properly a § 112, P 6 limitation. See, e.g., York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1574, 40 U.S.P.Q.2d (BNA) 1619, 1623 (Fed. Cir. 1996).

The "interface means" limitation recites two functions, i.e., "recording" a control program and control parameters from an alterable memory onto an external medium, and "transferring" a control program and control parameters from the external medium into alterable memory. IMS contends that the corresponding structure in the specification, disclosed in the written description, is a tape cassette peripheral interface adapter ("PIA") because that is the only structure that performs the "transferring" function. In making its argument, however, IMS virtually ignores the "recording" function and misapplies the meaning of "transferring" in the context of the claim.

The claimed interface means records data from the alterable memory to an external medium and transfers data from the external medium to the alterable memory. The external medium disclosed in the written description is a tape cassette, and the alterable memory disclosed is a RAM. Thus, the structure corresponding to the "recording" and "transferring" functions must record data residing in the RAM onto the tape cassette and transfer data from the tape cassette to the RAM. IMS correctly states that the written description associates the PIA with these functions: "PIA 77 provides the interfacing [sic] with a tape cassette which is utilized to load RAM 36. Also, a subsequently inserted cassette may be utilized to record stored RAM program data through PIA 77." 754 patent, col. 4, ll. 46-48. The written description, however, also associates a tape cassette transport with the functions of transferring data from the tape cassette to the RAM and recording data from the RAM onto the tape cassette: "A tape cassette transport apparatus is shown generally at 225 for receiving a magnetic tape cassette operable to read or write data to or from the RAM memory. With mode switch 203 in the tape auto mode, the data block entries may be recorded onto a tape cassette." 754 patent, col. 6, ll. 49-52. In view of both of these passages, it is apparent that both the PIA and the tape cassette transport are necessary for transferring data from the tape cassette to the RAM and recording data from the RAM onto the tape cassette.

IMS argues that the "transferring" function is only an "interfacing" function between the RAM and the tape cassette transport. But the claims require the interface means to transfer data to the RAM from an external medium, i.e., a tape cassette, not just from the tape cassette transport. The disclosed PIA performs only part of the "transferring" function, i.e., transferring from the tape cassette transport to the RAM. The tape cassette transport itself transfers data from the tape cassette to the PIA, and therefore both the PIA and the tape cassette transport are part of the disclosed structure corresponding to the "transferring" function of the interface means.

Similarly, the interface means must record data from the RAM onto the tape cassette. The tape cassette transport receives data from the RAM via the PIA and completes the recording function by recording data onto the tape cassette. The PIA and the tape cassette transport together perform this function and thus are both part of the disclosed structure corresponding to the claimed interface means.
IMS also argues that, under the doctrine of claim differentiation, the interface means cannot be limited to a means for "reading" and "writing" because claim 2, which depends from claim 1, places that additional limitation on the interface means: "said interface means includes means for reading from and writing onto a magnetic stored information input." IMS further argues that the "interface means" cannot be limited to a tape cassette transport because claim 3, which depends from claim 2, specifically claims a tape cassette transport as the means for reading and writing.

We reject IMS's argument that the doctrine of claim differentiation requires that the corresponding structure of the interface means of claim 1 be limited to the disclosed PIA. The scope of claim 3 is clearly narrower than that of claim 1 because claim 3 covers only a tape cassette transport, whereas claim 1 covers a tape cassette transport and its equivalents in accordance with § 112, P 6. See Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538, 19 U.S.P.Q.2D (BNA) 1367, 1371 (Fed. Cir. 1991) (holding that claim differentiation is maintained when the disclosed structure corresponding to an independent § 112, P 6 claim is recited in a dependent claim). The scope of claim 2 is also narrower than that of claim 1, at least because it limits the external medium to a magnetic stored information input.

Furthermore, the proper claim construction does not give the same meaning to "recording" in claim 1 and to "writing" in claim 2 as IMS contends. Rather, the "reading" and "writing" functions in claim 2 are the parts of the "transferring" and "recording" functions of the "interface means" that are performed by the disclosed tape cassette transport, rather than the PIA. In any event, it is permissible for claim 1 and claim 2 to have similar scope after each is correctly construed in light of the structures disclosed in the written description, because the judicially-created doctrine of claim differentiation cannot override the statutory mandate of § 112, P 6. See id. (noting that claim differentiation is a guide, not a rigid rule).

In sum, we conclude that the proper construction of the "interface means" limitation covers the disclosed structure, which includes the PIA and tape cassette transport, and its equivalents in accordance with § 112, P 6. IMS argues alternatively that, even under this claim construction, the district court erred by finding that, as a matter of law, Haas's floppy disk drive could not be an equivalent to the disclosed tape cassette transport. We shall address this issue infra in connection with our infringement analysis.

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ii. Communications Interface Means

The first question is whether or not the claim element "communications interface means" is a means-plus-function element. Multi-Tech argues § 112, P 6 does not apply because the term "interface" denotes structure. The claimed function for this element is to connect the personal computer to the communications module for transferring data. The claim recites the communications interface as the structure accomplishing this connection. An "interface" is the point at which a connection is made between two elements so that they can work with one another. Lewis Decl. Ex. 6 (Microsoft Press Computer Dictionary 192 (1991)). "In hardware, interfaces are cards, plugs, and other devices that connect pieces of hardware with the computer so that information can be moved from place to place." Id.

Microsoft 5 argues that the term "interface," standing alone, is not a sufficiently definite structure to overcome the presumption that § 112, P 6 applies, relying on IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1430 (Fed. Cir. 2000) (holding that the claim element "interface means for transferring . . . and for recording . . ." was subject to the § 112, P 6 presumption). However, unlike IMS, Multi-Tech directly challenges the means-plus-function status of the claim, and, furthermore, the term "interface" does not stand alone, but is modified. The term "communications interface" identifies a structure sufficient to perform the claimed function. This claim element is not a means-plus-function element requiring interpretation under § 112, P 6; it will be construed under the ordinary rules of claim construction.

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5 For purposes of brevity, it is understood that Net2Phone joins Microsoft in its arguments regarding claim construction in this case. Net2Phone Br. at 1.

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i. Telephone Line Interface Means

The parties dispute whether this claim element is in means-plus-function format. As above, the reference to "telephone line interface" is a specific reference to a type of interface, namely a "telephone line" interface, that identifies a structure sufficient to perform the claimed function of connecting the invention to a telephone line. Therefore, this claim element is not a means-plus-function element requiring interpretation under § 112, P 6, and will be construed under the ordinary rules for claim construction.

"As a general rule, all terms in a patent claim are to be given their plain, ordinary and accustomed meaning to one of ordinary skill in the relevant art." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). A "telephone line" means a standard telephone line, or a POTS (plain old telephone service) line. The specification supports this construction. "Hardware components 20 communicate over a standard telephone line 30 to one of a variety of remote sites. . . . Those skilled in the art will readily recognize the wide variety of communication interconnections possible with the present system by reading and understanding the following detailed description." '289, col. 5: 62-col. 6:11. The telephone line interface means is a physical interface for connecting to a telephone line. "The telephone line interface circuit 309 seizes the telephone line to make the telephone connection." '289, col. 10: 16-18. This distinguishes the telephone line interface from the telephone line itself. Claim 1 indicates that the interface is an element that comprises the "communications module," and therefore must be a part of the module. The specification explains that the invention's functions are "all implemented in the hardware components of FIG. 3." '289, col. 9: 21-23. "A telephone connection is established through the telephone line interface circuit 309 and communication is enabled." Id. at col. 9: 37-39.

Microsoft argues that because incoming information is "received through the telephone line interface circuit 309 and passed to the main controller circuit 313 via data pump DSP circuit 311," the telephone line interface means cannot be a telephone jack alone. Id. at col. 13: 29-32. Microsoft suggests the interface means must be both "a data pump modem and a jack." Microsoft Br. at 32 (emphasis in original). Multi-Tech argues that the telephone line interface circuit 309 is "distinctly separate" from the data pump circuit 311. Multi-Tech Reply Br. at 21. The claim language identifies a "telephone line interface means," which is shown in the specification in Figure 3 to be separate from the data pump DSP circuit 311. '289 FIG. 3. While the data pump modem may work in conjunction with the telephone line interface, the interface itself is distinct from the modem.

i. Telephone Voice Interface Means

The parties also dispute whether this claim element is in means-plus-function format. As explained above, the reference to "telephone voice interface" identifies a structure sufficient to perform the claimed function of receiving local voice signals and conveying remote voice signals. Therefore, this claim element is not a means-plus-function element requiring interpretation under § 112, P 6, and is instead construed under the ordinary rules for claim construction. Claim 1 of the '470 Patent and claim 1 of the '532 Patent require a "voice interface means" that is substantially similar, therefore construction of that element in those Patents should comport with the following analysis.

Like the telephone line interface means, the telephone voice interface means is described in the claim as an element comprising the communications module. It is separate from the computer. Microsoft argues that this preempts the voice interface means from being a speaker and microphone plugged directly into the personal computer, because such an interface is not disclosed in the patent. However, because § 112, P 6 does not apply to this claim element, the type of interface is not limited only to the corresponding structures disclosed in the specification.

The specification identifies that the telephone voice interface means may include a "telephone handset 301, a telephone headset 302, and a hands-free microphone 303 and speaker 304." '289, col. 8: 19-21. The specification makes clear that
these alternatives relate to the preferred embodiment, thus other alternatives are not excluded by the specification language. However, the specification states that any of the listed telephone interfaces "connect to the digital telephone coder-decoder (CODEC) circuit 305," which is an internal component of the communications module. Id. col. 8: 21-24; id. FIG. 3. Likewise, on the receiving end, the CODEC enables the handset, microphone and speaker operation, and "transmits to" the telephone interface directly. Id. at col. 9: 34-37, 51-55. Reading the claim in light of the specification, the telephone voice interface means is not meant to be connected directly to the personal computer, which is instead connected to the serial interface circuit 315. Id. at col. 8: 65-66.

Multi-Tech argues that the claim also covers a microphone and speaker plugged directly into a personal computer, because the claim language does not state any requirement identifying into where the telephone voice interface means must be plugged. However, the claim itself does list the telephone voice interface means as a component part of the communications module. '289, claim 1.

Verizon alleges that "interface switching structures" in claim 21 of the 551 patent is subject to means-plus-function analysis under 35 U.S.C. § 112, P 6. Katz disagrees, reasoning that "interface switching structure" connotes sufficiently definite structure to one of ordinary skill in the art. See Lucantoni 1/15/03 Decl. P 25. Rather, "interface switching structure," Katz contends, means "a device including hardware and associated software that can connect the Katz system to the telephone facility such that information from the telephone facility and remote terminals may be provided to and received by the Katz system, and that can switch or route telephone calls or signals from one location or connection to another." Katz Brief at 81.

The absence of the word "means" shapes the remainder of the analysis, invoking a presumption that "interface switching structure" should not be construed as a means-plus-function element. Mas-Hamilton, 56 F.3d at 1213. The Federal Circuit nevertheless requires an inquiry as to whether the claim language recites sufficiently definite structure or a merely "function to be performed." Id.; CCS Fitness, 288 F.3d at 1369. In addition, recent Federal Circuit case law clarifies that Verizon has the initial burden to come forward with evidence to rebut the presumption. See Apex, supra, 325 F.3d at 1372. Accordingly, Verizon must show that "the limitation, as understood by one of ordinary skill in the art, demonstrates that the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function." Apex, 325 F.3d at 1373.

Verizon alleges that, while the terms "interface structure" or "switching structure" may connote sufficiently definite structure, the term "interface switching structure" has no generally understood meaning in the art and, thus, fails to connote sufficiently definite structure. Verizon Suppl. Brief at 2; Waite 1/14/03 Decl. P 43. Verizon further alleges that the term "interface switching structure" fails to recite sufficient structure for performing the recited function of "receiving called terminal digital data (DNIS) signals automatically provided by the telephone facility to identify the select operating format." See Verizon Brief at 81; Verizon Suppl. Brief at 3; Waite 1/14/03 Decl. PP 35, 43. Verizon also alleges that interpreting the "interface switching means" as a means-plus-function element is consistent with the 551 patent specification, which does not specifically disclose an "interface switch" or the function of interface switching. See Verizon Brief at 82. Furthermore, the structures that most closely correspond to "interface switching," according to Verizon, are two separate structures—namely, interface 20 and switch 21. See also Verizon Suppl. Brief at 3.

The parties have cited a number of technical references defining the terms "interface," "switching" and "switch" to aid the Court's analysis of "interface switching structure." See, e.g., Rooklidge 5/12/03 Decl. Ex. 1; Lucantoni 5/12/03 Decl. Exs. A & B. The 551 patent appears to use the term "switch" and "switching" in a manner consistent with its ordinary meaning in the art. See, e.g., Rooklidge 5/12/03 Decl. Ex. 1 (SWITCH: A mechanical, electrical or electronic device which opens or closes circuits, completes or breaks an electrical path, or selects paths or circuits.). In addition, based on these definitions the term "switching structure," standing alone, appears to have a well understood meaning in the art as a name for structure and therefore connotes "sufficiently definite structure" to avoid application of 35 U.S.C. § 112, P 6. In addition, it appears that the 551 patent uses the term "interface" in a manner consistent with its ordinary meaning. See Lucantoni 5/12/03 Decl. Ex. B ("interface" means "2. A shared boundary between two functional units defined by specific attributes, such as functional characteristics, common physical interconnection characteristics, and signal characteristics. 3. A point of

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communication between two or more processes, persons, or other physical entities."); see also Rooklidge 5/12/03 Decl. Ex. 1 ("INTERFACE: 1. A mechanical or electrical link connecting two or more pieces of equipment together.").

As both parties appear to agree, the term "switching structure" enjoys a well understood meaning as a name for structure to one of ordinary skill in the art. See Lucantoni 5/12/03 Decl. P 3, Ex. A. In addition, "interface," as a qualifying term, does not affect the sufficiency of the recited structure, but "further narrows the scope of those structures covered by the claim and makes them more definite," requiring that the interface switching structure provide a point of communication between the Katz system and the remote terminals connected to the communication facility. Apex, 325 F.3d at 1374. In addition, it appears that the term "interface switching structure" connotes sufficient structure to perform the function of receiving DNIS signals to select an operating format. See Lucantoni 5/12/03 Decl. P 8. In the absence of more compelling evidence, the presumption that "interface switching structure" is not a means-plus-function element stands. Apex, 325 F.3d at 1373; see also CCS Fitness, 288 F.3d at 1370 ("a term need not connote a precise physical structure in order to avoid the ambit of that provision."); See also Rodime, supra, 174 F.3d at 1304; Altiris, 318 F.3d at 1376. Accordingly, "interface switching structure" means a device including hardware and associated software that can connect the Katz system to the telephone facility such that information from the telephone facility and remote terminals may be provided to and received by the Katz system, and that can switch or route telephone calls or signals from one location or connection to another.

i. Definition of "Interactive Review"

As discussed below, I construe "interactive review" as used in claim 11 to mean "review by a human of the results from an initial classification." TriPath defines the term as "subsequent human examination of selected objects within a specimen via interaction with a machine, such as by a series of human commands and associated machine responses." Docket No. 218 at 2. Cytyc proposes no definition, but it insists that the term does not incorporate human classification of a specimen. That question was resolved, it claims, by the Markman Order, which excluded human review from the definition of "classifying the specimen."

A fully-automated system cannot infringe the asserted claims of the Rutenberg '377 patent. For clarity, I should briefly rehearse the conclusions of the Markman order. Although I did not explicitly state it then, I construe claims 11 and 16 to patent a method that must include some further human classification of the specimen. See claims 11(b)(ii); 16(b)(ii) ("further classification by a human"). Nonetheless, I concluded in the Markman hearing that a machine, rather than a human, might perform the final classification in the technology that the '377 patent claims. That conclusion is consistent with the fact that claims 11 and 16 contemplate at least some -- not necessarily final -- human classification.

With this in mind, I will construe "interactive review" as stated in the '377 patent as "review by a human of the results from an initial classification." The word "interactive" in common usage suggests influence or reciprocity between two different entities. See Webster's Third New International Dictionary (1986). Given the language in the claim stating that the method provides for "interactive review . . . including identifying objects . . . for further classification by a human," at least one of the interacting entities should be a human. 24
24 Counsel for TriPath asserted during the summary judgment hearing that "to prove infringement of the claim, you do not have to prove human use." See Tr. at 134 (LaPorte statement). I interpret this statement to mean not that a fully-automated system can infringe claims 11 and 16, but instead that TriPath need prove only that the infringing technology prepare the specimen for some further human classification.

The term "review" denotes an examination. Technically, a review is the examination of something that has already been examined in one form or another. The common usage of the term may sometimes be broader; some portion of the population will often use the term "review" to denote an initial examination. In the context of this claim, however, there is no dispute that the interactive review occurs subsequent to an initial examination by a machine. Thus, I adopt a modified version of TriPath's proposed definition for "interactive review": examination by a human of the results of an initial examination.

Contrary to Cytyc's argument, the definition of "interactive review" is not limited by the claimed steps of claims 11 and 16. Claims 11 and 16 describe methods (including classifying the specimen) that merely "provide" for further interactive review. Claim 11 reads, "A method for providing interactive review of objects in a specimen indicative of the highest likelihood of abnormality. . . comprising . . . obtaining the specimen" and "classifying the specimen." Thus, the definition of "classifying the specimen," which here is only a method of preparing a slide for interactive review, is not relevant to the definition of "interactive review."

ii. "Interactive Review" as Limiting Claim 11

I also construe the term "interactive review," which occurs in the preamble of claim 11, as claim-limiting. A preamble "limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). "Conversely, a preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use of the invention.'" Id. (quoting Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997)).

I concur with Cytyc that "interactive review" is an introductory descriptive term that does not add meaning to the body of claim 11. As stated above, the claimed method only prepares the specimen for interactive review. Ordinarily, where the preamble describes the purpose of the method, as it does here, it is not considered limiting. See Catalina Marketing, 289 F.3d at 809.

There is, however, an exception to the life-and-vitality test when the applicant has explicitly relied upon a feature in the preamble during prosecution to distinguish it from prior art. Id. at 808 ("[C]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention."). TriPath argues that the exception applies here, and I agree.

The evidence shows that the patentee attempted to distinguish his invention from fully automated systems during the prosecution process. See Amendment at 8 (March 14, 1994) (Daniel Decl. Ex. 13, Tab 30). The premise of the '377 invention, as explained by the applicant, is that humans are more adept than machines at visual recognition and classification. Id. at 6. The purpose of the method is not to analyze or categorize a specimen completely, but merely to save the cytotechnologist's time in the overall analysis. Id. Because the claim contemplates some manual review, the applicant described his invention as "semi-automated," specifically making use of the term "interactive." Id. at 7. The applicant claimed that this "interactive" feature of his invention was contrary to the trend of prior art classifiers, which sought to remove the human factor from the classification process altogether. Id.

The applicant relied "clearly and unmistakably" upon the interactive nature of the invention to distinguish it over the prior art. See Catalina Marketing, 289 F.3d at 809. Thus, "interactive review" is a claim limitation, and it must be present in the Tanaka references in order to prove anticipation.
j. "interface ports for interprocessor communication"

The plaintiffs contend that no construction is necessary. Alternatively, if a construction is needed, then the plaintiffs propose "channels through which data can be transferred between two separate processing units." The defendants propose "channels through which data is transferred between two separate processing units." The dispute is whether the interface ports may be used for purposes other than to transfer data.

The defendants argue that the plaintiffs' construction would allow the interface ports to be used for any purpose and render the words "for interprocessor communication" meaningless. The plaintiffs contend that the specification describes interface ports for use other than interprocessor communication. See '148 patent, 9:64-10:12.

One of ordinary skill in the art would understand that interface ports are not limited solely to the transfer of data. The Court construes the term to mean "channels through which data is allowed to be transferred between two separate processing units."

a. "Interface Structure"

The first of these terms the parties wish the Court to construe is "interface structure." The claim limitations in which this term appears read "an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication." In some of the claims, the limitation goes on to provide that the interface structure includes "means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals." Other claims contain limitations which further provide that the interface structure includes means "for receiving said calling number identification data." 9

--- Footnotes ---

7 The term "interface structure" appears in the following claims under consideration at the Markman hearing: Claim 51 of the '309 patent, Claims 33, 104, 117 and 192 of the '707 patent, and Claims 49, 50, 65, and 171 of the '863 patent.

8 Claims which include this or similar language are Claims 51 of the '309 patent, Claims 104 and 117 of the '707 patent, and Claims 49, 65, and 171 of the '863 patent.

9 Claims which include this or similar language are Claims 104, 117, and 192 of the '707 patent and Claims 49, 65, and 171 of the '863 patent.

--- End Footnotes ---

The dispute between the plaintiffs and the defendants centers around whether "interface structure" is subject to means-plus-function analysis under 35 U.S.C. § 112, P 6. The plaintiffs maintain that the term does not implicate 35 U.S.C. § 112, P 6 and should be construed to mean "a hardware device with associated software that establishes an interactive connection between a caller's telephone and a computer system." (Pls.' Brief at 50). The plaintiffs argue that under Personalized Media Communications, LLC v. International Trade Commission, 161 F.3d 696, 704-705 (Fed. Cir. 1998), a term that is defined in terms of its function or that does not bring to mind one well-defined structure is not necessarily subject to means-plus-function analysis. In Personalized Media, the Court of Appeals for the Federal Circuit held that the term "digital detector" was not subject to means-plus-function analysis because it conveyed to one of ordinary skill in the art "a variety of structures known as detectors." Id. at 705. The plaintiffs argue that the term "interface structure" is akin to "digital detector" in that it is a sufficient recitation of structure so as to avoid the application of means-plus-function analysis. The plaintiffs argue that a specific set of structures corresponding to "interface structure" was known to those of ordinary skill in the art at
the time of the prosecution of the Katz patents.

The defendants argue that the term "interface structure" is written in functional language, fails to sufficiently connote structure to those of ordinary skill in the art, and as such, it subject to analysis under 35 U.S.C. § 112, P 6. The defendants contend that Katz simply used the term "structure" instead of "means" to attempt to avoid the application of 35 U.S.C. § 112 P 6. The defendants maintain that "interface structure" is a generic term which does not inform a person of ordinary skill in the art what structure is being conveyed by the term.

Because the term "interface structure" is not drafted in "means for" form, the Court presumes that it is not subject to the requirements of 35 U.S.C. § 112 P 6. See Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1998). The critical factor in determining whether a term in a limitation which does not invoke "means for" language is subject to means-plus-function analysis despite the presumption to the contrary is whether the term brings to mind a set of structures to those of ordinary skill in the art, and not whether the term is written in functional language. See Personalized Media, 161 F.3d at 704-705. To determine whether this term would connote sufficient structure to those of ordinary skill in the art, this Court must refer to references in the computer telephony field contemporary with the prosecution of the Katz patents. See Greenberg, 91 F.3d at 1583 (consulting dictionaries to determine that the term "detent" denoted a device generally understood to those in the mechanical arts).

In an article in the AT&T Technical Journal regarding the Conversant 1 Voice System, 10 "trunk interface units" are described as connecting incoming trunks from a central office in the telephone network, and "line interface units" are described as initiating or receiving calls over ordinary telephone lines. (Ex. 366). In an 1985 article entitled "The AT&T Multi-Mode Voice Systems-Full Spectrum Solutions for Speech Processing Applications," the authors refer to "telephone interface units (either line or trunk circuits)" as being a component of a basic system for speech processing applications using the telephone network and centralized databases. (Ex. 358). Other references in the record indicate that "interface structure" connoted structure to those of ordinary skill in the art: Exhibit 355, an article regarding Periphonics Voicepac, describes a particular brand of device used as an interface; Exhibit 405, a 1986 article on the Conversant 1 Voice System, discusses the function of line and trunk interfaces; Exhibit 250, the 4,866,756 patent to Crane et al., incorporates a "telephone interface component" to transmit audio response signals; and Exhibit 235, the 4,797,911 patent to Szlam et al., incorporates "trunk interface units" into its customer account online servicing system.

10 The date of this article is unclear in the record, but there is some indication in the article that the manuscript was revised in 1986.

One technical dictionary cited by the plaintiffs was helpful in assisting the Court determine what "interface structure" meant to those in the art. In the Dictionary of Computing and New Information Technology by A.J. Meadows, et al. (1982), the term "interface" is defined as being "used as a general term to describe the connecting link between the two systems. Most frequently refers to the hardware and software required to couple together two processing elements in a computer system." (Ex. 481).

While the testimony of the experts at the Markman hearing is not as weighty as prior art and technical references in determining the state of the art at the time of the prosecution of the Katz patents, it is consistent with the above references in indicating that "interface structure" had meaning and brought to mind a set of structures to those in the field. See Morganstein Testimony, Transcript Volume 1 at 173, line 24 to 176, line 2 (testifying that the term "interface structure" would have had meaning to a person of ordinary skill in the art who had read the Katz patents and would have brought to mind a range of structures such a person could have used to build the Katz inventions); Larky Testimony, Transcript Volume 3 at 64 lines 12-15 (testifying that he recognized that the term "interface structure" referred to "some physical structure" but not a specific structure).

Based on the above references and expert testimony, the Court concludes that although the term "interface structure" is written in functional language, the limitation sufficiently connotes structure such that 35 U.S.C. § 112, P 6 does not apply. That is, I conclude that, based on the cited prior art, references, and testimony of the experts at the Markman hearing, the
term "interface structure" would have called to mind a specific set of structures to a person of ordinary skill in the art such that such a person would be able to build the Katz inventions.

Having concluded that the term "interface structure" is not subject to 35 U.S.C. § 112, ¶ 6, the Court must construe the meaning of the term according to the regular rules for claim construction. The meaning of "interface structure" to those of ordinary skill in the art at the time has been discussed above. In addition, in Column 4, line 52 to Column 5 line 15 of the '707 patent, Katz discusses the function and components of the interface structure and states that "the interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability" and that the "interface 20 provides the connection of the first lines to a switch 21 which are in turn coupled to first function units, or processors PR1 to PRn." This description of the interface in the specification is consistent with the ordinary meaning of the term "interface structure" to those of skill in the art. Based on the foregoing, I construe the term "interface structure" in the Katz patents to mean "the hardware and software required to connect the processors upon which the Katz system is running to the communication facility such that information from the communication facility and the remote terminals may be provided to and received by the Katz system." For the claims listed in footnote 8, supra, the Court construes the term "interface structure" to also include the means to perform the specific function of providing caller data signals representative of data developed at the remote terminals. For the claims listed in footnote 9, supra, the Court construes the term "interface structure" to also include the means to perform the specific function of receiving calling number identification data.

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9. Interface/Interface Switch: A device or system, which includes a processor, that transmits electronic mail messages to a wireless system for delivery to a mobile processor.

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B. "First interface to the computer system"

Claim 1 of the '025 patent states in part: "A computer system for creating and publishing customized electronic advertisements, for a seller, to internet media venues owned or controlled by other than the seller, comprising: a first interface to the computer system through which each of the internet media venues is prompted to input presentation rules for the internet media venue for displaying electronic advertisements on the internet media venue." (emphasis added). FM contends that "first interface to the computer system" means "software that enables the internet media venue user to interact with the computer system." In contrast, Google argues that this term means "software or hardware at the internet media venue location that enables a person working on behalf of the internet media venue to interact with the computer system." The primary differences between FM's and Google's proposed definitions are the location of the interface and the inclusion of hardware.

Google's proposal requires the first interface to be physically located at the internet media venue location. Google points to several passages in the specification that describe the internet media venues installing software on their local computers to implement the first interface. [See, e.g., '025 Patent, 54:63-67 ("[The entity operating the invention] sends [the internet media venue] the necessary software to be installed on their computer. A computer operator at [the internet media venue] installs the software on their computer that is then configured as Media Interface ["])]. These specification passages cited by Google refer to the preferred embodiment of the invention. Claims should not be limited to the scope of the preferred embodiments of an invention. Phillips, 415 F.3d at 1323. Unlike the specification's description of the preferred embodiment, the plain language of the claim does not require that the interface be physically located at any particular computer. Thus, the court will not impose a location requirement.

Google also contends that the interface consists of "software or hardware." Although the specification includes text and figures describing the interface as having both software and hardware, [see, e.g., '025 Patent, Fig. 2e & 31:48-57], the court agrees with FM that the invention is a software invention, and the hardware illustrates the intended operating environment for the software. Because the intrinsic evidence does not clearly specify whether the claimed interface must contain
hardware, reference to extrinsic evidence is helpful. Computer dictionaries published around the time the first FM patent was filed define "interface" as including software only. See Microsoft Press, Microsoft Computer Dictionary 241 (4th ed. 1999) (defining "interface" as "software that enables a program to work with the user . . . , with another program . . . , or with the computer's hardware"). This extrinsic evidence thus indicates that persons of ordinary skill in the art would not regard the term "interface" as requiring hardware. When read as a whole, the patent discloses a software invention. Although hardware is necessarily required to operate the software, there is no indication that the inventors intended to claim hardware. Therefore, the court construes this claim to mean "software that enables the internet media venue user to interact with the computer system."

C. "Second interface to the computer system"

Claim 1 of the '025 patent states in part: "A computer system for creating and publishing customized electronic advertisements, for a seller, to internet media venues owned or controlled by other than the seller, comprising: . . . a second interface to the computer system through which a seller is prompted to input information to select one or more of the internet media venues and prompted to input information to create an electronic advertisement for publication to the selected internet media venues." (emphasis added). FM contends that "second interface to the computer system" means "software that enables the seller user to interact with the computer system through which the seller user is prompted to enter information to select one or more internet media venues." In contrast, Google argues that this term means "software or hardware at the seller location through which the seller is prompted to enter information to the computer system to enable the seller to select one or more internet media venues."

The arguments regarding the location and hardware requirements for the first interface, discussed in Section B, apply with equal force to this second term. In addition, Google contends that prosecution history estoppel requires this second interface to be at the seller's location. Google quotes a portion of the patentee's response to a claim rejection: "What is not common in the art are open-access presentations that are created and published from data input into a remote program at a Sellers [sic] location." [025 Prosecution History, Amend. dated Jan. 10, 2000, at 10] (emphasis added). The next sentence, however, distinguishes the claimed invention from the prior art based upon the lack of a code editor, not through location: "The creation of multiple open-access presentations being done without the Seller making the changes within a code editor is new to the art . . . ." Id. (emphasis added). This prosecution history does not show a clear disavowal of all locations other than the seller's location. See Cordis Corp. v. Boston Scientific Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009) ("A disclaimer must be 'clear and unmistakable,' and unclear prosecution history cannot be used to limit claims.").

Google also contends that the claim language requires the seller to select particular Internet websites as media venues. Google relies heavily on statements made during prosecution, particularly in the re-examination proceedings. The court rejects this construction. Claim 1 requires the seller "to input information to select one or more of the internet media venues." By contrast, claim 24 requires "the computer system of claim 20, wherein the selection information includes identification of individual internet media venues." And claim 20 requires that "the selection information input by the seller targets one or more internet media venues." (emphasis added). These dependent claims require the seller to input information more specific than what claim 1 requires. The statements in the re-examination, particularly those related to the Aaddzz reference, indicate that the seller had no ability to select the internet media venues. For example, the patentee argues, "Aaddzz will figure out the best pages, not just sites, for your ad. Aaddzz will use ad performance data . . . to statistically determine the best pages." [045 Re-exam Response, dated Dec. 23, 2008, at 28 (quoting Aaddzz Highlights reference)]. The court has also reviewed the patentee's statements concerning the Mason and Brown references. These statements do not amount to a disavowal of claim scope to the extent that Google's limitation is appropriate.

As such, the court defines the term "second interface" to mean "software that enables the seller user to interact with the computer system through which the seller user is prompted to enter information to select one or more internet media venues."
F. "interfacing"

The Patents state, "a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and a second connecting device for interfacing the interface device with the data transmit/receive device . . . ." '399 Patent, col.12:51-55; '449 Patent, col. 11:54-58. Papst suggests that "interfacing" refers to "establishing communication with the computer," i.e., electronic data communication and not physical connection. Papst's App. at 3; see also Tr. 1:158-59 (Papst). The Camera Manufacturers insist that "interfacing" means "physically connecting." CMs' Slides at 69.

Papst proposes the better construction. "Interfacing" means establishing communication or enabling communication between two devices. Figure 2, the preferred embodiment of the invention, shows a 10MB/s SCSI interface chip. See '399 Patent, Sheet 2; '449 Patent, Sheet 2. The chip does the work of interfacing with the host computer, while the 50-pin connector to which it is attached does the job of connecting. 14

14 See discussion of the term "connecting device" below.

The Camera Manufacturers object to Papst's proposed construction by pointing out that "interfacing" is what the first and second connecting devices do, while communicating is what the command interpreters do. The Court does not disagree. But the Court does not interpret "interfacing" as communicating. "Interfacing" means making communication possible. "[I]nterfacing isn't really about the physical connections, it's about establishing the communication and in getting information across the boundary." Tr. 1:166 (Papst). Interfacing "is getting the right electrical signals in the right order with the right voltages with the right timing." Tr. 2:13 (Papst). Accordingly, the Court construes "interfacing" as used in the Patent Claims as meaning "establishing communication with."

2. "interface" Terms

All of the asserted claims contain limitations relating to "interfacing" the binary true random sequence of signals to a general purpose computer.

There are three central disputes regarding the construction of the above terms. First, the defendants argue that the "interfacing" phrases require "directly conveying . . . itself to the data bus." The defendants argue that such limitation conveys to the fact finder the idea that the claims describe conveying the same true random sequence referred to earlier in the claim to the data bus, not a physical connection. Quantum argues that it improperly implies that any connection must be physically and directly to the data bus. The imposition of the limitation, "directly" on every instance of interfacing would improperly limit the scope of the claim language.

Turning to the "data bus" limitation, the defendants cite to the specification and the prosecution history for support. As argued by the defendants, the heart of the present invention is providing a computer the ability to access and use binary true random sequences when applications or hardware require it. See '242 Patent, Background of the Invention. This is
accomplished via the interface between the RNG and the computer. In order for the computer to utilize such sequences, they
must be readily available, as on the "data bus." However, a "data bus" is not the only type of bus utilized by a computer to
transfer data; for example, computers may also use various other types of buses. Thus, one of ordinary skill in the art in
2002 would understand that the sequence is conveyed to a bus in the computer for use by the computer. See '242 Patent, col.
20, ll. 1-3; col. 8, ll. 47-50; col. 24, ll. 57-58; see also Ex. 17 to Defs.' Claim Construction Brief at A-1 (stating, "[f]or
every example, every computer requires a bus that transmits data from one part of the computer to another").

The second disputed issue regards the defendants' imposition of "hardware and software" as a limitation to the phrases using
interface as a noun. The claims and embodiments in the specification suggest that an interface may be software, firmware,
or hardware. See '242 Patent, cl. 5 (stating, "an interface selected from the group consisting of a device driver, a portion of
the operating system of said general-purpose computer, a portion of a Windows TM operating system, a program stored in
the bios memory of said general-purpose computer, a program in firmware, and a TSR program."); col. 20, ll. 24-28; col. 20,
l. 3 (describing a connection using a parallel port connecting cable); col. 24, ll. 23-33; col. 24, ll. 55-58 (describing a
connection using "connector 510").

Finally, the parties dispute the inclusion of a use limitation. The court cannot find sufficient support in either the claims or
the specification to warrant requiring a particular use for the true random binary sequences. Notwithstanding the lack of
support, the term suggested, "user program," is undefined and ambiguous. While "user programs" may supply the majority
of the demand for the sequences, there is no such support for requiring such limitation in the context of the intrinsic
evidence.

The court defines "interfacing said binary true random sequence of signals to a general purpose personal computer" and
"interfacing said binary true random sequence of signals to a computer" as follows: "directly or indirectly conveying the
binary true random sequence of signals to a bus in a general purpose computer."

The court defines "interface for applying said binary true random sequence of signals to said general-purpose computer" and
"true random number generator circuit interface" as follows: "software, firmware, and/or hardware to directly or indirectly
convey the binary true random sequence of signals to a bus in a general purpose personal computer."

2. "first inter-layer insulating film" and "second inter-layer insulating film"

Because the underlying issues for these two terms are interrelated, the court construes them together. The principal dispute
between the parties is whether these two "inter-layers" are parts of the same "insulating film" at issue in the previously-
construed term. Toshiba argues, based on the claim language, "[b]ecause the bit line contact hole is made in the 'insulating
film covering the surface of said substrate on which the MOSFET is formed,' and because that same bit line contact hole
consists of first and second contact holes that are made in first and second inter-layer insulating films, the 'insulating film
covering the surface of said substrate on which the MOSFET is formed' must be comprised of the first and second inter-
layer insulating films." Toshiba Br at 7. Accordingly, Toshiba proposes that "first inter-layer insulating film" should be
construed as "that portion of the insulating film which covers a portion of the surface of a substrate on which the MOSFET
is formed" and that "second inter-layer insulating film" should receive the same construction with the word "that" replaced
by "another." Jt Cl Const, Ex A at 13, 16.

Toshiba's proposed constructions, however, do not follow inexorably from the claim language. Merely because the claim
recites "the bit line contact hole [is] made in an insulating film" does not preclude the bit line contact hole from additionally
including "a first contact hole made in a first inter-layer insulating film" and "a second contact hole made in a second inter-
layer insulating film." In other words, the claim could readily be interpreted, as Hynix contends, as requiring the contact
holes to pass through three different insulating films: the "insulating film which covers a portion of the surface of a
substrate," the "first inter-layer insulating film" and the "second inter-layer insulating film." Such a construction is correct
for at least three reasons.

First, the claim itself suggests that the inter-layer insulating films are separate from the previously recited insulating film
because the claim uses the indefinite article "a" before mentioning the inter-layer films. '579 patent at claim 1 ("said storage
Second, it would seem anomalous to conclude that the "inter-layer insulating films" are necessarily part of the same "insulating film" given that Toshiba concedes that the two inter-layers are separate films and are deposited at different times, Toshiba Rep at 3, and at least one embodiment in the specification describes the films as separate and distinct from one another. See FIG 1(b) (separate inter-layer insulating films 13 and 23). Moreover, construing the "inter-layer insulating films" as part of the "insulating film" would either render superfluous the "inter-layer" limitation or would create an incoherent situation in which a unitary "insulating film" is somehow composed of discontinuous parts.

Finally, the specification consistently describes embodiments in which a film comprising silicon oxide, a well-known insulator, is deposited on the source and drain regions of the substrate surface and is subsequently removed via etching to create storage node contact holes and bit line contact holes. See '579 patent at 7:28-39, 9:54-60, 10:31-36, 13:21-27, 14:5-10, 19:56-60, 20:32-37. Compare FIGS 3(b), 12(b), 21(b) and 46(b) with FIGS 4(b), 16(b), 25(b) and 50(b), respectively (silicon oxide film 9 is removed to form a first storage node contact hole 14 and a first bit line contact hole 15). This insulating film is deposited separately from the inter-layer insulating films, which the specification consistently describes as being deposited later. E.g, id at 7:28-33 ("[A] silicon oxide film 9 of about 20 nm thickness is formed on the thus obtained substrate by the thermal oxidation method and then a silicon oxide film 13 as an inter-layer insulating film is deposited on the entire substrate by the CVD method."). The presence of this separate silicon oxide film strongly suggests that the "insulating film" through which the contact holes pass is separate from the "inter-layer insulating films."

Accordingly, the court adopts Hynix's proposed constructions, thereby construing "first inter-layer insulating film" as "a first insulating film that is located between layers and that is separate from and not a part of an insulating film covering the surface of said substrate on which the MOSFET is formed" and construing "second inter-layer insulating film" the same way but with "second" replacing "first."

2312

1. Construction of "Second Interlayer Dielectric Film"

The claims of the patent contain no express limitation on "second interlayer dielectric film." CMO nonetheless claims that the specification indicates that the second interlayer dielectric film must have a planarized surface, and if the term cannot be so construed then the patent must be deemed invalid for lack of enablement and inadequate written description.

The abstract states that the claimed contact structure "assure[s] a uniform cell gap among different cells if the interlayer dielectric film thickness is nonuniform across the cell or among different cells." 480 Pat. Abstract. The abstract further states that "[t]he cell gap depends only on the size of the spacers, which maintain the cell gap." Id. From the outset, therefore, the patent explicitly contemplates variations in interlayer dielectric film thickness not only among different cells but within the same cell.

Reviewing the specification, the uniformity of the "cell gap"--the space between the substrates--and its relation to the nonuniformity of the interlayer dielectric film features prominently in the description of the relevant prior art, the summary of the invention, and the description of the invention. The relevant passages are analyzed below.

The description of the related art states that "[i]t is common practice to use standardized spacers as the insulating spacers," such that the cell gap in the pixel region will be "substantially uniform" so long as the spacers have a uniform diameter. Id. col. 2 ll. 38-42. The patent draws a distinction between the cell gap in the pixel region ("Gp") and the cell gap in the common contact region ("Gc"), stating that while substantial uniformity in the pixel region can be attained using spacers of uniform diameter, it is difficult to avoid nonuniformity in the common contact region cell gap. Id. col. 2 ll. 42-44. The patent states that, while the Gp cell gap is determined by the diameter of the spacers, "the cell gap Gc in the common contact portion depends only on the film thickness t of the interlayer dielectric film." Id. col. 2 ll. 45-49. As the patent explains: "Consequently, to make the cell gap Gc uniform among liquid-crystal cells, it is necessary that the film thickness t of this interlayer dielectric film 18 be uniform among cells. However, this is impossible to circumvent." Id. col. 2 ll. 49-53. This latter sentence apparently refers to the lack of uniformity which seemed to plague the prior art.
The relevant art description goes on to explain that the thickness of the interlayer dielectric film "may differ from location to location on the same substrate. In this case, the film thickness t may differ among different common contacts even on the same substrate." Id. col 2 ll. 55-69. This variation in thickness creates nonuniformity both in the pixel cell gap Gp and the common contact cell gap Gc. Id. col. 2 ll. 60-65. This nonuniformity in the cell gap is later identified as a "problem" that prevents a display from being provided because it is impossible to properly connect the counter electrode. Id. col. 3 ll. 3-18.

Given the problem of nonuniformity in the prior art, the stated object of the invention is "to provide a contact structure which is free of the foregoing problems, provides less nonuniform cell gap among different cells if the thickness of the interlayer dielectric film is nonuniform across the cell or among different cells, and reduces poor electrical contacts which would normally be caused by conducting spacers." Id. col. 3 ll. 22-28.

Turning to the primary example given in the written description ("Example 1"), the description addresses the second interlayer dielectric film as follows: "The organic resinous material acts to planarize the surface of the second interlayer dielectric film 319. This is important to make the cell gap uniform. In the present example, polymide was deposited as the second interlayer dielectric film 319 to a thickness of 1 [mu]m." Id. col. 10 ll. 19-23. After the second interlayer dielectric film is planarized, contact holes are formed in the second interlayer dielectric film to provide access to the drain electrode and internal conducting lines. Id. col. 10 ll. 24-27. After the holes are formed, a "thin metal film which would later be made into pixel electrodes 322 and a conducting pad 323" are formed. Id. col. 10 ll. 50-51. Judging from the drawings, the conducting pad is formed on top of the second interlayer dielectric film and the internal conducting lines after the contact holes are created. The contact holes appear to be created only in the common contact portion--the pixel portion remains intact and thus planarized.

After this structure is created, and after some additional steps are performed preparing the substrates to be joined, the cell gap is created as follows. Non-conducting (insulating) spacers with a diameter of 3 gm are applied to the pixel region. Id. col. 11 ll. 47-49. Additionally, conducting spacers with a diameter of 3.5 gm are applied to the common contact region. Id. col. 11 l. 49. When the two surfaces are clamped together creating a cell gap of 3 gm, the conducting spacers are crushed, creating a larger surface in contact with the electrodes and conducting pads, leading to a better electrical connection. Id. col. 11 ll. 53-59. So long as the conducting spacers are greater than 3 [mu]m, they are able to be compressed to conform with the cell gap created by the insulating spacers. Discussing the planarity, the patent elsewhere states that "it is important to flatten the surface of the second interlayer dielectric film 319 on which the pixel electrodes 322 are formed in order to make uniform the cell gap." Id. col. 12 ll. 3-7. The patent goes on to describe a particular process for planarizing the second interlayer dielectric film in the pixel region.

This detailed discussion, and the comments regarding the importance of a flat second interlayer dielectric film, appear in the description of "Example 1." The patent provides two additional examples, neither of which discusses the second interlayer dielectric film in any meaningful way. The second example is "a modification of the common contact portions of Example 1," in which the electrical resistance of the counter electrode and conducting spacers is reduced, and contains no mention of the cell gap. Id. col 12 ll. 58-64. The third example is "a modification of Example 2," adding openings to the connecting pad at various places so that the conducting spacers can be visually checked. Id. col. 13 ll. 25-36. The third example provides guidance as to the spacing and size of the openings in order to maintain the cell gap. Id. col. 13 ll. 46-51. The patent goes on to state that "[i]n Examples 2 and 3, the cell gap in the common contact portions is made uniform," without elaborating on how the cell gap would be made uniform without planarizing the second interlayer dielectric film of the pixel region. Id. col. 13 ll. 36-64.

The written description concludes with this curious passage:

The common contact structure in accordance with the present invention can eliminate variations of the cell gap among liquid-crystal cells even if the film thickness varies among interlayer dielectric films. Also, poor contacts due to conducting spacers can be reduced.

In particular, in accordance with the present invention, the cell gap depends only on the size of conducting spacers. Therefore, where the conducting spacers are uniform in size, the cell gap between opposite substrates or plates can be made uniform among different liquid-crystal cells, if the thickness of the dielectric film electrically insulating the first and second conducting films is different among different liquid-crystal cells.
Id. col. 14 ll. 13-26 (emphasis added). This passage is odd in that the specification explicitly discloses conductive spacers of varying diameters which are crushed to conform to the cell gap created by insulating spacers. Furthermore, even if the conducting spacers are of uniform diameter, they could only maintain a uniform cell gap if the common contact region is planar. And yet, the patent explicitly contemplates variations in the thickness of the interlayer dielectric films.

SEL’s explanation for this apparent inconsistency is that, in the described embodiment, the second interlayer dielectric film need only be planarized in the pixel region. The 3-[mu]m insulating spacers are applied to the pixel region, where the second interlayer dielectric film is uniform. The 3.5-gm conducting spacers are applied to the common contact portion, and are crushed when the electrode is formed, conforming to the 3-[mu]m cell gap created by the insulating spacers. Because the cell gap is defined by the 3-[mu]m spacers applied to a uniform second interlayer dielectric film, any nonuniformities in the second interlayer dielectric film in the common contact portion will be corrected by the compressibility of the conducting spacers. This is consistent with the passage regarding planarity, which states that "it is important to flatten the surface of the second interlayer dielectric film 319 on which the pixel electrodes 322 are formed in order to make uniform the cell gap." Id. col. 12 ll. 3-7. In the drawings, "322" indicates the region where the insulating spacers (402), not the conducting spacers (401), are located. Id. Fig. 6.

Accordingly, the second paragraph quoted above is inaccurate. Accepting SEL’s explanation, which is borne out by the patent, the cell gap is still tied to the insulating spacers. It is explicitly not tied to the conducting spacers, which must be larger than the intended cell gap in order for the patented invention to function properly. The court need not dwell on this error, however. It is sufficient to hold that the asserted claims of the ’480 Patent cover nonuniform second interlayer dielectric films in the common contact portion of the matrix. 2

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2 CMO's citations to Shunpei Yamazaki's deposition testimony do not change this result. Yamazaki testified at length about planarization, but nothing in his testimony indicates that the common contact region must be planarized for the surface to be effective.

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2313

Intamin sued Magnetar alleging that the Soft Stop brakes infringe claim 1 of the ’350 patent. Claim 1 of the ’350 patent reads:

A braking device for use with an amusement apparatus having a fixed device part, at least one running rail secured to the fixed device part, and a movable device part including at least one traveling gear configured for movement along the at least one running rail, the braking device comprising:

an eddy current brake assembly including:

a conducting part having at least one conductive rail configured for attachment to the fixed device part, said at least one conductive rail being adapted to extend the length of the fixed device part;

an energizing portion having at least one yoke aligned in correspondence with each said at least one conductive rails, each said yokes including a pair of yoke arms for receiving said at least one conductive rail there between;

at least one pair of carrying rails extending a predetermined distance along the direction of said at least one conductive rail, each said carrying rails being mounted on corresponding yoke arms of said plurality of yokes;

a plurality of magnet elements mounted on each of said carrying rails with alternating polarities, said plurality of magnet elements being further arranged such that the poles of magnet elements mounted on one carrying rail have opposite polarities from the poles of magnet elements mounted on a corresponding carrying rail of said at least one pair of carrying rails; and
an intermediary disposed between adjacent pairs of said plurality of magnet elements;

wherein:

an interferric gap is defined between each said yoke arms and the at least one conductive rail, and

movement of the movable device part, relative in the fixed device part, induces eddy currents that create a magnetic brake force between said conducting part and said energizing part.

'S50 patent col.8 ll.29-65.

Seeking summary judgment of non-infringement, Magnetar asserted that its brakes did not infringe this claim because they did not include an "intermediary," because they were not "attached to the fixed device part," and because they did not include a "conductive rail" "adapted to extend the length of the fixed device part." The district court agreed that Magnetar's brakes did not contain an intermediary. Intamin,Ltd. v. Magnetar Techs. Corp., SA CV 04-511-GLT, slip op. at 7 (C.D. Cal. Jan. 25, 2005) (Initial Decision). The district court further found that Magnetar's brakes could not infringe, either literally or under the doctrine of equivalents, the limitation requiring attachment to the fixed device part. Id. at 8-10. Finally, the district court also determined that Magnetar's Soft Stop brakes did not infringe literally a limitation requiring the conductive rail to "extend the length of the fixed device part." Id. at 10-12. The district court opined that Magnetar's Soft Stop brakes may infringe this limitation under the doctrine of equivalents but did not reach that issue because the absence of other limitations already showed that Magnetar's brakes did not infringe the '350 patent. Id. at 12-13. Thus the district court granted summary judgment of non-infringement. Id.

Magnetar also alleged that Intamin's complaint violated Rule 11(b). Magnetar argued that Intamin filed its complaint as retaliation for Magnetar's president's public criticism of Intamin's brakes. Magnetar also argued that Intamin's complaint was frivolous. Intamin responded that its law suit was not retaliatory and was adequately supported by pre-filing investigations. Initially, the district court granted Rule 11 sanctions. Id. at 13-16. Upon reconsideration, the district court affirmed its finding that Intamin filed the complaint for an improper purpose but vacated its decision that Intamin's pre-filing investigation was frivolous. Intamin, Ltd. v. Magnetar Techs. Corp., SA CV 04-511-GLT, slip op. at 6-7 (C.D. Cal. Mar. 11, 2005) (Reconsideration Decision). Magnetar then moved for attorneys' fees. Intamin, Ltd. v. Magnetar Techs. Corp., SA CV 04-511-GLT, slip op. at 2 (C.D. Cal. Apr. 25, 2005) (Fee Decision). In opposition to Magnetar's motion for attorneys' fees, Intamin argued that, under Ninth Circuit law, a meritorious (non-frivolous) complaint cannot have an improper purpose. Id. As such, Intamin argued that the district court could no longer award sanctions. Id. The district court agreed and vacated its sanctions. Id. at 2-3.

As noted, the district court found on summary judgment that Magnetar's accused brake system did not infringe Intamin's patent. Initial Decision, slip op. at 7. Intamin petitioned for reconsideration of the court's finding of non-infringement. The district court affirmed its finding of non-infringement. Reconsideration Decision, slip op. at 8. Intamin appeals the district court's grant of summary judgment of non-infringement. Magnetar cross-appeals the district court's decision to vacate the Rule 11 sanctions.

II

This court reviews a grant of summary judgment without deference. Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309, 1315 (Fed. Cir. 1998). On appeal, the parties dispute the district court's construction of the claim limitation requiring "an intermediary disposed between adjacent pairs of said plurality of magnets." The parties also dispute the district court's claim construction of a second limitation found in claim 1 of the '350 patent: "said at least one conductive rail being adapted to extend the length of the fixed device part." Like summary judgment itself, this court reviews claim construction without deference. Cybor Corp. v. FAS Techs. Inc., 138 F.3d 1448, 1456 (Fed.Cir. 1998) (en banc).

Regarding the limitation requiring an "intermediary," the dispute rests on whether the intermediary between adjacent pairs of magnets can itself be a magnet. The use of the word "said" in a claim refers to an earlier use of the term in the claim. See Bell Communications Research v. Vitalink Communications Corp., 55 F.3d 615, 621 (Fed. Cir. 1995). Here, the claim proceeds from the following definition: "a plurality of magnet elements mounted on each of said carrying rails with
alternating polarities, said plurality of magnet elements being further arranged such that the poles of magnet elements mounted on one carrying rail have opposite polarities from the poles of magnetic elements mounted on a corresponding carrying rail of said at least one pair of carrying rails." '350 patent col.8 ll.49-55. Thus, according to claim 1, the magnets surrounding the intermediary have at least "alternating" polarities.

Intamin argues that adjacent pairs of magnets with alternating polarities must mean two magnets on the same rail with opposite polarity, as shown in Figure 6 of the '350 patent. Thus, according to Intamin, anything between the magnets of opposite polarity is an intermediary, whether magnetic or not. Magnetar argues that "adjacent pairs of magnets" means any two magnets next to each other or abutting each other on the rail, as shown in Figure 6. Further, according to Magnetar, the term "alternating" does not require that such magnets have opposite polarity as shown in Figure 6. Thus, because adjacent magnets are any two magnets abutting each other on a single rail, Magnetar argues that another magnet cannot be an intermediary. Under its interpretation, Magnetar's Soft Stop brakes would not infringe claim 1 because they lack an intermediary.

The district court construed the term "intermediary" without determining the meaning of "adjacent magnets with alternating polarities." The parties disagree therefore about the meaning the district court actually gave to the term "intermediary." Intamin argues that the district court determined that the intermediary could not be magnetic, thus precluding infringement. Magnetar disagrees that the district court made such a determination.

In any event, the parties agree that this court cannot interpret "intermediary" without addressing the polarities of the adjacent magnets. Specifically, an intermediary cannot be another magnet if this court construes "adjacent pairs of magnets" as two magnets abutting each other with polarities that alternate at some degree such as found in a Halbach array. In other words, an intermediary can only be a magnet if the limitation "alternating polarities" means "opposite polarities." Under that interpretation, some magnets become "adjacent pairs" and other magnets in between become "intermediaries." In addition, "adjacent pairs of magnets" with opposite polarities, as in Figure 6, would need some separation. 1 Intamin argues that another magnet can provide this separation.

--- Footnotes ---

1 At oral argument, Intamin's counsel, in response to a question regarding the meaning of and the necessity for an "intermediary," stated that "the intermediary serves the purpose to provide spacing and support for the magnets of the magnet elements which are the magnets of alternating polarity [because] for physics reasons there has to be spacing between those two magnets of alternating polarities and also the magnets are so strong that if there in not something in between they tend to spin into a new location." Thus, whether another magnet can be an intermediary may depend on whether it can serve as a spacing and support element. Arguably, none of Magnetar's magnets are used as spacing and support elements; rather, all are necessary to create the one-sided flux of the Halbach array.

--- End Footnotes ---

The district court adopted Magnetar's proposed claim construction: "In short, ordinary meaning supports Defendant's construction, and neither the specification nor the prosecution history changes the ordinary meaning." Initial Decision, slip op. at 4. On its face, the district court construed the term "intermediary" to mean "a member between others." Id. at 3-4. In reaching that conclusion, the district court dismissed Intamin's proposed claim construction that the intermediary can be a magnet between two other magnets. Id. In fact, the trial court specifically points to language in the patent that the intermediary is non-magnetic. Id. Thus, the district court apparently construed the term "intermediary" to mean something non-magnetic between the adjacent magnets.

The first step in an infringement analysis is the determination of the scope of the claims. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). This court construes claims according to the principles set forth by this court in Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc). As such, the court consults primarily the claims themselves in context, with much of that context supplied by the specification and the prosecution history. Id. at 1312.

In this case, the claim language itself does not require a non-magnetic "intermediary." Just as in the Phillips case itself, the claim uses a broad term with an understandable meaning. As the district court noted, the term "intermediary" standing alone
means a "member between others." Initial Decision, slip op. 4. This term takes on additional meaning, however, in the context of magnetized members. The context of the rest of the patent helps show that additional meaning, namely whether the intermediary may be magnetic.

In Phillips, this court noted that dependent claims can supply additional context for construing the scope of the independent claims associated with those dependent claims. 415 F.3d at 1314. An independent claim impliedly embraces more subject matter than its narrower dependent claim. In this case, dependent claim 2 modifies the term "intermediary." Claim 2 of the '350 patent discloses "[t]he braking device of claim 1 wherein said intermediary is magnetic." This dependent claim shows both that the claim drafter perceived a distinction between magnetic and non-magnetic intermediaries and that independent claim 1 impliedly embraced non-magnetic intermediaries. See Innova/Pure Water, Inc. v. Safari Water Filtration Sys. Inc., 381 F.3d 1111, 1123 (Fed. Cir. 2004).

The district court initially did not consider the context supplied by claim differentiation because Intamin did not raise this argument until reconsideration. Reconsideration Decision, slip op. at 2. Even without the enlightenment supplied by claim differentiation, however, the overall context of claim 1 does not limit the broad language to non-magnetic intermediaries. At one point, the '350 patent describes an embodiment of the invention with a "non-magnetic" intermediary. '350 patent col.4 ll.16-18. The district court seized on this disclosure to limit the term "intermediary" to non-magnetic substances only. Initial Decision, slip op. at 4. As this court has repeatedly noted, see SRI Int'l v. Matsushita Electric Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc) (plurality opinion), a narrow disclosure in the specification does not necessarily limit broader claim language. Phillips, 415 F.3d at 1323. The overall context of the patent, in this case, does not specifically disavow magnetic intermediaries. See e.g., SciMed Life Sys. Inc. v. Advanced Cardiovascular Systems Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). The single reference does not expressly limit the entire invention but only describes a single embodiment. Moreover, the term "intermediary," like the term "baffle" in Phillips, embraces more than the limited specification disclosure.

Thus, this court finds that the term "intermediary" can embrace magnetic substances, albeit only if the additional term requirement of "alternating polarity" allows for it. Accordingly, this court vacates the district court's construction of this term. However, this court has not reached an additional question on which the trial court has yet to provide a decision for review. Specifically this court remands to permit the district court to determine whether the patent limits the term "adjacent magnets of alternating polarity" to magnets of opposite polarity. With the understanding that an "intermediary" may be magnetic, the trial court may revisit its finding of non-infringement.

2314

b. "an intermediate memory is provided for the audio information picked up over the data communications line"

AMI contends that "an intermediate memory ...") means that "electronic storage media is included in the jukebox to temporarily store musical selections received from the central music store over the data telecommunications line." Opening Brief at 32. The parties' dispute centers on whether the intermediate memory must be physically separate from memory used to store frequently played songs.

The claims disclose that intermediate memory and memory for frequently played songs are two different things and serve two different purposes. The specification also teaches that the two memories are "separate." Id., Ex. 18 at 2:63-67. It does not say, however, that the memories must be "physically separate" as Ecast argues. Nor does the claim include or suggest such a limitation. The
intermediate memory may be physically separate from the memory for frequently played songs, or it may be a separate area on the same memory device (e.g., a partition or subfolder).

The Court therefore construes “an intermediate memory...” to mean that “electronic storage media is included in the jukebox to temporarily store musical selections received from the central music store over the data telecommunications line.”

B. Interconnected

Plaintiff FortuNet's Proposed Construction
Defendants Melange and Planet Bingo's Proposed Construction
To connect with one another. Connection providing two-way communication between the slave and master.

Noting the claim term is "interconnected" and not just "connected," Defendants argue this term requires that the flow of information between the master and slave devices be bi-directional, that is, both the master sending information to the slave, and the slave sending information to the master. Additionally, Defendants assert the patent states the slave game device's minimal configuration includes a transceiver to permit both the receipt and transmission of information with the master game device over the network. Defendants also note the specification states communication between the master game device and the slave game device is bi-directional. According to Defendants, the patent does not teach a game where communication between master and slave is one way.

FortuNet asserts the claim's terms require only one-way communication, master to slave. First, FortuNet argues that dependent claim 6 adds to independent claim 1 the limitation of the slave sending information to the master, suggesting that is not a limitation of claim 1. Second, FortuNet notes that although the specification discusses the slave sending game information to the master, that is a description of the preferred embodiment, not a definition of “interconnected.” Finally, FortuNet argues that the specification states the slave game device can execute games independently, absent communication with the master. FortuNet argues requiring bi-directional flow of information would contradict this language in the specification.

The Court begins with the claim language which states the "master game device provid[es] data for playing said games; and at least one of said two different distinct and independent games being at least partially responsive to said data from said master game device." (JA0011, Col. 6 at 26-30.) By its terms, the claim describes one-way communication where the master sends data to the slave. A review of the specification does not alter this interpretation. Although the specification mentions bi-directional communication, it does so in the context of describing the preferred embodiment. (JA0010, Col. 3 at 66-68, Col. 4 at 1-10.) In discussing the bi-directional nature of the communication, the specification states the slave will send "game status information and accounting data" back to the master. (JA0010, Col. 3 at 67-68, Col 4 at 1-2.) This is a direct reference to dependent claim 6, which adds the limitation that the slave send "accounting data and the current status" of at least one of the games back to the master. (JA0010, Col. 6 at 56-59.) Nothing in the prosecution history suggests the patentee limited or altered the meaning of this term to require bi-directional communication.

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n1 Dependent claim 6 states: "The combination in claim 1, wherein said slave game device transmits to said master game device accounting data and the current status of at least one of said two different distinct and independent games." (JA0011, Col. 6 at 56-59.)

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

In construing a patent's terms, the Court should not limit the patent to the preferred embodiment description. Comark
Communications, Inc., 156 F.3d at 1187. Additionally, a limitation in a dependent claim generally implies the limitation is not in the independent claim. Nazomi Communications, Inc., 403 F.3d at 1370. The Court therefore will not limit claim 1 to the preferred embodiment or read dependent claim 6's limitation into independent claim 1. The Court therefore holds "interconnected" in independent claim 1 means "connected with one another."

2316

A. Construction of "Interconnecting"

LPL contends that the term "interconnecting" should be construed as "shorting." (D.I. 135 at 12.) LPL argues that "interconnecting' was used throughout the entire intrinsic record in a manner consistent with this single meaning." (Id.) CPT contends that "shorting" is impermissibly vague because the specification uses that term in a variety of contexts. (D.I. 144 at 6.) CPT proposes instead the construction "electrically connecting with conductors." (D.I. 164 at 1.)

The Court agrees with CPT that LPL's proposed construction is vague. Substituting "shorting" for "interconnecting" would not clarify the meaning of "interconnecting," but rather would make it more ambiguous. In the '002 patent's specification, "short" is used in at least four different ways: the path taken by an unintended, destructive discharge of a static potential ("002 patent, col. 2, ll. 57-62); a physical defect in electrical components resulting in an unintended current pathway (Id., col. 4, ll. 27-28); a deliberate re-routing of an electrostatic discharge via a shunt transistor (Id., col. 7, ll. 35-41); and a deliberate connection between electrical elements to provide an alternate current pathway (Id., col. 5, ll. 65-68). Only the last of these is consistent with LPL's proposed construction of "interconnecting".

LPL contends that CPT's proposed construction of "electrically connecting with conductors" improperly limits the term "interconnecting" to a single embodiment by specifying that the electrical connection must be made with conductors. (D.I. 158 at 2.) However, the consistent use of a claim term by the inventor in the specification may serve to limit the scope of a claim. Nystrom v. Trex Co., Inc., 424 F.3d 1136, 1145 (Fed. Cir. 2005). Here, CPT's proposed construction is consistent with the inventor's use of "interconnecting" throughout the '002 patent's specification. n1 "Interconnecting" is consistently described or illustrated in figures as using "lines", "shorts", or "jumpers", i.e. conductors, to connect electrical elements. (See e.g., '002 patent, col. 5, ll. 65-68; col. 6, ll. 6-9; col. 6, ll. 42-43; col. 8, ll. 5-7.) Therefore, the Court will construe "interconnecting" to mean "electrically connecting with conductors."

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n1 Defendants' proposed construction is also consistent with the use of "interconnecting" in U.S. Patent 4,820,222 ("the '222 patent), which has the same inventor as the '002 patent and is incorporated by reference in the '002 patent. ('002 patent, col. 2, ll. 30-36.)

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2317

A. "interconnecting each one of said processor systems through a network for data communications with each other one of said processor systems"

The dispute here is whether the language of the interconnecting step requires that each processor have some sort of direct connection with each other processor, or whether indirect connections are possible. nCUBE argues that the language each one … with each other one, along with supporting evidence from intrinsic and extrinsic sources, leads to the conclusion that the patent requires direct connections among the processors. SeaChange argues that claim 37 itself contains no such limitation, and that the intrinsic record does not support implying one.

1. Claim Language
The place to start is, as always, the language of the claim. It is the Court's view that a plain reading of the claim does not reveal the limitation advanced by nCUBE. It is true that the language requires the "interconnection" of each processor with each other processor. However, that "interconnection" is accomplished "through a network of data communications." There is nothing in this broad language that would lead the Court to conclude that there is a limitation requiring a direct connection.

However, there is some evidence supporting the opposite conclusion. Claim 1 of the patent is identical to claim 37 with one exception. Instead of "interconnecting each one of said processor systems through a network of data communications with each other one of said processor systems" it teaches "interconnecting each one of said processor systems in a point-to-point two way channel interconnection with each other one of said processor systems." ('312 patent col. 17, 11. 49-61) (emphasis added). The language in claim 1 expressly requiring a form of direct connection stands in sharp contrast to the broad language of its fraternal twin, claim 37. The doctrine of claim differentiation is sometimes helpful in interpreting claim language. It says in essence that where two otherwise identical claims differ in a certain term, it is generally presumed that a different meaning was intended. See Beachcombers v. Wildewood Creative Prods., Inc., 31 F.3d 1154 (Fed. Cir. 1994). The doctrine is not always controlling; each independent claim of a patent stands on its own, and if a proper construction of two differently worded claims leads to the conclusion that they mean the same thing, than the doctrine of claim differentiation must step aside. See Multiform Dessicants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998). However, it is a useful channel buoy for the Court in navigating through the construction analysis.

2. Specification

Turning to the specification, the parties appear to be in agreement that the specification discloses a point-to-point system as the only embodiment of a "network." That embodiment certainly appears to correspond with the teaching of claim 1. However, as discussed, the language of claim 1 is narrower than that of claim 37. It is well settled in patent law that the claim should not be limited to the preferred embodiment absent some contrary indication. See American Permahedge, Inc. v. Barcana, Inc., 105 F.3d 1441 (Fed. Cir. 1997). Moreover, the specification need not disclose what is well known in the art. Presently, in determining what is known in the art, the Court only has the benefit of the declaration of Dr. Wilkes, who indicates that other forms of "networks" besides a point-to-point configuration are well known. (D.I. 80 at P 14.) This fact supports a conclusion that the point-to-point embodiment disclosed in specification should not limit claim 37.

The Defendant argues that the Court should not adopt a broad meaning of "network" because to do so would run afoul of validity issues. 2 In its able defense of this position, nCUBE cited at oral argument Gentry Gallery, Inc. v. The Berkline Corp., 134 F.3d 1473 (Fed. Cir. 1998). In Gentry, the defendant argued that certain claims of the patent-in-suit that taught a sectional sofa where the location of the controls for the sofa was not limited to a console were invalid under the written description requirement of 35 U.S.C. § 112 P 1. The specification of the patent at issue disclosed the location for the controls of a sectional sofa with side-by-side recliners. The disclosure clearly identified a certain location (on a console) for the controls, allowing only for minor variations. The Federal Circuit concluded that this narrow disclosure combined with the fact that the only discernible purpose for the console was to house the controls as well as the statement "another object of the present invention is to provide … a console positioned between [the reclining seats] that accommodates the controls for both of the reclining seats" indicated that the challenged claims did not comply with section 112. Id. at 1479. Contrast those facts with the instant case where the stated purpose of the invention is improved/increased mass storage delivery bandwidth operating using a reliable and fault tolerant protocol. ('312 patent col. 2, 11. 6-10.) A broader understanding of "network" does not conflict with the object of the invention or render useless a part of the invention as was the case with the console in Gentry Gallery. 3

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2 The Defendant is concerned with both the enablement and written description requirements. These are distinct issues, as an invention may be described without the disclosure being enabling. See Gosteli v. McCombie, 1986 Pat. App. LEXIS 28, 230 U.S.P.Q. 205, 209 (Bd. Pat. App. & Int’f 1986).

3 The Court understands nCUBE’s argument presented through the Wilkes' Declaration about the effect of the phrase "novel topology" on the analysis. (D.I. 80 at P 14.) However, the Court is not persuaded that this phrase is directed at the type of network as opposed to another aspect of the invention.
The Court is also not persuaded that its construction necessarily implicates enablement. At oral argument, the parties each discussed various Federal Circuit enablement cases and their impact on this issue. Stated simply, enablement requires that the disclosure be sufficiently clear to enable one of skill in the art to make and use the invention without undue experimentation. If one accepts that other forms of networks are well known in the art, then a skilled artisan should be able to make and use without undue experimentation the invention in an environment other than a point-to-point system.

The Court has briefly addressed validity issues because they sometimes bear on claim construction. The Court's conclusion that they do not affect its analysis here is not meant to foreclose any defense available to nCUBE at trial, including assertions that the construction of certain terms form part of a chain of clear and convincing evidence that the asserted claims are invalid.

3. Prosecution History

Moving finally to the last piece of intrinsic evidence, the Court is not persuaded that the limitation on the type of network is found in the prosecution history.

4 Dictionaries are in that strange netherworld between the realms of intrinsic and extrinsic evidence. Because the Court concludes that the claims, specification and prosecution history are clear, it will not resort to dictionary definitions.

The '312 patent issued from an application filed on October 24, 1995. (D.I. 81 at NC004218.) The original application recited 39 claims, all of which taught the "point-to-point two way channel interconnection" method discussed above. On September 26, 1996, the applicants submitted a Preliminary Amendment seeking to add 36 new claims. These additional claims used the "through a network for data communications" language in place of the "point-to-point two way channel interconnection" language found in the original claims. The stated purpose of the amendment was "to more fully cover the scope of the invention." (D.I. 81 at NC004307.)

5 nCUBE contends that this language is boilerplate and presumably meaningless. (D.I. 79 at 5.) It is the Court's view that it means what it says.

In an office action dated December 12, 1996, the examiner rejected the pending claims. The relevant part of this rejection was obviousness under 35 U.S.C. § 103. The examiner concluded that the relevant claims were unpatentable over United States Patent No. 5,202,980 ("Morita") in view of United States Patent No. 5,072,371 ("Benner"). The examiner found that Morita taught the claimed method for redundant storing of data in a distributed computer system where the processors of the computer system consisted of a processor and mass storage subsystem. The examiner observed that Morita did not disclose at least three processors in the distributed computer system or the point-to-point configuration, but that this limitation could be found in Benner. Benner taught a distributed processing system with more than two processor systems where each processor unit comprised a processor and mass memory. Benner also disclosed interconnection of the processors in the point-to-point two way channel configuration. Therefore:

it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Morita et al.'s [sic] by incorporating more than two processors in the distributed computer system and interconnecting these processors in a point-to-point two way channel as disclosed by Benner et al. This modification would have been obvious because a person having ordinary skill in the art would have been motivated to provide more processors and increase the system processing power in the case of parallel processing; and a person of ordinary skill would have been motivated to interconnect each of the processor [sic] in point-to-point to facilitate data exchange among the processors, and also because
[it] is suggested by Benner et al.

(D.I. 81 at NC004311-12.)


The applicant responded on June 12, 1997. (D.I. 81 at NC004331.) In the remarks section, the applicant stated:

with respect to the prior art rejection, the Examiner grouped various claims and rejected the group claims. Applicant submits that with respect to each group of claims that certain of the claims in the group add further patently distinct features to the invention and thus are further patently distinct over the applied references. For simplicity, however, Applicant will in general treat a single claim as being representative of the group of claims but reserves its right to later argue that additional ones of the claims are patentably distinct over the combination of references.

(D.I. 81 at NC004359-60.)

The applicant then proceeded to distinguish the prior art from the invention, using claim 1 as an exemplar. The applicant first addressed Morita, contending that Morita did not disclose at least three processors, a point-to-point interconnection, or a processor system that stores data in the manner recited by claim 1. Next, the applicant challenged the assertion by the examiner that Benner taught "more than two processor systems…" and "point-to-point two way channel interconnection."

nCUBE relies heavily on the statements made regarding the Benner art. The applicant stated:

Applicant's claim 1 recites a method in which … processor systems are interconnected using a point-to-point two-way channel interconnection with each one of the other processor systems. That is, any one processor system can communicate directly with any one of the other processor systems.

(D.I. 81 at NC004360-61) (emphasis added).

Also:

Benner describes a parallel computing system of the hypercube type. As such … Benner does not describe that each of the processor systems are interconnected in a point to point way with each other one of the other processor systems as recited in Applicant's claim 1.

(D.I. 81 at NC004362) (emphasis in original).

nCUBE urges the Court to draw the following conclusions from the quoted language and similar passages in the prosecution history: first, that the applicant limited the scope of claim 37 (application claim 40) to its argument over claim 1 by grouping claim 37 with claim 1 and using claim 1 as illustrative of all claims in the group; second, that in distinguishing claim 1 over the prior art, the applicant affirmatively disclaimed a hypercube and affirmatively claimed a direct connection among processors.

Although nCUBE's argument has merit, the Court ultimately cannot agree with its contention. In the Court's view, a member of the public reviewing the entire intrinsic record would be aware that the statements made by the applicant in the relevant portions of the prosecution history could not pertain to claim 37 (application claim 40). First, the plain language of claim 1 and claim 37 indicates that claim 37 is broader in scope. Second, the file wrapper clearly indicates that claim 37 (application claim 40) was added to more fully cover the invention. Third, it was the examiner who originally grouped the claims. The applicant clearly indicated that its response was drafted with similar grouped arguments in an effort to achieve simplicity. Moreover, the applicant expressly stated that it believed that the individual claims were patentable independent of claim 1, and that the applicant reserved its rights in that respect. Finally, the arguments made in response to the rejection clearly
addressed the subject matter of claim 1 both in substance and nomenclature.

There is one additional piece of the documentation concerning the prosecution of the '312 patent that may shed additional light on the question. In a declaration accompanying its reply brief, nCUBE presented to the Court a document produced by SeaChange in discovery. This document appears to be a supplemental amendment to the application leading to the '312 patent. The document contains an attestation by an employee of the prosecuting attorney that it was mailed to the Patent Office on June 25, 1997. However, both parties have represented to the Court that the supplemental amendment does not appear in the '312 file wrapper.

As an initial matter, this unusual document raises questions of what place, if any, it should play in the intrinsic record of the patent. On the one hand, the public policy rationale counsels its exclusion; of what use is it to the public if the public is unaware of its existence? On the other hand, it sheds light on the applicant's intentions during prosecution.

At oral argument, both parties argued that this document supported their contentions. In the Court's view, the document supports SeaChange's argument that the applicant's illustrative use of claim 1 in arguing nonobviousness in view of Morita and Benner was not intended as binding for all of the pending claims. Moreover, it indicates that the "reservation of rights" language was not a mere formality. Also, it is the Court's opinion that the substance of the document supports SeaChange's argument that claim 37 should not be limited to the same scope as claim 1. For example, the document observes that "claim 40 could have been separately argued [from the claim 1 grouping] since some of the limitations in claim 1 are not part of claim 40." (D.I. 92, Exh. C at 2.) The document also emphasizes that the interconnection of processors, "each one to the other one", is through a network, language which does not necessarily imply a "direct" connection as urged by nCUBE.

In any event, because the document's place in the intrinsic record is open to question, the Court will not rely on it for purposes of claim construction.

In summary, after a consideration of the intrinsic record, the Court cannot conclude that the phrase in issue should be construed in the limited fashion urged by nCUBE. Accordingly, the Court construes "interconnecting each one of said processor systems through a network for data communications with each other one of said processor systems" to mean establishing data communication between every pair of processor systems in the distributed computer system using any kind of network.

4. Port/Interface

The plaintiff proposes that "port" means "a connection channel" and that "interface" means "the hardware, software, and/or firmware that allows the exchange of data between devices." The defendants propose "a data communication interface" as the construction for both terms because they contend that "port" and "interface" are identical. To support their contention, the defendants cite to portions of the specification where "port" and "interface" have been used interchangeably. However, in the claims, "port" and "interface" are used separately. E.g., '202 patent, claim 1. Therefore, they are presumed to mean different things. See Innova/Pure Water, Inc., 381 F.3d at 1119. Furthermore, one of ordinary skill in the art would understand "port" to be a type of "interface" (e.g., a "parallel port" is a type of "interface"). Accordingly, "port" means "the physical connector that allows for the connection and data exchange between devices" and "interface" means "the hardware that allows for data exchange between devices."

2319

a. "circuit" limitations

The "circuit" limitations are contained in the asserted claims of the '096 and '264 patents as identified in section I, supra. Initially, all the claim limitations at issue lack the term "means," accordingly, we presume that § 112 P 6 does not apply. CCS Fitness, 288 F.3d at 1369, 62 USPQ2d at 1664. We next must determine whether Raritan has shown that the limitation,
as understood by one of ordinary skill in the art, demonstrates that the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function. Id. In the absence of sufficient evidence, the presumption stands. Raritan failed to meet this evidentiary burden.

The threshold issue for all the limitations involving the term "circuit" is whether the term itself connotes sufficient structure to one of ordinary skill in the art to perform the functions identified by each limitation. The district court determined this term, by itself, did not connote sufficient structure and prematurely ended its analysis at this threshold issue. While we do not find it necessary to hold that the term "circuit" by itself always connotes sufficient structure, the term "circuit" with an appropriate identifier such as "interface," "programming" and "logic," certainly identifies some structural meaning to one of ordinary skill in the art.

The term "circuit" is defined as "the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function." Dictionary of Computing, 75 (4th ed. 1996).n1


In light of this definition, it is clear that the term "circuit," by itself connotes some structure. In the absence of any more compelling evidence of the understanding of one of ordinary skill in the art, the presumption that § 112, P 6 does not apply is determinative. Raritan's evidence consisted of district court decisions addressing the meaning of the term "circuit means" and Apex's description of the preferred embodiments in the specification. We find that this evidence is not sufficient to rebut the § 112, P 6 presumption. This evidence fails to show by a preponderance of the evidence that one of ordinary skill in the art believes the term does not recite sufficiently definite structure.

Moreover, claims are interpreted in light of the specification and with the knowledge of one of ordinary skill in the art. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). The written description discloses only the preferred embodiments of the various circuit limitations and does not use these terms "in a manner clearly inconsistent with the ordinary meaning" as understood by one of ordinary skill in the art. Tex. Digital, 308 F.3d at 1204, 64 USPQ2d at 1819 (stating if the specification uses the words in a manner clearly inconsistent with the ordinary meaning of a dictionary definition, the inconsistent dictionary definition must be rejected).

The prosecution history also does not suggest that the ordinary meaning of the term "circuit" does not apply. Lastly, the expert testimony submitted by Raritan, including the testimony of Drs. Hoff and Liaw shows only that the term "circuit" is understood by one of ordinary skill in the art as a very broad term and that one of the accused products included several of the circuit elements.

Moreover, every use of the term in the asserted claims includes additional adjectival qualifications further identifying sufficient structure to perform the claimed functions to one of ordinary skill in the art. See Personalized Media, 161 F.3d at 705, 48 USPQ2d at 1888 ("An adjectival qualification ('digital') placed on an otherwise sufficiently definite structure ('detector') does not make the sufficiency of that structure any less sufficient for purposes of § 112, P 6. Instead, it further narrows the scope of those structures covered by the claim and makes the term more definite."). The district court therefore erred in its interpretation of all the limitations as means-plus-function limitations by failing to consider the limitations as a whole.

While this court is plainly aware that claim construction is a question of law, we decline to construe every claim limitation because the record has not been sufficiently developed. As is the case with other aspects of patent law, e.g. obviousness, a proper determination of whether the claim limitations should be construed as means-plus-function limitations requires an
understanding of one of ordinary skill in the art. In this situation, it is appropriate to look to extrinsic evidence, including but not limited to dictionaries and expert testimony to assist the trier of fact in understanding the evidence. Greenberg, 91 F.3d at 1583, 39 USPQ at 1786. In particular, the record should reflect the ordinary meaning of the claim limitations, as a whole, and whether these limitations suggest sufficiently definite structure to one of ordinary skill in the art. Despite this need for further development, the record does contain sufficient evidence to address the "first interface circuit" and "second interface circuit" limitations.

The relevant definition of the term "interface" is: "the signal connection and associated control circuits that are used to connect devices." Dictionary of Computing, 250 (4th ed. 1996). Moreover, an "interface circuit" is defined as "a circuit that links one type of logic family with another or with analog circuitry." Rudolf F. Graf, Modern Dictionary of Electronics, 385 (7th ed. 1999). This dictionary definition specifically provides several examples of an interface circuit, including a line driver and analog to digital converters. Thus, the ordinary meaning of this term connotes specific structures to one of ordinary skill in the art. The written description and prosecution history provide no evidence that the inventors intended the term "interface circuit" to have a meaning contrary to this ordinary meaning. Raritan relies solely on its arguments that the term "interface circuit" is a generic term and that the written description, by only showing one embodiment, clearly sets forth a limited definition of "interface circuit." We reject Raritan's classic attempt to limit the scope of a claim limitation to the preferred embodiment. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 48 U.S.P.Q.2D (BNA) 1001 (Fed. Cir. 1998).

Because Raritan has failed to rebut the presumption that § 112, P 6 does not apply, we hold that the terms "first interface circuit" and "second interface circuit" are not means-plus-function limitations. The term "interface circuit" means any circuit that links one type of logic system with another.

The district court should conduct a similar analysis with respect to the remaining "circuit," "interface," and "unit" limitations. Upon remand, the district court must determine the ordinary meaning of these limitations and whether this ordinary meaning defines sufficiently definite structure. Raritan has the burden of going forward with evidence to prove that § 112, P 6 applies. Raritan must prove by a preponderance of the evidence that the limitations, as a whole, do not connote sufficiently definite structure to one of ordinary skill in the art. We decline to conduct this analysis for the district court because the record is underdeveloped as to the ordinary meaning of these limitations as a whole and construing the claims based on this limited record could be prejudicial to the parties.

2320

A. "interface device"

The Camera Manufacturers propose that the term "interface device" be construed to mean "a stand-alone device that a user can readily physically connect to and disconnect from a host device and a data transmit/receive device and that directs communication between these devices when they are connected." Tr. 1:104 (CMs). They assert that the invented "interface device" is for communicating between a host device and a data transmit/receive device, i.e., the invention is neither the host nor the data transmit/receive device, but rather a separate device that enables active communication between the other two. Papst retorts that "interface device" should be construed to mean the structure defined in the body of the Claims and that nothing in the Claims requires the interface device to be separate from the data transmit/receive device. 5

5 Papst recognizes that the data transmit/receive device may be separate from the interface device. It appears to argue, however, that according to the invention the interface device and the data transmit/receive device could be in a single device. See Tr. 1:123 (Papst) ("[T]he data transmit/receive device, you know, that's the part that doesn't have to be part of the interface device. . . . [T]his claim would be infringed whether or not you include the data transmit/receive device in the final product."). Papst does not contend that the interface device could be inside the chassis of the host device, the computer.
What is claimed is:

1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:

   a processor;

   a memory;

   a first connecting device . . . ; and

   a second connecting device . . . .

'399 Patent, col. 12:41-53 (emphasis added); '449 Patent, col. 11:45-57(same). The preamble to Claim One is the portion in italics above. Papst asserts that the term "interface device" as set forth in the preamble does not limit the Claim and thus the term should not be construed by the Court. Specifically, Papst contends that the preamble uses the words "[a]n interface device . . . comprising," thereby indicating that the invention is defined in the body of the Claim, i.e., "a processor; a memory; a first connecting device . . . ; and a second connecting device . . . ." '399 Patent, col.12:48-54; '449 Patent, col. 11:51-57. Papst further argues that to construe the term "interface device" in the preamble would be to improperly import limitations from the specification into the Claim. See Phillips, 415 F.3d at 1323. 6

6 Despite its position that the term "interface device" should not be construed, Papst concedes that the terms "host device" and "data transmit/receive device" which are also found in the preamble "may benefit from further explanation because some actual claim elements are defined in terms of their relationship to those terms." Papst's Markman Br. at 15.

The preamble to Claim One serves as a claim limitation for three reasons. First, "[i]f the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or if the claim preamble is necessary to give life, meaning, and vitality to the claim, then the claim preamble should be construed as if in the balance of the claim." Pitney Bowes, 182 F.3d at 1305 (internal quotation omitted). In these Patents, the preamble is limiting because it describes structures that comprise the invention and the relationships among those structures: "An interface device for communication between a host device . . . and a data transmit/receive device." See '399 Patent, col. 12:42-45; '449 Patent, col. 11:46-49.

Second, where a preamble provides an antecedent basis for terms found in the body of the claims, it acts as a "necessary component of the claimed invention" and serves as a claim limitation. Bicon, Inc. v. Straumann Co., 441 F.3d 945, 952-53 (Fed. Cir. 2006). Here, the body of the Patents repeatedly refers back to the structures first identified in the preamble by using the word "the" and thus incorporates the terms by reference. See, e.g., '399 Patent, col. 12:50-52 ("a first connecting device for interfacing the host device with the interface device . . ."); '449 Patent, col.11:53-55 (same).

Third, where a preamble is used during prosecution of the patent to distinguish prior art, the preamble may serve as a claim limitation. In re Cruciferous Sprout Litig., 301 F.3d 1343, 1347 (Fed. Cir. 2008). In the prosecution history for the '399 Patent, Mr. Tasler distinguished prior art (the McNeil patent, U.S. Patent No. 5,499,378) by amending the preamble to state ". . . and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data . . . ." CMs' Markman Br., Ex. C ("'399 File History") at 4-7 (underlined in original to show additional phrase). The preamble, as amended to distinguish prior art, serves as a claim limitation.

In sum, because the preamble describes the structure of the invention and gives meaning to Claim One, it must be interpreted as a claim limitation. Accordingly, the term "interface device" as used in the preamble should be construed.

The body of Claim One of the Patents indicates that the "interface device" is a standalone device. The '399 Patent describes
the communication (via the interface device) between a host device and a data transmit/receive device as involving a first command interpreter that, when asked by the computer "as to a type of a device attached to the multi-purpose interface of the host device [computer], sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device . . . that it is an input/output device customary in a host device." '399 Patent, col. 12:66-67 & col. 13:1-5. The '449 Patent is similar:

the interface device is configured by the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device . . . .

'449 Patent, col. 11:59-67. In both Patents, the language "regardless of the type of the data transmit/receive device attached" strongly indicates that various kinds of data transmit/receive devices could be attached and that, therefore, the interface device was neither a permanent part of the data transmit/receive device nor of the host device/computer.

Similar language is repeated throughout both Patents. See, e.g., '399 Patent, Title, Abstract & col. 3:43-44 ("regardless" language); '449 Patent, Title, Abstract & col. 4:6-7 (same); see also '399 Patent, col. 3:24-27 ("It is an object of the present invention to provide an interface device for communication between a host device and a data transmit/receive device whose use is host device-independent . . . ."); '449 Patent, col. 3:20-23 ("It is the object of the present invention to provide an interface device for communication between a host device and a data transmit/receive device whose use is host device-independent . . . .") (emphasis added).

That the data transmit/receive device must be a separate device from the invention is not mere happenstance but an integral aspect of what was invented. Whatever uncertainty on this point may exist after studying the Claims is eliminated upon a review of the specification. The specification always describes three separate devices: the computer, the data transmit/receive device (an I/O device), and the interface device. See, e.g., '399 Patent, Title, Abstract, col. 1:1-14, col.3:25-28, col. 5:30-32, col. 5:47-63, Figs. 1-2 and accompanying text; '449 Patent, Title, Abstract, col. 1:1-17, col. 3:21-23, col. 4:35-36, col. 4:40-63, Figs. 1-2 and accompanying text; see also '399 Patent, col. 5:56-60 (describing Figure 1 as showing that the "second connecting device can be attached by means of an output line 16 to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device."); '449 Patent, col. 4:55-59 (same).

As explicitly explained in the specification, one of the problems with prior art, when attached "to a device whose data is to be acquired," was that "it is often very difficult to implement such interfaces for portable systems and they offer few possibilities for adaptation with the result that such systems offer little flexibility." '399 Patent, col. 1:21-22 & 31-34 (emphases added); '449 Patent, col. 1:22-23 & 32-35 (same). And yet portability and flexibility were critical because "[t]he devices from which data is to be acquired cover the entire electrical engineering spectrum." '399 Patent, col. 1:34-35; '449 Patent, col. 1:35-36. "[A]n interface may be put to totally different uses. It is therefore desirable that an interface be sufficiently flexible to permit attachment of very different electrical or electronic systems to a host device by means of the interface." '399 Patent, col. 1:56-59 (emphasis added); '449 Patent, col. 1:57-60 (same).

The invention was designed to answer these shortcomings of prior art and to provide a "flexible interface" that would allow communication between a computer and "an analog I/O device . . . regardless of the type of the I/O device." '399 Patent, Title; '449 Patent, Title. The specification touts the "enormous" benefit of allowing communication between a computer and many different types of data transmit/receive devices:

In the interface device according to the present invention an enormous advantage is to be gained, as apparent in the embodiment described in the following, in separating the actual hardware required to attach the interface device 10 7 to the data transmit/receive device from the communication unit . . . as this allows a plurality of dissimilar device types to be operated in parallel in identical manner.

'399 Patent, col. 8:23-31 (emphases added); '449 Patent, col. 7:23-31 (same). It is well-settled that "[w]hen a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention." Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007). The description in the specification, therefore,
necessarily limits the scope of the '399 and '449 Patents when it refers to the enormous advantage of "the present invention," to allow a plurality of dissimilar input/output devices to be accessed.

7 At times, the specification refers to the invention, its various components, and the devices to which it connects by numbers shown in Figure One as follows: interface device 10; host device 11; first connecting device 12; digital signal processor 13; memory 14; second connecting device 15; and data transmit/receive device 16. See '399 Patent, Sheet One; '449 Patent, Sheet One.

The specification also explains that the interface device provides a "universal solution" without regard to the types of data transmit/receive devices from which data may be acquired. '399 Patent, col. 12:37-40 ("The interface device 10 thus provides a universal solution which can cover the entire spectrum of possible data transmit/receive devices."); '449 Patent, col. 11:41-44 (same). Examples of transmit/receive devices that can be connected to a computer via the interface device include a "diagnostic radiology system in a medical engineering environment" and a "multimeter." '399 Patent, col. 1:34-54; '449 Patent, col. 1:35-55. The specification also notes the advantage to users of the interface device that they can obtain data from almost any data transmit/receive device with little prior knowledge:

By creating and editing a configuration file, normally a text file which is simple to understand with little prior knowledge, users of the interface device 10 are able to perform essentially identical operator actions for almost any data transmit/receive devices which can be attached to the second connecting device via the line 16, thus eliminating a source of error arising from users having to know many different command codes for different applications.

'399 Patent, col. 7:37-45; '449 Patent, col. 6:37-45; see also '399 Patent, col. 1:34-46 (explaining that the interface device could be used to simplify the data read/acquisition work of field technicians); '449 Patent, col. 1:35-47 (same).

As one learns from studying the Patents, the purpose of the invention was to allow fast communication between dissimilar data transmit/receive devices and computers, without the need for special software drivers. Thus, the invention cannot properly be limited to an interface device that is incapable of allowing a plurality of dissimilar transmit/receive devices to be connected or that cannot be flexible and portable to allow a plurality of dissimilar transmit/receive devices to be attached. This conclusion is further buttressed by the identical Figures that accompany each Patent. Figure 1 of each Patent "shows a general block diagram of the interface device according to the present invention," see '399 Patent, col. 5:38-39; '449 Patent, col. 4:41-42, and the Figure indicates that the data transmit/receive device is off the sheet, out of sight, not part of the Figure, and not part of the invention. '399 Patent, Sheet 1 ("to data transmit/receive device"); lower case substituted); '449 Patent, Sheet 1 (same). Figure 2 of each Patent, which depicts a preferred embodiment of the invention, also indicates that the data transmit/receive device and the host device/computer are separate and apart from the invention. '399 Patent, Sheet 2; '449 Patent, Sheet 2. The specification and Figures further indicate that the interface device is separate from the host computer and the transmit/receive device because it is designed to plug into an electrical outlet. See '399 Patent col. 9:65-66 ("The complete interface device 10 is supplied with power by an external AC/DC converter 1800 . . . ."); '449 Patent, col. 8:65-66 (same); see also '399 Patent, Sheet 2; '449 Patent, Sheet 2.

The prosecution history of the '399 Patent also supports the conclusion that the interface device is a stand-alone device. Mr. Tasler amended Claim One to add the phrase, "wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to [the] a type of a device attached to the multi-purpose interface of the host device." '399 File History at 7 (underlined in original to show additional phrase; brackets in original to show deleted word). 8 The change from "the device" to "a device" is a change to more general language, indicating that the interface device was intended to be attached to, and detached from, various types of input/output devices. Mr. Tasler also explained to the PTO that "it is clear that the data transmit/receive device to be connected to the second connecting device of the subject interface provides analog data." Id. at 5 (emphasis added). The statement that the data transmit/receive device is "to be connected" similarly indicates that the inventor did not intend the interface device to be permanently affixed to a single data transmit/receive device, as it is "to be connected" to various data transmit/receive devices.
Papst argues that interpreting "interface device" to mean a stand-alone device would "improperly import[] the limitations from the specification to the claims. The claims don't say stand alone, they don't say physically connect, or readily connect or disconnect . . . ." Tr. 1:84 (Papst). The Court disagrees. The interface device, as discussed further below, "sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device." '399 Patent, col. 13:1-5; '449 Patent, col. 11:63-65. Claim One contemplates and intends that a variety of transmit/receive devices may be connected to the interface device, which is also connected to the computer. To fulfill claim One, the "interface device" must, therefore, be a "stand-alone device."

Finally, two limitations in 879 patent claim 1 recite "interface means" for establishing network operational activity and communicating information. Datapoint urges that, despite the invocation of "means" language, "interface means" should not be subject to 35 U.S.C. § 112 P6. A rebuttable presumption exists that a claim limitation that uses "means" functional language is subject to § 112 P6. See Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364, 54 U.S.P.Q.2D (BNA) 1449, 1452 (Fed. Cir. 2000). The patentee can rebut this presumption by demonstrating that the claim recites sufficient structure to perform the claimed function. Id. The only evidence Datapoint presents allegedly supporting its argument is its conclusory statement that "the term 'interface' connotes a well known structure," coupled with sundry citations to the specification. The Master's construction was not erroneous, as the claim hardly recites sufficient structure to perform the identified function. We are satisfied, given the quantum of evidence adduced by Datapoint, that the Special Master properly read the term "interface means" as subject to the provisions of 35 U.S.C. § 112 P6.
not describe any embodiment where electronic components that control the scanner are within the main case. Although this consideration is not dispositive, see Phillips v AWH Corp, 415 F3d 1303, 1323 (Fed Cir 2005) (warning against confining claims to particular embodiments in the specification), it nonetheless tends to confirm that by distinguishing prior art scanners in which the main case housed more than the minimum components needed to operate, the patentee did not contemplate embodiments of the '309 patent in which the main case enclosed the interface module.

The court concludes that the patentee limited the scope of the invention to scanners where the "scanner itself" contains "only" the minimum components needed to operate, viz, a motion mechanism and an image sensing module. By "scanner itself," the patentee meant the main module, depictions of which appear in the diagrams of the invention. The court finds that the patentee did not intend the invention to encompass scanners where the main case housed components in addition to the image sensing module and the motion mechanism.

Aside from the location of the interface module, plaintiff proposes that the term be construed to account for the fact that the interface module "comprises a control circuit that receives system control signals from the computing device and generates logical control signals for the image sensing module and the motion mechanism to operate in synchronization." Accounting for these features in the construction of the term "interface module" would render limitations contained in claim 7 superfluous. Plaintiff further proposes that the construction of this term accounts for the fact that the interface module "draws a power supply from the computing device to energize the image sensing module and the motion mechanism to operate." Claim 1 already includes this limitation, suggesting the patentee did not contemplate that this feature was inherent in the term "interface module." See Phillips, 415 F3d at 1325 ("The inclusion of such a specific limitation on the term 'baffles' in claim 2 makes it likely that the patentee did not contemplate that the term 'baffles' already contained that limitation.").

The court construes "interface module" as "interface engine located outside of the main case that houses the image sensing module and motion mechanism."

D. "Interface therebetween"

For this seemingly simple term, Hyperion proposes a long and complicated construction: a "component that maps the data
types of a relational database request (or a standard data type used to represent the relational database request) into the data types used in a multidimensional database aggregation module." Joint Cl Const at 27. HyperRoll counters that any construction of this term would be inappropriate because Hyperion "did not assert that the term 'interface therebetween' needed construction in its original Pat[ ]L R 4-1 contentions." Joint Cl Const at 27. If the term is construed, HyperRoll proposes the definition, "an interface between the aggregation module and the query processing mechanism." Id at 27-28.

Hyperion contends that "the 'interface' HyperRoll argued to the PTO was obviously different than the traditional 'interface.'" Doc # 197 (Hyperion Reply Br) at 6. In particular, Hyperion points to a specific embodiment of the interface described in the specification and contends that FIG 6A was "amended by HyperRoll to depict the SQL Interface in order to convince the PTO to allow the claims." Hyperion Br at 13.

First, Hyperion is incorrect in contending that HyperRoll amended the drawings to distinguish the invention from the prior art. The examiner had stated "that the applicants need to ensure that the interfaces are supported in the specification, claims, and Figures." Doc # 193, Ex C at 2. In response, the applicants added the "SQL Interface" to FIGS 6A and 13 and added the "over an interface therebetween" language to claim 1. Id at 4, 7, 19. The prosecution history does not suggest that this claim limitation only encompassed the SQL Interface depicted in the exemplary embodiments shown in FIGS 6A and 13.

More importantly, Hyperion's proposed construction impermissibly limits this term to an exemplary embodiment and fails to recognize that the specification states that a variety of interface types can be used:

604 patent at 11:43-50. Although the "standard interfaces" described here apparently are SQL interfaces, this broad language indicates that the "interface" need not be as limited as Hyperion suggests.

Moreover, Hyperion's proposed construction would render superfluous dependent claims 13 and 14, which specify respectively that the "interface" in claim 1 can be a "standard interface" and that the "standard interface is selected from the group consisting of OLDB, OLE-DB, ODBC, SQL, API, JDBC, etc.). In this case, the support mechanisms of the RDBMS and SQL handler include components that provide communication of such data over these standard interfaces. Such interface components are well known in the art.

604 patent at 11:43-50. Although the "standard interfaces" described here apparently are SQL interfaces, this broad language indicates that the "interface" need not be as limited as Hyperion suggests.

On the contrary, HyperRoll's simpler construction mirrors the language in claim 1, as the "interface therebetween" is described as an interface between the query processing mechanism and the aggregation module. '604 patent at claim 1. Accordingly, the court adopts HyperRoll's proposed construction.

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6. Interfacing a processing device with a synchronous DRAM

The plaintiff proposes that "interfacing a processing device with a synchronous DRAM" means "reading and writing to the synchronous DRAM by a processing device." The defendants urge that the disputed phrase means "translating memory requests into synchronous DRAM commands." At issue is whether "interfacing" requires translation, In its reply brief, the plaintiff argues that the defendants' proposed construction introduces a notion of translation, which is inconsistent with the ordinary meaning of the term "interfacing." On the other hand, the defendants contend that the disclosed controller receives memory requests and translates them into SDRAM commands. The court construes the phrase "interfacing a processing device with a synchronous DRAM" to mean "enabling reading and writing to the synchronous DRAM by a processing device."
Interleaving and Interleaved mean "the merging of two different frames of an image, with or without overlap, such that a given line of the merged image includes alternating image elements from each frame."

9. "storing the FECC codewords in an interleaved manner, the interleaving being different for the codewords of the different data channels"

The next disputed term also appears in Claims 15 to 18. Defendants assert that disputed term [33] means "storing the FECC codewords such that interleaving is different for the codewords of the different data channels." (Chart at 11). Plaintiff asserts that the term means "all FECC codewords, which are coded from stored signals of each of two or more different data channels, are stored in an interleaved manner, with the interleaving being different for each of the two or more different data channels." (Id.). Thus, Plaintiff seeks to incorporate two limitations in the construction of the term: 1) "all FECC codewords" and 2) the codewords are "coded from stored signals." (See Tr. at 156:18-22).

Plaintiff essentially bases its arguments on its reading of the claim language. Plaintiff submits that the storage process applies to "all" of the FECC codewords because "the claim makes no reference to any of these codewords being stored in any other manner." Pl.'s Opening Br. at 42. Similarly, Plaintiff contends that the process of "sequentially FECC coding the stored signals" must apply to all stored signals "because no other reference is made to any other coding process involving these signals." (Id.).

The Court finds Plaintiff's arguments insufficient to overcome the general prohibition against importing limitations into the claim. See Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003). The Court notes that the word "all" does not appear in the claim itself. Nor has Plaintiff referenced any of the patent's disclosure that would suggest to the Court that such a narrow construction is proper. Plaintiff's construction is based on its own interpretation of the claim, and the Court disagrees with such an interpretation. Additionally, in a rather conclusory manner, Plaintiff contends that its construction should be adopted based on "antecedent basis." (See Tr. at 158:10-15). Again, the Court notes that the term "all" does not appear anywhere in this claim. Therefore, Plaintiff's antecedent basis argument for importing "all" as a limitation is inapt and is rejected.

Accordingly, the Court concludes that disputed term [33] "storing the FECC codewords in an interleaved manner, the interleaving being different for the codewords of the different data channels" means "storing the FECC codewords such that interleaving is different for the codewords of the different data channels."

V. "Intermediate Nodes"

This term appears in the phrase "measuring an alternative cost of transmitting the message from the source to the destination along at least one alternative path, the alternative path passing through one or more intermediate nodes not on the default path." Plaintiff proposes that "intermediate nodes" refers to "network connection points that have additional functionality for exploiting overlay routing, and that cooperate to provide forwarding to paths overlaid over the underlying network." Defendant proposes "intermediate devices such as switches and routers that include additional processing capabilities for measuring and recording information about the alternative paths."

As these competing constructions indicate, the parties agree that "intermediate nodes" are nodes that have special processing capabilities that facilitate identification and utilization of alternative paths. Plaintiff objects to defendant's proposed construction because nodes, in plaintiff's view, are not limited to switches and routers, and because the claim language does not support a limitation whereby the nodes must be capable of "measuring and recording information." These objections are
well-taken. Defendant concedes that switches and routers are merely examples of nodes, and there is no basis for limiting the definition of "intermediate nodes" to include only those nodes that can record information. The prosecution history indicates only that the intermediate nodes must have processing capabilities "such as . . . custom software for measuring and recording information," not that a node cannot be an "intermediate node" unless it can measure and record information.

Defendant objects to plaintiff's proposed construction because it defines intermediate nodes in terms of an overlay network. In defendant's view, this construction impermissibly reads in a limitation from a preferred embodiment. While the patent does state that "in a preferred embodiment, . . . intermediate nodes are referred to as an 'overlay network,'" Col. 2:37-39, plaintiff's proposed construction of "intermediate nodes" refers only to "overlay routing" and "paths overlaid over the underlying network." Defendant does not dispute that the alternative paths described by the patent are "overlaid" atop the underlying network; indeed, the patent is titled "On-Demand Overlay Routing for Computer-Based Communication Networks." Accordingly, plaintiff's proposal does not import any unacceptable limitation into the construction of "intermediate nodes."

The Court will adopt plaintiff's proposed construction of this term.

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9. "Intermediate results file"

The parties dispute the meaning of the term "intermediate results file." Defendants assert "intermediate results file" should be construed to mean "a persistently saved file that includes a partial set of records that respond to the query." Plaintiff asserts the term is entitled to its ordinary meaning, but if the Court deems construction necessary, "intermediate results file" should be construed to mean "a file that includes one or more records or fields used to respond to the query."

Because "intermediate results file" has no ordinary meaning, the Court must construe the term. The first issue is whether an "intermediate results file" must be "persistently saved." The Court agrees with Plaintiff that nothing in the claims limits "intermediate results file" to a file that is "persistently saved." The term "file," as construed in the previous section, does not require persistent storage. In addition, the specification describes an embodiment in which "the memory of the distributed database system 160 is volatile memory, which means that stored data is lost when power is removed." Col. 6, at 46-52. Plaintiff's argument is also supported by the fact that dependent claims 7, 20, and 21 expressly require "persistent storage devices." See Enzo Biochem, Inc. v. Applera Corp., 599 F.3d 1325, 1342 (Fed. Cir. 2010) ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."). Defendants rely on an example in the specification of one phase of a database query command, which states the "intermediate results file is saved for combining with the other intermediate results files." Col. 12, lines 49-53 (emphasis added). However, this does not indicate that an "intermediate results file" must be "persistently saved." Indeed, Defendants do not provide the Court with a definition for "persistently saved," except to argue it does not mean what Plaintiff contends it means - that the file must be able to survive a power outage.

The second issue is whether an "intermediate results file" contains "one or more records or fields" or "a partial set of records" in response to a query. The Court agrees with Plaintiff that Defendants' construction is too limiting. It is possible that an "intermediate results file" could contain a complete set of records, rather than a "partial" set. Defendants' construction does not take this possibility into account.

Therefore, the Court adopts Plaintiff's construction and construes "intermediate results file" to mean "a file that includes one or more records or fields used to respond to the query."

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7. "the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer"
This term appears in the '408 patent claims 1 and 9. Rackable asserts that "the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer" means "features that would normally be accessed from the rear of the main board in a standard computer, such as the I/O connectors, and accessible data drives if present." Supermicro contends that "the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer" is indefinite under 35 U.S.C. § 112(2) due to the word "intermittent," or alternatively means "the i/o connectors including the one or more data transmission ports and all parts of the computer that require occasional access by the user or operator."

The essence of the dispute here again appears to concern the meaning of the word "intermittent," and also which parts of a computer require access.

As with disputed term four, "components requiring intermittent physical access," Rackable appears to focus on the type and extent of I/O connectors described by the phrase; whereas, Supermicro focuses on the type of access. Rackable again argues that contrary to Supermicro, not each and every attachment to a computer requires "intermittent" physical access. It asserts that instead, as with term four, the "components requiring intermittent access" include only "physical input and output sockets that are found on the main board, and various data drives or storage devices if they are present."

Supermicro again, as with term four, argues that the phrase is indefinite, based on the term "intermittent."

For the reasons set forth above with respect to term four, the court concludes that “the I/O connectors including the one or more data transmission ports and to all components requiring intermittent access provided for the computer,” is indefinite under 35 U.S.C. § 112 based on its use of the term "intermittent."

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4. "components requiring intermittent physical access"

This term appears in the '366 patent claims 15, 16, and 39.

Rackable asserts that "components requiring intermittent physical access" means "features that would normally be accessed in use from the rear of the main board in a standard computer chassis, such as I/O connectors, and accessible data drives if present." Supermicro contends that "components requiring intermittent physical access" is indefinite under 35 U.S.C. § 112 due to the word "intermittent," or alternatively, means "parts of the computer requiring occasional physical access by a user or operator."

Supermicro again argues that this phrase is indefinite, based on the term "intermittent." It argues that the term does not adequately describe the degree of access required, and is therefore ambiguous. Supermicro further asserts that Rackable's definition itself makes the phrase increasingly vague and ambiguous. It argues that the terms "normally" and "standard" are themselves subjective and ambiguous. Alternatively, Supermicro argues that the term "intermittent" should be replaced with "occasional," based on the dictionary definition of "intermittent."

Rackable responds that Supermicro's "reason for pretending there is ambiguity is [to] move the claims away from main board features to instead require non-main board features, such as the socket for the power plug, to be on front, even though the socket is not a main board feature, the plug and power source is not a peripheral device, and the front panel power and reset buttons confirm the lack of need for intermittent access to a socket."

The '366 patent abstract, suggests that "intermittent" is synonymous with "periodic." It provides in part:

By placement of access space to all elements which require periodic attention at the front of each computer, the need for significant space at the rear of the computer is eliminated.

'366 patent. Additionally, in the summary of the invention, the specification provides, regarding the elements that should be located at the front of the computer, that: "Desirably, those [attachments] which require physical access periodically or would significantly hinder forward removal of the machine from a rack in which it may be placed are provided for at the
front of the chassis." '366 patent, 4: 9-12.

However, the patent's reference to "periodic" does not save the term from indefiniteness. That is because both terms -- "periodic" and "intermittent" -- suggest time frames, and a certain regularity that depends on a user's purpose. However, as discussed above regarding the term "front," because a user's purpose is highly subjective and variable, the terms "periodic" and "intermittent" do not provide the type of "objective anchor" required by 35 U.S.C. § 112.  n1

--- Footnotes ---

n1 The court also rejects Supermicro's alternative construction of "intermittent" as "occasional." Both "intermittent" and "periodic" suggest some regularity, which is not reflected in the term "occasional."

--- End Footnotes ---

For these reasons, the court declines to adopt either parties' construction, and concludes that "components requiring intermittent physical access" is indefinite under 35 U.S.C. § 112.

A. The Meaning of "Intermittent Power" in the 763 Patent

Excellent Inventions has proposed a construction for "intermittent" in both patents as "stopping and starting at irregular intervals." This proposed construction relies on the primary purpose of the invention -- "to simulate, through a controlled device, natural wind which itself starts and stops at irregular intervals" -- and the prosecution history of the later 416 Patent. (Docket Entry No. 23, p. 7). Homedics contends that the 763 Patent does not support construing the claim term, "a motor for generating intermittent power," to mean only power generated at irregular intervals. The Homedics proposed construction of "a motor for generating intermittent power" is a "a motor that operates at intervals -- both regular and irregular."

This court finds that the term "intermittent power" in claim two of the 763 Patent means power generated at intervals, regular or irregular. In so determining, the court looks to the intrinsic evidence of the patent, "the patent itself, its claims, written description, and, if in evidence, the prosecution history." Elkay Manufacturing Co. v. Ebco Manufacturing Co., 192 F.3d 973, 976-77 (Fed. Cir. 1999). Excellent Inventions correctly argues that generally, a claim term must usually be given a consistent construction throughout a patent. Georgia Pacific Corp. v. U.S. Gypsum Co., 195 F.3d 1322, 1331 (Fed. Cir. 1999) (unless a patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent); Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995) (holding that claim term found in different claims must be interpreted consistently). But Excellent Inventions's reliance on isolated statements from the prosecution history of the 416 Patent Application to construe a claim term from the 763 Patent is misplaced for several reasons.

First, the claims are different. Claim one of the 416 Patent calls for "a control circuit for controlling said power source to generate intermittent wind thereby causing said chimes to emit sound"; claim two of the 763 Patent calls for a "motor for generating intermittent power." "There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims." Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987).

Second, the prosecution history of the 763 Patent is not before this court. Any later action by a patentee cannot change the construction of a patent claim. Instead, patent claims should be construed as if the case was brought the day after issuance. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996) (holding that not even a patentee's later actions may change the proper construction of a patent, in order to permit public reliance on the record). "Although prosecution history can and should be used to understand the language used in the claims, it . . . cannot enlarge, diminish, or vary the limitations in the claims." Markman, 52 F.3d at 979 (quoting Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227, 25 L.Ed. 149, 1881 Dec. Comm'r Pat. 131 (1880)). When the specification and the prosecution history conflict, any ambiguities must be resolved in favor of the specification and the claims. See Biogen, Inc. v. Berlex Labs., Inc., 318 F.3d 1132, 1140 (Fed. Cir.2003).
Nothing in the claim itself limits the term "intermittent power" to "power that occurs or is generated at irregular intervals." See Liebel-Flarsheim Co., 358 F.3d 898 at 904-05; In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (improper for patentee to import "extraneous" limitation to avoid anticipation apart from any need to interpret particular words or phrases in the claim). Excellent Inventions relies on the invention's purpose -- to simulate the inherently irregular nature of natural wind -- to support its construction that "intermittent" power means power that occurs at irregular intervals. Excellent Inventions points out that the specification "describes how natural wind can be simulated through a program using predetermined frequency or timetable or any other programmed order." (Docket Entry No. 15, p. 7). The portion of the specification cited describes the power source, as follows:

The power source 12 is controlled by a control circuit 16 that induces electrical power to the post at predetermined times or randomly depending upon the desired sound. A random generator 17 in circuit 16 is capable of causing the power source to operate at different times to create the kind of random sounds a wind chime might make in response to actual natural wind. The control circuit 16 may also be programmed to create movement on the chimes on a predetermined frequency or timetable or any other programmed order.

(Docket Entry No. 24, Ex. A, col. 2, 11. 43-52)(emphasis added). The words "may also," make clear that a "predetermined frequency" and "programmed order" are different from "random." The specification makes it clear that the circuit that controls the motor can be set to predetermined intervals or "randomly." Although the preferred embodiment uses a "random generator" "designed to achieve a realistic wind generation," (Id., col. 3, 11. 9-11), the description concludes by stating that "it would be well known in the art to create a motor that activated the fan in a more recurrent fashion or continuously." (Id., col. 3, 11. 9-21).

Because the intrinsic evidence resolves the meaning of the term in dispute, it is unnecessary to examine extrinsic evidence. See Vitronics, at 90 F.3d 1576, 1583. n5 "Intermittent power" as used in the 763 Patent means "power generated at irregular or regular intervals."

n5 Webster's Ninth New Collegiate Dictionary's definition of "intermittent" provides support for this court's construction: "coming and going at intervals: not continuous." Dictionary.com defines "intermittent" as "stopping and starting at intervals." Considered in the context of the intrinsic evidence, the dictionary definition provides a reliable interpretation. See Phillips, 415 F.3d 1303, 2005 WL 1620331 at *11.

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B. The Meaning of "Intermittent Wind" in the 416 Patent

Homedics argues that the term "said power source to generate intermittent wind" in claim one of the 416 Patent" should be construed as "said power source to generate wind at random intervals." Excellent Inventions contends that it is error to construe "intermittent" in the 416 Patent as limited to "random intervals" and argues that the proper definition of "intermittent wind" is "wind stopping and starting at irregular intervals."

The term "random" is not found within claim one, which refers to a control circuit for controlling said power source to generate intermittent wind" that cause chimes to emit sound. The term "random" is found within claim two, which refers to "chimes that move in response to wind from programmed power generated by said power source to simulate random wind." The summary of the invention and the detailed description of the preferred embodiments use the word "intermittent" to describe power generated in some of the different embodiments and to describe wind; the word "random" is used to describe a type of generator and to describe the nature of actual wind. The preferred embodiments include magnetically-powered wind chime that can operate "at predetermined times or randomly"; water-generated movement of the chimes that occurs when water "intermittently" passes the chimes; wind-generated movement of the chimes in which the wind is created by a "random generator" driving a motor that in turn drives a fan that causes the chimes to move, in a fashion that can be "more
recurrent or continuously" or "at irregular intervals that may also rotate at different speeds or in different directions to create the effect of random wind moving the chimes." A fourth preferred embodiment uses a wind generator powered by water moving across wheels at "intermittent times" to drive the fan "intermittently." A fifth embodiment uses an ionic wind generator to move the chimes, using a "random generator" to create the sensation of "intermittent wind." (Docket Entry No. 24, Ex. B, col. 4, 11. 16-18).

During the prosecution of the 416 Patent, Petruzzi argued to the examiner that it was not invalidated by the Japanese Patent, which claimed a chime that operated at regular intervals to mark time. Petruzzi stated:

Japanese patent JP 11084037 published March 26, 1999 showing an alarm clock that signals an alarm with a chime moved by generated wind and a regular half hour or hourly chiming function. It fails to show or teach the use of an intermittent or random generator or programmable circuit for simulating the random nature of actual wind.

(Docket Entry No. 24, Ex. E, p. 3). Petruzzi contrasted a chime moved by wind generated at predictable, regular, preset intervals from a chime moved by wind created by an "intermittent or random generator or programmable circuit." Wind generated by an "intermittent or random generator or programmable circuit" is contrasted to the kind of regular, predetermined chiming noise necessary to function as an alarm clock. Wind that is generated at regular, predetermined intervals can be used to operate chimes that serve as an alarm clock, but this is in contrast to "intermittent wind" that simulates the "random nature of actual wind." "Random wind" can be created by either an "intermittent or random generator or programmable circuit." Petruzzi made it clear that "intermittent wind" meant wind that was not continuous nor regular. The prosecution history does not, however, require the conclusion that "random" only means at intervals, whether regular or irregular, as opposed to occurring in a manner that is so irregular as to be lacking in pattern or predictability.

The specifications support a construction that "intermittent wind" means wind that blows at irregular intervals, while "random" appears to mean irregular or unpredictable occurrences that can be continuous or at intervals. Several of the specifications show that "random wind" includes wind that may blow continuously, but at varying and unpredictable speeds and directions. (See Docket Entry No. 24, Ex. B, Fig 4 and col. 3, 11. 26-44). By contrast, "intermittent wind" means wind that blows at intervals, that are defined in the 416 Patent to mean only intervals that are irregular. (See Id. col. 2, 36-67, col. 3, 1-6, col.3, 26-45, col. 4, 1-17).

Footnotes

n6 Webster's Ninth New Collegiate Dictionary defines "random" as "... lacking a definite plan, purpose or pattern." On Dictionary.com, "random" is similarly defined as "having no specific pattern, purpose or objective." McGraw Hill's Scientific and Technical Dictionary defines random paired with several other words, including:

random forecast [METEOROLOGY] A forecast in which one of a set of meteorological contingencies is selected on the basis of chance; it is often used as a standard of comparison in determining the degree of skill of another forecast method.

random mating [GENETICS] A mating system in which there is an equal opportunity for all male and female gametes to join in fertilization.

By attempting to find a reliable dictionary definition of "random," this court runs into two of the problems the Federal Circuit warned of in Phillips: that the extrinsic evidence is less useful than intrinsic evidence because it is not created "for the purpose of explaining the patent's scope and meaning" and "there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question." Phillips, 415 F.3d 1303, 2005 WL 1620331 at *11.

This court concludes that "intermittent wind" in claim one of the 416 Patent means wind that blows at irregular intervals.
The Court modifies MEI's proposed construction and construes the term as "the internal circuit which is protected by the surge protection apparatus." Samsung's proposed construction--"a circuit that is protected by the surge protection apparatus and is internal to the semiconductor integrated circuit"--imports limitations from claim 2 that do not appear in claim 1. There is no basis for importing a "semiconductor integrated circuit" limitation into the term. See '588 Patent Figs. 1, 2, 3, 5, 6, 10-12 (illustrating circuit diagrams that are not limited to semiconductor integrated circuits).

DE proposes that "international shipping information" be construed as "any information related to shipping a product internationally from its point of origination to its point of destination." Dell contends that the term means "information identifying all shipping options for each leg of the transport route."

Dell observes that the Detailed Description of the Preferred Embodiments section describes "the transaction system contains or interacts with various databases, including ... shipping information, including all options for each leg of a journey between product origination and customer destination." '020 Patent, col. 4, ll. 13-15. This reference to the shipping information is similar to the language of the claim itself. The specification also describes that "at step 132 a determination of the discrete legs or links of the overall transport route are determined based upon shipping data contained in the fifth data base and processing center." Id. at col. 8, ll. 32-35. This determination is based upon a standard shipping route, which can be determined by the vendor, "requested by the customer," or decided by some combination of the two. Id. at col. 8, ll. 36-37. In the example described, the customer "has options of how the [product being shipped] will be taken from the warf [sic], through U.S. Customs, and to the final destination." Id. at col. 8, ll. 27-29. The specification explains that, "thus, between the vendor and the customer each discrete leg of the transport route is determined (step 132), as well as the costs accompanying each of those discrete legs of the journey (step 134)." Id. at col. 8, ll. 30-33. As the specification describes, the customer's options are based upon the database of international shipping information, which must contain at least shipping options and associated costs. Although it is a recognized principal of claim construction that a preferred embodiment "cannot limit broader claims that are supported by the written description," the court does not attempt to do so in this case. Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999) (emphasis added). The court merely construes the claim term, "international shipping information," in the context of the specification. No broader concept of "international shipping information," without shipping options and associated costs, was described as embodying the invention. See id. (citing Adams v. United States, 383 U.S. 39, 49, 86 S. Ct. 708, 15 L. Ed. 2d 572, 174 Ct. Cl. 1293 (1966) ("it is fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the inventions").

The court therefore construes "international shipping information" as "any information, including at least shipping options and associated costs, related to shipping a product internationally from its point of origination to its point of destination."
March 14, 2005, the Court made the following claim construction rulings. "Spatial detail" means "geographic information relating to an area or region." "Internet" means "a system of linked computer networks, worldwide in scope, that typically is associated with using TCP/IP as a standard protocol" and "internet" means "a group of networks that have been connected by means of a common communications protocol." "Remote" or "Remotely" means "separated by an interval or distance" with "separated" meaning "to be set or kept apart." (R. 273-1.)

1. Internet

The parties appear to attach no significance to the fact that the disputed term is capitalized in one instance and not in another, so I will assume "Internet" is a proper noun in both cases. The crux of the dispute between the parties over this term is whether private networks are specifically excluded from "the Internet." Skyline argues that the Internet excludes "private networks even if they use internet protocols or have connections to the Internet." I find this exclusion too broad, but agree that some private networks may not be part of the Internet.

In ordinary usage, the Internet refers to the communication network composed of a multitude of interconnected smaller networks, which communicate via Internet Protocols. Some of the smaller networks are fully public, some are private, and most fall somewhere in between. An argument that "private networks" are not part of the Internet would be surprising to any home user who has a password protected wireless network. Clearly the home wireless network is private, in that only authorized users may log on, but it is also a part of the Internet. In fact, the Internet is composed largely of interconnected private networks, where access to any particular network is controlled via passwords or other authentication techniques.

However, there does seem to be a distinction between a private, in the sense of authenticated, network, and a wholly self-contained group of computers or other devices communicating only with one another. All parties in the November 1, 2006 Claim Construction hearing agreed that three computers hardwired to each other, and communicating only among themselves, were probably not part of "the Internet," even if they communicated via Internet Protocol. See Nov. 1, 2006 Transcript at p. 75:19-22. Although the public nature of the Internet should be captured in the idea of a "publicly accessible network," I will included a specific limitation on wholly self-contained private networks, to clarify that these are not part of "the Internet." However, if the private network is not wholly self-contained, in that it has a link to the broader Internet, I find that the network is part of the Internet, at least for the purposes of Claim 22 (which only requires a "connection to the internet"). For Claim 8, at least some portion of the download must happen over the broader Internet for the claim language to be satisfied. In general, I also agree with Skyline that the Internet is a single entity (the Internet), not several (an Internet).

n17 However, this construction is not intended to exclude networks such as Intenet2, which are built on separate physical infrastructure, but are essentially updated and experimental versions of the current Internet. Should more than one mesh of networks come to have the characteristics of "the Internet" as described, the term should be read to describe all such networks.

Construction: (Internet) The publicly accessible network capable of relaying information via Internet Protocol, either alone or in conjunction with one or more other protocols, but not including a wholly self-contained private network of devices communicating only with each other.
relating to an area or region."

"Internet" means "a system of linked computer networks, worldwide in scope, that typically is associated with using TCP/IP as a standard protocol" and "internet" means "a group of networks that have been connected by means of a common communications protocol." "Remote" or "Remotely" means "separated by an interval or distance" with "separated" meaning "to be set or kept apart." (R. 273-1.)

First and foremost, the analytical focus of claim construction must begin, and remain centered, on the language of the claims themselves. Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201-02 (Fed. Cir. 2002) (quoting Interactive Gift Express, Inc. v. CompuServe, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001)). Because the claim language is chosen by the patentee to "particularly point[] out and distinctly claim[] the subject matter" of the invention, 35 U.S.C. § 112, P 2, the claim terms chosen by the patentee carry a presumption that "they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." Tex. Digital, 308 F.3d at 1202. In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources, including the claims themselves, see Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999); dictionaries and treatises, Tex. Digital, 308 F.3d at 1202; and the written description, the drawings, and the prosecution history, see, e.g., DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001).

While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms. See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003); Hockerson-Halberstadt, Inc. v. Converse Inc., 183 F.3d 1369, 1374 (Fed. Cir. 1999).

ACTV, in arguing that the ordinary and customary meaning of the term URL encompasses both relative and absolute URLs, provides a document entitled Request for Comments 1808 ("RFC 1808"), from the World Wide Web Consortium ("W3C"), an industry working group, as authoritative support for this position. RFC 1808 discusses both absolute and relative URLs, noting that a relative URL "is a shortened form of that for [an] absolute [URL]" and that a relative URL is "a compact representation of the location of a resource." In response, Disney offers an earlier document entitled Request for Comments 1738 ("RFC 1738"), from the same organization, in support of its argument that URL encompasses only absolute URLs. Specifically, RFC 1738 indicates that a URL has a typical syntax requiring both a protocol type and a resource locator. RFC 1738 also distinguishes between "relative links," in which the expression of a related resource is described "in the same place as this one except with the following relative path," and general URL syntax, which provides "an abstract identification of the resource location."

As this court has previously noted,

dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation. Indeed, these materials may be the most meaningful sources of information to aid judges in better understanding both the technology and the terminology used by those skilled in the art to describe the technology.

Tex. Digital, 308 F.3d at 1202-03.

As a preliminary matter, we consider whether the RFCs presented by the parties rise to the level of unbiased, contemporaneous reflection of the common understanding of the technical terms in question as to be considered a reliable source of information on the meaning attributed to those terms by those skilled in the art. The purpose of the W3C organization is "to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability." About the World Wide Web Consortium (W3C), at http://www.w3c.org/Consortium/
visited Aug. 7, 2003) ("W3C Website"). To this end, members of W3C (including various industry groups, manufacturers, and others, each with their own conceivable interests in the agenda) are involved in developing standards to describe the various building blocks of the Internet. Id. Both RFC 1738 and RFC 1808 are working papers generated during standardization discussions by one subset, or working group, within W3C. See, e.g., Uniform Resource Locators (RFC 1738), at http://www.w3.org/Addressing/rfc1738.txt (T. Berners-Lee et al. eds. Dec. 1994) ("This document specifies an Internet standards track protocol . . ."). The purpose of the RFCs is thus to collect commentary and to select language to facilitate a common understanding, or to select a standard, from a variety of competing technologies and vocabularies and from a variety of potentially competing interests. Indeed, the acronym "RFC" suggests that end: "Request for Comments." This purpose is in sharp contrast to the role of dictionaries and treatises, which aim not to select or give meaning to a word or phrase, but to report the meaning already established and commonly understood by those skilled in the art. See, e.g., Samuel A. Thumma & Jeffrey L. Kirchmeier, The Lexicon Has Become a Fortress: The United States Supreme Court's Use of Dictionaries, 47 Buff. L. Rev. 227, 291 (1999) (stating that first resort to a dictionary may be appropriate in determining meaning because "dictionaries are designed to reflect usage." (emphasis added)).

Both parties offer these RFC documents as authoritative, unbiased sources relating to the meaning of the expression URL. Because the RFCs were not designed to reflect common usage, but rather to assign language to facilitate further conversation, and because of the seeming contradictions between RFC 1738 and RFC 1808, we conclude that both documents are extrinsic evidence, and in light of the discussion below, we decline to rely on them in our claim construction analysis. See Vitravox Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[I]f analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . . it is improper to rely on extrinsic evidence."). It should be understood, however, that there is no general prohibition on the use of publications from standards-setting organizations to aid in determining the ordinary and customary meaning of technical terms. Where such a document reflects common usage by those skilled in the relevant art, the document may indeed be an appropriate reference. Where, as in this case, the documents of the standards-setting organizations do not reflect common usage, but purport to select language to be used in the future, elevation of these Requests for Comments to the same authoritative, unbiased level as dictionaries is improper.

In the present case, the construction of URL is principally informed by the plain language and surrounding context of the claims themselves. See Brookhill-Wilk, 334 F.3d at 1299. The claims recite that a URL "specifies one or more Internet addresses of the information segments which relate specifically to the content of the video and audio signals of the programming." '181 patent, col. 59, ll. 8-12 (emphasis added). In construing the claim term URL, these additional terms contained in the claimed means-plus-function expressions provide context for the term URL and must themselves be construed. See, e.g., Hockerson-Halberstadt, 183 F.3d at 1374 ("Proper claim construction, however, demands interpretation of the entire claim in context, not a single element in isolation."). Thus, even though the district court's constructions of "Internet address" and "information segments" were not explicitly appealed, we must also construe those terms to properly construe the appealed term URL.

The district court's construction of "information segments" as "simply referring to parts into which information on the Internet is commonly divided" is supported by the claim language and the specification. See Markman Memorandum, 204 F. Supp. 2d at 653; '181 patent, col. 3, l. 6, col. 6, l. 12; '664 patent, col. 3, l. 31, col. 8, l. 32; '768 patent, col. 3, l. 33, col. 8, l. 55. These parts are exemplified by, but not limited to, items such as web pages, audio clips, and images. See id. However, the district court's construction of the term "Internet address," as "a particular host on the Internet, specified by a uniform resource locator that is unique to that host," Markman Memorandum, 204 F. Supp. 2d at 654, is not supported by the claim language or specification, and relies on circular reasoning related back to URL. Rather, the context of the term "Internet address" informs that it is simply a reference to a location of the information segment on the Internet. There is no support for the district court's added requirements that the "Internet address" be a particular host or that it be unique. A URL, then, as defined by the language and context of the claims, is something that identifies the location of relevant information segments. This can include web pages, audio clips, images, and the like. It can be an absolute URL or a relative URL, as long as it specifies one or more Internet addresses of information segments relating to Internet content.

1. As to claim 1, set forth in its entirety, with the disputed language emphasized: 3
1. A system for providing automatic access to preselected locations on the Internet, comprising:

   a published compilation of preselected Internet locations, said published compilation including a unique predetermined multi-digit jump code assigned to each of said preselected Internet locations published therein;

   a predetermined published Internet location having an address published in said published compilation, said predetermined published Internet location including means for capturing a desired multi-digit jump code assigned to each preselected Internet location after said multi-digit jump code has been entered by a user after accessing said predetermined published Internet location;

   means to accessing said predetermined published Internet location;

   means for receiving said desired multi-digit jump code from said means for capturing and means for converting said received multi-digit jump code to a URL address corresponding to the desired preselected Internet location; and

   means for automatically accessing said desired preselected Internet location using said URL address corresponding to said desired preselected Internet location, whereby said user need only enter said desired preselected Internet location without having to enter said corresponding URL address.

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1 The patent in suit is U.S. Patent No. 6,049,835 ("the '835 patent").

2 The '835 patent, directed towards a system (and a method) for providing automatic access to preselected Internet locations, proves the maxim that the simpler the invention, the more complicated the language used to describe and analyze it.

3 The disputed language of claim 11 is essentially the same, the only difference being that claim 11 is a method claim, rather than a system claim.

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2. The '835 patent is directed to providing to "users of the World Wide Web portion of the Internet" "a specialized Web site which can be used in conjunction with published jump codes to readily and automatically access other Web sites or Internet locations, without the user having to remember or input the URL 4 of the desired Web site." (Col. 4, ll. 33-48) According to the preferred embodiment of the invention, 5 a user of the Web enters a specialized Web site by entering the URL of the specialized Web site. The URL of the specialized Web site must be disseminated in conjunction with the dissemination of jump codes for desired Web destinations, which codes are obtained from a printed publication. (Col. 5, ll. 39-44) The invention describes the printed publication as containing "a plurality of reviews of Web sites, each of which has a corresponding four digit jump code associated therewith." (Col. 5, ll. 57-61) After the user is on-line with the specialized Web site and enters the desired jump code, the specialized Web site is described as including a software program that is capable of accepting the jump code and "search[ing] through its database of URLs" in order to "find[ ] the URL which is linked to the input jump code. The software then links the user either directly to the desired Web site, or alternatively, first to a brief written review of the Web site." (Col. 7, ll. 6-10; see also col. 5, ll. 34-65)

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4 According to the patent, "[e]very Web site has an exact address or location on the Web. Such addresses are known as a Uniform Resource Locator or URL. URLs consist of a confusing string of subdirectories, files or executable commands, separated by slashes, which are extremely difficult to work with and which must be typed into the user's Web browser exactly as they appear, including the use of upper and lower-case letters, in order to go to a Web site." (Col. 3, ll. 53-60)

5 The only embodiment described.

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3. It is clear from the specification that the user chooses his/her desired Web sites through the materials contained in the printed publication and accesses said Web sites through entry of the four digit jump codes; i.e., the point of the invention is to allow users of the Web to browse the Web without having to use any URLs except that of the specialized Web site. This idea is captured in the claim language which describes "a URL address" as "corresponding to," not being the same as, a "preselected Internet location" (see col. 8, ll. 29-32), just as one's house is distinct from one's street address. Although the inventor used the words "Internet location" interchangeably with "URL," the specification also provides that, in addition to Web sites, "any other type of subject matter contained on the Internet which has a URL" can be accessed using the jump codes. (Col. 6, ll. 1-3) (emphasis added)

--- Footnotes ---

6 (See, e.g., col. 3, ll. 53-55; col. 4, ll. 29-30, 34-35, 39, 44)

--- End Footnotes ---

4. Therefore, the phrase "a published compilation of preselected Internet locations" is construed to mean "a publicly accessible collection of information which corresponds to preselected Web sites (or to any other type of preselected data found on the Internet) which have unique URL addresses, the URL addresses being associated with diverse individuals or entities." 7

--- Footnotes ---

7 In describing the claimed invention to the patent examiner, the inventor explained that his invention provides Internet users with the ability to reach any and all Internet locations on any of the servers connected to the Internet, as opposed to the single merchant server utilized by the [prior art] Levergood et al. system. (D.I. 138 at 061792-92) (emphasis added) Likewise, in distinguishing the claimed invention from other prior art, the inventor explained:

[W]hile Edelstein et al. proposes that information providers advertise the electronic addresses of their resources, it does not follow that information providers would have been motivated to publish a compilation, which would almost certainly include the electronic addresses of their competitors' resources. Instead, the advertisement taught by Edelstein et al. would take the form of an advertisement for a single company with the electronic address of the company's resource, just as companies today advertise their own (not their competitors') resources by their URLs. (Id. at 061834) (emphasis added)

--- End Footnotes ---

5. The phrase "a predetermined published Internet location" is construed to mean "a predetermined Web site (or any other type of data found on the Internet): (a) which has a unique URL address included in the published compilation; and (b) which serves to provide access to other preselected Internet locations." 8

--- Footnotes ---

8 I.e., the specialized Web site described in the specification.

--- End Footnotes ---
second user Internet point

The parties disagree on the meaning of "second user Internet point."

Dell argued that the ordinary meaning should suffice. Lucent proposed: "any terminal used by a site user via the Internet to access all or part of the multi-level managed information at the web site."

The court construes "second user Internet point" as follows:

"a terminal connected to the Internet through which the second user accesses the web site."


The concept of an "Internet portal" is central to Yodlee's patents, and the term appears in one of the above forms in every independent claim of the above patents.

1. ‘077 Patent

For the '077 patent, CashEdge construes "Internet portal" to mean "a website, requiring a username and password entered by the users for access, utilized as an entry point for other web sites," while Yodlee construes it to mean "a website, requiring user authentication, used to connect with Internet destination on behalf of end users and retrieve personal information." The term is described within Claim 1 as extracting personal information from other sites and presenting it to the end user, and not as an entry point for other sites. The Court adopts Yodlee's construction.

2. ‘451 Patent

For the '451 patent, Yodlee proposes that "Internet portal" be construed to mean "a website, requiring user authentication, used to connect with Internet destinations on behalf of end users and retrieve personal information and/or perform tasks specified by the user." CashEdge proposes "[a] website, requiring user authentication, used to connect with Internet destination on behalf of end users and retrieve personal information." The components of the Internet portal system are described in claim 1 of each patent, and each involves retrieval of information from other sites. '451 patent col. 9, line 50 -- col. 10, line 3. The Court adopts Yodlee's construction, as it is line with this description.

3. '042, '073, and '766 Patents

For the '042, '073, and '766 patents, Yodlee proposes that the Court construe "Internet portal" as "a website, requiring user authentication, used to connect with Internet destinations on behalf of end users," while CashEdge proposes "[a] website, requiring a username and password entered by the user for access, utilized as an entry point for other web sites." The parties agree that their constructions are very similar; the main point of contention is over whether "Internet Portal" must involve "a username and password" or can involve the broader "user authentication."

The Court adopts Yodlee's proposed construction. Claim 1 of the '073 patent refers only to a "log on by a user" and does not limit the manner in which the log on is conducted. Further, the patents refer to means of user authentication other than "a username and password entered by the user." See '073 patent, Abstract (referencing use of "a Smartcard or embedded password" for logging on); '042 patent at col. 10, lines 14-21. Because the patents do not limit the manner in which as user may log on, the Court adopts Yodlee's proposed construction. n2

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n2 This construction is slightly different from the construction of "Internet Portal" in the '077 and '451 patents.
Internet protocol (IP) address for identifying a mobile

Defendants submit this phrase should mean, "the IP address identifies the mobile for routing purposes to each node that routes the data packet to the mobile." Initially, Fenner argued the phrase should not be construed, but eventually agreed to the first part of Defendants' construction, "the IP address identifies the mobile for routing purposes." However, Fenner persists that Defendants' last clause "to each node that routes the data packet to the mobile" is inappropriate, and the Court agrees.

Defendants' additional language implicates a system of nodes by requiring the IP address to identify the mobile to each node that routes the data packet to the mobile. However, the claimed invention deals mostly with the operation of individual nodes. Independent Claims 1, 4, and 6 begin with, "in a communications node of a system" and the subsequent claim elements are not directed toward multiple nodes suggesting that the node is the focus of the claims. For example, the elements of claim 1, the "receiving", "storing", "looking up" and "forwarding" elements, are described within the specification as occurring at a single node (Figure 2 is described as "a schematic representation of the circuitry in an individual system node . . ."). 7:19-20. Claim 14 is structured differently, but is nonetheless focused on, "a message handling node for routing a data packet between two or more networks." Although the specification and prosecution history discuss the broader communication system, that discussion was largely contextual, providing a framework within which to place the claimed invention, but the invention itself is narrower. The larger system, to the extent it is not claimed, should not be read into an invention claiming a sub-part of that larger system.

Defendants counter that the specification and prosecution history referencing a larger system can be limiting in certain circumstances. Citing Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340 (Fed Cir. 2004), Defendants argue that Fenner publicly characterized the present invention as using an IP address to identify a mobile user to each node in the system to facilitate communication between a source and destination across a communications system. Having characterized the invention one way in the specification and to the PTO, Defendants argue, Fenner should not be allowed to characterize the invention in a different way before the Court. However, unlike in Multi-Tech, the prosecution history and specification of the '670 patent do not lead to the "inescapable conclusion" that the IP address identifies the mobile to each node that routes the data packet to the mobile. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1342.

In Multi-Tech, the Federal Circuit read a limitation appearing almost exclusively in the specification and prosecution history into the claims, requiring that the invention use a telephone line to transmit data packets. Multi-Tech Systems, 357 F.3d at 1349 (noting the specification referred to "data transmission 'over' or 'through' a telephone line roughly two dozen times.") In that case, and several like it, the Court found it appropriate to read limitations described in the specification and prosecution history into the claim because the limiting feature went to the heart of the invention or the specification limited the invention to embodiments with the particular feature. See Alloc, Inc. v. Int'l Trade Comm'n, 342 F.3d 1361, 1369-70 (Fed. Cir. 2003); Watts v. XL Sys., Inc., 232 F.3d 877, 882-83 (Fed. Cir. 2000). Here, the prosecution history excerpts Defendants cite are general, providing a big picture framework for the invention, and while the specification describes the larger system as Defendants contend, those descriptions are not so unequivocal as to preclude other embodiments or limit the claims.

As it is not clear that the specification and prosecution history limit the claimed invention, the Court will construe "Internet protocol (IP) address for identifying a mobile" to mean "the IP address (as construed herein) identifies the mobile for routing purposes.

B. The '532 Patent
The parties agree that claims 1, 2 and 3 of the '532 patent are similar to claims 1, 8 and 9 of the '281 patent, except for the language discussed below. Unless otherwise noted, therefore, all terms are construed consistently with the construction given the terms in the '281 patent.

1. Claim 1

Claim 1 of the '532 patent states in its entirety (with additional disputed terms highlighted):

A cinematic work having an altered facial display made in accordance with a process that includes substituting a second animated facial display for a first animated facial display and in which the displays have lip movements corresponding to the languages used and wherein the languages of the two displays are sufficiently different to result in different lip movements for each display, and which process further comprises:

- generating data in digital form representing the configuration of the second facial display over a plurality of cinematic frames,
- generating data in digital form representing the configuration of the first facial display over a plurality of cinematic frames, and
- altering under the control of both sets of said data and a programmed digital computer which provides numerical interpolation of lip distance data the configuration of said first facial display to produce substantially the configuration of the second facial display.

The defendants contend that "numerical interpolation of lip distance data" is limited to numerical interpolation of lip distance data to determine "working curves" from "standard curves." Bloomstein contends that the phrase refers both to the interpolation of working curves from standard curves and more generally to the interpolation of lip positions between frames of the cinematic work. The ordinary meaning of "lip distance" could be either the distance a lip moves from one frame to the next, the distances between the lips in a given frame (i.e. height and width), the distance along a lip curve, or some combination of these. The court therefore looks to the specification to resolve the ambiguity.

The specification expressly contemplates three kinds of interpolation: interpolation of movements for intermediate frames, interpolation of working curves from standard curves according to height and width data, and interpolation of intermediate points on working and standard curves according to control point data. Joint Memorandum, Ex. 1 at column 9:10-10:13. The defendants concede that several types of interpolation are discussed in the specification, but argue that "lip distances" refer only to the four "distances" disclosed in the specification: the upper height, lower height, inner width and outer width pictured in FIGURES 3 and 4. Id. at column 5:10-19. However, the mere reference to "lips" and "distances" in the same paragraph is not a clear enough definition of "lip distances" to further limit the ambiguous claim language.

The defendants also argue that the prosecution history precludes Bloomstein's broad interpretation. Bloomstein originally claimed "curve interpolation which provides numerical interpolation of lip distance data between control curves," but the examiner required the claim be modified to its present, ambiguous form. Defendant's Memorandum, Ex. B. at B-38, B-41. This argument has merit. The only "curves" disclosed in the specification are the standard curves and working curves that define the lip contour. The "distance . . . between control curves" can only refer to the heights and widths of the distance between these lip curves. The court agrees with the defendants that the interpolation step of claim 1 refers only to interpolation of working curves from standard curves according to the lip position data.

2. Claim 2

Claim 2 of the '532 patent states in its entirety (with additional disputed terms highlighted):

A cinematic work in which a second language and associated lip movements are substituted for a first language and associated lip movements in a cinematic work made up of a number of frames and wherein the two languages have different lip movements, made in a process including

- generating data in digital form representing the lip movements of the respective languages,
graphically interpolating lip distance between control data,
transmitting said data to a programmed digital computer, and
under control of said computer, and in accordance with said data, modifying the light intensities at selected areas of the frame to alter the lip movements of the first language to a configuration substantially corresponding to the lip movements of the second language.

Unlike claim 1, claim 2 is not limited to interpolation of distances between "curves" by the prosecution history. Instead, claim 2 uses the terms "lip distance between control data." This language is broader than claim 1, and may encompass each type of interpolation disclosed in the specification. 10

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10 The court expresses no opinion at this time as to defendant's argument that the interpolation steps of claims 1 and 2 are fatally indefinite under 35 U.S.C. § 112(2).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

5. What is the Proper Construction of the Term "Interpolator" in Claims 1 and 10 of the '481 Patent?

Claims 1 and 10 of the '481 patent use the term "interpolator." nVidia contends that the term "interpolator" should be interpreted according to the plain meaning of the term, and that it means something which interpolates. Silicon Graphics contends that interpolator means dedicated circuitry that performs interpolation, or a specific device within which the texture values to be assigned to pixels are calculated.

The '481 patent's specification provides a summary of the invention that states: "included within the same semiconductor chip [as the cache] is one or more interpolators. These interpolators produce an output texel by interpolating from the textures stored in memory." U.S. Patent No. 5,706,481, col. 2, ll. 47-50. The patent also describes the invention as "an apparatus and method for integrating texture memory and interpolation logic for performing texture mapping in a computer display system . . . ." Id. at col. 3, ll. 35-37.

Neither the patent's specification, claims nor prosecution history provide support for Silicon Graphics's argument that the interpolator means either "dedicated circuitry" or "a specific device" for interpolating pixels. Accordingly, the court looks to the ordinary meaning of the term. Johnson Worldwide Associates, Inc. v. Zebeo Corp., 1999 WL 243570, *3. The ordinary meaning of the term "interpolator" is to interpolate. nVidia provides the definition for interpolate in The American Heritage College Dictionary, which is as follows: "4. Math. To estimate a value of (a function or series) between two known values." The American Heritage College Dictionary, 710 (3d Ed.).

The court construes the term "interpolator" according to its ordinary meaning, and finds the term means something which interpolates.

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7. "interpretation by the local computer"

Disputed Anthurium's Proposed
Claim Term Construction
Interpretation by the local computer to produce a set of computer readable job processing requirements.

Disputed Claim Term: Defendants' Proposed Construction

The central issue regarding this phrase is whether the Court should limit it to "logical reasoning," as the defendants suggest; indeed at the base of the disagreement is the definition of "interpretation." Claim 1 of the '998 patent indicates that "interpretation by the local computer" forms the basis of the "computer-readable job processing requirements." '998 Patent, cl. 1. The parties agree on the construction of "computer-readable job processing requirements," defining the phrase to mean "requirements for how a job is to be performed that are in a computer-readable form."

The defendants point to both the specification and the prosecution history for support. The only time the specification of the '998 patent mentions "interpretation" occurs in reference to Figures 2 through 60 of the appendix to the '998 patent. The specification discusses a rule-based system for translating user inputs. An example is shown in Figure 19 of the appendix. Additionally, the defendants assert that the prosecution history supports their proposed construction. During prosecution, the Examiner issued an Office Action in which he rejected claims 15-31 as being both (1) "not patentable distinct" over the '124 patent, and (2) obvious under 35 U.S.C. § 103 in light U.S. Patent Nos. 5,875,436 ("the Kikinis patent") and 5,828,730 ("the Zebryk patent"). Defs.' Ex. 4 at 253-55. In response to the Office Action, the patentee stated, "Applicant [] respectfully submits that neither Kikinis nor Zebryk discloses, teaches, or suggests job processing requirements that are based on interpretation by the local computer of the job instructions." Defs.' Ex. 4 at 26. In the subsequent Notice of Allowance, the Examiner states, "Kikinis and Zebryk [] does not teach the job includes a record including job processing requirements as interpreted by the local computer. Specifically, that the local computer interprets the job for processing requirements based on the job was not taught being done by the local computer, but by the server computer." Defs.' Ex. 4 at 7. The defendants thus argue that Anthurium's inclusion of "processing" is overly broad and seeks to recapture what the patentee unambiguously surrendered during prosecution. They point to the '124 patent, which indicates that the local computer of that patent "merely 'generates' a job packet." Defs.' Claims Construction Brief at 17. They assert that "interpretation" must mean something more that what was overcome in the prior art, specifically the '124 patent's use of "generate."

The prosecution history, however, does not present a clear disclaimer of claim scope. See Northern Telecom Ltd. v. Samsung Elecs. Co., Ltd., 215 F.3d 1281, 1294 (Fed. Cir. 2000). In her response, the patentee did not argue that the "local computer" performs "logical reasoning." In the Notice of Allowance, the Examiner did not elucidate what is meant by "interpretation." In fact, the crux of the allowance was the fact that prior art teaches "job processing requirements" as being done by a "server computer," whereas the '998 patent teaches "job processing requirements" as being done by a "local computer." There is no clear and unambiguous reason to infer that such job processing involves "logical reasoning," as the defendants suggest. Furthermore, the specification supports Anthurium's construction. See '998 patent, col. 6 ll. 20-33.

The Court defines "interpretation by the local computer" as follows: "processing the job instructions to produce a set of computer readable job processing requirements."
8. "interpreting" (’181 patent, claim 1; ’664 patent, claim 1; ’768 patent, claims 1 and 19)

Although "interpreting" on its face means analyzing and translating, defendants seek to limit the term's use here solely to the function illustrated in Figure 3 of all three patents of determining whether an incoming URL was previously received, and, if not, performing error checking and correction before sending it to a web browser. Defendants point to a description of the preferred embodiment that states that the client software "interprets the URL and determines whether the URL has been received previously . . ." ’181 patent, col. 5, 11. 20-22; see also ’664 patent, col. 7, 11. 44-46; ’768 patent, col. 7, 1. 67 - col. 8, 1. 2. However, quite aside from the fact that there is no reason to read this sentence as dispositive for all forms of interpreting involved in these patents, defendants' definition would make the second part of the quoted sentence redundant. Furthermore, the term "interprets" is elsewhere used in the patents in ways entirely different from defendants' proposed definition. Thus, other parts of the specification refer to client software that "retrieves the URLs, interpret[s] these URLs and direct[s] the JAVA enabled browser to retrieve the relevant Web page." Accordingly, the Court concludes that, in accordance with the function of the patented invention, "interpreting" refers to any kind of analyzing and translating utilized to enable the browser to effectively retrieve the relevant Web page.

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Claim 1 recites, in part, an "interrogator/reader" that includes a "field generator" and a "receiver." ’563 patent, col.9 ll.2-34. RFID argues that the claim uses the open-ended term "including," which, similar to "comprising," raises a presumption that the "interrogator/reader" is not limited to a "field generator" and a "receiver" and may include a transmitter. RFID Br. at 11-16 (citing SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1284 (Fed. Cir. 2005) ("As a patent law term of art, 'includes' means 'comprising.' Neither includes, nor comprising, forecloses additional elements that need not satisfy the stated claim limitations.").

Claim 15 recites a method that, in part, requires "generating a field . . . with an interrogator/reader." ’563 Patent, col.10 l.55-col.11 l.16. The claim also requires the step of "receiving periodic signals transmitted by each field activated apparatus associated with each item within the range of the field." Id. While it is possible another structure could receive the periodic signals, claim 1 and the specification provide that the interrogator/reader comprises a receiver that receives each field activated apparatus's periodic signal. Id., col.9 ll.2-34, col.3 ll.18-41 (describing the interrogator/reader as designed to generate an RF field and receive signals from the RFID tags).

The specification does not rebut RFID's alleged presumption that the interrogator/reader can include a transmitter. The specification, however, does not strengthen RFID's argument, as it only describes the interrogator/reader's receiving and field generation capabilities. See, e.g., ’563 Patent, col.3 ll.23-25 (stating the system includes "an interrogator/reader designed to generate an RF field capable of activating the RFID's"); id., col.3 ll.32-38 (describing interrogator/reader capabilities as generating a field and receiving signals from RFID tags); id., col.4 ll.36-40, col.5 ll.11-14 (describing interrogator/reader's receiving capability); id., col.7 ll.7-23, ll.34-53, col.8 ll.13-18, ll.55-58 (describing interrogator/reader's field generation capability).

During prosecution before the United States Patent and Trademark Office ("PTO"), the patent examiner rejected claims 1 and 15 of the ’563 patent as obvious under 35 U.S.C. § 103(a) in view of U.S. Patent No. 5,686,902 ("the Reis patent") and U.S. Pat. No. 5,539,394 ("the Cato patent"). The Reis and Cato patents disclose an interrogator that contains a transmitter that communicates with RFID tags. See Reis patent, Fig. 2, col.6 ll.39-61, col.9 l.39-col.11 l.153; Cato patent, Fig. 2, col.3 ll.31-64. In both Reis and Cato, an interrogator sends polling commands to the tags. The applicant differentiated its claims from this prior art on the ground that the claimed interrogator/reader was simple, unlike the complex readers of the prior art that contained and used a transmitter to send commands to the tags.

The district court found:

"The applicant stressed, in the Preliminary Statement sections in its responses to the 35 U.S.C. § 103(a) rejection, that the applicant's invention only requires a field to poll the inventory and the interrogator/reader "is simply a receiver and field generator in its simplest form." Id. at Ex. 5D at 11; id. at 5F at 11 ("The present invention does not require the interrogator/reader to do anything more than receive transmitted signals from tags within the activation zone of a field generated by the interrogator/reader."); id. (stating ")[t]he Reis and Cato Patents simply do not disclose, teach or suggest an
inventory system where the interrogator/reader only received transmitted tag signals); see also id. at Ex. 5F at 9 ("the interrogator/reader is nothing more than a receiver that receives a signal[]], determines the unique code associated with the signal and forwards the code to the computer for updating the inventory list"). To specifically distinguish[] the present invention from the Reis and Cato Patents to transverse the 35 U.S.C. § 103(a) rejection, the applicant stated "[t]he [claimed] method . . . requires no polling and no transmission from the interrogator/reader, the field performs the polling, and the tags emit their uniquely modulated signals to the interrogator/reader when activated by the field . . . ." Id. at Ex. 5D at 15. Additionally, the applicant stated "[a]ll anticollision processing is handled at the tag level and not at the interrogator/reader level," which is consistent with the applicant's statements that distinguished the interrogator/readers disclosed in the Reis and Cato Patents on the basis that those interrogator/readers transmit data to the RFID tags. Id. at Ex. 5D at 11; id. at Ex. 5F at 9. In light of such distinctions, the applicant concluded the Reis Patent, the Cato Patent, or the combination of the two patents, does not disclose, teach, or suggest such a simple inventory control system and as a result did not render obvious the applicant's claims. Id. at Ex. 5D at 15; id. at Ex. 5F at 14.

The applicant made similar statements in response to a similar rejection during prosecution of the '563 Patent's parent application [analogous to the unamended application that became the '563 patent], which also claims an "interrogator/reader." The applicant stated "[t]he Reis [Patent] uses tag technology that requires the interrogator to send signals to the tags and receive signals from the tags in such a way as to minimize or eliminate simultaneous tag signal transmission." Id. at Ex. 4E at 12. With regard to the applicant's invention, "[i]n distinction, the present technology only requires that the interrogator generate a field and receive tag signals . . . ." Id. The applicant further stressed that this distinction was "fundamental." Id. That the Examiner did not rely on these statements, as the parent application never issued, does not negate the effect of the applicant's disclaimer. See Springs Window Fashions LP v. Novo Indus., L.P., 323 F.3d 989, 995 (Fed. Cir. 2003).


In light of these statements during prosecution, RFID cannot now contend that the claimed interrogator/reader is anything more than "simply a receiver and a field generator in its simplest form." See Computer Docking, 519 F.3d at 1376-70 ("portable computer" limitation in preamble of claim determined to mean "a computer without a built-in display or keyboard" due to prosecution statements distinguishing prior art as "requiring a portable display and keyboard," whereas the invention did not require a built-in display and keyboard); Innovad Inc. v. Microsoft Corp., 260 F.3d 1326, 1332 (Fed. Cir. 2001) (despite lack of explicit claim limitation prohibiting device from having a keyboard, devices with keyboard were beyond scope of the claims due to disclaimer in specification).

Accordingly, this court finds the district court properly found that the applicant's statements before the PTO, in total, clearly rebut RFID's argument that the interrogator/reader can include a transmitter and disclaim an interrogator/reader that includes a transmitter. This court affirms the district court's claim construction and summary judgment of noninfringement, finding the claim term "interrogator/reader" to mean "an interrogator/reader that includes a field generator and a receiver, but not a transmitter."

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i. Interrupts

Plaintiff Gobeli and Defendant Apple argue that an interrupt is "a hardware signal which literally interrupts the computer and causes control to be transferred to the interrupt handler." Defendant Sun believes the proper construction of "interrupt" is "one of a plurality of hardware signals, wherein each such signal corresponds to an external process and controls which of a plurality of defined routines is executed by the interrupt handler."

Plaintiff's and Apple's definition is taken verbatim from the specification at Col. 1, 11. 37-40. Thus, the Court agrees with Gobeli's and Apple's proposed construction.
1. Claim Construction

Boss argues that the district court erred in construing "wherein said controller is operative to interrupt power to the load responsive to said code-providing device being operatively disconnected from said controller." Specifically, Boss contends that "interrupt" should be given its ordinary and accustomed meaning of "to break off" or "to shut or cut off." Bombardier responds by arguing that the inventors gave a special definition to the term "interrupt" that does not involve simple "on-off" control of electrical power.

To interpret "interrupt," we first consult "the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). "Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history." Id. "Thus, …it is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Id. In fact, the specification "is the single best guide to the meaning of a disputed term." Id. However, "the court may also consider the prosecution history of the patent, if in evidence." Id. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." Id.

In this case the specification of the '206 patent clearly gives the term "interrupt" a special definition. In the "Background of the Invention" section, the specification states:

In the prior art, means have been provided to prevent unauthorized usage of electrical appliances and similar electrically operated devices, primarily through key operated electro-mechanical circuit interrupt devices. However, such devices conventionally provide for on-off control only, meaning that the device completely interrupts the flow of electrical power to the appliance while in the interrupt or "locked" state, and it connects the appliance to the electrical supply in the operative or "unlocked" state.

'206 patent, col. 1, ll. 33-42. The "Summary of the Invention" section goes on to distinguish the invention from the prior art discussed in the Background of the Invention:

In accordance with one aspect of the invention the appliance or device retains a connection to the power supply while in interrupt or "locked" mode; complete power shutoff only occurs when a preset electrical current is exceeded, thus allowing operation of the appliance's auxiliary electrical equipment while the interrupt device is in the interrupt mode.

Id. at col. 1, ll. 51-57. The specification therefore distinguishes between simple on-off interruption of electrical power and interruption of electrical power that occurs in two stages. In the first stage, a device retains a connection to a power supply such that auxiliary electrical equipment continues to operate. In the second stage, power to the device is completely shut off in response to current exceeding a preset limit. Thus, according to the specification, when electrical power is "interrupted," current is allowed to flow to the device up to a preset limit during a first stage of operation, and when the preset limit is exceeded, a second stage of operation is entered in which power to the device is completely shut off. In these ways, the specification clearly sets forth a definition of "interrupt" that is more detailed than simple on-off control.

The preferred embodiments are consistent with this definition of "interrupt." "While it is of course improper to limit the claims to the particular preferred embodiments described in the specification, the patentee's choice of preferred embodiments can shed light on the intended scope of the claims." Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004). The "Detailed Description of the Invention" section of the '206 patent discloses a preferred embodiment of the invention in the form of an interrupt device coupled to a household appliance such as an electric stove. This section describes the operation of the interrupt device and the stove:

In the preferred embodiment, when the appliance 11 is in the interrupt mode, auxiliary functions, such as a clock and/or
light, remain operational, so long as their combined current draw is less than the "current threshold". When an unauthorized person attempts to use the heating functions of the appliance 11, which draw a comparatively greater current, the current threshold will be exceeded and the relay contacts 20 or 21 will be opened, disconnecting the main power supply from the appliance while still supplying power to the microcontroller 26 through DC power supply 25.

It will be understood that in the described embodiments the device in the interrupt mode does not actually cut off power to the appliance, i.e. interrupt the main power supply, until the current threshold is exceeded by turning on a high current-drawing component of the appliance 11, such as a heating element.

Thus unauthorized attempts to use the appliance in the described embodiment wherein the interrupt device is operatively connected with a stove, are immediately obvious from the fact that the auxiliary clock and light functions of the stove no longer operate.

'206 patent, col. 6, ll. 3-23. This description confirms that, in the context of the invention, interruption of power to an electrical device involves two stages: a first stage in which auxiliary functions remain operational so long as a combined current draw is less than a current threshold, and a second stage in which power to the device is completely disconnected in response to the current threshold being exceeded.

In contrast to the way in which the specification distinguishes the invention's concept of a two-stage interruption of electrical power from the simple on-off interruption of electrical power in prior art devices, Boss argues that we should construe "interrupt" as "to break off" or "to shut or cut off." To support this construction, Boss points to a dictionary as well as the prosecution history of the '206 patent. Neither the dictionary definition nor the prosecution history, however, overcomes the particular meaning of "interrupt" clearly set forth in the specification. While at least one dictionary defines "interrupt" as "to break off" or "to shut or cut off," as discussed above the specification clearly sets forth a definition of "interrupt" that is not limited to a simple on-off control of electrical power. Furthermore, while it is true that during prosecution the applicants twice used the phrase "cut off" interchangeably with the term "interrupt," this usage does not operate to erase the clear definition of "interrupt" found in the specification of the '206 patent. Moreover, this usage of "interrupt" is consistent with the second stage of the interrupt mode described in the specification: complete disconnection of power.

Boss also attempts to distinguish claim 7's use of the term "interrupt" from use of the phrase "interrupt mode" found elsewhere in specification, including other claims. Use of the term "interrupt" in the context of claim 7, however, is consistent with use of the phrase "interrupt mode" in the remainder of the specification. For example, the specification describes how the interrupt device switches to the interrupt mode:

the interrupt device is switched to the interrupt mode in one of three ways: …2) the authorized person detaches or uncouples the key pad 27 from the main body 10 by disconnecting plug 42 on cord 41 from the receptacle 43 in the key pad 27 ....

'206 patent, col. 5, ll. 61-67. This description makes clear that one of the ways in which the interrupt device switches to the interrupt mode is when a key pad is detached, uncoupled, or disconnected from the interrupt device. Similarly, claim 7 recites "wherein said controller is operative to interrupt power to the load responsive to said code-providing device being operatively disconnected from said controller." "Interrupt" as it is used in claim 7 is therefore fully consistent with the "interrupt mode" discussed elsewhere in the specification.

Because the specification makes clear that the invention involves a two-stage interrupt mode, the intrinsic evidence binds Boss to a narrower definition of "interrupt" than the extrinsic evidence might support. See Astrazeneca, 384 F.3d at 1338. See also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) ("Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.").

In sum, "interrupt" requires: (1) providing electrical current to a device up to a preset threshold so that auxiliary components may continue to operate; and (2) completely shutting off electrical current to the device when the electrical current exceeds the preset threshold. The district court did not err in its claim construction.
4. interrupting n2 (claim 8)

n2 The parties offered the term "interrupting . . . and resuming" for construction, but I have omitted "resuming" because the parties' briefs and arguments at the hearing made it clear that the meaning of "resuming" is not in dispute.

Plaintiff's construction: stopping temporarily or suspending the execution of a program or process upon receipt of an interrupt signal at any time, so that another program or process can be performed

Defendants' construction: temporarily stopping a formatting operation

For this term, it is plaintiff that proposes the much more complicated construction. While defendants propose the ordinary, non-technical meaning of "interrupting," plaintiff seeks to include the purpose of the interruption ("so that another program process can be formed"), its timing ("at any time") and that the interruption occurs as the result of an "interrupt signal."

As an initial matter, it seems unusual to include the purpose of the interrupting in the definition of interrupting because it limits the term's meaning to a particular type or subset of interrupting that is not suggested by the word alone, at least its ordinary meaning. In any event, including the purpose of the interruption in the construction would be redundant because the surrounding claim language shows that the formatting process is interrupted in order to "enabl[e] the execution" of another process. There is no need to repeat this in the construction of a particular term in the claim.

With respect to plaintiff's proposal that the interruption occur "at any time," the language of the claim itself does not limit the timing of the interruption, so this part of plaintiff's proposal should be adopted unless defendants can point to something in the specification restricting the interruption to a particular time. Because defendants did not object to this part of plaintiff's construction in their briefs or at the hearing, I will adopt it.

The biggest dispute surrounding this term is whether the claim requires that the "interrupting" occur in response to an "interrupt signal." It is plaintiff that must make a case to include this term because the claim does not include a reference to an "interrupt signal." In fact, as defendants point out, there is no mention of an "interrupt signal" anywhere in the entire patent.

At the hearing, plaintiff modified its position somewhat by saying that the precise words "interrupt signal" are not important, but rather what matters is that the construction include the idea that the formatting process is suspended in response to a read or write request. In support of this position, plaintiff cited several passages in the specification:

"the background formatting means may include means for interrupting the formatting process when a request for recording user data is made," '955 Patent, col. 3, Ins. 20-23;

"the background formatting means may include means for interrupting the formatting process when a request for reproducing data recorded in a designated area is made," '955 Patent, col. 3, Ins. 40-43;

"the controller 9 serves to interrupt the formatting operation when a request is made for reproducing user data recorded in a designated area during the formatting operation in the background process," '955 Patent, col. 7, Ins, 11-13.

Plaintiff is correct that in each of these passages, there is a reference to "interrupting . . . when a request is made," but these references do not define "interrupting" to mean that the process is stopped in response to a request. In other words, the references suggest that the interruption occurs after a request, but they do not suggest that the making of a request is inherent in the meaning of "interrupting" as it is used in the patent. They are separate concepts.
Further, even if I concluded that each of the cited references defined "interrupting" in the manner suggested by plaintiff, it would not necessarily follow that "interrupting" has the same meaning in claim 8. This presents another question whether the specification is being used to interpret the claim or to import limitations into the claim. The first two citations say only that the background formatting process "may" include a means for interrupting when a request is made; it does not require it. The third citation is in the context of a discussion of one of the preferred embodiments; it does not purport to be a requirement for all embodiments.

It would have been easy enough for the inventor to include plaintiff's suggested limitation in the claim itself. Rather than its current form, the relevant portion of claim 8 could have stated (as plaintiff's references in the specification do), that the device "enabl[es] execution of at least one of a recording process and a reproducing process by interrupting the formatting process in response to a request . . . ." The omission of this phrase strongly suggests that it is not part of the claim and should not be read back into it.

Notably, claims 10 and 12 of the '955 patent do include language that interrupting occurs "when a request . . . is made." '955 Patent, col. 13, Ins. 52-53, 66-67. Plaintiff believes that claims 10 and 12 support its position, but I think it is just the opposite. The presumption in claim construction is that inventors choose their words carefully. Phillips, 415 F.3d at 1314 ("Differences among claims can also be a useful guide in understanding the meaning of particular claim terms."). The inventor's decision to expressly state in claims 10 and 12 that the interruption occurs in response to a request indicates that the omission in claim 8 was purposeful. Also, if "interrupting" in the context of the '955 patent inherently means that it occurs in response to a request, as plaintiff says, there would be no need to include the additional language in claims 10 and 12, unless the term means one thing in claim 8 and another in claims 10 and 12. This would conflict with the presumption that the same term has the same meaning throughout the patent, Phillips, 415 F.3d at 1314, a presumption that plaintiff has not even attempted to overcome.

Accordingly, I will adopt defendants' proposal, with the proviso that the interruption may occur at any time.

**Court's construction: temporarily stopping a formatting operation, which may occur at any time**

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- "interval" is construed to mean "a period of time." Lucent contends that this term, in the phrase "accumulating a count of bytes of data arriving at a node per interval," means "a period of time." (D.I. 396 at 6.) Extreme contends that this term means "a fixed period of time between successive decrements to the value of count in the accumulator for each virtual circuit being monitored." (D.I. 399 at 8.) Foundry contends that this term means "the period between successive decrements to the value of COUNT in the accumulator; this is a fixed interval for each virtual circuit being monitored and may differ among the virtual circuits. (D.I. 385 at 13.) In support of their contentions, Defendants point to the description of parameter "I" in the specification. ('810 patent at 7:7-10.) The Court finds that Lucent has not clearly defined the term "interval" by way of describing this parameter. Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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6. "intervention"

The parties partially agree that "intervention" means "an action by a health care provider." They disagree on how to characterize the nature of that action. Plaintiff submits the remaining construction as: "to manage the care of an individual patient." Defendants differ with: "to change a patient's care." Defendants' argument here is reminiscent of its position regarding the construction of "remote command center," where they asked the Court to adopt the narrower meaning of "directing the intervention" over plaintiff's proposed "managing the care." Here, similarly, "changing" a patient's care is more restrictive than "managing" a patient's care in that managing can encompass a "change" of care (i.e., implementing new or different symptoms or care methods) or monitoring existing conditions. As plaintiff noted, reinserting a clogged breathing tube has not "changed" the care but "managed" the care and this type of intervention was clearly contemplated in
the claim. (Hr’g., p. 183.) Read as a whole, claim 17 describes a method for providing expert critical care, which in our view is expansive and does not limit the intensivists to only "changing" the care. Indeed, defendants have not pointed to any specific intrinsic evidence that would support such a limiting role. "Intervention" is construed as: "an action by a health care provider to manage the care of an individual patient."

ii. "Interworking Device"

Turning to the second disputed claim term in the '294 Patent, "interworking device," the court once again begins its task of claim construction with the language of the claims themselves. According to the claim language, the interworking device performs the task of "convert[ing] the narrowband communication signal into packet format." In other words, explicit within the claim language itself is that the "interworking device" is a device that interworks or converts between two communication formats -- specifically, between a narrowband format (such as used in the PSTN) and a packet format (such as ATM or IP). The claim language itself does not limit the packet format to ATM, but rather could encompass the IP technology employed by Vonage.

Based on this claim language, Sprint argues that the court should construe the claim term "interworking device" to mean a device that converts narrowband communication signals into a packet format.

In support of Vonage's argument that the court should construe the claim term "interworking device" to mean ATM interworking multiplexer, Vonage once again relies on language contained throughout the specification. It is true, as Vonage contends, that the specification repeatedly discloses in numerous important respects that an ATM interworking multiplexer is the one and only "interworking device" claimed in the specification. The disclosures in the specification are not merely limited to preferred embodiments or versions of the invention. Reading the claim term in view of the specification, it seems that the only logical conclusion that could be reached by one of ordinary skill in the art is that the inventor intended the term "interworking device" to mean an ATM interworking multiplexer. The abstract describes the invention as a system for providing virtual connections "through an ATM interworking multiplexer" whereby the signaling is transferred to the "ATM interworking multiplexer" and the "multiplexer" converts the information. The background of the invention describes the need to improve upon ATM switch technology, and explains that although ATM multiplexers are being developed "these muxes" are not used to select virtual connections on a call-by-call basis. It concludes that "there is not a telecommunications system that can provide ATM switching on a call by call basis without relying on the call processing and signaling capability of an ATM switch." The summary of the invention clearly and unequivocally discloses that an ATM interworking multiplexer is the claimed interworking unit which allows virtual connections on a call-by-call basis without requiring the call processing and signaling capability of an ATM switch. The summary states as follows:

. . . The system comprises an ATM interworking multiplexer and a signaling processor linked to the ATM interworking multiplexer. The method [receives, processes, generates, and transmits] new signaling to the ATM interworking multiplexer. The method also includes receiving the user information for the call from the particular connection into the ATM interworking multiplexer. . . .

. . . The system includes an ATM interworking multiplexer to receive user information from a connection . . . . The system could also include an ATM cross-connect system connected to the ATM interworking multiplexer and configured to provide a plurality of virtual connections to the ATM interworking multiplexer.

The invention also includes an ATM interworking multiplexer for providing calls with virtual connections . . . .

ATM interworking multiplexer (mux) 130, mux mux 140." Id. col. 3, ll. 43-44. Thereafter, the written description refers to 130 and 140 as disclosed in Figure 1 as, simply, "mux." The description of Figure 1 concludes that "from the above discussion, it can be seen that multiple virtual connections can be pre-provisioned through an ATM cross-connect system to interconnect ATM interworking multiplexers." Id. col. 5, ll. 26-29. Similarly, Sprint points out the disclosure that "Fig. 3 shows one embodiment of the mux that is suitable for the present invention, but muxes that support the requirements of the invention are also applicable." Id. col. 8, ll. 3-5. Again, however, it appears that the use of the term "mux" is nothing more than a continued use of this term as a shorthand version of the term ATM interworking multiplexer, as this section is entitled "The ATM Interworking Multiplexer." Id. col. 8, l. 1.

The written description in this case is much like the one at issue in Honeywell International, Inc. v. ITT Industries, Inc., 452 F.3d 1312 (Fed. Cir. 2006). There, the Federal Circuit agreed with the district court that the claim term "fuel injection system component" was limited to a fuel filter. Id. at 1318. The court concluded that "the written description uses language that leads to the conclusion that a fuel filter is the only 'fuel injection system component' that the claims cover, and that a fuel filter was not merely discussed as a preferred embodiment." Id. The written description referred to the fuel filter as "this invention" or "the present invention" on at least four occasions; it did not indicate that a fuel filter was merely a preferred embodiment, but rather it was the only component disclosed as having the claimed features; and limiting the claim term to a fuel filter comported with the discussion of the prior art problem addressed by the patented invention. Id. Similarly, here, the entirety of the written description, and particularly the disclosures in the summary of the invention, establish that an ATM interworking multiplexer is the only type of "interworking device" contemplated by the invention, and not merely a preferred embodiment. Given the clarity of the written description concerning the meaning of the claim term "interworking device," then, the court construes this claim term to mean ATM interworking multiplexer.

The parties seek construction of the term "interworking unit," which may be found in the '429 Patent, claims 1 and 23, and the '084 Patent, claim 1. Sprint construes the term to mean device that converts narrowband communication signals into a packet format. Big River asks the Court to construe the term to mean ATM interworking multiplexer, with ATM referring to Asynchronous Transfer Mode, as the Court did in the V onage case. See 500 F. Supp. 2d at 1314-16. The Court agrees with Big River that the Court's prior construction of this term should be retained.

In V onage, the Court construed the terms "interworking device" and "interworking unit" to mean ATM interworking multiplexer. See id. The Court agrees with Sprint that the claim language itself does not limit the packet format to ATM, but could also include IP technology. See id. at 1314. Nevertheless, the Court chose to limit the scope of the claims, as follows:

"[T]he specification repeatedly discloses in numerous important respects that an ATM interworking multiplexer is the one and only "interworking device" claimed in the specification. The disclosures in the specification are not merely limited to preferred embodiments or versions of the invention. Reading the claim term in view of the specification, it seems that the only logical conclusion that could be reached by one of ordinary skill in the art is that the inventor intended the term "interworking device" to mean an ATM interworking multiplexer.

Id. at 1314-15. The Court then supported that construction with numerous references to the '301 Family specification, particularly the summary of the invention, that state explicitly that the claimed invention (and not merely an embodiment) involves use of an ATM interworking multiplexer. See id. at 1315 (citing, e.g., '301 Family at 2:14-50).

Sprint asks the Court to reconsider its ruling on this issue from V onage. Sprint again stresses the absence of any language in the claims themselves that would limit their scope to ATM interworking multiplexers, as well as the absence of any express disclaimer of scope in the specification. See Medegen MMS, Inc. v. ICU Med., Inc., 317 Fed. Appx 982, 987-88 (Fed. Cir. Nov. 20, 2008) (unpub. op.) (cited by Sprint) (reversing district court, which had construed patent term consistent with specification's description of a single embodiment of the invention). As noted above, however, under the law of the Federal Circuit, the lack of an express disclaimer is not necessarily fatal where, as here, the specification repeatedly and consistently describes the entire invention (and not merely one or more embodiments) in a particular manner, thereby supporting a limiting construction of otherwise-broad claim language. See supra Part II.
The Court has again reviewed the '301 Family specification, and it again concludes that a person with ordinary skill in the art would conclude from that specification that the claimed invention is limited to the use of an ATM interworking multiplexer. For example, in its third sentence, before any embodiments or versions are discussed, the summary of the invention flatly states that "[t]he system comprises an ATM interworking multiplexer and a signaling processor linked to the ATM interworking multiplexer." ('301 Family at 2:12-15.) Other portions of the specification, and particularly the summary, are definitive on this point, as noted by the Court in V onage.

Sprint repeats its argument from V onage that the specification contains language suggesting that the interworking unit could be any "muxing" system. As the Court noted in rejecting this argument previously, the specification does not define "mux" or "muxing system" except for its apparent use of those terms as a shorthand version of the term "ATM interworking multiplexer." See V onage, 500 F. Supp. 2d at 1315-16. Nor has Sprint provided any other definition of the word "mux" in its submissions to the Court. Thus, there is no basis to conclude that the references to alternative "muxing systems" were intended to contemplate various non-ATM multiplexers as opposed to different ATM multiplexers. Therefore, the Court concludes that the references to "muxes" do not overcome the specification's repeated description of the invention as one that includes an ATM interworking multiplexer.

Nor is the Court persuaded by Sprint's claim differentiation argument. Sprint notes that dependent claims in the patents refer to the method of the independent claims with the additional limitation of "asynchronous transfer mode" communications or connections. ('084 Patent, claim 8; '064 Patent, claim 6.) The Federal Circuit has stressed, however, that the presumption that dependent claims must be narrower than their independent claims is rebuttable, and the presence of such dependent claims is therefore not dispositive:

[W]hile it is true that dependent claims can aid in interpreting the scope of claims from which they depend, they are only an aid to interpretation and are not conclusive. Indeed the presumption created by the doctrine of claim differentiation is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.

Regents of Univ. of Calif. v. Dakocytomation Calif., Inc., 517 F.3d 1364, 1375 (Fed. Cir. 2008) (internal quotations and citations omitted). In this case, the clear references in the specification to the ATM interworking multiplexer as a part of the claimed invention (and not merely an embodiment) dictates the construction urged by Big River and overcomes any presumption raised by the dependent claims. The consistent descriptions of the invention as a whole also distinguish the present case from Medegen and other cases cited by Sprint.

Accordingly, the Court construes "interworking unit" to mean ATM interworking multiplexer.

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B. "intra-oral radiological site(s)"

This term is used in Claims 1, 2, and 4 as follows:

1. A method of displaying stored intra-oral radiographs, comprising:

   displaying a representation of an intra-oral radiograph holder including target intra-oral radiological sites arranged according to anatomical location of said sites;

   selecting one of said target intra-oral radiological sites; and

   displaying a stored intra-oral radiograph corresponding to said selected target intra-oral radiological site.

2. A method for storing and displaying intra-oral radiographs, comprising:

   generating and displaying intra-oral radiographs of dentition;
generating and displaying a representation of an intra-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites;

storing said intra-oral radiograph images responsive to selection of intra-oral radiological sites in said representation along with indicia of respective selected intra-oral radiological sites; and

subsequently retrieving and displaying said intra-oral radiographs responsive to selection of respective intra-oral radiological sites in said representation.

4. A device for storing and displaying intra-oral radiographs, comprising:

   a display;

   means for generating and displaying on said display a representation of an intra-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites;

   means, responsive to selection of said selectable sites, for displaying corresponding stored x-ray images.

Plaintiffs argue that "intra-oral radiological sites" are "icons or sites included in a representation of an intra-oral radiograph holder designating respective anatomical regions of the dental arch." Defendants contend that it means "intra-oral anatomical sites or regions which may correspond to positions within a radiograph holder."

Defendants argue that the patent requires intra-oral anatomical sites to be arranged "according to anatomical location of said sites," but locations on a display monitor do not have an anatomical relationship to one another, only locations within a patient's anatomy do. Defendants concede that Plaintiffs' construction "appears to be the plain meaning of this claim phrase," but argue that "the specification clearly sets forth a meaning different from the apparent meaning of the claim language." Defendants' Claim Construction Brief at 18. Defendants assert that the specification defines "sites" as "anatomical sites or regions," not positions on the film holder representation. In support of its position, Defendants note that the specification states that "each mounting position in a dental film holder corresponds to a particular anatomical site or anatomical region" and that the abstract "confirms this definition" by stating that "the positions of the film holder correspond[] to anatomical sites readily recognized by dentists." Id. at 19. Further, Defendants argue, the specification discusses how the user can use the film holder representation to select an anatomical site associated with a recently taken x-ray ("The system user selects an image to be displayed by selecting [an x-ray taken by the dentist] . . . .") and explains how the user can select positions within the film holder representation to display an x-ray of an anatomical location, such as a tooth or teeth ("The system user selects an image to be displayed by selecting the appropriate anatomical site . . . .") Thus, Defendants assert, the patentee has acted "as his own lexicographer" and has provided a definition of "intra-oral radiological sites" that means "intra-oral anatomical sites or regions." Last, Defendants argue that Plaintiffs' proposed construction is so broad that, if accepted in conjunction with Plaintiffs' proposed broad construction of radiograph holder, it would include a depiction of a dental arch, a limitation surrendered by Plaintiffs during the patent's prosecution.

Looking to the claim language, in Claims 1, 2, and 4, the "intra-oral radiological sites" must be "arranged according to anatomical location of said sites." Since sites within the mouth have anatomical locations but icons do not, this language lends some support to Defendant's construction. However, the patent's background section explains that "interpretation of . . . mounted radiographs is facilitated by mounting each film in normal anatomic relation to each other." This language indicates that the patentee regarded the films as being arrangeable by anatomical relation, and this functionality in the representation of the film holder was a key feature of the patent. Moreover, the balance of the claim language supports Plaintiffs' construction. The clearest support for Plaintiffs' construction lies in Claim 2. Claim 2 encompasses a method for storing and displaying intra-oral radiographs, comprising "generating and displaying a representation of an intra-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites," "storing said intra-oral radiograph images responsive to selection of intra-oral radiological sites in said representation along with indicia of respective selected intra-oral radiological sites" and "subsequently retrieving and displaying said intra-oral radiographs responsive to selection of respective intra-oral radiological sites in said representation." Thus, Claim 2 teaches that the intra-oral radiological sites are in the representation of an intra-oral radiograph holder, not within the mouth.
as Defendants urge. Further, Claims 2 and 4 make clear that the "intra-oral radiological sites are "selectable" and that images are stored, retrieved, and displayed "responsive to" selection of "intra-oral radiological sites." Because icons on the computer screen are selectable (by keyboard, mouse click, etc.), and images are stored, retrieved, and displayed in response to selection of the icon, whereas the same cannot be said regarding anatomical sites or regions, this claim language further supports Plaintiffs' construction.

Footnotes

n5 The Court recognizes that there is some ambiguity and inconsistency within the specification regarding use of this term. For example, in column 5, line 27, the specification states that the captured image is stored along with indicia of the associated location in the icon, suggesting that "selected intra-oral radiological sites" is a location in the icon. However, in the abstract, it states that the radiograph is stored "along with indicia of the selected anatomical site," suggesting that an intra-oral radiological site is an anatomical site. However, the balance of the claim and specification support the construction that an intra-oral radiological site is a site within the film holder representation, not a site within the mouth. This construction is consistent with the claim language, while Defendants' construction is not, and thus Plaintiffs' construction is the preferred construction. Vitronics, 90 F.3d at 1582. Moreover, part of the confusion may be due to the fact that the specification describes the original patent application, which included an image of dentition/anatomy as the representation, whereas the final patent does not include these, and thus some of the language was broad enough to cover the patentee's original intention that intra-oral radiological sites would include positions within a film holder that correspond to anatomical sites and positions within a representation of anatomy/dentition.

The Court agrees with Plaintiffs that other language in the specification also generally supports Plaintiffs' construction. The specification states "The display of the stored images is facilitated by use of a representation or icon of anatomical sites, or of the portion of the anatomy, from which the images were taken. The system user selects the image to be displayed by selecting the appropriate anatomical site from the representation of anatomical sites or portion of anatomy . . . ." Column 2, lines 20-26 (emphasis added). Thus, when the specification refers to anatomical site, it means the anatomical site within the representation or icon, not within the mouth.

Thus, when the claim uses the term "intra-oral radiological sites" it refers to the icons in the representation of an intra-oral radiograph holder, and those icons correspond to anatomical sites within the mouth and are arranged according to their anatomical relation to each other. Accordingly, the Court construes "intra-oral radiological sites" as "icons or sites, included in the representation of an intra-oral radiograph holder, that designate respective anatomical regions of the dental arch."

Claim Element 1b

first user intranet point

The parties disagree on the meaning of the above-stated language.

Dell argued that the ordinary meaning should suffice. Lucent proposed: "any terminal on a private network used by a site provider to input multi-level managed information to the web site." The court construes the above-stated claim term as follows:

"a terminal on a private network through which a web site provider accesses a site."
4. "introducing"

Defendant EchoStar asks that I construe "introducing" to mean adding to or superimposing upon, arguing:

The disclosure of the '066 patent is limited to methods for scrambling analog signals, and includes only those methods for "introducing some kind of objectionable interference or distortion into the signal. . . ." All of the methods disclosed . . . do something that adds to or superimposes upon an analog baseband signal.


I have rejected the construction that limits scrambling to analog signals. Although the particular techniques for scrambling described in the specification may be unique to scrambling analog signals, I will not improperly limit the term to an embodiment disclosed in the specification. Texas Digital, 308 F.3d at 1204 (instructing that a court should construe a claim limitation according to its ordinary and accustomed meaning and should not import a characteristic of a disclosed or preferred embodiment into the term); CCS Fitness, 288 F.3d at 1367 ("[A] patentee need not 'describe in the specification every conceivable and possible future embodiment of his invention").

"Introducing" has an ordinary meaning and does not require construction.

GO BACK

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3. "Invalidate"

"Invalidate data" was construed by Judge Gilmore in the Oracle Litigation. Judge Gilmore construed "invalidate data" to mean "to indicate previously cached data has been modified." IBM maintains this is the proper construction. SuperSpeed, however, would have the court construe the term to mean "to indicate that a portion of data in a cache is no longer up to date." Here, the parties choose to have only "invalidate" construed because it is used with terms other than "data." For example, claim 4 of the '013 patent uses "communicating invalidate messages."

SuperSpeed argues that Judge Gilmore's construction of "invalidate data" addressed different issues, such that her construction provides no real guidance for this court in construing "invalidate" alone. SuperSpeed raises two issues with IBM's construction. First, SuperSpeed argues IBM's construction requires that the copy of the data in the cache be modified, which excludes the preferred embodiment. Second, SuperSpeed argues that IBM's construction impermissibly limits the claim by requiring "invalidate" to only encompass data that has been modified, and not data that is being modified. SuperSpeed's first argument, that IBM's construction requires that some physical copy of the data be modified, is rejected. IBM's construction does no such thing.

SuperSpeed's second argument concerns how the parties understand "has been modified." SuperSpeed maintains that the construction could be read to require that the modification be complete, which is an unnecessary limitation. SuperSpeed suggests the invalidation could occur before, or simultaneous with, any modification; the specification does not require that the invalidation occur after the write operation to the I/O device has been completed. The specification provides for cached data to be invalidated as part of the process of writing to disk: "[i]n accordance with the embodiment of the invention, when a write access is performed to a disk which is being cached and the disk data area being written was previously read into the cache, i.e. an update operation on the disk data, the current cache buckets for the previous read disk data area are invalidated on all computers on the network. ['226 Patent, 2:45-50]. Nothing in the specification precludes invalidation before the modification has been fully completed. For example, the invalidate message could be sent simultaneously with the write command, or immediately preceding it.

Additionally, the term should not be construed to require a temporal limitation, because some of the claims with the term themselves import the limitation. See Phillips v. AWH Corp., 415 F.3d at 1314 (holding claim context is highly instructive when construing claim terms). For example, claim 4 of the '013 patent requires that the invalidation occur after the data is written to the I/O device; "after data is written to the shared I/O device, communicating invalidate messages to only the computers in the list . . .". Claim 20 of the '013 patent has a similar temporal requirement. If the inventor would have intended the term to import a sequential limitation, there would have been no need to do so in those claims separately.
Judge Gilmore did not have this issue before her when construing "invalidate data" in the Oracle Litigation. Before Judge Gilmore were competing definitions, one of which was SuperSpeed's current proposition, which she rejected. Oracle's, which she also rejected, was "make data unusable." Judge Gilmore crafted her own construction in light of the specification. Judge Gilmore found that "the summary of the invention and specifications are consistent with a claim construction of "invalidate data' that indicates a change or modification of previous data with more recent data." Oracle Litigation (citing '226 Patent, at 2:13-20, 2:45-50; '244 Patent, at 2:15-22, 2:46-52).

The court agrees with SuperSpeed that "invalidate," standing alone, does not import a sequential limitation. The court, therefore, construes "invalidate" to mean "to indicate the modification of previously cached data."

Claims 27 and 35 of the '226 Patent and claims 15 and 22 of the '244 Patent reference directly or indirectly the term "invalidate data." ('226 Patent, at 28:28-29; '244 Patent, at 27:9). Superspeed asserts that the term "invalidate data" means "to indicate that a portion of data in a cache is no longer up to date." (Instrument No. 69, at 11). Oracle asserts that the term "invalidate data" means "make data unusable." (Instrument No. 77, at 8).

Claim 27 of the '226 Patent describes:

A method for accelerating access to data on a network comprising the steps of . . . communicating over the network individually with each computer in the list of computers in the data structure corresponding to said one of said I/O devices to invalidate data in caches on the network corresponding to said one of said plurality.


Claim 15 of the '244 Patent describes a caching system:

wherein at least one of said cache drivers further includes executable interception code for intercepting a write instruction to one of said plurality of I/O devices and executable invalidate code that sends a message to invalidate data through selected ones of the communication channels to the caches of any computer that is caching said one of said plurality of I/O devices.

('244 Patent, at 27:5-11) (emphasis added).

The claims and specifications of the patent do not expressly define the term "invalidate data." The specifications of the preferred embodiment provide, however, that the cache driver sends a message to invalidate data, whenever the operating system changes data on the disk. ('226 Patent, at 3:37-50; '244 Patent, at 3:39-52). Specifically, the specifications provide:

Whenever the OpenVMS [operating] system (14) changes the data on the disk (12), . . . the cache driver (10) uses its remote message communication channels (18) to send a message to each of the remote cache drivers in the list contained in the TCB (16) disc control structure. . . . The cache driver (10) would use this incoming message to invalidate any possible previously locally cached data for the area on the remotely connected disk (12) that has been changed by the remote OpenVMS system.

('226 Patent, at 3:37-50; '244 Patent, at 3:39-52) (emphasis added). This specification indicates that the invention sends a message to "invalidate data" when there is old cached data that corresponds to a change in that data. Thus, the invalidated data corresponds to data that has been changed or modified.
The specifications further indicate that the invalidated cache data is not automatically deleted or removed from the system as a result of being invalidated. Rather, "[t]he invalidated TCMB (24) [cache data] and its cache data bucket (22) are normally placed on the free queue (27) of the associated TCH (26) cache control structure to be used by some future cache data operation." ('226 Patent, at 5:23-28; '244 Patent, at 5:26-30). In other words, the invalidated data is typically moved to another location to be written over at some point in the future. Although nothing in the specifications suggests that the invalidated data is cleared or erased as a result of an invalidate message, nothing in the specifications suggests that the invalidated data may be used again.

However, "if the OpenVMS system (14) indicates there are insufficient available free pages for the OpenVMS system (14), the cache data bucket (22) RAM space is returned to the OpenVMS system (14) free pages and the corresponding TCMB (24) space is returned to the OpenVMS system (14) pool." ('226 Patent, at 5:28-34; '244 Patent, at 5:30-35). The specifications do not specifically state what happens to the invalidated cache data once it is returned to the OpenVMS system pool.

The "Summary of the Invention" in the '226 Patent and the '244 Patent provide two possible ways that an "invalidate data" message may be used in the invention:

In accordance with the embodiment of the invention, once the total cache size has grown to its upper limit further new demands on cache data are handled by cache bucket replacement, which operate on a least recently used algorithm. This cache bucket replacement will also occur if the total cache size is inhibited from growing owing to a high demand on computer main memory by other applications and users of the computer system.

In accordance with the embodiment of the invention, when a write access is performed to a disk which is being cached and the disk data area being written was previously read into the cache, i.e., an update operation on the disk data, the current cache buckets for the previous read disk data area are invalidated on all computers on the network. ('226 Patent, at 2:13-20, 2:45-50; '244 Patent, at 2:15-22, 2:46-52). Thus, the summary of the invention and specifications are consistent with a claim construction of "invalidate data" that indicates a change or modification of previous data with more recent data.

In order to assist the Court, Superspeed has also provided a definition of the term "invalid" from the IEEE DICTIONARY. The IEEE DICTIONARY provides that the term "invalid" is "[a]n attribute assigned to a cache line if there is not an up-to-date copy in the module's cache." IEEE DICTIONARY at 552. (Instrument No. 69, at Exh F). The IEEE DICTIONARY does not provide a definition of the term invalidate. However, the attributes described for the term "invalid" are consistent with the use of the term "invalidate data" in the specification of the patents-in-suit.

Upon a review of the patents-in-suit and the arguments of the parties, the Court finds that the term "invalidate data" means "to indicate previously cached data has been modified."

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Claim 5 of the '356 Patent involves:

an inverter circuit connected between the DC terminals and the lamp terminals; the inverter circuit being operable to supply an alternating lamp voltage across the lamp terminals....

One threshold issue is whether Nilssen is bound by his assertion before the Patent and Trademark Office ("PTO") that the quoted element is a means-plus-function limitation. And of course it requires no citation to support the Federal Circuit's regular repetition of the proposition that a patent's prosecution history is relevant to claim construction.

In an effort to escape the impact of his own representations to the PTO (quoted hereafter in this section of the opinion),
Nilssen says that those representations were made before In re Donaldson Co., 16 F.3d 1189, 1193-94 (Fed. Cir. 1994) had expressly overruled the earlier caselaw that had countenanced the PTO's practice of not applying Paragraph 6 during its patent examination process. But that is a truly bizarre notion, essentially amounting to:

Don't hold me to what I told the PTO in order to get my patent issued over the examiner's prior rejection of my claims. After all, if the PTO's perceived role vis-a-vis Paragraph 6 had been different then (as the Federal Circuit decided it to be nearly a decade later), I might not have found it necessary to make that representation.

--- Footnotes ---

19 See In re Alappat, 33 F.3d 1526, 1540-41 (Fed. Cir. 1994), explaining the impact of Donaldson on the PTO.

--- End Footnotes ---

Patent prosecution is a serious business—an effort to obtain what was a 17-year monopoly when the Nilssen representation was made to the PTO. Little wonder that the courts early developed the concept of "file wrapper estoppel": the principle that a representation made by an inventor to induce the PTO to grant such a monopoly binds the inventor later, when the construction of the issued patent is in dispute (see, e.g., Cole, 102 F.3d at 531-32).

Here is what Nilssen (acting pro se, it may be noted) wrote in a PTO Appeal Brief (M. Mem. Ex. 10, emphasis in original) in an effort to overcome the examiner's 35 U.S.C. § 112 rejections:

Again using claim 1 as an example, it is clear that the claimed invention is expressed in claim 1 as a combination of two elements, both of which are expressed in the well-accepted format of MEANS AND FUNCTION.

* * *

The second element of claim 1 describes an "inverter circuit" (a means) together with its function (to provide a sinusoidal output voltage at a pair of AC output terminals, etc.) and its connections (one of its AC output terminals being connected with one of the AC input terminals, etc.).

When interpreted in light of the specification, there is no doubt in Applicant's mind but that claim 1 is clearly understandable by a person having ordinary skill in the art.

Trying to blunt the devastating impact of those statements, N. Resp. 6 attacks "Motorola's use of the file history [as] highly misleading" because of the later advent of Donaldson. That is simply nonsense—what is material is that Nilssen himself expressly labeled "inverter circuit" as a means in what he himself acknowledged to be a means-plus-function claim element, and that he expressly went on to urge the examiner to "interpret[][that claim] in light of the specification."

This Court will not permit Nilssen to disavow his own position deliberately undertaken before the PTO just because he now perceives it to his advantage to reverse that position—to frame a metaphor in terms of the current dispute, to make an attempt to shift from DC to AC. It really makes no difference whether conventional analysis might perhaps have produced a different view: Nilssen has set his own terms in this respect, just as a patentee may elect to be his or her own lexicographer, and he will be held to that choice. This Court construes claim 5 of the '356 Patent just as Nilssen himself had urged—that is, in light of the corresponding specification. 21

--- Footnotes ---

20 That metaphor has been chosen rather than its converse—from AC to DC—because the latter is accomplished by a rectifier, and there is nothing of rectitude in what Nilssen has sought to do in this respect. It would seem that this ruling—based as it is on taking Nilssen at his own word—also dispatches Nilssen's other arguments based on Motorola's "effort to read limitations from the specification into the claims" (N. Resp. 4-10). Nilssen's own invitation to the same effect should, it would appear, extend to the specification as included in the issued patent. If this Court is viewed as mistaken in that premise, it will no doubt hear an anguished scream from Nilssen's counsel.
2. Claims 35 & 36 - "inverter circuit"

**Claim 35 of the '409 patent describes:**

An arrangement comprising:

- a source operative to provide, between a first and a second DC terminal, a DC voltage of substantially constant magnitude;
- an inverter circuit connected with the DC terminals and functional to provide an inverter AC voltage between a reference terminal and an inverter output terminal; the inverter AC voltage being of frequency several times higher than 60 Hz and otherwise characterized in having a waveshape consisting of sinusoidally-shaped voltage pulses of alternating polarity; the inverter circuit including a tuned L-C circuit connected in circuit with the inverter output terminal and the reference terminal; the L-C circuit having a tank capacitor parallel-connected with a tank inductor and being resonant at or near the frequency of the inverter AC voltage; the inverter circuit being further characterized in that it includes two alternatingly conducting transistors series-connected between two auxiliary terminals between which exists a unidirectional voltage consisting of sinusoidally-shaped unidirectional voltage pulses, and having an average magnitude substantially equal to that of the DC voltage.


**Claim 36 of the '409 patent describes:**

An arrangement comprising:

- a source providing, between a first and a second DC supply terminal, a constant-magnitude DC supply voltage;
- an inverter circuit having a pair of AC output terminals as well as a first and a second DC input terminal;
- inductor means having a first winding and a second winding; the first winding being connected between the first DC supply terminal and the first DC input terminal; the second winding being connected between the second DC supply terminal and the second DC input terminal; and
- output means connected with the AC output terminals; the output means having lamp output terminals adapted to connect with a gas discharge lamp.

U.S. Patent No. 5,432,409, Claim 36 (emphasis added).

Claims 35 and 36 each use the phrase "inverter circuit." Making essentially the same arguments as they did concerning the patent claims discussed earlier, Nilssen argues that the term should be read in accordance with the commonly understood definition of the term "inverter," while MagneTek argues that the term should be read as limited to full bridge inverters, the type of inverter described in the specification of the '409 patent.

MagneTek's primary argument is that the prosecution history of the '409 patent includes an admission by Nilssen that the patent language is in means plus function form. While Nilssen did make such a statement in prosecuting patent application number 06/787,692, that was not the application that led to the '409 patent. Nor was it a predecessor application of the one that led to the '409 patent. A chart introduced by Nilssen at the Markman hearing, the accuracy of which MagneTek has not contested, reveals that application number 06/787,692 may be best described as a cousin, once or twice removed, of the application that led to the '409 patent. We have attached the chart to this opinion as Appendix A for illustrative purposes. Our conclusion is that Nilssen's statement in prosecuting this separate patent application provides no support for
MagneTek's position here.

We also conclude that claims 35 and 36 are not within the scope of § 112, P6. As was the case with the patents previously discussed, these claims recite structure sufficient to take them out of the means-plus-function arena. This is particularly true of claim 35, which describes a number of the specific components of the inverter.

MagneTek also argues, as it did with the '874 and '919 patents, that because the specification of the '409 patent describes a full bridge inverter, we should construe the claims as limited to that particular type. We reject this argument for the same reasons previously discussed.

In sum, as used in claims 35 and 36, the term inverter means an electrical device that converts DC voltage to AC voltage.

"Inverter Circuit" in the '409 Patent's Claims 9 and 37

Both claims 9 and 37 of the '409 Patent call for an "inverter circuit" that is characterized as "having a pair of transistors series-connected between" the first terminal and the second terminal. Here too N. Mem. 27-28 argues that the meaning of "inverter circuit" is clear to a person skilled in the relevant art, while M. Mem. 25-26 looks to the specification to limit that reference to a "full-bridge inverter circuit." Motorola's narrowing construction can prevail only if the specification explicitly or implicitly defines "inverter circuit" as one of the full-bridge variety (four transistors connected together in two parallel circuits).

But the specification language that Motorola cites is not definitional, either explicitly or implicitly. That language, in the Details of Operation section of the '409 Patent, reads:

The operation of the full-bridge inverter circuit of FIG. 1 may be explained as follows.

That section then goes on to call the Fig. 1 inverter circuit a "full-bridge inverter" once again.

Those references, rather than defining the "inverter circuit" term, simply describe the layout in one of Nilssen's illustrations. Indeed, in the '409 Patent's Summary of the Invention section (also part of the specification, which in most contexts Motorola has stressed as narrowing the corresponding claim elements), Nilssen states (emphasis added):

In its preferred embodiment, the present invention includes an inverter circuit having a pair of DC input terminals and at least two periodically conducting transistors series-connected between an auxiliary negative terminal and an auxiliary positive terminal.

This is an instance in which Motorola can't have it both ways--if the earlier-quoted language really meant that the only inverter circuit referred to in the claim required four transistors (the full-bridge type), the Summary's reference to "at least two…transistors" would be rendered meaningless.

M. Mem. 25 seeks help from a statement in Multiform Desiccants, Inc. v Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998):

When the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term.

But as already indicated, the differing references to the number of transistors within the same specification can scarcely be said to define one of those references as controlling "without ambiguity." And it is of course conventional wisdom that the "preferred embodiment" of an invention (that is how Fig. 1, which depicts a full-bridge inverter, is described) does not conclusively define the invention's scope--as Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1479 (Fed. Cir. 1998) has put it:
It is a truism that a claim need not be limited to a preferred embodiment.

In sum, the "inverter circuit" limitation in claims 9 and 37 of the '409 Patent will be given the meaning ascribed to it by a person skilled in the relevant art. That means it will not be limited to a particular species of inverter, the full-bridge type.

--- Footnotes ---

30 This conforms to Judge Kennelly's reading in MagneTek, 1999 WL 982966, at *6-*7.

--- End Footnotes ---

**2364**

A. '874 Patent, Claim 16 - "inverter means"

Claim 16 of the '874 patent reads as follows:

An arrangement comprising:

rectifier means connected with the AC voltage of an ordinary electric utility power line and operative to provide a unidirectional current to a pair of DC terminals; there existing a DC voltage across the DC terminals; the instantaneous absolute magnitude of the DC voltage being substantially equal to the larger of: (i) the instantaneous absolute magnitude of the AC voltage, and (ii) a substantially constant absolute magnitude that is lower than the peak absolute magnitude of the AC voltage; the rectifier means including at least two energy-storing capacitors; the two energy-storing capacitors being: (i) during a part of each half-cycle of the AC voltage, charged in series by current supplied from the DC terminals; and (ii) during another part of each half-cycle of the AC voltage, discharged in parallel by supplying current to the DC terminals;

inverter means connected with the DC terminals and operative to provide a high-frequency voltage at an inverter output; the high-frequency voltage being of frequency substantially higher than that of the AC voltage and having a first amplitude-modulation; the first amplitude-modulation being characterized by having a first crest-factor; and

lamp means having lamp terminals.

U.S. Patent No. 5,373,874, Claim 16 (emphasis added). This claim does not describe any particular type of inverter. However, the specification of the '874 patent describes in detail the preferred embodiment of the patent, which includes a half-bridge inverter. MagneTek argues that claim 16 should be construed as limited to such an inverter.

The resolution of this issue turns mainly on whether the term "inverter means" as used in claim 16 is stated in means-plus-function form. This terminology comes from 35 U.S.C. § 112, P6, which reads:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Under § 112, P6, were we to conclude that the claim language were indeed in means-plus-function form, then we would have to construe the term "inverter means" as covering only the particular type of inverter set forth in the specification, as well as any equivalent thereof. See, e.g., Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1535 (Fed. Cir. 1991).

"word 'means' is 'part of the classic template for functional claim elements." Rodime PLC v. Seagate Technology, Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999) (quoting Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1427 (Fed. Cir. 1997)). If the applicant uses the word "means" in his claim, then it is presumed that he intended to invoke § 112, P6. Id. There are at least two ways in which this presumption may be rebutted. First, if a claim element uses the word "means" but does not recite a corresponding function, § 112, P6 is not invoked. Id. Second, if the element recites "sufficient structure or material for performing that function," § 112, P6 does not apply. Id.; see also, e.g., Personalized Media Communications,
LLC v. International Trade Commission, 161 F.3d 696, 704 (Fed. Cir. 1998) ("In deciding whether the presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112, P6"); Sage Products, 126 F.3d at 1427-28 ("Where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format.").

There is no question that "inverter" is a term that describes a type of structure. The parties essentially agree what an inverter is, generically speaking: it is an electrical device that converts DC voltage to AC voltage. See D. Fink & H. Beaty, Standard Handbook for Electrical Engineers at 22-105 (13th ed. 1993); Academic Press Dictionary of Science and Technology at 1138 (definition of "static inverter"). The issue is whether this is enough to remove the claim language from the scope of § 112, P6.

When the purportedly "structural" language really just describes what the device does -- that is, when it "merely serves to further specify the function of the means" -- § 112, P6 may still apply. See, e.g., Personalized Media, 161 F.3d at 704, Unidynamics Corp. v. Automatic Products International, Ltd., 157 F.3d 1311, 1319 (Fed. Cir. 1998); Laitram, 939 F.2d at 1536. Illustrative is Signtech USA, Ltd. v. Vutek, Inc., 174 F.3d 1352 (Fed. Cir. 1999), in which the court held that the phrase "ink delivery means" did not recite sufficient structure to prevent application of P6, "because 'ink delivery' is purely functional language." Id. at 1356. MagneTek does not argue, and we do not believe, that "inverter" is "functional language" in this sense -- even though the function of an inverter is to "invert" electrical current. Rather, the term is well known in the art to be descriptive of a type of electrical device. As the Federal Circuit stated in holding that the term "detent mechanism" was not merely functional, "many devices take their names from the functions they perform. The examples are innumerable, such as 'filter,' 'brake,' 'clamp,' 'screwdriver,' or 'lock.' ... What is important is not simply that a 'detent' or 'detent mechanism' is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art." Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996). The same is true of the term "inverter" as used here.

It is true, as MagneTek argues, that there is more than one type of inverter, and that the claim here does not say anything about what particular form the inverter is to take. MagneTek contends that the claim thus does not recite "sufficient structure to perform entirely the recited function" and that the use of the term "inverter" alone is not enough to avoid the application of § 112, P6. See Sage Products, 126 F.3d at 1427-28 ("Where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format."). However, the fact that the term "inverter" does not connotate a precise physical structure in the minds of those skilled in the art does not mean that insufficient structure has been stated. Personalized Media, 161 F.3d at 705. As was the case in Personalized Media, which concerned the use of the term "detector," even though the term "inverter" does not specifically evoke a particular structure, it does convey to one who is knowledgeable in the art a variety of structures that are known as "inverters." That being the case, the term "inverter" is a sufficiently definite structural term to preclude the application of § 112, P6; the fact that it may not evoke a particular structure is of no moment. See Personalized Media, 161 F.3d at 705. We conclude for these reasons that the claim element is not stated in means-plus-function format.

MagneTek argues that even if the Court declines to read "inverter means" as a means-plus-function element, we should nonetheless construe the claim as limited to a half-bridge inverter, because that is the type of inverter described in the specification. It relies on, among other decisions, Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998), in which the court stated that where the specification defines a term, there is no need to search for a further meaning. In this case, however, the specification does not contain a definition -- it does not define the term "inverter" in any way other than its ordinary meaning. Rather, it describes a specific type of inverter as part of the preferred embodiment of the patent. The law is clear that limitations found in the specifications are not to be imported into the claims, Rodime, 174 F.3d at 1303; Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998), yet that is precisely what MagneTek is asking us to do. As in Comark, rather than looking at the specification to ascertain the claims' meaning, MagneTek is asking us to look at the specification to limit the claim to the particular structure disclosed in the preferred embodiment. While the line between these two concepts may be a fine one, see Comark, 156 F.3d at 1186, it is one that we will not traverse in this case.

In sum, we conclude that as used in claim 16 of the '874 patent, the term "inverter means" has its commonly understood meaning, that is, an electrical device that converts DC voltage to AC voltage. We recognize that this is a broad reading of the claim, one that may perhaps be too broad to be upheld against a claim of invalidity as this case progresses. MagneTek
has not, however, argued that the possibility of invalidity should lead us to construe the claim language narrowly, and we do
not intend to address arguments the parties have not made. 2 The only issue along those lines raised by MagneTek is that
this claim and others, if construed as Nilssen proposes, raise issues of "enablement" under 35 U.S.C. § 112, P1, which reads:

The specification shall contain a written description of the invention, and of the manner and process of making and using
it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it
is more nearly connected, to make and use the same ....

In arguing that the claims (as construed by Nilssen) do not comport with the requirement of "enablement," MagneTek has
misread § 112, P1: the statutory provision on its face applies only to the specification of the patent, not to the claims. In
short, we reject MagneTek's "enablement" argument.

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2 In addition, it is not clear where such an analysis would lead in this case. See generally Rhine v. Casio, Inc., 183 F.3d
1342, 1345 (Fed. Cir. 1999) (claims are to be construed to sustain their validity; but a court cannot rewrite a claim to
preserve its validity). Without argument by either party on the subject, we are not willing to travel down that road.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

2365

"Inverter-Type Power Supply" in the '342 Patent's Claims 3 and 5

Claims 3 and 5 of the '342 Patent include this language:

an inverter-type power supply that is connected with the DC output terminals and operative to provide a high-frequency
AC voltage between a first inverter output terminal and an inverter reference terminal.

Functionally that claim "provide[s] a high-frequency AC voltage...." Structurally that function is accomplished by "an
inverter-type power supply...connected with the DC output terminals...."

Though functionally derived, "inverter" has a well-understood meaning in the art (expressed, e.g., in Standard Handbook for
Electrical Engineers (hereafter "Handbook") 22-105 (Donald G. Fink & H. Wayne Beaty eds., 13th ed. 1993) as "a power
converter in which the normal direction of power flow is from a dc source to an ac load"). In short, "inverter" is an industry
term of art that describes a structure (even though, to be sure, "inverter" is a generic term--note the three types described at
the outset of this opinion--the term describes a particular kind of circuit and is plainly not as devoid of substantive content
(that is, structure) as the term "circuit" alone).

Indeed, though it is entirely true that "inverter" alone does not necessarily "call to mind a single well-defined structure"
( Greenberg, 91 F.3d at 1583 (emphasis added)), the very fact that the claim uses the term "inverter-type" strongly suggests
that inventor Nilssen did not intend to limit himself to a single species of inverter. Instead the claim's "inverter-type"
locution would normally appear to incorporate, quite deliberately, more than one kind of inverter, rather than being limited
by a single example in the specification.

In those terms alone the text of claims 3 and 5 would seem to fall outside the boundaries of Paragraph 6. And if that were so,
the M. Mem. 21 position that the specification limits the claim language would fail for the reasons discussed earlier.

But M. Mem. 23-24 also contends that the prosecution history reveals that Nilssen himself limited his claim to a "full-bridge
inverter." As stated earlier, Cole, 102 F.3d at 531 is exemplary of many cases (see also, e.g., Digital Biometrics, Inc. v.
Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998)) teaching that Nilssen is to be "bound by [his] representations to the PTO
during the prosecution of" his patent. Yet N. Resp. 31 offers an extraordinarily puzzling response to Motorola's argument,
reproduced here in its entirety:

Motorola also cites the prosecution history in an effort to prop up its proposed definition. This is dealt with in a previous
section at pp. 6-9, which establishes that the term "inverter" is not limited to a full-bridge inverter.

That cross-reference is to Nilssen's response to the prosecution history issue regarding claim 5 of the '356 Patent, which has not only been found wanting on that issue but is also quite irrelevant in the present context (it is after all entirely possible that an inventor may choose to use the same term in different ways in two different patents).

As far as this Court is concerned, then, Nilssen has left Motorola's prosecution history argument (M. Mem. 23-24) wholly unanswered in any substantive way. And the detailed nature and bulk of both sides' submissions refutes the notion that Nilssen's failure to provide any real explanation stemmed from any lack of opportunity to do so. This Court is therefore constrained to treat the claim elements at issue (claims 3 and 5 of the '342 Patent) as limited to a full-bridge inverter.

Nilssen first urges, quite correctly, that this Court looked at the wrong portion of his Responsive Memorandum for an answer to Motorola's otherwise persuasive argument that the prosecution history limited the actual claim language. Until it reviewed that prosecution history at Motorola's invitation, this Court was prepared to construe "inverter-type power supply" as encompassing "more than one kind of inverter, rather than being limited by a single example in the specification" (Opinion at 932). But because of what this Court then mistakenly understood to be unrebutted prosecution history, Opinion at 933 felt compelled to limit the claims to "a full-bridge inverter." Now a review of Nilssen's actual response calls for a different conclusion.

M. Mem. 23 (emphasis in original) originally argued that the prosecution history reveals that "the only type of inverter disclosed in the '342 Patent is a full-bridge inverter." That contention was supported by (1) Nilssen's statement in the context of an earlier application 9 that his invention was "concisely described" by a claim consisting of an "inverter means" with the structure of a full-bridge inverter (M. Mem. 23) and (2) Nilssen's statement in the context of a later patent that "to a person having ordinary skill in the particular art to which the claimed invention pertains, it would be clear that the relevant frequencies would be those associated with the full-bridge inverter" (M. Mem. 24). But Nilssen has directed this Court's attention to explanations that materially blunt the force originally ascribed to those statements.

--- Footnotes ---
9 Nilssen's statements are highly relevant because the '342 Patent is a continuation of that application, Ser. No. 7/646,497 (see Related U.S. Application Data of the '342 Patent).

--- End Footnotes ---

Thus it turns out that Nilssen's first statement was made in response to the examiner's challenge that he demonstrate that his claim language was "supported by disclosures in the specification, as required by paragraph 1 of 35 U.S.C., § 112" (N. Resp. 13). In other words, at that point Nilssen was merely highlighting the structure of the full-bridge inverter in the specification to demonstrate that sufficient disclosure existed there to support his claim.

As for the second statement, N. Resp. 13 points out that it was made in connection with a later patent, "a year-and-a-half after the '342 patent issued." Further, that later patent involved the term "substantially higher frequency"--a term that appears nowhere in the '342 Patent. Because the PTO viewed that term as indefinite, Nilssen responded with the words that Motorola quotes. In short, Nilssen says that the later patent involved an issue totally irrelevant to the claims presently at issue.

Motorola does not suggest anything to undercut those representations by Nilssen, and its memoranda offer nothing to rebut Nilssen's consequent arguments. Instead M. Rec. Mem. 7 seeks to fall back on "the reasons explained" in its original memorandum. But as already indicated, those reasons have been undercut by Nilssen's explanations, so that the cited prosecution history has been shown to be non-relevant.
In light of the arguments that were originally presented by Nilssen but were overlooked by this Court in the parties' paper blizzard, reconsideration is granted in that respect. This Court now holds that the phrase "inverter-type power supply" in the '342 Patent's claims 3 and 5 is not limited by the specification. Instead the phrase is given its well-known meaning in the relevant art as described in Opinion at 932.

2. "invertible randomized spreading"

<table>
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<tr>
<th>Wi-LAN's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<td>Invertible randomized spreading:</td>
<td>Invertible randomized spreading:</td>
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<tr>
<td>&quot;spreading and applying complex constants chosen randomly, in a manner that is invertible&quot;</td>
<td>Defendants' proposal</td>
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<td>&quot;spreading using an invertible randomized transform&quot;</td>
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<tr>
<td>spreading:</td>
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<td>&quot;modulating data symbols by codes of larger bandwidth&quot;</td>
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<td>Alternative for spreading:</td>
<td>spreading:</td>
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<tr>
<td>&quot;modulating data symbols by codes having multiple chips&quot;</td>
<td>&quot;distributing information bits over code chips thereby reducing the effective bandwidth&quot;</td>
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</table>

A. Spreading

The independent claims of the '802 patent, in general, require operating on the plural sets of N data symbols to produce modulated data symbols corresponding to a spreading or an invertible randomized spreading of each set of N data symbols. The specification has numerous references to "spread" or "spreading." "The invention deals with the field of multiple access communications using Spread Spectrum modulation." '802 patent, 1:14-15. "Spread Spectrum can be classified as Direct Sequence, Frequency-Hopping or a combination of the two." Id. at 1:18-19. "Commonly used spread spectrum techniques are Direct Sequence Spread Spectrum (DSSS) and Code Division Multiple Access (CDMA) . . ." Id. at 1:21-23. In the Background section, the specification provides that "DSSS is a communication scheme in which information bits are spread over code bits (generally called chips)," and then provides certain advantages of this "information spreading." Id. at 1:25-45. "In this patent, we present Multi-Code Direct Sequence Spread Spectrum (MC-DSSS) which is a modulation scheme that assigns up to N DSSS codes to an individual transceiver where N is the number of chips per DSSS code." Id. at 2:6-10; Abstract. In the Detailed Description section, the specification provides that the computing means "operates on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the stream of data symbols." Id. at 4:2-5. The computing means "includes a source 16 of N direct sequence spread spectrum code symbols and a modulator 18 to modulate each ith data symbol from each set of N data symbols with the I code symbol from the N code symbol to generate N modulated data symbols, and thereby spread each I data symbol over a separate code symbol." Id. at 4:7-13.

The Court finds that spreading is typically understood to one of ordinary skill in the art as enlarging a signal of a particular bandwidth via a code that results in a signal with a wider bandwidth. Various dictionary definitions illustrate that in spread spectrum systems information content is spread over a wider bandwidth than the content of the original information to create a spread signal that has greater bandwidth than the original signal. As part of its intrinsic record, the '802 patent cites an authoritative text, the Proakis reference, that explains that spread spectrum signals have an expanded bandwidth. '802 patent, 1:22-32. Prior art cited during the prosecution of the '802 patent states that "[i]t is well known that spread spectrum techniques utilize bandwidths many times wider than those required by the data in transit" and that the basic data to be transmitted "is spread over a wider bandwidth than that occupied by the data alone." Further, inventor Fattouche wrote an article that confirmed that all spread spectrum techniques use a "pseudo-random sequence to spread the spectrum of the data signal to be transmitted . . . thereby widening the spectrum of the data signal."
In light of the substantial evidence that one of ordinary skill in the art would view the term "spreading" to necessarily include widening the bandwidth of a signal, and when there is nothing in the specification that clearly indicates that the term spreading should have a different meaning, the Court rejects Wi-LAN's arguments that the term should be merely "modulating data symbols by codes of larger bandwidth." While modulating and spreading may be related, the Court finds that spreading does not necessarily mean modulating. The specification and claims of the '802 patent do not equate those terms. For example, the specification provides that the computing means includes a modulator to modulate data symbols to generate N modulated data symbols, thereby spreading each I data symbol over a separate code symbol. '802 patent, 4:7-12. Contrary to Wi-LAN's arguments, the specification does not say thereby "modulating" each data symbol over a separate code symbol. See id. The Court finds that the use of the term "spreading" in the specification and the claims does not change the well-known definition of spreading. Thus, the Court finds that there is no evidence in the specification that the applicants intended to provide "spreading" with a special meaning different from its ordinary meaning.

The specification provides that "DSSS is a communication scheme in which information bits are spread over code bits (generally called chips)." '802 patent, 1:25-27. However, the claims require "data symbols," consistent with Wi-LAN's proposal, not "information bits" as proposed by the Defendants. The Court is not convinced that the definition of spreading should include the limitation of "thereby reducing the effective bandwidth" rather than the well-known understanding that spreading is used "to create a wider bandwidth." The Court finds that the ordinary meaning of the term "spread" is to distribute over a greater area of space or time, to extend or distribute over a region, to scatter, to stretch or extend over a greater area. Thus, the Court construes the term "spreading" to mean "distributing data symbols over codes to create a wider bandwidth of data symbols."

B. Invertible Randomized Spreading

The independent claims, in general, require operating on the plural sets of N data symbols to produce modulated data symbols corresponding to a spreading or an invertible randomized spreading of each set of N data symbols. Thus, the "invertible randomized" term modifies "spreading." In the Detailed Description section, the specification provides that the computing means "operates on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the stream of data symbols." '802 patent, 4:2-5. The specification also provides that Figure 8 is a "schematic showing the Randomizer Transform (RT) where a(1) a(2) … a(N) are complex constants chosen randomly." Id. at 3:12-14. Claim 19 provides that the "direct sequence spread spectrum codes are generated by operation of plural non-trivial transforms on a random sequence of input signals." The prosecution history of the '802 patent is enlightening. In a Response to an Office Action, the applicants stated that the "key here is the randomization of the transformation." August 28, 1995 Amendment and Response to Office Action, p. 15. "With randomized spreading, it is less likely that a pulse will be generated." Id. at p. 16. The applicants provided the following response to another Office Action:

It is well known in the art that a randomizer transform … actually does not generate a perfectly randomized signal, which is impossible, but a near approximation to it, in other words a pseudo-random signal. In fact, it is believed to be well known in the art, and this is the meaning in each of the claims in this application for patent, … that when the term "randomizer," "randomized," or "randomizing" is used in relation to a spreading or transform of a signal, then it is a "pseudo-randomizer," "pseudo-randomized," or "pseudo-randomizing" spreading or transform that is being referred to. The fact that the transform is in each case invertible, means that the transform is known beforehand and a signal encoded by use of the transform can be decoded using the inverse transform.

February 12, 1996 Response to Office Action, pp. 1-2. The Court finds that, based upon the specification, the claims, and the prosecution history, that one of ordinary skill in the art would find that proper codes perform an invertible randomized spreading of the information sequence or stream of data symbols. Further, the Court finds that, at least in the context of spread spectrum techniques, the randomized spreading of a signal is not a perfect randomization of the signal, but only a pseudo-randomization. Thus, "[a]ny one of the P N-point transforms in FIG. 3 consists of a reversible transform to the extent of the available arithmetic precision." '802 patent, 4:29-32. The invertible randomized spreading of a signal is only invertible to the extent of the available arithmetic precision. See id. According to the claim language, the phrase "invertible randomized spreading" requires that the spreading be both "invertible" and "randomized."

Neither of the parties' proposed constructions is particularly helpful. Defendants' proposals merely rearrange the words of the term to be construed and improperly limit the spreading to a particular type of transform where the claim language does not specifically require the use of a transform. On the other hand, Wi-LAN attempts to limit the definition of "randomized"
to "applying complex constants chosen randomly" without clear support in the specification that the term should be so limited. The Court finds that the only reference to "complex constants" in the '802 patent is in the context of the Randomizer Transform shown in Figure 8 and that Wi-LAN's proposed construction decouples the application of "complex constants chosen randomly" from the use of a transform in a specific instance and improperly applies the reference to the generic definition of "randomized." The ordinary meaning of the terms "invert" or "invertible" means to turn upside down, to reverse in position or order, to turn or change to the opposite or contrary, or to turn inward or back upon itself. Based upon the specification, the claims, and the prosecution history, one of ordinary skill in the art would find that the term "invertible" means "reversible." The Court finds that the ordinary meaning of the term "randomize" is to order or select in a random manner or to make random. Based upon the specification, the claims, and the prosecution history, one of ordinary skill in the art would find that the term "randomized" means "pseudo-randomized." Thus, the Court construes the term "invertible randomized spreading" to mean "spreading that is reversible and pseudo-randomized."

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E. "Invoice" ('850 Patent)

"Invoice" appears in every independent claim of the '850 patent. Yodlee construes the term to mean "a description of the amount of and/or nature of user interaction with the system." CashEdge asserts that this term need not be construed, and if construed should be given its plain meaning of "itemized bill for services."

Within the patent, the term "invoice" is described as being something that is generated based on the updated accounting data. '850 patent col. 3, lines 35-55; col. 17, lines 7-12. The step of generating an invoice is the final step in "determining revenue," the ultimate goal of the process described in the '850 patent. It thus follows that the invoice must consist of a bill for money owed, a narrower construction than that put forward by Yodlee. The Court agrees with Yodlee that there is no reason to read a requirement that the bill be "itemized" into the language. The Court construes "invoice" to mean "bill for services."

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Emergis contends that "invoice account number" means "account number" or "customer number," while Cable One asserts that it means "invoice number." Claim 1 states that the "payment instructions include[] at least a customer invoice account number and an associated customer payment account." Emergis contends that the "customer payment account" is the customer's bank account or other source of funds from which the invoice will be paid, and the "invoice account number" is the number or other identifier associated with the customer's account.

The parties agree that the specification makes a distinction between "customer account identifier" which is equivalent to "customer number" and/or "account number" and "invoice identifier" which is equivalent to "invoice number." The disputed phrase, however, contains terms from both phrases. By including both "account" and "invoice" in this term, the inventor of the patent introduced an ambiguity.

Cable One cites two examples in the specification when "invoice account number" is used interchangeably with "invoice number." In the summary of the invention, the specification states: "the payment instructions include[] at least an invoice account number and an associated customer payment account." n75 In the following paragraph, the specification reads: "the payment instructions include[] at least a customer invoice number and an associated customer payment account." n76 In comparing these two citations, invoice account number and customer invoice number were used interchangeably. Cable One also points the Court to the preferred embodiment in the specification that reads: "The information included in this electronic authorization could include the customer invoice number and an associated customer payment account. In a preferred embodiment, both these items of information are submitted simultaneously with the authorization." n77 Because the inventor used the phrase, "invoice account number" interchangeably with "customer invoice number," and this phrase is never used interchangeably with "account number" or "customer number," the Court determines that "invoice account number" means "invoice number." n78
In support of its position, Emergis cites a Federal Circuit case, Amhil Enterprises Ltd. v. Wawa, Inc., that held when an original modifier is disregarded, but the specification "leaves its reader with the impression that" the term without the initial modifier "mean[s] essentially the same thing" as the phrase without the modifier, then both terms are construed as having the same meaning. n79 Thus, Emergis contends that when "invoice number" is used without "account," "invoice number" means essentially the same thing as "invoice account number." However, the case Emergis cites is distinguishable from this case. In Amhil, the patentee used the phrase, "substantially vertical face" interchangeably with "vertical face." n80 The court found the entire specification as a whole left the reader with the impression that "substantially vertical" and "vertical" mean essentially the same thing. n81 In this case, reading the specification as a whole, the reader is not left with the impression that "invoice account number" means essentially the same thing as "invoice number." In Amhil, the addition of "substantially" was an unnecessary modifier that did not change the essential meaning of the term. In this case, the addition of "account" is a necessary term that changes the essential meaning of the phrase. Therefore, in this case, the Court cannot follow the reasoning of Amhil as Emergis suggests.

The prosecution history also supports Cable One's proposed construction. In the First Office Action, the Patent Examiner objected to the term "invoice account number" in the specification because he found the phrase to be ambiguous. n82 The inventor responded by amending the specification. The phrase, "an invoice number" was changed to "customer invoice number" to clearly show what he meant by the phrase "invoice account number." n83 After these claims were approved by the Examiner, he stated "[t]he prior art does not teach or suggest: . . . the customer entering (receiving in customer authorization interface) the instructions including at least the invoice number and customer's requisite/associated payment account. . . ." n84 Because the applicant never submitted anything afterwards to the Examiner contending that this statement misunderstood the scope of the invention, the Examiner's use of "invoice number" supports construing the term, "invoice account number," as "invoice number." n85 Because both the specification and the prosecution history support Cable One's proposed construction, the Court will construe the phrase, "invoice account number" as "a unique number that is an invoice identifier, i.e., an invoice number."

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n85 Nazomi Comm'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005) (finding that any construction of a term must be consistent with the examiner's findings).

4. "invoice presentation electronics"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoice</td>
<td>an electronic facility</td>
<td>a device which provides an &quot;invoice&quot; electronically from the</td>
</tr>
<tr>
<td>presentation</td>
<td>adapted to provide</td>
<td>&quot;invoice&quot; electronically from the</td>
</tr>
<tr>
<td>electronics</td>
<td>customer billing data</td>
<td>invoicer to the customer</td>
</tr>
</tbody>
</table>

Emergis cites the specification to support its construction of this claim. The specification states the automated billing system in the patent includes "invoice presentation electronics adapted to present customer billing data in request for payment instructions related to automated billing." n45 Additionally, for the same reasons it disputed the construction of "presentment," Emergis contends that Cable One's interpretation is too restrictive by using the term "invoice." The specification states that the invoicer has flexibility in determining what customer billing data to provide to the customer, and such information is not restricted to the information on an "invoice." Because the specification supports Emergis's construction, the Court will construe the phrase, "invoice presentation electronics," as "an electronic facility adapted to provide customer billing data."

n45 (5:26-29.)

1. "invoicer"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>invoicer</td>
<td>a person, usually a business, who prepares an invoice detailing the goods and services provided to a customer, and then charges for such goods and services, and receives payment for those goods and services</td>
<td>a person, usually a business, who prepares an invoice detailing the goods and services provided to a customer, and then charges for such goods and services, and receives payment for those goods and services</td>
</tr>
</tbody>
</table>

Emergis contends that Cable One's addition of "receives payment for those goods and services" adds a limitation that requires the business to receive actual payment, and that this limitation is contrary to the intrinsic evidence. Emergis's proposed construction comes from the specification which states that an invoicer is "usually a business, who prepares an invoice detailing the goods and services provided and the charges therefor." n36 Additionally, Emergis argues that the common and ordinary meaning of invoicer is "an itemized list of goods shipped or services rendered, with an account of all costs," n37 and the common and ordinary meaning of invoiced, invoicing and invoices is "to make an invoice of or submit and invoice to." n38 Because the common and ordinary meaning of invoicer only contemplates the sending of an invoice...
and not the receipt of payment, the Court finds that Emergis's construction is more appropriate. Because the Court must give "claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art," n39 the Court will construe "invoicer" in accordance with Emergis's proposed definition and omit Cable One's proposed language that requires the invoicer to receive payment. Therefore, the Court will construe the term, "invoicer," as "a person, usually a business, who prepares an invoice detailing the goods and services provided to a customer, and the charges for such goods and services."

--- Footnotes ---

n36 (1:14-16.)
n37 (Doc. 61 at 8 (citing WEBSTER'S II NEW COLLEGE DICTIONARY (2001))).
n38 Id. (citing WEBSTER'S II NEW COLLEGE DICTIONARY (2001)).

--- End Footnotes ---

5. "invoicer billing information"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;invoicer billing information&quot;</td>
<td>information relating to the invoicer, which may include the due date, amount due, list of goods and services, late charge</td>
<td>None</td>
</tr>
</tbody>
</table>

Emergis argues that their construction is appropriate because the specification states that "[t]he billing information that may be submitted to the customer includes any combination of the following items: payment due date, amount due, detail of goods/services provided during a billing period, late charges, account information, customer information . . ., invoice identifier, e.g., invoice number." n46 Because the specification supports Emergis's construction and Cable One has not provided an alternative construction, the Court will construe "invoicer billing information" as "information relating to the customer's obligations to the invoicer, which may include the due date, amount due, list of goods and services, late charge."

--- Footnotes ---

n46 (6:34-47) (emphasis added).

--- End Footnotes ---

4. "Irrespective of"

SWB asks this court to interpret the term "irrespective of" which appears in disputed Claims 1, 15, 22, 29, 35, and 42 in the '125 patent and in disputed Claims 1 and 3 in the '650 patent to mean "without analyzing the content of." In contrast, Gammino asks the Court to construe "irrespective of" to mean "without regard to." Both Parties point to language in the
specification? which refer to digits in the second plurality as "don't care" values? to support their proposed construction. Likewise, both Parties highlight language in the prosecution history where Gammino stated that his claims are "directed toward preventing international telephone calls regardless of the indicated carrier" to support their proposed construction.

The Court construes the term "irrespective of" to mean "without analyzing the content of;" thus, the Court gives the terms their meaning as proposed by SWB. Both patents describe the digits in the second plurality as "don't care" values; digits that Gammino's patents do not analyze. The patents explain that Gammino's claimed invention does not analyze the content of the second plurality as part of determining whether to block a call:

Table entries may include "don't care" values to indicate digits and locations in the dialing sequence which should not serve as a basis for preventing completion of the telephone call.

125 Patent, col. 4, lines 37-40; '650 Patent, col. 4, lines 41-44.

In fact, during the prosecution of both patents, Gammino distinguished his patents from the Bimonte patent by arguing that Bimonte used the content (e.g. digits) in the second plurality to identify the long distance carrier in order to determine if the call could be carried on the identified carrier. Specifically he stated,

Bimonte discloses evaluating whether a call can be carried on an indicated carrier. By contrast, Applicant's claims are directed toward preventing international telephone calls regardless of the indicated carrier. Bimonte does not perform this claimed function.

In distinguishing his patents from Bimonte, Gammino also stated,

It is to be noted that Applicant's determination, as to whether to prevent establishment of a telephone call, is made irrespective of and independent of the second plurality of dialing digits...

Thus, Gammino argues that his claimed invention operated without analyzing the content of the second plurality of digits. In other words, Gammino's call-blocking determination (i.e. analysis) is made "irrespective of and independent of" the second plurality of digits.

According to Gammino, his patents "regard" the second plurality of digits; therefore, the term "irrespective of" must mean "without analyzing the content of." In his Claim Construction brief, Gammino states:

Under the method, signals in the second plurality are analyzed to determine if particular signals have been entered at particular places in the dialing sequence. As such, the claims contemplate that calls would be prevented regardless of the second plurality but that the second plurality can be dealt with to determine if signals are located at particular places.

Gammino's brief shows that the second plurality of digits are "deal with" and thus regarded to "determine if signals are located at particular places." Gammino agrees that the second plurality is analyzed, but the analysis does not involve the content of the second plurality. The Court will not construe "irrespective of" to mean "without regard to" because Gammino's patents regard the second plurality of digits to determine the their respective location within the dialing sequence. The Court, therefore, construes "irrespective of" to mean "without analyzing the content of".

4. "is"

The claims of the '184 patent require determination of whether the terminating subscriber, or in the case of claim 18 both the originating and the terminating subscriber, "is" PIC'd to a particular IXC. Excel asserts that the term "is," as it is used in the asserted claims, means "at the time of the call referenced in the claim." (D.I. 300 at 50) AT&T does not propose an alternative construction.

In common parlance, "is" is used to indicate "that which is factual, empirical, actually the case or spatiotemporal." Webster's
at 1197. Excel's construction, therefore, is consistent with the ordinary meaning of the term given the context in which it is used. Moreover, Excel's construction is consistent with the language of the independent claims which not only links the PIC indicator to a specific call but also anticipates a single PIC for the terminating subscriber. (‘184 patent, col. 7, lns. 13-16; col. 8, lns. 25-27; col. 8, ln. 67-col. 9, ln. 1; col.12, lns. 14-17)

The court, therefore, shall construe "is" to mean "at the time of the call referenced in the claim." Consistent with this construction, "the PIC for said terminating subscriber" shall be construed to mean the IXC selected by the subscriber to provide 1+ long-distance service to the telephone number called at the time of the call referenced in the claim.

2375

(1) isochronous source, isochronous data source, non-isochronous data source, isochronous data source outputting
isochronous data, isochronous data, non-isochronous data, isochronous, non-isochronous, isochronously, non-isochronously

In proposing constructions for the myriad of isochronous terms, the parties begin from different root terms. Aside from the varying starting points, however, the fundamental dispute is whether "isochronous" excludes packetized data; indeed, the proposed constructions submitted by the parties are substantially similar after removal of the "non-packetized" limitation. Additionally, the parties agree that the term "isochronous" connotes a time-dependency limitation.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

3 Dell and National begin with "isochronous data," and N-Data begins with "isochronous data source." Each of the parties asserts that the specification expressly defines their respective terms. See '261 Patent, col. 1 ll. 23-27.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

In support of their inclusion of the "non-packetized" limitation, Dell and National cite to a specific reference in the specification: "[i]n general terms, isochronous data is data which is non-packetized and of indeterminate, potentially continuous duration." Id. (emphasis added). There has been much debate, however, concerning the above-emphasized introductory phrase. The court agrees with N-Data that the introductory phrase, "in general terms," while defining the term in a broad, high-level manner, is not meant to confine the term to the constraints subsequently imposed by the remainder of the sentence, to the exclusion of all other possible variations.

Additionally, notwithstanding the use of "in general terms," the patents contain a number of examples in which isochronous data can be packetized. One key example appears in Figures 3 and 5 of the '820 patent. Figure 3 displays the schematics of an IsoEthernet network expansion card that can be used for isochronous information transfer. In Figure 3, the IsoPhy (isochronous Ethernet physical layer) separates or combines Ethernet and B channel (isochronous) data. See '261 Patent, col 5 ll. 1-2, ll. 29-32; '261 patent, Table III. Figure 5 illustrates an expanded view of blocks 301 and 302 of the IsoBuffer, block 209. Within block 301, there are three other components pertinent to the term at issue, two HDLC Packet Framers/Deframers and one ATM Packet Framer/Deframer. HDLC (High-level Data Link Control) is an information framing protocol used to frame information for isochronous communication over a standard digital telephone line. '820 Patent, col. 1, ll. 63-67. ATM (Asynchronous Transfer Mode) is an alternative information transferring protocol. '820 Patent, col. 2, ll. 35-37. These two protocols "packetize[] or depacketize[] information" and are "disposed in the B-channel data path between isoPhy block 206 and ISA bus 201." '820 Patent, col. 5, ll. 41-45; col. 6, ll. 29-30. Whether or not there is a "transmut[ation]," as Dell suggests, from packetized data on one side to non-packetized data on the other, the integration of such protocols within the isochronous data transfer pathway contemplates packetized isochronous data. A construction that excludes an embodiment is rarely correct. See also U.S. Patent App. 07/969,916, p. 32 ll. 15-18 (parent application acknowledging that isochronous data could be transferred using a bus, such as the P1394, that transfers isochronous data via packets); '820 Patent, col. 1, ll. 38-48 (explaining that telephone conversations, an example of isochronous data, are transferred via small packets); U.S. Patent No. 4,556,970, U.S. Patent No. 4,674,082, U.S. Patent No. 4,866,704, U.S. Patent No. 5,164,938, and U.S. Patent No. 5,200,952 (prior art references cited by the patent examiner that describe packetized transfer of isochronous data).

Accordingly, the court defines "isochronous data" as follows: "data of indeterminate, potentially continuous duration."
The court defines "isochronous data source" as "a device which outputs data of indeterminate, potentially continuous duration in a continuous stream, usually at a substantially constant average data rate."

The court defines "isochronous" as "continuous, with a uniform time period."

The court defines "isochronous source" as "a device which outputs in a continuous stream."

The remaining terms are given their plain and ordinary meaning in light of the previously construed terms.

1. "isolation" / "isolating" / "isolated" ('190, '034, '083, and '702 patents)

SynQor's Proposed Construction
Isolation: "having insulation incorporated to prevent the flow of substantial DC current"
Isolating: "providing isolation"
Isolated: "having isolation"

Defendants' Proposed Construction
"the absence of an electric path permitting the flow of DC current between two points"

SynQor argues that isolation is a well-known term in power electronics and that isolation is provided by using a transformer to insulate the output from the input. SynQor argues that the claim limitation is met if the power converter is configured to provide the function of isolation --allowing power to be transferred from the input to the output while preventing the flow of substantial DC current by using an insulated device, such as a transformer. SynQor argues that Defendants' construction is inconsistent with how persons of ordinary skill would define an isolated converter and would cover any situation where there was no electric path for DC current between two points. SynQor argues that the specification confirms that the term isolation is defined by whether there is insulation, such as a transformer, within the stage that prevents the flow of DC current from the input to the output. See Fig. 2 of the '190 patent. SynQor argues that the specification never defines "isolation" by whether there is a path that might allow electric current to flow somewhere outside of the stage/converter, such as a common ground. Rather, it defines "isolation" as the presence of circuitry within the stage/converter itself that prevents the flow of substantial DC current within the stage/converter.

Defendants argue that isolation is a state or condition that can be changed. Defendants argue that isolation prevents the flow of all, or all but a de minimis amount of, DC current. Defendants argue that isolation is provided by creating an electric barrier between two components such that DC current cannot flow between them. Defendants argue that Figure 2 shows that there is no electric path from the input to the output of the isolation stage. Defendants argue that the term insulation, proposed by SynQor, is not used in the specification and is not descriptive, ambiguous, and circular. Defendants argue that the mere presence of insulation in the circuit does not guarantee that the input and output of the circuit will be isolated because an electrical connection could be provided elsewhere. Defendants further argue that prior art cited during prosecution, part of the intrinsic record of the '083 and '702 patents and listed on the face of those patents, confirms its construction. These prior art references have diagrams and expressly use the terms "isolated" and "non-isolated" when there is the absence or presence of a path permitting the flow of DC current from the input to the output of the circuit. Defendants further argue that the inventor confirmed this understanding during his deposition.

The word "insulation" is not used in the specification or the claims. In the specification, a transformer is used to provide isolation, but the specification never teaches that "isolation" means "insulation." As the prior art shows, a power converter can utilize a transformer, but if the circuit has a separate conducting path it is not viewed as "isolated." Thus, the presence of insulation is not determinative of whether the stage is isolated. The Court rejects SynQor's attempt to insert the term "insulation" and "substantial" to the construction without any clear support for those terms. The dictionary definition of isolation implies a separation or detachment from one component to another component. It is clear from the specification and the parties' construction that the separation is that of electricity, and more specifically, DC current. The parties agree that isolation can allow the flow of a de minimis amount of DC current. The prior art and specification indicates that isolation
for a circuit or stage is that where no electric path exists between the input and output of the circuit or stage. That is, the input is isolated from the output. SynQor's concern, that isolation looks to the internal structure of the converter, circuit, or stage to determine whether it is isolated, is taken into account when the entire phrase of "non-isolating regulation stage" or "isolation stage" is considered. In these contexts, the stage itself must have internal isolation or be isolating itself, not necessarily that the stage must be isolated from another stage or structure. The claims provide that stages, circuits, converters, and transformers can be isolating. Thus, the Court construes the term "isolation" to mean "the absence of an electric path permitting the flow of DC current (other than a de minimus amount) between an input and an output of a particular stage, component, or circuit." The Court finds that the terms "isolating" and "isolated" have the same meaning as the term "isolation."

Isolation Region in Said Substrate

The Court adopts Motorola's proposed construction of "isolation region in said substrate" and construes that term to mean "region in the substrate isolated from noise generated in another region." ST proposes an identical construction except with the word "area" substituted for "region." The Court finds "region" to be clear on its face and thus denies ST's proposal.

8 ST's proposed construction is: "an area in the substrate isolated from noise generated in another area."

Issuing multiple instructions and non-sequential instructions within a given processor cycle when the existence of concurrences is detected (claim 6), and issuing multiple instructions and non-sequential instructions within a given processor cycle when said plurality of concurrently executable instructions are detected (claim 15)

Defendant construes these terms as meaning: "forwarding by the reservation circuit of all instructions for which the Issue Index (I<2>) is equal to zero and the requisite functional unit available where Reservation circuit is defined as a component that has OP, Issue Index, and Functional Unit Status inputs, and an Issue output." Thus, I<2> (which according to defendant includes false dependencies) is an integral part of defendant's construction.
Plaintiff contends that the terms simply mean "issuing multiple and non-sequential instructions when the dispatch stack has detected a plurality of concurrently executable (i.e. data dependency free) instructions." The Court has already determined that there is no requirement that the dispatch stack include an I<2>. Further, the Court has already found that false dependencies are not a limitation in claims 6 and 15. Based in particular on its above reading of the phrases "detecting the existence of concurrences in instructions stored in said dispatch stack" (claim 6) and "detecting the existence of a plurality of instructions which are concurrently executable from those instructions stored in said dispatch stack" (claim 15), the Court agrees with plaintiff. The Court adopts plaintiff's proposed construction.

1. General Issues

Defendants claim that two issues underlie many of the disputed claim terms: first, whether the "auction process" ends with the deadline for bid submission such that all claimed steps must occur before bids are submitted; and second, whether the bidder's computer must perform the "computing", "submitting", "transmitting", and "communicating" steps.

The first issue is admittedly the same issue decided adversely to defendants in the summary judgment context. As such, for the reasons discussed immediately above, the court will not address it yet again.

The second issue is also easily disposed of by reading the plain language of the claim. Sometimes the claim explicitly states that a step must be performed on the bidder’s computer, e.g., "inputting . . . into said bidder's computer" and "submitting . . . from said bidder's computer". Other times the claim explicitly states that a step is performed elsewhere, e.g., "communicating . . . to said issuer's computer" and "displaying, on said issuer's computer". Still other times there is no designation as to the location of a step. For instance, the "automatically computing" step is given no location. This step could be performed on the bidder's computer, where the bid data has been inputted, or, at some other location where the data has been transferred for the purpose of computation. As such, there is no merit to defendants' argument that all steps of Claim 1 must be performed on the bidder's computer.

2. Claim Construction - Claims 1, 14, 20, and 31

We turn now to construction of the allegedly disputed terms. Before doing so, we note that although we accept that it is an unfortunate convention of patent litigation practice to exacerbate the claim construction task, in this case, the process has been particularly abused. Defendants originally contended that approximately four terms would need to be construed; the claim construction chart contains twenty-five. Repeatedly, when defendants cite to intrinsic evidence, the citations do not support the position advanced, and sometimes do not even address the topic at issue. Moreover, as noted above, defendants, who are the ones seeking construction of these terms, fail to specifically identify the context in which any particular construction of a term is important to the case, as the court explicitly instructed them to do. The court has looked past these shortcomings and has carefully considered each of defendants' claim construction arguments. Unfortunately, even putting all of this aside, they are largely without merit.

CLAIM 1:

As an initial matter, we find that construction of the preamble is necessary. The preamble describes the components of "an electronic auction system". The components are used in the steps that comprise the "electronic auctioning process." The entire claim must be read as a whole.

TERM # 1: "electronic auction system" - Defendants reiterate the temporal limitation argument that they lost on summary judgment. We need not address it again. This term means: "The equipment and procedure used to sell fixed income financial instruments to the highest bidder using computers."

TERM # 2: "issuer" - The parties agree that this term means: "An entity offering fixed income securities for sale."

TERM # 3: "issuer's computer" - As with most terms asserted by defendants as being in need of construction, this is not a
complicated term to construe. We need not look beyond the claim itself to conclude that defendants' proposed construction is invalid. Although the issuer's computer does perform the act of "displaying" in the process steps, it also performs the step of receiving a message associated with said submitted bid. Therefore, it would be improper to define this term by limiting it to the displaying step, as defendants propose. This phrase means: "A computer used by the Issuer to access an electronic auction."

Disputed Claim Term 4: First Code Module Issues a First Command to Retrieve a Second Code Module

The plain meaning of this phrase is that the first code module (described above) issues (gives) a command (an order, instruction or direction) that a second code module (a different computer program) be retrieved (fetched from some other location -- that is, the second code module, unlike the first code module, is NOT already embedded in the Web page). This definition appears to describe quite accurately what happens during the patented process; it conforms to the specification in every particular. Indeed, the term appears to be self-defining.

Tacoda's proposed definition of the disputed claim term as follows: "The first code module performs a program instruction contained within the first code module to request the downloading of a second code module from a location on a network." This appears at first blush to be a more convoluted way of articulating the plain meaning of the phrase -- although there is a twist.

Modavox, on the other hand, clearly seeks to expand the scope of its patent by defining this term as follows: "An instruction by a code module that initiates the transfer or retrieval of another code module." While not quite grammatically accurate ("an instruction" is a noun; the term to be defined is not a noun), it, too, seems to capture the general idea of the claim -- although it uses the term "retrieval" in the definition of "retrieve."

The only meaningful difference between these two definitions is whether the first command that is issued by the first code module -- the command to retrieve the second code module -- can be located somewhere other than within the first code module. Tacoda says the command, "Fetch the second code module" must be located (i.e., programmed) within the first code module itself. Modavox insists that the process of retrieving the second code module could encompass multiple steps, with the ultimate "Fetch" command being located somewhere outside the first code module. For example, the first code module could be programmed to link up to a remote server or a linked web page where the command, "Fetch the second code module" was embedded and (presumably) direct that remote or linked server or page to send out that command, thereby causing the second code module to be retrieved.

The asserted claims themselves do not expressly indicate whether the command that issues from the first code module must be located within that code module or whether the first code module can be programmed to call on a command located elsewhere. However, the specification discloses a preferred embodiment in which the command is contained within the first code module. Modavox argues that Tacoda is attempting impermissibly to limit the scope of its patent to the preferred embodiment; while Tacoda, citing the recent Netscape opinion, argues that nothing in the patent (including the specification) discloses the possibility of any other embodiment -- which augurs for a narrow construction.

In this instance, I agree with Tacoda.

In the context of this invention, the first code module is a computer program that does two things -- issues a command to fetch the second code module and then directs the second code module to execute. Furthermore, the first code module must issue the command to fetch the second code module "automatically" (i.e., without any intervention). The first code module must, therefore, be programmed (i.e., contain the instruction) to issue the "Fetch" command.

There are several obvious flaws in Modavox's definition. First, it is quite clear that, for the purposes of this invention, only one code module -- the one that is embedded in the Web page (i.e., the FIRST code module) -- can issue the command to retrieve the second code module. Modavox impermissibly broadens the scope of its claim in its definition by not specifying that the instruction to retrieve the second code module must issue from the first code module; instead, it uses the formulation "a" code module, which could be any code module (computer program), not just the first code module.
A second flaw is that Modavox adds the word "transfer" to the definition, which introduces an unnecessary complication. The claim language speaks only of "retrieving" the second code module -- not of transferring it. Transfer and retrieval are not the same thing, so adding the word "transfer" to the definition does not make the word "retrieve" any clearer. Nor does "retrieve" require any clarification: in the context of this patent, the specification discloses that the second code module is "assembled" in response to the issuance of the "retrieve" command by the first code module.

Tacoda inserts the concept of downloading into the definition of this claim term. However, it is not wrong to do so. The second code module must end up on the client computer (the one that displays the Web page) -- that is the purpose of "retrieving" it. A person skilled in the art would recognize that a computer program retrieved from a remote server ends up on a client computer via the process known as "downloading." 999

I therefore adopt Tacoda's proposed definition of this term and will instruct the jury that "first code module issues a command to retrieve a second code module" means:

The first code module performs a program instruction contained within the first code module to request the downloading of a second code module from a location on a network.

2382

Item

The Court agrees with Sklar that the term "item" has its plain ordinary meaning and does not require construction. Microsoft argues the term "item" should be construed to mean "a person or thing represented by a record in a searchable database, such as a particular car represented in a database of cars available for sale or a particular web page represented in an URL database." For support, Microsoft points to the '843 patent specification, which states "this invention provides an improved interface for performing computer database searches and filtering search results." '084 patent, Col. 1:12-15. Microsoft argues the asserted claims are not directed to manipulating real world things, but are directed to computer representations, or records, that are considered in the decision-making process. Sklar contends one of ordinary skill in the art reading the claims, the specification, and the file history would understand the term "item" has its plain ordinary meaning.

The Court first looks to the claims themselves to determine what the term means. Phillips, 415 F.3d at 1312. Sklar defined in the body of every asserted claim what is meant by the term "item." For example, the '843 patent states an "item is characterized as being a member of one category." '843 patent, Claim 5. Microsoft's argument to add examples from the specification into the claim language is unconvincing. The specification's written description does not limit the scope of the claimed invention. Markman, 52 F.3d at 980. Furthermore, Microsoft's effort to define "item" as a person or thing represented by a record in a database is unpersuasive. Claim 1 of the '121 patent used the exact language that Microsoft is seeking to insert into the Court's construction. Sklar, however, did not use that language in the claims of the patents-in-suit. The scope "of each individual claim must be examined on its own merits." Lemelson v. TRW, Inc., 760 F.2d 1254, 1267 (Fed. Cir. 1985). Therefore, limitations from one independent claim are not imputed to another independent claim. The preamble of Claim 1 of the '121 patent states:

1. A user interface generated by a digital computer for user selection from among a plurality of items wherein each of the plurality of items is referenced by a record in a database with at least one field in the record defining at least one coordinate for the item, the user interface comprising:

The preamble of Claim 5 of the '843 patent states:

5. A method of presenting a user with selection of items, wherein each item is characterized as being a member of one category selected from a plurality of categories, the method comprising the steps of:

The preamble of Claim 11 of the '094 patent states:

11. A method of presenting a user with a display of a selection of items, wherein each item is characterized in the display as being a member of a category selected from a plurality of categories, the method comprising the steps of:

The "record" or "database" limitations urged by Microsoft are not found anywhere in the claims of the patents-in-suit. The specification portion that was added by the continuation-in-part applications are directed toward a user interface where "databases" are one potential underlying application. The first two sentences of the major textual portion appended during the continuation-in-part applications state: "Fig. 11 illustrates the use of
clustering to optimally fill the display 900. Display 900 is a display which might be used to gain insight into a database of cars available for sale. The term "might be used" makes clear the exemplary nature of the embodiment. The term "item" is not a scientific term or term of art that a lay juror would not understand. "The ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." Philips, 415 F.3d at 1314. In the specification of the patents-in-suit, the term "item" is used in everyday English. Accordingly, the Court does not construe "item" with the limitation that an item be represented by a record in a searchable database.

2383

(1). "Item" and "Movie" Require No Definition.

Turning now to a closer consideration of "item rental queue" and "movie rental queue," Blockbuster urges the court to define the terms "movie" and "item." A district court need not construe every single disputed word. "Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement." U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997). As these are commonly-understood English words, they need no clarification.

The term "item" is defined explicitly in the specification of the '450 patent, which stated "[a]s used herein, the term 'items' refers to any commercial goods that can be rented to customers" (col. 4:1-3). Absent that, a juror would still understand through everyday experience that "item" used in this context would not include, for example "cups of coffee" which cannot be rented, but could include "bowling shoes" which can be rented to customers. Jurors would also understand that the term "movie," as used in the patents, was intended to include media such as documentaries, television series, cartoons, music videos, concert performance films, and instructional and educational programs. This list was recited in claim 13 of the '381 patent (col. 13:59-64).

2384

(3). Operation of the Queue.

The next point of dispute is whether the queue must be used by the provider. The claims make it clear that the "rental queue" is used to rent items. No further clarification is needed on that point. The claims and specification give less guidance as to whether the provider is the one necessarily using the queue. The claims of both patents reveal that the queue is formed, at least in part, from the customer's input in selecting movies or items. The provider then selects the items to be rented from the queue based on the customer's input and possibly other factors. For instance, the customer can rank items within the ordered list, but the provider uses the queue to determine which item to send based on availability, or based on which customers have generated the most revenue for them, or any number of other criteria.

For example, the specification indicated that customers could select movies that had not yet been released. The customer may state as an item selection criteria that he would like to rent every newly-released movie starring Keanu Reeves. The system would automatically add them to his movie rental queue once they became available. Blockbuster argues that such a system would simply not place those items in any order at all within the queue. Even though those items may not be in a customer-determined order, they would still be arranged in some manner to allow the system to rent items. For instance, they might be placed in order by the system based on availability, relative popularity, or even a sequence as mundane as alphabetical or chronological order. It would not merely be lumped in at random with the customer's other selections.

At oral argument, Blockbuster contended that availability was the only criteria other than customer preference that was taught or enabled by the specification. It contended that availability cannot truly be a criteria because the provider cannot rent what it does not possess. This neglects the possibility that the system could delay sending the top-ranked item until it is available. For instance, if a customer had selected a certain movie as his top choice but that movie was not available, the system could simply wait until a copy of the customer's top choice was returned to send that customer the movie.
Availability can constitute a criteria for ordering the queue.

Accordingly, this order holds that "item/movie rental queue" will mean the sequence from which the provider selects movies or items to be rented. A queue has an order. It includes the ordered list but may also include other items. The queue's sequence can be determined in part by customer preferences but may also use other priorities such as availability, demand, popularity, and delivery constraints. "Items" and "movies" will be given their common meanings with "items" being limited to those things that can be rented.

The parties dispute the proper construction of the phrase "items...containing information" as that phrase is used in Claim 19 of the '992 Patent.

In addition to the phrase "items containing information," the specification of the '992 Patent uses the following related phrases: "items," "information from items," "items in the source material library," "information in the items," "items having information," and "items of information."

In the July 12 Order, the Court construed the phrase "items containing information" as follows:

The Court construes the term "items containing information" to mean "items containing information in analog or digital format." The limitation requiring the information be stored in analog or digital format is necessary as the conversion means element 113 only converts analog and digital inputs into a "formatted data" output. n4

(July 12 Order at 11, citing ’992 Patent, figure 2a.)

n4 The Court inserted this footnote following the definition: "Neither the claims nor the specification of the ’992 patent disclose any structure for converting information in the 'items' to analog or digital form as required by the 'conversation means,' before the items are stored in the library means. The claims and the specification disclose structure (figure 2a (113)), which converts only analog or digital information. Before the items are stored, the information in the 'items' stored in the library means must out of necessity already be in analog or digital format." (July 12 Order at 11, n. 6.)

The current dispute is whether the word "items" as used in the '992 Patent refers to physical items. The specification refers to "items" as follows:

The source material library 111 may include different types of materials including television programs, movies, audio recordings, still pictures, files, books, computer tapes, computer disks, documents of various sorts, musical instruments, and other physical objects. These materials are converted to or recorded on a media format compatible to the digital and analog inputs of the system prior to being compressed and stored in a compressed data library 118.

(’992 Patent, Col. 6:10-19.) The Court finds that a proper reading of the specification renders that the word "items" means physical objects and not the "information" which might be contained in the physical objects. n5 For example, a computer file, would be information. The media used to store the computer file, such as a computer disk or a computer tape, in the source material library would be a physical item containing the information.

n5 A literal reading of Claim 19 is that the user requests "items containing information" (e.g., a video tapes) and that the items are "to be sent" from the transmission system to receiving systems. Thus, under this literal reading, the video tapes
themselves would be sent. However, the specification makes it clear that the invention is not one in which the video tape is sent, but one in which movies are extracted from the video tapes, processed, and only the movies (information) are sent to the receiving systems.

--- End Footnotes ---

The Court defines "items...containing information" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which, responsive to requests from a user identifying "items" in a transmission system "containing information," information is sent from the transmission system to receiving systems at remote locations, the phrase "items containing information" means "physical items, such as video tapes, film, or computer disks, which contain audio information, video information or both."

Claim 1 indicates that "job input" is "from the authorized user" and is related to the "job request" and "job instructions." '998 Patent, cl. 1. The central issue regarding this term is whether it is proper to limit the methods by which an authorized user may input job data as the defendant asserts. Plaintiff asserts that nothing in the specification or claims requires that the job input be so limited as the defendants suggest; in fact, it asserts that the invention contemplates that a user may provide a variety of input, "some of which may be data for transcription and/or translation, but some of which may be in the form of instructions and priority details, additional documents and/or multimedia files for attachment to the electronic file, or the designation of additional users who may access the voice file and/or transcription." Anthurium's Opening Claim Construction Brief at 17 (citing '998 Patent, cl. 5, col. 6 ll. 20-33, col. 8 ll. 57-60, col. 11 ll. 44-50, col. 16 ll. 6-17).

Claim 1 of the '998 patent contemplates a "job packet" containing a "digital file" and a "job record." The claim also indicates that the "digital file represents job input from the authorized user." Anthurium's proposed construction fails to distinguish between a "job record" and "job input;" it is simply too broad, when read in the context of claim 1 as a whole. With the exception of the "human user" limitation, the limitation proposed by the defendant encompasses most of the interactions contemplated by the specification and sufficiently distinguish it from a "job record."

As such, the Court defines "job input" as follows: "Data received from the authorized user that is to be transcribed, translated, entered, or assembled." 2

--- Footnotes ---


--- End Footnotes ---
3. "job instructions"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job instructions</td>
<td>Data from an authorized user to a local computer concerning performance of a job</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job instructions</td>
<td>A communication providing directions for performing the job</td>
</tr>
</tbody>
</table>

This term is not found within the '998 patent specifications. The central issue regarding this term is generally whether the "instructions" are limited to data or communications. Anthurium asserts that the defendants' proposed use of "communication" implies a single interaction. The defendants argue that Anthurium's use of "data" is too broad and is unsupported by the intrinsic record.

The specification implicitly describes the type of information which may comprise "job instructions." In various portions of the specification, the DAD prompts the authorized user for information, such as priority or preview options. Then, based on a set of pre-stored rules and user information stored in the HIS, the HOME interprets the user's input to produce job requirements that are stored in a Job Record. Additionally, the specification indicates the potential for multiple interactions by an author and not merely one solitary interaction. See id. at col. 4, ll. 17-29, col. 6 l. 66-col. 7 l. 2, col. 12 ll. 16-38. As for the preliminary limitation proposed by Anthurium, "from an authorized user to a local computer," the Court finds that such limiting terminology is not necessary given the context in which it is used within claim 1 of the '998 patent.

In light of the specification as a whole, the Court construes "job instructions" as follows: "communication(s) providing information for performing the job."

4. "job packet"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job packet</td>
<td>One or more electronic files associated with a job</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job packet</td>
<td>An electronic collection of data sufficient to perform a job</td>
</tr>
</tbody>
</table>

According to the claim language, a "job packet" contains (1) "at least one of a digital file and a reference to the digital file," and (2) a "job record that includes a set of computer-readable job processing requirements that are based on an interpretation by the local computer of the job instructions." '998 Patent, cl. 1. The central issue with respect to this term is whether a "job packet" must contain all the information sufficient to perform a job. In support of its construction, Anthurium cites to
various portions of the specification, which seemingly indicate situations where the "job packet" does not contain all data necessary to perform the job. For instance, the specification states, "[w]hen a job is ready for Transcription, DAD passes the VOX File along with a skeleton Job Record Transaction and the appropriate Template . . . If the Job included any file that was to be sent by the Client and was not, MOM notifies the Client by electronic message, and waits until the missing files are supplied before sending the Job to a Scribe." Id. at col. 6 l. 34-col. 7 l. 2; see also id. at col. 12 ll. 28-38 ("Optionally, the faxed contract would be preserved as an image file, or, if desired, presented to the Scribe as content to be transcribed or processed."). The Court agrees with Anthurium's proposed construction. The defendants rely on a forced reading of claim 1, ignoring a reading which accounts for the specification. The patent clearly contemplates that the "job packet" may provide some of the data necessary to perform a job and that subsequent information may follow, either to correct previous submissions or additions.

The Court defines "job packet" as follows: "one or more electronic files associated with a job."

2389

6. "job record"

<table>
<thead>
<tr>
<th>Disputed</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job record</td>
<td>An electronic file associated with a job</td>
</tr>
</tbody>
</table>

According to the claim language, a "job record includes a set of computer-readable job processing requirements . . ." '998 Patent, cl. 1. The issue regarding this term is whether a record is a description of a job or, as Anthurium suggests, merely a file that accompanies a job. The defendants cite to a portion of the specification for their proposed construction--"[a] carefully designed Job Transaction record allows the record to support many functions. Billing, payroll, tracking royalties, use rights, . . ." '998 Patent, col. 19 ll. 33-39. The defendants argue that the intrinsic record does not support Anthurium's construction. Anthurium suggests that, although a "job record" must be associated with a job, it is not a description of a job.

The Court agrees with Anthurium. The specification passages cited by Anthurium teach against a static description of a job. Instead, the numerous uses of the term indicate an "association" with a job. See '998 Patent, col. 6 ll. 34-37. Furthermore, the support cited by the defendants does not suggest descriptive aspects of a job, but simply associated records accompanying a job.

As such, the Court defines "job record" as follows: "an electronic file associated with a job."

2390

2. "job request"

<table>
<thead>
<tr>
<th>Disputed</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim Term</td>
<td>Data from an authorized user to a local computer asking for performance of a job</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disputed</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim Term</td>
<td>A communication received from a human user asking for</td>
</tr>
</tbody>
</table>
Anthurium proposes what it contends is the plain and ordinary meaning of the term. The defendants seek to limit the term to a "human user asking for performance of the job." The defendants' construction seeks to improperly limit the term with little to no support from the specification.

The Court defines "job request" as follows: "data from an authorized user to a local computer asking for performance of a job."

13. "job step data"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job step data</td>
<td>Data concerning job steps</td>
<td>Data representing the job steps</td>
</tr>
</tbody>
</table>

The issue regarding this term is the use of "concerning" versus "representing." The Court has considered the arguments and adopts the plaintiff's proposed construction.

9. "job steps"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job steps</td>
<td>Events that occur during the performance of a job</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job steps</td>
<td>The definition of the job in terms of the series of actions to be performed</td>
</tr>
</tbody>
</table>

The issue regarding this term is whether "steps" should be defined as "series of actions to be performed," as the defendants suggest, or "events that occur," as Anthurium suggests. In support of their construction, the defendants look to both the claims and the prosecution history. Specifically, the defendants look to Claim 14. Claim 14 states, "wherein the central computer generates a set of job steps that define a job based on the job processing requirements, and tracks progress of the job based at least in part on completion of the job steps." '998 Patent, cl. 14. As argued by the defendants, Claim 14 does not add a limitation to "job steps," but "simply restate[s] what 'job steps' are." Defs.' Claim Construction Brief at 27. Regarding the prosecution history, the defendants point to a statement made to the Examiner during the prosecution of the '124 patent. As indicated above, the '124 patent is the parent of the '998 patent and is thus a part of the prosecution history of the '998 patent. In the remarks section, the inventor states, "Kikinis does not teach a central computer that generates a set of job steps that define a job, tracks a current status of the job based on performance of the job steps. This feature of the claimed invention enables a system according to Applicant's claim 12 to determine whether the job steps are being performed in accordance with the job requirements . . . ." Defs.'s Ex. 5 at 119. 4 Anthurium argues that the plain and ordinary meaning of the term should control and cites various portions of the specification. See '998 Patent, col. 6 ll. 49-52, 66, col. 7 l. 2, col. 7 l. 37.
Although the prosecution history of a parent is not dispositive, it is considered intrinsic evidence for the purposes of claim construction and should be considered by the Court. Accordingly, the claims, specification, and prosecution history, when read together, indicate that the following construction of "job steps:"

"the series of actions that defines the job."

5. Construction of "junction"

All of the asserted claims require that the source and drain regions form "junctions" with the channel region. The parties do not agree about what kind of understanding a person of ordinary skill in the art would have had about the term junction as it is used in the '463 patent. Rexnord, 274 F.3d at 1342 (language must be construed as it would have been understood by one of ordinary skill in relevant art, given context and other patent claims). Defendants contend that at the time of the alleged '463 patent invention, people of ordinary skill in the art classified particular interfaces as either junctions or ohmic contacts on the bases of their electrical characteristics. Therefore, they propose construing junctions to mean only rectifying (or non-ohmic) interfaces between two different regions. Plaintiff contends that junction is a term of art used to refer to many different kinds of interfaces or electrical characteristics between different regions, including rectifying interfaces, non-rectifying interfaces, ohmic interfaces and non-ohmic interfaces. In its view, the plain and ordinary meaning of the term should apply: an intersection or interface between two different semiconductor regions, the place where two regions contact each other or come together.

As an initial matter, defendants argue that because many of the asserted claims disclose "junctions in contact," defining a junction generally as the place where two regions contact each other would render the term superfluous. I disagree. The place or point of contact between two objects is different from the state or condition of being "in contact."

Although various portions of the '463 patent claims refer to interfaces between the source and channel semiconductor regions as "junctions" and use the term junction to describe NI, PI and PN interfaces, neither the claims nor the specification further defines this term. Although it is not entirely clear from the undisputed facts whether NI, PI and PN interfaces are always non-ohmic, it does not matter. If the term "junction" is construed broadly to cover all types of contacts, it would make sense for the patent to be specific when it was discussing specific types of non-ohmic junctions. Defendants rely heavily on the fact that the patent specification includes one reference to the conductive layers making "ohmic contact" with the semiconductor layer, but the term is used in a completely different setting from that in the asserted claims. Nothing in the patent claims or specification requires a junction to always be a rectifying or non-ohmic interface. The broader definition also is consistent with that found in the technical literature cited by the parties. Finally, the "admissions" of Yamazaki and Lucovsky cited by defendants are ambiguous at best. Yamazaki definitely defines ohmic contacts only in the context of a different patent (the '636 patent). Lucovsky also discusses ohmic contacts and junctions in the context of the '636 patent. Although initially he seems to state that junctions and ohmic contacts are completely different types of interfaces, he later explains that the two terms are not mutually exclusive and that a semiconductor junction is formed at the interface where two regions of different conductivity type are in contact with one another.

I will adopt plaintiff's proposed construction of the term "junction": an intersection or interface between two different semiconductor regions, the place where two regions contact each other or come together. Although the parties disagree whether the accused channel region forms a non-ohmic or ohmic contact with the source and drain regions, their dispute is irrelevant given the meaning of junction. Because it is undisputed that the accused channel and source and drain regions are semiconductor regions with different conductivity, a junction forms where the regions contact one another. Therefore, plaintiff is entitled to summary judgment on the question whether the accused products satisfy the requirement in claims 1-4, 8-12 and 14 that the channel region forms junctions with the source and drain regions. However, because the parties disagree whether the source and drain regions in the accused products form NI or N+I junctions with the channel region, it will be left for the jury to resolve this question. As a result, I am unable to determine whether the accused products satisfy
the specification provides examples where this objective is achieved using a trilayer device, the same 10% change in resistance at room temperature. See '922 patent at 2:44-49, 61-64. Although the court in Gillette, we also consider the objective of the invention. Here, a professed objective of the invention is to achieve at least a 10% change in resistance at room temperature. See '922 patent at 2:44-49, 61-64. Although the specification provides examples where this objective is achieved using a trilayer device, the same 10% change in resistance at room temperature. See '922 patent at 2:44-49, 61-64. Although the specification provides examples where this objective is achieved using a trilayer device, the same 10% change in resistance at room temperature. See '922 patent at 2:44-49, 61-64. Although the specification provides examples where this objective is achieved using a trilayer device, the same 10% change in resistance at room temperature. See '922 patent at 2:44-49, 61-64. Although the specification provides examples where this objective is achieved using a trilayer device, the same 10% change in resistance at room temperature.
resistance may be achievable using a device with more than three layers. Therefore, we will not read the claims as limiting the invention to only trilayer devices. A review of the remainder of the patent only confirms this conclusion.

Claim 5 recites "[t]he device of claim 1, wherein the junction forms a tunnel junction." Id. at 8:66-67. Similarly, claim 28 states "[t]he memory device of claim 23, wherein each trilayer junction forms a tunnel junction." Id. at 10:54-55. Both claim 5 and claim 28 are dependent claims which modify the independent claims 1 and 23 respectively. According to the doctrine of claim differentiation, the presence of these dependent claims, which add particular limitations not found in the independent claims, raises a presumption that the limitations imposed by the dependent claims are not found in the independent claims. Liebel-Flarsheim, 358 F.3d at 910. Applying that doctrine here, the junctions mentioned in claims 1 and 23 are not limited to tunnel junctions.

Although the term "tunnel junction" is not defined in the claims, it is defined in the Background section of the patent. That section begins by explaining that "[e]lectron tunneling is a quantum phenomenon in which electric current can pass from one electrode through a thin insulating barrier layer into a second electrode." '922 patent at 1:18-20. It then states that "[t]his three layer system-electrode, barrier and counter-electrode-is referred to as a tunnel junction." Id. at 1:20-22 (emphasis added). From this, we can conclude that the term "junction" as used in claims 1 and 23 is not limited to a three layer system of "electrode, barrier and counter-electrode."

Because defendants' suggested construction mirrors the patent's definition of "tunnel junction" it cannot be used to define the term "junction" in claims 1 and 23, as the junction referred to in those claims is not limited to a tunnel junction. In Liebel-Flarsheim, the court stated, "the presumption that an independent claim does not have a limitation that is introduced for the first time in a dependent claim 'is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that limitation in the dependent claim should be read into the independent claim.'" 358 F.3d at 910 (quoting SunRace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302-03 (Fed. Cir. 2003)). By essentially defining "junction" to mean "tunnel junction," defendants would render the dependent claims 5 and 28 meaningless, thereby violating a fundamental principle of claim construction. See, e.g., In re Cruciferous Sprout Litig., 301 F.3d 1343, 1348-49 (Fed. Cir. 2002); Comark, 156 F.3d at 1187.

Although the claim language strongly suggests that the invention not be limited to trilayer devices, defendants argue that the specification, which exclusively describes tunnel junction devices, 4 supports their proposed construction. According to the defendants, the fact that the specification discusses only tunnel junction devices means we should read the term "junction" in claims 1 and 23 as limiting the invention to only three layers. We disagree.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

4 For example, Figure 1 depicts a particular species of tunnel junction, the ferromagnet-insulator-ferromagnet ("FM-I-FM") trilayer tunnel junction. See '922 patent at 3:10-12,53-55; 1:22-24.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

As noted above, "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim, 358 F.3d at 906 (internal quotation marks omitted). Far from demonstrating a "clear intention to limit the claim scope," the patentee here expressly rejected any limitation whatsoever. At column 3, lines 2-7, the patent states:

It will be understood that the particular devices and methods embodying the invention are shown by way of illustration only and not as limitations of the invention. The principles and features of this invention may be employed in varied and numerous embodiments without departing from the scope of the invention.

Similarly, column 8, lines 38-42 read: "[w]hile the invention has been described in connection with specific methods and apparatus, it is to be understood that the description is by way of example and not as a limitation to the scope of the invention as set forth in the claims." Accordingly, the specification provides no support for defendants' attempt to limit the claimed device to only three layers.
Claim Construction

In this case, the question of infringement turns primarily on the interpretation of the phrase "Kaufman-type ion beam source" in claim 1 of the '849 reissue. Litton contends that the appropriate interpretation of "Kaufman-type ion beam source" encompasses any broad-beam, multi-apertured, gridded ion beam source. Litton's proposed construction, however, is inconsistent with the prosecution history of the '849 reissue. See York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1575, 40 U.S.P.Q.2D (BNA) 1619, 1624 (Fed. Cir. 1996) ("In a literal infringement analysis, prosecution history is relevant to claim coverage."); see also Howes v. Medical Components, Inc., 814 F.2d 638, 645-46, 2 U.S.P.Q.2D (BNA) 1271, 1275-76 (Fed. Cir. 1987).

In the course of prosecuting the '849 reissue, Litton argued that the term "ion beam source" in its original claims could not "properly be construed to refer to any other ion beam gun but the Kaufman gun." Paper No. 15 at 8. Moreover, a declaration accompanying Litton's remarks plainly stated: "Those skilled in the coating arts . . . would reasonably construe these claims to refer . . . only to the Kaufman-type ion-beam guns referred to in the specification of this application." Paper No. 16 at 7. Thus, Litton defined "ion beam source" to mean only the Kaufman-type gun. This definition acquires even more credibility when Litton later amended its claims to cover a "Kaufman-type ion beam source." If, as Litton insisted, one of skill could only construe the broad term to mean a Kaufman-type gun, certainly the specific term encompasses nothing more.

At column 4, lines 44-57, the reissue's specification describes a Kaufman-type ion beam source:

The ion beam gun 4 is a commercially available ion emitting apparatus generally known in the art as a Kauffman [sic] type ion beam gun. The gun's cathode 6 is a thermionic emitter, i.e., it emits electrons by passing an electric current through it which heats the wire. The cathode 6 emits electrons which are accelerated towards the anode 8. The electrons being accelerated from the cathode to the anode strike argon atoms and in so doing dislodge electrons from the argon. The results are positively charged argon ions which are accelerated away from the anode and towards the grids 12 and 14. Permanent bar magnets 10 attached to the anode introduce a magnetic field into the area between the cathode and the anode . . . (Emphasis added.) Thus, this court interprets the phrase "Kaufman-type ion beam source" to include a thermionic (hot-wire) cathode, an anode, grids, and magnets.

This court detects no legally significant distinction between the phrases, "Kaufman-type ion beam source" and "Kaufman-type ion beam gun." During the prosecution of the reissue, Litton used the terms "gun" and "source" interchangeably. For example, in response to one of the examiner's rejections, Litton stated: "Applicants need not add the words 'Kaufman gun' or 'Kaufman source' to claim 1 because claim 1 cannot properly be construed to refer to any other ion beam gun but the Kaufman gun." Paper No. 15 at 8.

In sum, after consideration of the primary sources for construing patent claim meaning, this court interprets the phrase "Kaufman-type ion beam source" to encompass any ion beam gun with the four stated components: a hot-wire cathode, an anode, grids, and magnets.

6. "kernel"

The term "kernel" appears in claims 7 and 11 of the 037 Patent. Claim 7 recites "a multiple facility operating system having a kernel and providing for the message based co-operative operation of [a] plurality of processors." 037 Patent, 56:33-34. Similarly, claim 11 claims an "operating system [that] includes a kernel and a plurality of additional component facilities executed separately from said kernel." Id. at 57:9-11. Plaintiff, citing various technical and general-purpose dictionaries, proposes that the court construe "kernel" to mean "a portion of a computer program that generally resides in memory while the program is running." Defendant, on the other hand, argues for a narrower construction, contending that kernel means "a complete conventional operating system, such as UNIX OS."
The court again first looks to the ordinary and customary meaning of the disputed claim term. Texas Digital, 308 F.3d at 1201-02. In the art of computer science, the term "kernel" is generally defined as "[t]hat portion of an operating system that is kept in main memory at all times," or alternatively, "[a] software module that encapsulates an elementary function or functions of a system." IEEE Dictionary at 599. Ordinarily, the term would not be used to refer to a complete operating system, as defendant's proposed construction would require. Thus, defendant bears the burden of rebutting the presumption that the ordinary meaning of "kernel" should apply.

Defendant attempts to rebut the presumption in favor of ordinary and customary meaning by recourse to the intrinsic record. See Texas Digital, 308 F.3d at 1204. However, neither the patent language nor the prosecution history of the 037 Patent suggests that a kernel must be a complete operating system. Although defendant notes that other peer-level facilities must be "executed separately from the kernel," 037 Patent, 56:41-42, such a limitation is entirely consistent with the ordinary meaning of the disputed term. Similarly, defendant's citations to the prosecution history of the 037 Patent only prove that the non-kernel peer-level facilities do not have a full Unix operating system. See Grewal Decl., Exh. J at 429-31, 460-61. Defendant fails to explain how this would require that the kernel term refer to such an operating system.

Defendant also makes much of the fact that, as discussed above, each of the claimed multi-tasking interfaces includes a "messaging kernel," arguing that because each of these facilities must be "executed separately from the kernel," 037 Patent, 56:41-42, 57:10-11, the term kernel must refer to something other than a messaging kernel, lest the facility be separately executed from itself. The court agrees with this conclusion. As noted above, the messaging kernel is expressly defined in the specification as "an interface that supports direct communication between one [operating system peer-level facility and] another." Id. at 8:24-27. This is not the same manner in which "kernel" is used in claims 7 and 11. However, it does not follow from this conclusion that kernel, as it is used in the claims, must refer to an entire operating system rather than one of its subcomponents.

Nonetheless, defendant's argument points out an important limitation in the definition of "kernel" as it is used in claims 7 and 11 of the 037 Patent. For the non-kernel peer-level facilities to be executed separately from the kernel, the term must refer to the kernel of the host facility. See, e.g., id. at 57:9-11 (claim 11) claiming a "kernel and a plurality of additional component facilities executed separately from said kernel" (emphasis added)). The specification lends further support to this view, describing a preferred embodiment in which the operating system facility (a Sun OS operating system) includes "an operating system kernel portion of the facility." Id. at 14:35-41. Although the patented invention is not limited to this preferred embodiment, the "executed separately from the kernel" limitation in claim 11, read in light of the specification, requires the court to interpret the term "kernel" as it is used in the 037 Patent to refer to the kernel of the host operating system facility. Thus, for the reasons stated above, the court construes "kernel" to mean "a portion of the host operating system facility that resides in memory at all times."

"Signing," "Key," and "Signed File"

As used in the patent claims' language and specifications, the definitions of "signing," "key," and "signed file" are closely related. "Signing" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that "signing" means "the process of hashing input to compute a hash result and using a cryptographic function with a private key to transform the hash result into a digital signature" (Doc. 62 at 12). The plaintiff argues "signing" means simply "applying a unique identifying characteristic of a unique entity" (Doc. 60 at 12). The plaintiff's significantly elastic definition admittedly encompasses "a lawyer signing a brief" and "an illiterate person marking their X" (Doc. 60 at 11). However, the intrinsic evidence directly contradicts the plaintiff's unbounded construction.

Attempting to distinguish his invention over prior art, the patentee, in the specifications in both patents, expressly and unambiguously defines "signing":

To sign a document, or for that matter any other digital data file, a "signer" must first delimit the borders of the digital data file to be signed. As used herein, the term signer refers to any person who creates a digital signature for a message, such as message 110. The information delimited by the signer, in turn, refers to that message 110. A hash function 120 in the
signer's software is used to compute a hash result 130, which is unique for all practical purposes to the message 100. Thereafter, a signing function 140 is used to transform the hash result 130 into a digital signature 160, but only after input of the signer's private key 150.

(536 Patent at 8:9-20; 709 Patent at 8:5-16). The patentee expressly defines signing as "creat[ing] a digital signature" by hashing a document or "any other digital data file" (536 Patent at 8:9-20; 709 Patent at 8:5-16). This definition reveals that "signing" does not encompass a physical, written signature.

Further, the patents' claims ubiquitously speak of "maintaining trust in the content of a digital data file" by "signing said digital data file," "hashing said signed file to produce a digest," and "signing said digest with a key to produce a certificate" (536 Patent at 40:22-41:21; 709 Patent at 43:4-43:67). The patent's use of "sign" consistently depicts "digital data" as the recipient of a signature, and the patent is unconcerned with the unlimited application of "a unique identifying characteristic of a unique entity." In this context, "signing" obviously means the signing of digital data and the creation of a digital signature. "The claims of a patent define the invention to which the patentee is entitled the right to exclude." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). Nothing in the patents' claims supports the plaintiff's suggestion that "signing" encompasses a non-digital, handwritten signature.

Because the claims of both patents' limit "signing" to digital signing, the plaintiff's proposed construction is inconsistent with the written descriptions' express definition. As the defendants persuasively argue, one of ordinary skill in the art understands "signing" (as used in the patents) to mean creating a digital (but not a written) signature. Consistent with the patent and its specifications, "signing" means "the process of computing a hash result, which result is converted into a digital signature using a cryptographic function and the signer's private key."

The patents' definition of "signing" contemplates the use of a signer's private "key" (536 Patent at 8:9-20; 709 Patent at 8:5-16). The patents expressly state that a key is not used for encryption:

Thereafter, a signing function 140 is used to transform the hash result 130 into a digital signature 160, but only after input of the signer's private key 150. This transformation is sometimes referred to as a process of encryption. However, such a characterization would be inaccurate, because message 110 itself may, or may not be, confidential.

Further, the specifications state "[s]ystems that generate and employ a secure key pair (i.e., a 'private key' for creating the 'digital signature' and a 'public key' for verifying that digital signature) are typically known as asymmetric cryptographic systems" (536 Patent at 7:48-51; 709 patent at 7:45-49). Consistent with the language of the patents, "key" means "a unique sequence used to create or verify a digital signature."

Finally, the defendants propose that a "signed file" is "a file with its digital signature" (Doc. 62 at 17). The plaintiff argues that a "signed file" means simply "a file with its signature" (Doc. 60 at 16). However, the patents' claims specify that a digital file joined with a date and time is signed to create a "signed file" (536 Patent at 40:37-40, 41:15-18). Accordingly (and perforce the above constructions), a "signed file" means "a file with its digital signature."

A. Licensee unique ID and its generation

<table>
<thead>
<tr>
<th>Claim Terms</th>
<th>Uniloc's proposed construction</th>
<th>Microsoft's proposed construction</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Licensee unique ID/Security key</td>
<td>A unique identifier associated with a licensee</td>
<td>A one of a kind (i.e. unique) identifier that is entirely the product of data about the user, not the platform,</td>
<td>A unique identifier associated with a licensee</td>
</tr>
<tr>
<td>2. Registration key</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. Enabling key</td>
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</table>
Initially, the Court notes that the parties have not entirely agreed that these three terms should be construed synonymously. On June 9, 2006, the parties filed a joint submission in which Microsoft stated the terms were synonymous, while Uniloc took the cautious position that the terms should only be treated synonymously under Uniloc's proposed construction. Because the Court ultimately does not construe these terms to include the limitations set forth by Microsoft, these terms are treated synonymously and references in this decision to the term "licensee unique ID" should be understood to also include the terms "security key," "registration key," and "enabling key."

Uniloc's construction is relatively straightforward, but attacked by Microsoft as "fatally ambiguous" and "completely unsupported by anything in either the intrinsic or extrinsic record." In response, Uniloc argues that Microsoft's construction improperly attempts to read in a host of limitations and "transform these simple two and three-word claim limitations into a 104-word tongue twister." This energetic first battle highlights three main points of disagreement: (1) the meaning of unique; (2) whether the licensee unique ID may be based upon vendor information (such as a product number provided on the vendor label of a compact disc); and (3) whether the licensee unique ID must be based upon prospective user information (such as name, address, credit card number), and not platform information (such as the current time on the computer system).

1. Unique

As the first part of its proposed construction, Microsoft, relying upon a dictionary definition of the word "unique," n3 takes the position that the uniqueness of the identifier must be "one-of-a-kind," somewhat akin to DNA uniqueness. The Court finds, however, that this proposed construction is inconsistent with the language of the '216 Patent itself. The '216 Patent
clearly contemplates that the licensee unique ID will consist of varying levels of uniqueness that are wholly dependent upon
the inputs used to formulate the licensee unique ID. For example, the '216 Patent states:

The algorithm provides a registration number which can be "unique" if the details provided by the intending licenses
upon which the algorithm relies when executed upon the platform are themselves "unique".

'216 Patent, Abstract. Moreover, the '216 Patent provides:

In any event, in particular preferred forms, a serial number (see further on) is included in the registration number
generation algorithm which introduces an additional level of uniqueness into the registration number calculation process.

Id. at col. 6, ll. 23-26.

n3 Microsoft relies upon The American Heritage Dictionary of the English Language, Fourth Edition which provides in
relevant part:

unique (adj.) 1. Being the only one of its kind: the unique existing example of Donne's handwriting. 2. Without an equal
or equivalent; unparalleled. 3a. Characteristic of a particular category, condition, or locality: a problem unique to coastal
areas. b. Informal Unusual; extraordinary: spoke with a unique accent.

Thus, as Microsoft correctly recognizes in its claim construction brief, "the '216 patent suggests that 'unique' is a relative
term[.]"). To construe the word unique to mean no possibility of duplication would simply be inconsistent with the
specification.

2. Vendor and Information

The parties next dispute whether the licensee unique ID may be derived from vendor information. This dispute arises
because Microsoft's proposed construction is premised upon the argument that during the prosecution, Uniloc affirmatively
and categorically disclaimed the use of any information from the software vendor to generate the licensee unique ID.

In resolving this issue, the Court first turns to the language of the '216 Patent and notes that there is no language in the
claims, or anywhere in the specification for that matter, prohibiting the use of vendor information to create the licensee
unique ID. To the contrary, the Court finds language in the specification supporting the notion that vendor information may
indeed be an input to creating the licensee unique ID. For instance, figure 4 of the '216 Patent, which is discussed in the
context of the third embodiment, contemplates that a "PRODUCT NO." may be used in the creation of a registration number.
Moreover, in the sixth embodiment, the '216 Patent provides:

The algorithm, in this embodiment, combines by addition the serial number 50 with the software product name 64 and
customer information 65 and previous user identification 22 to provide registration number 66.

'216 Patent, col. 11, ll. 53-56 (emphasis added). The sixth embodiment also references figure 9, which contemplates that a
"PRODUCT NAME" may be one of the numbers used in the creation of a registration number. Finally, the seventh
embodiment, which references figure 10, provides:

Additionally, product information P derived from media 82 (typically via platform 83) or else via the intermediary of the
user (signified by the small man symbol) is provided to encoder/decoder 84 and to summer 85.

* * *

Summer 85 acts as a local licensee unique ID generating means by combining, by addition, customer information C,
product information P and serial number S in order to provide a local licensee unique ID here designated Y.

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Id. at col. 12, ll. 54-57, 61-64 (emphases added).

Consideration of the prosecution history does not change this result. It is well established that "[t]he prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995). It must also be remembered, however, that the prosecution history represents a dialogue between the PTO and the inventor and thus, often lacks the clarity and usefulness of the specification. See Phillips, 415 F.3d at 1317. Because of these concerns, and to balance the importance of public notice and the right of patentees to seek broad coverage, the Federal Circuit has "consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325 (Fed. Cir. 2003). Consequently, for prosecution disclaimer to attach, [the Federal Circuit] requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable." Id. at 1325-26.

Microsoft first asserts that applicant disclaimed the use of vendor information by pointing to the following statements:

   It is inherent in the system of the present application, as claimed, that the "Licensee Unique ID" is entirely the product of data generated locally as distinct from data added before delivery of the software to the local location for use (thereby distinguishing over Chou) or subsequently from a remote location (thereby distinguishing over Grundy).

The fundamental principles underlying the operation of the present invention are simple yet highly effective. The uniqueness of identity by which each copy of the software to be protected is distinguished from any other copy is provided by each and only each new user: to reiterate the system does not require the introduction of any unique identifiers from any other source, either before delivery of the software for use by the intending user or subsequent to delivery thereof.

UNILOC 0143-44. n4 These statements, when considered in context, are reasonably subject to an interpretation other than the one set forth by Microsoft. Microsoft reads these statements to differentiate local and remote inputs and to disclaim the use of vendor information. In the statements, however, the applicant simply reiterated that the system does not require the use of vendor-supplied information, not that vendor-supplied information is banned absolutely. Moreover, the statements in the prosecution history immediately prior to the cited excerpt could be read to imply that the references to local and remote actually refer to the location of where the licensee unique ID is generated, and not the inputs of the licensee unique ID:

In response, the Applicant submits herewith redrafted claims, the main claims of which include, broadly, the following two distinguishing limitations:

   (a) The "Licensee Unique ID" on which the registration system relies for matching for verification purposes is generated locally, and
   (b) The algorithm used to generate locally the "Licensee Unique ID" is replicated remotely for the purposes of remote generation of a separate "Licensee Unique ID" for matching purposes.

UNILOC 0143. This reading is bolstered by the fact that the PTO and the applicant appear to have agreed during the prosecution that the use of vendor information was contemplated. At one point, the PTO stated:

   There is, however, no indication in Grundy that this information cannot be provided to the local user, nor is there any limitation in the claims which would prohibit vendor information from being part of the authorization process.

UNILOC 0135. In response, Uniloc stated:

   In the Examiner's last paragraph relating to Grundy, the Examiner argues that Grundy does not preclude providing additional information to the local user. The fact, if true, that Grundy does not teach away from providing the information does not therefore mean that Grundy teaches that the information is provided or that doing so would be obvious.

UNILOC 0146. This exchange, at a minimum, could be read as a tacit acknowledgment by the PTO and the applicant that the claims of the '216 Patent allow use of vendor information. When taken in the full context of the prosecution history, as well as the language in the specification, the statements cited by Microsoft are not so clear and unmistakable as to constitute prosecution disclaimer.
3. User and Platform Information

Finally, Microsoft asserts that the specification and prosecution history show that the licensee unique ID "is based only on local information about the user, rather than information about the user's computer [i.e., platform information]." Again, the Court turns to the language of the '216 Patent and notes that there is no language in the claims themselves, or anywhere in the intrinsic evidence for that matter, stating that user information is always a necessary input in the generation of a licensee unique ID. Nor is there any language in the specification implying that platform information may not be used to generate a licensee unique ID. To the contrary, the Court finds language in the claim terms as well as the rest of the specification indicating that platform information may be used in creating the licensee unique ID. For instance, the '216 Patent provides that platform information may be used to create a serial number, which may then be combined with user information to create a licensee unique ID:

After selecting "continue", the registration routine begins the first step in the generation of a security key which will be unique to the current copy of the software and to certain features of the environment in which it runs.

As shown in FIG. 2b, the first step in the generation of the security key comprises the generation of a serial number generated from the current time on the system and, in this example, the last modify date of the software and other information from the computer environment.

'216 Patent, col. 6, ll. 63-67; col. 7, ll. 1-5 (emphasis added). Additionally, claims 13 and 14 provide:

13. The registration system of claim 12, wherein said security key is generated by a registration number algorithm.
14. The registration system of claim 13, wherein said registration number algorithm combines information entered by a prospective registered user unique to that user with a serial number generated from information provided by the environment in which the software to be protected is to run.

Id. at col. 14, ll. 50-56 (emphasis added). The summary of the invention section of the '216 Patent also contemplates use of platform information in generating the security key:

Preferably, the security key is generated by a registration number algorithm.

Preferably, the registration number algorithm combines information entered by a prospective registered user unique to that user with a serial number generated from information provided by the environment in which the software to be protected is to run (e.g., system clock, last modify date, user name).

Id. at col. 4, ll. 4-11 (emphasis added).

The language and structure of the claims also convinces the Court that Microsoft's proposed construction would violate the doctrine of claim differentiation. Claim differentiation "refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006) (citing Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005)). In the '216 Patent, independent claim 1 says nothing about the licensee unique ID being generated from user information. Claim 1 states in full:

A registration system for licensing execution of digital data in a use mode, said digital data executable on a platform, said system including local licensee unique ID generating means and remote licensee unique ID generating means, said system
further including mode switching means operable on said platform which permits use of said digital data in said use mode on said platform only if a licensee unique ID first generated by said local licensee unique ID generating means has matched a licensee unique ID subsequently generated by said remote licensee unique ID generating means; and wherein said remote licensee unique ID generating means comprises software executed on a platform which includes the algorithm utilized by said local licensee unique ID generating means to produce said licensee unique ID.

216 Patent, col. 13, ll. 54-67 - col. 14, l. 1. Dependent claims 2 and 6, which depend from claim 1, add limitations to the algorithm inputs discussed in claim 1. Claim 2 provides:

The system of claim 1, wherein said local licensee unique ID generating means generates said local licensee unique ID by execution of a registration algorithm which combines information in accordance with said algorithm, said information uniquely descriptive of an intending licensee of said digital data to be executed in said use mode.

Id. at col. 14, ll. 2-7. And, claim 6 provides:

The system of claim 5, wherein the information utilized by said local licensee unique ID generating means to produce said licensee unique ID comprises prospective licensee details including at least one of payment details, contact details and name.

Id. at col. 14, ll. 19-23. Thus, construing the term licensee unique ID as Microsoft suggests - as requiring that a licensee unique ID always be generated from user information - would simply render claims 2 and 6 meaningless (or at best, partially redundant) and violate the doctrine of claim differentiation.

It is true that every embodiment in the 216 Patent contemplates a licensee unique ID being generated, at least in part, from user information. But of course, the 216 Patent also states that the listed embodiments are "only some embodiments of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope and spirit of the present invention." Id. at col. 13, ll. 49-52. Moreover, the general rule is that "persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments." Phillips, 415 F.3d at 1323.

Finally, to the extent Microsoft relies on the prosecution history to support its position, the Court finds that the statements cited by Microsoft are not so clear and unmistakable as to constitute prosecution disclaimer. n5 While the statements do make reference to a licensee unique ID's uniqueness in relation to an end user's identification details, the overarching theme of the statements is not that user information is the only input, or even a necessary input in generating the licensee unique ID. Rather, it could be said that the import of these statements is simply to distinguish the prior art by stressing that under the present invention, the licensee unique ID is generated on the local side (and then matched at a remote location) without, as was necessary under the prior art, the need for "unique identifying numbers prestored in each copy of the software."

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n5 In addition to citing that portion of the prosecution history previously relied upon in its vendor information argument, see UNILOC 0144, Microsoft also relies on the following prosecution history statements:

Applicant respectfully submits that Chou is not particularly relevant to the claims of the present application because Chou covers a version of a hardware lock whereby each and every copy of the software to be protected must have unique identity information embedded in it at the time of manufacture so that it can communicate with a local hardware lock. In Chou, all communicating security devices are local. Therefore, with particular reference to pending Claim 1, for example, Chou does not include "local licensee unique ID generating means" as well as "remote license unique ID generating means". Current Claim 1 is therefore clearly patentably distinguished over Chou.

Furthermore, an underlying "behavioral" feature of the present invention is that a single common algorithm is embedded in all copies of software to be protected. Hence, the software protected by the present invention does not need unique identifying numbers prestored in each copy of the software. The uniqueness is ultimately provided by the end users of the software in the course of supplying their own identification details, which details are subsequently checked by use of a matching algorithm at a remote location. This important behavioral feature of Applicant's claimed invention ("local licensee
unique ID generating means") is nowhere to be found in Chou.

UNILOC 0128.

After consideration of the specification, which is "the single best guide to the meaning of a disputed term," see Phillips, 415 F.3d at 1315, and upon consideration of the prosecution history, the Court concludes that Microsoft's suggested limitations should not be part of the construction of the term licensee unique ID. Accordingly, these terms shall be construed as follows: A unique identifier associated with a licensee. n6

n6 Although it was not relied upon, the Court notes that Uniloc's expert, David Klausner, opined that this construction is what one of ordinary skill in the art would understand the term licensee unique ID to mean.

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E. Hardware Key and Connected

Claim 1 recites that the invention is comprised of "at least one hardware key connected to the subscriber client computer," and Claims 1 and 24 require that the subscriber client computer "forward [a] predetermined digital identification to [the] first server computer to thereby confirm that [the] hardware key is connected to said subscriber client computer." The parties agree that "hardware key" is used synonymously with the terms "access key" and "hardware access key" in the specification. (D.I. 266 at 27, D.I. 268 at 7). However, they disagree over whether the specification uses the term "connected" interchangeably with "attached."

Plaintiff contends that the hardware key does not need to be an external device, but could also be built into the subscriber client computer. Plaintiff further contends that "connected," as used in the '416 Patent, means only that the access key interface can read the digital ID from the access key. Plaintiff contends that the patent does not require any specific kind of connection between the hardware key and the access key interface.

Defendants contend that a "hardware key connected to the subscriber client computer," as used in the context of the specification, is an external device that physically attaches to the subscriber client computer. (D.I. 268 citing '416 Patent at col. 21, ll. 39-45, col. 7, ll. 61). They further argue that Plaintiff's proposed construction, that the hardware key can be built into the computer, would eliminate the need for the invention to verify the presence of the access key.

After reviewing the term "hardware key" in the context of the specification, the Court concludes that the specification requires that the hardware key be an external hardware device. ('416 Patent, col. 21, l. 40). The Court declines to adopt Plaintiff's proposal that the key can be built into the computer, because the "major function of the [hardware key] is to uniquely identify a user," and the specification teaches that the key should be something "which is known to have been assigned and given to a specific person." n2 (Id., col. 21, ll. 45-46, col. 22, ll. 4-5). A hardware key built in to a computer is computer-specific, not user-specific.

n2 Plaintiff also supports its argument that the hardware key can be built into the computer by pointing to the following language in the specification: "Generally, two factor authentication provides that something is known, such as the name and password and something is held, such as the physical key that is attached to the computer, or built into the computer." (D.I. 266 at 28, citing '416 Patent, col. 21, ll. 49-53; see also Transcript of Markman Hearing, held November 9, 2006 at Pg. 44, l. 5).
This sentence, however, is a general description of two-factor authentication. As such, the sentence explains to the reader of the patent that two factor authentication is comprised of something which is known and something which is either held or built into the computer. By using the descriptive phrase "such as the physical key that is attached to the computer," in this sentence, the patentee indicated that this invention uses the combination of something held and something known-the physical key attached to the computer that had been referenced throughout the paragraph. (See id., col. 21, l. 37 - col. 22, l. 5).

After reviewing the term "connected" in the context of the specification, the Court concludes that it is not synonymous with physical attachment. Though the invention's preferred embodiment involves a hardware key that is physically attached to the subscriber client computer via a port interface, the specification also lists acceptable alternatives to the preferred embodiment which need not be physically attached, including "a credit card, a key, an ATM card, or the like which is known to have been assigned and given to a specific person." (Id., col. 22, ll. 1-5). Therefore, the Court finds that the specification anticipates hardware keys which are not physically attached.

Moreover, even though the inventors did not describe any embodiment of a hardware key that connects wirelessly to the computer, patent claims are not limited to only those features described in the specification, and later-developed technology is commonly allowed to be covered by broad claim terms. Varco, L.P. v. Pason Sys. USA Corp., 436 F.3d 1368, 1375-76 (Fed. Cir. 2006)(citing Sri Int'l v. Matsushita Elec. Corp. Of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985)("The law 'does not require than an applicant describe in his specification every conceivable and possible future embodiment of his invention.'") (en banc)). Thus, wireless devices are anticipated by the broad language in the claims and specification. Accordingly, the Court construes "connected" to mean "in communication with, inserted in, or attached to."

Although this case concerns whether defendants' accused products infringe independent claims 1 and 5 and dependent claims 3, 4 and 7 of the '273 patent, defendants' summary judgment motions only address independent claims 1 and 5. They claim as follows:

1. A system for providing a built-in function in an ISA-compatible computer in response to activation of a selected combination of user activated keys, comprising:

   a keyboard having a set of conventional alphanumeric and function keys and further having at least one additional function key;

   a keyboard controller connected to said keyboard to monitor said conventional keys and said additional function key to detect when at least one of said keys is activated, said keyboard controller having first and second interrupt signal lines connected to said ISA-compatible computer, said keyboard controller responsive to an activation of at least one of said conventional keys to activate a first interrupt signal to said ISA-compatible computer on said first interrupt signal line, said keyboard controller responsive to an activation of said additional function key in combination with at least one of said conventional alphanumeric keys to generate a second interrupt signal to said ISA-compatible computer on said second interrupt signal line;

   a first conventional interrupt handling routine within said ISA-compatible computer responsive to said first interrupt signal from said keyboard controller to input data scan codes from said keyboard; and

   a second non-conventional interrupt handling routine within said ISA-compatible computer responsive to said second interrupt signal from said keyboard controller to input an identification of said activated alphanumeric key and to perform a predetermined function selected by said identified alphanumeric key.

5. A system for servicing keyboard interrupts in an ISA-compatible computer, comprising:
a keyboard having a plurality of keys including conventional alphanumeric keys, conventional symbol keys, conventional function keys and conventional cursor control keys, said keyboard further including at least one non-conventional function key, said keyboard generating a scan code in response to an activation of at least one of said keys, said scan code varying depending upon which of said keys is activated; and

a keyboard controller coupled to said keyboard, said keyboard controller further coupled to said ISA-compatible computer by first and second interrupt signal lines, said keyboard controller generating a first interrupt signal on said first interrupt signal line upon receipt of a scan code corresponding to one of said conventional keys, said ISA-compatible computer programmed to execute a program to input said scan code in response to said first interrupt signal, said keyboard controller generating a second interrupt signal on said second interrupt signal line upon receipt of a scan code corresponding to said non-conventional function key, said ISA-compatible computer programmed to execute at least one special routine upon receipt of said second interrupt signal.

Defendants first argue that their notebook computers do not infringe the claims because they do not meet the "keyboard" and "keyboard controller" limitations required by independent claims 1 and 5. Doc # 359 at 11; Doc # 341 at 6. Prior to the court's claim construction order, the parties agreed upon the construction of "keyboard" to mean:

An input apparatus containing internal circuitry to output or generate data scan codes." Doc # 227 at 16.

The parties also agreed that these scan codes are sent to a "keyboard controller" for processing, which then transmits interrupts to the computer. Id. Hence, the court construed the term "keyboard controller" to mean:

A component, electronically or functionally distinct from the keyboard, that activates interrupt signals in response to receipt of data scan codes from the keyboard, and, upon request, transmits data scan codes to the computer.

"keyboardless"

The term "keyboardless" appears in claims 1-2, 6-12, and 14 of the '057 patent and claims 1-8, 10, and 12 of the '362 patent. Defendants define the term as "without a physical integrated keyboard." Typhoon suggests that the term means "does not require a keyboard for use since it is equipped with a touch screen." In effect, Typhoon's definition limits the term to devices utilizing a "touch screen." Typhoon's construction is imported from a portion of the specification that mentions that "[t]he portable computer is keyboardless in that it does not require a keyboard for use since it is equipped with a touch screen." '057 Patent at 2:57-59. Ultimately, the parties' dispute centers over whether "keyboardless" is a negative limitation that restricts the invention from utilizing any kind of keyboard.

Initially, Typhoon's definition must be rejected because it is overly restrictive and explains why the preferred embodiment of the invention fits into a "keyboardless" category rather than explaining what "keyboardless" means. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360 (Fed. Cir. 2008) ("The purpose of claim construction is to determine the meaning and scope of the patent claims asserted to be infringed.") (internal quotation marks omitted). Defendants are correct that the specification distinguishes integrated from non-integrated keyboards. See '057 Patent at 2:59-61 ("Nevertheless, [the invention] is provided with connections to hookup an external keyboard as well as a full range of peripherals . . . ."). However, inherent in this same distinction is the understanding that peripheral keyboards are mechanical (non-virtual) keyboards. See id. at 2:61-63 ("and is capable of displaying an interactive, simulated keyboard by means of the input/output device").

Similarly, Defendants' use of the word "physical" fails to capture the full meaning of the term as described in the specification. A virtual keyboard displayed on a touchscreen is nevertheless "physical." See The American Heritage College Dictionary 1031 (3d ed. 1997) (defining "physical" as "of or relating to material things"). The specification distinguishes mechanically integrated keyboards from non-mechanically integrated keyboards rather than physical keyboards from non-
physical keyboards. See ‘362 patent at 1:47-49 ("Entry of information is generally performed using a keyboard which is provided integrally in the lap-top computer's housing or as a peripheral."). Accordingly, the meaning of "keyboardless" in light of the specification is "without a mechanically integrated keyboard."

4. "keypad"

Southwest argues that "keypad" means "an input device consisting of buttons," whereas 3T argues that it means a "small hand held keyboard."

Southwest argues that 3T's proposed construction seeks to improperly import limitations from the preferred embodiment. Southwest argues that a reading of the relevant language in the claims and specification reveals that the term "keypad" was never intended to limit it to a "small handheld keyboard." The specification states that "Data processing systems 12 and 14 may be implemented by using any suitably configured computer system such as an IBM compatible or Macintosh" or though a Verifone. '405 patent, 6:19-24. Southwest argues that both types of input devices are represented in Figure 1, with data processing system 12 depicted with a full keyboard and data processing system 14 depicted as a Verifone. Southwest argues that its proposed construction takes into account the different configurations explicitly contemplated in the '405 patent.

3T argues that Southwest's broad definition does not encompass the plain and ordinary meaning of the term keypad nor as used in the specification or claims. 3T argues that a keypad is not identical to a keyboard. Rather, the plain and ordinary meaning of the term "keypad" is "a small often hand-held keyboard." See Webster's Third New Int'l Dictionary, Unabridged, Merriam-Webster, 2002. 3T argues that this definition is consistent with the specification and drawings which discuss and depict a small, handheld keyboard. See '405 patent, 7:22-23 and Fig. 2 ("FIG. 2 is a pictorial representation of a keyboard 19 which may be utilized with data processing system 14.") 3T argues that, similar to the term "controller," the term "keypad" is not used in any other claim. 3T argues that the other claims do not discuss a keyboard or keypad because the data processing system (i.e., a computer) already has a full-size keyboard. Thus, similar to the term controller, the term keypad should be narrowly construed.

The Court finds that Southwest's proposed construction seeks to broaden the narrow term keypad to a type of generic input device. The patentee specifically used the term "keypad" and a keypad is only used in conjunction with the controller in claim 11, which the parties have agreed is represented by item 14 in the specification. Further, Figure 2 is represented in the specification as the keyboard of controller 14. '405 patent, 7:22-23 and FIG. 2. Southwest's construction of the term is overly broad given the traditional understanding of the term "keypad" as well as the usage of the term in the specification. The Court finds that the definition provided by 3T is what one of ordinary skill in the art would understand the term to be based upon the disclosure in the specification. Thus, consistent with 3T's proposed construction, the Court construes the term "keypad" to mean "small hand held keyboard."
Motorola contends its proposed construction for this term comports with the intrinsic record of the '766 patent. (766, Abs.; 2:37-38; 3:8-10). According to Motorola, a telephone keypad is required as Claim 1 was amended twice to distinguish prior art that specifically disclosed other types of input devices, e.g., keyboards. (Docket # 76-47 (Exhibit RR) at 1, 5-11).

VTech's construction focuses on a "user" and what the user can do with the keypad which Motorola asserts is improper. VTech argues that its construction focuses on how Motorola argued the scope of its invention and this claim limitation in response to a rejection by the Patent Office. VTech explains that during the prosecution of the '766 patent, Motorola argued that its alleged invention was different from the prior art cited by the Examiner because, inter alia, the programming of the ringer was accomplished by only using the telephone keypad which is used to dial out. (VTech Ex. 18, pgs. 53-54) ("Such a device is not similar to this invention which is integral to the telephone and uses the telephone keypad to enter the ringer parameters.") (emphasis added).

Following this prosecution response to the U.S. Patent Office, Motorola and the Examiner held an interview wherein the Examiner suggested a claim to Motorola which requires the ring tone to be programmed using the keypad that dials out. Motorola agreed. (Id. at pg. 58) ("Suggested a claim to applicant which requires the melody to be programmed using the keypad that dials out. Applicant agreed to the new claim which would be done by Examiner's Amendment."). Thereafter, the Examiner added a new claim with this claim language and the patent then issued. This claim 1 is now at issue in the instant case. Motorola limited the scope of its alleged invention during prosecution because of prior art similar to its alleged invention. VTech asserts its proposed interpretation is consistent with Motorola's own statements in the prosecution history limiting the scope.

The construction of both parties includes using the same keypad for both dialing and programming. The words "for both" are plain words and not assigned any special meaning in the patent. The phrase also implies it is the same keypad used for both actions, dialing and programming. Motorola asserts that VTech's use of "entirely" could be construed by the jury to require only use of the numerical keys of the keypad.

As for VTech's wish to add a "user" in the interpretation, the prosecution history did not require the recitation of a "user." Rather, the prosecution history shows, in order for the applicant to obtain a granted patent, the Examiner "suggested a claim to applicant which requires the melody to be programmed using the keypad that dials out. Applicant agreed to the new claim..." (Docket # 76-44 (Exhibit RR) at 55). Therefore, there was no reference to a "user."

Motorola adds the word "telephone" to clarify that the keypad is the telephone's keypad and because of statements made in the prosecution history. During prosecution, Motorola made the following statements in order to overcome the prior art references:

Claim 1 provides the capability for a telephone user to program a number of parameters into the telephone to customize the telephone's ring. . . . Programming of these parameters [telephone ring] is accomplished by . . . using the telephone's keypad.

(Docket # 76-44 (Exhibit RR) at 51). Motorola made this statement in the amendment to counter the Festa reference: "The Festa reference is composed of a separate box to customize the ringing of the telephone." Motorola used this same argument to distinguish its invention from the Sano, Suzuki, Inoue, and Matsumoto references. Id.

Adding the word "telephone" in the construction helps to clarify and to distinguish from the prior art references. The agrees with Motorola's proposal.

c. The Court's Construction

Accordingly, the Court construes the term "a keypad for both dialing out and programming said ringer" to mean: "a telephone keypad in which the same keypad is used for both dialing out and programming a ringer."
PolyVision's proposed construction Smart's proposed construction
Image distortion that occurs when the projection axis is not at a right angle with the plane of the display screen.
Image distortion that occurs when the projection axis deviates from a 90 [degrees] angle (i.e., is non-orthogonal) with the plane of the display screen.

The parties' constructions are essentially the same, with the exception that Smart's construction uses the phrase "deviates from a 90 degree angle (i.e., is non-orthogonal)," while PolyVision uses the phrase "is not at a right angle." Smart notes that its construction is proper because it uses a phrase found in the specification ("deviates from a 90 [degrees] angle") and that the mathematical term "non-orthogonal" accurately describes the condition of "keystoning." PolyVision contends its construction is clearer and would be more easily understood by a lay jury. While PolyVision is correct that its construction is clearer, the Court will adopt Smart's definition because it is consistent with the intrinsic evidence and other claim elements rely upon the term "non-orthogonal" to describe keystoning.

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4. **Keyword phrase ('461 patent, claims 49 and 53)**

Defendant defines "keyword phrase" as "an element of a predefined list of word phrases, which serves as the anchor [keyword phrase] for a hyperlink" while plaintiffs define it as "a recognized text string that is to be converted into a hypertext phrase." Thus, plaintiffs object to defendant's insertion of the word "predefined" as well as its use of "list of word phrases" rather than "recognized text string."

Plaintiffs argued at the claim construction hearing that in some situations a keyword phrase is created using a rule rather than merely matching from an existing, predefined list of words. For example, plaintiffs noted that if a new patient identification is entered into the system (using a recognized format, such as "patient ID 987654321"), the program would recognize this text string configuration as a keyword phrase even though this particular patient identification (or keyword phrase) did not exist previously. Although the inventor sometimes modified the terms "keyword phrase" with the adjectives "defined" and "predetermined" in the specification, claims 49 and 53 of the '461 patent do not articulate such a limitation. It is well established that "the language of the claim defines the scope of the protected invention." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 619 (Fed. Cir. 1995) (citing Yale Lock Mfg. Co. v. Greenleaf, 117 U.S. 554, 559, 29 L. Ed. 952, 6 S. Ct. 846, 1886 Dec. Comm'r Pat. 169 (1886) and Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 396 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he set forth [in the claim].").

Finally, contrary to defendant's assertion, a patient identification number is not a "word phrase" but rather a "text string." Adopting a "list of word phrases" rather than a "recognized text string" as part of the definition of keyword phrase would circumscribe the use of an alphanumeric patient identification number. Moreover, the patent makes it clear that the use of an alphanumeric patient identification is the preferred embodiment. As stated earlier, a construction that necessarily excludes the preferred embodiment "is rarely, if ever, correct." Vitronics, 90 F.3d at 1583. Accordingly, "keyword phrase" means a recognized text string that serves as the hypertext link.

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3. **"knowledge-based access to, and management of"**

Disputed Term comprising a program running on a computer to enable knowledge-based access to, and management of, a technical database…. a technical database comprising electronically stored publications which are displayable, the technical database being structured to enable a plurality of access modes comprising name of publication, key word, and identified profile
Plaintiff's Construction access based on knowledge of the user, and control, which includes any and all changes to the database including but not limited to the creation, deletion, and modification of content.

Defendant's Construction using a separate database of external facts and inference rules that enable inferences to be drawn from external facts and then applied to data in a technical database in order to provide access to and management of...

The parties offer divergent constructions of "knowledge-based access to, and management of." ('806 Patent at 83:34-35.) For its part, Plaintiff proposes that the Court follow Judge Frost's interpretation of this term. The Court finds Judge Frost's construction--which is not directly challenged by Defendant--to be logical. Specifically, Judge Frost reasoned that "knowledge-based access" is simply another way of referring to "access based on knowledge," and that the only logical conclusion to be drawn from the claim language is that such knowledge is that of the user. (Slip Op. at 13.) In Judge Frost's view, absent the user's knowledge, "how would a system afford the user access?" (Id.) In addition, the Court notes that Plaintiff's proposed construction is intrinsically supported by the fact that one of the features of the invention is to allow the user to "interact" with the system in order to access a variety of "complex technical information" stored in the database. ('806 Patent at 1:21, 1:51-54.) This function is repeated in the preferred embodiment, which notes the importance of providing an "intuitive graphical user interface." (Id. at 4:10.) The references to "interact" and "intuitive" connote the significance of the user's role in accessing and manipulating stored information and making it accessible through the system. Indeed, a review of documents cited by Defendant actually supports Plaintiff's proposed construction, as evidenced by Mr. Sandifer's opinion that "Management" for a database includes all of adding, editing, and deleting any specific data...." (Lavorgna Decl. Ex. 19 at 25.)

The Court is also persuaded by Plaintiff's construction of the second part of the disputed claim term, i.e., "management of." ('806 Patent at 83:35.) The patent specification states that the system is intended to not only facilitate access to, but also to allow the user to "update" information in the system database, which is consistent with the goal of assisting the user in his or her ability to ensure compliance with regulatory requirements. (Id. at 1:67-2:3.) "The software is designed for interactivity with the database residing on the hard drive of the computer and includes a way for the user to comment and add expertise to the system by allowing the user to opt for the ability to import data...." (Id. at 2:30-34.)

Defendant contends that "knowledge-based access to, and management of" should be construed to mean "using a separate database of external facts and inference rules that enable inferences to be drawn from external facts and then applied to data in a technical database in order to provide access to and management of." (Jt. Stmt. at 11-12.) Aside from the fact that Defendant's proposed construction is unintelligible, none of the various dictionary definitions or various intrinsic and extrinsic evidence cited by Defendant (Jt. Stmt. at 10-15) supports the proposed construction. Thus, the Court construes the disputed claim term to mean "access based on knowledge of the user, and control, which includes any and all changes to the database including but not limited to the creation, deletion, and modification of content."

ANTHROPOMETRIC DATA

Paragraph (h) of claim 1 in the '000 patent claims a "second means for comparing signal derived from step (g) with known anthropometric data to produce an output signal representative of fat, lean tissue and body water." Tanita argues that the "known anthropometric data" refers to measurements of a patient's circumference and limb length measurements and ratios. As described in the specifications, that anthropometric data is imputed into the body composition meter and then used, with the measured impedance signal and the algorithm programmed in the device, to more accurately determine a particular patient's body fat.

Healthport argues, and the court agrees, that "known anthropometric data" should not be limited to patient specific data, but should be construed more broadly to include anthropometric data that is compiled in a database and applies generally to a population. Nothing in the language of the claim limits the data to patient specific data. Figure 21 of the '000 patent is a screen for the input of patient specific anthropometric measurements. However, in the absence of an express disavowal or other limitation regarding population general anthropometric data, the court will not read the specification onto the claim.
A. "Language"

The dispute over this claim term is admittedly narrow. Both sides agree that the term "language" as used in claim 20 of the '881 patent refers to a programming language. Indeed, the intrinsic evidence is clear on this point (see, e.g., cols 1:28-36, 2:52-58, 2:65-3:21, 3:42-45). Where the parties disagree is whether any further limitations apply. Specifically, plaintiff proposes that "language" be construed as "programming that is operable on a network site or a mobile device; examples of languages include HTML, CHTML, wireless markup language (WML), and HDML." Defendants, by contrast, argue that the "plain and ordinary meaning" of "language" as used throughout the '881 patent should apply. According to defendants, this means that a language must "couple network sites and mobile devices," "allow either a single or multiple input entries per page," and be limited to "markup languages." Additionally, defendants assert that a language must "determine which network sites can be accessed" by mobile devices.

Courts must determine the meaning of disputed claim terms from the perspective of one of ordinary skill in the pertinent art at the time the patent was filed. Chamberlain Group, Inc. v. Lear Corp., 516 F.3d 1331, 1335 (Fed. Cir. 2008). While claim terms "are generally given their ordinary and customary meaning," the "claims themselves provide substantial guidance as to the meaning of particular claim terms." Phillips v. AWH Corp., 415 F.3d 1303, 1312, 1314 (Fed. Cir. 2005) (en banc) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The specification of a patent is also highly relevant to claim construction. Indeed, claims "must be read in view of the specification, of which they are a part." Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). Finally, courts should give due consideration to a patent's prosecution history, which "can inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Phillips, 415 F.3d at 1318 (citations omitted). These components of the intrinsic record are the primary resources in properly construing claim terms. Id. at 1317-18.

As stated, the term "language" as used in claim 20 is undoubtedly a programming language. Indeed, the specification provided an express, if not lexicographic, definition of this term as used in the '881 patent (col. 3:42-45):

As used herein, languages refers to programming used to coupling [sic] network sites and mobile devices. Examples of languages include HTML, CHTML, wireless markup language (WML), and HDML.

This straightforward construction — that a language is "programming used to couple network sites and mobile devices" — is all that is necessary to properly construe this term.

The additional limitations and clarifications proposed by the parties are unnecessary in light of the use of "language" in claim 20. First, it is implied from the adopted construction that a "first language" (as used in claim 20) is operable on a mobile device and a "second language" (as used in claim 20) is operable on a network site. Second, the surrounding text in claim 20 makes clear that both the "first language" and "second language" must allow "multiple input entries per page." Since these limitations are set forth expressly in the claim language, it is unnecessary to incorporate them into the construction of "language." Third, while it is true ? as defendants point out — that only markup languages were provided as examples of "languages" by the specification, it would be improper to read such a limitation into the claims. 9 See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904-05 (Fed. Cir. 2004). Fourth, it is implied from the adopted construction and the intrinsic evidence that the "language" used by a particular mobile device determines which network sites it can access (see col. 1:29-30).

--- Footnotes ---

9 Of course, the fact that claim 20 requires "language[s] that allow[ ] multiple input entries per page" may restrict the programming languages that can satisfy this limitation to so-called markup languages. This, however, does not mean that such a limitation should be read into the construction of "language."

--- End Footnotes ---
In sum, this order construes "language" as "programming used to couple network sites and mobile devices" — exactly as the specification defined it and consistent with its usage throughout the claim language and intrinsic evidence. Any other limitations mentioned above are either implied by this construction, implied by the context of its use in claim 20, or expressly set forth within the asserted claim as separate limitations.

The crux of the parties' dispute as to claim 1 is the definition of "languages." Bloomstein argues that languages can mean two different dialogues in the same tongue, such as English. The defendants counter that considering the absence of a clear definition to the contrary in the claims or specification, the court should construe languages as two different tongues, such as English and Japanese, according to the ordinary meaning of the term.

As a preliminary matter, the first definition of "language" is "the words, their pronunciation, and the methods of combining them used and understood by a considerable community." Webster's New Collegiate Dictionary 646. Subsequent meanings include "audible, articulate, meaningful sound as produced by the action of the vocal organs." Id. The defendants argue in essence for the first definition, while Bloomstein espouses the latter.

However, the definition championed by Bloomstein cannot be pluralized without losing meaning. The claims require that "languages of the two displays are sufficiently different to result in different lip movements." At first glance, even one skilled in the art would wonder why Bloomstein used the plural "languages" instead of the singular "language" if he intended the claim to encompass different dialogues within the same tongue. In that case, the proper usage would be "the language of the two displays is sufficiently different to result in different lip movements." Bloomstein may be correct that the process disclosed in the specification could be used to "dub" one English dialogue to another, but he simply did not claim his invention that broadly. See Markman, 52 F.3d at 979-81 (specification should not be used to expand the scope of the claims).

2 He could also have claimed different "words" or "dialogues," as argued throughout his memoranda, but he did not do so.

In addition, the specification is rife with evidence that Bloomstein intended "languages" to mean a foreign tongue and a target tongue. Bloomstein argues that his repeated use of "foreign" should be discounted because he occasionally surrounded it by quotation marks. However, the use of quotation marks is not a clear definition contradicting the ordinary meaning of "languages." Bloomstein points to no affirmative language in the specification that clearly overcomes the ordinary meaning of "languages." Absent a showing that Bloomstein "acted as his own lexicographer," the ordinary meaning prevails and "languages" means two different tongues. See Id. at 980.

3 The "Background" portion of the patent describes the invention as "particularly applicable for replacing the sound track of a motion picture with a new sound track of a different language while also modifying the lip movements of the actors in the picture to correspond to the new language to be applied to the sound track." Joint Memo., Ex. A at column 1:16-21. Bloomstein argues that the use of "particularly" implies a broader scope of application than cross-language dubbing. However, this mere suggestion of broader scope cannot overcome the claim language and consistent discussion of cross-language dubbing in the specification.

Claim 1 of the '281 patent is representative, reciting:

A method of altering a cinematic work by substituting a second animated facial display for a first animated facial display and in which the displays have lip movements corresponding to the languages used and wherein the languages of the two displays are sufficiently different to result in different lip movements for each display, comprising: generating data in digital form representing the configuration of the second facial display over a plurality of cinematic frames, generating data in digital form representing the configuration of the first facial display over a plurality of cinematic frames of said work, and altering under the control of both sets of said data and a programmed digital computer the configuration of said first facial display to produce substantially the configuration of the second facial display.

Col. 29, ll. 24-40

The trial court held that by "languages" the '281 patent means "two different tongues," so that the use of the patented method to dub in dialogue in the same language used in the original footage cannot literally infringe. We agree. Throughout the specification the invention is described in terms of altering a character's lip movements so that a person speaking in a foreign language is perceived as speaking in English, and the claims do not deviate from this. Because the footage at issue here does not alter any character's lip movements so that they conform with dialogue in a language other than English, the language of the original footage, the trial court correctly held that Lucas and Paramount did not literally infringe the claims of the '281 patent.

2. "large-screen display surface" (claims 17, 21, 38, 41, 57, 58, 71, 72)

PolyVision contends that this term cannot be construed because it is not mentioned or defined in the specification, has no particular meaning in the art, and is indefinite. PolyVision points out that it is well-known in the art that display surfaces for a projector may range from a few inches in diagonal width to over twelve feet in diagonal width, and without further guidance from the claim, any attempt to give meaning to "large-screen" would be arbitrary and lacking any support in the specification. Smart contends that the term is not indefinite and should be given its plain and ordinary meaning: "A display surface that is sufficiently large to be viewable concurrently by one or more groups of users."

"Because [] claims perform the fundamental function of delineating the scope of the invention [pursuant to 35 U.S.C. § 112, P 2], the purpose of the definiteness requirement is to ensure that the claims delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005) (internal citation omitted). A claim is not indefinite solely because construction proves to be a difficult task. See Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Nor is a claim indefinite even though the construction is one over which reasonable persons can disagree. See id. "Because a claim is presumed valid, a claim is indefinite only if the 'claim is insolubly ambiguous, and no narrowing construction can properly be adopted.'" Honeywell Int'I, Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1338-39 (Fed. Cir. 2003) (quoting Exxon Research, 265 F.3d at 1375).

Although the Court believes that this is a close question, it concludes that a person skilled in the art would understand the
First, the specification provides some basis for giving context to the term "large screen." First, it must be large enough so that "several user groups can view the projected screen output." (Col. 4, ll. 42-44.) Second, Fig. 1 is a drawing of the interactive display system, and it shows the display screen as being much larger than the computer screen and the overhead projector, in fact, perhaps 4-6 times as large as those items. This information reveals that the term "large-screen display" is intended to encompass display screens that would be used to present information to large groups of people in a classroom or conference setting. It would exclude the scenario discussed at the hearing of several college students crowding around a small television. Finally, PolyVision's expert, Dr. Robert S. Dezmelyk, indicated that he understood what "large-screen" meant. He said that it would be at the:"larger end of the scale" for digitizers, meaning that it would be larger than a 24 by 36 inch digitizer. (Dezmelyk Dep. at 167.) Dr. Dezmelyk was also able to ascertain whether certain of PolyVision's products had large-screen displays, and he stated that PolyVision's IBID product line had small screens. (Id. at 262.) This provides a sufficient basis to allow this Court or a jury to determine whether the accused product is a "large-screen" device. See Aero Prods. Int'l, Inc. v. Intex Recreation Corp., 466 F.3d 1000, 1016 (Fed. Cir. 2006) (citing the plaintiff's expert's testimony regarding his understanding of the disputed terms as support for the conclusion that the terms would be understandable to a person of ordinary skill in the art).

Avago proposes that "periodically forming largely overlapping images of a field of view of said array" be construed as "images of a field of view of the photosensor array are formed at regular intervals of time. The images overlap such that there are features in common in successive images." Elan submits that "periodically forming largely overlapping images," is impossible to construe because "largely overlapping images" is indefinite. As to the remainder of the claim language, Elan proposes that "a field of view of said array" means "an area of the three-dimensional environment in which the device resides that can be viewed by the array."

The Court does not find "largely" to be indefinite simply because there is no specific quantity by which the images must overlap. As construed consistent with its plain and ordinary meaning, "largely" provides sufficient guidance to a person of ordinary skill in the art. Based on the Court's determination that the device disclosed in Claim 14 is one which may operate in a three-dimensional environment, the Court declines to further construe this phrase.

Matsushita argues "larger than said simple geometric figure" should be construed as "having a greater area than said simple geometric figure." Mediatek argues "larger than said simple geometric figure" should be construed as "having a greater area than the area of the simple geometric figure of the first planarizing pattern so that the number of figures and the amount of data in the planarizing patterns is reduced."

The Court finds, for the reasons stated by Matsushita, "larger than said simple geometric figure" is properly construed as "having a greater area than the area of the simple geometric figure of the first planarizing pattern."

The dispute between the parties as to this term is whether the "laser piloting means" must operate through direct modulation or whether the claim language also covers "laser piloting means" that operate through external modulation. Direct modulation operates by having a driver device that varies the amount of light that emanates from a laser. Because the device operates by directly acting on the laser to modulate its signal, this set up is termed "direct modulation". On the other hand,
external modulation works quite differently. In a set up of that type, the laser is operating at a constant output. Thereafter, the constant output of the laser is run through an external modulator, which operates as a shutter. Depending on how the shutter of the external modulator is varied, the laser signal is subsequently modulated. Pirelli claims that the language of the claim is broad enough to have "laser piloting means" encompass both direct and external modulation. Not surprisingly, Ciena disagrees and contends that Pirelli's "laser piloting means" must operate by direct modulation.

(a) The Claim Language

The "laser piloting means" phraseology is found in claims 1, 8, 13, 14, 15, and 17 of the '073 Patent. Because this language is used in a similar manner in all of the claims, for purposes of convenience, the language of claim 1 will be construed. In relevant part, claim 1 states: "an adjustment module comprising laser piloting means connected to said converting means and to said second transmitter for controlling said second transmitter by said electrical signals within said operating parameters of said optical amplifier."

In Col.1, lines 37-41.

Pirelli asserts that the claim language is broad enough to encompass both direct and external modulation techniques. Specifically, Pirelli points to the language of the claim that states that the "laser piloting means" controls the second laser transmitter. Pirelli contends that this control can be by direct or external modulation. Ciena asserts there must be a direct modulation of the laser by the laser piloting means. This is so because the claim language itself recites that the laser piloting means is "connected" to the second optical signal laser transmitter for the purpose of controlling said second laser transmitter.

(b) The Specification (and Means-Plus-Function Analysis)

Neither party disputes that the "laser piloting means" falls under the means-plus-function rubric of 35 U.S.C. § 112, P6. Under the means-plus-function analysis, the first step is to determine the function of the "means" and the second step is to locate the corresponding structure, or its equivalent, in the specifications of the patent. See 35 U.S.C. § 112, P6. Although the parties agree as to the corresponding structure in the specification, they disagree over the function of the "means".

Pirelli argues that the function of the "laser piloting means" is to control the second laser transmitter. According to Pirelli, the corresponding structure in the specification which performs such a function is a "laser piloting circuit". Col.3, lines 57-62. However, Pirelli asserts that under the equivalents language of section 112, P6, it is a question for the jury whether external modulation is an equivalent method to the direct modulation performed by the laser piloting circuit.

Ciena asserts that the function of the "laser piloting means" is to guide, direct, or pilot the laser of the second optical transmitter. The corresponding structure found in the specification is "laser piloting circuit 20. [ ] a known circuit of the digital type in which direct current modulation is also carried out in order to allow signals coming from service channels connected to the input to be inserted." Col.3, lines 63-67. In addition, Ciena cites the following relevant specification language: "The electrical signal activates the piloting circuit 20 for the adapter laser 22 . . . Circuit 20 is entirely digital and has a circuit portion carrying out direct current modulation . . . ." Col.5, lines 1-6. Ciena points out that external modulation is nowhere mentioned in the specification or claim of the '073 Patent. Therefore, Ciena urges the Court to find that the "laser piloting circuit" is the corresponding structure and that it functions only through direct modulation.

(c) The Prosecution History

During the prosecution of this patent, Pirelli was forced to more clearly define "laser piloting circuit 20". Prosecution History, at 166. Pirelli responded that a laser piloting circuit is "merely a laser modulating circuit well-known in the art and are so described in the specification of the subject application." Prosecution History, at 167. Pirelli went on to provide five examples to the patent examiner in order to more fully define what was meant by a laser piloting circuit. Ciena argues that all of the examples given by Pirelli are laser driver circuits that directly control a laser. Further, Ciena contends that at no time during the patent prosecution did Pirelli suggest that laser piloting circuit is anything different from a direct modulation circuit.

(d) Claim Construction

It is improper claim construction to limit the interpretation of the means-plus-function language to particular means set forth
in the specification. See D.M.I., 755 F.2d at 1573. To do so, would "nullify the provision of § 112[, P6] requiring that the limitation shall be construed to cover the structure described in the specifications and equivalents thereof." Id. (emphasis added). Moreover, "there is and can be no requirement that applicants describe or predict every possible means of accomplishing that function." Id. That being said: The scope of a means-plus-function claim is not limitless, but is confined to structures expressly disclosed in the specification and corresponding equivalents. Thus, [§ 112, P6] prevents an overly broad claim construction by requiring reference to the specification, and at the same time precludes an overly narrow construction that would restrict coverage solely to those means expressly disclosed in the specifications.


"The function performed by the means-plus-function element is a claim construction issue which should be resolved as a matter of law, because it requires the Court to only look at the patent itself. . . . " Motorola, Inc. v. Interdigital Technology Corp., 930 F. Supp. 952, 963 (D.Del. 1996). Similarly, the corresponding structure, or specific means, that carries out the function described in the claim should also be decided as a matter of law as a claim construction issue. See id. The Court in Motorola put forward this helpful analogy as a way to think of how this analysis should be conducted:

For instance, if a patent contains a means-plus-function limitation claiming a "means for fastening" and the specification discloses a "button" as a possible fastening means, under Markman a court must resolve any dispute regarding both the 1) function of the fastening means, and 2) the meaning of the word "button," as a matter of law.

Id. Once the court has construed the function and the specific means, it is a question for a jury what the equivalents are of the specific means or structure identified in the specification. See In re Hayes Microcomputer Prods., Inc., Patent Litigation, 982 F.2d 1527, 1541 (Fed. Cir. 1992); D.M.I., 755 F.2d at 1575; LRC Electronics Inc. v. Mezzalingua Assoc., Inc., 974 F. Supp. 171, 1997 WL 536351, at *7 (N.D.N.Y. 1997); Raleigh v. Tandy Corp., 1997 U.S. Dist. LEXIS 22130, 1997 WL 26299, at *2 (N.D.Cal. January 10, 1997); Motorola, 930 F. Supp. at 963.

The Court is persuaded that, as a matter of law, the function of the "laser piloting means" cannot include external modulating devices, but only includes direct modulation devices. This conclusion is the result of a close reading of the claim language as to the function of a "laser piloting means". Claim 1 states, in relevant part: "an adjustment module comprising laser piloting means connected . . . to said second transmitter for controlling said second transmitter . . . ." Col. 7, lines 37-40. According to the plain language of the claim, and recognizing that "second transmitter" has already been construed to be equivalent to a laser, the "laser piloting means" functions by being connected to the laser for the purpose of controlling the laser. Only direct modulation works in this fashion; i.e., by having the modulator directly attached to a laser. On the other hand, external modulation operates by having a constant laser beam being acted upon by an external modulator, not connected to the laser.

This reading of the claim is supported by both the language of the specification and the prosecution history. Both parties agree that the corresponding structure found in the specification that performs the function of the laser piloting means is the "laser piloting circuit 20". "Laser piloting circuit 20" is described in the specification as "a known circuit of the digital type in which direct current modulation is carried out . . . ." Col. 4, lines 63-65 (emphasis added), and as "entirely digital and having a circuit portion carrying out direct current modulation." Col. 5, lines 1-6 (emphasis added). Although this language from the specification may not be properly imported into the claim, it does properly assist in giving a context to the disputed claim language. See Wright Medical, 122 F.3d at 1443. Moreover, the prosecution history illustrates that when Pirelli was forced to more clearly define the "laser piloting circuit," Pirelli replied that the circuit was, "merely a laser modulating circuit well known in the art . . . . " Prosecution History, at 167. All five examples that Pirelli provided to the patent examiner were laser driver circuits that directly modulate the laser. For all the foregoing reasons then, the Court holds, pursuant to the means-plus-function analysis of 35 U.S.C. § 112, P6, that the "laser piloting means," found in claims 1, 3, 8, 13, 14, 15, and 17 of the '073 Patent, functions by variably controlling the input of the laser in the adapter through the use of direct modulation in order to produce a directly corresponding output. The corresponding structure, as a matter of law, is found to be "laser piloting circuit," which is a laser driver circuit that directly modulates the input of the laser in the adapter in order to produce a directly corresponding output.
In claim seven, the phrase "a laser source of subpicosecond laser light pulses, . . . producing in the region of said focal point a two photon excitation energy level." Plaintiffs argue this phrase, also taken from two paragraphs (7[c] and [d]), must be construed together as a means-plus-function element. According to the Plaintiffs, there is no recited structure for performing the function of producing a two photon excitation energy level in the focal point. Again, Plaintiffs argue the structure should be read from the specification and should be construed as a colliding pulse mode-locked dye laser. Defendants respond that the term "means" does not appear in this element. Further, definite structure and material is recited, thus making § 112, P 6 inapplicable. For example, the term "laser source" by itself recites a structure, that is, a laser.

For the same reasons the Court refused to interpret the previous phrase as a means-plus-function element, it again declines to do so here.

2416

I. Last Synchronization Signature

Visto argues that the term "last synchronization signature," as used in the '708 patent, means "information regarding synchronization actions carried out with respect to a workspace element." Seven proposes that the term means "a record computed by the general synchronization module which indicates the last date and time of synchronization." In support of its proposed definition, Seven argues that the specification implicitly defines the term in this manner. In particular, Seven argues that the specification requires the last synchronization signature to indicate the last date and time of synchronization. However, the portion of the specification relied on actually states that the general synchronization module includes routines "for examining the version information 255 or 150 against a last synchronization signature (such as a last synchronization date and time) to determine which versions have been modified." '708 Patent, Col. 7, ll. 23-27 (emphasis added). It is clear from the specification that the requirement of a last synchronization date and time is exemplary only and not intended to limit the definition of last synchronization signature. At the same time, despite the shortcomings of Seven's proposal, Visto's definition is too broad. Visto's definition would literally include all information about synchronization actions, when it appears that the term is more limited to the most recent synchronization action. The court therefore construes this term to mean "a record computed by the general synchronization module from which the most recent synchronization may be determined."

2417

8. "latching level shifter"

Having agreed to the meaning of "level shifter," the parties dispute what the word "latching" means in this claim term. A "level shifter" has been defined as "a circuit that accepts digital input signals at one pair of voltage levels and delivers output signals at a different pair of voltage levels, where at least one of those voltage levels changes." (1/27/04 Chart entitled "Agreed and Partially Agree Claim Terms" at p. 4). Defendants contend that a "latching level shifter" is a level shifter that will retain at least one state, i.e., will continue to provide an output signal, in the absence of input signals. MOSAID on the other hand contends that a "latching level shifter" holds the output signals only while the input signals are present. If MOSAID's construction is adopted, a "latching level shifter" without input signals would not provide any output signals.

The Court begins by trying to determine the ordinary meaning of the claim language. Claim 15 of the '253 patent states in relevant part: "a latching level shifter which receives word line selection signals at V[dd] logic levels to drive and latch first and second word line control signals at V[pp] logic levels." '253 patent, claim 15 (emphasis added). Thus, it appears that the terms "latching" and "latch" are being used in a technical sense.

Defendants proffer the Radio Shack dictionary definition of "latch," which is "[a] feedback loop used in a symmetrical digital circuit (such as a flip-flop) to retain a state." Radio Shack Dict. of Electronics (5th ed. 1977). MOSAID criticizes this definition, arguing that the definition does not support Defendants' proposed construction because the definition requires a "symmetrical circuit," whereas Defendants' construction would define "latching" as an asymmetrical circuit since it only
needs to retain one state. However, MOSAID does not dispute that the ordinary meaning of the technical word "latch" includes the ability to retain at least one state. In fact, MOSAID's own expert submitted an expert report in support of its claim construction that states: "Generally, a 'latch' is understood to refer to a circuit that retains its output state in the absence of inputs." (Greene Expert Report at P 18). Consequently, the ordinary meaning of "latching" means "retaining an output state in the absence of inputs."

MOSAID maintains that this definition cannot be correct because it is inconsistent with, and in fact would exclude, the "latching level shifter" set forth in Figure 1 of the patents. The level shifter in Figure 1 is not a symmetrical "latching level shifter." It can only retain one output state in the absence of input signals, an output of V[pp] from transistor 7A to the gate of pass transistor 14A, which would not allow any voltage to pass to the word line. In order for it to be a symmetrical "latching level shifter," it would need an additional pull-down transistor, like transistor 12, to be connected to the gate of transistor gate 7A. Since it lacks that additional pull-down transistor, MOSAID argues that it cannot be a "latching level shifter" as defined by the Radio Shack dictionary. Thus, MOSAID offers an alternative definition of "to . . . latch" which is "to hold the output signals while the input signals are present."

There are several problems with MOSAID's analysis and proffered claim construction. First, as explained above, the ordinary meaning of "latch" only requires that an output state be retained, not that the circuit be symmetrical and be able to retain multiple outputs. Thus, the ordinary meaning would include the level shifter embodied in Figure 1. Second, even if the ordinary meaning of "latch" required a symmetrical circuit, the Court would conclude that the patentee acted as her own lexicographer and broadened the meaning so that it only required one output state to be retained based on Figure 1.

Finally, MOSAID's proffered claim construction cannot be correct because it would strip the terms "latching" and "latch" of any meaning. There is nothing to suggest, and MOSAID offers no evidence, that NAND gate 5 will provide constant input signals to the level shifter so that it becomes "latched." As a result, there is no evidence that the "latching level shifter" would ever "latch" any signals if MOSAID's definition were adopted.

The patentee purposefully used the terms "latching" and "latch" in a technical manner and it is the Court's responsibility to give effect to those words. Since Defendants' proposed construction would give meaning to the disputed terms and would include the preferred embodiment Figure 1, the Court finds that a "latching level shifter" is "a level shifter including a feedback loop that will indefinitely retain at least one data state in the absence of any new control signal to change the state."

20 Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998) ("The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.").

2418

a. "layer" and "conductive layer"

LGD contends that one of ordinary skill in the art would construe the term "layer" to mean "thickness of material," and the term "conductive layer" to mean "thickness of electrically conductive material." D.I. 376 at Exh. C-2. Although the specification of the '449 patent refers to the conductive layer that forms the gate pads, gate electrode and source pad as being of the same material, LGD contends that this limitation should not be imported into the claims. According to LGD more than one material may constitute the conductive layer, and these materials are inseparable. Therefore, LGD maintains that the claims should not be limited to a single material.
AUO and CMO do not appear to dispute the construction of the term "layer," but instead focus on the term "conductive layer." AUO contends that "conductive layer" should be construed in accordance with its plain meaning. Id. CMO contends that a "conductive layer" means "[a] thickness of electrically conductive material that may include one or more patterned features, all of a single material." Id. The Court has reviewed the parties' positions in light of the claim language and the specification of the '449 patent, and concludes that a single material limitation is not required. '449 patent, col. 3, ll. 44-49, col. 4, ll. 46-61. In discussing Fig. 2a, the patent explains that the "conductive layer is formed on a transparent glass substrate 1 and patterned to form a gate electrode 2, a storage capacitor electrode 2D, and a gate pad 2C, all of the same material." Id. at col. 3, ll. 44-46. However, the Court is not persuaded that the limitation of one embodiment should be imported into the claims. Accordingly, the Court concludes that a "layer" means "thickness of material," and a "conductive layer" means "thickness of electrically conductive material."

1. "layer" (all asserted claims)

ATI has proposed plain meaning for the term "layer." Dkt. No. 113, Ex. at 2. Sharp and DNP have proposed that the term "layer" means "a separate and distinct layer of material." Id. The Order construed the term "layer" to mean a "separate layer." Dkt. No. 117 at 17.

a. Objections

ATI objects to the Order's construction of the term "layer" as "separate layer." In particular, ATI argues that "separate" "does not appear in the claims, the specification, or the prosecution history and is not required to give any meaning to the disputed phrase." Dkt. No. 124 at 1. During oral argument on the objections, ATI argued that "some of the claims talk about a layer upon or atop a surface . . . but the words upon and atop merely describe the location of the layer and the addition of the term separate is unnecessary." 5/19/2009 Objections Hr'g Tr., Dkt. No. 170 ("Objections Tr.") at 5:21-25. ATI submits that "[t]he addition of the term 'separate' is superfluous and will confuse the jury." Dkt. No. 124 at 2.

Sharp responds that "the specification, the drawings, and the claim language always show[] separate layers." Objections Tr. at 6:9-10. Sharp emphasizes that in the specification, the word layer is used "always in the context of upon, atop, or between." Id. at 6:17-19. Sharp submits that "you can't be atop something or upon something or between something if you are a part of that other thing." Id. at 7:2-3. Sharp cites Figure 3B as "show[ing] separate layers" and argues that "[t]hese respective layers (14, 26 and 30) clearly sit 'upon' or 'atop' one another, and they are not intermixed." Dkt. No. 129 at 2.

DNP also responds to ATI's objection. Dkt. No. 132. DNP argues that "the drawings, specification, and prosecution history of the asserted patents all unequivocally describe each layer as being separately disposed by a separate process step. Id. at 1. DNP also argues that ATI's previous proposal of "distinguishable" layer, as well as "layer" by itself, "are too vague to provide guidance to the jury." Id. at 2. DNP further cites prosecution history of a grandparent application wherein the applicant purportedly amended to overcome a rejection based on U.S. Patent No. 4,846,556 ("Haneda"). Id. at 4.

b. Discussion

Sharp's comment that layers "are not intermixed" (Dkt. No. 129 at 2) indicates that the parties genuinely dispute the scope of the term "layer." The Court must accordingly resolve whether the word "separate" is appropriately part of the Order's construction. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd., 521 F.3d 1351, 1360 (Fed. Cir. 2008) ("When the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury, must resolve that dispute.")

The specification does not indicate that "intermixing" between layers is impermissible. For example, the Order finds that intermixed boundary regions could exist where one layer contacts another layer but notes that "the drawings include solid lines indicating separate layers, and the language in the claims and the specification use terms such as 'upon' and 'atop' which define a separateness between the layers." See Dkt. No. 117 at 17-18 and 20. Although the word "separate" might be
read to require that layers are separated by some distance (i.e., are not in contact with one another), a better reading of "separate" in light of the specification is that layers are somehow divided from one another by a boundary, however imperfect the boundary may be. See Oxford English Dictionary (Second Edition 1989) (definition of "separate" can include "[p]arted, divided, or withdrawn from others; disjoined, disconnected, detached, set or kept apart"); Phillips, 415. F.3d. at 1316 (noting that "the specification necessarily informs the proper construction of the claims"). DNP's proposal of the word "distinct" more clearly captures the concept that the layers are distinguishable from one another, but the word "distinct" may be read to connote absolute distinction. Because some "intermixing" may be possible, as noted above, the layers are distinctive but not necessarily completely "distinct." 1 The teaching in the specification that a layer is something that can be "disposed" on something or on another layer also indicates that layers are separate from one another, as also reflected in the figures. See, e.g., '711 Patent at 3:26-27. In sum, the Order's construction of "layer" to mean "separate layer" should be affirmed.

--- Footnotes ---

1 For an analogy, see Sharp's Claim Construction Sur-Reply Brief: "ATI relies upon the analogy that 'icing may be atop a cake, even though the icing will blend into the porous cake at the surface.' (Reply at 8.) However, the icing and the cake remain two separate and distinct items. Although the icing may superficially 'blend into the [holes in the] porous cake at the surface,' they remain different elements and layers." Dkt. No. 91 at 4. Although baking a cake surely differs greatly from fabricating a liquid crystal display, the analogy is nonetheless of some persuasive value.

--- End Footnotes ---

4. "layer" Claim 1, 3, and 5.

An exemplar use of the term layer is in Claim 1, stating in part, with the disputed term in bold: "A structure having plural layers in semiconductor material..." Seoul argues that "layer" be construed to mean "a layer of material but does not refer to a substrate in a device." Nichia does not think that the term needs to be construed, but if it is, Nichia proposes "a thickness of material" and does not exclude the substrate.

Specifically, the parties dispute whether a layer includes the substrate. Seoul argues that the specification contrasts a layer with the substrate and that a person of ordinary skill in the art would understand the two terms to mean different things and would not think that a substrate is a layer.

Nichia points to dictionaries for the proposition that a layer can include a substrate and criticizes Seoul's proposed claim construction because it indicates what a layer is not, rather than what it is. The latter argument is unavailing as it may be necessary to construe a claim term to exclude sub-portions of the claim term, as here where the court has been asked to interpret both "layer" and "sub-layer." AFG Industries, Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1250 (Fed. Cir. 2001) (defining layer to exclude inter-layers which are too thin to be optically significant).

Generally, the specification distinguishes between the substrate and a layer. See e.g. col. 3, l. 61-64 ("semiconductor substrate 1 and a stacking of three or four layers in semiconductor material 2, 3, 4 and 5 placed on a major side of the substrate 1."); Col 4, l. 11-13 ("According to a preferred embodiment, the stacking of layers 2 to 5 constitutes a double heterostructure GaAs/GaAlAs formed on a substrate in silicon Si."). Nichia's technical expert, Dr. Schubert, and Seoul's expert, Dr. Streetman both admit that a substrate must be present to deposit semiconductors. Tr. at p. 106, l. 19 to p. 107, l. 19; Tr. p. 109 at 9-10.

However, in certain instances, the substrate should be included as a layer. At times the specification includes the substrate as a layer. In discussing the state of the prior art and dislocation formation in deposited semiconductors, the specification references a silicon substrate and the 4% lattice mismatch between GaAs and Si which results in a large number of dislocations. Col. 1, l. 39-42. The specification continues to explain that "when the crystalline lattice parameter of a layer is lower than that of a second layer, the first layer is subjected to tension and dislocations occur in the layer interface." Col. 1, l. 29-51. The Si substrate is the first layer and the GaAs is the second. Dislocations result from the lattice mismatch. The
'742 patent specifically relies upon lattice mismatch and the three-dimensional growth mode to produce the inclusions. If the properties of the substrate are vitally important to the design and operation of the structure, the substrate is a layer.

Further, the substrate could be an electronically active portion of the structure. If it is, it would be logical to include it in the definition of layer. Both GaAs and InP have been used as substrates. Col. 1, l. 64-66. When the substrate functions as an electronically active portion of the structure, such as the n-type or p-type layer, it would be incorrect to exclude it from the definition of a "layer." If the substrate only acts as a mechanical support, it is not a layer.

The court will therefore construe "layer" as follows:

"layer" means "a thickness of material, which may be made up of sub-layers, but does not refer to a substrate in a device unless the substrate is an electronically active portion of the device.

A. "layer"

The parties dispute the meaning of "layer" as that term appears in the '710 and '322 patents. The claim language of the '322 patent specifies that the invention stores identifiers "at a layer lower than layer 3." The district court construed layer as one of the layers in the Open Systems Interconnection ("OSI") protocol layer stack, finding reference to that standard in the specification.

Reference to "layer 3" in the claims of the '322 patent requires some background to provide meaning for the specific layer number. Toshiba's nebulous definition would leave that layer number without any meaning. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1374-75 (Fed. Cir. 2003). With such a broad and potentially ambiguous term, we consult the specification for guidance.

As the district court recognized, the specification consistently uses "layer" in conjunction with the OSI model. E.g., '322 patent, col. 1, ll. 38-42. Accordingly, we hold that the district court correctly construed "layer" as a layer in the OSI protocol layer stack, and thus affirm the judgment of noninfringement as to the '322 patent.

Guardian's Position
Guardian argues that there are seven relevant claim terms in dispute. Guardian's interpretations are listed below.
Heated Treated Coated Article: a coated article that has been heated to a temperature for a sufficient period of time to enable thermal tempering, bending or heat strengthening of the articles.
Layer: a region of material having a thickness and the composition of which is chosen to provide desired properties.
Oxidation Graded: having a change in the relative oxygen content in a region such that one portion contain more oxygen than another portion.
Progressively More Oxidized: having a trend of increased relative oxygen content.
More Oxidized at a Location Further From the Layer Comprising Ag Than at a Location Closer to the Layer Comprising Ag: these precise words do not appear in the asserted claims of the patents-in-suit, and therefore, they do not require interpretation.
Metal or Metal Nitride Contact Layer: metal or metal alloy, contact lawyer means a layer contacting another layer, metal nitride is a material including both metal and nitrogen.
More Metallic: having more relative metal content in a region compared to reactive non-metals such as oxygen or nitrogen.
AFG's Claim Interpretations
AFG groups the terms in dispute into four categories: (1) coated article claim elements; 2) layer claim elements; (3) oxidation graded claim elements; and (4) nitride claim elements.
Coated Article: all of the coated article definitions ("heat treated coated article," "coated article," and "after being heat treated (HT) said coated article") should be interpreted as: "an article which has been coated" with either: a) "and has been
heated to a temperature sufficient to enable thermal tempering, bending, or heat strengthening; or b) "with a heat treatable coating."

Layer: "a thickness of material having a function and chemical composition bounded on each side by an interface with another thickness of material having a different function and/or chemical composition."

Oxidation Graded: all of the oxidation graded claims ("oxidation graded," "is more oxidized at a location further from the [first] layer comprising Ag than at a location closer to the [first] layer comprising Ag," "is more metallic at a location closer to the silver inclusive layer than at another location further from the silver inclusive layer," and "is more metallic at a location closer to the metal or metal nitride contact layer than at another location further from the metal or metal nitride contact layer") should be interpreted as, "a layer that is progressively more or less oxidized through its thickness" with the appropriate variations in language used in the different claims.

Nitride layer: all of the nitride layer ("nitride layer," "comprises silicon nitride," "layers which comprises a nitride," and "layer comprises Si-rich Si[x]N[y] where x/y is from .76 to 1.5") is "a layer containing a silicon nitride compound, and not containing oxygen."

Layer

The two parties proposed interpretations of the term "layer" contain a number of differences. The first difference lies in whether the court should adopt Guardian's "the region of material having a thickness" interpretation or AFG's proposed "thickness of material" interpretation. Both sides agree that a layer has a "thickness" and is made with a certain "material," the difference lies in whether the word "region" should be incorporated into the interpretation.

This court was unable to find any mention of the term "region" in the patents' claims or specifications. Instead, when describing "layers" the patents' claims, tables, and specifications all refer to the type of material used in the specific "layer" and its "thickness." For example, the '349 specifications discuss "exemplary preferred thickness and example materials for the respective layers on the glass substrate." '349, Col. 7, lines 65-66. The patent also provides a chart that outlines the "preferred range," the "more preferred range" and "example" of thickness for each material. '349, Col. 8, lines 1-18.

In a case involving patents related to the same type of glass, the Federal District Court defined "layer" as a "thickness of material of substantially uniform chemical composition…." AFG v. Cardinal, 239 F.3d 1239, 1250 (Fed Cir. 2001). Although these are different patents at issues, this court believes that the Federal Appeals Court's decision is instructive on how a person skilled in the art of these types of inventions would interpret the term "layer."

As a result of the claims' terms, the specifications, and the guidance of the Federal Court's decision in the 2001 AFG case, this court refuses to adopt the "region of material" interpretation proposed by Guardian. Instead, the court will adopt the "thickness of material" interpretation.

Another point of contention, is whether the "layer" interpretation should include AFG's proposed "bounded on each side by an interface with another thickness of material having a different function and/or chemical composition." Guardian's proposed interpretation says nothing about a layer's spatial relationship to other layers.

Guardian argues that AFG's interpretation is faulty for a numerous reasons, including that AFG's interpretation would cause an absurd situation. In a Southern District of New York case, the patent interpretation principle of construing claim language in a manner that causes the claim to make sense in the context of the patent. Leighton Techs. LLC v. Oberthur Card Sys, S.A.,, 358 F.Supp.2d 361, 366. Guardian argues that the "bounded on each side" language would cause just such an absurd situation, i.e. the coating would continue ad infinitum since each layer is bounded by another layer on the other side.

Guardian also points out that AFG's position on the interpretation of the term "layer" has changed since the Federal Circuit opinion in 2001. AFG v. Cardinal, 239 F.3d 1239 (Fed Cir. 2001). In that particular case, AFG argued against defendant Cardinal's proposed definition of "a thickness of material of uniform chemical composition bounded by a material of different chemical composition" and instead advocated for the proposed definition of "a thickness of material of uniform composition." Id. at 1250. The Federal Circuit noted that the patent in question did not limit the term "layer" to a deposit bounded by a material of a different chemical composition, thus declining to include such a limitation in the construction of the term "layer." Id.
Similarly, the specification of the patents in this case do not limit the term "layer" to a deposit bounded on each side by an interface with another thickness of material having a different function and/or chemical composition. At times in the patents' claims and specifications, the term layer is mentioned in connection with its physical relationship to other layers. For example, the silver and NiCrOx layers are said to contact each other in certain patent specifications. In patent '349 claims, the infrared reflecting layer is said to be "contacting and sandwiched between first and second layers, said second layer comprising an oxide of NiCr." '349, Col. 23, lines 52-54. However, the vast majority of both the claims and specifications do not place physical limitations on the term "layer." Thus, the Court refuses to adopt this aspect of AFG's proposed interpretation.

Another difference between the parties proposed "layer" interpretation is Guardian's "the composition of which" versus AFG's "chemical composition." The Federal Circuit in the 2001 AFG case included within its "layer" interpretation "of material of substantially uniform chemical composition." Id. at 1250. The court came to this conclusion discussing whether the term "layer" should include in its interpretation the word "uniform":

[F]ocusing on the chemical uniformity of a deposit, rather than its optical properties, constitutes a departure from the disclosures and teachings of the patent. Nowhere does the patent refer to chemical "uniformity" as a characteristic of a layer… we do not think that the incorporation of trace amounts of silver or zinc oxide into titanium deposit would disqualify that deposit from constituting a layer. Accordingly, we hold that the chemical composition of a layer must only be "substantially uniform," rather than uniform.

Id. The court concluded that consistent with the specification that the term layer should be interpreted as: "a thickness of material of substantially uniform chemical composition, but excluding interlayers having a thickness not to substantially affect the optical properties of the coating." Id.

Even though the 2001 opinion left open the question of whether sequential applications of a single material produce a layer or multiple layers, that question was later answered in the same case in a 2004 decision by the Federal Circuit. AFG, Industries, Inc. v. Cardinal IG Company, Inc., 375 F.3d 1367 (Fed. Cir. 2004). The court determined that the term "layer" was not affected by the method of creation, i.e. whether it was deposited in a single sputtering operation or in multiple operations. Id. at 1373. The court stated that the only way the multiple depositions would only be relevant was if the multiple depositions affected the structure and optical properties. Id. Thus, the court concluded that the "unitary structure of the same material that constitutes a 'layer' does not become multiple layers because the manufacturer decided to deposit it in multiple passes rather than in a single pass." Id.

Guardian's interpretation of "the composition of which is chosen to provide desired properties" comes closer to what this court believes is the proper interpretation. AFG's interpretation separates "function" and "chemical composition," whereas Guardian's interpretation meaningfully connects the two in the spirit of the patents' intent. The patent makes clear that each chemical composition is chosen for certain functions that it gives the glass and coating. AFG's interpretation simply acknowledges that each layer is comprised of a certain chemical composition and each layer also has a function without saying that one is the reason for the other.

Similar to the AFG (2004) case, this court also believes the when determining what constitutes a layer the focus should be on the layer's function as opposed to its method of production. Thus, the sputtering of multiple depositionstions would not be cause to categorize something as more than a layer unless the sputterings affected a different function. This court is not using the prior cases definitions to define the term "layer" in these patents, but the court does believe that the opinions do give this court a better idea of how a person skilled in the art may interpret the patents' claims.

LaserDynamics next contends that the term "layer" as used in the claims means "a plane on a DVD disk where information is recorded." For this definition, LaserDynamics resorted to a dictionary of computer terms. See DVD Demystified, [2nd Ed., McGraw-Hill]. Mediatics challenges this definition arguing that "because a 'plane' is a mathematical concept which has no thickness" the use of the term does not describe a product. Therefore, it argues, the Court should adopt its definition.
To adopt this definition would appear to have the effect of limiting or restricting "layer" to mean a "thin planar disk," thereby suggesting that an optical disk is composed of multi-disks. While this may appear to be a correct manner of defining "layer," the basis for inserting "planar disk" in the definition is not justified. Admittedly, a "plane," as used in mathematics, is a concept. However, its definition also embodies a product. As a product, it means "a smooth or perfectly level surface; or a part of something [a disk] having a level surface." See Webster's Twentieth-Century Dictionary, Publishers Guild, Inc (1939). It is not itself a disk but a location on a surface, or a surface itself. Id. Therefore, the Court rejects Mediamedics' definition of "layer" because it suggests a limitation that is inconsistent with the ordinary meaning of the term and its use in the claims. Texas Digital Systems, Inc., 308 F.3d at 1205.

a. '074 Patent Infringement

 Plaintiff asserts that all of Defendants' EDLC ultracapacitors infringe on the '074 Patent. Doc. No. 13 at 2. Plaintiff relies on its expert report and numerous declarations by John Miller, which contains scanning electron micrograph (SEM)/Auger experiments allegedly supporting that the accused infringing products have a primary coating of a conductive carbon, and a secondary coating of activated carbon, as recited by claim 1 of the '074 Patent. Id.

In response, Defendants dispute that its EDLC ultracapacitors meet the limitations claimed in the '074 Patent, arguing that "layers and coatings" are not synonymous. Doc. No. 47 at 8. Defendants also contend that Plaintiff's experiments are deficient because the particular technique used by Miller "is not well-suited for an examination of the structure of the ultracapacitor electrodes, as viewed in cross section." Id. at 8-9.

Determining the likelihood of patent infringement on a preliminary injunction motion requires two steps: 1) construction of the relevant claims; and 2) comparison of the construed claims to the accused product(s). Pfizer, 429 F.3d at 1372. Because of the nature of a preliminary injunction proceeding, claim construction at this stage is itself preliminary because of the incomplete record provided to a reviewing court. 1 The Federal Circuit recognizes the difficulty of claim construction at the preliminary injunction stage because of the incomplete record. See Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1374-75 (Fed. Cir. 2005), citing to CVI/Beta Ventures, Inc. v. Tura, LP, 112 F.3d 1146, 1160 n.7 (Fed. Cir. 1997); Bayer AG v. Biovail Corp., 279 F.3d 1340, 1349 (Fed. Cir. 2002); Metaullics Sys. Co. v. Cooper, 100 F.3d 938 (Fed. Cir. 1996). Because of this, a district court may issue a "tentative" or "rolling" claim construction when faced with the task of claim construction on an expedited basis. Oakley, Inc. v. Sunglass Hut Intern., 316 F.3d 1331, 1344 n.3 (Fed. Cir. 2003), citing to Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002). As in any patent infringement suit, the burden lies with the patentee in establishing infringement by the accused product in a preliminary injunction motion by a preponderance of the evidence. Id. at 1340. However, if Defendants "raise[] a substantial question concerning … infringement … i.e. asserts an infringement … defense that the patentee cannot prove "lacks substantial merit," the preliminary injunction should not issue." National Steel Car, Ltd. v. Canadian Pacific Ry., 357 F.3d 1319, 1325 (Fed. Cir. 2004), quoting Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1350-51 (Fed. Cir. 2001).

--- Footnotes ---

1 On July 21, 2007, Defendants filed the prosecution file history for the '074 Patent as an exhibit to Michael Cima's declaration. See Doc. No. 119-3, Exh. C. The prosecution file wrapper for the '074 Patent was not submitted in conjunction with Defendants' opposition to the motion for preliminary injunction. See Doc. No. 47, filed February 1, 2007. At the evidentiary hearing, this Court permitted the parties to submit supplemental declaration regarding new evidence presented by Defendants, and for Plaintiff to submit additional evidence on this limited scope. See Rough Transcript at 95-96. The Court did not permit the parties to submit additional evidence or declarations on claim construction, especially in light of this filing occurring almost six months after Defendants' initial opposition was filed. Defendants provide no excuse for the late filing of this evidence, nor do they explain how this evidence relates to the limited scope of the evidentiary hearing regarding scanning electron micrograph technology. Accordingly, this Court will not take into consideration the prosecution file history of the '074 patent to tentatively construe the claims of the '074 Patent.
i. Claim Construction - First and Second Coatings

Defendants argue that the accused products do not infringe Claim 1 of the '074 Patent because coating and layers are not synonymous. Doc. No. 47 at 7. Defendants conclude that because it uses only one coating of a mixture of activated and conducting carbon, it does not meet the limitations of the '074 Patent. Id. In response, Plaintiff states that claim 1 of the '074 Patent is not a process claim, but a device claim. Accordingly, even if Defendants only apply its carbon slurry in one mixture, it will infringe the '074 Patent if the mixture nonetheless forms two layers, or coatings, on the aluminum current conductor. Doc. No. 66 at 3.

A review of the patent specification supports Plaintiff's construction of "coating" as including both layers and coatings.

First, Plaintiff is correct that Claim 1 is a device or product claim, and not a process or method claim. The claim, for example, describes physical properties and characteristics of the device, and not a method or process of making the device. As such, Defendants' method of applying a mixture of activated and conductive carbons, instead of as layers as taught in the '074 Patent, is irrelevant if it possesses the structural limitations of Claim 1. See AFG Industries, Inc. v. Cardinal IG Co., Inc., 375 F.3d 1367, 1370 (Fed. Cir. 2004) (A product claim covers any infringing structure "however it is made or however it is used.").

In addition, Defendants' contention that layers are not synonymous with coatings lacks merit in light of the patent specification. Claim construction requires that a reviewing court read the claims "in view of the specification, of which they are a part." Nystrom, 424 F.3d at 1142 (Fed. Cir. 2005). "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Phillips, 415 F.3d at 1316. Here, the specification repeatedly uses the terms "layers" and "coatings" interchangeably:

The first layer … is of a "conducting carbon …" '074 Patent at 7:19-20

The second layer is of an "activated carbon …" Id. at 7:32

The first layer is formed onto the surface of the current collector. Id. at 7:48

The second layer is formed onto the first layer … Id. at 7:60

The first step involves applying a first layer (or primary coating) … Id. at 9:8-9

The primary coating reduces the interfacial resistance and serves as a seed coat for a secondary coating. Id. at 9:25-26

The second layer (or secondary coating) is applied over the primary coating. Id. at 9:58-59.

As can be seen, the first layer and the second layer are coated onto the foil, with the three lanes having been cleared of the first layer and the second layer by the set of wipers. Id. at 11:37-40.

Thus, Defendants' argument that "layers" and "coatings" are not synonymous lack merit in light of the specification's interchangeable use of the terms. Accordingly, this Court construes Claim 1 as a product claim, and the disputed term "coating" to include "coatings or layers." However, as discussed, because the record is not complete, this Court is mindful that any claim construction at this stage is preliminary and tentative.

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"Layer 2 Forwarding Protocol Header"

"Forwarding Protocol Header"
The parties agree that these two terms should have the same construction. Cisco's proposed construction for the above terms is "initial information fields in a layer 2 forwarding protocol packet." Alcatel's proposed construction is "the header format defined in RFC 2341, entitled 'Layer Two Forwarding Protocol 'L2F',' which is illustrated in Figure 9." Both parties seem to agree that these terms relate to the parties' respective definitions for "layer 2 forwarding protocol" discussed above.

In similar fashion as the above arguments, Cisco claims that the term "layer 2 forwarding protocol header" does not require a specific header format, while Alcatel seeks to construe the term to require the header format in RFC 2341, which is identical to Figure 9. Again, both parties have taken extreme positions that are not supported by a plain reading of the patent.

The word "header" has a customary meaning in this context. As stated in The Computer Desktop Encyclopedia, "header: … In communications, the first part of the message, which contains controlling data, such as originating and destination stations, message type and priority level." Lumish Decl., Ex. M (Alan Freedman, The Computer Desktop Encyclopedia (2d ed. 1999)), at 395. 65 The particular formulation of the L2F header set forth in Figure 9 is necessary to an L2F only insofar as it satisfies the necessary features set forth above. Nothing in the patent requires that the L2F header be exactly as described in Figure 9, to the extent that another header formulation could be used to comport with the definition of "layer 2 forwarding protocol" identified above.

Therefore, the Court construes the terms "layer 2 forwarding protocol header" and "forwarding protocol header" as "initial information fields of a packet operating according to a layer 2 forwarding protocol."

Alcatel claims that the term "layer 2 forwarding protocol" 56 has no ordinary meaning, and so the Court should look to the intrinsic evidence in the patent for the meaning ascribed to the term. Alcatel argues that the "layer 2 forwarding protocol" is used in the patent to describe a specific protocol, known as "L2F." Around the same time as the filing of the '019 patent, "L2F" was presented to the Internet Engineering Task Force ("IETF") 57 by the named-inventor of the '019 patent, in a document now identified as RFC 2341. 58 Alcatel argues that RFC 2341 is substantially identical to the '019 patent, and in fact describes the identical data structure identified in Figure 9 of the '019 patent. According to Alcatel, the '019 patent was written specifically to cover the "L2F" protocol, and thus when the term "layer 2 forwarding protocol" is used in the claims, it is referring specifically to the "L2F" protocol. However, RFC 2341 is extrinsic evidence, 59 and thus while the Court will accept the reference as illustrative, the Court will not rely on this document to define the claim term unless the intrinsic
evidence fails to resolve the ambiguity as to what is meant by "layer 2 forwarding protocol."

56 Although the Court will refer to the term "layer 2 forwarding protocol," the analysis applies with equal force to the terms "the forwarding protocol" and "virtual dial-up protocol."

57 The IETF is a "large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual." See http://www.ietf.org/overview.html

58 An RFC, or "Request for comment," is a proposal made to the IETF to adopt a particular approach to certain methods or systems as a standard that can be applied by engineers in the industry.

59 The patent never mentions RFC 2341. Although it is unclear whether the title "RFC 2341" existed at the time the patent was filed, there is no indication that the inventor had disclosed the existence of RFC 2341 to the Patent Office, and thus the patent and prosecution history are devoid of any specific reference to that document.

Alcatel points to several points in the specification where the patent refers to using "L2F" protocol and "L2F" related features. See, e.g., Valencia Supp., col. 2, ll. 32-34; col. 2, l. 65 - col. 3, l. 1 ("L2F header"); col. 4, ll. 9-11; col. 4, ll. 23-27 ("L2F packet") (hereinafter Valencia, at 2:32-34, 2:65-3:1, 4:9-11, 4:23-27). Furthermore, with regard to Figure 9, Alcatel argues that this is the only data structure associated with the L2F packet, and that no other data structure for implementing the L2F protocol is described in the '019 patent.

In response, Cisco argues that "layer 2 forwarding protocol" is not limited to the L2F protocol described in RFC 2341. Cisco contends that, according to its expert, one of ordinary skill in the art would be familiar with forwarding protocols generally, and that the repeated references in the claims to "layer 2 forwarding protocol" in the context of forwarding information at level 2 (i.e. the link level) "informs one of ordinary skill in the art that the forwarding protocol is forwarding information at the point to point link level which is understood to be layer 2 of the network model." Lumish Decl., Ex. J, at 4-5 ("Leifer '019 Report"). 60 Cisco admits that the term "layer 2 forwarding protocol" requires some rules for forwarding information, but argues that the patent is not limited to any specific set of rules beyond those set forth in the claim, which does not include the rules discussed in RFC 2341.

60 In contrast, Alcatel's expert disagrees with Cisco's expert that one of ordinary skill in the art would be familiar with forwarding protocols in general. See Lazar '019 Decl., at P 25. A disagreement between the experts essentially exists with regard to almost all of their pertinent conclusions. Additionally, as noted previously throughout this Order, the Court will not simply rely on expert testimony as a substitute for the Court's role in determining the meaning of the disputed claim terms, which the Court accomplishes primarily by looking to the intrinsic evidence in the patent.

Moreover, Cisco argues that the specification itself discusses "layer 2 forwarding protocol" often in a general sense. According to Cisco, when the patent uses the term "L2F," that is simply an acronym for "layer 2 forwarding protocol," and not a reference to a specific type of protocol named "L2F." See Valencia, at 1:62. Furthermore, both the summary of the invention and the claims refer to a "layer 2 forwarding protocol" instead of the "layer 2 forwarding protocol," which provides some support for Cisco's argument that "layer 2 forwarding protocol" is not limited to one particular set of rules.

61 However, the Court finds this reference to be of limited evidentiary value, since claim drafting rules would require an
inventor to refer to "layer 2 forwarding protocol" as a "layer 2 forwarding protocol" the first time it is used in the claims.

Essentially, the parties' dispute is centered over whether "layer 2 forwarding protocol" is referring to a general protocol with loosely defined rules, or a specific protocol with specific rules. Cisco contends that Alcatel is improperly seeking to limit the claim to a particular embodiment of that claim. See Electro Medical Systems, 34 F.3d at 1054. While it is certainly true that the limitations of one embodiment should not be imported into the claim term, it is also true that the claim term must be read in light of the specification. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1340-41 (Fed. Cir. 2001). Courts have recognized that there is "a fine line between reading a claim in light of the specification and reading a limitation into the claim from the specification." Comark, 156 F.3d at 1186. Nevertheless, if a claim term is used throughout a patent in a manner which is consistent with only a single meaning for that term, then, by implication, the patent has defined the term in that manner. See Bell Atlantic Network Svcs., 262 F.3d at 1271. Thus, if the patentee has used the term "layer 2 forwarding protocol" in a manner that can only be consistent with the meaning of the term "L2F" as described in RFC 2341, then that is the definition that the patentee intended, even though it encompasses a preferred embodiment.

In light of these guidelines, the Court finds that the patent is not written in a manner where "layer 2 forwarding protocol" must be limited to only the "L2F" that was described in RFC 2341. Although the patent only describes the embodiment of a protocol almost identical to the description of the "L2F" in RFC 2341, the language of the claims and the specification do not discuss "layer 2 forwarding protocol" and "L2F" as if it were attempting to limit the term to that specific type of protocol. While the parties' experts disagree on whether a person of ordinary skill in the art could infer that "layer 2 forwarding protocol" was referring to any forwarding protocol operating from the data link layer, a plain reading of the patent does not support a conclusion that the claim language was intended to be limited to the specific type of protocol described in RFC 2341. Nevertheless, when read in light of the specification, the claim language also does not support a conclusion that "layer 2 forwarding protocol" was meant to encompass all protocols for forwarding information at the point to point link level.

Alcatel argues that "layer 2 forwarding protocol" could not have been intended to cover all protocols for tunneling 62 at the data link layer. The prosecution history demonstrates that Cisco had disclosed to the Patent Office the existence of an article that describes another type of forwarding protocol at the data link layer, known as the "Point-to-Point Tunneling Protocol" or "PPTP." See Valencia, at CLA 0240205, 0240370 (disclosing the existence of the article "Microsoft tunnels through the 'Net with new protocol" authored by Kevin Fogarty and Tim Greene). The article describes a protocol that would allow a user from a remote cite to access a private network via an internet service provider, in a manner similar to that described in claim 1 of the '019 patent, were the Court to construe the term "layer 2 forwarding protocol" as Cisco has proposed. 63 See Alcatel's Opening Markman Brief on Claim Construction Regarding United States Patent No. 5,918,019 (Valencia) ("Alcatel's '019 Opening Brief"), Ex. B; Valencia, at 15:2-12.

62 Although the Court provides an official construction of the term "tunnel" below, for the purposes of the immediate discussion, "tunneling" is understood to mean creating a path from the remote client to the home network.

63 The Court regards the contents of the article as intrinsic evidence, since the article was mentioned in the patent and disclosed to the Patent Office as part of the prosecution history. See, e.g., Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc., 206 F.3d 1408, 1414 (Fed. Cir. 2000).
However, the principle that claims should be read to avoid ensnaring the prior art is simply a guideline, and not an impenetrable rule. In fact, in Apple Computer, the court acknowledged the above principle but actually construed the claim term in a manner which did encompass the prior art, since that was the only construction consistent with the claim's language and the written description. See Apple Computer v. Articulate Sys., 234 F.3d at 24 (citing Rhine v. Casio, Inc., 183 F.3d at 1345). Furthermore, unlike in Apple Computer, where the patent history indicated that the inventor had disclosed a prior art patent to the Patent Office that clearly would be covered by the broad claim construction, all that is present in the '019 file wrapper is a reference to a brief article loosely summarizing the invention in claim 1. Mere disclosure of prior art in the '019 application does not serve as an admission by Cisco that claim 1 is covered by the article under the broader definition of L2F. As Cisco points out, the disclosure of the article to the Patent Office could be viewed as an indication that the PPTP article is actually not anticipatory or obvious prior art. Moreover, an article discussing an invention is not conclusive evidence that article's invention was developed prior to the invention in the '019 patent (and, hence, is not prior art), and Cisco apparently intends to argue that the PPTP actually does post-date the inventions of the '019 patent. See Cisco's Responsive Claim Construction Brief Concerning U.S. Patent No. 5,918,019 (Valencia) ("Cisco's '019 Responsive Brief"), at 6 n.4. Therefore, the disclosure of the PPTP article to the Patent Office does not preclude a construction of the claim that would encompass at least a portion of the potential prior art, since the claims and the specification do not allow for a construction limiting a "layer 2 forwarding protocol" the specific set of rules in RFC 2341.

Therefore, neither Cisco nor Alcatel's proposed construction is correct, as both parties attempt to construe this term to an extreme position not supported by the language of the patent. In light of this lack of guidance provided to the Court by the parties, the Court has carefully reviewed the language of the '019 patent, and has determined the necessary features of a "layer 2 forwarding protocol" described in the corresponding structure set forth in the specification.

Thus, the Court construes the terms "layer 2 forwarding protocol," "the forwarding protocol," and "virtual dial-up protocol" as "rules for enabling a remote client to communicate information with a home network through an intermediary, containing the following features: packaging data at the link level frames of higher protocols; enabling multiplexing (and demultiplexing) multiple remote clients within a single tunnel; encapsulating and packaging data configured in a particular protocol (such as PPP) without regard to the information content of the encapsulated data; structuring packets of data by a layer 2 forwarding protocol header (containing information relating to the layer 2 forwarding protocol operation) and a payload containing the encapsulated data; changing none of the encapsulated data during transmission; obviating the need for authentication or address assignment from the internet service provider; containing no requirement that the remote client be queried a second time; and supporting an arbitrary request/response exchange, in that the network access server can detect the apparent identity of the user and establish a tunnel connection to the home gateway, where the arbitrary exchange can occur." 64

--- Footnotes ---


--- End Footnotes ---

2778

9. an LCD display device for displaying data indicative of the picture image data of the flash memory modules n5

--- Footnotes ---

n5 The corresponding phrases are "an LCD display device for displaying data indicative of [at least part of] the contents of said [digital] flash memory module;" "a [LCD] display device embodied in said [hand-held] housing for displaying;" "said display is operable to display moving image picture data;" "displaying [moving] picture image data on an LCD display embodied within said repository device;" and "for displaying a user's digital photographs."

--- End Footnotes ---
The plaintiff argues that this phrase needs no construction. In the alternative, the plaintiff proposes "an LCD display screen for displaying data indicative of the picture image data of the flash memory module." The defendants propose "an LCD display configured to display image data that is stored on a flash memory module but is not configured to display image data that is stored on the hard disk drive." The defendants' construction includes an additional limitation not supported by the intrinsic evidence. The court concludes that this phrase requires no construction.

2428

9. LCD panel.

The court construes this term to mean "a panel of material whose reflectance or transmittance changes when an electrical field is applied to it."

2429

2. "lead frame," "external mounting frame," "paddle," "paddle support arms," and "fingers"

These five terms shall be construed together because their constructions are, to a significant extent, interrelated. The parties have jointly offered the following three proposed constructions: "lead frame" means "a frame upon which a semiconductor integrated circuit chip can be mounted that includes a paddle, a plurality of fingers, and a plurality of paddle support arms"; "paddle support arms" means "arms that support a paddle"; and "fingers" means "projecting pieces of a lead frame that are initially connected to the external mounting frame and that extend inward toward the center of the lead frame to facilitate electrical connections with a semiconductor integrated circuit chip." The constructions of the terms "external mounting frame" and "paddle" are disputed. Agere argues that the term "paddle" as used in the '269 patent should be construed as "a surface for mounting a semiconductor integrated circuit chip." Atmel argues that the term "paddle" as used in the '672 patent should be construed as "a flat surface at the center of the lead frame on which the semiconductor integrated circuit chip is mounted." The essential difference between the parties' proposed constructions is that Atmel wishes to construe "paddle" to include some reference to its relationship to a lead frame, while Agere argues that no such reference in the construction is necessary. Finally, Agere argues that the term "external mounting frame" should be construed as "that portion of the lead frame that has a plurality of fingers and which is connected to the paddle by paddle support arms," while Atmel argues that the term should be construed as "the exterior portion of the lead frame to which the paddle support arms and fingers are attached before they are severed."

Looking only at the claim language itself for an understanding of these five terms, it would initially appear: (1) that a lead frame comprises (a) a paddle, and (b) paddle support arms; (2) that the lead frame is a separate conceptual entity from, and is connected to, the external mounting frame; and (3) that the external mounting frame comprises (a) fingers, and (b) electrical connections between the chip and the fingers. See '269 Patent at col. 3:29-36 ("A semiconductor integrated circuit package comprising: a semiconductor integrated circuit chip; a lead frame, said lead frame having a paddle on which said chip is mounted and paddle support arms; and an external mounting frame having a plurality of fingers, electrical connections from said chip to said fingers, said paddle being connected to said external mounting frame by said paddle support arms …."). However, a careful reading of the specification reveals that the patentee implicitly, if not expressly, defined these terms in the following specific fashion. See Vitronics Corp., 90 F.3d at 1582 (citing Markman, 52 F.3d at 979).

According to the specification, a "lead frame" comprises not only the paddle and the support arms, but also the fingers and the external mounting frame as well. In other words, the "lead frame" comprises the entire single flat metal piece to which a chip is initially mounted. See '269 Patent at col. 1:24-25 ("The chip itself is mounted on a lead frame which has a plurality of fingers for electrical connections and a paddle for physical support."); '269 Patent at col. 1:41-44 ("the depressed positioning [of the paddle] will necessarily lead to a physical deformation of the paddle support arms during the forming process because the lead frame is initially a flat metal piece"); '269 Patent at col. 2:56-60 ("FIG. 2 is a top view of the single site … of a typical lead frame. Depicted are a lead frame site comprising an external mounting frame [labeled] 13, a paddle [labeled] 3, a plurality of fingers [labeled] 7, and a plurality of paddle support arms [labeled] 9 extending from the paddle. "). Moreover, the Court's conclusion that the patentee intended to define the term "lead frame" as comprising not only the
paddle, the support arms, and the fingers, but also the external mounting frame, is supported by the fact that both parties have proposed that the term "external mounting frame" should be defined as constituting a "portion of the lead frame." See Pl.'s Post-Hearing Brief at 38; Def.'s Post-Hearing Brief at 29.

As to the term "paddle," the Court finds that a construction which includes a reference to the paddle's relationship to a lead frame is unsupported by either the claim language or the specification. Atmel contends that such a reference is appropriate because, in practice, a paddle always exists, at least initially, within the context of a lead frame. See Def.'s Post-Hearing Brief at 28-29. Even if this contention is accurate as a practical matter, the claim language itself compels the conclusion that a person of ordinary skill in the art would understand the term "paddle" as it is used in the '269 patent to refer to the surface to which the chip is mounted regardless of whether the paddle exists within the context of a lead frame or not. A comparison of the language in claim 1 and the language in claim 6 reveals that the patentee intended to cover "paddle support arms comprising a deformation absorbing member" not only (a) within the context of a paddle that is connected to an external mounting frame and that is part of a lead frame (as described in claim 1), but also (b) within the context of a paddle that is not connected to an external mounting frame and that is not part of a lead frame (as described in claim 6). In fact, the only apparent difference between claim 1 and claim 6 is precisely this absence in claim 6 of a reference to either a lead frame or an external mounting frame. Thus, it appears that the patentee in claim 6 specifically intended to cover deformation absorbing members even in the absence of an external mounting frame, in which case, even according to Atmel's own expert witness, it would be inaccurate to say that the paddle existed within the context of a "lead frame" (since a lead frame by definition includes an external mounting frame as discussed above). See Transcript of Hearing on December 6, 2002 ("Tr. 12/6/02") at 126.

The parties also dispute the proper construction of the term "external mounting frame." Atmel contends that the construction should include a reference to the fact that the external mounting frame is typically removed at a point in time subsequent to the depression of the paddle and the mounting of the chip. Again, although it may be true as a practical matter that the external mounting frame is typically removed at some point in time during the packaging process, the Court finds no basis in the intrinsic evidence for including this fact within the definition of the term itself.

The Court finds that the jointly-proposed construction of the term "paddle support arms" as "arms that support a paddle" is consistent with the intrinsic evidence of the '269 patent. However, the jointly-proposed construction of the term "fingers" requires a slight modification in accordance with the notion, discussed above, that in the absence of an external mounting frame, the structure comprising the paddle (upon which the chip is mounted), the paddle support arms, and the fingers is not accurately referred to as a "lead frame." Thus, rather than construing "fingers" as "projecting pieces of a lead frame that are initially connected to the external mounting frame and that extend inward toward the center of the lead frame to facilitate electrical connections with a semiconductor integrated circuit chip," the Court will construe the term "fingers" as meaning "projecting pieces that are initially connected to the external mounting frame and that extend inward toward the center of what is initially the lead frame to facilitate electrical connections with a semiconductor integrated circuit chip."

In summary: (1) the term "lead frame" is construed as "the metal piece, initially flat, to which a semiconductor integrated circuit chip is mounted, and which comprises the external mounting frame, the paddle, the paddle support arms, and the fingers"; (2) the term "paddle" is construed as "the surface upon which a semiconductor integrated circuit chip is mounted"; and (3) the term "external mounting frame" is construed as "the exterior portion of the lead frame to which the paddle support arms and fingers are initially attached."

7. "lead wire extending from the package"

Claim 1 of the '919 Patent describes a "first lead wire extending from the package to enable the second end to be interconnected to a defibrillator prior to the opening of the package and use of the first electrode." Claims 12 and 17 contain similar language. Philips asserts that the "lead wire extending from" language means that the insulated wire starts inside the package, and continues through and beyond the package periphery. Cardiac Science contends that "lead wire extending from" language should be construed as "the wire is configured to enable electrical connection to a defibrillator through an unopened electrode package."
Consistent with the Court's construction of the "electrode connection means" of the '884 Patent, supra, the Court finds that the term "lead wire extending from the package" is properly construed as "the insulated wires or leads start inside the envelope and extend from the inside to the outside of the envelope."

11. "lead wires with connectors extending from the package"

Claims 1, 3, 4, and 10 of the '571 Patent describe "lead wires with connectors extending from the package." Philips asserts that this term should be construed as "a round wire covered by an electrically insulating material, such as polyvinyl chloride, and having two ends used to connect two points in a circuit, the lead wires having connectors on the end that are outside the package." Cardiac Science contends that this term should be construed as "lead wires and connectors extend from electrode package."

The electrodes are sealed in packages that must remain sealed so that the gel on the electrodes (which ultimately forms the contact with the rescue patient) does not dry out. Yet, the self-test requires electrical contact between the AED and the packaged electrodes, so that the self-test can reach the electrodes inside and determine whether electrical conductivity still exists. The lead wires and the connectors extending from the package provide this contact.

The patent specification describes the preferred embodiment as follows:

Insulated lead wires 56 extend from each electrode 50, and have a first end connected to the conductive sheet and a second end connected to connector 58. Connector 58 is configured to releasably mate with the electrode connector 32 in electrode compartment 26. Electrodes 50 are sealed within a polymer or polymer-metal laminate package 60 such as that shown in FIG. 2. Lead wires 56 and connector 58 extend from package 60.

(Id. at c. 2, ll: 50-58.) Based on this language, Philips argues that the wires extend from the package, with the connectors completely outside the package. Cardiac Science, on the other hand, asserts that the connectors may merely reach outside the package with the lead wires contained completely within the package.

The Court finds that the claim language contemplates that the connectors extend outside the package. However, the connectors do not have to "completely" extend outside the package, as Philips contends. The Court need not limit the claim construction to the preferred embodiment. Consistent with the plain language of the claim, the Court construes this term as "the lead wires and the connectors extend, at least partially, from the electrode package."

III. "plurality of Lempel-Ziv encoders"

6 The term "plurality of Lempel-Ziv encoders" is contained in claim 20 of the '937 patent.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

Plaintiff's Proposed Construction
more than one encoder, each employing a method from the Lempel-Ziv family of compression methods

Defendants' Proposed Construction
indefinite

Plaintiff contends that the term "Lempel-Ziv encoders" refers to a family of compression methods that are well-known to those skilled in the art. RESPONSE at 14--15. Plaintiff further argues that this is consistent with writings published by
Defendants' expert, Dr. Storer. Id. at 15. Defendants argue that the intrinsic records fail to describe or mention the Lempel-Ziv family of compression methods—as Plaintiff asserts this term encompasses—and that numerous encoders bear the "LZ" moniker even though they fail to relate to the original Lempel-Ziv encoders. REPLY at 7.

Claim 20 of the '937 patent depends from claim 17, which discloses:

17. A method comprising:

receiving a data stream over an input having a first bandwidth;

compressing, in at least real-time, said received data stream using a plurality of encoders to provide a compressed data stream;

transmitting said compressed data stream over an output having a second bandwidth, wherein said first bandwidth is substantially greater than said second bandwidth and said transmitting said compressed data stream effectively increases said second bandwidth; and

wherein said compressing and said transmitting of said compressed data stream over said output occurs faster than a transmission of said data stream in uncompressed form over said output.

'937 patent at 20:9-26 (claim 17). Claim 20 discloses:

20. The method of claim 17, wherein said compressing said received data stream comprises compressing said received data stream using a plurality of Lempel-Ziv encoders.

'937 patent at 20:35-38 (claim 20). Unasserted claim 4 of the '937 patent also claims compression using Lempel-Ziv encoders. '937 patent at 19:1-3 (claim 4). The specification of the '937 patent refers to "Lempel-Ziv Dictionary Compression" as a "lossless encoding technique[] currently well known within the art." '937 patent at 11:59-61; id. at 14:40-42. Otherwise, the patent is silent as to what comprises Lempel-Ziv compression. Thus, having reviewed all the intrinsic evidence, the Court finds that the term "plurality of Lempel-Ziv encoders" is ambiguous and now will address the pertinent extrinsic evidence.

It is not disputed that the term "a plurality of Lempel-Ziv encoders" includes, at least, the LZ77 and LZ78 algorithms. See RESPONSE at 14-15; REPLY at 7. The LZ77 and LZ78 algorithms are adaptive lossless compression techniques. MOTION, STORERDEC, at 6. Further, these algorithms are dictionary-based algorithms, meaning the algorithm uses a dictionary that stores a constantly changing set of strings of data represented by 8-bit characters. RESPONSE, VON HERZEN DEC., EXH. O at 330-33. 7 Further, the dictionary is essentially an associative memory for strings of data that can "learn" new strings based on the text already processed. Id. at 329. Thus, in dynamic dictionary algorithms—like LZ78—strings of data are input into the algorithm and a sequence of pointers—indices to the dictionary—are output. Id. at 331. In "sliding window" compression—like LZ77—a string of data is represented by a address of dictionary contents and sequence length. RESPONSE, VON HERZEN DEC., EXH. M. One skilled in the art would understand the term "plurality of Lempel-Ziv encoders" to refer to encoders which implement a compression methodology for dictionary-based lossless data compression, where the dictionary contains any data sequence that has already been used to build the dictionary contents; a pointer to an earlier entry in the dictionary contents indicates a data sequence; and either a combination of address to already coded dictionary contents and sequence length is stored or only an index to the dictionary is stored. Given this information, the term "plurality of Lempel-Ziv encoders" is not insolubly ambiguous.

--- Footnotes ---

7 The Court notes that Defendant Citrix Systems, Inc. filed two motions directed, at least, at excluding the opinions of Dr. Von Herzen because 1) Citrix argued that he applied the wrong legal standard in his analysis; 2) Citrix argued that Dr. Von Herzen's declaration fails to meet the requirements of Patent Rule 4-3; and 3) Citrix argued that Dr. Von Herzen's third and final declaration was disclosed late. (Doc. Nos. 258, 280). While the Court did not consider the opinions of Dr. Von Herzen in reaching its conclusions on either claim construction or the instant Motion and therefore denied these motions, (Doc. No. 371), the Court here considers Exhibits O and M attached to Dr. Von Herzen's declaration—two articles written by Dr. Storer,
Defendants' technical expert.

Further, Plaintiff has failed to show that there is a definable "family" of Lempel-Ziv encoders. Therefore, given the foregoing discussion, the Court finds that the term "a plurality of Lempel-Ziv encoders" is not indefinite and is properly construed as "a plurality of encoders which implement a compression methodology for dictionary-based lossless data compression, wherein a dictionary contains any data sequence that has already been used to build the dictionary contents, wherein a pointer to an earlier entry in the dictionary contents indicates a data sequence, and wherein either a combination of address to already coded dictionary contents and sequence length is stored or only an index to the dictionary is stored." 8

8 9 Defendants did not offer a proposed construction for this term, relying solely on the instant Motion. BLUE COAT RESP. at 14. Having resolved the dispute regarding whether this claim term is indefinite, the Court finds that it is can adequately and appropriately adopt a construction for this term based on both the parties' arguments in the briefing and at the Markman hearing.

K. "Lens" (Claims 3 - 4)

Plaintiff's Proposed Construction: A device for altering the path of electromagnetic radiation. For the apparatus of claim 3, it includes a device that has the capacity for internal reflection so that when a certain type of material (for example a fingerprint) touches the outside of the lens, at the point of touch the internal reflection is destroyed and an image of where the internal reflection is destroyed is transmitted.

Defendants' Proposed Construction: A body that has two opposite regular surfaces, at least one of which is curved, that is structured and positioned to form an image by focusing a beam of electromagnetic radiation.

The issue here is whether a lens has at least one curved surface. As with all other construction disputes, Plaintiff argues broadly that a lens includes any device used for altering the path of electromagnetic radiation. Plaintiff finds support for this construction in the specification. When referring to a lens, the specification states that a fingerprint reader "has a lens . . . which must have the capability to cause a proper refraction of the fingerprint . . . . While there are several lens that will cause such an effect, such as, magnifying lens placed in the proper location and angles, it is believed the best device for the refraction lens is a half circle." '474 Patent at 9:25-32. Plaintiff argues, therefore, that the specification contemplates the use of several suitable lenses and should not be limited to a lens with a curved surface.

As has been repeatedly stated, a claim term should be given the ordinary and customary meaning "that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips, 415 F.3d at 1313 (emphasis added). In 1995, when the '474 Patent was filed, one skilled in the art would have understood that a lens would have at least one curved surface. Furthermore, although the specification states that "several lens" may be used, '474 Patent at 9:29-30, the preferred lens disclosed in the specification of the Patent is described as being a "half circle." Id. at 9:34-40; Fig. 1. The only other type of lens disclosed in the specification is a "magnifying lens," id. at 9:30, which would also include at least one curved surface. Therefore, one skilled in the art at the time of the invention would interpret the plain language of the claim and specification to determine that "lens," as used in Claims Three and Four, refers to "a body that has two opposite regular surfaces, at least one of which is curved, that is structured and positioned to form an image by focusing a beam of electromagnetic radiation."
8. "pricing information that is less restrictive for the same pricing type": "the pricing information that is less restrictive"

<table>
<thead>
<tr>
<th>Disputed Claim Term or Phrase</th>
<th>Versata's Proposed Construction</th>
<th>SAP's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;pricing information that is less restrictive for the same pricing type&quot;</td>
<td>Pricing information specifically applicable to an organizational group or a product group for a given pricing type.</td>
<td>For a given pricing type, the pricing information applicable to all of the same products or purchasing organizations, plus one or more other products or purchasing organizations.</td>
</tr>
<tr>
<td>&quot;the pricing information that is less restrictive&quot;</td>
<td>The pricing information applicable to a product, a purchasing organization, an organizational group or a product group.</td>
<td>The pricing information applicable to all of the same products or purchasing organizations, plus one or more other products or purchasing organizations.</td>
</tr>
</tbody>
</table>

These two disputed phrases are used in claims 1 and 17, respectively, of the '350 patent. The issue with respect to these terms is the correct interpretation of "less restrictive." Versata would read "less restrictive" to mean "less specifically applicable," while SAP would read "less restrictive" to mean "pricing information applicable to all of the same products or purchasing organizations, plus one or more other products or purchasing organizations."

As shown in Figures 4A and 4B, and as discussed in the specification, price adjustments may arise from a number of categories, both at a lower or higher level in the hierarchy and in combination with one another. A plain reading of the claims in light of the specification indicates that the patent discloses eliminating "less restrictive" pricing information, i.e., pricing information that is less specific to the purchaser or product. SAP's proposed construction is overly narrow; there is no implicit requirement that a comparison be made as to numbers of products or purchasing organizations to determine the "less restrictive" pricing information. As suggested by Versata, SAP's proposed construction does not account for time specific restrictions.

Accordingly, the court adopts Versata's construction.

16. "[L]evel of significance:" 16 "Adding an indicator to the file note for the purpose of specifying the importance of the file note, in addition to the text and topic of the file note itself." The indication of the level of significance must be separate from the content of the file note itself. Regarding plaintiffs' contention that "topic" is the same as the "level of significance," such a construction would violate the presumption in favor of claim differentiation and would effectively read the "level of significance" limitation out of the claim. This result would be especially improper insofar as the prosecution history demonstrates that the "level of significance" limitation was part of the basis for allowance. (D.I. 302 at JA000619-20)
The technology in this case relates to robotic tape storage systems. These systems consist of a pivoting mechanism, such as a robotic arm, located in the center of a roughly cylindrical housing. Shelves on the inside of the housing surround the pivoting mechanism and hold videotapes or computer data tapes. A gripper on the robotic arm can selectively remove a tape from a shelf and place it on another shelf or in a tape player/recorder. The tape storage systems are highly automated and are used in commercial settings, e.g., for playing television commercials automatically or for computer tape archiving.

The '151 patent discloses a tape handling system that uses a rotating carriage to load tapes into—and unload tapes from—a tape storage system. The rotating carriage is mounted in an opening in the wall of a tape storage library. The carriage provides access to the tapes from one side of the opening (exterior of the library) and then rotates to provide access to the tapes from the other side of the opening (interior of the library). Odetics asserts claims 8, 9, and 14 in this litigation. Claim 9 recites (emphasis added to disputed elements):

A tape cassette handling system comprising:

a plurality of tape transports;

a housing including a cassette storage library having a plurality of storage bins and at least one cassette access opening for receiving cassettes to be moved to the storage bins or to the tape transports, or for receiving cassettes to be removed from the library or from the tape transports;

a rotary means rotatably mounted within the library adjacent the access opening for providing access to the storage library, the rotary means having one or more holding bins each having an opening for receiving a cassette, wherein the rotary means is rotatable from a first position in which the opening of at least one holding bin is accessible from outside of the housing to a second position in which the opening of at least one holding bin is accessible from inside the housing; and
cassette manipulator means located within the housing for selectively moving cassettes between the rotary means, said storage bins and said tape transports.

Claims 8 and 14 are similar in all relevant respects. In particular, claim 14 recites "a housing including a storage library," and claim 8 recites "a library housing containing a storage library." In addition, claim 14, like claim 9, recites a "rotary means rotatably mounted within the library," while claim 8 recites a "loading housing rotatably carried within the library housing."

STK manufactures large tape storage systems that consist of multiple "library storage modules" linked together in a matrix-like formation. Each module is generally cylindrical and contains a pivoting robot arm, several columns of tape shelves, and tape players/recorders. Where two modules touch, they are interconnected by a Pass-Thru Port. A Pass-Thru Port is a device that has several shelves on which tapes may be placed by a central rotating gripper. A Pass-Thru Port moves from a position in which its contents can be reached by the gripper of one module to a position in which its contents can be reached by a gripper in the adjoining module. This movement is accomplished through rotation and linear translation through the wall separating the two modules. Through computerized coordination of the Pass-Thru Ports, STK's systems can track tape locations and optimize system performance, for instance, by passing a requested tape from a busy module to a module that has an available player. The infringement issue in this case concerns whether STK's Pass-Thru Ports are the same as, or equivalent structures of, the "rotary means" recited in the asserted claims.

In 1995, Odetics sued STK for direct and contributory infringement and for inducing infringement of claims 8, 9, and 14 of the '151 patent. On cross-motions for summary judgment of infringement, the district court ruled that the claims were not literally infringed, based on the court's interpretation of the term "library," which is common to all the asserted claims. The issues of validity and of infringement under the doctrine of equivalents were tried to a jury. When instructing the jury, the court defined the claim terms "library" and "rotary means rotatably mounted." The jury found the claims not invalid, but
also not infringed under the doctrine of equivalents.

Before trial, STK also moved for summary judgment of laches based on the delay between Odetics's discovery of STK's allegedly infringing products in 1987 and Odetics's filing suit in 1995. The court concluded that laches applied, but limited the defense to cover only sales and use by STK and its customers before Odetics gave STK notice of its alleged infringement, and not to post-notice use by STK's customers of machines purchased before the notice. Odetics appeals the infringement rulings and STK cross-appeals the laches ruling.

II


Determining whether a patent claim has been infringed involves a two-step examination: "First, the claim must be properly construed to determine its scope and meaning. Second, the claim as properly construed must be compared to the accused device or process." Carroll Touch, Inc. v. Electro Mechanical Sys., Inc., 15 F.3d 1573, 1576, 27 U.S.P.Q.2D (BNA) 1836, 1839 (Fed. Cir. 1993). Odetics argues that the district court misconstrued the "library" and "rotary means rotatably mounted" claim limitations, thus affecting the findings of noninfringement. We consider each limitation in turn.

A

The district court defined "library" as a "collection . . . of places that store information, and you can have a single control or common handling system." The court apparently accepted STK's argument that the meaning of "library" is informed by U.S. Patent No. 4,654,727 (the '727 patent), a parent of the '151 patent that was incorporated by reference into the '151 patent as a description of the operation of the sequencing system and manipulator. STK had argued, in support of its motion for summary judgment of noninfringement, that the '727 patent describes a library which includes all the cassettes under common computer and robotic control in the automated system. From that description, STK concluded that the library and the control system had to be equal in their reach.

The court ruled that the library consists of whatever is covered by a common control system. The court's construction of "library" is significant because, under that construction, STK's many library storage modules would make up a single library and the Pass-Thru Ports, which merely pass tapes back and forth between individual modules, would not provide "access to the storage library," which is an express requirement of the "rotary means" in the claims. After carefully analyzing the claims, specification, and prosecution history of the patent, we conclude that the district court erred.

We begin our analysis, as we must, with the words of the claims. See Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 U.S.P.Q.2D (BNA) 1816, 1819 (Fed. Cir. 1995). Although the library and control system are coextensive in the embodiment disclosed in the '151 patent, the claims do not require such a relationship. Indeed, the claims do not mention the control system at all. Instead, the claims describe the tape handling system in terms of the structural relationships among its component parts. Claim 9 recites a housing that includes a library, which in turn has tape transports, storage bins, a cassette access opening, and a rotary means adjacent the access opening. Each of these objects must be arranged in the library so as to be accessible by a cassette manipulator means located within the housing. The access opening and rotary means provide access to the library from areas outside the library, and must therefore be mounted in the periphery of the library. The claims place no other limitations on the structure of the library. The claims thus indicate that a library is a distinct, enclosed space containing at least one cassette manipulator means and a plurality of storage bins accessible by the manipulator means.

We next consider the effect of the specification on the claim construction. See Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1566, 24 U.S.P.Q.2D (BNA) 1321, 1327 (Fed. Cir. 1992) ("In defining the meaning of key terms in a claim, reference may be had to the specification, the prosecution history, prior art, and other
The term "library" is found in claims 1, 6-7, 9-15 of the '057 patent and claims 1, 3-4, 6-8, and 10-13 of the '362 patent. Typhoon suggests that the term means "a collection of customizable content used by the data collection application." Defendants urge the definition is "a collection of possible responses, messages, or images used by the data collection application." The parties agree that a "library" is a collection of content that is used by the data collection application. Thus, the principal controversies surround whether the "content" is limited to "responses, messages, or images" and whether the content is "customizable."

The patents' specification describes five types of libraries: sequential, consequential, help syntax, and pictogram libraries. See '362 Patent at [57] ("Abstract"); 3:7-9 ("[D]ata collection is facilitated by using displayed help fields for each question or subject, sequential and consequential libraries, and cross-referencing of entered responses."); '057 Patent at 3:15-18 (same). "Sequential libraries are libraries of possible responses in text or pictogram form . . . ." '057 Patent at 3:20-21. Consequential libraries are similar to sequential libraries . . . ." Id. at 3:32. With respect to consequential libraries, the specification teaches that the user is able to "select[] from the displayed possible responses as described with respect to sequential libraries." Id. at 3:37-38 (emphasis added). Thus, consequential and sequential "libraries" are described in the
patent as "responses," and the "responses" are, in turn, described as having the form of a "text or pictogram."

Similarly, pictogram libraries are described as "storing graphical images of objects," and syntax libraries are collections of "standard messages that are displayed on the screen to interact with the user." Id. at 15:25-26, 34-35. Finally, the patent refers to "help libraries" with reference to a "help function" described as "messages or text relating to each one of the questions on the data collection screen." '057 Patent at 14:49-51 (emphasis added). These libraries exist so that when a user initiates the help feature "text will pop up on a window and explain, for example, the nature of [what] the answer should be." Id. at 14:54-55.

Thus, Defendants are correct that the specification defines libraries specifically as either responses, messages, or images. Importantly, Typhoon concedes that the patents specifically describe libraries as "responses, messages, or images." See Typhoon's Opening Brief, Docket No. 340 at 22. Typhoon does not suggest, or point to any intrinsic or extrinsic evidence concerning what kind of "content" the term "libraries" would encompass besides the definitions specifically given in the specification and recited above.

Finally, the claims themselves use the word "content" to describe all outputs displayed on the screen of the disclosed devices. See id. at 31:19-22 ("an application generator for generating said data collection applications and for creating different functional libraries relating to said contents and formats displayed on said screen"). If content is the visible result of the interaction between data collection applications and libraries, then the definition of "libraries" must be something less broad: i.e., responses, messages, or images.

Typhoon also argues that libraries should be defined as "customizable." For the same reasons discussed for the term "application generator," the word "customizable" is inappropriate for describing "library." The patents' claims specify that a user can "create" libraries and introducing "customize" into the definition of "library" would only add ambiguity to the definition without clarifying anything about the scope of the term. Accordingly, "library" is defined as "a collection of possible responses, messages, or images used by the data collection application."

E. "virtual media asset library"

Claim 7 of the '704 patent states in part: "a virtual media asset library for storing a reference to a plurality of media assets" and "a media asset portability application that enables the user to access the plurality of media assets referenced in the virtual media asset library." Apple argues that "virtual media asset library" should be defined as "the functionality at the portal that allows for synchronization and replication of a user's licensed assets with each of the user's media player devices." In support of its construction, Apple points to the following passage from the specification: "The portal [] allows for synchronization and replication of a user's licensed assets with each of the user's media player devices." In support of its construction, Apple points to the following passage from the specification: "The portal [] allows for synchronization and replication of a user's licensed assets with each of the user's media player devices." This functionality is hereinafter referred to as the virtual media asset library." (704 patent; 3:22-25) (emphasis added). According to Apple, the specification explicitly defines "virtual media asset library," and as such, that definition controls. See Martek Biosciences Corp. v. Nutrinova, Inc., 579 F.3d 1363, 1380 (Fed. Cir. 2009); Phillips, 415 F.3d at 1321.

Zapmedia contends that this term means "a collection of 'media assets' as data files." According to Zapmedia, the ordinary meaning of asset library relates to storage, not synchronization and replication. The plaintiff also contends that the specification provides an alternative definition of "virtual media asset library": "The user's virtual media asset library represents an intersection of the media assets in the master media library database [] and those assets that the user has licensed rights to." (704 patent; 10:53-56) (emphasis added). Finally, Zapmedia argues that in the context of the claim language, i.e., "a virtual media access library for storing," this term refers to a repository, not software functionality.

Based upon the specification and claims, "virtual media asset library" is described as having two distinct characteristics. Therefore, the court defines this term as "a repository of media assets to which the user is licensed and functionality that allows synchronization and replication of the user's licensed assets with each of the user's media player devices."
5. LICENSE

Again, Plaintiff and Defendants split along the lines of common meaning versus how the word is used in the specification of the '297 Patent. As with "computer" and "association," nothing in the specification convinces the Court that the word "license" was used by the inventors in an idiosyncratic fashion requiring deviation from common usage. Here, common usage is not determined by reference to the field of computer science because "license" is a legal term rather than a computer term. Nor however shall the Court turn to any specialized legal reference source; "license" is commonly used in ordinary parlance, and the constitutional purpose of placing Patents in the public domain is not to communicate with lawyers, but to teach a new invention to the world. Consequently, reference to Webster's Ninth New Collegiate Dictionary is once again appropriate.

Relevant entries for "license" include "a permission granted by competent authority to engage in . . . an activity otherwise unlawful," and also "a document, plate, or tag evidencing a license granted." The salient distinction between the definitions is that the first refers to the abstract concept of permission while the second refers to the physical representation which evidences that permission. Here, there appears to be no dispute that the license at issue must exist in some physical form (e.g., a certain configuration of binary options in digital memory), which could be called "information," and the Court agrees with the parties on that score. The dispute arises over how narrowly the Court should define the type of information which constitutes a license. Plaintiff’s position, essentially consistent with the dictionary definition, is that the word means "information representing authorization from a computer application program vendor permitting use of an application program." Defendants argue that the term should be more narrowly limited to mean "license-specific information, including at least the expiration date," claiming that this more limited construction is required by the Patent specification.

Once again, Defendants’ importation of limitations from the specification is not justified. The particular embodiment of the license within the specification does not amount to peculiar usage indicating that the drafter of the Patent was acting as his own lexicographer. The license referred to in Fig. 2B of the specification appears to consist of an expiration date, and "in use" indicator and a unique identification number (UID). However, it is apparent that these items of data are utilized in the described embodiment to represent authorization to do that which would otherwise be unauthorized, in other words, the word "license" is used in the specification in its ordinary sense, notwithstanding that usage in the context of a particular embodiment is necessarily limiting.

Further, even Plaintiff’s contextual limitation that a license must be "from a computer application vendor for the use of an application program," is unnecessary. This added meaning attempts to pack into the definition of "license," information which is already present in each relevant claim by virtue of other language. For example, Claim 1 refers to "an available license for that program."

A LICENSE is information representing authorization.
A LICENSE POOL is one or more LICENSE(s) collected together, as in a LICENSE FILE.

2. LICENSE STORAGE KEY

The term "license storage key" is not used in the '297 Patent specification, nor is it used other than in the first two claims. Instead, the '297 Patent specification describes "license files, and the other claims of the Patent refer to "license file means . . . for storing." The jarring presence in the '297 Patent of the "license storage key" phrase is the result of the wholesale assimilation of the first two claims of the '297 Patent from a competing patent in an interference proceeding. The first two claims in the '297 Patent began their existence as claims 19 and 23 in U.S. Patent Number 4,924,378 (the '378 Patent).

There is no plain meaning in the art for the term "license storage key," and this term does not appear in the '297 Patent except in Claims 1 and 2. Potentially permissible interpretive aids include, in regressing order of immediacy, the claims themselves, the specification of the '297 Patent, the interference proceeding between the application which underlies the '297 Patent and '378 Patent, the claims of the '378 Patent, the specification of the '378 Patent and the prosecution history of the '378 Patent. Plaintiff prefers an interpretation of "license storage key" which it believes is supported by documentation from the interference proceeding, and also certain language quoted from the specification of the '378 Patent.

Plaintiff first cites to the record from the interference proceeding, and in particular to the declaration of Erwin L. Rehme, one of the inventors listed on the '297 Patent. Rehme defines "license storage key" as a "keyfile which keeps number [sic] of licenses, and temporary files at nodes where program [sic] is run." Plaintiff also cites to a portion of the '378 Patent where "license storage key" explicitly is referred to as "a computer device which essentially contains memory space for storing an indication of how many licenses are available for any given application program and for storing assignments of licenses." ( '378 Patent Col.3 lns. 22-26).

However, a useful interpretation of the disputed term (which is not inconsistent with the portions of the prosecution history just described) can be gleaned from its context within the language of the claims, therefore the Court need not look further. 7 Specifically, in Claim 1 licenses are alluded to as being transferrable from one license storage key to another. Thus, context indicates that a license storage key must be capable of holding at least one license. We therefore know that a minimum definition of license storage key will include that it must be capable of storing at least one license.

--- Footnotes ---

7 Indeed, construction which relies upon the language withing the '297 Patent is inherently preferable. Ultimately, Claims 1 and 2 must constitute some sort of meaningful disclosure in the context of the '297 Patent itself if they are to live up to the constitutional justification for their existence i.e., if they are "to promote the progress of science," (U.S. Constitution Article I § 8 Clause 8).

--- End Footnotes ---

Further, in Claim 1, computers are said each to be associated with one license storage key (although the reverse relationship is not necessarily implied). Defendants point out that this limitation narrows the potential corresponding structures in the specification to one which is described as a "license file." Defendants argue that the limitations inherent to the "license file" in the specification, including the necessity that it exist in a permanent peripheral storage device (such as a hard disk) and that its contents be limited to specific fields (e.g., expiration dates of licenses) also should be attributed to the definition of "license storage key." In the Court's opinion, the wholesale transfer of limitations from the specification is not warranted where, as here, means-plus-function drafting is not at issue. The Court further declines to define "license storage key" in greater detail than is supported. Consequently, term will be defined as follows:

A LICENSE STORAGE KEY is memory in a device or alternatively a device containing memory, capable of storing at least one LICENSE.
Claims 1, 7, 12, and 15 refer to a "licensing component." The analysis of this phrase is analogous to that of "download component," and its interpretation must be consistent. A "component" is a constituent part or element. To "license" is to permit or authorize especially by formal license. Together, these terms imply a part that licenses. While the Court finds that there is no "ordinary meaning" to the phrase as is known by one of skill in the art, the combination of these two words in such a fashion produces an ordinary result. A "licensing component" is a part that coordinates or requests the licensing of information or products. The phrase implies action or the presence of an active constituent part. In computer programming, such an active part is an executable file or program. Thus, based on the claim language, the Court finds that the "licensing component" must include an executable file or program. This interpretation is consistent with the claim language and the patent specification. '124 Patent, 4:27-32, 5:15-20, 7:62-67, 9:50-54, 9:60-10:2, 10:14-18, 10:33-36, 10:51-55, 17:38-18:22.

On the other hand, nothing in the claim language, specification, or prosecution history mandates an interpretation that the "licensing component" be merchandise-specific. Although the specification discloses an embodiment that appears to be merchandise-specific, the claims are not limited to the specified embodiment. To add a limitation of merchandise-specificity would be to improperly import limitations from the specification.

Plaintiff argues that the phrase "in lieu of," as used in claim 1 of the 948 patent, should be read to mean "instead of." Defendants maintain that "in lieu of" means "completely replacing." Defendants' reading would require that no element of the originally provided program remain after the transfer of the preprogrammed memory from the adapter module to the ECM. Mr. Lundell takes a less restrictive approach, agreeing with Plaintiff and advocating the following interpretation: "in place of or instead of control provided by all or part of said originally provided program." As noted above, the Court prefers a claim construction that does not exclude the specified embodiments. Because Mr. Lundell's reading permits all of the embodiments set forth in the patent, the Court adopts his construction.

The next two disputed terms appear together in various claims of the '289, '618 and '120 Patents. For example, Claim 22 of the '289 Patent claims a business office device that includes "a memory which stores static state data including data which does not change over a life of the business office device." '289 Patent, Claim 22. The parties primarily dispute the meaning of the "life of the business office device."

Relying on the expert opinion of Adams, Ricoh asserts that the claim term refers to "the period of time the manufacturer intends the device to be deployed." (Chart at 25). Ricoh argues that from the perspective of an engineer, and based on the context of the patent, "the design objective of the static state data is met so long as other modules of a device or other devices can rely on the fact that the data will not change during a particular deployment of the device." (Ricoh Reply at 21). In contrast, Pitney argues that in the context of a consumer product, "life of the device" typically refers to the "time the business office device is created to the time it is scrapped." (Chart at 25; Tr. of Markman Hr'g at 57:6-20). Pitney further argues that there is no nothing in the intrinsic evidence that would support importing a temporal limitation in the definition.

The Court is again being asked to construe a claim term which the patentee fails to reference in the specification. Thus, the Court is left to make its determination based on the information provided by the parties -- namely, a general dictionary.
definition of "life," i.e. "the period from birth to death," (Pitney Br. at 37) (citing MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 672), or the expert declaration of Adams. Both sources fall into the less reliable category of claim construction tools -- i.e., extrinsic evidence. Mindful that the Court must construe the term in the manner a person of ordinary skill in the art would understand the term after reading the patent, in this case the Court will attribute greater weight to the expert declaration, rather than the general dictionary definition of "life" since the dictionary definition is one that is detached from the context of the specification.

Adams explains that a person of ordinary skill in the art would understand the "life of the device" to mean "the time the manufacturer intends the device to be deployed" since the design objectives are met every time a device is "remanufactured and given a new identification or model number, and [] then redeployed as a new device." (Declaration of Adams PP54-55). The Court finds nothing in the intrinsic evidence to contradict this proposition. Thus, the Court is persuaded by Adams' opinion and therefore adopts Ricoh's proposed construction. Accordingly, "life of the device" means "the period of time the manufacturer intends the device to be deployed."

2. Claim Construction of "Light"

1. Claim Language

The first place to start the claim construction is with the language of the claim itself. The term "light" is used throughout the '454 Patent but the primary claim language can be found in Claim 1. Specifically, limitation (c1) of Claim 1 states "a stationary light source capable of generating a light beam directed towards the wafer from a side of the wafer contacting the polishing pad." ('454 Patent, Col. 16, lines 32-34).

Plaintiff argues that there is no ambiguity as to the meaning of the terms "light," "light source," and "light beam" and that the term "light" encompasses both laser light and broadband light. Defendants argue that the term "light" in the patent refers only to light from a laser. Defendants do not address the issues of claim language but instead rely heavily on imputing the restriction from the specification into the claim language.

In analyzing the language of the claim, the Court must determine what a person of ordinary skill in the art would understand the term "light" to mean. The ordinary and plain meaning of the term "light" is broader than, and not limited to, a laser. A lay person would also understand that a light source is not restricted to only a laser. Defendants have completely ignored that "light" has a "widely accepted meaning" that is readily apparent even to lay judges which would not require the court to look at the written description in the specification. Phillips, 415 F.3d at 1314. ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood terms.").

3 While the Court determined that there was not a need for expert testimony, it is telling that Defendants' expert witness, Dr. Gutmann, conceded that no ordinary person of skill in the art would ever have understood the ordinary meaning of "light" to be limited to "laser." (Gutmann Tr. 36:2-7).

In addition to the plain language of the claims themselves, it is also important to note key differences between related claims. Claim differentiation can be a "useful guide in understanding the meaning of particular claim terms." Id. at 1314-15.
The terms "light" and "laser" are used in the '454 Patent in different claims to mean two different things. Independent Claim 1 defines the apparatus to be used with a light source. Dependent Claim 8 specifically delineates the type of light to be used for Claim 1 as a laser source: "[t]he apparatus of claim 1, wherein the light source comprises a laser and the light beam is a laser beam." ('454 Patent, Col. 16, lines 62-63). This particular limitation "gives rise to the presumption that the limitation in question is not present in the independent claim." Id. Additionally, independent Claim 9 describes "generating a light beam." ('454 Patent, Col. 17, line 4). However, dependent Claim 11 describes "the method of claim 9, wherein the step of generating a light beam comprises generating a laser beam." ('454 Patent, Col. 17, lines 17-18).

By construing the term "light" in Claims 1 and 9 to constitute a "laser," the Court would render Claims 8 and 11 superfluous and redundant. Comark Commun. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting Tandon Corp. v. U.S. International Trade Com., 831 F.2d 1017, 1023 (Fed.Cir.1987)) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.")

2. Specification

The Court must also look at the specification to determine the proper construction of the claim language. The '454 Patent specification clearly expresses that the embodiments shown and described in the figures were "preferred embodiments":

"Preferred embodiments of the invention will now be described with reference to the drawings." ('454 Patent, Col. 6, lines 25-29).

"Figure 2 depicts a portion of a CMP apparatus modified in accordance with one embodiment of the present invention." ('454 Patent, Col. 6, lines 29-30).

Summary section states that "the present invention is directed to a novel apparatus and method for endpoint detection which can provide this improved accuracy. The apparatus and method of the present invention employ interferometric techniques for the in-situ determination of the thickness of material removed or planarity of a wafer surface, during the CMP process." ('454 Patent, Col. 2, lines 46-51).

(emphasis added).

In Liebel-Flarsheim, the court stressed the inherent tension between determining whether a statement is a clear lexicographic definition or a description of a preferred embodiment. 358 F.3d at 905. "The problem is to interpret claims 'in view of the specification' without unnecessarily importing limitations from the specification into the claims." Id. The court in Liebel-Flarsheim found that even though the written description of the invention was narrow, the claim language was sufficient to maintain a general interpretation. "Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Id. at 906 (internal quotations and citations omitted).

Defendants are seeking to do expressly what Phillips cautioned against: using the specification to import limitations into the claims. The Phillips court recognized that sometimes there is a "fine line between reading a claim in light of the specification and reading a limitation into the claim from the specification." Id. at 1323 (citing Comark Commun. v. Harris Corp., 156 F.3d 1182, 1186-87 (Fed.Cir. 1998). However, the court focused on several examples that go directly to the matters in this case:

For instance, although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. That is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.

Id. at 1323 (internal citations omitted).
The specification only deals with the "preferred embodiment" and nothing in the written description uses the term "light" in a manner inconsistent with its ordinary meaning.

3. Prosecution History

Next, the Court must look to the prosecution history "to determine whether it contains statements that narrow the scope of the claims." Phillips, 415 F.3d at 1317. During the prosecution of the patent, parties may make statements that clearly restrict the scope of the patent. "This may occur, for example, when the patentee explicitly characterizes an aspect of his invention in a specific manner to overcome prior art." Id. (internal citations omitted). During the prosecution of the '454 Patent, there is no evidence that Plaintiff made any explicit disavowal of scope during prosecution. The prosecution history actually shows that Plaintiff sought to increase the scope of the '454 Patent by changing several instances of the term "laser" to "light." These changes are clearly delineated. For example:

. On March 26, 1997, in an Amendment, the term "laser beam" was replaced with "light beam" in Claim 1. Remarks section points out that the patentees have "amended the claims to more particularly point out and distinctly claim the invention." Patent Office reviewed the Amendment and allowed the relevant new claims.

. The original Claim 1 was cancelled and added a new proposed Claim 45 that dropped requirement of laser and instead used an "interferometer which generates a light beam…"

. Dependent Claim 47 further required that it be a "laser interferometer" and that the light beam "is a laser light beam"

. In a Preliminary Amendment - in 22 different claims, "laser" terms were crossed out and replaced with the word "light."

Plaintiff argues that these changes show that the Patent Office examiners and inventors understood that the terms "light," "light source" and "light beam" were not being restricted to lasers. Defendants argue that the examiners did not understand the nature of the changes in the claim language because there is no affirmative showing by the Patent Office to suggest a broader claim scope for the word "light." Essentially, Defendants argue that the examiner "simply reiterated the claim language without commenting on its meaning" and that the examiner was, in essence, silent as to the broader meaning of the word "light." (Def. Claim Construction Mem. at 16). While the Court does not find that the prosecution history clearly explains that the examiners were in agreement with the inventors as to the effect of the changes, the Court must presume that the Patent Office examiners have done their job. There is no basis to conclude that examiner failed to understand and agree to proposed changes. Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1327 (Fed. Cir. 2003) ("We must presume the examiner did his job, and if he truly thought that the specification taught or enabled only the use of exogenous DNA, the asserted claims would not have issued."). Therefore, the changes that were accepted by the office must have been considered and found to be sufficient.

4. Extrinsic Evidence

Because the Court finds that the claim language is clear and supported by the specification and prosecution history, there is no need to consider extrinsic evidence. However, in keeping with Vitronics and Phillips, the Court finds it appropriate to use the dictionary to define the term "light." Phillips, 415 F.3d at 1324 ("Nor is the court barred from considering any particular sources or required to analyze sources in any specific sequences, as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence."). Merriam-Webster dictionary defines light as "electromagnetic radiation of any wavelength and traveling in a vacuum with a speed of about 186,281 miles (300,000 kilometers) per second; specifically: such radiation that is visible to the human eye." (emphasis in original). Defendants argue that it is inappropriate to use dictionaries. However, the Court is not attempting to use a dictionary definition in place of analysis of the intrinsic evidence. The dictionary definition is to be used to provide a working definition of a commonly understood word. This definition does not "contradict any definition found in or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584.

The Court finds it problematic that Defendants wish to restrict the term "light" to "laser" based only on the specification. Defendants interpret Phillips too narrowly and ignores the plain meaning of the claim language. The court in Phillips emphasized the importance of the specification but not at the expense of the ordinary and plain meaning of the claim language. The plain and ordinary meaning of the word "light" is clear to a lay person and is not restricted to only light from
a laser source. The specification and prosecution history also provide support that Plaintiff had no intention of restricting the term to only include laser light. "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Id. at 1316. Accordingly, the Court FINDS that the term "light" as defined in the '454 Patent is the spectrum of electromagnetic radiation which can be seen by the human eye and is not limited to lasers.

The plaintiff proposes "an elongated device attached to a motorized vehicle for producing warning light signals that identify the vehicle as an emergency or utility vehicle." Defendants propose "an elongated base, two or more warning signal lights, a cover protecting the warning lights and associated structure for mounting to a vehicle." The parties agree that the construction should include "elongated" to distinguish from hemispherical warning signal lights.

The plaintiff argues that the specification discusses light bars as emergency lights seen on police cars, fire trucks, and ambulances. '269 patent, 1:11-14; '865 patent, 1:13-16. In addition, the plaintiff argues that Defendants' construction narrows the phrase to a specific embodiment by requiring a cover.

Defendants argue that every depiction of a light bar includes a cover and that a light bar is clearly an assembly of components with a cover to protect the warning signal lights and other internal components. See '269 patent, Fig. 1 and Fig. 2, 7:12; '865 patent, Fig. 1 and Fig. 2, 13:2. Defendants also argue that there is no reason to limit "light bar" to a particular function. Finally, Defendants point to the prior art referred to in the Background of the Invention section of the patents-in-suit, specifically the Jincks patent, which discloses light bars with a cover.

The Court agrees with the plaintiff that nothing in the claims or specification requires the limitation of a cover. The Court will not import limitations from a preferred embodiment into the construction of claims. Accordingly, "light bar" means "an elongated device attached to a motorized vehicle for producing warning light signals." The Court incorporates by reference its definition of "warning light signals."

The Court agrees with the plaintiff that nothing in the claims or specification requires the limitation of a cover. The Court will not import limitations from a preferred embodiment into the construction of claims. Accordingly, "light bar" means "an elongated device attached to a motorized vehicle for producing warning light signals." The Court incorporates by reference its definition of "warning light signals."

The Court agrees with the plaintiff that nothing in the claims or specification requires the limitation of a cover. The Court will not import limitations from a preferred embodiment into the construction of claims. Accordingly, "light bar" means "an elongated device attached to a motorized vehicle for producing warning light signals." The Court incorporates by reference its definition of "warning light signals."

Claim 18 of the '714 Patent contains the term "light pipe." Cheetah contends that the term means "an optical fiber or waveguide," while Mitsubishi contends that it means "fiber-optic line." The parties disagree whether the term "light pipe" is limited to a fiber-optic line.

Cheetah asserts that the Patent Office construed the term in a broad manner not limited to fiber optics when applying the prior art and that the term "waveguide" encompasses this broader interpretation. Cheetah also asserts that those skilled in the art consider the term to include both fiber and optical waveguides. Mitsubishi counters with its own extrinsic evidence arguing that "light piping" is commonly understood to mean the use of optical fibers.

Although portions of the specification describe the use of optical fiber, the specification does not provide further emphasis on the importance of fiber versus other alternatives, nor does it provide clear guidance that the invention should be limited to fiber. See '714 Patent, col. 20:31-39, col. 21:6-10. Also, the less significant extrinsic evidence cited by the parties appears
conflicting at best. See Phillips, 415 F.3d at 1317 (stating that "while extrinsic evidence can shed useful light on the relevant art, . . . it is less significant than the intrinsic record in determining the legally operative meaning of claim language" (internal citations omitted)). Finally, as Mitsubishi argues, the term "waveguide" is wholly absent from the intrinsic record. Accordingly, when looking at the intrinsic record as a whole, the Court construes the term "light pipe" to mean "conduit for transmitting light, for example, a fiber-optic line."

A. "light signal"

This term appears in all of the independent claims. The plaintiff proposes "signal produced by selectively activating one or more light sources according to a timing pattern." Defendants propose "a light emission that conveys information." The main disputes revolve around two areas - 1) whether a timing pattern is required, and 2) whether "light signal" conveys information.

The plaintiff contends that the specification and claims repeatedly describe light signals in terms of timing patterns, such as flashing, oscillating, revolving, etc., and sequences or intervals. See '269 patent, 3:36-39, 2:10-12, 4:61-62; '578 patent, claims 24-32, 36-44. The plaintiff also contends that the specification and claims explain that light signals are produced by selectively activating light sources. See '269 patent, 4:23-24, 5:2-65 (light signals created by "selectively activating" light sources or LEDs). The plaintiff argues that Defendants' proposed construction is too narrow because it would not cover a warning signal that does not convey information. The plaintiff also argues that Defendants' proposed construction is too broad because it would cover message boards that convey information but do not produce warning light signals (e.g., "Congestion ahead"). According to the plaintiff, the specifications make it clear that "message" or "images" are not "signals." See '269 patent, 4:36-41 (listing types of signals, but not referring to "message" or "images" as signals). In addition, the plaintiff contends that, according to the inventor's deposition, the invention only covers warning signals that flash, oscillate, revolve, etc., and not panels carrying messages or images. Finally, the plaintiff argues that "messages" were clearly disclaimed in the prosecution history when the patentee stated that there would be no motivation to combine the prior art of vehicle warning lights and modular message boards. '189 application, Sept. 5, 2001 Amendment, at 11-12.

Defendants contend that the phrase is used broadly in the patents and, therefore, should be given a broad construction according to its ordinary meaning. Defendants argue that the specification does not refer to a timing pattern, but explicitly states that "light signals" provide information. '269 patent, 6:4-18. In addition, Defendants point out that the specification refers to some light signals as a "constant light signal" or a "stationary light signal," which do not require a timing pattern at all. Defendants argue that the plaintiff erroneously assumed that warning light signals do not convey "information," and that the patents include message boards within their scope. Furthermore, Defendants argue that the patentee, in distinguishing prior art, stated that "light signals . . . could be that of a stationary loght, a strobe light, a revolving light, or warning signals which could appear as symbols, characters, or arrows." '871 application, Dec. 16, 1999 Amendment, at 15. Finally, Defendants argue that the dictionary definition of "signal" (e.g., "an object placed to convey notice or warning") also supports their proposed construction. See Webster's International Dictionary (2d ed. 1956).

The Court agrees with Defendants that "light signal" should not be limited to "timing patterns" because some signals do not require timing patterns (e.g., constant light signal). The Court also agrees with the plaintiff that "light signal" should not be expanded to "conveying information." In the prosecution history, the patentee disclaimed modular message boards. See '189 application, Sept. 5, 2001 Amendment, at 11-12. Defendants' proposed construction that a light signal "conveys information" would encompass the disclaimed message boards. Accordingly, "light signal" means "light sources activated to notify or warn."

B. Light Sources

The Court, in reviewing all of the evidence submitted, finds that the term light sources in the context of the claims and
specification is limited to light-emitting diodes and their equivalents.

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B. "A light transmission element attached to the light device"

According to Yanova, pursuant to the prosecution history and the ordinary meaning of the phrase, "a light transmission element attached to the light device" should be construed as:

An element that transmits the light from the light device outside the periphery of a confection to a point interior to the periphery of the confection, that element being attached to the light device at one end and the edible confection at the other end.

Yanova Memo at 15. Conversely, Defendants contend that Yanova's definition impermissibly limits the ordinary meaning of the phrase and should be construed as:

[A] part of a composite entity that allows light to pass or be conveyed to the "light device."

Def's Memo at 13.

The term "a light transmission element attached to the light device," consists of three additional terms, (i) "transmission," (ii) "element," and (iii) "attached."

First, "transmission" means "an act process or instance of transmitting," "to cause or allow to be spread" and "to cause to pass or be conveyed through space or a medium [or] to send out (a signal) either by radio waves or over a wire." Webster's II New Riverside University Dictionary (1994). The root of the word transmission is "transmit." Transmit, as defined by American Heritage Dictionary, Fourth Edition (2000), means "to cause to spread; pass on."


Accordingly, it would be inapposite to limit the terms to include only the transmission of light from a point outside the confection to inside the confection. Consistent with the plain meaning of "light device," see supra at 3, "a light transmission element attached to the light device" in the asserted claims of the patents-at-issue is construed to mean:

[A] part of a composite entity that allows light to pass or be conveyed to the light device.

2451

1. "limit circuit"

Claim 20 of the '054 Patent describes "a limit circuit." Cardiac Science asserts that this term should be construed as "a circuit, disposed between the storage circuit and the steering circuit, to limit delivery of therapeutic electrical energy from the storage circuit to the steering circuit." Philips, on the other hand, proposes that "limit circuit" should be construed as "a circuit, disposed between the storage circuit and the steering circuit, that enables the protection circuit to limit delivery of the therapeutic electrical energy from the storage circuit to the steering circuit." Thus, the only dispute is whether the limit circuit enables the protection circuit, as Philips contends.

The Court disagrees with Philips' construction. Claim 20, the only asserted claim that uses the term "limit circuit," does not include a protection circuit. Figure 3 depicts one embodiment of the limit circuit as separate from the protection circuit. ('054 Patent at sheet 3, Fig. 3; c. 6, ll: 20-22, 29-47.) The Court finds that "limit circuit" is properly construed as "a circuit,
The parties have presented the terms "consumable participation key" and "limits on use" to the Court for construction. "Consumable participation key" appears in Claim 51 of the '309 patent and reads in context "qualification structure controlled by said record structure for testing caller data signals provided by a respective one of said individual callers to specify a consumable participation key for restricting the extent of access to said system to limit data stored from said respective one of said individual callers on the basis of entitlement." The term also appears in Claim 65 of the '863 patent and reads in context "qualification structure for testing caller data signals provided by at least one of said individual callers to specify a consumable participation key, said consumable participation key for use during a single predetermined period of time for restricting the extent of access to at least a portion of said system by said one of said individual callers on the basis of entitlement."

The term "limit on use" or "limits on use" appears in Claims 33, 44, and 93 of the '707 patent and Claims 79 and 190 of the '863 patent. Claim 33 of the '707 patent recites in part a "qualification structure controlled by said record structure for testing said calling number identification data to specify a basis for entitlement defining a limit on use, for restricting the extent of access to said system for a respective one of said certain of said individual callers. . . . An analysis control system according to claim 26, wherein said limit on use relates to a dollar amount." The other claims in which "limits on use" appears are substantively the same; Claim 44 of the '707 is representative and reads "providing products carrying participation numbers specifying limits on use to entitle individual callers to access said operations of the interface with said telephonic communication system."

The parties agree that "consumable participation key" should be defined as a number or word that allows a caller access to a service or part of a service a predefined limited number of times and which cannot be refreshed or recharged. While the ordinary meaning of the claim language gives some indication of the meaning of "consumable participation key," the specification makes it clear. In Column 9, lines 31 through 35 of the '707 patent, the specification provides that "for example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval." The parties disagree, however, on the meaning of "limits on use." The plaintiffs argue that "limit on use" means "a control imposed on the degree or extent to which callers may avail or utilize a service or one or more operations of a service." (Pls.' App. at 74). The plaintiffs contend that a limit on use can be any one of a range of restrictions including "limits based on the total number of permitted accesses, the time of day for permitted accesses, limits on use based on a dollar value, [and] limits on use based on a predetermined period of time." (Pls.' App. '75-76). The defendants argue that this term has the same meaning as consumable participation key in that it is a control on the number of times a caller may enter a format in the Katz system. The defendants agree that a limit on use can be fixed by a set number of uses or a set dollar amount. However, the defendants argue that a limit on use does not perform a metering function in that it does not effect the duration of access to a format; consequently, it cannot disconnect a caller during a format for exceeding a set period of use.

The place to begin is the claim language. Claim 33 of the '707 patent provides for a limit on use that relates to a dollar amount. The plaintiffs argue that this Claim clearly shows that limit on use is not restricted to only the number of calls or accesses into the system. Although this claim does not explicitly recite that the limit on use would be a duration of time linked to the set dollar amount, e.g. $ 10.00 limit at $ 2.00 per minute, it does not explicitly recite that the dollar amount could only be linked to a set number of accesses, e.g. $ 10.00 limit at $ 2.00 per access.

The defendants argue that the limits on use are used to qualify callers for access to the operations of the interface, which necessarily has to occur before the caller enters into the Katz system. However, claim 44 of the '707 patent provides for a further step of "invalidating on-line said participation numbers after said limits on use specified by said participation numbers are reached." This claim calls out a step of utilizing the limit on use at a later point in the process after the qualification step.
The specification confirms that "limit on use" should not be restricted to set number of accesses to the Katz system. In Column 12, lines 52-57 of the '707 patent, Katz describes how a calling number may be "checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring." (emphasis added). Similarly, in Column 12, lines 22 through 26 of the '707 patent, Katz describes how a lottery format may use a limit on use and states that "for example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval." (emphasis added).

Contrary to the defendants' assertion, the Court concludes that Katz does not equate all limits on use to consumable participation keys. In Column 9, lines 32 through 35 of the '707 patent, the specification provides that "a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval." The use of the phrase "limited number of uses," which accurately describes a consumable participation key, does not indicate that all "limits on use" are consumable participation keys. Thus, it is clear from the claims and specifications that a consumable participation key is only one kind of a limit on use.

There is no indication in the Katz patents of a method of measuring a limit on use based on a dollar value. That is, neither the claims nor the specifications require that the limit on use based on a dollar value be decremented by the number of accesses to the system, ie. $2.00 for each access. The claims and the specifications leave open the possibility that the dollar amount could be decremented by some other method of measurement, such as time spent in the Katz system; ie. $2.00 for 10 minutes, such that the limit on use served a metering function.

The statements made by Katz in the prosecution history cited by the defendants do not require a different construction than what is clear from the plain language of the claims and specifications. During the prosecution history of the '707 patent, certain of Katz's pending claims, including pending claim 47, were rejected by the examiner in an office action as unpatentable over two patents and an article of Turbat. (Ex. 51). In an Amendment dated August 31, 1995, Katz amended pending claim 47 by substituting the phrase "one time use" with "limit on use." Katz also argued against the examiner's rejection of his pending claim 47 in a section entitled "Discussion of the Rejections of Claims 32, 37, 40, 41 and 47 under 35 U.S.C. § 103." In that section, Katz distinguishes the rejected claim 47 on the basis that "applicant's system, as claimed, is independent of both time (Barger and DeBruyn) and value (Turbat)." However, this discussion was clearly directed toward the rejection of the claim as originally written, which called for "a basis of entitlement defining a one time use," as evidenced by Katz's statement at the end of the discussion section that "the rejected claims are urged to be distinct for the reasons presented above." Based on this review of the prosecution history, the Court concludes that Katz's statements about a claim that read "one time use" do not limit the claims that were eventually accepted, which read "limit on use."

Based on the foregoing the Court concludes that "consumable participation key" means: a number or word that allows a caller access to a service or part of a service a predefined limited number of times and which cannot be refreshed or recharged. The Court concludes that "limit on use" means: a control that limits a caller's access to a service based on some predetermined method of measuring the level of use. The term "limit on use" is not restricted to a specific method of measuring use, such as a limited number of accesses into the Katz system.

8. "Limiting the Voltage Applied to Said Transformer and to Said Components."

These terms shall be construed consistent with their ordinary meaning; no further construction is necessary.

3. "Limits" The next set of terms in dispute are "maximum and minimum limits of rotation" ('053 patent, claim 2), "maximum angle of rotation excursion, a minimum angle of rotation excursion" ('053 patent, claim 6), "limits of rotation excursion" ('053 patent, claim 20), "upper limit vector and a lower limit vector" ('132 patent, claim 1), and "upper limit of
The parties have agreed that a single construction of "limit[s]" covers all of these phrases. See Tr. at 71, 184. Plaintiff's proposed construction is "end point values delineating the range of angular motion for a particular joint." Defendant's proposed construction is "end point values delineating the range of angular motion for a particular joint for a particular gesture action (as defined above)."

Defendant's addition of the phrase "for a particular gesture action" -- which is the only language the parties disagree on -- is supported by the abstract of the '053 patent, which states:

A number of gesture actions are displayed and defined as a series of frames generated by specifying rotational ranges and speeds of rotation on a number of rotational axes of each joint for each gesture action.

'053 patent abstract (emphasis added); see Tr. at 125. Further, defendant's construction is supported by the prosecution history of the '053 patent, which shows that plaintiff stated, in order to overcome a rejection based on prior art, that "the present invention requires specification of 'upper limit' and 'lower limit' vectors, which vectors delineate the range of motion for a particular joint for a particular gesture action." '053 prosecution history at NYU003964 (emphasis added); see Tr. at 126.

Plaintiff offers two arguments in response. First, plaintiff argues that the language defendant wishes to incorporate--"for a particular gesture action" -- would make claim 5 of the '132 patent redundant, see Tr. at 127, where that claim states that "the upper limit vector, the lower limit vector and the time vector for each of the joints are specified in accordance with the selected gesture action," '132 patent at 10:16-18. But claim 5 lacks redundancy with claim 1 for other reasons, see Tr. at 127, and the specific prosecution history does not accord with plaintiff's definition.

Second, plaintiff argues that its statement in the prosecution history addressed only certain claims at issue there, so that "[t]o the extent there would be a prosecution history argument, the parties would have to step back from their initial position that a common definition applies to all the disputed terms and then parse out to which extent this limitation would be appropriate." See Tr. at 25-26. However, the Court finds it appropriate to rely on the prosecution history in the construction of each disputed claim term here, given that plaintiff has maintained throughout this litigation that "a single definition . . . covers all" of the disputed claim terms, and given that plaintiff's expert based his entire report on that premise. See Tr. at 71.

Accordingly, the Court hereby adopts defendant's proposed construction of "limits."

In Octel III, the district court construed the limitation "a line activity monitor coupled to the telephone line to record information indicative of usage of the telephone line" in claims 1 and 19 to mean:

an apparatus for monitoring activity or information indicative of how the telephone line is being used. All types of line activity or modes of line use need not be monitored and recorded, so long as at least some information indicative of usage is recorded.

Id., slip op. at 12.

The court determined the key issue to be "whether the claimed line activity monitor must be capable of monitoring all five basic line states, identified in the '416 patent preferred embodiment description as IDLE, RING, INTER-RING, SERVICED and ON HOLD." Octel III, slip op. at 8-9. The court concluded, "in light of the limitation of dependent claims 5, 7 and 21 requiring only at least two states, . . . that the line activity monitor in [independent claims 1 and 19] need not be capable of monitoring all five basic line states." Id. at 11. The court also noted that the language of claims 2 and 20 supported its construction of claims 1 and 19. We agree. Independent claims 1 and 19 cannot be construed to require the monitoring of more line states than is required by the various dependent claims.

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SercoNet contends that the term PSICs should be construed to mean "SICs wherein one SIC receives power directly from power source and other SICs are fed power from network wiring and/or may feed power to other connected SICs." NetGear construes it as "an SIC capable of receiving and transmitting power on the data line."

This term is used in claims 1-6 and 21 of the '360 patent. Turning to the language of the claims, claim 1 of the '360 patent describes: "A network topology allowing distributed sensing, control and communication, comprising: a power source, a plurality of line-Powered, Serially connected Intelligent Cells (PSICs) coupled to the power source and to each other via respective communication channels each allowing mutually independent communication in either or both directions and comprising at least two electrical conductors, . . .".

The claim language itself clearly states that the invention comprises a power source and multiple PSICs (which by definition are line-powered) connected to that power source and to each other. According to the plain claim language, it seems that the PSICs are powered, and that this is not an optional feature.

Turning to the specification for further clarification, Figure 2 of the '360 patent shows multiple PSICs that are all connected to one single power source. As SercoNet argues, this intrinsic evidence shows that line-powered in the context of this claim means that the PSICs are powered directly from a power source that is directly connected to a first PSIC, and that all other PSICs are powered from the preceding PSIC to which it is connected. See also '360 patent, Figure 4. In fact, the description of Figure 2 explicitly states that the network comprises a single power source for feeding power via a twisted wire pair to a line powered, serially connected intelligent cell, which is in turn serially connected to other PSICs. See '360 patent at 3:24-30, 3:56-60. Furthermore, NetGear concedes that the first PSIC in the network is not capable of receiving power on the network wiring. See also '360 patent at 4:47-60 (first PSIC is different from other PSICs in that it receives power from the power source, but does not receive data from it). This intrinsic evidence, therefore, supports SercoNet's construction describing one SIC that is directly powered from a power source and other SICs that are fed power from network wiring.

In discussing the PSICs' role in feeding power, the specification notes that the invention provides "an intelligent, distributed network wherein a plurality of intelligent cells are serially connected via bi-directional communication channels permitting data (and optionally power) to be fed serially along the network from one PSIC to the other, in either direction. See '360 patent at 8:40-45. The specification therefore makes clear that the PSICs need not feed power, as the feeding of power is optional. There is nothing in the specification that requires it to do so.

Additionally, the specification also describes the last PSIC in any given string of PSICs as being somewhat different from other PSICs, in that the endpoint PSICs do not both receive and feed power and data, although the endpoint PSICs may be provided with an interface to connect to another PSIC. See '360 patent at 4:47-56. In other words, those PSICs may feed power to other connected SICs if given the capability. SercoNet uses "and/or" in its proposed construction to recognize that the starting and final PSICs do not both feed power to and receive power from any other device. As SercoNet conceded at the hearing, this "and/or" construction is somewhat confusing. However, NetGear's construction that each PSIC is capable of transmitting power does not accurately reflect that the last PSIC in the network would only become capable of feeding power to another PSIC if it is modified with an interface.

Finally, while Netgear's construction requires that power be transmitted on the "data line", it defines such wiring as "network wiring" in its briefing. See NetGear Opp. at 14:4-5. SercoNet also uses the term "network wiring" to describe the wires, so the court adopts this undisputed aspect of the proposed construction.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "PSICs" with slight modifications and construes the term "PSICs" as: "SICs wherein one SIC receives power directly from the power source and other SICs are fed power from network wiring and may feed power to other connected SICs if capable."
I. Claim Construction of "linear combination"

The term "linear combination" appears in Claims 1, 2, and 5 of the '072 Patent, but the primary claim language can be found in Claim 1, which states that "the specified combination of each scatter pixel and the transmission pixel corresponding to the scatter pixel is a linear combination of a function of the value associated with the scatter pixel and a function of the value associated with the transmission pixel."

Plaintiff argues that "linear combination" means the sum or difference in values, or a combination of things added together, and that a linear combination of functions is itself a function that can be expressed as the sum or difference of functions. Defendants argue that the term refers to a combination of two functions that each depend on a different single variable, not two functions that depend on multiple variables.

It is clear from the language of the patent that "linear combination" refers to the sum or difference of two functions, the first a function of the scatter value and the second a function of the transmission value. As the Court has already determined that "function" as defined in the '072 Patent is limited to functions involving a single variable, "linear combination" must be similarly construed. Accordingly, the Court FINDS that "linear combination" as defined in the '072 Patent means the sum or difference of a transmission function and a scatter function, with each function depending on a single input variable.

6. "[L]ine level:" 6 "Structured set of information about applicable coverage." This construction is consistent with col. 84:37-63 of the specification.

A. "Lines"

The Magistrate Judge first construed the claim term "lines" as that term is used in Claim 26 of the 653 Patent. Framing the issue in dispute, the Magistrate Judge observed, "[Quickview] insists that this term, as used in the patent, covers both horizontal and vertical lines . . . [Belo] maintains that the term lines' should be limited to a horizontal line of pixels or characters." (F & R at 5) Next, relying on the specification and accompanying figures, the Magistrate Judge noted that both the specification, when read in its entirety, and the attending figures "clearly" distinguish between horizontal "lines" and vertical "columns." (Id. at 6) Because the specification consistently refers to the term "line" as "a horizontal line of pixels or characters," the Magistrate Judge deduced, "the term should be construed accordingly." (Id.)

Quickview filed objections to this construction of "lines," maintaining that it improperly limits the 653 Patent's scope to its preferred embodiments. Upon de novo review, this Court finds no merit in Quickview's objection to the Magistrate Judge's claim construction, instead finding that his interpretation of the claim language is correct and based upon sound principles of patent law.

The Court does not take issue with Quickview's statement of the settled patent principle that the written description of a preferred embodiment should not be used to improperly read a limitation from the preferred embodiment into a claim. But the Court recognizes that it is oftentimes difficult to "draw a line between construing a claim in light of the specification and
improperly reading a limitation from a preferred embodiment . . . into a claim." The Interpretation of Patent Claims, 32 AIPLA Q.J. 1, at 35 (Winter 2004) (citing Bell Atlantic Network Servs., Inc., v. Covad Communications Group, Inc., 262 F.3d 1258, 1270 (Fed. Cir. 2001) (other citations omitted)). As the Federal Circuit stated in Bell, "the written description can provide guidance as to the meaning of claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format'. . . thus, when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication." Bell, 262 F.3d at 1271 (emphasis in original) (internal citations omitted).

Here, relying upon the specification which is "the single best guide to the meaning of a disputed term," n3 the Magistrate Judge found that the consistent use of the term "lines" in conjunction with the term "horizontal" essentially defined the term by implication as "horizontal lines of pixels or characters." Based on the unambiguous language contained in the specification, explicitly referred to and relied upon by the Magistrate Judge in reaching his construction of the claim language at issue, this Court finds his construction correct and based upon sound principles of claim construction. He correctly looked to the specification which used the term "lines" in a manner consistent only with the qualifier "horizontal." For these reasons, the Court OVERRULES Quickview's objections to the Magistrate Judge's recommended claim construction of "lines."

--- Footnotes ---
n3 Vitronics, 90 F. 3d at 1582.

--- End Footnotes ---

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10. "link"

The final term is "link," which appears in claims one and seven of the '374 patent. Informatica proposes that the term be construed to mean "connection." BODI proposes the construction "A link is a connection between a reference in a data mart and specific metadata in a shared folder in a global repository. The linking enables those data marts the ability to gain access to the objects stored in the global repository." Informatics argues that the term link has a plain and ordinary meaning, i.e., a connection, that would be understood by one skilled in the art. BODI agrees that generally speaking a link is a connection, but in the context of the '374 patent, connection is too generic and overly simplistic.

BODI's proposed construction, requiring a link to connect a reference in a data mart and specific metadata in a global repository, fails to acknowledge the use of the term link in a broader sense in claim seven and throughout the specification. Claim seven discloses a method for sharing metadata between a plurality of databases, comprising, intra alia, a link between the second database and the first database. The Abstract and the Summary of the Invention discuss that "[a]ny number of data marts can be linked to the global repository." Figure 2 depicts a global data mart repository "connected to a number of linked data marts" (as represented by the arrows pointing from the global data mart repository to the data marts). The description of Figure 2 explains that "[b]y registering a repository with a [global data mart repository], the necessary link between the two repositories is established, and thereafter, the linked repository is able to share metadata with other repositories linked to the same [global data mart repository]." Finally, the detailed description states that the present invention provides for a sharing feature, which is "accomplished by linking certain designated data marts" with the global data mart repository.

When engaging in claim construction, the Court is bound by the presumption that "the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims." Fin Control Sys. Pty, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). BODI's narrow construction of the term link is unworkable in light of the obvious broader use of the term throughout the patent.

There is no need to go beyond the plain and ordinary meaning here. The Court adopts Informatica's proposed construction and construes the term "link" to mean: Connection.
3. Link and linking ('321 patent, claim 83)

Claim 83 of the '321 patent provides that:

A method for use with a system capable of recognizing specifying references (SRs) in a record which reference another record and forming links between the SRs and the referenced records, the method for eliminating ambiguity when SRs overlap and comprising the steps of . . . linking the selected SRs to corresponding records.


Plaintiffs argue that "link" and "linking" mean "to couple or connect" and that in the context of the '321 patent, "linking" can be accomplished by "creating a hypertext link, address association or other logical link." In contrast, defendant argues that the term "link" is synonymous with the term "hyperlink." However, there are two problems with defendant's posture. First, as discussed earlier, hyperlink is made up of three components, a keyword phrase, an address and information stored at that address. Examining the use of the terms "link" and "linking" in the disputed claim, one can see that a link is formed between two components, that is, between the specifying reference and corresponding record. Thus, a link (a connection between two component parts) and a hyperlink (three component parts that include a link or address) could not be interpreted as synonymous. Although I agree with most of plaintiffs' proposed construction, I will not include any "other logical link" as part of the definition because this part of the definition is too nebulous. Accordingly, "link" and "linking" in claim 83 of the '321 patent means creating a hypertext link or address association.

XI. "[B]i-directional communications link coupled between the futures and options computers”; "a bi-directional communications link coupled between the options computer and principal market maker computer”; and "communications link"

Plaintiffs argue that the claim terms "bi-directional communications link coupled between the futures and options computers,” "a bi-directional communications link coupled between the options computer and principal market maker computer,” and "communications link" should be construed to mean "an electronic link that provides two-way, direct communication between computers." (R. 82, Pls.' Mem., Ex. 1 at 7.) Of specific importance, Plaintiffs contend that the term "coupled" should be interpreted to mean "a direct connection." (R. 82, Pls.' Mem. at 24-25.)

Plaintiffs maintain that the specification, along with the figures and their written descriptions, require a "construction in which the communication link directly connects the computers without routing the communications through any intervening components." (R. 82, Pls.' Mem. at 24.) Again, as with their prior attempt to insert a modifier into the construction of a claim term, this effort is unfruitful as it seeks to impermissibly import the claim limitation "direct" from the specification and patent figures. Specifically, Plaintiffs' argument fails as the figures and their accompanying text--which disclose preferred embodiments--cannot limit claim terms. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.") Further, as previously noted, the Federal Circuit has consistently warned against importing claim limitations from the specification. E.g. Teleflex, 299 F.3d at 1326 ("[T]he claims must be read in view of the specification, but limitations from the specification are not to be read into the claims."). The Court therefore rejects Plaintiffs' proposed constructions.

TRG, on the other hand, only asks the Court to construe the terms "link" and "coupled." (R. 85, Def.'s Mem. at 19.) They contend that these terms can be construed using a general purpose dictionary. (Id.) Because the ordinary meaning of these terms is readily apparent, the Court agrees that reliance on a general purpose dictionary is appropriate. See Phillips, 415 F.3d at 1314 (Where the "ordinary meaning of claim language as understood by a person of skill in the art may be readily
apparent even to lay judges," claim construction involves little more than the application of the widely accepted meaning of commonly understood words). Accordingly, these terms are construed as follows: (1) "link" means "a unit in a communication system"; and (2) "coupled" means "to join for combined effect." See Merriam-Webster's Collegiate Dictionary 286, 724 (11th ed. 2003) (defining "coupled" as "to join for combined effect" and "link" as "a unit in a communication system").

3. "Link data" (Claims 1 and 18)

HTC asks that this term be construed and suggests that it means "the data required for a link that both the first base station and the mobile station are capable of sending to a second base station to achieve a handover." Chart at 6. IPCom offers "data describing the identity and features of the mobile station and the call in which the mobile station is engaged." Id.

Dr. Rose, HTC's expert, testified that link data is a "generic term" that would "describe a number of different types of information, including . . . a session link, a fixed link, a data rate or information regarding channelization, timing, timing offset, frequencies, etc." IPCom's Resp. [Dkt. # 150] at 52-53 (citing Rose Decl. ¶ 23). It is critical to transfer "connection information" as part of a handover. Id. (Rose Decl. ¶ 14). HTC errs by proffering a construction that defines the term by using the same term — "data required for a link" — and then focusing on its use, not its meaning. As a "generic term," "link data" covers many kinds of data necessary to maintain a call and necessary to a successful handover. "Link data" is construed to mean "data describing the identity and features of the mobile station and the call in which the mobile station is engaged."

3. "Link layer"

As expressed at oral argument, it appears that the parties are in substantial agreement on the construction of this term. They agree that the link layer is the second lowest layer of the OSI seven layer model and that it performs error checking functions. The main issues appear to be whether error correction is limited to frame transmission and/or whether the plaintiff's construction includes error correction at the physical layer. The defendants also argue that one of ordinary skill in the art would understand that retransmission of messages is the way to correct transmission errors.

The court has considered the briefs and the arguments of the parties in light of the intrinsic record. The court construes the term "link layer" to mean "the second lowest layer of the Open Systems Interconnect (OSI) seven layer model, providing the functional and procedural means to transfer data between modems, and to detect and correct errors."

C. "link said memory to a remote home base"

Claim 1 of the '490 patent contains the term "link said memory to a remote home base": "a modem electrically coupleable to said memory, said modem adapted to link said memory to a remote home base to establish a communication link." The exact term "link said memory to a remote home base" is not found in the specification. The specification does describe the modem transferring data from memory, however: "Monitor 48 converts signal 94 to a digital value, stores it in a memory 96, associates it with a real time stamp, and eventually communicates the data to a remote home base 100 by way of a modem 98." (490 patent, 3:52-55). The plaintiff contends that no construction of this term is necessary. Forbes and Petron assert the following construction: "to connect the unit of a computer that preserves data for retrieval with the location where the operator of the mobile repair unit receives datarelated to the repair unit, and such location is removed from the work site at which the repair unit is operating."
The parties' first dispute centers around the meaning of "said memory." "Memory" is described in the preceding limitation of claim 1: "a memory electrically coupleable to said first transducer, said memory storing a first plurality of digital values." Key argues that "memory" does not require definition, or alternatively, it should be defined as "a device for storing data." The defendants contend that the "memory" must be computer memory. Key responds, however, that the patent does not use the word "computer." Furthermore, the specification discloses a "Pocket Logger" that has a memory, ('490 patent, 4:17-20). Key urges that the limitation "computer" may exclude this preferred embodiment. Based upon the use of "memory" in the preceding limitation, quoted above, the court will define "memory" as a "a device that stores digital data."

Next, Forbes and Petron wish to define "link" as "connect." The meaning of "link" is illuminated by the way it is used in the remainder of the claim limitation: "said modem adapted to link said memory to a remote home base to establish a communication link between said remote home base and said plurality of various job sites." This language indicates that the "link" action refers to "establishing a communications link." Thus, thus court will define "link" as "establish a communication connection."

The defendants also propose language regarding "remote home base." As this term has already been construed, it does not need to be addressed again. In all, the court construes "link said memory to a remote home base" to mean "establish a communication connection between a device that stores digital data and a remote home base."

B. Linked (Claims 1, 8, 9, 10)

HP asserts that the ordinary meaning of "linked" is "associated with, related to, or connected to." See e.g., Ex. 5, Webster's Third at 1317 (1986) (defining "link" as "to form a connection or association"). Intergraph argues that "linked" should be defined as "connected for execution by a chain of pointers."

To support its proposed construction, Defendant cites the specification and an IEEE dictionary. The 1992 IEEE dictionary describes a [data management] link as "(A) See: pointer, (B) To establish a pointer; for example, to link two items in a hierarchy." See Gloré Decl., Ex. C4, at 726-27; see also '208 Patent, col. 5:7-10 ("This allows the pointer to be fetched once and used with each data record . . ."). The Court recognizes that "a general dictionary definition is secondary to the specific meaning of a technical term as it is used and understood in a particular technical field." Hoechst Celanese Corp. v. BP Chemicals Ltd., 78 F.3d 1575, 1580 (Fed. Cir. 1996).

However, the IEEE dictionary definition urged upon the Court by Intergraph is not at odds with the dictionary definition proposed by HP. While the IEEE dictionary reference is indicative of the ordinary meaning of a claim term, the reference to pointer in the definition provided by Intergraph, when read in context, is not at odds with the definition proposed by HP. Moreover, the word "pointer" or the phrase "chain of pointers" is found nowhere in the patent claims, which instead use the broader term "link." HP does not deny that the preferred embodiment sometimes uses the term "pointer" to refer to "links." However, the Federal Circuit's teaching on this issue is clear, "particular limitations or embodiments appearing in the specification will not be read into the claims." Loctite Corp., 781 F.2d at 867. The Court finds that the more accurate construction of the term "linked" as used in the '208 Patent is that offered by HP. As such, the Court construes the term "linked" as associated with, related to, or connected to.

C) "Providing access to a personal computer . . . from a remote computer"

The parties disagree about the definition of this phrase. First, 01 Communique contends that this phrase requires no construction at all. In the alternative, 01 Communique proposes that it means "Providing access to (i.e., permission, liberty, or ability to enter, approach, or pass to and from a place or to approach or communicate with a person or thing) the claimed personal computer . . . from a remote computer." Citrix, meanwhile, suggests a more literal translation, to wit, "Providing a connection (i.e., a physical link via wire, radio, fiber-optic cable or other medium) between the claimed personal computer
When evaluating a claim term, "[i]n those cases where the ordinary meaning of a claim term as understood by a person of ordinary skill in the art is readily apparent even to lay persons, the ordinary meaning becomes the acquired meaning of the term." Herbert F. Schwartz, Patent Law and Practice § 5.1.A.2. (5th ed. 2006) (citing Phillips, 415 F.3d at 1314). This phrase falls within that category; the court finds that it requires no construction.

2. "linking the address of such unusable blocks with addresses of other blocks that are useable" ('842 pat., cl. 1)

The parties' principal dispute is whether "linking" must be done in the form of a map or table listing both the unusable and corresponding usable blocks, as defendants contend. A secondary dispute is whether, assuming "linking" does not require a map or table, it is broad enough to include storing a pointer in the unusable block that points to a usable block. (Plaintiff's proposed construction defines linking to include any sort of "substitution," but this term is too vague to be helpful.)

The language itself suggests nothing about the required format for linking addresses, saying only that the claimed method involves "linking the addresses of . . . unusable blocks with addresses of other blocks that are useable." Defendants contend that their construction is "the only construction" consistent with the claim language in light of the order of the following claimed steps: (1) detecting a predefined condition; (2) linking the address of the nonusable block to the address of a usable one; (3) causing the controller to generate an address; and (4) accessing a usable block by referring to the linked address "if the block with the generated address is unusable." '842 pat., cl. 1. As defendants point out, step four anticipates that the "block with the generated address" may be unusable, which means the controller must be able to generate an unusable address after the "linking" occurs.

However, defendants do not explain why the controller would do this only if a map or table is used. Instead, they argue only that the "linking" could not involve plaintiff's proposed "substitution" because then the controller would not generate the unusable address after the "substitution" occurred. For defendants to be correct, "substitution" must mean "replacement" and they must be arguing that the claimed "replacement" would be carried out in a way that affects what the controller generates. This is not plaintiff's understanding of "substitution," but it is irrelevant. As explained above, the term "substitution" does not precisely capture plaintiff's concern and will not be adopted, so it is unnecessary to consider defendants' attacks on that term.

Defendants add that the specification supports the map or table requirement because the examples of linking that it provides involve a map or table. '842 pat., col. 8, lns. 49-51 ("The addresses of the defective cell and the backup cell are stored as defectpointers in the defect map 409."); id., col. 11, lns. 48-52 ("When the number [of bad memory cells] in a sector exceeds a predetermined value, the controller marks that sector as defective and maps it to another sector. The defect pointer for the linked sectors may be stored in a sector defect map."). However, as the Court of Appeals for the Federal Circuit has "repeatedly warned," the scope of a claim should not be limited simply because a specific embodiment shows the requested limitation. Phillips, 415 F.3d at 1323. Even if an embodiment is the only one disclosed, it may serve to limit a claim only if it is clear that the patentee intended to limit the scope of the claims to the disclosed embodiment. Id.; see also On Demand Machine Corp. v. Ingram Industries, Inc., 442 F.3d 1331, 1339-40 (Fed. Cir. 2006) (limitation warranted because specification used the term "customer" repeatedly in specialized context); Nystrom v. TREX Co., Inc., 424 F.3d 1136, 1144-45 (Fed. Cir. 2005) (limitation warranted because written description and prosecution history used term "board" consistently to refer to wood decking materials cut from log). Defendants' cited evidence falls short of showing an intent to limit "linking" to using a map or table.

In addition, the limitation defendants seek to import into claim 1 is already found in claim 7 of the '842 patent, which depends from claim 1. Claim 7 discloses a form of "linking" that includes maintaining a list within the card that links such unusable blocks with addresses of corresponding ones of the other blocks that are usable, and wherein accessing a usable block includes referring to the list to translate the address of the unusable block into an address of a usable block.
Defendants point out that dependent claim 7 involves more than just using a map or table, but they do not deny that using a map or table is one of the features disclosed in this claim. The fact that the "map or table" requirement is spelled out explicitly in a dependent claim is strong evidence that the patentee did not intend the requirement to be a part of claim 1. If the requirement were already present in the independent claim, there would be no reason to repeat the limitation in the dependent claim. In short, defendants fail to support their contention that the claimed "linking" must be by map or table.

The fact that defendants' proposed limitation is unsupported does not mean that plaintiff is right when it says that the usable and unusable addresses can be "linked" by storing a single pointer in the unusable block that points to a usable block. A natural reading of "linking" does not suggest such an indirect relationship. The claim does not call simply for linking a defective block to a good block, but rather for linking the addresses of the defective and good blocks. According to plaintiff, a "linking" occurs when a defect pointer containing the address of a good block is placed somewhere in a defective block. Once the defect pointer is in place, if the controller generates an address in the defective block, it will find the defect pointer in that block and move on to the good block referred to by the defect pointer. In this setting, the blocks are linked, but the addresses are linked only in the sense that the good block address stored in the defect pointer is stored in the defective block (located in an address in the defective block). Plaintiff's proposed construction would stretch the claim language beyond what is acceptable. The claim language says explicitly that the "addresses" of the blocks must be linked but plaintiff's proposed construction does not include that requirement.

In conclusion, "linking the address of such unusable blocks with addresses of other blocks that are useable" need not take the form of a map or table, but must be something more than simply storing a pointer in the unusable block that points to a usable block.

5. Flat-Panel Display Device/ LCD Device

a. The Parties' Constructions

LPL argues that the "flat panel display device" is simply an apparatus with at least a flat display panel and supporting frames. Defendants assert that in the context of the invention, a "flat panel display device" includes a sandwich of layers or stack of components, including the flat display panel, held together or assembled by the first and second frames. ViewSonic further asserts that the stack of components are assembled along the edges. Defendants argue that the intrinsic record mandates such a construction and specifically point to the description in the common specification of an LCD device for support. n19 ViewSonic also submits that under LPL's construction, a portable computer would be a flat-panel display device, thereby rendering superfluous the non-asserted claims' term "portable computer."

n19 For example, Defendants cite to the '641 patent, 1:42-45: "The LCD device 130 has an LCD panel 132, a backlight device 134 fixed to the back of the LCD panel 132, and a supporting frame 136 for assembling the LCD panel 132 and the backlight device 134 along the edge."

b. The Special Master's Constructions

Based on the express language of the claims, the Special Master does not adopt that portion of Defendants' constructions requiring multiple layers assembled or held together, along the edge or otherwise. The Special Master does agree with the Defendants, however, that the flat-panel display device includes the first and second frames.

The language of claims 55 and 56 provides a definition of flat-panel display device. '641 patent, 12:1-18. Tellingly, both claims recite that the flat-panel display device includes only three main elements, namely a first frame, a second frame, and a flat display panel disposed there between. Thus, to limit the flat-panel display device to one that includes multiple layers would be contrary to the claim language and would, in the Special Master's view, improperly read in the preferred
embodiment of an LCD device. Mindful that other claims recite multiple layers, such as the backlight unit of claim 35 of the ‘641 patent, the Special Master adopts a construction that includes at least a flat display panel.

Additionally, the claim language further specifies that the flat display panel of the device is located between, or sandwiched by, the first and second frames. Claim 35 of the ‘641 patent recites, for example, that the "flat display panel is between the first and second frames." The claim term "between" does not require, however, that the panel and frames be assembled as Defendants argue. Instead the claim merely defines the location of the flat-display panel relative to the frames. The Special Master therefore concludes that requiring the frames and panel to be assembled, whether along the edges or not, improperly reads in the preferred embodiment from the common specification.

The term "LCD device," on the other hand, is specifically called out in claim 40 of the ‘718 patent. Because the language of claim 40 itself does not expressly define an LCD device, the common specification provides the best definition for that term. Phillips v. AWH Corp., 415 F.3d at 1315 ("The specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.") (internal citation omitted). Referring to Figures 4A-4C, the common specification defines the LCD device as an LCD panel, a backlight unit, and a supporting frame. ‘718 patent, 4:17-21. Also, Figure 4C shows that the backlight unit 14 and the panel 12 are disposed between the frames 14g and 16.

Accordingly, the Special Master's constructions are as follows:

<table>
<thead>
<tr>
<th>CLAIM TERM</th>
<th>SPECIAL MASTER CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>flat panel display device</td>
<td>A display device having at least a flat display panel sandwiched by the first and second frames</td>
</tr>
<tr>
<td>liquid crystal display (LCD)</td>
<td>A display device including a LCD panel and a device backlight unit both of which are sandwiched by the first and second frames</td>
</tr>
</tbody>
</table>

2. a liquid crystal layer which can have a homeotropic structure (‘028 patent)

CEA's proposed construction is: "the liquid crystal layer having molecules substantially oriented in a homeotropic direction."

Samsung's proposed construction is: "a liquid crystal layer which can have an alignment of liquid crystal molecules parallel to the same direction and perpendicular to the plane of the liquid crystal layer."

At oral argument, Samsung stated that the differences between the parties' proposed constructions were not meaningful and that Samsung would agree to CEA's proposed construction with the caveat that "homeotropic structure," and "homeotropic direction," recited in other disputed claim terms, would be construed as having the same meaning for both the ‘028 and ‘412 patents. 11

11 D.I. 1053 at 34-37; Id. at 85-87.

Consequently, the court adopts CEA's proposed construction: "the liquid crystal layer having molecules substantially oriented in a homeotropic direction."
The term "list" appears in claim 27 of the '226 Patent. It does not appear in the contested claims of the '136 Patent or the '244 Patent. Claim 27 of the '226 Patent states in material part that "each . . . data structure including a list of all computers on said network that permit caching to the I/O device . . ." ('226 Patent, at 28:20-23) (emphasis added). Claim 27 further claims "communicating over the network individually with each computer in the list of computers in the data structure." (Id. at 28:26-27) (emphasis added).

The Court must first look at the claim language and ascribe the plain and ordinary meaning to the phrase. Hockerson-Halberstadt, 222 F.3d at 955. The '226 Patent claims do not provide an explicit definition or attach a special meaning to the term "list." There is also no indication that the '226 Patent specifications use the term "list" in any other way than the term's ordinary and common meaning. The '226 Patent specifications provide that "the cache driver (10) uses its remote message communication channels (18) to send a message to each of the remote cache drivers in the list contained in the TCB (16) disk control structure." ('226 Patent, at 3:33-42) (emphasis added). The specifications further provide that "[t]he list of remote computers that can access the disk (12) is obtained from the TCB (16) disk control structure and a message is sent to all these remote computers using the remote message communication channels (18)." (Id. at 5:37-40) (emphasis added).

Given this use of "list" in the claim and specifications, there is no reason to define that term for the jury. See Generation II Orthotics Inc. v. Medical Tech. Inc., 263 F.3d 1356, 1367 (Fed. Cir. 2001) ("We can discern no sound basis on which to conclude that the word 'controlled,' as used in the claims, is in need of defining. . . .").

Oracle argues that "[t]he plain meaning of the term 'list' as that term is used in the specification and claims of the patents-in-suit, is an item-by-item series of numbers, words, or characters." (Instrument No. 77, at 23). Oracle provides no specific basis in the specifications or the claims to support its argument that the term "list" is restricted to an item-by-item series, or that the '226 Patent in any way implies such a construction. Oracle wholly relies on the testimony of its expert witness and its preferred definition in the IEEE Standard Dictionary of Electrical and Electronics Terms to support its argument. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS) STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS (Kim Breitfelder & Stephen Huffman eds.) (IEEE STANDARDS BOARD, 6th ed. 1996) [hereinafter "IEEE DICTIONARY"]). The Federal Circuit recently warned, however, that "extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence," and that "undue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the indisputable public records consisting of the claims, the specification and the prosecution history." Phillips, 415 F.3d at 1318 (citations omitted). Because the term "list," as it is used in the specification and claims, may be understood by both a person of ordinary skill in the art and a layman, there is no need to provide an additional definition. Accordingly, the Court finds that the term "list" means "list."
which may or may not be related to prompts used in automated formats. The term "operator station" appears to have a commonly understood and clear meaning and requires no further construction by the Court. Furthermore, the Court's interpretation is consistent with the plain meaning of the claims and the specification. See 285 patent, Col. 6:11-14 ("the block 29 represents the operations of coupling a caller to an operator station and transferring the appropriate format data to the station for prompting the operator."); Col. 8:12-15 ("Also, in certain situations, a connection to a live operator is to be terminated in favor of an interface to the processor. In either event, an existing format is terminated in favor of a fresh format."); Col. 12:20-23 ("calls are either interfaced to an operator who receives a format prompt, or interfaced to the processor according to a specified format."); see also AT&T Order at 634-35.

7. Term 18 (703 Patent, Claim 5)

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… the second level name server includes a load balancing mechanism that balances loads across a subset of the set of servers.</td>
<td>… a mechanism in the second level name server monitors the loads on a group of content servers in a content delivery network and distributes requests for objects among them to avoid overloading any single content server.</td>
</tr>
</tbody>
</table>

As discussed supra, Term 6, the specification uses the term "load balancing" to describe a two-step process to allocate requests to various servers in order to distribute the load, a preprocessing step on embedded object alphanumeric strings to randomly distribute object requests across a set of virtual servers, followed by an active step which translates virtual server hostnames into real server IP addresses to avoid overloading any single server. (See id. col.3 1.66 - col.4 1.4, col.11 11.6-10, 35-39.) This second step includes active instrumentation and adjustment of server loads. (Id.) Limelight seeks to have this limitation included in the claim construction. (See Docket # 71, 29.) Akamai concedes that load balancing "requires something more than load sharing." (Docket # 81 Ex. A, 31.) Given the construction of load sharing adopted by the court in Term 6, the court construes the "something more" in load balancing to be the additional limitation of actively monitoring the loading on the content servers.

5. Term 6 ('645 Patent, Claim 1)

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… being selected according to a load sharing algorithm enforced across the subset of the set of content servers associated with the given name server</td>
<td>… being selected by a procedure that distributes requests for objects among a group of content servers in a content delivery network associated with the particular name server to avoid overloading any single content server …</td>
</tr>
</tbody>
</table>

The conflict between the parties arises over the meaning of the words "load sharing." Limelight seeks to limit this term to an active, real-time algorithm which allocates server requests in order to "even out transient load peaks." (See Docket # 71, 29.) Akamai attempts to distinguish between load sharing and load balancing, arguing the former is broader and encompasses both the latter, which they argue is active, as well as "other load distribution methods." (Docket # 68, 24.)
The specification uses the term "load balancing" to describe a two-step process to allocate requests for objects to various content servers in order to distribute the load; a pre-processing step that allocates objects randomly across potentially available servers, followed by the active instrumentation and adjustment of actual server loads:

According to the present invention, load balancing across the set of hosting servers is achieved in part through a novel technique for distributing the embedded object requests. In particular, each embedded object URL is preferably modified by prepending a virtual server hostname into the URL. . . . This function serves to randomly distribute the embedded objects over a given set of virtual server hostnames. . . .

According to the invention, the virtual ghost names may be hashed into real ghost addresses using a table lookup, where the table is continually updated based on network conditions and traffic in such a way to insure load balancing and fault tolerance. . . . The low-level DNS servers monitor the various ghost servers to take into account their loads while translating virtual ghost names into real addresses. This is handled by a software routine that runs on the ghosts and on the low level DNS servers.

(‘645 Patent, col.4 ll.13-24, col.11 ll.23-27, 53-57 (emphasis added) (describing the preprocessing of embedded object alphanumeric strings to randomly distribute object requests across a set of virtual servers, followed by an active step which translates virtual server hostnames into real server IP addresses to avoid overloading any single server.).) The specification describes the goal of load sharing not as evening out transient load peaks, but as distributing object requests among a set of servers so that "no server becomes overloaded." (Id. col.11 I.67; accord id. col.11 ll.7-10 ("The local DNS server is responsible for returning the IP address of one of the ghost servers on the network that is close to the user, not overloaded, and most likely to already have the required data.").) Given the lack of clarity in the prior art and the lack of an explicit definition of load sharing in the specification, a limitation requiring that the load sharing algorithm avoid overloading the content servers comports with the understanding of a person of ordinary skill in the art's reading of the patent. Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) ("[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.").

2475
3. Having a Loadable Font Memory for Storing a Library of up to a Predetermined Maximum Number of Font Patterns

The phrase "having a loadable font memory for storing a library of up to a predetermined maximum number of font patterns" means that the character-based output device must contain a dynamically changeable storage area for storing a limited number of monochromatic characters. A character is an alphanumeric character or symbol or a graphic symbol or element or a combination thereof.

2476
1. IMX's Motion for Summary Judgment of Infringement

IMX begins its argument for summary judgment of infringement by asserting that the LendingTree Exchange literally infringes the '947 patent. IMX premises this contention primarily upon the alleged infringement by the LendingTree Exchange of independent claims 1 and 19. Pursuant to this argument, IMX contends that the LendingTree Exchange is a system for processing loan applications. The court has construed the term "loan application" to mean "a request for an extension of credit in a format that contains sufficiently detailed information to enable a lender to grant or deny the request." IMX asserts that the LendingTree Exchange allows borrowers to fill out a form (which LendingTree refers to as a "qualification form") that "collects significant personal information, financial information, and information about the loan
and property - everything that is required for a lender . . . to make a decision on whether to extend an offer (i.e., make a bid) on a loan to a prospective borrower." (D.I. 156 at 11) For ease of reference, the court will refer to the LendingTree Exchange qualification form as the "Qualification Form." LendingTree maintains that the Qualification Form "does not require or permit a prospective borrower to submit enough information to enable a lender to make a decision to extend credit." (D.I. 167 at 12) Thus, the scope of information contained in the Qualification Form is a central issue in the infringement analysis.

17. Local area network

Again, Seven argues that this term needs no construction. Visto urges that it means "a network that connects several computers that are located nearby to one another, allowing them to share devices and files." Although Seven does not dispute that a LAN requires several computers to be located in close proximity, Seven disputes that the computers on the LAN must necessarily share devices and files. The court has previously construed the term "network" to mean a plurality of computers that are interconnected so they can exchange information. A "local area network" is therefore defined as "a plurality of computers located nearby to one another that are interconnected so they can exchange information."

(ii) Local Area Network

The parties further dispute the construction of the term "local area network." The court construes the term "local area network" to be a network involving switching hardware or software. The language of element (c) provides for "preview station interface means, said preview station interface means separate from and directly connected to said data control means and said at least two preview stations by non-switched connections not involving a local area network." (Helget Aff., Ex. A, Col. 8, Lns. 26-30.) From this language, it is clear that the 908 patent does not include a LAN and that claim 1 defines a LAN to be switched connections. The prosecution history further makes clear that "any local area network, by definition, is switched, not non-switched." (Tolliver Dec., Ex. K at 3.) It emphasizes that a local area network includes "switching hardware and software." (Tolliver Dec., Ex. K at 3.) The fact that Premier does not favor a broad definition of LAN does not mean that Premier can construe the term more narrowly to its own advantage. The language of the patent and the prosecution history are binding. The court therefore construes the term "local area network" to involve a network that switches hardware and software, a construction that is consistent with both the patent language and the prosecution history.

4. "Local area network" ("LAN")

This term appears in claim 1 of the '510 patent, claims 1, 12, 14, 72, 84, 86 of the '368 patent, and claim 18 of the '280 patent. SercoNet contends that LAN means "a short distance communications network (typically within a building or campus) used to link computers and peripheral devices (such as printers, CD-ROMS, modems) under some form of standard control." NetGear's proposed construction for the term is "a configuration of devices, arranged in a serial (i.e., daisy-chained) fashion, but not a bus or star topology." SercoNet also maintains that the term need not be construed where it appears in the claim preamble.

Turning to the language of the claims, claim 1 of the '368 patent reads: "An electrical outlet for configuring a local area network in a building, the network including a powerline wiring carrying frequency multiplexed power and data signals. . . ." Claim 72 describes: "A service outlet for configuring a local area network in a building, the network including a service wiring carrying frequency multiplexed service and data signals . . . ." The remaining claims of the '368 patent (claims 12, 14, 84, and 86) are dependent on claim 72. Claim 18 of the '280 patent describes: "A device for configuring a local area network in a building for the transport of power and data signals across a wiring . . . ." Claim 1 of the '510 patent
sets forth: "A local area network for data communication, sensing, and control comprising a plurality of serial intelligent cells interconnected exclusively by electrically-conducing media into at least one communicating pair. . . ."

The term LAN is used generally in these claims, as the subsequent language in the claim terms supply more detail as to what the LAN comprises. For example, in claim 1 of the '510 patent, what is claimed is a "LAN for data communication, sensing and control comprising a plurality of serial intelligent cells . . ." If the court were to read the term "serial cells" or "serial" into the meaning of the LAN term itself, as urged by NetGear, it would create a redundancy in the claim language. In addition, the claim term contains the word "local." As the parties have explained to the court, a local area network is different from wide area networks and metropolitan area networks, in that it is on a much more localized scale. NetGear's construction does not include any limiting language addressing what it means for a network to be a "local area" network, whereas SercoNet's proposed construction explains what a local or "short distance" network means.

Turning to the specification, NetGear's proposed construction is at odds with intrinsic evidence, as the figures of the '510 patent and '360 patent show that not all devices configured within a LAN are SICs. The figures show that both SICs and personal computers are inter-networked. For example, the '510 patent notes that an example of a LAN of devices is illustrated in Figure 7, which in turn shows both SICs and personal computers connected to the network. See also '510 patent abstract (describing SIC network, noting that each SIC can be connected to data terminals, computers, telephones, sensors, etc.). It appears that NetGear is trying to use the term LAN to define the term "serial" as a daisy-chained network that does not include bus or star topologies. However, this construction fails for the same reasons set forth in the court's analysis of the first disputed claim term. And, while the '510 patent specification does emphasize the SIC topology as a fundamental feature of the invention and describes the invention as a network of SICs, this does not mean that the inventor meant to redefine the term LAN, especially as the figures and descriptions in the specification show that computers and modems may be part of the network as well.

SercoNet's proposed instruction comes from Newton's telecommunications dictionary, and is the ordinary plain meaning as one skilled in the art of electrical engineering would interpret it. This meaning controls here, as there is no contrary definition or disavowal in the specification.

As for whether the term LAN need be construed in the claim preambles, in considering whether a preamble limits a claim, "the preamble is analyzed to ascertain whether it states a necessary and defining aspect of the invention, or is simply an introduction to the general field of the claim." The inquiry is whether the preamble is "necessary to give life, meaning and vitality to the claims or counts." On Demand Mach. Corp. v. Ingram Indus., 442 F.3d 1331, 1343 (Fed. Cir. 2006) (quotations omitted). "If, however, the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999).

SercoNet claims that the term LAN need not be construed in claims 1, 12, 13, 72, 84, and 86 of the '368 patent and claim 18 of the '280 patent. In claim 1 of the '368 patent, the preamble describes an electrical outlet for configuring a local area network, and the claim then notes what comprises that outlet. The claim preamble, therefore, sets forth the framework of the invention and is "intimately meshed with the ensuing language in the claim." Pitney Bowes, 182 F.3d at 1306. Claims 12 and 13 merely build upon claim 1. The preamble language of claims 72 of the '368 patent and claim 18 of the '280 patent are very similar, both setting forth the frameworks of devices for configuring local area networks. All of these terms, therefore, must be construed.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "LAN" and construes the term "LAN" as: "a short distance communications network (typically within a building or campus) used to link computers and peripheral devices (such as printers, CD-ROMS, modems) under some form of standard control." This term shall be so construed in the both the claim preambles and the body of the claims.

GO BACK

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33. The method in accordance with Claim 1 further comprising communicatively linking said contributions accepting
devices in a local area network.

A "local area network" is a group of computers and other devices over a relatively limited area connected by a communications link that enables any device to interact with any other on the network.

17. Local area network

Again, Seven argues that this term needs no construction. Visto urges that it means "a network that connects several computers that are located nearby to one another, allowing them to share devices and files." Although Seven does not dispute that a LAN requires several computers to be located in close proximity, Seven disputes that the computers on the LAN must necessarily share devices and files. The court has previously construed the term "network" to mean a plurality of computers that are interconnected so they can exchange information. A "local area network" is therefore defined as "a plurality of computers located nearby to one another that are interconnected so they can exchange information."

18. Local area network that is further connected to the server

This term needs no construction.

H. "a local calling area of the caller"

Stanacard argues that this term should be given its plain and ordinary meaning or, in the alternative, be defined as "a calling area where a caller does not incur long distance or toll charges when making a call." Rebtel asserts that this claim term is insolubly ambiguous and therefore indefinite.

The specification explains that the "local calling area of the caller" is one in which "the caller does not incur long distance or toll charges." '156 Patent, col. 7:50-51. Thus, the "local calling area of the caller" is tied to whether additional charges are incurred by the caller in dialing into the claimed system. This is consistent with the goal of the claimed invention to capture one of the benefits of calling cards -- namely, placing calls without incurring toll charges. See '156 Patent, col. 1:29-32.

Rebtel notes that depending on a caller's calling plan, the local calling area may include the entire nation, or even the entire world. While those circumstances may render Stanacard's claimed invention useless insofar as it may not provide any monetary or convenience benefits, it does not render the disputed claim term meaningless or indefinite.

For the foregoing reasons, the term "a local calling area of the caller" is defined as "a calling area where a caller does not incur long distance or toll charges when making a call."

1. "local computer"

<table>
<thead>
<tr>
<th>Disputed Claim Term</th>
<th>Anthurium's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local computer</td>
<td>A computer from which an authorized user can initiate a job, either directly or indirectly</td>
</tr>
<tr>
<td>Disputed Claim Term</td>
<td>Defendants' Proposed Construction</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Local computer</td>
<td>A computer and software system for human user interaction that is physically close to the human user or his principal place of business and includes an information system that stores databases of information used to process jobs, and that is physically remote from the central computer.</td>
</tr>
</tbody>
</table>

This term appears in asserted claim 1 of the '998 patent. The defendants argue that the Court should limit the term in two ways--first, to add a geographic proximity limitation and, second, to add a systems limitation.

Regarding the system limitation issue, the controversy is whether the "local computer" includes the HOME computer, the DAD computer, the HIS computer, or all three. Both parties agree that the "local computer" is at least the HOME computer. The defendants assert that the "local computer" is a HOME computer and software system that actually also includes both the DAD computer and the HIS computer. Their construction requires that the "local computer" (HOME component) include both (1) the computer and software system that intakes dictation (DAD component) and (2) database of information needed to process a job (HIS component). Anthurium argues that the "local computer" does not require both the DAD and the HIS.

The claim language supports the defendants' construction. Claim 1 requires the "local computer" to perform three functions: (1) receive an originating job; (2) generate a job packet; and (3) interpret the job instructions. '998 Patent, cl. 1. The specification describes the system at issue in terms of DAD, HIS, and HOME. The DAD component accepts user dictation, and the HIS component contains the data necessary to process the jobs. See '998 Patent, col. 1 ll. 42-56, col. 2 ll. 55-62. To perform the recited functions in the claims, the "local computer" contemplates both a HIS component and a DAD component.

In addition to the claims, the specification also supports the defendants' construction. In every instance disclosed in the '998 patent, the HOME is specifically identified as consisting of two computer systems, DAD (initiate jobs) and HIS (databases to process jobs). '998 Patent, col. 1 l. 44-col. 5 l. 19. The patentee repeatedly and consistently defines "local computer" to be HOME and to have the ability to both initiate jobs and process them, necessarily involving both the HIS and DAD components as stated in the specification. In support of its argument to the contrary, Anthurium cites a portion of the specification that purportedly contemplates an instance where the HIS is separate from the DAD--"HIS can be either a part of the physical components of DAD or connected to DAD through a MIS connection." '998 Patent, col. 5 ll. 62-63. This argument is not persuasive. Although the DAD may or may not be physically a part of the HIS, the "local computer," at a minimum, embraces a system that includes both components, the HIS and the DAD. This is true even though they are separated via a MIS connection. Anthurium also points to a citation in which the patent purports not to require a "local computer" with a database. The cited portion states as follows:

Users of the system interact with the system through POT lines calls to DAD for voice or fax interaction . . . . Jobs are initiated by voice calls to DAD. If a job entails transcription the system may prompt for template to be used. . . . '998 Patent, col. 6 ll. 19-33.

The immediate sentence following the above cited passage, however, supports the defendants. "When a job is ready for Transcription, DAD passes the VOX File along with a skeleton Job record Transaction and the appropriate Template from its storage on HIS to MOM via an FTP." Id. at col. 6 ll. 34-37 (emphasis added). As such, the cited specification implies that the "local computer" must have the ability to process the jobs (HIS component), whether or not they are physically a part of the same computer.

The Court now turns to the geographical proximity limitation. The defendants assert that both the claims and specification supports the inclusion of a "physically close" and "physically remote." Looking to the claims, the defendants rely on a claims differentiation argument; claim 1 specifically refers to "local computer," a "central computer," and a "remote computer." '998 Patent, cl. 1. The defendants argue that without a geographic aspect to the construction, such differentiation would be meaningless. The defendants further argue that, if the inventor intended "local computer" to refer to a computer that can be situated anywhere without a geographical limitation, the inventor should have used the term "first computer," as
she did in the related '124 patent. Anthurium argues that "local computer" merely describes a user's computer or a "first" computer and nothing more.

The Court agrees with Anthurium as to the geographical proximity issue. The specification does not require "local computer" to be defined using either "physically close" or "physically remote." In fact, unlike the system argument, it is clearer in this instance that a physical proximity limitation would read a preferred embodiment out of the patent. One cited portion of the specification states, "[i]t is a great advantage of the present invention that an Author can create a multi-content file while working from a standard push-button telephone, anywhere in the world." '998 Patent, col. 4 ll. 17-19. Another cited portion states, "[t]he system of the present invention consists of (A) one or more 'HOME's, connected to an Internet provider not more than two 'hops' away from the Internet backbone . . . ." Id. at col. 4 ll. 52-56. This passage suggests that the user does not have to be "physically near" the "local computer." Furthermore, the use of "physically near" does not provide any guidance, as such limitations are too relative. Accordingly, the specification contemplates an indirect initiation of job to the "local computer," in addition to a direct initiation.

As such, the Court defines "local computer" as follows: "a computer system from which an authorized user can initiate a job, either directly or indirectly, that includes an information system that stores databases of information used to process jobs."

3. "local control system"

This term is used in claims 1, 2, 4, 5, 7, and 15 of the '967 Patent. WG seeks to construe this term as "a control system located on or near the streamer positions devices (e.g. birds)," while Ion seeks to construe the term as "system located within each streamer positioning device that uses the desired forces or desired position information from the global control system to control the movement of the wing(s)."

The arguments of the parties with regard to this term largely mirror those advanced with respect to the term "global control system." WG points out that the specification describes the local control system as being located "within or near the birds," and thus this term need not be restricted to "within each streamer positioning device." (017 Patent, col 3 ll. 39-40); Verizon, 503 F.3d at 1305 ("We normally do not interpret claim terms in a way that excludes disclosed examples in the specification.") WG further points out that the specification describes how the local control system interacts with the global control system using terms such as "embodiment," and "preferably." In other words, WG asserts that Ion's construction attempts to improperly limit how the local control system inputs and outputs data according to the embodiments provided in the specification. Ion once again invokes the "magic words" theory from Honeywell and argues that its own construction simply tracks the patentee's own description of the inventive control system's local control system.

This Court once again chooses to adopt WG's more general construction of the term local control system. As with the previous term, Ion's "magic words" theory ignores the specification language indicating the provided descriptions of the local control system and how it interacts with the global control system are only preferred embodiments. This specification language, therefore, does not constitute the type of "disavowal" of claim scope present in Honeywell, and will not be used to place strict limitation upon the scope of the patent claims.

Furthermore, both WG and Ion's arguments find some support in the specification, the Court once again notes that the manner in which the local control system is to function, and the inputs and outputs that it receives from the global control system, is often referred to within the patent claims themselves. As such, it is unnecessary to construe the term according to this description, as this would render the claims' description of the way in which the local control system is used redundant. Again, at this stage the Court is tasked only with construing one particular term, not with attempting to describe the functionality of the entire invention. Moreover, the Court notes that Ion's attempt to describe the functionality of the local control system within the construction of the term itself is unsurprisingly incomplete. For example, claims 4 and 5 of the '967 Patent teach a local control system that "calculates magnitude and direction of the deviation between" the desired position and the actual position. ('967 Patent, col. 11 ll. 37-47.) Such functionality is found nowhere in Ion's construction. Accordingly, the Court will once again apply the more general construction of "a control system located on or near the streamer positions devices (e.g. birds)."
1. "local digital data processing system"

EMC asks the Court to construe this term as: "A digital processing system (i.e., a computer system) restricted to a particular area." HP proposes (in its opposition brief): "A computer system comprising a processor that is directly connected to a main memory and an input/output system."

The claim language indicates that the local digital data processing system is part of a digital data processing system and that it includes a processor for processing data. Although the term does not appear in the written description, the specification does discuss a "local system," see, e.g., 184: abstract, which appears to be synonymous with the term. "The digital computer system in which the present invention is employed includes at least one local system including a processor and a universal memory accessible to the local system for storing data including instructions." 184:2/67-3/3. Thus, as described in the specification, the digital computer system is comprised of a universal memory and local digital computer systems that can access that universal memory. The claims acknowledge this view with additional limitations ("universal logical memory means accessible to each said at least one local system" and "local digital data processing system having access to said universal logical memory means"). The claims also include a limitation requiring the local digital processing system to include a "processor means." These limitations would be redundant if they formed part of the construction of the term.

The claim language requires "at least one" local system. However, it is instructive to refer to the 602 patent, which is incorporated by reference, to understand the purpose of including "local systems." That patent describes an advantage of the invention as

   providing a flexible internal system structure capable of performing multiple, concurrent operations, comprising a plurality of separate, independent processors, each having a separate microinstruction control and at least one separation and independent port of a central, independent communications and memory processor comprised of a plurality of independent processors capable of performing multiple, concurrent memory and communications operations.

602:4/3-11. Thus, the purpose of having "local" systems is that there could be multiple "local" systems. While claims 1 and 13 specifically include the possibility of having a single such system, it is the nature of a "local system" that there is the possibility of more than one distinct system. Accordingly, the word "local" signifies that the invention may include multiple, discretely located, and distinct systems.

Finally, nothing in the specification or claims of this patent or the 602 patent requires a processor to be "directly connected to a main memory and an input/output system." These proposed limitations are part of a described embodiment. Moreover, it is unclear what "directly" connected to would mean in the context of the claim.

Accordingly, the Court construes this term as "a digital data processing system restricted to a particular area and physically and logically distinct from any other local digital data processing system if one exists."

4. "local distribution system"

Claim 14 claims the following steps:

   receiving the transmitted compressed, digitized data representing a complete copy of the at least one item of audio/video information, at a local distribution system remote from the central processing location

The parties dispute the proper construction of the phrase "local distribution system" as that phrase is used in Claim 14 of the '863 patent. The '863 Patent is the first patent in the Yurt Family of Patents to use the phrase "local distribution system."
Under the principles of claim construction, there is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. Tandon Corp. v. U.S. Intern. Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). In addition, "[T]he terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. Tandon Corp. at 831 F.2d at 1023, citing 37 C.F.R. 1.75(d)(1).

The '863 Patent shares the same written description with the other Yurt Patents. The phrase "local distribution system" is not used in the written description or prosecution history. In Section IA2, above, the Court construed "central processing location" to be the location of the transmission system. Under the written description and drawings, the transmission system transmits only to "reception systems." Therefore, the Court construes "local distribution system" to have the same meaning as "reception system."

In Claim 14, the distribution system is limited to a "local" system. The Court construes this limitation to have its commonly understood meaning to skilled artisans in this field, namely, a geographic location in close proximity to the user or subscriber.

3 In the communications field, "local" is commonly understood as something in close proximity to a user's device. For example, "local access and transport area (LATA): (1) In the United States, a local geographic area in which a local telephone company is allowed to offer communications services;" "local area network (LAN);. . . (3) A communication network to interconnect a variety of intelligent devices (e.g., personal computers, workstations, printers, file storage devices) that can transmit data over a limited area, typically within a facility." IEEE 100: The Authoritative Dictionary of IEEE Standards Terms, 633 (7th ed. 2000).

The Court construes the phrase "local distribution system" as follows:

a reception system, as previously defined, located geographically close to subscriber receiving stations which are coupled to the reception system.

I. Local Memory

The Plaintiff argues that "local memory' requires no more detailed a definition than memory of a local computer,"" quoting the Microsoft Computer Dictionary. Defendants proffered construction is consistent with a more narrow definition of local memory: "a memory that is part of the local computer that is performing the steps of the recited method." But, during the hearing, the parties agreed to the construction "memory easily accessible to the client computer, either because it is physically part of the processor or is attached directly thereto -- as distinct from the memory of the remote server from which data must be downloaded." This definition addresses the Plaintiff's concern that local memory need not actually be physically part of the computer, for example, if located in a thumbdrive, and the Defendants' concern that it be clear that the local memory is distinct from the processor that may be running on the remote server. (Transcript, pp. 68-69)

The language in the disputed claims and the specification highlights that the "local memory", or "cache memory", n7 is the memory directly tied, although not necessarily physically, to the processor and not memory local to any other computing device or remote server. The data in the local memory must be available to the processor in a direct, rapid way that memory found elsewhere -- such as in the remote server -- is not. See, e.g., col. 11, 11. 58-61 ("The term cache memory is used herein generally to refer to any relatively small memory which can be accessed rapidly by processor and is used to save data which is most likely to be used by the processor."); col. 14, 11. 31-45 ("When a request for block, identified as "x," and having resolution level N, is received from renderer, cache manager determines, as indicated in block (FIG. 8), the level j of the highest resolution-level ancestor of block x stored in cache memory. If the block itself is stored in cache memory (i.e., j=N), the block is provided to renderer. Otherwise, the highest resolution level ancestor of block x which is stored in cache
memory is provided to renderer, as indicated in block. As described hereinbelow, cache manager downloads the rest of the
even the ancestors of block x from server in order of increasing resolution levels, as indicated by an arrow in FIG. 9. As the blocks
are received from the server, they are supplied to renderer so that the user sees an image whose resolution increases with
time.

The distinction between the local cache memory and the larger memory stores that are accessible through a
"communication link" is at the heart of the invention. Unlike prior art, this patent purports to display three-dimensional
images on a user's computer without requiring an unusually large "local memory" by streaming data from a remote source,
preferably over the Internet. (col. 2, 11. 7-20, 26-33.)

--- Footnotes ---
n7 The figures included in the patent refer to the "cache memory 32", and it seems clear that this is what is referenced when
the patent speaks of the "local memory." See col. 3, 11. 24-27 (referring to a "local cache memory"); col. 13, 1. 40 ("local
 cache memory").

--- End Footnotes ---

Construction: (local memory) memory easily accessible to the user's processor, either because it is physically part of the
processor or is attached directly thereto, and distinct from the memory of the remote server from which data must be
downloaded.

"Local Memory Device"

The parties disagree as to whether a local memory device must be "attached" to only a single computer (Oracle's view), or
whether it need only be "accessible" by a computer without having to go through another node or computer controlling
access to that device (Mangosoft's view). Neither party has, however, explained precisely how this dispute is, for purposes
of Mangosoft's infringement claims, a meaningful one. Nevertheless, because the parties seek an interpretation of that term,
the court will provide one.

The court concludes that, at the time the '377 patent issued, one of ordinary skill in the relevant art would understand that
the word "local" is used to describe computer devices that are directly attached to a single computer's processor (by, for
example, the computer's bus), without the need for an intervening communication channel. Thus, "local" devices are distinct
from "shared" or "networked" or "remote" devices which, by virtue of some intervening communication channel, might be
accessed by more than one computer (though a "local" device might also be "shared" with other nodes, through such an
 intervening communication channel).

Nevertheless, Mangosoft asserts that the use of the word "coupled" in the claim language (i.e., "local . . . memory device
coupled to said computer") suggests that the device need not be "directly attached" to the computer but may, instead,
communicate with the computer's processor in a more "indirect" manner. See '377 patent at 16:1-4. See also '229 patent at
28:29-32. The court is not persuaded. The use of the word "coupled" simply makes clear that the local memory device in
question must be "local" to the particular computer being described. It does not serve to modify or redefine the commonly
understood meaning of the word "local," as used at the time the patents issued.

The court to construe the disputed claim language as Mangosoft suggests, that construction would ignore the word
"local." In other words, by simply requiring a computer memory device that is somehow "linked" to a computer (whether
directly or indirectly), Mangosoft's construction would recast the claim so that it merely requires "a memory device coupled
to a computer." Importantly, however, the claim language requires a local memory device that is coupled to a computer. To
avoid rendering the word "local" entirely superfluous (or, at best, redundant), it must be given a meaning other than
"coupled."

Accordingly, as used in the '377 patent (as well as the '229 patent), the word "local" when used to modify a computer device
means a computer device (e.g., a hard drive) that is directly attached to a single computer's processor by, for example, the
computer's bus (though it may, of course, be accessed by other computers through any number of the interconnection

--- End ---
technologies discussed in the exhibits to the declaration of David Klausner (submitted with Mangosoft's Opposition Brief (document no. 43)). That is to say, a computer memory device that is "local" to one computer may also be shared with, or accessed by, other computers on the network (or, of course, other computers participating in the shared memory system).
language, Citrix contends that the whole point of the system claimed in Claim 1 is to store auxiliary site data on the local processor assembly so that the user can view it without downloading it over an on-line connection. As for the ordinary meaning of the term "local," Citrix points to definitions provided in various computer dictionaries in support of its construction:

local: adj. 1. In general, close at hand or restricted to a particular area. 2. In communications, a device that can be accessed directly rather than by means of a communications line. 3. In information processing, an operation performed by the computer at hand, rather than a remote computer. (Microsoft Computer Dictionary, 4th Ed. 2000)

local: located at the user's computer or site. Contrast "remote." (Barron's Dictionary of Computer and Internet Terms, 9th Edition 2006)

In support of its position that "local" in the term "local processor assembly" has no relation to a "user" or a "user's location," Rothschild turns to Claims 1-4 and 6 of the '534 Patent as well as the '534 Patent specification. Yet, Rothschild fails to explain how this intrinsic evidence supports its construction. In fact, Rothschild's proposed construction improperly ignores entirely the claim limitation "local." Rothschild's construction does not require that the "local processor assembly" be at the user's location or be accessible without an on-line connection. Accordingly, Rothschild's construction does not define a local processor assembly, but any processor assembly, even one that is remote from and not directly accessible by the user.

Accordingly, consistent with the '534 Patent's use of "local" and its ordinary meaning to one of skill in the art, the Court construes "local processor assembly" to mean "a computer at the user's location; in contrast to a 'remote' server assembly, the user can access data on the claimed 'local' processor assembly without an on-line connection."

2491

a) "Local Server Computers"

One critical element in claim 1 is the teaching of "one or more local server computers." Patent, at col. 14, ln. 3. Netword contends that a "local server computer" is nothing more than an "intermediate network node to which clients may be connected to and which provide immediate service for clients." Pl. Mem. at 8 (citing Patent, at col. 5, Ins. 60-63). According to Netword, this clause encompasses any server that "is linked to a central registry computer." Pl. Opp. Mem. at 8. Netword argues that any one of three computers in the RealNames system can be considered a "local server" -- 1) the RealNames Resolvers; 2) the Ternary Responder-Resolvers; 4 or 3) the customer web servers (e.g. IBM's web server) Netword states that all three of these computers have communications links to the central registry, and that therefore, all three can be considered "within the scope of" the "local servers" element. Pl. Opp. Mem. at 9.

4 Ternary Responders are the Resolvers that are attached to Alta Vista's web server; they are dedicated to that purpose. They are updated every few days with alias information. They are not, in any other way, connected to subscribers or users. See Decl. of Nicholas E. Popp, at PP3-7.
Centraal argues for a more limited construction of "local server computers." According to Centraal, "local server computers" refers only to "intermediary computers that cache certain frequently accessed alias records, transmit cached alias records to client[s] and requests updates of alias records from the central registry." Def. Rep. Mem. at 6 (citing Patent, at col. 6, Ins. 21-31.) Specifically, Centraal contends that its Resolver computers do not cache frequently accessed alias records, and that therefore, the accused system does not infringe the '906 patent's "local server computers" element.

The plain language of the patent makes clear that caching is critical to the function of a local server, and that unless there is caching, the device cannot be considered a local server for purpose of this patent. As the patent teaches: "The Local Servers . . . shall 'cache' Resource Alias-related information . . . ." Patent, at col. 6, Ins. 24-25. Because the patent requires caching by the local server computers of the alias information, we reject Netword's contention that a customer's web server (e.g. IBM's own web server) is the type of local server taught by the patent. A customer's web server does not receive requests from users, and therefore, the web server would never have to search its memory to match the alias with the address of the desired resource.

5 The parties do not dispute the basic definition of caching. Caching is when a computer stores information in its memory, and at the direction of a software command, searches or polls that information to find the desired result.

2492

The '906 patent, entitled "Universal Electronic Resource Denotation, Request and Delivery System," describes and claims a system for locating and retrieving information on a distributed computer system or network, such as the Internet, using so-called "aliases" (informal or incomplete designations) to denote resources whose retrieval is sought. The accused Centraal system, having the brand name RealNames, also locates and retrieves Internet information using aliases. In both systems, when a user enters an informal designation (e.g. "IBM") the systems direct the user's computer to the corresponding resource (e.g. the web site of "International Business Machines, Inc.") The dispute concerns how these systems are structured and operate.

The '906 patent system is directed to a computer network as set forth in claim 1:

1. An electronic resource denotation, request and delivery system within a network which shares information resources among its user community, comprising:

   a central registry computer whose action is directed by software components,

   one or more local server computers whose actions are directed by software components and linked to the central registry computer;

   one or more client computers whose actions are directed by software components, and linked to a local server computer;

   wherein the software components in these computers operate in concert as a distributed entity to allow client computers to denote resources with aliases that are unique across said server computers and said client computers, and further allow client computers to retrieve information corresponding to said aliases; and

   wherein said aliases are maintained in at least said central registry computer and one or more of said local server computers.

As described in the '906 patent, the central registry computer and local server computer maintain aliases and associated
The '906 specification states that the local server computer functions to "cache" or locally store frequently accessed alias records, to obtain updates from the central registry computer, and to transmit records from the cache to the client computer. The specification states that the client computer first searches its own limited database and, if the alias is not stored therein, then requests the information from the local server computer, which in turn has a limited database that may be updated by request to the central registry database. In the '906 system the local server computer only queries the central registry computer when the resource alias can not be found in the local server's database. The specification explains caching as encompassing the storage of Resource Alias-related information for a period of time or while this information continues to be accessed at a reasonable rate. That such storage is inherently limited is shown in the '906 specification's statement that "the aggregate of Resource Alias-related information at such a site directly reflects the level of use or access of a particular subset of the totality of Resource Aliases maintained in the central registry.

Netword argues that the local server computer is a site containing a limited database of aliases reflecting the level of use or access of the total of aliases maintained in the central registry. Thus the local server computer is a site containing a limited database of aliases, for claim 1 does not state this limitation. Netword argues that the functions of "caching" and "pulling" information by the local server are not required by claim 1, and that the district court impermissibly imported limitations into claim 1 from the specification and from claims 6 and 7. Centraal responds that the specification and the prosecution history stress the role of the local server as an intermediary computer with a limited database that stores frequently accessed alias records; the central registry computer updates this limited database on request from the local server. Centraal states that the district court correctly construed claim 1 as requiring that software components in the local server computer perform these functions.

Netword's argument that the district court improperly limited the scope of claim 1 by importing the caching and pulling functions from the specification misperceives the role of "claim construction" in infringement analysis. The role is neither to limit nor to broaden the claims, but to define, as a matter of law, the invention that has been patented. The claims are always construed in light of the specification, of which they are a part. See Slimfold Mfg. Co. v. Kinkhead Indus., Inc., 810 F.2d 1113, 1118, 1 U.S.P.Q.2d (BNA) 1563, 1566 (Fed. Cir. 1987). The role of the specification includes presenting a description of the technologic subject matter of the invention, while the role of claims is to point out with particularity the subject matter that is patented. See 35 U.S.C. § 112 PP 1, 2. The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose. Thus the claims are construed to state the legal scope of each patented invention, on examination of the language of the claims, the description in the specification, and the prosecution history. See Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250, 48 U.S.P.Q.2d (BNA) 1117, 1122 (Fed. Cir. 1998) ("The interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.").

Although the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, see Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186, 48 U.S.P.Q.2d (BNA) 1001, 1005 (Fed. Cir. 1998), neither do the claims enlarge what is patented beyond what the inventor has described as the invention. "Claim construction" is the judicial statement of what is and is not covered by the technical terms and other words of the claims. See United States Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568, 41 U.S.P.Q.2d (BNA) 1225, 1236 (Fed. Cir. 1997).
database of aliases separate from that of the central registry computer, and that claim 1 was incorrectly construed.

Centraal responds that the '906 specification defines the local server computer as an intermediary computer that caches frequently accessed alias records, transmits cached alias records to the client computer, and requests updates from the central registry. Centraal points to various statements to this effect during prosecution of the '906 claims. Although the specification indeed shows the alternative system which simultaneously performs both central registry and local server functions, we agree with the district court that even in that system the distinct local server functions must be present and be performed as described in the specification.

We conclude that the district court correctly construed claim 1 as requiring a local server computer that has a limited database of aliases and that may request updates from a central registry computer. The district court's construction of the claimed element "local server computer" as requiring performance of these functions is affirmed.

CLEVENGER, Circuit Judge, dissenting.

The majority holds that the district court correctly interpreted claim 1 to require a local server computer that has a limited database of aliases and that requests updates from a central registry computer. The majority also agrees with the district court's decision that the accused RealNames system lacks those functions.

I respectfully disagree with the majority. It certainly is true that dependent claims of the '906 patent, such as claim 6, define a local server computer that has a limited database of aliases and that requests updates from a central registry computer. Netword does not assert those claims against the RealNames system. The question before us is whether the admitted limitations found in the dependent claims are also present in claim 1, quoted in the majority opinion, which on its face does not restrict a local server computer to a limited database of aliases, and which does not specify the manner in which a local server receives the database of aliases that it maintains.

According to claim 1, the claimed system must include a central registry computer and at least one local server computer "wherein said aliases are maintained." Nothing in the claim language specifies that a local server computer cannot maintain the same database as is maintained by central registry computer, and nothing in the claim language precludes a local server computer from receiving its database of aliases by periodic communication from the central registry computer. In short, the mandatory limitations imposed on a local server computer in claim 1 by the district court and by the majority--a limited database of aliases and maintenance of aliases by the local server computer as a result of requests made by it to the central registry computer--are not present in the claim.

Those two mandatory limitations are also not present in the written description, which only states that the mechanisms for keeping the local server up to date "may include" (not must include) requests made by the local server to the central registry computer. The file history of the patent clearly indicates that the update function can also be provided without such "bottom up" requests, by using "top-down" communication: the applicant describes the claimed system as "a centralized, top-down hierarchy of maintaining the alias database." And the specification describes the same manner of updating the database, i.e., "push down" of information by periodic updating from the central registry to other computers in the system that meet the definition of a local server computer. See column 6, lines 15-20; column 8, lines 1-6.

At another point in the file history, the same point is made, as well as the point that the local server computer may maintain the entire database that is maintained by the central registry computer. That part of the file history, included by the applicant as a "General Comment," reads:

The system is maintained and operated using a single master database, and various distributed copies of all or part of that database which can be accessed by clients. The databases at various levels are interactively updated by obtaining changes from the master database. These changes can be obtained both on a periodic basis, and whenever the requested alias name is not located in a client's local database.

(Emphasis supplied.)
These features of the specification and of the file history are not credited by either the district court or the majority. I have no quibble with the fact that the file history and the specification disclose a local server computer that has a limited database of aliases and that achieves its updating function by making requests of the central registry computer. Unlike the majority and the district court, I would treat those disclosures as explanations of the dependent claims to which they clearly relate. In short, I detect nothing in the specification or the file history that requires a local server computer in claim 1 to have a limited database of aliases that is updated only by requests made to the central registry computer. Indeed, the file history and the specification, as demonstrated above, actually teach that claim 1 does not carry the limitations imposed on it by the district court and the majority.

Because the correct interpretation of local server computer in claim 1 includes a local server that maintains a database equal to that of the central registry computer and that achieves its updating by periodic updates pushed down to the local server by the central registry computer, the summary judgment of noninfringement must be reversed, insofar as it relates to the question of whether the accused system meets the local server computer limitation of claim 1.

B. A "Local Unit" is "an Element of the Network Separate from the Central Information Bank."

The term "local unit" appears in asserted claims 1, 3, 11, 15, 17, 19, and 23. In each of the claims, the "local unit" is the unit that is "communicatively coupled" to the central information bank. The central information bank is presumptively at a distance from the end user, whereas the "local unit" is close to the user, because it is the device from which he or she can download content from the system. In this context, the ordinary meaning of the term "local unit" is a unit that is a member of a network that includes a central information bank, but is more "local" to the user than the central information bank. Again, Digeo's proposed construction reflects the ordinary meaning. Again, Audible proposes a construction divorced from the ordinary meaning: "a self-service user interactive information vending device, such as a kiosk or book bank." Audible Br. at 15.

Although the specification does not use the term "local unit," it uses the words "unit" and "local" in a manner consistent with the ordinary meaning noted above. A "unit" is simply an element in the network. Sometimes it is an element contained within a larger element. E.g., id. at 2:52-53 (disclosing a "central processing unit contained within the Book Bank"); 7:43-45 (disclosing a central processing unit in a fileserver). In other instances, a "unit" may be a stand-alone element. E.g., id. at 14:9-10 (disclosing a separate "memory storage unit"); id. at 14:35-41 (disclosing promotional units).

The adjective "local" usually refers to a capability or feature contained within something, as opposed to a capability or feature that it must get from another unit or system. In this vein, the patent discusses a "customer service terminal" with "local processing capability," id. at 7:33-34, and a "Book Bank" that contains "local memory storage," id. at 2:44-45. In other disclosures, the specification uses "local" to refer to areas away from the central hub of a system. E.g., id. at 7:65-67 (discussing how external "network systems such as institutional or corporate network systems with local merchants terminals" can be coupled to the network).

The "local unit" of the asserted claims is a unit with particular capabilities that the surrounding claim language describes explicitly. In Claim 1, for example, the local unit must be communicatively coupled to the central computer, and it must include memory for storing information from the central computer, as well as a processor for transferring the stored information to a user's storage media. The local unit must also be configured to dynamically encrypt information.

Despite these explicit limitations, Audible insists that the term "local unit" contains implicit limitations as well. Audible focuses on the "Book Bank," which the specification describes as the "interface between the network and the user," id. at 2:37-38, and explains that it is a "self-service, user interactive information vending device."

Id. at 2:43-44. In "one embodiment," the Book Bank is housed in a kiosk that permits an in-store user to select and purchase media content. Id. at 8:14-38 & Fig. 5. The in-store kiosk is merely an embodiment of a local unit, and the court declines Audible's invitation to treat it as a limitation on the term. See Dow Chem., 257 F.3d at 1378. The specification's description of the Book Bank as a "self-service, user interactive information vending device" is not meant to limit the term "local unit,"
but rather to illustrate a local unit in accordance with the claims. Even if the court agreed that the Book Bank is the only embodiment of a local unit in the specification, the Federal Circuit has "expressly rejected" the notion that the court must construe the term in accordance with a single embodiment. Phillips, 415 F.3d at 1323. Patentees are encouraged to use examples to illuminate their claims. See id. ("[I]t is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so."). Absent a clear disavowal of full scope of "local unit," the court declines to penalize the inventors of the 823 Patent for providing an example of their invention that is not as broad as the scope of the patent.

For these reasons, the court construes the term "local unit" as "an element of a network separate from the central information bank."

II

We now consider whether the district court's failure to require the "localized wireless gateway system" of asserted claims 1 and 6-8 of the '880 patent to operate with a range of a "few feet" (discussed above) was error. Again we need not decide whether raising this claim construction issue at the Markman stage excuses compliance with the requirements of Rule 51. This is so because the trial record establishes that it indeed would have been futile for Vonage to object at the jury charge conference to the district court's construction of the claim term "localized wireless gateway system," on the ground that the district court failed to limit the range of such a system to a "few feet." 5

--- Footnotes ---
5 During the trial Vonage sought to present expert testimony that the claims required that the patented system was limited to a range of a "few feet" and that the Vonage system was not so limited. Verizon's counsel objected, arguing that "[t]he Court has already construed the claim and there is no need for anything with respect to the prosecution history. The Court has already looked at it and, frankly, rejected this proposed limitation which Vonage offers." J.A. at 6046 (1144:10-14). In response the district court sustained Verizon's objection. Verizon itself clearly understood the district court to have announced that the construction of this term was finally determined: later in the trial Verizon again argued that the claim construction of this term was finally determined and not open to being reargued at trial, and that Vonage testimony regarding the operating range of one of its devices should be excluded. See J.A. at 6061. Under these circumstances a further objection would have been futile, and the claim of error was preserved.

--- End Footnotes ---

Vonage proposed construing the term "localized wireless gateway system" to mean "a plurality of base station transceivers with a limited range of a few feet and a packet service gateway that compresses/decompresses and packetizes voice signals." Appellants' Br. at 26 n.7 (emphasis added). Vonage argues that the gateway is limited to a transmission range of only a few feet because of statements made by the patentee during prosecution of a related patent of the same family as the '880 patent that so limited the term. The district court instructed the jury to interpret the term "localized wireless gateway system" as: "a system which is fixed to a limited or local area and which provides wireless service coverage within that local area," and did not include a "few feet" limitation. J.A. at 6623.

We have held that a statement made by the patentee during prosecution history of a patent in the same family as the patent-in-suit can operate as a disclaimer. Microsoft Corp. v. Multi-tech Sys., Inc., 357 F.3d 1340, 1350 (Fed. Cir. 2004) (statement made during prosecution of related patent operated as a disclaimer with respect to a later-issued patent). To operate as a disclaimer, the statement in the prosecution history must be clear and unambiguous, and constitute a clear disavowal of scope. Id., at 1356-57.

--- Footnotes ---
6 See Alloc, Inc. v. Int'l Trade Comm'n, 342 F.3d 1361, 1371-72 (Fed. Cir. 2003) (statements made during prosecution of parent patent surrendering subject matter binding on later interpretation of the claims); Augustine Med., Inc. v. Gaymar Indus., Inc., 181 F.3d 1291, 1300 (Fed. Cir. 1999) ("[T]he prosecution history of a parent application may limit the scope of a later application using the same claim term."); see also Phillips, 415 F.3d at 1317 ("[T]he prosecution history can often
inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.

Chimie v. PPG Indus. Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) ("The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution.") (internal quotation marks omitted).

Such a clear disavowal has occurred here. The claims of the '880 patent originated in U.S. patent application No. 08/814,291 ("291 application"). During prosecution the examiner issued a restriction requirement on the ground that the '291 application covered two independent and distinct inventions. The applicants then filed divisional application No. 09/363,750 ("750 application"), pursuing some of the claims of the original '291 application, which was allowed as the '880 patent. The remainder of the claims of the original '291 application in turn matured into U.S. Patent No. 6,542,497 ("497 patent"). The claims of both applications require a "localized wireless gateway system." During prosecution of the '291 application the applicants' claims were rejected based on prior art wireless gateway systems.

The applicants gained allowance of the claims of the '291 application after stating that the prior art systems "all appear to be directed to non-localized systems," and that the "present invention," by contrast, was "restricted to operate within a few feet from a base station (i.e. wireless handsets)." J.A. at 7191. Thus the applicants stated:

Even further, [the prior art references] all appear to be directed to non-localized systems. More specifically, Applicant respectfully submits that although the term "wireless" is used in [the prior art references], "wireless" does not mean "local wireless," as claimed by the present invention, in the sense of a cordless phone that is restricted to operate within a few feet from a base station (i.e. wireless handsets). The term "wireless" in [the prior art references] is directed to systems having wide-ranging networks of switching machines.

Id. (emphasis added). The applicants also stated:

[A prior art reference] arguably appears to disclose a local cellular or local wireless system, such as, for example, a cordless phone that is restricted to operate within a few feet from a base station. However, [the reference] does not disclose anything related to voice-over-internet or voice-over-internet protocol.

Id. at 7189 (emphasis added). We think that this language clearly disclaimed coverage of systems operating with a range greater than a "few feet," and that the district court erred in failing to construe the localized system as requiring a range of a few feet.

Verizon nonetheless argues that the disclaimer in the '291 application process (leading to the '497 patent) should not apply to the '880 patent because it occurred after the '880 patent issued. We reject this argument. As we held in Microsoft, where we faced the same situation (disclaimer occurred after patent-in-suit had issued), "we think that it is not unsound to apply the same interpretation to th[e] patent[-in-suit]," "even though [that] patent had already issued." 357 F.3d at 1350.

Showing that the district court erred in instructing the jury is not sufficient to warrant a new trial, however. Vonage also must show it was prejudiced by the district court's error. 7 Vonage argues that it was prejudiced by the district court's error because several of its devices operate with a range greater than "a few feet" and, therefore, had the district court adopted Vonage's proposed instruction, those devices would not have been shown to infringe. As discussed above, because of the district court's claim construction Vonage was not able to introduce evidence that its telephones did not operate beyond a range of a "few feet." The record also clearly shows that it was prepared to offer such evidence. Under such circumstances we believe that Vonage has satisfied the requirement of prejudice. The district court's error in failing to limit the localized system to one with a range of a few feet therefore requires a new trial under the correct construction.

--- Footnotes ---

7 See Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1381 (Fed. Cir. 2005); Ecolab Inc. v. Paraclipse, Inc., 285 F.3d 1362, 1374 (Fed. Cir. 2002) ("[T]o warrant a new trial, Ecolab must show that the erroneous jury instruction was in fact prejudicial. When the error in a jury instruction could not have changed the result, the erroneous instruction is harmless.") (internal quotation marks omitted); Advanced Display Sys., 212 F.3d at 1281 ("A party seeking to alter a judgment based on
erroneous jury instructions must establish that . . . the errors had prejudicial effect.); Biodex, 946 F.2d at 854 (holding that a party challenging jury instructions "has a two-fold task [and] must both prove the jury instructions read in their entirety were incorrect or incomplete as given and then demonstrate that the suggested instruction could have cured the error"); 11 Charles A. Wright et al., Federal Practice and Procedure § 2886 (2d ed. 1995).

Since a new trial is necessary on the issue of infringement with respect to the '880 patent, we believe it appropriate to interpret other claim terms that are disputed by the parties on appeal and are likely to be at issue in the new trial. Vonage challenges the district court's construction of the term "localized wireless gateway system" of asserted claims 1 and 6-8 of the '880 patent (the same term pertinent to the "few feet" limitation) on the ground that the district court erred in failing to require that the patented gateway system "compress[/decompress[/ and packetiz[е] voice signals." Appellants' Bf. at 26, n. 7. We agree. The "Disclosure of the Invention" section of the '880 patent begins with a description of the gateway system of the "present invention." '880 patent col.4 ll.1-6. In the course of describing the "present invention," the specification then states that "]the gateway compresses and decompresses voice frequency communication signals and sends and receives the compressed signals in packet form via the network." Id. ll.12-15. When a patent thus describes the features of the "present invention" as a whole, this description limits the scope of the invention. Honeywell Int'l, Inc. v. ITT Indus., 452 F.3d 1312, 1318-19 (Fed. Cir. 2006); Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("[T]he characterization of the coaxial configuration as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure."); see also Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1368 (Fed. Cir. 2007) (specification's description of a "critical element" found limiting). Thus the term "localized wireless gateway system" must be limited to one performing compression and packetization functions at the gateway.

8 Verizon argues that the "present invention" language is not significant in this case because the specification merely refers to "one aspect" of "the present invention." But that "aspect" is the "localized wireless gateway system," the very claim term that is at issue here. See '880 patent col.4 ll.6-7 ("Thus, in one aspect, the present invention relates to a localized wireless gateway system.").

Vonage also argues that the district court erred in failing to require that the "localized wireless gateway system" have multiple base station transceivers, because the specification states that "]the inventive system includes a plurality of base station transceivers." '880 patent col.4 ll.7-8. However, we have held that a limitation requiring a "plurality" may be satisfied by a single object. Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1335 (Fed. Cir. 2001) ("[T]he reference to a plurality . . . can consist of one material object."). Therefore, Vonage has failed to show error in the district court's interpretation.

Finally, Vonage challenges the district court's construction of the claim term "wireless telephone terminal" of asserted claims 1 and 6-8 of the '880 patent. The district court instructed the jury to construe the term as "a telephone that communicates through radio signals to provide two-way voice communication." J.A. at 6623. Vonage alleges that the district court improperly failed to require that the "Wireless Telephone Terminal" roam among a plurality of base stations. Vonage's argument is meritless. Although the specification on occasion makes reference to "roaming" telephones, Vonage fails to identify language that would require roaming in every case. Vonage argues that because the patent requires multiple base stations, telephones must then roam between base stations. But we have rejected the contention that there must be multiple base stations, and the claims do not require roaming.

We conclude that the district court erred in construing the term "localized wireless gateway system" by failing to require that the system be limited to an operating range of a few feet and perform compression and packetization functions, but hold that in other respects there was no error.
8. locally generated video signal (‘825 Patent only)

The plain and ordinary meaning of "locally generated video signal" is a video signal that is generated at the headend, i.e., locally to the switching system. To fully understand the nature of this signal, it is necessary to look to the specification. According to the specification, the "locally generated video signal ..." corresponds to one of a plurality of digitally formatted video signals stored locally at or near the switch." ‘825 Patent, col.2, 11.40-42. In contrast to the "local video signal" of the ‘883 Patent, the "locally generated video signal" is not restricted to gap filler. Rather, the preferred embodiment of the ‘825 Patent discloses an insertion system in which some of the commercials from the stream comprising the commercial insert video signal can be replaced by commercials from an alternate stream compiled from digitally formatted signals that are stored at the headend. A gap filler, such as a still frame video, is also disclosed. See id. col.6, 1.22 to col.7, 1.64.

Additionally, the "locally generated video signal," also referred to in the patent as "local video signal" or "third video signal," is the subject of two means-plus-function elements, and its meaning must be consistent with the meaning of these elements. First, the claim recites a "means for storing" the "digitally formatted" local video signals. Id. col.11, 1.11. Second, the claim recites a "means for obtaining from said means for storing, and outputting" the local video signals. Id. col.11, 11.13-14.

The specification describes the structure corresponding to the functions of storing, and obtaining from storage, the local video signals: A computer located at the headend contains a microprocessor that "obtains digitally formatted video signals from the memory, and applies those signals to the third video inputs ... via digital video interface ("DVI") boards. Id. col.4, 11.59-66. The computer includes both digital commercial insert ("DCI") memory and a mass storage digital video source. See id. col.4, 1.66 to col.5, 1.14. The DCI memory can be used to store "significant amounts of digitally formatted video signals such that these digitally formatted signals can be quickly manipulated and loaded into various DVI boards." Id. col.4, 1.68 to col.5, 1.3. The mass storage source is slower, and may consist of RAM, a hard disk, a digital network, a CD-ROM, or a digital tape player. See id. col.5, 11.8-13, 15-23 (Table 1).

Defendants assert that the local video signal is used as an alternative output to the commercial insert signal during a local avail and that the same advertisement must be inserted into all local time avails offered concurrently on all programmed channels. It is clear from the claim that the local video signal is provided as an alternative to the commercial insert signal, either of which can be selected for insertion into a local avail. However, the claim does not state the additional limitation that the same advertisement from the local video signal must be inserted on all channels. Indeed, an illustration is provided in the preferred embodiment in which different digital segments are concurrently shown on different channels. In fact, the specification expressly provides that

the video switch system of the present invention provides greater flexibility than the video switch system disclosed in the [‘883 Patent] ... In the present system, multiple DCI sequences can be played through one or more of the video switches and, hence, channels broadcast by the cable system. In contrast, all the switches in the second input state must play the same ACI [commercial insert signal] segment.

Id. col.8, 1.64 to col.9, 1.3. Thus, while the same commercial insert signal is sent to all switches, different locally generated video signals can be inserted by different switches.
inconsistent with the claims' requirement that the PRN generator device be in a sealed casing, with the specification's teaching that the PRN generator device is installable by the user on-site, and with the depiction in Figure 1 of the PRN generator device 22 as being separate from the CPU 12 and the main memory 14. Secondly, he argues that the court's construction of the phrase "located in the computer" is inconsistent with the court's construction of the term "computer" because the latter does not include the CPU circuit board. Thirdly, he urges that he did not distinguish his invention over Thomas during prosecution on the basis of the location of the PRN generator device.

Rainbow responds that the court's construction is the unambiguous result of the intrinsic evidence. Rainbow draws attention to the fact that the patent claims refer to a "computer," whereas the specification describes a "computer system" with reference to Figure 1. Thus, according to Rainbow, a "computer" is something less than a "computer system." Rainbow also defends the court's construction of the phrase "located in the computer" by arguing that it is consistent in part with the court's definition of the term "computer," that Pickholtz's broader construction would render the phrase superfluous, and that the prosecution history compels the court's construction.

In interpreting claims, a court "should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conceptions, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996). Only if a disputed claim term remains ambiguous after analysis of the intrinsic evidence should the court rely on extrinsic evidence. 90 F.3d at 1583, 39 USPQ2d at 1577.

We agree with Rainbow that the proper construction of the term "computer" follows without ambiguity from the intrinsic evidence; however, that construction is not as Rainbow contends. Instead, we agree with Pickholtz that the '353 patent uses the terms "computer" and "computer system" as synonyms. Although we would typically be inclined to give meaning to the word "system," rather than regard it as surplusage, see Elekta Instrument, 214 F.3d at 1307, 54 USPQ2d at 1913, the patent in this case provides no indication that the two terms mean different things. Instead, the patent uses the term "computer system" in the specification and the term "computer" in the claims; nothing in the patent itself explicates their relationship or indicates any difference in meaning.

The remaining intrinsic evidence, the prosecution history, does not compel a different result. Pickholtz originally submitted the claims in vastly different form, referring to the invention as part of a "data processing system" and reciting "a pseudorandom number generator at the data processing system." Pickholtz changed the claims into their allowed form after the PTO rejected the claims as being obvious in light of the Thomas patent. Although Thomas clearly uses the terms "computer" and "computer system" in a part-whole relationship, '519 patent at fig. 2, col. 5, ll. 18-25, Pickholtz did not distinguish his invention over Thomas on the basis of any difference between a "computer" and a "computer system." Despite Pickholtz's argument to the PTO that Thomas lacks a "[PRN] generator device located in the computer," Thomas clearly discloses PRN generating software, and that software is located in the core "computer" part of Thomas's "computer system." '353 patent at col. 4, ll. 37-48 (disclosing that the PRN generator is software loaded into the working memory and executed by the CPU). Pickholtz's argument, although inaptly stated, can only be understood to mean that he considered Thomas's software to not contain a PRN generator at all. Thus, although Pickholtz may have been casual and gratuitous in amending his claims and making arguments to distinguish over the Thomas patent, nothing in the prosecution history convinces us that the terms "computer" and "computer system" in the '353 patent have different meanings, even if they might have in the Thomas patent.

Accordingly, the district court erred when it concluded that the intrinsic evidence unambiguously imparted different meanings to the terms "computer" and "computer system." On the contrary, they are used interchangeably in the '353 patent. Because the meaning of the term "computer" can be resolved from the intrinsic evidence alone, we need not rely on any extrinsic evidence, see Vitronics, 90 F.3d at 1582, 39 USPQ2d at 1577, which in any event is not conclusive. While Pickholtz advanced a number of technical dictionaries defining "computer" as inclusive of peripherals, as well as expert testimony to the same effect, Rainbow disputed the meaning of those technical dictionaries and offered contrary expert testimony.

Furthermore, as the patent's specification includes one peripheral, a disc "reading means," as part of the "computer system," '353 patent at col. 6, ll. 11-12; fig. 1 (disc 18), the synonymous term "computer" in the claims must include at least some peripherals. However, the term "computer" cannot be so unbounded as to include all devices connected in any way to the CPU, or else the phrase "located in the computer," and particularly the word "in," would become meaningless. A peripheral distantly connected reasonably cannot be "in the computer." Therefore, not everything somehow connected to a CPU can be
a peripheral in the sense of being part of the "computer." At the very least, however, the term "computer" encompasses peripherals that are within a reasonable proximity to the CPU and its main memory and directly connected to the CPU or the CPU circuit board. We need not, and indeed cannot, attempt to precisely define which peripherals may be part of the "computer" as used in the '353 patent for all cases. See EMI Group N. Am. v. Intel Corp., 157 F.3d 887, 895, 48 USPQ2d 1181, 1187 (Fed. Cir. 1998) ("It is irrelevant whether the district court achieved a technologically perfect definition, because there is no dispute that the corresponding step of the Intel process is within the literal scope of [the claim limitation]. Thus we do not attempt to decide, de novo, the correct meaning of [the claim limitation]."). The accused device in this case is certainly such a peripheral, as it indisputably connects substantially directly to the CPU circuit board and is in close proximity to the CPU.

In summary, we construe the phrase "located in the computer" to mean "located in the CPU, main memory, the CPU or main memory circuit boards, or qualifying peripherals" as indicated above. In view of that construction, it necessarily follows that the Rainbow dongle, when attached to a computer port, is such a peripheral and is therefore "located in the computer." No reasonable juror could conclude otherwise.

Claim 38 describes "[a] vending machine as claimed in claim 1, wherein said control unit is located remote from said vending machine." ('400 Patent 18:17-19). In disputing the proper interpretation of the phrase "located remote from said vending machine," the parties raise essentially the same points made with respect to claim construction of the term "vending machine" and whether it must be construed as a single unit. The reasoning set forth in the construction of "vending machine" as well as the construction of "customer interface" dictate a similar finding in this case, namely, that the control unit is not simply remote from other components but -- as plainly stated in the claim -- from the vending machine itself.

Thus, the following construction:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Located remote from said vending machine</td>
<td>Having a different physical location than the vending machine</td>
</tr>
</tbody>
</table>

TERM # 6: "located remotely" - Again, this not a highly technical term, and no special meaning is assigned to it by the intrinsic evidence. In the context of the patent, the bidder's computer and the issuer's computer need only be located in different places. There is nothing in the patent to preclude them from being in the next room, across town, or in different countries. Certainly, defendants have provided no support from the intrinsic record to support their position that the computers must be "far away" from each other. This phrase means: "not in the same location."

F. "Locating"

Next, the Court interprets the ubiquitous claim term number 7, "locating." The parties dispute whether this claim term dictates that methods of "locating" must involve locating the boring tool in either two or three dimensions or only in three dimensions. The Court's short answer is, it depends. This claim term arises throughout the claims of many of the patents. For example, Claim 1 of the '589 Patent contains the following language:

1. A method of locating a generally horizontally extending dipole magnetic field transmitter which is disposed underground within a particular vertical transmitter plane defined by its dipole axis and which generates a magnetic dipole filed containing magnetic flux lines, each one of which extends from one end of the transmitter around to its opposite end and all of which are spaced from one another about the dipole axis of said transmitter, said method comprising the steps of:
(a) providing a locating receiver including an antenna arrangement and means for producing

(i) a first signal . . .;

(ii) a second signal . . .;

(iii) a third signal . . .;

(b) moving said locating receiver above the ground at a predetermined orientation and . . .;

(c) thereafter, again moving said locating receiver above the ground at said predetermined orientation and within a second vertical receiver plane transverse to the vertical transmitter plane . . .;

(d) thereafter, still again moving said locating receiver above the ground within a third vertical receiver plane transverse to the vertical transmitter plane containing the axis of said transmitter either ahead of or behind the transmitter with respect either ahead of or behind the transmitter with respect to its general direction of movement so as to cause said receiver to produce successively first, second and third signals in a predetermined way which will establish a point above ground directly over the transmitter.

(emphasis added). In this case, it is clear that what is being achieved is the location on the surface directly above the boring tool, which is underground. Location "on the surface" is two dimensional. This is true for the term in the context of many other claims. See '678 Patent, Claim 1; '780 Patent, Claim 1; '025 Patent, Claim 1 ("method of finding a point on the ground" over the boring tool); '538 Patent, Claim 1. However, in Claim 8 of the '539 Patent, it is clear that the method of locating also involves a depth calculation once the place on the ground above the boring tool has been located. Therefore, whether this claim term refers to a three dimensional locating method or a two dimensional locating method will depend on the context in which the term is used. This is supported by appropriate references in the specification as well. See '589 Patent, Col. 14:9-19.

The Court will therefore in part adopt the plaintiff's construction, defining "locating" as the act of determining the location of the boring tool relative to a known position or reference.

2501

h. "locating said predetermined position"

The next term is "locating said predetermined position." The plaintiffs argue that this term means "establishing operand or instruction supply within the instruction group that includes the operand or instruction being accessed at the predetermined position." The defendants argue that the term means "using the results of the decoding step to ascertain the address of the accessed operand or instruction by referencing the current instruction group address rather than the current executing instruction address without adding or subtracting an operand with the current Program Counter." The parties make similar arguments with regards to "predetermined position" as discussed in the previous section.

The plaintiffs oppose the additional limitation in the defendants' proposed construction of "without adding or subtracting an operand with the current Program Counter." According to the plaintiffs, this would exclude a preferred embodiment from the specification stating that the processor "treats the three operands similarly by adding or subtracting them to the current program counter." '584 patent, 11:13-15. In support of this additional limitation, the defendants argue that additions and subtractions are done only at assembly/linking and not at run time. See '584 patent, 20:43-50.

The defendants' construction improperly incorporates a limitation from the preferred embodiment. The Court construes the term to mean "locating the operand or instruction within the instruction group that includes the operand or instruction being accessed at the predetermined position."
The parties dispute centers on the word “location.” Plaintiffs contend that “location” means the place in the memory where information is stored. In other words, information is stored in a directory of folders or subfolders designated for particular types of data. Reply Brief, Ex. 21 at ¶¶ 22-24. Defendants contend that the claim requires song and advertising data to be stored at “separate structural location,” i.e., a different physical location. Resp. Brief at 25. They base their contention on language in the specification stating that “[t]he advertisement data is stored at a separate location on the storage unit 93 so that they can be easily located and tracked.” Opening Brief, Ex. 6 at 9:11-12. Defendants do not offer any evidence to support their contention that a person of ordinary skill in the field would understand that a separate “location,” as described in the specification, means a separate physical location.

The Court concludes that a person of ordinary skill in the field would understand that items stored in separate locations within a computer's memory are divided into folders and subfolders. The Court therefore adopts plaintiffs' proposed construction.

E. "location-based service"

The term "location-based service" appears three times in claim 23 of the '763 patent: "A method of providing a location-based service comprising the steps of . . . receiving a request for a location-based service from the mobile unit; . . . responding to the request for a location-based service based on the comparison." "Location-based service" is not found in the specification. The plaintiffs' proposed construction is "a service providing information based, at least in part, on the location of the mobile unit," and the defendant's proposed construction is "wireless communications service provided based, at least in part, on the location of the mobile unit."

The parties reiterate their dispute, discussed in "service provider," over whether "service" should be limited to "wireless service." For the reasons discussed above, the court concludes that "service" is not limited to only wireless service. Thus, "location-based service" is construed to mean "a service providing information based, at least in part, on the location of the mobile unit."

B. Methods of Routing Customer Calls

Before construing the claims of the '267 Patent that are at issue in this case, it is worthwhile, first, to describe the two types of call-routing systems at issue in this case. The first method, which the Court will refer to as the "Real-Time Computation Method," is a means by which incoming calls are routed to the dealer located the shortest geographic distance to the caller by using a mathematical calculation, or algorithm. The first six digits of the caller's telephone number, or NPA-NXX, 5 are compared to a V-H File, which yields the vertical (latitude) and horizontal (longitude) coordinates ("V-H coordinates" or "V-H Coordinate System") of the LCO that services the caller's line. 6 The system employing this method then compares the V-
H coordinates of the caller to the V-H coordinates of all prospective dealers using a "Nearest Neighbor" algorithm to identify the one dealer closest to the caller. This entire process takes place while the caller is on the line. See ATI's Brief at 4; Sprint's Mot. at 10.

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5 "NPA" is the designation given to the first three numbers, or area code, of a telephone number. The next three numbers, designated "NXX," serve as the code for the local central telephone office ("LCO") that services the line. Each LCO is located approximately 1.5 miles from the telephone that the office serves.

Although the '267 Patent refers to the LCO code as "NNX," the parties consistently refer to this code as "NXX" throughout their filings. Accordingly, except when quoting directly from the '267 Patent, the Court will adopt the parties' position and will refer to this code as "NXX" throughout this Memorandum and accompanying Order.

6 ATI obtains the V-H coordinates of the LCOs on electronic media from Bell Communications Research Company. The system is set up so that given the NPA-NXX of a full telephone number, the system will yield the V-H coordinates for the local central office that services that telephone number. Sprint's Ex. B, col. 8, lns. 30-36.

Therefore, by using the V-H Coordinate System, one could determine the geographic location of a potential customer or dealer within a radius of 1.5 miles if the NPA-NXX of the customer or dealer is ascertained. See supra note 5.

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An alternative method, which the Court will refer to as the "NPA-NXX Table Look-Up Method," routes incoming calls to a preassigned destination, based upon the caller's NPA-NXX. In essence, the system utilizing this method determines the NPA-NXX of the caller, scans a database for the caller's NPA-NXX, and locates the dealer that has been assigned to the caller's NPA-NXX. See ATI's Brief at 4-5.

The parties agree that the '267 Patent discloses use of the Real-Time Computation Method to route customer calls to the nearest dealer. The essence of the claim construction dispute in this case, however, is whether the '267 Patent discloses use of the NPA-NXX Table Look-Up Method, as an alternative embodiment of the invention, to achieve the same goal.

C. Claims 1, 11, and 14

Of the three elements that comprise Claims 1, 11, and 14, paragraph (b) of these claims is the most significant in this case. This paragraph discloses a "location determining means," by which "information associating each second party [dealer] with a geographic location" is used to identify the dealer located "the shortest geographic distance" from the caller. In addition, Claims 3, 12, and 16, each dependent on Claims 1, 11, and 14 respectively, elaborate that the location determining means referred to in Claims 1, 11, and 14 includes a comparison means for comparing the caller's NPA-NXX against a dealer database to find the one dealer located the shortest geographic distance from the caller. Sprint's Ex. C, col. 1, lns. 64-68, col. 2, lns. 32-37 and 65-67, col. 3, lns. 1-2.

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7 Claims 1 and 14 use the phrase "location determining means," while Claim 11 uses the phrase "determining the location." The Court sees no material distinction between these phrases in the context of the claims and, accordingly, will attribute the same meaning to both.

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1. Claim Language

Looking solely at the claim language, the first source a court should consider in interpreting a patent claim, the Court cannot say, with any degree of certainty, that these claims exclude the NPA-NXX Table Look-Up Method of routing a caller to the nearest dealer. Indeed, as ATI argues, the plain language of these claims "is broad enough to read on both the real time calculation and table look-up methods." ATI's Reply at 4. However, the Court may not merely consider the possible
interpretations of the claims, but must, instead, interpret the claims as a matter of law. The claim language is simply not
dispositive of whether Claims 1, 11, and 14 teach the use of the NPA-NXX Table Look-Up Method to route incoming calls
to the nearest dealer. Indeed, there is no language in these claims that explicitly refers to either method as a "location
determining means." Accordingly, the Court will look to the specification and prosecution history of the '267 Patent for
further guidance on this issue.

2. Patent Specification

The Court finds nothing in the specification that describes, discloses, or suggests an embodiment of the invention that would
utilize the NPA-NXX Table Look-Up Method to route calls to the geographically nearest dealer. Indeed, the specification is
rife with references that convince the Court that the location determining means identified in Claims 1, 11, and 14 is
comprised of a comparison means, which employs the Real-Time Computation Method, using the V-H Coordinate System
and a "Nearest Neighbor" algorithm, to route calls to the geographically nearest dealer.

The '267 Patent specifies as follows:

This invention improves upon all present methods of dealer referral by embodying the following features:

1. The telephone is answered automatically by a computer . . . . The computer interacts with the caller to acquire . . . the
callers [sic] TELEPHONE NUMBER. Given the first six digits (termed the NPA-NXX) of the caller's telephone number,
the system can determine the caller's location by reference to a telephone company computerized document called the "V-H"
file. . . .

The V-H is a complex transformation of latitude and longitude which is used by long distance telephone companies to
compute the distance between a caller and a called party and thereby to assess the charge for the call. The invention uses the
V-H coordinate system to refer a caller to a dealer.

Sprint's Ex. B., col. 2, lns. 59-end & col. 3, lns. 1-13 (emphasis added). The specification elaborates further:

In essence, the invention provides an improvement over present systems for dealer referral. It answers telephone calls
automatically by computer, it employs telephone company Custom Call Routing to distribute the calls to Routing Centers
in an economical manner, it provides further routing according to the V-H coordinate system based on NPA-NXX, and
actually connects the caller to his nearest dealer instead of merely giving the dealer's identification to the caller.

Id. at col. 5, lns. 57-65 (emphasis added). In other words, the '267 Patent specification makes it clear that use of the V-H
Coordinate System is the sine quo non of the invention. It is the V-H Coordinate System that associates each dealer with a
particular geographic location. 8 Therefore, it is the use of the V-H Coordinate System that distinguishes the '267 Patent
from all previous methods of dealer referral. By using the V-H coordinates of the callers and dealers, the ATI system
guarantees that every caller will be routed to the geographically nearest dealer, a function that was not necessarily
guaranteed by the AT&T system. 9

Additional language in the specification makes it equally clear that the invention utilizes the Real-Time Computation
Method, with little or no indication in the specification that the NPA-NXX Table Look-Up Method is an alternative means

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to achieve the desired result. In the portion of the specification entitled "Summary of the Invention," it is taught that "the computer proceeds to search the product/services -- dealers database based upon the V-H coordinates. It calculates the distance between several potential dealers and the caller and chooses the closest one to the caller." Id. col. 3, Ins. 61-65 (emphasis added). The specification, under the subheading "Detailed Description of the Preferred Embodiment," provides further: "The caller's NPA-NNX is searched in the V-H file and the search yields that caller's V-H coordinate. Then, using a 'Nearest Neighbor' algorithm . . . , the system chooses a dealer nearby or nearest to the caller." Id. col. 8, Ins. 37-41 (emphasis added).

The only reference in the '267 Patent specification that arguably refers to the NPA-NXX Table Look-Up Method is at column 6, lines 13 through 59, which recites how the system can be used for "territorial routing." This portion of the '267 Patent provides, in pertinent part: "The system enters the file with the caller's NPA-NNX as the argument and retrieves the distributor's telephone number as the function." Sprint's Ex. B, col. 6, Ins. 57-59. Sprint argues, however, that ATI's reliance on this portion of the specification is inappropriate, because ATI abandoned the claim in the '267 Patent that related to territorial routing on reexamination. See Sprint's Ex. J. at 8.

Reading the specification as a whole, the Court is unpersuaded by ATI's argument that the three-line reference to the NPA-NXX Table Look-Up Method noted above, in the context of a claim abandoned by ATI on reexamination, supports the position that the '267 Patent discloses the NPA-NXX Table Look-Up Method as an alternative location determining means. Moreover, in the portion of the specification that is captioned "Alternative Embodiment of the Invention," Sprint's Ex. B, col. 27-28, there is nothing that would support such a position. Indeed, if ATI contemplated using the NPA-NXX Table Look-Up Method as an alternative location determining means, this portion of the specification would have been the logical place to make its intentions known.

The above references, and others, convince this Court that the location determining means in Claims 1, 11, and 14 does more than merely match the NPA-NXX of a caller with a preassigned dealer. The invention actually determines, from a list of dealers, the one dealer located the shortest geographic distance from the caller. The invention accomplishes this task by employing the Real-Time Computation Method, using a "Nearest Neighbor" algorithm to compare the V-H coordinates of the caller to the V-H coordinates of the dealers. Id. at col. 8, Ins. 37-42; Sprint's Ex. C, ABSTRACT.

3. Prosecution History

The prosecution history of the '267 Patent, detailed above, supports the Court's interpretation of Claims 1, 11, and 14. On reexamination, ATI needed to overcome the challenges raised by its competitors. Specifically, ATI's system was challenged as being unpatentable in light of an already existing call-routing system employed by AT&T. As noted above, the AT&T system employs the NPA-NXX Table Look-Up Method to route calls to preassigned locations. The AT&T system, however, does not include a means for assigning specific geographic locations to the dealers, so as to route calls to the dealer located the shortest geographic distance from the caller. This was the reason for patentability of the claims in the '267 Patent noted by the Examiner. ATI's Ex. O; Sprint's Ex. Y; see Sprint's Ex. CC.

ATI relies on a portion of the Amendment in which it argued that "the use of the first six digits for the purpose of routing a call was clearly not contemplated at the time of the [AT&T] invention." Sprint's Ex. J at 29. Although ATI acknowledged that the AT&T system contemplates using a "caller's number or a part of a caller's number such as the area code" in routing customer calls, see Sprint's Ex. P, col. 2, Ins. 46-46; Sprint's Ex. J at 28, ATI insisted that, at the time the AT&T system was invented, routing a call based on the area code and another portion of the caller's number was impracticable -- that "one of ordinary skill in the art would not modify the AT&T system to further include a table look-up based on area code and another portion of the caller's number since the system would be too cumbersome and not economically feasible." Sprint's Ex. J. at 30. ATI contends that this portion of the prosecution history supports its argument that the '267 Patent discloses the NPA-NXX Table Look-Up Method as an alternative means of routing customer calls to the nearest dealer. After reading this passage of the prosecution history in context, however, the Court finds ATI's suggestion unpersuasive.

The portion of the Amendment relied upon by ATI was an apparent attempt by ATI to contradict the Examiner's conclusion that, at the time the AT&T system was invented, it was obvious that the system could be modified to route a call to the nearest dealer, which is the primary function of AT&T's system. Sprint's Ex. DD at 2. 10 If this were the case, as the Examiner concluded, AT&T's system would be unpatentable under 35 U.S.C. § 103. However, nowhere in the portion of the Amendment relied upon by ATI, or in any other part of the prosecution history of the '267 Patent is there any indication by ATI, Riskin,
or the Examiner that the '267 Patent teaches the use of the NPA-NXX Table Look-Up Method as a means to route calls to
the geographically nearest dealer. On the contrary, on reexamination, ATI consistently maintained that its system "uses
a nearest neighbor algorithm in combination with the V-H Coordinates System." Sprint's Ex. J. at 13-15, 29. Accordingly, the
Court finds ATI's reliance on this fragment of the prosecution history unpersuasive.

10 In summarizing its arguments, ATI stated: "The AT&T system does not include any means whatsoever for determining
the geographic position of the second parties with sufficient accuracy to locate the one second party which is located the
shortest geographic distance from the location of the first party." Sprint Ex. J. at 30 (emphasis in original).

4. Conclusion

In short, the Court is satisfied that there is nothing in the specification or the prosecution history of the '267 Patent that
would support the broad interpretation of Claims 1, 11, and 14 advocated by ATI. Therefore, it is unnecessary for the Court
to look to the many conflicting expert opinions offered by the parties for further guidance in interpreting these claims. See
construed to recite a "location determining means" that employs the Real-Time Computation Method, using a "Nearest
Neighbor" algorithm to compare the V-H coordinates of a caller to the V-H coordinates of the dealers to find the one dealer
located the shortest geographic distance from the caller. 12

11 There is uncontradicted extrinsic evidence, however, that clearly supports the Court's legal construction of these claims.
ATI's sales literature, referring to its call-routing system as "InstaLink," provides:

Conventional search processes require that a table be created which assigns each of 48,000 telephone exchanges to
specific dealers. The information on these tables is static and any changes require revising the table itself. In contrast,
InstaLink uses a proprietary nearest neighbor algorithm to search the caller's area for "nearest dealer candidates" and to
calculate the geographic distance between the caller and each dealer that was identified to determine the closest appropriate
location.

Sprint's Ex. M (emphasis added). Clearly, at least in its sales literature, ATI attempted to distinguish its call-routing system
from its competitors' systems by disavowing use of the NPA-NXX Table Look-Up Method.

12 In reaching this conclusion, the Court rejects ATI's argument that the doctrine of claim differentiation precludes a legal
construction of Claims 1 and 14 that would limit these claims to the Real-Time Computation Method. To adopt ATI's
argument would be to ignore the clear language in the specification and the prosecution history of the '267 Patent.
Accordingly, the Court finds ATI's argument unpersuasive. See California Medical Prods., Inc. v. Tecnol Medical Prods.,
Inc., 921 F. Supp. 1219, 1232 (D. Del. 1995) ("The true test must be that claims are defined and construed as they were
drafted by the patent holder in light of the claim language, specification, and the prosecution history. Where the
specification or prosecution history provide a basis for reading a limitation into a claim, the presumption provided by the
doctrine of claim differentiation may be overcome."); Total Containment, Inc., 921 F. Supp. at 1385 (noting that "claim
differentiation is a guide to construction, not an absolute rule).

D. Claims 43 and 44

The language at issue in Claims 43 and 44 of the '267
Patent, which were added on reexamination, is virtually identical to that in Claims 1, 11, and 14, and ATI has not persuaded
the Court that it should interpret the terms in these claims differently. 13 The claim language in Claims 43 and 44, like that
in Claims 1, 11, and 14, could reasonably be construed as broad enough to read on both the real-time calculation and table

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look-up methods. However, as the Court noted above, the specification and prosecution history of the ’267 Patent do not disclose, describe, or suggest an embodiment of the invention in which the NPA-NXX Table Look-Up Method would be used as a location determining means to route a call to the geographically nearest dealer. The Court is equally satisfied that, on reexamination of the ’267 Patent, the Examiner found the added claims patentable because, consistent with the other claims in the ’267 Patent, the location determining means in the claims "includes information that gives each second party a geographic location," ATI's Ex. O., which the Court has already determined is the dealers' V-H coordinates, not merely each dealer's NPA-NXX. 14

--- Footnotes ---

13 Paragraph (c) of Claim 44, like paragraph (b) of Claims 1, 11, and 14, discloses a "location determining means" substantially similar to Claims 1, 11, and 14. Paragraph (c) of Claim 43 discloses a "means including information associating each second party with a geographic location for determining a second party . . . who is located geographically nearest to said first party." The Court sees no material distinction between these phrases in the context of the added claims and the phrase "location determining means," as interpreted by the Court above with respect to Claims 1, 11, and 14.

14 See supra note and accompanying text.

--- End Footnotes ---

ATI maintains that added Claim 44 "more narrowly defines the location determining means as an NPA-NXX table look-up, as compared to claims 1, 11, and 14." ATI's Reply at 6. In fact, ATI argues that Claim 44 "expressly recites the use of an NPA-NXX table look-up to route calls to the nearest dealer. ATI could not have been any clearer in communicating its intent to the Examiner." Id. at 7 (emphasis in original). The portion of Claim 44 upon which ATI apparently relies is paragraph (c) (2), which teaches that the "location determining means" includes a "comparing means for comparing the area code (NPA) and the local central office code (NNX) of said first party against said second party database to identify the second party located the shortest geographic distance from said first party." A similar comparison means is set forth in dependant Claims 3, 12, and 16 of the ’267 Patent.

The Court, however, is no more persuaded that the plain language of added Claim 44 teaches the NPA-NXX Table Look-Up Method as a location determining means than it was with regard to original Claims 1, 11, and 14. As the Court has already observed, neither the specification nor the prosecution history support such an interpretation. Moreover, because this Court has already determined that the location determining means referenced in the original claims of the ’267 Patent is limited to use of the Real-Time Computation System, interpreting the same language in the added claims to include the NPA-NXX Table Look-Up Method as a location determining means would, in effect, enlarge the scope of the ’267 Patent to include an embodiment that would not have infringed the original claims. See Total Containment, Inc., 921 F. Supp. at 1385-86. Such a result would be contrary to the reasons that a patent owner may add new claims on reexamination, which are "to distinguish the invention as claimed from the prior art . . . or [to respond] to a decision adverse to the patentability of a claim of the patent." 35 U.S.C. § 305.

Accordingly, the Court will not interpret the added claims in the manner advanced by ATI and will construe added Claims 43 and 44 to recite a "location determining means" that employs the Real-Time Computation Method, using a "Nearest Neighbor" algorithm to compare the V-H coordinates of a caller to the V-H coordinates of the dealers to find that one dealer located the shortest geographic distance from the caller.
construed in accordance with Section 112, paragraph 6. However, this presumption may be rebutted when the claim element does not recite sufficiently definite structure or material to perform the claimed function. In determining whether these presumptions have been rebutted by a preponderance of the evidence, the court may examine the intrinsic evidence and any relevant extrinsic evidence.

Schwartz, supra, § 5.III.C.

There are four permutations of "communication facility" at issue here, and Citrix asserts that all of them are subject to Section 112, paragraph 6. The court disagrees. The four permutations are as follows: 1) "Data Communication Facility"; 2) "Location Facility"; 3) Communication Facility"; 4) "Data Generating Facilities."

None of these four permutations use the word "means" and Citrix fails to rebut the presumption that this is not a means-plus function by a preponderance of the evidence. The court agrees that the specification provides a clear description of the "facilities" and particularly the "data communication facility" as a computer software product. Indeed, the specification provides that "a number of computer program facilities are described in this invention as separate facilities for the sake of describing the invention." '479 Patent, col. 10, lines 11-13. Therefore, the court concludes that 01 Communique's proposed construction is correct, which is "Computer software associated with the personal computer."

I) "location facility"

As explained in section E) above, the court agrees with 01 Communique that the appropriate construction is "Computer software associated with the locator server."

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4. "location information"

This phrase is used in claims 1, 8, and 15 of the '967 Patent. WG seeks to construe this term as "information regarding location." Ion largely agrees with this construction but argues that it should be made clear that this term does not include anything regarding force information; accordingly, Ion proposes the construction of "information regarding location (not including force information)." According to Ion, the specification plainly distinguishes between location information and force information because it teaches that the global control system transmits either "location information" or "force information." ('967 Patent, col. 6 ll. 45-47.)

Importing negative limitations into a claim absent an explicit disavowal is generally disfavored. See Omega Eng'g. Inc. v. Raytek Corp., 334 F.3d 1314, 1332-33 (Fed. Cir. 2003) (noting that a negative limitation imposed by the district found no anchor in the claim language, the plain and ordinary meaning of the phrase, or in any express disclaimer within the specification). Although the specification for the Bittleston Patents appears to draw a distinction between location and force information when stating that "the global control system can transmit location information to the local control system instead of force information," there is nothing in the claim language or the specification that says that location information can never consist of force information or that the two kinds of information can never overlap. ('967 Patent, col. 6 ll. 45-47.) The single statement within the specification that distinguishes between location and force information does not constitute the type of "disavowal" that would render appropriate a negative limitation. As such, the Court declines to construe this term using the negative limitation suggested by Ion. Instead, the Court adopts WG's proposed construction, and holds that "location information" should be construed as "information regarding location." This construction applies the "widely accepted meaning of commonly understood words." Phillips, 415 F.3d at 1314.

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the claimed locator server computer's "location on the internet being defined by a static IP address"

01 Communique argues that no construction of this phrase is required, whereas Citrix maintains that the appropriate construction of this phrase is "The claimed locator server computer has an IP address that is fixed." In the alternative, 01 Communique argues that the appropriate proposed construction is "The Internet Protocol (IP) address of a locator sever is fixed or predetermined, as distinguished from dynamic IP addresses."

The court agrees with 01 Communique that this phrase requires no construction.

**2508**

5. "Predetermined location." Used in '114 patent, Claim 1.


The first term appears in Claim 1 of the '114 patent as follows:

A pre-paid calling card system to enable customers to purchase calling cards at predetermined locations and to use such calling cards to access . . . .

The second term appears in Claims 1 and 2 of the '768 Reexamination Certificate as follows:

Claim 1: A method to enable customers to obtain pre-paid calling card accounts from a plurality of point-of-sale locations and to . . . .

Claim 1 & 2: maintaining in the database information sufficient to identify: . . . a particular point-of-sale location at which the particular pre-paid calling card account is activated (["recharged" in Claim 2].

Defendants propose for both terms, "a retail or other establishment where a customer obtains a calling card." TGIP argues that neither of these terms need to be construed. If "predetermined location" is construed, TGIP proposes "a location determined beforehand." If "point-of-sale location" is construed, TGIP suggests "location at which the sale takes place."

At the hearing Defendants agreed with the court's proposal of "a business establishment or kiosk, which may be automated or staffed by one or more persons." TGIP objected, asking why a "point-of-sale location" could not include on line purchasing. Tr. p. 96. TGIP's counsel envisions customers activating cards from their personal computers by visiting a website. Tr. p. 97. But the court must construe the terms as understood by one skilled in the art, reading those terms in the context of the specification and file history.

Web sites were known when the first application was filed on June 6, 1994, and were well known by the time the reexamination certificate was issued in 2005. See http://www.matterform.com/macintosh software company/old sites.html (showing a Matterform Media website online in 1994). Nothing in the claims, nor in the prosecution history, nor even in the extrinsic evidence, including articles written by the inventor and announcements concerning his calling card systems hints at sales from a website. To the contrary the specification describes physical locations. See '114 Patent, col. 5, 11. 42-44.

In normal usage a "predetermined location" and a "point of sale location" refer to a place, such as the establishment of the retailer. If it was a disembodied electronic construct, such as a website, there would be no reason for Claims 1 and 2 to put such emphasis on the database maintaining "a particular point-of-sale location at which the particular pre-paid calling card account is activated [or recharged]." '114 patent, col. 1, 11. 41-43; '114 patent, col. 2, 11. 12-14. There would actually be no "point of sale" or "predetermined location. Rather the sale would be made wherever the user had a laptop.

The patentee had the opportunity to pick his language. He did not attempt to include incorporeal constructs like websites as possible locations. The court is not going to broaden the scope of the patents in such a way at this time. **These terms will be defined as follows:**

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"Predetermined locations" and "Point-of-sale locations mean "a business establishment or kiosk which may be automated or staffed by one or more persons."

The court agrees with Citrix that 01 Communique's construction seeks to define the claimed function of the "locator server computer" while failing to provide a construction for the "locator server computer" itself. Therefore, the court finds that Citrix's proposed construction is correct.

The parties agreed at the hearing that a log entry is information concerning transactions or activities that take place on a computer, which is placed in a log file. The real question is whether, in the context of this patent, a log entry must, at a minimum, include a physical address. The "physical address" is the actual location of a unit of data on the disk or other storage device. This is contrasted with the "logical address" which is the address the computer program uses to access memory. It is an identifier for the unit of data, which is independent of the data's physical location.

Microsoft argues that the claim language mandates that every log entry include a physical address, pointing to the fact that the words "logical address" are not used in either claim. The inclusion of "physical memory address(es)" in the log entry is described in the '630 patent, col. 5, ll. 24-26. But the sentence starts with "Alternatively." The specification also describes another embodiment in which the "log entry includes a file identifier, the logical address(es) specified in the call and the time of access (e.g., system time; index value). '630 patent, col. 5, ll. 22-24.

It is true that in one embodiment, "all the log entries are sorted according to physical address to optimize access time . . . ." '630 patent, col. 7, ll. 62-63. Again, that sentence begins with "Alternatively." The same paragraph also states: "Each access resulting in a log entry specifies a file and an address." '630 patent, col. 7, ll. 56-57. The indefinite article "an," without more, does not connote a single embodiment. See Scanner Technologies Corp. v. ICOS Vision Systems Corp., N.V., 365 F.3d 1299, 1304-1305 (Fed. Cir.2004)(construing "an" in a claim).

Under the patent, there will be log entries made, altered, and reordered. There is no basis for the court to decide, as a matter of claim construction, that the definition of "log entry" must include a physical address. The experts may testify that, for technical reasons, based upon the remaining language of the claim describing "logging accesses to the secondary storage device" at '630 patent, col. 8, ll. 48-54, including a physical address in every log entry is the only practical application of the invention. That is a matter for trial, not claim construction.

Disclosure-Dedication Argument

Relying upon Toro Co. v. White Consol. Indus., Inc., 383 F.3d 1326, 1331 (Fed. Cir. 2004), and Johnston &Johnston Assoc.
Inc. v. R.E. Serv. Co., Inc., 285 F.3d 1046, 1054 (Fed. Cir. 2002), Microsoft argues that the disclosure of logical addresses in the specification, combined with the failure to state them in a claim, results in a donation of that embodiment to the public.

The specification must give a full and exact description of claimed invention. Phillips, 415 F.3d at 1316. The purpose of the specification is to teach and enable those of skill in the art to make and use the invention and provide the best mode for doing so. Id. at 1323. Therefore, it is not unusual that the specification contains more detail than the claim, or describes alternative embodiments. Microsoft admits that this is not a disclaimer or disavowal situation, where, in order to overcome a rejection from the patent office, the patentee changed a claim or expressly stated in a response to the PTO that the claims do not include a piece of prior art. However, like prosecution estoppel, the disclosure-dedication rule limits the application of the doctrine of equivalents. Toro, 383 F.3d at 1331. Claim construction is not the time for the court to decide infringement issues.

Neither the language of the claim nor the specification indicates any special use in this claim term of any of the common technical terms set out above. There is no basis to import a limitation from the specification to this claim term. Whether CAC can show how the patented method can work with log entries that do not have a physical address, or whether Microsoft can show that an infringement by equivalents argument is barred, are questions left to a later time. The court defines this term as follows:

"Log Entry" means: A set of data items, treated as a unit, which concern transactions or activities that take place on a computer and which is placed into a set of related records concerning such transactions or activities.

CAC at first argued that the log file did not have to be created during the initial launch. However, the flow chart at Figure 3...
shows that when the launch of a program is directed, the first question asked is whether a log file exists. If not, the log file is created. Fig. 3, Blocks 72, 74, & 76. CAC tried to argue that this was just an embodiment. But, neither its attorneys nor its experts could give an example of a single embodiment described in the patent, or logically derived from the claims, in which the log file was not created sometime during the initial launch.

It seems that CAC's argument is really an attempt to anticipate a non-infringement argument concerning a method in which something is done to the log file between the time of its creation (Claim 1, Step 2) and its alteration (Claim 1, Step 4). That issue will have to be reserved for a later time. At this point, the court is merely defining what a log file is in this patent, not what may be done to it after it is created.

Microsoft urged a construction by which the log file would contain all log entries in the order created. But nothing in either Claim 1 or 2 indicates that when the log entries are first placed in the file (the "logging" of Step 2), they will be kept in any order. Likewise the specification has no such provision. n4 It is true that at Step 5, a "final log file" is generated from the "altered log file," by reordering log entries to speed up a subsequent launch. '630 patent, col. 8, ll. 58-61. But that is described in the claim language, and is not part of a proper definition of "log file."

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n4 In describing the construction and operation of computers, it could be misleading in the context of this patent, especially to those not skilled in the art, such as jurors, to talk of information being "stored in order." The data structure into which bits and bytes of information are placed may be accessed in a particular order, but that is not the same as physically storing them in order, like packages stacked in a box.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

One issue was not addressed in the briefs, but is apparent from the flow chart at Figure 3. The first question asked in the flow chart is: does the log file exist? Figure 3, item 74. There is no reason to limit the creation of the log file to the very first time the program is ever used, as might be implied from the term "initial launch," which was proposed by Microsoft. The log file could have been deleted accidentally, or because of a cleanup of material that had not been used for a long period of time. In such a case, the log file would be created even though it was not the "initial" launch of the program. It is more accurate to describe a log file as one which is created if it does not already exist.

Based upon the foregoing, the representations of the parties at the claim construction hearing, the agreed definitions of "launch" and "launch sequence," and the way one of ordinary skill would generically understand "log entry" and "log file," the court defines this term as follows:

"Log file" means: the set of log entries, which, if the log file for a program does not already exist on the computer system, are, upon launch of that program, generated in sequence for each access during the launch sequence to a physical address block at which a portion of the computer program is stored.

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3. "second logic coupled with the buffer, and responsive to the packet filter to read and process data in the identified packets from the buffer, and to produce a data value dependent on contents of the packet prior to transfer of the identified packets to the second port by the first logic"

The dispute turns on the applicability of 35 USC § 112(6) to this limitation. D-Link contends that the term "logic" fails to recite sufficient structure such that § 112(6) should apply notwithstanding the presumption against its applicability due to the absence of the words "means for." Doc # 78 (05-0098) at 23-24.

"A claim limitation that actually uses the word 'means' invokes a rebuttable presumption that § 112(6) applies. By contrast, a claim term that does not use 'means' will trigger the rebuttable presumption that § 112(6) does not apply." CCS Fitness, 288 F.3d at 1369 (internal citations omitted). This presumption is "a strong one that is not readily overcome." Lighting World, Inc v Birchwood Lighting, Inc, 382 F.3d 1354, 1358 (Fed Cir 2004).
D-Link can overcome this presumption by showing that the claim limitation "fails to recite sufficiently definite structure." Apex Inc v Raritan Computer, Inc, 325 F.3d 1364, 1372 (Fed Cir 2003) (quotations omitted). This structure need not be "a single well-defined structure." Greenberg v Ethicon Endo-Surgery, Inc, 91 F.3d 1580, 1583 (Fed Cir 1996).

It is appropriate to consult dictionaries in connection with this inquiry. Linear Technology Corp v Impala Linear Corp, 379 F.3d 1311, 1320 (Fed Cir 2004); see also Apex, 325 F.3d at 1373. Technical dictionary definitions suggest that the term "logic" itself connotes some structure. See McGraw-Hill Dictionary of Scientific and Technical Terms, 1231 (6th ed 2003) (defining "logic" as a "[g]eneral term for various types of gates, flip-flops and other on/off circuits used to perform problem-solving functions in a digital computer"); IBM Dictionary of Computing, 396 (10th ed 1994) (defining "logic" as "[t]he systematized interconnection of digital switching functions, circuits, or devices").

The Federal Circuit addressed the similar issue of whether "circuit" conveys sufficient structure in Linear Technology, 379 F.3d 1311. The limitation at issue was "a first circuit for monitoring a signal from the output terminal to generate a first feedback signal." Id at 1320. The Linear court found this limitation to recite "the respective circuit's operation in sufficient detail to suggest structure to persons of ordinary skill in the art." Id at 1320-21. The Linear court further stated that when "structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art." Id at 1320. Because of both the similarity between "logic" and "circuit" and the similarity of the subsequent functional language, the analysis in Linear is highly relevant to the construction of claim one.

The difference between the Linear term "circuitry" and the "logic" term in this case is not significant. As previously noted, several technical dictionary define "logic" in terms of circuits. See McGraw-Hill Dictionary of Scientific and Technical Terms, 1231 (6th ed 2003) (defining "logic" as a "[g]eneral term for various types of gates, flip-flops, and other on/off circuits used to perform problem-solving functions in a digital computer"); IBM Dictionary of Computing, 396 (10th ed 1994) (defining "logic" as "[t]he systematized interconnection of digital switching functions, circuits, or devices").

In addition, there is no significant difference between the additional functional language. In the Linear claim, the circuitry is "for monitoring a signal from the output terminal to generate a first feedback signal." Claim one states that the logic is "to read and process data in the identified packets from the buffer, and to produce a data value dependent on contents of the packet prior to transfer of the identified packets to the second port by the first logic." Both claims include specific functional language.

Because of the similarities between the claim addressed in Linear and claim one, the court can see no reason to diverge from the Linear analysis. The term "logic" defines some structure and additional functional language. This functional language is sufficiently detailed "to suggest structure to persons of ordinary skill in the art." Id at 1320-21; see also PCTEL, Inc v Agere Systems, Inc, 2005 U.S. Dist. LEXIS 34288, 2005 WL 2206683 (ND Cal 2005) ("[S]election logic" did not fall under paragraph six.). Accordingly, the court finds that "logic" does not fall within 35 USC § 112(6).

Having found that § 112(6) does not apply, the court turns next to construing the term "logic." 3Com proposes "circuitry and/or programming." Doc # 81 (05-0098) at 48. D-Link proposes "processing resources configured to perform binary tasks where the processing resources operate at speeds slower than the stream of the incoming packet stream." Id at 48-49. Realtek has not submitted a specific proposal.

The specification discloses a network interface:

with limited intelligence, implemented using a relatively slower, and lower cost embedded processor, supported by dedicated hardware logic for the purposes of intercepting certain packets being received via the network. In particular, the present invention provides an interface that comprises the first port on which incoming data is received at the data transfer rate of the network, a buffer coupled to the port that stores received packets, and a second port coupled with the buffer through which transfer of packets to the host is executed.

884 patent 1:63-2:5. This language suggests that the first port and buffer are "dedicated hardware." Claim one discloses that the buffer is "coupled to the first port," suggesting that "coupled" is a hardware-to-hardware connection. Id at 1:13. Claim one also states that the second logic is "coupled with the buffer." Id at 1:22. Use of the word "coupled" with the second logic
suggests the second logic is also a hardware component.

Although the invention relates to a "lower cost embedded processor," no such processor is explicitly recited by claim one. The second logic is described in claim one as being used "to process data," suggesting that the second logic is indeed a low-cost processor. Claim two supports this view by stating that the second logic comprises "a general purpose processor module." In viewing all of the intrinsic evidence, 3Com's proposal is impermissibly broad.

While 3Com's proposal is too broad, D-Link's proposal is too narrow. The specification discusses a low-cost processor but does not disclose that such a processor is required. Even if a processor were required, there is no support for a specific performance limitation such as "speeds slower than the stream of the incoming packet stream" as D-Link's proposal imposes.

Although the evidence weighs heavily against a construction of "programming," a construction of "circuitry" was perfectly consistent. Accordingly, the court adopts the modified proposal, "circuitry."

2513

1. "logic circuit"

"Logic circuit" is used in claims 1 and 22 of the 148 patent. UniRAM contends that "logic circuit" means "a high performance circuit, distinct from the circuits found in a stand-alone memory device, whose primary design goal is the efficient performance of logic functions, such as a microprocessor or ASIC." Jt Cl Const, Ex B at 12. MoSys construes logic circuit as "[a] circuit outside of the memory array that performs some processing or controlling function." Id. TSMC adopts the even broader definition, "[a] circuit that performs processing or controlling functions." Id.

The court first observes that, consistent with UniRAM's proposed construction, a "logic circuit" is different from a "peripheral circuit." When discussing peripheral circuits, the 148 patent consistently refers to circuitry such as sense amplifiers and decoders, which are outside the memory cells but within the memory device. See, e.g., 148 patent at 2:19-21 ("Peripheral circuits such as sense amplifiers, decoders, and precharge circuits are depend[ent] upon memory cell pitch"), 7:12-14 ("Each memory bank needs to have a full set of peripheral circuits"). When discussing logic circuits, the 148 patent consistently refers to logic components outside of the memory device. See, e.g., 148 patent at 2:62-64 ("high density memory device placed on the same chip as high performance logic circuits"), 3:6-7 ("contradicting requirements between logic circuits and memory devices"). Although peripheral circuits contain "logic" components, that does not make them "logic circuits." Instead, the 148 patent consistently treats logic circuits and peripheral circuits as separate and non-overlapping entities. See, e.g., 21:48-49 ("the transistors used for peripheral circuits and logic circuits").

Nonetheless, UniRAM's proposed construction is problematic because it defines logic circuit at a level of detail that is unsupported by the specification. UniRAM imports limitations that the specification never discusses -- for example, the specification never mentions a microprocessor or ASIC. Moreover, the specification implicitly concedes that "logic circuits" are not necessarily high performance by using the phrase "high performance logic circuits." 148 patent at 2:63-64; see also Phillips, 415 F3d at 1314 (use of term "steel baffles" strongly implies that not all baffles are made of steel).

Accordingly, the court adopts a blend of the parties' constructions -- a "logic circuit" is "a circuit outside of the memory device that performs some processing or controlling function." This construction distinguishes "logic circuits," which are outside of memory devices, with "peripheral circuits," which are within memory devices.

As a final matter, the court notes that the parties apparently want "logic circuit" and "logic-circuit" to share the same construction. Jt Cl Const, Ex B at 12. Because the term "logic-circuit" is only used on a few occasions and always as "peripheral logic-circuit," the court declines to construe separately the term "logic-circuit."
7. Logic Circuit

The phrase "a logic circuit connected with the test signal generator and the processor" appears in claim 6 of the '681 Patent. Diagnostic initially asserted that "logic circuit" should be construed as "hardware and/or software for alternatively enabling either the sound wave generator or the test signal generator to output discernible signals." Benson proposes that the entire phrase be construed as a "a logic circuit to run the hearing test in the conventional audiometer connected with the test signal generator and processor." In its rebuttal, Diagnostic modified its proposed construction of "logic circuit" to "the software and/or hardware that provides pre-programmed, or preset, responses dictated by the test subject's inputs."

The Court begins by ascertaining the ordinary meaning of "logic circuit" to one skilled in the art. The relevant definition of "logic" in the field of computer science is "a. The nonarithmetic operations performed by a computer, such as sorting, comparing, and matching, that involve yes-no decisions, b. Computer circuitry, c. Graphic representation of computer circuitry." American Heritage Dictionary 1057. Moreover, the definition of "circuit" in the field of electronics is "(a) a closed path followed or capable of being followed by an electric current; (b) a configuration of electrically or electromagnetically connected components or devices." Id. at 346. Using these definitions, the ordinary meaning of "logic circuit" is "the software and/or hardware used for performing a specified function."

The Court next turns to the intrinsic evidence to determine whether the ordinary meaning has been rebutted or altered. Diagnostic argues that its proposed construction is supported by the intrinsic record, specifically the Amendment, wherein the patentees argued that the "logic circuit" added intelligence to the test signal generator, such that they could provide certain preprogrammed responses dictated by the test subject's inputs. Benson, on the other hand, reiterates its prosecution history estoppel argument, asserting that the logic circuit for the hearing test must be located in the conventional audiometer. In particular, Benson argues that the patentees argued that the logic circuitry was located in the conventional audiometer and that a second computer with multimedia functions added other multimedia operations.

As discussed previously, the Court rejects Benson's argument that the claimed invention covers only a specific physical configuration. Benson has not pointed to any specific language in the intrinsic record indicating that the "logic circuit" is for running a hearing test or that the "logic circuit" must reside in the conventional audiometer. In addition, the Court finds that remarks made by the patentees in the Amendment clarify the meaning of "logic circuit" in the context of the invention. Specifically, the Amendment added the "logic circuit" and indicated that logic circuit functions to "provide certain pre-programmed responses dictated by the test subject's inputs" that did not exist in the prior art. (Amend, at 9.) These remarks demonstrate that "providing preset responses dictated by the test subject's inputs" is the specified function of the software or hardware of the circuit. Therefore, the Court concludes that the proper construction of "logic circuit" is "the software and/or hardware that provides pre-programmed, or preset, responses dictated by the test subject's inputs."

3. "second logic coupled with the buffer, and responsive to the packet filter to read and process data in the identified packets from the buffer, and to produce a data value dependent on contents of the packet prior to transfer of the identified packets to the second port by the first logic"

The dispute turns on the applicability of 35 USC § 112(6) to this limitation. D-Link contends that the term "logic" fails to recite sufficient structure such that § 112(6) should apply notwithstanding the presumption against its applicability due to the absence of the words "means for." Doc # 78 (05-0098) at 23-24.

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The specification discloses a network interface:

with limited intelligence, implemented using a relatively slower, and lower cost embedded processor, supported by dedicated hardware logic for the purposes of intercepting certain packets being received via the network. In particular, the present invention provides an interface that comprises the first port on which incoming data is received at the data transfer rate of the network, a buffer coupled to the port that stores received packets, and a second port coupled with the buffer through which transfer of packets to the host is executed.

'884 patent 1:63-2:5. This language suggests that the first port and buffer are "dedicated hardware." Claim one discloses that the buffer is "coupled to the first port," suggesting that "coupled" is a hardware-to-hardware connection. Id at 1:13. Claim one also states that the second logic is "coupled with the buffer." Id at 1:22. Use of the word "coupled" with the second logic suggests the second logic is also a hardware component.

Although the invention relates to a "lower cost embedded processor," no such processor is explicitly recited by claim one. The second logic is described in claim one as being used "to process data," suggesting that the second logic is indeed a low-cost processor. Claim two supports this view by stating that the second logic comprises "a general purpose processor
module." In viewing all of the intrinsic evidence, 3Com's proposal is impermissibly broad.

While 3Com's proposal is too broad, D-Link's proposal is too narrow. The specification discusses a low-cost processor but does not disclose that such a processor is required. Even if a processor were required, there is no support for a specific performance limitation such as "speeds slower than the stream of the incoming packet stream" as D-Link's proposal imposes.

Although the evidence weighs heavily against a construction of "programming," a construction of "circuitry" was perfectly consistent. Accordingly, the court adopts the modified proposal, "circuitry."

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A. The '049 and '554 Patents

Plaintiff argues that the numerous "logic for" claim elements in the '049 and '554 patents are means-plus-function clauses. The court begins with the rebuttable presumption that "logic for" is not a means-plus-function clause. See Watts v. XL Systems, Inc., 232 F.3d 877, 880-81 (Fed. Cir. 2000). The presumption that § 112, paragraph 6 does not apply can be rebutted by showing that the claim limitation recites a function without reciting sufficient structure for performing that function. See id. at 880. Plaintiff asserts that "logic" does not recite specific structure. The court agrees. The court finds that "logic" does not recite sufficient structure to avoid means-plus-function analysis.

Each of the "logic for" claim limitations of the '049 and '554 patents relate to a processor programmed to perform a specific function. These claim limitations will be construed pursuant to the Federal Circuit's guidance in WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 1349 (Fed. Cir. 1999).

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b. "logic gates"

The term "logic gates" appears in four of the asserted claims of the '806 patent. Claims 7, 13, 18 and 24 of the '806 patent refer to a "logic portion" having at least "30K logic gates" or "40K logic gates." NeoMagic argues that "logic gates" refers to the logic circuitry that makes up the graphics engine and manipulates the video data on a computer screen. Trident counters that the term "logic gates" refers to any kind of logic gate and is not limited to those found in a graphics accelerator.

In order to acquire the proper context to understand claim terms, the court may consult the specification and the prosecution history. See Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 2000 U.S. App. LEXIS 6921, 2000 WL 387159, at *3 (Fed. Cir. 2000); Pitney Bowes, 182 F.3d at 1308-09. In this case, the claims of the '955 and '806 patents are directed to a graphics controller that integrates logic and memory components on a single semiconductor chip. The inventors use the term "logic gates" consistently throughout the specification to refer to the logic circuitry of the graphics engine. For example, the specification states that "with the ability to incorporate large amounts of logic and memory in a single integrated circuit, the present invention provides for video memory and logic for graphics control operations in one integrated circuit." Therefore, the court finds, as advocated by NeoMagic, that the term "logic gates" refers to the logic circuitry that makes up the graphics engine and manipulates video data on a computer screen.

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a. The '219 patent, claim 1: "logic means"

Claim 1 of the '219 patent describes "logic means responsive to said output data control means for determining an output data format for each digitized captured image in accordance with the assigned output data format code." The parties dispute whether this term is in means-plus-function form.
St. Clair contends that "logic means" describes a structure of circuitry or a set of instructions. St. Clair contends that, at the filing of the patents-in-suit, a "logic circuit" had a known structural definition, rebutting the presumption that 35 U.S.C. § 112, P 6 applies.

Defendants contend that the use of the word "means" in the disputed term creates a presumption that the term is in means-plus-function form. Defendants contend that the disputed term is not "logic circuit," and does not reference the structure of a logic circuit.

After reviewing and considering the claim language and specification of the '219 patent in light of the parties' respective arguments, the Court concludes that "logic means," as used in claim 1 of the '219 patent, is not in means-plus-function form. Claim 1 describes a responsive "logic means" for determining an output data format data code in a digital camera. In this context, "logic means" clearly refers to a logic circuit, a structure sufficient to perform the described function. See Ex. 27, Van Nostrand Reinhold Dictionary of Information Technology 307 (3d ed. 1989) (defining "logic circuit" as "in electronics, a circuit comprising one or more gates or flip flops that performs a particular logic function"). Because a sufficient structure is recited, the presumption that Section 112, P 6 applies as a result of the use of the term "means" is rebutted. Accordingly, the Court concludes that the term "logic means" must be interpreted according to its ordinary meaning as "circuitry and/or a set of instructions."

Claim 1 of the '219 patent claims, in pertinent part, an electronic camera comprising:

output data control means for selecting for each digitized captured image . . . one of a plurality of different output data format codes . . . , and

logic means responsive to said output data control means for determining an output data format for each digitized captured image in accordance with the assigned output data format code.

'219 patent, col. 12 lines 45-59 (emphasis added).

Defendants contend that the term "logic means" is in means-plus-function format. According to Defendants, the function of the "logic means" is to "determin[e] an output data format for each digitized captured image in accordance with the assigned output data format code." (D.I. 259 at 47) Defendants contend that the corresponding structure is a microprocessor which includes the disclosed algorithm corresponding to the recited function, specifically "the CPU 20 configured to perform the portions of the algorithm illustrated in the flow chart of Fig. 14B and described at '219 Patent col. 12 lines 11-39 that correspond to the function of this element." (JCCC at 34)

St. Clair contends that "logic means" is not in means-plus-function format and should be construed as "circuitry and/or a set of instructions." (JCCC at 34) Judge Farnan agreed with St. Clair on both points in his Canon Construction. 2004 U.S. Dist. LEXIS 17489, 2004 WL 1941340, at *20-21. On this dispute, I agree with Defendants.

St. Clair asserts: "To one of ordinary skill in the art, the term 'logic' is a circuitry or set of instructions. Indeed, by the time the original patent application was filed, 'logic circuit' was defined as 'a circuit comprising one or more gates or flip flops that performs a particular logic function.'" (D.I. 258 at 37) (emphasis added) (quoting JCCC Ex. 48: Van Nostrand Reinhold Dictionary of Information Technology 307 (3d ed. 1989)) But, as Defendants point out, "'logic circuit' is not the claim term at issue. The term 'logic means' does not include the word 'circuit' . . . ." (D.I. 282 at 39) St. Clair's references to portions of the specification it insists are "consistent with" this dictionary definition are also unpersuasive. (D.I. 258 at 37) As Defendants explain, none of these specification excerpts relate to the function involved in the claim (i.e., "determining an output data format." 14 In other words, each of the portions of the specification on which St. Clair relies deal with different "particular logic functions," making reliance on them somewhat inconsistent with St. Clair's own definition.
I have concluded that the term "logic means" does not recite sufficient structure to overcome the presumption that it is in a means-plus-function format. Accordingly, I recommend that the Court construe "logic means" as used in claim 1 of the '219 patent as a means-plus-function element, with the function being "to determin[e] an output data format for each digitized captured image in accordance with the assigned output data format code," and with the associated structure being "the CPU 20 configured to perform the portions of the algorithm illustrated in the flow chart of Fig. 14B and described at '219 Patent col. 12 lines 11-39 that correspond to the function of this element." 15

15 For the same reasons, I recommend that the Court adopt Defendants' proposed means-plus-function constructions of claims 10 and 16 of the '219 patent, both of which also include "logic means." The specific recommended constructions are provided below. See infra Part IV.

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I. Logical Address

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Address</td>
<td>a fixed, unique, and unchanging identifier assigned</td>
</tr>
</tbody>
</table>
within a network of interconnected computers for source to destination packet delivery; provided that this construction does not imply that a logical address is fixed, unique, and unchanging for all time.

In the alternative:
a fixed code assigned within a network to uniquely identify a host independent of its hardware connection.

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Address</td>
<td>a fixed, unique, and unchanging identifier assigned within a communications system comprising a plurality of data networks.</td>
</tr>
<tr>
<td></td>
<td>In the alternative: a fixed, unique, and unchanging identifier assigned within a communication system comprising a plurality of data networks, whereby the identifier does not change when a host moves from one network to another in the communication system.</td>
</tr>
</tbody>
</table>

The Court previously construed this term in the '061 opinion as "a fixed, unique, and unchanging identifier assigned within a network of interconnected computers for source to destination packet deliver." In that case, the Court considered whether a logical address is "unchanging." The parties in the present case raise this issue again. Defendants oppose Plaintiff's proposed inclusion of a clause in the claim construction that the logical address is not unchanging for all time. In its alternative construction, Defendants propose a clause stating that the logical address may not change when a host moves between two networks. Plaintiff argues that Defendants' language would improperly introduce a new limitation to the claim and limit the scope of the claimed invention to a routing method involving mobile hosts. Plaintiff offers a modified version of the construction provided by the Court in its '061 opinion. The Court agrees with Plaintiff with respect to Defendants' proposal, but declines to adopt Plaintiff's proposed construction.

The Court finds no reason to deviate from its previous construction of this term. Defendants' language unnecessarily incorporates mobility. Claim 3 is directed simply at source filtering at a node. In contrast to the '670 patent, claim 3 recites a "sender" and does not make a mobile-stationary distinction. Whether a particular embodiment of the routing method involves static or mobile hosts is irrelevant to the scope of the claimed invention. Restricting claim 3 to mobile hosts would unnecessarily limit the scope of the claim.

Plaintiff's proposed language tracks the Court's construction from the '061 opinion, but includes an additional clause regarding the duration of time that a logical address is fixed. In the '061 opinion, the Court construed the term such that the logical address was "fixed" but described in its rationale that the address was not unchanging for all time. Given the instruction that the parties not interpret the term contrary to the Court's explained rationale, the Court found it unnecessary to incorporate its reasoning into the text of the construction. Plaintiff has not persuaded the Court an alternate construction is necessary here, particularly in light of an identical instruction. Therefore, the Court construes the term "logical address" as
"a fixed, unique, and unchanging identifier assigned within a network of interconnected computers for source to destination packet deliver." The parties may not interpret this term in a manner that is inconsistent with this opinion.

## 2522

### I. Logical Address Terms

<table>
<thead>
<tr>
<th>No</th>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Logical address</td>
<td>An address assigned within a computer network; examples include IP addresses. In the alternative: the identifier of a connection to the internet represented by a series of numbers that is processed without regard for the physical location of the connection</td>
<td>A fixed, unique, and unchanging identifier of a connection to internet represented by a series of numbers that has no internal structure to suggest network connection location</td>
</tr>
<tr>
<td>8</td>
<td>Source address</td>
<td>Address of origin</td>
<td>A fixed, unique, and unchanging identifier that has no internal structure to suggest network connection location and that is assigned to the host sending the data packet</td>
</tr>
<tr>
<td>9</td>
<td>Source address for logically identifying the sender of the data packet</td>
<td>A source address (as construed herein) for logically identifying the sender of the data packet</td>
<td>A fixed, unique, and unchanging identifier that has no internal structure to suggest network connection location and that is assigned to the host sending the data packet</td>
</tr>
<tr>
<td>10</td>
<td>Destination address for logically identifying a recipient of the data packet</td>
<td>The address where something is sent that logically identifies a recipient of the data packet</td>
<td>A fixed, unique, and unchanging identifier that has no internal structure to suggest network connection location and that is assigned to the host receiving the data packet.</td>
</tr>
</tbody>
</table>

During the hearing, the parties essentially agreed on the scope of these terms, but disagreed as to the best way to explain that scope to the jury. The parties agree that a logical address is a fixed, unique identifier that is assigned by a computer.
network. See '224 patent at 10:52-11:9. The parties also agree that, although a logical address may have some sort of structure, it is processed by the claimed invention without regard for that structure. Markman Hr'g Tr. 70:20-71:8, Apr. 23, 2009; see '224 patent 11:4-9. For example, a phone number has a hierarchical structure based on geographic location. The area code identifies a general geographic area, the first three digits identifies a subset of that area, and the final four numbers identify the particular phone within that subset. However, a phone number may be used simply as an identifier without regard to that structure. When a store such as Home Depot uses that phone number to keep track of a customer's buying habits, it does so without regard to the hierarchical structure of the phone number. The parties disagree as to the best way to explain this concept to the jury.

In light of the parties' substantive agreement, the Court tried to reach an agreed construction between the parties at the hearing, but no agreement was reached. Plaintiff proposes that a logical address "is processed without regard for the physical location of the connection," and Defendants propose that a logical address "has no internal structure to suggest network connection location." However, because of the parties' agreement that a logical address may contain structure even though the claimed invention processes the logical address without regard for that structure, there is no claim scope dispute for the Court to resolve. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008). Although both parties try to capture the agreement in their proposals, both proposals would needlessly confuse the jury by describing how a logical address is used, rather than what it is. There is no need to include this concept in the Court's construction because the parties may not interpret this term in a manner that is inconsistent with their agreement, as embodied in this opinion. Thus, the Court rejects both parties' proposals.

Next, the parties dispute whether a logical address is "unchanging." Defendants propose that a logical address must be "fixed, unique, and unchanging," even though this limitation is not present in the claim language. Defendants point to the specification to support their position. The patent identifies certain problems in the prior art associated with mobile users in interconnected communication networks. In a system of interconnected networks, each network may have a different protocol for routing packets between physical devices. '224 patent at 10:58-62. When one device (the source) attempts to send a packet to another (the destination), it sends a packet to a physical address associated with the particular physical device with which it is trying to communicate. '224 patent at 10:35-51. If that destination device moves to a different network, its physical address may need to be changed to comply with the protocols of the new network. See '224 patent at 10:52-67. This may lead to frequent switching of network addresses, thus making it difficult to efficiently route data packets. '224 patent at 2:22-36. The claimed invention solves this problem by assigning a logical address to each device, which is "fixed, unique, and unchanging." '224 patent at 2:38-40. This logical address refers to a connection to the communication system, not a particular physical device. Thus, by relying on logical addresses rather than physical addresses, data packets can be efficiently routed even to a device whose physical address frequently changes. See '224 patent at 10:52-11:9. (explaining the distinction between physical and logical addresses).

Plaintiff agrees that a logical address must be fixed, unique, and unchanging during a connection, but argues that it need not be unchanging "for all time." Markman Hr'g Tr. 77:3-7, Apr. 23, 2009. That is, the phrase "fixed, unique, and unchanging" is used to distinguish physical addresses which must change every time a device moves between networks. This phrase should not be read more broadly to imply that, once assigned, a logical address must always refer to one and only one particular physical device. Such an interpretation would conflate the difference between a logical address and a physical address. In other words, Plaintiff argues that, if a device is disconnected from the network, and later re-connected, it may be assigned a different logical address that is fixed, unique, and unchanging, for the duration of the connection. Plaintiff's argument is well taken.

Because the specification distinguishes physical addresses by describing logical addresses as "fixed, unique, and unchanging," '224 patent at 2:38-40, the Court will construe the term "logical address" as "fixed, unique, and unchanging." Nonetheless, this construction does not imply that a logical address is fixed, unique, and unchanging for all time. Such an interpretation would conflate the difference between a physical address and a logical address, and would be inconsistent with the requirement that a logical address be assigned within a network to represent a connection to the network rather than a particular physical device. See '224 patent at 10:52-11:9. Therefore, the Court will construe the term "logical address" as "a fixed, unique, and unchanging identifier assigned within a network of interconnected computers for source to destination packet delivery." 4 The parties may not interpret this term in a manner that is inconsistent with this opinion. See Aloft Media, LLC, 2009 U.S. Dist. LEXIS 24124, 2009 WL 803133 at *5 n. 2.
4 The Court rejects the parties' proposals insofar as they require a logical address to identify "a connection to the internet" or be "represented by a series of numbers." These two limitations are not present in the claim language or the specification. Rather, a logical address may identify a connection to a network of interconnected computers not necessarily connected to the internet. '224 patent at 2:37-45. In addition, the specification mentions at least one embodiment which does not require a logical address to be represented by a series of numbers. '224 patent at 16:55-57.

With regard to the remaining address terms, Defendants attempt to inject their proposed construction of "logical address" into the constructions of these terms. Having rejected Defendants' proposed construction of "logical address," the Court will not adopt Defendants' proposed constructions of these terms. At the hearing, both parties agreed that destination addresses and source addresses are logical addresses. Markman Hr'g Tr. 82:20-83:3, Apr. 23, 2009. The claim language itself clearly expresses that these addresses are logical addresses. See '224 patent claim 8 ("a source address for logically identifying a sender of the data packet independent of the sender's physical media address"). In light of this claim language, the Court finds that the remaining address terms would be readily understood by a lay jury. Therefore, the Court will not construe these terms. See O2 Micro Int'l Ltd., 521 F.3d at 1362; Fenner Inv. Ltd. v. Microsoft Corp., No. 6:07-cv-8, 2008 U.S. Dist. LEXIS 65686, 2008 WL 3981838 at *3 (E.D. Tex. Aug. 22, 2008) (finding that a court need not construe a disputed term as long as it has resolved the claim scope dispute between the parties).

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B. Construction of "logical block address" in the '051 patent

Lexar's proposed construction: A value provided by the host for addressing a sector

Toshiba's proposed construction: Logical address provided by the host to the controller for identifying information blocks

Pretec's proposed construction: none

The parties' dispute over "logical block address" in the '051 patent, like "controller," focuses more on that with which the LBA interfaces rather than the LBA itself. Lexar contends that the LBA identifies sectors while Toshiba argues that the LBA identifies blocks. In its Opening Brief, Lexar cites claim language from the '314 patent to support its construction. As explained above, '314 patent claim language is inapposite in construing a common term in the '051 patent. Although the two patents share, at least in part, the same parent application and each patent's prosecution history may be relevant for the construction of common terms, common terms are not necessarily construed consistently. Toshiba contends that the LBA identifies information blocks and directs the Court to the language of claims 1 and 18 of the '051 which expressly says that a group of LBAs "identif[ies] one or more information blocks." ('051 patent, 18:42-43; 20:29-30.) In its Reply Brief and at oral argument, Lexar suggested two reasons that Toshiba's proffered construction is incorrect. First, the claim language referenced by Toshiba is incomplete in that follows the cited language clarifies that what an LBA really identifies is a sector. And second, the host, from which the LBA issues, communicates only in terms of sectors, not blocks. The Court agrees in part.

Indeed, the language that follows that cited by Toshiba reflects that what an LBA identifies is more complex than the initial phrase suggests. LBAs "identify[] one or more information blocks to be accessed in the nonvolatile memory, each of the information blocks including a plurality of N sectors." Additionally, the Court agrees that the host, which provides the LBA, speaks in terms of sectors, not blocks. Lexar's contextual argument in this regard is useful, but not dispositive because it would be improper to ignore the claim language itself which does say that the LBA identifies information blocks. Therefore, the Court construes "logical block address" in the '051 as: address provided by the host to the controller for identifying blocks which contain a plurality of N sectors.
C. "logical network"

While we have affirmed the judgment of noninfringement as to the '322 and '710 patents based on the construction of "layer" and "available for receiving [transmitting] a packet," the '080 patent does not contain those terms. It does, however, contain the "logical network" limitation.

The parties take disparate approaches to the "logical network" term, which the district court construed as "a subnetwork in a network." Specifically, Juniper argues that the district court properly construed the term, and that Toshiba's construction would unduly limit the correct meaning. Toshiba, on the other hand, asserts that the district court's construction limits the claims in support of Juniper's noninfringement position. Toshiba urges us to adopt "a subnet in the network layer" as the correct meaning. Whatever the motivations behind the parties' arguments, Toshiba has appealed the construction of "logical network" after a judgment of noninfringement, without providing any further context for our analysis. We will therefore treat the term as critical to Toshiba's case.

The district court correctly construed "logical network." The specification of the '710 patent states, "a logical network here refers to a network that can be handled logically as a single entity, regardless of a physical configuration." '710 patent, col. 8, ll. 24-26. This passage does not introduce the requirement that a logical network exist in the network layer of a communication protocol. Toshiba does not point to anything specific in the patents indicating the network layer plays a critical role in understanding the "logical networks" term. The parties agree that a logical network is a subnetwork. Accordingly, we affirm the district court's construction of that term and the judgment of noninfringement of the '080 patent.

2. "Logical page address" ('424 pat., cls. 20 and 24)

The parties disagree about whether the claimed "logical page address" is limited to a "logical block number plus logical page offset." (The parties seek construction of two different claim terms referring to the "logical page address": (a) "programming individual ones of a first plurality of said given number of pages and a logical page address associated with the original data"; and (b) "programming individual ones of a second plurality of a total number of pages less than said given number in a second block with updated data and a logical page address associated with the updated data." There are no other disputes related to the first term and only one other dispute related to the second, which is discussed in the section below.)

Defendants contend that the embodiments specify only a "logical block number plus logical page offset" and therefore that the claims should be so limited. Plaintiff's attempt to show that the embodiments involved other types of "logical page addresses" is unpersuasive, but ultimately this does not matter. Once again, embodiments alone do not create limitations. Defendants identify no evidence that the claims were intended to be limited to the embodiments listed. The term "logical page address" is not limited to a "logical block number plus logical page offset."

7. Logical Processor Number

The TOLL software adds a second type of intelligence to the instruction stream. This intelligence is the logical processor number, or "LPN." The "logical processor number" limitation appears in claims 11, 12, and 20-22 of the '755 patent as well as in claims 1, 3, 6, 11, 13, 15, 21, 23, 28, 36, and 37 of the '945 patent.

The plaintiff asks the court to construe the term to mean "information that is used to indicate which processor will execute the instruction." The defendants construe it to mean "the number added to an instruction, identifying the particular processor
assigned to execute the instruction." Once again, the court concludes that the ITC court correctly construed this term. The plaintiff’s definition does not account for the fact that the term in dispute specifically uses the word "number." As such, this court defines "logical processor number" to mean "a number correlated by the hardware to an actual physical processor element."

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16. Logical Resource Driver

The next term in dispute is the "logical resource driver" or LRD. This term appears in claims 11, 12, 13, and 37 of the ‘755 patent. Biax argues that the various claims define the LRD by describing the functions the LRD performs. According to Biax, the LRD is a unit that stores received instructions and delivers the instructions to processor elements. Intel and ADI define the term to mean "a hardware device assigned to a single user having a data cache, instruction selection support including an instruction cache, a plurality of instruction queues for delivering instructions to the processor element assigned to each logical processor number, a branch execution unit and an instruction cache address translation unit, and a data cache address translation unit."

Neither side's construction is entirely appropriate. The term "logical resource driver" does not have a specific meaning in this art. Resort to the specification is necessary. The specification states:

The logical resource drivers 620 are unique to the system architecture 600 of the present invention. Each illustrated LRD provides the data cache and instruction selection support for a single user (who is assigned a context file) on a timeshared basis. The LRDs receive execution sets from the various users wherein one or more execution sets for a context are stored on an LRD. The instructions within the basic blocks of the stored execution sets are stored in queues based on the previously assigned logical processor number. For example, if the system has 64 users and 8 LRDs, 8 users would share an individual LRD on a timeshared basis. The operating system determines which user is assigned to which LRD and for how long.

‘755 patent, col. 15, 11. 45-59. A more detailed depiction of the LRD is found in Fig. 15 and the accompanying description of the preferred embodiment.

The patent states that the LRDs are "unique to the system architecture 600 of the present invention." As a result, the court construes the term "logical resource driver" as "a hardware device which provides a data cache and instruction selection support system for a given user. The LRDs receive execution sets, store the instructions, and deliver the instructions to the processor elements."

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D. Meaning of "Logical Unit"

Lastly, Veritas argues that the term "logical unit" refers to a disk partition, rather than a disk volume. To recap pertinent vocabulary, as the Court understands it, a disk drive is the physical mass storage device itself. The operating system or storage system presents physical mass storage to the file system as a logical (i.e., not physical) entity consisting of a series of blocks of data storage that can be read from and written to. This separation of the logical from the physical, or abstraction, is useful because it permits different logical organizations of the physical disks in ways that are advantageous. Individual physical disks may be formatted or subdivided into one or more logical partitions. One or more partitions, spanning one or more physical disk drives, are aggregated by the operating system (or storage system) and presented to the file system or application software as a single, addressable series of data storage blocks, i.e., a volume or virtual disk.

The Court finds that this thumbnail description is generally accepted as a common mode of mass storage, using terms generally understood as indicated. (Although this is certainly not the only method or vocabulary of mass storage.) The Court is also of the impression that both parties agree that the term "logical unit" is not a term of general usage in the mass storage
world. Nor is it expressly defined in the patent. The most explanatory discussion in the specification follows:

Finally, and as generally indicated in FIG. 7A, the storage space available in Disk Drives 16Da through 16Dc is organized into one or more logical partitions, referred to as Logical Units (LUNs) 100, wherein the mass storage system, as described herein above, operates such that each Logical Unit (LUN) 100 operates as a logical storage device regardless of the number or physical configuration of the actual physical devices, that is, Disk Drives 16, comprising each Logical Unit (LUN) 100.

Veritas App. at 15 (col. 14, l. 4-12). The Court holds that this description of Logical Unit is synonymous with the term "volume" or "virtual disk" as described above. Veritas' suggested construction of logical unit as synonymous with partition is excluded by the quoted language above indicating that a logical unit can consist of more than one disk drive.

Veritas also argues that a logical unit must be designated for mirroring before any data is written to it. The Court finds no support for that limitation in the claims and declines to impose it.

3. "Logging accesses to" the secondary storage device . . . (Second step of Claim 1 and second means element of Claim 2).

Although the parties initially asked the court to construe "logging access," the parties agreed at the Markman hearing that the phrase, in context, is actually "logging accesses to" the secondary storage device. The parties further agreed that "logging accesses to . . ." can be replaced with the phrase, "placing in a log file, information about the obtaining of data from . . ." This comports with the specification and the meaning of the words commonly understood by those of ordinary skill in the art. The court defines this term as follows:

"Logging accesses to . . ." means: Placing in a log file, information about the obtaining of data from . . .

B. "Logon Command"/"Valid Logon Command"

The term "logon command" appears in claim 16 of the '253 patent, claims 1 and 2 of the '943 patent, and claims 3, 4, and 5 of the '945 patent. The term "logon command" is preceded by the word "valid" where it appears in claims 1 and 2 of the '943 patent, and in claims 3, 4, and 5 of the '945 patent.

102 The term "logon command" literally appears only in claim 1 of the originally issued version of the '945 patent. Claims 3, 4, and 5, however, are written in dependent form and all depend on claim 1. As explained above, ABC canceled claim 1 during reexamination, but claims 3, 4, and 5 survived reexamination without amendment. Therefore, the text of claim 1, including the term "logon command," remains part of the '945 patent because it is incorporated by dependent claims 3, 4, and 5.

ABC asserts that "logon command" means "identifying information, such as a name or data, associated with, and enabling access to, one or more remote computers where the validation is performed by a website, remote system controller, or network control computer." WebEx contends that "logon command" means "a command that, if valid, establishes a connection with the remote computer unit, thereby enabling operation of the remote computer unit by the local portion." WebEx also asserts that the term "valid logon command" should be separately construed, and means "a 'logon command' that has been confirmed by the [remote system controller (Claim 1 of the '943 Patent)])/[network control computer (Claim 2 of the '943 Patent)]/[website (Claim 1 of '945 Patent)] to be valid for establishing a connection to enable remote operation." ABC argues that it is not necessary to separately define "valid logon command."
The parties' proposed definitions do not consistently define what constitutes a logon command. ABC contends that a logon command consists of "identifying information, such as a name or data, associated with . . . one or more remote computers . . . ." WebEx, on the other hand, begins its definition with the phrase "a command that . . . ." WebEx therefore seeks to define a logon command based only on its function or purpose -- i.e., "establish[ing] a connection with the remote computer unit, thereby enabling operation of the remote computer unit by the local portion" -- without reference to what constitutes the command.

Since ABC's proposed definition explains what a logon command is, instead of only what a logon command does, it is more helpful and informative. WebEx's definition is circular, defining "logon command" using the term "command." Moreover, ABC's proposed definition is, for the most part, supported by the specifications and the claim language of the asserted patents. Therefore, the court is inclined to adopt this portion of ABC's proposed definition, with one significant modification.

The description of the preferred embodiment in the '253 and '943 patents explains that a "logon command" could "either be a set of keyboard strokes or a special function key provided on the input unit for this purpose." 107 The specification of the '945 patent describes other possible examples of logon commands, referring to the use of "authorization code[s]," 108 "personal Identification Number[s] (PIN)," 109 and "password code[s] . . . such as data, finger and voice prints . . . ." 110 This indicates that a logon command consists of identifying information, such as a name or other data.

The language of the asserted claims indicates that this identifying information is associated with a particular remote computer unit, but not more than one remote computer unit as ABC's proposed definition suggests. Claim 16 of the '253 patent states that "each of the remote computer units [is] associated with a unique individual," that "each individual is associated with . . . one of the remote computer units," and that the remote system controller, after checking the validity of the logon command, "interface[s] each individual's local portion with the individual's remote computer unit . . . ." 111 Similarly, claims 1 and 2 of the '943 patent describe the process of connecting a local unit to a single remote computer unit after confirming the validity of a logon command. 112 Finally, the asserted claims of the '945 patent state that the website
"associates a valid logon command with the remote computer unit." 113

ABC contends that the specifications of the asserted patents describe preferred embodiments in which a logon command could be associated with more than one remote computer unit and, therefore, that the term logon command should be interpreted to account for that possibility. 114 But even if ABC correctly characterizes the specification, the claim language itself for each of the asserted claims speaks in terms of only a single remote computer unit. Therefore, the court's definition of logon command will reflect association with a single remote computer unit. See Phillips, 415 F.3d at 1312 (explaining that the language of the claim itself is "of primary importance[] in the effort to ascertain precisely what it is that is patented" (quoting Merrill v. Yeomans, 94 U.S. 568, 570, 24 L. Ed. 235, 1877 Dec. Comm'r Pat. 279 (1876))). See also TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1373 (Fed. Cir. 2008) ("[T]he mere fact that there is an alternative embodiment disclosed in the . . . patent that is not encompassed by [a] district court's claim construction does not outweigh the language of the claim, especially when the court's construction is supported by the intrinsic evidence.").

An extrinsic evidence reference cited by ABC is also informative. A technical dictionary defines the term "logon" as "the process of identifying oneself to a computer after connecting to it over a communication line. During a logon procedure, the computer usually requests the user's name and a password." 115 This definition suggests that a logon command consists of the information or data necessary to identify a particular user to a particular computer. Accordingly, the court concludes that the definition of logon command should include the phrase "identifying information, such as a name or data, associated with . . . a remote computer unit . . . ."

2. The Function of a Logon Command

WebEx contends that the logon command "establishes a connection with the remote computer unit, thereby enabling operation of the remote computer unit by the local portion." ABC asserts that the logon command "enabl[es] access to one or more remote computers . . . ." 116

114 WebEx's Response, Docket Entry No. 166, at 18-19.


2. The Function of a Logon Command

WebEx contends that the logon command "establishes a connection with the remote computer unit, thereby enabling operation of the remote computer unit by the local portion." ABC asserts that the logon command "enabl[es] access to one or more remote computers . . . ." 116

116 ABC's proposed definition suggests that a logon command may be associated with and enable access to more than one remote computer unit. As noted above, the language of each of the asserted claims speaks in terms of only a single remote computer unit; therefore, the court concludes a logon command enables a connection to only a single remote computer unit.

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The parties agree that the logon command "enables" something. They disagree, however, as to precisely what the logon command enables. Under ABC's definition, the logon command "enables" access to a remote computer unit. Under WebEx's definition, the logon command "enables" operation of a remote computer unit.

The parties also disagree as to whether the logon command, in addition to enabling access to or control of a remote computer unit, "establishes a connection with" the remote computer unit. ABC argues that the remote system controller, network control computer, or website -- depending on which claim is involved -- establishes a connection, not the logon command.

These disagreements can be resolved by a careful reading of the relevant claim language. Claim 16 of the '253 patent describes

...adapted to receive remote logon commands, check the remote logon commands for validity, and interface each individual's local portion with the individual's remote computer unit . . . thereby permitting valid data signals received from each individual's local portion to be transmitted to each individual's remote computer unit . . . , the data signals being process able by the individual's remote computer unit . . . to generate output signals . . . transmittable from the individual's remote computer unit . . . to the individual's local portion.

In this claim the remote system controller must be adapted to perform three functions, one of which is to "interface," i.e., establish a connection between, the local portion and the remote computer unit. This function is not performed by the logon command. As for what is enabled by the logon command, this claim does not use either the term "operation" or "access." However, the process of sending data signals to the remote computer unit, processing the signals, and then sending output data back to the local portion, evinces the concept of operation of the remote computer unit, not mere access.

117 '253 patent, claim 16 (as amended) (emphasis added).

Claim 1 of the '943 patent describes a method, two steps of which are "[1] receiving and checking the validity, by the remote system controller, a valid logon command; and [2] interfacing, through the remote system controller, the local computer unit with the remote computer unit to permit the local computer unit to operate the remote computer unit . . . ." 118 Again, in this claim it is the remote system controller, as opposed to the logon command, that performs the task of "interfacing" or, in other words, establishing a connection between the local computer unit and the remote computer unit. The claim also explicitly uses the verb "operate" to describe how the local computer unit acts in relation to the remote computer unit. It is therefore operation, not access, that is enabled by the logon command.

118 '943 patent, claim 1 (as amended) (emphasis added).

Claim 2 of the '943 patent similarly describes a method, one step of which is "operating a network control computer . . . to connect the remote computer unit to the local computer unit permitting the local computer unit to operate the remote computer unit upon receipt and checking the validity of a valid logon command . . . ." 119 In this claim the network control computer, not the logon command, performs the function of connecting the local computer unit to the remote computer unit. Additionally, this claim, like claim 1 of the '943 patent, states that the local computer unit "operate[s]" the remote computer unit. There is no mention of accessing the remote computer unit.

119 '943 patent, claim 2 (as amended).
The three asserted claims of the '945 patent all provide for a "website capable of allowing and facilitating communication between a remote computer unit and a [local] unit . . . ." 120 The claims further describe "receiving, by the website, a valid logon command . . . whereby the website associates the valid logon command with the remote computer unit . . . ." 121 In light of this language, it is clear that the website establishes a connection between the local unit and the appropriate remote computer unit. The logon command does not perform that task.

Elsewhere, the '945 patent claims describe the steps of "receiving, by the website, data signal instructions from the interface unit; and sending the data signal instructions from the website to the remote computer unit whereby the data signal instructions act to remotely operate the remote computer unit . . . ." 122 Again, the term operate is used, as opposed to access.

In light of the plain language of the asserted patent claims, the court concludes that the logon command enables the operation of, not access to, a remote computer unit by the local portion. The court also concludes that the logon command does not establish a connection with the remote computer unit. That function is performed by the remote system controller, network control computer, or website, depending on which claim is involved.

3. Validation of a Logon Command

As the parties' proposed definitions reflect, the parties agree as to which device or element validates a logon command in each of the asserted patent claims. 123 In claim 16 of the '253 patent and claim 1 of the '943 patent the remote system controller validates the logon command. 124 In claim 2 of the '943 patent the network control computer validates the logon command. 125 And in the three asserted claims of the '945 patent the website validates the logon command. 126 The parties disagree, however, as to how this information should be incorporated into the definition(s) of particular terms.

123 See ABC's Brief, Docket Entry No. 154, at 14; WebEx's Response, Docket Entry No. 166, at 15-16.
124 See '253 patent, claim 16 (as amended) ("a remote system controller . . . adapted to . . . check the remote logon commands for validity"); '943 patent, claim 1 (as amended) ("receiving and checking the validity, by the remote system controller, a valid logon command").
125 See '943 patent, claim 2 ("a network control computer . . . to connect the remote computer unit to the local computer unit . . . upon receipt and checking the validity of a valid logon command").
126 See '945 patent, claim 1 ("receiving, by the website, a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit").
ABC proposes including the following phrase at the end of the definition of logon command: "where the validation is performed by a website, remote system controller, or network control computer." WebEx proposes a different method. WebEx suggests that the court should define the term "valid logon command" separately from the term "logon command," and that "valid logon command" should be defined as "a 'logon command' that has been confirmed by the [remote system controller (Claim 1 of the '943 Patent)]/[network control computer (Claim 2 of the '943 Patent)]/[website (Claim 1 of '945 Patent)] to be valid for establishing a connection to enable remote operation."

The court concludes that WebEx's proposed definition of "valid logon command" is circular, confusing, and unnecessary. It is not helpful to define "valid logon command" as "a 'logon command' that has been confirmed . . . to be valid . . . ." The proposed definition conveys no information about how the term "valid" modifies the term "logon command." That is, however, evidently not WebEx's intent. Apparently, WebEx intends to use this definition as a means to explain which device or element performs the task of validating the logon command for each particular asserted claim. To the extent such information needs to be explained in a definition, it can be explained in the definition of "logon command." There is no need to arbitrarily select the phrase "valid logon command" as an additional term to define simply to achieve the goal of identifying which element performs the task of validation. Accordingly, the court will not define the term "valid logon command." See U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims . . . . It is not an obligatory exercise in redundancy.").

The court, however, agrees with WebEx on a different point. WebEx points out that ABC's proposed definition fails to specifically link the element that performs the logon command validation with the corresponding asserted claim. This lack of specificity may cause confusion because the asserted claims use different terminology to refer to the intermediate element that performs the validation function. To avoid any confusion, the definition of "logon command" should be customized for each asserted patent claim to clearly identify the element that performs the logon command validation for that particular claim. Accordingly, the court concludes that the definition of logon command should conclude with the phrase "and which is checked for validity by the [remote system controller (claim 16 of the '253 patent, claim 1 of the '943 patent)]/[network control computer (claim 2 of the '943 patent)]/[website (claim 1 of '945 patent)]."

4. Conclusion

The court concludes that a "logon command" is "identifying information, such as a name or data, associated with and enabling operation of a remote computer unit, and which is checked for validity by the [remote system controller (claim 16 of the '253 patent, claim 1 of the '943 patent)]/[network control computer (claim 2 of the '943 patent)]/[website (claim 1 of '945 patent)]."

127 The court does not include the phrase "if valid" in the definition of "logon command," as WebEx suggests, because the context in which the term appears in each of the asserted claims makes clear that only a valid logon command will enable operation of the associated remote computer unit. In fact, in all but one of the asserted claims, the term "logon command" is immediately preceded by the word "valid."

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B. "Logon Command" and "Associates the Valid Logon Command with the Remote Computer Unit"

The term "logon command" appears in claim 16 of the '253 patent, claims 1 and 2 of the '943 patent, and claims 3, 4, and 5 of the '945 patent. ABC asserted in its opening claim construction brief that the term should be interpreted as "identifying information, such as a name or data, associated with, and enabling access to, one or more remote computers where the validation is performed by a website, remote system controller, or network control computer." 14 The court concluded that
"logon command," as used in the asserted patents, means identifying information, such as a name or data, associated with and enabling operation of a remote computer unit, and which is checked for validity by the [remote system controller (claim 16 of the '253 patent, claim 1 of the '943 patent)] / [network control computer (claim 2 of the '943 patent)] / [website (claim 1 of '945 patent)]. 15

14 ABC's Opening Claim Construction Submission, Docket Entry No. 154, at 14 (emphasis added).

15 Memorandum Opinion on Claim Construction, Docket Entry No. 190, at 54 (emphasis added).

In reaching this conclusion the court rejected ABC's argument that the logon command enabled operation of "one or more remote computers" because "the claim language itself for each of the asserted claims speaks in terms of only a single remote computer unit." 16 Accordingly, the "court's definition of logon command . . . reflect[s] association with a single remote computer unit." 17

16 Id. at 46.

17 Id.

The term "associates the valid logon command with the remote computer unit" appears in claims 3, 4, and 5 of the '945 patent. In its opening Markman brief ABC offered the following definition: "to connect or bring into relation a valid logon command with one or more computers that are to be remotely controlled from a remote location using a local computer / interface unit." 18 The court adopted a different definition: "to connect or bring into relation a valid logon command with a particular computer unit that is to be remotely controlled from a remote location using an interface unit." 19 As it did with regard to the definition of the term "logon command," the court rejected ABC's position that the definition should refer to "one or more computers" because "the asserted claims unanimously and unambiguously speak in terms of a single remote computer unit . . ." 20

18 Plaintiff ABC's Opening Claim Construction Submission, Docket Entry No. 154, at 15 (emphasis added).

19 Memorandum Opinion on Claim Construction, Docket Entry No. 190, at 59 (emphasis added).

20 Id.

ABC now asks the court to reconsider its rulings to the extent they limit a logon command to being associated with only one particular remote computer unit or suggest that a separate logon command must be entered in order to operate each remote computer unit. 21 In other words, ABC asks the court to modify its definition of "logon command" by replacing the phrase "a remote computer unit" with the phrase "one or more remote computer units," and to modify its definition of "associates the valid logon command with the remote computer unit" by replacing the phrase "a particular computer unit" with the phrase "one or more computer units." 22 ABC asserts that its interpretation is correct because, as a matter of law, the articles "a" or "the" that proceed the term "remote computer unit" in the asserted claims must be understood to mean "one or more." See Baldwin Graphic Sys., 512 F.3d at 1342 (explaining that "an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising,'" and that "'[t]he subsequent
use of definite articles 'the' or 'said' in a claim to refer back to the same claim term does not change the general plural rule”).

23, 24 The court evaluates ABC's argument with respect to each of the asserted patent claims.

21 ABC's Motion, Docket Entry No. 191, at 5-14.

22 See id.

23 ABC did not raise this argument or invoke this claim construction rule in its opening claim construction brief or in response to WebEx's initial claim construction brief. See ABC's Opening Claim Construction Submission, Docket Entry No. 154, at 14-17; ABC's Response to WebEx's Claim Construction Submission, Docket Entry No. 165, at 7-11.

24 WebEx does not dispute, and the court agrees, that each of the asserted claims is an "open-ended claim[] containing the transitional phrase 'comprising.'" Baldwin Graphic Sys., 512 F.3d at 1342.

1. '253 Patent

Claim 16 of the '253 patent, as amended, reads:

A remote portion of a split personal computer system for selectively processing video portions, input/output portions, computational portions and storage portions of personal computer tasks wherein the split personal computer has a plurality of remote computer units selectively performing the computational portions and the storage portions of the personal computer tasks, each of the remote computer units being associated with a unique individual and having application programs and data associated with previous usage by the individual stored thereon, and a plurality of local portions located remotely from the remote computer units and adapted to selectively perform the video portions and the input/output portions of the personal computer tasks, each of the local portions being associated with an individual such that each individual is associated with one of the local portions and one of the remote computer units, the remote portion comprising:

a remote system controller established on the World Wide Web and communicating with the local portions via the Internet, adapted to receive remote logon commands, check the remote logon commands for validity, and interface each individual's local portion with the individual's remote computer unit of the split personal computer system thereby permitting valid data signals received from each individual's local portion to be transmitted to each individual's remote computer unit of the split personal computer system, the data signals being processable by the individual's remote computer unit of the split personal computer system to generate output signals, the output signals including video signals and being transmittable from the individual's remote computer unit of the split personal computer system to the individual's local portion. 25

25 '253 patent, claim 16 (as amended).

The singular term "remote computer unit" is never immediately preceded by the articles "a," "an," or "the." Instead, the term is always proceeded by the term "the individual's" or "each individual's." Therefore, it is questionable whether the general rule cited by ABC is even potentially applicable in this situation. Even if the general rule is potentially applicable, however, the court concludes that an exception applies.

When the claim language itself clearly limits the article "a" or "an" to "one" or some other specific number of elements, the general rule cited by ABC does not apply. Baldwin Graphic Sys., 512 F.3d at 1342; KCJ Corp., 223 F.3d at 1356. See also Abtox, Inc., 122 F.3d at 1024 (holding that, despite the general rule, the claim language "clarifies that only one chamber is in question"). Claim 16 of the '253 patent clearly limits the number of remote computer units that may be associated with a
particular logon command.

The claim states that "each of the remote computer units [in the personal computer system] [is] associated with a unique individual." 26 Moreover, "each individual is associated with . . . one of the remote computer units." 27 The claim then explains that after the remote system controller receives logon commands and checks them for validity, it "interfaces each individual's local portion with the individual's remote computer unit . . . ." 28 The remote system controller cannot interface the individual's local portion with more than one remote computer unit upon receipt of a particular valid logon command because the claim specifically states that each individual is associated with only "one of the remote computer units." 29 Accordingly, claim 16 of the '253 patent makes abundantly clear that a logon command is associated with and enables the operation of only one remote computer unit. The court will not modify its construction of the term "logon command" for claim 16 of the '253 patent.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

26 '253 patent, claim 16 (as amended) (emphasis added).
27 Id. (emphasis added).
28 Id. (emphasis added).
29 Id.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

2. '945 Patent

Claims 3, 4, and 5 of the '945 patent were originally dependent claims. Claims 4 and 5 depended on the now-withdrawn claim 1, and claim 3 depended on the now-withdrawn claim 2, which itself also depended on claim 1. The full text of claims 3, 4, and 5 are provided below, written in independent form.

Claim 3 of the '945 patent provides:

A method for providing a service for remotely controlling a remote computer unit using an interface unit, the remote computer unit comprising a personal computer, the method comprising the steps of:

operating a website capable of allowing and facilitating communication between a remote computer unit and an interface unit via an internet;

receiving, by the website, a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit;

receiving, by the website, data signal instructions from the interface unit;

sending the data signal instructions from the website to the remote computer unit whereby the data signal instructions act to remotely operate the remote computer unit as if the operator of the interface unit were sitting in front of the remote computer unit and actually operating the remote computer unit;

installing a program onto the remote computer unit to permit the data signal instructions sent by the website originating from the interface unit to further facilitate the ability of the interface unit to remotely operate the remote computer unit through the website as if the operator of the interface unit were sitting in front of the remote computer unit and actually operating the remote computer unit; and

billing for access to the service and monitoring payments made by the customer to maintain the customer's access to the service. 30
Claim 4 of the '945 patent provides:

A method for providing a service for remotely controlling a remote computer unit using an interface unit, the remote computer unit comprising a personal computer, the method comprising the steps of:

operating a website capable of allowing and facilitating communication between a remote computer unit and an interface unit via an internet;

receiving, by the website, a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit;

receiving, by the website, data signal instructions from the interface unit;

sending the data signal instructions from the website to the remote computer unit whereby the data signal instructions act to remotely operate the remote computer unit as if the operator of the interface unit were sitting in front of the remote computer unit and actually operating the remote computer unit; and

billing for access to the service and monitoring payments made by the customer to maintain the customer's access to the service. 31

Claim 5 of the '945 patent provides:

A method for providing a service for remotely controlling a remote computer unit using an interface unit, the remote computer unit comprising a personal computer, the method comprising the steps of:

operating a website capable of allowing and facilitating communication between a remote computer unit and an interface unit via an internet;

receiving, by the website, a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit;

receiving, by the website, data signal instructions from the interface unit; sending the data signal instructions from the website to the remote computer unit whereby the data signal instructions act to remotely operate the remote computer unit as if the operator of the interface unit were sitting in front of the remote computer unit and actually operating the remote computer unit; and

downloading a program from the website to the remote computer unit prior to the step of sending the data signal instructions from the website to the remote computer unit, the program downloaded onto the remote computer unit establishing the remote computer unit to be controlled by the data signal instructions. 32
Claims 3, 4, and 5 of the '945 patent are "open-ended claims containing the transitional phrase 'comprising.'" Baldwin Graphic Sys., 512 F.3d at 1342, and the term "remote computer unit" is immediately preceded by the article "a" in the first instance, and then the article "the" in subsequent instances. Therefore, unless an exception applies, the court must construe the articles "a" and "the" preceding the term "remote computer unit" to mean "one or more." Id.

WebEx first contends that the claim language of the '945 patent specifically limits the number of remote computer units associated with a particular logon command to one. WebEx points out that all three claims provide that the "website associates the valid logon command with the remote computer unit," and that a valid logon command enables the user to "operate the remote computer unit as if [he] were sitting in front of the remote computer unit and actually operating the remote computer unit." 33 WebEx asserts that this claim language, in combination with the fact that ABC has admitted that "a user would connect only to a particular remote computer unit at a time, . . . and not multiple computers simultaneously," 34 mandates a one-to-one correspondence of logon commands to remote computer units. WebEx reasons that a single valid logon command must be associated with the single remote computer unit that the user will operate at a given time.

The court disagrees. The quoted excerpt from the asserted claims does not use a word such as "one" or "particular" before the phrase "remote computer unit" that would necessitate a one-to-one correspondence or a singular interpretation. The quoted excerpt of the claim uses only the articles "a" and "the" -- the very articles to which the general rule applies -- before the pertinent nouns. Therefore, the claim language itself does not require that a single logon command be associated with only one particular remote computer unit. Nor does the fact that a user can operate only one of his remote computer units at any given time mean that a logon command could not be associated with and enable operation of more than one remote computer unit. Nothing in the claim language of the '945 patent excludes from the scope of the invention an embodiment in which a user first enters a single logon command, which will identify his remote computer unit(s), and then selects the particular one of his remote computer units he seeks to control. Based solely on the claim language, a single logon command could identify or be associated with a group or subset of multiple remote computer units belonging to a particular user, any one of which the user could then choose to operate. Cf. Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps.").

WebEx also asserts that the specification of the '945 patent evinces a clear intent on the part of the patentee to limit the articles "a" or "an" preceding the term "remote computer unit" to a singular meaning. WebEx admits that the specification describes a preferred embodiment that enables a user to remotely control two different types of remote computer units: (1) a multiple computer system ("MCS") unit or (2) any other computer such as a home or office computer. 35 WebEx points out, however, that the specification uses two different terms to describe the logon command required to access and operate each of the two different types of remote computer units. The specification explains that a user seeking to connect to and control a non-MCS computer unit, i.e., a home or office computer, would enter an "authorization code." 36 On the other hand, a user seeking to connect to and control an MCS unit must enter a "personal identification number (PIN)." 37 WebEx also points out that in the preferred embodiment of the invention described in the specification, a user first selects whether he would like to connect to his MCS unit or his "other computer" and then, after he selects MCS unit, enters his PIN. 38 WebEx contends that "these passages confirm that the user needs a separate logon for each remote computer unit it wants to operate . . . ." 39

35 See '945 patent col.4 ll.37-44 (explaining that a user can use the invention to connect with and remotely control either a
MCS unit or another computer, such as the user's home computer).

36 Id. col.5 l.26.
37 Id. col.4 l.48, col.6 l.27.
38 Id. col.6 ll.5-11, col.6 ll.25-29 (explaining that the customer would have three options, "a) new customer, b) service computer and c) other computers," and that "[i]f the service computer (b) option is selected the menu which appears, asks for the customer's [PIN]," and that "[u]pon providing the PIN a connection by the CSCU 20 unit is made to the MCS 30 via line 35").
39 WebEx's Response, Docket Entry No. 196, at 11.

The court agrees with WebEx, based on the specification excerpts cited above, that there is a one-to-one correspondence between logon commands and remote computer units in the preferred embodiment of the invention described in the '945 patent. This, however, does not demonstrate that the patentee clearly intended to so limit the scope of the invention. "[S]tanding alone, a disclosure of a preferred or exemplary embodiment encompassing a singular element does not disclaim a plural embodiment." KCJ Corp., 223 F.3d at 1356. See also Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.").

WebEx also points out that the specification explains that each time the user uses the invention to connect to his remote computer unit, the screen he will see on his local interface unit will "appear just as it was, the last time the individual signed off on that particular type of machine. In addition all of the individual's database[s] and files are decoded and made available just as if they were stored on a PC located at the individual's current log in location." 40 WebEx contends that "[t]he logon command must be associated with a particular remote computer unit to be able to obtain the specific collection of information 'dedicated' to this particular individual's use of this particular remote computer unit." 41

40 '945 patent, col.1 ll.63-67.
41 WebEx's Response, Docket Entry No. 196, at 12.

The court is again not persuaded. The claim language is broad enough to encompass an embodiment where a single logon command is associated with and enables a user to connect to and operate multiple remote computer units, albeit only one at a time. There is no reason that a different logon command is required for each separate remote computer unit in order for each particular remote computer unit to appear just as it was the last time the user disconnected with that particular unit.

The court concludes that no exception to the general rule applies. Because the general rule cited by ABC applies, the court must, as a matter of law, interpret the articles "a" and "the" to mean "one or more." See Baldwin Graphic Sys., 512 F.3d at 1342-43; KCJ Corp., 223 F.3d at 1356. Therefore, contrary to the court's prior claim construction rulings with regard to the terms "logon command" and "associates the valid logon command with the remote computer unit," with respect to the '945 patent, the court concludes that a logon command is not limited to being associated with or enabling the operation of only one particular remote computer unit.

3. '943 Patent
Claim 1 of the '943 patent, as amended, reads:
A method for providing a service for connecting a local computer unit to a remote computer unit to permit the local computer unit to operate the remote computer unit, the remote computer unit comprising a personal computer, the method comprising the steps of:

establishing a remote system controller on an internet such that the remote system controller is remote from the local computer unit and the remote computer unit;

receiving and checking the validity, by the remote system controller, a valid logon command; and interfacing, through the remote system controller, the local computer unit with the remote computer unit to permit the local computer unit to operate the remote computer unit wherein an input unit of the local computer unit functions as an input unit of the remote computer unit and a display device of the local computer unit displays output signals from the remote computer unit; and

generating a bill for the service. 42

Claim 2 of the '943 patent, as amended, reads:

A method for providing a service for connecting a local computer unit to a remote computer unit to permit the local computer unit to operate the remote computer unit, the remote computer unit comprising a personal computer, the method comprising the steps of:

operating a network control computer that is remote from the local computer unit and the remote computer unit to connect the remote computer unit to the local computer unit permitting the local computer unit to operate the remote computer unit upon receipt and checking the validity of a valid logon command identifying the remote computer unit; and

generating a bill for the service. 43

Claims 1 and 2 of the '943 patent are "open-ended claims containing the transitional phrase 'comprising,'" Baldwin Graphic Sys., 512 F.3d at 1342, and the term "remote computer unit" is immediately preceded by the article "a" in the first instance, and then the article "the" in subsequent instances. Therefore, unless an exception applies, the court must construe the articles "a" and "the" preceding the term "remote computer unit" to mean "one or more." Id.

WebEx first contends that the claim language of the '943 patent specifically limits the number of remote computer units associated with a particular logon command to one. WebEx points to a particular phrase in claim 2: "to connect the remote computer unit to the local computer unit permitting the local computer unit to operate the remote computer unit upon receipt and checking the validity of a valid logon command identifying the remote computer unit." 44 WebEx argues that this phrase, in combination with the fact that ABC has admitted that "a user would connect only to a particular remote computer unit at a time, . . . and not multiple computers simultaneously," 45 mandates a one-to-one correspondence of logon commands to remote computer units. WebEx contends that the logon command must identify the single remote computer unit that is to be operated by the user at a given time.

44 '943 patent, claim 2 (as amended).
This is virtually the same argument that WebEx made with regard to the claim language of the '945 patent. For the same reasons explained above, the court is not persuaded. The claim language of the '943 patent does not require that a single logon command be associated with only one particular remote computer unit. The claim language does not foreclose the possibility that a single logon command could identify "one or more" remote computer units, any one of which the user could then choose to connect to and control. Cf. Invitrogen Corp., 327 F.3d at 1368 ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps.").

WebEx also asserts that the specification of the '943 patent evinces a clear intent on the part of the patentee to limit the articles "a" or "an" preceding the term "remote computer unit" to a singular meaning. WebEx cites only a single sentence from the specification of the '943 patent. The sentence cited by WebEx states:

"Application programs are typically stored on the remote computer units 24 and the data associated with the previous usage by the individual are stored on the remote computer units 24 so that such application programs and data are accessible by the local portion 12a and 12b of the split personal computer system 10, as will be discussed below." 46

This sentence does not even mention logon commands and does not suggest that a logon command may be associated with only one remote computer unit. This sentence suggests that an individual user may have or be associated with multiple remote computer units. The sentence is silent, however, as to the relevant question, i.e., whether the individual must have a distinct logon command for each of his remote computer units, or whether he can access all of his remote computer units using a single logon command.

Another sentence in the specification of the '943 patent, however, answers this question. As ABC points out, the specification explains that

"[t]he remote system controller 26 receives the remote logon command, and in response thereto, the remote system controller 26 checks the remote logon command for validity and allows connection to at least one of the remote computer units 24 if the remote logon command is valid and prohibits connection of the remote portion 22 to the local portion 12 of the split personal computer system 10 if the particular remote logon command is not valid." 47

This sentence shows that claims 1 and 2 of the '943 patent would encompass an embodiment in which a single logon command is associated with and enables operation of more than one remote computer unit. See Vitronics Corp., 90 F.3d at 1582 (explaining that the specification is "highly relevant to the claim construction analysis" and can be the "single best guide to the meaning of a disputed term"). Contrary to the court's prior claim construction ruling with regard to the term "logon command," with respect to the '943 patent, the court concludes that a logon command is not limited to being associated with or enabling the operation of only one particular remote computer unit.

46 '943 patent, col.5 ll.2-8.

47 Id., col.7 ll.50-58.
(3) In claims one, two, four, six and eight, the term "long wavelength spectral range." 7 According to Defendants, the term means light of such a wavelength that the fluorophore in the target material will not fluoresce in response to the absorption of one photon, but will fluoresce when the energies of two photons of that wavelength are absorbed and combine. 613 Patent at 5:68; 6:10, 47-53. Defendants contend that it is unnecessary and perhaps misleading to fix a numerical range for the term. Again, according to Defendants, the term is relative, it is longer than the "short wavelength spectral range" and depends on the fluorophore in the target material. Plaintiffs argue that the specification supports a meaning of 630 nanometers or at least the red spectral region. 613 Patent, 6:31, 47; 7:33-50.

7 Defendants state that the terms "long wavelength," "long wavelength spectral range," "long wavelength light," and "long wavelength impinging light pulses" are used as synonyms throughout the 613 Patent. Tr. 186.

On behalf of the Defendants, Dr. Walmsley explained that the long wavelength is used to illuminate the fluorophore and it has a specific relationship to the short wavelength and to the particular target material as demonstrated by the patent in the equation at the bottom of column six as well as equation two. Tr. 187. For instance, the abstract explains that "the relationship between the long and short wavelength range indicates they are both variable, that they depend on the particular fluorophore, and that the long wavelength range could lie in the red or the infrared spectral range." Tr. 193. Dr. Walmsley testified that to a person of ordinary skill in the art the term would mean "light of a particular wavelength that will cause two photon excitation in the sample." Tr. 188; 613 Patent at 5:16 ("The light emitted by the fluorescent material in the specimen is at a wavelength that is specific to the fluorophore contained in the specimen and thus is a different wavelength than the incident light."); 5:64 ("The present invention utilizes two-photon excitation of a fluorophore which has a one-photon absorption peak at a wavelength which overlaps one-half that of the exciting light.").

The prosecution history provides the same support for Defendants' interpretation of long wavelength range as it did for their interpretation of short wavelength range. See supra; Prosecution History at 107-08. Finally, Defendants' second expert testified that the term cannot be limited to 630 nanometers or the red range. Dr. Svoboda explained that fluorophores appear in many different colors and, as a result, the corresponding long wavelength spectral ranges will appear in many colors, red to infrared. Tr. 338.

Plaintiffs' expert, Dr. Fraser testified that a person of ordinary skill in the art would find long wavelength range means 630 nanometers because the patent equates the term with the red spectral range in several instances. Tr. 460. Additionally, Dr. Fraser stated that at the time of the patent, two-photon laser microscopy could only be accomplished with a colliding pulse mode locked laser, which delivers 630 nm light. Tr. 462. However, on cross examination, Dr. Fraser stated that 700 nm, 750 nm and 800 nm could be perceived as the color red. Tr. 501-02.

Again, the patent language is clear. The long wavelength is relative and can be in the red or infrared range. 613 Patent at Abstract ("relatively long (red or infrared)"); 4:68 ("a relatively long wavelength, preferably in the visible red or near infrared spectral range"); 6:1 ("relatively long wavelength, for example in the visible red or the infrared range"). The prosecution history is also clear. The term is relative and depends on the target material. Prosecution History at 107. The Court will not limit the definition to the embodiment in the patent where there is no indication that the applicants so intended. Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d at 973 (Fed. Cir. 1999); cf. Scimed Life Systems v. Advanced Cardiovascular, 242 F.3d 1337, 1343-44 (Fed. Cir. 2001) (limiting definition to preferred embodiment where patent language expressly disclaimed any other embodiment). The terms "long wavelength spectral range," "long wavelength," "said long wavelength light" and "said long wavelength impinging light pulses" therefore mean: "The light produced by the laser is of such a wavelength that the fluorophore in the target material will not fluoresce in response to the absorption of one photon, but will fluoresce when the energies of two photons of that wavelength are absorbed and combined. Long wavelength means longer than the short wavelength spectral range light of claim element 1[a] or the predetermined wavelength of claim element 7[a]. The specific wavelengths depend on the particular fluorophore used in the target material."
A. "Look ahead distance"

Claim 1 of the '080 patent requires a signaling device for "defining a look ahead distance as a function of the speed of the aircraft." The district court construed the term "look ahead distance" to mean "a distance along the ground track of the aircraft that marks the outer limit of each alert envelope that is a function of aircraft speed and time to complete an evasive maneuver." Claim Construction Decision, 264 F. Supp. 2d at 146.

Honeywell argues that the correct construction of this term would define the distance the system looks ahead of the aircraft as a function of speed of the aircraft, according to the language of the claim. While the specification describes in detail the manner in which Honeywell calculates the time component of the look ahead distance in its preferred embodiment, the claim itself includes no limitation regarding the time component, asserts Honeywell. Thus, Honeywell argues the district court improperly read a limitation into the claim from a preferred embodiment.

The district court correctly construed "look ahead distance." "Look ahead distance" is not a term of art. As the record shows, time is inherent in the calculation of "look ahead distance." Usage within the patent makes clear that the purpose of the "look ahead distance" limitation is to allow time to make an evasive maneuver. The specification states that "look ahead distance" is a function of airplane speed and "look ahead time." '080 patent col.9 ll.14-15. "Look ahead time" is thus the time necessary to make an evasive maneuver. In the preferred embodiment, the patent describes "look ahead distance" as the sum of time for "a single turning radium," time for "terrain clearance at the top of the turn," and "a predetermined reaction" time. '080 patent col.9 ll.16-19; see also '080 patent FIGURE 5. Given the clear purpose of the "look ahead distance" limitation, this court concludes that the district court correctly construed it to mean "[a] distance along the ground track of the aircraft that marks the outer limit of each alert envelope and that is a function of aircraft speed and time to complete an evasive maneuver."

2. "lottery game and an amusement game"

a. The Parties' Proposed Constructions

The parties have two disputes regarding this claim term. First, they dispute whether a lottery game requires payment. The parties agree that a lottery game requires participation in a chance to win, a result based on chance, and a prize awarded to the winner. (D.I. 113 at 16-17; D.I. 117 at 18.) Ingenio argues, however, that payment must also be associated with participation in a chance to win. (D.I. 113 at 16.) Ingenio argues that payment is part of the ordinary meaning of "lottery game," and that the specification supports its definition. (Id. at 16-17.) GameLogic asserts, on the other hand, that nothing in the claims or the specifications of either the '082 or '603 patents requires payment, and that thus, payment should not be a part of the definition of "lottery game." (D.I. 117 at 18-19.)

The parties' second dispute revolves around the definition of "amusement game," and specifically whether the amusement game must be separate from the lottery game. Ingenio argues that "amusement game" should be construed to mean "a game that amuses the player." (D.I. 113 at 17-18.) Ingenio relies both on the plain language of the claim, and on the preferred embodiments of the patent to support its construction. (Id.) It asserts that some embodiments provide for two games, one which is purely for fun, i.e. the "amusement game", and one "actualization game" which displays the result of the lottery. (Id.) Other embodiments, however, allow for the amusement and actualization games to be combined into a single game, according to Ingenio. (Id.) GameLogic argues, however, that Ingenio's proposed construction "provides no real definition at all, relying on subjective assessments, leaving the term ambiguous and vain." (D.I. 117 at 19.) According to Gamelogic, the amusement game and the actualization game must always be separate. (Id. at 19-23.) GameLogic bases its argument on the preferred embodiments in the '082 patent, and on that patent's prosecution history. (Id.) GameLogic asserts that during prosecution, when the words "lottery game and amusement game" were added to the patent, Ingenio gave up a reading of
the patent in which there was only a single game. (Id.)

b. The Court's Construction

The plain meaning of the term "lottery game" involves payment. See Merriam-Webster's Collegiate Dictionary 688 (10th ed. 2002) ("a drawing of lots in which prizes are distributed to the winners among persons buying a chance"). n5 The specification of the patent also supports a definition of "lottery game" which includes payment. (See '082 patent, 2:39-41 ("FIG. 4 illustrates a sales device used to purchase game media for the self-contained embodiment of the present game"); id. at 4:40-44 ("player wishing to purchase . . . [m]oney Is put into the bill validater").) GameLogic's arguments to the contrary are unavailing, as the plain meaning of the term "lottery game," supported by the specification of the '082 patent, controls. I will therefore construe the term "lottery game" to mean "a game based on three basic principles: payment associated with participation in a chance to win; a result based on chance; and a prize awarded to the winner(s)."

--- Footnotes ---

n5 No one contends that the meaning of "lottery" has changed between the time the patents issued and today.

--- End Footnotes ---

As to whether the amusement game and the actualization game must be separate games, rather than a single game, the preferred embodiments of the patent shed considerable light on the question. The '082 patent contains a number of preferred embodiments, several of which have two separate games, namely a game that "is purely for player enjoyment, and is used to give the feel of a completely random game of chance," and another game which "display[s], in a pleasing fashion, the actual prize that is stored in the Destiny Code and . . . display[s] the game results." ('082 patent at 3:25-46.) In another embodiment, the two games "can be run as one system, such as a poker game." (Id. at 4:6-21.) Thus, the preferred embodiments of the patent indicate that the amusement and actualization games can be run separately, or as one system.

GameLogic argues, however, that Ingenio gave up the latter preferred embodiment during prosecution when it changed the claim language from "the game" to "the lottery game and an amusement game." (D.I. 117 at 19-23.) That argument is unpersuasive. Construction of a disputed term such that "a preferred . . . embodiment in the specification would not fall within the scope of the patent claim. . . is rarely, if ever, correct and would require highly persuasive evidentiary support[.]") Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). Indeed, the Federal Circuit has found that such a construction is proper only in "the rare case in which such an interpretation is compelled" by the prosecution history. Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1308 (Fed. Cir. 2000).

The prosecution history here does not provide compelling evidence that Ingenio intended to disclaim a preferred embodiment by adding to the patent the phrase, "the lottery game and an amusement game." After the examiner issued an office action rejecting the claims of the '082 patent application as anticipated, indefinite, and obvious, (D.I. 114, Ex. C at IN1409-12), the applicant amended claims 1 and 10 of the patent (id. at IN1401-03). However, claims 1 and 10 of that patent still included the language "the game," and did not contain the language "the lottery game and an amusement game." (Id. at IN1401.) After three interviews with the examiner, the examiner issued an examiner's amendment which changed "the game" to "the lottery game and an amusement game." (Id. at 1393-94.) The only reasoning offered for that amendment was documented by the examiner as follows:

Proposed and discussed claim language to overcome 112(2) issues and prior art and to further clarify/define novel and non-obvious features of instant invention. Agreement was reached to amend claims 1, 5-6, 10-17 and to cancel claims 18-21.

(Id. at IN1398.) This statement offers no explanation for why the phrase "lottery game and an amusement game" was added to the patent. In the absence of clear evidence, I will not construe this term to exclude a preferred embodiment set out in the patent. An amendment that adds something more to the claim than simply a reference to "the game" does not, without more, require that a lottery game cannot be amusing. Therefore, I will construe the term "amusement game" in the context of the phrase "the lottery game and an amusement game" to mean "a game which amuses the player, which can be combined with or be separate from the 'actualization' game which reveals the result of the lottery game."
A. "Lottery-type wagering game"

<table>
<thead>
<tr>
<th>Plaintiff FortuNet's Proposed Construction</th>
<th>Defendant Planet Bingo's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A game whose outcome is determined by a random selection of only some of a plurality of discrete lottery elements of that game.</td>
<td>A game in which a fixed number of lottery elements are randomly selected. A player having a lottery ticket that matches the lottery elements selected wins, without any requirement that the lottery elements be in a particular pattern on the player's ticket or card.</td>
</tr>
</tbody>
</table>

Planet Bingo argues that during prosecution history the patentee restricted this patent to the lottery game depicted in Figures 9-12 of the specification in an effort to distinguish prior art. Among the features of the game in Figures 9-12 is (a) a prescribed set number of balls is always drawn (as opposed to bingo where the number of balls drawn is not fixed); and (b) a lottery player who matches all the balls drawn wins (as opposed to bingo, where a player conceivably could match all balls drawn but not make out the pattern for the game). Planet Bingo argues FortuNet is attempting to recapture through litigation what it expressly abandoned during patent prosecution by expanding the patent beyond the invention described in Figures 9-12. Planet Bingo thus argues claim 1 of the '784 is restricted to the game depicted in Figures 9-12, including its features of a fixed number of balls being drawn and the drawing of an additional element affecting the player's odds of winning. Planet Bingo also seeks to impose the requirement that the player purchase a lottery ticket, as described in the specification.

FortuNet argues its proposed construction reflects the claim language's usual and ordinary meaning. FortuNet denies the patentee limited the claim to the game depicted in Figures 9-12 because claim 1 was a generic claim which includes embodiments beyond Figures 9-12. Additionally, FortuNet notes the specification identifies bingo as a possible game under this patent. FortuNet contends the claim language does not require calling a fixed number of balls or purchasing a lottery ticket.

1. Ticket

Planet Bingo argues the patent requires the lottery player to purchase a lottery "ticket." Planet Bingo asserts this is how lottery games usually are played. Additionally, Planet Bingo notes the specification states the lottery game involves the purchase of "the usual ticket." (JA206, Col. 19 at 43-45.) FortuNet argues the claim language does not require purchasing a ticket.

Nothing in claim 1's plain language requires the player to purchase a ticket. The patent's only reference to purchasing a ticket is done so in the discussion of the preferred embodiment in the specification. The Court will not impose a limitation from the preferred embodiment not supported by the claim language or surrendered during prosecution. Nothing in the prosecution history suggests the patentee narrowed the claim to involve purchase of a ticket. Claim 1 does not require the purchase of a "ticket."

2. Restriction During Prosecution

Planet Bingo argues that during prosecution, the patentee restricted his claims only to the embodiment reflected in Figures 9-12 of the patent. This embodiment involves the drawing of a fixed number of lottery elements. For instance, in the actual
embodiment in Figures 9-12, nine balls are drawn. The player must match six out of nine balls to win. In addition to the numbered balls, additional no value "chance" balls are added to the mix. If the no-value additional elements are selected, the odds of the player achieving a match with six numbers is reduced. For example, if one chance ball is selected, the player must match six of the remaining eight numbers, so his odds of winning are reduced. If two or three chance balls are selected, the odds of matching six numbers are reduced even further.

FortuNet admits that during patent prosecution the patentee restricted his claims. However, FortuNet argues claim 1 remained generic and covers any embodiments falling within the claim's terms, including Figures 6 and 8 in the specification. Additionally, FortuNet notes the specification states the game method could be adapted to bingo.

If an applicant claims two or more independent and distinct inventions in one application, the PTO may require the patentee to restrict the application to one of the inventions. 35 U.S.C. § 121; 37 C.F.R. § 1.142. The applicant must reply to the restriction and either oppose the restriction, or elect an invention to which the claims will be restricted. 37 C.F.R. § 1.142; § 1.143. The unelected claims are either canceled or withdrawn from further consideration by the patent examiner, subject to reinstatement if the restriction is withdrawn or overruled. 37 C.F.R. § 1.142. However, an applicant may claim more than one species of an invention in one application so long as the application also includes "an allowable claim generic to all the claimed species and all the claims to species . . . are written in dependent form . . . or otherwise include all the limitations of the generic claim." 37 C.F.R. § 1.141(a).

With respect to the '784 patent, the PTO issued a restriction office action, identifying three distinct species in the claimed invention: (1) Figures 9-12 associated with claims 2-4; (2) Figures 3-7 associated with claims 5-10 and 20; and (3) Figure 8 associated with claims 11-19 and 21-33. (JA0274.) The patent examiner noted that at that point, claim 1 was generic. (Id.) The patent examiner directed the patentee to elect a single species for prosecution. (Id.)

In a telephone conversation, the patentee elected not to oppose the restriction, and elected "to prosecute the invention of Figures 9-12, claims 1-4." (Id.) The patent examiner withdrew claims 5-23 from further consideration as non-elected. (JA0275.) By amendment, the patentee confirmed in writing the election to the species in Figures 9-12, and added new claims 24-31 directed to this species. (JA0288.)

In addition to the restriction, the patentee amended claim 1 several times in response to the patent examiner's rejections. First, the patent examiner rejected claims 1-4 as anticipated by the Grossman patent. (JA0275-76.) Grossman discloses a craps game that adds colors to the die faces. (JA0275.) The player can place a wager on the usual game, and an additional wager on the colors. (Id.) In response to this rejection, the patentee added the words "single" and "discrete" to describe the additional elements and clarified the distinction between his invention and Grossman as follows:

[Under the Grossman disclosure,] each roll of a dice produces a combination of a number and a color.

. . . In the present invention, the selection of the additional symbol is made independently (not in combination with another symbol), or as the Examiner noted there is a separate "game piece" for each of the usual symbols and the (or each) additional symbol.

. . . [The] elements have been further described as being "discrete" and "single" to help differentiate the individual game "pieces" of the present invention from the combination number/color faces of the dice of the Grossman patent.

(JA0289-90 (emphasis in original).)

The patent examiner again rejected the claims, but this time as unpatentable over the Thanet patent. (JA0297.) Thanet discloses a roulette game which adds to the usual roulette wheel a spot for the "players pool." (Id.) Players can wager on the usual roulette game and the additional element of the players pool. (Id.)

Following this rejection, the patentee and examiner conducted an interview on April 22, 1993. (JA0330; JA0281.) At the interview, the patentee proposed changes to claim 1. (JA0330; JA0281.) Among other changes, the patentee proposed that claim 1 be modified to disclose a game in which a "set number" of lottery elements are selected, and in which "the selection of the additional element [does] not affect[] the chance occurrence of the first-mentioned wagering step." (JA0281.)
The patentee subsequently filed a formal amendment in response to the examiner's rejection based on Thanet. (JA0303.) In this amendment, the patentee did not include the language from the proposed amendment offered during the April 22, 1993 interview. Instead, the patentee made two relevant changes. First, he deleted the word "single" from the prior amendment distinguishing Grossman, but added the word "separate" to describe the "at least one separate and discrete additional element." (Id.) Second, he added the words "lottery-type" wagering game to differentiate from Thanet, which was a roulette game selecting only one spot on the wheel, as opposed to a lottery game in which several elements would be selected. (Id.; JA0308.) In the remarks of this amendment, the patentee stated the following:

Initially, it is noted that an interview with the Examiner was conducted on April 22. This interview was very helpful - but unfortunately the undersigned did misstate a feature of the invention, at least insofar as one embodiment thereof is, a certain number must be corrected. In one embodiment, a certain number of lottery balls are selected, and if an additional ball is selected then another lottery ball will be selected. In this embodiment, the odds of the lottery bet are not affected by the presence or selection of the additional ball(s). This was indicated at the interview, and proposed in language added to the claim presented at that time. However, in the other embodiment which is particularly described with respect to Figures 9-12, the additional ball will take the place of a lottery ball when selected (with a plurality of other lottery elements), which does affect the odds. In view of this, it will be appreciated that the language about not affecting the odds is not present in the independent claims presented in this Amendment.

(JA0307-08.) Additionally, the patentee noted that dependent claims 24 (now claim 5) and 30 (now claim 11) "have been amended for consistency with the amendments made to the independent claims from which they depend and in particular that the 'single' and 'individual' nature of the game pieces is now part of the independent claims." (JA0309.) The patent examiner subsequently concluded that claims 1-4 and 24-33 were allowable, and noted the applicant approved the cancellation of claims 5-23. (JA0310-12.)

The parties dispute the meaning of this prosecution history. Planet Bingo argues the patentee restricted himself to the specific embodiment in Figures 9-12, and that claim I did not remain generic. Planet Bingo argues that because the '784 is restricted to the embodiment in Figures 9-12, the number of elements drawn to determine the winner must be "fixed," that is, a certain number must be drawn each time. Planet Bingo also notes this is a standard feature of lottery-type games, where a certain number of elements are drawn which players try to match. FortuNet responds that although the patentee restricted his application to the embodiment in Figures 9-12, claim 1 remained generic throughout prosecution and allowance. FortuNet therefore argues there is no basis for limiting claim 1 to an embodiment in which only a "fixed" number of balls are drawn. Further, FortuNet notes that dependent claim 2 has a "set number" of drawn elements, so presumptively that limitation is not in claim 1.

The Court begins with the claim language, which does not require a fixed number of balls be drawn or that the player's odds of winning are affected when an additional element is drawn. However, during prosecution, the patentee restricted his application to the embodiment in Figures 9-12. The embodiment in Figures 9-12 depicts a game in which a fixed number of balls are drawn. In the particular illustration in Figures 9-12, nine balls are drawn. Because the number of elements are fixed, the odds of a player matching six of the nine balls is affected if one or more no-value additional elements are drawn. If claim 1 is limited to the specific embodiment in Figures 9-12, then drawing a "fixed" number of elements would be a limitation of claim 1.

However, the patentee pursued claim 1 as generic. The patentee's intent to keep claim 1 generic is illustrated by the proposed changes in the April 22, 1993 interview and the patentee's subsequent explanation about why he did not include the proposed language in his formal amendment. At the 1993 interview, the patentee proposed altering claim 1 to include language about drawing a "set number" of elements, as well as language about how this would affect the odds of drawing other elements. In the subsequent formal amendment, the patentee explained he did not include this language in claim 1 because in one embodiment of the claimed invention, the odds would not be affected by drawing an additional element. It is only in the embodiment reflected in Figures 9-12 that the odds-affecting feature occurs. Accordingly, the patentee did not include the "set number" limitation in the independent claims because that would limit the otherwise generic claim 1 to only the fixed element/odds affecting embodiment in Figures 9-12. The patentee's removal of that language therefore reflects the patentee's intention to keep claim 1 generic and not limited to the embodiment in Figures 9-12.

This understanding of the prosecution history is bolstered by a review of dependent claim 2. Dependent claim 2 discloses the wagering game in claim 1 "wherein said wagering a lottery wager step includes the step of choosing of a set number of
the discrete lottery elements; and wherein the selecting step includes the selecting of the set number plus the number of
additional elements available to be selected." (JA0206.) Claim 2 describes the embodiment in Figures 9-12. It includes the
limitation of selecting a "set number" of the lottery elements. Additionally, because the number of drawn elements will be
the "set number plus the number of additional elements available to be selected," the drawing of an additional element will
affect the player's ability to match the remaining elements drawn. A limitation in a dependent claim presumptively is not a
limitation in the independent claim. Further, the patentee's use of the words "set number" of lottery elements drawn in both
claims 2 and 7 demonstrates the patentee knew how to express this feature when he meant to include it as a claim limitation.

Based on the claim language, prosecution history, and claim differentiation principles, the Court finds claim 1 is generic,
and is not restricted to the embodiment in Figures 9-12. Claim 1 does not require either a "fixed" number of elements be
drawn, or that the drawing of an additional element affect the odds of a player achieving a match with the discrete lottery
elements. The Court therefore holds "lottery-type wagering game" means "a game whose outcome is determined by a
random selection of only some of a plurality of discrete lottery elements of that game." (See JA0206, Col. 20 at 24-28.)

2536

Low Level Current

The Court modifies D-Link's proposed construction and construes the term as "a current sufficient to cause the access
device to start up, but not sufficient to sustain the start up." n1 Network-1 argues the term should be construed as "a
detection current too small to sustain operation of the access device." During the Markman hearing, D-Link described the
current as sufficient to "tickle" the access device, but insufficient to sustain start up. In its arguments, Network-1 focused on
the sustaining language in its proposed construction. However, in the Markman hearing, Network-1 pointed to D-Link's own
claim construction expert's testimony in support of Network-1's position that the low level current is not limited to one
value. n2 While the Court agrees that the low level current can have more than one value, in relying on this testimony
Network-1 bolstered D-Link's argument that the current must both be too small to sustain start up and strong enough to
cause the access device to start up. See Col. 3:14-16.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
n1 D-Link's proposed construction states "a current, of approximately 20 ma, sufficient to cause a dc-dc switching supply in
the access device to start up, but not sufficient to sustain the start up."

n2 The testimony reads:

Question: "But would an electrical engineer--a person of ordinary skill in this art, an electrical engineer with several years
of experience, read the patent such that the low level current could have only one value?"

Answer: No. You could make implementations of devices according to the teachings of the patent that used different
values of the low level current as long as that low level current was sufficient to stimulate a response from the device, yet
insufficient to sustain its operation.

Dep. of Rich Seifert, P.155 L:2-12 (emphasis added)

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

D-Link's proposed construction has been modified because the references to a specific voltage of 20 ma and the dc-dc
switching supply are attempts to adopt the preferred embodiment's limitations into the claim construction. The 20 ma value
is merely the illustrative value in the preferred embodiment. n3 The 20 ma value is disclosed with regard to the "network
interface," whereas the claim more generally specifies a low level current delivery to the access device. See Cols. 3:12-16,
4:23-25. In addition, the dc-dc switching supply is also illustrative. See Col. 3:12-16. The claim language itself does not
recite an access device power supply; it merely states "for delivering a low level current from said main power source to the
access device." Col. 4:23-24. For these reasons, the Court declines to include "of approximately 20 ma" and "dc-dc
switching supply" in its construction.
n3 The Court notes that D-Link's own claim construction expert testified that a person skilled in the art would not read the patent such that the low level current could have only one value.
energy detection means for detecting a specific electrical energy pulse having been filtered by said filter means and having a predetermined minimum magnitude;

timer means for cooperating with said detection means so that said timer means begins running for a first predetermined period of time when the specific pulse is detected;

sound detection means for detecting sound during the telecommunication and for cooperating with said timer means so that said sound detection means is activated at the end of the first predetermined period for a second predetermined maximum period of time; and

conference calling handling means for implementing a predetermined response if sound is undetected by said sound detecting means during the second predetermined period.

T-Netix's Proposed Construction

A "low pass filter means" means an analog or digital filter, including a digital signal processor, capable of passing frequencies below about 500 Hz, and equivalents thereof.

Global's Proposed Construction

A "low pass filter means" performs:

1. Filtering energy received by the local telephone equipment to pass energy having frequencies below about 500 Hz; and

2. The filtering must be carried out by analog components that significantly attenuate electrical energy having frequencies above 300 Hz.

b) Discussion

The relevant text from the '702 patent is found in column 9, beginning with line 23:

"Block 400 is a Low Pass Filter (LPF). LPF block 400 passes frequencies below 280 Hz while significantly attenuating signals above 300 Hz. LPF block 400 filters the signal received on line 256 and drives the absolute value detector on line 451. LPF block 400 normally has a gain of 0 Db (Gv=1). The LPF block 400 may optionally be implemented as a 100-300 Hz Band Pass Filter (BPF) or as a discrete or monolithic component analog/digital filter or with a Digital Signal Processor (DSP) with appropriate software to implement the filter." Emphasis added.

It is clear from this passage of the patent specification that the low pass filter was envisioned as including an analog or a digital filter or even a Digital Signal Processor controlled by software. In the specification, however, this quote refers to the low pass filter passing "frequencies below" a certain amount and not to passing "energy received. . . having frequencies below" a certain amount.

Figure 1b is directed specifically to a digital embodiment. The description of that embodiment in the specification is found in column 10, beginning with line 3:

"FIG. 1b is a block diagram showing the general organization of the pulse-dial and hook-switch flash supervision architecture for implementing the system wherein echo cancellation, call progress tone detection, DTMF tone detection, broadband energy detection, low pass filtering and energy threshold detection are implemented with an emphasis on digital techniques." Emphasis added.

The references here to "energy detection" and "energy threshold" are all implemented in block 880 after any such energy
has been converted from analog to digital by analog-to-digital converters 872 and 874. Although it can be logically argued that such "energy" terms should be reserved for analog implementation, the drafter of the patent chose to use the analogous terms for a digital implementation. In this case, the patent drafter should be allowed to be his or her own lexicographer since the terms are used consistently throughout the patent. The obvious misspellings in block 880 of Figure 1b are made clear in the portion of the specification quoted above.

The analog low pass filter is shown in Figure 13, which is not described in detail in the specification and is not claimed in detail, but it shows several amplifier stages. In such an arrangement, even in an analog embodiment, we could object to the use of the description "passing energy received" from somewhere else, since the energy received is amplified several times, thus retaining the essential shape and frequency characteristics of the energy received, but being an enhanced version of the energy received and no longer being that energy. In addition there is a rectifier/amplifier prior to the threshold level detection. The amplified and filtered energy then even loses its shape, being rectified and further amplified.

c) Construction

In view of the foregoing, the Court concludes that:

The term "low pass filter means" means an analog or digital filter, including a digital signal processor, capable of passing frequencies below about 500 Hz, and equivalents thereof.

The Court construes "low-power state" as the "state of operation brought about by shutting off or reducing power to the unnecessary sections of circuitry."

A. Parties' Construction Arguments

Plaintiff seeks the Court to construe "low-power state" as a "state where power is reduced or unnecessary sections of the circuitry are inactive." The most disputed portion of Plaintiff's construction is the inclusion of the word "or," which has the obvious consequence of making "lower-power state" either a state where "power is reduced" or a state where "unnecessary sections of the circuitry are inactive." For support, Plaintiff cites to the specification. See, e.g., '323 patent, 5:6-8 ("To reduce power requirements, the ADSL units 232 and 242 may enter low power mode when user data transmission is complete."); 7:23-26 ("Upon detecting a shut-down signal, the COT unit may save loop characteristics (step 310) and enter low power mode by reducing power to now unnecessary circuitry (step 311).").

Defendants' primary construction is that "low-power state" means a "state where [first, demodulation, or demodulator] circuitry is no longer operational after shutting off or reducing power supplied to that circuitry." The disputed language here is "no longer operational." Defendants imply the "no longer operational" language from specification language that states, at least in some embodiments, that the wire loop or circuitry be "inactive." '323 patent, 3:3-5.

However, in their briefing, Defendants proposed a new and alternative construction that is closer to Plaintiff's construction that reads a "state where unnecessary [first, demodulation, or demodulator] circuitry is inactive when shutting off or reducing power supplied to that circuitry." Defendants argue that the "low-power state" involves deactivating unnecessary circuitry to conserve power. Additionally, Defendants argue the unnecessary circuitry is deactivated when power to that circuitry is shut off or reduced. Defendants cite to the specification for support. See, e.g., '323 patent, 5:25-27 ("Each unit . . . may . . . enter low-power mode by shutting off the now unnecessary sections of signal processing [], transmitting [], and receiving [], circuitry.").

B. Analysis

The Court believes that both Plaintiff's and Defendants' proposed constructions are flawed. The most obvious flaw in Plaintiff's construction, which reads a "state where power is reduced or unnecessary sections of the circuitry are inactive," is that Plaintiff's construction includes the disjunctive word "or." By using the word "or" in Plaintiff's proposed construction, there could be a low-power state if either there is a state where "power is reduced" or a state where "unnecessary sections of
the circuitry are inactive." So in some situations there could be a low-power state when only unnecessary sections of the circuitry are inactive. In this case, there would not even be a requirement that any power be reduced to be in a low-power state. That is problematic for two reasons. First, the ordinary meaning of the words "low-power state" implies that the power is reduced or lowered. Second, the patentee's entire invention relates to power conservation, which means power is reduced or lowered in some aspect of the invention. See '323 patent, 1:4-5 ("The present invention is directed to a power conservation system . . . ."). '323 patent, 2:10-11 ("the invention features a method of conserving power"). As a result, the Court refuses to adopt Plaintiff's proposed construction.

The Court also refuses to adopt Defendants' proposed constructions. For Defendants' original construction that reads a "state where [first, demodulation, or demodulator] circuitry is no longer operational after shutting off or reducing power supplied to that circuitry," the Court concludes that the "no longer operational" limitation is flawed. Defendants are improperly importing a limitation into the claims with the "no longer operational" limitation. Except in situations where the specification requires it, it is improper for the Court to import limitations from the specification that do not appear in the claims. N. Am. Container, Inc., 415 F.3d at 1348. The specification never states that certain circuitry must be non-operational during the low-power state. Further, at one point, the specification states that "the receiving ADSL unit returns the signal processing 111, transmitting 112, and receiving 113 circuitry to full power mode." Presumably, that is when the circuits are exiting the low-power state. But the specification uses the language of returning to "full" power mode, which implies there could be a state of operation in a lower power mode.

The Court finds instructive that the inventor describes the "low-power state" in the specification. Column 5 of the patent describes the method of the invention "[t]o reduce power requirements." See generally '323 patent, 5:6-47. In that section where the specification is describing how to enter low power mode, it specifically states "[e]ach unit 232 and 242 may then enter low-power mode by shutting off the now unnecessary sections of signal processing 111, transmitting 112, and receiving 113 circuitry." '323 patent, 5:25-28. While the specification says "low-power mode" instead of "low-power state," the Court concludes that "low-power state" is merely a state of operation in low-power mode. See '323 patent, 5:28-30 (describing "low-power mode" as "low power operation") (emphasis added). Further, in addition to "shutting off" the unnecessary circuitry, the specification also describes that the unit may enter low power mode by "reducing power" to the unnecessary circuitry. '323 patent, 7:23-25 ("Upon detecting a shut-down signal, the COT unit may save loop characteristics (step 310) and enter low power mode by reducing power to now unnecessary circuitry (step 311)."). Therefore, the Court's construction of a "state of operation brought about by shutting off or reducing power to the unnecessary sections of circuitry" is supported by the specification. While Defendants' alternative construction of a "state where unnecessary [first, demodulation, or demodulator] circuitry is inactive when shutting off or reducing power supplied to that circuitry" is close to the Court's adopted construction, the Court concludes that the proposed construction adds language that is redundant and not necessary given the inventor's specific description of the "low-power mode" above. See, e.g., '323 patent, 5:25-28 ("Each unit 232 and 242 may then enter low-power mode by shutting off the now unnecessary sections of signal processing 111, transmitting 112, and receiving 113 circuitry.").

K. "Low Temperature Oxide" ('715 patent, claims 4 and 26; '419 patent, claims 5 and 15)

The parties disagree regarding the appropriate level of specificity this court should adopt in construing the claim term "low temperature oxide." Ixys argues that a low temperature oxide may be any type of oxide, while APT contends that only silicon oxide (SiO\(_2\)) deposited by a particular chemical reaction is appropriate. Both parties cite to the same portion of the specifications for support: "... a low temperature oxide, gas dielectric, polyimide, or any other insulator requiring deposition, densification, or curing, at temperatures less than about 450 [degrees] C is deposited over the first metallization layer." '715 patent, 5:50-52. Neither party has mentioned any other text in the specifications that bears on the question at hand.

Although this would seem to provide an adequately clear definition of "low temperature," and although the language of the specifications does not provide any indication that the "oxide" must be a particular type, APT nevertheless directs this court towards a silicon processing treatise and argues for a definition based on the descriptions in those pages. APT notes correctly that such a reference is not precisely the type of extrinsic evidence traditionally disfavored in claim construction. See Vitronics, 90 F.3d at 1583. On the contrary, "the ordinary meaning of a claim term may be determined by reviewing a
variety of sources, including… dictionaries and treatises…." Teleflex, 299 F.3d at 1325 (internal citations omitted). Of course, this does not alter the fact that "intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." Vitronics, 90 F.3d at 1582.

Although this court is willing to consider APT's submission in interpreting this term, the materials APT provides do not shed further light upon, nor meaningfully confine, the claim language. In particular, none of the pages to which APT cites this court state that SiO[2] is the only low temperature oxide in use within the industry, or even attempt to limit the range of oxides that may qualify as "low temperature oxides" for the purposes of an invention such as this one. Because SiO[2] is not the only conceivable oxide to which the patent might refer, any specification of the chemical process by which that oxide may be deposited is unnecessary. The court construes the claim language at issue as follows: "An oxide in which deposition, densification, or curing occurs at temperatures less than approximately 450 [degrees] C."

2540

6. "Lower layers" (Claim 1)

The portable terminal described in Claim 1 of the '705 patent utilizes a "communication protocol stack having higher and lower layers specified by industry standards." ('705 patent, col. 38, ll. 6-8.) As background, a "protocol stack" is an abstract method of dividing the various communications functions of a data network into hierarchical layers. (Acampora Rep. at 42.) Both parties agree that, at the time of this patent's invention, there were multiple industry-standard protocol stacks in existence, any of which could have been utilized by the portable terminal described in the '705 patent. (R. at 270 (May 6, 2004).)

The dispute over this claim term concerns the content of the "lower layers" of the protocol stack in the '705 patent. According to Agere's proposed construction, the term "lower layers" is specifically limited to the two bottom-most layers in the seven-layer OSI model," 22 namely, the "data link layer" and the "physical layer." In contrast, Broadcom's proposal describes the term "lower layers" more broadly as "the layers below a dividing line in a layered protocol model."

The court's analysis of this term begins with the claim language. The term "lower layers" is clearly a relative concept that must derive its content in relation to "higher layers" in the protocol stack. (R. at 271 (May 6, 2004) ("Obviously, lower is a relative term. I don't know about a dividing line, but they're lower than something.") (Goodman).) The language of claim 1 itself does not provide much further content or limitation to this term, except that the lower and higher layers of the protocol stack are "specified by industry standards." ('705 patent, col. 38, ll. 7-8.) As there were multiple industry standards in existence at the time of this invention, a person of skill in the art would not understand the claim language to be limited to the two bottom-most layers of the OSI-model. (Acampora Rep. at 43.) Accordingly, the claim language supports Broadcom's construction.

A review of additional evidence in the intrinsic record similarly provides no basis to limit the broad claim text. The patent specifications teach that the dividing line between lower and higher layers of the protocol stack may vary. (R. at 277 (May 6, 2004); '705 patent, col. 10, ll. 39-40 ("Alternatively, the dividing line might also be drawn at a higher level, for example, at the network layer . . . or at somewhere in between.").) In addition, dependant claim 9 and Figure 1C each demonstrate that the "lower layers" are not limited to the data link and physical layers, but can also include portions of the network layer. ('705 patent, col. 38, ll. 63-65 ("The portable terminal of claim 1 wherein the lower layers of the communication protocol stack includes at least a portion of a network layer"); see also R. at 277 (May 6, 2004) (acknowledging that Figure 1C depicts lower layer as including portion of network layer).) In fact, Agere's expert, Dr. Goodman, conceded this point at the Markman hearing, admitting that the term "lower layers" may include layers beyond the physical and data link layer. (R. at
Despite Dr. Goodman's concessions at the Markman hearing, Agere nonetheless makes the additional argument that its construction is dictated by an explicit definition of the term "lower layers" in the specification. Renishaw, 158 F.3d at 1249 (noting that, when patent applicant acts as own lexicographer, the provided definition controls). In one portion of the specification, the patentee describes the embodiment illustrated by Figure 1B and states: "the functionality of the lower layers (i.e. data link layer and physical layer[)] is performed by the microprocessor of the data and communication module." ('705 patent, col. 10, ll. 1-4.) Agere argues that this constitutes an explicit definition of the term "lower layers" that limits the term's meaning in the remainder of the patent. Agere's argument is unsuccessful, however, as this specification clearly does not define the term "lower layers" generally, but rather describes which layers are "lower" for the purposes of this one particular embodiment. (Id., col. 9, l. 60); Electro Med., 34 F.3d at 1054. In conclusion, as Agere has not provided any basis upon which to limit the broad claim language, the Court adopts the plain and ordinary meaning of this claim term, which is: "The layers below a dividing line in a layered protocol model."

12. Lower speed return channel protocol; upstream channel protocol

The term "lower speed return channel protocol" is found in claims 35, 36, 37 (by virtue of its dependence on claim 35), and 38 (by virtue of its dependence on claim 36) of the '774 patent. The term "upstream channel protocol" is found in claims 39 and 52 of the '121 patent and claim 119 of the '845 patent. The plaintiff proposes a construction of "any set of rules for data transmission upstream" and the defendants propose a construction of "set of rules for assigning an upstream channel to a single remote link adapter." Upon consideration of the arguments, the court construes each of the above terms to mean "a set of rules for transmission of lower speed data addressed to a host computer or server."

A. "Lower Substrate" and "Conductive Layer Formed Over Said … Substrate"

The disputes concerning these two terms are closely connected because a determination of the meaning of one term will almost automatically yield a determination of the meaning of the other. Paradigm contends that these terms connote a horizontal, planar surface only, so that the conductive layer is literally over, or on top of, the nonconductive substrate. In Paradigm's view, the conductive layer in its cylindrical array is not formed "over" the nonconductive layer, but inside it. Paradigm asserts that the nonconductive layer in its array is not "lower" than the conductive layer, but rather is an outer ring.

LDAI disagrees. According to LDAI, when the conductive layer is formed onto the surface of the nonconductive layer, it is formed "over" the nonconductive layer, regardless of whether the structure is planar or cylindrical.

After reviewing the evidence, and in particular the claims of the '951 patent itself, as well as the expert testimony concerning how these terms would be understood by a person of ordinary skill in the art, I agree with LDAI's interpretation of these terms. I believe that the words "lower" and "over," as used in the patent, do not mean that one layer is physically above, or higher than the other, but simply that one layer is applied or formed onto the surface of the other.

The word "over" has many different meanings. When used to describe the relative position of two objects, it can mean that one object is physically higher than the other, e.g., "the lamp hangs over the table." It can also be used, however, to connote that a surface is covered with some substance. If one were to say, for example, "the ceiling was stained, so I painted over it," that would not mean that the person painted above the ceiling, but only that he covered its surface with paint. In that example, the paint would, strictly speaking, physically be beneath the ceiling.

In my view, that is a more logical interpretation of the terms at issue here. The patent indicates that one begins with a nonconductive layer, and then forms a conductive layer "over" it. That simply means that one surface of the nonconductive...
layer is covered with a conductive layer. The fact that the nonconductive layer may be cylindrical does not mean that it cannot be covered "over" in this manner.

Likewise, the nonconductive layer can be described as "lower" than the conductive layer for the same reason: the conductive layer has been formed "over" it. Again using the analogy of a painted ceiling, one could speak in terms of what lies "beneath" the surface of the paint, even though the ceiling itself is physically higher off the ground than the paint that covers it.

Paradigm's interpretation of these terms is not persuasive, because according to Paradigm's logic, one could theoretically construct a laser diode array exactly like those made by LDAI, flip it upside down, and claim that it does not infringe the '951 patent because the conductive layer is physically lower than the nonconductive layer. Such a result is obviously absurd. Clearly, then, these terms are not meant so much to describe the physical position of these layers, but rather the order in which they are formed. The nonconductive layer is formed first, and then the conductive layer is formed "over" it, i.e., on the surface of the nonconductive layer. I conclude, therefore, that as used in Claim 1 of the '951 patent, "lower substrate" refers to the base or foundation on which the rest of the structure is built, and "conductive layer formed over" the substrate means that the conductive layer covers the surface of the substrate.

--- Footnotes ---

4 I also note that, as pointed out by LDAI, Paradigm's arrays are actually constructed of two identical pieces, each of which is shaped roughly like a half-cube with a semicylindrical concavity running along one side. Those pieces are made of a nonconductive material, and the concave surface is covered with a conductive layer. The two pieces are then joined together, with the concavities facing each other, to make the final product. See Fig. 3 (taken from the drawing sheets of the '850 patent). Even using Paradigm's own interpretation of these claim terms, then, the two halves, considered individually, could arguably be considered to have a conductive layer "over" the "lower" nonconductive layer.

--- End Footnotes ---

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7. "Lowest layer" (Claim 10)

Agere proposes that the term "lowest layer" should be construed as "the physical layer," while Broadcom suggests that the term should be construed as "the bottom-most layer in a layered protocol model." As the Markman hearing revealed, the parties' core dispute concerns whether Agere's use of the word "physical" is merely descriptive or a specific reference to the lowest layer of the protocol stack in the OSI model. As discussed above, the meaning of this term is determined with reference to "industry standards," of which there are many, each with different names for the lowest layer. ("A portable terminal utilizing a communication protocol stack having a highest layer, at least one middle layer and a lowest layer specified by industry standards.") (emphasis added.) For instance, the lowest layer of the SS7 protocol stack is called the MTP 1 layer. (Broadcom Reply at 53.) Thus, for the same reasons as set forth regarding the previous term, it would be inappropriate and in conflict with the broad claim language to limit this term to the name of the lowest layer in one particular protocol stack. Therefore, the Court accords this term its plain and ordinary meaning: "The bottom-most layer in a layered protocol model." 23

--- Footnotes ---

23 While the Court finds that this claim term is not confined to the lowest layer of the OSI model, the parties agree that the lowest layer of all extant layered protocol stacks includes some physical component. (R. at 319-20 (May 6, 2004); Goodman Rep. P 94 ("As far as I am aware, in every layered protocol model (be it a standard, public or private protocol), the bottom-most layer is the physical layer.").)

--- End Footnotes ---
II. MAC Address

The term "MAC address" appears in claims 9, 10, 19, and 20 of the '906 patent.

Both parties acknowledge that, to one skilled in the art, the term "MAC address" typically refers to a unique serial number assigned by a manufacturer to a type of physical device called a media access controller ("MAC"). Defendants point out that the Fenner patents teach that a logical address—typically identified by a series of numbers—must be assigned to each node. In other words, defendants argue that the term "MAC address," as it appears in the claims of the '906 patent, refers to a logical address which happens to be represented by the same series of numbers as some physical address assigned to a MAC.

Plaintiff argues that the term MAC address should be given the ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. Phillips, 415 F.3d at 1312-13.

All of the asserted claims of the '906 patent recite "at least three IEEE 802 media access controller (MAC) communications ports, each communications port having associated with it a MAC address." Because the MAC address is associated with a MAC—a physical device—this address cannot be a logical address, which is an identifier of a connection to a communication system. As explained above, a logical address is not permanently associated with a particular physical device. Thus, the plain language of the claims counsels against Defendants' assertion that a MAC address is a logical address. Because nothing in the specification indicates that the patentee assigned a new meaning to the term "MAC address," the ordinary and accustomed meaning of the term as understood by one of ordinary skill in the art governs. Phillips, 415 F.3d at 1312-13. The Court adopts Plaintiff's proposed construction.

6 At the hearing, Defendants argued that their construction should be adopted because the '906 patent is subject to a terminal disclaimer. However, the Defendants have not attached the PTO's explanation for the double patenting rejection, or the patentee's response. The mere existence of a terminal disclaimer, without further explanation, does not affect the Court's construction. Defendants also argue that unless their construction is adopted, the claims of the '906 patent must be found invalid for lack of written description. While Defendants may rely on this argument to contest validity, it does not affect the construction of this term.


Claims 1-14 describe how the objects are associated by the system with unique authorized information comprised of "machine-readable code elements." Alliance contends that the phrase is limited to directly-encoded binary numbers, while
CIAS argues that it refers to any code that can be separated into parts and automatically obtained from objects.

The specification defines "machine-readable" as "used in a broad sense and [] meant to encompass techniques, methods and apparatus for automatically obtaining from objects information applied thereto or associated therewith." n82 Since the specification here acts explicitly as a dictionary, its definition of "machine-readable" controls. n83

"Code elements" are also defined in the specification, albeit less concretely, as "digits, characters, positions, places, pulses, signals, etc." n84 This list of examples is non-exclusive, which suggests that the phrase is intended to refer broadly to any individual part of a code. Defendants argue that the specification describes only embodiments that use binary code, but again, a patent is not limited to one embodiment if its terms, as defined, include a broader scope. n85 Here, the specification describes numerous kinds of code elements, not just binary forms.

The specification is "the single best guide to the meaning of a disputed term." n86 Where, as here, it provides explicit definitions, the Court must follow its direction. n87 Accordingly, the phrase "machine-readable code elements" is construed as individual parts of a code (1) that can be separated into parts and (2) that can be automatically obtained from objects.

The parties dispute the meaning of the terms "[the needle] is rendered magnetic at [or to] a level that enables detection of the magnetism of the needle," which appears in claims 1 and 13 of the '668 patent, and "the needle is magnetized to a level which enables detection of the magnetism of the needle," which appears in claims 7 and 15 of the '668 patent. The parties competing constructions of these terms are shown in the following chart:

<table>
<thead>
<tr>
<th>THE '668 PATENT</th>
<th>Claim Term</th>
<th>Rivard's Proposed Definition</th>
<th>Ideal's Alternative Definition (if any definition is required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.</td>
<td>[The needle] is</td>
<td>The needle or needle</td>
<td>Prior to use of the</td>
</tr>
</tbody>
</table>
The needle is magnetized to a level which enables detection of the magnetism of the needle (In claims 1 and 13) 

rendered magnetic at [or to] a level that enables detection of the magnetism of the needle (In claims 7 and 15) 

piece has been magnetized to be a permanent magnet that produces a magnetic field, or has been magnetized in a magnetic field to maintain a residual magnetism that produces its own magnetic field that persists when the magnetic field is removed, prior to use of a detector. The term does not refer to stainless steel which is merely attractable to a permanent magnet. It is the permanent or residual magnetism that must be detected by the detector in order to determine a needle or piece is present in the meat. The needle or needle piece has been magnetized to be a permanent magnet that produces a magnetic field, or has been magnetized in a magnetic field to maintain a residual magnetism that produces its own magnetic field that persists when the magnetic field is removed, prior to use of a detector. The term does not refer to stainless steel which is merely attractable to a permanent magnet. It is the permanent or residual magnetism that must be detected by the detector in order to determine a needle or piece is present in the meat.

The needle has broken off in the flesh of an animal which has then been killed for slaughter, the needle is magnetized to be a permanent magnet that produces a magnetic field or has been magnetized to produce a magnetic field for a period of time, whereby the magnetism of the magnetic needle facilitates locating a needle or needle fragment in the flesh of a slaughtered animal.

The needle is magnetized, or the magnetism of the needle is enhanced, to a level which facilitates locating a needle or needle fragment in the flesh of a slaughtered animal.
As the chart above reveals, Rivard argues that the same proposed construction applies to the pertinent language in claims 1 and 13 and to the slightly different language in claims 7 and 15 of the '668 patent. Indeed, Rivard contends that the same proposed construction should apply to the term "magnetic or magnetizable" in claim 1 of the '196 patent, and to the term "the needle cannula or piece thereof is magnetized to a level which enables detection of the magnetism of the needle cannula or piece thereof" in claim 8 of the '196 patent. See Chart of Constructions In Dispute, supra beginning on page 23, the '196 patent, disputed claim terms c. and h. Ideal, on the other hand, contends that all four claim terms must be given different constructions. For now, the court will confine its analysis to the "magnetism" terms of the '668 patent.

a. Arguments of the parties

Rivard argues that the claims and specification demonstrate that these claim phrases require (1) that the needle be magnetized so as to act as a magnet prior to the use of a metal detector, and (2) that it is the magnetism that is detected. Rivard argues that, during prosecution of the patents, the patentee argued that the invention did not encompass needles that merely had stainless steel metallurgy with the capacity to be magnetized, and that, instead, the needle had to be made into a magnet, and on that basis, distinguished prior art. Rivard surmises that Ideal is now arguing that no construction of these claims is required, so that Ideal can argue that the claims read on a needle that could be made into a magnet, but is not yet one. Implicit in Rivard's argument is a contention that there is no difference between "rendered magnetic," "is magnetized," "magnetic," and "magnetizable." Rivard points out that the Summary of the Invention repeatedly refers to a needle that "is magnetized" or that is "permanently magnetizable or magnetic." Similarly, Rivard points out that the Detailed Description recites that the invention uses either a permanently magnetic or magnetizable alloy or an alloy that can be magnetized for a period of time, i.e., made a residual magnet, prior to use of a metal detector, and also describes an embodiment in which a magnetizing device is located in the conveyor line ahead of the metal detector in order to magnetize any needle parts located in processed meat. Rivard also cites portions of the prosecution history, including the examiner's rejection of newly added independent claim 30 as incomplete, pursuant to 35 U.S.C. § 112, because it recited that the needle was magnetizable, but omitted the step of magnetizing the needle. Rivard asserts that, in response to this rejection, the patentee amended the patent to add the step requiring that the needle be magnetized, and then distinguished prior art on the basis that the prior art did not teach use of magnetized needles. Rivard contends that the prosecution history reveals that the examiner and patentee understood that the needle must, itself, be made into a magnet. As extrinsic evidence, Rivard points out that Ideal's vice president confirmed that Ideal was initially magnetizing the detectable needles in a separate operation.

Ideal argues that Rivard's construction cannot be correct, precisely because Rivard has offered the same construction for four different claim terms, in violation of well established canons of patent claim differentiation. For its own part, Ideal argues that neither the "rendered magnetic" nor the "is magnetized" term requires any construction, because the ordinary meanings of these terms are unambiguous and well known to one skilled in the art. Ideal acknowledges that, during prosecution of the '668 patent, the examiner rejected application claims 30 through 35 as incomplete, pursuant to 35 U.S.C. § 112, for failure to include the essential step of magnetizing the magnetizable needle, and that Ideal responded by adding the "rendered magnetic" language to what became claims 1 and 13. Ideal asserts, nevertheless, that the addition of this language does not require the court to adopt Rivard's construction. Ideal contends that Rivard's proposed interpretation comprises language that represents an embodiment described in the specification rather than language expressly or implicitly disclaiming or disavowing claim scope. In summary, Ideal contends that Rivard's proposed interpretation of the "rendered magnetic" term is improper for the following reasons: (1) the language of the claim is clear and unambiguous, and thus, requires no interpretation; (2) the language that Rivard uses, which is the same language Rivard uses to interpret "magnetic or magnetizable," would reincorporate language that was amended out of the '668 patent; (3) the language that Rivard uses is the same as the language that Rivard uses for several entirely different claim terms; and (4) the language that Rivard uses would effectively negate the amendment to overcome the § 112 rejection. If some construction of the "rendered magnetic" term is required, Ideal offers an alternative, shown in the chart above, which Ideal contends, without explanation, is well supported by the intrinsic evidence.

Ideal also argues that the "is magnetized" term in claims 7 and 15 requires no construction, because its meaning is clear and unambiguous to one of ordinary skill in the art. Again, Ideal asserts that Rivard's construction of this term is wrong, because Rivard uses the identical construction for the completely different term "magnetic or magnetizable" in the '196 patent. Ideal also contends that the language of the "is magnetized" term in the '668 patent is obviously different from the "rendered magnetic" language in the same patent, as well as the "magnetic or magnetizable" language in the '196 patent, but does not explain the difference in meaning between "rendered magnetic" and "is magnetized." If the court deems some construction
to be necessary, Ideal again offers an alternative construction, shown in the chart above, which Ideal contends, without explanation, is well supported by the intrinsic evidence.

In its rebuttal brief, Rivard again asserts that the constructions of all of the "magnetism" terms in the two patents should be similar, because they have a common import and associated meaning in the patents-in-suit. Rivard contends that Ideal's claim differentiation argument is overcome here by the presence of only minor differences in language and the requirement in both of the patents that the magnetism of the needles must be what is detected, so that the claim terms must be interpreted consistently. Rivard also argues that it is a critical and necessary aspect of the claims that the magnetism be brought to such a level prior to detection that it enables detection of the needle or piece thereof. Rivard argues that Ideal's response to rejections by the examiners demonstrates that Ideal conceded that the needle must be magnetized, so that the claim language cannot be construed to cover a needle that is merely capable of being magnetized, and must, instead, be construed to require that the needle be magnetized prior to the metal detector, not in the metal detector, as Ideal argues. Rivard also argues that the prosecution histories of both patents are relevant to construction of these related claim terms, because they are interwoven, with cancelled claims of the '668 patent application later reasserted in the '196 patent application.

In its rebuttal brief, on the other hand, Ideal argues that Rivard is slyly attempting to narrow construction of this term to require that the needle be rendered magnetic "prior to the detector" or "before the detection process," when the claim term and intrinsic evidence refer to rendering the needle magnetic "prior to detection." Ideal contends that this subtle difference is important, because the detector may itself include a means for magnetizing or enhancing the magnetism of the needle, as such a product and such a practice is commonly used in the industry. Ideal also contends that Rivard's constructions would send the court off on a red-herring attempt to determine when the "detection process" begins. Ideal contends that the prosecution history provides no indication of when the needle is either magnetized or rendered magnetic, other than before detection. Ideal also argues that absolutely nothing in the prosecution history could be construed as a disavowal of needles capable of being magnetized, when the prosecution history specifically states that the patentee identified needles that either are or are capable of being magnetized.

The time at which the needle is rendered magnetic or is magnetized was one of only four issues that Rivard addressed in the Markman hearing in light of the court's tentative ruling. The Court will summarize Rivard's Markman argument on this issue below, in the pertinent part of the court's analysis.

b. Analysis

i. Difference in words or difference in meaning? Starting with the words of the two claim terms in the '668 patent presently at issue, see Nystrom, 424 F.3d at 1142 (courts must "begin [their] claim construction analysis with the words of the claim"), the court agrees that there are obvious differences between the language of the claim term "[the needle] is rendered magnetic at [or to] a level that enables detection of the magnetism of the needle" in claims 1 and 13 and the language of the claim term "the needle is magnetized to a level which enables detection of the magnetism of the needle" in claims 7 and 15 of the '668 patent. The court is considerably less convinced, however, that there is any difference in meaning between "is rendered magnetic" and "is magnetized."

Consultation of an ordinary dictionary, to assist in understanding the commonly understood meaning of words, see Free Motion Fitness, Inc., 423 F.3d at 1348 (recognizing such use of a dictionary as appropriate, citing Phillips, 415 F.3d at 1320); Phillips, 415 F.3d at 1324 ("[A] judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term.");), reveals that "rendered," in the sense appropriate here in light of intrinsic evidence, see id., means "to cause to be or become: MAKE." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 990 (10th ed. 1995); OXFORD ENGLISH DICTIONARY (on-line ed. at dictionary.oed.com) ("render" means "to make, to cause to be or become, of a certain nature, quality, etc."). Thus "rendered magnetic" would mean "is made magnetic" or "is magnetized." Indeed, as the chart of proposed claim constructions, above, reveals, Ideal's alternative construction actually equates "is rendered magnetic" with "is magnetized," because Ideal construes the term "[the needle] is rendered magnetic . . . " to mean "the needle is magnetized . . . . "

The intrinsic evidence of the Summary of the Invention and the Detailed Description confirm the appropriateness of equating "is rendered magnetic" with "is magnetized." See Phillips, 415 F.3d at 1314 (the specification is "highly relevant" to claim construction, "[u]sually, it is dispositive," and it "is the single best guide to the meaning of a disputed term"). The Summary of the Invention uses only "is magnetized" to describe the process of making the needle magnetic at a level that
enables detection of the magnetism of the needle, see the '668 patent, Col. 2, ll. 28-29, 42-43, 57-58; see also id., Col. 3, ll. 24-25 (needle cannula comprising a stainless steel alloy that is magnetized"), and nothing else in the specification suggests a different meaning. The court finds the obvious equating of "is rendered magnetic" and "is magnetized" in the '668 patent overcomes any presumption that the different words were intended to have different meanings. Compare Andersen Corp., 474 F.3d at 1369 (different words used in separate claims are presumed to indicate that the claims have different meanings and scope).

Ideal is correct, however, that claim terms "rendered magnetic" and "is magnetized" not only use different language but have different meanings from the claim term "magnetic or magnetizable," which appears only in the '196 patent, precisely because the former terms from the '668 patent require that something be done to the needle in question to make it become magnetic, while the latter term from the '196 patent does not. Compare OXFORD ENGLISH DICTIONARY (on-line ed. at dictionary.oed.com) ("render" means "to make, to cause to be or become, of a certain nature, quality, etc.,,", so that "rendered magnetic" means "to be made magnetic"), with OXFORD ENGLISH DICTIONARY (on-line ed. at dictionary.oed.com) ("magnetic" means, inter alia, "having the properties of a magnet," and "magnetizable" means "capable of being magnetized."). The court will return to the meaning of "magnetic or magnetizable" in the '196 patent, below, but for now, concentrates on the meaning of the "is rendered magnetic" and "is magnetized" terms in the '668 patent.

ii. Permanent and residual magnetism. The court turns to the question of what "is made magnetic" or "is magnetized" means in the context of the '668 patent. It is clear from both parties' constructions, and more importantly, clear from the intrinsic evidence, that "is made magnetic" or "is magnetized" would be understood by one of ordinary skill in the art, reading the patent, to mean that the needle must be made into or become a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time. For example, the Detailed Description identifies a preferred embodiment as one in which the "stainless steel alloy is an alloy that is permanently magnetic or magnetizable before detection," but also notes that, "[a]lternatively, the needle cannula of the present invention can comprise a stainless steel alloy that is not a permanent magnetic [sic] but is capable of being magnetized in a magnetic field to maintain a residual magnetism." See the '668 patent, Col. 5, ll. 46-59. Rivard contends that the construction of this phrase must state that it "does not refer to stainless steel which is merely attractable to a permanent magnet." The court finds, however, that such a construction, while accurate, is superfluous, where the claim term unambiguously requires that the needle be or be made magnetic, not merely that it be attracted or attractable to a magnet.

At the Markman hearing, Rivard contended that the court's tentative construction of "residual magnet" should be modified to add that a residual magnet is a magnet that retains its magnetic field for a period of time "when the magnetizing field is removed." Ideal contended that this construction improperly requires the magnetization of the needle and withdrawal of the magnetizing field before the needle enters the metal detector, a matter of timing of the magnetization of the needle addressed below. The court finds it unnecessary to add the language that Rivard proposes and potentially improper to do so, because the court has found nothing in the record that disavows a construction that permits the needle to be rendered a residual magnet as it is detected, i.e., a circumstance in which the residual magnetism of the needle is detected before the magnetizing field is removed.

iii. Capacity to be magnetized. The parties' arguments concerning the "is rendered magnetic" and "is magnetized" language in the '668 patent, and indeed, their arguments concerning "magnetic or magnetizable" in the '196 patent, also suggest concerns about the "capacity" or "capability" of the needle to be so magnetized. Rivard contends that, based on the specification and prosecution history, the "magnetism" terms of both patents do not apply to a stainless steel needle that merely has the capacity to be magnetized, but only to a needle that has been made into a magnet. Ideal argues that the claims, specification, and prosecution history make clear that the invention applies to a needle that merely has the capacity to be magnetized until it is rendered magnetic, as well as to a needle that is magnetic.

The words of the claims, see Nystrom, 424 F.3d at 1142 (courts must "begin [their] claim construction analysis with the words of the claim"), suggest that the needle must be magnetized either prior to injecting the animal or after slaughter. Specifically, claim 1(a) claims an injection means wherein the needle, not otherwise identified as already magnetic or made from a magnetic alloy, "is rendered magnetic to a level that enables detection of the magnetism of the needle," and claim 1(b) claims injecting a living animal with "the needle, which has been rendered magnetic prior to injecting the living animal or while in the flesh of the animal after slaughter." The '668 patent, Claim 1. Because the claim permits rendering the needle magnetic as late as after slaughter, it clearly contemplates that the needle was, until that time, only capable of being magnetized. Indeed, logic dictates that something that "is rendered magnetic" is capable of being magnetized until it is
"rendered magnetic."

The intrinsic evidence from the specification also supports this construction. See Phillips, 415 F.3d at 1314 (the specification is "highly relevant" to claim construction, "[u]sually, it is dispositive," and it "is the single best guide to the meaning of a disputed term"). While there are numerous references in the specification to the needle being made from a magnetized or magnetic stainless steel alloy, there are also references to a needle or alloy that is "capable of being magnetized" or "magnetizable." For example, one alternative embodiment describes a needle cannula that is comprised of "a stainless steel alloy that is not a permanent magnetic [sic] but is capable of being magnetized in a magnetic field to maintain a residual magnetism." The '668 patent, Col. 5, ll. 56-59. Similarly, the Detailed Description includes a description of a particular embodiment in which the detection apparatus "can further comprise a means for producing a high magnetic field (not shown) to magnetize or enhance the magnetism of the stainless steel comprising needle cannula 12 or piece thereof in animal flesh or meat product after slaughter 200 before it enters metal detector 104." Id., Col. 6, ll. 42-48. Thus, the patent contemplates a needle that is capable of being magnetized, but is not actually rendered magnetic until after slaughter of the animal in which it has broken off, as well as a needle that is a permanent magnet or that is rendered magnetic at some time prior to use to inject a live animal.

Rivard, nevertheless, argues that the prosecution history reveals that the patentee disavowed a needle that was only capable of being magnetized or only had the capacity to be magnetized, citing a portion of the June 2, 2002, amendment to the application for what became the '668 patent. See Joint Appendix at 47-53. Rivard characterizes the patentee's argument therein as (1) asserting that the invention requires the needle to be magnetized, not just to have the capability to be magnetized, and (2) distinguishing prior art that was merely capable of being magnetized but not actually magnetized, because such non-magnetized prior art needles did not provide increased detectability. Although prosecution history certainly can be relevant to the construction of claim terms, see Nystrom, 424 F.3d at 1142 ("In addition to the written description, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.") (quoting Phillips, 415 F.3d at 1317), the court finds Rivard's characterization of this portion of the prosecution history to be strained at best.

Specifically, the cited portions of the amendment distinguish two prior art references, one for reusable stainless steel needles and one for Martensitic stainless steel, explaining,

[N]either suggests that the stainless steel be rendered magnetic and neither suggests that a magnetic stainless steel needle be used to inoculate animals because the magnetism of the magnetic needle would facilitate locating the a broken needle fragment in the flesh of a slaughtered animal in the event the needle should break during inoculation of the animal prior to slaughter. Thus, neither prior art reference on its own teaches or suggests the applicant's claimed method for detecting broken needles in the flesh of slaughtered animals, which is using a needle comprised of a stainless steel that is magnetic.

Joint Appendix at 48-49. The amendment then argues that the combination of the two prior art references also would not render the claimed invention obvious, because there was no reason why one of ordinary skill in the art would have combined them. Id. at 49. At most, the patentee asserted that the two prior art references would have suggested making reusable needles from Martensitic steel, but would not have suggested rendering Martensitic steel needles permanently or temporarily magnetic to improve detectability. Id. at 49-52. The patentee certainly did not expressly or even implicitly disavow needles only capable of being magnetized by observing that nothing taught magnetizing needles made of an alloy capable of being magnetized.

In its rebuttal brief, Rivard again argues that, in response to a prior art rejection of application claims 16 and 23, Ideal argued "that the claim language itself already required that the needle be magnetized and did not cover a needle that merely had the capability of being magnetized." Rivard's Rebuttal Brief at 18 (citing Joint Appendix at 51-52). Rivard also argues that the patentee's contention that Martensitic stainless steel in the Hultin-Stigenberg prior art must be made permanently or temporarily magnetic in order for it to have a magnetic field that would render it more detectable means that the patentee disavowed needles that were only capable of being magnetized, because the Martensitic stainless steel of Hultin-Stigenberg would be capable of being magnetized. Rivard's Rebuttal Brief at 24-25. Such an argument completely mischaracterizes the patentee's argument, which was precisely that the prior art did not teach magnetizing needles made of alloys capable of being magnetized to improve detectability. See Joint Appendix at 51-52 ("There is nothing in the prior art that would have suggested that it would have been desirable to make Martensitic stainless steel permanently or temporarily magnetic for the
purpose of making needles, the fragments of which would be more readily detected in the flesh of a slaughtered animal by a metal detector than would be nonmagnetic fragments."). Moreover, the patentee argued, "The applicant discovered that the ability of the detector to detect stainless steel needle fragments is enhanced by using needles which are magnetic or capable of being rendered magnetic in an electric field." Joint Appendix at 52 (emphasis added). Thus, the patentee expressly asserted that the invention was magnetizing needles capable of being rendered magnetic, as well as using magnetic needles, and an attempt to construe these statements as conveying exactly the opposite meaning, as express or implicit disavowals of needles capable of being rendered magnetic, is wholly unpersuasive.

Thus, the court finds no comments in the cited prosecution history expressly or implicitly disavowing needles made of stainless steel that had the capacity to be magnetized, even in the express assertions that what made the invention patentable was rendering the claimed needle magnetic. The proper construction does not require exclusion of needles capable of being magnetized, because the patent clearly contemplates needles with the capacity to be magnetized until they are rendered magnetic, as well as needles that are magnetic.

iv. Time at which the needle is rendered magnetic. The parties' arguments concerning the "is rendered magnetic" and "is magnetized" language in the '668 patent, and indeed, their arguments concerning "magnetic or magnetizable" in the '196 patent, also suggest concerns about the time at which the needle must be, become, or be made a permanent or residual magnet. Rivard argues that the needle must be rendered magnetic "prior to use of a [metal] detector." Indeed, this contention was one of only four arguments that Rivard asserted during the Markman hearing. Ideal argues that the claims, specification, and prosecution history make clear that the needle must be made magnetic prior to use to inject animals or after it has broken off in the flesh of an animal which has then been killed for slaughter, i.e., before detection, not before the detector.

Rivard may be on better ground when it asserts that the needle must be magnetized "prior to use of a detector." Logic suggests that, in order for the magnetism of the needle to be detectable, the needle must be rendered magnetic or magnetized before whatever does the detecting is used. Any uncertainty about what does the detecting is rapidly dissipated by copious intrinsic evidence that what does the detecting is a metal detector or a magnetic detector. See, e.g., the '668 patent, Summary of the Invention, Col. 1, l. 67, to Col. 2, l. 1 ("which enables the needle cannula to be detected in a metal detector"); Detailed Description, Col. 5, l. 46, to Col. 6, l. 19 (describing detection of magnetized needles by metal detectors or magnetic detectors, but suggesting that a drawback of a magnetic detector is that it cannot detect non-magnetizable metals). Indeed, no other method of detection is described anywhere in the patent. Furthermore, as noted above, the Detailed Description includes a description of a particular embodiment in which the detection "apparatus can further comprise a means for producing a high magnetic field (not shown) to magnetize or enhance the magnetism of the stainless steel comprising needle cannula 12 or piece thereof in animal flesh or meat product after slaughter 200 before it enters metal detector 104." id., Col. 6, ll. 42-48 (emphasis added), which appears to support Rivard's argument, at least by describing the time at which the needle could be rendered magnetic as "before it enters metal detector 104."

On the other hand, the court cannot simply import what is clearly a particular embodiment in the specification, see id., Col. 6, ll. 41-42 (stating that the apparatus described in ll. 42-48 is "[i]n particular embodiments"), into the construction of the claim term. See Playtex Prods., Inc., 400 F.3d at 906 ("The court must take care in its analysis, when locating in the written description the context for a disputed term, not to import a limitation from that written description. It must use the written description for enlightenment and not to read a limitation from the specification [into the construction of the term]," and "'[i]t is axiomatic that claims, not the specification embodiments, define the scope of protection." (internal citations and quotation marks omitted)). Therefore, it is inappropriate to use the description of an embodiment in which the needle is magnetized by a high magnetic field before it enters the metal detector to limit the time at which the needle must be magnetized. See the '668 patent, Col. 6, ll. 41-48.

More importantly, the words of the claim, see Nystrom, 424 F.3d at 1142 (courts must "begin [their] claim construction analysis with the words of the claim"), suggest that the needle must be magnetized more generally either prior to injecting the animal or after slaughter. Specifically, claim 1(a) claims an injection means wherein the needle (albeit not otherwise identified as already magnetic or magnetizable or made from a magnetic or magnetizable alloy) "is rendered magnetic to a level that enables detection of the magnetism of the needle," and claim 1(b) claims injecting a living animal with "the needle, which has been rendered magnetic prior to injecting the living animal or while in the flesh of the animal after slaughter." The '668 patent, Claim 1 (emphasis added). None of the other claims in which either of the two claim terms at issue is used specifies precisely when the needle is magnetized, although each suggests that the detection of the magnetism
of the needle occurs "when the animal is slaughtered and processed." See id., claim 7, Col. 9, ll. 39-42; claim 13, Col. 10, ll. 22-24; claim 15, Col. 10, ll. 47-49.

In the tentative draft, the court concluded that the specification sheds no particular light on this question, either, despite its usual importance. See Phillips, 415 F.3d at 1314 (the specification is "highly relevant" to claim construction, "[u]sually, it is dispositive," and it "is the single best guide to the meaning of a disputed term"). The court found that this was so, because the specification refers once to a preferred stainless steel alloy "that is permanently magnetic or magnetizable before detection," see id., Col. 5, ll. 46-57 (emphasis added), and once, as noted above, to a preferred embodiment of the detection apparatus in which the stainless steel of the needle is magnetized "before it enters metal detector 104." Id., Col. 6, ll. 42-48 (emphasis added). The court found in the tentative draft that the specification does not otherwise specify when magnetism must be imparted to the needle or steel of which the needle is comprised.

Therefore, in light of the words used in the claim, the court concluded in the tentative draft that a proper construction of the "timing" aspect of these terms requires that the needle is magnetic or is made magnetic "either prior to injecting the living animal or while in the flesh of the animal after slaughter," as this language "stays true to the claim language and most naturally aligns with the patent's description of the invention." Nystrom, 424 F.3d at 1142 (quoting Phillips, 415 F.3d at 1316, in turn quoting Renishaw PLC, 158 F.3d at 1250); see also the '668 patent, claim 1(a) (claiming an injection means wherein the needle "is rendered magnetic to a level that enables detection of the magnetism of the needle"); id., claim 1(b) (claiming injecting a living animal with "the needle, which has been rendered magnetic prior to injecting the living animal or while in the flesh of the animal after slaughter").

At the Markman hearing, however, Rivard argued that the patents-in-suit and their prosecution histories make clear that the needle must be magnetized before the metal detector, not just before detection. First, Rivard takes issue with this court's observation, in a footnote in the tentative draft, that one portion of the Detailed Description--which describes a particular embodiment in which the detection "apparatus 100 can further comprise a means for producing a high magnetic field (not shown) to magnetize or enhance the magnetism of the stainless steel comprising needle cannula 12 or piece thereof in animal flesh or meat product after slaughter 200 before it enters metal detector 104," id., Col. 6, ll. 42-48 (emphasis added)--demonstrates that, contrary to Rivard's contention, the specification does describe an embodiment in which the needle is magnetized using the metal detector, or at least, is magnetized in an "apparatus for detecting metal" comprising a means for magnetizing the needle as well as the metal detector. See id. Col. 6, ll. 20-21 (describing the "apparatus 100" as "an apparatus for detecting metal in the flesh of an animal after slaughter"). Rivard argues that "apparatus 100" does not disclose an embodiment in which the needle is magnetized in the same device used for detecting metal, because "apparatus 100" is not a single component, but an assembly of multiple components. See the '668 patent, Col. 6, ll. 20-27 ("apparatus 100 comprises conveyors and detection units") and Col. 6, ll. 20-21 ("apparatus 100 comprises belt conveyors for transporting animal flesh or meat products after slaughter through metal detector 104 for detecting whether animal flesh contains a broken piece of needle cannula 12 of the present invention").

Indeed, Rivard argues that "apparatus 100" does not include any device for magnetizing a needle, although other embodiments of the assembly may include such a device for magnetizing the needle before it enters the metal detector 104. See id., Col. 6, ll. 41-47. As a matter of specificity, Rivard is correct: The description does not describe a single component that both magnetizes and detects the magnetized needle. Nevertheless, Ideal argues that a metal detector itself may generate sufficient magnetic field to magnetize a needle as the detector detects the needle. While Ideal's contention may be true, the court does not find evidence either supporting it or disproving it in the record. Ultimately, however, whether or not the patent discloses a method for magnetizing the needle with a metal detector is beside the point. The pertinent question is what the patent discloses about when the needle must be magnetized.

Rivard argued at the Markman hearing that, because the needle can be magnetized to retain residual magnetism, and residual magnetism is magnetism that persists after a magnetic field is removed, and because the magnetized needle is described as detectable by a metal detector or a magnetic detector, it must be magnetized before the metal detector or magnetic detector, and if it is not, it will not be detectable by both kinds of detectors. 8 Finally, Rivard argued that, because the patentee argued that the prior art does not disclose that the detectability of Martensitic needles would be improved by magnetizing the needles, and indeed, the patentee argued that Martensitic needles that had not been magnetized would not have improved the detectability of fragments from the needles, the claimed needles must be magnetized prior to the metal detector.

--- Footnotes ---

8 A large portion of Rivard's argument concerning the time at which the needle is magnetized was illustrated using the
vi. The court's construction. In light of the foregoing, Rivard attempted to add the Horita patent to the record, but Ideal resisted its inclusion. The court finds it unnecessary to address Rivard's arguments based specifically on the Horita patent, as they are only illustrations of arguments otherwise summarized above in reference to the description and prosecution history of the '668 patent.

These arguments are unpersuasive, however, because they fall well short of demonstrating that, in either the specification or the prosecution history, the patentee disavowed magnetizing the needles at any time other than "prior to the metal detector." See, e.g., Research Plastics, 421 F.3d at 1296 ("The purpose of consulting the prosecution history in construing a claim is to "exclude any interpretation that was disclaimed during prosecution,"" quoting Rhodia Chimie, 402 F.3d at 1384, in turn quoting ZMI Corp., 844 F.2d at 1580, and noting that "the prosecution history can reveal instances where the inventor limited the invention in the course of prosecution and thus narrowed the scope of the claim."). To put it another way, the court cannot find that language of the claims themselves--that is, language of claim 1(a) which claims an injection means wherein the needle (albeit not otherwise identified as already magnetic or magnetizable or made from a magnetic or magnetizable alloy) "is rendered magnetic to a level that enables detection of the magnetism of the needle," and language of claim 1(b), which claims injecting a living animal with "the needle, which has been rendered magnetic prior to injecting the living animal or while in the flesh of the animal after slaughter," the '668 patent, Claim 1 (emphasis added)--is contrary to the portions of the specification or prosecution history on which Rivard relies. Thus, the court reiterates its conclusion that a proper construction of the "timing" aspect of these terms requires that the needle is magnetic or is made magnetic "either prior to injecting the living animal or while in the flesh of the animal after slaughter," as this language "'stays true to the claim language and most naturally aligns with the patent's description of the invention.'" Nystrom, 424 F.3d at 1142 (quoting Phillips, 415 F.3d at 1316, in turn quoting Renishaw PLC, 158 F.3d at 1250); see also the '668 patent, claim 1.

v. Magnetized to a level that enables detection. The remaining question for these claim terms is the appropriate construction, if any is required, for the phrase requiring that the needle be magnetized "at [or to] a level that enables detection of the magnetism of the needle." Rivard contends that the construction of this phrase must state that "it is the permanent or residual magnetism that must be detected by the detector in order to determine a needle or piece is present in the meat." Again, the court finds this part of Rivard's construction to be superfluous, because the claim term itself clearly and unambiguously states that what must be detected is "the magnetism of the needle."

Ideal, on the other hand, contends that, if any construction is required, the phrase "at [or to] a level that enables detection of the magnetism of the needle" should be construed to mean "whereby the magnetism of the magnetic needle facilitates locating a needle or needle fragment in the flesh of a slaughtered animal" or "to a level which facilitates locating a needle or needle fragment in the flesh of a slaughtered animal." The problem with Ideal's construction of this phrase, in the court's view, is that "enables" and "facilitates" do not have the same ordinary meaning, and nothing in the patent suggests that a specialized meaning of "enables" to mean "facilitates" is appropriate. See Free Motion Fitness, Inc., 423 F.3d at 1348 (recognizing such use of a dictionary as appropriate, citing Phillips, 415 F.3d at 1320); Phillips, 415 F.3d at 1324 ("[A] judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term."). As to ordinary meaning, in the sense appropriate here from the intrinsic evidence of the patent, "enable" means "to make possible, practical, or easy," or "to cause to operate." See MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 380 (10th ed. 1995). "Facilitate," on the other hand, means "to make easier" or "help bring about." Id. at 415; see also Free Motion Fitness, Inc., 423 F.3d at 1348 ("The court must ensure that any reliance on dictionaries accords with the intrinsic evidence."). While the definitions of "enable" and "facilitate" overlap at the broadest definition of "enable," the one defining "enable" as "to make easy," it is inappropriate to select the broadest of the dictionary meanings as a matter of course. See id., 423 F.3d at 1348-49 (noting that use of the fullest range of a terms ordinary meaning does not mean that the term will presumptively receive its broadest dictionary definition or the aggregate of multiple dictionary definitions). The court also believes that "enable" in the context of the patent means "to make possible," not merely "to make easy." See, e.g., the '668 patent, Detailed Description, Col. 5, ll. 63-66 ("Thus, a needle cannula or piece thereof comprising a residual magnetism, which is embedded in the flesh of an animal or meat product, can be detected in a metal detector or magnetic detector . . . .") (emphasis added).

vi. The court's construction. In light of the foregoing, the court concludes that the proper construction of both "[the needle] is rendered magnetic at [or to] a level that enables detection of the magnetism of the needle," which appears in claims 1 and
13 of the '668 patent, and "the needle is magnetized to a level which enables detection of the magnetism of the needle," which appears in claims 7 and 15 of the '668 patent, is the following: "Either prior to injecting the living animal or while in the flesh of the animal after slaughter, the needle is magnetized to become a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time, to a level that makes it possible for the magnetism of the needle to be detected by a metal detector or magnetic detector."

6. "magnetic disk operation format" (claims 1 and 6)

The plaintiff asks the court to define "magnetic disk operation format" to mean "a format applicable to conventional magnetic disk drives" and the defendant asks the court to construe the term to mean "commands capable of being provided to conventional magnetic disk drives." The defendant states in its response brief that "operation requests issued by users in magnetic disk operation format must be usable by magnetic disk drives." This statement is consistent with the ordinary and plain meaning of this claim term.

The plaintiff argues that its proposed construction is also consistent with the plain meaning of the claim term. But the specification does not support the plaintiff's proposed broad construction. Consider two examples from the specification:

- upper layer operating system receives the read command from the user, wherein the command format is the familiar format used by the legacy magnetic disk.
  
  Col. 5, ll. 47-49.

- Under the management of the operating system, users can operate the external storage device the same way operating [sic] a classical disk.
  
  Col. 3, ll. 23-26.

Both of these passages describe a format that is usable by the magnetic disks rather than merely "applicable" to a magnetic disk drive. At col. 10, ll. 14-16, the specification states "[b]ecause the format of the write command is the standard magnetic disk operation format, which is different from the operation format of USB and flash memory. . ." Throughout the patent, the specification discloses converting user requests in magnetic disk operation format to special instructions for the flash memory. The specification requires "magnetic disk format" to be more narrowly defined than "applicable to conventional magnetic disk drives."

The court defines "magnetic disk operation format" to mean "a format capable of being provided to conventional magnetic disk drives."

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c. "Magnetic or magnetizable"

The parties next dispute the construction of the term "magnetic or magnetizable" in claim 1 of the '196 patent. Ideal asserts that no construction of this unambiguous term is required, even as an alternative to Rivard's proposed construction. Therefore, the chart that follows shows only the claim term and Rivard's proposed construction.

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Rivard's Proposed Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. Magnetic or magnetizable</td>
<td>The needle or needle piece has been magnetized to be a permanent magnet that produces a magnetic field, or has been magnetized in a magnetic field to maintain a</td>
</tr>
</tbody>
</table>
residual magnetism that produces its own
magnetic field that persists when the magnetic
field is removed, prior to use of a detector.
The term does not refer to stainless steel which
is merely attractable to a permanent magnet.

i. Arguments of the parties. Rivard argues that claim 1 refers to stainless steel that is "magnetic or magnetizable," then thereafter refers to the "magnetism" of the needle. Rivard argues that, to be grammatically and substantively consistent, the term "magnetism" must relate back to and be produced by the stated "magnetic or magnetizable" feature of the needle cannula, and that the term "magnetism" does not refer to the mere capacity to be magnetized, but to something that actually operates as a magnet. Rivard also argues that the specification repeatedly refers to a magnetic needle or one that is magnetized before detection and to "magnetic stainless steel." From this language, Rivard apparently infers that "magnetic or magnetizable" means already made a magnet, not merely capable of becoming a magnet. Similarly, Rivard argues that the prosecution history shows (1) that the invention requires the needle to be magnetized not just to have the capability to be magnetized, and (2) that the patentee distinguished prior art that was merely capable of being magnetized and not actually magnetized because non-magnetized prior art needles did not provide increased detectability. Rivard's arguments in its rebuttal brief concerning the "magnetism" terms of the two patents, which were discussed in reference to construction of the "magnetism" terms of the '668 patent, are also asserted as to the "magnetic or magnetizable" terms of the '196 patent. Ideal, however, argues that "magnetic or magnetizable" is unambiguous and that the prosecution history reveals no intent to disavow any scope to the term.

ii. Analysis. Beginning with the words of the claim, Nystrom, 424 F.3d at 1142 (courts must "begin [their] claim construction analysis with the words of the claim"), it is apparent that "magnetic or magnetizable" refers to two possible, and different, conditions. See Merck & Co., 395 F.3d at 1372 (the court must construe claims so that no term becomes "superfluous," and "[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). The first problem with Rivard's construction, in the court's view, is that it improperly conflates the two stated conditions into a single condition, "magnetic."

The second problem with Rivard's construction of this phrase, in the court's view, is that "magnetic" and "magnetizable" do not have the same ordinary meaning, and nothing in the patent suggests that a specialized meaning conflating the latter term into the former one is appropriate. See Free Motion Fitness, Inc., 423 F.3d at 1348 (recognizing such use of a dictionary as appropriate, citing Phillips, 415 F.3d at 1320); Phillips, 415 F.3d at 1324 ("[A] judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term."). More specifically, as to ordinary meaning, in the sense appropriate here from the intrinsic evidence of the patent, see Free Motion Fitness, Inc., 423 F.3d at 1348 ("The court must ensure that any reliance on dictionaries accords with the intrinsic evidence."). "magnetic" means "magnetized or capable of being magnetized," and "magnetize" means "to induce magnetic properties in." See MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 700 (10th ed. 1995). Thus, "magnetic" means having been induced with magnetic properties, see OXFORD ENGLISH DICTIONARY (on-line ed. at dictionary.oed.com) ("magnetic" means, inter alia, "having the properties of a magnet"); "magnetizable" means "capable of being magnetized." See OXFORD ENGLISH DICTIONARY (on-line ed. at dictionary.oed.com). While the definitions of "magnetic" and "magnetizable" overlap at the broadest definition of "magnetic" as "capable of being magnetized," Rivard argues that the appropriate meaning for both "magnetic" and "magnetizable" is the narrowest meaning of "magnetic" as "magnetized," which is a meaning that the term "magnetizable" simply will not bear. Moreover, in a context where both terms are used in succession, it is appropriate to read them to have different meanings. See Merck & Co., 395 F.3d at 1372 (the court must construe claims so that no term becomes "superfluous," and "[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). Thus, applying ordinary meanings, "magnetic" means "magnetized" or "induced with magnetic properties," and "magnetizable" means "capable of being magnetized" or "capable of being induced with magnetic properties."

Returning to intrinsic evidence, the court is unpersuaded by Rivard's argument that the subsequent references to "magnetism" in claim 1 mean that "magnetic or magnetizable" must refer to something that actually operates as a magnet, not to something that merely has the capacity to be magnetized. It is true that claim 1 does not include any limitation requiring that the "magnetic or magnetizable" needle actually be magnetized, even though it later refers to the "magnetism" of the needle. See the '196 patent, claim 1. 16 The subsequent references to "magnetism" in claim 1 are in an extended "so
that" clause, which "simply expresses the intended result of a process step positively recited"; consequently, that clause is not given weight and does not state a material limitation in the method claim. Cf. Hoffer v. Microsoft Corp., 405 F.3d 1326, 1329 (Fed. Cir. 2005) (explaining that a "whereby" clause is given "no weight" when it "simply expresses the intended result of a process step positively recited" in a method claim, but "when the 'whereby' clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention"). Here, the method claim is "a method of injecting an animal health product into flesh of a living food animal." The '196 patent, claim 1, Col. 8, ll. 58-60. The "process" step is "providing an injection means comprising a needle assembly . . . wherein the needle cannula is made of stainless steel which is magnetic or magnetizable . . . ." Id., Col. 8, ll. 61-67. The intended result is "so that . . . the magnetism . . . enables detection of the magnetism of the needle cannula or piece thereof in the flesh of the animal upon slaughter and processing into a food if the needle cannula or piece thereof were to break off in the flesh of the living animal during the injection." Id., Col. 9, ll. 4-12. The fact that this intended result may not actually follow if a "magnetizable" needle is not also claimed to be "rendered magnetic" is beside the point; the references to "magnetism" in the "so that" clause cannot alter the meaning of the limitation actually claimed, that "the needle cannula is made of stainless steel which is magnetic or magnetizable." Id., Col. 8, ll. 66-67 (emphasis added). Moreover, the Summary of the Invention repeatedly refers to a "magnetic or magnetizable" needle, not merely one that "is magnetic" or "is magnetized." Consequently, it cannot be said that a "magnetic" needle is the fundamental invention to the exclusion of a "magnetizable" needle, such that the references to "magnetism" in the "so that" clause limit the claimed method in claim 1. Compare Hoffer, 405 F.3d at 1330 (the condition stated in the "whereby" clause was part of the "fundamental invention," based on the specification, and did limit the method claimed).

The specification also supports distinguishing between the meanings of the two words "magnetic" and "magnetizable." See Aquatex, 419 F.3d at 1380 ("Where . . . the disputed claim term is technical or a term of art, [t]he best source for understanding [it] is the specification from which it arose, informed, as needed, by the prosecution history.") (quoting Phillips, 415 F.3d at 1315); Phillips, 415 F.3d at 1314 (the specification is not only "highly relevant" to claim construction, "[u]sually, it is dispositive," and "is the single best guide to the meaning of a disputed term"). The Summary of the Invention repeatedly refers to a needle that is "magnetizable or magnetic," see the '196 patent, Col. 11, 29, 43, and Col. 4, 1, 2, thereby reinforcing the notion that the two terms have different meanings and that both conditions that the terms describe are intended to be fundamental to the invention.

The court turns, next, to the question of what is meant by "magnetic or magnetizable," in the context of the patent. Again, as with other "magnetism" terms in the '668 patent, it is clear from the intrinsic evidence that "magnetic" or "magnetizable" would be understood by one of ordinary skill in the art reading the patent to mean that the needle is or is capable of becoming a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time. For example, the Detailed Description identifies a preferred embodiment as one in which the "stainless steel alloy is an alloy that is permanently magnetic or magnetizable before detection," but also notes that, "[a]lternatively, the needle cannula of the present invention can comprise a stainless steel alloy that is not a permanent magnetic [sic] but is capable of being magnetized in a magnetic field to maintain a residual magnetism." See the '196 patent, Col. 5, ll. 50-63.

Rivard contends, as it did with other "magnetism" terms of the '668 patent, that the construction of this phrase must state that it "does not refer to stainless steel which is merely attractable to a permanent magnet." The court finds, however, that such a construction, while accurate, is superfluous, where the claim term unambiguously requires that the needle be or be capable of being made magnetic, not merely that it be attracted or attractable to a magnet.

Also as with the "magnetism" terms of the '668 patent, Rivard argued at the Markman hearing that the court's tentative construction of "residual magnet" in the '196 patent should be modified to add that a residual magnet is a magnet that retains

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its magnetic field for a period of time "when removed from the magnetizing field" and that the court should add to its tentative construction "that [the magnetism] makes it possible for the magnetism to be detected in a metal detector and magnetic detector." Ideal contended that the first proposed addition improperly requires the magnetization of the needle and withdrawal of the magnetizing field before the needle enters the metal detector, a matter of timing of the magnetization of the needle addressed above. Again, the court finds it unnecessary to add that a "residual magnet" is one that retains its magnetism for a period of time "when removed from a magnetic field," as Rivard proposes, and potentially improper to do so, because the court has found nothing in the record that disavows a construction that permits the needle to be rendered a residual magnet as it is detected, i.e., a circumstance in which the residual magnetism of the needle is detected before the needle is removed from the magnetizing field. The court finds it improper to add to the construction of "magnetic or magnetizable" that "[the magnetism] makes it possible for the magnetism to be detected in a metal detector and magnetic detector," because enabling detection is not a limitation in claim 1, but only language appearing in a "such that" clause, as explained more fully below, beginning on page 132.

iii. The court's construction. In summary, the court concludes that "magnetic or magnetizable" in claim 1 of the '196 patent must be construed as follows: "is or is capable of becoming a permanent magnet or a residual magnet, that is, a magnet that retains its magnetic field for a period of time."

10. "magnetic reed relay switch"

Dependent Claim 23 of the '571 Patent discloses a "magnetic reed relay switch." Cardiac Science asserts that this term should be construed as "a magnetically operated switch." Philips contends that the term should be construed as "a reed switch combined with a coil to create a relay."

Both parties rely upon the same dictionary definition to support their constructions. The IEEE 100 defines "reed relay" as a "relay using glass-enclosed magnetically closed reeds as the contact members. Some forms are mercury wetted." IEEE 100 Authoritative Dictionary of IEEE Standards Terms at 941 (7th ed. 2000). Philips also asserts that magnetic reed relay switches are known in the art to be a particular type of magnetic switch that has reeds and a coil. However, aside from one unsubstantiated Internet reference and another company's data sheet that cites a coil requirement, Philips offers no support from the patent itself. Neither the IEEE definition nor the patent makes reference to a coil or, more specifically, a copper coil. On the other hand, Cardiac Science's definition adds nothing to the meaning of the term. The Court construes the term "magnetic reed relay switch" as "a relay switch that uses magnetically closed reeds as the contact members."

5. "main board"

This term appears in the '408 patent claims 1 and 9.

Rackable asserts that "main board" means "main circuit board inside the computer that makes it possible for the other parts of a computer to communicate with each other, into which additional boards may be plugged if present." Supermicro asserts that "main board" means "a circuit board that contains the primary components of a computer."

The essence of this dispute is whether this term constitutes the principal board in the computer through which other parts of the computer communicate, as Rackable contends, as opposed to any printed circuit board having a processor, according to Supermicro.

Rackable explains that a computer may contain several printed circuit boards, but that the "main board" is "the largest printed circuit board in the computer" into which other circuit boards would plug. It asserts that many electronic devices contain circuit boards, but do not contain "main boards" as found in general purpose computers such as servers. In support, Rackable cites to extrinsic evidence, including several different print and online dictionaries. In addition to the dictionary
definitions, in support of its construction, Rackable also argues that one of ordinary skill in the art "would expect a main board of the basic type that permits the level of functionality required of a general purpose computer, . . . also known as a 'motherboard'" and "would also know that the main board in a general purpose computer makes it possible for the other parts of the computer to communicate with each other."

Supermicro, in response, argues that specification language supports its construction, in addition to extrinsic evidence, including several computer and/or electronic dictionary definitions.

At the hearing, the parties agreed that "main board" is synonymous with "motherboard." Based on the admissions at the hearing, it is clear to the court that the parties agree that the "main board" includes "the primary components of a computer," and is distinguishable from a daughter board. In fact, Supermicro made a judicial admission that a "main board" is not the same thing as a daughter board. Thus, the real issue concerns the amount of detail that should be provided regarding the function of the motherboard or "main board" and its relation to other boards. As noted, per Rackable's construction, the "main board" should be construed to include language regarding communication, specifically that it is a circuit board that enables "other parts of a computer to communicate with each other," and should also be construed to note that additional boards, if present, may be plugged into it.

The only guidance in the specification itself appears to be several examples of "[p]referred main boards," which include "models N44BX, L44GX, 810, 810E and C440GX by Intel." However, the court cannot read limitations from the embodiment or the examples in the specification into the definition. Because analysis of the intrinsic evidence fails to resolve the ambiguity, the court will consider the extrinsic evidence -- most significantly, the dictionary definitions provided by the parties.

Rackable cites to five dictionary definitions in support of its construction, including: (1) a CNET.com definition (Ostapuk Decl., Exh. X); (2) Merriam-Webster's Online Dictionary (Exh. Y); (3) Free Online Dictionary of Computing (Exh. Z); (4) Microsoft Press Computer Dictionary (Exh. AA); and (5) an Answers.com definition (Exh. EE).

Supermicro cites to three different dictionary definitions in support of its construction, including: (1) Microsoft Computer Dictionary definitions of "main board" and "mother board;" (Yamashita Decl., Exh. D) (3) Dictionary of Computer and Internet Terms (Exh. F); and (4) the IEEE Standard Dictionary of Electrical and Electronic Terms (Exh. E).

Technical treatises and dictionaries are generally preferred over a definition in an ordinary dictionary based on "the principle that patents are to be construed by the hypothetical person skilled in the art." Kahrl, Patent Claim Construction, § 7.03[B], Technical Treatises (Aspen 2005 Suppl.); see also, e.g., Rambus, Inc. v. Infineon Technologies AG, 318 F.3d 1081, 1091 (Fed. Cir. 2003). "A technical treatise is more likely to provide a definition used by persons skilled in the art than an ordinary dictionary definition." Id. In defining electrical and computer terms, the Federal Circuit has employed computing dictionaries and the IEEE Standard Dictionary of Electrical and Electronic terms, as offered by Supermicro in this case. See Rambus, 318 F.3d at 1091; see also NeoMagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062, 1071 (Fed. Cir. 2002).

Here, the technical dictionaries overwhelmingly support Supermicro's construction of the term "main board," with one modification -- that the "main board" be "main" or "primary." Rackable's definition is unnecessarily complex and contains limitations on the definition of "main board" that are not universally present in the dictionary definitions.

For these reasons, the court adopts, with one addition, Supermicro's construction, and construes the term "main board" as a main circuit board that contains the primary components of a computer.

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1 "main case"

The parties dispute whether the scanner's main case necessarily contains the interface engine.

The mobile scanner disclosed by independent claim 13 comprises "a main case including an image sensing module and a motion mechanism," "an interface engine coupled to the image sensing module and the motion mechanism" and "a universal
The parties originally agreed that "main case" means "a compact case that houses the image sensing module and the motion mechanism." Doc # 36, Ex 1 at 16. Plaintiff now rejects that construction and contends that "main case" means "a compact case that houses the image sensing module, the motion mechanism and the interface engine." Doc # 58-2 at 2 (emphasis original). Plaintiff argues that the previously agreed upon construction is inconsistent with dependent claim 14, which claims "the mobile scanner of claim 13, wherein the interface engine is enclosed in the main case and communicate[s] with the computing device through the universal serial bus." '506 patent, col 12, 11 12-14.

It is true that "the usage of a term in one claim can often illuminate the meaning of the same term in other claims." Phillips, 415 F3d at 1314; see also Fonar Corp v Johnson & Johnson, 821 F2d 627, 631 (Fed Cir 1987) ("[C]onstruction of disputed claims requires reference to the specification, the prosecution history, and the other claims."). But in this context, plaintiff's argument proves too much. The fact that claim 14 specifies that the main case houses the interface engine actually militates against implying such a spatial limitation into claim 13, for it suggests that the patentee contemplated that the interface engine would not necessarily be enclosed within the main case. See Phillips, 415 F3d at 1325 ("The inclusion of such a specific limitation on the term 'baffles' in claim 2 makes it likely that the patentee did not contemplate that the term 'baffles' already contained that limitation.").

This is confirmed by dependent claim 15, which specifies that interface engine is housed in "a separate case integrated with the universal serial bus." '506 patent, col 12, 11 12-17 (emphasis added). The additional and mutually exclusive limitations of claims 14 and 15 show that the location of the interface engine was not a limitation inherent to the "main case" language of claim 13. Hence, "main case" should not be construed so as to specify the interface engine location.

Plaintiff lastly contends that its construction is appropriate because this court found in the previous claim construction order that the "interface engine is enclosed in the main case." Id at 2-3. But the court merely observed that the claim language of the '506 patent "makes clear that the interface engine is contained within the main case in some embodiments." Doc # 57 at 17 (emphasis added). This observation is entirely consistent with the conclusion that the interface engine may be housed outside the main case, a possibility that should not be foreclosed in the manner plaintiff proposes.

In sum, the court declines to construe "main case" so as to import a limitation concerning the location of the interface engine into claim 13. Because (1) the location of the interface engine vis-a-vis the main case was the sole subject of dispute and (2) the parties agree that the main case is a compact case that houses the image sensing module and the motion mechanism, the court adopts the parties' previously agreed upon construction, which is amply supported by the claims and the specification. See '506 patent, col 2, 11 13-14 (proclaiming that the disclosed scanner fulfills the need for a "compact, energy-efficient and lightweight" scanner); col 2, 11 57-61 ("The main case houses the image sensing module and the motion mechanism"); col 5, 11 41-42 (same); col 11, 11 31-40 (same).

The court construes "main case" as "a compact case that houses the image sensing module and the motion mechanism."

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1. "Main Computer" & "Remote Computer"

As was the case when the parties first briefed the construction of the '490 patent claims, many of the terms in the system claims are largely undisputed. However, the parties disagree over the construction for the first two elements of Claim 30. The first claim element reads: "a main computer including a main memory for storing variable data, constant data and a main revision status related to at least one product, the main revision status indicating the revision level of the constant data stored in the main memory …." '490 Patent, col. 25, II. 16-20. The Court will refer to the first element of Claim 30 as the "main computer" element. The second claim element reads:

- a remote computer including a remote memory for storing constant data and a remote revision status related to the at least one product, the constant data being a subset of information data related to the at least one product, the remote revision status indicating the revision level of the constant data stored in the remote computer ….
Id. col. 25, ll. 21-26. The Court will refer to the second element of Claim 30 as the "remote computer" element.

Hill asserts that both elements mean, in their entirety: "A computer that has a memory for storing data as required by subsequent limitations within the claim." Pl.'s Exh. H, Chart, Proposed Claim Construction of Pl. Charles E. Hill & Assoc., Inc., at 1 ("Pl.'s Claim Constr. Chart"). In contrast, CompuServe asserts that the "main computer" element means, in its entirety: "A computer that has a memory in which variable data, constant data, and a main revision status indicating the revision level of the constant data is stored as required by subsequent limitations within the claim." Id. Abstract, at 1. In other patent, whether system or method, "perform[] the steps of storing and maintaining variable data and constant data … in a memory of a remote computer.

Therefore, the major difference between the two proposed constructions is whether or not the main and remote computer elements require that the computer memory actually store the data referred to in the claim. The Court finds that the language of Claim 30 requires that specific types of data be stored on the main and remote computers. Therefore, the "main computer" phrase means: "a computer that has a memory in which variable data, constant data, and a main revision status indicating the revision level of the constant data is stored;" and the "remote computer" phrase means: "a computer that has a memory in which constant data and a remote revision status indicating the revision level of the constant data is stored."

Starting with the plain language of the claims, the Court notes that the elements themselves use permissive rather than compulsory language to describe the memory required of the two computers. Claim 30 states, in relevant part: "a main computer including a main memory for storing …", "490 Patent, col. 25, l. 16, "a remote computer including a remote memory for storing …" Id. col. 25, l. 21. The use of the word "for" in these phrases is permissive. In other words, the word "for" implies that the memory needs to "be capable of" the function described, rather than requiring that the memory actually perform the function described. See, e.g., Ecolab Inc. v. Envirochem Inc., 264 F.3d 1358, 1366 (Fed. Cir. 2001) (finding that the functional phrase "for ware and hard surface washing" required only that the "substantially uniform" detergent referred to "contain components capable of "ware and hard surface washing"")); Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 516, 546 (D. Del. 2001) (finding that "the functional phrase 'for coupling' … indicates only that the I/O port must be capable of being connected to an off-chip memory means and not that it is actually connected to such memory means").

But, the main and remote computer phrases in Claim 30 of the '490 patent do not exist in a vacuum. Accord Laitram Corp. v. Cambridge Wire Cloth Co. 863 F.2d 855, 858 (Fed. Cir. 1988) (finding that a claim term, "slightly greater," was not without definitional parameters found within the remainder of the claim). The remainder of the claim requires that certain types of data or information be stored in a certain computer. For example, the third element of Claim 30 requires that the system have a " means for transmitting the remote revision status from the remote computer to the main computer." 490 Patent, col. 25, ll. 28-29. This element assumes that the remote revision status is found at the remote computer. It specifically states that the structure referred to is used to transmit the revision status "from" the remote computer to the main computer. This can only happen if the remote computer stores the remote revision status. Five other claim elements, elements five through nine of Claim 30, specifically state that the data or status it references is found in a particular computer's memory. See, e.g., id. col. 25, ll. 32 - 34 ("means for selecting portions of the constant data stored in the main memory that are different from the constant data stored in the remote memory"); id. ("means for transmitting updated portions of the constant data stored in the main memory from the main computer to the remote computer"); id. col. 25, ll. 38-40 ("means for replacing portions of the constant data stored in the remote memory with the updated portions of constant data received from the main computer"), id. col. 25, ll. 41-43 ("means for transmitting variable data related to a selected product stored in the main memory from the main computer to the remote computer"); id. col. 25, ll. 45-50 ("means for integrating constant data related to the selected product stored in the remote memory with the variable data related to the selected product received from the main computer"). Therefore, the language of Claim 30, in its entirety, requires that the types of data identified be stored in the memory of either the main or remote computer, or both.

A construction for the first two elements of Claim 30 that requires that the main and remote computers store certain types of data also comports with the teachings in the specification. The Abstract delineates that the electronic catalog defined by the patent, whether system or method, "perform[] the steps of storing and maintaining variable data and constant data … in a memory of a main computer and storing constant data … in a memory of a remote computer." Id. Abstract, at 1. In other words, certain data is stored on particular computers. In addition, the abstract teaches that "[a] constant data revision status
in the memory of the main computer is then compared with a constant data revision status in the memory of the remote computer. "Id. Again, certain information is stored on certain computers.

The specification also teaches that "catalog data is stored on both the vendor's computer and the customer's computer." Id. col. 1, ll. 51-52. The specification here teaches that the vendor's computer contains variable data and the customer's computer contains all constant data. Id. col. 1, ll. 52-58. Similarly, in the Detailed Description of the Drawings section of the specification, the '490 patent teaches:

"Hard disk drive 30 of vendor's computer 12 is used to store variable data [and] constant data ...." Id, col. 8, ll. 48-49.

"Constant data … [is] stored on hard disk drive 36 of customer's computer 18." Id. col. 8, ll. 65-67.

"Variable data is stored in vendor's computer 12." Id. col. 9, ll. 40-41.

"Constant data is stored in customer's computer 18." Id. col. 9, ll. 45-46.

And, the specification, like Claim 30 itself, teaches that certain data is stored in certain computers because such data or its status is either transmitted to the other computer or is compared by the computer that stores the data or status. See, e.g., id. col. 18, ll. 31-34 (the vendor's computer compares the constant data revision status received from customer's computer with the constant data revision status on the vendor's computer); id. col. 19, ll. 49-51 (customer's computer replaces stored constant data files with updated files received from vendor's computer); id. col. 20, ll. 5-11 (vendor's computer builds a data file of variable data to transmit to customer's computer based on customer's request for certain variable data).

Hill argues that a construction that requires the main and remote computers to actually store certain kinds of data improperly imports a limitation from the specification into the claim. The Court disagrees because it is the claim language itself that provides the definitional parameters for the main and remote computer elements. The requirements that certain data be stored in the memory of either the main or remote computer is delineated in the other elements of Claim 30. Apparently, Hill recognizes this fact at some level because its proposed definitions end with "as required by subsequent limitations within the claim." Pl.'s Claim Constr. Chart, at 1. Clearly, as Hill suggests, the remaining elements of Claim 30 require that the main and remote computer memories actually store certain data. The Court finds no improper importation of a limitation from the specification. Accord Laitram, 863 F.2d at 858.

For the foregoing reasons, the Court concludes that the "main computer" phrase means: "a computer that has a memory in which variable data, constant data, and a main revision status indicating the revision level of the constant data is stored." The "remote computer" phrase means: "a computer that has a memory in which constant data and a remote revision status indicating the revision level of the constant data is stored."

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Main power source

Claims 1 and 6 of the '930 Patent contain the term "main power source." Network-1 contends that the term needs no construction or, in the alternative, means "source of main power," while Defendants contend that it means "a DC power source that provides the specified power for the data node and the low level current delivered to the access device." The parties disagree whether or not the term "main power source" is limited to DC power.

Network-1 asserts that Defendants' construction is vague as to "specified power" and limits "main power source" to be a DC power source without support in the specification for making that limitation. If the term is construed, Network-1 also asserts that its construction should be adopted because "main" and "secondary" refer to supplying power for two different operating modes. Defendants counter that, in the context of the claim as a whole, the term is restricted to a DC power source. Further, Defendants argue that Network-1's assertion that "main" and "secondary" refer to a single power-providing device with two operating modes is inconsistent with both the claims and the specification.

The claim language specifies that the main power source is "connected to supply power to the data node." '930 Patent, col.
4:17-18. Figure 3 below shows that the main power source is a source of DC power.

[SEE Figure 3 of the '930 Patent IN ORIGINAL]

In Figure 3, main power supply 70 is energized from an AC electrical outlet connection to deliver "main" power to the 8-Port Ethernet switches 68, which have secondary power sources. The words "source" and "supply" are used interchangeably in the '930 Patent as seen in Claim 4, which refers to the "source" from Claim 1 as "said . . . supply." See '930 Patent, col. 4:19, 4:44-45. Figure 1 showing Power Source 16 is not a separate embodiment of the invention, as the specification states that "Figure 3 illustrates the physical layout of components corresponding to" Figure 1, where Figure 1 is merely a "simplified schematic diagram." '930 Patent, col. 3:59-60, 2:21-25.

Network-1 attempts to construe the term broadly to include an AC electrical outlet as a "main power source," but a construction of such a breadth is inconsistent with the specification. See Wang Lab., Inc. v. Am. Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999) (stating that "[t]he usage 'preferred' does not of itself broaden the claims beyond their support in the specification" and finding that "the claims were correctly interpreted as limited" to "[t]he only embodiment described in the . . . specification"). Further, the construction of "main power source" cannot be broader than what the inventors actually invented, as determined from the scope of the disclosure in the specification. See Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001) (stating that "[a]lthough the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, . . . neither do the claims enlarge what is patented beyond what the inventor has described as the invention").

The remainder of Defendants' construction, "that provides the specified power for the data node and that the low level current delivered to the access device," is superfluous, as the information is contained in the claim itself, which specifies that power is supplied by the main power source to the data node and the low level current is delivered from the main power source. See, e.g., '930 Patent, col. 4:17-18, 4:22-23. Accordingly, the Court construes the term "main power source" to mean "a DC power source."

VI. "[M]aintain a . . . market"

Plaintiffs ask the Court to construe the term "maintain a . . . market" to mean "to continuously provide a two-sided bid and offer market for a designated product." (R. 82, Pls.' Mem. at 21.) In contrast, TRG appears to propose that the Court interpret the claim term as meaning "to make a market." (See R. 85, Def.'s Mem. at 18 ("'Maintain a currency futures bid and offer market' means to make a market for currency futures.").) The Court rejects TRG's proposed construction as it fails to shed light upon what it means to "maintain a . . . market." Merely exchanging the verbs "maintain" and "make" does not help explain what it means to "maintain a . . . market." 19

19 Further, the terms are not interchangeable as a financial dictionary draws a distinction between the two. See Barron's Dictionary of Finance and Investment Terms 316 (4th ed. 1995) (in defining "make a market," stating that a dealer who "makes a market over a long period is said to maintain a market.").
markets for certain products." (R. 85, Def.'s Mem. at 19.) Given this support, the Court finds that a person of ordinary skill in the art would conclude that Plaintiffs' proposed definition reflects the ordinary meaning of the claim term "maintain a . . . market." Accordingly, the Court construes the term "maintain a . . . market" as follows: "to continuously provide a two-sided bid and offer market for a designated product."

2. "maintain an index"

EMC argues that this term should be given its plain and ordinary meaning. Alternatively it asks the Court to construe it as: "Keep or store an index." HP proposes: "To keep an index in an existing, up-to-date state (as of repair, efficiency or validity)." HP thus seeks to include a limitation requiring the index to be kept in an "up-to-date state."

It is unclear what "up-to-date-state" would mean in the context of the claim. It is true that the claim indicates that the index is modified with use. For example, the claim language suggests that the index is updated as the storage systems store new data: the

storage systems maintain an index, said index including at least a first indicator providing an indication of whether a predetermined data element stored on said first data storage system is valid, and at least a second indicator providing an indication of whether said predetermined data element stored on said second data storage system is valid.

However, the claim language does not specify when the index is updated.

Similarly, although several portions of the written description suggest that the index is updated, the specification provides no basis for the "up-to-date-state" limitation, nor does it provide guidance as to what such language would mean. For example, the storage system controller "maintaining a list of primary data to be copied updates this list to reflect that the given primary data has been received by and/or copied to the secondary data storage system." 347:3/20-23.

[S]ince data will not be immediately synchronized between the primary and secondary data storage systems, data integrity must be maintained by maintaining an index or list of various criteria including a list of data which has not been mirrored or copied, data storage locations for which a reformat operation is pending, a list of invalid data storage device locations or tracks, whether a given device is ready, or whether a device is write -- disabled. Information must also be included as to the time of the last operation so that the data may later by synchronized should an error be detected.

347:7/22-32. Moreover, "[w]hen the primary data storage system controller disk adapter writes the data to the primary data storage device, it will reset bit 104 of the write pending indicator (JFLCI) bits." 347:7/59-62. Thus, although the specification describes a system in which indices are updated as part of the data storage on both systems, it does not include a requirement as to when such updating must or should occur. Under these circumstances, importation of a limitation requiring the index to be kept in an "up-to-date-state" could exclude the claimed invention itself if the invention's indices were not updated instantaneously.

In the absence of contrary language in the specification, a person having ordinary skill in the art would understand this term to have its plain meaning. A dictionary definition-consistent with the description of the claimed invention -- of "maintain" is "to keep in an existing state (as of repair, efficiency, or validity)." Webster's Ninth New Collegiate Dictionary. According to the plain meaning of the term, the index must be kept in a state of proper use as defined by the claim. The claim indicates that the index contains information concerning the validity of predetermined data elements. Thus, because the index generally must represent the existing states of the storage systems, it must be updated at some point after the validity of predetermined storage elements is altered.

Accordingly, the Court construes this term as "keeping -- although not necessarily instantaneously -- an index in a state of validity."

GO BACK
Lumileds argues that the phrase "maintain the luminous output of said LED (12) at a predetermined level" requires claim 1's switching power supply to adjust the current supplied to the LEDs so that their luminous output is essentially constant. Focusing solely on the meaning of the word "predetermined," Relume argues that the disputed phrase requires only that the switching power supply maintain LED light intensity at amounts that are known or modeled in advance.

The drafter's use of the word "maintain" exposes the error of Relume's construction. The idea of uniform or constant output inheres in the word's ordinary meaning. Webster's defines "maintain" as "to keep in a state of repair, efficiency, or validity: preserve from failure or decline." And it defines "predetermine" as "to settle beforehand: settle in advance." Taken together, these definitions establish that the phrase, "maintain the luminous output of said LED (12) at a predetermined level," simply means to keep the LEDs' luminous output at a level chosen beforehand.

19 Here is what this construction means in practice. Suppose the desired level of LED output chosen beforehand is two units of light. The invention of claim 1 will seek to keep luminous output at this predetermined level of two units despite fluctuations in operating temperature.

The specification does not alter this construction. It states that "the present invention relates to a new method of maintaining an essentially constant luminous output from an LED array, irrespective of operating temperature." '909, 4:42-44. It later observes that either of its contemplated sensors -- the light sensor or the temperature sensor -- "can be used to modulate the average current through the LED array to maintain essentially constant luminous output, irrespective of operating temperature." '909, 5:17-20. It also describes how the invention's preferred embodiment uses a temperature behavior model "in order to keep the luminous output of the LED array essentially constant at a predetermined level." '909, 3:66-67.

Nowhere does the specification indicate that the invention of the '909 patent has the ability to produce anything other than essentially constant LED output.

In the end, the clear language of claim 1 and the equally clear specification of the '909 patent demonstrate that Relume's construction of "maintain the luminous output of said LED (12) at a predetermined level" is incomplete and at odds with the ordinary meaning of "maintain." It is not enough, as Relume did in its response brief, to offer a definition for "predetermined" and then ignore the more important and relevant meaning of "maintain." The disputed phrase must be examined in its entirety in order to comprehend its full scope.

Accordingly, I hold that a person of ordinary skill in the art would understand the claim language "maintain the luminous output of the said LED (12) at a predetermined level" to charge the invention of claim 1 with the task of keeping, or preserving from decline, the luminous output of its LEDs at an amount chosen beforehand.

10 Dow Jones further argues that "maintaining" means "storing, in a table." Because claim 1 is a method claim, rather than an apparatus claim, a construction that limits the claim to a particular structure is only appropriate if other structures were disavowed by the applicants. Dow Jones points to language in the specification and file history which indicates that formatting data, at least in the preferred embodiment, would be maintained in "string list store 1103," a table within a database. '530 Patent, Col. 15, ll. 9-12; Decl. of Brian Rosenbloom, Ex. R., Amendment, Aug 20, 1999, at 5. Although the applicants did not disclose any other possible method for maintaining this data, none of the references cited by Dow Jones indicate that the applicants "ma[de] clear the invention does not include a particular feature," SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) or limited the scope of their claim by disclaiming...
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7. The term "maintaining" should be interpreted as follows: "preserving or keeping in a given existing condition."

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I now turn to the next disputed elements of this limitation, which are "establishing" and "maintaining" the path for the message to travel. There is really no dispute about the term "establishing." When the switch establishes a path for the message to travel, it "decides" where the message has to go. IBM puts it quite plainly: the switch sets up a path for the message to travel from the input circuit that received the message to the output circuit that was identified during the decoding process. When it does that, the switch "establishes" the path. It is fixed and will not be changed.

The word "maintains" generates considerably more controversy. As IBM notes, the parties are in agreement to a certain extent. They agree that, once the output circuit has been identified and the path established, that path may not change during the time the message is transiting (going through) the switch. By the end of oral argument, it became clear that the parties also agreed that the notion of a second message's cutting across (or interleaving) that path was inconsistent with the concept of "maintaining" the path. No other message can cut in, or ditch, the message whose path has been established once that path is established.

The parties do not agree, however, about whether two or more messages can occupy the same path at the same time. TM contends that its claim is broad enough to encompass such a situation, although I infer that a technology that would permit two messages to travel the same path at the same time has not yet been invented. IBM contends that simultaneous transmission of messages is not disclosed in the patent and that lack of exclusivity is inconsistent with the concept of "maintaining" a path for the use of our message until the entire message has passed over the wire.

The dictionary definition of the word "maintain" is "to preserve or keep in a given existing condition." Webster's II New Riverside University Dictionary 717 (1994). As no one disputes that the path in question must be kept in a state of readiness to transmit the message from the time it is established until the entire message has passed through, I find that this definition is not particularly helpful concerning the precise issue confronting me. Neither are any of the other dictionary definitions proffered by IBM in its Glossary of Terms.

I turn then to the specifications, which, as IBM observed repeatedly during the Markman hearing, are the single best guide to interpreting claim language. (Tr. of Markman Hearing at 96-97, 112, 300). The specification clearly and unmistakably states that the path established is for the exclusive use of the message. (See '773 Patent, column 2, lines 49-56, attached as Exh. C to Cmplt.) Such an interpretation is logically consistent with the notion of the path's being "maintained" for the particular message we are analyzing. It is also consistent with the notion, contained in Claim 2, that messages must be buffered (put in a waiting area, so to speak) if a path to their destination output circuit is occupied. If two or more messages could occupy the same path at the same time, there would be no need for a buffer in which to store one message while another occupies the path.

I am not persuaded by TM's argument that Claim 1 does not require exclusivity because the dependent claim, Claim 2, does not require exclusivity. Claim 2, to my reading, clearly does require exclusivity. Similarly, after reading the parties' supplemental submissions, I am not persuaded that the doctrine of claim differentiation applies here, since both Claim 1 and Claim 2 recite the words "establish" and "maintain." As IBM points out, claim differentiation presumes a difference in meaning and scope when different words or phrases are used in separate claims; it does not permit the same words to be construed differently in different limitations. See Tandon v. International Trade Commission, 831 F.2d 1017, 1023 (Fed. Cir. 1987); Slater Electric, Inc. v. Thyssen-Bornemisza Inc., 650 F. Supp. 444, 463-64 (S.D.N.Y. 1986).

I therefore accept IBM's argument and construe the word "maintaining" to require the path to be kept free for the exclusive use of a particular message.
I defer putting this construction in the precise language I will use with the jury until such time as I have come to a final decision on the one issue that still troubles me, which is the proper meaning of the word "one." The parties will have ample opportunity to critique my opening charge before it is delivered (though they should keep their comments to the clarity of the language and its consistency with this opinion, and not use that opportunity to reargue positions I reject here).

S. Maintaining

Given the definition just construed for the term "storing," it is obvious that the Court cannot accept the definition for "maintaining" offered by Hill, which is simply "preserving" or "keeping." Hill's Brf. at 22. As with the proposed definition for storing, Hill encourages the Court to drop the qualifying language from the ordinary dictionary meanings of the word "maintain." The dictionary meanings include "keeping in a state of repair, efficiency, or validity: preserving from failure or decline." Hill's Brf. at 21 (citing Webster's Unabridged Dictionary). In support of its suggestion of abbreviating the dictionary meaning, the plaintiff points to the testimony of its expert witness at the hearing, Dr. Dunsmore, who used the term "maintain" interchangeably with "keep available." Tr., Vol. I at 48-50. Dr. Dunsmore also said that the definition of "keeping in existing state of repair, efficiency, or validity" works in the context of the patent. Id. at 49-50. His testimony clearly focused on the notion of keeping all of the catalog data available on the main computer, without any reference to the process for keeping it valid.

In the context of the patent, however, the idea of keeping the catalog data in a state of validity is equally important to keeping it available. The difference is in what is done to the data once it is stored in a memory. According to Dr. Dunsmore, the main computer "has the responsibility of always having the electronic catalog information available" so that remote computers may access it as needed. Tr. Vol. I, at 48. Yet, for the system to work that task is only one-half the responsibility. The main computer is also responsible for having all of the most up-to-date information for all catalog items. This idea is communicated in the claims by the description of a main revision status "indicating the revision level of the constant data stored in the main computer." '490 Patent, Col. 21, ll. 58-61. It is also conveyed by the step of updating the remote computer data "with constant data maintained in the memory of the main computer that is different from the constant data stored in the memory of the remote computer." Id. Col. 22, ll. 5-8.

With the latter claim limitation, the Court construes a different meaning for maintain than Hill's proposed definition of merely "preserving." This meaning is further supported by language from Claim 10, in which the "constant data updating step" involves "determining updated portions of the constant data stored in the main computer that are different than the constant data stored in the remote computer." '490 Patent, Col. 22, ll. 48-53. In fact, that step clarifies the difference between the claim term "maintaining" and the term "updating" in the context of this patent. "Maintaining" necessarily involves adding, modifying or deleting electronic catalog information stored in the main computer memory so that it reflects any changes the vendor wants to communicate to its customers. Otherwise, how would the data in the main computer memory be different from that in the remote? There is no step in the patent that provides for "updating" the catalog information held in the main computer memory. Nor is there any step that specifically provides for incrementing the revision level in the main revision status. Instead, these notions are expressed in the claim term "maintain."

This finding is reinforced in the claim covering the program aspects of the invention, in which one of the five steps involves "maintaining the latest revisions of the program and a main program revision status in the memory of the main computer." '490 patent, Claim 12, Col. 23, ll. 3-5. Claim 13, which depends from Claim 12, describes the step of "determining updated portions of the program stored in the main computer that are different from the program stored in the remote computer." Id. Col. 23, ll. 18-20. These two claims echo the relationship between Claim 1, in which variable and constant data are stored and maintained in the main computer memory, and Claim 10, in which the constant data updating step involves determining updated portions of the constant data "stored" in the main computer that is different than that stored in the remote computer. The difference is that with the program claims, there is a step that suggests what is meant by the concept of "maintaining." In Claim 12, "maintaining" encompasses the act of storing the latest revisions of the program and keeping them available.

Just because the Court finds Hill's proposed definition too limited to work in the context of the patent, does not mean that Compuserve's proposed definition should be adopted. It is the court's responsibility to independently construe the claim
terms, in the context of the claim language, the specification and the prosecution history -- not merely adopt one proposed definition or the other. See Markman I, 52 F.3d at 979 ("the court has the power and obligation to construe as a matter of law the meaning of language used in the patent claim."). CompuServe suggests that "maintaining means that when constant data changes, the main computer is updated to reflect these changes, including incrementing the main constant data revision level." Def's Brf. at 23. That definition includes more detail than is necessary to accurately express the meaning of the word "maintain" in this patent.

In fact, CompuServe's proposed definition narrows the meaning of "maintain" to include only action taken in connection with constant data. Such a definition would contradict the first step listed in Claim 1, which describes "storing and maintaining variable data and constant data" in the main computer. '490 Patent, Col. 21, ll. 57-58 (emphasis added). It would also be inconsistent with usage of "maintaining" in Claim 12 in reference to "the latest revisions of the program," Id., Col. 23, ll. 3-5 (emphasis added). CompuServe is correct in identifying that the word "maintain" refers only to action taken with respect to data or programs on the main computer, yet this recognition does not dictate that maintaining means only updating constant data when it changes and incrementing the main constant data revision level. See Def's Brf. at 23. Instead, what is clear is that the act of "maintaining" is only taken with respect to data or programs contained in the main computer.

The specification provides that when changes in the variable data occur, those changes are entered into the main computer, '490 Patent, Col. 1, ll. 65-66, but it does not specifically describe the act of changing constant data and incrementing the main revision status to reflect such changes. Instead, it uses the word "maintain." Without a doubt, the act of changing constant data in the main computer must have occurred for there to be differences between the constant data and revision status stored in the main computer and the constant data and revision status stored in the remote computer. Consequently, the claim term "maintaining" provides the "hook" for linking this concept to the claims. It must be defined so that it contemplates the act of revising constant data and incrementing the revision status, as well as keeping the results available. Because Claim 1 includes the step of "maintaining variable data and constant data," the term maintaining must also be defined to cover the act of revising variable data to reflect the latest information. This conclusion is further supported by the prosecution history, which described the vendor updating both constant and variable data on the main computer "immediately after change is made to a catalog item." Plf's Ex. 93, Prosecution History, Tab 6 at 4, Tab 9 at 6. Thus, the Court finds that the better definition for "maintaining" is "keeping the most current information available" for whatever item is designated.

Each time the word "maintain" is used in the patent, substituting the phrase "keep the most current information available" works without changing the idea being expressed in the sentence. For example, in Claim 1, substituting the phrase in the first step results in: "storing and [keeping the most current information available for] constant and variable data." The phrase adequately captures the notions about what happens to the data in the main computer. Changing the constant data to make it current is a necessary condition for there to be a revision status at the main computer reflecting the revision level of the data stored in the main computer, and for constant data in the memory of the main computer to be different from and useful for updating the constant data in the remote computer.

Claims 12, 27 and 33 refer to a step or means for "maintaining [keeping the most current information available for] the latest revisions of the program." The specified step or means facilitates the language in the remainder of the claim referring to the program revision status and the step of updating the program stored in the remote with the program stored and maintained in the main computer. In either case, the meaning provided for this term by the Court works to convey the idea necessary to be consistent with the patentee's intention and the objectives of the invention: access to up-to-date information or reduction of computer on-line time. In sum, the appropriate definition for the claim term "maintaining" is "keeping the most current information available."

1. Maintaining a Currently Displayed Frame (Claim 1)/Maintain A Currently Displayed Frame (Claim 8)

Matsushita argues "maintaining a currently displayed frame"/"maintain a currently displayed frame" should be construed as "continuing to display a frame being displayed as this step starts," or, alternatively, "continuing to display a frame displayed after receipt of the manually inputted signal." Mediatek argues "maintaining a currently displayed frame"/"maintain a currently displayed frame" should be construed as "continuing to display the same picture frame that is being displayed at
the time the manually inputted signal is detected."

The Court finds, for the reasons stated by Mediatek, that "maintaining a currently displayed frame"/"maintain a currently displayed frame" is properly construed as "continuing to display the same picture frame that is being displayed when the manually inputted signal is detected." 3

3 At the claim construction hearing, Mediatek suggested the substitution of "when" for "at the time" to alleviate Matsushita's concerns that Mediatek's initial proposed construction would require simultaneity. This modification is supported by the specification. See, e.g., '475 Patent, col. 10, II. 60-66 ("[I]n the first embodiment, passing data through to the input buffer memory 102 is inhibited when change of program is detected, and simultaneously all the data in the input buffer memory 102 is erased while the display picture deciding means 106 is controlled to maintain the display picture at this time.") (emphasis added).

1. Maintaining data succession (claim 2)

Plaintiff's construction: "When recording after the pause, writing to the disc in a manner such that the user's information is readable when the disc is subsequently played back."

Defendants' construction: "maintaining logical continuity of data (i.e., no dummy data) and physical continuity of data, within a tolerance of 2 clock bits, across said first point."

The specification defines "data succession" as "continuity of data." '755 Patent, col. 1, ln. 44. It is not restricted to a particular type of continuity and continuity is not defined further. This suggests that continuity is meant in a general sense in that the data picks up where it left off, in all relevant respects.

This makes sense when reading the claim as a whole. According to claim 2, when the buffer becomes low on information, the recording is stopped "at a first point on said optical disk." '755 Patent, col. 9, Ins. 5-9. Once the buffer is sufficiently refilled, recording is restarted "while maintaining data succession across said first point on said optical disc." '755 Patent, col. 10, Ins. 1-4 (emphasis added). Thus, the context of "data succession" indicates that it means there is no break in the data at the point the recording is paused; again, the data resumes where it left off.

I decline to read into the claim defendants' distinction between "logical continuity" and "physical continuity." Neither of these terms is found in the patent. As is demonstrated by the parties' stark differences in understanding those terms, they do nothing to clarify the meaning of the claim; if anything, they make it more complicated. It is sufficient to say that "data succession" is the "the continuity of data."

Also, defendants' suggestion to incorporate the concept of "dummy data" is misplaced. "Dummy data" is mentioned multiple times in the patent, but not as a part of a definition of "data succession." Rather, the patent explains that if dummy data is written, data succession cannot be maintained. '755 Patent, abstract ("a write operation may be paused without writing data dummy data, thereby maintaining data succession"); id. at col. 1, Ins. 44-46 ("Continuity of data, or data succession, is lost by inserting and writing dummy data."). In other words, an absence of dummy data is a cause of data
succession, but the two concepts are not interchangeable.

The second dispute relates to the meaning of "maintaining." Plaintiff proposes a functional definition, which is that data succession is preserved enough to allow the disk to be read when it is played back. Defendants say that it requires a tolerance of no more than "2 clock bits." In support, defendants point to the following passage in the patent: "It is necessary, as shown in FIG. 6, to write succeeding data within a +/-2 bit clock error." ’755 Patent '755, col 6, Ins. 17-18.

In its briefs, plaintiff said that defendants were attempting to improperly import a description of a preferred embodiment into a claim, but the passage is written as more than a description of an embodiment. First, the passage says that the +/-2 clock bit level of tolerance is "necessary," indicating that it is a requirement rather than a preference or illustration. Further, it does not say that this level of accuracy is required in FIG. 6 only. Rather it says the requirement is "shown in FIG. 6," suggesting that it is a general requirement of which FIG. 6 provides one demonstration. Thus, this passage from the specification is like the one in Andersen Corp. 474 F.3d at 1367, in which the court held that it was proper to read in a limitation from the specification because the specification stated that the limitation was "require[d]."

At the hearing, plaintiff focused almost exclusively on another argument: the cited passage does not relate to data succession, but to data synchronization, which plaintiff says is not an issue to which the invention is directed. The problem with this argument is that it appears to be directly contrary to the passage, which addresses the tolerance for errors "to write succeeding data." Further, the description of Fig. 6 (the figure that shows the 2 bit clock tolerance level) states that the figure demonstrates how data is written "according to the present invention," ’755 Patent, col. 3, ln. 65, so plaintiff is incorrect that the required 2 clock bit tolerance level is not related to the invention.

Accordingly, I will adopt defendants' proposal with respect to the tolerance level, but I will not adopt their suggestion to include "physical" and "logical" continuity in the construction.

Court's construction: "maintaining continuity of data within a tolerance of 2 clock bits"

3. Maintaining said encoded information (claim 1)

Plaintiff's construction: "When a recording operation on a recordable or rewritable optical disc is paused, preserving information that was encoded before the pause but not yet written to the disc"

Defendants' construction: "keeping the encoded data in the encoder and the recording circuit so that all encoded data at the time of pausing of the transfer is not lost, replaced or substituted"

The focus of the dispute for this term is what it means to "maintain." Plaintiff objects to two aspects of defendants' proposed construction: (1) it requires that encoded data be kept in the encoder; and (2) it prohibits any data from being lost, replaced or substituted.

With respect to the first part of defendants' construction, the claim itself is silent as to whether data must be "maintain[ed]" with respect to location or whether it is only the form of the data that is kept the same. At the hearing, plaintiff said that specification makes it clear that the claim does not require the data to remain in the encoder and recording circuit, pointing to a figure that shows that the information is kept in the random access memory. Vitronics Corp., 90 F.3d at 1583-84 (claim should be construed to include embodiments). Defendants' only response to this was the following statement: "I would, I guess to some extent, perhaps agree with them, although I would suggest that the [random access memory] that was pointed out as where the data was maintained would probably be considered part of the encoder and the recording circuit." Dkt. # 186, at 79. However, defendant offered no argument why the random access memory should be considered part of the encoder or the recording circuit. In fact, defendants offered no argument in their briefs or at the hearing defending their view on this issue. Accordingly, I reject defendants' suggestion to import a location restriction into the claim.

I may quickly reject the second aspect of defendants' proposed construction because it requires that the data be kept in the exact same form. As is acknowledged by defendants in the context of their proposed construction on "maintaining data
succession," the meaning of "maintaining" in the '755 patent allows some room for errors. Thus, any construction requiring perfection is inconsistent with the patent. Further, the patent does not place a specific tolerance level on encoded information, making a functional definition appropriate.

Curiously, plaintiff does not propose such a definition, as it did with respect to "maintaining data succession." Instead, it simply replaces "maintaining" with "preserving," which adds nothing to the understanding of the claim. However, at the hearing, plaintiff agreed that it is seeking a functional definition. Therefore, I will adopt plaintiff's proposed construction for "maintaining data succession" and adopt it for "maintaining encoded information."

Court's construction: "keeping the encoded information such that it is readable when the disc is subsequently played back"

BACKGROUND

The '511 patent discloses a brown-out detection scheme that resets the microcontroller when the power supply voltage drops below the brown-out detection threshold to avoid malfunction. See '511 patent, col. 3, ll. 1-6. Asserted claim 12 of the '511 patent recites:

In a microcontroller device fabricated in a semiconductor integrated circuit (IC) chip for controlling an external system with which the device is to be installed in circuit, and having a central processing unit (CPU), a program memory for storing program instructions to be implemented by the CPU, a data memory for storing data including data pertaining to parameters of the external system to be controlled by operation of the CPU according to said instructions, means for providing a supply voltage to operate the IC chip, said supply voltage being defined by a voltage level relative to a ground reference level; a device-implemented method of brown-out protection comprising the steps of monitoring the supply voltage level relative to the ground reference level to reset said device as protection against malfunction thereof in response to reduction of an arithmetic difference between the supply voltage level and the ground reference level to a value less than a predetermined threshold operating voltage level, wherein reset defines a cessation of operation of the device while maintaining status quo of implementation of program instructions by the CPU and data stored in the data memory; discriminating between a reduction representative of a brown-out event warranting invoking a reset of said device and a reduction representative of mere transitory voltage swings commonly occurring in the device operation not warranting invoking a reset of said device, and suppressing a reset of said device when the reduction of the difference between the supply voltage level and the ground reference level represents a transitory voltage swing not warranting invoking a reset, whereby to avoid both malfunctions and unnecessary resetting of the device in control of the external system.

Microchip develops 8-bit microcontrollers, which serve as the "brains" of a broad range of consumer and industrial applications. Microchip is the assignee of the '511 and '557 patents, which relate to such microcontrollers.

In August 1997, SSI introduced its SX microcontroller, which is "socket and object code compatible" with Microchip's PIC16C5x series microcontroller. Parallax is a third-party development tool provider for the SX microcontroller.

On October 27, 1997, Microchip filed suit against Scenix, alleging that SSI's SX microcontroller infringed its '511 and '557 patents, among others. On March 27, 1998, Microchip filed a motion for an order preliminarily enjoining Scenix from making, using, selling, or offering for sale certain SX-series microcontrollers that allegedly infringed claims 1 and 12 of the '511 patent and claim 2 of the '557 patent. On April 13, 1998, the district court issued an order deferring its decision on Microchip's motion until it conducted a Markman hearing, which the court subsequently held on May 27, 1998.

On August 7, 1998, the district court issued its claim construction ruling with respect to claims 1 and 12 of the '511 patent and claim 2 of the '557 patent, and sua sponte certified this ruling for immediate interlocutory review. See Microchip Tech., Inc. v. Scenix Semiconductor, Inc., No. C-97-3923 (N. D. Cal. Aug. 7, 1998) ("Microchip I"). On August 17, 1998, both Microchip and Scenix petitioned for interlocutory review by this court of the district court's claim construction ruling. On September 8, 1998, we denied these petitions, stating:

The matter of Microchip's entitlement to a preliminary injunction has not been decided by the district court. After the
district court issues its decision granting or denying an injunction, the losing party can appeal under 28 U.S.C. § 1292(a)(1). We deem the appropriate course is to review the district court's pretrial claim construction decision in the context of any appeal of a preliminary injunction.


On December 14, 1998, Microchip filed a new motion for a preliminary injunction based solely upon claim 12 of the ‘511 patent. On February 12, 1999, the district court denied Microchip's motion, relying upon its earlier claim construction ruling. Microchip Tech., Inc. v. Scenix Semiconductor, Inc., No. C-97-3923 (N.D. Cal. Feb. 12, 1999) ("Microchip III"). The district court determined that, because the SX microcontroller did not preserve data when the power drops below two volts, it was unlikely to satisfy the "reset" element of claim 12. See id., slip op. at 11. Consequently, the district court concluded that Microchip was unlikely to prevail on its contention that the SX microcontroller infringed claim 12. See id. The district court further found that Scenix had raised a substantial question as to whether claim 12 was invalid as anticipated by U.S. Patent No. 5,237,699 ("the Little patent"). See id., slip op. at 16-17. The district court determined that Scenix had failed to raise a substantial question as to whether claim 12 was invalid either as obvious in view of the National Semiconductor COP820CJ microcontroller and the knowledge of one of ordinary skill in the art or for failure to disclose the best mode of practicing the claimed invention. See id., slip op. at 17-27.

Microchip appeals the district court's February 12, 1999 denial of its motion for a preliminary injunction. Microchip also contests the district court's August 7, 1998 claim construction of claims 1 and 12 of the ‘511 patent and claim 2 of the ‘557 patent. Scenix cross-appeals, challenging the district court's claim construction of claim 12 of the ‘511 patent and its determination that Scenix had failed to raise a substantial question regarding its obviousness and best mode defenses. The parties submitted this appeal and cross-appeal for our decision following oral argument on April 3, 2000. We have jurisdiction pursuant to 28 U.S.C. § 1292(a)(1) (1994).

DISCUSSION

To obtain the extraordinary relief of a preliminary injunction, the moving party must establish that: (1) it has a reasonable likelihood of succeeding on the merits; (2) it will suffer irreparable harm if the injunction is not granted; (3) the balance of hardships tips in its favor; and (4) an injunction would be consistent with the public interest. See Nutrition 21 v. United States, 930 F.2d 867, 869, 18 U.S.P.Q.2D (BNA) 1347, 1348-49 (Fed. Cir. 1991). To overturn the denial of a preliminary injunction, the patentee must show that the district court "abused its discretion, committed an error of law, or seriously misjudged the evidence." Smith Int'l, Inc. v. Hughes Tool Co., 718 F.2d 1573, 1579, 219 U.S.P.Q. (BNA) 686, 691 (Fed. Cir. 1983). We review de novo the district court's claim construction underlying its denial of a preliminary injunction. See Bell & Howell Doc. Management Prods. Co. v. Altek Sys., 132 F.3d 701, 705, 45 U.S.P.Q.2D (BNA) 1033, 1037 (Fed. Cir. 1997).

I. Claim 12 of the ‘511 Patent

In its August 7, 1998 claim construction ruling, the district court construed the claim limitation that the "reset . . . maintain the status quo of implementation of program instructions by the CPU and data stored in the data memory" to require that:

When the device is reset, the CPU stops executing instructions and is placed into a known initial state so that when the device comes out of reset, the CPU can begin executing the program instructions from a known point in the program memory without risk of malfunction. When the device is reset the existing data in the data memory is preserved, and is not modified or altered.

Microchip I, slip op. at 40, 42. In light of this interpretation, the district court determined that Microchip was unlikely to prove that Scenix infringed claim 12 either literally or under the doctrine of equivalents, since the SRAM that the SX microcontroller used for data memory did not retain data if the power dropped below two volts during a brown-out condition. See Microchip III, slip op. at 11.

Microchip contends that the district court erroneously interpreted "reset" as requiring that the microcontroller actively "preserve" the data in the data memory. According to Microchip, the district court should have construed "reset" according
to the understanding of one of ordinary skill in the art, who, Microchip maintains, would view the reset circuitry of the claimed microcontroller as passively leaving the data memory unmodified.

Microchip argues that the written description of the '511 patent fails to support the district court's "preservation" requirement. Because claim 12 begins with the phrase "in a microcontroller device fabricated in a semiconductor integrated circuit (IC) chip," Microchip contends that such active preservation circuitry would need to be found on the microcontroller itself. Yet the '511 patent discloses no method for backing up the data to non-volatile memory or for using a battery to prevent the loss of the power supply voltage, and in fact fails to even mention the word "preserve." Microchip further argues that the district court's "preservation" requirement violates a basic tenet of claim construction law by rendering claim 12 invalid for failure to satisfy the written description requirement of 35 U.S.C. § 112, P 1. See Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1557, 37 U.S.P.Q.2D (BNA) 1609, 1617 (Fed. Cir. 1996). Because the allegedly infringing SX microcontroller maintains the data in data memory if the supply voltage exceeds two volts, Microchip contends that Scenix must infringe.

We hold that the district court correctly construed "reset" as preserving the data in the data memory, and thus appropriately denied Microchip's motion for a preliminary injunction. First, claim 12 expressly recites "maintaining . . . data stored in the data memory." The plain language of claim 12 does not limit such data maintenance only to brown-out conditions in which the supply voltage remains above the minimum operating voltage of the data memory. See National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1195, 49 U.S.P.Q.2D (BNA) 1671, 1675 (Fed. Cir. 1999) (refusing to adopt construction of claim limitation that would apply "only some of the time"). Additionally, had the inventor intended "reset" only to passively retain the data in the data memory (and thus essentially do nothing to the data memory), the claim language "maintaining . . . data stored in the data memory" would hardly have been necessary.

Second, the written description clearly supports this preservation requirement. The written description states:

Reset causes operation of the device to be halted while the status quo of implementation of program instructions by the CPU and data stored in the data memory is maintained as it was at the time of occurrence of the reset.

A power-up timer responds to a supply voltage fluctuation at a second point in time, at which the other sample value establishes when a reset should be terminated, to maintain the device in reset condition for a predetermined time interval, and thereafter restores device operation at a point corresponding to the status quo at which the reset was initially invoked.

'511 patent, col. 3, ll. 6-10, 34-40 (emphasis added). Were the data in the data memory not actively preserved during a reset, a user of the claimed microcontroller would not be able to rely upon the data in the data memory when the operation of the device was restored "at a point corresponding to the status quo at which the reset was initially invoked," since a temporary drop in the supply voltage below the minimum retention voltage of the data memory could cause the corruption (if not the deletion) of data in the data memory.

Finally, although Microchip argues that we should construe claim 12 to preserve its validity, we may not judicially rewrite the claim to do so. See Rhine v. Casio, Inc., 183 F.3d 1342, 1345, 51 U.S.P.Q.2D (BNA) 1377, 1378-79 (Fed. Cir. 1999). In view of the plain meaning of "maintain" and the brown-out detection feature's overall purpose of avoiding microcontroller malfunction, the "reset" element of claim 12 must actively preserve the data in the data memory. We render no opinion on whether the '511 patent actually complies with the written description requirement of 35 U.S.C. § 112, P 1.

Because the district court correctly construed the term "reset" as preserving the contents of data memory, it did not abuse its discretion, commit legal error, or seriously misjudge the evidence in determining that Microchip was unlikely to succeed on its infringement claims regarding claim 12 and thus in denying Microchip's requested preliminary injunctive relief. Both parties agree that the SX microcontrollers use volatile SRAM for data memory, which retains data during a brown-out condition only if the power remains above two volts. Consequently, the district court correctly found that the SX microcontroller does not effect a "reset [that] maintains data in the data memory."

Given that our interpretation of the "reset" element of claim 12 as preserving the data in data memory provides a sufficient basis for affirming the district court's denial of Microchip's motion for a preliminary injunction, we expressly decline to
reach the parties' other arguments regarding the proper construction or possible invalidity of claim 12, and dismiss Scenix's cross-appeal as moot.

**2565**

The district court's noninfringement ruling with respect to claims 1 and 13 was predicated on its interpretation of the "maintaining updated sums" limitation in the two claims, which addresses how a seamless DWT of the image is formed. The district court construed that limitation to mean "summing the DWT coefficients of one tile together with overlapping DWT coefficients from one or more adjacent tiles." Both parties agreed with that construction.

As explained by the district court, the ER Mapper fails to meet the "maintaining updated sums" limitation when it forms a seamless DWT of an image because overlapping DWT coefficients are never added together. Instead, the ER Mapper uses the fact that wavelet transforms are linear. The ER Mapper forms a seamless transform of the image by first calculating the DWT coefficients in the row direction for all the pixels in that row. That process is then repeated for all the rows in the image. After the DWT coefficients are calculated for the rows, the ER Mapper proceeds to take the DWT of those coefficients for the columns. The result is the full set of two-dimensional DWT coefficients for the entire image. The ER Mapper solves the memory problem faced by the prior art because it only needs to load one row or column of the image into memory at once. Furthermore, the method used by the ER Mapper creates no edge artifacts because it uses no artificial internal boundary conditions in creating the DWT coefficients.

LizardTech maintains that after it agreed to the district court's claim construction, the court materially altered that construction by changing the meaning of the word "overlapping." According to LizardTech, the court's "new" construction does not comport with the '835 patent's specification and is incorrect. Specifically, LizardTech argues that the only place the term "overlapping" is used in the district court's claim construction order is where the court agreed with the special master that "in the context of the '835 patent [maintaining updated sums] includes summing overlapping DWT coefficients from two adjacent tiles [where] the adjacent tiles would be abutting, or side by side, but their respective DWT coefficients overlap because of the expansive nature of the transform explained earlier." LizardTech contends that the district court changed that definition of overlapping in its order granting summary judgment of noninfringement when it adopted the position that overlapping meant "that certain tile coefficients overlap those of a neighboring tile; in other words, image data from both tiles (or at least some data near the border) contribute to the DWT coefficients."

Contrary to LizardTech's assertions, we discern no change in the district court's claim interpretation. In the context of the '835 patent, "maintaining updated sums" means "summing the DWT coefficients of one tile together with overlapping DWT coefficients from one or more adjacent tiles." Overlapping in that context can only mean that the DWT coefficient at a given position, obtained from the data in one tile, is added to the DWT coefficient at the same position, obtained from the data in an adjacent tile. As explained above, that process is the basis for forming a seamless DWT in the '835 patent, see '835 patent, col. 6, ll. 6-13, and that process was clearly encompassed by the court's claim construction from the start. LizardTech agreed to the district court's construction at the time, and it cannot now argue against that claim construction simply because it resulted in an adverse ruling on summary judgment. See ArthroCare Corp. v. Smith & Nephew, Inc., 406 F.3d 1365, 1376 (Fed. Cir. 2005).

Furthermore, the district court's construction of the "maintaining updated sums" limitation comports with the claim language and the specification. Claim 1 specifically provides that "DWT coefficients from said discrete tile image $T_i(x,y)$" are added together to "form a seamless DWT of said image." '835 patent, col. 11, ll. 54-56. Claim 13 similarly provides that "DWT coefficients from said discrete tile image $T_i(x,y)$" are added together to "form a seamless DWT of said $I(x,y)$." That is the equivalent of saying that DWT coefficients derived from one tile are added together with overlapping DWT coefficients from one or more adjacent tiles or, as the district court put it, "image data from both tiles (or at least some data near the border) contribute to the DWT coefficients." Claims 5-8, which depend on claim 1, further support the district court's claim construction. Those dependent claims specify exactly which tiles are the source of the DWT coefficients that are added together. For instance, claim 5 requires "retrieving updated sums of DWT coefficients from $T_i-1(x,y)$ and $T_i-1(x,y)$ and adding to coefficients for $T_i(x,y)$." The specification also supports the court's construction of the "maintaining updated sums" limitation. In the summary of the invention, the patent states:

A seamless wavelet-based compression process is effected on $I(x,y)$ that is comprised of successively inputting the tiles
T\(ij(x,y)\) in a selected sequence to a DWT routine, adding corrections that are passed from previous invocations of the DWT routine on other \(Tij(x,y), \ldots\) [which] can be viewed as an "overlap-add" realization of the DWT.

Id., col. 2, ll. 51-63. In other words, the DWT coefficients from one tile are added to the DWT coefficients calculated from another tile to create the seamless DWT.

In response, LizardTech argues that the special master's original construction contemplated that if DWT coefficients were generated from adjacent tiles, the DWT coefficients necessarily "overlapped." According to LizardTech, that meant that when ER Mapper calculates DWT coefficients in the row-wise direction, the resulting coefficients "necessarily" overlap with the DWT coefficients of the adjacent row. That argument, however, fails as a matter of logic. In the '835 patent, the reason that the DWT coefficients derived from two tiles overlap is because the patented method calculates DWT coefficients beyond the boundary of the tile, creating an "expansive transform."'835 patent, col. 7, ll. 42-44. That does not necessarily have to be the case. In fact, the ER Mapper calculates DWT coefficients only for locations within the tile, which in the case of the ER Mapper happens to be a single row or column. See LizardTech, 35 Fed. Appx. at 926. As one expert noted, in most cases DWT coefficients are calculated only for positions within the image, and it is readily apparent how to do so: in calculating DWT coefficients, the center of the filter is always placed within the boundary of the image. While the algorithm described in the '835 patent corrects boundary effects by calculating DWT coefficients outside the tile based on information inside the tile, that does not imply that DWT coefficients are always calculated outside the tile in every algorithm. In sum, merely because the coefficients between tiles in the '835 patent "necessarily" overlap does not mean that coefficients calculated by ER Mapper necessarily overlap.

Alternatively, LizardTech contends that ERM infringes even under what it considers the district court's erroneous claim construction. LizardTech's argument is based on the fact that after the ER Mapper calculates the DWT of the image rows, it then calculates the DWT of the resulting coefficients of the image columns. As explained above, what that means is that the DWT coefficients derived from the rows are multiplied against the low-pass and high-pass filters and are then summed together. According to LizardTech, that process falls within the district court's construction of "summing the DWT coefficients of one tile together with overlapping DWT coefficients from one or more adjacent tiles," while "image data from both tiles (or at least some data near the border) contribute to the DWT coefficients." In other words, the summation that is inherent in taking a DWT satisfies the "maintain updated sums" limitation of the '835 patent.

The problem with LizardTech's argument is that "the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005). In this case, there is no evidence that a person of skill in the art would consider the limitation of maintaining updated sums of DWT coefficients to include the altogether distinct process of taking a DWT; the two are entirely different concepts and procedures. As ERM's expert explained, "the adding required by the 'maintain updated sums' step claimed in the '835 patent should not be confused with the mathematics inherent in the prior art DWT process."

The claim language bears out that distinction. Claim 1 states that part of the claimed process is "performing one or more discrete wavelet transformation (DWT)-based compression processes on each said tile image." The claim then sets forth the entirely separate process of "maintaining updated sums of said DWT coefficients." Claim 13 contains similar language. Other portions of the patent also delineate the difference between taking a DWT and maintaining updated sums of DWT coefficients. For example, in Figure 5, which depicts a flow chart for the patented algorithm, the DWT is placed in one block while the procedure for maintaining updated sums is assigned a separate block. See also '835 patent, col. 7, ll. 31-53. The distinction between adding coefficients and performing a DWT is maintained throughout the specification as well. See, e.g., id., col. 2, ll. 54-57. In conclusion, the patent clearly uses the terms "DWT" and "maintaining updated sums of said DWT coefficients" differently. Simply because the DWT procedure entails the process of addition does not mean that a person of skill in the art would refer to the two processes interchangeably. Because the ER Mapper does not add overlapping DWT coefficients from one or more adjacent tiles together to form a seamless DWT, we affirm the district court's grant of summary judgment of noninfringement with respect to claims 1 and 13.

We also reject ERM's second alternative ground for affirmance. ERM submits that the ER Mapper does not meet the claim limitation of "maintaining updated sums of said coefficients." Simply put, ERM argues that this limitation describes a
function (maintaining updated sums) "without the recital of structure, material, or acts in support thereof," thus restricting the scope of the limitation to the specific structure disclosed in the specification pursuant to 35 U.S.C. § 112, P6. See Serrano v. Telular, Corp., 111 F.3d 1578, 1583, 42 U.S.P.Q.2D (BNA) 1538, 1542 (Fed. Cir. 1999). ERM argues that the only example of "maintaining updated sums" provided in the specification involves processing tiles using DWT coefficients from previously processed tiles, and it asserts that its process neither breaks the image into "tiles" (since it utilizes single rows of pixels) nor uses coefficients from subparts in which the DWT process is complete. Instead, the ER Mapper maintains coefficients obtained from part of the DWT process.

ERM's argument is flawed. First, the claim limitation "maintaining updated sums of said coefficients," far from reciting a function without specific acts, appears to delineate an act ("maintaining updated sums of said coefficients") that helps achieve the desired purpose of "forming a seamless DWT." ’835 patent at col. 11, ll. 54-56. We therefore hold that the claim limitation at issue does not, as a matter of law, implicate section 112, paragraph 6, and it is not limited accordingly. See Personalized Media Communications, Inc. v. Int’l. Trade Comm’n, 161 F.3d 696, 702, 48 U.S.P.Q.2D (BNA) 1880, 1886 (Fed. Cir. 1998) ("Whether certain claim language invokes 35 U.S.C. § 112, P6 is an exercise in claim construction and is therefore a question of law . . . .").

9. "include the majority of the unscrambling circuit" and "include the essential portion of the unscrambling circuit"

Claim 10 states that "the key elements of the unscrambling circuit are on a card and include the majority of the unscrambling circuit. . . ." Claim 11 states that "the key elements of the unscrambling circuit are on a card and include the essential portion of the unscrambling circuit. . . ." The plaintiff contends that "majority" in claim 10 needs no construction and that "essential portion" in claim 11 means important parts. The defendants argue that the terms are indefinite under 35 U.S.C. § 112, P 2.

The specification describes in detail the invention claimed, and I have summarized the relevant description in Part 3.B.10 above, where I construe "substantially replaceable" and "differing unscrambling circuits." The nub of the defendants' argument merely rehashes what has come before.

As for "majority," EchoStar argues:

This lack of clarity is compounded by no disclosure of whether the "majority" of the unscrambling circuit refers to a measure of the physical amount of circuitry (e.g., 51%), or to that portion of the unscrambling circuit that performs the majority or most important aspects of the unscrambling function.


One of ordinary skill in the art would understand the term "the majority of the unscrambling circuit," when read in light of the rest of the specification, to include either the amount of circuitry or the portion of the circuitry that performs the majority or most important part of the unscrambling function. The point is that only by inserting the presently activated user card, with its circuitry in combination with either the contacts of the decoding box or the contacts and the circuitry of the decoding box, is the unscrambling means able to unscramble the signal.

"Majority" as used in claim 10 is not indefinite and requires no further construction.

"Essential" has an ordinary meaning of "indispensable." The American Heritage Dictionary of the English Language, at p. 448. I construe the term "essential portion of the unscrambling circuit" to mean the indispensable portion of the entire circuit that restores a modified signal to its unmodified condition.
9. Claim 10: Step (a)

Text:

making a first image of the organ with respect to a first coordinate system using a first imaging device;


ZMED's Proposed Construction:

Making an image or rendering of the organ of interest. This could be done by use of a CT scan or an MRI. The image is taken with respect to a first coordinate system, for example, the coordinate system of the first imaging device, a point in the room contain the first imaging device or the radiation therapy plan.

ZMED Opening Brief at 12.

NOMOS's Proposed Construction:

The specification describes the step of making a first image as "making at least one 3D image of the organ and of its surface or of the surface of the skin region with the first imaging device." The "first imaging device" should be construed to mean a CT or MRI device that makes three-dimensional images of an organ in a patient's body.

NOMOS Opening Brief at 22 (citations omitted).

NOMOS agreed at oral argument with the ZMED construction up to the point at which ZMED describes the second coordinate system, "for example, the coordinate system of the first imaging device, a point in the room contain the first imaging device or the radiation therapy plan." Oral Argument at 86-87.

Construction:

Step (a) of claim 10 means "making a three-dimensional rendering of the organ of interest. This may be done by use of a CT or a MRI device. The rendering is taken with respect to a first coordinate system."

Commentary:

As with claim 1 of the '154 patent, the additional detail that ZMED seeks, "for example, the coordinate system of the first imaging device, a point in the room contain the first imaging device or the radiation therapy plan," is unnecessary and not within the claim language, and therefore is omitted.

As to whether the "first image" is two-dimensional or three-dimensional, the parties have not focused their arguments on this issue in claim 10 in step (a). I find that the "first image" should be a three-dimensional rendering, as explained in detail in claim 10, step (e), of the '154 patent below.

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5. Claim 1: Step (d)

Text:

making a second image with said second imaging device, the second image corresponding to a cloud of points of the surface of the organ or skin region;

ZMED's Proposed Construction:

Using the second imaging device (e.g., the ultrasound probe) to make an image showing the organ.

ZMED Opening Brief at 9.

NOMOS's Proposed Construction:

While the vague and ambiguous term "cloud of points" is not defined at all in the '154 patent, the "second image corresponding to a cloud of points" of step (d) must be construed to be a "3D image." Moreover the specification of the '154 patent supports the interpretation of the "second image corresponding to a cloud of points" as being a "3D image."

Particularly, the specification describes the second image as a 3D image generated by either (1) an echography probe where the 3D image sought is that of a cloud of surface points of an organ, or (2) a non-contact 3D surface imaging device where the image sought is of a skin region. Therefore, when construed in light of the specification, the second image that is specified in step (d) of claim 1 is a 3D image.

NOMOS Opening Brief at 20-21 (citations omitted).

Construction:

Step (d) means "using the second imaging device (e.g., the ultrasound probe that takes two-dimensional images) to make a three-dimensional rendering showing the organ."

Commentary:

Analysis begins with the claim language. As the parties acknowledge, "the second image corresponding to a cloud of points of the surface of the organ or skin region," is ambiguous. Therefore, reference to the specification must be made.

The specification, unfortunately, is jumbled. On the one hand, it indicates that the ultrasound probe takes images in a "plane" and "a viewing plane." '154 Patent, col. 3, l. 60; col. 5, ll. 22-23. By definition, images of planes or viewing planes are two-dimensional. But on the other hand, the specification repeatedly refers to the second image as a "3D morphologic image." '154 Patent, col. 3, ll. 21, 24, and 35.

However, some clarification may be derived from the specification:

One of the originalities of the invention lies in the use of a device that does not provide functional information but only images of surface points to serve as an intermediate device operable for matching different coordinate systems. In particular, the idea of using an echography [ultrasound] probe to carry out this coordinate alignment is one of the aspects of the invention since, a priori, an echography image provides less valuable information than a MRI or scanner-type apparatus. Indeed, echography usually provides a series of plane and independent cross-sectional images of an organ instead of a volume image structured in series of parallel image slices.

'154 Patent, col. 3, ll. 51-62. The paragraph explains that an ultrasound device usually makes two-dimensional images, but impliedly is not used to do so in the '154 patent. Instead, the ultrasound probe here is used not to create its usual two-dimensional images, but rather to create "images of surface points." I find that the "surface points" are the same as "a cloud of points of the surface" in the claim itself (although neither party so argues). This meaning of "a cloud of points" is buttressed by the statement in the specification that "in an embodiment, the present invention aims at providing a method in which the on-site image results from a cloud of points obtained by echography examination of the region of interest, which permits visualizing objects that have been previously segmented." '154 Patent, col. 7, ll. 10-14.

Consequently, "the second image corresponding to a cloud of points of the surface of the organ or skin region" must be a three-dimensional rendering, as the surface of an organ or skin region, even if mostly flat, is still a three-dimensional surface. The direct output of the ultrasound probe, a two-dimensional image, is not the "second image" being discussed in the claim.

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This conclusion is reinforced by a discussion in the specification of the drawbacks in matching three-dimensional and two-dimensional images. '154 Patent, col. 2., l. 34 - col. 3., l. 5. The discussion implies that this invention is a remedy to those problems.

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1. "Making a Wager" Step

The parties agree that the meaning of "making a wager" is the same in both the '215 Patent and the '603 Patent. IGT essentially contends that "making a wager" means betting, which is performed by the player. Aristocrat argues that "making a wager" means processing a bet, which is performed by the gaming machine when it transfers credits from the credit meter to the bet meter.

"It is well-settled, that in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics, 90 F.3d at 1582. "Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." Id.

The court thus begins by examining the words of the claims themselves. The claim language in both patents provide support for IGT's proposed construction. The claims describes a network of gaming machines, "each of said gaming machines being capable of accepting different wager amounts made by a player." 4 '603 Patent 8:9-10 (emphasis added); see also '215 Patent 8:48-49, 9:29-30. This claim language indicates that gaming machines accept wagers, while players make wagers. Aristocrat makes much ado about the fact that the preamble refers to the player making different "wager amounts" as opposed to simply making "wagers." Viewed in context, the word "amounts" is necessary in the preamble to make clear that the gaming machines are able to accept wagers of differing amounts. This characteristic is important because the claimed invention improved upon the prior art (which gave players the same likelihood of achieving a jackpot regardless of whether they were betting a single token per line or multiple tokens per line) by making the probability of winning proportional to the amount of the wager made. See '603 Patent 1:46-52, 8:29-32. The court fails to see how this changes the clear implication that it is the player making the wager, whatever the amount, and the gaming machine accepting the wager.

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4 Though this language is in the preamble, it is essential to consider the preamble when construing terms used in both the preamble and the rest of the claim to ensure "one unified and internally consistent recitation of the claimed invention." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1306 (Fed. Cir. 1999).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

The '215 Patent also contains the following dependent claim: "The method of claim 2 wherein said step of making a wager includes betting a plurality of credits, and wherein said step of allotting includes allotting one number for each credit bet." 5 '215 Patent 10:33-36. This claim language, which makes clear that "making a wager" is satisfied by "betting a plurality of credits," strongly supports IGT's contention that "making a wager" refers to the player's act of betting, not to the gaming machine's act of processing a bet.

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5 The '603 Patent contains similar language in a dependent claim as well: "The method of claim 1, wherein said step of making a wager includes boning a plurality of credits, and wherein said step of allotting includes allotting one number for each credit bet." '603 Patent 8:51-54.

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Aristocrat asserts that the prosecution history of the '215 Patent supports its proposed construction. Aristocrat originally drafted the first step in the claimed method using the following language: "allowing the player to bet a plurality of credits
for a single play at a gaming machine in the bank of gaming machines." Dkt. No. 463-10 at 2. After its claims were rejected by the patent examiner, Aristocrat made various amendments to the claim language. One of these amendments was replacing the earlier language describing the first step with: "making a wager at a particular gaming machine in the network of gaming machines." Id. According to Aristocrat, having the player perform the step of making a wager (as opposed to having the gaming machine perform the step of allowing the player to bet) would not have helped to distinguish the claimed method from the prior art, and therefore, the court should interpret the new "making a wager" language as having the same meaning as the original "allowing the player to bet" language. In the absence of any information in the public record suggesting the purpose for this amendment, the court finds this prosecution history ambiguous and unhelpful. If anything, the fact that Aristocrat chose to amend the claim language in the face of earlier rejections suggests that it sought to change the scope of what it claimed rather than to keep it the same. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33, 117 S. Ct. 1040, 137 L. Ed. 2d 146 (1997) (holding that where there is no established reason for amendment, courts are to presume amendment was for the purpose of patentability). Moreover, the original claim language demonstrates that Aristocrat knew how to draft its claims in a way that clearly indicated to the public that the actor performing the first step was the gaming machine rather than the player, yet it chose not to draft its final claims in this way.

Though courts are to look first to intrinsic evidence, they may also consider expert testimony in construing claims. "However, conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court." Phillips v. AWH Corp., 415 F.3d 1303, 1318 (Fed. Cir. 2005). In addition, because extrinsic evidence, including expert testimony, is generally less reliable than intrinsic evidence, courts should discount any expert testimony that clearly contradicts the claim construction mandated by intrinsic evidence. Id.

Aristocrat offers a declaration by Dwight Crevelt, an expert in the gaming industry, that "making a wager," as understood by a person of skill in the art, means "the transfer of credits from the credit meter to the bet meter by the game software." Dkt. No. 520 ("Crevelt Decl.") P 6. Because conclusory statements regarding how a claim term should be construed are not helpful to the court, Phillips, 415 F.3d at 1318, the court examines the basis for Crevelt's assertion. Crevelt explains that microprocessors have been used to control gaming machines since the early 1980s, and whenever a bet is placed, microprocessors must carry out a sequence of programming steps, in particular, the step of transferring credits from the credit meter to the bet meter. Crevelt Decl. PP 6, 11. Since microprocessor involvement is required to process a bet, Crevelt concludes that "making a wager" necessarily refers to the procedure by which microprocessors transfer credits from the credit meter to the bet meter. See id. at P 6 ("IGT's proposed construction, in effect, would divest the gaming machine of any function related to processing a wager amount."). 6 This reasoning, however, begs the question since it assumes that "making a wager" means processing a bet. If "making a wager" refers to processing a bet, one may infer that "making a wager" describes this microprocessor step. On the other hand, if "making a wager" refers to the act of betting, then it would describe an act by the player rather than the microprocessor.

6 Aristocrat makes the same argument in its briefs. See Dkt. No. 524 at 7 ("Because IGT's proposed construction of 'making a wager' has no role for the computer, it cannot be correct.").

Both the '215 Patent and the '603 Patent use the transition "comprising," which is "well understood in patent law to mean 'including but not limited to.'" Exergen Corp. v. Wal-Mart Stores, Inc., 575 F.3d 1312, 1319 (Fed. Cir. 2009) (quoting CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360 (Fed. Cir. 2007)). When a patent uses the term "comprising," the method claim "is open-ended and allows for additional steps." Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368 (Fed. Cir. 2003). In other words, the method claimed in the patents-in-suit covers all processes that include all of the enumerated steps, regardless of whether they involve additional steps not described in the claim. Consequently, even if a microprocessor must transfer credits from the credit meter to the bet meter as a required step of the betting process, the enumerated steps in the claim need not encompass this processing act.

The court notes that, up until IGT brought its motion for summary judgment based on Muniauction, Aristocrat also interpreted "making a wager" as an act performed by the player, rather than the processing performed by the gaming machine. In its preliminary infringement contentions, Aristocrat contended that the "making a wager" limitation was met because "[i]n all of the accused IGT games, a player can make a wager at a particular gaming machine." Dkt. No. 445-5 at
5; see also Dkt. No. 445-4 at 4, 7. While not dispositive, this at least suggests that "making a wager," under its ordinary and customary meaning, refers to an act performed by the player.

Having considered both the intrinsic evidence and the extrinsic evidence offered by the parties, the court construes "making a wager" to mean betting, which is an act performed by the player. Because the parties agree that at least some of the remaining steps in the method claim are performed by the gaming machine, the standard for joint infringement by multiple parties of a single claim articulated in Muniauction and BMC Resources comes into play. IGT cannot be liable for infringement of the '603 Patent unless it exercises control or direction over the player's performance of the "making a wager" step, such that the law would hold IGT vicariously liable for the player's action. See Muniauction, 532 F.3d at 1330. As discussed above, the court rejects Aristocrat's argument that IGT controls or directs the behavior of players by providing free credits to induce gambling at IGT's machines. In addition, because the "awarding prize" step is not performed when IGT employees test gaming machines, IGT does not perform all of the steps of the claimed method during testing, as required for a finding of infringement. 7 Consequently, the court grants IGT's motion for summary judgment of non-infringement with respect to the '603 Patent.

--- Footnotes ---

7 The inventors could have structured their claims to capture infringement by a single party, but they did not. See BMC Resources, 498 F.3d at 1381; Mark A. Lemley et al., Divided Infringement Claims, 33 AIPLA Q.J. 255, 272-75 (2005).

--- End Footnotes ---

2. Claim 1: Step (a) 2

--- Footnotes ---

2 The '154 patent does not use letters such as "(a)" to mark each subpart in its claims. The parties, however, have referred to each subpart as a "step" and designated them with letters. In the interest of clarity, I adopt this nomenclature for both claim 1 and claim 10 of the '154 patent.

--- End Footnotes ---

Text:

making at least one 3D first image of an organ of a patient having a first coordinate system and of a surface of the organ or skin region with a first imaging device while the patient is in a pre-operation site without fixing any mark to the patient;

'154 Patent, col. 11, ll. 12-16.

ZMED's Proposed Construction:

Making a 3D image or rendering of the organ of interest. This could be done by use of a CT scan or an MRI. The image is taken with respect to a first coordinate system, for example, the coordinate system of the first imaging device, a point in the room containing the first imaging device or the radiation therapy plan.


NOMOS's Proposed Construction:

The specification of the '154 patent describes the step of making a first image as "making at least one 3D image of the organ and of its surface or of the surface of the skin region with the first imaging device." Particularly, the specification of
the '154 patent describes the first image as a 3D image generated by X-ray scanner or MRI device.

NOMOS Opening Brief at 20 (citations omitted).

NOMOS agreed at oral argument with ZMED's construction up to the point at which ZMED suggests that the image would be taken with respect to a first coordinate system, "of the first imaging device, a point in the room containing the first imaging device or the radiation therapy plan." Oral Argument at 66.

Construction:

Step (a) means "making a three-dimensional rendering of the organ of interest. This may be done by use of a CT or a MRI device. The image is taken with respect to a first coordinate system while the patient is in a pre-operation site and without fixing any mark to the patient."

Commentary:

The additional detail that ZMED seeks, "for example, the coordinate system of the first imaging device, a point in the room containing the first imaging device or the radiation therapy plan," is unnecessary and not within the claim language, and therefore is omitted.

1. "A unique method for making telephone calls from any available telephone"

The phrase "making telephone calls from any available telephone" appears in the preamble to claim 1. The parties raise two issues concerning the phrase: (1) whether it requires that a "standard telephone" be used to call the special exchange (an issue raised by Telco); and (2) whether it says anything about the location of the telephone (an issue raised by Aerotel).

Aerotel proposes that "the telephone is not location-specific (i.e., a prepaid caller is not limited to a dedicated telephone fixed at a particular location) and that the telephone can communicate signals with the special exchange." (Joint Claim Chart, at 1.) Telco contends that "making telephone calls from any available telephone" means "[m]aking telephone calls from any standard telephone without requiring a special interface to communicate with the special exchange." (Id.)

"In general, a preamble is construed as a limitation [only] if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim. A preamble is not limiting, however, where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." Symantec Corp. v. Computer Assocs. Int'l, Inc., 522 F.3d 1279, 1288 (Fed. Cir. 2008) (citations and internal quotation marks omitted). Because the lettered paragraphs of claim 1 do not expressly indicate that the prepaid calling center or special exchange is called from a phone, and since that aspect of the claim is essential to its meaning, the Court finds that "making telephone calls from any available telephone" states a limitation on claim 1, namely that the call be made from a telephone.

The scope of that limitation is determined by generally applicable claim construction principles. Bell Communications Research v. Vitalink Communications Corp., 55 F.3d 615, 621 (Fed. Cir. 1995). Applying those principles, the Court finds that "making telephone calls from any available telephone" generally means what it says. While the ability to access the prepaid system from any available telephone allegedly distinguishes the '275 patent from the prior art, the patent is conspicuously silent on the characteristics of the telephone used to call the special exchange. The only features that are clearly required by the specification and claims are that the telephone (1) be capable of dialing the special exchange (see step (c); see, e.g., col.3 ll.20-21 (using "nearest available telephone," calling party "dials a special central office"); (2) be capable of transmitting a "special code" to the special exchange (see step (d); see, e.g., col.3 ll.26-29 ("When the calling party hears the special dial tone[,] indicating that the computer at the exchange is ready for him[,] he dials the identifying code and the called number he wants as indicated at block 17."); and (3) be capable of transmitting a phone number to the exchange (see id.). The preferred embodiment described at col.6 ll.22-26 further requires that the phone be capable of transmitting special codes to the special exchange while a call is in progress (e.g., "999" to signal the end of a call). But claims 1 and 23 contain no corresponding limitation, thus the claims are not limited by the preferred embodiment disclosed in the specification.
Telco's suggestion that a "standard telephone" must be used to call the special exchange cannot be squared with the language of the claim or the specification. As for the claim's language, the word "any" speaks for itself. Turning to the specification, one of the two embodiments described in the patent uses "dedicated public telephone[s]" to access the special exchange. The specification further contemplates that the exchange can be reached from "hotel room telephones" (col.1 l.36), "public payphones," (col.1 l.40), and phones that belong to salesmen's customers (col.1 l.50.) Undoubtedly, some of these are not "standard" telephones, either because they connect to the regular telephone system through a special interface (as with a phone connected to an office PBX), or because they use nonstandard hardware (as with a payphone). Thus, the Court rejects Telco's proposed limitation that calls must be made from a standard telephone without requiring a special interface to communicate with the special exchange.

The fact that Aerotel distinguished the invention of the '275 patent from earlier systems which required a special interface does not alter this conclusion. Telco maintains that "if you need a special interface to access the exchange to make a phone call, then that's not within the scope of the invention" because prior art systems required a special interface to make a prepaid call. (See Def.'s Opening Br. 8-10; Tr. of Oral Arg. 32-34.) But this mistakes a distinguishing feature of the invention disclosed in the '275 patent (accessibility from any phone) for a limitation (accessibility from standard phones). Consider a less technologically exotic example. Unlike motorcycles designed for highway use, the Ducati Multistrada excels on every kind of road with amazing sports performance. (See generally Jim McCraw, All Roads Become a Holiday, N.Y. Times, Nov. 9, 2003, at L12.) We would not say, however, that because the Multistrada can be used on roads other than highways, it must be; the Multistrada's genius lies in its versatility. So it is with the system disclosed by the '275 invention: "if a party wants to make a call, be it a local call or a long distance national or international call, he should be able to accomplish the call from the nearest available telephone," (col.1 ll.57-60), whether or not it uses a special interface. 5

5 In a variation on this argument, Telco contends that a no-special-interface limitation must be read into claim 1 to save the claim's validity, since otherwise the claim would be anticipated by a British patent. (Def.'s Opening Br. 9.) Without expressing any view as to the claim's validity, the Court notes that the interpretative issue is not nearly so close as to require the application of the doctrine that a claim should be construed, if possible, so as sustain its validity. Cf. MBO Labs., Inc. v. Beeton, Dickinson & Co., 474 F.3d 1323, 1332 (Fed. Cir. 2007) ("[w]e have limited the maxim [that claims are to be construed to preserve validity] to cases in which the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous."); Phillips, 415 F.3d at 1327 (same).

Aerotel's contention that "a prepaid caller is not limited to a dedicated telephone fixed at a particular location" finds more support in the patent's specification. In light of the disclosed embodiments, claim 1 clearly is not limited to a "dedicated" phone system. And the specification nowhere describes the calling phone as being "fixed" or "unfixed." The language proposed by Aerotel, however, is largely redundant in view of the limitations already identified by the Court. Thus while the Court agrees with Aerotel's understanding of what "any available telephone" denotes, it declines to adopt Aerotel's proposed language.

"Making telephone calls from any available telephone" means that the calling telephone must be capable of (1) dialing the special exchange; (2) transmitting a special code to the exchange; and (3) transmitting a phone number to be called to the exchange. Beyond those requirements, the phrase does not limit the characteristics of the initiating telephone.
XIII. "[T]o manage risk"

Finally, Plaintiffs present the claim term "to manage risk" for construction and propose that the term be construed to mean "to control and direct the possibility of loss." Since its definition is readily apparent, the Court will adopt Plaintiffs' general purpose dictionary-derived construction of the term "manage" as meaning "to control and direct." The Court, however, rejects the proposed definition of the term "risk" as it uses a general purpose dictionary to define a term that has a more precise meaning in the relevant art. Relying upon Barron's Dictionary of Finance and Investment Terms, the Court will construe the term "risk" as meaning the "measurable possibility of losing or not gaining value." Accordingly, the Court construes "to manage risk" as follows: "to control and direct the measurable possibility of losing or not gaining value."

25 TRG fails to provide a proposed construction of the term. (See R. 85, Def.'s Mem., Ex. 2.)

26 Plaintiffs rely upon the most relevant definition of the word "manage" located in Webster's Third New International Dictionary. See Webster's Third New International Dictionary 1372 (1981) (defining "manage" as "to control and direct").

27 See Barron's Dictionary of Finance and Investment Terms 491 (4th ed. 1995) (defining "risk" as "measurable possibility of losing or not gaining value").

"Managing the efficient routing of transit traffic between said plurality of tandem access points and said switch"

NT proposes the following construction for the above term: "managing transit traffic into, out of and throughout the claimed network by reducing the customer carriers' reliance on the RBOC/ILEC network." Peerless does not propose its own construction of this term but raises two objections to NT's proposed construction. First, Peerless raises the same objection it did to NT's proposed construction of "tandem access points," arguing that by including the phrase "throughout the claimed network" in the construction, the interpretation becomes an endless loop of analysis. That argument was rejected with respect to tandem access points and is rejected here as well for the same reasons.

Second, Peerless argues that the '708 Patent and the prosecution history show that the term is intended to describe the efficient routing of transit traffic within the Neutral Tandem Network, not into or out of it. Peerless's objection is not convincing. The term "throughout" is sufficiently broad to include transit traffic coming into or going out of the claimed network. Indeed, as decided above, the tandem access points are the points at which a carrier's network is connected to the claimed network. Thus, transit traffic being routed to or from one of these points would be moving into or out of the network. Therefore, the Court construes the term as "managing transit traffic into, out of and throughout the claimed network by reducing the customer carriers' reliance on the RBOC/ILEC network."

5. The term "MANIPULATING" (claims 1 and 13) requires no construction.
15. Manipulating component fields

The court construes "manipulating component fields" to mean "rearranging the data fields received from the data path in different ways."

8. Manipulating the client database by commands received from the gateway computer

This term appears in claim 11 of the '201 patent. Seven asks the court to incorporate its construction of "directly manipulating" into this phrase, the terms of which would require the commands to be received from the gateway computer. Visto proposes that the term means "the session module on the gateway computer directly manipulates the client database through the use of Remote Database APIs." Visto's proposed construction incorporates limitations not found in the claims. It is therefore rejected. The only phrase that needs construction is "manipulating the client database by commands," and the court incorporates by reference its previous construction of "directly manipulating the client database" as the definition for that term.

9. Manipulating the client database with the session module

This limitation appears in claim 28 of the '542 patent. The court concludes that "manipulating the client database" means "causing tasks to occur on the client database, such as querying, adding, or removing data, by commands sent to the client database." The balance of the phrase requires no construction. The court rejects Visto's proposed construction because it requires the use of Remote APIs and the retrieval from, and insertion of data into, the client database. The patents use the term "manipulation" more broadly than Visto proposes. In particular, manipulation is not limited to retrieving and inserting data into the client database. Moreover, requiring the use of Remote APIs would unnecessarily limit the scope of the claims to the preferred embodiment.

5. "The adjustment being performed in a manner which causes the actual ion output current value to become equal to the ion output current reference value"

The dispositive word in this element of the claim is "manner." ITW wants it to mean "varying or changing the actual ion output current so that the measure of the ion output current continuously moves toward the value of the current reference value." Pl.'s Revised Proposed Order Regarding Claim Construction at 3. Ion proposes that "manner" means "the increase or decrease by the predetermined amount being such that an increase is used if by increasing by the predetermined amount the actual ion output current becomes closer to the ion output current reference value" and the opposite for purposes of decreasing the actual ion output current. Def.’s Proposed Order re Claim Construction for the '756 patent at 4.

The dictionary definition for "manner" is: "a way of doing something or the way in which a thing is done or happens." American Heritage Dictionary of the English Language (4th 2000). ITW offers no explanation for why the word "continuously" should limit this claim term, other than that it is mentioned within the specification. Nothing in the claim language suggests why the "way" of bringing the actual ion output current value to equal the ion output current reference value should be limited to a specific method like "continuously." Nor does a broad definition like the dictionary's conflict with the specification. Accordingly, there is no need to incorporate such a limitation.
Ion's proposed construction clarifies the "manner" in which the two values are brought equal, so long as it does not restrict the "manner" to either a continual or periodic change in value. Ion's use of the word "predetermined" to limit the word's ordinary meaning threatens to import such a limitation. A construction containing the word "predetermined" would therefore be confusing and unsupported by either the claim language or the specification.

For the reasons stated above, the proper construction for the "manner" in which the disputed adjustment is performed shall be: "the actual ion output current value is either increased or decreased until it equals the ion output current reference value."

2. Claim 2

Claim 2 requires construction. It states that:

The method of claim 1 wherein said manual reset is accomplished by cycling the power off and then on.

Agrizap argues that Claim 2 should be construed as: "reset signal produced by any manner of cycling the power off and then on, including a mechanical on/ off switch, or reset button/ actuator, or cycling under control of electronics hardware, software/ firmware or a combination thereof." (Agrizap's Claim Construction Statement, at 3). Woodstream argues that Claim 2 is indefinite and invalid under 35 U.S.C. § 112 because it refers to "said manual reset" and there is no such "manual reset" phrase in claim 1.

This Court will construe "manual reset" to be the same "power on reset signal" present in Claim 1(d) and (e). Agrizap's broad construction is inappropriate. On the other hand, Woodstream's claim of indefiniteness is also incorrect. "[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms." ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088 (Fed. Cir. 2003). Here, the "manual reset" can be construed based on the surrounding language of Claim 2 and on the previous constructions of "reset signal" in Claim 1(d) and 1(e). Claim 2 is a dependent claim of Claim 1. While there is no preceding "manual reset" term in Claim 1 for the "said manual reset" in Claim 2 to refer to, it will be construed to refer to the "reset signal" in Claim 1(d) and (e). By using the word "said," the claim must be construed to referring to a reset that was already mentioned. Black's Law Dictionary, at 1363. The only "reset" mentioned in the previous Claim 1 was the "reset signal" in Claim 1(d) and 1(e). That reset signal is the power on reset signal. Furthermore, the "manual reset" in Claim 2 is described as being "accomplished by cycling the power off and then on." Cycling the power off and then on is the same functionality as the power on reset signal. Therefore, the "manual reset" in Claim 2 is the power on reset signal.

Q. "manually modified"

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>manually modified</td>
<td>effecting a change as a result of a user's input or request</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>manually modified</td>
<td>to change by the hands of the user</td>
</tr>
</tbody>
</table>

The disputed term is located in claim 1 of the '733 patent: "wherein the second menu is manually modified after generation." The specification gives the following description of "manually modified": "Manual modifications to the generated menus include handwritten screen captures and/or voice recorded message captures coupled with the standard menus and modifiers.
generated according to standard choices." (‘733 patent, 3:48-51).

For example a restaurant server taking a drink order could select from a menu of her hand-held device's screen 'Iced Tea,' and then manually write in the literal screen of her hand-held 'with lemon' as shown in FIG. 8. The manually-written information could, for example, be printed or displayed in front of a bartender preparing the drink order."

("733 patent, 4:6-11). "Similarly, a server taking a drink order could select from a menu of her hand-held device's screen 'Iced Tea,' and then record the voice message 'with lemon' using her hand-held device integral microphone." (‘733 patent, 4:18-22).

Based on the specification's disclosure of voice recording as a form of manual modification, the court rejects the defendants' proposed construction "to change by the hands of the user." (See also ‘733 patent, claim 4 ("said second menu is manually modified by handwriting or voice recording after generation")). Although the specification discusses handwriting and voice recording, there is no indication that "manually modified" must be limited to the preferred embodiments. Therefore, "manually modified" is construed to mean "effecting a change as a result of a user's input or request."
in an Orders folder for the associated the product [sic].

'761 patent, col. 2:36-44. Thus, the phrases "one-to-many" and "many-to-one" describe the relationship between the number of users and the number of data files- in both instances, multiple users and a single data file. See also '761 patent, col. 2:45-46 ("Conventional systems are designed to allow multiple users to access the same file for collaboration purposes.") That the term "many-to-many functionality" refers to multiple users and multiple data files is further supported at numerous points throughout the specification. See '761 patent, col. 3:25-27 ("The data management tool includes a novel architecture where the highest contextual assumption is that there exists an entity that consists of one or more users."); col. 3:37-43 ("Any user operating within a board has access to the suite of applications associated with that board, and can obtain access to any data in any form . . . created by the applications . . . [T]hereafter, the user can then move to shared workspaces (or boards), and access the same data or other data."); col. 3:63 ("the tool supports multiple users"); col. 4:5-7 ("All files and groups of files can be associated with any other file in the system, allowing a system user the flexibility in determining dynamic associations.").

In the Court's view, Leader's proposed construction of "many-to-many functionality" comports with the specification, from which the meaning of Claim 32 is made sufficiently clear to avoid invalidity on indefiniteness grounds. Accordingly, the Court concludes that "many-to-many functionality" is not indefinite, and means "two or more users able to access two or more data files.*

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I. "map" 35

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

35 The word "map" is used in claims 18, 25, 26, 27, 28, 34, 35, 36, and 37 of the '259 patent.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

1. ADE's Position

ADE suggest that the Court construe "map" to mean "a visual representation of the location of pit and particle defects, or the electronically stored image file (e.g., bit map) directly used to generate the visual display." (JCCS at 14.)

2. KLA's Position

KLA argues that the word should mean "'electronic information indicating a location of an anomaly.'" (Id.)

3. Analysis

The inventors in the '259 written description refer to data being stored in memory to define a "map" of the particles and pits and they stated that Figures 20, 21, and 22, one of which is reproduced below, represent "maps" of a wafer surface. (D.I. 627, '259 Patent Prosecution File History, '259 Patent at col. 11 I. 50 to col. 12 I. 7.)

GET DRAWING SHEET 19 OF 20

Consistent with this description, the Court construes "map" to mean a visual representation of the location of pit and particle defects on the surface of a scanned workpiece that includes the underlying electronically stored data corresponding to said visual representation.

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2. Displaying a map image with image coordinates corresponding to the geographic coordinates

The parties dispute nearly every term in this limitation. Specifically, they disagree on the meaning of "map image," "image
coordinates, and "corresponding," as well as the meaning of the limitation as a whole. The court will address each of the parties' disputes.

Beginning with the term "map image," the plaintiff contends that the term means "a representation of a flood map, such as a FEMA flood map, stored as a grid of pixels." Based on the prosecution history, the defendants contend the phrase "map image with image coordinates" is limited to "a georeferenced raster map image."

With respect to the prosecution history, the plaintiff concedes that it surrendered vector maps during prosecution, yet asserts that the scope of the surrender is limited to vector maps. The court agrees. The court observes that dependent claim 5 requires a map image that is "a digital raster image." 326 patent, claim 5. Claim differentiation counsels a broader construction for independent claim 1 than for claim 5. The court therefore construes the term "map image" to mean "a representation of a flood map, such as a FEMA flood map, stored as a grid of pixels."

The next dispute involves the term "image coordinates." The plaintiff suggests that the term means "locations that define the position of a point on an image." The defendants, building on their argument that the claim is limited to raster maps, contend that term "image coordinates" means "X, Y pixel locations (row, column intersections) that make up a raster image." The court has rejected that argument and therefore adopts the plaintiff's proposed construction of "image coordinates."

Next, the defendants contend that claim 1 of the 326 patent implicitly requires that the map image be a "georeferenced" raster map image and that the patentee acted as his own lexicographer in defining the term "georeferenced" and urge that the term "georeferenced" means georeferencing all of the X, Y pixel locations of the georeferenced raster map images. With respect to the first point, other claims explicitly require that certain map images be "georeferenced." As a result, the court rejects the defendants' attempt to limit the claims to the preferred embodiment. With respect to the second argument, although some portions of the specification describe georeferencing in a specific manner, other portions of the specification provide a broader meaning of the term. The 326 patent states explicitly that "georeferencing is the process of relating source coordinates to referenced geographic coordinates, which are typically in standard latitude and longitude." 326 patent, col. 2, II. 16-19. Although the preferred embodiment contains some of the details sought by the defendants, the plaintiff's construction is correct for the "georeferenced" term, and the court adopts it for use in those claims in which it appears.

Finally, the defendants contend that this limitation, read as a whole, requires "marking" the location of the property on the map image. The claim language does not require this. Rather, the language of the claim requires "displaying a map image with image coordinates corresponding to the geographic coordinates." It is true, as the defendants urge, that the description of the preferred embodiment describes a method which "marks on each map the location of the property (step 415)." 326 patent, col. 4, 11. 48-50. The claim language, however, requires only that the map image be displayed. Accordingly, the court rejects the defendants' proposed limitation.

--- Footnotes ---
n1 The term "corresponding" needs no construction.

--- End Footnotes ---
Defendants face an uphill battle to show that "mapping" should not be construed in an analogous fashion to "mapped" because "claim terms are normally used consistently throughout the patent." 4 Phillips, 415 F.3d at 1314. The prosecution history of U.S. Patent No. 5,088,028, to which defendants cite, is of questionable relevance when construing the terms of the '369 patent because the two patents, although having similar specifications, were not formally related. 5 See Goldenberg v. Cytogen, Inc., 373 F.3d 1158, 1167-68 (Fed. Cir. 2004). While "mapping" and "translating" both appear in the patent, they are not, as defendants assert, used as synonyms. The description of the preferred embodiment contains the following language:

When a device on VMEbus 10 seeks to read or write access an address mapped to Futurebus address space, a VMEbus-to-Futurebus (V-F) translation circuit 18, coupled to VMEbus 10 by a buffer 20, translates the upper portion A(12:31) to a corresponding upper portion of the Futurebus bus address, and a buffer 22 selectively places this portion of the Futurebus address on local address bus 16.

'369 patent at 4:11-18. In the context this passage, it appears that VMEbus addresses have already been mapped to Futurebus addresses ("When a device on VMEbus seeks to read or write access an address mapped to Futurebus address space"), but that the translating must be done each time a device on the VMEbus wishes to access a mapped address ("a [V-F] translation circuit . . . translates the upper portion . . . to a corresponding upper portion of the Futurebus address"). The patent thus makes clear that mapping and translating in some instances take place at different times and therefore cannot be synonyms. The court adopts CCCC's proposed construction of "mapping" because it is consistent with both the parties' agreed-upon definition of "mapped" and the language of the patent. "Mapping" is "establishing a correspondence between the elements of one set and elements of another set."

--- Footnotes ---

4 Intel's citation to Comark Communications v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims.")., does not support Intel's argument that "the patent uses the terms 'mapping' and 'translating' synonymously." See Intel Opp'n (dkt. # 71) at 16. In Comark, the Federal Circuit held that a term in an independent claim should presumptively not be defined in such a way as to render a dependent claim "completely superfluous and redundant." Id.5 The court understands defendants' argument that as a matter of policy, a patentee should not be able to benefit from improperly failing to alert the PTO to the fact that on the same day, the same inventors filed two separate patent applications containing substantially overlapping specifications and claim language. (The application for the '369 patent and the parent application of the '028 patent were both filed on April 7, 1989.) Even assuming the defendants are correct that the '369 and '028 patents should have been related during prosecution and that the prosecution history of the '028 could therefore in theory be used to narrow the scope of the '369 patent, the argument of the patentee they quote,

Applicants' claimed invention is an interface circuit 8 for communicating between two computer systems having respective bus masters (2;4) and system buses (10;12), the two systems having different protocols, such as VMEbus and Futurebus. An address on the first bus intended for a device on the second bus is detected and translated into an address on the second bus by V-F translator 18 and address generator 47 while a first local bus request signal V-LREQ is generated,

Ochs Decl. (dkt. # 54), Ex. 4 at 5, is consistent with mapping taking place once initially and translating taking place each time cross-bus access is sought. The court therefore need not try to predict whether the Federal Circuit would, upon consideration of the facts of this case, expand the rule of Goldenberg to cover the instant situation.

--- End Footnotes ---

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D. "Shared Memory Subsystem"

Both the '377 and '229 patents describe the use of a "shared memory subsystem for mapping a portion of said shared addressable memory space to a portion or the whole of said persistent storage and said volatile storage . . . ." 377 patent at 16:6-9. See also '229 patent at 28:31-34 ("a shared memory subsystem for mapping a portion of the shared addressable memory space to at least a portion of the persistent and volatile storage . . . ."). Oracle asserts that the "shared memory
subsystem" described in the patents is a means-plus-function claim. The court disagrees.

First, the absence of the word "means" undermines Oracle's claim. See, e.g., Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999) ("When an element of a claim does not use the term 'means,' treatment as a means-plus-function claim element is generally not appropriate."). Second, the claim element "shared memory subsystem" recites sufficiently definite structure to dispel the argument that it is a means-plus-function claim. Third, the phrase "shared memory subsystem" appeared in both patents and technical literature at the time the '377 patent issued. See, e.g., Exhibit J to Mangosoft's Opposition Brief, United States Patent no. 5,341,475 (describing a communication system for exchanging data, which employs a shared memory subsystem). See also Mangosoft's Opposition Brief at 15-16 (representing that the phrase "shared memory subsystem" appeared in at least nine U.S. Patents filed before the '377 patent, as well as in academic literature).

With regard to the word "mapping" -- a function performed by the shared memory subsystem -- Oracle asserts that it means "assigning a correspondence between the addresses of portions of virtual memory to the addresses of portions of physical memory." Oracle's Claim Construction Brief (document no. 36) at 23. Mangosoft, on the other hand, says that Oracle's construction of the word is too narrow in two respects. First, it says the word "mapping" means simply "defining or establishing a relationship," rather than assigning a direct correspondence. Mangosoft's Claim Construction Brief at 16. Next, it says that the plain language of the claim provides only that a portion of the shared addressable memory space must be mapped to a portion or the whole of the system's persistent and/or volatile storage. It does not, says Mangosoft, require the mapping of portions of the system's virtual memory to portions of the system's physical memory.

The word "mapping," as used in the patents at issue, would be understood by one of ordinary skill in the art to mean "creating an association between." See, e.g., Oracle's Claim Construction Brief at 23 (citing IEEE Standard Dict. of Elec. and Electronics Terms (6th ed. 1996) at 627 for the proposition that to "map a range of addresses" means "to create an association between a range of a process's address space and a range of physical memory or some memory object, such that a reference to an address in that range of the address space results in a reference to the associated physical memory or memory object."). Accordingly, the memory subsystem described in the '377 patent and the '229 patent creates an association or relationship between the shared addressable memory space and some or all of the local persistent and local volatile memory space of the participating nodes.

"determining whether or not the data packet is marked as being transmitted at an excessive rate" is construed to mean determining whether the packet is marked in a network environment where marking is being performed to designate those packets that are transmitted at excessive rates. According to Newbridge, this phrase should be construed to require the claimed dropping method to be able to conclude from the marking information why the packet was marked. After reviewing the specification of the 811 Patent, the Court concludes that Newbridge's construction would exclude the preferred embodiment, which merely checks to see if the packet is marked without engaging in additional processes to determine the reason for the marking. The Court's construction is also supported by the specification which explains that marking can occur as a result of a special service where all of a customer's packets are marked. These special service packets are treated like other marked packets, which indicates that the dropping function described in the specification does not determine the reason for marking. (811 Patent, col. 10, ll. 62-64). Accordingly, the Court's construction of this phrase embraces the Patent's preferred embodiment and is consistent with the specification.

6. Marker: Echometer argues that a "marker" as used in its '399 Patent is a symbol or indicator of a specific location on a display, but the particular marker's use depends upon the type of marker described in the individual claim being construed. Lufkin argues that the term "marker" is limited to a line identifying a specific depth or time, and the determination of the depth or time is dependent upon the calculation of acoustic velocity and collar frequency. The Court finds, consistent with its previous rationale, no reason to read into the term marker additional limitations pertaining to the calculation of the marker's exact position in the well bore. Therefore, the Court concurs with Echometer and defines the term marker as a symbol or indicator of a specific location on a display.
The term "marker," however, is limited depending upon the context in which it is used in the '399 Patent claims, e.g., claim 1 describes a marker "for each of known reflectors," claim 2 describes "incremental depth markers," and claim 7 describes a "moveable marker." The Court does not find it necessary to impose any additional limitations on the term marker beyond the contextual limitations of the claims, i.e. the markers of claim 7 are found at various increments and are used for measuring depth.

Numerous claims of the '952 patent contain the phrase "marker value." Claim 8, for example, associates a "marker value" with a channel tuning designation as follows:

  tuner means for receiving a processor signal and a multi-channel input signal, and in response to said processor signal, tuning out all but one channel corresponding to a selected one of said preassigned channel tuning designations;

  memory means for storing a marker value for at least one of said channel tuning designations, and means of retaining said channel tuning designations in a plurality of ordered cues ….

(Doc. # 1, Exh. A at col. 16)(emphasis added). Claim 10 associates a "marker value" with a channel select designation as part of its memory means as follows:

  wherein said memory means includes means for storing a marker value for each of said channel select designations, and means of retaining said channel select designations in a plurality of ordered cues ….

Id. at col. 17 (emphasis added). In addition, both claims 8 and 10 describe a "marker value" as being stored or retained for each channel tuning designation or channel select designation in a plurality of ordered cues. Other claims associate the phrase "marker value" with a plurality of scroll sequences. For instance, claim 37 describes its memory means as follows:

  memory means for storing a marker value for at least one of said channel tuning designations, and means for retaining said channel tuning designations in a plurality of scroll sequences.

Id. at col. 30.

Despite claim language associating "marker values" with either cues or scroll sequences, Thomson construes the phrase "marker value" as a single binary value or multiple binary values used to mark scroll sequences in cues. Thomson contends that the specification requires "marker bits" and "multiple bit markers" to mark entries in a cue to create a scroll sequence. As a result, according to Thomson, a "marker value" marks a listing not only of channel tuning designations but also a listing of a display code, channel code, and select code. A "marker value" is thus a flag for a cue to be included in a scroll sequence. These contentions, however, improperly seek to remove the alternative provided in the claim language whereby a marker value is stored in either plurality of ordered cues or scroll sequences.

The specification does not explicitly define "marker value." The preferred embodiment, however, explains that when an operator chooses a channel to place into a scroll, a "marker bit" is used to flag the particular channel the operator wants to place into a scroll. (Doc. # 1, Exh. A at col. 9, ll. 16-21). The specification also states that a marker bit may be a single marker bit "whereby a single scroll is provided …" or multiple marker bits to create more than one scroll sequence to permit subject matter scrolls or favorite channels, for example. Id. at col. 12, ll. 53-63. Thus, a "marker value" may include one or more bits in a memory. Yet, this does not lead to the conclusion that a marker value must be used to mark scroll sequences in cues because the claim language indicates that a "marker value" is used to indicate that its associated channel tuning
placemark the claim term "principal market maker." (R. 82, Pls.’ Mem. at 11-14; R. 85, Def.’s Mem. at 10-17.) Plaintiffs propose construing "principal market maker" as "an entity that is assigned to: (i) continuously maintain a two-sided bid/offer market of specified size and spread for its designated products, (ii) maintain a public order book with respect to these assigned products, and (iii) give priority to customer order execution over personal trading." (Id., Ex. 1 at 1.) In contrast, TRG defines the claim term as "an organization designated by an exchange to maintain a two-sided bid/offer market in return for priority volume benefits." (R. 85, Def.’s Mem. at 11.) For the following reasons, the Court rejects both proposed constructions.

Because the meaning of "principal market maker" as understood by a person of skill in the art is not readily apparent, its construction involves more than the "application of the widely accepted meaning of commonly understood words." Phillips, 415 F.3d at 1314. Thus, the Court must look to those "sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." Id. The Court therefore turns to an examination of the intrinsic record.

Plaintiffs first argue that Garber acted as his own lexicographer and explicitly defined the claim term "principal market maker" in the specification. (R. 82, Pls.’ Mem. at 11-12.) Plaintiffs point to the following language contained in the specification in support of this argument:

The [Principal Market Makers] functions are similar to that of a market making foreign exchange bank and broker specialist. A PMM specialist should continuously maintain a sized two-sided bid/offer market for its designated products. This market should be of a designated minimum quantity and maximum spread, i.e., the difference between bid and offer. Also, the PMM should maintain the "public order book" (collection of public customer orders to purchase or sell) with respect to the assigned products. Finally, the PMM should give priority to customer order execution over personal trading. '923 patent, col. 1, ll. 35-45.

When a patentee acts as his own lexicographer and gives a claim term a special definition that differs from the meaning it would otherwise possess, it is the patentee's definition that governs. Phillips, 415 F.3d at 1316. If a "patentee acts as his own lexicographer in redefining the meaning of particular claim terms away from their ordinary meaning, he must clearly express that intent in the written description." Merck & Co., Inc. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005). Such a redefinition "must have sufficient clarity to put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term." Id.

The Court finds Plaintiffs' first argument unpersuasive as the quoted specification language does not reveal an express intent to define "principal market maker." Rather, this language, taken in its context, merely provides background information regarding CME's proposed rules for its Principal Market Maker. See '923 patent, col. 1, ll. 23-45. Thus, it falls well short of the "reasonable clarity, deliberateness, and precision," Renishaw PLC v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998), needed to redefine a claim term.

Next, Plaintiffs contend that parts of the prosecution history support their proposed construction. (R. 82, Pls.’ Mem. at 12-13.) Specifically, they point to the '584 provisional application. 11 (Id.) In the '584 provisional application, Garber provides an overview of his proposed invention, which he describes as "the opportunity of linking the Chicago Mercantile Exchange's Rolling Spot Currency contracts with the Principal Market Maker program (PMM)." 12 (R. 82, Pls.’ App., Ex. 6 at 5.) After describing these synergies generated by a combined PMM/Rolling Spot Currency program, Garber goes on to define a PMM's functions:
The PMM's functions are similar to that of a market making foreign exchange bank and broker specialist. In return for specified considerations, a PMM specialist will be required to provide the following functions: (1) A PMM must continuously maintain a two-sided bid/offer market for their designated products. This market must be of a designated minimum quantity and maximum spread—the difference between bid and offer; (2) the PMM must maintain the "public order book" with respect to the assigned products; and (3) the PMM must give priority to customer order execution over personal trading.

As compensation for the above named functions, the PMM is entitled to the following considerations; (1) guaranteed participatory volume . . . (2) The retention of floor executed brokerage transactions commissions, except where principal-agency conflicts of interest apply.

(Id. at 7.)

The Court finds that this portion of the intrinsic record provides support for Plaintiffs' position that, contrary to TRG's proposed construction, a "principal market maker" must do more than merely "maintain a two-sided bid/offer market in return for priority volume benefits."

--- Footnotes ---

11 The prosecution history consists of the complete record of the proceedings before the USPTO. Phillips, 415 F.3d at 1317. The '584 provisional application is part of the complete record of the proceedings before the USPTO leading to the issuance of the '923 patent, and is thus properly considered part of its prosecution history. See, e.g., Juniper Networks, Inc. v. Bahattab, No. 07-1771, 2009 U.S. Dist. LEXIS 39499, 2009 WL 1285916, at *6 (D.D.C. May 8, 2009) (considering a provisional application as part of the prosecution history).

12 This description is virtually identical to the general description provided in the Summary section of the '923 patent. See '923 patent, col. 3, ll.41-50 ("The present invention provides a method and system for linking Rolling Spot Currency contracts with a PMM specialist program.").

--- End Footnotes ---

In support of its proposed construction, TRG argues that several pieces of extrinsic evidence indicate that those skilled in the art understood the term "principal market maker" to "mean an organization designated by an exchange to maintain a two-sided bid/offer market in return for priority volume benefits." (R. 85, Def.'s Mem. at 11.) The Court finds TRG's argument unpersuasive as it decontextualizes the portions of the extrinsic record upon which it relies. For example, it points to a CME Memorandum which states: "A PMM will be required to make two-sided markets in both products for a minimum number of contracts and at a maximum bid/ask spread. . . . In return, a PMM is guaranteed a percentage of trading activity based on average daily volume." (R. 85, Def.'s App., Ex. 4 at 1.) While this excerpt does provide support for TRG's position, it fails to note that CME also stated that the official rules for the PMM Program were attached to the document. (Id. ("The official rules for the PMM Program follow this memorandum.")) In these rules, it is clearly stated that a PMM must not only continuously maintain a two-sided market, but must also maintain an order book and give priority to customer order execution. (See id. at 2-3.) In exchange for the fulfillment of these responsibilities, the rules also state that the PMM is entitled to certain priority volume benefits. (Id. at 3.)

Similarly, TRG's reliance on CME's application to receive a prohibited transaction exemption under ERISA Section 408(a) is unconvincing. Again, TRG points to language stating that the overall incentive for a PMM to satisfy its responsibilities is its priority volume benefits. (R. 85, Def.'s App., Ex. 4 at 1.) What it conveniently fails to draw to the Court's attention is the preceding language describing a PMM's responsibilities, such as making a two-sided market, maintaining an order book, and prioritizing customer orders. 13 (Id. at 3.)

--- Footnotes ---

13 TRG also relies upon a footnote in a Commodity Futures Trading Commission ("CFTC") advisory opinion and a 1995 news article to support its proposed construction. (See R. 85, Def.'s App., Ex. 8 at 6 n.9; Ex. 10.) These pieces of extrinsic
The evidence are unpersuasive as they merely indicate the use of priority volume benefits as incentives for a PMM, and do not define its responsibilities in maintaining the market.

The Court finds that a person of ordinary skill in the art at the effective filing date of the '923 patent application would have understood the term "principal market maker" to mean more than "an organization designated by an exchange to maintain a two-sided bid/offer market in return for priority volume benefits." Based on evidence presented by the parties, the Court construes the claim term "principal market maker" as "an entity required to provide the following functions: (1) continuously maintain a two-sided bid/offer market of specified size and spread for its designated product(s); (2) maintain a public order book with respect to these assigned products; and (3) give priority to customer order execution over personal trading. As compensation for the fulfillment of these responsibilities, this entity is to receive priority volume benefits."

The parties dispute the meaning of the term "market reports routine" as that term appears in claim 4. AMS and Bidsoft argue that the term should mean "a user application residing on the user's workstation which provides information about prior sales, including the sale prices for different vehicle types that have been sold at an auction in the system." Manheim contends that the term should mean "a section of code that can be invoked or executed within a program that performs the particular task of allowing the user to search and view auction data such as recent vehicle sale prices for a specific motor vehicle auction location[] or geographic region." In the Court's view, neither proposed construction is appropriate.

Claim 4, which is dependent of claim 1, specifically claims: "The system of claim 1 wherein the auction data includes historical sales information." As set forth above, the parties agree that the term "historical sales information" means "information about prior sales including the sale prices for different vehicle types that have been sold at an auction in the system." Thus, as AMS and Bidsoft correctly explain, the plain language of claim 4 requires that the "market reports routine" allow the user to search the auction data and display at the workstation the "historical auction data." As such, the market reports routine, at a minimum, must allow the user to search the auction data and display at the workstation "information about prior sales including the sale prices for different vehicle types that have been sold at an auction in the system."

That issue resolved, the primary remaining dispute appears to be whether the "market reports routine" must be "a user application residing on the user's workstation" as AMS and Bidsoft contend. The Court concludes that it does not. As Manheim correctly points out, claim 4 makes clear that the market reports routine is included within the set of user application modules. While the patent clearly discloses that the user application modules are resident on the user workstations, the Court finds no basis for requiring that they be so located. Notably, the term "user application module" appearing in claim 1 is also in dispute. Neither party proposed a construction of that term which required that the modules be resident on the user workstation; rather, the parties agreed that the term means only "portions of a program that perform[] a particular task or implement[] a particular abstract data type." Because "the same terms appearing in different claims in the same patent . . . should have the same meaning 'unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims,'" see Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1328 (Fed. Cir. 2006) (quoting Fin Control Sys. Pty, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001)); Phillips, 415 F.3d at 1314 ("[C]laim terms are normally used consistently throughout the patent."); and because the Court perceives nothing in the specification or file history which clearly indicates that this claim term should be construed differently, the Court declines to require that the market reports routine consist of a stand-alone application resident on the user workstation.

In view of the foregoing, the Court concludes that the term "market reports routine" in claim 4 shall mean a "portion of a program that performs the particular task of allowing the user to search the auction data and display on the user workstation information about prior sales including the sale prices for different vehicle types that have been sold at an auction in the system."
2. "market-specific segments" (claims 1, 9, 38, 39)

STV Asia proposes that the term "market-specific segment" be construed as "targeted material." Defendants argue that this term means "individual video segments, each encoded with a destination address (or addresses)." Defendants assert that STV Asia's proposed construction is incorrect because: 1) it fails to include the limitation that the segments must be encoded with the destination addresses; 2) it is overly broad in that it could include formats other than audiovisual media; and 3) it loses the sense of the word "segment," which indicates that the market-specific segment is part of a broader video program. With respect to the last point, STV Asia argues that its use of the word "targeted" captures the sense that the market-specific segment is the "counterpart" of the network-wide program. STV Asia Opening Brief at 7.

With respect to the first issue, the Court concludes that its construction of this term should not include the limitation that each segment is "encoded with a destination address." That limitation is included elsewhere in the disputed claims. See claim 1 ("said market specific segments including a destination address"); claim 9 ("means in the distribution center for encoding the market-specific segments with a destination address and a set of control data"); claim 38 ("encoding each of a plurality of market-specific segments with a destination address"). Where a limitation is contained elsewhere in a claim, it is generally inappropriate to read that limitation into a claim term. See Phillips, 415 F.3d at 1314. Here, as in Phillips, it would be redundant to include the limitation that the term "market-specific segments" must be encoded with a destination address because that limitation is found elsewhere in the claims.

On the other hand, the Court concludes that the word "material" in STV Asia's proposed construction is overly broad. Rather, the Court agrees with STV Asia's statement in its Reply that market-specific segments are "all audiovisual material and are not limited to just video." Reply at 8 (citing '416 patent, col. 5, ll. 10-20). This construction is consistent with Defendants' position on this issue. Further, it is consistent with the Court's construction of "network-wide video program."

Finally, the Court declines to use the word "targeted," as requested by STV Asia, but instead concludes that a "market-specific segment" is better described as a segment that is "designed for a specific market."

The Court construes this term as follows: "individual audiovisual segments designed for specific markets within the network."

"marking" is construed to mean "marking." The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 5.) Extreme contends that the term "marking" means "setting a bit in the packet header that indicates that a packet is being transmitted at an excessive transmission rate along/in the virtual circuit to which the packet belongs." (D.I. 395 at 18.) Foundry contends that the preamble of claim 12 limits claim 12 and that "marking" means marking of excessive bandwidth packets in prior art virtual circuits employed in a packet switching network. (D.I. 385 at 9.)

In view of the Court's conclusion that the claims of the '810 and '811 patents are not limited to packet-switching network comprised of virtual circuits, the Court rejects those parts of Defendants' proposed constructions that rely on the presence of a virtual circuit. With regard Extreme's contention that marking means "setting a bit in the packet header," the Court concludes that Extreme impossibly tries to restrict the claim to the particular type of marking used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.
"marking that one customer's data packets as being transmitted into the network at an excessive rate" is construed to mean monitoring the transmission of a customer's data packets and marking those packets that are being transmitted at an excessive rate. Newbridge contends that this phrase should be construed to require the switching node to mark "all packets received by the switching node as if they were being transmitted at an excessive rate." (D.I. 547 at 30). In other words, "the marking is done regardless of whether the received packet is actually being transmitted at an excessive rate." (D.I. 547 at 30). After reviewing the express language of the claim and the specification, the Court disagrees with Newbridge's proposed construction. Newbridge's construction corresponds to the "special service" marking described in the specification of the 811 Patent, in which all of a customer's packets are marked prior to transmission. However, this section of the specification does not refer to marking packets transmitted at an excessive rate, a requirement expressed in the plain language of the claim. In addition, the Court's construction is supported by the specification which discloses a congestion control scheme directed toward monitoring and marking selected customer data packets and eliminating or dropping from further transmission through the network marked data packets whenever and wherever they encounter a congestion condition. (811 Patent, col. 5, ll. 37-41) (emphasis added). Further, the specification explains that the packets are selected for marking by "monitoring the bandwidth of a customer and . . . marking that customer's packets when the customer's subscribed bandwidth is exceeded. (811 Patent, col. 5, ll. 54-57). This "monitoring is accomplished by an algorithm which determines whether or not the individual customer . . . is transmitting at an excessive rate. (811 Patent, col. 6, ll. 21-24) (emphasis added). Accordingly, the Court's construction is consistent with the plain language of Claim 12 and the 811 Patent's specification.

2. "mask"

Construction of the term "mask" follows similar lines. As with "pattern," the parties agree that the word "mask" has an established meaning in both common and scientific idioms. Read as a part of claim 1, in fact, "mask" carries a specific and well-established meaning: It denotes an item containing a circuit pattern in a semiconductor integrated circuit. See, e.g., '041 Patent at 1:19-24. Both the context of the claim, see Pitney Bowes, 182 F.3d at 1311, and the specification language buttress this construction. See '041 Patent at 3:15-37 (discussing the manufacture of semiconductor and liquid crystal devices). By comparison to the parties' over- and under-generalized definitions, the court's construction better captures the meaning of "mask" while leaving related—but distinct—claim terms, purposes, and connotations outside the definition of this oft-used term. The court construes "mask" to mean "an item, in a semiconductor integrated circuit, on which a circuit pattern is placed." Id.

1. "Mass information" is construed to mean "the computation of all mass features. Masses are lesions within the breast characterized by density, margin definition, shape, texture, or asymmetry."

1. "Mass Storage Means" Limitation

The "mass storage means" is a means for storing fax data. ('926 patent, claim 55 & '302 patent, claim 24.) This claim structure tracks the format for invoking the means-plus-function framework, and thus § 112, P 6, presumptively applies. Micro Chem. Inc. v. Great Plains Chem. Co., 194 F.3d 1250 1257 (Fed. Cir. 1999).

Here, the Court finds that "mass storage means" is a proper mean-plus-function limitation because, while there, are endless
ways to store information, the claim language, itself provides none of that structure. Notably, other courts have treated the term "storage" means" as a means-plus-function limitation. E.g., General Creation LLC v. LeapFrog Enters., 232 F.Supp.2d 661, 674-78 (W.D. Va. 2002). The corresponding structure disclosed in the specification is as file on a magnetic disk. (926 patent.) Thus, the Court finds that is the proper construction.

VII. "master controller" 14

14 The term "master controller" is in claim 12.

Plaintiff's Proposed Construction
Defendants' Proposed Construction

a device or subsystem that has overall control of other devices or systems
centralized server

Plaintiff argues that a "master controller" is not limited to only a centralized server. OPENING at 28. Defendants contend that a "master controller" must be centralized. RESPONSE at 30.

Claim 12 depends from claim 1 and discloses:

12. The method of claim 1, wherein the steps of accepting the first request from the buyer, accepting the second request from the buyer, and receiving the performance data from the buyer, are performed by a master controller.

'253 patent at 10:17-20. In other words, the master controller accepts the first and second requests and receives the performance data from the buyer.

The specification adds that the buyer selects a desired product or service "via a website managed by the seller or the seller's agent (e.g., a master controller)." 253 patent at 4:30-31. The master controller may be a computer server which provides content to and manages a website and handles operations for efficient processing and marketability. Id. at 6:19-26. The specification refers to the master controller as a "centralized server," "controller," "master operation controller," "operation controller," and "content server." Id. at 4:17, 6:20-22, 33, 64-67, 7:1. The parties' main dispute centers on whether the "master controller" must be centralized or may be distributed. The aforementioned sections of the specification indicate that a "master controller" may be a centralized server, as Defendants propose. However, the language of the claims and the specification do no limit the master controller to only a centralized server. Therefore, the Court rejects Defendants' proposed construction.

Plaintiff proposes a broad construction that indicates that the "master controller" has "overall control of other devices or systems." There are significant problems with this construction. Not only is this construction overly broad, but it has no support in the specification. Plaintiff contends that the construction is proper because it has support from a myriad of different dictionaries. OPENING at 28 (citing Oxford Dictionary of Computing, Microsoft Computer Dictionary, WordNet 3.0, and Am. Heritage Dictionary of the English Language). While dictionaries are "often useful to assist in understanding the commonly understood meaning of words . . . in claim interpretation," Phillips, 415 F.3d at 1322, the "ordinary meaning" of a claim term "is its meaning to the ordinary artisan after reading the entire patent" id. at 1321. Thus, reliance placed on intrinsic evidence--the claims, specification, and prosecution history--should be greater than that placed on extrinsic sources--dictionaries, treatises, and encyclopedias, among other sources. Id. at 1320. Furthermore, extrinsic sources may be considered, but may not be "used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." Id. at 1324.

Despite the Federal Circuit's statement that dictionaries may be useful in determining the ordinary meaning of a term, the Court explicitly noted three main problems with this approach. First, dictionaries focus on the abstract meaning of words
rather than the meaning of claim terms within the context of the patent. Phillips, 415 F.3d at 1321. Second, dictionaries collect all uses of particular words, and the use of such dictionaries may extend patent protection beyond what should properly be afforded by the inventor's patent. Id. at 1321-22. Finally, the scope of a claim term should not be determined based on "the preferences of a particular dictionary editor, or the court's independent decision, uninformed by the specification to solely rely on one dictionary rather than another." 15 Id. at 1322.

--- Footnotes ---

15 While the parties were able to agree to a construction of the term "auction," the Court notes that Plaintiff also attached a copy of a Wikipedia page in support of its proposed construction for this term. OPENING, EXH. 15. This exhibit suffers from not only the deficiencies that are discussed above, but other problems as well. The content on this website is provided by volunteers from around the world--anyone with internet access can provide or modify content. See Ivovate Health Sciences, Inc. v. Bio-Engineered Supplements & Nutrition, Inc., No. 9:07-cv-46, 2008 U.S. Dist. LEXIS 24989, 2008 WL 859162, *8 n.4 (E.D. Tex. Mar. 28, 2008) (Clark, J.). Thus, not only is the information unreliable, Techradium, Inc. v. Blackboard Connect Inc., No. 2:08-cv-214 (Ward, J.), 2009 U.S. Dist. LEXIS 36083, 2009 WL 1152985, *4 n.5 (E.D. Tex. April 29, 2009), but it can potentially change on a day-to-day basis.

--- End Footnotes ---

Plaintiff explicitly invites this Court to adopt an overly broad construction of the term "master controller" that has no support in the claims, specification, or prosecution history and that is based on a myriad of different dictionary definitions. Yet, the specification sets forth specific functionality, as well as particular embodiments of a "master controller." Therefore, based on the intrinsic evidence, the Court finds that the proper construction of the term "master controller" is "a computer server, centralized server, operation controller, or content server for managing transactions."

2600

Claim Element 1b

master data base of a first plurality of options that may be implemented on a computer system

The parties disagree on the meaning of the above-stated language.

Dell proposed that a "computer system" should be construed as follows: "an information handling system which can be designed to give independent computing power to one user or a plurality of users." Dell further proposed that the remaining terms should be construed according to their ordinary meanings.

Lucent proposed that a "master data base" should be construed as follows: "a central, up-to-date file containing a collection of entries for every option offered that may be implemented on a computer system and at least one tag indicating compatibility with other entries."

The court concludes that a "master data base" should be construed as follows:

"a file containing a collection of entries for every option offered that may be implemented on a computer system."

2601

2. "master processor"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff’s Proposal</th>
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</thead>
<tbody>
<tr>
<td>&quot;master processor&quot;</td>
<td>general purpose processor not under control of a signal</td>
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</table>
Claim 1

Claim Term | Defendants' Proposal | Construed Meaning
---|---|---
"master processor" | a general purpose microprocessor, not under the control of a signal processor | The parties agree that a master processor is not under the control of a signal processor, but Defendants propose that a master processor must also control the apparatus. Defendants argue that Saxon's proposal disregards the word "master" in the claim term. Saxon argues that the term "master" refers only to the fact that the processor is not under the control of a signal processor.

Defendants' proposed additional limitation is not present in the claim language. While, the specification does describe an embodiment wherein a master processor controls the apparatus, '394 Pat. at 2:15-16, the Court sees no reason to import this limitation into the claim at issue. The Court's conclusion is bolstered by the prosecution history, in which the patentee explained that a "master" processor "does not allow a slave processor to take over control of the master processor at any time." '394 Pat. Amendment at 5 (Aug. 26, 1997). This explanation is consistent with Saxon's proposal and makes no mention of Defendant's proposed additional limitation.

The Court finds that Saxon's proposal adequately explains the plain and ordinary meaning of "master processor," and thus it does not read the word "master" out of the term. The Court adopts Saxon's proposed construction.

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

Claim Term | Construed Meaning
---|---
"Debit Card" | "a prepaid card for exchange of value"
"ID information [stored on the debit card]" | "encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID"
"Terminal" | "a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface"
"ID information [stored on the terminal]" | "data stored on the terminal in the form of merchant ID, store ID, or terminal ID"
"Stored thereon prior to the transaction" | "stored on the terminal prior to the consumer presenting the debit card to the merchant"
"Relates . . . in a predetermined manner"  "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched"  "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal"  "locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means"  "a data processing device"

"Transmitting to a computer"  "sending by means of a signal path to a computer"

"Validation" and "Valid"  "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely"  "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"  "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means function"  "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means structure"  "a modem or a signal path"

"Selected from a group of ID information" (Claim 2)  "chosen from one of the following ID information"

--- Footnotes ---

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."
ePlus argues that this terra needs no construction but that, if it is construed, it means: items in search results that satisfy search criteria. Lawson proposes that the term mean: the results of a search of items matching a user-entered search criteria (i.e. Hit List).

a. Words of the Claims

Claim 3 of the '683 Patent claims an electronic sourcing system comprising:

- at least two product catalogs containing data relating to items associated with the respective sources;
- means for selecting the product catalogs to search;
- means for searching for matching items among the selected product catalogs…


- a database containing data relating to items associated with at least two sources;
- means for searching for matching items in the database;
- means for building a requisition using data relating to matching items and their associated source(s);
- means for processing the requisition to generate one or more purchase orders for the selected matching items; and
- means for converting data relating to a selected matching item and an associated source to data relating to an item and a different source.

'683 Patent at 25: 31-42. Claims 26, 28 and 29 of the '683 Patent claim a method comprising the steps of:

- maintaining at least two product catalogs on a database containing data relating to items associated with the respective sources;
- selecting the product catalogs to search;
- searching for matching items among the selected product catalogs…


Claim 1 of the '172 Patent claims an electronic sourcing system comprising:

- a database containing data relating to items associated with at least two vendors maintained so that selected portions of the database may be searched separately;
- means for entering product information that at least partially describes at least one desired item;
- means for searching for matching items that match the entered product information in the selected portions of the database;
- means for generating an order list that includes at least one matching item selected by said means for searching;
- means for building a requisition that uses data obtained from said database relating to selected matching items on said...
order list;

means for processing said requisition to generate purchase orders for said selected matching items.

'172 Patent at 23:56-24:42 (emphasis added). The claims themselves demonstrate that matching items are the results of a database search.

b. Specification

The specification provides:

When a search is performed in Shell 52 and search program 50, a Hit List 47 is produced. . . The user would see on Monitor 22 of local computer 20 a Hit List 47 screen representing limited data about all matching catalog items that were located in catalog database 36 as a result of the search.

'683 Patent at 9:37-42 (emphasis added). Thus, the specification also demonstrates that the matching items are located as a result of a search.

c. Prosecution History

During prosecution of the '683 Patent, the inventors, in amending the claims, noted that, "[a]pplicants have amended the claims using the following terminology: 'matching items' are the search results. . ." (Pl. Ex. 22 at 11 (emphasis added).) This statement is unequivocal and shows precisely how the inventors interpreted the claim term.

d. Proper Construction

The term "matching items" means: the search results. This construction is consistent with the words of the claim, the specification and the prosecution history. It is also consistent with the construction in ePlus, Inc. v. Ariba, Inc., Civil Action No. 1:04cv612 (E.D. Va.). (Pl. Ex. 10 at 27.)

Matching Relationship

Konami proposes that "matching relationship" should be construed as "having a correspondence when one overlaps another," whereas Defendants argue that the construction should be "a corresponding relationship." The main dispute between the parties involves Konami's inclusion of "overlap" in its construction, which Defendants characterize as an impermissible attempt to import a limitation from the specification. Although the Court agrees with Defendants that Konami's construction is inappropriate, in the end, the Court also declines to adopt Defendants' proposed construction, finding instead that no construction is needed. First, the Court will address Konami's proposed construction. n7

n7 The Court declines to consider "a corresponding relationship" because it is both unhelpful and impermissible. It is unhelpful in the sense that it merely restates "relationship," and impermissible in the sense that it seeks to substitute "corresponding" for "matching," which would unjustifiably broaden the meaning of "matching."

Whereas the essence of "recognizable relationship" was in describing the relationship between "first display parts" and "second display parts" as well as between "first display parts" and "corresponding actuable display parts," the essence of "matching relationship" rests in describing how a player is prompted to "actuate said actuable parts" such that the player is directed to "dance." Claim 11 offers a fair representation of this term's use throughout the patent, and provides in relevant part: n8
said guidance unit including a control section for controlling said relative movement to display a matching relationship between said first and second display parts in timed relationship with said rhythmic piece to thereby direct the player to actuate said actuateable parts with the player's feet in timed relationship with the displayed matching relationship between the first and second display parts and thereby in timed relationship with said rhythmic piece such that the player is thereby directed to dance in rhythm with said rhythmic piece (emphasis added).

The "matching relationship between said first and second display parts" prompts the player to "actuate" the "actuatable parts." Further, the "matching relationship" and the "rhythmic piece" are in a "timed relationship." Thus, a player properly actuating the actuatable parts will "dance," in time with the "rhythmic piece," which seems to be at the heart of the game, and certainly of claim 11. A plain reading of the claims would lead to that understanding of "matching relationship," which is properly focused on the interplay between the "first and second display parts," the "rhythmic piece," and the player actuating the "actuatable parts," that provide cues in such a way that the player is "directed to dance."

--- Footnotes ---

n8 This language was taken from claim 11, but "matching relationship" takes on the same meaning and is used in similar contexts in claims 22, 28, 36, 42, and 45. Therefore, the Court may fairly use claim 11 as an exemplar.

--- End Footnotes ---

Konami seeks to further limit this term, arguing that the specification teaches that this "matching relationship" specifically occurs when "the scrolled mark M completely overlaps (matches) the still mark S [which] guides a stepping operation timing (emphasis added)." 8:55-57. However, this excerpt comes from the preferred embodiment and the Court is reluctant to import such a limitation, especially where the claims adequately describe "matching relationship" in the broader sense set forth above. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("Unless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning as understood by an artisan of ordinary skill.). Further, even if it were appropriate to look beyond the claims to the specification, the Court would still elect not to adopt Konami's construction because "overlaps" is not well supported by the specification.

Konami offers the specification excerpt including "completely overlaps (matches)" to support its construction which includes the significantly more ambiguous "overlaps." n9 The next sentence emphasizes that "completely overlaps," not merely "overlaps," was contemplated, as it reads "[a]t the timing at which the mark M completely overlaps the still mark S, the display luminance or the display color of the still mark S is temporarily changed, showing the matching of timing (emphasis added)." 8:57-60. To the extent that the specification supports the notion that a "matching relationship" necessarily implies "overlap," it would seem to support a "complete overlap" rather than the more general "overlaps" that appears in Konami's proposed construction. Therefore, the Court cannot find that the specification supports Konami's proposed construction.

--- Footnotes ---

n9 Inserting "overlaps" into the construction could also create confusion as the question will certainly arise, "what does 'overlap' mean?" The Court is not inclined to adopt a construction that runs the risk of creating such confusion by, in essence, using a term that begs its own construction.

--- End Footnotes ---

As stated before, however, the Court finds that no construction is necessary because a proper understanding of "matching relationship" may be reached from a plain reading of the term in context of the surrounding claim language.

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6. Claim 1: Step (e)
matching the at least one 3D first image and the second image where the at least one 3D first image is located with respect to the first coordinate system of the patient;


ZMED's Proposed Construction:

Matching the image of the organ taken in the pre-operation site (by the CT scan or MRI device) with the appropriate ultrasound image taken in the operation site by localizing the first and second coordinate systems to allow a comparison of the position of the organ in the two images.

ZMED Opening Brief at 9 (citation omitted).

NOMOS's Proposed Construction:

Step (e) of claim 1 can only properly be construed as providing the step of merging or combining the 3D first image and the 3D second image, or, more particularly, as providing the step of aligning the coordinate system of the 3D first image generated by the MRI device with the coordinate system of the 3D second image generated by the echography probe.

NOMOS Opening Brief at 21 (citation omitted).

Construction:

Step (e) means "aligning the at least one three-dimensional first rendering, which is located with respect to the first coordinate system, with the three-dimensional second rendering."

Commentary:

Step (d) determined that the second image should be construed to be a three-dimensional rendering. The remaining dispute in step (e) centers around the term "matching."

If the meaning of "matching" were not clear, then it would be appropriate to turn to the specification to find meaning for the term. In the specification, the word "matching" is defined by inference twice, once to mean "combining" and once to mean "merging." '154 Patent, col. 3., ll. 17-18; col. 9, l. 23. It is also referred to as "localizing." '154 Patent, col. 5., l. 62.

However, the common-sense understanding of "matching" in this context is "aligning," and therefore I adopt that definition based on the plain language of the claim. As a note, it is the three-dimensional renderings that are aligned, not necessarily their coordinate systems.

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II. Material Object

As with the term point of sale location, the district court made several findings with regard to the construction of the term "material object." We address these findings below, agreeing with some and disagreeing with others.

1.

The district court held that a material object is "a tangible medium or device in which information can be embodied, fixed, or stored, other than temporarily, and from which the information embodied therein can be perceived, reproduced, used or otherwise communicated, either directly or with the aid of another machine or device." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. Although IGE admits in its brief to this court that a material object is a tangible medium, counsel for IGE argued to this court at the oral hearing that a material object is defined as the information itself and need not
be a tangible medium. The appellees respond that the district court's construction is supported by the specification.

Although the appellees do not argue that IGE has waived this argument, we note that it is being presented for the first time on appeal. However, given that the proper resolution is beyond any doubt, we exercise our discretion and consider it for the purpose of elucidating our further comments on the proper construction of the term "material object." L.E.A. Dynatech v. Allina, 49 F.3d 1527, 1531, 33 U.S.P.Q.2D (BNA) 1839, 1843 (allowing an appellate court to consider an issue not presented below if "the proper resolution is beyond any doubt").

A material object cannot be the information itself, as IGE now argues. Examining first the claim language, claim 1, for example, requires that the information be reproduced in a material object. See Freeny patent, col. 28, ll. 22-23 (preamble to claim 1) and 44-45 (step four of claim 1). If the information itself is the material object, as IGE argues, then claim 1 would require the information to be reproduced in itself. Such a construction is illogical and does not accord with the plain import of the claim language. See White v. Dunbar, 119 U.S. 47, 52, 30 L. Ed. 303, 7 S. Ct. 72 (1886) ("It is unjust to the public, as well as an evasion of the law, to construe [a claim] in a manner different from the plain import of its terms. This has been so often expressed in the opinions of this court that it is unnecessary to pursue the subject further."); Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1579, 40 U.S.P.Q.2D (BNA) 1019, 1024 (Fed. Cir. 1996) (rejecting a proffered construction because "the plain meaning of the claim [would] not bear [such] a reading"); cf. Conopco, Inc. v. May Dep't Stores Co., 46 F.3d 1556, 1562, 32 U.S.P.Q.2D (BNA) 1225, 1228 (Fed. Cir. 1994) (noting that "a finding that the accused process literally infringed did not . . . eviscerate the plain meaning of the [relevant] term").

Despite the plain language of the claims, we turn to the specification to discern whether IGE attributed a different meaning to the term material object. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577 ("It is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning."). Examining the specification, it is clear that even the broadest definition of material object in the specification requires that a material object be a "medium or device in which information can be embodied or fixed." Freeny patent, col. 4, ll. 36-38. Thus, IGE's argument that the reproduced information itself constitutes the material object is not only illogical, but unsupported in the specification as well.

2.

The district court further held that a material object must be: (a) separate and distinct from the IMM, (b) removed from the IMM after purchase, and (c) intended for use away from the point of sale location. See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. IGE argues that neither the claims nor the specification requires that a material object be separate and distinct from the IMM or intended for use at a location other than the point of sale location, and that these limitations were improperly read into the claims from the specification. The appellees respond that the district court's construction is supported by the specification. We agree with the district court on these three limitations, with one variation regarding point (c) above. On that point, we find that the material object could be intended for use at the point of sale location as long as it is on a device separate from the IMM.

Beginning with the claim language, we note that the preamble of claim 1, for example, describes a method in which IMMs are located at point of sale locations and in which information is reproduced in material objects utilizing the IMMs. See Freeny patent, col. 28, ll. 22-24. This language could be read to suggest that the material objects, which receive the reproduced information, are not part of the IMM and are intended to be purchased and removed from both the IMM and the point of sale location, but that reading is not clear from the claim itself. The claim later describes reproducing the information in a material object, but again there is no clear indication that the material object is or is not a separate and distinct item that is to be removed from the IMM after purchase and used on another device. See id. at col. 28, ll. 42-45. Thus, we look to the specification for further guidance.

The Freeny patent envisions and discloses only material objects that are separate from the IMM and that can be purchased by the consumer and taken away from the IMM. See, e.g., Freeny patent, col. 13, ll. 25-48 (retail store embodiment), cols. 26-27 (vending machine embodiment). The emphasis of the specification on distribution and sale consistently reveals that the material objects are intended to be separate from the IMM, removed from the IMM, and used apart from the IMM. See, e.g., Freeny patent, col. 4, ll. 13-18 ("The system of the present invention solves the problems associated with manufacturing, inventory, configuration distribution and collection . . . and permits sale of material objects embodying information in a more efficient, economical and profitable manner."). These three conditions, namely, that a material object
be separate and distinct from the IMM, removed from the IMM after purchase, and used apart from the IMM, are
fundamental to the meaning of a material object as clearly and consistently specified in the patent description. See, e.g.,
Freeny patent, col. 4, ll. 36-59; col. 5, ll. 47-50; col. 13, ll. 36-44; col. 26, ll. 28-34.

IGE contends that "material object" should be construed so broadly as to include a hard disk that is internal to a personal
computer. Although the specification describes numerous material objects, a hard disk, internal or otherwise, is never
mentioned as a possibility. In fact, where a hard disk is discussed, it is in relation to the implementation of particular aspects
of the IMM or the ICM and not as an example of a material object. See id. at col. 22, ll. 6-34. Any construction of the
expression "material object" which encompasses a hard disk is not only not envisioned anywhere in the specification but is
also inconsistent with the definition of a point of sale location asserted by IGE before the district court. Specifically, a
consumer would not go to a point of sale location to purchase an internal hard disk embodying predetermined or preselected
information. See id. at col. 5, ll. 47-50.

3.

The district court also held that a material object "must be offered for sale independently from the information that may be
reproduced onto the material object." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. The district court applied this
same limitation to a point of sale location. For the reasons discussed earlier with respect to a point of sale location, we again
disagree with the district court's reading of this condition into the claims.

4.

Accordingly, we construe a material object to be a tangible medium or device in which information can be embodied, fixed,
or stored, other than temporarily, and from which the information embodied therein can be perceived, reproduced, used or
otherwise communicated, either directly or with the aid of another machine or device. A material object must be offered for
sale, and be purchasable, at point of sale locations where at least one IMM is located. Further, a material object must be
separate and distinct from the IMM, removed from the IMM after purchase, and intended for use on a device separate from
the IMM either at the point of sale location or elsewhere. "Material object" does not encompass the hard disk component of
a home personal computer. Finally, a material object need not be offered for sale independently from the information that
may be reproduced onto the material object, that is, as a blank.

3. Maximizing throughput of said memory requests to the synchronous DRAM so that use of the data slots by the
synchronous DRAM is maximized

The court adopts the plaintiff's construction of "maximizing throughput of said memory requests . . . " and construes this
phrase to mean "scheduling memory requests to the synchronous DRAM to maximize throughput so that the use of data
slots is maximized."

A. "A maximum dose of the selected transition metal that can be fully dissolved into the substrate at a temperature in a
range between a eutectic temperature of the substrate and an annealing temperature of the substrate" (claims 1 and 2)

The parties place at issue several facets of the interpretation of this extended claim phrase. First, Ixys contends that the
"dose" in question here must be determined empirically, or that it must in some manner be "measured." As a matter of pure
ontology, Ixys is almost surely correct: the maximum possible dosage of a transition metal that may be dissolved is not the
type of engineering question that can be determined theoretically with any meaningful precision, and so at some level
experimentation is essential. However, neither party disputes that such experimentation has already been undertaken by
others, and Ixys provides no support for its contention that such experiments need be repeated in the course of performing
the claim steps at issue here. A person skilled in the art could simply consult one of the many treatises employed by the
parties. Ixys' proposed "measurement" limitation is rejected.

Second, Ixys argues that this court should assign a numerical value to the maximum upper dose in the instance where platinum is the transition metal employed. APT responds that there is nothing in the claim language that ordains platinum as the only usable metal, and this point Ixys does not appear to dispute. APT argues further that it is inappropriate to attach numerical limitations gleaned from the specifications to non-numerical claims, citing E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430 (Fed. Cir. 1988), for this proposition. However, that case simply cautions against importing "a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim." Id. at 1433. This is a well-known axiom of patent law, one which holds no proscriptive force when, as in the present case, the ambiguity of the claim language ("a maximum dose") has itself begged the numerical question. Both parties agree that since Ixys' allegedly infringing device uses only platinum that is the metal at issue here, and thus if the patent does disclose a numerical limitation on the maximum dose of platinum it would be both appropriate and expedient for this court to construe that limitation here.

The specifications for this patent state that "the substrate is doped with a transition metal in a predetermined dose less than a predetermined maximum, which is about 2 x 10<16> atom/cm<2> for platinum." '202 patent, 9:5-8; see also '202 patent, 22:61-62 ("For Pt, this dose is less than 2 x 10<16> atom/cm<2>.") Seeking to raise this maximum threshold, APT points to the specification language that indicates that "the amount of Pt that can be dissolved into silicon is substantial (2 x 10<21> atom/cm<3>) which is the cause for the higher leakage current using conventional evaporation and diffusion." '202 patent, 23:2-6.

The differences between "dose" and "concentration" is one upon which the parties spend a great deal of time, and that difference seems particularly relevant and worthy of elaboration here. The "concentration" of transition metal in the silicon wafer is the number of atoms per unit volume that have been dissolved into the substrate, and is therefore expressed in units of atoms/length<3>. The 2 x 10<21> atom/cm<3> figure quoted by APT is thus an expression of concentration. The "dose" of transition metal applied in order to dope the substrate is the number of atoms per unit area that have been deposited on the surface of the substrate (in order that they later be dissolved into the substrate), and hence is expressed in units of atoms/length <2>. As it has self-identified, the 2 x 10<16> atom/cm<2> figure is a "dose."

"Doses" and "concentrations" have both a practical and a mathematical relationship. As a straightforward general rule, higher applied doses will cause higher concentrations of the transition metals to occur within the substrate. Further, the number of particles that are eventually dissolved within the substrate must equal the number of particles initially deposited upon the surface of the substrate (assuming that few transition metal atoms are created or destroyed in the process of dissolution). In other words,

\[(\text{average concentration throughout substrate} \times \text{volume of substrate}) = (\text{dose applied to substrate} \times \text{surface area of substrate}).\]

Since the volume of the substrate is essentially equal to its surface area multiplied by its "thickness" or depth (assuming no cross-sectional variation in the substrate geometry), Ixys has simplified the above equation into the form

\[(\text{average concentration throughout substrate} \times \text{thickness of substrate}) = (\text{dose applied to substrate}).\]

While this formula is essentially correct, it is not sufficiently precise to be entirely useful here. The entire purpose of this invention is to create a substrate with a heterogeneous transition metal concentration that varies with depth. By consequence, this relationship is more usefully expressed as

[See formula in printed version]

The significant fact here is that maximum concentrations at any given point can well exceed the "average concentrations" within a substrate. Without knowing whether a listed concentration is a "maximum concentration" or "average concentration," it is impossible to simply approximate dosage by multiplying concentration by thickness.

This analysis is made relevant through application to the quarrel between APT and Ixys over the maximum dosage described above. Ixys' argument is buttressed by quite explicit and categorical specification language (found within the
"Summary of Invention" section) that teaches that the maximum dose for Pt is 2 x 10^{-16} atoms/cm^2. APT argues in response that the dosage level must be higher than Ixys alleges because a 1 mm thick substrate with a concentration of 2 x 10^{-21} atoms/cm^3 must have had an incident dosage of 2 x 10^{-20} atoms/cm^2. However, this calculation relies on portraying 2 x 10^{-21} atoms/cm^3 as an average dosage throughout the substrate, not a maximum dosage at any given point. This portrayal does not withstand an examination of the specification, which describes the number in question as "the amount of Pt that can be dissolved into silicon," denoting a maximum possible concentration at any location. '202 patent, 23:3-4. In addition, the specification section that gives this figure references the "solid solubility of Pt in silicon" at a particular temperature range, namely the "Pt-Si eutectic temperature." '202 patent, 23:2-3. The 2 x 10^{-16} atoms/cm^2 figure, referenced explicitly in the specifications as the maximum dosage, is not controverted, and is therefore controlling.

The court construes this claim as follows: "The upper limit to the dose of selected metal that can be fully dissolved within the semiconductor material at subsequent processing temperatures. When the selected metal is platinum, this maximum dose is about 2 x 10^{-16} atoms/cm^2."

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B. "The maximum dose sufficient to effect lifetime control without substantially increasing leakage current of the device" (claims 1 and 2)

As a logical antecedent to interpreting the longer claim language phrase designated by the parties for construction, it is first necessary to affix a meaning to the amorphous term "substantially increasing" when used in this context. The need for contextual understanding, while always present in claim construction, is distinctly heightened in the case of language such as this which invokes an implicit comparison between a baseline level of leakage current and a quantity "substantially" above that baseline.

The specifications describe such a comparison in two places. First, they teach that "[a] dose in the range of 10^{-11} to 10^{-16} atoms/cm^2 of Pt is sufficient to effect lifetime control without an appreciable increase in leakage current. Higher doses can be used but will cause a higher leakage current." '202 patent, 23:9-13. This description may or may not be rephrasing "substantial" as "appreciable;" in either case, by itself it is unhelpful. However, it appears to state that a dose as large as 10^{-16} atoms/cm^2 will not cause substantial leakage current.

In a second location slightly farther along, the specifications state that "Conventional evaporative deposition of e.g. 100 [angstrom] of platinum will produce an equivalent surface dose of 6.5 x 10^{-16} atoms/cm^2, diffusion of which would give a leakage current of three to four orders of magnitude greater than no lifetime control. ... In contrast, implanted platinum doses in the range of 1 x 10^{-13} to 1 x 10^{-16}/cm^2 gave leakage currents in power MOSFET and IGBT-type devices that were no more than two orders of magnitude greater compared to devices with no lifetime control." '202 patent, 23:50-61. Since the specification language referenced in the previous paragraph has already described the leakage current caused by doses up to 10^{-16} atoms/cm^2 as not an "appreciable increase," the second segment of language described at the top of this paragraph indicates that leakage currents "that were no more than two orders of magnitude greater compared to devices with no lifetime control" do not constitute "substantial" increases.

This "Conventional evaporation" language described above sets forth another comparison between the quantities described in its first and second sentences. The "two orders of magnitude" (and thus not "substantial") greater leakage current caused by doses up to 10^{-16} atoms/cm^2 is described "in contrast" to doses of 10^{-16} atoms/cm^2 "which would give a leakage current of three to four orders of magnitude" above the baseline (set by a device without lifetime control). Putting these pieces of specification language together, the court thus finds that the specifications imply that a leakage current three to four orders of magnitude above the baseline constitutes a "substantial increase."

Having resolved the prior question regarding "substantially increasing," the remaining aspects of the construction of this claim fall into place in a relatively straightforward manner. While the claim language again does not limit the transition metal to any particular type, this case will focus around Ixys' use of platinum, and thus the court will be as specific regarding Pt as possible. The specifications analyzed above indicate that a Pt dose of 6.5 x 10^{-16} atoms/cm^2 will cause a "substantial increase" in leakage current, but no portion of the specifications appears to further limit that upper threshold. The specifications contain numerous references to a dose of 10^{-16} atoms/cm^2, and in particular they teach that "A dose
in the range of $10^{10}$ to $10^{16}$ atoms/cm$^2$ of Pt is sufficient to effect lifetime control without an appreciable increase in leakage current. Higher doses can be used by will cause a higher leakage current."

The specification does not indicate that for doses above $10^{16}$ atoms/cm$^2$ the leakage will be "substantially increased;" it states only that leakage current will be "higher." Absent a more explicit limitation within the specifications, Ixys cannot demonstrate that the claims are limited to the range it has described. However, as described in section (A) above, the specifications indicate (and the claims have been construed so to reflect) that the maximum dose of Pt that can be dissolved within the substrate is $2 \times 10^{16}$ atoms/cm$^2$, and so the range of doses between $2 \times 10^{16}$ atoms/cm$^2$ and $6.5 \times 10^{16}$ atoms/cm$^2$ will likely be rendered functionally irrelevant for the purposes of this adjudication.

For the reasons described in part (A) above, Ixys' proposed limitation regarding the need for "measurement" is similarly rejected. Also, neither party has presented any argument to the court regarding the construction of the phrase "effect lifetime control" that is found within this claim language, and in fact APT employs that same phrase in its proposed construction. The meaning of that three-word term is apparently sufficiently well-established among those skilled in the art that this court need not clarify it further or resolve any related lingering dispute among the parties.

The court construes the claim language at issue to mean: "The upper limit to the dose of transition metal that can be applied to the device that will be sufficient to effect lifetime control but will not cause the leakage current to increase by three orders of magnitude or more when compared with a similar device that has not had transition metal added. For Pt, this upper dose limit is between $10^{10}$ and $6.5 \times 10^{16}$ atoms/cm$^2$.

1. Principles of claim construction

Claim construction of a patent, including terms of art within claims, is exclusively within the province of the court, not the jury. Markman v. Westview Instruments, Inc., 517 U.S. 370, 388-89, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996).

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. See Markman, 52 F.3d at 979, 34 U.S.P.Q. 2d at 1329. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.


The first step is to look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Id. Second, it is necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. Id.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. Id. "Claims must be read in view of the specification, of which they are a part." Id. (citing Markman, 52 F.3d at 979). The specification is always highly relevant to the claim construction analysis, and usually, it is dispositive; it is the single best guide to the meaning of a disputed term. Id. The drawings or figures of the patent are considered with the specification in interpreting claim language. Wright Medical Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed. Cir. 1997).

Third, the court may also consider the prosecution history of the patent, if in evidence. Vitronics Corp., 90 F.3d at 1582.

In addition, the Court should not read into a patent limitations that do not exist in the claims. As the Federal Circuit recently held, "[t]he danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim." Amgen, Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed Cir. 2003) (internal citations omitted).

Moreover, like contract interpretation, the Court should first give claim terms their ordinary and accustomed meanings.
Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic evidence using words or expressions of manifest exclusion or restriction, representing clear, disavowal of claim scope.

Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1377 (Fed. Cir. 2003) (emphasis added) (citation omitted).

In fact, the Federal Circuit has issued a ruling instructive on this issue. In Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1343-44 (Fed. Cir. 2001) the Federal Circuit overruled the district court's holding that the claim term "portion" was to be accorded a meaning narrower than its customary meaning, by finding that the district court had improperly relied on the preferred embodiment, the drawings, and one passage in the prosecution history to "overcome the presumption.

Finally, if an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence. Id. at 1583. Extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles. Id. at 1584. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. Id.

This approach was affirmed in the Federal Circuit's most en banc decision, Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). In that case, the Court reiterated that "[w]e have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms." Id.

Following this guidance and framework, this Court finds that the '252 Patent's Claim and the specification establish that the "error correcting means" refers to a circuit or portion of the computer chip geared towards error correction. Reading the Claim 1 and the patent language as a whole it is clear that the terms using the "means" language are used in their ordinary and customary meaning throughout the patent to mean "circuit" or "portion" of the chip. As such Claim 1 provides sufficient structure and section 112, paragraph 6 does not apply to the analysis.

This Court rejects Mediatek's argument that Claim 1 requires a specific sequential order. Nothing in the claim language, the specification, or the patent prosecution gives rise to the limitation that the "error correction means" must happen in a specific sequential order. Rather, the circuit or portion must simply be able to "read, detect, correct, and write." While Claim 1's language demonstrates the processes that will take place, it does not require a specific order. Most importantly, it does not specify when detection of errors must take place or when correction must take place - arguably either could come first. Claim 1's specifications simply provide an example of how this could work. Defendant Mediatek's argument impermissibly would limit Claim 1's "error correcting means" to a sequential order requirement not included in the patent's claim. This is just the type of limitation the Federal Circuit has warned against.

The district court held that the "battery means" and "lamp means" limitations of claim 1 are "means" limitations that are subject to 35 U.S.C. § 112, para. 6 (1994). That was error. Paragraph six states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.


Here, the limitations in issue recite structure - battery and lamp - and not functions. A battery and a lamp are not functions, and the addition of the word "means" does not convert the structure to a means or a step for performing a specific function. Consequently, the limitations fail the test of § 112, para. 6, and must be construed as ordinary limitations. The district court thus erred in thinking the limitations to be governed by § 112, para. 6.
That error, however, is harmless. The "battery means" and "lamp means" limitations, when construed in light of the specification, refer to a light bulb powered by a battery (’229 patent, col. 1, lines 20-24, 61-62). As the district court properly found, the accused products use a chemiluminescent light instead. A chemiluminescent light does not require a battery to operate. The chemiluminescent light in the accused products results from a chemical reaction between chemical materials (chemiluminescent glow sticks and glow buttons) that generates light for a limited time. No electrical current is generated. On the other hand, the patent claims a lamp that is powered by an electrical current generated by the battery. Thus, the battery means and lamp means limitations are not met, and the accused products do not infringe the patent literally.

Neither is there infringement under the doctrine of equivalents. To prove infringement under the doctrine of equivalents, the patentee must show that the accused devices perform (1) substantially the same function, (2) in substantially the same way, and (3) to achieve substantially the same result, as the claimed invention. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538, 20 U.S.P.Q.2d (BNA) 1456, 1458 (Fed. Cir. 1991).

Here, the claimed invention and the accused products generate the light in very different ways with different results. Generating light through chemiluminescence generally makes the saucer lighter because the battery is not needed. Also, no mechanical connections between the lamp and the battery are necessary, making it a sturdier construction. However, once the chemical reaction starts, chemiluminescence cannot be stopped. In a battery-operated lamp, on the other hand, a simple switch may be employed to turn off the lamp light (see ’229 patent, col. 2, lines 6-11). Accordingly, the district court did not err in holding noninfringement under the doctrine of equivalents with respect to the battery means and lamp means limitations.

### 2612

**A. Claim Construction**

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the ’136 Patent and prosecution history, the parties’ Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

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<th>Claim Term</th>
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<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
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<td>&quot;Terminal&quot;</td>
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"Relates . . . in a predetermined manner" | "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched" | "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal" | "locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means" | "a data processing device"

"Transmitting to a computer" | "sending by means of a signal path to a computer"

"Validation" and "Valid" | "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely" | "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means" | "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means" function | "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" structure | "a modem or a signal path"

"Selected from a group of ID information" (Claim 2) | "chosen from one of the following ID information"

--- Footnotes ---

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

--- End Footnotes ---
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</tr>
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<td>&quot;Computer means&quot;</td>
<td>&quot;a computer that is located apart&quot;</td>
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- 2955 -
disposed remotely” from a terminal and connected to the terminal by a signal path”

"Card reader means" "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means" function "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" "a modem or a signal path" structure

"Selected from a group of ID information" (Claim 2) "chosen from one of the following ID information"

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n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

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2614

4. "master network timing means"

Claim 1 requires a master unit with a master network timing "means." In relevant part, claim 1 states "said master unit including a master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs . . . ." '819 patent, claim 1. The parties debate whether this limitation is a means-plus-function limitation.

Use of the word "means" invokes a presumption that the claim is governed by 35 U.S.C. § 112 P 6. The plaintiff, however, correctly observes that the limitation does not recite any function performed by the means and, as such, is outside the scope of § 112 P 6. Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1427 (Fed. Cir. 1997).

Although the phrase is not a means-plus-function limitation, the plaintiff suggests that the court should construe the "timing means" limitation. The plaintiff proposes a construction of "a clock for determining network timing or for delineating time into time slots." Although the defendants do not propose an alternative construction, they disagree that a clock determines what the period shall be and how the period should divide into subframes and time slots. The defendants instead argue that the period, subframes, and time slots are determined by the network timing and control processor. See '819 patent, 3:1-3. The plaintiff, on the other hand, argues that the description of "master network clock" in the specification matches the language of the claim. See ’819 patent, 6:37-39, 7:38-39.

Because the term is not governed by § 112 P 6, it is improper to limit the term to the structures described in the specification. The language of this claim limitation needs no further construction, and the court rejects the plaintiff's attempt to limit the term to the master network clock recited in the patent.

2615

Means (at a merchant) for accepting a customer identifier as payment from the customer and means for electronically
forwarding information related to the payment to a computerized merchant processor

The parties have addressed this single "means-plus-function" claim limitation as two separate limitations, one being "means for accepting" and the other being "means for forwarding." However, the claim, as written, clearly sets forth dual functions and requires the corresponding structure to perform both. See Cardiac Pacemakers Inc. v. St. Jude Med. Inc., 296 F.3d 1106 (Fed. Cir. 2002).

Also, both parties advance a construction that includes a telephone and a World Wide Web page as alternative corresponding structures. Initially, it is to be noted that the claim clearly specifies that the structure is "at a merchant." The '281 patent specification only identifies that a modality for a customer to provide a customer identifier as payment to a merchant can be use of a telephone or use of the World Wide Web. These modalities are alternatives to a customer being "at a merchant location," such as a retail establishment. See Col. 2, lines 7-11 and Col. 3, lines 20-27. Therefore, a telephone and a World Wide Web page are not linked as structure "at a merchant" that performs the customer identifier accepting function specified in the claim, nor is such structure linked to performing the "forwarding" function.

The Plaintiff identifies corresponding structure as being consumer data input device 316 and input/output device 322 as the "accepting means" and "forwarding means," respectively. Defendants contend that the "accepting means" is a keyboard or magnetic card reader but no structure is disclosed for the "forwarding means." According to Defendants, the absence of structure is because a computer, properly configured software, and a communications device are required to perform the forwarding function but the '281 patent specification fails to provide an algorithm according to which software performs the forwarding function. SeeDefs.' Br. at 23-28.

In support of their position, Defendants rely upon WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339 (Fed. Cir. 1999) and Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1253 (Fed. Cir. 2005). According to Defendants, the corresponding structure cannot be a general purpose computer alone but must also include the algorithm being executed in realization of the specified function. Plaintiff sidesteps WMS Gaming and Harris by contending that the function is not computer-implemented. Rather, according to Plaintiff's view, the "forwarding" function simply requires a transmission of the payment-related information, which function is adequately accomplished by just the modem. Although the parties purport to have "agreed" as to the function, they have staked out positions as to the corresponding structure based on differing views of the "forwarding" function. Plaintiff contends it is simply a transfer of data between the merchant location and the merchant processor, whereas Defendants consider it to involve a complex, algorithmic processing operation.

The parties, however, do agree that any corresponding structure must be clearly linked to the claimed function by the '281 patent specification. See Pl.'s Br. at 9; Defs.' Br. at 30. The parties also agree that the diagram of Fig. 3B illustrates the structure that is disclosed as being "at a merchant." The structure of Fig. 3B is further identified as being in accordance with Verifone merchant-location equipment. See Col. 6, lines 57-59. Moreover, the '281 patent specification reiterates the linking of Verifone equipment to the accepting and forwarding functions in the Summary of the Invention. See Col. 2, lines 31-43.

Neither of the parties disputed at oral argument that Verifone merchant-location equipment includes a keypad, magnetic card reader, processor, memory and modem. All of these components are shown in Fig. 3B. Also, such equipment would be understood by one skilled in the art to include the necessary software algorithms for execution by a processor in conducting the necessary point-of-sale operations attendant accepting a customer identifier and forwarding payment information.

The "forwarding" function is with respect to "information related to the payment" from the customer. The '281 patent specification describes the equipment of Fig. 3B as including a cash register device 318, which permits a sales clerk to enter the amount of the customer purchase and "possibly other related information." See Col. 6, lines 34-39. The description continues with an explanation that the transaction data entered through the keypad/card reader and the cash register may be stored in memory along with merchant data including information identifying, for example, the time or location of the sale. See Col. 6, lines 43-49. Throughout the description of Fig. 3B in relation to the "information related to the payment," the '281 patent specification does not mention the I/O modem 322 and instead focuses on the processor and memory elements of Fig. 3B. Thus, the '281 patent specification does not link the modem 322 standing alone to "information related to the payment."

Because the processor 312 is part of the corresponding structure linked to forwarding information related to the payment, in accordance with WMS Gaming and Harris, any disclosed algorithm is necessarily part of the corresponding structure. Defendants contend that there is no algorithm disclosed. However, the '281 patent specification identifies Verifone
merchant-location equipment, which was generally available and is identified in the '281 patent as including all the structure, including software to be executed by the processor, for implementing the accepting and forwarding functions. This is a description of sufficient disclosure to one skilled in the art. See Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374 (Fed. Cir. 1999).

The Court concludes therefore that the corresponding structure "at a merchant" linked by the '281 patent specification to the accepting and forwarding functions is a combination of processor 312, memory 320, modem 322, and a keypad or magnetic card reader 316, together with software executing an algorithm as implemented by Verifone merchant-location equipment available as of the July 9, 1997, filing date of the parent application, serial no. 08/890,398. Consequently, the limitation of "at a merchant, means for accepting a customer identifier as payment from the customer and for electronically forwarding information related to the payment to a computerized merchant processor" covers a combination of processor 312, memory 320, modem 322, and a keypad or magnetic card reader 316 together with software executing an algorithm as implemented by Verifone merchant-location equipment available as of the July 9, 1997 filing date of the parent application, serial no. 08/890,398, and equivalents thereof.

K. The Means Limitations

In asserting that the means limitations of the '156 Patent are indefinite for failing to disclose a structure as required by § 112, P 6, Rebelt relies on WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339 (Fed. Cir. 1999) and the related line of Federal Circuit precedent. See Net MoneyIn v. VeriSign, Inc., 545 F.3d 1359 (Fed. Cir. 2008); Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323 (Fed. Cir. 2008); Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328 (Fed. Cir. 2008); Harris Corp. v. Ericsson, Inc., 417 F.3d 1241 (Fed. Cir. 2005).

In WMS Gaming, the patent at issue covered an electronic slot machine designed to manipulate the odds of winning by using a mathematical formula, rather than the natural stop positions of the slot machine reels, to control the outcome of the game. The means limitation for assigning numbers to the stop positions on the reel disclosed, as the corresponding structure, a microprocessor or computer to control the slot machine along with an algorithm for assigning numbers to the various stop positions. WMS Gaming, 184 F.3d at 1347-48. The Federal Circuit held that the corresponding structure was the algorithm to be run on the general purpose microprocessor since the computer, once programmed with the algorithm, "in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." Id. at 1348 (quoting In re Alappat, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc)).

Rebelt's indefiniteness argument with respect to the means limitations of the '156 Patent is premised on its assertion that the WMS Gaming line of cases applies to these limitations. WMS Gaming, however, dealt with the situation in which the disclosed structure for a means plus function claim was a general purposes computer or microprocessor programmed to carry out a mathematical algorithm. See id. at 1349. Subsequent cases applying WMS Gaming to require disclosure of an "algorithm" share the common characteristic of dealing with systems in which algorithms were used to perform various functions on a general purpose computer or microprocessor. See Net MoneyIn, 545 F.3d at 1365 (system for processing credit card transactions over the Internet and to address security issues utilizing computer "means for generating an authorization indicia in response to queries"); Finisar, 523 F.3d at 1340 (information broadcasting system with computer-based "database editing means . . . for generating a hierarchically arranged set of indices . . . and for embedding said indices."); Aristocrat Techs., 521 F.3d at 1331-33 (electronic slot machine with "game controls means" "defining a set of predetermined arrangements for a current came" where the structure was simply "any standard microprocessor base [sic] gaming machine [with] appropriate programming."); Harris Corp., 417 F.3d at 1253-54 (system implemented by a microprocessor programmed to handle distortion of wireless signals using a "time domain processing means for simulating the time domain effect of said dispersive medium on signals . . . and for producing estimates of said information signals").

Those cases establish that disclosing a computer or a computer with "appropriate programming" as the structure designated to perform a function does not satisfy the requirements of § 112, P 6. The specifications of the patents at issue in those cases identified only general purpose computers or microprocessors as the relevant structure without providing specifics as to the type of software running on the devices. Because general purpose computers and microprocessors can be programmed to perform any number of functions, a person skilled in the art reading the claims in view of the specification would not
understand the metes and bounds of the claims. WMS Gaming and the cases citing to it sought to prevent this type of indefinite claiming that relied on the disclosure of an undefined computer algorithm.

Here, however, the specification of the '156 Patent does not point to some undefined software implemented on a general purpose computer as the corresponding structure for its functional claim limitations. Rather, the specification describes various types of modules and their equivalents as the corresponding structure for the means limitations. Numerous courts have previously found that in the telecommunications field, a "module" is not a general purpose computer. Rather, it is a special purpose hardware device or software component, readily identifiable to a person of skill in the art, and which can serve as the corresponding structure for a means plus function limitation. See Foundry Networks, 2005 U.S. Dist. LEXIS 46840, at *21, 22, 24, 25 ("voice communication module"); Alcatel USA, 2008 U.S. Dist. LEXIS 64351, at *52, 56, 60 ("locator module" and "device module"); Roche Diagnostics, 455 F. Supp. 2d at 857 ("removable and/or read-only-memory . . . module"); Visto Corp., 2008 U.S. Dist. LEXIS 3244, at *32-34, 37 ("general synchronization module," "synchronization start module," and "communications module"); Autobytel, 2006 U.S. Dist. LEXIS 3381, at *24-26 ("process purchase request module," "database access module," "buyer-dealer association module," and "network access module").

Moreover, not every patent that utilizes computer processing power must disclose all the algorithms utilized. Courts have held that a specific algorithm need not be disclosed to avoid indefiniteness where the function in question would be readily apparent to a person of skill in the art. See Aristocrat Techs. Austl. Pty Ltd., v. Multimedia Games, Inc., No. 2007-1375, 266 Fed. Appx. 942, 2008 U.S. App. LEXIS 3774, at *16 (Fed. Cir. Feb. 22, 2008) ("WMS Gaming, however does not require that a particular algorithm be identified if the selection of the algorithm or group of algorithms needed to perform the function in question would be readily apparent to a person of skill in the art."); Med. Instrumentation, 344 F.3d at 1214 ("[T]here would be no need for a disclosure of the specific program code if software were linked to the converting function and one skilled in the art would know the kind of program to use."); S3 Inc. v. nVIDIA Corp., 259 F.3d 1364, 1371 (Fed. Cir. 2001) ("[T]he law is clear that patent documents need not include subject matter that is known in the field of the invention and is in the prior art, for patents are written for persons experienced in the field of the invention."); SPX Corp. v. Bartec USA, LLC, 557 F. Supp. 2d 810, 819-20 (E.D. Mich. 2008) (extent of algorithm requirement determined by knowledge of ordinary skilled artisan).

Here, a caller ID detection module (or originating telephone number module) performs the well-known function of identifying the calling telephone number. Likewise, a telephone number detection module performs the function of detecting the dialed telephone number, an interface module performs the function of receiving an incoming telephone call, and a call connection module performs the function of connecting telephone calls. These functions practiced by every telephone service provider and are well known in the art.

The '156 Patent's module references would convey to a person skilled in the art the structure required for performing the claimed functions and therefore the metes and bounds of the claim. As a result, the WMS Gaming line of cases is inapplicable, and the means limitations of the '156 Patent are not indefinite.

5. "means, coupled with the buffer memory and including a host system alterable threshold store for storing a threshold value, for monitoring the transferring of data of a frame to the buffer memory to make a threshold determination of an amount of data of the frame transferred to the buffer memory"

This term appears only in claim ten of the of the '872 patent. '872 patent at 31:16-22. The parties dispute whether "coupled with the buffer memory and including a host system alterable threshold store for storing a threshold value" should be interpreted according to 35 USC § 112(6). 3Com again argues that § 112(6) should not apply to this portion of the limitation. Doc # 81 (05-0098) at 53-54. Realtek again argues that § 112(6) should apply to the entire limitation.

Paragraph six of § 112 applies to functional language "without the recital of structure, material, or acts in support thereof." 35 USC § 112. While the claim is somewhat unusual in form, it does appear that the language set off by commas does define structure. The terms "coupled," "buffer memory" and "alterable threshold store" are all structural rather than functional elements. Accordingly, the court holds that "coupled with the buffer memory and including a host system
alterable threshold store for storing a threshold value” should not be interpreted according to § 112(6).

6. "Means for ascertaining whether the at least one claim contains a plurality of medical service codes.” 15 This is a means-plus-function limitation. 16 The function is ascertaining whether the at least one claim contains a plurality of medical service codes. 17 The structure is hardware and software capable of ascertaining whether the at least one claim contains a plurality of medical service codes. 18

--- Footnotes ---
15 The ’164 patent, claims 3, 10, 12, 14 and 15. 16 35 U.S.C. § 112, P6. 17 The structure of a computer system is adequately linked to the function of ascertaining whether a claim contains a plurality of medical service codes, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 (“The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim].”). See ’164 patent, col. 4, ll. 51-54 (“Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both.”); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See ’164 patent, col. 4, ll. 33-40.

--- End Footnotes ---


Claim 7 of the ’114 patent states, with the disputed terms in bold:

A calling card system comprising:

. . . a plurality of data terminals connectable to the host computer, each data terminal identified by a data terminal identification code and including means for authorizing calling card security numbers in selectable call authorization amounts . . .

The parties agree, and the court finds, that this is a means-plus-function term governed by 35 U.S.C. § 112 (6). TGIP states that the function is "authorizing calling card security numbers in call authorization amounts selectable by the customer.” Defendants neither suggested any alternative function, nor stated that there is no function.

The specification, and the prosecution history, do not indicate that the words in this means-plus-function clause have a special meaning.

The data terminal allows for variable authorization and recharging of a calling card. When the cardreader cannot detect the security number stored in the memory . . . the data terminal operator may enter the security number using the keypad to enable point-of-sale activation or recharging of the card. By keeping track of the security number and the identification of the authorizing data terminal, the system can generate accounting and/or billing information so that [the] system operator can determine which data terminal operator authorized and/or recharged a particular calling card.

'114 patent, col. 2, l. 60 - col. 3, l. 4; see also ’114 patent, col. 4, ll. 44-50. Based upon the specification, the definitions set out in the Claim Construction Order, and the ordinary meaning of the terms to one skilled in the art, the court concludes that the function is: "authorizing calling card security numbers in call authorization amounts selectable by the customer."

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TGIP argues that the corresponding structure is "a keypad, cardreader, optical scanner, voice recognition card connected to a microphone for providing limited speaker-independent or speaker-dependent discrete or continuous voice recognition, or equivalents for entering and/or reading the security number and/or call authorization amount; and a data terminal, on-site activation terminal, Verifone Model XL 300, modem, or equivalents for transferring the security number and/or call authorization amount to the host computer, or any equivalents of the above."

Claim 7 is the only independent claim in the '114 patent which does not refer to "associating." The parties agree that the "means for authorizing" structure must be included in the data terminal. TGIP's argument is based on fact that the data terminal is described as including "a number of functional components." '114 patent, col. 3, l. 67-col. 4, l. 1. Among these are the means for reading a calling card (such as a cardreader), means for entering any monetary amount corresponding to an amount of call authorization associated with a particular calling card (such as a keypad), means for dialing the host computer to transfer the security number (such as a modem), and means for receiving and displaying a verification message from the host computer authorizing the receipt of the monetary amount (such as a display). '114 patent, col. 2, ll. 49-59; '114 patent, col. 4, ll. 17-29. These are the same structural components which TGIP states correspond to the "means for associating" clause, discussed above. Neither the specification nor the claims discuss "means for authorizing" in context with these structural components.

TGIP has argued that Claim 7 is different because it does not include the function of "associating, at the host computer, an amount of call authorization to a security number," n3 as found in Claims 1 and 6. See TGIP's Supp. Br., pp. 2-3[Doc. # 229-1, pp. 3-4 of 12]; Markman Tr. pp. 75-78. In contrast, before the PTO, the patentee argued that there was no difference between Claims 1 and 7. See Amendment to First Office Action, 5/18/1995, p. 9 (Bates No. TGIP 006429), Ex. 7 to Defendants' Responsive Brief [Doc. # 207, Attachment # 7, p. 10 of 11](emphasis added); Claim Construction Order, p. 12 [Doc. # 238].

n3 The arguments concerning, and the meaning of, this term are set out in the Claim Construction Order, pp. 7-12 [Doc. # 238].

TGIP cannot "have its cake and eat it, too." If Claim 7 is so different from Claim 1, then what is the corresponding structure? TGIP proposes only the same structure as the "means for associating" clause in Claim 1. The associating function and the authorizing function, however, are not mentioned or discussed as being similar in the patent. Absent some connection, or at least some similarity, between the two, there is no basis for one skilled in the art to conclude that the corresponding structure is the same.

There is also no basis to assume that a skilled artisan would be able to tell how the authorizing function is accomplished, or what the limitations of the claim are, from TGIP's proposed structure. As noted above, TGIP's proposed structure relates to means for reading a calling card, means for entering any monetary amount, means for dialing the host computer, and means for receiving and displaying. There is nothing in the specification or the claims which clearly links the authorizing function to these proposed structures. This is consistent with TGIP's position that the clauses in Claims 1 and 7 are very different, and that they perform different functions. Because it is not possible to clearly identify the corresponding structure, there is no way for one skilled in the art to meaningfully determine the limitations of the "means for authorization" clause.

Additionally, if Claim 7 is the same as Claim 1, then "means for authorizing" would simply be synonymous with "means for associating." This would effectively collapse the two claims and would violate the principal of claim differentiation. See Free Motion Fitness, Inc. v. Cybex Intern., Inc., 423 F.3d 1343, 1351 (Fed. Cir. 2005)("the difference in meaning and scope between claims is presumed to be significant."). Notably, TGIP does not suggest this argument in its response.

While TGIP insists that Claim 7 and Claim 1 are different because Claim 7 does not refer to "associating," TGIP proposes the exact same structure for both of these claims without reconciling, or accounting for, how the same structure would perform these different functions. There is no evidence that one skilled in the art would be able to determine that the structure suggested by TGIP corresponds to the authorizing function. The court concludes that this claim is indefinite and so
Construing the Disputed Limitations of Claim 1

As far as claim construction is concerned, our task is to identify the claimed function and the corresponding structure of each of the three disputed limitations of claim 1. We begin with the first of the three disputed limitations: "means for assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers." This limitation contains the terms "angular positions," "radial positions," and "rotational positions." The district court construed each of these terms to refer to stop positions of the reel. Neither party challenges that construction.

The claimed function of the "means for assigning" limitation is "assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers." In other words, the claimed function is assigning a plurality of numbers to stop positions, where the plurality of numbers exceeds the number of stop positions and some stop positions are represented by more than one number.

In regard to the disclosed corresponding structure of the "means for assigning" limitation, WMS and IGT stipulated--and the district court accepted the stipulation--that the Telnaes patent discloses a microprocessor, or computer, to control the operation of the slot machine, including the operation of the machine in the assignment of numbers to reel stop positions. The algorithm that controls the assignment of numbers to stop positions is disclosed in Figure 6 of the Telnaes patent. Figure 6 illustrates an algorithm in which a plurality of single numbers are assigned to stop positions such that: 1) the range of single numbers exceeds the number of stop positions; 2) each single number is assigned to only one stop position; 3) each stop position is assigned at least one single number; and 4) at least one stop position is assigned more than one single number. The prosecution history reinforces the teachings of Figure 6. The prosecution history indicates that each number must correspond to a stop position, but that several numbers may correspond to the same stop position. In response to an Office Action, Telnaes stated, "the applicant has disclosed a machine which utilizes a standard mechanism but on which the odds can be changed substantially infinitely. The only guidelines are that there must be a symbol for each symbol indicator in virtual memory but there can be many positions in the virtual memory for each symbol on the reel."

Although we fail to find anything in the Telnaes patent that limits the "means for assigning" limitation to a microprocessor or computer, where, as here, the parties agree to a claim construction that is adopted by the district court, and neither party disputes that construction on appeal, we decline to raise an issue sua sponte that the parties have not presented. See Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 842, 50 U.S.P.Q.2D (BNA) 1225, 1228 (Fed. Cir. 1999).

The district court construed the "means for assigning" limitation of claim 1 to cover "any table, formula, or algorithm for determining correspondence between the [randomly selected] numbers and rotational positions of the reel." WMS argues that this construction was overly broad. It contends that the "means for assigning" limitation should have been defined by the corresponding structure, material, or acts described in the patent specification, or their equivalents, and should have been further limited by the prosecution history. IGT responds that the court properly construed the claim.

We agree with WMS that the district court's construction of the "means for assigning" limitation was overly broad. The written description of the Telnaes patent is almost completely devoid of any structure to support this limitation of the claim. The district court apparently took this lack of disclosure to indicate that the limitation reads on any means for performing the recited function. However, this construction is at odds with the requirements of 35 U.S.C. § 112. See Valmont Indus., 983 F.2d at 1042, 25 U.S.P.Q.2D (BNA) at 1454 (holding that section 112, P 6, permits the use of means-plus-function language in claims, but with the proviso that the claims are limited to the structure, material, or acts disclosed in the
specification and their equivalents).

The district court determined that the structure disclosed in the specification to perform the claimed function was "an algorithm executed by a computer." While this finding accurately reflected the parties' stipulation, the court erred by failing to limit the claim to the algorithm disclosed in the specification. The structure of a microprocessor programmed to carry out an algorithm is limited by the disclosed algorithm. A general purpose computer, or microprocessor, programmed to carry out an algorithm creates "a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." In re Alappat, 33 F.3d 1526, 1545, 31 U.S.P.Q.2D (BNA) 1545, 1558 (Fed. Cir. 1994) (en banc); see In re Bernhart, 57 C.C.P.A. 737, 417 F.2d 1395, 1399-1400, 163 U.S.P.Q. (BNA) 611, 615-16 (CCPA 1969) ("If a machine is programmed in a certain new and unobvious way, it is physically different from the machine without that program; its memory elements are differently arranged."). The instructions of the software program that carry out the algorithm electrically change the general purpose computer by creating electrical paths within the device. These electrical paths create a special purpose machine for carrying out the particular algorithm. n3

n3 A microprocessor contains a myriad of interconnected transistors that operate as electronic switches. See Neil Randall, Dissecting the Heart of Your Computer, PC Magazine, June 9, 1998, at 254-55. The instructions of the software program cause the switches to either open or close. See id. The opening and closing of the interconnected switches creates electrical paths in the microprocessor that cause it to perform the desired function of the instructions that carry out the algorithm. See id.

In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm. See Alappat, 33 F.3d at 1545, 31 U.S.P.Q.2D (BNA) at 1558. n4 Accordingly, the structure disclosed for the "means for assigning" limitation of claim 1 of the Telnaes patent is a microprocessor programmed to perform the algorithm illustrated in Figure 6. In other words, the disclosed structure is a microprocessor programmed to assign a plurality of single numbers to stop positions such that: 1) the number of single numbers exceeds the number of stop positions; 2) each single number is assigned to only one stop position; 3) each stop position is assigned at least one single number; and 4) at least one stop position is assigned more than one single number.

n4 In State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 47 U.S.P.Q.2D (BNA) 1596 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093, 124 L. Ed. 2d 704, 119 S. Ct. 851 (1999), the patented invention related generally to a system that allowed an administrator to monitor and record financial information flow and make all calculations necessary for maintaining "a partner fund financial services configuration." 149 F.3d at 1371, 47 U.S.P.Q.2D (BNA) at 1598. We pointed out that claim 1 of the patent, which was drafted in section 112, P 6 format claimed "a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structures disclosed in the written description and corresponding to the means-plus-function elements (a)-(g) recited in the claim." Id. at 1372, 47 U.S.P.Q.2D (BNA) at 1600. The structures corresponding to the means-plus-function elements recited in claim 1 in State Street were "a personal computer including a CPU" (element (a)), "a data disk" (element (b)), and "arithmetic logic circuits" configured to perform various functions (elements (c)-(g)). Id. at 1371-72, 47 U.S.P.Q.2D (BNA) at 1599.
means for determining. 27 The structure is hardware and software capable of authorizing medical service codes which are valid in response to the means for determining. 28

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25 The '164 patent, claim 3.26 35 U.S.C. § 112, P6.27 '164 patent, col. 117, ll. 60-61.28 The structure of a computer system is adequately linked to the function of authorizing medical service codes which are valid in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 (“The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim].”). See '164 patent, col. 4, ll. 51-54 (“Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both.”); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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10. "Means for rejecting medical service codes which are invalid in response to the means for determining." 29 This is a means-plus-function limitation. 30 The function is rejecting medical service codes which are invalid in response to the means for determining. 31 The structure is hardware and software capable of rejecting medical service codes which are invalid in response to the means for determining. 32

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29 The '164 patent, claim 3.30 35 U.S.C. § 112, P6.31 '164 patent, col. 117, ll. 63-64.32 The structure of a computer system is adequately linked to the function of rejecting medical service codes which are invalid in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 (“The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim].”). See '164 patent, col. 4, ll. 51-54 (“Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both.”); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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11. "Means for revising the at least one claim to delete invalid medical service codes." 33 This is a means-plus-function limitation. 34 The function is revising the at least one claim to delete invalid medical service codes. 35 The structure is hardware and software capable of revising the at least one claim to delete invalid medical service codes. 36

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33 The '164 patent, claim 4.34 35 U.S.C. § 112, P6.35 '164 patent, col. 117, ll. 65-67.36 The structure of a computer system is adequately linked to the function of revising the at least one claim to delete invalid medical service codes, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 (“The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim].”). See '164 patent, col. 4, ll. 51-54 (“Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both.”); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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12. "Means for informing a user why the at least one claim was revised." 37 This is a means-plus-function limitation. 38 The function is informing a user why the at least one claim was revised. 39 The structure is hardware and software capable of informing a user why the at least one claim was revised. 40
37 The '164 patent, claim 5.38 35 U.S.C. § 112, P6.39 '164 patent, col. 118, ll. 1-3.40 The structure of a computer system is adequately linked to the function of informing a user why the at least one claim was revised, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde v. Harley-Davidson, Inc., 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

13. "Means for requesting further information from a user regarding the at least one claim." 41 This is a means-plus-function limitation. 42 The function is requesting further information from a user regarding the at least one claim. 43 The structure is hardware and software capable of requesting further information from a user regarding the at least one claim. 44 The '164 patent, claim 8.42 35 U.S.C. § 112, P6.43 '164 patent, col. 118, ll. 10-12.44 The structure of a computer system is adequately linked to the function of requesting further information from a user regarding the at least one claim, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

14. "Means for determining whether one of the medical service codes in the at least one claim is included in any other medical service code in the at least one claim." 45 This is a means-plus-function limitation. 46 The function is determining whether one of the medical service codes in the at least one claim is included in any other medical service code in the at least one claim. 47 The structure is limited to the disclosed algorithm in the patent specification. 48 The '164 patent, claim 10.46 35 U.S.C. § 112, P6.47 '164 patent, col. 118, ll. 31-34.48 The specification links the claimed function to software. ('164 patent, Fig. 2, 24; Fig. 4, 24) However, according to the patentee, at the time of the patent application there was no software to carry out this function. ('164 patent, col. 3, ll. 6-14) Therefore, as a result of using means-plus-function language and software as the structure, the structure is limited to the algorithms disclosed in the patent specification and their equivalents. WMS Gaming Inc., 184 F.3d 1339.

15. "Means for authorizing medical service codes which are not contained in any other medical service code." 49 This is a means-plus-function limitation. 50 The function is authorizing medical service codes which are not contained in any other medical service code. 51 The structure is hardware and software capable of authorizing medical service codes which are not contained in any other medical service code. 52 The '164 patent, claim 10.50 35 U.S.C. § 112, P6.51 '164 patent, col. 118, ll. 35-37.52 The structure of a computer system is adequately linked to the function of authorizing medical service codes which are not contained in any other medical service code, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a
computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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16. "Means for rejecting medical service codes which are contained in any other medical service code.") 53 This is a means-plus-function limitation. 54 The function is rejecting medical service codes which are contained in any other medical service code. 55 The structure is hardware and software capable of rejecting medical service codes which are contained in any other medical service code. 56

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53 The '164 patent, claim 10.54 35 U.S.C. § 112, P6.55 '164 patent, col. 118, ll. 38-39.56 The structure of a computer system is adequately linked to the function of rejecting medical service codes which are contained in any other medical service code, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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17. "Means for revising the at least one claim to not include a rejected medical service code.") 57 This is a means-plus-function limitation. 58 The function is revising the at least one claim to not include a rejected medical service code. 59 The structure is hardware and software capable of revising the at least one claim to not include a rejected medical service code. 60

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57 The '164 patent, claim 4.58 35 U.S.C. § 112, P6.59 '164 patent, col. 117, ll. 65-67.60 The structure of a computer system is adequately linked to the function of revising the at least one claim to not include a rejected medical service code, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

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18. "Means for determining whether one of the medical service codes in the at least one claim is medically exclusive with any other medical service codes in the at least one claim.") 61 This is a means-plus-function limitation. 62 The function is determining whether one of the medical service codes in the at least one claim is medically exclusive with any other medical service codes in the at least one claim. 63 The structure is limited to the disclosed algorithm in the patent specification. 64

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61 The '164 patent, claim 12.62 35 U.S.C. § 112, P6.63 '164 patent, col. 118, ll. 57-59.64 The specification links the claimed function to software. (‘164 patent, Fig. 2, 24; Fig. 4, 24) However, according to the patentee, at the time of the patent application there was no software to carry out this function. (‘164 patent, col. 3, ll. 6-14) Therefore, as a result of using means-plus-function language and software as the structure, the structure is limited to the algorithms disclosed in the patent specification and their equivalents. WMS Gaming Inc., 184 F.3d 1339.
19. "Means for authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining." 65 This is a means-plus-function limitation. 66 The function is authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining. 67 The structure is hardware and software capable of authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining. 68

65 The '164 patent, claim 12.66 35 U.S.C. § 112, P6.67 '164 patent, col. 118, ll. 61-64.68 The structure of a computer system is adequately linked to the function of authorizing medical service codes which are not medically exclusive with any other medical service codes in the at least one claim in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

20. "Means for rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step." 69 This is a means-plus-function limitation. 70 The function is rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step. 71 The structure is hardware and software capable of rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step. 72

69 The '164 patent, claim 12.70 35 U.S.C. § 112, P6.71 '164 patent, col. 118, ll. 65-68.72 The structure of a computer system is adequately linked to the function of rejecting medical service codes which are medically exclusive with any other medical service codes in the at least one claim in response to the determining step, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

21. "Means for determining whether any medical service code contained in the at least one claim is not present in the predetermined database." 73 This is a means-plus-function limitation. 74 The function is determining whether any medical service code contained in the at least one claim is not present in the predetermined database. 75 The structure is limited to the disclosed algorithm in the patent specification. 76

73 The '164 patent, claim 13.74 35 U.S.C. § 112, P6.75 '164 patent, col. 119, ll. 13-15.76 The specification links the claimed function to software. (‘164 patent, Fig. 2, 24; Fig. 4, 24) However, according to the patentee, at the time of the patent application there was no software to carry out this function. (‘164 patent, col. 3, ll. 6-14) Therefore, as a result of using means-plus-function language and software as the structure, the structure is limited to the algorithms disclosed in the patent.
22. "Means for informing a user that a medical service code is not contained in the predetermined database." 77 This is a means-plus-function limitation. 78 The function is informing a user that a medical service code is not contained in the predetermined database. 79 The structure is hardware and software capable of informing a user that a medical service code is not contained in the predetermined database. 80

77 The '164 patent, claim 13. 78 35 U.S.C. § 112, P6. 79 '164 patent, col. 119, ll. 16-18. 80 The structure of a computer system is adequately linked to the function of informing a user that a medical service code is not contained in the predetermined database, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

23. "Means for determining whether one of the medical service codes in the at least one claim is mutually exclusive due to non-medical criteria with any other medical service code in the at least one claim." 81 This is a means-plus-function limitation. 82 The function is determining whether one of the medical service codes in the at least one claim is mutually exclusive due to non-medical criteria with any other medical service code in the at least one claim. 83 The structure is limited to the disclosed algorithm in the patent specification. 84

81 The '164 patent, claim 14. 82 35 U.S.C. § 112, P6. 83 '164 patent, col. 119, ll. 37-41. 84 The specification links the claimed function to software. ('164 patent, Fig. 2, 24; Fig. 4, 24) However, according to the patentee, at the time of the patent application there was no software to carry out this function. ('164 patent, col. 3, ll. 6-14) Therefore, as a result of using means-plus-function language and software as the structure, the structure is limited to the algorithms disclosed in the patent specification and their equivalents. WMS Gaming Inc., 184 F.3d 1339.

24. "Means for authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining." 85 This is a means-plus-function limitation. 86 The function is authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. 87 The structure is hardware and software capable of authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. 88

85 The '164 patent, claim 14. 86 35 U.S.C. § 112, P6. 87 '164 patent, col. 119, ll. 37-41. 88 The structure of a computer system is adequately linked to the function of authorizing medical service codes which are not mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of
skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

25. "Means for rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining." 89 This is a means-plus-function limitation. 90 The function is rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. 91 The structure is hardware and software capable of rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining. 92

89 The '164 patent, claim 14.90 35 U.S.C. § 112, P6.91 '164 patent, col. 119, ll. 42-46.92 The structure of a computer system is adequately linked to the function of rejecting medical service codes which are mutually exclusive due to non-medical criteria with any other medical service codes contained in the at least one claim in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

26. "Means for authorizing the at least one claim in response to the means for determining." 93 This is a means-plus-function limitation. 94 The function is authorizing the at least one claim in response to the means for determining. 95 The structure is hardware and software capable of authorizing the at least one claim in response to the means for determining. 96

93 The '164 patent, claim 15.94 35 U.S.C. § 112, P6.95 '164 patent, col. 120, ll. 20-23.96 The structure of a computer system is adequately linked to the function of authorizing the at least one claim in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

27. "Means for rejecting the at least one claim in response to the means for determining." 97 This is a means-plus-function limitation. 98 The function is rejecting the at least one claim in response to the means for determining. 99 The structure is hardware and software capable of rejecting the at least one claim in response to the means for determining. 100

97 The '164 patent, claim 15.98 35 U.S.C. § 112, P6.99 '164 patent, col. 120, ll. 22-23.100 The structure of a computer system is adequately linked to the function of rejecting the at least one claim in response to the means for determining, which a person of skill in the art would understand is one of the functions a computer system operating on a database performs. Medical Instrumentation & Diag. Corp., 344 F.3d at 1212 ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass [a computer system for receiving a claim]."). See '164 patent, col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims
or both."); Fig. 1. The computer system is adequately disclosed as being known to a person of skill in the art. Budde, 250 F.3d at 1381. See '164 patent, col. 4, ll. 33-40.

4. "means for comparing the counter to the threshold value in the alterable storage location and generating an indication signal to the host processor responsive to a comparison of the counter and the alterable storage location"

The parties dispute whether "generating an indication signal to the host processor responsive to a comparison of the counter and the alterable storage location" should be construed as a "means-plus-function" limitation under 35 USC § 112(6). 3Com contends that "generating an indication signal to the host processor responsive to a comparison of the counter and the alterable storage location" should not be governed by § 112(6). Doc # 81 (05-0098) at 53. Realtek contends that § 112(6) should apply to the entire limitation. Id.

The court finds that § 112(6) applies to "generating" for two reasons. First, "generating" is a function, not a structure. Paragraph six of § 112 applies to functional language "without the recital of structure, material, or acts in support thereof." In the absence of defined structure, "generating" must fall under § 112(6). Second, the grammatical structure of the claim suggests generating is to be considered part of single element. Patents, including the '459 patent, are structured with a series of elements separated by semicolons. The patentee could have inserted a semicolon before "generating" to indicate the start of a new element. While not dispositive, the absence of a semicolon suggests that a single limitation prefaced by "means" was intended. "A claim limitation that actually uses the word 'means' invokes a rebuttable presumption that § 112(6) applies." CCS, 288 F3d at 1369. Accordingly, the court finds that § 112(6) applies to the entire term identified above.

a. "means for decompressing"

The parties agree that claim 1 is a means-plus-function claim. Plaintiff contends that the function should be construed as “decompressing compressed song digital data,” which is the exact term used in the claim. Defendants contend that the function should be construed as “converting a compressed audio file back to its original size.” These are similar constructions, though defendants' proposed construction includes a proposed limitation (the file is converted back to its original size) that plaintiffs contend is technically incorrect. See Reply Brief, Ex. 21 at ¶ 26. Plaintiffs' expert opines that files can lose certain information during compression. Upon decompression, the lost information is not restored. Id.

The specification offers no guidance regarding the parties' competing constructions. Defendants offer no reason why this particular claim term requires any further definition beyond the language used in the claim. After all, the claim language itself is the first place to look to construe a claim. See Hockerson-Halberstadt, 222 F.3d at 955. The Court therefore construes the term as “decompressing compressed song digital data.”
Plaintiffs contends that the structure corresponding to this function is “a software algorithm or decompression circuit, and equivalents thereof.” Opening Brief at 12. Defendants contend that the structure is an adaptive delta pulse code modulation (ADPCM) algorithm corresponding to the particular ADPCM algorithm used for compression. Resp. Brief, Ex. E at 2. They point to language in the specification that describes an ADPCM compression circuit. Because no other decompression means is specifically identified, defendants contend that the only possible decompression means is an ADPCM algorithm. Defendants ignore, however, the next two sentences in the specification, which state that “[o]ther compression schemes may also be used. The compression circuit might also be fully replaced by a software algorithm which is executed by the host computer.” Opening Brief, Ex. 2 at 4:9-12. In short, the specification quite clearly does not limit decompression to an ADPCM algorithm as defendants contend. Because other compression schemes may be used, a person of average skill in the relevant field would understand that a corresponding decompression scheme must also be available. The Court therefore construes the term as “a software algorithm or decompression circuit.”

IV. “means for executing programs which make calls to a general purpose operating system”/ "means for executing programs which make calls to a UNIX operating system"

The final two disputed means-plus-function claim elements appear in claims 6 and 7 of the ’366 Patent and in claim 2 of the ’918 Patent. These dependent claims recite, inter alia, a "means for executing programs which make calls to a general purpose [or a Unix] operating system." ’366 Patent, 52:56-64; ’918 Patent, 127:15-19. The parties agree that the recited function is "executing programs which make calls to a general purpose [or a Unix] operating system." How-ever, while the parties also agree that the corresponding structure must include host processor 118, defendant urges the court to limit the scope of the claim to a Sun Microsystems Central processor. The specifications expressly state that "[t]he host processor 118 is a conventional OEM Sun central processor card, Model 3E/120." See, e.g., ’366 Patent, 11:49-50. Elsewhere in the specifications, host 118 is described as "essentially a standard SunOS Unix processor." See, e.g., id. at 8:18-19. Although the inventors also observed that other processors such as a SPARC-based processor were possible alternatives to the Sun Microsystems computer, see id. at 11:52-53, the only disclosed embodiment describes the host as Sun Microsystems processor. The court therefore adopts defendant's view that the structure corresponding to the "executing programs" function must include a SunOS Unix processor.

Defendant also proposes numerous other structural limitations on the scope of the "executing programs" term. The first group of these asserted limitations is essentially a list of services that would typically be provided by a general purpose operation system (e.g., a server manager). See id. at 11:7-48. Relying on WMS Gaming, defendant argues that these functional attributes are "algorithms" and thus must be included as corresponding structure. However, nothing in WMS Gaming requires this result. The rule that the Federal Circuit announced in that case is worth repeating: "In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." 184 F.3d at 1349 (citing Alappat, 33 F.3d at 1545). The court has already observed that in applying this rule, WMS Gaming appeared to define "algorithm" broadly, concluding that a description of the steps necessary to carry out the claimed function was sufficient to constitute "structure" for the pur-pose of section 112 P 6. Id.
It is true that the manner in which the court defined the structure of disclosed microprocessor was indirect and inferential in that it described the electronic configuration of the microprocessor by reference to a series of functional steps that the structure performs. See id. at 1348-49. Nonetheless, despite the indirect fashion in which the court described the disclosed structure, nothing in WMS Gaming suggests that the Federal Circuit intended to abandon the requirement that a structure corresponding to a means-plus-function element must be clearly linked to the claimed function and necessary to perform that function. See Asyst Techs., 268 F.3d at 1370. In contrast, defendant's proposed claim limitations are little more than a laundry list of applications that run on the host processor. Rather than describing a "means for executing programs" in functional terms or otherwise, this list of programs merely describes the functional attributes of the programs that are executed by those means. This is not sufficient to disclose "structure" for purposes of applying section 112 P 6.

Finally, defendant argues that the structure corresponding to the "executing programs" function must include algorithms for reading "message descriptors" sent to the local host by the network controller and for copying messages from either the network controller's local memory or from system memory. In other words, defendant seeks to include algorithms for communicating with other components of the file server as limitations of the "executing programs" term. However, the Federal Circuit "has repeatedly held that it is improper to restrict a means-plus-function limitation by adopting a function different from that explicitly recited in the claim." Creo Prods., Inc. v. Presstek, Inc., 305 F.3d 1337, 1346 (Fed. Cir. 2002) (collecting cases). Simply put, "executing programs" is a different function than "communicating." Thus, because defendant's proposed "reading" and "copying" algorithms in defendant's proposed claim construction do not perform the "executing programs" function, they cannot limit the meaning of that term as it is used in the patents' means-plus-function claim elements. The court therefore holds that the structure corresponding to the "means for executing programs which make calls to a general purpose [or a Unix] operating system" is "a SunOS Unix processor."

After holding a Markman hearing, the Court issued its Memorandum Opinion and Order on Claim Construction in which it construed six terms integral to the determination of this case and the instant motions. (doc. 270) The claims were construed as follows:

(1) "connected and connectable" -- These terms mean "directly joined to one another within the same unitary piece of equipment without any intervening equipment."

(2) "unified structure" -- Although not a claim term, the Court defines the term "unified structure" to mean "a consolidated structure with all components directly connected to one another."

(3) "bypass" -- "Bypass" means "a structure and path by which data channels completely go around and in no respect go through the TST switch."

(4) "control store" -- 'A control store' is included within a single unified DRTST switching unit that includes a memory, processor, and operating software that determines (1) which data circulating on the network loop is to be selected and diverted to the TST switch of a given switching node; (2) how that data passes through the TST switch; (3) which data is output from the TST switch back onto the network loop; and (4) which data is to bypass the TST switch of that node."

(5) "means for measuring" -- The Court finds that this term is not capable of construction.

(6) "direction of the timing adjustment interval" -- This term means "[t] he timing adjustment control command signal is fed in a reverse direction from the data signal; that is, from a downstream digital switching unit to an upstream digital switching unit, in a direction opposite the data flow."

(Mem. Op. and Order on Claim Constr. at 30-31)
claim is operating on a predetermined database. The structure corresponding to this function comprises data processing capabilities, memory and software capable of managing a database.

5. "Means for receiving at least one claim." This is a means-plus-function limitation. The function is receiving at least one claim. The structure is hardware and software capable of receiving the at least one claim.

Claims 1 and 15 are representative of the claims in issue and are reproduced below.

1. A method for determining the approximate distance of a golf ball to a golf cup using a global positioning satellite system comprising the steps of:

   locating the position of the cup;
   storing the position of the cup;
   positioning a remote global positioning satellite receiver near the golf ball;
determining a position of the remote receiver using the global positioning satellite system; and

determining the distance from the remote receiver to the cup using the stored cup position and the position of the remote receiver.

15. An apparatus for determining the approximate distance to a golf cup using a global positioning satellite system comprising:

a global positioning receiver means for receiving signals indicative of the apparent position of the receiver means using the global positioning satellite system;

memory means for storing the position of the golf cup;

means linked to said global positioning receiver means and said memory means for calculating the distance between the position of the receiver means and the position of the golf cup; and

display means for displaying the distance.

'093 patent, col. 8, l. 60 - col. 9, l. 3 (claim 1), col.10, ll. 1-14 (claim 15).

The terms "position" and "location," used in the asserted claims, are central to the appeal. The district court construed these terms as, respectively, "position on the face of the earth in terms of latitude and longitude" and "location on the face of the earth in terms of latitude and longitude." Optimal Recreation Solutions, LLP v. Leading Edge Techs., Inc., No. CIV 96-2560-PHX-SMM, slip op. at 4 (Ariz. Sept. 29, 1999). The district court also determined that the terms "global positioning receiver means," "memory means," and "display means," in claim 15, were means-plus-function limitations subject to 35 U.S.C. § 112, paragraph 6. Id. at 6.

The district court precluded Optimal from using, at trial, any evidence of infringement under the DOE. The court made this ruling, in response to a motion in limine from LET, because of: (1) Optimal's failure to comply with Rule 26(a)(2)(B) of the Federal Rules of Civil Procedure regarding expert reports; (2) Optimal's failure to comply with the district court's discovery orders; and (3) Optimal's failure to update clearly posed interrogatories.

Optimal appeals the district court's judgment, challenging the claim construction and the DOE evidentiary ruling. We have exclusive appellate jurisdiction. 28 U.S.C. § 1295(a)(1) (1994).

* * *

3. The "means" Limitations

"If a claim element contains the word 'means' and recites a function, this court presumes that element is a means-plus-function element under § 112, P 6. That presumption falls, however, if the claim itself recites sufficient structure to perform the claimed function." Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364, 54 U.S.P.Q.2D (BNA) 1449, 1452 (Fed. Cir. 2000) (citation omitted). As an aid in determining whether sufficient structure is recited by a term used in a limitation, this court has inquired into whether the "term, as the name for structure, has a reasonably well understood meaning in the art." Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583, 39 U.S.P.Q.2D (BNA) 1783, 1786 (Fed. Cir. 1996). Contrary to the position of the dissent, resort to the specification is appropriate in making this determination. See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1303-05, 50 U.S.P.Q.2D (BNA) 1429, 1435-37 (Fed. Cir. 1999) (looking to the written description to buttress both the determination that the claim recites sufficient structure and the identification of the claimed function); Unidynamics Corp. v. Automatic Prods. Intl', Ltd., 157 F.3d 1311, 1319, 48 U.S.P.Q.2D (BNA) 1099, 1104 (Fed. Cir. 1998) (looking to the written description to determine whether the word "spring" recited sufficient structure to rebut the presumption that § 112, paragraph 6 applied).

This court, in Greenberg, also pointed out that "many devices take their names from the functions they perform . . ., such as 'filter,' 'brake,' 'clamp,' 'screwdriver,' or 'lock.'" Id. at 1583, 39 U.S.P.Q.2D (BNA) at 1786. This court faced a similar
situation in Envirco when we construed the limitation "second baffle means having inner surfaces for directing the airflow . . . inwardly." Envirco, 209 F.3d at 1363, 54 U.S.P.Q.2D (BNA) at 1450 (quoting claim). In Envirco, this court held that the second baffle means limitation was not subject to § 112, paragraph 6 because "the term 'baffle' itself imparts structure" sufficient to rebut the presumption that § 112, paragraph 6 applies. Id. at 1365, 54 U.S.P.Q.2D (BNA) at 1452. Additionally, this court held in Cole v. Kimberly-Clark, Corp., 102 F.3d 524, 41 U.S.P.Q.2D (BNA) 1001 (Fed. Cir. 1996), that "perforation means . . . for tearing" was not subject to § 112, paragraph 6 because "it describes the structure supporting the tearing function (i.e., perforations)." Id. at 531, 41 U.S.P.Q.2D (BNA) at 1006.

Applying this precedent, we must determine whether, to one skilled in the art: (1) a "global positioning receiver" describes, or imparts, sufficient structure "for receiving signals indicative of the apparent position of the receiver means using the [GPS] system"; (2) a "memory" describes sufficient structure "for storing the position of the golf cup"; and (3) a "display" describes sufficient structure "for displaying the distance."

It is important to bear in mind the context of the invention and the relevant arts involved. The context of the claim is a GPS receiver. '093 patent, col. 8, l. 68. The specification points out that a GPS receiver essentially comprises a hand-held computer, communicating with multiple orbiting satellites. Id. at col. 3, l. 35 - col. 4, l. 14. The specification describes that a standard GPS receiver can be reprogrammed to carry out the claimed invention. Id. at col. 4, l. 16 - col. 5, l. 27. The reprogramming entails modifying display routines and storing a variety of formulas and data in memory. Id. at col. 6, l. 50 - col. 8, l. 58.

The specification repeatedly refers to GPS receivers, memories, and displays. E.g., id. at col. 3, l. 53 - col. 4, l. 28 (GPS receivers), col. 5, ll. 23, 46, 57 (memories), col. 4, ll. 32-42 (displays). The specification discusses global positioning receivers, memories, and displays as structural terms. Id. at col. 4, ll. 24-28 ("The GPS receiver 22 is preferably the 3 channel receiver such as used in the TransPak Model made by Trimble navigation of Sunnyvale, Calif. Other commercially available substitutes are acceptable such as . . . ."), col. 4, ll. 52-59 ("The storage 25 preferably includes nonvolatile memory . . . . Battery backed-up RAM is preferred, but other alternatives are operable and offer some advantages, such as a WORM optical disc coupled to RAM or EEPROM. Volatile memory stores the current error correction."). col. 4, ll. 32-35 ("The display 26 is illustrated in FIGS. 1 and 2. The display 26 is preferably a 640x480 pixel LCD supertwist, ISA bus compatible display, but other conventional types of displays are operable."). From the passages cited above, it is clear that, to one skilled in the arts of GPS receivers and computer programming, a "global positioning receiver," a "memory," and a "display," as the names for structure, have reasonably well understood meanings in those arts and are sufficient structure for accomplishing the functions recited in the pertinent claim limitations. The fact that these particular terms may be broad does not detract from their well understood meanings as the names for structure. Thus, none of these three limitations is subject to § 112, paragraph 6.

The ordinary meaning of these terms, to one of skill in the art, is clear and the specification does not redefine them. Accordingly, we construe a "global positioning receiver" as a GPS receiver, a "memory" as a device capable of storing data, and a "display" as a device capable of visually representing information.

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DISSENT

GAJARSA, Circuit Judge, dissenting in part.

I write separately to dissent from the majority's conclusion that "memory means" and "display means" are not means plus function limitations. In the course of finding that the terms "memory" and "display" impart sufficient structure to take the limitations out of the realm of § 112 P6, the majority misconstrues this court's precedents.

As recognized by the majority, use of the word "means" creates a presumption that a claim limitation falls within the bounds of § 112 P6. Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364, 54 U.S.P.Q.2D (BNA) 1449, 1452 (Fed. Cir. 2000). This presumption is rebuttable if a "means" limitation recites not only a function, but also specific, definite structure that performs the entire function from the view of a person of ordinary skill in the art. Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28, 44 U.S.P.Q.2D (BNA) 1103, 1109 (Fed. Cir. 1997) ("Where a claim recites a function, but
then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format.); Data Line Corp. v. Micro Techs., Inc., 813 F.2d 1196, 1201, 1 U.S.P.Q.2D (BNA) 2052, 2055 (Fed. Cir. 1987) ("Where a claim sets forth a means for performing a specific function, without reciting any specific structure for performing that function, § 112 P6 applies."); Serrano v. Telular Corp., 111 F.3d 1578, 1582, 42 U.S.P.Q.2D (BNA) 1538, 1541 (Fed. Cir. 1997) ("The 'determination means' limitation . . . recites a means for determining the last digit without reciting definite structure in support of that function and that limitation therefore is a 'means plus function' limitation. . . ."); Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531, 41 U.S.P.Q.2D (BNA) 1001, 1006 (Fed. Cir. 1997) ("An element with such a detailed recitation of its structure, as opposed to its function, cannot meet the requirements of § 112 P6."); Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257, 52 U.S.P.Q.2D (BNA) 1258, 1263 (Fed. Cir. 1999) ("This presumption remains unrebutted because neither claim recites structure sufficient to perform the recited function."). Cf. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536, 19 U.S.P.Q.2D (BNA) 1367, 1369 (Fed. Cir. 1991) ("The recitation of some structure in a means plus function element does not preclude the applicability of section 112(6).").

In this case, there is no specific, definite structure that is well understood in the art corresponding to the claim terms "memory" or "display." The majority's citation of language from Greenberg indicating that devices such as "brakes" and "screwdrivers" take their names from the functions they perform is inapposite. The terms "memory" and "display" do not describe devices; these terms simply describe functions. One of ordinary skill in the GPS field would not equate "display" to any specific, definite structure. Likewise, one of ordinary skill in the GPS field would not associate the term "memory" with any specific, definite structure. Therefore, the presumption that "memory means" and "display means" fall within the ambit of § 112 P6 is not rebutted by the claim language itself because these limitations do not recite sufficient structure to perform the "memory" and "display" functions. The majority's references to the use of the terms "memory" and "display" in the specification of the '093 patent is inappropriate. Whenever claim terms, such as "memory" and "display," have generally accepted meanings in the art, it is unnecessary to consider the specification to assess those meanings.

For the reasons stated hereinabove, I dissent in part.

The parties agree that the structure for this means-plus-function limitation is a computer. The only dispute is whether the structure is a computer and structural equivalents thereof, or a "computer structure/steps." The Court agrees with PolyVision that the claim term is properly defined solely as a computer, and structural equivalents, because the patent discloses a computer as the means for performing the identified function, without mentioning "structure/steps." (Col. 15, ll. 32-36.)

The parties disputed six terms used in the claims of the '843 patent. The Court has construed those terms as follows:

a) "Waveguiding structure" is used interchangeably with "waveguide" and is defined as: "A structure formed by a waveguiding film and a substrate and containing a diffraction grating";

b) "Waveguide film" means: "A film which, in combination with a sample having a lower index of refraction and a substrate can guide light along a path";

c) "Diffraction grating" means: "Any arrangement in the waveguiding structure that imposes a periodic variation of

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amplitude and/or phase on an incident wave;"

d) "Wavelength" means: "A wavelength of light at which the optical sensor, including the waveguiding structure, waveguiding film, and diffraction grating, detects chemical, biochemical or biological substances in the sample";

e) "Effective index" means: "A number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum";

f) "Measuring the effective index and effective index change" means: "determining the effective index" and "determining the effective index change."

(D.I. 156).

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Hamilton next argues that the district court should have construed claim 16 to require that the accused device automatically measure the patient's levels of carbon dioxide and oxygen, in effect excluding a system in which an operator measures the gas levels and inputs those values into the device. The district court concluded that "the patented method need not 'automatically measure' the concentration of carbon dioxide and oxygen in the exhaust of a patient, as Defendant contends."

In support of its argument, Hamilton points to the specification, the preamble language, and the prosecution history. Although we regard the question as close, we agree with Dr. Tehrani that the method of claim 16 does not require that the respirator itself measure the carbon dioxide and oxygen levels of the patient. While the specification describes an apparatus and method for automatically measuring the concentration of carbon dioxide and oxygen in the exhaust of a patient, that disclosure is not a sufficient basis on which to read the limitation of automatic measurement into the claim. See N. Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1290 (Fed. Cir. 2000); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998) ("While . . . claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims."). The claim requires simply "measuring levels of carbon dioxide and oxygen of the patient," and it neither includes the word "automatically" in describing that function, nor specifies that the respirator must do the measuring.

Nor does the preamble language "in a respirator" require that the measurement step be performed by the respirator itself. We interpret the preamble language as requiring that the various steps of the method be performed in the context of a "respirator for varying tidal volume and frequency of breaths of a patient," but not requiring that the data inputs to the respirator all be obtained automatically. The claim language indicates that what is automatic is the control function, not the input of data. Thus, the claim recites "a method of automatically controlling the respirator."

Hamilton points out that Dr. Tehrani amended claim 16 to replace "A method of controlling a respirator" in the preamble with "In a respirator for varying tidal volume and frequency of breaths of a patient, a method of automatically controlling the respirator." Hamilton argues that Dr. Tehrani amended the claim in that manner to distinguish her invention from the prior art. The applicant explained that the amendment to claim 16 was made because the prior art reference on which the examiner had relied was not a respirator, but a gas mixer, and that it did not provide for automatic control of the respirator in the claimed manner. That prosecution history is simply not sufficiently specific to persuade us that the language of the claim must be read restrictively, to limit the claim to a method in which the respirator automatically measures the patient's oxygen and carbon dioxide levels rather than having that data provided from a different source. In any event, this issue may be of limited practical importance to the ultimate disposition of this case, as Hamilton does not argue that claim 1 is limited in this fashion, and indeed the language of claim 1 clearly is not limited to a device that automatically measures the patient's oxygen and carbon dioxide levels.

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Measuring variable parameters and similar phrases

ConnecTel argues "measuring variable parameters" and similar phrases should be construed as "observing and quantifying a parameter whose value can vary over relatively short periods of time at or about the time of transfer." Cisco contends the term should be construed to mean "in connection with the data file to be transferred, ascertaining the measurements of said variable parameters for each of said paths at or about the time of transfer of the data file." Thus, ConnecTel and Cisco agree that the measuring is done at or about the time of transfer, but disagree as to whether it is done connection with a particular data file to be transferred or whether it occurs in the background unrelated to the transfer of a data file.

The Court modifies Cisco's proposed construction and construes "measuring variable parameters" to mean "ascertaining the measurements of said variable parameters for each of said paths at or about the time of transfer." ConnecTel's construction incorporates its construction of "variable parameters." As that term has already been construed, it is unnecessary to reconstrue that term here. Neither the claims, the specification, nor the prosecution history require that the measurement of the variable parameters be done in connection with a data file to be transferred. The claims themselves do not require a certain order of the steps. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-72 (Fed. Cir. 2003) (discussing proper application of the rule from Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1342-43 (Fed. Cir. 2003): "Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one. However, such a result can ensue when the method steps implicitly require that they be performed in the order written."). Cisco argues that the sequence of steps is implied by the nature of the invention itself. Specifically, Cisco argues that because the measurements are done in real-time at or about the time the data file is transferred, see col. 4:17-23, the measurements must be done in connection with a particular file to be transferred. Such a cause and effect relationship is not required for the measurements to be done if real-time. If the variable parameters were constantly measured, their values would be in real-time as to any file to be transferred. Further, one of the variable parameters, $ avgstate(i)$, is the "average of $ presentstate(i)$ over prior five minute window." Col. 4:57-58. Thus, unless there is a five-minute delay between selecting the file for transfer and the actual transfer, the specification contemplates that the measurements of at least $ avgstate(i)$ will be done without a connection to any particular data file to be transferred. Accordingly, the Court rejects Cisco's limitation that the measurements must be performed "in connection with the data file to be transferred."

MIT and EFI argue that the district court erroneously held the phrase "colorant selection mechanism" was a means-plus-function limitation under section 112 P6. That phrase appears in the patent together with a description of its functions, "receiving said modified appearance signals" and "selecting corresponding reproduction signals representing values of said reproducing colorants to produce in said medium a colorimetrically-matched reproduction."

The phrase "colorant selection mechanism" is presumptively not subject to 112 P6 because it does not contain the term "means." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). However, a limitation lacking the term "means" may overcome the presumption against means-plus-function treatment if it is shown that "the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" Id. (quoting Watts v. XL Sys., Inc., 232 F.3d 877, 880 (Fed. Cir. 2000)).

We agree with the district court's conclusion that the presumption here is overcome and that the phrase "colorant selection mechanism" should be construed as a means-plus-function limitation. The generic terms "mechanism," "means," "element," and "device," typically do not connote sufficiently definite structure. In Personalized Media Commun's., LLC v. Int'l Trade Com'n, 161 F.3d 696 (Fed. Cir. 1998), we addressed the claim term "digital detector." We contrasted the term "detector," which recited sufficient structure to avoid 112 P6, with "generic structural term[s]such as 'means,' 'element,' or 'device,'" which do not. Id. at 704. Similarly, in Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354 (Fed. Cir. 2004), we recognized that Section 112 P6 does not apply to "a term that is simply a nonce word or a verbal construct that is not
recognized as the name of structure and is simply a substitute for the term 'means for.'" Id. at 1360.

Here the patentee used "mechanism" and "means" as synonyms. See '919 patent, claim 3, col. 15 I. 51 (referring to "colorant selection means") (emphasis added); id., claim 14, col. 17 II. 1-2 (same). At least one dictionary definition equates mechanism with means. See The Random House Webster's Unabridged Dictionary 1193 def. 2 (2d ed. 1998) (defining "mechanism" as "the agency or means by which an effect is produced or a purpose is accomplished"); see also The Random House Dictionary of the English Language - The Unabridged Edition 889 (1973) (same). The term "mechanism" standing alone connotes no more structure than the term "means."

Claim language that further defines a generic term like "mechanism" can sometimes add sufficient structure to avoid 112 P6. For example, in Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996), which involved a mechanical device, we held that 112 P6 did not apply to the term "detent mechanism," because "the noun '[d]etent' denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms." Id. at 1583. The court recited several dictionary definitions for "detent," including "a mechanism that temporarily keeps one part in a certain position relative to that of another, and can be released by applying force to one of the parts." Id. (internal quotation marks and citations omitted). These definitions connoted sufficient structure to avoid 112 P6. We also concluded that "[t]he fact that a particular mechanism--here 'detent mechanism'--is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of [112 P6]" because "[m]any devices take their names from the functions they perform." Id. n4

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n4 Of course, a claim term defined solely in functional terms, without more, would fall within Section 112(6). See Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999); see also Micro Chem., Inc. v. Great Plains Chem. Co., Inc., 194 F.3d 1250, 1258 (Fed. Cir. 1999).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

In contrast, the term "colorant selection," which modifies "mechanism" here, is not defined in the specification and has no dictionary definition, and there is no suggestion that it has a generally understood meaning in the art. We therefore agree with the district court that "colorant selection mechanism" does not connote sufficient structure to a person of ordinary skill in the art to avoid 112 P6 treatment. n5

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n5 In Lighting World, we held that it was appropriate to look to dictionaries "to determine if a disputed term has achieved recognition as a noun denoting structure," and determined that "connector" had a reasonably well-understood meaning as a name for a structure. 382 F.3d at 1360-61. That structure was defined in terms of the function it performed, "connecting." Id. Here, the term "mechanism" is not defined by a function that particularizes its structure.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

The district court found that the functions of the "colorant selection mechanism," as recited in claim 1, are "receiving said modified appearance signals" and "selecting corresponding reproduction signals representing values of said reproduction colorants to produce in said medium a colorimetrically-matched reproduction." The court further held that the corresponding structures are the components of the "ink correction module (ICM)." MIT does not argue that if means-plus-function treatment was appropriate, the district court erred in its conclusions regarding the function and corresponding structure of the term. Therefore, the district court's construction will govern further proceedings.

GO BACK

2635

Claim 15 teaches "[a] vending machine as claimed in claim 1, wherein said customer interface comprises a mechanism that interfaces with software supplied by the customer." ('400 Patent 16:65-67). According to plaintiffs, "mechanism that
interfaces with software supplied by the customer" means "machinery or process that involves interacting with software that is loaded on the customer's computer." (Pls.’ Mem. On Claim Construction 18). To the contrary, defendant proposes "a mechanism (as construed above) that interacts with software made available to the vending machine by the customer."

Plaintiffs offer no support for their assertion that this language describes a process, and the earlier claim construction of "customer interface" resolves any issue regarding location of the customer interface.

The proper construction is as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanism that interfaces with software supplied by the customer</td>
<td>A mechanism (as construed above) that interacts with software made available to the vending machine by the customer</td>
</tr>
</tbody>
</table>

2636

(3) media access controller

Claim 1 of the '261 patent states "media access controller which outputs first data in a packet form." N-Data proposes replacing "media access controller" in the above claim language with "circuitry." Dell seeks to import "transmit," "receive," and "physical media." The court finds no support for inclusion of "transmit" and "physical media"; however, the patent specification expressly discusses the ability of a media access controller to "receive" data. See '261 Patent, col. 3, ll. 10-15 (stating, "[i]n another embodiment, a new media access controller can be provided which receives data . . . ").

As such, the court defines the term as follows: "circuitry that outputs and receives data in packet form."

2637

A. "media asset"

The preamble of each of the asserted claims contains the term "media asset." For example, the preamble of the '704 patent, claim 7 states, "A media asset management system comprising," and the preamble of the '414 patent, claim 1 states, "A method of managing access to a plurality of media assets comprising the steps of." The term "media asset" is used throughout the specification. (E.g., '704 patent, 3:35-45 ("The digital media assets distributed by the system [] may be audio such as music, video such as movies, television programs or other video productions, interactive software games, or any media that is digitized and suitable for electronic distribution. The digital media assets may be in any known or hereinafter developed formats . . . .") (emphasis added)). The plaintiff contends that the term "media asset" means "any media that is digitized and suitable for electronic distribution." The defendant contends that the term means "an item, such as a digital file or a computer disk, that contains digital or analog media."

Zapmedia argues that "media assets" are limited to digital media and do not include analog formats. According to the plaintiff, the phrase "digital media assets" appears in the specification twenty-five times, but "analog" is never used with the term "media asset." Additionally, both the Abstract and Summary of the Invention describe the invention as "a system and method for distributing digital media assets." ('704 patent, 1:33-34) (emphasis added). In response, Apple argues that the ordinary meaning of "media asset" is not limited to digital assets. Furthermore, the specification uses both "digital media asset" and "media asset," so the patentee wishes to distinguish between the terms. Finally, according to Apple, the specification refers to "physical media assets," which are not necessarily digital.

Based upon the use of "media asset" in the specification and claims, this invention is limited to digital formats only. Therefore, the court construes "media asset" to mean "any media that is digitized and suitable for electronic distribution."
A. Claim 6
1. Media Attachment Unit

Level One argues that the MAU should be construed precisely as it reads in the language of Claim 6, subject to no additional limitations. Seeq contends that the court must define the relationship of the MAU to other parts of the circuit and then determine all of its elements. In order to do so, Seeq proposes that the court incorporate into the definition of MAU language from the claim's preamble and from the specification. Defendant argues that the preamble defines the relationship of the MAU to the attachment unit interface ("AUI") and the twisted pair link, namely, that the MAU provides an interface between the two, which further limits the MAU in Claim 6 to a twisted pair MAU. In support of this interpretation, defendant relies on Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995), in which the court found that a preamble gave meaning to the invention and could properly be considered in defining claim terms. In addition, Seeq maintains that the definition of MAU should include a long list of elements recited in the summary of the invention, including means for detecting and correcting reverse polarity, means for internally predistorting data to fit a 10Base-T jitter template of the twisted pair link and jabber control means. Seeq offers no apparent rationale for incorporating this detailed description.

--- Footnotes ---

1 The parties agreed during the mediation session that "'interfacing' refers to a shared boundary between two systems, or between parts of systems, through which information is conveyed." Plaintiff Mem., App. F at 4. However, that agreement appears to have given rise to another dispute: whether the MAU must share a boundary with the AUI and twisted pair link. The claim preamble uses the word "interface" but the claim speaks only of "coupling." The parties have agreed that interface refers to a shared boundary. "Couple" should be given its ordinary meaning of to link or join. Random House College Dictionary. It also seems as if that linkage could be either direct or indirect. In any event, the court finds no reason to read the preamble as a further limitation in this instance. Even if the two terms have significant differences in meanings, the claim language consistently uses "coupling" and appears to do so with relative clarity.

--- End Footnotes ---

In Bell, the Federal Circuit found that preamble construction "presents no deeper mystery than the broader task of claim construction, of which it is but a part." Id. at 621. 2 In other words, the preamble has the meaning and importance that the claims suggest for it. A patent claim can completely define the subject matter of the invention or it can expressly or implicitly use the preamble as a limitation. As Bell itself makes plain, nothing in its holding contradicts the imperative of courts to look first to claim language and then to construe it in light of the specification. Id. at 620.

--- Footnotes ---

2 Given that the mystery of claim construction is rather deep indeed, this is faint encouragement.

--- End Footnotes ---

The MAU recited in Claim 6 is not specifically defined as a twisted pair (or 10Base-T) MAU. However, the preamble to Claim 6 states its purpose as "interfacing an attachment unit interface to a twisted pair link". '183 Patent at 7:29-30. Of greater significance, the MAU of Claim 6 includes a twisted pair port. Moreover, the rest of the specification indicates that the disclosed invention concerns a 10Base-T MAU. The abstract begins, "A local area network (LAN) having a 10Base-T media Attachment unit (MAU) is disclosed . . . ." '183 Patent, Abstract. Likewise, the first line of the summary reads, "A 10Base-T (twisted pair) media attachment unit is disclosed . . . ." '183 Patent at 2:6-7. Read in the context of the specification as well as the rest of Claim 6, the MAU in Claim 6 is a 10Base-T MAU. Nor does the court have to read the preamble to Claim 6 as a limitation on the claim in order to reach this conclusion. Beyond this construction of MAU, the court declines Seeq's invitation to further elaborate the relationship of the MAU to other elements of the claim.

Finally, Seeq's effort to incorporate wholesale a large portion of the specification into the construction of MAU seems to be
a rather bald attempt to impermissibly broaden the scope of the claim, particularly when many of the elements enumerated in the specification which Seeq believes expressly define the MAU in Claim 6 are already contained in dependent Claims 9 and 11. Narrow claims should not be read to limit broader ones. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985); see also Transmatic, Inc. v. Gulton Indus., Inc., 53 F.3d 1270, 1277 (Fed. Cir. 1995).

Accordingly, the court construes the MAU of Claim 6 to be a 10Base-T MAU comprising an AUI port, a twisted pair port and an auto-engage means, each of these as defined in Claim 6 and as further construed below.

1. A plurality of media data streams

The first group of disputed claim terms involves the media data streams processed by the processor. The plaintiff contends that "a plurality of media data streams" means "two or more different types of media data streams such as audio, video, radio, graphics, encryption, authentication, and/or network information." The defendants urge that "a plurality of media data streams" means "two or more concurrent streams of audio, video, radio, graphics, encryption, authentication, and/or network media data information from two or more sources." At issue is the defendants' use of the word "concurrent" in their proposed construction. After considering the submissions of counsel and the intrinsic record, the court is persuaded that the plaintiff's position is correct. Accordingly, the court construes "a plurality of media data streams" to mean "two or more different types of media data streams."

B. "output media format"

• Plaintiff's proposed construction: "standard video format for optical disk"

• Defendants' proposed construction: "standard playback format for optical disk (e.g. DVD, VCD, SVCD)"

The term "output media format" is found in claims 1, 5, 6, and 10 of the '655 patent and claims 1, 5, 6, 10, 16, and 19 of the '172 patent. For example, in claim 1 of the '655 patent the claimed system receives from an input the desired output media format (e.g. a DVD, VCD or SVCD format) and then the invention resizes the video to that format before processing the video together with audio compatible with that output media format into an appropriate presentation format. The parties essentially agree that this term should describe the target format for the disk mastering program, but disagree as to how to describe that. Plaintiff wishes to construe this term as "standard video format for optical disk" while Defendants wish to construe this term as "standard playback format for optical disk (e.g. DVD, VCD, SVCD)."

In support of its "video" construction, Plaintiff points to the specification that lists only standard video media formats, such as DVD, VCD, and SVCD. The standards for each media type specify the acceptable video resolutions and codecs as well as acceptable audio bit rates and codecs.

Defendants wish to use "playback," as they believe "playback format" is a more precise definition of the formats contemplated by the patent. They argue that "playback format" would not create the confusion in the jury that "video format" would create when the claims contemplate the audio information that is associated with the video. At the claim construction hearing, Defendants expressed concern that "standard video format for optical disk" would confuse jurors because there are standards for optical disk that do not require video, such as DVD-R and DVD-RW. Defendants also
expressed concern in their briefing that a jury may be confused by the lack of "audio" in this definition. Defendant has not provided any evidence that there exists a "standard video format for optical disk" that does not include audio, so the Court finds Defendants' concern overstated.

The "standard video format[s] for optical disk" include the DVD, VCD, and SVCD video playback standards. Because the parties agree that the patent is directed to standard video formats for optical disks and the specification supports that position, the Court adopts "standard video format for optical disk" as the definition for "output media format."

--- Footnotes ---
7 '655 Patent, 8:40-47.
--- End Footnotes ---

2642

(a) Media Header Information

StorageTek contends that "media header information" should be construed as "information contained in the header of a PDU that provides details about the PDU. The information can be ISO Layer 2 or Layer 3 information." Cisco's proposed construction is "the information contained in the header of a packet that specifies the media information (also referred to as ISO Layer 2 or data link layer information)." As the patent explains, the International Organization for Standardization (ISO) developed the Open Systems Interconnection (OSI) model to describe communication networks and their operations. See 170 Patent, Col. 6, In. 33-44. The OSI model contains seven layers, wherein each layer performs a specific data communications task, a service to and for the layer that precedes it. Id., In. 33-47. ISO Layer 2 information is the data link layer and includes flow control of data. ISO Layer 3 information is the network layer and provides routing and relaying of data through the network. Id., Col. 7, In. 43-51.

Cisco argues that the "media header information" is limited to ISO Layer 2 data link information. Cisco relies on the declaration of its expert, Dr. Smith, which states that one of ordinary skill in the art would know that the term "media header information" refers to media information which is Layer 2 information, also known as the data link layer information, and which provides for transit of data across a physical network link. See Declaration of Jonathan M. Smith in Support of Cisco's Claim Construction of the 170 and 040 Patents ("Smith Decl.") PP 14-20. Cisco contends that a person of ordinary skill in the art would understand the term "network header" or "network layer" to refer to the header containing Layer 3 network information, and the term "media header" or "data link layer" to refer to the header containing Layer 2 information. See Smith Decl. P 17.

Cisco asserts that its definition of "media header information" is supported by the patent claims which regularly distinguish between "network" and "media" information. See Claims 8, 11, 19, and 28. Cisco also relies on the specification, where "media header information" is defined to typically include "the encapsulation type, protocol type, frame type, media destination, and source route information." Cisco argues that a person of ordinary skill in the art would recognize that each of these attributes describes Layer 2 information that is contained in the Layer 2, or data link layer, header. See 170 Patent, Col. 5, In. 27-29; Col. 10, In. 17-19; Smith Decl. PP 16-18. Finally, Cisco relies on instances in the specification where the information in the media header specifies a "media source address" and "media destination address." See 170 Patent Col. 10, In. 50-59; Col. 12, In. 50-65. Cisco asserts that these addresses are Layer 2 data link information and refer to the specific physical device, e.g., a particular router or a particular switch, that a packet just came from or the specific physical device to which a packet will next travel, e.g., the next "hop" address.

StorageTek does not dispute that the term "media information" generally refers to Layer 2 data link information, but argues that the specification of the 170 patent makes it clear that the header information gathered by the identification means can be either Layer 2 data link or Layer 3 network information. For example, StorageTek notes that in the 170 patent the media header information is determined by the identification step, and that this identification step includes determining network destination addresses, Layer 3 information. See 170 Patent, Col. 12, In. 50-59 (the information determined by the identification means, 302, may include comparing network destination addresses or media destination addresses).
StorageTek disputes the claim by Cisco's expert Dr. Smith, that the fact that the "address means" considers network addresses "does not transform such addresses into media header information, nor does it transform media header information into Layer 3 information." Smith Decl. PP 18-19. StorageTek argues that the teaching of the 170 patent is that the address lookup mechanism, or the "address means," is part of the identifying step performed on the media header information, not separate from it. See, e.g., 170 Patent Fig. 2; Fig. 6. Finally, StorageTek notes that the specification indicates only that the media header information "typically includes at a minimum" the types of Layer 2 information described, but that the specification does not limit the media header information to Layer 2 information. See 170 Patent, Col. 5, In. 27-29; Col. 10, In. 17-19.

The Court concludes, based on examination of the specification, that media header information in the 170 patent can include Layer 3 network information in addition to Layer 2 data link information. While recognizing that the term "media information" typically signifies Layer 2 information, the Court finds that the specification demonstrates that "media header information" can include Layer 3 information. Specifically, the specification shows that network addresses, in addition to media addresses, can be determined and used as part of the "media header information." See, e.g., Col. 12, In. 50-60; Fig. 6, element 302. Additionally, even where the patent specifies types of Layer 2 information contained with the "media header," these types are only examples and not an exhaustive list. See Col.5, In. 27-29; Col. 10, In. 17-19 ("the media header information typically includes at a minimum . . . "). Therefore, the Court construes "media header information" as:

"media header information" means information contained in the header of a PDU that provides details about the PDU. The information can be ISO Layer 2 (data link) information or ISO Layer 3 (network) information.

TiVo argues "Media Switch" means "hardware and/or code that connects with CPU and memory." TiVo's Opening Br. at 8-9; TiVo's Op. Br. at 19-21; '389 patent at col. 3:62-64 ("The Media Switch 102 mediates between a microprocessor CPU 106, hard disk or storage device 105, and memory 104."); id. at cols. 2:22-25, 6:59-63, 7:5-23, 14:21-22; TiVo's Markman Slides at 85-97.

EchoStar argues "Media Switch" is specially defined by the '389 patent as "a hardware module that is separate from the computer's CPU, is connected to temporary memory, receives MPEG data representing a television program from one or more Input Sections, parses data into separate video and audio components, using a parser that detects the start of all important events in a video or audio stream and the start of all frames, sends the data to a storage device, retrieves the data from the storage device, and sends it to one or more Output Sections." See '389 patent at cols. 3:62-4:2, 5:31-64, 6:16-46, 6:59-65; 7:19-26; 8:44, & Figs. 1, 2, 7 & 13; EchoStar's Response Br. at 4-7; EchoStar's Slide Presentation at 99-112.

The Court finds that the specification is the best guide to the meaning of the term "Media Switch." As used in the '389 patent, "Media Switch" is hardware and/or code that mediates between a microprocessor CPU, hard-disk or storage device, and memory. This definition is consistent with the use of the term in the patent claims and specification. See '389 patent at col. 3:62-4:2, 4:34-36, 4:55-58, 5:34-36, 6:16-27, 6:59-65, 7:5-11. Neither the claims nor specification limit the Media Switch to a physical device.

Regarding the term "parse", TiVo construes "parse" as "analyze" arguing that "parses said MPEG stream, said MPEG stream is separated into its video and audio components" means "analyzes an MPEG stream, the MPEG stream having distinguished video and audio components." TiVo's Opening Br. at 9-11; TiVo's Op. Br. at 11-13; '389 patent at cols. 4:26-30, 5:3-6, 5:33-36, 6:36-58, & Figs. 6 & 13; TiVo's Markman Slides at 98-112.

EchoStar argues "parses" means "separates," and "said Media Switch parses said MPEG stream, said MPEG stream is separated into its video and audio components" means "the Media Switch must analyze the content of an MPEG Systems stream carrying one television program and from it output two distinct streams: one video MPEG stream and one audio MPEG stream." See '389 patent at Fig. 3 & col. 4:23-29; EchoStar's Opening Br. at 11-12; EchoStar's Response Br. at 7-10; EchoStar's Slide Presentation at 76-98; 6-7-05 Joint Claims Construction Chart at 3.
Although the court finds persons of ordinary skill in the art understand the meaning of the term "parses," for clarification purposes, it defines the term as "analyses." The claim language and the specification are instructive in this regard as both "parse" and "separate" are at times used in the same sentences and claims indicating that the terms are not interchangeable. '389 patent at col. 2:15-16; claims 1 and 32; Abstract; see Innova, 381 F.3d at 1119 (noting that each term used in a claim is presumed to have meaning and that it is permissible to infer, where different terms are used in a claim, that the patentee intended a differentiation in the meaning of those terms). As further evidence that the terms are not interchangeable, "parse" is often used without the term "separate" several times in the specification. '389 patent at cols. 2:22-24, 4:52-54, 5:3-6, 6:36-39, 7:12-16; '389 patent Abstract; see Innova, 381 F.3d at 1119; see Phillips, 415 F.3d 1303, 2005 WL 1620331 at *7.

Therefore, the Court construes "providing a Media Switch, wherein said Media Switch parses said MPEG stream, said MPEG stream is separated into its video and audio components" as "providing hardware and/or code that mediates between a microprocessor CPU, hard-disk or storage device, and memory, wherein said device, portion of a device, or code analyzes said MPEG stream, said MPEG stream is separated into its video and audio components."

8. "media unit"

The parties dispute the construction of the term, "media unit." The term at issue appears in Claim 5 of the '025 Patent as follows:

5. A system of tracking real estate and real estate related demographic information using a computer network system comprising:

   a media unit, said media unit having:

   a multimedia computer;

   a digitizer, said digitizer receiving information from outside said network system and within said multimedia computer;

   i/o means, . . .

(Herbst Decl. P 5, Ex. 3 at col. 15, ll. 57-66.)

Plaintiffs' proposed construction of the term is "a computer system capable of producing real estate related information." Defendants first contend that "media unit" declared invalid for indefiniteness. However, in the event the term is not indefinite, Defendants alternatively propose the term's construction to be a "system that receives analog property information and transmits digital property information via modem to the server's unit." In support of their respective constructions, the parties primarily rely on the '025 Patent specification. However, before turning to the specification, the Court first addresses the words of the claims. See Vitronics Corp., 90 F.3d at 1582.

Turning to the claim language, the Court notes again that is must ascribe the words of a claim their ordinary and customary meaning. Id. "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips, 415 F.3d at 1313. Here, the Court finds that the claim language is not helpful in ascertaining the ordinary meaning of "media unit." Consequently, the Court will turn to the specification.

The '025 Patent specification provides slightly more insight into the meaning of "media unit." Although the specification does not directly refer to "media unit," it contains several references to "media" and "media multimedia device." Both parties cite to these portions of the specification in support of their respective constructions.

In referring to the term, "media," the specification provides, "[t]he system further includes media terminals for production of
files, including digitized property descriptions. The media terminal has digitizing capabilities to digitize analog input and i/o for receiving and transmitting the digitized information." (Herbst Decl. P 5, Ex. 3 at col. 3, ll. 39-43.) The specification also refers to "media multimedia device," reading "[t]he media's multimedia device 100 would preferably consist of a digitizer 108, compress/decompress unit 106, modem 104, and multimedia PC 102." (Id. at col. 5, ll. 58-60.) Next, the specification also refers generally to "media" in describing Figures 2 and 3. There, the specification provides,

FIG. 2 illustrates the information flow to and from the Media's multimedia device 100 to the Server's Processor 400. The raw data is either gathered from outside sources, generally in the form of analog information 110, or entered directly at the Media's multimedia PC 102. Any analog information 110, albeit audio, video, photos, text, or graphics, must be digitized by Media's digitizer 108, to be read by the PCs used herein. The digitized information is sent directly to the Media's multimedia PC 102. Information from Real Estate Agents and other sources is received via the Media's modem 104, or by any other means, for entry into the Media's multimedia device 100. Data produced by the Media's personnel is directly entered onto the multimedia PC 102. Once entered, the information is edited at the media's multimedia PC 102, as illustrated in FIG. 3.

In construing the term, "media unit," the Court recognizes that the specification identifies a list of parties, entities, systems, and devices associated with the invention. (Herbst Decl. P 5, Ex. 3 at col. 5.) The specification identifies "media" as the primary party responsible for production of property files and possibly all other advertising displayed on the system. The Media has access to all files on the Server and, alternatively, may be part of the Server's system. The Media can include multimedia communications, conglomerates, or local media entities. (Id. at col. 5, ll. 16-22.) In light of the specification, the Court now turns to the parties' proposed constructions.

At the outset, the Court finds that "media unit" is not an indefinite term as Defendants contend. According to the Supreme Court, "[t]he statutory requirement of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citing United Carbon Co. v. Binney & Smith Co., 317 U.S. 228, 236, 63 S. Ct. 165, 87 L. Ed. 232, 1943 Dec. Comm'r Pat. 758 (1942)). The definiteness requirement, however, does not compel absolute clarity. Id. Only claims "not amenable to construction" or "insolubly ambiguous" are indefinite. See Novo Indus., L.P. v. Micro Molds Corp., 350 F.3d 1348, 1353 (Fed. Cir. 2003); Honeywell Int'l, Inc. v. ITC, 341 F.3d 1332, 1338 (Fed. Cir. 2003); Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning. Datamize, 417 F.3d at 1347. Here, as discussed more fully below, because "media unit" has a reasonable meaning in light of the intrinsic evidence, the Court finds it is not an indefinite term.

In construing the term, "media unit," the Court recognizes that the specification identifies a list of parties, entities, systems, and devices associated with the invention. (Herbst Decl. P 5, Ex. 3 at col. 5.) The specification identifies "media" as the primary party responsible for production of property files and possibly all other advertising displayed on the system. (Id. at col 5, ll. 17-23.) The device associated with the "media" is a "multimedia device" described as "[a] device and/or system which includes, but is not limited to, video and audio-graphic conferencing and multimedia messaging . . . capable of storing, transmitting, receiving, compressing, decompressing and error correcting, digital information for displaying text, graphics, audio and video." (Id. at col. 5, ll. 26-34.) From there, the patent describes the "media unit" as comprised of a multimedia computer, digitizer, and input/output means. (Id. at col. 15, ll. 61-66, Claim 5.) Taken together, the specification and claim language contemplate that the "media unit" is "computer system capable of receiving analog or digital real estate and real estate related information, and transmitting said real estate and real estate related information."
The Court now turns to the parties' proposed limitations in their respective constructions. Defendants' proposed construction imports three limitations into "media unit": (1) requiring receipt of "analog" property information; (2) requiring transmission of "digital" property information; and (3) requiring that the transmission be "via modem to the server's unit." As to Defendants' first proposed limitation, the Court finds no basis to conclude that the media unit receives only "analog property information." To the contrary, the specification clearly contemplates that the "media unit" is capable of receiving both analog and digital information. Similarly, the claim itself does not contain any indication of such a limitation. The Court finds Defendants' second and third proposed limitations also to be problematic. Defendants' second and third proposed limitations both attempt to import limitations from the '025 Patent's embodiment. Because claims should not be limited to the preferred embodiment, the Court also finds no basis to conclude that the transmissions from the "media unit" are required to be either "digital" or "via modem to the server's unit." See Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1292 (Fed. Cir. 2000); see also Kemco, 208 F.3d at 1362 (stating "particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments").

Plaintiffs' proposed limitation limits the information associated with "media unit" to be "real estate related information." The Court finds this limitation to be appropriate because the claim itself specifically teaches "[a] system of tracking real estate and real estate related demographic information using a computer network system comprising . . . a media unit." (Herbst Decl. P 5, Ex. 3 at col. 15, ll. 58-60) (emphasis added.)

Thus, having considered the claim terms and the specification, the Court construes "media unit" as "computer system capable of receiving analog or digital real estate and real estate related information, and transmitting said real estate and real estate related information."
3. medical identification number (Claim 33)

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Alexsam's Proposed Construction</th>
<th>Humana's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>medical identification number</td>
<td>a number used for identification purposes associated with a record in a database containing medical-related data</td>
<td>a number on a patient's card that corresponds to a record containing the patient's medical history information</td>
</tr>
</tbody>
</table>

On this term, the parties disagree as to what a medical database record entails. Because Humana seeks to limit the database to one containing only medical history information, it argues that the record being retrieved using a "medical identification number" has to be a patient's record containing medical history information. Here too, Humana argues that phrase "medical-related data" as proposed by Alexsam is too broad.

The specification does not recite the term "medical identification number." The only related disclosure is of an "identification number encoded on the patient's card" that is used to pull a record containing a patient's medical information stored in a medical information database. See '608 patent, 10:7-12. The Court has, however, construed the term "medical card" to include databases that contain "medical information." Furthermore, the claims allow for the use of single identification number that can be used to access different types of databases. See, e.g., '608 patent, cl. 13. Therefore, it is inappropriate to limit the scope of this term to patient medical history information alone.

The Court construes this term consistent with the preceding one as "a number used for identification purposes associated with a record in a database containing medical information."

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2. "Medical service code": 5 A code representing a particular medical service or procedure, e.g., CPT-4 codes, CVS codes, and similar medical service or procedure codes. 6

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
5 The '164 patent claims 1, 2, 3, 6, 12, 13, 14, 15 and 16. "Standard industry practice allows medical claims processors to enter the codes submitted on surgeon claims into a computer system. . . . Two coding methods most frequently used are the American Medical Association's 'Current Procedural Terminology, Fourth Edition (CPT-4),' and the 'California Relative Value Studies (CRVS)." (164 patent, col. 2, ll. 17-24) "The present invention utilizes the CPT-4 codes in the knowledge base of the expert system, although other coding methods for classification of medical procedures such as the CRVS discussed above may be utilized as well." (164 patent, col. 3, ll. 38-42) Code and description are used separately in the '164 patent specification. See '164 patent, col. 10, ll. 17-50 (describing correlating a description to a code before it can be processed); col. 4, ll. 51-54 ("Generally, the user 3 will enter into the computer system 2 a description of the medical claims for which reimbursement or payment is requested or the codes associated with such claims or both.").

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

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C. "Meet"

Lastly, we turn to the disputed claim term "meet." The relevant part of the third limitation of claim 1 of the '211 patent with the disputed term underlined reads as follows:

second storing means . . . for storing selected portions of received television program schedule information which meet at least one of the desired program start time, the desired program end time, the desired program service, and the desired
Acknowledging the variety of dictionary definitions for the term "meet," SuperGuide advocates "satisfies" as the one definition that makes most sense as used in claim 1. It further maintains that it preserved its right to assert this construction. According to SuperGuide, this definition subsumes, but is not limited to, the district court's construction. It further contends that the court's construction precludes certain embodiments disclosed in the specification that describe a viewer entering a start and end time and receiving a range of program listings falling within that period. SuperGuide argues that construing "meet" as "satisfies," however, allows a selection of a range of times, services, and types. Additionally, SuperGuide maintains that by citing a specification passage describing the operation of the "group format transmission" embodiment, the court erroneously imported an unclaimed comparison function into the "second storage means" limitation of claims 1 and 5. Lastly, SuperGuide contends that the passage cited does not support the court's construction.

DirecTV responds by first making a procedural argument that SuperGuide conceded before the district court that "meet" means "equal to or matching" and thus waived its right to assert a different construction on appeal. On the merits, DirecTV argues that the term "satisfies" is more indefinite than "meet" and also that the specification, particularly Figure 4a, is consistent with the district court's construction. In this regard, DirecTV explains that in Figure 4a, "meet" defines the comparative test that compares the received program schedule listings with the user chosen criteria.

We agree with DirecTV that SuperGuide waived its right to assert a construction other than "matches or equals" for the term "meet." Before the district court, DirecTV and EchoStar agreed that the term "meet" means "equal to or matching" and they presented this construction in their consolidated brief. In its reply brief, SuperGuide agreed that the term "meet" should be interpreted as "matches or corresponds." The parties filed a stipulation before the Markman hearing listing all the disputed terms that required construction and the term "meet" was not listed. Nevertheless the term came up at the hearing and SuperGuide made the following comments: 15

The next term that [defendants] go to is meet. There are two interesting things about the meet term. First of all, they say it's got to be exactly and you've got to have identity of what you're talking about. And I don't think there's any disagreement that meet means that it's equal to. Where there's disagreement is that in their comments concerning that claim, they are trying to say that the only thing that it can be is exactly or the identity. And what that leaves out is the analysis under the comprising claim that it can do more than just meet. It can meet it, and it can also do other things along the way because the claim reads comprising. And, so, it has a certain number of things that are within the claim, and if a defendant is out there doing those things plus something else, they can still be found to infringe the claim. And that's exactly the type of thing they're trying to prevent in this case because there may be other things that they're doing in addition to that.

(Emphasis added). SuperGuide argues that these comments demonstrate its efforts to broaden the scope of the term "meet" as used in the claim at issue. We disagree and conclude that this discussion by SuperGuide shows that it agreed that "meet" means "equal to." Rather, it was arguing about the meaning of the term "comprising" in the preamble of the asserted claims. It was making the point that an accused product infringes a claim if it "exactly" meets every limitation and thus has "identity" with the claim. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1328 (Fed. Cir. 2003); Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 812 (Fed. Cir. 2002) (stating that whether an accused system literally infringes an asserted claim depends on whether it "meets every limitation" recited in the properly construed claim).

SuperGuide was further noting that an accused product infringes a "comprising" claim if it meets every limitation and also has additional components. See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc., 200 F.3d 795, 811 (Fed. Cir. 1999) (stating that "comprising" is "generally understood to signify that the claims do not exclude the presence in the accused apparatus or method of factors in addition to those explicitly recited"). Because we conclude that SuperGuide is now proffering a broader definition of "meet" than it advocated before the district court, we decline on appeal to address SuperGuide's new construction. See Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1346 (Fed. Cir. 2001) (discussing cases in which the appellate court applied the doctrine of waiver to preclude a party from adopting a new claim construction on appeal because the new construction proffered on appeal changed the scope of the claim construction asserted before the trial court).
In conclusion, we affirm the district court's construction of the claim language "at least one of" and "meet."

2. "membership signatures"

EMC asks the Court to construe this term as: "Information which identifies a mass storage device as a member of a logical set and substantially matching the global identifier." HP proposes (in its opposition brief and at the claim construction hearing, see Transcript of April 6, 2004 Hearing, 161:3-10): "A value or data structure stored either in the array controller or on the mass storage device, reflecting the device's status as an active member of a logical set of mass storage devices by substantially matching the global identifier."

The claim language indicates that membership signatures comprise information substantially matching the global identifier. The specification indicates that a membership signature is assigned "to each of the physical mass storage devices in the set [and it] identifies the physical mass storage device as a member of the set." 497:2/41-44. The set may be a logical set comprised of portions of the physical disk drives. See 497:3/12-16. Additionally, "[t]he signatures for all members are identical, or at least substantially identical (e.g., the signature may include a member number that differs from drive to drive.)." 497:3/16-19.

HP's proposed additional limitations are not supported by the intrinsic evidence. The patentee expressly claimed a location limitation in dependent claim 8, strongly suggesting in light of the doctrine of claim differentiation that there is no location limitation in the independent claim. Moreover, nothing in the claim supports the importation of a limitation requiring the comparison of the global identifier to the membership signature in order to determine whether its status is "active." Instead, the members of a set are assigned membership signatures and the set is given a substantially matching global identifier.

Accordingly, the Court construes "membership signatures" as "information that identifies physical mass storage devices or portions of physical mass storage devices as members of a set and which substantially matches the global identifier of the set."

B. Ref. No. 3 "Memory"

This term is recited in Claim 1 of the Patent. Plaintiff proposes the following construction of the term: "A commonly used internal computer component (here within the voting machine or system) which is capable of storing information (e.g. the voting record of each voter) and interacts with the processor." Defendants propose the following construction: "A commonly used internal computer component (here, within the voting machine or system) which is capable of storing the voting record and the [unique randomly assigned identifying number or unique identifier] and interacts with the processor."

Claim 1 provides, in relevant part, that the method for voting claimed includes a step of "[s]toring the voting record including the voting selections made during the voting session in the unique randomly assigned identifying number in a memory." (Defs. Ex. 3, Col. 27, ll. 48-50.) The language in the Claim itself supports Defendants' construction of the term "memory." Moreover, the specifications cited by Plaintiff support the position that the voting session identifier is stored in the "memory." (Id. Col. 8, ll. 53-62.) There is no difference between the cited language in the '787 Patent and the '730 Patent; therefore, the Court adopts its prior construction of the term "memory."
"Memory" is construed as:

A commonly used internal computer component (here, within the voting machine or system) which is capable of storing the voting record and the [unique randomly assigned identifying number or unique identifier] and interacts with the processor.

Claims 1 and 8 of the '521 patent contain the term "memory." IPI contends that the term is entitled to its ordinary meaning. Defendants contend that the term should be restricted to "primary memory in a computer." The parties agree that the neither the specification nor the claims provide any guidance regarding the specific type of memory required by the claims. To support its limitation of "memory" to primary memory, Defendants urge that the technical definition of "memory" refers only to "primary memory" as distinguished from "secondary" storage. See Prentice Hall's Illustrated Dictionary of Computing (1992) at 280. On the other hand, IPI suggests that the technical meaning of "memory" does not limit it solely to primary memory. See Oxford Dictionary of Computing (4th ed. 1996) at 299 (defining "memory" as "a device or medium that can retain information for subsequent retrieval").

Considering that the type of memory used to practice the claims is neither central to their scope or the context of the invention, importing an additional limitation of "primary" memory from discordant dictionary definitions is improperly limiting and unhelpful to the jury. See Home Diagnostics, 381 F.3d at 1358 (Fed. Cir. 2004) ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language."). Defendants' proposed definition is rejected. The term "memory" is entitled to its ordinary meaning, and no further definition is necessary.

Papst asserts that the term "memory" as used in Claim One of both the '399 and the '449 Patents should be construed by the Court and that the term means "any type of semiconductor memory such as EPROM, EEPROM, and RAM," 23 Papst's App. at 2, as these are examples given in the Patents. See, e.g., '399 Patent, col. 7:23-25 ("In addition to the digital signal processor memory, which comprises the operating system of the digital signal processor and can be implemented as an EPROM or EEPROM"); '449 Patent, col. 6:23-26 (same); '399 Patent, col. 10:14-15 ("In FIG. 2, the memory means 14 of FIG. 1 is implemented by an EPROM"); '449 Patent, col. 9:14-15 (same); '399 Patent, col. 9:18-20 ("[T]he DSP can be any DSP but preferably has a 20- MB on-chip random access memory (RAM)"); '449 Patent, col. 8:18-21 (same). The Camera Manufacturers contend that the term need not be construed but if the Court decides to do so, the term should be interpreted broadly to mean "any type of memory," which could include a hard drive. CMs' Slides at 245.

23 RAM is volatile memory; EPROM and EEPROM are non-volatile memory. Tr. 3:138 (Papst). ROM in EPROM and EEPROM is read only memory. Tr. 3:142 (CMs). The specification explains that the non-volatile memory in the interface device is used for storing instructions like the operating system. See '399 Patent, col. 7:23-26 ("In addition to the digital signal processor instruction memory, which comprises the operating system of the digital signal processor and can be implemented as an EPROM or EEPROM, the memory means can have an additional buffer . . . ."). '449 Patent, col. 6:23-27 (same).

The key difference between the parties' proposed definitions is whether the term "memory" can include a hard drive. The
Camera Manufacturers agree with Papst that the inventor did not disclose an actual hard drive as part of the interface device, Tr. 3:141 (CMs), but they insist that the term "memory" is broad and could include a hard drive. Papst's proposed definition necessarily excludes a hard drive because a hard drive is electro-mechanical (and not semiconductor) and Papst's proposed definition is "any type of semiconductor memory." Papst's App. at 2.

Papst further argues that "memory" is not used in the Patents to mean a storage device, which could include a hard disk drive, and thus memory should be construed to exclude hard drives. The Patent refers to storage devices "such as hard disk drives, tape drives, and floppy drives." Tr. 3:136 (Papst); accord '399 Patent, col. 4:36-39 ("Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized."); '449 Patent, col. 3:39-42 (same); see also '399 Patent, col. 11:66-67 & col. 12:1-3 ("Using the ASPI manager . . . the present invention can now obtain active access to a[] SCSI hard disk . . . which . . . cannot be a virtual but a real SCSI mass storage device . . . .") (emphasis added); '449 Patent, col. 11:1-5 (same).

Papst's construction is strained. Just because the specification refers to storage devices such as hard drives does not mean that the "memory" cannot include a hard drive. And just because the specification referred to three types of semiconductor memory does not mean that "memory" can only include semiconductor memory. The IEEE dictionary definition at the time of the invention defines "memory" as "Memory (electronic computation). See: storage; storage medium."

New IEEE Dictionary at 797. The IEEE dictionary defines "storage" broadly as:

Storage (1) (electronic computation).

. . .

(B) Any device in which information can be stored, sometimes called a memory device.

(C) In a computer, a section used primarily of [sic] storing information. Such a section is sometimes called a memory or store (British).

Notes: (1) the physical means of storing information may be electrostatic, ferroelectric, magnetic, acoustic, optical, chemical, electronic, electric, mechanical, etc., in nature. (2) pertaining to a device in which data can be entered, in which it can be held and from which it can be retrieved at a later date. See store.

(2) (data management). In a computer, one or more bytes that are used to store data.

Id. at 1294-95. Papst's distinction between memory and storage is not reflected in the New IEEE Dictionary, nor is its distinction between semiconductor memory and other physical means of storing memory. "Memory" means "any type of memory."

b. "memory" and "a memory"

The plaintiffs propose "all of the storage elements on the substrate and the control circuitry configured to access the storage elements." The defendants claim that this term is indefinite, but if construction is possible, they propose "an information storing array that does not include registers, cache or column latches." n3 The main dispute appears to be whether or not memory can include registers, cache, or column latches.
The defendants contend that "memory" and "column latches" must have different meanings because when two claim terms are used, they are presumed to mean different things. See '148 patent, claim 1. The defendants, therefore, argue that "memory" cannot include "column latches." The defendants also point out that the specification recognizes that latches, registers and cache can exist within the CPU which is separate from the memory. See '148 patent, 4:5-10, 4:14-19, 5:58-60.

The plaintiffs contend that the specification describes DRAM to include registers and column latches. '148 patent, 8:65-9:4. The defendants, moreover, agree that registers, cache, and column latches may be considered part of the memory when they are included in the storage array. Defendants'Responsive Claim Construction Brief, at 34.

In the Court's view, the plaintiffs' proposal is too broad because it would include storage elements that are within the CPU. On the other hand, the defendants' proposed construction is too limiting because it would exclude registers and cache that one of ordinary skill in the art would consider to be types of memory. The claim language, however, does indicate that "memory" does not include "column latches." "Memory" and "column latches" are two distinct elements in Claim 1 of the '148 patent. The claim also states, in relevant part, that "a plurality of column latches [is] coupled to . . . the memory . . . ." '148 patent, 31:11-12. If "memory" included "column latches," then the claim would not need to specify that "column latches" are coupled to the "memory." Accordingly, the Court construes "memory" to mean "storage elements other than column latches."

2. "memory"

Plaintiffs' construction: a chip dedicated to the nonvolatile storage of data for subsequent retrieval

Defendant's construction: a device in which information may be stored and from which the same information may be subsequently retrieved

The parties' primary dispute with respect to this term is whether memory must be nonvolatile in nature. They also disagree whether it is stored on a "chip" or a more general "device." Both parties rely on similar dictionary definitions for the "ordinary" meaning of the term. Apparently the dictionaries disagree about whether memory is something stored on a "chip" or a "device." The parties have offered no reason to believe that one set of dictionaries is more persuasive than the other and I will not speculate independently.

Next, nothing in the claim terms or the specification of the '839 patent provides a definitive answer regarding the volatile or nonvolatile nature of memory used in the patented device. Therefore, the parties rely on dueling expert opinions to support their arguments. The Court of Appeals for the Federal Circuit has held that expert testimony "can be useful to a court" but has cautioned also that it is generally "less reliable" than intrinsic evidence. Phillips, 415 F.3d at 1318.

This case presents a clear example of why expert evidence may be of limited value in claim construction. Plaintiffs' expert states that memory "must be non-volatile in order to obviate a manual field upgrade or system swap when a new function, application or transducer scanhead is introduced." Schafer Decl., dkt. # 41, at 16. Defendant's expert takes the opposite position. He asserts that the memory can be volatile, nonvolatile or a collection of both kinds. Waag Decl., dkt. # 46, at 15.

In their claim construction briefs, the parties attempt to discredit each other's expert witnesses but neither has pointed to anything that demonstrates that the experts are correct or incorrect as a matter of law. This is a problem. A court construing patent claims may resolve legal disputes, Markman, 52 F.3d at 970-71, but it may not resolve genuine issues of fact.

Therefore, I will decline to adopt either proposed construction of "memory."

These terms appear in the claim language as follows:

1. A method of displaying stored intra-oral radiographs, comprising:

   . . .

   displaying a stored intra-oral radiograph corresponding to said selected target intra-oral radiological site.

2. A method for storing and displaying intra-oral radiographs, comprising: generating and displaying intra-oral radiographs of dentition;

   . . .

   storing said intra-oral radiograph images responsive to selection of intra-oral radiological sites in said representation along with indicia of respective selected intra-oral radiological sites; and

   subsequently retrieving and displaying said intra-oral radiographs responsive to selection of respective intra-oral radiological sites in said representation.

3. A program storage device readable by a machine and tangibly embodying a representation of a program of instructions adaptable to be executed by said machine to perform the method of any one of claims 1 or 2.

4. A device for storing and displaying intra-oral radiographs, comprising:

   . . .

   a memory in which said x-ray images are stored;

   . . .

   means, responsive to selection of said selectable sites, for displaying corresponding stored x-ray images.

5. The device of claim 4, further comprising:

   an image digitizer for digitizing x-ray images produced by said sensor before storage in said memory.

The parties originally submitted an agreed construction of "stored, storage, and memory" as referring to "any form of volatile or non-volatile data storage, including but not limited to hard disk drives, random access memory ["RAM"], floppy disks, and optical media, in addition to any other data storage devices or means." However, Plaintiffs later withdrew their agreement to this construction.

Defendants argue that the Court should order that these terms include any means or device for data storage, including but not limited to random access memory ("RAM"). Otherwise, Defendants assert, jurors might incorrectly draw a distinction between easily recognizable and dedicated devices for data storage, such as floppy disks and hard drives, and RAM. However, Defendants argue, the specification clearly includes RAM as a means for storing information in conjunction with the claimed invention, and thus the jury should have clear guidance that RAM is one possible form of memory and carries out the function of storage.

Plaintiffs agree that "memory," "storage," and "stored," encompass all types of computer memory, but take issue with Defendants' request for clear guidance that RAM carries out the function of storing because it would conflate the media on which the action of storing may be done with the action of storing. Plaintiffs assert that whether the RAM in an accused device or an alleged prior art device is being used to perform the function of recording, retaining, or preserving radiographic images and whether that function is being done "responsive to selection" is a fact issue that should be reserved to the jury. Thus, whether the RVG performed the function of "storing" is a fact issue for the jury. Plaintiffs contend that the terms are plain and ordinary on their face and need no construction. Plaintiffs argue that construing these terms could be confusing to the jury. Plaintiffs are also opposed to a jury instruction stating or suggesting that the mere existence of data in volatile...
"Storage" is used in claim 3 in the context of a "program storage device." Program storage devices are defined in claim 3 as being readable by a machine and tangibly embodying a representation of instructions adaptable to be executed by said machine, and thus program storage device refers to a device for storing the software that performs the methods of claims 1 and 2, which is loaded onto a computer. The specification states that "program storage medium can be any machine readable storage medium such as, for example, a floppy or hard magnetic or optical disk, or a programmable read-only memory." Column 3, lines 4-7. Contrary to Defendants' argument, see Joint Claim Construction Statement (docket no. 75) at 11, this portion of the specification does not describe the memory onto which x-ray images are stored, but describes only the program storage medium, i.e., the media on which the software to be loaded onto the computer memory can be stored. The program storage medium (item 23 on Figure 1) and the memory (item 22) are clearly distinct, and thus the listing of program storage media does not apply to the memory.

Claims 4 and 5 refer to a memory in which x-ray images are stored and to x-ray images being digitized before storage in said memory. The summary of the invention also states that, "the images are then stored, preferably after digitization, in a computer memory." Column 2, lines 18-20. Figure 1 depicts the memory, and the specification also states that the CPU loads software embodying the present invention into memory. However, neither Figure 1 nor the specification describe the memory. The only possible description can be in the preferred embodiment, which describes a computer with 8 megabytes of system RAM and 40 megabytes of hard disk drive. The claim language also makes clear that stored x-ray images correspond to selectable sites and are stored in response to selection of those sites. Further, the images are "subsequently" retrieved and displayed in response to selection of the sites, indicating that they are stored for subsequent retrieval. Thus, "storing" means "placing in memory for subsequent retrieval," and "stored" means "placed in memory for subsequent retrieval." "Storage" as used in claim 5 means "placement in memory for subsequent retrieval." The real dispute centers on what is meant by the term "memory" and whether it includes random-access memory ("RAM").

As noted, Plaintiffs originally stipulated that "memory" could include RAM, but now oppose a construction stating that placement of the x-rays in RAM would constitute the act of storing. Plaintiffs argue that placement of the x-rays in RAM or volatile memory "does not necessarily establish that the action of storing' has occurred -- at least not in the sense of saving the information long-term for later retrieval, as described on columns, 5-6 of the 579 specification." Further, Plaintiffs argue, though the specification describes a preferred embodiment of a computer system that includes RAM, it never describes RAM as a storage device, and the specification indicates that a radiographic image can reside on display memory (RAM) before it is stored.

Defendants argue that Plaintiffs should be held to their prior agreed construction, which is consistent with the specification's description of the preferred embodiment and is consistent with the extrinsic evidence. Defendants point to Dr. Dove's deposition testimony in a related case over the same patent, in which he testified that "stored" means "it resides somewhere . . . it can be in computer RAM memory, on memory. It could be stored on the hard drive, CD-ROM. It could be stored somewhere. There are more storage devices in computers." He also agreed that "both volatile [RAM] and nonvolatile memory is what the patent was referring to in terms of retrieving images that were stored." Defendants further point to Plaintiffs' argued construction in the recently filed and settled patent infringement suit (involving this same patent) against Planmeca U.S.A., in which they stated that "the 579 specification supports a broad construction of these computer memory and storage terms. The 579 specification describes both volatile and non-volatile types of computer memory. The preferred computer at that time included 8 megabytes of RAM,' which is a type of volatile memory, and 40 megabytes of hard disk drive,' which is a type of non-volatile memory."

The Court agrees with Defendants that "memory" is not limited by the specification to any particular type of memory, but could include RAM or hard disk space as described in the specification. Plaintiffs argue that placement in RAM is not storage "in the sense of saving the information long-term for later retrieval, as described on columns 5-6 of the 579
specification." However, while the specification indicates that various exams corresponding to different dates and times can be stored, see Column 3, line 59-60, Column 4, lines 3-5, and Figure 2 (displaying four intra-oral examinations conducted over sixteen months), tending to indicate a long-term storage, a close reading of the specification reveals that there is no indication that the invention relates only to such long-term storage. It does not even state that the x-rays will continue to be stored after the computer or program is shut down. Thus, the Court construes the term "memory" as "any form of volatile or non-volatile computer memory, including random-access memory (RAM) and hard disk drive space."

## 2656

# 8

# 8 -- "memory" -- (appears in claims 44 and 45) Luma's Construction (Luma May 4, 2005, p. 4).

**MASTER'S CONSTRUCTION**

# 8 -- "memory" -- means a device for storing information or data.

**REASONS**

**INTRINSIC EVIDENCE**

The Patent Specification has numerous references to "memory". For example, the Specification refers to "image database" can reside in any suitable memory device in system 10 (e.g. disk storage". Col. 29, Ls. 5-9).

**EXTRINSIC EVIDENCE**

The Markman Hearing provides a definition of "memory". Nutter, when asked what "memory" is, he responded, "memory is where information is stored", "data or information". (Nutter, Markman Hearing Tr. 117: Ls. 11-15). This is consistent with the Master's Construction.

**LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION**

Luma's construction is set forth in (Luma May 4, 2005, p. 4).

Luma is asking that "memory" be constructed but Luma limits it to long-term storage of an image from an input device of the imaging system. Claim 44 has further limiting language of a memory that is configured to store images from an input device. The Master agrees that the language in the claim limits the term "memory". Luma has not requested that the entire phrase be constructed. Luma has only asked that "memory" be construed. That is what the Master did.

**STRAKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION**

Stryker's position is set forth in Stryker May 23, 2005, p. 11.

Stryker argues that Luma's proposed construction is incorrect for the same reasons that Stryker asserted with respect to Luma's construction of "still frame buffer". Other than the objection to "piecemeal" construction, the Master is not certain how to apply those reasons to the term "memory". Therefore, one is directed the Master's comments to Stryker's position for the "still frame buffer".

**KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION**

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 9).

KSEA argues that "memory" should be given its plain ordinary meaning. The Master has done this as guided by the intrinsic evidence and extrinsic evidence. KSEA points to the fact that Luma has "cut out" certain language in the claim following
"memory". The Master acknowledges this. However, Luma has requested that only the term "memory" be construed. The other language will further limit the "memory" as construed when the scope of the entire claim is determined.

J. First Memory/Second Memory

Various claims of the '131 patent include the term memory, first memory and second memory. Visto proposes that the court define "memory" to mean "a medium where information can be stored and retrieved." Seven contends that the court should define "first memory" to mean "a medium where information can be stored or retrieved, which is located within a firewall-protected corporate LAN and stores workspace elements." Also, Seven contends that the court should define "second memory" to mean "a medium where information can be stored or retrieved, which is located on a global server and stores independently modifiable copies of workspace elements." The court defines memory pursuant to Visto's proposal to mean "a medium where information can be stored and retrieved." The court is not persuaded that the patents incorporated the various locational limitations included in Seven's proposed definitions. The terms "first" and "second" need no construction.

2. Element [B] - "Memory"

The parties dispute the proper construction of the term "memory" in element [B]. WeddingChannel argues that "memory" entails any device where information can be stored and retrieved. The Knot argues that the term is more restrictive, encompassing only the volatile main storage in a computer --i.e., the RAM.

WeddingChannel argues that its proposed construction is supported by the plain meaning of the term "memory" (as understood by one of ordinary skill in the art of the '753 patent). The Microsoft Computer Dictionary (4th ed. 1999)(5th ed. 2002), which WeddingChannel cites in its brief, defines "memory" as follows:

A device where information can be stored and retrieved. In the most general sense, memory can refer to external storage such as disk drives or tape drives; in common usage, it refers only to a computer's main memory, the fast semiconductor storage (RAM) directly connected to the processor.

WeddingChannel acknowledges that pursuant to the Microsoft Dictionary definition, the term "memory" is used to refer narrowly to "RAM," and the term is also used to refer more generally to a computer system's external storage capacity (e.g., disk drive memory). WeddingChannel argues that where, as here, "more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim term may be construed to encompass all such consistent meanings." Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002).

Moreover, WeddingChannel argues that the intrinsic evidence compels a construction of the term "memory" that encompasses both volatile system memory and also disk drive memory. See id. (stating that "the objective and contemporaneous record provided by the intrinsic evidence is the most reliable guide to help the court determine which of the possible meanings of the terms in question was intended by the inventor"). WeddingChannel points out that the specification uses the term "system memory" to refer exclusively to RAM. However, the claims do not use the term "system memory." Rather, they refer generally to "memory" thereby evidencing, in WeddingChannel's view, an intent to encompass both RAM and disk-drive memory.

WeddingChannel argues that the text of the specification and Figure 1 demonstrate that the term "memory" must encompass both RAM and disk-drive memory. The description of the general architecture of system 100 states:

System 100 has a standard computer configuration including at least one central processing unit (CPU) 102, at least one hard disc 104, an optional user interface 106, a network interface 112, and a system memory 114 that are connected by bus 138. Disc 104 is used to store various components of system memory 114. Optional user interface 106 can perform tasks
such as monitoring traffic on system 100, controlling disc 104 data upload or download, and/or optimizing a component of system memory 114.

'753 Pat. at col. 4, ll. 25-33. The above-excerpted text provides that disc drive 104 is "used to store various components of system memory 114." Id. at ll. 29-30. Elsewhere in the specification, Figure 1 shows system memory 114 storing various system 100 software modules and data components. WeddingChannel argues that, taken together, the specification's text and graphics provide that the burden of storing system 100's software and data is shared by disc drive 104 and system memory 114 (i.e., the RAM). Based on the fact that the specification appears to provide that the storage burden is shared between the two different types of memory, WeddingChannel concludes that the claimed memory must be construed to entail more than just RAM.

WeddingChannel argues that its construction of the term "memory" is further supported by the statement in the specification that "optional user interface 106 can perform tasks such as . . . controlling disc 104 data upload or download . . . ." Id. at ll. 30-32. WeddingChannel explains that as used in this passage, a "data upload" is a data update received from a registry database provider using software called an "upload module." Claim 39 states that the "first registry" referenced in Claim 35 is (1) stored in said memory, and it is (2) a copy of a registry stored in a master registry database stored in a remote server. Id. at col. 15, ll. 23-25. Claim 40 states that the memory referenced in claims 35 and 39 includes an upload module that facilitates the receipt of updates by the first registry from the master registry. Finally, WeddingChannel points out that claim 43 states that the upload module described in claim 40 uses a file transfer protocol to send the updates referenced in claim 40 to the memory referenced in claims 35 and 39. Id. at col. 15, ll. 36-37.

According to WeddingChannel, claims 39, 40 and 43 establish that the "memory" of claim 35 must encompass a disk-drive memory: Claim 43 says that the update is sent by the upload module to the memory referenced in claims 39 and 35, and the specification says that update data are uploaded to disc drive 104. Therefore, for claim 43 to encompass the disclosed embodiment (as it must), the "memory" of claim 35 must be construed to include disk-drive memory. See, e.g., Dow Chemical Co. v. Sumitomo Chemical Co., Ltd., 257 F.3d 1364, 1378 (Fed. Cir. 2001) (stating that it is "well established that a claim construction that excludes a preferred embodiment is 'rarely, if ever, correct'") (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996)).

The Knot argues that the WeddingChannel has misinterpreted the specification. First, the Knot argues that no significance should be attached to the fact that the specification refers to "system memory" while the claim uses the seemingly more general term "memory." Rather, the Knot argues that the specification refers to the "memory" as "system memory" merely because it is the memory of what is labeled "system 100."

The Knot also disputes WeddingChannel's interpretation of the specification as providing that disc 104 and system memory 114 are complementary components of the memory which share the burden of storing the system's software and data. The Knot argues that the specification merely provides that disc 104 stores some of the non-physical elements of system 100. Furthermore, the Knot points out that Figure 1 shows all of the system's non-physical components stored in system memory 114. The Knot argues that this interpretation of the specification is consistent with its interpretation of claim 35 as requiring that the memory (i.e., system memory 114) contain all listed non-physical elements of the claim. The Knot points out that the claim does not state that such RAM memory is the only place where such information can be stored.

The Knot also disputes WeddingChannel's argument that the "upload module" of claim 40 can only upload data to disc 104. The Knot points out that the specification shows the "upload module" stored in the system memory.

Reading the claim and the specification together, the Knot concludes that the claim provides: (1) that the RAM necessarily stores all claimed non-physical elements of system 100; (2) that the disk drive serves as a back-up to the RAM; and (3) that the disk drive stores duplicate versions of at least some of the information stored in the RAM.

WeddingChannel has correctly observed that the term "memory," as used by one of ordinary skill in the art, is broad enough to encompass both RAM and disc memory. Furthermore, WeddingChannel has demonstrated that the specification teaches storage of certain software components of system 100 in disk drive 104. Therefore, WeddingChannel's construction of the term "memory" is adopted.
IV. CLAIM CONSTRUCTION

At issue in this controversy is the meaning of "without utilizing any memory buffer."

As noted above, claim construction begins with the words of the claim. Teleflex, 299 F.3d at 1324. The words of the claim generally are given their "ordinary and customary meaning." Phillips, 415 F.3d at 1312 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). This "ordinary and customary meaning" is the meaning that the term would have to a person of ordinary skill in the relevant art at the effective filing date of the patent application. Id. at 1313. If this meaning is readily apparent to the court, then claim construction may involve "little more than the application of the widely accepted meaning of commonly understood words." Id. at 1314.

The term "without utilizing any memory buffer" is used in each independent claim of the '141 Patent. (UF 1.) Defendant maintains that "any memory buffer" should be interpreted to mean "a memory buffer of any type whatsoever," i.e., computer hardware or software that allows information to be stored temporarily or permanently. It is not readily apparent to the Court, however, that this is the meaning the term would have to a person of ordinary skill in the art reviewing the patent. The language of the term itself is ambiguous and does not clearly delineate the scope of what it purports to describe. The Court must therefore look to "intrinsic evidence," that is, "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." Phillips, 415 F.3d at 1312.

A. Intrinsic Evidence

1. Language of the Claims

First, within the category of intrinsic evidence, the language of the claims themselves "provide[s] substantial guidance as to the meanings of particular claim terms." Id. at 1314. The context in which a term is used may be highly probative, as may its usage in other claims in the disputed patent. Id. Differences among claims may also help guide a district court in ascribing meaning to particular terms. Id.

Here, claim language is not helpful in defining the scope of the term "memory buffer." Claims 1, 5, 15, 18, 34, 37, 45, and 48 contain the phrase: ". . . such that the copied data directly flows from said source HDD to said multiplicity of target HDDs without utilizing any memory buffer." (McCloskey Decl., Ex. A, ICS00085, ICS00086, ICS00087, ICS00089, ICS00090.) Claims 7, 12, 23, 29, 38, 42, 53, and 57 contain the nearly identical phrase: ". . . such that the copied data directly flows from said source HDD to said at least one target HDD without utilizing any memory buffer." (McCloskey Decl., Ex. A, ICS00086, ICS00087, ICS00088, ICS00090, ICS00091.) It is evident, therefore, that context does not provide much assistance, as the disputed term is used identically in each instance in which it appears in the various claims. Specifically, in each claim, a particular device or function is described, and the disputed phrase follows as language of limitation. For instance, the relevant portion of Claim 18 reads:

   g. said data bus switches and said control signal switches controlled by said internal means to operate said direct data path between said source HDD and said at least one target HDD such that the copied data directly flows from said source HDD to said at least one target HDD without utilizing any memory buffer.

(McCloskey Decl., Ex. A, ICS00090.) All of the other disputed claims contain nearly identical language, and none use the term "memory buffer" in a way that sheds light on the term's meaning.

2. The Specification

The Court next turns to the patent specification for guidance.

Because the claims are but one component of the patent instrument, "they must be read in view of the specification, of which they are a part." Phillips, 415 F.3d at 1315 (quoting Markman, 52 F.3d at 979). The specification is always relevant to claim construction analysis, and is generally dispositive. Id. In particular, the patent specification may reveal a special
definition given to a claim term by the patentee, one that differs from the meaning it would otherwise possess. Id. at 1316. In such a case, the patentee's lexicography governs. Id. The specification may also reveal a disclaimer or disavowal of claim scope by the patentee. Here too, the patentee's intention governs. Id. Though a court may rely on the specification to determine the meaning of a claim, it should not import limitations from the specification into the claim. Id. at 1323. The line between construing terms and importing limitations can be difficult to apply in practice, but "can be discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms." Id.

Plaintiff points the Court to two relevant sections of the specification. The first states:

The primary novel features of the present invention include: (1) the PC can read and write to the source HDD, or any of the target HDDs; (2) multiple target HDDs can be created at the same time; (3) data flows from the source HDD to the multiple target HDDs directly without having the data saved in the PC memory; and (4) the speed of duplicating multiple HDDs simultaneously is significantly increased.

(McCloskey Decl., Ex. A, ICS00081.) Identical language appears in the original patent application. (McCloskey Decl., Ex. A, ICS00105.) The third listed novel feature ("data flows from the source HDD to the multiple target HDDs directly without having the data saved in the PC memory") is relevant to defining "memory buffer." This language is very similar to the phrase repeated in each of the disputed claims ("...such that the copied data directly flows from said source HDD to said multiplicity of target HDDs without utilizing any memory buffer.") Both describe data flows from the source HDD to target HDDs without the use of "PC memory" (specification language) or a "memory buffer" (claims language). Naturally, this indicates that "PC memory" and "memory buffer" mean the same thing. Plaintiff also points to a portion of the specification explaining that:

Typically, the present invention HDD duplicator is at least five times faster than conventional HDD duplicators which do not provide direct data transfer between the source HDD and the target HDD but rather pass the data through the PC's data buffer.

(McCloskey Decl., Ex. A, ICS00083.) This language is also helpful in defining the meaning of "memory buffer." It describes "direct data transfer" as occurring without passing data through a PC's data buffer. It follows that claims language referring to direct data transfer without a "memory buffer" means transfer without a PC's data buffer.

In sum, language in the specification closely parallels language found in the various disputed claims. This suggests that within the lexicography of the patentee, "memory buffer" is synonymous with "PC memory buffer." Defendant responds that the patentee has not sufficiently defined the term at issue to qualify as his own lexicographer. On the contrary, although "any special definition given to a word must be clearly defined in the specification," Markman, 52 F.3d at 980, a specification may define terms by implication, and rigid formal definitions are not required. Astrazeneca AB v. Mutual Pharm. Co., 384 F.3d 1333, 1339-40 (Fed. Cir. 2004). Here, Plaintiff has successfully established the meaning of "memory buffer" by implication.

Although the specification by itself suggests the proper claim construction, the Court will turn to the prosecution history to verify this finding. See id. at 1341 (finding that consideration of prosecution history is proper even when patent specification is unambiguous).

3. Prosecution History

Prosecution history is the third form of intrinsic evidence useful to a district court in construing claims. See Phillips, 415 F.3d at 1317. As with the specification, the prosecution history assists the court in determining how the PTO and the inventor understood the patent. Id. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Id. Nevertheless, examining the prosecution history in construing a claim allows a court to exclude any interpretation that was disclaimed by the patentee during prosecution. Id. Use of prosecution history to construe a claim should not be confused with its use in assessing prosecution history estoppel to determine the scope of a claim. See Markman, 52 F.3d at 980 ("Although the prosecution history can and should be used to understand the language used in the claims, it too cannot 'enlarge, diminish, or vary' the limitations in the claims.").

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The prosecution history in this case is not straightforward. Nevertheless, it supports the conclusion that "memory buffer" means "PC memory buffer."

As part of the First Office Action, PTO Examiner King allowed many of Plaintiff's claims, finding that prior art did not reveal an HDD duplicator that enabled direct duplication of data between source and target HDDs without "processing and storage elements (i.e. CPUs, buffers, memories) between the source HDD and the multiplicity of target HDDs." (UF 11.) At this stage, none of the claims in Plaintiff's patent application contained the phrase "without utilizing any memory buffer." (UF 5.)

The PTO then issued a Second Office Action reversing claims allowed in the First Office Action. (UF 12.) PTO Examiner Peikari rejected the earlier claims based on prior art, namely the Bodo patent. (UF 13.) After this Office Action, Examiner Peikari wrote in an Interview Summary, "Applicant will amend the claims to include the central feature of direct transfer to storage devices without the use of the PC's buffer (note pg. 17 of spec. & fig. 2). Bodo, in Col. 4, lines 22-26, teaches away from this feature." (UF 15.) Plaintiff and the PTO thus contemplated adding language to the claims that described direct transfer without use of a PC's buffer. In response to this Office Action, Plaintiff's second set of amendments added claims language containing the words "without utilizing any memory buffer." (UF 17.) This strongly suggests that "memory buffer" and "PC buffer" were considered synonymous by Plaintiff and the PTO.

The Notice of Allowability subsequently issued to Plaintiff also indicates that "memory buffer" means "PC buffer." Examiner Peikari stated that Plaintiff's second set of amendments put the remaining pending claims "in condition for allowance by further including control means operable to determine and utilize system parameters such that the data transfer may occur with synchronized timing between the sender and receiver, as opposed to intermediate storage in a buffer memory." (McCloskey Decl., Ex. A, ICS00211.) This language by itself is not dispositive, but Examiner Peikari also stated that "[t]he use of a portable hard disk drive duplicator was taught by Bodo, 5,777,811, cited in the previous Office action, however, the Bodo system required the use of the buffer of the PC system to which the duplicator was connected. The amendment of 4/15/99 specifically limited each of the independent claims to data transfer 'without utilizing any memory buffer', thus overcoming the prior art rejection." (McCloskey Decl., Ex. A, ICS00211-212.) This statement clearly explains that prior art required the use of a PC buffer system, and that Plaintiff overcame the prior art objection by including the language "without utilizing any memory buffer" in its claims. Again this suggests that "memory buffer" refers to a PC buffer system.

On June 25, 1999, Plaintiff filed a request for continuation of the original application. (UF 30.) In response to Plaintiff's request, Examiner Peikari issued an Office Action on September 22, 1999 rejecting many of Plaintiff's claims as obvious under § 103(a). He stated that the feature of transfer between systems without the use of a storage buffer was known in the art at the time of invention, and that such a feature was found in Read and Korth. (McCloskey Decl., Ex. A, ICS00245.) Because of this prior art, Examiner Peikari determined that it would have been obvious to a person of ordinary skill in the art at the time of invention "to directly transfer data in the Bodo system between target and source memories without the use of an intermediate buffer . . . ." (McCloskey Decl., Ex. A, ICS00245.)

Two months after this, Plaintiff submitted an amendment responding to this Office Action. Plaintiff acknowledged Bodo's teaching that RAM receives data from one device and supplies it for writing to the other device. (McCloskey Decl., Ex. A, ICS00265.) Plaintiff distinguished Bodo on the basis that Plaintiff's invention uses data switches and control signal switches that enable the copied data to directly flow "from the source HDD to target HDDs without utilizing any memory buffer." (McCloskey Decl., Ex. A, ICS00265.) Plaintiff emphasized that a PC was not a necessary component of the invention, and thus deleted all references to a PC or parallel port in the amended claims. (McCloskey Decl., Ex. A, ICS00267-268.) Defendant contends that the RAM referred to in Bodo is internal to the device itself, and is not part of a PC. (Def's. Mot. Summ. J. 17.) Defendant maintains that "direct data path" means a data path without PC memory and notes that the claims already contained the phrase "direct data path" prior to amendment. (Def's. Mot. Summ. J. 18.) From this, Defendant reasons that the addition of the term "without utilizing any memory buffer" narrowed the scope of the claims to exclude a non-PC memory buffer. 5 (Def's. Mot. Summ. J. 18.)

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5 The Court rejects Defendant's contention that the portions of the specification cited above are only relevant to two of the claims as granted, those that refer to PC control of data. Rather, the specification is also relevant to defining the term
"memory buffer" contained in Plaintiff's final amendments.

The Court disagrees with Defendant's reading of the prosecution history. Plaintiff emphasized in its response to the final Office Action that what distinguished its invention from Bodo was that no PC was necessary to operate the device. (McCloskey Decl., Ex. A, ICS00267-268.) Defendant added the language "without utilizing any memory buffer" for the purpose of distinguishing its invention from Bodo.

In sum, the prosecution history indicates that the term "memory buffer" refers to PC memory, and not merely to a buffer within the duplication device itself.

B. Extrinsic Evidence

Both Plaintiff and Defendant have advanced expert testimony.

Expert testimony may be useful to the court for a number of purposes, such as (1) to provide background on the relevant technology; (2) to explain how an invention works; (3) to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art; or (4) to establish that a term in the patent or the prior art has a particular meaning in the pertinent field. Phillips, 415 F.3d at 1318. But extrinsic expert testimony is not helpful if it consists merely of conclusory, unsupported assertions as to the definition of a claim term. Id. Likewise, a court must not rely on expert testimony that is contradicted by the intrinsic evidence. Id. Further, though a district court may "in its sound discretion" admit and use extrinsic evidence, consideration of such evidence is likely to be reliable only if considered in the context of the intrinsic evidence. Id. at 1319 ("In exercising that discretion, and in weighing all the evidence bearing on claim construction, the court should keep in mind the flaws inherent in each type of evidence and assess that evidence accordingly.").

1. The Ravid Declaration

Plaintiff filed a declaration of Gonen Ravid, inventor of the device described in the '141 Patent. Defendant objects to consideration of this evidence on the basis that it constitutes an impermissible hindsight explanation by the patentee.

The Federal Circuit has explained that "[a]n inventor is a competent witness to explain the invention and what was intended to be conveyed by the specification and covered by the claims." Voice Tech. Group, Inc. v. VMC Sys., Inc., 164 F.3d 605, 615 (Fed. Cir. 1999). The inventor may not, however, "by later testimony change the invention and the claims from their meaning at the time the patent was drafted and granted." Id. In light of this precedent, Plaintiff's objection is overruled.

Ravid states that the term "without utilizing any memory buffer" means that data does not pass through the main memory of a PC. (Ravid Decl. P 4.) On the data path from the source HDD to the destination HDD, however, there may be "dedicated buffers or queues," such as "components of switches implemented in field programmable gate arrays." (Ravid Decl. P 4.) The presence of these buffers or queues, according to Ravid, does not change the essence of the invention claimed in the '141 Patent. (Ravid Decl. P 4.) Rather, data still flows "directly" between the source and target drives, and does not run through a PC's memory. (Ravid Decl. P 4.) According to Ravid, this is one of the key innovations in the '141 Patent. (Ravid Decl. P 5.) The Bodo device does not operate in this manner. (Ravid Decl. P 5.) Rather, it operates like a standard PC in that data is temporarily stored in the PC memory during transfer between source and target HDDs. (Ravid Decl. P 5.) In his invention, Ravid added switches to enable a data path between the two HDDs and a control mechanism to allow the data to flow from one HDD to the other without the use of the PC memory. (Ravid Decl. P 5.) Switches may in some contexts contain buffer memories, but "if the switch has a little buffer of some bytes of data," in Ravid's opinion, "it doesn't make any difference." (Ravid Decl. P 7.)

Ravid's assertions are entirely consistent with the intrinsic evidence discussed above. Both suggest that a main innovation of the device is that the data path between the source and target HDDs does not include a PC memory buffer. Ravid also contends that buffer memories within switches are not technically significant. This further emphasizes that the relevant claims of the '141 Patent seek not to describe a lack of buffer memories within the device's switches, but rather to describe a data path that does not run through a PC's buffer.
Nonetheless, Ravid merely states his opinion of the proper claim construction without relying on independent sources or analysis of industry publications. See Network Commerce, Inc. v. Microsoft Corp., 422 F.3d 1353, 1361 (Fed. Cir. 2005) (discounting expert testimony for lack of reference to industry publications or independent sources). The Court therefore accords little weight to his assertions.

2. Technical Expert Yuval Tamir

To aid the Court in claim construction, Plaintiff advances a technical report prepared by Yuval Tamir ("Dr. Tamir").

In his report, Dr. Tamir notes that Claims 42 and 57 of the '141 Patent describe a data path that includes "switches." (Second Rozsa Decl., Ex. 5, P 5a.) In Dr. Tamir's knowledge and experience, "in some contexts a 'switch' may include buffer memory." (Second Rozsa Decl., Ex. 5, P 5a.) Dr. Tamir also examines the prosecution history, concluding that the use of non-PC buffers on the data path is "not precluded." (Second Rozsa Decl., Ex. 5, P 5b.)


Gralnik asserts that based on his "training and experience during the mid-1990's," he would understand the '141 Patent's references to direct data duplication without utilizing any memory buffer to mean transfer of data without the data being stored in any kind of temporary memory. (Second Rozsa Decl., Ex. 6.) Gralnik states that, as of 1996, he would understand "direct data path" to mean "a finite, point-to-point conduit for the transfer of information between devices or locations."
Therefore, for the reasons stated above, the Court construes "memory buffer" to mean "PC memory buffer."
C. "memory cell"

The parties dispute the scope of the term "memory cell." Defendant argues that the term refers only to a cell that has a single select device and a single memory device. Plaintiff argues that as used in the patent, a "memory cell" can also encompass a cell with repeating elements that share the use of common regions, and which may contain multiple select and memory devices. Plaintiff refers to such a cell as a "mirror cell," although as discussed below, the Court believes that the term "mirror cell" is used in the specification with a different meaning.

The specification contemplates the creation of mirror cells: "As will be readily understood by those skilled in the art, 'mirror' cells may be formed in order to facilitate the integration of many memory cells into an array." '776 patent, 5:16-19. The Court believes that the specification uses the term "mirror cell" not with plaintiff's meaning, but rather to refer to an individual memory cell containing only a single select and memory device that lacks channel end field stop regions on both ends and that shares a region with at least one other such cell. That definition of "mirror cell" is consistent with the specification's statement that if mirror cells are formed, "channel end field oxide regions 13 [sic] 4 will separate groups of mirror cells as is known in the art, rather than separating individual cells at the channel ends as shown in Fig. 1." '776 patent, 5:21. The description of the entire mirrored assemblage as a "group of mirror cells" rather than as a single "mirror cell" suggests that a mirror cell is an atomic unit, not a collection of cells.

4 In the rest of the specification, the channel end field oxide region is labeled as region 12, and the channel side field oxide region is labeled as region 13. See '776 patent, 5:15-16, 6:11, 5:14-15. The Court concludes that in the quoted passage, the drafter meant to refer to the channel end field oxide region, but erroneously labeled the region as 13 instead of 12.

The terms "individual cells" and "mirror cells" in the specification thus each appear to denote cells with only a single memory and select device, distinguished only by the presence or absence of channel end field stop regions. Moreover, the specification later states that the "the memory cell of the present invention . . . includes a single gate select device . . . [and] a floating gate memory device." '776 patent, 2:64-68. The Court therefore holds that the term "memory cell" in the '776 patent refers to a cell with a single select and memory device.

5 The patent specification also states that "for purposes of this disclosure, a memory cell . . . includes at least a memory device and a select device." '776 patent, 1:61-65. Although this might be read to mean that a memory cell could contain multiple memory and select devices, it does not conclusively establish that, as the term "at least" might also refer to the presence of devices other than memory and select devices.

GO BACK

Memory cell array

The Court adopts the construction of "memory cell array" that the parties agreed to at the claim construction hearing: "a coordinated group or matrix of memory cells." Although MEI argued that the construction of the terms should specify that "bit lines" are included, MEI essentially conceded at the hearing that memory cells are understood to have bit lines and that a jury would understand this fact from testimony. See Claim Const. Hr'g Tr. at 62. It is therefore unnecessary to include "bit lines" in the construction.
G. "Sales random access memory chip," "Incoming Random Access Memory Chip," and "Playback Random Access Memory Chip"

Sightsound sees no reason to further define these terms. Defendants assert that "sales random access memory chip," and "sales random access memory," should be interpreted as "a semiconductor storage element within the first memory at the first party location." "Incoming playback memory chip" should be "a semiconductor storage element within the second memory at the second party location," and "playback random access memory chip" should be "a semiconductor storage element within the second memory at the second party location that is separate and distinct from the incoming random access memory chip."

These terms appear in the '734 and '440 patents. Claim 1 of the '734 patent discloses a "first memory" which has a "hard disk having a plurality of digital . . . signals . . . and a sales random access memory chip which temporarily stores a replica of the . . . desired . . . signals" (Docket # 69, Exhibit I, Column 8, lines 42-50). Claim 3, which builds upon claims 1 and 2, then discloses that "the second memory includes an incoming random access memory chip which temporarily stores the coded desired . . . signals . . . and a playback random access memory chip for temporarily storing the . . . signals . . . for sequential playback." (Id., Column 9, lines 17-26). Other claims are similar, except that the term "chip" is not included in all iterations.

The specification of the '734 patent also provides a detailed description of the preferred embodiment:

In FIG. 1 and FIG. 2, the following components are already commercially available: the agent's Hard Disk 10, the Telephone Lines 30, the Compact Disc Player 40, the user's Hard Disk 60, the Video Display Unit 70, and the Stereo Speakers 80. The Control Units 20 and 50, however, would be designed specifically to meet the teachings of this invention. The design of the control units would incorporate the following functional features:

* * *

3) the Sales Random Access Memory Chip 20c would be designed to temporarily store user purchased Digital Audio Music for subsequent electronic transfer via telephone lines to user's Control Unit 50.

4) the Incoming Random Access Memory Chip 50c would be designed to temporarily store Digital Audio Music for subsequent electronic storage to the user's Hard Disk 60.

5) the Play Back Random Access Memory Chip 50d would be designed to temporarily store Digital Audio Music for sequential playback.

The foregoing description of the Control Units 20 and 50 is intended as an example only and thereby is not restrictive with respect to the exact number of components and/or its actual design.

(Id., Column 4, lines 32-65).

The focus of the dispute in this case is whether the claims may be read to include configurations where the RAM of a computer is used interchangeably as the "Sales Random Access Memory" and for other functions as part of the first party's control unit, and as the "Incoming Random Access Memory" or "Playback Random Access Memory" as well as other functions in the second party's control unit. Defendants would read each of these phrases as requiring a separate storage element in the respective computers, apparently without the ability to be used for other purposes for which RAM is typically used on personal computers.

Reading the language of the claims in light of the specification, and particularly the language following the description of the preferred embodiment regarding the intended breadth with respect to the number of components and design of the control units, there is no indication that the inventor limited himself to situations in which particular RAM chips are
designated for a specific purpose only. In the court's view, the language cited covers any RAM in a system which is configured to perform the function described, whether or not that is the only function it is configured to perform.

2663

E. Ref. No. 10 "A memory coupled to said processor for storing the voting record and the unique voting session identifier for each voting session; and" or "memory for storing a voting record of each one of a number of voting sessions."

These phrases are recited in Claims 1, 21, 23, 76, 80, and 82.

Claims 1, 21, and 80 provide for the storage of the voting record and the voting session identifier. Claims 21, 76, and 82 provide for the storage of the voting record. It is Plaintiff's position, therefore, that this difference requires two separate definitions. Defendants disagree.

Plaintiff cites Application of Koller, 613 F.2d 819 (C.C.P.A. 1980), in support of its position that Claim 21's language for storing just the voting record is the language of an originally filed claim, and "original claims constitute their own description." Id. at 823. When an applicant adds a claim or amends the specification after the original filing date, "the new claims or other added material must find support in the original specification." TurboCare Div. of Demag Delaval Turbomachinery Corp. v. General Elec. Co., 264 F.3d 1111, 1118 (Fed. Cir. 2001) (citing Schering Corp. v. Amgen Inc., 222 F.3d 1347, 1352 (Fed. Cir. 2000)). When construing a claim, the Court should consider the prosecution history which often informs the meaning of claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in its prosecution narrowing its scope. Aero Products Int'l, Inc., 466 F.3d at 1010. "In the course of prosecuting a patent application, a patentee may redefine a claim term." Arlington Indus., Inc., 345 F.3d at 1328. "An amendment or argument made in the course of prosecution may also serve as a disclaimer of a particular interpretation of a claim term." Id. (citing Eckhian, 104 F.3d at 1304).

Here, in the response to the final official action filed August 24, 2004, Plaintiff argued that "[b]ecause the voting session identifier is stored with or as part of the voting record in both the voting machine memory and in the tangible medium . . ." a vote by vote audit is available. (Defs. Ex. 4d at 24.) This description of the invention is evidence that the inventor intended the memory device to store the voting record, including the voting session identifier.

For the reasons set forth herein, the Court construes the terms contained in Ref. No. 10 as follows:

A commonly used internal computer component (here, within the voting machine or system) which is capable of storing the voting record and the voting session identifier and interacts with the processor.

2664

H. "MOS Memory Device"

Although the claim language of the '750 patent does not refer to a "memory cell," it uses the term "MOS memory device." The parties raise the same arguments as in the '776 patent about whether the device so claimed must include only a single select and memory device, or can include multiple select and memory devices. The '750 patent is different because the requirement that there be four opposed field oxide regions makes impossible mirror cells, which as defined in the '776 patent contain field oxides only at the two channel sides. The unavailability of mirror cells, however, does not require a new definition of memory cell. For the other reasons that supported its construction of "memory cell" in the '776 patent, the Court holds that "MOS memory device" refers to a cell with only a single select and memory device.

2665

15. a memory input port sized to receive a digital camera flash memory module
The plaintiff argues that no construction is needed other than the term "port" as discussed above. The defendants propose "a memory input port, located within the housing, sized to directly receive a digital flash memory module." The defendants' proposed construction includes limitations that reiterate claim language or is not supported by the intrinsic record. Accordingly, the court incorporates by reference its construction of "port", and concludes that the balance of the phrase requires no construction.

16. **a memory insertion section for receiving a first digital flash memory module, and for receiving a second flash memory module**

The plaintiff argues that no construction is needed. The defendants propose "at least two flash memory module slots located in the housing that directly receive first and second flash memory modules." As in the previous section, the defendants' proposed construction includes limitations that reiterate claim language or is not supported by the intrinsic record. Accordingly, the court concludes that this phrase requires no construction.

A. **memory means** (Claims 1, 2, 5, 10)

A "means-plus-function" claim is a special type of claim provided for in 35 U.S.C. § 112, paragraph 6, which provides:

An element in a claim for a combination may be expressed as a means or a step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, P 6. Under this provision, an inventor can describe an element of the invention by the result accomplished or the function served, rather than by describing the item or element to be used. Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17, 27, 117 S. Ct. 1040, 137 L. Ed. 2d 146 (1997). When using means-plus-function language, "[t]he applicant must describe in the patent specification some structure which performs the specified function." Valmont Industries, Inc. v. Reinke Manufacturing Co., Inc., 983 F.2d 1039, 1042 (Fed. Cir. 1993). A structure disclosed in the specification is only deemed to be "the corresponding structure" if the specification clearly links or associates that structure to the function recited in the claim. Kahn v. GMC, 135 F.3d 1472, 1476 (Fed. Cir. 1998). The duty to link or associate structure in the specification with the function is the quid pro quo for the convenience of employing the means-plus-function format. Id.

An accused device with a structure that is not identical to the structure described in the patent will literally infringe the patent if the accused device performs the identical function required by the means-plus-function claim with a structure identical or equivalent to that described in the patent. Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 1457 (Fed. Cir. 1998) (en banc); Kahn, 135 F.3d at 1476. "Thus, the statutory provision prevents an overly broad construction by requiring reference to the specification, and at the same time precludes an overly narrow construction that would restrict coverage solely to those means expressly disclosed in the specification." Symbol Technologies, Inc. v. Opticon, Inc., 935 F.2d 1569, 1575 (Fed. Cir. 1991) (citations omitted).
The parties disagree whether "memory means" is governed by 35 U.S.C. § 112 P 6. PCTEL contends that this claim is not governed by § 112, P 6. n1 However, if the claim is subject to § 112, P 6, PCTEL contends that the corresponding structure is "memory and equivalents thereof." Agere contends that this claim is a means-plus-function limitation that is governed by § 112, P 6. Agere asserts that the corresponding structure is "external memory ROM/RAM 50 of modem 10." USR contends that this claim is governed by § 112, P 6, and that the corresponding structure is "a memory and equivalents thereof."

--- Footnotes ---

n1 Interestingly, PCTEL accepted that "memory means" was a means-plus-function term in the ITC investigation.

--- End Footnotes ---

PCTEL relies upon Environ Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360 (Fed. Cir. 2000), to support its proposition that the term is not governed by § 112, P 6. n2 In Environ, the Federal Circuit held that the word "baffle" alone constituted sufficient structure, and trumped the use of the word "means." Id. at 1364-65. "Because the term "baffle" itself imparts structure, meaning a surface which deflects air, its use in the claims rebuts the presumption that § 112, P 6 applies." Id. at 1365.

--- Footnotes ---

n2 Despite PCTEL's assertions to the contrary, the Court does not consider Dr. Wicker's Declaration because it is extrinsic evidence. See Vitronics, 90 F.3d at 1583.

--- End Footnotes ---

PCTEL also relies upon Katz v. AT&T Corp., 63 F. Supp. 2d 583, 640 (E.D. Pa. 1999), where the court held that "memory means" is not subject to analysis under § 112 P 6 because the word "memory" connotes sufficient structure to rebut the presumption that the term is written in means-plus-function format. The Katz court construed "the term 'memory' according to its plain meaning as: computer hardware that stores information, such as disks, RAM, or tapes." Id. at 602 n.14.

--- Footnotes ---


As in Lutron and Lucent, the Court finds that PCTEL has not overcome the presumption that "memory means" is a means-plus-function limitation. The function of this element is to store values for storing operating parameters. The structure associated with this element is memory associated with "External Memory ROM/RAM 50."

However, the parties' disagree regarding the precise scope of the structures to be included in the claim. PCTEL and USR assert that the structure of "memory means" is "memory and equivalents thereof." PCTEL contends that the '561 patent discloses a discrete class of structures that perform the claimed function and admits that a specific, preferred type of memory is disclosed in embodiment of the patent (i.e., ROM and RAM). PCTEL argues that it should not be penalized for having disclosed a preferred type of memory by having the scope of the claims narrowed so as to only cover a certain type of memory. Along the same lines, PCTEL asserts that the location of its memory should not be limited to only "external" memory.

Agere responds that the only disclosed embodiment of the invention of the '561 patent expressly discloses that the structure corresponding to the "memory means" is "External Memory ROM/RAM 50 of modem 10." Agere also notes that Fig. 1 of the '561 patent discloses that External Memory ROM/RAM 50 of modem 10 is separate and "external" to the data terminal equipment, which can contain a separate ROM and/or RAM of its own.
At this stage of the litigation, the Court need only identify all corresponding structures disclosed in the specification of the '561 patent. "[T]he scope of such a claim is not limitless, but is confined to structures expressly disclosed in the specification and corresponding equivalents." Symbol Technologies, 935 F.2d at 1575. The Court notes that the specification reveals "memory means" such as "RAM," "ROM," "EPROM," and "EEPROM." Therefore, the Court finds that the structure corresponding to "memory means" is memory 50, including "RAM," "ROM," "EPROM," or "EEPROM." The Court declines to limit the location of the memory to only "external memory."

2668

2. Memory Means

The second element of claim 6 reads "memory means for storing information received through the I/O means indicating the groups of individual controls linked and their present settings." Lutron contends that "memory means" is a means plus function phrase, with the specified function being "storing information received through the I/O means indicating the groups of individual controls linked and their present settings," and the structure recited in the specification being "the EEPROM 35, the microcontroller's internal memory, and the FIFOs 53, and their collective equivalents." Genlyte argues that "memory means" is "a device in which data can be input and stored for retrieval at a later time."

The phrase "memory means" in claim 6 is written in means plus function language, and the claim does not recite structure definite enough to rebut the presumption that it is a means plus function situation. The function performed by the memory means is "storing information received through the I/O means indicating the groups of individual controls linked and their present settings," and the specification recites the structures which carry out the function. As addressed above, the specification states that "the button assignment table 37 and active button map 36 [which] are used by the central processing unit 42 of a microcontroller 44 to construct a room connection table 38 within the microcontroller's internal memory." Additionally, the specification states that "read/write memory is provided by a RAM 52 that is organized into ten 256 byte output FIFOs 53 (first in, first out). The data codes received from the ten light controls 10 are read by the microcontroller 44 and then stored in and transmitted from these FIFOs 53 by the microcontroller 44 in the order in which the codes arrive." Specification at col. 7, ll. 22-28.

Lutron correctly argues, therefore, that the EEPROM 35, the internal memory of the microcontroller 44, and the FIFOs 53 each take part in performing the function of storing information received through the I/O means indicating the groups of individual controls linked and their present settings. Therefore, the phrase "memory means" in claim 6 is construed to mean "the EEPROM 35, the microcontroller's internal memory, and the FIFOs 53 of RAM 52, and equivalent structures."

2669

2. "Memory Means"

As an initial matter, it is necessary to determine whether § 112(6) applies to the term "memory means", thereby restricting claim limitations to those structures, materials or acts disclosed in the specification that perform the claimed function.

The use of the word "means" creates a presumption that § 112(6) applies. However, "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format." Sage Prods. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997). Data General argues that "memory" describes, to one skilled in the art, the memory and processor of any general purpose computer system, a sufficiently definite structure to remove the term from the strictures of § 112(6).

The Court must determine whether the claim elaborates sufficient structure to perform the recited function, not simply whether the claim contains a term that has a commonly accepted meaning to those of ordinary skill in the art. In Claim 10, the memory means performs the function of:
storing and providing data in response to memory commands, each said memory command including an address specifying a location in said memory means, and … said data items include ordinary unresolved pointers.…

'603 Patent, col. 7, ll. 5-8, 14.

Although the memory of a general purpose computer system is a sufficiently described structure to perform the function of "storing and providing data," the '603 Patent language is not sufficiently descriptive where the data includes logical addresses. It becomes necessary to examine whether physical or logical memory is used when discussing the use of logical addresses. A physical memory system, in the absence of a mechanism to convert logical addresses into physical addresses, could not perform the function stated in Claim 10. Thus, § 112(6) applies and it becomes necessary to look to the Common Specification to determine the construction of "memory means."

The Court must first identify the function performed by the means and then identify the structure described in the specification which performs that function, the "corresponding structure." Data General contends that the corresponding structure is the physical main memory of a general purpose computer system, i.e., Main Store Bank 1810, whereas IBM argues that it is the logical memory system described in the Common Specification. 4

--- Footnotes ---

4 Main Store Bank 1810 is one of five major units of the main memory (MEM 10112). According to IBM, the logical memory system consists of the structures referred to as MEM 10112, IOS 10116, ED 10124, Memory Reference Unit 27017 and Protection Unit 27019.

--- End Footnotes ---

Again, the function performed by the memory means is:

…storing and providing data items in response to memory commands, each said memory command including an address specifying a location in said memory means.

'603 Patent, col. 7, ll. 5-8.

Data General maintains that the term "memory" is commonly used in computer engineering to refer to the physical main memory of a computer system. Accordingly, it argues, Main Store Bank is the structure that stores and provides data, using DRAM (Dynamic Random Access Memory). Data General contends that the four other devices in MEM 10112 do not "store and provide data" but rather, are part of the interface between the processor and memory means. 5

--- Footnotes ---

5 The four other devices in MEM 10112 are Bank Controller, Field Interface Unit, Memory Cache, and Memory Interface Controller.

--- End Footnotes ---

Data General's construction does not, however, encompass the use of logical addresses, as described in the Common Specification and discussed in the preceding section of this Memorandum. Although physical memory generally stores and provides data, if that data includes logical addresses, physical memory alone does not store and provide data. Rather, a mechanism is required to convert the logical addresses into physical addresses, compatible with physical memory. The use of logical addresses in the Common Specification indicates a logical, as opposed to a physical, memory system.

Data General's assertion that "memory means" does not refer to logical memory because logical memory is a scheme for organizing the memory system, rather than a physical device that "stores" data is unpersuasive. Although logical memory is not a physical device, it is composed of an implemented by physical devices, microcode and software.

This Court concludes that the term "memory means" refers to the logical memory system of a general purpose computer.
system and the corresponding structures that perform the function of storing and providing data which contain logical addresses are MEM 10112, IOS 10116, ED 10124, MRU 27017 and PU 27019.

2670

a. "Memory Means for Storing Caller Cues and Use Indications"

The plaintiffs agree that all of the limitations of Claim 15 are subject to means-plus-function analysis except for the limitation that reads "memory means for storing caller cues and use indications for said caller cues in relation to said callers as identified by said identification signals." Consistent with the Court's conclusion above in footnote 14, the Court concludes that "memory means" would have connoted sufficient structure to one of ordinary skill in the art at the time of the Katz patents such that it is not subject to analysis under 35 U.S.C. § 112, ¶ 6. The Court defines "memory means" as computer hardware that stores information, such as disks, RAM, or tapes.

The defendants also contend that the "caller cues" recited in this limitation must be quiz or lottery questions, as disclosed in the specification. Similar to the defendants' argument that the term "format" should be restricted to the seven disclosed formats, the Court concludes that there is no support in the claim language or specification for limiting the ordinary and common meaning of "cues" to only questions posed in a quiz or lottery. Thus, the Court construes the term "caller cues" to mean: questions or prompts which are given to a caller.

2671

a. The '219 patent, claim 10: "removably mounted memory means for storing digitized image data"

The parties disagree on whether "removably mounted memory means for storing digitized image data," as used in claim 10 of the '219 patent, is in means-plus-function form. St. Clair contends that the term "memory" is a definite, known structure, and therefore, the claim is not in means-plus-function format. Defendants contend that this claim element is phrased using the word "means" such that 35 U.S.C. § 112, ¶ 6 is implicated, and that this element does not recite a structure sufficient to rebut the presumption created by the use of the word "means." In their contentions and proposed constructions, Defendants focus on determining the structure of the "memory" and not the structure required to removably mount this memory.

After reviewing the claim language and the specification in light of the parties' respective positions, the Court concludes that "removably mounted memory means," as used in claim 10 of the '219 patent, is not in means-plus-function form. As the surrounding claim language indicates, the "memory means" is removably mounted in a camera body and must store digitized image data. In this context, "memory means," or "memory," would be understood by one skilled in the art as a definite structure. This recited structure is capable of performing the described function, and therefore "memory means" is not a means-plus-function term.

6 This understanding of "memory" is further evidenced by the Microsoft Press Computer Dictionary, which, as early as 1991, defined "memory" in terms of a structure as "circuitry that allows information to be stored and retrieved." (D.I. 486, Ex. 28.)

End Footnotes
without structure. In attempting to overcome this rejection, the inventors stated that the term should be properly construed to "cover the structure and function as fully described in the specification, and drawing and any equivalents thereof, as required by the statute and relevant case law precedents." (D.I. 498, Ex. 30, tab E at 10-11.) The Court does not understand that the inventors referenced the specification in their response to the PTO in order to disclose the structure for the term "memory." Rather, the Court finds the inventors were referencing the specification to disclose the structure of the mounting of the memory means. The inventors clarified that "removable mounted memory means' … accurately describes that memory means of the applicants' improved electronic video camera in which the video or picture data is selectively formatted and recorded in the camera to facilitate removal of such memory means for insertion into the predetermined type of information handling apparatus for which the output data format code data was selected." (Id.) Further demonstrating that their discussion was directed to the "mounting means," the inventors indicated that they had amended the claim language to add "means for removably mounting" "to more particularly point out and claim that element of their improved camera." (Id.) Thus, the Court finds that when the inventors proposed a means-plus-function construction for this phrase, they were discussing the mounting means, rather than the memory means, and therefore, the Court cannot agree with Defendants' argument that the inventors intended a means-plus-function construction of the term "memory means." 7

7 Although the amendment proposed by the applicants was never incorporated into the final claim language, it is relevant to demonstrate that, taken in the proper context, the remarks relied upon by Defendants do not support the proposition that the applicants sought a means-plus-function construction for the memory means.

Defendants also direct the Court to two cases which they contend support their argument that "memory means" is a means-plus-function element. In the first, Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478, 515 (D. Del. 2001), the court examined "memory means" as part of the larger phrase "an I/O port for coupling said integrated circuit to memory means." Id. at 544. In Intel, the court did not analyze or state whether the claimed "memory means" was a means-plus-function term. Id. at 544-555. Further, it is not entirely clear to the Court that the Intel court defined "memory means" as a means-plus-function term. Rather, the Court finds the Intel court distinguished the term "memory means" from the structure of the preferred embodiment in the patent specification and concluded that the term should not be defined by reference to the specification or limited in the manner proposed by the defendant. Id. (stating that "memory means' cannot be limited to the specific dual-mode VRAM that was used to describe the preferred embodiment, because the patentees did not claim 'a dual mode VRAM[;]' and noting that "the patentee claimed a generic 'memory means' "). Instead, the Intel court concluded that the term "memory means" should be afforded its ordinary meaning in the art as "memory or device where information can be stored and retrieved." Id. (citing Microsoft Computer Dictionary 285 (4th ed. 1999)).

In the second case, Genlyte Thomas Group v. Lutron Elecs. Co., 2004 U.S. Dist. LEXIS 5311, 2004 WL 690847 (N.D. Tex. Mar. 31, 2004), the court did conclude that "memory means," as it appeared in a patent for lighting control, was in means-plus-function form. However, the circumstances involved in the Genlyte case are distinguishable from the instant case. Id.

In Genlyte, the Court found that "memory means" was in means-plus-function form because the specification gave "a detailed description of the structure used to carry out the function." 2004 U.S. Dist. LEXIS 5311 [WL] at *11. In contrast, the specification in the instant patent does not provide a detailed structure of memory such that "memory means" should be considered to be a means-plus-function phrase requiring construction by reference to the specification. Rather, in the Court's view, the plain language of the claim and the lack of detail in the specification support the Court's conclusion that the term "memory" is a sufficient structure such that the presumption of means-plus-function format is overcome and the term "memory means" should be afforded its ordinary meaning as a non-means-plus-function element.

Having concluded that "removably mounted memory means" is not in means-plus-function form and its structure is not determined by reference to the patent specification, the Court must construe the term. Defendants contend that, if the term is not construed as a means-plus-function claim, that the interpretation of the term should still be limited to only certain types of memory. Fuji contends that these include "a memory diskette (i.e. a floppy disk) such as a double density or high density diskette." (D.I. 496, exhibit 8, tab 1 at 42.) Canon contends that the memory must be a removable magnetic diskette, not to include "(a) solid state memory devices such as removable memory cards or bubble memory, (b) memory devices that work with a playback device, reproducing unit or interface (such as an interface board or memory card interface), (c) memory
devices that work with a tether such as a cable, or (d) memory devices that require use of driver software (except for floppy
diskette driver software)." (Id.)

St. Clair contends that the ordinary meaning of memory should be used in defining the disputed term. St. Clair contends that
"removably mounted memory means" is "removably mounted memory: removable memory, e.g. floppy disks, optical disks,
magnetic disks, magnetic media, memory storage disk drive, semiconductor memory, and solid state memory." (D.I. 486,
Ex. 21 at 42.)

After reviewing the claim language, specification, and prosecution history of the '219 patent, the Court concludes that
"removably mounted memory means" should be construed according to its ordinary and customary meaning as "removable
memory, e.g. floppy disks, optical disks, magnetic disks, magnetic media, memory storage disk drive, semiconductor
memory, and solid state memory." The Court concludes that this meaning is supported by the claim language and is not
contradicted by the specification or prosecution history. The language of claim 10 does not restrict or limit itself to a
specific type of memory and uses the broad term "removably mounted memory means." Thus, the Court finds the language
of claim 10 does not support Defendants' construction which would improperly limit the claimed term to a 3.5 inch diskette.

Defendants contend that the specification of the '219 patent discloses that the inventors attempted to "make direct use of
data files in computers without any readers or adapters," and that this solution required a certain kind of memory. (D.I. 495
at 25.) Canon cites a section of the invention's background which describes the invention's possible use of a digital diskette
that can be directly inserted into a personal computer. Canon also cites a section of the specification detailing that the object
of the invention is to provide for recording on standard removable magnetic diskettes and that the invention also provides
for the direct and immediate incorporation of digital image files into various software programs.

Although the specification clearly discloses the use of magnetic diskettes, the Court is not persuaded the specification limits
the patent to such devices. The descriptions of magnetic diskettes in the specification are offered as examples and do not
imply exclusivity or limit the scope of the patent. Further, the specification describes the option to use, in the patented
cameras, "a diskette such as a standard three and a half inch or similar storage medium." '219 patent, col. 6, 1. 24-26
(emphasis added). The specification goes on to provide a variety of examples of memory for use with the invention,
including but not limited to RAM, ROM, semiconductor memory, and optical disk. '219 patent, col. 9, 1. 22; col. 6, 1. 10,
25; col. 9, 1. 8; col. 1, 11. 43-46. Therefore, read in full, the specification does not indicate an intent to deviate from the
ordinary meaning of "memory" or to limit that term to only three and a half inch diskettes. See Teleflex, Inc. v. Ficosa N.
Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002) (stating that a "patentee may demonstrate an intent to deviate from the
ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or
restriction, representing a clear disavowal of claim scope").

Defendants also direct the Court to the prosecution history of the '219 patent, during which the inventors made several
statements distinguishing their cameras from prior art devices. For example, the inventors stated that "Kawahara et al.
teaches a digital camera for use with a dedicated, single purpose playback device" and that "the only reasonable
combination of the teachings of Kawahara et al. and Eikonix, if any, is the use of a removable memory card for playback on
a PC via an interface." (D.I. 498, Ex. 30 at 3.) It is clear that, when prosecuting the '219 and related patents, the inventors
attempted to distinguish their technology from the prior art; however, in the Court's view, they did not disavow various
types of memory devices by distinguishing the prior art. Instead, the prosecution history reveals that the inventors
distinguished their invention based on the prior art's failure to take advantage of removable memory and the prior art's use
of computers and dedicated playback devices to format image data. (D.I. 49, Ex. 30 at 3; D.I. 521, Ex. 83.) For example, in
discussing the "teachings of Kawahara et al. and Eikonix," the inventors do not disavow or distinguish all memory cards.
Instead they distinguish "the use of a removable memory card for playback on a PC via an interface." (D.I. 498, exhibit 30
at 3.) The other statements in the prosecution history are likewise distinguishable. Thus, the Court finds the sections of the
prosecution history cited by Defendants do not evidence a disavowal of various types of memory. Indeed, in the prosecution
history of another, related patent, the inventors make it clear that they did not intend to limit the "memory means" to a
certain type of diskette, but intended the term to embrace other examples of memory. Specifically, the inventors explained:

While diskette 50 is disclosed in applicants' specification as a 3.5 inch floppy disk, applicant' independent claims are not
limited to the format checking and/or formatting of any particular type of digital memory. Applicants' claims as written
would thus cover format checking and/or formatting of any memory device in a camera, including but not limited to 3.5
inch floppy disks, hard disks, optical disks, minidisks, semiconductor memory cards, etc. Although as discussed below the
Examiner's position relied in part on the asserted use of a 3.5 inch floppy disk in a camera, applicants' claims should not be deemed so limited.

(D.I. 498, Ex. 30, tab F at 3 (08/712, 493 Appeal Brief, 1/7/99) (emphasis added).

In sum, "removably mounted memory means" is not in means-plus-function form and is construed according to its ordinary and customary meaning. Therefore, the Court concludes "removably mounted memory means" means "removable memory, e.g. floppy disks, optical disks, magnetic disks, magnetic media, memory storage disk drive, semiconductor memory, and solid state memory."

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H. Local Memory Means and Further Memory Means

The remote terminal also contains something called the local memory means. According to claim 3, when a block of information is selected by the operator via her keyed input, and called up to the remote terminal, the block of data splits apart and the two portions go to separate parts of the local memory means. These portions of data are simultaneously transferred -- that is, they go to their respective places at the same time. The second portion of the block of information is received by and stored in the further memory means when the first portion is transmitted to the remote terminal for display.

The first portion of the block of information that is received from the central computer goes to what we will call "Memory A" of the local memory means and the second part goes to what we will call "Memory B." Memory B has a special name -- it is called the further memory means -- and in this claim, it is a part of what it is called the local memory means. The purpose of the further memory means (or Memory B) is to receive and store the second portion of the block of data that the remote terminal user has selected from the central computer -- the portion containing the complete addresses that are referenced in the data that is displayed on the remote terminal.

In addition to storing the first and second portions of the block of information, the local memory means figures out the complete address for the block of information that is associated with an abbreviated address. According to the claim, the operator enters keyed digital data of "less extent" than any one of the complete addresses for other blocks of information that are contained in the second portion, but which is nevertheless uniquely indicative of one of those complete addresses. The keyed digital data is sort of like an abbreviation for the complete address. By inputting this abbreviated form of the complete address for the next block of data that the operator wishes to access, the operator accesses the further memory means -- where, as you will recall, the second portion containing the complete addresses is stored -- and retrieves the complete address represented by the abbreviation. That complete address is then transmitted, via the modem, to the central computer, where the new block of information desired by the terminal operator is retrieved and sent to the remote terminal, so that he or she can view the first portion of this new block of data.

The abbreviated address is indicated by keyed digital data. Remember, we already described keyed digital data as operator input that is generated by manually pressing one or more keys of a keypad or keyboard or their structural equivalents. For example, if a user at the remote terminal punches in 9, then that information is transmitted by the modem to the local memory means, and the local memory means determines what the complete address is that corresponds to the number 9 -- let us say that complete address is 987.654.321. The local memory means then gives that complete address to the modem means. The modem means transmits that information to the central computer, and the new block of information is retrieved and sent to the remote terminal.

The structure of the local memory means in claim 3 is memory, a memory control unit, or a memory logic unit, and their structural equivalents. The structure of the further memory means is memory and its structural equivalents.

1. Local Memory Means

Everyone agrees that this phrase is written in means-plus-function format. The term "means" is in the claim, followed by functional language and insufficient structural information to describe precisely the device that performs the function.

Everyone also agrees that the recited function in the claim language is "locally storing digital data representing at least the
first portion of the selected block of information received via said modem means from the central computer and processing
digital data." 662 patent, col. 6, 11. 29-33.

The storing function of the local memory means is locally storing at least the first portion of the selected block of
information received via the modem means from the central computer. In claim 3, the local memory means may store data
other than the first portion of the block of information -- but it stores "at least" that first portion.

The local memory means in Claim 3 also performs an additional function -- processing digital data. The parties part ways
over the construction of this function. BT asserts that this function is "determining the address associated with keyed digital
data" and then supplying that address to the modem means, while Prodigy urges that the function should be "selecting for
another block of information its complete address associated with keyed digital data" and then supplying that address to the
modem means.

The difference between the parties' contending definitions are not great, but Prodigy's definition more accurately describes
what the local memory means really does when "processing digital data." Prodigy takes its language from claim 3. This
passage describing the local memory means states:

said local memory means utilizing keyed digital data of less extent than any one of said complete addresses for another
block of information but nevertheless uniquely indicative of one of the complete addresses contained in said second portion
of the block of information which contains the first portion then being displayed for selectively accessing said further
memory means and for supplying data to be transmitted by said modem means and indicative of the complete address of the
next block of information which is to be retrieved and utilized for display purposes.

662 patent, col. 6, 11. 44-56. Once the reader parses this convoluted passage, the function is relatively clear: the local
memory means takes the abbreviated address that is given to it in the form of keyed digital data and associates with that
abbreviated address the complete address for another block of information. I construe the processing digital data function to
mean determining the complete address for another block of information that is associated with the abbreviated address
received in the form of keyed digital data.

The remaining issue is the structure associated with these functions. Both parties agree that the structure corresponding to
the claimed function of the local memory means is described as Memory A in the specification, "when a block of
information is received from the computer 1, the first part is stored in memory A 7 and the second part in memory B 14
under the control of memory control unit 8." Id., col. 4, 1. 68 - col. 5, 1. 4. Prodigy argues that the memory device is
therefore separate from the further memory means since the parts of the block of information go to different places. BT
points out, however, that claim 3 requires "further memory means being provided as part of said local memory means." Id.,
col. 6, 11. 39-40 (emphasis added). BT therefore argues that the structure associated with the local memory means in this
claim does not necessarily have to be separate from the further memory means. I agree. Indeed, under claim 3, the local
memory means cannot be structurally separate from the further memory means. The language of claim 3 clearly states that
the further memory means is a part of the local memory means.

BT argues that the structures disclosed in the specification are memory, a memory controller, and memory logic, while
Prodigy asserts that the disclosed structures are a memory device, a memory control unit and a memory logic unit. The
specification discloses "memory," Id., col. 3, 1. 29, 1. 60 - col. 4, 1. 4, a "memory control unit 8," Id., col. 3, 11. 30, 34-35,
61, 68; col. 4, 11. 3, 58, 66; col 5, 11. 3-4, "memory B LOGIC unit 16," Id., col. 4, 11. 59-60, and "logic unit 16," Id., col. 5,
11. 8, 14. I find no reason to limit the structure of memory A in this claim to a memory "device," nor will I read out the word
"unit" in the disclosed structures. Hence, I find that the structures associated with the local memory means are memory, a
memory control unit, a memory logic unit, and structural equivalents.

2. Further Memory Means

Further memory means is recited in means-plus-function format. The parties disagree about the recited function of the
"further memory means," the proper construction of that functional language, and the identification of the structures in the
specification that correspond to the claimed function.

Prodigy argues that the recited function in this claim is "receiving and storing said second portion of the selected block of
information." BT urges the Court to add on to the end of this language, "selected by a particular terminal means." I find that
the recited function is "receiving and storing said second portion of the selected block of information in response to the
selection of the block and when its first portion is transmitted thereto." 662 patent, col. 6, 11. 42-44.

As for the construction of this function, I find that the purpose of the further memory is to receive and store the second
portion of the block of data that the remote terminal user has selected from the central computer -- the portion containing the
complete addresses that are referenced in the data that is displayed on the remote terminal. This is a straight-forward reading
of the functional language. It is consistent with Prodigy's construction, although with slightly different wording. BT's
construction does not include the idea that the block of information is selected by the user, which is odd, since BT urged that
the recited function should include the idea that the block of information is selected by a particular terminal means.

BT argues that the structure corresponding to this function is memory and equivalents. Prodigy asserts that the structure
disclosed in the specification corresponding to the function of the "further memory means" is a memory device of the
terminal means separate from the memory device of the local memory means and structural equivalents. Because of the
reasons stated in the discussion of "local memory means," see infra, page 28, I disagree with Prodigy that the further
memory means in claim 3 is a memory device separate from the local memory means. I also find no support in the
specification that the disclosed structure of the further memory means is a "memory device" rather than simply "memory."

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- "memory means for storing predetermined operating parameters defining one of said plurality of features to be performed
  at each type of said port circuits connected to said system" is a means-plus-function element. The function of this element is
  storing predetermined operating parameters. The structure associated with this element is memory associated either
  internally or externally with central call processor unit 101.

The parties agree with the Court's construction of the function of this element. However, the parties' disagreement centers on
the structures identified with this function. Newbridge contends that the structures are not clearly identified in the patent,
rendering the claim indefinite. Lucent contends that the structure associated with this function is the memory associated
with central processor unit 101. After reviewing the specification, the Court finds that the specification explains that the
central call processing unit 101 stores the operating parameters that correspond to the features to be performed at the port
circuits. When the system is configured, the controller accesses this information in order to retrieve the operating
parameters, which are then sent to the appropriate port circuits. (136 Patent, col. 2, ll. 18-22, 48-52). Accordingly, the Court
concludes that its construction is consistent with the Patent's specification.

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C. "memory portion"

The term "memory portion" appears in four of the asserted claims of the '806 patent. Claims 7 and 18 of the '806 patent
require "a memory portion having a capacity of at least 2 megabits" and Claims 13 and 24 state that "said memory portion
has a capacity of at least 7.3 megabits." The parties apparently agree, as does the court, that "memory portion" refers to the
circuitry required for a working memory, including the memory cells that store data and the circuitry associated with
reading, writing, addressing and refreshing data in the memory cells.

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4. Memory requests

The term "memory requests" appears in all of the asserted claims of the 096 patent. The plaintiff proposes that "memory
requests" are "requests from an external device, such as a processor, to a memory device." The defendants assert that
"memory requests" are "requests from an external device such as a processor, to load data from or store data to the
The parties dispute whether "memory requests" must be directed to the synchronous DRAM. According to the defendants, "memory requests" are addressed only to the synchronous DRAM and not any other memory device. After considering the submissions of counsel, the court adopts the plaintiff's construction of "memory requests."

"Memory Selection Second Switch Means" - Claim 5

Claim 5 recites a "memory selection second switch means being adapted to select a first position . . . and . . . a second position." Because this claim element utilizes the term "means" and the claim does not specify any structure or material for performing the recited function, the district court properly held "memory selection second switch means" is a means-plus-function element under 35 U.S.C. § 112, ¶ 6 (1994). See Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318, 50 U.S.P.Q.2d (BNA) 1161, 1166 (Fed. Cir. 1999) ("if the word 'means' appears in a claim element in combination with a function, it is presumed to be a means-plus-function element"). Thus, "memory selection second switch means" covers the "corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6 (1994). The district court's determination of corresponding structure is a matter of claim construction, see Chiuminatta, 145 F.3d at 1306, which this court reviews de novo. See Cybor, 138 F.3d at 1456. Determining whether Figure 3 is a "corresponding structure" for the "switch means" of claim 5 requires the court to consult again the language of the claim and the other factors that inform claim meaning. Of course, the central focus remains on the claim language. The written description, the prosecution history, and admissible extrinsic evidence may supply context to understand the claim language. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2d (BNA) 1573, 1576-77 (Fed. Cir. 1996); Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1309, 51 U.S.P.Q.2d (BNA) 1161, 1169 (Fed. Cir. 1999).

In construing claim 5, the district court determined the term "memory selection second switch means" encompasses the same scope as the "memory selection switch" of claim 1. Specifically, the district court determined that "memory selection second switch means" covers only the mechanical switch of Figure 2, not the software embodiment of Figure 3. The written description of the '364 patent and the prosecution history, however, reveal a broader meaning of "memory selection switch means."

As previously explained in this court's analysis of claim 1, Figure 3 illustrates a flow diagram "describing both the operate and program modes of the invention." '364 patent, col. 4, ll. 23-24. The two lower-right corner dialog boxes of Figure 3 describe steps to "store code at location pointed to by the code location pointer" and "increment code location pointer[;] if pointer increments over five then load code location pointer with one." See id. at Fig. 3 (emphasis added). Dr. Rhyne’s expert testimony shows that one of ordinary skill in the computer science art would understand the underlined terms to describe software operations.

Although software operations do not fall within the literal scope of the "memory selection switch" in claim 1, the reissue prosecution history also discloses a broader reading for the "switch means" of claim 5. First, the patentees’ representation to the Patent and Trademark Office in its November 29, 1989 sworn declaration indicated their intent to include the algorithm of Figure 3 as a "corresponding structure" for the switch means. The patentees stated:

We believe the aforesaid Letters Patent to be wholly or partly inoperative or invalid by reason of our claiming less than we had a right to claim in the patent. More specifically, we believe the sole independent original claim [i.e., claim 1 of the '118 and now claim 1 of the '364 patent] is too narrow in three respects:

. . .

(c) The claim requires a "switch moveable" and a "memory selection switch" but should have required a --first switch means-- and a --memory selection switch means--, respectively, because switch means includes electronic switches as well as mechanical switches.

J.A. at 5388 (emphasis added). While this statement weighs against construing claim 1 to include software operations, it gives a broader reading to claim 5. This statement evidences the patentees' use of the term "switch means" to include microprocessor operations driven by software, i.e., "electronic" switches, as opposed to a mechanical switch of Figure 2.
The patentees' use in claim 5 of the term "switch means" rather than "switch" and "being adapted to select" rather than "setable" and "set," to describe software operations, further support a broader construction.

Later in the reissue proceedings, the patentees argued in response to an anticipation rejection:

Applicants' method and apparatus is intended to simplify the remote control of equipment by code transmitters. . . . Such simplifications are provided by including multiple storage locations in the receiver and including a programming routine which receives and stores codes transmitted from the code transmitters of the system.

J.A. at 5822 (emphasis added). This statement further supports reading "switch means" to include structure corresponding to Figure 3.

The differences in claim language, bolstered by the patentees' statements during the reissue proceedings, cause this court to reach a broader construction for claim 5 than for claim 1. See Vitronics, 90 F.3d at 1582. The district court erred in ruling that only the mechanical switch in Figure 2 is "corresponding structure" for the claimed "switch means." "Switch means," when properly construed, also covers the software-based embodiment described in Figure 3.

Chamberlain asserts that, should this court construe claim 5 to cover the software embodiment of Figure 3, then it is entitled to summary judgment of literal infringement. An accused device satisfies a means-plus-function element literally if it performs the identical function required by the limitation, and incorporates the structure disclosed in the specification or an equivalent thereof. See Cybor, 138 F.3d at 1456. The language of claim 5 and the written description establish that the function of "switch means" is to select different memory locations, thereby enabling the microprocessor to store transmitter identifiers in the memory locations. The parties do not dispute that the Intellicode's memory selection software program performs this function.

The Intellicode, however, constitutes a different "structure" than the software disclosed in the '364 patent because it uses a different algorithm to perform the recited function. Figure 3 and the corresponding description indicate that the code location pointer increments through a series of memory locations, automatically erasing the previous contents of a memory location when it stores a new transmitter code in that location. When the pointer can no longer increment, i.e., when it is pointing to the last memory location in the series, the microprocessor "loads code location pointer with one," causing the pointer to loop back and select the first memory location in the series. The Intellicode, on the other hand, randomly chooses an unused memory location. Thus, the Intellicode's memory selection scheme is not identical to the structure disclosed in Figure 3 of the '364 patent.

Moreover, Overhead Door presented evidence that its memory selection scheme is not structurally equivalent to that of Figure 3. A structure in an accused device is equivalent to the disclosed structure corresponding to a means-plus-function element if it is insubstantially different from the disclosed structure. See Chiuminatta, 145 F.3d at 1309. Overhead Door urged that the Intellicode software is substantially different from the claim element because its software uses memory more efficiently and minimizes the chances of overwriting previously-stored codes. Viewing the evidence in a light most favorable to the non-movant Overhead Door, this court finds that Overhead Door has raised a genuine issue of material fact precluding summary judgment of literal infringement of claim 5. Accordingly, this court remands for the fact-finder to determine whether the Intellicode uses a structure equivalent to the mechanical switch in Figure 2 or to the software-implemented algorithm in Figure 3, for selecting different memory locations.

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GO BACK

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"Memory Selection Switch" - Claim 1

The district court construed the "memory selection switch" element of claim 1 to mean "a switch separate from the microprocessor which is user operated to select different positions of the switch." The claim uses the term "switch," a word connoting a mechanical device with different settings, such as "on" or "off." Claim 1 further defines the memory selection switch as "connected to" the microprocessor, "setable in" a first position, and "set in" a second position. This claim language is more consistent with a mechanical switch attached to the microprocessor, rather than software programmed into the microprocessor.
In the '364 patent's "Brief Description of the Drawings," the patentee states that "Fig. 2 illustrates in block form the invention." Col. 2, l. 43 (emphasis added). Figure 2 complements the definition supplied by the claim language:

[SEE FIGURE 2 IN ORIGINAL] Figure 2 shows the program/operate switch 22 as a mechanical switch, which alternates between "program" and "operate." Moreover, the drawing depicts the memory selection switch 23 as a mechanical switch with five separate numbered positions. The associated written description identifies the memory selection switch with 23, see '364 patent, col. 3, ll. 9-11, and describes it as a five-position, moveable switch separate from and "connected to" the microprocessor 44. See id. at col. 3, ll. 9-19 (emphasis added); see also Fig. 2. Again this part of the patent suggests a mechanical switch.

Finally, Chamberlain does not contest the special master's interpretation of the program mode "switch" as a mechanical toggle switch. To interpret the term "switch" consistently in the claim and to harmonize the drawing depiction with the claim language, this court confirms the district court's reading of the term "switch." Thus, the term "memory selection switch" means a mechanical device separate from the microprocessor. This interpretation is also most in harmony with the prosecution history of the reissue application, as explained later.

In reaching this claim interpretation, this court considered but rejected the contention that Figure 3 discloses as part of the claim a software embodiment for the switch of claim 1. Figure 3 of the '364 patent, shown below, illustrates how the invention receives and validates codes:

[SEE FIGURE 3 IN ORIGINAL] In Figure 3, the two dialog boxes in the lower-right corner refer to storing the code at the location "pointed to" by the "code location pointer," "incrementing" the code location pointer, and "loading" the code location pointer with a value of one. The '364 patent, however, does not indicate whether the "code location pointer" is a particular embodiment of the "switch" of claim 1, or some other (unclaimed) component. "Code location pointer" appears nowhere in the claims. Moreover, the only reference to a code location pointer in the written description is a single sentence that does not illuminate Figure 3: "If the switch 22 is in the 'program' mode as shown in FIG. 3 when the incoming signal from a transmitter is received, the flow diagram is followed so as to store the new incoming program in the code location pointed to by the code location pointer 23," Col. 4, ll. 57-61. The vague terms in Figure 3 do not override the claim language and written description that closely identify the "memory selection switch" as a mechanical device. This court interprets "memory selection switch" to mean a mechanical switch with different positions, each position corresponding to a different location in memory, thus enabling the garage door operator to store codes in different memory locations. Thus, this court affirms on review the district court's interpretation of "memory selection switch."

Applying this claim construction to the accused device, this court affirms the district court's summary judgment of no literal infringement of claim 1. "Literal infringement of a claim requires that every limitation recited in the claim appear in the accused device, i.e., that the properly construed claim reads on the accused device exactly." Amhil Enters., Ltd. v. Wawa, Inc., 81 F.3d 1554, 1562, 38 U.S.P.Q.2D (BNA) 1471, 1476 (Fed. Cir. 1996). Claim 1 covers a mechanical "memory selection switch." The accused Intellicode system, in contrast, selects memory locations with a software program, not with a mechanical switch. Thus, the "memory selection switch," as correctly construed, is literally absent from the Intellicode. Therefore, the Intellicode does not literally infringe claim 1.

The district court erred, however, in also deciding on summary judgment that the Intellicode did not infringe under the doctrine of equivalents. The doctrine of equivalents requires that the accused product contain each limitation of the claim or its equivalent. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40, 41 U.S.P.Q.2D (BNA) 1865, 1875, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997). An element in the accused product is equivalent to a claim element if the differences between the two are "insubstantial" to one of ordinary skill in the art. Warner-Jenkinson, 520 U.S. at 39-40; Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512, 1517, 35 U.S.P.Q.2D (BNA) 1,641 (Fed. Cir. 1995) (en banc), rev'd on other grounds, 520 U.S. 17, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997). The district court found as a matter of law that the Intellicode had no equivalent of the memory selection switch claim element.

"Although equivalence is a factual matter normally reserved for a fact-finder, the trial court should grant summary judgment in any case where no reasonable fact-finder could find equivalence." Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1423, 44 U.S.P.Q.2D (BNA) 1103, 1106 (Fed. Cir. 1997). This case does not satisfy this lofty standard. The record contains considerable evidence, including several reports and declarations by Chamberlain's expert, Dr. Rhyne, that one of ordinary
skill in the art would find the Intellicode's software-driven memory selection system insubstantially different from the hardware switch of claim 1. Dr. Rhyne averred in his June 2, 1997 report: "[i]t is a fundamental and well understood tenet of the computing art [that] . . . 'any software process can be transformed into an equivalent hardware process, and any hardware process can be transformed into an equivalent software process.'" See ED KLINGLER, MICROPROCESSOR SYSTEMS DESIGN 5 (1977). Dr. Rhyne stated that this "dualistic transformation," known as the "hardware/software" trade-off, effectively means that the selection of a software pointer for a microprocessor versus a hardware switch to control a microprocessor-based system is simply a matter of design choice. This record evidence shows that one of skill in the art would recognize these alternative systems as interchangeable substitutes. Drawing all reasonable inferences in favor of Chamberlain, as this court must in reviewing the summary judgment of non-infringement, this court concludes that Dr. Rhyne's statements and supporting citations to computer science literature show a genuine issue of material fact precluding summary judgment.

In discerning this genuine factual issue, this court also considered the district court's interpretation that a mechanical switch would necessarily require a human operator. In operation of a mechanical switch, a human operator would indeed set the memory selection switch to one of five positions. This "user operated" characteristic of a mechanical switch, however, would not necessarily preclude a finding that software performs equivalently without human operation. Indeed in other contexts, this court has noted the interchangeability of hardware and software. See, e.g., Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 935, 4 U.S.P.Q.2D (BNA) 1737, 1740 (Fed. Cir. 1987) (en banc) ("If . . . the accused devices differ only in substituting a computer for hard-wired circuitry, [the patentee] might have a stronger position for arguing that the accused devices infringe the claims."). Moreover the Supreme Court has acknowledged that interchangeability can be one of the hallmarks of an equivalent. See Warner-Jenkinson, 520 U.S. at 37 ("known interchangeability . . . for an element of a patent is one of the express objective factors . . . bearing upon whether the accused device is substantially the same as the patented invention"); Graver Tank & Mfg. Co., Inc. v. Linde Air Prods. Co., 339 U.S. 605, 609, 85 U.S.P.Q. (BNA) 328, 331, 94 L. Ed. 1097, 70 S. Ct. 854 (1950) ("An important factor [in determining equivalency] is whether persons reasonably skilled in the art would have known of the interchangeability . . . ").

This court has explained that the "function-way-result" test may help detect an equivalent, particularly for mechanical elements. See Dawn Equip. Co. v. Kentucky Farms Inc., 140 F.3d 1009, 1016, 46 U.S.P.Q.2D (BNA) 1109, 1113 (Fed. Cir. 1998). The function-way-result test dictates that an element in the accused device is equivalent to the claim element if it "performs substantially the same function in substantially the same way to obtain the same result." Graver Tank, 339 U.S. at 608. Applying the function-way-result test to claim 1, the district court found that "the function of the memory selection switch [is] . . . to permit selection of a particular memory location at the receiver for subsequent storage of a transmitted code, by use of a switch connected to the microprocessor." Overhead Door Corp, No. 95-CV-1648-D, at 24 (N.D. Tex. Jan. 13, 1999) (emphasis added). The district court then found that this function was "totally missing" from the accused device because "the user is unable to predetermine selection of specific, desired memory locations." This application of the function-way-result test erroneously incorporates the claim element's "way" into the definition of the function, effectively limiting the claim element to its literal terms.

The claim language and the specification explain that the "memory selection switch" functions to select memory locations. This claim element accomplishes its function by way of a mechanical switch. This particular switch constitutes the claim element's "way" of accomplishing the memory selection function, not the function itself. The result of this element is storage of codes in different memory locations. The record at this stage, preliminary to a trial, creates a genuine issue of material fact whether the Intellicode accomplished substantially the same function, in substantially the same way, to achieve substantially the same result.

Moreover, contrary to the district court's determination, this court's ruling in Sage Products does not limit the range of equivalents to the memory selection switch in this case. In Sage Products, this court noted that the claim limitations "top of the container" and "over said slot" constituted "a precise arrangement of structural elements" and a "clear structural limitation" in a "relatively simple structural device." Sage Prods., 126 F.3d at 1425. Finding that Sage's theory of equivalence - i.e., a container having two constrictions below its top was equivalent to the claimed container having a constriction above and a constriction below -- would "remove entirely the 'top of the container' and 'over said slot' limitations from the claim," this court affirmed the district court's grant of summary judgment of non-infringement. Id. at 1423-24. Thus, the proposed application of the doctrine in Sage Products would have utterly written out of the claim not one, but at least two (maybe more) express limitations of the claim. Indeed under Sage Products' equivalents theory, a finding of equivalents for one limitation ("at the top") would necessarily require writing out of the claim another limitation.
("over said slot"). No matter how the patentee purported to apply the claim to the accused device under the doctrine, the device was always missing at least one limitation. Thus, the claim language specifically negated the patentee's equivalence theory. Moreover, this court in Sage Products noted that "any subsequent change in the state of the art, such as later developed technology" would have been eligible for coverage under the doctrine of equivalents, thus clearly defining at least one type of expanded claim coverage under the doctrine. Id. at 1425.

In contrast to the facts in Sage Products, claim 1 of the '364 patent does not contain any clear structural limitations that preclude a reasonable jury from finding a software system equivalent to the claimed system. By definition, an equivalent does not fall literally within the claim language. Although the literal meaning of the "memory selection switch" does not cover the software-implemented Intellicode, this case does not preclude application of the doctrine under Sage Products because any application of the doctrine would not leave some aspect of the claim missing from the accused device. Applying the doctrine of equivalents to cover Intellicode's software does not vitiate the "memory selection switch" element. See id., at 1423-24.

As properly construed, the "memory selection switch" means a mechanical switch for selecting memory locations. The question remains whether the Intellicode's software-driven memory selection scheme is equivalent to a mechanical switch. This issue remains for the fact-finder to determine at trial in view of the considerable evidence in the record.

1. "memory signals"

The parties dispute whether the term should be limited to the "main memory." The plaintiff argues that it is important to specify the type of memory because there are many different types of memory used by computers (e.g., external storage). According to the plaintiff, the specification initially refers to "main memory" and then subsequently uses "memory" as shorthand to refer to the "main memory." 924 patent, 1:12-13. The plaintiff also points to the deposition of the defendant's expert who concedes that the memory in the patent refers to the "main memory." Plaintiff's Opening Claim Construction Brief, Exhibit 3, 186:7-15.

The defendant, on the other hand, argues that the point of the invention was to allow the memory controller to interface with various speeds of memory and there is no indication that the inventor excluded certain types of memory.

The Court acknowledges that the patentee does not provide a specific definition of "memory." The patent, however, describes the prior art memory controller being used in connection with the "main memory." 924 patent, 1:12-25. The preferred embodiment also shows the memory controller connected to a dynamic random access memory (DRAM), which is typically understood as the "main memory." 924 patent, 2:63-65. Although the Court does not read limitations from the preferred embodiments into the claims, in this case, one of ordinary skill in the art at the time of the invention would understand that the memory controller is used to access the "main memory." Accordingly, "memory signals" means "main memory signals."

v. Memory stack

The parties appear to agree that a memory stack is a term of art that describes a specific type of storage arrangement. According to Gobeli, "memory stack" is a "group of storage locations, within said computer, structured to store data on a last-in first-out basis." Apple contends that "memory stack" is "a linear list, where accesses, insertions, and removals are made at one end of the list." Sun generally agreed with Gobeli's construction as long as the construction was limited to computer memory.

The Court agrees with Gobeli and Sun. Accordingly, "memory stack" is "a group of storage locations located in the computer's memory that is structured to store data on a last-in first-out basis."
8. Memory store

With respect to the term "memory store," Foundry contends that it should be construed in accordance with its ordinary meaning. Lucent, on the other hand, argues that "memory store" should be construed to mean "a predetermined location in the internal memory of a computer." After considering the claims and the submissions of counsel, the court concludes that "memory store" is not limited to "a predetermined location" of a computer's internal memory. The court therefore construes "memory store" consistent with the ordinary meanings of "memory" and "storage": "a section used primarily for storing information. It includes all of the addressable storage in a processing unit and other internal storage that is used to execute instructions." See IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1997).

G. "Memory Subsystem"

1. Proposed Constructions

The parties do not contest that the claimed "memory subsystem" of the '736 patent includes related elements, such as (1) a "buffer" in the context of "a read first-in-first-out (FIFO) buffer" and "a write first-in-first-out (FIFO) buffer" in claims 1 and 7, (2) a "register" in the context of "a memory data input register" and "a memory data output register" in claim 1, and (3) "a single memory cell" in claims 1 and 7. Plaintiffs' '736 Br. at 16; Defendants' '736 Br. at 15.

Plaintiffs, however, assert that "a memory subsystem" should be construed as "a data storage subsystem." Plaintiffs' '736 Br. at 16. Plaintiffs further assert that the memory subsystem claim limitation requires sharing between CD and DVD processing systems, not sharing between all systems for all possible memory tasks. Id. at 17. By contrast, defendants construe "a memory subsystem" to mean "one subsystem that provides all of the memory resources for the subsystems of the controller, including the signal processor and the error code correction and detection subsystem." Defendants' '736 Br. at 15. Defendants further construe the memory subsystem to be contained within the controller. Id. at 16.

2. Claim Language

Claims 1 and 7 each state "a memory subsystem" once. Based on Crystal Semiconductor, plaintiffs argue that the preamble claim language of the indefinite article "a" combined with the transitional phrase "comprising" mean that the claims cover a system with one or more memory subsystems. Plaintiffs' '736 Br. at 16.

On the other hand, defendants contend that the article "a" can mean "exactly one" in a "comprising" claim where the written description or prosecution history invites or requires an interpretation of "a" as meaning "exactly one." Defendants' '736 Br. at 15-16. In support of this contention, defendants cite to Insituform Techs., Inc. v. CAT Contracting, Inc., 99 F.3d 1098, 1105-06 (Fed. Cir. 1996) and Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed. Cir. 1997). Defendants also assert that the plain meaning of the claims requires the memory subsystem to be contained within the controller. Id. at 16.

In addition, defendants contend that the memory subsystem of claim 7 requires one memory subsystem coupled to the signal processor that includes the following: a single memory cell that receives data via a write FIFO buffer and provides data via a read FIFO buffer; the write FIFO buffer; the read FIFO buffer; and a MPEG FIFO interface. Defendants' '736 Br. at 25.

3. Ordinary Meaning

Defendants contend that the "memory subsystem" of claims 1 and 7 would not be understood by a person skilled in the art without reference to the '736 patent specification. Defendants' Br. at 15. However, to support their proposed construction of the "memory subsystem" as being contained within the controller, defendants argue that a person skilled in the art of the
'736 patent as of December 1998 would have been familiar with the use of embedded memory. Id. at 17.

4. Specification

Plaintiffs assert that the key feature of the invention in patent '736 is the sharing of memory resources by different subsystems, not the sheer number of memory resources. Plaintiffs' '736 Br. at 17. On the other hand, defendants assert that the specification sets forth that a memory subsystem "provides a common memory resource for the subsystems of the DVD/CD controller such as CD-DSP, DVD-DSP, and error code correction and detection subsystem." Defendants' '736 Br. at 15; see '736 patent at 4:31-34, 7:56-8:2. In addition, defendants argue that the '736 patent describes the memory as being located within the controller. Defendants' '736 Br. at 16; '736 patent at 4:31-35, 6:40-51, Fig. 4. According to defendants, the use of a common memory for the controller functions decreases the number of memory chips needed, which is cited as an important benefit of the '736 invention. Defendants' '736 Br. at 17; '736 patent 4:35-39, 7:64-8:2.

5. Prosecution History

To rebut defendants' proposed construction of "a memory subsystem," plaintiffs argue that the prosecution history demonstrates that the inventors did not intend to limit the claims to require defendants' proposed construction of "a memory subsystem" as "one subsystem that provides all of the memory resources for the subsystems of the controller." Plaintiffs' '736 Br. at 17.

However, based on plaintiffs' assertion that admitted prior art Fig. 1 shows four memories and only two of these memories are replaced by the memory subsystem of the claims, defendants contend that plaintiffs selectively cite to the '736 patent as calling for a "shared memory" or a "common memory used by the various subsystems of the controller." Defendants' '736 Br. at 16. Defendants assert that the other two memories are not used by the controller under the invention. Id.;'736 patent at 1:43-44, 47-49 & Fig. 1; 5: 8-65 & Figs. 2, 4, 5; 2:32-34 & Fig. 1.

In addition, defendants argue that the memory subsystem was added as a narrowing amendment during the '736 prosecution to distinguish over the prior art for the following reasons: 1) neither claim 1 or 7 required a memory subsystem as originally filed, and 2) neither claim 1 or 7 was allowed until the memory system with all of its limitations was added to these claims in the final amendment before the patent issued. Id. at 17.

The court finds that the memory subsystem must provide shared memory for all controller subsystems. The specification repeatedly states this limitation as an advantage of the invention. Further, plaintiffs have acknowledged that the sharing of memory resources permits a reduction in number of subsystems. Plaintiffs' '736 Reply Br. at 6. However, defendants' argument that the memory subsystem must be contained entirely on the controller is not supported by the claims, which do not explicitly specify the location for the memory subsystem. Defendants acknowledge that other coupled subsystems such as the MPEG decoder are not required to be resident on the controller. Additionally, the specification teaches that alternate embodiments would replace the entire on-controller memory subsystem from the preferred embodiment with an external SDRAM and memory controller. '527 patent at 8:37-39. Thus, the court construes the term "memory subsystem" to provide a shared memory for all controller subsystems, but the memory subsystem need not be at the same location as all controller circuitry.

GO BACK

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C. The Allen Patent

The parties ask the Court to construe the phrase "whereby the meniscus provides a constant flow of said chemical onto said substrate surface" in Claim 5 of the Allen Patent. Joint Statement at 1. The parties agree that meniscus refers to the "curved surface of the solvent." Oki's Response to AMD's Opening Markman Brief at 1; AMD's Markman Reply Brief at 9. The parties also agree that a meniscus forms as a result of surface tension. AMD's Markman Reply Brief at 9; see Oki's Response to AMD's Opening Markman Brief at 4.

Beyond that, the parties are at odds. Oki argues that the meniscus must extend "continuously from the nozzle tip to the substrate." Oki's Response to AMD's Opening Markman Brief at 1. AMD's definition only require the meniscus to form at

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the substrate. AMD's Markman Reply Brief at 9. Oki argues that prosecution history estoppel places limits on the definition. Oki's Response to AMD's Opening Markman Brief at 1-3. The dispute again boils down to two issues. (1) Does Oki's proposed requirement that the that the meniscus extend from the nozzle tip to the substrate have any support in the intrinsic evidence? (2) Does AMD's decision to amend the claims to overcome a rejection place any limits on the scope of the claims? The answers to those questions are no and yes, respectively.

1. The Claims of the Allen Patent

Nothing in the claims supports the requirement that the meniscus be continuous and unbroken. The Allen patent describes a method for removing coating from the edges of a silicon wafer. 678 Patent, at [57]. Claim 5 describes a process that involves "contacting one surface adjacent to the periphery of [the] substrate with a chemical capable of dissolving the coating material." Id. at col.6 ls.48-50. This is accomplished "by forming a meniscus between [the] surface [of the substrate] and a nozzle positioned adjacent to the periphery of [that] surface." Id. at ls.50-52. The claim then introduces the limitation in dispute: "whereby the meniscus provides a constant flow of said chemical onto said substrate surface." Id. at ls.52-54. Thus, the claims impose three limitations on the meniscus. First, the formation of the meniscus must lead to the contact between the edge of the spinning wafer and the solvent. Second, the meniscus must form between the spinning wafer and the nozzle. Finally, the meniscus must provide a constant flow of the solvent onto the spinning wafer.

None of these requirements support Oki's contention that the meniscus must extend continuously and unbroken from the nozzle tip to the substrate. In fact, the claims hint that such a requirement is unlikely. Oki's requirement that the meniscus extend continuously and unbroken springs from a dictionary definition. That definition defines meniscus as "[t]he curved upper surface of a nonturbulent liquid in a container that is concave if the liquid wets the container walls and convex if it does not." Oki's Response to AMD's Opening Markman Brief at 3 (quoting the American Heritage Dictionary (4th ed. 2000)) (internal quotations omitted). Oki then derives the continuous and unbroken requirement from the word nonturbulent. Id. at 3. However, in the Allen Patent, the meniscus does not exist in a stationary container. Instead, it exists between a nozzle out of which the solvent flows and a rotating wafer that is covered with a coating material.

678 Patent col.6 ls.44-45, 56, 64-66. Given that the substrate is rotating, one would not expect the meniscus in the patent to replicate the behavior of a "nonturbulent liquid in a container." The Court rejects Oki's attempt to force the invention to behave in accordance with a dictionary definition that describes the behavior of a liquid in a context contrary to the plain language of the claims.

The claims also do not impose Oki's requirement that the meniscus extend from the nozzle to the substrate. Oki's logic proceeds as follows: (i) the definition refers to a single convex or concave surface between two stationary walls of a container; (ii) in the Allen patent, the liquid exists between the nozzle and the substrate; (iii) therefore, the meniscus here must be one concave or convex surface between the nozzle and the substrate. Again, this logic suffers from the same fallacy: the claims indicate that the solvent does not lie stationary in a container but flows from a nozzle to the substrate. Furthermore, the word "between" in the claims only requires that the meniscus exist between the nozzle and the substrate, not extend like a bridge from one to the other. The Court finds no support in the claims for Oki's requirement that the meniscus extend continuously and unbroken from the nozzle to the substrate.

2. The Specification of the Allen Patent

The specification also casts doubt on Oki's attempt to impose its dictionary-based limitation on the claims. The specification refers to the meniscus twice. Referring to an illustration of the preferred embodiment, the specification describes how the meniscus forms. First, a valve is opened and the solvent flows under pressure from a reservoir through a series of tubes into the nozzle. Id. at col.3 ls.46-50. "As the chemical exits [the] nozzle . . . at [the] nozzle tip . . ., a meniscus is formed by the exiting liquid between [the] nozzle tip . . . and the underside of [the] substrate. . . . Forming of this meniscus is expedited by closely spacing [the] nozzle tip . . . to [the] substrate. . . ." Id. at col.3 ls.50-54. The specification reveals two important features of the meniscus. First, it may be formed by a liquid that is flowing under pressure. Second, moving the nozzle tip closer to the substrate expedites formation of the meniscus. The first limitation runs counter to Oki's argument that the meniscus behave like a stationary liquid in a glass vessel. The second limitation is one that the parties conceded at oral argument when they both agreed that in order for the meniscus to form, the nozzle tip must be very close to the wafer.

3. The Prosecution History of the Allen Patent
The prosecution history sheds light on what the patent claims mean when they require that "the meniscus provide [] a constant flow of [the] chemical onto [the] substrate surface." Id. at col.6 ls.52-54. During prosecution, the Examiner rejected all the claims of the Allen Patent as obvious or anticipated in light of the Sato patent. Oki's Response to AMD's Opening Markman Brief, Ex. 2 ("Allen Rejection") at 1, 3. The Sato Patent teaches a process similar to that of the Allen Patent. The Sato Patent describes a device that ejects liquid from a nozzle towards the edge of a spinning substrate to remove coating at the edge of the substrate. U.S. Patent No. 4,113,492 col.3 ls.28-47. However, nowhere does the Sato Patent mention a meniscus. Thus, AMD responded to the rejection by adding a new claim which eventually issued as Claim 5 of the Allen Patent. Oki's Response to AMD's Opening Markman Brief, Ex. 3 ("Response to Allen Rejection") at 5, 7. AMD distinguished the Allen Patent from the Sato Patent by pointing to the meniscus language at issue here. AMD stated that "[w]hile the applicant . . . does use a nozzle as does Sato, applicant's removal process comprises positioning the nozzle sufficiently close to the spinning coated wafer to establish a meniscus formed between the nozzle and the spinning wafer." Id. at 9. According to AMD, formation of this meniscus allows the invention to control . . . the amount of surface contacted by the solvent solely by control of the rotational speed of the coated substrate." Id. at 12. AMD claimed that the Sato Patent neither anticipated nor made obvious this feature. See id. at 11-12. This exchange during the prosecution of the Allen Patent explains what the disputed claim terms mean. Because the meniscus provides a constant flow of the solvent onto the spinning wafer, the invention can control how much of surface area of the wafer the solvent contacts solely by varying the speed of rotation of the wafer. Thus, the claim limitation requiring the meniscus to provide a constant flow of the solvent onto the substrate distinguishes Claim 5 of the Allen patent over the Sato reference.

4. Construction of Disputed Terms in the Allen Patent

The intrinsic evidence directs the Court to construe the phrase "whereby the meniscus provides a constant flow of said chemical onto said substrate surface" of Claim 5 of the Allen Patent as follows. The meniscus, i.e., the curved surface of the chemical created by the surface tension of the chemical when the chemical contacts a solid, supplies a constant flow of the chemical onto the substrate. The meniscus exists between the nozzle and the substrate. The meniscus cannot form unless the nozzle is positioned sufficiently close to the spinning coated wafer to establish a meniscus formed between the nozzle and the spinning wafer.

The disputed term is located in each of the asserted independent claims: "a first menu consisting of menu categories." Claim 1 of the '850 patent describes the term "menu categories": "a first menu consisting of menu categories, said menu categories consisting of menu items." "Menu categories" is also disclosed in the specification: "A hierarchical tree structure [] is used to show the different relationships between the menu categories [] (e.g., soups, salads, appetizers, entrees, deserts, etc.)." ('850 patent, 6:14-17).

The parties dispute the need for menu categories to be at the top level, or in other words, "stemming from the root of a menu tree." Ameranth argues that categories can be nested within categories. To support its position, Ameranth cites the following passage from the specification: "In the above example, Menu is the root. Entrees is a menu category. Red Meat is an Entree category." (850 patent, 6:66-67) (emphasis added). Thus, according to the plaintiff, "Red Meat" is a category located within the "Entrees" category. However, "Red Meat" is not explicitly described as a "menu category." Next, in support of Ameranth's construction, one skilled in the art would consider "Red Meat" to be a category within a category, not a menu item. But, as discussed below, the patents use the terms "menu category" and "menu item" in a way that is inconsistent with their ordinary meanings.

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In response to the plaintiff's argument, the defendants assert that the patent consistently uses "menu categories" as the top level class of items only--categories are not located within other categories. Figure 1 of the '850 patent depicts the hierarchical menu tree. The first level of items, e.g., appetizers, desserts, drinks, entrees, salads, sandwiches, and soups, are defined as "menu categories." ('850 patent, 6:17-18). The figure shows the very next level of items, e.g., chicken, red meat, and seafood, as well as sub-items, are "menu items" not "menu categories." ('850 patent, 6:17). The specification and claims also discuss the addition of menu items to menu categories, but they do not disclose the creation of categories within categories. (E.g. '850 patent, 7:8 ("4. Add menu items to the categories"); 8:1 ("To add menu items to categories . . . ."); claim 1 ("a first menu consisting of menu categories, said menu categories consisting of menu items"). Finally, the specification explicitly states that "[m]enu categories are created from the root." ('850 patent, 7:60).

Although it is a close call, "menu categories" are restricted to the top level items. Therefore, the term "menu categories" is defined as "the class of items stemming from the root of a menu tree."

"menu choice selection display"

JVL construes "menu choice selection display" as "a list of video game menu choices that is displayed simultaneously with the separate list of video game menu options in the programming mode." Merit's construction is a "display of the chosen game menu items." Pl's Suppl. Markman Br. at 23. As discussed above, "chosen game menu items" is Merit's proffered construction of "video game menu choices." Thus, plaintiff and defendant agree that "menu choice selection display" involves video game menu choices.

As with the interpretation of many other terms in this patent, Merit challenges JVL's inclusion of language concerning the when and where of the display's appearance. The issue is whether the words "that is displayed simultaneously with the separate list of video game menu options in the programming mode," as JVL proposes, are necessary.

Beginning with the language of the claim itself, claim 13(f) counsels against a construction that includes "in the programming mode." Claim 13(f) recites "exiting the programming mode and entering the menu choice selection mode wherein one of the video game menu choices may be selected for activation from the video game menu choice selection display." Claim 13(f) specifically indicates that selections may be made from the menu choice selection display upon "exiting the programming mode and entering the menu choice selection mode." '717 patent, claim 13(f). When the claim language explicitly describes "menu choice selection display" in the menu choice selection mode, its proper construction cannot limit it to the programming mode.

JVL's reliance on a description of the preferred embodiment does not dictate a different result. JVL cites the description of the preferred embodiment in Figure 2 which states "[i]n the programming mode, menu options 36-62 are selected by the operator from the second region 20 and placed in locations 64-78 in the third region 22 as designated by the operator." '717 patent at 4:8-11. This limitation should not be read into the construction because a claim is not limited to its preferred embodiments. Phillips, 415 F.3d at 1323. Therefore, JVL's inclusion of "in the programming mode" in its construction is not adopted.

Nor should "menu choice selection display" be construed to mean, as JVL suggests, that the video game menu choices are "displayed simultaneously with the separate list of video game menu options." The language in the specification describing that video game menu options and choices are displayed simultaneously when the mode selector is in the programming mode does not lead to the conclusion that "menu choice selection display" always requires separate and simultaneous display of options and choices. '717 patent at 2:28-31. Having rejected the limitations JVL seeks to introduce, "menu choice selection display" is construed as "a display of video game menu choices selected from the video game menu options."
"video game menu choices"

JVL's proposed construction of "video game menu choices" is "the subset of video game menu options that are currently available for a user to play on a video game machine." Def.'s Presentation, '717 patent at 16. Merit offers a more succinct construction - "chosen game menu items."

The "video game menu choices" are the games selected by the operator that players may play. The claim language itself repeatedly refers to "selecting" video game menu options and video game menu choices. '717 patent, claim 1. Yet, Merit's proposed construction employs "chosen" instead of "selected." Here, the meaning of "selecting," a term found in the claim language surrounding the disputed term, is unambiguous. Therefore, Merit's use of "chosen" instead of "selected" is not adopted.

Merit challenges JVL's inclusion of "currently available for a user to play on a video game machine." At the Markman hearing, JVL argued the specification supports inclusion of this language, pointing to the description of Figure 2, one of the preferred embodiments of the invention, which states "[i]n the menu choice selection mode, the programmed menu choices are selectable for game activation either by touching the location of the desired game …" '717 patent at 4:29-31 (emphasis added).

The portion of the specification upon which JVL relies does not justify its construction. The description, by its express terms, is limited to the "menu choice selection mode." It does not encompass the other mode, the programming mode. Indeed, the patent does not contemplate game play by players when the apparatus is in the programming mode. In other words, in the programming mode, the video game menu choices are not "currently available for a user to play."

The claim language is clear that a video game menu option can be selected to be a video game menu choice. '717 patent, claim 3. Merit's construction, "chosen game menu items," does not explain from where the games are chosen. Video game menu options are selected to be video game menu choices by the game operator while the apparatus is in the programming mode. See '717 patent, claim 1. When the machine is in the menu choice selection mode, a player can select a "video game menu choice," a particular game, to play. Therefore, "video game menu choices" is construed as "video games, selected from among the video game menu options, made available for play in the menu choice selection mode."

**G. "menu items"

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<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>menu items</td>
<td>data which enables or reflects menu choices or options within a menu</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the set of items stemming from each menu category</td>
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</table>

The disputed term is located in each of the asserted independent claims: "said menu categories consisting of menu items." Ameranth argues for a broad construction of "menu items," such that it encompasses modifiers and sub-modifiers. In support of this contention, the plaintiff notes that the specification allows the user to "add the item as a modifier" ('850 patent, 7:29-30) and "add the item as a sub-modifier." ('850 patent, 7:55-56). But these phrases use the generic word "item," as opposed to the term "menu item." The specification, however, does not equate "items" with "menu items." (See '850 patent, 8:36-37 ("Once the modifiers have been entered, it may be desired to assign sub-modifiers to the modifiers items."); '850 patent 13:30-31 ("a database that includes every item of merchandise").

Several statements in the specification, as well as the patent claims, indicate that "menu items" are separate and distinct from "modifiers" and "sub-modifiers": "5. Assign Modifiers to the menu items" ('850 patent, 7:9); "[o]nce the menu items have been entered, it may be desired to assign some modifiers to the menu items" ('850 patent, 8:21-22); "assignment of parameters to items in the second menu . . ., said parameters being selected from the modifier and sub-modifier menus" ('850 patent, Claim 1).

Based on the statements in the specifications, "menu items" does not encompass "modifiers" or "sub-modifiers." It appears,
however, that a menu item may contain other menu items. Therefore, "menu items" is construed as "the set of data stemming from menu categories or other menu items."

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Menu key

The Court rejects the parties' proposed constructions and construes "menu key" to mean "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for displaying on the screen a set of selectable colors." AVG proposes that the term means "a user-activated input device . . . ." "Input device" is too broad and could refer to any device from which data is imported. Microsoft's construction, "key that when pressed discretely changes the color value associated with the input key," is too narrow.

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"video game menu options"

Merit's posited construction of "video game menu options" is "all of the selectable game menu items." Plaintiff Merit Industries, Inc.'s Supplemental Markman Brief at 9 ("Pl.'s Suppl. Br."). JVL's suggested construction is "all of the video games that can be selected to be made available for a user to play on a video game machine." JVL's Markman Hrg. Presentation, '717 patent at 13 ("Def.'s '717 Presentation").

The parties appear to agree that "video game menu options" are selectable video games and that the word "options" includes "all" of the selectable games. See Merit's Markman Hrg. Presentation, '717 patent, Ex. 3 at 1 ("Pl.'s '717 Presentation") ("video game menu options are 'selectable games'"). They disagree on the additional detail needed to properly construe this term. Specifically, Merit does not ascribe to JVL's inclusion of "to be made available for a user to play on a video game machine." JVL recognizes that "video game menu options" presented in the programming mode can become "video game menu choices" available for a user to play. Merit construes "video game menu options" as selectable video games but does not explain for what they can be selected.

Merit does not offer any basis for its use of the word "items" in its proposed construction. There is no reason to refer to the options as anything other than games.

The term "video game menu options" is construed as "video games that can be selected in the programming mode to be video game menu choices playable in the menu choice selection mode."

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C. "menus"

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>menus</td>
<td>computer hospitality data representing collections of linked levels of choices or options intended for display in a graphical user interface</td>
<td>a database and structured set of displays for the data</td>
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The disputed term is located in the preamble of each of the asserted independent claims: "An information management and synchronous communications system for generating and transmitting menus comprising . . . ." The specification defines "menu" as
Menus are typically utilized to provide end users of applications with available choices or processing options. . . . [Menu] [o]ptions can have additional subordinate or child options associated with them. . . . Thus, such a menu system comprises cascading sets of menus which are displayable in context to show the parent/child relationships between options of the context menu.

('850 patent, 5:18-31). Based in part on their requirement of local databases on the client devices, the defendants contend that "menus" must include a database. In support of their database requirement, the defendants cite the following language from the specification: "The steps taken in building a menu are as follows: . . . 7. Download the menu database to the handheld device." ('850 patent, 7:4-12). But, as discussed above in "information management and synchronous communications system," the patent's use of "database" appears to define that term as "data." Furthermore, the written description indicates that the menus' purpose is to be displayed, not to act as storage, e.g., "facilitates user-friendly and efficient generation of computerized menus for . . . non-PC standard graphical formats, display sizes and/or applications" ('850 patent, 2:49-55), "displays menus in a readily comprehensible format" ('850 patent, 2:63-67), and "converting paper-based menus . . . to small PDA-sized displays and Web pages." ('850 patent, 3:32-35). Thus, the court rejects the requirement that there is a storage limitation included in the construction of menus.

Ameranth's proposed construction limits the menus to "computer hospitality data." There is no support for this limitation. The court construes the term "menus" as "computer data representing collections of linked levels of choices or options intended for display in a graphical user interface."
credit rate and the purchase amount." Claim 15, which depends from claim 14, requires that the credit value be "determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." The parties' principal dispute concerns the meaning of these terms.

The defendant proposes that "merchant-selected credit rate" means "a credit rate selected by a merchant, irrespective of any other merchant and independent of a central authority." The defendant further argues that "merchant-specific credit rate" should have the same construction as "merchant-selected credit rate." If, however, the court determines that "merchant-specific credit rate" means something different, then the defendant proposes "a credit rate selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." With respect to the term "merchant-specific credit value," the defendant proposes that it means "a credit value selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." The defendant also contends that the terms "credit rate" and "credit value" refer to the antecedent terms "merchant-selected credit rate" and "merchant-specific credit value," respectively. Therefore, according to the defendant, "credit rate" and "credit value" must have the same meaning as "merchant-selected credit rate" and "merchant-specific credit value," respectively. If the court determines otherwise, however, the defendant proposes that "credit value" means "a portion of a purchase amount that is to be credited to a consumer's account, regardless of how the transaction is paid for. The credit value is determined at the point of sale by applying a credit rate selected by that merchant irrespective of any other merchant and independent of a central authority, to the purchase amount of the transaction and is then transmitted to a central system." The defendant appears to agree with the plaintiff that "credit rate" means "a rate used along with a purchase amount to determine a credit value."

The plaintiff, on the other hand, proposes that "merchant-selected credit rate" means "a credit rate selected by a particular merchant," "merchant-specific credit rate" means "a credit rate determined for a particular merchant," and "merchant-specific credit value" means "a credit value determined using either a merchant-specific credit rate or a merchant-selected credit rate." According to the plaintiff, "credit rate" means "a rate used along with a purchase amount to determine a credit value," and "credit value" means "a value determined in connection with point-of-sale transactions." The principal disputes are 1) whether a third party may set the credit value and/or credit rate, and 2) whether there are any limitations on how the credit value is determined.

a. Third Party Determination

In support of its proposed constructions that a third party may not set the credit value and/or credit rate, the defendant argues that the patentee defined "merchant-specific credit value" in the prosecution history by stating that "the salient point [is] that the merchant may select or otherwise indicate the desired credit value (in some claims, by reference to a 'credit rate')." Combined Reissue Declaration and Power of Attorney, February 15, 1996, at 2. In addition, the defendant argues that the patentee distinguished his invention over prior art by stating that the prior art "fails to disclose or suggest . . . the concept of permitting each of several merchants to select a merchant-specific rate . . . ." Response to Office Action, February 26, 1997, at 10. The defendant points to this statement and also contends that the Examiner used the terms "merchant-selected credit rate" and "merchant-specific credit rate" interchangeably when it issued an Interview Summary referring to "the limitation of 'merchant-specific credit rate' from Claim 15, . . . " even though Claim 15 actually used the phrase "merchant-selected credit rate." Interview Summary, March 12, 1998 (emphasis added). Finally, the defendant argues that the Examiner, in his Notice of Allowance, stated that "the prior art of record, neither singularly nor in combination, discloses a rebate system whereby a consumer receives a cash rebate, based on the amount of purchases made and a credit rate that is determined by the merchant." Notice of Allowability, May 22, 1998, at 2. Because the patentee did not respond to this notice, the defendant argues that the patentee acquiesced in the examiner's statement.

The plaintiff argues that, under the doctrine of claim differentiation, "merchant-specific credit rate" and "merchant-selected credit rate" cannot mean the same thing. The plaintiff also argues that the specification does not require that the merchant actually assign the rate in all circumstances. The plaintiff points to passages in the specification which state that the rate "may be selected" by the merchant and "the credit rate for one merchant is preferably selected by that merchant and not by any other merchant or the central system." '116 patent, 1:39-42, 3:38-40 (emphasis added). In addition, the plaintiff points to the prosecution history and urges that the applicant distinguished between "merchant-specific" and "merchant-selected." See Response to Office Action, February 26, 1997, at 10-11. Finally, the plaintiff argues the failure to respond to the notice of allowability does not represent a clear disavowal of claim scope. See 37 C.F.R. § 1.104(e) (1998); Salazar v. Proctor & Gamble Co., 414 F.3d 1342, 1345 (Fed. Cir. 2005).
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b. Credit Value

Next, the court examines the term "credit value." The defendant contends that the credit value must be 1) determined at the merchant location, 2) determined by multiplying the credit rate by the purchase amount, and 3) can be determined regardless of how the consumer pays for it.

i. Merchant Location

The defendant contends that the patentee disclaimed any system and method for determining credit value other than at the merchant's location in his appeal brief. In that brief, the patentee stated that claims 1, 14, 22, and 35 "clearly recite electronic capture of . . . credit value at the merchant location and its electronic transmission to the central system . . . ." Appeal Brief, June 12, 2006, at 13.

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There is no clear disclaimer of claim scope. The patentee chose to include this limitation in some claims, but not others. For example, claims 1, 8, and 35 specifically require the credit value to be calculated at the merchant location while claims 22 and 31 do not require the credit value to be calculated at the merchant location. Accordingly, this limitation should not be included in the construction of these terms because imposing this limitation would be redundant in some claims and, without a clear disclaimer, would be improper in the other claims.

ii. Multiplying Credit Rate by Purchase Amount

Next, the defendant contends that the only method for determining a credit value in the '090 specification is multiplying the credit rate by the purchase amount. The defendant attempts to limit the intrinsic evidence to the specification of a different patent and to import a limitation from a preferred embodiment into the construction of a claim term. Furthermore, dependent claim 15 states that "the credit value is determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." Therefore, the court concludes that the term "credit value" is broader, standing alone, than the limitation in the dependent claim. The proposed limitation is rejected.

iii. Determination Regardless of How a Product is Paid For

Finally, the defendant contends that the inventor's notes disclaimed any system which is dependent on the form of payment. Defendant's Responsive Claim Construction Brief, Ex. B., at PS 11339. The defendant also cites to the specification which

- 3032 -
states "consumers build up cash value by buying products from participating merchants independent of how that product is paid for ...." '116 patent, 2:22-24. Again, the defendant attempts to import a limitation from a preferred embodiment. The court rejects this limitation.

c. Constructions

Based on the foregoing discussion, the court issues the following constructions:

"Merchant-selected credit rate" means "a credit rate selected by a particular merchant."

"Merchant-specific credit rate" means "a credit rate associated with a particular merchant."

"Merchant-specific credit value" means "a credit value associated with a particular merchant."

"Credit rate" means "a rate used along with a purchase amount to determine a credit value."

The term "credit value" has been defined in the prosecution history as proposed by the plaintiff. See Response to Office Action, February 26, 1997, at 3. "Credit value" means "a value determined in connection with point-of-sale transactions."

1. "Merchant-Specific Credit Value," "Merchant-Specific Credit Rate," "Merchant-Selected Credit Rate," "Credit Rate," and "Credit Value"

Independent claim 14 requires "determining a merchant-specific credit value for the transactions from a merchant-specific credit rate and the purchase amount." Claim 15, which depends from claim 14, requires that the credit value be "determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." The parties' principal dispute concerns the meaning of these terms.

The defendant proposes that "merchant-selected credit rate" means "a credit rate selected by a merchant, irrespective of any other merchant and independent of a central authority." The defendant further argues that "merchant-specific credit rate" should have the same construction as "merchant-selected credit rate." If, however, the court determines that "merchant-specific credit rate" means something different, then the defendant proposes "a credit rate selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." With respect to the term "merchant-specific credit value," the defendant proposes that it means "a credit value selected or otherwise indicated by a merchant, irrespective of any other merchant and independent of a central authority." The defendant also contends that the terms "credit rate" and "credit value" refer to the antecedent terms "merchant-selected credit rate" and "merchant-specific credit value," respectively. Therefore, according to the defendant, "credit rate" and "credit value" must have the same meaning as "merchant-selected credit rate" and "merchant-specific credit value," respectively. If the court determines otherwise, however, the defendant proposes that "credit value" means "a portion of a purchase amount that is to be credited to a consumer's account, regardless of how the transaction is paid for. The credit value is determined at the point of sale by applying a credit rate selected by that merchant irrespective of any other merchant and independent of a central authority, to the purchase amount of the transaction and is then transmitted to a central system." The defendant appears to agree with the plaintiff that "credit rate" means "a rate used along with a purchase amount to determine a credit value."

The plaintiff, on the other hand, proposes that "merchant-selected credit rate" means "a credit rate selected by a particular merchant," "merchant-specific credit rate" means "a credit rate determined for a particular merchant," and "merchant-specific credit value" means "a credit value determined using either a merchant-specific credit rate or a merchant-selected credit rate." According to the plaintiff, "credit rate" means "a rate used along with a purchase amount to determine a credit value," and "credit value" means "a value determined in connection with point-of-sale transactions." The principal disputes are 1) whether a third party may set the credit value and/or credit rate, and 2) whether there are any limitations on how the credit value is determined.

a. Third Party Determination
In support of its proposed constructions that a third party may not set the credit value and/or credit rate, the defendant argues that the patentee defined "merchant-specific credit value" in the prosecution history by stating that "the salient point [is] that the merchant may select or otherwise indicate the desired credit value (in some claims, by reference to a 'credit rate')." Combined Reissue Declaration and Power of Attorney, February 15, 1996, at 2. In addition, the defendant argues that the patentee distinguished his invention over prior art by stating that the prior art "fails to disclose or suggest . . . the concept of permitting each of several merchants to select a merchant-specific rate . . . ." Response to Office Action, February 26, 1997, at 10. The defendant points to this statement and also contends that the Examiner used the terms "merchant-selected credit rate" and "merchant-specific credit rate" interchangeably when it issued an Interview Summary referring to "the limitation of 'merchant-specific credit rate' from Claim 15 . . . ." even though Claim 15 actually used the phrase "merchant-selected credit rate." Interview Summary, March 12, 1998 (emphasis added). Finally, the defendant argues that the Examiner, in his Notice of Allowance, stated that "the prior art of record, neither singularly nor in combination, discloses a rebate system whereby a consumer receives a cash rebate, based on the amount of purchases made and a credit rate that is determined by the merchant." Notice of Allowance, May 22, 1998, at 2. Because the patentee did not respond to this notice, the defendant argues that the patentee acquiesced in the examiner's statement.

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Although it is a close issue, application of the rules governing claim construction supports the plaintiff's proposed constructions. It is a general principle of claim construction that different words in a claim have different meanings. Innova/Pure Water, Inc., 381 F.3d at 1119 ("[W]hen an applicant uses different terms in a claim it is permissible to infer that he intended his choice of different terms to reflect a differentiation in the meaning of those terms."). Without question, the two phrases "merchant-selected" and "merchant-specific" are different. The former connotes that it is the merchant who selects the applicable rates; the latter implies that, although the applicable rate is keyed to a particular merchant, a third party (or the merchant) may specify the rate. Under Phillips, the language of the claims supports the plaintiff's argument.

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Finally, the court has examined the prosecution history. There is no clear statement in the prosecution history in which the applicant explicitly defined "merchant-specific" to mean "merchant-selected." To the contrary, the applicant stated that "[i]ndependent claim 14 includes the slightly different limitation of 'determining a merchant-specific credit value for the transaction' . . . ." Response to Office Action, February 26, 1997, at 11 (emphasis added). It does not appear that the applicant made a clear disavowal of claim scope and, therefore, the credit rate of claim 14 may be assigned by a third party.

b. Credit Value

Next, the court examines the term "credit value." The defendant contends that the credit value must be 1) determined at the merchant location, 2) determined by multiplying the credit rate by the purchase amount, and 3) can be determined regardless of how the consumer pays for it.

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The defendant contends that the patentee disclaimed any system and method for determining credit value other than at the merchant's location in his appeal brief. In that brief, the patentee stated that claims 1, 14, 22, and 35 "clearly recite
electronic capture of . . . credit value at the merchant location and its electronic transmission to the central system . . . ." Appeal Brief, June 12, 2006, at 13.

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Next, the defendant contends that the only method for determining a credit value in the '090 specification is multiplying the credit rate by the purchase amount. The defendant attempts to limit the intrinsic evidence to the specification of a different patent and to import a limitation from a preferred embodiment into the construction of a claim term. Furthermore, dependent claim 15 states that "the credit value is determined by multiplying a merchant-selected credit rate by the purchase amount of the transaction." Therefore, the court concludes that the term "credit value" is broader, standing alone, than the limitation in the dependent claim. The proposed limitation is rejected.

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Based on the foregoing discussion, the court issues the following constructions:

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13. "message" and "message address"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;message&quot;</td>
<td>A notice that can be sent or received electronically</td>
<td>Email address</td>
</tr>
<tr>
<td>&quot;message address&quot;</td>
<td>Information used to send or receive a message</td>
<td>Email address</td>
</tr>
</tbody>
</table>

The Cell Phone defendants separately seek to limit a "message" to an "email." They argue that the patentees told the Examiner during prosecution of the '936 continuation patent that "message" meant "email message." 7 They urge the Court to apply this definition to claims of the earlier '774 patent as well. See Kothmann Enters., Inc. v. Trinity Indus., Inc., 394 F. Supp. 2d 923, 958 n. 25 (S.D. Tex. 2005) ("the prosecution history of a subsequently issued patent may be relevant for purposes of a related, previously granted patent"). Further, the defendants argue that throughout the specification, when the inventors refer to sending a "message," they always and only refer to sending email messages. See, e.g., '774 patent, col. 12, ll. 36-55. Similarly, the defendants argue that the specification discusses "address" only in the context of an "email address." Id. at col. 5, ll. 31-35.

7 During prosecution of the '936 patent, the patentee amended claim 8, changing:

"create a message including the identifier"

to:

"create an email message including the identifier that includes the URL associated with the display notifying the recipient that the display is available for viewing."

Fotomedia argues that prosecution amendments made to claims in the '936 patent do not affect the scope of the issued claims and are irrelevant. Fotomedia contends that the patentees intended claim 17 of the '936 patent to be different from claim 1 of the '774 patent by including the phrase "email message." Fotomedia further argues that email is not the only contemplated messaging system disclosed in the patent. The Court agrees. The term "message" need not be limited to an email message.
"Message" is construed to mean an "electronic notice," and "message address" is "an electronic address used to send a message."

2. "Message" (Claims 1 & 5)

a. The Parties' Proposed Constructions

Motorola's Proposal
Plain and ordinary meaning.

Should the Court require a construction, "message" means "a communication." In the alternative, Motorola would be amenable to a construction of "information received by the selective call receiver."

VTech's Proposal
Requires construction.

"Information received by the pager and entered by the sender of the page."

b. Discussion

According to Motorola, the term "message" is not a term that this Court needs to construe. A person of ordinary skill, reading the patent as a whole, (as well as a lay jury) would have a clear understanding of what this term means. Should the Court find that this term should not be given its plain and ordinary meaning, the present dispute is essentially whether that message must be "received by the pager and entered by the sender of the page," as VTech claims.

The Court finds the term should be construed and agrees with Motorola that VTech's construction of the term "message" is improperly limited to a specific way of creating a message, consistent with VTech's attempts to limit the "user-interface" patents to pagers. VTech provides no support for requiring this "message" be "entered by the sender of the page." Claims 1 and 5 of the '391 patent are directed to a method and apparatus for displaying messages within the selective call receiver. The Court declines to limit the language to a particular way of creating a message.

c. The Court's construction

The Court is of the opinion the term "message" should be construed as: "information received by the selective call receiver."

4. "Message" shall be construed as a reconfiguration message that includes a reconfiguration command.

1. Message (claims 1-2 and 6-8)

Plaintiff's Construction: a data packet

Defendant's Construction: a unit of transmission

Plaintiff relies on the specification for its construction of "message"; defendant offers no support for its construction other than its belief that plaintiff's construction is wrong. But even defendant agrees that the patent specification uses "message" and "data packet" interchangeably throughout. Although defendant may be correct that "message" normally has a broader
meaning than "data packet," an inventor "may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning." Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001). Accordingly, I will adopt plaintiff's construction: "a data packet."

II. "Message"

Plaintiff submits that the term message should be given its ordinary and accustomed meaning, viz., "an intended communication." Defendant argues that the term, understood in context, means "one or more packets of data for transmission from a source to a destination."

The problem with defendant's construction is that it blurs the distinction between "message" and "packet." Properly understood, packets are the mechanism by which messages are sent; as the patent specification explains, "message packets . . . generally include 'source' and 'destination' fields" that assist in routing messages to their intended destinations. Col. 7:52-58. Defining a message as a packet ignores the fact that a packet includes not only message data but also information about where the data originates and where it is supposed to go.

Defendant's proposed construction flows from the fact that the patent is directed to a packet-switched network. Since a packet-switched network transmits packets of data, reasons defendant, the term "message" in the phrase "transmitting a message . . . within a packet-switched network" must refer to a packet. In essence, therefore, defendant asks the Court to find that "message" and "packet" are interchangeable. They are not. Accordingly, the Court will adopt plaintiff's proposed construction of this phrase.

The parties agree that these terms did not have ordinary and customary meanings to one skilled in the art when the patent issued. The parties' primary disagreement is over Amazon's attempt to include a cryptographic key in the construction of each of these terms. Amazon argues that the patentee so limited the terms in the specification. Soverain argues that such a construction improperly imports limitations from the specification. Soverain also points out there are specific instances where a dependent claim includes cryptography but the independent claim does not, making it improper to impute the cryptography limitation into each of these claim terms when it is not expressly included in the claim language.

Amazon's argument is not supported by the claim language. Words used in multiple claims should be given consistent meanings. Fin Control Sys. Pty, Ltd. v. OAM Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). When a dependent claim includes
a limitation that the independent claim does not include, a presumption is raised that the independent claim does not include the limitation. Liebel-Flarsheim Co., 358 F.3d at 910. Amazon's argument fails because the claims recite instances where each of the terms is used without a cryptographic key.

Claim 1 of the '314 patent states, "A network based sales system, comprising: . . . a payment message to be sent to said payment computer that comprises a product identifier identifying said product." As described here, the payment message is not required to contain a cryptographic key. Claim 33 of the '314 patent also does not require a cryptographic key as part of the payment message. In claims 12, 14, 17, 18, 19, 23, 26, and 30 of the '492 patent, the payment message comprises: "a product identifier identifying the product that the user desires to buy," "a universal resource locator," "a merchant computer identifier," or a "payment amount." In claims 27 and 28, which are dependent on claims 19 and 27 respectively, the payment message includes a payment message authenticator based on a cryptographic key.

Claim 34 of the '314 patent does not require shopping cart messages to include cryptographic keys: "respective shopping cart messages to said shopping cart computer each of which comprises a product identifier identifying one of said plurality of products." "Shopping cart messages" is used in claims 17, 18, 35, and 36 of the '492 patent, none of which state it includes a cryptographic key.

In the '492 patent, independent claims 1, 5, 11, 13, 31, and 33 do not state that the access message includes a cryptographic key, but independent claims 19 and 30 do require the cryptography. Claim 32, which is dependent on claim 31 (not requiring cryptography), does require "the access message to be created using a cryptographic key." Claim 34, which is dependent on claim 33 (not requiring cryptography), describes "the access message in a cryptographic process to ensure that the user has paid for the product."

In the '492 patent, claims 7, 15, and 16 describe hypertext statement systems involving a transaction detail hypertext link, but none include a cryptographic key. Similarly, claims 1, 5, 37, and 38 of the '492 patent utilize a product request message, but none describe it as containing a cryptographic key.

For these reasons, including a cryptographic key in these terms' constructions is contradicted by the claim language.

2. "message center"

The disputed claim term "message center" appears in claims 1, 2, 4, 7, 25, 35, 36, 43, and 44 of the '416 Patent and claims 1, 2, 4, 5, 8, 10, 13, 14, 17, 34, and 35 of the '186 Patent. According to Kyocera the "message center" is

a conventional telephone answering device, a personal computer with voice/fax mail or modem communications, or a conventional facsimile device, or some other device suitable for receiving incoming calls automatically and initiating automatic outgoing calls automatically to a paging center or transmissions by an integrated paging transmitter in response to calls received.

(Kyocera Br. 17.) Intellect Wireless, however, argues that "a computer, server, or other device suitable for receiving and transmitting messages" is the proper construction of the claim term "message center." (Intellect Wireless Resp. 12.) Again, the parties' primary dispute centers around whether the "message center" includes similar "paging" limitations like those previously discussed in connection with the "receiver" claim term. Related to this dispute, the parties also disagree as to whether the term "message center" was ambiguous to one of ordinary skill in the art at the time of the invention in the mid-1990s. Arguing that the term was ambiguous, Kyocera bases its construction on a description of a message center from the specifications which refers to paging. Lastly, the parties contest whether the court's construction of "message center" should explicitly acknowledge that the message center may be a server. For the reasons explained below, the court adopt's Intellect Wireless's proposed construction of "message center."

a. "Message Center" Was Not Ambiguous to One of Ordinary Skill in the Art

Relying on Dr. Poor's testimony, Kyocera argues that "[a]t the time of the invention, the claim term 'message center' did not
have a clear meaning to persons of skill in the art of wireless communication systems that include paging devices." (Kyocera Br. 18.) Based on this testimony, Kyocera argues that the court should adopt the following description of a "message center device" from the specifications, which, according to Kyocera, "approaches an express definitional statement" of "message center" (id.):

Message center device (301) may be a conventional telephone answering device, a personal computer with voice/fax mail or modem communications, or a conventional facsimile device, or some other device suitable for receiving incoming calls automatically and initiating automatic outgoing calls automatically to a paging center in response to calls received.

'186 Patent, col.5 l.65-col.6 l.4. Kyocera further argues that the additional inclusion of the "transmissions by an integrated paging transmitter" limitation in its proposed construction is supported by the specifications' recognition that the "message center" alternatively may integrate a paging transmitter. (See Kyocera Br. 19 (citing '186 Patent, col.9 ll.49-52; col.12 ll.32-37; col.16 ll.10-12, 47-51).)

Having reviewed the patents and a number of the cited references, the court is not persuaded that "message center" did not have a plain and ordinary meaning to one of ordinary skill in the art at the time of the invention. First, as discussed above in connection with the court's construction of "receiver," the court disagrees with Kyocera that the claimed invention is limited to "wireless communication devices that include paging devices." The appropriate inquiry, therefore, is whether the term "message center" was ambiguous to one of ordinary skill in the art of wireless communication devices.

Second, the intrinsic evidence suggests that "message center" would not have been ambiguous to one of ordinary skill in the art in the mid-1990s. The References Cited section in the specifications lists several telecommunications patents which consistently discuss "message centers" as receiving and transmitting messages. For example, U.S. Patent No. 5,007,076 ("076 patent"), titled "Call Announcement Arrangement," was filed on November 3, 1989, and discusses "transmitting call information . . . to a message center." '076 Patent, col.16 ll.53-58. Similarly, U.S. Patent No. 5,588,037 ("037 patent"), titled "Remote Access Telephone Control System," was filed on July 8, 1994, and addresses leaving a message at the call receiver's "message center." '037 Patent, col.7 ll.13-47. Finally, U.S. Patent No. 5,950,123 ("123 Patent"), titled "Cellular Telephone Network Support of Audible Information Delivery to Visually Impaired Subscribers," was filed on August 26, 1996, and describes a "message center" which is "connected to the fixed telephone network 20 and to the cellular telephone network" and "functions as a store and forward center for receiving and delivering short message service messages." '123 Patent, col.3 ll.1-6.

This understanding of "message center" also comports with the claims' and the specifications' repeated references to the message center as receiving and transmitting messages. As described in the specifications, the invention relates to "[t]he automatic transmission of caller id or ANI data from the PSTN to a message center, for storage and retransmission." '186 Patent, col.4 l.66-col.5 l.1. 4 Similarly, the asserted claims describe a message being sent to the "message center" which then transmits that message to the claimed "receiver." Thus, the court finds that the intrinsic record indicates that "message center" would have had a plain and customary meaning to one of ordinary skill in the art at the time of the invention and that the plain and customary meaning is consistent with Intellect Wireless's proposed construction.

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4 "ANI" refers to "automatic number identification," and "PSTN" refers to "public switched telephone network." (See Kyocera Br. 20 nn.16-17 (citing Nat'l Commc'n's Sys., Telecommunications: Glossary of Telecommunications Terms (1996), available at http://www.its.bldrdoc.gov/fs-1037/).)

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

b. "Message Center" Is Not Limited to Paging Communications

Kyocera's arguments for a narrower construction of "message center" are not persuasive. Kyocera contends that the "message center," like the "receiver," has a "paging" limitation which requires the "message center" to "initiate automatic outgoing calls automatically to a paging center" or "transmissions by an integrated paging transmitter." However, as discussed more thoroughly above with respect to the claim term "receiver," the intrinsic evidence supports Intellect Wireless's position that the "receiver" need not be operably coupled to a paging network. Because the "receiver" "is
operably coupled to receive a message from the message center," the "message center" similarly is not constrained by Kyocera's proposed "paging" limitation. Moreover, the plain language of the asserted claims simply requires that the "receiver" be capable of receiving a message from a "message center"; the claims do not mandate that the "message center" further be able to "initialize automatic outgoing calls automatically to a paging center" or "transmissions by an integrated paging transmitter," as necessitated by Kyocera's proposed construction.5

--- Footnotes ---

5 To the extent that Kyocera relies upon the prosecution history to support its "paging" limitation in its proposed construction of "message center," the court rejects those arguments for the same reasons it declined to rely on the prosecution history to impose the "paging" limitation in its construction of the disputed claim term "receiver."

--- End Footnotes ---

Kyocera's reliance on the specifications for the '186 and '416 Patents as support for its construction also is misplaced. According to Kyocera, the excerpt from the specifications which is the primary basis for its construction "approaches an express definitional statement" of "message center." (Kyocera Br. 18.) The court disagrees. Although "[a] patentee may act as its own lexicographer and assign to a term a unique definition that is different from its ordinary and customary meaning," Helmsderfer v. Bobrick Washroom Equipment, Inc., 527 F.3d 1379, 1381 (Fed. Cir. 2008), the Federal Circuit has repeatedly cautioned that "a patentee must clearly express that intent in the written description," id. In this case, the excerpt from the specifications cited by Kyocera is not an explicit definition but rather uses permissive language: "Message center device (301) may be a . . . device suitable for receiving incoming calls automatically and initiating automatic outgoing calls to a paging center in response to calls received." '186 Patent, col.5 l.65-col.6 l.4 (emphasis added). "May" is a permissive term suggesting that the claimed "message center" is not constrained by this description. See i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 844 (Fed. Cir. 2010) (finding that "permissive language" in specification did not limit the disputed claim term).

Furthermore, contrary to Kyocera's proposed construction which includes the "paging" limitation, Figures 9A and 9B in the specifications disclose message centers which are not connected to paging networks. In Figure 9A, the message center is directly connected to two personal communicators, and in Figure 9B, the message center is coupled to a telephone office and a personal communicator; neither of these figures identifies a "paging center" or a "paging network." The court, therefore, finds that the specifications do not require the "message center" to initiate either outgoing calls to a paging center or transmissions by an integrated paging transmitter.

c. "Message Center" Can Be a Server or Other Similar Device

Regarding Kyocera's contention that the "message center" is a "conventional telephone answering device, a personal computer, or a conventional facsimile device, or some other device," the court agrees with Intellect Wireless that this proposed language improperly imports limitations from the specifications into the claims and implies that the "message center" is confined to an embodiment where it is located at the called party's location. As depicted in Figure 2b, however, the specifications disclose "an alternative embodiment in which a personal message center is located at the telephone office (102) rather than at the called party office (300)." '186 Patent, col.5 ll.36-38. Based on this embodiment, the court believes that one of ordinary skill in the art would have understood that the "message center" was not limited to devices typically used at an individual's home or office, such as a fax machine or personal computer, but also could have been a more high-powered device with greater storage capacity, such as a server.

Accordingly, the court adopts Intellect Wireless's proposed construction of "message center": "a computer, server, or other device suitable for receiving and transmitting messages," which is consistent with both the term's plain and ordinary meaning and the intrinsic evidence.
Leader's Construction
plain and ordinary meaning

Facebook's Construction
A stored item of information associated with the user's data that identifies at least the context, user workspace or user environment in which the user and the data currently reside

The term "metadata" appears in numerous claims throughout the '761 patent. Facebook contends that its proposed construction is consistent with the specification and prosecution history of the '761 patent. (D.I. 191, at 15.) Facebook generally contends that "metadata" cannot be understood without reference to the system in which it is stored and utilized. (Id. at 17.) According to Facebook, the system disclosed by the '761 patent is about linking data to a user and keeping track of the user's location in the system, and therefore, "[t]he purpose of the 'metadata' [in the system] is to store information related to the (a) user to whom the data is tied, and (b) the user's location (since that is where the data will be)." (Id. at 15.) Leader contends that Facebook's proposed construction suffers from three main faults: 1) it incorporates limitations that are inconsistent with the intrinsic record; 2) it creates ambiguity in a commonly understood term; and 3) needlessly attempts to deconstruct the term. (D.I. 179, at 30-31.) Leader contends that "metadata" is universally understood by one of ordinary skill in the art to mean data about data. (Id. at 30.) Thus, Leader contends that this term should be given its plain and ordinary meaning. (Id. at 32.)

The Court concludes that Facebook's proposed construction imports unnecessary and unwarranted limitations into the term "metadata." The claim language demonstrates that the patentee intended "metadata" to have a broad meaning. For example, Claim 1 states that context information is stored in metadata. '761 patent, col. 21:2-3. Claim 9 states that "the metadata includes information related to the user, the data, the application, and the user environment." '761 patent, col. 21: 46-48. Claim 17 states that metadata stores "the association of the data and the second user environment." '761 patent, col. 22:26-27. Claim 21 states that metadata "includes information related to the user of the user workspace, to the data, to the application and to the user workspace. '761 patent, col. 22:54-56. Facebook's contention that the words "at least" in its proposed construction make it "abundantly clear" that "metadata could theoretically contain information beyond" the information identified in its construction, (D.I. 191, at 7 (emphasis added)), is not persuasive. As defined by the literal claim language, "metadata" actually includes types of information beyond that included in Facebook's proposed construction, such as information related to the application.

Facebook's contention that its proposed construction is supported by the specification is similarly unavailing. The specification does state, inter alia, that "[d]ata created while the user is in the board is immediately associated with the user, the current workspace, any other desired workspace that the user designates, and the application. This association is captured in the form of metadata . . . The metadata automatically captures the context in which the data was created . . ." '761 patent col. 9:50-56. In the Court's view, this portion of the specification is consistent with the claim language, and was not meant to restrict the term "metadata." The specification describes association and context as being captured in the form of "metadata," but there is no necessary corollary that "metadata" is exclusively comprised of that information.

The Court further concludes that the prosecution history does not support Facebook's proposed construction. Facebook contends that the following excerpt from the May 2006 Amendments and Remarks submitted by the patentee to the Patent and Trademark Office demonstrates that the intended meaning of "metadata" is "a stored item of information associated with the user's data that identifies at least the context, user workspace or user environment in which the user and the data currently reside":

When a user logs in to a system that employs the tool, the user enters into a personal or user workspace environment . . . Context information associated with the workspace is automatically stored in the database as metadata, and the metadata is further associated with data that is created in the workspace. Accordingly, any data created by the user in the workspace can be searched via the metadata.

Moreover, thereafter, the user can then move (or login) to a different workspace, such as a shared workspace (or shared board) that accommodates multiple users, for example, and the user can then access the same data created by the user in the first workspace and/or new data that was created in the shared workspace. The fact that the user is now in the shared
workspace, and that s/he accessed the same data created in the personal (or first) workspace, is recorded as additional information stored in the metadata of the same data created in the personal workspace.

***

Again, this context information of the single workspace and/or shared workspaces and any movement of a user or users between the workspaces is automatically captured and stored in the metadata, and the metadata is further associated with data that is created in the workspaces.

(D.I. 180, Andre Decl., Ex. 4 at LTI 000610-11). The Court disagrees with Facebook's contention. Nothing in this lengthy excerpt amounts to an unambiguous disavowal of the scope of the term "metadata," and accordingly, no disclaimer has taken place. See Purdue Pharma L.P. v. Endo Pharms. Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006)("Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making clear and unmistakable disavowal of scope during prosecution.").

Accordingly, the Court declines to adopt Facebook's proposed construction for the term "metadata."

* * *

IT IS HEREBY ORDERED that the following terms in United States Patent No. 7,139,761 (the "'761 patent") are assigned the following meanings:

* * *

7. The term "metadata" shall be given its plain and ordinary meaning.

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1. "image metadata"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;image metadata&quot;</td>
<td>Information associated with image data, other than that particular image data itself</td>
<td>data about or describing an image, other than the image itself</td>
</tr>
<tr>
<td>&quot;metadata elements for an image&quot;</td>
<td>At least a portion of metadata</td>
<td>a plurality of data elements relating to an image, other than the image itself</td>
</tr>
</tbody>
</table>

The defendants contend that FotoMedia's proposed construction of "metadata" expands the scope of this term beyond what was disclaimed during prosecution. The patentees differentiated prior art, stating that the prior art was not "concerned with metadata, which is commonly defined as 'data that describes other data' or 'data about data.'" Therefore, the defendants contend that the scope of metadata should be limited to it being about data rather than being anything "associated with the image."

Fotomedia argues that because the specification recites the phrase "metadata associated with an image" multiple times, it is entitled to its proposed construction. See, e.g., '231 patent, at col. 3 ll. 53-55 ("The present invention provides an improved method for allowing users to access metadata associated with a digital image file.").

The Court finds that the general understanding of the term "metadata" in the art is consistent with what the applicants stated to the examiner - it is data about data. The fact that it is also associated with an image file does not necessarily make this definition improper. The Court, therefore, construes "metadata" as "data associated with and about the image, other than the image itself."
The related dispute over "metadata elements" is whether the construction of these elements needs to incorporate the reference to the image, and whether a plurality is required. The claim language reads "defining metadata elements for an image." Therefore, the defendants argue that metadata elements must be variables for an image that can store the data. See, e.g., '231 patent, col. 3, ll. 56-67 (discussing how metadata elements are defined for an image file and how metadata elements are populated with data). The defendants argue that construing these elements as just some random portion of the metadata would fail to acknowledge the discrete nature of the metadata - whereby each of these elements can be accessed individually. 8 The Court agrees.

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8 Defendants contend that FotoMedia's own infringement contentions - that allege that defendant Yahoo's websites meet this limitation by "defining metadata elements such as variables and/or data structures, that references and/or store image metadata," - demonstrate FotoMedia's understanding of this term.

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"Metadata elements for an image" means "a plurality of data elements relating to an image, other than the image itself."

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b. "metal interconnect layer"

The scope of an independent claim incorporates the embodiments recited in dependent claims. See Transmatic, Inc. v. Gulton Industries, Inc., 53 F.3d 1270, 1277 (Fed. Cir. 1995). Claim 1 of the '785 patent claims the method of "forming a metal interconnect layer above the substrate surface." Claim 3 recites the method of claim 1 "wherein said metal interconnect layer comprises an aluminum alloy." The court agrees with EMI that the term "metal interconnect layer" includes interconnects made of metal alloys. The specification lends further support for this construction, as it states that the most common metal interconnects are made "of aluminum or aluminum alloys." The term "metal interconnect layer" thus refers either to pure elemental metals or to alloys.

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C. The District Court Proceedings

Sextant sued Analog for infringement, inter alia, of claim 2 of Marcillat and claim 1 of Boura. Analog's accused devices are fabricated using semiconductor processing techniques and use a deposited doped polysilicon layer for those structures corresponding to the test body and blades of the claims. Analog moved for summary judgment of noninfringement and for construction of certain disputed limitations of the claims. See Sextant Avionique, S.A. v. Analog Devices, Inc., No. C-95-2838 SI (N.D. Cal. Feb. 6, 1997) (order granting summary judgment). The court construed six limitations, four of them in favor of Analog's interpretation, n2 and thereafter granted summary judgment of no literal infringement to Analog. Particularly relevant here, the court construed the term "metallization" to mean a deposited metallic material, and in so doing noted the relevance of the prosecution history in which Marcillat distinguished his claims over Rudolf's use of doping to achieve suitable conductivity. See id. at 14-15. Because Analog did not use a deposited metallic layer, but instead used a doped polycrystalline silicon layer, the court held that Analog's device did not literally infringe any claim of the Marcillat patent.

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n2 The court construed the claim limitations "pendular structure," "in a same plane," "metallization," "one and the same crystalline wafer," "flat fixed part," and "two parallel blades." The court construed all but the first two of these limitations in Analog's favor.

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Analog later successfully moved for judgment as a matter of law, arguing that prosecution history estoppel barred Sextant from asserting that Analog's devices infringed either patent under the doctrine of equivalents. Concerning the Marcillat patent, the court concluded that

Marcillat added the "metallization" limitations to his patent to distinguish Rudolf and by so doing, he surrendered an accelerometer in which the test body and attachment means are conductive without the addition of an additional deposited metal layer. The Court furthermore finds that Analog's accused devices are conductive without the addition of a deposited metal layer and therefore fall within the scope of the "metallization" estoppel. Accordingly, Sextant is estopped from claiming infringement under the doctrine of equivalents as to the "metallization" element of the Marcillat patent claims.


The court next addressed the impact of prosecution history estoppel on the Boura patent and concluded that the estoppels present in the Marcillat file history were applicable to limit the scope of equivalence of the same claim terms in the Boura patent. The court explained that

Analog argues that Boura's amendments to his claim language in response to the section 112 [rejection] should create an estoppel. The Court agrees with Analog that under the unusual facts of this case, prosecution history estoppel applies. See Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1220 (Fed. Cir. 1995) ("[change made in order to more particularly point out the applicant's invention are] not presumed to raise an estoppel, but is reviewed on its facts, with the guidance of precedent.")

On having his claims rejected as indefinite by the Examiner, Boura incorporated the claim terms of the Marcillat patent which had recently been allowed and then argued that these claim terms addressed the Examiner's concerns. Of particular importance is the timing of Boura's amendments. The claims of the Marcillat patent had been allowed on October 22, 1986 after Marcillat had narrowed and redrafted his claims to the satisfaction of the Examiner. Boura incorporated the terms from the Marcillat patent (i.e. metallization, made from one and the same crystalline wafer, and flat fixed part) into his own patent application on May 15, 1987. It appears that Boura's intent in adding these terms was to secure quick allowance of the Boura application and to avoid the objections raised during Marcillat's prosecution of his patent. Under these circumstances, the Court finds that Boura should be estopped from asserting infringement under the doctrine of equivalents against Analog as to these claim elements[,] Because Sextant is estopped from asserting infringement under the doctrine of equivalents as to the individual metallization, made from one and the same wafer, and flat fixed part limitations of the Boura claims, the court GRANTS judgment in favor of Analog on Sextant's doctrine of equivalents claim as regards the Boura patent.

Id. at 14-15 (brackets in quote from Pall in original).

Sextant appealed the noninfringement rulings to this court. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1) (1994).

II. DISCUSSION

A. Standard of Review

Judgment as a matter of law (JMOL) is appropriate when "a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue." Fed. R. Civ. P. 50(a)(1). We review a district court's decision on a motion for JMOL de novo, reapplying the JMOL standard. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 975, 34 U.S.P.Q.2d (BNA) 1321, 1326 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 38 U.S.P.Q.2d (BNA) 1461, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). Summary judgment is appropriate when there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). We similarly review a district court's grant of summary judgment de novo, reapplying the summary judgment standard. See Conroy v. Reebok Int'l, Ltd., 14 F.3d 1570, 1575, 29 U.S.P.Q.2d (BNA) 1373, 1377 (Fed. Cir. 1994).
B. Claim Construction and Literal Infringement

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing. Markman, 52 F.3d at 976, 34 U.S.P.Q.2D (BNA) at 1326. The first step, claim construction, is a question of law, which we review de novo. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (en banc). The second step is factual. See North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1574, 28 U.S.P.Q.2D (BNA) 1333, 1335 (Fed. Cir. 1993). When construing a claim, a court principally consults the evidence intrinsic to the patent, viz., the claims themselves, the written description portion of the specification, and the prosecution history. See VTRONICS Corp. v. Conceptor, Inc., 90 F.3d 1576, 1582-83, 39 U.S.P.Q.2D (BNA) 1573, 1576-77 (Fed. Cir. 1996).

Sextant argues that the court erred in its construction of the four claim limitations that were construed against it, viz., metallization, one and the same crystalline wafer, flat fixed part, and two parallel blades. Because we conclude that the district court did not err in its construction of the term metallization, and therefore that summary judgment of no literal infringement was properly granted to Analog, we need not address Sextant's arguments with respect to the latter three limitations.

Sextant's claim construction arguments hinge on an ironic contention: that the evidence intrinsic to its own patent is ambiguous and insufficient to construe the claims, thus requiring resort to extrinsic evidence such as expert testimony. We disagree that the intrinsic evidence is insufficient to construe the term metallization. We start first with the claim language. See VTRONICS, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576. The term metallization certainly connotes the use of a metallic material. While Sextant was free to act as its own lexicographer and to define this term in a manner different from its plain meaning, see id. (Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner different from their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.), it has not done so here. The Marcillat specification discloses only the deposition of metallic materials, see Marcillat patent, col. 8, ll. 1-8 (he metal deposited on the pendular structure may be gold or a gold alloy such as a chromium-gold alloy for example. However, these circuits are preferably made from silver or aluminum) (emphasis added), and does not otherwise suggest that the term metallization can include conductive materials generally or materials made conductive by doping. In fact, the specifications of both Marcillat and Boura use the concepts of metallization and conductors in related, but somewhat different, contexts, suggesting that they do not have identical meanings. See, e.g., Marcillat patent, col. 7, ll. 3-5 (this conductin strip being connected to a metallized one of the thin faces of the flexible blade); Boura patent, col. 3, ll. 20-22 (The edges of the mobile teeth are covered by metallizations which extend the conducting layer at right angles.).

The prosecution history of the Marcillat patent, in which the applicant distinguished his metallized structure over the doped silicon structure of Rudolf, strengthens our conclusion that the term metallization denotes only metallic materials, not doped silicon materials. The extrinsic evidence proffered by Sextant cannot alter the construction indicated by the intrinsic evidence, thereby injecting an ambiguity where none exists. See Bell & Howell Document Management Prods. Co. v. Altek Sys., 132 F.3d 701, 706, 45 U.S.P.Q.2D (BNA) 1033, 1038 (Fed. Cir. 1997) (holding that extrinsic evidence may not be relied upon during claim construction when the intrinsic evidence is sufficient to construe the claim). Accordingly, the district court did not err in its construction of the term metallization, and it therefore did not err in granting summary judgment that Analog's device, which uses doped polysilicon, did not literally infringe any of the claims of the Marcillat or Boura patents.

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(1) "Plurality of Integral Metering Cycles"

Square D argues that the term "plurality of integral metering cycles" should be construed consistent with its ordinary meaning to mean "two or more metering cycles where a 'metering cycle' is a 'series of recurring events that occur on a meter.'" El contends that the term should be defined as "two or more consecutive cyclic firmware 1 loops, executing during each loop, calculations, metering logic, and secondary functions, all using coincident data."

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As EI correctly notes, the specification does seem to define what is meant by a "metering cycle." The patent states:

"The metering logic is executed by the processor 130 in each metering cycle of the metering unit 104. Without the metering logic, each metering cycle generally includes the step sequence of obtaining data, performing metering calculations, and performing secondary functions. These three steps are repeated for each metering cycle. In the preferred embodiment, application-specific metering logic is programmed in the metering unit 104 to be performed as part of the metering cycle. Thus, the metering cycle includes the step sequence of obtaining data, performing metering calculations, performing metering logic, and performing secondary functions." U.S Patent No. 5,831,428, col. 6, lines 53-64.

Although EI's proposed construction is certainly appropriate with respect to the preferred embodiment, it need not be true for all embodiments, and it would be inappropriate for the Court to read the additional limitations urged by EI into claim 1. Having said that though, the Court is persuaded that Square D's construction is too broad: a metering cycle is more than just a series of recurring events; it's a series of readily defined categories of recurring events that happen in a particular order - namely, first data is obtained; then metering updates/calculations are performed; then use programmed metering logic is completed; then secondary functions are performed. Thus, the Court construes "plurality of integral metering cycles" to mean "two or more metering cycles" where a "metering cycle" is "a series of recurring events that occur on a meter, including, in this order, the collection of data, the performance of updates/calculations, the execution of user programmed metering logic, and the performance of secondary functions."
60 ("the foregoing process in FIG. 5 is programmed into the main functionality firmware located in the flash EEPROM 124, 126 of the metering unit 104, and is executed by the processor 130 during each metering cycle."). Reading the patent as a whole makes clear that execution during each metering cycle is an important feature of the invention. Accordingly, the Court is persuaded that this aspect is appropriately incorporated into the construction of this language.

In its presentation at the Markman hearing, Square D did not really say much about the "executed every metering cycle" aspect of EI's proposed construction; instead, Square D focused on EI's use of the word "code" (as opposed to "program or procedure"). The Court agrees with Square D that "metering logic programmed by a user" need not require "code" but is more appropriately construed to mean a program or procedure. The Court accepts Square D's proposed alternative construction, and construes "metering logic programmed by a user" to mean "program or procedure written by a user to perform functions other than those included by the meter manufacturer."

2709

Disputed Claim Language

"A method for adjusting a noise threshold of said laser light receiver to a level at which said laser light receiver produces a noise light pulse output having a constant pulse firing rate."

Analysis

Defendants argue that I should read the structural limitation of diode 316 into this claim as I did in Claim 18. Defendants' Reply Memo, 27. Again, I agree. Defendants argue: "just as the adjustment circuit in Claim 18 is a means-plus-function element, the adjusting step in Claim 25 is a step-plus-function element, and a reader must turn to the specification to learn how one does [the method]."

Section 112 P 6 applies when a claim element recites a step plus a function, without reciting actions to enact the function. O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582-83 (Fed. Cir. 1997). Here, "adjusting a noise threshold of said laser light receiver to a level at which said laser light receiver produces a noise light pulse output having a constant pulse firing rate" is a method, or step, for doing something. This claim language does not recite a "function." The purpose for which the adjusting ultimately is done--the why and what for--is noticeably absent from the disputed language. Therefore, this is a step without a function, and § 112 P 6 does not apply.

Nonetheless, there are three other circumstances in which I may refer to intrinsic evidence outside the claim language to construe a claim. First, "the claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history." CCS Fitness, Inc., 288 F.3d at 1366. Second, "a claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention." Id. at 1366-67. Third, "a claim term also will not have its ordinary meaning if the term chosen by the patentee so deprive[s] the claim of clarity as to require resort to the other intrinsic evidence for a definite meaning." Id. at 1367.

All three apply here. First, Jeremy Dunne, the '779 patent inventor, clearly defined the "method for adjusting a noise threshold of said laser light receiver to a level at which said laser light receiver produces a noise light pulse output having a constant pulse firing rate" in the prosecution history. He described, detail-by-detail, the automatic noise threshold section, which is the embodiment of the method described in Claim 25, for two-and-half pages. Amendment, 16-18. He began by stating, "an important feature of the present invention is the detailed construction and arrangement of … [the] automatic noise threshold section. The essence of [the] automatic noise threshold section … is a feedback loop that comprises the detected (see detector 314, 316, 322, 324) average noise firing rate …." Id. at 16. Second, by describing his automatic noise thresholding mechanism which includes diode 316, Dunne distinguished patent '779 from patent no. 4,259,592 by highlighting the "essence" of a particular embodiment, i.e., the feedback loop including diode 316. Id. Third, the phrase "a method for adjusting the noise threshold" is so deprived of clarity that it is not sufficiently understandable without reference to other intrinsic evidence. Claim 18 gives meaning to the method. Based on my construction of that claim, I look to the feedback loop that includes diode 316.
All three circumstances require me to look to the feedback loop composed in part of diode 316 that is at the "essence" of the automatic noise thresholding mechanism for understanding. Therefore, I construe Claim 25 to incorporate the feedback loop and diode 316.

CONSTRUCTION: A method including a feedback loop composed in part of diode 316 for adjusting a noise threshold of a laser light receiver to obtain a constant pulse firing rate from the laser light receiver to a level at which said laser light receiver produces a noise light pulse output having a constant pulse firing rate.

I. "A Method of Preventing the Spread of Computer Viruses to a Computer Having a Storage Medium"

Claim 18, the patent's second independent claim, claims "[a] method of preventing the spread of computer viruses to a computer having a storage medium, comprising" three steps. '776 Patent, col. 18, Ins. 44-46. The parties dispute both whether this phrase, appearing in the preamble of Claim 18, requires construction at all and, if so, the meaning of the terms.

1. Whether the Phrase Needs to Be Construed

As noted above in connection with the language of the preamble to Claim 1, see supra part IV.A.1, the language of a preamble generally does not have a limiting effect upon the claims. Preamble language is, as a general matter, limiting only in three situations: (1) "[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention," Eaton Corp., 323 F.3d at 1339; (2) if the preamble "recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." NTP Inc., 392 F.3d at 1358 (quoting Catalina Mktg., 289 F.3d at 808); and (3) if there is "clear reliance on the preamble during prosecution to distinguish the prior art." Intirtool Ltd., 369 F.3d at 1295 (quoting Catalina Mktg., 289 F.3d at 808).

Unlike with the preamble language of Claim 1, there is no indication that the preamble language of Claim 18 was relied upon by the patentee to distinguish the prior art. Nevertheless, defendant contends that the term "said computer" used in the body of Claim 18 (and necessarily in dependent Claims 19 and 20) finds its antecedent basis in the preamble's use of "computer." The Court agrees. The term "said computer" is meaningless without reference to the computer that has already been "said." "Given the fact that the body of the asserted claim refers to 'said [computer]' . . . , it is clear that the phrase ['computer'] can take no other meaning than that explicitly stated in the preamble[.]" Derman v. PC Guardian, No. 95-1263, 1995 U.S. App. LEXIS 36873, 1995 WL 746237, at *2 (Fed. Cir. Dec. 15, 1995); see also, Goldenberg v. Cytogen, Inc., 373 F.3d 1158, 1164 n.2 (Fed. Cir. 2004); Eaton Corp., 323 F.3d at 1339 ("When the body of the claim refers to 'said vehicle master clutch (8),' and 'said drive train,' it is referring back to the particular clutch and the particular drive train previously described in the preamble."). Accordingly, it is necessary to construe this preamble language. 11

11 Because the language of the patent itself resolves this issue, the Court need not consider the effect of defendant's supplemental brief and the testimony of Mr. Schallop discussed therein.

2. Construction of the Phrase

The parties agree that the meaning of "computer virus" as used in Claim 18 is "malicious computer code, including but not limited to self-replicating code." JCCS, Appx. A, at 16 (term 59). The parties do dispute, however, the meaning of the terms "computer" and "storage medium," and thus the meaning of the phrase as a whole. Specifically, the parties treat "computer" as the equivalent of "computer system," and propose a construction of "computer" that is identical to each of their proposed constructions of "computer system." Compare id. (term 58), with id. at 4 (term 17). Likewise, both parties adopt a definition of "storage medium" as used in Claim 18 that is identical to the definition of that term as used in Claim 1. Compare id. at 16 (term 60), with id. at 1 (term 4).
It is generally understood that "if a claim term appears in more than one claim it should be construed the same in each." Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1371 (Fed. Cir. 2003); see also, CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1159 (Fed. Cir. 1997). Accordingly, the Court adopts the constructions of "computer" and "storage medium" previously adopted in connection with the use of those terms in Claim 1. Thus, "computer" means "a personal computer or workstation, and "storage medium" means "any storage medium of the computer system, if the data, when stored on the medium, are accessible to the operating system or other programs, such that viruses in the data can spread and infect the computer system." This leads to the further conclusion that the phrase as a whole means "a method of preventing the spread of malicious computer code, including but not limited to self-replication code, to a personal computer or workstation having a 'storage medium', i.e., having any storage medium such that the data, when stored on the medium, are accessible to the operating system or other programs such that viruses in the data can spread and infect the computer system."

2711

A. "Microcircuit Device"

The first disputed term is "microcircuit device." The Preamble and method of Claim 1, for example, uses the term as follows:

A method of imaging a large microcircuit device in a resolution range of 0.1-0.50 micrometers, said method comprising:

a. using an axially centered photolithographic reduction lens having a circular image field with a diameter that is less than a diagonal of said microcircuit device;

b. arranging a stage for a mask for said microcircuit device to be movable relative to said lens;

c. arranging a stage for a wafer on which said microcircuit device is imaged to be moveable relative to said lens …

e. using said movement of said stages to correlate different regions of said mask moved into a field of view of said lens with correspondingly different regions of said wafer moved into said image field of said lens in a pattern that successively images the entire area of said microcircuit device.
'996 Patent, col. 6, In. 60 - col. 7, In. 12 (emphasis added).

Ultratech proposes the following definition:

A 'microcircuit device' consists of one or more die made by superimposing one or more photolithographic patterns onto a wafer, where each photolithographic pattern corresponds to a single mask or reticle.

Jt. Cl. Constr. Br. at 4. ASML, on the other hand, contends that a microcircuit device

is an integrated circuit. An integrated circuit is a circuit formed from a single die whose components are formed on a single semiconductor substrate. Thus, a large microcircuit device is an integrated circuit comprising a single die having a diagonal longer than a diameter of the image field of the reduction lens.

Id. at 6.

The proffered definitions appear to hinge on a single distinction. Ultratech contends that "microcircuit device" refers to a "series of patterns" which are contained on a single mask, regardless of whether the mask contains a pattern for one circuit which will be imaged onto a single die, or multiple copies of circuit patterns which may be imaged onto multiple die. ASML argues that "microcircuit device" refers to the resulting image which is placed onto the wafer, and that referring to a single microcircuit device necessarily refers to a circuit pattern which will only exist on a single die.

1. Ultratech's Argument

Ultratech argues that the meaning of this term is apparent from the claim language, making the consideration of extrinsic evidence unnecessary. It contends that the '996 patent relates to a specific method of increasing the field size of a photolithographic system without increasing the image field size of the lens. Furthermore, Ultratech argues that anyone skilled in the art would know that the enlarged field size could serve two purposes: (1) to permit the mask to contain a larger field with multiple copies of an image, such that imaging the mask will create multiple die, and (2) to permit the system to project an image onto the wafer of a larger single die contained in the pattern of a single mask or reticle. Ultratech argues that at the time of filing the patent, it was common practice to place patterns for multiple individual die onto a single mask.

Ultratech notes that the term "microcircuit device" is first used in the preamble language to the patent claims, in reference to the "suggested use" of imaging as described by the method. Citing Bell, it argues that use of the term in the preamble does not constitute a claim limitation, and thus the Court should apply a generic definition. See Bell, 55 F.3d at 620 (preamble language denied the effect of a claim limitation when it "merely stated a purpose or intended use").

Ultratech also argues that when "microcircuit device" appears in Claim 1, the claim refers to various regions of the mask, and that the "microcircuit device" pattern imaged onto the wafer corresponds with the pattern contained on the mask. Similarly, Claims 8 and 13 also use the term when referring to the imaging of an entire mask onto the wafer. Accordingly, Ultratech argues that a single "microcircuit device" must consist of all of the patterns which appear on a single mask, not just an image which relates to a single die.

In addition to the claim language, Ultratech points to the patent specification to support this interpretation. First, Ultratech argues that the title of the '996 patent, "Photolithographic Reduction Imaging of Extended Field," makes clear that the purpose of the patent, and the benefits derived therefrom, relate to exposing a larger image field onto a wafer. This advantage does not depend on whether the field contains one or multiple die. Further, the advantage is not dependent on the contents of the mask, so any image or images which are projected by a single mask in an extended field (i.e. a field larger than that available prior to the '996 patent) are uses of the patent. Thus, according to Ultratech, any corresponding images which are produced on a wafer from a single mask constitute a microcircuit device. Since the term refers to any patterns projected by a single mask, Ultratech argues that microcircuit device cannot be limited to a single die.

As further support for the argument that the "microcircuit device" refers to any series of patterns on a single mask, Ultratech notes that when discussing the imaging of an entire microcircuit device, the patent refers to imaging "a mask or reticle for the circuit." '996 Patent, col. 1, Ins. 63-65. Similarly, when the patent describes methods for joining portions of masks to
image an entire microcircuit device, it refers to a single "mask or reticle for the entire microcircuit device." Id., col. 3, Ins. 25-29.

Finally, Ultratech argues that the patent never refers to the microcircuit device as an "integrated circuit," or that the term is limited to a single "die." Since "integrated circuit" and "die" were well known to those skilled in the art, the absence of these terms in describing a microcircuit device should weigh against ASML's interpretation.

Ultratech also provided extrinsic evidence in the form of expert testimony which suggests that the term "microcircuit device" is broader than the phrase "integrated circuit." The expert's declaration also supports Ultratech's theory that one skilled in the art would recognize that the patent would enable projection of either larger circuit patterns, or a larger number of individual images corresponding to the individual die. Because the patent claims must be construed according to the understanding of one skilled in the art, and one skilled in the art would recognize this benefit, Ultratech argues that the term must be construed to include both these uses.

2. ASML's Argument

ASML argues that the plain meaning of "microcircuit device" supports its proposed interpretation, that a single microcircuit device refers to an image which will be contained on a single die. ASML's analysis deconstructs the term: "micro" meaning small, and "circuit" being a closed path for an electric current. Thus, a microcircuit is a circuit defined by small electrically connected elements through which current travels to form a functioning device. Further, ASML cites technical dictionaries to argue that "microcircuit" is synonymous with "integrated circuit," and that a "device" is an "electronic element that cannot be divided without destroying its stated function." Accordingly, a microcircuit device must be an integrated circuit which cannot be divided. This means that a single microcircuit device, being indivisible, may only exist on a single die.

ASML further argues that Ultratech misconstrues the meaning of the Bell holding. While Ultratech interprets Bell to mean that the preamble may never become a limitation, ASML argues that if a claim preamble discloses a structural limitation, then it can indeed be construed as a limitation.

Additionally, ASML contends that Ultratech's preamble analysis is based on the incorrect assertion that the patent claims an apparatus that has various possible uses. To the contrary, ASML argues that Claim 1 is a method claim, and that the product being imaged is an intrinsic element of the specific method claimed. Thus, when the preamble refers to "a large microcircuit device," '996 Patent, col. 1, Ins. 38-40, it refers to the product being produced by the method, which is an intrinsic element of the specific method claimed. Further, the claim language necessarily includes the use of the term in the preamble, by referring to "said microcircuit device." '996 Patent, col. 6, Ins. 65-66. In short, ASML argues that the term is a positively defined structural limitation that is necessary to give the claim meaning. Accordingly, under Bell, this term should be construed as a claim limitation within the preamble.

ASML also points to the specification to support its proposed construction, arguing that the specification repeatedly refers to imaging a single unitary microcircuit device. ASML argues that the patent describes the problem of imaging larger microcircuit devices, not that there was a problem producing a large number of die or patterns to cover the wafer. In other words, the stated purpose of the patent is to allow the imaging of "larger devices having bigger overall dimensions." '996 Patent, col. 1, Ins. 13-14.

ASML notes that the description provided in the patent describes the creation of a single large circuit. The patent refers to joining images on the wafer both "to form a complete microcircuit device," id., col. 2, Ins. 22-28, and "to form one complete and intact image of the circuitry" of the microcircuit device. Id., col. 5, Ins. 57-58. ASML argues that this language leads one to conclude that the patent describes a method for imaging a single large integrated circuit, not multiple copies of disconnected circuits on a field.

ASML also provides its own extrinsic evidence, arguing that the patent's lead inventor, John Bruning, has testified that "microcircuit device" is synonymous with "integrated circuit." Further, many technical dictionaries refer to a microcircuit as an integrated circuit or other very small electrical circuit.

ASML also produced its own expert who countered Ultratech's definition. ASML argues that the definition provided by Ultratech is unsupported by persons skilled in the art, and that Ultratech's expert incorrectly applies the term
"microelectronic device" to support his interpretation of the term "microcircuit device."

ASML concludes that Ultratech's definition of the term is incorrect for three reasons: (1) such a construction would deprive the patent of utility; (2) the construction is illogical in that it attempts to impart a plural meaning to a singular term; and (3) the definition attempts to read into the claim an element which is not present.

3. Discussion

This Court must first address Ultratech's allusions to acting as its own lexicographer. In order to assign a unique definition to the term "microcircuit device," the definition must be clearly stated in the patent's specification or prosecution history. See Vitronics Corp., 90 F.3d at 1582. No such definition has been presented, thus the term must be given its ordinary meaning to one experienced in the art. Id. However, the Court notes that in drafting the '996 patent, the inventor clearly recognized a distinction between the singular "microcircuit device" and plural "microcircuit devices." Compare '996 Patent, col. 5, lns. 40-41, with '966 Patent, col. 5, lns. 43-44. The Court considers this intentional distinction relevant to the patentee's intent.

To determine the ordinary meaning of the term "microcircuit device" to one experienced in the art, the court must first consider the claims of the patent. See Vitronics Corp., 90 F.3d at 1582. The initial use of the term "microcircuit device" is found in the preamble to Claim 1: "A method of imaging a large microcircuit device in a resolution range of 0.1-0.50 micrometers, said method comprising …." '996 Patent, col. 6, lns. 60-62.

Contrary to Ultratech's assertions, the patentee may use the preamble of the claim to help define the subject matter of the invention. Bell, 55 F.3d at 620. Bell does not preclude a preamble term from being a claim limitation, see 55 F.3d at 621-22, and Ultratech has offered no support for the proposition that simply placing the term in the preamble precludes that term from being a claim limitation. Moreover, it appears that the use of the term in Claim 1 provides a necessary description of what the patented method will produce. Thus, Ultratech has not established that "microcircuit device," as used in the preamble, cannot create a claim limitation.

The use of "microcircuit device" within the patent's claims does not clearly favor either party's proffered definition. As used in Claim 1, "microcircuit device" could be defined as either "a series of patterns contained on a single mask," as suggested by Ultratech, or "the circuit pattern for a single electrical circuit" as suggested by ASML. The other Claims use of the term "microcircuit device" is similarly ambiguous.

While the use of "microcircuit device" within the claims is ambiguous, the specification lends support for ASML's proposed construction. First, in referring to the prior art, the specification uses the term "microcircuit device" when discussing the imaging of a single circuit. '996 Patent, col. 1, lns. 61-64. That imaging process "is then repeated for successive regions of a wafer, until many copies of the circuit have been imaged on a single wafer." '996 Patent, col. 1, lns. 61-64. If a "microcircuit device" refers to a single mask or reticle capable of transcribing circuits on multiple die, as Ultratech contends that it may, a single imaging of the entire microcircuit device would create a number of copies of the circuit. However, the patent's discussion of prior art, where copies of a single microcircuit device are created by repeated exposure of successive regions of the wafer, reveals that a microcircuit device refers to a single die. See Id.
Similarly, Ultratech's proposed definition is called into question in the "Detailed Description" section of the patent. There, the patent states that "[a] single pattern for a microcircuit device can be divided between two or more separate reticles that are imaged in juxtaposed registry on a wafer." Id., col. 4, Ins. 14-17. This language is in direct conflict with Ultratech's proposed definition, which states that "each photolithographic pattern corresponds to a single mask or reticle." Here, the patent refers to a pattern for a single microcircuit device created by the use of two or more separate reticles. Accordingly, Ultratech's proposed definition cannot be applied consistently throughout the patent.

Further, the patent's descriptions of Figures 6 and 7 inferentially support ASML's assertion that the patent intended "microcircuit device" to refer to the imaging of a pattern for a single die. When describing Figure 6, discussing the imaging of portions of a microcircuit device, the patent notes that

the joining of image portions 26a and 26b along the broken line connects all the elements of microcircuit device 26 that extend across the broken line, to form one complete and intact image of the circuitry of the device 26. Copies of the complete images 26 can then be repeated in different regions of wafer 16 as illustrated in Fig. 6.

996 Patent, col. 5, Ins. 54-63. As noted by ASML, the ordinary meaning of this language supports the inference that a microcircuit device is the circuit pattern for a single die, which is imaged onto the wafer. Multiple die are created through repeated imaging of the single microcircuit device. While Ultratech's definition is not directly refuted by this language, applying that definition requires a much more strained reading of the patent.

In addition, when describing the "scanning" form of the invention depicted in Figure 7, the patent notes that the process "can be repeated as illustrated to form a number of complete images of microcircuit devices 26 on a single wafer 16." Id., col. 6, Ins. 13-15. Again, while not conclusive, this use of the term "microcircuit device" appears to refer to a single circuit on a single die. Imaging of multiple die is performed through repeated imaging.

Based on the use of the term "microcircuit device" within the patent claims and specification, the Court is satisfied that the appropriate definition is one which considers a "microcircuit device" as a circuit pattern on a single die. However, it is not clear that the remainder of ASML's proposed definition is entirely accurate. For example, ASML proposes that "microcircuit device" is an "integrated circuit," yet its papers note that the patent refers to the imaging of a single layer of a circuit pattern, and that "an integrated circuit is made by adding subsequent layers of materials ...." ASML's Cl. Constr. Resp. Br. at 5 n.2. Since there is no question that the imaging of a microcircuit device, as used in the patent, does not create a functioning integrated circuit, this Court must develop a more precise definition.

To create a definition, the Court considers the meaning of the words "microcircuit" and "device" to a person skilled in the art. The parties agree that the patent relates to the production of integrated circuits. See Ultratech's Cl. Constr. Opening Br. at 4 ("Photolithography is used in the manufacture of semiconductor integrated circuits."); ASML's Cl. Constr. Resp. Br. at 5 ("A microcircuit is also known as an integrated circuit.").

To assist in construing the term "microcircuit device" the Court may consider dictionary definitions and technical treatises. See Markman I, 52 F.3d at 986; Bell Atl. Network Services, Inc. v. Covad Comm. Group, Inc., 262 F.3d 1258, 1267 (Fed. Cir. 2001) ("Dictionaries and Technical treatises hold a 'special place' and may be considered along with intrinsic evidence."); Vitronics, 90 F.3d at 1584 n.6. (the court may use technical treatises and dictionaries at any time to form a better understanding of the claim terms).


These dictionary definitions support ASML's argument that a "microcircuit" is synonymous with "integrated circuit." While Ultratech has provided an expert witness who opines that the meaning of the term is much broader than a simple integrated circuit, see Declaration of Richard B. Fair, P 21, this extrinsic evidence should not be considered when the intrinsic evidence is clear. Further, Mr. Fair reaches his conclusion, not by analyzing the term "microcircuit device," but by considering the definition of the term "microelectronic device," which he then construes as meaning a device which comprises inseparable parts and other circuits or structures. This analysis, based on the definition of a related term, is not as
compelling as the dictionary definition of the exact word, as provided by ASML.

Both parties agree that the imaging of a single mask onto a wafer does not form a complete integrated circuit. See Ultratech's C1 Constr. Opening Br. at 4; ASML’s C1 Constr. Resp. Br., at 5 n.2. Moreover, ASML has provided a dictionary definition of the term "device" as "an electronic element which cannot be divided without destroying the stated function." McGraw-Hill Dictionary of Science and Engineering at 261.

While Ultratech argues that the term "device" is defined as "a mechanism designed for a specific use," the definition provided by ASML is more appropriate in light of the source of the proffered definitions and the context of the patent language. First, the technical dictionary which supplies both of the proposed definitions specifically notes that ASML's definition is generally applicable to the field of electronics while Ultratech's definition is applicable to the field of engineering. Ultratech argues that since the patent deals with photolithographic reduction, an engineering task, the engineering-related definition should apply. However, in the patent, the term "device" refers to a "microcircuit device," a circuit pattern for electric current. While the imaging process may be an engineering task, electrical circuitry is within the field of electronics. Thus, ASML's proposed definition, relating to the field of electronics, would appear to be controlling.

Also, from both party's descriptions of the photolithographic process, it is clear that the patent refers to placing a single image onto a wafer. This image is one layer of an integrated circuit; an electronic element which cannot be further divided. Thus, "device" modifies the term microcircuit, so that "microcircuit device" refers to a single imaged layer of a microcircuit.

However, as noted above, this is where ASML's definition goes astray. ASML states that a microcircuit device is an integrated circuit, which it is not. "Microcircuit" is synonymous with "integrated circuit." Both terms are defined as an "electronic circuit in which all the active and passive elements and the connections are made in or on a single semiconductor substrate." See Electronics Dictionary, 4th Ed., McGraw-Hill Book Company, 1960. Since "device" modifies "microcircuit" to refer to a single imaged layer which cannot be further divided, a "microcircuit device" is a single imaged layer on a single die. This definition is supported by relevant dictionary definitions, as well as the language used in the patent claims and specification.

Lastly, the patent refers to imaging "a large microcircuit device" using a "reduction lens having a circular image field with a diameter that is less than the diagonal of said [large] microcircuit device." 996 Patent, col. 6, lns. 63-66. Stated Conversely, a "large microcircuit device" has a diameter which is longer than the diameter of the image field of the reduction lens.

For the foregoing reasons, the Court construes the term "microcircuit device" as follows: "A microcircuit device is a single imaged layer on a single die. A large microcircuit device is a single imaged layer on a single die which has a diagonal longer than the diameter of the image field of the reduction lens."

Turning to the claim language, the preamble of claim 1 refers to "[a] method of imaging a large microcircuit device." Preliminarily, since the mask pattern and the image on the wafer are identical, it is potentially unclear which copy of the pattern is considered the "microcircuit device." We see two possibilities. First, "microcircuit device" could refer to the underlying pattern, whether on the mask or on the wafer. Alternatively, "microcircuit device" could refer just to the image located on the wafer. In this second understanding, the design on the mask would be a pattern for the "microcircuit device," but not the "microcircuit device" itself.

For several reasons, we conclude that the second characterization is correct. We reach this result from the first limitation of claim 1, which requires that the diagonal of the "microcircuit device" exceed the diameter of the image field of the lens. The image field of the lens is positioned relative to the wafer. In both the traditional "step and repeat" and the '996 patented processes, the diagonal of the mask pattern for the microcircuit device would always exceed the diameter of the image field of the lens, depriving limitation (a) of any meaning. See ’996 patent, col. 3, ll. 55-63 (illustrating that when mask size ranges in the inches, both the diameter of the lens image field and the diagonal of the resulting image on the wafer will remain only millimeters in length).

The purpose of the '996 patent further persuades us that the second characterization is correct. Although a mask pattern is
required to carry out the patented method, the goal and end result of the claims is the exposure, or imaging, of a pattern on the wafer. It is this copy of the pattern, not the copy on the mask, which will be used to eventually create functioning circuitry. Thus, it is appropriate to draw a distinction between the mask pattern and the pattern projected onto the wafer. The specification supports this distinction, contrasting the "square image" exposed onto the wafer, with the "image pattern" contained on the reticle or mask. Id. col. 3, ll. 2-4. We conclude that the image on the wafer is the "microcircuit device," whereas the mask contains the pattern for the "microcircuit device."

Continuing with the claim language, the "mask for said microcircuit device," id. col. 6, l. 67, is to be movable in stages "into a field of view of said lens with correspondingly different regions of said wafer moved into said image field of said lens in a pattern that successively images the entire area of said microcircuit device." Id. col. 7, ll. 6-11. If performed exactly as claimed, the '996 patent's method creates a pattern on the wafer that exactly mirrors the pattern on the mask. 4 Thus, each reference in the claim to "microcircuit device" is to the pattern that will be found in the photo-resist on the wafer after the patented method has been performed. The claims do not provide a reason for us to inquire further into the particular contents of the mask pattern, and thereby limit the meaning of "microcircuit device" accordingly. In our view, a "microcircuit device" is simply the entirety of the exposed pattern on the wafer that results from the practice of the claimed invention. This will necessarily replicate what is on the mask. An alternative phrasing of our construction for "microcircuit device," would therefore be, as suggested by Ultratech, "the mask patterns B whatever they contain B that are projected or exposed onto the wafer."

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4 Although we employ the singular form of "mask" throughout this opinion, we do not intend to exclude the possibility that more than one movable mask might be used to image a large pattern onto the wafer. See id. col. 6, ll. 18-27 (presenting example in which "double reticles or masks" are used to image a single "microcircuit device"). In other words, by "mask," we refer to the entirety of the pattern to be imaged on the wafer through one iteration of the claimed process.

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Since the meaning of "microcircuit device" in the context of the claims of the '996 patent is clear, we do not rely on dictionary definitions offered by the parties. The meaning of "microcircuit" is relatively undisputed: "an integrated circuit or other very small electrical circuit." Oxford Reference Dictionary 520 (Oxford University Press 1989); see also McGraw-Hill Electronics Dictionary 336 (5th ed. 1994) ("integrated circuit or hybrid circuit"). As far as the word "device" is concerned, Ultratech offers, "[a] mechanism, tool or other piece of equipment designed for specific uses"; ASML describes a "device" as a "thing made or adapted for a particular purpose," but also suggests a more technical definition that was adopted by the district court: "an electric element that cannot be divided without destroying its stated function."

We reject these definitions insofar as they are inconsistent with the meaning of "microcircuit device" we have gleaned from the language of the claims. Both of the parties' definitions would impose upon "device" a requirement of functionality that is unhelpful in the context of the method claimed in the '996 patent, where the resulting image is only a precursor of a functioning circuit. As just seen, as used in claim 1, the term "microcircuit device" simply refers to the pattern on the mask to be transferred to the wafer. Other claims of the '996 patent are similarly limited to a single imaging step within the much more complicated (and unclaimed) process of circuit construction. The pattern on the mask that is imaged onto the wafer using the '996 patented process serves as a design or map for what may become a functioning "device," but that resulting image on the wafer cannot itself be said to have an immediate "specific use," "stated function," or "particular purpose." It was in this respect, we think, that the district court erred. Its claim construction was framed in terms of the ultimate product. However, that ultimate product, a die, could never be created solely by the exercise of the '996 patented process. For purposes of claim construction, we must begin and end our analysis with the process claimed; what happens to the wafer after the '996 patented process is performed is irrelevant and should not limit the scope of the claimed method.

The specification of the '996 patent supports this conclusion. It highlights, as the critical feature of the invention, the projection and joining of several "image portions" on a wafer to form a single large image or "microcircuit device." See, e.g., '996 patent, col. 1, ll. 51-58 ("reduced images of the mask on the wafer" are formed by movement of the mask and wafer in tandem to "successively image[] the entire area of the microcircuit device"); col. 3, ll. 16-33 (discussing how the claimed process solves the "larger image problem" of "enlarging the size of an image formed on a wafer" by forming 15 mm square images in "juxtaposed registry with each other to produce a single large microcircuit device 30 mm square"); col. 6,
ll. 6-17 (discussing how the scanning embodiment of the invention is used to "form[] a reduced image 26" of the mask pattern "on a single wafer 16"); col. 6, ll. 20-28 ("Relatively large and square imaging patterns are shuttled reciprocally into the viewing field of [the] lens; and [the] mask is moved in the image field of [the] lens so that extended field rectangular images are formed on successive regions of wafer. Each of the images is formed by juxtaposing and registering a pair of images carried on double masks." (diagram designations omitted)). The emphasis on the methodology of imaging the "microcircuit device" compels the conclusion that, in using the term "microcircuit device," the inventors were referring to the entire pattern exposed or imaged onto the wafer.

Notwithstanding the language of the claims and portions of the specification that suggest "microcircuit device" is synonymous with the photo-resist image, ASML contends that the purpose of the invention—namely, "to image larger devices having bigger overall dimensions and containing ever-increasing numbers of finely resolved elements," id. col. 1, ll. 13-16—requires a construction that limits "microcircuit device" to a single circuit or die. In making this argument, ASML points to portions of the specification in which the inventors use "microcircuit device" and circuit interchangeably to describe how the process might be used to image layers of large circuits. See, e.g., id. col. 1, ll. 59-66 (indicating equivalence between "microcircuit device" and "circuit being imaged"); col. 5, l. 50, 64 (referring to the "mask circuit").

It is certainly the case that the inventors had certain expectations as to how the art would evolve, and framed their specification with those predictions in mind. These statements, however, do not speak to the operation of the invention. Whether the image being transferred will later form a component of one die or multiple dies does not affect the manner of "imaging," or its result. The inventors claimed solely a method of image transfer; they did not claim any aspect of the resulting circuitry. Because the "content" of a mask pattern in no way alters the ability of one skilled in the art to perform the claimed method, we should not formulate our construction in those terms. As a matter of law, these statements of use within the '996 patent specification may not alter or undermine the very clear language of the claims. Our construction should be based on what actually was claimed a method of transferring a pattern from the mask onto the wafer.

In sum, as used in the asserted claims of the '996 patent, the term "microcircuit device" refers to the pattern exposed in the photo-resist on the wafer, as the result of the practice of the method claimed by the '996 patent. The pattern exposed on the wafer will necessarily mirror the pattern on the mask. A "large microcircuit device," then, refers to a pattern on the wafer which, when measured in the diagonal, exceeds the diameter of the image field of the reduction lens.

As we have explained, the parties' focus in the trial court on the creation of a single die or multiple dies was misplaced. It was this misplaced focus, we think, that led the district court to incorrectly conclude that a "microcircuit device" is "a single imaged layer on a single die." We mention this point because the district court's claim construction decision reflects a great deal of thought and care which we are confident would have led the court to the construction set forth above had either of the parties pointed it in that direction.

For the foregoing reasons, we reverse the district court's grant of summary judgment of non-infringement in favor of ASML. The case is remanded to the district court for determination of infringement under the correct construction of the term "microcircuit device." See, e.g., NeoMagic Corp. v. Trident Microsys., Inc., 287 F.3d 1062, 1075-76 (Fed. Cir. 2002).

1. "microcode"

EMC asks the Court to construe this term as: "One or more programs for a peripheral device that can be stored in the non-volatile memory of the peripheral device." HP initially proposed: "Program instructions embedded in the internal circuitry of a microprocessor." Thus, the parties initially disputed where the microcode is stored. However, HP changed its proposal in its opposition brief to: "Program instructions that directly control a microprocessor, stored in internal circuitry that is non-volatile memory directly connected to that microprocessor." HP thus concedes that the microcode need not be stored in the microprocessor. Plaintiffs' and Counterclaim Defendants' Opposition Claim Construction Brief on Key Terms, p. 11.

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6 EMC has filed a "Motion to Preclude HP from Asserting New Claim Construction Positions in its Opposition Brief." The
The claims do not define microcode; they merely indicate that microcode resides in non-volatile memory and may be replaced. The specification, however, provides useful insight. Peripheral devices have "special processors installed in them, called resident processors." 801:1/14-15. "These resident processors execute programs, called microcode in the remainder of this application, which are generally stored in a non-volatile memory in the peripheral device." 801:1/16-19. Thus, in its most general sense, "microcode" is a program executed by a peripheral device's resident processor. The remainder of the specification is consistent with this interpretation. See, e.g., 801:2/33-35 ("resident processor . . . is responsive to the resident microcode"), 2/50-57, 5/47-51, 6/35-37, & 7/46-48.

Although the disputed claims do not include the limitation of "control," HP proposes that microcode "controls" the peripheral device. HP is correct in implying that "microcode" does not include all possible types of computer code or programs. Indeed, the patent itself is entitled "Method and Apparatus for Replacing Resident Peripheral Device Control Microcode . . .," and the written description nearly always modifies "microcode" with the word "control." EMC does not necessarily dispute that microcode is a limited subset of all possible computer programs or code: it concedes that microcode is a program "for a peripheral device," that is, code used to assist a peripheral device in functioning. The specification uses the word "microcode" in a manner consistent with this interpretation. See, e.g., 801:1/25-29 ("In order to upgrade performance of, or provide new features for, such peripheral devices, the control microcode may be updated via a download of new control microcode."), 5/47-50 ("The resident processor 106 operates in a known manner, according to a control program stored in the control microcode in the non-volatile memory 108, to execute the disk control command."). Similarly, a dictionary definition provided by both parties defines microcode in part as the "lowest-level instructions that directly control a microprocessor." Declaration of Mark R. Weinstein in Support of EMC's Opening Claim Construction Brief, Ex. 3 (Random House Webster's Computer & Internet Dictionary). While the Court will not import the word "control" into the claim, it notes that a person of ordinary skill in the art would understand "microcode" to mean a limited set of programs that are used specifically for a peripheral device.

With respect to the parties' contentions regarding the location of the microcode, it is true that microcode generally is stored in non-volatile memory in a peripheral device. However, "microcode" need not be defined according to its location, and nothing in the claim indicates that such a limitation must be added. Moreover, the importation of such a limitation would be inconsistent with the written description. For example, microcode sometimes is transferred from a central computer system for replacement purposes. See 801:1/26-29.

Similarly, nothing in the claim language or specification requires the microcode to control a microprocessor "directly" or that the non-volatile memory be "directly" connected to a resident microprocessor. Although microcode sometimes may "control" a resident processor, see 801:4/21-23, it is unclear what is meant by "direct" connection or control. The purpose of claim construction is to clarify the claim language, not to add ambiguous terms. Moreover, the invention appears to teach away from "direct connection" of the resident microprocessor and the non-volatile memory. See 801: Figure 1. Accordingly, the Court construes this term as "one or more programs for a peripheral device that can be stored in the non-volatile memory of the peripheral device and executed by a peripheral device's resident processor."
precise process control in data handling and communication." Lantronix adapted this definition from the definition given by the McGraw-Hill Dictionary of Scientific and Technical Terms.

Digi proposed the Court construe "microcontroller" as "a type of programmable and/or configurable electronic device such as the Intel 8031 or the Hitachi HM 2-62256." See 407 patent, 2:57-59 ("A further example of such programmable and/or configurable electronic device is a microcontroller with downloadable code storage e.g. the Intel 8031 . . . and the Hitachi HM 2-62256."). Digi criticized Lantronix's proposed construction as being unrelated to the 407 patent.

During the hearing, the parties agreed "microcontroller" does not require construction. The Court agrees.

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The first disputed term is "microcontroller." SuperGuide and Gemstar argue that while the microcontroller must contain input/output interfaces, a microprocessor and an up-dateable memory, the microcontroller need not contain these elements within a single integrated circuit. Defendants 11 contend the invention claims a single integrated circuit containing each of these elements.

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11 The Defendants have filed a joint proposed claim construction and therefore are not considered separately with the exception of Third-Party Defendant Gemstar.

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The plain language of the claim does not specify that the microcontroller be contained within a single integrated circuit. The Court therefore looks to the specification because "claims must be read in view of the specification, of which they are a part." Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc., 261 F.3d 1329, 1338 (Fed. Cir. 2001) (citations omitted).

The specification contains the following:

Microcontroller 60 comprises an eight-bit microprocessor, input/output interfaces and an updateable memory which is preferably a 32K random access memory (RAM). Those skilled in the art will of course appreciate that each element of microcontroller 60 may be separately provided, and that the microprocessor could be other than eight-bit, while the updateable memory could comprise a RAM, a hard disk, a floppy disk, bubble memory, tape, etc. and could be other than 32K in dimension.

Reiter '578, at Col. 4, ll. 9-18 (emphasis added).

Additional changes to the system may be made by including one or more of the elements in a single piece of hardware, or by dividing a single element into many individual pieces. Thus, for example, the microcontroller, mixer and RF section could be combined into a single hardware chip. Conversely, the microcontroller could be divided into a microprocessor, a RAM and the various I/O interfaces. Indeed, various combinations of all the elements could be made to suit various needs.

Reiter '578, at Col. 7, ll. 61-68; Col. 8, ll. 1-2 (emphasis added). The language of the specification clearly anticipates that each element of the microcontroller, i.e., the microprocessor, RAM and I/O interfaces, could be "divided" "into many individual pieces." Moreover, while both the claim language ("including") and the specification language ("comprises") require the microcontroller to have at least these three elements, there is no requirement that the elements be contained within a single integrated circuit. "The claim word 'including' is not construed in a lexicographic vacuum, but in the context of the specification and drawings." Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999). "The claim term 'including' is synonymous with 'comprising,' thereby permitting the inclusion of unnamed components." Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp., Inc., 123 F.3d 1445, 1451 (Fed. Cir. 1997). "Comprising is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." Dow Chem. Co. v. Sumitomo Chem. Co., Ltd., 257 F.3d 1364, 1381 (Fed. Cir. 2001).
2001) (quoting Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997)). And, where "including" or "comprising" is used in conjunction with the indefinite article "a," the article "in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase '[including]." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000). "The written description supplies additional context for understanding whether the claim language limits the patent scope to a single [integrated circuit] or extends to encompass a device with multiple [circuits]." Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1024 (Fed. Cir. 1997). Here, neither the language of the claim nor that of the specification requires the elements of the microcontroller to be integrated into a single circuit. Advanced Cardiovascular Sys., Inc., supra. Therefore, the undersigned will not read such a limitation into the claim.

"Microcontroller" is thus construed as the electronics including input/output interfaces, a microprocessor, and an updateable memory comprising at least a random access memory which is capable of being updated via an electronic medium and which is capable of storing updated information including at least television programming information. The microcontroller is not limited to a single integrated circuit.

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b. "microprocessor"

The plaintiffs propose "an electronic circuit that executes programmed instructions and is capable of interfacing with input/output circuitry and/or memory circuitry." The defendants propose "an electronic circuit that uses a central processing unit to interpret and execute programmed instructions." The main disputes are whether the microprocessor must be capable of interfacing with input/output circuitry and/or memory circuitry, and whether the microprocessor needs to use a central processing unit.

The plaintiffs argue that the patent discloses a microprocessor that communicates with memory circuitry. '336 patent, 8:56-58, 11:49-54. The plaintiffs also argue that the claim language does not support the fact that a microprocessor is required to use a central processing unit because claim 3 does not recite the use of a central processing unit whereas all other independent claims require the use of a central processing unit.

The defendants argue that one of ordinary skill in the art would understand that microprocessors include a central processing unit. In addition, the defendants contend that not all microprocessors need to interface with input/output circuitry because some microprocessors communicate solely with external memory. The defendants also contend that microprocessors do not need to connect to external memory because some microprocessors rely solely on on-chip memory.

The Court is not persuaded that the additional limitations proposed by the plaintiffs or the defendants are appropriate. The input/output interface and the central processing unit limitations are included in other portions of the claims and, therefore, adding those limitations to the construction would be superfluous. See, e.g., '336 patent, 32:12-13, 25-26. The Court construes "microprocessor" to mean "an electronic circuit that interprets and executes programmed instructions."

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b. "microprocessor means"

Claim 1 discloses as an element: "microprocessor means in the housing for receiving the signal from the electrical means and for converting the signal into an altitude value." The parties dispute the proper construction of the "microprocessor means."

This element is written in a mean-plus-function format: "microprocessor means . . . for receiving . . . and for converting." As discussed above, § 112 P 6 permits an inventor to express an element in a claim as a means for performing a specified function without the recital of structure. 6 The element under consideration arguably includes disclosure of a structure, i.e., "microprocessor means." A "microprocessor" is a structure. Thus, the Court considers whether § 112 P 6 applies.
The normal convention is to use the indefinite noun "means" followed by a description of its function: "Ordinarily, the question whether a claim element triggers section 112(6) is not difficult. Claim drafters conventionally use the preface 'means for' (or 'step for') when they intend to invoke section 112(6), and there is therefore seldom any confusion about whether section 112(6) applies to a particular element." Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996).

This consideration was not raised with respect to "electrical means" because the word "electrical" is not a structure.

If a claim recites a "means for" performing a specified function, it may nevertheless falls outside the ambit of § 112 P 6 if it recites a definite structure that performs the described function. Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996). In deciding whether a claim that recites a structure should be construed under § 112 P 6, the Court should consider the degree of detail with which the structure is described. Id.

The Court concludes that the recital of a "microprocessor" in the Claim is not a recital of a definite structure. A skilled artisan would understand the phrase "microprocessor means" to be indefinite as to structure because the word "microprocessor" refers to a wide range of silicon microchips that contain electronic circuits. See e.g., WEBSTER'S NEW WORLD COMPUTER DICTIONARY 232 (10th ed. 2003.) Thus, the Court construes "microprocessor means" pursuant to § 112 P 6.

i. the recited functions

The recited functions of the "microprocessor means" are "receiving" and "converting." The specification does not contain any specialized definition of "receiving." Thus, the Court construes the word "receiving" as having its ordinary meaning.

The element recites a limitation on what is received: "the signal from the electrical means." As discussed above, the electrical means conducts an analog signal from the semiconductor strain gauge to other components in a circuit. A skilled artisan would understand that the "microprocessor means" receives the analog signal from the "electrical means."

The element discloses that a further function of the "microprocessor means" is to convert "the [analog] signal" into an "altitude value." 8 the conversion for "calibration," 9 programmed to display absolute altitude constantly, through circuitry and programming logic. (Id.) The conversion is performed by a "microprocessor means." In the written description, the inventors use "microprocessor" interchangeably with "silicon chip," "microchip," "chip," and "microprocessor chip." (See '694 Patent, Col. 4:7-9, 41-51.) A person of skill in the art would understand "microprocessor" to be a solid state integrated circuit diffused onto a silicon substrate that performs computing functions on digital data. See INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERING (IEEE) DICTIONARY OF STANDARDS TERMS 306, 570, 693 (7th ed. 2000). Thus, the Court concludes that the function of "conversion" to an altitude value necessarily requires conversion from an analog signal to a digital signal capable of being processed by a microprocessor.

8 In the written description, the inventors describe the converting process as being from an analog signal to "an appropriate altitude figure."

The resistance signal is an analog variable signal which is converted by the microprocessor chip 25 into an appropriate altitude figure. ('694 Patent, Col. 4:48-51.) The Court concludes that the inventors used "altitude value" and "altitude figure" interchangeably.9 ('694 Patent, Col. 4:52.)

Footnotes:

6 The normal convention is to use the indefinite noun "means" followed by a description of its function: "Ordinarily, the question whether a claim element triggers section 112(6) is not difficult. Claim drafters conventionally use the preface 'means for' (or 'step for') when they intend to invoke section 112(6), and there is therefore seldom any confusion about whether section 112(6) applies to a particular element." Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996).

7 This consideration was not raised with respect to "electrical means" because the word "electrical" is not a structure.

End Footnotes.
ii. corresponding structure

The Court considers whether the inventors recite a corresponding structure capable of performing the functions of the "microprocessor means." In the written description, the inventor described a "microprocessor:"

Electronics included in the device 10 preferably are embodied in specially designed silicon chip 25 . . . . The microchip 25 is a microprocessor for accomplishing the functions of the invention. The chip 25 is connected in a circuit with the strain resistance element 18 and receives a resistance signal from the strain resistance element 18 and a battery or batteries 29. The resistance signal represents the degree of strain in the element 18, representative of the differential pressure on the two sides of the transducer diaphragm 17. The resistance signal is an analog variable signal which is converted by the microprocessor chip 25 into an appropriate altitude figure.

('694 Patent, Col. 4:7-9, 41-51.)

Thus, microchip 25 appears to qualify as a corresponding structure for the "microprocessor means." The issue becomes whether such a structure is capable of performing all of the functions of the "microprocessor means." A person of skill in the art would understand that in order to perform the function of receiving an analog signal and converting it to a digital altitude value necessarily requires the presence of an analog-to-digital converter on the microchip. Although the written description does not recite the presence of an analog-to-digital converter on the microchip, such converters were commonly known in the art at the time of the invention. For example, in Claim 10, the inventors expressly recite an invention where an analog-to-digital converter is in the "microprocessor means:"

The altimeter device of claim 1, further including an analog to digital converter in the microprocessor means, and means included in the display means for displaying the altitude as converted.

('694 Patent, Col. 8:20-23.)

Thus, the Court concludes that since Claim 1 is a means-plus-function claim, its scope includes microchip 25 and its equivalents. Accordingly, as used in Claim 1 of the '694 Patent, the Court construes "microprocessor means" to mean:

An apparatus in the housing for receiving an analog signal from the electrical means and for converting it to a digital altitude value, as illustrated by the item labeled 25 in Figures 3 and 4, and its equivalents.

Footnotes

10 An invention disclosed in a claim depending from a means-plus-function claim is an equivalent to the broader independent claim. See IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1431-32 (Fed. Cir. 2000). The doctrine of claim differentiation is not violated because the dependent claim is narrower, and because it does not include the means-plus-function "equivalents." (Id.)

End Footnotes

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2. The term "A microprocessor responsive to a program resident therein" should be interpreted as follows: "An integrated circuit that contains a central processing unit (CPU) on a single chip, that responds to a software program resident in memory."

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1. "Microscope station" (claims 16, 17, 21)
Cytyc argues that the term "microscope station" should be construed as "equipment, not including a cell analysis instrument, at which a human operator performs microscope analyses." Tripath objects to the exclusion of cell analysis instruments and the requirement of a human operator. It proposes a broader definition: "a place equipped with a microscope." The claims and the specification support the narrower definition.

Claim 16(b) describes three elements that each microscope within a "microscope station" must include: a movable slide stage, a means for computing that stores and shares information about the slide being examined, and a means for automatically recording location information of interest of the slide stage during slide examination. Claim 16 by itself appears to define "microscope station" broadly as any location equipped with a microscope that satisfies the three requirements. However, four dependent claims suggest a narrower meaning.

Claim 17 adds to the microscope station a terminal for a database having information relevant to the appropriate examination of the slide specimen. Claim 22 adds a means for recording time information, such as how long a previous user spent viewing a particular location of interest on the slide. These claims indicate that a "microscope station" is a place where a user can store and retrieve information about slides for use in diagnosis.

Claims 21 and 24 further narrow the definition of "microscope station" by distinguishing a "cell analysis instrument". Claim 21 states that the network "includes at least one cell analysis instrument and that at least one microscope station "comprises a terminal for receipt of analysis from the cell analysis instrument." Claim 24 states that separate microscope stations are "linked to a cell analysis instrument" and "analysis data from the cell analysis instrument and results of the microscope examination are simultaneously available at the separate microscope stations for review thereof." These two claims make clear that the cell analysis instrument is a specialized machine for producing analytical data. In contrast, the "microscope station" receives the data from the cell analysis instrument and other sources. Its purpose is to allow users to access the data.

The specification supports this distinction between a "microscope station" and a "cell analysis instrument." The specification repeatedly refers to "microscope stations" as places where end users access data. For example, the Detailed Description of the Invention states:

The network reviewing method comprises the step of causing the computer storage means to be independently accessible by at least two separate microscope stations in a network, each of the stations comprising a microscope and computer means, with each of the microscope stations being separately individually linked to at least one computer means capable of recalling the stored movements and location information from the . . . microscope used in the original examination.

Id. at col. 3, 11. 13-23. Another passage reads:

recalling, at one or more of said microscope stations from said computer storage means, a computer generated image of a slide . . . , onto the viewing means of the respective microscope station for review.

Id. at col. 3, 1.65 -- col. 4, 1. 1.

Beginning at column 8, line 10, the specification describes in detail how a pathologist uses the "microscope station" in practice. Id. at col. 8, 1. 10 -- col 9, 1. 24. The pathologist interacts with the "microscope station" by placing the slide on the stage, finding locations of interest, viewing data on a screen, and printing reports. Id. These examples show that a "microscope station" is a place where different types of information is gathered, stored, and viewed. It follows that the "microscope stations" must have some means for data storage, sharing, and access by a human.

The description of "cell analysis instrument" is quite different. The specification provides examples of four types of instruments: hemotology analyzers, PAP smear analyzers, image analyzers, and laser scanning cytometers. Id. at col. 9, 11. 25-27. These instruments scan slides and process the data from these slides. Id. at col. 9, 11. 27-30. They then isolate, locate, and characterize cells based on the scan data. Id. Importantly for purposes of claim construction, the specification states that "one or more of the instruments can be interfaced with at least one of the microscope stations on the network in accordance with the present invention." Id. at col. 9, 11. 30-33. This last sentence makes clear that a cell analysis instrument is not part of a "microscope station." It can be linked to a "microscope station" so that its data can be accessed there, but it is a separate apparatus.
n13 Claims 25-28 specifically claim each of these four types of instruments.

Figure 1 illustrates these differences between "microscope station" and "cell analysis instrument" in a preferred embodiment. The Cytology Lab Pathfinders and Anatomic Pathology Pathfinders, represented by the number one, consist of a microscope equipped with stage position encoders, a microprocessor, a display screen and a keyboard. Id. at col. 6, 11. 54-58. These are "microscope stations." Id. The Pathfinder DS System, numbers four and eight, has similar components, and is also a "microscope station." The Laser Scanning Cytometer, which is a type of cell analysis instrument, is shown as number five. Id. at col. 9, 11. 36-37. It is depicted as a separate entity, with different components than the "microscope stations." Id. at col. 9, 11. 37-39.

TriPath contends that Figure 1 depicts four types of "microscope stations": Cytology Lab Pathfinders (number one), Anatomic Pathology Pathfinder (number one), Pathfinder DS System (numbers four and eight) and the Laser Scanning Cytometer (number five). It contends that these "stations" meet the requirements of claim 16 because each includes a microscope, some sort of microprocessor or personal computer, and a microscope staged encoder.

However, TriPath fails to recognize that the requirements of claim 16(b) refer only to the microscope component of a "microscope station." Claim 16(b) leaves open the possibility that a "microscope station" has other features." n14 As I explained above, the specification and the other claims define these other features in such a way that a "microscope station" is a place, separate from a cell analysis instrument, where a human conducts cell analysis and review.

n14 The preamble of claim 16 (b) provides: "A network of interconnected microscope stations comprising . . ." From this language, it is not clear whether "comprising" refers to the "network" or the "microscope stations." However, claims 16(a) and (b) refer to the connections between microscope stations, suggesting that claim 16 read as a whole describes the elements comprising the network, not the microscope stations.

TriPath also argues for a broader construction on the grounds that independent claims must be construed independently of and irrespective of dependent claims which specify a specific structure. It relies on Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991), for this proposition. However, Laitram does not apply to the present situation.

In Laitram, independent claim 21 contained a means-plus-function claim relating to a "means for joining" ends of a conveyer belt. Id. at 1534-35. Dependent claim 24 specifically required a cross-member as a means for joining the ends of the belt. Id. at 1538. Laitram argued that claim 21 could not also require a cross-member because that interpretation would violate the prohibition against reading limitations from a dependent claim into the independent claim and would frustrate the doctrine of claim differentiation. Id. The Federal Circuit rejected both of these arguments. Id. It held that the interpretation of "means for joining" as requiring a cross-member was proper because it derived from the specification, not the dependent claims. Id. It also found that claim differentiation was a judicially developed presumption that did not override § 112, P 6, the statute authorizing means-plus-function claims. Id.

In this case, unlike Laitram, the term "microscope station" itself is not a means-plus-function claim governed by § 112, P 6. Claim 16(b)(ii) and (iii) are means-plus-function claims describing two elements of the microscopes in a "microscope station." I do not read claims 17, 21, 22 and 24 as enumerating the means required to complete the functions in claims 16(b)(ii) and (iii) or as limiting claim 16 to the structures in the dependent claims. Rather, I look at the dependent claims to shed light on the meaning of a term that appears in the independent claim and three of the four dependent claims. See Phillips, 415 F.3d 1314 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.").

Finally, TriPath claims that Cytyc's proposed construction is incorrect because it would invalidate the preferred
embodiment. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, (Fed. Cir. 1996) (holding that an interpretation that invalidates the preferred embodiment is "rarely, if ever, correct and would require highly persuasive evidentiary support"). This is simply not the case. Figure 1 represents the preferred embodiment. 969 patent at col. 6, 11. 54-55. As discussed earlier, the Cytology Lab Pathfinders and the Anatomic Pathology Pathfinders are "microscope stations" that contain the movable slide stage, means for computing, and means for automatically recording required by claim 16. Id. at col. 6, 56-58. The Pathfinder DS System, depicted as numbers four and eight, is also a "microscope station" according to claim 16. Id. col. 7, 11. 50-55; col 8, 11. 28-29, 59-61. The Laser Scanning Cytometer is a "cell analysis instrument" that meets the requirements of claims 21, 24 and 28. Therefore, the preferred embodiment falls within the claims and is presumably valid.

In sum, the specification and claims support a narrow reading of "microscope station." Thus, I construe "microscope station" to be equipment, not including a cell analysis instrument, at which a human operator performs analysis.

3. To Mimic the Setting of the Other Individual Light Controls

The parties dispute the meaning of the term "mimic" in claim 14. Genlyte argues that "mimic" means "to imitate closely the adjusting (i.e. raising or lowering) of the other controls, which are functionally separate from one or more other light controls." Lutron asks the Court to interpret "mimic" to mean "to send its setting to other individual light controls and to receive and respond to settings from other individual light controls."

At col. 4, ll. 26-33, the specification states that "in a mimic mode, each of the controls 10 will mimic any other control activated within the group. For example, if a first individual control 10 in the linked group is activated to raise light intensity, all controls 10 will respond by raising the intensity of the respective lights in their rooms. If a second control in a group lowers light intensity, all individual controls correspondingly lower the intensity of their respective lights."

However, Lutron attempts to add into the meaning of mimic "to send its setting to other individual light controls," while the claim and the specification both speak only to the ability of the individual light control to respond to settings sent from other individual light controls. Therefore, the individual controls 10 "mimic" the light settings of other individual controls 10 by receiving and responding to the settings of the other individual controls 10.

Accordingly, "mimic" is construed to mean "receive and respond to."

5. Minimize

The term "minimize" appears in both the preamble and the fourth element of claim 1: "finding a solution which is used to generate the input which minimizes the value of the expressions while satisfying the first and second constraints ..." (635 patent Col. 10 lines 50-51) (emphasis added).

Plaintiffs argue that the term "minimize" should be understood to mean "reduce to a minimum." Defendants argue that "minimize" should be "reduce to zero." Neither party has indicated that this term is used in any way other than it's ordinary meaning. The dictionary definition of "minimize" is "to reduce to the smallest possible number, degree, or extent." Merriam-Webster's Third New International Dictionary Unabridged, Merriam-Webster, Inc., 1993. Plaintiffs assert that within the context of the claim, "minimize" does not require reduction to zero. In support of their argument, plaintiffs recite the claim language that expressions are "minimized" subject to the constraints in the other elements of the claim. The constraints, as constructed supra, impose strict requirements on the input generated. Physical systems have a range of inputs which they are designed to receive. The input must be within this range (635 patent Col. 7, lines 36-39) ("If at any time during the convolution, the actuator limit is exceeded, the sequence is unacceptable."). and within the range of tolerances the system permits (635 patent Cols. 5-7). Within these constraints, and subject to real world conditions, the claimed method cannot necessarily eliminate all vibrations. (Decl. of Dr. Bell P20-21). See also '635 patent Col. 6, lines 8-11
"Acceptable response is defined as less than 5% of total move size residual vibration."

Defendants correctly indicate that the abstract of the patent states an objective "to eliminate unwanted dynamics", and a disclosed method in the specification which describes amplitudes of undesired vibrations as being reduced to zero. ('635 patent abstract; Col. 5, lines 44-61). Reducing unwanted dynamics to zero is only one step of the method taught by the invention. The abstract provides "A sequence of impulses is determined which eliminates unwanted dynamics of a dynamic system." (635 patent abstract). This "sequence of impulses" is not the "input which minimizes the value of the expressions." In the preferred embodiment, the method taught determines how to translate an arbitrary input into another input. If the model is perfect with respect to the real-world operating environment, the patent contemplates eliminating all residual vibration. The imposition of the first and second constraints, above, are specifically imposed because of the difficulty of formulating a model which can capture every variation of the system's environment. See '635 patent Col. 5 lines 67-68 ("The two-impulse input, however, cancels vibration only if the system natural frequency and damping ratio are known exactly.") Interpreting "unwanted dynamics" to incorporate a threshold for acceptable residual vibration is consistent with the specification and the awareness of this difficulty. The disclosed method establishes a model which, in an idealized and abstracted world, eliminates a dynamic, such as vibration, from the system. ('635 patent Col. 5-6, lines 67-3) (noting that "vibrations [are canceled] only if the system natural frequency and damping ratio are known exactly.") The preferred embodiment specifically accommodates for uncertainty in the natural frequency of the system, and to variations in the damping ratio. This is exactly what is contemplated by the "first constraints" and "second constraints" in the '635 patent claims. Defendants concede that they have no support for the assertion that reducing resulting vibrations to zero is possible.

8

Mr. Akerley, attorney for defendant Seagate, adduced at the Markman hearing:

MR. AKERLEY: . . . I'm not going to stand here and tell you that we can ever reduce those vibrations to an absolute zero.

THE COURT: . . . what you're arguing that the plaintiff got a patent for, you're saying to me is impossible?

MR. AKERLEY: No.

THE COURT: Any of your experts opine that they know of such a system that reduces vibration to zero?

MR. AKERLEY: No.

Transcript of Markman Hearing at 131.

Accordingly, the term "minimize" as used in independent claims 1 and 11 is interpreted to mean: "reduce to a minimum."

C. Minimum Bandwidth (claims 10, 13, 26 and 28 of the '700 patent; claim 5 of the '438 patent)

Plaintiff's Construction: Smallest amount of transmission capacity
Defendant's Construction: A minimum number of bits sent in a defined time period

The parties disagree about three issues: (1) whether bandwidth measures the capacity of data to be sent or the data actually sent; (2) whether the data must be measured in bits; and (3) whether a particular time period is at issue.

I agree with plaintiff that bandwidth measures what can be sent, not what has been sent. Even the dictionary definitions defendant cited at the claim construction hearing support this view. Each of those dictionaries defines "bandwidth" as "data transfer capacity" or data "that can be transmitted." Defendant cites no other intrinsic or extrinsic evidence suggesting that bandwidth is a backward looking measurement of data that already has been sent.

Defendant relies on the same dictionary definitions to support its contention that bandwidth must be measured in "bits per second." Although those definitions suggest that bandwidth is "usually" so measured, the patent is not so constrained. Rather, the patent specification says that bandwidth may be measured in bits per second "or any other convenient representation." '700 pat., col. 8, lns. 5-8.

However, I agree with defendant to the extent it argues that bandwidth is measuring something. Plaintiff's proposed construction says only that bandwidth is transmission capacity without identifying what is being transmitted. Because plaintiff admitted at the claim construction hearing that bandwidth is about data transfer, Cl. Const. Tr, dkt. # 48, at 18, I will add that to the construction.

The specification provides support for defendant's third suggested limitation: "Minimum bandwidth indicates the minimum amount of bandwidth a particular traffic group needs to be provided over a defined time period." '700 pat., col. 8, lns. 9-11. Because plaintiff failed to advance any argument either in its briefs or at the claim construction hearing that "minimum bandwidth" is not measured over a defined time period, I will adopt that part of defendant's proposed construction.

Accordingly, I construe "minimum bandwidth" to mean "smallest amount of data transmission capacity over a predefined period of time."

The parties dispute the constructions of "minimum queue bandwidth" and "minimum bandwidth allocation" as well, but these disputes mirror those with respect to "minimum bandwidth," so it is unnecessary to define these separately.

7. "Mining the image data stored in the sensor memory." Used in Claim 22.
Claim 22, with the disputed term in bold, states:

The system of claim 18, the server is adapted for mining the image data stored in the sensor memory.

March Networks suggests that the term is indefinite and impossible to construe. If the term is construed, March Networks states that the term means "performing an analysis of the image data to determine historical patterns of behavior."

Data mining is described at col. 13, ll. 55-66, referring to Figs. 46a-46h and 47a-47i (which are described at col. 33, ll.24-67 and at col. 34, ll. 1-67) which describe "mining" a database. Both parties agreed that "mining" means "searching." Tr. p. 75, ll. 19-25; p. 76, ll. 1-7. March Network argues that the claim must be limited to data stored in the sensor memory, and is therefore indefinite because no sensors are disclosed - only sensor appliances.

35 U.S.C. § 112 P 2 requires that the claims of a patent particularly point out and distinctly claim the subject matter which the applicant regards as his invention. "In ruling on a claim of patent indefiniteness, a court must determine whether those skilled in the art would understand what is claimed when the claim is read in light of the specification." Bancorp Servs., LLC v. Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004). "The claims as filed are part of the specification, and may provide or contribute to compliance with Section 112." Hyatt v. Boone, 146 F.3d 1348, 1352 (Fed. Cir. 1998)." "If the claim is subject to interpretation, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness." Bancorp Servs., 359 F.3d at 1371.

Here, the specification refers to the server and sensor appliances as having memory. See' 183 patent, col. 7, ll. 38-40. Claim 18, on which Claim 22 depends, refers to sensor appliances. In light of the specification, including the claims, the court concludes that the claim term is not indefinite, even though it refers to sensor memory, and the rest of the claim uses "sensor appliance." n7

--- Footnotes ---

n7 The court notes that since the original claims included "sensor memory," there is disclosure of sensor memory in the ' 183 patent and the patentee could have amended the written description in the body of the specification to include it.

--- End Footnotes ---

The court construes this claim term as follows:

"Mining the image data stored in the sensor memory" means: "searching the still frame images and the motion video images stored in those sensor appliances which retain such images."

The parties have agreed to the definition of some claim terms in Claim 25. For convenience Claim 25 is set out below, with the agreed terms in italics and the disputed terms in bold. n8

A comprehensive, IP network compatible, multimedia surveillance and security system comprising a plurality of sensor appliances adapted to connected to a network based server for monitoring, logging, and transmitting data to the server in order to permit comprehensive surveillance of a predetermined area, the system comprising:

a. a plurality of surveillance sensor appliance controlled by the server for monitoring an area and generating a data signal indicating a condition in the monitored area controlled by the server, whereby the server receives and logs signal data. . .

--- Footnotes ---

n8 The terms in the preamble are the same as those in the preamble of Claim 1, and have already been construed.

--- End Footnotes ---
13. Mobile Processor: A processor which can be carried by a person outside of a home or office and which executes electronic mail programming to function as a destination and/or source of electronic mail.

3. "mode control data" ('326 patent, claim 56)

AVID contends that "mode control data" should be construed as "data describing one or more parameters associated with a mode of operation." In opposition, the Defendants cite the '326 patent at 17:30-37 n2 as support for their argument that "mode control data" should be construed as "data consisting of driving frequency, type of modulation (i.e., FSK, OOK, CPSK, and DCPSK), mark and space frequencies, bit rate, data encoding if any, start message code, error detection process, tag type, encryption and all constants incorporated within firmware for controlling the operations of the reader." According to the Defendants, during prosecution the inventors distinguished their claimed "modes" from "modes" in prior patents and therefore relinquished all "mode control data" that relates to modes other than those required to extract information from different types of tags employing different protocols. In reply, A VID states that the inventors during prosecution consistently referred to operating modes and operating capabilities of a reader and did not limit claims to "modes" for extracting information.

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n2 The '326 patent at 17:30-37 states:

Mode data include driving frequency, type of modulation (i.e., FSK, OOK, CPSK, and DCPSK), "mark" and "space" frequencies, bit rate, data encoding if any (e.g., Manchester or related coding techniques), "start message" code, error detection process (e.g., cyclic redundancy checks, parity checks), tag type, and all of the constants that are incorporated into the firmware that controls the operations of the reader.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

After carefully considering the parties' proposed constructions, the '326 patent, and the prosecution history, the Court adopts AVID's proposed construction. To invoke prosecution history argument-based estoppel, the prosecution history "must evince a clear and unmistakable surrender of subject matter." Aquatex Indus., Inc. v. Techniche Solutions, 419 F.3d 1374, 1382 (Fed. Cir. 2005) (quoting Pharmacia & Upjohn Co. v. Mylan Pharm., Inc., 170 F.3d 1373, 1377 (Fed. Cir. 1999)). "To determine if subject matter has been relinquished, an objective test is applied, inquiring 'whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.'" Id. (quoting Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1457 (Fed. Cir.1998)). Based upon the Court's examination of the prosecution history, the inventors did not make an unmistakable surrender of the subject matter.

2. "mode of operation"

Plaintiffs' construction: a manner of operating an instrument for its intended purpose, including acquiring and/or displaying ultrasonic images

Defendant's construction: manner of operation characterized by a particular range of power conservation or power consumption, for example, full operation or active scanning modes, freeze mode, or power-off mode

Plaintiffs contend that "mode of operation" means the same thing as "method of operation" and that the proper construction
for both terms can be gleaned from the patent specification. As discussed above, I do not find plaintiffs' argument persuasive and have not adopted this construction. Defendant's construction is better, to some degree. The patent specification explains unambiguously that "modes" of operation relate to power consumption levels. '651 pat., col. 5, lns. 57-67 (describing modes of operation including "full operation mode," "freeze mode," "sleep mode," and "power-off" modes in relation to power use). Therefore, I will adopt that portion of defendant's construction. However, the list of examples of modes is unnecessary and will not be adopted.

**Court's construction:** manner of operation characterized by a particular range of power conservation or power consumption

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1 **Claim 3 reads as follows:**

An audio recording and tape measuring system for enabling the measurement of distance using a measuring tape and enabling the measurements to be orally enunciated and recorded for later use, said system comprising

A. a housing

B. a measuring tape securely mounted in the housing for being removed therefrom, whenever desired, to any desired length to enable measurements of distances to be made; and

C. an audio signal recording circuit mounted in the housing and construction for receiving and recording audible information and replaying the recorded information upon demand, said circuit comprising

a. circuit controlling and processing means,

b. an information storage address

1. controllably interconnected to the controlling and processing means for receiving signals corresponding to orally enunciated information,

2. storing said signals therein, and

3. transmitting, upon demand, stored signals to the circuit controlling and processing means,

c. a microphone connected to the circuit controlling and processing means and constructed for

1. receiving an orally enunciated signal corresponding to the desired information to be recorded, and

2. transmitting the signal to the controlling and processing means for transmission to and retention in the storage address,

d. output means connected to the circuit controlling and processing means for receiving signals retrieved from the storage address and presenting the stored information as an audible signal corresponding to the stored information, and

e. a mode selector switch connected to the circuit controlling and processing means and movable between a RECORD and a PLAY mode, enabling the circuit controlling and processing means to establish the desired operation of the recording circuit.

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* * *

- 3072 -
The Activation Switch

I find that the plain language of Claim 3(c)(e) does not require an activation switch that initiates the operation of the recording circuit in the selected mode and is distinct from the mode selector switch. Zircon argues that Claim 3's mode selector switch's primary purpose is to define the operation performed by an activation button. In its preferred embodiment, this dual mode selector and activation switch combination allows one button to perform either record or play function from multiple address locations; a distinct mode selector/activation switch combination requires only one activation button per location. Zircon argues that this differs from the Repeater's design. The Repeater requires both a record and a play button. From a distinct activation switch and mode selector switch requirement, Zircon maintains, it is a short step to find that the Repeater does not infringe on Claim 3(c)(e) because it does not have modes as Claim 3 requires. Unfortunately for Zircon, I find that while the preferred embodiment does have dual mode selector switch/activation switches, the patent is not necessarily so limited. Transmatic, Inc. v. Gulton Industries Inc., 53 F.3d 1270, 1277 (Fed. Cir. 1995). For Zircon's argument to be persuasive, I must read distinct activation and mode selector switch requirements into Claim 3.

After careful reading I hold that Claim 3 does not require separate activation and mode selector switches; Claim 5 2 does. Where some claims are broad and others narrow, the narrow claim limitations cannot be read into the broader claim. Transmatic, 53 F.3d at 1277 (Fed. Cir. 1995); D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985). Given this legal rule and Claim 3's language, I hold that the Claim 3(c)(e) does not require an activation switch distinct from its mode selector.

--- Footnotes ---

2 Claim 5 reads as follows:

D. at least one activation switch mounted to the housing for ease of access by the user and constructed for transmitting an activation signal to the circuit controlling and processing means for initiating the operation of the audio signal recording circuit in the selected mode.

--- End Footnotes ---

2730
e. “modem”

Claim 3 discloses a “computer jukebox as recited in claim 1 wherein said communication interface includes a modem.” Opening Brief, Ex. 1 at 9:16-17 (emphasis added). Plaintiffs contend that “modem” means “a connection between components that allows communication from one component to the other that includes a device that modulates and demodulates signals.” Id. at 11. Defendants contend that modem is limited to “a telephone modem connected to a modem on the central management system through a leased or dial-up telephone line.” Resp. Brief, Ex. E at 2. Nothing in the claim or specification supports defendants' proposed construction. The claim refers only to a “modem,” and the language in the specification upon which defendants rely states that the transmission link “may be a cable system such as public or private telephone lines or the like.” Id.,
Ex. 1 at 3:30-32. In addition, defendants' proposed construction would render the words “such as” and “or the like” superfluous. Id. If the patentees wanted to include the limitation proposed by defendants, they easily could have written that the transmission link “was a public or private telephone line.” Moreover, skilled artisans would understand that a “modem” could include a telephone dial-up modem, cable modem, ADSL modem, etc. See Dictionary of Computer and Internet Terms, supra, at 326 (“a device that encodes data for transmission over a particular medium, such as telephone lines, coaxial cables, fiber optics, or microwaves.”). See also Reply Brief, Ex. 21 at ¶ 33 (modems can be “dial-up modems, cable modems, or any modem suitable for the transmission link.”).

For these reasons, the Court construes “modem” as used in the claim as “a connection between components that allows communication from one component to the other that includes a device that modulates and demodulates signals.” This construction also applies to the term “modem” in the 189, 398, and 834 patents.

For the same reason, I have also concluded that "modem means" is not means-plus-function terms. There is no structure disclosed in the specification for this claim term other than a "modem."

AVID contends that the term should be construed as "the reader operating in at least one of two or more modes, each mode being characterized by data describing one or more parameters associated with the mode of operation." The Defendants argue that the terms should be construed as "the reader operating in at least one of two or more modes, each of which permits the reader to extract information from a particular type of tag, the modes being characterized by mode control data." According to the Defendants, the term "modes" as used in the '326 patent does not encompass any and all operating modes, but rather includes only those modes that permit the reader to distinguish between different types of tags employing different communication protocols. The Defendants also renew their contention that the inventors in the prosecution history disclaimed a meaning of modes that would have encompassed all types of modes. The court rejects this argument and adopts AVID's proposed construction.

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3. "Modifiable Tree Structure Including Elements in A Fixed Hierarchical Relationship"/"Modifiable Static Tree Structure"
The parties' dispute regarding this proposed claim term has been somewhat of a moving target. Originally, the parties' dispute centered around the terms "tree structure" and "modifiable." NetApp took issue with Sun's attempt to replace the term "tree structure" with the broader term "hierarchy." Because "tree structure" is another disputed term not ripe for construction at this point in time, Sun amended its proposed constructions to include the words "tree structure" (as does NetApp) in its construction instead of embedding a definition of that term in the construction. The sole remaining dispute concerns the term "modifiable" and whether that term requires that modifications be made by a user, as NetApp maintains, or whether the modifications also may be implemented through other means, as Sun maintains.

NetApp also contends that Sun's proposed construction, which states that the tree structure "can be modified but does not change," appears contradictory and will confuse the jury. At the hearing, Sun noted that NetApp's construction would be acceptable so long as the Court struck the phrase "edited by a user" and replaced it with "changed" or "can be changed." The Court agrees with NetApp that Sun's proposed construction is likely to confuse a jury, because the claim language "can be modified but does not change" is unclear as to how a structure can be both modifiable and static at the same time. The Court therefore focuses on whether or not to adopt NetApp's proposed construction with or without the user-editing requirement.

As noted above, Claim 1 of the '249 patent provides:

A method comprising:

- providing a host state representing a state of a computer system, the host state being represented as a modifiable tree structure including elements in a fixed hierarchical relationship, the elements being given value by associated tokens, the elements and associated tokens representing hardware and software components of the computer system and wherein the tokens are extracted from diagnostic data from the computer system;

- determining if predetermined conditions exist in the computer system by comparing respective definitions of the predetermined conditions to the host state; and

- generating an alert if one of the predetermined conditions is determined to exist.

'249 patent at 39:1-17. The reference to a modifiable tree structure also appears in claims 7 and 10 of the '249 patent. These claims make no reference to a "user," and the term "modifiable" seems to be used in a general sense, which supports Sun's construction, but the claim language does not define the term, and is not particularly instructive here.

Turning to the specification, Sun relies on the following excerpt to show that the specification discloses that a tree structure comprising elements, a tree structure that can be modified and that does not vary according to the system being monitored, and which can be edited by a user to add or delete elements representing hardware or software components on a computer system.

NetApp's construction
A tree structure comprising elements, which does not vary according to the system being monitored, and which can be edited by a user to add or delete elements representing hardware or software components on a computer system.

Sun's construction
A tree structure that can be modified and that contains elements that are linked together in a hierarchical relationship, where the relationship does not change based on the systems being monitored. (Claims 1, 10)

A tree structure that can be modified, but does not change based on the systems being monitored. (Claim 7)

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A tree structure comprising elements, which does not vary according to the system being monitored, and which can be edited by a user to add or delete elements representing hardware or software components on a computer system.

Sun's construction
A tree structure that can be modified and that contains elements that are linked together in a hierarchical relationship, where the relationship does not change based on the systems being monitored. (Claims 1, 10)

A tree structure that can be modified, but does not change based on the systems being monitored. (Claim 7)
may be modified to add or remove elements corresponding to hardware and software components in the computer system being monitored, but does not place any restriction on who or what makes the modification:

The description of the static tree is exemplary. Another tree may be chosen according to the system being monitored. Additionally, the static tree may be modified to reflect hardware and software enhancements to computer systems. The hierarchy tree definition is static in that it does not vary according to the system being monitored. However, the hierarchy tree can be edited in element hierarchy editor 215 to accommodate additions and/or deletions from the hierarchy tree when for instance, a new technology begins to be utilized in the monitored computer systems.

'T249 patent at 6:54-63 (emphasis added). Sun is correct that there is nothing in the specification or claims requiring that such modifications be performed only by a user. This portion of the specification makes clear that the "element hierarchy editor" is simply an embodiment, because it is described as "exemplary." 5 In addition, this "editor" requirement is not in the abstract, or the summary of the invention, and is not described as a necessary part of the invention. Therefore, the Court will not read this requirement into the claim term. Cf. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'") (internal citation omitted).

--- Footnotes ---

5 Both parties' experts conceded that an "element hierarchy editor" requires that a user make those edits. Therefore, as to this particular embodiment, a human user is required. At the hearing, NetApp noted that the inventor Mr. Chu stated during his deposition that the editor needs to involve a human user. However, the inventor was asked about the element hierarchy editor, which Sun concedes requires a human user. This inventor testimony is irrelevant on the point of whether the term "modifiable" always requires a human user.

--- End Footnotes ---

Turning to the extrinsic evidence, Sun's expert maintains that it is just as likely that the supplier of the monitoring system would provide modifications to the static tree structure through software or firmware updates, rather than only through user edits. Smith Decl. P 57. If a new hardware device is introduced into the marketplace -- a CD-ROM, for example -- and the static tree needs to be modified to allow a representation of that new device to be a part of it, the system could conceivably be programmed in such a way to allow such modifications through automatic updates.

NetApp's expert argues that "modifiable" must mean something more than automatic updates, because all systems have automatic updates. Dr. Smith contested this point at the hearing, noting that certain computer software components need to be sent to a vendor for modification, for example. Professor Long countered that such unmodifiable "software" is actually called firmware, which is no longer classified as software and is not implicated in the patent at issue. Hearing Tr. at 90. The experts' arguments are tangential. The patent makes clear that the static tree, while static, can be modified to reflect hardware and software enhancements. The use of the word "modifiable" in the claims focuses on the effect of the modification, rather than the process of the modification. Because the term "modifiable" is not used to describe the process, NetApp's argument that the term "modifiable" is redundant is not persuasive.

In sum, the Court adopts a hybrid of the parties' constructions of the term "modifiable tree structure including elements in a fixed hierarchical relationship/modifiable static tree" and construes the terms as: "A tree structure comprising elements, which does not vary according to the system being monitored, and which can be changed to add or delete elements representing hardware or software components on a computer system."

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Modification of the connection

Lantronix contends this term does not require construction because the concept is simple and construing the term would merely use more words to essentially say the same thing. Alternatively, if the Court believes the term needs construction,
Lantronix proposes the Court construe it as "altering the characteristics of the connector such that information can move through the connector."

Digi contends the term should be construed to mean "the connector to change its protocol, parameters, and pin-outs." Digi argues that the connector adapts itself to a desired configuration by changing its protocol, parameters, and pin-outs. Lantronix objects to Digi's construction for the same reasons already given above. Digi criticizes Lantronix's proposed construction as "impermissibly expand[ing] the patent language by avoiding a description of the specific modification of the patented invention."

The Court modifies Lantronix's proposed construction and construes "modification of the connection" to mean "altering the connection such that information can move through the connector." Again, Digi's "protocol, parameters, and pin-outs" limitation impermissibly limits the claim scope to a single embodiment. The Court modifies Lantronix's proposed construction to make it more straightforward to the jury.

**K. Modifications**

Visto contends that the term "modifications" as used in the '131 patent means "any changes related to a workspace element or an independently modifiable copy of the workspace element." Seven argues that the term means "changes in content made to a workspace element or changes in content made to an independently modifiable copy of the workspace element."

With respect to this term, Seven seeks to incorporate a content limitation into its definition. The court has previously rejected this position and does so again with respect to this term. Visto's definition, however, is also too broad. Visto sponsors a definition of any changes "related to" a workspace element. This is simply broader than the language of the claims will support. Claim 1, limitation (a) is exemplary. That limitation states: "providing first memory storing a first workspace element and first version information for identifying any modifications made to the first workspace element since a previous examination." Visto's definition seeks to define modification to include any changes "related to" a workspace element. That definition, if adopted, would eviscerate the more narrow claim language of claim 1(a) which requires modifications to be "made to the first workspace element." (emphasis added). The court therefore rejects Visto's proposal and defines the term to mean "changes to a workspace element or an independently modifiable copy of the workspace element."
The disputed terms are located in each of the asserted independent claims: "a modifier menu stored on said data storage device and displayable in a window of said graphical user interface" and "a sub-modifier menu stored on said data storage device and displayable in a window of said graphical user interface." Although the specification does not contain the exact terms "modifier menu" and "sub-modifier menu," Figure 1 depicts a "modifiers window" and a "sub-modifiers window." The specification states, "The Sub-Modifiers window lists the sub-modifiers that correspond to the modifier that is selected." (‘850 patent, 6:32-34). The modifiers window appears to list the modifiers that correspond to the menu item that is selected.

The defendants, consistent with their arguments regarding "menu," contend that the "modifier menu" and "sub-modifier menu" must contain a database. For essentially the reasons set forth above, the court is not persuaded that modifier menu and sub-modifier menu must contain databases. Therefore, "modifier menu" means "a list of choices or options that may modify menu items." Likewise, "sub-modifier menu" means "a list of choices or options that may further modify a modifier."

GO BACK
2. "monitoring said at least one defining element for changes thereto" ('443 Patent, Claim 25)

3. "maintaining an internal reference between said derived elements and said at least one defining element" ('443 Patent, Claims 39-42)

4. "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified" ('443 Patent, Claim 39)

5. "using said internal reference to identify and discard all derived elements associated with a modified defining element" ('443 Patent, Claim 41)

Because the dispute with respect to these phrases centers on the same issue, the Court will combine its interpretation of these phrases.

--- Footnotes ---

3 In its revised opening claim construction brief, Macromedia set forth proposed constructions for the following five other phrases contained throughout the method claims of the '443 Patent:

1. "accepting at least one new parameter while said derived elements are still displayed" ('443 Patent, Claim 25)


3. "making a plurality of changes in one or more of said defining elements" ('443 Patent, Claim 40)

4. "using said internal reference to rederive any derived elements without manually reestablishing any unchanged parameters" ('443 Patent, Claim 42)

5. "wherein the derived elements are modified in accordance with established parameters" ('443 Patent, Claim 42)

(See D.I. 470 at 9-11). Because these phrases were not addressed in either Adobe's opposition brief or Macromedia's reply brief, the Court will assume that these phrases are no longer in dispute. (See D.I. 479; D.I. 491).

--- End Footnotes ---

Adobe construes each of these five phrases in accordance with 35 U.S.C. § 112 P6, contending that they are drafted in means-plus-function form. Specifically, Adobe contends that each of these phrases defines a function without defining a structure, material, or act sufficient to produce that function. According to Adobe, the structure corresponding to the function recited in these phrases is the algorithm of Figure 9 of the '443 Patent. Adobe thus construes each of these phrases to be limited to the algorithm of Figure 9 and equivalents thereof.

Macromedia contends that 35 U.S.C. § 112 P6 should not apply because they are not drafted in means-plus-function form. According to Macromedia, these phrases should be construed in accordance with their ordinary and accustomed meaning without regard to any particular structure.

The Court has reviewed each of these five phrases in the context of their respective claims and concludes that they are not drafted in means-plus-function form. Accordingly, 35 U.S.C. § 112 P6 does not apply, and the Court will construe these phrases in accordance with the standard principles of claim construction.

In construing these phrases, the Court has reviewed the specification and prosecution history. ('443 Patent; D.I. 250, Ex. 3). Based on a review of these sources, the Court concludes that there is no reason to construe these phrases in a manner inconsistent with their ordinary and accustomed meaning. Therefore, the Court will adopt the constructions proposed by Macromedia. The phrase "modifying a characteristic of said display of said derived elements in accordance with said accepted at least one new parameter without respecification of all said parameters, said characteristic selected from a group..."
consisting of display shape and display color of said derived elements" means "regenerating the derived elements with new colors or with new shapes, based on the one or more new parameters, without all of the parameters having been edited." The phrase "monitoring said at least one defining element for changes thereto" means "monitoring the defining elements for changes entered by a user." The phrase "maintaining an internal reference between said derived elements and said at least one defining element" means "using an internal reference to associate the derived elements with the parent defining element(s)." The phrase "editing at least one of said defining element in one operation without the regeneration of said derived elements until all of said at least one defining element has been modified" means "automatically updating the derived elements only after all of the defining element or elements that a user intends to edit have been edited." The phrase "using said internal reference to identify and discard all derived elements associated with a modified defining element" means "an internal reference is utilized to automatically delete the existing derived elements when a defining element is updated, clearing the way for the subsequent generation of new derived elements."

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(6) In Claim 1 of the '132 patent, "modifying a phase of a selected portion or portions of said duration of the color stripe burst in chosen lines of the selected lines to be the phase of the normal color burst" means "modifying the phase of the abnormal color stripe bursts to match normal color bursts."

2741

2. Term 11 ('703 Patent, Claim 15)

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… modifying a URL for the page object …</td>
<td>… modifying a Uniform Resource Locator for an object embedded in a page …</td>
</tr>
</tbody>
</table>

Limelight similarly seeks to limit this term to "a computer program that modifies an existing Uniform Resource Locator of an embedded object of a web page." (Docket # 71, 36.) This construction fails not only for the reasons discussed supra, Term 10, but also because claim 15 is a method claim and Limelight's proposed construction describes a product claim limitation.

3. Term 12 ('703 Patent, Claims 5, 15) 15

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

15 The term to be construed appears in claim 15 and claim 1, upon which claim 5 depends.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

3. "modifying said sequence"

The dispute over the phrase "modifying said sequence" is whether it is limited to randomization.

The plain and ordinary meaning of "modification" is not restricted to randomization. Reading the claim language in light of the written description suggests that limiting modification to randomization would be improper. The '661 patent discusses the use of random information to "select between parallel code processes, such that the same cryptographic result will be produced regardless of which code process is selected but where the parallel processes perform different operations toward producing the result." Col. 10, 11, 32-36. Each of the two parallel processes has a fixed, or non-random, sequence. While the data may be processed in random order, the sequence of operations itself is not completely random. Also, the patent
states: "Although the embodiments differ in the details of their implementations, those skilled in the art will appreciate the fundamental commonality in their essential operation--using randomness or other sources of unpredictability." Col. 2, l. 66 - Col. 3, l. 7 (emphasis added). The intrinsic evidence indicates that a modification may render the data unpredictable in a manner which does not require randomness. There is no indication that a person of ordinary skill in the art would limit "modify" to "randomize."

The Court construes "modifying said sequence" to mean: "changing the order of the sequence."

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2. Claim 6

Claim 6 of the '281 patent states in its entirety (with disputed terms highlighted):

A method according to claim 1 including storing each of said second plurality of frames as a series of video pixels in digital form and as part of said altering modifying the digital values of selected pixels in accordance with the sets of said data.

The parties do not dispute the following interpretations, and the court construes these terms accordingly. "Second plurality of frames" refers to the frames of the existing cinematic work. "Pixel" or "picture element" means a finite-sized rectangular region on a video screen, the location of which can be represented by X and Y coordinates. A digital image on a video screen is formed by an array of PIXELS. The numerical values that characterize a PIXEL define its color and intensity.

Joint Memorandum at 5:20-23.

As to the interpretation of the "modifying the digital values" step of claim 6, the parties reprise their arguments regarding the "altering" step of claim 1. Consistent with the court's construction of claim 1, claim 6 requires that the digital values representing the colors and intensities of selected pixels of the first facial display be modified in accordance with the lip position data of both the first and second facial displays and the control point data of the first facial display.

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1. Modulate

The Defendants propose that "modulate" be construed as follows:

"Modulation" requires that a characteristic of the carrier wave has been changed to represent the 1 and 0 values of the digital signal so that the voltage levels of the modulated signal in and of themselves do not represent the 1 and 0 values of the digital signal. Modulation involves more than simply encoding digital data in serial formats such as non-return to zero, return to zero, Manchester, or bi-phase. Demodulation involves more than simply decoding of digital data.

Lectrolarm argues that this definition improperly restricts the scope of the patent claim and is unnecessary. The issue revolves around the question of whether the coding of digital data into electrical pulses constitutes "modulation."

Technical dictionaries and treatises may help "a court to better understand the underlying technology and the way in which one of skill in the art might use the claim terms." Phillips, 415 F.3d at 1318 (internal quotes omitted). "Such evidence ... may be considered if the court deems it helpful in determining the true meaning of language used in the patent claims." Id. (internal quotes omitted). The Defendants have directed the court to the textbook Digital Communications for help in deciding the meaning of "modulation" to a person of skill in the art. Digital Communications was published in 1988, one year before the '088 patent was filed. The author of the textbook is Bernard Sklar, who is also an expert for Lectrolarm.
At its most basic, a digital communication system operates as follows: 1) data enters the system; 2) if the data is not digital, it is represented by digital data through the process of formatting; 3) the digital data is encoded onto a waveform for transmission through the process of modulation; 4) the modulated data is transmitted along some channel; 5) the transmitted data is removed from the waveform by the process of demodulation; 6) if the desired output of the process is not digital data then the digital data is formatted into whatever final form of data is desired. Bernard Sklar, Digital Communications: Fundamentals and Applications 54 (1988). Defendants argue that the process of encoding digital data into formats such as non-return to zero, return to zero, Manchester, or bi-phase is part of the process of formatting, not part of the process of modulation.

Formatting makes a "source signal compatible with digital processing." Id. at 52. These source signals are textual or analog data. Id. at 54. Digital data is already compatible with digital processing and does not need to be formatted. Id. The end result of formatting is a stream of binary digits known as pulse code modulation (PCM). Id. at 54, 73.

Modulation transforms digital data represented as PCM into waveforms that are compatible with transmission along a channel. Id. at 54, 118. For transmission along a cable or wire, called baseband transmission, the appropriate waveform is an electrical pulse. Id. at 54, 78. The most common types of pulse waveforms used in baseband transmission are non-return to zero, return to zero, and multilevel binary. Id. at 78. The phase encoded group consists of bi-phase and Manchester coding. Id. at 81.

The process of transmission over a channel that is not a cable or wire (such as radio transmission) is called bandpass transmission. Id. at 52. The appropriate waveform for bandpass modulation is a sinusoid. Id. at 118.

Sklar's textbook clearly states that modulation is encoding digital information onto a waveform, and one type of wave form is an electric pulse which includes non-return to zero, return to zero, Manchester, and bi-phase formats. Further, because modulation can result in a waveform that is simply a series of electrical pulses, modulation necessarily includes the process of encoding digital information into a format where the voltage level of the signal indicates whether the data being transmitted is a one or a zero.

The description of "modulation" in Sklar's textbook is consistent with the IEEE Standard Dictionary of Electrical and Electronics Terms' (hereinafter the "IEEE Dictionary") definition of "modulation:"

(1)(A)(data transmission). (i) The process by which some characteristic of a carrier is varied in accordance with a modulating wave. (ii) The variation of some characteristic of a carrier. See also: angle modulation; modulation index. (B) (data transmission) (Signal transmission system). (i) A process whereby certain characteristics of a wave, often called the carrier, are varied or selected in accordance with a modulating function. (ii) The result of such a process. See also: angle modulation; modulation index.


A leading non-litigation induced treatise from 1988, Digital Communications by Bernard Sklar, coupled with the definition of modulation in the IEEE Dictionary make clear that the plain meaning of the term "modulate," to one skilled in the art in 1989, included representing digital data as electrical pulses coded into serial formats such as non-return to zero, return to zero, Manchester, or bi-phase. n8 Neither the prosecution history nor the specification lead the court to conclude that the term "modulation" should be given a definition different from its plain and ordinary meaning. Therefore, the court will not use the Defendants' proposed definition.

n8 The Defendants support their position with excerpts of testimony from expert witnesses for both sides. The court need not consider this extrinsic evidence. The meaning of "modulation" to one of skill in the art in 1989 can be construed from non-litigation induced treatises and technical dictionary definitions.
Arbitron argues that "modulating the energy" simply means "varying the energy of at least one of the frequency components." The point of contention here is the construction of the term "modulating" as it relates to adding the encoded message onto the audio signal. Ipsos uses the McGraw-Hill dictionary to define "modulation" as "[t]he process or result of the process by which some parameter of one wave is varied in accordance with some parameter of another wave." Ipsos argues that Arbitron's proposed construction ignores the fact that there is a second signal that determines the modulation of the first signal. In this case, it contends, the second signal is the message containing identifying information that is being added to the audio signal. Ipsos therefore proposes the following construction: "Varying the energy of at least one of the frequency components in accordance with the message to be encoded."

Arbitron argues that the meaning of the word "modulation" is well-known in the art. It refers to the IEEE standard dictionary's definition for modulation: "A process whereby certain characteristics of a wave, often called the carrier, are varied or selected in accordance with a modulating function." Here, it contends that it has not ignored the second signal; the fact that there is a second modulating signal is captured by the phrase "adding the encoded message" in the claim language. However, neither the claim language nor Arbitron's proposed construction makes clear how the encoded message is added. The Court therefore finds that the term "modulating the energy" means "varying the energy of at least one of the frequency components in accordance with the message to be encoded."

The Defendants again argue that the patent claims do not include "encoding digital data in serial formats such as non-return to zero, return to zero, Manchester, or bi-phase" by stating that "modulation with a carrier wave" (discussed in Claim 1, P 4) does not include these types of waveforms. (Df.'s Post-Hearing Mem. Concerning Claim Interpretation Issues at 11-12.) The Defendants refer to the following language from the textbook Digital Communications:

in the case of baseband modulation, [the] waveforms are pulses, but in the case of bandpass modulation the desired information signal modulates a sinusoid called a carrier wave, or simply a carrier.

Digital Communications at 118.

As already discussed, encoding digital data onto a pulse waveform in a format such as non-return to zero, return to zero, Manchester, or bi-phase is a form of modulation called baseband modulation. Id. at 78. Bandpass modulation, as the cited text discusses, involves formatting digital data onto a sinusoid. The cited passage from Digital Communications treats "sinusoid" and "carrier wave" as synonyms. The definition of carrier wave that the court has adopted, however, explicitly acknowledges that "carrier wave" and "sinusoid" are not synonyms. The Digital Communications text uses the term "carrier wave" inconsistently with the definitions of "carrier wave" proposed by both the Defendants and Lectrolarm.

The court has determined that modulation includes encoding digital data onto waveforms that are both electrical pulses and sinusoids. The court has also adopted a definition of carrier wave that includes both sinusoidal and non-sinusoidal
waveforms. Consequently, "modulation onto a carrier wave" includes encoding digital data onto a pulse waveform in a format such as non-return-to-zero, return to zero, Manchester, or bi-phase.

A. Parties' Construction Arguments

Plaintiff's proposed construction construes "modulation scheme" as "a technique by which a modulator converts digital data into a modulated analog signal and a demodulator converts the modulated analog signal back to digital data." Defendants argue first that the specification uses the words "scheme" and "technique" interchangeably, so this supports Plaintiff's construction of "modulation scheme" as "a technique." See, e.g., '759 patent, Abstract, 2:65-66. Plaintiff also argues the inclusion of "modulator" and "demodulator" in the construction identifies structures that implement the "modulation scheme" and therefore provide context to the construction. Plaintiff argues the specification provides support for the "modulator" and "demodulator" language in the discussion of Figure 2 which shows a "modem . . . used to modulate/demodulate data in the wireless communications systems . . . described above. Modems . . . are used by the base station . . . and CPEs . . . to modulate and demodulate data." '759 patent, 6:27-31 & Fig. 2.

Defendants' proposed construction construes "modulation scheme" as "a method of converting digital data to an analog signal and converting it back to its original form." Defendants point out that the parties basically agree that the modulation scheme is used to convert digital data into modulated analog signal; however, Defendants argue Plaintiff is improperly adding additional structural requirements (i.e., "modulator" and "demodulator") that are unnecessary and do not appear in the '759 patent. Defendants argue Plaintiff's additional language is flawed because if any structure is used to convert the data then it must be a "transmitter module" or a "receiver module" according to the specification. '759 patent, 6:37-43; 6:43-45. Therefore, Plaintiff's references to "modulator" and "demodulator" are inaccurate according to the specification.

B. Analysis

The parties basically agree that the modulation scheme is used to convert digital data into modulated analog signal and vice versa. But the parties disagree whether to include the "modulator" and "demodulator" language or define the phrase more broadly as Defendants' construction. The Court agrees with Defendants that Plaintiff is improperly adding the additional structural requirements of "modulator" and "demodulator." The specification never mentions any structures specifically called a "modulator" or "demodulator." The Court agrees with Defendants that even if the Court were to add structures to define the "modulation scheme," Plaintiff uses the incorrect structures. The specification specifically discloses a "transmitter module" and a "receiver module" to convert the digital and analog data. '759 patent, 6:37-43 ("the transmitter module 204 converts digital data to an appropriately modulated analog signal"); 6:43-45 ("[t]he receiver module . . . converts it back to its original digital form"). Nonetheless, the Court agrees that it is not necessary to define "modulation scheme" in the context of structures that perform the modulation.

The Court also disagrees with Defendants' proposed construction because it is overbroad. Defendants' proposed construction does not clarify that the "modulation scheme" actually involves some form of modulation; instead, Defendants' proposed construction would cover any "method of converting" the digital data. The term "modulation scheme," under its ordinary and customary meaning, implies that there is some form of modulation occurring. Further, the specification clarifies that the method of converting the data is modulation. See, e.g., 1:9-11 ("The present invention relates to a wireless communication system and to a system and method for implementing asymmetric modulation in such systems."). Therefore, to alleviate this issue in Defendants' proposed construction while not including unnecessary structures as in Plaintiff's proposed construction, the Court uses the language "modulated analog signal" and "demodulated digital data." The "modulated" and "demodulated" language has foundation in the specification. See, e.g., 6:37-39 ("the transmitter module 204 converts digital data to an appropriately modulated analog signal"). Finally, the Court agrees with Plaintiff in calling the scheme a "technique" instead of Defendants calling it a "method" because there is support in the specification. See, e.g., 7:57-58.
("[t]he downlink data 310 is transmitted in a pre-defined modulation or a sequence of modulation techniques"). So the Court construes the phrase "modulation scheme" as "a technique by which digital data is converted into modulated analog signal and the modulated analog signal is converted back to demodulated digital data."

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2. "a modulator arranged to modulate bits of the encoded data signals onto multiple carriers of the transmission system, different numbers of bits in each transmission symbol period being allocated to different carriers"

The next disputed term of the '604 Patent appears in Claims 1 to 14, and 22. There are two issues with respect to the parties' proposed constructions. First, the parties dispute the meaning of "arranged to." Second, the parties dispute whether "concurrently" should be incorporated in the term's construction to describe the modulation. Since the Court previously concluded that the ordinary meaning of "arranged" should be adopted in the term's construction to describe the modulation. Since the Court previously concluded that the ordinary meaning of "arranged" should be adopted in the previous term, the Court will adopt the ordinary meaning for "arranged" in this term. The Court will now address the issue regarding "concurrently." 19

19 It should be noted that the Court's reasoning and conclusion regarding this issue will be applied to subsequent disputed terms which raise the same issue, namely disputed terms [32] and [34].

Plaintiff proposes that the term should be construed as: "a modulator actually arranged so that, in each transmission symbol period, the modulator concurrently modulates bits of the plurality of encoded data signals that have different delays." (Chart at 8 (emphasis added)). Relying on the claim language and specification, Plaintiff injects the word "concurrently" to describe the manner in which the encoded data signals are modulated onto the multiple carriers. Plaintiff explains that the allocation of bits onto the carriers must occur simultaneously during a symbol period. Plaintiff bases its contention, in part, on the patentees' use of the phrase "in each transmission symbol period."

Plaintiff also refers to other claims in the patent to support its construction. Plaintiff focuses on Claim 15 which recites "applying FECC . . . coding and codeword interleaving differently to signals of different data channels to produce encoded data signals having different delays." '604 Patent, col. 13, ll. 43-46. From this language, Plaintiff contends that on its face, the claim "refers to at least two data channels, and specifies that one of these data channels will be coded and codeword-interleaved in a first way, while at the same time another of these data channels will be coded and codeword-interleaved in a different way." (Pl.'s Opening Br. at 35-36 (emphasis added)). Moreover, Plaintiff relies on various portions of the specification as evidence that "the patent throughout contemplates simultaneous data signals, each with different degrees of delay, different . . . coding [and] different interleaving." (Tr. at 125:23-25).

The Court disagrees with Plaintiff, finding that its construction unjustifiably attempts to import an additional limitation into the claim by adding the word "concurrently." Upon reviewing the patent's claims and specification, the Court concludes that there is nothing in the patent's disclosure requiring "concurrent" or "simultaneous" transmission of data signals. One glaring fact belying Plaintiff's arguments is the absence of the word "concurrently" in the patent. Indeed, Plaintiff admitted at the Markman hearing that the word "concurrently" does not appear in the patent at all. (Tr. at 124:18-19). Thus, the crux of Plaintiff's argument is that "concurrent" modulation is implicitly required.

The intrinsic evidence demonstrates there is no such requirement. The patent's disclosure describes a symbol period as a finite period of time. See '604 Patent, col. 5, l. 63. For example, a symbol period may last 250 [mu] s. See id. Importantly, however, there is no mention that modulation amongst the multiple carriers, or anything for that matter, must simultaneously occur within that finite period. This leaves open the possibility that modulation may occur at any time, for example, during smaller time frames, within the symbol period itself. Plaintiff's reasoning would require that the modulation occurring in the multiple carriers begin and end at the same time. Clearly, this is not the case. Thus, Plaintiff's argument that modulation must be simultaneous within a symbol period is needlessly limiting and contrary to the specification.

Accordingly, the Court concludes that disputed term [25] "a modulator arranged to modulate bits of the encoded data signals
onto multiple carriers of the transmission system, different numbers of bits in each transmission symbol period being allocated to different carriers" means "a modulator configured to modulate bits of encoded data signals such that different numbers of bits are allocated to different carriers in each symbol period."

7. "modular type adaptor design"

The '347 patent, claim 9, refers to "an alarm filter circuit as claimed in claim 1…housed in a modular type adaptor design." Pulse contends this term is clear on its face according to its common meaning and therefore does not require specific construction by the court. Mascon counters the term is indefinite and cannot be construed, relying on the somewhat conclusory allegation that the term can "mean anything or nothing." (Doc. No. 33 at 22.) Pulse, on the other hand, demonstrates the specification fleshes out the scope of this term. For example, the claim language defines the design as "having plug means on its one end for connection to the incoming telephone lines and having jack means on its other end for connection to said alarm unit." ('347 patent, claim 9.) The specification elaborates, describing the design as one which "facilitate[s] quick and easy connections between incoming telephone lines and an alarm unit." ('347 patent, Col. 1, l. 42-45.) Further, one end "has a RJ31X jack…formed integrally therewith for connection to the alarm unit," and the other end "has a RJ-45 plug…formed integrally therewith which is connectible to both the incoming telephone line wiring...and the house wiring." ('347 patent, Col. 4, ll. 40-47.) The adaptor is depicted in Figure 2 (labeled 60) as encompassing the entire filter unit. ('347 patent, Fig. 2.) With this information, the term "modular type adaptor design" would have a particular meaning to one skilled in the art.

For the reasons above, the court gives the term "modular type adaptor design" its plain and ordinary meaning and finds no specific construction of this term is required.

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"computing module" / "computer module"

Various asserted claims of the patents-in-suit contain the terms "computing module" and "computer module." The parties agree that the terms should be given the same construction. ACQIS originally contended the terms meant "an assembly with a main circuit board having at least a processing unit, memory, I/O circuitry and a connector component distinct from the main circuit board that couples to a corresponding connector component in the console for power and data communication." However, at the claim construction hearing, ACQIS recognized that its original proposal both included some elements that were already affirmatively recited in all claims, rendering those elements superfluous, and included other elements that were not affirmatively recited in all claims, inserting additional limitations into those claims. Thus, ACQIS now proposes that the terms mean "an assembly for providing a computing function within a computer system, wherein the assembly has a circuit board, a connector for engaging a corresponding connector of a console, and other elements as recited in a particular claim." Defendants contend that the terms mean "a structure comparable in size to a videocassette that provides the core computing power and environment for the computer system." The parties' dispute centers around two issues: (1) whether a size limitation should be imported into the claims, and (2) whether the inclusion of "core computing power and environment" is necessary given the computing elements present in each claim.

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Regarding the first dispute, ACQIS argues that Defendants' inclusion of a size limitation unnecessarily injects ambiguity into the terms and would improperly read limitations from a single preferred embodiment into the claims. ACQIS further contends that had the patentee intended to include size limitations in the claims, he would have done so. Defendants contend that the inventor disclaimed computer modules larger than a notebook computer. Although the '185 Patent specification does emphasize the module's size and portability, the same emphasis is missing in the specifications and prosecution histories of the '8,415 Patent family. In further support of their position, Defendants point to figures of the computer module in the '8,415 Patent family which illustrate its portable size, as well as the incorporation by reference of the '185 Patent specification into the '8,415 Patent family's specifications. Defendants' arguments are unpersuasive. The specifications in '8,415 Patent family specifically state that "some details of the ACM" can be found in the '185 Patent's application. See e.g., '8,415 Patent, col. 4:50. There is no reason to confute the invention described in the '185 Patent with the inventions described in '8,415 Patent family. Furthermore, the fact that the patent examiner did not require the patentee to include any size limitations in the claims demonstrates that the '185 Patent invention focused more on the separability of and interconnection between the ACM and PCON units, rather than the portability and size of the ACM.

As for the parties' second dispute, ACQIS contends that Defendants' inclusion of "core computing power and environment" also injects ambiguity into the terms by repeating what is already expressly recited in all asserted claims. Defendants contend that the inventor disclaimed modules without a "core computer power and environment." This argument fails for the same reason discussed above—there is no reason to confute the invention described in the '185 Patent with the inventions described in '8,415 Patent family. Moreover, the '185 Patent specification provides that "[t]he core computing power in the ACM comprises the central processing unit (CPU), system memory, any auxiliary processors, and primary mass storage (e.g., a hard disk drive) which serves as the boot device for the computer system." '185 Patent, col. 2:48-57. Thus, Defendants' inclusion of "core computing power and environment" is superfluous and confusing when cast against the specific claim limitations that recite a CPU, memory, mass storage, etc. See, e.g., '185 Patent, 18:32-46.

There is no express disavowal of claim scope with regard to Defendants' size limitation or the "core computer power and environment" limitation. Thus, Defendants' proposed construction is improper in all respects. ACQIS's revised proposed construction, although consistent with the specification, may create unnecessary ambiguity for the fact finder. Accordingly, the Court adopts a modified version of ACQIS's proposed construction and construes the terms "computing module" and "computermodule" to mean "an assembly for providing a computing function within a computer system as recited in a particular claim."
Numerous cases demonstrate that the term "module," in the context of the telecommunications field, denotes sufficient structure such that § 112, P 6 is not invoked. See, e.g., PalmTop Prods., Inc. v. Lo-Q PLC, 450 F. Supp. 2d 1344, 1364-65 (N.D. Ga. 2006) (holding that "communicate module' and even 'module,' represents more than a mere verbal construct serving as a 'means for substitute' and concluding 'module' connotes definite structure, and when combined with 'communications,' which describes the module's operation, sufficient structural meaning will likely be conveyed to a person of ordinary skill in the art"). Similarly, the court in C2 Commc'ns Techs., Inc. v. AT&T, Inc. also found, in the context of a telephone calling system patent, that section § 112, P 6 is not "invoked by the use of the term 'module.'" No. 2:06-CV-241, 2008 U.S. Dist. LEXIS 46942, at *34-35 (E.D. Tex. June 13, 2008) (holding that "first protocol conversion module" does not invoke § 112, P 6).

Moreover, in many communications and computer arts cases, courts have found that a "module" is the actual structure described in the specification which corresponds to the function claimed by means language. See On Demand Mach. Corp. v. Ingram Indus., Inc., 442 F.3d 1331, 1340-41 (Fed. Cir. 2006) (affirming claim construction that found "computer module" to be the structure for "means for a customer to visually review said sales information"); Foundry Networks v. Lucent Techs., Inc., No. 2:04-CV-40, 2005 U.S. Dist. LEXIS 46840, at *21, 22, 24, 25 (E.D. Tex. May 24, 2005) (finding "voice communication module" to be the structure for "means for forwarding an incoming call" limitations); Roche Diagnostics Corp. v. Apex Biotechnology Corp., 455 F. Supp. 2d 840, 868 (S.D. Ind. 2005) (finding "a removable and/or reinsertable read-only-memory ('ROM') chip and/or module" to be the structure for "pluggable memory key means" limitation); Alcatel USA, 2008 U.S. Dist. LEXIS 64351, at *52, 56, 60 (finding a processor using a "locator module" to be structure for "means for determining" and "means for identifying" and "device module" and the software executing it to be structure for "means for manipulating each received data or message"); Visto Corp. v. Good Tech, Inc., No. 2:06-CV-039, 2008 U.S. Dist. LEXIS 3244, at *32-34, 37 (E.D. Tex. Jan. 16, 2008) (finding "general synchronization module" to be the structure for "first/second] means for generating first/second] examination results from first/second] version information" and "means for generating;" "synchronization start module" to be the structure for "means for initiating;" and communications module" to be the structure for "means for downloading data"), constructions adopted by Visto Corp. v. Research in Motion, Ltd., No. 2:06-CV-181, 623 F. Supp. 2d 756, 2008 U.S. Dist. LEXIS 35580 (E.D. Tex. Apr. 30, 2008); Autobytel, Inc. v. Dealix Corp., No. 2:04-CV-338, 2006 U.S. Dist. LEXIS 3381, at *24-26 (E.D. Tex. Jan. 18, 2006) (finding "process purchase request module," "database access module," "buyer-dealer association module," and "network access module" to be structures for "means for identifying," "means for creating," and "means for communicating").

The terms "originating telephone number module," "telephone number detection module," and "call connection module" would be readily understood by a person of skill in the art based on the functions to be performed. For example, with respect to the "originating telephone number module," the specification states that "[i]n one embodiment, the caller's telephone number is detected by the call identification module 320 through caller ID service. In this embodiment, the caller's telephone number is automatically detected through a caller identification service that supplies the telephone number from which the telephone call is placed." '156 Patent, col. 3:45-61, 6:45-48; Fig. 3. The specification also provides that "[t]he telephone number detection module 310 detects the telephone number dialed by the caller. In one embodiment, the telephone number dialed by the caller is an assigned incoming telephone number that corresponds with a recipient." '156 Patent, col. 3:44-48; Fig. 3. The specification also discloses that "the call connection module 360 connects the caller with a particular recipient based on the identity of the caller, the caller's profile, and the assigned incoming telephone number dialed by the caller." '156 Patent, col. 4:33-36. Thus, "originating telephone number module," "telephone number detection module," and "call connection module" would be understood by a person skilled in the art to refer to any of that class of hardware and/or software components that, respectively, (1) identifies an originating telephone number; (2) detects a dialed telephone number; and (3) connects a telephone call. As a result, § 112, P 6 is not invoked.

In asserting that the module limitations should be treated as means plus function limitations subject to § 112, P 6, Rebtel cites to the Federal Circuit's holding in Ranpak Corp. v. Storopack, Inc., No. 98-1009, 1998 U.S. App. LEXIS 16348, 1998 WL 513598 (Fed. Cir. July 15, 1998). There, the patents-in-suit were directed towards technology for converting multi-ply paper into pad-like products to be used as cushioning in boxes. The patents contained claims reciting both a "settable control means" as well as a "settable control module." The court concluded that "settable control module" invoked § 112, P 6. Rebtel has also cited to Kozam v. Phase Forward, Inc., No. MJG-04-1787, 2005 U.S. Dist. LEXIS 46850, 2005 WL 6218037, at *6-7 (D. Md. Aug. 29, 2005), in which the court concluded that the terms "first data verification module" and "second data verification module" should be construed the same as "first data verification means" and "second data verification means."
Both cases, however, are distinguishable on their facts. In Ranpak, there was no indication that the term "module" identified a structure as understood by a person of skill in the art. Consequently, the "module" containing claims simply recited the same function described in the "means" containing claims without offering any additional structural description. 2005 U.S. Dist. LEXIS 46850, 2005 WL 6218037, at *6-7 ("[T]he use of the term 'settable control module' invokes § 112, P 6, because it merely sets forth the same black box without recitation of structure for providing the same specified function."). In Kozam, the court found that the term "module" referred to a software component of a much larger software program, but failed to describe any meaningful structure. Kozam, 2005 U.S. Dist. LEXIS 46850, 2005 WL 6218037, at *6. Because "module" failed to convey any structural meaning beyond the recitation of its function, the court concluded that the limitations containing "module" should be treated as means plus function limitations subject to § 112, P 6. 2005 U.S. Dist. LEXIS 46850, [WL] at *6-7.

In contrast, numerous cases have demonstrated that in the telecommunications context, there exists a well-understood structure associated with the term "module" by those skilled in the art. 1 See, e.g., C2 Commc'ns Techs., 2008 U.S. Dist. LEXIS 46942, at *34-35; Foundry Networks, 2005 U.S. Dist. LEXIS 46840, at *21, 22, 24, 25; Alcatel USA, 2008 U.S. Dist. LEXIS 64351, at *52, 56, 60. As a result, neither Ranpak nor Kozam requires the application of § 112, P 6 to the module limitations of the '156 Patent.

--- Footnotes ---

1 Rebtel also argues that the court in Alcatel USA Res. Inc. v. Microsoft Corp., No. 6:06 CV 500, 2008 U.S. Dist. LEXIS 49615 (E.D. Tex. June 27, 2008) found the term "module" to be indefinite. However, the term at issue was "recognition means," which the court identified as being located within a "set-up module." 2008 U.S. Dist. LEXIS 49615 at *38. The court did not find that the "set-up module" term was subject to § 112, P 6 or that it was indefinite.

--- End Footnotes ---

Consequently, the presumption against subjecting claims lacking the "means" language to the requirements of § 112, P 6 applies, and the module limitations of the '156 Patent should not be treated as means plus function limitations. See CCS Fitness, 288 F.3d at 1369.

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4. "module"

The next disputed terms that the parties identify is "module," which occurs throughout the 366 and 918 Patents. For example, claim 10 of the 366 Patent and claim 7 of the 918 Patent describe "a network control module, including a network interface coupled to receive NFS [or file system] requests from [a data] network," and "a file system control module, including a mass storage device interface coupled to [a] mass storage device." 366 Patent, 53:15-18; 918 Patent, 127:42-46. Adopting its now familiar posture, plaintiff argues that no construction of the term "module" is required. Defendant, on the other hand, proposes that the term be construed to mean "a distinct, plug-hardware unit."

The primary point of contention is whether "module" should be construed to encompass both software and hardware modules, or whether it should be limited to hardware modules alone. The parties cite numerous dictionary definitions for the term, some of which support the view that the module is a hardware unit and others that are consistent with a broader definition of that would include both hardware and software. See, e.g., AP Dictionary at 1399 (defining module as software in the context of "computer programming" and hardware in the context of "computer technology"). Indeed, the IEEE Dictionary provides no fewer that twenty definitions of the word, and refers to both hardware and software modules. Plaintiff argues that this welter of inconsistent definitions supports its view that no construction of the term "module" is needed. This is illogical, for where there are a myriad of definitions it is unlikely that all of them fit. Once again, we are reminded by the case law that where "words . . . have multiple dictionary definitions, some having no relation to the claimed invention, the intrinsic record must always be consulted to identify which of the possible dictionary meanings of a claim terms in issue is most consistent with use of the words by the inventor." Texas Digital, 308 F.3d at 1203. Thus, the court must construe the term module in light of the claim language, the specification and the prosecution history of the 366 and
As noted above, the claims of the 366 and 918 Patents identify two types of modules, network control modules and file system modules. The language used to describe these modules implies that they are hardware devices. For example, claim 7 of the 918 Patent claims a network control module "coupled to receive file system requests from [a data] network." 918 Patent, 127:42-45. Another element of claim 7, the file system module, "include[s] a mass storage device interface coupled to [a] mass storage device." Id. at 127:45-46. The fact that the inventors claimed modules that "couple" and "interface" with other hardware devices suggests that the modules are themselves physical devices -- i.e., hardware. In contrast, a software module is typically defined as "[a] program unit that is discrete and identifiable with respect to compiling, combining with other units, or loading," or as "[a] logically separable part of a program." IEEE Dictionary at 703-04. Simply put, it makes no sense to refer to a part of a software program as "coupled" to a hardware device such as a mass storage device. Thus, the ordinary meaning of the word module, as used in the claims of the patents in suit, refers to a hardware module.

This construction is also supported by the prosecution history of U.S. Patent No. 5,163,131 (Nov. 10, 1992) ('131 Patent), a parent application of the 366 and 918 Patents. In the course of prosecuting the parent application, the examiner rejected four claims as anticipated by a prior art multiprocessor data processing system. Grewal Decl., Exh. I at 339. Like the 131 Patent and the patents in suit, the prior art processor disclosed a file server architecture in which a file manager, a storage processor, and a "requesting unit capable of issuing calls" (i.e., a network controller) were controlled by separate and independent elements the file server. Id. at 339-40. Auspex sought to distinguish the prior art server, arguing that the various "levels" of that server (e.g., a file controller represented by a "file management level") "are merely software processes." Id. at 340 (emphasis added). Auspex contrasted these software processes with the claimed invention, noting that "one of the primary features of the Applicants' invention is that these processes [i.e., the network control, file control, and storage processing] do run on different hardware." Id. Auspex continued: "[T]he separation of these processes onto different hardware which yields the performance advantages of the Applicants' invention, not the separation of these tasks into different software processes." Id. at 341.

Plaintiff contends that the referenced passage of prosecution history is irrelevant to the patents in suit. Admittedly, the term "module" does not appear as a limitation in the 131 Patent's claims. As the Federal Circuit observed in Advanced Cardiovascular Systems, Inc. v. Medtronic, 265 F.3d 1294 (Fed. Cir. 2001), the prosecution history of a parent application is most apposite to the construction of claims in a successor patent "if . . . it addresses a limitation in common with the parent in suit." Id. at 1305. In that case, the court declined to read a claim limitation culled from the prosecution history of two parent applications into a subsequently issued patent, citing the absence of the disputed claim term in the parent application's prosecution history. Id. at 1305-06. However, unlike Medtronic, the record in the instant case does not indicate that Auspex applied for the patents in suit with the intent of securing broader claims than the parent application. See id. at 1306. Moreover, despite the absence of the term "module" in the claims of the 131 Patent, Auspex emphasized the separation of network and file control processes onto different hardware as one of the "primary features" that "yields the performance advantages of Applicants' invention" when compared to the prior art file server. Grewal Decl., Exh. I at 340-41. Although these statements do not expressly limit the claim term "module" -- the term did not appear in the rejected claims of the 131 Patent -- they are nonetheless relevant to determining the meaning of the term as it is used in the patents in suit. Accord Microsoft Corp. v. Multi-Tech Sys., Inc. 357 F.3d 1240, 1250 (Fed. Cir. 2004) (observing that "[a]ny statement of the patentee in the prosecution of a related application as to the scope of the invention would be relevant to claim construction"), cert. denied, 543 U.S. 821, 160 L. Ed. 2d 31, 125 S. Ct. 61 (2004). Furthermore, the term "unit" is used in the 131 Patent similarly to the use of the term "module" in the 366. Thus, considering the prosecution history of the 131 Patent together with the context in which the disputed term appears in the claims of the 366 and 918 Patents, the court concludes that the term "module" must refer to a hardware device.

Defendant also argues that the modules disclosed in the 366 and 918 Patents must be "distinct . . . plug -- in unit[s]." In support of this construction, defendant cites the AP Dictionary, which defines module as "a distinct unit or component," or alternatively, as "an interchangeable plug-in item containing electronic components that complete, enhance, or expand processing capability or memory capacity." AP Dictionary at 1399 (defining "module" in the art of computer technology). The court agrees that the essence of modularity requires that a modular component be discrete, distinct, and separable from the whole. On the other hand, it is unclear what purpose would be served by adopting the "plug-in" limitation that defendant proposes. Defendant appears to extract the term from a single dictionary definition of the term "module." See AP Dictionary at 1399. However, "[i]f more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claims may be construe to encompass all such ordinary meanings." Texas Digital, 308 F.3d at 1203. Of the twenty
definitions of module that appear in the IEEE Dictionary (the majority of them pertaining to hardware), only two contain the "plug-in" limitation. Id. at 703-04. While the intrinsic record in this case requires that the court limit the meaning of the disputed term to exclude software modules, defendant fails to convince the court that it should include the phrase "plug-in" as a limitation in the claims at issue. Accordingly, for the reasons stated above, the court construes the term module to mean "a distinct hardware unit."

3. "Module processor" and "Module memory" (Claims 1, 10, 11, 12)

As the parties' arguments regarding these two claim terms are related, the Court addresses them in tandem. Agere proposes that these terms should be construed as requiring physical attachment to the communication module, while Broadcom suggests that they do not need construction at all. Looking to the claim language for primary support, Agere asserts that "as a matter of simple grammar, the modifier 'module' signifies that the processor belongs to the 'communication module.'" (Agere's Resp. at 12; Goodman Rep. P 78 ("Because the word 'module' is used to modify the word 'processor' in the claims, the 'processor' is clearly contained within the 'communication module.'").) The claim language itself and its grammatical construction, however, do not require that the module processor and module memory be physically attached to the communication module. The claim language only requires that the communication module be "comprised" of, inter alia, a module processor and a module memory. (‘705 patent, col. 38, ll. 14-15 ("each communication module comprising a module processor [and] a module memory"), col. 39, ll. 8-9 (same).) A person of skill in the art would understand that this relationship could be accomplished either by physical attachment, or, alternatively, by an electrical association. (Acampora Rep. at 35, 37 (testifying that person of ordinary skill would understand from claim language that module processor and module memory are "associated" with communication module, not necessarily physically attached).) Accordingly, the Court finds that the claim language itself does not support Agere's proposed limitation.

Similarly, the patent specifications do not require that the "module memory" and "module processor" be physically attached to the "communication module." While Figures 1A and 2 in the '705 patent suggest that, in various embodiments, the "module memory" and "module processor" may be physically attached to the "communication module," these figures are explicitly referred to as "a schematic diagram of functional blocks" (‘705 patent, col. 5, l. 21 (emphasis added)), and "a schematic diagram of functional interfaces" (id., col. 5, l. 28 (emphasis added)), respectively. Accordingly, a skilled artisan would understand that these representations describe functional rather than physical relationships. (Acampora Rep. at 35.) Furthermore, even if these figures were to demonstrate a physical connection, they would only represent particular embodiments of the invention and could not be used to limit the broader claim language. Electro Med. Sys., S.A. v. Cooper Life Sci., Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("Particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments."). In conclusion, the claim language and specification do not support the limitation Agere proposes. Accordingly, the Court agrees with Dr. Acampora and finds that these terms need no construction. (Acampora Rep. at 35 ("The plain meaning of the phrase is understood by a skilled artisan."), 37 (same).)

B. Dispute Respecting Whether A Term Is A Means-Plus-Function Term

Before turning to the disputed means-plus-function claim terms, it is appropriate to decide the dispute respecting whether one of the putative means-plus function claim terms is such a claim at all. That term is:

"A multiple purchase order generation module, said purchase order generation module creating multiple purchase orders from a single requisition created with said user-generated criteria and said search-module criteria"

‘516 Patent, Claim 21

The parties disagree over whether this claim element should be construed as a means-plus-function element. Because the
element does not contain the word "means" there is a rebuttable presumption that it should not be construed as a means-
plus-function element. Depuy Spine, Inc., 469 F.3d at 1023. To overcome the presumption, the proponent, here Lawson,
must demonstrate that the claim term "fails to recite sufficiently-definite structure or else recites a function without reciting
sufficient structure for performing that function." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir.
2002).

Lawson argues that "module" fails to connote sufficient structure. (Def. Br. at 20.) It asserts that "module" is akin to the
terms "mechanism," "means," "element," and "device," which the Federal Circuit has found do not constitute sufficient
structure. See Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004). And, Lawson argues,
the Federal Circuit has found that both a "settable control means" and "settable control module" required construction under

ePlus argues that "module" is a "well-known term in computer software technology that constitutes structure. (Pl. Br. at 16-
17.) Neither part suggest that the term "module" is definable by references to the intrinsic evidence. However, it is not
disputed that the term is defined in extrinsic evidence. Thus, for example, Webster's New World Computer Dictionary
defines "module" as "a unit or section that can function on its own. In an integrated program, for instance, one can use the
word processing module as though it were a separate, standalone program." (Pl. Br. at Ex. 18.) Similarly, the Microsoft
Computer Dictionary defines "module" as "a collection of routines and data structures that perform a particular task or
implement a particular abstract data type." (Pl. Br. at Ex. 15.) The Court may properly consider those definitions so long as
the ultimate construction is grounded in intrinsic evidence. Mangosoft v. Oracle Corp., 525 F.3d 1327, 1330 (Fed. Cir.
2008). And, here, the definitions offered by ePlus are consistent with the claim language. Significantly, in addition to the
term at issue, Claim 21 of the '516 Patent is also comprised of "a requisition module" and "a catalog collection searching
module." The use of the word "module" in those parts of Claim 21, together with the reference in the specification ('516
Patent at 10:50-65; 15:25-50; 18:23-26) support the assertion that the term module carries the meaning argued by ePlus.

Thus, when the entire claim is examined, it is clear that the term is used consistently to connote a structure.

Thusly understood, the term "module" connotes sufficient structure. Because the patents deal with computer software, and
module carries a special meaning in that field, the term "module" as used in the patent defines a structure. Therefore,
Lawson has not overcome its burden, and "module" will not be construed as a means-plus-function term.

Although the parties disagreed over whether this term is a means-plus-function term, neither party offered a proposed
construction of the term. And, no construction seems necessary if the term "module" is given its usual meaning.

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1. "Modular Jack"

The term "modular jack" is used in the claims of the '641 patent as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

a printed board containing an electronic element for suppressing noise;

a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on
the printed board;

a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a
wire on the printed board; and

an insulating housing for encasing the printed board.

2. A modular jack as claimed in claim 1, wherein the noise suppressing electronic element is an array of common mode
choke coils.
4. A modular jack as claimed in claim 1, wherein the noise suppressing electronic element is a chip capacitor.

6. A modular jack as claimed in claim 1, wherein the interior of the housing is divided into a first chamber in which the printed board is set and a second chamber to which the contactor is extended, and the terminal is protruded outside the housing from the first chamber.

The parties agree that "modular" refers to "the geometric configuration of jacks and their corresponding plugs, such as the RJ-11 series, RJ-45 series and the like, which are now commonly seen on telephony apparatus, computer modems, switches, and routers, and similar equipment." Murata's Opening Brief, at 12; Bel Fuse's Responsive Brief, at 25. Murata argues that "jack" should be construed as "a socket to which wires of a circuit are connected at one end and into which a plug is inserted at the other end." Murata's Opening Brief, at 12. Bel Fuse argues that a "jack" should be construed as "a female connector to which wires of a circuit are connected at one end and into which a plug is inserted at the other end." Bel Fuse's Responsive Brief, at 25. Thus, the parties dispute whether a "jack" is more properly characterized as a "socket" or a "female connector." The parties have not explained to the court why construing some thing as a "socket" as opposed to a "female connector" is a distinction with a difference; indeed, their briefs indicate that both parties understand the meaning of "jack" as it is used in the '641 Patent. Nevertheless, the court will consider which is the more appropriate term.

Murata argues that "female connector" is too general a term because the '641 Patent does not claim female connectors generally; it claims a modular jack. Instead, Murata argues that "socket" is a more specific term that is consistent with the intrinsic record of the '641 Patent. Dr. David Hughes ("Dr. Hughes"), Murata's expert, opined that the word "jack" means "a socket to which wires of a circuit are connected at one end and into which a plug is inserted at the other end." Hughes' Expert Report at 4, Ex. 2 to Murata's Opening Brief. He based his construction on a definition from Rudolf F. Graf, The Modern Dictionary of Electronics 529 (6th ed. 1984) ("The Modern Dictionary of Electronics") ("1. A socket to which the wires of a circuit are connected at one end, and into which a plug is inserted at the other end."). Id. Dr. Hughes also opined that the "plug" is usually thought of as the "male portion of the assembly," and the "jack" is usually thought of as the "female portion." Id.

Murata argues that "female connector" is too general a term because the '641 Patent does not claim female connectors generally; it claims a modular jack. Instead, Murata argues that "socket" is a more specific term that is consistent with the intrinsic record of the '641 Patent. Dr. David Hughes ("Dr. Hughes"), Murata's expert, opined that the word "jack" means "a socket to which wires of a circuit are connected at one end and into which a plug is inserted at the other end." Hughes' Expert Report at 4, Ex. 2 to Murata's Opening Brief. He based his construction on a definition from Rudolf F. Graf, The Modern Dictionary of Electronics 529 (6th ed. 1984) ("The Modern Dictionary of Electronics") ("1. A socket to which the wires of a circuit are connected at one end, and into which a plug is inserted at the other end."). Id. Dr. Hughes also opined that the "plug" is usually thought of as the "male portion of the assembly," and the "jack" is usually thought of as the "female portion." Id.

In evaluating the intrinsic evidence, the court notes that while the parties have provided the prosecution history of the '641 Patent, that history provides no assistance in the task of claim construction. See Ex. 11 to Bel Fuse's Responsive Brief. The patent application was filed on January 30, 1991. On May 30, 1991, the examiner held an interview with the applicant by telephone. According to the examiner's summary, in that interview, the examiner and applicant reached an agreement to amend claim 5. Subsequently, the examiner issued a notice of allowability along with an examiner's amendment. That amendment changed "the pitch among the terminals" in claim 5 to "the pitch among a plurality of terminals" and also deleted "the" from "among the contactors on the printed board."

Thus, the patentee made no representations during the prosecution of the '641 Patent about the constructions of the terms at issue here. Indeed, the claims at issue in this case (1, 2, 4, and 6) were issued without amendment.

In support of its position that "female connector" is too broad a term, Murata cites the deposition testimony of Albert Willette ("Willette"), who is apparently Bel Fuse's expert. Willette testified that there are other kinds of female connectors that are not jacks. Willette Dep., 81:5-15, Ex. 19 to Murata's Opening Brief. Willette also testified that a jack and plug
together form a connector. Id. at 78:7-12. Murata also cites the specification of the ‘641 Patent which states: "The present invention relates to a modular jack in a modular connector. . . ." ‘641 Patent, col. 1, ll. 6-7. According to Murata, adopting Bel Fuse's construction would cause this sentence to be nonsensical, reading "a modular connector in a modular connector." The court notes that Murata is incorrect; Bel Fuse's construction would cause the specification to read, "a female modular connector in a modular connector." Given the fact that Willette testified that the jack and plug together form a connector, testimony that Murata cites, the court finds that this substitution makes sense.

Additionally, it appears that Bel Fuse's proposed construction would not cause the claims of the ‘641 Patent to read on all types of modular connectors. Instead, it would describe only the female portion of a connector into which a plug is inserted. This appears to be an appropriately narrow construction of a "jack." Other references in the same art area show that jacks are often described as "connectors." See U.S. Patent No. 4,772,224 (titled "Modular Electrical Connector" and describing a "modular jack"), Ex. 8 to Bel Fuse's Responsive Brief; U.S. Patent No. 4,799,901 (referring to jacks as "connector subassemblies" and stating "U.S. Patent No. 4,726,638 discloses a transient suppression assembly for retrofitting existing electrical connectors, such as telephone jacks") (emphasis added), Ex. 10 to Bel Fuse's Responsive Brief; U.S. Patent No. 4,878,848, col. 2, ll. 40-42 ("The adapter system comprises a modular connection means, such as a modular jack, and a housing structure connected to the modular jack."). Ex. 12 to Bel Fuse's Responsive Brief.

Thus, the court finds that a jack and plug together form a modular connector. Indeed, Murata cites Willette's deposition testimony in which he testified that a jack and plug together form a modular connector. Willette Dep., 78:9-10. Murata bases its proposed construction of a "jack" as a "socket" on only a single dictionary definition in the Modern Dictionary of Electronics n6 and Dr. Hughes' expert report which refers only to that same definition without further explanation. The Federal Circuit has stated that "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court." Phillips, 415 F.3d at 1318. While Dr. Hughes' assertion is not wholly unsupported (it refers to a dictionary definition), it is only marginally useful to the court because it provides no explanation as to why the particular definition was chosen or why it is consistent with the view of a person of ordinary skill in the art.

After reviewing all of the evidence, both intrinsic and extrinsic, the court finds that adopting a construction which characterizes a "modular jack" as "the female portion of a modular connector" is consistent with the intrinsic evidence, and reflects the view of a person of ordinary skill in the art. Adding the restriction "in which wires of a circuit are connected at one end and into which a plug is inserted at the other end" appropriately narrows the definition such that it is clear that a "jack" does not encompass all female connectors. Additionally, the parties have agreed that the additional modifier "modular" restricts the construction of the claim "modular jack" to certain configurations. Thus, the court construes the term "modular jack" as "the female portion of a modular connector in which wires of a circuit are connected at one end and into which a plug is inserted at the other end."

11. "modulator"

Wi-LAN's Proposed Construction

"a device that varies one or more of the amplitude, frequency, or phase of each data symbol from each set of data symbols in accordance with a code from the up to M direct sequence spread spectrum codes"

 Defendants' Proposed Construction

invalid for failure to meet 35 U.S.C. § 112
Claim 2 requires a "modulator to modulate." The specification provides that "[t]he computing means shown in FIG. 1 includes a source 16 of N direct sequence spread spectrum code symbols and a modulator 18 to modulate each ith data symbol from each set of N data symbols with the I code symbol from the N code symbol to generate N modulated data symbols, and thereby spread each I data symbol over a separate code symbol." '802 patent, 4:7-12. While Wi-LAN proposes a construction for the term, the Defendants do not provide a proposed construction and rather argue that it is invalid. Defendants argue that the "modulator" term in claim 2 is indefinite and thus renders claim 2 invalid. Defendants argue that the structure corresponding to the computing means function in claim 1 requires that each data symbol in the set of N data symbols be spread over a separate code. By amending claim 2 to require spreading each set of data symbols over a separate code in the reissue application, Defendants argue that the applicants broadened claim 2 beyond the scope of independent claim 1, rendering it invalid.

The Court rejects Defendants' arguments. The Court is not convinced that during reissue the applicants impermissibly broadened the claim language. Further, it is well settled law that claim terms are not necessarily limited to a preferred embodiment. The Court finds that the term "modulator" is not indefinite. A claim is indefinite only if the "claim is insubstantial in ambiguity, and no narrowing construction can properly be adopted." Exxon, 265 F.3d at 1375; Honeywell, 341 F.3d at 1338-39. This term is not "insubstantial in ambiguity" so as to prevent construction. See Young, 492 F.3d at 1346 (claims are considered indefinite when they are "not amenable to construction or are insubstantially ambiguous"). The specification contains examples from which one of ordinary skill in the art could determine the scope of the claim. See '802 patent, 4:7-12; Figure 1 (item 18). The Court finds that there is sufficient guidance in the specification as to the meaning of "modulator" to one of ordinary skill in the art. See Exxon, 265 F.3d at 1375 ("If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds."). The Court finds that various dictionary definitions provide a consistent meaning for the term modulator as, generally, a device that modulates an electronic wave, e.g., a device that varies one or more properties of a carrier wave or signal, such as the amplitude, phase, or frequency of the wave. Wi-LAN's proposal is partially consistent with the ordinary meaning of the term modulator, but adds language that is mostly superfluous based on the claim language following the term to be construed. The Court finds that in other claims the parties have not construed the terms modulate, modulating, or modulated, and thus the Court will not construe modulating, as opposed to modulator, in the claim at issue. The Court construes the term "modulator" to mean "a device that varies one or more of the amplitude, frequency, or phase of each data symbol."

4. Module Identifier/Text String

Isogon and Amdahl do not dispute that "module identifier" and "text string" are synonymous claim terms that describe a recognizable "string of characters" embedded in the software programs. Markman Tr. at pp. 12, 101-02. This string of characters is used by the invention to identify those software programs for which the invention lacks pre-stored identifying information in the knowledge base. See id. at pp. 101-02. The only dispute concerns in what part of the invention the "module identifier" must be stored. Amdahl contends that the module identifier must be stored in either the knowledge base or the surveying program; Isogon contends that it may be stored "anywhere in the apparatus." Markman Tr. at p. 13.

The '340 claims describe the invention as having a means "for storing said module identifier in said secondary memory means" and a means for relating the module identifier with a module name which is also stored in the "secondary memory." '340 Pat. at col. 13, l. 65-col. 14, l. 3. The "secondary memory" referred to in the '340 patent is defined in the claims as part of the "plurality of storage devices" comprising part of the invention apparatus. '340 Pat. at col. 12, ll. 48-53. While the '340 "secondary memory" is described in the claims as storing "module names" that are retrieved by the "surveying means," id. at col. 12, ll. 55-60, the claims do not require that the secondary memory be part of the "surveying means" or the knowledge base.

In addition, "Figure 4" of the drawings, which describes the operation of the surveying program, states that the module identifier is stored in the "system configuration log." '340 Pat. at Figure 4, Sheet 4. This system configuration log is then identified in the specification as component "66" of the drawings. Id. at col. 11, ll. 47-49. Amdahl admits that the module identifiers for which the invention searches are "dumped" into file "number 66." Markman Tr. at p. 27. In "Figure 1" of the
'340 patent drawings, the component numbered "66," the "system configuration log," is shown in relation to the surveying program. Component "66," however, is clearly embodied outside of the boundary lines indicating the surveying program labeled as component "12" in "Figure 1". '340 Pat. at Figure 1, Sheet 1. Because certain components are represented within the boundaries of the surveying program, namely the "directory," labeled "12A," and the "module reader," labeled "12B," the drawing indicates a demarcation between components contained within the surveying program and those that are not. Therefore, the preferred embodiment of the '340 patent teaches that module identifiers may be stored in a peripheral device used by the surveying program, but need not be part of that surveying program.

Further, the specification refers to the knowledge base as component "20" in the drawings. '340 Pat., at col. 5, l. 20. The system configuration log, component "66," is clearly indicated in Figure 1 as a separate entity from the knowledge base, component "20," and likewise as separate from, and outside of, the surveying program, component "12." Id. It follows that if, as described by the specification and shown in "Figure 4," a module identifier can be stored in the system configuration log, which is embodied here as an entirely separate entity from both the surveying program and the knowledge base, then the '340 patent teaches that the invention does not require storage of a module identifier in either the surveying program or the knowledge base.

Nowhere in the claims or the specification does the patent require storage of a module identifier in a given location. Markman Tr. at p. 102. The specification language describing module identifier storage, using the terms "may" and "can," permits optional locations for storage, describing how "the knowledge base can also be used to store information, such as the strings...." '056 Pat. at col. 5, ll. 63-66, and that module identifiers "may be stored in the knowledge base or hard coded into the file reader 12B." Id. at col. 6, ll. 18-20. While Dr. Kaliski testified that this language permitted only these two possible storage locations, he also acknowledged that this specification language should not be taken out of context. See Markman Tr. at p. 181. The patents as described in the drawings and specification reveal that these two locations are not the only locations where module identifiers may be stored, because module identifiers can also be stored in the system configuration log, which is not part of the knowledge base or the surveying program's "module reader 12B." '340 Pat. at Figure 1, Sheet 1. The storage of module identifiers is not limited to the surveying program or knowledge base locations.

3. monitors

Again, plaintiff provides a dictionary definition for the term monitor because the claims and specification do not provide a definition. Plaintiff suggests that monitor means: "to watch, keep track of, or check, usually for a special purpose." (Plaintiff's Supplemental Brief, at 1 (quoting the Merriam-Webster Collegiate Dictionary)). Defendants look to the brief summary of disclosure within the text of the patent for guidance:

During each monitor of the phone line, the external microphone is temporarily disabled so that any signal on the line cannot be the result of external noise or someone talking on the external microphone....The voice communication system comprises a microprocessor circuit....and which operates in combination with a timing circuit to enable a monitor of the link at periodic intervals. If there is a sound on the line, it is presumed to be generated at the microphone in the interior environment....and the microprocessor will dedicate transmit control to the microphone at the interior environment.

U.S. Patent No. 4,604,501 at col. 4:6-22. However, the brief summary of the disclosure does not define the term. The Court concludes that the dictionary meaning provided by plaintiff comports with the language set forth in the patent. Thus, for purposes of the 501 patent, monitor means "to watch, keep track of or check." This definition applies to all claims of the 501 patent.
2759
2. "monitor and accumulate"

Tidel proposes the term means "ongoing observation and keeping." FKI proposes the term means "keep track of and gather." "Monitor" generally means "to observe, supervise, or keep under review; to keep under observation; to measure or test at intervals" Oxford English Dictionary. "Accumulate" generally means "to amass or collect." Oxford English Dictionary.

Tidel argues that "ongoing" must be included in the definition because the transactions are automatically communicated to the central control unit. This is unpersuasive. There is no support for requiring this limitation in the definition. The court, therefore, construes "monitor and accumulate" to mean "to keep under observation and collect."

2760
4. Monitor Means

In Claim 1, the term "monitor means" refers to any computer monitor (Tr. 46). The term is not limited to the precise type of monitor (one built into a desk or table top) shown in the '520 Patent.

2761

The first disputed term is contained in the beginning of claim 1. This section is set out below with the disputed terms in bold and the agreed terms in italics.

A comprehensive multi-media security and surveillance system for monitoring a commercial transport utilizing IP protocol and transmitting secure data to both a ground monitoring station and to the commercial transport in digitized, multi-media format comprising textual, visual and audio information . . .

E-Watch argues that the term "monitoring" is plain and ordinary on its face and does not need to be construed. In the alternative, E-Watch proposes "watching, observing, recording, or detecting." March Networks suggests "observing and gathering current data which indicates the specific near real time status of the transport's condition or its operational systems."

March Networks argues strenuously that "monitoring" cannot involve the storage of any data for later review. Its position is that a camera which sweeps a room is "monitoring" the room even though it covers only a part of the room at a time. On the other hand, March Networks argues, the "black box" in a plane is not "monitoring" because the F.A.A. doesn't get the box until the plane has crashed. At the hearing, March Networks stated that its proposal of "near real time" would allow for the delay between observations of a guard going around a building or "a system that polls every 20 minutes. Tr. p. 103, ll. 16-25.

March Network's construction is somewhat strained, and does not take into account col. 3, ll. 33-41, which describe monitoring of water, waste water, etc., so that an aircraft can be re-supplied when it reaches the terminal. There is no need for such data from the sensor appliances to be continuously transmitted, as there might be for other information such as fuel and oil levels or temperature. The data can be accessed when the plane approaches an airport, and the proper arrangements made. See' 692 patent, col. 6, ll. 42-43 ("Any signal which is capable of being captured and stored may be monitored in this manner.").

There is no limitation in the claim language, nor in the specification, that the monitoring must be in or close to "real time." March Networks' examples of "real time" involved delays of up to twenty minutes. If that expansion is accepted, there is no
basis in the specification for determining what would be "real time" and what would be "delayed" or "stored." Therefore the court construes this term as follows:

"Monitoring" means: "observing characteristics of, or events concerning."

--- Footnotes ---

n2 Philips asserts that "monitoring" means "checking or measuring," but never explains what the term "checking" adds to its definition. The court finds "checking" to be redundant of "measuring."

--- End Footnotes ---

Defibtech's argument finds some support in the claim language. Each time the patents use "monitoring," the accompanying language suggests that monitoring takes place over an interval of time. Claim 1 of the 612 Patent refers to "monitoring a patient-dependent electrical parameter during the discharging step," and several other claims use substantially identical language. 879 Patent Claim 13; 454 Patent Claims 1, 15, 53; 905 Patent Claims 1, 4, 9; 927 Patent Claims 1, 9, 11. Claim 16 of the 454 Patent discloses "an electrical parameter monitored during the discharge step." The language of the claims leaves no doubt that the "steps" they refer to are not single points in time, but rather intervals of time. The most compelling evidence for this proposition is that "monitoring" inevitably takes place "during" a step, suggesting that a step takes place over a period of time, whereas "monitoring" that took place "at" a step would suggest a step that is a single point in time. Moreover, the claimed steps "begin" and "end" according to the language of the claims. E.g., 454 Patent Claims 53, 54. This suggests that monitoring cannot be an instantaneous event, because intervals begin and end, whereas instants do not.

Moreover, as Defibtech noted during oral argument, Philips used the term "measuring" in other portions of the shock delivery specifications, including other claims. For example, Claim 13 of the 879 Patent covers "monitoring a patient-dependent electrical parameter during the discharging step," whereas Claim 1 discloses "measuring a patient impedance during the discharge step." Defibtech argues that if "monitoring" and "measuring" had the same meaning, Philips would have used the same term consistently in the patents.

The court finds the claim language insufficient to carry Defibtech's argument. Although the use of "monitoring" in one claim and "measuring" in another raises an inference that the terms have different meaning, that inference is not determinative. Desper Prods., Inc. v. Qsound Lab, Inc., 157 F.3d 1325, 1337 n.3 (Fed. Cir. 1998). In addition, comparing the "measuring" and "monitoring" claims reveals that both take place "during the discharging step." If both "measuring" and "monitoring" occur "during" periods of time, there is little reason to assume that one term excludes single measurements and one does not.

Fortunately, the written descriptions provide answers that the claim language does not. Each description of the six shock delivery patents discloses an invention whose preferred embodiment has three "aspects." 879 Patent at 2:39-52. n3 The first is a defibrillator that delivers a shock with a biphasic waveform that has predetermined values for the length of its two shock pulses. E.g., 879 Patent at 4:29-53. In this aspect, no "measuring" or "monitoring" takes place. In the second aspect, the initial phase of shock lasts for a minimum predetermined threshold time, but that time is extended if the voltage has not dropped below a threshold voltage at the end of the threshold time. 879 Patent at 5:13-20. In the third aspect, the initial phase of shock ends at a predetermined threshold time or at the time that the voltage drops below a threshold value, whichever comes first. 879 Patent at 5:47-60.
n3 The 454 Patent and the 927 Patent disclose the three aspects by incorporating the written description of the 879 Patent.

The disclosure of the second and third aspects of the preferred embodiments illuminates the meaning of "monitoring." In the second aspect, there is no need to measure a voltage until the end of the threshold time. If, however, the voltage has dropped below a threshold at the end of the threshold time, the first phase of the shock terminates, and no further measurements are necessary. In the third aspect, the defibrillator necessarily measures voltage at least once before the threshold time, so that it can determine whether to terminate the initial shock phase before the threshold time expires. In either aspect, it is possible for a single measurement to suffice. Indeed, a single measurement will suffice in every instance in which the first measurement reveals a voltage below the threshold level.

The court ultimately adopts "measuring" as the definition of "monitoring" because only this definition allows the patents to cover the invention's preferred embodiment. The court recognizes that it is not necessary that every claim cover the preferred embodiment. In this case, however, unless Philips' construction is correct, four of the six shock delivery patents would contain no claims covering the preferred embodiment. The asserted claims of the 612, 454, and 905 Patents use only the term "monitoring," and never the term "measuring." If "monitoring" excludes single measurements, then none of the claims would cover the second and third aspects of the preferred embodiment, both of which admit the possibility that a single measurement would suffice. There is a heavy presumption against construing claims to read out a preferred embodiment. Vitronics, 90 F.3d at 1583 (noting that such a construction is "rarely, if ever, correct").

In addition, because each of the possibilities requiring a single measurement corresponds to a patient characteristic, Defibtech's construction would not merely read out the preferred embodiment, it would exclude an entire class of patients from an invention whose purpose is to adjust shock delivery to fit any patient's impedance parameters. In the second aspect of the invention, the single measurement scenario corresponds to a patient with low impedance. 879 Patent at 5:23-26. The single measurement scenario in the third aspect also corresponds to a patient with low impedance. 879 Patent at 5:57-60. The Patents thus teach that only a single measurement in the first phase of the shock waveform is necessary for patients with sufficiently low impedance. The court therefore cannot exclude single measurements from the definition of "monitoring" without implicitly holding that the shock delivery patents exclude low impedance patients. The court thus construes "monitoring" to mean "measuring," and to include single measurements.

4.1 "monitoring"

The parties dispute, however, what it means to "monitor" a call path. Rockwell contends that the claim term "monitoring" means observing or viewing information and putting the information on a display, thus illustrating the information. According to Rockwell, monitoring a "prospective call path" addresses re-routing types of calls to be received in the future so that an off-line program for prospective calls is within the claims. Apropos contends that the term "monitoring," as used in the 059 patent, means observing events as they occur in order to ensure that they are proceeding as expected or desired. Therefore, Apropos posits, "monitoring" does not cover off-line programming tools.

Rockwell first relies on dictionaries to support its view: "monitor: to watch, keep track of, or check usually for a special purpose; display: to put or spread before the view." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 752 and 335 (ed. not cited); "monitor: to observe, record, or detect (an operation or condition) with instruments that have no effect upon the operation or condition"; "display: to show or exhibit; make visible." RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 847 and 378 (ed. not cited). Rockwell also points to the preamble of claim 1, which, it contends, literally speaks to a system for monitoring "information regarding a prospective call..." and argues that there is no requirement in the claims or the specification that the patent only apply to on-line monitoring, that a certain time when the information that is monitored must occur, or that the information that is monitored must be current calls in a queue. Rockwell also points to Fig. 3, which describes three call "types," DNIS, ANI, and Default, suggesting that a current call is excluded, and to the
A monitoring doesn't require that activity be occurring.

Q: If there is no activity occurring . . . what would be monitored?

A: The absence of activity [is] the narrowest sense of monitoring.

The court finds this unpersuasive because the context indicates watching something as it occurs or, in this instance, does not occur. Rockwell also cites to the inventor, Van Berkum who testified, "'Monitoring' is a word that's used in two different ways." He continues that in col. 1, the patent uses the term "in a very broad way . . . it indicates that you're looking at almost every type of activity that can occur within a call-a call center or-yeah, pretty much everything that goes on within the call center . . . " (Van Beckum Dep. at 50, l. 12-24; 52, l. 2-24; 53, l. 1-10). This testimony is inconclusive at best.

In support of its view, Apropos relies on the same dictionary citation as Rockwell, but argues that "monitor" means "to watch, keep track of, or check" something as it occurs. Apropos also refers to text within the patent to support its view that "monitoring" is used in the sense of the contemporaneous watching of calls as they come in. It cites col. 1, l. 31-34 ("Management personnel continually monitor activities of the call center to assure that callers, or customers, are being promptly assisted by agents having the desired skills."). Further, Apropos points to the prosecution history, at R000142, in which Rockwell represents that whereas the Kline prior art is only able to trace calls retrospectively, because of the multitude of paths a call may take, "a computer of an automatic call distributor is able to monitor a prospective call path" and "the computer … selects the agent to receive the call based upon many factors including skills, availability and the like . . . " (Emphasis in original). This means, Apropos argues, observing events as they occur in order to ensure that they are proceeding as expected or desired. As further support, Apropos points to the specification, detailed in the margin, to indicate that in the context of call centers "monitoring" means observing activities of the call center for the purpose of ensuring proper business performance. 18 Finally, Apropos points out that one of the inventors, Paul E. Van Berkum, conceded that "monitoring" does not cover off-line programming tools, such as Rockwell's Telescript Editor or Bellcore's SCE. 19
context of this patent"); (id. at 84-85) (comparing the 059 patent to Rockwell's Telescript Editor is "mixing apples and oranges"); (id. at 85) ("The telescript editor was a product that was used to create and control call flow by creating these scripts, call flow scripts. How that refers . . . to this patent, I have no idea."). and at 86 (Rockwell's Telescript Editor has "no implications to this patent whatsoever."); see also (Markman Tr. at 370) (Forys) (describing a similar prior art offline programming tool called the Service Creation Environment (SCE) that was used at Bellcore in 1988): (Apropos Br. at 16) (explaining that claim cannot be validly construed such that "monitoring" encompasses off-line programming, because if it does, the claim is anticipated by the prior art, including the Rockwell Telescript Editor prior art admitted to by inventor; the claim would be anticipated and unenforceable because the inventor and Rockwell would have committed serious inequitable conduct in failing to disclose such prior art); (MacCrisken Dep. at 262-63 (MacCrisken unable to differentiate prior art-type telescript editors from 059 patent as he construes it).

As stated above, when there is no express intent to impart a novel meaning to a term in a claim anywhere in the patent or its prosecution history, the term must be given its ordinary meaning. Kegel Co. v. AMF Bowling, Inc., 127 F.3d 1420 at 1429, 1427 (Fed. Cir. 1997). Monitor, however, is a word whose ordinary meaning is malleable. One can monitor water quality by testing it three times a year for ten years, and one can monitor a telephone call by listening to it as it occurs. Thus, monitor in the context of the 059 patent must be grounded in the particular technology and the specification. See Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1248 (Fed. Cir.1998) (While it is improper to read limitations from the written description into a claim, claims must be read in light of the specification of which they are a part.) Rockwell is correct that neither the preamble, the claims nor the specification explicitly state that the patent only applies to on-line monitoring, or that a certain time when monitoring must occur, or that the information that is monitored must be current calls in a queue. Nevertheless, where the specification refers to the administrator, who may select a type of call, modify the route that type of call will take, and display which agents will receive which types of calls, the message conveyed is that the administrator is viewing activity as it occurs so that the administrator can see which agents ("Sally, Nancy, and Bruce") will receive a particular type of call and modify that path according to the needs at the time. For example, col. 4, l. 14-33, can only be understood in the context of monitoring activity "on line" as it happens. With respect to Rockwell's argument that on-line monitoring would be impossible because current calls are switched in a fraction of a second, this may or may not be accurate, 20 but if the prospective call path is programmed, as stated, e.g., col. 3, l. 16-27, one must assume that all calls will proceed according to that programmed path until modified by the administrator, and that is what this invention does for the user.

20 This is puzzling because the court does not understand Rockwell to be taking the position that on-line monitoring is not covered by the 059 patent. Van Berkum states, "So--as one example, if you were [dealing with] a VIP customer . . . you [i.e., an administrator] could use that information to move them to the first available agent in the whole call center. Or maybe [the customer] dealt with a specific person. You could move that information to page that person or have that call drop in next on that person" (Van Berkum Dep. at 88).

If it is assumed that the invention applies to an on-line situation, the issue is whether it also applies to an off line monitoring of "what is there in the program." The answer is no. The primary difficulty with Rockwell's position is that it does not distinguish the invention from the prior art. Van Berkum tellingly described an offline programming tool, Telescript Editor, used by Rockwell "to create and control call flow by creating these . . . call flow scripts," which seems to be what Rockwell is arguing, as not, to the best of his knowledge, a part of this patent, (Van Berkum Dep. at 85), as having "no implications to this patent whatsoever[,]" (id. at 86). This is confirmed by the prosecution history in which the examiner initially rejected the application in light of Thompson, "which monitors the prospective call path of an incoming call, . . . [the call path] is displayed in the form of a graphical display on the screen of an operator who then can transfer the call. . . . [It also] teaches . . . that a prospective call path . . . can be displayed . . . and modified by an operator . . . ." R000148. After the applicant amended claim 1 to include a feature of acquiring information relating to the identity of the caller to influence the prospective call path at a point between the switch and the agent, the claim was allowed. R000171. The initial context of the file relates to "live" or incoming calls, not a programming tool.
For these reasons, the court concludes that "monitoring" in the 059 patent means observing events as they occur.

Step 3

Step 3 provides for "monitoring which data sources are actually accessed by each recipient." Def. Mem. at Ex. 1, Col. 55, Claim 17. Amazon asserts "monitoring" means "keeping track of and recording." Id. at 22. The first part of Amazon's proposed construction is taken from Webster's Dictionary, defining "monitoring" as "keep track of, regulate or control (as a process or the operation of a machine)". Id. The second part of Amazon's proposed construction is taken from the specification: "preferably, the monitoring function is accomplished by storing, at each customer's set top multimedia terminal, a record of the video programs actually watched by the customer." Id. Ex. 1, Col. 6. Pinpoint does not directly respond, but suggests in the claim chart attached to its memorandum that claim construction of this term is unnecessary. See Pl. Opp. Mem. Ex. 4 at 2 ("Pinpoint Construction. . . Monitoring which data sources are actually accessed by each recipient"). In the absence of any explanation supporting Pinpoint's position, the court construes "monitoring" to mean "keeping track of and recording."

The Court construes "monitoring circuit" and "monitoring circuitry" as "circuitry that is capable of signal detection." The Court construes "second circuitry . . . to detect a resume signal" as "circuitry that is capable of signal detection during low power operation."

Plaintiff seeks no construction of the phrase "second circuitry . . . to detect a resume signal." For the "monitoring circuit" phrase, Plaintiff seeks a construction of "circuitry that monitors." Defendants seek to add the limitation that it "remains operative" by construing "monitoring circuitry" as "circuitry that remains operative to monitor the loop" and "second circuitry . . . to detect a resume signal" as "circuitry that remains operative to detect a resume signal." Defendants argue the specification supports the "remains operative" limitation when it states "[c]ircuitry to detect the resume signal must remain capable of signal detection during low power operation." '323 patent, 5:28-30. However, Plaintiff responds by arguing that this would be importing a limitation that is not supported by the specification. Plaintiff argues this construction would require the "monitoring circuit" to remain operative to monitor the loop at all times, whereas the specification language Defendants cite only requires it remain operable "during low power operation." Id.

For the claim phrases "monitoring circuit" and "monitoring circuitry," Plaintiff's construction of "circuitry that monitors" merely rephrases the claim language and adds no meaning, so the Court refuses this construction because it would not be helpful to the jury. The Court also disagrees with Defendants' construction that adds the "remains operative" limitation. There is some support for this limitation in the specification where it states that "[t]his detector 115 remains operative when the unit 232 is in low-power mode." '323 patent, 5:55-56. But this specification quotation is only referring to the monitoring circuit that detects the resume signal. See '323 patent, 5:47-59 (making clear that the "detector 115" detects the resume signal). The "monitoring circuitry" in claim 24 is also "configured to detect a shut-down condition on the loop," and according to this Court's construction of shut-down condition, the shut-down condition may also be a signal. There is no requirement in the specification that the "monitoring circuitry" configured to detect the shut-down condition remain operative to monitor the loop. The only characteristic of the "monitoring circuitry" that is repeatedly mentioned in the specification is that it is capable of signal detection. See, e.g., '323 patent, 5:28-30. ("Circuitry 115 to detect the resume signal must remain capable of signal detection during low power operation."); '323 patent, 2:16-18 ("monitoring the loop with a monitoring circuit to detect a resume signal outside the voiceband frequency range on the loop"); '323 patent, 6:28-30 ("The resume signal is subsequently detected by loop monitoring circuitry in the COT unit (step 304).")); '323 patent: 7:21-23 ("The shut-down signal is subsequently detected by monitoring circuitry in the COT ADSL unit (step 309)."). Therefore, the Court construes "monitoring circuit" and "monitoring circuitry" as "circuitry that is capable of signal detection."

For the phrase "second circuitry . . . to detect a resume signal," the Court agrees with Plaintiff that Defendants' "remains operative" limitation is incorrect because this construction would require the circuitry to remain operative to monitor the
loop for a resume signal at all times. The specification only requires "[t]his detector 115 remain[] operative when the unit 232 is in low-power mode." '323 patent, 5:55-56. As discussed above, the Court's construction reflects the specification's characterization of this circuitry being capable of signal detection. Further, in this instance, since the "second circuitry" in claim 7 specifically refers to the circuitry capable of detecting a resume signal, the Court's construction clarifies that the circuitry be capable of signal detection specifically during low power operation. See '323 patent, 5:28-30 ("Circuitry 115 to detect the resume signal must remain capable of signal detection during low power operation."). Thus, the Court construes "second circuitry . . . to detect a resume signal" as "circuitry that is capable of signal detection during low power operation."

5. "monitoring information," "monitoring data"

The Court finds Power-One's proposal to be correct and, therefore, construes this term as "data concerning the status of the one or more POL regulators in the power system." See '125 patent, col.6:44-55

2. "monitoring patient data elements of patients in a plurality of geographically dispersed ICUs"

Plaintiff proposes: "monitoring at the remote command center data elements of patients who are located in a plurality of geographically dispersed ICUs." Defendants propose the same construction but add, "in an automated fashion 24 hours a day 7 days a week." Thus, the only difference in the proposed construction is defendants' addition of "in an automated fashion 24 hours a day 7 days a week." Defendants argue that by adding this language, it will keep all of the information in one place for the jury and reduce confusion.

As with the 24/7 language, the phrase "in an automated fashion" is already set forth in the concluding "wherein" paragraph. Adding this phrase yet again is repetitive, not within the ordinary meaning of the claim when read in its entirety, and will be more, not less, confusing to the jury. Additionally, the Court has previously addressed and rejected defendants' suggestion of adding the 24/7 language throughout the construction. The term is construed as "monitoring at the remote command center data elements of patients who are located in a plurality of geographically dispersed ICUs."

E. "Monitoring Payments"/"Monitoring Payments Made by the Customer to Maintain the Customer's Access to the Service"

The phrase "monitoring payments made by the customer to maintain the customer's access to the service" appears in claims 3 and 4 of the '945 patent. WebEx contends that the court should define the phrase as "automatically determining whether a payment has been received for services used, and automatically terminating access if the payment has not been received." 156 ABC asserts that only the term "monitoring payments" needs to be defined and proposes the following definition: "any process of various persons or devices for checking on whether payment has been made." 157 The court will first define "monitoring payments."

--- Footnotes ---

156 WebEx's Brief, Docket Entry No. 156, at 32.
157 ABC's Brief, Docket Entry No. 154, at 18.

--- End Footnotes ---
The parties essentially agree that monitoring payments involves "checking on whether payment has been made." Although WebEx uses slightly different terminology -- "determining whether payment has been received" -- the court perceives no real difference in this aspect of the parties' proposed definitions. The parties, however, disagree as to whether the step of monitoring payments must be automated and performed by a machine or apparatus, as opposed to a human, and as to whether the payments monitored are only for "services used," i.e., services rendered and received in the past.

a. Automation

The court rejects WebEx's contention that monitoring payments must be automated. WebEx points out that the preferred embodiment of the invention described in the patent specification is capable of automatically monitoring payments. But, as explained above in the court's discussion of the terms "billing for access to the service" and "generating a bill for the service," the claimed invention should not be limited to the preferred embodiment. See Dow Chem. Co., 226 F.3d at 1341-42. Nothing in the claim language, specification, or prosecution history of the '945 patent indicates that the step of monitoring payments must be performed automatically.

b. Various Persons or Devices

ABC asserts that the relevant claim language is broad and open-ended, and does not limit who or what must monitor payments. Indeed, the patented methods of claims 3 and 4 include the same final step, which simply recites "monitoring payments made by the customer to maintain the customer's access to the service." No other intrinsic evidence limits who or what must perform this step. Therefore, as ABC's definition correctly explains, this step in the patented processes could be performed by "various persons or devices."

WebEx argues that construing the disputed term this broadly, particularly by allowing for the step of monitoring payments to be conducted by a person, renders the claims unpatentable because "systems that depend for their operation on human intelligence alone" are not patentable subject matter under 35 U.S.C. § 101. In re Comiskey, 554 F.3d 967, 980 (Fed. Cir. 2009). The court is not persuaded by WebEx's argument. Although it is true that "mental processes -- or processes of human thinking -- standing alone are not patentable," Comiskey, 554 F.3d at 979, "it is inappropriate to determine the patent-eligibility of a claim as a whole based on whether selected limitations constitute patent-eligible subject matter." In re Bilski, 545 F.3d 943, 958 (Fed. Cir. 2008). Process claims such as claims 3 and 4 must be evaluated as a whole, and "it is irrelevant that any individual step or limitation of such process by itself would be unpatentable under § 101." Id.

There is no question that claims 3 and 4, viewed as a whole, constitute patentable subject matter under § 101. "A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a
particular article into a different state or thing." Bilski, 545 F.3d at 954. Claims 3 and 4 are tied to at least three machines or apparatuses: an interface unit, a website, and a remote computer unit. 161 Therefore, these claims are not rendered unpatentable merely because the final step in each does not necessarily utilize any of these three devices.

161 See '945 patent, claims 3, 4 (claiming a method "for remotely controlling a remote computer unit using an interface unit, the remote computer unit comprising a personal computer," the first step of which is "operating a website . . ." (emphasis added)).

c. Past Services

WebEx again asserts, as it did with regard to the definition of "billing for access to the service" and "generating a bill for the service," that the bills generated and, therefore, the payments received and monitored, are only for "services used" or received in the past. WebEx contends that because payments are monitored to "maintain the customer's access to the service," 162 the payments must be for services rendered in the past. As explained above in the court's discussion of the billing terms, merely because a payment is made to "maintain" a service does not necessarily mean it is for services rendered in the past. The payment could just as easily be an up-front payment made so that the user may, in the future, continue to receive a service he has, up until that time, received. Accordingly, the court is not persuaded that the payments monitored are necessarily associated with past services. The court concludes that "monitoring payments" means "any process of various persons or devices for checking on whether payment has been made."

162 '945 patent, claims 3, 4.

2. "Monitoring Payments Made by the Customer to Maintain the Customer's Access to the Service"

WebEx contends that the clear implication of the phrase "to maintain the customer's access to the service" is that service is automatically terminated if payment is not received. In response, ABC does not contest WebEx's assertion that service is terminated if payment is not received. 163 ABC argues only that the process of terminating service need not be automated. 164


164 See id. ("While monitoring and termination of access could occur automatically, the claim does not require it." (emphasis added)).

The court agrees that the word "maintain" clearly suggests that the service will terminate unless payment is received. The court, however, does not agree with WebEx that termination must be automated. Again, WebEx improperly relies only on the description of the preferred embodiment for its position that the termination step must be carried out automatically. 165 See Dow Chem. Co., 226 F.3d at 1341-42. The court will not so limit the invention. The court concludes that "monitoring payments made by the customer to maintain the customer's access to the service" means "any process of various persons or devices for checking on whether payment has been made, and terminating access to the service if payment has not been received."

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independent review of the patent document reveals . . . there is no basis in the patent specification for adding the negative construing this limitation. See, e.g., Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003) (“Our patent specification for adding the negative limitation—excluding monitoring voltage—we hold that the Commission erred in appropriate for the court to construe a claim solely to exclude the accused devices.”) Thus, because there is no basis in the accused devices. See, e.g., Cohesive Techs., Inc. v. Waters Corp., 543 F.3d 1351, 1367-68 (Fed. Cir. 2008) (“[I]t is not limiting this limitation as it did, we think the Commission interpreted this limitation incorrectly when it excluded the "monitoring current" limitation under its claim construction section, it effectively construed the limitation. We thus address the parties' dispute regarding this limitation as a claim construction issue. See, e.g., Board of Regents of Univ. of Tex. Sys. v. BenQ Am. Corp., 533 F.3d 1362, 1367 (Fed. Cir. 2008) (treating the parties' dispute over a limitation as a claim construction issue because the district court "effectively construed the claim phrase" in its summary judgment order). Linear argues that the exclusion of indirectly monitoring current is incorrect, arguing that the '258 patent's specification and Ohm's Law support the proposition that "monitoring the current to the load" in claim 35 can be accomplished either directly or indirectly. In response, AATI contends that the Commission properly rejected Linear's reliance on Ohm's Law and, thus, correctly found that monitoring current could not include monitoring a voltage.

Lastly, we address the Commission's ruling regarding the "monitoring the current to the load" limitation in claim 35. See '258 patent col. 20 ll.9-14 ("a third circuit for monitoring the current to the load to generate a second control signal during a second state of circuit operation to cause one of said switching transistors to be maintained OFF"). During its infringement analysis, the Commission excluded "monitoring voltage" from meeting this limitation. Final Determination, 2007 ITC LEXIS 1108 at *16-17. In effect, because a device can indirectly monitor current by monitoring voltage, the Commission limited the "monitoring current" limitation to instances of directly monitoring current. Thus, although the Commission did not explicitly address the "monitoring current" limitation under its claim construction section, it effectively construed the limitation. We thus address the parties' dispute regarding this limitation as a claim construction issue. See, e.g., Board of Regents of Univ. of Tex. Sys. v. BenQ Am. Corp., 533 F.3d 1362, 1367 (Fed. Cir. 2008) (treating the parties' dispute over a limitation as a claim construction issue because the district court "effectively construed the claim phrase" in its summary judgment order). Linear argues that the exclusion of indirectly monitoring current is incorrect, arguing that the '258 patent's specification and Ohm's Law support the proposition that "monitoring the current to the load" in claim 35 can be accomplished either directly or indirectly. In response, AATI contends that the Commission properly rejected Linear's reliance on Ohm's Law and, thus, correctly found that monitoring current could not include monitoring a voltage.

We agree with Linear that the Commission improperly narrowed this claim limitation to exclude indirectly monitoring current through the measurement of voltage. The claim limitation does not state directly monitoring current. Rather, it simply reads "monitoring the current to the load." "258 patent col. 20 ll.9-10. As such, this limitation should be accorded a scope commensurate with the '258 patent's specification. See, e.g., Tegal Corp. v. Tokyo Electron Am., Inc., 257 F.3d 1331, 1342 (Fed. Cir. 2001) (construing a limitation broadly based on the specification). In this case, '258 patent not only discloses monitoring current directly by using a current comparator, see, e.g., id. col.14 ll.43-61, but also indirectly by some other means. Explicitly, the specification states that "other means of detecting current reversals in the inductor current could be used as well," id. col.15 ll.1-4, including "generating a feedback signal indicative of current reversal in inductor current . . . (see, e.g., resistor R[SENSE] in Fig. 7)," id. col.15 ll.8-10 (emphases added). Generating a feedback signal based on resistor R[SENSE] measures the voltage across resistor R[SENSE], therefore indirectly "indicating[] . . . current reversal in inductor current" by measuring voltage. Thus, the '258 patent expressly contemplates indirectly monitoring current by using a voltage measurement as a proxy. Moreover, once voltage is known, one skilled in the art would recognize that Ohm's Law easily allows current to be calculated, therefore monitoring current indirectly by monitoring voltage. Without support for limiting this limitation as it did, we think the Commission interpreted this limitation incorrectly when it excluded the accused devices. See, e.g., Cohesive Techs., Inc. v. Waters Corp., 543 F.3d 1351, 1367-68 (Fed. Cir. 2008) ("[I]t is not appropriate for the court to construe a claim solely to exclude the accused device."). Thus, because there is no basis in the patent specification for adding the negative limitation—excluding monitoring voltage—we hold that the Commission erred in construing this limitation. See, e.g., Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003) ("Our independent review of the patent document reveals . . . there is no basis in the patent specification for adding the negative
limitation." (citations omitted)). In contrast to the Commission's ruling, this limitation can encompass monitoring voltage to indirectly monitor current.

9. "MONITORING THE RECEPTION OF THE PACKETS BY THE USERS AND ACCUMULATING RECORDS THAT INDICATE WHICH STREAMS WERE RECEIVED BY WHICH USERS"

   AOL: "Recording data about packets actually received by the users and collecting data regarding which streams of packets were actually received by which users, all independent of data about packets transmitted to users."

   TWM: No construction required.

   In the alternative, "Checking or observing whether the users are receiving the packets" "and gathering information that indicates which streams of packets were received by which users."

AOL focuses its entire argument on what TWM "told the PTO" during the patent prosecution. (D.E. 68, pg. 9). Again, the Court begins its analysis with the other aspects of intrinsic evidence. The preferred embodiment monitors a user's reception of a stream using a PING message. (D.E. 1, Exh. A, col. 14). The Media Server generates a PING message and sends it to the user's computer. Upon receipt, the user's computer sends a return message, indicating to the server that it is still receiving and processing the transmitted information. (Id. at col. 9). This description is stated in the preferred embodiment. AOL simply sidesteps the specification. Based on the specification, there is no justification for AOL's proposal. For example, the specification does not even intimate that the monitoring be "independent" of transmission, as AOL suggests. Indeed, TWM asserts the preferred embodiment states that the monitoring is not independent of transmission because the monitoring occurs on the transmission-side of the network. AOL does not support its contention with reference to the claims or specification. Because an ordinary skilled person would understand the monitoring process clearly based on TWM's specification, no construction is necessary.


   AOL: "Recording data about the streams of information actually received by the users and collecting data relating to the reception of the stream of information by the users, all independent of data about the stream of information transmitted to the user"

   TWM: No construction required.

   In the alternative, "Checking or observing whether the users are receiving the stream of information and gathering information relating to the reception of the stream of information by the users."

The parties agree that this term should be constructed in alignment with the previous term's construction. (D.E. 68, pg. 12). As such, no construction is necessary.

4. The term "MOTION" (claims 1 and 5) means movement of body tissue which causes erratic noise, that, in the absence of a filter, would cause the ratio of red to infrared signals to not accurately reflect the arterial oxygen saturation.
6. "motion control commands" (claims 9 and 23)

Omax proposes this construction: "Instructions to a machine tool that cause it to move." Flow argues for the following: "Time delay and incremental instruction consisting of a series of step and direction commands consisting of either a 1 or 0 with a sign of + or - that effect movement." Flow's proposed construction mirrors its proposed construction of the claim terms in claims 1 and 14, which refers to "a series of incremental motor commands for the motor, each increment for the motor being one of: zero, positive increment, or negative increment." The Court agrees with Omax's argument that this approach violates the principle of claim differentiation. Comark Commc'ns. Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims."). The patent consistently refers to the incremental motion control commands in claims 1 and 14, and consistently refers only to motion control commands in claims 9 and 23. Moreover, Flow's proposed construction contradicts the intrinsic evidence available in the prosecution history of the '596 patent: "Claim 12 [which later became claim 9] is similar to Claim 1, except that the limitation that the segments are incremental motor commands is eliminated." FLO 002008-13. Accordingly, the Court adopts Omax's proposed construction.

n2 The parties' slightly divergent constructions of this claim, addressed in the joint claim chart, are not addressed in their Markman briefs.

Motion detector camera

The Court construes "motion detector camera" to mean "a digital or mechanical film-based camera that takes pictures when it detects motion." Defendants' proposed construction limits a "motion detector camera" to a camera that records images on a film medium, expressly excluding a digital camera. Defendants argue that only a film-based camera is disclosed in the specification. Defendants also argue that during prosecution of the '868 Patent, the Examiner found that the '387 Patent did not disclose digital cameras. See '868 Patent, Office Action February 2, 2004 at 15, 16, 19, 22, and 23. Defendants contend that Plaintiffs admitted in their Initial Disclosures that the '868 Patent claims asserting "digital camera electronics" are not entitled to the '387 Patent priority date, which is further proof that digital cameras are not disclosed in the '387 Patent.

Defendants are correct that the '387 Patent does not specifically disclose digital cameras. While all of the preferred embodiments described in the '387 Patent are film-based cameras, no where in the '387 Patent or its claims does the inventor disavow coverage of digital cameras, which were known in the art when the application was filed. Additionally, the patentee clearly stated in the specification:

The above description is intended to be illustrative, and not restrictive. Many other embodiments will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled.

Col. 6:29-34. Thus, one skilled in the art would have understood that the patent was not limited to film-based cameras.

Defendants' prosecution history arguments are equally unavailing. While the examiner did find that certain '387 Patent claims did not disclose "digital camera electronics," the examiner did not find that digital cameras were not covered by the '387 Patent. Rather, the examiner rejected the proposed claims on double-patenting grounds. Finally, although Plaintiffs are not claiming the '387 Patent's priority date for certain claims in the '868 Patent, Plaintiffs did not admit that this is because the '868 Patent's digital camera claims are new matter and thus not entitled to the earlier date.

The Court rejects Defendants' limitation that would exclude digital cameras from the meaning of "motion detector cameras." Defendants are unable to point to any place in the specification or prosecution history where the patentee clearly disavowed such coverage. Accordingly, the Court will not import the limitations of the preferred embodiments into the claims.
Moveable

As with "terminal," the parties agree on the first portion of the construction, n4 but in this case, it is Defendants who advocate a second sentence containing a negative limitation. n5 Their limitation tracks several disclaimers Tessera made during patent prosecution and the TI and Samsung cases to distinguish its invention from prior art that relied on CTE matching or deformable solder balls. Although Tessera seems to acknowledge that its invention does not claim CTE matching or deformable solder balls, Defendants maintain that this limitation is necessary to prevent Tessera from disavowing its disclaimers at trial and contending that the movement covered by its patent is that addressed by CTE matching and deformable solder balls. For reasons similar to those described above, the Court is not convinced that a negative limitation has a place in a proper construction of "moveable."

--- Footnotes ---

n4 The first sentence reads, "In the operation of the assembly, the terminals are capable of being displaced relative to the chip by external loads applied to the terminals, to the extent that the displacement appreciably relieves mechanical stresses, such as those caused by differential thermal expansion which would be present in electrical connections absent such displacement."

n5 Defendants' second sentence reads, "The relief of mechanical stress due to CTE matching and/or deformable solder balls is not the claimed movement."

--- End Footnotes ---

The plain language of both the claims and specifications describe the type of movement encompassed by the term "moveable." For example, the 977 patent at claims 17-18 describe that, "said terminals . . . being movable with respect to the chip to compensate for differential thermal expansion of the chip and substrate," and the 627 patent at claim 1 describes, "said terminals being movable with respect to said central contacts so as to compensate for thermal expansion of said chip."

During prosecution of the 419 and 893 patents, Tessera assured the patent office that its technology solved the problem of strain due to thermal cycling in a different way than the Lin patent which relied upon CTE matching and deformable solder balls. CTE matching between the substrate and the circuit board aims to reduce the relative movement between the terminals and the contacts on the circuit board during thermal cycling by ensuring that the package substrate and the PCB expand to the same or similar degree when heated, thereby lessening the strain on the solder balls disposed between the two components. Deformable solder balls are designed to weather the remaining relative movement better than a more brittle component, and in that way, work in conjunction with the CTE matched PCB and package substrate to reduce wear due to thermal cycling. The key point being that the movement targeted by the Lin patent was between the terminals and the circuit board, but the movement described in Tessera's patents is the relative movement between the terminals and the chip contacts.

Defendants request the additional language to ensure that Tessera does not change its position at trial and disavow the disclaimers it made before the PTO in an attempt to muddle the distinction between the claimed movement in these patents and the claimed movement in the Lin patent. However, Defendants' limitation would inject unnecessary confusion into an otherwise helpful and legally appropriate construction. n6 First, the sentence is technically incorrect because it implies that "relief of mechanical stress due to CTE matching and/or deformable solder balls" is a type of movement, but a person skilled in the art would understand that relieving mechanical stress and movement are separate concepts. Second, the sentence aims to resolve an issue that came up in the Samsung and TI cases, but that may or may not arise at this trial. If the issue does not arise, the construction would create confusion by inviting the jury to divert its attention away from the claimed movement and toward a red herring. The Court is not inclined to risk that confusion especially where Defendants appear to be attempting to use claim construction as a plank in its trial strategy without any concomitant benefit to the jury. See Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1366 (Fed. Cir. 2004)(explaining that a clear claim construction is
necessary for a jury to "intelligently determine the questions presented"). Even assuming Defendants' construction was not confusing and offered for an improper purpose, the Court would likely adopt the agreed portion of the construction because it is amply supported by the intrinsic evidence.

n6 Both the ITC and TI Courts adopted constructions similar to Tessera's proposed construction, which lacks Defendants' proposed additional language.

Thus, the Court construes the term "movable" to mean "in the operation of the assembly, the terminals are capable of being displaced relative to the chip by external loads applied to the terminals, to the extent that the displacement appreciably relieves mechanical stresses, such as those caused by differential thermal expansion which would be present in electrical connections absent such displacement."

1. Moving said electronic record via EMF communications links from point to point

The first disputed term is found in Claim 2 of the '364 Patent, which discloses: "The process of claim 1, further comprising the process of: (f) moving said electronic record via EMF communications links from point to point along a route of passage to said destination for said selected products." '364 Patent, col. 16, ll. 3-7.

DE contends that this phrase should be construed as "transmitting the electronic record electronically where feasible between or among two or more points along a route of passage to said destination for said selected products." Dell proposes the construction, "transmitting the electronic record electronically to a each of a plurality of points."

The primary conflict between the parties' constructions concerns whether an electronic transmission is necessary. DE claims that there are certain instances, such as where a government system is incapable of using electronic records, when hard copies will have to be used and electronic transmission could not be required. See '364 Patent, col. 12, ll. 10-14; col. 14, ll. 7-9. Dell refers to the plain meaning of the term and the specification, arguing that "point to point" requires that transmission occur from at least one point to another point. As the specification describes the invention, it "provides a comprehensive point-to-point cost analysis for any international transaction." Id. at col. 14, ll. 55-56.

The court generally agrees with Dell that this term should be given its plain and ordinary meaning, and that "point to point" would require transmission from at least one point to another point. As DE has recognized, however, the specification refers to situations in which a particular destination could not accept the electronic record, and provides that "paper copies of the title or commercial invoice can also be generated from the electronic original for archival purposes or for presentation to entities requiring hard copies to further process the title or commercial invoice." Id. at col. 12, ll. 10-14.

Accordingly, the court finds that the phrase "moving said electronic record via EMF communications links from point to point" means "transmitting the electronic record electronically to at least one point and, where necessary and where feasible, between or among other points along the route of passage for the selected product."


The relevant limitation of claim 31 of the '204 patent is:

moving said visual identification in the first dimension and in the second dimension between first and second ones of said
irregular movement in the time dimension.

Thus, written description, the claim encompasses both regular and irregular movement in the time dimension of the television schedule. See, e.g., Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867 (Fed. Cir. 1986). The ITC's reliance on the description of the preferred embodiment in the written description to conclude that only regular movement by the "visual identification"--regular or irregular steps--in the time dimension.

Scientific-Atlanta states that the ITC's construction that the cursor must move relative to both dimensions of the television screen is not required by the claim language, and it was error for the ITC to import limitations from the written description and drawings. Scientific-Atlanta responds that since the "visual identification" is the innovative cursor, the "visual identification" must move like the innovative cursor in regular, half-hour increments. Scientific-Atlanta argues that because the written description disclaimed the irregular movement of the conventional cursor as an undesirable aspect of the prior art, the claim should not encompass such irregular movement. Further, Scientific-Atlanta states that the ITC's requirement that the "visual identification" must move in both dimensions on the grid and relative to the television screen is supported by the plain language of the claims, which requires the movement of the "visual identification," not the grid of cells.

a. Regular Movement

The parties dispute whether the claim requires that the "visual identification" must move in regular intervals of a fixed time duration (e.g., 30 minutes) in the time dimension, often within the same program cell in the grid guide; or whether the "visual identification" may move in irregular intervals of varying time durations (e.g., 30 minutes, 60 minutes, etc.) between adjoining program cells in the grid guide, depending on the length of the cells. The ITC required that the "visual identification" move in regular, half-hour increments, "which may result in cell to cell movement or movement within a cell." FID Opinion 2002 ITC LEXIS 812 at *195. The ITC found that irregular, cell-to-cell movement was disclaimed when the written description of the '204 patent disclaimed the regular movement of a conventional cursor. 2002 ITC LEXIS 812 at *193. In finding a disclaimer, the ITC placed special emphasis on the following passage from the '204 patent:

If this array is navigated by a cursor that goes from cell to cell, a single cursor command can produce violent screen changes. For example, a cursor right command may cause an abrupt jump to a cell situated several hours from the current page. Not only is this unsettling, but may take considerable effort to recover. Clearly, a gentler cursor motion is needed for the irregular cells found in a grid TV guide.

Id. (quoting '204 patent, col. 2, ll. 8-15 (emphasis added)).

The ITC erred in its construction of "moving . . . between . . . cells." The claim language only requires "moving said visual identification in the first dimension and in the second dimension between first and second ones of said irregular cells." 204 patent, col. 20, ll. 8-10. The ordinary meaning of "moving" is: "that is marked by or capable of movement: that is not fixed or stationary." Webster's Third New International Dictionary 1480 (1993). This claim language encompasses any type of movement by the "visual identification"--regular or irregular steps--in the time dimension.

The ITC's reliance on the description of the preferred embodiment in the written description to conclude that only regular movement in the time dimension was encompassed by the claims was error. See Liebel-Flarsheim, 358 F.3d at 906. Consistent with our earlier construction of "visual identification," the discussion of the preferred embodiment in the written description concerning the drawbacks of the irregular movement of the conventional cursor does not provide a basis for importing a limitation of regular movement into the claim. See, e.g., Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867 (Fed. Cir. 1985) ("Particular limitations or embodiments appearing in the specification will not be read into the claims."). Because there was no regular movement limitation in the claim language and no express disavowal of irregular movement in the written description, the claim encompasses both regular and irregular movement in the time dimension of the television schedule. Thus, it was error for the ITC to limit the broad "moving . . . between . . . cells" claim language to encompass only irregular movement in the time dimension.
b. Movement of the "Visual Identification" or Grid Guide

In construing the "moving . . . between . . . cells" limitation, the ITC further required that the "visual identification" move relative to the television screen along both dimensions of the grid guide. In other words, the ITC's construction precluded the grid guide from moving relative to the television screen while the "visual identification" remains stationary to reflect the relative movement of the "visual identification" through the cells of the grid guide. FID Opinion 2002 ITC LEXIS 812 at *192. In support of its construction, the ITC relied on statements in the abstract and written description that describe the "movement of the cursor." 2002 ITC LEXIS 812 at *194. The ITC further relied on Figures 1-3 of the '204 patent, which depict the cursor moving within the schedule grid and relative to the television screen, with the grid remaining static relative to the television screen. Id.

This construction was also incorrect. The claim language does not specify a frame of reference for moving the "visual identification" such as to require that the "visual identification" move or not move relative to the television screen. The claim language only requires that the "visual identification" move between the cells themselves. See '204 patent, col. 20, ll. 8-10 ("moving said visual identification in the first dimension and in the second dimension between first and second ones of said irregular cells" (emphasis added)). Thus, this limitation can be met either by the grid or the "visual identification" moving relative to the television screen, as long as the "visual identification" is capable of navigating along both dimensions of the schedule grid.

The ITC's reliance on isolated language in the written description that the cursor must "move . . . in the array" does not limit the claim. FID Opinion 2002 ITC LEXIS 812 at *194 (quoting '204 patent, col. 2, ll. 64-66). This language is consistent with our construction that the movement within a particular frame of reference is immaterial, so long as the "visual identification" is able to move in both dimensions of the grid guide array. There is no express requirement in the claim language that the "visual identification" must move both within the grid and further relative to the television screen. Moreover, the ITC's reliance on the depiction of the cursor in the preferred embodiment moving relative to the television screen in Figures 1-3 is misplaced. See Gart v. Logitech, Inc., 254 F.3d 1334, 1342 (Fed. Cir. 2001) (noting that "drawings [depicting the preferred embodiment] are not meant to represent 'the' invention or to limit the scope of coverage defined by the words used in the claims themselves").

In light of the foregoing, we conclude that the ITC erred in its construction of "moving . . . between . . . cells." "Moving said visual identification . . . between . . . cells" includes both regular and irregular movement of the "visual identification," and requires only that the visual identification be capable of moving relative to the cells in the grid guide in either dimension. There is no requirement that the "visual identification" must move relative to the television screen.

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B. MPEG Decoder 5

5 MPEG is a set of audio and video data compression formats and ancillary standards. (MPEG is an acronym for the Moving Picture Experts Group', officially ISO/IEC JTC1/SC29 WG11.)

1. Proposed Constructions

Plaintiffs assert that "MPEG decoder" should be construed as "hardware and/or software that can decode compressed data in accordance with any of the standards established by the Moving Picture Experts Group." Plaintiffs' '736 Br. at 8. According to plaintiffs, an MPEG decoder can be used, if desired, to process audio or video data independently. Id. at 9. Plaintiffs contend that there is no reason to impose any additional limitations on their proposed construction of "MPEG decoder." Id. at 8.

Defendants, by contrast contend that an "MPEG decoder" must be capable of separating and decoding both audio and video
MPEG data according to MPEG standards. Defendants' '736 Br. at 6. 6 Defendants assert that the MPEG decoder has three primary functional blocks: a demultiplexer, a MPEG audio decoder, and a MPEG video decoder. Id. Defendants propose that "MPEG decoder" should be construed as "an integrated circuit that decompresses, separates, and further processes the corrected audio and video data that is received from an external controller according to the MPEG specifications." Id. Defendants contend this is how "MPEG decoder" would have been understood by a person skilled in the art at the time of the '736 patent application. Id.

6 Defendants assert their proposed construction of "MPEG decoder" with the following background interpretation: 1) claims 1 and 7 claim a controller with discrete subsystems that perform front-end operations on MPEG-encoded data of two formats, and 2) the controller transfers that data to a separate MPEG decoder.

The parties additionally dispute whether the MPEG decoder must be separate from and external to the controller. Defendants argue that the plain language of the claims requires the controller to be separate and distinct from the MPEG decoder. In support of this argument, defendants note that the "controller [is] coupled with a MPEG decoder" (emphasis added) and that the parallel interface, which is part of the controller, transfers data to the MPEG decoder. Id.; see '736 patent at Claims 1, 7. Defendants reason that the terms "coupled with" and "transfers data to" are used only between subsystems -- in this case, the controller and MPEG decoder -- that are separate and distinct. Defendants' '736 Br. at 7. Plaintiffs object to defendants' interpretation of the claim language, contending that there is no textual hook in the claims, as required by plaintiffs' reading of NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 2005 WL 180612 (Fed. Cir. 2005), that would justify construing the MPEG decoder to be separate and distinct from the controller. Reply at 2-3.

2. Claim Language

"MPEG decoder" appears in claims 1 and 7 in two contexts: 1) "a controller coupled with a MPEG decoder" in the preamble and 2) "the parallel interface configured to transfer the corrected data to the MPEG decoder." '527 patent at 10:42-43, 11:12-14; see also id. at 13:3-4, 13:24-26 ("a parallel interface coupled to the MPEG FIFO interface compromising a plurality of parallel data lines for transferring the corrected data to the MPEG decoder").

Plaintiffs assert that the claim language requires only that the MPEG decoder and the controller be coupled and that they be connected through a "parallel interface . . . [that] comprises a plurality of parallel data lines. . . " Plaintiffs' '736 Br. at 9-10. Consequently, plaintiffs conclude that even if the blocks for the controller functions are connected within either a single system or a circuit integrated to the blocks performing the MPEG decoding, those blocks are still "coupled." Id. at 10. Plaintiffs argue that defendants' construction requiring that the MPEG decoder be external to the controller and that the MPEG decoder be separate is not found in the claims. Plaintiffs also contend that the defendants' requirement that the MPEG decoder process both audio and video information is likewise not found in the claims. Id. at 9.

3. Specification

In support of their proposed construction that the controller is separate and distinct from the MPEG decoder, defendants contend that the specification identifies the MPEG decoder as an "external subsystem" from the controller. Defendants' '736 Br. at 7; see '736 patent at 3:24-35. Defendants assert that the '736 patent shows that the controller is separate and distinct from the MPEG decoder. Defendants' '736 Br. at 7; see '736 patent at Figs. 1, 2, 4-6. According to defendants, the specification repeatedly refers to a transfer of data from the controller to the MPEG decoder. Defendants' '736 Br. at 7; see '736 patent at 4:2-6, 5:1-4, & Fig. 6. Lastly, defendants argue that the '736 patent specification does not enable a MPEG decoder that is integrated into a controller in part because the specification contains no disclosure as to how to integrate the controller and a MPEG decoder. Defendants' '736 Br. at 8.

Plaintiffs, on the other hand, argue that defendants' construction directly contradicts the teaching of the patent specification that the invention permits the MPEG decoder and the controller to be integrated and combined. Plaintiffs argue that the specification supports their construction that the MPEG decoder need not necessarily be external to the controller. Plaintiffs point out that the specification repeatedly sets forth that "[d]ue to the simplified MPEG interface, DVD/CD controller 62
may also be easily integrated into MPEG decoder 40." Plaintiffs' '736 Br. at 9; Reply at 2; see also '736 patent at 4:21-23, 5:58-60, 9:7-9.

Defendants, like plaintiffs, point to the specification to support their construction of "MPEG decoder." Defendants essentially argue that, in conformance with the understanding of one of skill in the art when the patent application was filed, the MPEG decoder must be capable of decoding both audio and video data and thus that the specification supports the construction that the MPEG decoder be implemented in the three functional blocks set forth above: a demultiplexing function, audio decompression function, and video decompression function. In the Background of the Invention, the '736 patent specification states that the MPEG decoder decompresses and separates compressed audio and video data. '736 patent at 2:44-51; see also id. at 3:25-35. Defendants contend that this statement, combined with the MPEG specification available at the time the patent was filed, discussed below, confirms their proposed construction. Plaintiffs, however, assert that those passages of the patent description refer to a particular MPEG decoder in the preferred embodiment and do not expressly or implicitly identify its configuration as a limitation of the claims. Reply at 1.

4. Extrinsic Evidence: MPEG Industry Specifications

Defendants' contention that the MPEG decoder must be implemented in three functional blocks relies upon consideration of two industry specifications: one for MPEG-1, International Standard, ISO/IEC 11172-1, MTK-ITC 396579-638, dated August 1, 1993; and another for MPEG-2, International Standard, ISO/IEC 13818-1, MTK-ITC-396244-377, dated April 15, 1996. Those industry specifications describe a prototypical MPEG decoder design. That prototypical decoder design includes functional blocks for demultiplexing a bitstream containing both audio and video information and functional blocks for decompressing both audio and video information. However, both specifications make it clear that "[t]he prototypical decoder design does not imply any normative requirement for the design of an [MPEG-1 or MPEG-2] decoder."

An MPEG decoder in the abstract, in light of the MPEG specifications, does not require support for a specific encoding nor specify the type of data represented by the encoded bitstream. Defendants' argument that the construction of MPEG decoder must imply a particular construction in three distinct modules is unpersuasive, as the claims do not require a specific MPEG decoder implementation and the MPEG industry specifications do not mandate the construction advanced by the defendants. The presence in the specification of a reference to a preferred embodiment of an MPEG decoder that decodes both audio and video data does not itself limit the construction of an MPEG decoder to require both data types. However, when viewed in light of the purpose of the invention, the court concludes that the MPEG decoder must at least decode both compressed audio and video data. The Federal Circuit has held that the purpose of the invention may guide claim construction since "the problem the inventor was attempting to solve, as discerned from the specification and prosecution history, is a relevant consideration" in construing claims. CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed. Cir. 1997). The specification states that "[a]ccording to one aspect of the present invention, the DVD/CD controller includes a unique MPEG interface which facilitates transfer of CD data and DVD data from the DVD/CD controller to a MPEG decoder. . . ." '736 patent at 4:2-5. The undisputed purpose of the invention is to provide streamlined processing of both CD and DVD data. Thus, the court construes MPEG decoder to mean "hardware and/or software that can decode compressed audio and video data in accordance with any of the standards established by the Moving Picture Experts Group." The court also concludes that the MPEG decoder need not necessarily be external to the controller.

7 There are presently multiple MPEG encoding formats: MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, etc.

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2778

1. "a transmission system using multicarrier modulation"

The first issue presented with respect to the '322 Patent is whether the term "a transmission system using multicarrier modulation," which appears in the preamble of Claim 1, is a claim limitation. Claim 1 reads as follows:
1. A method of changing a parameter of a transmission system using multicarrier modulation, comprising the steps of:

identifying symbols transmitted by the system by a symbol count;

communicating between a transmitter and a receiver of the system information identifying a change in said parameter and a symbol count value for implementing said change;

implementing said change at the transmitter in response to a transmitted symbol having a symbol count matching said value; and

implementing said change at the receiver in response to a received symbol having a symbol count matching said value.

'322 Patent, col 11, 1. 64 -- col. 12, 1. 11 (emphases added).

Plaintiff argues that the phrase "using multicarrier modulation" merely states one intended use, and therefore is not meant to limit the claim's scope. (Pl.'s Opening Br. at 25-27). Plaintiff further asserts that the body of Claim 1 does not make any reference to multicarrier modulation, which indicates that the four steps of Claim 1 may be applied to a single-carrier system. Lastly, Plaintiff directed the Court's attention to Claim 20, where the patentees made a specific reference to "multicarrier modulation." Plaintiff asserts that if the patentees meant to limit the reference to "multicarrier modulation" in Claim 1, they would have specifically referred to "multicarrier modulation" as they did in Claim 20. (Tr. at 76:4-9 ("If there's a specific reference to multi-carrier modulation in Claim 20, the patentees knew how to say it when they meant it, and they do not make such a statement in Claim 1.").)

Defendants argue that the term must be read as a claim limitation. Citing Storage Technology Corp. v. Cisco Systems, Inc., 329 F.3d 823 (Fed. Cir. 2002), Defendants assert that a term is "unquestionably" a limitation "when the body of a claim refers back to a portion of the preamble." (Defs.' Reply at 19). Defendants note that the terms "the system" and "said parameter," which appear in the body of the claim, refer to both the "system" and the "parameter" in the preamble, providing an antecedent basis for those terms. Id. Defendants also refer to Claim 7, a dependent claim of Claim 1, which refers to at least "one subchannel of the system." Id. Such reference to "one subchannel," Defendants contend, implicitly requires a multicarrier system.

The Court concludes that the term "a transmission system using multicarrier modulation" is a claim limitation. Terms appearing in the body of claim 1 and in subsequent dependent claims, such as Claim 7, depend on this disputed phrase for antecedent basis. Such dependence on a preamble phrase, as the Federal Circuit articulated, "indicates a reliance on both the preamble and claim body to define the claimed invention" and therefore may limit the claim's scope. Catalina Mkts. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). Moreover, the Federal Circuit stated that the preamble may operate as a limitation of the claim when additional structure or steps are recited in the preamble and are underscored as important in the specification. Id. In the present case, the written description clearly supports the conclusion that the use of "multicarrier modulation" is a key aspect of the invention, and necessary to perform the claimed method.

Having concluded that the term is a claim limitation, the Court must now construe it. Because Plaintiff has not proffered a claim construction that treats this term as a claim limitation, and Defendants' proposed construction is persuasive, the Court will adopt Defendants' construction. Accordingly, the Court concludes that disputed term [13] "a transmission system using multicarrier modulation" serves as a claim limitation and means a "transmission system using modulation of more than one carrier."

G. "Component Tasks"/"Multi-Component Tasks" ('451 Patent)

The '451 patent describes a system and method that allows for multiple tasks to be performed upon one command from the client, such as a broad user command to "plan a trip" which causes the system to make airline, hotel, and car reservations on its own and return the results of these completed tasks to the user.
The patent uses the term "component tasks" in both its independent claims (claims 1 and 8). Yodlee construes "component tasks" to mean "individual tasks that make up a multi-component task," while CashEdge construes it to mean "the distinct sub-tasks of the multi-component task." The dispute thus centers around the word "distinct." It is not clear to the Court how the addition of the word "distinct" clarifies the meaning of the term "component tasks." The prosecution history cited by CashEdge does not support the addition of the word "distinct." Accordingly, the Court adopts Yodlee's definition.

"Multi-component task" also appears in both independent claims of the '451 patent. Yodlee defines "multi-component task" as "an overall task that is made up multiple individual tasks." CashEdge defines it as meaning "a task that is accomplished by performing two or more distinct sub-tasks in unrelated areas that is more than simply gathering information and presenting the information to the end user." Again, CashEdge cites to prosecution history that does not support its addition of the words "unrelated areas that is more than simply gathering information and presenting the information the end user." There is nothing in the intrinsic evidence to support the limiting language proposed by CashEdge. The Court adopts Yodlee's definition.

6. "a unique predetermined multi-digit jump code" is construed to mean "a unique predetermined code consisting of more than one number." There is nothing in the specification, however, to warrant the defendants' proposed narrower construction, limiting the code to just numbers, so long as the code has more than one number.

Claim 18(a), with the disputed term in bold, and agreed terms in italics, states:

a multi-function image sensor appliance adapted for generating an image signal representing the visual condition of a monitored zone of operation, the image signal comprising both still frame image data and motion video image data. . . .

The court has previously defined the term "sensor appliance." The claim language simply provides a further limitation that the appliance must be able to generate more than one kind of image. n6 Accordingly, the court provided the following construction of the language in question, to which the parties agreed. See Tr. p. 70, ll. 23-25, p. 71, ll. 1-14.

"Multi-function image sensor appliance" means "a sensor appliance, as defined above, that can generate more than one type of image signal."

n6 Other language at the end of the claim specifies both static frame image data and motion video image data, which the parties agree are produced by different algorithms. Tr. p. 68, 11. 11-19.
The parties disagree on the meaning of "multi-level information."

Dell argued that the ordinary meaning should suffice. Lucent proposed: "the information inputted to the web site from the first user intranet point (i.e., any terminal on a private network used by a site provider), which is organized or grouped by the first user intranet point into more than one level of user access."

The court construes "multi-level information" as follows:

"the information inputted to the web site from the first user intranet point which is organized or grouped into more than one level of user access."

Claim Element 1d

multi-level managed information

The parties disagree on the meaning of "multi-level managed information."

Dell argued that the ordinary meaning should suffice. Lucent proposed: "the information inputted to the web site from the first user intranet point (i.e., any terminal on a private network used by a site provider), which is organized or grouped by the first user intranet point into more than one level of user access."

The court construes "multi-level managed information" as follows:

"the information inputted to the web site from the first user intranet point which is organized or grouped into more than one level of user access."

Claim Element 1f

multi-level user access

Initially, the parties disagreed on the meaning of "multi-level user access." Dell argued that the ordinary meaning should suffice. Lucent proposed: "the multiple levels of user access correlate to the multiple levels of the multi-level managed information." The parties subsequently agreed, and the court concurs, that no construction of this claim term is required.

Claim 3

3. Multi mega bit per second

The term "multi mega bit per second" appears in claims 11, 24 (by its dependence from claim 20), 35, and 36 of the '774 patent. The parties dispute whether the term refers to the data rate addressed to a specific RLA, e.g. the transfer rate (the defendants' position), or the aggregate data rate for the entire downstream channel. In dispositive form, the specification of the '774 patent states that high speed digital signals (containing information) can be broadcast from Data Communications Equipment ("DCE") to a Hybrid Transmission Facility ("HTF"), such as through a piece of coaxial cable. The HTF can thereafter combine multiple incoming high speed digital signals (from various DCEs) and broadcast that information through a downstream channel, such as a cable channel. An RLA at a user location will monitor (receive) the high speed signal and forward the appropriate information contained in that signal to the DTE. See '774 patent at 2:59-17; 4:57-50 (stating "the RLA modem automatically synchronizes to the incoming high-speed data being broadcast and starts
monitoring (receiving) the incoming signal"). These passages indicate that the high speed rate is associated with the aggregate transmission rate.

Because the '774 patent specification fails to support the defendants' restrictive construction, the court adopts the plaintiff's proposed construction of the term "multi mega bit per second" as "an aggregate data transmission rate of 10 or more megabits per second."

A. '288 Claim 1 & '288 Claim 10: "single or multi-mode operation"

Claim 1 of the '288 patent refers to an implantable heart stimulator "capable of being programmed to undergo a single or multi-mode operation to treat a detected arrhythmia." CPI proposes that the term "multi-mode operation to treat a detected arrhythmia" be construed to mean: "two or more different modes of therapy (e.g., antitachy pacing and cardioversion) capable of being used in sequence to treat a single arrhythmia (e.g., tachycardia)." Pl. Amd. Prop. Conc. of Law at 1. St. Jude objects to CPI's definition because it includes unnecessary examples and because the phrase "capable of being used in sequence" is claimed to be inaccurate, or at least imprecise. St. Jude offers the following as the proper construction:

The phrase "multi-mode operation to treat a detected arrhythmia" as used in claims 1 and 10 of the '288 patent means two or more different modes of therapy capable of being used individually to treat a single arrhythmia.

Def. Prop. Conc. of Law at 8.

To begin by defining the term "mode" as used in Claim 1, the patent specification reveals that the operating modes of the device include various treatment modes, or therapies, that can be applied to the heart in the event of an arrhythmia. Each type of therapy, or mode, involves some form of electrical stimulation of the heart. The specification identifies the following treatment modes: ventricular fixed-rate pacing, atrial fixed-rate pacing, ventricular demand pacing, atrial demand pacing, automatic defibrillation, cardioversion, and various automatic ventricular tachycardia control operations. '288 Patent, col. 4, ll. 21-27; col. 4, l. 65 to col. 5, l. 3.

--- Footnotes ---

12 Besides the various treatment modes, other operating modes include the "automatic patient warning" feature and the "direct memory access" mode. '288 Patent, col. 4, ll. 67-68; col. 5, ll. 5-8.

--- End Footnotes ---

Referring again to the claim language itself, the device is said to be "capable of being programmed to undergo a single or multi-mode operation to treat a detected arrhythmia." The plain meaning of this language is that the device can be programmed to treat any particular arrhythmia using either one mode of operation, or more than one mode of operation. If the device is programmed to treat an arrhythmia using one mode of operation, it will "undergo a single . . . mode operation." If the device is programmed to treat an arrhythmia using more than one mode of operation, it will "undergo a . . . multi-mode operation."

The specification provides a clear example of "multi-mode operation" in explaining the automatic ventricular tachycardia control operations:

In this mode, any combination and/or sequence of the following sub-modes can non-invasively be selected (programmed) by the attending physician: ventricular overdrive pacing, ventricular coupled pacing, automatic cardioversion, and rapid atrial pacing. Any or all of these can be selected, so that, if the first response is not effective in controlling ventricular tachycardia, the next response is activated. That is, initially, a list associated with the various modes can be developed; then, the doctor can revise the list depending on the patient's reaction to treatment.

'288 Patent, col. 5, ll. 33-43. 13 The specification further explains that in executing such automatic ventricular tachycardia
control operations, the device automatically proceeds from one response mode to the next. '288 Patent, col. 5, ll. 50-52. This specific example is consistent with the more general description of the invention that appears in the patent document. See '288 Patent, col. 7, ll. 7-12 ("The implantable heart stimulator and method involve . . . the choosing of at least one mode of treatment for treating the condition.") (emphasis added). Together, the claim language and the specification provide strong support for CPI's proposed construction of "multi-mode operation to treat a detected arrhythmia."

--- Footnotes ---

13 Another example of "multi-mode operation," closely associated with dependent Claim 8, involves a method for treating the heart when the device detects the absence of a natural R-wave. '288 Patent, col. 21, l. 55 to col. 22, l. 6. The absence of an R-wave could indicate either an asystole (treatable by pacing), or life-threatening ventricular fibrillation. Under such conditions, the device first executes a pacing treatment. If the pacing therapy does not restore a forced R-wave, the device then attempts defibrillation. '288 Patent, col. 2, l. 66 to col. 3, l. 5.

--- End Footnotes ---

St. Jude's characterization of CPI's proposed construction as an improper "limitation" on the claim has no merit. According to St. Jude, the specification and the prosecution history provide no support for claiming that "multiple modes" could be used only in sequence. Def. Br. at 44. Under this view, which is reflected in St. Jude's preferred construction, the device has more than one treatment mode that could be used to treat each specific heart condition (thus, multiple modes), but a single mode is selected from among the multiple possibilities and programmed as the individual mode that will treat a given arrhythmia. Such individually selected modes, defendants argue, would not be executed in sequence and, thus, an "in sequence" limitation would be improper. Id. at 44-45 & n.22.

St. Jude may well be correct that a single mode of treatment can be programmed to treat a given arrhythmia even though the device is capable of executing different modes to treat that same arrhythmia. However, this possibility is already accounted for in the claim language that refers to programming a device to undergo a "single" mode operation. Multi-mode operation, as taught by both the claim language and the specification, is different. It involves programming the device to undertake more than one treatment mode to treat a single arrhythmia, especially if the first mode is not successful. St. Jude's preferred construction would effectively re-write the language of the claim to read "a heart stimulator providing at least one treatment mode for each specific heart condition and capable of being programmed to undergo the single available mode, or, if applicable, one of the multiple available modes to treat the detected arrhythmia." That interpretation is contrary to the claim language and the written description.

St. Jude offers a proposed alternate construction in an attempt to save at least part of its preferred construction:

   The phrase "multi-mode operation to treat a detected arrhythmia" as used in claim 1 of the '288 patent means two or more different modes of therapy capable of being used individually or together in sequence to treat a single arrhythmia.

Def. Br. at 41. The court rejects this construction because it is unnecessarily complex and confusing. The possibility that a device may offer more than one treatment mode for a single arrhythmia but may be programmed to undertake only one of those modes is accounted for by the fact that the claim language already allows a device to be programmed for single mode operation. Thus, St. Jude's construction of "multi-mode operation" to encompass two or more modes "capable of being used individually" repeats what is already stated in the claim.

St. Jude's final argument on this language is that it would be improper for the court to include the examples of treatment modes and heart conditions that plaintiffs have selected and included in their claim construction. The court agrees that using examples is unlikely to be necessary. By the end of the trial, the jurors should be able to identify for themselves (at least with the help of counsel) appropriate examples of treatment modes and different types of arrhythmia. The court, therefore, intends to adopt plaintiffs' proposed construction of "multi-mode operation" with the exception of the parenthetical examples. This interpretation of the language in the preamble of Claim 1 of the '288 patent will also apply to the disputed parallel language in the preamble of Claim 10 of the '288 patent.

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11. Multi-precision arithmetic unit

The parties largely agree on the construction of "multi-precision arithmetic unit" with one exception. The plaintiffs contend that the "multi-precision arithmetic unit" is "a unit that can perform addition, subtraction, multiplication, division, and other integer and floating point arithmetic operations on data streams of varying sizes." The defendants object to the plaintiff's proposed construction on two grounds. First, the defendants contend that the term "unit" refers to a defined circuit block, and not circuitry distributed across the media processor, as the plaintiff argues. Second, the defendants further contend that the language "other integer and floating point arithmetic operations" should not be included in the construction. Thus, the defendants propose the following construction of "multi-precision arithmetic unit" -- "a unit that can perform addition, subtraction, multiplication, division, and other arithmetic operations on data streams of varying sizes." The 840 patent provides as follows:

Many of the logic blocks themselves can also replaced [sic] with a single multi-precision arithmetic unit, which can be internally partitioned under software control to perform addition, multiplication, division, and other integer and floating point arithmetic operations on symbol streams of varying widths while sustaining the full data throughput of the memory hierarchy.

'840 patent, col. 2, 11. 58-65. Based on the cited portion of the specification, the court is persuaded that the plaintiff's construction is correct and adopts it. The court declines to further define "unit" to require a single circuit block.

12. Multi-precision execution unit

The court construes "multi-precision execution unit" to mean "a unit that receives instructions and executes the instructions to perform simultaneous parallel operations on the plurality of media data streams, each of a width up to the width of the data path."

2. A multi-pulse portion (claim 1)

Plaintiff's construction: "a portion of the waveform with multiple pulses"

Defendants' construction: "the entire region between the front-end portion and the tail-end portion"

The dispute is whether the "multi-pulse" portion of the waveform includes everything between the front-end portion and tail-end portion or whether there may be other (unidentified) portions in the wave. The relevant portion of the claim provides: "a multi-pulse waveform of each mark portion of the driving power that includes a front-end portion, a multi-pulse portion and a tail-end portion." According to defendants, the multi-pulse waveform has three parts and only three parts: front-end portion, a multi-pulse portion and a tail-end portion. Thus, the multi-pulse portion must encompass everything between the front and tail-end portions.

According to plaintiff, the multi-pulse waveform is not limited to the three portions named in the claim. Plaintiff points out that, under the claim language, a multi-pulse waveform "includes" those three portions. In the context of patent claims (and in ordinary English), use of the word "includes" does not restrict the claim to the named elements. Rather, it means that "the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1345 (Fed. Cir. 2003)(quoting Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997)).
Defendants have not explained why this general rule would not apply in this case. They say that in all the embodiments discussed in the patent, there are no portions mentioned other than the front-end portion, the tail-end portion and the multi-pulse portion, but they point to no language suggesting that those embodiments limit the claim. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004)(rejecting argument that claim is limited to embodiments, even when all described embodiments include same limitation); Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004)(even patent that describes single embodiment is not necessarily limited by that embodiment). They say also that because the patent does not discuss other portions, the invention must be limited to those or the public is left without sufficient notice regarding what infringes and what does not. The answer to this is that anything that includes those three portions (and the other elements of the claim) infringes, regardless what else is included. Accordingly, I reject defendants' argument that the multi-pulse portion must encompass everything between the front-end portion and the tail-end portion.

In looking at plaintiff's proposed construction, it is clear that it is just another restatement of the term that adds no additional insight into the meaning. Accordingly, I conclude that this term requires no additional construction.

**Court's construction: No construction needed**

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**2790**

E. "multi-purpose interface"

The Camera Manufacturers propose that "multi-purpose interface" be construed to mean "a communication interface designed for use with multiple devices having different functions from each other." CMs' Slides at 62. Papst proposes that it means "a computer interface which supports more than one type of device." Papst's App. at 2. Papst conceded at the Markman hearing that the definition proposed by the Camera Manufacturers is satisfactory, as long as it provides that multiple devices are connected one at a time. Tr. 1:156-57 (Papst) ("COURT: Your problem is temporal, not otherwise. You don't have any problem with multiple devices having different functions from each other as long as they're plugged in one at a time? PAPST: Right, Your Honor."). The Patents do not answer this point, 13 and the Court declines to add an unspoken limitation. With the parties' essential agreement, the Court thus construes "multi-purpose interface" to mean "a communication interface designed for use with multiple devices that can have different functions from each other."

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13 See '399 Patent, col. 4:48 (ambiguously stating, "[c]ommunication between the host device and the devices attached to the multi-purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface . . . " without indicating whether such devices are connected to the multi-purpose interface one at a time).

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**2791**

2. "in a multi-tasking environment" n4

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n4 According to Smart, PolyVision belatedly identified this and several other claim terms as requiring construction and, therefore, Smart did not have an opportunity to address these terms in its brief on claim construction. Smart asserts that these terms do not require construction but that if the Court concludes otherwise, they should be given their plain and ordinary meanings, which Smart has identified for the Court.

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PolyVision's proposed definition
Computer is capable of performing more than one task at the same time.

Smart's proposed definition
A computer performs or appears to perform more than one task at a time.

This term is part of the phrase "a computer for executing one or more applications program in a multi-tasking environment." (Col. 15, ll. 32-33.) The Court concludes that the term requires no construction because, as Polyvision concedes, the term would be clear to a person of ordinary skill in the art. If construction were required, however, the Court would adopt Smart's construction using "performs or appears to perform more than one task at a time," because Smart has demonstrated that in the context of computers, "multitasking" includes the "appearance" of performing several tasks at once, even though only one program is being executed. For example, Smart notes that Windows does not perform more than one task at a time but operates at such a speed that it appears to perform more than one task at a time. It also cites the definition of multitasking from http://www.webopedia.com/TERM/m/multitasking.html, which states that "[i]n multitasking, only one CPU is involved, but it switches from one program to another so quickly that it gives the appearance of executing all of the programs at the same time."

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5. "multi-tasking interface function"/"multi-tasking interface"/"multi-tasking interface sub-component"

The related terms "multi-tasking interface," "multi-tasking interface function," and "multi-tasking interface subcomponent" appear in independent claims 1, 7, and 11 of the 037 Patent, respectively. Claim 1 recites a "multi-tasking interface function" implemented by one of the peer-level facilities and

responsive to control messages for selecting for execution [the] peer-level facility related functions of [] one of said predetermined operating system peer-level facilities and responsive to said one of said predetermined peer-level facilities for providing control messages to request or in response to the performance of said predetermined peer-level facility related functions of another operating system peer-level facility. . . ."

037 Patent, 55:41-58. Claim 7 recites a "multi-tasking interface," also implemented by one of the peer-level facilities, and "coupleable between said communications bus and a respective and unique peer-level control function set to permit message transfer between each of said plurality of facilities." Id. at 56:42-47. Similarly, claim 11 recites a "facility sub-component" of a component facility "coupled to a multi-tasking interface sub-component." Id. at 57:13-15. Consistent with parties treatment of these terms, the court construes "multi-tasking interface function" and "multi-tasking interface sub-component" as synonyms with "multi-tasking interface."

The parties broadly agree that the multi-tasking interface performs the function of facilitating communication between the various operating system peer-level facilities of the claimed invention. That is the extent of their agreement, however. While plaintiff argues that "multi-tasking interface function" need not be construed, defendant proposes the following definition: "in each peer-level facility, software tailored to that peer-level facility for managing multiple concurrent processes and supporting direct communication with other peer-level facilities so as to allow multiple, independent instances of the peer-level facilities."

In support of its "ordinary meaning" construction of the multi-tasking interface term, plaintiff contends that the claim language itself provides sufficient context to define multi-tasking interface, and that therefore no further elaboration by the court is required. Specifically, plaintiff argues that the language of claims 1 and 7 defines the disputed term. However, while the language of the claims is sufficient to describe what the multi-tasking interface does in the context of a particular claim -- for example, providing control messages -- the claim language standing alone is insufficient to define what a multi-tasking interface is. Recognizing that multi-tasking interface is a noun, the court must attempt to define it as such. Moreover, the claimed function of the multi-tasking interface differs among the various claims in which the term appears. Consequently, even assuming that court could replace the noun "multi-tasking interface" with a verb, plaintiff's argument would imply that the term should be defined differently in each claim. To do so would violate the canon of construction stating that a claim term should be construed consistently throughout a patent. See, e.g., Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). The court therefore rejects plaintiff's argument that the claim language alone is
sufficient to define the term "multi-tasking interface."

Arguing in the alternative, plaintiff also relies on dictionary definitions, citing definitions of "multi-tasking" and "interface" from both technical and general-purpose dictionaries. See IEEE Dictionary at 574, 718; Webster's Collegiate Dictionary at 610, 765. The court focuses on the definitions in the IEEE Dictionary. Accord Transclean Corp. v. Bridgewood Servs., Inc., 290 F.3d 1364, 1375 (Fed. Cir. 2002) (observing that when comparing technical and non-technical dictionary definitions of a claim term used in a technical context, a technical dictionary is "a better source to inform the meaning of the term to a skilled artisan"). In the IEEE Dictionary, "multitasking" is defined as "[a] mode of operation in which two or more tasks are executed in an interleaved [i.e., alternating] manner . . . [or] that provides for concurrent performance or interleaved execution of two or more tasks." Id. at 718. The IEEE Dictionary also recites four definitions of interface apposite to the art of computer software. Id. at 574-75. Like the multi-tasking interface claimed in the 037 Patent, several of these definitions refer to facilities that allow for communication between different components of a computer system. See, e.g., id. at 574 (Definition 9(B)). However, these definitions also suggest that the term "interface" may be used to describe either hardware, software, or a conceptual relationship among hardware or software components that is neither hardware nor software.

Compare id. at 574 (defining "interface" as "[a] hardware or software component that connects two or more components for the purpose of passing information from one to the other") with id. at 575 (defining "interface: in the field of "software development" as a relationship between two or more entities [e.g., hardware and/or software components] . . . in which the entities share, provide, or exchange data"). Thus, because the ordinary meaning of the term "interface" includes hardware, software, and conceptual interfaces, the court must look to the intrinsic record to determine which of these possible meanings was intended by the inventor. Texas Digital, 308 F.3d at 1203.

The court begins with the language of the claims. At a minimum, the plain meaning of the claims is sufficient to support defendant's view that the multi-tasking interface must refer to a software interface. Taking claim 1 as an example, the multi-tasking interface function recited in claim 1 "executes . . . peer-level facility related functions" and "provide[s] control messages" for the purpose of communicating with other peer-level facilities. 037 Patent, 55:44-52. Consistent with defendant's proposed construction, these are tasks that one would expect software to perform. Defendant also relies on the specification's description of the preferred embodiment of the invention, which discloses, as a component of each peer-level facility, "an interface that supports direct communication with [the other peer-level facilities]." Id. at 8:24-26. This interface is further defined as "a messaging kernel layer" that "includes a message passing multi-tasking kernel . . . tailored to each type of peer-level facility in order to support the specific facility's function." Id. at 8:28-30. Defendant argues that this definition of "interface" should limit the "multi-tasking interface" term at issue here.

Ordinarily, it is improper to read limitations from the preferred embodiment into the scope of the claims. See, e.g., Liebel-Flarsheim, 358 F.3d at 906. However, in the instant case, the prosecution history of the 885 Application lends additional support to the view that the claimed multi-tasking interface must include the aforementioned limitations. As noted above, the examiner initially rejected claim 1 of the 885 Application for indefiniteness, observing that "[s]tripped of the characterization of the stored instruction as a predetermined peer-level facility and a multi-tasking interface function,' the claim is seen simply to recite a multiprocessor system." Grewal Decl., Exh. K at 422. Auspex responded to this rejection by expressly defining these terms. Specifically, it defined the multi-tasking interface function as "a messaging kernel layer tailored to each type of peer-level facility as appropriate for the specific facility function provided." Id. at 439.

"It is well established that the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Springs Window Fashions LP v. Novo Indus., L.P., 323 F.3d 989, 994 (Fed. Cir. 2003) (internal quotation marks omitted) (collecting cases). In this case, the Auspex expressly defined "multi-tasking interface function" to overcome the examiner's objections to the patentability of the invention claimed in claim 1 of the 885 Application. Thus, at a minimum, the court must construe the term "multi-tasking interface" to include the limitations that Auspex expressly included in its response to the examiner's rejection.

Although the 885 Application describes the multi-tasking interface as a "messaging kernel layer," it does not define the messaging kernel layer term itself. However, "messaging kernel" is defined in the specification of the 037 Patent as "an interface that supports direct communication between one [operating system peer-level facility and] another." 037 Patent, 8:24-8:27. 7 The court adopts this definition. Accord Vitronics, 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims or defines terms by implication."). Accordingly, the court agrees with defendant that the term "multi-tasking interface" should include the limitations "software tailored to each operating system peer-level facility that supports direct communication with other peer-level facilities."
In addition, defendant contends that the specification gives rise to two other claim limitations. First, defendant argues that the court should restrict the meaning of multi-tasking interface to an interface that "manage[s] multiples concurrent processes." In essence, this argument urges the court to limit the definition of "multitasking" to "managing concurrent processes." In doing so, however, defendant fails to account for the fact that the IEEE Dictionary defines "multitasking" to include both "concurrent" and "interleaved" processes. Id. at 718. Thus, the ordinary meaning of "multitasking" includes both of these types of processes.

To rebut the presumption that this ordinary meaning should apply, defendant relies on the specification's description of the preferred embodiment of the multi-tasking interface, which states that "[t]he provision for multi-tasking operation allows the peer-level facilities to manage multiple, concurrent processes." 037 Patent, 8:30-32. However, the specification merely states that the multi-tasking interface "allows" for such a concurrent processing to take place; it does not suggest that the multi-tasking interface is charged with managing these processes. Indeed, the quoted passage appears to assign the "management" task to the peer-level facilities rather than the multi-tasking interface. In short, the reference to "multiple, concurrent processes" in the specification falls short of the clear disclaimer of ordinary meaning required to construe the multi-tasking interface according to a "special meaning" disclosed in the specification. Accord Teleflex, 299 F.3d at 1325 (requiring that intent to deviate from the ordinary meaning of a claim term must be demonstrated by the patentee's "clear disavowal of claim scope"). Thus, the court adopts the ordinary meaning of the word multi-tasking, which in this context is defined as "capable of managing two or more concurrent or interleaved (i.e., alternating) tasks."

Defendant's contention that the multi-tasking interface term should include the limitation "allowing multiple, independent instances of the peer-level facilities" is similarly flawed. It is true that the specification discloses this function as one of the "primary benefits" of the invention. 037 Patent, 16:1-4. However, the specification again states only that the operating system "allows" for multiple instances of each peer-level facility. Id. There is no requirement that the claimed invention must contain this limitation. Indeed, some of the claims read on an operating system that comprises only a "plurality" -- i.e., at least two -- processors, each corresponding to a single instantiation of one type of peer-level facility. See, e.g., id. at 55:59-62. In view of the plain meaning of the claim language, the court refuses to read defendant's proposed limitation into the claims.

Accordingly, for the reasons stated above, the court construes the term "multi-tasking interface" to mean "software that is tailored to each operating system peer-level facility that supports direct communication with other peer-level facilities and capable of managing at least two concurrent or interleaved tasks."

18. "multiple non-regulating isolating step down converters providing plural nonregulated, isolated DC outputs, plural of the non-isolating down-converter switching regulators receiving power from one of the non-regulated, isolated DC outputs" ('702 patent)

SynQor's Proposed Construction
"two or more non-regulating isolating step down converters through which power from the DC input flows first before flowing through any regulation stage, each providing a non-regulated, isolated DC output, wherein at least one of..."
those non-regulated, isolated DC outputs is provided
to two or more non-isolating down-converter switching
regulators"

This term is also subject to a motion for summary judgment of indefiniteness filed by some of the Defendants. See Dkt. No. 432. Claim 1 of the '702 patent recites, among other things, "a non-regulating isolating step-down converter through which power from the DC input flows first before flowing through any regulation stage." Claim 26, dependent upon claim 1, includes the disputed limitation of "multiple non-regulating isolating step-down converters." Thus, claim 26 essentially states that one must add at least one more "non-regulating isolating step-down converter" to the system of claim 1.

Defendants argue that the claim limitation is indefinite because it claims multiple isolation stages in a void, with no disclosure of how these multiple stages are to be connected to each other or otherwise incorporated into the claimed power converter system. Defendants theorize four different options for a configuration of the system with the additional "non-regulating isolating step-down converter." Defendants argue that technically they are all possible configurations, and without any disclosure of which configuration is appropriate, that the claim is indefinite because one cannot choose between equally plausible possibilities. SynQor argues that the fact that the claim is broad and allows the "non-regulating isolating step-down converters" to be connected in multiple ways or configurations does not make itself indefinite. SynQor argues that the claim is understandable to a person of ordinary skill in the art.

The Court finds that the mere fact that the claim is broad and can potentially cover multiple configurations of the "non-regulating isolating step-down converter" does not make it indefinite. SeeUltimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp., 587 F.3d 1339, 1352 (Fed. Cir. 2009) ("Merely claiming broadly does not render a claim insolubly ambiguous, nor does it prevent the public from understanding the scope of the patent."). "The test for indefiniteness does not depend on a potential infringer's ability to ascertain the nature of its own accused product to determine infringement." SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1340-41 (Fed. Cir. 2005) ("Even if a claim is broad enough to embrace undetectable trace amounts of the claimed invention, breadth is not indefiniteness.") (internal citations omitted). The parties clearly contemplate multiple configurations of the claim that indicate its breadth, not its indefiniteness. Thus, the Court need not rewrite the claims, as in the previous term where there was an admitted antecedent basis problem, but must only interpret the claim as written. In this situation, the mere fact that the claim does not specify every aspect of how the additional "non-regulating isolating step-down converter" is connected does not make the claim indefinite. The Court finds that the term is not indefinite. A claim is indefinite only if the "claim is insubordinately ambiguous, and no narrowing construction can properly be adopted." Exxon, 265 F.3d at 1375; Honeywell, 341 F.3d at 1338-39. This term is not "insubordinately ambiguous" so as to prevent construction. See Young, 492 F.3d at 1346 (claims are considered indefinite when they are "not amenable to construction or are insubordinately ambiguous"); Exxon, 265 F.3d at 1375 ("If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.").

Whereas claim 1 requires only one non-regulating isolating step down converter, claim 26 requires multiple non-regulating isolating step-down converters wherein plural of the non-isolating down-converter switching regulators receive power from one of the non-regulated, isolated DC outputs. The Court finds that SynQor's proposed construction makes various changes to the recited limitations without any clear justification or support in the specification, and thus rejects those changes to the express claim language. Defendants do not provide a construction for the term and only argue that it is indefinite. The Court construes the phrase "multiple non-regulating isolating step down converters providing plural non-regulated, isolated DC outputs, plural of the non-isolating down-converter switching regulators receiving power from one of the non-regulated, isolated DC outputs" to mean "two or more non-regulating isolating step down converters, each providing a non-regulated, isolated DC output, wherein two or more of the non-isolating down-converter switching regulators receives power from one of the non-regulated, isolated DC outputs."

22. Multiple operands in partitioned fields of operand registers

The court construes "multiple operands in partitioned fields of operand registers" to mean "more than one object upon which operations are performed, each object being stored in a separate and distinct field of a register."
5. multiplexed/multiplexed manner

Each party's construction for multiplexed is long and contains numerous limitations. OPTi's construction for "multiplexed" is "individual signal lines carry more than one type of specific information in a time interleaved manner (i.e., one specified type of information is carried at a first time and a second specified type is carried at a second time). In addition, each specified information type must be carried on a signal line that also carries at least one other specified type of information." nVidia's construction for "multiplexed" is "carrying more than one type of information in a time-interleaved manner using phase techniques, such that address information is carried on the bus during an address phase, data information is carried on the bus during a data phase, and other information, such as cycle definition information, command information, or DMA information, is also carried on the bus during either the data or address phase."

While the parties' constructions appear vastly different, the true "rub" in the alternative constructions is whether "multiplexed" is limited to using phase techniques as proposed by nVidia. Phasing is the method of multiplexing used in the preferred embodiment. However, there are numerous methods of multiplexing -- a fact which nVidia does not contest. For the reasons set forth above in Section III.2 regarding the construction of address-data bus, the Court rejects nVidia's attempt to limit multiplexing to phasing techniques. Accordingly, the Court adopts OPTi's proposed construction.

"Multiplexed Output Data Stream"

Alcatel's proposed construction is "a data transmission sent out from the data processing system including data from selected multiple data transmissions received by the data processing system." Cisco's proposed construction is "data stream which exits a port of a data processing system and is made up of data from the input data streams transmitting through the port."

This claim element is found in claim 6, which reads in pertinent part: "Data processing system including multiplexing means wherein input data streams are multiplexed so as to form a multiplexed output data stream applied to at least one output of the system . . . " 24 DePrycker, at 15:8-11.

24 The parties have already agreed that the term "output of the system" is properly construed as "hardware through which data exits the data processing system." See Northern Telecom Ltd. v. Samsung Elecs. Co., Ltd., 215 F.3d 1281, 1290 (Fed. Cir. 2000) (noting that unstated limitations should not be read into the claim language).
In looking at the language of claim 6, the word "port" is certainly not included, nor does the language appear to limit the multiplexed data output stream to a single output, as the language clearly states, "applied to at least one output of the system." Id. at 15:10-11 (emphasis added). Moreover, as evidenced from a reading of claim 9, which is dependant on claim 6, the inventors were capable of using the term "port" when they intended to limit their claim in such a way. See id. at 15:34-38.

Regardless, in combining the language of the patent and the parties' agreed upon construction of the term "output of the system," the claim language is clear that the "multiplexed output data stream" is applied to hardware through which data exits the data processing system. Thus, there is no reason for the Court to further define "multiplexed output data stream" to incorporate the location through which the data stream exits, since that limitation is already included elsewhere in the claim.

26 Cisco relies heavily on extrinsic evidence to support its proposed construction. While the Court agrees with Cisco as to a portion of its proposed construction, the Court finds no need to analyze Cisco's extrinsic evidence in this instance because the meaning of the disputed term is clear from an analysis of the intrinsic evidence. See, e.g., Vitronics, 90 F.3d at 1583 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.").

Additionally, Cisco objects to Alcatel's use of the word "selected" in its proposed construction. In this regard, Cisco argues that, while not all input data streams of the entire data processing system are part of the "multiplexed output data stream," all input data streams multiplexed onto a particular output port are part of the "multiplexed output data stream." Alcatel does not disagree with this assessment, and in fact notes that "[d]eleting the word 'selected' in Alcatel's proposed construction would still accurately reflect the clear meaning of the phrase." Alcatel's '052 Responsive Brief, at 3. Thus, the dispute over this term does not appear material, since neither party disagrees that not all input data streams are necessarily part of the "multiplexed output data stream," but all input data streams selected to be multiplexed onto an output of the system are part of that "multiplexed output data stream."

Therefore, the Court construes the term "multiplexed output data stream" as "a data transmission sent out from the data processing system made up of data from input data streams."
such as QAM or MDPSK. The Court construes the term "the information is multiplexed over a number M of levels" to mean "the information is multiplexed over a number M of levels, where M is the number of levels each symbol can take using differential modulation."

N-Data and National argue that these terms should be given their plain and ordinary meaning. N-Data also submits alternative definitions, should the court determine they need construction. Similar to above, the court believes that the jury would find construction of the terms assistive.

The central issue regarding these terms is whether they should be limited, as Dell suggests, to devices capable of receiving at least two inputs. N-Data argues that such limitation excludes a preferred embodiment. N-Data points to Figure 2 of the '216 patent in support of their contention. N-Data argues that a multiplexer can have one input and there is no requirement that each multiplexer have at least two inputs. Specifically, N-Data asserts that "multiplexer," as used in the patents in the context of "time division multiplexing," refers to the time placement of data in frames and not to the selection of inputs. Dell points to extrinsic sources and ordinary usage of the term for their definition of "multiplexer."

The court agrees with N-Data. Figure 2 of the '216 patent discloses two situations in which there is one input. In Node 1, the multiplexer has only one input and one output. Similarly, in the demultiplexing direction, there is one input and one output. Node 3 presents the same situation. Although N-Data's proposed definition may contradict the standard definition of multiplexer, the court must define the disputed term in light of the specification and claim language. Here, the court finds that the patentee disclosed multiplexers having only one input.

Dell proposes the same construction for "time-multiplexed data" and "time-division multiplexing data;" however, it does not provide intrinsic evidence in support of their multiple limitations.

In light of the above discussion, the court defines "multiplexer" as "circuitry for processing data from one or more inputs into a repeating series of frames or templates."

The court defines "time-multiplexed data" as "data that has been processed into a repeating series of frames or templates."

The court defines "time-division multiplexing data" as "processing data into a repeating series of frames or templates according to time intervals."

Multi-Tech next challenges the district court's construction of the claim term "multiplexing" in claim 1 of the '649 patent and claim 11 of the '532 patent. Multi-Tech argues that the court improperly imported limitations from the specification into the claims by requiring that voice data have priority over computer data and that computer data be substituted for detected and discarded silence packets.

Microsoft responds by pointing out that the parties agreed that Multi-Tech acted as its own lexicographer in defining the term "multiplexing." Therefore, Microsoft argues, the specification's definition of the term "multiplexing" to include the prioritization of voice packets, the detection and discarding of silence packets, and the transmission of computer data during periods of silence is the proper one.

We again begin our analysis with the claim language. Claim 1 of the '649 patent simply requires "multiplexing" outgoing voice and computer data packets and "demultiplexing" incoming voice and computer data packets. '649 patent, col. 47, ll. 3128-
14-25. Claim 11 of the '532 patent similarly requires "multiplexing" and "demultiplexing" voice and video data packets. '532 patent, col. 49, ll. 4-13. At the very least then, the plain language of the claims defines the term "multiplexing" as the combining of voice and computer data packets. The parties also agree that Multi-Tech acted as its own lexicographer in defining the term "multiplexing" to mean "dynamic multiplexing," or the combining of voice and computer data packets for transmission through the same channel by dynamically changing the time allocations for transmission of each type of data. That interpretation is supported by the specification. See, e.g., '289 patent, col. 3, l. 2; id. at col. 7, ll. 39-42.

The parties disagree, however, as to the propriety of the district court's inclusion of two additional limitations in its interpretation of the term "multiplexing." First, we agree with Microsoft that the court properly interpreted the term "multiplexing" to require the prioritization of voice data over computer data. In its discussion of multiplexing, the specification provides that voice data have higher priority than computer data "to ensure the integrity of the real-time voice transmission." Id. at col. 35, ll. 57-58. Because maintaining the integrity of the voice data is central to the functioning of the claimed inventions, we read Multi-Tech as having defined the term "multiplexing" to require the prioritization of voice data over computer data.

However, we agree with Multi-Tech that the court improperly construed the term "multiplexing" to require the detection and discarding of silence packets and the transmission of computer data packets during periods of silence. The specification's references to those limitations are nothing more than disclosures of a preferred embodiment. Although those features may be desirable, nowhere does the specification indicate that they are necessary for the multiplexing function. Moreover, the method of detecting and discarding silence packets and transmitting only computer data packets during periods of silence is separately claimed in the dependent claims. '649 patent, col. 47, ll. 26-35; '532 patent, col. 49, ll. 14-23; see Comark Communications, 156 F.3d at 1187 (recognizing that the doctrine of claim differentiation, although not a hard and fast rule of claim construction, creates a presumption that each claim in a patent has a different scope). We therefore conclude that the term "multiplexing" does not include the limitations of detecting and discarding silence packets and transmitting computer data packets during periods of silence.

E. The Johnson Patent

The parties ask the Court to construe the phrase "multiplexing address signals being transferred to said second bus by said access means and said controller means, together with data signals being transferred to said second bus" in Claim 55 of the Johnson patent. Joint Statement at 7. The parties agree that in the abstract "multiplexing" by itself can refer to (1) selecting one of two sets of data from an input for transmission to an output and (2) interleaving the two sets of data in time for sequential transmission to an output n3. AMD's Opening Markman Brief at 23; Oki's Response to AMD's Opening Markman Brief at 25. However, Oki argues that in the context of the Johnson patent, multiplexing requires interleaving two sets of data for transmission to an output. Oki's Response to AMD's Opening Markman Brief at 24. Thus, the Court must determine whether multiplexing as used in the Johnson patent requires interleaving. It does.

--- Footnotes ---

n3 Oki's expert describes interleaving with a useful analogy. One might imagine a two lane road on which cars travel side by side. If the cars each represents a unit of data, this two-lane road would allow parallel transmission. However, if the two-lane road merges into a single lane, the cars will have to enter the single lane "in an alternating manner, one at a time, to avoid collision." This merger is analogous to interleaving. Oki's Response to AMD's Opening Markman Brief, Ex. 16 ("Oklobdzija Decl.") at P 5.

--- End Footnotes ---

1. The Claims of the Johnson Patent

Claim 55 describes a method for transferring data back and forth between a computer's CPU and peripheral devices such as printers. "[H]igh performance devices including at least one" CPU are connected to a "first bus." 672 Patent col.49 ls.43-45. "[L]ower performance devices" are connected to a "second bus." Id. at ls.46-47. A "direct memory access means" transfers
data between the two buses. Id. at ls.49-50. The "direct memory access ["DMA"] means" includes "at least one direct memory access channel means." Id. at ls.50-52. When the DMA means transfers data between the two buses, the "direct memory access channel means" isolates the CPU (and other high performance devices) from the lower performing devices. Id. at ls.53-57. A second "means,"an "input/output ["I/O"] controller means," also transfers data between the two buses. Id. at ls.58-59. The I/O controller means includes "at least one address mapped input/output port means." Id. at ls.59-61. When the input/output controller means transfers data between the two buses, the address mapped input/output port means isolates the CPU (and other high performance devices) from the lower performing devices. Id. at ls.62-66. As the DMA means and the I/O controller means transfer address signals and data signals to the second bus, Claim 55 requires "multiplexing [of the] address signals . . . together with [the] data signals." Id. at col.49 ls.66-67; col.50 ls.1-2.

The claims standing alone are not conclusive on the meaning of multiplexing. However, the claims provide two hints whose implications become fully clear when the claims are read in light of the specification. First, whatever multiplexing is, Claim 55 only requires it as data travels in one direction. Claim 55 refers to data that travels in two directions: from the high performance devices on the first bus to the low performance devices on the second bus, and vice versa. Id. at col.49 1.43. However, Claim 55 only requires multiplexing as data is being transferred to the second bus. Id. at col.49 ls.66-67; col.50 ls.1-2. The second hint is the plain language of the claims themselves. The claims do not require multiplexing address signals and data signals. The claims require "multiplexing address signals . . . together with data signals." Id. at col.49 ls.66-67; col.50 ls.1-2. The implications of these hints will become clear as the Court delves into the specification.

2. The Specification of the Johnson Patent

The specification ties together the loose strings left by Claim 55. Two references to multiplexing prove informative. The first occurs in the description of a specific embodiment of the invention. In this embodiment, the bus connected to the high performance devices is actually composed of "two 32 bit wide buses referred to as the Address Bus' and Data Bus." Id. at col.1 ls.35-36. The Johnson patent refers to these two buses collectively as the Local Bus. Id. at 36-38. Address signals travel into a data transfer controller ("DTC") on the data bus. Id. at fig.3. Data signals travel into the DTC on the data bus. Id. These signals travel either to the input/output ports or the DMA channels. Id. Specifically, the address bus feeds address signals into both the I/O ports and the DMA Channels. Id. Likewise, the data bus feeds data signals into both the I/O ports and the DMA Channels. Id. At this point, then, both the I/O Ports and the DMA Channels are each ready to send a pair of address and data signals traveling in parallel to the remote bus. AMD argues that the multiplexing that Claim 55 refers to is selecting which of the pairs of signals to send to the Remote Bus. AMD's Opening Markman Brief at 23.

However, that's not what the specification says. The pairs of signals coming from the local bus to which the high performance devices are connected contain 64 bits of information. Id. at col. 1 ls.34-35. However, in the preferred embodiment, the Remote Bus onto which the data must be sent is only 32 bits wide n4. Id. at col. 8 1.43. Thus, the address signals and the data signals must be interleaved if they are to transfer to the 32 bit Remote Bus. The specification describes this interleaving as the multiplexing: "Fig. 3 goes on to show multiplexing and transceiver circuits . . . to indicate that address signals and data signals are interleaved when output to or received from the Remote Bus." Id. at col. 11 ls.60-64. The specification does not describe multiplexing as choosing between data from the I/O ports and the DMA channels. Thus, the specification indicates that multiplexing, as used in Claim 55, does require interleaving.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

n4 This is analogous to cars traveling onto a 64 lane highway merging into a 32 lane highway.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Now, the first hint from the claims make sense. Multiplexing only needs to occur when data is transferred in one direction because data only needs to be interleaved as it is transferred from the faster 64 bit bus onto the 32 bit remote bus n5. This is borne out by the second important reference to multiplexing in the specification: the "Remote Address/Data Bus . . . is a bidirectional, Input/Output; asynchronous/synchronous, three state bus. The signals on this bus are multiplexed address/data signals for Remote Bus 120." Id. at col.8 ls.43-46. The phrase multiplexed address/data signals, like the words together with, invokes the notion that the data have been combined, or interleaved together. However, when describing the data on the Local Bus, the specification does not describe the data as multiplexed. This is so because, as Claim 55 indicates, multiplexing only needs to occur as data is being transferred from the Local Bus to the Remote Bus.
n5 Of course, the invention is not limited to a device in which the first and second busses are 64 and 32 bits wide. But the requirement imposed by multiplexing does envision a first bus with a greater data width than the second.

The second hint from Claim 55 also reveals its import when read in light of the specification. The words "together with" suggest that the address signals and data signals are somehow being combined. AMD's construction of the word multiplexing does not comport with this suggestion. According to AMD, two address-data pairs present themselves to the multiplexer. The multiplexer then chooses which of the two pairs to send on to the Remote Bus. Because each address-data pair arrives in parallel and leaves in parallel, no combination ever occurs. This, however, contradicts the notion that address signals must be multiplexed together with data signals. Interleaving, on the other hand, gives full meaning to the phrase "together with." According to the correct construction of Claim 55, paired address-data signals present themselves to the multiplexer. The multiplexer then breaks up the data pairs and sends them in time interleaved fashion. This allows address and data signals that arrived on two separate lines to leave the multiplexer on one single line, i.e. the remote bus. Construing multiplexing as interleaving gives full meaning to the words of Claim 55.

Another part of the specification reveals that the multiplexing as it is used in Claim 55 does not refer to selecting whether to send a pairs of signals from the I/O ports or the DMA channels to the Remote Bus. In a section explaining the function of the I/O ports, the specification explicitly refers to process AMD alleges constitutes multiplexing. "If a request from an I/O port for the Remote Bus occurs at the same time as a request from a DMA channel, the I/O has priority." Id. at col.25 ls.21-23. Unlike interleaving, the specification does not call this process multiplexing. The specification does not state that this activity is conducted by a multiplexer. Thus, while the patentee contemplated that the invention would make this decision between pairs of signals, he did not call it multiplexing.

AMD suggests that a reference to multiplexing in the specification's description of Figure 8 impacts the Court's construction of multiplexing in Claim 55. AMD's Opening Markman Brief at 24. The Court disagrees. Figure 8 of the specification depicts a block diagram of a DMA channel described by Claim 14. Compare id. at col.30 ls. 11-23 with col.44 ls.49-68. Claim 14 refers to multiplexing that takes place within the DMA channel. Both parties agreed at oral argument that this type of multiplexing does not require interleaving. Instead, this multiplexing does what AMD wishes the multiplexing in Claim 55 would do: it selects between two inputs that must be presented one at a time to a single output. Id. at col.44 ls.52-57. While this use of multiplexing does reveal that the patentee knew that the word multiplexing, in the abstract sense, could have many meanings, it does not inform the interpretation of Claim 55. Both the language of Claim 14 and the portion of the specification describing this multiplexing use different terminology than Claim 55. Claim 14 depends from Claim 13, which describes a data transfer controller that has a "queue means for buffering data being sent between the first and second bus." Id. at ls.45-46. Claim 14 then goes on to add the further limitation that the device set forth in Claim 13 have "(a) first multiplexing means for selectively transferring word length data input to [the] access means from [the] first bus and for selectively transferring packed data, input to [the] access means from said packing and funneling network means, into [the] queue means." Id. at col.44 ls.52-57. Two important differences between Claim 14 and Claim 55 are apparent. When the patentee uses multiplexing to describe the selection of one of two pieces of data, the claim explicitly describes that choice. Furthermore, Claim 14 does not state that the invention multiplexes "word length data" together with "packed data." Instead, the Claim uses language that indicates that the device is selectively choosing between them. Thus, the construction of multiplexing in Claim 55 is not altered by the fact that other claims indicate that the invention multiplexes in different ways.

The construction of Claim 55 in the Johnson patent reveals how the world of claim construction has changed since the Federal Circuit issued its landmark decision in Phillips. Prior to that decision, claim construction would begin with the various definitions of multiplexing the parties have offered. Phillips, 413 F.3d at 1319. Then, a court would attempt to look for an explicit indication in the patent that these definitions fell outside its scope. Id. Were the Court to engage in this method of claim construction, it might construe multiplexing to include interleaving and selecting between pairs of data since there is no explicit statement in the Johnson patent that this cannot be so. However, the Federal Circuit has rejected this method of claim construction. Id. at 1320. Instead of beginning with broad dictionary definitions, the Court begins with the language of the Johnson patent itself, allowing the claims and the specification to define the scope of the term multiplexing. See id. This method ensures that the Court does not construe multiplexing in an overly expansive way. See id.
3. Construction of Disputed Terms in the Johnson Patent

Based upon the foregoing considerations, the Court construes the phrase "multiplexing address signals being transferred to said second bus by said access means and said controller means, together with data signals being transferred to said second bus" in Claim 55 of the Johnson patent as follows: Address and data signals are being transferred to the second bus by the access and controller means. In this step, those address and data signals are combined for transmission over the second bus.

2801

2. "Multiplexor"

The court shall apply the ordinary definition of the word "multiplexor" in the relevant art. The term "multiplexor" shall be construed to mean "a device that allows the interleaving of two or more signals to a single line." 6

6 IEEE Standard Dictionary of Electrical and Electronics Terms, 430 (2d ed. 1978); see also F. Hill & G. Peterson, Introduction to Switching Theory & Logical Design 196 (3d ed. 1981) (a multiplexor "select[s] one of several inputs to connect to a single output line."); M. Mano, Digital Design 173 (2d ed. 1991) ("A digital multiplexor is a combinational circuit that selects binary information from one of many input lines and directs it to a single output line.").

D. "multiplicity"

This term appears in each of the patents, in a total of nine claims. A representative usage of "multiplicity" is:

19. An audio/video transceiver apparatus as in claim 17 in combination with a video library, coupled via a communication link with said audio/video transceiver apparatus, said video library storing a multiplicity of items of audio/video source information in said time compressed representation for selective retrieval, in said associated burst time period over said communications link.


The court construes "multiplicity" as "two or more; usually a fairly large number." Although Burst argues that claim construction is unnecessary for "multiplicity," the parties cite to extrinsic evidence indicating that the understandings of the average person and one of ordinary skill in the art may differ. Burst's definition from a standard dictionary reads: "a large number." American Heritage Dictionary 822 (2d College ed. 1982). Apple's definition, however, reads: "two or more; usually a fairly large number." Robert C. Faber, Landis on Mechanics of Patent Claim Drafting App. D-14 (5th ed. 2006). While the difference appears minimal, it embodies the parties' dispute regarding "multiplicity" and indicates that jurors would benefit from direction regarding the use by one skilled in the art.

The patents employ "multiplicity" in two different ways; both contexts support Apple's construction. In one instance, the term describes a "multiplicity of video frames collectively representing at least one full motion video program." '705 Patent at 12:38-40. In another instance, the term is used in connection with a "video library storing a multiplicity of items of audio/video source information. . . ." '995 Patent at 13:7-8. Apple's definition of multiplicity is supported by the claim language, since a video library constructed by a user may only include a limited number of items. Defining "multiplicity" as "two or more; usually a fairly large number" is also consistent with the usage in the '705 Patent, where the "frames collectively representing at least one full motion video program" indicates that they are numerous. '705 Patent at 12:38-40.
Thus, the court accepts Apple's construction of "multiplicity."

12. "Multiplicity": "A large number." This construction is consistent with: (1) the ordinary, dictionary definition of the term (D.I. 387, ex. 132 (THE CONCISE OXFORD DICTIONARY OF CURRENT ENGLISH (9th ed. 1995) ("a great number")), ex. 133 (OXFORD DICTIONARY OF ENGLISH (2nd ed. 2006) ("a large number or variety"); (2) the specification at col. 8, ll. 25-27 ("an order of magnitude"); and (3) the specification's separate use of "multiplicity" (see col. 8, ll. 4-13) and "plurality" (see claims 6 and 16).

Plaintiff advocated a definition of "more than one," a definition more consistent with "plurality."

12. "[A] multitasking operating system" 15 is an operating system that permits the user to execute two or more application programs at the same time. This construction is consistent with the claims, as well as the specification: col. 3:63-4:2; col. 27:59-65; col. 30:1-4; col. 31:10-31; col. 35:43-48.

MULTITHREADING

Plaintiff contends that "multithreading" should be given its common and ordinary meaning, within the field of computer programming. Citing a Microsoft publication, plaintiff asserts that "multithreading" means: "Supporting more than one thread within a single process." Pl Br (Doc # 331) at 18.

Plaintiff explicitly defined "multithreading" within both patents, although somewhat differently in each. The '603 patent reads:

The term "multithreading" is used in this application in its ordinary generally understood sense to mean the concurrent time-sliced preemptive execution of a plurality of threads of instructions located within the same single operator-selected application program, whereby during execution of the program each thread may have at various times direct access to the same program address space, and with at least one thread invoked by a periodic clock-activated interrupt service routine which upon each activation asynchronously and preemptively takes control of the central processing means away from an executing thread at a repetition rate sufficiently fast so that even where the system contains only a single central processor the concurrent threads appear to execute effectively simultaneously and are so perceived by the user.

'603:1:24-37.

The '604 patent reads:

The term "multithreading" is used in this specification in its ordinary generally understood sense to mean the concurrent asynchronous preemptive time-sliced execution of a plurality of threads of instructions located within the same software
program, controlled by a clock or timer which periodically activates the interrupt operation of the central processor.


An explicit definition of a claim term within the specification is given considerable weight in claim construction. See e.g., E. I. Du Pont, 849 F2d at 1433. The difference in the phrasing between plaintiff's definitions of multithreading in the two patents creates an ambiguity. Specifically, although plaintiff has provided an explicit definition of a claim term in each patent, it is not immediately apparent whether or not plaintiff intended to work with different definitions of multithreading in the two patents. It would be permissible for plaintiff to employ two different definitions of multithreading, but his statement in each patent that he is using multithreading "in its ordinary generally understood sense" suggests that plaintiff intended multithreading to have but a single meaning. In the '603 patent, multithreading is defined to include a periodic clock-activated interrupt service routine, but is apparently not limited to periodic preemption, as this definition implies that not all threads must be controlled by a periodic clock interrupt service routine. The definition in the '604 patent, however, states that preemption is "controlled" by a clock or timer, which activates the interrupt operation "periodically."

Looking at plaintiff's description of the illustrative embodiment, which is the same for both patents, does not resolve this ambiguity. Plaintiff's embodiment, as discussed above, is the invention disclosed in his 1982 application: the four-part-editor-compiler. As described in the patents, the compiler executes continuously in the background and is interrupted, not by a clock, but when the "programmer strikes a key on the console keyboard." '603:4:14-15. Plaintiff's detailed description of his preferred embodiment is nearly entirely devoted to a description of a system that does not rely on a clock activated interrupt. Indeed, in the patents' detailed description only a single brief paragraph, the same paragraph in each patent, mentions a clock or timer:

Furthermore, the interrupt which causes control of the CPU to pass from the compiler to the editor may be activated by a timer or clock instead of by a keyboard ** *. That is, the compiler may be periodically interrupted and the input port polled to test if a key has been struck. If not, the interrupt is terminated and control returns to the compiler. If polling the port reveals that a key has been struck then the interrupt service routine editor takes control and is executed in the manner described above. For most applications clock interrupts at intervals of about every 10 to 30 milliseconds should be frequent enough to keep up with the keys stroked at the keyboard.

'603:13: 8-20; '604:10:3-14.

Aside from summary sections, this paragraph is the only mention of a clock activated interrupt form of multithreading in the detailed description section of the patents in dispute. The claims of both patents, however, discuss plaintiff's invention only in terms of periodic preemption based on timeslices assigned to the threads. This apparent disconnect between the detailed description of plaintiff's preferred embodiment and the patents' claims may well raise serious 35 USC § 112 validity questions. For the purposes of claim construction, however, the court is obliged to interpret "what the patentee has chosen to claim as his invention." SSIIH Equipment SA v US Int'l Trade Comm, 718 F2d 365, 378 (Fed Cir 1983). Valid or not, plaintiff's clear intent is to claim the invention of a form of multithreading that operates pursuant to a periodic clock activated preemption.

The parties disagree whether the patents' version of multithreading excludes multithreading wherein the assignment of which thread may execute after the executing thread is interrupted is governed by the relative priority of threads. The patents do not discuss any method of assigning priority to threads; nor do the patents indicate that so assigning priority would be a possibility or, in fact, desirable. Plaintiff argues that the source code compiler embodiment is priority driven because the editor operates in the foreground and the compiler operates in the background. In this embodiment, however, only two threads operate and, therefore, it is never necessary to choose which thread operates next when one is interrupted, accepting for the moment plaintiff's contention that the editor may be interrupted. Plaintiff does not discuss an embodiment which operates with more than two threads; nor does his specification specifically discuss how the chain of execution will be determined.

Clearly plaintiff's claimed invention does not require a feature that assigns priority to threads. Nevertheless, the court thinks it premature to determine whether a form of multithreading that operates pursuant to the patents' description, but includes a method for assigning priority amongst threads would infringe plaintiff's patents. If as the litigation proceeds it becomes necessary further to clarify the court's construction of multithreading, the court will undertake that task. It is likely, however,
that this determination will take place as part of a fact-laden infringement analysis and not claim construction, which is a matter of law.

If there is any material difference between the explicit definitions of multithreading given in the patents, it relates to whether the '604 definition, which provides that multithreading is "controlled" by a clock or a timer, is limited to preemptive multithreading. As the court has decided that it is premature to make this determination, there is currently no need to choose between the explicit definitions of multithreading given in each patent. Accordingly, the court determines that multithreading shall be construed in each patent as explicitly defined in that patent. To the extent there is any material difference between these definitions, the patents shall be considered to be working with different definitions of multithreading.

A. "multivariate negotiation system"

As to this term, this Court ordered the following claim construction:

A system of hardware and software that enables participants to perform multiple rounds of bargaining over multiple terms. The multiple rounds of bargaining (i.e., the "negotiation") must allow for an offer and multiple counteroffers between two participants where each round is related to prior rounds and is more than a simple bid submission system.

Tr. 26:11-23; 31:10-17.


"A music device controlled by a computer" and "computer responsive music device" appear in claim 1, and "computer controlled music device" appears in claim 2. The parties agree that all three terms refer to the same device and have the same meaning, but disagree as to that meaning. Contois proposes that the terms be construed as "a device capable of playing music that is controlled by and responsive to a computer." Apple proposes that the terms be construed as "a device with a computer interface that plays music under control of computer music commands." Apple's proposed construction adds a limitation that is not part of the claim language: that the music be played under control of computer music commands. Neither claim recites any requirement that the music device play music under control of computer music commands.

n1 Claim 2 recites:

[the process of claim 1, wherein the step of playing the selected song item comprises: a) activating a play button located on the computer screen; b) sending a data stream from the computer to the computer controlled music device in response to step a) for controlling the playing of the selected song; c) receiving the data stream by the computer controlled music device from the computer; and d) playing the selected song item on the computer controlled music device.

Id. col. 14:66-15:8.

Although the specification discusses a preferred embodiment that operates using MIDI (Musical Instrument Digital Interface) to play a music device such as a player piano, the specification also makes clear that its discussion of MIDI is included purely for background. See '868 Patent col. 6:47-7:14. The specification also emphasizes that the user interface
software may be used "on any media playing device," and gives as examples devices that play back recorded music, as well as devices that produce music in response to computer commands. See id. col. 13:43-50; 14:2-3. Apple has supplied no persuasive reason for the Court to diverge from the ordinary and customary meaning of the phrase. The term is construed as "a device capable of playing music that is controlled by and responsive to a computer."

2808

1. "Mutual Fund" means "a Company that Pools Money from Many Investors and Invests the Money in a Group of Securities of other Companies."

All of the patent claims are directed toward "mutual funds." The '116 Patent and its prosecution history, however, failed to define "mutual fund," or use the term in a specialized way. "Mutual fund" is a term that is readily discernible by investment professionals and is defined by Webster's Dictionary as "an open-end investment company that invests money of its shareholders in a usually diversified group of securities of other corporations."

The '116 Patent used the term "mutual funds" in a manner consistent with its ordinary meaning:

There are approximately 9,000 mutual fund companies. These companies invest in approximately 50,000 United States Corporations that are traded on stock and bond exchanges and NASDAQ (National Association of Securities Dealers Automated Quotations) in America.

(SUF P 44.) Moreover, Boyle specifically categorized his term "Cross-Fund" in a similar manner, as "a simultaneous offering of a mutual fund in America and an overseas country." (Id. P 46.) Accordingly, the term "mutual fund" has a generally understood meaning, which is entirely consistent with the common sense definition of the term. Therefore, the Court will construe "mutual fund" to mean: "a company that pools money from many investors and invests the money in a group of securities of other companies."

2809

1. Claim Construction

a. "NSM-packet signal"

Asserted independent claims 36, 39, 132, 140, and 146 describe the transmission of "the multiplicity of NSM-packet signals as an RCN-packet signal." A threshold question is how the term "NSM-packet signal" should be interpreted. Citing to the deposition testimony of plaintiff and defendant experts and a technical dictionary, Itron contends that "NSM" denotes only the source of the packet signal and does not alter what it claims is the common, ordinary sense of the term "packet signal": a discrete chunk of data.

However, the court cannot adopt this broad, generic interpretation of "NSM-packet signal." As CellNet points out, Itron's immediate reference to extrinsic evidence violates a basic rule of claim construction. In interpreting claim terms, a court must first examine evidence intrinsic to the patent. See Vitronics, 90 F.3d at 1582. This is especially critical where the disputed language involves a coined phrase like "NSM-packet signal." Reliance on extrinsic sources when interpreting a coined phrase would run the risk of producing an arbitrary construction. Itron argues that "NSM-packet signal" has no special meaning within the context of the patent, and that, therefore, immediate reference to dictionary definitions and expert testimony is entirely appropriate. This is a surprising argument, especially considering Itron's later assertion, in resisting CellNet's motion for summary judgment on the issue of invalidity, that the term "network service module" is a term of art that can only be understood in light of the specification.
However, even if the court were to agree that "NSM-packet signal" and "packet signal" are synonymous, CellNet has submitted ample extrinsic evidence that "packet signal" is commonly understood to have a definition more specific than what Itron claims it does. As one communications textbook explains, "The essential idea of packet switching is to encapsulate data messages into fixed length blocks. Addressing as well as other overhead information is added to these blocks to form a packet." See Jeremiah F. Hayes, Modeling and Analysis of Computer Communications Networks 32 (1984) (CellNet Exh. Q). Further, at one point in his deposition, Itron's expert, Dr. Hulina, seemed to agree with this more specific definition: "The complete NSM-packet signal consists of a preamble, an opening frame, air detection, closing frame. Those are all digital, it's all digital data," Deposition of Dr. Paul T. Hulina, at 74 (CellNet Ex. E). In short, even if the court relies on extrinsic evidence, a substantial portion of it supports the construction the court draws from the patent's specification in the discussion below.

Here, the intrinsic sources clearly demonstrate that "NSM-packet signal" does not mean, as Itron argues, any discrete amount of data transmitted from an NSM. First, Claim 36 makes separate mention of "NSM data" and "NSM-packet signal," showing that the patent intends a conceptual distinction between the two terms. Second, the specification clearly articulates the difference between "NSM data" and "NSM-packet signal":

The NSM transmitter 318 transmits at a first carrier frequency the respective NSM data from the physical device in a brief message packet called an NSM-packet signal …. The NSM-packet signal transmitted by the NSM transmitter 318 follows a generic or fixed format; and a representative message packet is illustrated in FIG. 3. Included in the message is: preamble; opening frame; message type; message identification; service module type; message number; service module address; data field; error detection; and closing frame.

'094 Patent, Col. 8, ll. 2-13. Thus, as expressly defined by the specification, an "NSM packet-signal" includes more than just "NSM data"; it also includes a header, footer, and message identifier information.

While Itron argues that the specification describes a representative or preferred "NSM-packet signal" only, the language of the specification admits of little design flexibility, dictating a "fixed or generic format" made up of a number of information elements. The specification is "representative" merely in the sense that the exact combination of elements in the footer, header, and data structure illustrated in Figure 3 may vary. That is, although the precise structure may change, an "NSM packet-signal" must contain some kind of identifier information beyond the cumulative consumption data gathered by the NSM. Viewed within the larger context of the patented system, this requirement makes perfect sense. Without receiving message identifier information, the RCNs would be incapable of deleting redundant NSM-packet signals, as required in many of the claims in the '094 patent. Equally important, without receiving message identifier information, the utility implementing the system would never know which customer is responsible for what energy consumption data.

2 The court is well aware that extraneous limitations should not be imported from the specification into patent claims. Here, however, the court is not adding a limitation to the relevant claims but merely interpreting coined terminology that appears within it.

In short, because the inventors have chosen to be their own lexicographers with regard to the term "NSM-packet signal," the court must adopt their definition.

2. "Nx1 Switch" and "Nx1 Optical Switch"

For the following reasons, this court construes the claim term "Nx1 switch" in claim 19 and "Nx1 optical switch" in claims 2 and 9 to mean:
A device to receive an optical signal from one of N inputs and route the optical signal to one output, or to receive an optical signal from one input and route the optical signal to one of N outputs.

The claim language "N x 1 switch" and "N x 1 optical switch" works to narrow the previously construed term, an "optical switch." For example, in claim 19, the claim states that "the optical switch is an N x 1 switch." (772 patent, col. 10:22-23.) The term "N x 1 optical switch" is used in claims 2 and 9 in a similar manner: "wherein the optical switch is an N x 1 optical switch." (772 patent, col. 7:18-19; col. 8:17-18.) Therefore, both an "N x 1 switch" and an "N x 1 optical switch" are optical switches and should be construed in the same manner.

Moreover, the specification explains that an "N x 1 switch" is designed to receive a wavelength from the opposite direction and "provide the wavelength to a multiplexer/demultiplexer to be multiplexed with the other received wavelengths." (772 patent, col. 3:29-43.) The specification also contains a flow chart of the steps performed by a controller to control various types of optical switches. (772 patent, col. 3:40-43; see Fig. 2.) In introducing the flow chart, the specification specifically refers to a "1 x N switch" and references both a "1 x N switch" and an "N x 1 switch," thus equating the two switches. Id. This is understandable because an "N x 1 switch" is simply a "1 x N switch" operating in the opposite direction. As the specification explains, a "1 x N switch" is "used to send/receive a wavelength to/from one of N-1 peer OLTs or a client apparatus." (772 patent, col. 3:22-29.) Therefore, an N x 1 optical switch is a device that can receive an optical signal from one of N inputs and route the optical signal to one output, or can receive an optical signal from one input and route the optical signal to one of N outputs.

Vonage challenges the district court's construction of four terms in these patents. First, Vonage complains about the district court's failure to limit the term "translation" in asserted claims 26 and 27 of the '574 patent and claims 15 and 20 of the '711 patent. The district court instructed the jury that the term "name translation request" means "a query for translation of a name into routing information for a public packet data network." J.A. at 6622. Vonage argues that the district court erred in failing to define the claim term "translating," to require that the system "directly convert a higher level protocol identifier of a node to a different lower level protocol." J.A. at 2726. In its Markman decision, the district court rejected Vonage's interpretation and noted that "[a]lthough several examples appear in the specification demonstrating a translation from a higher to a lower level protocol, such limitations are not properly read from the specification into the claims." Verizon Servs. Corp. v. Vonage Holdings Corp., No. 06-0682 at 14 (E.D.Va. Feb. 12, 2007) ("Markman Order").

We see no error in the district court's construction. Vonage points to nothing, and we can find nothing, in the claim language or the specification that would support Vonage's proposed definition. The mere fact that the specification's examples of translation may involve a change in protocol from a higher to a lower level protocol does not establish that such a limitation should be imported into the claims. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (cautioning against importing limitations from the specification into the claims); Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed. Cir. 1986) ("This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification."). Contrary to Vonage's argument, there is also no evidence that the ordinary meaning of translation in the art means a change in protocol from a higher-level to a lower-level protocol. 2

--- Footnotes ---

2 Vonage alternatively argues that the district court should have instructed the jury that translation requires a change in protocol, and that the extraction of a telephone number that the Vonage system performs is not a change in protocol. Vonage also argues that a mere extraction cannot be a translation. These arguments were not even raised in Vonage's claim construction briefs in connection with the Markman hearing. There is nothing in the specification or prosecution history that would compel Vonage's interpretation. Vonage offers no supporting dictionary definition of the term "translation." Under these circumstances one might have expected Vonage to provide expert testimony that those skilled in the art would understand the term "translation" to have the meaning that Vonage urged. But Vonage has not called our attention to any such testimony. On the other hand Verizon's expert did testify that one skilled in the art would understand extraction to constitute translation. We see no error in the district court's failure to include Vonage's interpretation in the jury charge.

--- End Footnotes ---
2. Narrow Band Transmission Medium

A narrow band transmission medium is an information channel capable of handling a relatively low bandwidth or data rate with respect to the information being sent across the medium.

4. Natural Concurrences/determining natural concurrences/determine the natural concurrencies

The next group of terms in dispute use the phrase "natural concurrences." These terms appear in claims 11-13, 20-22, and 26 of the '755 patent as well as in claims 1, 3, 6, 15, 28, and 35-37 of the '945 patent. Biax argues that the term "natural concurrences" means "attributes of instructions that enable the instructions to be executed in parallel with other instructions." Intel and ADI argue that the term means "mutually independent instructions that can be executed in parallel and do not rely on one another for any information nor do they share any hardware resources in other than a read only manner."

The specification resolves this claim construction dispute. In the specification, the patents state:

Clearly, mutually independent instructions can be executed in parallel and are termed 'naturally concurrent.' Instructions that are independent can be executed in parallel and do not rely on one another for any information nor do they share any hardware resources in other than a read only manner.

'755 patent, col. 9,11. 16-18. In light of this passage from the specification, the court defines "natural concurrences" to mean "mutually independent instructions that can be executed in parallel."

1. "a navigational receiver for providing a location of the remote unit"

The parties dispute the construction of the phrase: "a navigational receiver for providing a location of the remote unit." There are four aspects to the dispute: (a) whether the language should be construed as a means-plus-function limitation; (b) whether any construction of "navigational receiver" is necessary and (c) if so, what construction should be given to that phrase; and (d) what construction should be given to the phrase "for providing a location of the remote unit."

a. The subject phrase is not a means-plus-function limitation.

The subject claim language discloses a component of an apparatus claim and recites a function of the component, namely, "for providing a location of the remote unit."

A claim limitation to a component of an apparatus that recites a function but which does not recite definite structure for performing the recited function is subject to being considered a means-plus-function limitation to be construed in accordance with 35 U.S.C. § 112 P 6. B. Braun Medical, Inc. v. Abbott Laboratories, 124 F.3d 1419, 1424 (Fed. Cir. 1997). When construing a claim limitation under § 112 P 6, the first step in the analysis is to identify the particular claimed function. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999). The second step in the analysis is to look to the specification and identify the corresponding structure for performing that function. Id. The use of the word "means" in a limitation creates a rebuttable presumption that § 112 P 6 applies; similarly, the absence of the word "means" in a limitation creates a rebuttable presumption that § 112 P 6 does not apply. Personalized Media Communications, LLC v. International Trade Com'n, 161 F.3d 696, 703-04 (Fed. Cir. 1998). The presumption against the application of § 112 P 6 may
be overcome when a claim limitation does not use the word "means" but, nonetheless, employs functional language. Massachusetts Institute of Technology and Electronics For Imaging, Inc. v. Abacus Software, 462 F.3d 1344, 1353-54 (Fed. Cir. 2006). However, § 112 P 6 does not apply when the claim recites sufficient structure for performing that function. Id.

In this case, the inventors did not use the word "means" in the subject phrase. Thus, there is a rebuttable presumption that § 112 P 6 does not apply. Although the inventors use functional language in the limitation, one of ordinary skill in the art would understand the phrase "navigational receiver" to be a recitation of definite structure which is capable of performing the claimed function. Accordingly, the Court finds that the subject limitation is not a means-plus-function limitation.

b. Whether construction of "navigational receiver" is necessary

The second issue is whether the phrase "navigational receiver" needs construction. The Court looks first to the claim language itself. The phrase "navigational receiver" is a commonly used phrase meaning a "receiver which receives navigational information." This definition is simply restating the words of the phrase. However, the embodiments of receivers which are discussed in the '770 Patent refer to "global positioning satellites" ("GPS") only. Therefore, the Court considers whether the phrase as used in Claim 55 should be construed to be a GPS receiver. 3

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
3 The meaning of "navigational information" is disputed within the context of Claim 11 of the '390 Patent and Claims 14 and 17 of the '889 Patent. The Court defers construction of the term until such time as it considers the terms of those patents that are in dispute.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

c. "navigational receiver"

The specification provides:

The navigational receiver . . . receives navigational information, as for example from global positioning satellites.

('770 Patent, Col. 11:28-30.)

The navigational receiver . . . is connected to an antenna . . . for receiving navigational information, such as from global positioning system satellites.

('770 Patent, Col. 12:14-16.)

[T]he navigational receiver . . . receives navigational information from global positioning system satellites.

('770 Patent, Col. 15:56-58.)

Notwithstanding the reference to GPS receivers as examples of "navigational receivers," there is nothing else in the specification, including the claims, which indicates explicitly or implicitly, that the inventors intended to limit "navigational receiver" to a GPS receiver. At this time, the Court has not been presented with any extrinsic evidence that one of ordinary skill in the art reading the patent documents would have understood "navigational receiver" to be limited to a GPS receiver. Thus, in the construction below, the Court declines to limit the phrase "navigational receiver" to a GPS receiver.

d. "for providing a location of the remote unit"

The functional phrase "for providing a location of the remote unit" is not subject to § 112 P 6. However, the language is a functional limitation on the "navigational receiver," i.e., it must be "for providing a location of the remote unit."

In the specification, the inventors disclose an embodiment which gives meaning to this function:

The navigational receiver 304 converts the navigational information into the location of the remote unit 302 and outputs...
the location 338 to the radio transmitter 314 for transmission to the base station 318.

("770 Patent, Col. 11:28-29.) Thus, although the invention in Claim 55 is not limited to the embodiment discussed in Col. 11:28-29, there are aspects of that embodiment which assist in defining the "for providing a location" function. First, since the preamble to Claim 55 and the subject phrase disclose a "remote unit," inherent in the claim is that the navigational receiver be located in a remote unit of a system which includes a base station. Without a base station, there is no meaning to the word "remote." Second, other language of Claim 55 explicitly provides that the receiver provide "a location." 4 Finally, the radio transmitter limitation, discussed below, limits the recipient of the "location" to "a radio transmitter." Therefore, the navigational receiver must be capable of providing the location of the remote unit to a "radio transmitter."

--- Footnotes ---

4 The parties have stipulated to the definition of location. The Court defers consideration of whether it will adopt the parties' stipulation. The Court notes that in the specification the inventors distinguish between providing a "location," which is required by Claim 55 (See e.g., "770 Patent, Col. 12:14-18.) and providing "raw navigational information" from which location can be "calculated." (See e.g., "770 Patent, Col. 16:39-47.)

--- End Footnotes ---

Accordingly, the Court construes the phrase "a navigational receiver for providing a location of the remote unit" as used in Claim 55 of the '770 Patent to mean: a receiver in a remote unit that receives navigational information, and that provides a location of the remote unit, to a radio transmitter.

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14. negative optical anisotropy ('412 patent)

CEA's proposed construction is "a characteristic of birefringent material wherein an ordinary index exceeds the extraordinary index."

Samsung's proposed construction is "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is less than the other two."

Samsung's proposed construction is supported by the specification 42 and is adopted by the court: "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is less than the other two."

--- Footnotes ---

42 "See '412 patent, 5:3-5 ("Compensating plate 16 is a negative optical anistropy uniaxial medium, the extraordinary index Ne1 of said medium being below its ordinary index No1.")."

--- End Footnotes ---

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The other disputed term in the '806 patent is the phrase "negative voltage with respect to." All the parties agree on the meaning of "voltage"; the only dispute concerns the meaning of "negative with respect to." The claims recite a second power supply that is at a negative voltage with respect to a first power supply. As we noted above, the district court construed "negative with respect to" to mean negative with respect to ground, i.e., an absolute negative voltage. NeoMagic argues, and we agree, that the district court's construction was in error. The plain language of the claim recites relative voltage rather than absolute voltage. As NeoMagic notes, if the inventors had meant to claim an absolute negative voltage, they need not have used the words "with respect to"; "negative" would have sufficed. Indeed, "negative with respect to said
first power supply" is inconsistent with a description of absolute voltage, because absolute voltage is relative to ground.

Because the plain language of the claim compares the second power source to a first power source with an output that need not be at ground, it is referring to relative voltage. As discussed above, one point can be negative with respect to another without being negative with respect to ground. Thus, the appropriate construction of "negative with respect to" is simply that the second power supply must have a voltage that is less positive than that of the first power supply. The second power supply need not have a voltage output that is negative with respect to ground, however, to meet this limitation.

The definition we adopt today is completely consistent with the specification. The invention described and claimed in the '806 patent is the isolation of a capacitor in an n-well on a p-substrate, where the p-n junction between the n-well and p-substrate is reverse-biased. Reverse-biasing simply requires that the voltage applied to the p-substrate be negative relative to that applied to the n-substrate. It does not require that an absolute negative voltage be applied to the p-substrate. In context, the "negative with respect to" language in the '806 patent clearly refers to reverse-biasing the claimed p-n junction. And, because only relative negative voltage (not absolute negative voltage) is required to reverse-bias the junction, the claims naturally use the words "negative with respect to" to recite the required conditions for reverse-biasing. Thus, the proper definition of "negative with respect to" requires only that the voltage supplied by the second power supply be negative relative to that provided by the first power supply.

"neighbor" is construed to mean "two nodes are neighbors when they have a link between them; a link is a bi-directional communication path that terminates at a single node on either end." The Court adopts as its construction the definition of the terms "neighbor" and "link" in the 4,466,060 Riddle patent ("the '060 patent"), which is incorporated by reference in the '607 patent. (D.I. 389, App. 29 ('060 patent) at 1:20-24.)

Lucent contends that the term "neighbor" means "two nodes are neighbors when they are connected by a bi-directional communication path that terminates at each of the two nodes at either end of the path." (D.I. 396 at 35.) Extreme contends that this term means "a node directly connected by a link, with no intervening nodes." (D.I. 395 at 34.) Foundry contends that this term should be construed such that "a node A is a neighbor of another node B if and only if node A is directly connected to node B by a communication link in the network, that communication link having no intervening network nodes between node A and node B." (D.I. 385 at 32.)

The Court finds that all three proposed constructions are modifications of the definition of "neighbor" set forth in the Riddle patent that is incorporated by reference in the specification of the '607 patent. Thus, the Court adopts a construction of the term "neighbor" that more closely reflects the definition of the term "neighbor" in the '060 Riddle patent, which is incorporated by reference in the '607 patent.

"nematic liquid crystal layer in its homeotropic structure" (‘412 patent)

CEA's proposed construction is "nematic liquid crystal layer having molecules substantially oriented in a homeotropic direction."

As with the other disputed claim terms including the phrase "homeotropic direction," Samsung agreed at oral argument to accept CEA's proposed construction because the court is separately defining "homeotropic direction" which will have the same meaning in all disputed claim terms of the patents-in-suit. 34 Therefore, the court adopts CEA's proposed construction: "nematic liquid crystal layer having molecules substantially oriented in a homeotropic direction."

--- Footnotes ---
34 D.I. 1053 at 98.
1. Construction of "Net Position Error"

In both its claim construction orders, this Court has consistently interpreted "net position error" to mean "attitude error arising after a modulated firing of a thruster pair, and is indicative of a difference between an estimated disturbance torque and an actual disturbance torque." Given the description of "net position error" in step [c] of claim 1, the Court continues to believe that this interpretation is the most sensible. See '375 patent, col. 9, lines 25-28 (describing "net position error" in step [c] as "being indicative of a difference between said estimated disturbance torque and said actual disturbance torque"). Moreover, the Federal Circuit appears to have accepted this definition. See Riley Decl., Exh. 4 at 6 ("[Dr. Kaplan] explained that only after the firing maneuver starts does net position error exist."). Thus, the Court declines to revisit its construction of "net position error."

Lockheed argues that the Court should change its construction of "net position error" because the current construction renders a portion of step [b] superfluous. Specifically, Lockheed contends that the phrase "without initially detecting said net position error" has no meaning under the Court's current construction, given that "net position error" as currently defined cannot exist until after the thrusters fire.

The Court disagrees with Lockheed's reading of step [b]. Lockheed reads the quoted language in isolation, and as a concrete limitation on the modulation process of step [b] that prohibits the measurement of "net position error" before the first modulation takes place. Under this interpretation, it is indeed superfluous to explicitly bar "net position error" from being measured before net position error can exist. Rather than reading the language as an explicit bar, however, the Court believes that the language is best read in the abstract and in connection with the preceding phrase, as a statement of the purpose of the first modulating step. Thus, the Court believes the disputed language is best interpreted as follows: "[The first modulating step is performed] in order to minimize a net position error without initially detecting said net position error." Read in this way, the language serves to make clear the manner in which the claimed invention differs from the prior art - the prior art minimized net position error by detecting it and reacting to it, while the current invention initially minimizes net position error without detecting it. This interpretation of the disputed language gives the most sensible meaning to net position error without rendering any portion of the patent's claims superfluous.

J. a netlist defining the hardware cells which are needed to perform the desired function of the integrated circuit

Ricoh contends that the term means "a description of the hardware components (and their interconnections) needed to manufacture the ASIC as used by subsequent processes, e.g., mask development, foundry, etc." Aeroflex states that the term means "producing a list of the needed hardware cells by eliminating any mapped hardware cells that are redundant or otherwise unnecessary, producing a custom controller type hardware cell for providing the needed control for those other hardware cells, and producing the necessary structural control paths and data paths for the needed hardware cells and the custom controller." '432 patent, col. 5:38-46.

Ricoh's proposed construction also relies heavily upon language in the specification. Specifically, Ricoh notes that the specification states that "[t]he list of hardware cells and their interconnection requirements may be represented in the form of a netlist. From the netlist it is possible using either known manual techniques or existing VLSI CAD layout systems to generate the detailed chip level geometrical information (e.g. mask data) required to produce the particular application specific integrated circuit in chip form." '432 patent, col. 2:42-49. The specification also states that "[t]he netlist provides all the necessary information required to produce the integrated circuit. Computer-aided design systems for cell placement and routing are commercially available which will receive netlist data as input and will lay out the respective cells in the chip, generate the necessary routing, and produce mask data which can be directly used by the chip foundry in the fabrication of integrated circuits."
Aeroflex also relies heavily upon the patent's specification to support its proposed construction. Aeroflex initially argues that the claim language "generating for the selected … hardware cells, a netlist defining the hardware cells which are needed to perform the desired function of the integrated circuit" requires that this step eliminate any selected hardware cells that are not needed. See '432 patent, col. 13:59-66. Aeroflex also contends that the patent's specification defines the "interconnection requirements" for the necessary hardware cells defined in the netlist as "data and control paths." See '432 patent, cal. 5:30-35. Finally, Aeroflex contends that a system controller must be generated to provide the netlist. In support of its argument, Aeroflex cites language from the preferred embodiment that states "[t]he netlist includes a custom generated system controller, all other hardware cells required to implement the necessary operations, and interconnection information for connecting the hardware cells and the system controller." '432 patent, col. 4:39-43. Additionally, Aeroflex asserts that the requirement that a controller be generated is also supported by the patent's file history. Specifically, Aeroflex argues that the file history limits the input specification to exclude register-transfer level descriptions that would define the control for the hardware cells of the ASIC, and thus a controller must be generated to provide necessary control for the ASIC.

The Court agrees with Ricoh that Aeroflex's arguments regarding "eliminating any mapped hardware cells that are redundant or otherwise unnecessary" and "producing a custom controller type hardware cell for providing the needed control for those other hardware cells" bear no relationship to a plain reading of claim 13. Additionally, contrary to Aeroflex's assertion, a review of the patent file history does not reveal that a controller must be generated in claim 13. Furthermore, while claim 10 expressly includes the generation of a controller, claim 13 includes no such language. See '432 patent, col. 16:1-4 ("The system as defined in claim 9 additionally including control generator means for generating a controller and control paths for the hardware cells selected by said cell section means.").

The Court also finds that claim 13 does not restrict the interconnection requirements of the hardware cells to "data and control paths." To be certain, "data and control paths" are the types of interconnections disclosed in the patent's preferred embodiment. But, the Court should not "limit[] the claimed invention to preferred embodiments or specific examples in the specification." Ekchian, 104 F.3d at 1303. Moreover, while claim 15 expressly includes the generation of control paths, claim 13 includes no such language. See '432 patent, col. 17:1-3 ("A process as defined in claim 13 including the further step of generating data paths for the selected integrated circuit hardware cells."). For these reasons, the Court agrees with Ricoh's proposed construction of the term. The Court defines "a netlist defining the hardware cells which are needed to perform the desired function of the integrated circuit" as a description of the hardware components (and their interconnections) needed to manufacture the ASIC as used by subsequent processes, e.g., mask development, foundry, etc.

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J. "network"

The term "network" is found in the '414 patent, claim 1: "A method of managing access to a plurality of media assets comprising the steps of: . . . authorizing over a network a plurality of media player devices with the user account . . . ." Networks are discussed in the following section from the specification: "The portal [] communicates with media player devices [] via communication network [] that may consist of the Internet and/or a combination of wireless communication networks, such as cellular networks, PCS networks, etc." (704 patent, 3:48-51). Figure 2 also depicts "network(s)" as including 56KB, Cable, DSL, Satellite, and Wireless. Zapmedia's proposed definition is "the Internet alone or in combination with one or more communication networks." According to Apple, "network" means "a group of two or more computer systems linked together."

Zapmedia argues that the Internet is a necessary component of the "network," although other communications networks may be used in addition to the Internet. According to Zapmedia, the term "network" must include the Internet, as that is the only means for the portal to communicate with back-end systems and servers. But the claim language uses network in the context of communications between the media player devices and the portal / server, not between any other components of the invention. (E.g., '414 patent, Fig. 2; claim 1 ("authorizing over a network a plurality of media player devices"); claim 4 ("a server application accessible over a network and capable of recognizing a plurality of media player devices"). Thus, there is no need to construe the term to require use of the Internet. As such, the court construes "network" to mean "one or more wired or wireless communication networks."

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### 1. "network" / "communications network" ('366 patent and '702 patent)

<table>
<thead>
<tr>
<th>Term</th>
<th>Beneficial's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>network</td>
<td>&quot;a system of interconnected computers and devices that transfer and exchange information&quot;</td>
<td>&quot;collection of hardware components through which the user's computer, on the one hand, and the service providing computational system, on the other hand, can communicate&quot;</td>
</tr>
<tr>
<td>communications network</td>
<td></td>
<td>&quot;collection of hardware components through which the first and second network accessible nodes, on the one hand, and the SPNAN, on the other hand, can communicate&quot;</td>
</tr>
</tbody>
</table>

The primary dispute regarding "network" and/or "communications network" is whether the "service providing network accessible node (SPNAN)" and the "first network accessible node" are separate and distinct from the network as Defendants contend or are included in the network as Beneficial contends.

The term "network" is used in claim 1 of the '366 patent and the term "communications network" is used in claim 53 of the '702 patent. The parties agree that the terms "network" and "communications network" should be given the same meanings. While the Court adopts essentially the same construction for each term, the Court construes the terms slightly different because the Court's construction depends on the slightly different language used in the different claims. In particular, claim 1 uses the terms "network," "service providing computation system," and "node of the network," whereas claim 53 uses the terms "communications network," "service providing network accessible node (SPNAN)," and "first [or second] network accessible node." The Court finds that the claims expressly identify three separate entities: the network accessible node / node of the network, the communications network / network, and the service providing network accessible node / service providing computation system. The Court finds that in some instances the typical understanding of the term "network" or "communications network" may be interconnected computers or devices, but the claim language is clear in this case that the network is separate from and between the "SPNAN" and "first network accessible node" in claim 53 and the "service providing computational system" and "node of the network" in claim 1. For example, it is clear from claim 53 that the "network accessible node" can be connected and disconnected from the communications network. Further, the Court finds that the claims expressly require a "network interface" that separates the user's computer and the service providing computer from the network and allows the user computer and service providing computer to communicate with one another. Claim 1 describes transmitting combined data from the nodes "via" the network, and claim 53 describes transmitting between the nodes and the SPNAN first information and receiving first responsive information "via" the network. Further, the parties agree that the phrase "first network accessible node" means "a user's device that can be accessed via the communications network." In the context of the claims and specification, one of ordinary skill in the art would consider a node as being connected or connectable to a network, but not as part of the network as that term is used in the claims. The Court finds that the communications network, as used in the claims and illustrated throughout the specification, exists separate and apart from the "network accessible node" and the "SPNAN." Likewise, the Court finds that the network, as used in the claims and
illustrated throughout the specification, exists separate and apart from the "node of the network" and the "service providing computation system." This interpretation is consistent with dependent claim 54, which provides certain additional limitations "when the network is the Internet," implying that the user's computer and the SPNAN are not part of the network.

The Court rejects Beneficial's argument, even if true, that Defendants' construction would exclude an embodiment in the specification and therefore should not be adopted. First, the Court's construction does not exclude all disclosed embodiments. Second, the Court finds that neither asserted claim covers the embodiment that this construction allegedly excludes. Third, every claim does not need to cover every disclosed embodiment of a patent. See Helmsderfer v. Bobrick Washroom Equipment, Inc., 527 F.3d 1379, 1383 (Fed. Cir. 2008) ("It is often the case that different claims are directed to and cover different disclosed embodiments."); Sinorgchem Co., Shandong v. International Trade Com'n, 511 F.3d 1132, 1138-39 (Fed. Cir. 2007) (claims can be construed to exclude embodiments where multiple embodiments are disclosed). This is particularly true in this situation where there are multiple patents with numerous claims covering various aspects of the disclosed specification. Thus, the Court construes the term "communications network" to mean "interconnected computers or devices that transfer and exchange information between the service providing network accessible node ("SPNAN") and the first and second network accessible nodes." The Court construes the term "network" to mean "interconnected computers or devices that transfer and exchange information between the service providing computational system and the node of the network."

The term "network" is well-known to those in the art. According to the Microsoft Computer Press Dictionary, the ordinary meaning of "network" is "a group of computers and associated devices that are connected through communication facilities." See MICROSOFT PRESS COMPUTER DICTIONARY (3d ed. 1997). Thus, the definition of "network" has two elements: connecting and communicating.

The parties agree that a network must include a system or group of interconnected computers. Defendants assert that, in the context of the 290 patent, no other limitations are necessary. The Court disagrees with Defendants, since this definition ignores the communication element. MyMail asserts that the group of interconnected computers must also be uniquely identified, since according to the specification, after logging on to the network, a user receives an IP address to uniquely identify itself on the network. See Col. 7:10-19. The Court also disagrees with MyMail. The specification does discuss unique identification, but the unique identification simply serves as a means of establishing the interconnected computers' ability to communicate. Unique identification is not necessarily required. What is required is that ability to communicate. The Court therefore defines "network" as a "system of interconnected computers that have the ability to communicate."

IBM proposes the term means "a group of computers and peripheral devices connected together so that they can communicate with each other." SuperSpeed proposes the term means "communication facilities that link points at which computers or devices may be connected." SuperSpeed's construction was the agreed construction in the Oracle Litigation, and was adopted by Judge Gilmore in her Claim Construction Ruling. There is nothing in the intrinsic record that supports IBM's proposed construction. As SuperSpeed points out, computers or peripheral devices may be "connected to" or put "on" a network. See, e.g., '226 claim 27 ("a computer connected to the network . . ."); '013 claim 4 ("proving a plurality of computers on the network . . ."). In the context of this patent, however, the devices or peripherals themselves do not comprise the network.

IBM heavily relies on claim 1 of the '767 patent: "a computer network that comprises: one or more I/O devices on which data may be stored in files; and multiple computers coupled together." That reliance is misplaced, however, because
"computer network" is different from "network" as used alone in the other claims. 3

3 Id. see also, e.g., "A caching system comprising: a network; . . ." [244 Patent, cl. 15, 25]; A caching system comprising: a network; a first computer . . ." [244 Patent, cl. 25]

There is no support for deviating from Judge Gilmore's construction. In the context of this patent, the court construes "network" to mean "communication facilities that link points at which computers or devices may be connected."

2. Network

Citec defines a "network" as a "network card" connected to a "storage device." Romtec argues that Claims 1, 8, and 13 expressly define a network as "comprising said computer coupled to a . . . network card and a . . . data storage means." Claims 1, 8, 13. Romtec also argues that Citec's use of the term "storage device" rather than "data storage means" is an attempt to circumvent 35 U.S.C. § 112, ¶ 6. The Court agrees that the term "network" must be construed by reference to its component parts, as identified in the claims, that is, a "computer," a "network card," and a "data storage means." Romtec contends that the phrase should be construed to require that, for each network, the network card and data storage means be connected to the computer, and not directly to each other. In support of its position, Romtec refers the Court to the preferred embodiment, which depicts two network cards being installed on the motherboard of the computer and two different hard drives being connected to the motherboard via a hard drive ribbon cable. See Col. 2, l. 62-Col. 3, l. 1; Fig. 1.

Citec also refers the Court to the specification, which indicates that "[t]he computer is coupled to each of two different network cards, each of which is in turn connected to a separate storage device, such as a hard drive." Col. 2, ll. 5-7. "Each combination of a network card connected to a storage device constitutes a network." Col. 2, ll. 7-9.

The Federal Circuit has repeatedly cautioned against limiting the scope of a claim to the preferred embodiments described in the specification. See, e.g., Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998); Intervet America, Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050, 1053 (Fed. Cir. 1989). Accordingly, the Court declines to read Romtec's desired embodiment into the claims. Moreover, the Court does not find that the words and grammatical structure of the claims preclude the connection of the network card directly to the data storage means, as long as that combined device is connected to the computer. Accordingly, the term "network" is construed to mean a combination of a network card and data storage means in some manner connected to a computer, but not necessarily connected independently to the computer.

(2) data communication network, network

Dell and National agree and assert that these terms should be construed to require at least two computers interconnected to exchange information. N-Data argues to the contrary. Again, Dell and National point to Figure 2 of the various patents for support. As discussed above, the court is not persuaded that the network requires two or more computers.

As such, the court defines "network" as follows: "an interconnected set of devices which communicate with each other."

The court gives "data communication network" its plain and ordinary meaning in light of the other construed terms.
a. "Network": A collection of software and/or hardware interconnected by communication links for sharing information.

"Network"

Cisco's proposed construction for this term is "distinct set of interconnected elements used to communicate data among devices. Not limited to ATM networks or standards." Alcatel's proposed construction is "distinct set of interconnected elements used to communicate data in accordance with the asynchronous transfer mode (ATM) standards."

Cisco argues primarily that the plain meaning of the claim language supports its construction. Both parties agree, as is evident from their respective constructions, that a network comprises a "distinct set of interconnected elements used to communicate data." 8 Alcatel seeks to limit the network in this patent, however, to solely an ATM network. In the patent, the term network is explicitly used in claims 1, 3, 5, 6, 9, 12, 13, and 17. However, only claims 3, 5, 9, 13, and 17 specifically refer to an ATM network. Therefore, as Cisco contends, when a claim was intended to be limited specifically to an ATM network, it was so stated in the claim language. Moreover, claims 3 and 17 are dependent on claims 1 and 14, respectively, and those independent claims do not require the data to come from an ATM network. Therefore, the principles of claim differentiation instruct this Court, in general, not to read limitations into an independent claim when such limitations are expressly called for in another claim. See Karlin Tech., 177 F.3d at 971-72 (noting that, while not a rigid rule, the doctrine of claim differentiation "normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend"); Envtl. Designs, 713 F.2d at 699. Additionally, Cisco argues that construing "network" to refer solely to an ATM network would make the language referring to ATM networks in claims 3, 5, 9, and 17 mere surplusage. See Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d at 1444 (discouraging the construction of a claim that would "render the contested terms surplusage"); Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n, 988 F.2d 1165, 1171 (Fed. Cir. 1993); see also Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.").


However, Alcatel argues that interpreting the term "network" to reference only ATM networks would not render the contested term surplusage. According to Alcatel, claims 3, 5, 9, and 17, where an ATM network is explicitly referenced, there is also reference to "frames of data formatted according to the frame relay protocol in addition to ATM cells received from the ATM network, and indicate that the incoming ATM cells must be reassembled into frames prior to transmission to the customer premises equipment." Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,765,032 (Valizadeh) ("Alcatel's '032 Responsive Brief"), at 11. 9 Therefore, because each claim has an additional limitation other than the reference to an ATM network, each claim has a different scope than every other claim and therefore complies with the requirements of claim differentiation. See Tate Access Floors, Inc. v. Maxcess Techs., Inc., 222 F.3d 958, 967 (Fed. Cir. 2000) (holding that claim differentiation "does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ" (quoting Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000)); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998) (recognizing that the presumption of a different meaning and scope when different words or phrases are used in separate claims is intended to avoid making a claim superfluous).
To the extent that Cisco is arguing that every word in every claim must be construed to have different meaning, such interpretation is not required by the rules of claim construction. In addition to the cases cited above, the Federal Circuit has previously held that "two claims which read differently can cover the same subject matter." Tandon Corp., 831 F.2d at 1023. "That a patentee chose several words in drafting a particular limitation in one claim, but fewer (though similar) words in drafting the corresponding limitation in another, does not mandate different interpretations of the two limitations, since defining a state of affairs with multiple terms should help, rather than hinder, understanding." Kraft Foods, Inc., 203 F.3d at 1368. Furthermore, the claim language should not be construed to enlarge the claim beyond what the inventor has described as the invention. See Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001) ("Although the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, neither do the claims enlarge what is patented beyond what the inventor has described as the invention. 'Claim construction' is the judicial statement of what is and is not covered by the technical terms and other words of the claims." (citations omitted)).

Nevertheless, Cisco argues that the use of the term network in the specification comports with its proposed construction. In particular, Cisco points out that the term network is used in every major section of the specification to refer to networks generally (see, e.g., Valizadeh Supp., col. 1, ll. 5-10; col. 2, ll. 10-11, 46-48, 60-67 (hereinafter Valizadeh, at 1:5-10, 2:10-11, 2:46-48, 2:60-67)), and the specification clearly states "ATM" when discussing this specific type of network as a preferred embodiment (see, e.g., Valizadeh, at 1:13-39, 3:10-16). Accordingly, Cisco contends that by construing the term "network" in the claims to refer only to ATM networks, the Court would be improperly limiting the claims based on the preferred embodiment of the invention. See Dow Chem. Co. v. Sumitomo Chem. Co., Ltd., 257 F.3d 1364, 1378 (Fed. Cir. 2001) ("It is axiomatic that '[c]laims, not the specification embodiments, define the scope of protection.'" (citation omitted)).

In response, Alcatel contends that where Cisco points to portions of the specification referring to network in the general sense, that is misleading. More specifically, Cisco refers to column 2, lines 46-48, which describes Figure 1 as including simply a "common carrier network." However, in looking at Figure 1 itself, the common carrier network is actually referred to as a "Common Carrier ATM Network." Likewise, the term network is often used when describing a communications controller connected to a "network." As discussed below, Alcatel argues that a communications controller is defined in the patent as an end node to an ATM network, and therefore, if its argument holds, any reference to a network in connection with a communications controller would naturally be referring to an ATM network in particular.

Contrary to Cisco's arguments, Alcatel argues that when the term "network" was used in the claims, it was always referring to an ATM network. In support of this contention, Alcatel puts forth several arguments. First, Alcatel claims that the only common carrier network disclosed in the specification is an ATM network. Second, the "Statement of Reasons for Allowance" issued by the Patent Examiner indicates that these claims were permitted because they were limited to an ATM network. Third, although the term "network" generally does not imply a specific type of network, when the patent applicant chooses to be his own lexicographer, as Alcatel submits is the case here, the applicant's definition of a term controls over the term's ordinary meaning. Finally, Alcatel contends that when discussing the source of egress traffic (hence, the network), the specification uses terms such as "channels," "per-VC queuing," and "virtual circuits," which are all terms associated with ATM networks.

Furthermore, Alcatel points out that the phrase "network," when not specifically referring to ATM networks in the claims, is always used as part of the phrase "egress traffic of a network" (in claims 1 and 12) or "egress traffic directed from a network" (in claim 6). Alcatel argues below that "egress traffic" is always referring to traffic coming from an ATM network to the CPE, and therefore, were that the proper interpretation of "egress traffic," it would support their proposed construction of "network" here.
However, it is apparent that Alcatel is essentially attempting to limit the term "network" as comprising only an ATM network based on the examples given in the preferred embodiment, when the language used in the claim itself is not so limiting. "Particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Rhine, 183 F.3d at 1346 (quoting Electro Med. Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed. Cir. 1994)). Although the preferred embodiments only involve ATM networks (see Valizadeh, at 3:11-12 ("According to the presently described embodiments, the network is an ATM network . . .")), the specification does contain language explicitly affirming that such embodiments are to be regarded as "illustrative rather than . . . restrictive." Id. at 5:37-43.

Nevertheless, Alcatel argues, that "non-restrictive" language does not mention the possibility of other networks applying to this patent, and thus, were the use of the term "network" in the patent understood to mean ATM network, this language would not dispel that interpretation. Moreover, Alcatel asserts that the above language indicating that the specification is non-restrictive is merely "boilerplate" language that should not be regarded as evidence that the network was intended to be anything other than an ATM network. See Les Traitements des Eaux Poseidon, Inc. v. KW! Inc., 135 F.Supp.2d 126, 135 (D. Mass. 2001) ("[The patentee] points to boilerplate language in the specification asserting that the general description is 'non-restrictive.' This general language carries little weight however. It is not possible to have an 'essential' structural feature also be 'non-restrictive.'"). However, in this case, unlike Poseidon, there is no evidence wherein Cisco explicitly states that it is "essential" under the patent for the network to be an ATM network.

Notwithstanding the absence of the word "essential", there is evidence in the patent history that could be interpreted as requiring that the network be an ATM network in order to distinguish this invention from the prior art. Alcatel argues that the patent examiner found, in the "Statement Of Reasons For Allowance," that ATM was the element of the invention not found in the prior art, and therefore the claims were allowed because they were limited to ATM configurations. 10 Cisco disagrees with this interpretation. Instead, Cisco contends that the examiner found that "the use of two sets of queues, each with its own service algorithm and set of queuing parameters" was the missing element in the prior art. See Cisco's Responsive Brief Re: Interpretation of the Claims of U.S. Patent No. 5,765,032 Responsive Brief ", (Valizadeh) ("Cisco's '032 at 5. In light of the conflicting interpretations, and based upon the Court's reading of the relevant passage, it is difficult to determine with certainly what the examiner found to be missing in the prior art, whether it was the use of the ATM network or the use of the the two sets of queues, each with its own service algorithms and queuing parameters, or both.

10 The text of the relevant passage is as follows: "Although the prior art of record disclose several claimed limitations, none of the references fairly teach or suggest a method and an arrangement for queuing and servicing egress traffic of a network, ATM network and traffic directed from a network to customer premise equipment, wherein each of the provided channel queues and port queues controlled by two service algorithms and two distinct set of queuing parameters, respectively, as recited in independent claims 1, 3, 5, 9 & 15 and the corresponding communications controller as recited in claim 16. Therefore, claims 1, 3, 5, 7, 9, 15 & 16, and their respective remaining dependent claims 10-12, 6 & 21, 8 & 22, and 17-20, are allowable over the prior art of record." Lumish Supp. Decl., Ex. F, at 3.

Regardless, Cisco points out that the terms "channels," "per-VC queuing," and "virtual circuits," which Alcatel claims to be terms used in connection with ATM networks, can be used in connection with other networks. In support of this statement, Cisco refers the Court to Alcatel's web site, in which Alcatel discusses frame relay and uses the terms "channel" and "virtual circuit" in connection with networks other than ATM networks. See Lumish Supp. Decl., Ex. H. Additionally, Cisco references a text on virtual private networking, which also uses the term "virtual circuit" in connection with other networks. See id., Ex. G.

Moreover, Cisco disputes Alcatel's contention that the applicant was his own lexicographer and therefore the Court should adopt his definition of "network" over the ordinary or accustomed meaning of the term. In order to establish that the applicant is his own lexicographer, the special meaning must appear with reasonable clarity and precision in the patent or its prosecution history. See Hockerson-Halberstadt, 222 F.3d at 955; Northern Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1295 (Fed. Cir. 2000). In this instance, Cisco argues that Alcatel has failed to demonstrate, other than by reference to the ATM network as the network used in the preferred embodiment, that the patentee had "an express intent to impart a
novel meaning.” Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1307 (Fed. Cir. 2000); see also
Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 991 (Fed. Cir. 1999) (noting that the varied use of a term
generally shows that the term has a broad, not a limited, meaning).

Essentially, the proper construction of the term "network" turns on whether the entire patent is limited to only, as Alcatel
suggests, egress from ATM networks, or if an ATM network is simply used as a continuous example in the patent, but the
invention actually claims application to any type of network, as Cisco suggests. In a plain reading of the background section
of the patent, it is clear that the problem that this patent sought to solve was related to the prior configuration of egress
queues that would allow a busy virtual circuit to clog up an output port from a common carrier ATM network to the CPE.
See Valizadeh, at 1:12-2:2. However, merely because the patent was developed in response to problems related to ATM
networks, that does not preclude construing the claims as applying to other types of networks, if the claims are written in
such a manner, and the patent examiner had accepted such claims.

In sum, Alcatel argues that where the claim term network appears separately from the term ATM, the claim is still referring
to an ATM network. This is because it is used in connection with the terms "egress traffic of a network" and "egress traffic
directed from a network," which Alcatel contends, as discussed below, must necessarily mean traffic moving from an ATM
network to customer premise equipment. Nonetheless, Alcatel's argument regarding the "egress traffic" terms is essentially
the same as its argument for "network" - that because the patent proposed to solve a problem associated with a particular
type of network, the patent is necessarily limited to claiming application only to that network, despite the absence of such a
limitation in the claim language. The plain meaning in the claim language, however, indicates that "network" was not
intended to refer to solely an ATM network. Moreover, Alcatel has not demonstrated that the intrinsic evidence is sufficient
to require such a limited construction, and overcome the presumption that the term be given its ordinary meaning.

Therefore, the Court adopts the agreed upon language between the parties, and construes "network" as "distinct set of
interconnected elements used to communicate data."

3. Network/ networked/ networking

Several claims of the '864 patent recite the terms "network," "networked," and "networking." Foundry urges the court to
adopt the ordinary meanings of the disputed terms. Lucent, on the other hand, contends that "network" should be construed
to mean "a series of interconnected communication devices that use a single communication protocol." The court finds that
Lucent's proposed construction, which requires the use of "a single communication protocol," is too limiting. The court
therefore construes "network," "networked," and "networking," consistently with their ordinary meaning - "a series of points
1997).

2. "computer network" (claims 1 & 7) and "network" (claim 4)

The plaintiff proposes that "computer network" and "network" mean "a public computer network, such as the Internet,
comprised of two or more computers interconnected by communication channels." The defendant proposes that "computer
network" and "network" mean "the World Wide Web." The parties disagree about the breadth of the network. Defendant
argues that the terms should be construed solely to the World Wide Web, which is described in the preferred embodiment.

Defendant argues that its proposed claim construction is proper largely based on the preferred embodiment described in the
written description. Plaintiff does not dispute that the World Wide Web fits within the claimed invention, but argues that the
breadth of the terms "computer network" or "network" includes public networks other than the World Wide Web. The court
is persuaded that Plaintiff is correct. The written description states that the server site is connected to a computer network
"such as the 'Web or a Wide Area Network (WAN) other than the Web.'" 3:65-67. Accordingly, the court construes these
terms to mean "any public computer network comprised of two or more computers interconnected by communication
channels.

### 2831

#### 3. Computer network

The Court's Construction: An Ethernet network, asynchronous transfer mode network, or any other kind of network using two or more computers, including the internet. Markman Tr. 28:22-24.

RealNetworks agreed with the Court's construction of this term. Id. 20:12-14. Ethos objected to defining "network" as potentially being comprised of only two computers. According to Ethos, "[t]wo computers connected together by a wire don't constitute a network in the sense of the '892 [patent] or [the] '709 patent[;] . . . [t]he network is something different from either the client computer or the server computer." Id. 19:1-8.

The specification states:

The computer network may be an ethernet, an asynchronous transfer mode network, or any other kind of network.

'892 patent col.5 11.2-4; '709 patent col.5 11.10-12 (emphasis added).

Ethos admits that "[t]here's no question," that two or more computers connected together are "sometimes loosely referred to as a network in the technology." Markman Tr. 18:21-24. The question then is whether the intrinsic evidence revealed that the scope of this term as commonly understood was narrowed in the context of this invention. Ethos argued that the claim language suggests such a narrowing, by teaching the sending of data "over a computer network connecting the client computer to the server computer." Id. 19:4-5 (quoting '892 patent, claim 7, col.14 11.2-4). Ethos asserted that this language requires the court to construe the term "computer network" as "something different from either the client computer or the server computer[,] [s]o that you have a client computer, you have a server computer, and a network in between connecting them." Markman Tr. 19:7-10. The Court did not read this language as requiring such an interpretation. The language relied on by Ethos is altogether ambiguous as to whether the computer network must be independent from the server and client computer. The Court, therefore, rejected Ethos' argument and adopted the commonly understood meaning of the term.

### 2832

#### 7. "network access manager/module"

The plaintiff contends that this term means "a device, process or algorithm for controlling the assignment of synchronous and packet data portions on a TDM bus, and for passing data between the bus and a network." The defendants argue that the court should not construe this term. They add that the plaintiff's proposed construction is confusing because it describes functions from the "distributed packet manager." The plaintiff, on the other hand, contends that the specification discusses two functions of the network access manager and that a construction consistent with the specification would help the jury understand the functions of the network access manager.

A review of the specification demonstrates the propriety of the plaintiff's proposal. The specification states that the network access module "controls time-slot allocation among the synchronous modules and the packet modules." '858 patent, 5:12-13. The network access module also "provides the interface between the TDM bus and network facility." '858 patent, 3:46-47. The plaintiff's proposed construction captures a definition of the network access manager in essentially these terms. The court construes the term to mean "a device, process or algorithm for controlling the assignment of synchronous and packet data portions on a TDM bus, and for passing data between the bus and a network."
3. Network Card

The term "network card" is not defined in the claims or specification and should therefore be given its ordinary meaning to one skilled in the art. Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580 (Fed. Cir. 1995) ("[T]he words of a claim will be given their ordinary meaning to one of skill in the art unless the inventor appeared to use them differently."). The preferred embodiment supports such a construction when it describes "identical, conventional network cards" which "can be connected to separate external network systems." Col. 2, ll. 62-65. Citec seeks to define the term primarily in the context of its location or function within the system, because the specification describes the connection of a network card to a data storage means. Romtec seeks to limit both the function of the network card and its location within the patented system. Specifically, Romtec argues that the network card does not connect with a data storage means for purposes of the transfer of data, because the data storage means connects with the computer's motherboard through a hard drive ribbon cable. For the reasons outlined in the preceding section, the Court declines to read Romtec's functional and structural limitations into the claims. Accordingly, the Court construes the term "network card" to mean an electrical interface that couples a data storage means with a computer and may, but need not, interface with an external network system.

VI. "[N]etwork client"

The term "network client . . . appears in all of the claims of the '563 [P]atent and in claims 1-15 of the '882 [P]atent." (R&R at 152.) The term also appears in the specifications of the patents in suit. See, e.g., '493 Patent col. 8, ll. 7-13 (stating that the term "network client" includes web browsers); '563 Patent col. 4, ll. 26 - 27 (stating that the term "network client" includes customized web browsers). As further discussed below, the issue in construing the term "network client" turns on whether it can be defined as a web browser or a customized web browser.

A. The Special Master's Recommendation

The Special Master laid the foundation for his analysis of the term "network client" with a thorough dissection of claim 6 of the '563 Patent. (R&R at 154-56.) He then determined that a "network client" in accordance with the '493, '563, and '882 Patents resides within a personal computer, receives content from the Internet and processes it to produce a content manifestation environment which contains a window object. (Id.) According to the Special Master, these functions are akin to those performed by a web browser that has been customized by the subject matter claimed in the '493, '563, and '882 Patents. Having summarized the Special Master's reasoning, the Court will explain his analysis of the relevant claim language in greater detail.

According to the Special Master, a "network client" is a web browser. Specifically, the relevant claim language starts out with a web browser and then customizes it to create a "customized web browser." (Id. at 158; see also '563 Patent Cl. 6.) In order to facilitate his analysis, the Special Master formatted claim 6 of the '563 Patent as shown below.

6. A network client configured [1] to operate within a data processing system and [2] to receive content from a remote server system [3] to facilitate a windowed content manifestation environment therein, comprising:

[A] a content retrieval module configured to receive content from a network server system via an electronic data network; and

[B] a processing engine [i] coupled to said content retrieval module [ii] configured [(a)] to instantiate a content manifestation environment within the data processing system, [(b)] to process said content to produce at least corresponding window object within said content manifestation environment, [(c)] to process said content to produce at least corresponding window object within said content manifestation environment, [(d)] to process said content to produce at least corresponding window object within said content manifestation environment, [(e)] to process said content to produce at least corresponding window object within said content manifestation environment, [(f)] to process said content to produce at least corresponding window object within said content manifestation environment, [(g)] to process said content to produce at least corresponding window object within said content manifestation environment, [(h)] to process said content to produce at least corresponding window object within said content manifestation environment, [(i)] to process said content to produce at least corresponding window object within said content manifestation environment, [(j)] to process said content to produce at least corresponding window object within said content manifestation environment, [(k)] to process said content to produce at least corresponding window object within said content manifestation environment, [(l)] to process said content to produce at least corresponding window object within said content manifestation environment, [(m)] to process said content to produce at least corresponding window object within said content manifestation environment, [(n)] to process said content to produce at least corresponding window object within said content manifestation environment, [(o)] to process said content to produce at least corresponding window object within said content manifestation environment, [(p)] to process said content to produce at least corresponding window object within said content manifestation environment, [(q)] to process said content to produce at least corresponding window object within said content manifestation environment, [(r)] to process said content to produce at least corresponding window object within said content manifestation environment, [(s)] to process said content to produce at least corresponding window object within said content manifestation environment, [(t)] to process said content to produce at least corresponding window object within said content manifestation environment, [(u)] to process said content to produce at least corresponding window object within said content manifestation environment, [(v)] to process said content to produce at least corresponding window object within said content manifestation environment, [(w)] to process said content to produce at least corresponding window object within said content manifestation environment, [(x)] to process said content to produce at least corresponding window object within said content manifestation environment, [(y)] to process said content to produce at least corresponding window object within said content manifestation environment, [(z)] to process said content to produce at least corresponding window object within said content manifestation environment,
corresponding window object to be controlled as a result of performing at least one of [1] a moving operation, [2] a resizing operation, [3] a minimizing operation, or [4] a maximizing operation within said content manifestation environment without requiring said content manifestation environment to be refreshed.

(R&R at 154-55 (quoting '563 Patent Cl. 6 with the addition of clarifying text within brackets).) 22 According to the Special Master, claim 6 covers and starts out with a "network client," comprised of a "content retrieval module" coupled to a "processing engine," that is then configured to "perform three functions, namely, [1] to operate within a data processing system and [2] to receive content from a remote server system [3] to facilitate a windowed content manifestation environment therein." (Id. at 155 (brackets in original).) The Special Master then pointed out that the "content retrieval module" is simply defined as being configured to receive content from a network system over an electronic data network. (Id.) Next, the Special Master described the "processing engine," as configured "[(a)] to instantiate a content manifestation environment within the data processing system, [and (b)] to process said content to produce at least [one] corresponding window object within said content manifestation environment." (Id. (brackets in original) (emphasized text added).) According to the Special Master, claim 6 further provides that the window object must have at least one "control attribute" capable of affecting its manifestation ". . . within said content manifestation environment" via "the network client . . . . " (Id. at 156 (discussing '563 Patent Cl. 6).) In essence, the Special Master explained and examined each element of claim 6 of the '563 Patent to show that a network client is a web browser that is customized, as described by the claim language, to provide a windows based content manifestation environment according to the patents in suit. Having discussed the Special Master's analysis of the relevant claim language, the Court now turns to his analysis of the specifications of the patents in suit as well as the relevant objective extrinsic evidence. (See id. at 156-57.)

--- Footnotes ---

22 The bracketed text was added by the Special Master to: (1) help organize claim 6 into its base elements and (2) make an analysis of the relevant claim language easier to follow. As can be seen, the Special Master's reasoning directly parallels the relevant claim language because the focus of claim construction, as always, starts with the plain language of the claim.

Innova/Pure Water, Inc., 381 F.3d at 1115.

--- End Footnotes ---

According to the Special Master, the specifications of the patents in suit and relevant objective extrinsic evidence indicate that the term "network client" be defined as a web browser. The Special Master found that "network client" is an open ended term, which according to the specifications of the patents in suit can include a web browser or a customized web browser. (Id. (citing '493 Patent col. 6, l. 53 - col. 7, l. 9).) According to the Special Master, the specifications of the '493, '563, and '882 Patents indicate that a web browser is just one example of a "network client." (Id.) The Special Master then concluded that the "patentees appear to have used the term 'network client' in the subject claims according to its ordinary and customary meaning in the context of client-server network architecture." (Id. at 157.)

As further support for his recommended construction, the Special Master used technical dictionaries to construe the term "network client." (See id. at 157-58 (citing Computer & Internet Dictionary (3d ed. 1999); Microsoft Computer Dictionary (4th ed. 1999))). Finding that the term "network client" was not "per se" defined, the Special Master construed the term by defining the words "network" and "client" separately, as shown below. (Id. at 157-58.)

A "network" is, for example, "a group of two or more computer systems linked together." See COMPUTER & INTERNET DICTIONARY at 374. See also MICROSOFT COMPUTER DICTIONARY at 308 ("A group of computers and associated devices that are connected by communications facilities."). A "client" is "[t]he client part of a client-server [network] architecture," e.g., "an application that runs on a personal computer or workstation and relies on a server to perform some operations." See COMPUTER & INTERNET DICTIONARY at 94. See also MICROSOFT COMPUTER DICTIONARY at 88 ("3. On a local area network or the Internet, a computer that accesses shared network resources provided by another computer (called a server).")

The term "network client" per se thus appears to have a readily-discerned ordinary and customary meaning, and connotes a range of applications possible within the client-server network architecture. The term "network client" per se does not connotate a "customized WWW browser." Additional attributes and requirements of the "network client," though, are expressly set out in the claims. Those additional requirements may make the "network client" as defined by the claim...
language as a whole a "customized web browser."

(1d.) Consistent with his interpretation of the claim language and the specifications of the patents in suit, the Special Master found that a "network client" is best construed as a web browser that can be customized. Having detailed the Special Master's reasoning and recommended construction, the Court will summarize CA's objections and Simple's corresponding counter arguments.

B. CA's Objections and Simple's Counter Arguments

According to CA, the relevant claim language and portions of the specifications indicate that a "network client" can only be a customized web browser. CA argues that: (1) the use of the term "network client" in the claim language of the '563 and '882 Patents indicate that it should be defined only as a "web browser designed to provide window objects without requiring the download of a software system for that purpose"; and (2) a "network client" is not a web browser because claims 1 and 6 of the '563 Patent merely require that "content" be downloaded to enable a content manifestation environment featuring window objects, as opposed to the "software system" referred to in claim 1 of the '493 Patent. (See CA's Claim Construction Objections at 11-13.) According to CA, since the specifications of the '563 Patent consistently use the term "network client" to refer to a customized web browser, the Special Master's recommended construction has no basis in the '563 Patent. (Id. at 13-16.) CA also objects to what it calls the Special Master's inappropriate use of extrinsic evidence when constructing the term "network client." (Id. at 16-17 ("Stringing Together Dictionary Definitions Cannot Trump The Consistent Teaching Of The Specification").)

CA also argues that "network client' has a different meaning in the '882 patent than it does in the '563 [P]atent" because of "sloppy patent prosecution." (Id. at 17-19.) In "the first application that was filed in the prosecution of the '882 [P]atent, claims 1-13 were identical to claims 1-13 of the '493 [P]atent." (Id. at 18 (comparing '882 Prosecution History (Dkt. No. 366), Ex. 3 at SIM-007016-18 with '493 Patent, Cls. 1-13).) The first 13 claims of application number 09/843,130, which matured into the '882 Patent, were then canceled since they had already issued in the '493 Patent. (Id. (citing '882 Prosecution History at SIM-007244).) In their place, the patentees inserted claims that were "substantially identical to" those found in the '563 Patent, "as claims 1 through 15 of the '882 patent." (Id.) In light of this prosecution history, CA concluded that the Special Master incorrectly interpreted the term "network client" so as to preserve the validity of the '882 Patent, which failed to meet the written description requirement of 35 U.S.C. § 112 P 1. (Id. at 18.)

In response, Simple argues that the Special Master correctly construed a "network client" as a web browser. (Simple's Reply to CA's Objections at 12.) According to Simple, the Special Master's recommended construction was properly based on the claims of the '563 and '882 Patents, which "strongly imply that the customization of the 'network client' . . . [was] not an inherent feature." (Id. at 13 (citing Phillips, 415 F.3d at 1309-10 (for the proposition that the "claim language 'steel baffles' strongly implies baffles are not inherently made of steel").) Simple further argues that the Special Master's proposed construction is supported by the specifications of the '563 and '882 Patents as well as relevant extrinsic evidence. (Id.) Finally, Simple argues that CA "did in fact agree that the 'network client' could be construed as a web browser." (Id. at 14 (quoting Markman Tr. at 230:8-19).) Having summarized the parties' objections and counter arguments, the Court will conduct its analysis of the disputed term.

C. Analysis

The Court's analysis of the term "network client" will entail: (1) constructing the term based upon a review of the claim language and the specifications of the patents in suit and (2) addressing the arguments raised by the parties.

1. The Claim Language of the Patents in Suit Indicates That a "network client" is a Web Browser, Capable of Being Customized

Quite simply, the relevant claim language of the '563 and '882 Patents, starts out with a "network client" or web browser and then custom configures it to facilitate a windows based content manifestation environment. As such, concluding that a "network client" is already customized would make the associated claim language redundant. The Court's analysis of the relevant claim language leads to the same conclusion reached by the Special Master, namely that a "network client" is a web browser that can be customized according to the relevant claim language of the patents in suit. Accordingly, the Court adopts the Special Master's proposed construction of the term "network client" and directly incorporates his reasoning as it
pertains to the intrinsic evidence before the Court. (See generally R&R at 156 ("With the foregoing in mind, it is difficult to see what further 'construction' of 'network client' is necessary.").) The Special Master correctly concluded that, though a "network client" should be construed as a web browser, a "network client" as refined by the relevant claim language becomes a customized web browser. (Id. at 158; see also, e.g., '563 Patent Cl. 6.) In other words, a customized web browser is still a web browser. Having discussed the relevant claim language, the Court's analysis turns to the specifications of the patents in suit.

2. The Specifications of the Patents in Suit Indicate That the Term "network client" Should Be Broadly Construed as a Web Browser

According to the specifications of the patents in suit, a "network client" is broadly defined as a web browser. The specifications of the '493, '563, and '882 Patents use the open ended phrase "such as" when stating that a "network client" can be a web browser or a customized web browser. Innova/Pure Water, Inc., 381 F.3d at 1117 ("claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.") (internal quotations omitted). For example: (1) the '493 and '882 Patents provide: "Client system 108 is configured to operate in accordance with an operating system such as MICROSOFT WINDOWS 98 . . . which may be operated in accordance with a network client application such as Internet Explorer version 4.x, Netscape Communicator 4.x, etc." and (2) the '563 Patent describes "a network client, such as a customized WWW browser client or application, which is configured to operate within a data processing system and to receive content from a remote server system to facilitate a windowed content manifestation environment." '493 Patent col. 8, ll. 7-13; '882 Patent col. 8, ll. 7-13; '563 Patent col. 4, ll., 24-30 (emphasis added). Accordingly, the specifications of the '493, '563, and '882 Patents indicate that the term "network client" should be defined as a web browser, which, as the patents in suit clearly indicate, can be customized.

The '493 and '882 Patents teach that a network client such as a web browser can be customized to provide the claimed invention. In the following excerpt, the '493 and '882 Patents list a WWW/web browser as an example of a network client that can use files downloaded over an electronic data network to facilitate a windows based content manifestation environment.

Such files are generated in accordance with the present invention to facilitate a windows based content manifestation environment on or within network clients such as WWW browsers that may be used to download the same and to display content therein.

At a client side . . . a client system 108 is outfitted with appropriate network client software to access an electronic data network . . . . Accordingly, client system 108 is configured to access and download HTML documents such as HTML documents and other related files 106 which may be generated and stored in data store 104.

Indeed, as the '493 and '882 Patents go on to point out, the aforementioned HTML files are subsequently loaded onto the network client/web browser to "facilitate a windows based content manifestation environment." E.g., '882 Patent col. 7, ll. 9-12 (stating "It is the HTML documents and the related files as discussed herein which facilitate a windows based content manifestation environment within a client system such as within client system 108."). Since the intrinsic evidence at hand is sufficient to define a "network client," the Court finds it unnecessary to refer to technical dictionaries in defining the term.

3. "[N]etwork client" Defined

The intrinsic evidence before the Court indicates that a "network client" is a web browser. This construction comports with: (1) the claim language of the patents in suit, which starts out with a web browser and then customizes it; (2) the portions of the specifications of the patents in suit which state that a network client can be a web browser or a customized web browser; and (3) the fact that a web browser, whether customized, enhanced or reconfigured, is still a web browser. Having construed the term "network client," the Court turns to CA's objections.

4. CA's Proposed Construction of "network client" Ignores the Relevant Intrinsic Evidence
CA's objections to the Special Master's recommended construction of the term "network client" inappropriately focus on narrowly limiting a "network client" to the end product of the relevant claim language found in the '563 and '882 Patents and ignoring the specifications of the '882 Patent. The Court has already stated that the relevant claim language of the '563 and '882 Patents starts out with a "network client" that is merely a conventional web browser and then proceeds to customize it according to claim elements therein. This point has been well discussed by the Special Master and need not be analyzed again.

CA seeks to improperly limit the construction of the term "network client" by selectively using language found in the specifications of the '563 Patent and ignoring the '493 and '882 Patents. (See CA's Claim Construction Objections at 13-16.) CA cites the following portion of the '563 Patent specification as proof that a network client must be a "customized WWW browser client." (Id. at 14.)

Accordingly, the present invention solves the aforementioned problems to deliver the above-described benefits by providing a network client, such as a customized WWW browser client, which is configured to operate within a data processing system and to receive content from a remote server system to facilitate a windowed content manifestation environment (CME).

(Id. (citing '563 Patent col 4, ll. 24-30).) CA then argues that the specification of the '882 Patent, which directly contradicts its own proposed construction, should be ignored since it is merely the product of "sloppy" prosecution. (Id. at 17-18.) Both arguments fail to account for the fact that the phrase "such as" does not connote an exclusive relationship. Rather, the foregoing passage merely conveys that a customized WWW browser is one example of a network client. This is consistent with the finding that, a network client can be both a web browser and a customized web browser since a web browser remains a web browser even after it is customized. See, e.g., '882 Patent col. 8, ll. 7-13. CA's argument, that the specifications of the '882 Patent should be ignored, fails if one were to construe a "network client" to be a web browser. This is because CA's argument that the '882 Patent is invalid and its specifications should be ignored hinges on construing a network client as a customized web browser. Accordingly, the Court is unpersuaded by CA's arguments. The Court now turns to CA's objection to the Special Master's use of extrinsic evidence.

CA's assertion that the Special Master inappropriately applied extrinsic evidence when constructing the term "network client" is incorrect. (CA's Claim Construction Objections at 16-17.) Although the Special Master augmented his analysis with extrinsic evidence, he defined "network client" according to intrinsic evidence found in the '493, '563, and '882 Patents. Indeed, the Special Master indicated that, after his analysis of claim 6 of the '563 Patent, it was "difficult to see what further 'construction' of 'network client' was necessary. (R&R at 156.) Having addressed the deficiencies in CA's objections, the Court will address Simple's counter arguments.

5. Simple's Counter Arguments

Simple correctly agrees with the Special Master's recommended construction of a "network client" as a web browser and seems to endorse much of his logic. However, Simple also argued that CA agreed with the Special Master "that the 'network client' could be construed as a web browser." (Simple's Reply to CA's Objections at 14 (quoting Markman Tr. at 230:8-19).) The Court is underwhelmed by this argument since reference to the Markman Transcript clearly shows that this was not the case. (Markman Tr. at 231-37.) Having addressed the parties' arguments, the Court will issue its ruling on the term "network client."

D. The Court's Ruling on the Term "network client"

CA's objection to the Special Master's recommended construction of the term "network client" is denied. Rather, the Court adopts the Special Master's recommended construction and rules that a "network client" is a web browser. The intrinsic evidence before the Court shows that the term "network client" includes a web browser as well as a customized web browser. See, e.g., '493 Patent col. 8, ll. 7-13 (stating that the term "network client" includes web browsers); '563 Patent col. 4, ll. 26-27 (stating that the term "network client" includes customized web browsers). Specifically, the relevant claim language of the '563 and '882 Patents shows that a "network client" is a web browser capable of being customized to produce a content manifestation environment featuring window objects. E.g., '882 Patent Cl. 1; '563 Patent Cls. 1, 6. Indeed, the entire purpose of claim 6 of the '563 Patent is to start out with a web browser, and then customize it.
I. "A Network Code That Identifies a Network Element to Provide Egress From the Packet Communication System"

Claim 1 of the '561 patent recites the phrase "a network code that identifies a network element to provide egress from the packet communication system." Sprint contends that this phrase should be construed to mean information that identifies a network element that provides an exit from a packet communication system (wherein the phrase "to provide egress from the packet communication system" modifies the "network element" and not the "network code"). Vonage contends that the phrase should be construed to mean a logical address identifying a network element that provides an exit from a packet communication system.

The primary dispute between the parties for this claim element is the meaning of the phrase "network code." In support of Sprint's proposed claim construction, Sprint contends that "it cannot be disputed that a 'network code' is 'information' for identifying a network element." This argument, however, is not based on any evidence in the intrinsic record that would allow the specific claim term "network code" to be construed so broadly so as to encompass any "information." Vonage, on the other hand, relies on an excerpt from the '561 patent specification which states that "[n]etwork codes are the logical addresses of network elements." '561 Patent at 12:47-53. Sprint asks the court to discount the significance of this claim language because it is contained in a portion of the specification which discusses one embodiment of the invention. While the court certainly recognizes that it would be improper to read an example from the specification into the claims, here the language from the specification contains no indication that the meaning given to "network codes" is in any way limited to any particular embodiment. It states simply, clearly, and unequivocally that network codes "are" the logical addresses of network elements. And, this is consistent with the claim language which recites "a network code that identifies a network element." Consequently, the court will construe the claim language "network code" to have the meaning set forth in the specification, as argued by Vonage.

The parties agree that the fact that the network element "provide[s] egress" from the packet communication system means that it "provides an exit" from the system. And, Sprint correctly points out that the court previously noted in its summary judgment ruling that the claim phrase "to provide egress from the packet communication system" modifies the phrase "network element" and not the "network code." In order to clarify this, then, the court construes the phrase "a network code that identifies a network element to provide egress from the packet communication system" to mean a logical address identifying a network element which network element provides an exit from a packet communication system.

2. "network facility"/"network communications facility"

The court next addresses the terms "network facility" and "network communications facility," which appear in 037 Patent in claims 2 and 8, respectively. 037 Patent 55:61, 56:49. The parties agree that the two terms are used interchangeably in the 037 Patent to refer to a type of peer-level facility. However, plaintiff argues that the court should construe both terms as "a facility for performance of network communications," while defendant contends that "network facility" and "network communications facility" refer to "the peer-level facility that consists of the NFS stack and its associated multi-tasking interface function."

For the reasons stated in its discussion of the term "operating system peer-level facility," the court declines to adopt the "multi-tasking interface function" limitation as part of the construction of the network facility term. Thus, what remains of the parties' dispute centers on the whether a network facility must consist of an NFS stack. Here too, the court's preceding discussion resolves the parties dispute. In the preferred embodiment of the invention, an NFS stack is defined as a series of communication protocol layers that provides a link between the "virtual file system" ("VFS") of the Unix kernel and representation (i.e., XDR) protocol layer. Id. at 7:42-46. As the court noted above, the claims of the 037 Patent are not limited to this preferred embodiment.
Nonetheless, defendant argues that the prosecution history of the 885 Application and the prior art file server depicted in the 037 Patent require the court to read the limitation "NFS stack" into the claims. With respect to the former, defendant does little more than repeat the previously quoted passage of prosecution history, noting that Auspex defined the term "primary peer-level facility" in response to the examiner's rejection of claim 1 of the 885 Application for indefiniteness. However, the cited passage does not mention the term "network communications facility." Indeed, the definition of peer-level facility on which defendant relies makes it clear that any component of a Unix operating system would merely relate to the preferred embodiment of the invention rather than to the scope of the claims. The court cannot arbitrarily select one such component, the NFS stack, to limit the scope of the network facility term.

As to prior art, defendant argues that Figure 1 of the 366 Patent depicts a prior art operating system that would anticipate the invention unless the network communications facility shown in the figure includes an NFS stack. It is true that "claims should be read in a way that avoids ensnaring prior art if it is possible to do so." Harris, 114 F.3d at 1153. Nonetheless, the Federal Circuit has recognized that "claim limitations may, and often do, read on the prior art." Intel Corp. v. United States Int'l Trade Comm'n, 946 F.2d 821, 842 (Fed. Cir. 1991). Simply put, there is nothing in the claims of the 037 Patent to indicate that a network communications facility must include an NFS stack. Because the court lacks the power to rewrite the claim to insert such a limitation, see Becton Dickinson & Co., 922 F.2d at 799 n.6, defendant's argument must be rejected.

Having rejected defendant's arguments for the reasons stated above, the court concludes that the ordinary meaning of the term "network communications" adequately describes the function performed by a network communications peer-level facility. Accordingly, the court construes "network communications facility" (or "network facility") as "a peer-level facility for the performance of network communications."

G. "Network Control Computer"

The term "network control computer" appears in claim 2 of the '943 patent. WebEx contends that "network control computer" should be defined identically to "remote system controller" and, therefore, suggests the following definition: "a computer or controller that checks validity of logon commands and interfaces signals between the local portion/computer unit and the remote computer unit to operate the remote computer unit, but excluding devices that forward packets without regard for content and websites." 198 ABC argues that the claim language and specification of the '943 patent make clear that the terms "remote system controller" and "network control computer" are not synonymous, and asserts that the definition of "network control computer" must account for the differences. 199 ABC contends that the proper definition for "network control computer" is "one or more computational devices that maintain a list of access codes for individuals authorized to use the remote computers and facilitate the connection between the remote and local computers upon receiving a valid logon command." 200

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198 See WebEx's Brief, Docket Entry No. 156, at 8-12; WebEx's Response, Docket Entry No. 166, at 6-8.


200 Id. at 24.

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1. "Computational Devices" or "Computer or Controller"

ABC contends that a network control computer is composed of "one or more computational devices." ABC, however, presents no evidence that supports this assertion. ABC makes the conclusory argument that the claim language and specification support this aspect of its definition, but does not point to any mention of "computational devices." Nor does ABC explain why the singular form of the word "computer" was employed by the patent drafter if the term was intended to refer to multiple devices.

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The extrinsic evidence cited by ABC does not support this aspect of its definition. Although the word "network" is defined in a technical dictionary cited by ABC as "[a] group of computers and associated devices that are connected by communications facilities," 201 this does not suggest that a network control computer is made up of multiple computers or devices. Instead, it more likely suggests that the network control computer is a single computer that controls a "network" of multiple computers.

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201 Microsoft Press Computer Dictionary 297 (1991) (included in ABC's Brief, Docket Entry No. 154, at Exhibit 17). See also 21st Century Dictionary of Computer Terms 241 (1994) (defining "network" as "[a]n information system based on two or more computers connected through telecommunications hardware and software") (included in ABC's Brief, Docket Entry No. 154, at Exhibit 20).

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WebEx asserts that a network control computer is "a computer or controller." But this aspect of WebEx's proposed definition is not consistent with the specification of the patent, which cites a network control computer as a possible embodiment of a remote system controller. 202 The court has defined, consistent with the specification, 203 a remote system controller as "a computer or controller." Because the term "network control computer" includes the specific word "computer," the network control computer most logically falls into the first potential category of remote system controller -- computer -- rather than the later category -- controller. Accordingly, the court concludes that a network control computer is a single computer.

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202 '943 patent, col.5 ll.19-20 ("For example, the remote system controller can be a network control computer . . . .").
203 See id. col.5 ll.13-14 ("The remote system controller can be any type of computer or controller . . . .").

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2. Functions of a Network Control Computer

ABC asserts that the network control computer "maintain[s] a list of access codes for individuals authorized to use the remote computers" and "facilitate[s] the connection between the remote and local computers upon receiving a valid logon command." WebEx asserts that the network control computer "checks the validity of logon commands" and "interfaces signals between the local portion/computer unit and the remote computer unit to operate the remote computer unit."

a. Maintaining a List of Access Codes

ABC asserts that the network control computer "maintain[s] a list of access codes for individuals authorized to use the remote computers." ABC bases this assertion on the only sentence in the specification of the '943 patent that mentions a network control computer: "For example, the remote system controller can be a network control computer which stores a list of access codes for individuals authorized to use the remote computer units." 204

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204 '943 patent, col.5 ll.19-21.

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The cited sentence appears within a two-paragraph description of the function and possible embodiments of a remote system controller:

The remote system controller 26 communicates with the telephone network controller 14 and the television network
controller 18 via respective communication links 27a and 27b and also communicates with the remote computer units 24a and 24b via respective communication links 28a and 28b. The remote system controller 26 can be any type of computer or controller which is capable of receiving signals transmitted from at least one local portion 12 of the split personal computer system 10 and supplying such signals to at least one of the remote computer units 24 to permit bidirectional communication therebetween.

For example, the remote system controller 26 can be a network control computer which stores a list of access codes for individuals authorized to use the remote computer units 24. The remote system controller can also include a billing program which counts the time periods in which an individual utilizes at least one of the remote computer units . . . . 205

205 '943 patent, col.5 ll.8-28 (emphasis added).

Viewed in context, the underlined sentence suggests that a network control computer may fall within the definition of and is one possible embodiment of a remote system controller. 206 But the sentence, standing alone, does not clearly convey whether (1) all network control computers qualify as remote system controllers and store a list of access codes, or (2) only certain network control computers store a list of access codes, and thereby qualify as remote system controllers.

206 WebEx agrees, based on this sentence, that a network control computer "is a type of remote system controller." WebEx's Brief, Docket Entry No. 156, at 9. ABC's expert witness also asserts, citing this sentence, that "a Network Control Computer is a subset of a Remote System Controller." Affidavit of Ivan Zatkovich, P 28 (May 28, 2009) (included in ABC's Response, Docket Entry No. 165, at Exhibit A). ABC, however, attempts to argue the converse in its response brief, suggesting that a remote system controller that stores a list of access codes is a subcategory or type of network control computer. See ABC's Response, Docket Entry No. 166, at 25 ("[A] network control computer is not necessarily a remote system controller, although one device can perform functions of both elements. A network control computer 'stores a list of access codes for individuals authorized to use the remote computer units.' A remote system controller is a network control computer if it performs this function." (citations omitted)). This argument, besides being inconsistent with ABC's own expert witness testimony, is not supported by the particular sentence from the specification relied upon by ABC, when viewed in context.

Although both interpretations are plausible, the court concludes that the first interpretation of the sentence -- i.e., that all network control computers store a list of access codes and are remote system controllers -- is correct. Under this interpretation the difference in scope between claim 1 and claim 2 is much more clearly defined. 207 See Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1366 (Fed. Cir. 2000) ("Under the doctrine of claim differentiation, two claims of a patent are presumptively of different scope."). Under the first interpretation, claim 2 of the '943 patent is narrower than claim 1 because claim 2 is limited to operating a particular embodiment -- i.e., a network control computer -- of the broader category of devices allowed by claim 1 -- i.e., remote system controllers. This would not be the case under the second interpretation because under that interpretation some network control computers might not qualify as remote system controllers.

207 The primary difference between claims 1 and 2 of the '943 patent is that claim 1 requires a remote system controller while claim 2 requires a network control computer.

Additionally, if the court were to adopt the second interpretation, the court would need to include the limitation regarding storing a list of access codes in the definition of remote system controller -- something neither party has advocated --
because the presence of that limitation would be a characteristic necessary to qualify as a remote system controller, not as a network control computer. Under the first interpretation, however, storing a list of access codes is a unique feature that network control computers must have and, therefore, belongs in the definition of that term.

The court also notes that although WebEx's proposed definition does not include this limitation, WebEx offers no evidence or argument to counter ABC's argument that network control computers necessarily store a list of access codes. 208 Accordingly, the court concludes that a network control computer stores a list of access codes for individuals authorized to use the remote computer units. 209

------------------------------------------ Footnotes ------------------------------------------
208 See WebEx's Response, Docket Entry No. 166, at 6-8 (failing to address ABC's contention that the network control computer maintains a list of access codes).
209 The court uses the term "stores" instead of "maintains" and the term "remote computer units" instead of "remote computers" because these are the terms used in the specification.

------------------------------------------ End Footnotes ------------------------------------------

b. Checking the Validity of Logon Commands

WebEx contends that the network control computer checks the validity of logon commands and faults ABC's proposed definition for omitting this function. ABC contends that the network control computer need not necessarily be able to check the validity of logon commands. In support of its position, ABC offers the affidavit of a purported expert witness who attempts to differentiate the functions performed by the remote system controller and the network control computer. He asserts that

[the primary difference between these two structures is that a remote system controller validates logon commands and a network control computer maintains a list of access codes or login IDs for individuals authorized to use the remote computers. This means the Network Control Computer does not necessarily validate a login command but can identify the authorized users. Whereas, the Remote System Controller does in fact perform validation of the login command. 210

------------------------------------------ Footnotes ------------------------------------------
210 Affidavit of Ivan Zatkovich, P 30 (May 28, 2009) (included in ABC's Response, Docket Entry No. 165, at Exhibit A).

------------------------------------------ End Footnotes ------------------------------------------

The court finds ABC's argument illogical and unpersuasive. Claim 2 of the '943 patent explicitly states that the network control computer "check[s] the validity of a valid logon command." 211 In fact, during the reexamination of the '943 patent, ABC specifically added the phrase "and checking the validity" to claim 2 to make explicit that the network control computer was capable of that function. 212

------------------------------------------ Footnotes ------------------------------------------
211 '943 patent, claim 2 (as amended by Supplemental Amendment).

------------------------------------------ End Footnotes ------------------------------------------

Moreover, ABC's expert witness admits that "a Network Control Computer is a subset of a Remote System Controller." 213
ABC and its expert also admit that a remote system controller, by definition, checks the validity of logon commands. 214 If a network control computer is indeed a "subset" of the broader category of remote system controllers -- which, by definition, must be capable of checking the validity of logon commands -- then a network control computer must necessarily be able to check the validity of logon commands. Otherwise, it would not fit within the definition of a remote system controller.

--- Footnotes ---
213 Affidavit of Ivan Zatkovich, P 28 (May 28, 2009) (included in ABC's Response, Docket Entry No. 165, at Exhibit A).
214 See ABC's Brief, Docket Entry No. 154, at 19 (proposing a definition for "remote system controller" that includes the phrase "validating logon commands"); Affidavit of Ivan Zatkovich, P 30 (May 28, 2009) ("[A] remote system controller validates logon commands . . . ") (included in ABC's Response, Docket Entry No. 165, at Exhibit A).

The function of storing a list of access codes and checking the validity of logon commands are not mutually exclusive. Indeed, storing a list of access codes may be the feature of a network control computer that enables it to validate logon commands. Accordingly, the court concludes that a network control computer checks the validity of logon commands and will include this function in the definition.

c. Interfacing the Local Computer Unit with the Remote Computer Unit

ABC asserts that a network control computer "facilitate[s] the connection between the remote and local computers . . . ." ABC's proposed definition for the term remote system controller is remarkably similar in this regard, stating that the remote system controller "facilitat[es] communication between a local and remote computer . . . ." WebEx asserts that both a network control computer and a remote system controller "interface[] signals between the local portion/computer unit and the remote computer unit . . . ." In light of these proposed definitions, the parties apparently agree that a network control computer and a remote system controller perform the same function with respect to the local and remote computer units.

Claim 2 of the '943 patent states that the network control computer "connect[s] the remote computer unit to the local computer unit . . . ." 215 Claim 1 of the same patent describes the corresponding function of the remote system controller as "interfacing . . . the local computer unit with the remote computer unit . . . ." 216

--- Footnotes ---
215 '943 patent, claim 2 (as amended) (emphasis added).
216 '943 patent, claim 1 (as amended) (emphasis added).

Although claim 2 describes the network control computer as "connect[ing] . . . to" and claim 1 describes the remote system controller as "interfacing . . . with," the court concludes, as the parties do, that the functions are no different. Several dictionaries define the verb "interface" using the term "connect." 217 Moreover, the court has already concluded that a network control computer is a subset or type of remote system controller. Therefore, a network control computer must be able to perform the same functions as a remote system controller. Accordingly, the court will use the same language to describe this common functionality of the network control computer and the remote system controller. The network control computer interfaces the local computer unit with the remote computer unit.

--- Footnotes ---
217 See, e.g., Random House Webster's College Dictionary (1999) (defining "interface" as "to bring together; connect or mesh" (emphasis added)); Merriam Webster's Collegiate Dictionary (10th ed. 1996) (defining "interface" as "to connect by means of an interface").
d. Operating the Remote Computer Unit

WebEx's proposed definition states that the remote system controller validates logon commands and interfaces the local computer unit with the remote computer unit "to operate the remote computer unit." ABC's proposed definition does not include any such phrase to explain the purpose of validating logon commands and interfacing the local computer unit with the remote computer unit.

Claim 2 explicitly states that the network control computer "connect[s] the remote computer unit to the local computer unit permitting the local computer unit to operate the remote computer unit upon receipt and checking the validity of a valid logon command . . . ." 218 Moreover, the court's definition of remote system controller -- a category of devices of which network control computers are a subset -- explains that the purpose of validating logon commands and interfacing the local and remote computer units is "to permit the local . . . computer unit to operate the remote computer unit." Accordingly, the court's definition of network control computer will recognize that a network control computer validates logon commands and interfaces the local and remote computer units to permit the local computer unit to operate the remote computer unit.

218 '943 patent, claim 2 (as amended) (emphasis added).

3. Exclusions

As it did with regard to the term remote system controller, WebEx asserts that ABC disclaimed two categories of devices from the scope of the term network control computer during the prosecution of the '943 patent and that these exclusions should be reflected in the court's definition of the term. The underlying facts and arguments are identical. Accordingly, for all the same reasons stated above in the court's discussion of the term remote system controller, the court concludes that ABC clearly and unmistakably disavowed passive devices that merely forward data packets without regard for their content from the scope of the term network control computer. ABC, however, did not clearly and unmistakably disavow websites. The court's definition will so reflect.

4. Conclusion

A "network control computer" is "a computer that stores a list of access codes for individuals authorized to use the remote computer units, checks the validity of logon commands, and interfaces the local computer unit with the local computer unit to permit the local computer unit to operate the remote computer unit, but excluding passive devices that merely forward data packets without regard for their content."

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1. "network for data communications"

The district court construed the phrase "network for data communications" to mean "establishing data communications between every pair of processor systems in the distributed computer system using any kind of network." Seachange, 115 F. Supp. 2d at 482. The district court reasoned that the claim language does not command a specific type of network, that claim differentiation doctrine favors a broad interpretation, that the written description does not require a narrow construction, and that the prosecution history does not show clear disavowal. Id. at 478-81.

Claim 37 does not suggest that the claimed "network" is limited to networks employing direct, point-to-point interconnections. The language specifies only that each processor system be interconnected to each other processor system. Moreover, the technical dictionary definition of "network" does not suggest the point-to-point limitation; indeed, it implies
that a "network for data communications" can employ direct or indirect interconnections. See The New IEEE Standard Dictionary of Electrical and Electronics Terms 842 (5th ed. 1993) (hereinafter "IEEE").

Seachange agrees with this assessment and asks that we apply the doctrine of claim differentiation. The doctrine of claim differentiation stems from "the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope." Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999). Although the doctrine is at its strongest "where the limitation sought to be 'read into' an independent claim already appears in a dependent claim," Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004), there is still a presumption that two independent claims have different scope when different words or phrases are used in those claims, Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1365-69 (Fed. Cir. 2000); see also Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). However, the doctrine "only creates a presumption that each claim in a patent has a different scope; it is not a hard and fast rule of construction." Kraft, 203 F.3d at 1368 (internal quotations omitted). "The doctrine of claim differentiation can not broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence.... Claims that are written in different words may ultimately cover substantially the same subject matter." Multiform Desicants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998).

Claim 1 of the '312 patent requires "interconnecting each one of said processor systems in a point-to-point two way channel interconnection with each other one of said processor systems." '312 patent, col. 17, ll. 54-56. Claim 37 is identical to claim 1, except that claim 37 requires only that the interconnection be through a "network for data communications." The doctrine of claim differentiation creates a presumption that these limitations in claim 1 and claim 37 are of different scope and suggests that claim 37 does not require point-to-point, two-way channel interconnections. However, that presumption is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history. Kraft, 203 F.3d at 1368.

As to the written description, C-COR argues that Seachange limited the scope of "network for data communications" to point-to-point networks by implication. C-COR asserts that the written description discloses only point-to-point interconnections and establishes that the point-to-point interconnections achieve a necessary objective of the invention. C-COR adds that the written description eliminates embodiments incompatible with point-to-point wiring. C-COR cites several cases in support of its arguments. E.g., Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1351-52 (Fed. Cir. 2004) (construing claim to require feature that was "central to the functioning of the claimed invention"); Alloc, Inc. v. ITC, 342 F.3d 1361, 1369-70 (Fed. Cir. 2003) (construing claim to include limitation because "very character of the invention" required that the limitation be part of every embodiment); Watts v. XL Sys., Inc., 232 F.3d 877, 882-83 (Fed. Cir. 2000) (construing claim to include limitation, in part, because specification limited invention to embodiments with that feature); Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001) (construing claim to reflect inventor's consistent usage of claim term in specification); Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1300-01 (Fed. Cir. 1999) (construing claim to require a particular configuration where specification described the importance of the configuration and did not disclose others).

Seachange responds that the written description does not show a clear disavowal or a redefinition. Seachange argues that the type of network connection used is not important to the invention and that the invention resides in RAID Squared. Seachange explains that the text of the specification contains little disclosure of the types of network interconnections covered by the patent because that was not significant. Seachange asserts that a patentee is entitled to claims that are broader than embodiments described and that C-COR seeks to erroneously import a limitation from a preferred embodiment.

We agree with C-COR that the written description consistently refers to the network interconnections as point-to-point, e.g., '312 patent, col. 3, ll. 30-34; col. 4, ll. 36-43; col. 2, ll. 15-25; Abstract; col. 5, ll. 1-4, 52-58; col. 6, ll. 7-9, and suggests an upper limit on the number of processor systems compatible with point-to-point wiring, id., col. 5, ll. 58-61; col. 8, ll. 30-38 ("More or less processor systems can be used, although a practical upper limit may be between nine and thirteen. ... When more cluster members are employed, the point to point wiring becomes progressively more difficult and expensive. Indeed, nine cluster members would require thirty-six interconnecting channels while thirteen cluster volumes would have 78 interconnecting channels.")). Furthermore, point-to-point interconnections achieve an object of the invention in that they increase read and write bandwidth. See id., col. 2, ll. 7-9; col. 7, ll. 63-67. However, it is unclear whether these references to point-to-point are simply the consistent description of one possible embodiment or a description of the invention itself. In all of the cases cited by C-COR, the conclusion compelled by the written description is that the limitation in issue is a
limitation on the invention, not just a feature of a possible embodiment. The issue is unresolved with certainty from the written description in this case. We turn next to the prosecution history for guidance.

On October 24, 1995, Mann et al. ("Applicant") filed the application which matured into the '312 patent. In a September 30, 1996, Preliminary Amendment ("Preliminary Amendment"), Applicant added thirty-six claims, including claim 37, which was numbered as claim 40 throughout examination ("claim 37 (40)"). Applicant also added claims 68-72, and 74, which included a limitation directed to an "interconnecting data communications network." Id. at 11-13. Applicant stated that it added claims "to more fully cover the scope of the invention." Preliminary Amendment at 13.

In a December 12, 1996, Office Action ("First Action"), the Examiner rejected claims 1-75. The Examiner grouped claims 1, 37 (40), and others, and rejected them under 35 U.S.C. § 103 as unpatentable over Morita et al., U.S. Patent No. 5,502,980 ("Morita"), in view of Benner et al., U.S. Patent No. 5,072,371 ("Benner"). First Action at 3. In a June 12, 1997, Amendment ("Amendment"), Applicant's attorney stated:

With respect to the various prior art rejections, the Examiner grouped various claims and rejected the grouped claims. Applicant submits that with respect to each group of claims that certain of the claims in the group add further patentably distinct features to the invention and thus are further patentably distinct over the applied references. For simplicity, however, Applicant will in general treat a single claim as being representative of the group of claims but reserves its right to later argue that additional ones of the claims are patentably distinct over the combination of references. Amendment at 29-30. Applicant's attorney then argued:

As an illustrative claim in this grouping, Applicant's claim 1 ... recites a method in which at least three processor systems are interconnected using a point-to-point two-way channel interconnection with each one of the other processor systems. That is, any one processor system can communicate directly with any one of the other processor systems. The claim also recites that data is stored at each of the processor systems which also stores a portion of a redundant representation of the data. Neither the point to point two-way channel interconnection nor the arrangement of stored data and redundant data is suggested by the combination of Morita and Benner.

Morita, as the Examiner, [sic] admits does not describe at least three processor systems in a distributed computing system and also does not describe a point to point interconnection. Applicant submits that Morita also does not describe or suggest that the processor system stores data in the manner recited in claim 1. ...

Benner describes a parallel computing system of the hypercube type. As such, although Benner does describe more than two processor systems, Benner does not describe that each of the processor systems are interconnected in a point to point two-way channel interconnection with each one of the other processor systems as recited in Applicant's claim 1. The Examiner indicates, however, that Benner suggests such an arrangement. ... Although Benner ... describes his connections as "point to point" paths, Benner does not suggest that each of the processors in the hypercube arrangement are coupled to each one of the other processors in the hypercube arrangement as recited in claim 1. Rather, Benner teaches away from such an interconnection scheme ...

... Accordingly, in view of the fact that neither Morita nor Benner whether taken separately or in combination suggest the above-mentioned elements of Applicant's invention and furthermore since the combination of Morita and Benner does not appear to be suggested from the references nor appear to be logical, it is submitted that the rejection has been overcome by argument.
Therefore, claim 1 and claims 9-12, 19, 20, 23-27, 40, 48-51, 53-55 and 63-66 are all patently distinct over Morita in view of Benner.

Id. at 29-35. In this amendment, Applicant did not separately argue that claim 37 (40) was patently distinct on any other basis.

In the same December 12, 1996, First Action, the Examiner also grouped claims 68-72 and 74 and rejected them under 35 U.S.C. § 103 as unpatentable over Morita in view of Benner and Madonna, U.S. Patent No. 5,544,163 ("Madonna"). First Action at 14. The Examiner employed reasoning similar to what he employed in rejecting the grouping that included claim 37 (40), except that the Examiner relied on Madonna for disclosure of a "switching system" which was not a limitation in claim 37 (40). Id. at 14-15. In response, applicant's attorney argued:

Applicant's claim 68 which is representative of this group of claims is patently distinguished over the art of record since the references neither describe nor suggest ... at least three processor systems ... interconnecting data communications network ... and data storage control as recited in claim 68 as argued previously with respect to the Morita and Benner references.

Amendment at 46-47.

In a September 16, 1997, Office Action ("Allowance"), the Examiner allowed claims 1-28 and claims 32-75. Allowance at 1. His statement of reasons for allowance noted that "the prior art of record fail to teach storing data input at any one of the processor systems according to a distributed redundant storage process with data stored at each of the processor systems and a portion of the redundant representation of the data stored at each of said processor systems." Id. at 3.

On November 26, 1997, after the Examiner had concluded his examination and issued his notice of allowance, a protest petition ("Protest") was filed. In that Protest, the protester argued that Gardner anticipated claims 1-28, 36-67, and 72-75. Protest at 2. The protester asserted that claims 29-35 and 68-71 were obvious over Gardner in view of Madonna and other references. Id. at 3. The protester emphasized that Gardner taught the use of RAID-5 at the system level and asserted that such feature could not be the point of novelty. However, the protester conceded that "if there exists a difference between [Gardner] and [Seachange's application], the difference may relate to the selected network." Id. at 3-4.

In a November 26, 1997, protest response, the Examiner requested that Applicant respond to the protest. On May 4, 1998, Applicant responded by asserting that "nowhere in [Gardner] does the patentee describe or suggest a store/retrieve two-way point-to-point configuration." Protest Response at 2 (internal citation omitted). The response further argued that Gardner "actually recites ... a network which may, for example, comprise an Ethernet TM , Fiber Distributed Data Interchange (FDDI), Asynchronous Transfer Mode (ATM), a small computer system interface (SCSI) or any other network used for transporting data amongst the media service." Id. (internal quotation omitted). Applicant's attorney added that Gardner "relates to an allocation scheme for a plurality of media servers connected in a conventional client-server computer network." Id. at 3. The attorney asserted that Gardner does not not suggest "interconnecting each of the processors in a point to point configuration (claims 1-15); ... [or] interconnecting each one of said processor systems through a network for data communications with each other one of said processor systems (claims 40-54) ...." Id. at 3-4. The Examiner then allowed the claims to issue.

C-COR argues that Applicant's arguments made during prosecution narrowed the scope of the "network for data communications" limitation in claim 37 (40) to cover only a point-to-point network. Seachange counters that Applicant's arguments did not amount to a clear and unambiguous disclaimer of claim scope. We agree with C-COR.

"The prosecution history constitutes a public record of the patentee's representations concerning the scope and meaning of the claims, and competitors are entitled to rely on those representations when ascertaining the degree of lawful conduct, such as designing around the claimed invention." Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 957 (Fed. Cir. 2000). Thus, in construing the claim, we consider the prosecution history to determine "whether the patentee disclaimed or disavowed subject matter, narrowing the scope of the claim terms." Nystrom v. Trex Co., 374 F.3d 1105, 1113 (Fed. Cir. 2004) (internal quotation omitted). In doing so, we examine the entire prosecution history, which includes amendments to claims and all arguments to overcome and distinguish references. Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1326 (Fed. Cir. 2002); Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979 (Fed. Cir. 1999). Where an applicant argues that a claim possesses a feature that the prior art does not possess in order to overcome a prior art rejection, the argument may
serve to narrow the scope of otherwise broad claim language. Rheox, Inc., 276 F.3d at 1325 ("Explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations ...."); Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997) ("Since, by distinguishing the claimed invention over the prior art, an applicant is indicating what the claims do not cover, he is by implication surrendering such protection."). A disclaimer must be clear and unambiguous. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323-25 (Fed. Cir. 2003).

The Examiner grouped several claims together, including claims 1 and 37 (40), and rejected them as a group as being obvious over Morita in view of Benner. First Action at 4. Applicant responded, stating, inter alia, that applicant will in general treat a single claim as being representative of the group. Amendment at 29. Applicant then selected claim 1 as "an illustrative claim" and argued that Morita and Benner do not suggest connecting each processor to each other processor via point-to-point, two-way channel interconnections. Id. at 30-32. Applicant also argued that Morita and Benner do not disclose "the arrangement of stored data and redundant data" required by claim 1. Id. at 30-31. Applicant concluded that "in view of the fact that neither Morita nor Benner ... suggest the above-mentioned elements of Applicant's invention...., it is submitted that the rejection has been overcome by argument. Id. at 35. Even though Applicant "reserved its right to later argue that additional ones of the claims are patently distinct over the combination of references," id. at 29-30, Applicant made no separate patentability argument for claim 37 (40). Because Applicant provided "clear notice of the linkage" between claim 1 and claim 37 (40) for the purpose of its argument to overcome the prior art rejection on the basis of the "point-to-point" and "redundant storage" limitations, it would be improper to now broadly construe claim 37 (40) not to contain those limitations. See Elkay, 192 F.3d at 980 (holding that arguments made with respect to a claim during the prosecution of an earlier patent applied to a claim in a later patent where the claims were "affirmatively linked" by the applicant); Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998) (holding that a general statement distinguishing prior art applied to all claims linked to the statement).

Seachange argues that Applicant made two arguments to overcome Morita and Benner, and because the "point-to-point" argument relates directly to the "point-to-point" language of claim 1 rather than the "network for data communications" language of claim 37 (40), and because the "redundant storage" argument relates to all claims of the grouping, the public was on notice that claim 37 (40) did not necessarily contain the "point-to-point" feature. Seachange buttresses this argument by citing the notice of allowance in which the Examiner allowed all claims based only on the "redundant storage" feature. However, the conclusion that Seachange would have us reach -- that Applicant responded to the First Action and distinguished claim 37 (40) over Morita and Benner based only on the "redundant storage" feature, and not based on the point-to-point feature -- is unwarranted. Nothing in the prosecution history suggests that the point-to-point argument did not apply to all of the grouped claims. Applicant did not indicate that the "point-to-point" argument applied only to claim 1. Instead, the natural reading of Applicant's statements suggests that the "point-to-point" argument applied to each claim in the grouping.

The conclusion that Applicant narrowed the meaning of the word "network" as used in claim 37 (40) to require point-to-point interconnections is consistent with similar treatment of claims 68-72 and 74. Claims 68-72 and 74 each recite an "interconnecting data communications network" in language that Seachange admits is "almost identical" to the "network for data communications" language of claim 37 (40). In arguing for patentability of claims 68-72 and 74 (of which claim 68 was representative), Applicant stated that "the references neither describe nor suggest ... interconnecting data communications network ... and data storage capacity as recited in claim 68 as argued previously with respect to the Morita and Benner references." Amendment at 46-47. Applicant's only previous argument relevant to the "data communications network" limitation was the argument in response to the rejection of the group of claims including claims 1 and 37 (40) that Morita and Benner did not disclose that each of the processor systems are interconnected in a point-to-point two-way channel interconnection with each other one of the processor systems. See id. at 28-48. By arguing for patentability in both groups of claims based upon an interpretation of "network" as requiring point-to-point interconnections, the "inescapable conclusion" is that claims 68-72 and 74, and likewise, claim 37 (40), must be so limited. See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1342-45 (Fed. Cir. 2001) (drawing the "inescapable conclusion," from reading together portions of the intrinsic record, that the inventor disavowed claim scope and that a claim term has a narrow meaning).

We find unpersuasive Seachange's argument that the Examiner cited the "redundant storage" feature as the reason for allowance. The fact that the Examiner did not indicate reliance on the point-to-point distinction is of no consequence. An applicant's argument made during prosecution may lead to a disavowal of claim scope even if the Examiner did not rely on the argument. Microsoft, 357 F.3d at 1350.

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Seachange further argues that to distinguish Benner, Applicant needed only to argue that claim 1 requires each processor be interconnected to each other processor, and did not need to argue that each processor be interconnected to each other processor by point-to-point connections. Seachange asserts that Applicant's "as argued previously" statement referred only to the argument that Benner did not disclose a system in which each processor system was interconnected to each other processor system. However, Applicant did not argue that claim 1 was patentable merely because it featured a system in which each processor system was interconnected to each other processor system. Applicant argued that Benner does not describe that each of the processor systems are interconnected in a point-to-point two-way channel interconnection with each other one of the processor systems as recited in Applicant's claim 1. Amendment at 32. Applicant made no separate patentability argument for claim 37 (40) at that time. Consequently, Seachange cannot now rewrite the prosecution history to distinguish claims 37 (40), 68-72 and 74, based only on the limitation that each processor be interconnected to each other processor, and thereby erase the requirement that all connections be point-to-point. Hockerson-Halberstadt, 222 F.3d at 957 (explaining that an argument "that would erase from the prosecution history the inventor's disavowal of a particular aspect of a claim term's meaning" is "inimical to the public notice function provided by the prosecution history").

Seachange also argues that the file wrapper shows that Applicant added claim 37 (40) "to more fully cover the scope of the invention," Preliminary Amendment at 13, and that Applicant would not have added claim 37 (40) if it was of the same scope as claim 1. However, Seachange inappropriately emphasizes Applicant's subjective intent. Courts must "view[] the prosecution history not for ... applicant's subjective intent, but as an official record that is created in the knowledge that its audience is not only the patent examining officials and the applicant, but the interested public." Biogen, Inc. v. Berlex Labs., Inc., 318 F.3d 1132, 1139 (Fed. Cir. 2003).

Seachange's final argument is that Applicant's response to the protest shows that claim 1 is of different scope than claim 37 (40). Protest Response at 3-4. On the one hand, Applicant stated that Gardner did not disclose either a point-to-point network as in claim 1 or a network for data communications as in claim 37 (40), implying a difference in the scope of claim 1 and claim 37 (40). On the other hand, Applicant distinguished over Gardner based on the "network" element and contended that Gardner disclosed a number of different types of networks -- Ethernet TM, FDDI, ATM, and SCSI networks used for transporting data among the media -- but did not disclose "a store/retrieve two-way point-to-point configuration." Id. at 2. C-COR cites to Digital Biometrics for the proposition that this global statement limits claim 37 (40) to point-to-point networks. In Digital Biometrics, the applicant made a global statement distinguishing its invention from the prior art and applying specifically the remarks to "all of the pending claims [that] stand rejected under 35 USC 102(b) or 35 USC 103." 149 F.3d at 1347 (internal quotation omitted). Although the applicant then distinguished each claim on narrower grounds, we held that the argument with respect to individual claims did not "eliminate [the import] of global comments made to distinguish applicants' claimed invention' from the prior art." Id.

In the final analysis, the Protest Response does not alter our conclusion that the statements Applicant made in responding to the First Action and in distinguishing over Morita and Benner inescapably narrowed the meaning of the data communications network in claim 37 (40) to a point-to-point network. Applicant's response to the First Action was "a deliberate surrender of claim scope, unmistakable in its effect because it is not suitable to multiple interpretations." Omega Eng'g, 334 F.3d at 1327. The Protest Response addressed Gardner, did not alter the bases upon which the Applicant distinguished Morita and Benner, and did not undo this disclaimer already made. See Hockerson-Halberstadt, 222 F.3d at 957.

The district court erred in construing the "network for data communications" element of claim 37 (40) and the claims dependent therefrom. The presumption attendant to claim differentiation doctrine is rebutted. The phrase "network for data communications" is limited to networks in which every processor system is connected to every other processor system via direct, point-to-point, two-way channel interconnections.

Network device; network accessing device

MyMail asserts that the definition of both terms is a "general purpose computer and associated software capable of connecting to a network." Defendants argue that a "network device" is "a device communicating with a network" and that a
"network accessing device" is "a device using the resources of a network." The Court adopts elements of each proposed definition, and construes both terms to mean "a device capable of communicating with the network."

According to both the Microsoft Press Computer Dictionary and Webster's Dictionary of Computer Terms, "device" is a broad and generic term that can refer to virtually any piece of computing equipment, so the Court concludes no definition of "device" is necessary. See MICROSOFT PRESS COMPUTER DICTIONARY 141 (3d ed. 1997); WEBSTER'S NEW WORLD DICT. OF COMP. TERMS 144 (6th ed. 1997). What makes a generic device a "network device" or "network accessing device" is the capability of communicating with the network. The specification explains such devices supply "the basic capabilities needed to successfully connect the user" to the network. Col. 9:17-18. The device need not be continuously connected, as Defendants assert, but must only provide the capabilities needed to establish a connection. Indeed, Claim 1 states that the user connects, disconnects, and is reconnected. However, the specification makes it apparent that only devices with the ability to communicate with the network, after a connection is established, are network devices or network accessing devices, so the terms must be defined in the context of communications, not connections.

2840

6) "network management site" (claim 16)

STV Asia proposes that this term be construed to mean "location of network management system." Defendants argue that the term means "a central location where the network management system is located." While the parties dispute whether the word "central" should be included in the Court's construction, the issue that divides the parties is really whether or not the term refers to a single location or rather, allows for multiple locations. Defendants concede that nothing in the language of claim 16, where this claim term is found, requires that the "network management site" must consist of a single location. They assert, however, that the specification describes an invention that has only one network management site and nothing in the specification permits or suggest that the invention encompasses a video distribution network with multiple network management sites.

The Court has addressed this dispute in its discussion of the term "network management center," in which it concluded that the network management system is located in the distribution center and that there is no indication in the specification that there may be multiple distribution centers across which the network management system may be spread. For the same reasons, the Court concludes that the "network management cite" is limited to one location in the distribution center.

The Court construes this term as follows: "a single location from which the network is managed."

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2) "network management system" (claims 1, 15)

STV Asia proposes that this claim term be construed to mean "a program trafficking scheme for selecting and scheduling audiovisual material." Defendants argue that this term means "a combination of interacting hardware and software components centrally located in the distribution center that manages the network." The parties' proposed constructions reflect two areas of dispute.

First, there is disagreement about where the network management system is located. Defendants assert that STV Asia's use of the word "scheme" in its proposed construction suggests that the network management is merely a construct rather than a thing with a physical location. According to Defendants, such a construction is inconsistent with the specification, which indicates that the network management system is located in the network distribution center. STV Asia responds that a "scheme" can be a thing with a location but asserts that there is no support in the specification for Defendants' proposed construction to the extent that it requires the network management system to be "centrally" located in the distribution center. Further, STV Asia asserts that the network management system could be spread out over more than one location.

Second, Defendants assert that STV Asia's proposed construction impermissibly limits the network management system to
the narrow activity of "selecting and scheduling" audiovisual material when in fact, the specification describes the network management system as performing a broader array of functions. STV Asia appears to concede that the network management system does more than just "selecting and scheduling" material but asserts that its construction should be adopted because it will "assist the trier of fact." Reply at 9.

STV Asia stipulated at oral argument that it does not dispute Defendants' use of the phrase "a combination of hardware and software components" in their proposed construction.

With respect to the first disputed issue -- the location of the network management system -- the Court concludes that the network management system is based in the distribution center and that there is only one distribution center. The section of the specification that describes the network management system does not directly address where it is located. See '069 patent, col. 9, l. 31 - col. 10, l. 67; col. 10, ll. 32-35. However, Figure 1 of the '069 patent shows the network management center -- as well as the technical operation center and the earth station -- inside the distribution center. See also '069 patent, col. 5, ll. 25 - 29 ("In the preferred embodiment, as illustrated in Fig. 1, the distribution network includes a distribution center 100 (technical operation center 200, earth station 234 and network management 261) and a receiving site (receiving system 254)"). Further, the Summary of Invention, which describes the invention as including "a network management system which forms playlists for each of the receiving sites in response to inputs from a user," specifies that "the user [is] located in the distribution center." '069 patent, col. 2, ll. 44-49; see also '069 patent, col. 5, ll. 8-11 ("In the preferred embodiment, users enter the desired playlists for each receiving site into the system from the technical operation site"); '069 patent, col. 5, ll. 25 - 29 ("In the preferred embodiment, as illustrated in Fig. 1, the distribution network includes a distribution center 100 (technical operation center 200, earth station 234 and network management 261) and a receiving site (receiving system 254)"); '069 patent, col. 9, ll. 27-30 ("The network management software allows the user located in the technical operation center to make quick modifications based on the actual product movements in each of the stores"); '069 patent, col. 9, ll. 32-43 ("The network management system determines what is to be displayed at each of the retail stores along with when it is displayed. Moreover, the network management system monitors which clips are located in each receiving site and which additional clips are required in each receiving site to display the desired programs. This information is then used to determine which clips will be sent from the distribution center to each receiving site"). Finally, claim 15 supports the conclusion that the network management system is based in a single distribution center: that claim calls for a "distribution center for transmitting video program segments to a plurality of receiving sites" and states that "the network management system control[s] which video program segments are sent to each of the receiving sites."

With respect to the function of the network management system, the Court declines to adopt STV Asia's proposed construction to the extent it describes the function of the network management system as "selecting and scheduling audiovisual material." While it is true that this is the main function of the network management system, it does not encompass all of the functions served by the network management system and therefore is too narrow.

The Court construes this claim term as follows: "a combination of interacting hardware and software components that manage the network from a single distribution center."

16. Network management system; a control system common to the downstream and upstream channels

The term "network management system" appears in claim 119 of the '845 patent, and the term "a control system common to the downstream and upstream channels" appears in claim 16 of the '727 patent. The plaintiff proposes "a device that provides active management of both upstream and downstream channels" as a construction for each of the above terms. The defendants counter with "a common network management system that is separate and apart from upstream and downstream routers for controlling paths in both the upstream and downstream channels of hybrid interfaces" as a construction. The relevant portions of the specification and the drawings in the patent counsel the court to conclude that the network management system is a control system that is separate and apart from the upstream and downstream routers. As a result, upon consideration of the parties' arguments, the court adopts the defendants' construction.
K. Network Members: Defendants seek to limit network members by defining the term 'network member" as follows:

A person or entity that has applied for membership to the network by completing a registration application or by contacting quotation system offices or by other means and has received password information or other means necessary to access and use the quotation system.

The specification defines a network member: "A network member is anyone or any company which has registered as a user by completing an application..." (Col. 4, ll. 1-4). The specification also provides an example of methods of applying for membership and access to and use of the quotation system, but this illustrative example cannot be construed as a straight jacket defining network members. The definition of network member is as stated in the specification.

2. "Network monitors": n1 Software and/or hardware that can collect, analyze and/or respond to data.

n1 All patents, multiple claims.

The above limitation has been construed broadly, as the words used are words well known in the art and it does not appear from the specification n2 that the patentees were acting as their own lexicographers. The court recognizes, consistent with defendants' proposed construction, that the specification does describe the network monitors as using "the same monitor code-base" to provide a "reusable software architecture" that accommodates "[c]ustomizing and dynamically configuring" the monitors. (‘203 patent, col. 10, ll. 29-36) However, the disputed claim language does not track the language of the specification and the court declines to read further limitations into the claims.

n2 Because this limitation is included in all the patents in suit and in multiple claims, and because the specifications of all the patents in suit are substantially similar, the court will refer to the specification of the '203 patent unless otherwise indicated.
enhanced node from changing from one communication protocol to another."

Once again, Datapoint's basic argument that the communication need not be heard network-wide fails, for the reasons stated above. As for the argument that network operational activity may be fleeting or transitory, we agree with the Master's conclusion that the purpose of the network operational activity is for "all nodes [to] sense something occurring on the network and respond accordingly," essentially to keep them from timing out. The last limitation of 879 patent claim 1 makes clear that the network operational activity is more than simply signals, and serves some additional purpose other than communicating information: "the signals are applied in predetermined patterns to create network operational activity in both protocols while simultaneously communicating information . . . ."

This conclusion is fully supported by the 879 patent specification, which demonstrates, in the words of the Master, that the network operational activity is tied to "persistence and consistency." See, e.g., 879 patent, col. 17, lines 14-16 ("Several time-out intervals in the basic link level protocol (discussed below) depend on detection of network activity . . ."); 879 patent, col. 17, lines 36-43 ("[The] periodic guarantee of basic signal activity prevents any basic nodes from forcing network reconfiguration due to apparent inactivity during enhanced frames. In configurations using active hubs as part of the physical media, this periodic guarantee of basic signal activity prevents any hubs from dropping into idle state due to apparent inactivity during enhanced frames."); 879 patent, col. 22, lines 14-22 ("In order to prevent the basic nodes from timing out and initiating a network reconfiguration, each basic node must detect network activity . . . within its activity time-out period (78.4 [mu] sec for standard ARCNET). In order to eliminate the small possibility that the middle of an enhanced frame could be misinterpreted as the beginning of a basic frame, each basic node must detect network activity every 4.4 [nanoseconds]."). Our de novo review satisfies us that the Master's claim construction of "network operational activity" is supported by the intrinsic evidence.

1. Network Page

The parties' proposed constructions are as follows:

<table>
<thead>
<tr>
<th>Plaintiff</th>
<th>Defendant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page on the Internet, private corporate network, intranet, local area network or other network.</td>
<td>All files, data, and information presented when a network address is accessed, including any text, audio, advertising, images, files, graphics, or graphical user interface.</td>
</tr>
</tbody>
</table>

The parties' dispute over this term revolves around whether the term "page" needs to be separately defined. The parties do not dispute the meaning of "network." The patent claims clearly distinguish "network page" from "material on a page" and "material on the network page." (14:15-50.) At oral argument, counsel for the plaintiff conceded that an image on a "page" did not constitute a "page." The parties then agreed that the term "page" did not need to be further defined.

Therefore, the term "page" needs no further construction, and the court concludes that the term "network page" means "Page on the Internet, private corporate network, intranet, local area network or other network."

2. ASP and NSP

Two new terms, Access Service Provider ("ASP") and Network Service Provider ("NSP"), are coined by the patentee to claim the invention in the 290 patent. In the lexicon of the 290 patent, an ASP performs many of the same log-in and authentication functions performed by the disclosed prior-art Internet Service Providers ("ISPs"), and an NSP acts similar to
prior-art Network Access Providers ("NAPs"), providing the physical connection between the customer and internet. However, the coined terms are not completely analogous to their well-known prior art counterparts. Indeed, these coined terms help delineate the 290 patent's claimed invention from prior art internet access systems, such as those using Remote Authentication Dial-In User Service ("RADIUS") servers for authentication management.

The term "ASP" (or variation thereof) appears in every asserted claim of the patent-in-suit. "NSP" appears in all asserted claims except independent Claim 3 and dependent Claims 4 and 5. MyMail asserts that ASP should be defined as "a party that offers network access service to the user via one or more NSPs" and NSP should be defined as "a party other than the ASP that provides the actual connection to the network." Defendants' propose defining ASP as "an ISP broker including a server that (1) has a public Internet address, (2) maintains ISP-specific user IDs and passwords for multiple ISPs, and (3) transmits to the user's computer a user ID and password for a particular ISP selected by the broker based on the user's location and the user's preference for a type of Internet service (such as lowest cost service, highest reliability service, and most available service)" and NSP as "a provider of network services (such as an ISP) that (1) authenticates its customers for access to its services (such as Internet access, email, etc.) based on user IDs and passwords that are specific to the provider, and (2) grants its customers Internet access directly from a modem bank."

To properly define these coined terms, the Court first looks to the ordinary meaning of each component word in ASP and NSP. See Bancorp Servs., 359 F.3d at 1372. That however provides little insight into the meaning of either coined term, so the Court next looks to the specification. See Goldenberg, 373 F.3d at 1164. Although the definitions proposed by both MyMail and Defendants find some support in the specification, when construing terms like NSP and ASP that lack an accepted meaning in the art, the Court must construe the terms as broadly as provided for by the patent itself. Irdeto Access, Inc. v. EchoStar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004). The Court thus rejects both sets of definitions since both import unnecessary limitations and neither reflect the breadth provided in the specification, figures, and claims.

Figure 1 of the 290 patent provides that a user dials into an NSP, is authenticated, and then connects to the internet. The user next communicates, over the internet, with an ASP. The ASP again authenticates the user and (re)assigns him to an appropriate NSP, which provides internet access for the rest of the session. The specification teaches that the ASP offers network access via multiple NSPs, see Col. 8:32-34, but Claim 8 establishes that an ASP works with either a single NSP or multiple NSPs. Accordingly, the Court defines NSP as "a party that provides a connection to the network and authenticates users for access to the network" and ASP as "a party that provides authenticated access information to a user through the network to enable the user to access one or more NSPs."

III

On the merits, MyMail first argues that the district court wrongly construed the patent to require the NSP to perform authentication. Both parties agree that the term NSP is a coined term, without a meaning apart from the patent. As construed, all the asserted claims involve communicating with the ASP through a connection established by the NSP. We therefore look to the specification to determine what the NSP must do when establishing that communication link. See Phillips v. AWH Corp., 415 F.3d 1303, 1316-17 (Fed. Cir. 2005) (en banc).

An examination of the specification reveals that the invention requires the user to be authenticated before being given access to the internet. When describing the initial steps of the inventive method, the specification states that, "[t]o begin the process of the present invention," the user is provided a telephone number, a user ID, and a password associated with an ISP to allow the user to gain access to the internet. '290 patent, col. 6, ll. 32-46. Additionally, much of the invention is concerned with giving users new IDs and passwords, items described as "necessary" to allow an ISP to grant access to a user. E.g., '290 patent, col. 8, ll. 22-27; col. 7, ll. 55-59; col. 9, ll. 55-58. The IDs and passwords described would serve no function if the user did not have to be authenticated before being connected to the internet.

The specification also indicates that the ISP (and therefore the NSP) is the entity performing the authentication. In addition to stating that the ID and password are "ISP specific," '290 patent, col. 2, ll. 21-24, the specification states that, "[u]pon receipt of the access information, the ISP 'authenticates' the user" and, if the access information is valid, the user is then connected to the internet. Id. col. 6, ll. 40-46, 66-67 & col. 7, ll. 10-19 (figure references omitted).
The specification shows that the ASP cannot perform the required authentication. Besides explicitly stating that the ISP performs the authentication, the specification describes the authentication and connection steps as being completed before the ASP becomes relevant. See '290 patent, col. 7, ll. 32-33. With the exception of the unclaimed embodiment discussed below, nothing in the specification suggests that the ASP assists in the connection process. Moreover, part of the ASP's function is to distribute the "necessary" IDs and passwords to users. E.g., id. col. 8, ll. 22-27; col. 7, ll. 55-59; col. 9, ll. 55-58. That distribution function would not be required if the ASP performed the authentication; one ID and password combination would suffice because only one entity would ever need to evaluate it. A major function of the claimed invention would thus be obviated if the ASP authenticated users for access to the internet. Accordingly, we interpret the specification as requiring the NSP to perform the authentication function.

MyMail argues that the specification discloses authentication by the ASP because the specification describes an embodiment in which it is required that "all user (client) authentication for all ISPs happens at the [ASP] (i.e., all authentication for all ISPs is centralized) or at a centrally located database point." '290 patent, col. 23, line 67, through col. 24, line 4. That embodiment, however, is part of the so-called "multi-dial subfunction" embodiment that MyMail has conceded to be part of an unclaimed invention.

In the multi-dial subfunction embodiment, authentication must be centralized to allow one user ID and password combination to be used for multiple ISPs. In that system, the user may be assigned to an ISP without requiring the user to disconnect and reconnect using new login information. '290 patent, col. 24, ll. 7-16. No such functionality is contemplated in the claimed invention, however. In fact, the added functionality is disclosed as the advantage of the unclaimed embodiment over the claimed invention. See id. col. 24, ll. 14-17. Because the identity of the entity performing authentication was dictated by a functional improvement over the claimed invention, the multi-dial subfunction embodiment does not speak to which entity performs authentication in the claimed invention. See LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1378 (Fed. Cir. 2006) (finding specification language relating to additional functionality in an unclaimed invention irrelevant to the claimed invention).

Moreover, before the district court MyMail agreed that the patent contemplates that the NSP will perform the authentication function. During the Markman hearing, MyMail's counsel stated the following:

The Court asked a number of real-world questions of [defendants' counsel] about how [the defendants do] authentication and where it happens and so forth. There is no dispute between the parties that it is part of what the NSP does to serve as an authentication gatekeeper. When the user dials into the network service provider, there has to be some authentication. That is one of the things that the network service provider [NSP] does.

The claims, however, do not address where the database for that authentication is maintained... So the specification tells us that the location of that database is not really important. It is important that the NSP has to do it, but it is clearly a remote database.

The context makes clear that counsel's statement refers to the scope of the claims; counsel acknowledged that under the patent the "NSP has to do [authentication]" but disagreed about whether a remote database would satisfy that requirement.

Defendants' counsel referenced that point later in the hearing, prompting the district court to ask about the extent of the parties' disagreement as to the required function of the NSP. In response, MyMail's counsel reviewed the proposed claim construction, which referred to "a provider of network services that authorizes users for access to its services based on user IDs and passwords." MyMail's counsel read the proposed language aloud, accepting or objecting to various portions as he went along. The following exchange occurred when he reached the authentication requirement:

[MyMail's counsel]: That authorizes user's access to its service. Okay. Based on user ID and passwords those limitations are not contained in the claims. The specification makes it clear that it is login and authentication information not limited to user ID, not limited to password, and certainly not making appropriate the conjunctive "and" that you have to have both.

The Court [addressing defendants' counsel]: Do you have a problem... with taking out the part about the passwords and
that part of the further definition of what authentication means?

In that statement, as in the earlier one, MyMail's counsel agreed as to the entity that had to perform authentication but disagreed as to the method of authentication, i.e., what information was employed to authenticate the user. Having agreed to that construction before the district court, MyMail "cannot now argue against that claim construction simply because it resulted in an adverse ruling on summary judgment." LizardTech, Inc. v. Earth Res. Mapping, Inc., 424 F.3d 1336, 1341 (Fed. Cir. 2005). In light of the specification's teachings and MyMail's admissions below, the district court's claim construction must be affirmed.

2849

10. Network that is further connected to the gateway computer

This term is used in the '201 patent. The court rejects both parties' proposed constructions. The court defines "network" to mean "a plurality of computers that are interconnected so they can exchange information." The balance of the phrase needs no construction.

2850

1. "network-wide program" or "network-wide video program" (claims 1, 9, 38, 38)

STV Asia asserts that this claim term should be construed as "system distributed material." Defendants, however, contend that STV Asia's proposed construction is too broad, reading out of the claim term the limitations requiring that the program be distributed network-wide, that is, to all the locations in the network. Defendants also assert that the word "material" is inconsistent with the patentee's use of the term "video program," encompassing not only audiovisual materials but also things that do not constitute video programs, such as text files and pictures. Defendants' proposed construction is: "a preassembled video program that is received in every retail location in the media distribution network, and that may then be shown as it is received or customized for specific locations in the network."

The Court addresses first the question of whether the term requires that the program be received at every location in the network. The Court concludes that it does. First, consistently throughout the specification, the "network-wide program" is described as the default programming, played at each location, into which the market-specific programming is inserted. The Abstract states that ":[t]he distribution network provides automatic insertion of custom, store specific video segments . . . into a general, network-wide video program without the need for operational involvement of personnel at the receiving site . . . ." Similarly, in describing the specific embodiments, the inventors consistently describe a technology that provides a means of "customizing" the programs shown at the individual receiving sites by allowing insertion of market-specific segments into the network-wide program. See, e.g., '416 patent, col. 4, ll. 33-41.

The claims also describe a system in which "customized programs" are created by inserting "market-specific segments" into a "network-wide program." See, e.g., '416 patent, claim 1 (claiming an invention in which the "network-wide video program" is to be transmitted to "a plurality of receiving sites in stores" and in which there is a means to insert the "market-specific segments into the network-wide video program," resulting in the creation of a "customized program" to be displayed "in said stores"). If a network-wide program were sent to only some locations, the distinction between the network-wide program and the market-specific segments would be lost and the inventor's scheme for creating customized programming would no longer make sense.

Further, in the patent prosecution, the inventors made clear that programming was tailored to the needs of the specific receiving sites by inserting market-specific material into a more general program that is received by all the locations. In particular, in seeking to overcome a rejection based on prior art, the inventors explained that in prior art, in order to "have the advertising be market or store specific, different tapes [had to] be mailed to the various store." Declaration of Shane Brun in Support of Defendants' Response to Plaintiff's Opening Brief on Claim Construction ("Brun Decl."), Ex. 4 (May 9, 1994 Amendment) at 6. They argued that the invention described in the '416 patent overcame these problems:
by providing a central location which transmits a network-wide program and market-specific segments to the participating stores. The market-specific segments are provided with an appropriate address. The stores play only those market-specific segments for which it/they have been addressed. This results in a fully tailored program being sent to each participating retail store.

Id. at 7.

The Court rejects STV Asia's assertion that a network-wide program need only be distributed to some retail locations. STV Asia relies on a single line in the specification in which the inventor states that the invention describes a "distribution network for transmitting . . . from a distribution center to a multitude of receiving sites, typically retail stores. " '416 patent, col. 4, ll. 23-27 (emphasis added). While read in isolation, this statement might be read as allowing for transmission of "network-wide programs" to less than all of the receiving sites, such a reading is not supported by consideration of the patent specification as a whole. In particular, nowhere in the patent is there any indication that the inventor sought to describe a network-wide program that would be distributed to only some of the receiving centers. Nor has STV Asia cited anything in the patent history that would support such a construction.

STV Asia's proposed construction would seem to allow for situations in which a receiving center would receive only the market-specific material, in which case, the invention would no longer involve the insertion of market-specific material into a network-wide program to customize the program. This is not the invention described in the specification. Alternatively, STV Asia's proposed construction might allow for several "network-wide programs," such that each receiving center receives one of the network wide programs in addition to market-specific segments. In this scenario, the customization would result not only from insertion of the market-specific segments but also the choice of which network-wide program the receiving center received. Again, this is not the invention described in the patent, which draws a clear distinction between the market-specific segments used to "customize" and the network-wide material. There is simply no suggestion in the patent that the network-wide material is itself customized.

Finally, the dictionary definition of the word "wide" when used in the form used in the disputed claims of the '416 patent supports the conclusion that the term "network-wide" requires distribution to the entire network. In particular, Merriam-Webster's Collegiate Dictionary includes the following definition: "extending throughout a specified area or scope -- usu. used in combination <nationwide> <industry-wide>." This usage is consistent with the inventor's description in the specification and the patent prosecution history. The Court concludes that the term "network-wide program" requires distribution of the program to every store location in the network. n2

--- Footnotes ---

n2 At oral argument, the parties stipulated that the receiving sites in the '416 patent may be described as "stores."

--- End Footnotes ---

1. "network-wide program" or "network-wide video program" (claims 1, 9, 38, 38)

STV Asia asserts that this claim term should be construed as "system distributed material." Defendants, however, contend that STV Asia's proposed construction is too broad, reading out of the claim term the limitations requiring that the program be distributed network-wide, that is, to all the locations in the network. Defendants also assert that the word "material" is inconsistent with the patentee's use of the term "video program," encompassing not only audiovisual materials but also things that do not constitute video programs, such as text files and pictures. Defendants' proposed construction is: "a preassembled video program that is received in every retail location in the media distribution network, and that may then be shown as it is received or customized for specific locations in the network."

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Next, the Court addresses whether a "network-wide program" or "network-wide video program" allows for STV Asia's use of the term "material" in its proposed construction. The Court concludes that it does not. The inventor used the term "video program" and explained in the specification that "[w]hile the term 'video' is used herein unaccompanied by the word 'audio' the term 'video' is intended to refer to recorded audio-visual media as in common usage." '416 patent, col. 5, ll. 14-18. As the inventor has provided a straightforward explanation for the term "video program," the Court finds no justification for adopting the more vague term proposed by STV Asia, which might arguably include formats that do not fall into the category of a video program.

The Court therefore construes the terms "network-wide program/network-wide video program" as follows: "a preassembled audiovisual program that is sent to every store location in the media distribution network."  

The Court declines to include in its construction the phrase proposed by Defendants, "that may then be shown as it is received or customized for specific locations in the network." Defendants explained at oral argument that they included this language (which relates to other claim terms) in order to make their construction of the term easier for a jury to understand.

B. Claim 2 of the '092 Patent

Claim 2 provides:

The process of claim 1 wherein values for said updated secret cryptographic value are never recreated more than a fixed number of times when said step (b) is repeated a large number of times.

Claim 2 depends from Claim 1. Specifically, Claim 2 is a limitation on step (b) of Claim 1. The parties dispute the meaning of two phrases in Claim 2: "never recreated more than" and "a fixed number of times."

1. "never recreated more than"

In the process disclosed in Claim 2, the inventor used the word "never." The word "never" is a commonly used word which means "not ever; not at any time; under no circumstances." See Webster's New Twentieth Century Dictionary, 1208 (2d ed. 983). The phrase "never recreated" refers to values for the "updated cryptographic value" disclosed in Claim 1(b). Claim 2 limits the transformation operation to "never" recreate the same secret cryptographic value "more than a fixed number of times."

2. "fixed number of times"

The dispute over "fixed number of times" centers around whether the limit on the recreation of the "values" is predetermined. The plain ordinary meaning of the phrase "fixed number" is a number which is "established or set." See Webster's New Twentieth Century Dictionary, 694 (2d ed. 1983). The inventor used the phrase with its plain ordinary meaning:

Using methods that will be described in detail below, such update functions are applied by the client in a sequence that
assures that any single secret value is never used or derived more than a fixed number of times (for example, three).

('092 Patent, Col. 2:62-65.)

On the face of Claim 2, the parameters and cryptographic operations which determine the limit and impose the "no further re-creation of values" limitation are part of the cryptographic algorithm of Claims 1 and 2.

The Court construes the entire phrase of Claim 2, "values for said updated secret cryptographic value are never recreated more than a fixed number of times" to mean: identical secret cryptographic values are never recreated more than a fixed number of times. The number of times is determined by the transformation operation algorithm and the initial parameters.

3. next-line

OPTi's construction for "next-line" is "the line immediately following the line being transferred." nVidia proposes that "next-line" be construed as "the line immediately following the line of secondary memory being received by the bus master."

The only dispute between the parties regarding the term "next-line" is whether, during a transfer, the memory can be in transit to the bus master or whether it has already arrived at the bus master. nVidia asserts that a line is the "next-line" only when it is "the line . . . immediately following the line . . . being received by the bus master" instead of simply being the next line in sequence. For example, if line 1 were in transit from the target to the master, the "next line" to be transferred -- i.e., the next line in sequence -- and, the next line to be snooped, would be line 2. This is true regardless of whether any of the data units of line 1 had arrived at their destination or not.

nVidia's proposed construction for this term is based on a construction of the limitation from the perspective of the bus master or PCI bus. The Court has rejected that approach. Accordingly, "next-line" is construed to mean "the line immediately following the line being transferred."

(b) Next Operation Information

Cisco contends that "next operation information" should be construed as "information added by a network forwarding device that specifies the particular type of operation to be performed by that device in forwarding a packet. Examples of such types of operation are routing, transparent bridging, and source route bridging." See Cisco's Claim Construction Illustratives, Exh. 42. StorageTek argues that "next operation information" as used in claim 1 is "information that specifies the particular type of operation to be performed downstream on the PDU. The information is added to the media header information and must include information to accomplish forwarding of the PDU in the communications network to reduce the subsequent processing of the PDU by the forwarding device." See JCC at 5.

3 Cisco's proposed construction presented in the parties' Corrected Joint Claim Construction Brief ("JCC") was "information that specifies the particular type of operation to be performed by the network forwarding device in forwarding a packet. Examples of such types of operation are routing, transparent bridging, and source route bridging." See JCC at 5.

The first issue in contention between the parties on this element is StorageTek's use of the word "downstream" in its proposed claim construction. Within claim 1, next operation information is used with reference to the "protocol data unit.
forwarding device." The claim specifically requires that the preprocessor modification means must add next operation information, including at least one encoded instruction to the forwarding device for accomplishing forwarding of the data unit. See 170 Patent claim 1. Therefore, while it appears from the claim language that the forwarding device acts subsequent to the preprocessor adding the next operation information to the media header information of the PDU, there is no indication that the forwarding device is "downstream" of the preprocessor, as that term is commonly understood by those skilled in the art.

For example, Cisco's expert states that use of the word "downstream" in construing this element of claim 1 would be inappropriate and misleading because the term downstream generally refers to "downstream" within a communication network. See Smith Decl. at 2. However, as discussed above, the preprocessor adds the "next operation information" to the media header of the PDU for use by the forwarding device. Therefore, the changes to the PDU occur within the same device. Use of the term "downstream" in the patent would be misleading because the operation does not occur "downstream" in the network, but within the same device.

StorageTek does not dispute Cisco's position that the "next operation information" added by the preprocessor and used by the forwarding device does not leave the forwarding device or that "downstream" is typically used to describe an event that occurs further on in the network, not later within the same device. See id. at 2-3; 170 Patent Col. 9, In. 63 -- Col. 10, In. 1; Col. 10, In. 6-10. StorageTek does argue that the discussion of whether the preprocessor modification claimed in claim 1 occurs within one device or can be applied to a larger network is a "tangential" issue that concerns Cisco's alleged infringement. In a brief submitted after the claim construction hearing, StorageTek argues that Cisco is improperly attempting to read into the claim language the "forwarding device" limitation from the preamble to claim 1. See, e.g., Cisco's Claim Construction Illustratives, Exh. 43. StorageTek contends that the preamble of claim 1 cannot be used to import a limitation -- that the protocol data unit preprocessor claimed is for use in a protocol data unit forwarding device -- into the claim language because the preamble only limits an invention where the preamble serves to "give meaning to a claim to properly define the invention,' not when the preamble merely states a purpose or intended use of the invention." Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14, 22 (Fed. Cir. 2000) (citing DeGeorge v. Bernier, 768 F.2d 1318, 1322 n.3).

StorageTek argues that while the forwarding device is mentioned in claim 1 subpart (c) in connection with the next operation information, the reference to "forwarding device" is "merely peripheral to the purpose of the invention, which is to reduce subsequent processing of the protocol data unit as compared to subsequent processing otherwise necessary." StorageTek's Supplemental Memorandum at 3. However, this assertion contradicts a statement made during the prosecution of the 170 patent. Specifically, in the 1/17/96 Amendment and Response, the patentee amended claim 1 in response to the PTO's § 112 rejection of the claim for indefiniteness to "further clarify the nature of the reduction in subsequent processing required by a forwarding device as a result of the added next operation information." See Declaration of Thomas A. Lewry in Support of StorageTek's Proposed Claim Construction, Exh. 3, 1/17/96 Amendment and Response at 4. The prosecution history clearly links the use of the next operation information to the forwarding device recited in both the preamble and the claim.

--- Footnotes ---

4 The patentee, in distinguishing prior art, also asserted that "there is no teaching or suggestion [in the prior art] of providing a preprocessor, separate from the processor which actually forwards a protocol data unit . . . so as to decrease the amount of processing that would otherwise be required to be performed by the primary processor in the forwarding device." 1/17/96 Amendment and Response at 6-7.

--- End Footnotes ---

The prosecution history, therefore, confirms that the "protocol data unit forwarding device" recited in the preamble is not simply a "descriptive name" for the set of limitations provided in claim 1, see IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1434 (Fed. Cir. 2000), but gives meaning to the claim to properly define the invention of claim 1. See Apple Computer, 234 F.3d at 22. Because the invention claimed in claim 1 of the 170 patent is limited to a preprocessor for use in a protocol data unit forwarding device, the next operation information is not related to "operations to be performed downstream" as that term is normally understood by one of ordinary skill in the art and the Court will not use that phrase.
The second issue in contention is whether examples of "types of operations" to be performed by the forwarding device should be included in the definition of this element. Cisco asserts that examples of the types of operations, including routing, transparent bridging and source route bridging, should be included in the definition. See Cisco's 170 Responsive Claim Construction Brief at 20, n. 11 ("Cisco's 170 Response"). StorageTek responds that the examples are unnecessary and would only serve to confuse the jury into believing that the operations in claim 1 are limited to those examples, as StorageTek admits they are in claim 2. The Court agrees with StorageTek and finds that the definition of "next operation information" in claim 1 should not include the examples suggested by Cisco.

Therefore the Court construes "next operation information" for claim 1 as follows:

"next operation information" means information that specifies the particular type of operation to be performed by the network forwarding device. The information is added to the media header information and must include information to accomplish forwarding of the PDU in the communication network.

Guardian's Position

Guardian argues that there are seven relevant claim terms in dispute. Guardian's interpretations are listed below.

Heated Treated Coated Article: a coated article that has been heated to a temperature for a sufficient period of time to enable thermal tempering, bending or heat strengthening of the articles.

Layer: a region of material having a thickness and the composition of which is chosen to provide desired properties.

Oxidation Graded: having a change in the relative oxygen content in a region such that one portion contain more oxygen than another portion.

Progressively More Oxidized: having a trend of increased relative oxygen content.

More Oxidized at a Location Further From the Layer Comprising Ag Than at a Location Closer to the Layer Comprising Ag: these precise words do not appear in the asserted claims of the patents-in-suit, and therefore, they do not require interpretation.

Metal or Metal Nitride Contact Layer: metal or metal alloy, contact lawyer means a layer contacting another layer, metal nitride is a material including both metal and nitrogen.

More Metallic: having more relative metal content in a region compared to reactive non-metals such as oxygen or nitrogen.

AFG's Claim Interpretations

AFG groups the terms in dispute into four categories: (1) coated article claim elements; 2) layer claim elements; (3) oxidation graded claim elements; and (4) nitride claim elements.

Coated Article: all of the coated article definitions ("heat treated coated article," "coated article," and "after being heat treated (HT) said coated article") should be interpreted as: "an article which has been coated" with either: a) "and has been heated to a temperature sufficient to enable thermal tempering, bending, or heat strengthening"; or b) "with a heat treatable coating."

Layer: "a thickness of material having a function and chemical composition bounded on each side by an interface with another thickness of material having a different function and/or chemical composition."

Oxidation Graded: all of the oxidation graded claims ("oxidation graded," "is more oxidized at a location further from the [first] layer comprising Ag than at a location closer to the [first] layer comprising Ag," "is more metallic at a location closer to the silver inclusive layer than at another location further from the silver inclusive layer," and "is more metallic at a
location closer to the metal or metal nitride contact layer than at another location further from the metal or metal nitride contact layer") should be interpreted as, "a layer that is progressively more or less oxidized through its thickness" with the appropriate variations in language used in the different claims.

Nitride layer: all of the nitride layer ("nitride layer," "comprises silicon nitride," "layers which comprises a nitride," and "layer comprises Si-rich Si[x]N[y] where x/y is from .76 to 1.5") is "a layer containing a silicon nitride compound, and not containing oxygen."

* * *

Nitride:

With regard to the disputed term "nitride," the difference between the parties proposed interpretations is whether the interpretation should include the limitation "not containing oxygen." The claims and the specifications say nothing about requiring the nitride or silicon-nitride layer to be oxygen free nor do they state that they contain oxygen. The question is whether someone skilled in the art of "stacking" would understand that the term nitride or silicon-nitride layer to possibly allow for oxygen to be present.

The patents' claims and specifications often refer to the silicon-nitride layer by its periodic formula designation, Si[x]N[y]. According to AFG, if this were meant to include any degree of oxygen the term would be referred to as a silicon oxynitride and its equation Si[x]O[y]N[z]. The term "silicon oxynitride" is used separately in specifications for patent '349 Col. 7, lines 24-35, which states:

Fifth dielectric layer may be of or include tin oxide in certain embodiments of the invention. However, other dielectric materials may be used for layer 23 including but not limited to silicon nitride, titanium dioxide, niobium oxide, silicon oxynitride, zinc oxide or the like. Protective overcoat dielectric layer 25 is provided at least for durability purposes, and may be of or include silicon nitride (e.g. Si3N4) in certain embodiments of this invention. However, other dielectric materials may be instead used for layer 25, including but not limited to titanium dioxide, silicon oxynitride, tin oxide, zinc oxide, niobium oxide, SiZRN, or the like.

In this instance, the two substances are treated as two separate substances. This supports AFG's proposed definition which specifically states that the layer compound cannot include oxygen.

Conversely, the '608 patent's claims specifically states that, "[t]he coated article of claim 1, where in the contact layer is substantially free of oxygen." Col. 8, lines 34-35. In this case, the patent delineates when the layer is to be substantially, and even still not completely, free of oxygen. Nowhere else are these words uttered in the claim specifications. This cuts in favor of Guardian's interpretation since the patent would claim that the nitride layer was free of oxygen.

What steers this court's decision is the patents' claims use of the word "comprise[.]" For example, the '050 patent claims describes the coating as containing "at least one dielectric layer comprises Si-rich Si[x]N[y] where x/y is from .76 to 1.5." Col. 20, lines 49-50. The Federal Circuit refers to claim terms like "composed of or 'comprised of' as 'transition phrases.'" AFG Indus. v. Cardinal IG Co., 239 F.3d 1239, 1244-45 (Fed. Cir. 2001). The Federal Circuit "has consistently held that the word 'comprising' is an open transition phrase. In contrast, 'closed' transition phrases such as 'consisting of' are understood to exclude elements, steps or ingredients not specified in the claim." Id. at 1245 (citations omitted).

The patents' claims use the word "comprise" when describing the composition of the nitride or silicon nitride layers. '349, col. 26, lines 62-63; '349 col. 27, line 29; '349, col. 28, lines 1, 11-13, 38-39; '050, col. 20, lines 49-50; '050, col. 21, lines 7-11, 35-36; '050, col. 22, lines 8-10, 25-26; '608, col. 7, lines 16-17, 34, 36. Moreover, the file history of the '349 and '050 patents state that the amount of oxygen which can diffuse from the nitride layer into the NiCr inclusive layer is reduced but not eliminated. Feb 14, 2003 Amendment p. 13. Therefore, Defendant's proposed interpretation which includes the phrase "not containing oxygen" will not be adopted. Plaintiffs' interpretation of the disputed term "nitride layer" is adopted.

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3. "Node"

Defendants assert "node" should be construed to mean "a processor or computer with a memory." Defendants' construction is based on the description of "node" in the Detailed Description of Certain Embodiments in the specification: "[e]ach node can be a processor with a main memory. Alternatively, each node can be a computer with a main memory." Col. 7, lines 31-35. Plaintiff contends this term is entitled to its ordinary meaning, but if the Court deems construction necessary, "node" should be construed to mean "a processor or computer on which runs a SQL-compatible or other relational database."

The parties' constructions are similar in that they construe "node" to mean a processor or computer. Similar to the above analysis of "database," there is nothing in the intrinsic evidence requiring a "node" to be a processor or computer "on which runs a SQL-compatible or other relational database." See Renishaw, 158 F.3d at 1249 (explaining the court may not "add a narrowing modifier before an otherwise general term that stands unmodified in a claim").

Therefore, the Court construes "node" to mean "a processor or computer with a memory." A "node" is not limited to a processor or computer "on which runs a SQL-compatible or other relational database."

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2. "node"

This term appears in claims 1, 2, 5, 6, 8, 10, 11, 12, 14 and 17. Claim 1 is representative (the disputed term is in boldface):

1. A method of forming a long distance communication channel between two telephone devices each of which are connected to a PSTN, said method comprising

   a user of one of said telephone devices initiating and establishing a telephone communication with a first commercial access provider node of INTERNET and providing thereto a telephone address,

   using INTERNET to establish a communication channel between said first commercial access provider node and a second commercial access provider node of INTERNET and providing said telephone address to said second commercial access provider node,

   said second commercial access provider node using said telephone address and a telephone dial out capability of said second commercial access provider node to establish a communication with a telephone device at the telephone address using a PSTN, and

   using the INTERNET communication channel to link said telephone devices and form a real time voice communication between said telephone devices.

a) The Parties' Proposed Constructions

The parties propose the following constructions:

<table>
<thead>
<tr>
<th>eBay</th>
<th>IDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection points within the system, such as computers or other hardware and/or software.</td>
<td>A point of connection into a network, such as a computer.</td>
</tr>
</tbody>
</table>

*2*See Doc. No. 99 at 33 (JCCC Exhibit 1 at 31)

eBay urges that "[t]he commercial access provider computer system includes 'nodes,' which are simply connection points within the system, such as computers or other hardware and/or software." (Doc. No. 82 at 17).

IDT urges that "[e]ach independent claim makes clear that the nodes are entry points into a network," (Doc. No. 86 at 6), pointing to claim 1 calling for "initiating and establishing a telephone communication with a first . . . node of INTERNET."
IDT also points to Fig. 5 and the accompanying specification illustrating and describing a "UniPost Access Node" as an entry point to a network. (Doc. No. 86 at 6-7). IDT further relies, inter alia, on NEWTON'S TELECOM DICTIONARY, 8th ed., 1994 at 707, defining "node" as "a point of connection into a network." With respect to eBay's proposed construction, IDT acknowledges that a "node" can be a connection point "within" a network. However, IDT argues that is not how the term is used in the '350 patent. According to IDT, "[e]ach part of the specification that eBay contends supports its definition of 'node' describes a node as a 'commercial access providing computer' into a network, or a point of access into the network, not a connection point within a network." (Doc. No. 86 at 8).

eBay in its reply asserts that the '350 patent also describes "nodes" that are "within" the system. eBay points to the disclosure at col. 7, lines 24-31 and lines 47-56. eBay urges that "a user traveling to Tokyo calls a node in Tokyo to retrieve messages stored on a node in Toronto," and "[t]he Tokyo node connects to the Toronto node over the Internet, the user's messages are transmitted from the Toronto node to the Tokyo node, and the user then retrieves her messages over her telephone connection directly with the Tokyo node." (Doc. No. 91 at 7). eBay says that in that embodiment, "there is a single connection point into the system -- the Tokyo node," and the "Toronto node is an internal connection point for data transmission within the system, although it is still a 'node.'" Id. eBay urges that the dictionary definitions IDT relies on should be disregarded because they contradict the teachings of the '350 patent. Id.

b) Discussion

As IDT and eBay both agree, the term "node" may refer to a junction point "within" a network. See e.g., MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS (5th ed. 1994) at 1349 defining "node" in the field of electronics as "[a] junction point within a network." eBay is also correct that in the embodiment described in col. 7, the Toronto "node" is "within" the system -- while the Tokyo "node" provides access "into" the system. But the embodiment described in column 7 is the messaging embodiment of Fig. 3. IDT is correct that in the embodiment of Fig. 5, the "nodes" 6 provide access "into" the network.

In the context of claim 1:

   a user of one of said telephone devices initiating and establishing a telephone communication with a first commercial access provider node of INTERNET and providing thereto a telephone address,

   . . .

   said second commercial access provider node using said telephone address and a telephone dial out capability of said second commercial access provider node to establish a communication with a telephone device at the telephone address using a PSTN, and

both "nodes" are clearly providing points of connection into a network -- in this case the Internet. The same is true for the remainder of the asserted claims.

Although there is a presumption that same term bears the same meaning throughout a patent, that is not always true. It depends on the context in which the term is used. See e.g., Yingbin-Nature (Guangdong) Wood Indus. Co. v. U.S. Int'l Trade Comm'n, 535 F.3d 1322, 1338 (Fed. Cir. 2008)("the ALJ had no trouble correctly distinguishing, in context, between the patentee's use of the term 'clearance' in claim 5 to describe an internal void in coupled panels, and in claim 17 to describe the indentation of an uncoupled panel that defines an internal void upon coupling.").

c) Conclusion

In view of the foregoing, the Court concludes that:

   The term "node," as used in the asserted claims of the '350 patent, means "a point of connection into a network, such as a computer."
a first node and a second node

Claims 1, 4, 6, 7, and 8 contain the term "node." The parties address "node" in the context of the claimed "a first node" and "a second node." Lonestar argues that "a first node" means "one of two 'opposing nodes' of the 'capacitor structure,' all portions of which are connected to each other in such a way as to enable them to be at the same voltage when the capacitor is operating, which voltage is different from that of the second and opposing node; the 'first node' is not electrically connected to the 'second node.'" Lonestar argues that "a second node" carries the same construction as "a first node" with the modification that the second node's "voltage is different from that of the first and opposing node; it is not electrically connected to the 'first node.'" Nintendo proposes that "a first node" means "a common conducting structure," and "a second node" is "a common conducting structure different than the first node." Lonestar asserts that the nodes are the strips themselves and objects to Nintendo's construction as requiring the nodes to be a separate structure from the strips. Nintendo contends that because the claim recites that the strips and nodes are "connected," the nodes and strips must be separate structures.

The Court construes "a node" to mean "a conductor or conductors commonly connected." Claim 1 states, "conducting strips alternately connected to a first node and a second node." Col. 7:6-7 (emphasis added). Furthermore, the specification states, "[a]ll the strips 24A of the first layer and the strips 26A of the second layer are connected to form a common node," Col. 2:40-42 (emphasis added); "[t]here is also a capacitance between the strips connected to the nodes A and B and the substrate," Col. 2:58-60 (emphasis added); and "the strips which are connected to the opposite nodes." Col. 6:41-42 (emphasis added). These references in the specification thus refer to strips both as being "connected to form a common node" and being "connected to nodes." In one instance, this language seems to treat a strip as being a part of a node, and in the other instance, it treats the strips as being separate. For the conducting strips to be "connected to the nodes," the nodes and structures must be regarded as not being one in the same structure. If the strips were the same structures as the nodes, there would be no reason to state that there is a connection between the strips and the nodes.

While the nodes may be different from the strips, this does not preclude a node from including the strip. Neither the claims nor the specification create such a limitation. Thus, as described in the specification a strip may be a sub-structure of a node. This means that a strip that is connected to a node can also be a part of the common conducting structure that forms the node. This applies to "a first node," "a second node," "said first and second nodes form two opposing nodes," and "alternately connected to a [said] first node and a [said] second node." Accordingly, the Court construes "a node" to mean "a conductor or conductors commonly connected."

b. "node"

The parties dispute the meaning of the term "node." Intel's proposed construction for the term "node" is a data processing device that can communicate on a communication system, and, by definition, includes, but is not limited to, devices such as a computer, a file server, a gateway, a co-processor, a modem server, memory, or a printer. In support of its construction, Intel points to the written description, which states:

As used herein, a "node" is a computer, file server, bridge, gateway, co-processor, modem server, memory, printer or other data processing device ("DPD") coupled to the communication medium though an interface.Col. 1:9-13.

Broadcom argues that the definition of the term "node," should include the limiting language in the written description that requires the node to be a device that is "coupled to the communication medium through an interface." The term coupled is a term of art in patent parlance that means electrically (or otherwise) connected to allow the transfer of signals.

It is clear from the specification's language above, in which the inventors expressly define the term "node" as used in the patent, that the inventors have chosen to be their own lexicographer with respect to this term and have stated their special
definition of the term in the patent specification. Vitronics, 90 F.3d at 1582. The court therefore adopts the meaning of node from the specification. A "node" is a computer, file server, bridge, gateway, co-processor, modem server, memory, printer or other data processing device ("DPD") coupled to the communication medium through an interface. The parties, however, dispute whether the phrase "coupled to the communication medium through an interface" modifies and thus limits each term in the list above and hence modifies the definition of "node" itself or only modifies the term "other data processing device," the last term in the list above.

The more natural reading of the phrase is to read the phrase "coupled to the communication medium through an interface" as modifying the definition of the term "node" itself. This reading is consistent with the use of the term "node," throughout the specification. For example, when referring to the algorithms that it discloses regarding the selection, the specification states that "the selection can be executed by the node's interface circuitry or software." Col. 5:33-35. This reading is also consistent with the ordinary meaning of the term node. Therefore, the court finds that the term "node" is any data processing device, including, but not limited to, a computer, a file server, a bridge, a gateway, a co-processor, modem server, memory, or printer, that includes a network interface, through which it is coupled to the communication medium.

For the sake of clarity, it should be noted that the term "node" is used in a phrase in the claim that recites "a plurality of nodes coupled to said communication medium for a transfer of data between said nodes." Reading the phrase as a whole, one could argue that being coupled to the communication medium is not part of the intrinsic meaning of "node," because if it were, the use as "coupled to said communication medium" as a modifier in the claim, arguably would be redundant. Therefore, the court holds that while a node must be a device that includes a network interface, it does not as part of its own definition have to be coupled, or electronically connected, to the communication medium.
Data node

Claims 1, 2, and 6 of the '930 Patent contain the term "data node." Network-1 contends that the term means "Ethernet switch or hub," 2 while Defendants contend that it means "data switch or hub." The parties disagree whether or not the term "data node" is limited to an Ethernet environment.

Footnotes
2 This construction of "data node" was adopted by the Court in the D-Link case. However, in that case, the construction was agreed on by the parties, and the Court did not resolve whether or not the term was limited to an Ethernet environment.

Network-1 asserts that the specification repeatedly describes an Ethernet limitation, which makes it a requirement of the claim scope. Defendants counter that the claims do not recite an Ethernet limitation, and that although the preferred embodiment is in the context of an Ethernet system, the specification does not characterize the invention as a whole to include an Ethernet limitation. Defendants also argue that restricting the term to the preferred Ethernet embodiment improperly imports a limitation from the specification.

The '930 Patent does not describe the Ethernet as a feature of the present invention as a whole, which is required to limit the scope of the claimed invention. See Honeywell Int'l., Inc. v. ITT Indus., 452 F.3d 1312, 1318-19 (Fed. Cir. 2006); Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001). The specification more broadly refers to a variety of telecommunications and data communications equipment and a desire to remotely power data network devices from a centrally powered system during power outages. '930 Patent, col. 1:22-40. Additionally, the specification sets forth a general objective of determining if remote equipment is capable of accepting remote power followed by a specific objective of delivering power over switched Ethernet segments in accordance with IEEE 802.3 standards. See id. at 1:41-48. The Summary of the Invention implies that Ethernet power is in accordance with only the specific objective, not the general objective. See id. at 1:51-59. The scope of the invention as a whole is not limited to Ethernet power, and other network topologies do not preclude use of the claimed invention. Accordingly, Ethernet is not a proper limitation, and the Court adopts Defendants' construction and construes the term "data node" to mean "data switch or hub."

"First, second and third nodes"

This term appears in Claim 36 of the '280 patent, which describes: "A network for carrying data and power signals, said network comprising: first, second and third nodes, each of said nodes containing at least one power consuming circuit . . ." SercoNet argues that this term means "three distinct communication entities designated 1st, 2nd and 3rd" whereas NetGear construes it as "First, second and third SICs." However, at the hearing, the parties agreed that the plain meaning of the term node means any addressable entity -- in other words, an entity that has its own identity to the network. Printers and computers are examples of nodes. NetGear, however, argues that the specification limits the term "node" to SICs rather than its plain meaning.

Starting with the claim language, the claim itself does not define the term node. The inventor, however, specifically used the term SIC many times in other claims in the related patents, but did not do so here. The claim language, therefore, indicates that "node" is not synonymous with SIC.

Turning to the specification, the specification also refers to the term SIC many times, yet the claim uses the broader term "node". Furthermore, the abstract notes that the invention is a serial intelligent cell and a connection topology for local area
networks, noting that the network can be configured by a plurality of SICs, which can be connected to one or more data terminals, computers, telephones, sensors, etc. In other words, the specification shows that both SICs and other addressable entities are connected to the network. Figures 7 and 8 also show both computers and SICs connected together in a network. While the computers are referred to as "data terminal equipment units" in the figures, and while the claim language separately refers to data terminal equipment units, there is nothing indicating that "nodes" does not encompass both data terminal equipment units and SICs. The specification, therefore, does not indicate that all entities in the network are SICs.

In addition, the patent prosecution history also supports a conclusion that the term "nodes" was used according to its normal usage. The information disclosure statement filed with the USPTO disclosed the '517 patent, which in turn referred to nodes as LAN devices such as computers, printers and modems. See '517 patent at 3:34-36.

Finally, NetGear's own proposed construction of other terms repeatedly uses the term "device," which itself is a broader term that it seems to use interchangeably with nodes, peripherals, and entities. For example, defendant proposes that an SIC itself is a device arranged in a certain way with certain types of connections, and that a LAN is a configuration of "devices" arranged in a serial fashion. Yet in the patent itself, the term "devices" refers more broadly to data terminals, computers, telephones, sensors, etc. See '510 patent at Abstract.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "First, second and third nodes" with the modifications discussed at the hearing and construes the term as: "3 addressable or identifiable entities designated 1st, 2nd, and 3rd."

Noise

The Court adopts ST's proposed construction of "noise" and construes the term as "unwanted electrical signals." The Court finds that ST's construction matches the appropriate dictionary definition and represents the understanding of one skilled in the art. Webster's New Collegiate Dictionary, at 772 (1980); see also Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002) (holding that dictionaries are reliable sources of information regarding the understanding of those skilled in the art). Although Motorola also derives its proposed construction 10 from a relevant dictionary, the Court rejects Motorola's construction because it introduces an ambiguity. Motorola would have the Court construe "noise" to be only that which "produce[s] undesirable effects," but Motorola does not indicate what constitutes an "undesirable effect."

1. "in accordance with a noise model"

Plaintiffs' construction: in accordance with a representation of noise used to predict noise

Defendant's construction: in accordance with a model that predicts noise statistics, including the average noise level and probability distribution of noise

The parties' fundamental dispute about this term relates to the term "noise model." Although they appear to agree that a "model" in this context is a construct that is used for the purpose of prediction and that, in this case, a noise model predicts noise statistics, the parties disagree whether the '859 patent describes a particular method for predicting noise statistics.
Defendant contends that the meaning of "noise model" is unclear from the language of the claims and is limited by the patent specification. Not surprisingly, plaintiffs take the position that "noise model" should be construed broadly, if at all. At the claim construction hearing, plaintiffs indicated that they believed no construction was necessary. Transcript, dkt. # 80, at 35, ln. 24 and 36, ln. 1.

In support of its argument that the patent specification limits the definition of the term "noise model," defendant cites several portions of the patent specification: "the noise model can be used to predict the exact noise statistics (mean and probability distribution)" '859 pat. col. 2, lns. 42-43; "A noise model is used to predict the mean noise level in each kernel," id. at col. 2, lns. 50-51; "parameter values are input to the noise model to predict the mean noise level in each kernel of the grid," id. at col. 6, 34-36.

Defendant's argument has two flaws. First, the portion of the specification on which defendant's construction relies most heavily, column 2 at lines 42 and 43, is included in a discussion of the preferred embodiment of the invention. Nowhere else in the patent is there any indication that this embodiment represents the noise model used in the invention as a whole. As the Court of Appeals for the Federal Circuit has cautioned repeatedly, it is error to apply to the invention as a whole limitations that relate to a preferred embodiment only. Acumed LLC v. Stryker Corp., 483 F.3d 800, 805 (Fed. Cir. 2007) (citing Phillips, 415 F.3d at 1323 (warning against confining claims to preferred embodiments)).

The second problem with defendant's argument is the absence of any indication that any of these references in the specification were intended to narrow the kind of noise models that might be used as part of the claimed invention. In each instance they describe a type of noise model that may be used, but there is no indication that these references describe the only types of noise models. Therefore, it would be incorrect to adopt defendant's limitation when construing the term "noise model."

Although defendant's proposal is unpersuasive, I find plaintiffs' initial construction perplexing and unhelpful at best. I conclude that both proposed constructions are flawed and will decline to adopt either construction.

Dependent claim 29 recites the step of "painting with an electronic brush said first control image, said electronic brush having a shape in one or both of intensity and color to paint in inherently non-aliased strokes." Adobe contends that this phrase means painting in the manner taught by the '755 patent. Adobe points out that, although the term "inherently non-aliased strokes" does not appear in the '529 specification or the patent's prosecution history, it does appear in the abstract of the '755 patent, and the '529 patent refers to the '755 patent in describing its paint strokes. In addition, the '529 specification described in substantial detail the '755 painting process.

As Quantel observes, however, Adobe once again improperly seeks to import a limitation from the specification into a claim. The claim itself does not refer to the painting process of the '755 patent. And the specification expressly notes that a blending effect "can be provided by utilizing techniques derived from modified arrangements to those disclosed" in the '755 patent, thereby suggesting that "inherently non-aliased strokes" may be achieved in another manner. Indeed, Mr. Taylor testified as much. See Tr. at 96. Because claim terms are to be given their ordinary and customary meaning where the patentee does not explicitly provide a special meaning, Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996), the court shall construe "inherently non-aliased strokes" in a manner based on the parties' usage: natural-appearing lines that blend smoothly into a background image in the process of being created.

Liquidnet proposes that "non-binding indications" be construed to mean "non-binding offers to buy or sell a security." 94
ITG/Pulse adds a further limitation -- that the non-binding purchase or sale offers "allow[] traders to enter into negotiations to trade the securities, which cannot be executed without a further, affirmative action by a trader." 95 Because it is supported by the intrinsic evidence, I adopt ITG/Pulse's construction.

The word negotiation appears throughout the specification. In one of those instances, a portion of the specification states that, "[b]ased on these indications, traders at one institution can enter into negotiations with traders at other institutions[]" 96 Thus, according to the specification, traders use non-binding indications to enter into negotiations with one another. Moreover, during prosecution of the patent, the patent applicant confirmed this interpretation of the patented method -- telling a PTO examiner, "[a]s pointed out in the specification . . . , the indications provide information to allow traders to enter into negotiations to ultimately trade the securities." 97

Liquidnet objects to this interpretation of the term "non-binding indications" on the ground that it requires a limitation to be read from the specification into the claim. 98 A district court must be careful not to read language into a patent claim without appropriate justification. Accordingly, earlier in this Opinion, I declined to construe several terms in claim one to require automation even though the specification described the patented method as occurring automatically." 99 However, the relevant distinction between those terms (e.g., sending), and the term "non-binding indications," is that the word "non-binding" is an ambiguous term that requires further clarification. 100 The term "non-binding" reveals that these indications alone are insufficient to constitute trader authorization, and that at least one further step must take place before a trade is executed. The specification and prosecution history make clear that this extra step is negotiation.

Accordingly, I adopt ITG/Pulse's construction of the term "non-binding indications" to mean "non-binding purchase or sale offers that allow traders to enter into negotiation to trade securities, which cannot be executed without a further, affirmative action by a trader." However, I emphasize that negotiation need not be an in-depth process. It can be as basic as each party assenting to the terms of the other party's non-binding indications.
Sun's construction                      NetApp's construction
In such a way that the [data and] redundant information can be placed in locations within the stripe
within the stripe in any order. that are not known in advance.

--- Footnotes ---

8 At the hearing, Sun agreed to omit the words "data and" from its proposed construction.

--- End Footnotes ---

The parties dispute whether the term "non-fixed pattern" has a physical or a temporal connotation. Sun's construction takes into account the order and location of the placement of the information, while NetApp's construction focuses on when the locations are known.

Representative claim 1 requires that "the at least one unallocated block used to store the redundant information is located in any disk." Claim 1 at 12:18-20. While NetApp argues that this language means that the location of redundant information (also referred to as parity, which is a subset of redundant information) is not known in advance, the plain meaning of "located in any disk" refers to location -- more specifically, that the parity can be stored in any disk. This language does not support a temporally-oriented construction. In addition, the claim language separately contains a timing component, as the claims require that the parity be dynamically allocated in a non-fixed pattern before each write request is completed for each stripe. See, e.g., Claim 1 at 12:22-24. This claim language further supports Sun's construction, which refers to the physical location of the parity, rather than NetApp's, which refers to when the location is known.

Turning to the specification, Sun first notes that the abstract states that any available block in a stripe can be used to store parity, and that the location of parity is assigned arbitrarily within the stripe:

In response to a request to store (write) data on the array, the file system determines which disks contain free blocks in a next allocated stripe of the array. There may be multiple blocks within the stripe that do not contain file system data (i.e., unallocated data blocks) and that could potentially store parity. One or more of those unallocated data blocks can be assigned to store parity, arbitrarily. According to the dynamic parity distribution technique, the file system determines which blocks hold parity each time there is a write request to the stripe. The technique alternately allows the RAID system to assign a block to contain parity when each stripe is written.

'305 patent abstract (emphasis added). The "Summary of the Invention" repeats the same language. Id. at 3:61-4:3. The arbitrary selection of the parity location is recited again in the context of the present invention. Id. at 6:24-37 ("In accordance with the present invention, the dynamic parity distribution system and technique distributes parity across disks of the array . . . There may be multiple blocks within the stripe that do not contain file system data (i.e., unallocated data blocks) and that could potentially store parity . . . One or more of those unallocated data blocks can be assigned to store parity, arbitrarily.").

The above language, which clearly applies to the invention as a whole, supports both parties' constructions. The specification confirms that any unallocated data block can be used to store parity, and that the location of parity is assigned arbitrarily within the stripe. It also confirms that the file system waits to determine which unallocated block will hold the parity until there is a write request to the stripe. 9 However, as noted above, the latter timing component is already contained in the claim language, which states that the information is allocated before each write request is completed for each stripe. See, e.g., Claim 1 ("is dynamically allocated in a non-fixed pattern by the storage module before each write request is completed for each stripe."). In addition, this existing claim language is clearer than NetApp's proposed construction, which, in reciting "in advance," does not explain "in advance" of what.

--- Footnotes ---

9 As NetApp notes, Figure 2 also illustrates this timing component via an order of steps. Figure 2 is a "flowchart illustrating
a sequence of steps for distributing parity among disks . . "$ The figure demonstrates that the first step in assigning parity is to determine which disks contain free blocks, the system then reserves as many free blocks as are required for the parity, identified the reserved blocks, and then assigns the parity to the reserved blocks. See '305 patent at Figure 2. While this flowchart supports NetApp's construction, the order of steps is discussed elsewhere in the claim.

In addition, in the context of one embodiment, the specification notes that any available block within a stripe is a suitable candidate for either data or parity: "In the illustrative embodiment, the file system maintains at least one unallocated block per stripe for use by the RAID system. During block allocation, the file system provides an indication to the RAID system of the unallocated block(s) to be used to store parity information. All unallocated blocks on the disks of the array are suitable candidates for file system data or parity. Notably, the unallocated block(s) used to store parity may be located in any disk and the location(s) of the unallocated block(s) can change over time." Id. at 4:4-12 (emphasis added). The specification then states that the location of parity within a stripe is determined arbitrarily, can vary from stripe to stripe, and is not determined by the RAID configuration. Id. at 6:16-23. The specification repeats several times that any unallocated block within a stripe can be selected to hold parity:

According to the inventive technique . . . During block allocation, the file system provides an indication to the RAID system of the unallocated block(s) to be used to contain parity information. All unallocated blocks on the disks of the array are suitable candidates for file system data or parity. Notably, the unallocated block(s) used to store parity may be located in any disk and the location(s) of the unallocated block(s) can change over time. Moreover, all blocks in a RAID group are available for potential allocation, since parity is not held in fixed locations. In practice, this means that all blocks, including those that were "hidden" in the parity disk are available to the file system 160 for allocation in volume block number space.

Id. at 8:37-49 (emphasis added). This portion of the specification specifically contains the "fixed" location language. It strongly indicates that fixed location implies a physical location, i.e., that the data or parity can be placed in any unallocated block in the stripe. This language supports Sun's construction and indicates that the term means something more than NetApp's construction, which fails to state that the redundant information could be placed anywhere, so long as it is in an unoccupied block.

While NetApp argues that the "fact that parity is permitted to be stored in any location within a stripe, does not mean that in every system, at all times, parity must be stored on all of the disks," NetApp Opp. at 5-6, Sun's construction does not include such a requirement. Rather, Sun proposes that the parity "can be placed within the stripe in any order," not that it must be. In so arguing, NetApp concedes that parity may be stored in any location within the stripe. Its construction, however, omits this limitation, because it allows the claims to read on systems in which parity cannot be placed on any unallocated disk in the stripe. Sun gives the example that if a system permitted parity to be stored on disk 1 or 2, but not disks 3, 4, or 5, but did not know in advance if the parity would be stored on disk 1 or 2, then such a system would satisfy NetApp's proposed construction, but would vitiate the patent's central teaching that parity may be stored on any disk. While NetApp argues that such a rule could not exist in the context of this patent, because the patent claims themselves require that the parity be able to be placed on "any disk," this language is not contained in all of the patent claims. See, e.g., Claims 36 and 42.

NetApp also argues that the non-fixed pattern does not refer to data or redundant information. However, as Sun notes, the claims themselves specifically refer to the arrangement of redundant information and data. For example, claim 23 provides for "the system of claim 1, wherein the non-fixed pattern is created by the redundant information being stored in any block remaining after the data is allocated to blocks of the stripe." The "non-fixed" pattern refers to relative placement of data and redundant information within a stripe. Sun's original proposed construction, however, implied that the data blocks themselves are ordered arbitrarily like the redundant information, which is not supported by the patent. In fact, Sun itself concedes that its construction "does not require arbitrary data block assignments," but rather "simply refers to the relationship between redundant information and data blocks -- without requiring a particular ordering of blocks within a stripe." Sun Reply at 4-5. According to the patent, the parity is distributed in a non-fixed pattern which depends upon placement of the preexisting data, as the parity is only placed in unallocated blocks. A more accurate construction, therefore, would refer to placement of redundant information "in such a way that the redundant information can be placed within the stripe on unallocated blocks in any order."
At the hearing, NetApp articulated its argument in a new way, stating that the pattern is non-fixed with regard to the system as a whole, i.e., the patterns across the stripes, but the pattern need not be arbitrary within a stripe. 10 NetApp argued, as an example, that the invention would encompass an algorithm which would store parity in every third free block of the system. However, NetApp's expert Dr. Gregory Ganger conceded that when applied to an empty system, this algorithm would yield a system-wide non-random pattern. Only after time, according to Dr. Ganger, would this pattern become random, because the previously stored data itself would be changing and would exist in a random pattern. But the patent requires that parity be permitted to be stored in any location within a stripe, as NetApp concedes in its brief. Opp. at 5:27-28. The patent does not limit this requirement to a mature system. Yet in the above example of an immature system, under NetApp's proposal, parity would be located in a fixed pattern across the stripes, which the patent disavows.

10 NetApp also argued that the system is designed to balance the load (see, e.g., '305 patent at 9:41-45) and that a completely random placement of parity does not make sense in the context of this invention, but Sun's construction does not require a completely arbitrary assignment.

As to the prosecution history, Sun argues that the applicants stated four separate times to the PTO that the invention permits the placement of parity and data in any order in a stripe. First, after the PTO rejected certain claims as being anticipated by the Patterson reference, NetApp contrasted Patterson by stating that the applicant's invention stores parity data in the unallocated blocks in a stripe, and that the "unallocated blocks can change with each stripe and do not follow a constant pattern." Williamson Decl., Ex. E (May 22, 2006 response to PTO) at 14. The PTO again rejected certain claims as being anticipated by Patterson, and NetApp responded by adding the "dynamically allocated" claim language and argued that "the storage operating system then selects at least one unallocated block of the stripe to store redundant information. This allows for the redundant information to be placed in any order, varying from stripe to stripe." Id., Ex. F (Oct. 23, 2006 response to PTO) at 13-14. In contrast, according to the applicant, Patterson described a RAID system where parity information is stored in a rotating pattern. The PTO again rejected claims as being anticipated, and NetApp responded on February 5, 2007. NetApp responded by adding the "in a non-fixed pattern" language to the claims and argued:

In further detail, Applicant's invention allows the at least one unallocated block used to store the redundant information is dynamically allocated by the storage module before each write request for each stripe in a non-fixed pattern. Before each stripe is written across each disk, the storage module determines at least one unallocated block to use for redundant information. Each unallocated block is selected from the one or more blocks that are not already allocated to data blocks. The storage operating system then selects at least one unallocated block of the stripe to store redundant information. This allows for the redundant information to be placed in any order, varying from stripe to stripe because there is no fixed pattern.

Williamson Decl., Ex. G (Feb. 5, 2007 response to PTO) at 13-14 (emphasis in original). The PTO rejected the claims again as being anticipated, and NetApp moved the location of the "a non fixed-pattern" language in the claims and argued that the invention allows "the at least one unallocated block used to store the redundant information is dynamically allocated in a non-fixed pattern by the storage module before each write request is completed for each stripe." Williamson Decl., Ex. H (June 28, 2007 response to PTO) at 16-17.

The PTO issued its Notice of Allowance on September 7, 2007, and in his reasons for allowance, the Examiner stated: "The prior arts . . do not teach . . a method, system, program and an apparatus that in which at least one block is dynamically assigned/allocated in a non-fixed pattern (in any disk) for storing the parity/redundant information/data before completing each write request for each stripe." Williamson Decl., Ex. I (Sept. 7, 2007 Notice of Allowance) at 5 (emphasis in original).

The Notice of Allowance, therefore, shows that the Examiner expressly identified as a point of novelty that the redundant information is stored in a non-fixed pattern that can be on any [unallocated] disk on which the stripe is written in any order. The Examiner also identified as a point of novelty that this dynamic assignment/allocation occurs before each write request for each stripe is completed. However, as discussed above, this latter timing requirement is already included in the claim language.
In response to this prosecution history, NetApp argues that the applicants' statements to the PTO must be read in context. But the prosecution history cited above includes the portions relied upon by NetApp and teaches that redundant information may be placed in any order on any disk. The prosecution history, therefore, supports Sun's construction.

In sum, Sun's construction, with minor adjustments, is more appropriate. NetApp's construction only addresses the timing of when locations in the stripe are known, which is already addressed by other parts of the claim language, and fails to discuss the physical placement of the redundant information. For these reasons, the Court construes "non-fixed pattern" as "in such a way that the redundant information can be placed within the stripe on unallocated blocks in any order."

"Non-information-bearing optical signal" means "an optical signal which has not been modulated."

A. "non-interactive electronic message"

The term "non-interactive electronic message" is found in the preamble of claim 26: "[a] method for processing a non-interactive electronic message using a computer." Non-interactive electronic messages are described in the following passage from the specification:

"[I]n the instant invention the data of the electronic message 11 is delivered to the automatic message interpreting and routing system 1 in a non-interactive manner. Specifically, the customer 50 transmits a non-interactive electronic message 11 to the system 1. This non-interactive transmission of electronic messages 11 prescribes that the customer 50 need not later provide additional input to assist the system 1. It is noted that defining an electronic message 11 as being non-interactive prescribes only that the message content need not be supplemented. Thus, as described in more detail below, the form of the non-interactive electronic message 11 may be altered by the system 1 after the customer 50 sends it; however, the customer 50 is not required to provide supplemental information to assist the system 1."

('947 patent, 4:58-5:4) (emphasis added). Bright Response asserts that this term means "an electronic message not requiring additional input or supplementation from the sender." The defendants contend that "non-interactive electronic message" is insolubly ambiguous and thus indefinite.

The defendants argue that "non-interactive electronic message" is insolubly ambiguous because neither the claim nor specification provides any guidance as to which of the many possible interpretations of this term is correct. According to the defendants, neither the claims nor the specification explain what a non-interactive message is or how to determine if a message is non-interactive. As to Bright Response's proposed construction, the defendants contend that one cannot determine from the message itself whether it requires additional input or supplementation from the user.

One of ordinary skill in the art reading the specification would understand that the transmission and processing of the message must be non-interactive. The specification explains that "the data of the electronic message 11 is delivered . . . in a non-interactive manner" and refers to "[t]his non-interactive transmission of electronic messages." ('947 patent, 4:58-61, 62-63). This non-interactive transmission and processing is consistent with the preferred embodiment, E-mail messages, in that the sender provides no further input or interaction once the message is received. The specification sufficiently explains what is meant by "non-interactive," and this term is not insolubly ambiguous.

Bright Response asserts that additional user input or supplementation is allowed, but not required, for a non-interactive message. In support of this construction, the plaintiff cites the following text from the specification: "This non-interactive transmission . . . prescribes that the customer 50 need not provide later input . . . [D]efining an electronic message 11 as being non-interactive preserves only that the message content need not be supplemented." ('947, 4:62-5:1). But, read as a whole, the patent does not support Bright Response's argument. Construing "non-interactive electronic message" to allow interaction would contradict the plain meaning of "non-interactive." Therefore, the court construes "non-interactive"
electronic message" to mean "an electronic message in which the sender does not provide any additional information after the message has been received."

2871

4. "Non-Linear Phase Domain Video Signal"

Comark argues that the term "non-linear phase domain video signal" means "a video signal which is distorted in a non-linear way and fed to a phase modulator in order to phase modulate another signal." Harris contends that the term means "a video signal that has itself been 'phase modulated' in a non-linear manner, i.e., intentionally distorted in phase."

The term "non-linear phase domain video signal" appears throughout the '904 patent, including Claims 1 and 14. The term "non-linear phase domain video signal" is not commonly used by persons with expertise in the field of television transmitter circuitry. (Tr. 10/18/96 at 87.) Claim 1 is clear that the amplitude and phase modulator receives the aural signal and amplitude and phase modulates that signal using the non-linear amplitude domain video signal and the non-linear phase domain video signal, respectively. (See Ex. DMX-1 at col. 6, lines 34-38.) The specification does not define the term. Rather, it describes its function by stating that

the non-linear amplitude domain video signal 29 amplitude modulates the IF aural signal 33. The independently inputted non-linear phase domain video signal 31 then phase modulates the IF aural, to produce the modified IF aural signal 28 added to the visual signal at adder 21.

Id. at col. 3, lines 50-55. The use of the word "modulates" in these two locations suggests that the non-linear video signals generated in the non-linear amplifier are not modulated, but instead modulate the IF aural signal as they are inputted to the amplitude and phase modulator. See id. at Fig. 1.

The patent, however, is inconsistent in at least three places. Claim 15 recites: "A method according to Claim 14, wherein the aural signal added to the amplitude modulated non-linear amplitude domain video signal and the phase modulated non-linear phase domain video signal is an IF aural signal." Id. at col. 8, lines 23-27. Similarly, claim 18 describes a non-linear phase domain video signal that is modulated separately from the non-linear amplitude domain video signal. Id. at col. 8, lines 34-37.) Claim 19 describes "[a] method according to Claim 14, wherein the amplitude modulated non-linear amplitude domain video signal and the phase modulated non-linear phase domain video signal are added to the aural signal separately." Id. at col. 8, lines 38-42. The use of the word "modulated" in the past tense is evidence that the non-linear phase domain video signal already has been modulated before it is added to the IF aural signal.

Because the court cannot determine the meaning of the term "non-linear phase domain video signal" from the intrinsic evidence, it must examine the extrinsic evidence, such as expert testimony, to construe the term.

Modulation means varying one signal by means of another, so that any device with only one signal as input does not qualify as a modulator. (Tr. 10/21/96 at 83.) The non-linear amplifier has only one signal as input; there is no second IF signal that could turn the amplifier into a modulator. Id. Therefore, the "non-linear phase domain video signal" that is generated in the complementary non-linear amplifier is not modulated. Rather, the signal is used to modulate the IF aural carrier in the amplitude and phase modulator.

This conclusion is supported by a diagram of the complementary non-linear amplifier. (Ex. DMX-1, Fig. 3.) A person of ordinary skill in the art would recognize the diagram as illustrating a non-linear amplifier that contains twin circuits that are clipping, stretching, and inverting the video signal, and not modulating it. (Tr. 10/21/96 at 86.) If the amplifier were modulating the video signal, there would be a third external unit to indicate what is being modulated. Id. at 85.

If the non-linear amplifier were to modulate the video signal, the invention described in the '904 patent would not work. Id. at 87. This is because it would be unable to compensate a signal that has been phase modulated and then subsequently phase modulate an aural carrier with it. Id. at 88-89. A video signal should not be phase modulated before it is applied as a non-linear signal used to modulate the aural IF carrier. Id. at 56. Thus, if the non-linear phase domain video signal is interpreted as having been phase modulated, then the corrector will not perform the necessary correction. Id.
The court will adopt Comark's proposed construction.

*

The term "non-linear phase domain video signal" in Claims 1 and 14 means a video signal which is distorted in a non-linear way and fed to a phase modulator in order to phase modulate another signal.

2872

A. Non-personalized cardholder name

I conclude that the term "non-personalized cardholder name" as used in claim 1 of the '181 patent means a name that does not identify the purchase card as belonging to a specific cardholder and that is used by a retailer to complete a purchase transaction. Plaintiff contends that "non-personalized cardholder name" does not need to be defined because it is readily understood to refer to "a name that is never associated with a specific cardholder." Plt.'s Br., dkt. 41, at 7. I disagree.

It is proper to begin by placing the term in context:

wherein each of the purchase cards is a bearer instrument having an associated account number issued by a major branded credit card organization, an expiration date and a non-personalized cardholder name selected by the purchase card provider printed thereon, wherein the purchase card does not include information identifying the specific perspective cardholder[.]

'181 Pat., col. 6, lns. 32-38. (Emphasis added.) The ordinary meaning of "non-personalized cardholder name" in context of the claim language is "a name that does not identify the card as belonging to a specific cardholder." This meaning of "non-personalized" is proper in light of the ordinary definition of "personalized" which is to "make (something) identifiable as belonging to a particular person, esp. by marking it with their name or initials: [as adj.] (personalized) personalized license plates." New Oxford American Dictionary 1269 (2d ed. 2005).

The purpose of the patented method further supports this construction of non-personalized. According to the specification, the "primary objective" of the patented method is to "create a non-traceable means to transact a purchase over the Internet." '181 Pat., col. 2, lns. 65-67. Thus, the non-personalized cardholder name must not be linked to the identity the specific cardholder. If the name on the card does not identify the card as belonging to the specific cardholder, then the card would not be traceable to the cardholder using the name on the card. Moreover, the specification's examples of non-personalized names supports construing "non-personalized" as "a name that does not identify the card as belonging to a specific cardholder." Id., col. 3, lns. 15-16 ("a non-personalized cardholder name 43 (such as the name of the purchasing intermediary)"), col. 5, lns. 16-19 ("they simply insert the cardholder name, for example the name of the purchasing intermediary or an alias such as 'John Smith' as provided on the card.").

Plaintiff's concern over using the word "identify" as opposed to "associate" is unfounded. Plaintiff contends that a card with a faux name chosen by the consumer would be a "non-personalized cardholder name" under a construction using the term identify. First, the claim states that a non-personalized cardholder name must be "selected by the purchase card provider," '181 Pat., col. 6, ln. 36, which makes plaintiff's concern about a consumer choosing a "personalized" faux name a non-issue. Further, the issue raises a distinction without a difference. The definition of "identify" includes use of the word "associate:" "associate (someone) closely with; regard (someone) as having strong links with." New Oxford American Dictionary 839, # 2 (2d ed. 2005). However, use of the word "identify" helps provide a smoother connection between the purpose of the patented method, that being, engaging in a transaction in an anonymous manner, and the purpose of providing a non-personalized cardholder name, that being, providing "pseudo purchase transactional information to the consumer." '181 Pat., col. 5, ln. 12.

Plaintiff also challenges the second portion of the construction: "that is used by a retailer to complete a purchase transaction." Plaintiff contends that construing "non-personalized cardholder name" to include this additional limitation improperly imports a limitation from the specification into the claim. Again, I disagree. Although plaintiff is correct in noting that it is improper to read a limitation from the specification into the claims, the court's construction does impose
such a limitation. Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340, 1347 (Fed. Cir. 2004). Instead, the construction follows the rule that "'[c]laims must be read in view of the specification, of which they are a part.'" Id. (alteration in original) (quoting Markman, 52 F.3d at 979).

It is true that claim 1 does not provide any function for the "non-personalized cardholder name." As the claim is written, the term serves no function and appears to be nothing more than an aesthetic limitation. However, the presence of a purely aesthetic limitation in a method claim doesn't quite jive. If the "non-personalized cardholder name" serves no functional purpose, as plaintiff contends, then the term is superfluous to the patented method. In fact, if the term serves no functional purpose, the method's purpose, anonymous internet transactions, would be best served using a card with no name at all. This leads to the logical conclusion that the term must serve some purpose in the patented method. A look at the specification and patent history helps clear up the ambiguity regarding the term's purpose.

Turning to the specification, it is clear that the "non-personalized cardholder name" does serve a functional purpose under the patented method. The "non-personalized cardholder name" is a necessary component for conducting an anonymous transaction with a retailer over the internet, which is the patented method's "primary objective." '181 Pat., col. 2, lns. 65-67. Simply put, the non-personalized name is used when the cardholder is prompted by the retailer's application or web-site to provide a name in completing a purchase. Id., col. 5, lns. 15-17. The specification is clear that "[t]he account number, cardholder name and expiration date are [ ] used by the retailer's application to complete the purchase transaction with the consumer in a manner known in the art." Id., col. 5, lns. 21-24. Another portion of the specification explains that

The purchasing card 40 includes a unique and non-traceable Master Card or Visa credit account number 42, a non-personalized cardholder name 43 (such as the name of the purchasing intermediary) and an expiration date 44 which allows the consumer the ability to make a purchase(s) over the Internet or in other "bricks and mortar" retail establishments.


In light of those clear statements, the patented method requires not merely a non-personalized name but a non-personalized name that allows the consumer to make anonymous purchases over the internet by permitting a retailer to use the name to complete a purchase transaction. Cf. SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) ("Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.").

The prosecution history for the '181 patent further supports limiting the term to a non-personalized name used by a retailer to complete a purchase transaction. "'[A] court should also consider the patent's prosecution history, if it is in evidence. . . . Like the specification, the prosecution history provides evidence of how the [Patent Office] and the inventor understood the patent.'" Ultimax Cement Manufacturing Corp. v. CTS Cement Manufacturing Corp., 587 F.3d 1339, 1347 (Fed. Cir. 2009) (alterations in original) (quoting Phillips, 415 F.3d at 1317). According to the prosecution history for the '181 patent, the patentee understood the patented method to require that the non-personalized cardholder name be used by a retailer in completing an anonymous internet transaction.

During prosecution of the patent, the patentee, represented by his attorney, argued that a novel feature of patented method, which was not disclosed in the prior art, was providing a non-personalized cardholder name and an account number to a retailer to complete a transaction. Spaccarotella Decl., dkt. 39, exh. F at AXPR0016376. The patent examiner rejected the patentee's argument because the "non-personalized cardholder name" had no function in the patented method. Id. The examiner suggested that the prior art could be overcome if there was an amendment to the specification which specify[sic] that the purchase transaction is based upon the account number and the non-personalized information associated with the purchase card and that the specification also provides other details which defines the personalized information in order to facilitate the claim interpretation and how it relates [to] the purchase transaction process.

Id.

The patentee filed an amendment that added "a non-personalized cardholder name 43" to the list of items in the
specification that allowed the consumer to complete a purchase with a retailer over the internet, id., exh. G at AXPR0014212, and the portion of the specification explaining that the account number, non-personalized name and expiration date are used by a retailer to complete the purchase transaction, id., at AXPR0014215. Additionally, the patentee reworded the "transacting" step in the claims to require use of the account number and the non-personalized cardholder name to complete a purchase. Id. at AXPR0014216. In the patentee's remarks regarding the amendments, he noted that the examiner had "requested that the specification more clearly state that a purchase is transacted based upon the account number and the non-personalized cardholder name associated with the purchase card." Id. at AXPR0014219. He also explained that he had "made minor amendments to the specification in accordance with the Examiner's suggestions" and he confirmed "that such amendments merely serve to clarify the present invention, but do not constitute new matter to the application." Id. at AXPR0014219.

Limitation of the scope of a claim using the patent's prosecution history requires a clear statement in the history that shows "reasonable clarity and deliberateness" in creating the limitation. University of Pittsburgh of Commonwealth System of Higher Education v. Hedrick, 573 F.3d 1290, at 1296 (Fed. Cir. 2009). The statements by the inventor along with the amendments to the patent's specification are just such clear, deliberate statements. They unambiguously reflect the patentee's understanding that the patented method requires that the non-personalized cardholder name be used by retailers to complete transactions.

Plaintiff contends that there was no clear limitation of the patented method because the alteration of the "transacting" step in the actual claim language was eventually eliminated before the patent was issued. However, this change in the claim language does not change what the patentee expressed as his understanding and clarification of the "present invention." Further, the clarifications in the specification regarding the function of the non-personalized cardholder name were never eliminated from the patent. The patentee's explanation that a novel feature of the patented method was using the non-personalized cardholder name to complete a purchase transaction with a retailer and memorialization of that explanation in the specification clearly confirm the limitation. Therefore, the court cannot construe the term without the limitation that the "patentee itself regarded as comprising its inventions and represented to the PTO." Microsoft Corp., 357 F.3d at 1349.

A. "Non-public Personal Information" (’783 Patent)

"Non-public personal information" appears in every independent claim (claims 1, 18, and 20) of the ’783 patent. In Yodlee v. Block Financial Corp., the court adopted H&R Block's proposed construction of the term, construing it to mean "information/data that is specific to an end user and requires verification and access data for retrieval." Yodlee Exh. V at 6-7. Yodlee now seeks to have this construction apply in the instant case. CashEdge argues that this Court should construe the phrase as "information that is personal to a specific end user and not accessible to the general public." The Court agrees with CashEdge that its definition is more consistent with the patent's language; nowhere does the patent limit "non-public" to "requir[ing] verification and access data for retrieval." The Block court imposed that construction only because it agreed with H&R Block that "personal information" was specific to an end user, not because anything in the patent or prosecution history required "verification and access data." Accordingly, the Court adopts CashEdge's proposed construction of "non-public personal information."

--- Footnotes ---

n4 The Block court rejected Yodlee's proposal that the phrase be given its ordinary and customary meaning, because it found that during prosecution of the patent Yodlee had included "non-public" to specify that the information was specific to a given end-user.

--- End Footnotes ---
3. "non-regulated" / "non-regulating" / "without regulation" (’190, ’083, and ’702 patents)

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>SynQor's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;non-regulated, isolated DC output&quot;</td>
<td>&quot;an [isolated DC] output that is approximately proportional to the input voltage during normal operation even when faced with variations in input voltage and output current&quot;</td>
<td>&quot;does not control an output towards a predefined value&quot;</td>
</tr>
<tr>
<td>&quot;non-regulating&quot;</td>
<td>&quot;producing a non-regulated output during normal operation even when faced with variations in input voltage and output current&quot;</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>
| "without regulation" | See construction of "regulation."
|                      |                                 | Same as above. |

There are two primary issues in dispute between the parties as to these terms. The first issue is whether the construction of the non-regulated terms should include the phrase "during normal operation." The parties primarily rely on the same arguments as previously presented in regards to the "regulated" terms, and the Court will not rehash their arguments. The second issue is whether the non-regulated terms should be defined negatively as the Defendants propose or affirmatively as SynQor proposes. SynQor argues that the specification affirmatively describes a non-regulated output as being proportional to the input voltage. See ’190 patent, 5:13-24; 15:4-11. SynQor argues that the term "approximately" is not indefinite and is supported by the specification. Defendants argue that the terms, "non-regulated," "non-regulating," and "without regulation" simply mean not "regulated." Because the parties have essentially agreed that the term regulated means "controlling an output towards a predefined value," Defendants argue that these terms mean the opposite, i.e., "does not control the output towards a predefined value." Defendants argue that SynQor agrees with this logic because for the term "without regulation" it merely proposes the opposite of regulation. Defendants further argue that the term "approximately" is not supported by the specification and there is no guidance as to the bounds of the term.

Consistent with previous terms and for the same reasons, the Court rejects SynQor's attempt to add "during normal operation" to this term when there is no basis for it in the claims or the specification. The claims consistently use "regulation" terms and also "non-regulation" terms. The claims, the specification, and the terms themselves imply that the meanings of these terms are opposites. The Court does not find any support in the specification for SynQor's "approximately proportional" language, and thus rejects SynQor's attempts to add limitations that are not present. The Court notes that SynQor agrees that "without regulation" means no "regulation" or the absence of "regulation" as previously defined, but argues that the terms "non-regulated" and "non-regulating" mean something different. The Court is not persuaded by SynQor's arguments. The Court finds that "without regulation" and "no regulation" and "non-regulated" have the same meanings as implied in the claims and the specification. The Court agrees with the Defendants and finds that these terms are the opposite of the "regulation" terms. Thus, similar to its constructions for the "regulation" terms, the Court adopts the following constructions:

"non-regulated output" means "an output that is not controlled towards a predefined value;"

"non regulated, isolated DC output" means "an isolated DC output that is not controlled towards a predefined value;"

"non-regulating" means "not controlling an output towards a predefined value;" and

"without regulation" means "the act of not controlling an output towards a predefined value."
C. Non-Single Crystal Semiconductor Material

In the context of plaintiff's summary judgment motion, the parties dispute the meaning of "non-single crystal semiconductor material" in claims 1 and 5. Although plaintiff's motion is limited to those claims, this term appears in claims 1, 5, 12 and 13. Specifically, the patent claims disclose "source and drain regions comprising a non-single crystal semiconductor material doped with a recombination center neutralizer." Plaintiff would have the court adopt the definition provided in the specification and adopted by the court in Acer for the '941 patent: "a semi-amorphous semiconductor, an amorphous semiconductor or a mixture thereof." Defendants contend that the term should be limited to semi-amorphous semiconductor material.

The patent specification is explicit in defining "non-single crystal semiconductor material" as including amorphous or semi-amorphous semiconductor material or a mixture of the two. Defendants argue that the court should disregard this instruction because the specification explains that amorphous semiconductor materials cannot be used for the source and drain regions, explicitly describes only semi-amorphous semiconductor material, disparages amorphous and other semiconductor materials and fails to disclose a single embodiment of source and drain materials made of amorphous or other semiconductor materials. The crux of defendants' argument is that the specification teaches only a method of manufacturing a semi-amorphous semiconductor and identifies the non-single crystal semiconductor as the starting material, preventing the patent from covering products consisting of amorphous semiconductors.

According to the only embodiment contained in the specification, the starting material undergoes a structural change that is induced by localized heating (the step depicted in Figure 6G) and results in a final product (the source and drain regions) made of semi-amorphous semiconductor material. Defendants assert that because the specification indicates that this process can be used where the non-single crystal semiconductor is amorphous or some other semiconductor material, the final product is always semi-amorphous semiconductor material, necessitating that the "non-single crystal semiconductor material" be semi-amorphous semiconductor material. I disagree.

The specification illustrates the formation of a thin film transistor in which starting semiconductor material is converted into semi-amorphous semiconductor material through the application of a current. However, the specification states explicitly that the process described clarifies "the manufacturing method of the present invention and its advantages in the case where the non-single crystal semiconductor is the semi-amorphous semiconductor." This leaves open the possibility that the non-single crystal semiconductor could be a different type of semiconductor.

Defendants point out that the specification goes on to state that

Also in the case where the non-single crystal semiconductor 7 is an amorphous semiconductor or a mixture of the semi-amorphous semiconductor material and the amorphous semiconductor, it can be formed by the above-described method.

The specification later states:

Even if the non-single crystal semiconductor 7 is the amorphous semi-conductor or the mixture of the semi-amorphous and the amorphous semiconductor, the semi-amorphous semiconductor S2 is formed to have the same construction as in the case where the non-single crystal semiconductor 7 is the semi-amorphous semiconductor.

I agree that the second statement seems to imply that amorphous or mixed semiconductor material results in a final semi-amorphous semiconductor. However, the patent abstract describes the invention as

A semiconductor device which has a non-single crystal semiconductor layer formed on a substrate and in which the non-single crystal semiconductor layer is composed of a first semiconductor region formed primarily of non-single crystal semiconductor and a second semi-conductor region formed primarily of semi-amorphous semiconductor. The second semiconductor region has a higher degree of conductivity than the first semiconductor region so that a semi-conductor element [sic: may] be formed.
The resulting semiconductor regions, including the more conductive region, are not limited to semi-amorphous semiconductor material. Therefore, there is no ground for limiting the meaning of non-single crystal semiconductor to semi-amorphous semiconductor. Various statements in the specification emphasize the point that a non-single crystal semiconductor can be an amorphous or a semi-amorphous one or a combination of the two. It seems implausible that the specification would define non-single crystal semiconductor material initially as including a variety of materials but later intend that term to refer to only one type of semiconductor material. If plaintiff had intended to describe the source and drain regions in the patent claims as limited to semi-amorphous material, it would have said so, rather than using the broader definition of the term "non-single crystal semiconductor material."

Equally unpersuasive are defendants' arguments that plaintiff disavowed a broad definition of the claim term by including only one embodiment disclosing a final semi-amorphous semiconductor product or making disparaging remarks about the properties of amorphous semiconductors. At most, these factors indicate plaintiff's strong preference for semi-amorphous semiconductors. However, as plaintiff notes, preferred embodiments cannot be used to limit claim language intended to have a broader effect. Innova/Pure Water, Inc. v. Safari Water Filtration Systems, 381 F.3d 1111, 1117 (Fed. Cir. 2004) (even when patent describes only single embodiment, otherwise broader claims will not be read restrictively unless patentee has demonstrated clear intention to limit claim scope in that manner.)

Because I construe non-single crystal semiconductor material to mean "a semi-amorphous semiconductor, an amorphous semiconductor or a mixture thereof," it is irrelevant whether the accused products contain semi-amorphous or only amorphous semiconductor material. Therefore, plaintiff is entitled to summary judgment on the question whether defendants' products satisfy the non-single crystal semiconductor element of claims 1 and 5.

A. Non-telephone actuation signal

The first claim term in dispute in the '184 Patent is the term "non-telephone actuation signal." The defendants contend that the claim term should be construed to mean "a one-way activation signal sent outside standard telephone system signaling channels." The plaintiff contends that the term means "a broadcast activation signal sent via something other than a telephone system." The parties agree that an actuation signal is an "activation signal." The core disagreement is over the construction of "non-telephone."

After reviewing the intrinsic record, the court construes the term "non-telephone actuation signal" to mean an "activation signal sent over something other than a telephone system." Although Eicon suggests that the claim term could include a signal sent outside "standard telephone system signaling channels," this definition is, in the court's view, too vague. Eicon does not suggest what these channels include or whether, for instance, a non-telephone actuation signal could include a signal sent via non-standard telephone system signaling channels.

The plaintiff's definition is also not appropriate. Brooktrout contends that the court should limit the definition to a "broadcast signal," because the preferred embodiment of the invention discloses an airborne activation signal transmitted from a broadcast facility. The Federal Circuit has warned district courts not to impose limitations appearing in the preferred embodiments of inventions when the claim language supports a broader claim scope. E.g., Nystrom v. Trex Company, Inc., 374 F.3d 1105, 2004 WL 1432247 *7 (Fed. Cir. 2004). The court observes that the claim language itself simply uses the term "non-telephone," implying that the patentee intended to claim all methods of actuation other than through the telephone system. Had the patentee intended to restrict the scope of the claim to broadcasted signals, the claim language would have used the phrase "broadcast actuation signal" or similar terms.

In addition, the written description states:

Preferably, an actuation signal is immediately sent out over the local broadcast facility indicated as 22 with the computer logic 30, which includes broadcast receiving capability, of the facsimile machine 18 effectively listening for an actuation signal received by the associated antenna 20 connected thereto. This arrangement is described in U.S. Pat. No. 4,713,837 incorporated herein by reference.
'184 Patent, Col. 2, ll. 58-65. The language of the specification suggests that the broadcast example described is not the only method of supplying a non-telephone actuation signal. Moreover, in the '837 patent, the patentee discloses that "[i]t can be appreciated that the antenna 6 could be replaced with a connection to a broadcast carried over a cable network as but one alternative." By this language, the patentee is attempting to illustrate additional ways of transmitting the actuation signal. Accordingly, the court construes the term "non-telephone actuation signal" to mean "an activation signal sent via something other than the telephone system."

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1. "Non-transmissive, radiation reflecting optical structure" 7

7 Defendants state that the term requiring construction is simply "non-transmissive" without the additional qualifying language supplied by Philips.

This term is at the heart of the dispute. It is found in Claim 1, which recites

[a] record carrier containing information which is readable by a beam of radiation, said record carrier comprising a disc-shaped, radiation-transmitting substrate having a pair of planar surfaces on opposite sides thereof, a non-transmissive, radiation reflecting optical structure on one of said planar surfaces of said substrate . . . .

'846 Patent, Col. 5, ll. 61-66 (emphasis added). 8 Defendants urge the court to read this term as meaning that the optical structure "does not transmit radiation such as light. For example, light can not be seen through the disc." 9 Philips, on the other hand, contends that the term should not be construed to convey a property of the optical structure itself (its relative translucence). Rather, Philips argues that the term should be understood as characterizing the method by which the disc is read (in reflection mode as opposed to transmission mode). Philips proposes that the term be construed as "[a]n optical structure that reflects radiation for reading the information but does not also transmit radiation for reading the information."

The '846 Patent does not provide a definition of "non-transmissive." Therefore, the court will first look to the teachings of the specification and claim language. A stated object of the invention disclosed in the '846 Patent was to improve on the prior art by

provid[ing] a record carrier in which the optical structure is protected against dust particles and damage without the use of a protective layer which is required to satisfy stringent requirements. For this purpose the record carrier according to the invention is characterized in that the optical structure is a radiation-reflecting structure and the carrier substrate is radiation-transmitting, the surface of the carrier substrate more remote from the optical structure forming both the entrance face and the exit face for the read radiation. In this record carrier the carrier substrate itself ensures that dust particles are sufficiently spaced away from the optical structure.

'846 Patent, Col. 2, ll. 8-21 (emphasis added).

The specification describes prior art disclosed in the "Journal of the S.M.P.T.E." in November of 1979. This prior art used a protective layer on top of the optical structure that allowed the device to be read only in transmission mode. As the beam
had to pass through the protective layer to reach the detector, the protective layer had to meet stringent quality standards. See id., Col. 2, ll. 6-7.

10 In addition to meeting precise thickness requirements, the protective layer in the prior art was required to "intimately engage" the optical structure in order to prevent the occurrence of local air bubbles between the optical structure and the protective layer. '846 Patent, Col. 1, ll. 59-65.

Claim 1 specifies that the substrate under the optical structure is "radiation transmitting", id., Col. 5, l. 63, and that the convergent beam of radiation used to read the disc enters the substrate and passes through it to a focused point on the optical structure. Id., Col. 6, ll. 8-11. The use of the word "transmitting" in conjunction with the word "radiation" signifies that the substrate allows light to pass. From this, defendants argue, it follows that only a non-transmissive optical structure will do the opposite; that is, not allow light to pass through and reach the additional layer that covers the optical structure.

The specification further discloses that

[t]he faces of the optical structure have been made highly reflecting, for example in that after the structure has been pressed in the substrate a metal layer is deposited on it from vapour. The thickness of this metal layer is not of importance. Id., Col. 3, ll. 29-34 (emphases added). 11 Of more than passing significance, this language discloses that the optical structure need only be "highly reflecting." It does not require that it be impervious to light. This interpretation finds support in the later statement that the thickness of the metal layer deposited by vaporization is of no critical significance. If, as defendants argue, the invention disclosed was concerned with prohibiting light from passing through the optical structure altogether, the thickness of the reflective layer on the optical structure would have been crucial to the task.

11 This layer is referred to in Claim 1 as a "reflective layer extending over [the] intermediate areas and [the] depressions [in the optical structure] . . . ." '846 Patent, Col. 6, ll. 6-7.

It is clear (and also undisputed) that the reduction, and preferably the elimination, of dust interference was a goal of the '846 Patent.

By making the optical structure radiation-reflecting and the substrate radiation-transmitting, whilst the surface of the substrate more remote from the optical structure forms both the entrance face and the exit face for the read radiation, and by coating a surface of the optical structure more remote from the substrate with an additional layer, a simple record carrier is obtained which is well protected against dust particles and damage.

Id., Abstract. This in turn is supported by the language of Claim 1, which recites, in part,

the diameter of the beam is sufficiently larger than the diameter of said spot [on the optical structure] so that dust particles, scratches and the like on said other surface, do not interfere with the readout of information by the convergent beam focussed to said spot on said optical structure . . . .

Id., Col. 6, ll. 20-25.

Defendants point in particular to two statements in support of their contention that light does not pass through the optical structure. First, the specification discloses that

[t]he optical structure is read in reflection mode, which means that the read beam is modulated by reflection at the optical
structure. The additional layer is not traversed by the read beam and is only required to protect the optical structure from damage. Hence this layer need not satisfy exacting requirements. It need not be radiation-transmissive and need not have a constant thickness throughout its surface. In addition, it need not accurately engage the optical structure.

Id., Col. 2, ll. 28-36 (emphasis added). Second, defendants make note of the statement that

the record carrier may be read in a non-dustfree room, for example a living room, for dust particles deposited on the layer 10 have no effect, because the read beam does not pass through this layer.

Id., Col. 4, ll. 21-24 (emphasis added). 12 Because the specification and claim language provide no clear answer, the court will turn next to the prosecution history.

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12 In response to a question at his deposition about whether in 1971 and 1972 it was a matter of concern whether or not the read beam passed through the information layer (optical structure), Kramer responded, "I don't know. We couldn't care less. We couldn't care less. It's just that it should reflect enough that we have a good signal." Kramer Dep. at 120.

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The original applied-for claim recited a disc-shaped record carrier with a "radiation-reflecting" optical structure. The Examiner rejected this claim over three patents issued to Feinleib: U.S. Patent Nos. 3,665,425 ('425 Patent); 3,696,344 ('344 Patent); and 3,696,386 ('386 Patent) (collectively, Feinleib). Unlike the invention in the '846 Patent, where information is permanently pressed into the disc and cannot be erased or rewritten, Feinleib's invention contained amorphous material that was recordable and rewritable, that is, actively recorded, erased, and rewritten by a light beam. The '386 Patent explains that the memory is read in the transmission mode, where the light source and the detector are positioned on opposite sides of the disc and the detector reads the differences in the intensity of the light. 13

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13 The '425 Patent notes that the disc can also be read in the reflection mode.

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In response to the rejection over Feinleib, Philips argued that "[a]pplicant's information structure is totally reflecting and therefore cannot pass light," contrasting the prior art by arguing that in Feinleib, the light "would tend to pass through the information structure." Pros. Hist. (PH) 0387 (emphasis added). Philips continued that

[a]pplicant achieves dust immunity of the information structure with respect to both the entering and exiting beam by selecting a totally reflecting information structure and a transparent substrate of sufficient thickness that a converging beam focussed as a cone of light on the information structure has a diameter at the entry surface of the substrate that is larger than the dust particles and a diameter at the information structure that is smaller than such dust particles. The exit cone of light thereby has the same diameter at the surface of the substrate.

Feinleib is totally unconcerned with dust immunity, since in all of the embodiments shown in the drawings Feinleib locates his transparent information structure near the upper surface of the record carrier, thereby bringing the dust accumulating on the upper surface close to the focus of the radiation beam used for reading. Furthermore, . . . the information structure of his non-preferred embodiment is alternately reflecting and transmitting radiation in accordance with the recorded information. Thus, in his reflecting embodiment, d[i]scussed but not shown in Feinleib, the light focussed on the portions of the information structure between reflecting areas would tend to pass through the information structure to the
upper surface of the disc and would thereafter reflect off dust particles on the surface, thereafter propagating back through
the information layer and disturbing the reading of the recorded information. Applicant's information surface, however, is
totally reflecting and therefore cannot pass light to the nearby dust containing upper surface.

PH 0386-0387 (emphases added). According to Philips, dust immunity could only be achieved "by a proper combination of

The Examiner, however, maintained the rejection, responding that "as far as the Examiner knows nothing is totally
reflective." Philips subsequently replaced the words "totally reflecting" with the disputed term "non-transmissive,"
responding that

[o]bviously, the read beam does not pass through the layer 10 because it does not permeate the non-transmissive character
of the information layer prevents radiation from interacting with either dust or bubbles trapped between the protective layer
10 and the information layer 9 that would in the Feinleib apparatus scatter or reflect the light passing between reflective
portions of Feinleib's reflecting and transmitting areas of his information structure.

It is only by the non-transmissive nature of the information structure in the embodiment of Fig. 2 that permits Applicant
to avoid interference by dust particles and also permits Applicant to cover the reflective structure with a protective layer 10
to guard against scratching without the necessity for avoiding bubbles trapped between the information structure and the
protective layer. Such bubbles would in all probability form light reflecting and scattering [sites] for scattering or reflecting
light passing through the permeable areas of the reflective Feinleib information structure and passing back through that
structure to interfere with the reading of the information.

PH 0393. Philips further stated,

[t]he importance of the non-transmissive carrier of the information structure in applicant's disc is that after the beam
passes through the substrate and is intercepted by the information structure it can not thereafter continue through the
information structure to the backside of the record carrier where dust particles may also deposit.

PH 0492 (emphasis added).

Philips attempts to deflect these seemingly conclusive statements by putting the blame on its (prior) prosecuting attorney
who, according to Philips, did not fully understand the technology. However, later in the prosecution, after the Examiner
rejected the application yet again (on grounds of indefiniteness), Philips' new attorney argued that

[a]pplicant does not see how one can state more clearly that the "optical structure" does not transmit radiation incident on
it than by saying that it is "non-transmissive" in the manner specified in the claims. Nor can applicant understand how it
could be seriously contended that a man skilled in the art would not be able to determine the meaning of that expression.

PH 0621-0622. Philips defined the invention by explaining that

[t]he information (such as an audio or video signal) is contained in a plurality of depressions (a) spaced apart in the track
direction by intermediate areas (b). A reflective layer (9) extends completely over the intermediate areas (b) and the
depressions (a), rendering the entire optical structure reflective and non-transmissive to the incident radiation of the read
beam.

PH 0744.

Philips attempted to differentiate its invention by emphasizing that it read only in reflection mode, a matter that was given
scant attention by Feinleib. 14

The second function performed by the substrate is to maintain dust particles, scratches and the like sufficiently far from
the plane of the optical structure so that they do not interfere with the read-out of the information. This "dust immunity"
results from the fact that in applicant's construction the optical structure is reflective and is disposed on the surface of the
substrate which is remote from the source of the beam, so that the exterior surface (8) of the substrate defines both the
entrance plane for the incident beam and the exit plane for the reflected modulated radiation.

PH 0745.

14 The Federal Circuit, in reviewing two decisions of the Board affirming the rejection of the application for obviousness, noted that although Feinleib separately suggested (1) a device that employs an optical structure comprised of depressions formed in a substrate, and (2) an optical structure that operates in the reflective mode, there was no "teaching which would lead one skilled in the art to use those alternatives together." In re Kramer, 1991 U.S. App. LEXIS 682, 1991 WL 3392, at *2. The Federal Circuit therefore concluded that it was error for the Examiner to reject the application as obvious over Feinleib. Id.

Perhaps the most telling statement by Philips was made in an attempt to directly distinguish its invention from Feinleib.

In essence, the only similarity between the memory unit [in Feinleib] and the record carrier defined in [applicant's disc] is that they are both optical storage media. There the similarity ends. In applicant's disc the optical structure is non-transmissive and reflective. Feinleib's entire memory unit is transmissive (he recovers the information by detecting intensity variations of the light after it has passed through the medium).

PH 0751 (emphases in original). Here, Philips used the word "transmissive" to describe the manner in which Feinleib's memory unit (information structure)functioned, that is, that it read the information in transmission mode.

As the intrinsic evidence does not provide a definitive answer to the dispute, the court will finally turn to the extrinsic evidence. 15 As previously emphasized, "[i]n construing claims, the courts focus on what one of ordinary skill in the art at the time of the invention would have understood the term to mean." Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1353 (Fed. Cir. 2006) (citation omitted). Therefore, the court must determine what a person with an undergraduate degree (or the equivalent) in electrical engineering, physics, or optics would have understood the term "non-transmissive optical structure" to mean in 1972.

15 Courts are not prohibited from "examining extrinsic evidence, even when the patent document itself is clear. . . . Rather, [courts merely cannot] rely on extrinsic evidence in claim construction to contradict the meaning of the claims discernible from thoughtful examination of the claims, the written description, and the prosecution history -- the intrinsic evidence." Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1308 (Fed. Cir. 1999) (emphasis in original).

According to defendants' expert, Dr. Schlesinger, one of ordinary skill in the art in 1972 would have read the '846 Patent and the prosecution history to unequivocally state that the optical structure does not transmit light. Schlesinger Decl. P 6. More specifically, Dr. Schlesinger testified that the hypothetical person skilled in the art in 1972 would have understood that the optical structure should be made "as non-transmissive as possible and practical and that while theoretically and even actually some photons may pass this is irrelevant as they are not seen or detected on the other side of the structure." Id. P 7.

16 Dr. Schlesinger's testimony has particular force because he took care to contrast the technology available in 1972, before the CD was invented, to the present-day technology, which is at issue. With this in mind, Dr. Schlesinger noted that,

[b]ecause in 1972, each spot on an optical disk directly represented an increment of sound, as did each spot in the groove of a vinyl record, if the optical structure was transmissive then reflections from bubbles and dust over it would have been heard as crackles and pops as was the case for dust or scratches on the surface of a vinyl record. If the optical disk contained video information the result would have been "snow" or speckles on the screen as was the case with Laserdisc throughout the 1970s.
16 The court understands from Dr. Prucnal's testimony that a fundamental principle of optics states that "when light passes from one material to another, some of the light is reflected, some of the light is transmitted, and some of the light is absorbed." Prucnal Decl. P 6. Therefore, it follows that nothing can be absolutely 100 percent non-transmissive.

According to Dr. Schlesinger, the problems associated with dust and bubbles were obviated in 1980 when Sony announced (and patented) an interleaving and error correcting technology that eliminated the misreading of adjacent spots on the disc that resulted from bubbles, dust, or scratches on the surface. The patent teaching the "Sony solution" was included as an essential licensed patent in the CD licenses granted by Philips. See id. PP 17-22. According to Dr. Schlesinger, the Sony solution made it unnecessary after 1980 to incorporate in the CD-ROM an optical structure that did not transmit light. In post-1980 discs, the optical structure was able to "harmlessly transmit [a fraction of the beam] without the ill effects that were the concern of the '846 [P]atent back in 1972 and 1973." Id. P 24.

CONCLUSION

Giving due consideration to the testimony of the witnesses (including Kramer), the court construes the term "non-transmissive" to mean "an optical structure that reduces the transmission of radiant light to the greatest degree practicable consistent with the intended purpose."

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D. Non-Volatile Configuration Memory

The module of Claim 1 includes "a non-volatile configuration memory," the meaning of which is in dispute. Digi asserts that "non-volatile configuration memory" should be construed as "data storage (either internal or external to the module) for configuration data which persists after the module is powered down." Lantronix maintains that this term should be construed as "a computer memory device, located within the module, that does not lose its memory when power to the memory is turned off. Claim 1 requires that such a memory contain configuration information and instructions for implementing an API specific to the device." The parties agree that a non-volatile memory is one that retains its stored data after power is shut down. The dispute arises over whether the data storage needs to take place within the module, or if it may exist outside the module.

In support of its proposition that the non-volatile configuration memory can be located either internal or external to the module, Digi cites to language in the patent specification that describes different embodiments of the patent. Specifically, Digi points to the following language:

A configuration memory 86 on the chip provides a flash or other non-volatile memory which may be programmed by the user with configuration data, byte code data, and other information specific to a particular application or device. Alternatively, an EEPROM interface 88 allows this data to be stored on an external non-volatile device, such as an EEPROM.

(Id. at c. 16, 11: 15-22.)

For example, the same chip is used in a small digital camera as is used in a large industrial machine, the only difference being the specific data and/or instructions stored in the configuration memory 86 and/or in an external EEPROM. For example, the configuration memory 86 and/or the external EEPROM might store an application specific applet customized for the device.

(Id. at c. 16, 11: 30-36.)
In the case of automatic configuration, the chip is initialized using configuration data stored in an internal configuration memory and/or in an external memory (e.g., EEPROM) connected directly to the network interface chip. (Id. at c. 16, 11: 59-63.)

Lantronix, on the other hand, asserts that the alternative, EEPROM embodiment is not supported by the claim language. Specifically, Lantronix points to the language of Claim 1, which claims a "single self-contained and autonomous module . . . wherein the module comprises . . . a non-volatile configuration memory." (Id. at c. 18, 11: 41-53.) Lantronix contends that in order for the module to be "self-contained," the memory must be on or within the module.

The Court agrees, in part, with Lantronix's construction. The Court finds that the claim language requires that the memory be either on or within the confines of the module. In order to give full meaning to the terms "self-contained," "wherein," and "comprises," and to remain consistent with the Court's construction of the term "self-contained," the Court must read Claim 1 to require memory that is contained within the confines of the module.

The Court does not agree with Lantronix, however, that the EEPROM embodiment is inconsistent with the language of Claim 1. The specification describes two alternate embodiments of the patent, one with internal memory and another with EEPROM memory that is "connected directly to the network interface chip." (‘192 Patent at c. 16, 11: 59-63.) This is not inconsistent with the requirement that the module, including its non-volatile configuration memory, be self-contained. In the manner described in the EEPROM embodiment, the main network interface chip has the EEPROM directly attached to it. This EEPROM is still inside the same physical confines of the module and thus still consistent with the language of Claim 1.

With these considerations in mind, the Court construes "non-volatile configuration memory" to mean "data or memory storage, located within the module, that persists when the module is powered down."

1. "Non-volatile Memory."

Consistent with the intrinsic evidence and plain meaning of the term, "non-volatile memory" shall mean "memory that retains stored information in the absence of power."

"[S]ectors" (claims 1 & 10)

As a starting point, both SanDisk and Ritek agree that a "sector" is the "basic unit of erase." The Federal Circuit endorsed this interpretation. SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1281. Judge Breyer also adopted this construction in the Lexar litigation. In full, Judge Breyer's construction was:

A "non-volatile memory sector" is the basic unit of erase for the non-volatile memory. It is not limited to 512 bytes of user data and 64 bytes of overhead data.

SanDisk Corp v Lexar Media, Inc, 1999 U.S. Dist. LEXIS 2682, 1999 WL 129512, 3 (ND Cal 1999). The parties agree with this construction as far as it goes, but this does not end their dispute.

The dispute is whether the construction of "sector" should include some reference to size or number of memory cells. JCC (Doc # 371), Ex A at 6. SanDisk proposes that the court adopt Judge Breyer's construction and add that a sector is "further
understood to refer to a substantial number of memory cells." Id. Ritek contends that SanDisk is playing "fast and loose with the courts" since they previously argued that "sector" was not limited to the size recited above. Ritek Br (Doc # 148) at 15.

SanDisk's position in Lexar (that size was not limited to a specified value) was essentially arguing that the example provided in the specification should not be read into the claim. See Lexar, 1999 U.S. Dist. LEXIS 2682, 1999 WL 129512, 3; Berta Reply Decl (Doc # 397-2), Ex A at 8-12. This is consistent with arguing that size must be a certain minimum number of cells, i.e., more than an insubstantial number. Ritek's judicial estoppel argument lacks merit.

Ritek also argues that inserting SanDisk's proposed language is incorrect because the specification refers to "Flash EEprom" and traditional (non-flash) "EEprom." Ritek argues that since the invention did not exclude EEprom, and in fact refers to EEprom, that the invention relates to both flash EEprom and traditional EEprom. This distinction is significant, Ritek argues, because traditional EEprom memories would only allow sectors to contain small units of memory.

The court need not visit the issue whether the invention relates to flash EEprom only or both flash and traditional EEprom because it is unnecessary to insert SanDisk's proposed addition ("further understood to refer to a substantial number of memory cells") in the court's construction. Nothing in the construction which the parties agree to ("the basic unit of erase") precludes the size of the "basic unit of erase" from being a "substantial," according to one having ordinary skill in the art, "basic unit of erase." The court reaches this conclusion without deciding whether Ritek's argument, that the invention is not limited to flash EEprom memories, has merit. The court also reaches this conclusion without deciding whether SanDisk's arguments that one having ordinary skill in the art would understand the invention to relate only to flash EEprom memories.

Since Ritek does not argue, as Lexar did, that a sector was limited to a described embodiment in the specification (512 bytes of user data and 64 bytes of overhead data), it is unnecessary to include that clarification here.

Accordingly, the court adopts the following construction for "sector" means:

The basic unit of erase.

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SynQor argues that operation in "normal" mode means how the device usually operates, and that it is proper to define the term in affirmative ways rather than negative ways. Thus, SynQor construes the term as "the mode in which the device usually operates when it is on." Defendants argue that the language "in which the device usually operates" proposed by SynQor has no support in the specification and adds confusion, not clarity, to the definition. Defendants also argue that it would render the claim indefinite because one would not know whether a system was covered by the patent until one monitored the system for a long enough time to determine what "usually" happened. Defendants argue that the specification only defines non-normal operation is exclusory terms, such as excluding start-up and fault conditions, whereby "normal operation" should be everything else.

The parties agree that during normal operation excludes "start-up and fault conditions such as over-current conditions." Further, the parties agree that it also excludes "shutdown" conditions. The "during normal operation" language, and any differences between "normal" and other modes, is only found in the '021 patent. Regarding the term "during normal operation," the parties agree when it is not normal operation, but disagree as to when the isolation stage is affirmatively in normal operation. The Court rejects the "usually operates" language proposed by SynQor because there is no support for such language and it is ambiguous. However, the '021 patent references both the "normal state of operation" and the "normal mode of operation." See '021 patent 4:37, 5:60. The Court finds that affirmatively stating that it is a "normal mode of operation," rather than just "a mode" of operation conforms to the language of the specification. Thus, the Court construes the term "normal operation" to mean "a normal mode of operation that excludes start-up, shutdown, and fault conditions such as over-current conditions."
F. "The normal operation . . . is interrupted to convey"

I adopt the following definition, based on the plain meaning of the words in the phrase: "the regular, standard, or natural function or working . . . is stopped so that it can be resumed at a later time, in order to convey . . ."

In several claims, the patent purports to describe a method of notifying an account holder about a pending transaction, not via direct communication over a telephone or computer network, but rather through some form of broadcast medium such as a "television, radio, car radio, computer, etc." '725 Patent, Col. 41:35-37. Such a transmission would reach the television, radio, or other device and "interrupt" its "normal operation" to convey the message which the Central Processing Computer wished to send (presumably, a message that the holder's account was being debited).

This phrase is not defined in the patent, and neither party suggests that these words are a term of art in any industry related to the invention. The phrase describes a process by which any one of a list of common broadcast devices -- a "television, radio, car radio, computer, etc." -- can be used to notify the end user of a transaction involving their account. It is common knowledge that such consumer devices communicate over a number of broadcast media: radio waves, television signals, computer networks, cable networks, satellite communications, and so forth. Since the patent does not specify how this process of interrupting a broadcast would work technically, I conclude that the phrase does not have a technical meaning, but rather embraces any means of interrupting a broadcast signal.

Defendants offer:

the standard functioning of the communications device is suspended while the information and/or message to the account holder of the signal being sent to the communications device is substituted for the functioning of the communications device simultaneously with the execution of the transaction by the central processor or upon the occurrence of the triggering event.

I would have to reject that definition simply because it is overly cumbersome and redundant. For example, they include a requirement that an interruption take place "simultaneously with the execution of the transaction... or upon the occurrence of the triggering event," although neither the plain meaning of the words nor their context imposes such a requirement.

Plaintiffs offer:

The regular, standard, or natural function or working... is disrupted, the normal flow of the operation is broken and can be resumed at a later time or is stopped so that it can be resumed, in order to convey...

This definition is far more direct. The parties seem to agree that "normal operation" means the standard functioning of the device. They further agree that the word "convey" does not need to be construed.

Plaintiffs' unwieldy interpretation of "interrupted," -- "is disrupted, the normal flow of the operation is broken and can be resumed at a later time or is stopped so that it can be resumed," -- is overly verbose, and is apparently based on a technical definition of the word "interrupt" from the world of computer science. The phrase, "stopped so that it can be resumed at a later time" is sufficient.

Therefore, "the regular, standard, or natural function or working... is stopped so that it can be resumed at a later time, in order to convey..." is the definition I adopt.
1454 (Fed. Cir. 1998) (en banc). In interpreting claims, a court "should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

PC Connector accuses the district court of having improperly construed the terms "normally connectible" and "conventional" in claim 1, and "traditionally connectable" and "standard" in claim 10, as fixing the peripherals and computer I/O ports described by such terms to be those in existence at the time of filing in 1988. According to PC Connector, the terms merely clarify the manner of connecting peripherals to a computer--i.e., through dedicated I/O ports typically clustered at the rear of the chassis-without imposing a time-based limitation on the I/O technologies involved. We disagree.

PC Connector essentially advances a construction that would require the words "normally," "conventional," "traditionally," and "standard" to be redefined as specifically referring to--or, depending on the context, synonymous with being connectable to--a dedicated computer I/O port. We conclude that the record is unable to support this departure from the ordinary meanings of those words, whose descriptive properties are implicitly time-dependent. A claim cannot have different meanings at different times; its meaning must be interpreted as of its effective filing date. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed. Cir. 1995) (en banc) ("The focus is on the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean."). We also find nothing in the written description that amounts to a clear attempt by the patentee to impart any special meaning to the words "normally," "conventional," "traditionally," or "standard." Likewise, in the prosecution history, we do not read the patentability arguments that were made specifically to distinguish a test fixture as having effected the particular redefinition now advanced on appeal. As a consequence, the terms "normally," "conventional," "traditionally," and "standard" are governed by their ordinary and customary meanings, and that, in view of their implicit time-dependence, the district court did not err in construing the literal scope of the claim limitations qualified by those terms as being limited to technologies existing at the time of the invention.

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PC Connector's argument that the dictionary definitions of "normally," "conventional," "traditionally," and "standard" contain no explicit reference to a time limitation is not persuasive, as their time-related significance is implicit from their ordinary usage--just as other words are implicitly not time-related. A comparison of the words "conventional" and "dedicated" is instructive in this regard, as PC Connector's briefs appear to treat them as interchangeable and coterminous in claim scope, when, in fact, they are not. To illustrate, a present-day USB port may be described as a "dedicated" I/O port within the ordinary meaning of "dedicated" as that word would be used to characterize the I/O ports found on a computer built in 1988, yet it would not be considered "conventional" back then, even though it is "conventional" today. (Martin Aff. P11; J.A. 264). Thus, unlike the word "dedicated," the word "conventional" necessarily has a meaning specific to the time of filing. Accordingly, the district court did not err in its claim construction.

19. "transformer that is not driven into saturation" ('083 and '702 patents)

SynQor's Proposed Construction
"transformer connected in a power converter in a manner and configuration such that the transformer's magnetic flux density level is less than its

Defendants' Proposed Construction
INDEFINITE for system claims.
This term is also subject to a motion for summary judgment of indefiniteness filed by some of the Defendants. See Dkt. No. 432. Defendants argue that the term is indefinite in apparatus claims because the claim limitation describes a method of use of the transformer. Defendants rely on the Federal Circuit case of IPXL Holdings, L.L.C. v. Amazon, Inc., 430 F.3d 1377, 1384 (Fed. Cir. 2005) (holding that the claim language of "the user uses the input means" is indefinite). In that case, the Federal Circuit held that an apparatus claim cannot claim a particular use of an apparatus because determination of infringement of an apparatus claim should be determinable at the time the apparatus is made and sold. See id. In other words, claims that mix method and apparatus limitations are indefinite because they present a lack of clarity as to when the subject matter claim would be infringed. See id. Defendants argue that driving or not driving a transformer into saturation is an act which may or may not occur during the use of a product. Defendants argue that there is nothing inherent to the structure disclosed in the specification or the claim that would guarantee that the transformer would not saturate. Defendants argue that a transformer might or might not be driven into saturation, depending on how the transformer is used, and thus, there would be no way to predict if the product when sold will eventually infringe this limitation. Defendants argue that if the claim had stated "cannot be driven into saturation," or "adapted to" or "capable of," as opposed to "is not driven into saturation," then it would not be indefinite. Defendants argue that even though an accused power converter's transformer may be capable of being driven into saturation, the power converter meets the limitation if when actually used it "is not driven into saturation" during certain types of uses. Defendants argue that SynQor's addition of the term "during normal operation" makes the claim even more problematic, because then one has to watch how the product operates in a particular environment to see how the product is used.

SynQor argues that the IPXL case is narrow and rarely applied. SynQor argues that many courts have rejected attempts to invalidate claims by IPXL on claims containing functional language. SynQor argues that IPXL does not apply to functional language that is used by the patentee to describe the functions of, or to further elaborate on capabilities of, the underlying claimed apparatus. SynQor argues that the language at issue is clearly used to describe the structure and capabilities of the claimed apparatus and is not a method step. SynQor argues that it was well-known in the art that the structure of the transformer, as well as related circuitry, could vary depending on whether it was designed to be driven into saturation or not. SynQor argues that the claim language is part of a description of comparable structure in the claims which describe the functions performed by the control circuitry in combination with the other structural elements of the "non-regulating isolating step-down converter." SynQor argues that the specification describes the structural aspects of the circuit that cause the transformer not to be driven into saturation. SynQor argues that the claimed language is clearly not a method step but describes how the "control circuitry" and related power components, such as the transistor and the transformer, are configured to be capable of operating in a particular way, i.e., "not driven into saturation."

The Court agrees with numerous other courts in that the holding in the IPXL case is very limited. For the instant dispute the Court finds that the IPXL case does not apply because the single claim does not improperly cover both an apparatus and a method of use of that apparatus. Claim 1 of the '083 patent, illustrative of the disputed term, claims "[a] non-regulating isolating step-down DC-DC power converter . . . comprising: 1) at least one isolating step-down transformer that is not driven into saturation, . . . " The Court finds that the language "is not driven into saturation" does not describe a method step and instead is used to describe the structure and capabilities of the claimed apparatus. Such use of language in the claims is not improper. See Microprocessor Enhancement Corp. v. Texas Instruments, Inc., 520 F.3d 1367, 1375 (Fed. Cir. 2008). Further, the specification provides that it is well-known in the art "to keep the lengths of the two halves of the cycle well balanced to avoid imposing an average voltage across the core and driving it into saturation." '083 patent, 15:40-44. The Court finds that one of ordinary skill in the art would understand the specification to describe structural aspects of the circuit that insure that the transformer does not saturate. Still further, SynQor offers various prior art references, including references cited during prosecution of the patents-in-suit, providing support for the proposition that it is well known in the art that transformers and related circuitry in a power converter can be designed to not saturate. This Court agrees and finds that one of ordinary skill in the art would understand that power converters are designed to insure that the transformer does not saturate. The Court rejects Defendants' arguments to the contrary. Thus, the Court finds that one of ordinary skill in the art would understand that the claimed language describes the structure and capabilities of the claimed apparatus and is not merely a method step.

Finding that the term is not indefinite, the Court must next construe the term. Defendants have provided no competing construction to SynQor's proposed construction. Consistent with previous terms and for the same reasons, the Court rejects
SynQor's attempt to add "during normal operation" to this term when there is no basis for it in the claims or the specification. SynQor argues, without any dispute from Defendants, that saturation is a phenomenon that occurs when the magnetizing current flowing through a transformer exceeds a certain threshold, at which point the magnetic material no longer amplifies the applied magnetic field and an increase in the applied external magnetizing field cannot increasethesaturation of the transformer. The court finds that one of ordinary skill in the art would understand the term saturation in the context of the claims to generally mean the concept advanced by SynQor. 

The Court construes "transformer that is not driven into saturation" to mean "transformer that is connected in a manner such that the transformer's magnetic flux density level is less than its saturation flux density level."

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C. "Optical Demultiplexer Through Which the First Optical Line Interface Is Not Optically Coupled To the First Transponder"

For the following reasons, this court construes the claim term "optical demultiplexer through which the first optical line interface is not optically coupled to the first transponder" in claims 1 and 6 to mean:

The first optical line interface does not send optical information to the first transponder through the optical demultiplexer. Alternatively, the first optical line interface does not receive optical information from the first transponder through the optical demultiplexer.

Both claims 1 and 6 of patent '772 require that the first optical line interface and the first optical transponder are coupled. Claim 1 reads, "a first optical interface optically coupled to a first transponder." Claim 6 reads, "a first transponder optically coupled to the first optical line interface." Applying the definition for "optically coupled to," stated in A, supra, claims 1 and 6 become "a first optical line interface sends optical information to a first transponder and/or a first optical line interface receives optical information from a first transponder." With this rephrasing, the ordinary language of the term dictates that the first transponder and the first optical line interface do not send or receive optical information between each other through the optical demultiplexer.

Patent '772's specification supports this interpretation of the term by presenting a clear illustration of the situation contemplated by the language "optical demultiplexer through which the first optical line interface is not optically coupled to the first transponder" at Figure 3. Specifically, Figure 3 shows an optical line interface labeled 202 coupled to a transponder labeled T in the lower right hand corner of the illustration. The optical line interface and the transponder transmit optical information between each other via the following path: from input/output line interface 202 along line 320 to multiplexer/demultiplexer 204, then along line 214 to multiplexer/demultiplexer 216, and finally to transponder T. (See '772 patent, Fig 3.) Figure 3 also shows an optical multiplexer labeled 208 that is not situated along the transmission path that couples the optical line interface and the transponder. (Id.) The illustration at Figure 3 therefore shows that the first optical line interface does not send optical information to the first transponder through the optical demultiplexer. Alternatively, the first optical line interface does not receive optical information from the first transponder through the optical demultiplexer.

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G. "whereby said caller is not required to be within a particular network for making calls"

Stanacard argues that this term should be given its plain and ordinary meaning or, in the alternative, be construed to mean "whereby the caller is not required to use any particular type of network such as private branch exchange, landline, mobile, or Internet."

Rebtel argues that this claim language is insolubly ambiguous, and therefore invalid, on the grounds that the '156 Patent fails to define with sufficient specificity what constitutes a "network." As a result, Rebtel argues, a party cannot know whether or not it is "within a particular network for making calls."
The point of this claim limitation, however, is not to require that a caller be situated within a particular type of network. Rather, it states the opposite – that what is claimed is an open system that does not restrict the caller to any specific network when calling into the claimed system. See '156 Patent, col. 1:29-31 ("In addition, a calling card caller is typically able to utilize any telephone within a general geographic area to complete the telephone call . . ."). This is consistent with Stanacard's arguments before the patent examiner, in which it distinguished the claimed invention over the Bedingfield reference by noting that the claimed invention did not require that the caller be within a particular network for making calls. See '156 Patent File History, Comments on Stmt of Reasons for Allowance, Jan. 11, 2008, at 1. Moreover, the specification makes clear that this claim limitation refers to events occurring prior to the caller's connection with the claimed system and does not encompass the utilization of either Stanacard or Rebtel's "networks." See, e.g., '156 Patent, col. 2:22-26 ("The environment includes an electronic device 111 (e.g. a land line telephone, a cellular telephone, a satellite telephone, and the like), a caller interface 115, a network 120 (e.g., a local area network, a home network, the Internet, telephone network) . . . ."); Fig. 1.

The claim language, read in the context of the specification's disclosure, establishes that this limitation excludes from claimed material any system that restricts the caller to a specific network, of any type, when dialing the assigned incoming telephone number and placing a call into the claimed system. Because the claim language conveys the meaning of this limitation, no construction is required and "whereby said caller is not required to be within a particular network for making calls" is given its plain and ordinary meaning.

Trilogy contends that these terms mean "a relationship that cannot be put into effect." Selectica contends that these terms mean "a relationship is notActivatable if the selection of certain left-hand side items results in an invalid configuration state." The patents explain that "configuration system 212 also ensures that no relationship that will put the configuration into an invalid state can become active. . . . If a relationship will make a configuration invalid, it is made notActivatable." 651 patent, col. 13, 11. 11-16. The court construes the term "NotActivatable/making said relationship NotActivatable" to mean "a relationship in which the selection of certain left-hand side items results in an invalid configuration state."

"Notification Alert System" ('910 Patent)

The '910 patent includes the term "notification alert system" in independent claim 1. The revised joint claim construction brief requests the Court to determine whether the term, which also does not use the word "means," is subject to means-plus-function analysis, and Yodlee's brief argues the point. However, neither CashEdge's brief nor its expert address this term. There is also no admission from Yodlee's expert that this term was coined, as there is for "gatherer." See Papakonstantinou Decl. PP 9, 18. Thus, there is no evidence before the Court that would rebut the presumption against means-plus-function construction. Accordingly, the Court finds that this term is not subject to 35 U.S.C. § 112 P 6.

A. "A set of notification rules"

Independent claims 13 and 23 both recite a step of "defining a set of notification rules for the subscriber rental queue." Plaintiff contends that the term "a set of notification rules" should simply be construed as "a set of rules relating to notifications sent to the subscriber." Defendants contend that this term is indefinite and cannot be construed, or alternatively, to the extent that the term is amenable to construction, it should be construed to mean "a set of rules governing the transmittal and content of notifications about queue status sent to the subscriber."
1. Indefiniteness

A patent specification must "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112. "[T]he purpose of the definiteness requirement is to ensure that the claims delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citation omitted). The definiteness requirement "does not compel absolute clarity. Only claims not amenable to construction or insolubly ambiguous are indefinite." Id. (citation omitted). "Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning." Id. "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Exxon Research & Engineering Co. v. United States, 265 F.3d 1371, 1375 (Fed Cir. 2001). "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of patent validity . . . and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal." Id.; see also Halliburton Energy Services, Inc. v. M-I LLC, 514 F.3d 1244, 1249-50 (Fed. Cir. 2008) (holding that an accused infringer must show by clear and convincing evidence that "a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification and the prosecution history, as well as her knowledge of the relevant art area").

The Court finds that defendants have not met their burden of providing clear and convincing evidence that the term "a set of notification rules" is not amenable to construction or is insolubly ambiguous. Defendants argue that while the asserted claims describe "notification rules" and "replenishment control rules" as separate sets of rules, the specification fails to define the scope of these terms so that it is impossible, even for one of ordinary skill in the art, to discern which features described in the specification correspond to "notification rules" and "queue replenishment control rules." Defendants note that the "queue control options," "threshold options," "notification options," "queue monitoring parameters," "queue replenishment parameters," and "queue management options" recited in the detailed description ('243 patent, 6:41-65, 8:27-36, 9:34-64, 10:41-11:7) appear to be related to the "notification rules" and the "queue replenishment control rules" of the claims. However, defendants contend that the specification fails to distinguish the various "options" and "parameters" associated with "notification rules" from those associated with "queue replenishment control rules" so that the specification confuses rather than clarifies the meaning of these terms. For example, defendants point out that in Figure 2 of the '243 patent, while the user interface screen 230, showing various notification options that can be selected by a user, appears to correspond to "notification rules," the option "No notice--autoship" does not relate to "notification rules" and instead relates to "queue replenishment control rules" because under this option, a queue would be automatically replenished without any notification to the user. Thus, defendants argue that the specification does not provide any guidance for a person skilled in the art to discern the respective boundaries of "a set of notification rules" and "a separate set of queue replenishment control rules."

Plaintiff argues that one of ordinary skill in the art will be able to understand from the description of user options and parameters displayed on the user interface screens of Figure 2, the underlying notification rules and queue replenishment control rules defined by the system operator. Plaintiff specifically notes that although the interface screen 230 with the notification options may relate to both notification rules and queue replenishment control rules depending on the option selected, one of ordinary skill in the art can easily distinguish the underlying notification rules and the queue replenishment control rules based on the notification options. For example, if the option "No notice--autoship" is selected, the notification rule will be to send no notice, and the queue replenishment control rule will be to select and add a new title to the corresponding subscriber queue. Although the drafting of the '243 patent has been less than ideal and the task of construing the claim terms may be formidable, defendants have not provided clear and convincing evidence that the claim terms are insolubly ambiguous. In other words, reasonable efforts at claim construction would not prove futile and one of ordinary skill in the art would be able to discern the boundaries of what is being claimed based on the claim language, the specification, the prosecution history, and his or her knowledge of the relevant art. Accordingly, the Court finds that the term "a set of notification rules" is amenable to construction.

2. Claim Construction

As for the construction of the claim term, plaintiff proposes that "a set of notification rules" be construed to mean "a set of rules relating to notifications sent to the subscriber," whereas defendants propose that it be construed to mean "a set of rules
governing the transmittal and content of notifications about queue status sent to the subscriber." Plaintiff argues that
defendants are attempting to unnecessarily narrow the scope of the asserted claims by adding extraneous limitations that the
notification rules (1) govern the transmittal of notifications, (2) govern the content of notifications, and (3) require the
notifications to be about queue status. Plaintiff contends that the notification rules need not necessarily "govern" the
transmittal and the content of the notification. Plaintiff explains that the notification rules may simply "relate to" whether or
d to send a notification, the type of notification to be sent, or the content of the notification. In sum, plaintiff argues that
the definition of "a set of notification rules" should not be limited by any language that is not explicitly recited in the
asserted claims.

Defendants contend that construing "a set of notification rules" as "a set of rules relating to notifications sent to the
subscriber" will obscure the difference between notification rules and queue replenishment control rules because virtually
all aspects of media queue rental systems have some relation to notifications. First, defendants point out that the term "rule"
is commonly defined as "a prescribed guide for conduct or action." 4 Thus, the notification rules must do more than "relate
to" notifications, and must actually "govern" the notifications sent to the subscriber. Defendants argue that such construction
is fully supported by the specification. Specifically, defendants note that the detailed description recites that "the subscriber
identifies specifically what type of policies/rules should be employed--i.e., what notice and action should be sent to
him/her." 423 patent, 15:41-44. Defendants also note that both claims 13 and 23 require that the notification rules be used to
determine when it is necessary to send a notification. Id. 27:36-39, 28:26-29.

Second, defendants argue that the notification rules must govern notifications about the status of the subscriber's queue, not
just any notification. Defendants assert that construing the notification rules as otherwise would be inconsistent with the
claim language and the descriptions in the specification. Particularly, defendants note that both claims 13 and 23 recite in
their preambles "[a] method of electronically notifying a subscriber to a content provider of activity in a subscriber rental
queue associated with the subscriber," 5 and further specify in the claim body that the notification rules are "for the
subscriber rental queue" and are used to "monitor the subscriber's queue." Id. 27:15-19, 28:14-18. Defendants also note that
the summary of the invention states one of its objectives as providing "a notification system that alerts and informs

Third, defendants contend that the claimed notification rules should be limited to rules governing the transmittal and content
of notifications sent to the subscriber. Specifically, defendants assert that the scope of the claimed notification rules is not
clear from the plain meaning of the claim language so that it should be construed in light of relevant descriptions in the
specification and the prosecution history. Defendants rely on the descriptions of Figures 2, 3A, and 3B showing illustrative
features of the claimed invention for prompting a subscriber to select a desired notification option from plural notification
options. Defendants assert that the subscriber's selection of a notification option determines how and when a notification
should be sent to the subscriber as well as what should be included in the notification. '243 patent, 9:34-45. Defendants also
rely on the fact that during prosecution of the '243 patent, the patent examiner described the notification rules as rules "that
will notify the subscriber when the ordering of the queue has been changed by the monitoring queue." First Office Action 6,
The Court finds that while plaintiff's construction is overly broad, defendants' construction is too narrow. Defendants correctly argue that the notification rules cannot be construed as merely "relating to" notifications sent to a subscriber and must actually govern or constrain some aspect of the notifications. Also, it is evident from the claim language and the intrinsic evidence that the notification rules are about the subscriber's queue status, and not any notification. Further, since a notification by its plain meaning implies the transmittal or communication of information, the Court finds it appropriate to construe the term "notification rules" to at least govern the transmittal or communication of the notifications to the subscriber. However, the Court is not persuaded by defendants' argument that the intrinsic evidence requires construing the notification rules to govern the content of notifications. Although defendants point to Figures 3A and 3B of the '243 patent to demonstrate how the content of notifications can vary depending on the notification option selected by the subscriber, plaintiff correctly argues that this constitutes improperly "reading a limitation into the claim from the specification." See Comark, 156 F.3d at 1187; Phillips, 415 F.3d at 1323. Therefore, the Court shall construe "a set of notification rules" to mean "a set of rules governing the transmittal of notifications about queue status sent to the subscriber."

H. Independent Claim 1 - "notifying"

As to the disputed term "notifying" in independent claim 1, the magistrate judge recommended that the word "notifying" be construed as: "Giving notice to." First Report at 7, 12. No objections have been filed with respect to the magistrate judge's proposed construction. After careful review of the magistrate judge's findings and conclusions, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "notifying" in independent claim 1 is correct, and it is hereby accepted as the court's construction of "notifying."

5. notifying completion (claim 9)

Plaintiff's construction: "providing notice that the formatting process is complete, when in actuality it is not"

Defendants' construction: "outputting a message to the host computer that the formatting process is complete, when in actuality it is not"

The dispute is whether it is the "host computer" that must be notified. Defendants say "yes"; plaintiff says that it does not matter who or what gets notified so long as someone or something is notified. For this term, the claim language supports plaintiff because there is no indication in the claim itself that the host computer, or any other particular entity, must receive the notification.

Defendants make several related arguments why a "host computer" limitation should be read into the claim. First, they say that when the specification addresses the issue of notification, it is always notification to the host computer. Each of these references is nearly the same: "the controller 9 outputs . . . a message to a host computer so as to notify a user (the host computer) that the formatting process has been completed." '955 Patent, col. 8, Ins. 7-10, 33-35; col. 9, Ins. 3-6, 54-58; col. 10, Ins. 33-37; col. 11, Ins. 39-43. However, as plaintiff points out, each of these references is in the context of a discussion of a preferred embodiment, which cannot be used to limit the claim. In arguing to the contrary, defendants cite Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1367 (Fed. Cir. 2007), in which the court held that particular "statements are not descriptions of particular embodiments, but are characterizations directed to the invention as a whole." Anderson does not help defendants because, in that case, the specification included statements that were not limited to particular embodiments but discussed a restriction that was "require[d]" by the invention as general matter. Id. That is not the case here.

Second, defendants say that the purpose of the invention suggests that it is the host computer being notified in claim 9.
Defendants write: "If the notification is not provided to the host computer, the host computer will believe that the drive is busy formatting and will not accept read or write requests, defeating the purpose of the invention." Dkt. # 183, at 10-11. As I understand defendants' argument, it is that (1) the host computer decides whether to "accept" a read or write request; (2) the host computer cannot accept such a request unless it knows that drive is finished formatting; and therefore (3) if the host computer does not receive notice of completion of formatting, it cannot read or write a disk.

In my view, this argument falls apart at its second premise. The point of the invention is to allow other, higher priority processes to be performed even after formatting has started. Thus, the host computer does not need notice that formatting has finished in order to accept another request. If defendants intended to make a different argument, they have not made it clear.

In addition, plaintiff disputed the accuracy of defendants' first premise at the hearing, saying that it is not necessarily the case that the host computer controls the reading and writing process; it could be a network, a controller or a program on the drive. Dkt. # 186, at 51. Defendants disputed this claim, saying that "any request to the drive would have to come through a host computer." Dkt. # 186, at 60. Defendants may be correct as a matter of fact and they may present evidence on this question at the summary judgment stage if they believe it is relevant to an issue of infringement or invalidity. However, defendants point to nothing in the claim itself that requires the host computer either to control the recording process or to receive notification that formatting is complete. Accordingly, I conclude that it would be incorrect to read in a "host computer" limitation into claim 9 as a matter of claim construction.

Both parties include in their proposed constructions the phrase "when in actuality it is not" for the idea that the notification occurs before formatting is actually complete. Again, this part of the construction is redundant because this idea is communicated by the claim itself. '955 Patent, col. 13, Ins. 47-49 ("notifying completion of the formatting process before the formatting process is completed"). Because this phrase is unnecessary and redundant, it should not be part of the construction.

This reduces plaintiff's construction to "providing notice that the formatting process is complete," but this does no more than restate the claim using a few additional words. (Defendants replace "notifying" with "outputting a message," but they provided no argument why that phrase was preferable. In any event, I do not think, that the phrase adds any clarity to the claim.) Accordingly, I conclude that the term "notifying completion" does not require any construction.

**Court's construction: No construction needed.**

2. Nullifying Decoded Data (Claim 1)/Nullify Decoded Data (Claim 8)

Matsushita argues "nullifying decoded data"/"nullify decoded data" should be construed as "rendering decoded data null as data." Mediatek argues "nullifying decoded data"/"nullify decoded data" should be construed as "eliminating data from frame buffer memory by replacing it with a null value not used for display, and setting flags indicating that there is no data in the corresponding memory to be displayed."

The Court finds, for the reasons stated by Matsushita, that "nullifying decoded data"/"nullify decoded data" is properly construed as "rendering decoded data null as data rather than skipping data yet to be decoded." 4

4 The additional clarifying language is derived from the prosecution history, wherein Matsushita distinguished the instant invention over prior art. (See Huang Decl. Ex. E at MTK1109352) ("While [the prior art reference] skips data to be decoded … to nullify the same when a reproduction speed is varied, it does not delete a decoded memory data utilized for a display …") (emphasis in original).

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Construing the Disputed Limitations of Claim 1

As far as claim construction is concerned, our task is to identify the claimed function and the corresponding structure of each of the three disputed limitations of claim 1. We begin with the first of the three disputed limitations: "means for assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers."

This limitation contains the terms "angular positions," "radial positions," and "rotational positions." The district court construed each of these terms to refer to stop positions of the reel. Neither party challenges that construction.

The claimed function of the "means for assigning" limitation is "assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers." In other words, the claimed function is assigning a plurality of numbers to stop positions, where the plurality of numbers exceeds the number of stop positions and some stop positions are represented by more than one number.

In regard to the disclosed corresponding structure of the "means for assigning" limitation, WMS and IGT stipulated--and the district court accepted the stipulation--that the Telnaes patent discloses a microprocessor, or computer, to control the operation of the slot machine, including the operation of the machine in the assignment of numbers to reel stop positions. n2 The algorithm that controls the assignment of numbers to stop positions is disclosed in Figure 6 of the Telnaes patent. Figure 6 illustrates an algorithm in which a plurality of single numbers are assigned to stop positions such that: 1) the range of single numbers exceeds the number of stop positions; 2) each single number is assigned to only one stop position; 3) each stop position is assigned at least one single number; and 4) at least one stop position is assigned more than one single number. The prosecution history reinforces the teachings of Figure 6. The prosecution history indicates that each number must correspond to a stop position, but that several numbers may correspond to the same stop position. In response to an Office Action, Telnaes stated, "the applicant has disclosed a machine which utilizes a standard mechanism but on which the odds can be changed substantially infinitely. The only guidelines are that there must be a symbol for each symbol indicator in virtual memory but there can be many positions in the virtual memory for each symbol on the reel."

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n2 Although we fail to find anything in the Telnaes patent that limits the "means for assigning" limitation to a microprocessor or computer, where, as here, the parties agree to a claim construction that is adopted by the district court, and neither party disputes that construction on appeal, we decline to raise an issue sua sponte that the parties have not presented. See Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 842, 50 U.S.P.Q.2D (BNA) 1225, 1228 (Fed. Cir. 1999).

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The district court construed the "means for assigning" limitation of claim 1 to cover "any table, formula, or algorithm for determining correspondence between the [randomly selected] numbers and rotational positions of the reel." WMS argues that this construction was overly broad. It contends that the "means for assigning" limitation should have been defined by the corresponding structure, material, or acts described in the patent specification, or their equivalents, and should have been further limited by the prosecution history. IGT responds that the court properly construed the claim.

We agree with WMS that the district court's construction of the "means for assigning" limitation was overly broad. The written description of the Telnaes patent is almost completely devoid of any structure to support this limitation of the claim. The district court apparently took this lack of disclosure to indicate that the limitation reads on any means for performing the recited function. However, this construction is at odds with the requirements of 35 U.S.C. § 112. See Valmont Indus., 983 F.2d at 1042, 25 U.S.P.Q.2D (BNA) at 1454 (holding that section 112, P 6, permits the use of means-plus-function language in claims, but with the proviso that the claims are limited to the structure, material, or acts disclosed in the specification and their equivalents).
The district court determined that the structure disclosed in the specification to perform the claimed function was "an algorithm executed by a computer." While this finding accurately reflected the parties' stipulation, the court erred by failing to limit the claim to the algorithm disclosed in the specification. The structure of a microprocessor programmed to carry out an algorithm is limited by the disclosed algorithm. A general purpose computer, or microprocessor, programmed to carry out an algorithm creates "a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." In re Alappat, 33 F.3d 1526, 1545, 31 U.S.P.Q.2D (BNA) 1545, 1558 (Fed. Cir. 1994) (en banc); see In re Bernhart, 57 C.C.P.A. 737, 417 F.2d 1395, 1399-1400, 163 U.S.P.Q. (BNA) 611, 615-16 (CCPA 1969) ("If a machine is programmed in a certain new and unobvious way, it is physically different from the machine without that program; its memory elements are differently arranged."). The instructions of the software program that carry out the algorithm electrically change the general purpose computer by creating electrical paths within the device. These electrical paths create a special purpose machine for carrying out the particular algorithm. n3

n3 A microprocessor contains a myriad of interconnected transistors that operate as electronic switches. See Neil Randall, Dissecting the Heart of Your Computer, PC Magazine, June 9, 1998, at 254-55. The instructions of the software program cause the switches to either open or close. See id. The opening and closing of the interconnected switches creates electrical paths in the microprocessor that cause it to perform the desired function of the instructions that carry out the algorithm. See id.

In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm. See Alappat, 33 F.3d at 1545, 31 U.S.P.Q.2D (BNA) at 1558. n4 Accordingly, the structure disclosed for the "means for assigning" limitation of claim 1 of the Telnaes patent is a microprocessor programmed to perform the algorithm illustrated in Figure 6. In other words, the disclosed structure is a microprocessor programmed to assign a plurality of single numbers to stop positions such that: 1) the number of single numbers exceeds the number of stop positions; 2) each single number is assigned to only one stop position; 3) each stop position is assigned at least one single number; and 4) at least one stop position is assigned more than one single number.

n4 In State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 47 U.S.P.Q.2D (BNA) 1596 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093, 142 L. Ed. 2d 704, 119 S. Ct. 851 (1999), the patented invention related generally to a system that allowed an administrator to monitor and record financial information flow and make all calculations necessary for maintaining "a partner fund financial services configuration." 149 F.3d at 1371, 47 U.S.P.Q.2D (BNA) at 1598. We pointed out that claim 1 of the patent, which was drafted in section 112, P 6 format claimed "a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structures disclosed in the written description and corresponding to the means-plus-function elements (a)-(g) recited in the claim." Id. at 1372, 47 U.S.P.Q.2D (BNA) at 1600. The structures corresponding to the means-plus-function elements recited in claim 1 in State Street were "a personal computer including a CPU" (element (a)), "a data disk" (element (b)), and "arithmetic logic circuits" configured to perform various functions (elements (c)-(g)). Id. at 1371-72, 47 U.S.P.Q.2D (BNA) at 1599.
will not disturb the district court's claim construction.

Finally, we consider the third disputed limitation of claim 1: "means for stopping said reel at the angular position represented by said selected number." n5 The claimed function is stopping the reel at the stop position that corresponds to the random number selected by the "means for randomly selecting" limitation. The disclosed structure is a brake. Neither of these points is in dispute.

--- Footnotes ---

n5 The construction of this limitation is actually disputed only in the sense that it turns on the construction of the two claim limitations just discussed.

--- End Footnotes ---

As just seen, the functions of the three disputed limitations of claim 1 are: 1) assigning a plurality of numbers to stop positions, where the plurality of numbers exceeds the number of stop positions and at least one stop position is represented by more than one number; 2) randomly selecting one of the numbers assigned to stop positions; and 3) stopping the reel at the stop position that corresponds to the selected number. Referring to the means for selecting and means for stopping limitations, WMS argues that selecting "one" number and stopping the reel at the stop position represented by "said selected number" indicates that claim 1 is limited to assigning and selecting single numbers rather than combinations of numbers. The district court concluded, however, that: "there is nothing in the claim that limits the generated numbers to be a single number." WMS Gaming, slip op. at 26. We agree with WMS on this point. The plain meaning of "selecting one of said . . . numbers" is selecting a single number, not a combination of numbers. See Insituform Techs., Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1105, 40 U.S.P.Q.2D (BNA) 1602, 1607 (Fed. Cir. 1996) (determining that the claim term "a cup" suggests the use of only one cup). In addition, the last limitation of the claim refers to "said selected number." This reference to "number" in the singular sense bolsters the interpretation that "selecting one of said . . . numbers" is limited to selecting a single number. Nothing in the written description, drawings, or prosecution history indicates that the phrases "one of said . . . numbers" or "said selected number" should be given anything other than their ordinary meaning. See York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572, 40 U.S.P.Q.2D (BNA) 1619, 1622 (Fed. Cir. 1996) ("Without an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning."). Therefore, the term "number(s)," as used in claim 1, refers to single numbers, as opposed to combinations of numbers, and the recited function of claim 1 is limited to assigning and selecting single numbers.

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d. Claim term five

"number(s) [of consecutive first values]" (claims 1, 4, 6, and 10)

The parties' dispute with respect to term five also concerns whether the '672 patent necessarily includes runlengths of zero length. However, there is essentially no substantive difference between the constructions proposed by the parties. Plaintiff proposes that term five be construed as: "The non-negative integers 0, 1, 2, 3, . . . ." While Plaintiff may intend by this definition to incorporate the requirement that there are runlengths of zero length, it is not clear that this language would have that effect. The claim construction offered by Plaintiff includes the entire set of non-negative integers beginning with zero, which is an infinite set. Accordingly, unless Plaintiff intends to mean that the patent covers only those embodiments in which every non-negative integer is included (which seems impossible), this proposed construction must necessarily be interpreted as providing the set of possible integers. Thus, the construction offered by Plaintiff essentially is identical to the construction proposed by Defendants, that term five be construed as: "A count of consecutive first values-i.e., a run length." A "count" similarly would include zero as a possible, but not required, number. Because the Court is reluctant to imply that a runlength of zero length is necessarily included, even though Plaintiff's definition probably would not require it, the construction proposed by Defendants is preferable. Accordingly, the Court will construe "number(s) [of consecutive first values]" as "A count of consecutive first values-i.e., a run length."
5. "objectionable interference or distortion"

The plaintiff argues that "objectionable interference or distortion" means the modification to a signal during scrambling." Joint Claim Construction Brief, Exh. B. The defendants argue that the term means the modification to the analog signal that results in the signal being scrambled. I have rejected the construction that limits scrambling to analog signals.

I construe the term "objectionable interference or distortion" to mean the modification made to a signal during scrambling.

The DIRECTV defendants argue that the term "objectionable" is indefinite under 35 U.S.C. § 112, P 2. Defendant DIRECTV . . . Principal Opening Brief On Claim Construction, at pp. 60-61. According to these defendants:

There is no standard set forth in the specification, nor test in the art, to allow one skilled in the art to determine what amount of interference or distortion is "objectionable."

Id. at 60.

"The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed. Cir. 2001).

The specification of this patent provides that the "signal scrambling circuit modifies the signal in accord with predesigned parameters so as to render the signal unusable upon reception by a receiver not containing a corresponding decoding circuit." '066 Patent, co. 2, lines 9-12 (emphasis added). Consequently, one skilled in the art reading the claim in the light of the entire specification would understand that interference is "objectionable," as that term is used in claim 9, if it is of an amount sufficient to "render the signal unusable" to anyone without a decoding circuit. The term "objectionable" is not indefinite.

Obligation

Plaintiff advances a construction of the term "obligation" as "an amount owed by a merchant that is independent of any costs or fees arising out of the use of customer identifiers as payment." Defendants, on the other hand, originally asserted that "obligation" should be construed according to its ordinary meaning but then stated in their responsive briefing that the term should account for transactional costs and fees. Defendants argue that the term should exclude only certain enumerated fees and costs (e.g., discount rate, interchange fees and network fees), but not other fees and costs normally associated with the typical transaction processing environment. Thus, Defendants propose a construction of: "amount owed by merchant other than the processing fees, i.e., discount rate, interchange fee, and network fee."

The '281 specification describes a number of fees and costs that are usually incurred by a merchant, including merchant processor fees, discount rates or surcharges, interchange fees, network fees, card service fees, transaction fees, and card issuer fees. Col. 4, line 21 - Col. 5, line 3. However, the term "obligation," as used in the context of the '281 patent consistently refers to an amount owed by the merchant that is independent of any particular purchase and outside of any of the fees and/or costs normally imposed on the merchant for a typical processing transaction. The '281 specification provides an example of the kinds of fees that are incurred in a typical transaction processing environment:

The merchant processor 300 thus pays the merchant 20 some amount less than what the merchant 20 would receive in the [typical transaction processing environment described in relation to FIGS. 1A and 1B]. For example, carrying on with the example introduced above with reference to FIGS. 1A and 1B, instead of paying $98.10 to the merchant 20 on a $100 original card purchase, the merchant processor 30 might send $88.10 to the merchant 20 and the other $10.00 to the
When read in the context of authorization and settlement of a customer payment for goods or services, it is clear from the illustrations that the "obligation" recited in the claims of the '281 patent does not include any of the fees or costs deducted for using the typical transaction processing environment, i.e., the "overhead" amounts that are incurred as a result of merely handling the customer payment using a customer identifier, not just the discount rate, interchange fees and network fees as Defendants claim. To limit the "overhead" amounts exclusion to just those things specifically enumerated in the '281 patent specification would amount to expanding the scope of the claim language beyond the restrictions fairly articulated in the '281 patent specification.

Plaintiff also directs the Court to the prosecution history of the '281 patent, and notes that during the prosecution, the Applicant articulated that "[t]he existence of the loan in the present invention is independent of and unrelated to the consummation of any particular purchase [by a customer]." '544 Patent File History, 1/20.99 Am. and Resp., p. 3.

Defendants assert that this portion of the prosecution history can be ignored because it was made "during prosecution of a different patent and with respect to a different term in a different claim" Defs.' Resp. Claim Construction Br., p. 8. However, the prosecution history of a parent patent is part of the prosecution history of the child patent. See Goldenberg v. Cytogen, 373 F.3d 1158, 1167 (Fed. Cir. 2004)(holding that the prosecution history of the parent application is treated "as part of the intrinsic evidence" of the child application when construing claim terms). The '281 Patent is a continuation of the '544 Patent, and as Plaintiff points out, both patents contain identical disclosures. Thus, the statements made during the prosecution of the '544 Patent apply to the construction of "obligation" in the '281 Patent.

Accordingly, the Court construes the term "obligation" as "an amount owed by a merchant that is independent of any costs or fees arising out of the use of customer identifiers as payment."

5. oblique observation ('028 and '412 patents)

CEA contends that this term does not require construction, but provides a proposed construction of: "an observation other than in the homeotropic direction."

Samsung's proposed construction is: "an observation made at an angle other than in the homeotropic direction, which direction is perpendicular to the glass plates of the cell."

The specification defines "oblique observation": "oblique observation (as opposed to an observation made in the homeotropy direction.)." 19 The parties' proposed constructions are substantially identical, with Samsung's proposed construction adding a definition of "homeotropic direction." At oral argument, Samsung agreed to CEA's proposed construction--with the same caveat concerning the construction of "a liquid crystal layer which can have a homeotropic structure," above, that "homeotropic direction" will be construed by the court and have the same meaning in both patents-in-suit. 20

Therefore, the court adopts CEA's proposed construction: "an observation other than in the homeotropic direction."
TERM # 17: "observer's computer" - In this dependent claim, although the parties purport to dispute the meaning of the term "observer's computer" it appears as though they are really once again revisiting the definition of "auction process", which this court already addressed on summary judgment, and will not address again. Defendants seek to distinguish their product by arguing that it does not perform the communicating and displaying steps while the auction is ongoing. However, we have already rejected imposing a temporal limitation on the term "auction process" in the context of the summary judgment motion. The disputed term means: "A computer used by a non-bidding party to view an electronic auction."

9. "obtain access"

In addition to the control program limitation, claim 1 of the 037 Patent recites "[a] processor . . . coupled to [a] memory store to obtain access to said control program." 037 Patent, 55:33-35. As with the term "control program," plaintiff maintains that "obtain access" need not be construed by the court. Defendant proposes the construction "locate a unit of code or memory and use it in a process."

Defendant's proposed construction relies on the first definition of "access" in the AP Dictionary. See id. at 14. However, this definition, like each of the other four in the AP Dictionary, suffers from the flaw that it refers to the verb "to access" rather than the noun "access." In contrast, "access," when used as a noun, means "permission, liberty, or ability to enter, approach, communicate, or pass to and from." Webster's Third International Dictionary at 11. In fact, the ability to "enter, approach, [or] communicate" aptly describes the "access" to the control program that is being obtained by the processor in claim 1 of the 037 Patent. In other words, the 037 Patent's use of the term "obtain access" is consistent with its ordinary meaning, as evidenced by the non-technical dictionary definition cited above.

Defendant nonetheless argues that Auspex disclaimed the ordinary meaning of "obtain access" in the course of prosecution of the 885 Application, a parent application of the patent in suit. The prosecution history reveals that Auspex initially claimed a "storing means to permit the transfer of instructions and data." Grewal Decl., Exh. K at 433. The examiner rejected this language as indefinite under 35 U.S.C. § 112 P 2, noting, among other things, that "it is not entirely clear what is encompassed by the limitation permitting the transfer of programs and data." Id. at 421. In response, Auspex amended the limitation "to permit the transfer of instructions and data" to claim "to obtain access to said control program." Id. at 433.

Defendant argues that this amendment compels the court to impose a narrower construction on the term "obtain access." However, the examiner's rejection of the initial claim was based on the indefiniteness of the term "permit the transfer of instructions and data" rather than the phrase "to obtain access to said control program," which is found in both the amended claims of the 885 Application and claim 1 of the patent in suit. As the Federal Circuit noted in Inverness Medical Switzerland GmbH v. Warner Lambert Co., 309 F.3d 1373 (Fed. Cir. 2002), "[i]t is inappropriate to limit a broad definition of a claim term based on prosecution history that is itself ambiguous." Id. at 1382. Although the cited claim amendment would certainly preclude plaintiff from asserting that "obtain access to said control program" should be construed as "permit the transfer of data and instructions," the court need not address that issue to conclude that "obtain access" should be construed according to its ordinary meaning. Because the ordinary meaning of the disputed term as it is used in the claims is the term itself -- i.e., "obtain access" -- the court declines to construe the term.

F. "Obtain . . . information about the data structure . . . [by] accessing content of information."

The parties did not agree on the precise wording of this disputed term. However, the briefing focuses on the term put forward by ProClarity ("obtain . . . information about the data structure . . . [by] accessing content of information . . ."). This term appears in all claims of the '511, '382, and '617 patents. It also appears in claims 10-15 and 19-25 of the '392 patent, as
well as claims 5, 11, and 19-23 of the '694 patent. This term includes several other disputed terms discussed earlier, including "information," "data structure," and "content of information." As a result, the court's construction of this term essentially turns on its construction of the other disputed terms.

Timeline's proposed construction of the term is "accessing the information in a data source to obtain information about the logical organization of the data in the source." ProClarity's proposed construction is "the computer program derives, via intelligent interrogation, the organizational scheme between content of information by accessing that content alone."

Timeline's proposed construction flows from its proposed constructions of the disputed terms "information," "content of information," and "data structure." Because the court has largely adopted Timeline's proposed constructions of those terms, the Court also adopts Timeline's proposed construction of this term.

Therefore, the court construes the term "obtain . . . information about the data structure . . . [by] accessing content of information" to mean "accessing the information in a data source to obtain information about the logical organization of the data in the source."

a. "obtaining a current position of at least a part of a seat on which the occupant is situated"

The parties agree that the court should construe this phrase to be "detecting the . . . of at least a part of the seat on which the occupant is situated with respect to a reference position." (Chart at 19.) However, Plaintiff argues that no additional construction is required for "current position," whereas Defendant suggests the best construction to be "quantity of movement." (Id.) Plaintiff argues that Defendant's construction narrows Plaintiff's claim, requiring a discrete, numerical determination. In response, Defendant argues that the specification itself calls for "detecting the quantity of movement": "The seat portion 2 is provided with a seat track position-detecting sensor 10. The seat track position detecting sensor fulfills a role of detecting the quantity of movement of the seat 1 which is moved from a back reference position, indicated by the dotted chain line." '516 Patent col. 10 l.26-30.

As Defendant correctly notes, the phrase "detecting the quantity of movement" does not require the identification of a discrete, numerical unit of movement because the act of "detecting" does not require a calculation or an actual determination; rather, it can mean "to discover or ascertain the existence, presence, or fact of." Dictionary.com, The American Heritage Dictionary of the English Language, 4th Ed., available at http://dictionary.reference.com/browse/detect (last visited Jul. 7, 2009). Furthermore, while the specification uses the phrases proposed by both parties, the court finds no requirement by the specification to use one proposed construction over another. "The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims," Markman, 52 F.3d at 980, and the court will therefore use Plaintiff's construction of the phrase "current position," see id. Moreover, the limitation in the claim of "with respect to a reference position" will preserve for Defendant the notion that a comparison is made when this procedure occurs. Use of "quantity of movement," or similar phrase, could circumscribe Plaintiff's claim by implying measurement of an action rather than determination of a static state. Finally, the court will also include the explanatory phrase, "In other words, detecting how far forward or backward the seat is' in order to render more clearly for the jury what is being detected, as shown by Figure 1 of the '516 Patent. See Embrex, Inc., 216 F.3d at 1347.

The court will therefore construe "obtaining a current position of at least a part of a seat on which the occupant is situated" as "detecting the current position of at least a part of the seat on which the occupant is situated with respect to a reference position. In other words, detecting how far forward or backward the seat is."

11. "obtaining a measure of the magnetic field variation as a function of time" ('326 patent, claim 73)

AVID argues that this term means "obtaining a measure of the variation in the magnetic field as a function of time."
maintains that the patent specification at 3:3-11 and 9:3-13 unambiguously describes detecting the variation in amplitude of the reversing magnetic field and indicates that the detected variation is a measure of the power absorbed by the tag. The Defendants contend that the term should be construed as a step-plus function limitation pursuant to 35 U.S.C. § 112 P 6. In support of their step-plus-function argument, the Defendants assert that the element does not recite the acts necessary for obtaining a measure of the magnetic field variation. According to the Defendants, the corresponding structure is first and second pairs of capacitors 120, 125 coupled in series with coil 110, a SPDT switch 130 coupled in series with capacitors 120, 125, and a double-ended balanced coil driver 135 coupled to SPDT switch 130. The Defendants argue that these elements perform the acts necessary for obtaining a measure of the magnetic field variation as recited in claim 73.

AVID disputes the Defendants' assertion that the term should be construed as a step-plus-function limitation. According to AVID, the absence of the signal "step for" raises the presumption that a method claim is not in step-plus-function form. Furthermore, the claim preamble describes a method "comprising the steps," which AVID asserts is different from the "steps for" language that characterizes step-plus function claims. AVID also disputes the Defendants' argument that no acts are mentioned in the term. According to AVID, the claim requires the act of obtaining a measure of the magnetic field variation and further indicates that the measure is obtained as a function of time. Thus, the acts relates to the function of detecting magnetic field variations caused by a tag. After carefully considering the parties' proposed constructions and the "326 patent, the Court adopts the Plaintiff's proposed construction. The absence of the signal "step-for" creates a presumption that a method claim is not in step-plus-function form. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 381 F.3d 1371, 1382 (Fed. Cir. 2004). The Defendants have not overcome this presumption. AVID's construction is therefore adopted.

D. Terms Related to Calibration

The parties dispute a number of terms that relate to the calibration of the transmitter/receiver pair. Much of the debate regarding these claims focuses on the difference between "one-point" and "two-point" calibration. A brief background will be helpful in the analysis below. Succinctly stated, one point calibration is a simple technique in which the transmitter and receiver are placed at a known distance apart (which can be calculated with something as simple as a tape measure), the strength of the electromagnetic field is measured, allowing for the calculation of a "proportionality constant" ("k") using the equation:

\[ B = \frac{k}{d} \]

where \( B \) is the measured magnetic field strength and \( d \) is the distance between the transmitter and receiver. In the HDD context, that constant can then be used to calculate the distance between the transmitter and receiver based on measured magnetic field strengths as the boring tool is moved from place to place through the ground. Problems arise when environmental conditions affect the measured field strength. Distance measurements calculated using the original "k" will therefore be inaccurate if the perceived "B" has been so affected.

Two-step calibration, on the other hand, is an ingenious technique in which new and updated "k" constants can be calculated whenever desirable during the course of an HDD operation. This technique takes advantage of the mathematic formula above, but goes a step further. As would be typically done during an HDD operation, the boring tool with its transmitter would be in the ground and the "locator" with its receiver would be above ground. A field strength measurement would be taken at one position, such as with the locator on the ground, directly above the transmitter. At this point, only "B" would be known in the above equation. The locator is then moved to a precisely known distance above the ground, designated "d," and another field strength measurement "B" is taken. These measurements can be designated \( B[1] \) and \( B[2] \). The three unknowns "k," "d[1]," and "d[2]," can then be solved for by relatively simple algebra using the three equations:

\[ B[1] = \frac{k}{d[1]} \]
\[ B[2] = \frac{k}{d[2]} \]

Thus, even if the perceived "B" measurements are affected by environmental conditions, a new "k" and distance measurements can be calculated at any given time during the operation.

Claim terms 16 and 18 directly relate to the calculation of the proportionality constant. The disputed terms are as follows:
16. "obtaining distance and electromagnetic signal field strength measurements (i) based on said positional relationship between the transmitter and receiver and (ii) based on the transmission and reception of said constant signal by said transmitter and receiver, respectively, and using those measurements, establishing a proportionality constant"

18. "obtaining a proportionality constant"

The Court sets forth once again the language of Claim 4 of the ‘258 Patent so that the language of claim term 16 may be taken in its proper context:

4. In a method for locating a boring tool that moves through the ground from a first point to a second point, said method using (1) a given transmitter . . . and (2) a receiver . . . whereby to determine the location of the boring tool, the improvement comprising the steps of:

(a) providing a specific positional relationship between said transmitter and receiver and, while maintaining that positional relationship, transmitting a CONSTANT electromagnetic signal with time from said transmitter and receiving said CONSTANT signal from said receiver;

(b) obtaining distance and electromagnetic signal field strength measurements (i) based on said positional relationship between the transmitter and receiver and (ii) based on the transmission and reception of said constant signal by said transmitter and receiver, respectively, and using those measurements, establishing a proportionality constant k of said dipole FOR SAID GIVEN TRANSMITTER AND RECEIVER, which said proportionality constant relates to the cube root of the magnetic field strength of said dipole; and

(c) thereafter, using said proportionality constant and a CONSTANT electromagnetic signal with time, causing said receiver to determine the depth of said boring tool.


Plaintiff DCI proposes a construction for claim term 16 that reads: "Calculating a proportionality constant based on the signal strength of a detected, non-degrading, and recurrent electromagnetic signal at a known distance." Defendant meanwhile asserts that this term should mean "one distance and two field strength measurements are taken after the transmitter is placed below ground and the receiver is placed above ground in two different locations." In this instance, based solely on the clear language in claims 4 and 9 of the '258 Patent, the Court finds that plaintiff's construction is closer to the mark. The claim language in claims 4 and 9 of the '258 Patent clearly describe a one-step calibration technique. The steps of the improvement in the Jepson claim include (a) placing the transmitter and receiver at a known distance apart, (b) taking a magnetic field strength measurement to calculate a proportionality constant (using the above first equation as verbally described in the claim language), and (c) "thereafter" using the proportionality constant to obtain the depth of the boring tool during HDD operations. Thus, this term means calculating a proportionality constant based on the strength of a constant electromagnetic field strength at a known distance.

The Court does not see this claim term as being limited in a spatial sense as defendant suggests. The Jepson claim format, while defining the context and scope of the prior art and the invention itself, does not impose such a limitation in this instance. The improvement described after the preamble is discussing a method of calibrating the transmitter/receiver pair to be used in the method for locating a boring tool as described in the preamble. Thus, the improvement is not limited by the below-ground transmitter / above-ground receiver configuration described therein. It is also clear that these claims do not describe two-step calibration by taking one distance and two field strength measurements as argued by the defendant.

Nevertheless, the Court notes that the specification does not specifically describe a one-step calibration method. To show this, the Court quotes heavily from the relevant specification text:

The aforementioned factors and parameter relationships indicate, and the prior art has recognized, that the distance between transmitter and receiver can be obtained using magnetic field strength measurements alone once the proportionality constant has been determined.
The proportionality constant depends upon a variety of parameters, such as soil characteristics, tool body attenuation and battery strength. As a result, locator/monitors of the present invention should be calibrated (i.e. the proportionality constant should be determined) before use under new conditions or after a substantial period of continual use. Since calibration is required often, a simple procedure therefor, as provided by the present invention, is desirable.

A method to accurately determine the proportionality constant in an antennae separation-insensitive manner is to measure the magnetic field strength at two position using a "single antenna location" device (e.g. two orthogonal antennae dispose in close spatial proximity), such as the locator/monitor of the present invention. In such a device, the single antenna location is moved between two measurement positions by an operator. Consequently, the spacing between the two measurement positions can be much larger than that of a spatially separated two-antennae device, since packaging requirements do not limit the distance between measurements positions in locator/monitors of the present invention.

In the practice of the present invention, the magnetic field strength \( B[1] \) is measured by the orthogonally disposed antennae at a first position that is located a distance \( d_1 \) from transmitter. Similarly, magnetic filed strength \( B[2] \) is measured at a second position that is vertically displaced from the first position and located a distance \( d_2 \) from transmitter. If the distance \( d \) between the first and second positions is known, the variables \( k \), \( d[1] \) and \( d[2] \) may be calculated by solving the following equations:

\[
B[1] = \frac{k}{d[1]}
\]

\[
B[2] = \frac{k}{d[2]}
\]

\[
\]

An important feature of this process is that \( d \) is accurately ascertainable. As a result, an accurate independent measurement system is incorporated into receiver of locator/monitors of the present invention, so that the distance between the two measurement positions can be determined. The independent distance measuring means could also be separate from the receiver, but such a configuration is not preferred.

'589 Patent, Col.12:1-49. This description does not encompass a simple one step calibration followed by depth measurements taken during operation. Rather, it discussed the two-step calibration method using two field strength measurements and a known distance between measurement positions. As a matter of claim construction, the Court will not use the specification language to give the claim language a different meaning than is plainly obvious. Whether this has implications regarding the "enablement" requirement of the specification, however, is an issue for another day.

While the above revelation may not immediately affect the Court's construction of claim term 16, it does significantly influence the construction of claim term 18. This claim term is found solely in Claim 10 of the '258 Patent:

10. In a method for locating a boring tool that moves through the ground from a first point to a second point during which time at least the roll orientation of the boring tool changes, said method using: (1) a given transmitter defining an axis and power supply carried by the boring tool within an electrically conductive housing for transmitting by means of a dipole field to an above ground location an electromagnetic signal containing information which is used in obtaining the location of the boring tool and (2) a given receiver located at said above ground location for receiving and processing said electromagnetic signal, whereby to determine the location of the boring tool, the improvement comprising the steps of:

(a) obtaining a proportionality constant for said given transmitter and said given receiver;

(b) thereafter, using said given transmitter [as the boring tool moves] . . .

(c) causing said given receiver to receive and process [the signal] . . .

(d) monitoring and displaying the depth of said boring tool as it moves through the ground from said first point to said second point using the signal processed by said receiver.

(emphasis added). Defendant argues that this claim element should be read as a "step plus function" limited claim element.
While it is true that the preamble does not contain the so-called magic words "steps for" and is therefore rebuttably presumed to not be in step plus function format, the Court agrees that the phrase "obtaining a proportionality constant" itself provides no information as to how this step is to be carried out. In short, this claim element contains no "acts." This is in direct contrast to Claim 4 of the same patent, which verbally describes the use of the field-strength proportionality equation within the claim language, and Claim 9's description using the equation itself. Therefore, the Court reads this to be a step plus function claim element, and the phrase "obtaining a proportionality constant" must be limited to the acts described in the specification for achieving the function of the step.

As noted above, the only description of calibration contained in the specification is that quoted above. The acts described are a two-point calibration technique as described above. Two field strength measurements are taken at two different distances from the transmitter, the difference in the distances being known. A proportionality constant is then calculated via the three equations above, and the depth of the boring tool can be calculated during the HDD operation.

2. "obtains a buffer"

TiVo argues this claim term is newly raised by EchoStar after the claim construction hearing and believes no construction is needed. 6/7/05 Joint Claims Construction Chart at 9. EchoStar argues "obtains a buffer" means "obtains a set of buffer memory addresses into which it can write data." See '389 patent at cols. 7:47-50, 8:9-18; 8:38-65, & Fig. 8; EchoStar's Opening Br. at 23-25; EchoStar Slide Presentation at 127-28. The Court, however, finds "obtains a buffer" requires no construction, as persons of ordinary skill in the art readily understand its meaning as written in claims 31 and 61.

The Court finds that, although the term "buffer" has a plain and ordinary meaning to persons of skill in the art, it requires additional construction for clarification. Because neither party has offered a stand-alone construction for this term in their papers, and is not defined in the '389 patent, the Court turns to extrinsic evidence in order to assist its understanding of the term. Phillips, 415 F.3d 1303, 2005 WL 1620331 at *15. In this instance, the Court turns to technical dictionary published by the Institute of Electronic and Electrical Engineers, the IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS (6th ed. 1997), which defines "buffer" as: "(5)(A) A device or storage area used to store data temporarily to compensate for differences in rates of data flow, the time occurrence of events, or amounts of data that can be handled by the device or process involved in the transfer or use of the data." IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS at 113 (6th ed. 1997). The Court notes that EchoStar's expert witness, Dr. Rhyne, has acknowledged that the IEEE dictionary this is a widely accepted technical dictionary in the electrical engineering field. Rhyne Decl. at 45. On the basis of the use of the term in the '389 claims, and on the basis of its IEEE dictionary definition, "buffer" will be construed as "memory where data can be temporarily stored for transfer." This definition is further consistent with the definition provided by counsel during the claims construction hearing. 5/23/05 Hr. Tr. 58:11-13.

The claim phrase as a whole, "obtains a buffer" is therefore construed as "obtains memory where data can be temporarily stored for transfer."

9. "[A] display screen occupying substantially an entire broad side of the processing module" 11 is a display screen that occupies the entire surface of the largest face, except for a small border, as shown in figure 9. This construction is consistent with the specification: col. 24:23-35; figure 2; figure 7; figure 9.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

11 '947 patent, claim 1 (and dependent claims).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
7. Step (D): Odds Having a Range of Outcomes

We find that the meanings of the terms "odds" and "odds having a range of outcomes" are inter-dependent, and thus we will address them together in this section.

Defendants suggest that "odds" means: "the inverse of the probability of winning a particular progressive prize." (Def. Resp. at 11.) For example, if the probability is 1/1000, the inverse probability is a single number, 1000. Plaintiff suggests that "odds" means "the ratio of two [undefined] numbers." (Pl. Resp. at 17.) In the Joint Claim Construction and Pre-Hearing Statement (#87), Plaintiff's proposed construction of "odds" is "the ratio of the probability of a progressive award event occurring to that of a non-progressive prize award event occurring."

We first look to the claim terms for guidance for construing the meaning of "odds." See Phillips, 415 F.3d at 1312; Vitronics, 90 F.3d at 1582. In the case of "odds," Steps (D) and (E) provide substantial guidance:

(D) computing the odds of a handle pull generating a prize award event using the total wager amount and the amount of the wager, the odds having a range of outcomes, the prize winning number being within the range of outcomes;
(E) generating a random number within the range of outcomes;

First, Step (D) describes computing odds by using the total wager amount and the amount of the wager. However, the step does not indicate exactly how those amounts should be used to compute the odds, and we must look to the specification for guidance in that capacity. Nevertheless, the rest of the steps provide guidance as to the purpose of the odds.

When read by itself, the phrase, "the odds having a range of outcomes," could mean that there are a range of outcomes for the odds. If this meaning were to be adopted, we still would not know whether the outcome was intended to be a single number or a ratio. However, when examined in conjunction with step (E) of Claim 11, we see the phrase, "generating a random number within the range of outcomes." With this phrase in mind, a more sensible reading of "the odds having a range of outcomes" would be "the odds providing a range of outcomes to be used to generate the random number." This construction gives the odds a purpose within the claim: creating a range of numbers from which the generated random number is chosen. Without this purpose for Step (D), there is no other range of outcomes in the claim from which to generate the random number. This purpose provides substantial support for the proposition that "odds" should be construed to encompass a relationship between two numbers, as a range cannot exist within one number alone.

For the most part, this construction is supported by the specification. The specification provides an equation "for creating a set of numbers for the random number generator." (‘460 Patent, col. 16 at 12-13.) MR = PT/WG, where MR = the maximum number for the range of random number selection, PT = prize's total wager amount, and WG = wager made as a multiple of the lowest monetary unit. (Id. at 16-24.) The specification does not describe this equation as a means for calculating odds, however, it certainly appears related to the odds calculation and purpose set forth in the claims, as it uses the wager and the total wager amount to create a set of numbers for the random number generator.

In discussing this equation further, the specification states "the computed odds, represented by the maximum number for range of random numbers." Defendants argue that this sentence indicates that the computed odds must be a single number, the inverse of the probability of winning a particular prize. However, such a construction appears to contradict the purpose of odds as set forth in the claims: to provide a range of numbers (outcomes) from which to generate a random number. This poses the question, then, can the odds be "represented by" a single number and yet be more than one number - or a relationship between numbers - which thus creates a range of numbers.

We find that it can, and that a construction of "odds" as the mathematical relationship of two numbers, wherein the total wager amount is divided by the individual wager, and the resulting figure provides a ratio of two numbers, which in turn provides a range of numbers from which to generate a random number, is the construction most supported by the claim terms, the overall meaning of the specification, and common understandings of the term. While portions of the specification occasionally refer to the odds as a single number, say 14, 285, 715 (col. 3 at 3 (in discussion of prior art) ) we find that such
usage can also imply a relationship between two numbers, i.e. 14,285,715 divided by 1. Any other understanding would obfuscate the purpose of the odds: to provide a range of numbers. Indeed, the testimony of both parties' experts did not provide any basis for a finding that one of ordinary skill would commonly understand the meaning of "odds" to be a single number. Defendants' expert, Mr. Bertram, indicated that such usage was unusual, though not unheard of; and Plaintiff's expert, Mr. Ladner, indicated that such usage would imply a relationship between two numbers, the number provided and one.

We are cognizant that the construction proposed by Defendants is a form of a relationship between two numbers - an inverse probability represented by a single number. Such a construction does find support in the specification. However, we find such a construction's emphasis on the singularity of the number, when taken to the extreme, could potentially invalidate the patent by obfuscating the purpose of the odds - creating a range of numbers for random number generation. In addition, we reject the second portion of Defendants' proposed construction as the specification and claim terms do not discuss "odds" in relation to the probability of winning a prize award, but rather focus on the relationship of the total wager amount and the wager, and the use of these figures for creating a range of numbers.

Nevertheless, Plaintiff's proposals are not more helpful. Plaintiff's first proposed construction is overly broad, as it emphasizes that the numbers are undefined. While we recognize that a purpose of the invention is to allow for diverse odds and wagers, and we do not want to adopt a construction which would interfere with that purpose, we find that some mention of the claim's parameters for the odds would be helpful. In addition, Plaintiff's second proposed construction, "the probability of a progressive prize award event occurring . . ." is not clearly supported by the claim terms or the specification. The odds may relate to the probability of winning, but the specification does not discuss this enough to warrant its inclusion as a limitation of the claim.

However, the Plaintiff's use of the term "ratio," while not used specifically in the specification, does support the meaning of the equation discussed above, wherein one figure is divided by another. Use of the term, "ratio" is well-supported by extrinsic evidence. One dictionary definition of "odds" is "[t]he ratio of the probability of an event's occurring to the probability of its not occurring." The American Heritage Dictionary (4th Ed. 2004). In turn, a dictionary definition of ratio is: "The relation between two quantities expressed as the quotient of one divided by the other." Id. Because such a meaning is not contradicted by the specification (even a singular number is a ratio between that number and one), our seeking guidance from this extrinsic evidence is appropriate. See Phillips, 415 F.3d at 1317-18. Therefore, we adopt the following construction for "odds": a ratio of two numbers, represented by the total wager amount divided by an individual wager, creating a range from which a random number may be generated.

E. "Offer(s)"

The final two steps of the process described in Claim 11 involves "locating financial card offers" and "presenting said financial card offers to" the eligible applicant. The word is used in a similar manner in Claim 22. Defendant contends the word should be defined to mean "proposal of material terms for a financial card that, if accepted, would form a binding contract." Plaintiff proposes the word be defined as "an invitation to accept a financial card." The parties' arguments establish that the point of contention essentially is whether a binding contract is made (1) when the customer clicks on the offer and starts the processing of the application or (2) when the financial institution processes the application and decides to send a financial card to the applicant. The Court holds the latter is the more accurate description and therefore adopts Plaintiff's definition.

Defendant emphasizes the patented process' ultimate objective is to form a contract, and therefore equates "offer" with
"offer to form a contract." While Defendant correctly identifies the ultimate objective, it does not necessarily follow that the contract must be formed at the time the applicant selects the offer he or she deems suitable. It is equally plausible for the contract to be formed once the financial institution accepts the application. The presentation of a set of financial card terms to an applicant would constitute an "offer to apply," acceptance of which does not form a binding contract. This view is more consistent with both the extrinsic and intrinsic evidence.

The intrinsic evidence demonstrates the applicant's data is forwarded to the financial institution once an offer is accepted, yet Defendant's definition would obligate the financial institution to issue a card even if the applicant's data is false. This outcome makes no sense. Moreover, as discussed in connection with the definition of "financial card," the process described by the '645 Patent is intended to replace direct mail solicitations. An applicant filling out a direct mail solicitation would not thereby form a binding contract; the application would be reviewed by the financial institution and a card would be issued if that review confirmed the applicant's eligibility. One would expect the replacement process described by this process to follow a similar approach.

Defendant correctly observes there is no real opportunity for the applicant to negotiate with the financial institution, but incorrectly concludes this means acceptance of the offer must result in a binding contract. One has nothing to do with the other, and this narrow view fails to consider the possibility of an offer to apply for a financial card with given terms. This omission is significant given the stated parallels with an offer delivered via direct mail: an applicant filling out the solicitation understands he or she is applying for a credit card, not entering a binding contract obligating the financial institution to issue a card.

In addition to the real world considerations discussed above, the Court notes the '645 Patent describes the person entering data in an attempt to procure a financial card as an "applicant" -- that is, someone who is applying for something. An application may be accepted or rejected, so the applicant's efforts are not guaranteed to result in the issuance of a card. The '645 Patent does not describe the person entering data as an "acceptor" or by any other term indicating a contract is formed at the moment the data is submitted.

**Claim 1**

<table>
<thead>
<tr>
<th>Claim Element</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A method of facilitating trade in goods and/or services, comprising the steps of:</td>
<td>N/A</td>
</tr>
<tr>
<td>[a] storing, in a data processing system, offer data representing an offer to trade goods or services including overt and hidden terms;</td>
<td>offer [sic] date: data representing a presentation of provisions for a proposed trade in goods or services, including two or more overt terms and one or more hidden terms, the presentation being made in anticipation of a reply</td>
</tr>
</tbody>
</table>

**2910**

1. "office machine system"

The first disputed term in this category is "office machine system" which appears in Claims 57 to 60 of the '554 Patent. In line with Ricoh's position described above, Ricoh offers the following construction for "office machine system."

A modular business device that includes an intelligent engine that has its own microprocessor and its own communication capability that enables it to communicate with other modules of the office machine system or with other devices. Each module of the office machine system has its own microprocessor and its own interface unit. The intelligent modules
communicate with each other using an intelligent protocol. Moreover, the modularity of the office machine system allows interchangeability of modules between models and products. The engine of the office machine system carries out the mechanical operations of the office machine system.

(Chart at 1). In sharp contrast, Pitney contends that the term should be construed as "[a] business office device, such as a copier, printer or facsimile, connected to but separate from an external operation panel." (Id.) (emphasis added).

Based on the parties' proposed constructions, the parties clearly dispute more than the "physical separation" issue. Rather, the parties disagree on the basic definition for the term. The Court first notes the parties' agreement that the "office machine system" includes the copier engine 10 and the operation panel 20 in Figures 1 and 2 of the patent. (Chart at 1). This part of the construction finds support in the prosecution history of the '554 Patent wherein the inventor stated: "Claim 14 does not recite a copier machine but generically recites a business office machine system. Such a system corresponds to elements 10 and 20 illustrated in Figures 1 and 2." ('554 Prosecution History, Apr. 24, 1995, Prelim. Amendment at 16).

The written description, however, clarifies that element 10 is not limited to a copier engine. Specifically, in describing Figure 1, the written description provides:

FIG. 1 illustrates a preferred embodiment of the present invention including a copier engine 10, operation panel 20, and remote diagnostic station 30. However, the present invention is not limited to copier devices, and can be applied to other business equipment devices, such as a printer or facsimile, which has means which are described below.

In the following illustration, the target device in FIG. 1 is a copier engine 10. The target device 10 includes means to store Static State Data 107, which does not change over the life of the device, such as the model number, serial number, model characteristics and the like.

'554 Patent, col. 2, ll. 39-53 (emphases added). In this excerpt, the inventor uses the terms "copier engine," "business equipment device," and "target device" interchangeably. As such, the patent provides that the "office machine system" is not limited to a copier engine, but generally includes a "business equipment device" or "target device." The first part of Pitney's proposed construction reflects this conclusion.

Turning to the additional limitation that the business office device is "connected to but separate from" the operation panel, Pitney argues that the intrinsic evidence mandates this conclusion. In contrast, Ricoh contends that the term "office machine system," when read in the proper context of the specification, does not require the operational panel to be physically apart from the business office device.

The Court finds Pitney's argument to be more persuasive. Figures 1 and 2 of the '554 Patent illustrate that the business office device, in this case a copier, and the operation panel are separate components of the system. These figures further illustrate that the operation panel and the business office device are connected by a communication media line 12. Moreover, in both the Abstract and the written description, the patentee describes the present invention as one that allows "an external device or devices to access the state of the target device(s), to communicate with the target device(s) and to control the target device(s)." '554 Patent, col. 1, ll. 60-64 (emphasis added); see id., Abstract ("The present invention communicates and controls various modules of business devices which allow an external device such as an operation panel to access the state of a target device, such as a copier, printer or facsimile."). (emphasis added). Thus, the patentee used the specific term "external" to describe the system. This indicates that the operation panel is separate from, or external to, the target device and connected by a communication line which accords with Pitney's proposed construction.

Ricoh argues that the prosecution history of the '554 Patent actually provides support for its position that the claim does not require physical separation between the operation terminal and the target device. (Tr. of Markman Hr'g at 29:14-30:12). Based on an examination of the '554 Patent prosecution history, however, Ricoh misreads the patentee's statements. During prosecution, the patentee sought allowance for a number of claims, including Application Claims 39 and 40. n2 ('554 Patent Prosecution History, Sept. 13, 1995 Amendment at 2-4). Although the Examiner initially allowed these claims, he subsequently withdrew the allowance in light of the parent application which issued as the '779 Patent, another patent owned by the patentee. (Id., Oct. 18, 1995 Examiner's Action at 1; Jan. 4, 1996 Examiner's Action at 1-2). The Examiner concluded that Application Claims 39 and 40 of the '554 Patent application claimed the same invention as Claims 32 and 33 of the '779 Patent, and thus rejected the application claims on double patenting grounds. (Id., Jan. 4, 1996 Examiner's Action at 2-4).
at 2). In response to the rejection, the patentee argued that the subject matter of the claims were not identical. (Id., Feb. 1, 1996 Response at 1-3).

Further, application Claims 39 and 40 . . . recite communication between an office device and a remote terminal. A remote terminal must be remote from the office device. To the contrary, patent Claim 32 [of the '779 Patent] recites communication between an office device and an operation terminal. There is no requirement in patent Claim 32 for the operation terminal to be remote from the office device. It may be possible for the operation terminal to be mounted within the same housing as the office device and therefore, the operation terminal will not be remote from the office device. To the contrary, application Claims 39 and 40 require a remote terminal and not simply an operation terminal and this is a clear difference between the claims. n3

(Id. at 6) (emphasis added and in original).

n2 Application Claims 39 and 40 initially depended on Claim 37 which was rejected on anticipation grounds. (Id., July 26, 1995 Examiner's Action at 3). The claims were subsequently amended as independent method claims. (Id., Sept. 13, 1995 Amendment at 2-4).

n3 These claims were ultimately allowed and issued as Claims 1 and 5 of the '554 Patent. (Id., Apr. 1, 1996 Notice of Allowability at 1-3).

At the hearing, Ricoh relied on these statements in asserting that the patentee did not intend to require a remote operation panel. (Tr. of Markman Hr'g at 30:6-8) (“The examiner in that case said, well, the operation panel needs to be remote, and Ricoh said, no, it either could be remote, or it couldn't be remote.”). The Court disagrees with Ricoh's interpretation of these statements. These statements during prosecution clearly reveal the patentee's intent that the operation panel "must be remote from the office device," or more specifically, that Claims 39 and 40 of the '554 Patent application must include a remote terminal that is not housed or mounted in the same housing as the office device - a feature that was not claimed in the previously issued '779 Patent. As such, the Court rejects Ricoh's argument, and concludes that the '554 Patent prosecution history provides additional support for the conclusion that the claim requires physical separation between the business office device and the operation panel.

Ricoh also argues that Pitney's construction should not be adopted because it fails to capture the essence of the claimed invention. Ricoh, however, fails to convince the Court that the patentee intended to include all of the limitations appearing in Ricoh's rather lengthy proposed construction. Although Ricoh's construction may generally describe the invention, the Court does not find, nor does Ricoh provide, a basis for interpreting the specific term "office machine system" in the manner urged by Ricoh.

In contrast, the Court finds clear support in the intrinsic evidence for Pitney's proposed construction as discussed above. Consequently, the Court adopts Pitney's construction as it reflects an appropriate interpretation of the claim term. Accordingly, "office machine system" means "[a] business office device, such as a copier, printer or facsimile, connected to but separate from an external operation panel."

B. "OLAP server" and "for use with any one of a plurality of different OLAP servers"

"OLAP server" appears in claims 1, 2, 6, 7, 12 and 13 of the '544 patent and "for use with any one of a plurality of different OLAP servers" appears in claim 1 of that patent. Although the parties briefed these terms separately, the court construes them at the same time. Hyperion contends the term "OLAP server," while known in the art, is indefinite because "HyperRoll * * * elected to use two separate and contradictory definitions of 'OLAP Server' in the '544 Patent." Hyperion Br at 14. Hyperion further contends that "for use with any one of a plurality of different OLAP servers" means "capable of being used
concurrently with more than one OLAP Server." Id at 13.

HyperRoll instead asserts that one of ordinary skill in the art would know that the "OLAP server" is the OLAP server of the prior art, i.e., a "system or program that accesses data stored in data stores to provide decision support." HyperRoll Br at 10. HyperRoll asserts that "for use with any one of a plurality of different OLAP servers" means "capable of being used with different OLAP servers." Joint Cl Const at 57.

The dispute between the parties on these terms boils down to two issues: (1) Is the term "OLAP server" indefinite? (2) Does "for use with any one of a plurality of different OLAP servers" require the stand-alone data aggregation server to be capable of being used concurrently with more than one OLAP server?

First, Hyperion asserts that the conventional, prior art use of an OLAP server is a server that performs aggregation functions. Hyperion Reply Br at 14. Hyperion contends that the patent uses this definition for OLAP server in the background section, but then the patent "describe[s] an embodiment where the aggregation functionality is moved from the OLAP server to a stand-alone data aggregation server. This removes what is considered to be the essential functionality of an OLAP server from the OLAP server. * * * [O]nce the aggregation functionality is removed from an OLAP server, it is no longer an OLAP server, it is something else." Hyperion Br at 23.

Hyperion is correct that the patent uses the term "OLAP server" both to refer to the prior art server that included aggregation functionality and the present invention in which the aggregation functionality is moved to a separate, stand-alone data aggregation server. But this does not render the term indefinite. Contrary to Hyperion's contention, the prior art OLAP server as described in the patent could perform some functions other than aggregation. See, e.g., FIG 1B (showing a prior art "multidimensional OLAP server" containing an "aggregation access and retrieval module," an "application logic module" and a "presentation module"). A person of ordinary skill in the art, having read the patent and the claims, would conclude that the "OLAP server" as described in claim 1 retains at least some of these other functions, even if the aggregation functionality had been "outsourced" to the data aggregation module. Accordingly, the term "OLAP server" as used in the claims and explained in the specification is not "insolubly ambiguous" and therefore is not indefinite. See Invitrogen Corp. v. Biocrest Mfg., L.P., 424 F.3d 1374, 1383 (Fed Cir 2005).

Next, Hyperion argues the term "for use with any one of a plurality of different OLAP servers" means that the stand-alone data aggregation server must be "capable of being used concurrently with more than one OLAP server." But the intrinsic evidence does not support this construction.

First, the plain language of the term does not suggest that the aggregation server must be capable of being used with more than one OLAP server concurrently. The natural meaning of "for use with any one of a plurality of different OLAP servers" is that the aggregation server could be used with any one of the servers, but not necessarily with more than one server at the same time.

Hyperion also relies on HyperRoll's amendments to the drawings and claims, contending that these amendments illustrate that the stand-alone data aggregation server must be capable of operating concurrently with a plurality of different OLAP servers. Hyperion Br at 22. But Hyperion misreads the prosecution history. The patent examiner stated in a summary of an October 16, 2001, interview, "The applicants agreed to provide numbering of the figures, and to resolve an inconsistency between Figures 6B and 7A and also showing a plurality of OLAP servers[] and display a plurality of OLAP servers." Doc # 197, Ex B at 1. Plaintiffs subsequently filed an amendment on October 23, 2001, adding, inter alia, FIG 6E and noting in the specification:

[FIG 6E shows] "the Aggregation Server can be plugged into (e.g., interfaced to) OLAP Servers (two shown as 605' and 605") of different users and vendors. As shown, the Aggregation Server 603 is operably plugged into (e.g., interfaced to) OLAP Server 605' of one user or vendor, yet it is also capable of being operably plugged into OLAP server 605" of another user or vendor, as indicated by the dotted lines. This dramatic move discontinues the restricting dependency of aggregation from the analytical functions of OLAP * * * .

The patent never says anything about requiring the aggregation server to be capable of connecting to the two OLAP servers concurrently. If anything, the dotted line in FIG 6E suggests that although one could switch the OLAP server to which the aggregation server connects, the aggregation server in that embodiment does not connect to more than one OLAP server at
a time. This interpretation is consistent with the claim language and with HyperRoll's proposed construction.

Accordingly, the court rejects Hyperion's contention that "OLAP server" is indefinite and its proposed construction for the term "for use with any one of a plurality of different OLAP servers." The court adopts HyperRoll's construction for this term: "capable of being used with different OLAP servers." The court declines to construe further the term "OLAP server" given that its meaning is clear in the relevant claims.

4. On

a. Depositing a Titanium Film Containing Nitrogen Atoms on a Semiconductor Substrate

The titanium film containing nitrogen atoms must be deposited directly on a semiconductor substrate.

b. Forming a Titanium Nitride Film on the Semiconductor Substrate

The titanium nitride film must be directly on the titanium silicide film, which in turn must be directly on the semiconductor substrate.

Claim Construction: "Single Screen"

The parties vigorously dispute the meaning of claim 1's "single screen" limitation. Both parties recognize that this limitation is emphasized in both the specification and the Prosecution history as a defining feature of the '055 invention. Indeed, in distinguishing the '055 invention from the prior art during prosecution, the "single screen" limitation was repeatedly cited and characterized by the patentee.

The parties dispute, however, both the type of information that must be displayed on the "single screen" and the nature of the "single screen" in relation to the system as a whole. With respect to the information displayed on the single screen, Amazon contends that the claim requires the presentation of a transaction type, a plurality of transaction parameters, and an additional transaction parameter. IPXL contends that only a transaction type and a plurality of transaction parameters must be displayed on the "single screen."

With regard to the nature of the screen and how it fits into the claimed system, Amazon contends that the "single screen" limitation does not preclude previous screens entirely, but that the limitation precludes the display of information entered by users on previous screens. IPXL contends that the "single screen" is the system's only screen and that the user must be able to specify the desired transaction or transaction parameters without first navigating a series of transaction entry screens. For the following reasons, the Court adopts neither party's position.

The complete limitation at issue incorporates already construed claim limitations. Specifically, "the processor causing the display to display on a single screen stored transaction information," incorporates the "transaction information" limitation (at least one user defined transaction and at least one user defined transaction parameter) already construed in conjunction with the "means for storing user defined transaction information" limitation. As such, no further construction is required to determine the nature of the information that is displayed on the "single screen."

A question remains, however, as to whether the claim requires the "single screen" to be the only screen presented to the user, or alternatively, whether other screens may precede the "single screen." Nothing in the language of claim 1 suggests that the "single screen" must be the only screen presented to the user. To the contrary, claim 1's preamble dictates that the claim covers a "system" which, as described in the specification, may present multiple screens to the user. For instance, the specification clearly describes a system that first identifies and verifies a user. Col. 6, 11. 65-66. Likewise, in disclosing the
preferred embodiment, the specification contemplates preliminary steps that would require preliminary screens:

Therefore, upon insertion of the ID card 30 into the reader/writer 13, information stored on the ID card 30 is read (other preliminary steps may also be performed in a known manner, such as entering a PIN, etc.) and a number of menu choices are displayed on the display 15.

Col. 7, ll. 20-24. Furthermore, the specification's flowcharts detail the flow of actions and operations associated with the system. The flow charts support the Court's conclusion that preliminary screens disclosing preliminary "start" and/or "identify user" boxes are encompassed within claim 1. Figs. 2, 5, 6. Although the system of claim 1 is not limited to a single and only screen, the specification and the prosecution history make clear that transaction information is to be entered exclusively on the "single screen" and may not be entered on preliminary or additional screens. In other words, as stated in the plaintiff's claim construction brief:

The '055 specification and prosecution history clearly demonstrate that the only reasonable construction of "single screen" is a screen presented to the user, which the user uses to specify the desired transaction for execution or to specify one or more transaction parameters without first navigating a series of transaction entry screens.

... From Amazon's claims charts, it appears that Amazon will argue that "single screen" may be a summary screen where transaction information is presented to the user after the user has proceeded through a series of consecutive screens to select a transaction type and/or transaction parameters. This, however, frustrates the very purpose of the '055 invention, which was to avoid the series of consecutive screens (which the specification calls "annoying," "time consuming," and "inefficient"). IPXL Cl. Constr. Br. at 19, 21). The Court adopts plaintiff's argument that the "single screen" must exclusively display, and allow the user to modify, stored transaction information. That conclusion is clearly supported by the patentee's comments during the prosecution of the '055 patent. For instance, in response to the examiner's May 16, 1997, office action setting forth an objection to the specification and a rejection under 35 U.S.C. 112(1), the patentee explained:

... one aspect of the present invention involves using a single display screen for selection of an ATM transaction. Currently known systems typically require a user to go through a series of screens and make a single selection per screen. For example, one screen may seek selection of the transaction type, the next screen may ask for the user to select an account, another may ask for the amount of the transaction, etc. None of the prior art of record appears to disclose providing a single screen for multiple selections. (IPXL 00089). Again, in distinguishing prior art references following the examiner's January 6, 1999, office action setting forth an obviousness rejection under 35 U.S.C. 103, the patentee explained:

For example, with respect to ATM machines, a user typically must enter transaction information by selecting one transaction parameter per screen. Madan, even if it were to be considered analogous, does not disclose this.

Neither Madan nor Martino discloses an ATM that enables a user to select from a single screen transaction type and transaction parameters.

(IPXL 00105-106). Consistent with these remarks, in a supplemental response to the examiner's January 6, 1999, office action, the patentee reiterated the nature of the "single screen" limitation when distinguishing additional prior art references:

Neither Anderson or Coutts disclose at least displaying transaction information on a single screen as claimed by Applicant. Anderson and Coutts do not appear to relate to the various novel aspects of the present invention including those pertaining to presenting transaction information on a single screen.

(IPXL 00110). These remarks during the prosecution of the patent confirm that regardless of the nature of the preliminary screens involved in the system, a single screen must eventually present exclusive stored transaction information that may be selected exclusively on the "single screen."
The specification of the '055 also supports such an interpretation of the "single screen" limitation. For example, the specification explains that:

The need to manually enter or select the transaction type and each or many of the transaction parameters each time a user desires to perform a transaction can be annoying and time consuming.

Col. 2, ll. 4-7.

It is another object of the invention to provide an ATM system with a single display screen from which a user can select a transaction type and one or more of the transaction parameters necessary to define the selected transaction.

Col. 3, ll. 1-4.

Unlike conventional ATMs, which use a series of consecutive menu screens to enable the user to, select the transaction type and transaction parameters, the GUI according to one embodiment of the present invention provides a single screen from which the user can select the transaction type and all or some of the transaction parameters necessary (or desired) to define the selected transaction.

Col. 14, ll. 29-36. Read in light of claim 1 as a whole, the '055 specification, and the '055 prosecution history, the Court concludes, that "the processor causing the display to display on a single screen stored transaction information" requires:

The presentation of stored transaction information to a user on one screen, without the user having to first encounter any preliminary screens that would require the user to select a transaction type or a transaction parameter.

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C. "On and [in] contact with" ('715 patent, claim 1; '419 patent, claim 1).

Ixys and APT agree that the definition of this claim term should begin with the sentence "In a layered device formed on a substrate, above and touching or in immediate proximity to." While Ixys' construction ends there, APT inexplicably urges this court to add that "On or in contact may impose different requirements, depending on the types of layers involved and how the layers interact." APT is surely aware that claim language is construed within the context of the claims in which it arises, and hence that the same words may, in some limited cases, take on different meanings when applied to different technologies or materials in different claims. Here, however, the court is asked to interpret the language "On and [in] contact with" in the context of only two claims, both of which reference "an insulating layer" in contact with "said first metallization layer." Whatever "different requirements" APT may envision, they are certainly not relevant here.

According to the parties' agreement on the first part of the definition for this term, the court construes this claim language to mean: "In a layered device formed on a substrate, above and touching or in immediate proximity to."

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C. Anticipation…that depends on what "ON" is.

Unitrode's first argument for summary judgment in its favor is that Claim 1 of the '098 Patent is invalid for lack of novelty because it reads on the prior art of Carsten. In order for a patent claim to be anticipated by prior art under 35 U.S.C. § 102, a "device or method, having all of the elements and limitations contained in the claims, [must be] described in a single prior art reference." ATD Corp. v. Lydall, Inc., 159 F.3d 534, 545 (Fed. Cir. 1998). The first step in any analysis of invalidity is claim construction, which is an issue of law. See Rockwell Int'l Corp. v. United States, 147 F.3d 1358, 1362 (Fed. Cir. 1998).

In construing the disputed terms of a claim, "the court should look first to the intrinsic evidence of record, i.e., the patent
itself, including the claims, specification and, if in evidence, the prosecution history. "Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citing Markman v. Westview lnstr., Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996)). "Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." Id.

While the Federal Circuit has "made strong cautionary statements on the proper use of extrinsic evidence" (like expert and inventor testimony, dictionaries and learned treatises), "trial courts generally can hear expert testimony for background and education on the technology implicated by the presented claim construction issues, and trial courts have broad discretion in this regard." Key Pharms. v. Hercon Labs., Inc., 161 F.3d 709, 716 (Fed. Cir. 1998). The Court properly relies on expert testimony in cases where the intrinsic evidence (i.e., the patent record) does not resolve the dispute. "What is disapproved of is an attempt to use extrinsic evidence to arrive at a claim construction that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent." Id. Among the extrinsic evidence which the Federal Circuit has sanctioned in interpreting claims are dictionaries and reference books. EMI Group N. Am., Inc. v. Intel Corp., 157 F.3d 887, 892 (Fed. Cir. 1998), cert. denied, 526 U.S. 1112, 143 L. Ed. 2d 788, 119 S. Ct. 1756 (1999).

The construction of a single word or phrase in a patent claim is often the dispositive issue. Attorneys therefore marshal impressive arsenals of legal precedent, technical exegesis, record citations, canons of construction, extrinsic evidence, and--above all--the most clever reasoning to persuade a judge that a word such as "as," "or," or "is" isn't what she thought it might be. Here, the able counsel for Vicor and Unitrode have taken aim at the single word "ON," as the fate of both their arguments ride on its meaning.

On these motions for summary judgment, Claim 1 of the '098 Patent is chiefly at issue. 4 It reads:

In a single ended forward converter in which energy is transferred from a primary winding to a secondary winding of a transformer during the ON period of a primary switch, circuitry for recycling the magnetizing energy stored in said transformer to reset it during the OFF period of said primary switch, comprising:

a storage capacitor;

an auxiliary switch connecting in series with said storage capacitor;

a switch control circuit operating said auxiliary switch in accordance with a control logic such that (a) said auxiliary switch is opened prior to the ON period of said primary switch, (b) said auxiliary switch remains open throughout the ON period of said primary switch, (c) said auxiliary switch is closed after the ON period of said primary switch.

Col. 8, ll. 52-67 (emphasis added). The important question in construing this language is whether the "ON period" is defined in terms of voltage across the primary switch (Unitrode's proposed construction) or in terms of that switch's capacity to carry current (Vicor's proposed construction). If defined in terms of voltage, 5 the ON period would begin when the voltage across the switch drops to zero. In a real-life solid state transistor switch, the voltage does not drop to zero the instant current begins to flow across the switch. Indeed, the voltage in such switches will not drop to its lowest until some point in time after the current has begun to flow at its maximum rate. Thus, a voltage-based definition would not necessarily require a switch-timing delay, since Claim 1 could read on a device such as Carsten's in which the auxiliary switch remains engaged while current is flowing through the primary switch.

--- Footnotes ---

4 Claims 3 and 5, dependent claims of Claim 1, are also at issue in Unitrode's motions for summary judgment. Claim 3 reads, "The transformer resetting apparatus of claim 1 wherein said circuitry is connected in parallel with said primary winding." Col. 9, ll. 4-6. And Claim 5 reads, "The transformer resetting apparatus of claim 1 wherein the auxiliary switch is a MOSFET transistor with an integral reverse diode." Id. at ll. 11-13. However, both parties agree that the validity of these dependent claims is entirely contingent on the construction given to Claim 1.

5 In lay terms, voltage is a measure of the electrical force or potential energy across the switch. At oral arguments both parties likened voltage to the water pressure inside a water tank, while the current was likened to the flow of water from the...
tank's faucet.

By contrast, under a current-based definition, the ON period would begin at the moment the primary switch is capable of carrying a current. Thus defined, Claim 1 would require some period of switch delay between the opening of the auxiliary switch and the flow of current through the primary switch—a novel element unanticipated by prior art.

6 There will always be some amount of current "leakage" across a switch that cannot be prevented. Both parties agree, however, that such current leakage should not factor into the Court's claim construction.

1. Unitrode's proposed claim construction

In support of its proposed voltage-based definition of ON, Unitrode places great emphasis on the following Figure 4b from the '098 Patent:

The figure above "considers a sequence of two ON periods separated by an OFF period. . . . The figure displays, as functions of time, idealized waveforms defining the state of the [primary] switch 10 [and] the voltage V across it. . . ." Col. 5, ll. 55-57. Unitrode insists this portion of the specification explicitly defines ON period in terms of voltage. As a result, Unitrode contends that the Court is required to adopt its voltage-based definition of "ON" in construing the patent claims. See Vitronics, 90 F.3d at 1582 ("Usually, [the specification] is dispositive; it is the single best guide to the meaning of a single term."). For additional support, Unitrode points to references in the specification where voltage and the state of the primary switch are mentioned in tandem. See, e.g., col. 5, ll. 61-62 ("During [the "ON"] period, the voltage V across the primary switch and the current I through the auxiliary switch vanish."). As Unitrode points out, the specification and the drawings of the patent never show the current flowing through the primary switch.

To bolster its proposed claim construction Unitrode also relies on the interpretive maxim of claim differentiation. That doctrine, "which is ultimately based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope, normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend." Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999) (citations omitted). While the claim differentiation doctrine is "not a hard and fast rule of construction, it does create a presumption that each claim in a patent has a different scope." Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998).

Unitrode argues that, by proposing a current-based definition for ON, Vicor is attempting to read into Claim 1 all of the limitations found in unasserted dependent Claims 22, 23 and 24. Claim 22 contains the limitation that the ON period begins "a small delay period after the opening of the auxiliary switch." Col. 10, ll. 1-3. Claim 23 contains the limitation that the small delay period "accommodates charging and discharging of capacitances" in the converter. Id. at ll. 4-6. And Claim 24 contains the further limitation that the capacitances "comprise parasitic capacitances." Id. at ll. 7-8. According to Unitrode, each of the limitations in these dependent claims would be rendered superfluous by a construction of Claim 1 that would, in effect, require a "small delay" between the opening of the auxiliary switch and initiation of the ON period that would "accommodate the charging and discharging of capacitances" that are "parasitic capacitances."

2. Vicor's proposed claim construction

Vicor argues that Unitrode's voltage-based definition of the ON period is inconsistent with the language and purposes of the '098 Patent and that ON should instead be defined in terms of the point at which the primary switch is enabled to conduct current. In support of this definition, Vicor places great emphasis on the following passage from the specification:
a delay between the opening of the auxiliary switch 21 and the closing of the primary switch 10 represents dead time. For this reason, it is efficient to keep such a delay to a minimum, consistent with the requirement to avoid overlap between switches. However, a small delay is useful to allow the magnetizing current to charge and discharge parasitic capacitances associated with the switches and windings.

Col. 7, ll. 4-11. According to Vicor, the above language explicitly recites the function and purpose of the claimed invention. As such, the construction given to ON period must accord with "a full understanding of what the inventor[] actually invented and intended to envelop with the claim." Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (citing Markman v. Westview Instruments, Inc., 517 U.S. 370, 389, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996)).

In Vicor's view, this portion of the specification militates in favor of a current-based definition because it states that the purpose of opening the auxiliary switch "prior" to the closing of the primary switch is to allow the discharge of the switch's parasitic capacitance. By contrast, adopting a voltage-based definition of ON would not require a "delay" or "dead time" between the opening of the auxiliary switch and closing of the primary switch so as to "allow the magnetizing current to charge and discharge parasitic capacitances associated with the switches and windings." Moreover, according to Vicor, adopting a voltage-based definition would violate the patent's requirement to "avoid overlap between switches." If the terms of a claim must be read in accordance with the purpose of the invention, Vicor asserts that a current-based construction of ON is the best way to achieve that goal.

3. The Court's construction

Although the question is close, I conclude that Vicor's interpretation is the better.

To start with, the "ON period" is nowhere defined in terms of either the current or the voltage across the switch. Instead, the specification states: "at time t[1], the auxiliary switch 21 is opened and the primary switch 10 is closed, initiating the first ON period." Col. 5, ll. 59-60. See also col. 4, ll.3-4 (referring to the converter's "ON period" as "when the primary switch is closed.") Thus, the beginning of the ON period is described as the moment the primary switch is "closed." Because the word "closed" is not defined, this definition only moves the analysis a mini-step ahead.

The Court must construe the claim in the context of the whole patent, with analysis rooted in the words of the specification. See Renishaw, 158 F.3d at 1250. The current-based definition is consistent with the specification which describes in plain terms that the patent contemplates "dead time" when the reset mechanism is not operational. Col. 7, ll. 4-6. Although "dead time" is not defined in the patent, Mr. Carsten, who is now an expert for Unitrode, agreed in his deposition that "dead time" in the patent is time during which neither switch is carrying current. (See Vicor Statement of Undisputed Facts ("SUF") (Docket No. 81), Ex. 10.)

In addition, the text describes the useful properties for allowing such a delay, namely, that the reversed flow of magnetizing current can be used to "discharge the parasitic capacitances of the switches and windings." Col. 7, ll. 10-11. A current-based definition supplies a reading of the claims that preserves this purpose stated in the specification. Mr. Carsten's deposition testimony is consistent with Vicor's definition:

Q. Okay. And what are these multiple interpretations of "ON" and "OFF" that you think are possible?

A. It is on when it has at least close to the lowest possible voltage while carrying conducting current [Unitrode's definition]. Anything in between is a linear operation.

Q. So that's one possible definition?

A. That's one possible meaning of the term. Another possible meaning of the term is that a device is on when it's conducting any current at all above and beyond the normal leakage current.

Q. Which of the two definitions would you say is most relevant to using delays to discharge the parasitic capacitance non-dissipatively?

A. In that context, the definition is closer to the second one where any current at all is a conduction.
(Vicor SUF, Ex. 4.) By contrast, a voltage-based definition would permit the harmful dissipative discharge of the parasitic capacitances when current passes through the primary switch because, by Carsten's own admission during deposition, the primary switch may be carrying its maximum current before the initiation of the "ON period." (See id., Ex. 16.)

Unitrode argues that this Court should not rely on a single passage in the patent that references discharging parasitic capacitance because the patent never states that the process must be non-dissipative. However, it is immaterial that the text does not specify whether the discharge of the parasitic capacitances is dissipative or non-dissipative in nature. If there is a residual capacitance in the switch and winding, it will ultimately be discharged in one manner or another. It either can be discharged as heat (i.e., dissipatively), or it can be discharged as energy flowing into the transformer core (i.e., non-dissipatively). Only the latter result, however, could be considered "useful" as required by the specification. Col. 7, ll. 4-11.

The specification also asserts a "requirement to avoid overlap between switches." Id. at ll. 8-9. The current-based definition of ON would forbid simultaneous conduction of current across the primary and auxiliary switches, making that definition more compatible with this requirement. On the other hand, under Unitrode's definition of ON, current could continue to flow through the primary switch and into the transformer core while the auxiliary switch remains engaged and conducting current. This simultaneous conduction of current would be inconsistent with the requirement to avoid overlap between switches.

The current-based definition is also consistent with the extrinsic evidence, although not mandated by it. "Absent an express definition in the specification of a particular claim term, the words are given their ordinary and accustomed meaning; if it is a term of art, it is given the ordinary and accustomed meaning as understood by those of ordinary skill in the art." Zelinski v. Brunswick, 185 F.3d 1311, 1315 (Fed. Cir. 1999). Because there is no intrinsic express definition of the word "on" or "closed," the key to the dispute may be the expert testimony on the background of the technology. See Key Pharms., 161 F.3d at 716. Plaintiff's expert Paul Horowitz, a professor of Physics at Harvard University, conceded in his expert report that the terms "on" and "off" did not have a single accepted meaning in connection with electronic switches. However, he states that there is an ordinary and accustomed meaning for closing a switch: "A 'switch' is a device, such as a relay or transistor, that can be enabled to conduct current, or disabled from conducting current." He noted, "When a switch is enabled to conduct current, the switch is said to be 'closed.' When the switch is enabled to block current (or disabled from conducting current), it is said to be 'open.'" (Vicor SUF, Ex. 27, p. 4.) See Random House Unabridged Dictionary (2d ed. 1993) (defining "switch" to include: "5. Elec. A device for turning on or off or directing an electronic current or for making or breaking a circuit."). Plaintiff's expert Nathan Sokol also opined that in the context of the patent "closed" means "the action which is taken to make the switch do something" and "that action results in the switch being enabled to conduct current." (Unitrode Aff. of D. Massa (Docket No. 104), Ex. 2.)

Defendant's expert, Dr. James K. Roberge, a professor of Electrical Engineering at MIT, states: "Transistor switches do not turn on and off instantaneously; they have ON periods and OFF periods and transition states between those two periods." (Aff. of J. Roberge (Docket No. 91), P12.) He relies on a textbook, R. Ralph Benedict, Electronics for Scientists and Engineers, 212-214 (1967) to prove his point: "The textbook indicates that the ON period begins when the voltage across the switch falls to a voltage close to zero, even though current has already begun to flow in the switch prior to that time . . . . Current can begin to flow in a switch even though the switch is not yet in its ON period." Roberge adds: "Although in some usages, the ON period of a switch is defined in terms of current flow, it is not generally defined as occurring when "on" or "off" or "current" or "any measurable" current, and rather when 90 percent of the saturation or maximum current flow is reached." (Roberge Aff., P12; see also Unitrode Aff. of W. Stoner (Docket No. 92), Ex. 2 (Vinciarelli stating in deposition, "I guess every device has a transition state between an on and off. That's correct.").) The Roberge-Horowitz debate highlights the complexity of defining "ON" in the context of transistors which have this transition on-off state. However, because the specification provides that the word "closed" demarcates the start of the "ON" period (T[1]) it cuts against a voltage based definition because no action is taken at the moment the voltage hits zero. In contrast, an action is taken at the moment the switch is enabled to carry current.

Although Unitrode's arguments have some persuasive weight, they cannot be sustained when the patent is read as a whole. For several reasons, Figure 4b and the accompanying text cannot be accepted as an explicit voltage-based definition of ON period. First, the waveforms depicted in Figure 4b are idealized, not real waveforms. The patent recognizes this when it states that "the first ON period is given by the time interval between t[1] and t[2] [referring to Fig. 2b]. During this interval, the voltage V across the switch 10 vanishes. . . ." Col. 1, ll. 59-61; see also col. 5, l. 61-62 ("During this [ON] period, the
voltage V across the primary switch and the current I through the auxiliary switch vanish.") Significantly, the patent does not state that voltage drops to zero at t[1], but only that it vanishes "during" the ON period between t[1] and t[2]. "During" can mean either "throughout the duration of" or "at a point in the course of." Webster's 9th New Collegiate Dictionary, p. 289 (1986). It is not defined to mean at the start of. The use of the term "during" suggests that voltage does not drop to zero at t[1], the start of the ON period.

--- Footnotes ---

7 This discussion applies to the idealized waveforms in Figure 2b and 3b as well.

--- End Footnotes ---

Second, these idealized waveforms do not show the real-life details of current flowing across a solid-state transistor. Without some reflection of the reality that voltage across a transistor switch does not drop instantly to zero, the idealized waveforms are equally consistent with both parties' definitions and do not provide the strong guidance urged by Unitrode.

Third, although Unitrode has argued that Figure 4b would be "useless" if it did not serve to define the ON period in terms of voltage across the switch, that simply is not the case. Although the figure does little or nothing to describe the fine switch-timing properties of the invention, it provides a useful illustration of the operation of the magnetizing current mirror as a whole. The '098 Patent can best be understood as a whole document by acknowledging that, in 1981, Dr. Vinciarelli was under the mistaken impression that his patent was the only known manifestation of a magnetizing current mirror device. The thrust of the patent's specification was the description of the core reset mechanism itself, while comparatively minor attention was given to the fine switch-timing properties that are the subject of this suit.

Fourth, the patent explicitly disclaims any relation between Figure 4b and the aspects of the invention dealing with the discharge of the primary switch's parasitic capacitance. See col. 5, ll. 44-51 ("neglecting … parasitic effects including the ones associated with … the capacitance of non-ideal hardware realizations of the primary switch 10 …, the operation of the magnetizing current mirror as a reset mechanism is illustrated by an example in 4b."). It is therefore less plausible that the inventor would rely on this figure to define the invention's switch-timing properties.

Finally, Unitrode presses an argument based on claim differentiation for adopting a voltage-based definition for ON period. See Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988) (holding "the scope of a particular claim can often be determined on inspection of other claims."). The doctrine of claim differentiation is a presumption, not a hard and fast rule. See Comark Communications, 156 F.3d at 1187. And, in some circumstances, if a claim will bear only one interpretation, a certain amount of "similarity [between claims] will have to be tolerated." Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991) (quoting Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 404 (Ct. Cl. 1967)).

In connection with this argument, Unitrode also emphasizes the statutory mandate that the claims of a reissued patent cannot be broader than the original claims. See 35 U.S.C. § 251. ("No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.") Section 251 is the statutory basis for correction of "error." In re Weiler, 790 F.2d 1576, 1579 (Fed. Cir. 1986) "The statute is remedial in nature, based on fundamental principles of equity and fairness, and should be construed liberally." Id. However, it prohibits broadening reissue claims after two years, whether or not the broader claims are supported in the specification. See Reiffin v. Microsoft Corp., 214 F.3d 1342, 1348 (Fed. Cir. 2000) (Newman, J. concurring) (citing, as an example, Carbide & Carbon Chem. Co., 315 U.S. 668, 86 L. Ed. 1105, 62 S. Ct. 839 (1942)).

By its usage of the word "prior," Claim 1 requires some delay between the "ON period" of the auxiliary switch and "ON period" of the primary switch. The claim does not, however, specify the length of delay. Claim 21 and its dependent Claims 22 and 23 require that the switch delay be a small delay. Vicor argues that "some delay" is broader than "small delay."

The history of the reissue proceeding is helpful here. The Supplemental Reissue Declaration states:

Applicant also noted that the notion (disclosed and claimed in the '146 patent) of using a switching delay to charge and discharge circuit capacitances did not appear in any of the references until the 1990 Carsten article and that applicant's
Disclosure of this feature predated Carsten's discovery by at least eight years.

(Massa Aff., Ex. 4, P18.) The Interview Summary by the patent examiner states:

Applicant's attorney was informed that the above two references [Carsten and Polikarpov] even if they were earlier art wouldn't anticipate or wouldn't have been obvious over claims 1 and 18, nor do the reference [sic] disclose the switch timing.

(Vicor SUF, Ex. 7.) One wonders, then, why Vicor felt compelled to add the new claims which substantially track the specification in the original patent. In any event, Vicor's argument that the reissued claim (specifying a small delay) is narrower than the original specification (specifying "delay") is strained in the context of this patent where all switching delays are fractions of seconds. However, as I've construed Claim 1 to encompass a current-based definition, the new claim is at worse redundant and certainly not broader than Claim One as construed.

As a back up, Unitrode argues that certain references define the ON period of a switch as commencing when current flow through the switch has reached 90% of its maximum value. This contention was corroborated by the testimony of Vicor's own expert, Professor Horowitz. (Stoner Aff., Ex. 11.) If "ON" were defined this way, the Carsten devices would anticipate the claims. This definition suffers from the same flaws inherent in the voltage-based definition because it does not avoid "overlap between the switches" or provide "dead time."

Two final considerations bolster the Court's current-based claim construction. First, the original Vinciarelli patent underwent a reexamination proceeding in which the PTO upheld the validity of Claim 1 despite the existence of much of the same prior art presented by Unitrode in this proceeding. In such circumstances, the burden on the party seeking invalidity is made even heavier. See Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 961 (Fed. Cir. 1986). Second, due to the patent's presumption of validity under 35 U.S.C. § 282, any remaining ambiguity should be resolved in favor of Vicor. See Modine Mfg. Co. v. U.S. Int'l Trade Comm., 75 F.3d 1545, 1557 (Fed. Cir.) ("When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity."), cert. denied, 518 U.S. 1005 (1996).

In sum, based on the specification, I conclude that Vicor's proposed current-based definition is better because it is consistent with the goal of achieving the non-dissipative discharge of parasitic capacitance. Unitrode's motion for summary judgment on the ground that the patent claims are anticipated by prior art under 35 U.S.C. § 102 must therefore fail as a matter of law.

2916
e. a source electrode and a drain electrode on a said semiconductor layer

LGD contends that "a source electrode and a drain electrode on said semiconductor layer" means "a source electrode and a drain electrode above and in contact with the semiconductor layer." D.I. 376 at Exh. C-17.

AUO contends that there is ambiguity as to what layer is referred to as "said semiconductor layer" in the claim language. AUO contends that one of ordinary skill in the art would understand that the electrodes would need to be above and in contact with an impurity-doped semiconductor layer in order for the TFT to function. AUO contends that LGD's position ignores what is commonly understood as "above and in contact with," and ignores the construction of "source electrode," which requires that the conductive material be formed over the source region. D.I. 1429 at 13. Thus, AUO's proposed construction for the phrase "a source electrode and a drain electrode on said semiconductor layer" is "the source electrode and the drain electrode above, supported by, and in contact with the semiconductor layer." D.I. 376 at Exh. C-17. CMO's construction of this phrase is identical to LGD's proposed construction. Id.

The Court adopts the claim construction proposed by LGD and CMO. This construction is consistent with the Court's definition of the term "on," and with the plain claim language and the requirements of the specification. '449 patent, col. 1, ll. 40-51; col. 1, l. 61 - col. 2, l. 4; col. 2, ll. 37 - col. 3, l. 15; col. 3, l. 50 - col. 4, l. 5, col. 4, l. 65 - col. 5, l. 15, Figs. 1-3. Accordingly, the phrase "a source electrode and a drain electrode on said semiconductor layer" means "a source electrode and a drain electrode above and in contact with the semiconductor layer."
a first layer of conducting strips parallel to each other on said substrate

 Claim 1 contains the term "a first layer of conducting strips parallel to each other on said substrate." Lonestar contends that "first layer of conducting strips" is "any layer of two consecutive layers of conducting strips that is nearer to the semiconductor substrate than the consecutive layer selected as the 'second' layer, it need not be the layer most near to the semiconductor substrate, so long as it is more near to it than the 'second layer.'" Lonestar then contends that "on said substrate" means "positioned directly or indirectly above said semiconductor substrate." Nintendo contends that "a layer of conducting strips" means "a layer in which the spacing of the conducting strips and the width of the conducting strips are set to the critical dimensions of the manufacturing process." Nintendo then contends that "the 'first' layer of conducting strips 'on said substrate' is the first deposited layer of conducting strips positioned above and capacitively coupled to the substrate." The parties disagree as to whether "first layer" indicates a sequence limitation, whether the "first layer of conducting strips" must be directly and capacitively coupled to the substrate, and whether the specification limits the claimed invention to "critical dimensions."

 As to the dispute on whether "first layer" indicates a sequence limitation, in light of the specification and the claim language itself, "first" indicates that the "first layer" is closer to the semiconductor substrate than the "second layer." See Col. 6:67-7:5; see Figure 2; see Col. 5:40; see Col. 5:54-57. With regard to other possible layers, the intrinsic record does not require that the "first layer" must be the layer closest to the semiconductor substrate. Claim 1 applies "comprising" language, which "creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unreicted elements." See Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1372 (Fed. Cir. 2005) (citing Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1347 (Fed. Cir. 2001) ([T]he transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unreicted elements')). Nintendo does not rebut this presumption.

 However, Nintendo believes that any additional layers of strips that are deposited cannot be placed closer to the semiconductor substrate than the "first layer." Nintendo argues that the specification does not suggest that a layer of conducting strips could be inserted between the substrate and the first layer. Nintendo in essence suggests that if the specification does not disclose an embodiment, then that embodiment is not allowed for by the patent. This position is not supported by case law. See Envtl. Designs, Ltd. v. Union Oil Co. of Cal., 713 F.2d 693, 699 (Fed. Cir. 1983) ("The claim, not the specification, measures the invention") (citation omitted); see Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) ("the claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim") (citation omitted). While claims are read in view of the specification, Phillips, 415 F.3d at 1314, this does not mean that the specification must disclose every potential embodiment for such embodiments to be covered by the patent. Cf. Envtl. Designs, 713 F.2d at 699. Furthermore, Nintendo's citations to the specification do not support Nintendo's position. See Col. 1:37-45; see Col. 5:29-57; see Col. 2:19-55; see Col. 6:18-42. Nintendo's citations instead show that the patentee described the "first layer" relative to the "second layer" while not specifying "first" in relation to the semiconductor substrate. See, e.g., Col. 2:27-30 ("Above and separated from the first layer of conducting strips 24A and 24B by an insulating layer (not shown), is a second layer of conducting strips 26A and 26B"). There is no express or implied restriction in the claims or specification on a layer existing between the first layer and the semiconductor substrate. Thus, "first" does not disallow a layer of conducting strips to be placed between the semiconductor substrate and the first layer.

 Concerning the dispute about whether the first layer of conducting strips must be directly and capacitively coupled to the substrate, the Court construes "on said substrate" as "positioned directly or indirectly above said semiconductor substrate." The claim language does not require that the first layer be capacitively coupled to the substrate, and the specification shows that the first layer can be directly or indirectly above the substrate. Figure 2 shows a first layer of conducting strips that is separated from the "substrate 10" by an "insulating layer 11." Col. 2:19-22; see Figure 2. The strips are positioned above the substrate but not directly on the substrate. Also, while the specification makes reference to the first strips being capacitively coupled to the substrate, it does not do so to define the first layer as Nintendo's proposed construction suggests. See Col. 5:5-12. Instead, the specification refers to the strips of various layers being connected to A and B nodes, and the A and B nodes being equally capacitively coupled to the substrate. See id. The specification states, "Since the present invention has
an equal number of strips in each layer connected to the A and B nodes, the A and B nodes are equally capacitively coupled to the substrate 10. … Likewise, the total capacitance of the A and B strips in the second layer to ground are also equal." Id. This language does not define the first layer as capacitively coupled to the substrate. Rather, nodes A and B are described as both being capacitively coupled to the substrate. In addition, the claim language in question is clear. Nintendo has not provided sufficient support in the intrinsic record to require the capacitive coupling limitation to be added to the first layer of strips, particularly when such requirement may be more confusing than the relatively clear claim language. Thus, the Court does not construe "on said substrate" as directly on the substrate or capacitively coupled to the substrate.

GET DRAWING SHEET 1 OF 2

In regard to "critical dimensions," Nintendo's proposed construction states that the width of the conducting strips are set to critical dimensions. Claim 1 does not explicitly limit the capacitor structure to "critical dimensions" or even provide other guidance as to the dimensions. "A critical dimension is the smallest distance in a structure or separation between structures which can be controlled in a process." Col. 2:68-Col. 3:3. In contrast, dependent claim 3 provides specific guidance as to the width, height, and depth of the strips by stating, "the relationship between w, h, and d being w&t;2&t; &t; 2hd." Col. 7:25-28. When a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include that limitation. Phillips, 415 F.3d at 1314-15. In line with this rule, the dimension limitation of dependent claim 3 and the absence of this limitation in independent claim 1 suggests that claim 1 does not include a "critical dimension" limitation because there are not any dimension limitations provided in claim 1 and such limitations exist in claim 3. In light of this reasoning and the additional evidence below showing no "critical dimension" limitation in the specification, Nintendo's arguments fail.

The specification does not limit the capacitor structure to critical dimensions. Table A shows several values for the variable "w" that would satisfy the conditions for making the disclosed invention. Col. 4:55-62. Furthermore, the specification states that "the performance of the present invention is enhanced with each with each [sic] expected dimensional improvement in semiconductor processing technology," implying that the invention may exist in a state that is not the most enhanced state. Col. 5:1-4. This would allow the invention to be made with different dimensional settings. While the invention may be best enhanced with critical dimensions used with each improvement in semiconductor processing technology, this does not mean that enhancement is not achieved with something less than critical dimensions. Further, as shown in Table A and described in the specification reference to Table A, differing dimensional values (as opposed to only the critical dimensions) may still provide "an enhanced capacitor structure." Col. 4:51-5:4.

While the specification states that "the width and spacing of the conducting strips 24A and 24B are set to critical dimensions," Col. 5:43-45, it does so to teach "enhanc[ing] the side-wall capacitances," Col. 5:45-46, and no one set of dimensions is specified. Any further specification description is mentioned as an example: "i.e., the strips and spacing between the strips are as narrow as possible." Col. 5:46-47. Thus, the claims themselves and the specification both provide support for rejecting the "critical dimension" limitation, and the Court accordingly does not add such a limitation to its construction.

Accordingly, the Court construes "on said substrate" to mean "positioned directly or indirectly above said semiconductor substrate." In light of the Court's resolution of the parties' additional disputes, the rest of the language in the claim term does not require construction.

2918

In the Court's opinion and order dated November 8, 1999, I asked the parties to supplement their initial presentations concerning the meaning of the phrase "one address element" in connection with my construction of disputed element iii in Claim 1 of Patent No. 5,212,773 (the '773 patent), so that I might test my preliminary conclusion that the word "one" encompassed both a single address element and a plurality of address elements. Once again, the parties have provided me with extremely lucid and helpful letters, for which I tender my thanks. It is a pleasure to work on what would otherwise be frighteningly complex issues with lawyers who extend every effort to make them comprehensible.

The meaning of the ubiquitous word "one" continues to trouble me, and I fear that the Federal Circuit's latest opinion on claim relinquishment, Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 52 U.S.P.Q.2D (BNA) 1109 (Fed. Cir. 1999) --
Inconveniently decided after our Markman hearing -- does not really clarify matters, since it can be read to support both parties' point of view.

In Elkay, the District Court had construed a claim limitation containing the words "an upstanding feeding tube . . . to provide a hygienic flow path for delivering liquid from said inverted unpressurized container . . . and for admitting air . . . into said container" to encompass both a single tube that performed both functions and two tubes that performed the functions separately. The Federal Circuit reversed. The panel acknowledged (1) that the articles "a" and "an" are not necessarily limited to the singular, and also (2) that the written description, if qualified as a preferred (as opposed to the sole) embodiment, does not conclusively establish that the use of such articles was meant to exclude the plural. However, the appellate court concluded that such a restriction was mandated by the prosecution history of plaintiff's patent.

To understand what the Federal Circuit meant by its ruling, a fairly detailed review of this portion of the opinion is in order. The Court of Appeals started from the proposition that, as a matter of law, the prosecution history "limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." Elkay, 52 U.S.P.Q. (BNA) at 1112-13. It then noted that the Examiner had rejected the original claims corresponding to those in issue based on a prior patent (Krug) in view of yet another prior patent (Savage). The Krug patent described a beer dispensing apparatus with two separate feed tubes, one for pressurized air and one for beer. Savage described an apparatus that allowed a liquid feed tube to be connected to a collapsible bag so that air could not be introduced into the bag as the connection was made. Thus, it seemed clear that the Examiner's rejection of Elkay's application was squarely grounded in Elkay's possible use of multiple tubes. Elkay responded to this rejection by distinguishing Krug on the ground that, inter alia, Elkay claimed "a flow path . . . for delivering liquid . . . and admitting air" whereas Krug taught the use of separate tubes to perform those two functions. Elkay did not amend the language of its claim, but its argument emphasized the singular nature of the article "a" as used in its application.

The Federal Circuit discounted the fact that Elkay had not filed an amendment to its claim. The court found that the argument Elkay made to overcome the Examiner's objections was entitled to equal weight as amended language, and that this argument precluded Elkay from contending that its patent covered a device with more than one tube. Moreover, the Federal Circuit ruled that it was "irrelevant whether Elkay emphasized this argument at the time, or indeed whether Elkay had to relinquish an interpretation of the feed tube limitation that could cover more than one flow path for liquid and air." Id. As long as Elkay made the argument in order to overcome the rejection, it necessarily conceded the point. Finally, the Court noted:

Elkay's argument that its statement distinguishing Krug on the basis of Krug's use of separate feed tubes was insignificant is particularly unpersuasive in view of the Examiner's response to that statement. In the Examiner's Statement of Reasons for Allowance, dated March 30, 1993, the Examiner wrote that he allowed claim 22 (i.e., claim 7 in the '531 patent) because he understood the claim to describe a single feed tube with a single flow path for both liquid and air: [Examiner's Statement omitted].

As noted above, both parties find comfort in the Federal Circuit's reasoning. IBM argues that Elkay stands for a relatively simple and straightforward proposition: once TM amended the claim language, which originally read "at least one message element," to read "one message element," it was precluded from taking the position that the word "one" meant "one or more than one." For a neophyte like myself, there is considerable appeal to this argument. If I could read Elkay to preclude me from relying on anything in the file wrapper except amended language where an amendment is made, I would find that IBM was correct without further analysis.

But the Elkay court carefully stated that "It is the totality of the prosecution history that must be assessed, not the individual segments of the presentation made to the Patent and Trademark Office by the applicant" Id. (emphasis added). There is much in the file wrapper that seems to support TM's position.

The Examiner originally rejected the claims that eventually became the '773 patent by Office Action sent June 22, 1991. The Examiner relied on three grounds: first, the claims were indefinite (under 35 U.S.C. § 112 (b)); second, certain claims (including independent Claims 2 and 8, which, in their amended version, are in suit here) were anticipated by prior art, namely the Lawrence patent (under 35 U.S.C. § 102); and third, those claims that were not anticipated were obvious in light of Lawrence. This last objection appears to be directed particularly at Claims 3 and 9 or the original patent application, which are not in suit before me.
In response to the rejection, TM did two things: it amended its claim language in multiple respects (including the substitution of "one" for "at least one" in the claims here in suit), and it submitted an argument to the Examiner. It appears that much of the amended language was designed to overcome the Examiner's complaint about indefiniteness, which he made as to all the claims. TM's argument, however, distinguished Lawrence, and it did so by doing precisely what TM did at the Markman hearing -- it contrasted Lawrence's use of a store-and-forward process with TM's use of wormhole routing. Unlike the applicant in Elkay, TM did not focus at all on the difference between "at least one" (as used in its original independent claim) and "one" (as used in the amended claim). Rather, it argued that the difference between the two patents was how much of a message the router node in TM's computer system needed to receive before it could forward the message to the next point. TM emphasized that the store-and-forward system disclosed in Lawrence required arrival of the entire message before it would route the message to the next node, while TM's "wormhole routing" scheme would start the message on its way as soon as it decoded "enough of a message" to recognize where the message ought to go. (A 2110.)

As I noted in my original opinion, the Examiner specifically relied on this concept of forwarding a message as soon as the node switch received "enough of a message" to recognize its destination when it allowed the claim. Indeed, the Examiner stated that he viewed TM's argument as "persuasive." (A. 2113) In Elkay, an Examiner's response to a patentee's argument in its Statement of Reasons for Allowance was deemed a particularly persuasive piece of evidence. See id. Since the Examiner in this case responded by finding TM's argument compelling, I cannot think of why I ought not do so. Clearly, the patent was allowed because of the difference between store-and-forward and wormhole routing, not because of the change from "at least one" to "one." This interpretation of the claim history explains why, when TM amended its claim language, it did not also change the embodiment described in the specifications, which all parties agree would be read out of the patent if IBM's literal reading of the word "one" were to prevail.

Unfortunately, I cannot stop yet. For there is other language on this one page of the Elkay decision that would seem to favor IBM's position. The Elkay panel stated that it was irrelevant whether Elkay could have obtained its patent without relinquishing the two-tube interpretation of its claim: if in fact that claim was relinquished, it is gone. See id. IBM contends that TM relinquished the claim to "at least one" simply by deleting that language from its revised claims and substituting therefor the singular word "one." While it may have done so without needing to, IBM argues, TM did it and must live with the consequences. As I noted in my original decision, that argument is clear, simple and logical, and therefore quite persuasive -- even in the patent context, where the singular can sometimes encompass the plural.

TM counters with two arguments. First, it claims that Elkay concerns only the effect of arguments made to the Patent Office, as opposed to claim amendments. I find this contention less than persuasive. The Elkay court opinion includes the following statement: "Arguments made during the prosecution of a patent application are given the same weight as claim amendments." Id. (emphasis added). If an applicant can relinquish a claim by arguing that the claim language does not encompass it, he can just as easily relinquish a claim by amending his claim language to eliminate it.

TM's other point has more merit. TM reminds this Court that in York Products Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1575 (Fed. Cir. 1996), the very same Federal Circuit held, "Unless altering claim language to escape rejection, a patent applicant only limits claims during prosecution by clearly disavowing claim coverage." It argues that the change in language simply eliminated excess verbiage in a "comprising" claim -- i.e., one that "includes" the specifically listed limitations and nothing else. Therefore, the language change cannot be read as a clear disavowal of the plurality claim.

This argument, too, has a certain elegance and appeal. In Elkay, the patentee's emphasis on the singularity of the article "a" in his argument necessarily implied that he was relinquishing any claim to a two-tube system. Ours, unfortunately, is not a case where the patentee's intention to relinquish is similarly clear. Given patent law's unusual "singular-encompasses-the-plural (sometimes)" rule, eliminating words of plurality may not necessarily indicate the patentee's intention to abandon plurality claims -- especially where, as here, other evidence in the file wrapper (especially the preferred embodiment) suggests that the patentee is not relinquishing such claim.

IBM responds that the change in language must have been made to overcome the prior art as disclosed in Lawrence, because Celeritas Techs Ltd. v. Rockwell Int'l Corp., 150 F.3d 1354 (Fed. Cir. 1998), cert. denied, 525 U.S. 1106, 142 L. Ed. 2d 774, 119 S. Ct. 874 (1999), held that a claim is anticipated if (and only if) "each and every limitation is found either expressly or inherently in a single prior art reference." Id. at 1361. IBM notes that original Claims 2 and 8 required that, for each message (which includes a series of message elements including at least one address element and at least one data
element), the switch decodes at least one address element to identify an output circuit for that message. Those claims were rejected "as being clearly anticipated by" Lawrence '892. To IBM, that means the Examiner rejected TM's claims because the Lawrence patent either expressly or inherently disclosed a switch that decoded at least one address element of a series of message elements (including at least one address element and at least one data element) in order to route the message.

However, IBM's reasoning does not really address TM's argument, at least as this Court understands TM's argument. TM does not disagree that both patents disclose a switch that decodes at least one message element in order to route a message -- Lawrence at the specification at column 18, line 11-63 of the patent and Figure 15 (A. 2172, 2183) and TM in its specification. 1 But there is a critical difference between the two patents: Lawrence will not transmit the message to its destination until the entire message is received at one point in the system, while '773 will transmit the message without waiting for the tail end to catch up to the front. That is what makes '773 a significant improvement over the prior art. Nothing in Celeritas or any other case that has been brought to the Court's attention precludes patentability when an old concept (decoding address elements in order to forward a message within a massively parallel processor) is carried out in a new and materially improved way (wormhole routing as opposed to store and forward). This, while IBM is correct that "Anticipation under Section 102 can be found only when the reference discloses exactly what is claimed . . . ." Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 780 (Fed. Cir. 1985), it is wrong in supposing that TM could not overcome the Examiner's literalist approach to anticipation by pointing out where the critical distinction between the two routing systems lay. Focusing only on the literal terms of the two computer systems, the Examiner found anticipation because he did not understand the difference between store and forward (Lawrence) and wormhole routing (773). Once he understood that difference, he had no difficulty concluding that '773 represented a significant and patentable improvement over Lawrence -- regardless of the number of address elements that had to be decoded under each patent in order to identify a message's destination.

1 The Court finds it interesting that neither party disclosed the decoding of multiple address elements in its claim limitations, but relied on that particular feature only in describing the preferred embodiment.

TM also calls the Court's attention to another portion of the file wrapper, one that was not addressed in the parties' initial submissions. When the Examiner rejected Claims 2 and 8 on the ground that Lawrence anticipated them (discussed above), he also rejected dependent Claims 3 and 9, where messages had only one address element. (A. 2097) IBM correctly points out that Claims 3 and 9 were not rejected on the ground of anticipation, but rather on the ground of obviousness. 2 After reviewing the Examiner's reasons for rejection, I cannot say that either TM's argument derived from same or IBM's response to that argument adds anything to the equation.

2 I wish that TM had never brought this section to my attention, because deciphering it has caused the Court no end of grief. As far as I can determine, the Examiner concluded that a message could only have one address element if it were in a two-processor system -- in which case, there would only be one place for the message to go. Indeed, the Examiner repeated several times that the situation disclosed in Claims 3 and 9 could only arise in a two-processor computer system -- a fact that obviously bothered him no end. I do not think that his rejection sheds any light whatever on the present problem.

The Court has taken a stream of consciousness approach to this question, but it was the best way to arrive at an answer. And the answer is that I was correct in the first instance. I might wish that TM had not made the particular verbiage change that has given me and the parties so much agida, and I suspect TM wishes it had not done so as well. However, looking at the entire file wrapper (as Elkay instructs), I am constrained to conclude that the language change from "at least one" to "one" -- viewed (1) in the context of a "comprising" claim, (2) in light of the disclosed specification, and (3) in view of the distinction between '773 and Lawrence that was argued by TM and accepted by the Examiner -- was not made to overcome prior art and does not preclude a finding that the phrase "decoding one address element" includes "decoding at least one address element.

- 3250 -
The parties next dispute the claim language concerning "one first capacitor" and "one second capacitor." This language also appears in claim 41 of the '364, quoted above, and in claim 71 of the '934 Patent, which discloses:

71. A revenue meter for measuring the delivery of electrical energy from an energy supplier to a consumer through an electric circuit, said meter comprising:

- a draw-out chassis coupled with said meter and operative to fit within a switchboard enclosure;
- terminals disposed on said chassis for engaging matching terminals within said enclosure;
- a display;
- a meter cover operative to enclose said meter and said display within said enclosure;
- a seal connected with said meter cover and operative to prevent removal of said meter cover and indicate tampering with said meter;
- a first power supply coupled with said electric circuit and operative to provide power to said meter from said electric circuit under normal operating conditions; and
- a second power supply operative to provide power to said meter when a power quality event occurs on said electric circuit, said second power supply including:
  - at least one first capacitor coupled with said electric circuit and operative to store electrical energy from said electric circuit;
  - at least one second capacitor coupled with said at least one first capacitor and said meter and operative to store electrical energy from said electric circuit;

said first and second capacitors further operative to provide said energy to said meter when said power quality event occurs.

Claim 72, which depends from claim 71, also discusses the first and second capacitors; it discloses "[t]he revenue meter of claim 71 wherein said at least one second capacitor has a higher capacitance than said at least one first capacitor." U.S. Patent 7,006,934 B2, col. 50, line 39 - col. 51, line 3. Claim 42 of the '364 Patent, which depends from claim 41 of the '364 Patent, is identical. See U.S. Patent No. 6,792,364 B2, col. 43, lines 46-48.

Square D argues that this language means "a first capacitor operative to store electrical energy, and a second capacitor operative to store electrical energy." EI contends that the "first capacitor" language should be construed to mean "a low energy capacitor bank to provide dc ripple filtering energy storage sufficient to meet the energy requirements of the meter electronics for event detection and data storage;" and that the "second capacitor" language should be construed to mean "a high energy capacitor bank to provide dc ripple filtering and energy storage sufficient to meet the energy requirements of the meter electronics for event detection and data storage."

To support its proposed construction, EI argues that the distinction between the one low energy capacitor bank and the second high energy capacitor bank is "fundamental to the successful operation of the revenue meter." Opening Claim construction Brief, p. 25 (quoting U.S. Patent No. 7,006,934, col. 18, lines 36-38; U.S. Patent No. 6,792,364, col. 14, lines 42-44. And, to be sure, there is language in the specification to this effect. The specifications of both patents state that "[t]he division of energy storage into two separate high and low energy capacity banks 930 and 935 is fundamental to the
successful operation of the revenue meter, particularly when the meter is being powered by the end use in calibration test
fixtures as is typically done in utility company meter shops." U.S. Patent No. 6,792,364 B2, col. 14, lines 42-47; U.S Patent
No. 7,006,934 B2, col. 18, lines 36-41. But the specification also makes clear that this language refers to the power supply
of the preferred embodiment, and that it need not be true of all embodiments. Accordingly, it would be inappropriate to read
this limitation into the claims.

The doctrine of claim differentiation bolsters this conclusion. This doctrine, which is admittedly more a guide than a rigid
rule, instructs that "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the
limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1315, quoted in Halliburton Energy
Services, Inc. v. M-I LLC, 514 F.3d 1244, 1252 n.3 (Fed. Cir. 2008)(citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d
898, 910 (Fed. Cir. 2004)). Claims 42 and 72, which depend, respectively, from claims 41 and 71, disclose a second
capacitor with a "higher capacitance" than the first capacitor. This is strong evidence that no limitation concerning
capacitance should be read into the independent claims. Accordingly, the Court adopts Square D's construction of "one first
capacitor . . . and one second capacitor . . . ."

5. "one of a selection of formats"

The plaintiff contends that the term "one of a selection of formats" means one of a plurality of types of data. The defendants
assert that the term means that each record includes an indicator determining a single way of multiple available ways to
display the record on the television screen.

The term is found in each of the four claims at issue, as follows:

Claim 8: "the database having individual first records, each first record comprising one of a selection of formats, at least
one of the first records comprising executable program code or an object. . . ."

Claim 15: "the users database comprising individual records comprising records recovered from the data stream, the
individual records comprising one of a selection of formats and at least one record comprising executable program code or
an object broadcast from the first records. . . ."

Claim 22: "the user records recovered from the broadcast database records comprising one of a selection of formats and
at least one record comprising executable program code or an object broadcast from the first records. . . ."

Claim 29: "a database having individual first records, each first record comprising one of a selection of formats, at least
one of the first records comprising executable program code or an object. . . ."

The dispute is linked to the definition of "record" and whether a record must be displayable. In the present setting, the issue
is whether a selection of formats is limited to how data is arranged on a display screen or whether it includes also how data
is arranged in a record, data file, or storage device. I already have construed "records" to include both displayable records
and records which are not displayed.

The defendants advanced the definition of "format" contained in the McGraw-Hill Dictionary of Scientific and Technical
Terms (5th ed. 1994). Defendants Joint Opening Claim Construction Brief for the '094 Patent, at p. 28. The plaintiff
endorsed that definition at the Markman hearing. Record, at p.43. The McGraw-Hill Dictionary defines "format" as "the
specific arrangement of data on a printed page, display screen, or such, or in a record, data file, or storage device." Id. at
792.

I adopt the ordinary meaning of the term "format" advanced by all of the parties and construe the term to mean the specific
arrangement of data on a printed page or display screen or in a record, data file, or storage device.

Selection also has an ordinary meaning. "Select" means "to choose from among several. . . ." The American Heritage
Dictionary of the English Language, at 1177.
Combining the ordinary meanings of the two words, I construe the term "one of a selection of formats" to mean one of several arrangements of data on a printed page or display screen or in a record, data file, or storage device.

I reject the defendants' argument that each record must include "an indicator" determining the format. See Defendants Joint Opening Claim Construction Brief for the '094 Patent, at p. 29. Any such construction would improperly import into the claims a limitation from an embodiment of the patent. Texas Digital, 308 F.3d at 1204("Consulting the written description and prosecution history as a threshold step in the claim construction process, before an effort is made to discern the ordinary and customary meanings attributed to the words themselves, invites a violation of our precedent counseling against importing limitations into the claims"). There simply is nothing in the language of the claims that requires each record to have "an indicator."

"only a single tournament game is playable for each sequence"

Dependent claim 5 contains the next disputed phrase:

(5) A system according to claim 1 wherein only a single tournament game is playable for each sequence within the at least one sequence of tournament games.

JVL argues that "only a single tournament game is playable for each sequence" means "each sequence of tournament games consists of two or more repetitions of the same tournament game." Def.'s '887 Presentation at 30. This interpretation builds upon JVL's construction of "sequence of tournament games" offered with respect to claim 1(b). JVL's construction was not fully adopted. Rather, as discussed above, "sequence of tournament games" means "one or more type(s) of tournament game(s) played at least times in succession."

Merit's proffered construction is "only a single tournament game is playable in a sequence of tournament games." It argues that construing "only a single game" to mean "two or more repetitions of the same tournament game," as JVL does, is "plainly wrong" and has "no basis" in the patent. However, JVL has not simply equated a "single" game with "two or more." Its argument here is consistent with its argument with respect to claim 1, namely, that a sequence of tournament games, as claimed in claim 1(b), must include at least two games.

There is a difference between playing a single type of game, such as Solitaire, one time, and playing Solitaire more than once. JVL's construction captures this distinction. Referring back to claim 1, claim 5 states that each sequence includes the play of only a single tournament game. JVL points out that while claim 1 does not say what tournament games are included in the sequence, claim 5 specifically requires that the same tournament game is repeated in sequence. Claim 5 provides a further limitation on claim 1, by requiring that the sequence be made up of only one type of game. It does not indicate that a sequence consists of one play of a single type of game. Accordingly, JVL's construction, "each sequence of tournament games consists of two or more repetitions of the same tournament game," is adopted.

"Only Four Elements"

The district court provided the jury with the following construction of "only four elements":

"Only four elements" is another illustration of the advantages of the patented thing, but unnecessarily dividing a single component into two does not necessarily keep a five-part thing from infringing.

While a five-part component might be equivalent to a four-part component, they never can be literally the same. It is not clear from the instruction whether the district court was directing this explanation to the doctrine of equivalents. However,
at the trial the experts for both sides, and counsel in argument, drew this distinction and explained it to the jury.

While prosecuting the application that led to the '482 patent, the applicants not only added "only four elements" to the preamble of what became claim 6, but also argued that the simplicity of this construction made it novel and nonobvious over the cited references, none of which showed such an easily manufactured packaged component. Consequently, we find this prosecution history important in determining the effect of the "only four elements" portion of claim 6. The applicants were clearly arguing that these words were significant to the claim. Since to literally infringe claim 6 an accused device must have only four elements, no reasonable jury could have found infringement.

6. Only if

In prior cases, the court has not defined the term "only if." Samsung contends that the court should adopt a construction for the term in this case to mean "at no time other than when." The court rejects this construction and remains persuaded that this term needs no construction and will be understood by a jury.

4. only if said electrical condition is outside a predetermined range

The court rejects Rohm's argument and concludes that this term needs no construction.

This case comes before the court for construction of a claim term pursuant to a remand from the United States Court of Appeals for the Federal Circuit. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351 (Fed. Cir. 2008). Pursuant to that court's mandate, this court must construe the "only if" limitations in the asserted patents. Claim 1 of the '615 patent is illustrative of the relevant claim language. It provides, with the pertinent portion italicized, as follows:

A DC/AC converter circuit for controllably delivering power to a load, comprising an input voltage source; a first plurality of overlapping switches and a second plurality of overlapping switches being selectively coupled to said voltage source, said first plurality of switches defining a first conduction path, said second plurality of switches defining a second conduction path; a pulse generator generating a first pulse signal; a transformer having a primary side and a secondary side, said primary side selectively coupled to said voltage source in an alternating fashion through said first conduction path and, alternately, through said second conduction path; a load coupled to said secondary side of said transformer; and a feedback control loop circuit receiving a feedback signal indicative of power being supplied to said load, and adapted to generate a second signal pulse signal for controlling the conduction state of said second plurality of switches only if said feedback signal is above a predetermined threshold; and drive circuitry receiving said pulse signal and controlling a conduction state of said first and second plurality of switches based on said first and second pulse signals, wherein, said drive circuitry alternating the conduction state of said first and second plurality of switches, controlling the overlap time of the switches in the first plurality of switches, and controlling the overlap time of the switches in the second plurality of switches, to couple said voltage source to said primary side. '615 Patent, claim 1 (emphasis added).

The parties dispute whether the "only if" limitation allows for exceptions. The plaintiff asserts that the limitation applies solely to the steady state operation of the circuit. The defendants argue that the limitation is drafted in exclusive terms and therefore applies at all times the circuit is operating, with no exceptions, to include the start-up, steady state, and shut-down phases of the device.

Using claim 1 of the '615 patent as an example, the plaintiff's proposed construction is:
when the feedback control loop circuit is receiving a feedback signal indicative of power being supplied to the load, the feedback signal must be above a predetermined threshold for the second pulse signal to be controlling the conduction state of the second plurality of switches.

The defendants' proposed construction, which would apply to all of the asserted claims, is:

In the context of the disputed claims, "only if" means that, during all times including start-up and shut-down of the device, the feedback circuit must not be active unless the feedback signal is above the predetermined threshold or outside the predetermined range and must cease being active immediately and without delay when the feedback signal stops being above the threshold or outside the range.

The court has first considered the language of the claims. See Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The "only if" language is drafted in exclusive terms. Under the language of the claims, the feedback control loop circuit controls the conduction state of the second plurality of switches "only if" said feedback signal is above a predetermined threshold. In other words, if the feedback signal is not above a predetermined threshold, then the feedback circuit does not control the conduction state of the second plurality of switches.

Second, because "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification," the court has also considered the specification. Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc). In the embodiment disclosed in Figure 2 of the patent, the feedback signal does not control the conduction state of the second plurality of switches during start-up. Instead, a predetermined amount of power is supplied to the switches to increase the power to the load until the lamp strikes. Once the lamp strikes, current flows through the feedback circuit, and power is then controllably delivered to the lamp by using the feedback signal to control the conduction state of the second pair of switches. '615 patent, col. 7:5-26. The specification is thus consistent with the defendants' view that the claim language applies at all times. The claim language, read in light of the specification, persuades the court that the "only if" limitation applies during the start-up, steady state, and shut-down modes of the circuit.

The defendants overreach, however, with their proposed construction. The cited portion of the prosecution history relating to Henry falls short of establishing a prosecution history disclaimer. Similarly, the court is not persuaded that the patentee's statements regarding the Rohm reference require the additional limitations proposed by the defendants.

Accordingly, using claim 1 of the '615 patent as an example, "only if" means that, during all times, including start-up, steady state, and shut-down of the device, the feedback circuit must not control the conduction state of the second plurality of switches unless the feedback signal is above a predetermined threshold. If the feedback signal is not above the predetermined threshold, then the feedback circuit must not control the conduction state of the second plurality of switches.

A. Claim Language

Claims 1 and 11 of the '920 patent are "means-plus-function" claims. 35 U.S.C. § 112 P 6 enables the drafter of the claims to describe the function, or functions, performed by a means described in the specification. Means-plus-function claims must be construed to cover the structure disclosed in the specification and its equivalents. U.S. v. Telectronics, 857 F.2d 778 (Fed. Cir. 1988).

Claim 1 reads:

1. An overvoltage protection circuit used with a pair of telephone lines comprising: first voltage clamping means for clamping voltage signals on said lines at a first predetermined voltage potential;

 second voltage clamping means for clamping voltage signals on said lines at a second predetermined voltage potential; and
filter means responsive to said second voltage clamping means for filtering noise or transients signals from said voltage signals only when said voltage signals exceed said second predetermined voltage potential. [Emphasis added]

Claim 11 reads:

11. An overvoltage protection apparatus used with first and second conductors connected to a telephone system or other similar communications source for protecting a subscriber station, said overvoltage protection apparatus comprising:

first means connected between the first and second conductors for conducting current while at a voltage greater than or equal to a first breakdown voltage and for blocking current while at a voltage below said first breakdown voltage;

second means coupled between first and second conductors for conducting current while at a voltage below said second breakdown voltage; and

means connected in series between said first and second means for filtering noise or transients signals from said first and second conductors only while said second means is at a voltage greater than or equal to said second breakdown voltage. [Emphasis added]

To resolve this dispute the court must first examine the words of the claims. Vitronics, 90 F.3d at 1582. In both claims, there are three elements. The dispute is focused on the third elements of claim 1 and claim 11. The third element in claim 1 is a "filter means responsive to said second voltage clamping means for filtering noise or transients signals from said voltage signals only when said voltage signals exceed said second predetermined voltage potential." The third element in claim 11 is a "means connected in series between said first and second means for filtering noise or transients signals from said first and second conductors only while said second means is at a voltage greater than or equal to said second breakdown voltage." Plaintiff argues that the "only when" and "only while" limitations apply solely to this third element. Defendant, on the other hand, argues that this restriction applies to the entire claim and thus the whole device depicted in the '920 patent.

If plaintiff's argument succeeds, the '920 patent covers all devices that incorporate a low pass filter with a TVS, thereby creating a filter that does not operate unless a predetermined voltage is reached. This construction would include devices that have an additional ability to filter the incoming signal when the threshold voltage has not been reached. In other words, the presence of two filters, one operating at all times and another using the low pass filter/TVS combination, would not be immune from infringement. If defendant's argument succeeds, the '920 patent's scope is restricted to entire devices that will not in any way filter the signal if the threshold voltage is not reached. Under this construction, any device that filters when the voltage is below the threshold voltage cannot infringe. To determine which argument is valid, the court must examine the language of the claims, the language of the specification, and the prosecution history.

Words in the claim are generally given their ordinary and customary meaning. Id. However, the patentee may "chose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as it is clearly stated in the patent specification." Id. A precursory review of the specification shows no such special definition of "only." Thus, at this stage in the analysis, the limiting phrase, "only when said voltage signals exceed said second predetermined voltage potential" is given its ordinary meaning.

A grammatical analysis supports a construction that the "only when" phrase should be limited solely to the "filter means." Claim 1, as issued in the '920 patent, has a preamble phrase and three supporting phrases. As a matter of grammar, if the limitation was intended for the whole device, the limiting phrase should have been in the preamble. See Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620-21 (Fed. Cir. 1995)(holding that words appearing in the preamble of a patent claim can provide a limitation applied to the claim as a whole). The presence of the "only when" language as part of a separate supporting phrase implementing a distinct element required in the claimed invention establishes that the limitation of operation applies solely to the filter means, not the entire device.

While this grammatical approach appears plausible, the esoteric nature of patent law leaves open the possibility that patent claims are not to be construed according to these guidelines. Two Federal Circuit cases, however, support the grammatical analysis. In a case involving electric furnaces, the Federal Circuit decided whether the limiting language "consisting of" located in a clause and not the preamble should be applied only to the element in that clause or rather to the claim as a whole. Mannesmann Demag Corp. v. Engineered Metal Products Co., 793 F.2d 1279, 1282 (Fed. Cir. 1986). In
Mannesmann, the court held that the correct reading was to apply the limitation solely to the clause in which it was located.

The second case involved similar claim language to that in dispute. In Lewmar Marine, Inc. v. Barient, Inc., the Federal Circuit reversed the district court's finding of invalidity due to anticipation. 827 F.2d 744 (Fed. Cir. 1987). Lewmar involved a patent covering sailboat winches. Id. The claim language included a limiting phrase in means-plus-function claims. 2 Id. at 747 n.1. In Lewmar, the court held that the "only upon" restriction applied to the "means automatically to disconnect the disconnectable drive means" precluded any other method of shifting gears in the winch beside reversing the direction of cranking. Id. at 750. Defendant argues that this precedent bars plaintiff's claim construction because the Federal Circuit applied this restriction to the entire device. While Lewmar definitively enforces the use of "only" as an absolute limitation in claim language, it does not mandate application of a limiting phrase to claim language external to the clause in which the phrase is located. See Id. at 749-50. Even though not explicitly stated by the Federal Circuit, its holding in Lewmar is a logical extension of applying this restriction solely to the element in which it was located.

Footnotes

2 One claim at issue in Lewmar was claim 1, which read:

1. A winch in which there are more than two drive trains between a drive shaft and the winch drum offering respectively different drive ratios of drive of the drum in one sense of rotation,

   at least one of the drive trains having a disconnectable drive means, the ratios being successively engageable by successively opposite directions of rotation of the drive shaft,

   a preselector operable to determine which one of two of the said drive ratios engageable upon a given said direction of rotation of the drive shaft will be engaged,

   the reselector being thus operable by causing connection or disconnection of the disconnectable drive means in one of the said drive trains, and means automatically to disconnect the disconnectable drive means only upon reversal of the drive shaft from the given said direction of rotation.

End Footnotes

While the two cases support the elemental limitation interpretation, they did not do so merely by examining the grammar of the claims at issue. Rather, both cases additionally examined the specification and the prosecution history to determine whether their grammatical constructions correctly defined the scope of the invention. The court now proceeds to examine the specification of the '920 patent.


The specification acts as a dictionary when it defines terms in the claims; either expressly or implicitly. Vitronics, 90 F.3d at 1582. It is the "single best guide to the meaning of a disputed term." Id. The use of "only" must be read in light of inventor's description and purpose of the invention. Lewmar, 827 F.2d at 750. An examination of the '920 patent specification fails to present any reason why filtering below the threshold voltage should be precluded.

The detailed description of the invention asserts that "in normal operation data signals are unaffected by the frequency response of the filter comprised of resistor 14 and capacitor 22." Since the resistor and capacitor cited constitute the filter means in this embodiment, this statement provides the best insight into the meaning of the "only when" limitation. This phrase explicitly states that the data signals are unaffected by the specific filter means disclosed, not unaffected by any filtering at all.

The summary of the invention also supports this interpretation. The importance of the device is repeatedly stated as the ability to eliminate transient signals above the data signal voltage and below the ring voltage. The importance of preventing any additional filtering is not mentioned anywhere in the patent. Rather, the focus is on enabling a specific method of filtering which is dependant on both voltage and frequency. The inclusion of this specific method of filtering does not
exclude the use of any other filtering method to remove undesirable signals from a telephone line.

Plaintiff additionally asserts that defendant's interpretation cannot be correct because it would prevent the embodiment in the patent from being covered by its own claims. A claim interpretation that would exclude the patentee's device is rarely the correct interpretation. Modine Manufacturing Co. v. U.S. Inter. Trade. Com., 75 F.3d 1545, 1550 (Fed. Cir. 1996). When such an interpretation is viable there must be "highly persuasive evidentiary support." Id. Plaintiff states that any TVS device has a certain amount of inherent capacitance that will cause the circuit to attenuate high frequencies even when the signal voltage is below the threshold voltage. Consequently, plaintiff's embodiment itself has an inherent low pass filter which operates even below the threshold voltage.

Plaintiff is correct; it would be incorrect to interpret the claims to exclude its embodiment. As the U.K. decision found, there is inherent filtering in plaintiff's device due to the inherent capacitance of the TVS. However, this does not mandate agreement with either plaintiff's or defendant's claim interpretation. The inherent filtering implicit in plaintiff's device is not mentioned in the '920 patent because it will filter out only very high signals which are typically of no concern. Thus, the inherent filtering is of no consequence. To be correct, defendant may be in arguing that any inherent filtering or additional filtering does not negate infringement. On the other hand, defendant could argue consistently with plaintiff's embodiment that any intentionally designed filtering added into the circuit is free from infringement. Thus, defendant's suggested interpretation of the limitation clause can be reconciled to include plaintiff's disclosed embodiment by acknowledging the relevant frequency range and lack of filtering in this range by plaintiff's device. The inherent filtering argument does not lend itself to resolution of the claim construction other than to identify the practical nature of the devices utilized.

C. Prosecution History

The prosecution history sheds the most light on this dispute. The prosecution history consists of the communications between the patent examiner and the patent attorney prosecuting the patent application, including any express representations made concerning the scope of the claims. Vitronics, 90 F.3d at 1582. If any interpretation was disclaimed during the prosecution, the prosecution history excludes that interpretation from the claim construction. Id. at 1583.

The patent application that eventually issued as the '920 patent was initially rejected as obvious in light of an earlier patent known as the Standler patent. This rejection was resolved in a conversation with the patent examiner on November 17, 1987. The claims overcome the rejection when the patent attorney agreed to add the "only" clauses. Defendant argues that this addition requires that if there is a series inductor or if a device filters all the time, it cannot infringe the '920 patent.

By examining the Standler patent, one can see that there are both TVS devices and a low pass filter arrangement. Yet, in the Standler patent, the TVS and the low pass filter operate independently of each other. Neither the filter means nor the TVS was novel. What made plaintiff's device patentable was the joining of the two to create a new filtering apparatus dependant on both frequency and voltage.

In the communications to the examining attorney in the Patent Office, the attorney prosecuting the patent application stated that plaintiff's device was patentable over this prior art because the transient voltage did not have to be greater than the ring voltage to be eliminated. This statement supports that necessity for a co-dependence between the TVS and the low pass filter components to correctly eliminate the undesired signals. The office action rejecting the initial patent application restricted the claims construction to a device in which the TVS and low pass filter operate together to eliminate unwanted signals. The '920 patent cannot claim devices that solely use a TVS and low pass filter independently.

Defendant's argument that there cannot be a series inductor is clearly without merit. Nowhere in the prosecution history does the examiner or the patent attorney refer to the inductor as barring patentability of plaintiff's device. An inductor in series with a resistor operates as a low pass filter. Nowhere in the prosecution history, specification, or claim language is the use of other types of low pass filters abandoned.

Defendant's other argument, that the Stander prior art eliminates all-the-time filtering, is also tenuous. Filtering all the time is a gelatinous phrase. It may apply to the filter means or the entire device. Prosecution history estoppel bars recapture of only that subject matter actually surrendered during prosecution. Litton Systems, Inc. v. Honeywell, Inc., 140 F.3d 1449, 1455 (Fed. Cir. 1998). The claim amendment prevents the patentee from recovering the subject matter that the applicant had
to abandon in order to obtain a patent. Id. at 1456. During prosecution, claims are to be given their "broadest reasonable interpretation." In re Donaldson, 16 F.3d 1189, 1194 (Fed. Cir. 1994). Thus, it follows that any additions to overcome prior art were made with the intention of narrowing the claim coverage as little as possible. There is no evidence in the prosecution history supporting a need to prevent overall filtering solely on the basis of frequency.

In the instant case, the patent attorney had to overcome the presence of a TVS and a low pass filter in another patented device. To do this, the "only when" language was added. As a result, a new filter apparatus was patented which was dependent both on frequency and voltage. Thus, the "filter means" was in operation only when a certain threshold voltage was reached.

D. The Meaning of the Limitation Clause

Due to the lack of any evidence demonstrating the need to limit filtering to that effectuated by the "filter means" disclosed in the '920 patent, it is difficult to find support for defendant's argument that the limitation clauses in claims 1 and 11 should be applied to the whole claim and not the individual elements. The location of the limitation clauses in the supporting phrases rather than in the preamble of the claim, the focus on the ability to filter below the ring voltage in the specification, and the scope of the prior art cited in the prosecution history all support plaintiff's position.

Claims are construed to be interpreted by a hypothetical person skilled in the art at the time of filing of the patent application. Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867 (Fed. Cir. 1985). No evidence has been presented as to why a person skilled in the art would perceive a benefit from barring any additional filtering that operates independent of voltage. The court cannot find any evidence to counter the plain meaning of the claims viewed in light of the specification and prosecution history of the '920 patent. The "only" limitation clauses are applicable only to the elements described in the phrases in which they are placed. Thus, only the "filter means," as described in claim 1, or the "means connected in series," as described in claim 11, are restricted to operate only when the voltage exceeds a predetermined threshold voltage. Since the intrinsic evidence clearly resolves the ambiguity, it would be incorrect to continue to examine extrinsic evidence. Vitronics, 90 F.3d at 1583.

E. "Comprising"

Both claims 1 and 11 complete their preambles with the word "comprising." "Comprising" is a term of art in patent claim drafting that means "the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 500 (Fed. Cir. 1997). In other words, the term "comprising" signifies inclusiveness. One cannot avoid infringement by adding elements if each element recited in the claims is found in the accused device. A.B. Dick Co. v. Burroughs Corp., 713 F.2d 700, 703 (Fed. Cir. 1983). All the elements must be found in the accused device. If these elements are found, the accused device infringes.

Defendant asserts the patentability of its invention over the '920 patent. Patentability and infringement are not mutually exclusive. Thus, the additional of any elements to what is covered in the '920 patent, even if sufficient to become patentable, does not absolve the new invention from infringing. If the elements of the '920 patent are present, the device infringes.

F. Conclusion on Claim Construction

The claim language in dispute in the '920 patent is construed in accordance with the plaintiff's arguments. The third element, the filter means, is read as operated by a voltage-controlled on/off switch. Additional elements may be added so as to filter the relevant range of frequencies regardless of the voltage. However, these are additions. So long as the frequency response of the alleged device changes when the threshold voltage of the second element in the claim is reached so as to attenuate, or increase attenuation, of the undesired high frequencies within the relevant frequency range, the device incorporates the third element of claim 1 or claim 11.
mean "a category for which a category label is displayed and individual item labels are displayed for every item in the category."
Both parties agree than an "open category" is, at least, a category for which item labels are displayed for every item in the category. The essential dispute, however, is whether a category label is displayed for both open and closed categories. For the reasons stated earlier, the claim language does not require the display of category labels for opened categories. Sklar specifically left out this requirement from the claim language. Therefore, the Court accepts Sklar's proposed construction.

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1. Open lamp condition.

Several claims of the '129 patent include the term "open lamp condition." n1 Samsung seeks a construction of "open lamp" to mean "a situation in which the lamp is not connected to the converter." O2 suggests that the term needs no construction, but should be given its ordinary meaning. In any event, O2 contends that an "open lamp condition" is broader than Samsung proposes and includes situations where the lamp has failed or is broken.

n1 For example, claim 13 claims "a circuit as claimed in claim 1, wherein said predetermined range indicates an open lamp condition."

The court holds that one of ordinary skill in the art, reading the claim language in light of the specification, would apply Samsung's definition. Various claims of the '129 patent use the term "open lamp condition." Still others use the term "short circuit condition." Compare '129 patent, claims 21 and 22. Although the specification is somewhat ambiguous, it appears to use the term "open lamp condition" to refer to the condition in which the CCFL lamp has been removed or is not connected to the converter. Column 9 of the '129 patent describes a time-out sequence designed to shut off the circuit in the case of an open lamp condition. The relevant passage states:

'Drive pulses are disabled once the time-out is reached, thus providing safe-operation of the converter circuit. That is, circuit 60 provides a sufficient voltage to ignite the lamp, but will shut off after a certain period if the lamp is not connected to the converter, so that erroneous high voltage is avoided at the output. This duration is necessary since a non-ignited lamp is similar to an open-lamp condition.'

'129 patent, col. 9, ll. 8-15. Read in light of this passage of the specification, the term "open lamp condition" means "a condition in which the lamp is not connected to the converter."

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3. "Open orders"

ITG/Pulse proposes that the term "open orders" be construed to mean "firm orders, i.e., binding purchase or sale offers that can be executed without a further affirmative action by the trader; not contemplated or completed orders." 77 Liquidnet proposes that the term should be construed to mean "instructions to buy or sell a quantity of a security not yet placed elsewhere (i.e., where the total order size exceeds the quantity, if any, committed to another broker or other execution venue)." 78 The major distinction between the parties' constructions is whether an order's "open" status means that it has already been placed in another venue -- besides the ETM contemplated by the patented method -- for execution. ITG/Pulse argues that the "open" status of an order indicates that it has already been placed in another venue for execution but has not yet been executed. 79 Liquidnet, in contrast, argues that the "open" status indicates that the order has not yet been placed elsewhere for execution, and that a trader has only indicated internally to others within his or her investment firm that a
While the claim language and the specification do not explicitly define the term "open orders," these sources of intrinsic evidence most directly support Liquidnet's definition of the term. The claim states that the OMS contains records of orders -- including a field identifying "the total order size" and a field describing the "quantity of the security placed elsewhere." 81 According to the specification, in a preferred embodiment, "the ETM uses the values of these two fields to determine a quantity of the security if any, that are [sic] available to be transacted to the ETM." 82 The specification, therefore, contemplates at least one embodiment of the invention wherein the term "open orders" (i.e., those orders that are accessed and ultimately transmitted to the ETM) refers to the subset of orders that have not been placed elsewhere for execution. Furthermore, step (ii) of claim one states that the non-binding indications generated from the "open orders" indicate the "available quantity" of the security as "determined by the accessed records." 83 This claim language in step (ii) does not require, but is consistent with, Liquidnet's construction -- as the "available quantity" described in the claim would be determined by subtracting the quantity of a security placed elsewhere from the total order size (both of which can be determined by reference to the accessed records).

ITG/Pulse, obviously, objects to this definition, and provides evidentiary support for its view. Its most persuasive, but ultimately unavailing, argument is that Liquidnet disclaimed its construction of the term "open orders" during its prosecution of Patent '834. 84 In late 2004, Liquidnet, in arguing that its claims were not encompassed by prior art, told the PTO that its patented method "reflect[s] a conversion from firm orders to non-binding indications; from the proverbial 'apples' to 'oranges.'" 85 According to ITG/Pulse, this statement shows that the patented method involves the conversion of firm -- i.e., binding -- orders to non-binding indications, and that the original orders were binding because they had already been placed in another venue for execution. This statement, however, is not sufficiently unambiguous to constitute a prosecution disclaimer. 86 At the time the statement was submitted to the PTO, the claim language was different than it is now and referred to "orders" rather than "open orders." 87 Given that the specification identifies several different order statuses (e.g., open, contemplated, completed), it is apparent from the intrinsic evidence that the term "orders" is more inclusive than the subset described as "open orders." In addition, another portion of the prosecution history directly contrasts the patented method with a "system [in the prior art] that merely consolidates . . . bids and offers" already placed in other venues. 88 Accordingly, when the intrinsic evidence is considered "as a whole," the prosecution history statement describing the conversion of firm orders to non-binding indications is too ambiguous to constitute a prosecution disclaimer. 89

--- Footnotes ---

81 Patent '834 col. 12 ll. 62-63.
82 Id. col. 9 ll.42-45.
83 Id. col. 13 l. 4.
84 See Tr. at 5-6 (the proper construction "open orders . . . comes down to statements that were made by Liquidnet to the
Of course, the fact that this statement does not rise to the level of prosecution disclaimer does not eliminate its possible relevance. District courts use prosecution history to clarify claim language even when they are not applying the prosecution disclaimer doctrine. That said, because the prosecution history reflects an ongoing negotiation between the patent applicant and the PTO, it cannot be given precedence over the specification and the claims themselves, which reflect the final agreement between the parties. The specification and the claim language provide greater support to Liquidnet's definition. Accordingly, the term "open orders" means "instructions to buy or sell a quantity of a security not yet placed elsewhere."

--- End Footnotes ---

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An opening to expose the channel and via

The Court construes the phrase "an opening to expose the channel and via" in claim 11 of the '339 patent and claim 3 of the '442 patent as "an opening in the second soft mask where the channel and via are to be formed." Samsung argues that no construction is necessary because "via" and "channel" are described elsewhere in the patent and the remainder of the phrase is clear. However, the claims describe how the second soft mask covers the insulating layer and exposes the areas where the channel and via will be after the second etch is applied. This construction clarifies that the phrase refers to the area that is eroded by the second etch to form the channel and via.

MEI's construction--"an open portion of the second soft mask that is aligned with the region to form the channel and via such that substantially no portion of the second soft mask is in that region"--requires a high degree of precision that is not specified in the patent. Furthermore, this construction would likely require further construction to define what "substantially no portion" means.

--- End Footnotes ---

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13. Operable to perform unique operations on each component symbol

The plaintiff proposes that "operable to perform unique operations on each component symbol" should be construed to mean "capable of performing a distinct operation on each component of a data unit." The defendants urge that the disputed
phrase means "able to simultaneously perform different operations on each partitioned item of data." At issue is the meaning of the term "unique." The plaintiff contends it is sufficient that the multi-precision execution unit performs the same, single chosen type of operation (e.g., multiply) on each component symbol, albeit in different, separate, and distinct instances. See Plaintiff's Reply Brief at 33. The defendants insist, however, that the plaintiff's construction should be rejected because it does not reflect the definition of the term "unique." After considering the submissions of counsel, the court concludes that the plaintiff is correct. The court defines this term to mean "capable of performing a distinct operation on each component of a data unit."

C. "Operably connecting"

The term "operably connecting" first appears in claim 1 of the '611 patent, and again in claim 9. Virtually identical language appears in claim 18, the third independent claim, where it states "operably connect." Callpod contends that term means "connecting in a manner that allows a signal to flow from one point to another point." Defendants propose that the term should be construed as "physically connecting."

The language of the claims themselves supports Callpod's position. Claim 18 has an added limitation not present in the two other independent claims: "a wireless telephone interconnect cable adapted to operably connect. . . ." (JA, Ex. 1, '611 Patent, cols.5 ll.16-17.) The fact that the claim mentions a physical cable as a requirement to be adapted for the operable connection suggests that the previous claims that do not include the cable limitation are broader. See Intamin, Ltd. v. Magnetar Techs., Corp., 483 F.3d 1328, 1334-35 (Fed. Cir. 2007) (stating that where a later claim includes a limitation not present in an earlier claim, the earlier claim impliedly includes embodiments that do not include that limitation).

Defendants claim that the specification precludes such a broad reading of the claims for the specification refers solely to physical connections. Callpod argues that references in the specification concerning physical connections do not limit the scope of the patent but merely describe the preferred embodiment. The detailed description of the invention in the patent falls under the heading, "Detailed Description of the Preferred Embodiment." (JA, Ex. 1, '611 Patent, at 1:60-61.) The fact that the claim mentions a physical cable as a requirement to be adapted for the operable connection suggests that the previous claims that do not include the cable limitation are broader. See Intamin, Ltd. v. Magnetar Techs., Corp., 483 F.3d 1328, 1334-35 (Fed. Cir. 2007) (stating that where a later claim includes a limitation not present in an earlier claim, the earlier claim impliedly includes embodiments that do not include that limitation).

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Claim 3 provides as follows: "The system of Claim 1 in which the actuating mechanism is operated remotely by sending signals from a communication device." Graham-White contends that the italicized phrase should be construed as "the actuating mechanism receives signals from a communication device that is not in contact with the actuating mechanism." Ellcon argues that Claim 3 is limited to wireless remote control. This court agrees with Graham-White's construction and therefore construes the phrase as follows: the actuating mechanism receives signals from a communication device that is not in contact with the actuating mechanism.

3. Operating Data

Lectrolarm proposes that "operating data" should be construed to mean:

the data inputted by the user through the control pad, buttons, and switches on the operating panel that direct the automatic reciprocating motion of the camera between defined points. The operating data must include at least position data (represented by angles of rotation, polar coordinates, or any other suitable units) and stopping interval data. Operating data may also include data specifying speed of rotation, pan and tilt at the discretion of the user.

The Defendants would interpret "operating data" to mean:

information that the controlling means uses to control the automatic operation. Operating data is not necessarily input directly by the user, but can be derived from the manner in which the user uses the system.

The plain language of Claim 2, P 2 requires that "operating data" be data that 1) is input using the structure of the input means and 2) that directs the automatic operation of the camera. U.S. Patent 4,974,088, Column 10:43-45.

The definition of "operating data," however, must be narrowed from the plain language of the claim. The patent describes two different types of automatic operation. The first is "rectilinear motion [of the camera] between two points A and B. . . ." U.S. Patent No. 4,974,088, Column 5:57-59. The second type involves automatically directing the camera to a pre-set home position when an alarm is triggered. U.S. Patent No. 4,974,088, Column 6:28-40. Claim 3, P 2 describes "home position data used for making said rotating camera base rotate to prescribed home positions during automatic operation." U.S. Patent No. 4,974,088, Column 8:61-64. To give separate meaning to the terms "operating data" and "home position data," "operating data" cannot be the data used in all types of automatic operation, but must only refer to the data used during automatic rectilinear motion of the camera base between points A and B.

Lectrolarm would like the court to include the language "the data inputted by the user through the control pad, buttons, and switches on the operating panel" in its definition of "operating data." That language is not appropriate. First, there is no need to recite the structure of the input means, which has already been defined. Second, the specification does not describe the user as "inputting" the "operating data." It describes the user as "setting" the operating data. U.S. Patent No. 4,974,088, Column 3: 59-60; 5:22-24.

Lectrolarm would also like the court to include the language "the operating data must include at least position data (represented by angles of rotation, polar coordinates, or any other suitable units) and stopping interval data. Operating data may also include data specifying speed of rotation, pan and tilt at the discretion of the user" in its definition of "operating data." There is no basis in the patent for the court to include this language. The patent does not speak to the nature of the data saved, but provides only that it is saved through use of the input means.

The court also declines to accept the Defendants' proposed definition because it is overly broad. The Defendants propose
stating that "operating data is not necessarily input directly by the user, but can be derived from the manner in which the user uses the system." The claims and specification make clear that the operating data is set through use of the input means. The Defendants proposed construction opens the door for use of structures other than the input means to set the operating data stored in the system.

Based on the patent claims and the specification, the court defines operating data as "data that controls the automatic operation of the camera base, and that is set through use of the structure of the input means."

C. "Wireless communication system/network operating in accordance with the GSM standard"

WiAV proposes that the term means: a wireless system/network that, consistent with the GSM standard, includes a paging channel that indicates the presence of pending telephone calls or paging messages and uses a time slot that is less than 1 ms and represents fewer than 128 bits. The Defendants propose the construction: system/network that transmits data between a mobile station and a base station over a 200 kHz radio channel using time division multiple access according to the Global System for Mobile communications specifications existing as of October 29, 1997.

1. Words of the Claim

Claims 1 and 2 of '920 Patent claim a method of operating a mobile station, comprising

scanning broadcast information in a wireless communication network for a short page channel;

receiving a single time slot of said short page channel containing one group of call alert data, said wireless communication network operating in accordance with the GSM standard, said single time slot being less than one millisecond in duration and representing less than 128 data bits; and

processing said one group of call alert data and determining from said group of call data alert whether a pending telephone call or paging message may have been directed to the mobile station.


receiving a short page channel transmitted by a wireless communication system operating in accordance with the GSM standard;

extracting paging data from a time slot of said short page channel;

determining from said paging data in said time slot that a telephone call or paging message may have been directed to said mobile stations, said time slot being less than one millisecond in duration and representing less than 128 bits; and

receiving four time slots of a paging channel and responsively determining whether the mobile station is an intended recipient of a telephone call or paging message.

Id. at 26:1-16 (emphasis added).

The focus of the interpretive dispute is the meaning of the phrase "in accordance with." WiAV contends that the phrase means consistent with the GSM standard. The Defendants argue that WiAV's proposed construction broadens the claim by removing the requirement that the system/network operate "in accordance with the GSM standard" and allowing merely a system/network that is "consistent" with the GSM standard.

The words "consistent with" are not used in the claims. The term, "in accordance with," is given no special meaning in the patent and nothing in the patent suggests that the words should receive any meaning other than their general usage meaning.
However, the text of the claims does not instruct further.

2. Specification

The parties' reading of the specification raises two issues. The parties first disagree over the general focus of this claim term. While the Defendants' construction focuses on transmission under the GSM standard, WiAV focuses on the general use of a paging system under the GSM standard. Both constructions find some support in the specification.

The Defendants' proposed construction finds ample support in the specification as well as the Redl textbook that is incorporated by reference in the specification. First, the specification states that GSM depends on "time division multiple access wherein mobile stations are allocated very short time periods within which to communicate." '920 Patent at 1:51-55. Additionally, the specification explains that mobile stations and base stations in a GSM system communicate using radio frequency channel with a width of 200 kHz. Id. at 7:35-36; see also Pl. Ex. F at WIA V0006012 ("...the GSM channel spacing is 200 kHz.") Finally, the specification provides that the "GSM specification provides eight time slots (or physical channels) in each 200 kHz radio channel." '920 Patent at 7:43-45. Thus, the specification shows that a wireless communications system operating in accordance with the GSM standard would be limited to a 200 kHz radio channel and would use TDMA, as argued by the Defendants.

WiAV argues that the use of a 200 kHz radio channel and TDMA are "incidental to the invention. Rather, WiAV argues, the claim term at issue refers to the receipt and processing of a paging channel. The specification explains that, when scanning for telephone calls or paging messages, "[e]ach alerted mobile station 106 then examines standard paging channel (PCH) information according to standard GSM specifications to determine whether the telephone call or paging message is intended for the respective mobile station 106." '920 Patent at 10:51-55. The specification also provides that, "[i]n accordance with the GSM standard, the mobile station 106 receives and processes standard paging channel 218 PCH information approximately every 0.5 to 2 seconds." Id. at 15:36-38. Thus, the specification also shows that the GSM standard referred to in the claim term is linked to the process of receiving and processing the paging channel information.

The second key point of contention between the parties is whether the claim term requires limitation to the GSM standard as of the date of filing, October 29, 1997. Generally, a claim's meaning "must be interpreted as of the filing date" because a "claim cannot have different meanings at different times." PC Connector Solutions v. SmartDisk Corp., 406 F.3d 1359, 1363 (Fed. Cir. 2005). Thus, the focus of the claim construction inquiry is "what one of ordinary skill in the art at the time of the invention would have understood the term to mean." Markman, 52 F.3d at 986.

The Defendants argue that the claim term must be limited to the GSM standard as of October 29, 1997. WiAV, on the other hand, argues that the term cannot require compliance with the GSM standard of October 29, 1997 because, at that time, the standard did not include short paging, which is essential to the claimed invention. WiAV argues that the Patent describes an improvement over the October 29, 1997 GSM standard. '920 Patent at 11:45-53 ("According to existing GSM-based wireless communications systems, mobile stations receive, store and process four time slots of a paging channel (PCH) to determine whether a telephone call or paging message is pending. Under the present invention, a mobile station 106 in standby mode (waiting for a telephone call or paging message) need never process more than a single time slot to detect the possibility that a telephone call or paging message has been directed to mobile station 106.") And, WiAV asserts that a person of ordinary skill in the art would have understood the invention as such and thus, would not have limited it to the October 29, 1997 GSM standard. Finally, WiAV argues, such a limitation would exclude all the preferred embodiments because they contain short-paging channels, which did not exist as part of the 1997 GSM standards. See Vitronics Corp., 90 F.3d at 1583 (an interpretation that excludes a preferred embodiment is "rarely, if ever, correct" and requires "highly persuasive evidentiary support.")

In response, the Defendants assert that the system must merely use the GSM transmission protocols existing as of October 29, 1997, the date the patent was filed. Those requirements, the Defendants argue, do not impact the use of a short paging channel or exclude the preferred embodiments. Thus, under the Defendants' construction the wording "in accordance with the GSM standard" does not preclude use of short paging channels, but instead requires only that the short paging channels be implemented in a network using the pre-existing GSM transmission protocols as set forth in the patent and the Redl textbook.

Use of a short paging channel clearly was not a requirement of the 1997 GSM standard. Thus, when reading the patent, one
of ordinary skill in the art would understand that a limitation to the transmission protocols under the GSM standard as of October 29, 1997 would not exclude the use of a short paging channel, which is an improvement in the GSM standard. Those transmission protocols are made clear in the specification, and it is appropriate to limit the term to the GSM transmission protocols existing as of October 29, 1997.

3. Prosecution History

WiAV argues that the correct meaning of the disputed term is clarified by an understanding of how it came to be part of the claim and the Patent. During prosecution of the '069 Patent, the parent patent, the applicant added the following limitation to claim 1: "said wireless communication network operating in accordance with the GSM standard, said single time slot less than 1 millisecond in duration and representing less than 128 data bits." (Pl. Ex. 5 at 2.) During prosecution, the applicant equated the GSM standard with the length of the time slot: "Applicant amended Claim 13 to clarify that the recited short page channel time slot is one in accordance with the GSM standard, and thus, is of less than one (1) millisecond in duration and represents less than 128 bits." (Id. at 9.) The limitation remained in the claims of the application that became the '920 Patent. Thus, says WiAV, the only relevant aspect of the GSM standard that the applicant sought to disclose during the prosecution was the length of the time slot. While the applicant did specifically limit the time slot, there is no evidence that the length of the time slot was the only relevant part of the GSM standard to which the disputed text referred.

The Defendants assert that, during prosecution, the applicant expressly disclaimed non-TDMA technologies, and thus, it is essential to the construction of the term that it include limitation to TDMA. "[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." Omega Eng'g Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). This doctrine protects the public's reliance on the applicant's statement and "precludes patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." Id. at 1323-24.

Here, the applicant attempted to distinguish prior art for which a claim was rejected by stating that "Kunkel provides a solution to the channel-scanning problem for non-TDMA technologies such as CDMA and FDMA and thus teaches away from the use of its technology when dealing with TDMA networks." (Def. Ex. F at WIAV0005902.) At the Markman hearing, it was clarified that the GSM standard utilizes both FDMA and TDMA, and that FDMA is considered to be the starting point for the GSM system but that the hallmark of a GSM system is the use of TDMA in addition to FDMA.

4. Proper Construction of "Wireless communication system/network operating in accordance with the GSM standard"

Overall, there is some support for both of the parties' constructions, but the Defendants' construction is more consistent with the intrinsic record. Certainly, the specification makes clear that the GSM system uses a 200 kHz radio channel and that it utilizes TDMA. And, the prosecution history shows that the applicant attempted to distinguish prior art based on the invention's use of TDMA. Thus, use of these aspects of the GSM standard in defining the term is appropriate.

Additionally, the Plaintiff's construction has very little meaning, especially when stripped of its redundant limitation of the time slot to less than 1 millisecond and representing fewer than 128 bits. Indeed, without this redundant limitation, the Plaintiff's construction says very little about the GSM standard under which the wireless system must operate.

The construction proposed by the Defendants is further supported by the fact that the term "in accordance with" is used throughout the patent consistently with its ordinary and plain meaning. The Merriam-Webster online dictionary defines "accordance" as "agreement" or "conformity." Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/accordance (last visited March 15, 2010). No definition equates "in accordance with" and "consistent with," the meaning urged by WiAV. Thus, given the ordinary meanings of the words of the claim, one of ordinary skill in the art would understand that the wireless system or network would operate in conformity or agreement with the GSM standard.

Therefore, the term will be construed as: system/network that transmits data between a mobile station and a base station over a 200 kHz radio channel using time-division multiple access (TDMA) in accordance with the Global System for Mobile communications specifications existing as of October 29, 1997.
"Operating mode" terms

Operating modes

Defendants argue that the term "operating mode" cannot be construed. Defendants contend it is unclear whether "operating mode" refers to a functioning status of the controller, which the user can control, or to external factors over which the user has no control. Defendants provide a general dictionary definition for each of the term's components: "operate" is "to perform a function; work" and "mode" is "a given condition of functioning; a status." See AM. HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed. 2000). Citing instruction manuals and the descriptions of prior art game surveillance cameras, Defendants argue that "operating mode" refers to a user-selected status of the camera during which certain functions are performed. Defendants contend that "operating mode" must include user selectivity and some change in the controller's function.

In the Summary section, the specification describes the controller as having at least two "operating modes." Col. 1:44. In the first operating mode, the controller activates the camera mechanism when the controller receives a triggering signal from the motion detector. Col. 1:44-47. In the second operating mode, the controller activates the activity counter and does not activate the camera mechanism when a triggering activity occurs. Col. 1:47-50. The Detailed Description states that in "one operating mode," the activity counter can increase and a picture can be taken when the signal is received. Col. 8:23-24. In "another operating mode," the controller can be set so that only the activity counter increases, and a picture is not taken. Col. 8:24-27. Another example of this mode is when the film runs out while pictures are being taken and the camera automatically-without user input-takes no pictures. Col. 8:27-30. This mode is described as the "activity counting mode." Col. 8:39-40.

The claims describe three operating modes. In claim 7, the controller has at least two operating modes. Col. 13:19. In a first mode, the controller activates the camera mechanism when the controller receives a triggering signal from the motion detector. Col. 13:19-22. In a second mode, the controller increases the number of the activity counter and does not activate the camera mechanism when the controller receives a triggering signal from the motion detector. Col. 13:22-26. In claim 8, which depends from claim 7, in the first mode the controller activates the camera mechanism and increases the activity counter when a triggering activity occurs. Col. 13:27-30. A third mode is described in claim 9, which depends from claim 7, in which the controller activates a test light and does not activate the camera mechanism when a triggering activity occurs. Col. 13:31-34. Claims 20, 23, and 26 contain the same description of "operating modes" as claim 7.

The specification clearly provides that an operating mode can be switched automatically or by the user. An "operating mode" is not defined by the manner in which it is selected. Defendants argue that an "operating mode" must be selected by the user but this construction is not supported by the specification. The specification provides that the camera can switch from "first mode" to "second mode" by the user's input or automatically when the film runs out. User input or selection is not a necessary element of an operating mode. The specification supports defining "operating mode" as a functional status of the controller irrespective of whether the user controls selection. Defendants argue there is no difference between the "first mode" and "second mode" because the controller does not change its functioning state at all. The specification states that when the film runs out, the activity counter can increase while no pictures are taken. Col. 8:26-29. It is implicit from the language that when the film runs out, the controller will not activate the camera mechanism. Thus, the functional status of the controller changes from the "first mode" to the "second mode." Defendants' contention that the controller does not change its functioning state is without merit. The Court construes "operating mode" to mean "a functional status which the controller can be placed in by the user or automatically without user intervention."

XVII. "Operating range"

The Court next construes the term "operating range" from claim 11 of the '925 patent.
A. The Parties' Proposed Constructions

Black & Decker proposes construing the term "operating range" as a "range typically required to operate radio." Bosch argues that the term "operating range" means "the voltage at which the radio operates."

B. The Court's Construction

The Court agrees with Black & Decker's proposed construction. Although the parties' proposed constructions are similar, substituting Bosch's proposed construction into the claim language would render the claim nonsensical because it would require a "voltage within the nominal voltage at which the radio operates." Based on the surrounding claim language, the term "operating range" must reflect a range, or some other disbursement of voltages, within which the claimed voltage can exist. Accordingly, the Court construes the term "operating range" as the "range typically required to operate the radio."

D. Operating Session

The parties agree that the term "operating session" refers to communications between the subscriber client computer and the server. Their main point of disagreement is over when it begins and ends.

Plaintiff contends that the language of Claims 1 and 24 provides that an operating session begins when the subscriber client computer's identity data is forwarded to the clearinghouse. (D.I. 266, pg. 27). Plaintiff contends that a subscriber is authenticated during an operating session, and authentication cannot be completed without identity data. Id. Plaintiff further contends that the inventors intended "beginning" to have its conventional meaning of "the time or place of starting." (Id. citing Webster's New Twentieth Century Dictionary (1983)).

Defendants contend that Plaintiff's proposed construction is overly broad, in that an "operating session" would inappropriately cover communications that never result in a successful log in or never grant access to the requested protected content. (D.I. 268). Defendants point to the patent abstract, which states that user/subscriber authentication is completed before an operating session occurs. (See '416 Patent, Abstract). Defendants note that the patent uses the terms "operating session" interchangeably with the terms "session" and "active session," to discuss something that is not started until after successful authentication. (D.I. 268, pg. 18-19 citing '416 Patent 7:48-53, 8:27-30, 10:17-21 and Figs. 17, 18). Finally, Defendants contend that an "operating session" ends when the user logs off or when the website forcibly logs the user off for lack of use. Id. at 19:26-37 and Figs 20, 22.

Reviewing the claim language in light of the specification, the Court concludes that "Operating Session" means "a period of communication between the subscriber client computer and the first server computer that follows successful initial authentication and ends upon termination of authorized access, such as upon a log-out or time-out due to prolonged inactivity."

Plaintiff does not contest Defendants' assertion that "session" and "active session" are used synonymously throughout the specification to refer to what the claim language calls an "operating session." Instead, Plaintiff relies upon Figure 18 to support its position that an operating session begins when identity data is transmitted during a login attempt. (D.I. 207, pg. 19). However, the description of Figure 18 refers to login, authentication and session initiation as three distinct, sequential, phases of a single process. (416 Patent, 3:20-22). Moreover, the figure details that a user must input its identity data, which is encrypted before being sent to the login enforcer. The login enforcer then sends the encrypted identity data and an "Initiate Session" message to the Session Initiator. (416 Patent, Fig. 18). At this point, with no session yet begun, the Session Initiator sends an "authenticate login" message to the clearinghouse, and the clearinghouse authenticates the login parameters. Id. It is only after the user's login parameters are authenticated that the "User Authentication Server" sends a successful "Authentication Response" to the Session Initiator, prompting the Session Initiator to create a new active session with a unique session ID. Id. Moreover, the specification states several times, "[i]f the login is successful, the subscription access server initiates a session[.]") (416 Patent, col 7, ll. 48-53; see also Abstract ("The clearinghouse authenticates the subscriber and server computers before an operating session begins.").
which builds sessions for every valid subscriber”), col. 8 ll. 27-30 (“When the CGIs get the login parameters sent by the subscriber software, they send a request to the session manager to authenticate the subscriber and start a new session.”), col. 13, ll. 42-53 and col. 17, ll. 45-50. Further, the invention has several features, such as the usage server and the URL tracking server, that are set to track what protected content is visited during an active session, so that information providers can keep a record of how, when, and how often users are accessing the information that has been made available to them. (See e.g. ’416 Patent, col. 4, ll. 55-59).

Therefore, in light of the process described in Figure 18, the language of the specification, and the described purpose of the operating session, the Court disagrees with Plaintiff that an “operating session” includes the transmission of identity data. Moreover, Plaintiff does not dispute that an operating session ends when a user is no longer authorized to access protected content. Accordingly, the Court concludes that an operating session follows successful initiation, and ends upon termination of authorized access.

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1. "operating system peer-level facility"/"component facility"

The term "operating system peer-level facility" appears in independent claims 1 and 7 of the 037 Patent, 55:21-22, 56:37-38. Claim 11 of the 037 Patent includes the related term, "component facility," which both parties agree is synonymous with "operating system peer-level facility." Id. at 57:11-12. The court therefore construes the term "operating system peer-level facility" in lieu of addressing the two terms separately.

Plaintiff argues that "operating system peer-level facility" is simply "an independent software entity." In contrast, defendant proposes a lengthy definition, arguing that the court should construe the term to mean "a major functional subsystem of the operating system separate from a conventional Unix kernel, constituted as an independent, separately executed software entity including a unique, multi-tasking interface function (or multi-tasking interface subcomponent)." Defendant's proposed construction goes on to recite several examples of peer-level facilities: the network communications facility, the filesystem facility, and the storage facility.

To resolve the parties' dispute, the court first looks to the language of the claims. See Teleflex, 299 F.3d at 1324. Claim 1 states in relevant part:

A computer system employing a multiple facility operating system architecture, said computer system comprising . . .

a plurality of processor units provided to co-operatively execute a predetermined set of operating system peer-level facilities, wherein each of said processor units is associated with a respective different one of said operating system peer-level facilities and not another of said operating system peer-level facilities, and wherein each of said operating system peer-level facilities constitutes a respective separately executed software entity which includes a respective distinct set of peer-level facility related functions . . .

037 Patent, 55:18-29. Claims 7 and 10 also respectively claim, inter alia, a "plurality" of "[operating system] peer-level facility[ies] constituting [] respective software entit[ies] executed separately from [a] kernel," id. at 56:41-43, and "additional component facilities," each of which includes "a facility sub-component" that "defines the execution operation of [] one of said component facilities, coupled to a multi-tasking sub-component," id. at 57:10-15.

As previously noted, plaintiff argues that a peer-level facility is nothing more than "an independent software entity." Arguably, this definition could include any self-contained computer program. However, as the quoted claim language makes clear, the raison d'etre of the peer-level facilities is the segregation of the various operating system functions onto different processor units. For example, claim 1 states that each peer-level facility "includes a respective distinct set of peer-level facility related functions." Id. at 55:28-29. The specification similarly emphasizes this separation of function among the various peer-level facilities, noting that advantages of the invention include "provid[ing] for the implementation of multiple facilities, each instance on a respective processor, all within a single cohesive system while incurring little additional control overhead in order to maintain operational coherency." Id. at 3:57-60. In addition, each of the operating system peer-level facilities is described as "distinct" and "separately executed." Id. at 55:28-29. A second important feature of the peer-level-
facilities is operational independence. As the ordinary meaning of the word "peer" implies, each of the facilities are co-equal, no one facility being dominant or subordinate to the other. Accord Webster's Third New International Dictionary 1665 (1976) (defining peer as "one that is the same or equal standing . . . with another"). In short, there is little doubt that independence and segregation of operation system functions are important aspects of the claimed peer-level facilities.

Although these limitations are apparent from the plain meaning of the claim language, defendant seeks to introduce myriad other elements into the disputed term, citing the specification and the prosecution history. It is well-established that the prosecution history may limit the scope of claims "so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." Teleflex, 299 F.3d at 1326. Moreover, "when two patents using the same claim term both stem from the same parent application, the prosecution histories of both are relevant to an understanding of the terms in both patents." Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1460 n.2 (Fed. Cir. 1998) (citing Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990)).

In the instant case, defendant relies on the prosecution history of a predecessor application from which the 037 Patent claims priority, Application No. 404,885 (Sept. 8, 1989) (" 885 Application"). 4 Claim 1 of the 885 Application initially recited a computer system "employing a multiple facility operating system architecture, said computer system comprising [inter alia] . . . a plurality of processor units for implementing a pre-determined set of peer-level facilities wherein each of said peer-level facility [sic] includes a plurality of related functions." Grewal Decl., Exh. K at 433. The examiner rejected this claim for indefiniteness, pointing out that "the computer system of claim one is only vaguely defined by the claim language. . . . Applicants should particularly point out the functions performed by the processor units in response to executing [the instructions necessary to store programs and data and to pass messages]." Id. at 422.

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4 Auspex filed the 885 Application in September 1989. Although this application was ultimately abandoned, Auspex filed Application No. 875,585 (" 585 Application") as a continuation of the abandoned 885 Application. Prior to abandoning the 585 Application in April 1994, Auspex filed another continuation application, Application No. 225,356 (" 356 Application"). The 037 Patent ultimately issued on May 16, 2000 pursuant to a divisional application based on the 356 Application. Thus, the 885 Application is parent application of the patent in suit.

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In response to the examiner's rejection, Auspex amended the phrase "a plurality of related functions" to read "a respective plurality of peer-level facility related functions" and replaced the gerund "implementing" with "executing." Id. at 433. Auspex's response also took issue with the examiner's characterization of claim 1 as inadequately defining the invention, arguing that "[r]eliance on the specification to provide definitions of terms utilized in a claim, where such terms do not otherwise have a conventional definition, is not improper. . . . Specifically, the specification [of the 885 Application] substantially defines the primary peer-level facilities as, in the context of the UNIX operating system, the major functional subsystems of the operating system constituted as [ ] separately executed software entities separate from a conventional UNIX kernel." Id. at 439.

As the quoted passage of the 885 Application's prosecution history makes clear, Auspex sought to overcome the examiner's rejection of claim 1 by expressly defining the term "primary peer-level facility" in the context of the Unix operating system. As the Federal Circuit has repeatedly emphasized, "[t]he prosecution history limits the interpretation of claim terms to exclude any interpretation that was disclaimed during prosecution. . . . Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers." Southwall Techs., 54 F.3d at 1579 (citations omitted). The broad construction that plaintiff now proposes is simply inconsistent with the Auspex's representations to the examiner during the prosecution of the 885 Application.

Plaintiff raises two objections to this line of reasoning. First, it notes that the quoted passage of the 885 Application's prosecution history defines the term "primary peer-level facility" rather than "operating system peer-level facility." However, there is little doubt that the primary peer-level facilities of the 885 Application are substantially identical to the operating system peer-level facilities of the 037 Patent. Although claim 1 of the patent in suit includes additional claim elements not present in the parent application -- presumably to avoid rejection on indefiniteness or anticipation grounds -- the disclosed structures and functions of the peer-level facilities are closely related to those in claim 1 of the 885.
Application. Compare Grewal Decl., Exh. K at 433 with 037 Patent, 55:18-58. Moreover, the adjective "primary," like the modifier "operating system," both limit the scope of the term "peer-level facility" to the major, functionally independent components that are described in the cited passage of the prosecution history. Accordingly, the court concludes that the definition of "primary peer-level facility" in the 885 Application should limit the scope of each claimed "operating system peer-level facility" in the 037 Patent.

Plaintiff's second objection is aimed at the "conventional Unix kernel" limitation in defendant's proposed construction of the operating system peer-level facility term. Plaintiff observes that the definition of primary peer-level facility in the 885 Application includes the caveat "in the context of the UNIX operating system" -- i.e., the operating system disclosed as part of the preferred embodiment of the present invention. See Grewal Decl., Exh. K at 439. By its own terms, this definition contemplates that peer-level facilities could function in contexts other than a conventional Unix operating system. Moreover, the specification of the 037 Patent expressly states that the Unix operating system is merely a preferred embodiment of the invention, noting that the invention is "applicable to a wide variety of primary, or full-function operating systems such as MVS and VMS." 037 Patent, 6:54-57. Accordingly, the court declines to adopt defendant's proposed "conventional Unix kernel" limitation as part of its construction of the operating system peer-level facility term.

Of course, this leaves open the question as to whether the "kernel" limitation should be included in the construction at all. Plaintiff argues that it should not, citing the preferred embodiment of the 037 Patent, which includes the Unix kernel itself as one of the operating system peer-level facilities. Id. at 8:46-48. Thus, plaintiff argues that limiting the functional subsystems covered by the definition of peer-level facility to those that are executed separately from the kernel would be illogical, noting that such a definition would require the kernel (itself a peer-level facility) to be executed separately from itself. The court agrees. While recognizing that the prosecution history of the 885 Application at least implicitly excludes the operating system kernel from its definition of "primary peer-level facility," the court must also heed the Federal Circuit's warning that it is rarely, if ever, correct to construe a term to exclude a preferred embodiment. Vitronics, 90 F.3d at 1583-84. Reading the "executed separately" limitation into the claim language would require the court to choose between one construction that is inconsistent with the preferred embodiment disclosed in the specification (i.e., one that excludes a Unix kernel from the scope of the claim language) and another that is simply irrational, given that the kernel cannot be executed separately from itself. Thus, the court holds that the limitation "separately from the kernel" should not be read into the term "operating system peer-level facility." 5

5 Similarly, the court notes that claim 11 of the 037 Patent recites an "operating system [that] includes a kernel and a plurality of additional component facilities executed separately from said kernel." 037 Patent, 57:9-11. The need to qualify the term "component facilities" with the adjective "additional" suggest that absent such a qualification, the term component facility would include the kernel.

Having thus far defined "operating system peer-level facility" as "a major functional subsystem of the operating system constituted as a separately executed software entity," the court turns to several additional limitations that defendant seeks to introduce to the disputed term. First, defendant argues that the terms should be construed to include a "multi-tasking interface function." However, this construction is inconsistent with the plain meaning of the claim language. For example, claim 7 states that each operating system peer-level facility "implements" a multi-tasking interface. 037 Patent, 55:43-44. Defendant's construction would require that the facility implement a part of itself, rendering the claim language redundant and circular. In any event, the multi-tasking interface is a separate element of the claimed invention, which the court declines to read into the peer-level facility term. 6 Defendant also requests that numerous examples of peer-level facilities be included in the claim language. However, even defendant's proposed construction does not suggest that this list is exhaustive. As a result, including these examples in the claim language does nothing to define the scope of the patent's terms, and ultimately, plaintiff's right to exclude. "The Federal Circuit has repeatedly cautioned courts from positing constructions that would contribute nothing but meaningless verbiage to the definition." Nikon Corp. v. ASM Litho. B.V., 308 F. Supp. 2d 1039, 1072 (quoting Harris Corp. v. Ixys Corp., 114 F.3d 1149, 1152 (Fed. Cir. 1997)). Accordingly, the court declines to construe the claim to include the proposed terms.
Because the court declines to read a multi-tasking interface limitation into the disputed terms, it need not address defendant's argument that this multi-tasking interface is "unique."

Thus, for the reasons stated above, the court construes "operating system peer-level facility" as "a major functional subsystem of the operating system constituted as a separately executed software entity."

4. Operation Code

a. Proposed constructions

The disputed term "operation code" is used in U.S. Patent Nos. 6,378,120 ("the '120 patent"), 6,378,020 ("the '020 patent"), 6,426,916 ("the '916 patent"), and 6,452,863 ("the '863 patent"). Rambus proposes that "operation code" be construed as "one or more bits to specify a type of action." Joint Claim Construction Statement ("JCCS") Ex. A at 8. Hynix submits that the term means "bits in a field within a packet or computer code instruction that identifies what type of action to be performed." Id. The dispute focuses on Hynix's attempt to limit the operation code to require that the action be performed "within a packet" or "within a computer code instruction." Hynix's proposed construction improperly broadens the scope of what could constitute an operation code.

b. Claim language

The claims teach that there are conceptually three types of operation codes. "The first operation code instructs the memory device to perform a read operation." '120 patent, cl. 1. "The second operation code instructs the memory device to perform a write operation." '120 patent, cl. 2. "The third operation code instructs the memory device to store the value [which is representative of a number of clock cycles of the external clock signal to transpire before the memory device outputs the data] in a programmable register on the memory device." '120 patent, cl. 12.

The dependent claims recite various properties the operation code may have. "The first operation code [may] 12 include[] precharge information." '120 patent, cl. 7 (which is dependent on claim 1). "The first operation code [may be] included in a request packet." '120 patent, cl. 8 (which is dependent on claim 1). "The block size information and the first operation code [may be] both included in the same request packet." '120 patent, cl. 9 (which is dependent on claim 1). This request packet may also include address information. '120 patent, cl. 10 (which is dependent on claim 8). Finally, the operation codes are issued by a memory controller ('863 patent, clss. 1, 3) and provided to the memory device via an external bus ('120 patent, cl. 2, dependent on cl. 15).

12 Throughout this paragraph "may" is inserted because these are dependent claims.
13 Hynix offers no specific explanation why "operation code" should be limited to fields within a "computer code instruction." Moreover, Hynix proffers no definition for a "computer code instruction." The patents use the term "computer" inconsistently, sometimes referring to a computer as a higher level or simply different device from the present invention. Therefore, Hynix has presented no persuasive evidence demonstrating that the limitation "within a computer code instruction" applies to "operation code."

The Federal Circuit faced a similar construction issue in Infineon II. 318 F.3d at 1095. There, the court reasoned that by claiming a "bus carrying device-select information without the need for separate device-select lines connected directly to individual semiconductor devices" (i.e. a bus that is multiplexed), Rambus showed it "did not redefine bus" in the specification to be a multiplexing bus." Id. Similarly, by specifying in certain dependent claims that the operation code is included in "a request packet," or simply "a packet," Rambus does not appear to limit "operation code" as used in other claims to bits in a field within a packet.

c. Ordinary meaning

The court looks to the relevant technical dictionaries to ascertain the ordinary and customary meaning of "operation code." Tex. Digital, 308 F.3d at 1202. The patents relevant to operation code were issued in 2001 and 2002, so the court looks to the 2001 edition of The Authoritative Dictionary of IEEE Standard Terms for guidance. "Operation code" has the following definition:

(1)(B) The code that represents or describes a specific operation. The operation code is usually the operation part of the instruction.

THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS 769 (2001 ed.).

In light of the evidence presented, the court finds this definition to be the ordinary meaning of "operation code." Rambus's proposed construction is substantially similar to this definition, and therefore comports with the ordinary meaning of "operation code." Notably, the ordinary meaning of "operation code" does not connote that it be transmitted solely within a packet.

d. Specification

To rebut the presumption that one skilled in the art would have understood "operation code" to carry its ordinary meaning, Hynix argues the specification defined the claim term by implication to include the packet limitation. See Bell Atl. Network Servs. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001) ("when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication"). Hynix observes that the sole support for the meaning of "operation code" in the specification is in the AccessType field in the preferred embodiment of the request packet.

In the preferred implementation, the operation code is part of the control information. '120 patent, cl. 9, 11. 39-41. The control information is contained within two 4 bit fields that constitute the first byte of a six byte request packet. '120 patent, cl. 9, 1. 25; Fig. 4. The preferred implementation labels the operation code in this packet "AccessType" (120 patent, cl. 9, 1. 35), which is depicted in Figure 4. AccessType is also depicted in additional types of packets in Figure 5 and Figure 6. The specification explains that AccessType is a field which "specifies whether the requested operation is a read or write and the type of access, for example whether it is to the control registers or other parts of the device, such as memory." 120 patent, cl. 9, 11. 43-46.

In Toro Co. v. White Consolidated Industries, Inc., the Federal Circuit explained that a limitation upon a claim term may be implied from its existence in the sole preferred embodiment when "no other broader concept was described as embodying the applicant's invention, or shown in any of the drawings, or presented for examination." 199 F.3d 1295, 1301 (Fed. Cir. 1999). The court construed "including" and "cover" as requiring that a restriction ring be permanently attached to the cover because "nowhere in the specification, including its twenty-one drawings, is the cover shown without the restriction ring attached to it" Id. Moreover, "the specification described the advantages of the unitary structure as important to the
invention." Id. Hynix concludes that since the sole use of "operation code" in the preferred implementation is as the AccessType field within a packet, the specification clearly implies that the construction of "operation code" should be limited to being within a packet. See Toro, 199 F.3d at 1301.

A weakness in Hynix's position is revealed when the preferred embodiment is viewed in light of Infineon II. 318 F.3d at 1095. The Federal Circuit held that Rambus's invention's use of a bus "is not limited to a multiplexing bus." Id. Stated another way, the scope of Rambus's invention includes operation on a non-multiplexed bus. The Infineon II court defined "multiplexing" as "the sharing of a single set of lines to send multiple types of information," such as address, data and control information. Id. at 1094. The preferred embodiment of AccessType being within a request packet is illustrated in Figure 4. The packet depicted in Figure 4 (as well as in Figures 5 and 6) requires the use of a multiplexed bus. For example, in Figure 4, the bus line carrying Access Type[0] would carry the first bit of the operation code on cycle 0, then the same bus line would carry address information on the remaining cycles. The packet depicted in Figure 6 requires the same bus line to carry control information (i.e., AccessType), address information, invalid request information, and request information over the course of 12 bus cycles. The critical fact is that these packets travel on a multiplexed bus and cannot operate on a non-multiplexed bus.

If the preferred embodiment of operation code requires the use of a multiplexed bus, but the Federal Circuit has found the invention may be operated on non-multiplexed bus, then the logical conclusion is that this cannot be the only possible embodiment of the "operation code." See SRI Int'l v. Matsushita Electric Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (the law does not require an applicant describe in the specification "every conceivable and possible future embodiment of his invention."). Consequently, Rambus's patents are distinguishable from the patents in Toro. See 199 F.3d at 1301. In implying a limitation from the preferred embodiment in Toro, the court found that "this is not a case of limiting the claims to a preferred embodiment' of an invention that has been more broadly disclosed." Id. In contrast, here the Federal Circuit has found that a broader invention has been disclosed, one in which the claims cover operation on both multiplexed buses and non-multiplexed buses. Infineon II, 318 F.3d at 1095. Therefore, a limitation absent in the claims or ordinary meaning of "operation code" cannot be inferred from a preferred embodiment that does not describe the full scope of the claimed invention's method of operation. See RF Del., Inc. v. Pac. Keystone Techs., Inc., 326 F.3d 1255, 1264 (Fed. Cir. 2003) (independent claims usually cover a scope broader than the preferred embodiment, especially when the dependent claims recite the precise scope of the preferred embodiment).

e. Prosecution history

Hynix's citation to Rambus's statements in the prosecution history of the '916 patent is similarly unavailing. Rambus's statements do not add any more context to the definition of "operation code" than what is disclosed in the specification.

f. Breadth

Hynix argues Rambus's definition of "operation code" improperly broadens the term to the point that "any input electrical signal with two possible voltage levels, for example, could qualify as an operation code' as long as some action ( on' or off') occurred in response." Hynix's Resp. CC Br. at 17. At first blush, this argument has some appeal. However, the claims themselves limit the practical effect of Rambus's proposed construction. For example, the theoretical input electrical signal that Hynix fears will be considered an operation code still must either "instruct the memory device to perform a read operation," ('120 patent, cl. 1), a "write operation" ('120 patent, cl. 2), or "to store the value in a programmable register on the memory device." ('120 patent, cl. 12). It must also be sampled synchronously with respect to the external clock signal. Id. Finally, it must include precharge information. 14 However, only certain claims, like dependent claim 8 of the '120 patent, require that the operation code be contained within a request packet.

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14 At the least the first such input signal would have to include this information.

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The court is satisfied that Rambus's construction sufficiently "assigns a fixed, unambiguous, legally operative meaning to the claim." Liquid Dynamics Corp. v. Vaughan Co., Inc., 355 F.3d 1361, 1367 (Fed. Cir. 2004). The claim language, the
specification, and the prosecution history do not suggest that the patent uses "operation code" in a manner inconsistent with its ordinary meaning. Therefore, the court finds "operation code" is properly construed as "one or more bits to specify a type of action."

The term "operation of a microprocessor" should be interpreted as follows: "execution of software/program code."

The next disputed term "operation panel" presents the same issue regarding physical separation. This term appears in Claim 2 of the '618 Patent. Ricoh contends that an "operation panel allows a user to specify a function to and display data from the business device engine." (Chart at 27). Pitney argues that the "operation panel" is "an input/output device that can input commands and display information that is separate and external from the business office device." (Id.). The Court notes that the parties agree that the terms "operation panel" and "operation terminal" should be construed in the same way. (Ricoh Br. at App. 4; Pitney Br. at App. 4).

Consistent with this Court's analysis and conclusion concerning "input/output device," the Court adopts Pitney's construction. During prosecution, the patentee stated that the "input/output device" corresponds to the "operation terminal." ('289 Patent Prosecution History, Dec. 22, 1995 Amendment at 25). Ricoh provides no additional support for an alternative construction. Consequently, "operation panel" means "an input/output device that can input commands and display information that is separate and external from the business office device."

"operational data for the scanhead" and "operational data unique to the transducer scanhead"

Plaintiffs' construction: data designed for specific applications such as cardiac analysis, neo-natal analysis, gynecology analysis and prostate analysis

Defendant's constructions: "operational data for the scanhead" means data that is used in the operation of the scanhead; "operational data unique to the transducer scanhead" means data that is collectively used in the operation of a particular model of the transducer scanhead

Plaintiffs contend that both terms mean the same thing: data designed for specific applications such as cardiac analysis, neo-natal analysis, gynecology analysis and prostate analysis. They argue that their proposed construction is supported by the patent specification. Not so. The portion of the patent specification on which they rely explains merely that "Memory 135 stores operational data unique to the specific transducer scanhead which may be designed for specific applications such as cardiac analysis, neonatal analysis, gynecology analysis and prostate analysis." '839 pat., col. 4, lns. 24-27 (emphasis added). Obviously, "may" does not mean "must."

Defendant's constructions have the advantage of being consistent with the claim terms, patent specification and common sense. E.g., '839 pat., col. 2, lns. 24-32. As discussed above, neither the patent language or the specification indicates that the claim language should be construed narrowly. In addition, it would be contrary to the holdings of the court of appeals to construe the two terms identically, when they use different wording and appear in two separate claims. Applied Medical Resources v. United States Surgical Corp., 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) (affirming presumption that different terms have different meanings).

Court's constructions: "operational data for the scanhead" means data that is used in the operation of the scanhead;
"operational data unique to the transducer scanhead" means data that is used collectively in the operation of a particular model of the transducer scanhead.

As with other limitations related to a means/function limitation, defendants attempt to link the construction of this term to corresponding structure for the related means plus function term, "means for providing an operational state signal." Further, in this case, defendants argue that it should be limited to the output of just one of the multiple structures listed in specification. Defendants' proposed construction of the corresponding means is "A periodic output from a processor running special purpose software that drives an LED to blink at a specific rate." Once again, the Court rejects Ipsos's proposed construction as unnecessarily limiting.

Plaintiff's proposed construction is adopted as "a signal that indicates the operating state of device."

The third term from the Claims Involving Products Carrying Participation Numbers the parties have presented to the Court for construction is "operations of the interface." This term appears in the preamble of Claims 44 and 93 of the '707 patent and Claims 79 and 190 of the '863. The language containing this term varies slightly in the claims, but generally provides for "[a] process for controlling operations of an interface with a telephonic communication system." The term "operations of the interface" as it appears in the preamble is also referred to in the limitations of the claims, such as "to access said operations of the interface."

The defendants argue that "operations of the interface" is synonymous with "format." The plaintiffs contend that the term should be construed as "the set of processes or actions that effectuates interactive connection and that is part of the work performed by the system connected to the telephone network." (Pls.' App. at 68).

The claim language does not support the defendants' limited construction of this term. In the second limitation of Claim 37, upon which Claim 44 depends, the claim includes the step of "receiving said call data signals . . . to select a specific operating format from a plurality of operating formats of said operations of the interface." This claim recites both the terms "format" and "operations of the interface." The use of both terms separately in the same claim indicates that they have different meanings. In addition, the claim refers to selecting one of a plurality of operating formats of the operations of the interface, which shows that the operations of the interface includes more than one format. Further, the term "format" is not present in Claims 93 of the '707 patent or Claim 190 of the '863 patent, which indicates that the operations of the interface do not necessarily include a format.

The term "operations of an interface" is not discussed in the specification. The defendants point out that in Column 10, lines 32, 39, and 43, Katz refers interchangeably to "mail order operating format" and "mail order interface." From this portion of the specification, however, the Court cannot conclude that the operations of the interface can only include a format.

The Court concludes that there is no reason in the claim language or specifications to depart from the ordinary, common meaning of "operations of the interface." Based on the foregoing and consistent with the Court's construction of "interface structure," the Court concludes that the term "operations of an interface" means: the processes, activities, or functions of the interactive connection between the processors upon which the Katz system is running, the communication facility, and the callers. The term does not require that the Katz system be running a format, or specifically, one of the seven formats disclosed in the specifications.
With respect to "operational," Leviton focuses on the use of that term in claims 5 and 22 of the '112 patent by arguing that the district court improperly imported limitations from a preferred embodiment into the claims. Leviton's most coherent argument in this regard relates to claim 22, which reads in relevant part:

22. A circuit interrupting device comprising:

. . .

a circuit interrupter disposed within said housing, the circuit interrupter having an operational state and a non-operational state and configured to cause electrical discontinuity between said first and second conductors upon the occurrence of a predetermined condition;

. . .

a reset lock-out device that prevents reestablishment of electrical continuity between said first and second conductors if said third electrical conductor is not connected to a neutral line; and

wherein activation of the reset device activates the circuit interrupter to be in the operational state to move the reset lock-out device to a reset position.

'112 patent col.9 l.17-col.10 l.24 (emphasis added).

According to Leviton, the plain language of the second limitation reproduced above ("a reset lock-out device . . .") demonstrates that claim 22 only prevents reestablishment of electrical continuity if there is an open neutral condition, i.e., the third wire "is not connected to a neutral line." As such, the "operational state" of the circuit interrupter referenced in the "wherein" clause is satisfied so long as the circuit interrupter is able "to move the reset lock-out device to a reset position."

Although we agree that activation of the circuit interrupter to be in the operational state is necessary to move the reset lock-out position, the remainder of Leviton's argument is unpersuasive because it ignores the first limitation reproduced above ("a circuit interrupter disposed . . ."). which plainly ties the "operational state" of the circuit interrupter to the ability of the circuit interrupter to "cause electrical discontinuity. . . upon the occurrence of a predetermined condition." n6 The ability of the circuit interrupter to cause discontinuity requires, as Leviton admits, both the sensing circuitry and the trip mechanism to be working properly. Appellant's Br. at 3-4. Accordingly, "activat[ing] the circuit interrupter to be in the operational state" must also require both the sensing circuitry and the trip mechanism to be working properly. This requirement is not inconsistent with, and does nothing to eliminate, the additional requirement of claim 22 that the reset lock-out device must prevent reestablishment of electrical continuity in the event of an open neutral condition.

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n6 Such "predetermined conditions" include ground faults, arc faults, appliance leakage faults, immersion faults, and test cycles. '112 patent col.2 ll.27-28. However, an open neutral condition is not a "predetermined condition" because an open neutral condition cuts off power to the trip mechanism of the circuit interrupter. See id. col.3 ll.44-54. And it is axiomatic that if the trip mechanism—which is "electro-mechanical," id. col.3 ll.8-9—has no power, it cannot cause electrical discontinuity. Thus, if an open neutral condition could be one of the "predetermined conditions," the circuit interrupter could not fulfill its stated purpose because it could not be configured to cause discontinuity in response to such a condition.

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Leviton attempts to draw an even finer linguistic distinction with respect to claim 5 of the '112 patent:
Claim 5 does not discuss a device in terms of "operational," it recites a device which will not allow itself to be reset if any one of its circuit interrupter components is "non-operational." Accordingly, there was no basis to limit the claim to a device that will allow reestablishment of electrical continuity only after a complete test of the system to show that it is fully operational.

Appellant's Br. at 25 (emphasis in original).

We disagree. There is simply no way for the device to know in advance which of its circuit interrupter components, if any, are not working properly. Therefore, the device must, as the district court held, be capable of testing both the sensing circuitry and the trip mechanism in order to determine whether the circuit interrupter is operational. To be sure, a situation may arise in which the first of those two components is found to be malfunctioning, thereby rendering a test of the second component unnecessary. That does not mean, however, that both components need not be tested before electrical continuity is reestablished.

Leviton further argues with respect to claim 5 that the doctrine of claim differentiation precludes the district court's construction of "non-operational" because dependent claims 12 and 13 respectively describe preventing the reestablishment of electrical continuity "if said trip mechanism is non-operational," and "if said sensing circuitry is non-operational." '112 patent col.7 l.66 - col.8 l.6. Thus, according to Leviton, independent claim 5 is actually narrower than dependent claims 12 and 13 under the district court's claim construction. See Appellant's Reply Br. at 9-11. "As this court has frequently stated, the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). However, "that presumption can be overcome if the circumstances suggest a different explanation, or if the evidence favoring a different claim construction is strong." Id. Here, the presumption is clearly overcome because, as explained in the preceding paragraph, the device must be capable of testing both the sensing circuitry and the trip mechanism in order to determine whether the circuit interrupter is operational. If, as Leviton suggests, electrical continuity could be reestablished when only the trip mechanism is operational, or when only the sensing circuitry is operational, the circuit interrupter would remain non-operational and the device would not function properly, i.e., it would not cause electrical discontinuity upon the occurrence of a predetermined condition. Therefore, claim differentiation does not apply in this case.

Because we are not persuaded by Leviton's arguments, we see no need to disturb the district court's construction of "operational."

**2948**

f. "Relay having an operational position and a test position"

Claim 5 requires a "relay having an operational position and a test position." The court begins by construing "operational position" and "test position." As the parties agreed, the claimed relay is the element that separates the high voltage delivery system from the rest of the defibrillator. In one position, which is referred to in the specification as the "normally closed" or "closed" position ('374 Patent at 9:13-14, 10:24-25), the high voltage delivery system is capable only of self-tests in which it sends a current through a test load. 374 Patent at 11:30-42. In this position, the defibrillator cannot shock a patient. 374 Patent at 8:34-38.

In another position, which is referred to as "normally open" or "open," the high voltage delivery system can deliver a shock to a patient, as the parties agree. In addition, however, the defibrillator can conduct other self-tests with the relay in open position. E.g., 374 Patent at 9:4-21 (describing the "Defibrillator Connector/Relay self-test"), 10:14-22 (describing the "HV Isolation Relay self-test").

The "test position" of Claim 5 is the relay position in which the high voltage delivery system can only perform self-tests and cannot shock a patient. The "operational position" is the relay position in which the high voltage delivery system can deliver shock to the patient, although the defibrillator can perform other relay self-tests in this position as well.

The parties' dispute over this term centers on whether the relay may consist of a combination of relays and can have more than two positions, as Philips contends, or whether the relay is a single relay with only two positions, as Defibtech contends.
Philips can point to no intrinsic evidence that discloses more than one relay or more than two positions. Instead, it relies on three arguments: that the specification does not exclude such relays, that dictionary definitions of "relay" do not exclude such relays, and that the inventors' decision to claim a "relay having an operational position and a test position" is no different than using the open-ended terms "comprising" or "including."

The court finds Philips' first two arguments unavailing. The specification speaks only of a relay with two positions. n10 It does not state that such positions are preferred, and it does not suggest that a relay with more than two positions could have any function in this invention. As for Philips' dictionary definitions, the court declines to rely on them for the reasons stated in its prior order. October 25 order at 5.

--- Footnotes ---

n10 The specification also teaches that the relay may become stuck in a position between the open and closed position. 374 Patent at 10:26-28 (discussing possibility that relay could "fail[] to move completely to the normally closed position").

--- End Footnotes ---

As to Philips' third argument, the term "having" does not carry the presumption of open-ended interpretation that accompanies the term "comprising." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed. Cir. 2001). Instead, a court must look to the specification to determine what the inventors intended. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed. Cir. 2000). As already noted, if the inventors intended "having" to be non-limiting, n11 they left no hint in the specification. The specification speaks uniformly of a single two-state relay. The court construes the term accordingly. A "relay having an operational position and a test position" is a single relay with only an operational position and a test position, where "operational position" and "test position" have the meanings the court provided above.

--- Footnotes ---

n11 As Defibtech noted at oral argument, the inventors used the term "having" only twice in the 73 claims of the 374 Patent, whereas they used the presumptively open-ended term "comprising" more than 60 times.

--- End Footnotes ---

5. "Operative": "Producing a designed effect." "Operative" is utilized in the specification to refer to a component achieving a specific result, e.g., "operative to download" (col. 2, ll. 6-10; col. 3, ll. 35-40) or "operative to embed [commands]" (col. 6, ll. 24-31). The claims also utilize "operative" to describe the visualization functionality as producing or providing a specific effect, e.g., "to embed commands to the web browser" (claims 13, 30, 35, 46) or "to delete executable content" (claim 34), as compared to merely being enabled to function (or as plaintiff asserts, "having the capability to" function).

--- End Footnotes ---

--- D. "Operatively connected" ---

The district court construed the claim term "operatively connected" to mean "joined or linked together to produce the designed effect." District Court Opinion at 20. The court also held that the "operatively connected" limitation, when read in light of the '041 patent specification, should be construed to mean "joined or linked together to produce the designed effect within the terminal." Id. at 21 (emphasis added).
Catalina challenges this construction, arguing that the district court improperly imported "within the terminal" into the "operatively connected" limitation. Catalina argues that the plain and ordinary meaning of the "operatively connected" limitation is not restricted to operative connections only within the coupon-dispensing terminal. We are not persuaded by Catalina's argument on appeal. The language of claim 1 itself describes "[a] system ...wherein each terminal comprises" the device recited by the claim 1 limitations. '041 patent col. 30, ll. 46-49 (emphasis added). It is within those limitations that the "operatively connected" term is used. Furthermore, the patent specification itself often refers to the disclosed invention as a "stand alone coupon dispensing terminal." See, e.g., '041 patent col. 2, ll. 5-7. Clearly, the language of the claims and the intrinsic evidence supports the district court's construction of the "operatively connected" term in claim 1.

Accordingly, the district court's construction of "operatively connected" is upheld.

As to the operatively connected limitation, this limitation appears in two of the '404 patent's three independent claims. Claim 1 is representative:

1. An interactive computer software system permitting a user to take a pre-selected computer course or access a pictorial data base, comprising:

   . . . .

   (c) a graphics computer sub-system operatively connected to said host computer sub-system, said graphics computer sub-
   system executing said course upon interrogation by said host computer sub-system wherein said course includes a series of
   interrelated pictures displayed by said graphics computer sub-system, said series of pictures defining a course responsive to
   input data from the user and interactively dialoguing with the user as the user progresses through said pre-selected course or
   data base;

   . . . .

'404 patent, col. 8, l. 49-col. 9, l. 3 (emphasis added). The district court construed the operatively connected limitation to
mean "the graphics computer subsystem communicates with the host computer subsystem through an unmediated
mechanism." Amended Claim Construction Order, slip op. at 1. To the contrary, the broad language "operatively connected"
do not require communication through an unmediated mechanism.

Claims 1 and 11 use the phrase "operatively connected" to describe the communications that take place between a graphics
computer sub-system and a host computer sub-system during operation. The claim language does not state or suggest,
however, that these communications must be done on a non-mediated communication mechanism. While the specification
does contemplate a non-mediated communication mechanism, see '404 patent, col. 4, ll. 58-59, the particular
communication mechanism in any given system has nothing to do with the '404 patent's improvement over the prior art. In
other words, the manner in which the host system and the graphics system communicate has no bearing on the modification
of one picture or screen without affecting the other screens. This feature was the '404 patent's key innovation as outlined in
the specification and prosecution history. Thus, this court agrees with IP Innovation that the operatively connected limitation
does not require communication over an unmediated communication mechanism.

B. Operatively connecting

Claim 1 of the '865 patent includes the following limitations:
first means for operatively connecting the first terminal of a selected one of said differential amplifiers to the first terminal of said sense amplifier, and

second means for operatively connecting the second terminal of a selected one of said differential amplifiers to the second terminal of said sense amplifier.

Claims 6, 7, and 8 of the '865 patent include limitations using similar language, as follows:

first means for operatively connecting the first terminal of the selected differential amplifier to said first input-output bus line, and

second means for operatively connecting the second terminal of said selected differential amplifier to said second input-output bus line.

These disputed claim elements are expressed in "means plus function" language, which, as noted, must be construed to cover the corresponding structure described in the specification or its equivalents. See 35 U.S.C. § 122, P 6; see also Sofamor Danek Group, 74 F.3d at 1220. The parties agree that the structures constituting the first and second means are the two switching gate transistors pictured as Q[4] and Q[4'] in Figure 5 of the '865 patent and that these two transistors must "operatively connect[]" the differential sense amplifier terminals with the output sense amplifier terminals and the input/output data bus lines. What is sharply disputed is the scope of the phrase "operatively connecting." NEC argues that this phrase requires a direct electrical connection between the differential sense amplifier and what is usually referred to as an output amplifier, but which is called a sense amplifier in the '865 patent. Hyundai counters that this phrase must be construed more broadly to include information transferred through a type of buffer circuit, called a "source follower," in which the output of the differential sense amplifier is used to operate a gate which, in turn, controls another signal generated from the power supply that controls the output sense amplifier, but which does not create any electrical connection between the two amplifiers.

The switching gate transistors Q[4] and Q[4'] pictured in Figure 5 of the '865 patent are configured so as to create a direct source-drain electrical connection between the two amplifiers when they are in their active state. Indeed, such a configuration would appear to be necessary to achieve the benefit of the patent: namely, comparing the actual outputs of the two sides of the differential sense amplifier in order to determine logic level, rather than merely comparing the signal on one side with a reference voltage on the other. Under Hyundai's construction, the first and second means elements of Claim 1 include a configuration in which there is no direct current path between the outputs of the differential sense amplifier to compare at the output sense amplifier. Such a construction is unpersuasive as it would frustrate the patent's purpose. Nor is there any doubt that the patent's purpose is a proper interpretive guide; the Federal Circuit has held that the purpose of the invention may guide claim construction since "the problem the inventor was attempting to solve, as discerned from the specification and prosecution history, is a relevant consideration" in construing claims. CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed. Cir. 1997); see also Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc., 98 F.3d 1563, 1573 (Fed. Cir. 1996).

8 Figure 5 may be found at Appendix 4 to this opinion.
the output sense amplifier.

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(3) Operatively Coupled to Said Communication Pathway

Independent claim 1 includes the limitation "operatively coupled to said communication pathway." The parties propose the following meanings to this term:

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected to the communication pathway to send and/or receive coded data on the signals on the communication pathway.</td>
<td>Connected to the communication pathway to send and receive signals on the communication pathway.</td>
</tr>
</tbody>
</table>

The parties arguments are similar to the ones regarding the meaning of the "communication pathway." Again, insofar as Braun insists that "door operation commands" are limited to only coded data signals, its reliance on that term for interpretation of other terms is wrong. The Court adopts VMI's proposed construction: "operatively coupled to said communication pathway" means connected to the communication pathway to send and receive signals on the communication pathway.

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2) "operator" (Claim 13)

The only dispute regarding this term is whether the operator must be a human being. I conclude that in the context of the written description, see id. at 1313, the ordinary person skilled in the art would recognize that this term implies human involvement. As the patentee has not "clearly set forth an explicit definition of the term different from its ordinary meaning," Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1204 (Fed. Cir. 2002), I adopt the customary meaning of "operator."

I construe this term to mean: "a person who performs a function with the use of a device or process."

2955

a. “operator group”

Plaintiffs contend that “operator group” means “at least one multimedia box, where a multimedia box can be a jukebox.” Id. at 26. They base their proposed construction on the claim language that states that an “operator group” includes “at least one multimedia box” and the specification that alternatively describes the multimedia box as a jukebox. See e.g., id., Ex. 7 at 4:35-65. Defendants contend that “operator group” means “a group of one or more multimedia boxes operated by an operator.” Resp. Brief, Ex. E at 3. They base their proposed construction on language in the
specification stating that a certain number of jukeboxes is operated and serviced by one operating company in each case so that these jukeboxes represent one operator group 22. Each operator group 22 has a management station 30 allocated to it, which is linked in each case via ISDN line 3 in a star-shaped structure to the individual jukeboxes 20 of one operator group 22.

Opening Brief, Ex. 7 at 4:65-5:3. Defendants also point to a sentence in plaintiffs’ brief that defines “jukebox operator” as “an individual or company that typically owned a number of jukeboxes at various locations.” Id. at 2.

Neither parties’ proposed construction is particularly helpful. Plaintiffs’ proposed construction essentially construes “operator group” as one or more jukeboxes. Such a definition ignores the specification entirely. Defendants’ proposed construction, which utilizes the term it seeks to define, is confusing. Because “operator group” does not appear to have any particular meaning to a person of ordinary skill in the field, the Court must construe the term in light of the specification. The Court therefore construes “operator group” as “one or more jukeboxes managed and serviced by one entity.”

C.1.b. “operator terminal”

Verizon alleges that "operator terminal" means "hardware and software used by an operator to send and receive voice and data." Verizon Reply Brief at 21. According to Katz, "operator terminal" should be construed as "an input-output device (attended by a human communicating with a caller) designed to receive data in an environment associated with the job to be performed and capable of transmitting entries to and obtaining input from the system of which it is a part." Katz Brief at 77.

Both Verizon and Katz assert that their asserted interpretations are consistent with the plain meaning of "operator terminal" as understood by one of ordinary skill in the relevant art. See, e.g., Waite 1/14/03 Decl. PP 28-30; Hopenfeld 1/15/03 Decl. Ex. 3.

The term "operator terminal" means "an input-output device, for use by a human operator, capable of transmitting data to and obtaining input from the system to which it is connected." The Court's interpretation is consistent with the ordinary meaning of the claim language. Other language in claim 21 further limits "operator terminal." For example, the language of claim 21 requires that "operator terminal" have telephonic communication capabilities, see Col. 23:41-42 ("for use by a person to communicate through the telephone facility;") and that it have the ability to provide data to the central memory. See Col. 23:59-61 ("the operator terminal providing other data entries to the central memory to update data relating to the caller."). The specification of the 551 patent does not suggest a contrary definition. Indeed, the description of the structure and functions of the operator (interface) terminal in the 551 patent is somewhat sparse. However, the specification of the 551 patent informs us that an operator terminal, according to the disclosed embodiment, 1) is connected to the processing systems P1-Pn; 2) allows operators to directly communicate with callers; and 3) appears to allow operators to manually enter data during interactions with callers. See 551 Patent, Col. 4:37-40 ("the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, and at least one printer PR."); Col. 5:18-24 ("In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR."); Col. 5:53-57 ("Either during the
data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 \[sic\] for direct local communication between the caller and an operator at the terminal T1 \[sic\].

Col. 7:13-17 ("In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person."); Col. 10:43-50 ("Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1).";)

Col. 11:6-10 ("Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal IT (FIG. 1) as explained above."); see also Col. 19:46-48 ("Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.").

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23. The method in accordance with Claim 1 further comprising presenting on said remote contribution accepting devices symbols representing operators for inducing the making of monetary contributions, said symbols comprising said request for a contribution data packet.

An "operator" is the device by which a person triggers the action, usually by means of a button, switch, or similar triggering device. The operator, in this case, has marks or symbols specifying contribution amounts.

2958

A. Court's Review of the Special Master's Report and Recommendation Regarding Definition of "Optical Arrangement."

In reviewing the Special Master's Report, this Court reviews de novo the findings of fact and conclusions of law objected to by the parties. Fed.R.Civ.P. 53(g)(3)&(4). All other findings of fact and conclusions of law may be reviewed de novo. See Fed.R.Civ.P. 53 advisory committee note on 2003 amendment.

The construction of patent terms is a question of law determined by the court. Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir. 1995). The Court must first look to the intrinsic evidence of the patent to determine the scope of the claims. Id. at 979. The intrinsic evidence includes the words of the claims themselves, the specification, and the prosecution history, if in evidence. Id. Where the use of intrinsic evidence alone will resolve the ambiguity in a disputed term consideration of extrinsic evidence is improper. Hockerson-Halberstadt, Inc., v. Avia Group, Int'l, Inc., 222 F.3d 951, 955 (Fed.Cir. 2000). However, the court may in its discretion receive extrinsic evidence to aid the court in coming to a correct conclusion as to the true meaning of language employed in the patent. Markman, 52 F.3d at 980. "Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Id.

B. Erchonia's Objections to Special Master's Final Report and Recommendation.

Erchonia has set forth multiple bases in opposition to the Special Master's Final Report and Recommendation regarding his interpretation of the term "optical arrangement." Erchonia contends that Special Master's final recommendation is flawed because "optical arrangement" does not necessitate that there be two or more optical devices but rather that it can consist of a single lens or other optical device. However, in reviewing these objections it is clear that the Special Master properly considered the record before him and evidence presented to come to a logical conclusion regarding the meaning of "optical arrangement."

(1) The Parties Discussed The Definition of "Optical Arrangement" That is Proposed by the Special Master.

First, Erchonia argues that the modifications added by the Special Master to the definition of "optical arrangement" were improperly raised by REM in its Response to the Special Master's Draft Report and Recommendation. (Erchonia Objection,
p. 5). However, a review of the record simply does not support that argument. Rather, a review of the Markman Hearing transcript reveals that these modifications to the definition of "optical arrangement" were discussed by both parties and, at the very least, the parties were able to come to a common understanding of the meaning of "optical arrangement" at the Markman hearing. At the Markman hearing the following discussion took place:

Special Master Peterson: Okay, I am going to dictate slowly the definition for "optical system" taken from the McGraw-Hill Dictionary of Scientific and Technical Terms, and it is in the field of optics. It is, quote: A collection comprising mirrors, lenses, prism and other devices placed in some specified configuration which reflect, refract, disperse, absorb, polarize or otherwise act on light period, close quote. Now, my question, Mr. Brunelli, is what, if anything, in the specification or prosecution history would indicate that would incorrectly describe "optical arrangement"?

Mr. Brunelli: Okay. I've got two points. One, I read the definition as requiring at least -- Because of the word "collection," I read that as requiring at least two of these things. Is that how you're reading it, as well?

Special Master: Well, I hadn't gotten to that point yet, but all right.

Mr. Brunelli: So if there is -- I suppose you could read "collection" as requiring only one or more of these, as well, so there is an ambiguity there. If it's -- If it's not at least two, I think neither the Specification nor the file history support -- would support the reading. Second, I believe that a -- "other devices" is broad in that it may include things that are not optics such as mechanical elements, a mechanical mask, or an electromechanical element such as a motorized mirror. Those are clearly -- Those type of things are clearly not encompassed by the specification.

Special Master: Well, just a second. Let me -- We can solve that issue easily by changing "other devices" to "other optical devices."

Mr. Brunelli: Okay.

Special Master: And if we just make it clear, we say "a collection comprising two or more . . . ."

Mr. Brunelli: If we went with "a collection comprising two or more mirrors, lenses, prisms or other optical devices placed in some specified configuration which reflect, refract, disperse, absorb, polarize, or otherwise act upon light" and you're asking me if that would be a acceptable definition for "optical system," and clearly I think that would because it came out of the dictionary, as you just stated, and the next question becomes does "optical system" -- can optical system" be changed for "optical arrangement"? Am I following you?

Special Master: Well, no, you're changing the second question slightly. Is that an accurate definition of the term "optical arrangement" as it is used in the context of the patent and prosecution history of the case?

Mr. Brunelli: Well, I really think that the -- because of the way this patent was drafted, I really think that the patentee defined "optical arrangement" as being a particular thing.

Special Master: I understand.

Mr. Brunelli: But let's -- let's assume that argument is falling -- is falling short, in your opinion, and so I will argue in the alternative. If, in the alternative, "optical arrangement" is -- is not -- has not been defined, then I think the proposed definition that we've just run through would work in understanding what is meant by "optical arrangement" as used in the claims of the 096 Patent.

Special Master: All right. Mr. Schwartz, did you have anything to say in closing?

Mr. Schwarz: Well, I think those are good questions then. I will tell you that I think that -- seeing the file history, that there is -- that the examiner, at least, had the opinion that optical -- Well, he had a discussion about other optical arrangements as taught in Oshiro and Blum, kind of my interpretation of his -- what you stated, he had a long discussion about other optical arrangements that could be used, including light generating prisms and lenses and those things, and discussed that they were well-known in the art. So I would support your -- I support the contention that "optical"
"optical arrangement" is broader than just a line generating prism and a collimating lens. And I also, as I said earlier, believe "optical system" and "optical arrangement" are equivalent.

Special Master: All right. Let me -- Let me ask you, Mr. Schwartz, from that definition that we just discussed with Mr. Brunelli would that be acceptable from your standpoint?

Mr. Schwartz: I think that the definition you just read out of the McGraw-Hill Dictionary was extremely accurate. I don't have any concern what you've proposed as alternative language here other than making clear two things. When you say -- you had -- At one point in your discussion Mr. Brunelli said "comprising two or more." I'd like to make clear that it can be in combination. You could obviously have a lens and a prism, it doesn't have to be two lenses or two prisms, although I think that's what you intended anyway. (Emphasis added).

Special Master: Yes.

Mr. Schwartz: The only point where I disagree with Mr. Brunelli was he made a point of saying that a motorized mirror, he believed, would be a mechanical device. I think that a mirror, whether it's motorized or not, is an optical device, but I'm not sure we need to go that far for purposes of this discussion.

Special Master: All right. All right. Anything else, Mr. Schwartz?

Mr. Schwartz: No sir. I think that gives you a good flavor. I would just refer you, as I know you're fully familiar, to the briefs or anything that we didn't address during oral argument.


The above discussion demonstrates that both parties were given an opportunity to discuss and dispute the meaning of "optical arrangement" wholly consistent with the construction the Special Master recommends now. Additionally, a plain reading reveals that the parties seemed to be in general agreement that the proposed definition by the Special Master in his Final Report and Recommendation was appropriate.

(2) The Prosecution History and Prior Art Support the Special Master's Recommendation.

Second, the Special Master's Final Report and Recommendation soundly describes his determination that an "optical arrangement" calls for two or more optical devices. Despite Erchonia's argument to the contrary, the prosecution history and prior art supports the Special Master's recommendation that "optical arrangement" consist of two or more optical devices rather than just a single optical device as Erchonia contends.

Specifically, Erchonia contends that the Special Master failed to appreciate that the Patent Examiner of the 096 patent considered the possibility that "optical arrangement" could be made up of a single prism. Erchonia cites the Patent Examiner's statement in rejecting claim 5 of the 096 Patent that it would have been obvious "to modify the combined device of Ohshiro et al and Blum et al, with Itzkan to provide a line generating prism as an alternative, equivalent means for focusing the light onto the tissue in a line." (Draft Report and Recommendation p. 82, citing Office Action at 4). Erchonia contends that this statement shows that the Patent Examiner considered the possibility of a single prism acting as an optical arrangement on the 096 Patent, thus supporting its position that "optical arrangement" does not necessitate two or more such devices. However, as noted by REM, this argument has been addressed by the Special Master with sound reasoning. Most significantly, the Patent Examiner's statement, cited above, was made in the context of rejecting claim 5 of the original 096 application on the basis of obviousness in light of the prior art. Specifically, application claim 5 (ultimately patent claim 4) specified in pertinent part:

5. The device of claim 1 wherein said optical arrangement includes:

a. collimating lens; and

b. line generating prism, said collimating lens and line generating prism disposed in a serial relation to said generating means.
(Final Report and Recommendation, p. 118).

The Patent Examiner's rejection was based upon two optical devices, a "collimating lens" and "a line generating prism." Thus, it cannot be said that the Patent Examiner contemplated only one optical device.

Additionally, Erchonia's reliance Ohshiro et al., patent # 4,905,690, a prior art reference to the 096 Patent, for the proposition that "optical arrangement" may consist of only one optical device is not persuasive. As noted by the Special Master, the Ohshiro patent consists of a "series of lenses." (Final Report and Recommendation, p. 49, Exhibit 1 to REM's Response, abstract of Ohshiro et al.). Obviously, a "series of lenses" would suggest more than one lens or optical device.

Lastly, Erchonia's reliance on the Sousa et al, patent # 5,822,345, to lend support to its argument that "optical arrangement" does not necessitate "two or more" optical devices is not persuasive. As Erchonia points out, the Special Master noted that the Sousa et al specification relates that "optical system 13, . . . can be a focusing lens or other suitable optical arrangement . . ." (Draft Report and Recommendation, p. 89, Exhibit 2 to REM's Response, 345 patent, col. 7, ll. 19-22). However, the Sousa patent specification also possesses language suggesting that "optical arrangement" calls for two or more optical devices, or lenses. Specifically, in the same specification, the patent calls for a "series of lenses." (Exhibit 2, to REM's Response, 345 patent, col. 5-6, ll. 62-68).

Thus, the prosecution history of the 096 patent and the prior art addressing "optical arrangement" reasonably suggest that an "optical arrangement" would likely require at least two or more lenses or devices. At the very least, contrary to Erchonia's position, the prosecution history and prior art of the 096 Patent do not evidence that an ordinary person skilled in the art would equate "optical arrangement" with only one such device.

(3) The Special Master Did Not Improperly Apply The Preferred Embodiment Into The Claims.

Erchonia also argues that the Special Master improperly read claim limitations from the preferred embodiment when interpreting "optical arrangement" in the independent claims. Specifically, Erchonia relies on the Special Master's reference in the Final Report and Recommendation that the specific embodiment disclosed in the specification of the 096 Patent has at least two optical elements or devices; specifically the "collimating lens" and "line generating prism." (Final Report and Recommendation, p. 120). However, Erchonia's argument is not well taken as it even acknowledges that the Special Master did not relate that specific limitation from the preferred embodiment of a "collimating lens" and a "line generating prism" into the definition of "optical arrangement." (Erchonia's Objection to Final Report, p. 7-8). Rather, the definition of "optical arrangement" is broader in that it only requires "two or more . . . optical devices." Therefore, it is difficult to see how the Special Master improperly read the limitations of the preferred embodiment of the 096 into the definition of "optical arrangement."

This same line of reasoning also rebuts Erchonia's argument that the Special Master ran afoul of the doctrine of claim differentiation, which prohibits dependent claim limitations from being read into independent claims. See Curtiss-Wright Flow Control Corp. v. Velan, Inc. 438 F.3d 1374, 1380 (Fed. Cir. 2006). As discussed above, the Special Master's definition of "optical arrangement" requires only a collection of "two or more . . . optical devices." (Final Report and Recommendation, p. 123). Whereas, the limitations of the preferred embodiment, such as in dependent claim four, relate that the dependent claims involve a "collimating lens" and "a line generating prism" which are distinct types of "optical devices." (Final Report and Recommendation, p. 120). Therefore, because the independent claim is based upon the broad category of "optical devices" and the dependent claims involve specific types of "optical devices" it cannot be said the Special Master read the claim limitations into the independent claims.

(4) The Special Master Did Not Improperly Assign A Burden of Proof.

Lastly, Erchonia argues that the Special Master improperly assessed it a burden of proof in determining the meaning of "optical arrangement." Specifically, Erchonia cites the Special Master's determination that neither party had provided proof of the question of how one of ordinary skill in the art would interpret "optical arrangement." However, Erchonia's argument is not persuasive because the fact that the Special Master noted that both parties provided inadequate evidence in support of their purported interpretations of "optical arrangement" does not mean he assigned a burden of proof to either party. It simply demonstrates that the evidence presented by both parties was not helpful in making the ultimate determination.
Rather, the Special Master turned to other reliable means of interpretation such as other intrinsic and extrinsic evidence.

C. The Definition of "Optical Arrangement"

The Special Master followed proper procedure in formulating his final recommendation regarding the term "optical arrangement." He looked first to the intrinsic record to determine the proper definition of "optical arrangement." However, after reviewing the intrinsic record, including the claim language, prosecution history and specification it is unclear if one of ordinary skill in the art would determine if an "optical arrangement" can be made up of just one "optical device" or calls for at least two. (Final Report and Recommendation, pp. 120, 121).

Because of this uncertainty, it was appropriate for the Special Master and is appropriate for this Court to turn to available extrinsic evidence available. Here, the Special Master with the parties consent turned to the dictionary, to resolve any ambiguity. Phillips, 415 F.3d 1303 at 1318-19 (2005). Both parties generally agreed to the persuasiveness of the McGraw-Hill Dictionary of Scientific and Technical Terms (5th Ed. 1994) with its definition of "optical system."

First, as noted by the Special Master, the plain meaning of term "arrangement" connotes multiple parts. See Merriam-Webster's Collegiate Dictionary (10th Ed. 1999) at 64 (defining "arrangement" as "something made by arranging parts or other things together"). Thus, the term itself would call for at least two devices, not a single device as Erchonia contends.

Second, the technical definition of "optical system" as defined in the McGraw-Hill Dictionary of Scientific and Technical Terms (5th Ed. 1994) is, "a collection comprising mirrors, lens, prisms, and other devices, placed in some specified configuration, which reflect, dispense, absorb, polarize, or otherwise act on light. " (emphasis added). This definition speaks in terms of multiples and again indicates that "optical arrangement" would call for at least two or more devices.

Thus, when turning to plain language of the dictionary terms of "arrangement" and "optical system" it is apparent that the term itself indicates that more than one "optical device" is necessary. The Court in performing a review of the intrinsic record and extrinsic record agrees with the Special Master's final recommendation that "optical arrangement" as listed in independent claims 1 and 10 means:

A collection comprising two or more mirrors, lens, prisms, or other optical devices, placed in some specified configuration, which reflect, refract, dispense, absorb, polarize, or otherwise act on light. That definition allows for a combination of two or more different optical devices. Also, a mirror whether it is motorized or not, is an optical device.

Therefore, the Court adopts the Special Master's Final Report and Recommendation.

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Optical channel selector

The Court agrees with Ciena's proposed construction and construes the term as a "device that selects a single optical channel from a wavelength division multiplexing input signal." Nortel argues that the term should be construed as "an apparatus that selects a single wavelength from a wavelength division multiplexed optical signal and terminates the remainder of the wavelengths." Nortel argues the specification demonstrates that the optical channel selector terminates the wavelength. The specification states:

Channel selector 102 passes optical signals having wavelengths other than the channel wavelength to be processed by the remodulating channel selector. These non-selected channels pass through low reflectivity port 104 and exit the optical communication system. The low reflectivity port 104 may be an angled fiber cut, although any low reflectivity waveguide termination technique may be employed. The selected channel wavelength is reflected by channel selector 102 through splitter 103 onto optical path 106.

Col. 7:36-45. Nortel argues that because the signals that are passed by the channel selector 102 "exit the optical communication system," they are being terminated by channel selector 102. This embodiment of the invention indicates that if any structure performs the function of terminating wavelengths it is low reflectivity port 104, not optical channel selector 102. Channel selector 102 simply "passes optical signals having wavelengths" other than the optical signal to be processed.
Nortel’s construction would exclude this embodiment set out in the specification. “The Court must always read the claims in view of the full specification. A claim construction that excludes a preferred embodiment . . . ‘is rarely, if ever, correct.’” SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1285 (Fed. Cir. 2005)(citing and quoting Vitronics, 90 F.3d at 1582-83). Furthermore, the specification specifically states that “an optical channel selector optically communicates with the optical input port to select a single optical channel from the [wavelength division multiplexing] input signal.” Col. 3:1-3. Accordingly, the Court construes “optical channel selector” as a “device that selects a single optical channel from a wavelength division multiplexing input signal.”

2. "An optical coupling means having an input, an input/output and an output" and "a first optical coupler having an input, an input/output and an output"

(a) Means Plus Function

As an initial matter, Pirelli contends that the language "optical coupling means" should not be construed using the "means-plus-function" formulation under 35 U.S.C. § 112, P6. Pirelli maintains that since optical couplers were known devices at the time of the filing of the patent application, the "optical coupling means" claim language recites predominantly structure. Therefore, Pirelli averes that "optical coupling means" is a structural element corresponding to an optical coupler and should not be limited to specific examples given in the specification. To further support for its position, Pirelli points to the prosecution history of claim 1 of the '459 Patent. There, Pirelli explains that the language use to be "optical coupler", but was amended for a reason unconnected to any means-plus-function determination. See Prosecution History, 71. Ciena disagrees.


An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Under section 112, paragraph 6, "an applicant can describe an element of his invention by the result accomplished or the function served, rather than describing the item or element to be used . . . ." Warner-Jenkinson v. Hilton Davis Chemical Co., 137 L. Ed. 2d 146, 117 S. Ct. 1040, 1048 (1997). "In determining whether to apply the statutory procedures of Section 112, P6, the use of the word "means" triggers a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses." York v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1574 (Fed. Cir., 1996). However, this presumption is not conclusive. See Sage Products, Inc. v. Devon Indust., Inc., 126 F.3d 1420, 1997 WL 578762, at *7 (Fed. Cir. 1997). "Merely because a named element of a patent claim is followed by the word 'means'. . . does not automatically make that element a 'means-plus-function' element under 35 U.S.C. § 112, P6." Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir., 1996); see also York, 99 F.3d at 1574 ("Mere incantation of the word 'means' in a clause reciting predominantly structure cannot evoke section 112, P6.").

The Court must decide on an element-by-element basis, based upon the patent, whether § 112, P6 applies. See Cole, 102 F.3d at 531. "Where a claim used the word 'means', but specifies no corresponding function for the 'means', it does not implicate section 112." Sage, 1997 WL 578762, at *7 (citing York, 99 F.3d at 1574). Similarly, if a claim has sufficient structure within the claim itself which can perform the recited function, the language of the claim is not in means-plus-function format. See id. (citing Cole, 102 F.3d at 531).

In the case bar, the "optical coupling means" of Claim 1 employs the language "means" and thereby, presumptively implicate section 112, P6. That being said, there is no corresponding function for the "means". Although it is evident from other parts of the patent that the function of the optical coupling means is to separate different wavelengths, nowhere does
the claim language state that function. See York, 99 F.3d at 1574. Moreover, the Court is counseled by the fact the "optical coupling means" recites a definite structure, i.e., the optical coupler. See Cole, 102 F.3d at 531 (clause reciting predominately structure does not implicate § 112, P6). Finally, the Court need look no further than the nearly identical language of Claim 7 which refers to the same optical coupling device as a "first optical coupler", with the conspicuous absence of the word "means". See Col.9, line 14. Therefore, it is apparent that "optical coupling means" and "first optical coupler" are synonymous.

Thus, because there is a detailed recitation of structure and there is an absence of any mention of function in the claim, the Court finds the mean-plus-function limitations of section 112, P6, are not implicated in construing "optical coupling means". See Cole, 102 F.3d at 531.

A. Optical Devices

An optical device is a device that is capable of emitting light.

1. "Optical Demultiplexer"

For the following reasons, this court construes the claim term "optical demultiplexer" in claims 1, 4-6, 11-15, 17, 20, and 24 to mean:

A device that receives a plurality of wavelengths multiplexed together as an optical signal and outputs each of the plurality of wavelengths as at least one of the following: (a) individual wavelengths, (b) bands of wavelengths or (c) a combination of bands and individual wavelengths.

The specification for the '772 patents states that:

It is yet another aspect of the invention to utilize optical line terminals having a multiplexer/demultiplexer including one or more stages of inputting/outputting individual wavelengths or bands of a predetermined number of wavelengths, or a combination of bands and individual wavelengths.

('772 patent, col. 1:52-56.) In other words, an OLT can have a demultiplexer, which may have one or more stages for outputting (1) individual wavelengths or (2) bands of a predetermined number of wavelengths or (3) a combination of bands and individual wavelengths.

Figure 3 of the '772 patent specification shows a demultiplexer outputting a combination of bands and individual wavelengths in a two-stage process. ('772 patent, Fig. 3.) In the first stage, optical signals are demultiplexed and bands of wavelengths are output. ('772 patent, col. 4:7-42; see Fig. 3.) In the second stage, at least one of the bands is demultiplexed further and output as individual wavelengths. Id. The culmination of the two-stage process is the output of a combination of bands and individual wavelengths. ('772 patent, col. 3:61-4:6; see Fig. 3.) Thus, based on examination of the specification an "optical demultiplexer" is a device that receives a plurality of wavelengths multiplexed together as an optical signal and outputs each of the plurality of wavelengths as at least one of the following: (a) individual wavelengths, (b) bands of wavelengths or (c) a combination of bands and individual wavelengths.

2. "Optical Element in a Telescope"
The term "optical element" appears, in either singular or plural form, in claims 1, 10, 15, 18 and 20. As used in the '908 Patent, the term "optical element(s)" includes mirrors, lenses, or prisms.

Plaintiff argues that "optical element in a telescope" should be restricted to "mirrors." (Pl.'s Reply Br. at 2.) In contrast, defendant contends that the phrase "optical element" is much broader, and includes "lenses," "mirrors," and "prisms," thus comporting with its dictionary definition. (Pl.'s Reply Br. at 3, P2.)

As a threshold matter, the term "optical element" must include both lenses and mirrors because this Court's construction of the term "telescope" includes both reflecting and refracting telescopes. However, "optical element" includes both mirrors and lenses based on other intrinsic evidence as well.

Looking to the patent claims, there are several places in which the doctrine of claim differentiation indicates that the term "optical element(s)" is not limited to mirror(s). The clearest example of this point is a comparison of claims 15 and 16. Claim 15 is an independent claim that is nearly identical to claim 1. See '908 Patent at 7:3-8. It describes "[a] method of aligning an optical element in a telescope, comprising: (a) projecting a holographic image onto at least a portion of an optical element to be aligned; and (b) aligning the optical element in response to the projected holographic image." Id. Claim 16 is "the method of claim 15, further comprising employing a mirror as the optical element." Id. at 7:9-10. Since claim 16 is a dependent claim, which, by definition, must add a limitation, and the limitation it adds is that the optical element be a mirror, the doctrine of claim differentiation instructs that the term "optical element" is not limited to a mirror.

Claims 10 and 11 have a similar relationship. Claim 10, like claims 1 and 15, describes "[a] method of aligning an optical element in a telescope." Id. at 6:55 (emphasis added). Claim 11, which is dependent upon claim 10, is "the method of claim 10, further comprising employing a plurality of mirrors as the optical elements." Id. at 6:61-62 (emphasis added). If the only "optical element" in a "telescope" could be a "mirror," then claim 11 would be redundant in requiring a "plurality of mirrors as the optical elements," since the only optical elements in a telescope would be "mirrors." Based on the doctrine of claim differentiation, the claim language evinces an intent that "optical elements in a telescope" should include more than "mirrors."

Next, looking to the specification, the introduction states that "the present invention generally relates to the alignment of optical elements, and more specifically to the alignment of mirrors in a telescope." Id. at 1:6-8, 11. If the term "optical elements" were restricted to "mirrors" then the introduction to the specification would be redundant by using the phrase "the alignment of mirrors in a telescope." The presence of the second clause of the sentence indicates that the term "optical elements," alone, is not sufficient to specify mirrors. Moreover, as discussed supra, the specification asserts that the invention can be used with a "refracting telescope." See id. at 6:11, 19-21. Refracting telescopes contain lenses rather than mirrors. (See Markman Hearing, Def. Ex. A.) Accordingly, the meaning of "optical elements in a telescope" should at the very least, include both "mirrors" and "lenses."

Plaintiff might argue that the introduction to the specification is a disclaimer limiting "the present invention . . . more specifically to the alignment of mirrors in a telescope." Id. at 1:6-8, 11 (emphasis added). According to Phillips, "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance . . . the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." 2005 U.S. App. LEXIS 13954, 2005 WL 1620331, at *8. However, as previously discussed, the plain language of the claims, as well as other parts of the specification, do not evince any attempt to limit the scope of the term "optical element." Given Phillips' insistence on maintaining the line "between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim," 2005 U.S. App. LEXIS 13954, [WL] at *15, language in the specification will not be used to limit claim scope unless that language conveys a clear intent to use the term narrowly. Given the amount of intrinsic evidence in this case demonstrating a broader definition, the introduction to the specification cannot be given such a preclusive effect. The term "optical elements" must be construed to include both "mirrors" and "lenses."

What is less clear is whether the phrase "optical elements in a telescope" should include "prisms." As discussed supra, the claims may be interpreted such that the disputed term includes other "optical elements" besides a "plurality of mirrors;" however, the specification neither mentions, nor provides a diagram demonstrating the invention's use with a telescope containing a prism. Phillips specifically warns against confining claims to specific embodiments of the invention described within the specification. See id. Therefore, a lack of intrinsic evidence is not dispositive. The issue is whether a person of
ordinary skill in the art would interpret the phrase "optical element in a telescope" to include "prisms." In ascertaining how a person of ordinary skill in the art understands a claim term, a court may look at extrinsic evidence where the intrinsic evidence is ambiguous. See 2005 U.S. App. LEXIS 13954, [WL] at *16. Both the prior art as well as technical dictionaries make it clear that a prism may be used as an "optical instrument" within a "telescope." (See Markman Hearing, Def. Exs. B, C; Def's Opp. Br. at 3, P2.) Therefore, this Court will not exclude "prisms" from the definition of "optical elements in a telescope." In sum, this Court rejects plaintiff’s definition limiting the term "optical elements in a telescope" to "mirrors," in favor of a broader definition which includes "mirrors," "lenses," and "prisms."

The Court agrees with Ciena that this term does not require construction. Nortel argues that the term should be construed as “the access point to an integrated module that receives wavelength division multiplexed optical signals.” Nortel does not introduce any support for its use of the words “access point.” In fact, Nortel does not present any support for its proposed construction of “optical input port” other than as it relates to its argument that the “remodulating channel selector” should be construed as an integrated unit. For the reasons discussed above, the Court does not define the term “remodulating channel selector” and, therefore, does not import a limitation that would require the “remodulating channel selector” to be an “integrated module.” Moreover, “optical input port” is a term that would be well understood in the art to mean the input port for an optical signal. The specification indicates that this is how the “optical input port” is understood in terms of the invention. See Cols. 2:64-67; 7:30-34. “Words of a claim ‘are generally given their ordinary and customary meaning.’” Phillips, 415 F.3d at 1312 (citing Vitronics, 90 F.3d at 1582). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, . . . .” Id. at 1313. Accordingly, it is not necessary for the Court to construe the term.

1. "Optical Line Interface"

For the following reasons, this court construes the claim term "optical line interface" in claims 1, 3-8, 11-13, 17, 18, 20, 21, 23, and 24 to mean:

An interface that can carry a plurality of wavelengths multiplexed together as an optical signal.

The parties agree that an optical line interface can send or receive a plurality of wavelengths multiplexed together. Specifically, Fujitsu's proposed construction states, "an interface adapted for carrying wavelength division multiplexed (WDM) optical communication signals of the highest relative order" (Dkt. No. 90, Ex. C at 2), while Tellabs' proposed construction states, "an interface that can carry a plurality of wavelengths multiplexed together as an optical signal" (Dkt. No. 91, Ex. C at 1).

Patent '772's specification also supports the parties' agreed-upon construction. The specification establishes that the invention pertains to a "wavelength division multiplexed (WDM) optical communication system" ("772 patent, col. 1:14-22) and that a "WDM system employs plural optical signal channels, each channel being assigned a particular channel wavelength" ('772 patent, col. 1:28-29). With regard to an OLT, the specification states, "[t]he OLT has an input/output line interface which is connected to an external fiber facility and transmits/receives an optical signal having N optical wavelengths." ('772 patent, col. 2:40-42; see Fig. 1.)

The parties, however, dispute the inclusion of the phrase "highest relative order" in the construed meaning of the phrase "optical line interface." Fujitsu's proposed construction requires that the optical signals be of the "highest relative order." (Dkt. No. 90, Ex. C at 2.) Fujitsu's proposed construction improperly imports a limitation from a preferred embodiment in the specification. See Phillips, 415 F.3d at 1323 (explaining that courts generally should not limit patent claims to the preferred embodiments in the specification); Astrazeneca AB, 384 F.3d at 1340 (same). Patent '772's specification only uses...
the term "highest relative order" once as the specification describes Figure 4, and states that "[t]he line interface is adapted for wavelength division multiplexed (WDM) optical communication signals of the highest relative order." ('772 patent, col. 4:48-50.) To incorporate the requirement that the optical signal be of the 'highest relative order' would limit the claim to a preferred embodiment. The court therefore rejects the incorporation of the limitation "highest relative order" into the construction of "optical line interface."

2. "Bidirectional Optical Line Interface"

For the following reasons, this court construes the claim term "bidirectional optical line interface" in claims 14, 15, and 16 to mean:

An interface for sending and receiving a plurality of wavelengths multiplexed together as an optical signal.

In construing the term "bidirectional optical line interface," the court must consider that differences among other claims of the '772 patent can assist in the court's understanding of a term's meaning. See Phillips, 415 F.3d at 1314. Accordingly, the term "bidirectional optical line interface" must be construed consistent with the construction of "optical line interface" as explained above. However, the construction of "bidirectional optical line interface" will depart from the construction of "optical line interface" because the addition of the word "bidirectional" necessarily narrows the construction of the term "optical line interface." The word bidirectional requires that the optical line interface send and receive a plurality of wavelengths multiplexed together as an optical signal. Thus, while an "optical line interface" can send or receive a plurality of wavelengths multiplexed together, a "bidirectional optical line interface" must send and receive a plurality of wavelengths multiplexed together as an optical signal.

Tellabs' proposed construction appears to be consistent with this court's construction of "bidirectional optical line interface." (Dkt. No. 91, Ex. C at 2.) But Fujitsu's proposed construction is less clear.

Fujitsu presented two proposals for the meaning of the term "bidirectional optical line interface." For the purpose of independent claim 14, Fujitsu proposed the following construction: "optical line interface can transmit and receive wavelengths over a single optical fiber line to and from an external device." (Dkt. No. 90, Ex. C at 17.) For claim 15, which is dependent on claim 14, Fujitsu proposed: "an interface adapted for carrying bidirectional wavelength division multiplexed (WDM) optical communication signals of the highest relative order." (Dkt. No. 90, Ex. C at 21.) Fujitsu also proposes that claim 16, which is dependent on dependent claim 15, must be construed in the same manner as independent claim 14. (Dkt. No. 90, Ex. C at 22.)

Fujitsu's proposed construction of "bidirectional optical line interface" for claims 14 and 16 uses the conjunctive "and," making the construction of "bidirectional optical line interface" narrower than the construction of "optical line interface." But Fujitsu's proposed construction for claim 15 uses the word "bidirectional," and so the court finds Fujitsu's construction to be unclear. Additionally, Fujitsu's proposed construction for claim 15 contains the words "highest relative order," which as explained above, the court rejects as importing a limitation into the claim from a preferred embodiment.

N. Ref. No. 38 "Optically Readable."

This term is recited or referred to in Claims 82, 83, 84, and 85.

According to Plaintiff, the term "optically readable" means capable of being read by an optical scanner. Defendants counter that the definition of the term encompasses capable of being read by humans and by a mechanical device.

As noted by Plaintiff, the background portion of the '730 Patent describes the process of counting votes by optical scanning...
or mechanical scanning. (Col. 1, ll. 23-27.) The specification provides that the voting records may be stored in an electronically or optically readable media. (Col. 22, ll. 50-54.) The Claims in dispute each provide for specific voting information to be on printed paper that is "human readable and/or optically readable." Claims 82, 83, 84, and 85. These references in the specification and in the Claims meet the requirements of In re Wright, 866 F.2d at 425, because the term "optically readable" is clearly conveyed in the patent language and its specification. Moreover, this term is used throughout the patent description and in the patent specification. And, the ordinary meaning of the term is clearly conveyed by the Plaintiff's definition.

The Court construes the term "optical readable" as: "Capable of being read by an optical scanner."

Plaintiff argues that construction is not subject to 35 U.S.C. § 112 P 6, asserting that "the word 'reader' is structural and not purely functional." (D.I. 150 at 29) (citing TriMed, Inc. v. Stryker Corp., 514 F.3d 1256, 1260 (Fed. Cir. 2008); Phillips 415 F.3d at 1311; Watts v. XL Sys., Inc., 232 F.3d 877 (Fed. Cir. 2000)). Plaintiff fails to provide any evidence supporting this contention. The Federal Circuit, in TriMed, explained:

Use of the word "means" in claim language creates a presumption that § 112 P 6 applies. If, in addition to the word "means" and the functional language, the claim recites sufficient structure for performing the described functions in their entirety, the presumption of § 112 P 6 is overcome—the limitation is not a means-plus-function limitation. Sufficient structure exists when the claim language specifies the exact structure that performs the functions in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure.

TriMed, Inc. v. Stryker Corp., 514 F.3d at 1259-60 (citations omitted). Here, "reader" does not provide sufficient structure for performing the function of effecting the input of optical information. As discussed below, it is necessary to resort to the specification to adequately understand the requisite structure. Therefore, plaintiff has failed to overcome the presumption that this term is subject to § 112 P 6.

The parties agree that a photoelectric sensor array is corresponding structure. (D.I. 180, ex. A at P 1.5) Plaintiff asserts that the limitation also includes a scanner or equivalents including a CCD or CMOS digital camera. (Id.) Defendant asserts that the limitation also includes bar code scanner module 212 and scanner tip 214, a light source, and decoding logic. (Id.)

A corresponding structure for purposes of 35 U.S.C. § 112, P 6 must be disclosed within the four corners of the patent or clearly within the intrinsic record. See Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1208 (Fed. Cir. 2002) ("Structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.") (citation omitted) (emphasis added). The exact term "optical reader" is referenced only once in the specification:

Various optical type scanners are also of substantial utility for quick, easy and highly accurate input of existing printed data, e.g., bar codes, text, and graphical information. Instant type optical readers which may be integrated into a hand-held shell module according to the present invention are disclosed in a pending application of the present inventors U.S. Ser. No. 894,689 filed Aug. 8, 1986, (now U.S. Pat. No. 4,877,949 issued Oct. 31, 1989), and the disclosure including the drawings of this pending application are incorporated herein by reference in their entirety as illustrating arrangements which may be embodied in a peripheral shell such as indicated at 250 in FIG. 10.
(‘947 patent, col. 11:16-27) (emphasis added). 13 The specification teaches numerous examples of readers that use optical means in reference to reading and decoding bar codes. (See e.g. ‘947 patent, col. 11:18-19; col. 17:1-39; col. 18:12-36) Plaintiff argues that decoding is not a limitation; that "[t]he specification discloses corresponding structures that capture an image but do not decode it." (D.I. 150 at 30) (citing '947 patent, col. 18:38-44) Plaintiff ignores the paragraph immediately preceding the cited portion, which discusses digital signal processing used in decoding the image captured:

An image sensor has the advantage that it establishes an absolute dark signal as indicated at 331, FIG. 13A, and at 332, FIG. 13B, at the beginning of each reading operation. This allows the reader electronics the ability to always properly set up for detecting all bars and spaces of a label. . . . Digital signal processing according to the present embodiment will result in proper detection of a first black bar on a white background as illustrated in FIG. 13A and will not insert bars or spaces in the case of either FIG. 13A or FIG. 13B.

(‘947 patent, col.18:9-37) Plaintiff further argues that "[t]he specification also incorporates U.S. Patent 5,019,699 to Koenck, which discloses a device for capturing digital images of printed text for later Optical Character Recognition processing (i.e., decoding)." (D.I. 150 at 31) (citation omitted) (emphasis added) The mere inclusion of a patent by reference does not clearly link or associate that structure to the function recited in the claim.

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13 U.S. Patent No. 4,877,949 is entitled "Hand Held Instant Bar Code Reader System with Automated Focus Based on Distance Measurements."

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Optical signal

Claim 18 of the ’714 Patent contains the term "unmodulated optical signal." The parties agree that an "unmodulated optical signal" is an optical signal that has not been processed by the array of optical signal processing devices, but disagree about the construction of the term "optical signal." Cheetah contends that the term means "light of more than one wavelength," while Mitsubishi contends that it means "light beam carrying information." The parties disagree whether the term "optical signal" requires the light to carry information.

Cheetah asserts that the ’714 specification teaches that the input signal light includes light having "a plurality of wavelength signals." ’714 Patent, col. 17:31-33. Cheetah also asserts that the United States Patent and Trademark Office ("Patent Office"), using the broadest reasonable interpretation in light of the specification, interpreted the term to include incandescent light emitted from a typical lamp used in projection systems. Mitsubishi counters that Cheetah's construction renders the term "signal" meaningless and would encompass, for example, sunlight within the meaning of "optical signal." Additionally, Mitsubishi argues that the ’714 specification supports a construction of light carrying information by citing to the Overview, which states that "[a]s optical systems continue to increase the volume and speed of information communicated, the need for methods and apparatus operable to facilitate high speed optical signal processing also escalates." ’714 Patent, col. 1:28-31 (emphasis added).

Cheetah's construction would reduce "optical signal" to merely light or a lightbeam. Although the Patent Office used the broadest reasonable interpretation in light of the specification, the Court must first focus on the claims and specification as a whole under the guidance of Phillips. Phillips, 415 F.3d at 1314-15 (stating with regard to the specification "[u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term"). The specification is directed towards transmitting information optically and heavily emphasizes this functionality, and Cheetah's construction does not conform with this. See e.g. ’714 Patent, col. 18:61-67, col. 19:8-10, col. 20:14-19.

The use of the term "signal" itself also implies information. Cheetah argues that an optics dictionary defines the term "optical signal" as "a signal that (a) contains optical power and (b) may be transmitted (i) in an optical waveguide . . . or optical integrated circuit (OIC) or (ii) as a lightbeam in free space." Even this extrinsic evidence cited by Cheetah supports
the inclusion of "information," because the definition itself begins with "a signal" and states that this signal may be transmitted as a lightbeam. This definition does not define "optical signal" as merely a lightbeam, but as "a signal" that may transmitted as a lightbeam.

Even accepting Cheetah’s interpretation of the prosecution history, the specification of the '714 Patent gives clear guidance that the term "signal" has meaning that cannot be ignored under Phillips. See Phillips, 415 F.3d at 1314-15. When the intrinsic record is viewed as a whole, an "optical signal" is more than merely light or a lightbeam. Accordingly, the Court adopts Mitsubishi’s construction and construes the term "optical signal" to mean "light beam carrying information."

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1. "second optical signal laser transmitter"

To reiterate, the purpose of the '073 Patent was to create a universal adapter that receives optical signals emitted by a transmitter and adjusts their parameters to match those required by an EDFA optical line amplifier connected to the adapter output. The adapter operates by converting the optical signals received into electrical signals representative of the information carried by such input optical signals, and by reconverting those electrical signals back into output optical signals having the appropriate optical wavelength to be compatible with the EDFA optical line amplifier. The electrical signals are reconverted into outgoing optical signals by means of a "second optical signal laser transmitter".

The dispute between the parties boils down to whether the "second optical signal laser transmitter" is equivalent to a laser, or whether it should be construed as referring to a laser plus a modulated signal. Pirelli asserts that an optical communication transmitter is not just constituted of an optical source like a laser, but is instead made up of both an optical source and an information-bearing modulated signal. Ciena, on the other hand, contends that the "second optical signal laser transmitter" is just a laser. Extrinsic evidence will not be consulted in construing this language. 9

9 Pirelli during oral argument attempted to use extrinsic evidence in order to support its construction of the disputed language. Ciena objected saying that they thought there was an agreement not to use any extrinsic evidence. The Court declines to consider such extrinsic evidence. The Court is counseled by the fact, as will be discussed below, that the claim and the specification unequivocally describe the meaning and scope of the disputed language. As such, utilization of extrinsic evidence is improper. See Vitronics, 90 F.3d at 1583.

(a) The Claim Language

Because the claim language is of paramount importance in the construction of this disputed language, the Court starts with the language of the claim. In Claim 8 of the '073 Patent 10, the claim, in relevant part, reads: "a second optical signal laser transmitter connected to said first optical amplifier for supplying optical signals to said first optical amplifier . . . ." Col. 8, lines 40-42. It is Pirelli's position that the second optical transmitter does not just refer to the laser itself, but also refers to the modulating signal coming from the laser. Pirelli reaches this conclusion by arguing that the first and second optical signal laser transmitter must be construed identically because the same language has been used. Because a first optical signal laser transmitter supplies a modulated optical signal through the use of a laser, the second optical signal laser transmitter must also be interpreted as including both the laser and the modulated signal. Pirelli also advances the contention that it is black letter law that every word of a claim must be given meaning. Thus, the word "transmitter" must be interpreted as requiring a modulated optical signal. Ciena argues that the second optical transmitter is a laser and that the "first optical signal laser transmitter" is a completely different claim element.

10 Because the language "second optical signal laser transmitter" and all the other relevant language appear in Claim 8 of the '073 Patent, only this claim language will be referenced, although similar language appears in Claim 1, 3, 13, 14, 15 and...
(b) The Specification

Pirelli asserts that the "first optical signal laser transmitter" is described in the specification as supplying an optical signal that has been modulated with information. See Col.1, lines 9-12 ("an optical line transmitting apparatus provided with a laser"); Col.2, lines 31, 36 ("transmitting . . . apparatus"), 49 ("optical line transmitting apparatus"); Col.5, lines 62-63 ("transmitting . . . apparatus"); Col.6, lines 6-7 (same), 33, 46, 48, 54, 60, 61, 64 ("transmitter"). Further, Pirelli contends there is no indication that the second optical transmitter was to be construed differently from the first optical transmitter in the claim language. Therefore, a laser by itself cannot constitute an optical signal laser transmitter, but rather there must also be some modulated signal that emanates from the laser.

Ciena asserts that the second optical signal laser transmitter should not be confused with the first optical signal laser transmitter. Whereas the first optical transmitter is part of the terminal station equipment, the second optical transmitter is the laser in the claimed adapter that reconverts electrical signals into optical signals so that these optical signals are compatible with the optical amplifier. To support its conclusion, Ciena cites specification language that states that the claimed adapter is comprised of three components: (1) an optical-to-electric converter module, (2) a second adjustment module and (3) a laser. See Col.2, lines 54-62. Ciena argues that these three components correspond exactly to the three components of the adapter recited in Claim 8, with the laser corresponding to the "second optical laser transmitter". Further, Ciena cites specification language that supports its conclusion that the second optical transmitter is just a laser: "laser piloting circuit . . . actuates a laser in the adapter converting said electrical signal to an optical signal . . . ." Col.3, lines 57-59. Lastly, Ciena explains that in a "direct modulation" system, a laser piloting circuit directly acts upon a laser that then emits the proper optical signals that are compatible with the optical amplifier.

(c) Prosecution History

Ciena also avers that Pirelli had to define the "laser piloting means" and in response, told the PTO that it was merely a "laser modulating circuit". Prosecution History, p. 167. Ciena asserts that a laser modulating circuit is a circuit that directly controls a laser. That laser is represented in the claim by the "second optical signal laser transmitter". Therefore, in a "direct modulation" set-up, the laser modulating circuit must act on a laser.

(d) Claim Construction

The claim language refers to a "second optical signal laser transmitter" which supplies optical signals to an optical amplifier. However, the claim is ambiguous as far as whether the second optical transmitter has to be a laser or whether it can also include the modulated signal emitted by the laser. The specification is not helpful in that the "second optical signal laser transmitter" appears nowhere in the specification. Although as Ciena has pointed out, the preferred embodiment seems to contemplate using a laser, "references in the specifications to a preferred embodiment . . . do not limit the scope of the patent claim." See Specialty Composites, 845 F.2d at 987. Moreover, the specification does not require that a laser be used as a second optical signal laser transmitter. See id. ("Where the specification does not require limitation, that limitation should not be read from specification into claims of patent.").

That being said, the Court finds unconvincing that Pirelli’s contentions that the "second optical signal laser transmitter" is a laser plus a modulated signal and that the second optical signal laser transmitter should be construed identically to the "first optical signal laser transmitter." First, common sense dictates that having the definition of a "second optical signal laser transmitter" be a laser plus a modulated signal is incoherent. That's like saying a radio and the music that is emitted from it are what constitute a radio. But when the radio is turned off, the radio does not stop being a radio. Similarly, when the second optical signal laser transmitter is turned off, that does not mean that it stops being a second optical transmitter. The modulated signal is simply not a part of the laser transmitter; the modulated signal is what comes out of the laser transmitter.
This finding is not inconsistent with giving meaning to every word in the claim. As discussed above, the word "transmitter" cannot refer to a modulated signal emanating from the laser. The "second optical signal laser transmitter" remains a laser transmitter irrespective of whether a signal is being modulated.

Second, the Court is not persuaded by Pirelli's argument that identical language must be interpreted in the same manner in the claims and specifications of a patent. See Tandon Corp. v. U.S. Int'l Trade Comm., 831 F.2d 1017, 1023-24 (Fed. Cir. 1987). The first laser transmitter performs a very different function than the second laser transmitter. The first laser transmitter is part of the line terminal equipment and is responsible for sending down the fiber optic line the initially incompatible optical signal. On the other hand, the second laser transmitter is responsible for changing altered electrical signals into altered optical signals which are now compatible with the EDFA optical amplifier. The simple response to this argument is that identical phraseology has not been employed; hence a first optical signal laser transmitter and second optical signal laser transmitter.

Lastly, the Court is further counseled by the prosecution history cited by Ciena which clearly shows that Pirelli believed the laser piloting means to be a "laser modulating circuit". Because the laser piloting means actuates the second optical signal laser transmitter, a fortiori the second laser transmitter must itself be a laser.

Therefore, the Court finds that the "second optical signal laser transmitter" in the '073 Patent is a laser, and nothing more.

**2971**

d. "an optically absorptive refractory transition metal"

i. composition of the metal

One of the primary issues before the court is whether the term "an optically absorptive refractory transition metal," as claimed in the second element of claim 1, includes alloys. The court has determined that the term "metal," as used in the context of the metal interconnect layer, includes alloys. EMI urges that the court should construe the term "metal" similarly in this instance.

To interpret the meaning of this claim limitation, the court looks to the intrinsic evidence of the patent, which comprises the claims, the specification, and the prosecution history. See Pitney Bowes, 182 F.3d at 1309. Upon arriving at a claim construction based upon this intrinsic evidence, the court consults extrinsic evidence to verify that the claim construction under consideration is not inconsistent with widely held understandings in the pertinent technical field. Id.

A term appearing repeatedly in the same claim should be interpreted consistently. See Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1345 (Fed. Cir. 1998). The word "metal," however, is not a discrete claim term. In claim 1, the word "metal" has two different usages. The "metal interconnect layer" is distinct from the "optically absorptive refractory transition metal." These "metals" have different elemental compositions--the metal interconnect is made of an aluminum-based compound, while the metal absorptive layer comprises a transition metal. The "metals" also have different functions in the claimed method--the metal interconnect conducts electricity, while the metal absorptive layer absorbs laser light and transmits heat to the interconnect. Thus, the operative claim limitations are "a metal interconnect layer" and "an optically absorptive refractory transition metal," and the court is not bound by Digital Biometrics to interpret them consistently.

The specification does not provide grounds for finding that the term "an optically absorptive refractory transition metal" refers to alloys. The specification repeatedly distinguishes elemental metals from alloys. The specification recites that the interconnect may comprise "aluminum or aluminum alloys," and states that a diffusion barrier underneath the interconnect may comprise a "transition metal alloy." In the context of the absorptive layer, however, the specification only discusses the use of "a transition metal." Although the specification does not recite the use of a transition metal alloy in the absorptive layer, this alone is not fatal to EMI's proposed construction, as an applicant need not disclose every possible embodiment of his invention. See SRI International v. Matsushita Electric Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985).
The prosecution history, however, indicates that the scope of the claimed absorptive layer is limited to pure elemental metals. As originally submitted by the applicants, the claim recites a method for "forming a layer of optically absorptive material." When the PTO examiner rejected the claim in light of prior art references that employ blackened aluminum or silicon oxides for absorptive layers, the applicants amended their claims to recite "forming a layer of optically absorptive metal." In a second rejection, the examiner noted that the prior art already disclosed the use of molybdenum in a laser cutting process and stated that "even the use of a novel starting material would not necessarily render the process patentable." The applicants finally changed their claim by emphasizing the function of the absorptive layer in transferring laser energy to the interconnect, and as such amended their claim to read "using an optically absorptive refractory transition metal having a higher boiling point than the interconnect beneath it." Notably, the introduction of the word "an" to qualify the metal in the final amendment shows that the scope of the claims progressively narrowed from the use of any suitable material to the use of "an optically absorptive . . . metal."

The applicants clearly contemplated that pure elemental metals are sufficient to enable the invention. In his first rejection letter, the examiner rejected the claims under § 112 for failure to enable the invention, as he asserted that pure elemental transition metals were insufficiently absorptive to induce the claimed explosion. In reply the applicants stated that "titanium, tungsten, tantalum and molybdenum are optically absorptive metals, especially in relation to aluminum." The applicants discussed the physical properties of pure titanium that render it sufficiently absorptive to enable the claimed invention. They stated that "no further processing steps need be taken to prepare the materials optically absorptive." In this exchange with the examiner, the applicants relied on the physical properties of pure elemental metals to enable the device.

Having found no support in the intrinsic evidence to suggest that the claim limitation "an optically absorptive refractory transition metal" covers alloys, the court looks to extrinsic evidence to determine if a person of reasonable skill in the art would interpret the term "an optically absorptive refractory transition metal" to include alloys. Hawley's Condensed Chemical Dictionary defines the term "transition metal" equivalently as "transition element," and lists pure elements as fulfilling this definition. The dictionary clearly distinguishes between alloys and elemental metals, as the definition of "alloy" states that "the properties of alloys are often greatly different from those of the components." Because the dictionary definition of the term "transition metal" does not indicate that this term refers to alloys, and because nothing in the intrinsic evidence suggests otherwise, the court concludes that the term "an optically absorptive refractory transition metal" refers only to pure elemental metals, and does not include alloys. The court reserves the question as to whether the claim may cover alloys under the doctrine of equivalents.

ii. the relative absorptivity

The parties dispute the extent to which the transition metal layer must be optically absorptive with respect to the interconnect. Based on language in the specification, EMI asserts that the transition metal layer is "more absorptive of optical energy than the metal interconnect layer." Cypress advocates that no such limitation should be read into the claim, and that the claim should simply mean that the upper layer be "optically absorptive." Since the plain language of the claim suggests no limitation on the degree of absorptivity of the transition metal layer, the court declines to construe the specification's description of the high relative absorptivity of this layer as a claim limitation. See Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir. 1988). No judicial interpretation is necessary for this limitation.

2972

A. "Optically Coupled To"

For the following reasons, the court construes the claim terms "optically coupled to" in claim 1, "is optically coupled to" in claims 3 and 11, and "optically couple . . . to" in claims 1, 6, and 7 to mean:

(Component A) can send optical information to (Component B) and/or (Component A) can receive optical information from (Component B).

The court arrived at this definition after considering the parties' respective positions as presented in their materials. As for Tellabs' '772 patent, Fujitsu identified a total of seven terms that use the language "optically coupled to," "is optically coupled to," or "optically couple . . . to" and provided an individual construction for each of the seven terms. (See generally
Dkt. No. 90, Ex. C.) Fujitsu's proposed seven constructions are all in the form "can send/receive optical information bi-directionally to from." In response, Tellabs argued that:

Several of the terms raised by Fujitsu are of the form 'A optically coupled to B,' 'A is optically coupled to B,' or 'optically couple A to B,' where A and B are different elements. For this reason, Tellabs proposes a single construction that would apply to each of these claim terms with the insertion of the appropriate A and B elements.

(Dkt. No. 91, Ex. C at 2.) The court agrees with Tellabs' proposition that a single construction should apply to all manifestations the "optically coupled to" language because each of the terms operate to establish that two separate components are optically coupled.

Patent '772's specification explains that optical line terminals (OLTs) are designed to send and receive optical signals:

[An] aspect of the invention to utilize optical line terminals having all-optical pass-through interfaces that provide for continued transmission of optical signals . . . and to connect two optical line terminals back-to-back . . . to provide an optical path from the line side interface of the first optical line terminal to the line side interface of the second line terminal.

('772 patent, col. 1:44-51, 61-2:11.) A single OLT "has an input/output line interface which is connected to an external fiber facility and transmits/receives an optical signal . . . on a single optical fiber which is multiplexed/demultiplexed by a multiplexer/demultiplexer [ ] which outputs demultiplexed wavelengths . . . on individual optical fibers." ('772 patent, col. 2:40-46.) In this manner, a wavelength can be "directly passed-through to a peer OLT rather than being sent to a client apparatus." ('772 patent, col. 2:18-21; col. 3:18-21.) Accordingly, the intrinsic evidence establishes that optical signals are sent and received between various components of one or more OLT. Therefore, "optically coupled to" requires that optical information can be sent or received between two different components.

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H. "Is Optically Coupled To . . . Through At Least" and "Optically Couple . . . To . . . Through At Least"

For the following reasons, this court construes the '772 patent's claim terms using the language "is optically coupled to . . . through at least" in claims 4, 5, 12, and 13 and "optically couple . . . to . . . through at least" in claims 1 and 6 to mean:

(Component A) can send optical information to (Component B) through at least (Component C). Alternately, (Component A) can receive optical information from (Component B) through at least (Component C).

Fujitsu identified a total of six terms that use either "is optically coupled to . . . through at least" or "optically couple . . . to . . . through at least." In response, Tellabs argued:

Several of the terms raised by Fujitsu are of the form 'A is optically coupled to B through at least C' or 'optically couple A to B through at least C,' where A, B, and C are different elements. For this reason, Tellabs proposes a single construction that would apply to each of these claim terms with the insertion of the appropriate A, B, and C elements.

(Dkt. No. 91, Ex. C at 3.) The court agrees with Tellabs that a single construction should apply to each claim term using the operative language because both "is optically coupled to . . . through at least" and "optically coupled . . . to . . . through at least" operate to establish that two components are optically coupled through at least a third component.

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Claim 1 of the '750 patent reads as follows (with added emphasis on the disputed terms):

[1] A bar code scanner which comprises a housing having a port through which a beam of light for illuminating the bar code passes out of said housing and light reflected from said code passes into said housing.

[2] a laser diode and **optics for forming said beam from the light from said laser diode.**
[3] a photodetector for receiving said reflecting light,

[4] means supporting said photodetector in said housing,

[5] a printed circuit board having circuits thereon connected to said diode and said photodetector, and

[6] means assembling said laser diode and optics in supported relationship upon said printed circuit board and together with each other as a unitary structure located in said housing.

--- Footnotes ---

1 The bracketed element numbers are not part of the claim, but were added by the district court for reference. We will continue to use them.

--- End Footnotes ---

The crux of the dispute over claim construction is whether the "optics for forming said beam" include only the collimating lenses necessary to reduce the diverging fan of laser light into a ray, or whether the term includes other optics involved in the propagation of the laser beam, including the beamsplitters which shape and direct the beam after it is created. According to the claim, the "optics for forming said beam" must be together with the laser diode as a unitary structure. PSC has argued consistently that the only optics encompassed in the patent claims are the optics that create the beam, the collimating lenses. Under PSC's construction, optics which shape or direct the beam after its creation are not "optics" within the meaning of the patent claim. Therefore, the claim requires, according to PSC, only that the collimating lenses be together with the laser diode as a unitary structure.

The district court disagreed with PSC. The district court held that the term optics as used in [6] is defined by [2] as the "optics for forming said beam." After consulting a dictionary, the court held that the "optics for forming" could include optics which shape and direct the beam, including the beamsplitters. More importantly, the district court found PSC's construction inconsistent with the specification, which states that the laser beam producing means and the beamsplitters are both part of the unitary structure. Thus, the court construed the claim as requiring the beamsplitters, which direct the beam and integrate the marker beam with the laser beam, to be part of the optics for forming said beam and concluded that they must be assembled together with the laser diode and the other optics as part of the unitary structure in [6]. The district court also found that its more limited construction was also supported by the fact that the invention claimed by the '750 patent is not a pioneering invention.

According to this construction, the district court held that Accu-Sort did not infringe because its Model 20 and 22 scanners both use mirrors which direct the laser beam after it is created. The court found that the mirrors were equivalent to the beamsplitters of the '750 patent (because both components change the direction of the beam) and concluded that there was no infringement because it was undisputed that Accu-Sort's mirrors were not integrated with the rest of the optics in a unitary structure.

--- Footnotes ---

2 Accu-Sort's mirrors, although present on the circuit board with the rest of the optics, are entirely separate from the laser diode assembly.

--- End Footnotes ---

II.

The district court correctly referred to the specification to define the means-plus-function language in claim 1. To literally infringe a means-plus-function claim, an accused device must employ a means that is identical to or the equivalent of the structures described in the specification. Valmont Indus. v. Reinke Mfg. Co., 983 F.2d 1039, 1042, 25 U.S.P.Q.2d (BNA) 1451, 1454 (Fed. Cir. 1993). The final inquiry as to whether an accused element is an "equivalent" is a question of fact. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1575, 225 U.S.P.Q. (BNA) 236, 239 (Fed. Cir. 1985). The specification contains language which corresponds directly to the means-plus-function limitation in [6] and describes the means for accomplishing the function described in limitation [6] as follows: "The laser beam producing means 20, the marker beam producing means 54 together with the beam splitters 62 and 70, are mounted to each other and to a printed circuit board 68 . . . ." We agree with the district court that this language directly tracks the disputed claim language which provides: "means assembling said laser diode and optics [for forming] in supported relationship upon said printed circuit board and together with each other as a unitary structure located in said housing." Therefore, the proper construction of the terms "optics for forming" includes the collimating lenses and the beamsplitters or their equivalents.

During oral argument, PSC argued that the district court improperly found that all optics which change the shape or direction of the laser beam must be mounted together in a unitary structure. PSC argues that this claim construction is flawed because the collection lens, as described in the preferred embodiment for the '750 patent, is not part of the unitary structure. Therefore, PSC contends that the district court erred in construing the '750 patent claim in a manner which excludes the disclosed preferred embodiment. If PSC were accurately characterizing the district court's claim construction, this would be a persuasive argument. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583, 39 U.S.P.Q.2d (BNA) 1573, 1578 (Fed. Cir. 1996) (an interpretation of a patent claim which renders the disclosed preferred embodiment outside the scope of the claim is "rarely, if ever, correct and would require highly persuasive evidentiary support"); Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1581, 38 U.S.P.Q.2d (BNA) 1126, 1130 (Fed. Cir. 1996) ("We share the district court's view that it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way.").

However, no such situation arises in this case. PSC has mischaracterized the district court's claim construction. The district court did not, nor do we, construe the patent claim as requiring all optics which direct or shape the laser beam to be part of the optics for forming. The specification defines this means-plus-function limitation as including the beamsplitters, but not the collection lens. The specification states:

The laser beam producing means 20, the marker beam producing means 54 together with the beam splitters 62 and 70, are mounted to each other and to a printed circuit board 68 which contains a tone generator 78 and other analog circuitry for operating and controlling the laser diode 42 (the power control circuitry) and energizing lamp . . . . The board 68 is located in the bottom of the upper housing 14 which is substantially flat as is shown in FIGS. 2 and 3. The board is located by one of the mountings which supports the collection lens 32. . . . The entire unitary assembly 20 may then be inserted into the upper housing portion 14 and clipped in place.

The specification also explains that the "collection lens 32 is mounted against shoulders 36 and 38 of the housing in the beam port 28." Figure 1 of the patent also shows that the collection lens is not a part of the unitary structure. The specification and the figures support the conclusion that the optics for forming, which are ultimately a part of the unitary structure, include the collimating lenses and the beamsplitters, but do not include the collection lens. PSC would like us to construe the claims in a manner that is much broader than the specification permits. This, we cannot do. Therefore, we affirm the district court's construction of the '750 patent claims.

3 To the extent that PSC argues that the "together with each other" language in [6] does not require that the components be integrated as a unitary structure, but merely connected via the printed circuit board, we disagree. We agree with the district court's interpretation of these terms as requiring some integration of the components beyond their mere placement on the printed circuit board. The district court correctly refused to allow PSC to render this additional claim limitation meaningless. This construction is supported by the specification which states that the optics "are mounted to each other and to a printed circuit board."
I. "Optimization"

The term "optimization" appears in claim 1 of the '382 patent, claims 1-18 of the '392 patent, claims 11-26 of the '617 patent, and claims 19-22 of the '694 patent. The term is generally used in the following context: "... wherein said information about the data structure leads to optimization of said new database. ..." See, e.g., '382 patent, Col. 23:20-23 (emphasis added).

Timeline's proposed construction of the term "optimization" is "providing performance with respect to a given characteristic (e.g. speed or flexibility of output) that is superior to the performance of some other possible configuration with respect to that characteristic." Timeline argues that the term is defined in the specification for the '694 patent, which states:

[A] database is optimized for speed and/or flexibility of output if it provides speed or flexibility of output which is superior to the speed or flexibility of some other possible configuration. Thus, in this context, "optimized" does not necessarily require a mathematically precise optimization.

'694 patent, Col. 18:52-57 (emphasis added). Timeline notes that the definition of a term in a patent specification controls the interpretation of the term. See, e.g., Schoenhaus v. Genesco, Inc., 440 F.3d 1354, 1358 (Fed. Cir. 2006) (The patentee is free to act as his own lexicographer, and may set forth any special definitions of the claim terms in the patent specification or file history, either expressly or impliedly.)

ProClarity's proposed construction is "prepared for a particular purpose." In its briefing, ProClarity offers little if any support for this proposed construction. Instead, ProClarity argues that the term "optimization" is subjective and indefinite. However, ProClarity acknowledged at oral argument that its indefiniteness argument would be more appropriately presented in a summary judgment motion, rather than at the claim construction phase of the litigation.

Therefore, the court construes "optimization" to mean "providing performance with respect to a given characteristic (e.g. speed or flexibility of output) that is superior to the performance of some other possible configuration with respect to that characteristic."
does the specification require usage by the host system. This argument is similarly unpersuasive.

3Com objects to Realtek's language as too "absolutist." Doc # 340 (03-2177) at 14. 3Com argues that "each optimization step is simply an attempt to make the transmission of frames more efficient rather than a dynamic change * * * to make it as perfect, effective or functional as possible." Id at 15 (quotations omitted). When the term is viewed in context, there is no practical difference between these positions. More fully, claim ten recites "feedback for optimizing the threshold." The context of the term clarifies that "optimizing" merely indicates a direction of progress and that perfection need not be achieved. It is irrelevant whether the purpose of the feedback is to make transmission "more efficient" or to "make it as perfect, effective or functional as possible." Both formulations produce the same effect, so 3Com's "absolutist" fears are unjustified. 3Com's objection to Realtek's proposal is unpersuasive.

Aside from the issues noted above, the court finds D-Link's proposal otherwise acceptable. Accordingly, the court adopts the modified construction, "changing the threshold value to make it as perfect, effective or functional as possible."

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Optimizer for substantially matching the patient's heart rate to hemodynamic demand under conditions of physical activity and rest of the patient

The Court agrees with Alt that this claim limitation should not be construed as a means-plus-function limitation under 35 U.S.C. § 112, P 6. A claim term that does not use the word "means" gives rise to a rebuttable presumption that § 112, P 6 does not apply. Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004) (citing CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002)). "The presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome." Id. The presumption can be overcome "if it is demonstrated that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." Id. (citing CCS Fitness, 288 F.3d at 1369). Medtronic has not overcome this presumption. Claim 15 provides sufficient structure to perform the claimed function. The claim names "optimizer" as the structure that performs the recited function. See Col. 13:41-14:3. Furthermore, the claim goes on to indicate two structures that make up the optimizer, the "second sensor" and "signal processor," and how those structures act to perform the claimed function. See id. Therefore, the claim is not subject to § 112, P 6. See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co., 264 F.3d 1111, 1120-21 (Fed. Cir. 2001) (holding that a term was not subject to § 112, P 6 because the claim identified two structures for achieving the claimed function and then described how those structures achieved the claimed function). Similarly, due to the claim language's thoroughness, the Court agrees with Alt that the term does not require construction.

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1. "option identifier"

Plaintiffs' construction: information that establishes the identity of the option

Defendant's construction: alphanumeric data representing the option to be activated

The parties agree about the purpose of an "option identifier"; it is data that allows specific options to be activated in an ultrasound imaging system. They disagree about what the patent discloses regarding the nature of this data (plaintiffs use the term "information" and defendant uses the term "alphanumeric data"). In their briefs, plaintiffs argue that defendant's original construction was too narrow because it included only "numeric data." In its reply brief, defendant altered its construction slightly, to include "alphanumeric" data. It is not clear whether this resolves the dispute regarding this term because plaintiffs did not have an opportunity to respond.

I presume that it does not, because the alteration does not address plaintiffs' primary argument in their opening brief, that the patent specification anticipates the verbal disclosure of information over the telephone. '294 pat., col. 2, Ins. 34-39. ("The present invention is a method and apparatus for configuring an ultrasound imaging system at a remote location by obtaining
an encrypted feature key from a central location (e.g., via telephone) and then inputting that feature key into the ultrasound imaging system using an operator interface (e.g., a keyboard). However, plaintiffs' argument is misplaced. The claim language itself explains that the option identifier is something that is entered by depressing a sequence of keys on a keyboard. Hence, it must be alphanumeric. The relevant language of claim 7 provides "decrypting means for outputting decrypted data in response to depression of a sequence of keys of said operator representing an encrypted feature key comprising an encrypted validation identifier and an encrypted option identifier." Therefore, I will adopt defendant's modified construction of this term.

Court's construction: alphanumeric data representing the option to be activated
(1) a rigid elongated handpiece having a proximal end and a distal end;

(2) a flexible cable having one end coupled to said proximal end and another end adapted for coupling to video imaging equipment;

(3) a housing removably coupled to said distal end of said rigid elongated handpiece;

(4) a sensor for sensing an image of a selected target, said sensor being coupled to said rigid elongated handpiece and said flexible cable, said sensor extending into said housing;

(5) opto-electric componentry extending from said sensor through said handpiece to said cable; and

(6) an objective element positioned in said housing and arranged to focus an image of a selected target upon said sensor when said housing is coupled to said rigid elongated handpiece.

The parties are now before the Court on cross-motions for partial summary judgment as to Claim 30, along with claim 32, which is based on Claim 30. The salient issue presented by the parties' motions is whether the AcuCam contains "opto-electric componentry extending from said sensor through said handpiece to said cable," as stated in Claim 30. The Court discusses this matter below.

4 Because the Court concludes that the AcuCam lacks the limitation regarding opto-electric componentry, the Court does not reach the issue of whether the AcuCam contains a "housing" as specified in Claim 30.

DISCUSSION

A. Legal Standard

Under Federal Rule of Civil Procedure 56, a court may properly grant a motion for summary judgment if the pleadings and materials demonstrate that there is "no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law." Celotex Corp. v. Catrett, 477 U.S. 317, 322, 91 L. Ed. 2d 265, 106 S. Ct. 2548 (1986). A dispute about a material fact is genuine "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). A court may grant a summary judgment motion in a patent infringement case, as in any other case. Avia Group Int'l, Inc. v. L.A. Gear Cal., Inc., 853 F.2d 1557, 1561 (Fed. Cir. 1988).

There is a two-step analytical process to determine whether an accused device literally infringes on an existing patent. First, the Court must construe or interpret the scope of the patent claims; this determination is a matter of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 1995 WL 146983 at *11 (Fed. Cir., filed April 5, 1995). Second, the Court must then determine "whether the properly interpreted claims encompass" the accused product. ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1579 (Fed. Cir. 1988).


B. New Image's Definition of Opto-Electric Componentry is Correct

1. Overview of The Parties' Respective Positions
The threshold issue presented by the parties' motions is the proper construction of "opto-electric componentry extending from said sensor through said handpiece to said cable," as recited in Claim 30 of the '001 patent.

New Image argues that because the '001 patent and its prosecution history are silent as to the meaning of "opto-electric componentry," the Court should employ the ordinary meaning of the term as it is used by those persons skilled in the art. The ordinary meaning of "opto-electric componentry," argues New Image, is a device which converts optical power (photons) to electrical signals (electrons) or vice versa. In contrast, HTMI asserts that any wiring or circuitry between the sensor and the cables constitutes the opto-electric componentry. (Pl.'s Opp'n at 11.)

2. The Specification Provides No Guidance on the Meaning of Opto-Electric Componentry

In construing the meaning of a patent claim, the court should consider the claim itself, the specification, and the prosecution history. Markham, 1995 WL 146983 at *11. The Court, in its discretion, may also consider extrinsic evidence including "all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Id. However, "extrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims." Id.

In the instant case, HTMI asserts that the specification of the '001 patent demonstrates that the term "opto-electrical componentry" should necessarily be equated with the interconnections between the sensor and the cable. (Pl.'s Opp'n at 11.) HTMI contends that this fact is "obvious" from the drawings and supported by the deposition testimony of New Image's own expert, Robert Fischer. These contentions are without merit.

First, the mere reference to drawings in the '001 patent is insufficient to construe the meaning of "opto-electric componentry." As the Federal Circuit explained in Markham, "any special definition given to a word must be clearly defined in the specification." 1995 WL 146983 at *11 (emphasis added). Even assuming that the definition ascribed by HTMI is present in the specification, such meaning is far from "clearly defined." Id. In short, the conclusion advocated by HTMI is not "obvious" to the Court.

Second, HTMI misconstrues Mr. Fischer's testimony. Although Mr. Fischer did state that the wires extending between the sensor and the cable correlated to opto-electrical componentry, (Sobon Decl. Ex. I at 141), he later clarified that he misunderstood plaintiff's counsel's, previous questions and that his prior response was incorrect. (Barone Reply Decl. Ex. 2 at 152). Thus, the deposition testimony cited by HTMI is of dubious value as support for its argument.

3. HTMI's Reliance on The File History is Misplaced

HTMI next argues that the file history of the '001 patent establishes the proper meaning of opto-electrical componentry, as it is used in Claim 30. Specifically, HTMI highlights certain passages in the amendment filed by HTMI's attorneys in connection with the patent reexamination proceedings. (See Pl.'s Opp'n at 11; Sobon Decl. Ex. J.) This text states:

The interior of the handle also remains sealed, for example, through the provision of the O-Rings. In this way, the endoscopic apparatus can be immersed in a sterilizing solution without affecting the electro-optical componentry or interconnections that extend through the handpiece to couple the camera to video imaging equipment.

(Sobon Decl. Ex. J at 9-10.) HTMI contends that this demonstrates that it intended the terms "electro-optical componentry" and "interconnections" to be used interchangeably.

The Court disagrees with HTMI's assertion that the file history explicitly equates opto-electrical componentry with the interconnections between the CCD sensor and the extension cables. The above passage cited by HTMI clearly uses the terms "electro-optical componentry" and "interconnections" in the disjunctive. While the word "or" can be used to signify words that are synonymous, it can also be used to indicate alternative choices. (See Black's Law Dictionary 1095 (6th ed. 1990).) However, it is unclear from the file history which interpretation of the word "or" was intended. Moreover, there is nothing explicit in the above file history statement which suggests that HTMI intended to equate "electro-optical componentry" with either the "interconnections" or the term "opto-electrical componentry." Thus, contrary to HTMI argument, the file history simply does not clearly define the meaning opto-electric componentry in the manner so construed by HTMI. 5
C. The Dictionary Definitions Provide the Ordinary Meaning of Opto-Electric

Because the specification and file history provide no decisive guidance in defining the term "opto-electronic componentry," this Court must determine the "ordinary meaning" of the claim at issue. Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 951 (9th Cir. 1994) ("Although a patentee can be his own lexicographer, . . . the words of a claim 'will be given their ordinary meaning, unless it appears that the inventor used them differently.'") (citations omitted).

The Court finds compelling the several definitions provided by New Image which were culled from various technical dictionaries. For example, The New IEEE Standard Dictionary of Electrical and Electronics Terms, (5th Ed. 1993), defines "optoelectronic" as: 6

Pertaining to a device that responds to optical power, emits or modifies optical radiation, or utilizes optical radiation for its internal operation. Any device that functions as an electrical-to-optical or optical-to-electrical transducer . . . .

(Fischer Decl. Ex. 4.; see also The Photonics Dictionary, (37th Ed. 1991) (identical definition).) From these definitions, it is evident that "opto-electric" components must, in some manner, convert optical power (photons) to electronic signal (electrons). See id. P 15 and Ex. 4 (copies of excerpts from technical dictionaries which define "optoelectronic.").

6 The term "optoelectronic" is synonymous with "opto-electrical." (Fischer Decl. P 16.)

HTMI does not controvert New Image's dictionary definitions. 7 Instead, HTMI asserts that these definitions are sufficiently broad such that "all the components that extend from the CCD sensor to the cable connector 'pertain to' the CCD sensor." (Pl.'s Opp'n at 15.) in essence, HTMI has defined opto-electric componentry as any device or part connected to an opto-electric device. However, such a construction would result in a definition of "opto-electric" based solely on the physical proximity of the component, as opposed to its actual function. Such a definition is so vague that it would effectively render the term "opto-electric componentry" meaningless. It is precisely for this reason that the Court, in its preliminary injunction order, seriously questioned whether HTMI would succeed on the merits on infringement based on Claim 30. 8

7 Tellingly, HTMI does not attempt to explain its interpretation of the "ordinary meaning" of opto-electric. Instead, HTMI ignores the applicable rules of infringement analysis and argues that New Image's own evidence and testimony demonstrate that the AcuCam possesses opto-electric componentry within the meaning of Claim 30.8 In the Court's preliminary injunction Order, this Court explained that:

HTMI, . . . assert[s] that the terms "opto-electric componentry" also encompass components which carry optical images in an electrical format, and as the AcuCam possesses such components between the CCD and the cable, it possesses this element of claim 30.

HTMI's description of opto-electrical componentry, however, overly stretches the ordinary meaning of the term as defined above. The CCD is the only component which the AcuCam possesses which fits within the plain meaning of the term opto-electric." Furthermore, HTMI conceded at oral argument that the CCD in the AcuCam corresponds to the sensor of claim 30, and not to the optoelectric componentry.

(Order Granting Pl.'s Mot. for Prelim. Inj. at 16 (emphasis added).)
Moreover, the dictionary definitions proffered by New Image clearly specify that "optoelectronic" relates to a device which "responds to optical power, emits or modifies optical radiation, or utilizes optical radiation for its internal operation." (Fischer Decl. Ex. 4 (emphasis added).). This definition is corroborated by the expert testimony adduced by New Image as well as by the technical articles authored by those skilled in the art. (E.g., Fischer Decl. P 15; Magen Decl. Ex. 1 (excerpts from deposition of Dominick Danna, an electrical engineer and endoscope designer) 9; Magen Decl. Ex. 2 (article by Hugo Vifian published in the Microwave Journal).) 10

9 In response to HTMI's attorney's questions, Mr. Danna testified at his deposition that an optoelectronic device is one which converts "photoenergy into electronic signals." (Sobon Decl. Ex. O at 124.) This is consistent with the various dictionary definitions discussed above and appended to the Fischer declaration.10 In this article, Mr. Vifian writes:

The final group is the optoelectrical components. This group includes lightwave detectors or receivers, and demodulator sensors. These components have optical input and electrical output ports, and are O/E [optical/electrical] components.

(Magen Decl. Ex. 2 at 68.) HTMI does not address the significance of this article in its opposition. Although HTMI raises an evidentiary objection to this article in its inappropriate and unauthorized surreply (see n.1), said objection is untimely, and therefore, is deemed waived.

HTMI does not proffer its own definition of opto-electric, other than to state that opto-electric componentry essentially means anything between the sensor and the cable. Instead, HTMI attempts--unsuccessfully--to attack the evidence offered by New Image. For example, HTMI attempts to undermine the significance of Mr. Danna's testimony by noting that he stated that there "possibly" were other definitions to "optoelectronic" other than that which he had previously given. Unfortunately, HTMI, for reasons not evident from the record, did not query Mr. Danna any further concerning the nature of those other possible definitions.

HTMI's citation to the deposition testimony of George Sutton, one of New Image's experts, is equally misplaced. (Pl.'s Opp'n at 15.) In his deposition, Mr. Sutton testified that the wires in the AcuCam "carried" images taken by the CCD. (Sobon Decl. Ex. E. at 47.) This testimony does not--as argued by HTMI-- establish that Mr. Sutton "thinks that all the components that extend from the CCD sensor to the cable connector 'pertain to' the CCD sensor." (Pl.'s Opp'n at 15.) Rather, Mr. Sutton simply acknowledged that the wires leading from the CCD act as a conduit for electrical signals produced by the CCD.

At bottom, the Court rejects HTMI's contention that either Claim 30 or its file history explicitly equate "opto-electric componentry" with the interconnections between the CCD sensor and the external cable. The Court agrees with New Image that the ordinary meaning of the term "opto-electric componentry," as it is used in Claim 30, relates to an optical-to-electrical or an electrical-to-optical transducer extending from the sensor to the cable. If the drafters of the '001 patent had envisioned something different, they "could have prevented this result through clearer drafting." Hoganas AB, 9 F.3d at 951.

Claim 30 of the '001 patent (with the disputed claim language emphasized) reads as follows:

A dental endoscopic apparatus comprising:

a rigid elongated handpiece having a proximal end and a distal end;

a flexible cable having one end coupled to said proximal end and another end adapted for coupling to video imaging equipment;
a housing removably coupled to said distal end of said rigid elongated handpiece;

a sensor for sensing an image of a selected target, said sensor being coupled to said rigid elongated handpiece and said flexible cable, said sensor extending into said housing;

**opto-electrical componentry** extending from said sensor through said handpiece to said cable; and an objective element positioned in said housing and arranged to focus an image of a selected target upon said sensor when said housing is coupled to said rigid elongated handpiece.

The district court construed the term "opto-electrical componentry" to mean "an optical-to-electrical or an electrical-to-optical transducer." High Tech, 1995 WL 381502, at *6. The court then determined that the AcuCam device did not meet the limitation of "opto-electrical componentry extending from said sensor through said handpiece to said cable" because it did not contain a transducer connecting the CCD sensor to the cable. See id. The court therefore granted New Image's motion for partial summary judgment. The district court did not construe any of the other limitations in claim 30.

II.


On appeal, HTMI argues that the district court erred in construing the term "opto-electrical componentry." HTMI contends that the term should be construed to mean an electrical component that conveys optical images in an electrical form. HTMI also argues that we should construe on appeal other claim terms such as "objective element" and "housing," which the district court did not address. In light of its proposed claim construction, HTMI urges us to hold that the AcuCam device infringes claim 30 of the '001 patent.

When interpreting a claim, the court should look first to intrinsic evidence: the claim itself, the specification, and the prosecution history. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996). If an ambiguity remains after considering intrinsic evidence, then the court may refer to extrinsic evidence, such as expert and inventor testimony. Id. at 1584, 39 USPQ2d at 1577. In addition, although technically considered extrinsic evidence, the court is free to consult technical dictionaries at any time in order to determine the ordinary meaning of claim terms. Id. at 1584 n.6, 39 USPQ2d at 1578 n.3.

In construing the term "opto-electrical componentry," the district court concluded that neither the claims, the specification, nor the prosecution history provided clear guidance for defining the term. Accordingly, the court looked to various dictionaries and technical articles, and to expert testimony for the ordinary meaning of the term. As noted, the court concluded that the ordinary meaning of the term "opto-electrical componentry" was an "optical-to-electrical or an electrical-to-optical transducer," and it adopted this meaning in its claim construction. The court then determined that the only component in the AcuCam device which had an opto-electrical function was the CCD camera, which corresponded to the "sensor" in claim 30. The court found that the components connecting the CCD sensor to the cable in the AcuCam device were resistors, capacitors, logic gates, transistors, diodes, voltage regulators, and wires. The court further found that none of these components were "opto-electrical" within the ordinary meaning of the term. The court therefore concluded that the AcuCam device did not possess "opto-electric [sic] componentry extending from said sensor through said handpiece to said cable," as recited in Claim 30. High Tech, 1995 WL 381502, at *6.

When construing a patent claim, terms should generally be given their ordinary and customary meaning. See Vitronics, 90 F.3d at 1581, 39 USPQ2d at 1576. However, we have stated that: "[a] technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." Hoescht Celanese Corp. v. BP Chem. Ltd., 78 F.3d 1575, 1578, 38 USPQ2d 1126, 1129 (Fed. Cir.) (emphasis added), cert. denied, 136 L. Ed. 2d 198, 117 S. Ct. 275 (1996). We also have stated that courts may refer to technical dictionaries in construing claims, as the district court did in this case, "so long as the dictionary definition does not contradict any definition found in
or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584 n.6, 39 USPQ2d at 1578 n.3 (emphasis added). Although the term "opto-electrical componentry" does not appear anywhere in the written description, it is apparent that the patentee used the term "opto-electrical componentry" to refer to electrical components that carry an optical image in an electrical form. The written description states: "Camera 56 will have connected to it a number of lead wires 64 which travel through hollow regions 62 and 48, exit handpiece 12, and are ultimately connected to an image processing system 14." '001 patent, col. 6, ll. 6-10. These wires are the only structure disclosed that connects the sensor to the cable as required by claim 30 ("opto-electrical componentry extending from said sensor through said handpiece to said cable"). We therefore conclude that a person skilled in the art reading the patent document would understand that the term "opto-electrical componentry" referred to the indicated wires.

It also should be noted, we believe, that the claim construction we have adopted is appropriate because the ordinary meaning of the term "opto-electrical componentry" would not cover any of the disclosed embodiments of the invention claimed in the '001 patent. The Supreme Court has stated that the terms in a claim must be defined in a manner that fully comports with the instrument as a whole and that preserves the patent's internal coherence. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 1395, 38 USPQ2d 1461, 1470, 134 L. Ed. 2d 577 (1996). Furthermore, a claim interpretation that does not cover a disclosed embodiment is "rarely, if ever, correct." Vitronics, 90 F.3d at 1583, 39 USPQ2d at 1578; see also Hoechst, 78 F.3d at 1581, 38 USPQ2d at 1130 ("it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment"); Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1550, 37 USPQ2d 1609, 1612 (Fed. Cir.) ("a claim interpretation that would exclude the inventor's device is rarely the correct interpretation"), cert. denied, 116 S. Ct. 2523 (1996). The ordinary meaning of "opto-electrical componentry," which forms the basis for the district court's claim construction, would require the presence of a second transducer in the device. However, there is no support for a second transducer in the specification or in the prosecution history because the only transducer described in the specification is the CCD camera.

For the foregoing reasons, we conclude that the term "opto-electrical componentry," as used in Claim 30, means electrical components that convey optical images in an electrical form. However, we are not prepared on the basis of the record before us to say that the AcuCam device contains "opto-electrical componentry extending from said sensor through said handpiece to said cable." We believe that the district court should make the appropriate factual determination as to whether this limitation of claim 30 is met in the accused device. In addition, we leave construction of the terms "objective element" and "housing" and determination of whether these limitations of claim 30 are met in the accused device to the district court in the first instance.

The decision of the district court is vacated, and the case is remanded for further proceedings consistent with this opinion.

Each party shall bear its own costs.

MAYER, Circuit Judge, dissents.

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With emphasis added to the words "or" and "either," on which the claim construction issue turns, independent claims 1, 16, and 20 recite:

1. A method of processing Doppler return information in a traffic radar comprising the steps of:

   [a] receiving Doppler return information containing at least one return signal derived from a target vehicle,

   [b] presenting said Doppler return information as digital data,

   [c] transforming said data into the frequency domain to provide a spectrum that includes frequency components corresponding to Doppler return signals contained in said information,

   [d] storing said components in a memory,
(Emphases and clause letters added.)

The district court construed the term "or" as used in claim clauses 1[e], 16[d], and 20[f] to mean "a choice between either one of two alternatives, but not both." This construction was the basis for the court's summary judgment of no infringement, and is the only aspect of the claim construction on appeal.

Kustom argues that "or" should not have been restricted to a search of either the fastest target data (frequency) or the strongest target data (magnitude) "but not both." Kustom states that the district court's construction contradicts the correct usage of the term "or." Kustom points to the Microsoft Press Computer Dictionary, 24, 344 (3d ed. 1997), which distinguishes among logical operators, defining "or" (which returns a "true" value when one or both values are true), "and" (which returns a "true" value if and only if both values are true), and "exclusive or" (which returns a "true" value when only one value is true). Kustom cites precedent which cautions against construing technical terms of the art at issue in accordance with non-technical dictionary definitions, instead of the technical usage of the field of the invention.

It is presumed that technical words in patent documents are used, and intended to be understood, as they would be used and understood by persons experienced in the field of the invention. See, e.g., Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478, 45 U.S.P.Q.2D (BNA) 1429, 1433 (Fed. Cir. 1998); Hoechst Celanese Corp. v. BP Chemicals, Ltd., 78
However, whatever the meaning of "or" as a logical operator, it is quite clear from the patent documents that Kustom was not using "or" as a technical programming operator, but in its ordinary meaning as stating alternatives. If a divergent specialized usage were intended, the context was such that it was required to be clearly explained in the patent documents. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996) ("[A] patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.").

The district court construed "or" and "either" in their common usage as designating alternatives. We agree with this construction, for there is no indication that Kustom used these words with a different meaning. Particularly, there is no basis whatsoever for believing that Kustom intended its usage of "or" somehow to embrace "and." The district court analyzed the detailed flowcharts in the '246 specification, which showed that only one search of memory is done for any one data set for either magnitude or frequency criteria. The '246 patent does not describe any embodiment that searches for and displays both modes.

Kustom's claim amendments and accompanying remarks, requiring the alternative "multi-mode" operation that is achieved by operator selection of either strongest or fastest mode, are consistent with this construction. As filed, all of the claims of the '246 patent application were rejected for obviousness over the Muni Quip MDR-1 radar device in combination with United States Patent No. 3,631,486 to Anders. Kustom then rewrote the claims to include the limitation to "magnitude or frequency." Original claim 1 did not include clauses 1[d], 1[e], and 1[f], instead reciting a spectrum validation process and the step of "determining the magnitude and frequency of each valid component." New clause 1[e] limited the memory search to "magnitude or frequency" (emphasis added). Similar changes were made to claim 16, which as filed included "means for determining the magnitude and frequency of each valid component and retaining the same in memory"; this clause was cancelled, and clause 16[d] was added, limiting the memory search to "magnitude or frequency." Original claim 20 as filed included clause 20[f] with its "either" and "or" limitations on operator selection and target identification. During prosecution Kustom explained to the examiner that "Claim [20] specifically calls for two search modes under operator selection." Kustom described its invention as having "multi-mode operation," whereby the desired mode, whether magnitude (strongest target) or frequency (fastest target) would be selected by the operator. It is apparent that the modes of search and display were intended, in the '246 invention, to be selected in the alternative. The prosecution history requires that "or" means the operator's choice between search for the strongest or fastest target speed, but not both. The district court's claim construction is affirmed.

The district court also erred in construing the language of the body of the claims. The body of claim 1 provides in relevant part:

receiving a definition of a second coordinate system for the digitizer, which second coordinate system allows specification of points specified in the digitizer's coordinate system but is not congruent with the digitizer's coordinate system because one of the following elements is different from the digitizer's coordinate system: location of the point of origin, or angle of rotation, or scale . . . .

'492 patent, col. 49, ll. 55-62 (emphasis added). 5 The district court construed the language in the body of the claim in light of the preamble:

The claims define three essential attributes of the digitizer coordinate system [i.e., a point of origin, angle of rotation, and scale]. Every data translation may not involve varying all three attributes, but the first computer system has to be capable of translating all three attributes."

Noninfringement Order at 5 (emphasis added). The district court thus effectively substituted the word "and" from the preamble for the word "or" used in the body of the claim. The district court concluded that "the language of the claims and their preambles indicates that 'and' is the appropriate designation" and that "Schumer's reliance on the term 'or' that appears later in the claims is misleading." Id. at 4-5 (emphasis added). Accordingly, the district court construed this language to require that "the claims define three essential attributes of the digitizer coordinate system [i.e., a point of origin, angle of
Every data translation may not involve varying all three attributes, but the first computer system has to be capable of translating all three attributes."

5 Similar language appears in the body of claims 6 and 9.

The district court's claim construction contradicts the plain meaning of the word "or" in the claims. The proper approach is to construe the claim language using standard dictionary definitions, because here, the claims have no specialized meaning. See Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1206-1207 (Fed. Cir. 2002). Webster's Third International Dictionary defines "or" as follows: "used as a function word to indicate (1) an alternative between different or unlike things, states, or actions ... (2) choice between alternative things, states, or courses." Webster's Third New Int'l Dict. 1585 (1967).

We have consistently interpreted the word "or" to mean that the items in the sequence are alternatives to each other. In Brown v. 3M, 265 F.3d 1349, 1352, 60 USPQ2d 1375, 1377 (Fed. Cir. 2001), we upheld the district court's construction of the word "or" in the claim as meaning that the apparatus was capable of converting "'only two-digit, only three-digit, only four-digit, or any combination of two-, three-, and four-digit date-data,'" by finding that the interpretation of the word "or" involved a "plain reading of the claim text. These are not technical terms or art, and do not require elaborate interpretation." In Kustom Signals, Inc. v. Applied Concepts, Inc., 264 F.3d 1326, 1331, 60 USPQ2d 1135, 1138 (Fed. Cir. 2001), we agreed with the district court's construction of "or" as "designating alternatives." We noted that "there is no indication that Kustom used these words in a different meaning. Particularly, there is no basis whatsoever for believing that Kustom intended its usage of 'or' somehow to embrace 'and.'" Id.

Giving the term "or" its accepted definition, however, is not the end of the inquiry. A question remains as to whether the claims should be interpreted to mean that the method must be capable of translating each of the three alternative variables, i.e., point of origin, angle of rotation, and scale, as the district court apparently held.

If this were a product patent, the concept of capability would have relevance. So too it would have relevance if this process patent were tied to a "particular machine or apparatus." 6 But here we deal with a method claim which is not tied to a particular device but that "operates to change articles or materials to a 'different state or thing.'" Gottschalk v. Benson, 409 U.S. 63, 71, 34 L. Ed. 2d 273, 93 S. Ct. 253. Such a claim must be interpreted to cover any process that performs the method steps. Here in claim 1 the method is identified as "receiving a definition of a second coordinate system for the digitizer, which ... is not congruent with the digitizer's coordinate system because one of the following elements is different ..." '492 patent, col. 49, ll. 55-61. One of those elements is scale. Thus, for example, a method that translates from a device where only the scale is different is within the literal scope of the claim. The method is performed if any of the three features of a coordinate system is translated, and thus, infringement occurs if any one of these translations is performed.

6 In Gottschalk v. Benson, 409 U.S. 63, 71, 34 L. Ed. 2d 273, 93 S. Ct. 253 (1972), the Supreme Court reiterated the proposition that "a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing.'" The Court referred to the well established definition of "process" stated in Cochrane v. Deener, 94 U.S. 780, 788, 24 L. Ed. 139, 1877 Dec. Comm'r Pat. 242 (1877), "A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing."
overcome the Logan patent, Schumer is estopped by his prosecution history from discounting the importance of the angle of rotation limitation.” Noninfringement Order at 5.

It is well established that statements made during prosecution are used to interpret the scope and meaning of ambiguous claim terminology. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996) (“This [prosecution] history contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. As such, the record before the [PTO] is often of critical significance in determining the meaning of the claims.”). There is no ambiguity here. But even where the claim language is not ambiguous, "the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 USPQ2d 1673, 1676 (Fed. Cir. 1995). Thus, the prosecution history limits even clear claim language so as to exclude any interpretation that was surrendered during prosecution, but only where the accused infringer can demonstrate that the patentee surrendered that interpretation "with reasonable clarity and deliberateness." Pall Corp. v. PTI Techs., Inc., 259 F.3d 1383, 1393, 59 USPQ2d 1763, 1769 (Fed. Cir. 2001) (quoting N. Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1294-95, 55 USPQ2d 1065, 1075 (Fed. Cir. 2000)), vacated on other grounds by PTI Techs., Inc. v. Pall Corp., 153 L. Ed. 2d 152, 122 S. Ct. 2324 (2002). There was no such clear surrender here.

The Examiner first rejected the claims that eventually issued as claims 1-10 as unpatentable over the Logan patent, U.S. Patent No. 4,821,029 ("Logan"), under 35 U.S.C. § 103(a). Logan disclosed a conventional prior art digitizer that allowed creation of regions, each with its own coordinate system. As to claim 42 (issued claim 1), the Examiner stated:

"It would have been obvious to one of ordinary skill in the art at the time the invention was made to realize Logan includes means for translating the coordinates of the digitizer's coordinate system (touch screen) into the coordinates of the second coordinate system (sub-area or chamber) when the pointer is located within the region so as to designate the sub-area on the touch screen."


In response, Schumer made a Preliminary Amendment in which he added the following emphasized language:

"outputting the position of the pointer on the surface in a coordinate system of the digitizer which coordinate system has a point of origin where the coordinates are 0,0 and has an angle of rotation such that the line from coordinate 0,0 to coordinate 0,5 defines an angle of rotation with respect to the digitizer and has a scale such that the distance from coordinate 0,0 to coordinate 0,5 is a certain physical length, comprising . . . ."

Preliminary Amendment of April 8, 1996, at 1 (Emphasis added). Schumer explained:

"The Applicant now has a greater understanding of the Examiner's concerns with respect to the meaning of the terms "origin," "scale," and "rotation" as used in the claims. To clarify that the limitations using this terminology create a nonobvious distinction over Logan, the claims have been amended to make this terminology much more specific."

". . . . Each of the coordinate systems in Logan uses a single point of origin . . . . In each of the different coordinate systems disclosed by Logan, the point of origin where the coordinates are 0,0 is the same. Similarly, the multiple coordinate systems in Logan all use the same angle of rotation . . . . In Logan, the multiple coordinate systems all have the same angle of rotation with respect to the digitizer.

". . . . Also, when the scale is defined to be a specific physical length from a point defined as another specific coordinate, for the multiple coordinate systems in Logan, the scale of each of the coordinate systems is the same."

Id. at 10-11 (Emphases added). Thus, Schumer explained that in Logan, the regions' coordinate systems did not have the ability to deviate from the coordinate system of the digitizer: the scale was always the same, the point of origin always had
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to be in a corner of the region, and the angle of rotation was always the same. Schumer distinguished Logan on three
grounds: Logan could not translate to coordinate systems with different origins, with different scales, or with different
angles of rotation. Id.

The Examiner responded with a second office action, stating, "Applicant's arguments with respect to claims 42-51, 60-67
have been considered but are deemed to be moot in view of the new grounds of rejection." Office Action of April 3, 1997, at
3 (referring to the § 112 rejection discussed below).

The Examiner ultimately rejected claims 42-51 under 35 U.S.C. § 112, first paragraph, because "the specification does not
disclose which coordinate system has a point of origin where the coordinates are 0,0 . . . ." Id. at 2.

In response to the second office action, Schumer amended his claims to overcome the section 112 rejection by deleting the
following language: "where the coordinates are 0,0," "such that the line from coordinate 0,0 to coordinate 0,5 defines an
angle of rotation," and "such that the distance from coordinate 0,0 to coordinate 0,5 is a certain physical length." Schumer
explained: "Applicant has deleted the objected to language from claims 42, 46, and 50" to overcome the section 112
rejection "for including in the preamble language which is not found in the specification."

Thus, the examiner never substantively addressed Schumer's argument and amendment distinguishing the Logan prior art,
and instead declared those arguments "moot."

In summary, the prosecution history makes clear that Schumer distinguished the prior art Logan patent on the ground that it
did not disclose the ability to translate any of the three parameters. Schumer's proffered interpretation is not inconsistent
with what he argued during prosecution to obtain allowance. See Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570,

We conclude that the prosecution history does not compel a limitation of the claim language different from its plain
meaning, and we conclude that the correct construction requires that the device performing the claimed method need only
have the ability to translate one of the three attributes of the coordinate system.

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c. "OR Circuit Means"

Claim 1 of the '290 patent describes an "OR circuit means operative to generate an output signal substantially equal to the
greatest of any input signal." '290 patent, col.6, ll.23-26. Control argued that an "OR circuit means" is simply a circuit that
chooses between the greater of two signals. Markman Hr'g Tr. at 19:2-6; Pl.'s Mem. at 11. Delta countered that Control's
proffered definition was too broad and that it had abandoned the broader definition during the patent prosecution. Markman
Hr'g Tr. at 20:5-22. Delta noted that in response to a rejection by the examiner, Control amended the claim to include only a
limited variety of OR circuits. Id. According to Delta, the definition of "OR circuit means" must include the limitation that
the circuit generates an output signal that is substantially equal to the greater of the two input signals. Further, the two input
signals must correspond to a fixed level signal that is independent of temperature and a variable level signal that is
dependent on temperature.

After hearing oral argument and reviewing the claim language, the Court construed the claim term, in the form of a
proposed address to the jury:

An OR circuit is a circuit that makes a choice. In this case, it makes the choice whether to run the fan at a temperature, at
a fixed temperature speed or at a speed that is dependent on the temperature, that is, which runs faster as the temperature
rises, or slower as the temperature drops.

Now, look, look down further and you'll see that it says . . . they use the OR circuit to generate an output signal, that is,
the signal that drives the apparatus, substantially equal to the greatest of any input signal.

Markman Hr'g Tr. 26:19 to 27:5.
PROCEDURAL HISTORY

On Sept. 1, 1999, Brown filed this complaint pro se alleging that four major corporations installed or used a process that infringed on elements of claim 16 in the 824 patent and even after notice, refused to stop infringing and refused to obtain a license for Brown's patented process. These corporate defendants include 3M, Revlon Inc., Procter & Gamble, and Air Products & Chemicals Inc. Brown alleged that the defendants' use of a Y2K remediation system that was based on a process sold and licensed by TOCS infringed upon his patent.

2 Claim 16 states:

An apparatus for processing year-date data in a computer system, the apparatus comprising:

1) a CPU,
2) a bus coupled to the CPU,
3) a memory coupled to the bus,
4) a system clock coupled to the bus, wherein the system clock is set to an offset time wherein the offset time is a time other than the actual time,
5) at least one application program stored in the memory and being executed by the CPU,
6) at least one database file stored in the memory containing records with year-date data with years being represented by at least one of two-digit, three digit, or four-digit year-date representations, and
7) a mechanism for converting the year-date data representations in the database file to a two-digit year-date data representation.

3 Pfizer, Inc. was also a defendant, but it was later dismissed from the complaint pursuant to stipulation.

DISCUSSION

Summary Judgment

Summary judgment is proper when there is no genuine issue of material fact and the moving party is entitled to a judgment as a matter of law. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247-48, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). The burden is on the movant to demonstrate the absence of all genuine issues of material fact. Cooper v. Ford Motor Co., 748
Rule 56(c) of the Federal Rules of Civil Procedure provides for the granting of summary judgment motions "if the pleadings, depositions and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law."

Invalidity and Non-Infringement

There is a rebuttable presumption of patent validity. 35 U.S.C. § 282. Defendants may overcome this presumption with clear and convincing evidence. See id; See also, Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1549 (Fed. Cir. 1983). When clear and convincing evidence exists, then the Court must find for the defendant. Martin v. Barber, 755 F.2d 1564, 1567 (Fed. Cir. 1985).

Infringement is generally a question of fact. Nicholl, Inc., v. Schick Dry Shaver, Inc., 98 F.2d 511, 513 (9th Cir. 1938); Dawn Equipment Co. v. Kentucky Farms Inc., 140 F.3d 1009, 1017 (Fed. Cir. 1998). However, when it appears that extrinsic evidence is not needed to explain the terms of art and a court is able to comprehend what the invention disclosed in a patent is and to determine whether one device infringes on another, the question of infringement or non-infringement is one of law. United States v. Esnault-Pelterie, 303 U.S. 26, 30, 82 L. Ed. 625, 58 S. Ct. 412 (1938); Kemart Corp. V. Printing Arts Research Laboratories, Inc., 201 F.2d 624, 627 (9th Cir. 1953). Where there is no evidence of infringement or where evidence establishes without conflict that there is no infringement, it is the duty of the court to find for the defendant. Martin v. Barber, 755 F.2d at 1567; McRoskey v. Braun Mattress Co., 107 F.2d 143, 147 (9th Cir. 1939).

The first step in deciding infringement of a patent is to determine the scope of the claims as indicated by the language of the claims, which is a question of law, Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 758 (Fed. Cir. 1984), after reading them and the specifications in light of the prior art. James P. Marsh Corp. v. United States Gauge Co., 129 F.2d 161, 164 (7th Cir. 1942). The next step is for the trier to judge whether the claims cover the accused device, which is typically a question of fact, Envirotech Corp., 730 F.2d at 758, except where it appears that no substantial dispute of fact is presented. United States v. Esnault-Pelterie, 303 U.S. at 30. When presented with issues of validity along with issues of infringement, the Court should decide both. Stratoflex Inc. v. Aeroquip Corp., 713 F.2d 1530, 1540 (Fed. Cir. 1983).

The first task for this Court is to construe independently the terms of a claim and any disputed claim terms. Claim construction is a matter of law. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1451 (Fed. Cir. 1998) (en banc); Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996).

The parties disagree with how the term "or" is used in claim 16 of the 824 patent. The defendants argue non-infringement and invalidity issues based on the ambiguousness of the term "or" in claim 16. They argue that Brown first alleged infringement based on the ability to convert solely two-digit date-data and now alleges infringement on the ability to convert a combination of formatted date-data. They argue that Brown must stick to one particular format and cannot replace or interchange "or" with "and." Brown argues that since the UPI process incorporates the ability to process two-, three- and four-digit date data, processing merely two-digit date-data was sufficient to infringe on the 824 patent.

In order to construe the terms in a claim, the Court must look to the intrinsic evidence and determine whether the inventor used the terms in a claim in accordance with their ordinary meaning. Markman v. Westview Instruments, Inc., 517 U.S. at 388.

The Court finds that the claim term "or" does not limit the date-data to one particular format and Brown is not replacing "or" with "and."

"Or" can be construed in various ways. "Or" is a function word that illustrates the difference between unlike things or actions. It may also be used to indicate a choice between alternative things or courses of action. "Or" can be inclusive, describing a list of alternative things in which one may choose one option or any combination of alternative options. It can also be exclusive, forcing one to choose only one option from the list of things that it conjoins.

"Or" as used in element 6 of claim 16 has always been inclusive, meaning that it was capable of converting only two-digit numbers, only-digit numbers, only four-digit numbers, or any combination of two-, three-, and four-digit numbers.
The evidence supports this interpretation. Nothing Brown alleged has contradicted this claim construction. Brown's allegations that the current defendants and TOCS infringed even though they only converted two-digit numbers, when UPI's process had the ability to process all of these formats, is consistent with this interpretation.

Furthermore, the diagrams in the patent also support the interpretation that "or" is inclusive. The diagram labeled Figure 7 in the patent teaches the ability of the method to convert a combination of formatted data. Each year goes through a conversion mechanism which changes the year into a two-digit year-date representation, regardless if it is in a two-, three- or four-digit format.

Thus, under these circumstances, "or" in element 6 of claim 16 must be construed to include the ability to convert only two-digit, only three-digit, only four-digit, or any combination of two-, three- and four-digit date-data. This interpretation of "or" is within the ordinary meaning of the term, and is further supported by the disclosures in the patent. Based on this interpretation of "or," the Court must find that the terms in claim 16 are unambiguous.

Dr. Brown's patent, filed on May 22, 1997, claims a system for setting the computer clock to an offset time, applicable to records with year date data in "at least one of two-digit, three-digit, or four-digit" representations. Claim 16 is in suit:

16. An apparatus for processing year-date data in a computer system, the apparatus comprising:

   a CPU;

   a bus coupled to the CPU;

   a memory coupled to the bus;

   a system clock coupled to the bus, wherein the system clock is set to an offset time wherein the offset time is a time other than the actual time;

   at least one application program stored in the memory and being executed by the CPU;

   at least one database file stored in the memory containing records with year-date data with years being represented by at least one of two-digit, three-digit, or four-digit year-date representations; and

   a mechanism for converting the year-date data representations in the database file to a two-digit year-date data representation.

(Emphasis added.) During prosecution Dr. Brown identified the TOCS patent (filed on November 14, 1995) as the closest reference.

The district court construed the word "or" in claim 16 as meaning that the apparatus was capable of converting "only two-digit, only three-digit, only four-digit, or any combination of two-, three-, and four-digit date-data." Slip op. at 9. We agree with this construction of the claim, for it is the plain reading of the claim text. These are not technical terms of art, and do not require elaborate interpretation. There is no basis in the specification or prosecution history for reading "or" as "and" -- nor does Dr. Brown request such a reading.
I would reverse. The court errs by reading the claim term "or" exclusively, while the district court appropriately read it inclusively when construing the claim. This is not a case of a species anticipating a genus, or of a combination claimed in the alternative. Instead, the Brown patent teaches an apparatus with additional functionality not disclosed in the allegedly anticipating TOCS patent.

Claim 16 of the Brown patent includes the following limitations:

- at least one database file stored in the memory containing records with year-date data with years being represented by at least one of two-digit, three-digit, or four-digit year-date data representations;

and

- a mechanism for converting the year-date data representations in the database file to a two-digit year-date data representation.

'T824 patent, col. 18, ll. 59-65.

The "mechanism for converting the year-date data representations in the database file" refers to "the" antecedent year-date data representations in the prior limitation. Such data representations may consist of only two-digit dates, only three-digit dates, only four-digit dates, or any combination or sub-combination thereof. Therefore, although the data may vary, the mechanism always must have the capacity to convert all of the possible data sets into two-digit year-date data representations. Moreover, the "mechanism for converting . . ." limitation is stated in means-plus-function format pursuant to 35 U.S.C. § 112, P 6, and must be interpreted by reference to the structure or acts disclosed in the specification. The preferred embodiment in the specification discloses a process for converting all such possible year-date combinations to two-digit representations, before further processing to offset the system clock. See '824 patent, col. 12, l. 5 - col. 13, l. 7. The presence of this disclosure mandates the construction of the "mechanism for converting . . ." limitation as one that requires the capacity to process two-, three- and four-digit dates, even if the full capacity of the device is not always utilized.

To invalidate a patent by anticipation, a prior art reference needs to disclose each and every limitation of the claim. Standard Havens Prods., Inc. v. Gencor Indus., Inc., 953 F.2d 1360, 1369, 21 U.S.P.Q.2D (BNA) 1321, 1328 (Fed. Cir. 1991). The TOCS patent teaches a mechanism for processing two-digit year-date representations by using an offset date other than an actual date. However, it does not disclose a mechanism for converting three- or four-digit year-date representations by using an offset date other than an actual date. Although its specification states that ". . . all date data is preferably converted prior to processing by the application so that the years are confined to a single century," id. at col. 4, ll. 18-20, it discloses no acts or structure to perform this conversion, and makes no mention of reducing three- or four-digit dates to two-digit dates. Therefore, the TOCS patent does not anticipate because it does disclose the "mechanism for converting the year-date data representations" limitation.

Similarly, the test for literal infringement under § 112, P 6 is first, whether the accused device performs an identical function to the one recited in the claim, and, if so, whether the accused device uses the same structure, materials or acts found in the specification, or their equivalents. Gen. Elec. Co. v. Nintendo Co., Ltd., 179 F.3d 1350, 1355, 50 U.S.P.Q.2D (BNA) 1910, 1913-14 (Fed. Cir. 1999). A system made in accordance with the TOCS patent would not literally infringe the '824 patent because it would not perform the function of converting three-digit and four-digit date representations. Therefore, because it would not infringe if later, it cannot anticipate though earlier.

The parties dispute the proper construction of "order" in claim 16 of the 067 patent. I Claim 16 of the 067 patent recites a
memory system, including a nonvolatile semiconductor memory device, comprising a "control means for writing data to said unused blocks on the basis of an order in which said unused blocks are arranged." Toshiba contends that the term "order" here is used in its ordinary sense and should be construed simply as "arrangement." Lexar, on the other hand, argues that Toshiba's proposed construction does not add any value or clarity to the meaning of the claim term and that the construction of "order" should refer to a "chain" arrangement.

--- Footnotes ---
1 The Court notes that Toshiba objects to the inclusion of "order" in the list of claim terms to be construed. According to Toshiba, Lexar originally included the term in its list but removed it; the parties did not discuss the term in the meet and confer process associated with the Joint Claim Construction Statement ("JCCS") and did not include the term in the JCCS. Moreover, according to Toshiba, Lexar only provided its proposed construction of the term two days before Toshiba's opening claim construction brief was to be filed. Toshiba claims that it was prejudiced because it did not have sufficient time to analyze the term or to adequately consider and respond to Lexar's proposed construction. Lexar contends, however, that it listed "order" in its 4-1 disclosures, as required by the Patent Local Rules, and that Toshiba had adequate time to consider and respond, particularly since Lexar offered Toshiba extra time to file its opening brief. The Court finds that Toshiba had adequate time to analyze the term and consider Lexar's proposed construction such that it was not unduly prejudiced.

--- End Footnotes ---

Lexar argues that the specification of the 067 supports its proposed construction because various preferred embodiments teach a chain arrangement. Generally speaking, it is improper to import a limitation from the specification into the claim construction. Markman, 52 F.3d at 980. However, as discussed supra, the Federal Circuit has recently found that where the specification consistently and clearly uses a claim term in a specific way, the claim term may be so limited. Alloc, 342 F.3d at 1368. Here, though, only the third preferred embodiment, described in the Summary of the Invention section, references pointers. ('067 patent 3:35-55.) The other embodiments described contain no such reference. ('067 patent 2:40-45, 3:17-34.) Therefore, the rule announced in Alloc does not apply here and Lexar's construction cannot be right.

Moreover, Lexar's prosecution history argument is equally unavailing. As Toshiba explains, the excerpts of the file history cited by Lexar refer to claims in the 067 that are dependent from claim 16 in which a chain arrangement of unused blocks is expressly disclosed. The excerpts do not read on the construction of "order" in independent claim 16.

Furthermore, Toshiba contends that the doctrine of claim differentiation prohibits referring to a chain arrangement in the construction of "order" in claim 16. Indeed, claim 17, dependent from claim 16, teaches a particular order of unused blocks in which the blocks are arranged in a chain. If the "order" in which the unused blocks, referenced in claim 16, are arranged the same way, there is no purpose for laying out the chain arrangement in claim 17. Elements recited in a dependent claim cannot be read into the broader, independent claim from which it depends. Tandon Corp., 831 F.2d at 1023. Therefore, Toshiba is right that "order" in claim 16 should not be limited to an arrangement of linking in a chain by pointers.

The Court finds, however, that Toshiba's proposed construction, "arrangement," is so simple as to fail to sufficiently explain what "order" means. "Arrangement," adds nothing to the understanding of "order" here. The Court notes that the term "order" refers to how the control means writes data to unused blocks. Therefore, the Court construes "order" in accordance with its ordinary meaning, but places it in the proper context of flash memory technology. "Order" is a logical or comprehensible arrangement of unused blocks.

--- End Notes ---

2. Order List

'172 Patent, Claim 1

ePlus asserts that "order list" needs no construction because it is used consistently with its plain and ordinary meaning. However, if construed, ePlus proposes the meaning: the list of items that you are going to order. Lawson proposes that the
term mean: a list of items derived from a list of selected matching items.

a. Words of the Claims

Claim 1 of the '172 Patent claims an electronic sourcing system comprising:

a database containing data relating to items associated with at least two vendors maintained so that selected portions of the database may be searched separately;

means for entering product information that at least partially describes at least one desired item;

means for searching for matching items that match the entered product information in the selected portions of the database;

means for generating an order list that includes at least one matching item selected by said means for searching;

means for building a requisition that uses data obtained from said database relating to selected matching items on said order list;

means for processing said requisition to generate purchase orders for said selected matching items.


b. Specification

The specification provides that "[o]ne Hit List 47 has been created by TV/2 search program 50, the user can view it and select particular ones of the located catalog items for Order List 48." '172 Patent at 10:22-24. However, the specification further states that, during a search, a "user may also add additional items to the Order List 48 being built in Shell 52 if desired, whether those additional items had been selected from the Hit List 47 or not." Id. at 12:39-41. This makes clear that Lawson's definition, which requires that items on an order list be derived from a list of selected matching items, or the Hit List 47, is incorrect. Rather, the specification shows that items can be added to an order list whether or not they are derived from a list of selected matching items.

Lawson disagrees with ePlus' proposed definition, asserting that an order list is merely an interim list of items that you may order. Lawson argues that construing an "order list" as "items that you are going to order" is incorrect because there are many additional steps that must be taken before the items are ordered and consequently, the items may not be ordered at all. For example, the specification states that an object of the invention is to create an order list and "transfer[] that order list to a requisition/purchasing system for generating a requisition." Id. at 3:1-6. That requisition is later transferred to a purchase order through an inventory sourcing process. Id. at 15:39-41. And, during the inventory sourcing process, the exact item found during a catalog search can be changed to a corresponding item from another vendor. Id. at 14:53-59 ("[A]n entry in an inventory-sourced Requisition Management screen may indicate for a requisitioned item a vendor and vendor catalog number that has been changed, from what was obtained from a catalog search, to a corresponding vendor and vendor catalog number for that item from another source."). Thus, Lawson correctly argues that the exact items on an order list may not be ordered at all.

The specification best describes the "order list" when it provides that it is an object of the invention to "provide an electronic sourcing system capable of creating an order list including desired catalog items located as the result of [] a database search." Id. at 3:1-4.

c. Proper Construction

The words of the claims and the specification make clear that neither of the party's proposed constructions are wholly consistent with the intrinsic evidence. Most significantly, Lawson's definition limits the items on an order list to items originally found on a Hit List. The specification demonstrates that items can be added to an order list whether or not they first appear on a Hit List. And, ePlus' definition suggests that the items on an order list will be ordered, notwithstanding that...
the specification outlines several steps that must take place, and may change the order list, before an actual order is placed. Instead, the specification describes the order list as, and it is construed to mean: a list of desired catalog items.

1. " -order"

Pulse argues no construction of " -order" is necessary apart from that for the " -order (low/high)-pass filter section" term, noting the term is never used apart from the entire filter section phrasing. Pulse therefore argues the term has no independent significance. Alternatively, Pulse proposes that " -order" "identifies the specific components as disclosed in the respective claim."

Unlike Pulse, Mascon parses out this term for a separate construction and alleges the term is indefinite under 35 U.S.C. § 112, second paragraph. In the alternative, Mascon submits the term means "the largest exponent of the transfer function relating the magnitude of the output of a filter in response to an electrical signal applied to the input of the filter" or "the highest exponent of the frequency term in the denominator of the filter's transfer function." 3

3 Contrary to the Patent Local Rules, Mascon offered the latter construction for the first time in its Opening Claim Construction Brief.

When read in the context of the claims and specification, the term " -order" is not indefinite but rather serves to identify the components of the various filter sections. Mascon's proposed constructions have no basis in the patent claims or specifications. While Mascon explained the technical underpinnings of its proposed constructions during the tutorial and oral arguments, employing either one would go beyond the intrinsic evidence. A construction which relies on additional terms, unmentioned in the specification or claims, would merely create potential for confusion for the jury. In addition, construing this term separately "will add no further clarity" as to how one skilled in the art would understand it as used.

The court therefore concludes the term " -order" has no independent significance and does not require specific construction by the court.

Finally, we turn to "trade order." In the '132 patent, patentee claims "displaying an order entry region...for receiving commands from the user input devices to send trade orders..." and "selecting a particular area in the order entry region...to set a plurality of additional parameters for the trade order and send the trade order to the electronic exchange." The '304 patent claims "displaying an order entry region comprising a plurality of locations for receiving commands to send trade orders..." and "in response to a selection of a particular location of the order entry region by a single action of a user input device, setting a plurality of parameters for a trade order relating to the commodity and sending the trade order to the electronic exchange." We construe "trade order" as "a single, electronic message in executable form that includes at least all required parameters of a desired trade." Plaintiff's main concern is with the term "executable." Plaintiff argues that use of "executable" is inconsistent with Figure 1, which shows how a system can be configured to allow for trading in multiple exchanges simultaneously. The figure shows how a user's computer is hooked up to the exchange through a series of routers and gateways. Further, the written description states that "[w]hen the system is configured to receive data from multiple exchanges, then the preferred implementation is to translate the data from various exchanges into a simple format" ('132, 4:28-32; '304, 4:32-35). Plaintiff asserts that a trade order in executable form would be contrary to the translation function. We disagree. First, we note that the patents use the term "execute" throughout the written description. For example, "These embodiments, and others described in greater detail herein, provide the trader with improved efficiency and versatility in placing, and thus executing, trade orders for commodities in an electronic exchange" ('132, 3:21-24; '304, 3:25-28). Second,
we note that the term "executable," as used in this construction, must be viewed from the perspective of the user, not the computer. Once the trader has selected an area in the order entry region, and sent the trade to the market, the user need do nothing further to execute the order. Thus, from the perspective of the trader, the trade has been executed, and must have been in executable form. As with the constructions of "single action" and "order entry region," however, if the computer must perform additional steps or route the order through a router or gateway, such would still fall within the ambit of "trade order," as construed herein.

Order Entry Region

Both patents use the term "order entry region" in claim 1. During the preliminary injunction phase we construed the term to mean "an area comprising a plurality of locations where users may enter commands to send trade orders, and that each location corresponds to a price level along the common static price axis." We see no reason to depart from that construction now.

Along with the debate over "single action of a user input device" (see below), the parties' dispute centers on whether a pop-up window is covered under plaintiff's patents. While that is clearly a question for another day, it can offer context for our construction analysis. See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1326-27 (Fed.Cir. 2006) ("While a trial court should certainly not prejudge the ultimate infringement analysis by construing claims with an aim to include or exclude an accused product or process, knowledge of that product or process provides meaningful context for the first step of the infringement analysis, claim construction").

Like plaintiff's patents as a whole, "order entry region" should be viewed from perspective of the user, not the computer. With that in mind we accept defendants' argument that "order entry region" is a location within the trading display where a user sends and not simply initiates an order. The patents' written descriptions consistently state that a selection within the order entry region does more than simply initiate an order, it sends or executes the order (see, e.g., '304, 3:9-10; '132, 3:5-6 ("The 'Mercury' display and trading method of the present invention ensure fast and accurate execution of trades . . ."); '304, 3:26-28; '132, 3:22-24 (". . . provide the trader with improved efficiency in placing, and thus executing, trade orders for commodities in an electronic exchange"); '304, 10:34-39; '132, 9:63-67 ("A left click on the IS in the BidQ column will send an order to market to buy 17 lots...of the commodity at a price of 89")). The prosecution history further reveals that patentee originally envisioned claim language that included "[a] method of-initiating placement of a trade order of the commodity through a single action of the user input device with a pointer of the user input device positioned over an area in said dynamic displays of bids and asks" (certified file history for U.S. Patent No. 6,772,132, eSpeed claim construction, cxh. C, at eS64874). Over a year later, the patentee changed the focus of that claim, removing the language "initiating placement" and amending it to read, "method comprising...selecting a particular area in the order entry region through a single action of the user input device with a pointer of the user input device positioned over the particular area to set a plurality of additional parameters for the trade order and send the trade order to the electronic exchange" (id. at cS65203). Thus, from the perspective of the user, selection of an area in the order entry region is the final step in the trader's placement of an order at the market. In other words, the user need not do anything more before the order is entered at the market. If, however, the computer or the exchange had to perform additional steps before the order was actually filled at the exchange, such would still fall within the ambit of "order entry region," as construed herein. n7

n7 Defendant eSpeed again attempts to insert the term "matched" into its construction. As we noted in our preliminary injunction analysis, "[t]he words 'aligned' and 'corresponding' do not mean 'unambiguously matched'" (Trading Technologies I., 370 F.Supp.2d at 700), nor do they mean "matched." As noted above, we construe both terms to mean "in relationship with," which is a broader construction than "matched."
38. The second point of disagreement is the meaning of the terms "fulfill" and "order fulfillment component" in claims 6 and 9, and in particular whether "fulfill" or "fulfillment" refer to computer or physical processes. Though the patent specification does not explicitly define the phrase, order "filling" and "fulfillment" is discussed at length at column 8 and figure 7 in the context of Amazon.com's order consolidation algorithm. That discussion and the entire specification describe only computer processes and an order is defined to be filled "when all its items are currently in inventory (i.e. available) and can be shipped." In addition, Amazon.com's expert Mr. Mulligan testified that an "order fulfillment component" of a "server system" as required by claim 9 is "the software that takes the information provided by the database of the user information and the inventory database and combines those into a shipment order . . . and then notifies that the order is ready for shipment." (Tr. at 165:7-12).

39. Mr. Mulligan's above definition of "order fulfillment component" as a computer program is consistent with the out of court statements by Barnesandnoble.com's Chief Information Officer, Mr King, regarding Barnesandnoble.com's "fulfillment application" in a recent interview with an industry trade press. (See Ex. 8). During cross-examination Mr. King testified that "fulfillment application" was a commonly used term in the industry to refer to computer programs associated with the fulfillment process. (Tr. at 432:25-433:8). The Court therefore finds that "order fulfillment component" as used in claim 9 refers to order fulfillment application software described by Mr. Mulligan and Mr. King.

40. Similarly, the Court finds that the term "fulfill" as used in claim 6 in the phrase, "so that the server system can fulfill the generated order," refers to processes performed by the order fulfillment component of (or order fulfillment application running on) the server system and does not include the physical steps of handling or packing tangible items.

B. "Ordered List."

The term "ordered list" was used in each independent claim of the '381 patent. For example, claim 14 recited (col. 13:64-14:17):

14. A computer-implemented method for renting movies to customers, the method comprising:

   providing electronic digital information that causes one or more attributes of movies to be displayed;

   establishing, in electronic digital form, from electronic digital information received over the Internet, a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer.

   causing to be delivered to the customer up to a specified number of movies based upon the order of the list, wherein the customer is not required to return the movies within a specified time associated with delivery;

   in response to one or more delivery criteria being satisfied, selecting another movie based upon the order of the list and causing the selected movie to be delivered to the customer; and

   in response to other electronic digital information received from the customer over the Internet, electronically updating the movie rental queue.

Netflix proposes that the term "ordered list" should mean a "list specifying the customer's desired rental order" while Blockbuser contends that it should mean "names or other representations of two or more items, arranged so that one or more of the items is before or after one or more other items."

Like all the other disputed terms, "ordered list" has a commonly-understood meaning. Any juror, having likely done grocery shopping in his or her life, is familiar with a list: a series of items. The term "ordered" indicates that the arrangement of
items on the list is dictated by some logic, rule, or governing principle. Taken by themselves, these terms are easily understood by the layperson. They need no clarification.

The question now becomes whether or not the use of the term "ordered list" in the claims and specification indicates the customer's desired rental order. This order holds that it does not. First, the use of the term within the claims is instructive. As shown above, claim 1 recited "a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer." The ordered list is a component of the queue that has its own sequence. Second, as mentioned above, reading the limitation that the ordered list must be according to the customer's desired order would render claim 6 of the '381 patent redundant.

Patent terms must be construed in light of the invention's purpose. Nystrom v. TREX Co., Inc., 424 F.3d 1136, 1144 (Fed. Cir. 2005). Netflix argues that it would defeat the invention's purpose if any order other than the one specified by the customer were used in the ordered list. The '450 patent stated that the invention's purpose was to ensure that "the greatest number of customers are provided with their most preferred items. For example, customers may specify priorities for the items indicated by the item selection criteria" (col. 11:17-21). This purpose, however, does not absolutely demand that the only sequence in the ordered list is that specified by the customer. The use of the term "may" indicates that the customer has the ability, but is not required, to rank the items in the ordered list in his or her preferred sequence. Indeed, items in the ordered list may merely appear in some computer-assigned default order such as the chronological order in which they were added to the list.

Netflix, in its responses to the tentative claim-construction ruling, argues that the ordered list may include items arranged by some default order, however, the items in the list only have an order once the customer looks at them. The customer can either rearrange the items according to his or her preference, or adopt the order in which the items already appeared. Only then after the customer has approved the sequence, Netflix argues, is the "ordered list" truly the claimed ordered list. The specification of the '381 patent does not teach how the customer handles or interacts with the "ordered list;" it only addresses the queue. This gloss on the Court's definition of "ordered list" lacks support and will not be adopted.

The prosecution history of the '381 patent also supports this construction. The examiner rejected all pending claims for not meeting the statutory subject matter requirement under 35 U.S.C. 101 . The applicants overcame the examiner's rejection by arguing that the useful, tangible result of their invention was to rent movies to customers based on the order of the customer's preference. That result brought the invention within the scope of the technological arts (Ramani Decl. Exh. 11). As discussed below, plaintiffs distinguish between the use of the term "based on" an "in" when ordering items. Again, the use of the phrase "based on" indicates that the ordered list may reflect the customers preferences exactly, but need not necessarily do so.

Finally, Blockbuster argues at length that Netflix's proposed definition of this term conflates it with the term "movie/item rental queue." Netflix's proposed definition of "movie/item rental queue" is "sequence of items/movies used by a rental provider to determine which items/movies to deliver." Both terms refer to a grouping of items placed in some kind of sequence or order. The rental queue reflects the provider's priorities in addition to customer preferences, while the ordered list includes items for possible rental to the customer, the order of which is determined at least in part by the customer, but may be based on some default order.

To borrow from the example Blockbuster used in its brief, the provider could automatically add all adventure movies starring Harrison Ford to the rental queue based on the customer's selected criteria ('450 patent, col. 8:54-60). The customer can then see that these movies were added to her rental queue and decide that she prefers The Empire Strikes Back to Indiana Jones and the Temple of Doom. Accordingly, she can place one ahead of the other within the queue set up by the system, resulting in her "ordered list." She might choose to put them in some order with respect to her other selections. She might also choose to leave Patriot Games, another selection added to her queue, in the order in which the provider added it. The provider, in selecting a movie to rent, may discover that it has no copies of Empire Strikes Back, a and will accordingly rearrange the queue to select another movie to rent to the customer.

This order holds that the term "ordered list" will be given its plain meaning. The ordered list may be, but is not required to be, ordered precisely according to the customer's preferences; it could also include some other default order.

GO BACK
An ordered sequence of process steps

The parties now appear to be in agreement on the proper construction of "an ordered sequence of process steps." In its bench book for the Markman hearing, ITI concedes that either parties' proposal can be used. Defendants' proffered construction involves specifying the order in which each process step must take place. In its bench book, ITI proposes a construction with slight variations: specifying the order in which process steps take place. The Court agrees with ITI that the words "each" and "must" are unnecessary; in fact, including "must" runs counter to the concept that the order of the steps can change as a result of manufacturing plant conditions, as the portion of claim 34 immediately following this limitation provides. The Court therefore construes the limitation to mean specification of the order in which process steps take place.

C. Ordering

<table>
<thead>
<tr>
<th>Leader's Construction</th>
<th>Facebook's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizing</td>
<td>Placing into a fixed sequence</td>
</tr>
</tbody>
</table>

The term "ordering" is recited in Claim 17. Leader proposes that "ordering" be construed to mean "organizing" because the terms are used interchangeably in the computer science field when referring to data stored on a computer. (D.I. 179, at 9.) Further, Leader contends that its proposed construction comports with the plain language used in the Claim, and is consistent with the specification. Facebook also contends that its proposed construction, "placing into a fixed sequence," is what one of ordinary skill in the art understands "ordering" to mean. (D.I. 191, at 31.) Facebook argues that the surrounding language in Claim 17 "clearly implies a relationship between environments that is based on placement into a fixed sequence." (Id. at 32.) Moreover, Facebook contends that the specification supports its proposed construction because Claim 17 is discussed in the context of a routing algorithm which defines sequential arrangements. (Id.)

The Court concludes that Facebook's proposed construction reads in a limitation not supported by either the language of Claim 17 or the specification, and thus, will adopt Leader's construction. In relevant part, Claim 17 claims:

17. A computer-implemented method of managing data, comprising computer-executable acts of:

   generating a plurality of user environments in a web-based system;

   ordering two or more of the plurality of user environments according to different arrangements of the user environments;

   storing in a storage component ordering information related to the ordering of the two or more of the plurality of user environments;

   traversing the different arrangements of the user environments with one or more of the applications based on the ordering information to locate the data associated with the user environment.

'761 patent, col. 22:12-34 (emphasis added). As Facebook alleges, the claim language surrounding the term "ordering" does imply a relationship between user environments. The Claim consistently specifies the manner in which the relationship between user environments is achieved: "according to different arrangements of the user environments." Id. However, nothing in the literal claim language suggests that the "ordering" of the user environments according to "different arrangements" necessarily means that the user environments are placed in a fixed sequence.

The parties do not agree on which portion of the specification applies to Claim 17. Facebook directs the Court's attention to
a portion of the specification describing Figure 4B. In Figure 4B, "there is illustrated board/web relationship diagram 402." '761 patent, col. 8:18-19. This embodiment teaches that "[b]oards can exist in any number of webs," and that "[t]he web represents a certain view of the relationship among boards." '761 patent, col. 8:19-22. Further,

[t]he disclosed system has associated therewith a routing algorithm, referred to herein as a 'webslice'. A webslice is a relationship rule that defines a relationship between a web and one or more boards of that web. If a web changes (e.g., a board is added), and meets the criteria of the rule, the content will be on the new board as well.

'761 patent, col. 8:59-64. Facebook contends that this routing algorithm defines the sequential arrangements in which the user environments may be placed, but upon review of the specification as a whole, the Court disagrees.

The Summary of the Invention states that "[w]hen a user logs in to the system that employs the tool, the user enters into a personal workspace environment. This workspace is called a board, and is associated with a user context." '761 patent, col. 3:32-35. Further, the Summary of the Invention states that "[t]wo or more boards (or workspace environments) can be grouped as a collection of boards, also called a web." '761 patent, col. 3:64-66. These terms, "workspace environment" and "board" appear to be used consistently throughout the '761 patent. Understood as such, the routing algorithm (or webslice) defines the relationship between a web (or collection of boards) and one or more boards (or workspace environments) within that web. By its terms, the routing algorithm does not define the relationship between user environments within the web, and thus, does not support Facebook's proposed limitation. Accordingly, the Court concludes that "ordering" means "organizing."

Claim 20 describes a method for storing the analog and digital signals involving "converting," "formatting," "ordering," and "compressing." The parties dispute the proper construction of the "converting," "formatting" and "ordering" steps.

The specification describes the process of converting and formatting the information:

When the information from identification encoder 112 is digital, the digital signal is input to the digital input receiver 124 where it is converted to a proper voltage. A formatter 125 sets the correct bit rates and encodes into least significant bit (lsb) first pulse code modulated (pcm) data. Formatter 125 includes digital audio formatter 125a and digital video formatter 125b. The digital audio information is input into a digital audio formatter 125a and the digital video information, if any, is input into digital video formatter 125b. Formatter 125 outputs the data in a predetermined format.

When the retrieved information from identification encoder 112 is analog, the information is input to an analog-to-digital converter 123 to convert the analog data of the retrieved information into a series of digital data bytes. Converter 123 preferably forms the digital data bytes into the same format as the output of formatter 125.

('992 Patent, Col. 7:1-18.)

In the July 12 Order, the Court construed the phrase "ordering means for placing the formatted data into a sequence of addressable data blocks" as a means-plus-function element. In a means-plus-function claim, the claims specify the function and the specification details the structure. The Court identified the "time encoder" (FIG. 2a 114) and its equivalents as the corresponding structure.

Claim 20 is not a means-plus-function claim. Thus, importing limitations from the specification is not appropriate. In Claim 20, the phrase "ordering into ... a sequence of addressable data blocks" is a very broad limitation which could include time encoding, as well as other ways of generating addressable data blocks. The parties have requested that the Court construe the word "addressable" as it applies to the data blocks. The specification contains the following with respect to the phrases "address" and "addressability."

Stored items are preferably accessed in compressed data library 118 through a unique address code. The unique address
code is a file address for uniquely identifying the compressed data items stored in the compressed data library section of a library system. This file address, combined with the frame number, and the library system address allow for complete addressability of all items stored in one or more compressed data libraries.

(‘992 Patent, Col. 10:46-57.) It is clear that there are multiple uses of the phrases "address" and "addressable." The ordering step in Claim 20 follows the conversion and formatting steps, and precedes the compression step. The claim element requires that the formatted and converted data be ordered into a sequence of addressable data blocks. The term "addressable" in the context of Claim 20 refers to the addressability of portions of the information within a file, and is not physical storage addresses.

The Court construes "ordering the converted analog signals and the formatted digital signals into a sequence of addressable data blocks" as follows:

In a distribution method in which a transmission system stores the information, "ordering the converted analog signals and the formatted digital signals into a sequence of addressable data blocks" means "in the transmission system placing the converted analog signals and the formatted digital signals into a sequence of data blocks, such that the ordering of the data blocks permits the retrieval of portions of information from items." "Addressable" does not refer to physical storage locations, but rather to positions relative to the beginning of a file containing information.

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TERM # 21: "ordering the interest cost values associated with said inputted data." - Defendants claim that the ordering must occur prior to the "transmitting" step. On this point, we agree with defendants. Although we recognize that we need not require that the steps in a process occur in the same order that they appear in a claim, in this case, we find evidence from the claim language itself that the interest cost values can only be transmitted after they are put in some order. The transmitting step refers back to "said interest cost values". At least one interest cost value is "automatically computed" and interest cost values are then ordered. The first time that plural interest cost values are required is in the ordering step. The transmitting step speaks to previously mentioned plural interest cost values. These values must come from the ordering step. For this reason, based on the structure of the claim, we agree with defendants on this issue. This phrase means: "placing the interest cost values in some order before transmission to the issuer's computer".

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B. Pricer Patents

Trilogy's second group of patents are referred to as the Pricer patents. There is only one non-means-plus-function term remaining in dispute—"organizational groups." Trilogy contends that the term "organizational groups" means "one or more entities grouped together." Selectica contends the term means "a group of purchasing organizations where each group has a characteristic."

The 400 patent provides:

The invention operates under a simple paradigm of WHO (the purchasing organization) is buying WHAT (the product). In the invention the WHO is defined by creating an organizational hierarchy of purchasing organizations. A "purchasing organization" (also referred to as a customer) may be a single person. . . . A purchasing organization may also be a larger entity, such as a company. One or more customers (i.e. purchasing organizations) may be members of each organizational group and each customer may be a member of more than one organizational group. Similarly, one or more products may be members of each product groups and each product may be a member of more than one product group.

‘400 patent, col. 6, 11. 3-16. In addition, the patent states:
In the invention the WHO is defined by creating an organizational hierarchy of organizational groups, where each group represents a characteristic of the organizational group.

'400 patent, col. 3, 11.24-25 (emphasis added). The specification explains that the invention "allows pricing rules to be based on characteristics of each organizational group instead of basing the rules on a per-customer basis." 400 patent, col. 3, 11. 35-38 (emphasis added). Thus, considering the claim language in the context of the specification, the court adopts Selectica's construction and construes "organizational groups" to mean "groups of purchasing organizations where each group has a characteristic." See Selectica's Response Brief, at 31 (offering revised construction).

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c. "Originating Processor" and "Originated Information"

The parties dispute the construction of the term "originating processor" recited in the claims of the '960, '670, and '592 patents n6 and "originated information" recited in the claims of the '960, '670, '592, and '451 patents. n7 Claim 1 of the '960 patent, from which claim 15 ultimately depends, again is exemplary and states in pertinent part:

1. A system for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising:

   at least one gateway switch in the electronic mail system, one of the at least one gateway switch receiving the originated information and storing the originated information prior to transmission of the originated information to the at least one of the plurality of destination processors;

   a RF information transmission network for transmitting the originated information to at least one RF receiver which transfers the originated information to the at least one of the plurality of destination processors;

   at least one interface switch, one of the at least one interface switch connecting at least one of the at least one gateway switch to the RF information transmission network and transmitting the originated information received from the gateway switch to the RF information transmission network; and wherein

   the originated information is transmitted to the one interface switch by the one gateway switch in response to an address of the one interface switch added to the originated information at the one of the plurality of originating processors or by the electronic mail system and the originated information is transmitted from the one interface switch to the RF information transmission network with an address of the at least one of the plurality of destination processors to receive the originated information added at the originating processor, or by either the electronic mail system or the one interface switch ...

'960 patent, col. 49, ll. 2-38 (emphases added).

--- Footnotes ---

n6 This term appears in all of the asserted claims of the '960 and '670 patents, and in parent claim 25 of asserted claim 40 of the '592 patent. A variation, "originating device," is used in claims 40, 150, 278, 287, 653, and 654 of the '592 patent. "Originating device" was separately construed by the district court and that construction has not been appealed.

n7 This term appears in all of the asserted claims of the '960 and '670 patents. A variation, "originating electronic mail," is used in claims 313 and 317 (both depending from independent claim 311) of the '451 patent. A slightly different variation, "originate the electronic mail," is used in claims 40 (depending from independent claim 1), 150, 278, and 287 of the '592 patent. We treat these variations as being of identical scope and meaning to the term "originating information" as discussed in our opinion.

--- End Footnotes ---
The district court construed "originating processor" as "any one of the constituent processors in an electronic mail system that prepares data for transmission through the system." Claim Construction Order, slip op. at 5. The court construed "originated information" as "the message text of an electronic mail message." Id., slip op. at 6 (noting an exception for the term as used in a patent which is not disputed on appeal).

RIM argues that "originating processor" is correctly construed to mean a processor that initiates or starts the transmission of data through the system, thereby excluding any of the "constituent processors" in the system which subsequently handle the data. It argues that "originated information" is the electronic mail message generated by an "originating processor." RIM argues that its constructions are supported by dictionary definitions of the term "originating" and "originate" which impose an "initiating" requirement on the claims. RIM argues that the '960 patent specification supports this construction, because it describes an "originating processor" as a processor at which an electronic mail message is composed by a person or inputted by a machine.

NTP responds that this dispute centers on whether an "originating processor" can include gateway switches. Before the district court, NTP urged that "originating processor" be construed to include not only "that processor upon which the sender types the message," but also "all of the constituent processors in an electronic mail system that run electronic mail programming to format and initiate transmission of electronic mail messages." NTP's Claim Construction Mem. at 37. NTP argues that RIM's proposed construction is erroneous because it ignores language in the written description specifying that a gateway switch can originate information, and thus would exclude embodiments in the written description. NTP argues that a construction which limited "originating processor" to only processors upon which senders actually type the electronic mail message is not required by RIM's dictionary definitions.

As we shall explain, we conclude that the district court erred in its claim construction of the term "originating processor." The term "originating processor" is properly construed as "a processor in an electronic mail system that initiates the transmission of a message into the system." We do not hold that the "originating processor" is always the processor on which text of the email message was created. As a practical matter this will probably be the case. However, there could be a situation where someone composes an email message on one processor, then perhaps transfers the message from the creating processor to the "originating processor" that initiates the message into the electronic mail system; e.g., by copying onto a disk.

Further, we conclude that the district court did not err in construing "originated information" as "the message text of an electronic mail message." RIM focuses its argument on the term "originating processor." Indeed, RIM presents no independent argument that "originated information" means anything other than the text of an electronic mail message to be transmitted in the electronic mail system. We see no reason to disturb the district court's claim construction of the term "originating information."

We begin with the language of the claims. See PSC Computer Prods., Inc. v. Foxconn Int'l, 355 F.3d 1353, 1359 (Fed. Cir. 2004). Claim 1 of the '960 patent recites:

1. A system for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising: ... at least one gateway switch in the electronic mail system ...

   at least one interface switch ...

'960 patent, col. 49, ll. 2-19 (emphases added). Construing "originating processor" to mean the processor that is the origin of the email message text comports with the goal of the system--to move "originated information" from the processor where the email message text originated to the processor(s) where it is intended to be received. Moreover, that construction is consistent with the overall context of the claim language. Claim 1 of the '960 patent contains a number of limitations relating to devices that process data, including, inter alia: "a plurality of originating processors," "at least one gateway switch," and "at least one interface switch." See '960 patent, col. 49, ll. 2-25. Nothing in the claim suggests that "a plurality of originating processors" defines a genus which includes the claimed "gateway switch" or "interface switch" as a species. Instead, these limitations are used as three separate, independent limitations to describe the various constituent components in an electronic mail system that prepares and transmits electronic mail messages. There is no antecedent basis in the claim.
language to signify that "at least one gateway switch" conceptually is contained within "a plurality of originating processors." See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("While not an absolute rule, all claim terms are presumed to have meaning in a claim.").

In addition, as claim 1 above recites, the "originated information" originates from the "originating processor." '960 patent, col. 49, ll. 2-3. Thus, the plain language of the claims indicates that "originating processor" is not referring to every component that initiates data. Rather the "originating processor" is, more precisely, the processor that is the source of the "originated information"--the text of the electronic mail message.

Also, the claim language shows how a gateway switch is not included within the larger term "originating processor," but is rather a separate component from an "originating processor." That is because the "originated information" is transmitted from an "originating processor" to a gateway switch. Indeed, the "originating processor" and the gateway switch initiate different types of data. "Originated information"--the electronic mail message--originates with the "originating processor." By contrast, the gateway switch is never described as being the origin of the "originated information." Rather, it merely "receives" the "originated information" from the "originating processor." See, e.g., id. at col. 49, ll. 8-9; '611 patent, col. 19, ll. 60-63, col. 47, ll 52-54. A gateway switch may sometimes add or initiate address information such as an address of an interface switch to the "originated information" that it receives from the "originating processor." See, e.g., '960 patent, col. 49, ll. 26-37. However, a gateway switch is not the origin of the "originated information" itself. According to the language of the claims, gateway switches are components that receive "originated information" from an "originating processor" and then sometimes append additional data to the information received from an "originating processor."

The written description is consistent with this interpretation and reveals that two different types of information are "originated" and transmitted within the claimed invention. First, there is "originated information." As the district court correctly held, "originated information" refers to the text of the electronic mail message being transmitted. One could analogize this to the contents of a physical letter one mails to a recipient via the postal system. Second, in the claimed invention there is also what one might call address information or destination information. This refers to an identifier of the intermediate components and/or the destination processor(s) to which the electronic message text should be delivered. See, e.g., '960 patent, col. 24, ll. 31-46 (discussing "address of the interface switch" and "identification number of the RF receiver"). Address information originated from a gateway switch or interface switch is never described as itself the "originated information" or the "other originated information." Rather, it is described as separate information which is added to the "originated information" which came from an originating processor. See, e.g., id. at col. 21, ll. 54-56 (text notes that the address of the interface switch can be added "to the information originating from the originating processor"); id. at col. 22, ll. 24-26 (text notes that the destination address can be "added to the information from the originating processor"); id. at col. 26, ll. 39-41 (text notes adding information to the "information from the originating processor"); id. at col. 49, ll. 27-29 (claims describe "adding" address information to "originated information"); id. at col. 50, ll. 7-10 (text describes movement of both "originated information" and identification number in the RF transmission network); id. at col. 54, ll. 49-51 (text notes identification number "added to the originated information"). This address information can be analogized to the address contained on the outside of an envelope that one mails with the post office, as well as information added by the post office, such as a barcode, which may direct the envelope through the myriad routes in the postal system. Thus, just as one physically mails a letter with two types of information--the text of the actual letter itself within the envelope and the address information on the outside of the envelope--the claimed invention "originates" two types of information.

From the written description, one skilled in the art would understand an "originating processor" to refer to a processor where "originated information"--the electronic mail message text--is introduced into the electronic mail system. In some cases, this "originating processor" is the point at which some or all of the second type of information, the address information, is added. In other cases, after the "originating processor" sends the "originated information" to a gateway switch, the gateway switch then "originate" and appends additional address information onto the "originated information." A user typing at the originating processor does need to provide at least some address destination information--for example, that the email message is intended for "John Doe." See, e.g., id. at col. 24, ll. 29-30. However, the user need not know precisely through which switches the email message needs to travel within the system to get to John Doe (or even whether John Doe's destination processor is a wireless or wireline processor). In the "most user friendly form" of the invention, the user need only indicate the intended recipient, and the proper address information can be added to the text of the electronic mail message either by the originating processor itself or by later components in the electronic mail system, such as gateway switches and/or interface switches. See, e.g., id. at col. 24, ll. 25-30. This is analogous to how, in the postal system, one need only indicate a destination address, and the postal system sometimes adds barcode information to envelopes which help
The term "originating processor" does not encompass every constituent processor that initiates data into the system. "Originating processor" refers more precisely to the processor that initiates the electronic message text into the system. It is correct to conclude that other components besides an "originating processor" "originate" information. For example, components such as the gateway switches originate some of the address information to get the electronic message from the "originating processor" to the proper destination processor(s). However, there is nothing in the written description to suggest that one skilled in the art would blur the distinction between a component such as a gateway switch that sometimes "originate" address information, and an "originating processor," which is a separately labeled and separately claimed component than a gateway switch or an interface switch.

Referring specifically to the written description, Figure 1 of the '960 patent discloses a prior art electronic mail system in which the "originating processor" is depicted as the processor which originates the email message, which is separate and distinct from other constituent components such as gateway switches:

[SEE PRIOR ART IN ORIGINAL]

The specification states that Figure 1 shows "communications between an originating processor A-N, which may be any of the processors within the groups of associated processors # 1-# 3 or processor # N and a destination processor A-N are completed through the public switch telephone network 12 to one or more gateway switches ..." 960 patent, col. 2, ll. 23-28 (emphases added). This passage explains that the electronic mail message originates from the "originating processor" and then moves "to" an associated gateway switch. Thus, the "originating processor" is not a generic term referring to all data-generating constituent processors in a system, but more precisely refers to a processor that is separate from the gateway switches. Moreover, the written description repeatedly refers to the "originating processor" where the electronic mail message text is generated. See, e.g., id. at col. 3, ll. 12-21 ("Finally, the message or message text must be entered which is the information that is inputted by the person or machine which is originating the message at the originating processor A-N. Upon completion of the message text, the user ...enters a series of commands or keystrokes on the originating processor to transmit the message to the gateway switch ....") (emphasis added); id. at col. 19, ll. 29-30 (explaining how, in the claimed invention, the "originating processor" might be associated with "an icon driven display" and a computer "mouse" for the user). There is no corresponding discussion of the electronic mail message text being generated with, or the use of "an icon driven display" with, a gateway or interface switch.

Components other than an "originating processor" can initiate data. The written description describes how, for example, "the identification of the RF receiver 119 and the address of the interface switch may be implemented by the originating processor A-N of one of the computing systems # 1-# N, a gateway switch 14 or an interface switch 304 ...." Id. at col. 24, ll. 42-46. This shows that three different components can initiate address information: (1) an "originating processor" A-N; (2) a gateway switch 14; or (3) an interface switch 304. However, simply because the "originating processor" is but one of three separate, differently named and labeled components that can serve as the initiator of address information, does not mean that the term "originating processor" covers all of these different components. If "originating processor" referred to all three components, then the specification would simply read "the identification of the RF receiver 119 may be implemented by an originating processor."

The specification makes clear that it may take several processors in Campana's claimed invention to successfully initiate an electronic mail message. As Campana teaches in his written description, to initiate an electronic mail message, the message text must be entered, then the addresses of various interface switches and the receiving destination processor must be entered and appended to the message. See id. at col. 19, ll. 26-39. The written description also teaches that entering the addresses of the interface switches, RF receivers, and destination processors may be accomplished by various components, including the originating processor or a gateway switch. See id. at col. 21, ll. 54-56, 65-66 (noting that the address of the receiving interface switch may be added by the originating processor or a gateway switch); id. at col. 22, ll. 10-15, 24-26 (noting that the address of the destination processor may be added by "the originating processor by an operator or a machine using the originating processor" or the gateway switch). However, the mere fact that a constituent component may tack on destination address information to the "originated information" coming from the "originating processor" does not turn that constituent processor into an "originating processor." Gateway switches are separate components from the "originating processor" that can also add address information after receiving the message text from the "originating processor." This is why Campana asserts that the invention is "user friendly" because only a "minimum amount of information ...must be
provided to initiate the transmission of electronic mail from an originating processor to at least one destination processor." Id. at col. 19, ll. 20-25.

The written description further describes how either the "originating processor," "gateway switch," or "interface switch" can be used to add information needed to transmit the electronic mail message, such as addressing data. See id. at col. 22, ll. 24-26 ("The address of the destination processor may also be added to the information originated by the originating processor by the gateway switch."). Figure 11 of the '960 patent visually demonstrates various steps by which the "originating processor," "gateway switch 14," and "interface switch 304" could operate together to add address information to the text of the electronic mail message, i.e., the "originated information":

* * *

See '960 patent, col. 28, ll. 10-13 ("Figure 11 summarizes electronic mail message entry methods for messages (information) originating from originating processors within an electronic mail system." (emphasis added)). The arrows show the flow of the "originated information" from the "originating processor," the first processor in the system where the information is originated, to a gateway switch 14, and then to an interface switch 304. Campana describes the flow of data in the various entry methods. For example, in "entry method 1" the "originating processor" itself adds the appropriate destination address data. Id. at col. 28, ll. 13-17. When the "originated information" then reaches a gateway switch 14, the gateway switch takes no action, because all of the address data necessary at that point has already been added by the "originating processor." By contrast, in "entry method 3," a gateway switch, after receiving the "originated information" from the "originating processor," adds the wireless destination address. Id. at col. 28, ll. 24-29. Although under the various methods enumerated in Figure 11 either the "originating processor," "gateway switch," or "interface switch" may add address information to the electronic mail message, the gateway and interface switches do not initiate the message text of an electronic mail message and, thus, are not "originating processors."

This shows how the "originating processor" merely refers to the first (initiating) processor of the "originated information." A gateway switch is not an "originating processor." While the gateway switch serves as an initiator of address information, as in entry methods 3, 4, and 5, a gateway switch only does this after it gets the "originated information" from the "originating processor." "Originating processor" is not an umbrella term referring to all of the processors that add data into the system, but rather would be understood to one skilled in the art to be the first processor, or the initial source of the "originated information" or email message text. All three different components in Figure 11, an "originating processor," a "gateway switch," and an "interface switch," are initiating address information. "Originating processor" refers to one of these components—the first processor, and not all three. Thus, the "originating processor" is the sole processor that initiates the transmission of the electronic mail message text into the electronic mail system and is separate from the gateway or interface switches.

3001

c. "Originating Processor" and "Originated Information"

The parties dispute the construction of the term "originating processor" recited in the claims of the '960, '670, and '592 patents n6 and "originated information" recited in the claims of the '960, '670, '592, and '451 patents. n7 Claim 1 of the '960 patent, from which claim 15 ultimately depends, again is exemplary and states in pertinent part:

1. A system for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising:

   at least one gateway switch in the electronic mail system, one of the at least one gateway switch receiving the originated information and storing the originated information prior to transmission of the originated information to the at least one of the plurality of destination processors;

   a RF information transmission network for transmitting the originated information to at least one RF receiver which transfers the originated information to the at least one of the plurality of destination processors;
at least one interface switch, one of the at least one interface switch connecting at least one of the at least one gateway switch to the RF information transmission network and transmitting the originated information received from the gateway switch to the RF information transmission network; and wherein

the originated information is transmitted to the one interface switch by the one gateway switch in response to an address of the one interface switch added to the originated information at the one of the plurality of originating processors or by the electronic mail system and the originated information is transmitted from the one interface switch to the RF information transmission network with an address of the at least one of the plurality of destination processors to receive the originated information added at the originating processor, or by either the electronic mail system or the one interface switch...

960 patent, col. 49, ll. 2-38 (emphases added).

--- Footnotes ---

n6 This term appears in all of the asserted claims of the '960 and '670 patents, and in parent claim 25 of asserted claim 40 of the '592 patent. A variation, "originating device," is used in claims 40, 150, 278, 287, 653, and 654 of the '592 patent. "Originating device" was separately construed by the district court and that construction has not been appealed.

n7 This term appears in all of the asserted claims of the '960 and '670 patents. A variation, "originating electronic mail," is used in claims 313 and 317 (both depending from independent claim 311) of the '451 patent. A slightly different variation, "originate the electronic mail," is used in claims 40 (depending from independent claim 1), 150, 278, and 287 of the '592 patent. We treat these variations as being of identical scope and meaning to the term "originating information" as discussed in our opinion.

--- End Footnotes ---

The district court construed "originating processor" as "any one of the constituent processors in an electronic mail system that prepares data for transmission through the system." Claim Construction Order, slip op. at 5. The court construed "originated information" as "the message text of an electronic mail message." Id., slip op. at 6 (noting an exception for the term as used in a patent which is not disputed on appeal).

RIM argues that "originating processor" is correctly construed to mean a processor that initiates or starts the transmission of data through the system, thereby excluding any of the "constituent processors" in the system which subsequently handle the data. It argues that "originated information" is the electronic mail message generated by an "originating processor." RIM argues that its constructions are supported by dictionary definitions of the term "originating" and "originate" which impose an "initiating" requirement on the claims. RIM argues that the '960 patent specification supports this construction, because it describes an "originating processor" as a processor at which an electronic mail message is composed by a person or inputted by a machine.

NTP responds that this dispute centers on whether an "originating processor" can include gateway switches. Before the district court, NTP urged that "originating processor" be construed to include not only "that processor upon which the sender types the message," but also "all of the constituent processors in an electronic mail system that run electronic mail programming to format and initiate transmission of electronic mail messages." NTP's Claim Construction Mem. at 37. NTP argues that RIM's proposed construction is erroneous because it ignores language in the written description specifying that a gateway switch can originate information, and thus would exclude embodiments in the written description. NTP argues that a construction which limited "originating processor" to only processors upon which senders actually type the electronic mail message is not required by RIM's dictionary definitions.

As we shall explain, we conclude that the district court erred in its claim construction of the term "originating processor." The term "originating processor" is properly construed as "a processor in an electronic mail system that initiates the transmission of a message into the system." We do not hold that the "originating processor" is always the processor on which text of the email message was created. As a practical matter this will probably be the case. However, there could be a situation where someone composes an email message on one processor, then perhaps transfers the message from the creating processor to the "originating processor" that initiates the message into the electronic mail system; e.g., by copying onto a disk.
Further, we conclude that the district court did not err in construing "originated information" as "the message text of an electronic mail message." RIM focuses its argument on the term "originating processor." Indeed, RIM presents no independent argument that "originated information" means anything other than the text of an electronic mail message to be transmitted in the electronic mail system. We see no reason to disturb the district court's claim construction of the term "originating information."

We begin with the language of the claims. See PSC Computer Prods., Inc. v. Foxconn Int'l, 355 F.3d 1353, 1359 (Fed. Cir. 2004). Claim 1 of the '960 patent recites:

1. A system for transmitting originated information from one of a plurality of originating processors in an electronic mail system to at least one of a plurality of destination processors in the electronic mail system comprising: ...

    at least one gateway switch in the electronic mail system ...

    at least one interface switch ...

'960 patent, col. 49, ll. 2-19 (emphases added). Construing "originating processor" to mean the processor that is the origin of the email message text comports with the goal of the system--to move "originated information" from the processor where the email message text originated to the processor(s) where it is intended to be received. Moreover, that construction is consistent with the overall context of the claim language. Claim 1 of the '960 patent contains a number of limitations relating to devices that process data, including, inter alia: "a plurality of originating processors," "at least one gateway switch," and "at least one interface switch." See '960 patent, col. 49, ll. 2-25. Nothing in the claim suggests that "a plurality of originating processors" defines a genus which includes the claimed "gateway switch" or "interface switch" as a species. Instead, these limitations are used as three separate, independent limitations to describe the various constituent components in an electronic mail system that prepares and transmits electronic mail messages. There is no antecedent basis in the claim language to signify that "at least one gateway switch" conceptually is contained within "a plurality of originating processors." See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("While not an absolute rule, all claim terms are presumed to have meaning in a claim.").

In addition, as claim 1 above recites, the "originated information" originates from the "originating processor." '960 patent, col. 49, ll. 2-3. Thus, the plain language of the claims indicates that "originating processor" is not referring to every component that initiates data. Rather the "originating processor" is, more precisely, the processor that is the source of the "originated information"--the text of the electronic mail message.

Also, the claim language shows how a gateway switch is not included within the larger term "originating processor," but is rather a separate component from an "originating processor." That is because the "originated information" is transmitted from an "originating processor" to a gateway switch. Indeed, the "originating processor" and the gateway switch initiate different types of data. "Originated information"--the electronic mail message--originates with the "originating processor." By contrast, the gateway switch is never described as being the origin of the "originated information." Rather, it merely "receives" the "originated information" from the "originating processor." See, e.g., id. at col. 49, ll. 8-9; '611 patent, col. 19, ll. 60-63, col. 47, ll. 52-54. A gateway switch may sometimes add or initiate address information such as an address of an interface switch to the "originated information" that it receives from the "originating processor." See, e.g., '960 patent, col. 49, ll. 26-37. However, a gateway switch is not the origin of the "originated information" itself. According to the language of the claims, gateway switches are components that receive "originated information" from an "originating processor" and then sometimes append additional data to the information received from an "originating processor."

The written description is consistent with this interpretation and reveals that two different types of information are "originated" and transmitted within the claimed invention. First, there is "originated information." As the district court correctly held, "originated information" refers to the text of the electronic mail message being transmitted. One could analogize this to the contents of a physical letter one mails to a recipient via the postal system. Second, in the claimed invention there is also what one might call address information or destination information. This refers to an identifier of the intermediate components and/or the destination processor(s) to which the electronic message text should be delivered. See, e.g., '960 patent, col. 24, ll. 31-46 (discussing "address of the interface switch" and "identification number of the RF receiver"). Address information originated from a gateway switch or interface switch is never described as itself the
"originated information" or the "other originated information." Rather, it is described as separate information which is added to the "originated information" which came from an originating processor. See, e.g., id. at col. 21, ll. 54-56 (text notes that the address of the interface switch can be added "to the information originating from the originating processor"); id. at col. 22, ll. 24-26 (text notes that the destination address can be "added to the information from the originating processor"); id. at col. 26, ll. 39-41 (text notes adding information to the "information from the originating processor"); id. at col. 49, ll. 27-29 (claims describe adding "address information to originated information"); id. at col. 50, ll. 7-10 (text describes movement of both "originated information" and identification number in the RF transmission network); id. at col. 54, ll. 49-51 (text notes identification number added to the originated information"). This address information can be analogized to the address contained on the outside of an envelope that one mails with the post office, as well as information added by the post office, such as a barcode, which may direct the envelope through the myriad routes in the postal system. Thus, just as one physically mails a letter with two types of information--the text of the actual letter itself within the envelope and the address information on the outside of the envelope--the claimed invention "originates" two types of information.

From the written description, one skilled in the art would understand an "originating processor" to refer to a processor where "originated information"--the electronic mail message text--is introduced into the electronic mail system. In some cases, this "originating processor" is the point at which some or all of the second type of information, the address information, is added. In other cases, after the "originating processor" sends the "originated information" to a gateway switch, the gateway switch then "originates" and appends additional address information onto the "originated information." A user typing at the originating processor does need to provide at least some address destination information--for example, that the email message is intended for "John Doe." See, e.g., id. at col. 24, ll. 29-30. However, the user need not know precisely through which switches the email message needs to travel within the system to get to John Doe (or even whether John Doe's destination processor is a wireless or wireline processor). In the "most user friendly form" of the invention, the user need only indicate the intended recipient, and the proper address information can be added to the text of the electronic mail message either by the originating processor itself or by later components in the electronic mail system, such as gateway switches and/or interface switches. See, e.g., id. at col. 24, ll. 25-30. This is analogous to how, in the postal system, one need only indicate a destination address, and the postal system sometimes adds barcode information to envelopes which help indicate through which routes within the postal network the letter needs to travel to get to the proper destination.

The term "originating processor" does not encompass every constituent processor that initiates data into the system. "Originating processor" refers more precisely to the processor that initiates the electronic message text into the system. It is correct to conclude that other components besides an "originating processor" "originate" information. For example, components such as the gateway switches originate some of the address information to get the electronic message from the "originating processor" to the proper destination processor(s). However, there is nothing in the written description to suggest that one skilled in the art would blur the distinction between a component such as a gateway switch that sometimes "originates" address information, and an "originating processor," which is a separately labeled and separately claimed component than a gateway switch or an interface switch.

Referring specifically to the written description, Figure 1 of the '960 patent discloses a prior art electronic mail system in which the "originating processor" is depicted as the processor which originates the email message, which is separate and distinct from other constituent components such as gateway switches:

[SEE PRIOR ART IN ORIGINAL]

The specification states that Figure 1 shows that "communications between an originating processor A-N, which may be any of the processors within the groups of associated processors # 1-# 3 or processor # N and a destination processor A-N are completed through the public switch telephone network 12 to one or more gateway switches ...14." '960 patent, col. 2, ll. 23-28 (emphases added). This passage explains that the electronic mail message originates from the "originating processor" and then moves "to" an associated gateway switch. Thus, the "originating processor" is not a generic term referring to all data-generating constituent processors in a system, but more precisely refers to a processor that is separate from the gateway switches. Moreover, the written description repeatedly refers to the "originating processor" where the electronic mail message text is generated. See, e.g., id. at col. 3, ll. 12-21 ("Finally, the message or message text must be entered which is the information that is inputted by the person or machine which is originating the message at the originating processor A-N.

Upon completion of the message text, the user ...enters a series of commands or keystrokes on the originating processor to transmit the message to the gateway switch ..." (emphasis added); id. at col. 19, ll. 29-30 (explaining how, in the claimed invention, the "originating processor" might be associated with "an icon driven display" and a computer "mouse" for the
Components other than an "originating processor" can initiate data. The written description describes how, for example, "the identification of the RF receiver 119 and the address of the interface switch may be implemented by the originating processor A-N of one of the computing systems # 1-# N, a gateway switch 14 or an interface switch 304 ...." Id. at col. 24, ll. 42-46. This shows that three different components can initiate address information: (1) an "originating processor" A-N; (2) a gateway switch 14; or (3) an interface switch 304. However, simply because the "originating processor" is but one of three separate, differently named and labeled components that can serve as the initiator of address information, does not mean that the term "originating processor" covers all of these different components. If "originating processor" referred to all three components, then the specification would simply read "the identification of the RF receiver 119 may be implemented by an originating processor."

The specification makes clear that it may take several processors in Campana's claimed invention to successfully initiate an electronic mail message. As Campana teaches in his written description, to initiate an electronic mail message, the message text must be entered, then the addresses of various interface switches and the receiving destination processor must be entered and appended to the message. See id. at col. 19, ll. 26-39. The written description also teaches that entering the addresses of the interface switches, RF receivers, and destination processors may be accomplished by various components, including the originating processor or a gateway switch. See id. at col. 21, ll. 54-56, 65-66 (noting that the address of the receiving interface switch may be added by the originating processor or a gateway switch); id. at col. 22, ll. 10-15, 24-26 (noting that the address of the destination processor may be added by "the originating processor by an operator or a machine using the originating processor" or the gateway switch). However, the mere fact that a constituent component may tack on destination address information to the "originated information" coming from the "originating processor" does not turn that constituent processor into an "originating processor." Gateway switches are separate components from the "originating processor" that can also add address information after receiving the message text from the "originating processor." This is why Campana asserts that the invention is "user friendly" because only a "minimum amount of information ...must be provided to initiate the transmission of electronic mail from an originating processor to at least one destination processor." Id. at col. 19, ll. 20-25.

The written description further describes how either the "originating processor," "gateway switch," or "interface switch" can be used to add information needed to transmit the electronic mail message, such as addressing data. See id. at col. 22, ll. 24-26 ("The address of the destination processor may also be added to the information originated by the originating processor by the gateway switch."). Figure 11 of the '960 patent visually demonstrates various steps by which the "originating processor," "gateway switch 14," and "interface switch 304" could operate together to add address information to the text of the electronic mail message, i.e., the "originated information":

* * *

See '960 patent, col. 28, ll. 10-13 ("Figure 11 summarizes electronic mail message entry methods for messages (information) originating from originating processors within an electronic mail system." (emphasis added)). The arrows show the flow of the "originated information" from the "originating processor," the first processor in the system where the information is originated, to a gateway switch 14, and then to an interface switch 304. Campana describes the flow of data in the various entry methods. For example, in "entry method 1" the "originating processor" itself adds the appropriate destination address data. Id. at col. 28, ll. 13-17. When the "originated information" then reaches a gateway switch 14, the gateway switch takes no action, because all of the address data necessary at that point has already been added by the "originating processor." By contrast, in "entry method 3," a gateway switch, after receiving the "originated information" from the "originating processor," adds the wireless destination address. Id. at col. 28, ll. 24-29. Although under the various methods enumerated in Figure 11 either the "originating processor," "gateway switch," or "interface switch" may add address information to the electronic mail message, the gateway and interface switches do not initiate the message text of an electronic mail message and, thus, are not "originating processors."

This shows how the "originating processor" merely refers to the first (initiating) processor of the "originated information." A gateway switch is not an "originating processor." While the gateway switch serves as an initiator of address information, as in entry methods 3, 4, and 5, a gateway switch only does this after it gets the "originated information" from the "originating processor." "Originating processor" is not an umbrella term referring to all of the processors that add data into the system,
but rather would be understood to one skilled in the art to be the first processor, or the initial source of the "originated information" or email message text. All three different components in Figure 11, an "originating processor," a "gateway switch," and an "interface switch," are initiating address information. "Originating processor" refers to one of these components—the first processor, and not all three. Thus, the "originating processor" is the sole processor that initiates the transmission of the electronic mail message text into the electronic mail system and is separate from the gateway or interface switches.

3002

Originating switch

The Court adopts Ciena’s proposed construction and construes the term as “the first packet switch to forward a packet destined for the destination switch.” Nortel argues that the term should be construed as “the first path-oriented packet switch along the preferred path that serves to forward a packet destined for the destination switch.” For the same reasons discussed above, the Court rejects Nortel’s use of the term “path-oriented packet switch.” Accordingly, the Court construes the term without including “path-oriented.”

3003

I. "originating telephone number assigned to the caller"

Stanacard argues that the term should be given its plain and ordinary meaning or, in the alternative, be construed to mean "telephone number given to a caller from which the caller initiates a call." Rebtel seeks to define this term to mean "telephone number preprogrammed by the caller to correlate to the caller."

By the words of the claim term itself, the originating telephone number is one assigned "to the caller," meaning that it is a number assigned by someone else to the caller. The specification also explains that the "originating telephone number" is the phone number from which the caller initiated or placed the call. See '156 Patent, col. 3:54-56, 5:22-24, 6:43-48. The originating telephone number is thus the caller's own telephone number which was provided by the caller's telephone company. This is properly reflected in Stanacard's proposed alternate definition, "telephone number given to a caller from which the caller initiates a call."

Rebtel's definition attempts to introduce the requirement that the originating number is one that must be "preprogrammed by the caller" to be associated with his or her account in the system. As discussed supra in Sections IV.B & D, the introduction of the "preprogrammed" language into the claim definition would improperly limit the scope of the claim. Nor does the lack of disclosure of how, when, and by whom the number is assigned require the adoption of Rebtel's proposed definition.

The claim limitation "originating telephone number assigned to the caller" is therefore defined to mean “telephone number given to a caller from which the caller initiates a call.”

3004

A. "originator"

Rejecting the parties' proposed definitions of "originator," the magistrate judge recommended that "originator" be construed as: "A party who originates the transaction for exchanging information documents or for initiating payment via an electronic check or a payment transaction for goods and services from a recipient." First Report at 3, 11. No objections have been filed with respect to the magistrate judge's proposed construction. After careful review of the magistrate judge's findings and conclusions, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "originator" in patent '878 is correct, and it is hereby accepted as the court's construction of "originator."
A. Oscillator

In construing the claims in question, the Court first looks at the term "oscillator" found in the claims of Trilithic's '428 patent, specifically in claims 1, 8, 15, and 22. Those claims contain the element "an oscillator for generating at an oscillator output a signal having a frequency within the AGC bandwidth." '428 patent, col.9, ln. 29-31; col. 10, ln. 8-10, 59-61; col. 12, ln. 1-2. Most of the remaining claims of the '428 patent contain the word "oscillator." See generally '428 patent. Both parties appear to agree that the term "oscillator" is given no special meaning in the claims, the specification or the prosecution history. Tr. at 91. Def.'s Post-Hearing Br. at 12. Therefore, the term should be given its ordinary meaning in the context of the '428 patent. Renishaw, 158 F.3d at 1249. Accordingly, it must be determined what a person of ordinary skill in the art would have understood that term to mean as it applies to the patent.

Conflicting testimony has been presented to the Court concerning the ordinary meaning of the term "oscillator." After testifying early on in the hearing that an oscillator is an instrument that produces oscillations, Silva presented a definition of oscillator from the McGraw-Hill Dictionary of Scientific and Technical Terms ("McGraw-Hill Dictionary") as being an accurate, commonly understood definition of oscillator from a respected source. Tr. at 46, 88; Pltf.'s Ex. 9 at 1414 (McGraw-Hill Dictionary of Scientific and Technical Terms 1414 (5th ed. 1994)). That dictionary defines "oscillator" as "an electronic circuit that converts energy from a direct-current source to a periodically varying electronic output." Pltf.'s Ex. 9 at 1414. Silva explained that such a definition was consistent with how an oscillator would be used with a heterodyning circuit or with a modulator. Tr. at 90. He stated that the definition was an accurate description of how a person of ordinary skill in the art would understand the term "oscillator." Id. at 91-93.

Wavetek suggests that Trilithic's definition from the McGraw-Hill Dictionary is too broad and is not the ordinary meaning that a person of ordinary skill in the art, reading the claims in the context of the '428 patent, would give the term. At the hearing, Large explained that a person of ordinary skill in the art would understand "oscillator" within the context of the '428 patent to describe "essentially one family of circuits which has some kind of a gain control or amplifier and has some kind of frequency sensitive feedback such that a portion of the output of the amplifier is fed back in phase to the input of at least one frequency." Id. at 214. Large submitted a definition of oscillator that defines oscillator as "a circuit that consists primarily of an amplifier in which some portion of the output is applied, in phase, to the input to produce a periodically-varying output." Id. at 243; Def.'s Dem. Ex. 18. This definition was derived from a description given in the Encyclopedia of Electronics ("Encyclopedia"), which reads:

an oscillator is a circuit designed specifically to produce electric oscillation. All oscillators use the feedback principle. Although there are many different types of oscillator circuits, they all consist basically of an amplifier in which some of the output is applied, in phase to the input. . . . Specialized devices, such as the Gunn diode and the klystrom tube produce oscillation because of negative-resistance effects.

Def.'s Ex. 9 at 606 (Encyclopedia of Electronics 606 (2nd ed.)).

Large explained that the definition from the Encyclopedia came closest to how he believed a person of ordinary skill in the art would define oscillator. Tr. at 214-15. He modified the definition because there are oscillators that do not have a discreet amplifier or discreet feedback, though Large quickly noted that such oscillators would not be suitable for the '428 patent. Id. at 215. In response to Silva's remark that there is no evidence in the specification that the output of the low frequency oscillator depicted in Figure 1 is tied back into the input, Large commented that he would not expect to see internal parts of the oscillator, such as a feedback loop, depicted in a block diagram. Id. at 91, 219-20. Commenting on the awkwardness of such a definition, Silva did acknowledge that he would agree with the Encyclopedia's definition if it read to the effect that an oscillator is either an amplifier with a positive feedback or a multi-vibrator, a negative resistance device, or an atomic standard oscillator which provides a periodically varying output. Id. at 153-54. Large acknowledged that his definition, which did not contain the word "all," could not be found in the patent claims, specification, file history, or in any dictionary or article. Id. at 243. According to his testimony, Large issued his opinion based on his understanding of the technology and how he believed the term would be interpreted by people of ordinary skill in the art. Id. at 259.

Finding additional fault with Large's proposed definition, Silva pointed out that specifically, frequency synthesizers, a type of oscillator, do not have feedback. Id. at 168. In response to that criticism, Large explained that while a frequency
synthesizer may contain an oscillator output, the instrument in its entirety is not an oscillator. Id. at 221-22. Furthermore, he posited that an average equipment designer in 1993 or 1994 would not have considered using a frequency synthesizer for the low frequency oscillator in the context of the '428 patent. Id. Large also stated that direct digital synthesizers would not be considered an oscillator by a person of ordinary skill in the art. In an attempt to show that Large's understanding of oscillators was deficient, Trilithic directed Large's attention to an excerpt from a book and a product information sheet from Stanford Telecom. Id. at 257-59; Pltf.'s Exs. 90 & 91. Both documents referenced a direct digital synthesizer as a type of oscillator. Id. Large answered that although he had not researched such items when forming his definition, such evidence did not alter his opinion on the definition of an oscillator. Id.

Wavetek has attempted to make the issue of the "oscillator" claims one of whether the definition should include wording to the effect that oscillators generally have some portion of the output applied to the input. Both experts would likely agree that a person of ordinary skill in the art has a general idea of what an oscillator is. Trilithic has offered a more all-encompassing definition of an oscillator than has Wavetek. Trilithic's definition, though not stating that some oscillators work on the feedback principle, does not rule out such a conclusion. The Court does not accept the argument that a person of ordinary skill in the art would be so puzzled as to what an oscillator is or as to what type of oscillator to use in the context of the '428 patent that the term must be defined as operating on a feedback principle before a person of ordinary skill in the art would understand it. Accepting Silva's testimony as accurate, the Court interprets oscillator as "an electronic circuit that converts energy from a direct-current source to a periodically varying electronic output," thereby giving the term its plain and ordinary meaning. Such a reading is not disingenuous to the context of the oscillator's use in the '428 patent. The Court finds this definition from the McGraw-Hill Dictionary to be a reliable source for determining how a person of ordinary skill in the art would define the term "oscillator."

The Court notes that both experts agreed that the description of "oscillator" in the Encyclopedia was not exactly accurate. At Large's own admittance, his definition was not found in any patent, dictionary or article, and accordingly, is not as good of a source for an ordinary and plain definition of the term as is the definition from the McGraw-Hill Dictionary. Even assuming that Large is correct in his statement that a person of ordinary skill in the art would know that in many oscillators some portion of the input is applied in phase to the output, the person or ordinary skill can apply that knowledge in choosing an oscillator in the context of the '428 patent. There is no intrinsic evidence that suggests the term oscillator should not be given a broader definition.

The '428 patent is not concerned with the development of a specific type of oscillator. The testimony of both experts indicates that people of ordinary skill in the art know generally how an oscillator works, know that some run on the feedback principle, and know what types of oscillators could properly be used in the '428 patent. How an oscillator works is not the pertinent inquiry in reading this patent. The emphasis instead is on what an oscillator accomplishes. Therefore, the definition does not have to include a description of how an oscillator works. A person of ordinary skill in the art will know that and know how a particular oscillator will operate within the context of the '428 patent. Accordingly, it is enough in the context of this patent that the oscillator be given its plain and ordinary meaning, one that a person of ordinary skill in the art would give the term. The McGraw-Hill Dictionary definition, as given by Silva, meets that requirement.

The plaintiffs contend that no construction is necessary, but if a construction is required, they propose "the oscillator generates the signal(s) used for timing the operation of the CPU." The defendants propose "an oscillator that is itself determining the frequency of the signal(s) used for timing."

The Court agrees that the term requires construction. The Court construes the term to mean "an oscillator that generates the signal(s) used for timing the operation of the CPU."
9. "out of band signal"

Dependent claim 9 provides that "K2 is selected so that the out of band signal is less than a given level." Subsequent to the parties' briefing and argument on this term, the parties have agreed by letter to the Court, dated April 7, 2010, that the term "out of band signal" means "power outside the frequency band." However, Defendants still argue that claim 9 is invalid for failing to meet 35 U.S.C. § 112. The Defendants do not argue that "out of band signal" is indefinite, but that the subsequent phrase "less than a given level" is indefinite. It appears that Defendants did not contend that "less than a given level" needed to be construed, or that the specific phrase was indefinite, until the Defendants' responsive claim construction brief. Thus, Wi-LAN did not provide any proposed construction for the term and instead argued that the term "out of band signal" was not indefinite and had a particular meaning.

The Court finds that the phrase "less than a given level" is not indefinite. A claim is indefinite only if the "claim is insubordinately ambiguous, and no narrowing construction can properly be adopted." Exxon, 265 F.3d at 1375; Honeywell, 341 F.3d at 1338-39. This term is not "insubordinately ambiguous" so as to prevent construction. See Young, 492 F.3d at 1346 (claims are considered indefinite when they are "not amenable to construction or are insubordinately ambiguous"). The specification contains examples from which one of ordinary skill in the art could determine the scope of the claim. For example, the "two tail slots act as guard bands to ensure that the out-of-band signal is below a certain power level" and "to ensure that the out-of-band signal is ydB or less relative to the in-band signal…" 222 patent, 5:36-44; 6:46-48. The specification then provides an explicit example of what, in a particular instance, the "less than a given level" should be: "[t]he two tail slots of 195.3 KHz each (i.e. 8 points each) ensure that the signal outside the entire band of 100.39 MHz is below -50 dB." 222 patent, 7:57-60. In addition, the specification teaches that "to allow use of the radio frequency spectrum…[th]e system must satisfy federal regulations…[th]at impose limits on the power and the frequency spread of the signals exchanged…." 222 patent, 1:50-54. The Court finds that there is sufficient guidance in the specification as to the meaning of "less than a given level" to one of ordinary skill in the art. See Exxon, 265 F.3d at 1375 ("If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds."). The Court rejects Defendants' argument that because the "level" in the claim is unspecified, no meaningful bound is placed on the patent claim. Consistent with the parties' agreement, the Court construes the term "out of band signal" to mean "power outside the frequency band." The Court finds that the term "less than a given level" is not indefinite. The Court construes the term "less than a given level" to mean "less than a given power level to satisfy federal regulations."

C. "In-Band Telecommunications Signaling" and "Out-Of-Band Telecommunications Signaling"

Claim 38 of the '572 patent recites the term "in-band telecommunications signaling." Sprint contends that this is a term of art that should be construed to mean signaling that is sent on the same channel as that used for voice or data, whereas Vonage contends that it should be construed to mean signaling transmitted on the actual communications path. This claim also recites the term "out-of-band telecommunications signaling." Again, Sprint contends that this is a term of art which should be construed to mean signaling that is sent on a distinct channel from that used for voice or data, whereas Vonage contends that it should be construed to mean signaling message that is not transmitted on the actual communications path.

The crux of the parties' dispute is whether characterization of signaling as in-band or out-of-band is determined by whether that signaling is transmitted on the same or separate channels (Sprint) or by whether it is transmitted on the same or separate communication paths (Vonage).

Vonage relies on language included in the specification which addresses the nature of in-band and out-of-band signaling, as follows:

As is known in the art, in-band signaling is typically used in many user to network connections, such as the local loop. This is because only one connection or link is typically provided to the user premises and thus, the signaling must be placed on the actual communications path. The initial network switch typically removes the signaling from the communications path and transfers it to an out-of-band signaling system. The current invention is fully operational in this context. Although the switch may receive the signaling initially, it will only route the signaling to the CCP for processing. Even if in-band signaling is used within the network, the switches could remove signaling from the communications path and route it to the
'572 Patent at 7:50-63. Sprint, on the other hand, relies on Vonage's experts' understanding of the terms "in-band" and "out-of-band." Frank Koperda, Vonage's invalidity expert, stated in his expert report that "in-band" signaling is the exchange of signaling information . . . within the same channel that the telephone call itself is using and that out-of-band signaling is telecommunication signaling that is done on a channel that is dedicated for the purpose and separate from the channels used for the telephone call." Also, Joel M. Halpern, Vonage's noninfringement expert, testified in his deposition that out-of-band signaling "has to be in a separate band, a separate recognizable channel."

The evidence from Vonage's experts clearly views the teens "in-band" and "out-of-band" as being distinguished with respect to a channel, which leads the court to believe that these might be terms of art, as Sprint contends. In an attempt to understand the distinction between a "channel" and a "communications path," the court has consulted a technical dictionary to determine the meanings of the relevant terms as they would have been understood by a person of ordinary skill in the art at the time of the invention. "In-band signaling" means "[s]ignaling made up of tones which pass within the voice frequency band and are carried along the same circuit as the talk path that is being established by the signals." Harry Newton, Newton's Telecom Dictionary 537 (7th ed. 1994). "Path" means "[t]he route a telecommunications signal follows." Id. at 773. "Out-of-band signaling" means "[s]ignaling that is separated from the channel carrying the information -- the voice, data, video, etc." Id. at 756. "Channel" means "a voice-grade transmission facility with defined frequency response, gain, and bandwidth. Also a path of communication, either electrical or electromagnetic, between two or more points." Id. at 217.

The common and ordinary meanings of these words can be harmonized with the excerpt from the specification. In discussing "in-band signaling," the specification explains that only one connection or link is typically provided to the user premises and therefore the signaling "must be placed on the actual communications path." '572 Patent at 7:52-53. The initial network switch typically "removes the signaling from the communications path." Id. at 7:55-56. The specification further explains that even if in-band signaling is used within the network, the switches "could remove signaling from the communications path." Id. at 7:60-61. The technical definition of in-band signaling refers to the "talk path," and the term "path" means the route a telecommunications signal follows. With respect to the claim term "in-band," then, the intrinsic record establishes that its meaning is defined with respect to the communications path. There is no suggestion in the intrinsic record that it should be defined in terms of a channel. Consequently, the court must discount the expert opinions that are at odds with this intrinsic evidence. Accordingly, the court construes the claim term "in-band telecommunications signal" to mean signaling that is sent on the same communications path as that used for voice and/or data.

The specification does not, however, indicate that the claim term "out-of-band telecommunications signaling" must necessarily be construed as the counterpart to in-band telecommunications signaling. The specification sheds light on the meaning of the claim term "out-of-band telecommunication system," in that the network switch removes the "signaling from the communications path and transfers it to an out-of-band system." Certainly, this indicates that out-of-band means removing the signaling from the communications path. This is not inconsistent with what appears from the record to be the generally accepted meaning of the term within the telecommunications industry, which is that out-of-band signaling is signaling that is separated from the channel carrying the voice and/or data. And, defining out-of-band signaling in terms of a separate channel is also consistent with Vonage's experts' apparent understanding of this term. Thus, the court is persuaded that "out-of-band" signaling is indeed a term of art defined in terms of the channel, as suggested by Sprint. Accordingly, the court construes the claim term "out-of-band telecommunications signaling" to mean signaling that is sent on a separate channel from that used for voice and/or data. 1

1 The court recognizes the seeming incongruity in construing "in-band signaling" in terms of the communications path while construing "out-of-band signaling" in terms of a separate channel. But, this actually comports with the commonly understood meanings of those terms, as illustrated by the dictionary definitions set forth above. Moreover, the distinction is attributable to the "communications path" language included in the specification with respect to "in-band" signaling. In the absence of that language in the specification, the court would be inclined to construe both of the terms in light of the "channel" distinction.
I conclude that the term "purchase card outlet" as used in claim 1 of the '181 patent means a retail establishment, regardless of type, where purchase cards are offered for sale. I have adopted a modified version of defendant's proposed construction that resolves plaintiff's concern that defendant's proposed construction would create ambiguity. Plaintiff agrees that a "purchase card outlet" is a place where purchase cards are offered for sale. Plt.'s Resp. Br., dkt. 44, at 14. Its problem with the construction is that "retail establishment" could be understood to include only "bricks and mortar" retailers, that is, a physical retail building where a person can walk in and make a purchase, as opposed to including internet retailers. However, leaving "outlet" to its plain and ordinary meaning does not resolve this ambiguity. See, e.g., New Oxford American Dictionary 1208 (2d ed. 2005) ("outlet" -- "a place from which goods are sold or distributed: a fast food outlet. . a retail store that sells the goods of a specific manufacturer or brand: [as adj.] an outlet store.") Addition of the phrase "regardless of type" removes the ambiguity. Further, defendant agrees that the term should not be limited to a specific type of retail establishment. Def.'s Resp. Br., dkt. 45, at 12. Therefore, adding "regardless of type" is proper.

Additionally, I note that the specification's consistent use of "retail establishment" to define where a consumer can obtain a purchase card supports defining "outlet" as a "retail establishment." The specification does not use the term "purchase card outlet" to refer to the location where purchase cards are sold; instead, it refers to "retailers" or "retail establishments." See, e.g., '181 Pat., col. 3, lns. 4-6 ("a currency conversion must take place via an intermediary web site or the Internet or in a 'bricks and mortar' retailer"); lns. 7-8 ("a pre-paid purchasing card is to be offered by the retailer"); lns. 9-10 ("The consumer would visit the retail establishment 32 . . . to buy 31 one or more purchasing cards."); lns. 43-45 ("the retailer may also receive a fee from the purchasing intermediary for each purchasing card which was purchased at their retail establishment"); and lns. 46-47 ("The consumer then buys the purchasing card 40 at the retailer establishment 32"). "[W]hen a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term 'by implication.'" Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Accordingly, "outlet" as used in claim 1 of the '181 patent means "retail establishment," regardless of type.

9. Claim 6: Step (d)

Text:

(d) outlining the outer surface of the lesion in at least one of said ultrasound images; and

'026 Patent, col. 12, ll. 52-53.

NOMOS's Proposed Construction:

Step (d) should be interpreted as identifying the surface of the lesion in the ultrasound image and creating an outline of the surface of the lesion. This outlining may, for example, be accomplished using a conventional software program. Several methods were available at the time of the '026 patent to accomplish this. One embodiment of "outlining" would require a physician to trace a line on an image of the lesion, which was projected on a workstation display. Another embodiment would require the physician to adjust the contrast of the image so that the surface of the lesion was well defined. Another embodiment would use image processing algorithms that automatically identify the surface of the lesion.

NOMOS Opening Brief at 15 (citations omitted).

ZMED's Proposed Construction:
This step requires taking the two dimensional ultrasound image created by the probe and using the computer to draw a line along the surface of the lesion in that image.

ZMED Opening Brief at 27.

Construction:

Step (d) means "using computer software either to draw a line around the image of the surface of the lesion manually or through image processing algorithms that automatically identify the surface of the lesion, in at least one of said ultrasound images."

Commentary:

The term "outlining" is clarified by reference to intrinsic evidence (the specification and prosecution history). The specification states:

the outer surface of the lesion in each ultrasound image is outlined, such outlining being performed by a conventional software program, such as in the radiation treatment planning system previously described, which permits a physician to outline the outer surfaces of each ultrasound image, in a similar manner in which the outer surface of lesion was outlined on the diagnostic images, or slices . . . .

'026 Patent, col. 7., ll. 32-40 (figure numbers omitted). The "radiation treatment planning system previously described," is of no help.

I conclude that a person skilled in the art would interpret the word "outline" to mean using computer software either to draw a line around the image of the surface of the lesion manually or through image processing algorithms that automatically identify the surface of the lesion, in at least one of said ultrasound images. See Electro Med. Sys., S.A., v. Cooper Life Scis., Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("Claims speak to those skilled in the art."). It does not include adjusting the contrast to see the surface of the lesion better.

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2. "Output buffer having a p-channel transistor and an n-channel transistor" (Claim 1)

Agere argues that the Court should find that this term is clear on its face and not in need of construction, while Broadcom argues that it should be construed as a device "known as a push-pull output buffer." Agere's expert, Dr. Blalock, testified that a person of ordinary skill in the art would understand this term to be self-explanatory. (See Blalock Rep. P 21.) Broadcom's expert, Dr. Fair, disagrees with this assessment, arguing instead that a person of ordinary skill in the art would understand the claim to describe only a push-pull output buffer because that is the only type of output buffer described in the specifications. (Fair '802 Rep. P 39.) Under Federal Circuit law, however, a claim term cannot be limited to its preferred embodiments absent evidence of a "clear disclaimer." See In re Am. Acad. of Sci. Tech Cent., 367 F.3d 1359, 1369 (Fed. Cir. 2004). Broadcom points to no evidence showing such a disclaimer. By contrast, Agere correctly notes, and Broadcom's expert agrees, that the patent does not contain language limiting the claim either to the specified embodiments or to push-pull buffers. (R. at 144 (May 7, 2004) ("It's a fact that [a structure drafted pursuant to the claim text] doesn't need to be a push-pull buffer . . . .") (Fair).) Thus, the Court declines to adopt Dr. Fair's limitation. Furthermore, in the absence of any other evidence contrary to Dr. Blalock's testimony that a skilled artisan would understand the term at issue without further construction, the Court finds that the term's customary meaning is self-explanatory.

Given that the term has a customary meaning to one of skill in the art, Broadcom can only prevail on its construction by showing that the patentee "manifestly" defined the term differently than the customary meaning. Teleflex, 299 F.3d at 1325. In support of this argument, Broadcom provides two rationales. First, Broadcom repeats its argument that all of the embodiments of the patent described in the specifications show push-pull buffers. (See R. at 141-42 (May 7, 2004) (introducing expert testimony that push-pull buffers are "preferred and only embodiments" of claim in specifications).) As stated above, however, there is no basis for limiting this claim term to its specified embodiments. Second, Broadcom argues
that the device simply would not work on any type of output buffer other than a push-pull buffer. Agere's expert, Dr. Blalock, disputes this claim as a technical matter, testifying that a person of skill in the art could design a non-push-pull buffer that would function properly with the patent. (Blalock Rep. P 21.) Broadcom's expert does not entirely dispute Dr. Blalock's testimony, noting instead that while it would be theoretically possible to use the patent with a non-push-pull buffer, there is "no guarantee" that such an implementation would function properly, and "substantial experimentation" would be needed to determine whether it would suffice. (R. at 144-45 (May 7, 2004).) The Court does not find Dr. Blalock's testimony sufficient to require limiting an otherwise clear and broad claim term, for it is not the patentee's burden to demonstrate every conceivable embodiment of the patent in order to avoid judicial narrowing of the claim. See Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001) (noting that specifications "need not present every embodiment or permutation of the invention"). Stated differently, the mere fact that there is "no guarantee" that the device would work with other types of buffers is not a "manifest exclusion" that would limit a broad claim term to a single embodiment thereof. Accordingly, the Court rejects Broadcom's proposed construction and agrees with Agere that this term is not in need of construction.

3012

ii) "output current set point data"

Power-One proposes this term means "data used to specify an output current level," while Artesyn proposes this term means "data provided to a POL regulator specifying the desired output current level for the POL regulator." Much of the analysis above applies here. Claim 4 of the '798 patent provides for the "power control system of claim 1, wherein said initial configuration data includes at least output current set point data corresponding to a desired maximum current level of said output." The '798 specification equates "output-current-set point data" with the "highest desired output current." See '798 patent, col. 2:13-14. Accordingly, the Court adopts Artesyn's proposed construction and construes "output current set point data" as "data provided to a POL regulator specifying the desired output current level for the POL regulator." GO BACK

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12. "output data"

Power-One proposes "data reflecting information affecting the provision of power to the load," while Artesyn proposes "real-time generated data reflecting information affecting the provision of power to a load." The dispute with respect to this term is whether the '999 patent's prosecution history shows that the data must be "real-time generated." A prosecution history disclaimer must be clear and unambiguous. See Sorensen v. International Trade Com'n, 427 F.3d 1375, 1378 (Fed. Cir. 2005) ("in order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution."). Artesyn contends that during prosecution of the application that originally issued as the '999 patent, the claims were rejected over a prior art reference that disclosed a system including a "power-supply regulator 211" and a "look-up table 213" described by the patent examiner as "storage device 213." See Office Action, Mailed Jun. 3, 2004, for U.S. Patent Application No. 10/388,831. Artesyn argues that the applicant distinguished the claimed subject matter from the prior art on grounds that the "output data" in the "storage device" recited in the claim must be "real-time" data (as opposed to the type of data stored in the prior art device):

Since it is clear that the power supply controller 211 does not transmit output data, as discussed above, it further follows that there is no "storage device adapted to store said output data." The look-up table 213 cannot perform this function because, inter alia, it is not in communication with any device providing a "power supply controller." Further, a look up table generally contains an index of predetermined data and is not used to store real-time generated output data.

Id. Power-One contends that nothing in this passage concerning look-up tables can be fairly interpreted as a disclaimer of all but "real-time" output data in all the claims. The Court agrees. In the cited passage from the prosecution history, the applicant distinguished the prior art reference because it "does not transmit output data" and because it does not include a "storage device" that is in communication with any device providing a power supply controller. While the applicant further argued that a "look up table generally" is not used to store "real-time generated output data," the Court cannot conclude that
this passage constitutes a clear and unambiguous disclaimer of all but "real-time generated data." Thus, the Court construes "output data" as "data reflecting information affecting the provision of power to the load."

MASTER'S CONSTRUCTION

The term "output device" (# 1) appearing in this construction has been previously construed by the Master and that construction is incorporated by reference into this construction.

REASONS

INTRINSIC EVIDENCE

Patent claim 14 states that the output device is for using images obtained by the input device to enable image data to be communicated to a user of the system. Examples may include but are not limited to: cathode ray tube displays; television monitors; LCD panels and screens; EMM memory and dish memory; digital film recorders; post script color printers, raster driven film recorders and fast-driven printers.

The ordinary meaning of the term "output device" as used in the context of the Patent in the Specification and claims has been applied. This is what a person of ordinary skill in this art would understand the term to mean. The construction is consistent with the file history. Applicant refers to "output devices that enable image data to be communicated to medical practitioners" [Applicant's Response (Bates LUM 0000191) to Examiner's Office Action of April 18, 1994 under "REMARKS" p. 4, 2ND P, Ls. 6-7; (Bates LUM 0000194)].

EXTRINSIC EVIDENCE

Testimony given by Branson in the Markman Hearing is consistent with the above intrinsic evidence in the Patent (Markman Hearing, Branson Tr. 41:10-16).

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's construction is set forth in (Luma May 4, 2005, p. 1).

Luma's construction requires "storing". While "storing" is not excluded, it is not required by the output device if the output device otherwise functions within the Master's construction. The phrase "enable image data" needs to be part of the construction and is not found in Luma's proposed construction.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth in (Stryker May 23, 2005, p. 2).

Stryker argues that "output device" does not need to be construed. Luma has requested that it be construed and Luma is entitled to construction of the term.
Stryker argues that Luma is proposing construction for selective claims terms and by doing this is inappropriately offering piecemeal construction for the term "output device" that is devoid of the context of the claim. Stryker argues that Luma's proposed construction is contradicted by the language of the Claims and Specification of the Patent.

In response to this point, the Master believes that the "output device" however construed will be limited by any other term language in the entire claim. The correct analysis for Stryker would be to insert the Master's Construction for "output device" and then Stryker can assert all the remaining language in the claim that Stryker believes limits the Master's Construction of "output device" when determining the meaning of the entire claim.

Stryker argues for "images" and "image data". The Master has included "images" and "image data" in the Master's Construction.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA, May 23, 2005, Sheet 3).

KSEA's position is that the plain meaning of the term should be applied. This is what the Master has done consistent with the evidence.

Output Device for Outputting a Rhythmic Piece

This phrase is found in claims 11, 18, 27, and 46. The parties agree that "output device" is "an apparatus for signaling an output," and that "rhythmic piece" is "a work that includes a sound pattern or beat." Defendant MadCatz, however, proposes that the entire phrase should be construed to mean "loud speaker" because the only device that can output "a sound pattern or beat" is a loud speaker. However, the Court sees no reason to construe this language because an appropriate understanding of the phrase may be reached from the ordinary meaning of the claim language in conjunction with the agreed constructions of "output device" and "rhythmic piece." Further, if Court were to construe the phrase it would not adopt MadCatz construction because it seeks to improperly import limitations into the claims from the specification.

"We begin our claim construction analysis, as always, with the words of the claim." Teleflex, 299 F.3d at 1324. The ordinary meaning of this claim language embraces the purpose of the output device, indicating that its function is to output a "rhythmic piece." Thus, the claim language does not specify the type of "output device" contemplated, rather, it simply requires that the claimed "output device" be capable of "outputting a rhythmic piece." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("The terms used in the claims bear a presumption that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art."). In light of the assistance provided by the agreed constructions of "output device" and "rhythmic piece," a juror could arrive at a proper understanding of this phrase without need to resort to MadCatz's construction. Further, even assuming the plain and ordinary meaning of this claim language were insufficient to understand what is claimed, the Court would nonetheless decline to adopt MadCatz's construction because it improperly limits the meaning of this phrase.

MadCatz contends that a "rhythmic piece," is necessarily an auditory piece, in turn necessitating that the "output device" be a "loud speaker." In support, MadCatz points to specification excerpts referring specifically to "speakers," as well as Figure 2, which depicts speakers as a part of the claimed apparatus. 3:18-19; 3:32; 4:9-11; 7:27, 55; 9:54; 12:54. However, all of these excerpts appear in the preferred embodiment and cannot overcome the presumption that the claims' more general meaning should control. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d at 1366. Konami also points out that the parties agreed to construe "rhythmic piece" to mean "a work that includes a sound pattern or beat" and they go on to argue that a "beat," can include tactile or light signals, which do not require a "loud speaker" for output. n3 The Court agrees with Konami that "rhythmic piece" should not be so narrowly construed. Accordingly, the Court will not construe "output device for outputting a rhythmic piece," and additionally finds MadCatz proposed construction to be inappropriate.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -
n3 Tactile or light signals would accommodate a hearing impaired player.

--- End Footnotes ---
Fiori claims that the output amplifier (65) generates a destination signal and a corresponding destination reference signal which is described in the specification as a return reference potential which is substantially equal to the output reference ground connected to cable 58 such that this destination signal is the result of the intermediate signal minus the received reference signal plus the destination reference. Accordingly, the destination signal is the output of the operational amplifier 65 and is the resultant end of the intermediate signal which is the output of 63 minus the ground reference potential signal at 18 plus the output reference ground connected to cable (58). The output portion has an output connection for transmission of the destination signal, shown as the connection to cable 58. The '148 Patent, column 4-5.

n23 This is described in the specification as being essential for the system to work. See '148 Patent, column 6, lines 22-29.

n24 Rockford argues that the function for the output portion specifies a gain factor of one (1), also called a "unity gain," because the claims call for a circuit to add and subtract signals without multiplication. (Def.'s Markman Br. at 19.) Defendant also asserts that the corresponding structures of the "means" include transformers of the power supply transformer because isolation is required to perform the function, and the transformer provides the isolation. Id.

n25 Rockford concludes that in contrast, "input portion" includes the word proportional and therefore allows for multiplication. Rockford alleges that neither the specification nor the prosecution history provides a special meaning for "plus," "minus," "proportional," or "resultant." (Def.'s Markman Br. at 22.) Rockford argues that the ordinary meaning of the words defining "destination signal" specify a gain factor of one (1). According to Rockford, the phrase "said intermediate electrical signal" refers to the identical signal defined in the limitation for the input portion. "Minus" is the operation of subtraction. "Plus" is the addition of two quantities. The claimed function is like 1+1=2. It adds and subtracts terms without any multiplication. The absence of multiplication is a gain factor of one (1).
Commonly the claims are drafted by the inventor's patent solicitor and they may even be drafted by the patent examiner in an examiner's amendment (subject to the approval of the inventor's solicitor). While presumably the inventor has approved any changes to the claim scope that have occurred via amendment during the prosecution process, it is not unusual for there to be a significant difference between what an inventor thinks his patented invention is and what the ultimate scope of the claims are after allowance by the PTO.

Markman, 52 F.3d at 985.

As a matter of law, the Federal Circuit's position is clear that Fiori's testimony is irrelevant to the matters which presently face this Court. Thus, Rockford's proposed construction, which relies on Fiori's testimony, is erroneous and unsupported. The output stage of claims 1 and 17 are defined in the specification as a second op-amp. The output portion (e.g. 65), described as being separate and independent from the input op-amp (e.g. 63), is demonstrated in Figure 1 of the '148 Patent. The output portion is a physical structure clearly defined as element 65 in columns 4 and 5 of the specification and the prosecution history of the '148 Patent.

6. "Output Section," "extracts said video and audio components from said storage device," and "assembles said video and audio components into an MPEG stream"

TiVo argues no construction of these terms is needed, or, if construed, should mean "hardware and/or code that takes program data from memory and brings it together as an MPEG stream for playback." See TiVo's Op. Br. at 15-16; '389 patent at cols. 4:23-33, 4:45-54, 5:33-6:15, 7:12-16; TiVo's Markman Slides at 122-31.

EchoStar argues "Output Section" is specially defined by the '389 patent as "a separate module that decodes an MPEG stream and produces TV output signals." See '389 patent at cols. 3:65-4:6 & Figs. 1 & 13; EchoStar's Opening Br. at 19-20; EchoStar's Slide Presentation at 99-104.

EchoStar further argues "said Output Section extracts said video and audio components from said storage device" means "the Output Section must obtain the separate video stream and audio stream from the storage device." See EchoStar's Opening Br. at 14; EchoStar's Slide Presentation at 76-98.

EchoStar further argues "said Output Section assembles said video and audio components into an MPEG stream" means "the Output Section must multiplex the separate video stream and audio stream into one MPEG Systems stream." See EchoStar's Opening Br. at 14; EchoStar's Slide Presentation at 82, 98.

The Court finds it need look no further than the claims themselves to define these terms, as the specification does not explicitly define them, and the claims are presumed to represent the understanding of those of ordinary skill in the art. See '389 patent at cols. 12:53-55, 15:35-37; TiVo's Op. Br. at Gibson Decl. P 38 (corollary of definition of "Input Section" for "Output Section" is the portion of a device that receives outputs). The plain and ordinary meaning of an "Output Section" to one of ordinary skill in the art is "the portion of a device that decodes data from memory and produces output signals." This definition is consistent with the use of the term in claims 1 and 32 and the context of the specification.

The Court finds it unnecessary to construe "extracts said video and audio components from said storage device" or "assembles said video and audio components into an MPEG stream." Further, the Court disagrees with EchoStar's argument that "extracts" should be construed as "obtains." In claims 31 and 61, both the terms "extract" and "obtain" are used. Each of these terms is presumed to have a separate meaning, and each term is presumed to have the same meaning throughout the patent claims. See Innova, 381 F.3d at 1119; see also Phillips, 415 F.3d 1303, 2005 WL 1620331 at *7. Although the term "obtain" is not used in claims 1 and 32, both terms are found in claims 31 and 61. Thus, in order to construe "extract" consistently in each of the four claims, "extract" cannot mean "obtain" or the construction would violate the presumption that each term has its own meaning and that the use of different terms reflects a differentiation in meaning. There is no
evidence rebutting these presumptions. Thus, "extracts" cannot be construed as "obtains."

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i) "[output] voltage set point data"

Power-One proposes "data used to specify the commanded output voltage level of the POL regulator," while Artesyn proposes "data provided to a POL regulator specifying the desired output voltage level for the POL regulator." Beginning with the claim language, claims 2 and 26 of the '999 patent refer to "voltage set point data providing a desired output voltage of the corresponding POL regulator." Claim 3 of the '798 patent provides for the "power control system of claim 1, wherein said initial configuration data includes at least output voltage set point data corresponding to a desired voltage level of said output." Thus, the claims appear to equate the voltage set point data with a "desired output voltage." The '798 specification calls for the following:

. . . the controller is adapted to provide initial-configuration data to each POL regulator. The initial configuration data, which may include output-voltage-set-point-data (i.e., a desired output voltage), output-current-set point data (i.e., the highest desired output current), low-voltage-limit data (i.e., the lowest desired output voltage), high-voltage-limit data (i.e., the highest desired output voltage), output-voltage-slew-rate data (i.e., the desired output slew rate) . . .

'798 patent, col. 2:10-17. The '999 specification further provides:

For example, a POL regulator might generate a one volt output five milliseconds after receiving activation data if it received voltage set-point data and sequencing data corresponding to one volt and five milliseconds, respectively. Alternatively, a POL regulator might generate a one volt output one millisecond after receiving activation data if it received voltage set point data, slew-rate data and turn-on data corresponding to two volts, one volt per millisecond and three milliseconds, respectively.

'999 patent, col. 4: 33-41. These excerpts show that the POL regulator receives specified types or categories of "data." More specifically, the examples in the latter excerpt show that the "voltage-set-point data" has a specified numerical value, i.e. one or two volts.

In support of its argument, Power-One argues, for example, that data telling a POL regulator to cap or limit its output voltage can also be "voltage set point data." The '798 specification, however, is clear that such data is categorized as "high-voltage-limit data," not "output-voltage-set-point-data." '798 patent, col. 2:10-17 Power-One offers an example of a situation where, a POL regulator receives voltage set point data of seven volts, but the POL has an upper voltage limit of five volts. Thus, because the upper limit is five, the actual output voltage would be five. Power-One contends that the upper voltage limit data should be considered as part of the data determining the voltage set point. While the upper voltage limit data may affect the actual voltage level at the output, that does not change the fact that the "output voltage set point data" specifies the "desired" output voltage and that the intrinsic record shows that the voltage set point data is a distinct category of data, rather than a collection of data from which a set point is derived. See Applied Med. Res. Corp. v. U.S. Surgical Corp., 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) ("in the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings"). Accordingly, the Court adopts Artesyn's proposed construction and construes "[output] voltage set point data" as "data provided to a POL regulator specifying the desired output voltage level for the POL regulator."

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iii) "[output voltage] slew rate data"

Power-One proposes a construction of "data concerning the rate of change of the output of the device," while Artesyn proposes "data provided to a POL regulator specifying the desired slew rate (i.e., rate of change of output voltage) for the POL regulator." Claims 2 and 26 of the '999 patent describe "output data" transmitted by the controller comprising:
at least one of turn-on data providing a command to turn-on the corresponding POL regulator, voltage set-point data providing a desired output voltage of the corresponding POL regulator, slew-rate data providing a rate of change of output voltage of the corresponding POL regulator, and sequencing data providing a delay period between either a turn-on or turn-off command and actual generation of a corresponding output.

This claim language demonstrates that "slew-rate data" is distinct from the other "data" referenced in the claim and specifies a particular type of information. See Applied, 448 F.3d at 1333 n.3. Dependent Claim 7 of the '798 patent specifies that the initial configuration data includes "slew rate data corresponding to a desired slew rate of said output" again showing the distinctness of this category of data and what information it represents. The '798 specification also provides for distinct categories of data, including "output-voltage-slew-rate data," and states what each category represents. See '798 patent, col. 2:10-21. Similarly, the '999 specification provides for the POL receiving activation data including "voltage set point data, slew-rate data and turn-on data corresponding to two volts, one volt per millisecond, and three milliseconds, respectively." See '999 patent, col. 4:33-41. The specifications show that the slew rate data provided to the POL regulator is distinct from other categories of data and specifies a desired slew rate.

Plaintiff argues that the output of the POL need not be specified by the received data, but only in accordance with that data, citing, for example, column 5, lines 29-38 of the '999 patent and claim 11 of the '999 patent. First, Plaintiff's position would blur the distinctions between the different categories of data provided to the POL, whereas the patent specifications and claims clearly distinguish between them. Moreover, the fact that the POL produces an output "in accordance with" the provided data does not mean that the "slew rate data" need not specify a slew rate. Thus, the Court construes "[output voltage] slew rate data" as "data provided to a POL regulator specifying the desired slew rate (i.e., rate of change of output voltage) for the POL regulator."
11 In pertinent part, the specification reads:

The method of the present invention presumes a number of document authors distributed throughout a communication network. Such authors may be individuals, companies, company departments, etc., each representing a distinct and identifiable, e.g., by ID number or the like, member of the universe. In one embodiment of the invention, this universe may constitute the clientele of the time-stamping agency (TSA), while in another embodiment the distributed authors may serve as agents individually performing the time-stamping service for other members of the universe.

U.S. Pat. No. 34,954, col. 2, ll. 55-64.

This point also finds expression in claims 8-12 of the '954 patent, which describe the pseudorandom witnessing method of time-stamping. In this method, the outside agency is selected at random from among a predetermined universe of possible agencies, including "for example, the multiplicity of authors utilizing the time-stamping process," 12 which as the specification notes "may be individuals, companies, company departments." From this it is apparent that one company department may serve as the outside agency for another department of the same company. Thus, the claims, read in light of the specification make clear that an "outside agency," within the meaning of claim 1, need not be an entity or computer in a company or organization separate from or external to the originator's organization. Put another way, the "outside agency" could be a computer in the same department or company as that of the originator of the digital document to be time-stamped.

12 U.S. Pat. No. 34,954, col. 4, ll. 41-42.

For its contrary view, defendant relies on the '954 patent's general goal of providing reliable evidence that a digital document existed in a particular form at a particular time. This position is flawed legally and factually. It is settled law that where, as here, "a specification does not require a limitation, that limitation should not be read from the specification into the claims." Intel Corp. v. ITC, 946 F.2d 821, 836 (Fed. Cir. 1991) (emphasis in the original) (goal stated in the specification was not a limitation found in the claims and therefore could not be imported into the claims). Here, defendant derives from the specification that the invention's goal is to achieve time-stamping of digital documents in a fashion that is immune from interference or tampering by the document's originator, for only in this way is reliable time-stamping achieved. The goal defendant points to in the specification is a limitation that is not required by the patent and hence may not be imported into the claims.

Quite apart from this legal obstacle to defendant's argument, it is also apparent that defendant's proposed restrictive definition of "outside agency" would not necessarily achieve the patent's goal of providing reliable evidence that a particular document existed in a particular form at a particular time. Defendant argues unpersuasively that unless the outside agency is separate from and external to the originator's company or organization, there is a risk that the originator will collude with the outside agent to alter the time-stamp or document. Yet, there is no reason to believe that an agent in the same company or organization as the originator is necessarily more susceptible to corruption or tampering by the originator than an agent outside of the originator's company or organization. Indeed, the risk of collusion may well be greater if the outside agent, although in a separate or distinct company, is a relative of the document's originator or somehow indebted to her. If so, then, logically, defendant's proposed restrictive definition of outside agency should be amended to exclude even separate companies that employ the originator's relatives or persons indebted to the originator. This illustrates the fallacy of defendant's reliance on the patent's goal to construe "outside agency." In sum, interpreting "outside agency" to include persons or entities in the same company as the originator of the document is not inconsistent with the patent's goal of providing a reliable evidence that a document existed in a particular form at a particular time.

13
13 In fact, it appears that the inventors realized that in some circumstances, using an outside agency, by itself, as taught in claims 2, 3 and 4 may not be dependable. Thus, the patent also discloses the "pseudorandom witnessing" method, in which the time-stamping agencies are randomly chosen from among a predetermined universe, so that the originator cannot know beforehand who the time-stamping agencies will be and thus cannot collude with them.

The district court interpreted the terms "overlay" and "overlaid video signals" to "require the ability to place two separate images (or video signals) on top of one another such that they would both be at the same spot on the screen at the same time." (emphasis added). As support for this interpretation, the district court relied on the prosecution history of the '842 patent, the parent of the first patent in the priority chain of the patents. Specifically, the district court relied upon the preamble of a claim in the Second Preliminary Amendment in the '193 application on January 14, 1997, which recited a "circuit for producing video signals over video signals that are produced by a remote computer." The district court held "without question, this indicates that Plaintiff understood that 'overlay' means having the ability to physically place one signal over another."

Turning first to the claim language, the plain language of the limitations do not require display of two separate images at the same time. Instead, the language requires circuitry for producing "overlay" or "overlaid" signals. Again, claims are to be interpreted in light of the written description and with the knowledge and understanding of those of ordinary skill in the art. Vitronics, 90 F.3d at 1582, 39 USPQ2d at 1576-77. The Microsoft Computer Dictionary cites the definition of the term "overlay" as:

1. In computer graphics, to superimpose one graphic image over another. 2. In video, to superimpose a graphic image generated on a computer over video signals, either live or recorded.

This definition does not require simultaneous display of two separate video images, as the district court required.

The written description supports the ordinary meaning by providing numerous methods for displaying "overlaid" images in accordance with the present invention. '176 patent, col. 12, l. 39 - col. 13, l. 12. The prosecution history, contrary to the district court's decision, does not limit the ordinary meaning of the terms "overlay" and "overlaid." The district court looked to the prosecution history and determined that language in the preamble of a preliminary amendment of a grandparent application required a narrowed construction of the terms "overlay" and "overlaid." This single instance of "evidence" does not overcome the presumption that claim language takes on its ordinary meaning.

In short, nothing appears within the written description or the prosecution history that limits the ordinary meaning of the terms "overlay" or "overlaid" as the district court held. The terms "overlay" and "overlaid" have their ordinary meanings, to superimpose one graphic image over another. They do not require the two images to be present on the same spot on the monitor at the same time. Therefore, we reverse the district court's claim construction of the term "serial data packet."

Claims 1, 2, 12, and 17 of the '919 Patent describe either "patient-engaging conductive gel layer" or "conductive adhesive gel layer" "overlaying the base layer." The parties dispute the meaning of the term "overlaying the base layer." Cardiac Science asserts that "overlaying" means "spread over." Philips renews its disclaimer argument set forth in Section II.D.1,
above, and contends that "overlaying the base layer" should be defined as "spread directly on the surface of the base layer (i.e., without any conductive contact layer, such as a homogeneous, thinly deposited metallic layer, a conductive ink material, or a flexible metal mesh, between the gel layer and the base layer)."

The main dispute among the parties is whether the term "overlaying" requires the gel layer to be spread directly on the base layer, or whether there may be another structure in between. The specification offers no support for this term's construction other than Figures 13 and 14, which demonstrate that the gel layer is spread directly on the base layer. The dictionary defines "overlay" as "to lay or spread over or across." Merriam-Webster's Collegiate Dictionary supra, at 885. The inventors did not specify that the gel layer "directly" overlays the base layer. Thus, the Court finds that in the context of the '919 Patent, the term "overlaying" is construed consistent with its common meaning, as "laid or spread over."

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C. "override criteria"

Claim 9 of the '404 patent contains the term "override criteria": "establishing override criteria from a group consisting of billing, taxing, CP (communications process) rating, service requested by a user of a mobile unit and CMR (cellular mobile radio) system." Claim 9 expresses this term in the form of a Markush group. Manual of Patent Examining Procedure § 2173.05(h). The term "override criteria" is not found in the specification. The plaintiffs contend that this term means "a preemptive rule for deciding, updating or adjusting something." Centennial asserts the following construction: "two or more rules that alter the operation of the system based on the exact location of the mobile unit."

First, the defendant argues that the override criteria must be based on the exact location of the mobile unit. In claim 9, step (a) establishes the exact geographic location, step (b) establishes override criteria, and step (c) directs the communication process based on the override criteria. But neither step (b) nor (c) explicitly refer to or use step (a)'s exact geographic location. Thus, according to Centennial, the override criteria must be based upon the exact geographic location determined in step (a), or step (a) would be superfluous. EMSAT and LBS do not contest Centennial's argument. Thus, the court holds that the override criteria must be based upon the "exact geographic location."

Second, Centennial argues that two or more members of the Markush group must be selected because the claim uses the word "criteria," which is the plural form of "criterion." In response, the plaintiffs contend that "criteria" is commonly used in singular form. Merriam-Webster Online Dictionary, http://http://www.merriam-webster.com/dictionary/criteria ("The plural criteria has been used as a singular for over half a century."). But Centennial quotes other dictionary definitions that state that criteria is always plural. E.g., Webster's II New Riverside University Dictionary 328 (1994) ("Criteria is a plural form and should not be substituted for the singular form criterion."). EMSAT and LBS also cite the prosecution history, in which the examiner referred to "an override criteria"; according to the plaintiffs, this statement indicates that the PTO considered "criteria" to be singular. Finally, the plaintiffs assert that the specification uses "criteria" in its singular form. (’404 patent, Fig. 8, Step 114A ("Has update criteria expired?")). Centennial notes, however, that the specification also uses "criteria" in its plural form. (’404 patent, Fig. 8, Step 114B ("Update on interval criteria (time, distance)"), 7:16-17 ("when the criteria are met").

Although the prosecution history and specification are ambiguous, the claim language is drafted to require plural "criteria." The disputed claim language contains no words, such as "at least one," "one or more," or even an indefinite article like "a" or "an," that suggest the possibility of a single criterion. Therefore, the court construes "override criteria" to mean "two or more preemptive rules that alter the operation of the system based on the 'exact geographic location' of the mobile unit."

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CLAIM 1

<table>
<thead>
<tr>
<th>Claim Element</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A method of facilitating trade in goods and/or services, comprising</td>
<td>N/A</td>
</tr>
</tbody>
</table>
the steps of:
[a] storing, in a data
processing system, offer data
representing an offer to trade
goods or services including overt
terms;

offer date: data representing a
presentation of provisions for a
proposed trade in goods or
services, including two or more
overt terms and one or more hidden
terms, the presentation being made
in anticipation of a reply
overt term: provision for a
proposed trade in goods or
services which is designated for
transmission by the data
processing system to the party or
parties from whom an acceptance is
elicited and which if compared to
a response conforming to such
overt term will result in a
meeting of the minds as to that
term.

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Oxidation Graded:

The difference between the two competing interpretations of the term "oxidation graded" is whether the oxidation should be considered as "progressively more or less oxidized through its thickness" (AFG) or as "having a change in the relative oxygen content in a region such that one portion contains more oxygen than another" (Guardian).

The patents' specifications and claims state that the oxidation grade runs through the thickness of the layer, so that it touches one layer say an IR reflecting layer with one certain degree of oxidation and touches upon another layer with another layer with either less or more oxidation. For example in '349 Patent, Col. 25, lines 38-40 claims state:

wherein at least said second contact layer is oxidation graded and becomes progressively more oxidized through its thickness proceedings further from said infrared reflecting layer; and

The '050 patent specifications similarly states:

wherein at least said second layer comprising NiCroOx is oxidation graded so that a first portion of said second layer close to said infrared layer is less oxidized than a second portion of said second layer that is further from said infrared (IR) reflecting layer;

The phrase "the two contact layers on either side of the Ag layer are progressively less oxidized through their respective thickness as they near the Ag layer" can be found in both the '349 and '050 patents. '349, Col. 10, lines 16-17; '050, Col. 10, 35-37; '. The '349 patent also defines oxidation graded as "the degree of oxidation in the contact layer is graded or changes through the thickness of the layer." Col. 2, lines 7-9. The figures submitted in the patents further support this definition.

What is most convincing to this court that the definition should include the word "progressively" is the common sense understanding of the word "graded." AFG's proposed interpretation would mean that the oxidation levels in one end of the thickness are the highest, and the farther you go from that end the less oxidized the material becomes, until you reach the other end of the thickness which has the least amount of oxidation. This court may give meaning to disputed claim terms as understood by a person skilled in the art merely from the claim language itself by applying the widely accepted meaning of commonly understood words. Phillips. 415 F.3d at 1313. The court adopts as its interpretation for the claim term oxidation graded, "a layer that is progressively more or less oxidized through its thickness."

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The Court construes the term "package" as "at least one electronic component or die covered by encapsulating material." Although the parties generally agree on the Court's proposed construction, the Court rejects both parties' proposed constructions because they include unwarranted limitations. First, ST's proposed construction 25 requires "external terminals to provide access to the components found inside." Although the Court would imagine that such terminals would exist on any such semiconductor device, the Court finds no language in the claims that requires such terminals and finds no clear disavowal of claim scope in the specification. Moreover, Motorola's proposed construction 26 improperly incorporates the requirement of an "interconnect substrate" into the claims. Although the term "interconnect substrate" is mentioned in the description of one preferred embodiment, the specification does not exhibit a clear disavowal of claim scope or definition of the term such that the term "interconnect substrate" should be read into the claim. '798 Patent, 1:48-50.

25 ST's proposed construction is: "a protective container or housing for an electronic component or die, with external terminals to provide access to the components inside."

26 Motorola's proposed construction is: "an interconnect substrate holding at least one electronic component covered by encapsulating material."

Both parties agree that a "packet" is a "block of data used for transmitting information." The parties dispute whether a packet must also include a header and a payload. The specification explains that, "Data packets can be typically divided into two parts, the header and the payload parts." '175 patent, 4:41-42.

A. "packet," "payload," and "non-payload"

<table>
<thead>
<tr>
<th>Term</th>
<th>Widevine Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packet</td>
<td>A block of data used for transmitting information that includes at least a header and a payload.</td>
</tr>
<tr>
<td>Payload</td>
<td>The data of interest contained inside of the packet.</td>
</tr>
<tr>
<td>Non-payload</td>
<td>The packet data that is not payload data, such as header fields and control fields that contain routing or configuration information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Verimatrix Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packet</td>
<td>A block of data used for transmitting information.</td>
</tr>
<tr>
<td>Payload</td>
<td>just the data of interest.</td>
</tr>
<tr>
<td>Non-payload</td>
<td>The packet data that is not payload data, including routing or configuration information.</td>
</tr>
</tbody>
</table>

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Widevine argues that a packet, according to its plain meaning in the art, must include a header and a payload. Widevine points out that the specification identifies six types of packets, each of which include a header and a payload.

Verimatrix argues that nothing in the intrinsic record requires that a packet have a header and a payload. Verimatrix identifies a number of telecommunications packets that do not require a payload. Verimatrix also points out that including the word "header" in the definition of a packet will make some terms superfluous in certain unasserted claims. For example, claim 3 of the '175 patent teaches that "the non-payload portion of the packet data includes at least one of a header, control data and routing data." According to Verimatrix, defining "packet" to necessarily include a header would make '175 patent, claim 3 meaningless.

Widevine further argues that, in the context of the claims, a packet must both have a header and a payload. Each of the claims recites performing some action on the "payload portion" of a packet. For example, the '831 patent, Claims 1, 9, and 16 recite "examining a payload portion of the packet." Limitations in the '175 patent, Claims 1, 19, and 37 recite parsing a packet into payload and non-payload portions of a packet. A limitation in the '175 patent, Claim 50 recites, "examining the data of each received packet to identify a plurality of portions that include at least a payload portion and a non-payload portion."

There is not an ordinary meaning for "packet" at the level of detail requested by Widevine in its proposal. The protocol or communications platform determines the composition of a packet. Additionally, some TCP/IP packets (included as an example in the specification in the '175 patent, 2:43-58) are intentionally empty, even though a TCP/IP packet is defined with space for a payload. While most packets include a header and a payload, the specification and the claims do not expressly preclude packets without headers or payloads. Even though each claim recites parsing into a payload and non-payload portion, the claims do not preclude non-payload-bearing TCP/IP packets, for example. The invention is capable of ignoring non-payload-bearing packets. Some claims expressly specify that a parsed packet includes both payload and non-payload portions. '175 patent, Claim 19, 37, 50, 58, 64, 74, 81, and 92. Some claims implicitly require multiple portions in a packet, one of which is a payload. See '831 patent, claim 1 ("receiving a packet; examining a payload portion of the packet"). Claim 3 of the '175 patent expressly recites that the non-payload portion "includes at least one of a header, control data, and routing data." Construing "packet" to always include a header makes the term "header" in Claim 3 superfluous. Each packet does, however, have a payload portion and non-payload portion. The court construes "packet" to mean "a block of data used for transmitting information that may include payload and non-payload portions."

Both parties agree that "payload" is "data of interest." They dispute whether the definition should require that payload be "contained inside of the packet. Verimatrix draws its proposed construction from the specification, which states, "The payload is the portion of the data packet that is just the data of interest, in exemplary case: multimedia content." '175 patent, 4:44-46. It is the Court's view that the patentee was acting as its own lexicographer when he described a payload as, "the portion of the data packet that is just the data of interest." See Sinorgchem, Co., v. Int'l Trade Comm'n, 511 F.3d 1132, 1138 (Fed. Cir. 2007) ("We have frequently found that a definition set forth in the specification governs the meaning of the claims."). Therefore, the Court's construction of "payload" is "the portion of the data packet that is just the data of interest."

The dispute over "non-payload" is whether it is appropriate to include "header fields" and "control fields" in the construction. Verimatrix argues that Widevine is attempting to import unnecessary terms from the specification. Widevine, on the other hand, argues that Verimatrix's definition is "coextensive" with a header, which inappropriately limits "non-payload" to header data exclusively. The Court agrees that "header fields" and "control fields" do not belong in the definition. The Court is not persuaded, however, that Verimatrix's proposal is so narrow as to exclude any data within a payload that is not in the header. Both "such as" and "including" are permissive words that do not indicate any restriction against the presence of other data in the non-payload portion. Nonetheless, the Court will modify Verimatrix's proposed construction to incorporate Widevine's word choice: "the packet data that is not payload data, such as routing or configuration information."

GO BACK

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(1) packet, packet form
All the parties agree as to the general construction of "packet." N-Data disagrees, however, with two additional limitations asserted by Dell and National. Dell and National both assert that "packet" refers to "information that is bursty in nature." They also assert that such information "is transmitted as a whole from one node of a network to another." Regarding the first issue, Dell and National point to the '261 patent for support, and N-Data points to the '820 patent for support. The '261 patent states, "[o]ne type of non-isochronous data transfer is a packet-type transfer. . . . As seen in FIG. 1A, because the fields provided for data 14a, 14b are not substantially continuous, the packetized scheme of FIG. 1A is not isochronous but is 'bursty' in nature." '261 Patent, col. 1, ll. 37-53. Thus, according to the '261 patent, "packet" is described as being bursty in nature. In light of the agreement by the parties to define certain terms uniform across each patent, the court must also examine the '820 patent. The '820 patent states, "[s]ome types of information, such as the information in a typical telephone conversation, do not lend themselves to being accumulated over time and then being transmitted as a single large packet. . . . Frequent transmissions of small packets of information over the network is required. Ethernet is not well suited to this 'nonbursty' type of information transfer." '820 Patent, col. 1, ll. 29-49. Here, it is clear that the '820 patent describes a "packet" as being "non-bursty." As such, the court will not limit a "packet" to being "bursty in nature."

Regarding the second issue, the agreed-to definition sufficiently defines "packet;" there is no reason to limit the term by providing a method of transmission premised solely on an extrinsic source. 2

--- Footnotes ---

2 Dell and National rely on a technical dictionary definition of "packet" published seven years after the '261 patent was filed. See MICROSOFT COMPUTER DICTIONARY FOURTH EDITION 327 (Christey Bahn, ed., Microsoft Press 1999).

--- End Footnotes ---

The court thus defines "packet" as follows: "a collection of information, including a data field which may be preceded and/or followed by non-data information, such as preamble information, housekeeping information and data destination information."

The court gives "packet form" its plain and ordinary meaning in light of the above construction.

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b. "Packet": A group of data bytes which represents a specific information unit with a known beginning and end.

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- "packet" is construed to mean "a group of bits, including data and control limitations, which is switched and transmitted as a unit; the data is arranged in a specific format." (See D.I. 387, App. 24 (Modern Dictionary of Electronics 705 (6th ed. 1984)).)

Lucent contends that this term means "a group of bits including data and control limitations which is switched and transmitted as a unit." (D.I 396 at 18.)

Extreme contends that this term means "the message unit that leaves the source user to network interface module (UIM) and travels all the way to the destination UIM without alteration." (D.I. 395 at 26.)

Foundry contends that this term means "the message unit that leaves the source user input module and travels all the way to the destination user input module." (D.I. 385 at 22.)

The patent application for the '486 patent was filed on March 31, 1988. The Court finds that Lucent, in support of its contention, cites a dictionary published contemporaneously with the patent application. However, Lucent omits the part of the definition of "packet" where the dictionary specifies that "the data is arranged in a specified format." (D.I. 397, App. 24.)
Further, the Court finds that Defendants impermissibly try to restrict the claim to the particular type of message unit used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

2. "packet data" and "synchronous data"

The plaintiff proposes that "packet data" means "variable bit rate data" and "synchronous data" means "constant bit rate data." The defendants propose that "packet data" means "data that is transmitted in packets" and "synchronous data" means "constant bit rate data that is not transmitted in packets." Both parties appear to agree that "synchronous data" refers to constant bit rate data. The dispute is whether "packet data" can also include constant bit rate data.

The specification defines these terms:

The present invention relates to data communications, and more particularly to communications systems that have channelized network access, and may transport both synchronous data and variable-bit-rate data such as frame relay data (hereafter referred to as packet data), in a time-division multiplexed format.

'858 patent, 1:8-11.

Contrary to the defendants' arguments, the patent defines "variable bit rate data" as "packet data," and the court adopts this construction. Moreover, the court defines "synchronous data" as "constant bit rate data."

− "data packet header" is construed consistently with its plain meaning as a "data packet header." The Court declines to further interpret the term "data packet header."

Lucent contends that this term means "control information in a data packet that instructs network components how and where to send the packet." (D.I. 396 at 19.)

Extreme contends that the term "header" means "the portion of a packet consisting of a virtual circuit number, source and destination address, group ID, group and other fields shown in Figure 20 of the '486 patent." (D.I. 395 at 26.)

Foundry contends that the phrase "data packet header" means "two distinct and separate sets of control bits preceding the data where the first set of bits contains an identification of the source destination port and where the second set of bits contains at least the packet's source address and destination address, which are flat MAN addresses, and a group identifier and name of the group to which the source user belongs." (D.I. 385 at 21.)

The Court finds that Lucent cites dictionaries that were published in 1999 and 2001 for its proposed construction. The patent application for the '486 patent was filed on March 31, 1988. Because Lucent has not cited to a dictionary published contemporaneously with the patent application, the Court rejects Lucent's proposed construction. Further, the Court finds that Defendants impermissibly try to restrict the claim to the particular type of data packet header used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

Packet switch
The Court adopts Ciena’s proposed construction and construes the term as “a routing device that forwards packets.” Nortel argues that the term should be construed as “a path-oriented routing device that forwards packets.” For the same reasons discussed above, the Court rejects Nortel’s use of the term “path-oriented.” Accordingly, the Court construes the term without including “path-oriented.”

1. a data packet transferring computer network

A "data packet transferring computer network" is a computer system by which a block of computer information is broken into smaller information units called "packets." These packets are sent over a computer network over a variety of paths. The packets are automatically reassembled into their proper order at the receiving end.

3. packets having a fixed length (claims 8 and 9)

Plaintiff's construction: "packets each containing the same number of user data blocks" Defendants' construction: "a CD-RW data structures having a fixed number of user data blocks and a fixed number of linking blocks"

The difference between the parties' constructions with respect to this claim is much clearer. Defendants' proposal inserts a number of concepts that are not found in the claim, which immediately raises red flags. In particular, defendants seek to limit the packets to "CD-RW data structures" that have a fixed number of "linking blocks." In support of its CD-RW limitation, defendants cite a line in the specification that states, "[a] minimum unit for recording information on an optical disc such as a CD-R or a CD-RW is defined as a packet." '955 patent, col. 1, Ins. 21-22. (Because the patent encompasses rewritable disks only, '955 patent, col. 1, Ins. 10-14, defendants excluded CD-R disks from their proposed construction.) However, as plaintiff points out, it is clear from the use of the phrase "such as" that the reference is illustrative, not restrictive. JVW Enterprises, Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1335 (Fed. Cir. 2005) (examples are not limitations). Defendants point to nothing else in the claims or in the specification that would prohibit claims 8 and 9 from including rewritable DVDs.

Defendants also fail to show that "packets having a fixed length" means that the packets included a fixed number of "linking blocks," a term not used in the patent. The specification does refer to "link blocks," though exactly what they are is not disclosed. "Link blocks" are included in the packet. E.g., '955 Patent, col. 1, Ins. 22-24 ("Each packet comprises at least one user data block, five link blocks . . ."). But the specification does not define a "packet having a fixed length" as a packet having a fixed number of link blocks. Rather, the specification states that "[t]he number of user data blocks within a packet is referred to as a packet length or packet size" and that "[i]n the fixed packet write method [which is the method described in claims 8 and 9], a number of user data blocks within a track is set to a fixed number." '955 patent, Col. 1, Ins. 58-61 (emphasis added). Thus, although a packet includes link blocks, link blocks are not used to determine the packet's length. Because the length is determined using the data blocks only, a packet having a fixed length must have a fixed number of data blocks, but the number of link blocks is not so restricted.

Court's construction: "packets each containing the same number of user data blocks"

E. Construction of "Corner Pad"

LPL contends that the term "corner pad" does not require construction, but that the proper construction, if one is necessary is "a reference mark for cutting" (D.I. 135 at 24.) CPT contends that the Court should construe "corner pad" as "a pad of metal or other conductive materials that is located at the corner of an outer guard ring, and electrically connected with the outer
ring" (D.I. 137 at 15.) CPT argues, (Id.), and LPL does not dispute, that "corner pad" has no inherent meaning to one of
ordinary skill in the art and thus can be understood only within the context of the '002 patent's claims and specification. LPL
does concede that "[o]ne of ordinary skill in the art would understand the term 'pad' to be a conductive area." (D.I. 135 at
15; D.I. 143 at 15.)

The term "corner pad" appears in only one embodiment in the specification. (See '002 patent, col. 8, ll. 1-48.) That
embodiment describes three features of a "corner pad." First, it is connected to each other corner pad by conductive lines of
the outer guard ring. (Id., col. 8, ll. 8-11.) Second, it can be grounded. (Id., col. 8, ll. 11-12.) Third, it provides alignment for
the scribe lines. (Id., col. 8, ll. 12-15.) The second feature is explicitly optional, so it need not be included in the Court's
construction. The third feature is specifically claimed, so it too need not be included in the Court's construction. (See, e.g.,
Id., col. 9, ll. 29-33 ("7. The method as defined in claim 1 including forming a corner pad on at least one corner of the
display and aligning scribe lines with said corner pad for removing said outer guard ring and row and column
intersections.")) Therefore, the Court concludes that LPL's proposed construction of "a reference mark for cutting" is
unnecessary and would be redundant. The location of the corner pad is also specifically claimed as being "on at least one
corner of the display." (See, e.g., Id., col. 9, l. 30.) Thus CPT's inclusion of "located at the corner of an outer guard ring" in
its proposed construction is both unnecessary and inaccurate.

The remaining issue is whether the "corner pad" must be electrically connected to the outer guard ring. CPT bases its
contention that the "corner pad" must be "electrically connected with the outer ring" on a single sentence from the
specification: "A corner pad 208 is connected to each other corner pad (not illustrated) by respective outer conductive lines
210 and 212 of the guard ring 200." (Id., col. 8, ll. 8-11.) The Court concludes that it would be improper to import this
limitation from the specification into the claims. Therefore, to the extent that "corner pad" requires construction, the Court
will construe it as "an area of conductive material."

F. Construction of "Pickup Pad"

LPL's proposed construction of "pickup pad" is "a conductive area used to electrically connect the back plane to the front
plane" (D.I. 135 at 14.) CPT's proposed construction is "a pad located at the corner region of a backplane for aligning the
frontplane and backplane" (D.I. 137 at 13.) CPT contends, and LPL does not dispute, that the term "pickup pad" has no
inherent meaning to one of ordinary skill in the art, and thus, can be understood only within the context of the intrinsic
evidence. (D.I. 137 at 13.) The parties agree, however, that "pad" would be understood by one of ordinary skill in the art to
mean a conductive area. (D.I. 135 at 15; D.I. 143 at 15; D.I. 160 at 3.) The Court concludes that neither proposed
construction is appropriate and will decline to construe "pickup pad."

LPL's contention that the "pickup pad" is used to electrically connect the back plane to the front plane has no support in the
intrinsic evidence. Neither the specification nor the claims of the '002 patent mentions any electrical connection between the
front plane and the back plane via the "pickup pad." Both teach only the electrical connection of the "pickup pad" with other
elements on the back plane. Thus, LPL's proposed construction cannot be correct.

CPT's proposed construction would violate the doctrine of claim differentiation. In this context, claim differentiation "refers
to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim."
Arm Holdings, PLC., 403 F.3d 1364, 1370 (Fed. Cir. 2005)). In the '002 patent, claim 5 depends from claim 3. n4 Claim 3
claims "[t]he method as defined in claim 2 including forming at least one pickup pad coupled to said resistance via a shunt
switching element." (002 patent, col. 9, ll. 16-18.) Claim 5 claims "[t]he method as defined in claim 3 including forming a
corner on the said pad to align the front plane and back plane of the display." (Id., col. 9, ll. 23-25.) To construe "pickup
pad" as CPT proposes, as "a pad . . . for aligning the frontplane and backplane," would be to read the limitation from claim 5
into claim 3, rendering claim 5 superfluous and violating the doctrine of claim differentiation.

--- Footnotes ---

n4 The discussion that follows applies identically to claims 16 and 14, 23 and 21, and 34 and 32.

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All of the significant attributes of the "pickup pad" mentioned in the specification are also specifically claimed. (Compare, '002 patent, col. 8, ll. 18-39, with id. col. 9, ll. 16-28.) Therefore, the Court concludes that no further construction of the term "pickup pad" is necessary.

I. "page" in the 351/ '696 patent

Lexar's proposed construction:
the unit of data, consisting of 256 bytes, programmed to and read from the memory at the same time

Toshiba's proposed construction:
the unit of data, consisting of a plurality of bytes, written to and read from the same time

Claims 4 and 5 of the 351 recite writing pages into memory and claim 2 of the 696 recites programming pages into memory. The parties' dispute over the proper construction of the term is twofold: first, the parties disagree about whether a page, in the 351/ '696 is limited to 256 bytes; and second, the parties disagree about whether a page is "written to" or "programmed to." The Court addresses each of these disputes in turn.

Lexar contends that a page, by definition, consists of 256 bytes. According to Lexar, the 351 and 696 specifications require such a limitation even though the claim language itself says nothing about page size. Indeed, both portions of the 351 specification cited by Lexar (column 24, lines 56-57 and column 32, lines 46-49), which describe preferred embodiments, teach 256 bytes per page. Column 24, lines 56-57 describes the preferred embodiment as exemplified by Figure 57 in which the EEPROM has "a structure of 256 bytes per one page." Similarly, column 32, lines 46-49 suggests that in the preferred embodiment described, a page consists of 256 bytes. The same holds true for the portions of the 696 specification cited by Lexar. The language describing preferred embodiments in column 35, lines 43-46 and in column 36, lines 52-53 of the 696, describing a page as 256 bytes.

Toshiba argues that nothing in the 351/ '696 claim language or the specifications limits a page to 256 bytes. Generally, a limitation from a preferred embodiment cannot be imported into the construction of a claim term. Markman, 52 F.3d at 980. However, Lexar contends that the consistent use of a 256-byte page in the specification means that under Alloc, Inc. v. ITC, 342 F.3d 1361, 1368 (Fed. Cir. 2003), the claim itself is so limited. The Court finds, however, that this argument is unavailing here. Here, the patent specifications' references to a 256-byte page (two references per specification) do not rise to the level described in Alloc of "mak[ing] clear . . . that the claimed invention is narrower than the claim language might imply." Id. at 1370. In Alloc, everything in the specification led to the unavoidable conclusion that "the invention as a whole, not merely a preferred embodiment, provides for play in the positioning of floor panels." Id. at 1368-69. The Court in Alloc also noted that the patent specification specifically criticized prior art floor systems without "play," strongly suggesting that the invention required it. Here, on the other hand, the Summary of the Invention sections of the 351 and the 696 patents say nothing about the size of a page, nor do the Abstracts. Moreover, there are only four references to 256-byte pages in the two patents. Additionally, the patents do not criticize prior art for using pages of other sizes. The Court finds that the references to 256-byte pages in the 351 and 696 patent specifications do not rise to the level of consistent usage dictating a limitation in the construction of the term. Therefore, because the claim language does not limit a page to 256 bytes and because the specification does not clearly and consistently narrow a page to 256 bytes, the Court rejects this portion of Lexar's proposed construction.
With regard to the parties' dispute over whether a page is written to or programmed to, Lexar contends that Toshiba's proposed construction is too broad because "writing" encompasses both programming and erasing. Lexar argues that limiting a page to that which is "programmed to" is more precise. "Program" is defined as "the operation of injecting electrons onto the floating gate of the memory cell." (IEEE FGA Standard Definitions at 23.) Lexar acknowledges the IEEE's definition of a page as "a section of an array that may be written to simultaneously." Lexar goes on to argue, however, that based on the specification and prosecution history, "page" must be further limited to that which is "programmed to" rather than "written to." Toshiba, for its part, only spends a few sentences in its Opening Brief (and no effort in its Reply) on the programming/writing dispute. Toshiba contends that the language of the 933's specification supports its construction but the Court declines to look to a wholly unrelated patent to construe a common claim term.

For these reasons, "page" in the 351/’696 is construed as the unit of data, consisting of a plurality of bytes, programmed to and read from the memory at the same time.

II. "page" in the 933 patent

Lexar's proposed construction: Toshiba's proposed construction:
the unit of data, consisting of 256 bytes, the unit of data, consisting of
programmed to and read from the memory a plurality of
the memory at the same time bytes, written to and read from
at the same time

The dispute here is the same. The parties propose the same respective constructions of "page" in the 933 patent that they propose for the 351/’696 patent and again, their dispute is focused on the size of a page and on whether a page is "programmed to" or "written to" the memory. At oral argument, Lexar and Toshiba reported that they agree that "page" in the 933 should be construed consistently with its construction in the 351/’696. However, the parties' agreement in that regard does not bind the Court. Because the 933 patent is wholly unrelated to the 351 and the 696 patents, the Court engages in a separate analysis of the disputed claim term here.

Here, unlike in the 351/’696 discussion supra, the parties' references to the 933 specification are relevant. Claims 1, 4, 31, and 34 of the 933 recite writing pages into memory. Lexar again urges the Court to find that a "page" is limited to 256 bytes. Nothing in the claims themselves restricts a page to 256 bytes. Therefore, Lexar relies on the specification language describing a preferred embodiment to support its proposed construction. Generally, as discussed supra, limitations from a preferred embodiment cannot be imported into the claims. Markman, 52 F.3d at 980. However, Lexar contends that the consistent reference to a 256-byte page in the 933 patent specification means that under Alloc, 342 F.3d at 1368, the claim term itself is so limited.

Lexar's Alloc argument is somewhat more compelling in the context of the 933 patent. In the 933, the specification frequently refers to a page of 256 bytes. (See, e.g., 933 patent 9:43-46.) However, the specification also frequently refers to memory cell pages without any reference to their size. (See, e.g., 933 patent 3:20-24, 3:38-40, 3:56-58.) This is at odds with Alloc where a narrower construction was only deemed appropriate where the limitation was made clearly and consistently throughout the patent. 342 F.3d at 1368. Moreover, the Summary of the Invention section also describes a page of 1024 bytes and "pages of different sizes." (’933 patent 10:42, 10:63, 11:48.) Lexar explains that these references correspond to the selection of multiple pages of 256 bytes each, not to single pages containing more than 256 bytes. However, the Court finds that the references to pages of different sizes preclude a finding that the specification's references to 256-byte pages rise to the level of "mak[ing it] clear . . . that the claimed invention is narrower than the claim language might imply, as described in Alloc. Therefore, the Court declines to limit the construction of "page" to 256 bytes.

With regard to the programming/writing dispute, Toshiba argues that the intrinsic evidence of the 933 describes only writing, rendering its proposed construction more consistent with the intrinsic evidence. Here, the Court agrees with Toshiba. The claim language of the independent claims (1 and 31) in the 933 teaches a semiconductor memory device containing a page in which "a read or write operation is performed." (’933 patent 15:24; 933 patent 18:51-52.) Toshiba's citation to a portion of the specification, column 2, lines 4-5 and 12-13, in which the reading and writing of pages is described, does not further the inquiry, however, because that language appears in the background of the invention section and does not describe the invention itself. But the language cited by Toshiba at column 10, lines 9-29, is instructive because it appears in the preferred embodiment section. The language there describes the write and read operations performed to a
Because it would be improper to construe a claim term to exclude a preferred embodiment of the invention and because, as Lexar itself points out, programming is, at least in some respects, a narrower process than writing, the Court cannot limit a "page" to be "programmed to" when a preferred embodiment teaches a page that is written to. Lexar argues that here that "writing" in the 933 patent really means "programming," but the Court is unconvinced.

The Court construes "page" in the 933 as the unit of data, consisting of a plurality of bytes, written to and read from the memory at the same time.

A. "page file" (Claims 1, 4, 5)

Plaintiff: A data element constituting at least a portion of a Web page and/or instructions for displaying content on a computer.

Defendant: A Web page file, such as an HTML file.

The Court adopts Defendant's construction. The claims of the '577 patent all refer to forming customized "web pages." Claim 1, for example, claims a method for forming customized "web pages" through forming page files. '577 Patent at 9:47-49. The only "page files" described in the Patent are web page files. For example, the Abstract states that "the ICP stores web page files designed for itself and its participating web sites." Id. at Abstract. The Abstract continues with: "Upon receiving a service request from a participating web site, the ISP dynamically forms customized web pages for the participating web site by combining the page files designed for itself and the page files designed for the participating web site." Id. The specification goes on to state:

Typically, a website stores information in a set of web page files, such as HTML, SHTML, DHTML, or CGI files. . . . A web page file may contain one or more page links containing the path information to other web page files in the same web site. Thus, using a web browser, a user can access a home page file (the page file at the root level) of a web site. From the home page, the user can browse subsequent web page files by selecting links contained in the home page file. The subsequent web page files may further contain one or more page links, which can be further selected to browse web page files at the next level. At any level, a browser can browse back to the previous web page file and re-select page links from the previous web page file. A web page may contain page links (foreign page links) containing path information to the web pages of the other web sites. Upon selecting a foreign page link contained in a web page file, a service request is sent to the web site indicated by the path information in the foreign page link, to retrieve the web page in the foreign web site.

In addition, a web page file may contain links to other types of files, such as AVI, GIF, JPEG, and PNG files . . . A web page file may also contain applets. Upon receiving a web page file, a web browser can display it as a web page on a user computer.

Id. at 5:14-43. Again, the only "page files" mentioned are "web page files."

Plaintiff complains that by adopting Microsoft's position, the Court is reading in an example from the patent's specification into the claim. See RF Del., 326 F.3d at 1264. The Federal Circuit has recognized "that the distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice." Phillips, 415 F.3d at 1323. "However, the line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms." Id. Upon reading a specification, "it will become clear whether the patentee is setting out specific examples of the invention to accomplish those goals, or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive." Id.

Here, Plaintiff emphasizes the portion of the specification that expressly distinguishes a "web page file" from "other types of files, such as AVI, GIF, JPEG, and other PNG files." Id. at 5:35-37. Yet this passage does not describe another type of page file, it merely describes other types of files. The only kind of "page file" described in the specification is a "web page file." Accordingly, by construing "page file" as a "web page file," the Court is not importing a limitation from the specification --
it is looking to the only type of page file referenced in the specification. It is clear from the specification that there was nothing in the context to indicate that the patentee contemplated any alternative embodiment to the one presented by Defendant. See Phillips, 415 F.3d at 1323; see also Decisioning.com, Inc. v. Federated Dept Stores, Inc., 527 F.3d 1300, 1308 (Fed. Cir. 2008) (construing broad term narrowly in light of the more limited language of the specification).

Plaintiff further argues that "claim 1 clearly indicates that more than one page file may make up the ultimate Web page," see Pl. Br. at 12, but that assertion is not in dispute. Microsoft agrees that multiple web page files may be combined to create a single customized web page. What is in dispute, rather, is what constitutes a "page file" as claimed in the '577 Patent. Reading the patent in its entirety supports a construction that "page file" would mean "web page file" to an ordinary person skilled in the art. See Netcraft, 549 F.3d at 1397 ("In order to properly determine the ordinary meaning of the entire phrase at issue in this case, we must consider the claim in light of the entire patent.").

Finally, Plaintiff complains that the Court should not adopt Defendant's construction because it uses the term to be construed, "page file," within the construction, "a web page file." The Court's task at claim construction is to determine the specific meaning of a term or phrase used within the Patent. When a party uses a broad or ambiguous term, part of the Court's function is to see whether there is a more specific definition that should apply. The term "page file" could, theoretically, encompass far more than what is contemplated by the claim. Accordingly, it is entirely proper for the Court to refine the term so that its construction comports with the intrinsic evidence.

The Court further notes that Plaintiff's proposed construction is unsatisfactory. Plaintiff fails to cite intrinsic evidence supporting its construction. Neither "data element" nor "instructions for displaying content" appears anywhere in the '577 Patent. Plaintiff has not provided other evidence suggesting that a person of ordinary skill in the art would assign its definition to the phrase "page file." Moreover, Plaintiff's construction adds ambiguity rather than clarity to the claim. It includes new, undefined terms which could require further construction by the Court.

In reading the Patent in its entirety, the Court concludes the term "page file" shall be construed as a Web page file, such as an HTML file.

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9. Page Mode Type of Memory Access

The term "page mode type of memory access" refers to a type of memory access where blocks of memory cells in the same row are accessed by the assertion of the row address strobe signal followed by multiple assertions and deassertions of the column address strobe signal while the row address strobe signal remains asserted.

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3. “Page Server”

“Page server” is utilized in asserted claims 1, 4, 7, and 9-11 of the ‘554 Patent and 1, 2, 5, 8, 15-16, 19, 22 and 29 of the ‘335 Patent. The Plaintiff asserts that the proper construction of “page server” is “a processing system operable to receive a request and dynamically generate content in response to the request.” The Defendants assert that the term should be construed as “page generating software that generates a dynamic Web page on a machine separate from the Web server machine.” In the claim construction Oral Argument, the Plaintiff agreed to the use of “page generating software” in place of the term “a processing system” as previously proposed by the Plaintiff. The differences between the parties with regard to the use of “content” verse “Web page” are rooted in the basic dispute over the meaning of Web page as discussed above. Both parties include the concept of dynamic generation in their proposed constructions.

In the post oral hearing briefing, the parties each acknowledged that the primary dispute regarding the construction of “page server” is whether the Page server has to be on a machine separate from the Web server. As discussed below, the Court agrees with the Plaintiff with regard
to this point of dispute.
Each party points to the specification to support their asserted position. The Plaintiff asserts
that the specification includes statements that indicate that the Page server could operate on the same
machine as the Web server. In particular, the Plaintiff has pointed to passages which state:
FIG. 1 illustrates a typical computer system 100 in which the present invention
The preferred embodiment of the present invention is implemented as a software
module, which may be executed on a computer system such as computer system 100
in a conventional manner. Col. 3:55-58.
Figure 1 illustrates a computer system having a processor, bus, memory and mass storage. Further,
it is stated that “the preferred embodiment of the present invention” may be implemented on a
personal computer or alternatively a workstation. Col. 2:67-Col. 3:5. The Plaintiff asserts that this
language is consistent with the specification as a whole by asserting that the specification describes
a partitioned software architecture in which in some embodiments the software modules may all
reside on the same machine and in other embodiments the software modules may reside on different
computers.
The Plaintiff also points to a passage that describes an embodiment that does not have the
advantage of “off-loading the processing of Web requests from the Web server machine” to a
separate machine. Col. 5:26-36. However, the Court notes that this passage makes specific
reference to the division between a Web server and a Dispatcher, and it is not clear in this passage
alone that the Page server is also included in this use of a single machine.
The Defendants argue that the specification describes a distinction over the prior art that
amounts to an explicit characterization of the invention that disclaims the prior art. See SciMed Life
Sys. V. Advanced Cardiovascular Sys., 242 F.2d 1337, 1343 (Fed. Cir. 2001). In particular, the
Defendants point to a passage of the specification that describes the multi-threading techniques of
prior art Web servers. Col. 4:32-53. This passage concludes with “[t]he claimed invention addresses
this need by utilizing a partitioned architecture to facilitate the creation and management of custom
Web sites and servers.” The Defendants assert that this clearly demonstrates that the purpose of the
invention was to partition the various modules on separate machines. As to the passages cited by
the Plaintiff, the Defendants assert those passages do not describe the entirety of the claimed
invention. The Plaintiff asserts that the passage cited by the Defendants is directed toward the Web
site management “need” recited in the passage, and this need is addressed by a partitioned
architecture.
The parties have thus each pointed to somewhat conflicting passages of the specification to
support their positions. The passages cited by the Plaintiff establish that there is not a clear
disavowal within the specification of the use of a partitioned software architecture on a single
machine. The Defendants do correctly point to cases which stand for the proposition that when the
specification makes clear that the invention does not include a particular feature than that feature is
deemed to be outside of the reach of the claims of the patent. Defendants’ Joint Sur-Reply, p. 8.
However, in the specification before this Court, the specification does not make clear that the
invention must only be operated on separate machines.
The Court construes “page server” to be “page-generating software that generates a
dynamic Web page.”

The Court is of the opinion that the findings and conclusions of the Magistrate
Judge are correct. Therefore, the Court hereby adopts the Report of the United States
Magistrate Judge as the findings and conclusions of this Court.
2. "Pages of data"

The court construes the term "pages of data" to mean "fixed size blocks of data." The court rejects the plaintiff's proposed construction because it includes an additional requirement of "fixed alignment." The court is persuaded that one of ordinary skill in the art would understand the term to connote the meaning ascribed to the term by the court.

4. "pair of pointers"

NICE's Construction
Digital information used to read data from and write data to a storage component.

Witness's Construction
Two pointers facilitating the simultaneous retrieval of data from the random access storage device and the writing of data thereto.

The parties dispute the meaning of pair of pointers," as used in claim 8 of the '371 patent. A "pointer" is digital information that refers, or "points," to an address, memory location, function, etc. Witness contends that NICE's proposed construction ignores the word "pair" and the clear meaning of the specification. Nice contends that, while the reading and writing pointers could operate simultaneously, there is no requirement that they do so. Nice contends that the specification makes clear that data is continuously being written to the RAS device, (col. 1:65-67), but is only retrieved when desired and "[u]pon input of the time and date of the data to be retrieved," (col. 4:3-4).

The Court construes the disputed language to mean "digital information used to read data from and write data to a storage component." The specification clearly discloses that the reading and writing of data to the RAS does not have to be simultaneous, even if, in some circumstances, it will be.

3. Paperless Facsimile Terminal Machine/Paperless Facsimile Device

6 The parties agree that these terms are used synonymously in the patents.

In the asserted claims, "paperless facsimile terminal machine" appears only in the '302 patent, claim 24, and "paperless facsimile device" appears only in the '034 patent, claim 1. As the claim language makes clear, this term describes the modem and specific software that allow a paperless fax terminal device to emulate fax terminals by using fax protocol. The '302 patent, claim 6 recites a "paperless facsimile terminal machine," and the balance of the claim requires a "signal modem" that can be programmed to operate in "facsimile communications mode so that facsimile messages stored in the subscriber's mailbox can be directly displayed on said display means of the paperless facsimile terminal machine." Similarly, the summary of the invention states the "so-called 'paperless' fax terminals" are "small portable computers equipped with modems and software programs which enable them to emulate fax terminals." ('034 patent, claim 4.) The summary also states that "[i]n recent years, paperless fax techniques allow a computer or a micro-processor equipped with
specific software and modem to directly transmit and receive facsimile messages." This confirms that the specific software and modem allow the "paperless fax device" to emulate a fax machine by sending or receiving messages over the switched telephone network using facsimile protocol.

Moreover, all embodiments in the '034 and '302 patent specifications require a modem to enable the paperless fax device to emulate a fax terminal. "Although patent claims need not be limited to the preferred embodiment when the invention is more broadly described, neither do the claims enlarge what is patented beyond what the inventor has described as the invention." Inpro II Licensing, 450 F.3d 1350 (Fed. Cir. 2006) (citation omitted). For these reasons, the Court construes this term as follows:

CONSTRUCTION: A machine that emulates facsimile terminals by using facsimile protocol

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B. "parsing"

<table>
<thead>
<tr>
<th>Term</th>
<th>Widevine Construction</th>
<th>Verimatrix Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parsing</td>
<td>Analyzing data to differentiate</td>
<td>parse = separate; parsing = separating</td>
</tr>
<tr>
<td></td>
<td>between different portions of data.</td>
<td></td>
</tr>
</tbody>
</table>

The parties agree that a "parser" is "software on a computing device that analyzes input data to differentiate between different portions of data." Widevine proposes a construction that is based upon this agreed definition for "parser." Verimatrix proposes "separating," arguing that the claims and specification show that parsing means separating. The specification explains the benefits of the invention over the prior art:

Without accurately parsing the data into payload and non-payload parts, the user specific data is readily damaged or scrambled during the encryption process, making it impossible for the firewall, proxy server or NAT to deliver the data to the requesting user. In contrast, the present invention accurately separates the payload and non-payload parts, encrypting only the payload part so that the data appears unchanged to the firewall, proxy server or NAT that requires only the non-payload part to affect delivery to the user requesting the data stream.

'175 patent, 8:58-9:3.

Widevine finds fault with Verimatrix's proposal because it implies a physical separation of data that the claims do not require. Verimatrix, on the other hand, argues that substituting Widevine's construction for "parsing", Verimatrix argues, yields a nonsensical result: "[analyzing data to differentiate between different portions of data] the received packet data into portions." See '175 patent, Claim 19. The Court agrees with both parties; neither proposal is appropriate. The parties have already agreed to what a parser does. The Court adopts a construction that captures the parties' agreement, as well as substitutes into the claims cleanly. "Parsing" means "differentiating."

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5. "Participant level:" 5 "Structured set of information about a person relevant to a claim." The parties agree with this construction, which also finds its basis in col. 84:37-63 of the specification.
"to partition said memory [means]"

Claim 1 of the '057 patent and claim 10 of the '362 patent contain the term "to partition said memory [means]." Typhoon suggests that the term needs no construction and simply means "to divide a memory." Defendants advocate that the definition is "to divide a memory into multiple locations recognized by the operating system as separate sections of memory for storing data." The fundamental dispute between the parties is whether "partition" should be given its technical definition. Since Phillips, claim terms are generally given their technical definition in lieu of a general dictionary definition. See Amgen Inc. v. Hoechst Marion Roussel, Inc., 469 F.3d 1039, 1041 (Fed. Cir. 2006) (citing Phillips, 415 F.3d at 1303); Mangosoft v. Oracle Corp., 525 F.3d 1327, 1333 (Fed. Cir. 2008) (construing a claim term consistently with its technical definition). Within the field of computer science, "partition" has a particular and well recognized definition meaning: "a section of a hard disk physically divided from other sections during the formatting operation and treated by the operating system as if it were a separate disk." See Defendants' Brief, Ex. 16, Docket No. 355-19 (referencing Que's Computer User's Dictionary 344-345 (1990)).

Further, the specification explains that "the host system 202 stores an application and associating libraries in memory locations partitioned by the application generator." Accordingly, this reference explains that the "data" (applications and libraries) are stored in memory locations (as opposed to physical locations) and that such memory locations were created by the application generator (the "operating system"). Therefore, besides the patented subject matter generally falling under the field of computer systems, the intrinsic evidence further supports use of the technical definition. Typhoon provides no evidence, either intrinsic or extrinsic, that supports the use of a broader definition outside the context of computer science. Accordingly, "to partition said memory [means]" means "to divide a memory into multiple locations recognized by the operating system as separate sections of memory for storing data."

3. Partitioning the cells into a plurality of partitions

<table>
<thead>
<tr>
<th>Disputed Claim Language</th>
<th>Synopsys's Proposed Construction</th>
<th>Magma's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partitioning the cells into a plurality of partitions</td>
<td>subdividing or distributing the cells into more than one partition groups of cells</td>
<td>subdividing cells in one region into multiple</td>
</tr>
</tbody>
</table>

The phrase "partitioning the cells into a plurality of partitions" appears in claims 1, 6, and 11 of the '114 patent. The parties dispute as to the construction of this term relates to whether "partitioning" is limited to subdividing a group of cells from a single region, or whether it also encompasses distributing cells to different partitions without moving the partition boundaries. In other words, if one analogizes a group of cells to a cherry pie, the dispute is whether the pie is "partitioned" only by cutting it into slices, or whether it also may be "partitioned" by moving individual cherries from one location in the pie to a different location in the pie.

The "Summary of the Invention" section of the '114 patent sets forth no requirement that the cells be partitioned in any particular manner, providing only that "[a] partitioning algorithm is then applied to group the cells into a plurality of partitions." (See '114 Patent at 2:23-25.) The specification of the '114 patent, however, expressly defines "partitioning" as "the process of subdividing the cells in order to better 'spread' them apart." (See id. at 3:48-49.) The specification nevertheless does go on to note that "[t]here are a number of different partitioning approaches that can be implemented with the present invention," citing two articles by name. (See id. at 5:38-56.) The patent also provides that "[o]ther approaches to
the partitioning process include min-cut, force-directed, simulated annealing, and spectral approaches." (See id. at 5:56-58.)

Magma argues that "partitioning," in the context of the '114 patent, requires "subdividing" the cells, i.e., dividing a group of cells into smaller parts, rather than distributing cells to different locations. As Magma notes, in a description of the preferred embodiment, "partitioning" is conducted as follows: "A cell (e.g., in the shape of a rectangle) is broken into two roughly equal sizes by drawing either a horizontal or vertical line through the approximate midpoint." 14 (See id. at 3:49-52.) In the preferred embodiment,

\[\text{[t]he first step of partitioning divides the n cells into two sets of n/2 cells. The number of cells in each side is approximately the same. The area of each half is proportional to the area of the cells included in it. The next step of partitioning is to divide each of these groups in two, this time on the other axis. This process continues until there are only a few cells in each group (e.g., twenty or less).}\]

(See id. at 4:43-50.) The above-cited language essentially describes partitioning contiguous groups of cells in the same manner as one might cut a pie into slices.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

14 It appears, based on the context of this statement, that partitioning applies to a group of cells, rather than to a single cell.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

Synopsys argues that Magma's construction ignores an embodiment described in the '114 Patent in which, according to Dr. Harris, "it is not necessary to draw additional horizontal and vertical lines for subdividing the cells." (See Harris Decl. P 143 (citing '114 Patent at 4:28-36).) The '114 patent recognizes that during the various iterations of the rough placement process, additional cells might be added to the netlist, (see id. at 3:20-26), and that despite "efficient partitioning," "there might come a point where there is not enough room to add an additional cell." (See id. at 4:21-24.) According to the specification: "The present invention overcomes this limitation whereby, the total area is allowed to expand in order to accommodate additional nets and/or cells." (See id. at 4:24-26.) The embodiment cited by Dr. Harris is described in Figure 2 of the '114 Patent:

\[\text{An example of an expanded area is shown as 213. Expanding the total area affects the partitioning. For example, the location of vertical cutline 214 corresponding to the original area size is now moved to location 215 in order to account for the increase in size as the width of the original boundary 216 is increased by shifting the right boundary to location 217. A change in the partitioning might lead to different placements. For example, prior to enlarging the area, cell 218 belonged to the rightmost partition. After the enlargement, cell 218 now belongs to the leftmost partition.}\]

(See id. at 4:26-36 and Fig. 2.) Dr. Harris attests that "[t]his is a technique of subdividing the cells, where, as a result of shifting the partition boundary, the cells in two different regions are redistributed among each other to form two new partitions," and said technique "does not involve the drawing [of] either horizontal or vertical lines in one region." (See Harris Decl. P 143.)

The process described by Dr. Harris, however, is not part of the partitioning process itself, but rather, as Magma argues, a process that occurs during the step of "spacing" the cells in response to changes made to the netlist. 15 (See '114 Patent at 3:20-47, 5:33-35; see also Dr. Sarrafzadeh Decl. P 54.) Further, in such process, although cells may be reassigned from one partition to another, such reassignment again is accomplished by moving partition boundaries, not by moving the cells themselves. 16 In sum, the process cited by Dr. Harris not only does not result in "distributing" cells from one area to another, it is not part of partitioning at all.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

15 The Court notes that each of the claims that contains the step of "partitioning the cells into a plurality of partitions" also includes the step of "modifying the spacings of the cells responsive to changes made to the netlist." (See '114 Patent at 6:66-67, 7:24-25, 8:18-19.)

16 By expanding the area in order to modify the space between cells, the preexisting partition boundaries necessarily move

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -
to ensure that the partitions remain of equal size. (See id. at 4:22-36, 4:45-47.)

Moreover, although the specification expressly notes that "[t]here are a number of different partitioning approaches that can be implemented with the present invention," and although the patent expressly identifies a number of different approaches, (see id. at 5:38-40), Synopsys presents no evidence that any of these methods involves distributing rather than subdividing groups of cells. Magma, by contrast, presents evidence that one of the articles cited in the '114 patent, "A Procedure for Placement of Standard-Cell VLSI Circuits," (see '114 Patent at 5:49-50), discusses partitioning cells by "divid[ing]" cells, rather than distributing them. 17 (See Sarrafzadeh Decl. P 50 and Ex. 33.) Dr. Sarrafzadeh also cites his own textbook, "An Introduction to VLSI Physical Design," in which he states that "[p]artitioning is the task of dividing a circuit into smaller part," and includes a diagram that depicts a group of cells being subdivided. (See id. P 51 and Ex. 34.) Dr. Sarrafzadeh further attests that it would be "completely unusual" to use the term "partitioning" to describe "merely moving cells around between two partition[s]," and that "the specification of the '114 Patent is consistent with the ordinary use of the term partitioning to mean subdividing." (See id. P 53.)

17 Dr. Sarrafzadeh does not discuss the other methods of partitioning set forth in the '114 patent.

In his reply declaration, Dr. Harris points to two articles which, he contends, show that "one may 'partition' by redistributing cells between existing regions." (See Harris Reply Decl. P 61 and Exs.C and D.) Neither article is cited in the '114 Patent, however, and Dr. Harris has not opined that any of the methods of partitioning that are cited in the '114 Patent involve redistributing cells, rather than subdividing groups of cells.

Accordingly, as the patent specifically defines "partitioning" as "the process of subdividing the cells in order to better 'spread' them apart," (see '114 Patent at 3:48-49), and as there is no evidence that any of the particular methods of partitioning cited in the patent involve distributing cells, rather than subdividing groups of cells, the Court will adopt Magma's construction and construe the phrase "partitioning the cells into a plurality of partitions" as "subdividing cells in one region into multiple groups of cells."

As an initial matter, the Court concludes that the terms "use mode" and "fully enabled mode/full version run" mean the same thing. At the Markman hearing, Microsoft readily agreed that these terms are synonymous. Uniloc, however, was hesitant to agree to synonymous treatment on the spot. But importantly, when pressed by the Court, Uniloc was once again unable to offer an example of a situation when "fully enabled mode" would mean anything other than "use mode." So, although Uniloc has not explicitly agreed that these terms are synonymous, Uniloc has been unable to make an argument, compelling or otherwise, that the terms deserve different treatment. Moreover, the Court observes that Uniloc's proposed constructions for these terms do not vary materially. While Uniloc has included the word "unrestricted" in its construction of the term "fully enabled mode," there is nothing to indicate that "use mode" is restricted in any way other than the scope of the license. Indeed, Uniloc's own expert, David Klausner, stated that use mode is an unrestricted mode:

One of ordinary skill in the art recognizes the patent relates to the use of software or digital data in a restricted or unrestricted mode (use mode/non-use mode). The terms "fully-enabled mode" and "full version run" are used similar to "use mode" to mean allowing unrestricted use in accordance with the license.

Klausner Decl. at P 18. Moreover, the specification discusses these terms in a similar context by explaining that they are the converse of the term "partly enabled or demonstration mode." Compare '216 Patent, col. 2, ll. 44-48 ("The use mode is to be distinguished from what might generally be termed unlicensed modes of operation (which is not to say unauthorized modes of operation) as typified by the demonstration modes later described in this specification"), with id. at col. 15, ll. 1-5 (explaining that the mode switching means switches software between a fully enabled mode on the one hand, and a partly
Turning then to the parties’ proposed constructions, the main point of disagreement is whether the difference between the full and demonstration modes involves only functional limitations (such as limitations on the ability to save or print a document), or whether the claim terms should be construed broadly enough to encompass temporal limitations as well (such as only being able to use the software for two days). In support of its argument that the demonstration mode only involves functions being disabled, Microsoft cites portions of embodiments 1 and 5. See id. at col. 6, ll. 47-48 (explaining that "a demonstration of the software (which typically has features such as save and/or print disabled)"); id. at col. 11, ll. 14-17 (stating that the "[t]he registration code portion 38 can include a preview or demonstration related to a subset of the balance of the digital data on the CD 54 which can be executed by the platform without license"). But while these embodiments discuss characteristics which a demonstration mode can have, or typically has, the Court declines to read these examples from two embodiments to mandate that in all instances, the demonstration mode only can involve functional limitations. See generally Phillips, 415 F.3d at 1323 (the general rule is that "persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments."). For these reasons, the words "functionality" and "functions are disabled" will not be part of the Court's construction of these terms.

Instead, the Court determines that the use and fully enabled modes are best described as allowing "full use" of software "in accordance with the license." This language is consistent with the specification's explanation of the term "use mode," see '216 Patent, col. 2, ll. 40-48 (explaining that use mode refers to use of the digital data or software so as to fulfill the licensor's obligations), as well as the specification's general guidance that once the registration routine is complete, "full access to the software is allowed." Id. at col. 8, l. 28.

Accordingly, the terms "use mode" and "fully enabled mode/full version run" shall be construed as: A mode that allows full use of the digital data or software in accordance with the license. n12

n12 Although Microsoft agreed that the terms "use mode" and "fully enabled mode/full version run" should be treated the same, it did not specify which of its proposed constructions was preferable in that event. Nonetheless, to the extent Microsoft may have intended to press its proposed construction of "use mode," this writer notes that the Court's construction incorporates the limitation expressed therein: that use mode means using the data in accordance with the obligations imposed by the license.

For the same reasons, because the term "partly enabled or demonstration mode" is the flip side of use mode/fully enabled mode, it shall be construed as: A mode that allows partial use of the digital data or software.

--- Footnotes ---

n12 Although Microsoft agreed that the terms "use mode" and "fully enabled mode/full version run" should be treated the same, it did not specify which of its proposed constructions was preferable in that event. Nonetheless, to the extent Microsoft may have intended to press its proposed construction of "use mode," this writer notes that the Court's construction incorporates the limitation expressed therein: that use mode means using the data in accordance with the obligations imposed by the license.

--- End Footnotes ---

For the same reasons, because the term "partly enabled or demonstration mode" is the flip side of use mode/fully enabled mode, it shall be construed as: A mode that allows partial use of the digital data or software.
It was undisputed at trial that Lightning Source prints on rolls or webs of paper rather than on pre-cut sheets. The district court ruled that "printing the text of said selected one of said books on paper pages" of clause [7] does not mean that the book must be printed on previously separated pages; that is, the printing can be on long webs or continuous rolls and then cut into pages. This resulted in the following jury instruction:

This clause requires the printing of one or more books. The term "paper pages" does not require the text to be printed on sheets of paper, as opposed to being printed on continuous rolls or any other of a variety of forms of paper, although the book which is produced by the process must be comprised of pages as opposed to rolls.

The defendants argue that this interpretation and instruction are incorrect, and that the claim requirement that the book be printed "on paper pages" means that the paper is in the form of pages when printed, rather than being cut into pages after printing. The defendants stress that the Ross patent is for an immediate-production automatic printing process, and not one that requires commercial-scale equipment for paper-cutting after printing.

The specification states that the patented invention is the printing of individual copies of books at the customer site rather than in a "factory setting," col. 1, lines 13-19, and illustrates a "page printer 26," which prints a "stack of paper text pages," col. 8, lines 22-40, showing page-size paper. The specification describes the Ross invention only as printing on individual pages, as distinguished from a "factory setting" and the production of multiple copies. The Ross invention, and the claims, are directed to the on-site printing and binding of a single copy, for which printing on large webs and the requirement of cutting to page size would require equipment and procedures inimical to the substance of the Ross invention.

We conclude that the district court erred in construction of this clause. When this clause is correctly construed, no reasonable jury could find that it reads on a process of printing on large sheets or webs of paper that require the further processing step of cutting into pages after printing.

C. Parallel Interface

1. Proposed Constructions

The parties agree that the construction of "parallel interface" must contain a "plurality of parallel data lines." Reply at 13. The parties, however, appear to have two main disputes regarding the construction of "parallel interface": (1) whether there can only be a single set of parallel data lines, and (2) whether serial and ATAPI data lines are excluded. Plaintiffs propose that "parallel interface" be construed as a plurality of parallel data lines that act as the interface for transferring corrected data to the MPEG decoder. Plaintiffs' '736 Br. at 22. Plaintiffs also assert that the claimed "parallel interface" excludes serial and ATAPI interfaces. Defendants appear to dispute this construction. Defendants construe "parallel interface" to mean a single parallel interface that 1) receives both the first or CD format and the second or DVD format corrected data on a parallel bus, 2) comprises a plurality of parallel data lines, and 3) transfers both the first or CD format and the second or DVD format corrected data to the MPEG decoder. Defendants' '736 Br. at 23-24; see '736 patent at 4:2-6, 4:24-30, 9:12-16, Schwartz Decl., Ex. B at ZC000221, 000246, 000338.

2. Claim Language

Claims 1 and 7 include a "parallel interface" limitation in the respective contexts of "a parallel interface that receives the corrected data on a parallel bus interface . . ." and "a parallel interface coupled to the MPEG FIFO interface. . . ." '736 patent at 11:11-12, 13:26.

Plaintiffs assert that the claims require the parallel interface to transmit two formats (first format and second format for claim 1; CD and DVD data for claim 7) of information to the MPEG decoder but that the claim language does not require that only a single parallel interface be present. Plaintiffs' '736 Br. at 22. Defendants, however, construe the parallel interface to be a single parallel interface over which all communications to the MPEG decoder pass. In response, plaintiffs reason that Phillips prevents defendants from importing the limitation of a single parallel interface since the term "single" is absent
from the claims. Id.

Plaintiffs further contend that although the claims contain no other specific limitations on the precise nature of the parallel interface, the ATAPI and serial data interfaces are disclaimed or outside the scope of the claims in light of particular statements in the specification and file history. Id.

3. Specification

In support of their assertion that ATAPI and serial data interfaces are outside the scope of the claims, plaintiffs note that columns 1 though 3 of the specification, which discuss the prior art, state that CD data in a conventional playback system was transferred to the MPEG decoder over the single data line of a serial interface. Id.; '736 patent, col. 2:27-30, col. 3:24-35. In the prior art, a conventional DVD player transferred data to the MPEG decoder over a parallel interface. Plaintiffs' '736 Br. at 22; '736 patent at 3:36-38. The specification then states:

Therefore, in conventional DVD/CD playback systems, the MPEG decoder normally has to support an 8-bit parallel interface for DVD and a serial interface for CD. The 8-bit parallel to serial conversion at CD controller and the serial to parallel conversion at MPEG decoder not only pose an unnecessary overhead in hardware for the playback system, but also requires an 8-times higher transfer rate for the serial interface [in order to keep pace with the parallel interface]. Thus, a new transfer protocol which eliminates the serial interface associated with traditional CD-DSP controllers is desired.

Plaintiffs' '736 Br. at 22-23; '736 patent 3:38-45. Based on this specification language, plaintiffs assert that the parallel interface of the claimed invention must exclude the conventional serial CD interface of the prior art since the patent specifically solves the problem of providing a single type of interface -- parallel only versus both serial and parallel.

To further demonstrate that the ATAPI and serial data interfaces are disclaimed, plaintiffs point out that the "Summary of the Invention" section of the '736 patent states that "[a]ccording to one aspect of the present invention, the DVD/CD controller includes a unique MPEG interface which facilitates transfer of CD data and DVD data from the DVD/CD controller to a MPEG decoder using a parallel interface," and that "[t]he parallel MPEG interface eliminates parallel-to-serial and serial-to-parallel conversion overhead problems associated with conventional DVD/CD playback systems. The parallel interface also obviates the need to transfer information at higher rates as in conventional DVD/CD playback systems." Plaintiffs' '736 Br. at 23; '736 patent 4:2-6, 24-30. Given this language in the '736 patent, plaintiffs conclude that the parallel interface must also avoid the need to convert CD data from parallel to serial for purposes of sending it to the MPEG decoder. Plaintiffs' '736 Br. at 23.

Plaintiffs also assert that defendants err in arguing that the claimed parallel interface does not exclude an ATAPI interface. Id. Plaintiffs allege that the specification repeatedly and at length discusses the disadvantages of the ATAPI interface and distinguishes the invention over ATAPI. Id.; '736 patent, 2:41-63, 4:16-19, 8:41-56. According to plaintiffs, the elimination of ATAPI is one of the stated goals of the invention. Reply at 14; '736 patent at 4:16-19. Lastly, plaintiffs cite to Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc. 242 F.3d 1337, 1342-43 (Fed. Cir. 2001) and Phillips, 415 F.3d at 1325, in support of their argument that by discussing the advantages of prior art and distinguishing the claimed invention over the prior art, a patentee excludes that prior art from the scope of the claims. Reply at 14. Plaintiffs contend that such exclusion occurred here. Id.

To rebut plaintiffs' interpretation that the parallel interface excludes an ATAPI interface, defendants contend that, although the specification notes that the invention eliminates the need for an ATAPI interface, nothing in the claims or specification disclaims an ATAPI interface. Defendants' '736 Br. at 24. The court finds defendants' argument to be unpersuasive. The specification clearly disclaims serial and ATAPI interfaces. Indeed, as plaintiffs correctly point out, one purpose of the invention was to eliminate the need for such interfaces, such that two different formats of data could be transmitted over a single type of parallel interface.

In support of their proposed construction that there can only be a single parallel interface that transfers corrected data to the MPEG decoder, defendants note that the specification provides that "MPEG interface 104 reads CD or DVD data directly from memory subsystem 102 on to a single parallel bus and forwards the data via the parallel bus to MPEG decoder 40 using proper handshaking. In a specific embodiment, MPEG interface 104 provides a 8-bit parallel interface to MPEG decoder 40." Defendants' '736 Br. at 23; '736 patent at 9:11-16.
4. Prosecution History

To demonstrate that a parallel interface is a single parallel interface, defendants note that applicants repeatedly argued during the prosecution that a critical advantage that distinguished the patent over the prior art was that the prior art required two interfaces to transfer data to the MPEG decoder, while the invention required a single interface. Defendant's '736 Br. at 23; see ZC000221, ZC000247, ZC000338.

Rebutting defendants' use of the prosecution history, plaintiffs contend that during the prosecution, the applicants distinguished the claimed parallel interface over prior art. Reply at 13. According to plaintiffs, applicants stated that all of the prior art taught that two types of interfaces needed to be used -- a serial interface for CD data and a parallel interface for DVD data. Id.; see Schwartz Decl., Ex. B at ZC000339, 000230.

The court finds that the plain meaning of a parallel interface is an interface which transfers data over multiple channels simultaneously. This is in contrast to a serial interface, which uses a single data channel to transfer data. The plain meaning does not require a specific number of data channels, only that there are more than one. The parties agree that the construction includes a "plurality of data lines." With regard to their contentions that involve differing proposed additional limitations, the court finds that defendants' argument that there must be a single parallel interface over which all communications pass is not supported by the claim language, as there is no limiting language requiring only one instance of the parallel interface. Plaintiffs' argument that the specification disclaims ATAPI and serial data interfaces for transferring corrected data to the MPEG decoder as part of the parallel interface is persuasive, as the invention of a parallel interface to provide an alternative to the serial and ATAPI data interfaces is a key innovation in the '736 patent. This constitutes a sufficiently clear disclaimer of claim scope by the inventor. Phillips, 415 F.3d at 1316 ("the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor"). Thus, the court construes "parallel interface" to mean "a plurality of data lines that transmit both formats of information to the MPEG decoder." ATAPI and serial data interfaces are not within the scope of "parallel interface."

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Both patents use the term "parameter" in the claim language. For example, claim 1 of the '304 patent claims "in response to a selection of a particular location of the order entry region by a single action of a user input device, setting a plurality of parameters for a trade order. . . ." Claim 1 of the '132 patent claims "setting a preset parameter for the trade order" and "selecting a particular area in the order entry region through single action of the user input device with a pointer of the user input device positioned over the particular area to set a plurality of additional parameters for the trade order. . . ." Although the preset parameters and the additional parameters may be different, in all cases the term "parameter" means "an element of a trade order, including, but not limited to, quantity, price, type of order and the identity of the commodity." Defendants encourage us to limit our construction to the listed parameters. The specifications, however, state: "Similarly, every exchange requires that certain information be included in each order. For example, traders must supply information like the name of the commodity, quantity, restrictions, price and multiple other variables." As defendants' constructions do not account for restrictions or "multiple other variables," they Cannot he correct.

GO BACK

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7. "Credit Parameter" and "Account Parameter"

Walker proposes that the court construe these claim terms to mean ":[a] term of a credit account, such as the interest rate, credit limit and monthly minimum payment." Capital One proposes that the court construe these claim terms to mean "[a] term (provision) of a credit account." The parties agree that these terms refer to a term of a credit account and agree that both of these claim terms should have the same construction. Walker asserts, however, that the parties disagree on whether there is a need to expand on the word "term" within their proposed constructions. Walker proposes that the construction include examples of some terms of credit accounts, taken directly from the specification, so as to prevent either party from confusing the jury by arguing that an unspecified feature is a "term" within the meaning of the construction. Capital One
argues that the phrase "term of a credit account" is clear to a layperson and requires no further elaboration. Capital One also argues that Walker's construction, would likely confuse jurors by suggesting that only the three listed terms are parameters, or would cause them to question whether there is something special about the terms Walker recites.

The court is in agreement with Walker that the jury may be confused by the simple definition proposed by Capital One. The danger in a simple definition such as the one proposed by Capital One is that it may lead the jury to believe it understands what a "term" is when, in fact, it does not. The court believes that it is important to provide the jury with an example of a "term" to help it understand those provisions of a credit account that are "terms." However, the court also understands Capital One's concern that providing the jury with these three listed "terms" may cause the jury to place special emphasis on those "terms." The court believes it would better guide the jury to provide it with a single example of a term and explicitly state it may be one of several parameters. In that way, the jury may compare other proffered "terms" to that example to help them discern between those features of a credit account that are "terms" and those that are not, without placing special emphasis on a given set of "terms." For these reasons, the court construes the terms "credit parameter" and "account parameter" to mean "a term or provision of a credit account. For example, the interest rate may be one of several parameters of a credit account."

The parties dispute the definition of the terms "parameter values" and "procedure routines specifications" in claim 1. At its core, the parties' argument turns on whether the terms are numbers or software code. Roche contends that both terms refer to numbers or data values of different types. Defendants contend that "parameter values" are numbers, while "procedure routine specifications" are code. The Court agrees with Roche.

Although the parties dispute the proper construction for the term "parameter values," their definitions for the term are very similar. Roche contends that the term means "data values used in the algorithm," while Apex/HDI argue that the term means "constants and variables that are critical to the operation of the meter," and Biosite avers that the term means "constant values that are assigned to variables for a specified application." The Court finds the term "parameter values" has its ordinary meaning of "constants that are assigned to variables."

The ordinary meaning for the term "parameter" is a constant or value associated with a particular value or variable. See, e.g., WEBSTER'S THIRD NEW INT'L DICTIONARY at 1638; IEEE Std. Glossary of Software Eng'g Term., IEEE Std. 610.12-1990, at 55; Biosite Exh. 5, Louder Rep. P 15; Roche Exh. 5, Dunsmore Dep. at 55. The other claims of the 609 patent confirm that the ordinary meaning of the term should apply in this instance. Claim 4 is perhaps the most revealing claim with respect to the varied types of constants or data intended to be included as a "parameter:"

. . . pluggable memory key means including a plurality of stored parameter values for controlling operations of said meter; and

processor means . . . wherein the processor means is responsive to parameter values accessed from said pluggable memory key means, to cause said excitation supply means to apply a plurality of voltages to said first electrode, each said voltage having a potential and being applied for a duration that is determined by said processor means from parameter values accessed from said pluggable memory key means, and to further control said sense amplifier means to provide a plurality of signal outputs over a set duration and to further calculate from said signal outputs a value equivalent to a concentration of an analyte in said analyte-containing fluid in said sample well, all in conformance with parameter values accessed from said memory key means.

'609 Patent, col. 9, ll. 48-68. Likewise, claim 5 also designates that control values, or parameters, are accessed on the pluggable memory key means, including "values of said first and second excitation potentials and the number of signal outputs from said sense amplifier means controlled by parameter values accessed from said memory key means." Id. col. 10, ll. 31-35.

The specification also indicates that the plain meaning of "parameter values" should apply to the term in the context of the
609 patent. The summary of the invention teaches that "[a] microprocessor is responsive to a procedure routine and parameter values accessed from the pluggable memory key to cause the excitation supply to apply a plurality of potentials for preset durations, both the values of the potentials and the time duration of their application determined from parameter values derived from the memory key." Id. col. 3, ll. 49-55. Similarly, the 609 patent reads: "the sense amplifier [is] operated under control of specific parameter values derived from the pluggable memory key." Id. col. 3, ll. 57-60. From these passages alone, it is clear that a "parameter value" is a constant or data that is assigned to a variable in the programs that are run by the microprocessor. This is also consistent with the language used to describe the interaction between the microprocessor and the ROM key: "When ROM key 30 is inserted into meter 10, a plurality of flexible contacts . . . enable a microprocessor within meter 10 to access data stored in ROM chip 32." Id. col. 4, ll. 52-56.

The most compelling support for the ordinary meaning of "parameter value" in the 609 patent specification, however, is found in the more detailed descriptions of the contents of the ROM key. The 609 patent reads, in pertinent parts:

A microprocessor 59 . . . provides overall control of the operation of biosensing meter 10 in combination with data read from ROM key 30. ROM key 30 is pluggable into biosensing meter 10 and contains non-volatile memory that includes constants and other data required to carry out analyte-determination procedures. In general, a ROM key 30 will accompany each batch of disposable sample strips 18 and will contain constants and procedure code that enable meter 10 to adjust its measurement parameters to match the specific batch characteristics of disposable sample strips 18. Further, ROM key 30 will also contain a large number of additional variable values that control the operation of microprocessor 59 in performing the actual analyte determination tests.

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As above indicated, the operation of a biosensing meter 10 is substantially controlled by data contained in ROM key 30. ROM key 30 will contain a variety of data values that are critical to the proper operation of meter 10. Those values encompass measurement delay times, an incubation time, the number of measurements to be taken during a measurement period, various thresholds against which voltage levels are to be compared, values of excitation voltage levels to be applied to sample strip 18 during a test procedure, glucose value conversion factors, and a variety of failsafe test threshold values.

Id. col. 5, ll. 3-18; id. col. 5, ll. 66-68, to col. 6, ll. 1-8. These passages indicate that "parameter values" must be "constants or data" because the same language is used to describe how those "constants or data" are used to control the microprocessor of the meter that is used in claim 1 to describe what the "parameter values" do to control the processor means. Compare id. col. 5, ll. 3-18 and id. col. 5, ll. 66-68 to col. 6, ll. 1-8 (the passages listed here), with col. 9, ll. 4-11 (describing the interaction between the processor means and the parameter values and procedure routine specifications on the memory key).

Roche contends that there are two types of constants, "parameter values" and "procedure routine specifications," where "parameter values" are constants used in the algorithm, but "procedure routine specifications" are data values or numbers used to control execution of the algorithm. Roche asserts that the first passage above teaches "constants and other data" and "additional variable data," which is two different types of data. Roche argues that the former type of data is "parameter values" and that the latter type of data is "procedure routine specifications." Furthermore, Roche argues that because dependent claim 2 specifically requires that the pluggable memory key means contain "procedure routines," which Roche agrees with Defendants must be code, the only way to differentiate claim 2 from claim 1 is if "procedure routine specifications" is not code, but numbers or data. In addition, Roche asserts that in the prosecution history, the inventors clearly intended to include two types of data: parameters and specifications. Roche Br. at 45-46. Defendants do not really address this reference in the prosecution history.

Although the Court does not agree with Roche's argument in its entirety, the three sources of intrinsic evidence indicate that "procedure routine specifications" are data rather than code. The Court looks to the claims first. Claim 1 uses the term "procedure routine specifications" three times:

... said pluggable memory key means including a plurality of stored parameter values and procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter that enables determination of an analyte concentration value, said procedure routine specifications including stored values from which time values can be determined for controlling said sense means during execution of said algorithm; and

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processor means . . . responsive to parameter values and procedure routine specifications accessed from said pluggable memory key means, for controlling operation of said sense means in accordance with said algorithm and for calculating from signal outputs from said sense means a concentration value of an analyte in said analyte-containing fluid is said sample well.

Id. col. 8, ll. 62-68, to col. 9, ll. 1-11 (emphasis added). It is clear from the second usage of the term that "procedure routine specifications" must include "stored values from which time values can be determined for controlling said sense means during execution of said algorithm," therefore, to that extent, "procedure routine specifications" include values, or numbers. No other claims of the 609 patent uses the term "procedure routine specifications." Instead, the remainder of the claims use the term "parameter value" to describe all types of data values, including ones that Roche asserts are "procedure routine specifications."

Roche contends that two different types of data are referred to in the specification: "measurement parameters" and "additional variable values." Id. col. 5, ll. 12-15. The former, Roche argues, are "parameters" and the latter are "procedure routine specifications." However, several of the "additional variable values," described in more detail later in the specification, are identified by other claims as "parameter values." Compare, e.g., id. col. 5, ll. 3-18 and id. col. 5, ll. 66-68 to col. 6, ll. 1-8 (describing particularly the "additional variable values"), with col. 9, ll. 55-68 (describing the interaction between the processor means and the parameter values in claim 4). This evidence points away from a definition of "procedure routine specifications" that would limit the type of values that could serve as "parameter values," and suggests that an argument for an arbitrary distinction between the two types of data is flawed.

Roche also argues that the doctrine of claim differentiation supports its argument that "procedure routine specifications" are data. Apex/HDI contend that this is unworkable given the strong evidence that "procedure routine" is code and that the 609 patent specifically identifies that the pluggable memory key means has both procedure and code. See id. col. 5, ll. 9-11. To varying degrees, Roche and Biosure urge the Court to look to the plain meaning of the term "specification" to resolve the parties' dispute. The Court agrees that this approach helps illuminate the difference between "procedure routine specifications" and a "procedure routine" as those terms are used in the 609 patent. The plain meaning for specification is to make something more specific, or to identify something in greater detail. See WEBSTER'S NEW INT'L DICTIONARY at 2187; WEBSTER'S COLLEGIATE DICTIONARY(10th Ed.). Claim 1 already teaches that "procedure routine specifications" include "stored values from which time values can be determined for controlling said sense means during execution of said algorithm," 609 Patent, col. 9, ll. 1-3, therefore, it is not a stretch to combine the plain meaning of "specification" with "procedure routine" to decide that a "procedure routine specification" is something that identifies a procedure routine, or an identifier for something within the procedure routine. But, how is type of data distinguishable from a parameter value?

A definition for "procedure routine specification" that is data is consistent with the 609 patent specification's apparent reference to at least two different inventions, one in which there are two types of data on the pluggable memory key means, see id. col. 5, ll. 5-9 ("ROM key 30 is pluggable into meter 10 and contains non-volatile memory that includes constants and other data required to carry out analyte-determination procedures.") and one in which there are both "constants and procedure code." See id. col. 5, ll. 10-11 (stating "a ROM key 30 . . . will contain constants and procedure code"); id. col. 6, ll. 8-13 ("In addition, ROM key 30 may contain either a portion of or the entire code listing that controls the procedures of meter 10 so that, by substitution of a new ROM key, test procedures performed by meter 10 can be altered accordingly."). Moreover, it is the only definition that is consistent with the use of the term "specification" in the prosecution history. The prosecution history reads:

Claims 1-5, 15 and 16 were rejected under 35 USC [sic] 102(b) in view of Keiser et al. Prior to considering the rejection, it is worthwhile to briefly review Applicants' invention. Applicants biosensing meter resembles the meter of Keiser et al. in several respects, but departs therefrom in such a manner as to provide substantial functional improvements. Applicants' biosensing meter receives a pluggable memory key that contains a memory chip which stores (1) plural parameters, (2) specification values which are used to control the operation of an algorithm that analyzes a sample to determine the presence of analyte and (3) further contains in certain configurations, the actual procedure to be used by the meter. By inserting these parameters, values and procedures into the meter via a pluggable key, Applicants have enabled the meter to be reprogrammed at any time there is an improvement in the algorithm (e.g. an improvement which enables a faster or more accurate analysis procedure to be performed). Prior art biosensing meters were incapable of being modified to accept an improved algorithm for the performance of a test function. As a result, prior art biosensing meters had to be structurally

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altered so as to accommodate a revised algorithm, test procedure or other improvement.

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Keiser et al. include no teaching that the pluggable memory chip contain parameters which define "procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter . . . said procedure routine specifications including stored values from which are determinable time values used to control said sense means during execution of said algorithm" (see claim 1 [as then amended]). Claim 2 is dependent upon claim 1 and indicates that the pluggable key means includes "a procedure routine that when executed by said processor means, enables execution of said algorithm". [sic] Keiser et al. have no such data in their pluggable memory key.

Defs.' Exh. 2, at A71-A73 (emphasis added).

This section of the prosecution history teaches two things. First, that the inventors saw a distinction between "plural parameters" and "specification values." Id. at A71. Second, that in distinguishing their invention from that of the prior art, the inventors seemed to refer to the language of claim 1 regarding "procedure routine specifications" as a subset of "parameters" within the context of claim 1. Id. at A72 ("Keiser et al. include no teaching that the pluggable memory chip contains parameters which define procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter . . ." (see claim 1)). It is this piece of information, in conjunction with the lack of evidence in the other claims or in the 609 patent's specification as to how to distinguish between data that comprises "parameter values" and data that comprises "procedure routine specifications," that convinces the Court that "procedure routine specifications" should be limited to the definition given it by claim 1 itself: "procedure routine specifications including stored values from which time values can be determined for controlling said sense means during execution of said algorithm." 609 Patent, col. 8, l. 68, to col. 9, ll. 1-3.

Roche's expert, Dr. H.E. Dunsmore ("Dr. Dunsmore"), an Associate Professor of Computer Science at Purdue University in West Lafayette, Indiana, opines that "procedure routine specifications" means "values that determine what the algorithm is," and distinguishes "procedure routine specifications" from "parameter values" by stating that the "parameter values" in claim 1 are narrower than the "parameter values" referenced in the remaining claims. Roche's Exh. 5, Dunsmore Rep. P 41. But, the Court sees no real way to distinguish between what is a "parameter value" and what is a "procedure routine specification" under this analysis. Yes, Dr. Dunsmore's report explains that a procedure routine specification could refer to numbers that change the formula for calculating a particular unknown, while parameter values are constants in the same formula, but there is nothing in the claims, the specification or the prosecution history that supports this distinction. Compare id. PP 15-22 with id. PP 23-41. In other words, this is an arbitrary differentiation between the two types of values that is only resolved by consultation with the description for "procedure routine specification" contained in claim 1.

The Court recognizes that limiting the definition of "procedure routine specification" to that found in the claim itself is extraordinary, however, the Court finds no better way to reconcile the clear meaning of the term "parameter value," the lack of evidence to support a more clear distinction between "parameter values" and "procedure routine specifications," and the evidence of two types of values in the prosecution history.

For the foregoing reasons, the Court finds that "parameter values" means: constants that are assigned to variables; and the term "procedure routine specifications" means: stored values from which time values can be determined for controlling a sense means during execution of an algorithm.

TiVo argues these terms should be construed to mean "analyzes video and audio data." See TiVo's Opening Br. at 9-11; TiVo's Op. Br. at 11-13; '389 patent at cols. 5:3-6, 5:33-36, 6:36-58, & Fig. 6; TiVo's Markman Slides at 135-39; see also id. at col. 12:48-50 (". . . parses said MPEG stream . . .").

EchoStar argues "parses" means "separates," and "parses video and audio data from said broadcast data" means "analyzes
the content of broadcast data and from it transmits two distinct components: one video component and one audio component." See '389 patent at Fig. 3 & col. 4:23-29; EchoStar's Opening Br. at 11-12; EchoStar's Response Br. at 7-10; EchoStar's Slide Presentation at 76-98, 123-24.

As was the Court's analysis of the term "parses" in the context of claims 1 and 32, the Court similarly finds that "parse" as it is used in claims 31 and 61 means "analyzes." These terms are recited clearly by claims 31 and 61 and understood by persons of ordinary skill in the art. See '389 patent at cols. 14:55-58, 18:5-8. This definition is consistent with the use of the term in claims 31 and 61 and the context of the specification. See, e.g., '389 patent at col. 4:23-33 & Fig. 3 (describing the analysis of interleaved video and audio streams from an incoming MPEG stream).

Therefore, the court defines "parses video and audio data from said broadcast data" as "analyzes video and audio data from the broadcast data."

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7. "particular user"

<table>
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<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<tr>
<td>&quot;particular user&quot;</td>
<td>one specific user</td>
<td>authenticated user</td>
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The dispute is whether a user needs to be authorized first to request access to metadata. The defendants contend that the '231 patent relates to controlling users' access to data, and Fotomedia's adoption of the English dictionary meaning of "particular" fails to acknowledge this. Defendants argue that to determine a user's role(s) and privileges, the system must be able to ascertain the identity of a user and distinguish that user from others. Otherwise, the system would not be able to limit the access to metadata. Hence, the defendants contend there is a need for the user to have been authenticated.

The specification discloses that "[i]n a preferred embodiment, the request includes the user's ID and identifies the type of access desired. The user is then authenticated and assigned the appropriate role for the specific image requested based on the user ID in step 202." See '231 Patent, col. 4, l. 66 - col. 5 l. 3. Plaintiff argues that nothing in the claims requires that the authentication be done before a user's request is received. Fotomedia points to Figure 6 in the specification as showing that the "receive user's request to access the image file and its metadata" step is done before authenticating the user.

The claim language does not clearly describe the authentication step. The claim recites: "receiving a request for access . . ., wherein the user's role is determined from the request." Although an authentication step must occur at some point, it is improper to read in a requirement that only authenticated requests arrive.

A "particular user" is, therefore, "a user who may be authenticated."

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1. "Products Carrying Participation Numbers"

The plaintiffs contend that the term "products carrying participation numbers" is straightforward and its meaning may be taken from the ordinary meaning of the words themselves. The defendants argue that the words "product" and "carrying" indicate that the product on which the participation number is carried must have inherent value apart from the number; thus, the defendants argue, "products" cannot include prepaid calling cards.

The term "products" is not used in the Katz patents as a term of art, as the parties agree. Thus, the Court should give the term its plain, ordinary English meaning. The Court concludes that the plain meaning of "products," which denotes an item produced for use in a commercial setting, does not support the construction given to it by the defendants. The plain meaning of the term "product" in the claim language does not connote something of inherent value apart from the number carried.
The specification does not contradict the plain meaning of "products." The only place in the specification that discusses products carrying participation numbers is Column 17, lines 13 through 17 of the '707 patent, which reads "[a] key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show." This passage in no way suggests that the product must have value independent of the participation number. The defendants also point to Column 9, lines 35 through 38 of the '707 patent, which discusses restricting callers to the purchasers of a medical apparatus. This discussion is given by way of example only and does not indicate that all "products" must have inherent value apart from the participation numbers.

The defendants rely on statements made by Katz during the prosecution of the '707 patent. In the August 31, 1995 Amendment, Katz distinguished the '275 patent to Kamil by stating that "Kamil discloses a telephone system enabling prepayment for telephone calls, wherein special code and credit information is stored in memory in special exchanges and debited as the call progresses" and that Kamil "does not disclose specific limitation recitations including consumable key operation, nor does it disclose providing a product bearing a participation number specifying a limit on use." (Ex. 51). The defendants argue that Katz clearly stated that his invention was distinct from Kamil because Kamil used prepaid tickets which do not have inherent value, and thus, are not "products."

The Court concludes that Katz did not unambiguously state that his invention required products with inherent value apart from the participation number; it is possible, for example, that Katz's distinction was based on the fact that Kamil's special code connected with the prepayment for telephone calls did not specify a limit on use. Katz did not mention Kamil's use of a prepaid ticket as a method of recording the prepayment in his statements so it is not clear that Katz was using the concept of a prepaid ticket as the basis for his distinction. In addition, these statements were made by Katz in a voluntary amendment, not in an effort to change the examiner's decision on a rejected claim. Thus, the Court concludes that Katz's statements do not indicate a clear disavowal of coverage so as to require that "products" have inherent value apart from the participation numbers. See York Products, 99 F.3d at 1575.

Based on the foregoing, the Court concludes that "products carrying participation numbers" means: a physical item sold or exchanged in a commercial setting which carries a number allowing participation in the Katz system.

10. "patient-specific rules"

Plaintiff proposes "a rule tailored to the medical condition of the patient." Defendants propose "a tailored rule designed for a particular patient based on that patient's personal medical condition." Defendants argue that the additional words "designed for a particular patient" are necessary because the specification talks about "patient-specific rules," as opposed to "disease-specific rules." The Court agrees with plaintiff's proposed construction for several reasons.

First, defendants agreed at the Markman hearing that its proposed term "customized" can be replaced with tailored. (Hr'g., Day 2, p. 7.) Thus, the remaining controversy pertains to whether the rules are tailored to the medical condition of a patient (plaintiff's version) or designed for a particular patient based on that patient's personal medical condition (defendants' version.)

Plaintiff argues that defendants take words from the specification out of context and seek to limit the ordinary meaning of "patient-specific rules" as understood by a person skilled in the art at the time of the invention. Based on an examination of the intrinsic evidence and viewed through the prism of a person skilled in the art, the Court finds plaintiff’s construction to be the most accurate and is not persuaded by defendants' argument to narrow the claim term. "Patient-specific rules" is construed as: "a rule tailored to the medical condition of the patient."
2. Partitioned (Claims 1, 10, 17, 23 & 35)

"Partitioned" refers to either logically dividing or physically dividing the memory into a plurality of sectors. When the patent refers to the memory array being "partitioned" into sectors it is not necessarily referring to the physical division of the memory into sectors such that each sector must be physically separated from the adjoining sectors.

6. Partitioning first and second registers into a plurality of floating point operands, said floating point operands having a defined bit width, wherein said defined bit width is dynamically variable

The court construes "partitioning first and second registers into a plurality of floating point operands, said floating point operands having a defined bit width, wherein said defined bit width is dynamically variable" to mean "dividing a first and a second register width-wise into a variable number of floating point operands based upon a variable width of the floating point element."

B

"[P]artitioning the memory cells within the individual sectors into at least a user data portion and an overhead portion" (claims 1 & 10)

The court previously interpreted the above term as meaning:

Construction: Each non-volatile memory sector contained within an array of non-volatile floating gate memory cells must include at least one user data portion and one overhead portion. Memory sectors are not limited to only one user data portion and one overhead portion.

Claim constr order (Doc # 318) at 16 (emphasis added).

The Federal Circuit held that this construction was erroneous. SanDisk Corp v Memorex Prods., 415 F3d 1292. Based on the plain language of the claim term, a strong presumption against excluding preferred embodiments of the invention and rejecting defendants' prosecution history estoppel argument, the Federal Circuit held that there may be memory sectors within a device that are not partitioned into at least one user portion and one data portion. Id at 1283-1290. The parties now all acknowledge "each" sector need not be partitioned into user data and overhead data.

But the dispute has shifted focus. SanDisk proposes: "The step of dividing (logically or physically) each individual sector used by the computer system in the practice of method claim 1 into at least one user data portion and at least one overhead portion." JCC (Doc # 371), Ex A at 11 (emphasis added). Quite similarly, Ritek proposes: "The memory cells within the individual sectors required to perform the steps of the claimed method are logically or physically divided (i.e., partitioned) into at least a user data portion and an overhead portion. Memory sectors are not limited to only one user data portion and one overhead portion." Id (emphasis added). Both SanDisk and Ritek agree that their constructions are largely the same. SanDisk Br (Doc # 373) at 10; Ritek Br (Doc # 390) at 16; SanDisk Reply Br (Doc # 396) at 6.

The only substantive differences are the terms "used by" and "required to perform." To the extent the parties' proposed constructions differ, Ritek argues that, while the "partitioning * * * into user and overhead data" step need not be performed on every sector in the memory system, the "partitioning" step must be performed on every sector in the memory array. According to Ritek, the significance of Ritek's proposed addition, "required to perform the steps of," is that it requires each
sector within an "array" to be partitioned. Ritek argues that this is merely what the Federal Circuit held in rejecting the court's first construction of "partitioning."

The court is not persuaded that the Federal Circuit stated as much. The Federal Circuit rejected the construction that "every Flash EEprom memory cell within an actual device [must] be grouped into a sector that is partitioned into user and overhead data portions." SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1284. Ritek's additions do not necessarily follow from this rejection. The Federal Circuit did not address whether every sector within an "array" must be partitioned. Nor did the Federal Circuit address how an "array" is delimited from other arrays or other memory cells - nor did this court. By the plain language of the claims, the Federal Circuit stated that all that is required of the claimed memory system is "some memory cells, grouped into sectors, partitioned into user and overhead data portions," and "additional, unclaimed use" of memory cells is consistent with practicing the claimed invention so long as all of the limitations are met. Id; '987 patent.

There is a gap between what the Federal Circuit held (all that is required is "some memory cells, grouped into sectors, partitioned into user and overhead data portions") and what Ritek argues that the Federal Circuit held ("the Federal Circuit held that the 'array' practices the invention but that the 'memory system' may contain other, unclaimed, memory cells.") SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1284; Doc # 400 at 6. The court does not need to visit this issue to arrive at a proper claim construction that is consistent with the language of the plain language and the intrinsic evidence.

Accordingly, the court declines to adopt Ritek's proposed construction of "partitioning." Similarly, the court declines to adopt SanDisk's proposed construction.

Instead, the court gives the following hybrid construction to conform with the Federal Circuit's rejection of the initial claim construction:

The non-volatile memory sectors contained within an array of non-volatile floating gate memory cells include at least one user data portion and one overhead portion. Memory sectors are not limited to only one user data portion and one overhead portion.

The changes in the court's construction being: (1) "Each" is now "The"; and (2) "must" is omitted. See claim constr order (Doc # 318) at 16. This construction is consistent with the Federal Circuit, the plain language and the intrinsic evidence.

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Parts

Defendants argue this term should be construed to mean "sub-components of equipment." Orion contends "parts" does not require construction, and the Court agrees. Defendants have not demonstrated that this term is used in a manner inconsistent with its ordinary lay meaning. Further, Defendants' construction overly complicates the term. "In the preferred embodiment, the types of parts under the cross-referencing/parts selection procedure include batteries, filters, remanufactured electric parts, lubrication and bearings." Col. 9:4-8. While a lay jury would likely consider batteries or lubrication to be "parts," it is less certain that they would consider them to be "sub-components of equipment."

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B. "First Party/Second Party"

Again, these are terms utilized throughout the patents-in-suit referring to the two entities which interact during the transfer of the digital signal, e.g., a "method for transmitting a desired digital audio signal stored on a first memory of a first party to a second memory of a second party . . . ." (Docket # 69, Exhibit J at 6). Plaintiff asserts that the term "party" should be construed as meaning "an entity and/or its agent." Defendants respond that the meaning, each time that the terms are used, should be "a single financially distinct entity at locations separate and distinct from each other."

Sightsound does not contest that, in the context of the claims at issue in this case, the "first party" and "second party" are
financially distinct from one another, or that various claims require that the transaction occur when certain items or entities are at distinct locations (Docket # 96 at 8). However, Sightsound takes the position that "financially distinct" and "at separate locations" are limitations imposed, where appropriate, in particular claims, and that there is no need to impose them on the definition of the terms "first party/second party" each and every time that those terms are used.

In claim 1 of the '573 patent, the reader is informed that during the transferring money step the "first party" is "at a location remote from the second memory," and that the "second party" is "financially distinct from the first party." (Docket # 70, Tab 51). This claim also contains the limitation that the second party is in the position of "controlling use and in possession of the second memory" (Id.). Later in this report, the "control and possession" question is addressed. It is enough to say, however, that the combination of the first party being at a location remote from the second memory, and the second party being in possession and control of the second memory, all but ensures that the first and second party will be at distinct locations. The remaining two claims in suit from the '573 patent, claims 2 and 3, are dependent claims which also have these limitations.

The '734 patent includes in each of the asserted claims the requirement that the memory of the first party and that of the second party be "remote" from one another (Docket # 71, Tab 35, '734 Patent Claims 1, 4, 11, 26) 9. Hence, the issue of whether the parties are at separate locations is not specifically addressed, although the use of memories at distinct locations would generally describe situations where the parties are with their respective memories. Further, as Sightsound suggests, the claims also include at least one step which requires that money or a fee be charged (Claims 1, 26), or that the digital audio signal is "sold" to the second party (Claim 4), or that there must be a means for "transferring money" between the first and second memories (Claim 11). None of these transactions makes sense unless they occur between parties which are "financially distinct."

9 Again, the remaining claims are dependent claims which incorporate these same limitations.

Finally, the '440 patent also contains language indicating distinct locations for the first and second party memories (Docket # 69, Exhibit K, Claims 2, 12, 22, 36, 41), as well as "charging a fee" or other indicia that the parties are, necessarily, financially distinct (Id., Claims 1, 12, 22, 36, 41).

Therefore, in virtually all of the claims asserted in this case, the "first party" and the second memory, or the first memory and second memory, must be remote from one another. 10 The context of those claims further requires that the parties be financially distinct in order for their actions to read on the patent. This distinction, however, is not a matter of construction of the terms "first party/second party," but of the language of each particular claim in which those terms are used. In other words, the location and financial distinctions arise, if at all, from other language in the claims, and not from the use of the terms "first party" or "second party." The terms will not be construed to include any location or financial distinctions apart from those imparted in the language of particular claims. 11

10 The two claims which do not contain such language are Claims 1 and 11 of the '440 patent, although each claim states that the connection between the first and second party memories is to be made through telecommunications lines. It may be possible, therefore, for these claims to apply to a situation where two financially distinct entities have their equipment at the same location, e.g., in the same room, even though the connection between them occurs over telecommunications lines. The court, however, again sees no basis for including within the term "party" the requirement that the parties be at distinct locations. Any further analysis of these claims must await issues which lie beyond claim construction.

11 The court's finding that "financially distinct" is a concept incorporated into each claim-in-suit by the use of the concept of a sale taking place makes it unnecessary for the court to address defendants' argument that the patentee bound himself to "financially distinct" parties through an amendment process before the PTO (See Docket # 75 at 7). Since the asserted limitation appears to be contained in each claim asserted by Sightsound, and since Sightsound does not contest that the first party and second party must be financially distinct from one another, there is no need to determine whether the claims must
be construed in light of subject matter allegedly abandoned during prosecution of the patents.

There is a further dispute, however, concerning the term "party," and it has to do with Sightsound's insistence that the term includes an entity or an entities' agent. Defendants assert that there is no indication in the patents or the specifications that an "agent" may act on behalf of either the first party or the second party. Defendants also argue that permitting the use of the term "agent" would create a situation where infringement may occur in one state, but not in another, because of differences in the laws of agency from state to state.

Sightsound responds that the term "agent," offered as part of the definition of "party," simply means "someone who stands in the shoes of the first party," and that there is no intent to imply any particular legal relationship (Docket # 96 at 9).

In the court's view, the use of the term "party" is clearly meant to include any legally distinct entity which performs the activities described. For example, a corporation could clearly be either the "first party" or the "second party" for purposes of the claims in suit. A corporation acts only through its employees or "agents". Likewise, a person may also act on behalf of another. The court agrees with plaintiff that there is no language in the claims which suggests that "first party" and "second party" must act for themselves in performing the tasks set forth in the claims. Likewise, nothing in the specification indicates that the patentee was restricting himself in such fashion.

On the other hand, defendants are correct that the term "agent" may add ambiguity to a term which is not ambiguous. There is no need to add such a term to make the meaning of the claims plain.

Reading the claims-in-suit, the court has no difficulty construing the term "party." A party is an entity, whether a corporation or real person, possessing and/or controlling the stated structure, or performing the necessary steps for the claims. One skilled in the art would understand that a party can act through another. Thus, although the term "agent" will not be added to the term party, the term will not be construed so as to require that a party act on its own behalf for purposes of the claims in suit, i.e., a party may, as in all other matters, act through others it authorizes to do so for purposes of the claims in suit.

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Element (a)(3) of claim 2 recites "a plurality of filters at the local color display including . . . (3) a third filter for filtering the red color band of the local source of light and passing a narrowband of the red color band." The Court of Federal Claims construed "local color display" and "color bands" to require perceptible red light. Claim Construction Order at 444; id. at 466 ("color bands' . . . 'include the range of wavelengths, within which the colors blue, red, and green are visible to the human eye" (emphasis added)). 2

2 The Court of Federal Claims further construed "red color band" to mean "[a] range of color from 620 nm to 780 nm" and "narrowband of the red color band" to mean "a narrow range of wavelengths within the red color band." Claim Construction Order at 471, 487.

Before the Court of Federal Claims, the parties' disputes regarding infringement and invalidity raised the issue of whether the claimed invention requires the passing of perceptible red light. With respect to claim 1, the court explained that this claim requires the "local color display" to emit perceptible light within the red color band. Infringement Order at 464 (concluding that the designated displays emit perceptible light within the red color band). During the phase of the litigation relating to the government's defenses, the Court of Federal Claims explained that this interpretation applies equally to claim 2. See Trial Tr. 17:25-18:15, Nov. 13, 2006.

On appeal, the obviousness dispute turns upon whether claim 2 requires perceptible red light. Claim construction is a question of law, which we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454-56 (Fed. Cir. 1998) (en
Claim 2—and specifically element (a)(3)—requires a local color display. The specification describes "[a] local color display which is . . . viewable by the crewmember, although the crewmember would tend to avoid looking through the [NVG] while viewing the color local display." '914 patent col.2 ll.40-44. The specification continues to explain that "[t]he cockpit has several local displays such as [the aforementioned] color display, which are illuminated so as to be clearly visible without the use of the [NVG]." Id. col.2 ll.57-59. In addition, figure 3 of the specification depicts a local color display with a local source of light that comprises red, green, and blue color bands. Id. col.4 ll.40-41. The district court's undisputed construction of color bands requires light that is "visible to the human eye."

We conclude that the proper construction of local color display is that it must emit perceptible red light. Furthermore, element (a)(3) is a filter that passes a narrow band of this red light. The claimed invention addressed the need for red warning lights in NVG-compatible cockpits, and it is inconceivable that an aircraft would use warning lights that are not perceptible to the crew. In other words, there would be no point, in the context of this invention, to pass a narrowband of red light that cannot be seen. The local color display emits perceptible red light, and element (a)(3) requires a narrow band of this perceptible red light to pass. We conclude, therefore, that element (a)(3) requires the passing of perceptible red light—i.e., red light which is visible to the human eye.

5. "telephone wiring network used for passing telephone signals in a telephone voice band between a plurality of telephone devices [or telephone devices at a residence] and a telephone exchange"; "circuitry for limiting transmission of signals in the high frequency band from the telephone wiring network to the telephone exchange and for passing signals in the telephone frequency between the telephone a telephone wiring network and the telephone exchange": the telephone wiring network (as defined above) is used for passing telephone signals in the telephone voice band (as defined above) to the telephone exchange.

Inline's proposed construction is adopted (as the court has defined the relevant claim terms recited in this phrase). Defendants' proposed construction, that the phrase "requires that telephone signals in the telephone voiceband (i.e., 0-4 kHz) be passed over the telephone wiring network extending between the telephone devices at one end and the telephone exchange at the other end" is rejected as the court has not construed "telephone wiring network" as extending to the telephone exchange." The court's construction of this phrase necessarily flows from the courts construction, above, of the terms contained therein.

(2) In Claim 25 of the '901 patent, "passing the video signal unchanged at other times" means "passing at least some portions of the video signal without changes or modifications. This step does not exclude replacing normal sync pulses with normal sync pulses."

Passive Attenuator Network/Circuit

PPC objects only to Magistrate Judge Peebles' proposed construction of the term "passive attenuator network/circuit" as meaning "a network/circuit of non-powered components that together have the effect of reducing or attenuating the level or strength of signals." PPC contends that the term should be construed to include the added requirement that the network/circuit be "resistive." Thus, PPC argues, the construction should read: "a resistive network/circuit of non-powered components that together have the effect of reducing or attenuating the level or strength of signals."

Upon de novo review, the Court agrees with Magistrate Judge Peebles' reasoning and his conclusion that the patent claims do not limit the passive attenuator network/circuit to a resistive network/circuit. The Court notes that PPC's argument finds no support in the claims themselves. Rather, application of the doctrine of claim differentiation supports the conclusion that
the independent Claim 12 does not include the "resistive" element; this limitation is added in the dependent Claim 15. See generally RF Del., Inc. v. Pac. Keystone Techs., Inc., 326 F.3d 1255, 1263-64 (Fed.Cir. 2003). Nor do the specification or prosecution history support the conclusion that the claimed invention is limited to one including a resistive element. PPC's arguments based on the specification lack merit for the reasons set forth by Magistrate Judge Peebles, and transgress the fundamental rule of construction that, although "the claims must be read in view of the specification, … limitations from the specification are not to be read into the claims." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1326 (Fed.Cir. 2002) (citations omitted). The Report and Recommendation is accepted and adopted in this respect, and the Court holds that the term "passive attenuator network/circuit" means "a network/circuit of non-powered components that together have the effect of reducing or attenuating the level or strength of signals."

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"password"

Various asserted claims of the '297 and '416 Patent3 contain the term "password." Though this term was originally disputed, during the claim construction hearing both sides agreed that the definition of the term is "a string of bits used for controlling access." This definition is consistent with the claim language, the specification, and the plain meaning of the term, and is adopted accordingly.

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11. Password Data Security System

The term "password data security system" appears in dependent Claims 2, 9, and 14 as a permissible structure for the "means for locking the storage means" identified in Claims 1, 8, and 13. The specification indicates that the term should not be construed in a limiting sense. Rather, it describes the term as a known security system which locks the network until it is unlocked by a password. See Col. 4, ll. 46-67. Reference is made to the system described in U.S. Patent No. 5,375,243 as an example of a password security system that may be used with the current invention. That limitation need not be read into the claim. Accordingly, the Court construes the term "password data security system" to mean a security system which locks the network until it is unlocked by a password.

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II. "AV path" / "data path" / "second path" / "path"

The parties request construction of three different types of "paths," as well as resolution of a global issue pertaining to all "paths" in the asserted claims. The three disputed uses of the term "path" appear in Claim 1 of the '654 patent:

1. A teleconferencing system for conducting a teleconference among a plurality of participants, comprising:

   (a) a plurality of workstations, each workstation having first and second monitors and in communication with audio and video (AV) capture capabilities;

   (b) a data path in communication with the plurality of workstations, over which data can be shared among the plurality
of participants; and

(c) an AV path in communication with the plurality of workstations, along which AV signals, representing video images and spoken audio of the participants, can be carried;

wherein, the system is configured to reproduce images, based on data signals shared along the data path, on at least two first monitors so as to permit participants associated with the workstations having the two first monitors to interactively share the reproduced images and reproduce participant video images, based on AV signals carried along the second path, on at least two second monitors.

'654 patent at 41:36-55.

A. "path"

Tandberg argues that each type of claimed path must be "defined" or specified before data or AV signals are transmitted. Tandberg argues that the claim language compels this finding. For example, claim 15 states that the data conferencing control establishes "communications with the central control manager to set up requested data paths along a second network over which the data conference can be conducted." '654 patent at 44:3-9. According to Tandberg, once the central control manager has "set up" the path (which occurs before transmission takes place), the path has been defined.

This argument depends on the meaning of "set up." For Tandberg's argument to be valid, "set up" must mean "define." The phrase "set up," however, encompasses other meanings, such as "establish" or "make ready." See, e.g., Webster's Third New International Dictionary of the English Language Unabridged 2079 (1993) ("to put (a machine) in readiness or adjustment"); Random House Unabridged Dictionary 1751 (2d ed. 1993) ("to be assembled or made ready for use") (emphasis added). Moreover, as discussed below, Tandberg's narrow construction would exclude all of the embodiments disclosed in the specification, which unquestionably make use of opportunistic routing and do not require predefined paths.

Tandberg next points to Figure 4 of the patent, which depicts different routes that an AV signal may take through the Wide Area Network ("WAN"). The portion of the Specification corresponding to Figure 4 states that "[t]he system also provides optimal routes for audio/video signals through the WAN. For example, in Figure 4, location A can take either a direct route to location D via path 47, or a two hop route through location C via paths 48 and 49." Spec. at 10:55-59. The fact that data can take one of two routes, however, says nothing about whether the choice of route is predetermined. Indeed, Tandberg observed at argument that in packet-switched networks such as those described in the Specification, the route through the WAN could change during the middle of a transmission, depending on network load and other factors. The routing of each packet through a packet-switched network is individually determined and can change to adapt to changing network conditions. See Spec. at 10:63-66 ("In a more complex network, several multi-hop routes are typically available, in which case the routing system handles the decision making, which for example can be based on network loading considerations.").

Tandberg's remaining arguments in support of its contention that all paths must be predefined relate to a different question—whether the AV and data paths must lie on physically separate wires. The court considers these arguments below. The fact that signals may travel on different wires, however, is not determinative of whether the path for each signal individually is pre-defined. The court will therefore not limit the claim terms as Tandberg requests, and construes "path" to mean "a route or course."

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Telecommunications path, communications path, and datapath

ConnecTel contends "telecommunications path," "communications path," and "data path" should be construed to mean "the physical and logical resources used to move the user data/traffic from one switch to another switch or one switch to or from a user, for example, a switch interface, its associated queues and a transport channel." Thus, ConnecTel argues the path includes more than just the transmission medium itself, but also includes the interface and associated queues.

As stated above, Cisco argues the determination of an optimal "telecommunications path" refers to a determination of a type
of network over which to transfer the data as opposed to determining the optimal path within a network for data transfer. Cisco proposes the Court construe the terms to mean "a transmission medium (a network type such as POTS, leased lines, mobile cellular networks, digital links, fiber optics, satellite links, and private and public packet switching networks such as the Internet)." n2

n2 POTS is "plain old telephone system." Col. 1:23-24.

The specification teaches a method and apparatus for determining the best medium or network for transmitting data. Each interface is "interconnected with an associated telecommunications path capable of transferring a data file." 307 patent, claim 1, 8:13-16; 3:1-3. Figure 1 is a block diagram illustrating the telecommunications switching system. Col. 3:54-55. "The switching system 10 is connected to various telecommunications media in accordance with the user's resources." Col. 3:58-60. Specifically, the system may be connected to a high-speed T1 interface, a wide area network (WAN), a local area network (LAN), a POTS, or a wireless communications network. Col. 3:60-66. These interfaces are exemplary; any number of the aforementioned interfaces may be used alone or in any combination as required by the user." Col. 3:66-4:4. For example, a user may be connected to common carriers such as MCI, SPRINT, or AT&T. Col. 4:4-8. A user may also configure a wireless interface for communication by various electromagnetic means, such as infrared, radio frequency, and the like. Col. 4:8-11. Thus, the preferred embodiment is not limited to the particular mediums listed. However, the specification is clearly directed towards the selection of a particular network as opposed to routing decisions within a network. This also conforms with the specification's description of the prior art's deficiencies in which choices between different networks were being made (not routing with a network). Col. 1:11-2:37. Further, "an object of the present invention is to overcome the shortcomings of the prior art systems as described above." Col. 2:38-40.

The specification does not disclose the selection of an optimal route within a given network. The specification specifically contemplates that the paths are networks, not paths within a network. Repeated references are made within the specification to "paths" in which the path is considered to be a network such as, the disclosed T1, LAN, WAN, POTS, and Wireless networks. For example the "path analysis block 24" makes an analysis of each of the different networks not an analysis within a network. Col. 4:12-23; Figure 1. Further, the routing optimization described within the specification is directed towards selecting one of the T1, LAN, WAN, POTS, and Wireless networks, and the specification describes this as a "path" selection "by employing the multi-protocol routing optimization of the present invention, the path chosen for transmission of a data file takes into account parameters which vary in real-time, thus not relying on a simple preprogrammed look-up table of low cost providers as in the prior art." Col. 5:3-8. Likewise the parameters of Table A and Table B of the specification are parameters of each network as whole as opposed to parameters of individual routes within a network and these parameters and the values derived from these parameters are repeatedly referred to as properties of the "paths." Col. 4:13-65; 5:12-6:9. Likewise the flowcharts of Figures 2 and 3 (which relate to choosing between the T1, LAN, WAN, POTS, and Wireless networks) are "flowcharts of the methodology employed by the present invention in arriving at the optimal choice for routing a data file amongst a plurality of available paths in accordance with the present invention." Col. 6:54-57. Also, a ping test can be used to test the latency for each path. Col. 6:1-9. "The ping routine sends a packet onto the network and obtains a value of the average delay encountered by that packet in reaching the destination and returning." Col. 6:4-7 (emphasis added).

Statements the Applicant made during prosecution of the 307 patent confirm this understanding of the medium is correct. The Applicant distinguished his system from a prior art system, Derby, that was concerned with "moving packets of information around a network faster":

Derby is interested in network packet switching, once the data file has in fact been formatted in packets and provided to the network. The applicant's invention is intended to select an appropriate transmission medium (i.e. wireless, WAN, POTS, etc.) in accordance with measured variables, predetermined parameters, associated with that medium, and properties of the
data file itself. Therefore, Derby is concerned with merely routing packets in a network, once that network (interface) has been selected.


ConnecTel argues this interpretation of the prosecution history is incorrect. ConnecTel contends the Applicant argued, without disavowing path selection within a network, that the combination of Derby and Kobayashi, other prior art, did not teach or suggest the claimed invention. ConnecTel is correct that the excerpt above is taken from an exchange with the Examiner in which the Applicant argued his invention was not obvious in light of Kobayashi and Derby. But ConnecTel misinterprets the exchange: "The Applicant clearly stated that Derby is only involved with the interhop transfers after the initial selection of services to be utilized, and that Derby performs such an interhop transfer analysis and determination in a different way from the Applicant's invention." See ConnecTel's Reply Brief, p. 5. Thus, ConnecTel contends the Applicant did not clearly disavow that the invention could be used within a network for routing packets.

The Applicant stated that "there is clearly no motivation to even combine the cited references. Even if one were to combine the references, the applicant's invention would not result." 370 patent application, Amendment 6/19/1998, p.8. The Applicant distinguished Kobayashi because Kobayashi used static parameters to determine route selection and did not look at the properties of the file to be transferred. Id. at 7. Derby looked at the available bandwidth and network loads for path selection and also did not examine the data file properties or static parameters. Id. at 8. It was in this context that the Applicant stated:

In fact, knowledge of properties of the data file being transferred is not even useful to Derby because Derby is interested in network packet switching, once the data file has in fact been formatted in packets and provided to the network. The applicant's invention is intended to select an appropriate transmission medium (i.e. wireless, WAN, POTS, etc.) in accordance with measured variables, predetermined parameters, associated with that medium, and properties of the data file itself. Therefore, Derby is concerned with merely routing packets in a network, once that network (interface) has been selected.

Id. In this exchange, the Applicant does not merely clearly disavow the scope of any claim but delineates the limits of the claimed invention. The Applicant clarifies that the "invention is intended to select and appropriate transmission medium (i.e. wireless, WAN, POTS, etc.)" rather than "routing packets in a network, once that network (interface) has been selected."

ConnecTel also argues that this view of the invention is incorrect since the specification teaches that all of the interfaces may be the same. See col. 4:2-4. As discussed above, this description in the specification is consistent with the Court's construction. The specification does teach that "any number of the aforementioned interfaces may be used alone or in any combination as required by the user." Col. 4:2-4. The specification then goes on to teach that the invention may be used to select from a number of common carriers such as MCI, AT&T, and SPRINT. Col. 4:4-8. A user may also use the invention to select the optimal wireless interface such as infrared, radio frequency, and the like. Col. 4:8-11. Thus, although the networks may all be of the same type, the invention is still used to select which of the networks is the optimal network.

The Court adopts Soverain's proposed construction and construes "path name in a uniform resource locator" to mean "a sequence of zero or more elements that follows the host address in a URL." The primary dispute between the parties is whether the path name includes the file name. Amazon proposes that the term means "the name of the directories leading to the file identified by the URL. Nothing after the file name is part of the path name."

The parties seem to agree that the ordinary and accustomed meaning to those skilled in the art would include the file name. Amazon argues that the patentee acted as his own lexicographer and defined the term to not include the file name. The parties focus on the following paragraph of the specification, which describes the URL naming system.

The URL naming system consists of three parts: the transfer format, the host name of the machine that holds the file, and
the path to the file. An example of a URL may be:

   http://www.college.univ.edu/Adir/Bdir/Cdir/page.html,

   where "http" represents the transfer protocol; a colon and two forward slashes (://) are used to separate the transfer format from the host name; "www.college.univ.edu" is the host name in which "www" denotes that the file being requested is a Web page; "/Adir/Bdir/Cdir" is a set of directory names in a tree structure, or a path, on the host machine; and "page.html" is the file name with an indication that the file is written in HTML.

Amazon contends that here the patentee expressly states that the file name ("page.html") is not a part of the path ("/Adir/Bdir/Cdir"). Soverain argues that this description expressly states there are only three parts to the URL naming system, and therefore the file name must be included in the path name. The Court agrees. While "page.html" may separately be referred to as the file name, it is included in the path name.

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"Path Setup Packet (SETUP)"

Alcatel's proposed construction for the term "path setup packet (SETUP)" is "a packet which contains the traffic load parameters for other packets in the corresponding data stream." Cisco's proposed construction is "initial control packet for an input stream which prepares a path through a network to be followed by other packets of the same communication as the path setup packet, and which contains the traffic load parameters for other packets in the communication."

While it is clear that the "path setup packet" contains the traffic load parameters for the packets in a corresponding communication, the parties' dispute centers on whether the "path setup packet" is required to be the first packet in that communication, which is then followed by the packets in that communication. Cisco argues that, when reading the claims together - claims 1 and 14 in particular - it is clear that the "path setup packet" was intended to be the first packet of a communication. See DePrycker, at 14:43-53, 16:43-54. On the other hand, Alcatel argues that the language of claim 9 does not require that the "path setup packet" be the initial packet in a communication, and that the language in claims 1 and 14 refer to a "first packet (SETUP)" instead of a "path set up packet," and thus the doctrine of claim differentiation mandates that the scope of the claims be construed differently. See, e.g., Comark Communications, 156 F.3d at 1187; but see Wenger Mfg., Inc. v. Coating Machinery Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001) ("[C]laim differentiation is not a 'hard and fast rule of construction,' and cannot be relied upon to 'broaden claims beyond their correct scope.'").

Nevertheless, as Alcatel itself argued to the Court in the context of the claim construction for other patents at issue in this case, claim differentiation only assumes that different claims have different meanings, not that every term in every claim has a different meaning. See Wenger Mfg., 239 F.3d at 1233 ("Under the doctrine of claim differentiation, each claim in a patent is presumptively different in scope,") (emphasis added). Therefore, since claims 1 and 14 differ in scope from claim 9 in many ways other than the use of the term "first packet (SETUP)" instead of "path setup packet (SETUP)," requiring the "path setup packet" to be the first packet in a communication would not run afoul of the doctrine of claim differentiation.

Additionally, the language in claim 14 states that "said first packet is said path set-up packet (SETUP)," and the specification identifies the first packet in a communication as the "call set up control packet." See DePrycker, at 4:23-24, 16:53-54. In light of the language in the claims and the specification, the Court agrees with Cisco that the "path setup packet" is the first packet in a communication. However, Cisco's argument that the term should also be construed to require that the other packets in the same communication necessarily follow the "path setup packet" does not find support in the claim language.

Therefore, the Court construes the term "path setup packet (SETUP)" as "the initial packet in a data stream which contains the traffic load parameters for other packets in that data stream."
"Patient" appears throughout the claims of the shock delivery patents. Even this most basic term gives the parties cause to argue. Philips contends that a patient is a person. Defibtech contends that a patient is any "recipient of a waveform." Philips queries whether, under Defibtech's construction, a "watermelon" could serve as a patient. Defibtech responds that a watermelon does not have a heart. The court wonders if it has accidentally wandered into a junior high school debate meet.

The patents uniformly discuss defibrillation of human patients. The court must construe the term "patient" accordingly, absent some indication that the inventors intended a broader scope. Prior art references that discuss defibrillation of other animals might bear on the validity of the patents-in-suit, but the inventions before the court are not intended for use on anyone but humans.

The parties' key dispute over the term "patient simulator" in Claims 1, 8, and 9 is whether the patient simulator is necessarily electrically connected to the defibrillator's electrode interface. Defibtech argues that this electrical connection is present in the preferred embodiment ('059 Patent at 3:15-65), and thus must be read into the claims.

The court cannot adopt Defibtech's proposed limitation. Defibtech seeks to import a limitation from the preferred embodiment into claims that do not require the limitation. The court declines to do so, for many of the same reasons it rejected Defibtech's construction of "through electrodes" and "indication of the condition of the defibrillator" in its first Markman order. October 25 order at 16-17, 23-25. The court construes "patient simulator" to mean "components or circuitry that simulate a patient."
1. "a pattern"

The parties agree that the word "pattern" has a well-established "ordinary meaning," Vitronics, 90 F.3d at 1582--specifically, "an arrangement of lines or shapes; a design according to which something is to be made"--and the parties appear to agree that the use of the indefinite article "a" connotes "one or more." See Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1347 (Fed. Cir. 2001); Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed. Cir. 1995). The parties do not agree, however, about how the ordinary meaning of "pattern" fits within the context of claim 1.

Plain language suggests that "pattern" denotes a design or series of marks in a semiconductor integrated circuit that is to be transferred to a photoresist layer of a substrate. In the relevant art, the term "pattern" signifies a series--often of a particular design or repetition--of circuit features in a semiconductor integrated circuit to be transferred to a photoresist layer of a substrate, and when it uses "pattern," the claim language depicts the exposure of a particular kind of pattern--viz., a circuitry pattern--onto a mask or circuitry chip. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1311 (Fed. Cir. 1999) (requiring each term [to] be read to correspond to the only plausible meaning in each context”). Specification language, in turn, references the "patterns" imposed on semiconductor memory devices and liquid crystal components through the process of photoresist-based photolithographic projection. See, e.g., '041 Patent at 1:19-24. As it is used in the relevant claim and specification language, then, "pattern" possesses specified meaning, not by virtue of improperly imported limitations, cf. N. Telecom Ltd. v. Samsung Elecs. Co., Ltd., 215 F.3d 1281, 1290 (Fed. Cir. 2000), but through claim and specification language itself. See Pall Corp., 66 F.3d at 1216. The term "pattern" is used to denote "a design or series of marks in a semiconductor integrated circuit that is to be transferred to a photoresist layer of a substrate." Neither party offers a more appropriate construction, and the court thus construes "pattern" accordingly.

13 Because neither party listed the term "pattern" in the lists of proposed terms and claim elements for construction, see Local Patent Rule 4-1, ASML objects to the late identification of this term for construction. The court notes ASML's objection, but the court will not refrain from construing the "pattern" term. ASML itself included "pattern" in its catalog of to-be-construed terms, and both parties attempted to define the term in their Local Patent Rule 4-2 preliminary proposed construction memoranda.

a. "pattern recognition system"

Plaintiff contends that the court should construe this phrase as "a system which classifies a pattern or patterns obtained from spatial and/or temporal data." (Chart at 28.) Defendant, however, contends that the court should construe this phrase as "as system that implements algorithms employing neural networks, sensor fusion, correlation technologies, or fuzzy logic to receive and compare signals to patterns that are characteristic of normal and abnormal vehicle performance." (Id.) Plaintiff asserts that Defendant's proposed construction is too limiting as to the type of technology used while Defendant asserts that Plaintiff attempts to insert a means-plus-function limitation in its proposed construction and that it is too broad.

The patent specification provides the following description:

Another method for controlling a part of the vehicle comprises the steps of mounting a plurality of sensor systems on the vehicle, measuring a state of the sensor system or a state of the respective mounting location of the sensor system, generating signals representative of the measurements of the sensor systems, inputting the signals into a pattern recognition
system to obtain a diagnosis of the state of the vehicle and controlling the part based at least in part on the diagnosis of the state of the vehicle.

'080 Patent col. 8 l.36-44. The specification also states: "The diagnostic module 170 compares the patterns of data received from each sensor individually, or in combination with data from other sensors, with patterns for which the diagnostic module has been trained to determine whether the component is functioning normally or abnormally." '080 Patent col. 14 l.24-30. Because the specification demonstrates that the pattern recognition system receives signals, and then compares the data from the signals to recognized patterns, the court will use Defendant's language of "receive and compare." Plaintiff, however, correctly identifies that Defendant's definition limits Plaintiff's claim to use of particular pattern recognition technologies. The court will include these in the construction but clarify that they constitute examples.

In addition, the court will include the phrase "normal or abnormal" because inclusion is supported by the specification which describes the learning process of the pattern recognition technologies: "In all cases, the pattern recognition technology learns from examples of data characteristic of normal and abnormal component operation." '080 Patent col. 16 l.14-16. Inputs from the sensors are thus compared to examples of both normal and abnormal operation.

Therefore, the court will construe "pattern recognition system" as "a system that receives and compares signals from vehicle sensors to patterns characteristic of normal or abnormal behavior through pattern recognition technology or technologies, such as, for example, neural networks, sensor fusion, or fuzzy logic, in order to diagnose the state of the vehicle."

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1. "patterning"

Agere argues that the term "patterning" should be construed as "performing the process of lithography (producing a pattern that covers portions of the substrate with resist) followed by etching (selective removal of material not covered by resist) or otherwise transferring the pattern into the substrate." Atmel argues that the term "patterning" should be construed as "the process steps of covering a semiconductor wafer with photoresist, selectively exposing portions of the photoresist to illumination through a mask, and then washing away the photoresist in selected areas." The essential difference between the parties' constructions is that Agere contends that patterning includes the step of etching, while Atmel contends that patterning does not include the step of etching. The Court concludes that Agere's proposed construction is the proper construction for the following reasons.

First, claim 1 expressly states that the patterning contemplated by the patentee will result in the formation of "holes" in the dielectric exposing the underlying material. Both parties agree that the step of etching is necessary to form holes, and Atmel does not appear to dispute that patterning, according to Atmel's own proposed construction (which excludes the step of etching), would not result in holes in the dielectric. Atmel contends, however, that to the extent that claim 1 does not make sense if Atmel's construction is adopted, the claim is poorly drafted and should not be redrafted by the Court. The Court finds that because claim 1 expressly indicates that patterning will result in the formation of holes in the dielectric, it is clear that a person of ordinary skill in the art would have understood the term patterning as used in claim 1 to include the step of etching.

In addition, the Court has referred to the "Comprehensive Dictionary of Electrical Engineering," which provides precisely the definition for patterning offered by Agere. See Comprehensive Dictionary of Electrical Engineering 475 (Phillip A. Laplante ed., 1999). Furthermore, Agere's expert witness testified that this definition would have been the definition used by a person of ordinary skill in the art at the time of the invention. See Transcript of Hearing on December 5, 2002 ("Tr. 12/5/02") at 33-34.

The Court has also examined the remaining intrinsic evidence (the specification and the prosecution history) to determine whether a deviation from this clear definition of patterning is expressed. See Interactive Gift, 256 F.3d at 1331. Atmel points to the specification which, in one instance, describe steps that "pattern" the dielectric and steps that "etch" the dielectric in such a way as to imply that they are distinct steps. See '335 Patent at col. 3:51-53. Also, Atmel points to one instance in which the specification appears to use the word "patterned" to refer to resist before etching has occurred. See '335 Patent at col. 5:10-13. However, an important, albeit subtle, distinction must be recognized here. Although the word "pattern" may be

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used in the specification in certain instances to refer to a step that does not include etching, and although the word "patterned" may be used in the specification in certain instances to refer to resist before it has been etched, all of the intrinsic evidence, including the claim language and the specification, shows that the word "patterning" (as opposed to "pattern" or "patterned") is consistently used in such a way as to include the step of etching. For example, the specification in one instance states that "the strong adhesion provided by thin glue layers is useful for patterning W interconnects," '335 Patent at col. 5:6-7, and, as explained by Agere's expert witness, the formation of "interconnects" requires the step of etching, see Tr. 12/05/02 at 38.

Thus, according to all of the intrinsic evidence, "patterning" as used in the claims of the '335 patent occurs when one first patterns the dielectric (producing a patterned resist) and then etches the dielectric. Accordingly, the Court construes "patterning" as "performing the process of lithography (producing a pattern that covers portions of the substrate with resist) followed by etching (selective removal of material not covered by resist) or otherwise transferring the pattern into the substrate."

3087

6. "patterning the continuous layer of transparent conductive material" (Claim Element 10) (Claims 22, 25, 26, and 29 of the '682 Patent)

ATI has proposed plain meaning for Claim Element 10. Dkt. No. 113, Ex. at 7-8. Sharp has proposed that Claim Element 10 is indefinite or, in the alternative, should mean: "patterning the continuous layer of transparent conductive material on the first substrate." Id. DNP has proposed that this term is indefinite or should mean:

After the second substrate and the first substrate are assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other, the layer of transparent electrically conductive material is patterned to form a plurality of electrodes.

Id.

The Order construed this term to mean "patterning the continuous layer of transparent conductive material on the second substrate. This patterning step may be done before or after the substrates are arranged such that they face each other." Dkt. No. 117 at 49.

a. Sharp's Objections

Sharp argues that "ATI wants this [term] to mean that the second substrate can have a patterned layer of conductive material." Objections Tr. at 10:8-10. Sharp submits that the second substrate has a continuous layer and that "a conductive layer cannot be continuous and patterned at the same time." Id. at 9:4-6. Sharp also argues that the transition phrase "comprising" does not abrogate the limitation that the layer of conductive material on the second substrate is a continuous layer. Id. at 14:16-21.

ATI responds that use of the transition phrase "comprising" indicates that "before you take the two sides of the LCD and combine them together, you can treat that conductive layer on the second substrate," such as by patterning it. Id. at 17:7-9; see also Dkt. No. 131 at 12-13 (citing '711 Patent at 8:10-17 and Smith & Nephew, 276 F.3d at 1311). ATI argues that Sharp's proposal would conflict with the presumption that claim terms are used consistently throughout the claims. Dkt. No. 131 at 11 and 14.

In reply, Sharp reiterates that the antecedent for "the layer of transparent conductive material" is "a continuous layer of a transparent conductive material." Dkt. No. 138 at 4. As to consistent use throughout the claims, Sharp submits that Claim 22 of the '682 Patent is different from Claim 26 of the '711 Patent because Claim 22 also recites Claim Element 10, the step of "patterning the continuous layer of transparent conductive material."

b. DNP's Objections
DNP argues that the Order improperly splits Claim Element 9 (into a providing portion and an assembling portion), "thereby allowing another step (patterning) to intervene." Dkt. No. 126 at 16. DNP submits that "[t]he Order recognizes that patterning after the substrates are arranged would be inoperative . . . but nevertheless includes this inoperative embodiment within the scope of the claim by stating that the patterning may be done before or after the substrates are arranged to face each other." Id. at 18 (citing EMI Group N. Am., Inc. v. Cypress Semiconductor Corp., 268 F.3d 1342, 1349 (Fed. Cir. 2001)). DNP also argues that "disposed on one surface" means that the conductive material is placed in direct contact with the surface of the second substrate. Dkt. No. 126 at 18.

ATI responds that "the specification and the claims contemplate that the second substrate's continuous layer of conductive material may be further processed to provide a patterned layer." Dkt. No. 130 at 17. ATI cites a portion of the specification that discloses that "[t]he layer of transparent conductive material 42 may be either a continuous layer or may be a patterned layer . . . ." Id. (quoting '682 Patent at 8:14-16). ATI submits that "[o]ne of ordinary skill would not read the claims to require that patterning, such as by a photolithographic process, be applied to the conductive material only after the screen is assembled, because such a process would be nonsensical." Id.

DNP replies by citing authority that "courts should not rewrite claims to preserve validity." Dkt. No. 140 at 10 (quoting Nazomi Commc'ns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364 (Fed. Cir. 2005)). DNP proposes that the Court "should either: (1) modify the construction order of claim 22 so that the claim steps must be performed in the order written; or (2) hold claim 22 invalid by recognizing that the current construction includes this inoperative embodiment because the Order states that the patterning may be done before or after the substrates are arranged to face each other." Dkt. No. 140 at 10.

c. Discussion

As the Order summarized, the parties dispute whether Claim Element 10 "relates to patterning the conductive layer on the first [substrate] or the second substrate, as each substrate includes a separate conductive layer." Dkt. No. 117 at 45. In "patterning the continuous layer of transparent conductive material," the constituent term "the continuous layer of transparent conductive material" includes the definite article "the," which generally refers back to a specific antecedent basis. See NTP, 418 F.3d at 1306; see also Baldwin Graphic Sys. Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008). As noted in the Order, the only prior recitation of "continuous layer of transparent conductive material" in Claim 22 of the '682 Patent is to such a layer of the second substrate, recited in Claim Element 9. The Order's finding that "the patterning must be of the conductive layer on the second substrate, not of the conductive layer on the first substrate" should therefore be affirmed.

As to order of steps, the Order found that the "patterning step may be done before or after the substrates are arranged such that they face each other." Dkt. No. 117 at 49. Despite this conclusion, the Order also found that "after the two substrates are arranged so as to face each other, it would be unreasonable to then pattern the conductive layer." Dkt. No. 117 at 48.

Whether the order of the steps recited in a method claim must be performed in a particular order is properly a part of claim construction. See, e.g., Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1371-72 (Fed. Cir. 2003). Generally, steps may be performed in any order so long as "nothing in the intrinsic evidence" compels otherwise. Id. at 1370; see also Baldwin, 512 F.3d at 1345 (Fed. Cir. 2008) ("As a general rule the claim is not limited to performance of the steps in the order recited, unless the claim explicitly or implicitly requires a specific order.") (citing Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1342-43 (Fed. Cir. 2001)); Mantech Envtl. Corp. v. Hudson Envtl. Servs. Co., 152 F.3d 1368 (Fed. Cir. 1998).

ATI acknowledges that the "patterning" step must be performed before the substrates are "arranged": 2

One of ordinary skill would not read the claims to require that patterning, such as by a photolithographic process, be applied to the conductive material only after the screen is assembled, because such a process would be nonsensical. Because this reading is absurd, one of ordinary skill would not read such a limitation into the claims.

Dkt. No. 130 at 18 (emphasis added). In this quoted passage, ATI argues that the claim should not be interpreted to require that "patterning" occur after the "arrang[ing]" because such a process would be "nonsensical" and "absurd." Id.; '682 Patent at Claim 22, 11:33-41. Thus, ATI appears to acknowledge that "patterning" must occur before "arrang[ing]" in the context of
the '711 Patent and the '682 Patent. 3 DNP also agrees the order recited in the claim is technically impracticable. 4 However, DNP apparently acknowledges a required order based on the specification. Dkt. No. 84 at 8 ("The layer of conductive material may be left as a continuous layer or may be patterned by photolithography to form display electrodes. (Id. at Fig. 4, ref. No. 42; id. at 8:14-17). The two plates are then arranged so that the different layers of material disposed on the two substrates face each other. (Id. at Fig. 4; id. at 8:21-24)"). Also, the Order found that "even a rudimentary understanding of the technology behind the fabrication of a liquid crystal display would dictate against requiring such a construction [i.e., to require the patterning after the substrates are arranged]. Namely, after the two substrates are arranged so as to face each other, it would be unreasonable to then pattern the conductive layer." Dkt. No. 117 at 48.

2 The parties' briefing and arguments of counsel indicate that the term "arranged" in Claim 22 is being interpreted as "assembled," as evident from the following quoted text from ATI and from the following footnote regarding statements by DNP's counsel.

3 See also 1/22/2009 Claim Construction Hr'g Tr., Dkt. No. 116 at 143:11-14 ("In this case, based on the preferred embodiments and the specification in which photolithography is used to pattern this layer, logic dictates that you read the claim such that patterning occur before assembly.")

4 THE COURT: 
"[F]rom DNP's briefing it seemed to me that you seem to require or are wanting to require Claim 22 to be done in sequence. In other words you're - the way you interpret that is once the assemblies are put together, the subassemblies are put together, then if there is going to be any patterning on the second substrate, it has to happen then. Is that the way you're - is my reading of your position correct?

MR. CHALSEN: Yes, that's our argument, Your Honor. And actually this is another one of our indefinite - it's really an indefinite in that this claim really is inoperable or it's invalid. It can't be -- it's not practical --

THE COURT: And I take it --

MR. CHALSEN: -- to put in place and then do the patterning. So as it is written the claim is invalid.

THE COURT: So if that is correct, your interpretation is correct and Claim 22 has to be essentially performed or the product assembled in that sequence, any patterning of the second substrate would take place once it is put together.MR. CHALSEN: Yes.

THE COURT: And I take it from what everybody has said, these two panels, these two substrates are only a few fraction of an inch, a few millimeters perhaps, or less. I mean they're a very, very narrow space and there's no process to do that once they're together; is that accurate?

MR. CHALSEN: Well, I mean in the current manufacturing environment where practical devices are being made, yes. But theoretically the claim is not limited to micron --

THE COURT: As I understand it, the laser that's used, that's described here and the other processes that were described, these essentially are big - these are big machines. I mean they are physically large things. They are not microscopic in size is what I'm getting at.

MR. CHALSEN: Yes, that's true, Your Honor. I think our point is really that the claim says what it says, interpret it that way, in sequence that the steps should be performed at the point in the claim where it says it is performed.

THE COURT: All right.

MR. CHALSEN: And if it can't be, it's inoperable.

The Court applies a two-part test to determine whether a particular order of steps in a method claim is required: "First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written." Altiris, 318 F.3d at 1370. (citation omitted). "If not, we next look to the rest of the specification to determine whether it directly or implicitly requires such a narrow construction." Id. at 1371 (citation omitted).

The specification describes the steps of forming a continuous layer and then patterning the continuous layer associated with the first substrate. The same is done for the layers of the second substrate: forming a continuous layer, then patterning of the continuous layer associated with the second substrate. '682 Patent at 8:10-25. The disclosure then describes the step of arranging together the first substrates and the second substrates. Id. at 7:39-52. In particular, "[t]he layer of conductive material may be left as a continuous layer or may be patterned by photolithography to form display electrodes . . . . The two plates are arranged so that the different layers of material disposed on the two substrates face each other." Id. at 8:14-24.

Moreover, the drawings demonstrate the same sequence described in the disclosure: patterning the continuous conductive layer and then arranging the two substrates together. The procedure of patterning is depicted by the drawings, such as Figures 3B and 3C, which show that the first conductive material layer ("transparent conductive oxide material 30") may be continuous initially and then "patterned" by etching away parts of the material, leaving rectangular stubs ("electrodes 32a - 32f," Fig. 3C). Id. at 7:39-50. Patterning can thus be performed to provide electrodes. '682 Patent at 8:10-25. In addition, the specification describes that either or both continuous layers may be patterned to form electrodes due to the symmetry of the technology. Id. at 7:39-47 and 8:14-17. The specification refers to either of two "transparent conductive oxide material" layers (30 (Fig. 3B) and 42 (Fig. 4)) that are continuous initially and then may be subsequently patterned by a photolithographic process. Id. Finally, after patterning a continuous layer in Figure 3C, the two substrates with their associated layers are arranged together, as shown in Figure 4. The written description and the drawings are thus consistent with first requiring "patterning the continuous layer" and then the "second substrate being spacedly disposed from said first substrate and arranged . . . ."

Claim 22 does not explicitly recite the order described in the specification. Rather, Claim 22 recites the step of "patterning" after the step that includes arranging the substrates together. The term was apparently added to the limitations of claim 13 of the originally-granted patent, U.S. Pat. No. 5,576,070, during reissue prosecution to create Claim 22 of the '682 Patent. The term was presumably inserted after the second "providing" step so that "the continuous layer" in the "patterning" step would have proper antecedent basis. That is, by appearing in the claim after the initial recitation of "a continuous layer" in the second "providing" step of Claim 22, "the continuous layer" would have refer back to "a continuous layer" earlier in the claim. In adding the "patterning" step during reissue, the patentee did not disturb the wording of the second "providing" step, which appears immediately before the "patterning" step.

Although the recited order of these two particular steps in the claim is apparently impracticable, the intrinsic evidence demonstrates the necessary order, as discussed above. See Phillips, 415 F.3d at 1313. As the Baldwin court explained: "The specification informs the meaning of the claims. [Phillips] acknowledged the difficult distinction between 'using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim.' [Phillips] explained, however, that the distinction is manageable 'if the . . . focus remains on understanding how a person of ordinary skill in the art would understand the claim terms.' Baldwin, 512 F.3d at 1345. A person of ordinary skill at the time of filing the application would have understood, in light of the entire specification, that the step of "patterning" must be performed before "arrang[ing]" the substrates so as to be "spacedly disposed" from one another. '682 Patent at 11:33-43.

At the time of the patent application, a person of ordinary skill in the art would have known of photolithographic techniques applicable to the color liquid crystal display devices. See id. at 7:32-37 ("Thereafter, employing photolithographic techniques well know[n] in the art, the layer of transparent conductive material 30 is patterned to form a plurality of electrodes 32a-32f . . . ."). Moreover, the "Background of the Invention" of the '682 Patent cites to photolithographic articles. Id. at 1:62-2:21. An electrical engineering handbook published near the filing of the patent confirms the general knowledge of photolithography as described in the '682 Patent. See Richard Dorf, The Electrical Engineering Handbook 487-89, 1159-60, 1772-1775 (1993). Also, the "Background" section of the specification states that "color liquid crystal display devices are well known in the art, and one exemplary such device is set forth in United States Patent No. 4,632,514 to Ogawa, et al, entitled 'COLOR LIQUID CRYSTAL DISPLAY APPARATUS.'" Id. at 1:57-60. The Ogawa reference describes a distance of only five to eight microns in a gap region between two substrates when arranged together. Reading
the '682 Patent, a person with even rudimentary knowledge of photolithography at the time of filing of the patent application would have thus recognized the impracticability of patterning the continuous layer after the two substrates have been arranged together. See Dorf at 445, 487-89, 1159-60, 1772-1775 (noting that "[l]ithography is a patterning process in which a mask pattern is transferred by a radiation source to a radiation sensitive coating," and illustrating (in Figures 21.3, 53.3) the relative size of the necessary equipment, which appears too large to fit within gaps that are on the order of microns in width.).

The present case is distinguishable from Altiris, which found that "the district court ran afoul of our prohibition against importing a limitation from the specification into the claims -- here [the imported limitation being] the order of steps used by the sole, preferred embodiment." 318 F.3d at 1369. The district court under review in Altiris relied on the specification to construe an order of recited steps even though the claims did not recite a required order. Id. The Altiris court found that the specification did not state that the particular order described was important. Id. at 1371. Moreover, expert testimony considered by the Altiris court supported finding that a person of ordinary skill would have understood that any order was technologically feasible. Id. In the context of the layered-fabrication methodology before this Court, however, "patterning" after "arrang[ing]" would be technically impracticable, or "nonsensical," as discussed above. Further, the specification of the '682 Patent provides no apparent support for "patterning" after "arrang[ing]," so construing Claim 22 to allow such an order of steps is disfavored. See Modine Mfg. Co. v. I.T.C., 75 F.3d 1545, 1557 (Fed. Cir. 1996) ("When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity.") (citations omitted).

For at least the foregoing reasons, the Court construes the term "patterning the continuous layer of transparent conductive material" to mean "patterning the continuous layer of transparent conductive material on the second substrate, wherein the patterning is performed before the second substrate is spacedly disposed from said first substrate and arranged so that the layer of transparent conductive material of the second substrate faces the layer of transparent conductive material of the first substrate."

As to indefiniteness, the portion of the Order's construction holding that "[t]his patterning step may be done before or after the substrates are arranged such that they face each other" is modified by this order. DNP's indefiniteness argument is therefore moot.

As to DNP's objection based on the purported invalidity of Claim 22 under 35 U.S.C. § 101, whether a claim satisfies utility requirements is a question of fact. See, e.g., In re Fisher, 421 F.3d 1365, 1369 (Fed. Cir. 2005); Raytheon Co. v. Roper Corp., 724 F.2d 951, 956 (Fed. Cir. 1983). Any such issues should be presented in a motion for summary judgment or during trial rather than during claim construction. The Court accordingly declines to address utility at this time.

GO BACK

3088

 Pause state

 The Court construes "pause state" to mean "the camera delays taking a picture for a predetermined amount of time in response to one or more signals from a motion detector." Again, this construction is taken from the claim language and the specification. The claim states that when the camera is in the pause state, it "ignor[es] the signal from the motion detector until a predetermined amount of time has passed." Claim 17, col. 6:65-67. The specification teaches that, "[w]hen put into a pause state, the controller ignores any triggering events of motion detector 106 until a predetermined amount of time has elapsed." Col. 4:36-40.

Like with "burst state," Defendants seek to include a user-selection limitation. Specifically, Defendants urge the Court to construe "pause state" to mean "a user-selected mode of operation of the motion detector camera in which signals from the motion detector cause no pictures to be taken for a user-selected period of time." Defendants' construction also requires that the user determine the length of the delay in the pause state. While both of these limitations are features of preferred embodiments, neither is required by the claim language or the specification. Defendants argue that the user-selection limitation is required by the claim language "selectively placing the motion detector camera into. . . ." Defendants' construction excludes the possibility that a camera may be preprogrammed by the manufacturer with default states, shipped with a default state already selected, or that the length of the pause state may be set by the manufacturer. These possibilities
are not excluded by the claim language or disavowed in the specification or prosecution history. Accordingly, the Court will not limit the claim in this manner.

3. The parties agree that the term "the system," as used in Claims 1 and 13 of the 298 Patent and Claims 1 and 6 of the 456 Patent, refers to the "payee's agent's system," and that both terms should be construed to mean "a system of someone who acts for or in the place of a payee with authority." (Def. Resp. Br. at 4; Plf. Reply Br at 5). The dictionary defines "agent" as "one empowered to act for or represent another." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE at 33. In ordinary usage, the "payee's agent's system" is a system belonging to someone authorized to act on behalf of the payee. The construction suggested by the parties is consistent with the ordinary and customary meaning of these terms and should be adopted by the court.

"Payment computer"

The Court defines "payment computer" to mean "a computer processing payment information." Although the parties agree that "payment computer" does not have an ordinary and customary meaning in the art, the term "payment" has an ordinary and customary meaning, and the Court has already construed the term "computer." Accordingly, the Court is able to infer the phrase's meaning from the ordinary meaning of payment and the construed meaning of computer without importing limitations from the specification. See Bancorp Servs, 359 F.3d at 1372 ("the components of the term have well-recognized meanings, which allow the reader to infer the meaning of the entire phrase with reasonable confidence"). Amazon's proposed construction, which cobbles together descriptions from the specification, requires the payment computer to "accept and verify payment by the buyer, and authorize purchase of products from the merchant." Such a construction impermissibly reads in limitations from the specification.

[b] payment-due data representing a seller's fulfillment of a sale-of-goods transaction between the seller and a buyer.

[b] electronically transmitted data representing that (a) a seller has satisfied its obligations under a sale-of-goods transaction or (b) that a buyer has otherwise accepted the seller's performance, and that a buyer's obligation to pay for the goods is due.

The next disputed term, "payment mechanism," first appears in claim 1 and occurs in several subsequent, dependent claims, including the disputed claim 49. Plaintiffs define "payment" as "paying money in some form," and "mechanism" as "machinery or process for achieving a result." (Pls.' Mem. On Claim Construction 13). Defendant interprets "payment mechanism" to mean "an arrangement of connected parts for payment that is part of the vending machine," as based on its understanding of the specification and the dictionary definition of mechanism. (Def.'s Rebuttal Claim Construction Br. 19). Defendant properly disputes plaintiffs' construction of mechanism as a process or method, since the Patents disclose an
apparatus, not a method or process. The specification language cited by plaintiffs in support of its proposed definition allows payment by currency or "in electronic form," referring to contemporaneous payment by an electronically-read or magnetically-read card (e.g., credit card, debit card, hotel key card) or other such device. ('400 Patent 2:50-56). The specification also suggests that payment may be "carried out through software that is present in the user's laptop or other device," and that "no physical method need be included in the vending machine." ('400 Patent 2:55-56, 3:23). Contrary to plaintiffs’ claim, this does not mean that the vending machine's payment mechanism is located external to the vending machine, especially in light of the specification and claim language that clearly defines a vending machine as comprised of, in part, a payment mechanism. Rather, instead of being made by a credit card, the payment may be made by electronic currency, e.g., "e-money," or an online service that issues credit to the user and separately bills the user. These are examples of forms of payment, and while these may be dictated by the type of payment mechanism located in the vending machine (for example, if the vending machine does not contain a mechanism for accepting currency but only for processing e-money), they do not dictate the location of the vending machine's payment mechanism.

Accordingly, I construe the disputed claim language as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment mechanism</td>
<td>An arrangement of connected parts for paying money in some form and that is part of the vending machine</td>
</tr>
</tbody>
</table>

B. Payment Mechanism

Claim 1(a) discloses "a payment mechanism for obtaining information from the customer to initiate a vending transaction." '400 patent col. 16, 11. 5-6. The parties' dispute concerns the meaning of the term "mechanism." T-Mobile argues that a mechanism is "an arrangement of connected parts," T-Mobile Br. at 19, while PowerOasis contends that "mechanism' means machinery or process for achieving a result." PowerOasis Br. at 13.

T-Mobile offers two unconvincing arguments to support its interpretation. First, T-Mobile notes that the dictionary definition of "mechanism" is "an arrangement of interconnected parts." T-Mobile Br. at 19 (citing American Heritage College Dictionary). In fact, "mechanism" has several dictionary definitions, including ones that comport with PowerOasis' proposed construction of "payment mechanism." See Compact Oxford English Dictionary of Current English (defining "mechanism" as "the way in which something works or is brought about"). Thus, dictionaries are unhelpful.

Second, T-Mobile argues that the patentees' earlier patents used "mechanism" in terms such as "cover mechanism," '643 patent col. 9, 1. 22, "steam supply mechanism," '169 patent col. 18, 11. 25-26, "hydrocarbon supply mechanism," id. col. 18, 11. 28-29, and "electric supply mechanism," id. col. 18, 1. 34, "to describe items that are made of connected parts." T-Mobile Br. at 19. These references do not support T-Mobile's argument because they use "mechanism" in the same way as it is used in the phrase "payment mechanism" without providing any additional guidance as to the term's intended meaning. n7

n7 In contrast to the other "mechanisms," the patentees explained that a "cover mechanism" is a protective enclosure for the customer's electronic device. '643 patent col. 9, 11. 17-23. While I agree with T-Mobile that a "cover mechanism" is a physical structure, my conclusion derives from the patentees' explication of how the "cover mechanism" functions as a cover for the customer's device rather than their use of the term "mechanism." Accordingly, "cover mechanism" sheds no light on the meaning of "mechanism" in "payment mechanism."

T-Mobile's argument also falters in light of the specification's statement that "no physical payment method is required [in which case] payment is carried out through software that is present in the user's laptop or other device." '400 patent col. 2, 11. 54-56; see also '400 patent col. 3, 11. 22-23. I agree with PowerOasis that this language refutes T-Mobile's contention that a "mechanism" must be "an arrangement of connected parts." As this statement demonstrates, the patentees clearly
envisioned an embodiment in which the "payment mechanism" consists of software on the customer's laptop rather than a coin acceptor, card reader, or other "arrangement of connected parts."

Although I agree with PowerOasis that "payment mechanism" includes software loaded on the customer's computer, I decline to adopt its proposed definition without qualification. As T-Mobile has correctly pointed out, the '658 and '400 patents are apparatus claims rather than method claims. PowerOasis' definition of "mechanism" as "a process for achieving a result" improperly attempts to convert disclosed structure into a method for achieving the result. In order to clarify that the term "payment mechanism" does not encompass all possible methods for obtaining payment from the customer, I construe "payment mechanism" to mean "a mechanical, electrical, or electronic (i.e., software) means for achieving payment."

Various claims in the 298 Patent and the 456 Patent refer to "payment number." The parties agree that this term should be given the same construction wherever it appears and that any construction adopted by the court should include both debit card numbers and credit card numbers. However, BMC maintains that "payment number" also includes debit payments in the form of an electronic check. (Plf. Op. Br. at 23). In support of this argument, BMC points out that Claim 3 of the 456 Patent, a dependent claim that incorporates Claim 1 of the same patent, expressly provides that "said payment number is a debit card number or debit payment in the form of an electronic check." (Plf. App., Exh. 3 at 42) (emphasis added). Independent claims should be construed to be at least as broad as the claims that depend from them. A. K. Steel Corp. v. Sollac and Ugine, 344 F.3d 1234, 1242 (Fed. Cir. 2003). Therefore, the court should construe "payment number" to mean "debit card numbers, credit card numbers, and debit payments in the form of an electronic check."

M. "payment transaction"

Visa objects to the magistrate judge's recommendation that the court apply the ordinary meaning of the term "payment transaction." See First Report at 10. Visa asks the court to adopt the following definition, taken from the patent claims and specification: "A transaction performed in paying bills, sending refunds on return merchandise, sending awards, etc." Def. Obj. to First Report at 17. In support of its argument that the magistrate judge should have construed the claim term, Visa points out that the specification expressly defines "purchase transactions" and "payment transactions" as two distinct types of economic commerce. Having reviewed the specification, and in light of the teaching of Phillips, the court sustains Visa's objection and rejects the magistrate judge's recommendation that the term "payment transaction" be given its ordinary meaning. See generally Phillips, 415 F.3d at 1316 ("[O]ur cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs."). Accordingly, the court construes payment transaction as: "A transaction performed in paying bills, sending refunds on return merchandise, sending awards, etc."

Flashmark suggests that no construction is necessary. In the alternative, Flashmark proposes "a material that responds distinctively to an intensity of light in a range of wavelengths, or of heat, which is not normally encountered in ordinary use in amounts sufficient to cause said material to discolor." GTECH has suggested:

"Material, peculiarly responsive to a particular form of radiant energy not normally present in ambient light in amounts sufficient to cause said material to discolor." Used in Claim 1.

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"Material, peculiarly responsive to a particular form of radiant energy not normally present in ambient light in amounts sufficient to cause said material to discolor." Used in Claim 1.
Infrared wavelengths, in comparison to dry silver materials. 5

A construction of this term requires a definition of "radiant energy," which is addressed above. The court must also construe the "ambient light" in which the "radiant energy" is not normally present.

5 In the responsive brief, GTECH suggested: "a material including an infra-red absorbing dye, formulated to dramatically enhance sensitivity to radiant energy and to reduce the amount of time and energy required to cause the material to become visible in response to wavelengths of radiant energy outside the visible spectrum in the range of about 750-950 nm, and at intensity levels not normally encountered in ordinary use, namely about 50 ergs per square centimeter."

a. Use of Term in Claims and Specification

Claim 1 describes the material as being responsive to radiant energy that is "not normally present in ambient light in amounts sufficient to cause said material to discolor." '153 patent, col. 7, 11. 22-23. It does not place any further restrictions on the type of material that can make up the article.

The specification states that the "material" is normally invisible, which means that the "material is only slightly visible or visible as background, and does not interfere with the genuinely visible markings on the coupon." '153 patent, col. 3, 11. 25-30. "The material 13 may be responsive to radiant energy such as heat or light. Upon being exposed to heat or light energy not normally encountered in ordinary use, the material 13 will become visible." '153 patent, col. 3, 11. 33-37.

In a preferred embodiment, the specification states that the "presently preferred material 13 is a photosensitive material formed by a mixture of a dry silver material and an infrared absorbing dye." '153 patent, col. 3, 11. 42-44. "The preferred materials exhibit high absorption of light wavelengths in the approximate range of about 750 nanometers to 950 nanometers." '153 patent, col. 3, 11. 61-63.

This preferred embodiment is seen in Claims 5 and 6, which are dependent on Claim 1. Claim 5 states: "The article of claim 4 wherein said range of light wavelengths covers about 750 nanometers to about 950 nanometers." Claim 6 states: "The article of claim 5 wherein said material comprises a mixture of dry silver and infra-red absorbing dye."

GTECH's proposal, therefore, is based upon limitations in a preferred embodiment and the dependent claims. In general, an independent claim is presumed to be broader in scope and to encompass the dependent claim. See Phillips, 415 F.3d at 1315 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.")

Flashmark argues that in defining this term, the words "ambient light" be changed to "ordinary use," relying upon a single appearance of that phrase in the specification at Col. 3, 1. 36. If "ambient light" could just be changed to "ordinary use" then "radiant energy" would be more likely to refer to "heat" in forms other than electromagnetic wavelengths. The patentee could have picked any words he wanted for the claims, but he chose to add "ambient light," not "ordinary use," to Claim 1 to overcome the Examiner's initial rejection. Amendment, 6/25/1991 p. 2, FLASH 0000078 in GTECH's Ex. E [Doc. # 107, Attach. # 11, p. 18 of 76]. And, in distinguishing prior art while trying to overcome that rejection, the patentee stressed that prior inventions discolored in ambient light. Amendment, 6/25/1991, pp. 4-5, FLASH 0000080-81 in GTECH's Ex. E [Doc. # 107, Attach. # 11, p. 20-21].

A further indication of what the patentee intended by the use of "ambient light" is found in the same amendment: "As stated in the description, color formation is caused in DYLUX by UV found in daylight or artificial light which contains UV. To prevent discoloration in ambient light the DYLUX paper must be deactivated . . . ." Amendment 6/25/1991, p. 8, FLASH 0000084 in GTECH's Ex. E [Doc. # 107, Attach. 11, p. 24] (emphasis added). The court need not consider at this point whether the "ordinary use" term is a disclosure of an invention in the specification which was not claimed, and so is donated to the public. Johnson & Johnston Assoc. V. R.E. Serv. Co., 285 F.3d 1046, 1054 (Fed. Cir. 2002) ("[W]hen a patent drafter discloses but declines to claim subject matter, . . . this action dedicats that unclaimed subject matter to the public.").
At the hearing the court discussed a proposed definition, together with numerous changes suggested by the parties. In the end, Flashmark would not agree to a construction that defined "ambient light" as anything but "ordinary use." For the reasons noted above there is no basis to adopt "ordinary use," especially when the patentee chose not to use the phrase in amending the claim.

Flashmark's expert stated that while "direct" light would be "focused," ambient light would include "normal lighting" in a room and direct sunlight outdoors, or "conditions of the environment without that presence of the directed light." This is a more expansive definition of ambient light than that suggested by the court, and agreed to by GTECH. However, it is not outside the ambit of the use of the term in the specification and in the prosecution history references set out above, and it comports with its use in some dictionaries.

The court was concerned about imposing a limitation requiring that the "material" of the invention not discolor even in direct sunlight, as will a newspaper and many other papers. However, Flashmark insisted that "ambient light" included direct sunlight, perhaps because their idea of "ordinary use" includes using the articles in direct sunlight. The court is not adverse to adopting this concept as it is reasonable and narrows, rather than expands, the scope of the claim. This term will be construed as follows:

### Material peculiarly responsive to a particular form of radiant energy not normally present in ambient light in amounts sufficient to cause said material to discolor

**Means** "a substance which darkens or changes color when exposed to radiant energy (as previously defined by the court) of a type or intensity (or both) that is not ordinarily present in sunlight or normal indoor lighting."

10. "Pending message list" (*771, Claims 1, 2)

This dispute concerns whether the "pending message list" is a notification to the roaming terminal that it needs to request transmission of its pending messages, as Broadcom argues, or also contains the text of those messages, as Agere argues. Agere claims that the dictionary definition of "list" is "an item-by-item series," and therefore a "pending message list," as understood by a person of ordinary skill in the art, is an "item-by-item series of pending messages." The Court notes, however, that the word "list" has other dictionary definitions, many of which do not support Agere's construction. For example, Webster's dictionary defines a list as "(a) a simple series of words or numerals . . . (b) [synonymous with] index, catalog, checklist . . . (c) the total number to be considered or included." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1320 (1993). All of these definitions would tend to limit the pending message list to an "index" of pending messages, rather than the messages themselves. Thus, at best, there is ambiguity among dictionaries as to which party's construction is accurate. As discussed previously, Courts faced with such ambiguity consult the specifications and prosecution history to determine which definition is most consistent with the patent's use of the term.

Agere cites three pieces of evidence in support of its construction. First, one specification states that "pending messages for
roaming] terminals are stored in lists in the parent node." (771 patent, col. 34, ll. 35-38.) As Dr. Goodman conceded, however, this specification refers to messages stored on the parent node, not to the "pending message list" transmitted to the roaming terminal. (R. at 74-75 (May 6, 2004).) As there is no indication or evidence that these two lists are the same, the cited language has no apparent bearing on the term at issue. Second, Agere cites a specification that refers to "unsolicited messages" being sent to the roaming terminals ("771 patent, col. 39, ll. 44-49), 43 and argues that if the messages are sent unsolicited, they must be sent in the first transmission to the roaming terminal upon its awakening, i.e., in the pending message list. This interpretation, however, is contradicted by the same specification, which notes that the roaming terminal "must request a saved message by examining the pending message list." Thus, the text of the pending messages cannot be included in the pending message list, for if it were, there would be no subsequent "request" from the terminal.

Finally, Agere cites the prosecution history. This history shows that the Examiner rejected the application because the original phrasing of this term, "indications of pending messages," was too indefinite. (Agere Resp. Ex. 34 at 4 (Letter rejecting application 08/545,108, July 23, 1997).) 44 Consequently, the applicant changed this language to "pending message list." Agere argues that the change from the indefinite "indication" to the more concrete "list" means that a list cannot merely be an indication of pending messages, and must therefore include some message content. The Court disagrees with Agere's conclusion. The word "indication" is extremely broad--it could refer to literally anything (e.g., a single bit, a buzzer, a flashing light) that informed the roaming terminal that it had a message pending. The term "list" is considerably narrower, specifying that the terminal is not simply being notified that messages are pending but also being given some information (e.g., the quantity, length, or location of the messages). There is no basis, however, for Agere's argument that this information must include message content. In other words, the applicant's amendment, while slightly narrowing the body of transmissions that could qualify as a "pending message list," does not narrow it so greatly as to require that the list actually contain a message. Accordingly, the Court finds that Agere's proposed limitation is unsupported by the specifications and the prosecution history discussed above.

The term "appears to the user to be the same tool," "perceptible as the same tool/display object," & "not including a display object that is perceptible as the same tool"

The term "appears to the user to be the same tool" appears in claims 9 and 10 of the '412 patent. The term "perceptible as the same display object" appears in independent claim 8 of the '412 patent, and the term "perceptible as the same tool" appears in claims 1, 24, 38, 44, 49-52, 56, and 59 of the '412 patent, claims 1 and 8 of the '521 patent, and claims 1, 3, and 12 of the '183 patent. 1 Claim 19 of the '412 patent contains the related term "not including a display object that is perceptible as the same tool." The parties agree that the term needs no further construction beyond defining "perceptible as the same tool." The parties have agreed on the definitions for "tool" and "display object." Therefore, the true terms in contention are "perceptible as" and "appears to the user to be the same." IPI argues that these terms as a whole should be defined as "requiring the phenomenon of object constancy, under which two successively displayed objects are perceived as the same tool/display object, even if the objects have some different positions, sizes, and contexts. Object constancy can result from
many cues including similarities of position, size, context, contents, labels, text, and/or history." Defendants respond that the terms mean "generated to achieve object constancy such that changes made to shared features of a tool appearing in one workspace, e.g. content, data, etc. are reflected in features of tools in other workspaces."

For ease of reference these terms will collectively be referred to as the "appearing" terms.

IPI's construction is taken directly from the specification describing Figures 1a and 1b. Those Figures show two different windows containing different objects, and the specification explains that the Figures "illustrate the phenomenon of object constancy." '412 Patent at 10:31-31. Some of the objects in the two figures "appear to be the same object despite having different characteristics." Id. at 10:35-36. As IPI's proffered definition suggests, the specification gives examples of various characteristics that may be different while maintaining object constancy. Id. at 10:36-37 ("positions, sizes, and contexts").

As an additional example, the specification explains that "[o]ther shared features which can result in object constancy include sharing of an application, such as an editor; sharing of data; sharing of the state of the application as applied to the data; sharing of a history of continuous operation without interruption." Id. at 10:43-47.

However, while "object constancy" serves as a guide for defining these terms, the claim terms themselves are phrased as a matter of "perception" by "the user." Because of this phrasing, Defendants' proposed construction must be rejected. Defendants attempt to define how a computer might achieve object constancy rather than in terms of what perceptible features result in object constancy. Their inclusion of the word "generated" is unsupported by the specification. Though Defendants opine that a "display system object" may "generate" the same tool in multiple workspaces, this portion of the specification has nothing to do with what is perceived by a user. See id. at 8:22-45. Thus, these claim terms do not require, as Defendants argue, that a tool/display object be generated or stored in a certain way. Adding such a limitation to the definition of the "appearing" terms would improperly limit the claims. Further, while the specification describes that object constancy is achieved through "shared features," Defendants' construction seems to suggest that features must share a data structure to meet the limitation. Nothing in the specification's description of object constancy requires tools/objects to share a data structure. The claim terms only speak to the "appearance" of objects in two workspaces and not how the data structures comprising tools/display objects are organized.

One skilled in the art would understand that the "appearing" terms refer to object constancy as described by IPI. However, as "object constancy" itself is a specialized term, to include it in the definition of the disputed terms would not assist the jury. But, as described above, the essential characteristic of object constancy is recognition, by the user, of a tool/display object despite some different characteristics. Accordingly, the "appearing" terms mean "recognized as the same tool [display object], even if the objects have some different display characteristics, including different positions, sizes, and contexts."

Thus, the term "not including a display object that is perceptible as the same tool" means "not including a display object that is recognized as the same display object, even if the objects have some different display characteristics, including different positions, sizes, and contexts."

13. "performance monitoring information"

Power-One proposes no construction or, in the alternative, "information concerning one or more performance characteristics of the device." Artesyn proposes "information obtained through systematic measurements that tracks one or more performance characteristics of a device." Artesyn advocates a dictionary definition of "monitoring" to arrive at its proposal of "systematic measurements." However, it is unclear what "systematic measurements" means and, therefore, the phrase would not appear to provide any additional clarity to the term at issue. Moreover, the patent specification does not support "systematic measurements" as being a requirement of "performance monitoring information." The Court finds that Power-One's proposal would assist the jury and, thus, construes this term as "information concerning one or more performance characteristics of the device."
VI. "performance of the buyer" 13

13 The term "performance of the buyer" is in claims 1 and 18.

Plaintiff's Proposed Construction

<table>
<thead>
<tr>
<th>the buyer's actions or deeds in the Price-Determining Activity</th>
</tr>
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</table>

Defendants' Proposed Construction

| the buyer's level of success (at the Price-Determining-Activity) |

Plaintiff argues that the buyer's performance at the PDA is separate and distinct from the buyer's "level of success," as proposed by Defendants. OPENING at 27. Defendants argue that the buyer's performance at the PDA is an assessment of how well the buyer performed. RESPONSE at 12.

Claim 1 of the '253 patent discloses that the price for a product or service is determined based on the performance of the buyer while participating in a PDA. '253 patent at 9:30-46 (claim 1); see also id. at 10:34-47 (claim 18), 11:13-23, 12:1-7 (claim 30). The specification adds that in the auction or reverse auction model, "the buyer may be entitled to a further discount of the auction or reverse auction price, which discount may be greater if the buyer performs well at the PDA, and not so great if the buyer performs poorly." '253 patent at 4:39-43. A preferred embodiment discloses a PDA that is a trivia quiz of ten questions. Id. at 5:49-67, 6:1-18. If the buyer gets nine questions correct on the quiz, this performance locks in the price according to the predetermined algorithm as presented to him at the start of the game. Id. Thus, in this embodiment, the "performance of the buyer" which determines the price is the buyer's performance of answering nine questions correctly.

As previously noted, the specification consistently indicates that if a buyer performs poorly at the activity, the price will be higher, whereas if the buyer does well, the price will be lower. See '253 patent at 2:26-28, 2:52-56, 3:64-67, 4:1; see also 5:39-67; 7:40-52; 8:14-23, 8:46-58. The prosecution history includes similar statements. See RESPONSE, SISTOS DEC., EXH. 2 at 118 ("[t]ypically, the better the buyer performs during the PDA, the lower the price will be of the product being purchased"); see also id. at 149. The intrinsic record indicates that a buyer's score or performance level is directly connected to the price of the product and a better performance results in a lower price. Thus, the intrinsic record unambiguously indicates that it is not the buyer's actions or deeds that determine the price, but the buyer's achievements, accomplishments, or level of success that determine the price to be paid. Therefore, the Court finds that the proper construction for "performance of the buyer" is "the buyer's level of success at the Price Determining Activity ("PDA")."

D. The '376 Patent

The first step in resolving the parties' dispute regarding the '376 patent is to construe the term "performance report." Before doing so, it is helpful to discuss briefly the function of the system and methods claimed in the '376 patent. The '376 patent discloses a "System, Method, and Computer Program Product for Near-Real Time Load Balancing Across Multiple Rendering Pipelines." The patent describes a "system, method, and computer program" that produces computer graphics through the use of "multiple graphics rendering pipelines." Each "graphics rendering pipeline" is assigned some portion of the desired image, which it produces. When each "graphics rendering pipeline" completes its assigned portion of the image, it produces a "performance report." These "performance reports" are compared to determine whether there is a disparity in the workloads of the "graphics rendering pipelines." If the disparity in the workloads exceeds a "threshold," work is reallocated among the "graphics rendering pipelines."
Defendants argue that the "performance report" must contain "the amount of time that the rendering pipe required to render a [portion of the assigned image]," or, in other words, "numerical time values." Plaintiff asserts that a performance report need not be numeric in nature or measure time required for rendering. To evaluate the parties' arguments, I turn first to the claims of the patent. Phillips, 415 F.3d at 1314. By their own terms, claims 1, 7 and 8 require the performance report to be compared to a threshold, and if the threshold is surpassed, work to be reallocated accordingly. Claims 7 and 8 direct reallocation of work when the difference between the performance reports is above a threshold. A simple report regarding which pipeline completed its work first would not provide information that could be compared to a threshold. Moreover, it would be odd to compare a report of non-numeric values of any sort to a "threshold" and seemingly impossible to calculate the "difference" between two non-numeric reports.

Next, the patent specification states that "the performance report states the amount of time that was required to render a [portion of the assigned image]." This provides additional support for the proposition that the "performance reports" reflect not only numeric values, but specifically, numeric time values. Abbott Laboratories v. Andrx Pharmaceuticals, Inc., 452 F.3d 1331, 1336 (Fed. Cir. 2006) ("Where claim terms are ambiguous or disputed, then we turn to the specification as the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term."). Further, during the prosecution of the '376 patent, the examiner rejected all original claims, and plaintiff amended claims 1, 7 and 8 to include the word "threshold." This is additional evidence that the requirement for comparison to some fixed value is an important aspect of the claims.

Thus, I am inclined to agree with defendants that the claims require the performance report generated by the graphics rendering pipelines to include information about the length of time required for processing. However, even if I adopted plaintiff's construction of the term "performance report," defendants would still be entitled to summary judgment with respect to plaintiff's claims of infringement of the '376 patent because plaintiff has adduced no evidence that any of the accused products produce "performance reports" of any variety.

The term "performing procedures" is found in claim 1 of the 366 Patent, which claims the following:

   Apparatus for use with a data network and a mass storage device, comprising of the combination of first and second processing units, said first unit being coupled to said network and performing procedures for satisfying . . . a pre-defined non-NFS class of requests,

   . . .

   and said second processing unit being coupled to said network and to said mass storage device and decoding NFS requests from said network, performing procedures for satisfying said NFS requests, and encoding NFS reply message for transmission on said network . . .

366 Patent, 51:35-47. In addition, claim 5 of the 366 Patent and claims 1 and 4 of the 918 Patent recite "a means for performing procedures for satisfying . . . NFS requests," id. at 52:48-48, or "for satisfying file system requests," 918 Patent, 127:27-28. Plaintiff contends that the phrase "performing procedures" is unambiguous and therefore need not be construed by the court. See, e.g., Liquid Dynamics Corp. v. Vaughan Co., 355 F.3d 1361, 1368-69 (Fed. Cir. 2004). While also claiming that the disputed term has a well-established ordinary meaning, defendant argues that this meaning is "executing software instructions."

The crux of the parties' dispute is whether the procedures at issue include procedures performed by hardware, or whether the claim term is limited to procedures performed in response to software instructions. Defendant urges the court to rely on the definition of "procedures" found in the Academic Press Dictionary of Science and Technology (1992) (hereinafter "AP Dictionary"), which defines "procedure" in the field of computer technology as "a sequence of program components that collectively accomplish some task . . . generally used in reference to higher-level languages." Id. at 1729. Admittedly, the

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cited definition limits the scope of the term "procedure" to "a sequence of program components" -- i.e., software. However, other dictionary definitions -- including technical references apposite to the art of file server architecture -- define "procedure" far more broadly. For example, The Authoritative Dictionary of IEEE Standards Terms (2000) (hereinafter "IEEE Dictionary"), defines "procedure" as, inter alia, "[t]he course of action taken for solution of a problem" (computers), or alternatively, as "a course of action to be taken to perform a given task" (software). Id. at 870. Thus, contrary to defendant's assertion, there is no single, well-established meaning for the term "performing procedures."

Where a disputed claim term has more than one possible meaning, "[t]he objective and contemporaneous record provided by the intrinsic evidence is the most reliable guide to help the court determine which of the possible meanings was intended by the inventor." Texas Digital, 308 F.3d at 1203 (citing Renishaw PLC v. Marposs Societa per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Id. at 1203-04. In the instant case, taking claim 1 of the 366 Patent as an example, the procedures at issue are performed by the first and second processing unit and are undertaken for the purpose of satisfying NFS or non-NFS requests from a data network. 366 Patent, 51:35-48. The 918 Patent replaces "NFS requests" with the somewhat broader term "file system requests," 918 Patent, 127:7-8, but in substance the procedures performed by the two inventions are closely related.

The claim language of the patents in suit makes clear that the term "performing procedures" is intended to be given an extraordinarily broad meaning. Taking claim 1 of 366 Patent as an example, the term "performing procedures" is used to describe any operation performed by the claimed processing units except for decoding NFS requests and encoding NFS reply messages. See 366 Patent, 51:35-48. While these procedures may include executing software instructions, the specification discloses that the processing units perform a broader range of tasks. For example, in order to perform the procedures necessary to satisfy an NFS request, the network controller may need to request a system memory location from the file server. The specification discloses that this request is carried out by the network controller, which accesses the file server via VME bus. See, e.g., id. at 19:25-27, 19:50-58. This procedure is best described as "accessing another processor" rather than "executing software instructions." Likewise, claim 5 of 366 Patent, which recites a "means for performing procedures for satisfying . . . NFS requests," identifies one such procedure as "accessing [a] mass storage device" -- a process involving both software and hardware. Id. at 52:48-49. The court therefore rejects defendant's attempt to limit the scope of the term "performing procedures" to "executing software instructions."

While a narrowing construction of a claim limitation may sometimes preserve the validity of a claim, "[n]othing in precedent permits judicial redrafting of claims." Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 799 n.6 (Fed. Cir. 1990). Given the broad scope of the meaning of the performing procedures term in the context of the claims at issue, the court sees no principled basis for narrowing the meaning of the term based on a single, identifiable technical definition. Accordingly, the court finds the term unambiguous and declines to construe the term.
Moreover, figure 1 describes the “peripheral management station” as a “JukeBox Management PC,” and it depicts the station as a desktop personal computer. A construction of “peripheral management station” as a computer would not, as plaintiffs argue, import limitations from the specification into the claim. The claim language itself indicates that, at the very least, the “peripheral management station” includes a computer. And because “peripheral management station” apparently does not have any particular meaning to a person with ordinary skill in the field, the Court must construe the term in light of the specification. The specification reflects that the “central management station” includes a computer. The parties also dispute whether the “central management station” is “used to” service the jukeboxes, or whether it “allows” the servicing of the jukeboxes. It is difficult to see the difference between these proposed constructions, and the parties’ references to language in the specification do not provide much clarity. On the whole, however, the specification indicates that the purpose of the invention is to provide a means for multiple computer jukeboxes to be serviced from decentralized locations. Id., Ex. 7 at 1:55-58. This can be accomplished only if the central management station does the servicing. The Court therefore adopts defendants’ proposed construction.

4. Period of Time

The construction of the phrase "period of time" is in dispute. It appears in the following contexts: "directing a recirculating spray of concentrated detergent solution having a concentration level in the range of 0.5 to 12 % detergent by weight onto said fabric for a first period of time"; "after said first period of time, diluting said concentrated detergent solution to a lesser detergent concentration level, no less than 0.28 % by weight, and spinning said wash chamber to effect less than a one gravity centrifugal force on said fabric that said fabric will again tumble"; "after said first period of time"; "directing a recirculating spray of said lesser concentrated detergent onto said fabric for a second period of time"; "for a third period of time." ('370 patent, claims 1, 8, 15, 17; '718 patent, claim 1.)

Whirlpool seeks the following construction: "The first period of time may vary and is not limited to any predetermined or specified length of time. The end of the first time period is marked by a termination of the recirculating spray and the tumbling of the fabric." "The second period of time may vary and is not limited to any predetermined or specified length of time." "The third period of time comes after the first and second periods of time. Nothing in this term requires the third time period to be of a particular or specified length of time." Whirlpool would construe the term to encompass both fixed or predetermined lengths of time, as well as varying or unspecified lengths of time.

LG argues for the following construction: "for a first predetermined period of time (i.e., predetermined concentrated wash period)"; "after the first predetermined period of time (i.e., predetermined concentrated wash period)"; "for a second predetermined period of time (i.e., predetermined diluted wash period)"; and "for a third predetermined period of time."

The dispute centers on whether "period of time" means only a predetermined length of time, as LG argues, or can
encompass both predetermined and variable lengths of time, as Whirlpool argues. Dictionary definitions of the word "period" support Whirlpool's position that the term is open ended. See NEW SHORTER OXFORD ENGLISH DICTIONARY ("period" is "a course or extent of time"); AMERICAN HERITAGE DICTIONARY ("period" is "an interval of time characterized by the occurrence of a certain condition or event"). These definitions contain no requirement for a predetermined or fixed length of time. Furthermore, the Court discerns nothing in the phrases "first period of time," "second period of time," and "third period of time" that requires the periods to be of particular or specified lengths. The words "first," "second," and "third" appear to serve no function beyond distinguishing one step from the other. See 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1371 (Fed. Cir. 2003) ("In the context of claim 1, the use of the terms 'first…pattern' and 'second…pattern' is equivalent to a reference to 'pattern A' and 'pattern B,' and should not in and of itself impose a serial or temporal limitation onto claim 1.").

The '370 patent specification, LG argues, requires construing "period" to mean a predetermined time. In LG's view, the specification unambiguously discloses an automatic control system that chronologically cycles through preset or preselected steps whereby the recirculating spray of concentrated detergent solution is directed onto the fabric. The specification describes "a machine having a presettable sequential control means for operating a washer through a preselected program of automatic washing, rinsing, and extracting operations" (370 patent, col. 2, lines 58-61) (emphasis added); the patent explains that the washing steps occur as "a predetermined period" or "designated time" (370 patent, col. 6, lines 52-57, 67-68; col. 8, lines 26-30). Also, the specification speaks of "some predetermined period of time specified by the cycle type." (370 patent, col. 6, lines 52-53.) In the diluted wash step, "the type and length of tumbling action varies with the cycle desired"; for example, "maximum time may be selected for maximum soil removal, while lesser times offer less fluid flow and fabric flexing for delicates, silks, wools, sweaters, and other fine washables." (370 patent, col. 8, lines 27-30.) Thus, LG maintains, the specification indicates that the first, second, and third periods of time are predetermined periods dictated by the user's needs. LG also argues that during the patent prosecution, the examiner's discussion of the Johnston patent revealed the examiner's understanding of "period of time" to mean a predetermined period of time. (Australian Patent 209,436 at 6, LG Br. Ex. 106 (discussing a "first period of time" and a "second period of time" and explaining that "the agitation and scrubbing of the fabrics in the low level, highly concentrated solution is carried out for about five minutes or until the segment 59 engages the contact finger 72."))

The Court agrees with LG that the specification indicates that the time periods' lengths depend upon the user's choices. For example, if the user selects maximum soil removal, then the period will be one preset length; if the user selects delicates, then the period will be preset for a shorter length. It is true, as Whirlpool notes, that the period of time varies with the cycle type, but once the cycle type is selected, the time is fixed. The preferred embodiment, however, is only one example of the claimed invention. As the Court has stressed elsewhere in this Opinion, the claims are not to be limited to the preferred embodiment in the absence of "words or expressions of manifest exclusion or restriction" representing a clear intent to disavow the claim's scope, none of which appear in the intrinsic evidence of this patent. Liebel-Flarsheim Co. v. Medrad. Inc., 358 F.3d 898, 906 (Fed. Cir. 2004). Just because Whirlpool's preferred embodiment appears to feature preset time periods does not mean that the claims are necessarily so limited. In addition, the word "predetermined" appears in the claims themselves only in claims 1 and 6 of the '718 patent, which both describe "repeating steps (d) and (e) a predetermined number of times." This language pertains to the number of times the recirculation process is repeated, not the length of any "period," and thus has no bearing on the construction of the term "period."

Accordingly, the Court adopts Whirlpool's construction of the phrase "period of time" to include both fixed, predetermined lengths and open, unspecified lengths.

2. "Periodic" and "periodically." Discontinuously. (144 patent, col. 2, ll. 22-23)
The first disputed term is "periodic." This term is used within '401, '856, '825 and '764. Counsel agree that this term has the same meaning in each of these patents. See Dec. 1, 2004 Tr. at 39. Claim 1 of '401 states:

...said record carrier comprising:

...a substrate provided with substantially parallel elongated tracks each having a periodic undulation in a direction transverse thereto at said predetermined frequency, so that during scanning of any portion of a track by said scanned beam to record and/or reproduce information thereon a beam of radiation is produced therefrom which is periodically modulated at said predetermined frequency...

The parties dispute whether "periodic," as used within the patents, means "identical." Philips argues that a periodic event is one that occurs at regular, but not necessarily identical, intervals. See Dec. 1, 2004 Tr. at 20 ("Everyone agrees that the '401 patent clock signal is a periodic signal. What the defendants argue is that once that clock signal...is changed by being frequency modulated...they say it is not periodic."); at 21 ("This ['825] makes clear that what is being called a periodic signal is also a frequency modulated signal....And it ends with a piece of the specification that specifically says that the deviation of the frequency from the clock-signal frequency is plus or minus one kilohertz. So that's what the specification says is a periodic frequency."). Defendants argue that "periodic" means "identically occurring. See id. at 37 ("Periodic means 'repeating itself identically at regular intervals.'"); at 38 ("The only modulations that are disclosed in the '825 patent are, again, identical modulations. ...Nowhere in any of the Philips patents is there any disclosure of a modulation that is anything but periodic or identical.").

The Defendants argue that periodic must mean identical, because '401 is designed to generate a clock signal. In order to function correctly in correcting tracking errors, a clock signal must be an identically repeating event. See id. at 41 ("A clock signal can't be generated by random periods because you would have a clock that - you would have a start and stop, or you would have a. ...let's put it this way. You would have a velocity for this disc that would change constantly because the clock would be going back and forth; it wouldn't be constant.").

Philips asserts that the patentee is permitted to define "periodic" in the manner in which it chooses, and extrinsic dictionary definitions are not controlling upon intrinsic evidence. See id. at 21 ("The Federal Circuit. ...is very clear that the patentee's entitled to be his own lexicographer. He can explicitly or implicitly tell the reader what he means by a term that's used in the claim, and when he does that, you can't go to a dictionary."). Notwithstanding, the dictionary is a good place to begin.


Periodic

1. Of, pertaining, or proper to the revolution of a heavenly body in its orbit, as periodic motion, time.

2. Characterized by periods; recurring at regular intervals; spec. in Path. having regularly recurring symptoms, as periodic fever. Often loosely, Recurring or reappearing at intervals; intermittent.

3. Of or pertaining to a rhetorical or grammatical period; characterized by or expressed in periods.

4. = PERIODICAL a, 5. rare.

5. Relating to a period or space of time. rare.

6. as n. pl. = PERIODICAL n. 3.

See also Websters' Third New International Dictionary, unabridged

1a. characterized by periods: occurring at regular intervals &t; phases of the moon&t; &t;&t; municipal elections&t;;

b. occurring repeatedly from time to time: RECURRENT, INTERMITTENT &t; epidemics&t; &t; drinking sprees&t;: FREQUENT &t;&t; one of Bermuda's power failures - &t;ITALICS&t; Time &t;:
2. consisting of a series of stages or processes that is regularly repeated: CYCLIC &t; vibration;&t;

3. of or relating to a period &t;&t;house was pleasant and comfortable, they were too sophisticated to be - &t;ITALICS&t;&t;Scribner's;&t;;

4a. of or relating to a form of construction found in some Greek odes in which the second and third in a group of four strophes are alike in structure and the first and fourth differ from these and from each other;

b. expressed in or characterized by periodic sentences &t; style;&t;.

Regardless of any dictionary definitions of periodic which seem to suggest, or even require identical elapsed time between events, or occurrences, in order for something to be described as "periodic" (and as noted above, they do not), the common speech of the people supports Plaintiff's position. The language belongs to the people and not to the lexicographers. For example, the rise and fall of the tides in an harbor are called periodic, yet the times elapsed between them are not identical. Neurotics are described as having "periodic mood swings", clearly not identical. Wars, famines, volcanic eruptions, hurricanes, tsunamis and other naturally recurring phenomena are recognized in the English language as periodic. Fortunately, they do not recur after identical time lapse; similarly we speak of the weather: "a period of sunshine followed by rain": a time in history: "the interwar period" an evolutionary or developmental unit: "Picasso's blue period": a time regularly set aside for a purpose: "rest period", "lunch period." All such periods are properly described by the adjective "periodic." The words "intermittent" and "recurrent" are both recognized synonyms for "periodic." 3

3 See Roget's II, the New Thesaurus, New York 1988, listing "intermittent" and "recurrent" as synonyms for "periodic."

The various patents' specifications demonstrate that the "periodic undulations" that are referenced are regularly occurring intermittent events, but these events are not identically occurring. '825 17: 65-68:

Moreover, it is to be noted that on account of the d.c. component of the position-information signal the average frequency of the FM-modulated signal is exactly equal to 22.05 kHz. . .

The FM-modulated signal has an "average" frequency of 22.05 kHz. Claim 1 of '856 is clear as to why the signal is measured by its average, instead of its identically repeating value. See '856 6: 68- 7: 5:

characterized in that each of said tracks has a periodic modulation of its position in a direction transverse thereto and which, without occupying any portion of the track, generates a periodic clock signal in the radiation therefrom having a substantially constant frequency corresponding to the velocity of scanning of said track, the frequency of said clock signal only varying in accordance with variations in said scanning signal. . . .

The "periodic" clock signal varies based upon variations in the scanning signal. Because of these variations, the clock signal is frequency modulated, with an average frequency of 22.05 kHz. This average is based upon fluctuations between a high frequency of 23.05 kHz and a low frequency of 21.05 kHz. The reference to an average indicates that the undulations are not identical. If it were otherwise, the frequency would not be an average, but rather a simple measurement of identically repeating frequencies. Defendants' argument that the clock signal must be identical to function appropriately is belied by the language of the patents themselves. The clock signal itself has a "substantially constant frequency" which varies in accordance with "variations in [the] scanning signal." A signal with a "substantially constant frequency" which varies is not the same as an identically repetitive signal. Defendants' argument does not find support in the patent, which teaches a periodic clock signal that is not identical, but varies. Because the language of the patents' claims and specifications teach a modulated clock signal, the Court should not contradict the language usage chosen by the patentee, especially where, as here, periodic has the accepted secondary dictionary definition of "intermittent." Accordingly, the Court interprets "periodic" to mean "regularly but not necessarily identically repeating."
3. "periodic"

The parties dispute the meaning of the term "periodic" in the phrase "selectively connecting the subscriber location to a remote location over non-dedicated phone lines on a periodic basis unrelated to the receiving of the scrambled program signal" of claim 9, which relates to the transmission of billing data from the subscriber location to the remote location. Echostar argues that "periodic" means at a regular interval, whereas IPPV contends that "periodic" means at a regular interval or intermittently.

In support of its proposed construction, Echostar directs the court to a portion of the specification which refers to "the placement of a call on a monthly basis" as an example of when the subscriber location would contact the remote location. Based on this example, it contends that "periodic" means at a regular interval.

IPPV, on the other hand, argues that "periodic" is defined in other portions of the specification to include contact on an intermittent basis. In describing when money is to be collected in certain prior art devices, the specification states that "the billing entity (the system operator) must collect the money from the coin boxes on a periodic basis." IPPV contends that the specification is suggesting that the physical collection of the money may be accomplished on an intermittent basis.

The specification also states that "it will be appreciated that the invention provides a relatively simple manner of subscriber billing that allows for the identification of programs actually viewed and the rapid gathering of this information on a periodic basis long after a program has been viewed." IPPV argues that nothing in this passage suggests that "periodic" should be limited to regular predetermined time intervals only.

After reviewing the parties' arguments and the specification, the court concludes that "periodic" is not limited to regular intervals. The "monthly basis" example referenced by Echostar precedes the following statement: "Similarly, when the signal storage device is full and can store no more program codes, the access unit [located at the subscriber location] may place a call to the data gathering unit [located at the remote location] to transfer billing information thereto." When read in conjunction with the "monthly basis" example, this passage indicates that even if the subscriber location normally contacts the remote location to transmit billing information on a set interval, the subscriber location may also contact the remote location when it is full of billing information. If the subscriber location contacts the remote location on a set interval and intermittently, "periodic," which describes the contacts, cannot be limited to set intervals. Thus, the court concludes that "periodic" may include intermittent contacts.

1. Periodic

Claim 1 lists nine actions that the program performs, e.g., receiving messages from employees, reallocating resources, and issuing reminders and status reports, and indicates that the program "repeat[s] steps (a) through (h) on a periodic basis, as desired by said organization work-group team members." Def. Ex. A at col.9, lines 12-14 (emphasis added). Based on this language, defendant argues that Claim 1 is limited to a program that issues reports and performs the other described functions at fixed, regular intervals, as opposed to intermittently, or on request.

The patent language supports this limitation. For example, a specification for the Reporting function of the program distinguishes between reports which are generated "periodically" and special reports generated "on request." See Def. Ex. A at fig.10 ("Reports Flowchart"). Similarly, the patent's specifications provide that the Reminder function was intended "to track pending tasks and remind task owners on a pre-determined frequency on when to start/finish their tasks." Def. Ex. A at fig.6. Other specification language explains that the Program "is a software process that runs at fixed intervals (example: at the end of the day)," and "responds to the messages and is thus 'event driven,' though the response does not occur immediately but rather batched together for the end of day processing." Def. Ex. B at 11, 15. Finally, the Academic Press Dictionary of Science and Technology defines "periodic" as "occurring at regular intervals."
Accordingly, we construe the Patent to reach only project management programs which perform their functions at fixed intervals, rather than intermittently or on request. However, the Patent could still encompass programs which allow for both fixed-interval and on-demand reports, because Claim 1 states that the Program performs its functions "on a periodic basis, as desired by said organization work-group team members." Thus, the Patent teaches that team members can reset the periods when the Program issues status reports and other reminders. Although the claim should be limited to a program performing the above functions at fixed intervals, individual team members may modify these fixed intervals for their own purposes in any construction of Claim 1.

12. "Periodically."

The court shall apply the ordinary definition of the word "periodically." Thus, the term "periodically" shall be construed to mean "taking place now and then; intermittent." 2


This case is before the court for ruling on the Motion for Clarification on Proposed Jury Instruction 2.2.3 (# 160) filed by Horizon Hobby, Inc. (Horizon). This court has carefully reviewed the arguments of the parties set out in Horizon's Second Motion for Summary Judgment of Noninfringement (# 101), the Response filed by Ripmax Inc., under seal (# 122) and Horizon's Reply (# 130). Following this careful and thorough consideration, this court concludes that the phrase "periodically repeated time frame," included in claim 1 of the '128 patent is properly construed as meaning "control data is transmitted continuously in repeated frames without interruption."

This court concludes that this is the proper construction based upon the language included in the claim, the specification, and the prosecution history of the '128 patent. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (the claims, specification, and prosecution history of a patent make up the "intrinsic evidence" to which a court should look first when construing claims); see also Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005) (the prosecution history provides evidence of how the PTO and the inventor understood the patent). This court specifically notes that, as part of the prosecution history of the '128 patent, Ripmax argued before the U.S. Patent Examiner that, in the model-application claimed, "the transmitter is switched on and continuously transmits control data in repeated frames" and that "signals on the same channel, being continuous, must be avoided." This court further notes that this court's construction is entirely consistent with the opinion of Ripmax's expert, Dr. Kourosh Parsa, who stated that "the receiver identifying code and control data is sent at regular intervals on a continuous basis without interruption." This construction is also consistent with Ripmax's argument, included in its Memorandum in Opposition to Horizon's First Motion for Summary Judgment (# 68), wherein Ripmax argued that the "claim term 'periodically repeated time frame' as used in the patent means that the receiver identifying code and control data is sent at regular intervals on a continuous basis without interruption" and also argued that the "control data must be continuously sent to and received by the on-board receiver so that the airplane's control devices can be continuously updated."

This court's construction will be included in Jury Instruction 2.2.3.

IT IS THEREFORE ORDERED THAT:

(1) Horizon's Motion for Clarification on Proposed Jury Instruction 2.2.3 (# 160) is GRANTED.
(2) This court construes the phrase "periodically repeated time frame," included in claim 1 of the '128 patent, to mean "control data is transmitted continuously in repeated frames without interruption."

(3) This court's construction will be included in Jury Instruction 2.2.3.

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F. "Periodic Fee."

The term "periodic fee" was used only in claim 34 of the '381 patent. It recited in pertinent part (col. 15:34-38):

34. A computer-implemented method for renting movies to customers, the method comprising:

  establishing over the Internet a rental agreement with a customer that provides for charging the customer a periodic fee.

  providing electronic digital information that causes one or more attributes of movies to be displayed;

  establishing, in electronic digital form, from electronic digital information received over the Internet, a movie rental
  queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer;

  causing to be delivered to the customer up to a specified number of movies based upon the order of the list;

  in response to one or more delivery criteria being satisfied, if the customer is current on the periodic fee, selecting another
  movie based upon the order of the list and causing the selected movie to be delivered to the customer;

The parties disagree over whether the fee must be associated with the items rented. Blockbuster proposes that "periodic fee" should mean "an amount incurred, paid, or charged at regular intervals for a service -- for example, and without limitation, an hourly, daily, monthly, or annual fee." Netflix contends that the term should mean "fee to be paid per subscription period for the right to rent." Blockbuster contends that the fee could be for any period of time, while Netflix contends that the fee must be associated with the subscription period.

As with all other terms construed in this order, both of these terms are commonly-understood English words. Any juror would understand a "fee" to be an amount charged. "Periodic" means "occurring or recurring at regular intervals." Merriam-Webster, Ninth New Collegiate Dictionary, 1984.

Netflix argues that the term should be narrowed to indicate that the periodic fee is a subscription fee and that it is paid for the right to rent. The latter requirement is more or less already found in claim 34 as recited above. The paragraph of the claim in which the term "periodic fee" appeared recited "establishing over the Internet a rental agreement." It is clear from the claim language that the fee is paid for the right to rent items.

As to the subscription requirement, plaintiff cites several places in the specification of the '381 patent that refer to a "subscription period," but none of these passages defined the term "periodic fee," or specifically required that the fee cannot be separated from the concept of a subscription (col. 6:1-2, 9-10, 32-34, 36-37). The subscription model is an attribute of a preferred embodiment that the plaintiff attempts to read into the claims as an additional limitation.

In any event, plaintiff's proposed definition would add little to the claim. The claim at issue indicated that the periodic fee was not charged per item as in traditional a la carte rental programs. Specifically, claim 34 recited that the customer will only be sent an additional item if they are current on their periodic fee. That claim separated the concept of the fee, which is based on time, from sending another item. This order will not go so far as to adopt Netflix's overly-narrow definition, but it will make clear that the "periodic fee" at issue is not charged per item rented but for a specific time period.

Accordingly, this order holds that the term "periodic fee" will have its ordinary meaning, a fee charged or collected at regular intervals, based on time, and not calculated per item rented.
E. Periodic Interrupts ('950 patent, Claims 8, 11)

PCTEL contends that the term means "a signal that recurs or repeats, at time intervals that are not necessarily precise or the same that attempts to get the host processors attention." Agere asserts the proper construction of the term is "an identical signal repeated at regular intervals to the host processor to suspend other tasks on the host processor while the processor addresses the device, which signal is not asserted in conjunction with Direct Memory Access transfers."

This term does not require the Court to engage in any new analysis. For the reasons previously set forth, the Court disagrees with Agere that "periodic" should be construed as "regular intervals." The Court also rejects Agere's use of the phrase "which signal is not asserted in conjunction with Direct Memory Access transfers" for the reasons stated in Sec. II(C). However, the Court agrees with Agere regarding the ordinary meaning of the term "interrupt." Accordingly, the Court construes "periodic interrupts" as a signal that recurs or repeats, at time intervals that are not necessarily precise or the same, that suspends other tasks on the host processor while the processor addresses the device.

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(3) Periodic Save Code

Square D contends that "periodic save code" should be construed to mean "code that is operative to periodically transfer at least a portion of the working data from volatile memory to non-volatile memory." EI argues that it means "repeatedly executed firmware for copying data into data flash memory, ensuring erased flash memory blocks, and asserting a flag to prevent a second data save operation."

According to EI, both sides agree that "periodic save code" is explicitly defined in the specification. It did not appear to the Court that Square D accepted this proposition; indeed, counsel for Square D seemed to say exactly the opposite at the Markman hearing ("[t]here is no such explicit definition anywhere in the patent as they're representing." Transcript of Proceedings of December 3, 2009, p. 47).

The specification states that "[t]he periodic save task is responsible for saving the device data to the flash memory and ensuring that there is always sufficient amount of erased flash memory blocks ready to accept data during power down event." U.S Patent No. 6,745,138 B2, col. 24, lines 54-57. And that "[d]uring normal operation (i.e., with stable power) . . . the periodic save task is responsible for copying of the relevant data to the data flash memory 1960 and erasing the flash memory blocks." Id., col. 25, lines 24-28. Although EI cites some additional language to suggest that the periodic save code must also assert flags, that language can reasonably be read to be required only under certain circumstances (i.e., when the periodic save task is saving a data unit other than the power down data unit). See id., col. 25, lines 32-40. And this language relates to the preferred embodiment being discussed in this section, not necessarily to every embodiment of the invention. Accordingly, the Court will not read this limitation into the claim.

At bottom, the language of the claim defines the task of the periodic save code: the code operates "to periodically transfer at least a portion of said working data code from said volatile memory to said non-volatile memory." Thus, the Court adopts Square D's proposed construction.

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C. Periodically Asserts a First Signal While Operating in the First Mode ('950 patent, Claims 1, 13; '780 patent, Claims 1, 7)

PCTEL contends that the disputed term is defined as "the assertion of a first signal that recurs or repeats, at time intervals that are not necessarily precise or the same, which must occur, at least, some time during the first mode." Agere contends
that the term is limited to "produces and repeats an identical non-DMA related signal at regular intervals while operating in a first mode (the normal mode of operation).

PCTEL states that its proposed construction is consistent with intrinsic evidence, which discloses embodiments wherein the interrupt signal does not recur at regular intervals. See '950 patent, col. 4:12-15; '780 patent col. 4:4-7. PCTEL also relies upon U.S. Patent No. 5,721,830 ("the '830 patent"), which is incorporated by reference into the '950 and '780 patents, to argue that not all interrupts occur at regular intervals. PCTEL also asserts that the prosecution history does not clearly indicate that the patentee disclaimed DMA related signals from being interrupts.

Agere contends that its construction of "periodically" as occurring a regular intervals is consistent with the ordinary meaning of that term. (Mills-Robertson Decl., Ex. 16, McGraw-Hill's Dictionary of Scientific and Technical Terms (1994) (defining "periodic" as "[r]epeating itself identically at regular intervals"). Agere also asserts that its proposed construction is consistent with the specification, and the single disclosed embodiment that generates "periodic" interrupts every 3.3 milliseconds. See '950 patent, col. 4:4-12; '780 patent 3:63-4:4. Agere also notes that its construction excludes "DMA-related signals" to account for the alleged disclaimer that PCTEL made to the PTO.

As an initial matter, the Court must determine the ordinary and customary meaning of "periodically." Following the Federal Circuit's teaching in Phillips, the Court begins by reviewing the specification. n8 Phillips, 415 F.3d 1303, 2005 WL 1620331, at 13. In support of PCTEL's argument that the inventor intended to give special meaning to "periodically," it cites the following specification language: "More generally, the number of samples read or written per interrupt is about equal to the product of the period of the interrupts and a sampling frequency used by converters 34." '950 patent, col. 4:12-15; '780 patent, col. 4:4-7 (emphasis added). Based on this language, PCTEL asserts that since the sampling frequency used by the converters 134 is fixed, a change in time between interrupts results in a change in the number of samples read or written to the buffer so that the near equality (i.e., about equal) is maintained. n9

n8 The Court agrees with Agere that, based on the only technical dictionary definition provided by the parties, the ordinary meaning of "periodically" is "repeating itself identically at regular intervals." To the extent that PCTEL relies upon general-usage dictionaries to support its argument that periodically means "from time to time," such reliance is misplaced. See Vanderlande Indus. Nederland BV v. ITC, 366 F.3d 1311, 1321 (Fed. Cir. 2004) (stating that general-usage dictionary definitions are irrelevant where an artisan would attach a special meaning to the term).

n9 To the extent that Agere seeks to limit the patents' claims to preferred embodiment that generates interrupts every 3.3 milliseconds, the Court rejects this argument. See Eckchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997) (holding that courts should not "limit[] the claimed invention to preferred embodiments or specific examples in the specification.").

During the ITC investigation, an ALJ considered whether the term "periodic" and "periodically" in the claims of the '950 and '780 patents required that interrupts occur at regular intervals and concluded that:

Therefore, the foregoing "about equal" relationship means that the relationship between the number of samples read or written per interrupt varies inexacty with the periodicity of the interrupts. In other words, the longer or shorter the interval between interrupts, the more or fewer samples will be read or written, but not by an exact ratio. One likely reason for this inexactitude is because the interval between interrupts itself varies, even though those interrupts are considered in the art and the patent itself to be "periodic."

(O'Grady Decl., Ex. 7 at P0007715-P0007716). While the ITC decision is not binding, see Texas Instr. Inc. v. Cypress Semiconductor Corp., 90 F.3d 1558, 1569 (Fed. Cir. 1996), the Court concludes that the ALJ's conclusion was well reasoned and persuasive. It appears that the only requirement for the time between interrupts is to keep the computer's power management system from switching the device from the first ("normal") to the second ("wait") mode. In this respect, it does not appear that the specification requires the time between such interrupts to be exact. n10
n10 The ITC concluded, and the Court agrees, that the specification of the '830 patent also supports this conclusion.

Regarding the issue of "DMA-related signals," the prosecution history reveals that, in an attempt to overcome the examiner's original rejection, PCTEL distinguished the Gross patent as follows:

Gross does not suggest providing an interrupt signal to a host computer. Typically, conventional modems such as Gross discloses, transfer data to a host computer using DMA transfers to avoid disturbing the host processor. Accordingly, Gross fails to suggest a device that 'periodically asserts a first signal while operating in the first mode. . . .

(Mills-Robertson Decl., Ex. 7 at AL 14994-95).

Based on this disclaimer, Agere contends that PCTEL expressly distinguished DMA transferring modems from its invention. PCTEL disagrees, and asserts that it is the transfer of data, not the use of "DMA transfers," that avoids having to disturb the host computer. PCTEL notes that since what is being transferred from the hardware modem (as in Gross) to the host computer is data, the host computer need not run any software to convert the material it receives from the modem into data. To the contrary, when digital samples are transferred from the HSP modem to the host computer (as in the '950 patent), the host computer must be interrupted and its processor must run HSP software that converts digital samples into data.

The Court finds that PCTEL's interpretation of the prosecution history is reasonable. Without further disclaimer language, the Court cannot conclusively determine that the patentee distinguished Gross based on the use of "DMA transfers" as opposed to the "transfer of data." See Omega Eng'g, Inc. v. Raytek, Corp., 334 F.3d 1314, 1326 (Fed. Cir. 2003) (stating that for prosecution disclaimer to attach, the alleged disavowing actions or statements made during prosecution be both clear and unmistakable). Given that the patentee's disclaimer of "DMA transfers" was not "clear and unmistakable," prosecution disclaimer does not attach.

Given these considerations, the Court construes "periodically asserts a first signal while operating in the first mode" as the assertion of a first signal that recurs or repeats at regular intervals while operating in the first mode.
1. Reconsideration of construction of Claim 14

Claim 14 was addressed in the Court's First Markman Order. That construction did not address all of the elements of the Claim. This Order reconsiders the construction of Claim 14 and supersedes the First Markman Order with respect to Claim 14.

Claim 14 discloses a method for controlling the movement of a cursor of a video display. The method comprises four steps, which may be summarized as follows: (1) providing a hand-holdable device which has a two-dimensional array of photosensors; (2) tracking movement of the device in the environment; (3) forming a cursor-control signal which corresponds to the movement which is tracked in step (2); and (4) transmitting the cursor-control signal to the video display.

2. Step (1): The "providing a hand-holdable device step," imposes a structural limitation on each element of Claim 14

Step (1) of the method recites a particular structure for performing the method, namely, "a hand-holdable device having a two-dimensional array of photosensors." When a method claim includes as one of its elements a particular structure, unless the language of the claim provides otherwise, the structure is a limitation on the claim. See Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261 (Fed Cir. 1986). Based on the language of Claim 14, the Court finds that the method is limited to a particular apparatus: "a hand-holdable device having a two-dimensional array of photosensors."

3. Step (2): The Tracking Step

Step (2) of the method provides: tracking movement of said device relative to a region of an environment in which said device resides. The "tracking movement" step includes three substeps. Substep (a) is: "periodically forming largely overlapping images of a field of view of said array." The parties dispute the construction of this substep. To arrive at a construction, the Court begins by giving separate consideration to the words and phrases of the substep.

a. "said array"

Substep (a) claims as part of the "tracking movement" step, periodically forming largely overlapping images of a field of view of "said array." When an element uses the word "said," it is referring back to a device already disclosed. See Nautilus Group, Inc. v. Icon Health and Fitness, Inc., 308 F. Supp. 2d 1198 (citing Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356 (Fed. Cir. 1999), cert. denied, 529 U.S. 1037, 120 S. Ct. 1531, 146 L. Ed. 2d 346 (2000)). The phrase "said array" refers to the "two-dimensional array of photosensors" of the device disclosed in step (1).

b. "field of view"

In the section of the written description entitled "Best Mode for Carrying Out the Invention," the inventor describes an embodiment of the array of photosensors of the invention as follows:

"With reference to FIG. 1, a hand-holdable controller device 10 is shown as including an integrated circuit package 12 for acquiring and processing image data. On the surface of the package is an optoelectric integrated circuit chip 14 having a two-dimensional array 16 of photosensors and having processing circuitry 18. The array and processing circuitry are used to acquire successive frames of image data, permitting the attitude of the device to be tracked."

('804 Patent, Col. 5:3-11.)

A person of ordinary skill in the art would understand that the inventor of the '804 Patent is using the phrase "said array" to mean the two-dimensional array of photosensors and associated circuitry of the hand-held device. Although the written description discusses a 32 X 32 array 2, the device is not limited to an array of a particular size.
the patent documents to determine if the inventors used the phrase in any specialized way. In the written description, the inventor uses the phrase "field of view" to describe the environment which is detectable by the full photosensor array.

The sensor array and the processing circuitry 18 are mounted on the front of the controller device 10 with the array facing outwardly. A lens 26 is shown in FIG. 1 as being partially cutaway in order to expose the array and circuitry. The lens may be an inexpensive plastic lens that is molded to the integrated circuit package 12. The focus of the lens is set nominally at infinity. The lens provides an image of a region of the surrounding environment to the sensor array 16.

('804 Patent, Col. 5:23-30.)

The width of the field of view for imaging the environment is a matter of balancing the desire of capturing as much visible detail as possible with the requirement of avoiding excessive distortion. A 64 [degrees] field of view provides a reasonable compromise between the two concerns. The dashed lines 28 in FIG. 1 represent the field of view for the sensor array 16. The arrangement of the optics and the sensor array may be selected to reduce any adverse effects of curvilinear distortion of the attitude-tracking approach of the invention.

('804 Patent, Col. 5:38-47.)

The inventor also uses the phrase "field of view" when discussing the environment which is detectable by each individual photosensor:

As previously noted, the field of view 28 is contemplated to be approximately 64 [degrees]. In a sensor array of 32X32 photosensors, a single pixel will have an approximately 2 [degrees] field of view (64 [degrees] /32 pixels).

('804 Patent, Col. 6:34-37)

In both instances the inventor is using the phrase with its customary and ordinary meaning. A person of ordinary skill in the art would understand that the inventor used the phrase "field of view" to mean the region of the environment optoelectrically detectable by the array of photosensors.

c. "periodically . . . forming largely overlapping images"

Substep (a) discloses "periodically forming largely overlapping images of a field of view of said array." The '804 Patent includes drawings and written descriptions in which the inventor discusses what is meant by "periodically" forming largely overlapping images:

Referring now to FIGS. 1 and 2, a control clock 36 determines the timing of operations for the controller device 10. The image-capture rate is at least partially determined by the features that are to be imaged. Where the field of view 28 is a living room of a person engaged in operation of an ITV system, the image capture rate must be sufficiently great to ensure that the image data is sufficiently intelligible to permit correlation between successive images. The circuitry of FIG. 2 includes an exposure control 38 which shows a minimum exposure of 5 [mu] s and a maximum exposure of 5 ms. Electronically, the "exposure time" is the interval during which charge generated by the individual photosensors is allowed to integrate during the 5 ms period between successive image captures.

('804 Patent, Col. 6:14-33.)

A person of ordinary skill in the art would understand that the word "periodically . . . forming largely overlapping images" refers to a process in which a device takes multiple separate optoelectric readings of the environment and at such frequency that the areas being read overlap one another.

d. "forming . . . images"

Substep (a) discloses "forming images" in execution of the substep. Although the word "forming" is not used in the written description, the inventor discusses embodiments of the invention which "capture" and "process" "image data."
The word "images" is a general term with many meanings, which depend on how the images are created. Therefore, with respect to the '804 Patent, the word "images" must be defined in a manner which recognizes that the "images" are formed using a photosensor array and associated circuitry.

One of ordinary skill in the art would know that each photosensor in an array responds to gradations of environmental light and the array's associated circuitry converts the light from each photosensor into an electrical voltage. The Court examines the written description to determine what the inventor meant by the phrase "forming images" from voltages from a photosensor array.

FIG. 3 is disclosed as a diagram of the array of photosensors and transfer amplifiers labeled "SENSOR ARRAY" in the FIG. 2 block diagram:

As previously noted, the embodiment of FIGS. 1 and 2 includes a sensor array having thirty-two columns and thirty-two rows of photosensors. Referring now to FIG. 3, five columns and six of the thirty-two rows are shown. Each column is operatively associated with a separate transfer amplifier. A photosensor in a column is connected to the operatively associated transfer amplifier for closing a read switch. In the operation of the circuitry of FIG. 3, no two photosensors are connected to the same transfer amplifier simultaneously.

Each transfer amplifier includes an input that is connected to a source of a fixed voltage. A second input is capacitively connected to the output by a transfer capacitor. In the operation of the circuit of FIG. 3, the read switches of the first row may be closed, so that each transfer capacitor receives a charge corresponding to the light energy at the associated photosensor in the first row. The received charge is transferred to subsequent processing circuitry via the output lines. Following the readout of the first row, the read switches of the first row are opened and the transfer amplifiers are reset. The read switches of the second row are then closed in order to transfer the signals from the photosensors of the second row. The process is repeated until each row of photosensors is read. By the operation of the transfer amplifiers, photosensor signals are transferred in a row-by-row fashion to subsequent circuitry.

Substep (b) discloses "storing" a "first image" as a "reference frame." This is helpful because the inventor states that the
circuitry of substep (a) "forms" "images," and the circuitry of substep (b) stores one of the images as a "reference frame."

The Court presumes that the images which are stored as a "reference frame" have identical characteristics to the images which are formed. The written description discloses that the inventor uses the word "frame" to mean a collection of "pixel values" from a particular optical acquisition:

The sensor array 16 is used to acquire a frame of 32 X32 pixel values. The first captured frame is referred to as a reference frame.

('804 Patent, Col. 6:51-52.)

The phrase "pixel value" is a phrase coined by the inventor. If the disputed word or phrase is coined by the inventor, the definition must be clearly stated in the patent documents. Vitronics Corp., 90 F.3d at 1582. In the written description, the inventor defines "pixel value" as a voltage which is created from processing the input from a photosensor or group of photosensors 5 in an array and which is stored in the circuitry associated of that particular photosensor or group of photosensors. Thus, "pixel value" is a phrase which indicates size, intensity and location. The Court will discuss how it arrives at that construction.

5 In describing FIG. 6, the written description uses conditional language: "If there is a one-to-one correspondence of computation cells and photosensors, the embodiment of FIGS. 1-3 will have 1,024 computation cells." This suggests that the circuitry could have a many-to-one relationship between photosensors and a computation cell. This is significant because if there is not a one-to-one relationship, conceivably, a pixel value may represent the output of more than one photosensor.

The word "pixel" is a commonly used term in computer graphics which means one picture element in a rectilinear grid of multiple such elements which can be manipulated by a computer to display characters or graphics. See Microsoft Computer Dictionary, 406 (5th ed. 2002). The inventor coined the phrase "pixel value" to signify that tracking the movement of the "device" is done computationally on a sensor-by-sensor basis, similarly to how movement is displayed on a computer monitor on a pixel-by-pixel basis:

[E]ach pixel value is indicative of light energy received at a particular photosensor at a specific time.

('804 Patent, Col. 3:49-59) 6

6 The Court relies on Claim 9 as further support that the inventor used the word "image" to mean a periodically acquired set of pixel values. In Claim 9, the inventor discloses ". . . storage means connected to said array for storing a reference frame of pixel values in which each pixel values is indicative of light energy received at a particular photosensor at a specified time. . . ."

Just as pixels in computer graphics are elements on an X -Y axis, the inventor coined the phrase "pixel value" to signify that computationally, each "pixel value" has a known location on an X - Y axis of the array. The content of each cell 7 of the array is a voltage generated by the circuitry:

Loading a reference frame of pixel values is required before any image correlations can be calculated. To load the reference frame, all of the voltages at the CDATA nodes 104 in the computational array must be transferred to the REFH nodes 134.

('804 Patent, Col. 11:47-51.)
The inventor used the phrase "pixel cell" to describe the place where the voltages are stored. (See '804 Patent, Col. 10:14.) The Court noted earlier that a "cell" is described as capable of holding the voltages of more than one photosensor, depending on the layout of the circuit.

After the voltages are stored, the correlation process involves computational comparisons between the electrical values stored in the reference frame with the values generated by photosensor captures of overlapping areas and stored in sample frames:

The correlation processing generates an attitudinal signal indicative of any changes in angular orientation of the controller device 10. In FIG. 2, the correlator 42 is shown as generating a signal in which change along the X axis is +0.75 pixels, while the change along the Y axis is -0.31 pixels. In FIG. 1, positive movement along the X axis may be indicated as a result of angular displacement of the device 10 such that the field of view 28 is moved in the direction of arrow 44, while a negative movement along the X axis is one in which a component of displacement of the field of view 28 is in the direction indicated by arrow 46. Regarding the Y axis, a positive value at the attitudinal signal indicates manipulation of the device 10 to rotate the field of view as shown by arrow 48, while a negative value of .DELTA.Y indicates displacement in the direction shown by arrow 50.

The preferred approach for operation of the correlator 42 is one in which nearest-neighbor pixel shifts are executed in order to track changes in attitude of the controller device. This approach will be detailed when referring to FIGS. 4, 5 and 6. However, the attitude tracking alternatively may be carried out using correlations requiring shifts of greater than a single pixel. For either approach, interpolations are computationally performed to identify fractional pixel values. Such image correlating interpolating is well understood by persons skilled in the art.

('804 Patent, Col. 7:6-30.)

Therefore, the Court construes the phrase "periodically forming largely overlapping images of a field of view of said array" to mean: Acquiring optoelectric signals from an array of photosensors and, using circuitry, converting the signals to values which represent the field of view to which the array is being exposed at discrete points in time. The substep of forming an image is not otherwise limited to any particular process. This substep includes processing of the signals from acquisition up to but not including storing as a frame.

Periodically forwarding

Plaintiff advances a construction for "periodically forwarding" of "forwarding at intervals defined by time or predetermined amount." Plaintiff points to two specific situations described in the illustrated embodiments in the '281 specification:

In another embodiment, the merchant processor may periodically forward at least a portion of the payment to the lender or designee. For example, the merchant processor may forward payment amounts every month, or based on an amount such as after each one thousand dollars ($ 1000) worth of transactions. Col. 2, lines 20-25.

Also, as another example, the merchant processor 300 can periodically forward payment to the lender 60, such as upon every other payment received from the card issuer 50. Col. 5, lines 45-48.

Plaintiff interprets these two statements to require that "periodically forwarding" occurs either: (1) after a period of time has elapsed (e.g., every month), or (2) after an event has occurred (e.g., after an amount has been reached or after a certain number of payments have been received). According to Plaintiff, the proper construction of the term "periodically forwarding" must therefore encompass both of these scenarios.

Defendants, however, argue that "periodically forwarding" should be construed as "forwarding at an interval other than upon every payment," according to its ordinary and customary meaning. Defendants argue that Plaintiff's proposed
construction violates the principle of claim differentiation in that dependant Claims 8 and 17 refer to accumulation to a predetermined amount, but under Plaintiff's construction, Claims 9 and 18 will improperly include the scope of Claims and 17. Further, Defendants argue that Plaintiff's construction is premised on an incomplete excerpt from the '281 specification. The Court fords that Plaintiff improperly seeks to limit the claim language to only those situations described in the above-mentioned illustrated embodiments. The claim language is broader in scope. The independent claims are specific that forwarding is conducted contemporaneously with each payment. The dependent claims' use of the "periodically" limitation only distinguishes that forwarding is not done contemporaneously with each payment. Thus, the Court finds Defendants' construction to be correct and construes the term "periodically forwarding" as "forwarding at an interval other than upon every payment."

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3. "peripheral device"

The parties agree that a "peripheral device" is an add-on device, but dispute whether the add-on device must be on a bus, and if so, the type of bus. OPTi argues that the "peripheral devices" of the LPC patents must be peripheral devices on an I/O bus. Defendants contend that OPTi's construction impermissibly reads details from the specification into the claims.

OPTi points to language in the background and abstract of the specification where the patent is directed to an I/O interface, compatible with industry standards, for interfacing a host to a peripheral device. 9 Defendants argue that nothing in the claims requires a particular type of bus. Defendants contend that the Summary of the Invention does not use the phrase "I/O bus" and even though the phrase may have been used in other parts of the specification, the claims do not specifically refer to an "I/O bus." '807, 3:21-4:3; '141, 3:24-4:7.

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9 "The present invention, roughly described, is directed to an interface to be used between a host device and one or more peripheral devices." '141 Patent, 3:24-27.
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

The claims of the '807 patent only claim "a bus" and refer back to "said bus." Additionally, when the patent claim requires a particular kind of bus it so provides. 10 For example, claim 1 of the '141 patent specifically states in part: "a plurality of signal lines coupling the host platform to said peripheral device, said plurality of signal lines comprising: an address-data bus to carry in a multiplexed manner address information for a first cycle..." The core of the invention requires that the peripheral devices are connected to some type of bus. '807, 3:33-44; '141, 3:38-47. The term "peripheral bus" entails the specific bus types contemplated by the specification and suggested by OPTi. Consistent with the construction of "host platform," peripheral buses connect the host platform to the peripheral devices. Similarly here, the term "peripheral device" is construed to mean "an add-on device on a peripheral bus."

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10 "address data-bus" '807, claim 16; '141, claims 1-7, 10-11, 14, 17, 22.
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

3119

2. "peripheral logic-circuit"

Claim 1 of the 229 patent includes the term "peripheral logic-circuit." UniRAM propounds a construction similar to its
proposed construction for "logic circuit," and argues that "a peripheral logic-circuit is a type of logic circuit (namely a peripheral one)." UniRAM Br (Doc # 91) at 17. In particular, UniRAM explains that "a peripheral logic-circuit is simply a logic circuit located outside of, but on the same substrate as, a memory circuit thereby forming an embedded memory device." Id at 30. MoSys construes peripheral logic-circuit as "a circuit outside of the memory array that performs some processing or controlling function." TSMC adopts the same construction but omits the word "some" and changes "function" to "functions." Jt Cl Const, Ex B at 13. Under UniRAM's construction, the 229 patent covers only embedded DRAM; under MoSys's and TSMC's constructions, the patent covers both embedded and stand-alone DRAMs.

The court agrees with UniRAM that the 229 patent pertains to embedded, and not stand-alone, memory technology, and therefore, MoSys's and TSMC's proposed constructions for "peripheral logic-circuit" are incorrect. The specification never discusses stand-alone DRAM, but discusses embedded technologies at length. 229 patent at 2:16-24 (discussing the difficulty in prior art embedded DRAM manufacturing and the novel approach employed in the invention), 20:16-24 (discussing the advantages obtained according to this invention as "[c]omparing with current art embedded memory technologies, the present invention simplifies the manufacture technology by more than 30%"), 22:2-19 (discussing the transistor properties of prior art embedded technology), 24:31-52 (discussing novel design methods to reduce effect of higher leakage current for transistors in embedded technology). The patent title, field of invention and various invention objectives all refer to embedded memory. Id at cover (Title: "High Performance Embedded Semiconductor Memory Device * * * "), 1:15-19 (Field of invention: "The present invention relates * * * particularly to embedded memory devices * * * "), 3:36-44 (Invention objectives: "to manufacture [embedded device] without using complex manufacture technology * * * to make embedded DRAM to have the same performance as high-speed logic circuits * * * to improve yield and reliability of embedded memory products"). Moreover, the theme of manufacturing the DRAM memory cell using standard logic technology appears throughout the specification. A memory cell manufactured in this way would likely be part of an embedded, not stand-alone, DRAM. Id at 5:11-12 ("process step to manufacture a DRAM memory cell by adding one masking step to standard logic technology"), 17:48-52, 19:48-65, 20:18-20 ("the procedures used to build the DRAM cell are existing procedures of standard logic technology, except one masking step and one plasma-etching step"), 20:29-32. The specification also discusses the simultaneous manufacturing of memory cells and logic circuits. A memory cell manufactured in this way would be a part of an embedded, not stand-alone, DRAM. Id at 21:41-44 ("The word line transistor (1402) in the memory cell of the present invention has the same properties and it is manufactured in the same time as the transistors used for peripheral circuits and logic circuits.").

Nonetheless, MoSys and TSMC argue that this court cannot import limitations from the specification based on the patent title, invention objectives, field of invention and disclosed embodiments. But this argument overlooks the court's duty to interpret claims in light of the specification. The Federal Circuit has described the balance between these competing interests:

[The] balance turns on how the specification characterizes the claimed invention. In this respect, this court looks to whether the specification refers to a limitation only as a part of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment. For example, it is impermissible to read the one and only disclosed embodiment into a claim without other indicia that the patentee so intended to limit the invention. On the other hand, where the specification makes clear at various points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claims.

Alloc, Inc v ITC, 342 F3d 1361, 1370 (Fed Cir 2003) (internal citations omitted) (emphasis added). Here, the whole character of the invention is geared toward embedded technology. The patent title, field of invention, invention objectives and disclosed embodiments all relate to embedded, not stand-alone, DRAM. Accordingly, the court concludes that the claims in the 229 patent were directed only at embedded DRAM.

Nonetheless, UniRAM's proposed construction is problematic because, as with its proposed construction for "logic circuit," UniRAM defines peripheral logic-circuit at a level of detail that is unsupported by the specification. UniRAM once again imports limitations that the patent never discusses, such as the use of a microprocessor or ASIC.

Moreover, contrary to UniRAM's proposed construction, the specification teaches that "peripheral logic-circuit" encompasses both embedded logic circuits and peripheral circuits. When discussing threshold voltages and gate thicknesses, the specification states:

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The word line transistor (1402) in the memory cell of the present invention has the same properties and it is manufactured in the same time as the transistors used for peripheral circuits and logic circuits.

'229 patent at 21:41-44. Claim 1 of the 229 patent states in relevant part:

1. A DRAM (dynamic random access memory) cell array supported on a substrate comprising * * *
said select-transistor-gate and said logic-circuit-gate having substantially a same thickness;

said select-transistor for each of said memory cells having a select-transistor threshold voltage and each of said logic-transistors of said peripheral logic-circuit having a logic-transistor threshold voltage wherein said select-transistor threshold voltage is substantially the same as said logic-transistor threshold voltage.

Id at 25:29-26:11. The comparison in the specification between the properties of a word line transistor and the properties of a transistor used for peripheral and logic circuits finds a parallel in the comparison in claim 1 between the threshold voltage/gate thickness of a select-transistor and the threshold voltage/gate thickness of a logic-transistor in a peripheral logic-circuit. This parallelism is reinforced by the specification that alternatively refers to the "word line transistor (1402)" as "select transistor 1402." Id at 17:53-57. The parallel use of "peripheral logic-circuit" and "peripheral circuits and logic circuits," demonstrates that the former term encompasses peripheral circuits. Because courts should not construe patent terms to exclude disclosed embodiments, C R Bard, Inc, 388 F3d at 865, the court concludes that "peripheral logic-circuit" includes both embedded logic circuits and peripheral circuits.

Having determined that the patents-at-issue only relate to embedded technology, and that "peripheral logic-circuit" includes both peripheral circuits and logic circuits, the court construes "peripheral logic-circuit" to mean "a peripheral circuit and/or embedded logic circuit."

Peripheral region of the semiconductor chip

The Court agrees with the MEI and construes the term as the "region outside the area of the semiconductor chip in which the internal circuit is formed." Samsung's proposed construction--"the outermost region of the semiconductor chip"--merely substitutes "outermost" for "peripheral." The claim language recites "a surge protection apparatus for protecting an internal circuit." '588 Patent col. 9:3-8 (emphasis added). The surge protection apparatus is formed outside of the internal circuit. "Peripheral" in this context connotes an area outside of the internal circuit. Furthermore, there is no basis to require this surge protection apparatus be built on the "outermost" area of a chip.

A permission

Digital Reg first contends that only "a permission" in "a permission that is locked uniquely to the client" requires construction, and "a permission" should be construed as "information which grants access." Defendants contend that the entire phrase, "a permission that is locked uniquely to the client" requires construction.

To support its construction, Digital Reg relies on claim 4, which states "wherein the permission comprises a unique coded key corresponding to the digital content." Digital Reg also cites to claims 21 and 26, which include a "permission key," as consistent with its proposed construction. Finally, Digital Reg cites to the specification, which states, "[e]very unique object has a unique coded key which acts as a key for accessing the object." Col. 8:58-61. This unique coded key acts as a key for accessing the object. Digital Reg contends this explanation of a unique coded key supports its construction of "a permission" as "information which grants access."
Defendants contend that "a permission" should not be construed outside the broader phrase of "a permission that is locked uniquely to the client." Defendants do however state that "permission" is synonymous with "unique coded key." Responsive Brief (Docket No. 238) at 23 ("the inventor used the term 'permission' as a synonym for the 'unique coded key'"). Defendants contend Digital Reg's proposed construction is unsupported by the specification or prosecution history and that Digital Reg does not explain how claim 4 supports its construction. Finally, Defendants argue that "a permission" is used in different ways in claim 1, which raises issues of indefiniteness and written description that Digital Reg seeks to avoid by only construing "a permission" as it is used in the phrase "a permission that is locked uniquely to the client." Sony moves for summary judgment based on indefiniteness and lack of written description on these grounds. See Docket No. 237.

A claim is invalid under 35 U.S.C. § 112, P 2 if it fails to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. The party seeking to invalidate a claim under 35 U.S.C. § 112, P 2 as indefinite must show by clear and convincing evidence that one skilled in the art would not understand the scope of the claim when read in light of the specification. Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308, 1319 (Fed. Cir. 2003).

"The definiteness requirement of § 112, P 2 'focuses on whether the claims, as interpreted in view of the written description, adequately perform their function of notifying the public of the [scope of the] patentee's right to exclude.'" Honeywell Intl', Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1338 (Fed. Cir. 2003) (quoting S3 Inc. v. nVidia Corp., 259 F.3d 1364, 1371-72 (Fed. Cir. 2001)). "It requires that the claims be amenable to construction, however difficult that task may be. Because a claim is presumed valid, a claim is indefinite only if the claim is insolubly ambiguous, and no narrowing construction can properly be adopted." Id. at 1338-39 (citations omitted).

"[T]he purpose of the written description requirement is to 'ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification.'" ICU Med., Inc. v. Alaris Med. Sys., Inc., 558 F.3d 1368, 1376 (Fed. Cir. 2009) (quoting Univ. Rochester v. G.D. Searle & Co., 358 F.3d 916, 920 (Fed. Cir. 2004)). The written description requirement protects the quid pro quo between inventors and the public, where the public receives meaningful disclosure of the invention in exchange for being prohibited from practicing the invention for a limited time period. Id. at 1377. To comply with 35 U.S.C. § 112's written description requirement, the applicant must "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention," which is whatever is now claimed. Id. (quoting Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991)). The description does not need to "recite the claimed invention in haec verba but must do more than merely disclose that which would render the claimed invention obvious." Id.

"A permission" satisfies § 112's written description requirement. Defendants admit that the term "permission" is generic to the disclosed species of a "unique coded key." Claims commonly use a generic term when only a species is disclosed. One example is a disclosure of a novel dwelling of frame construction wherein the illustrated embodiment only describes that nails are used to connect the framing materials together. A nail is one species of fastener and a screw is another. A claim to the dwelling structure permissibly recites a "fastener," which is a generic term to both a nail and a screw. Similarly, the generic term "permission" is properly used in view of the disclosure of only a single species, a "unique coded key." See Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1582 n.7 (Fed. Cir. 1996) (citing In re Vickers, 141 F.2d 522, 525, 31 C.C.P.A. 985, 1944 Dec. Comm'r Pat. 324 (C.C.P.A. 1944) ("an applicant . . . is generally allowed claims, when the art permits, which cover more than the specific embodiment shown"); In re Rasmussen, 650 F.2d 1212, 1214 (C.C.P.A. 1981) (disclosure of a single method of adheringly applying one layer to another was sufficient to support a generic claim to "adheringly applying" because one skilled in the art reading the specification would understand that it is unimportant how the layers are adhered, so long as they are adhered).

Additionally, the term "permission" when read in the context of its usage is clear. "A permission," as used throughout the claim language, is not indefinite or insolubly ambiguous. When the same term appears in different portions of the claims, courts presume that it should be given the same meaning "unless it is clear from the specification and the prosecution history that the terms have different meanings at different portions of the claims." Fin Control Sys. Pty, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). Step 1 uses the phrase "whether the client holds a pre-existing permission." Step 2 claims "requesting permission," and step 4 claims "an installation process that generates at the client a permission." Both sides agree that "a permission" is used differently in steps 1 and 4 than in step 2. This is clear from the claim language itself and does not render the term insolubly ambiguous. The same term may be interpreted differently at different portions of the
A permission that is locked uniquely to the client

Digital Reg contends that this phrase does not require construction or alternatively should be construed as "information which grants access, said access specific to the client." Defendants contend that "a permission that is locked uniquely to the client" should be construed as "a unique coded key that is stored at the client along with a machine identification code of the client. The permission is separate and distinct from the token."

Digital Reg contends Defendants' construction is improper because it imports limitations from the specification and dependent claims. Specifically, Digital Reg contends that Defendants' attempt to limit the claims to the preferred embodiment and subject of claim 4 of "a unique coded key" is improper. Relying on a preferred embodiment described at column 10, lines 62 to column 11, line 3, Digital Reg also contends that incorporating the machine identification code of the client within the permission is improper because these are two different bits of information. Finally, Digital Reg contends that Defendants' limitation that the permission is "separate and distinct" from the token is incorrect because the token and permission work in tandem--when the token is received, an installation process is executed, and a permission is generated. Whether the permission is attached to the object, token, or nothing is irrelevant to claim 1's method.

Defendants support their limitation of "a unique coded key" by arguing that support for the step of "executing an access checking process to determine whether the client holds a pre-existing permission" is found in Figure 5, which the patent refers to as "a flow chart illustrating a check coded key, or 'access check,' function." See col. 6:61-62. Defendants also contend the claimed permission is "locked" to the client and whenever the specification discusses "locking" something to a client, it refers to storing a unique coded key along with a machine ID of the client. As previously stated, Defendants contend "permission" is used in the specification and prosecution history synonymously with a "unique coded key." See Ex. B at 138; col. 8:58-61. Defendants contend that the claims require the permission is separate and distinct from the token because the claims separately recite a "token" and "permission" and a dependency between them (that the permission is generated based on the token). See claim 1 ("based on the received token, executing an installation process that generates at the client a permission that is locked uniquely to the client . . . "); see also col. 10:59-11:9.

For the reasons discussed above, "permission" is not limited to a "unique coded key." Defendants' construction limits the term to the details of the disclosed embodiment and narrows the term to include the machine ID, which is not part of the information that grants access to the digital content. Accordingly, the Court does not adopt Defendants' construction.

Digital Reg's construction is correct as to "information which grants access" but "said access specific to the client" does not properly take into account the portion of the claim that states "that is locked uniquely to the client." The specification indicates that the permission (e.g., the coded key) is locked to the client in the sense that key cannot be moved to another machine along with the object. See col. 11:2-7. Thus, when the key is locked to the client, it is confined from moving to another machine. It is described that the key is confined by associating the client machine ID with the key. Accordingly, the Court construes "a permission that is locked uniquely to the client" as "information which grants access, said access being confined to the client."

"Wherein a voice recognition system further permits the surgeon to select commands or operating modes from menus." The voice recognition system of the robotic surgical system permits the surgeon to select commands or operating modes from displayed menus.
J. Permit[ing] access

Defendants have urged the Court to construe "permit[ing] access" as meaning "authorizing the use of," which they contend reflects the term's ordinary meaning in light of the specification. However, Defendants have not presented sufficient evidence to warrant departing from the claim language in favor of a synonym. Accordingly, the court will construe "permit[ing] access" to mean "permitting the subscriber client computer to access said selected computer resources."

12. Persistent connection

Seven contends that this term means "a full-time connection." Visto argues that the term means "a connection that continues for the entire time an application is in use." Viewed in the context of the specification, Visto's construction is closer to correct. The court construes the term to mean "a connection that exists the entire time the application is used." 542 patent, col. 7, lls. 25-28 (describing non-persistent connection and stating that "[t]his is very different from a persistent connection based client/server model where the connection exists the entire time an application is used, and data is only retrieved when the user request it.").

11. Non-persistent connection

Seven argues that the term means "a connection that is not full time." Visto argues that the term means "an occasional and intentionally short task oriented session defined by a connection to a remote host, the performance of a specific task or set of tasks, and then a disconnection. This is very different from a persistent connection where the intent is for the connection to persist while an application is being used." The court rejects both parties' definitions. As used in the patents, a non-persistent connection means "an occasional connection that does not exist for the entire time an application is used." 542 patent, col. 1, lls. 24-25; col. 7, lls. 20-25.

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<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendant's Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>persistently unique sequence numbers</td>
<td>Plaintiff contends that this term does not require construction. In the alternative only, Plaintiff contends that this term should be accorded the meaning that would have been understood by one of ordinary skill in the art at the time of the invention, which is:</td>
<td>&quot;unique sequence numbers used to ensure that all objects (i.e., whether newly created or already persisted in the database) will have different identification numbers&quot;</td>
</tr>
</tbody>
</table>
"Unique sequence numbers used to ensure that all objects using the particular named sequence generator (e.g., whether newly created or persisted in a database) will have different identification numbers."

Plaintiff argues the construction of "persistently unique sequence numbers" must allow for multiple named sequence generators. PL.'S BR. at 14-15. Defendant argues the word "unique" and portions of the specification support a conclusion that the sequence numbers are universally unique. DEF.'S RESP. at 29-31. Essentially, Plaintiff's construction would only require that every sequence number generated by a given sequence generator is unique amongst the numbers generated by that sequence generator, whereas Defendant's construction would require every sequence number to be unique amongst all numbers generated by all sequence generators.

The specification describes the behavior of named sequence generators. '776 Patent 9:9-65. "Named Sequence Generators 226 are routines or modules that generate persistently unique sequence numbers." Id. at 9:10-12. "These sequence numbers . . . can be used to assign unique ids to different objects." Id. at 9:26-27. The specification describes sequence numbers as unique only within a particular domain. Id. at 9:34-39 (describing "the way sequences are named by the Named Sequence Generators 226 is done in a manner convenient for application programmers because it uses meaningful names (e.g., imageIdSequences) for the sequence generators, and allows the creation of multiple sequence number domains (e.g., partIdSequences, customerIdSequences, etc.).") Although portions of the specification describe reserving blocks of numbers for use with a particular application, see id. at 9:55-65, this utility operates within a given domain and does not require universal uniqueness. See id. at 20:9-19 (describing a reserved block of numbers as "a unique set of numbers with respect to the given sequenceName"). Thus, Defendant's proposal is unsupported by the specification and improperly excludes a preferred embodiment. See Vitronics Corp., 90 F.3d at 1583 (noting an interpretation that excludes a preferred embodiment is "rarely, if ever, correct").

Accordingly, the Court finds the proper construction of this term is "unique sequence numbers used to ensure that all objects using the particular named sequence generator (i.e., whether newly created or already persisted in a database) will have different identification numbers."

A. "personal communication device" ("PCD")

The Defendants argue that this term should be construed as part of a means-plus-function limitation because "personal communication device" does not connote sufficient structure for performing the claimed functions, i.e., "generating at least one reservation request," "transmitting the reservation request," and "receiving a proposed reservation time." Pursuant to 35 U.S.C. § 112, P 6, patentees may draft claims as means-plus-function or step-plus-function limitations. In such a format, a patentee may "recite a function to be performed as a claim limitation rather than reciting structure or materials for performing that function." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1322 (Fed. Cir. 2003). The claim, however, will cover only the corresponding step or structure disclosed in the specification and its equivalents. 35 U.S.C. § 112, P 6; CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). The construction of a means-plus-function limitation follows a two-step approach. First, the claimed function is identified based on the claim language and the limitations expressed in the claims. Next, the court ascertains the corresponding structure in the written description that performs the identified function. Omega Eng'g, Inc., 334 F.3d at 1321. "A disclosed structure is corresponding only if the specification or the prosecution history clearly links or associates that structure to the function recited in the claim." Id. (internal punctuation and citation omitted). Only those structures that are "necessary to perform the claimed function" may be incorporated from the written description. Micro Chem., Inc. v. Great Plains Chem. Co., Inc., 194 F.3d 1250, 1258 (Fed. Cir. 1999); see Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1334-35 (Fed. Cir. 2004) (structures are superfluous if "they are not required for performing the claimed function").
Before engaging in a means-plus-function construction, however, the court must determine if § 112, P 6 is applicable to the particular claim. The use of the term "means" is "central to the analysis because the term 'means,' particularly as used in the phrase 'means for,' is part of the classic template for functional claim elements." Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004) (internal punctuation and citations omitted). Accordingly, "[a] claim limitation that actually uses the word 'means' invokes a rebuttable presumption that § 112, P 6 applies." CCS Fitness, Inc., 288 F.3d at 1369. In those instances, the "means" term is "essentially a generic reference for the corresponding structure disclosed in the specification." Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308 (Fed. Cir. 1998). Conversely, if a claim term does not use "means," there is a rebuttable presumption that § 112, P 6 does not apply. CCS Fitness, Inc., 288 F.3d at 1369.

In this case, the claims at issue do not contain the term "means." Therefore, there is a rebuttable presumption that § 112, P 6 does not apply. This presumption is "a strong one that is not readily overcome." Lighting World, Inc., 382 F.3d at 1358. Nevertheless, the presumption may be rebutted if the "claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." Id. (internal punctuation and citation omitted). In order to recite sufficient structure, a claim term need not denote a specific structure. Id. at 1359. Rather, "it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." Id. at 1359-60; see also CCS Fitness, Inc., 288 F.3d at 1369 ("To help determine whether a claim term recites sufficient structure, we examine whether it has an understood meaning in the art.").

The Defendants, as the parties advocating construction under § 112, P 6, bear the burden of establishing that the claims fail to recite sufficient structure. See Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1319 (Fed. Cir. 2004). This burden must be met by a preponderance of the evidence. Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1372 (Fed. Cir. 2003). The Defendants have offered no evidence to overcome the presumption and support their assertion that "personal communication device" does not connote sufficient structure. To the contrary, the Plaintiff's expert, a professor in the electrical engineering and communications field, testified that a person of ordinary skill in the art would understand "personal communication device" to have an ordinary meaning and denote a portable device capable of transmitting and receiving information. (Frost Decl. P 4.) The fact that the term does not specifically evoke a particular structure does not prevent the term from connoting structure. See Apex Inc., 325 F.3d at 1372 ("[A] claim term need not call to mind a single well-defined structure to fall within the ambit of § 112, P 6.") (internal punctuation and citation omitted). Nevertheless, the Defendants argue that "device" is a generic structural term and, therefore, does not connote sufficient structure. See Personalized Media Communns., L.L.C. v. ITC, 161 F.3d 696, 704 (Fed. Cir. 1998). However, they ignore the fact that the term "device" is modified by "personal communications." Such an adjectival qualification, or identifier, serves to narrow the scope of the structure and makes the term more definite. Personalized Media Communns., LLC, 161 F.3d at 704; see also Apex Inc., 325 F.3d at 1373-74 (although term "circuit" does not always connote sufficient structure, adding identifiers such as "interface," "programming," and "logic," identifies some structural meaning). Because the Defendants have failed to rebut the presumption that § 112, P 6 does not apply, the Court finds that the term "personal communication device" is not a means-plus-function limitation. Therefore, the Court must determine the correct construction of the structural term "personal communication device."

The Plaintiff proposes that "personal communication device" means "portable hand-held device capable of communicating information." This construction is supported by the specification. For instance, the specification states that "[t]he present invention relates to scheduling patron reservations in facilities offering numerous attractions, and more particularly, to systems, methods, and apparatuses for assigning and managing reservations using wireless personal communication devices." (col. 1, ll. 8-12.) In an effort to remove the inconvenience of time spent waiting in lines, one purpose of the invention is to allow patrons to schedule reservations remotely while engaging in other activities. (See col. 2, ll. 36-42.) The "personal communication device" is the device through which the patron may schedule reservations.

Accordingly, a "personal communication device" must be portable and, thus, hand-held. In addition, in order for the present invention to function effectively, the PCDs must be able to transmit and receive information with the other components of the system responsible for establishing reservations via a wireless communication network. (See col. 2, ll. 53-55; col. 3, ll. 3-7; col. 6, ll. 7-10.)

Although they agree that "personal communication device" is a portable hand-held device, the Defendants' proposed
construction includes a number of additional elements. According to the Defendants, the specification clearly defines "personal communication device" as:

A portable computing device that includes: a CPU or microprocessor, a data storage device, a display screen, input device (such as a pen-based input), auxiliary output device, wireless communication hardware and software, a user interface designed to accept input from the user, patron information storage, and storage containing a list of attractions.

In support, the Defendants cite to Figure 1A, which illustrates the "hardware architecture of a personal communication device according to the present invention," col. 4, ll. 9-11, as well as various parts of the specification that discuss the structure of the PCD. Figure 1A indicates that a personal communication device includes: (1) an input device; (2) random access memory ("RAM"); (3) wireless transmitter/receiver; (4) a CPU; (5) a screen; (6) other output; and (7) a disk drive. Consistent with Figure 1A, in the section devoted to "System Architecture," the specification states that PCDs are small, hand-held portable computers that include a microprocessor or CPU, display screen, auxiliary output device, input device, RAM, and a storage device. n3 (col. 5, l. 62 to col. 6, l. 1.) The inclusion of the display screen and input device requirements is further supported by a portion of the specification that states that "[e]ach PCD includes a screen display for displaying text and graphic information as well as an input device for receiving input from the patron using the device." (col. 2, ll. 59-62.) As noted above, to function consistent with the present invention, PCDs must also include "wireless communication hardware 112 for transmission and reception of data to other components of system 100 over wireless communications network." (col. 6, ll. 7-10; see also col. 3, ll. 3-4.)

- - - - - - - - - - - - -Footnotes- - - - - - - - - - - - -
n3 Although these elements are described as part of a preferred embodiment, the inclusion of each structural element is consistent with the overall purpose and function of the present invention in general.

- - - - - - - - - - - - - End Footnotes- - - - - - - - - - - - -

Although the specification supports the inclusion of a number of the Defendants' proposed limitations, namely a CPU or microprocessor, data storage device, display screen, input device and output devices, wireless communication hardware and software, the same cannot be said for the following limitations: (1) a user interface designed to accept input from the user; (2) patron information storage; and (3) storage containing a list of attractions. As noted above, claim construction starts with the language of the claims themselves. Semitool, Inc. v. Dynamic Micro Sys. Semiconductor Equip. GMBH, 444 F.3d 1337, 1346 (Fed. Cir. 2006) (quoting Phillips, 415 F.3d at 1314) ("Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms."). The Federal Circuit has also explained that:

Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.

Phillips, 415 F.3d at 1314 (internal citations omitted). "Personal communication device" appears in numerous claims other than claims 5, 17, and 19. Although not directly at issue in the present construction, the language of these claims is useful in discerning which structural elements may not be an inherent part of the ordinary meaning of "personal communication device." For instance, claim 1 includes language indicating that the "PCD comprises . . . a user interface for receiving the reservation request from the patron and for providing output to the patron; . . . [and] patron information storage coupled to the user interface and to the request generation module, for storing information describing the patron. . . ." (col. 25, ll. 47-50, 58-60) (emphases added). Similarly, claim 14 states, in pertinent part: "a personal communication device associated with at least one patron, comprising . . . a user interface for receiving from the patron a reservation request for a selected attraction; . . . [and] patron information storage coupled to the user interface for storing information describing the patron. . . ." (col. 30, ll. 22-23) (emphases added). See also col. 26, ll. 30-33 (claim 3); col. 27, ll. 4-7 (claim 4); col. 28, ll. 29-36 (claim 10); col. 29, ll. 30-33 (claim 12), ll. 50-53 (claim 13). The fact that other claims describe specific elements that are part of a PCD, namely the user interface and patron information storage, indicates that the patentee did not contemplate that "personal communication device" inherently includes those limitations. See Phillips, 415 F.3d at 1325 (inclusion in other claims of particular functions served by "baffles" "makes it likely that the patentee did not contemplate that the term 'baffles' already contained that limitation"). Thus, the Court will not read the "user interface designed to accept
input from the user" and the "patron information storage" limitations into the construction of "personal communication device."

Moreover, the doctrine of claim differentiation provides support for excluding "patron information storage" from the ordinary meaning of "personal communication device." As discussed above, "patron information storage" appears in a number of claims as a PCD limitation. However, the phrase is not found in all claims describing the PCD. For instance, claims 3 and 4 set forth what the PCD comprises but "patron information storage" is not included as a limitation. Under the doctrine of claim differentiation, "the presence of a specific limitation in one claim gives special significance to the absence of that specific limitation in another claim, in that it shows that when the limitation was intended it was expressed." Acacia Media Techs. Corp. v. New Destiny Internet Group, 405 F. Supp. 2d 1127, 1137 (N.D. Cal. 2005) (citing Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 950 (Fed. Cir. 1993)). As such, the fact that "patron information storage" is present in some claims but not others indicates that the limitation is not an inherent requirement of a PCD.

Finally, the Defendants contend that in order to allow patrons to select an attraction, "personal communication device" must include "storage containing a list of attractions." In support of this limitation, the Defendants rely on a portion of the specification that describes attraction description records. However, in the paragraph immediately preceding the identified portion, the specification states that the PCD "optionally contains descriptions of the various attractions in the park, stored in attraction description storage." (col. 7, ll. 52-54) (emphasis added). Additionally, in describing the "PCD Operation," the specification indicates that "[a]ttraction description information may be provided to PCD 102 for local storage in attraction descriptions 205." (col. 13, ll. 49-50) (emphasis added). Although it may be preferable or advantageous to include attraction information in the PCD, it is clear from the specification that "storage containing a list of attractions" is not required. Therefore, the Court will not read this limitation into the ordinary meaning of "personal communication device." Rather, consistent with the claims and specification, the Court construes "personal communication device" as "a portable hand-held device capable of receiving and transmitting information -- that includes a CPU or microprocessor, a data storage device, a display screen, input device, output device, and wireless communication hardware and software."

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"Personal Computer"

"Personal computer" or "PC" appears in Claims 1 and 17 of the 709 Patent (709 Patent: 1, 17). The plaintiff contends that "personal computer" means "a computer system" (Doc. 60 at 18). Emphasizing the word "personal" in "personal computer," the defendants argue that "personal computer" means "a computer designed for use by one person at a time and designed to be independent of a mainframe or other computer. Personal computers have their own operating systems, software, and peripherals so that they can be set up and operated without additional equipment" (Doc. 62 at 19-20). Presumably, the plaintiff's urged construction includes any computer system, mainframe, or server. The defendants contend that the plaintiff's urged construction ignores "personal" while impermissibly inserting the "system" to include a server, mainframe, or "computer means."

The patentee's use of "personal computer" in the claims distinguishes a "personal computer" from a server or mainframe. The specification describes a "personal computer" as a general purpose computer that utilizes input devices such as a keyboard, mouse, or touchpad (709 Patent 15:44-55; 15:64-16:8). The specification further provides: "Many varied computing means pervade today's society. PCs, web browsers, e-mail clients, e-mail servers, network file servers, network messaging servers, mainframes . . . ." (536 Patent at 5:51-59; 709 Patent at 5:52-59). This specification reveals that "PC" or "personal computer" denotes one species of "computer means" but not all "computer means."

The patentee also distinguishes between a "stand-alone PC" and a "server" in the 709 Patent's specification: "Finally, the PC system 700 according to the present invention may simply comprise a stand-alone PC, a server, a PC or workstation coupled to a server" (709 Patent at 42:61-63). This specification reveals that a "personal computer" cannot encompass a server. In addition, one of ordinary skill in the art distinguishes a "personal computer" from a mainframe or server (Doc. 62 at 17). The plaintiff's construction of "personal computer" as "a computer system" (which "system" apparently could encompass the entire "world wide web") is unsupported by the intrinsic evidence. Accordingly, "personal computer" or "PC" means "a computer capable of operation without additional equipment, independent of a mainframe or other computer, and designed for use by one person."
1. "computer" and Related Terms

* * *

The issues regarding these terms are (1) whether the court should include a limitation, as the defendants suggest, indicating that a computer cannot be a microprocessor or microcontroller, and (2) whether all four terms should have the same general construction.

Regarding the defendants' limitation, the defendants argue that the patentee expressly disclaimed embedded microprocessors and microcontrollers. In support, they cite portions of the prosecution history in which the patentee attempts to distinguish the present invention from U.S. Patent No. 5,841,865 ("the Sudia patent"). See Ex. 16-17 of Defs.' Claim Construction Brief. The Sudia patent discusses RNGs that are interfaced to microcontrollers. See the Sudia Patent, col. 13, ll. 35-65. In response to the examiner's discussion of the Sudia patent, the patentee declared, "[a]n embedded microprocessor, or microcontroller, taught in Sudia '865, is designed for a specific task to control a particular system. The embedded microcontroller of Sudia '865 is supposed to conduct specifically programmed functions related to encryption and decryption and is not operable to conduct other functions." See Ex. 17 of Defs.' Claim Construction Brief.

Claim 1 of the '242 patent contemplates a RNG interfacing with a general-purpose computer. See '242 Patent, cl. 1. As indicated by the prosecution history, the present invention does not contemplate a scenario in which the RNG directly interfaces only with a microprocessor that performs only one function and is divorced from a general purpose computer. Indeed, both parties concede that a stand-alone microprocessor is not a computer. The operative fact of the disclaimer contained within the prosecution history is the scope of the capabilities of the microprocessor, not the fact that it is embedded, stand-alone, or otherwise. The disclaimer does not preclude an interface with a microprocessor capable of performing multiple tasks or one that is part of a general-purpose computer.

The court will not typically define a term in the negative, but in light of the parties' stipulation and the discussions contained within the prosecution history, the court will do so in this instance. See Hutchins v. Zoll Med. Corp., 492 F.3d 1377, 1381 (Fed. Cir. 2007). Such construction falls squarely in line with the court's duty to define the scope of a term, as well as its meaning, when both are contested. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351 (Fed. Cir. 2008).

The second issue is whether all of the "computer" terms have the same meaning. Quantum relies on a claim differentiation argument, while the defendants, again, cite to portions of the prosecution history. See Ex. 17-19 of Defs.' Claim Construction Brief. The court concludes that "computer" and "general purpose computer" mean the same thing. In addition, "personal computer" and "general purpose personal computer" should be construed consistently.

Accordingly, the court defines "computer" and "general purpose computer" as follows: "a programmable machine that is operable to conduct a wide variety of tasks using a variety of applications programs that can be accessed and operated. The term does not include a microprocessor or microcontroller that is operable to conduct only a single, specific task."

The court defines "personal computer" and "general purpose personal computer" as follows: "a computer designed for use by one person at a time, such as a desktop PC or a laptop."

A. For use in a personal computer (claim 1) and personal computer (claim 2)

1. Parties' positions on preamble limitation

The disputed term, "personal computer," is recited in the preambles of both claim 1 and claim 2. The initial dispute
concerning this term is whether or not it is to be construed as a claim limitation. Dell contends that neither "for use in a
personal computer" (claim 1) nor "personal computer" (claim 2) should be construed as claim limitations because the
preambles of each claim, which contain that term, merely state the intended use or purpose of the claimed invention. Dell
urges the court to apply the general rule that a preamble which only states the intended use or purpose of the claimed
invention is not part of the claim and does not limit the scope of that claim. 31

31 See Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 22 (Fed. Cir. 2000) (stating that "language in a claim
preamble … acts as a claim limitation only when such language serves to 'give meaning to a claim and properly define the
invention,' not when the preamble merely states a purpose or intended use of the invention." (citing In re Paulsen, 30 F.3d
1475, 1479 (Fed. Cir. 1994) (quoting DeGeorge v. Bernier, 768 F.2d 1318, 1322 n.3 (Fed. Cir. 1985))).

Tulip argues that the term "personal computer" should be construed as a claim limitation thereby restricting claims 1 and 2
to covering desktop or deskside computers, as distinguished from notebook computers. Tulip notes that language in the '621
patent specification distinguishes the claimed invention from prior art covering a notebook computer. The specification
recites that "this [prior art, the Lam patent] concerns a notebook computer and not a desktop computer as with the present
invention." 32 Tulip asserts that this language explicitly acknowledges that a notebook computer is beyond the scope of the
invention claimed by the '621 patent. Tulip also references the prosecution history of the '621 patent where the inventor
distinguished the prior art notebook computer by arguing to the patent examiner that the physical environment of a notebook
computer could not accommodate the invention claimed in the '621 patent application and that the asserted benefits of its
invention could not be achieved in such physical environment.

32 '621 at 2:54-56.

2. Court's finding on preamble limitation

A court's determination of whether a preamble serves as a limitation upon a claim is "resolved only on review of the entirety
of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." 33
Generally, a preamble is not limiting if it "offers no distinct definition of any of the claimed invention's limitations, but
rather merely states, … the purpose or intended use of the invention." 34 A preamble may be limiting, however, when there
is "clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art." 35 That
reliance "transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in
part, the claimed invention." 36

Ben Venue Labs, Inc., 246 F.3d 1368, 1375 (Fed. Cir. 2001)).
36 Id.
for use in a personal computer," '621 at 5:62-63 (claim 1)) or a statement for the intended environment for the claimed combination ("[a] personal computer having," '621 at 6:36 (claim 2)). Because the bodies of claims 1 and 2 never refer back to any term in the preamble, and therefore the preambles do not provide antecedents for ensuing claim terms, Dell contends that this court should find that "personal computer" is not a limitation on the claims. 37

37 See C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1350 (Fed. Cir. 1998) (stating that a preamble that "simply states the intended use or purpose of the invention … usually does not limit the scope of the claim unless the preamble provides antecedents for ensuing claim terms and limits the claim accordingly" (citation omitted)).

Tulip does not argue that the bodies of claims 1 and 2 refer back to the "personal computer" described in the preambles to those claims. Tulip contends, however, that the preambles of the claims in issue are one of the "rare instances" described by the Federal Circuit where statements of intended use in the preamble do limit the claims because, here, "the applicant clearly and unmistakably relied on those uses or benefits to distinguish prior art." 38 Tulip maintains that the specification and prosecution history of the '621 patent each demonstrate an acknowledgment by the patentee that the "personal computer" claimed is not a notebook computer.

38 Catalina Marketing, 289 F.3d at 809.

The specification of the '621 patent distinguishes prior U.S. Patent No. 5,121,295 (the "Lam patent") as "concerning a notebook computer and not a desktop computer as with the present invention." 39 The same distinction with respect to the Lam patent was made during the prosecution of the '621 patent application. In response to the examiner's initial rejection of claims 1 and 2 as originally filed as obvious, Tulip emphasized the differences between the notebook computer claimed by the Lam patent and the personal computer claimed in the '621 patent application. Tulip pointed out that, unlike its invention which teaches a riser card capable of accommodating a plurality of expansion boards, the Lam patent teaches a riser card that can accommodate a single expansion board in a notebook computer. 40 Furthermore, Tulip explained to the examiner that the physical environment of contemporary notebook computers was incapable of housing a riser card with a plurality of expansion connectors located thereon. 41 Finally, Tulip noted that because a notebook computer does not contain a cooling fan, "the problem of impeding directed air flow simply does not exist there." 42

39 '621 at 2:53-55.


41 Id.42 Id.
conclude the term "personal computer" recited in the preambles of claims 1 and 2 limits the scope of those claims to the extent that a notebook computer is excluded from the meaning of that term. 43

3. Parties' positions on claim construction

Each of the parties assert that their construction of the term "personal computer" gives that term its ordinary and accustomed meaning. Tulip proposes the term be construed as meaning a personal computer of the AT type, and specifically desktop and deskside computers. Dell argues that, even if the court determines that the preambles of claims 1 and 2 are found to be relevant claim limitations, Tulip's proposed construction is not consistent with the ordinary and accustomed meaning of "personal computer." Dell states that, at the time of Tulip's '621 patent application, the ordinary and accustomed meaning of "personal computer" meant a computer for individual or home use. 44 During the same time period, Dell notes that a portable computer was defined as a "personal computer that is designed and configured to permit transportation as a piece of handled luggage." 45 Based on these definitions, Dell argues, the ordinary and accustomed meaning of "personal computer" at the time of Tulip's '621 application included a portable, or notebook, computer.

43 See e.g., SciMed Life Sys., Inc. v. Adv. Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) ("Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question."); Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973 (Fed. Cir. 1999) (concluding that argument distinguishing prior art during prosecution resulted in the disavowal of a potential claim interpretation encompassing the distinguished characteristic of that prior art); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.").

44 D.I. 323 at 13 (citing MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 1840 (5th ed. 1994)).

45 Id. at 13 (citing NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 975 (5TH ED. 1993)).
Dell contends that there is nothing in the specification or prosecution history that clearly indicates an intention to define "personal computer" in a manner contrary to the ordinary and accustomed meaning of that term. The specification describes the invention as "[a] (personal) computer of the AT type or a computer which is compatible therewith." Dell maintains that by including the term "compatible," Tulip signaled its assertion that the '621 patent covered later-developed generations of the personal computers described in the specification and, therefore, was not altering the definition of the term "personal computer" from its ordinary meaning.

Dell asserts that Tulip's construction improperly limits the scope of the invention claimed by the '621 patent. The patent's written description states that:

although the motherboard according to the invention is applicable in various type [sic] of housings for personal computers of the AT type, in which there is a need for a riser card with at least two but preferably more positions for expansion cards, the motherboard has the most advantages when used in a computer of the desktop type. 47

Dell contends that this language recites a preferred embodiment of the claimed invention and not that the scope of the invention was limited to only desktop computers. Dell suggests that its proposed construction is the most appropriate as it does not improperly limit the scope of the claims to the preferred embodiment of a desktop computer. 48

Dell states that other claims of the '621 patent support its contention that the ordinary and accustomed meaning of the "personal computer" of claims 1 and 2 included a portable, or notebook, computer when the '621 patent was filed. Dell notes that claim 3 of the patent, from which claim 2 depends, claims "the personal computer of claim 2 wherein the computer is a desktop computer." According to Dell, claim 3 is directed at a subset (e.g., desktop computers) of the general set of personal computers covered by claims 1 and 2. Any other interpretation, Dell contends would render the words "desktop type" in claim 3 redundant.

Dell points to the prosecution history of the '621 patent as further support for this argument. Dell notes that the language of claims 1 and 2, as originally filed, contained the phrase "a computer of the AT type" and that original claim 3 depended from original claim 2 and limited original claim 3 to "[a] computer according to claim 2, characterized in that the computer is of the desktop type." Dell argues that this is additional evidence indicating that Tulip intended to claim all personal computers, in original claims 1 and 2, and a subset of all personal computers, a desktop computer, in original claim 3.
50 D.I. 324, Ex. 2 at TLP2 117060-61.

Tulip responds that, in view of its unequivocal disavowal of a notebook computer, the claim 3 reference to a "desktop type" computer having a housing as described in that claim distinguishes the invention of claim 3 from a mini tower computer, not a notebook computer, particularly in light of the stated applicability of the claimed invention "in various type[s] of housings for personal computers of the AT type." Tulip also notes that claim 3 includes additional limitations, like a box housing, than differentiate it from claim 2, thereby making it unnecessary that the phrase "desktop type" differentiate the claims.

4. Court's construction

The court accepts as the ordinary and accustomed meaning of "personal computer," cited by Dell, as a computer for individual or home use. That definition, however, must be limited by the acknowledgment, evident from the '621 patent specification and its prosecution history, that the computer for individual or home use claimed does not include a portable, or notebook, computer. Such a construction does not apply a meaning contrary to the ordinary and accustomed meaning of "personal computer," as that term was understood by one of ordinary skill in the art at the time Tulip applied for its '621 patent. That construction accepts the ordinary and accustomed meaning of the term as limited by the intrinsic evidence read as a whole.

At oral argument, Dell contended that the citations to the specification and prosecution history relied upon by Tulip pertained to an obviousness argument about the combinability of prior art references, not a definition of personal computer. The representations Tulip made with regard to the obviousness of its invention, however, resulted in a clear disclaimer of notebook computers from the scope of its claimed invention. The scope of the claims being thus narrowed, cannot be re-broadened by this court's construction of the term "personal computer" to include the very type of computer disclaimed.

Construing "personal computer" to mean a computer for individual or home use, but not including a notebook computer, is also consistent with the language of the specification cited by Dell describing "[a] (personal) computer of the AT type or a
computer which is compatible therewith" 55 as it protects what Dell characterized as Tulip's assertion that the '621 patent covers later-developed generations of personal computers described by the claims. The court's construction also avoids Dell's concern over the improper importation of a preferred embodiment limitation from the specification. As Dell correctly notes, the language of the written description stating that "the motherboard has the most advantages when used in a computer of the desktop type" 56 does not limit the scope of the invention to only desktop computers. Despite that fact, the language of the written description immediately preceding the just-quoted language, describing a personal computer "in which there is a need for a riser card with at least two but preferably more positions for expansion cards," 57 and the language of claims 1 and 2, calling for a "riser card [in which] … a plurality of expansion boards can be simultaneously mated," 58 does preclude the invention from covering a notebook computer. As explained above, at the time of Tulip's '621 patent application, notebook computers could not accommodate a riser card with more than one expansion board. 59 The court's construction, therefore, avoids both limiting the claims to a preferred embodiment and broadening the scope of those claims to cover a notebook computer.

The court disagrees with Dell's assertion that the language of claim 3, claiming "the personal computer of claim 2 wherein the computer is a desktop type," 60 would be rendered redundant if notebook computers are determined to be outside of the scope of the term "personal computer." The "desktop type" computer of claim 3 may properly be directed to a subset of the "various types of housings for personal computers" 61 to which the specification states the invention is applicable. Moreover, the limitation of dependent claim 3 is directed not only to a desktop type computer but also to the housing for the computer described in that claim. These additional areas of claim coverage are consistent with Dell's assertion that claim 3 contains a definition of personal computer that claims a subspecies of the personal computer of claim 2, notwithstanding the court's determination that it is clear, as demonstrated above, that notebook computers are excluded from the term "personal computer." Therefore, the court finds that the disputed term "personal computer" means a computer for individual or home use, but not including a notebook computer.

The parties agree that this preamble is a claim limitation. See Lewis Decl. Ex. 12 Tab A at 1; Id. Ex. 13 Tab A at 2. The
"multifunction communication system" includes the communication module hardware, as well as its control software, for use with a personal computer. '289, Abstract; '289, claim 1.a; '289, col. 1:37-40 ("The subject of the present multiple inventions is a personal communications system which includes components of software and hardware operating in conjunction with a personal computer."). The hardware components include "telephone communication equipment, digital signal processors, and hardware to enable both fax and data communication with a hardware components [sic] at a remote site connected through a standard telephone line. The functions of the hardware components are controlled by control software operating within the hardware component and from the software components operating within the personal computer." Id. at col. 1: 46-54. The claim language and the specification establish this element requires the multifunction communication system to be separate from the personal computer. '289, col. 8: 3-11; id. at col. 36: 66-68. The disclosure describes a "complex computer assisted communications system" consisting of multiple component parts. '289, col. 1: 35-37. The term "personal computer" means a stand-alone computer (not sharing the processing or disk resources of another computer) designed for use by one person at a time, and excludes mainframe computers or mini-computers. Multi-Tech Br. App. I Ex. 19 (Microsoft Computer Dictionary 4th Ed. 339 (1999)). The personal computer must have a processor, memory and peripheral data store.

10. Personal digital assistant

Dependent claim 8 reads: "The device of claim 7, wherein the portable electronic navigational aid device includes a personal digital assistant (PDA)." The parties dispute the construction of "personal digital assistant," but neither party has proposed an adequate construction of the term. Plaintiff's definition, "handheld computing device," is too broad. Defendant's definition ("a hand-held computer with a keyboard, display, and personal organizer functionality including data indicative of calendar, address book, scheduler, etc."), is too narrow and deviates from the specification because it focuses on conceivable features of personal digital assistants that are not critical to the '873 patent. The specification recites the following regarding the personal digital assistant:

The navigational device 310 shown in FIGS. 3A-3C includes a personal digital assistant (PDA) with integrated GPS receiver and cellular transceiver according to the teachings of the present invention. The GPS integrated PDA operates with an operating system (OS) such as, for example, the well-known Palm or Pocket PC operating systems, or the lesser-used Linux OS. As shown in the top view of FIG. 3A, the GPS integrated PDA 310 includes an internal integrated GPS patch antenna 314 and a cellular transceiver 316 contained in a housing 318. . . . It should be understood that the structure of GPS integrated PDA 310 is shown as illustrative of one type of integrated PDA navigation device. Other physical structures, such as a cellular telephone and a vehicle-mounted unit are contemplated within the scope of this invention.

'873 pat., col. 4, Ins. 59-67; col. 5, Ins. 1-2, 22-26. In the context of the '873 patent, the essence of a personal digital computer is that it must be capable of interacting with a GPS information system. The personal digital assistant can come in many forms, including cellular telephones and vehicle mounted units. Accordingly, I construe "personal digital assistant" to mean "a hand-held computing device with an integrated GPS receiver."

Personal Identification Number

Fenner maintains that a PIN is "a number corresponding to individual system users," while Defendants advocate, "a number, separate from a billing code, identifying an individual mobile user that permits someone to call the user using that number." At the hearing, the parties agreed to the following language, "a number, separate from a billing code, identifying an individual system user," but Defendants persist that the construction should conclude with their additional language "that permits someone to call the user using that number."

Defendants argue Fenner disclaimed claim scope by distinguishing a prior art code that, "does not permit someone to call the mobile user using the code." Amendment, 11/30/95 at 6. However, this portion of the prosecution history does not
amount to an express or unequivocal disclaimer as Defendants suggest. Middleton, Inc. v. Minn. Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed.Cir. 2002). The quote is the last line in a paragraph where Fenner principally described a prior art code, which identified, "a description of the services stored in a national database" that the user could, "temporarily program . . . into a local public telephone exchange, for use with a particular telephone number." Id. Fenner distinguished its PIN, which identifies a system user, from a code used to retrieve a set of personalized services. Fenner's statement that the prior art does not permit the user to be called is a permissive and relatively generalized statement, especially in view of the specificity with which the prior art was described. Without further discussion clarifying how the PIN participates in permitting the user to be called, this portion of the prosecution history cannot be characterized as an unequivocal disclaimer. Middleton, 311 F.3d at 1388.

Accordingly, the Court construes personal identification number to mean, "a number, separate from a billing code (as construed herein), identifying an individual system user."

3135


The '073 patent describes a system and method for providing an end user with a personalized page containing a list of links to the user's accounts. The links allow the user instant access to each account through login credentials stored with the personalized page. The '766 patent contains similar claims to the '073 patent, with the addition of the concept of "user-defined functions," which allow the user to, for example, set the system to update information on the user's personalized page on a periodic basis.

"Personalized page" and "stored personal pages" appear in both the '073 and '766 patents. n1 Yodlee believes that both terms are straightforward and require no construction. CashEdge disagrees, arguing that both terms should be limited to pages that "provide actual user access to Internet sites without being required to enter additional passwords or codes or other user input." In other words, CashEdge argues that a "personalized page" or "stored personal page" must take the user to a secured site when the user clicks on the corresponding hyperlink.

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n1 "Personalized page" appears in independent claims 1, 18, and 36 of the '073 patent and independent claims 1 and 21 of the '766 patent. "Stored personal page" appears in independent claims 18 and 28 of the '073 patent, and independent claim 11 of the '766 patent.

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CashEdge's proposed limitation has some support in the specification, which provides "[i]n step 58 a user will, minimally, select a URL from his or her bookmarked destinations [in the personalized page], and as is known by hyperlink technology, the transparent URL will be invoked, and the user will navigate to that destination for the purpose of normal user interaction." '073 patent at col. 9, lines 31-35 (emphasis added); '766 patent, col. 9, lines 38-42 (emphasis added). In addition, the specification also provides that "after transparent log-on to an invoked destination [from a personalized page], the page at the destination is conveyed to and displayed for the user." '073 patent, col. 2, lines 60-62; '766 patent, col. 2, lines 64-66.

Both of these excerpts, however, are descriptions of embodiments of the invention. Because the claim terms themselves are not so limited, it would be inappropriate to "import[] limitations from the specification into the claims." Phillips, 415 F.3d at 1323. Accordingly, the Court agrees with Yodlee that these terms need not be construed.
With the disputed terms in bold, claim 2 states:

2. Apparatus according to claim 1, wherein there are at least two data signaling pairs connected between the data node and the access device to supply phantom power from the secondary source to the access device, and wherein said access device includes a pair of data transformers having center taps connected for locally powering the access device.

**Phantom Power**

The Court modifies Network-1’s proposed construction and construes the term as "operating power transmitted over the data signaling pairs." Network-1 omitted the word "operating" from its proposed construction. Phantom power is the power that is delivered to an access device over the data signaling pair as opposed to power delivered from a wall outlet. See Col. 3:44-45. The type of power delivered is operating power for the device, thus the Court includes the word "operating" in its construction.

Network-1 also used the phrase "over a data signaling pair" as opposed to D-Link's proposed construction, "over ... data signaling pairs." The term "phantom power" appears in Claim 2, which states "apparatus according to claim 1, wherein there are at least two data signaling pairs ...." Therefore, the Court construes the term as having "data signaling pairs," plural.

**3137**

Phantom power

Claim 2 of the '930 Patent contains the term "phantom power." Network-1 contends that the term means "operating power transmitted over the data signaling pairs that does not affect the simultaneous transfer of data," while Defendants contend that it means "operating power transmitted over the data signaling pairs." The parties disagree whether or not the term "phantom power" relates to the effect of power on data.

Network-1 asserts that the term signifies the transparency of the power to the data. Defendants counter that the term only signifies that power and data are both transmitted over the same signaling pairs.

Network-1’s proposed construction imposes an absolute condition on the phantom power, but the specification does not indicate that there is no effect on the data. Instead, the specification indicates that power on the signaling pairs does not prevent data transmission, and some effect on the data by the power does not prevent suitable data transmission operation over the network. See '930 Patent, col. 1:54-56. Accordingly, the Court adopts its construction in the D-Link case and Defendants' construction and construes the term "phantom power" to mean "operating power transmitted over the data signaling pairs."

**3138**

3. Phase shifted burst mode signals/phased burst signals/phased burst mode signals.

The court defines these terms to mean "a burst mode signal that is shifted in phase with respect to another burst mode signal." The court incorporates by reference its definition of burst mode signal.

**3139**

VI. Motion for Summary Judgment of Invalidity of Claim 6 n12
The Defendants' motion seeks summary judgment on Claims 6 and 7 of the '088 patent on the grounds of invalidity. Lectrolarm has not asserted that the Defendants infringed Claim 7 of the '088 patent, and there is no need for the court to consider whether Claim 7 is invalid.

Patent claims must "particularly point out and distinctly claim the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P 2. This requirement is known as definiteness. Determination of claim indefiniteness is a legal conclusion that is the responsibility of the court. Exxon Research and Engineering Co., v. United States, 265 F.3d 1371, 1376 (Fed. Cir. 2001). The test for definiteness is whether "one skilled in the art would understand the bounds of the claim when read in light of the specification." Id. at 1375. "Because a claim is presumed valid, a claim is indefinite only if the claim is insolubly ambiguous, and no narrowing construction can properly be adopted." Honeywell Intern., Inc. v. International Trade Com'n, 341 F.3d 1332, 1338-39 (Fed. Cir. 2003) (emphasis added) (internal quotes and citations omitted).

The parties' dispute centers on the definition of the term "photocoupler." Lectrolarm argues that a photocoupler consists of a light-emitting and a light-receiving diode that are not necessarily located in the same discrete device. The Defendants contend that a photocoupler must be a discrete package containing both a light-emitting and a light-receiving diode.

Paragraphs 3 and 4 of Claim 6 involve the photocoupler:

- a photocoupler including a light-emitting element that transforms said electrical signal from said control box to a light signal, said light-emitting element being provided in said control box,

- said photocoupler further including a light-receiving element that transforms the light signal from said light-emitting element to an electrical signal and outputs the electrical signal to said rotating camera base, said light-receiving element being provided in said rotating camera base...

The specification discloses a definition of "photocoupler" consistent with that in the claims. The specification refers to light-emitting and light-receiving element pairs in discrete packages as photocouplers. The specification also describes light-receiving and light-emitting element pairs where the two elements are at different locations. Although the specification does not refer to this second configuration explicitly as a "photocoupler," it is obvious from the context of the patent that this is the "photocoupler" referred to in Claim 6.

The word photocoupler was added to the claim during the amendment process. The Defendants argue that to give "photocoupler" any meaning other than its ordinary meaning would impermissibly "read out of the claim the only element that preserved the issued Claim 6 from a finding of invalidity by the patent office." (Def.'s Post-Hearing Mem. Concerning Claim Interpretation Issues at 15.) To the contrary, the patent examiner rejected Claim 6 because communication between the two sides of the device using a light-emitting and receiving element pair and optical cable is a "well known technique" for communication and would have been "obvious to one of ordinary skill in the art." (Examiner's Action at 3 (January 18, 1990).) The attorney prosecuting the patent responded by adding the word "photocoupler" to paragraphs 3 and 4 of Claim 6. The attorney explained that the addition of the word "photocoupler" clarified that the optical link was not only a means of communication, but also a way to reduce noise. (Patent Attny.'s Resp. to Patent Rejection at 5-7.) This amendment, with its accompanying explanation, was accepted. Because the amendment purpose of noise reduction as well as communication the amendment did not limit the scope of the '088 patent.

The term "photocoupler" in Claim 6 is not insolubly ambiguous. Irrespective of the ordinary meaning of the term "photocoupler," a person of skill in the art reading the claims and specification of the '088 patent would understand that the patent uses the term "photocoupler" in a manner that encompasses light-emitting and light-receiving element pairs where the elements are at different locations and not in a discrete packet. Claim 6 of the '088 patent is not indefinite.
Physical Interface Connection Elements

In their briefing, the parties nearly agreed on the construction of this term: "Elements such as electrical pins and socket connections that link two discrete electronic external devices, allowing the devices to transfer information." Digi's proposed construction contained the additional italicized words. Digi argued the patent specification supports its inclusion of "such as electrical pins and socket connections":

"Generally the present invention comprises a connector having a housing which contains at least two physical interface connection elements such as electrical pins and socket connections, through the walls thereof, for connection to at least two external devices."

'470 patent, 1: 41-45. Lantronix did not dispute the inclusion of "such as electrical pins and socket connections." Lantronix did however argue that Digi's inclusion of "discrete electronic external" fundamentally misrepresents how the structures fit together. According to Lantronix, the "physical interface connection element" is the part of the connector at which each external device connects to the connector. Therefore, the connector as a whole links two discrete external devices, but a single physical interface connection element does not. A single physical interface connection element links the connector with one of the external devices.

During the hearing, the parties reached a compromise construction: "elements such as electrical pins and socket connections that link the connector to a discrete external electronic device." In light of the claim language and specification, this is an appropriate construction.

1. "Physical Layer" and "Physical Layer Modulation"

The court concludes that the term "physical layer" means "the lowest layer of the Open Systems Interconnect (OSI) seven layer model, concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems." Similarly, "physical layer modulation" means "a protocol that is concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems."

Physical Media Path

In an effort to come to an agreement on this term, both sides have changed their original positions and offered compromise constructions. Fenner proposes physical media path should be construed as, "any path or route which allows
the transfer of data packets to or from the node," and Defendants propose, "a path or route including a physical link which allows the transfer of data packets to and from the node." The Court construes "physical media path" to mean "a physical route or path which allows the transfer of data packets to and from the node."

--- Footnotes ---

n6 Fenner's original construction: a path or route corresponding to a physical layer link, such as ETHERNET, TOKEN RING, TOKEN BUS, FDDI and the like. Defendants original construction: a path or route including a physical link leading into and out of the communications node.

--- End Footnotes ---

Fenner's construction provides that the physical media path, "allows the transfer of data packets to or from the node" whereas Defendants' construction provides for "the transfer of data packets to and from the node." Although Fenner does not maintain the physical media path is a one-way path, the word "or" creates the possibility that the path either allows transfer to the node or from the node, but not both. Defendants' use of "and" will avoid that potential misunderstanding and properly describe the physical media path as facilitating transfer of data packets to the node as well as from the node.

The Court construes "physical media path" to mean "a physical route or path which allows the transfer of data packets to and from the node."

--- Footnotes ---

n7 The parties agreed to construe "data packet" as "a bit string of specifically arranged fields including address fields and a message data field."

--- End Footnotes ---


The next dispute involves references in Claim 1 of the '070 Patent to the "central picture element" and "surrounding picture elements." The entire phrase reads as follows: "a comparison circuit means responsive to said input video signal to compare a central picture element of said video signal to at least one of the surrounding picture elements of said video signal to determine the difference thereof to further compare said difference to a threshold . . . ." A related dispute centers on the term "neighboring pixels" in Claim 25 of the '070 Patent, which includes the phrase "comparing two neighboring pixels to determine the difference thereof."

Each of these claims concerns the aspect of the technology by which a given pixel is compared to the pixels around it, both spatially and temporally, in order to sharpen the pixel that is being compared. Defendant submits that the "central picture element" is "the pixel under consideration at a given time in the process," and that "surrounding picture elements" are "one or more picture elements which surround a central picture element in either time or space." Plaintiff wishes the Court to construe "central picture element" as "a sample of picture information being noise reduced." In addition, plaintiff objects to defendant's proposed construction of "surrounding picture elements" because the definition employs the word "surround," which plaintiff believes to be "entirely unhelpful in illuminating the proper meaning of the term." Pl.'s Reply at 19. Instead, plaintiff proposes that the Court construe "surrounding" to mean "nearby, proximate to, or within the environs/vicinity of."

Significantly, the parties have agreed that the terms "surrounding picture elements" and "neighboring pixels" should be construed in identical fashion. See Pl.'s Proposed Claim Constr. Order at 10. As such, the Court must construe the former term in a manner that is not inconsistent with the construction it would give to the latter.

The parties are not far apart on the meaning of "central picture element." Both parties understand the term to refer to a particular pixel that is undergoing the noise-reduction process taught by the '070 Patent. Plaintiff objects to defendant's
proposed construction because "various picture elements may be 'under consideration' at any point in time." This objection is well-taken. The Court will construe "central picture element" in the manner proposed by plaintiff.

The dispute over "surrounding" and "neighboring" pixels presents the issue of how far away from the central pixel the invention can go in its search for other pixels to compare to and/or combine with the central pixel. While discussion of this topic at the claim construction hearing revealed that the outer boundary is not well-defined, the parties agree that comparison is not limited to the pixels immediately adjacent to the central pixel. In light of this agreement, and in keeping with the precept that words in a claim "are generally given their ordinary and customary meaning," Vitronics, 90 F.3d at 1582, the Court will construe "surrounding picture element"--and, by extension, "neighboring pixels"--to mean one or more pixels sufficiently near the central pixel in time or space to be useful for the purpose of noise-reducing the central pixel. 6

In light of this construction of "neighboring pixels," the Court rejects plaintiff's proposed construction of the phrase "said elements which are normally combined" in Claim 43 of the '070 Patent. The "said elements" in that claim are "a first element and two neighboring elements." '070 Patent, Col. 16:36-37. The Court's construction of "neighboring" renders plaintiff's proposed construction of Claim 43, which seeks to specify that the combined elements are those that "potentially have noise reduction information about each other," superfluous.

The Court construes the term "pins" as "external connection points of a device." The Court finds that this construction comports with the relevant dictionary definitions submitted by the parties and most accurately reflects the meaning as understood by one of ordinary skill in the art.

Intergraph contends this term is defined in the claims as an identifier indicative of a processing pipeline for executing an associated individual instruction. Intel argues, however, that the specification and prosecution history of the '028 patents limit "pipeline identifier" to a "compiler-generated tag embedded within each instruction that identifies the explicit processing pipeline that will execute the instruction." While the prosecution history cited by Intel does support a requirement that instructions be "embedded," the history relates only to specific claims that included the term "embedded." This history in no way imposes an "embedded" requirement on every claim using the term "pipeline identifier." Further, Intel's citations fail to support its requirement that the identifier necessarily identify the explicit processing pipeline.

The Court construes "pipeline identifier" as a designation indicative of a processing pipeline. '028 patent 3:9-17; 5:15-17.

A. "Pipeline Identifier"

Intel first takes issue with the district court's construction of the claim term "pipeline identifier" found in both the '028 patent and the '003 patent. Pointing to the claim language, the specification, and the prosecution history, Intel argues that a "pipeline identifier" must identify the specific pipeline to which an instruction will be routed. Intel asserts that, under its proposed construction, the accused devices do not have "pipeline identifiers" because their templates do not identify specific
pipelines. Even under the district court's claim construction, however, Intel challenges as clearly erroneous the court's finding that the templates in the accused devices are "pipeline identifiers," arguing that the templates are not "unique" identifiers embedded within each syllable.

Intergraph responds that the district court correctly interpreted the term "pipeline identifier" to require only identification of the type of pipeline through which an instruction will be processed. Intergraph maintains that the claim language and the specification compel such an interpretation and that the specification's disclosure of a "specific" pipeline relates only to a preferred embodiment. According to Intergraph, the one prosecution history remark regarding a "specific" pipeline should not negate the contrary meaning found in the patent itself. With respect to infringement, Intergraph contends that the district court correctly found that the template bits associated with each instruction in the accused devices satisfy the "pipeline identifier" limitations.

We agree with Intel that the district court erred in its construction of the claim term "pipeline identifier." We commence our analysis, as we must, with the claim language. To begin with, some claim language can be read to suggest that a "pipeline identifier" identifies a particular pipeline. For example, claim 20 of the '028 patent recites "a unique pipeline identifier indicative of the processing pipeline which will execute that individual instruction." (emphases added). And claims 1 and 22 of the '003 patent refer to using "pipeline identifiers" to supply each individual instruction to "the appropriate instruction pipeline." (emphasis added). At the same time, however, other claim language can be read to suggest that a "pipeline identifier" need not identify a specific pipeline. For instance, claim 20 also recites "using the unique pipeline identifiers . . . [to control switches and] thereby supply each individual instruction in the at least one group to be executed in parallel to an appropriate processing pipeline." (emphasis added). Claim 6 of the '003 patent similarly refers to using "pipeline identifiers" to supply each instruction to "an appropriate instruction pipeline." (emphasis added). Still, that language does not clarify the degree of specificity required by the term "pipeline identifier," for both the specific pipeline that will execute an instruction and the type of pipeline that will execute an instruction are "appropriate" pipelines. We therefore read the claim language as being susceptible to both parties' proposed definitions.

4 Both parties argue, and we agree, that the term "pipeline identifier" should be interpreted consistently throughout the claims in each patent. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001).

5 Intergraph argues that Figures 12 and 13 of the '028 patent illustrate "pipeline identifiers" that identify pipelines by type. Those figures, however, illustrate an instruction frame and a group of instructions. They, along with their accompanying text, depict instruction types and group tags but, importantly, do not show "pipeline identifiers." See '028 patent, col. 10, ll. 44-67. We therefore find Figures 12 and 13 to be unhelpful to our interpretation of the term "pipeline identifier."

On the other hand, the specifications also contain statements suggesting that a "pipeline identifier" need identify only the type of pipeline to which an instruction will be routed. For example, both specifications explain that, in some embodiments,
the compiler's determination of "the appropriate pipeline for execution of an individual instruction . . . . is essentially a
determination of the type of instruction provided." '028 patent, col. 6, ll. 56-59 (emphasis added); '003 patent, col. 3, ll. 64-
67 (emphasis added). That statement is qualified, however, by the following sentence, which provides examples of pipeline
types and states that "load instructions will be sent to the load pipeline [and] store instructions to the store pipeline." '028
patent, col. 6, ll. 59-61 (emphases added); '003 patent, col. 3, l. 67 to col. 4, l. 2 (emphases added). Similarly, the statement
that "preferably, the pipeline tag will correspond to the type of functional unit required for execution of [an] instruction" is
qualified by its ensuing example, which identifies a particular execution unit--namely, "floating point unit 1." '028 patent,
col. 3, ll. 15-17 (emphasis added). Thus, the two examples that refer to identifying pipelines by type actually identify
specific pipelines. We therefore find them to be of little assistance to our claim construction analysis. 6

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6 Elsewhere, the specifications, like the claim language, ambivalently disclose that a "pipeline identifier" determines "an
appropriate pipeline." E.g., '028 patent, col. 3, ll. 13, 28-29; see also '028 patent, col. 5, ll. 31-32 (stating that each
instruction in a group is routed to "its appropriate pipeline, as determined by the pipeline tag of the instruction").

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Finally, we arrive at the prosecution history, which, unfortunately for Intergraph, resolves any ambivalence. A patentee may,
of course, act as his own lexicographer and define a claim term in either the specification or the prosecution history.
Mycogen Plant Sci., Inc. v. Monsanto Co., 243 F.3d 1316, 1327 (Fed. Cir. 2001). We conclude that Intergraph did just that
during prosecution of the '028 patent. In the first office action, the examiner rejected claims 1-23 as indefinite under 35
U.S.C. § 112, stating, among other reasons, that it was "unclear what constitutes a pipeline identifier" in claims 20 and 21.
In response, Intergraph amended claim 20 and explained that a "pipeline identifier" is a "tag . . . indicative of the specific
processing pipeline to which [an] instruction will be dispatched." (emphasis added). With that statement, Intergraph clearly
and unambiguously defined the term "pipeline identifier" as referring to the particular pipeline to which an instruction will
be routed, and Intergraph cannot now obtain a broader interpretation of that term. See Honeywell Inc. v. Victor Co. of Japan,
298 F.3d 1317, 1323-24 (Fed. Cir. 2003).

Nevertheless, Intergraph argues that that prosecution history statement referred only to a preferred embodiment and
therefore should not be applied to limit the scope of the claims. We disagree. The examiner's question regarding the meaning
of the term "pipeline identifier" was raised in the context of rejecting claim 20, so Intergraph's response is at least relevant to
that claim's use of the term. Moreover, just before defining the term "pipeline identifier," Intergraph stated in its response to
the examiner that the "pipeline identifiers are described throughout the specification, for example, beginning on page 8 at
line 15." Although the text at page 8, line 15 does indeed appear to refer to the embodiment depicted in Figure 1, Intergraph
explicitly identified its discussion of pipeline identifiers as occurring "throughout the specification," with the page 8, line 15
reference being only one example of its use of the term. We therefore read Intergraph's prosecution history statement as not
being limited in scope to a preferred embodiment, but rather as indicating the meaning that Intergraph ascribed to the term
"pipeline identifier" throughout the '028 patent.

Intergraph's statement made during prosecution of the '028 patent is also relevant to our interpretation of the '003 patent.
Because the claim language and the specification of the '003 patent have not resolved the ambiguity surrounding the term
"pipeline identifier," we find the prosecution history of the '028 patent to be highly relevant to our construction of the term
"pipeline identifier" in the '003 patent. The '003 patent incorporates by reference copending U.S. Patent Application
08/147,800, which led to the '028 patent, and more particularly cites that application for a description of the overall system
within which the '003 patent's "associative crossbar switch" is implemented. '003 patent, col. 2, ll. 52-58. Because the
overall system disclosed in the '800 application plainly includes "pipeline identifiers" and because the two patents in suit
contain overlapping (and at times identical) claim language and disclosures regarding "pipeline identifiers," we consider that
Intergraph intended that term to have the same meaning in both patents. We therefore apply Intergraph's definition of the
term "pipeline identifier" made during prosecution of the '028 patent to the '003 patent as well.

In sum, we conclude that Intergraph expressly defined the term "pipeline identifier" during prosecution of the '028 patent. In
light of that prosecution history, as well as the claim language and the specifications, we hold that, for both the '028 patent
and the '003 patent, a "pipeline identifier" must identify the specific processing pipeline to which an instruction will be
dispatched.

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Having revised the district court's construction of the claim term "pipeline identifier," we turn next to the question of infringement. Unfortunately, we are unable to determine from the record whether the templates in the accused devices identify the specific pipelines to which instructions will be routed, and the district court made no findings of fact regarding that aspect of the accused devices. We therefore vacate the district court's finding of infringement and remand for the court to determine in the first instance whether the accused devices have "pipeline identifiers" under our construction of that term.

A. "Pit"

Plaintiff's construction: an area which creates a difference in reflected light to represent information

Defendants' construction: depression in the surrounding land area, where the depth is the principal factor creating a difference in reflected light intensity for encoding information

The parties' dispute boils down to whether the "pits" referenced in claim 1 and dependent claim 2 of the '651 patent should be limited to actual physical depressions in the disc. Defendants argue in favor of this limitation, contending that the language of the patent is directed at pre-recorded optical discs that have stamped or embossed pits. Defendants rely heavily on the '651 patent specification and preferred embodiment. Plaintiff disagrees that the patent claim or specification requires the term "pit" to be so limited and provides examples of intrinsic and extrinsic evidence in support of its theory that the ordinary meaning of "pit" at the time the patent application was filed included non-stamped "pits" formed on recordable and rewritable discs by color change, laser ablation or phase-change technology.

The "ordinary and customary" meaning of "pits" is not apparent from the claim language itself. Thus, I turn to the patent specification for guidance in construing the term. The abstract, written summary of the invention and description of the figures in the patent support defendants' proposed construction of the term because only pits that are physical depressions comport with the descriptions provided in the patent. The patent teaches that the shape and depth of embossed pits in the substrate of the disc affects a disc player's ability accurately to read pits. '651 patent, 5:58-65. The specification depicts examples of pits having a depth "hm." Id., Fig. 4 (showing range of depths from 2/32 to 8/32); Fig. 6 (depth = 0.2 [mu] m); Fig. 7 (depth = 0.2 [mu] m); Fig. 8 (depth = 0.2 [mu] m); Fig. 9 (depth = 0.2 [mu] m); Fig. 16 (depicting perspective view of pits and lands, showing depths of pits).

In the abstract and in numerous places throughout the specification, the inventors describe "the present invention" as a disc on which information is recorded as "trapezoidally shaped" pits whose upper width, lower width and angle of inner walls fall within a certain range of values. Id., Abstract, 2:40-44, 55-59; 3:1-4. Specifically, the patent teaches that the "ideal" pits should be trapezoidally shaped, with a wide top, inclining walls and a narrower bottom. Id., Fig. 13. When describing the basic concept of the invention, the inventors state that:

According to the present invention, there is provided an optical disk which enables the track pitch to be made much smaller in order to achieve a much higher density and greater capacity . . . by optimizing the pit shape . . . . Hereinafter, the pit shape in the present invention will be described in detail.

Id., 5:58-65. The inventors go on to describe the shape of the pit in detail by referring to Figure 1 in the patent:

FIG. 1 is an explanatory diagram of the shape of a pit in an optical disk according to the present invention. As shown in the figure, the shape of a pit 10 is approximated by a shape with a trapezoidal cross section. The inner wall 11 of the pit 10 is inclined downward and its bottom portion 12 is almost flat. Numerical 13 indicates the cross section of the pit 10 along the radius of the optical disk (the track width direction); Wm the size of the top of the pit 10 across the track width (hereinafter the upper width); Wi the size of the bottom of the pit 10 across the track width (hereinafter the lower width); hm the depth of the pit 10, Zm the length of the pit 10 along the track; and [THETA] represents the angle of the inner wall of the pit 10 (the angle that the inner wall forms with respect to the surface of the optical disc).

As the inventors explain in the written description of the invention, "[b]y setting various parameters of the pit shape at the above-described values, the amount of crosstalk between adjacent tracks is suppressed . . . " Id., 3:21-24. Later in the patent, the inventors explain Figure 4, stating that "[t]o minimize a decrease in the push-pull signal level and obtain the maximum playback signal level, it is desirable from FIG. 4 that the pit depth should be approximately \[\text{l}/5, preferably in the range of \[\text{l}/5.2 to \[\text{l}/5.2\] ." Id., 6:55-59. When explaining Figure 6, the inventors state that "it can be seen that crosstalk changes greatly with the pit shape." Finally, in explaining Figure 16B, the inventors state that in an "optical disk according to the present invention . . . one surface of each transparent substrates . . . is embossed with pits . . . ." Id., 8:48-51 (emphasis added).

These myriad references to embossed, trapezoidal-shaped pits, pit depth and angled pit-walls support defendants' argument that a person of ordinary skill in the art of optical discs, considering the context of the claim language and patent specification, would understand "pit" as used in the patent to mean a pit that is three-dimensional and depressed into the substrate of the disc. Only a pit that is a physical depression could have trapezoidal shape, depth, a wide top, a narrower bottom and angled walls. Further, only a pit that has a depth can create the best combination of push-pull signal and minimal cross-talk to increase the capacity of the disc.

Plaintiff raises several arguments in opposition to defendants' proposed construction, but none is persuasive. First, plaintiff contends that the language of claim 1 shows that the inventors deliberately claimed a broad set of "pits" so as to not limit the scope of the invention to stamped or embossed pits that have depth in prerecorded discs. In particular, plaintiff contends that although claim 1 includes an equation with values or variables for track pitch, light beam wavelength, lens numerical aperture, radial tilt and substrate thickness, claim 1 does not include a variable for pit dimensions.

Plaintiff points to related patents to support their argument: U.S. Patent No. 5,592,464 (the '464 patent) and U.S. Patent No. 5,459,712 (the '712 patent). The '464 patent is the "parent" of the '651 patent and claims pits of certain depths and dimensions. Marshall Decl., Ex. A, dkt. 73, '464 patent, claim 1. Similarly, the "grandparent" of the '651 patent, the '712 patent, claims a trapezoidal-shaped pit having specific upper and lower widths and inner walls of a specific angle. Id., Ex. B, '712 patent, claims 1 and 2. Plaintiff contends that the fact that the inventors claimed specific pit dimensions in the parent and grandparent patents but did not do so in the '651 patent indicates that the inventors wanted the '651 patent to have a broader scope than the previous patents. In other words, the patentees knew how to write claims so that they would cover a specific type of pit, and although the inventors discuss pit depth and size in the '651 specification, they intentionally declined to include such values in the claim so as to broaden the scope of the invention to include pits formed by laser ablation, color change or phase change. This argument is unpersuasive.

Plaintiff's argument ignores the fact that all three patents refer to a pit as a trapezoidally-shaped depression in the substrate. Given that the pits in the '464, '712 and '651 patents are all similar, it stands to reason that the '651 pits should be given a meaning that would make sense for all three patents. That meaning is that pits that are physical depressions. As plaintiff notes, the parent and grandparent patents claim specific pit dimensions (e.g., '464 patent, claim 1, dkt. 73, at 11:1-5), while the '651 patent does not; because of this, I agree with plaintiffs up to this point: in drafting the '651 patent, the patentees were claiming a broader set of pits than in the previous patents. But it is an illogical and off-target to infer that this difference expands the '651 patent to include pits without depths. Rather, this choice expands the patent to cover embossed pits with depths other than those specifically claimed in the parent and grandparent patents.

Plaintiff's second argument is based on the doctrine of "claim differentiation." Claims 1 and 2 state only that there are a "plurality of pit trains" including a "plurality of pits." Claim 6, which is part of an apparatus claim in the patent and not asserted in this lawsuit, claims:

An optical disk apparatus according to claim 5, wherein said sensing means produces a push-pull signal and a playback signal, said push-pull signal representing a difference between signals sense in at least two areas along a track of said optical disk, and wherein each of said pits has a depth to enable both said push-pull signal and said playback signal to have large levels.
'651 patent, 12:3-9 (emphasis added).

Plaintiff contends that because claim 6 requires pits to have a depth, the pits in claim 1 and 2 encompass pits without depth because they have no such limiting language. Plaintiff cites Intamin Ltd. v. Magnetar Technologies, Corp., 483 F.3d 1328, 1335 (Fed. Cir. 2007), in which the court of appeals concluded that the claim term "intermediary" was not limited to "nonmagnetic" intermediaries, in part because a dependant claim specifically claimed an embodiment in which the intermediary was non-magnetic. Id. The court explained that the "dependant claim show[ed] both that the claim drafter perceived a distinction between magnetic and non-magnetic intermediaries and that independent claim 1 impliedly embraced magnetic intermediaries." Id.

However, claim differentiation does not apply in this case. Claim 6 of the '651 patent does not differentiate pits with depth from pits without depth. Instead, it claims pits with a depth sufficient "to enable both said push-pull signal and said playback signal to have large levels." '651 patent, 12:8-9. Thus, the pits in claim 6 are differentiated from pits that do not have sufficient depth for this particular playback purpose.

Plaintiff's third argument is that restricting "pit" to only embossed or stamped pits would import a limitation from one embodiment into the claims. Plaintiff points to language in the specification stating that "the invention in its broader aspects is not limited to the specific details, and representative devices shown and described herein." Id., 10:46-48. Similarly, the Court of Appeals for the Federal Circuit has warned repeatedly against confining claims to specific embodiments of the invention. E.g., Phillips, 415 F.3d at 1323. This warning applies even where, as here, there is only one embodiment described in a specification. Id.

Duly noted. But that is not what this court is doing. Many of the cited passages from the specification arose in the context of explaining "the present invention," not merely an embodiment. The specification makes clear that embossed and stamped pits have been tested to optimize disc capacity and work with the invention. Therefore, it is appropriate to apply this limitation to the invention as a whole. Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."); Honeywell International, Inc., v. ITT Industries, Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (written description discussing "this invention" and "the present invention" may limit claim scope); C.R. Bard, Inc. v. United States Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term.").

Further, although the patentees refer to other types of embodiments, this does not mean that the claim can be applied to embodiments without embossed pits, it means that the claim could be applied to discs with embossed pits whose dimensions are different from those illustrated in the patent.

Fourth, plaintiff contends that prior art cited in the patent indicates that "pit" covers multiple types of physical changes. In the '651 patent, the inventors identify as prior art U.S. Patent No. 4,587,648 (the '648 patent), which was issued on May 6, 1986. In the discussion of its invention, an "Optical Disk," the '648 patent identifies multiple ways to form pits, including pits formed by high intensity laser beams. Hesselink Decl., Ex. F, dkt. 78, 1:16-21, 65-66. The '651 patent also cites as prior art U.S. Patent No. 5,274,623 (the '623 patent), which was issued on December 28, 1993. Hesselink Resp. Decl., Ex. G, dkt. 85. The '623 patent's specification discusses recordable and rewritable media and how "pits" are formed through chemical or physical changes on that media. Id., Abstract.

It's true that if a patent applicant cites to prior art, then the use of a term in the prior art is intrinsic evidence that "can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning." Arthur A. Collins, Inc. v. Northern Telecom Ltd., 216 F.3d 1042, 1045 (Fed. Cir. 2000). However, it "is rare that references that were submitted with a disclosure document, but not even cited by the examiner, are probative of an intent to depart from the plain technical meaning of terms used in the specification and claims." Osram GmbH v. International Trade Commission, 505 F.3d 1351, 1358 (Fed. Cir. 2007). In this case, there is no evidence that the patentee or patent examiner discussed or cited the '648 or '623 patents.

As discussed above, the '651 patent specification provides a clear and consistent meaning for the term "pit" by referring repeatedly to pits as having depth and shape, consistent with the pits in pre-recorded optical discs. It would be improper to use the '623 and '648 patents to construe the meaning of the term pit in a manner contrary to the teachings of the patent.
Vitronics, 90 F.3d at 1584-85 ("Once again, however, reliance on such [prior art] evidence is unnecessary, and indeed, improper, when the disputed terms can be understood from a careful reading of the public record. Nor may it be used to vary claim terms from how they are defined, even implicitly, in the specification or file history.") (internal citations omitted).

Finally, plaintiff cites several examples of extrinsic references that existed at the time the '651 application was filed, including patents, patent applications and a computer science doctoral dissertation, in which the authors use the term "pit" in discussing multiple types of physical changes to record information on optical discs. Plf.'s Resp. Br., dkt. 84, at 13-16. Plaintiff also points to the testimony of its expert, Professor Hesselink, to explain the knowledge of a person of ordinary skill in the art at the time of the invention. There is no dispute that at the time, the term "pit" could have had a broader meaning than that endorsed by this court, but in the '651 patent it didn't, as is clear from the unequivocal language throughout the patent specification. Thus, it is unnecessary to evaluate extrinsic references and expert testimony to discern a meaning. Vitronics, 90 F.3d at 1584-85. Plaintiff simply cannot overcome the evidence in the patent itself regarding the term pit.

Defendants' proposed construction of the term "pit" captures the meaning of pits as used in the patent and applied by the inventors. See Kinetic Concepts, Inc. v. Blue Sky Medical Group, Inc., 554 F.3d 1010, 1019 (Fed. Cir. 2009) (rejecting broad construction of "wound" because "[a]ll of the examples described in the specification involve skin wounds" and a broader construction would "expand the scope of the claims far beyond anything described in the specification"); Decisioning.com, Inc. v. Federated Department Stores, Inc., 527 F.3d 1300, 1311 (Fed. Cir. 2008) (construing the term "remote interface" to exclude personal computers in part because the features of the remote interface, as set forth in the specification, "do no evoke the use of consumer-owned personal computers."); Phillips, 415 F.3d at 1316 ("Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.").

As detailed above, the patent specification repeatedly illustrates and describes the "pit" as a three-dimensional depression that is embossed in the substrate of the disc. This depth creates a difference in reflected light that allows the player to read information from the disc. Thus, the phrase "depression in the surrounding land area" in defendants' construction captures the physical characteristics of the pits, without limiting the construction with details regarding the specific size or shape of the pits. The phrase "where the depth is the principal factor creating a difference in reflected light intensity for encoding information" captures the function of the pits because the depth of the pits creates a difference in the intensity of light reflected between the pits and the lands. This difference in light intensity enables the sensor in a disc player to determine if a pit or land is being read and then reproduce the encoded information. In sum, I agree with defendants that "pits" as used in the '651 patent means pits that are actual physical depressions on the substrate of the disc where the depth is the principal factor creating a difference in reflected light intensity for encoding information.

**Court's construction:** depression in the surrounding land area, where the depth is the principal factor creating a difference in reflected light intensity for encoding information

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A. "Pit"

Plaintiff's construction: an area which creates a difference in reflected light to represent information

Defendants' construction: depression in the surrounding land area, where the depth is the principal factor creating a difference in reflected light intensity for encoding information

The parties' dispute regarding "pits" is the same dispute they had with respect to the '651 patent. That is, the parties dispute whether "pits" referenced in claim 1 of the '751 patent should be limited to actual physical depressions in the disc. Defendants contend that it should be so limited, and plaintiff disagrees. Both parties contend that the term "pit" should be construed the same for both the '651 and '751 patents, each side championing its own definition. While this could be the appropriate outcome, it is not ineluctable, and neither party has convinced the court that it is correct on this point.

Plaintiff contends only that it is "clear that both patents cover a broader array of discs" and thus should be construed the
same. Transcript, dkt. 92, at 10. But as noted in the previous section, the '651 patent defines "pit" much more narrowly than plaintiff advocates.

Defendants contend that "there is no indication in the '751 patent that Toshiba meant something different than what it meant in the '651 patent." Defs.' Br., dkt. 71, at 34. "Toshiba," however, was not the inventor of the '651 or '751 patented inventions. In fact, although both patents are assigned to plaintiff, the patents have different inventors. When queried at the claims construction hearing, defendants suggested that the term "pit" should be construed the same for both patents because the patent applications were filed in 1994 and 1995 by the same law firm, the applications were examined by the same patent examiner and the inventors were colleagues. Hrg. Tran., dkt. 92, at 61-63. These are not persuasive reasons to construe terms in separate patents in the same way; indeed they border on non sequiturs. It's not surprising that inventors in the same field would be colleagues and would retain the same law firm for patent applications; this tells us nothing about their actual inventions. As always, the best way to determine the meaning of the term "pit" as used in the '751 patent is to consider the claim language, patent specification and other evidence.

The meaning of "pit" is not readily apparent from claim 1 itself, which sheds little light on what type of pits can form the test pattern. Therefore, I turn to the patent specification to determine the meaning of the term as it is used in the '751 patent. Unlike the '651 patent specification, the '751 patent specification does not describe the figures or descriptions contained with as depicting "the present invention." Instead, the specification states that the examples are "embodiments" of the invention. '751 patent, 9:8-9. The section entitled "Detailed Description of the Preferred Embodiments" states:

As is know[n], the optical disk 10 can have various structures. This optical disk 10 may be a read only disk on which data is recorded at a high density as shown in Figure 3.

* * *

[In] the data recording area . . . reproduction information, video data, sub-picture data and audio data are recorded as pits (i.e. physical changes) . . . . For the read only optical disk 10, rows of pits are previously formed on the transparent substrate 14 by a stamper, a reflection layer is vapor-deposited on the pits-formed transparent substrate 14, and this reflection layer is formed as the recording layer 16. In the read only optical disk 10, normally, grooves as tracks are not provided but pit rows formed on the transparent substrate 14 are specified as tracks.


This excerpt from the specification provides useful insight into the inventor's concept of "pits."

Defendants are correct that the process described for forming pits on a substrate is used only for pre-recorded discs and creates pits that are actual physical depressions. Thus, it is clear that the inventors chose to use a pre-recorded optical disc as an example to explain their test pattern invention. However, the statement also indicates that the inventors knew that optical discs come in other forms, including discs that are not pre-recorded, read-only discs. The specification states that the disc "may be" a read only disc, not that it "is" or that it "must be." Also, the inventors reference discs that have "grooves as tracks," explaining that normally, read only discs do not have grooves. Recordable discs do have grooves. Immink Decl., dkt. 79, at 13. Further, the specification states that data is recorded as "pits (i.e. physical changes)," and then says that in read only discs, these pits are formed by a stamper. Notwithstanding the grammatical awkwardness noted above, courts still presume when construing claims that inventors choose their words carefully. Phillips, 415 F.3d at 1313-14. Here, the inventors could have said "pits (i.e. depressions)" or "pits (i.e. stamped data points)." Instead, they used the broad phrase "physical changes," indicating that there is more than one possible type of physical change that could create a pit, especially in discs that are not read only discs.

Later in the specification, the inventors describe the process for creating the "read only disk 10." In particular, the specification states that

[A] description will now be given of a method of recording evaluation data together with picture data and management data for reproducing the picture data on the optical disk, and a recording system to which this recording method is adapted.

'751 patent, 18:6-9 (emphasis added).
The inventors then describe the process for creating a read-only disc 10. Id., 18; 19. The inventors describe how the test pattern invention can be used to evaluate the disc that "was manufactured by the above-described method." Id., 20:47-49. The test pattern can determine whether the pits were formed correctly and whether there is enough of a difference between the pits and surrounding land that a player can distinguish between the two and reproduce the recorded information. Id., 20:64-65.

At the claims construction hearing, defendants contended that this discussion in the patent specification regarding the creation and evaluation of a read-only disc makes it clear that the test pattern invention was directed solely at evaluating pits in prerecorded --ROM discs. Transcript, dkt. 92, at 80-87. However, as I noted above, the specification does not describe this process as the invention. The specification says this recording process is "a method" of recording evaluation data, and the resulting disc is an "embodiment." '751 patent, 18:7, 20:36. There is no evidence that the test pattern claimed in the patent would not evaluate data that was recorded on discs through other methods or embodiments. Presumably, it is important for data areas ("pits" or "marks") on recordable and rewritable discs to be distinguishable from the land area so that a player may read and reproduce the information.

A description of one preferred embodiment cannot be read into the claim unless the specification makes it clear that the description relates to the invention as a whole rather than to one example. Phillips, 415 F.3d at 1323. Defendants have not shown this for the '751 patent. These inventors did not use the phrase "the present invention" when describing pits, nor did they otherwise state that depressed pits are "required" or necessary. Rather, the '751 specification refers to the optical disk 10 in Figures 3 and 4 as one "embodiment." This makes sense because unlike the '651 patented invention, the invention in the '751 patent is not related to or affected by pit depth or dimensions.

Further, defendants point to nothing in the specification suggesting that the inventors used Figures 3 and 4 as anything more than a simplified form of what an optical disc may look like for purposes of demonstration. Because the '751 patent is not related to pit shape and size, it makes sense that the inventors would not find it necessary to describe every type of possible pit, disc structure or method of manufacturing optical discs. The inventors describe only one type of disc in order to explain the test pattern invention.

As already noted above in construing "pit" for the '651 patent, the Court of Appeals for the Federal Circuit has "repeatedly warned" against limiting the scope of a claim on the basis of a preferred embodiment. Phillips, 415 F.3d at 1323. An embodiment may serve to limit a claim only if it is clear that the patentee intends the claims and embodiments to be strictly coextensive, id., or the examples used make it clear that a limitation was intended. On Demand Machine Corp. v. Ingram Industries, Inc., 442 F.3d 1331, 1339-40 (Fed. Cir. 2006) (limitation warranted because specification used the term "customer" repeatedly in specialized context); Nystrom v. TREX Co., Inc., 424 F.3d 1136, 1144-45 (Fed. Cir. 2005) (limitation warranted because written description and prosecution history consistently used the term "board" to refer to wood decking materials cut from a log). Nowhere else in the '751 patent is there any indication that this embodiment represents the only type of pits used in the invention as a whole.

Although I conclude that the '751 specification does not limit the term "pit" to physical depressions, nothing in the claim terms or the specification of the '751 patent provides an adequate definition for the term. Therefore, I must turn to other evidence to determine whether plaintiff's or defendants' proposed construction is accurate. The parties rely on a number of extrinsic reference documents and dueling expert opinions to support their arguments. As for the latter, this case presents a clear example of why expert evidence may be of limited value in claim construction. Plaintiff's expert states that "a person of ordinary skill in the art would consider 'pit' as referenced in the '651 and '751 patents to be any area which creates a difference in reflected light to represent information." Hesselink Decl., dkt. 78, at 10. Defendants' expert takes the opposite position, asserting that at the time the '751 patent was filed "a person of ordinary skill in the field of optical data storage, having read these patents, would have understood the term 'pit' to refer to a depression in the land area of the disc substrate . . . ." Mansuripur Decl., dkt. 71, at 14; Immink Decl., dkt. 79, at 20.

More useful are the extrinsic documents. Plaintiff points to a number of extrinsic documents indicating that the meaning of "pit" covers multiple types of physical changes. For example, U.S. Patent No. 4,190,843 issued in 1980, entitled "Recording Methods for a Multilayer Optical Record," states that when a recording laser is focused on an optical disc, "the peak intensity of the focused light sufficient to cause ablation of the absorbative layer, an information track is formed as a succession of spaced pits in which the reflecting layer is effectively exposed." Hesselink Decl., Ex. B, dkt. 78, at 2
Similarly, in a computer science doctoral dissertation published by the University of California at Berkeley in 1995, the author discusses the process of data storage on recordable discs, stating that

During writing, in response to an electrical input signal, a highly-charged focused laser beam can melt a small region of the metal layer, opening a hole or 'pit.' Later, during reading, a lower-intensity, unmodulated laser beam is reflected off the surface of the disk. A photodetector interprets information stored on the disk by detecting differences in reflectivity between pits and the surface of the thin metal layer, called the 'land.' Data are encoded and stored as alternating regions of pits and land.


Plaintiff points to several other extrinsic references that refer to "pits" as being created by various methods, all of which amount to a data area that creates a difference in reflected light to represent information. E.g., U.S. Patent No. 4,551,413, id. at P 21; U.S. Patent No. 5,084,370, id., Ex. E; Japanese patent application number S60-79227, id., Ex. G; U.S. Patent No. 6,156,482, Hesselink Resp. Decl., Ex. A, dkt. 85; U.S. Patent No. 5,325,351, id., Ex. B; and U.S. Patent No. 5,495,466, id., Ex. C.

Defendants attempt to rebut this evidence with examples of patents that use the term "pit" to describe pits with depth. Mansuripur Decl., dkt. 82, at 8-11. However, the fact that another patent that covers pre-recorded discs describes a pit as having depth does not mean that a person of ordinary skill in the art would conclude that pits in the '751 patent must have depth. Defendants do not dispute that technology, such as color change, laser ablation and phase change, existed in 1994 and was used for encoding data on other products. It is clear from the extrinsic evidence provided by plaintiff that people in the optical disc field were using "pit" to describe information recorded by various methods. The recorded information creates a difference in reflected light that can be read by a player to reproduce information. Thus, I conclude that plaintiff's definition of "pit" is appropriate for the '751 patent.

Court's construction: an area which creates a difference in reflected light to represent information

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c. "Pixel" and "Image Element"

The next two terms we must consider, "pixel" and "image element," are undeniably related, but the issue we need to decide is the extent of their similarity. IP differentiates between these two concepts; Lexmark and Dell ask that they be considered synonymous. n6 According to IP, "pixel" refers to the smallest complete element of an image, and it can be formed of subpixels that contribute to the formation of a complete element but that are not complete in themselves. IP urges a broader construction for "image element" as any element found within an image, including complete pixels, portions of pixels, and other elements of images that are not pixel-related. n7 Lexmark and Dell insist that "pixel" and "image element" are interchangeable. In their opinion, both terms refer to the smallest electronically coded part of an electronically coded input image. When the terms are used in the context of discussing a display device, Lexmark and Dell argue that they must mean the smallest addressable element of the display device.

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n6 In the joint claim construction chart, the parties also indicate that the meaning of the term "plurality" is disputed, but they offer no development of that issue. In light of the absence of a crystallized dispute, we offer no construction of that term.

n7 Examples could include the RGB components of a video signal or the yellow, cyan, and magenta components of a single pixel used in color laser printing.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

An examination of the intrinsic evidence reveals that IP has the better argument. For example, the specification of the 780 patent states that "voids in the image may be filled with all or a portion of a pixel," which is consistent with IP's position.
that pixels can be formed of subpixels. U.S. Patent No. 5,424,780, col. 4, Ins. 50-51; see also col. 5, Ins. 48-50 ("New pixels or pixels used for filling, substitution or replacement may be comprised of all or a portion of a pixel."). Examples could include the RGB components of a video signal or the yellow, cyan, and magenta components of a single pixel used in laser printing.

Although in many circumstances the patents use the terms interchangeably, that is not inconsistent with IP's proposed definitions, wherein all pixels are image elements, but not all image elements are pixels. Though the intrinsic evidence from the 780 patent does not provide a great deal of illumination on these issues, the language of the 637 patent directly supports IP's position. The parties agree, and we concur, that the terms "image element" and "pixel" should be construed consistently as to both patents, so the guidance provided by the 637 patent clarifies the meaning of these terms in the 780 patent as well. Dependent claims 34, 51, 140, and 161 all have one limitation that states: "image elements are pixels." Here again, the doctrine of claim differentiation provides helpful guidance. See Comark, 156 F.3d at 1187. When applied to these four claims, the doctrine supports the conclusion that the image elements referenced in the independent claim are not always pixels, which indicates that they should not be treated as synonyms.

Furthermore, though the intrinsic evidence gives no indication that Cooper intended these terms to carry an idiosyncratic meaning, Lexmark and Dell's proposed definition adds in requirements that pixels and image elements must be an addressable element contained in electronically coded input image. They have not provided convincing support that these aspects are included in the ordinary and customary meaning of these terms, nor have they shown that Cooper intended to use these terms in an idiosyncratic way. See Phillips, 415 F.3d at 1312.

Therefore, we construe "pixel" to mean the smallest complete element of an image and "image element" to mean any element of an image, whether complete or not and whether pixel-related or not.

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i. Pixel

The term "pixel" is used throughout the '780 family of patents, including contested claims 15, 110, and 146 of the '780 patent, claims 1 and 107 of the '637 patent, and claims 4 and 10 of the '964 patent. Claim 15 serves as an example of how the term "pixel" is used within the patents. Both parties agree that the term should be construed consistently throughout the three patents-in-suit, and thus the meaning the Court adopts with respect to the '780 patent will apply to the '637 and '964 patents as well.

IPI contends that the term "pixel" is an acronym for "picture element" and is defined as the smallest complete element of an image. According to IPI, pixels can be formed of sub pixels, which themselves are not considered complete pixels as defined above. Sony argues that IPI's proffered definition is incomplete, as it does not take into account that the meaning of pixel is dependent on whether it is being used in the context of an electronically coded image or in an electronic display device. Instead, Sony asserts that the better definition is the following one set forth in the McGraw-Hill technical dictionary: "the smallest part of an electronically coded picture image" or "the smallest addressable element in an electronic display; a short form for picture element..." n1 McGraw-Hill Dictionary of Scientific and Technical Terms 1436 (4th ed. 1989).

n1 Sony first defines pixel to mean "the smallest part of an electronically coded picture image, and the smallest addressable element in an electronic display." Def's Brief at 4 (emphasis added). It later inserts an "or" in place of the "and." Because the Court has not adopted Sony's definition, it is unnecessary to address the discrepancy.

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When defining terms, courts are directed to give words their broadest reasonable construction that is consistent with the use of the term in the patent. See In re Am. Acad. of Sci. Tech Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004). In this instance, as defendant avers, the definition of pixel is highly context dependent. See Def's Brief at 4. IPI's definition more fully encompasses the range of meanings for pixel, as it is not obvious from the patent that the term is used only in the context of
III. Pixel and Image Element

Plaintiffs propose to construe the term "pixel" (‘964 Patent, claim 1; ‘929 Patent, claims 1, 16, 32, 48) broadly, as the smallest complete element of an image and propose to construe the term "image element" (‘964 Patent, claim 1) as encompassing pixels and pels as well as sub pixels and sub pels, noting that an element of an image may be something other than a pixel. Defendants propose to construe both terms more narrowly, defining "pixel" as the smallest independently addressable location capable of being displayed on a display device and "image element" as one or more pixels.

Defendants point out, and Defendants agree, that in Sony and Lexmark Plaintiffs' proposed claim construction prevailed. 2005 U.S. Dist. LEXIS 17962, 2005 WL 2035578, at *3-*4; 424 F.Supp.2d at 1087-88. Defendants contend, however, that these prior constructions addressed the '780 and '637 Patents and that, in Sony, the court's constructions extended to the '964 Patent only to the extent that both parties agreed that the term should be construed consistently among the three patents involved in that case. Defendants contend that the parties have not agreed to such a construction in this case. However, as discussed above, the claim constructions in Sony and Lexmark are applicable to the instant claim construction, and in accordance with Miken, the prior constructions are part of the prosecution history in this case. Thus, it is unnecessary for the parties to have a prior agreement for adopting constructions since the prior constructions in this case are part of the intrinsic record.

Defendants also argue that although the terms "pixel" and "image element" appear in both prior patents and the current ones, we should disregard the claim constructions in Sony and Lexmark since the '780 Patent contains a different specification, and the language of the claims in the '637 Patent is not identical to the language in the claims in this case. In regard to differences in specification and claim language, both the Sony and Lexmark courts construed the '637 Patent consistently even though it was a continuation-in-part of the '780 Patent, meaning that it necessarily added material not disclosed in the '780 Patent, its parent patent. The '964 and '929 Patents, as divisional patents, disclose and claim the same subject matter as their parent, the '637 Patent. If the Sony and Lexmark courts construed a continuation-in-part, with new material consistently, then it necessarily follows that a court also construe divisional patents, with no new material, consistently.

Defendants also argue that the '780 and '637 Patents "are not at issue here and were held unenforceable." (D CL C 10). Defendants indicate early in the main body of their opening claim construction brief, that a prior judge "ruled unenforceable the '780 and '637 patents because of inventor Carl Cooper's inequitable conduct in prosecuting those patents." (D CL C 1). In addition, Defendants present arguments later in their opening claim construction brief concerning the unenforceability of the patents. (D CL C 10, 15). Plaintiffs contend that Defendants' statements and arguments are misleading, since the judge who made the unenforceability ruling subsequently vacated that ruling. Despite the fact that Defendants present various arguments regarding unenforceability premised on the prior ruling, Defendants in fact concede in a footnote on page 1 of their opening brief that the ruling was vacated. New Medium LLC v. Barco N.V., 2009 U.S. Dist. LEXIS 38767, 2009 WL 2385890 (N.D. Ill. 2009)(vacating a prior order, 582 F.Supp.2d 991 (N.D. Ill. 2008), which had declared the '780 and '637 Patents unenforceable). Therefore, we construe the terms "pixel" (‘964 Patent, claim 1; ‘929 Patent, claims 1, 16, 32, 48) and "image element" (‘964 Patent, claim 1) in a manner consistent with Plaintiffs' proposed construction.

f. "A pixel interpolator for generating values representing pixels interstitial to pixel values represented by said processed video signal;"
The parties dispute the meaning of the phrase "a pixel interpolator for generating values representing pixels interstitial to pixel values represented by said processed video signal." As stated above in section II.B.2.d., the court finds that this claim element is not a means-plus-function element. The term "pixel interpolator" means a device that calculates spatially interpolated pixel values, from the pixel values of a previous image, which approximate the values of fractionally offset pixels between pixels. See col. 22:64-23:13; col. 25:36-41. As noted above, the term "interstitial" is defined as relating to or situated within the space between things closely set. See Webster's Third New Int'l Dictionary 1183 (Unabridged ed. 1986); see also Fig. 9A (illustrating interstitial pixels).

1. Literal Infringement

A literal infringement analysis requires two separate steps. First, the claims asserted to be infringed must be construed to determine their meaning and scope. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 U.S.P.Q.2D (BNA) 1321, 1326 (Fed. Cir. 1995) (in banc). Second, the claims as construed are compared to the allegedly infringing device. Id. To infringe, the accused device must contain every limitation of the asserted claim. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1535, 19 U.S.P.Q.2D (BNA) 1367, -1369 (Fed. Cir. 1991).

On appeal, Gussin argues that summary judgment was inappropriate because genuine issues of material fact exist regarding the construction of the asserted claims. In particular, Gussin asserts that the declarations of his experts, the admissions of Nintendo's experts during depositions, and the prosecution history of the '335 patent create genuine issues of material fact precluding summary judgment.

This court recently rejected similar arguments concerning claim construction in Markman v. Westview Instruments, Inc., 52 F.3d 967, 34 U.S.P.Q.2D (BNA) 1321 (Fed. Cir. 1995) (in banc), in which we held that claim construction is a question of law amenable to summary judgment. The alleged conflicting opinions of both parties' experts do not create genuine issues of fact precluding summary judgment as to the meaning of the claims at issue. See Markman, 52 F.3d at 983, 34 U.S.P.Q.2D (BNA) at 1333 ("When 'legal' experts offer their conflicting views of how the patent should be construed, . . . such conflict does not create a question of fact . . . ."). Therefore, we reject Gussin's argument that summary judgment was inappropriate.

Gussin further argues that the court improperly construed the "pixel memory" limitation of claims 1 and 2. We disagree. The court properly construed the claims, based on the specification and prosecution history, to require a pixel memory that stores actual color data, instead of one that stores "pointers" to a memory separate from the pixel memory.

Both claims 1 and 2 state that the "color data" to be stored in the pixel memory should be the "color of the cursor." Specifically, claim 1 requires a "pixel memory comprising a random access memory (RAM)" into which "the color and position of the cursor on the video monitor are written." Col. 9, 11. 49-58. Claim 2, as amended after reexamination, requires "a pixel memory comprising a random access memory, and means operative in said first mode to store the commanded color of the cursor in said pixel memory." Reexamination Certificate B1 4,782,355, col. 2, 11. 23-25. Thus, both claims require storage of the color of the cursor in the pixel memory rather than permitting the pixel memory to store pointers to color data stored in a separate color memory.

The specification and the prosecution history further make clear that the claims, as properly construed, only read on devices that store actual color data in the pixel memory. The patent specification describes the "color data" of the present invention as consisting of "a single six bit data word in which two bits represent the intensity of the color red, two bits represent the intensity of the color blue and two bits represent the intensity of the color green." Col. 5, 11. 64-68, and col. 6, 11. 1-3. As
Figure 2 of the patent illustrates, Gussin discloses the use of two memories for storing the color data: a color ROM and a pixel memory. The specification describes the interaction of these two memories:

Information as to a picture to be displayed on video monitor 20 is represented electronically by data words stored in the pixel memory 46 at addresses corresponding to the address of the pixels of the video monitor 20. . . . The position of the joystick 24 determines a six bit color data word from the color ROM 44 which is enabled onto data lines coupled into the pixel memory 46 . . . . The six bit color data word from the color ROM 44 is recorded at the address [in the pixel memory] corresponding to the coordinates of the pixel on the video monitor 20 at which the cursor 18 is located.

Col. 6, 11. 16-36. The specification consistently refers to the data that are transferred from the color ROM and stored in the pixel memory as consisting of actual "color data," not a pointer to a separate memory containing the actual color data.

The prosecution history further supports a claim construction requiring the storage of actual color data in the pixel memory. During reexamination of the patent, Gussin distinguished his claimed invention from the '867 patent issued to Hill. The '867 patent discloses a home entertainment system that, like the invention disclosed in Gussin's '335 patent, allows a user to draw and paint color images on a conventional television monitor. In its "Office Action in Reexamination," the PTO rejected claim 2 under 35 U.S.C. § 102(b) as being anticipated by the '867 patent. The PTO further rejected claim 1 under 35 U.S.C. § 103 as being unpatentable over the '867 patent in view of other prior art.

Gussin filed a "Response to Office Action in Reexamination," in which he distinguished his claims from the '867 patent. Gussin argued:

The PTO also fails to understand important differences between the function of the pixel memory in claim 1 of the '335 patent and the pixel memory in Mr. Hill's color palette systems. In Gussin's claim 1, the pixel memory receives and stores digital signals representing the actual color of the cursor. In Mr. Hill's color palette systems, the pixel memory does not receive or store a signal representing the actual color of the cursor. Instead, Mr. Hill's pixel memory receives, and stores a color pointer, namely a signal representing the address of a color in the separate color memory of Hill's color palette systems [emphasis added].

In support, Gussin filed the declaration of Hill, the named inventor of the '867 patent, which stated:

The devices described in the '335 patent, claims 1 and 2, directly store in a pixel memory the digital value corresponding to the color that the operator has commanded to produce on the screen of a color TV receiver or monitor. The devices described in my '867 patent require an additional color memory to store the digital representation of the color values that the operator creates by mixing together various proportions of the primary colors or by adjusting the hue, saturation and brightness of the signals [emphasis added].

Gussin also submitted a declaration in which he argued that claims 1 and 2 were patentable over the '867 patent because "the products described in my '335 patent do not include color memory or color mixing means as described in the '867 patent . . . ."

Gussin asserts that these arguments were limited to distinguishing Gussin's claims from the '867 patent based on the use of a separate memory that stores "user-mixed" colors. Gussin therefore argues that the pixel memory limitation should be broadly construed to cover any pixel memory system that stores "pre-mixed" colors. We disagree that Gussin's arguments during reexamination were so limited.

While it is true that Gussin distinguished the claimed invention from Hill during prosecution based on the storage of "user-mixed" colors instead of "pre-mixed" colors, Gussin also distinguished the claims from the '867 patent based on the way the pixel memory operates. He consistently argued before the PTO that his invention was distinguishable from the '867 patent because he did not claim a pixel memory that stores a color pointer instead of actual color data. In fact, the examiner specifically noted this distinction when he allowed claim 1: 3

None of the references . . . teach a "random access memory" wherein the "color and position of the cursor on the video monitor are written into said pixel memory", lines 16 and 24-25 of claim 1. Hill does not store color data into the pixel memory, rather he uses the pixel memory to address a second memory which acts as a color palette [emphasis in original].
Gussin argues that the examiner's statement in the March 10, 1993 "Office Action in Reexamination" that the "'335 patent is actually a two-memory system" is inconsistent with our claim construction. To the contrary, the examiner's complete statement adds support to our claim construction:

The '335 patent is actually a two-memory system. Figure 2 of the '335 patent shows a color memory 44 ("COLOR ROM") and a "PIXEL MEMORY" 46. Memory 46 of the '335 patent is similar to memory 164 of the '867 patent and memory 44 of the '335 patent is similar to memory 166 of the '867 patent, i.e. one is a pixel memory and the other is a color memory. How these two memories interact is different. In the '867 patent the pixel memory reads data out to the address port of the color memory. The '335 patent reads color data into the pixel memory to be stored. Therefore the '867 patent does not store color cursor data in it's [sic] pixel memory [emphasis in original].

The examiner, accepting Gussin's argument in his "Response to Office Action in Reexamination," merely emphasized the difference between how the pixel memory in each system interacts with the rest of its respective system - the key distinction being that "the '867 patent does not store color cursor data in it's [sic] pixel memory." Based on the foregoing, we conclude that claims 1 and 2, as properly construed, require that the pixel memory store actual color data, not merely pointers to color data stored in a separate memory.

Finally, Gussin argues that even if the claims require that the pixel memory store actual color data, genuine issues of material fact exist as to whether Nintendo's SNES device meets this limitation. In support, Gussin claims that Nintendo's expert witnesses admitted in their declarations and during depositions that the SNES stores actual color data. However, the declarations indicate instead that the pixel memory in the SNES device stores pointers rather than actual color data, and the deposition testimony relied upon by Gussin is not inconsistent with these declarations. Thus, Gussin has failed to establish the existence of any genuine issue of material fact regarding the operation of the pixel memory of the SNES device.

We need not address Gussin's other asserted errors in the district court's claim construction and infringement analysis. Our determination that Nintendo's SNES device does not meet the pixel memory limitation as properly construed is sufficient to cause us to affirm the trial court's grant of summary judgment that Nintendo's device does not literally infringe. See Lantech, Inc. v. Keip Mach. Co., 32 F.3d 542, 547, 31 U.S.P.Q.2D (BNA) 1666, 1671 (Fed. Cir. 1994) ("For literal infringement, each limitation of the claim must be met by the accused device exactly, any deviation from the claim precluding a finding of infringement.").
"The pixels of the ballot image are stored in a TIFF, BMP or other bitmapped or pixelated format, for each mark space are tested to determine whether it is a 'light' (e.g., not marked) pixel or a 'dark' (e.g., marked) pixel." (Col. 21, ll. 1-7) "If a sufficient portion of the tested pixels in a given marked space are 'dark' pixels, then that mark space is considered to be marked, . . ." (Col. 21, ll. 11-13) The specification teaches that the ballot image is captured by a ballot reader, and the ballot must be read to determine which mark space has been marked significantly to count as a voting selection. (Col. 22, ll. 60-64) "The ballot reader produces an image . . . that is preferably in a pixelated or bitmapped format, e.g., a TIFF or a BMP image, or other bitmapped format." (Col. 22, l. 65 to Col. 23, l. 2.)

Figures 10A, 10B, and 10C illustrate the desired markings on pixels, and the specification teaches the process. "The maximum number of pixels that a mark could darken . . . is determined by subtracting the number of pixels of the outline of mark space from the total number of pixels in reading region." (Col. 23, ll. 37-42) There is a predetermined threshold of dark marked pixels that is established to determine whether a mark space has been "marked (voted)." (Col. 23, ll. 44-50.) The pixel intensity or brightness is tested, and each pixel is determined to be either "light" or "dark." (Col. 25, ll. 58-61.)

Nothing in the specification teaches that the pixelated or bitmapped format must be "a viewable electronic reproduction of an actual document." The ballot image is captured by a ballot reader to determine the mark spaces or pixels. The ballot reader produces an image in a pixelated or bitmapped format. The pixelated or bitmapped format is a collection of data that represents the location, density, and darkness of the number of individual pixels. There is a considerable amount of support in the specification that provides for the darkness of a pixel as the determinating factor on whether a mark space has been marked to indicate a voting selection.

For the foregoing reasons, the Court construes the terms "pixelated or bitmapped format" as follows:

A collection of data elements representing the individual pixels of the ballot image such that the darkness of each pixel may be determined. The images are typically stored in formats such as .BMP, or .TIFF, or other bitmapped format.

E. Ref. No. 86 "Pixels."

This term is recited in or referred to in Claims 47 and 48.

The sole dispute on the construction of this term is that Defendants include the word "distinct" in defining pixels and Plaintiff does not. Defendants cite no authority for the use of the term "distinct." The Court will rely on those specification references cited in the discussion on Ref. No. 79, supra. Column 7, lines 36-49 teaches that "each mark space is in a predetermined position relative to indicia or fiducial marks," and "[w]here ballots are imaged, the positions of each indicia or fiducial mark is defined in the same coordinate system as are the pixels of the ballot image . . . ." Id. Further explanation of pixels is contained in Column 25, lines 29-57 and Figures 10A, 10B, and 10C. Figure 10C clearly shows the pixels in a distinct location on the ballot. Regardless, in Defendants' construction, the term "distinct" defines "data." There is no support for this construction in the specification.

For the foregoing reasons, the Court construes "pixels" as: Ballot image data elements.

"placing"

The parties agree on the plain meaning of the word "placing," but JVL takes issue with what it sees as Merit's collapse of the terms "options" and "choices" into the single term "item". JVL's proposed construction of "placing" is "putting the selectable game menu option into a particular desired location in the display of the chosen game menu choice." Def.'s '717 Presentation at 31. Merit's is "putting the selectable game menu options item into a particular desired location in the display of the chosen game menu choice item." Thus, the constructions are identical, except Merit inserts "item" after "options" and
There is no question that "game menu options" and "game menu choices" are different things. It does not appear that Merit presumes otherwise. However, Merit does not offer adequate justification for inclusion of "item" in its construction, stating simply that "[w]hat is displayed or shown on the video screen are symbols, or items, representing the actual video games." Pl.'s Opening Markman Br. at 18. There is no rationale offered for equating "symbols" and "items." Nor has Merit offered any explanation, based on the specification or otherwise, of why the word "item" is necessary. It is understood that the symbols or icons displayed on the screen represent video games. "Item" does not clarify this point. Thus, it is not imported into the meaning of the term. No construction of "placing" is required.

B. "a step of placing an amount of liquid crystal on plural locations on the first substrate"

Plaintiff argues that "a step of placing an amount of liquid crystal on plural locations on the first substrate" should be construed to mean "depositing an amount of a liquid crystal material in multiple locations on a substrate." Defendants argue that the phrase should be construed to mean "depositing an amount of liquid crystal material in multiple locations on a substrate." The parties' constructions differ in only one respect: whether the invention is limited to displays filled with "a" liquid crystal material-a single type.

The parties have reversed roles for this claim term, plaintiff arguing for a limitation based on the description of the invention in the specification, and defendants arguing that the claim language is broader than what is expressly described. Plaintiff notes that the specification describes only one type of liquid crystal material-"octyl-oxy-benzyli-dene-amino-methylebuthyl-benzoate." Id. at 2:66-67. The specification introduces this example by stating that "[o]n the oriented surface is placed an amount of liquid crystal 2 such as S8 (octyl-oxy-benzyli-dene-amino-methylebuthyl-benzoate)." As with other patent terms construed in this order and in this patent (such as "substrate," supra), the language in the specification is deliberately open-ended, allowing the claims to encompass other liquid crystal materials. The court will not limit the scope of the claims to the embodiments in the specification unless there is some reason to do so.

Plaintiff argues that the claims should be read only to include other single liquid crystal materials. As defendants note, however, the claims do not require placing an amount of "a" liquid crystal material; rather, they require placing "an amount of liquid crystal material."

Plaintiff also argues that the prior art, in which an already-sealed LCD is filled with liquid crystal material through capillary action, can only accommodate a single liquid crystal material. If so, then the claimed invention has a further advantage over the prior art: the ability to accommodate multiple different materials.

Finally, plaintiff argues that using the claimed invention with multiple liquid crystal materials would eliminate the "efficiencies" of the claimed invention, such as the ability to fill the LCD more quickly. Plaintiff provides no basis, either in the intrinsic record or through extrinsic testimony, for reaching that conclusion.

The court therefore adopts defendants' proposed construction, "depositing an amount of liquid crystal material in multiple locations on a substrate".

VII. "placing the FCC unit under control of a computerized control device and thereby . . ." '236 patent, col. 16, ll. 11-12.

Plaintiff defines this phrase as "controlling the FCC unit and/or equipment normally associated with the FCC unit by virtue of addition or withholding of catalyst additive such as by a valve regulated by a computerized control device." 71

Defendants contend that no construction is necessary. 72
The Court finds that the specification confirms Plaintiff's view that the FCC unit is controlled by adding or withholding catalyst additive by a valve regulated by a computer. The specification teaches that "control over an FCC unit operating according to the general teachings of this patent disclosure will be achieved through only addition of (or withholding of) a particular catalyst additive to solve a particular problem. ..." '236 patent, col. 7, ll. 51-55 (emphasis added). It also teaches, by reference to Figure 1, that "the entrainment of the catalyst 14 into the stream of plant air 34 is preferably controlled by valve 58 which is, in turn, most preferably regulated and monitored by a computer memory and control device 70." Id., col. 15, ll. 23-26. "The objective and contemporaneous record provided by the intrinsic evidence is the most reliable guide to help the court determine which of the possible meanings of the terms in question was intended by the inventor to particularly point out and distinctly claim the invention." Texas Digital, 308 F.3d at 1203 (citation omitted). Accordingly, the Court concludes that the phrase "placing the FCC unit under control of a computerized control device and thereby . . ." means "placing the FCC unit under control through the addition or withholding of catalyst additive by a valve regulated by a computerized control device and thereby. . .".

3160

3. Claim 10: "planar filters" "Planar filters" is construed to mean "two or more non-cavity resonator, essentially flat surface, film devices for separating, according to radio frequency, signals received on the communication pathways, each communication pathway having a pre-assigned radio frequency."

3161

1. Second Planarizing Pattern (Claims 22 and 23)

Matsushita argues "second planarizing pattern" should be construed as "a pattern for making flatter in shape." Mediatek argues 'second planarizing pattern" should be construed as "a pattern formed of at least one indiscrete figure formed in the (first) wiring layer and in an area other than the vicinity of any wiring pattern." 1

The Court finds, for the reasons stated by Matsushita, "second planarizing pattern" is properly construed as "a second pattern for making flatter in shape."
or whether it involves a Z coordinate as well. The parties do not dispute that the calculation occurs prior to the inspection, or run-time. Scanner asserts that the term is defined as a calculation of a representation of a calibration plane in two dimensions where a three dimensional model is formed by views from two different cameras. (Scanner Post-Hr. Br. at 14). ICOS asserts that the term includes the calculation of the Z=0 world plane during the calibration process. (ICOS Post-Hr. Br. at 22).

Figure 2B is "a flow chart illustrating the steps within the pre[-]calculated calibration process." (Tr. at 144, ll. 1-3). The final step of Figure 2B, step 114, states "define X and Y world coordinates." Step 114 does not include any reference to determining the Z=0 world plane. (See Fig. 2B). According to the written specification describing step 114, however, the process includes determining the Z=0 world plane as well. (See Col. 7, ll. 6-8 ("In step 114 the processor defines the X and Y world coordinate and the Z=0 plane.").) Because the description of Figure 2B expressly states that the processor defines the Z=0 world plane, the term "pre-calculated calibration plane" is construed to define the X and Y world coordinate and the Z=0 world plane.

D. Construction of "Plasma"

1.

The district court did not explicitly construe the now-disputed claim limitation of "plasma." However, the district court's opinion did provide the following working definition of the term "plasma" in its discussion of the technology of the '223 patent:

Plasma is a charged collection of particles. It has no shape or form. Although the density of the plasma can vary in different locations, the plasma reaction occurs throughout the chamber. During the ionization process, charged particles are created that strike all of the surfaces on the interior of the chamber.

Opinion, slip op. at 2-3 (citations to the record omitted).

TEA asserts that the district court improperly relied on extrinsic evidence in "construing" the term plasma and that the intrinsic evidence, particularly the prosecution history, "unambiguously defines 'plasma' to mean a 'glow discharge.'" TEA maintains that a glow discharge is a particular type of plasma characterized by having a current within a specific range, and argues that Tegal relied on this distinction in the prosecution history of the '223 patent to obtain allowance.

Tegal responds that the district court never construed the term "plasma" because TEA failed to identify it as a disputed term, and that TEA has therefore waived any argument concerning the meaning of this term. Tegal states that TEA failed to identify "plasma" as a disputed term in its Markman brief, its Rule 26 Expert's report, its expert's deposition, any pre-trial filing or trial brief, or its opening statement at trial. Tegal alleges that TEA first raised the issue during trial and then again in post-trial briefing. Tegal also responds that the intrinsic evidence supports a broad construction of "plasma" and that TEA improperly resorts to extrinsic evidence for its narrower definition of glow discharge.

2.

Although it is unclear why the parties did not identify the term "plasma" as a disputed claim limitation before trial, it is not disputed that they did so at trial. If Tegal thinks that TEA waited too late, Tegal should have prevailed upon the district court to exclude TEA's evidence of what "plasma" meant. The term having been brought into dispute at trial, and the district court having addressed the term in its opinion, albeit informally, we do not consider the issue to have been waived. Cf. Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1426, 44 U.S.P.Q.2d (BNA) 1103, 1108 (Fed. Cir. 1997) ("With a few notable exceptions, . . . appellate courts do not consider a party's new theories, lodged first on appeal. If a litigant seeks to show error in a trial court's overlooking an argument, it must first present that argument to the trial court.").

As with "electrode" above, we need not address each of the parties' claim construction arguments directly, but proceed to construe the term "plasma" according to the normal rules of claim construction. Looking to the claims, we note that the term
"plasma" occurs only in claim preambles. '223 Reexam. Cert., col. 1, l. 28 (claim 1), col. 1, l. 43 (claim 2), col. 2, l. 8 (claim 6), col. 2, l. 19 (claim 7). Preambles are not necessarily limiting. Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 88 U.S.P.Q. (BNA) 478, 481 (CCPA 1951) (stating that a preamble is limiting when it is "necessary to give life, meaning and vitality to the claims or counts"). However, the parties do not dispute that "plasma" is a limiting term in the claims at issue and, at least for the reason that we have construed "electrode" in terms of "plasma," we agree. The term "plasma" is not limited to any narrow definition by its use in the claims. It is also clear that "plasma" is a term of art susceptible to various meanings, so we go to the specification, as indeed the parties direct us, to determine the scope of this term.

The specification also supports a broad construction of "plasma," in which the "plasma" need only contain ions and be generated by electric fields. As explained earlier, the specification states that the plasma is "generated by the high and/or low frequency electric fields established between the electrodes." '223 patent, col. 1, ll. 55-57. The specification also emphasizes the need to control both the density and the energy of the ions in the plasma, thus focusing on the fact that the plasma must contain ions. Id. at col. 1, l. 39, col. 2, ll. 15-24, col. 3, ll. 37-42. Beyond the obvious requirement that there be ions in the plasma, to perform the ion bombardment, the specification does not impose further requirements and uses the term "plasma" in a broad sense. The various examples illustrate that the plasma can be created from a variety of gases and used at a variety of operational settings (power, duration of exposure, frequencies, pressures). Id. at cols. 4-5. Further, there is no indication in the specification that the claimed invention is to be restricted even to these illustrated ranges.

The prosecution history primarily reinforces the specification's broad use of the term "plasma." TEA first argues that Tegal equated "plasma" with a "glow discharge." We agree. Tegal used the terms "discharge" and "plasma" interchangeably, or even together as in "plasma discharge," in referring to the prior art references and the claimed invention. For example, Tegal refers to: (1) the claimed invention's plasma as a discharge; (2) the Cotton reference as disclosing either a discharge or a plasma; and (3) the Chapman reference as disclosing either a discharge or a plasma. Tegal also equated the claimed "plasma" with a "glow discharge," stating that a "plasma in accordance with the present invention is a glow discharge," and that the claimed "invention relates to apparatus for processing semiconductor wafers in a plasma glow discharge."

TEA's second argument, however, is that Tegal's use of the term "glow discharge" is limiting and is defined by its current. We disagree. TEA relies on a figure from a physics book, published approximately ten years after the '223 patent issued. The figure shows that a "glow discharge" is differentiated from other discharges by the amount of current flowing through the discharge. In order of ascending current flow, ranging from approximately 10-10 amps to 10 amps, the figure depicts a Townsend discharge, a glow discharge, an "abnormal glow discharge," and an arc discharge. TEA's reliance on this figure is misplaced. Neither the claims, the specification, nor the prosecution history even suggest that the claimed plasma is limited to the particular range of current TEA proposes, and TEA's use of extrinsic evidence to establish such a contrary proposition is improper. Interactive Gift Express, 231 F.3d at 866, 56 U.S.P.Q.2D (BNA) at 1652-53.

Although Tegal did not restrict the claimed "plasma" to the current range proffered by TEA, Tegal did distinguish the claimed "plasma" from the discharge of the Cotton reference. Tegal's statement, quoted above, that "[a] plasma in accordance with the present invention is a glow discharge," was followed by the statement that "Cotton, on the other hand, is concerned primarily with an arc discharge." Tegal also characterized the Cotton discharge as a spike discharge, emanating from a spiked electrode at frequencies up to 300 GHz. Accordingly, "plasma" must be construed so as not to cover a spike or arc discharge emanating from a spiked electrode.

In sum, we construe "plasma" as a charged collection of particles, generated by the high and/or low frequency electric fields established between the electrodes, excluding arc or spike discharges such as would emanate from a spiked electrode.

In the TEA litigation, the district court construed the term "plasma" to mean "a charged collection of particles." On appeal in that case, we modified that interpretation: "we construe 'plasma' as a charged collection of particles, generated by the high and/or low frequency electric fields established between the electrodes, excluding arc or spike discharges such as would emanate from a spiked electrode." Tegal, 257 F.3d at 1345, 59 U.S.P.Q.2D (BNA) at 1396.

In the present case, the district court adopted the construction of "plasma" suggested by Tegal:
The terms "plasma" and "glow discharge" are used interchangeably in the '223 specification and claim language and have the same meaning. "Plasma" means excited species created by the application of one or more rf frequencies to reactant gases within a reaction volume. The levels of dissociation within the plasma and the levels of ion energy across the plasma sheath will vary at different locations within the reaction volume. Ion bombardment takes place where the plasma couples to electrode surfaces, causing etching and sputtering at those surfaces. An arc discharge is not a plasma within the meaning of the '223.

The district court's construction of "plasma" is based on statements in the specification to the effect that a plasma is an excited species of the reactants and can be generated at a wide range of pressures. TEL argues that plasma should be interpreted to mean a "glow discharge" (see claim 7) having specific numerical ranges of plasma density and electron temperature. TEL argues that the intrinsic evidence fails to define "glow discharge," and that it provided the only extrinsic evidence on the topic, which shows that the term is limited to its proposed specific ranges.

As we noted in our July 16, 2001 opinion, the prosecution history supports equating the term "plasma" with "glow discharge" in the '223 patent. Tegal, 257 F.3d at 1345, 59 U.S.P.Q.2D (BNA) at 1395. In remarks distinguishing the Cotton reference during reexamination, the patentee stated, "[a] plasma in accordance with the present invention is a glow discharge. Cotton, on the other hand, is concerned primarily with an arc discharge." Id. However, we noted that use of the term "glow discharge" is not necessarily limiting at all, much less restrictive in a quantitative manner. Id.

Like the district court, we find no support in the record to support TEL's arguments for a quantitative definition of "plasma." Claim 7 was amended during reexamination to recite "glow discharge," but no other claims were so amended. The evidence does not show that "glow discharge" means what TEL proposes, and there is no evidence that a person having ordinary skill in the art would interpret "glow discharge" any differently from the construction we adopted in the TEA litigation. We see no reason to deviate from the construction we applied on appeal in the TEA litigation, and therefore we adopt the construction of "plasma" set forth in that opinion. See id. 59 U.S.P.Q.2D (BNA) at 1396.

A. "Plasma Etching"

Samsung argues that "plasma etching" as used in the Ingrey patent has a narrow meaning. Samsung contends plasma etching means: a strictly chemical process where the wafer being etched sits in a plasma, there is no bias potential (electrical charge) intentionally applied and the pressure is so high that there is negligible ion bombardment, for purposes of etching the wafer by direct involvement of the plasma, and which results in isotropic etching. Samsung identifies a number of differences between the process it practices -- reactive-ion etching -- and its definition of plasma etching as used in the Ingrey patent.

Northern Telecom, on the other hand, argues that plasma etching as envisioned by the Ingrey patent encompasses etching conducted in a broad range of reactors and under different process conditions, so long as the initial step involves a gaseous trihalide, comprising at least in part a boron trihalide, which is broken up in a radio frequency plasma into chemically active radicals that react with aluminum and aluminum oxide to form a volatile compound that can easily be removed from the etching chamber. This definition includes reactive ion etching as practiced by Samsung. Put another way, Northern Telecom contends the Ingrey patent does not exclude processes in which mechanisms in addition to the chemical reactions in a plasma -- e.g., ion bombardment of the work surface -- contribute to the etching.

Although plasma etching is not defined in the Ingrey patent's claims themselves, it is described in the specifications as follows:

In plasma etching, etchant gas molecules are broken up in an RF plasma into chemically active radicals that react with the workpiece, etching occurs and, if the reaction products are volatile, the reaction will continue until one or other of the reactants is completely removed.

Hess Decl., Ex. A (Ingrey patent), col. 1, 1.37-42. Northern Telecom argues the court need only look to this definition to determine the meaning of plasma etching in the claims, while Samsung argues that the meaning of plasma etching must also
be interpreted in light of the prosecution history, the remainder of the patent specifications, and relevant extrinsic evidence.

While it is axiomatic that neither the prosecution history nor the specifications can be used to enlarge, diminish or vary the limitations of the claims, nothing in this rule implies the court should not consider both the specifications and the prosecution history in interpreting what the claims mean. See Markman, 52 F.3d at 980. Indeed, the Federal Circuit has clearly held that courts should interpret the meaning of claim language with reference to such evidence. Id. Accordingly, the court will consider the specifications and the prosecution history in determining the meaning of the terms used in the claims.

1. Prosecution History/File Wrapper Estoppel

The centerpiece of Samsung's claim construction argument are statements made by Northern Telecom to the Patent Examiner in the "Remarks" section of its January 7, 1997 Response to the Examiner's initial rejection. See MacPherson Decl., Ex. J (Response). Northern Telecom contends that the Remarks are irrelevant because the Examiner had already determined that claims in the amended form would be allowable, see Londen Decl., Ex. I (PTO Office Action), and thus the Examiner did not rely on the Remarks.

A patentee who construes the claims in a patent application narrowly before the Patent Office is estopped from later construing them broadly before the courts. Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 399 (Ct. Cl. 1967), cert. denied, 434 U.S. 1051, 54 L. Ed. 2d 804, 98 S. Ct. 903 (1978). Assertions made by a patent applicant to the Patent and Trademark Office in support of patentability are part of the file wrapper or prosecution history and may be used to interpret the claims and define their terms. Id. at 398-99. 12

Footnotes


End Footnotes

Here, it is not at all clear that the Examiner did not rely on the Remarks. While the Examiner had indicated that with the suggested amendments the claims would be allowable, the Examiner did not actually issue the Notice of Allowance until February 4, 1977, after receiving the Response which contained both the amendments and the Remarks. See Supp. MacPherson Decl., Ex. B (communication from Examiner closing prosecution on merits in view of January 17, 1977 response). Thus, it is reasonable to assume that the Examiner at least read the Remarks prior to issuing the Notice. However, whether or not the Examiner relied on the Remarks, the Federal Circuit has clearly stated that such representations, whether or not made to secure patentability, may estop the patentee from subsequently advancing a contrary interpretation and are relevant to ascertaining what the applicant meant by terms used in the claims. See E.I. Du Pont De Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1438 (Fed. Cir.), cert. denied, 488 U.S. 986, 102 L. Ed. 2d 572, 109 S. Ct. 542 (1988). Accordingly, Northern Telecom's assertion that the Remarks are irrelevant to claim construction is incorrect.

In its January 17, 1977 Response to the Examiner's initial rejection of the Ingrey application, Northern Telecom amended the claims in conformity with the Examiner's suggestions and also made the following Remarks:

It is not agreed that the references cited in any way disclose the present invention as defined by the claims originally filed or as now filed, nor do the references foreshadow the present invention.

The references A, B and C, U.S. patents 3,975,252; [sic] 3,985,597 and 3,436,327 are concerned with a totally different process. In sputter etching the plasma is entirely incidental to the ion bombardment, which bombardment is the etching mechanism. The effect can as readily be affected by using a non-plasma condition by bombarding the surface with ions from an ion gun. Further, a plasma is defined as neutral environment, that is one that has equal members of positive and negative ions. In ion etching (as compared to plasma etching) the target does not sit in the plasma but in a positive space charge.

In the references the plasma plays no part in the etching, being incidental. In the present invention the plasma is part of
the etching process in that the etching process uses neutrals, (uncharged particles) in the reaction, these being from the plasma.

MacPherson Decl., Ex. J.

The court must determine whether these Remarks distinguish the Ingrey invention from sputter etching or from reactive ion etching. Unfortunately, while the question is straightforward, the answer is not, due to mistakes and poor draftsmanship which render the Remarks fundamentally ambiguous.

The parties agree that references A (Fraser) and B (Zielinski) disclose reactive ion etching processes, i.e. etch mechanisms that include both ion bombardment and chemical reactions involving plasmas, and that reference C (Shockley) discloses a sputter etching process, i.e. one that is purely mechanical.

Paragraph 2 of the Remarks begins with the statement: "the references A, B, and C . . . are concerned with a totally different process." This suggests that the Remarks define plasma etching as a purely chemical process and distinguish it from processes which include the physical component of ion bombardment. 13 Read in isolation from the surrounding sentences, this sentence appears to distinguish the Ingrey invention from prior art references disclosing reactive ion etching. The next sentence, however, refers to sputter etching ("in sputter etching the plasma is entirely incidental to the ion bombardment, which bombardment is the etching mechanism"), indicating that Northern Telecom's patent agent Sidney Jelly may have misunderstood or overlooked what references A and B disclosed.

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13 Northern Telecom attempts to construe this statement as a reference to the fact that the Ingrey patent discloses the use of a boron trihalide and the three references do not; this attempt fails completely. In context, it is clear that the Remarks are concerned with the etch mechanism, not the etch gas.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Samsung suggests a different interpretation. Samsung argues that the second and third sentences (beginning "In sputter etching . . ") refer to reference C, which discloses a sputter etching process, while the fourth and fifth sentences refer to references A and B, which disclose reactive ion etching. Under this interpretation, Jelly used the term "ion etching" to mean reactive ion etching. This interpretation is attractive because it allows paragraph 2 to be read as internally consistent.

Samsung's interpretation of the terms "sputter etching", "ion etching", and "plasma etching" in paragraph 2 is the most sensible one presented to the court. However, Samsung's proposed interpretation of paragraph 2 is not consistent with any reasonable interpretation of paragraph 3. Paragraph 3 appears to contrast the three references as a group to the use of chemical reactions in a plasma. The parties agree that the statement in paragraph 3 that "in the references the plasma plays no part in the etching, being incidental" does not as a simple matter of fact correctly describe the processes in references A and B. In fact, references A and B disclose reactive ion etching processes, a process in which the plasma does play an active role in etching the work surface. Thus, paragraph 3 suggests that Jelly did not know that references A and B disclosed processes which were in part chemical. This is evidence that he used the terms "sputter etching" and "ion etching" interchangeably to refer to an exclusively mechanical process.

Samsung is correct that Northern Telecom must be held to the representations it made to the Examiner, whether factually correct or not. However, Northern Telecom is correct that the factually erroneous remark in paragraph 3, which perhaps pervades the Remarks as a whole, cannot be interpreted to hold the meaning Samsung wishes to give it -- that the Ingrey patent claims only an exclusively chemical etch mechanism. When the first sentence of paragraph 3 is placed in context with the second, which states: "in the present invention the plasma is part of the etching process . . ." (emphasis added), it is obvious that Samsung's preferred interpretation of the Remarks as a whole is not a reasonable one. If a person skilled in the art was familiar enough with references A and B to be aware of the factual error in the first sentence, that person would have to disregard that sentence as nonsensical. In that case, the first sentence would shed no light on the meaning of the second sentence, which is crucial here. If, on the other hand, a person skilled in the art was not familiar enough with references A and B to be aware of the factual error, that person would interpret paragraph 3 to mean Ingrey was claiming a process where plasma was a part of the etch mechanism. Neither situation lends itself to an interpretation that Ingrey was claiming a
process in which plasma was the exclusive etch mechanism. Read as a whole, the third paragraph clearly does not indicate that the claimed invention is exclusively chemical, but only that it is at least partly so.

In light of the ambiguities and errors which pervade the Remarks, the court concludes that it cannot be known with certainty precisely what Jelly meant by "sputter etching," "ion etching," and "plasma etching." The Remarks are so muddled as to shed little light on the claim construction question before the court. Thus, while the court finds that Northern Telecom's interpretation is the more reasonable, the court places little weight on the Remarks in construing the disputed claims.

2. The Specifications

It is axiomatic that limitations that do not appear in the claims cannot be imported from the specification. See Markman, 52 F.3d at 979-80. "One cannot avoid infringement merely by adding elements if each element recited in the claims is found in the accused device." Stiftung v. Renishaw PLC, 945 F.2d 1173, 1178 (Fed. Cir. 1991) (quoting A.B. Dick Co. v. Burroughs Corp., 713 F.2d 700, 703, cert. denied, 464 U.S. 1042, 79 L. Ed. 2d 171, 104 S. Ct. 707 (1984)). Thus, the court examines the specifications solely for the light they shed on the meaning of plasma etching as used in the claims. See Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561 (Fed. Cir. 1991). The specifications are the "single best guide to the meaning of a disputed term". Vitronics, 90 F.3d at 1582. In this case, the court must determine whether the specifications establish that plasma etching as used in Claim 1 precludes the use of a process that also involves ion bombardment.

The Ingrey specifications describe plasma etching as follows:

In plasma etching, etchant gas molecules are broken up in an RF plasma into chemically active radicals that react with the workpiece, etching occurs and, if the reaction products are volatile, the reaction will continue until one or other of the reactants is completely removed.

Hess Decl., Ex. A (Ingrey patent), col. 1, 1.37-42. This sentence does not appear on its face to describe an exclusive process.

Samsung points to two other portions of the specifications to support its theory that reactive ion etching is outside the scope of the patent. First, the specifications describe parameters for the etching equipment: "Further constraints on the plasma parameters are that the RF power should be sufficiently low as not to damage the photoresist through ion bombardment . . . " Id. at col. 2, 1. 53-56. Second, the specifications indicate that high pressure should be used, which suppresses ion bombardment. (In reactive ion etching as practiced by Samsung, low pressure is used in order to promote ion bombardment.) Samsung interprets this language to mean that in the claimed process ion bombardment should not occur. Northern Telecom interprets the same language as evidence that ion bombardment does in fact occur in the plasma etching process described in the specifications.

The Ingrey patent is a process patent, not a patent on a particular apparatus. In a process patent, apparatus distinctions that are not specifically claimed are not controlling in determining the scope of the claims. See Polaroid Corp. v. Eastman Kodak Co., 789 F.2d 1556, 1562 (Fed Cir.), cert. denied, 479 U.S. 850, 93 L. Ed. 2d 114, 107 S. Ct. 178 (1986), and Amstar Corp. v. Envirotech Corp., 730 F.2d 1476, 1482 (Fed. Cir.), cert. denied, 469 U.S. 924, 83 L. Ed. 2d 240, 105 S. Ct. 306 (1984). The specifications show that the Ingrey inventors considered ion bombardment, or at least some excessive level of ion bombardment, to be deleterious. In so showing, the cited lines also indicate that a certain amount of ion bombardment does occur in the embodiment described in the specifications. Thus, the specifications demonstrate, and all the other evidence in the record agrees, that ion bombardment will take place even in the embodiment described in the specifications.

While the embodiment set forth in the specifications minimizes ion bombardment, the claims themselves concern only the chemical reactions taking place in a plasma. They do not speak to whether the ion bombardment which will take place is minimized, as in the Ingrey embodiment, or enhanced, as in reactive ion etching as practiced by Samsung. The court discerns no language in the specifications indicating that the claims are limited to a process of chemical reaction in which ion bombardment is limited or reduced below some specified level.

3. Extrinsic Evidence

The parties agree that terminology in the field of semiconductor manufacturing was not used consistently or without ambiguity in the late 1970s. Samsung nevertheless contends that those skilled in the art in the late 1970s would understand the term "plasma etching" to exclude the process called reactive ion etching, and submits substantial evidence to support
this position. See Supplemental Cecchi Decl. Northern Telecom submits a volume of contrary evidence. See Hess Decl. PP 24-25. There is ample evidence that each of the terms in question were used in the industry in the late 1970s in a variety of ways and without much consistency. However, in light of Vitronics, it is clear that the court should not weigh the opinions of competing experts in order to define the terms because that would likely vary or contradict the claim language. The court finds that it should and can interpret the claims based on the specifications and prosecution history. Based upon those, the court concludes that the term "plasma etching" refers to a chemical process without excluding the non-chemical process of ion bombardment. While the evidence is far from clear, and the prosecution history in particular presents serious problems of interpretation, the court finds that Claim 1, read together with the specifications and prosecution history, contains no indication that ion bombardment or reactive ion etching is specifically excluded from the claimed process.

3166

B

Samsung also argues that the district court erred when it construed "plasma etching" to allow reactive ion etching. According to Samsung, "plasma etching," as used in claim 1, specifically excludes all forms of "ion bombardment" etching. Because the accused process uses reactive ion etching -- a combination of both plasma etching and ion bombardment -- Samsung asserts that no infringement can lie. Samsung asserts that both the specification and prosecution history of the '967 patent support its view of "plasma etching". We disagree.

Some background is in order. There is no dispute between the parties that plasma etching, as that term is commonly used in the field, is a "chemical" process. In plasma etching, electrical power is applied to a gas, creating a plasma of chemically-active radicals, which react with the workpiece, causing etching. There is also no dispute between the parties that ion bombardment is a "mechanical" process, whereby an electrical field creates a plasma that emits charged particles, which physically strike the workpiece, causing etching. Reactive ion etching, used in the Samsung process, is a combination of the chemical and mechanical processes. In reactive ion etching, the plasma created by the electrical field creates both chemically-active and charged particles, allowing etching to proceed both by chemical reaction and by physical bombardment.

Claim 1 of the '967 patent requires "an initial step of plasma etching." The claim does not mention ion bombardment or reactive ion etching. Thus, there is no dispute between the parties that the '967 patent does not claim ion bombardment as an etching mechanism. But this in itself does not allow the Samsung process to escape infringement: the reactive ion etching of the Samsung process, as we noted above, uses "plasma etching" (the chemical process) as part of the etching mechanism. The use of ion bombardment as another part of the etching mechanism, an additional element of the accused process, will not ordinarily prevent a finding of infringement. See, e.g., A.B. Dick, 713 F.2d at 703, 218 U.S.P.Q. (BNA) at 967. Samsung, recognizing this tenet of the law, argues instead that the limitation "plasma etching" in claim 1, read in light of the intrinsic and extrinsic evidence, specifically requires the exclusion of ion bombardment as any part of the etching mechanism.

Samsung does not argue that the ordinary meaning of "plasma etching" itself excludes ion bombardment. See Johnson Worldwide, 175 F.3d at 989, 50 U.S.P.Q.2D (BNA) at 1610 ("The general rule is, of course, that terms in the claim are to be given their ordinary and accustomed meaning."); Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576 ("Words in a claim are generally given their ordinary and customary meaning."). Instead, Samsung argues that the intrinsic and extrinsic evidence of record compels the conclusion that "plasma etching" in claim 1 must be limited to circumstances where chemical processes are the only etching mechanism. See Johnson Worldwide, 175 F.3d at 989-90, 50 U.S.P.Q.2D (BNA) at 1610 (describing circumstances under which a term's ordinary meaning may be set aside). Thus, the issue is not whether the '967 patent contemplates the presence of ion bombardment, but whether it contemplates it and specifically excludes it.

We begin with the specification. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577 ("It is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning."). Samsung is correct in noting that the written description broadly describes "plasma etching" in terms of a chemical reaction. See '967 patent, col. 1., II. 37-42. Indeed, the only mention of "ion bombardment" is the statement that
"the RF power should be sufficiently low as not to damage the photoresist through ion bombardment." See id. at col. 2, ll. 54-56. Samsung seizes upon this statement as evidence that the claimed "plasma etching" must completely exclude ion bombardment. We disagree. By suggesting -- in connection with a description of the preferred parameters for the claimed "plasma etching" process -- that steps "should" be taken to reduce or avoid ion bombardment, the patentees fall far short of excluding ion bombardment altogether. Cf. Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1463, 46 U.S.P.Q.2d (BNA) 1609, 1614-15 (Fed. Cir. 1998) (adhering to clear assertions in written description that the invention "requires" a narrow construction of a claim term). See also Johnson Worldwide, 175 F.3d at 991, 50 U.S.P.Q.2d (BNA) at 1611 (discussing Laitram). Indeed, wholly contrary to Samsung's view, that sentence clearly contemplates that ion bombardment may be present in the claimed process, but states that the patentees prefer that it be reduced or eliminated. In other words, the low level of ion bombardment in conjunction with the claimed plasma etching is plainly a preferred embodiment of the '967 patent. This court consistently declines to construe claim terms according to the preferred embodiment. See, e.g., Johnson Worldwide, 175 F.3d at 990-92, 50 U.S.P.Q.2d (BNA) at 1610-12; Renishaw, 158 F.3d at 1248, 48 U.S.P.Q.2d (BNA) at 1120-22; Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 U.S.P.Q.2d (BNA) 1057, 1064 (Fed. Cir. 1989). We see no reason to abandon that practice in this case.

Samsung's reliance on Figure 2 of the '967 patent is no more persuasive. Figure 2 shows the wafer (i.e., the "workpiece") located in a plasma region, rather than in a DC electric field as would be the case if ion bombardment was to be the primary or only etching technique. While we can agree that Figure 2 makes clear that the patentees preferred gas plasma etching over ion bombardment, that fact, of course, cannot lead to the conclusion that ion bombardment was specifically excluded from the scope of the claims. As we note above, the entire specification plainly expresses a preference for gas plasma etching over ion bombardment. But preferred embodiments, without more, do not limit claim terms. See, e.g., Johnson Worldwide, 175 F.3d at 990-92, 50 U.S.P.Q.2d (BNA) at 1610-12; Renishaw, 158 F.3d at 1248, 48 U.S.P.Q.2d (BNA) at 1120-22; Advanced Micro-Devices, 848 F.2d at 1571, 7 U.S.P.Q.2d (BNA) at 1064.

2

Samsung next points to passages in the prosecution history, where, it asserts, the patentees unambiguously disclaimed the existence of any ion bombardment in the claimed process. During prosecution of the '967 patent, the Examiner rejected several claims as obvious over Shockley, in view of Zielinski and Fraser. Shockley discloses a sputter etching process. Fraser and Zielinski disclose methods of reactive ion etching aluminum and aluminum oxide, respectively. None of the references discloses etching in the presence of boron trihalide. In response to the Examiner's rejection, the applicants amended claim 1 and remarked:

[1] It is not agreed that the references cited in any way disclose the present invention as defined by the claims originally filed or as now filed, nor do the references foreshadow the present invention.

[2] The references . . . are concerned with a totally different process. In sputter etching, the plasma is entirely incidental to the ion bombardment, which bombardment is the etching mechanism. The effect can as readily be affected by using a non-plasma condition by bombarding the surface with ions from an ion gun. Further, a plasma is defined as neutral environment, that is one that has equal members of positive and negative ions. In ion etching (as compared to plasma etching), the target does not sit in the plasma but in a positive space charge.

[3] In the references the plasma plays no part in the etching, being incidental. In the present invention the plasma is part of the etching process in that the etching process uses neutrals, (uncharged particles) in the reaction, these being from the plasma.

Response to Office Action dated January 7, 1977, pp. 1-2 (paragraph numbers supplied). Samsung argues that the above remarks clearly portray "plasma etching" as a process that must exclude ion bombardment because the inventors remarked that the asserted references (which disclosed ion bombardment and reactive ion etching) are "concerned with a totally different process," in paragraph 2.

We find the passage does not support Samsung's argument. In the main, paragraphs 1 and 2 above are descriptions of the asserted references, as opposed to a description of the "plasma etching" process of claim 1. By contrast, it is paragraph 3 which describes the invention, and the specific way that the claimed process differs from the asserted references. Paragraph 3 describes the plasma as "part" of the etching process, and states that the "etching process uses neutrals" in the reaction.
These statements, while describing features of plasma etching, do not exclude the possibility of ion bombardment. Indeed, describing the plasma as "part" of the etching mechanism rather than as "the" (or, perhaps, "the only") etching mechanism, the language instead supports the inference that other mechanisms may also be "part" of the etching process. Again, much like the specification, this language evinces the inventors' clear focus on plasma etching. It does not explicitly call for ion bombardment; but neither does it specifically state its exclusion as part of the invention. See, e.g., Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1458, 46 U.S.P.Q.2d (BNA) 1169, 1175-76 (en banc) (refusing to limit scope of claim language where prosecution history did not clearly call for a narrower definition).

The description of the asserted references as "concerned with a totally different process" in paragraph 2 is far too slender a reed to support the judicial narrowing of a clear claim term. The inventors do not specify (except in paragraph 3, of course) how the references are "totally different." Perhaps the inventors considered the references as "totally different" due to their failure to disclose plasma etching in the presence of a boron trihalide, or because of the relative importance of gas plasma etching in the ‘967 invention. Or, as Samsung suggests, perhaps the inventors considered the presence of ion bombardment as creating a "totally different process." Or it could be any number of other unstated reasons. Like the district court, we simply cannot tell.

In sum, we find that the prosecution history fails to prove Samsung's assertion that "plasma etching" in claim 1 of the '967 patent requires the exclusion of ion bombardment. That is, under these circumstances, we cannot conclude that Samsung has demonstrated that the patentees -- with reasonable clarity and deliberateness, see In re Paulsen, 30 F.3d 1475, 1480, 31 U.S.P.Q.2d (BNA) 1671, 1674 (Fed. Cir. 1994) -- defined "plasma etching" as excluding ion bombardment. See Johnson Worldwide, 175 F.3d at 989, 50 U.S.P.Q.2d (BNA) at 1610 (noting the "heavy presumption in favor of the ordinary meaning of claim language").

3

Samsung next argues that ambiguity in the prosecution history places this case within the ambit of our holding in Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 37 U.S.P.Q.2d (BNA) 1365 (Fed. Cir. 1996). Samsung suggests that Athletic Alternatives established a rule that when the prosecution history presents an unclear choice between a broader and narrower meaning of a claim term, then the narrower meaning controls. Accordingly, Samsung asserts that the confusing language from the prosecution history noted above requires that a narrower meaning of "plasma etching" -- that which specifically excludes ion bombardment -- applies. This is a misreading of Athletic Alternatives.

In Athletic Alternatives, our review of the prosecution history led to "two strong and contradictory interpretive strands . . . . Each strand, considered alone, leads to a coherent and distinct meaning of the disputed claim." 73 F.3d at 1580, 37 U.S.P.Q.2d (BNA) at 1371. That is, Athletic Alternatives did not turn on ambiguity -- it turned on clarity. The inventors in Athletic Alternatives had provided, in the prosecution history, two "coherent and distinct" definitions of the relevant claim limitation. When presented with the situation where two clear yet contradictory definitions are provided by the patentee, we stated that this court would choose the narrower of the two, as such a practice would "best serve[]" the notice function of the claim. Id. at 1581, 37 U.S.P.Q.2d (BNA) at 1372. Samsung appears to read Athletic Alternatives as requiring that courts choose a narrow definition of a claim limitation whenever there is a dispute over meaning and ambiguity in the intrinsic evidence. This is incorrect. The plain and ordinary meaning of claim language controls, unless that meaning renders the claim unclear or is overcome by a special definition that appears in the intrinsic record with reasonable clarity and precision. See, e.g., Johnson Worldwide, 175 F.3d at 990-91, 50 U.S.P.Q.2d (BNA) at 1610. Vagueness and inference cannot overcome an ordinary meaning of a claim term; nor can it serve to invoke the rule of Athletic Alternatives. Under Samsung's reading, Athletic Alternatives would substitute for reasoned analysis. To the contrary, Athletic Alternatives considers the case where reasoned analysis leads to two clear and distinct definitions of claim language. It does not apply here, where confusing statements in the prosecution history simply fail to overcome the ordinary meaning of the "plasma etching" limitation.

4

Samsung's final argument is that extrinsic evidence supports a construction of "plasma etching" that requires the exclusion of any ion bombardment. In particular, Samsung points to an article published in August 1976, written by Gordon Poulsen, a named inventor of the '967 patent. In that article, Mr. Poulsen described "plasma etching" as "unlike reactive ion etching," being "a strictly chemical process." Poulsen, Plasma etching in integrated circuit manufacture -- A review, J. Vac. Sci.
Technol., Jan./Feb. 1977, at 266-274. Samsung argues that this contemporaneous record -- the Poulsen article appeared two weeks after the '967 patent's application was filed -- demonstrates that the term "plasma etching" was intended by the inventors to exclude any ion bombardment.

We first note, of course, that extrinsic evidence is rarely, if ever, probative of a special and particular definition of a limitation found in a claim. This is because extrinsic evidence "may not be used to vary or contradict the claim language" as discerned from the intrinsic record. Vitronics, 90 F.3d at 1584, 39 U.S.P.Q.2D (BNA) at 1577. That is, claims are assumed to take on their ordinary meaning. See Johnson Worldwide, 175 F.3d at 990-91, 50 U.S.P.Q.2D (BNA) at 1610; Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576. That ordinary meaning may in some cases be overridden by clear definitional statements in the intrinsic record, but it may not, of course, be altered by reference to extrinsic evidence -- for that would allow the public record of the patent to be changed for purposes of litigation, thus abrogating the notice function of the patent documents. See Vitronics, 90 F.3d at 1583, 39 U.S.P.Q.2D (BNA) at 1577 (warning against the loss of the public's right to ascertain the patent's scope from public documents); Southwall Techs., Inc., v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 U.S.P.Q.2D (BNA) 1673, 1676 (Fed. Cir. 1995) (same).

In any event, we find Samsung's reliance on extrinsic evidence in this case to be unpersuasive. Poulsen's statement that plasma etching was "unlike" reactive ion etching merely states technologic fact: plasma etching, a chemical process, is different from reactive ion etching, which uses both mechanical and chemical techniques to etch. His statement in no way, however, makes the claim that plasma etching must exclude any ion bombardment. Indeed, the Poulsen article is much like the intrinsic evidence proffered by Samsung -- it supports the argument that plasma etching is different from ion bombardment, but it does not support the view that "plasma etching", as claimed, must preclude the presence of any ion bombardment.

Samsung also points to statements made by the inventors in the course of prosecuting a related Japanese application. There, the inventors again distinguished plasma etching from processes using ion bombardment as an etching mechanism, arguing that references disclosing sputter etching (i.e., ion bombardment) or reactive sputter etching (i.e., reactive ion etching) were not "identical" according to Japanese patent law. To the extent that statements construing terms in different claims in a different application, made to distinguish different references according to different legal standards, are relevant, we again find that they demonstrate little more than the inventors' view that plasma etching and ion bombardment are different (i.e., not "identical") etching mechanisms. But, as we noted before, such evidence cannot convince us that the inventors of the '967 patent accorded "plasma etching" a meaning in claim 1 that required the exclusion of any ion bombardment.

Even if we were to find persuasive the extrinsic evidence proffered by Samsung, we would, of course, have to balance that against the strong evidence submitted by Northern Telecom. In particular, we note that Northern Telecom's expert, Dr. Hess, explained that those of skill in the art would unquestionably recognize that ion bombardment would result from the etching process described in the '967 specification, that the depiction of Figure 2 of the '967 patent "makes clear that ions will bombard the surface" of the workpiece, and that the results reported in the written description indicate the presence of ion bombardment -- thus supporting Northern Telecom's argument that the specification specifically contemplates the presence of ion bombardment. Further, Dr. Hess testified that experts in the field used the term "plasma etching" to apply to both a purely chemical process, as well as the chemical portion of the combination chemical-mechanical reactive ion etching technique.

In sum, we find that Samsung's argument in favor of a narrow meaning of "plasma etching" -- one that requires the exclusion of any ion bombardment -- falls short. While we agree that the record makes clear that the patentees considered plasma etching to be different from ion bombardment, we cannot agree that this mandates a finding of noninfringement. That is, if a patent requires A, and the accused device or process uses A and B, infringement will be avoided only if the patent's definition of A excludes the possibility of B. See, e.g., Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 945, 15 U.S.P.Q.2D (BNA) 1321, 1332 (Fed. Cir. 1990) ("The addition of features does not avoid infringement, if all the elements of the patent claims have been adopted."); Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1057, 5 U.S.P.Q.2D (BNA) 1434, 1444 (Fed. Cir. 1988) ("Adding features to an accused device will not result in noninfringement if all the limitations in the claims, or equivalents thereof, are present in the accused device."); A.B. Dick, 713 F.2d at 703, 218 U.S.P.Q. (BNA) at 967. Statements simply noting a distinction between A and B are thus unhelpful: what matters is not that the patent describes A and B as different, but whether, according to the patent, A and B must be mutually exclusive. While Samsung's "plasma etching" argument has demonstrated that plasma etching and ion bombardment are indeed different techniques, it has failed to show that the '967 patent requires, as a part of claim 1, that no ion bombardment be present.
Accordingly, we hold that the district court's claim construction of "aluminum and aluminum oxide" as well as "plasma etching" was correct, and affirm the partial summary judgment based thereon.

3167

2. play list

This term appears in claims 1, 3, 6, 7, 9, 22, 34, 46, 74, 84, and 112 of the '725 patent and claims 1, 19, 31, 32, and 57 of the '345 patent. The plaintiff's proposed construction is "a list of works, selected from an inventory of works, that can be stored, retrieved and sequentially played." The defendant proposes a construction of "a list of works to be played."

The court's review of the intrinsic record reveals that the plaintiff's proposed definition is derived from several non-limiting excerpts from the specification and prosecution history of the '725 patent. Apple correctly attacks the propriety of Premier's definition by arguing that the limitations proposed by the plaintiff are separately recited in several of the claims. For example, claim 26 of the '345 patent recites "instructions for creating and storing a plurality of different play lists." '345 patent, cl. 26. As such, Apple argues that the plaintiff's limitations are improper.

At oral argument, the plaintiff divorced itself from its own construction, arguing that the essence of the term "play list" simply requires the court to define the term as something distinct or independent from a media inventory list, while at the same time requiring the play list to be derived from an inventory. But the intrinsic record counsels otherwise. Claim 74 of the '725 patent specifically refers to "building a plurality of play lists having entries selected from an inventory." '725 patent, cl. 74. As such, the court agrees with the defendant that the plaintiff's "selected from an inventory" limitation is improper insofar as the construction of "play list" is concerned.

A review of the patents reveals that the term "play list" is uniformly used in the context of a list of works that can be presented sequentially. See '725 patent, col. 1, 11. 41-43 ("A system and method of arranging media elements for later replay make it possible to create new sequential presentations of the elements."); '725 patent, col. 1,11.56-57 ("[t]he collection can be played back or performed sequentially as specified on a list."). Given the repeated description of a play list as a list of works that can be played sequentially, the court construes the term "play list" to mean "a list of works that can be played sequentially."

3168

11. "playing back the stored copy of the information using the receiving system"

Claim 19 provides in pertinent parts:

A distribution method responsive to requests from a user identifying items in a transmission system containing information to be sent from the transmission system to receiving systems at remote locations, the method comprising the steps of:

* * *

sending a request, by the user to the transmission system, for at least a part of the stored information ... 

sending at least a portion of the stored information from the transmission system to the receiving system at the selected remote location;

receiving the sent information by the receiving system at the selected remote location;

storing a complete copy of the received information in the receiving system at the selected remote location; and
playing back the stored copy of the information using the receiving system at the selected remote location at a time requested by the user.

This step in the method uses the phrase "playing back," which is commonly understood to mean to reproduce stored audio and video information in real time. In this step playing back is accomplished by "using the receiving system." The specification does not disclose any embodiments of the "receiving system" that includes speakers or video displays which would facilitate "playback." Instead, the specification discloses that the "receiving system" outputs to "receiving devices" of the user for "playback:"

The separated audio and video information are respectively decompressed by audio decompressor 209 and video decompressor 208. The decompressed video data is then sent simultaneously to converter 206 including digital video output converter 211 and analog video output converter 213. The decompressed audio data is sent simultaneously to digital audio output converter 212 and analog audio output converter 214. The outputs from converters 211-214 are produced in real time. The real time output signals are output to a playback system such as a TV or audio amplifier.

The real time output signals are output to a playback system such as a TV or audio amplifier. They may also be sent to an audio/video recorder of the user. By using the reception system 200 of the present invention, the user may utilize the stop, pause, and multiple viewing functions of the receiving device. Moreover, in a preferred embodiment of the present invention, the output format converters may be connected to a recorder which enables the user to record the requested item for future multiple playbacks.

('992 Patent, Col. 18:27-45.)

The specification discloses embodiments of the "receiving system" which have playback controls, though there are no disclosures of speaker or video displays:

The reception system 200 has playback controls similar to the controls available on a standard audio/video recorder. These include: play, fast forward, rewind, stop, pause, and play slow.

('992 Patent, Col. 17:35-38.)

The specification discloses two configurations of a reception system, "direct connection" n9 and "non-direct connection." However, the specification discloses no structure which would allow a user to communicate directly with the reception system in a non-direct connection configuration. The Court interprets the embodiment of the reception system with playback controls as referring to a direct connection configuration. Accordingly, the "playback" step under consideration is defined to include both embodiments.

The Court construes the term "playing back ... using the receiving system," as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, "playing back the stored copy of the information using the receiving system" means "using the receiving system to output the stored copy of the information in real time."

n9 In direct connection configurations, such as reception system 200 shown in Figures. 1e and 1f, the user preferably select the reception system 200 to which the requested material is sent, and optionally selects the time playback of the requested material as desired. Accordingly, the user may remotely access the transmission system 100 from a location different than the location of receptions system 200 where the material will be sent and/or played back. Thus, for example, a user may preferably call transmission system 100 from work and have a movie sent to their house to be played back after dinner or at any later time of their choosing." ('992 Patent, Col. 5:10-21.)
4) "playlist" (claims 1, 15, 16)

STV Asia asserts that "playlist" means "program selection." In its Reply, it proposes in the alternative, "a list of selected audiovisual clips" or "selected audiovisual clips." Defendants assert the term should be construed as follows: "a list of video clips that are to be displayed at a retail store or stores. The playlist is created by a user who is located in a distribution center." The parties agree that a "playlist" at least includes the ordering or sequencing of audiovisual material. They disagree, however, as to whether a "playlist" also includes the sequenced audiovisual material itself. STV Asia asserts that it does, while Defendants argue it does not.

Defendants assert that the term "playlist" is defined in the specification and that that definition should be adopted by the Court in construing the term. In particular, the specification states that "[p]laylists are lists of video clips that are to be displayed at each of the retail stores." '069 patent, col. 9, ll. 44-45, and that "a playlist is a particular program sequence requested by a user who is located in the distribution center." '069 patent, col. 2, l. 67 - col. 3, 1. 2.

STV Asia, however, points to the latter statement as evidence that the playlist includes not only the sequencing of audiovisual materials but also the actual audiovisual materials themselves. It also points to the following statements in the specification that it asserts support such a dual meaning of the term:

.. "The Playlist Database has . . . a contents table for each playlist that gives information on the clips (e.g. clip sequence number) included in each playlist." '069 patent, col. 11, ll. 16-24.

.. "When playlists or [sic] created or updated, the program determines which additional video clips are needed at the stores and sets a pending flag." '069 patent, col. 12, ll. 17-20.

.. "After the clips have been received and stored in the receiving sites, the system's software scheme performs the on-line program formation automatically in order to form the playlists. In the preferred embodiment, users enter the desired playlists for each receiving site into the system from the technical operation center. The user may enter one set of playlists for many stores, etc. For each individual receiving site, the software assembles the desired playlist with the clips stored in that receiving sites, and then forwards the clips to monitors for display." '069 patent, col. 5, ll. 5-15.

STV Asia also points to the usage of the word "playlist" in the claims. In particular, STV Asia asserts that while claim 16 appears to use the term "playlist" to refer only to include the sequencing of the audiovisual material, claims 1 and 15 use the term in a manner that suggests it may include the sequencing or the content.

A number of the citations to the specification offered by STV Asia in support of its proposed construction are not persuasive. It is unclear, for example, why the statement "The Playlist Database has . . . a contents table for each playlist that gives information on the clips (e.g. clip sequence number) included in each playlist" shows that the "playlist" includes the content of the playlist. See '069 patent, col. 11, ll. 16-24. Similarly, the statement "When playlists or [sic] created or updated, the program determines which additional video clips are needed at the stores and sets a pending flag" does not provide strong support for STV Asia's position. '069 patent, col. 12, ll. 17-20.

Nonetheless, the Court finds support for STV Asia's proposed construction in at least one statement in the specification, found in col. 5, ll. 5-15 (quoted above), and in claim 1. In both places, the inventor appears to have used the word "playlist" as a shorthand to refer to the assembled audiovisual clips on the playlist. Claim 1 refers to a "network management system forming playlists" and "display units for displaying the playlists." While the first usage of "playlist" appears to refer to the list of audiovisual clips, it seems fairly clear that the second use of the term "playlist" refers not to the sequencing of the clips but rather, to the assembled audiovisual clips themselves. Similarly, when the specification states that the software "assembles" the "playlist with the clips stored in that receiving site," '069 patent, col. 5, ll. 13-14, the common-sense reading of that statement is that the "playlist" is the audiovisual clips themselves.

In reaching this conclusion, the Court is mindful of the general presumption that "the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and the prosecution history
that the terms have different meanings at different portions of the claim." Fin Control Sys. PTY, Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). Here, however, the Court concludes, based on the description of the invention in the specification, that the inventors used the term "playlist" both to refer to the sequencing of audiovisual material and as a shorthand for the sequenced material itself. In particular, when the inventors used the phrase "displaying the playlists" in claim 1, they were referring to the audiovisual clips themselves. All other references to "playlists" in the disputed claims are to the sequencing of the audiovisual clips.

The Court construes the claim term "playlist" as follows: "a particular program sequence requested by a user who is located in the distribution center." The Court construes the phrase "displaying the playlists" as "displaying the audiovisual content listed in the playlists."

"a game playable in the non-tournament mode"

The next term that requires construction appears in dependent claim 4:

(4) A system according to claim 1 further comprising a non-tournament mode, at least some of the plurality of tournament games being playable in the non-tournament mode.

Claim 4 describes a non-tournament mode. JVL's proposed construction of a "game playable in the non-tournament mode" is "a standard game which, unlike a tournament game, is not extended." Def.'s '887 Presentation at 26. Merit construes the last phrase of this claim as "[a]t least some of the more than one tournament game are playable in the non-tournament mode." Pl.'s '887 Presentation, Ex. 3 at 9.

JVL points out that the patent distinguishes between games played in and out of the tournament mode: "each of the video games may be played in either a regular, non-tournament mode, or in a tournament mode." '887 patent at 4:50-51. (emphasis added) On the other hand, Merit points out that the claim language itself allows for tournament games to be played in a non-tournament mode. '887 patent, claim 4.

JVL's construction introduces unnecessary confusion into the claim interpretation process.

The plain and ordinary meaning of "game playable in the non-tournament mode" is clear and no construction is required.

Plug electrode

The Court combines the parties' proposals and construes the term as "a metal conductor formed in a contact hole, which connects two layers." Samsung's proposed construction--"a conductor formed in a contact hole"--is consistent with the specification, the claims, and the agreed-upon construction of "contact hole"--"a vertical hole that allows electrical contact." See '195 Patent col. 5:63-67. However, the Court agrees with MEI that the specification discloses only a metal plug. See '195 Patent col. 14:49; col. 15:6; col. 19:29-34, 49; col. 20:6, 9, 23; and all figures referenced therein. MEI's proposed construction--"a metal which connects two metal layers"--is too narrow because it improperly includes what the electrode is connected to. MEI's definition is also too broad because it encompasses all metal regardless of conductivity.

Plug electrodes are connected respectively to both sides which are positioned across a part of said fuse portion where cutting off is to be performed

The Court agrees with MEI and construes the term as "at least one plug electrode connected to the fuse portion on each side"
Samsung argues that the phrase cannot be understood or construed because this phrase appears in a claim 2, which depends from claim 1, and claim 1 is ambiguous because a plug electrode cannot be "formed in a plural number." Samsung's argument that "connected respectively to both sides" cannot be understood fails in light of the intrinsic evidence, which describes plug electrodes connected across either side of a fuse portion. See ’195 Patent Figs. 9g, 11e; col. 19:15-35.

1. Pluggable Memory Key Means

Roche contends that the term "pluggable memory key means" connotes sufficient structure such that § 112, P 6 should not apply. Roche would construe the term as: a module containing memory that is "pluggable" (i.e., capable of repeatedly establishing and breaking electrical contact by insertion and removal). Roche Br. at 36. Apex/HDI contend that the term is written in means-plus-function language and should be construed using § 112, P 6. Apex/HDI assert that the term's functions are 1) mating with an electrical receptacle in the meter and 2) storing parameter values and procedure routine specifications. Apex/HDI argue that the structure that corresponds to this function is: a ROM that is received by a meter that includes a programmable Read Only Memory chip containing stored parameter values and procedure routine specifications. Apex/HDI point to evidence that Roche intended for the PTO to interpret the term as a means-plus-function term in claim 5 to bolster their argument that Roche has failed to rebut the presumption that the language used for the term makes it a term subject to § 112, P 6.

To determine whether or not a term that uses the word "means" should be construed pursuant to § 112, P 6, "the focus is on whether the claim term recites no function corresponding to the means or recites sufficient structure or material for performing that function." Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1372 (Fed. Cir. 2003) (citing Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999)). The Court finds that the term "pluggable memory key means" has sufficient structure to fall outside the ambit of § 112, P 6. There is no dispute between the parties that the term "pluggable" allows the memory key to be alternatively inserted and removed from the meter. Furthermore, there is no dispute between the parties that the "memory key" is a chip or module that contains data.

Apex/HDI contend that the prosecution history makes clear that the "pluggable memory key means" is a means plus function term. However, as pointed out by Roche in its reply brief, the references cited by Apex/HDI all refer to claim 5. The prosecution history reads:

Claim 5 specifically recites the operation of the processor means performing certain functions in relation to a CRC value read from the pluggable key means. . . . Applicants are unable to comprehend the basis for the inclusion of claims 5 and 16 in the rejection under 35 USC 112 [sic], fourth paragraph. Applicants respectfully submit that claims 5 and 16 are clearly proper dependent claims and fall well within the bounds of paragraph 6 of 35 USC 112 [sic]. Applicants further submit that the Examiner's statement at the bottom of page 6 of the official Office Action is in clear error when considering the recitations contained in the presently pending claims. For the record, the Examiner indicated as follows:

"The dependent limitations with respect to how the processor or pluggable memory key means is to be sued have not been given any patentable weight with respect to the apparatus limitations. Patentability of apparatus claims are dependent upon features not on how the particular feature is to be used. The claimed feature only need to be capable of performing the function". [sic]

35 USC 112 [sic], sixth paragraph provides a statutory basis for means plus function claims. Function recitations is [sic] means plus function claims limit how the "means" are to be used. Thus, by definition, the functional recitations contained in the pending claims are entitled to be given "patentable weight" and to be considered as defining Applicants [sic] invention in full conformance with 35 USC [sic]. Applicants respectfully submit the Examiner was in error in taking the above-noted position. Withdrawal of the rejection of claims 5 and 6 under 35 USC 112 [sic], fourth paragraph is respectfully requested.

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. . . Claim 5 recites that the pluggable key means stores a cyclic redundancy check value (CRC). Claim 5 further recites a
function performed by the processor means in combination with the CRC values. No such teaching is present in Keiser et al.

Apex Defs.' Exh. 2, at A70-A73. In summary the patentees stated:

In view of the above, Applicants respectfully submit that claims 1, 2, 5, 15, and 16 clearly differentiate over any teaching of Keiser et al. or any teaching which one skilled in the art might derive from Keiser et al. Applicants respectfully submit that the functional statements contained in the rejected claim must be considered in determining the patentability thereof in conformance with 35 USC 112 [sic], sixth paragraph. Reconsideration and withdrawal of the rejection of claims 1, 2, 5, 15 and 16 under 35 USC 102(b) [sic] is respectfully requested.

Id. at A73. These sections indicate that the patentees argued for evaluation of at least original claims 5 and 16 pursuant to § 112, P 6, however, there is no connection between these arguments and claim 1.

Even if there were such a connection, there is no distinguishable difference between the structure identified by a plain-meaning interpretation of the term "pluggable memory key means" and a means-plus-function interpretation of the term. The clear meaning and/or structure for the term "pluggable memory key means" in the 609 patent is: a removable and/or reinsertable read-only-memory ("ROM") chip and/or module. The parties apparently agree that the 609 patent specification repeatedly refers to interchangeably a "removably, pluggable memory module" or a "pluggable read only memory(ies)" or a "pluggable memory key" or "pluggable ROM key" or simply a "ROM key." See, e.g., 609 Patent, col. 1, ll. 9-10; id. col. 3, ll. 13-33; id. col. 3, ll. 46-64; id. col. 4, ll. 40-56; id. col. 5, ll. 5-17. It is the reinsertable, ROM or memory key/module that is inserted into an electrical receptacle of the meter, and stores parameter values and procedure routine specifications (or procedure routines), throughout the 609 patent's specification.

For the foregoing reasons, the Court finds that the "pluggable memory key means" is: a removable and/or reinsertable read-only-memory ("ROM") chip and/or module.

3174

10. "one or more plugs for external drives and devices, and ports for switches"

This term appears in the '408 patent claim 9. Rackable contends that "one or more plugs for external drives and devices, and ports for switches" means "one or more plugs for drives and peripheral computer subsystems (such as disks, keyboards, monitors, mice, printers, scanners, tape drives, microphones, speakers, or cameras) that are external to the computer chassis, and one or more ports for switches." Supermicro asserts that "one or more plugs for external drives and devices, and ports for switches" means "one or more connectors for drives or elements that are external to the computer, and openings that provide access to switches."

Again, it is helpful to provide the full language of claim 9 of the '408 patent, which recites:

A computer comprising:

- a main board having I/O connectors including one or more data transmission ports mounted thereon; and
- a chassis comprising a front panel providing access to the I/O connectors including the one or more data transmission ports and access to each component provided for the computer selected from the group consisting of removable power supplies, removable drives, removable media drives, one or more plugs for external drives and devices, and ports for switches.

The essence of this dispute is really how "device" should be defined. It is clear to the court from the parties' arguments in their papers and at the hearing that there really is no dispute regarding the definition of "plug" or "drive;" that the drives and devices are "external" to the computer; and that "ports for switches" are openings. Accordingly, the court declines to define those terms, which are undisputed.

As for the definition of "device," Supermicro advocates a broad definition of the term, contending that "device" is
synonymous with "element," and should be construed as a generic term referring to any item that is hooked up to a 
computer. Rackable, on the other hand, argues for a narrower definition, one that limits a "device" to a "peripheral computer 
subsystem" and provides examples of "peripheral computer subsystem[s]."

Rackable argues that Supermicro improperly attempts to broaden the definition of the term "device." Rackable cites to the 
'366 patent specification, including figure 1, in support of its argument that "referred-to 'devices'" include "peripheral 
computer devices, such as keyboards, monitors, mice, printers, scanners, tape drives, microphones, speakers or cameras." 
See '366 patent at 6:11-18. Rackable also cites to a dictionary definition for "device." See Ostrapuk Decl., Exh. DD.

Supermicro counters that Rackable's narrow definition of the word "device," limiting it to a "peripheral computer 
subsystem" is contrary to the specification. It asserts that the patent application intentionally chose to use the generic term 
"device," as opposed to the more specific "computer subsystem" or "peripheral device." Supermicro also cites to a technical 
dictionary definition for the term "device."

It is not necessary for the court to resort to extrinsic evidence to construe the term "device" because the specification 
provides meaning for the term. The related '366 patent abstract clarifies that Supermicro's broader construction of "device" 
is more appropriate. That abstract explains that "by placement of access space to all elements which require periodic 
attention at the front of each computer, the need for significant space at the rear of a computer is eliminated." '366 patent 
abstract. Later in the specification's "summary of invention," the specification utilizes a similar broad term for "devices" -- 
"attachments." '408 patent at 4:8. The specification also provides examples of such "devices," but the list is not exhaustive. 
In the detailed description of the embodiments, the specification provides that "a number of devices may be optionally used 
in this port" and then continues with a discussion of the possible types of "drives" (not to be confused with "devices"). '408 
patent at 6:7-13. The specification then suggests that devices may include "USB/external SCSI or parallel port devices or 
other auxiliary data drives configured for plug-in use." Id. at 6:13-19. However, nowhere does the specification define 
"devices" as narrowly as Rackable would have the court construe it.

Because the court finds that the specification supports a broader construction of "device," and also finds that "attachment" is 
clearer than "element," as advocated by Supermicro, the court construes "one or more plugs for external drives and devices, 
and ports for switches" as one or more plugs for external drives and attachments, and ports for switches.

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**3175**

**Plural protective transistors**

The Court modifies MEI's proposal and construes the term as "multiple transistors which provide a discharge path for 
current to flow between the first power supply wire and the second power supply wire when activated." MEI's argument that 
"plural" in this claim has a special meaning--i.e., "three or more"--is unsupported. Also, "plural" is used in a means-plus-
function term in claim 2. MEI agreed to a construction of that term that does not include a special "three or more" 
construction of "plural." See Third Amended Joint Supp. Claim Const. Chart at 55 (Docket No. 141); Fin Control Sys. Pty, 
Ltd. v. OAM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001)("[T]he same terms appearing in different portions of the claims 
should be given the same meaning unless it is clear from the specification and prosecution history that the terms have 
different meanings at different portions of the claims.").

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**3176**

B. "A plurality of active MOS regions within a semiconductor substrate" (715 patent, claim 1)

The parties agree that this language should be construed to mean "At least two active MOS regions (construed elsewhere) 
within a common semiconductor substrate;" defendant argues that this court should understand this language to also require 
that the active regions be "separate." At the outset, it is not entirely clear what APT means by the word "separate." At some 
points, APT appears to argue that the "plurality" of regions must be "distinct" or "distinguishable" from one another. APT 
Opp. Br., at 5. On the other hand, Ixys suggests (with a greater degree of clarity than APT itself) that APT is instead
advancing a limiting construction that the regions must not be "connected." Ixys Reply Br., at 3.

Of these two options, the former limitation is part and parcel of the phrase "at least two." A substrate cannot be said to contain "at least two" active regions if those regions cannot be distinguished from one another, namely if it is impossible to identify a point at which one region exists, and the other does not. The latter option is foreclosed by the specification, which states that "The embodiments shown may comprise, for example, cells which are all connected in parallel." '715 patent, 7:53-56. A claim construction that would not cover a preferred embodiment in the specification "is rarely, if ever, correct and would require highly persuasive evidentiary support." Vitronics, 90 F.3d at 1583. The language of the second half of this claim--"each of said active MOS regions having a source region, channel region, and drain region"--is not to the contrary, and does not provide near the evidentiary support necessary to overcome the Vitronics presumption. '715 patent, 7:63-65. Regardless of whether this means that each active region must have its own source, channel, and drain regions, or whether regions may share a source or drain, 2 the active regions may nevertheless be connected in some manner, such as through a bus.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - 
2 Indeed, most power MOSFETs are designed such that all of the transistors placed on a substrate share a common drain.
- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - - 

The court has not been asked to construe the phrase "each of said active MOS regions having a source region, channel region, and drain region," and so it will not pass upon the question described above regarding whether multiple active regions may share a source, drain, or channel. It is worth noting only that "multiple" active regions cannot share a source, channel, and drain, since the active regions would cease to be in any way distinct or distinguishable, and thus no longer constitute "more than one" region. Since the language of the claim and specifications are sufficiently clear on these points, the court need not reference any extrinsic evidence.

The court construes this claim language to mean: "At least two distinguishable, active MOS regions within a semiconductor substrate."

3177

The contested phrase "a plurality of beams of light" appears in claims 1 and 3 of the '272 patent. They read

1. A method for producing on a photoreceptor an image of generated shapes made up of spots, comprising: directing a plurality of beams of light toward a photoreceptor, each beam of light generating a spot on the photoreceptor and controlling a parameter of the light beams to produce spots of different sizes whereby the appearance of smooth edges are given to the generated shapes.

3. Apparatus for producing on a photoreceptor an image of generated shapes made up of spots, comprising: means for directing a plurality of beams of light toward a photoreceptor to generating a plurality of spots on the photoreceptor and means for generating spots of different sizes whereby the appearance of smooth edges are given to the generated shapes. (emphasis added)

It is undisputed that the accused HP printers use the same prior art light scanning system as that shown in Figure 1 of the '272 patent. The HP printers employ light from a single laser source which is reflected off a polygonal mirror to a photoreceptor mounted on a drum. Instead of adjusting either the beam's intensity or diameter, as is described in the '272 patent, the accused printers solve the "jaggies" problem by modifying the duration of time the laser beam is on.

In 1990, PB notified HP that several of HP's marketed laser printers infringed the claims of the '272 patent. This action followed.

STANDARD

Summary judgment is appropriately granted when the evidentiary record reveals that there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). In determining whether the record
presents genuine issues for trial, the court must view all inferences and ambiguities in a light most favorable to the non-moving party. See Bryant v. Maffucci, 923 F.2d 979, 982 (2d Cir.), cert. denied, 502 U.S. 849, 112 S. Ct. 152, 116 L. Ed. 2d 117 (1991). A plaintiff raises a genuine issue of material fact if "the jury could reasonably find for the plaintiff." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 252, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). Rule 56(c) "provides that the mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement is that there be no genuine issue of material fact." Liberty Lobby, supra, at 247-48. The Supreme Court noted that:

Rule 56 must be construed with due regard not only for the rights of persons asserting claims and defenses that are adequately based in fact to have those claims and defenses tried to a jury, but also for the rights of persons opposing such claims and defenses to demonstrate in the manner provided by the Rule, prior to trial, that the claims and defenses have no factual basis.

Celotex v. Catrett, 477 U.S. 317, 327, 91 L. Ed. 2d 265, 106 S. Ct. 2548 (1986). "One of the principal purposes of the summary judgment rule is to isolate and dispose of factually unsupported claims... [and] it should be interpreted in a way that allows it to accomplish this purpose." Celotex, supra, at 323-24. In a case of patent infringement, summary judgment is appropriate when comparison of the accused device and the claim reveals that there is an absence of disputed material fact. Chemical Eng'g Corp. v. Essef Indus. Inc., 795 F.2d 1565 (Fed. Cir. 1986).

DISCUSSION

I

Claim Construction

"The construction of a patent, including the terms of art within its claim, is exclusively within the province of the court." Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 1386, 134 L. Ed. 2d 577 (1996). In determining the meaning of a claim, the court first examines the intrinsic evidence of the record, including the claims, specification, and the prosecution history. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Intrinsic evidence is "the most significant source of the legally operative meaning of the disputed claim language." Id. at 1582. If the intrinsic evidence does not sufficiently resolve ambiguities, then the court may consider extrinsic evidence, including expert and inventor testimony, in order to arrive at a "proper understanding of the claims." Id. at 1583.

1. Intrinsic Evidence

a. Language of the Claims

HP first argues that the term "a plurality of beams" plainly means that a device must direct "two or more beams of light originating from two or more separate light sources" toward a photoreceptor. Alternatively, they contend the "plurality of beams" limitation requires that a single light beam must be "split or divided into multiple beams." Since it is undisputed that the accused devices employ neither multiple light sources nor beam splitters, HP argues that they do not infringe the '272 patent.

PB responds that the plain meaning of a "plurality of beams" does not require a device to use either multiple light sources or beam splitters. They argue that there are no limitations in the claim which require that "each beam of light originate from a different power source or be divided into multiple beams." Rather, given the nature of the described invention, they propose that it is possible to generate a plurality of beams from a single laser source.

Interpreting the claim language is of primary importance. The "language of the claims frames and ultimately resolves all issues of claim interpretation." Abtox, Inc. v. Exitron Corp, 122 F.3d 1019, 1023 (Fed. Cir. 1997). Claim terms are to be given their ordinary and customary meaning, unless it is apparent that the inventor expressly intended a different meaning. Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed. Cir.), cert denied, 519 U.S. 911, 117 S. Ct. 275, 136 L. Ed. 2d 198 (1996). When reviewing claim language, a court must apply "normal rules of syntax" and consider the context of the claim. Eastman Kodak Co. v. The Goodyear Tire and Rubber Co., 114 F.3d 1547, 1553 (Fed. Cir. 1997).

Applying these principles to the instant case, the court concludes that the phrase "a plurality of beams of light" when used in
the '272 patent means multiple beams of light generated sequentially from one or more light sources. The plain language of the '272 claims indicates that PB's invention operates by "directing a plurality of beams of light toward a photoreceptor, each beam of light generating a spot on the photoreceptor." The relevant dictionary definition for the word plurality is a "state or condition of being plural or numerous," with the word plural being defined as "containing, consisting of, or designating more than one." See Funk and Wagnall, Standard College Dictionary, (1963). 2 Multiple beams of light can be generated sequentially over time by one laser source. The ordinary meaning of the word "plurality" contains no requirement that "a plurality of beams" be created simultaneously, as suggested by HP.

Applying the "normal rules of syntax" to the claims provides further support for the conclusion that "a plurality of beams" can be generated sequentially. See Eastman Kodak Co. v. The Goodyear Tire and Rubber Co., 114 F.3d 1547, 1553 (Fed. Cir. 1997). Claim 1 describes a method which operates by "directing a plurality of beams of light toward a photoreceptor, each beam of light generating a spot on the photoreceptor." The use of the phrase "each beam of light generating a spot" modifies the term "plurality of beams." The use of the term "each beam" implies that multiple beams can individually strike the photoreceptor in turn to create multiple spots. The preferred embodiment of the '272 patent describes a system in which beams of light are reflected off a rotating polygon mirror towards a photoreceptor. Sequential production of multiple light beams by one or more laser source produces a plurality of beams, which are individually directed toward the photoreceptor by the rotating mirror.

Further, if this court were to adopt HP's suggestion that multiple laser sources are required to produce a plurality of beams of light, the preferred embodiment of the '272 patent would fall outside of the claims. Figure 1 of the '272 patent depicts a device which employs a single laser source and does not discuss the use of beam splitters. To hold that a plurality of beams can only be generated either by the simultaneous operation of multiple laser sources or by the use of beam splitters would exclude coverage of the preferred embodiment from the claims of the '272 patent. "Such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). Since such evidence is lacking in the instant case, it is logical to conclude that the preferred embodiment is covered by the patent claims.

b. The Specification

HP next argues that the specification of the '272 patent describes the apparatus in Figure 1 as a device which "directs a single beam of light toward a photoreceptor." They contend that the only instance where the specification refers to multiple beams of light is in the discussion of the two laser embodiment. "The use of the term 'beams' exclusively in connection with the embodiment of the alleged invention which employs two light sources . . . is in stark contrast to the description of the first embodiment." They contend that "a plurality of beams" can only be produced by the multiple laser version of the '272 patent, not the single laser embodiments depicted in Figure 1.

PB replies that the specification reveals that Figure 1 is "the one and only preferred embodiment" of the '272 patent. "The teaching in the specification confirms that the invention applies to printers with one or two laser power sources." PB contends that either embodiment generates the required "plurality of beams."
After reviewing the claim language, the court must review other parts of the patent document, including diagrams or figures, which are collectively referred to as the specification. Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 1387-88, 134 L. Ed. 2d 577 (1996); see also Al-Site Corp. v. Bonneau Co., 22 F.3d 1107 (Fed. Cir. 1994). "The specification contains a written description of the invention that must enable one of ordinary skill in the art to make and use the invention. For claim construction purposes, the description may act as sort of a dictionary, which explains the invention and may define terms used in the claims." Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (internal citations omitted). A court reviews the patent specification to determine whether the patentee "used any terms in a manner inconsistent with their ordinary meaning." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, although a review of the specification may add context to the claim language, it may not be used to read limitations into the claims. Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir.), cert. denied, 488 U.S. 892, 102 L. Ed. 2d 218, 109 S. Ct. 228 (1988).

In the instant case, the specification of the '272 patent provides, 4 inter alia,

The light source, such as the laser 10, which may be a three mw helium-neon laser, generates a collimated beam 12 of monochromatic light which is direct through a neutral density filter 14 to control the light intensity. The beam 12 then passes through a modulator 16, such as an acousto-optical modulator. The beam 12 is next directed through a first lens 20 and intercepted by a knife edge 22 placed at the focal point of the first lens 20. […] It is desirable to use the first order beam to produce a spot because the position of the spot can be displaced in accordance with the frequency modulation applied to the modulator which will selectively deflect the beam 12 in a desired direction such as indicated by the arrows a, b. The first order beam 12 is then directed towards a second lens 24 which directs the converging beam onto a reflecting face of facet of a rotating polygonal mirror, herein referred to as polygon 28. The polygon 28 is continuously driven by a motor drive 30 and preferably is maintained at a constant velocity. . . . The beam 12 is thus reflected successively from each of the facets off the rotating polygon 28 and onto a photoreceptor 32.

--- Footnotes ---

4 Numbered references refer to Figure 1 of the '272 patent, which is contained in Exhibit 1 of this decision.

--- End Footnotes ---

The specification supports the conclusion that the phrase "a plurality of beams" when used in the '272 patent means multiple beams of light generated sequentially from one or more light sources. It indicates that reflecting each beam of light "off the rotating polygon and onto a photoreceptor" creates a small discharged area on the photoreceptor. Each symbol or picture produced by this process is composed of hundreds or thousands of these small discharged areas. Since each discharged area is created by one beam of light, it takes many beams, or a plurality of beams of light, to create one image. The specification of the '272 patent teaches that these beams can be produced sequentially by one or two laser sources. The meaning of the phrase a "plurality of beams of light" derived from the specification is consistent with the plain meaning of the claim language.

c. The Prosecution History

HP further argues that the prosecution history of the '272 patent supports the assertion that a "plurality of beams of light" requires more than one laser source. Specifically, they direct this court's attention to the PTO office action of September 23, 1981, which rejected claims 15 and 16 of the '532 application. These claims, which eventually became claims 1 and 2 of the '272 patent, were initially rejected since the examiner believed the specification did not clearly describe how "one photoreceptor would distinguish between the plural beams and how one or both beams would be controlled." HP contends that this rejection is evidence that the preferred embodiment of the '272 patent requires multiple laser sources to create a plurality of beams.

PB responds that the examiner's initial rejection was in reference to the two laser source embodiment of the application, not the "plurality of beams" language found in claim 1 and 3 of the '272 patent.
The undisputed public record of the proceedings in the PTO is of primary importance in understanding the claims. Markman v. Westview Instruments, Inc., 52 F.3d 967, 980-81 (Fed. Cir. 1995). The file history can function to limit claim construction so as to exclude any interpretation which was disclaimed during prosecution. Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570 (Fed. Cir.), cert. denied, 516 U.S. 987, 116 S. Ct. 515, 133 L. Ed. 2d 424 (1995). The prosecution history must be read "in its full context, not on the basis of snippets lifted out of context." J.T. Eaton & Co. v. Atlantic Paste and Glue Co., 106 F.3d 1563, 1576 (Fed. Cir. 1997).

In the instant case, there is nothing in the prosecution history which indicates that multiple laser sources are required to create a plurality of beams. The text of the examiner's initial rejection of the '532 application indicates that he was referring to the two laser embodiment of the invention. For example, his concern that the initial application did not teach how "one or both beams" indicates that he was discussing the two laser embodiment. Interpreting this single comment to require that the PB patent covers only multiple laser source applications would improperly "diminish or vary the limitations of the claims." Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227, 26 L. Ed. 149 (1880); see also Constant v. Advanced Micro-Devices Inc., 848 F.2d 1560, 1571 (Fed. Cir.), cert. denied, 488 U.S. 892, 102 L. Ed. 2d 218, 109 S. Ct. 228 (1988)(holding that it is improper to read limitations from the specifications into the claims).

2. Extrinsic Evidence

The court concludes that the use of extrinsic evidence is unnecessary in this case. Extrinsic evidence may be evaluated "in order to aid the court in coming to a correct conclusion as to the true meaning of the language employed in the patent." Markman v. Westview Instruments, Inc., 52 F.3d 967, 981 (Fed. Cir. 1995)(internal citations omitted). However, "reliance on such evidence is unnecessary, and indeed improper, when the disputed terms can be understood from a careful reading of the public record." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996).

In this case, the meaning of the phrase "a plurality of beams of light" can be understood from a careful reading of the claims, the specification, and the prosecution history. Accordingly, consideration of extrinsic evidence is unnecessary and improper.

5. "a plurality of calibration images including a calibration marker" (claims 6-9); "a plurality of alignment images including an alignment marker" (claims 11-13); "a plurality of calibration marks" (claims 14-16)

PolyVision's proposed construction
More than one individual mark or target serving as touch points for the calibration process.

Smart's proposed construction
Indicia serving to indicate the positions to be used in calibrating the large-screen display surface, at least one of said indicia being a visible marker.

PolyVision argues that the term plurality should be given its ordinary meaning, as "more than one," as set forth in its proposed construction. Smart contends its construction will avoid limiting the claim to the specific embodiments set forth in the specification. However, as set forth above, the Court believes that resort to the specification is permissible and necessary in order to properly construe the claim language. In addition, as PolyVision correctly notes, Smart's proposed construction, which includes the phrase "at least one of said indicia being a visible marker," is at odds with the requirement of "a plurality." The Court will thus accept PolyVision's construction.

1. Plurality of coordinates being included in a plurality of respective distinct blocks

The focus of the parties' dispute over the construction of Claim 3 concerns whether there is necessarily a one-to-one
correspondence between one set of coordinates (out of the several sets provided) and a particular block in the set of data blocks. Google proposes a construction of "each one of the plural sets of coordinates being included in a separate distinct one of a plurality of data blocks describing three-dimensional terrain," while Skyline proposes "more than one set of coordinates being described by the data contained in more than one data block."

Comparing Claim 3 to Claim 1, it is clear that Claim 1 is not limited to situations where a single point is provided to the renderer. Rather, the renderer may receive "one or more coordinates," indicating that several coordinates, defining particular points, could be provided to the renderer simultaneously. The question then necessarily arises how Claim 3, which calls for several sets of coordinates to be passed to the renderer, differs from Claim 1. The difference is illuminated in the detailed description of Fig. 7, which describes two different ways the renderer might specify which blocks are necessary.

Preferably, renderer determines the exact blocks needed and calls for them using their (x, y) coordinates and their resolution level. Alternatively or additionally, renderer specifies, for each resolution level, the coordinates of the boundaries of the necessary areas, and cache manager determines the identities of the required blocks.

The method described in Claim 1 seems to correspond to the first method in the Fig. 7 description (providing specific required points), while the Claim 3 method appears to follow the second description (using several points to define the boundaries of an area). Although Fig. 7 is not itself part of a claim, of course, it does shed light on the meaning of Claim 3, particularly given the somewhat Delphic phrase at issue.

As Skyline notes (Plaintiff's Claim Construction Slides, p. 22), "respective distinct" modifies blocks, not the plurality of coordinates. However, Skyline's proposed construction reads "respective distinct" out of the claim entirely. I read the disputed language in Claim 3 as largely descriptive -- the several sets of coordinates at issue are, by definition, contained within available data blocks, which are themselves distinct from one another. In this reading, several sets of coordinates may be contained within one distinct block, but the blocks do not overlap. In this way, the blocks are "distinct," and coordinates are found in their "respective" blocks. Because I do not find anything in the claim language or elsewhere requiring a strict one-to-one correspondence between coordinates and blocks (so that each point describes only one data block, and the same number of points and blocks are contained in each plurality), I construe this language more broadly, allowing a one-to-many relationship between the blocks and the coordinates, n12 while still emphasizing the distinctiveness of each block.

n12 The concept is that one block may contain many coordinates and each set of coordinates may be contained within only one block. This one-to-many concept is in contrast to Google's one-to-one and Skyline's many-to-many.

Construction: (plurality of coordinates being included in a plurality of respective distinct blocks) Several coordinates, where each set of coordinates is contained within one block in a set composed of data blocks that are distinct from one another.

A

The method of claim 1 includes the steps of "receiving a plurality of demands" and "receiving a plurality of settlement offers." 551 patent, col. 19, ll. 33, 35. Although Cybersettle's brief is unclear on the point, Cybersettle agreed at oral argument that the claim term "plurality" refers to two or more of something. That definition is consistent with the well understood meaning of the term "plurality" both in general and in patent parlance. Nonetheless, Cybersettle argues that the method of claim 1 does not require the receipt of multiple offers and demands, but instead is satisfied if the executing computer has the capacity to receive multiple offers and demands, even if only one demand and one offer are received before settling the dispute. The district court agreed with that claim construction, holding that claim 1 "contemplates a dispute resolution method that is capable of, but does not require, multiple rounds."
We do not agree with that aspect of the district court's claim construction. A patented method is a series of steps, each of which must be performed for infringement to occur. It is not enough that a claimed step be "capable" of being performed. See Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299, 1311 (Fed. Cir. 2006) (rejecting an argument that a claim requiring the replacement of appliances can be performed if the appliances are merely "capable of" being replaced); NTP v. Research in Motion, Ltd., 418 F.3d 1282, 1318 (Fed. Cir. 2005) ("[T]he use of a [claimed] process necessarily involves doing or performing each of the steps cited."). A party that does not perform a claimed step does not infringe a method claim merely because it is capable of doing so.

It is of course true that method steps may be contingent. If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed. But Cybersettle does not argue that the two "receiving" steps are contingent on some unspecified condition, and the "receiving" steps of claim 1 contain no conditional language.

To interpret claim 1 as Cybersettle suggests, we would have to interpret the phrases "receiving a plurality of demands" and "receiving a plurality of settlement offers" not to require receipt of pluralities of demands and offers. Instead, we would have to interpret the "receiving" steps as if they read "receiving one and, if necessary, a plurality" of demands and offers. There is no textual basis for such a dramatic alteration of the claim language, a serious shortcoming of Cybersettle's argument. See Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 950 (Fed. Cir. 1993) ("It is improper for a court to [add limitations] ... wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim." (quotation marks omitted)); see also Amgen, Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed. Cir. 2003) ("The danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim."). Such a construction would amount to rewriting the claim.

Cybersettle argues that it would be illogical to interpret claim 1 restrictively, to require the submission of at least two bids and at least two offers, because it would "require[] actions (submission of multiple bids and running a second round) which are completely unnecessary if there is a settlement in the first round." That restrictive construction of claim 1 is not illogical. Although that construction would cover the impractical embodiment to which Cybersettle refers, it would also cover the ordinary process of receiving a first pair of bids, determining that it fails the settlement condition, receiving a second pair of bids, and determining that the second pair of bids produces a settlement. Nor is the restrictive construction illogical on the ground that it excludes an embodiment that would be natural to include in a dispute resolution method--settlement and termination of the process after receipt of only a single pair of bids. Patents frequently contain claims to devices or methods whose scope includes fewer than all the embodiments that would routinely be used in practice.

Cybersettle also argues that interpreting claim 1 to require the receipt of multiple demands and offers would exclude a preferred embodiment of the invention and would therefore be an incorrect construction of that claim. It is true that the specification describes methods in which a dispute settles without the receipt of two offers and two demands. In one embodiment, even if the sponsor has submitted several settlement offers, the claim may settle when the claimant submits the first demand. '551 patent, col. 7, ll. 29-30; col. 8, ll. 41-42 (providing for the receipt of multiple offers and providing that a demand is "instantly compare[d]" to the offer for the given round). Further, figure 2 indicates that settlement may occur after just one offer and one demand have been received. Step 23 of that figure indicates that the depicted interaction applies to the claimant's first demand, stating that the system will recite the claimant's previous demand "if a previous demand has been made." Step 24 of that figure recites comparing the demand and the stored offer for that round and, if they match, announcing a settlement. Figure 2 thus does not require either party to enter multiple bids before a dispute may settle.

Although Cybersettle's characterization of the specification is accurate, its argument based on the specification is flawed. That is because our interpretation of claim 1 does not exclude the discussed embodiments from the scope of the claimed invention, but only excludes those embodiments from the scope of that claim. Although claim 1 does not capture the discussed embodiments, other claims do. Claim 133, for example, covers a system that includes a "means for introducing to the processor ... a series of demands ... and a series of offers." '551 patent, col. 30, ll. 57-61. Because the system is claimed using "means for introducing" language, claim 133 merely requires that the system be capable of receiving two or more demands and offers, not that the system actually receive two or more demands and offers. Method claim 59 is similar in that regard. Claim 59 requires executing a program "for receive[ing] values" representing a series of bids and "for sequentially comparing" the bids, but it does not require actual receipt of the bids after execution of the programs that can receive them. Id., col. 24, ll. 32-47. Thus, claim 59 also allows for the interaction depicted in figure 2. Accordingly, we
reject Cybersettle's argument that construing claim 1 to require multiple offers and demands would impermissibly exclude preferred embodiments from the scope of the invention.

With respect to claim 27, we agree with NAF that the reference to testing bids "in one of at least two rounds" requires at least two rounds and therefore the receipt of two pairs of bids. According to the specification, a round is an opportunity to settle a claim by comparing a settlement offer and a demand. '551 patent, col. 7, ll. 28-32; col. 7, ll. 65-67. Hence, performing two rounds requires receiving two demands and two settlement offers. Cybersettle takes the position that claim 27 does not require two rounds because the claim requires testing a pair of bids "in one of" at least two rounds. That reading, however, would render the "of at least two rounds" clause superfluous. If the "of at least two rounds" clause is to have any meaning, it must require that the entity executing the method perform a second round of settlement testing.

Importantly, the patentees added and relied on the "of at least two rounds" clause to overcome the examiner's initial rejection of claim 27 over a prior art reference. The cited reference disclosed the method of testing a demand and a settlement offer in one round and calculating a settlement value if a settlement test is satisfied. In response to the rejection, the patentees added the "of at least two rounds" qualifier, after which the examiner allowed the claim because he found no motivation to combine the prior art reference with "multiple rounds of negotiation." By adding that unconditional limitation, the patentees added a required step to the method claim, not merely a permitted step.

We reject Cybersettle's argument that our construction makes the "in one of" clause superfluous. That clause serves the purpose of specifying in how many rounds any one pair of values must be tested. Without that clause in the claim, the claim would direct the testing of a single pair of bids in two or more rounds, contravening the patentees' definition of each round as involving a distinct pair of bids.

In sum, independent claims 1 and 27 both require the receipt of at least two demands and at least two settlement offers. Although that modification of the district court's claim construction may have little effect on the ultimate outcome of this case, that is a matter for the district court to determine on remand. In the course of their operation, the accused ANS 3 and ANS 1x systems would infringe (assuming all the other claim limitations were satisfied) only when they received multiple demands and multiple offers; proof that those systems were capable of receiving multiple demands and multiple offers is not proof that they ever performed the claimed methods.

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A. "Plurality of Different Modes"

Covad argues that the Court should construe claim 1's transceiver that operates in a "plurality of different modes" and claim 21's "ADSL/AVR" transceiver to be:

- a transceiver that operates by dividing available bandwidth between two channels in at least two of the following ways, (1) where the first channel is smaller than the second ("conventional ADSL" mode); (2) where the two channels are of "roughly" equal size ("bi-directional" mode); and (3) where the first channel is larger than the second ("reversible" mode).

Bell Atlantic asserts that neither claim 1 nor claim 21 makes a reference to "bandwidth" and argues that the Court should construe the term "mode" as used in claim 1 as "the operational state of the claimed transmission system (when transmitting) as defined by the upstream and downstream transmission rates."

Covad relies exclusively on intrinsic evidence in support of its position. The patent explains that the microprocessor assigned to each unit selects "the transmission bandwidth and mode of the ADSL/AVR transceiver." Col. 11, ll. 61-62. In this context, it discusses using filters to ensure that data transmission occurs over the appropriate bandwidths. See col. 11, ll. 62-67. The patent discusses three "different modes," which are the only ones discussed anywhere in the patent, namely, the "conventional ADSL" mode, the "bi-directional" mode, and the "reversible" mode. The conventional ADSL mode allocates more capacity to the downstream channel than to the upstream channel, as shown in Figure 4 of the patent. See col. 12, ll. 3-10; fig. 4 (attached). The bi-directional mode is one in which the transmission capacity is shifted from one channel to the other to provide "roughly equivalent" upstream and downstream channels, as shown in Figure 10 of the patent. See col. 12, ll. 11-21; fig. 10 (attached). The reversible mode allocates less capacity to the downstream channel than to the upstream...
channel, such that the bandwidth allocation is the reverse of the conventional ADSL mode. See col. 12, ll. 22-30.

The patent specification explains that the bandwidth may be allocated between the upstream and downstream channels without making changes to the transceivers:

The encoder/decoder in the digital circuit may controllably transmit and receive over, in effect, the entire range, and use the range in different ways. Conventional ADSL has three different predefined spectrums as described previously. The firmware in the microprocessor/controller can enable the ADSL/A VR transceiver to transmit and receive anywhere in the spectrum … The range of the spectrum can be set so that it is possible to get more bandwidth going upstream and less bandwidth going downstream.

* * *

The structure of the chips in the chip set does not need to be changed to vary the mode of the transceiver or the transmission rates. Instead, the transceiver may be given another set of program guides telling it how to reallocate the spectrum.

Col. 13, ll. 12-23, 39-43.

The specification clearly states that this ability to manipulate the bandwidth is one of the useful innovations of the '786 patent: "This capability to manipulate the bandwidth range opens up possibilities to obtain transmission rates greater than the … rate typically used in ADSL systems." Col. 13, ll. 24-26.

Throughout the patent specification, the inventors describe only three "different modes": conventional ADSL, bi-directional, and reversible ADSL. See, e.g., col. 12, ll. 3-30; col. 13, ll. 6-12, 47-62; col. 14, ll. 7-21. As the patent defines different modes as the shifting of bandwidth back and forth between two channels, then there are only three logical possibilities for the different modes: where the downstream has greater capacity than the upstream, where the two channels have equal capacity, and where the downstream has smaller capacity than the upstream.

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8 Despite Bell Atlantic's assertion that downstream and upstream flows of information may also be separated by time or through the use of echo cancellation, the '786 patent only refers to the use of frequency separation (manipulation of the available bandwidth) as a means to separate flows of information. No reference is made to either time separation or echo cancellation within the language of the patent itself.

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The patent abstract further clarifies that an "ADSL/A VR transceiver" must operate in multiple modes, and the abstract only discusses the same three modes:

Asymmetrical digital subscriber line interface units operating at variable rates and in variable modes (ADSL/AVRs) over a local loop offer one-way video-on-demand and other services and carry the necessary signaling between the subscribers and information providers. In an asymmetric mode, the interface units frequency multiplex digital information with voice information to the subscriber and support transmission of a reverse control channel from the subscriber to the central office for transmission back to the information provider. Other modes are supported which permit selective bi-directional and reversible communications as well.

Abstract.

The patent repeatedly refers to the "ADSL/A VR" transceiver as including multiple modes, and the only three modes discussed are the conventional ADSL mode, the bi-directional mode, and the reversible ADSL mode. See, e.g., col. 4, ll. 20-23; col. 4, ll. 29-32; col. 10, ll. 59-67; col. 11, l. 61-col. 12, l. 2; col. 13, l. 63-col. 14, l. 5; col. 15, ll. 29-35.

The prosecution history also supports Covad's position with regard to the definition of "plurality of different modes" and the
"ADSL/AVR" transceiver. The PTO initially rejected the '786 patent claims as obvious over a prior ADSL patent to Arnon. See U.S. Patent No. 5,408,260. In Arnon, the bandwidth of the ADSL channels does not change once communications are established. Bell Atlantic then amended the claims and argued that the Arnon prior art did not bar the '786 patent claims because Arnon did not shift bandwidth from one channel to another as it changed modes. See July Amendment, at 14. Bell Atlantic described the Arnon prior art reference as having a single conventional fixed bandwidth distribution: "However, with the ADSL unit of Arnon's subscriber loops appear to be [a] conventional ADSL unit having a bandwidth distribution of the type illustrated in Applicant's Fig. 4." Id. Bell Atlantic then distinguished this single bandwidth distribution structure from the scope of the '786 patent's claims:

This is completely different from the present invention in which the ADSL terminal selectively changes the bandwidth for both control [upstream] and data [downstream] channels in the subscriber loop. … Even though Arnon teaches a fault induced substitution mode in col. 7, lines 26-44, the bandwidth or transmission rates in the ADSL loops during the fault mode or during the normal modes remain unchanged.

Id. at 15 (emphasis in original).

Bell Atlantic therefore represented that a conventional bandwidth system is "completely different" from the '786 patent system, which "selectively changes the bandwidth" of the DSL channels. See id.

Bell Atlantic has further stated to the PTO that the '786 claims require that bandwidth be reallocated between channels:

The ADSL/AVR's of the present invention are a modification of, and an improvement over, conventional ADSL units such as those shown in Figs. 3 and 6 of the disclosure. Conventional ADSL units multiplex voice and signaling information and other information on the subscriber loop using frequency multiplexing to divide the available loop bandwidth into three channels, such as channels 302, 304, and 306 of Fig. 4. … In the present invention, the transmission bandwidth of channels 302, 304, and 306 are controlled for various modes using a microprocessor/controller in the ADSL/AVR unit. The exemplary ADSL/AVR embodiment shown in Fig. 7 operates in one of three modes. The first mode is a conventional ADSL mode, as shown in Fig. 4 … The second mode is a bi-directional transmission mode … The third mode is a reversible mode … Hence, an ADSL/AVR unit effectively functions as a variable rate/variable mode modem …

Id. at 11-12.

Bell Atlantic added that the "ADSL/AVR" functions "as a variable rate/variable mode modem" operating at the "optimum mode." See id. at 13. The prosecution history, as with the language in the patent itself, only refers to three modes, and the only means discussed to change modes is through the reallocation of bandwidth.

Bell Atlantic asserts that the term "mode" as used in claim 1 should be construed by the Court as "the operational state of the claimed transmission system (when transmitting) as defined by the upstream and downstream transmission rates." Bell Atlantic relies first on extrinsic evidence in support of this construction. Bell Atlantic cites to two dictionary definitions of the term "mode." The first is "the operational state of a computer or program." Microsoft Press Computer and Internet Dictionary. The second is "[a] particular functioning arrangement or condition: STATUS <<a spacecraft in reentry> <<a computer operating in parallel>>." Merriam Webster's Collegiate Dictionary.

Bell Atlantic challenges Covad's argument that "modes" must differ in "bandwidth" and states that the dictionary definitions make sense in the context of the patent. Bell Atlantic argues that Covad is attempting to read language into the claims that was not intended, and Bell Atlantic refers to the initial description of the object of the invention, which states:

It is the broad object of the invention to controllably operate in one of a plurality of different modes and at any one of a plurality of different bit rates so as to provide a single transmission platform which may support a plurality of different services …

Col. 2, ll. 48-52.

Bell Atlantic states that while the preferred embodiment addresses the notion of modes and how one changes them, there is no limitation to changing transmission rates by one particular method such as changing bandwidths. Bell Atlantic asserts that
Figures 4 and 10 of the patent support Bell Atlantic's construction as these figures serve as mere illustrations of two examples of implementing modes. With regard to the nature of preferred embodiments, the patent states:

Although the present invention has been described and illustrated in detail, it is clearly understood that the same is by way of illustration an example and is not to be taken by way of limitation, the spirit and scope of the present invention being limited only by terms of the appended claims.

Col. 16, l. 66-col. 17, l. 3.

Bell Atlantic argues that additional limitations cannot be imported into a claim from the written description or preferred embodiment. The Court may, however, construe a specifically claimed limitation in light of the specification, which is all the Court does here. See Phonometrics, 133 F.3d at 1466. Further, taking guidance from the Court of Appeals for the Federal Circuit in Wang, the discussion of the three modes in the preferred embodiment and the means of changing modes by altering bandwidth are the only references to "modes" in the patent. The Court will not broaden claims 1 and 21 beyond their support in the specification, as the three modes discussed in the patent specification literally occupy the field of possibilities contemplated by the '786 patent. If the Court broadened the claims beyond technology even referred to in the patent itself, the purpose of the patent to inform the public of the scope of the claim would be defeated entirely. 9 It is the opinion of this Court that Bell Atlantic's arguments are an attempt to abuse the privileges of the patent by extending the "right to exclude" beyond the scope of the patent itself. During the prosecution history, Bell Atlantic was careful to define the scope of the patent claims narrowly in order to distinguish it from prior patents such as Arnon. Once the '786 patent had been awarded, however, Bell Atlantic may not later alter its claim definitions in an effort to define the patent as broadly as possible in order to establish a better litigation position.

9 A patent is a fully integrated written instrument. By statute, a patent must provide a written description of the invention "in such full, clear, concise, and exact terms" that will enable one of ordinary skill in the art to make and use it. See 35 U.S.C. § 112. The applicant for a patent is also required to conclude the specification with claims "particularly pointing out and distinctively claiming the subject matter which the applicant regards as his invention." Id. Further, the Court of Appeals for the Federal Circuit in Markman emphasized the need to determine the scope of patent: "it is only fair (and statutorily required) that competitors be able to ascertain to a reasonable degree the scope of the patentee's right to exclude." Markman, 52 F.3d at 978; see also Merrill v. Yeomans, 94 U.S. 568, 573-74, 24 L. Ed. 235 (1877) ("It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.").

The Court further recognizes that the Court of Appeals for the Federal Circuit has described intrinsic evidence as "the most significant source of the legally operative meaning of claim language." Vitronics, 90 F.3d at 1582. The Court will not, as Bell Atlantic requests, rely on extrinsic evidence in the form of dictionary definitions and expert testimony referring to time separation and echo cancellation, as an analysis of intrinsic evidence alone will resolve any ambiguities in the disputed claim terms. Thus, the Court finds that claim 1's transceiver that operates in a "plurality of different modes" and claim 21's "ADSL/AVR" transceiver mean:

- a transceiver that operates by dividing available bandwidth between two channels in at least two of the following ways, (1) where the first channel is smaller than the second ("conventional ADSL" mode); (2) where the two channels are of "roughly" equal size ("bi-directional" mode); and (3) where the first channel is larger than the second ("reversible" mode).
argues that the phrase "plurality of different modes" simply requires "multiple operational states providing different transmission services, as distinguished by their upstream and downstream transmission rates, whether the differences are achieved by altering bandwidth or by the other familiar methods of altering transmission rates." Bell Atlantic argues that the universe of "modes" contemplated by the '786 patent is not limited to the three modes discussed by the district court (conventional, bi-directional, and reversible). Bell Atlantic reasons that these three modes are simply "three broad categories" that may encompass other operational "modes." Specifically, Bell Atlantic contends that the rate of data transfer (as opposed to the bandwidth) within each of the three broad categories can be changed to create additional modes.

For example, Bell Atlantic posits that a bi-directional service "offering 192 Kbps [kilobits per second] in each direction is quite different from one offering 1.1 Mbps [megabits per second]." Under the district court's construction, both services would operate in the same "mode" (bi-directional) because both services allocate the same amount of bandwidth to both the upstream and downstream directions. However, Bell Atlantic argues that the 192 Kbps bi-directional service would operate in a different "mode" than the 1.1 Mbps bi-directional service because the rate of data transmission varies between the two services. Bell Atlantic also suggests that a transmission system may be changed from a conventional ADSL mode to a bi-directional mode by increasing the coding to allow "more bits per baud" or by "bit stuffing" without altering the relative bandwidth distribution of the upstream and downstream channels. In short, Bell Atlantic argues that "a plurality of different modes" also encompasses different methods of altering the transmission rates within the three broad categories.

It may be true that the ordinary meaning of the word "mode" supports a broader meaning than the construction ascertained by the district court. However, we must look at the intrinsic evidence to determine whether the patentee has given the term an unconventional meaning. Hockerson, 222 F.3d at 955, 55 U.S.P.Q.2D (BNA) at 1490; Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576. We are mindful that the patentee may act as his own lexicographer by using the specification to define terms either expressly or "by implication." Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577. Moreover, the ordinary meaning of the non-technical term "mode" is sufficiently broad and amorphous that the scope of the claim language can be reconciled only with recourse to the written description. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998).

a. The '786 Patent Specification

At the outset, we note that the '786 patent is entitled "Variable Rate and Variable Mode Transmission System." Consistent with the title of the patent, the patentees, throughout the specification, use the terms "rate" and "mode" to refer to separate and distinct concepts. In the summary of the invention, the specification states that it is an object of the invention to operate in:

a plurality of different modes and at any one of a plurality of different bit rates . . . . Still another object of the invention is to simply and easily vary the bit rates of the upstream and downstream channels, or the modes of the transceivers . . . . Another object is to either automatically control bit rate or mode by the CO or selectively control bit rate or mode by the subscriber.

'786 patent, col. 2, ll. 49-64 (emphasis added). Later, the Summary of the Invention notes that the present invention "has the advantages of conventional ADSLs, while allowing the data rate of the reverse control signaling channel to be controllably increased so as to have a higher rate transmission than ADSL in a bi-directional mode." Id. at col. 3, ll. 15-19 (emphasis added). The specification continues:

This variable rate / variable mode ADSL service will accommodate access to a wide variety of information providers . . . . In addition to variable bit rates for the control channel, the invention enables at least two modes for the ADSL transceivers, one providing bi-directional communications and the other providing asymmetrical communications.

Id. at col. 3, ll. 36-46 (emphasis added). Thus, before we even reach the Detailed Description of the Preferred Embodiments, it is clear that the '786 patent specification (in the Summary of the Invention) refers to the terms "rate" and "mode" as two separate and distinct concepts. The term "rate" describes the data rate within a given channel, while the term "mode" differentiates between asymmetrical and bi-directional communications.

The written description of the preferred embodiments also guides our interpretation of the claim language, as claims must be read in light of the specification. Scimed, 242 F.3d at 1340-41, 58 U.S.P.Q.2D (BNA) at 1062. We are mindful of the fact
that limitations from the specification may not be read into the claims. Comark, 156 F.3d at 1186, 48 U.S.P.Q.2D (BNA) at 1005. Indeed, Bell Atlantic argues that by limiting the construction of the term "mode" to the three broad categories described in the specification, the district court improperly imported the limitations of one embodiment into the claim term. We disagree.

We recognize that there is sometimes "a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." Comark, 156 F.3d at 1186, 48 U.S.P.Q.2D (BNA) at 1005. For example, relying on Johnson Worldwide, Bell Atlantic argues that it is impermissible to rely on the written description of a preferred embodiment to limit the claim language. In Johnson Worldwide, we held that the meaning of a claim term was not limited by its specific usage in the written description of a preferred embodiment. 175 F.3d at 991, 50 U.S.P.Q.2D (BNA) at 1611. We reasoned that the "varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition." Id.; see also Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1310, 51 U.S.P.Q.2D (BNA) 1161, 1170 (Fed. Cir. 1999) (holding that the written description of the preferred embodiments can set forth more than one definition of a claim term).

However, Bell Atlantic's reading of Johnson Worldwide and characterization of the role of the written description is too narrow. We held in Scimed, 242 F.3d at 1344, 58 U.S.P.Q.2D (BNA) at 1065, that the written description "can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format." Id. (emphasis added). Thus, when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term "by implication." Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577; see also Hockerson, 222 F.3d at 955, 55 U.S.P.Q.2D (BNA) at 1490.

In this case, in addition to the Summary of the Invention, the Detailed Description of the Preferred Embodiments continues to use the terms "mode" and "rate" to refer to two separate and distinct concepts. The specification notes that the arrows used in figure seven "illustrate the reversible mode feature of the system and no fixed data rate is given due to the capability of the system to transmit at any one of a number of different transmission rates." '786 patent, col. 10, ll. 64-67 (emphasis added). This passage uses the term "rate" to refer to the speed of data transmission, and uses the term "mode" to refer to the reversible mode feature. When describing the microprocessor that controls the transceivers, the specification states that "the variable transmission rates are controlled by a first [program] and the mode of the transceiver is controlled by a second [program]." '786 patent, col. 11, ll. 35-39 (emphasis added). Thus, the "mode" and "rate" of the transceiver are controlled by separate programs.

Further, the specification states that the system "operates in one of three selectable modes." '786 patent, col. 12, ll. 3-4 (emphasis added). The specification describes the modes:

   The first mode is conventional ADSL, which is appropriate for applications in which a subscriber wishes to view video data (using the fixed rate interface) or download a large amount of information in a predetermined downstream direction (utilizing the ethernet interface).

   The second mode is a bi-directional transmission mode which improves upon conventional ADSL by increasing the transmission rate of the upstream channel while decreasing the transmission rate of the downstream channel. This mode is preferable for certain interactive real-time applications such as video games and distance learning, in which a 8 Kbps or 16 Kbps upstream channel is insufficient for the flow of data in the upstream direction. An example of the channelization in the bi-directional mode in which the downstream and upstream channels are roughly equivalent is illustrated in FIG. 10 by channels 302', 304' and 306'.

   The third mode is a reversible mode in which the asymmetrical transmission of data and other information is carried out in the same manner as conventional ADSL shown in FIG. 4, but the direction of flow is selectively reversed so that the upstream direction becomes the downstream direction and vice versa. This mode is especially useful for applications in which there are non-simultaneous, non-real-time, exchanges of large amounts of information in both directions.

'786 patent, col. 12, ll. 3-29 (emphasis added).

These passages refer to Figure 10 of the '786 patent, which illustrates the described distribution of channel bandwidth.
Channel 306' is the downstream channel, while channel 304' is the upstream channel:

[SEE ORIGINAL FIGURE 10 IN ORIGINAL]

Although these passages offer the clearest description of the meaning of the term "mode" in the specification, the remainder of the written description also refers to the terms "mode" and "rate" as separate and distinct concepts:

The structure of the chips . . . does not need to be changed to vary the mode of the transceiver or the transmission rates . . . [The] microprocessor/controller enables the rate or mode of the ADSL/AVR to be selected in any one of a number of ways . . . . A menu [may query for] the desired mode and/or data rate . . . . The changes in mode and rate for the channel can be accomplished by the ADSL/AVR interface . . . . Once the mode and rate has been set . . . . The ADSL/AVR thus effectively functions as a variable rate/variable mode modem.

Another passage refers to an "asymmetrical mode." '786 patent, col. 13, ll. 6-7 (emphasis added). Other passages discuss the "reversible ADSL mode." '786 patent, col. 13, ll. 51-52. Still others explain how the system may change from "bi-directional mode to ADSL mode." '786 patent, col. 14, ll. 7-8, 44-58.

In short, there is no question that the '786 patent specification uses the terms "mode" and "rate" to refer to two different and distinct concepts. The "rate" of data flow is characterized as the transmission rate within a given channel. The "mode" is characterized by whether the relative bandwidth between the upstream and downstream channels is symmetrical or asymmetrical. Moreover, because the two terms are used separately and distinctly, different "modes" cannot be created by varying the data rate within one of the three broad categories. In other words, although a bi-directional service "offering 192 Kbps in each direction is quite different from one offering 1.1 Mbps," nevertheless, the two services do not constitute different "modes." Thus, given the single meaning of the term "mode" contemplated by the '786 patent specification, there are only three possible permutations by which the relative bandwidth may be characterized: (1) where the first channel is smaller than the second (conventional mode); (2) where the two channels are of roughly equal size (bi-directional mode); and (3) where the first channel is larger than the second (reversible mode).

We acknowledge that it is generally impermissible to limit claim terms by a preferred embodiment or inferences drawn from the description of a preferred embodiment. Johnson Worldwide, 175 F.3d at 992, 50 U.S.P.Q.2D (BNA) at 1612. However, that is not the case here. We note that "the usage 'preferred' does not of itself broaden the claims beyond their support in the specification." Wang Labs., Inc. v. America Online, Inc., 197 F.3d 1377, 1383, 53 U.S.P.Q.2D (BNA) 1161, 1165 (Fed. Cir. 1999). Moreover, unlike Johnson Worldwide, this case does not involve the "varied use of a disputed term." Id. at 991, 50 U.S.P.Q.2D (BNA) at 1611. Instead, the patentees defined the term "mode" by implication, through the term's consistent use throughout the '786 patent specification. Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577. Given this definition, the three modes described in the Detailed Description of the Preferred Embodiments describe the three possible modes of the invention, and the claims are not entitled to any broader scope. Wang, 197 F.3d at 1383, 53 U.S.P.Q.2D (BNA) at 1165.

b. Prosecution History

The prosecution history also supports limiting the transceiver to the three possible modes. During the prosecution of the '786 patent, the examiner rejected the relevant claims as obvious over U.S. Patent No. 5,408,260 ("Arnon"). Arnon describes an ADSL transmission system and transceiver that combines ADSL data with television signals, and transmits the data at varying frequencies over coaxial cable wires. Arnon, col. 2, ll. 9-50. Arnon describes a system that combines the ADSL data signals with the cable television signal at ADSL "terminal units" within a residential building. Arnon, col. 3, ll. 23-57. The examiner initially rejected the relevant claims of the '786 patent because:

Arnon did not expressly detail that the controller selected the mode of operation for the transceivers. Arnon however taught that the receivers and transmitters could be automatically retuned to a different frequency when a terminal unit was faulty . . . . Therefore, it would have been obvious to one of ordinary skill in the [data processing] art at the time of the claimed invention that the Arnon system comprised control means which retuned the receivers and transmitters when a terminal unit was faulty so that it could communicate via another terminal unit. Also clearly it would have been obvious that this operation would have comprised selecting the new mode of operation for transmission of data. Further since the Arnon system operated on different channels at different rates it would have been obvious to a routine that even in normal operation the Arnon system would have used a control means to change modes of transfer and speeds of transfer.
Although the statements of an examiner will not necessarily limit a claim, we observe that the examiner understood that the "mode of transfer" was a separate and distinct concept than the "speed of transfer."

Moreover, in an attempt to distinguish his invention from Arnon, the patentees responded with various statements. Importantly, the patentee argued:

In the present invention, the transmission bandwidth of channels 302, 304, and 306 are controlled for various modes using a microprocessor/controller in the ADSL/A VR unit.

(Emphasis added.) It is clear from this statement that the "mode" of the present invention varies solely by changing the amount of bandwidth allocated between the upstream and downstream channels. In subsequent statements, the patentees described the "exemplary ADSL/A VR embodiment" that operates "in one of three" modes: conventional, bi-directional, and reversible. The patentees observed that the invention allows one to perform various functions "in the optimum mode and at the optimum transmission rate for that function." (emphasis added). The patentees further distinguished Arnon because:

The ADSL unit of Arnon's subscriber loops appear to be conventional ADSL unit having a bandwidth distribution of the type illustrated in Applicants' Fig. 4 . . . Arnon's ADSL terminal comprises transmitters and receivers for communicating bi-directional data and control signals via the coaxial cable between the ADSL units and the subscriber, in each case modulated at a frequency which is not used for television signals. This is completely different from the present invention in which the ADSL terminal selectively changes the bandwidth for both control and data channels in the subscriber loop."

(emphasis in original). Bell Atlantic now contends that this statement merely distinguishes the fact that Arnon's terminal units operated within a residential unit, while the transceivers described by the '786 patent operate outside the building, or "in the subscriber loop." It is true that the emphasized language supports this distinction. However, the statement also states that, "the present invention . . . selectively changes the bandwidth." Thus, not only did the patentees distinguish that the invention operated in the subscriber loop, but they also emphasized that a conventional bandwidth distribution is "completely different" from the invention's system of "selectively changing the bandwidth."

That the transceivers must operate in one of the three described modes is further supported by the language of dependent claims 9 through 12:

9. The transmission system of claim 1, wherein said plurality of different modes includes a conventional ADSL mode and a bi-directional mode.

10. The transmission system of claim 1, wherein said plurality of different modes includes a conventional ADSL mode and a reversible mode.

11. The transmission system of claim 1, wherein said plurality of different modes includes a bi-directional mode and a reversible mode.

12. The transmission system of claim 1, wherein said plurality of different modes includes a conventional ADSL mode, a bi-directional mode, and a reversible mode.

'786 patent, col. 17, l. 59 to col. 18, l. 3. These four dependent claims contemplate the only four possible permutations of a "plurality of different modes." It is true that limitations stated in dependent claims are normally not to be read into the independent claim from which they depend. Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 972, 50 U.S.P.Q.2D (BNA) 1465, 1468 (Fed. Cir. 1999). However, our acknowledgement of dependent claims 9-12 simply further demonstrates that the '786 patent defined the term "mode" by implication to mean the relative allocation of bandwidth between the first and second channel. Such a meaning leaves only three possible modes: conventional, bi-directional, and reversible.

Bell Atlantic observes that independent claim 21 does not contain the "plurality of different modes" language contained in claim 1. Nevertheless, the district court held that the "ADSL/AVR transceiver" described in claim 21 must also operate by dividing available bandwidth between the two channels in conventional, bi-directional, and reversible modes. We agree with the district court. The second sentence of the '786 patent abstract refers to ADSL transceivers "operating at variable rates
and in variable modes (ADSL/AVR)." (emphasis added). In the Summary of the Invention, the '786 patent specification defines the invention as "an ADSL having adjustable variable rate functionality (ADSL/AVR)." '786 patent, col. 3, l. 10-11. The '786 patent uses the terms "transceiver," "ADSL/AVR," and "ADSL/AVR transceiver" interchangeably throughout the written description and the prosecution history. Therefore, one of ordinary skill in the art would understand that the transceiver described in claim 1 is the same transceiver described in claim 21. Thus, at the same time the patentees defined the term "mode" by implication, they also defined the ADSL/AVR transceivers as those that operate in conventional, bi-directional, and reversible modes by allocating bandwidth between the first and second channels. For these reasons, the transceivers described in claims 1 and 21 are construed synonymously with the definition of "mode" set forth above.

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b. "Plurality of electronic switches" and "means for selectively connecting the energy source to the electrodes in a first polarity and a second polarity"

The "plurality of electronic switches" of Claim 8 and the "means for selectively connecting the energy source to the electrodes in a first polarity and a second polarity" of Claim 1 refer to the same element of the defibrillator. This element is generally described as a "connecting mechanism" or "connector" that connects the defibrillator's energy source to the electrodes for shock delivery. 212 Patent at 6:44-50 & Fig. 10, element no. 34. Subsequently, the patent describes the connector in substantially greater detail as a specific five-switch configuration. 212 Patent at 6:61-7:52 & Fig. 11. The dispute over these terms is whether, as Defibtech contends, Claims 1 and 8 require this five-switch configuration. Philips contends that any of numerous configurations of two or more switches known to persons of skill in the art would satisfy Claims 1 and 8.

The means-plus-function term in Claim 1 presents the easier interpretation issue. Philips points to the general disclosure of a "connecting mechanism" as sufficient disclosure of the structure corresponding to the claimed function. The court disagrees. The patent's discussion of a "connecting mechanism" discloses no structure at all. As Defibtech noted in oral argument, the "connecting mechanism" corresponds to no more than a two-dimensional box in Figure 10 of the 212 Patent. This is insufficient, as a matter of law, to fulfill the inventors' duty to pinpoint a structure that corresponds to the function cited in a means-plus-function term. See Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1211 (Fed. Cir. 2003). n1 The court cannot designate the "connector" in Figure 10 and the written description of a "connecting mechanism" as corresponding structure, because they serve merely as an introduction to the five-switch configuration in Figure 11 and the accompanying disclosure of actual structure. See Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1212 (Fed. Cir. 2003). Moreover, Philips cannot cure the lack of structure other than the five-switch configuration by noting that "[o]ther switches and switch configurations may be used, of course, without departing from the scope of the invention." 212 Patent at 7:48-49. An inventor cannot meet his obligation to disclose structure corresponding to a means-plus-function term merely by stating that the structure will be obvious to those of skill in the art. Med. Instrumentation, 344 F.3d at 1212 ("It is important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing that structure."). Claim 1 sends the public on a search for structure corresponding to a "means for selectively connecting." It would be incongruous to conclude that the inventors satisfied their obligation to reward that search by disclosing nothing more than a "connecting mechanism." The only disclosure of structure corresponding to the "means for selectively connecting . . ." is the five-switch configuration noted above, and the court interprets the means-plus-function claim accordingly. n2

n1 Med. Instrumentation and other Federal Circuit precedent focus on an inventor's duty to "clearly link[]" structure in the specification to a means-plus-function term. 344 F.3d at 1211. Philips did not fail to "clearly link" the "connecting mechanism" to its means-plus-function term; it failed instead to pinpoint any structure for the connecting mechanism other than the five-switch configuration.

n2 The court notes that Claim 7, which depends from Claim 1, discloses the five-switch configuration. Claim differentiation compels the presumption that the terms have different scope. In this case, however, because the "means for selectively connecting" has no corresponding structure other than the five-switch configuration, Defibtech has overcome the presumption. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991) ("A means-plus-function limitation is
not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure.")

The "plurality of electronic switches" in Claim 8 presents a closer question. Freed from the strictures of means-plus-function format, the inventors arguably signaled their intent to permit other switch configurations by noting that such configurations would be apparent to those of skill in the art. 212 Patent at 7:48-49. In addition, because Claim 11 depends from Claim 8 and discloses the five-switch configuration explicitly, claim differentiation requires the court to presume that Claim 8 encompasses other configurations.

Defibtech insists that Philips disavowed all but the five-switch configuration as a "plurality of switches" in the prosecution of the patent. Defibtech points to an office action in which the examiner rejected Claims 1 and 8 as obvious in light of the Swanson Patent, which also disclosed a five-switch configuration in an internal defibrillator, although not the same configuration as in the 212 Patent. J.A. 02692. Defibtech correctly notes that the inventors disavowed Swanson's five-switch configuration. J.A. 02692, 02697. The inventors did not, however, expressly limit the invention to the five-switch configuration that they disclosed in their patent application. The inventors explained that it would take undue experimentation to implement Swanson's five-switch configuration in an external defibrillator because the configuration would not work with high voltage. J.A. 02692. In an affidavit accompanying the response to the office action, inventor Daniel Powers stated that Swanson's five-switch configuration would not work in an external defibrillator, and that "[d]eveloping a circuit design that protects the [external defibrillator] circuit from load faults is a major design challenge." J.A. 02701.

The interpretation of the "plurality of switches" term, for which the intrinsic evidence does not provide an unambiguous definition, requires the court to consider extrinsic evidence for the first time. In a rebuttal report, Philips expert Dr. Leslie Geddes reviewed a different prior art reference and noted that it did not disclose "what types of switches" should be used, and that one skilled in the art would have "extensive difficulty" designing an external defibrillator switching circuit based on that reference. Snyder Decl. Ex. 12 (Geddes Rebuttal Report at 23). Unlike Dr. Powers, Dr. Geddes does not even mention the configuration of the switches. The court cannot draw conclusions regarding his views on the ease of configuring an appropriate switch array. The court concludes that Dr. Geddes' testimony lends some support to the notion that designing an appropriate switch array was no simple task for one skilled in the art.

n3 In its prior order, the court stated that the only extrinsic evidence before it was a set of dictionary definitions. October 25 order at 5. That was true for the first round of asserted terms, but the parties have introduced inventor and expert testimony in support of some of the remaining terms. The court is mindful of the Federal Circuit's cautious approach to extrinsic testimony, id., and has considered the evidence accordingly.

The court has also considered Mr. Powers' deposition, in which he testified that he knew of no functional switch configurations other than the five-switch configuration when the inventors first filed a shock delivery patent application. Powers Dep. at 85 (DM 034). Defibtech has not provided enough of the deposition transcript to provide full context for his testimony. The court determines that, like Dr. Geddes' testimony, Mr. Powers' testimony slightly strengthens the evidence in favor of a limited construction of "plurality of switches," because it shows that they, as persons of skill in the art, had no actual alternative configuration to back up their statement in the 212 Patent that other switch configurations would be apparent to those of skill in the art.

Based on all of the evidence before it, the court concludes that the "plurality of switches" is limited to the five-switch configuration disclosed in the specification. Philips cannot deny that it disavowed the Swanson five-switch configuration. Thus, the construction of "plurality of switches" is not as broad as the claim language would suggest. At best, the court could construe the term to mean "a plurality of switches, but not the plurality of switches disclosed in Swanson." Even this interpretation, however, would be unreasonable in light of the inventors' statements during prosecution. Mr. Powers admitted in prosecuting the patent that designing an appropriate switch configuration was difficult. In light of that
admission, the statement in the specification that "other switches and switch configurations may be used" rings hollow, at least as a statement of what one of skill in the art could accomplish without undue experimentation. Although the inventors' five-switch configuration might be equivalent to other configurations, the term "plurality of switches" must be limited to the disclosed five-switch configuration and those equivalents. The court therefore construes the "plurality of switches" in Claim 8 in the same manner it construed the "means for selectively connecting" in Claim 1. n4 The term requires the five-switch configuration from the 212 Patent or its equivalent.

--- Footnotes ---

n4 Philips suggests, without explanation, that the presence of the "plurality of switches" term in Claim 17 of the 454 Patent (which neither party has offered for construction) should affect the court's construction. Phillips Opp'n at 29. As the court previously noted, the 454 Patent incorporates the specification of the 212 Patent (October 25 order at 6), and the court finds no new disclosure in the 454 specification that would alter its construction of "plurality of switches."

--- End Footnotes ---

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"Plurality of optical communication channels" means "two or more optical communication channels; each optical communication channel providing an optical signal path separated in frequency from other optical signal paths."

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B. The '780 Patent - Claim 4

Claim 4 provides:

A hand held pointing device for a computer system, the pointing device comprising:

- a housing having a bottom surface that moves against a work surface; the housing also having a top surface shaped to receive the human hand;

- the housing also having a skirt connecting a perimeter of the bottom surface with the top surface;

- the housing also having a first axis extending generally in the direction from where the heel of the hand rests on the top surface to where the middle finger rests on the top surface, and a second axis perpendicular to the first, both axes parallel to the bottom surface;

- an aperture in the bottom surface;

- a source of illumination mounted within the interior of the housing, proximate the aperture, that illuminates a portion of the work surface opposite the aperture and having surface height irregularities forming a micro texture with feature sizes in the range of about five to five hundred microns, the illumination producing a pattern of highlights upon surface height irregularities that extend out of the desktop surface and that intercept the illumination and of shadows upon surface height irregularities that extend into the desktop surface and whose illumination is blocked by adjacent surface height irregularities that are illuminated;

- an optical motion detection circuit mounted within the interior of the housing and optically coupled to the pattern of highlights and shadows from the surface height irregularities of the illuminated portion of the work surface, the optical motion detection circuit producing motion signals indicative of motion in the directions along the first and second axes and relative to the surface height irregularities of the illuminated portion of the work surface;
wherein the optical motion detection circuit comprises a plurality of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values and a sample frame of digitized photo detector output values obtained subsequent to the reference frame, and further wherein a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes;

and an arithmetic comparison mechanism coupled to the plurality of correlation values, and wherein the motion signals are not output to the computer system whenever a correlation surface described by the plurality of correlation values fails to exhibit a selected curvature.

The parties dispute the construction of the phrase: "a plurality of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values." To determine a construction, the Court considers the constituents of the phrase.

1. "a plurality of photo detectors"

The '780 Patent claims as an invention a "Seeing Eye Mouse for a Computer System." In the "Summary of the Invention" the inventors disclose that the invention is an "optical" mouse, which "detects motion by directly imaging as an array of pixels the various particular spatial features of a work surface below the mouse." (Col. 3:1-3.) In the written description, an embodiment of the "photo detectors" is described as follows:

The photo detectors may comprise a square array of say, 12 to 24 detectors on a side, each detector being a photo transistor whose photo sensitive region is 45 by 45 microns and of 60 microns center to center spacing.

('780 Patent, Col. 8:48-52.)

Although, the size and layout of the embodiment are not limitations on the Claim, one of ordinary skill in the relevant art would understand from reading the patent documents that by "plurality of photo detectors" the inventors meant a semiconductor device which generates an electrical signal in response to light.

2. "each having an output"

The plain meaning of the phrase, "each having an output," to one of ordinary skill in the relevant art is that there is a one-to-one connection between each photodetector and an input to something else.

3. "a memory"

The plain meaning of the phrase, "a memory," to one of ordinary skill in the relevant art is that the circuitry of the mouse contains a device where information can be stored and retrieved.

4. "containing a . . . frame of . . . output values"

The phrase "containing a . . . frame of . . . output values" is a limitation on the memory component. There are two aspects of how the phrase is worded which require attention. First, one of ordinary skill in the relevant art would understand that "a . . . frame of . . . output values" is a phrase coined by the inventors to describe a collection of data. The optical mouse of the invention detects movement and direction of movement of the mouse on a surface by comparing successive optical images of the surface. In the Summary, the inventors disclose:

The responses of the individual photo detectors are digitized to a suitable resolution (say, six or eight bits) and stored as a frame into corresponding locations within a array of memory.

('780 Patent, Col.3:30-34.) One of ordinary skill in the relevant art would understand that the word "array," in the computer data processing context means: a list of data values, all of the same type, any element of which can be referenced by an expression consisting of the array name followed by an indexing expression. See Microsoft Computer Dictionary, 35 (5th
The inventors are using the word "frame" to refer to storage, as an array in memory, of individual values which represent the response of each photo detector to a surface at a given point in time.

A second aspect of the phrase is the inventors' use of the stative verb 8 "containing" in combination with a description of data generated from using the device as a limitation on the device, itself Claim 4 is a patent on the device as opposed to a patent drawn to the functionality of a device. Nevertheless, in the element under consideration, the inventors describe the device as already containing data, namely, "a reference frame of digitized . . . output values," "a sample frame of . . . output values," and "a plurality of comparison frames."

8 Verbs in English are classified into two categories: dynamic and stative. Dynamic verbs (commonly referred to as "action verbs") usually describe actions that happen. Stative verbs usually refer to a state or condition which is not changing or likely to change. Stative verbs can refer to the relationship between two things. The word "contain" is a stative verb when used in the sentence "the box contains 12 cans of soda." The ending "ing" when added to a dynamic verb usually describes an on-going action (e.g., swimming, passing, heating). When "ing" is added to a stative verb, it usually describes an on-going state of being (having, owing, containing).

Ordinarily, in a claim, a description of the structure of a device is a limitation on the device. If a stative verb is used to describe the structure, the condition being described is an inherent, unchanging part of the structure. Thus, for example, a patent claim element which states "a circuit containing three transistors," limits the element to a circuit having three transistors. In the element of Claim 4 under consideration, the inventors disclose a circuit which comprises "a memory containing a reference frame of digitized photo detector output values." The literal language requires the reference frame to be an existing part of the "memory." The written description discloses that the values are not an inherent part of the memory. The "output values" only become a part of the memory if the device is used. For the time being, subject to further consideration, the Court will treat the stative word "containing" to mean "having the capability of containing." The Court invites the parties to address this issue in subsequent proceedings.

The final component of the phrase under consideration is "digitized photo detector output values." The Summary states:

The responses of the individual photo detectors are digitized to a suitable resolution (say, six or eight bits) and stored as a frame into corresponding locations within a array of memory.

("780 Patent, Col.3:30-34.")

The emphasized phrases clarify that the "responses" (i.e., outputs) of each photo detector is "digitized." A person of ordinary skill in the art would understand that by the word "digitized" the inventors meant that the output voltage 9 of each photo detector is converted to a binary number. 10 By their use of the word "corresponding," one of ordinary skill in the art would understand that the inventors intended that what was to be stored in each cell of the frame was a binary number representing the voltage output by each photo detector.

9 The written description discloses that each photo detector outputs a voltage which is digitized: "The photo transistors charge capacitors whose voltages are subsequently digitized and stored in memory." ("780 Patent, Col.8:53-55.)

10 A "digit" is any whole unit in a numbering system. See Microsoft Computer Dictionary, 157 (5th ed. 2002). Since the patent discloses that the output values are stored in computer "memory," one of ordinary skill in the art would understand that the digitized value would be expressed in binary digits, a form storable in computer memory. The description of a preferred embodiment expresses the digitized value in bits. ("780 Patent, Col.3:30-34.)

Therefore, the Court construes the phrase "a plurality of photo detectors each having an output, a memory containing a
a device in which the voltage from each photo detector is converted to a binary number, which number is stored in memory in an array.

Claim 17 recites of Patent '894 recites, in part:

a microcontroller for determining operating values including the difference between the speeds of said primary drive line and said secondary drive line and the identity of one of said drive lines overrunning the other of said drive line, comparing said operating values with a plurality of predetermined values and engaging said clutch in increments when said predetermined values are exceeded by said operating values and disengaging said clutch in increments when said predetermined values exceed said operating values.

Claim 11 recites a microcontroller that performs substantially the same operations.

BorgWarner:

"Plurality of predetermined values" is a predetermined difference between the speeds of the output shafts and a determination of which shaft is overrunning (i.e., rotating the fastest), and the microcontroller causes the clutch to engage when the slip is greater than the amount of the predetermined difference. (Plaintiff's Markman Brief, at 20).

NVG:

A microcontroller having circuitry and predetermined information (i.e., determined beforehand) to (1) determine operating values, (2) perform a comparison between at least two operating values with at least two pre-set values and based on this comparison, (3) engage the clutch assembly when both pre-set values are judged to exceed both operating values; and (4) disengage the clutch assembly when both operating values exceed both pre-set values. (Markman Brief of NVG, at 29).

The parties had some difficulty, on paper and at the hearing, with this particular dispute, to the extent that it is unclear exactly what the dispute is about. Certainly, even in a patent claim, that meaning of the phrase "plurality of predetermined values" is self-evident. In ordinary language, at least, it would refer to at least two values that are set prior to comparison with operating values. Once the parties begin arguing over the interpretation, however, the problems begins.

BorgWarner's interpretation of the disputed claim term starts with the "operating values," which BorgWarner says are determined by the microcontroller, and include (1) the speed difference between the output shafts and (2) a determination of which shaft is overrunning. (Plaintiff's Markman Brief, at 29 (citing Patent '894, col. 30, ls. 33-42)). BorgWarner then explains that these operating values are compared with a "plurality" of "predetermined values," meaning, not surprisingly, "two or more predetermined values." (Plaintiff's Markman Brief, at 29-30). NVG argues that "a person of ordinary skill in the art would understand from the plain wording of the claim language that at least two 'operating values' must be compared with at least two 'predetermined values.'" (Markman Brief of NVG, at 29-30). After the initial round of briefing, it was difficult to grasp exactly what was in dispute.

The Markman hearing was of little help in this regard, as the parties went back and forth in a similar manner:

BorgWarner: We believe that the predetermined values, your Honor, are the different speed differences that are calculated -- or, I'm sorry, the different allowed speed differences that are determined based on the different operating conditions.

Court: Yes.

BorgWarner: And I'm not sure what NVG believes what the predetermined values are. They haven't identified what they believe the predetermined values to be.
As [NVG] said, as the vehicle is moving, the operating conditions are changing. The predetermined values will change.

Court: Predetermined values is going to change predicated on the operating conditions which include utilization of the brakes, steering angle compensation; there are some others.

BorgWarner: Identity of the shaft that is overrunning.

Court: [NVG], where is the difference here? I don't see it. I'm just having trouble understanding where the dispute lies with respect to understanding this term.

NVG: What BorgWarner is saying is that it says, "...operating values including the difference between the speeds of the said primary drive line and said secondary drive line ... ,"

And those are all the values he's talking about. That's one operating value.

Court: Well, BorgWarner, you disagree with that?

BorgWarner: I'm not sure I understood. I think what it has to do, your Honor, it has to determine the predetermined values, whatever they may be, based on the operating conditions --

Court: And it's a plurality of them.

BorgWarner: Right. It could be many.

Court: It's a predetermined value. As I understand the "predetermined value," the predetermined value of allowable slippage, and there is a plurality of those because you're computing more than one factor. You're computing a number of different factors that have changing values within themselves that give different, and this computer takes into account and comes up with the answer, what the single predetermined value is of the plurality. Am I missing something?

NVG: Well, the way we understand their argument, and it's based on their claim interpretation, is that there is one single difference. And we say there has to be two single differences.

BorgWarner: Well, the microprocessor constantly computes different predetermined values.

Court: Yes, a plurality of them.

BorgWarner: Right.

Court: And takes them into account a bunch of different operating values.

BorgWarner: Yes.
Court: So where are we, then, on this thing?

* * *

NVG: ... We see their interpretation as requiring only one comparison, ours talks about plural comparisons. And if they don't have a problem with ours, we ask that you adopt ours and we'll move on.

Borg Warner: Theirs doesn't identify what the predetermined values are, your Honor. That's the problem. With predetermined values --

Court: The predetermined value is constantly changing.

Borg Warner: That's right.

Court: That's why you have a plurality of predetermined values.

Borg Warner: Exactly.

* * *

Court: First of all, the term "plurality of predetermined values," again, to me, the microprocessor I guess, maybe has to be included, but to me it means a computation of a number of predetermined values from a number of operating values. That's all it means to me, with or without a microprocessor.

NVG: And that there has to be this comparison of more than one.

* * *

Borg Warner: I think we're almost on the same page here, your Honor. I think that what it is is that there is a plurality of predetermined values of speed differences based on different operating conditions.

Court: Yes.

Borg Warner: And that is as the system is functioning --

Court: All right, [NVG] suggests that your definition is in the singular, that the microprocessor reviews one operating value only and comes out with a plurality of predetermined values. He says that's not correct, a plurality of predetermined values is something that emanates from the analysis of more than one, several different operating values.

Borg Warner: Right, there are several operating values and you come up with different predetermined values.

Court: I don't think you guys have a dispute.

NVG: Then I ask that you accept ours and adopt ours.

Court: . . . I want you two fellows to meet because I don't get the problem here.

NVG: I guess I'm the only one who sees it as a difference between plural and singular.

Court: . . . whatever it is, certainly the plurality of predetermined values comes from more than one, and indeed several, operating factors. Can that be the definition?

NVG: That is the definition.
BorgWarner: Your honor, I would agree that the plurality of predetermined values, those values are the plurality as
determined based on different operating conditions.

(Markman Hearing Transcript, at 345-53). Nevertheless, the parties could not agree on a definition, or on exactly what was
in dispute. (Id. at 357-58; Plaintiff's Post Markman Hearing Brief, at 17; Post Markman Hearing Brief of NVG, at 14-15).

A review of the parties' somewhat jejune presentation on this claim dispute leaves the court where it was to begin with.
"Plurality of predetermined values" means more than one pre-set value. To the extent that the dispute is over the phrase
"operating values," that, too is plural. As is stated in the claim, "includes the difference between the speeds of said primary
drive line and said secondary drive line and the identity of one of said drive lines overrunning the other of said drive line." That
"operating values" is said to "include" these two conditions, we would think, means that operating values is not limited
to these two conditions. That is as far as the court can go on this record. A "plurality of pre-determined values" means that
the "said operating values" must be compared with at least two values that are set prior to that comparison.

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B. Plurality of Pulse Amplitude and Location Coded Signals

The phrase "plurality of pulse amplitude and location coded signals" appears in claims 40 and 42. Claim 40 states in
relevant part:

Apparatus for producing a speech message comprising: means for receiving a sequence of speech message signals for the
successive time intervals of the speech message, each time interval speech message signal including a set of coded spectral
representative signals for the time interval portion of said speech message and a plurality of pulse amplitude and location
coded signals representative of the differences between the time interval portion of the speech message and the time interval
proportion of the speech message formed from said spectral representative signals.

(emphasis added.) Claim 42 states in relevant part:

A method for producing a speech message comprising the steps of: receiving a sequence of speech message signals for
the successive time interval portions of the speech message, each time interval speech message signal including a set of
coded spectral representative signals for the time interval portion of said speech message and a plurality of pulse amplitude
and location coded signals representative of the differences between the time interval portion of the speech message and the time interval
portion of the speech message formed from said spectral representative signals.

(emphasis added.)

Microsoft’s proposed definition for this disputed claim term is "two or more pairs of amplitude and location values having a
prescribed format (b(i), m(i)), where b(i) is the amplitude and m(i) is a location of that amplitude." (Joint Letter, Ex. B.)
AT&T counters with the definition "two or more pulse amplitude values having a formatted representation and two or more
pulse location values having a formatted representation. " (Joint Letter, Ex. B.) The parties agree that the plain meaning of
the word "signal" is "a sequence of values" (JCCS at 34-36), and that the plain meaning of the word "coded" is "a formatted
representation of." (Tr. at 87.) Additionally, both parties agree that the word "plurality" means two or more. (Microsoft Post
Hearing Brief ("PHIB") at 9; AT&T Post Hearing Reply Brief ("PHRB") at 4.) Thus, the main issue is whether the coded
signals are restricted to the particular prescribed format Bi followed by Mi.

1. Plain Meaning of "Pulse"

Microsoft contends that "pulse" means "an amplitude and location pair [Bi, Mi]," while AT&T argues that pulses are not
always defined by amplitude and location, and may be reflected by a number of different formats. The McGraw-Hill
Dictionary of Scientific and Technical Terms, 1293 (3d ed. 1984), defines "pulse" as "a variation in a quantity which is
normally constant; has a finite duration and is usually brief compared to the time scale of interest." Microsoft cites to a
treatise which describes the concept of "pulse" to support its assertion that the term at issue mandates a prescribed format
(Bi, Mi). See Clare D. McGillem & George R. Cooper, Continuous and Discrete Signal and System Analysis, 275-76 (Holt,
Rinehart and Winston, Inc. 1974) (“McGillem Text”). The McGillem Text, however, notes that pulses can be represented mathematically or visually, and does not state that such representations must follow any particular format such as Bi, Mi. See McGillem Text at 275-76. For example, the pulses illustrated in the McGillem Text are in an evenly spaced series and could be described as a series of amplitudes (B1, B2, B3). In contrast, unequally spaced pulses may be reflected either by Microsoft’s proposed (Bi, Mi) format or by alternative formats such as sending the amplitudes first (B1, B2, B3), sending the locations second (M1, M2, M3), and reinterpreting the codes to build multiple pulses. Accordingly, the dictionary and treatise definitions support AT&T’s position that one skilled in the art would know from the plain meaning of the claim that a "pulse" is not restricted to a prescribed, paired format (Bi, Mi), but rather may be reflected by several different formats.

2. Prosecution History

Microsoft argues that the patentees clearly disavowed AT&T’s broader definition during prosecution and that the ’580 patent specification defines "pulse" in terms of Bi, Mi. (See Microsoft PHB at 12; Microsoft PHRB at 9-10 discussing Pros. Hist. at 116.) In examining the prosecution history, one of the passages distinguishes the patentees’ invention from United States Patent No. 4,130,729 (the ”’729 patent”) on the grounds that the ’729 patent does not claim the “formation of a coded excitation signal,” and “requires high bit rate transmission.” (Pros. Hist. at 116). The prosecution history further distinguishes the ’729 patent by noting that the patentees’ invention provides “a prescribed format coded signal (B, M) that can be transmitted at a substantially lower bit rate . . .” (Pros. Hist. at 116.) However, that passage addresses the patentees’ proposed claims 1-39 in the underlying ’832 patent, which do not contain the phrase “plurality of pulse amplitude and location coded signals.” As the term at issue here only appears in re-issue claims 40 and 42, the cited prosecution history is not applicable to that term. See Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1460 (Fed. Cir. 1998) (declining to rely on statements made during prosecution that are relevant to claim language different from, albeit related to, the term at issue).

Additionally, the prosecution history does not include a manifest disavowal of the plain meaning of the phrase, as contemplated in Teleflex. A manifest disavowal cannot derive from statements made to the examining attorney concerning other claims. Teleflex, 299 F.3d at 1328. The prosecution history cited by Microsoft does not contain an expression of manifest exclusion. Accordingly, those portions of the prosecution history on which Microsoft relies do not support its narrow, limiting interpretation of the claim term. See Teleflex, 299 F.3d at 1328; Laitram, 143 F.3d at 1460.

3. Specification

AT&T asserts that Microsoft’s use of the words "prescribed format b(i), m(i)" to describe a "pulse" improperly imports a limitation into the claim from the preferred embodiment shown in the specification. (Tr. at 87-91.) Microsoft counters that the phrase is defined by implication because every time the word "pulse" appears in the specification’s preferred embodiment, it is listed as an amplitude and location pair; and that "when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication."

(Microsoft PHRB at 7-8 citing Bell Atlantic Network Serv., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001)). However, the Federal Circuit has instructed that a preferred embodiment should not be read into a claim as a limitation, even if there is only one embodiment in the specification. See Teleflex, 299 F.3d at 1328.

In support of its more limited construction, Microsoft also cites to the specification's "Summary of Invention," which "sets forth in clear and concise terms an embodiment of the invention." (Pros. Hist. at 106.) However, that Summary merely describes how a problem "may be solved," does not refer to the proposed Bi, Mi format, and makes no overarching statements to limit the invention. (’580 patent, Col. 1:63-2:7.) Although several references to the pulse signals in the specification’s description of the preferred embodiment describe a prescribed format of Bi, Mi, there are no statements in the prosecution history or in the claims themselves to the effect that all the contemplated embodiments must use pulse codes formatted in the Bi, Mi order. Because those limitations are absent in the claims themselves and the descriptions leave open the possibility of other embodiments, they do not negate the claim term's plain meaning. See Teleflex, 299 F.3d at 1327.

Microsoft’s citation to Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999), to support its proposition that the Bi, Mi format depicted by one embodiment limits the claim itself, is misplaced. The Federal Circuit specifically rejected Microsoft’s position in Teleflex, and stated that "the number of embodiments disclosed in the specification is not determinative of the meaning of the disputed claim terms." 299 F.3d at 1327. Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate by redefining the claim term or
used "words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex, 299 F.3d at 1327; accord Altiris, 318 F.3d at 1370-71 ("Nor are claims ordinarily limited in scope to the preferred embodiment."). Even where the specification describes only one embodiment of the structure, courts are still "constrained to follow the language of the claims, rather than that of the written description." Teleflex, 299 F.3d at 1328. "An accused infringer cannot overcome the 'heavy presumption' that a claim term takes on its ordinary meaning simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history." Teleflex, 299 F.3d at 1327; accord Texas Digital Sys., 308 F.3d at 1204-05.

Accordingly, this Court will not read those limitations into the plain meaning of the claim itself. See Teleflex, 299 F.3d at 1326-27 (finding claim terms not limited to depiction of one embodiment in specification); SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc) (same).

In conclusion, this Court construes the phrase "plurality of pulse amplitude and location coded signals" to mean "two or more pulse amplitude values having a formatted representation and two or more pulse location values having a formatted representation." This definition is based on the plain meaning of the phrase as would be understood by one skilled in the art.

A. "Information"

Claim 1 from the '961 patent is written in a means-plus-function format. By statute, in order to construe it, the function within the element must be identified and matched to a corresponding structure from the specification, which is then read into the claim. See 35 U.S.C. § 112, P 6; Braun, 124 F.3d at 1424. The element primarily in dispute is that which contains the function of "processing said information to generate a screen identification ("ID") from said first image." '961 Pat. at col. 8, ll. 22-23. The specification reveals only one structure tied to this function: "an algorithm which recognizes the screen by the layout and fields therein, not based solely upon the particular screen ID number." Id., col. 3, ll. 22-24. Consistent with the language of the function described in the claim, the specification states that after "an image recognition algorithm is utilized to recognize and display the information stored" in a buffer, the information is read from the buffer "and processed by an algorithm which generates a unique ID number." Id., col. 3, ll. 25-29 (emphasis added).

In its description of the preferred, embodiments, which provides only one embodiment of the invention, the specification more fully explains the structure by describing "a particular algorithm" which derives the following parameters in order to generate a unique screen ID:

a) the number of fields on the screen
b) type of each field
c) coordinates of the fields (row, column)
d) length of the field

When a screen is received in the buffer, the above parameters are determined in order to generate a unique screen ID. Id., col. 5, ll. 42-45.

One dispute that has arisen between the parties concerns whether the algorithm discussed in the specification evaluates attributes of all of the fields of an incoming screen of data, or simply attributes of some of the fields in order to uniquely identify the incoming screen. ResQNet, focusing on the claim language "image on a screen," urges the Court to adopt the latter approach. Specifically, ResQNet states that the element in dispute does not call for the identification of the screen itself, but rather for the identification of some smaller portion of the screen that represents an image to be displayed on the screen. However, there is no mention in the description just cited, nor in any other part of the specification or prosecution history of the '961 patent, of the algorithm being based upon a subset of the incoming screen.
Both the specification and the prosecution history clarify that the purpose of the invention is to uniquely identify a screen in order to overcome the problems of the prior art. For example, the specification states that one of these problems is identifying a screen as new "if the location of fields on the screen being received from the remote host has changed." Id. at col. 2, ll. 64-66 (emphasis added). The specification then states that "the above and other problems of the prior art are overcome in accordance with the present invention which relates to a display routine which is based upon an algorithm which recognizes the screen by the layout and fields therein, not based solely upon the particular screen ID number." Id. at col. 3, ll. 20-24 (emphasis added). If the information evaluated were construed as involving less than all of the fields of a screen, the prior art problem would not be overcome, as changes to the screen may or may not be identified.

This interpretation is confirmed in the prosecution history. On May 19, 1995, the USPTO issued an Office Action rejecting all 13 pending claims from the application that ripened into the 961 Patent. Almost all of these claims were rejected as being unpatentable over the U.S. Patent NO. 5,179,700 to Aihara et al. (1993) (the "Aihara patent"). In their first Response to the Office Action, the applicants argued that:

rather than rely on a remotely generated screen ID which is, as in Aihara, simply "a unique name assigned to each source panel," Applicants' invention generates the screen ID, at the personal computer, based upon the values and positions of the fields in the screen of information received from the mainframe computer. Accordingly, if the layout of a screen is changed at the applications program, on the mainframe, even if the screen ID at the mainframe remains the same, the personal computer will generate a new screen ID, because the information upon which the ID is generated (e.g., location and length of fields) will change. Accordingly, Applicant's unique invention overcomes these numerous drawbacks.

(Def. Cl. Constr. Mem., App. A., Ex. 9 at 8). This argument over the prior art reveals that the information received is the "layout" of the entire screen and that the applicant disclaimed the invention evaluating less than the entire screen, for to do so would not uniquely identify the screen.

Nevertheless, it cannot be said, as Lansa proposes, that the "information" processed encompasses "at least the number, location, type, and length of every field in the green screen." (Def. Reply Mem. at 3). This broad limitation, which includes the "type" attribute, is found nowhere in the claim language itself. And although the specification excerpt quoted above from Patent '961, column 5, lines 42-45, contemplates a screen recognition algorithm which makes use of all four of the field characteristics just mentioned (number, location, type, and length), the language of that portion of the specification expressly designates the algorithm as being exemplary, not mandatory. Column 5, lines 34-39 states:

The particular algorithm used to recognize the screen and generate the screen ID may vary from system to system, but a particular such algorithm will now be described. The screen recognition algorithm is based on a combination of information available to the program from the display buffer sent by the remote computer, plus information entered by the user.

Given this language, the limitation Lansa proposes cannot be read into the claim.

Lansa, citing Toro Co. v. White Consolidated Industries, Inc., 199 F.3d 1295 (Fed. Cir. 1999), argues that despite the broader language in the claim element, which facially mentions only three of the four parameters from the specification (number, location, and length), the construction must be based upon the more limited structure set forth in the only embodiment described by the specification. However, this very argument was rejected recently by the Federal Circuit in Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 2002 U.S. App. LEXIS 12361, 2002 WL 1358720 (Fed. Cir. 2002), where the court stated:

The number of embodiments disclosed in the specification is not determinative of the meaning of disputed claim terms…. An accused infringer cannot overcome the heavy presumption that a claim term takes on its ordinary meaning simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history. We hold that claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.

Id. at *10.
The prosecution history also supports this interpretation. In the applicant's Response to the May 19, 1995 Office Action, cited by Lansa and quoted above, it was stated that "if the layout of a screen is changed . . . the personal computer will generate a new screen ID, because the information upon which the ID is generated (e.g., location and length of fields) will change." (Def. Cl. Constr. Mem., App. A., Ex. 9 at 8). Thus, while the Response indicates that an entire screen of information is received, it contemplates a situation wherein only location and length of fields is used to generate an ID.

Moreover, it must be recognized that the application that eventually matured into the '961 patent was originally filed on April 21, 1994. That application included a relatively broad claim 1 which did not specify how the screen was identified, but simply claimed a "means for processing said information to generate a screen ID from said image, said ID uniquely identifying said screen." (Pl. Cl. Const. Mem., App. D at 15). After several rejections and responses, the examiner refused to allow the broader claims but specifically indicated that the narrower claims, which specified that the identification of the screen is derived from the number of fields, field location, and field lengths, were patentable over the prior art. The examiner did not in any way indicate that a fourth limitation, namely the field "type" as recited in claim 1 of the '608 patent, was also necessary to render the invention in the '961 patent patentable. No amendment or original claim ever called for such a limitation, no office action addressed this additional limitation, and it is therefore improper to read this limitation into the claim.

Lansa has also argued that this same limitation -- ascertaining the number, location, type and length of every field of the "green screen" -- should also be read into claim 1 of the '608 patent. Like claim 1 of the '961 patent, this claim is also written in a means-plus function format. The function in the disputed claim element is "identifying based upon a position, length and type of each of a plurality of fields, a particular screen to be displayed to said user." 1 The language of this claim element is not identical to that of the disputed claim element in the '961 patent, but it is clear from the specification that the corresponding structure is in essence the same as that provided in the '961 patent. The specification states:

Upon a screen of information being downloaded to a personal computer . . . the personal computer analyzes the screen with respect to the location of particular fields, and other attributes thereof, in order to recognize the particular screen downloaded. A technique for performing such analyses is described fully in copending application Ser. No. 08/231,373 [the '961 patent], which is commonly assigned with the present application and which is incorporated herein by reference.

'608 Pat. at col. 2, ll. 51-58. However, the language of the claim itself makes clear that, unlike the '961 patent, the algorithm is dependent on three parameters for identifying a screen: position, length, and type. Id. at col. 4, ll. 42-43. There is therefore no evidence in the claim language, nor in the specification, that the limitation Lansa has proposed should be read into the claim.

--- Footnotes ---

1 Claim 1 of the '608 Patent states in full that what is claimed is:

Apparatus for implementing a computer terminal to be connected to a remote computer, said apparatus comprising:

means for identifying a particular user logged on to said remote computer through said computer terminal;

means for identifying, based upon a position, length and type of each of a plurality of fields, a particular screen to be displayed to said user; and

a plurality of special function keys, each key performing a specified function, the specified function performed by each key being determined by the particular user logged on and the particular screen identified to be displayed.

Pat. '608, col. 4, ll. 37-49.

--- End Footnotes ---

The term "information" is again specifically used in the '075 patent. The '075 patent relates to a similar system as previously described, but the screen recognition software is obtained from a server that is separate and apart from the computer that displays the screens. Although claim 1 from the '075 patent is not in a means-plus function format, it is still necessary to
resort to the specification to construe it. 2 ResQNet states that the step in the claim stating, "If said received screen matches one of the plurality of specific screen identifying information, displaying a customized GUI screen," requires only that the screen be compared to some other identifying information to determine if a match exists. However, the element language is not facially clear, and those skilled in the art of screen recognition techniques would not know what was meant by such language. Therefore, the phrase "plurality of specific screen identifying information" must be construed based upon the specification. See NeoMagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062, 1071. That specification describes an algorithm that identifies a screen of data in order to match it to a GUI. The specification incorporates by reference the '961 patent. Thus, the "information" which was defined by reference should be consistent with the use of that term in the '961 patent, insofar as all fields on the screen are utilized. To interpret the language otherwise would include identifying a screen in ways taught by the prior art.

2 Claim 1 of the '075 patent states that what is claimed is:

The method of communicating between a host computer and remote terminal over a data network comprising steps of:

establishing a first communication session between said terminal and a communications server via a first communications channel;

downloading, from said server to said terminal, communications software for communicating between said terminal and said host and a plurality of specific screen identifying information;

utilizing said communications software to implement a second communications session between said terminal and said host via a second communications channel independent of said server;

receiving a screen from said host to said terminal;

if said received screen matches one of the plurality of specific screen identifying information, displaying a customized GUI screen; and

if said received screen does not match one of the plurality of specific screen identifying information, displaying a default GUI screen.

'075 Pat. at col. 4, l. 65 - col. 5, l. 19.

Claim 1 of the '075 Patent

Even though the '961, '608, and '075 patents claim similar (but not the same) subject matter, the '075 patent does not share the genealogy of the other two patents. The disputed language in claim 1 of the '075 patent, furthermore, does not appear in either the '961 or the '608 patent. Quite simply, this court detects no reason to construe the '075 claims as identical to similar claim terms in the other two patents.

Unlike the '961 and '608 claims, claim 1 of the '075 patent does not invoke section 112, sixth paragraph, in any of its limitations. Rather, claim 1 is a pure method claim. The disputed language reads "downloading, from said server to said terminal . . . a plurality of specific screen identifying information." '075 patent, col. 5, ll. 6-7 (emphasis added). As previously noted, "plurality" ordinarily means "at least two"; thus, "a plurality of specific screen identifying information" means "at least two pieces of specific screen identifying information." Moreover, the presence of "specific" connotes selected or particular. This phrase does not equate to "all."
In relevant part, the specification discloses: "The particular screen recognition algorithm used is not critical to the present invention but may be of the type described in the '961 patent." '075 patent, col. 4, ll. 8-10 (emphases added). The presence of "not critical" and "may" indicates a preference, not a requirement. See also id. at col. 3, ll. 40-43 ("These green screens, as they are called, are processed through screen recognition algorithms such as that described in the previously incorporated '961 patent and '383 application." (emphasis added)). Thus, the '075 patent lacks "expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex, 299 F.3d at 1325. Accordingly, the written description of the '075 patent does not restrict the scope of the claim language with regard to this limitation. Similarly, the prosecution history of the '075 patent, to the extent it is in the record on appeal, does not clearly and unmistakably restrict the meaning of this claim term. See Omega Eng'g, 334 F.3d at 1326. Because the district court improperly construed claim 1 of the '075 patent, this court reverses.

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"point of interest motion"

Claim 52 of the '785 Patent contains the term "point of interest motion." IPI contends the term means "a sequence of images that are perceptible as views of a three-dimensional workspace including a moving or displaced point of interest." Google contends the term means "a change in location of the point of interest as indicated by a user."

As an initial matter, IPI's reference to "displaced" point of interest is improper for the same reasons explained in the Court's construction of "viewpoint motion." Further, IPI's entire proposed construction suffers from the same fatal flaw as its proposed construction for "viewpoint motion." That is, its proposed construction sets forth "when" and "how" "point of interest motion" occurs, rather than identify what "point of interest motion" is. Although Google's proposed construction for "point of interest motion" does not carry forward with the same flawed approach, it unnecessarily includes reference to a user. Google contends that in order for a point to be "of interest," it must be "of interest" to the user. Claim 52 already recites that the request for "point of interest motion" comes from the "user input means." '785 Patent, col. 26:38-47. Thus, there is no need to state "as indicated by a user," as Google proposes. Lastly, Google's use of "change in location" suffers from the same flaw as IPI's inclusion of "displacement." "Change in location" is narrower than the claim term "motion" and it would be improper to narrow "point of interest motion" to simply "a change in location of the point of interest."

Claim 52 uses "point of interest motion" in the same manner as "viewpoint motion" is used in other claims of the '785 Patent. Thus, the Court's construction of the term "point of interest motion" should mirror that of "viewpoint motion."

Accordingly, the Court construes the term "point of interest motion" to mean "perceived movement of a point of interest on an image presentation on a display."

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1. "POL regulator"

The first term at issue is "POL regulator," which is found in every asserted claim of each of the four patents-in-suit. Power-One argues that this term should be construed as a "dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system." Artesyn contends that this term is indefinite and cannot be properly construed.

Power-One asserts that "POL regulator" had an ordinary meaning in the art at the time of the invention and cites, among other things, Artesyn's own literature in support of this contention. Artesyn argues that "POL regulator" is not defined in the specification and that the intrinsic evidence provides no objective criteria to determine a proper definition of the term. Further, Artesyn contends that the extrinsic evidence cited by Power-One fails to convey an ordinary meaning. More specifically, Artesyn contends that Power-One's use of the term "near" in its proposed construction is problematic and unhelpful because it fails to convey any objective standard by which one would determine "nearness" in the context of "POL regulator."
In Datamize v. Plumtree Software, LLC, 417 F.3d 1342 (Fed. Cir. 2005), the Federal Circuit set forth the following principles pertaining to indefiniteness.

According to the Supreme Court, "[t]he statutory requirement [35 U.S.C. § 112, P2] of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." The definiteness requirement, however, does not compel absolute clarity. Only claims "not amenable to construction" or "insolubly ambiguous" are indefinite. Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning. Furthermore, a difficult issue of claim construction does not ipso facto result in a holding of indefiniteness. "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." In this regard it is important to note that an issued patent is entitled to a statutory presumption of validity. "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of validity and we protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal." In this way we also follow the requirement that clear and convincing evidence be shown to invalidate a patent.

Id. at 1347 (citations omitted). Turning first to the specification of the '999 patent, it is important that the POL regulator is discussed in terms showing its familiarity to those skilled in the art. See '999 Patent, col. 1:12-14 (Point-of-load ("POL") regulators, which are also referred to as voltage regulators or DC/DC converters, are commonly used in conjunction with electronic circuits.); 34-35 ("Traditionally, POL regulators operate in conjunction with at least one power supply controller."); Col. 2:12-14 ("POL regulators are traditionally adapted to receive . . ."). The specification of the '125 patent identifies problems facing complex electronic systems and how POL regulators help alleviate these problems.

With the increasing complexity of electronic systems, it is common for an electronic system to require power provided at several different discrete voltage and current levels. . . It is undesirable to deliver relatively high current at low voltages over a relatively long distance through an electronic device for number of reasons. First, the relatively long physical run of low voltage, high current lines consumes significant circuit board area and congests the routing of signal lines on the circuit board. Second, the impedance of the lines carrying the high current tends to dissipate a lot of power and complicate load regulation. Third, it is difficult to tailor the voltage/current characteristics to accommodate changes in load requirements.

In order to satisfy these power requirements, it is known to distribute an intermediate bus voltage throughout the electronic system, and include an individual point-of-load ("POL") regulator, i.e., DC/DC converter, at the point of power consumption within the electronic system. . . Ideally, the POL regulator would be physically located adjacent to the corresponding electronic circuit so as to minimize the length of the low voltage, high current lines through the electronic system. The intermediate bus voltage can be delivered to the multiple POL regulators using low current lines that minimize loss.

Col. 1: 13-15, 19-35, 42-47. Further, Figure 1 of the '125 patent shows a prior art power system where POLs 22, 24 and 26 are at the point of power consumption. The '125 specification also describes the functions and uses of POLs: "Each circuit has an associated point-of-load ("POL") regulator located closely thereby, such as POLs 22, 24, and 26. Each POL regulator converts the intermediate bus voltage to a low voltage, high current level demanded by the electronic circuit, such as 1.8 volts, 2.5 volts, and 3.3 volts provided by POLs 22, 24 and 26." Col. 3:22-27. "By locating the POLs 22, 24, and 26 close to their corresponding electronic circuits, the length of the low voltage, high current lines on the printed circuit board are minimized." Col. 3:32-35. The '798 specification again describes POL regulators in terms of the problems the POL is designed to address:

Similarly, some electronic devices include circuits that require low voltage (e.g. 1 v), high current (e.g., 100 A) power supplies. This is problematic in that it is impractical to deliver high current at low voltage levels over a relatively long distance and still meet desired regulation performances. A common solution is to use a high voltage, low current power supply and design a POL regulator near the internal circuit. This allows low current to travel throughout the device, and provides a low voltage, high current power supply (i.e., using the POL regulator) near the internal circuit.

See col. 1:25-35.
One problem with Artesyn's approach is that it ignores the intrinsic record's repeated acknowledgment of a known prior art POL device. The term "POL" is not a coined term in the patents-in-suit; rather, a "POL" was a known device in the art. Artesyn also ignores numerous statements in the intrinsic record concerning the function and purpose of a POL regulator. The specification of the '999 patent explains that "POL regulators" are also referred to as "voltage regulators" or "DC/DC converters." It describes a prior art system that utilized POL regulators. See '999 patent, col. 1:12-14; col. 3:4-11; Figure 1. The specification goes on to say that "the voltage/current requirements of electronic circuits typically differ from the voltage that is readily available or the current that can practically be delivered. For example, some electronic devices only include a single voltage input (e.g., 12v), but require different voltages for circuits contained within (e.g., 3v, 5v, 9v, etc.). A common solution is to design multiple POL regulators within the device for converting the single input voltage into multiple voltage levels." See '999 patent, col. 1:14-22. The intrinsic record also explains that prior art POL regulators were placed "near" the load to be serviced by the POL so high currents would not be delivered over "relatively long distance[s]." Locating the POL regulator near the load to be serviced "allows low current to travel throughout the device, and provides a low voltage, high power supply (i.e., using the POL regulator) near the internal circuit." See '999 patent, col. 1:25-33. Therefore, the intrinsic record makes clear that one skilled in the art would know that a POL regulator should be placed in such a way to accomplish certain objectives.

Q. And how close to the load does a regulator have to be a point-load-regulator?

A. It has to be close enough to fulfill the need to manage transients and regulate the voltage in a tight fashion such that there is no disturbance to the load as a result of changes in load, changes in line, changes in the environmental conditions which it is. So those requirements define the requirement for the nearness.

The Court sees nothing problematic in describing the POL regulator as being "near" the load. This is simply a way of saying that the POL regulator should be located so as to alleviate the problems associated with complex power systems that require "several different discrete voltage and current levels." n3 See '125 patent, col. 1:15. The intrinsic record shows that there is no "one size fits all" approach to electronic systems and therefore, the term "near" is as precise as this particular subject matter permits. See, e.g., BJ Services, Co. v. Halliburton Energy Services, Inc. 338 F.3d 1368, 1373 (Fed. Cir. 2003) (upholding jury's verdict rejecting indefiniteness defense because those skilled in the art would understand a "C* value of about 0.06"); Exxon Research Engineering Co. v. United States, 265 F.3d 1371, 1379-81 (Fed. Cir. 2001) (finding "for a period sufficient" definite because the limitation was expressed in terms that are reasonably precise in light of the subject matter); Orthokinetik Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576 (Fed. Cir. 1986) (construing "so dimensioned" as definite and stating that the term "is as accurate as the subject matter permits, automobiles being of various sizes"); Seattle Box Co., Inc. v. Industrial Crating and Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984) (rejecting claim that "substantially equal to" was indefinite and noting that the fact "some claim language may be imprecise . . . does not automatically render a claim invalid").

n3 There are additional reasons why the Court rejects Artesyn's indefiniteness argument. First, Artesyn initially proposed a construction of "POL regulator" indicating that the meaning of this term can be discerned. See Joint Claim Construction Statement. Not only did Artesyn propose a construction, but it did so describing a POL as being "placed near the one or more devices being powered." Second, Artesyn's own literature uses the term "point of load" and describes "POLs" as being near the load, See Ex. B to Power-One's Reply Brief, showing, at the very least, that the term has meaning to those skilled in the art. Third, when asked about "POLs," Trey Burns, Artesyn's 30(b)(6) witness on claim construction, did not testify that he was unaware of or unable to understand the term. Rather, Burns testified that, with a couple of caveats, Power-One's proposed definition of a "POL" is "a reasonable statement." See Ex. I to Power-One's Claim Construction Brief, p. 100, lines 3-11. Burns also discussed "point-of-load converters" as being part of a "distributed power architecture where we

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move the regulation function closer to the load" to "eliminate the effects of distribution resistances and distribution inductances." Id. at p. 26, line 11 - p. 27, line 3. Finally, nothing in the prosecution history shows that the patent examiner had any trouble understanding the term. This evidence plainly suggests that POLs were well known devices whose locations and functions relative to other components was understood by those of ordinary skill in the art.

Artesyn relies on Halliburton Energy Services, Inc. v. MI, LLC, 456 F.Supp.2d 811 (E.D. Tex. 2006) (Davis, J.) to support its indefiniteness contention. In that case, however, the patentees relied upon the term "fragile gel" to distinguish their invention from the prior art tending to show that the characteristics of "fragile gel" were novel and a basis for patentability. Id. at 816. Having presented "fragile gel" in that fashion, the Court found that the patentees had failed to provide an objective standard for its definition. Id. at 817. Here, on the other hand, the specifications and prosecution history treat POL regulators as a known device in the art. See, e.g., '999 Patent, col. 1:12-14. And, while the specifications may describe new features for POL regulators, the specifications use the term "POL regulator" in its "traditional" sense (see '999 patent, col. 1:34-35) to refer to a device in a system for supplying power to components in an electronic system. Accordingly, the Court adopts Plaintiff's construction and construes "POL regulator" to mean "a dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system."

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A. Claim Construction and Indefiniteness

1. Adequacy of the District Court's Claim Construction

We review claim construction de novo. See Ball Aerosol & Specialty Container, Inc. v. Ltd Brands, Inc., 555 F.3d 984, 989 (Fed. Cir. 2009); Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007). When construing claims, the intrinsic evidence is the primary resource. See Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claim terms are "generally given their ordinary and customary meaning," the meaning that the term would have to "a person of ordinary skill in the art . . . at the time of the invention." Id. at 1312-13 (internal citations omitted). The terms, as construed by the court, must "ensure that the jury fully understands the court's claim construction rulings and what the patentee covered by the claims." Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1366 (Fed. Cir. 2004).

Artesyn first contends that the district court's construction of the claim term POL regulator is flawed because it fails to articulate the scope of the asserted claims of the '125 patent in any meaningfully precise manner. Specifically, it argues that the court's construction of the terms "adapted to" and "near" are facially vague and subjective, such that the construction left the jury free to make its own determination as to the claims' scope in violation of Markman.

Here, the district court construed the claim term "POL regulator" in a meaningfully precise manner. The court construed "POL regulator" to mean:

[A] dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system.

The intrinsic record supports the district court's construction, and despite Artesyn's contention, the terms "adapted to" and "near" are not facially vague or subjective. Claims using relative terms such as "near" or "adapted to" are insolubly ambiguous only if they provide no guidance to those skilled in the art as to the scope of that requirement. See Datamize, 417 F.3d at 1347 (the definiteness of a claim's terms depends on whether those terms can be given a reasonable meaning by a person of ordinary skill in the art); see, e.g., Young, 492 F.3d at 1346 ("near" not indefinite); Central Admixture Pharm. Servs., Inc. v. Advanced Cardiac Solutions, 482 F.3d 1347, 1356 (Fed. Cir. 2006) ("adapted to" not indefinite); Verve, LLC v. Crane Cams, Inc., 311 F.3d 1116, 1120 (Fed. Cir. 2002) (same). Here, a person of ordinary skill in the field would understand the meaning of "near" and "adapted to" because the environment dictates the necessary preciseness of the terms.
The phrase "[t]o be placed near the one or more devices being powered as part of a distributed board-level power system," as recited in the court's construction, implies that the dc/dc switching voltage regulator is to be placed on the printed circuit board--somewhere close to or at the load--the device being powered as part of the distributed board--level power system. Moreover, reference to the '125 patent's specification demonstrates that the term "near" means close to or at the load. As the specification of the '125 patent states:

[I]t is known to distribute an intermediate bus voltage throughout the electronic system, and include an individual point-of-load ("POL") regulator, i.e. DC/DC converter, at the point of power consumption within the electronic system.

This language indicates that the POL regulator is to be located just upstream from the load being powered. Likewise, Figure 1 of the '125 patent illustrates a prior art power system where the POL regulator is located at the point of power consumption, providing a standard for measuring the term "near." The specification further provides guidance on where it is to be located in relation to the load. The specification recites:

Ideally, the POL regulator would be physically located adjacent to the corresponding electronic circuit so as to minimize the length of the low voltage, high current lines through the electronic system. The intermediate bus voltage can be delivered to the multiple POL regulators using low current lines that minimize loss.

This language unambiguously states that the regulator is to be placed adjacent to the corresponding load that it is powering so that low voltage/high currents will not be delivered over relatively long distances. The patent's functionality requirement restricts the boundaries of where the regulator can be located in relation to the load it is powering. A skilled artisan in distributed power systems would know where to place the regulator to accomplish that stated objective.

Similarly, the phrase "adapted to power a portion of the devices on the board," when read in conjunction with the intrinsic record, makes clear that a POL regulator is one that is capable of delivering power, at the appropriate intensity, to one or more loads on the circuit board. The specification of the '125 patent states:

[A] POL regulator would be included with each respective electronic circuit to convert the intermediate bus voltage to the level required by the electronic circuit.

This language unambiguously indicates to a skilled artisan that the output power of a POL regulator would be at the level required by, and thus "adapted to," the electronic circuit receiving power from the POL regulator.

The fact that the claim is not defined using a precise numerical measurement does not render it incapable of providing meaningful guidance to the jury because the claim language, when taken in context of the entire patent, provides a sufficiently reasonable meaning to one skilled in the art of distributed power systems. Therefore, we find that the district court's claim construction of the term POL regulator was adequate to fully describe the scope of the claims.

2. Definiteness of the term "POL regulator"

Artesyn asserts, as an alternative basis for reversing the district court's judgment, that the district court committed error in finding the term "POL regulator" not indefinite. A determination of indefiniteness is reviewed de novo. See Young, 492 F.3d at 1344. Pursuant to § 112 of the Patent Act, to be sufficiently definite, a patent specification must "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P 2. To comport with § 112's definiteness requirement, the boundaries of the claim, as construed by the court, must be discernible to a skilled artisan based on the language of the claim, the specification, and the prosecution history, as well as her knowledge of the relevant field of art. See Halliburton Energy Servs., Inc. v. M-1 LLC, 514 F.3d 1244, 1249-51 (Fed. Cir. 2008). When a claim is "not amenable to construction or [is] insolubly ambiguous" it is indefinite. Datamize LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). However, a claim is not indefinite merely because it poses a difficult issue of claim construction. Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Rather, "if the meaning of the claim is discernible, even though the task may be formidable and the conclusions may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Id. at 1373.

Here, the term "POL regulator" is not indefinite. The intrinsic evidence of the '125 patent supports that POL regulators are
well known devices whose locations and functions relative to other components in the power system are understood by those of ordinary skill in the art. See, e.g., Verve, 311 F.3d at 1119-20 (recognizing that guidance as to measurement of a term of degree can come from the intrinsic record or from the knowledge of a person of ordinary skill in the art); Exxon, 265 F.3d at 1379-81 (finding "for a period sufficient" definite because the limitation was expressed in terms that were reasonably precise in light of the subject matter). Because a person having ordinary skill in the art would know where to place the POL regulator and how to use it, we find that the claim term "POL regulator" is not indefinite and does not render the claims of the '125 patent indefinite.

I. Point of Sale Location

The district court made several findings with regard to the construction of the expression "point of sale location." We address these findings below, agreeing with some and disagreeing with others.

1.

In response to the district court's request for binding definitions of the disputed terms, described earlier, IGE identified the passage at column 5, lines 47-50 as defining a point of sale location. That passage states that a point of sale location is "a location where a consumer goes to purchase material objects embodying predetermined or preselected information." Freeny patent, col. 5, ll. 47-50. The district court held this definition to be correct, and we agree. Clear support is provided for this definition in the Freeny patent specification at column 5, lines 47-50.

2.

The district court further held that, although point of sale locations are not restricted to retail locations, a home is not a point of sale location. See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810 & n.9. IGE contends that the district court was wrong. IGE urges that a point of sale location is simply the location at which the consumer makes or effects a purchase. IGE argues that the concept of a home being a point of sale location is not new, citing home shopping networks, pay-per-view cable television, and home Internet shopping. IGE further argues that the specification defines a home as a point of sale location and discloses at least two embodiments in which the home is a point of sale location. IGE also argues that the prosecution history lists several transmission systems that could be adapted for use in the home. The appellees respond that IGE's asserted definition before the district court precludes a home from being a point of sale location, and that any references in the specification to homes as point of sale locations cannot overcome this definition. The appellees further respond that the rest of the intrinsic evidence, as well as the extrinsic evidence of standard dictionaries and references, supports the district court's construction.

We agree with IGE's position that a home is not precluded from being a point of sale location. Looking first, as we must, to the claim language itself, we find nothing precluding a home from being a point of sale location. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576. Except for requiring that an IMM be present, the independent claims are silent regarding the possible venues of a point of sale location.

Looking next to the specification, see id. at 1582, 39 U.S.P.Q.2D (BNA) at 1577, we acknowledge the great likelihood that a point of sale location will not be a home, given that: (1) IGE's asserted definition, with which we agree, requires that a consumer go to a point of sale location "to purchase material objects," Freeny patent, col. 5, ll. 48-49; and (2) the specification requires, and IGE does not dispute, that the IMM be located at the point of sale location, see, e.g., Freeny patent, col. 5, ll. 32-33, col. 12, ll. 66-67. However, IGE's asserted definition, premised on the specification at column 5, lines 48 and 49, does not preclude a home from serving as a point of sale location, and the specification further describes a vending machine embodiment that could be utilized in a home. See Freeny patent, cols. 26-27. This intrinsic evidence unambiguously allows a home to serve as a point of sale location. Therefore, it is unnecessary to address IGE's arguments alleging that the prosecution history additionally supports our conclusion.

Given the lack of ambiguity in the intrinsic evidence, it would be improper to address any of the parties' arguments relating to extrinsic evidence, such as other examples of point of sale locations and standard references. See Vitronics, 90 F.3d at
1583, 39 U.S.P.Q.2d (BNA) at 1577 ("In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper.").

3.

The district court also held that a point of sale location "must have . . . at least two blank material objects." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. IGE argues that this limitation is not recited in the claims or required by the specification and has improperly been read into the claims from a particular embodiment. The appellees respond that the specification supports the requirement that there be two or more blank material objects. We agree with IGE that a point of sale location need not have two blank material objects.

We begin, as we must, with the language of the claims. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1576 (stating that construction begins with the claim language). The claim language specifically recites "reproducing in a material object." Freeny patent, col. 28, l. 44 (claim 1; emphasis added); id. at col. 36, l. 63 (claim 37; emphasis added). Although the single element of claim 37 initially mentions material objects in the plural, it is later modified by a singular reference and does not require more than one material object. Compare id. at col. 36, l. 49 with id. at l. 63. The preambles of the independent claims similarly recite plural "material objects," but they do so in the context of multiple IMMs and/or multiple point of sale locations. See, e.g., id. at col. 28, ll. 22-24 (claim 1); id. at col. 36, ll. 45-46 (claim 37). The preambles do not require multiple material objects at each point of sale location. Given the preambles' generality, we need not consider whether they are more than statements of intended use.

We look next to the specification. See Vitronics, 90 F.3d at 1582, 39 U.S.P.Q.2D (BNA) at 1577. We note that the district court based the requirement of two blank material objects on a passage in the specification stating that "each point of sale location has . . . a plurality of blank material objects." See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1805 (citing to the Freeny patent, col. 12, ll. 66-68). From the passage itself, it is unclear whether this isolated statement in the specification is intended to be a general statement or to be limited to a particular embodiment. However, there is nothing in the rest of the specification supporting the position that a point of sale location is defined as having at least two blank material objects. To the contrary, it is clear that the IMM requires only a single material object to fully process a consumer's request. See, e.g., Freeny patent, col. 5, ll. 21-31 ("Each [IMM] 14 is constructed to . . . provide . . . information . . . to a reproduction unit 24 which is adapted to reproduce received information in a material object.") (underlining added). Further, the opening sentence of the background section of the Freeny patent states that "the present invention relates generally to a system for reproducing information in a material object." Freeny patent, col. 1, ll. 7-8 (emphasis added).

Accordingly, we hold that the entirety of the specification dictates that the reference to a plurality be understood to refer to a "supply" of blank material objects, and that the supply can consist of one material object. See Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1345, 47 U.S.P.Q.2D (BNA) 1418, 1425 (Fed. Cir. 1998) (basing the claim construction on the entire written description, despite an isolated passage in apparent conflict).

4.

The district court also held that a point of sale location must have blank material objects "available for sale to consumers." Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1810. IGE argues that this limitation is not recited in the claim or required by the specification and has improperly been read into the claim from a particular embodiment. Notably, the appellees do not argue in defense of this limitation. We agree with IGE that a point of sale location need not have any blank material objects separately for sale.

Looking again to the claims, nothing in the claim language itself requires that blanks be for sale. The claims require only that information be reproduced in a material object. See, e.g., Freeny patent, col. 28, ll. 22-23 (preamble to claim 1) and 44-45 (step four of claim 1); id. at col. 36, ll. 45-46 (preamble to claim 37) and ll. 62-63 (single element of claim 37). Looking next to the specification, we note that nothing in IGE's asserted definition, derived from the Freeny patent at column 5, lines 47-50, requires that blanks be for sale. That definition refers exclusively to the purchase of non-blank material objects, that is, to "material objects embodying . . . information." Id.

The district court based its conclusion that blanks must be for sale on the passage at column 13, lines 25-44. See Interactive Gift Express, 47 U.S.P.Q.2D (BNA) at 1805. However, that passage does not state that the blanks are sold to the customers.
as blanks, but only that the retailer is reimbursed for the cost of blanks on which information is reproduced. See Freeny patent, col. 13, ll. 25-44. The district court, therefore, misconstrued the specific embodiment in that passage. Further, there is no support in the rest of the specification for this requirement; all of the embodiments are directed at providing material objects with information on them and not at selling blank material objects. See, e.g., id. at col. 13, ll. 1-13 (reproducing information on an 8-track or cassette tape); id. at col. 22, l. 62 - col. 23, l. 6 (describing various material objects in which information can be reproduced); id. at cols. 26-27 (describing the reproduction of information in the vending machine embodiment). Indeed, the opening sentence of the background section of the Freeny patent states that "the present invention relates generally to a system for reproducing information in a material object." Freeny patent, col. 1, ll. 7-8 (emphasis added).

Accordingly, we construe a point of sale location to be a location where a consumer goes to purchase material objects embodying predetermined or preselected information. This construction permits a home to be a point of sale location. A point of sale location need not have more than one blank material object and it need not have any material objects separately for sale as blanks.

The plaintiff argues that these terms do not need any construction. In the alternative, the plaintiff proposes that "point-of-sale" means "any place where a consumer enters a transaction with a merchant," "point-of-sale transaction" means "transactions between a consumer and a merchant," and "point-of-sale terminal" means "an electronic device that is used to enter information in connection with a transaction." The defendant proposes that "point-of-sale" means "the place in a store at which goods are paid for," "point-of-sale transaction" means "transactions that take place in a store at which goods are paid for," and "point-of-sale terminal" means "an electronic device that is located in a store and is used to enter information in connection with a transaction."

The principal dispute is whether the constructions should be limited to a store or can involve transactions occurring over the internet, telephone, or mail. The defendant cites to an extrinsic dictionary definition in support of its construction.

After considering the parties' arguments, the court construes "point-of-sale" to mean "the physical location where a consumer enters a sales transaction with a merchant" and "point-of-sale transaction" to mean "the sales transaction occurring at the point of sale." "Point-of-sale terminal" means "an electronic device at the point-of-sale for entering a point of sale transaction."

The relevant language in claim 7 of the '222 patent is as follows: "the frequency band is formed from a first set of K1 points and a pair of tail slots each having K2 points, each of the points being separated by a frequency range of [DELTA] f." Claim 7 also states that "the frequency band" is that upon which information is multiplexed. The specification expressly defines that the entire available bandwidth B is divided into a number of points K, where adjacent points are separated by a frequency band, [DELTA] f. See '222 patent, 5:26-31; 17:17-22. The available bandwidth B is the product of a number of points K multiplied by a frequency band [DELTA] f, that is B=K [DELTA] f. Id. The K points are grouped into a frame of K1 points and two tail slots of K2 points each, so that K = K1 + K2. Id. Thus, based upon Figure 2 and the corresponding
specification, it is clear that the points are located within the bandwidth, that there can be K1 points or K2 points, and that K1 points are located in the frame and K2 points are located outside the frame but still in the available bandwidth. See id. and FIG. 2. The Court finds that "points" does not equate to merely "frequencies" as Wi-LAN suggests. However, the Court finds that points can exist in the frame and outside the frame in the tail slots, and thus disagrees with Defendants' proposed construction that points means "divisions within a frame." The specification also expressly states that "each point in the frame corresponds to one information symbol." '222 patent, 5:35-36. However, because the Court finds that the "tail slots" of K2 points are outside of the frame of information, then those K2 points would not necessarily correspond to "an information symbol" based upon the specification. Thus, Defendants' proposed construction including "corresponding to one information symbol each" is incorrect. The Court construes the term "points" to mean "divisions within the frequency band."

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4. **Pointer memory** (claim 2)

Plaintiff's Construction: This term is indefinite. In the alternative, it is a memory used to store pointers until the processor can perform a read bus transaction to read the full message from the central memory.

Defendant's Construction: A memory for storing pointers, i.e., a variable that indicates the memory location (e.g., address) of some data, rather than the data itself.

Although plaintiff argued half-heartedly in its opening brief that this term was indefinite, it abandoned that argument in its response brief and at the claim construction hearing. (In fact, plaintiff failed to meaningfully develop any of its arguments that various terms are indefinite. Accordingly, I consider such arguments waived.) At the hearing, the parties agreed that a pointer is a variable that contains the address of a message or other data. Plaintiff continued to object to defendant's construction, but it provided no reasoned basis for doing so. Its own alternative construction comes from a description in an embodiment of "ring memories," which are only one kind of pointer memory. Accordingly, I will adopt defendant's construction with a slight modification: "a memory for storing variables that indicate the memory location of some data, such as by an address."

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D. **"policy information"**

Finally, the parties dispute the district court's construction of "policy information indicating a permitted neighboring node/network from which a packet transfer by the label switching is to be permitted." This claim term only appears in the '127 patent. The district court construed the term as requiring the policy information to relate to an upstream node/network. Toshiba argues on appeal that the claims read on systems storing information related to downstream nodes, as embodied in Juniper's routers. Again, Toshiba points to nothing in the patent supporting its proffered construction.

We agree with the district court's construction. The claim language "from which" modifies the "neighboring node/network," not the "policy information." If the patentee desired the latter construction, it would have used commas to set off the phrase "indicating a permitted neighboring node/network." Lacking grammatical signals to the contrary, we hold the claim more logically supports a construction requiring a transfer from a neighboring node or network. As such, that node or network must sit upstream relative to the claimed router device. **We therefore affirm the district court's construction and the judgment of noninfringement of the '127 patent.**

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3. "Policy level:" 3 "Structured set of information about an insurance policy." The court finds that "an insurance policy" clarifies any ambiguity inherent in plaintiffs' proposed construction of "any insurance policy." This construction accords
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11. The ordinary meaning of "polygon" is "a closed plane figure bounded by straight lines." Webster's Ninth New Collegiate Dictionary, p. 912. Although the preferred embodiment shown in the specification employs equilateral hexagons, Claim 3 (unlike Claim 1) is not limited "hexagonal base regions" but to "polygonal base regions". The specification also expressly notes that, in addition to hexagons, "other shapes such as squares" are also possible. ('725 Col. 2, lines 54-59.) Further, the prosecution history makes clear that other shapes such as rectangles having sides of unequal length are nevertheless also "polygonal." 3

3 For example, the examiner relied for an obviousness rejection (later overcome by IR) on the rectangular base in Fig. 3 of Takakuwa to construct a hypothetical device having an array of rectangular bases. (Reexam. Control No. 90/003,495, Paper No. 6, pp. 3, 5.)

12. Moreover, the patent specification explains that, because of the way the bases are made, they are only "generally polygonal in configuration": "By using suitable masks, a plurality of P type base regions such as regions 22 and 23 in FIGS. 3 and 4 are formed in one surface of the semiconductor wafer region 21, where these regions are generally polygonal in configuration . . . ." ('725 Col. 2, line 65- Col. 3, line 2.) A person of ordinary skill in the art would have understood that regions defined, as described in the specification, by a finite number of straight line segments at the top semiconductor surface ('725 Col. 3, lines 34-46) would deform slightly during diffusion or other processing steps giving those regions depth into the wafer. 4

4 Declaration of John D. Shott, Ph.D. in Support of IR's Motion for Sum. Adj. of Infringement of U.S. Patent Nos. 5,008,725 and 5,130,767, filed October 16, 2001 ("Shott Decl."). P6.)

13. For example, although IXYS argues that "polygons" must have "corners" (Defendant IXYS Corporation's Opposition To Motion For Summary Adjudication That Accused IXYS Products Infringe The '725 and '767 Patents, p. 6), it would have been understood by those of skill in the art -- as it was clearly understood by the Patent Office examiner 5 -- that these "corners" would take the form of spherical (i.e., round) junctions after processing, and would not take the form of straight lines intersecting at a point to form a well defined angle. Accordingly, the resulting regions would be generally, but not perfectly, polygonal in shape when viewed from the first semiconductor surface. Thus, within the meaning of the claim, a "polygon" would have been understood to be a region defined by a finite number of straight line segments at the first semiconductor surface, which lines could deform slightly during diffusion or other processing steps resulting in a region only generally polygonal in configuration when viewed from the device surface. To hold otherwise would exclude even the patent's preferred embodiment from the scope of the claim. A claim construction that excludes the preferred embodiment is "rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). 6
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J. Limitation 9: At least one base a polygon

37. The final element of Claim 1 is as follows: "at least said first base region being a cellular polygonal region; said cellular polygonal region being surrounded by said common conduction region; said first source region having the shape of an annular ring disposed within said cellular polygonal first base region." The example of this structure in the specification is central square base 94 in Figure 8, which has an annular source region disposed within it and is surrounded by a common conduction region.

38. As defined in the dictionary, a polygon is a closed plane figure bounded by straight lines. The specification describes Figures 7 and 8 as "a planar configuration which is a simple rectangular arrangement." ('699 patent, 6:22-23.) Although called a "rectangular arrangement," the metalization patterns shown in Figure 8 are generally square shapes with rounded corners. Likewise, the underlying base regions within the silicon formed by diffusion through the windows would not be perfectly polygonal, as both experts agree that it is inherent that the polygonal shape used to define the base shape is distorted during the manufacturing process.

39. For these reasons, this limitation is properly construed to require the base shape, at the surface, to be generally but not perfectly polygonal -- i.e., the surface expression of the base will be a closed figure with generally (not necessarily perfectly) straight sides.

3201

1. "Polygonal"

The word "polygonal" is used to describe a semiconductor base region in forty-four of the forty-eight claims asserted against IXYS--namely all of the asserted claims of the '725 and '767 patents, and all of the asserted claims of the '699 patent except claims 19, 22, 24, and 27. The district court construed this limitation to require that the shape of the region "be generally but not perfectly polygonal--i.e., the surface expression of the base will be a closed figure with generally (not necessarily perfectly) straight sides." Int'l Rectifier Corp. v. IXYS Corp., 2001 U.S. Dist. LEXIS 25711, No. CV-00-6756-R (C.D. Cal. July 25, 2001) ("Infringement Order '699 Patent"), at para. 39. The district court further modified its construction by noting that "the 'corners' of the polygonal regions may take the form of spherical junctions (i.e., round) after processing, and are not necessarily formed by straight lines intersecting at a point to form a well defined angle." Int'l Rectifier Corp. v. IXYS Corp., 2002 U.S. Dist. LEXIS 27247, No. CV-00-6756-R (C.D. Cal. Mar. 5, 2002) ("Construction Order '725 and '767 Patents"), at para 3. Both IR and IXYS agree that the ordinary and customary meaning of the term "polygon" is "a closed plane figure bounded by straight lines." The parties, dispute, however, the propriety of the district court's relaxation of the requirement for straight lines and well-defined angles. In particular, IXYS argues that the district court's claim construction did not give the word "polygonal" its ordinary and customary meaning and that there is no basis in the written description for giving the term "polygonal" anything other than its ordinary and customary meaning. IR, on the other hand, argues that the district court's construction and reasoning in support should be affirmed.

In searching for the ordinary and customary meaning of the expression "polygonal region," we begin with an examination of possible dictionary definitions of the word "polygon." The district court, citing Webster's Ninth New Collegiate Dictionary,
stated that: "As defined in the dictionary, a polygon is a closed plane figure bounded by straight lines." This is consistent with dictionary definitions contemporaneous with the patents at issue. See Webster's Third New International Dictionary 1758 (1966) ("Webster's") (defining "polygon" as "a closed figure consisting of straight lines joined end to end"); Webster's Third New International Dictionary 1758 (1993) (same). The parties do not advance any other dictionary definition, nor do the alternative definitions in the dictionary pertain even superficially to the issue at hand. By necessity, the boundary of a closed plane figure will also include multiple included angles, formed at the intersection of the straight lines. The dictionary definitions and the context of the claims themselves do not further illuminate the analysis; "polygonal" is not surrounded in the claims by any context that limits or helps to define its meaning.

We look next to the written description for context and guidance as to the meanings attributed by those of ordinary skill in the art to the term "polygonal" and to see whether the patentee acted as his own lexicographer, or otherwise disavowed or disclaimed the full scope of the ordinary and customary meaning of the term in question. The square base regions depicted in Figure 7 of the '699 patent and the hexagonal base regions depicted in Figure 3 of the '725 and '767 patents are recognizably "closed plane figures bounded by straight lines." The depictions and descriptions of the patents are consistent with the ordinary dictionary definition of the word "polygon" cited by the district court. IR points to no disavowal or disclaimer of this scope and does not contend that the patentee acted as his own lexicographer. Moreover, neither party argues that anything in the prosecution history affects the scope of any of the disputed claim terms.

Because the polygonal base regions are formed by the diffusion of dopants into the silicon substrate, a process which necessarily blurs the outline of the regions, IR argues that those skilled in the art and informed by the written description would understand "polygonal" to encompass shapes with curved corners. Moreover, IR asserts that the square base region depicted in Figure 7 of the '699 patent has slightly rounded corners, and "a claim interpretation that excludes the preferred embodiment is rarely, if ever, correct." Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1477 (Fed. Cir. 1998) (internal quotation marks omitted). While IR is correct that the meaning of claim terms must be considered from the perspective of one of ordinary skill in the art, that does not mean that the inventor's choice of words may be ignored. Hoganas AB v. Dresser Indus., 9 F.3d 948, 951 (Fed. Cir. 1993) ("As we have repeatedly said, the words of a claim 'will be given their ordinary meaning, unless it appears the inventor used them differently.'" (citations omitted)); see also Brookhill-Wilk, 334 F.3d at 1298; Voice Techs. Group Inc. v. VMC Sys., Inc., 164 F.3d 605, 615 (Fed. Cir. 1999). In the present case, one of ordinary skill in the art would understand from the written description that the diffusion resulting from the doping process will naturally cause some blurring of the corners and sides of the polygonal regions. There is nothing, however, to suggest that the recognition of these diffusion effects by those skilled in the art warrants the re-definition of the term polygon to mean anything other than "a closed plane figure bounded by straight lines." The district court's construction, relaxing the requirements so much as to allow round corners and not straight edges, is erroneous. The correct construction of the term "polygonal," consistent with the written description, is simply "a closed plane figure bounded by straight lines." The patentee, being fully aware of the effects of the doping process, could have claimed the regions more broadly but chose to use the word "polygonal" without modification or qualification. The district court was not free to attribute new meaning to the term or to excuse the patentee from the consequences of its own word choice.

Plaintiff's Construction: This term is indefinite. In the alternative, a collection of pointers located at a discrete location within the memory.

Defendant's Construction: More than one pointer

At the claim construction hearing, plaintiff more or less adopted defendant's alternative construction with the only caveat being that the location of the pool of pointers is not fixed. But saying that the pool is at a "discrete" location does not necessarily mean that the location cannot change. Nevertheless, plaintiff does not offer any specific support for its inclusion of the word "discrete"; it simply seeks a construction that prohibits the pool from being at two places at once, an idea that defendant does not dispute. Accordingly, I will adopt plaintiff's proposed construction with a slight modification: "a collection of pointers in a particular location at any given time."
9. **popularity**

The term "popularity" appears in claim 112 of the '725 patent and claims 12, 20, 31, 38, 63, 87, and 93 of the '345 patent. The plaintiff's proposed construction is "a ranking based on the number of times a particular work has been downloaded or played back, indicating how popular the particular work is." The defendant proposes "how much an item is liked or admired by a group of people."

The intrinsic record reflects that claim 89 of the '725 patent states "the remote source includes instructions for establishing popularity information indicative of plays of works during predetermined time intervals." '725 patent, claim 89 (emphasis added). Claim 113 of the '725 patent states "including executable instructions for establishing popularity information indicative of plays of works during predetermined time intervals." '725 patent, cl. 113 (emphasis added). Additionally, the specification of the '725 patent states

If desired, processor 12a in system 10-1 can keep track of the number of plays and total play time and transmit that information to processor 20a, for billing purposes. Reports producible by the processor 20a include total plays and play time along with invoices for end users. Documentation for royalty payments to the appropriate recipients can also be created. Finally, the reports can list those works by demand or popularity by day, week or month.

'725 patent at col. 7, 11. 3-10 (emphasis added).

The intrinsic record supports the plaintiff's proposed construction. **The court construes this term to mean "information indicative of the number of times a particular work has been downloaded or played back, indicating how popular the particular work is."**

**GO BACK**

### A. Claims 6 And 26 Of The '622 Patent

Claim I of the '622 patent states:

1. System for remotely determining the position of a selected category of items of interest in selected geographic vicinity from a database, the system comprising:

   (A) a database for storing information about a plurality of items of interest, the information including, for each of the items of interest, a geographical position and at least one associated category,

   (B) a communications link for communicating between a user of the system and the database,

   (C) an information controller for transmitting a portion of the information in the database to the user via the link upon receipt of a request signal representative of a selected category and geographic vicinity, the transmitted portion of the information including identification of geographic position for at least one of the items of interest within the selected category and geographic vicinity, and

   (D) a port for remotely accessing the portion of information via the link, the port generating the request signal in response to inputs by the user which are representative of the selected category and geographic vicinity, the port having a user interface for accepting the inputs and for indicating to the user the position at least one of the items of interest in the selected category and geographic vicinity.

(DSUF P 6.) Claims 6 and 26 depend from Claim 1 and therefore include each of the limitations of Claim 1. 35 U.S.C. § 112, P 4 ("A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which
Expedia first argues that it does not infringe Claims 6 and 26 because it does not use the claimed port or communications link. The Court has construed the term "port" to mean a "terminal, e.g., a personal computer with a modem, from which a user of the invention can access the database storing the information about the items of interest." The Court has also ruled that "user" refers to a "human being." In opposing summary judgment, Civix argues that Expedia does use the claimed system by controlling its customers' use of the ports. 11

11 Civix also argues that Expedia is a co-infringer along with its customers and suppliers and is therefore jointly liable for infringement. Civix argues that Expedia induces the infringement of claims 6 and 26. Because the Court finds that genuine issues of fact exist whether Expedia, itself, uses the claimed system, the Court does not reach Civix's other arguments.

During claims construction, the court construed the terms "port," "switching/transferring," and "session." The parties agreed on the construction of "PPP state," "PPP session" and "dormant/dormant PPP session," and the court adopted the agreed-upon construction of those terms.

The court construed "port" as "a defined physical or logical connection where data enters or leaves a network device."

The court construed "switching" and "transferring" as "shifting or reassociating PPP state to another session associated with the new call set-up message."

The court construed "session" to be "a PPP session."

The parties' agreed upon construction of "PPP Session" is "the time during which a communications device and a network access server are maintaining a negotiated PPP state."

The parties' agreed upon construction of "PPP State" is "a set of parameters negotiated pursuant to PPP sufficient for a PPP session."

Based on the parties' agreement at the claims construction hearing, the court construed "dormant" as "no active data transfer for a predetermined period of time allowing reallocation of resources, but from which active data transfer can resume more efficiently than it could from an inactive state."

Based on the parties' agreement at the claims construction hearing, the court construed "dormant PPP Session" as "a PPP
The term "port" appears in numerous claims of the '670 patent (claims 1-7, 9-11, 18-19, 21-23, 30-34, 36-37, 40-42, 46, 51). Informatica asserts that the plain meaning of the term is understood by those in art and proposes the term be construed to mean "An abstraction for describing the inputs and/or outputs of sources, targets or transformation objects." BODI offers the construction:

A port is analogous to a column of a table and provides the primary means of parameterized dataflow between various objects in a mapping. A port must have a name, data type it holds, and its data flow type (i.e., in, out, or in/out). A port must always be defined within the definition of a source, target, or transformation object; thus it would be meaningless to have a stand-alone definition of a port. Ports provide the means for transferring data between sources, targets, and transformation objects.

A port has the following specification:

```xml
<port_def>::=<port_name><data_type_def><port_type>
<port_name>::=<string>
<port_type>::=|IN|OUT|INOUT|
<data_type_def>::=<data_type>[<precision>[,<scale>]]
<precision>::=<integer>
<scale>::=<integer>
```

BODI asserts that the term port has no generally accepted meaning within the industry; accordingly, it refers the Court to the patent specification and pulls its proposed construction from this source. Informatica responds that BODI's proposed construction impermissibly imports a limitation from the specification into the claims. Moreover, Informatica asserts that the patent as a whole claims an apparatus and method for performing data transformations in data warehousing; the functional specification for a transformation description language ("TDL") -- the basis for BODI's construction -- is merely a preferred embodiment disclosed in the specification.

Claim construction requires courts to walk the fine line between interpreting the claims in light of the specification, Markman, 52 F.3d at 979, and impermissibly reading a limitation into the claim from the specification, Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186-87 (Fed. Cir. 1998). The balance maybe found by determining how the specification characterizes the claimed invention. In other words, does the specification discuss a limitation only as part of some of the possible embodiments or does the specification read as a whole imply that "the very character of the invention requires the limitation be a part of every embodiment." Alloc, Inc. v. Int'l Trade Comm'n, 342 F.3d 1361, 1371 (Fed. Cir. 2003), cert. denied, 541 U.S. 1063, 158 L. Ed. 2d 963 (2004); see also Nazomi Communications, Inc. v. ARM Holdings, PLC, 403 F.3d 1364, 1369 (Fed. Cir. 2005) (discussing that claims may embrace "different subject matter than is illustrated in the specific embodiments in the specification").

The written description of the '670 patent focuses almost exclusively on the TDL process, thereby lending support to BODI's argument. Nevertheless, the specification does not state that TDL is the actual invention, rather it recites that TDL, in the context of the preferred embodiment, is the process created for describing the data definitions, manipulations, and other types of transformations in the data warehousing domain. The Federal Circuit has instructed that even in cases where the specification describes only one embodiment, that embodiment only rarely limits the scope of the claim term. See, e.g., Innova/Pure Water, Inc., 381 F.3d at 1117 (stating that "even where a patent describes only a single embodiment, claims will
not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction" (internal quotation omitted); SRI Int'l v. Matsushita Elec. Corp of Am., 775 F.2d 1107, 1121 n. 14 (Fed. Cir. 1985) ("That a specification describes only one embodiment does not require that each claim be limited to that one embodiment."). It is the claims that measure the invention, not the specification. Interactive Gift Express, Inc. v. CompuServe, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001) ("In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to particularly point out and distinctly claim the subject matter which the patentee regards as his invention." (internal quotation omitted). The specification here does not contain any statements of limitation or disclaimers that limit the definition of port to something other than the plain meaning.

The doctrine of claim differentiation also undermines BODI's proposed construction. The Federal Circuit has recognized that, while not a hard and fast rule of construction, the doctrine of claim differentiation creates a presumption that each claim in a patent has a different scope. Comark Communications, 156 F.3d at 1187. This presumption "is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim. Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1303 (Fed. Cir. 2003). Normally, "limitations stated in dependent claims are not to be read into the independent claims from which they depend." Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 972 (Fed. Cir. 1999).

A review of all the claims at issue, supports the conclusion that BODI's proposed construction is untenable. Dependent claim 19 adds to independent claim 18 only the clause: "wherein the ports are comprised of a name, a data file, and a flow type." Similarly, dependent claim 36 adds to independent claim 30 only the clause: "wherein the ports are comprised of a name, a data file, and a flow type." The juxtaposition of the independent claims lacking any reference to name, data file, and flow type with the dependent claims that add this limitation provides strong support for Informatica's argument that the independent claims were not intended to require the presence of the details contained in BODI's construction. Adopting BODI's proposed construction would import the nuances of the dependent claims into the independent claims; the dependent claims thereby would be rendered entirely redundant. BODI has not coarsely forward with a persuasive argument to rebut the presumption that the independent claims should not be so limited as to render the dependent claims superfluous.

The Court adopts Informatica's proposed construction and construes the term "port" to mean: An abstraction for describing the inputs and/or outputs of sources, targets or transformation objects.

3208

"Portable"

The term "portable" appears in claims 1-2, 6-12, and 14 of the '057 patent and claims 1-8, 10 and 12 of the '362 patent. Typhoon suggests that the term means "easily carried around during use and not unwieldy." Defendants urge that the term means "designed to be carried by an individual." Thus, the parties agree that term requires that a device have the ability to be carried by an individual. However, the parties disagree over whether "portable" requires that a device be capable of operation while moving.

Both patents begin by describing "portable" devices in the prior art as "includ[ing] hand-held units and lap-top computers." '362 Patent at 1:22-25; '057 Patent at 1:20-24. The patents also acknowledge that lap-top computers are generally not operated while being carried. See '057 patent at 1:51-52 ("the lap-top is intended for use while supported on the user's lap, as the name imports"); '362 Patent at 1:51-52 (same). Typhoon's proposed construction equates ambulatory use with portability. However, as the above-quoted passages suggest, the specification clearly distinguishes between a "portable" device and one which is capable of ambulatory use. Furthermore, the description of the invention describes "portability" in terms of "compact design" and describes an "optional" carrying case that "is specifically adapted for ambulatory use of the portable computer." See '362 Patent at 4:42; '057 Patent 17:28-29, 45-56 & Fig. 14. Thus, there is clearly a distinction between ambulatory use and portability. The Court rejects Typhoon's suggestion that portability requires ambulatory use.

However, Defendants' suggestion that portability be by "design" introduces an element of subjectivity into the term that is not warranted by the claim language or specification. See Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1350
(Fed. Cir. 2005) ("The scope of claim language cannot depend solely on the unrestrained subjective opinion of a particular individual purportedly practicing the invention."). The essence of portability, as reflected in the specification, is not the fact that a device has the ability to move, but rather the ease with which it can be moved. See '057 Patent at 1:54-58 (describing lap-top as portable but having "unsymmetrical dimensions, bulkiness, [burdensome] weight, and [an] off-set center of gravity"). Accordingly, "portable" is defined as "physically configured to be easily carried by an individual."

**3209**

5. Portable

The term "portable electronic navigational aid device" appears in claims 9, 10 and 11. The dispute is over the term "portable." The parties advance the same arguments they made in the context of the '873 patent. For the reasons discussed in section C.9, I construe "portable" as "easily transportable."

**3210**

1. Laptop exclusion

Defendants contend that the '645 patent should be construed not to cover laptop computers, which they define as computers that contain a built-in keyboard and display. (At the claims construction hearing, defendants explained that a keyboard or display is "built-in" when it cannot be detached from the computer.) According to defendants, Ergo Computing, Inc., which is listed as the assignee of the '645 patent, developed a line of "brick-style" computers and compatible docking stations in the late 1980s. "Ergo's brick-style computer was distinct from laptop computers in that it did not have a built-in keyboard or display monitor, although it had several ports to which a user could connect a monitor, a keyboard, and other peripheral devices, such as a printer." Dfts.' Opening Br., dkt. # 86, at 1-2. Defendants argue that the court should construe the phrase "portable computer," which appears in independent claims 17 and 28, and the phrase "portable computer microprocessing system," which appears in independent claim 20, to mean "a computer without a built-in display or keyboard that is capable of being carried or moved about." In addition, defendants argue that the phrase "a housing containing the microprocessor," which appears in claims 20 and 28, should be construed to mean "an enclosure, without a built-in display or keyboard, that contains a microprocessor" and the phrase "containing the microprocessor within the housing," which appears in claim 17, should be construed to mean "enclosing the microprocessor within an enclosure that does not have a built-in display or keyboard."

Defendants contend that their proposed constructions are supported by the '645 patent's specification and prosecution history and by several pieces of extrinsic evidence. With regard to the specification, they note that every "embodiment of the invention described in the specification is a computer without a built-in display or keyboard." Dfts.' Opening Br., dkt. # 86, at 5. Also, the inventors distinguished laptop computers from "microcomputers" in the specification, '645 pat., col. 1, Ins. 15-20, and repeatedly described their system as a microcomputer. Id. at col. 2, Ins. 64-66; col. 7, Ins. 23-24. Among the pieces of extrinsic evidence cited by defendants are (1) Ergo's 1990 product catalog; (2) a May 21, 1990 press release from Ergo in which it states that its brick computer "has desktop power and true portability without the limitations of laptop displays and keyboards"; and (3) a June 10, 1990 article from the Boston Globe that described Ergo's computer in the following terms: "you buy one Brick and haul just the brains of the computer around, keeping a full-sized monitor and keyboard at each site." Aff. of Vito Canuso, dkt. # 87, Exhs. B, G and H.

The crux of defendants' argument is that the applicants disclaimed coverage of laptop computers during prosecution of the '645 patent. In their briefs and at the claims construction hearing, defendants focused on a June 15, 1992 response written by the applicants to the Patent and Trademark Office after the patent examiner had rejected the '645 application. Defendants contend that the applicants distinguished their invention from laptop computers in this response to overcome the examiner's rejection of their claims in light of U.S. Patent 5,030,128, issued to Herron.

Plaintiff opposes defendants' proposed constructions. It argues that the word "portable," as used in the terms "portable computer" and "portable computer microprocessing system," has a commonly understood meaning that should be applied to
the claims. Therefore, the phrases require no further construction. Alternatively, if the court decides that the phrases need further construction, plaintiff suggests that the court construe them to mean "a computer that is capable of being easily carried or transported." Plt.'s Opening Br., dkt. # 84, at 3. Plaintiff argues that this construction is supported by the specification, in which the inventors use the terms "portable" and "portability" to "describe the ease with which something is carried or transported." Id. at 7. It makes the same argument with respect to the phrases "housing containing the microprocessor" and "containing the microprocessor within a housing," stating that these phrases require no construction beyond application of the plain and ordinary meanings of the words used. If the court determines that further construction is required, plaintiff proposes that the word "housing" be construed to mean "an enclosing structure." Accordingly, "housing containing the microprocessor" would mean "an enclosing structure containing the microprocessor" and "containing the microprocessor within a housing" would mean "containing the microprocessor within an enclosing structure." Id. at 9.

Plaintiff objects to a construction of the claims that excludes laptop computers on the ground that such a limitation is not found anywhere in the claims of the '645 patent. It argues that defendants are attempting to import a limitation into the claims that is inconsistent with their plain language. Playtex Products, Inc. v. Procter & Gamble Co., 400 F.3d 901, 906 (Fed. Cir. 2005)("The court must take care in its analysis, when locating in the written description the context for a disputed term, not to import a limitation from that written description."). Plaintiff contends further that defendants' proposed construction would exclude from the claims a preferred embodiment shown in figure 13 of the '645 patent. Vitronics, 90 F.3d at 1583 (claim construction that excludes preferred embodiment shown in figure 13 of the '645 patent. Vitronics, 90 F.3d at 1583 (claim construction that excludes preferred embodiment is "rarely, if ever, correct and would require highly persuasive evidentiary support"). Also, plaintiff contends that the extrinsic evidence concerning Ergo's brick-style computer is irrelevant to claim construction. Finally, plaintiff argues that the evidence of disclaimer in the prosecution history is insufficient to warrant application of that doctrine.

It is well established that "a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution." Purdue Pharma L.P. v. Endo Pharm., Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006). Examining prosecution history for instances of disclaimer insures that claims "are not construed one way in order to obtain their allowance and in a different way against accused infringers." Chimie v. PPG Industries, Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005). Holding an applicant to his representations during prosecution does not alter the scope of what the applicant has claimed as his invention. Rather, it protects the right of competitors to rely on those representations to guide their own conduct. Seachange International, Inc. v. C-COR, Inc., 413 F.3d 1361, 1372 (Fed. Cir. 2005).

Prosecution disclaimer is not to be employed "where the alleged disavowal of claim scope is ambiguous." Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). For example, if statements in the prosecution history are susceptible to more than one reasonable interpretation, disclaimer will not lie. Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1294-95 (Fed. Cir. 2000). "But where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecutorial disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." Omega Engineering, 334 F.3d at 1324.

SciMed Life Systems, 242 F.3d 1337, presents an example of the clarity needed before a patent holder will be held to have disclaimed subject matter. That case involved patents covering certain features of balloon dilatation catheters, which are used in angioplasty. The court of appeals concluded that the asserted claims were limited to catheters that used a coaxial lumen configuration, in which one lumen is contained inside the other, and did not cover catheters that featured a dual lumen configuration in which "the two lumens are positioned side-by-side." Id. at 1339. The court looked to the patents' common specification and determined that the applicants had made a clear disavowal of the side-by-side configuration. It noted that the applicants had described the lumen structure as coaxial in the abstract of each of the patents. Id. at 1342. Also, the applicants had highlighted the disadvantages of dual lumens in discussing the prior art and had described their "invention" as having a coaxial lumen. Id. at 1342-43. Finally, the court highlighted a statement in the specification in which the applicants indicated that the coaxial lumen structure was used in "all embodiments of the presented invention contemplated and disclosed therein." Id. at 1343.

The present case is distinguishable from SciMed Life Systems because the '645 patent's prosecution history and specification do not contain a simple, explicit statement that all embodiments of the claimed invention exclude laptop computers. Nonetheless, I am convinced that the specification and prosecution history support the conclusion that the applicants clearly and unmistakably disclaimed laptop computers. There is compelling evidence in both the prosecution history and the specification that the portable microprocessing system claimed in the '645 patent is distinguishable from a laptop computer and that the applicants emphasized differences between the two in order to overcome the patent examiner's
objections to their original application. Therefore, application of the prosecution disclaimer doctrine is appropriate.

As originally filed, the '645 application contained 26 claims. On December 13, 1991, the Patent and Trademark Office issued an office action rejecting all of the claims. Aff. of Vito Canuso, dkt. # 87, Exh. J. The patent examiner rejected claims 1, 3, 4, 6, 11, 13, 14, 20, 21, 23 and 24 as anticipated by the Herron patent, which claims a docking module that "facilitates conversions of a portable computer between a laptop mode of operation and a desk-top mode of operation" by connecting the computer to peripheral devices. Id. at Exh. K (‘128 pat.), Abstract. The examiner concluded that the claims were anticipated by Herron because the patent disclosed a "portable microprocessor system with a docking connection means" and taught "the steps of using the docking connection means including the ejector which pushes the docking connection means away from the housing when disconnecting the docking connection means from the housing." Id. at Exh. J, at 4.

The applicants wrote a response to the office action, dated June 15, 1992, in which they attempted to distinguish their invention from Herron. Aff. of Vito Canuso, dkt. # 87, Exh. F. The contents of this response indicate that the applicants did not contemplate laptop computers as part of their invention. They began by describing their "invention" as

a portable microprocessing system with a microcomputer contained within a housing. As is typical of such systems, the microprocessor interfaces with several peripheral devices including a keyboard, display, modem, serial and parallel port devices, a power source, etc. The Applicants' system provides all of the interfaces for these devices at a set of interface connectors on the rear bezel of the housing.

Id. at 13 (emphasis added). In this excerpt, the applicants distinguish their invention, a portable microprocessing system, from the peripheral devices with which it interacts. A keyboard and display are listed as peripheral devices. Moreover, the applicants indicate that the interfaces for the devices are located at the rear of the housing. This shows that the applicants were not contemplating a system that contained a built-in keyboard and display. After describing the single connector on the housing and the function of the docking connection means, the applicants highlighted the advantages of their invention and juxtaposed them against the limitations that laptops contained at the time:

The Applicants' system therefore provides an extremely powerful utility. A full-sized microprocessor with large memory capacity is made completely portable. The processing unit housing or "brick" can be easily removed from one system and transported in a briefcase to another system. Rather than requiring a portable display and keyboard, the present invention concentrates on portability of an exceptionally large memory capacity in hard disk drive. . . . For the same sized unit as a conventional laptop computer, the invention does require that peripherals be made available at each location, a requirement that would lead one away from the present invention. However, even that requirement can be an advantage over laptop computers in that higher quality peripherals will more likely be used since they need not be transported. Thus, laptop machines make concessions in memory, display and other areas in favor of portability. The Applicants' system, on the other hand, is a portable full service microprocessing system which concedes portability of peripherals.

Id. at 14-15. Here, the applicants narrow the focus of their invention to a "large memory capacity in hard disk drive" that is portable. It is the microprocessor that is portable, not the peripherals. Again, the applicants contrast their invention to keyboards and displays, which are categorized as peripheral devices. They state that their invention requires the user to provide peripherals wherever he uses the system. They state that their system "concedes portability of peripherals," which I construe as a disclaimer of portable peripherals. Perhaps most important, the applicants distinguish their system from laptop computers specifically, noting that their system captures the portability of laptop computers without making sacrifices in "memory, display and other areas."

Finally, the applicants make the following remarks to distinguish their invention from Herron:

The Herron reference discloses a docking module which is latched to the rear of a laptop computer. The computer and docking module rest on a desk top.

* * *

The Herron system does not allow a microprocessor having state-of-the-art memory capacity and other capabilities to
interface to a full-service processing system as does the Applicants' system. The Herron system allows a laptop computer with its own flat panel display and keyboard to interface to other peripheral devices. This laptop computer does not possess utilities and functionalities comparable to those of the Applicants' system.

* * *

Also, the computer in Herron is not oriented vertically as in the Applicants' system. It would make no sense to do so with the Herron laptop with its attached keyboard and display.

Id. at 16-17. The applicants distinguished their system from Herron because the laptop machine did not have the "state-of-the-art" memory capacity of their system and because a user would not be able to use a laptop machine that was held vertically in the docking station.

The specification of the '645 patent reinforces the distinction between the claimed invention and laptop machines. In setting out the background for their invention, the applicants divide computer systems into a four-tiered hierarchy according to their size and processing abilities: mainframe systems, "mini-computer systems," microcomputer systems, "often referred to as personal computers," and laptop computers. '645 pat., col. 1, Ins. 7-22. The applicants describe their invention as a portable microcomputer repeatedly throughout the specification. In the abstract, the applicants describe their invention as a "microcomputer system," which "includes a microprocessor and a housing for holding the microprocessor." This characterization is repeated in the section entitled "Summary of the Invention," where the applicants state that "present invention concerns a portable microprocessor system having a microprocessor for processing instructions and a main housing for housing the microprocessor." Id. at col. 1, Ins. 24-27.

Also, various figures in the patent are described as versions of the applicants' microcomputer system. Id. at col. 2, Ins. 39-40, 64-66; col. 3, Ins. 1-3. As in the June 15 response, the applicants distinguish their system from peripheral devices such as a keyboard and display by describing the devices as "options available with the system." Id. at col. 2, Ins. 8-10. Admittedly, the inventors do not explicitly disclaim laptop computers in the specification. But the distinctions drawn between laptop machines and their invention in the specification reinforce the disclaimer made in the June 15 response.

Plaintiff argues that the June 15 response does not contain a clear and unmistakable disavowal of laptop computers. Plaintiff acknowledges that the applicants highlighted differences between laptop computers and their system in the June 15 response. However, it notes that the applicants listed several novel features of their invention to distinguish it from Herron and other pieces of prior art and indicated that each of the amended independent claims incorporated "at least one of these novel features." Aff. of Vito Canuso, dkt. # 87, Exh. F, at 16. In other words, if there was a disclaimer of laptops, the applicants did not state that it applied to all of the independent claims.

This argument does not comport with the language of the independent claims. If, as plaintiff contends, not all of the independent claims exclude laptops, one would expect to find an explicit limitation excluding laptop computers somewhere in the language of the independent claims. This language would alert the reader to which independent claim or claims excluded laptops. However, none of the independent claims contain this exclusionary language. There is only one way to incorporate the laptop disclaimer into the patent. That is to infer that it is inherent in the terms "portable computer" and "portable computer microprocessing system." One of these terms appears in the preamble of each of the independent claims. Therefore, the laptop disclaimer applies to all of the claims of the '645 patent.

If these terms are not construed to exclude laptops, claims 1 and 14 would not make any sense because they both disclose a portable computer microprocessing system that includes "a support holding the housing in a vertical position." '645 pat., col. 8, In. 55; col. 9, In. 65. Laptop computers are not designed to be used while the housing is held vertically and it would be inappropriate to construe the term "portable computer microprocessing system" to exclude laptops as it appears in claims 1 and 14 but not as it appears in independent claim 20. Phillips, 415 F.3d at 1314 ("claim terms are normally used consistently throughout the patent").

Plaintiff argues next that language in the specification argues against a laptop exclusion. It notes that the applicants included a statement indicating that the claims were not to be interpreted narrowly to cover only the embodiments discussed in the patent:
While the invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention as defined in the appended claims.

'645 pat., col. 8, Ins. 12-17. This vague statement is insufficient to overcome the more specific statements made in the June 15 response distinguishing the claimed invention from laptop computers. Moreover, the Court of Appeals for the Federal Circuit has found that statements of disclaimer in prosecution history can limit the scope of patent claims even where the disclaimer excludes a preferred embodiment from coverage or conflicts with statements in the specification. In Rheox, Inc. v. Entact, Inc., 276 F.3d 1319 (Fed. Cir. 2002), the court of appeals upheld a construction of a patent for a method of remediating lead from soil that excluded a chemical compound known as "monocalcium orthophosphate" or "triple superphosphate" even though that compound was listed in the patent's specification as a preferred embodiment. The court examined the prosecution history and noted that the applicants had included triple superphosphate in their original claims but had deleted references to the compound in subsequent amendments to distinguish their invention from the prior art. Id. at 1326-27. Although the court recognized that a claim construction that excludes a preferred embodiment is rarely appropriate, it considered the specific disclaimers made in the prosecution history paramount and persuasive enough to adopt the limiting construction. Id. at 1327. The present case is similar to Rheox in that the statements made by the applicants in the June 15 response emphasizing the advantages of their invention over laptop computers are controlling over the language in the specification indicating that "changes in form and detail may be made without departing from the spirit and scope of the invention." '645 pat., col. 8, Ins. 15-17.

Plaintiff contends further that claims 1, 9 and 10 prove that there was no disclaimer. Claim 1, an independent claim, contains the phrase "portable computer microprocessing system." Claims 9 and 10, which are dependent on claim 1, require connectors for a keyboard and visual display on the system's housing. '845 pat., col. 9, Ins. 13-19. According to the doctrine of claim differentiation, claim 1 does not contain the limitations disclosed in claims 9 and 10. Therefore, plaintiff argues, because the housing in claim 1 may not have connectors for a keyboard and display, those peripherals must be built into the system. Accordingly, claim 1 would encompass laptop systems as defendants have defined them.

The doctrine of claim differentiation is only a "presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006). This presumption cannot be used to broaden claims beyond their proper scope. Kraft Foods, Inc. v. International Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000)(quoting Multiform Desiccants Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998)). Moreover, it can be overcome by statements of disclaimer in the prosecution history. Fantasy Sports Properties, Inc. v. Sportslines.com, Inc., 287 F.3d 1108, 1115 (Fed. Cir. 2002); Kraft Foods, 203 F.3d at 1367-69. Such is the case here. The applicants disclaimed laptop computers in the course of prosecution. This disclaimer trumps the presumption that the "portable computer microprocessing system" in claim 1 does not have connectors for a keyboard and visual display.

Plaintiff argues that defendants' construction excludes from the claims the embodiment shown in figure 13 of the '645 patent. SanDisk Corp. v. Memorex Products, Inc., 415 F.3d 1278, 1285 (Fed. Cir. 2005)(quoting Vitronics, 90 F.3d at 1583) ("claim construction that excludes preferred embodiment is "rarely, if ever, correct.").

[SEE FIGURE 13 IN ORIGINAL]

Plaintiff contends that this figure shows an embodiment of the invention that includes a keyboard and display. Plaintiff is correct, but figure 13 does not depict a "laptop" computer as defendants have defined that term. The keyboard and display in figure 13 are detachable from the housing. Under defendants' proposed construction, laptops are defined as computers with built-in displays and keyboards. Defendants defined "built-in" to mean that the display and keyboard could not be detached from the computer. In contrast, the keyboard and display in figure 13 are described as being "coupled" to the microcomputer system. '645 pat., col. 7, Ins. 23-24. Figure 14 shows the connector and thumbscrews used to connect and disconnect the display from the housing. Both the keyboard and display in figure 13 are detachable from the housing. Accordingly, the embodiment in figure 13 is not excluded by defendants' proposed construction.

Finally, plaintiff argues that defendants' construction "ignores the fact that each of the claims is either a 'system comprising' certain steps . . . or a 'method . . . comprising [certain] steps." Plt.'s Opening Br., dkt. # 84, at 9-10 (emphasis in original). The word "comprising" "is inclusive or open-ended and does not exclude addition, unrecited elements or method steps." Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999). Therefore, plaintiff argues, the
claims could cover a housing that contains a keyboard or monitor. This argument is not persuasive. As defendants note, use of the word "comprising" does not overcome the applicants' disclaimer of laptops during prosecution. Spectrum International, Inc. v. Sterilite Corp., 164 F.3d 1372, 1380 (Fed. Cir. 1998) ("'Comprising' is not a weasel word with which to abrogate claim limitations.").

In conclusion, I agree with defendants that the claims in the '645 patent asserted in this case should be construed not to cover laptop computers. Accordingly, I will adopt defendants' proposed construction of the terms "portable computer" and "portable computer microprocessing system." As used in the '645 patent, the terms will be construed to refer to "a computer without a built-in display or keyboard that is capable of being moved or carried about." In light of this conclusion, I agree with plaintiff that incorporating the "lack of built-in display or keyboard" limitation to the phrases "a housing containing the microprocessor" and "containing the microprocessor within the housing" would be needlessly duplicative. Therefore, I will not adopt this proposed construction.

2. "Another single connector on the housing, said single connector comprising a set of pins, said set further comprising a plurality of subsets of computer-peripheral-device-specific pins being in electrical communication with said microprocessor such that one of each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors, said single connector for making all connections from the microprocessor to said specific computer peripheral devices"

For ease of reference, I will adopt the parties' convention and refer to this phrase as the "long phrase." The long phrase appears in independent claims 17(c), 20(d) and 28(d) of the '645 patent. The parties raise four construction issues concerning it. I will start with the dispute that was resolved at the claims construction hearing.

At the hearing, the parties agreed that the claims of the '645 patent establish two paths through which the microprocessor may communicate with peripheral devices. First, the devices may be connected to the microprocessor through their corresponding individual connectors, which are mounted on the housing. Second, the devices may be connected to the microprocessor through a docking connector, which mates with a single connector found on the housing. At the hearing, plaintiff stated that it was under the impression that defendants' construction of the long phrase required the connections between the microprocessor and the peripheral devices to pass through the single connector, even when the peripheral devices were connected to the microprocessor through their individual connectors. Trans., dkt. # 101, at 53. As a result, when the peripheral devices are connected to the microprocessor through their individual connectors, the claims would be infringed only when the signals to each peripheral device passed from the microprocessor to the single connector and then from the single connector to the individual connectors. Defendants stated that this was not their position. Id.

The remaining three disputes concerning the long phrase are as follows. First, defendants contend that a portion of the long phrase is indefinite under 35 U.S.C. § 112. Second, defendants argue that another section of the long phrase, "said single connector for making all connections from the microprocessor to said computer peripheral devices," should be construed to require that "all individual peripheral devices connections on the housing that connect to the microprocessor also pass through the single connector." Dfts.' Opening Br., dkt. # 86, at 10. Third, defendants contend that this section should be construed to require that "the microprocessor directly drives all peripheral devices, either through the housing's individual connectors or through the single connector." Id.
within "portable computer means" in the '713 Patent. The parts include: a portable bar code reading means, a portable processing means, a portable memory means, and a portable display means. The recited functions include: storing the patient history file and the physician instruction file on that patient; identifying the patient and the medications, goods, services, or procedures proposed to be delivered to that patient by reading the bar codes on the patient's wrist identification band and on the medications, goods, services, or procedures; processing the bar codes read by the bar code reader to determine by comparing the patient history file and the physician instruction file to calculate whether the identified medications, goods, services, or procedures may be given to that patient at that time; and indicating the determination on a portable display. The defendants argue that there is no evidence that one of ordinary skill in the art in the 1980s would have understood the term "portable computer" to connote a structure capable of performing these functions, including the function of reading a bar code. (Id.).

The record contains no evidence that a person of ordinary skill in the art would have understood the term "portable computer" by itself to connote sufficiently definite structure to perform the specific functions that the claim recites. The case law does not support Brown's argument that in the '713 Patent, the term "portable computer means" is sufficient to overcome the means-plus-function presumption.

In Catch Curve, Inc. v. Venali, Inc., No. CV 05-4820, 2007 U.S. Dist. LEXIS 93667, 2007 WL 3308101, at *10 (C.D. Cal. May 11, 2007), for example, the court examined a patent for a fax communications system that was designed to improve security and save redial efforts by a "store and forward facility." If a receiving fax machine was busy or unavailable, the claimed facility would receive faxes transmitted by an originating machine, store them, and, if retransmit them to their intended destinations when the receiving machine became available. 2007 U.S. Dist. LEXIS 93667, [WL] at *4. A "computer means" was claimed as a means for controlling the store and forward facility. "The plaintiff argued that "computer means" should not be construed according to section 112, P 6, because the word "computer" meant a sufficiently definite structure to rebut the presumption. 2007 U.S. Dist. LEXIS 93667, [WL] at *10. The court rejected this argument because the word "computer" did not connote sufficient structure to perform the claimed function of operating the store and forward facility. The function of receiving facsimiles transmitted by an originating fax machine, storing them, and forwarding or retransmitting the facsimiles to their intended destinations once the receiving machine was available, was not common to all computers but instead would require special programming. The court observed that "[w]hile every computer may have a defined structure, it does not follow that every computer has structure sufficient to control the operation of a store and forward facility [for facsimiles]." 2007 U.S. Dist. LEXIS 93667, [WL] at *11. The court concluded that "computer means" was a means-plus-function phrase. Id.

The court reached a similar conclusion in Verizon California, Inc. v. Ronald A. Katz Tech. Licensing, L.P., 326 F. Supp. 2d 1060, 1101-02 (C.D. Cal. 2003). In that case, "computer means" performed the functions of connecting incoming customer calls to an operator terminal and visually displaying data about the customer. The court accepted the argument that "computer" connoted a structure but held that the structure was not "sufficient to perform the recited functions" in the claim. Id. at 1102 n. 13. The court concluded that "computer," as understood by one of ordinary skill in the art, would not connote sufficient structure to perform the function of connecting incoming calls to an operator terminal. The corresponding required structure -- a computerized transmission line between the computer and the interface terminal -- was not included in the word "computer." Id. at 1102. The claimed term "computer means" was subject to section 112, P 6.

T-Netix, Inc. v. Global Tel*Link Corp., 2:01-cv-189, 2003 U.S. Dist. LEXIS 27830, 2003 WL 25782759, at *9 (E.D. Tex. Aug. 15, 2003), provides another example. The "computer means" in the claim at issue performed the function of "enabl[ing] the use of an on-site telephone to make calls by another party at a location remote from the site, without the intervention of a human operator." Id. The court accepted the argument that "computer" had "sufficient structure by itself to describe the physical object" but concluded that the term did not connote sufficient structure to overcome the means-plus-function presumption. "[T]he word computer, by itself, does not tell us anything except that it is capable of computing something or controlling some process." Id. The function that "computer means" was required to perform in the patent at issue would require special programming or software, not common to all computers, which left "the entire clause up for construction." Id.

These cases support the conclusion that the term "portable computer means" in the '713 Patent is subject to means-plus-function analysis. As in Catch-Curve, Verizon, and T-Netix, a general-purpose computer is not a sufficient description of the structure necessary to perform the claimed functions. In the '713 Patent, the functions assigned to "portable computer means" would require special structure and special programming, including reading barcodes. Brown has presented no
The second step is to determine the corresponding structure disclosed in the specification and equivalents thereof. The "portable computer means" must also be specially programmed to perform the function of determining that the identified medications, goods, services, or procedures are the right ones to give to the particular patient at the particular time. Brown has presented no evidence that "computer means" would, by itself, connote sufficient structure to perform this function. "Computer means" as used in the '713 Patent does not overcome the means-plus-function presumption.

Brown cites the Federal Circuit's unpublished decision in Optimal Recreation Solutions, LLP v. Leading Edge Techs., Inc., 6 F. App'x 873, 878 (Fed. Cir. 2001), in arguing that the specification supports the conclusion that "computer means" is reasonably well understood in the art and overcomes the presumption that section 112, P 6 applies. In Optimal, the court concluded that the terms "global positioning receiver means," "memory means," and "display means" provided "sufficient structure for accomplishing the functions recited in the pertinent claim limitations," as evidenced by the fact that the specification repeatedly referred to these terms without defining them. Id. The court treated the specification as evidence that the disputed claim terms had "well understood meanings as the names for [the] structure." Id.

The Optimal case does not support Brown's argument that "computer means" in the '713 Patent connotes sufficient structure to overcome the means-plus-function presumption. The court in Optimal emphasized that "it is important to bear in mind the context of the invention and the relevant arts involved." Id. The invention claimed in that case involved a GPS receiver. The specification repeatedly referred to GPS receivers. The court concluded that the relevant arts were GPS receivers and computer programming and considered what a person with ordinary skill in those arts would understand by the terms "global positioning receiver," a "memory," and a "display" as the names for structure. The court concluded that those terms "have reasonably well understood meanings in those arts and are sufficient structure for accomplishing the functions recited in the pertinent claim limitations." Id. The specification did not "redefine" these terms. In the present case, by contrast, to one skilled in the relevant arts at the relevant time, "computer" in the context of the invention does not connote a sufficiently specific structure to perform the recited functions, including the function of reading barcodes. And in the present case, in contrast to Optimal, the specification in the '713 Patent does "redefine" the term "computer." The specification defines the term by describing it and giving specific examples:

The portable computer means should be small in size and equipped with a barcode reader. A hand held portable computer means such as Model PTC-701 manufactured by Texlon Corporation, or the Advanced Pocket Computer manufactured by Hand Held Products, is able to read the barcode on the patients' information band and a variety of other standard barcode formats.

(Docket Entry No. 132, Ex. A, col. 2 ll. 22-29). The definition in the specification confirms that the functions a "portable computer means" must perform require a structure beyond that which a person of ordinary skill in the art would understand by the term standing alone.

Brown also cites two pre-Phillips cases holding that terms such as "baffle" and "perforation" were sufficiently specific to overcome the means-plus-function limitation. In the first case, Envirco Corp. v. Clestra Cleanroom, 209 F.3d 1360, 1365 (Fed. Cir. 2000), the court used the dictionary definition of "baffle" -- "a surface which deflects air" -- to hold that the "second baffle means" element in the claim imparted sufficient structure to rebut the means-plus-function presumption. In the second case, Shelley K. Cole v. Kimberly-Clark Corp., 102 F.3d 524, 530-31 (Fed. Cir. 1996), the court looked to the dictionary definition of "perforation" as "for tearing," and held that the term "perforation means" recited sufficient structure to perform the recited function and overcome the presumption. In these cases, the terms "baffle" and "perforation" themselves supplied a general structure that could perform the claimed general functions. These cases do not support the argument that a person of ordinary skill in the art would have understood the words "portable computer" to supply a sufficiently specific structure to perform the functions claimed in the '713 Patent, including reading a bar code.

The means-plus-function presumption applies. The first step is to identify the functions of the "portable computer means." They are:

- housing components including a "portable bar code reading means," "portable memory means," "portable display means," and "portable processing means"; performing the functions enabled by these components; connecting to a "host computer means" by a "communication link means"

The second step is to determine the corresponding structure disclosed in the specification and equivalents thereof. The
structure disclosed in the specification that corresponds to these functions is:

a portable computer small in size and equipped with a barcode reader, such as Telxon Corporation Model PTC-701 or Advanced Pocket Computer by Hand Held Products or their equivalents.

(Docket Entry No. 132, Ex. A, FIG. 1; col. 2 ll. 22-29).

3. "Portable Memory Means" and "Portable Display Means"

The '713 Patent claim describes, as part of the "portable computer means," a "portable memory means for storing said patient history file and said physician instruction file." The "portable processing means" checks these files in determining if the medications, goods, services, or procedures proposed to be delivered are correct for that patient at that time. If the medication, good, service, or procedure is delivered, the "portable processing means" updates the patient history file in said "portable memory means" to show that the medication, good, service, or procedure was delivered to the particular patient at the particular time. The claim also describes a "portable display means for indicating the determination of said portable processing means."

Brown contends that the terms "memory" and "display" "impart structure sufficient to rebut the presumption that § 112, P 6 applies." (Docket Entry No. 132 at 15). Citing the Federal Circuit's opinion in Optimal, Brown contends that "[t]he term 'memory' has an accepted meaning to those skilled in the art and is defined as a 'storage capacity of a computer.'" (Id. (quoting Optimal, 6 F. App'x at 878)). Brown also argues that "'display' . . . has an accepted meaning to those skilled in the art and is defined as 'visually representing information.'" (Id. (quoting Optimal, 6 F. App'x at 878)). The defendants cite cases that have construed "memory means" and "display means" as means-plus-function terms and contend that Brown has failed to meet his burden of overcoming the means-plus-function presumption.

As with "computer means" and "processing means," the case law shows that whether the terms "memory means" and "display means" overcome the means-plus-function presumption turns on whether these terms connote sufficient structure to perform the claimed functions. If those functions go beyond those included within the generic structure connoted by these terms, the means-plus-function presumption is not rebutted.

In Data General Corp., 93 F. Supp. 2d at 95, for example, one of the disputed claims was for "memory means" for "storing and providing data items in response to memory commands, each said memory command including an address specifying a location in said memory means." Id. at 91. The claim did not make clear whether the term "address" referred to "logical address" or "physical address." The court rejected the plaintiff's contention that "memory means" overcame the means-plus-function presumption, explaining that "[a]lthough the memory of a general purpose computer system is a sufficiently described structure to perform the function of 'storing and providing data,'" the term "memory" did not connote sufficient structure to determine whether the memory was capable of "storing and providing data" in the form of "logical addresses." Id. at 95. To store and process "logical addresses," the memory would have to be "logical memory" or "physical memory [with] a mechanism to convert logical addresses into physical addresses." Id. The court concluded that the term "memory," without more, did not connote sufficient structure to perform the required function for storing and providing data in the form of logical addresses. The court concluded that reference to the specification was required and that "memory means" as used in the claim was a means-plus-function term.

The defendants also cite to several cases that conclude, without significant analysis, that "memory means" and "display means" are means-plus-function terms. See Genlyte Thomas Group LLP v. Lutron Elecs. Co., No. 3:02-cv-0602, 2004 U.S. Dist. LEXIS 5311, 2004 WL 690847, at *11 (N.D. Tex. Mar. 31, 2004) (concluding that section 112, P 6 applied to "memory means" because the claim itself did not include structural details but the specification provided a "detailed description of the structure used to carry out the function"); the court did not state the function that "memory means" was to perform); PCTEL, Inc. v. Agere Sys., Inc., No. C 03-2474, 2005 U.S. Dist. LEXIS 34288, 2005 WL 2206683, at *5 (N.D. Cal. Sept. 8, 2005) (citing Lutron and several cases in which the parties stipulated that "memory means" was a means-plus-function term and concluding that "memory means" was subject to section 112, P 6; the court did not state the function that "memory means" was to perform); Khyber Tech. Corp. v. Casio, Inc., No. Civ. A. 99-12468, 2004 U.S. Dist. LEXIS 15714,
2004 WL 1790173, at *8 (D. Mass. Aug. 11, 2004) (construing, without discussion, "display means" for "displaying written messages" as a means-plus-function term; there was no evidence that either party disputed the construction).

Other cases have concluded that "memory means" and "display means" connoted sufficient structure to overcome the means-plus-function presumption. For example, in Optimal Recreation Solutions, LLP v. Leading Edge Technologies, Inc., 6 F. App'x at 878, the Federal Circuit, analyzing a patent for a global positioning system for determining the distance to holes on golf courses, concluded that the terms "memory means" and "display means" overcame the means-plus-function presumption. The claim recited a "memory means for storing the position of the golf cup" and a "display means for displaying the distance [between the GPS receiver and the golf cup]." Id. at 875. The court concluded that "memory" and "display" had "reasonably well understood meanings in those arts and [were] sufficient structure for accomplishing the functions recited in the pertinent claim limitations." Id. at 878.

1 Several district courts have reached similar results. Western Union Co. v. Moneygram Int'l, Inc., No. 07-0372, 2008 U.S. Dist. LEXIS 108129, 2008 WL 5731946, at *12 (W.D. Tex. Nov. 6, 2008), involved patents for a system for performing money transfer transactions. One of the claims described "memory means in the cash register for storing the transaction data received from the money order dispenser." Id. The court noted a dictionary definition of "memory" as "a unit of a computer that preserves data for retrieval; capacity for storing information." Id. The court concluded that the claim recited sufficient structure to overcome the means-plus-function presumption. Id. Similarly, in St. Clair Intellectual Property Consultants, Inc. v. Canon Inc., No. Civ. A. 03-241, 2004 U.S. Dist. LEXIS 17489, 2004 WL 1941340, at *14 (D. Del. Aug. 31, 2004), the court considered a claim for "removably mounted memory means for storing digitized image data" as part of a patent for an electronic still camera. The court concluded that the claim recited sufficient structure to overcome the means-plus-function presumption: "As the surrounding claim language indicates, that 'memory means' is removably mounted in a camera body and must store digitized image data. In this context, 'memory means' . . . would be understood by one skilled in the art as a definite structure. This recited structure is capable of performing the described function, and therefore 'memory means' is not a means-plus-function term." 2004 U.S. Dist. LEXIS 17489, [WL] at *15.

In Nonin Medical, Inc. v. BCI, Inc., No. 02-0668, 2004 U.S. Dist. LEXIS 3824, 2004 WL 442894, at *6 (D. Minn. Mar. 8, 2004), the court construed the term "display means" in a patent for a device to measure blood oxygen levels. The claim at issue recited a "display means for displaying the sensed and determined blood oxygen saturation level." 2004 U.S. Dist. LEXIS 3824, [WL] at *2. The court concluded that the claim recited sufficient structure to overcome the means-plus-function presumption: "The terms "memory" and "display" do not describe devices; these terms simply describe functions. One of ordinary skill in the GPS field would not equate "display" [or "memory"] to any specific, definite structure. . . . [The means-plus-function presumption] is not rebutted by the claim language itself because these limitations do not recite sufficient structure to perform the "memory" and "display" functions. The majority's references to the use of the terms "memory" and "display" in the specification of the . . . patent is inappropriate.

Id. at 880 (Gajarsa, J., dissenting).

In the present case, referring to the specification does not help in construing the terms "memory means" or "display means." The specification does contain two references to "display" as a verb. Neither reference defines "display." The specification states: "If the interval is correct the portable computer means will display the message 'verified.' If an error occurs in this process, an appropriate error message will be displayed by the portable computer means." (Docket Entry No. 132, col. 3 ll. 32-36).

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -
"Memory means" in the '713 Patent performs the function of storing the patient history file and the physician instruction file. "Display means" in the '713 Patent performs the function of indicating the determination of the portable processing means. Even assuming that these functions are within the "plain meaning" of these terms, see Optimal, 6 F. App'x at 878 ("storage capacity of a computer"), Western Union, 2008 U.S. Dist. LEXIS 108129, 2008 WL 5731946, at *12 ("a unit of a computer that preserves data for retrieval; capacity for storing information."); Nonin, 2004 U.S. Dist. LEXIS 3824, 2004 WL 442894, at *6 ("a visual presentation of data from a computer"), both are components of the "portable computer means," itself a means-plus- function term. The structure associated with "portable computer means" is "a portable computer small in size and equipped with a barcode reader, such as Telxon Corp. Model PTC-701 or Advanced Pocket Computer by Handheld Products or their equivalents." As component parts, the structure of "portable memory means" and "portable display means" must be compatible with the structure of the "portable computer means."

The facts of Khyber Technologies Corp. v. Casio, Inc., No. Civ. A 99-12468, 2003 U.S. Dist. LEXIS 12450, 2003 WL 21696354, at *4 (D. Mass. Mar. 31, 2003), are similar. The patent at issue involved a personal organizer and messaging device that could be carried "substantially within a shirt pocket." 2003 U.S. Dist. LEXIS 12450, [WL] at *3. The parties disputed the construction of "memory means" in the claim. Because "the memory means must be contained within the handheld housing of the device," the term was limited to certain formats, to the exclusion of others. 2003 U.S. Dist. LEXIS 12450, [WL] at *4. For example, "memory means" could not include "writable optical disks that are independent of the device" because this would not operate within the battery-powered device, would not operate reliably unless placed on a stable, flat surface, and would not have been available at the time the patent was developed and granted. Id. The means-plus-function analysis applied. A subsequent decision in the Khyber case determined that "display means" was also subject to the section 112, P 6 analysis because it was a component part of the handheld device. The court noted that the structure of the handheld device constrained the graphics display to be "relatively high resolution (so it can easily be read, especially considering the relatively small size (handheld, shirt-pocket size) of the device), and (2) low power consumption (so the device can be made small)." Khyber, 2004 U.S. Dist. LEXIS 15714, 2004 WL 1790173, at *8.

The '713 Patent specification does not disclose a specific structure for "portable memory means" and "portable display means" but does disclose a structure for the "portable computer means" of which these items are a part. This court has already construed that structure to be: "a portable computer small in size and equipped with a barcode reader, such as Telxon Corporation Model PTC-701 or the Advanced Pocket Computer by Hand Held Products or their equivalents." Because "portable memory means" and "portable display means" must be read to exclude types of memory and display that would not be compatible with the disclosed structure for the "portable computer means," the means-plus-function presumption applies.

The function of "portable memory means" is:

storing the patient history file and the physician instruction file

The structure in the specification disclosed for this function is:

a type of memory that is compatible with a portable computer small in size and equipped with a barcode reader, such as Telxon Corporation Model PTC-701 or the Advanced Pocket Computer by Hand Held Products or their equivalents

The function of "portable display means" is:

indicating the determination of the "portable processing means"

The structure in the specification disclosed for this function is:

a type of display that is compatible with a portable computer small in size and equipped with a barcode reader, such as Telxon Corporation Model PTC-701 or the Advanced Pocket Computer by Hand Held Products or their equivalents.
After considering the parties' proposed constructions, the Magistrate Judge recommended that the term "a portable point of sale terminal," as used in Claim 9 of the '821 patent, should be construed to mean "a portable computer terminal that is capable of handling a sales transaction." (D.I. 133 at 7-11.) For the reasons set forth in the Report and Recommendations, the Court will adopt this construction.

2. "Portable Processing Means"

The '713 Patent states that a "portable computer means comprises," in part:

portable processing means for processing the bar codes read by said portable bar code reading means so as to determine if said identified medications, goods, services or procedures are permitted to be delivered to said identified patient, according to said patient history file and said physician instruction file in said portable memory means, and for updating said patient history file in said portable memory means if said identified medications, goods, services, or procedures are permitted to be delivered to said identified patient,

wherein said determination requires that said identified medications, goods, services or procedures are related to said identified patient in said physician instruction file in the portable memory means and that said identified medications, goods, services or procedures would be delivered to said identified patient at an appropriate time according to when identified medications, goods, services or procedures were last delivered to the identified patient in the past as indicated in the patient history file in the portable memory means and according to the time interval in said physician instruction file in said portable memory means to grant permission to deliver said identified medications, goods, services or procedures, and portable display means for indicating the determination of said portable processing means,

(Docket Entry No. 132, Ex. A, col. 4 ll. 30-57). Brown argues that "portable processing means" overcomes the means-plus-function presumption because "[i]t is clear to one skilled in the art of computer programming that 'processing' takes place in a computer." (Id. at 16). The defendants counter that the case law supports their position that "the recitation of 'processing means' is insufficient to rebut the presumption that § 112(6) applies." (Docket Entry No. 138 at 17).

The case law shows that "portable processing means" as used in the '713 Patent is subject to means-plus-function analysis. In Centillion Data Systems, LLC v. Convergys Corp., 529 F. Supp. 2d 982, 984-85 (S.D. Ind. 2008), the court concluded that the term "data processing means" in a patent claiming the function of "generating and organizing" "summary reports" in a credit-card billing system did not overcome the means-plus-function presumption. The term "data processing means" merely "identify[d] a computer with corresponding operating system software. In other words, a general purpose computer." Id. at 997. The claim at issue "require[d] that the data processing means perform specific functions, which, according to the specification, require a computer to be programmed to carry out certain steps, or to perform a certain algorithm." Id. at 997-98. The court concluded that "data processing means" did not connote sufficient structure to describe the particular program required and that the means-plus-function presumption was not rebutted. Id. at 998.

The court reached a similar conclusion in Cummins-Allison Corp. v. Glory, Ltd., No. 02-cv-7008, 2005 U.S. Dist. LEXIS 6150, 2005 WL 711991, at *11 (N.D. Ill. Mar. 28, 2005). The patent in that case was directed to currency counting. One of the claim terms was a "signal processing means" to perform the functions of receiving signal samples and "(1) determining the denomination of each scanned bill by comparing said stored signal samples with said output signal samples produced by the scanning of each bill with said scanning head, (2) counting the number of scanned bills of each denomination, and (3) accumulating the cumulative value of the scanned bills of each denomination." 2005 U.S. Dist. LEXIS 6150, [WL] at *2. The court stated that "one skilled in the art would generally equate 'signal processing means' with a CPU," and that those skilled in the art would be aware of specific algorithms with which the "signal processing means" could be programmed to perform the denomination function. 2005 U.S. Dist. LEXIS 6150, [WL] at *11. The court emphasized that this was a separate inquiry from whether the term "signal processing means" connoted sufficient structure by itself to perform the denomination-determination function. The court concluded that "signal processing means" did not connote such structure and that section 112, P 6 applied. 2005 U.S. Dist. LEXIS 6150, [WL] at *12.
Similarly, in Roche Diagnostics Corp. v. Apex Biotechnology Corp., 455 F. Supp. 2d 840, 849-850 (S.D. Ind. 2005), the court examined the term "processor means" in a patent for a "biosensing meter with a pluggable memory module." The court concluded that the "processor" used in the claim was "not a generic one, but one that runs a particular algorithm" to perform the claimed function. Id. at 863. The court concluded that although "there [w]as no dispute that "'processor' has a well-known meaning in the art," that was not sufficient to rebut the presumption if the structure necessary to perform the disclosed function was not a "general purpose" processor but a special purpose processor programmed to perform the disclosed algorithm. Id. The court in Digital Technology Licensing, LLC v. Cingular Wireless, LLC, No. 2:06-cv-0156, 2007 U.S. Dist. LEXIS 57492, 2007 WL 2300792, at *8 (E.D. Tex. Aug. 7, 2007), reached a similar result, concluding that "[n]either the verb 'processing' nor the gerund 'processor' recite[d] sufficient structure, material, or acts" to encompass a function that involved "modify[ing] sequences of groups of digital bits." Id.

The Federal Circuit's opinion in WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 1348 (Fed. Cir. 1999), is instructive. The plaintiff in that case agreed that section 112, ¶ 6 applied but contended that the general-purpose microprocessor disclosed in the specification provided sufficient structure for "means for assigning" numbers in the programming of an electronic slot machine to decrease the user's probability of winning. The Federal Circuit rejected the plaintiff's argument. The court stated that in a means-plus-function claim, "[a] general purpose computer, or microprocessor, programmed to carry out an algorithm creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions for program software." Id. (citations and quotation omitted). The necessary structure is therefore "not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." Id. at 1349.

The court in Data General Corp. v. International Business Machines Corp., 93 F. Supp. 2d 89, 96 (D. Mass. 2000), found that the term "processor means" was not subject to means-plus-function analysis because the claimed function was generic and could be performed by a general-purpose "processor." The patent claimed a method for a computer to resolve unresolved "pointers," data items used in a computer system to "point" to a location in a computer's memory where information to be used is stored. One of the claims recited a "processor means connected to said memory means for providing said memory commands and providing and receiving said data items in response to sequences of instructions of said data items executed by said processor means." Id. The court found that the claimed functions, including "1) providing memory commands, 2) providing and receiving data items which are sequences of instructions and 3) executing those sequences of instructions," were all general-purpose functions. Id. at 97. The court concluded that one skilled in the art would understand a "processor" to encompass a general-purpose structure that could perform all of the general-purpose functions described in the claim. Id.

The "processing means" in the '713 Patent describes a "special purpose computer programmed to perform" more specialized functions than the general functions involved in Data General. The functions recited in the '713 Patent claim for "processing means" include processing barcodes on patient wristbands and on labels for medications, goods, services, or procedures; reading patient history and physician instruction files; determining, based on these files, whether medications, goods, services, or procedures identified by the barcodes are permitted to be delivered to the particular patient identified by the wristband barcode; and determining the time for delivery of medications, goods, services, or procedures to a particular patient according to the time of last delivery as listed in the patient history file and according to the time interval prescribed in the physician instruction file. Brown has presented no evidence that these functions may be accomplished by the general-purpose structure that "processing" or "processor" would connote to a person of ordinary skill in the art. "Portable processing means" is subject to means-plus-function analysis.

Applying the means-plus-function analysis first requires identifying the functions claimed for the disputed term. "Portable processing means" performs the functions of:

- processing the barcodes read by the "barcode reading means"; determining, by referencing the patient history file and the physician instruction file in the "portable memory means," whether the medications, goods, services or procedures identified by barcode are permitted to be delivered to the patient identified by barcode; reaching this determination by calculating the time elapsed since last delivery by referencing the patient history file and comparing this time to the prescribed time interval in the physician instruction file; displaying this determination through the "portable display means"; and updating the patient history file if the identified goods, services or procedures were delivered to the identified patient.

The defendants assert, and Brown does not dispute, that the specification does not identify a structure associated with
"portable processing means." The specification contains a description of the functions that the "portable computer means" is to perform but discloses no particular program or algorithm to perform these functions. The specification states:

The invention will permit a portable computer means to automatically record the time, date, patient identification code, and medications, goods, services or procedures delivered.

... [When a barcode is scanned,] [t]he portable computer means will check its internal file of physician's instructions to verify that the identified medication, goods, service or procedure has been prescribed for the identified patient. If the medication and dosage, goods, service or procedure is correct the portable computer means will check the transaction file to [sic] for the last recorded delivery of the medication, goods, service or procedure. The portable computer means will calculate the time interval since the last recorded delivery of the medication, goods, service or procedure with the time interval prescribed in the physician instruction file. If the interval is correct the portable computer means will display the message "verified." If an error occurs in this process, an appropriate error message will be displayed by the portable computer means.

(Docket Entry No. 132, col. 2 ll. 65-68, col. 3 ll. 13-36).

In Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1340-41 (Fed. Cir. 2008), cert. denied, ___ U.S. ___, 129 S. Ct. 754, 172 L. Ed. 2d 727 (2008), the Federal Circuit recently reaffirmed that language in the specification that describes the function for a program or algorithm recited in the claim does not disclose sufficient structure for that program or algorithm. The claim at issue involved "an information database" and "database editing means," coupled to said one or more computer memory devices, for generating a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embedding said indices in said information database." Id. at 1340. The patent specification described the "database editing means" as "software . . . (executed by CPU . . . ) [that] generates a hierarchical set of indices referencing all the data in the information database . . . and embeds those indices in the information database." Id. The specification also described an alternate embodiment in which "a block of packet ID values are assigned to an off-line information provider, which then organizes them into a database." Id. The Federal Circuit affirmed the district court's conclusion that these descriptions in the specification provided "nothing more than a restatement of the function, as recited in the claim" and did not provide an "algorithm or description of structure corresponding to the claimed function." Id. The Federal Circuit concluded that although a patentee may express an algorithm "in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure," the descriptions in the specification did "not even meet the minimal disclosure necessary" to supply a structure for "database editing means." Id. (internal citation omitted).

Another recent Federal Circuit case, Aristocrat Technologies Australia PTY Ltd. v. International Game Technology, 521 F.3d 1328 (Fed. Cir. 2008), cert. denied, ___ U.S. ___, 129 S. Ct. 754, 172 L. Ed. 2d 727 (2008), reached a similar result. The claim in Aristocrat recited a "control means" for determining winning combinations in an electronic slot machine. The specification stated that the "control means" could be implemented "on any standard microprocessor base gaming machine by means of appropriate programming," provided an equation that expressed the mathematical result of performing the "control means" function, and presented figures and tables describing possible outcomes of the "control means" function. Id. at 1334-35. The Federal Circuit concluded that these examples "disclosed, at most, pictorial and mathematical ways of describing the claimed function of the game control means," which did not supply sufficient structure to rebut the presumption that a means-plus-function analysis applied. Id. at 1335. The court stressed that it was not sufficient for section 112, ¶6 purposes that the examples in the specification "might enable one of ordinary skill to make and use the invention." Id. at 1336. The relevant inquiry was "whether one of skill in the art would understand the specification itself to disclose a structure, not simply whether that person would be capable of implementing that structure." Id. at 1337; see also Med. Instr. & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1212 (Fed. Cir. 2003) ("The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass software" with sufficient structure to perform the recited function, "not simply whether one of skill in the art would have been able to write such a software program.").

In the '713 Patent, the specification describes the same functions for "processing means" recited in the claim but does not disclose the structure of any specific program or algorithm that would perform these functions. Although a person of skill in
the art of "processing means" in possession of the specification might be able to write a program that would enable the "processing means" to perform the functions recited, this is not the relevant inquiry. The specification does not disclose the programming structure that would allow the "processing means" to perform the recited functions. "[A] person of ordinary skill in the art would not recognize the patent as disclosing any algorithm at all." Aristocrat, 521 F.3d at 1337-38. Brown has not argued that the specification provides such structure. The "713 Patent does not disclose a structure for "portable processing means."

1. "Portable terminal" (Claims 1, 2, 10, 11, 12)

The key issue is whether this term is unambiguous and needs no construction, as Broadcom contends, or whether it should be construed to require that the terminal is "designed to be carried by or on a person," as Agere proposes. The limitation that Agere propounds is derived from Webster's II New College Dictionary and certain embodiments in the specification. The Webster's definition cited by Agere, however, does not include any reference to how or by whom the terminal should be carried. WEBSTER'S II NEW COLLEGE DICTIONARY 860 (1999) (defining "portable" as "easily carried or moved"). Furthermore, Agere's own expert, Dr. Goodman, does not support its proposed limitation, testifying in his report that one of ordinary skill in the art would understand the term "portable terminal" to mean "a terminal that is easily carried or moved." (Goodman Rep. P 65.) In addition, although the specifications describe "hand-held" devices ("705 patent, col. 2, ll. 22-26, col. 7, ll. 31-36, Fig. 25), Agere's proposed limitation would violate the canon of claim construction that claim language is not limited to the embodiments described in the specification. See Teleflex, 299 F.3d at 1328; Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998) (cautioning against limitation of claimed invention to preferred or specific embodiments or examples). The Court agrees with Broadcom's expert, Dr. Acampora, who testified that the term does not have a technical definition but does have a plain and ordinary meaning that is obvious to both persons skilled in the art and laypersons alike. (Acampora Rep. at 39.) As the Court finds no basis to limit this term's obvious, plain, and ordinary meaning, the Court holds that the term "portable terminal" does not require construction.

18 For discussion regarding the definition of "portable" in a similar context, see infra Part II.E.5.

B. "portal"

The term "portal appears in claim 7 of the '704 patent: "A media asset management system comprising: a portal comprising: a user account . . . a virtual media asset library . . . and a plurality of media player devices." The Abstract describes the portal as shown below:

A portal is provided comprising at least one server computer. The portal executes a media library database server application that manages access [to] a master library of media assets that can be accessed by users via one or more communication networks. A plurality of media player devices communicate with the portal to access media assets for use.

According to the patents' written description, "[t]he portal [] communicates with media player devices [] via communication network [] that may consist of the Internet and/or a combination of wireless communication networks, such as cellular networks, PCS networks, etc." ("704 patent, 3:48-51). The plaintiff's proposed definition is "a computer server or group of servers accessible over the Internet and allowing the storage, stream and download of media assets to a media player." Alternatively, Zapmedia contends that "portal" means "a main screen/page serving as an opening or gateway through which other screens/pages are accessed." Apple assets that the term should be construed as "a site serving as a guide or point of entry to the World Wide Web."
The plaintiff asserts that its proposed construction closely tracks the Abstract and written description, quoted above. The defendant responds that its construction is consistent with the ordinary meaning of the term "portal." E.g., Computer Dictionary Online, at "portal" ("a web site that aims to be an entry point for the World Wide Web"). Apple also contends that its construction is supported by Figure 4 of the '704 patent, which is "[a]n example of a web site home page through which a user interacts with the portal." ('704 patent, Fig. 4 & 3:61-63). Finally, Apple argues that the prosecution history precludes a broad definition of "portal." In distinguishing the Milsted reference to the PTO, the applicants argued, "The communicating, downloading, or distributing media assets as described in Milsted is the purchasing, downloading, and receiving of media assets from a media asset provider, . . . rather than from a portal, to a media player device for utilization by a user." (Dkt. No. 84, Ex. O, at 11).

The court is not persuaded that Apple's narrow construction of "portal" is correct. Dictionary definitions of a claim term are subordinate to the meaning provided by the patent's specification. Phillips, 415 F.3d at 1316. Furthermore, the specification does not limit the portal to communications solely over the World Wide Web. (See '704 patent, 3:29-32 ("The portal 300 may be accessible . . . through one or more web sites and may provide a customizable interface or view to each user, if desired.").) Even if the specification does mention the portal being accessed over the World Wide Web, there is no express reason to limit the scope to the preferred embodiment. See Playtex Prods., Inc. v. Procter & Gamble Co., 400 F.3d 901, 907-08 (Fed. Cir. 2005) (stating that "[c]laims of a patent may only be limited to a preferred embodiment by the express declaration of the patentee"). Finally, the prosecution history distinguishes the Milsted and Reed references, not based upon distribution of media assets to media players, but on bi-directional synchronization:

One function of the present invention is to synchronize the media assets available on the server and the media player devices in a bi-directional manner. . . . Thus, in utilizing a one-way communication, Reed teaches away from the present invention. As amended, independent claims 1 and 25, on the other hand, describe a two-way synchronization between a portal and a media player device. . . . Thus, changes to any of the assets on any media player device are updated to the portal and changes to any of the assets on the portal are updated to all media player devices . . . . Therefore, Milsted alone, nor Milsted in view of Reed do not [anticipate] nor make obvious . . . synchronization between a client and a server application so that the database stores and updates information identifying media assets that a user has licensed user rights.

(Dkt. No. 84, Ex. O, at 11-12) (emphasis added). This functionality of the portal is also described in the specification: "The portal 300 allows for synchronization and replication of a user's licensed assets with each of the user's media player devices 200." ('704 patent, 3:22-24).

As to Zapmedia's proposal, nothing in the specification or the claims limits the communication medium to solely the Internet. (See '704 patent, 3:48-51 ("The portal [] communicates with media player devices [] via communication network [] that may consist of the Internet and/or a combination of wireless communication networks, such as cellular networks, PCS networks, etc.").) Also, as discussed above, the prosecution history explicitly disclaimed unidirectional synchronization. Therefore, the court construes the term "portal" to mean "a computer server or group of servers that stores media assets and transmits and receives media assets to and from media players over a communications network."

The parties have stipulated that this term means "some or all of an item." To the extent that this definition encompasses a whole item, it is inconsistent with the ordinary meaning of the word, and nothing in the patent itself suggests that the applicant meant to assign a meaning other than the customary meaning to the term. Cf. Victronics Corp., 90 F.3d at 1582 (court will respect applicant's use of a term in a manner inconsistent with customary meaning "as long as the special definition of the term is clearly stated in the patent specification or file history").

I construe the term to mean: "a part of any whole."
5. "the portion of the IP data session"

The parties dispute the meaning of "the portion of the IP data session," as used in claim 1. NICE reiterates its contention regarding "data packets" and non-IP communications made above, and also contends that the specification does not support the requirement that "all" IP data be recorded. Witness contends that NICE's "one or more" language is contradicted by the preamble to claim one, which explains that the claimed steps apply "for each IP data session." Further, Witness contends its construction preserves the limitations inherent in the structure of the claim by including, not an amorphous "part," but "the part of the IP data session being recording."

In light of the claim language and specification, the Court construes the disputed term to mean "all the data packets transmitted between the first and second participants during the part of the IP data session being recorded." The term "all," in this context, refers to all of the data packets transmitted during recorded parts of the sessions, not all of the data packets transmitted, whether recorded or not.

3. "portion of the [predefined] bandwidth"

The intrinsic evidence does not support a construction which departs from the ordinary meaning of "portion." As argued by the defendants, the purpose of the invention was to facilitate the transmission of both packet and synchronous data over the TDM bus. See '858 patent, 2:42-45 ("I have realized an alternative approach to the design of TDM-based equipment that supports both synchronous data and packet data and, in addition, provides an efficient substrate for packet handling." (emphasis added); Figs. 3, 5 (depicting the allocation of a part of the TDM bus to the multiple access packet channel). As used in the patent, "portion" means less than all. Accordingly, the court construes the term to mean "the part, but less than all, of the data transfer capacity of the bus that is allotted to packet data and to synchronous data."

10. "at least a part [portion] of the stored information"

Claim 19 provides in pertinent parts:

A distribution method responsive to requests from a user identifying items in a transmission system containing information to be sent from the transmission system to receiving systems at remote locations, the method comprising the steps of:

storing, in the transmission system, information from items in a compressed data form, the information including an identification code and being placed into ordered data blocks;
sending a request, by the user to the transmission system, for at least a part of the stored information to be transmitted to one of the receiving systems at one of the remote location selected by the user;

sending at least a portion of the stored information from the transmission system to the receiving system at the selected remote location.

The Court finds as follows:

The phrases "portion of the stored information" and "part of the stored information," as used in Claim 19 of the '992 are synonymous. n8

The Court does not find it necessary to further construe these phrases.

--- Footnotes ---
n8 The same terms appear in Claims 2 and 5 of the '275 Patent. Unless otherwise ordered, the Court's construction of these phrases as they appear in Claim 19 of the '992 Patent applies to these phrases as they appear in the '275 Patent.

--- End Footnotes ---

3221

1. "wherein a portion of the patterned second semiconductor film is exposed"

The patent provides relatively little guidance on the meaning of "exposed," which is used in the contested sense only in the claims.

Based on the available intrinsic evidence, however, the court finds that "exposed" means "made subject to etching." The claim language supports the preceding construction: the full clause of claim 3 that contains the disputed language requires "patterning the conductive layer to form source and drain electrodes by using a mask wherein a portion of the patterned second semiconductor film is exposed between said source and drain electrodes." 258 patent at 12:48-51. The following claim element requires "etching the exposed portion of the second semiconductor film." Id. at 12:52-53. The exposed portion is etched.

Moreover, as the parties do not dispute, the portion of the semiconductor film that will be etched depends on the type of etchant used. If a dry etchant is used to remove the semiconductor film, only the area not covered by the mask will be removed, regardless of whether the conductive layer was previously overetched using a wet etchant. If a wet etchant is used to remove the semiconductor film, part of the semiconductor film lying underneath the mask will also be removed, regardless of whether the conductive layer was previously etched using a dry etchant. As discussed in more detail below, the claims encompass the use of both wet and dry etchants in performing the patterning step, and also encompass the use of a dry etchant in performing the etching step. Defendants' proposed construction is therefore too narrow.

The specification, to the extent it discusses the patterning step, also supports the court's construction: "[the conductive] layer was patterned, using a third photomask P3. At this time, the . . . amorphous silicon layer was patterned by dry etching without peeling off resist 8." Id. at 7:12. The "resist," which the parties do not dispute is synonymous with the "mask," is present for both the patterning of the conductive material and the subsequent etching of the amorphous silicon. With the mask still present, as discussed above, the material that will be removed (the "exposed" material) in both the patterning and etching steps depends on the type of etchant used.

In sum, the court construes the first disputed phrase to mean "part of the second semiconductor film is made subject to etching."
5. Portions of the First Layer Beneath the Valleys of the Hemisphere Polysilicon Particle Layer

The term "portions of the first layer beneath the valleys of the hemisphere polysilicon particle layer" describes the portions of the first layer that are removed, i.e., the portions of the first layer between the raised, rounded polysilicon particles.

10. "position information" (Claims 1, 3, 6-9, 11)

This phrase appears in claims 1, 3, 6-9, and 11. See Tang Decl., Ex. A at 12:34-49; 12:53-63; 13:6-22; 14:4-14; Ex. D at 2 (amended Claims 1, 3). In each claim, the phrase appears differently, as 'position information,' 'positioning information,' or 'positioning data.' The Joint Claim Construction Statement states that the parties have agreed that these terms have the same meaning, and that the court's construction of 'position information' will dictate construction of the remaining two phrases. Trimble contends that the above phrases -- represented by the term "position information" -- should be construed to mean "data used in determining location." Defendants, by contrast, contend that the phrase should be construed to mean "geographic positions computed by a GPS receiver."

Plaintiff's arguments are largely based on the specification language in the patent that notes that the data used by the claimed system in pinpointing precise geographic location is not all GPS data. The specification states, for example, that correction information from "FM subcarrier broadcasts or from other sources" may be used to more precisely pinpoint geographic location, and furthermore states that the guidance system described in the '383 patent may be "supplemented with non-satellite based guidance systems and methodologies. See Tang Decl., Ex. A at 5:32-40; 4:6-11(noting that supplemental systems could include "inertial navigation systems, distance and gyro compass and/or other heading indicator systems, laser range finding and bearing indicator systems, etc."). According to plaintiff, this means that "position data" must be construed in a fashion that is not limited to "GPS" references.

Plaintiff is correct, to an extent. The specification does, indeed, contemplate that information aside from GPS satellite information may be used to determine the precise geographical location of the vehicle at any given time. See, e.g., id. For instance, as cited above, the specification notes that the data provided via the GPS antenna mounted in the vehicle may come "from one of a variety of sources," including non-GPS sources. See id. at 5:30-43.

However, the specification also goes on to state that all information -- both GPS satellite data, and the "differential GPS correction information" that comes from non-GPS sources via GPS antenna -- will be transmitted through the "GPS receiver." See id. at 40-43 ("GPS receiver 60 uses the GPS data provided through antenna 44 from the GPS satellites 46 and the differential GPS information received through antenna 48 to compute position information for sprayer rig 30") (emphasis added). Accordingly, defendants' construction, which states that position information means geographic positions computed by a "GPS receiver," is not only consistent with the specification, but it does not, as plaintiffs argue, limit position information to GPS sources only; it specifically takes "differential GPS correction information," which may be based on non-GPS sources, into account. Plaintiffs' proposed construction, by contrast, ignores the fact that all data will be transmitted through a GPS receiver specifically.
Moreover, plaintiff's argument that, pursuant to the specification's language, non-GPS "systems and methodologies" may also provide "position information" -- therefore prohibiting a construction that is tied to the GPS system -- is not plausible. Plaintiff relies on the specification's statement that "the form line following guidance system described herein may be supplemented with non-satellite based guidance systems and methodologies, such as inertial navigation systems, distance and gyro compass and/ or other heading indicator systems, etc." See Tang Decl., Ex. A at 4:6-11. However, the key word in this specification is that the guidance system actually described by the patent may be "supplemented" with non-satellite based guidance systems. This is not the same as saying that the guidance system described by the patent includes non-satellite based guidance systems. Indeed, following the very sentence that plaintiff relies on, the specification states that "the use of such systems to assist in terrestrial navigation is well known in the art and will not be described further so as not to unnecessarily obscure the present invention." See id. at 4:11-14. This statement belies plaintiff's argument here, since it expressly states that the other non-GPS systems that plaintiff points out are distinct, and different from, the present GPS-based system described by the patent's claims. As such, the term "position information" -- as used in the claims -- should not be construed to include non-GPS based systems entirely, even though it should be construed to include "differential GPS correction information" that stems in part from non-GPS satellite sources -- as long as those Sources are transmitted through a "GPS receiver."

In sum, and for all the above reasons, the court adopts defendants' proposed construction. As such, "position information" is construed as: "geographic positions computed by a GPS receiver."

3224

1. Claims 1, 17 & 26 -- "Positional Coordinates"

CIVIX contends that "positional coordinates" are a collection of values sufficient to identify a geographic vicinity. Defendants, on the other hand, argue that this term means "coordinates defining a single reference point within a corresponding geographic vicinity which also operate to determine the corresponding geographic vicinity." I agree with Defendants' definition.

From Defendants' definition of "positional coordinates," as a set of values defining a single location, Defendants argue that this single point or location determines the surrounding geographic vicinity. Defendants emphasize that the positional coordinates work to locate a single point of reference which in turn generates a geographical vicinity. They deny that multiple sets of coordinates work to locate multiple points of reference that in turn represent a vicinity.

The '525 patent's claims, specifications, and prosecution history, support Defendants' construction of "positional coordinates." Although a preferred embodiment cannot be read into a claim as a limitation, I may look to the embodiments and their written descriptions to assist in defining a term, such as "positional coordinates" already in a claim limitation. See Renishaw, 158 F.3d at 1248. A claim must be read in view of the specification of which it is a part. See id. Figure 4A of the patent:

[SEE FIG. 4A IN ORIGINAL]

This depicts a "hierarchical structure of geographical vicinities, according to the invention." (525 patent, Col. 4 lines 21-22). More specifically, Figure 4A shows the positional coordinates, labeled 77, for each geographical vicinity, labeled 75a and 76a. (525 patent, Col. 8 lines 37-38). In describing the embodiment, the patent states that "there are a plurality of discrete geographic vicinities (each set of positional coordinates corresponding to one discrete location within the geographical vicinity)." (525 patent, Col. 3 lines 3-5) (emphasis added). Figure 4A and the specification clearly show that the positional coordinates define a single reference point which operates to determine the corresponding geographic vicinity.

This definition of "positional coordinates" is supported throughout the patent and its prosecution history.

The positional coordinates . . . operate to locate the geographic vicinity. Briefly, the positional coordinates locate one location within the geographic vicinity -- such as the center of the vicinity -- so that items of interest can be determined relative to the positional coordinates and within the geographic vicinity.
Positional coordinates, made up of an undetermined number of values, are used in the '525 patent to produce a single location within a geographic vicinity. Therefore, although positional coordinates can be made up of any number of values, the resulting set of positional coordinates can work only to locate one single point of reference, around which a geographical vicinity is determined.

The prosecution history further shows that the inventors contemplated positional coordinates defining one discrete location within a geographic vicinity. The '525 patent was intended to provide a "virtual kiosk," similar to the actual user station in the '170 patent, but not fixed in location. A user can access a virtual kiosk, in a discrete location, and obtain information about items of interest surrounding this discrete location. A letter from William Semple to co-inventor William Bouve, dated April 1, 1994, describes this limitation:

In effect, instead of requiring the user to physically go to a kiosk to retrieve information for a defined geographic area of the kiosk . . ., you would create an opportunity for the kiosk to go the user . . .

To take this one step further (and this was your idea), you could derive geographically-defined information based on locators other than kiosks, such as street intersections or landmarks. (For example, you could provide data for businesses, events, etc. for an area with 500 yards walking distance of the Washington Monument, or some known location that a tourist might want to visit, but not know what else was in the immediate vicinity).

In order to keep the system consistent, directed, and understandable, it would be my suggestion that the software interface and information derived essentially mimic that available at the physical kiosks themselves. . . . It is important to maintain the essential characteristics of your primary systems so that competitors cannot duplicate or transfer parts of the "Walking Locator" technology without patent, trademark, or copyright infringement.

Whatever you do, the essential characteristics of my proposed computer tele-link would have to remain relevant to the patented functions provided by the kiosks themselves. That is, information would be geographically determined from a defined and identifiable point; information would be accessed by category; and at least some of the data would have to be printed to be read. . .

This letter shows that the inventors contemplated users accessing a single discrete, defined, and identifiable point, around which a geographic vicinity would be defined. Also in the prosecution history are documents proving that the inventors referred to these discrete locations as "virtual kiosks." (CIV 0000263).

CIVIX argues that software disclosed in the '525 patent application expressly discloses a system in which a collection of values with hierarchical layering "are used to identify a unique location and vicinity for each item of interest." (CIVIX brief, p. 34) (emphasis added). CIVIX argues that positional coordinates do not have to be made up of merely a pair of numbers or values. It cites to the declaration of Mr. Oxman for the proposition that, "these positional coordinates are a collection of values that identify a location or a vicinity. Since locations and areas are organized in a collection of related layers in the preferred embodiment, the number of positional coordinates varies depending on the number of layers that must be linked to produce the requested result. This is why there can be no numeric limit on the number of positional coordinate values that identify a location." (Oxman Declaration, P 5) (emphasis added).

CIVIX' contention that a number of values can make up one set of "positional coordinates" in identifying one location, has some support in the software disclosure. However, the software does not support CIVIX' further contention that positional coordinates can define more than one discrete location. Because the software disclosure, Exhibit A to the patent specification, is written in computer-speak (CIV 0000315-0000337), I turn to the declarations submitted by the parties. CIVIX submits the declaration of C. David Dickerson. With regard to the software disclosure, Mr. Dickerson states:

I have looked through the source code for some indication that the maps stored and called by the program are defined by a relationship to a single positional coordinate pair. I see no reference in the code to such a method.

(Dickerson Declaration, P 13). This declaration does not support CIVIX' contention that "positional coordinates" can define
more than a single discrete location. Further, the declarations submitted by Defendants, analyzing the source code, support their conclusion that "positional coordinates" define only one discrete location. (Mavis Declaration, P 11) ("Each area of interest is defined by reference to a single (x,y) coordinate pair representing the center point to which the boundary algorithm is applied which sets the boundaries of the area of interest."). Therefore, I conclude that "positional coordinates," as used in the '525 patent, means a set of coordinates defining a single reference point within a corresponding geographic vicinity which operates to determine the corresponding geographic vicinity.

3225

13. positive optical anisotropy ('412 patent)

CEA's proposed construction is "a characteristic of a birefringent material wherein the extraordinary index exceeds an ordinary index."

Samsung's proposed construction is "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is greater than the other two."

The specification supports Samsung's proposed construction 41 and is adopted by the court: "a characteristic of a birefringent material wherein the values of two of the three principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) is greater than the other two."

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41 See '412 patent, 4:61-64 ("This nematic liquid crystal layer is also a positive optical anisotropy uniaxial medium, the extraordinary index NeCi of said medium exceeding its ordinary index NoCl.").

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3226

A Positive Supply Voltage

The Court adopts Motorola's construction and construes "a positive supply voltage" as "a voltage at an external source to the gate drive circuits that has a positive potential relative to a reference potential." Motorola's construction is consistent with the appropriate dictionary definition and is supported by the specification. Moreover, the Court finds that Motorola's construction more clearly defines the term's boundaries than ST's proposal.

3227

"Potential First Parties"

Defendants argue that the term "first parties" should be understood as referring to a caller or a person who is making a telephone call. (Doc. No. 240, p. 4). Defendants also assert that the term "potential," which allegedly modifies the term "first parties" in every claim, means the "first parties" are not actual callers, i.e., a person who has made or is making a call, but rather a person who may make a telephone call. (Id.). 800 Adept contends that "potential first parties" should be construed as "those parties who can be assigned latitude and longitude coordinates and can also be assigned to a destination according to the second parties' criteria." (Doc. No. 268, p. 9).

Each of the independent claims of these two patents provides the context in which to construe "first parties." The preambles of claims 1, 9, 17, 29 and 41 of the '111 Reissue all recite "a telephone call from a first party who has an originating
telephone number," and the preamble of claim 1 of the '689 Patent recites "a telephone call from a first party who dials one of an 800-type, 900-type or other special access code telephone number." This is not to say that the preambles act as a limitation of the claims, but such language places the claim term in a context that is absent from the rest of the claim. Thus, the claimed "first parties" are colloquially "callers" or "individuals who place telephone calls."

It is also clear from the specification that the term "first parties" must refer to callers. The written description describes "a system for automatic direct routing of telephone calls from customers" ('111 Reissue, col. 1, ll. 19-20) designed to reduce the amount of computer interaction by "causing the call to be direct-routed" (id. at col. 2, l. 7). It also states that a prior art patent "requires that the caller dial from a 'touch-tone' phone." (Id. at col 2, ll. 19-20). Under the heading "Summary of the Invention," the patent discloses that the "primary object of the present invention is to provide a reliable and cost-effective manner of directly connecting callers interested in an advertiser's product. . . ." (Id. at col. 3, ll. 10-12). The abstracts and specifications repeatedly and consistently refer to "calls" and "callers" but fail even once to use the term "first parties" except in the claims. (See id. passim). Put simply, the terms call and caller are used throughout both patent specifications, and "first parties" is not. (See id. at face page).

Defendants offer two definitions for "potential" from internet dictionaries which do not differ substantively from the definition found in the bound dictionaries available to the Court. (See Doc. No. 240, p. 4 n.6). Defendants' definitions are "existing in possibility" and "capable of development into actuality." (See id.). Plaintiffs do not offer any dictionary definition for the term. Webster's II New Riverside University Dictionary defines potential as "1. Capable of being but not yet in existence. 2. Denoting possibility, capability, or power." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 920 (1994). The Court of Appeals for the Federal Circuit permits the use of general purpose dictionaries in cases that involve commonly understood words having widely accepted meanings. Phillips, 415 F.3d at 1314. Such is the case here.

The ordinary meaning of "potential" is also consistent with the use of the term in the specification. The term "potential" is found only within the abstract and claims of each patent. The abstracts are identical:

A method and system for direct routing of telephone calls made by a caller originating from within specific calling areas to one of a plurality of locations of a second party according to certain criteria established by the second party. This routing is accomplished based on the assignment of latitude and longitude coordinates to a potential caller's location. Once these coordinates are assigned to each of the potential callers, the second party's criteria is applied to assign the potential caller to a second party. Such criteria could be existence within a previously-defined geographic area, a custom defined geographic area, or through calculations such as the shortest distance between coordinate points. Once all such assignments have been made, a database is assembled to be used by a long distance carrier for direct routing of telephone calls from callers to an assigned second party.

(Id. at face page, emphasis added). Such disclosure does not add much of substance other than indicating the term is used as one would expect, and that the written description of the patents does not "reveal a special definition . . . that differs from the meaning [that the term] would otherwise possess." Phillips, 415 F.3d at 1316.

Here, the adjective, "potential," modifies the meaning of the noun "parties" which has already been modified by the adjective "first." That is, the meaning of "potential first parties" is a specialized meaning of the broader term "first parties." As discussed above, the term "first parties" refers to a universe of callers or individuals who place telephone calls, and the adjective "potential" narrows that universe of individuals to those having the capability of placing a telephone call but who have not done so. Consequently, the Court construes the term "potential first parties" to mean "individuals who can place a telephone call but have not yet done so."

**3228**

B. The '366 Patent - "Power"

After considering the parties' proposed constructions, the Magistrate Judge recommended that the term "power," as used in Claim 7 of the '366 patent, should be construed to mean "voltage." (D.I. 133 at 13-15.) For the reasons set forth below, the Court will overrule the recommended construction and will adopt Defendant's proposed construction. Specifically, for
purposes of the Motion for Preliminary Injunction, the Court will construe the term "power" to mean "the rate at which energy is transferred, calculated by multiplying electric current times voltage."

Claim 7 of the '366 patent recites, in part:

7. A method for facilitating power shutdown protocol of a computing device, comprising the steps of:
   using a first cell as a primary portable power supply. . .
   using a secondary cell as a backup portable power supply. . . and
   using a boost circuit to increase the power of the secondary cell. . .

   wherein the secondary cell supplies power to the computing device upon a voltage of the first cell dropping below a predetermined value.

'366 patent at col. 11, ll. 42-53 (emphasis added).

With respect to Claim 7, the dispute between the parties primarily centers around whether "power" should be interpreted according to its ordinary, "textbook" definition or whether it should be interpreted according to a "colloquial" definition, proposed by Plaintiff. It is undisputed that, among those of ordinary skill in the art, the well-established, textbook definition of "power" is "voltage multiplied by current." (D.I. 133 at 14-15.) Plaintiff contends, however, that "power" also has a second, colloquial definition, which is simply "voltage." (D.I. 171 at 6.) This colloquial definition is contrary to the textbook definition, because it does not account for current. More precisely, the colloquial definition assumes that current is constant. Plaintiff contends that a person of ordinary skill in the art, upon reading the specification of the '366 patent, would understand that the patent embraces the colloquial definition of "power." Specifically, Plaintiff contends that: 1) the specification does not explicitly adopt the textbook definition of "power;" 2) the specification uses the terms "power" and "voltage" loosely and interchangeably when referring to the output of a battery; and 3) the preferred embodiment described in the specification describes boosting the power of a secondary battery only by boosting its voltage, thus implying that current is constant.

The Court also does not agree with Plaintiff's contention that the patent uses the terms "power" and "voltage" loosely and interchangeably. The specification consistently uses "power" in the context of a "power supply" or "output power." 3 Importantly, the patent does not quantify "power" according to volts, the scientific unit for voltage. Measurements in volts in the patent appear in the context of "voltage." 4 At one point, the specification describes "a 5 volt power supply circuit and a 3 volt power supply circuit," but the same paragraph then clarifies that these circuits provide "a steady 5 volt DC [(direct current)] power" and "a steady 3 volt DC power." 366 patent at col. 7, ll. 19-34 (emphasis added). Thus, even where the specification uses volts in connection with a "power supply circuit," it describes the circuit's power output as a combination of both voltage and current. Additionally, the specification provides an example of a circuit for boosting "power output." Id. at col. 7, ll. 41-55. This circuit "produces an electro-magnetic field current (EMF) at a desired voltage level." Id. (emphasis added). This again fits the textbook definition of "power," which includes both voltage and current. Thus, the usage of "power" and "voltage" throughout the patent supports the conclusion that the patentees intended these terms to have different, though related, meanings.

 Footnotes

3 See, e.g., '366 patent at col. 2, ll. 5-20, 29, 37, 39, 55, 59; col. 9, ll. 14, 38-41; col. 10, ll. 2, 30-31 ('"power supply," "power
Finally, the Court is not persuaded by Plaintiff's argument that the preferred embodiment, which describes increasing the power of a secondary cell only by increasing its voltage, should limit the interpretation of a circuit for increasing "power" in the claims. The preferred embodiment is an illustrative example, and "when claim language is broader than the preferred embodiment, it is well-settled that claims are not to be confined to that embodiment." DSW, Inc. v. Shoe Pavilion, Inc., 537 F.3d 1342, 1348 (Fed. Cir. 2008); see also Acumed LLC v. Stryker Corp., 483 F.3d 800, 807 (Fed. Cir. 2007) ("[In their claims, patentees] could have used the word 'perpendicular,' as they did in discussing their preferred embodiment. Instead, they chose a different term that implies a broader scope.") Moreover, the term "voltage" appears later in the same claim, indicating that the patentees intended the term "power" to have a meaning other than simply "voltage." See Helmsderfer, 527 F.3d at 1381-82 ("different claim terms are presumed to have different meanings").

Accordingly, the Court will overrule the recommended construction and will adopt Defendant's proposed construction.

Specifically, for purposes of the Motion for Preliminary Injunction, the Court will construe the term "power" to mean "the rate at which energy is transferred, calculated by multiplying electric current times voltage."

"Power Conditioning Circuit" in the '067 Patent's Claim 32

Claim 32 of the '067 Patent includes (emphasis added):

- a power conditioning circuit having (i) power input terminals connected with the AC terminals, and (ii) power output terminals connectable with the lamp terminals; the power conditioning being functional, as long as the lamp terminals are indeed connected with the power output terminals, to properly power the gas discharge lamp; the power conditioning circuit being further characterized by:
  
  (a) including a transistor having a pair of transistor output terminals across which exists a transistor output voltage whose magnitude varies in accordance with a periodic waveform...and

  (b) having a pair of DC terminals between which exists a DC voltage whose absolute magnitude is substantially constant and distinctly higher than the peak absolute magnitude of the AC power line voltage.

M. Mem. 20 asserts that this is framed as a purely functional claim--a "power conditioning circuit...being functional to...properly power the gas discharge lamp..." N. Mem. 14-15 responds by stating, and Motorola does not dispute (see M. Mem. 20-21 and M. Resp. 7-8), that the claim element's subparagraph (a) describes the inverter and its subparagraph (b) describes the rectifier, both of which are included in the circuit.

But the flaw in Nilssen's position is that those elements (well known as they are to persons skilled in the art) do not form the totality of the power conditioning circuit--as the claim element itself states, that circuit includes those elements but is not said to comprise only those elements. Not only is that the normal reading of the word "include" rather than "comprise," 25 as well as the obvious fact that the entire circuit must include more than those two elements, but the matter is made doubly clear by Nilssen's use of "comprises" in the corresponding specification when he says "the power supply also comprises a voltage doubler and rectifier..." (col. 3, lines 29-30).
25 Experience teaches that if there is one word in the English language that patent lawyers know how to use, it is "comprise"—in sharp contrast to the mine run person, who is far more likely to say incorrectly that "Illinois is comprised of 102 counties" than to employ the correct usage: "Illinois comprises 102 counties."

That being the case, it appears that the disclosed structural elements--the inverter and rectifier alone--do not suffice "to perform entirely the recited function" (Sage Prods., 126 F.3d at 1428). And to repeat, as counseled in such cases as Cole, 102 F.3d at 531, "merely because an element does not include the word 'means' does not automatically prevent that element from being construed as a means-plus-function element."

So this Court construes claim 32 of the '067 Patent to be in means-plus-function form, without the factors that might take the claim out of the purview of Paragraph 6. This Court therefore treats that claim in conjunction with the related specification.

GO BACK

VII. "Power conversion circuit"

Next, the Court addresses the term "power conversion circuit" in claim 1 of the '059 patent and claims 1 and 2 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker argues that the term "power conversion circuit" means "a circuit that changes electrical energy." Bosch proposes construing the term "power conversion circuit" as: "A plurality of DC/DC converters that convert DC at one voltage to DC at a different voltage, either higher or lower. A converter is distinctly different from a voltage regulator that holds the output voltage to a constant value under varying line or input voltage conditions or output current conditions."

B. The Court's Construction

Bosch makes two general arguments related to its proposed claim construction. First, Bosch argues that the Court should limit the term "power conversion circuit" to "a plurality of DC/DC converters that convert DC at one voltage to DC at a different voltage, either higher or lower." Second, Bosch contends that the Court should expressly exclude a voltage regulator from the scope of the "power conversion circuit" claim term.

The plain language of the claim term, and its surrounding claim language, do not mention any DC/DC converters. Rather, than claiming a DC/DC converter, or a combination of multiple DC/DC converters, the patentee, in claim 1 of the '059 patent and claims 1 and 2 of the '925 patent chose to claim a type of a circuit. In the claims that depend from claim 1 of the '059 patent, however, the patentee further limited the "power conversion circuit." Claim 2 of the '059 patent requires that the "power conversion circuit" include a "first converter circuit for receiving the second DC output voltage from the removable DC power supply and generating a third DC output voltage having a magnitude sufficient to power the radio." Also, claim 3 depends from claim 2 and requires that the "power conversion circuit" further include a "second converter circuit for receiving the first DC output voltage from the AC powered DC power supply and generating a fourth DC output voltage that is suitable for charging the removable DC power supply." Further, claims 4 and 5 both depend from claim 3 and further limit whether each respective conversion circuit includes an "up-converter" or a "down-converter." Accordingly, the Court presumes that claim 1 is broader than its dependent claims and does not contain the dependent limitations. See RF Delaware, Inc. v. Pacific Keystone Techs., Inc., 326 F.3d 1255, 1263 (Fed. Cir. 2003).

Bosch relies on the preferred embodiment described in the specification for its proposed construction. Bosch, however, does not point to any specific language in the specification requiring that the "power conversion circuit" contain the limitations of the preferred embodiment. Nor does Bosch point to any express disclaimer or disavowal of "power conversion circuits" other than those taught in the preferred embodiment. The Court declines to incorporate limitations from the preferred embodiment into the plain claim language. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1370 (Fed. Cir. 2003)
The prosecution history of the '059 patent also discusses the "power conversion circuit" limitation. In overcoming the Examiner's rejection, Domes specifically explained the importance of "the provision of circuitry in the subject invention that allows the portable radio to operate off of various types of conventional, portable tool battery packs, regardless of output voltage." (R. 53-1; FH059086.) After explaining that claim 27 (in the application) provides for a "power conversion circuit," Domes proceeded to make clear that "in the preferred embodiment, the power conversion circuit is implemented by a pair of DC/DC converters, one which adjusts, up or down, the output voltage from the AC powered DC power supply to the removable DC power supply, and the second that adjusts, up or down, the voltage supplied from the DC removable power supply to the radio." (Id.) Accordingly, Domes made it clear in the public record that the pair of DC/DC converters was merely the preferred embodiment of the claimed "power conversion circuit."

Bosch contends that Domes acquiesced to a construction of the "power conversion circuit" limited to a pair of DC/DC converters during the application process. In his reasons for allowance, the Examiner stated that "no combination AC powered radio/battery charger that containing [sic] a removable DC power supply with DC to DC converters producing various higher and lower voltage outputs than the DC output produced by the fixed-in-enclosure AC powered DC output was neither found, suggested, nor made evident by the prior art." (R. 53-1; FH059093.) Bosch contends that this reason for allowance demonstrates that the Examiner limited the construction of the term "power conversion circuit" to a pair of DC/DC converters. According to Bosch, because Domes failed to object to this reason for allowance, he acquiesced to this construction. Bosch's argument fails. The Examiner's statement, followed by Domes' silence, does not reflect a clear disavowal of any "power conversion circuit" other than a pair of DC/DC converters sufficient to rebut the presumption that a "power conversion circuit" has its plain and ordinary meaning. Aquatex Indus., Inc. v. Techniche Solutions, 419 F.3d 1374, 1381 (Fed. Cir. 2005.) Earlier in the prosecution history, Domes plainly identified pair a DC/DC converters as merely the preferred embodiment, and not a limitation to the claimed "power conversion circuit." (Id. at FH059087.) In the Examiner's reasons for allowance, the examiner noted that the Chen reference did not disclose "converter circuits" without specifying that those "converter circuits" had to be a pair of DC/DC converters. (Id. at FH059093.) Therefore, the Examiner was looking in the prior art for structures other than DC/DC converters that constituted the claimed "power conversion circuit." Further, the Examiner did not identify any prior art reference as disclosing a "power conversion circuit" other than a pair of DC/DC converters, such that Domes' claims were only patentable because they required DC/DC converters. Accordingly, the Examiner's reasons for allowance did not specifically limit a "power conversion circuit" to a pair of DC/DC converters.

In light of the ambiguity in the Examiner's statement as well as Domes' previous prosecution history statement that the pair of DC/DC converters was merely a preferred embodiment, Domes' failure to respond to the Examiner's reasons for allowance does not amount to acquiescence to the narrower construction proposed by Bosch. Congress amended the patent rules, on September 8, 2000, deleting the sentence that previously stated: "Failure to file such a [statement in response to the Examiner's reasons for allowance] does not give rise to any implication that the applicant or patent owner agrees with or acquiesces in the reasoning of the examiner." 37 C.F.R. § 1.104; 65 Fed. Reg. 54671 (2000). Congress did not, however, include a requirement that an applicant must respond to an Examiner's reasons for allowance in order to avoid acquiescing to those reasons. Rather, the plain language of those rules does not address the issue of acquiescence to such reasons for allowance. Bosch relies on the legislative history of Congress's amendment to the rules, and the associated comments. The comments, however, provide that Congress's "revision of § 1.104(e) does not provide any new policy, but rather tracks the state of the case law established in the decisions of the Supreme Court and the Federal Circuit." 37 CFR § 1.104(e), comments; 65 Fed. Reg. 54633 (2000). Bosch does not point to any case law where the court found that an applicant acquiesced to a narrow limitation for a claim by failing to respond to an Examiner's reasons for allowance, when the reasons for allowance did not amount to a clear disclaimer of claim scope. Accordingly, while certain circumstances may require the Court to find that an applicant acquiesced to a narrow construction of a claim term set forth in the Examiner's reasons of allowance, the circumstances here, as discussed above, do not require or support such a finding. n8

n8 In particular, because claims depending from issued claim 1 contain limitations on the claimed "power conversion circuit," the Court presumes that those limitations are not incorporated into claim 1. Although a party may overcome that presumption by showing that the applicant disclaimed subject matter, Fantasy Sports Props., Inc. v. Sportstline. Com, Inc., 287 F.3d 1108, 1115 (Fed. Cir. 2002), Bosch has failed to show that Domes ever disclaimed "power conversion circuits" other than a pair of DC/DC converters. Also, as discussed, earlier in the prosecution history, Domes plainly set forth that the
The Court next addresses Bosch's proposal that a "voltage regulator" is not within the scope of the claimed "power conversion circuit." The language of the claims do not discuss a "voltage regulator," nor does Bosch point to any portion of the intrinsic record that addresses such a device. Bosch fails to prove that the applicant ever expressly disclaimed or disavowed a "voltage regulator" as being a "power conversion circuit." Accordingly, the Court does not have to address this issue in construing the claims as a matter of law. Rather, whether or not a "voltage regulator" falls within the scope of the claimed "power conversion circuit," as construed by the Court, is a question of fact for the jury to decide. Cybor, 138 F.3d at 1454 (the comparison of the construed claims to the accused device is a question of fact).

Accordingly, the Court construes the term "power conversion circuit" as a "circuit that changes electrical energy." This construction closely tracks the plain language of the claim and is supported by the intrinsic record, specifically the language of other claims, such as the dependent claims, and Domes' statements in the prosecution history identifying the importance of a "power conversion circuit" and identifying a pair of DC/DC converters as the preferred embodiment. n9

n9 Bosch attacks Black & Decker's proposed construction as having less detail than the claim term. The Court notes that the detail that Bosch contends is absent from this construction is provided by the language of the claims following the "power conversion circuit" term.
After a trial, the jury found that Bosch had infringed claims 1, 2, 6, 7, and 10 of the '059 patent and claim 1 of the '925 patent, and that those same claims were not invalid, but that claims 2 and 10 of the '925 patent were invalid as anticipated and obvious. Injunction Order; B&D JMOL. Based on the jury's finding that Bosch willfully infringed the patents, the district court enhanced damages by fifty percent. Black & Decker, No. 04-CV-7955, 2006 U.S. Dist. LEXIS 84969 (N.D. Ill. Nov. 20, 2006). The district court denied Bosch's inequitable conduct claim after a bench trial. Black & Decker, No. 04-CV-7955, 2006 U.S. Dist. LEXIS 78062 (N.D. Ill. Oct. 24, 2006) ("Inequitable Conduct").

The district court issued an injunction directed at the Bosch radios considered at trial, but specifically exempted a newer model radio that the court had excluded from trial by granting a motion in limine. Injunction Order. Considering post-trial motions, the district court denied Bosch's motions for JMOL and for a new trial that it did not infringe B&D's patents, willfully or otherwise. Black & Decker, No. 04-CV-7955, 2006 U.S. Dist. LEXIS 92882 (N.D. Ill. Dec. 22, 2006; 2007 U.S. Dist. LEXIS 2714, Jan. 12, 2007). Finally, the district court granted B&D's motion for JMOL that claims 2 and 10 of the '925 patent were not invalid as anticipated or obvious in light of the asserted prior art. B&D JMOL. This appeal and cross-appeal followed. We have jurisdiction pursuant to 28 U.S.C. 1295(a).

DISCUSSION

I

On appeal, Bosch challenges the district court's construction of "power conversion circuit," which the district court construed as a "circuit that changes electrical energy." Bosch contends that the proper construction should require a plurality of DC to DC ("DC/DC") converters, which can convert an input DC voltage to a different output DC voltage, either higher or lower. It also asserts error in the court's refusal to construe "regardless" as used in the claims.

B&D claims that, by failing to object to the claim construction jury instructions and failing to argue claim construction in its motion for JMOL, Bosch has waived the ability to challenge those constructions. It also disputes the correct construction for "power conversion circuit," asserting that the district court correctly construed the broad claim language by refusing to limit it to the preferred embodiment as captured by the dependent claims.

As an initial matter, we agree with Bosch that the Seventh Circuit futility exception controls the wavier issue here. Because Bosch proposed and argued for its construction at the Markman hearing, "[o]bjection under Rule 51 was not required to preserve the right to appeal the Markman ruling." Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc., 381 F.3d 1371, 1381 (Fed. Cir. 2004) (considering the applicable rule under Seventh Circuit precedent).

The district court based its construction of "power conversion circuit" in large part on the principle of claim differentiation, because dependent claims require a power conversion circuit ("PCC") that produces a voltage different from the power supply or battery. Black & Decker, 389 F. Supp. 2d 1010, 1015-16 (N.D. Ill. 2005). That doctrine, however, cannot serve as a basis to give a patent scope beyond the invention it discloses. See Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000). Any presumption arising here from the dependent claims fails to override the proper construction of "power conversion circuit" provided by the claims, the specification, and the prosecution history. Accordingly, as discussed below, the district court erred by construing "power conversion circuit" without sufficient consideration of factors beyond those three words and the dependent claims.

A

The surrounding claim language provides an important consideration for construing a particular term within a claim. Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005). To provide for functionality with a variety of battery voltages, the patents claim a "power conversion circuit . . . to enable [the battery] to power [the] radio and be charged by [the power supply], regardless of the [battery voltage]." E.g., '059 patent, col.5 ll.38-45. Claim 1 of the '925 patent requires only that the PCC enables the battery to power the radio regardless of battery voltage. '925 patent, col.5 ll.46-50. In either case, the surrounding claim language requires that the PCC operates to enable certain functionality in the combination radio.

To understand this requirement, we must consider three possibilities: (1) the battery provides approximately the same voltage as the power supply, (2) the battery provides a higher voltage than the power supply, and (3) the battery provides a lower voltage than the power supply. The claims contemplate all of these three conditions. E.g., '059 patent, col.5 ll.32-37. Under all conditions, we assume that the power supply can power the radio directly. With a battery of the same voltage as
the power supply, either the battery or the power supply may power the radio; similarly, the power supply can charge the battery directly. With a battery of a higher voltage than the power supply, the PCC must increase the voltage from the power supply in order to charge the battery, and reduce the voltage from the battery in order to power the radio from the battery. Conversely, for a battery of a lower voltage than the power supply, the PCC must increase the voltage from the battery in order to power the radio, and reduce the voltage from the power supply in order to charge the battery appropriately.

Combining all of these possibilities, as the claims require, a PCC that enables the desired functionality must contain circuitry to both increase and reduce voltages. Accordingly, a proper construction for "power conversion circuit" must include the requirement that the circuit can both increase and reduce voltages.

B
Beyond the language of the claims, the specification also provides meaningful guidance when construing claim terms. Phillips, 415 F.3d at 1317. The claim, however, should contain a linguistic "hook," or some point to tie it to a concept from the specification. NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1310 (Fed. Cir. 2005) (quoting Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998)). Here, the claim does exactly that by using the term "conversion."

While the specification of the patents here does not use the exact phrase "power conversion circuit," it does touch on conversion a limited number of times. First, the Summary of the Invention states:

An optional variable voltage feature permits use of battery packs lower or higher than 12 volts to be used by the radio. The variable voltage feature includes a socket having a plurality of contacts mating with an adapter, matching predetermined requirements of a DC source battery pack, and a double pole single throw on/off switch controlling a DC/DC power source converter for supplying power to said radio.

'059 patent, col.2 ll.57-64 (emphasis added). Then, describing the preferred embodiment, it states:

In an alternate embodiment, additional circuitry is provided to permit the use of battery packs lower or higher than 12 volts to be used in radio 1. In this embodiment, socket 45 is replaced with socket 70 which now has six contacts mating with adapter 61, which match the requirements of a particular battery pack 60. The on/off switch is now upgraded to a double pole single throw variety for controlling output DC/DC converter 68 for battery operation of radio 1. This extra pair of contacts eliminate the "standby" losses of converter 68 when radio 1 is turned off.

Charging DC/DC converter 69 is selected via relay 70 when the charger is turned on. Although electromagnetic relay 70 is shown, a solid state relay can be used instead. If battery pack 60 has a voltage rating higher than 12 volts (e.g. 18 volts), the output converter 68 is a step down type reducing the battery voltage to a nominal 12 volts while charge converter 69 is a step up converting a nominal 12 volts from the charger to a nominal 18 volts at the battery. If the battery voltage were lower than 12 volts (e.g. 9.6 volts), the output converter 68 is a step up type while the charging converter 69 is a step down type. Diodes 56 and 67 are used for power steering while diodes 66 and 65 are used for DC/DC converter isolation.

Id. at col.4 l.55 to col.5 l.10 (emphases added). The specification does not elsewhere use a form of "convert" in the context of permitting various voltage batteries. Both portions of the specification cited above describe a circuit that adjusts voltage using a DC/DC converter. In the first example, from the Summary of the Invention, the patent describes a circuit that adjusts the power of the battery to allow it to power the radio. In the second example, from the Detailed Description, the patent describes a circuit that both raises and lowers voltage, to allow the battery to power the radio and to allow the power supply to charge the battery.

B&D argues that only the preferred embodiment contains a DC/DC converter and that we should not limit construction of the "power conversion circuit" to such a device. But we can find nothing in the patent that discloses a PCC other than the one shown in the preferred embodiment. Indeed, at oral argument, counsel for B&D admitted that Figure 6 of the patents, illustrating a more general embodiment, does not contain a power conversion circuit. Oral Arg. at 20:58-21:02, available at: http://www.cafc.uscourts.gov/oralarguments/mp3/2007-1243.mp3 ("[I]t's not present in [figure] six. There's no conversion circuit in six."). The specification consistently describes a circuit that has the ability to change voltages using a DC/DC converter. For that reason, we conclude that the specification requires that a "power conversion circuit" includes a DC/DC converter.
While the specification requires a "power conversion circuit" to include a DC/DC converter, it does not limit the PCC to only such a device. Both instances in the specification discussing conversion also describe a circuit containing other electrical components such as switches. Additionally, the specification does not consistently require multiple DC/DC converters in the PCC, as the appellant urges. The first use of "converter," in the Summary of the Invention, describes only a single converter. We therefore reject Bosch's suggestion that the proper construction requires two DC/DC converters.

The prosecution history further confirms the correct construction of "power conversion circuit." Remarking on an amendment submitted to the examiner after an interview, the applicant described the invention as including a "power conversion circuit that adjusts the voltage that is either supplied by the [power supply] to the [battery], or supplied by the [battery] to the radio. In the preferred embodiment, the power conversion circuit is implemented by a pair of DC/DC converters . . . ." '059 patent prosecution, Amendment of Apr. 26, 2001, at 7. This statement confirms that (1) the PCC must adjust voltage up and down and (2) the PCC in the preferred embodiment uses two DC/DC converters. As we have discussed, the surrounding claim language also requires the PCC both increase and reduce voltage. And the fact that the preferred embodiment uses two DC/DC converters comports with the specification's requirement that the PCC includes a DC/DC converter. In sum, the prosecution history confirms the proper construction of "power conversion circuit" provided by the claim language and the specification.

As mentioned, above, the district court's reliance on claim differentiation cannot survive the definition for "power conversion circuit" provided by the claim, the specification, and the prosecution history. Further, our construction—requiring circuitry to increase and reduce voltages and requiring a DC/DC converter—does not make redundant the requirement in dependent claim 2 of the '059 patent that the PCC generates a third voltage sufficient to power the radio. A PCC meeting the limitations of claim 1 may generate a voltage equal to that of the power supply, and thus would not satisfy the "third voltage" requirement of claim 2.

Therefore, because the dependent claims do add additional limitations, and because even if they did not, the presumption of scope applied to the independent claims under the doctrine of claim differentiation here does not overcome the definition from the intrinsic record, we reject the district court's reliance on that doctrine. Giving appropriate consideration to the surrounding claim language, the specification, and the prosecution history, we construe "power conversion circuit" as a circuit that can increase and reduce DC voltages and includes a DC/DC converter.

b. "power factor correction converter means"

Lumileds argues that 35 U.S.C. § 112, P 6 governs the construction of claim 1's "power factor correction converter means" and limits it in scope to the corresponding structure disclosed in the specification: a switchmode buck/boost converter and a commercially available power factor controller. Relume argues that 35 U.S.C. section 112, paragraph 6 does not apply because the language "power factor correction converter" implicitly recites sufficient structure to one of ordinary skill in the art of LED array power supplies.

Claim 1 describes the "power factor correction converter means" as

having an input connected to said output of said rectifier means (32) and an output, said power factor correction converter means (38) being responsive to said rectified d.c. power at said power factor correction converter means input for generating regulated voltage d.c. power at said power factor correction converter means output.

'645, 13:22-28. By associating the word "means" with two functions - power factor correction 8 and voltage regulation - claim 1 uses express means-plus-function language to describe the "power factor correction converter means" element. This creates a presumption that the "power factor correction converter means" is a means-plus-function element governed by 35
U.S.C. section 112, paragraph 6. See Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999) ("if the word "means" appears in a claim element in combination with a function, it is presumed to be a means-plus-function element to which 35 U.S.C. § 112, P 6 applies").

8 The '645 patent explains that "power factor (p.f.) is well understood in the electrical engineering community as the ratio of real power to real power plus reactive power." '645,2:10-12. The closer a device's power factor ratio is to one, the better its efficiency. Poor power factor typically results when voltage and current are out of phase, but it can also result from harmonic distortion.

Relume contends that claim 1 overcomes this presumption by reciting sufficient structure. Relume specifically argues that a person of ordinary skill in the art would understand a "power factor correction converter" to be "a switching power supply that has some control feature to improve diode conduction time and increase power factor and reduce distortion." (Pl.'s Consolidated Opp. at 22.) Relume also notes that the claim language recites a location for the "power factor correction converter means" in the invention - between the rectifier and the LED array - and describes it as having an input and an output. (See id.)

The Federal Circuit has determined that a presumption of 35 U.S.C. section 112, paragraph 6 governance "can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant." Personalized Media v. Int'l Trade Comm'n, 161 F.3d 696, 704 (Fed. Cir. 1998). Throughout the rebuttal inquiry, "the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of 35 U.S.C. § 112, P 6." Id. A claim recites sufficient structure when it elaborates the structure, material, or acts necessary to perform entirely the recited function. See Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997).

Close scrutiny of the term "power factor correction converter means" reveals that it implicitly elaborates sufficient structure to a person of ordinary skill in the art of power supplies. The structural device claimed is a "converter means," and its functions are "power factor correction" and "being responsive to said rectified d.c. power…for generating regulated voltage d.c. power." 9 Although perhaps unremarkable to the layperson, the word "converter" is a structurally meaningful term-of-art to those of ordinary skill in the art of power supply electronics. According to Marty Brown's Power Supply Cookbook (1994), it connotes the generic structure of a switching power supply: that is, a switch and its controller circuit. 10 See id. at 25-26. The Power Supply Cookbook also makes it clear that power factor correction and voltage regulation are typical functions for a switching power supply to perform. See id. Thus claim 1's association of "converter means" with its specified functions of power factor correction and voltage regulation would reinforce the structural connotations of "converter" to one of ordinary skill in this art.

9 Identification of the "power factor correction" function is less obvious than the voltage regulation function because the qualifier "power factor correction" is not phrased in the "means…for" format that usually specifies a function in claim language. The "means…for" formality, however, need not be present for me to interpret "power factor correction" as an additional functional constraint on the "converter means." See Personalized, 161 F.3d at 705 (finding that the adjective "digital" functionally constrained the word "detector" even without "means…for" language).

10 The Power Supply Cookbook is an authoritative instructional design text for engineers in the field of power supply electronics. The background section of the '645 patent cites it as relevant prior art. Thus I consider it to be evidence intrinsic to the '645 patent and properly considered in my Markman construction of the claim term "converter." See Markman, 52 F.3d at 979.

I conclude that the implicitly sufficient level of structural elaboration in the term "converter" removes the "power factor correction converter means" from its presumed statutory category as a means-plus-function element governed by 35 U.S.C.
section 112, paragraph 6. See Personalized, 161 F.3d at 705 (holding that the term "detector," even though it does not "specifically evoke a particular structure," nevertheless elaborates sufficient structure because it conveys "to one knowledgeable in the art a variety of structures known as 'detectors'"; see also Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531-32 (Fed. Cir. 1996) (affirming a district court's conclusion that the "perforation means" did not fall under 35 U.S.C. section 112, paragraph 6 because the ordinary meaning of the term "perforation" recites sufficient structure to one of ordinary skill in the relevant art). Accordingly, I hold that a person of ordinary skill in the art of LED array power supplies would understand claim 1's "power factor correction converter means" to require the structure of a switching power supply.

3233

Power lines

The Court agrees with Samsung and construes "power lines" in claims 1 and 3 of the '490 patent as "conducting paths that provide electric power." The parties agree that both power lines are conducting paths. See Claim Const. Hr'g Tr. at 62. MEI's proposed construction--"conducting paths, each independently providing electric power"--requires that each and every power line be independently coupled to each circuit. MEI's construction improperly imports limits from the preferred embodiment; while noise reduction is optimized by independent power lines, the patent does not require such independence for each power line.

3234

1. "Power mode setting for setting the emitter module in one of a plurality of different operating power modes"

ITW offers the following construction: "an operating mode that defines the type of waveform voltage signal that is used to cause an ion emission." Pl.'s Revised Proposed Order Regarding Claim Construction at 8. Ion proposes that this element of the claim means: "a setting that can adjust a pulse width of a signal that supplies power." Def.'s Proposed Order re Claim Construction for the '756 patent at 11. The parties' dispute centers around the form of the high voltage signal that, when applied to an emitter, creates ions. This signal has a waveform that determines the mode in which the ions are created. There are different types and widths of waveforms. The parties disagree about how the claim construction should recognize the various manifestations a waveform can take. Each accuses the other of unreasonably selecting a narrower interpretation. Pl's Reply Claim Construction Br. at 25; Def.'s Opp'n Br. re Claim Construction of the '756 patent at 36.

Helpfully, ITW provides an entry from a technical dictionary. The IEEE Standard Dictionary of Electrical and Electronics Terms defines "waveform" as: "[a] manifestation or representation or a visualization of a wave, pulse, or transition." IEEE Standard Dictionary of Electrical and Electronics Terms (6th 1996) (parentheticals omitted). This definition, under Texas Digital, presumably represents the meaning of waveform as understood by one of ordinary skill in the art. It is broad enough to encompass both the type and width of a waveform. Accordingly, the claim shall be construed as "a setting that defines the type or width of the high voltage signal that supplies power.

3235

8. Power regulating signal.

Samsung contends that "power regulating signal" means "a signal that adjusts power to a desired level based on feedback." The dispute here is whether the power must be regulated based on feedback. Samsung argues that "regulating," in the context of the patents, means control, and the specification describes a circuit that maintains control based on feedback. Samsung points to col. 8, 1. 54-col. 9, 1.9, which describes Figure 8 of the patent. O2 argues, however, that nothing in the specification mandates that the regulation be based exclusively on a feedback signal. The court agrees with O2 that Samsung is attempting to read in a feedback limitation from the preferred embodiment. The court construes this term to mean "a signal for controlling power to a load."
On appeal, Clearwater argues that the district court erred in its claim construction when it improperly imported unclaimed functions into the disputed claim limitations. We agree. The district court determined that the "power source" in the body of claim 21 referred to the same power source as in the preamble of the claim; i.e., the "powered by a source" limitation. Clearwater Sys., 596 F. Supp. 2d at 301. Based on the preamble language, the district court concluded that claim 21 required that the "power source" directly power the entire apparatus. Id. Clearwater argued that the "power source" could mean any type of power source anywhere in the apparatus—including a power source found within the apparatus that powers only a portion of the apparatus, such as the coils.

The district court rejected this claim interpretation and concluded that "said power source" must power the entire apparatus. Clearwater Sys., 596 F. Supp. 2d at 301. This ruling is erroneous because it imported an extraneous limitation into the claim.

While the district court was correct that the preamble is limiting because it is necessary to provide context to the claim, see Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999), it was incorrect in concluding that the "power source" must power the entire apparatus. There is no limiting language in the claims, written description, or prosecution history requiring that the "power source" power the entire apparatus. Accordingly, the district court improperly imported an extraneous limitation into the claim. E. I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1998); Comark Commun. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998).

Clearwater's expert, Dr. Horenstein, explained that the "apparatus" of the preamble can refer to either the high or low frequency circuits alone and that the "power source" may power either of these components:

I do not believe that the requisite antecedent power source described in Claim 21 must be derived from a wall socket. This opinion stems, in part, from the fact that the "apparatus" claimed can be understood to refer to the high-frequency circuit alone, or the low-frequency circuit alone, considered as separate entities. Nothing in the patent precludes this understanding. . . .

We agree. The term "apparatus" may be understood as the high frequency circuit, and there is evidence on the record creating a material issue of fact regarding its power source. The Pulse-Pure contains an integrated circuit, the L293B, which is the power source for the high frequency coils, which is in turn powered by a 60 Hz alternating current. This evidence creates a genuine issue of material fact regarding the "power source" limitation. Thus, the district court improperly granted summary judgment based on the "power source" limitation.

1. Power Source (claims 30, 46, 51, 54) 3

3 Although the disputed terms often occur in claims other than those identified by the parties, the Court will limit itself to identifying those claims in which the parties indicate the disputed terms occur. In so doing, the Court notes that it has nevertheless considered each term in the context of the entire patent, including the specification and the unasserted claims.

Plaintiff a combination of galvanic and electrolytic power sources
Defendant generates, rather than consumes, power

The parties agree that the term "power source" means, at a minimum, something that generates, or contributes power to the patch. Plaintiff argues that the term "power source" also includes parts of the patch, which, although they may not individually generate power, are used to regulate the provision of power to the patch. Defendant responds that the term "power source" cannot include portions of the patch that do not directly generate power to the patch.

The Court finds that defendant's proposed definition is the most appropriate construction of the term "power source." The ordinary and customary meaning of the term "power source," means something that is a source of, or generates, power.

Further, this construction of the term "power source" is supported by the claim specification. In particular, the description of Figure 10 in the '014 specification refers to a patch that contains both a battery as well as electrodes, but makes clear that the
pair of electrodes would provide power to the patch in addition to the battery:

Figure 10 represents a schematic diagram of another multiple-cell . . . embodiment of the power source . . . [with] an electrolytic battery or cell that produces one volt. To this is added . . . a galvanic cell [pair of electrodes] that also produces one volt . . . resulting in an overall total system that will theoretically produce a two-volt source . . . .

'014 Patent, col. 7, lines 24-59 (emphasis added). Expanding the meaning of "power source" to include portions of the patch that do not generate power, as plaintiff asserts, would be contrary to the ordinary and customary meaning, as understood by a person of ordinary skill in the art. Therefore, the Court construes the claim term "power source" to mean only parts of the patch that generate power, and parts of the patch that merely regulate the provision of power to the patch, but do not individually generate power, are not part of the "power source."

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XIV. "First power source including an electrical cord engageable with an electrical outlet"

The Court next turns to the term "first power source including an electrical cord engageable with an electrical outlet" from claims 9 and 10 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes construing the term "first power source including an electrical cord engageable with an electrical outlet" as "a power source having an electric cord." Bosch argues that the term means "an AC/DC power supply that receives an AC voltage through an electrical cord engageable with an electrical output and transforms that AC voltage into a DC output voltage powering said radio receiver means."

B. The Court's Construction

The Court agrees with Black & Decker and construes the term "first power source including an electrical cord engageable with an electrical outlet" as "a power source having an electric cord engageable with an electrical outlet." Bosch's only support for requiring that the first power source be an "AC/DC power supply that receives an AC voltage through an electrical cord" is from the discussion of the preferred embodiment in the specification. Bosch, however, does not point to any language in the specification requiring that the first power source be limited in such a way. The Court rejects Bosch's attempts to improperly limit this term to the embodiment disclosed in the specification. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("This court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.") Accordingly, the Court construes this term according to Black & Decker's proposed construction.

3239

a. "power supply"

The term "power supply" appears in two of the asserted claims of the '806 patent. Claims 7 and 18 require a "second dopant-type well connected to a first power supply, and said substrate connected to a second power supply at a negative voltage
with respect to said first power supply . . . " NeoMagic argues that "power supply" means a source connection or line to the integrated circuit that is at a particular voltage. Trident counters that "power supply" requires a complete circuit (with a return path) and cannot consist of a single power supply line.

According to NeoMagic, each of the voltages supplied to the chip, V[DD], V[SS] and V[BB], is a "power supply." NeoMagic contends that the "first power supply" referred to in Claims 7 and 18 is the power supply line V[DD] and the "second power supply" is the power supply line V[BB]. The following illustration, which was submitted by Trident at the Markman trial, helps explain NeoMagic's proposed construction of "power supply." The illustration represents a horizontal cross section of a graphics controller chip with the graphics engine and video memory combined on the same silicon substrate. As before, the N+ and P+ logic gates on the left side of the substrate make up an inverter from a graphics engine. The N+ logic gate and the capacitor on the right side of the substrate are standard DRAM components. V[SS] and V[DD] represent source and drain terminals and the voltage applied to the substrate is referred to as V[BB].

[SEE illustration IN ORIGINAL]

On the other hand, Trident argues that V[DD], V[SS] and V[BB] are "power supply lines" rather than "power supplies." According to Trident's proposed construction of "power supply," the term refers to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit. Thus, Trident contends that "first power supply" refers to the source that delivers electrical energy via the power supply lines V[DD] and V[SS], and "second power supply" refers to the source that delivers electrical energy via the power supply lines V[SS] and V[BB].

The following illustration, which was submitted by Trident at the Markman trial, helps explain Trident's proposed construction of "power supply." The illustration represents a horizontal cross section of a graphics controller chip with the graphics engine and video memory combined on the same silicon substrate. The N+ and P+ logic gates on the left side of the substrate make up an inverter from a graphics engine. The N+ logic gate and the capacitor on the right side of the substrate are standard DRAM components. V[SS] and V[DD] represent source and drain terminals and the voltage applied to the substrate is referred to as V[BB].

[SEE illustration IN ORIGINAL]

i. NeoMagic's Proposed Construction

According to NeoMagic, the claim language, the specification, the prosecution history and the extrinsic evidence support interpreting "power supply" to mean a source connection or line that may be at a particular voltage level.

NeoMagic looks first to the claim language to support its construction. Claims 7 and 18 of the '806 patent specify "a second power supply at a negative voltage with respect to said first power supply." According to NeoMagic, this claim language demonstrates that "power supply" is a source that is "at" a voltage. In addition, NeoMagic argues that Claims 22 and 23, which depend from Claim 18, support its interpretation of "power supply." Claim 22 states that the "second power supply is at approximately -1.5 volts" and Claim 23 states that the "first power supply is at approximately +3.3 volts."

Next, NeoMagic turns to the specification. Although the term "power supply" is not used in the common specification of the '955 and '806 patents, the term "supply voltage" is used in several instances. For example, the specification describes an integrated circuit process that "uses one of the external supply voltages V[DD] or V[SS] depending on the substrate type) as the voltage to bias the substrate." NeoMagic contends that the references to "supply voltage" in the specification "make it clear that . . . the supply lines V[DD], V[BB], and V[SS] (which indicate voltages supplied to the chip) are examples of 'power supplies' as that term is used in the claims."

NeoMagic also relies on the prosecution history to support its construction of the term "power supply." Specifically, NeoMagic points to several claims in the June 20, 1994 parent application that were later abandoned. For example, Claim 18 of the parent application provided that the "first power supply is at approximately +5 volts, said second power supply at approximately 0 volts and said third power supply at +6 volts." NeoMagic contends that this reference in the prosecution history demonstrates that the inventors used the term "power supply" to mean any one of the source lines or connections to the various source potentials, V[DD], V[SS] and V[BB].
Finally, NeoMagic argues that its construction of "power supply" is consistent with the extrinsic evidence. The McGraw-Hill Dictionary of Electronics and Computer Technology defines "power supply" to mean "a source of electrical energy, such as a battery or power line, employed to furnish the tubes and semiconductor devices of an electronic circuit with the proper electric voltages and currents for their operation." NeoMagic argues that this definition supports its position that a "power supply" is used to provide a voltage potential to the chip. NeoMagic also contends that two prior art patents in the semiconductor field, U.S. Patent Nos. 5,268,597 and 5,030,852, use "power supply" in a manner that is consistent with its construction of the term.

ii. Trident's Proposed Construction

Trident argues that "power supply" means a device which has two or more terminals and which is capable of providing power to a circuit. Trident contends that NeoMagic's proposed construction of "power supply" is contrary to the customary meaning of the term and unsupported by the specification. According to Trident, the use of the term "supply voltage" in the specification does not support NeoMagic's proposed construction of "power supply." Trident argues that all "power supplies" provide "supply voltages" via their power supply lines. Since two power supply lines are required in order for current to flow, Trident contends that one skilled in the art would not refer to a single line connected to a terminal of a power supply to be the power supply itself.

According to Trident, NeoMagic's own expert in electrical engineering, Joseph C. McAlexander, testified during a deposition that "power supply" commonly refers to a complete circuit and not a single power supply line. McAlexander testified that "when you switch something on, you are providing power and providing a source of current and voltage to that one light bulb. And you've got a complete direct circuit, completed circuit. So in that case, I would view that as a single power supply." Trident points to eight patents that use the term "power supply" according to its customary meaning.

Trident also contends that the definition of "power supply" from the McGraw-Hill Dictionary of Electronics and Computer Technology actually supports Trident's construction of the term. According to Trident, the dictionary defines "power supply" as a source of electrical energy, such as a battery or power line, used to furnish the "proper electric voltages and currents . . . ." Trident notes that the same dictionary defines "power line" as "two or more wires conducting electric power from one location to another." Thus, Trident argues that two power supply lines are required in order for current to flow from a power supply through an electric circuit.

While Trident acknowledges that a patentee can be his own lexicographer, in this case Trident contends that "power supply" has its plain meaning because NeoMagic did not clearly set forth an alternative definition in the specification. Trident argues that NeoMagic's construction of the term is inconsistent with other claims of the invention. According to Trident, the '955 and '806 patents specify that the voltage, V[BB], which reverse biases the substrate, is generated from an on-chip charge pump that is separate from the external power supply which provides the voltages V[DD] and V[SS]. Therefore, Trident contends that the invention requires two power supplies that share a common ground, V[SS].

Trident also argues that the prosecution history does not support NeoMagic's proposed construction of "power supply." Trident contends that the court should not rely on canceled claims from the parent application to inform its construction of the term. According to Trident, the canceled claim "exists as nothing more than an artifact of a path not taken, and does not come close to providing clear notice of a special definition contrary to common usage."

iii. Court's Construction of "power supply"

The words of a claim should generally be given their customary meaning to one of ordinary skill in the art at the time the patent application is filed. Markman, 52 F.3d at 986. The court agrees with Trident that a person of ordinary skill in the art would generally understand the term "power supply" to mean a device which has two or more terminals and which is capable of providing power to a circuit. The McGraw-Hill Dictionary of Electronics and Computer Technology supports this interpretation because it defines "power supply" as a source of electrical energy used to furnish the proper electric voltages and currents. Two power supply lines are required for current to flow from a power supply through an electric circuit. Furthermore, NeoMagic's own expert in electrical engineering testified that "power supply" commonly refers to a source of electrical energy that requires at least two power supply lines.

Nevertheless, the inventors could have intended the term "power supply" to mean something different in the context of their
invention. See Beachcombers v. Wildewood Creative Products, Inc., 31 F.3d 1154, 1158 (Fed. Cir. 1994) (stating that a patentee can be his own lexicographer provided the patentee's definition, to the extent it differs from the conventional definition, is clearly set forth in the specification); Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388 (Fed. Cir. 1992) ("Where an inventor chooses to be his own lexicographer and to give terms uncommon meanings, he must set out his uncommon definition in some manner within the patent disclosure."). In Lear Siegler, Inc. v. Aeroquip Corp., 733 F.2d 881, 889 (Fed. Cir. 1984), the United States Court of Appeals for the Federal Circuit stated:

So long as the meaning of an expression is made reasonably clear and its use is consistent within a patent disclosure, an inventor is permitted to define the terms of his claims. Nevertheless, the place to do so is in the specification of the inventors application, and the time to do so is prior to that application acquiring its own independent life as a technical disclosure through its issuance as a United States patent. The litigation-induced pronouncements of [the inventor], coming nearly at the end of the term of his patent, have no effect on what the words of that document in fact do convey and have conveyed during its term to the public.

In this case, the inventors did not set forth a definition of "power supply" in the specification or in the prosecution history of the '955 and '806 patents. The term is not even mentioned in the common specification of the patents in suit. NeoMagic argues that the language of canceled claims in the parent application demonstrates that the inventors intended "power supply" to refer to one of the power supply lines, V[DD], V[SS], or V[BB]. But the inventors did not define "power supply" in the parent application to have the uncommon meaning proposed by NeoMagic. Furthermore, interpreting power supply as it is commonly understood by one skilled in the art is consistent with the specification of the '955 and '806 patents which requires a second source of electrical energy ("an on-chip charge pump") to reverse-bias the substrate in order to solve the noise problem. Therefore, the court finds, as argued by Trident, that "power supply" refers to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit.

1. Is AV[SS]/BIAS in Trident's split bias device a power supply?

The court has revisited the issue of the proper definition of the words "power supply" and has decided the court was correct to reject NeoMagic's proposed construction that a power supply is a source connection or line that may be at a particular voltage level. The court found the words should be given their plain, ordinary meaning as they are commonly understood by one skilled in the art. As argued by Trident, the court found "power supply" refers to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit.

The issue raised by NeoMagic, in arguing that Trident's split bias device is a power supply, is that the device appears to fall within the court's definition, but is not what one of ordinary skill in the art would call a power supply. The split bias device has two or more terminals and is capable of providing power to a circuit. It is analogous to the substrate bias generator, in that it takes power from an off chip source, V[DD]/V[SS], and modifies the voltage of that power. As described in the patent, the substrate bias generator uses the +3.3 V[DD] volts to create the -1.5 V[BB] volts. Similarly, the split bias device uses V[DD]/V[SS] to create the voltage BIAS which varies between +2.0 and +2.2.

The court agrees with Trident that the split bias device is not a power supply within the ordinary meaning of that term. At this stage of the litigation, the court could revisit the subject of the proper construction of the words, or leave the issue to the jury. In leaving it to the jury, it appears that the dispute between the parties would not be whether the device is a power supply in its ordinary sense. Rather, the parties would be disputing whether the device fell within the court's definition. As the court intended to give power supply its ordinary meaning and as NeoMagic's argument shows the court has not accomplished this, it is more appropriate for the court to revisit the subject of the definition to insure that the one selected by the court accomplishes the court's purpose, which is to construe the claims to require a power supply as understood by one of ordinary skill in the art.

Trident has suggested that it is well-known to one of skill in that art that power supplies are designed and intended to deliver a constant source of power and that some power supplies can come closer to ideal than others. It argues that the court should construe power supply as a "constant voltage power supply." In advancing that argument Trident notes that there is evidence to show that voltage on the substrate bias generator varies plus or minus 0.5 volts around -1.5 volts. It argues that this
definition fairly draws the distinction between the substrate bias generator and the split bias device: the substrate bias generator is designed to produce as constant a voltage as possible, whereas the BIAS line is a signal line used as a control voltage line which changes in magnitude to keep the current sources in the digital-analog-converter at a constant value. Trident offered the testimony and affidavit of Robert J. Murphy to confirm that one of ordinary skill in the art would understand that a substrate bias generator is an on-chip power source that receives its power from the main power supply of the chip and delivers power in a converted form to the substrate. At the same time, one of ordinary skill in the art would not find that a bias or control voltage line is a power supply, as it controls sources of power in a manner to make them constant and independent of both power supply variations and temperature.

The court agrees with Mr. Murphy's testimony and finds a person of ordinary skill in the art would find the substrate bias generator is a power supply and the BIAS line in the split bias device is not. To the extent it is necessary to clarify the normal and ordinary meaning of the term, the court will adopt Trident's proposed definition.

Therefore, for the reasons set out by the court in its May 8, 2000 opinion as supplemented by this opinion, the court finds power supply in the asserted claims should refer to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver a constant voltage supply of power to an electrical circuit.

Turning to the '806 patent, the parties dispute the meaning of the terms "power supply" and "negative with respect to." Claims 7 and 18 of the '806 patent recite both a "first power supply" and a "second power supply." The specification does not provide a specific definition of power supply, and thus the term should carry its ordinary meaning in the art. Johnson Worldwide Assoc., Inc. v. Zebo Corp., 175 F.3d 985, 989-90, 50 USPQ2d 1607, 1610-11 (Fed. Cir. 1999); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). NeoMagic argues that each individual power supply line is a "power supply." The district court held, and we agree, that one of ordinary skill in the art would understand power supply to mean "a source of electrical energy . . . that requires at least two power supply lines to deliver power in an electrical circuit." Markman Order, 98 F. Supp. 2d at 554. A power supply requires two lines because there must be both a source line and a return line in order for current to flow. In other words, because power cannot be applied to a circuit without both a source line and a return line, a "power supply," in order to function as such, requires at least two supply lines.

NeoMagic contends that this construction would exclude its preferred embodiment from the scope of the claims. NeoMagic asserts that its on-chip bias generator, which biases the substrate with a voltage VBB, has only one supply line. Thus, says NeoMagic, the inventors obviously could not have intended "power supply" to require anything more than a single supply line at a particular voltage. If this were an accurate description of the on-chip generator, it would be a powerful argument in favor of NeoMagic's construction. However, as admitted by NeoMagic's own expert, Mr. McAlexander, on-chip generators do have a return line in addition to the supply line. In fact, they have multiple return lines; so many that it is customary in the art not to draw them in diagrams or refer to them. When asked whether Trident's expert correctly described and drew an on-chip bias generator, McAlexander replied that Trident's expert had "generally described the construct of a substrate bias generator with respect to one terminal versus two versus three." He then explained that with respect to the number of terminals, the bias generator is typically viewed as a single-terminal output supply VBB, which in the classical sense with P-type substrate material, generates a negative voltage level that is below the classical understood VSS level of zero volts. But in terms of having a second terminal or a return, in all truth, the reason why designers don't draw it that way is because there's multiple returns. There's not any single return.

Because a substrate bias generator does contain at least one return line in addition to the supply line VBB, it would fall within a construction of "power supply" that requires at least two lines.

In the final iteration of its claim construction, the district court held that one of skill in the art would interpret "power supply" to provide a "constant voltage supply of power." NeoMagic, 129 F. Supp. 2d at 696. Trident proposed this "constant
NeoMagic argues, and we agree, that the court arrived at the constant voltage definition by examining the BIAS line of the accused device and, in effect, construing the claims to exclude it. It is well settled that claims may not be construed by reference to the accused device. SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1118, 227 USPQ 577, 583 (Fed. Cir. 1985) (en banc). Nevertheless, the error is harmless if the court's construction is correct and the term "power supply" does, in fact, require a constant voltage. However, Trident has pointed us to no probative evidence of record, either intrinsic or extrinsic, to support its proposed constant voltage construction. To the extent that evidence does exist in the record, it appears as part of an infringement analysis, i.e., as part of Trident's expert witness Mr. Murphy's testimony that the BIAS line would not be regarded as a power supply by one of skill in the art. It goes without saying that whether the accused device supplies a constant voltage or not is irrelevant to the proper interpretation of the claim term "power supply."

Unfortunately, on the record before us, we are unable to say with certainty whether or not one of skill in the art would understand that a power supply is designed to provide a constant voltage to a circuit. Given the complex technology involved in this case, we think that this matter can only be resolved by further evidentiary hearings, including expert testimony, before the district court. We note, however, that should the district court decide that the proper claim interpretation requires a constant voltage source, the court should take care to further define constant, since "constant voltage" is itself a somewhat ambiguous term. As the district court noted, "some power supplies can come closer to ideal than others" in terms of constant voltage supply, NeoMagic, 129 F. Supp. 2d at 696, and the court should consider the impact of the degree of fluctuation of the preferred embodiment, the on-chip substrate bias generator, on the definition of constant. 4 It is elementary that a claim construction that excludes the preferred embodiment "is rarely, if ever correct and would require highly persuasive evidentiary support." Vitronics, 90 F.3d at 1583, 39 USPQ2d at 1578. Thus, while we affirm that power supply means "a source of electrical energy . . . that requires at least two power supply lines to deliver power in an electrical circuit," Markman Order, 98 F. Supp. 2d at 554, we vacate and remand for further proceedings that portion of the court's summary judgment holding that the "power supply" limitation requires a constant voltage supply.

4 The evidence of record on appeal suggests that the on-chip generator fluctuates by approximately 0.5 volts in either direction of its setting.

IV. DISCUSSION

In its May 9, 2003, Memorandum Opinion, the court construed the term "power supply" as a "source of electrical energy that requires at least two power supply lines to deliver power in an electrical circuit at a voltage to enable the junction between the well and the substrate to remain reverse-biased." Trident in its motion for clarification requests that the court insert the entire construction in the first sentence of the final paragraph of page 31 of the opinion. The court agrees that for clarity purposes the entire construction of the term "power supply" should be included.

NeoMagic requests the court to strike the portion of the opinion that refers to the "BIAS/AVSS device in the accused products does not deliver power to the circuit." (D.I. 355 at 2). However, the court actually stated that "the AVSS line does not deliver a voltage to the substrate in the accused device but grounds the substrate at 0 volts." Trident also requests that the court strike this sentence (D.I. 352 at 4).
With the inclusion of the entire construction of the term "power supply", the accused device has once again been reexamined to determine whether it contains all the limitations of the claimed invention. According to NeoMagic, the only remaining issue is whether the BIAS and AVSS supply lines, the split-bias device in the accused product, constitute the requisite claimed second power supply. As already stated in the previous Memorandum Opinion, in determining whether there is patent infringement, after the claims are properly construed, the second step is a factual determination of whether the accused product infringes, either literally or by equivalents, made by comparing the properly construed claims to the accused product. In order to prevail on a claim of literal infringement, "the patentee must show that the accused products contain every limitation in the asserted claims. If even one limitation is missing or not met as claimed, there is no literal infringement." Again as stated in the previous Memorandum Opinion, there must be two power supplies and each power supply must be "a source of electrical energy that requires at least two power supply lines to deliver power in an electrical circuit at a voltage to enable the junction between the well and the substrate to remain reverse-biased." Comparing the accused device to the properly construed claim, the alleged BIAS/AVSS power supply does not enable the junction between the well and the substrate to remain reverse-biased as required.

--- Footnotes ---

3 See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1365 (Fed. Cir. 2002).

NeoMagic asserts that the accused device and the preferred embodiment are exactly alike and provided diagrams in support of their interpretation. NeoMagic contends that both power supplies share AVSS which is connected to the substrate as required. However, NeoMagic omits to compare the second required line of the power supply. The second line of the alleged second power supply in the accused device, the BIAS line, connects to the capacitor whereas the second line of the preferred embodiment, the VBB line, connects to the substrate, as does the AVSS line. These are clearly not exactly alike. Based on those diagrams, the accused device is clearly not the same as the preferred embodiment as alleged by NeoMagic. NeoMagic continually refers to power supply lines instead of the required power supply as recited in the claims. The claims do not recite power supply lines, this issue was resolved by the Federal Circuit. Each power supply must enable the junction between the well and the substrate to remain reverse-biased. The split bias device does not meet this limitation of the claim, as asserted by Trident's expert and by NeoMagic's expert when the full context of their testimony is considered. As NeoMagic continues to remind the court, the claims may not be construed in light of the accused device. The court, as required, has compared the accused device to the newly construed claim and continues to hold, as did Judge McKelvie in his previous decision, that the split bias device is not a power supply. As stated in two previous decisions, Trident's accused products may achieve the same result, but they do it in a different way, using a single power supply, a grounded substrate and a triple-well construction.

--- Footnotes ---

5 Neomagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062 (Fed. Cir. 2002).
7 NeoMagic Corp., 129 F. Supp. 2d at 698; NeoMagic Corp., 287 F.3d at 1069.

NeoMagic has not presented any new evidence, the controlling law has not changed, no clear error of law or fact needs correcting or to prevent manifest injustice, and as such the court will not alter or amend its judgment.

However, for the reasons described above, the Memorandum Opinion will be clarified as follows. The final paragraph of page 31 should read:

To be considered a second power supply, the split-bias device must be able to deliver power to an electrical circuit at a...
voltage to enable the junction between the well and the substrate to remain reverse-biased. A split-bias device is simply a BIAS signal line that controls the current in the digital-analog-converter at a constant value, not a power supply, as held by Judge McElvain in his previous decisions. The split bias device does not influence the well voltage and does not enable the junction between the well and the substrate to remain reverse-biased. Because the accused device does not have the requisite second power supply, there can be no infringement, and no further arguments need addressing. n.115

n.115 Following the findings of this opinion, the Issues raised in the parties letter motions of December 30, 2002 (D.I. 347) and January 2, 2003 (D.I. 348) are moot.

In light of this clarification, the split bias device is not a power supply pursuant to the properly construed claim. GO BACK

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b. Personal computer power supply (Claims One, Four, Seven)

Streak proposes the following construction of personal computer power supply: "a component adapted to receive AC current and provide DC current to a personal computer, and expressly excludes redundant power supplies." Defendant argues the construction should instead read, "a device that receives AC current and provides DC current to the components of a personal computer." In its reply brief, Streak acceded to Alliance's preference for the word "device," as opposed to "component," at the beginning of the sentence. The parties also agree that "current to the components of a personal computer" means functionally the same thing as "current to a personal computer." The dispute here relates to whether Streak's suggested negative inference excluding redundant power supplies is supportable. A 'redundant' power supply is essentially a "back up" source of power used in the event that the main power supply becomes disabled. While the parties appear to agree that redundant power supplies are commonly associated with servers connected to multiple machines, and further agree that the '293 patent is directed toward personal computers, Alliance suggests it does not necessarily follow that a personal computer would never have or need a backup power supply.

Streak argues, first, that all patent documents refer to a main power supply and do not anywhere suggest a redundant, or "back up," embodiment. Moreover, Streak insists the inventors expressly disclaimed during prosecution any embodiments involving "redundant power supplies" in order to distinguish prior art. A prosecution disclaimer arises where the inventor "expressly relinquishes" an embodiment otherwise within the scope of a claim. See Omega Eng'g v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003) ("We indulge a heavy presumption that claim terms carry their full ordinary and customary meaning, unless the patentee . . . expressly relinquished claim scope during prosecution.") (internal quotation marks and citation omitted). As the Federal Circuit has emphasized, the doctrine of prosecution disclaimer is unavailable where the alleged disavowal of claim scope is ambiguous. Id. Rather, the Federal Circuit has "required the alleged disavowing statements to be both so clear as to show reasonable clarity and deliberateness, and so unmistakable as to be unambiguous evidence of disclaimer." Id. at 1324 (citation omitted).

Streak points to several statements from the prosecution history that it argues demonstrate the inventors' "clear and unambiguous" disavowal of redundant power supplies. First, Streak highlights a statement made in an Interview Summary on March 16, 2006, highlighting how the claimed invention sets forth "configurations that allow formation of cable assemblies in a way to allow selection and customization by the buyer of a single power supply unit." (Ex. 17: March 15, 2006 Interview Summary of 2/1/06 Interview, at 2.) Streak suggests the phrase "single power supply unit" is utterly inconsistent with the idea of a backup power supply. Alliance argues the sentence quoted is taken out of context. The complete paragraph, it points out, notes how the product is designed for individual users, rather than for large corporations that might need to purchase many units. Both explanations read comfortably from the paragraph. Accordingly, Alliance's suggestion that the statement's meaning is ambiguous is well-taken.

Streak turns next to statements it made to the PTO to distinguish the '293 patent from prior art. In a May 15, 2006 Request for Continued Examination ("RCE"), Streak argues the inventors "repeatedly distinguished" the claimed invention from the "entire category" of redundant power supplies. Alliance counters that Streak's inventors only disclaimed a particular type of redundant power supply: the rack mounted, external, backup power supply that was the subject of a Wiscohome patent. Streak emphasized how "the Wiscomonte patent expressly discloses and teaches that its power supply is for 'racked mounted' systems using 'redundant power supplies'—the present ['293] claims were amended to limit to personal computers." At
another point, it reiterated that "[t]he Wiscombe patent . . . addresses the problem with 'redundant power supplies' (not personal computer power supplies)." Streak reads these statements as a categorical disclaimer of all redundant power supplies from the claimed "personal computer power supply." This time, Streak's disclaimer does not suffer from the type of ambiguity discussed above. While Wiscombe's redundant power supply may have been of the rack mounted variety, it is apparent that the '293 inventors sought to disclaim more than this when they contrasted Streak's personal computer power supply from redundant power supplies. Moreover, every item of intrinsic evidence details the workings of a main power supply, whose function is essentially to supply DC current to a personal computer and its components. Accordingly, "personal computer power supply" shall be construed to include Streak's proposed limitation: "a device that receives AC current and provides DC current to the components of a personal computer, and expressly excludes redundant power supplies."

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(4) A Second Power Supply

The parties next dispute the meaning of "a second power supply," which also appears in claim 41 of the '364 patent. Square D argues that the phrase should be construed to mean simply "a second source of power"; EI argues that it should be construed to mean "a second, independent source of power distributed to the meter by executing a algorithm." Again, the claim language is clear and unambiguous, and nothing in the claims or the specification limits this second source of power as EI seeks to limit it. Indeed, the specification itself suggests that the first power supply and the second power supply need not be independent:

The power supply 715 supplies operating power to the revenue meter 700. . . . the power supply 715 is also designed to provide short term isolation of the meter operation from the power quality event. This is known as "Ride-Thru" and enables the revenue meter 700 to continue to quantify and/or record and report the power quality event throughout the duration of the event and before losing operating power due to extended power quality events.

U.S. Patent No., 6,792,364 B2, col. 12, lines 29-42. Significantly, figure 715 shows a single power supply, not two independent power supplies. The Court adopts Square D's construction and construes "a second power supply" to mean "a second source of power."

3245

2. "Power Supply Circuit"

Claims 28, 36 and 38 of the Reissue Patent incorporate a power supply circuit. The principle area of dispute, it appears, is the parties disagreement over whether terms such as "constant current" and "high impedance," as used in the context of the Reissue Patent, are too ambiguous and require a precise numerical value. In regards to the power supply circuitry of claim 28, Rockford argues that: (a) the term "constant current" is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation; (b) the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance; and (c) the phrase "increase electrical isolation between the first stage and the at least one return signal" lacks definite meaning because the first stage is not isolated from the return reference potential, and the patent provides no baseline for measuring increase. (Def.'s Markman Br. at 2-3, 32-44.)

Rockford argues that the terms "constant current" and "high impedance" require some absolute numerical value because they are ambiguous and indefinite. Id. at 23-27. According to Rockford, the term "constant current" of claim 28 of the Reissue Patent is limited to current deviations less than 0.1% per volt change in input source reference potential because the specification only shows circuits that have currents with less deviation. (Def.'s Markman Br. at 2.) Rockford also alleges that the term "high impedance" is limited to impedances greater than 25 kilo-ohms because the specification only shows circuits having higher impedance. Id. Finally, Rockford concludes that the phrase "increase electrical isolation between the first stage and the at least one return reference signal" lacks definite meaning because the first stage is not isolated from the
return reference potential, and the patent provides no baseline for measuring an increase. Id. at 2-3.

Fiori counters that the intrinsic evidence clearly demonstrates that the claim language of the patents-in-suit were presented and approved by the PTO examiners, and therefore do not violate 35 U.S.C. § 112 (2) or require some absolute numerical value. (Pl.'s Markman Br. at 11.) Fiori asserts that "[t]he specification and Figures provide a complete definitional framework" for its claims. (Pl.'s Markman Br. at 20.) He contends that the Reissue Patent defines "constant current" as an exact current precisely metered through each transistor to operate the op-amps. Id. at 27. Fiori claims that the specification of the Reissue Patent teaches and defines that this power supply provides a current to the first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps (e.g., 38) so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current pathway. Id. According to Fiori, because the current is metered precisely, any changes and potential of the op-amp supply pins will have no bearing on the current delivered. Id. As a result, the effective impedance of the power supply is extremely high. n28 Id. Fiori further contends that "constant current," defined in the specification with precision, is a "degree term." (Pl.'s Markman Br. at 11 n.5.)

n28 Figure 3 in the specification similarly describes an alternative power supply for providing a constant current.

n28 The Federal Circuit has consistently held that terms of "degree" such as "high", "low", "substantially", "significantly", "approach each other", "close to", "substantially equal", and "closely approximate" are definite under 35 U.S.C. § 112 (2) and do not require further mathematical precision. See Seattle Box Co. v. Industrial Crating & Packing, 731 F.2d 818, 826 (Fed. Cir. 1984) (citing W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1557 (Fed. Cir. 1983), cert. denied, 469 U.S. 851, 105 S. Ct. 172, 88 L. Ed. 2d 107 (1984)) ("substantially equal" is a term of degree, and that its acceptability depends on "whether one of ordinary skill in the art would understand what is claimed . . . in light of the specification"); see also Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed. Cir. 1985) cert. denied, 474 U.S. 976, 106 S. Ct. 340, 88 L. Ed. 2d 326 (1985); N. Am. Vaccine, Inc., 7 F.3d at 1579; Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367,1385 (Fed. Cir. 1986). As the Federal Circuit has noted in Andrew Corp. v. Gabriel Electronics, Inc., 847 F.2d 819, 821 (Fed. Cir. 1988), such words are ubiquitous in patent claims. Such usages, when serving reasonably to describe the claimed subject matter to those of skill in the field of the invention, and to distinguish the claimed subject matter from the prior art, have been accepted in patent examination and upheld by the Courts. See Rosemount Inc. v. Beckman Instruments, Inc., 727 F.2d 1540 (Fed. Cir. 1984). Furthermore, when a claim term is expressed in general descriptive words, the Court will not limit the terms to a numerical range that may appear in written description or in other claims. See Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) (citation omitted). Accordingly, this Court finds that Rockford's interpretation that the terms "constant current" and "high impedance" require some absolute numerical value is unpersuasive. The general descriptive terms in which the terms are expressed are acceptable under the present state of the law.

In regards to the power supply circuitry of claims 36 and 38, Rockford argues that: (a) the location of the "constant current" in both claims is between the power supply and the first power supply circuit because claims 36 and 38 state that the first power supply circuit draws the current from the power supply; and (b) the elements of the voltage regulation means in claim 38 include a bias voltage circuit. (Def.'s Markman Br. at 2, 24-30.)

In its Markman brief, Rockford first contends that the ordinary meaning of the words of claims 36 and 38 place the "constant current" between the power supply and the first power supply circuit. Id. at 25. According to Rockford, analogous to a "farmer drawing n29 water from a well," the first power supply circuit performs the act of drawing and the power supply circuit draws current toward itself from the power supply. Id. at 26. Thus, Rockford believes that the location of the "constant current," as described in both claims, must be restricted because the limitations refer "to the particular water the farmer takes from the well" . . . and do "not refer to water used in the barn where animals drink." Id.

n29 "Draw" means "to cause to move after or toward on by applying continuous force." JOSEPH M. PALVELL, THE
This Court does not agree. As previously stated, "if the claims, read in the light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed Cir.) cert. dismissed, 474 U.S. 976, 106 S. Ct. 340, 88 L. Ed. 2d 326 (1985) (quoting Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F.2d 124, 136, cert. denied, 358 U.S. 884, 79 S. Ct. 124, 3 L. Ed. 2d 112 (1958)). Here, the term "constant current," as described in claims 36 and 38, is specifically defined in the specifications and claims and is not required to be situated between the first power supply circuit and the power supply. As such, Rockford's construction of claims 36 and 38 is too narrow in scope and its "farmer and the well" rationale is tenuous and unpersuasive. Rockford further asserts that the "voltage regulation means" of claim 38 includes the voltage regulator circuitry found within the constant current circuits. Despite the parties stipulating that "voltage means" includes transistors 22, 24, resistors 21, 25, and op-amps 23 and 26, Rockford interprets the pertinent language of the specification to include elements 80, 82 and 84 and the op-amps requiring a bias voltage circuit. Id. at 2, 25, 27-30. According to Fiori, the first and second stage recitals of claim 38 are identical in scope to claim 36 and the power supply in claim 38 is recited as comprising a voltage regulating means for drawing the constant current from the first power supply with respect to the changes in the input source reference potential to isolate the first power supply circuit from the first stage. (Pl.'s Markman Br. at 29.) Moreover, Fiori contends that the specification describes the voltage regulation means as the transistors 47, 22, 50 and 24 in combination with the resistor and op-amps and zener diode 43 and 45. Id.

This Court does not agree with Rockford's position that claim 38 includes the voltage regulator circuitry found within the constant current circuits. Rockford fails to establish the relevance or materiality its assertion serves for the purpose of this Markman process. n31

Similarly, Rockford's argument that Fiori's claim constructions are unfounded in an effort to cover up the flaws of Plaintiff's case, is irrelevant for purposes of this Markman process. (Def.'s Rebuttal Br. at 25-30.)

IV. CONCLUSION

The Court concludes that the disputed terms have the following meanings:

1. "Input Portion" of claims 1 and 17 of the '148 Patent shall mean a specifically defined physical structure, connected to two conductors and recited as generating an intermediate signal.

2. "Output Portion" of claims 1 and 17 of the '148 Patent shall mean a physical structure, specifically defined as op-amp 65,
which is separate, independent and isolated from the input operational amplifier and recited as generating a destination signal and a corresponding destination reference signal.

3. "Second Stage" of claim 28 of the Reissue Patent shall mean a stage, operatively coupled to the first stage, n32 generating an output signal which is a sum of the at least one intermediate signal generated in the first stage minus a potential of the at least return reference signal plus an output return reference signal.

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n32 There is no issue between the parties regarding the "first stage" of the Reissue Patent.

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4. "High Impedance" of claim 28 of the Reissue Patent shall mean a mathematically sufficient term of degree for providing a constant current power supply circuit coupled to said first stage to increase electrical isolation between the first stage and the at least one return reference signal.

5. "Constant Current" of claims 28, 36 and 38 of the Reissue Patent shall mean an exact, non-absolute numerically valued current, precisely metered through each transistor to operate the op-amps, and not required to be situated between the first power supply circuit and the power supply.

6. "Power Supply Circuit" of claims 28, 36 and 38 of the Reissue Patent shall mean a first stage preamplifier circuit that does not respond to changes in the potential of the supply pins of the op-amps (e.g., 38) so that the first stage is able to track the input reference signal without inducing any corrupting noise variations in the preamplifier circuit or in the return input reference signal current pathway.

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"power supply circuitry"

Claims 14 and 39 of the '185 Patent contain the term "power supply circuitry." ACQIS contends the term means "components and connections for the processing of electrical energy," while Defendants contend the term means "a battery."

The '185 Patent describes "power supply" as follows: "The primary power supply has sufficient capacity to power both the PCON and the ACM 100 for normal operations. Note that the ACM may include a secondary "power supply" in the form, for example, of a small battery." '185 Patent, col. 5:34-27. The term "power supply circuitry" is used in the claims as follows: "power supply circuitry having a stored energy capacity no greater than the energy required to power said CPU, memory and mass storage for 30 minutes of operation at the maximum rated speed of the CPU." ACQIS argues that even though a battery is a type of power supply, a power supply is not necessarily limited to just a battery. ACQIS further argues that Defendants' proposal ignores the word "circuitry" because a battery is only one component of a circuit, and thus the term "circuitry" implies more than just the power source.

Defendants' proposal limiting "power supply circuitry" to "a battery" is improper and inconsistent with the specification and claim language. Even devices using a battery as a power source include additional circuitry for voltage regulation purposes. Furthermore, Defendants' argument that the claims' reference to "stored energy capacity" restricts "power supply circuitry" to "a battery" is misplaced. To illustrate, a power supply circuitry often uses a capacitor bank at the output to provide auxiliary power during a main power outage. The capacitor bank "stores" electrical energy even though it does not deliver that energy while the power supply circuitry is receiving power. Thus, the Court rejects Defendants' proposal.

ACQIS's proposed construction would only add ambiguity where none exists. The claim language is clear and understandable to the fact finder and does not require construction beyond its plain and ordinary meaning. See Orion, 406 F. Supp. 2d at 738 (stating that "although every word used in a claim has meaning, not every word requires construction" in declining to construe claim terms). Thus, the term "power supply circuitry" does not require reconstruction.
8. "controller," "power supply controller," "system controller"

As to "controller," the parties have agreed to Power-One's proposal of "circuitry that controls the operation of one or more devices." As to the other terms, Power-One argues for the same construction, while Artesyn proposes "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit." The Court notes that a "power supply controller" is discussed in the '999 patent as follows:

Traditionally, POL regulators operate in conjunction with at least one power supply controller. The controller (1) activates and partially programs the POL regulator by providing data directly to the POL regulator, (2) monitors the output of the POL regulator by measuring data external to the POL regulator, and (3) allows the output of the POL regulator to be transmitted to an external load circuit by controlling an external switch.

Col. 1:34-42; see also '798 patent, col. 1:37-42. The Court finds that this language supports Artesyn's proposal and therefore, construes "power supply controller" and "system controller" as "part of a distributed power control system that activates and at least partially programs and monitors a regulator and allows the output of the POL regulator to be transmitted to an external load circuit."

7. "A power supply coupled to the first power signal port and to at least one of said modems to be powered by the power signal and for powering said modem"

This phrase also appears in claim 18 of the '280 patent, the terms of which are described above. SercoNet maintains that this term means: "The device receives a power signal and allows the transfer of the power signal with the modem and the power coupler." NetGear's proposed construction is: "The device receives power and data on the first wiring segment, and filters the power. The filtered power is used to power a modem."

Starting with the claim language, as with the previous claim, the plain language of the claim does not on its face describe a filtering of power from the data, as urged by NetGear. SercoNet's proposed construction of this term as a device that receives a power signal and allows the transfer of that signal with the modem and the power coupler. The plain language of the claim supports this reading, as the claim language simply describes a power supply powered by a power signal connected to a power signal port that powers a modem. In addition, other parts of claim 18 separately deal with the transfer of data, so this portion of the claim should not be construed to deal with data transfer.

Turning to the specification, NetGear again relies on the power/data splitter/combiner description in the specification which describes such devices as separating the power and data signals. See '280 patent at 5:63-66, 6:31-34. The specification does not, however, state that "filtering" is required. NetGear, therefore, imports an extraneous term that is not supported by the claim or specification. 1 While SercoNet's construction may not be perfect, it does not suffer from the same problems as NetGear's construction, as it does not import an unsupported extraneous term. And, as SercoNet points out, requiring that the device receive both power and data is incorrect, because the first SIC -- the one connected to the power supply -- does not necessarily receive both power and data.

1 In addition, as discussed above, certain alternative embodiments do not use a power/data splitter/combiner.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "A power supply coupled to the first power signal port and to at least one of said modems to be powered by the power signal and for
powering said modem" and construes the term as: "The device receives a power signal and allows the transfer of the power signal with the modem and the power coupler."

IX. "Power tool"

The Court next addresses the term "power tool" from claim 7 of the '059 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes construing the term "power tool" as "an electrically powered tool." Bosch proposes that the term "power tool" means "a device that aids in accomplishing a task that is powered by an energy source."

B. The Parties' Arguments

The Court agrees with Black & Decker that Bosch's proposed construction is overly broad because it would cover devices such as a bicycle or a toothbrush. Bosch derives its proposed construction from the dictionary definition of the word "tool" (i.e., a device that aids in accomplishing a task). The Federal Circuit in its en banc decision in Phillips recently warned against using dictionary definitions to construe claims when the intrinsic evidence would be clear to one of ordinary skill in the art. Phillips, 415 F.3d at 1321 ("The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent").

The intrinsic record does not support the broad construction proposed by Bosch. The "Objects Of The Invention" section of the specification provides that: "It is yet another object to be able to power the radio with modular batteries normally used in professional portable power tools." ('059 patent, col. 1, ll. 55-57.) Further on, the specification states that the invention may include "an adapter engageable with a secondary direct current power source, such as a tradesworker's hand tool battery pack." ('059 patent, col. 2, ll. 28-30.) Black & Decker also points out that The New Shorter Oxford English Dictionary (1993) defines "power tool" as "an electrically powered tool." This confirms the understanding that one of ordinary skill in the art would have of the term "power tool" based on a reading of the intrinsic record, and specifically the specification. Accordingly, the Court construes the term "power tool" as "an electrically powered tool."

n10 Although this construction essentially recites the claim term itself, counsel for Bosch conceded at the Markman hearing that people understand what a "power tool" is. (Markman Transcript at 69:17-20.) Accordingly, the Court does not find it necessary to further define a term that the trier of fact will already understand.

5. "powered on"

Claim 1 of the '969 Patent describes the method of Claim 1 "wherein the step of opening the lid causes the AED to be powered ON." Philips contends that the term "powered ON" should be construed as "the AED is turned from off to on." Cardiac Science asserts that "on means on" and the phrase needs no further construction.

In support of its construction, Cardiac Science asserts that the patent describes a standby mode or quiescent state during which periodic and automatic self-tests of the AED components occur on a daily or weekly basis. ('969 Patent at c. 7, ll: 24-56.) Cardiac Science contends that these self-tests require electronics and power. Thus, Cardiac Science asserts that the AED is neither "on" nor "off" but rather in the standby mode. Then, when the AED is needed for a rescue, the user opens the lid
of the AED and the AED is turned from the standby mode to "ON." Philips, on the other hand, asserts that the specification of the '969 Patent does not describe such a "standby" state. Instead, Philips contends that the patent describes the lid as an on/off switch. (Id. at c. 4, ll: 57-58; c. 8, ll: 19-22.) Thus, Philips maintains that opening the lid controls whether the AED is powered on or powered off.

The Court finds that although the word "standby" never appears in the '969 Patent, the specification describes a dormant state of the invention whereby the device performs various self-tests without actually being "powered on." If the Court were to agree with Philips' construction that the device is powered "off until the lid is opened, it would imply that there is no functionality or power to the unit, and this is plainly not the case. For this reason, the Court agrees with Cardiac Science that opening the lid does not switch the device from "off to "on." Thus, the Court construes the term "on" to mean "on."

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B. "Preclude from Accessing"

1. Proposed Constructions

The parties dispute the proper construction of "preclude from accessing." The claim language at issue is found in claims 1 and 14 the 440 patent. Claim 1 reads: "circuitry operable to alter said BSY bit . . . to indicate said host computer is precluded from accessing said plurality of ATA command block register addresses"; claim 14 reads: "said status register including a BSY bit . . . that indicates when access by said host computer to said ATA command block register addresses is precluded." n10 Plaintiffs assert that the correct construction of these phrases is "the BSY bit indicates whether the host computer is permitted to access the command block registers"; defendants assert that "the BSY bit indicates when it is impossible for the host computer to access -- i.e., read or write -- the ATA command block registers." Defendants' 527 Br. at 16; Plaintiffs' 527 Br. at 13.

n10 Both parties agree that the limitations at issue refer to "precluding" the host computer from accessing the command block registers, not the command block register addresses, as stated in the claims.

Both parties are in agreement that the BSY bit is an indicator and does not itself operate to prevent the host computer from accessing the command block registers. However, they disagree over what the BSY bit indicates in the claims at issue. Plaintiffs, referring to the ATA specification, contend that the indicator is permissive, such that the BSY bit unset permits the host computer to access the command block registers and only indicates when the host computer should not access the command block registers. Defendants contend that the plain language of the claims makes it clear that the BSY bit indicates when the host computer is prevented from accessing the command block registers (i.e., it is impossible to access the command block register when the BSY bit is set). Plaintiffs on the other hand, argue the defendants' construction relies on a dictionary definition of "preclude." This reliance, they contend, is impermissible under Phillips.

Plaintiffs' protests aside, Phillips does not prevent a court from referring to a dictionary definition, so long as that definition is given the proper weight. See, e.g., Terlep, 418 F.3d 1379, 2005 WL 1950186 at *5 (citing Phillips, 415 F.3d at 1317).

Because the claim language and specification are unhelpful to determining the meaning of preclude, the court first attempts to discern the ordinary meaning of "preclude," which, as defendants assert, has the ordinary meaning of "to make impossible." American Heritage Dictionary, 4th Ed. 2000; Webster's Ninth New Collegiate Dictionary, 1988. Generally, a court may deviate from the ordinary meaning of a claim term in one of the following four circumstances. "First, the claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history." CCS Fitness v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). n11 The court discerns in neither the specification nor prosecution history any attempt to clearly set forth a definition of "precluded from accessing" that resembles plaintiffs' permissive construction. Indeed, "preclude" appears nowhere in the 440 patent, except in the claims. "Second, a claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment,
expressly disclaimed subject matter, or described a particular embodiment as important to the invention." Id. Again, there is no indication that the patentee distinguished the implementation of the BSY bit in the claimed invention in any way from the prior art, or otherwise described an implementation as important to the invention that supports plaintiffs' construction of "precluded from accessing." "Third . . ., a claim term also will not have its ordinary meaning if the term chosen by the patentee so deprives the claim of clarity' as to require resort to the other intrinsic evidence for a definite meaning." Id. at 1367. The meaning of "precluded" is clear and does not conflict with the language of the claims or any description set forth in the specification. The fourth way cited by the Federal Circuit involves step-or means-plus-function format claims under 35 U.S.C. § 112 P 6, which is inapplicable to this case. Id. Based on this analysis, the court would conclude that the ordinary meaning of preclude obtains.

n11 CCS Fitness was couched in terms of an alleged infringer attempting to overcome the plain meaning of a term. CCS Fitness, 288 F.3d at 1366 ("An accused infringer may overcome this "heavy presumption" and narrow a claim term's ordinary meaning but he cannot do so simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history."). There is no reason why the same principles should not apply to a patentee advocating a construction that diverges from the ordinary meaning of the term.

The parties both argue that the following extrinsic evidence lends support to their respective constructions: the ATA specification n12 and the implementation of the OTI-11 chip, which is the commercial embodiment of the patent's preferred embodiment, see, e.g., 527 patent, Fig. 3a. They agree that the ATA specification and the OTI-11 both specify that requests to access the command block register are to be redirected to another location, the status register, when the BSY bit is set.

n12 The parties dispute whether the ATA specification is intrinsic or extrinsic evidence. Defendants characterize the ATA specification as extrinsic evidence. Plaintiffs, on the other hand, contend that it is intrinsic because it is referenced in the 440 patent specification and was submitted to the PTO during prosecution of the 440 patent. Plaintiffs' Resp. to Sur-reply at 9. They cite Phillips for support. 415 F.3d at 1317 ("The prosecution history, which we have designated as part of the intrinsic evidence,' consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.").

Plaintiffs assert that this redirection to the status register demonstrates that defendants' construction requiring read and write access to be impossible when the BSY bit is set is not supportable. Even if writing to the command block register is precluded according to defendants' definition, plaintiffs contend that reading from the command block register is always possible. In particular, they argue the command block register not inaccessible when the BSY bit is set because it remains possible for part of the command block register (namely the status register) to be read. The redirect logic described above only sends the request to a different register in the command block, and that register is read instead. Defendants, on the other hand, argue that redirecting the request to another location is the same as precluding access to a command block register. Defendants essentially assert that because it is not feasible to physically preclude access to the command block registers, the redirect logic serves as the mechanism to make accessing the command block register impossible when the BSY bit is set.

The court agrees that, while access to the command block registers would technically be possible in the preferred embodiment because access is not physically prevented, reading from the command block register would only be accomplished by violating the rules established by the ATA specification or the logic of the OTI-11. Thus, the implementation described under either the ATA specification or implementation of the OTI-11, redirecting the read request away from the requested command block register when the BSY bit is set, would serve to make read access to the command block register impossible while the BSY bit is set.

Even assuming the ATA specification does not require the command block register to refuse access requests when the BSY
bit is set, the plain language of the claims nonetheless clearly indicates that the BSY bit indicates when the host computer is precluded from accessing the command block register. In this case, the use of the term "precluded" carries the ordinary meaning of "prevented." Plaintiffs present no evidence that "preclude" would have generally suggested an alternative meaning to one of skill in the art. The extrinsic evidence set forth above appears to support the plain meaning of the term. Thus, the court finds that "precluded" carries its ordinary meaning. The "precluded from accessing" limitation is construed such that "the BSY bit indicates when it is impossible for the host computer to access the ATA command block registers." "Precluding" includes redirecting the request to another location.

4. "predefined bandwidth"

The plaintiff contends that this term means "a TDM frame with a fixed number of time slots." The defendants argue that this term means "data transfer capacity fixed in advance of operation." Although the plaintiff cites to the abstract, the defendants' proposed construction embraces the definitions of "predefined" and "bandwidth" as used in the claims. The court adopts the defendants' proposed construction.

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1. "With each user being capable of having predefined characteristics indicative of multiple predetermined roles in the system." Used in Claim 1.

Blackboard proposes: "Each user can have multiple roles in the system such that each user identified can have one role in one course and another role in another course. The roles and some associated characteristics are set before the user can access data files of a course." D2L initially suggested "a user may be assigned more than one role. The roles contain properties that have been defined by the system, not by a user."

Initially, both parties invite inadvertent error because their proposed constructions focus on the standpoint of a user. Claim 1 is an apparatus claim. Thus, structural and functional limitations of the system are at issue. See '138 patent, col. 30, ll. 18-48. While a user interacts with the system, the user is not part of the system itself. The court's construction, therefore, must focus on system limitations, and must be based on the standpoint of the system.

Similarly, the parties invite additional error by agreeing that the court may instruct the jury that the claim should be defined as including a specific "such that" requirement, viz., "such that each user identified can have one role in one course and another role in another course." The parties agree that the claim term permits one user to assume more than a single role within the system. Nonetheless, for reasons not argued by the litigants, the court cannot wholly adopt Blackboard's proposal.

--- Footnotes ---

3 As noted at the outset of this section, D2L initially opposed this language. However, at the Markman hearing, D2L conceded that its competing proposal advocated in its responsive brief could be inappropriate because it might "actually capture those types of prior art where an individual could have different log-ons to access different courses." Tr. p. 36, ll. 17-19. Consequently, D2L further agreed at the hearing that the court should adopt the first sentence of Blackboard's proposed construction. Tr. p. 36, ll. 23-25.

--- End Footnotes ---

Blackboard argues that the court should adopt this construction because the specification identifies three separate roles, and states that these "roles may be mixed." See '138 patent, col. 4, ll. 7-11 ("...roles may be mixed; for example, when an instructor of one course, is also a student in another course."). This reference, however, is only an example of a limitation in an illustrative embodiment. See '138 patent, Figs. 5-6 and 39. To base the court's construction on it, therefore, runs afoul of the principle that limitations of preferred embodiments will not be read into claims. "Although the specification may aid the
court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” Comark Commns., Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998); see also Varco, L.P. v. Pason Systems USA Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) (“In examining the specification for proper context, however, this court will not at any time import limitations from the specification into the claims.”). If a specific limitation to a system wherein a user is assigned a teacher role within the system as to one course and assigned a student role within the system as to another course were intended, an express recitation of such a limitation could have been placed into the claims. But, such an express recitation is absent in the claim language itself. The court cannot depart from the plain meaning of the claim language and cannot add this limitation.

Additionally, Blackboard's proposed construction would be inconsistent with the remainder of the claim. Language at the end of the claim specifies that multiple user roles to which each user can be assigned are at least two but can be all three. See '138 patent, col. 30, ll. 28-34. The word "comprising" makes it permissible for a single user to be assigned to all three identified roles. Thus, a construction that limits assignment of a user to only one role in one course and another role in another course is not consistent with the open-ended recitation of "comprising at least two user's predetermined roles…."

The sole remaining issue, therefore, is how to properly interpret "predefined characteristics" and "predetermined roles in the system" (italics added). The operative and italicized words are interchangeable, but the patentee's decision to modify user roles with "predetermined," while using a different word, "predefined," to modify associated user characteristics, makes the phrase difficult to parse. Nevertheless, a plain reading of the patent language makes clear that "predefined" and "predetermined" are analytically synonymous. As commonly understood, each word denotes a coetaneous temporal limitation, and the parties do not suggest that one should be construed differently from the other. 4

There are discernible differences between user roles and characteristics associated with user roles. The patent does not indicate why the inventor modified roles with "predetermined" but modified characteristics with the commensurate term, "predefined." The court assumes that the language reflects a stylistic choice, perhaps intended to aid in preventing blurring of the subtle distinction between roles and associated characteristics.

The parties concur that "predefined" and "predetermined" impose temporal limitations. They disagree over when such limitations are imposed. D2L suggests an ab initio construction holding that limitations are set or specified by the framework of the system. In other words, D2L argues for an interpretation imposing role and associated characteristic limitations when the system is installed and begins operating. Blackboard, however, advocates an in medias res interpretation holding that user roles and associated characteristics can be created downstream, i.e., after the system is installed and operating. Blackboard's proposed construction requires only that limitations be set sometime before an established user can access course files.

Here, the claim language uses "predetermined" to indicate a finite set of separately identifiable roles within the system. See '138 patent, col. 30, ll. 25-34. The roles within the system framework, which have access levels associated with them, are assigned based upon a user's characteristics. See '138 patent, col. 30, ll. 21-34. Thus, the claim language suggests that predetermined user roles and associated characteristics are settled or decided in advance within the framework of the system.

The specification supports this view. It identifies a universe of roles that encompasses student, teacher and administrator. See, e.g., '138 patent, col. 4, ll. 7-11; '138 patent, col.7, ll. 58-59. The specification indicates that user access to system features is tied to the "predefined" role of the user within the system. '138 patent, col. 3, ll. 42-46 ("… a system that allows multiple types of users to access the features of the system as a function of their predefined role within the framework of the system (e.g. student, teacher, administrator).”). The specification further states: "Each user computer is associated with a user of the system having predefined characteristics indicative of a predetermined role in the system. Each role provides a level of access to data files associated with a course, and a level of control over data files associated with a course." '138 patent, col. 3, ll. 61-66.

Both the claim language and the specification describe a system in which discrete roles are set in advance within the
framework of the system. Nevertheless, Blackboard argues that a construction requiring that user characteristics and roles be established in advance within the framework of the system would be improper because it reads out a preferred embodiment disclosed in the specification. Blackboard points to the fact that an administrator (a user) can change accessible features associated with other users' particular roles within the system. See ‘138 patent, col. 12, ll. 61-63; ‘138 patent, col. 13, ll. 17-19. Blackboard maintains that if the court were to construe the claim as stated above, it improperly would eviscerate the administrator's clearly defined authority.

Blackboard correctly argues that a court generally cannot construe a patent claim so as to read out a preferred embodiment. See Vitronics, 90 F.3d at 1583 (reasoning that an interpretation that excludes a preferred embodiment is unlikely to be correct). Here, however, a construction that roles are predefined within the system does not read out a preferred embodiment. The preferred embodiment cited by Blackboard does not suggest that users (as opposed to system framework) establish predefined characteristics or predetermined roles. An administrator's ability to change access to features associated with particular user roles does not alter the fact that roles and features themselves are set in advance within the system. Rather, in the preferred embodiment scenario cited by Blackboard, the administrator simply works within his/her predetermined role in changing predefined accessible features. Stated differently, an administrator can limit accessible features for a student, but cannot change the student role itself.

"With each user being capable of having predefined characteristics indicative of multiple predetermined roles in the system" means "discrete roles and their associated characteristics to which a user can be multiply assigned are set in advance within the system."

Business Objects also challenges the district court's construction of the terms "predefined query language" and "predetermined query language." Absent any party dispute, this court construes these two terms as having the same meaning. The district court initially construed these terms to mean that a "query language that must be determined prior to the 'generating a query' step, but not necessarily prior to the associating step. Furthermore, the 'predefined [or predetermined] query language' must support the functions and operators contained in the associating step's SELECT clause." Construction Order 2003 U.S. Dist. LEXIS 26206 at *20. Business Objects disputes the portion of this claim construction requiring the predetermined language to support the functions and operators contained in the associating step's SELECT clause.

Business Objects argues that the district court's construction improperly imports the "associating step" from claim 1 into claim 4. To the contrary, this court agrees with both parties that the "query engine means" limitation of claim 4 is a means-plus-function limitation governed by 35 U.S.C. § 112, P6. This court also agrees with the parties that the corresponding structure consists of the algorithm described in column 4, lines 42-52; column 7, lines 48-54; column 8, lines 21-23; column 9, lines 14-40; and column 9, line 52 through column 13, line 2. One step of this algorithm is the generation of the SELECT statements by concatenating SELECT clauses associated with familiar names. ‘403 patent, col. 10, ll. 6-16. Because the query engine means of claim 4 must concatenate SELECT clauses associated with familiar names to generate SELECT statements in the predetermined query language, the predetermined query language must support the SELECT clauses associated with the familiar names. The district court's claim construction, therefore, is consistent with the structural limitations of the query engine means and does not improperly import the associating step limitation of claim 1. Consequently, this court affirms the district court's construction of the terms "predetermined query language" and "predefined query language."

In the instant case, the construction of claims 1 and 25 of the Lemon patent, which are included in all other claims of plaintiff's patent, are disputed by the parties. Claims 1 and 25 state: "A system for controlling the selection and dispensing of product coupons at a plurality of remote terminals located at predesignated sites such as consumer stores...." Defendant argues that "predesignated sites such as consumer stores" requires that the location of the terminal be pre-established in a specific location at the point of sale. Plaintiff argues that "predesignated sites" should be defined as "being places marked
out for the activity of selecting and dispensing coupons before such activity can take place," and "such as a consumer store" is merely an example of one possible location of the terminals, of which could include a person's home due to the ability to shop over the Internet.

"Predesignate" is defined as "to designate beforehand." Webster's New Int'l Dictionary 1785 (3rd 1986). "Site" is defined as "the original or fixed position of a thing." Webster's New Int'l Dictionary 2128 (3rd 1986). Accordingly, the ordinary and accustomed meaning of "predesignated site" in this context means "to designate beforehand the original or fixed position of a thing." The term "such as" is defined as "of a kind or character about to be indicated, suggested, or exemplified; for instance." Webster's New Int'l Dictionary 125, 2283 (3rd 1986). Accordingly, the ordinary meaning of "predesignated site" in this context means "to designate beforehand the original or fixed position of a thing." The term "such as" is defined as "of a kind or character about to be indicated, suggested, or exemplified; for instance." Webster's New Int'l Dictionary 125, 2283 (3rd 1986). The definitions of these terms demonstrate that the terminal must be placed at a place that has been designated beforehand, for example a consumer store. Therefore, the pertinent question is whether "such as a consumer store" is to be construed, narrowly, to mean "at the point of sale" or, broadly, to merely be an example of a possible location, such that the terminal could be placed anywhere.

The "Abstract" of the Lemon patent states: "A system for monitoring the distribution of product coupons from a plurality of remote terminals located at the point of sale is provided." (Emphasis added). The "Summary of the Invention" states that "by providing point of sale distribution …[a] stand alone coupon dispensing terminal is provided at each retail store … the present invention … benefits the consuming public by providing a convenient means of obtaining coupons at the point of purchase." (Emphasis added). The "Description of the Preferred Embodiments" states: "Each of terminals T is a stand alone unit to be placed at a remote location such as a retail grocery store." (Emphasis added).

During the prosecution of the Lemon patent, the inventors responded to the examiner's rejection of the invention, in part, stating, "The invention is a system for controlling the selection and dispensing of product coupons by stand alone terminals located in stores." (Emphasis added). In response to the second rejection by the Patent Office, the inventors stated, "The concepts of this invention go to the very core of couponing, beginning with the dispensing of coupons onsite and controlling coupons credibility by providing the ultimate in control over the origin of coupons." (Emphasis added). The inventors also included the declaration of Peter Engel in their response to the Patent Office's rejection of their patent. In the declaration, Peter Engel stated that the Lemon patent would have a substantial impact on the coupon industry because manufacturers would not have to mail coupons to homes or provide them in packaging of products sold because the "coupons may actually be offered on site to persons most likely to redeem them." (Emphasis added).

The claims, specification, and file history support defendant's reading of the claims. All of these sources indicate that the terminal is to be placed at a predesignated site at the point of sale, i.e., a consumer store. See Young Dental Mfg. Co. v. Q3 Special Products, Inc., 112 F.3d 1137, 1142-43 (Fed. Cir 1997) (specification and prosecution history support defendant's more narrow reading of the claim); Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (rejecting broad definition of the term "when" because the specification provided overwhelming evidence of a narrower interpretation).

B.

While the phrase "located at predesignated sites such as consumer stores" appears only in the preamble of Claim 1, this language appears in both the preamble and body of Claim 25. Hence, the applicants specifically included this language in the claim not once, but twice. By virtue of its inclusion in the body of Claim 25, this phrase limits Claim 25. This court, therefore, must determine whether the district court's construction of the disputed phrase is correct as a matter of law.

In interpreting this language, the district court found that "predesignate" means "to designate beforehand," and that "site" means "the original or fixed position of a thing." Accordingly, the district court held that the ordinary meaning of "predesignated site" is "to designate beforehand the original or fixed position of a thing." The district court found that the term "such as" means "of a kind or character about to be indicated, suggested, or exemplified; for instance." The district court then considered whether the phrase "such as a consumer store" means that the terminals may be located anywhere or only "at the point of sale." The district court concluded that the terminals had "to be placed at a predesignated site at the point of sale, i.e., a consumer store."
Although agreeing with the dictionary definition of "predesignated site," Catalina argues that the predesignation of sites refers to "the connecting of and accepting of the terminal by the host computer." According to Mr. Wicker, Catalina's expert, "predesignated sites" "indicates that certain sites have been designated, and [] that they have been designated at a point in time prior to . . . 'the selection and dispensing of product coupons.'" Catalina further contends that the district court erred by equating "point of sale" with "consumer store." According to Catalina, the genus indicated by the species "consumer stores" is a "point of sale" location.

The district court correctly held that the ordinary meaning of "predesignated site" is "to designate beforehand the original or fixed position of a thing." Thus, the claim requires designation of a terminal site before location of a terminal at that site. Catalina's argument that "predesignated sites" refers to the recognition of a terminal by a host computer at some point before coupon selection ignores the physical dimension indicated by the phrase "located at" immediately preceding "predesignated sites." Recognition simply does not amount to predesignation. Thus, a coupon dispensing entity must designate a location for a terminal before placing it at that site. This claim language limits the scope of the claims.

The district court correctly found that the term "such as" means "of a kind or character about to be indicated, suggested, or exemplified; for instance." Despite correctly characterizing "such as" as exemplary language, the district court erroneously equated "point of sale" with "consumer store." "Such as" introduces an example of a broader genus rather than limiting the genus to the exemplary species. Moreover, the specification of the '041 patent uses the phrase "such as consumer stores" as an example of a possible point of sale location. See, e.g., '041 patent, col. 1, l. 67 - col. 2, l. 4, col. 2, ll. 32-38, and col. 4, ll. 65-67. As discussed above, the applicants stated during prosecution that their invention involved terminals "located in stores" for the dispensing of coupons "on-site." This descriptive language during the acquisition of the patent does not make the store location more than an example of a point of sale location.

This court thus holds that the phrase "located at predesignated sites such as consumer stores" requires designation of the physical site of the terminal before location of the terminal at a point of sale location.

6. "Predetermined"

Claim 1 of the '415 patent states that the LAS directs the carrier among a plurality of workstations, "each workstation adapted to conduct a predetermined test." (Filing 64-3, Ex. C, at 6:24-25.) In the '670 patent, claim 1 uses the term "predetermined" three times in the same sentence to modify a workstation, an order, and a test:

    said computer tracking movement of said first carrier along said conveyor, and directing the movement of said first carrier according to information in the database regarding the first specimen, to predetermined work stations in a predetermined order to conduct predetermined tests;

(Filing 64-4, Ex. D, at 6:4-9 (emphasis added).)

If a claim term is non-technical, is in plain English, and derives no special meaning from the patent and its prosecution history, then the court has no need to function as a thesaurus. . . . To do so could well encroach upon the factfinder's domain. The "ordinary" meaning of such terms should speak for itself, and the court should avoid merely paraphrasing claim language with less accurate terminology.

Federal Judicial Center, Patent Case Management Judicial Guide § 5.1.4.3, at 5-23 (2009); id. § 5.2.3.1.2, at 5-39 ("Where 'construing' a claim term would involve simply substituting a synonym for the claim term, it may be appropriate to allow the claim language to speak for itself."). See U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("The Markman decisions do not hold that the trial judge must repeat or restate every claim term in order to comply with the ruling that claim construction is for the court. Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy.").

The evidence before me establishes that "predetermined" is used in the '415 and '670 patents in a non-technical sense to
The parties dispute the meaning of the term "predetermined," which appears in all of the asserted claims. O2 contends that the term needs no construction. TSE contends that the term means "fixed in advance or beforehand with intent or knowledge."

In support of its construction, TSE points to the district court's construction of a similar term in Koito Mfg., Ltd. v. Turn-Key-Tech, LLC, 381 F.3d 1142 (Fed. Cir. 2004). That case, however, is distinguishable. In Koito, the court affirmed the district court's construction of predetermined because the patentee failed to object. Moreover, the Federal Circuit observed that the invention in that case logically required the mold designer to know the flow direction of the plastic. By contrast, the court is not persuaded that the patents in this case require intent or knowledge as inherent limitations. At the same time, the
court disagrees with O2's primary position that no construction is needed. Therefore, the court construes predetermined in accordance with its ordinary meaning: "determined beforehand." Webster's Third International Dictionary, 1993.

3260

D. Predetermined

The plaintiff proposes that this term means "to know, anticipate, ascertain or determine beforehand." The defendants contend that predetermined must mean "determined before the route is created." The court defines "predetermined" to mean "determined beforehand."

3261

4. "Predetermined" (366, Claim 5, 19; '311, Claims 1, 16)

Broadcom argues that no construction is necessary for this term, while Agere seeks to construe it as "calculated before a bridging node transmits each succeeding beacon." Agere's only support for its assertion that the timing of each beacon must be calculated independently is found in the embodiments of the '366 patent. (See, e.g., '366 patent, col. 15, ll. 29-31, col. 19, ll. 18-31.) Although Agere appears to be correct in arguing that there are no embodiments that contradict its construction, there is also no language in the specifications indicating that such a construction is required. In other words, the claim term is broader than its preferred embodiments, and therefore the Court rejects Agere's proposed construction as an attempt to improperly limit the term to its specifications. In addition, Agere's argument that "predetermined" necessarily implies "calculated" is based on a tortured reading of Webster's Dictionary, which even Agere's expert admits does not define "predetermined" to mean "calculated." (See Goodman Rep. P 136 (citing Webster's dictionary definition of predetermine as "determine, decide, or establish ahead of time").) Thus, the Court finds that there is no factual support for Agere's proposed construction. Accordingly, in the absence of persuasive evidence indicating the need for a specific construction, the Court credits Dr. Acampora's testimony that both a person of skill in the art and a layperson would understand this term to have its customary meaning. (Acampora Rep. at 20.) Therefore, no construction is necessary. See W.E. Hall, 370 F.3d at 1350 (affirming district court determination that term "single piece" was "sufficiently clear to make even resort to the dictionary unnecessary").

3262

a. Do UEI's remote control devices execute a "predetermined action?"

UEI contends the words "predetermined action" in claims 1 and 6 can be read with their ordinary meaning and describe a single, specific, user-observable response by the appliance (such as channel up for a television) that has been previously determined at the time of manufacture and that the user is not free to define. In support of this construction, UEI notes, for example, that the specification at column 5, line 51, sets out the following description of the flow chart for a preferred embodiment of the program that is set out in Figure 5: "Next, the key data section of RAM 44 is automatically set to the predetermined response command. This command is a command which will cause some readily observable action to occur at the appliance to be controlled. For TV, VCR, and cable converter, the channel up command is used."

In addition, UEI notes the inventors use "predetermined" in other claims in a way that suggests it means determined by the manufacturer rather than by the user. For example, in claim 4 "predetermined" describes an intercommand time delay determined at the time of manufacture. In claim 3 "predetermined" describes the number of times a command signal will be sent before the command for the next appliance will be sent.

UEI also contends its reading of these words is consistent with how Rich used them in her Response to the Patent Office examiner's December 12, 1986 Office Action, where she wrote:
New claim 18 is the first method claim now on record. It distinguishes from German Patent DE 3313-493 in a number of important respects. The selected appliance is said to be one of a plurality of appliances of different categories as well as different manufacturers. The selected appliance is set to execute a predetermined action upon receipt of the response-evoking signal. In the DE 3313-493 patent the selected appliance does not have to be set to execute a predetermined action. Any one of the controllable actions will suffice. The German device, since it is only for different manufacturers and not for different categories, allows the trial and error signals (response command signals) to be available for every possible command. No matter which command in selected by the user, the German device will generate this command in the code of all the manufacturers covered by the remote control unit. It is already an inventive step to consider that it is not essential that this capability be available. The difficulty in setting the device to be receptive to the particular command is minimal. In many cases, simply turning on the power is sufficient.

UEI argues Rich's statement is an admission that claim 1 identified a remote control device that is preprogramed to send a particular response-evoking signal.

In response, Philips concedes that the specification's description of a preferred embodiment does provide that the response-evoking signal is predetermined by the manufacturer. Philips argues, however, that the preferred embodiment is simply one way of implementing the broad language of claim 1 and that the words "predetermined action" in claim 1 can be read as including actions determined by the user at the time he or she is stepping through the library of codes to elicit a response from the appliance.

Philips argues Rich's statement to the Patent Office spoke to the difference between the claimed invention of a remote device directed to more than one appliance and Telefunken's remote, which was dedicated to only one device. As a Telefunken remote for a television would not, for example, have buttons for a VCR such as pause or rewind, Rich was pointing out that a user of a Telefunken remote would not need to select a button from among a number of buttons to "predetermine" those that would apply to a television. For a Philips remote, he or she would first need to "predetermine" those buttons that applied to a television or VCR, before using that button to test for a response.

As used in the claims, the word "predetermined" can be read to express its ordinary meaning: to determine beforehand. While Philips contends "before hand" may only mean that the user selects the response-evoking signal before he or she presses the action button, a more logical reading of the claim suggests that what happens beforehand is that the manufacturer programs the device to use one action to test the signal structure. This is what the inventors described in the preferred embodiment, by noting that for a television the unit would be preprogramed to send the signal for channel up. That is consistent with one of the objectives the inventors listed in the summary of invention, to make the unit simple to operate. By programming the response evoking signal, the inventors have reduced the number of buttons to be pushed by the user, eliminated the need for the user to make a choice as to what signal to send, and have, therefore, simplified the operation of the unit. Rich's comments to the examiner support and are consistent with this construction. As used in claims 1 and 6, the phrase "predetermined action" is construed to mean an action that is determined by the manufacturer.

4. A Certain Predetermined Balance

The meaning of "a certain predetermined balance" turns on the intended meaning of the word predetermined. Webster's defines predetermined as "(1) (a) foreordain, predestine (b) determine beforehand (2) to impose a direction or tendency on beforehand." WEBSTER'S at 978. Although both parties agree that the correct meaning is "determine beforehand," they disagree about how far beforehand the certain balance must be determined. Fiala proposes that "a certain predetermined balance" means "a balance that is fixed and stated prior to crediting of the metered account." (Pl. Brief at 31.) SVS submits that the term means "a fixed value given to a card prior to shipment to retail merchants." (Def. Brief at 14.)

SVS contends that adopting Fiala's proposed construction of the phrase would render claim language superfluous. Every word in the claim is presumed to add meaning, and the claim should not be read in such a way as to render claim language superfluous. See Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed. Cir. 1995). According to SVS, any balance credited to the metered account must necessarily be determined before the account is credited with a dollar amount. For the word "predetermined" to add meaning to the claim, it must require the balance to be fixed at some earlier time. (See
SVS Resp. at 18.) SVS cites the specification as guidance for the precise time the balance must be determined.

In several instances, the specification refers to problems in the prior art surrounding the use of so-called "hot cards." See, e.g., U.S. Patent No. 5,918,909, Column 18:41-50, 18:51-54, 1:24-35. Hot cards are shipped with a metered account that is already activated; the balance on the account must, therefore, also be fixed. See id. That the prior art described cards with balances fixed before shipping, however, does not require that this definition be read into claim 29. In fact, a "predetermined balance" of this kind was part of the problem that the '909 invention sought to address.

Other aspects of the specification also contradict SVS's proposed meaning. "The metered account may have been credited with a certain predetermined balance when the metered account was entered into the digital computer [prior to shipping], but, if not, the digital computer will ... credit the metered account with a certain predetermined balance [when the card is activated by the store clerk at the time of purchase]." U.S. Patent No. 5,918,909, Column 20:1-5. The specification supports Fiala's construction and permits giving the card value either before shipment or at the time of activation. Claim terms are given their ordinary and customary meaning absent some contrary meaning indicated in the specification or the prosecution history. See Teleflex, 299 F.3d at 1324-25; Johnson Worldwide Assoes. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999). As discussed above, the specification supports the ordinary meaning of predetermined as "determined beforehand." The prosecution history indicates no intent to vary from the ordinary and customary meaning. There is no indication that a person of ordinary skill in the art at the time of invention would have understood predetermined to mean determined before shipping as opposed to determined before the crediting of the account. Nothing supports the imposition of additional limitations not found in the claim language itself. The court, therefore, reads the claim language as supporting Fiala's interpretation rather than SVS's interpretation.

Having considered the claim language, specification and prosecution history, the court construes "a certain predetermined balance" to mean: "crediting the metered account with a balance that is fixed and stated prior to crediting of the metered account." The evidence before the court indicates that a person of ordinary skill in the art would have so defined "a certain predetermined balance" at the time the patent was prosecuted, and this interpretation is consistent with the clear meaning of the claim language.

2. Predetermined Condition.

The Court believes, contrary to Leviton, that the term "predetermined condition" is not clear on its face to one of ordinary skill in the art and that, therefore, it requires construction. The term "predetermined condition" is not specifically defined or described in the '766 patent. See The '766 Patent. The Defendants' initial proposed construction of the term is "the occurrence of a current imbalance from an actual or artificially induced ground fault." Defendants' Memo at 32.

In their initial memorandum in support of their proposed claim constructions, the Defendants' assert that the specification describes only three conditions in which the "circuit interrupting portion" would cause "electric discontinuity:" sensing an actual fault, pressing the test button, and pressing the reset button. See Defendants' Memo at 32; The '766 Patent, Col. 7, ll. 13-18; id. at Col. 7, ll. 19-23; id. at Col. 8, ll. 35-38; id. at Col. 6, ll. 8-12. The Court agrees that those are the only three conditions that the specification describes that would lead the circuit interrupting portion to cause electric discontinuity. See The '766 Patent. The Defendants, in their initial claim construction briefing, also maintain that those three conditions have one thing in common: they create a circuit imbalance from an actual or artificially induced ground fault. See Defendants' Memo at 32-33; The '766 Patent, Col 3, ll. 1-5; see id. at Col 3, ll. 21-31.

In further support of their construction, the Defendants cite Dr. De La Ere's testimony concerning the '558 patent. See Defendants' Response at 14. The Defendants point out that Dr. De La Ere testified that "predetermined condition" meant the same thing in U.S. Pat. No. 6,040,967 ("the '967 patent") and the '558 patent, see Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d at 1334 ("We presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning."); August 31 De La Ere Deposition at 68:17-20; id. at 69:3-6, and that he admitted that the term "test cycle," as used therein, was synonymous with "stimulating a ground fault," see Defendants' Response, Exhibit A, Deposition of Jaime De La Ere at 149:18 (taken December 14, 2004)("December 14 De La Ere Deposition"); id. at 150:2.
Leviton contends that the '766 patent incorporates by reference the language concerning "predetermined condition" contained in the '967 patent. See Leviton's Response at 11-12. The Court concurs. See The '766 Patent at Col. 1, 12-15. With regard to "predetermined condition," the '967 patent states: "Predetermined conditions include, without limitation, ground faults, arc faults, appliance leakage faults, immersion faults and a test cycle." The '967 Patent at Col.2, ll. 25-27. Leviton also contends that "arc faults" and "test cycles" do not necessarily create or require current imbalances. 1 See Leviton's Response at 12. The Defendants respond to that contention by noting that may be true, but pointing out that in such "open-neutral" test circumstances, the circuit interrupting portion does not cause electrical discontinuity -- because no electricity is flowing through the device -- and that the relevant claim expressly states: "A circuit interrupting portion configured to cause electrical discontinuity." Transcript at 53:9-54:18 (Fry); The '766 Patent, Claim 1. Essentially, the Defendants argue that the claim language effectively excludes "open-neutral test cycles" that do not cause current imbalances, and that, therefore, the "upon the occurrence of a current imbalance" portion of their proposed claim construction is correct. See id. The Court also notes that the proposed construction the Defendants presented at the Markman hearing replaced "ground fault" with "electrical fault," seemingly acknowledging that the '967 patent was incorporated by reference and that it allows for the possibility that the circuit interrupting portion may cause electrical discontinuity upon the occurrence of arc faults, appliance leakage faults, immersion faults, in addition to ground faults and test cycles. See Defendants' Presentation at 73.

1 Leviton does not discuss the circumstances surrounding such "arc faults," and thus fails to give the Court sufficient information to evaluate this element of Leviton's contention.

The Court believes that the term "predetermined condition" is not clear on its face to one of ordinary skill in the art and that, therefore, construction is required. The Court finds that the '967 patent is incorporated by reference in the '766 patent, and that, as a result, it is proper to use "electrical fault," rather than "ground fault." Defendants' Memo at 32; Defendants' Presentation at 73. Moreover, the Court notes that Dr. De La Ere has testified that, for purposes of the '558 patent, "test cycle" is synonymous with "stimulating a ground fault," see December 14 De La Ere Deposition at 149:18; id. at 150:2, and that it is not disputed that ground faults create and/or require current imbalances. Further, the Court agrees with the Defendants and finds that the claim language excludes "open-neutral test cycles" that would not create or require current imbalances. As such, the Court will adopt the Defendants' proposed claim construction for "predetermined condition."

3265

(5) "Predetermined Data Element"

EMC contends that a predetermined data element is a particular piece of data, of any size, that may be identified in some predetermined way, for example, by the address where it is stored. HP counters that a predetermined data element is a subunit of host data, such as a track or record, which is stored on the data storage system. The issue is, therefore, whether a predetermined data element includes subunits of data as well as the data on an entire data storage device.

Although the term "predetermined data element" as a whole means little, the plain meaning of each word in the phrase is instructive. The ordinary meaning of the word "predetermine" is "to determine beforehand." Webster's Third International Dictionary, 1786 (1981) and the word "element" means "one of the constituent parts, principles, materials, or traits of anything." Id. at 734. Thus, in the context of the subject patents, a predetermined data element is a part or unit of data the identity of which is determined beforehand and which is stored on the first or second data storage system. Nothing in that definition excludes the data contained in an entire data storage device. Indeed, such data has been identified beforehand as all of the data stored on a particular storage device. Moreover, that data is a part or unit of all of the data stored on all of the data storage devices (of which there may be hundreds) within a data storage system.

The explicit language of the Specification of the '347 Patent (set forth at length in the preceding section of this Memorandum) is also instructive here. See '347 Patent, Col. 7, In. 32 - Col. 8, In. 30; see also '347 Patent, Col. 3, ll. 19-32; Col. 7, ll. 13-31. Although the phrase "predetermined data element" is conspicuously absent from the Specification, if an "indicator", which indicates data validity, includes both invalid track and device level information, a predetermined data
element can also include data at the track level or the device level. Additionally, Figures 2 and 3 in the Specification of the '347 Patent illustrate that a predetermined data element can include both track level data and the data stored in an entire storage device.

Finally, EMC did not, explicitly or implicitly, limit the meaning of the term "predetermined data element" in the prosecution of the subject patents. Accordingly, the term "predetermined data element" will be construed to mean a part or unit of data, including the data on an entire storage device, which identity is determined beforehand and which is stored in the first or second data storage system.

3. "Predetermined database": A set of decision-making rules that incorporate a medical code classification system and expert medical clinical judgment and that are not programmed to be modified by the user. 8

7 The '164 patent claims 1, 2, 3, 10, 12, 13, 14, 15 and 16.8 The court rejects both parties' positions vis a vis this limitation as being either too broad (plaintiff) or too narrow (defendant). The court finds support for its construction in the specification of the '164 patent:

"The present invention uses a set of decision-making rules coupled to a knowledge base of facts and observations to assist the medical claims processor." ('164 patent, col. 3, ll. 30-32) "[A] set of rules developed for use of this program is now invoked. These rules were derived using the CPT-4 classification system, and from various medical procedures which were examined, classified, and possible combinations of procedures assessed by expert medical specialists. . . . Each of the rules was developed as a result of reviewing medical procedures by expert medical personnel and is consistent with the CPT-4 classification system. However, expert medical personnel also applied clinical judgment to situations where the CPT-4 classification system is not explicit or nonexistent." ('164 patent, col. 5, l. 67 - col. 6, l. 13)

2. The "Preventing" Step, "Means for Preventing," and "Prevention Means"

As stated in Section I of this Order, Gammino contends that the patents in dispute selectively block international access calls based on predetermined digits and do not require the blocking of all international calls. He asserts that the claims block only international access calls with dialing sequences that meet two criteria, namely, the third plurality of numbers within the sequence are (1) in a position to accomplish international dialing, and (2) are predetermined numbers. Further, he asserts that the claims do not automatically block all access calls but only a sub-category of access calls that are selected for blocking based on predetermined digits. Based on Gammino's proposed claim construction, his patented method would prevent the calls that cause fraudulent losses, and at the same time, continue calls that generate profits.

However, SWB contends that the claims block all international telephone calls at the payphone if the digits entered in the third plurality indicate that the telephone call is international. Gammino's claimed invention distinguishes international calls from non-international calls by analyzing the third plurality of digits. According to SWB, Gammino's solution successfully prevented fraudulent telephone calls at the Port Authority because it blocked all international dialing at the Port Authority? blocking both legitimate international telephone calls and fraudulent international telephone calls when the digits in the third plurality indicate the call is international.

Based on the intrinsic evidence and a reading of (1) the claims, (2) the specification of the patents, and (3) the prosecution history of the patents, the Court construes the terms "preventing" step, the "means for preventing," and the "prevention means" of disputed Claims 1, 15, 22, 35 and 42 of the '125 patent and disputed Claims land 3 of the '650 patent to require the blocking of all international calls if the third plurality of digits indicates that the telephone call is international. In other
words, based on clear intrinsic evidence, the Court defines the preventing function of the claims to require the blocking of all international calls.

The patents state that a device must block all international calls if the third plurality of digits indicate that the telephone call is international in order to be in accordance with the claimed invention. For example, Claim 1 of the '125 patent provides, in pertinent part,

means for evaluating said third plurality of dialing signals and for preventing establishment of said telephone call if said evaluated third plurality of dialing signals are determined to a) be in a location in said dialing sequence to accomplish international dialing and b) respective predetermined signals which are used for international dialing irrespective of said second plurality of dialing signals.

125 patent, col. 10, lines 34-41 (emphasis added).

During the prosecution of his patents, Gammino repeatedly distinguished prior art that did not block all international calls. The Patent Office rejected Gammino's patents eight times based on prior art call-blocking solutions which blocked some, but not all, international calls. In particular, the Patent Office determined that U.S. Patent No. 4,577,066 (the "Bimonte" patent) anticipated many of Gammino's claims because the Bimonte patent also blocked international calls. To distinguish his patents from Bimonte and other prior art, Gammino argued that his patents, unlike other prior art, blocked all international calls based on an analysis of the third plurality of digits. In so distinguishing his patents, Gammino made the following statements to the Patent Office:

"If the digits in the third plurality of digits are digits which are used for international dialing then the call is prevented."

"If certain dialing in the dialing sequence are DETERMINED to be used for international dialing, then prevent the call...If...certain dialing signals are DETERMINED not to be used for international dialing, then allow the call."

"Applicant is preventing international calls based upon a determination that the call is international. In this way, for example, international calling card fraud is prevented."

Therefore, according to Gammino, if a call is international, his claimed invention will block the call; otherwise, the call will be allowed. For example, Gammino distinguished the Bimonte patent by showing the Patent Office that his claimed invention, unlike Bimonte's patent, would block 1-800-950-1XXX-01. As he stated to the Patent Office,

To put the matter in simple terms, Applicant's claimed invention will prevent the call dialed with the following sequence: 1 800 950 lxxx 01. The digits 01 of course mean that the call is an international one. Bimonte will allow this call to go through because it does not prevent a call based on its determination that the call is international.

He then goes on to say,

In other words, Applicant's claimed invention 'looks for' international dialing digits. If Applicant's invention 'finds' international dialing digits, then establishment of the call is prevented.

Thus, based on his own statements to the Patent Office, if his invention "finds" international dialing digits, the call is blocked.

In addition, to overcome the examiner's rejections, Gammino submitted several news articles that highlighted the fact his claimed invention blocked all international calls. For example, Gammino submitted the July 1992 issue of Public Communications Magazine to show that New York Telephone was using his claimed invention, "permanently blocking international calls from several thousand of its payphones in the Port Authority Bus Terminal..." Likewise, he submitted a Port Authority memorandum to the Patent Office wherein Ken Philmus, a Port Authority official, acknowledged that Gammino's solution "blocked all international calls" and resulted in a "small down side" that legitimate calls would also be blocked.

In light of the evidence and arguments submitted to the Patent Office by Gammino, the examiner understood Gammino's
claimed invention blocked all international calls throughout the prosecution. This understanding is reflected by the examiner's following statement,

All appellant's statements regarding 'prevention of fraudulent international calls' are not exactly accurate because the invention prevents ALL international calls. In examiner's opinion, based on the declarations provided by appellant, the claimed invention does not solve the problem of fraudulent international calls, it solves the problem of having anyone making any international call from Port Authority Bus Terminal.

Gammino confirmed the examiner's understanding that his claimed invention blocked all international calls by stating,

The fact that Appellant's claimed invention will block ALL international calls is irrelevant to the decision of patentability of the claimed invention.

As SWB correctly notes, Gammino's confirmation and subsequent acquiescence to the examiner's understanding that his claimed invention prevents all international calls precludes him from now arguing that his claimed invention does not include the requirement of blocking all international calls. Phillips, 415 F.3d at 1317; Norian Corp. v. Stryker Corp. 432 F.3d 1356, 1362 (Fed. Cir. 2005)(a patentee cannot recapture broader claim interpretations after acquiescing to a narrower interpretation in distinguishing prior art); See also Glaxo Wellcome, Inc. v. Impax Laboratories, Inc., 356 F.3d 1348, 1357 (Fed. Cir. 2004).

In an attempt to overcome SWB's proposed claim construction, Gammino contends in his Claim Construction Reply Brief that the claims and specification in the 125 and '650 patents provide for the selective prevention of some but not all international calls. See '125 patent, col. 1, lines, 10-15. Although the claims and specification provide for the "selective disablement of telecommunications devices," Gammino ignores the fact that in distinguishing prior art, as stated above, he told the Patent Office on numerous occasions that his claimed invention blocked all international calls and acquiesced to the examiner's interpretation that his claimed invention blocked all international calls. Phillips, 415 F.3d at 1317; Norian Corp., 432 F.3d at 1362. In any event, the patents are anticipated under Gammino's interpretation as set forth in Section III of this Order.

In his Claim Construction Brief, Gammino also points to examples of calls that do not include international dialing digits in the third plurality to show that those calls are international and not blocked by his claimed invention. As stated above, Gammino's claimed invention distinguishes international calls from non-international calls by analyzing the third plurality of digits. The Court does not dispute that those calls are not blocked by his claimed invention? Gammino's claimed invention blocks calls based on an analysis of the third pluralities. Therefore, the Court finds Gammino's argument without merit. If the digits in the third plurality are used for international dialing, then as Gammino has stated, the call is prevented.

Based on the intrinsic evidence, particularly the prosecution history, Gammino understood his invention to block all international calls. Phillips, 415 F.3d at 1317. Therefore, he limited his invention in the course of prosecution to mean the blocking of all international calls. Id. The Court interprets the "preventing" function of the claims of the patents to require the blocking of all international telephone calls if the digits in the third plurality are digits which are used for international dialing.

3. Predetermined Signals or Digit Sequences Used For or To Accomplish International Dialing

For the reasons set forth in Section IV(A) (2) of this Order and discussed in this section, the Court construes "predetermined sequences [signals] which are used for international dialing" in disputed Claims 1, 22 and 29 of the '125 Patent and disputed Claim 1 of the '650 patent to mean "the set of all digits which are used for international dialing." Similarly, the Court finds that "predetermined digit sequences" in disputed Claim 3 of the '650 patent to mean "the set of all signals which are used for international dialing."

Gammino asks this Court to construe this language to mean any of the signals that can be used for international dialing. However, Gammino's arguments made during prosecution contradict this interpretation. In fact, Gammino recognized that his invention blocked all international calls when he stated that his invention is "particularly suited for locations where few legitimate calls are typically made to international locations," and therefore, his "claimed invention would probably not be used at an airport" where many legitimate international phone calls are made. Gammino also submitted to the Patent Office
a license agreement whereby he licensed his patent applications to Technology Service Group, Inc. ("TSG"). Gammino told the Patent Office that the dialing sequences (e.g., telephone numbers) listed in the TSG License Agreement correspond exactly to his claimed invention. The telephone numbers listed as Exhibit A in the license agreement are:

- 10xxx-01
- 950-10xxx-01
- 1800-xxx-xxxx-01
- 800-xxx-xxxx-01
- 950-10xx-809
- 1800-xxx-xxxx-809
- 800-xxx-xxxx-809

The numbers listed above represent all known telephone numbers for making international calls as of 1992 and as Gammino stated they correspond exactly to his claimed invention. Based on Gammino's statements to the Patent Office regarding the license agreement, "predetermined digit sequences [signals] which are used for international dialing" and "predetermined digit sequences" must mean "the set of all digit sequences which are used for international dialing." Therefore, the Court gives the terms their meaning as proposed by SWB and as supported by intrinsic evidence. Such an interpretation is consistent with the Court's construction set forth in Section IV (A) (2) of this Order.

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F. Predetermined Digital Identification

Plaintiff contends that the "predetermined digital identification" can be known in advance or calculated at the moment it is verified. Conversely, Defendants argue that the "predetermined digital identification" cannot be calculated at the moment because it must be a unique preassigned data string that cannot be shared with others. (D.I. 268 at 11).

Defendants base their contention on language in the specification calling for the "predetermined digital identification" to be microcoded onto a subscriber's hardware key. (See '416 Patent, col. 6, ll. 54-55, col. 14, ll. 52-53). However, the language in Claims 1 and 24 does not require that the hardware key be microcoded with a "predetermined digital identification." Rather, Claim 1 refers to "at least one hardware key being adapted to generate a predetermined digital identification," with no specific limitation on when that information is generated. ('416 Patent, col. 35, ll. 47-48)(emphasis added). Moreover, Defendants' proposed construction would invalidate dependant claims 6 and 31, which each state that the first server computer can change the predetermined digital identification. ('416 Patent, col. 40, ll. 13-15).

In light of these considerations, and guided by the claim and specification language, the Court declines to import the specification limitation of microcoding into the claim language as Defendants propose. Instead, the Court construes the term "predetermined digital identification" to mean "digital data whose value is known in advance or calculated at the moment."

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2. "time interval of predetermined duration"

The district court construed the "time interval of predetermined duration" limitation to mean that "the time interval of the recorded signal must be of a fixed duration determined prior to operation." Summary Judgment Opinion at 22. The district court defined "interval" as a "space of time between events or states," and "predetermined" as "to determine beforehand." Id. at 19 (citing Merriam Webster's Collegiate Dictionary 613, 917 (10th ed. 1993)). The district court explained that "predetermined duration" means that the space of time for receipt of the signal values was determined before the time interval began. Id. The court noted that the parties agreed that "'predetermined' refers to before the time the system begins storing signals—whether the company sets the time interval, or the user sets the time interval before watching." Id. The court went on to explain that the written description supports this construction because it refers to the amount of programming stored in the memory as "fixed," and that the prosecution history supports the construction because the applicant added the...
We recognize that the user can vary the buffer capacity and thus the amount of programming that may be stored by changing the buffer size. Amendment to overcome the cited prior art.

The district court rejected Pause's argument that "because the '801 patent contemplates that the actual or effective capacity of the buffer may change [based on the compression ratio], the time interval of predetermined duration necessarily must refer to a minimum capacity of the buffer—that is, the buffer must be sufficiently large to hold signals of the predetermined duration." Id. at 18 (internal quotations omitted). The court reasoned that "while the program capacity of the buffer can be increased by adjusting the compression ratio, the patent describes fixing the time interval for recording before recording begins." Id. at 21. The district court concluded that "in this way a predetermined and fixed amount of programming is stored in the buffer during operation, no matter what the compression ratio." Id.

Pause argues that determining the "time interval" of signal values entering the buffer is not equivalent to fixing the "time interval" of signal values entering the buffer. Pause contends that the time interval can change after the buffer begins receiving signals so long as the buffer stores at least the data received during the predetermined time period. Pause adds that the district court erroneously imported a limitation from an embodiment and erred in relying on prosecution history. TiVo responds that the time interval must be fixed prior to operation. Again, we agree with TiVo.

The claim recites that the "circular storage buffer [is] for storing those of said digital input signal values which were received during the immediately preceding time intervals of predetermined duration," '801 reissue patent, col. 6, ll. 13-16, and that the oldest signals are overwritten "so that said digital input signal values received during said immediately preceding time interval of predetermined duration are stored in said addressable memory," id., ll. 33-36. The parties agree that time interval refers to the space of time in which the signal values are received and that this space of time must be determined before the buffer begins receiving the signals. The parties agree that the determination can be made by either the manufacturer or the user of the system. The dispute is over what the claim requires to be determined. By arguing that the "time interval" can vary after the determination is made and the buffer begins receiving signals, Pause attaches no significance to the word "predetermine." In construing claims, however, we must give each claim term the respect that it is due. Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). The written description explains that:

the memory subsystem 5 continually stores the incoming data [that was received during the immediately preceding time interval of predetermined duration], writing over the oldest data stored on the hard disk 7, so that a fixed duration or "time window" of prior recorded signals are recorded in the memory subsystem 5 at all times.

Using the remote control 13, or the connected computer 14, the user may select for viewing on the monitor 10 not only a particular incoming program but may select any point in time within the stored time window.

'801 reissue patent, col. 3, ll. 11-15 & 63-66 (emphasized). Pause argues that because the phrase "fixed duration or 'time window'" is in the disjunctive, the written description indicates that a time window is an alternative to a fixed duration of signals recorded in the buffer. However, the use of the quotation marks and the context of the surrounding text shows that this phrase does not specify two alternative time intervals but simply describes in different words the same interval. This supports an interpretation of the claim to require that signals received during the immediately preceding time interval—of a duration fixed prior to operation—be stored in the addressable memory.

The prosecution history is consistent with this construction. In a March 14, 1997 Response to an Office Action ("Response"), the applicant explained that:

applicants' invention particularly claims the use of a circular buffer in order to provide a continuous recording capability wherein only a specified interval of the most recently recorded material is retained. Among other advantages, this eliminates a specific drawback of prior art devices, such as that disclosed in the cited Goldwasser et al., whereby recording is stopped when the capacity of the storage medium, whether videotape or RAM, is reached.

Response at 2 (emphasis added). This indicates that the duration of the time interval in which signal values are recorded into the buffer is "specified" prior to operation. Id. As noted supra, the "time interval of predetermined duration" language was eventually added via Amendment to overcome the cited prior art.

We recognize that the user can vary the buffer capacity and thus the amount of programming that may be stored by changing
the compression ratio. '801 reissue patent, col. 6, ll. 20-21 ("the duration of said interval being selectable in response to said control commands"); id., ll. 64-65 (the "compression means is responsive to said processor means for varying the compression ratio"). However, a variation of buffer capacity by the user does nothing more than predetermine a new "time interval," which is then fixed prior to re-commenced operation.

For these reasons, we conclude that the district court properly construed "time interval of predetermined duration" to mean that the duration of the time interval for recording signals into the buffer memory must be fixed prior to operation.

1. "a timer circuit . . . for providing a time-out sequence of a predetermined duration"

O2 Micro proposes that the Court adopt the following construction: "a circuit that provides a predetermined amount of time before shutdown occurs." MPS, arguing that the timer circuit has no role in the circuit's shutdown process, proposes an alternative construction: "a circuit that measures a time period having a duration determined beforehand."

The claim language clearly provides that it is the protection circuit, not the timer circuit, that shuts down the power supply to the CCFL. See '382 patent, col.11:13-16. Thus, contrary to O2 Micro's argument, it is not necessary to include language calling for "shutdown" in the description of the timer circuit. At the claim construction hearing, O2 Micro agreed that the "time-out sequence" is a time period. Accordingly, the Court construes the language above as follows: "a timer circuit . . . that measures a time period having a duration determined beforehand."

2. "predetermined length of time"

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<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
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</thead>
<tbody>
<tr>
<td>&quot;predetermined length of time&quot;</td>
<td>an amount of time defined prior to or at the time of receipt of the disable request signal</td>
</tr>
<tr>
<td>&quot;stopping said at least one output clock signal after a predetermined length of time after receiving said disable request signal&quot;</td>
<td>halting the output clock signal following an amount of time defined prior to or at the time of receipt of the disable request signal</td>
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<tr>
<th>Claim Term</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;predetermined length of time&quot;</td>
<td>a definite amount of time fixed prior to receipt of the disable request signal</td>
</tr>
<tr>
<td>&quot;stopping said at least one output clock signal after a predetermined length of time after receiving said disable request&quot;</td>
<td>stopping the output clock signal at the expiration of an amount of time that is fixed prior to, and starts from, receipt of the disable request signal</td>
</tr>
</tbody>
</table>
While the parties point out flaws in their respective proposals, according to the parties' technology tutorials, the parties agree on the basic operation of the invention disclosed in the '689 specification. The '689 specification describes a preferred embodiment in which the predetermined length of time varies between 3.56ms and 7.12ms depending on when the SDENTR signal is asserted relative to the external clock. '689 Pat. at 8:30-47. Nonetheless, Defendants appear to argue that claim 5 requires that the predetermined length of time be an exact time, e.g. exactly 4ms, rather than a time period, e.g. 3.56ms-7.12ms.

Defendants point out that, as originally written, the patentee tried to claim a "predetermined minimum amount of time." Defendants argue that because these claims were abandoned or rejected, the patentee may not now reclaim subject matter that it abandoned during prosecution. Defendants' argument is misplaced for two reasons. First, by removing the word "minimum" the patentee broadened the scope of its claims; these amendments did not narrow claim scope. For example, a minimum amount of time would be "at least 5ms." A "length of time" may include, "exactly 5ms," "at least 5ms," "between 3ms and 7ms," or "up to 5ms." Second, although the prosecution history cited by Defendants shows that the patentee removed the word "minimum" from the claims, the patentee offered no explanation for why this change was made. This amendment does not clearly and unambiguously disclaim any claim scope, and it certainly does not disclaim the preferred embodiment. See Omega Eng'g, Inc., 334 F.3d at 1323. Accordingly, the Court rejects Defendants proposal to the extent that it limits the predetermined length of time to a predetermined exact time.

The Court finds that Saxon's construction does not clearly encompass the idea that the predetermined length of time refers to a time that may vary within a known time period. The Court finds that the proper construction of the term "predetermined length of time" is "a length of time within a known time period." Because this construction resolves the parties' claim scope dispute, the larger phrase "stopping said at least one output clock signal after a predetermined length of time after receiving said disable request signal" need not be construed. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008); Fenner Inv. Ltd. v. Microsoft Corp., No. 6:07-cv-8, 2008 U.S. Dist. LEXIS 65686, 2008 WL 3981383 at *3 (E.D. Tex. Aug. 22, 2008) (finding that a court need not construe a disputed term as long as it has resolved the claim scope dispute between the parties).

Blackboard proposes "providing access and control to course files over the network, where the level of access and control is set before the user can access or control course files." D2L suggests "the authority to locate, view, read, download, modify, add, move, and delete files associated with a course is provided by the system, not by a user."

The dispute is over how to construe "predetermined," and reproduces arguments of the parties regarding the identical word in Claim 1. Blackboard again argues that its construction accounts for a temporal limitation consistent with the plain meaning of the term. D2L again claims that "predetermined" references levels of access and control provided by the primal system framework and not by a subsequent user.
The term "predetermined" denotes that levels of access and control are set in advance. See 138 patent, col. 32, ll. 36-43; see, e.g., THE MERRIAM-WEBSTER THIRD NEW INTERNATIONAL DICTIONARY, UNABRIDGED (2002). Claim 36(c) refers to the level of access and control set within the system for users who have characteristics identifying the user as a student, while Claim 36(d) refers to the level of access and control set within the system for users who have characteristics identifying the user as other than a student. The claim language and the specification teach that each user's level of access and control to course files is tied to that user's predetermined role (e.g. student, instructor, administrator). See '138 patent, col. 32, ll. 25-27; '138 patent, col. 4, ll. 7-25. As determined earlier, a user's access to system features is based upon the user's role within the framework of the system. '138 patent, col. 3, ll. 42-46.

The court earlier drew a distinction between an administrator's ability to change access to features associated with a particular user's role and changing the role itself. That distinction also applies to this disputed term in Claim 36(c) and (d), i.e. "predetermined level of access and control." To repeat, the system itself, not an administrator, determines a user's level of access and control over the network to course files. An administrator cannot change the level of access and control, but may change some accessible features at a given user's level.

D2L's proposal embraces these ideas generally, but D2L adds language that unnecessarily limits the claim. There is no basis in the claim language to include the terms "locate, view, read, download, modify, add, move and delete" in place of "access and control."

"Providing a predetermined level of access and control" means "the level of access and control is set in advance within the system."

F. "predetermined match weight" / "predetermined mismatch weight"

These terms appear in claim 31: "when at least one of the attributes and the text match the stored case model, the score is increased by a predetermined match weight" and "when at least one of the attributes and the text does not match the stored case mode, the score is decreased by a predetermined mismatch weight." The specification does not use the terms "predetermined match weight" or "predetermined mismatch weight," but it does contain "match-weight" and "mismatch-weight":

The raw score of a stored case model may increase or decrease in differing amounts depending on the particular feature (i.e., attribute) being searched. Thus, if feature[1] matches, the raw score may increase by match-weight, while if feature[2] matches, the raw score may increase by match-weight[2]. Similarly, if feature[1] does not match, the raw score may decreased by mismatch-weight[1], while if feature[2] does not match, the raw score may decrease by mismatch-weight[2]. It is preferred that the match-weight of each feature is a positive number and that the mismatch-weight is zero.

('947 patent, 8:48-57) (emphasis added). Bright Response argues that "predetermined match weight" should be construed as "a predetermined factor controlling the degree to which a stored case model's score is increased by a comparison of text and attributes from a case model with those from a stored case model." Likewise, for "predetermined mismatch weight," Bright Response proposes "a predetermined factor controlling the degree to which a stored case model's score is decreased by a comparison of text and attributes from a case model with those from a stored case model." On the other hand, the defendants' proposed construction of "predetermined match weight" is "a predetermined factor which is added to a stored case model's match score when a feature from the stored case model matches text and attributes from the presented case model"; their proposal for "predetermined mismatch weight" is "a predetermined factor which is subtracted from a stored case model's match score when a feature from the stored case model does not match text and attributes from the presented case model."

The defendants argue that the plain language of claim 31, which states that the score is "increased by" and "decreased by" the predetermined weights, requires addition and subtraction. But the court is not persuaded that the claim language excludes other mathematical operations, such as multiplication and division. On the other hand, Bright Response's "controlling the degree" language is vague. Therefore, the court construes "predetermined match weight" to mean "a
predetermined factor that arithmetically increases a stored case model's match score when a feature from the stored case model matches text and attributes from the presented case model." The term "predetermined mismatch weight" is construed to mean "a predetermined factor which arithmetically decreases a stored case model's match score when a feature from the stored case model does not match text and attributes from the presented case model."

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3. "Predetermined Maximum Peak-to-peak Value."

The court shall apply the ordinary definition of the phrase "predetermined maximum peak-to-peak value." Thus, the phrase "predetermined maximum peak-to-peak value" shall be construed to mean "a predetermined value that the peak-to-peak voltage produced by the resistive divider will not exceed."

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5. Predetermined Number of Digital Bits

Each digital word in the digitized image consists of one or more bits of information, where the number of bits in each word is preselected and constant for a given set of broad band information.

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b. Claim 5

Claim 5 of the '892 patent reads (bracketed text and letters provided for ease of reference):

[Preamble] 5. A method of providing a bingo game comprising the steps of:

[A] providing a bingo operator for determining at least one winning bingo pattern;

[B] registering at least one bingo card bearing a plurality of bingo numbers with said operator;

[C] generating a predetermined number of random bingo numbers; and,

[D] identifying all registered bingo cards on which the generated random bingo numbers form one of said at least one [sic] winning bingo pattern and,

[E] awarding the holder of the winning bingo card an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed.

c. Defendant's Proposed Constructions

Defendant contends the Court should give the following terms the meaning they would have had to a person of ordinary skill in the art in light of the intrinsic record. In this regard, Defendant asserts that the following terms should have the following constructions

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.
The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

c. Plaintiff's Proposed Constructions

Plaintiff contends that, based upon the general acceptance of certain terms by the public and by using dictionary definitions, the following terms should be constructed as follows:

"Bingo game" - a "traditional" bingo game as that term is understood by the general public. In this regard, Plaintiff suggests that the Court construct the term "bingo game" within Claim 5 as:

a game simultaneously played by multiple players that contains the following elements: (1) displayed cards that bear numbers, (2) which must be daubed on each card when numbers are determined by random means during the game, and (3) which game is won by at least the first person to hold a card on which a previously designated arrangement of numbers has been covered.

"Predetermined number" of random bingo numbers: Plaintiff argues that the term "predetermined number" should be construed in accordance with the dictionary definition of "predetermined." In this regard, Plaintiff argues that the construction should be: "A number or range of numbers that is determined, decided, or established in advance."

"Registered": Plaintiff argues that the term should be construed as follows:

identifying a discrete bingo card chosen by a player, communicating the pattern of that card to the game operator, and having the game operator record the pattern of the card prior to play of a discrete bingo game.

III. CONCLUSION

Having carefully reviewed the text of Claim 5, the specification, and the prosecution history of the '892 patent, and having considered the parties' arguments presented at the Markman Hearing, the Court finds that the construction proposed by Defendant is, in all respects, proper. The '892 patent was proposed and amended in order to distinguish the patent from prior art. Plaintiff's proposed construction would have the opposite effect. Therefore, the Court finds as a matter of the law that the following terms from Claim 5 shall have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based
The parties disagree about the meaning of "predetermined" and "expected." Curiously, Innovatron urges a narrow reading under which, "predetermined operations and 'predetermined expected response' are technical terms and mean operations and responses, respectively, that are established at the time of design and do not change over time." Innovatron's Prop. Or.

Thomson, on the other hand, argues that:

'Predetermined' means 'determined beforehand.' 'Expected' means 'predicted' or 'to look forward to the probable occurrence or appearance of.' Neither word requires a determination at the time of the design of the electric device which cannot change over time.

Thomson's Prop. Or.

The ALJ adopted Innovatron's narrow construction. The Commission disagreed. "We find nothing in the specification or the claim that indicates that predetermined operations must be established at the time of design." ITC at 8. "We believe 'predetermined' should be construed to have its ordinary dictionary definition." ITC at 9. "We also disagree with the ALJ's construction that 'expected' means 'not changing over time.' We find no indication in the patent that expected should be construed other than in accordance with its ordinary dictionary meaning." ITC at 9.

The burden is on Innovatron to show that "predetermined operations" and "predetermined expected response" are technical terms narrower in scope than when used ordinarily. Innovatron argues that these "are not terms that one normally confronts in everyday conversation." Innovatron's Post-Hrg. Reply at 22. Innovatron argues that this observation justifies reliance on extrinsic evidence. Innovatron then relies on Dr. Kuc's testimony to support its argument.

The Court will not go down that path. Innovatron cites no authority for the proposition that a term not frequently used in conversation must be a term of art. On the contrary, "absent a special and particular definition created by the patent applicant, terms in a claim are to be given their ordinary and accustomed meaning." Renishaw, 158 F.3d at 1249. Nothing in the claim language, the specification, nor the prosecution history indicates that Moreno intended a "special and particular definition" to attach to these terms. Moreover, reading "predetermined" to mean "determined beforehand" and "expected" to mean "predicted" is entirely consistent with the purpose of the method and the specification.

Footnotes

7 Independently, the Court has considered and rejected two arguments that would support Innovatron's reading. First, it may have been that in 1978 "predetermined" meant at the time of design because the technology required that the system be hard wired. However, no persuasive evidence was introduced to compel that result. Second, the term "predetermined expected response" is potentially redundant when given its ordinary meaning. The term "expected" implies that a determination or prediction has been made prior to receipt of the response. That being so, "predetermined" only makes express a necessary implication of the term "expected." However, "predetermined" does not require "at the time of design," and the Court is persuaded that "predetermined" adds enough by requiring that the "expectation" arise from a conscious prediction to find that giving the terms their ordinary meaning does not produce a redundancy.

End Footnotes
Predetermined parameters

In its briefing, ConnecTel argued "predetermined parameters" should be construed to mean "those parameters whose values are fixed, vary over relatively long periods of time, or are set by external actions, e.g. user input." Cisco contended "predetermined parameters" "refers to parameters of the paths that are fixed and not measured." During the hearing, the parties agreed to construe "predetermined parameters" as "parameters of the paths that are stored in memory and not measured." The Court agrees that this is an appropriate construction and adopts it.

The plaintiffs propose "the immediate operand or the instruction that is accessed has a position, relative to the beginning or end of the instruction group that includes the operand or instruction being accessed, that is determined based on a portion of an accessing instruction that identifies an operation to be performed and without reference to operand or address bits in the accessing instruction." The defendants propose "the bits forming the accessed operand or instruction either begin or end at a position defined in relation to the boundaries of the instruction group in the instruction register rather than the currently executing instruction." The principal dispute is whether the instruction group refers to the group in which the currently executing instruction is located or whether it refers to the group in which the instruction or operand being accessed is located.

The plaintiffs argue that, during prosecution, the applicants referred to the predetermined position of the accessed operand or instruction. See Supplemental Amendment, February 5, 1998, at 6-8. The plaintiffs also argue that instruction location is determined based on the particular place for instructions of that type. In addition, the plaintiffs contend that the target address specified by the instruction has no effect on the decision to begin executing at the beginning boundary of a target group.

The defendants argue that the Abstract explains the meaning of this phrase. It states

A high-performance microprocessor system using instruction that access operands and instructions located relative to the current instruction group rather than located relative to the current instructions, as is the convention, is disclosed herein. '584 patent, Abstract.

The defendants also contend that the plaintiffs add limitations that are not supported by the intrinsic evidence.

In reply, the plaintiffs contend that the term "current" in the Abstract refers to the target group, not the accessing group. For example, one of ordinary skill in the art would, in the case of a BRANCH instruction, determine the target instruction relative to the boundary of the target group, not the accessing group.

A "predetermined position" refers to a position based on the instruction group being accessed. See '584 patent, 2:29-35. The Court construes the term to mean "the operand or instruction is accessed at a position defined in relation to the boundaries of the instruction group that includes the operand or instruction being accessed."

3. "predetermined protocol requirement"

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<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>predetermined</td>
<td>a requirement of a defined</td>
</tr>
</tbody>
</table>
The primary dispute with regard to these terms is the meaning of the word "protocol." Both parties cite to the definition of "protocol" contained in the same dictionary. See IEEE Standard Dictionary of Electrical and Electronic Terms, The Institute of Electrical and Electronics Engineers, Inc., 1984 ("a set of conventions or rules that govern the interactions of processes or applications within a computer system"). At the hearing, the Court proposed a construction based on this definition, i.e. construing "verifying that said disable request signal satisfies a predetermined protocol requirement" as "confirming that said disable request signal satisfies a known set of rules." See Markman Hr'g Tr. at 46:18-20 (June 25, 2009). Saxon agreed to this construction. Id. at 47:7-8. Defendants argued that this construction is inconsistent with the patent specification. Id. at 47:12-24.

The Court begins its construction by consulting the claim language. Phillips, 415 F.3d at 1314. In this case, the plain and ordinary meaning of the term "protocol," as evidenced by the parties' dictionary definitions, is a known set of conventions or rules. Defendants argue that the Court's construction should diverge from this plain and ordinary meaning because the only disclosed example of a predetermined protocol requirement involves a series of sequential steps rather than a set of rules. Defendants cite to the patent specification, which states that "the predetermined protocol requirement may be a predetermined number of writes in a predetermined order to the at least two registers." '689 Pat. at 3:58-60. However, at most, this statement shows that the patent discloses one embodiment in which the predetermined protocol requirement involves a series of steps. Defendants have not cited any statements of disclaimer, or any other reason to import this limitation into the claim language. Liebel-Flarsheim Co., 358 F.3d at 913; Brookhill-Wilk 1, LLC, 334 F.3d 1294, 1301; see also Phillips, 415 F.3d at 1312-13.

Saxon's original proposed claim construction is similarly flawed. While the patent explains that the purpose of the predetermined protocol requirement is for protection from inadvertent entry into shut-down mode, '689 Pat. at 8:13-16, Saxon offers no reason to import this purpose into the claim as a limitation. Furthermore, the term "defined protection scheme" would be unnecessarily confusing for a jury.

Therefore, the Court finds that the proper construction for the term "predetermined protocol requirement" is "a known set of rules." Because this construction resolves the parties' claim scope dispute, the larger phrase "verifying that said disable request signal satisfies a predetermined protocol requirement" need not be construed.

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The court construes "predetermined range," consistent with the previous constructions, to mean "a range determined beforehand."

2. Claims 1 & 5 -- "Predetermined Region"

The term "predetermined region" appears throughout the '170 patent and is another term crucial to the invention. Defendants argue that "predetermined region" is a region determined prior to user station installation, which region the user cannot change. CIVIX, on the other hand, contends that "predetermined region" is a bounded geographical region around a user station which is determined before a map is provided to the user, but which is not necessarily fixed prior to use by the user.

The parties do not disagree on the meaning of the word "region" which is defined as "a particular part of the world or universe." Webster's Third New Int'l Dictionary 1912 (3d ed. 1986). Nor do the parties appear to disagree with the definition of the word "predetermined" which Webster's defines as "to determine beforehand: settle in advance." Webster's Third New Int'l Dictionary 1786 (3d ed. 1986). Instead, the disagreement centers on when the region is determined. CIVIX argues that the geographical area surrounding the user station is necessarily decided before a map is provided to a user, and no other limitation should apply. CIVIX contends that Defendants are wrongly attempting to saddle the term "predetermined region" with the limitations in the preferred embodiment where the predetermined region is created by a master database and loaded into a kiosk located on a city sidewalk. This region is not determined by the user at the user station. However, CIVIX urges that it is legal error to thus saddle the phrase. The claim language, not the preferred embodiments define the scope and meaning of the phrase. Defendants, on the other hand, argue that the term "predetermined" in the '170 patent means that the region is determined prior to kiosk installation.

I disagree with both proffered interpretations. I conclude that "predetermined region" means that the region is determined prior to use by the user and thus cannot be changed by the user, but that it has the potential to be changed by those who maintain the user station by loading new information into the user station to reflect a new, altered, or broader region.

CIVIX' definition of "predetermined region" as a region determined before a map is provided to a user would render the term "predetermined" superfluous. Necessarily, any system providing a geographical representation to a user must determine such a region before providing a map. However, this broad concept of determination prior to provision of a map would allow for the system to flexibly select a region or a user to select such a region. Necessarily a region must be determined before a map is provided. This would be true even if the term "predetermined" were ignored. This is not the broad meaning to be given the term "predetermined region" in this context. CIVIX chose to limit the region to a "predetermined" region and I cannot read this limitation out of the claims. See Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1583 (Fed. Cir. 1996) ("[Plaintiff] need not have included this limitation in its claim. Having done so, it must live with the language it chose."); Exxon Chemical Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed.Cir.1995) (recognizing that the court "must give meaning to all the words in [the] claims").

Further, it is proper for me to refer to the specification in determining the meaning of the term "predetermined region." See Ethicon, 93 F.3d at 1578 ("the district court did not import an additional limitation into the claim; instead, it looked to the specification to aid its interpretation of a term already in the claim, an entirely appropriate practice."). CIVIX's embodiment of the purported invention is clear. Data for one region surrounding a user station is loaded into the user station's memory during installation. Specifically, the location of the new kiosk is entered into a primary database and a map is generated having the kiosk at the center. ( '170 Patent, Col. 3 lines 12-16). The perimeter of this map is then clipped to provide a circular shape. ( '170 Patent, Col. 3 lines 16-17). The transfer of this map is completed by being "physically carried to the new kiosk, and the information therein is loaded into the memory of the base station." ( '170 Patent, Col. 3 lines 22-24). This specification only contemplates a predetermined region loaded into the user station upon installation of each new user.
station. However, I conclude that the same process can be used to update the region periodically.

Furthermore, I cannot construe the '170 patent claims broadly, to cover an apparatus providing a user-specified region, because the prosecution file shows that the applicants added the term "predefined region" to the claims to distinguish them from prior art which provided user-defined regions. (CIV 000058 - 000061). In distinguishing the '170 patent from the Esparza patent, which taught the automated dispensing of maps of any one of a number of regions depending on user choice and regardless of user location, the '170 patent applicants noted:

The claims . . . call for identifying locations within a predetermined region of a selected group of this set relative to the location of a user station. The claims call for the data including an identification of the location for each subscriber in the predetermined region . . . .

(CIV 000063). Thus, "predetermined region" is not open-ended enough to include user-defined regions.

Finally, the inventors of the '525 patent have acknowledged that the '170 patent is limited in that it does not employ user-selected regions:

U.S. Pat. No. 4,974,170 ['170 patent] describes one system which includes a fixed kiosk with an internal memory for storing locations such as businesses and historical sites within a predetermined distance from the kiosk. . . . However, such a system is inflexible. The map generated by the system is predefined; and thus the user cannot access or select information about businesses and historical sites outside of the predefined map.

('525 Patent, Col. 1 lines 21-32) (emphasis added). These comments are relevant to the construction of the term "predetermined region" in the '170 patent because they are representative of comments of common inventors of both the '170 and '525 patents. I conclude that "predetermined region" denotes a region stored in the user station and determined prior to use by the user subject, however, to new information loaded into the base station memory, by the system developers, from time to time.

C. "predetermined response"

"Predetermined response" is found in claim 26: "retrieving one or more predetermined responses corresponding to the interpretation of the electronic message from a repository for automatic delivery to the source." The term is discussed throughout the specification, including in the passage quoted below:

When the automatic message reader 30 has classified the E-mail message 11 as being of the "automatic" type . . . , one or more predetermined responses . . . are retrieved from a repository . . . for automatic delivery to the source 52. . . . [T]he predetermined response is an appropriate response to the inquiry of the customer 50. It is understood that the predetermined response may be modified and/or altered in accordance with the interpretation of the E-mail message 11 if required to properly respond to a customer 50.

('947 patent, 9:24-35) (emphasis added). According to the plaintiff, "predetermined response" requires no construction. If this term must be construed, however, Bright Response proposes the following definition: "Responses prepared prior to the receipt of the electronic message. The responses may be modified and/or altered based on the interpretation of the electronic message." The defendants contend that this term means "responses prepared prior to the receipt of the electronic message."

Both sides agree upon the first sentence of the construction. The defendants also agree that the predetermined response may be modified or altered. But the defendants contend that Bright Response's proposed construction would allow alteration or modification at any time, such as before retrieval or after delivery of the response. The only time limitation imposed by the claim is based on the interpretation of the electronic message: "retrieving one or more predetermined responses corresponding to the interpretation of the electronic message." ('947 patent, claim 26). Because the predetermined response retrieval must occur after interpretation of the electronic message, the court construes this term to mean "responses prepared prior to the receipt of the electronic message. The responses may be modified and/or altered based on the interpretation of
3. Predetermined Signals or Digit Sequences Used For or To Accomplish International Dialing

For the reasons set forth in Section IV(A) (2) of this Order and discussed in this section, the Court construes "predetermined sequences [signals] which are used for international dialing" in disputed Claims 1, 22 and 29 of the '125 Patent and disputed Claim 1 of the '650 patent to mean "the set of all digits which are used for international dialing." Similarly, the Court finds that "predetermined digit sequences" in disputed Claim 3 of the '650 patent to mean "the set of all signals which are used for international dialing."

Gammino asks this Court to construe this language to mean any of the signals that can be used for international dialing. However, Gammino's arguments made during prosecution contradict this interpretation. In fact, Gammino recognized that his invention blocked all international calls when he stated that his invention is "particularly suited for locations where few legitimate calls are typically made to international locations," and therefore, his "claimed invention would probably not be used at an airport" where many legitimate international phone calls are made. Gammino also submitted to the Patent Office a license agreement whereby he licensed his patent applications to Technology Service Group, Inc. ("TSG"). Gammino told the Patent Office that the dialing sequences (e.g. telephone numbers) listed in the TSG License Agreement "correspond exactly to his claimed invention." The telephone numbers listed as Exhibit A in the license agreement are:

10xxx-01
950-10xxx-01
1800-xxx-xxxx-01
800-xxx-xxxx-01
950-10xx-809
1800-xxx-xxxx-809
800-xxx-xxxx-809

The numbers listed above represent all known telephone numbers for making international calls as of 1992 and as Gammino stated they "correspond exactly to his claimed invention." Based on Gammino's statements to the Patent Office regarding the license agreement, "predetermined digit sequences [signals] which are used for international dialing" and "predetermined digit sequences" must mean "the set of all digit sequences which are used for international dialing." Therefore, the Court gives the terms their meaning as proposed by SWB and as supported by intrinsic evidence. Such an interpretation is consistent with the Court's construction set forth in Section IV (A) (2) of this Order.

"Predetermined Severe Congestion Threshold"

Alcatel's proposed construction of this term is "a predetermined number of queued data units, which is greater than the predetermined mild congestion threshold." Cisco's proposed construction is "a configurable percentage of the absolute congestion threshold which is determined by the router as a function of the number of buffers available and the number and access rates of all of the frame relay links on the router."

As Alcatel notes, the parties have already agreed on the construction of the term "predetermined mild congestion threshold." That construction reads: "A predetermined number of queued data units representing a limit that is indicative of the presence of congestion." The Alcatel construction attempts to construe the "predetermined severe congestion threshold" as simply a threshold level greater than the "predetermined mild congestion threshold."

Cisco, on the other hand, claims to have derived its definition from the language of the patent itself. Specifically, language in the preferred embodiment describes "severe congestion threshold" as "a configurable percentage of the absolute
congestions threshold," and defines the "absolute congestions threshold" as "determined by the router as a function of the number of buffers available and the number and access rates of all of the frame-relay links in the router." Watt, at 5:37-42. Therefore, Cisco's proposed construction is simply a combination of these two definitions.

However, Cisco's proposed construction fails for two reasons. First, Cisco's construction limits the language to apply to only frame relay networks, but the claim language indicates otherwise. In particular, the language of "predetermined severe congestion threshold" is contained in both claims 1 and 8. In claim 4, a claim dependent on claim 1, it claims "A data link interface as claimed in claim 1, wherein said network is a frame relay network." Watt, at 7:5-6 (emphasis added). Thus, if "predetermined severe congestion threshold" was construed to apply only to frame relay networks, then the entire language in claim 4 would be rendered meaningless. This construction would be at odds with the notion of claim differentiation. "This doctrine, which is ultimately based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope, normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend." Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971 (Fed. Cir. 1999); but see ATD Corp. v. Lydall, Inc., 159 F.3d 534, 541 (Fed. Cir. 1998) (noting that the doctrine of claim differentiation "is a guide, not a rigid rule"). Therefore, reading the language of dependent claim 4 (referring to frame relay networks) into claim 1 is improper, and hence Cisco's construction fails.

Furthermore, Cisco's construction of "predetermined severe congestion threshold" is taken exclusively from the preferred embodiment. However, claims are not ordinarily limited to the preferred embodiment disclosed in the specification. See Interactive Gift Express v. CompuServe, 256 F.3d 1323, 1341 (Fed. Cir. 2001); cf. Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999) ("It is well established that the preferred embodiment does not limit broader claims that are supported by the written description."). Moreover, in the summary of the invention contained in the patent, the language notes that the preferred network is a frame relay network, not the required network. See Watt, at 1:47-49, 60.

Finally, as Alcatel points out, the patent history also recognizes that the invention is particularly applicable to a frame relay network, but is also applicable to other types of packet switched networks with virtual connections. See Watt, File History, at AL 0000891A.

3 Of course, where the patent applicant acts as his or her own lexicographer, the meaning of a term given by the applicant holds. See Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (finding that when an applicant is lexicographer, "the definition selected by the patent applicant controls"). In this instance, however, the Court finds that the applicant was merely giving an example in the specification of a "severe congestion threshold" in the context of a frame relay link, and not a definition.

Therefore, the Court construes "predetermined severe congestion threshold" as "a predetermined number of queued data units, which is greater than the predetermined mild congestion threshold."
51.) Thus, the Court concludes that Defendants impermissibly try to restrict the claim to the particular type of threshold used in the preferred embodiment. Accordingly, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

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1. "a predetermined time"
The parties' first dispute concerns the clause "a predetermined time." This clause appears in Claims 7 and 8 of the '512 Patent and within the larger clause "at a predetermined time interval" in Claim 1 of the '134 Patent.

As a threshold matter, the court notes that the parties do not explicitly distinguish between "a predetermined time" and "at a predetermined time interval." The fighting issue is whether the patents-in-suit claim what may be loosely referred to as a "fixed" or "variable" time or time interval.

ProBatter argues that the clause "a predetermined time" is properly construed as "a time . . . that is set or otherwise determined before the ball is propelled toward a target." JACCC (docket no. 174), at 8. Conversely, Joyner argues that the clause is properly construed as "a period of time determined once, before the machine begins operating, that remains the same from pitch to pitch, regardless of conditions." Amended Motion for Markman Construction of Asserted Claims (docket no. 165-1), at 2. 8 In other words, ProBatter argues that the patents-in-suit include a claim for a variable predetermined time, whereas Joyner argues that the predetermined time is fixed, i.e., "determined once and for all, before the videos are ever loaded into the machine." Amended Brief on Markman Construction of Asserted Claims (docket no. 165-2), at 6.

Joyner further argues that "a predetermined time" is a means-plus-function clause within the ambit of 35 U.S.C. § 112, P 6, because (1) in Claim 1 of the '134 Patent the clause is part of a broader "means for synchronizing" clause and (2) the "a predetermined time" clause is "claimed in functional terms, without sufficient recited structure to perform the function." JACCC (docket no. 174), at 8. It is unclear exactly how a means-plus-function analysis would alter the court's conclusion about the proper construction of the clause.

The court shall adopt ProBatter's construction. Joyner's construction impermissibly restricts the scope of the claim language. Nothing in the claim language requires that the time or time interval must be the same for each and every pitch. In other words, "a predetermined time" does not mean "one and only one predetermined time." In addition, the specification of each patent teaches that the time interval, while preferably fixed between 5 and 7 seconds, need not be fixed. In pertinent part, each specification states:

FIG. 15 is a flow chart showing the operation of the ball-throwing machine 10 in conjunction with the video storage means 302 and video projection means 303. The ball 308 is delivered to a queued position 317 in the ball introduction tube 90 by means of a feeder tube 316. Once in the ball introduction tube 90, the ball 308 is retained and prevented from entering the nip 92 by means of ball retaining means 318. Upon delivery of the ball 308 to the queued position 317, the control unit 200 chooses an appropriate video image 310 for the type of pitch being thrown. For example, if the pitch to be thrown is a curve-ball thrown by a left-handed pitcher, the control unit 200 will select the video image of a left-handed pitcher throwing a curve ball. Simultaneously therewith, the control unit 200 determines the appropriate settings for the particular pitch at the particular location from the stored data table and then sends signals to the drive control motors 202A-202C, the horizontal actuator controller 206 and the vertical actuator controller 204 providing them with the applicable settings for the particular pitch. Upon receipt of the applicable signal, each of the drive motor controls 202 set their corresponding drive motors 80 to the specified speed to accomplish the desired wheel speed and the two actuator controllers 204, 206 set their corresponding actuators to the specified positions to position the power head 20 in the desired position. The affect [sic] of this is to reposition the power head 20 in the proper position to deliver the specified pitch to the predetermined position with the coacting wheels 70A-C rotating at an appropriate speed to deliver the selected pitch.

Once the controller 200 receives the proper feedback from the drive control motors 202A-202C, horizontal actuator controller 206 and vertical actuator controller 204 that indicate the power head 20 is in the correct position and the wheels 70A-C are spinning at the correct rotational velocity, the controller 200 instructs the video storage means 302 and video display means 303 to play the chosen video image 310. Immediately upon commencement of the video image 310 playback, the control unit...
200 initiates a countdown for the duration of time between the commencement of the video image 310 and the precise moment in which the ball 308 appears to be released by the video image 310. This duration of time is precisely determined and is the same for every individual video image 310. In the preferred embodiment, this duration is between 5 and 7 seconds, although it should be appreciated that shorter or longer durations may be preferred, either for more rapid operation or for a longer view of the pitcher in his motions.

Upon the termination of the countdown, at which time the pitcher in the video image 310 appears to be about to release the ball 308, the control unit 200 sends a signal to a solenoid 322 located immediately behind the ball 308. This signal instructs the solenoid to impel the ball 308 forward through the introduction tube 90 and into the nip 92, where the ball 308 is engaged by coacting wheels 70A-70C and further impelled through the opening 306 in the screen 304, such that it appears the pitcher in the video image 310 had actually thrown the ball 308.

Having thus described the invention with particular reference to the preferred forms thereof, it will be obvious that various changes and modifications can be made therein without departing from the spirit and scope of the present invention as defined by the appended claims.

'134 Patent, col. 18, ll. 23-67 & col. 19, ll. 1-18; '512 Patent, col. 18, ll. 36-67 & col. 19, ll. 1-31 (emphasis in original). Although the specification states that "[t]his duration of time is precisely determined and is the same for every individual video image," '134 Patent, col. 18, ll. 64-66; '152 Patent col. 19, ll. 10-12, and is preferably "between 5 and 7 seconds," '134 Patent, col. 18, l. 67, '512 Patent, col. 19, l. 13, the specification also makes clear that the predetermined time or time interval need not always be the same for each and every pitch. The specification states "it should be appreciated that shorter or longer durations may be preferred, either for more rapid operation or for a longer view of the pitcher in his motions." '134 Patent, col. 19, ll. 1-3; '512 Patent, col. 19, ll. 14-16. It appears then, that this is a classic case in which the specification "indicate[s] that certain embodiments are preferred, [but] particular embodiments appearing in a specification [should] not be read into the claims when the claim language is broader than such embodiments." KJC Corp., 223 F.3d at 1356.

When the court focuses "on understanding how a person of ordinary skill in the art would understand the claim terms," Phillips, 415 F.3d at 1323, the court finds that the patent claims the possibility of variable predetermined timing. One of the objects of the invention is "to provide . . . a ball-throwing machine that is able to interchangeably deliver a variety of different pitches to a variety of different locations at a variety of different speeds . . . ." '134 Patent, col. 3, ll. 60-62; '512 Patent col. 4, ll. 1-4. If programmed with a smart card reader, the invention is able to simulate the pitches of different pitchers. See '134 Patent, col. 18, ll. 15-22; '512 Patent, col. 18, ll. 28-35. A person of ordinary skill in the art would know, as even the casual observer of baseball knows, that (1) different pitchers take different amounts of time to pitch baseballs and (2) even the same pitcher may sometimes pitch out of a windup position and on other occasions pitch out of a less time-consuming, set position. 9 As a consequence, the video clips used in the machine will often have different lengths. Although it may be preferable to have each video image have the same length, this is plainly not required or all that the patents-in-suit claim.


10 It appears that Joyner may have come to the same conclusion. For example, in the JACCC, Joyner repeatedly proposes the following, weaker construction: "The 'predetermined time' . . . is the same length of time every time a given video clip is displayed." JACCC (docket no. 174), at 8 (emphasis added); id. at 20 (same); id. at 24 (same).

Accordingly, the court shall adopt ProBatter's construction of "a predetermined time." GO BACK

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2. '769 Patent Claims 1 and 11: "predetermined time and date"

Claim 1 of the '796 patent relates to a method for updating the database of a call rating device that stores billing rate information for various carriers. The call rating device can be the least cost routing device described in the '085 patent, or other known call rating devices. Claim 1 includes four separate elements only one of which is in dispute. The element in
dispute relates to the first step of the method, connecting to the rate provider.

connecting at a predetermined time and date via a data transfer line the call rating device to a rate provider having billing rate parameters for a plurality of calling stations.

Claim 11 contains the same "predetermined date and time" phrase as Claim 1. The claims specify that the connection step must be performed at a predetermined date and time. The parties dispute the meaning (or rather the significance) of the term "predetermined". MediaCom insists that, as a matter of logic and grammar, the phrase "predetermined time and date" requires that this Court identify by whom the time and date are predetermined. MediaCom contends that the rate provider, and not the individual user, must perform that function. Rates responds that the claim need not and does not identify who must determine the time and date of the connection, but rather allows a variety of arrangements.

The words used in the claim are simple English. The question is whether they create ambiguity in the context of this claim. MediaCom cites Atari Games Corp. v. Nintendo of Am., Inc., 30 U.S.P.Q.2D (BNA) 1401, 1412-13 (N.D. Cal. 1993) in support of its position that the word "predetermined" is ambiguous. In Atari the language in question consisted of a complex series of clauses describing a "predetermined relationship" between the "execution" of one computer program and the "execution" of another. The court held that the words had no readily apparent significance in that context. In contrast, here the meaning of the phrase "predetermined time and date" yields its meaning quite readily. On its face, the language signifies that a particular time and date must be selected substantially in advance of the connection. The language does not require that the person responsible for that selection be identified in order to give meaning to the claim.

The specification does indicate in several places that the rate provider predetermines the time and date of the connection. Those instances, however, appear in contexts that describe particular aspects or embodiments of the invention, and cannot be used to limit the claims. See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997) ("While examples disclosed in the preferred embodiment may aid in the proper interpretation of a claim term, the scope of a claim is not necessarily limited by such examples.") For example, the specification states that "the rate provider has the intelligent capability" to determine call-in times, a capability that is essential "in a large network." Col. 5, Lns. 6-10. This capability appears to be an advantage in large networks because staggering the calls from subscribers helps to prevent network overload that would occur if a large number of stations called in at once. Id. It does not appear necessary, however, that the rate provider must schedule the call-in times in smaller networks, for example.

Similarly, in the context of a pay-telephone calling station, the specification calls for connection via a toll number at a time "set by the rate provider." Col. 4, Lns. 23-25. But this aspect of the invention is specifically directed to an automatic billing arrangement for use with pay-telephones, which would not be suited to predetermination of the call-in times by the user of the telephone.

Finally, MediaCom points to the prosecution history to show that Rates urged predetermined by the rate provider as an advantage over prior art references. Indeed, the prosecution history contains the strongest support for MediaCom's position. It is true that in several instances Rates argued that its invention was not anticipated by earlier inventions specifically because it updates the database automatically, at times established by the rate provider, and does not require initiation by the user. The interpretation now advanced by Rates, however, is not precluded by its conduct of the patent prosecution. The factor that distinguished the '769 patent claims over the prior art was that each prior art reference required initiation by the user each time an update was desired. In contrast, Rates claimed an invention that did not require such initiation; indeed, the '769 device could update its database at predetermined dates and times. It would be a different matter if Rates had advanced a distinction between user initiated connection and provider initiated connection, but such was not the case. Rather, the critical distinction was between user initiated connection and predetermined or scheduled connection. See Capraro Decl., '769 patent file history, Amendment, Paper No. 7, p. 3-4, at M002689-90; Amendment, Paper No. 12, p. 1-2, at M002714-15; Amendment, Paper No. 15, p.8, P 3, at M002739; Notice of Allowability, Paper No. 16, p. 2-3, at M002744-45.

In the context of claim construction, the prosecution history, like the specification, is merely an aid to interpreting the language of a claim. In this case, reference to the prosecution history does not clearly overwhelm the ordinary meaning attached to the words of the claim, nor does the prosecution history indicate that Rates so limited its claim to obtain the patent that its current position is now precluded. Because the claim itself speaks clearly and unambiguously, this Court need not import terms from the remainder of the patent record to identify who determines the time and date for connection. To do so impermissibly allows statements in the prosecution history to diminish the scope of the claims. See Markman 52 F.3d at
980. Claims 1 and 11 therefore encompass a method in which the time and date for calling the rate provider are selected a substantial period in advance of the call, and in which each call to the rate provider need not be initiated by the individual user.

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3. Claim 1

Terms and phrases within subsections (b), (d), and (e) of Claim 1 require construction. Claim 1(b) states:

triggering the activation of a high voltage and current generator in response to said sensed presence, said generator coupled between said high voltage electrode and said reference electrode, said triggered generator being activated for a predetermined time period.

There are two terms in Claim 1(b) that require construction: "triggering" and "predetermined time period."

With respect to the "triggering" term, Agrizap argues that triggering is defined as "any manner of initiating, actuating or causing activation of a high voltage and current generator in response to the sensed presence, such as through hardware, software or any combination thereof." (Agrizap's Reply Br., at 8). Woodstream argues that Agrizap's definition of "triggering" is unsupported by the patent and does not consider the term in the context of Claim 1(b). Woodstream's proposed construction is: "the sensed presence of a pest results in an immediate and irreversible triggering of the high voltage and current generator without regard to any verification of the sensed presence." (Woodstream's Reply Br., at 7). In response, Agrizap argues that the triggering is neither immediate nor irreversible because after the pest makes contact, the invention allows for a delay to prevent triggering based on the momentary presence of a pest. According to the specification, when a pest makes contact, a voltage drop on the triggering mechanism occurs and there is a delay of the rising voltage to ensure that the timer is not activated by a momentary presence of a pest. (636 patent, col. 8, lines 21-36).

This Court will construe the "triggering" term as:

the sensed presence of a pest results in an immediate and irreversible triggering of the high voltage and current generator.

As Woodstream argued, the triggering is immediate and irreversible upon sensing the pest. The specification supports this conclusion. See Phillips, 415 F.3d at 1315 (stating that specification is single best guide for determining meaning of disputed term). The specification states that "[g]ood contact must be established before [the] current will be large enough to trigger a timing circuit." (636 patent, col. 4, lines 32-36). Furthermore, the specification states that after the voltage drop, "Capacitor 10 creates a time constant which delays the rising voltage on TTRIG 99 to ensure that the timer is not activated by a momentary presence of a pest." (636 patent, col. 8, lines 32-36). Thus, the triggering of the activation of the generator does not occur until after the delay of the rising voltage in the triggering mechanism. Once this delay has occurred, the generator is triggered immediately and there is no indication in the patent that it can be reversed.

The second term within Claim 1(b) that requires construction is "predetermined time period." According to Claim 1(b), the triggered generator is activated for a "predetermined time period." Agrizap contends that "predetermined time period" means "a time period determined or set prior to triggering of the generator, the time period being set in any manner, including using manually or through hardware, software/ firmware, or any combination thereof. The time period can also comprise any number of shorter cycles." (Agrizap's Reply Br., at 12). Woodstream argues that "predetermined time period" means "a single, distinct, fixed time period between activation and deactivation of the generator." (Woodstream's Reply Br., at 8). Woodstream further states that the "predetermined time period cannot be indeterminate in the amount of time or number of times that the high voltage generator is activated." (Id.).

This Court will construe "predetermined time period" as:

the time period between activation and deactivation of the generator that has its length programmed prior to the triggering of the generator.
The specification supports the construction that the predetermined time period is not of one set length. According to the specification, "the predetermined time period can be easily adjusted to suit the application and the available power." (636 patent, col. 4, lines 42-44). A more thorough description states that the predetermined time period is:

programmed through the selection of the values of resistor 14 and the capacitor 16, and proportional to the values of the resistor 14 and capacitor 16. Those of skill in the art will be able to program such a timer to attain the desired timing values from the data sheet provided with the timer. The amount of time necessary to reliably dispose of a particular pet will depend on the typical size of the type of pest to be dispatched and amplitude of the current and voltage the high voltage and current generator is capable of producing.

(636 patent, col. 8, lines 54-60). Therefore, while the "predetermined time period" is a definitive time period, it is not of definitive length until it is programmed prior to triggering.

The Court construes the phrase "waiting for a predetermined time period . . ." to mean "waiting a predetermined period of time before varying the absorption of power from the reversing magnetic field, the predetermined period of time being substantially equal to the time required for the transient associated with the generation of the reversing magnetic field to decrease to a level sufficient for the reader to distinguish the transient from the variation in absorption of power."

The parties dispute the meaning of only one phrase of Claim 10: "applying a positive direct current to said distal tip for a predetermined time period." The written description discusses the phrase "predetermined time period" in connection with an embodiment of the invention:

As will be described below in greater detail in connection with the third embodiment of FIG. 3, after placement of secondary coil 28 within the interior of the aneurysm, a direct current is applied to wire 10 from a voltage source exterior to the body. The positive charge on secondary coil 28 within the cavity of the aneurysm causes a thrombus to form within the

B. The '133 Patent - Claim 10

Claim 10 patent provides:

The apparatus of claim 1 where said distal tip is detached from said wire by applying a positive direct current to said distal tip for a predetermined time period.
an aneurysm by electrothrombosis. Detachment of the tip occurs either: (1) by continued application of current for a predetermined time when the portion 18 is exposed to blood; or (2) by movement of the wire to expose portion 18 to blood followed by continued current application for a predetermined time. Ultimately, both threadlike portion and stainless steel coil 26 will be completely disintegrated at least at one point, thereby allowing wire 10 to be withdrawn from the vascular space while leaving secondary coil 28 embedded within the thrombus formed within the aneurysm.

('133 Patent, Col. 7:61 - 8:10.)

The written description discusses other embodiments in which detachment is achieved by conditions other than applying current for a predetermined time period:

Many alterations and modifications may be made by those having ordinary skill in the art without departing from the spirit and scope of the invention. Still further, the diameter of the wire, various of the wire described above and the stainless steel coil immediately proximal to the detachable tip may be provided with differing diameters or cross sections to vary the times and current magnitudes necessary in order to effectuate electrolytic detachment from the tip. Still further, the invention may include conventional electronics connected to the proximal end of the wire for determining the exact instant of detachment of the distal tip from the wire.

('133 Patent, Col. 12:17-35.)

The Court finds that one of ordinary skill in the art would understand the term "applying a positive direct current to said distal tip for a predetermined time period" to have its customary meaning, namely, applying current for a time period that is determined in advance.

The Court construes "predetermined time period," as it is used in the phrase, "applying a positive direct current to said distal tip for a predetermined time period" in Claim 1 of the '133 Patent to mean:

applying a positive direct current to the distal tip for a time period determined in advance of the initiation of the detachment process.

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32 The phrase "predetermined value" is used in claims 7, 10, 22, and 31 of the '259 patent. The phrase "predetermined measure" is used in claims 9, 24, and 33 of the '259 patent. The phrase "threshold value" is used in claims 8, 23, and 32 of the '259 patent.

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1. ADE's Position

ADE proposes that "predetermined value should mean "a value determined prior to comparison of the value to the ratio of the signals" and "predetermined measure" should mean "a value or functional relationship determined prior to comparison with the ratio of the intensity signals."(JCCS at 10-11.) ADE also asserts that "threshold value" should mean "a minimum value." (Id. at 11.)

2. KLA's Position

In contrast, KLA argues that "predetermined value" should mean ""a value determined prior to scanning the workpiece"" and "predetermined measure" should be construed to mean ""a measure determined prior to scanning the workpiece."" (Id. at 10-11.) KLA then suggests that the Court construe "threshold value" to mean ""a value determined prior to scanning the
workpiece." (Id. at 11.)

3. Analysis

"Value" and "measure" have ordinary meanings representing numerical quantities. MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 1301, 719 (10th ed. 2002). Similarly, "predetermined" means fixed before another event occurred. Id. at 915. The parties' real dispute is over when those values and measures are set, i.e., when the predetermination occurs. The answer to that question cannot be determined from the claims in which the phrases are found and thus requires resort to the remainder of the intrinsic record.

Referring to the '259 patent claims in which the phrases "predetermined value" and "predetermined measure" appear (claims 7, 9, 10, 22, 24, 31, and 33), the system controller, comparator, or classifier either compare or classify signals to detect defects on the surface of the workpiece being scanned. ADE directs this Court to col. 11 II. 10-49 of the '259 specification for a construction of the phrases "predetermined value" and "predetermined measure." (JCCS at 10-11.) KLA also directs the Court to the same passage, which discusses the algorithm depicted in Figure 16 of the '259 patent.

As earlier discussed, supra at 5-6 and 34-36, Figure 16 of the '259 patent teaches an algorithm for comparing the signals from the center, back, and forward channel detectors to determine whether a defect is a pit or particle. Although it is evident from the discussion of this algorithm in the '259 written description that the value or measure used in the comparison must be determined before the signals are compared, there is no support, as KLA suggests, for concluding that the value or measure must be determined before a scan is performed. (See D.I. 627, '259 Patent Prosecution File History, '259 patent at col. 9 I. 25 to col. 11 I. 36.) The Court, therefore, concludes, as ADE proposes, that "predetermined value" and "predetermined measure" mean a value or measure determined before the signals are compared. Similarly, there is no basis in the '259 specification for restricting the determination of a "threshold value" to a point in time preceding the scanning of the workpiece, as KLA suggests. The Court holds that it means a numerical quantity "above which something is true or will take place and below which it is not or will not." See MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 1225 10th ed. 2002).

3293

3. Plurality of Predetermined Waveforms

Again, Seeq proposes augmenting the definition of "a plurality of predetermined waveforms" with a description taken directly from the preferred embodiment, specifically from column 4, lines 8-18, and adding to it that the "six predetermined waveforms are illustrated in Figures 7A and 7B of the '269 Patent (where the seventh pattern, "idle," is zero)." Level One objects that what is stored in memory is data that "represents" a plurality of predetermined waveforms and how the data represents the waveforms may vary. Therefore, the term cannot be limited to the example shown in Figure 7B which happens to show the data patterns in seven time segments as four-bit data words.

Level One is correct that the predetermined waveforms are "representative" rather than actual. The specification repeatedly refers to them as such. '269 Patent at Abstract, 4:8-16. The specification also specifically notes that the applicants found that a value of N equal to seven provided sufficient temporal resolution, '269 Patent at 4:25-28, but suggests that other values could readily be substituted.

Apart from the dispute over whether the predetermined waveforms are representative or as depicted in Figures 7A and 7B, it is not clear that the parties disagree. The section of the preferred embodiment cited by Seeq consistently refers to the predetermined waveforms as "representative of a desirous output response by a hypothetical transmit filter when excited with predistorted Manchester encoded data." '269 Patent at 4:9-11. While Level One appears to have no objection to this description and it is useful to understanding the term at issue, the court is not inclined to import it into the definition of "a plurality of predetermined waveforms." The court rejects defendant's theory of claim construction, which would incorporate any description of a given claim term in the specification into the claim itself. As the court has already noted in this order, it is not the purpose of a Markman hearing to seek to strategically limit a patent's claims under the guise of a genuine dispute as to meaning. While claims are read in light of the specification, "it does not follow that limitations from the specification may be read into the claims . . . ." Sjolund v. Musland, 847 F.2d 1573, 1581 (Fed. Cir. 1988); accord E.I. Du Pont de
Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988) ("It is entirely proper to use the specification to interpret what the patentee meant by a word or a phrase in the claim. But this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.") (citations omitted); see also Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997).

Both parties seem to understand that predetermined waveforms are simply representative waveforms set in advance to compensate for known transmission distortion. Therefore, the court adopts that construction.

3294

The district court construed the limitation "progressive . . . predetermined winning combination" to mean the precise elements necessary to achieve bingo in a particular game are known before the first bingo ball is drawn. Infringement Decision, slip op. 10. All of the asserted claims contain this limitation. The district court's opinion for both non-infringement and invalidity rested on its reading of this limitation.

Claim 2 of the '289 patent shows this limitation in context: n1

2. The method of playing a game of bingo comprising:

   a) providing a player with a bingo card having a plurality of numbered spaces formed as a matrix having five rows and five columns used in the play of a five-by-five bingo game;

   b) providing a plurality of bingo balls, each having individual numbers corresponding to the numbered spaces on the bingo card;

   c) a player making a first wager to be eligible for the five-by-five bingo game;

   d) a player making a second wager to be eligible for a progressive jackpot;

   e) randomly selecting consecutive bingo balls;

   f) awarding a first preselected amount when the player achieves a predetermined winning combination on the five-by-five matrix of the bingo card;

   g) designating a portion of the second wager to a separate progressive jackpot pool;

   h) establishing a predetermined combination as a winning combination for the progressive jackpot pool; and

   i) awarding the progressive jackpot pool to the player when he achieves the predetermined winning combination on the bingo card.

'289 patent, col.7 ll.31-55 (emphasis added).

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n1 The district court found this claim invalid in view of HOTBALL but offered no decision regarding infringement of this claim.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

On appeal, GameTech argues that, the "progressive . . . predetermined winning combination" limitation requires fixation of the entire winning combination before drawing the first bingo ball in any given bingo game. According to GameTech, a player of a Planet Bingo game will know ahead of time that "red" squares will give the progressive bingo and the position of those red squares on the board, but a player of Rainbow Bingo will not know this information until after the first ball is
drawn. Planet Bingo responds that "progressive . . . predetermined winning combination" merely requires that the participants in the game know, before the start of play, the predetermined rules for winning a progressive jackpot. Planet Bingo argues that the disclosure only requires that the player know in advance that he (according to claim 2 of the '289 patent) is playing for a red bingo to win the progressive prize, not what the exact location on the board the red squares will be before the game begins. Thus, the claims recite a "progressive . . . predetermined winning combination," but the parties dispute what must be predetermined before drawing the first bingo ball.

The claim language governs claim meaning. Phillips v. AWH Corp., 415 F.3d 1303,1312 (Fed. Cir. 2005) (en banc). In this case, the claim language supports GameTech's construction. The claims recite a "progressive . . . predetermined winning combination" not merely "predetermined rules" for identifying a winning combination. The rules may dictate that a "red bingo" will win the progressive game. The winning combination, however, identifies the particular squares, colored red, that will produce the progressive bingo.

Further, the claim's preamble calls for "a game" of bingo. While the rules for a particular progressive jackpot may require achieving bingo with red squares, the winning combination for that game is something different; i.e., a straight red bingo, a diagonal red bingo, a four corners red bingo, etc. Each game will have a particular "progressive . . . predetermined winning combination." The claims themselves specify that each individual game, rather than the rules for overall play, will have a different winning combination.

The specification often supplies the critical context to construe the claim language. Phillips, 415 F.3d at 1315. In this case, again, the discussion of the disputed term in the specification supports the district court's construction. Repeatedly the specification explains that the game determines the "winning combination" before the first bingo ball is drawn, thus making it "predetermined." For example, the '289 patent states: "The operator of the bingo game will designate at the beginning of the game which particular combination or combinations of covered spots will be winning combinations for that particular game." Col.1 ll.34-37. The '289 patent states that, in the preferred embodiment, "[a] winning combination is established for the progressive jackpot pool and bingo balls are randomly selected." Col.6 ll.12-13. The '289 patent uses this exact same phrase again to describe an alternative embodiment. Col.6 ll.28-29.

Likewise, the '786 patent states: "The operator of the bingo game will designate at the beginning of the game which particular combination or combinations of covered spots will be winning combinations for that particular game." Col.1 ll.41-45. The '786 patent goes on to describe a feature of the invention, the electronic display board, noting that "[p]rior to each game, some of the numbers on the display board are specifically designated with the first distinctive marking and a smaller portion of the numbers on the display board are specifically designated with the second distinctive marking." Col.3 ll.12-15.

The summary of the invention for the '786 patent states: "At the beginning of each game, an electronic random number generator selects a predetermined group of bingo numbers" which will be blue, green, red, and so forth. Col.3 ll.37-40. The '786 patent goes on to state that the electronic board illuminates the colors so that "[e]ach player can then see at the beginning of a game which of the bingo numbers have the various distinctions." Col.5 ll.31-33. Finally the '786 patent reiterates: "The only modification that a bingo establishment needs to undertake to practice the method of the present invention is to install the electronic reader board that can show different designations on the numbers on the board as well as a random number generator to predetermine which numbers are going to have which designations in a particular game." Col.5 1.64-Col.6.1.3. Thus, these passages inform the meaning of "progressive . . . predetermined winning combination," specifying both what it is and when it occurs. Specifically, the specification invariably fixes the winning combinations before a game starts.

Preemption

Plaintiff argues that preemption refers to the taking of control away from an executing thread. Microsoft argues that preemption requires more than interruption and includes the requirement that control must be not only taken away from the executing thread, but control must be given to another thread. This construction would make plaintiff's claims read against his preferred embodiment, as although control is periodically taken away from the compiler, it is only given to the editor.
when a keystroke has been entered. The court is aware of no reason to impose an additional requirement upon the term preemption.

As a result, the court determines that a thread is "preempted" when control is taken away from it.

3296

A. Preemption Request

3M proposes that "preemption request" be construed as "light pulses occurring at a repetition rate, where the repetition rate itself is a request for traffic signal preemption." To support this construction, 3M points to the '113 patent specification, which includes a description of the Long and Munkberg prior art which lead to the current patent.

With respect to Long, the specification provides that "preemption request" was described as follows: "a preemption request comprised of a stream of light pulses occurring at a predetermined repetition rate, such as 10 pulses per second." '113 patent, 1:44-47. The specification goes on to describe Munkberg as disclosing "an optical traffic preemption system wherein vehicles can transmit preemption requests at different priority levels." Id. 2:38-40. Munkberg further claimed that the priority of a preemption request is determined by the repetition rate of the light pulses. Id. 2:41-44. Based on these descriptions, 3M asserts that preemption request must be construed as "light pulses occurring at a repetition rate, where the repetition rate itself is a request for traffic signal preemption."

Tomar presently construes this claim as representing "a stream of light pulses having equal time intervals between each consecutive pair of light pulses." Tomar's Proposed Claim Interpretations, p. 26. In support of this construction, Tomar refers to the '113 specification which refers to a "predetermined repetition rate, such as 10 pulses per second" Id. 1:42-48, and to "[t]he optical emitter disclosed by Munkberg [that] can transmit light pulses at a variety of selectable predetermined repetition rates, with the selected repetition rate indicative of a priority level." Id. 2:38-44. Tomar argues that reference to a particular repetition rate, such as 10 pulses per second, represents a repetition rate with a fixed or equal time interval between pulses.

--- Footnotes ---

n1 Tomar construed "preemption request" differently in the Joint Claim Construction Statement: "[a] request for preemption transmitted by the emitter and defined by the frequency of the emitted optical signal." The Court notes no reference to an "equal time interval" in this proposed construction.

--- End Footnotes ---

The Court finds that references to certain repetition rates was provided for illustrative purposes only. See Id., 7:54-57. ("For illustrative purposes only, the data transmission scheme will be described with reference to a low priority signal having a repetition rate of 10 pulses per second.") A full reading of the specification discloses discussion of a number of other embodiments of the invention, and none of these descriptions define a preemption request as having equal time intervals between pulses. Because the claim only requires a "predetermined" repetition rate, and because the specification does not discuss preemption request in terms of having to include equal time intervals between pulses, the Court rejects Tomar's proposed construction. Instead, the Court finds that preemption request will be construed as "light pulses occurring at a repetition rate, where the repetition rate itself is a request for traffic signal preemption."

3297

# 3

# 3 -- "preference database" -- (appears in claims 14, 15, 17, 19, 29, 30, 32 and 34) Luma's Construction (Luma May 4, 2005, p. 2).
MASTER'S CONSTRUCTION

# 3 -- "preference database" -- means a database for pre-storing preference information. A database is a collection of logically related data stored together. Preference information has been construed in "# 4 preference information" below and is incorporated by reference in this construction of "preference database".

REASONS

INTRINSIC EVIDENCE

Patent claims recite preference database for pre-storing preference information. See, for example, claim 14. (Col. 48, Ls. 18-21). Also see the Specification, Col. 1, Ls. 60-63; Col. 2, Ls. 1-3 that supports the Master's Construction.

EXTRINSIC EVIDENCE

Stryker offered the Declaration of John Atkins (June 10, 2003) which attached a copy of Page 304 of the New IEEE Standard Dictionary of Electrical and Electronics Terms January 1993. The term "database" is defined and the Master used the phrase "a collection of logically related data stored together * * *" in the definition to construe the term "database".

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's position is set forth in (Luma May 4, 2005, p. 2).

Luma's construction requires hardware or software based storage. The Master does not find this limitation in the intrinsic evidence. The Master's construction incorporates the context in which the term is used in the claims. This includes the ability to store preference information.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth in (Stryker May 23, 2005, pp. 4-5).

Stryker argues and objects to Luma's "piecemeal construction". The Master dealt with this same issue although for a different term in # 2 of Master's Construction.

Stryker points to a set of claims requiring the preference database for each of a plurality of users and another set of claims requiring the preference database for each of a plurality of medical procedures. The common element in both sets of claims is the storing of preference information as stated in the Master's Construction. The storing of preference information is the limiting language in the claims for defining the preference database.

Stryker argues that the Patent does not define database to mean storage devices which is in Luma's Proposed Construction. The Master agrees. The Master has not limited the database to a storage device.

Stryker argues that the proper construction must exclude voice-recognition devices. Whether voice-recognition devices are to be included or excluded in the construction of the meaning of a preference database will depend upon whether voice-recognition meets the definition of the Master's Construction for the "preference database".

Stryker argues that a personal interface card is not a preference database. This depends upon whether the card meets the definition of the Master's Construction for a preference database.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 4). KSEA objects to Luma's Construction and argues that the term relates to a database and not to a "storage medium". The Master agrees and "storage medium" is not a limitation in the Master's Construction. Whether a storage medium comes within the meaning of a "preference database" must be determined.
against the Master's Construction. For example, if a storage medium has a database for pre-storing preference information (Master's Construction), then even though it is a storage medium, it meets the Master's Construction of "preference database" because it has a database for pre-storing preference information. KSEA gives a proposed construction that has a number of limitations that the Master does not agree should limit the construction of "preference database". For example, KSEA is asking "identifies preferences"; and "regarding the processing display and storage". Each of these may or may not come within the scope of the Master's Construction but they should not be articulated as defining the meaning of "preference database".

4. With a preference for avoiding

The second subpart of claim 9 states: "calculating a new route to a desired destination with a preference for avoiding the particular portion of the thoroughfare in the route." The parties disagree about the phrase that I have underlined. Their primary dispute concerns the meaning of "with a preference for avoiding." Plaintiff suggests that it means, "with a bias for refraining from use." Defendant defines it as "the likelihood . . . is reduced, but not eliminated." Neither construction accurately captures the description provided in the specification. I construe "with a preference for avoiding" to mean "with the possibility of avoiding." This is consistent with the specification, which explains that the device exercises "high, medium or low" levels of preference ('615 pat., col. 10, Ins. 34-35). Plaintiff again asks the court to insert "user-selected" before "portion of the thoroughfare." For the reasons discussed in Section 3 above, I decline to do so. Accordingly, I construe the disputed phrase as: "with the possibility of avoiding the particular portion of the thoroughfare in the route."
CRT displays) preferentially used by the physician during the procedure (step 222); and

Col. 29, Ls. 1-4:

CPU 38 also maintains and updates the preference information in response to changes ordered by the physicians.

The Master's construction is consistent with the file history (Applicant's Response (Bates LUM 0000191) to Office Action mailed April 18, 1994 Remarks p. 4-6).

EXTRINSIC EVIDENCE

The testimony of Branson at the Markman hearing is not inconsistent with the Master's Construction (Markman Hearing Tr. 29:11-21; 37:10-25; 38:1-19; 44:1-14).

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's Construction is stated in (Luma May 4, 2005, p. 2). Luma's Construction places more limitations on the construction which the Master does not believe are warranted such as "parameters or settings that can be modified to reflect preferences". These are not excluded and may be included providing they are not inconsistent with the Master's Construction.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker gives its position in (Stryker May 23, 2005 p. 6).

Stryker objects to Luma's "piecemeal construction". The Master has dealt with this issue for # 2 above. Stryker argues that "preference information" indicate physician - preferred "visual representations". The Master has construed that it means information preferred by a user of the system. Preference information is not limited to "visual representations". It may include "visual representations". It may include visual representations but it is not limited to "visual representations". Stryker argues that depending on which set of claims are real "preference information" can be informative in connection with a medical procedure. The Master has construed the term to cover either information specific to user preference or information specific to procedure or both.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 5).

KSEA argues that the term cannot be interpreted without the surrounding claim language. The Master has construed the term. The language in the claims surrounding the term stand as limiting language but the surrounding limiting language should not be incorporated into the term to be defined or construed. KSEA's Proposed Construction proposes limitations in the construction of the term "preference information" that are not warranted. KSEA narrows the construction beyond the meaning of the term as referred to in the Patent Specification. KSEA's concerns that Luma has proposed language as unjustifiably broad will be addressed when all the language of the claims are taken into account. Other language in the claim will have the effect of limiting the scope of "preference information". That is the purpose of the other language in the claims.

GO BACK

3300

1. "preliminarily"

Initially, the parties dispute the meaning of the language in claims 1 and 91 of the '086 patent: "using preliminarily an unfilled tubular sock-like projectile body having a closed front end and a rear edge bounding a rear opening thereinto." '086 patent, 5:5-7. Plaintiff argues that this phrase describes the initial shape of the projectile body, "preliminarily" or "prior to" taking the first step in the patented preparation process. Under plaintiff's proposed construction, the "projectile body" may have multiple openings at earlier stages in the preparation sequence, as long as a closed front end is formed prior to taking
the first enumerated step in plaintiff's patented preparation method, which is filling the sock-like body with shot.

--- Footnotes ---

1 Claim 1 of the '086 patent is identical to Claim 9, except that the word "constricting" is replaced by "delineating." Claims 1 and 9 are the two independent claims in the '086 patent.

--- End Footnotes ---

Defendants disagree. They argue that the inclusion of the word "preliminarily" requires "that the method of shaping a low lethality projectile starts with using an unfilled tubular sock-like shape, i.e., a tube shape hollow body having a single inner compartment formed by one closed end opposite one opening formed by a rear edge." Def. Br. at 6. 2 Defendants argue that the claim requires that the projectile body have only one opening at the very beginning of the preparation process, prior to the employment of any steps taken to shape the projectile body, not merely prior to the first enumerated step in plaintiff's patented preparation method.

--- Footnotes ---


--- End Footnotes ---

**The plain meaning of "preliminarily" is "at first" or "prior to."** In the patent claims, "preliminarily" is used as an adverb which modifies "using," meaning that the claimed preparation process begins by using "an unfilled tubular sock-like projectile body having a closed front end." Therefore, the claim covers all processes which use an "unfilled", "tubular", "sock-like" projectile body prior to taking the first enumerated step in the preparation process of filling the projectile body with shot.

**GO BACK**

**3301**

3. "Prepaid Calling Card Accounts." Used in '768 patent, Claims 1-3 and 5-10.

TGIP proposes "prepaid accounts capable of being used to obtain telephone service." The Defendants do not think this term should be construed. If the term is construed, Defendants suggest "an account associated with a prepaid calling card."

The '768 patent describes a "pre-paid card system having a remote terminal to provide on-site activation and recharging of cards in customer defined amounts." '768 patent, col. 1, 11. 12-14 (emphasis added); see also '768 patent, Abstract. During the reexamination process the patentee distinguished the '768 patent from an earlier Japanese patent (Yamaki) in view of an earlier U.S. patent (Leaden, U.S. Patent No. 5,327,485) by asserting that the '768 patent system did not involve cards. TGIP emphasizes that the '768 patent Reexamination Certificate claims only systems with "pre-paid calling card accounts," and that there is no requirement for there ever to have been a calling card. (Actually, the patent and the prosecution history strongly suggest that the system involves the distribution of physical cards of some type, and certain claims actually use that term, but this does not affect the analysis.)

As with the '114 patent, nothing suggests that a physical card must be maintained or actually present to make a phone call. The security number (or whatever one wants to call the code or information used to access the telephone system and charge the call against the particular calling card account) can be memorized. But to simply say a "prepaid calling card account" is merely a prepaid account capable of being used to obtain telephone service is simplistic and would include the account of every homeowner who pays the monthly bill in advance for basic land line service.

The '768 patent is a continuation in part of the '114 patent. While the '768 patent focuses on a system of "accounts" rather than on the "pre-paid cards" no attempt is made to suggest that each of these accounts is not associated with some kind of distinguishing access information, sometimes called a "security number," '768 patent, col. 3,11.64-65, or "security code," '768 patent, col. 5, 1.47, which the user enters to gain access to the system. To the contrary, the patentee constantly emphasizes the connection between the account and a security number. '768 patent, col. 2, 11. 36-38; '768 patent, col. 211.
Therefore, the court will define this term as follows:

"Pre-paid calling card account" is "a record maintained in a data base which, when activated, allows a user with the access information for that account to obtain access to a phone system or network."

4. "Preparing Electronically"

Simplification's Construction  Block's Construction
Preparing an electronic tax return by way of devices, circuits, or systems utilizing electron devices.  The act of completing automatically without manual intervention from the user.

Outside of the dispute over the meaning of "electronically," the parties dispute whether the word "preparing" in this claim term should be understood to imply "completeness" (Block's position) or not (Simplification's position). Block notes that the specification explains that "[i]n step 15, the electronic intermediary electronically files the electronic tax returns prepared in step 14 with the taxing authorities." (‘052 patent at 6:63-64.) According to Block, because tax returns that were "prepared" in step 14 may then be filed with the taxing authority in step 15, those tax returns must have been "completed" during the "preparing" step. Block further contends that, in normal usage, "if one asks an accountant to prepare a tax return, then the accountant understands that the tax form (e.g., IRS Form 1040) is to be completed." (D.I. 79 at 26.)

Simplification's briefing on this term appears focused on the meaning of the word "electronically." 3 Nevertheless, as part of this argument, Simplification notes that the specification explains that "step 14" - the tax return preparation step - could be implemented using prior art technology, such as TurboTax software. (D.I. 85 at 23-24.) Such prior art software, Simplification explains, required the taxpayer to print, sign and submit an original signature even when e-filing. Likewise, Simplification explains that even when using prior art software, the taxpayer still needed to complete an IRS Form 8453-OL and that the IRS did not consider a tax return to be completed until it received that signed form. (Id.) Thus, because the specification supposedly embraces the use of prior art techniques for "preparing" a tax return, and because these techniques clearly did not yield a truly completed tax return, Simplification apparently contends that it would be inconsistent with the specification to construe "preparing" to imply "completeness."

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

3 The parties do not appear to hotly contest the issue of whether the term "preparing" should imply "completeness." Indeed, Simplification asserts that it is "unclear whether the parties' competing definitions of 'preparing' as 'preparing' or 'the act of competing' reflect a substantive difference," and then devotes the remainder of its briefing to the issue of how the term "electronically" should be construed. (See D.I. 85 at 23-24.)

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

However, as explained above, the Court concludes that, at most, the specification explains that certain steps can be completed using software "similar" to prior art software. See supra Part II.B. On the whole, the specification and prosecution history distinguish the invention from prior art software, particularly on the basis of the prior art requiring manual involvement by the taxpayer. Block's proposed construction, which calls for the tax return to actually be "completed" through the process of "preparing" the tax return, is much more in line with the idea of the fully-automated tax preparation system that is presented in the specification and prosecution history of the patents-in-suit. Indeed, should the process of "preparing" a tax return result in only a partially completed tax return, manual intervention by the taxpayer would be required. But, as set forth above, Simplification relegated such manual input to the unclaimed initiation procedure.
described in the specification as "Step 11." Put another way, allowing for manual intervention following the preparation of a partially completed tax return would be akin to "start[ing] the rinse cycle" or "add[ing] the water" in an automatic dishwasher, which are the sort of actions Simplification specifically explained were not required in the present invention. (D.I. 79, Exh. F at 16:13-18, 17:11-14.) Accordingly, the Court concludes that "preparing electronically" means, as Block contends, "completing without manual intervention from the user."

C. "preparing first and second substrates provided with active elements"

Plaintiff proposes that "preparing first and second substrates provided with active elements" be construed to mean "preparing the first and second substrates such that at least one substrate has active elements." Defendants counter that the phrase should be construed to mean "preparing the first and second substrates so they both have active circuit elements, which are components (such as transistors) whose operation involves the activity of a semiconductor junction." Plaintiff does not dispute defendants' definition of "active element." Rather, plaintiff argues that both substrates need not have active elements.

The grammar of the disputed element is certainly awkward. Slight alterations of the language would unequivocally support both parties positions. For example "providing first and second substrates with active elements" or "preparing first and second substrates with active elements" would more clearly support defendants' construction. Alternatively, "preparing first and second substrates, including active elements" and similar variations would comport with plaintiff's construction. As drafted, the language defies easy understanding. n5

n5 The court deplores the sloppy claim language that disregards fundamental rules of grammar. As a general rule poorly drafted language is entitled to a narrow meaning. Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996); see also Ethicon Endo-Surgery Inc. v. United States Surgical Corp., 93 F.3d 1572, 1581 (Fed. Cir. 1996). If read literally, adhering to proper grammatical construction, the phrase "provided with active elements" clearly modifies "first and second substrates," thus indicating that both substrates must have active elements. If plaintiff really meant what it now argues, the drafter should have used language such as "preparing a first substrate and a second substrate at least one of which is provided with active elements". While it is axiomatic that the drafter is his own lexicographer, the corollary principle should also control: the drafter is his own grammarian and he is bound by his own grammar whether good or poor. Nonetheless, in this case it would appear that the drafter's poor choice is contrary to the overall context of the patent (which does not devote any significant discussion to the preparation of the substrates), the relationship of independent claims such as claim 62 to narrower dependent claims such as claim 64, and the examiner's comments during prosecution, all of which favor the broader construction.

The claims depending from claim 62 help to resolve the ambiguity. Claim 64 covers "[a] method according to claim 62, wherein active elements are provided with the first substrate." 995 patent Cl at 8:19-20. Under defendants' proposed construction, claim 64 would be completely superfluous, as claim 62 already would require that both the first and second substrates have active elements. While defendants correctly point out that the doctrine of claim differentiation does not override unambiguous claim language, the meaning of the disputed element in this case is unclear. Claim 64 thus provides helpful guidance.

The file history also tends to support plaintiff's construction. The examiner noted twice during prosecution that "[a] step of preparing first and second substrates provided with active elements' is understood by the examiner to be satisfied when either or both of the substrates have active elements." Harris Dec., Exh. 8 at 9; id., Exh. 9 at 7. Defendants argue that the views of the examiner should be given little weight, and that plaintiff should not benefit from allowing the confusing language to remain in the claims. The fact that the examiner adopted plaintiff's interpretation, however, may have discouraged plaintiff from amending.
The court therefore construes the disputed phrase to mean "preparing the first and second substrates such that at least one substrate has active elements."

"preparing to transmit the data packet" is construed to mean accessing the header of a packet to make a decision on where to send the packet and to obtain the marking field. Newbridge contends that this phrase should be defined to mean "that the data packet is at the transmit side of a buffer and is being made ready for sending to its next destination." (D.I. 547 at 20). In other words, Newbridge's proposed construction would limit this phrase to "output dropping" which is dropping performed on the output side of the buffer. After reviewing the claim language and the specification, the Court concludes that Newbridge's construction would exclude the preferred embodiment, because the preferred embodiment drops packets before they are placed in a buffer. The Court's construction of this phrase is supported by the specification, which explains:

The packet proceeds through the access node 20 of FIG. 1 to an output controller before being put into an output buffer associated with the output link, through which the packet is to be transmitted. At that time, the information in the packet header field, reserved for the marking signal, is forwarded to a packet dropping logic circuit 53 . . ."

(811 Patent, col. 8, ll. 40-49) (emphasis added).

Turning to "prepayment amount" (as it is used in steps (a) and (b)), the parties dispute (1) whether the amount stored at the special exchange must equal the amount paid, and (2) whether the amount must be paid by the user. Aerotel contends claim 1 contains no such limitations, while Telco argues that the claim contains both. (See Joint Claim Chart, at 2-3; Def.'s Opening Br. 14-15).

The specification speaks directly to the parties' first dispute. Specifically, the first paragraph of the specification's general description outlines the process whereby a user obtains a special code and the special exchange stores an account's balance:

The customer, such as a regular telephone user or a traveler[,] acquires a special code, a credit amount and the telephone number of the special central offices by either a cash or credit card payment. The code[, the credit amount and telephone numbers may be acquired, for example[,] through the regular credit card companies and charged to the acquirer's account. Alternatively, the credit amount, the telephone numbers and identifying code can be purchased at sales points such as in airports[], hotels, rent-a-car stations and the like. The amount paid is credited to the acquirer for use against future telephone calls. The credited amount is stored in a memory at the special central office along with the special code. (Col.1 ll.1-6; 12-16 (emphasis added).)

Consistent with the principle that the specification "is the single best guide to the meaning of a disputed term," Vitronics, 90 F.3d at 1582, the Court finds that "prepayment amount" of steps (a) and (b) is the precise amount deposited by a user to obtain a special code, not any amount credited to the user by the prepaid system operator. The express language of steps (a) and (b) further supports this conclusion. Step (a) describes "obtaining a special code by depositing a prepayment amount." Step (b) then refers back to step (a), and calls for "storing the prepayment amount"--i.e., the prepayment amount of step (a)--"in a memory in a special exchange for use in verifying calling party calls."

While the amount paid must be the amount credited, the specification does not teach that the prepayment amount must be paid by the user who ends up making a prepaid call. Step (a) nowhere says who "obtain[s]" a special code. And the two examples of how a special code is obtained are similarly silent on the relationship between the person who acquires the code and the person who makes a call. The Court therefore does not read steps (a) and (b) to contain a limitation that the user of the prepaid telephone system must be the person who deposited the prepayment amount.
"Prepayment amount," as used in steps (a) and (b), is the exact amount of money deposited to obtain a special code. It may be deposited by anyone.

3306
a. Prepayment amount

Step (h) of claim 1 calls for "monitoring the prepayment amount less deductions for the running cost of the call." As noted above, see supra II.C.2, steps (a) and (b) use "prepayment amount" to refer to the exact amount of money a user deposits to obtain a special code. Step (f) calls for the system to compare "the prepayment amount less any deduction for previous calls" with "the minimum cost of the inputted call." Thus, there is something strange about step (h): it calls for deducting "the running cost of the call" from the prepayment amount in the monitoring operation, but not the cost of previous calls.

The parties draw different conclusions from this omission. According to Aerotel, the claim as a whole reflects an intent to monitor an account's balance; "prepayment amount" in step (h) is shorthand for "the prepayment amount less any deduction for previous calls' referred to in step (f)." (Joint Claim Chart, at 7.) Telco, however, contends that the "prepayment amount" of step (h) has the same meaning in steps (a), (b), and (f): "[a]n amount of money deposited by a user with the prepaid telephone service to receive a special code." (Id. at 6, 2.)

The Court has little doubt that at some point, the drafters of the '275 patent intended the claim to include a limitation similar to step (h) that referred to an account's balance. In the original version of the patent, step (a) referred simply to a "prepayment," while the rest of the claim referred to the "credit" associated with a special code. (See Nov. 1985 Amdt., at 1-2.) The claim thus distinguished between two values: the amount of money a user deposited to establish an account (the "prepayment"), and the amount of credit available to an account ("credit").

Yet by amending the claim to use the same term ("prepayment amount") to refer to both the "prepayment" and the "credit" linked to an account, Aerotel precluded a reading of claim 1 that draws this distinction. Interpreted in light of the specification, "prepayment amount" refers to the amount of money deposited by a user to establish a prepaid account. See supra II.C.2. Consistent with this understanding, step (b) refers to storing that amount in memory, and step (f) refers to comparing that amount "less any deduction for previous calls in the memory" with the "minimum cost of the inputted call." Without resorting to principles of construction derived from Through the Looking Glass, the "prepayment amount" of step (h) cannot suddenly and without explanation mean the total credit then available in an account. See Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350 (Fed. Cir. 1999) (rejecting contention that same term can have two different meanings within a claim); Banyan Licensing, L.C. v. Orthosupport Intern., Inc., 34 Fed. Appx. 696, 698 (Fed. Cir. 2002) (recognizing that in Process Control Corp. "[t]he court held that the phrase used in the same way in the same claim had to be interpreted in the same way") Phonometrics, Inc. v. Northern Telecom Inc., 133 F.3d 1459, 1465 (Fed.Cir.1998) ("A word or phrase used consistently throughout a claim should be interpreted consistently."). See also Helmsderfer v. Bobrick Washroom Equipment, Inc., 527 F.3d 1379, 1383 (Fed. Cir. 2008) ("Courts cannot rewrite claim language."); SRAM Corp. v. AD-II Engineering, Inc., 465 F.3d 1351, 1359 (Fed. Cir. 2006) ("[W]e are powerless to rewrite the claims and must construe the language of the claim at issue based on the words used."); Pfizer, Inc. v. Ranbaxy Labs. Ltd., 457 F.3d 1284, 1292 (Fed. Cir. 2006) ("[C]laim 6 could have been properly drafted either as dependent from claim 1 or as an independent claim--i.e., 'the hemicalcium salt of atorvastatin acid.' But, we 'should not rewrite claims to preserve validity.'" (quoting Nazomi Commc'nns, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1368 (Fed. Cir. 2005)).

Thus, although it is possible to discern a contrary interpretation from the patent's history, "prepayment amount less deductions for the running cost of the call" means what it says: the exact amount of money deposited to obtain a special code, supra § II.C.2, less the running cost of the current call.
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

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<tr>
<th>Term</th>
<th>Court's Construction</th>
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<tr>
<td>… prepending given data to a content provider-supplied URL to generate an alternate resource locator (ARL) …</td>
<td>… generating an alternative resource locator (ARL) by adding a name or other identifier that can be translated by a domain name system into the IP address of a content server to the beginning of the URL of an embedded object supplied by a content provider …</td>
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Claim 17 describes several steps comprising a "content delivery method" which, inter alia, requires modifying the URL of an embedded object to generate an alternative resource locator ("ARL"). (‘703 Patent, Claim 17.) This ARL is then "resolv[ed] to identify a content server in [a domain other than a content provider's] domain." (Id.) Thus, the language of the remaining steps in the claim limits "given data" to a string resolvable to the address of a content server in the content delivery system.

4. Pre-programmed logic

The term "pre-programmed logic" appears in claim 4 of the '681 Patent. Diagnostic asserts that "pre-programmed logic" should be construed as "software and/or hardware that provides preset responses dictated by the test subject's inputs." Benson asserts that the term "pre-programmed logic" must include the logical testing procedure and proposes that it be construed as a "pre-programmed logic for the hearing test." Benson also claims that while it does not necessarily disagree with Diagnostic's proposal, its proposed construction is more straightforward.

The definition of "preprogram" is "to program in advance." American Heritage Dictionary 1431. The definition of "logic" in the field of computer science is "a. The nonarithmetic operations performed by a computer, such as sorting, comparing, and matching, that involve yes-no decisions, b. Computer circuitry, c. Graphic representation of computer circuitry." Id. at 1057. Using these definitions, the ordinary meaning of "pre-programmed logic" is computer source code (software) programmed into a device and/or computer circuitry (hardware) for performing a specified function.

The Court next examines the intrinsic evidence and determines that the ordinary meaning has not been rebutted. However, remarks made by the patentees in the Amendment clarify the meaning of "pre-programmed logic" in the context of the invention. Specifically, the patentees stated that: "the conventional audiometer has certain, but limited, logical functions during the testing procedure. These logical functions provide certain pre-programmed responses dictated by the test subject's inputs." (Amend, at 9.) These remarks demonstrate that "providing preset responses dictated by the test subject's inputs" is the "specified function" of the software or hardware. On the other hand, there is nothing in the intrinsic evidence that persuades the Court to import Benson's proposed "for the hearing test" limitation into the construction. Therefore, the term "pre-programmed logic" is properly construed as "software and/or hardware that provides preset responses dictated by the test subject's inputs."

C. "Prescribed coupon limits"

The district court construed "prescribed coupon limits" as being "predetermined limits on the number of coupons..."
collectively and per store." District Court Opinion at 20. On appeal, Catalina argues that the district court's construction is too limiting. Instead, it argues that "prescribed coupon limits" should have been construed as the "designated maximum quantity or number" of coupons. Catalina's argument, however, is refuted by the prosecution history of the '041 patent.

During the course of prosecuting the '041 patent, the named inventors amended the term "prescribed coupon criteria" in their original patent application to "prescribed coupon limits." Going further, they stated that, according to the specification, the term "prescribed coupon criteria" was "exemplified by the per store limits, the per day limits and the per customer limits as indicated." District Court Opinion at 20. In explaining their amendment to claim 1, they stated that, "Claim 1 has been amended and the phrase 'prescribed coupon criteria' has been replaced by 'prescribed coupon limits' which may more effectively communicate the same idea." Id. What the inventors represented to the patent examiner at the time of prosecution Catalina cannot now retract.

Accordingly, the district court's construction of "prescribed coupon limits" is upheld.

3310

1. "Prescribed set of reverse control channels". A predetermined range of frequencies that transmit control information in only one direction, from a cellular telephone to a cell site.

The invention disclosed in the '144 patent is limited to "the different use of the control signal" (D.I. 144 at A160), that is, using the reverse (as opposed to the forward) signal. (D.I. 144 at A146-151) The reverse control signal is characterized by the kind of information it carries (e.g., "information for establishing a voice communication link between the cellular phone and the cell network," D.I. 168 at B567) and the direction in which such information is being carried (from the cellular telephone to the cell site). The patentee, however, added another distinguishing characteristic to the claimed invention, that is, that the signals be transmitted "over one of a prescribed set of reverse control channels." Because the patentee chose to describe the invention in terms of a "prescribed set" of reverse control "channels," not signals, the court must be meaning to the distinction between a "signal" and a "channel."

Plaintiff argues in this regard that a channel (without further explanation of what a "channel" is) can accommodate signals transmitted in both directions (forward and reverse); i.e., when the single control channel is transmitting one way, it is "called" a reverse control channel; when it is transmitting in the other way, it is "called" a forward control channel. (D.I. 199 at 26) Plaintiff analogizes this arrangement to a highway, with lanes dedicated to different directions. (D.I. 204 at 33) In the field of telecommunications, however, the court understands that the "lanes" of the "highway" are assigned "frequencies" (see D.I. 168 at B567-568; D.I. 150 at exs. X, Z) and that the phrase "range of frequencies" is an accurate and helpful description of what a "channel" is. Having said that, clearly the northbound lanes of I-95 do not provide for southbound traffic, and the parties have not adequately addressed the question of whether a single "lane" or frequency can, from a technical point of view, accommodate the flow of information in both the reverse and forward directions for this claim construction exercise to be any more precise.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

1 The court declines to embrace plaintiff's implied suggestion that it is the signal that defines the channel at any given time; i.e., there are no "prescribed sets" of reverse control channels.
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Preselected Condition

The Court modifies Network-1's proposed construction and construes the term as "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node." Network-1's proposed construction omits the term "of voltage on the data signaling pair." At the Markman hearing, Network-1 said it did not include this term because it is redundant as the term is already stated in the claim, "preselected condition of said voltage
level." Col. 4:29. However, this language should be included in the construction because it is helpful to the jury's understanding of the term.

D-Link's argues the term should be construed as:

preselected condition refers to three possible voltage level conditions: (1) no voltage drop; (2) a fixed level voltage drop; or (3) a varying level voltage drop. If conditions (1) or (2) are detected (no voltage drop or a fixed voltage drop), then the access device is identified as one that is unable to support remote power feed. If condition (3) is detected (a varying drop), then the access device is identified as one that is able to support remote power feed.

Network-1 argues that this construction seeks to limit the claim to the preferred embodiment. In the Markman hearing, D-Link argued that its construction is correct in light of Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc., 262 F.3d 1258 (Fed. Cir. 2001). In Bell Atlantic, the district court construed the term "plurality of different modes" as limited to three specific categories of modes. Id. at 1269. The patentee argued that the universe of modes contemplated by the patent was not limited to the three categories discussed by the district court. The court of appeals upheld the construction citing to the specification language, which stated "the system operates in one of three selectable modes." Id. at 1271. The court was careful to note that limitations from the specification generally may not be read into the claims. Id. at 1270. However, the court further based its decision on the patent prosecution history. Id. at 1273. During the patent prosecution, the patentee made concessions because the examiner rejected the relevant claims as obvious. Id. In an attempt to distinguish his invention from the prior art, the patentee made statements that narrowed the scope of "modes." Id.

In the present case, the specification language discusses three states which can be determined after the delivery of the low level current: no voltage drop, a fixed level voltage drop, or a varying level voltage drop. Col. 3:2-4. Although the language in the preferred embodiment does discuss three specific states, the Court is unpersuaded by D-Link's argument that the construction should be limited to these three states. Unlike the Bell patent, the patentee in this case did not make any concessions during the prosecution of this patent. The examiner in this case issued no claim rejections or objections, and the USPTO allowed the patent less than a year after the application was filed.

CLAIM 2

With the disputed terms in bold, claim 2 states:

2. Apparatus according to claim 1, wherein there are at least two data signaling pairs connected between the data node and the access device to supply phantom power from the secondary source to the access device, and wherein said access device includes a pair of data transformers having center taps connected for locally powering the access device.

Preselected condition

Claims 1 and 6 of the '930 Patent contain the term "preselected condition." Network-1 contends that the term means "any parameters of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node," while Defendants contend that it means "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node, where a fixed level voltage drop or no voltage drop indicates that the access device is unable to accept power from the data node." The parties disagree whether the term "preselected condition" requires detectable conditions of the resulting voltage level produced.

Network-1 asserts that Defendants improperly seek to import limitations from the specification. Defendants counter that the specification makes a disclaimer of the conditions of a fixed voltage drop and no voltage drop.

Defendants' construction does not encompass a disclaimer, but it does improperly impose additional detectable conditions of a resulting voltage level produced in response to a low level current. A "preselected condition" determines whether or not an access device can accept remote power and does not contemplate conditions that might indicate that the access device cannot accept remote power. See '930 Patent, col. 2:66-3:27. Defendants are making a misplaced attempt to include what a
preselected condition is not rather than merely stating what it is, so the additional limitation of "where a fixed level voltage drop or no voltage drop indicates that the access device is unable to accept power from the data node" is improper. Network-1's construction adds "any parameters," however the claim specifies "a resulting voltage level" on the signaling pair. '930 Patent, col. 4:24-25. Thus, the specification does not contemplate multiple or any parameters of a voltage on the signaling pair. Accordingly, the Court construes the term "preselected condition" to mean "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node."

3313

3. "presentation"

The differences between the parties' proposed claim interpretations are as follows:

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<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
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<tr>
<td>&quot;presentation&quot;</td>
<td>providing customer</td>
<td>providing via electronic means</td>
</tr>
<tr>
<td>billing data via</td>
<td>an &quot;invoice&quot; containing at</td>
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<td>electronic means</td>
<td>least the same customer</td>
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<td>and does not include the</td>
<td>billing data typically included</td>
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<td>specialized definition</td>
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<td>commercial paper</td>
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Emergis contends that the specification supports its construction. First, the specification states that "presentment' as used herein does not include the specialized definition normally associated with commercial paper." n42 Second, Emergis argues that the specification allows for more flexibility in the types of information presented rather than Cable One's construction that requires "at least the same customer billing data typically included on a paper invoice." The specification states that "[t]he billing information that may be submitted to the customer includes any combination of the following items: payment due date, amount due, detail of goods/services provided during a billing period, late charges, account information, customer information . . ., invoice identifier, e.g., invoice number." n43 The specification also states that the "invoice would include billing data such as the customer name, address, account number and email address" and "may further include bill data typically included with a paper invoice to include the period covered by the invoice, a detail of the goods/services covered by the invoice, a total amount due and a payment due date." n44 Based on the language in the specification, the construction of "presentation" need not limit the types of billing data to "at least the same customer billing data typically included on a paper invoice" as Cable One proposes. Thus, the Court will construe the term, "presentation," as "providing customer billing data via electronic means and does not include the specialized definition normally associated with commercial paper."

n42 (4:24-26.)
n43 (6:34-47.)
n44 (4:40-45) (emphasis added).

G. "Presenting . . . a Link Corresponding to the Personal Information Stored on the Personal Information Provider" ('245 Patent)

This phrase appears in every independent claim (claims 1, 2, 7, 8, and 9) of the '245 patent. CashEdge proposes that the phrase be construed to mean "displaying on the client computer a hyperlink which the end user can activate to connect to
and access the underlying Web page of the provider." Yodlee asserts that this phrase does not require construction, and that CashEdge's construction seeks to import limitations from elsewhere in the independent claims. For example, claim 1(b) states that "upon activation of the presented link . . . the client computer [is redirected] to a post login page on the personal information provider." '245 patent, col. 17, lines 7-11. The other independent claims also contain similar limitations. The Court agrees that CashEdge's construction does nothing to enhance the understanding of what this phrase means. CashEdge asserts that this construction makes clear that the purpose of the link is so the client computer can access the underlying web page of the provider, but the claims already makes this clear. '245 patent col. 17 11 7-17. No construction is necessary.

3315

a. "Said apparatus . . . presenting information to the user . . ."

Meade proposes that this claim should be construed as not requiring that the presentation of information be overlaid on the field of view. Meade provides two persuasive bases for this construction, which the Court adopts. First, Meade contends and the Court agrees that the phrase "presenting information" does not modify the term "field of view", but, rather, modifies the term "apparatus" such that the apparatus need not involve the field of view in the presentation of information. Second, the specification cites certain data presentation embodiments that cannot be overlaid on the field of view. (See, e.g., '203 Patent, 11:39-46.) Such embodiments would not be possible if the data must always be presented as a field of view overlay. Under the rules of claim construction, it requires "highly persuasive evidentiary support" to read a preferred embodiment out of a patent. Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1327 (Fed. Cir. 2000) (internal quotes deleted). The Court has found no, much less persuasive, evidence that embodiments permitting presentation exclusively via auditory means, for example, do not fall within the scope of the '203 Patent. Finally, under the doctrine of claim differentiation, the Court finds that because dependent claims 2, 5 and 16 specifically claim visual display of information, the Court cannot construe this phrase in the independent claims to include such a limitation. See 5A Chisum on Patents, § 18.03[6] (1999) (noting that ordinarily the language of one claim should not be interpreted to make any other claim identical in scope). Accordingly, the Court agrees with Meade that the presentation of information need not occur via an overlay on the field of view.

3316

a. Presenting to a form user over a computer network by a third party forms servicer a form.

Defendant contends its XAP System does not "present" a form to a user within the meaning of Claim 16. Defendant relies on a dictionary definition of the word "present" from The New Shorter Oxford English Dictionary 2393 (4th ed. 1993) and asserts, in the context of this limitation, "present" means to "show, exhibit, or display" a form to someone. Thus, Defendant argues it "presents" a form to a "form user" only if Defendant displays the form to the user, but not if "some other entity" such as a web browser displays the form. Because a web browser does the "presenting" in conjunction with Defendant's XAP System, Defendant contends its System does not meet the "presenting" limitation of Claim 16.

According to Plaintiff, however, the term "presenting" is nontechnical "and simply means getting a form to a user over a computer network (like the internet). . . . When the form is transmitted to the user's web browser, it is presented or provided to the user." In support of this construction, Plaintiff emphasizes the preferred embodiment identified in the '042 Patent "communicates with applicants and institutions over the World Wide Web," and "entry page 36 as well as all other pages presented to the applicant, is presented as an HTML page."

Pl.'s Fourth Amended Compl., Ex. B at 2-4. "[I]t is axiomatic that a claim construction that excludes a preferred embodiment . . . is rarely, if ever correct and would require highly persuasive evidentiary support." Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1308 (Fed. Cir. 2003) (citation omitted).

The Court notes Defendant's selected definition omits other, more common definitions of the term "presenting" such as "to offer or convey by way of message." See Webster's Third New Int'l Dictionary 1793 (1981). In addition, Defendant's narrow construction of the term "presenting" is contrary to the preferred embodiment. Although the Court was not asked to construe the term "presenting" in the course of the Markman hearings, the Court agrees with Plaintiff that, consistent with the
preferred embodiment described in the '042 Patent, the limitation in Claim 16 as to "presenting" a form means to provide the form to a form user via the form user's web browser.

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Claim 1g

presenting to the user via the user interface, the list of the third plurality of options

The parties disagree on the meaning of the above-stated language. Dell argued that the ordinary meaning of the above-stated language should suffice. Lucent, however, proposed the following: "displaying to the user only those options that are determined to be compatible with all previously selected choices."

The court agrees with Lucent and construes the above-stated claim term as follows:

"displaying to the user only those options that are determined to be compatible with all previously selected choices."

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a. The "Presetable Level"

In accordance with the '283 patent, objects whose attenuated and backscattered radiation responses correspond to "at least a . . . presettable level" are identified in separate colors, a first color based on transmitted radiation and a second color based on backscattered radiation. The district court construed "at least a . . . presettable level" to mean that the pixels are illuminated when an object attenuates or scatters a quantity of radiation equal to or more than a quantified, preset threshold value. The district court held that this quantified threshold can be preset by an operator before the object is scanned. AS&E disputes this interpretation, pointing out that the claims do not limit "when, where, or how the level of backscattered radiation is preset." AS&E argues that "presettable" does not mean that the threshold level must be manually set before the actual scan, independent of the scanned object, but only that the machine is capable of being preset to a threshold level "before the display of pixels (as distinguished from pre-set before scanning)."

Vivid responds that the district court's claim construction is mandated by the claim language, the specification, and the prosecution history. On de novo review we reach the same conclusion as did the district court. The specification describes use of a color look-up table, which establishes the color of the displayed object based on the level of radiation response, and varies the intensity of a given color based on the amount that the radiation response exceeds the preset reference level. During prosecution, in response to a rejection on prior art, AS&E explained both the use and the significance of the preset levels:

In accordance with the present invention, appropriate reference levels for any given application are programmed into the system (see specification, page 8). These pre-set levels may obviously be changed, so that pixels which appear in a first color in a system where the first and second levels are pre-set at certain values, may appear in different colors, when the preset levels are changed. This flexibility to pre-set the threshold levels at which pixels are displayed in a single, unambiguous color is a useful feature of the present invention, which is totally absent from [the cited reference].

Neither the specification nor the prosecution history suggests that the threshold levels of color display may be set after the radiation beam scans the object, or recognizes such a mode of operation. We conclude, as did the district court, that the term "presettable level" means that threshold levels of attenuated and backscattered radiation can be preset before the scan of the object.

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--- Footnotes ---
7 Parties agree that the similar terms, "pressure-sensitive variable conductance sensor," "pressure-sensitive analog sensor," "pressure-sensitive variable conductance structural arrangement," "pressure-sensitive variable conductance structure," "pressure-sensitive variable sensor," and "pressure-sensitive . . . button sensor," which appear in the '802, '991, '525 and '700 patents should be construed the same way.

--- End Footnotes ---

Introduction

Anascape proposes that this term should mean "an electricity manipulating device for varying electrical output proportional to varying physical force."

Microsoft contends that this term should be defined as follows:

A pressure-sensitive variable-conductance sensor has material to contact conductive elements. This type of sensor has a conductivity that changes due to a volume effect. As pressure on the material increases the material volume decreases. This decrease in volume of the material increases the internal conductivity through the material. As a result, the conductivity through the sensor increases.

A pressure-sensitive variable-conductance sensor does not include a variable conductivity sensor utilizing a micro-protrusion surface area effect. In such a sensor, as pressure on the material increases the surface area of contact between the microprotrusions and the conductive elements increases. As a result, the conductivity through the sensor increases.

Here, the central question is whether a PSVC sensor must utilize PSVC material. The patent uses language of requirement in this regard, and every embodiment described incorporates PSVC material. The court concludes that sensors using PSVC material are what the patents disclose.

Analysis

It is clear from the claim language that a sensor is an electricity manipulating device. 8 '802 Patent, Col. 12, ll. 29-30; '991 Patent, Col. 14, ll. 60-62. The specifications also describe a sensor as an "electricity manipulating device." See '802 patent, Col. 3, ll. 39-42. In differentiating the present invention from prior art, the specifications of the patents state that a "pressure sensitive variable conductance analog sensor" is different from a prior art on/off sensor due to its ability to vary electrical output or flow proportional to varying physical force. Compare '991 Patent, Col. 1, ll. 42-56 with '991 Patent, Col. 6, ll. 2-5. See also '084 Patent, Col. 2, ll. 8-12. Anascape's proposal includes these elements. Microsoft's wants to add the presence of PSVC material, and the absence of other material, as limitations.

--- Footnotes ---
8 The patents use the terms "sensor" and "switch" interchangeably. '084 Patent, Col. 1, l. 8 16, '886 Patent, Col. 1, ll 20-21.

--- End Footnotes ---

Many of the claims in the patents state specifically that the PSVC sensor (or the means for creating an analog output proportional to varying physical pressure) utilizes PSVC material. These include: '802 Patent, Claims 1-4, 7, and 10; '084 Patent, Claims 1-11; '886 Patent, Claim 7.

Other claims refer to a PSVC sensor or a button which manipulates electric current or imagery relative to physical pressure (or means or a method for the same) but there is no express statement that PSVC material is utilized. These include: '802 Patent, Claims 5, 9, 12, 13, 14, 15, 16, and 17; '991 Patent, Claim 11, 23, 29, and 44. Anascape therefore argues that claim differentiation mandates a construction by which the analog sensor may, or may not, have PSVC material. Claim differentiation is a guide to proper construction, not a card that trumps a careful review of the specification and prosecution history. See Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380-1381 (Fed. Cir. 2006).
The real issue is whether a PSVC sensor must have in it, somewhere, at least some PSVC material as defined above. Here the court is faced with the familiar duel between powerful opposing canons of construction. Anascape argues that "limitations may not be imported from the specification to the claims." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904 (Fed. Cir. 2004), cert. denied, 543 U.S. 925, 125 S. Ct. 316, 160 L. Ed. 2d 223 (2004).

Even if a specification describes only a single embodiment, the claims "will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using "words or expressions of manifest exclusion or restriction." Id. at 906. On the other hand, the same case recites that claims must be read in the context of the specification, and notes the "particular difficulties" which arise when the claim language is broad but the specification is narrow. Id. at 905. The importance of the specification has since been given even more emphasis. Phillips, 413 F.3d at 1315.

The specification of the '802 patent describes a sensor in which the flow of current through the PSVC material (Item 36 in fig. 7 & 8) is increased because "material 36 which is flexible deform[s] with additional applied pressure to somewhat flatten-out and contact additional surface area of both traces 32 and 34." The results include "additional conductivity changes . . . by the additional surface contact area." See '802 Patent, Col. 8, 58 - Col. 9, l. 4, Fig. 7 & 8. There is increased conductivity through the PSVC material due to the surface effect.

Another specification explicitly describes an embodiment in which the intrinsic conductivity of the PSVC material does not change very much during deformation. The patentee points out that in the prior art a "carbon-rich conductive pill or disc" had been used as "simple On/Off momentary-On switches" but not to provide "action intensity control of electronic imagery." '991 Patent, Col 9, ll. 16-36. "Carbon-rich pills are typically made of granular carbon in high concentrations in a silicone rubber binder producing a resilient conductive material resistant to mechanical bouncing when depressed onto a surface." '991 Patent, Col. 9, ll. 28-31.

The patentee states he had discovered that such a carbon rich pill or disc could be used in his variable conductivity invention. '991 Patent, Col. 9, ll. 39-47. Anascape points out that the carbon-rich pill does not change its conductivity very much with deformation, so one skilled in the art would know that the surface effect would be a significant contributor to variable conductivity in such a device. '991 patent, Col. 9, ll. 43-60.

Resistivity in a device with a carbon-rich pill changes only within a narrow range of approximately 3 thousand ohms to a low value near 10 ohms. Id. In that particular configuration, most of the change in conductivity of the sensor as a whole will come from the deformation of the domed/convex conductive material 36 as it presses against the contact wires - the surface effect.

Microsoft responds with "fire" from its own canon: claim language can not be read to exceed the scope of the unequivocal language of the specifications of the patents. See Nystrom v. Trex Co. Inc., 424 F.3d 1136, 1143 (Fed. Cir. 2005), cert. denied, 547 U.S. 1055, 126 S.Ct. 1654, 164 L. Ed. 2d 396 (2006). Microsoft argues that the specifications of the patents compel a construction of "pressure-sensitive variable conductance analog sensor" that excludes the possibility that electrical conductivity is modulated only by varying the surface area of contact between micro-protrusions and conductive elements, as for example explained in the Yaniger patent. Microsoft does not point to any clear disclaimer by the patentee of an embodiment which includes only a surface area effect.

Microsoft cites Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1372 (Fed. Cir. 2004) and Honeywell Int'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) and argues that with regard to the presence of PSVC material in the sensors, the following statements in the specification of the patents use language of requirement, not preference:

1. In the "Summary of the Invention": "The present invention involves the use of structures (pressure sensors) having pressure-sensitive variable-conductance material across proximal circuit traces in order to provide variable output ." '802 Patent, Col. 2, ll. 55-58.

2. "Pressure-sensitive variable-conductance material 36 is an important aspect of the present invention." '802 Patent, Col. 6, ll. 49-50.

3. "With the present sensor in all embodiments shown and described herein, pressure-sensitive variable-conductance
material 30 is positioned as a variably conductive element . . . " '084 Patent, Col. 8, ll. 10-12.

4. "At this point in the disclosure it should be quite clear that the pressure-sensitive variable conductance material 30 is a very important aspect, as is the tactile feedback from the snap-through dome-cap 16 of the present invention." '084 Patent, Col. 6, ll. 53-56.

5. In the "Summary of the Invention": "The present invention involves the use of structures (pressure sensors) having pressure-sensitive variable-conductance material across proximal circuit traces in order to provide variable output." '991 Patent, Col. 2, ll. 59-62.

6. "Pressure-sensitive variable-conductance material 36 is an important aspect of the present invention." '991 Patent, Col. 6, ll. 53-54.

7. The '886 patent describes related prior art has having a dome cap with a conductive "pill" referred to as the "active element." '886 Patent, Col. 1, ll. 36-37. The specification then goes on to say: "With applied varying pressure changes, the active element changes it's conductivity . . . . This pressure-sensitive variable-conductance aspect of the active element in the . . . dome cap opens many new and valuable possibilities of use." '886 Patent, Col. 3, ll. 14-23.

Microsoft's argument is bolstered by the fact that every single embodiment described in the four patents is of a sensor that utilizes PSVC material. As discussed above, there are descriptions of the surface area effect when the PSVC material is flattened across contacts. That is always an additional effect, involving PSVC material. Even the description of the use of a carbon-rich pill with a narrow range of resistivity changes did not imply an embodiment with no PSVC material. Rather, that discussion concluded by pointing out that a greater range of resistivity change could be achieved by replacing the carbon with tungsten carbide. "Therefore, tungsten carbide is a preferred active material for use with the present invention." '991 Patent, Col. 10, ll. 1-3.

Finally, two of the patents cite the '471 Patent (Mitchell) while discussing sensors '886 Patent, Col. 2, ll. 16-28; '084 Patent, Col. 2, ll. 13-22. As mentioned earlier, all four patents referred to the Mitchell patent as having information about PSVC material that increased conductivity through the volume effect. It only teaches sensors that use such material.

The '886 Patent refers to Mitchell as "describing sensors which utilize pressure-sensitive variable-output material to produce analog output" but distinguished that invention only by noting that Mitchell did not use or suggest an elastomeric dome cap to carry the PSVC material, to transfer force, or to provide tactile feedback. '886 Patent, Col. 2, ll. 36-48.

The '084 Patent cites the Mitchell patent as describing sensors which use PSVC material, but distinguishes it only with: "Mitchell fails to anticipate any structuring useful for providing a tactile feedback discernible to a human user of his sensors." '084 Patent, Col. 2, ll. 20-22. These references to the PSVC sensors disclosed in the Mitchell patent, which all use PSVC material, have "particular value as a guide to the proper construction of the term" "PSVC sensor." LG Elec., Inc. v. Bizcom Elec., Inc., 453 F.3d 1364, 1375 (Fed. Cir. 2006), cert. granted, 128 S. Ct. 28, 168 L. Ed. 2d 805 (2007)(No. 06-936, 2007 Term).

The question is whether, in light of the foregoing, one of ordinary skill could read the patent and conclude that patentee was claiming sensors without PSVC material? In view of Phillips and the resulting line of decisions that have wrestled with the "don't import limitations" - "read claims in light of the specification" dichotomy, the court thinks not. Anascape argues that a skilled artisan would realize that a depressible sensor suitable for game controllers that varies electric current in response to varying pressure only by action of a surface effect, is equivalent to such a sensor with PSVC material. That is an argument for infringement by equivalents - a matter for trial, not claim construction. The court will construe this claim term as follows:

"Pressure-sensitive variable-conductance analog sensor" means: "an electricity manipulating device that uses pressure-sensitive variable conductance material, to vary electrical output as varying physical force is applied."

shall be construed the same way.

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1. "Pressure-sensitive variable conductance material." Used in '084 Patent, Claims 5-6, 11; '802 Patent, Claims 1, 7, 10; '886 Patent, Claim 7; '991 patent, claims 12, 29, 31, 50.

Introduction

Anascape proposed, "a conductive element that provides for variable electrical flow dependent upon the applied force." Microsoft suggested that this term means:

Material that has a conductivity that changes due to a volume effect. As pressure on the material increases the material volume decreases. This decrease in volume of the material increases the internal conductivity through the material. As a result, the conductivity through the sensor increases.

This does not include material utilizing a micro-protrusion surface area effect. In such material, as pressure on the material increases the surface area of contact between the micro-protrusions and the conductive elements increases. As a result, the conductivity through the sensor increases.

The main point of contention is whether the construction should exclude the surface effect - the increased flow of current as two conductors come into contact over a greater area. Because the specification describes a surface effect, it will not be excluded.

Analysis

The skilled artisan would know, and the parties agreed, that "conductivity" (resistance to the movement of an electrical charge) is the inverse of "resistivity." Trans. p. 9-10. In other words, as resistivity goes down, conductivity goes up. The parties also agreed that, as used in these patents, conductivity may refer to resistive or rectifying properties depending on the pressure sensor material utilized. See '802 Patent, Col. 3, ll. 2-3 & '991 Patent, Col. 3, ll. 7-8; Trans. p. 10-11.

This claim, like many others in the patents, says the material is "positioned as a variably conductive element." So Anascape's suggestion to define the "material," which can be used or positioned as an element as "an element," could be misleading, or at the least redundant. Nothing in the patents hints that the PSVC material is a device, like a transistor or a relay in a circuit. It is a substance or compound, as described in detail at '802 Patent, Col. 6, ll. 50 - Col. 7, 1. 21.

The claim states that the electrical conductivity of the substance (the PSVC material) is altered relative to received force. '084 Patent, Col. 12, ll. 50-52. See also '082 Patent, Col. 2, 1. 67 - Col. 3, 1. 5. In other words, PSVC material "changes its conductivity with applied pressure to alter the conductance of the electrical path provided thereby . . . ." '802 Patent, Col. 6, ll. 24-26. See also '991 Patent, Col. 6, ll. 28-30.

Referring to "the present invention," the patentee stated "Compressive force against pressure-sensitive variable conductance material 30 causes it to become sufficiently conductive as to allow current flow therethrough, the degree of conductivity being dependant upon the applied, received, or transferred pressure or force." '084 Patent, Col 9, ll. 1-6.

In another patent, the PSVC material is labeled the "active element." '886 Patent, Col. 1, ll. 36-37. "The active element, while a moderate to poor conductor when not under compressive force, drops in resistivity when placed under compressive force, such drop in resistivity being related to the amount of compression of the active element." '886 Patent, Col. 3, ll. 16-20.

The patents describe PSVC material as formed from conductive particles in a rubbery or elastic type binder. The patents specifically refer to U.S. Patent No. 3,806,471 (Mitchell), as having "[a]dditional information regarding such materials." 6

See '886 Patent, Col. 9, ll. 43-47; '084 Patent, Col. 7, ll. 8-12; '991 Patent, Col. 6, ll. 61-66, '802, Col. 6, ll. 57-62.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
6 Since the patents in dispute specifically refer to the Mitchell patent in the specification, it is intrinsic evidence. LG Elec., Inc. v. Bizcom Elec., Inc., 453 F.3d 1364, 1375 (Fed. Cir. 2006), cert. granted, 128 S. Ct. 28, 168 L. Ed. 2d 805 (2007)(No. 06-936, 2007 Term).

The '471 patent describes and diagrams the way in which the conductive elements in PSVC material are forced closer together as pressure is applied. This creates a greater number of electrical pathways between the conductive elements, thus increasing the conductivity of the material. See '802 Patent, Col. 6, l. 55 - Col. 7, l. 11; '471 Patent (Mitchell) Col. 2, l. 58 - Col. 3, l. 5, Fig. 3-6. This is sometimes referred to as the "volume effect."

Microsoft's proposed definition seeks to exclude "material utilizing a microprotrusion surface area effect." This effect is explained in U.S. Patent No. 5,296,837 (Yaniger). Briefly, a thin coat of resin with conductive particles such as carbon mixed with particles of a less conductive material (stannous oxide in the preferred embodiment) is applied to a supporting ply, creating a base. The stannous oxide particles are larger than the more conductive particles and create "micro-protrusions." As flexible conductors on a flexible base are pressed down on the base, the conductors make contact with the conductive resin and the circuit is completed. As more pressure is applied, more of the flexible conductor material is pushed down around the micro-protrusions, resulting in more contact with the conductive resin and thus a greater flow of current.

The parties do not dispute that one skilled in the art would know that bringing two conductors into contact over a greater area will result in an increase in current flow, assuming voltage is constant. This will be referred to as the "surface area effect." Once good contact is made between conductors of a material with low resistivity (high conductivity) such as copper, the change in resistance as surface area contact is increased might be insignificant, when compared to the overall resistance of the circuit. But with materials of higher resistivity (lower conductivity), such as the PSVC materials described in these patents, the increase in current flow resulting from increasing the area of contact between conductors (the surface area effect) can be significant. See '084 Patent, Col. 7, ll. 28-37.

The problem with expressly excluding a surface area effect in the definition of PSVC material is that Figures 7 and 8 of the '802 patent, and the accompanying text of the specification, describe additional current flow through the PSVC material caused by greater surface area contact between the PSVC material 36 and the circuit traces 32 and 34 (the open electrical contacts in the circuit) as the PSVC material is compressed and flattens across the traces. '802 Patent, Col. 8, l. 58 - Col. 9, l. 4, Fig. 7 & 8. In short, Microsoft's construction improperly limits the definition of the disputed claim term by excluding a preferred embodiment.

Of course, simply because a greater flow of current can be achieved between two electrical contacts by increasing pressure on them, or increasing the surface area of contact, does not mean either contact is made of a PSVC material. The metal used for car battery terminals and cable clamps would not fit the patent's description of a pressure-sensitive variable conductance material, nor would it be recognized as such by a skilled artisan. However, tightening the clamp on the terminal could still improve the flow of current. PSVC material, as described in the claims and specification, and as known to those skilled in the art, must itself change in conductivity as a result of pressure, even though in certain applications increasing the surface area of contact may also increase the flow of current. **The court will define this term as follows:**

"Pressure-sensitive variable conductance material" means: "a substance that changes in conductivity to allow a greater flow of electric current through it, as pressure is applied to it."

Microsoft stated this definition was acceptable and Anascape's only concern was that "changes in conductivity" was redundant and might be used in later arguments before a jury. Trans. p. 29-32. Since the specifications of the patents make it clear that the conductivity of the material itself changes, even if in some applications there is a surface effect, the slight redundancy is justified. Learned counsel are well equipped to handle a misleading argument before the jury.

**3321**

3. "Pressure-sensitive variable conductance of one of said buttons." Used in '802 patent, claim 11.
Anascape suggests that this term should be construed as "variable electrical flow produced by a button associated with an electricity manipulating device for varying electrical output proportional to varying physical force." Microsoft contends that this term should mean "the conductivity of a pressure-sensitive variable-conductance sensor."

The proposals are substantially similar. In the end the definition of this term really depends on the construction of the prior term, because there is no real dispute over what a button on a game controller is. See Trans. p. 68-71. The button, or dome cap 28, with the pressure-sensitive conductance material together comprises the sensor. '802 patent, col. 8, ll. 36-45. The court will define this term as follows:

"Pressure-sensitive variable conductance of one of said buttons" means: "the conductivity of a pressure-sensitive variable-conductance sensor associated with one of said buttons."

3. Analysis:

Defendants argue that there is nothing in the Patents to show that Mr. Hair intended the word "prevent" from having its ordinary dictionary meaning, that is, "to keep from happening, avert." (Defs.' Brief at 19.) Defendants contend that the Patents disclose no methodology or system which explains how the invention would keep unauthorized copying from happening. Nor would one possessing ordinary skill in the art know in 1988 how to incorporate some method or system to do so because then, as now, there was no effective means to prevent unauthorized copying. (Id. at 18-20.)

Plaintiff does not argue that either Patent specifically discloses a method for preventing the unauthorized copying. Sightsound's position is that Defendants' Claims of non-enablement rest on "a nonsensical interpretation" of the word "prevent" and that the proper definition is "to impede or present an obstacle to." (Plf.'s Brief in Opp. at 26.) The definition chosen by Defendants is nonsensical because its use would require the Patents to claim "an absolute form of copy protection, a practical impossibility." (Id. at 27.) Moreover, one skilled in the art in 1988 would have known such absolute protection was unachievable and would have employed a method that would have been reasonable, given the state of the art at that time. (Id. at 26-27.)

In construing a term, the court begins by considering the relevant intrinsic evidence, i.e., the claim language, the specification and the prosecution history. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979. The analytical focus must begin and remain centered on the language of the claims themselves, "for it is that language that the patentee chose to use to 'particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.'" Interactive Gift Express, Inc. v. CompuServe, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001), quoting 35 U.S.C. § 112, para. 2, . "Generally speaking, we indulge a heavy presumption that a claim term carries its ordinary and customary meaning." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). This presumption is rebutted when the patentee, acting as his own lexicographer, has provided a definition different from the term's ordinary and customary meaning or if he has provided or disavowed an interpretation of the term during the prosecution history. Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 and n.3 (Fed. Cir. 1998). Neither party points to any interpretation of the word "prevent" which was provided or disavowed in the prosecution history and thus could be used to shape the scope of the claim, nor is there any evidence that Mr. Hair defined the term "prevent" in the patent claims or specifications.

The phrase in question is "a configuration which would prevent unauthorized reproduction of the … signals." The dictionary on which both parties rely defines "prevent" as "(1) to keep from happening: AVERT; (2) to keep (someone) from doing something: IMPED; (3) to anticipate or counter in advance or to present an obstacle." Webster's II New Riverside University Dictionary (1988) at 933. 11 Defendants criticize Plaintiff for passing over the first definition of "prevent" in favor of the second and third entries. (Defendants' Reply Brief in Support of Their Motion for Summary Judgment, "Defs.' Reply Brief," Docket No. 184, at 1.) I find no support for this criticism in the case law and, in fact, courts have clearly done exactly that when doing so allows the claims to be reasonably construed. 12

11 Although dictionaries are, strictly speaking, extrinsic evidence, an exception has been made for them and for other
objective resource works which were publicly available at the time the patent was issued in order to allow the court to determine "the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation." Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision, 336 F.3d 1308, 1315 (Fed. Cir. 2003) (internal quotation omitted).

12 For instance, in Intel Corp. v. United States Int'l Trademark'n, 946 F.2d 821, 835 (Fed. Cir. 1991), the court reviewed the construction by the International Trade Commission of the phrase "permanently programmed." Although the Court did not include in its opinion any dictionary definitions of the word "permanent," a contemporaneous edition of the Random House Collegiate Dictionary (rev. ed. 1980 at 988) defines it as "(1) existing perpetually; everlasting; (2) intended to exist or function for a long, indefinite period without regard to unforeseeable conditions; (3) long-lasting." The Intel court affirmed the Commission's construction of "permanently programmed" as requiring only that the devices in question remained programmed for the useful life of the invention under normal operating conditions, reasoning that "permanent" was a relative term. Thus, it is clear that the requirement was not that the devices remained "perpetually" programmed, only that they function "for a long, indefinite period." Intel, 946 F.2d at 836.

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Another dictionary which would have been available in the late 1980s, the Compact Edition of the Oxford English Dictionary (1984) ("OED"), provides as the first contemporary 13 definition, "to stop, keep, or hinder (a person or other agent) from doing something:" the next definition is "to provide beforehand against the occurrence (of something); to render (an act or event) impracticable or impossible by anticipating action; to preclude, stop, hinder." OED at 1337-38, definitions 7 and 8. This latter definition is described as "a chief current sense." The Random House Unabridged Dictionary of the English Language (1987) at 1535 defines "prevent" as "to keep from occurring; avert; hinder; (2) to hinder or stop from doing something." Thus, it is apparent when comparing all three dictionaries that the word "prevent" incorporates both the concept of absolutely stopping or keeping an event from happening (Defendants' choice of definition) as well as merely hindering the event by taking anticipatory action which would make it difficult for the event to occur (Plaintiff's definition).

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13 Definitions 1 through 6 are classified as obsolete, rare, archaic or theological.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Where a claim term is expressed in general descriptive words, the court will not add a "narrowing modifier before an otherwise general term that stands unmodified in a claim." Renishaw, 158 F.3d at 1249. Despite Defendants' protestations in their Reply Brief (at 1) that they have never taken the position the patents are not enabled because they do not teach "an absolute and unbreakable form of copy protection," that position is undercut by comparing the two definitions the parties propose. If "prevent" is understood to encompass anything less than an act which would result making unauthorized copying totally impossible, that act would fall within the scope of Plaintiff's definition of interposing some hindrance to make it extremely difficult to copy the digital signals. Because any means which would allow copying even one time would essentially do away with Defendants' argument on this point, I must conclude that the definition of "prevent" which they would have me adopt is just such an absolute standard.

Where review of the patent language itself fails to resolve an ambiguity as to a disputed term, a court may turn to extrinsic evidence such as expert testimony, prior art, technical treatises and inventor testimony. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996); Markman, 52 F.3d at 980. Such evidence may be used to help the Court understand the claims, but may not be used to vary or contradict the claim language. Vitronics, id. Where there is a dispute about the ordinary and customary meaning of the word, the court turns to "the best indicator of claim meaning ... its usage as understood by one of skill in the art at the time of invention." Moba v. Diamond Automation, 325 F.3d 1306 1316, citing Markman, 52 F.3d at 986.

Although they never explicitly agree upon the qualifications of one skilled in the art, the parties do agree that in 1988, such a person would have known methods of encryption designed to protect digital signals from unauthorized copying. 14 (Plf.'s
Brief in Opp. at 30;Defs.' Brief at 20.) According to the Oxford English Dictionary, the verb "to encrypt" means "to convert (data, a message, etc.) into cipher or code, esp. in order to prevent unauthorized access; to conceal in something by this means." See "OED Online" at http://dictionary.ow.com. (emphasis added). 15 Similarly, the American Heritage Dictionary of the English Language (1992), at 607 defines "encrypt" as "to scramble access codes (to computerized information) so as to prevent unauthorized access." (Emphasis added.) If one of ordinary skill in 1988 thought that the purpose of encryption was to prevent unauthorized access, but knew there was no effective means to achieve that goal absolutely, then logically, he or she would have interpreted the phrase "a configuration which would prevent unauthorized reproduction of the … signals" as meaning a configuration which would incorporate the most effective method of protecting the digital signals from copying, given the capabilities of encryption or other means known at that time. Moreover, there is evidence that those skilled in the art use the word "prevent" in a non-absolute sense, at least today. Plaintiff's expert, Justin Douglas Tygar, Ph.D., points out that the website controlled by CDNow used the phrase "encryption prevents the file from being copied or played without permission." (Plaintiff's Exhibits to Brief in Opposition to Motion for Summary Judgment, "Plf.'s Exhs.," Docket No. 175, Exh. A, Rebuttal Expert Report, "Tygar Rebuttal," at 34-39 and Appendix D thereto, eighth page). James A. Moorer, Ph.D., one of Defendants' experts, also repeatedly used the word "prevent" in describing copy protection methods which he acknowledged did not absolutely stop copying. (Plf.'s Exh. E, Deposition of James A. Moorer, March 3, 2003, "Moorer Depo." at 89-94.) Dr. Moorer conceded that a system he had previously described as a means to prevent copying provided only "a limited deterrent or a limited discouragement to unauthorized copying." (Id. at 97.)

14 Defendants specifically refer to public key encryption as one means of deterring unauthorized copying but provide no other examples in the text of their Brief. (Defs.' Brief at 20-21.) I do not take this use of a specific example to imply that encryption was the only means known at the time to deter copying. (See Plf.'s Exhibits, Docket No.175, Exh. E, Deposition of James A. Moorer, at 18-20, discussing watermarking.) Dr. Moorer described watermarking and encryption as providing "limited technological barriers to copying. Neither are [sic] absolute." They provide "a measure of protection … [and] tend to deter someone from making unauthorized copies." (Id. at 20-21.)

15 I note that the Random House Collegiate Dictionary (1980) and the Compact Edition of the OED (1984) do not define the words "encrypt" or "encryption."

4. Conclusion:

In sum, if "to prevent" is given its broader, non-absolute meaning of "to hinder" or "to impede," the Copy Protection Claims are enabled because, as Defendants admit, one of ordinary skill in the art in 1988 would have known methods of converting the digital signals into a code which would make it difficult for someone to copy the downloaded signals without authorization but would also have realized that such methods were far from perfect. Defendants' argument that encryption methods were easily decrypted is only another way of saying that the methods to prevent copying were not absolutely foolproof; it does not mean that the use of encryption did not hinder the unauthorized copying. And it is common knowledge, even among the "Computer challenged," that developers of decryption methods are only a short step behind the encrypters. 16 I therefore conclude that Plaintiff's definition of "prevent" set out at page 29 of its Brief in Opposition, i.e., "presenting a technical obstacle sufficient to impede the ordinary customer from duplicating the purchased digital audio signal" is appropriate to the facts of this case. Since Defendants' argument for lack of enablement rests only on its overly restrictive definition of "prevent," their Motion for Summary Judgment in this regard must be denied. 17

16 See, e.g., Vault Corp. v. Quaid Software Ltd., 847 F.2d 255 (5th Cir. 1988). Vault developed a computer program which protected other programs from unauthorized copying. In response, Quaid developed a program which circumvented Vault's program. As Vault issued new versions of its copy protection software, Quaid modified its software to overcome those new protective measures.

17 Defendants also argue in passing that the Sightsound Patents describe the copy protection element as "new and improved" and therefore, the Patents should be considered invalid for failure to provide any features that are "both novel
and better than what was previously known.” (Defs.’ Brief at 21; see also Defs.’ Reply Brief at 1.) However, the point is never developed beyond this conclusory statement and I decline to address it further, not knowing what argument Defendants might make in this regard.

B. The Prevent Limitation

We now turn to the prevent limitation, which the district court also found was not satisfied by LM 5.0. This limitation appears in each of the asserted claims. See ‘297 patent, col. 17, ll.42-47 (claim 3); col. 23, ll.4-9 (claim 23); col. 31, ll.33-37 (claim 55). We did not decide in Globetrotter I whether the district court's construction of the prevent limitation was correct. See 236 F.3d at 1370 & n.3. Thus, we must first decide whether the district court correctly construed the prevent limitation.

As noted above, the district court construed the claim to require the license management means to perform the function of "returning a run-prevention message where no available license is found." Claim Construction Order, 1999 U.S. Dist. LEXIS 22482 at *31. However, it altered its construction when applying it, interpreting its claim construction "to mean that the license management means must actively prevent a program from running when no license is available, and that the run-prevention limitation is not met if the license management means merely returns a status message indicating that no license is available." Globetrotter II, slip op. at 4. LM 5.0 does not actively prevent a program from running if no licenses are available. Instead, it merely sends a signal that causes the program requesting a license to stop itself from running. Therefore, in accordance with its active prevention interpretation, the district court granted summary judgment of non-infringement.

First, we must consider whether the district court's claim construction was correct. In construing a patent's claims, we look first to their language. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Although the language of each of the asserted claims is slightly different, each claim includes a limitation requiring the license management means to send "a message preventing" an external program from running when there are no available licenses for the requesting program. See '297 patent, col. 17, ll.45-46 (claim 3); col. 23, l.7 (claim 23); col. 31, l.36 (claim 55). The word "prevent" means "to keep from occurring; avert; hinder" or "to hinder or stop from doing something." Random House Webster's Unabridged Dictionary 1535 (2d ed. 1998); see also Webster's 3d New International Dictionary 1798 (2002) (defining "prevent" as "to keep from happening or existing esp. by precautionary measures: hinder the progress, appearance, or fulfillment of: make impossible through advance provisions"). This language is ambiguous; it is unclear whether the message itself must actively stop the requesting program from running or whether the message can merely be a signal that keeps the requesting program from running when it is received. Therefore, we must look to the intrinsic evidence to determine whether it sheds light on the meaning of the claim term "message preventing." See Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc., 347 F.3d 1314, 1323 (Fed. Cir. 2003); Vitronics Corp., 90 F.3d at 1582.

The specification of the '297 patent describes two embodiments of the disclosed license management system. In both embodiments, the license manager program searches for licenses only when a requesting program, which is distinct from the license management software described in the patent, requests a license from the license management software. For example, the specification states:

"The copy of the given computer program 24A on the local node 14 contacts the license manager 25A at the local node 14 by making a subroutine call. In response, the license manager 25A asks (Step 30) whether a license 27 exists on the local node 14 for the given computer program 24A."

'297 patent, col. 9, ll.49-54; see also id. at col. 13, ll.51-56; Figs. 3, 6 (showing that the license manager routine is initiated by a subroutine call from an external computer program).

The specification does not teach a system that requires the license manager to engage in active prevention; rather, it states that the license manager returns a status to the requesting program if no license is available:
In response to locating the available license in the valid license file, the management system enables the computer program at the selected node to run. If no valid license file is located, or if all valid license files contain licenses that are in use, or unavailable, then the management system returns a status to the computer program indicating that it is not authorized to run.

'297 patent, col. 3, ll.27-34 (emphasis added).

Furthermore, both embodiments disclosed in the specification send a message to the program requesting a license from the license manager program and telling the requesting program that it is not authorized to run. See id. at col. 16, ll.20, 33, 39 (Appendix A) (providing "Tell computer program it can run" and "Tell computer program that it cannot run" as results of requesting a license from the license manager program); col. 16, ll.61-64 (Appendix B) (setting a status of "authorized to run" or "not authorized to run" and returning it to the requesting program); see also id. at Figs. 3, 6. Neither of the disclosed embodiments actively prevents the requesting program from running; rather, each merely sends a signal to the requesting program, which then must shut itself down. A claim interpretation that excludes a preferred embodiment from the scope of the claim "is rarely, if ever, correct." Vitronics Corp., 90 F.3d at 1583. We construe the claim to require only a message that results in the program's being prevented from running; active prevention is not required.

Thus, the claim construction of the prevent limitation as applied by the district court in its grants of summary judgment of non-infringement, which required the license management means to engage in active prevention, is incorrect. However, the district court's claim construction in its Claim Construction Order, which required only that the license management means "return[ ] a run-prevention message," Claim Construction Order, 1999 U.S. Dist. LEXIS 22482 at *31, was correct. There is no contention that there is a lack of a genuine issue of fact with respect to whether LM 5.0 infringes under the district court's (proper) claim construction in its Claim Construction Order. Indeed, Greer conceded that LM 5.0 returns a status message.

Although we vacate the district court's grant of summary judgment, we note that a full trial is not necessarily required in this case. The district court retains the discretion to reopen the record for clearer, more specific expert testimony from the parties and to entertain a new summary judgment motion based upon that evidence under the proper claim construction. See, e.g., Mass. Bay Transp. Auth. v. United States, 254 F.3d 1367, 1377 (Fed. Cir. 2001). However, the testimony must demonstrate that the witness is using the correct claim construction and address specific alleged acts of infringement and inducement, not conjectures as to what might occur hypothetically. 12

12 Greer urges us to affirm on other grounds than those upon which the district court relied. We decline to address those issues on appeal, though they remain open in the district court.

C. Disputed Term # 3: "preventing intelligible viewing"

The third term in dispute is:

"preventing intelligible viewing" ('320 Patent, Claim 1; '078 Patent, Claim 10)

Plaintiff's Proposed Construction: "prohibiting access by a non-requesting viewer"

Defendants' Proposed Construction: "scrambling the video signal of the chosen program transmission such that the video signal displays in an incomprehensible form and transmitting the descrambling signal related to said transmission only to requesting viewers' receivers"

Plaintiff argues that its proposed construction, "prohibiting access by a non-requesting viewer," is consistent with the specification because the patents themselves merely state that non-requesting viewers are prohibited access to programs.
While the specification offers scrambling/descrambling as an example of "preventing intelligible viewing," Plaintiff maintains that the term should not be limited to that single example.

However, the specification refers to scrambling and transmitting a descrambling signal each time "preventing intelligible viewing" is described in the patents. See, e.g., '320 Patent, 2:63-3:2 ("Preferably the television transmission system is an 'addressable' system in which selected programs are scrambled to prevent intelligible viewing thereof and in which a descrambling signal can then be addressed to the receiver associated with the requesting viewer which in turn prompts the included control unit to descramble the program transmission for viewing on that receiver."); id. at 7:3-7 ("By scrambling the transmission, and by not providing a descrambling signal to other receivers, subscribers other than the requesting viewer are prevented from intelligible viewing of the chosen program.").

In contrast, the only other disclosed means to prevent non-requesting viewers from viewing the transmission do not prevent intelligible viewing. For example, communicating the specific channel number (e.g., Channel 3, Channel 10) only to the requesting viewer, as described in Claim 4 of the '320 Patent, would not prevent intelligible viewing because non-requesting viewers who inadvertently encounter the program when changing channels would be able to view it intelligibly. See Markman Hr'g Tr. 59-60 (Plaintiff's counsel states "there could be a few other people [who] are going to get a chance to see" a program they did not request if the only means used to prevent unauthorized access was revealing the channel number only to requesting viewers). Likewise, transmitting the signal to only one or more sections of land lines, as described in Claim 11 of the '320 Patent, would not prevent any non-requesting viewer on the section receiving the transmission from intelligibly viewing the program. See id. at 61 (Plaintiff's counsel states that this step "would prevent the vast majority of people from getting a look at your movie, but . . . some [on the same section] might inadvertently find out"). Because claims cannot be broader in scope than the invention set forth in the specification, and because the specification consistently discloses "preventing intelligible viewing" only as scrambling and transmitting a descrambling signal, "preventing intelligible viewing" must be confined to scrambling and descrambling. See, e.g., On-Demand Mach. Corp. v. Ingram Indus., 442 F.3d 1331, 1340 (Fed. Cir. 2006) ("[T]he role of the specification is to describe and enable the invention. In turn, the claims cannot be of broader scope than the invention that is set forth in the specification.").

Defendants' proposed construction is supported further by the prosecution history, in which the applicants clarified that scrambling is part of Claim 1 of the '320 Patent by describing Claim 2 of the '320 Patent as "more specific to the scrambling step and to the transmission of decoder signals for receipt by the receiver associated with the requesting viewer(s)." 320 Patent, 7/6/89 Resp. to Office Action 14. Clearly, the applicants understood Claim 2 as a more specific component of the overall "scrambling step" embodied in Claim 1.

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Plaintiff, however, argues that pursuant to the doctrine of claim differentiation, Claim 1 of the '320 Patent and Claim 10 of the '078 Patent should not be construed to have the same meanings as Claim 2 of the '320 Patent and Claim 15 of the '078 Patent, respectively. Claim differentiation is a "presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006); see also Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999) ("This doctrine, which is ultimately based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope, normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend." (citation omitted)). Because Claims 2 and 15 are dependent claims that relate specifically to the scrambling/descrambling process, Plaintiff argues that independent Claims 1 and 10 should be read more broadly and not be limited only to scrambling.

As the Federal Circuit has noted, however, claim differentiation is only a presumption, "not a hard and fast rule of construction." Comark Commc'ns v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998). Moreover, "the doctrine of claim differentiation can not broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence." Multiform Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998). Claim differentiation does not, for example, "mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ." Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000). In the instant case, Plaintiff concedes that Claim 2 of the '320 Patent contains several limitations not found in Claim 1. See Markman Hr'g Tr. 148 (Plaintiff's counsel states, "I acknowledge that there are a number of different meanings in Claim 2 . . . ."). With respect to Claim 15, it contains a means-plus-function limitation ("means for decoding a scrambled program") as well as the "scrambling" and "decoding" step. Thus, in addition to the scrambling/decoding step, the additional means-plus-function limitation to a specific structure in the specification means that Claim 15 contains two limitations, neither of which appear in Claim 10. Accordingly, the Court concludes that the claim differentiation presumption is unwarranted with respect to Claim 1 and Claim 10.

The Court is persuaded that Defendants' construction is correct based on examination of the specification, which consistently describes scrambling/descrambling as the only example of how to prevent intelligible viewing, and the prosecution history, in which Claim 2 is described as "more specific" to the scrambling step of Claim 1. Accordingly, the Court will adopt Defendants' proposed construction.

As with the foregoing phrases, the Court finds that the construction proposed by the R&R for "price affordable to an average consumer" fails to give meaning to all of the claim terms. As an initial matter, the Court notes that this limitation is found in the preambles to claims 1 and 9. The R&R treated the phrase as a limitation, and Plaintiff filed no objection to that conclusion.

Although the issue has not been specifically raised, the Court finds that these phrases within the preambles do limit the scope of the respective claims. There is no litmus test for determining whether to treat a preamble as limiting the scope of the patent claims. Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). Rather, "a claim preamble has the import that the claim as a whole suggests for it." Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). Thus, "whether to treat a preamble as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent." Bicon, Inc. v. Straumann Co., 441 F.3d 945, 952 (Fed. Cir. 2006) (quoting Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003)); see also Catalina Mktg., 289 F.3d at 808 ("Whether to treat a preamble as a limitation is a determination 'resolved on review of the entire[. . . ] patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.'" (quoting Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989))).

In general, "[i]f the body of the claim 'sets out the complete invention,' the preamble is not ordinarily treated as limiting the scope of the claim." Bicon, 441 F.3d at 952. Similarly, "a preamble simply stating the intended use or purpose of the invention" or "merely extolling benefits or features of the claimed invention" will usually not limit the scope of the claim. Catalina Mktg., 289 F.3d at 809; see also On Demand Mach. Corp. v. Ingram Indus., Inc., 442 F.3d 1331, 1343 (Fed. Cir. 2006) ("[T]he preamble is analyzed to ascertain whether it states a necessary and defining aspect of the invention, or is
simply an introduction to the general field of the claim."; Boehringer Ingelheim v. Schering-Plough Corp., 320 F.3d 1339, 1345 (Fed. Cir. 2003) ("An intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates.").

Conversely, a preamble will be regarded as limiting if it is "necessary to give life, meaning, and vitality to the claim." Catalina Mktg., 289 F.3d at 808 (quoting Pitney Bowes, 182 F.3d at 1305). "That is, if the claim drafter 'chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.'" Bicon, 441 F.3d at 952 (quoting Bell Comm'n's Research, Inc. v. Vitalink Comm'n's Corp., 55 F.3d 615, 620 (Fed. Cir. 1995)) (emphasis in original). In such situations, "there is no meaningful distinction to be drawn between the claim preamble and the rest of the claim, for only together do they comprise the 'claim.'" Pitney Bowes, 182 F.3d at 1305.

The Federal Circuit has identified several situations in which the preamble will be deemed a limitation. For example, the preamble will generally constitute a limitation where it "recites essential structure that is important to the invention," Catalina Mktg., 289 F.3d at 808, or where it "provides antecedents for ensuing claim terms." Boehringer, 320 F.3d at 1345; see also Pitney Bowes, 182 F.3d at 1309 (finding term in preamble limiting where it is "intimately meshed with the ensuing language in the claim" and where claim terms "could only be understood in the context of the preamble statement"). Additionally, "preamble language will limit the claim if it recites not merely a context in which the invention may be used, but the essence of the invention without which performance of the recited steps is nothing more than an academic exercise." Boehringer, 320 F.3d at 1345. Finally, and most relevant for purposes of the instant patent, the Federal Circuit has recognized that "clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention." Catalina Mktg., 289 F.3d at 808-09.

The R&R provides an excellent review of the prosecution history of the patent-in-suit. The patent application went through numerous revisions from its original filing on November 8, 1999 until it issued on July 22, 2003. "The finally issued claims in the '973 Patent were presented following a telephone interview with the examiner." (R&R at 27.) Application claims 55 and 66 that became patent claims 1 and 9 were amended as set out in the R&R. (R&R at 27-28.) Included among the amendments to these claims was the addition of the following language in the preambles to the claims:

\[
\text{to enable assembly line production and sale of the top at a price affordable to an average consumer [claim 55];}
\]

(R&R at 27-28.) After these amendments, the patent finally issued. The Court finds that the language was used to help distinguish the claimed invention from the prior art and should be treated as a limitation.

Unlike the earlier phrases, the meaning of "price affordable to an average consumer" is not clear when the construction of "average consumer" is inserted. The R&R defines affordability based upon the absence of the need for a stone cutter. As noted in regard to the earlier phrases, this limitation is already explicitly stated in the patent. To impose the "no stone cutter" limitation through this phrase makes this limitation superfluous. Therefore, the Court concludes that further definition is required.

The meaning of this phrases is not clearly discernable from its words. An individual that purchases supplies for a home improvement task from a retail outlet and performs the home improvement task himself or herself, regardless of whether the individual has any training in that task can be an individual from any economic class. The Court finds nothing in the intrinsic or extrinsic evidence that provides an objective standard from which one could determine whether the product is affordable to such a consumer. A person reading the patent is not able to discern the scope of the limitation.

This phrase is similar to the phrase "aesthetically pleasing" that was addressed in Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342 (Fed. Cir. 2005). Datamize involved a patent for an electronic kiosk system. The claim-at-issue recited a method that included the step of providing interface screen element types with an "aesthetically pleasing" look and feel. Id. at 1345. The district court concluded that the phrase "aesthetically pleasing" was "hopelessly indefinite" and granted a motion for summary judgment of invalidity. Id. at 1347.
The Federal Circuit first looked at the phrase "aesthetically pleasing" in context. However, it found that the context did "not suggest or provide any meaningful definition for the phrase 'aesthetically pleasing' itself. Merely understanding that 'aesthetically pleasing' relates to the look and feel of interface screens, or more specifically to the aggregate layout of elements on interface screens, fails to provide one of ordinary skill in the art with any way to determine whether an interface screen is 'aesthetically pleasing.'" Id. at 1349. The Court found that the patent holder "offered no objective definition identifying a standard for determining when an interface screen is 'aesthetically pleasing.' In the absence of a workable objective standard, 'aesthetically pleasing' does not just include a subjective element, it is completely dependent on a person's subjective opinion. . . . The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention. Some objective standard must be provided in order to allow the public to determine the scope of the claimed invention . . . [A] claim term, to be definite, requires an objective anchor." Id. at 1350 (internal citation omitted).

The Court finds that "a price affordable to an average consumer" suffers from the same failings as "aesthetically pleasing." Assuming that "a price affordable to an average consumer" means something more than a pre cut stone top, no objective standard is provided by which a person reading the patent could determine if he were infringing the patent.

Based on the foregoing, the Court finds that the phrase "a price affordable to an average consumer" is not amenable to construction.

3 The term "price-determining-activity" is located in claims 1 and 18.

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I. "price determining activity" 3

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3 The term "price-determining-activity" is located in claims 1 and 18.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Plaintiff's Proposed Construction
1) any activity or combination of
activities, other than offering or
accepting a price, that is used to
determine the price paid for the
product or service; or
2) any form of competition or
entertainment activity or combination
of such activities, other than
offering or accepting a price, that
is used to determine the price paid
for the product or service

Defendants' Proposed Construction
inherently entertaining activity, such
as a game, puzzle or quiz, that is
used to set the product's price, but
otherwise is collateral to its sale

Plaintiff argues that a price-determining activity ("PDA") may be either any activity or any entertaining and/or competitive activity. OPENING at 1-2. Plaintiff argues that the activities listed in the specification conclude with "or any other activity," and therefore a PDA is not limited to inherently entertaining activities. Id. at 2. Plaintiff adds that the specification explicitly notes that a PDA includes "various forms of competition and/or entertainment." Id. at 3. Plaintiff also argues that the PDA must be collateral to the main activity, which is offering or accepting a price. Id. at 6.

Defendants argue that because the term "PDA" was coined by the patentee the PDA must be collateral to the sale, as the specification discloses. RESPONSE at 5-7. Defendants contend that by excluding only the offer or acceptance of a price from the definition of a PDA, selecting a product would improperly be included within the scope of the term. Id. at 7-8. Finally, Defendants argue that the PDA must be "inherently entertaining" because the specification repeatedly discloses this requirement. 4 RESPONSE at 8-10.
4 Defendants also argue that Plaintiff's proposed construction would render the patent invalid as lacking a sufficient written description. RESPONSE at 11-12. Claim language should generally be construed to preserve validity, if possible. Tate Access Floors, Inc. v. Interface Architectural Resources, Inc., 279 F.3d 1357, 1367 (Fed. Cir. 2002). However, where the only claim construction that is consistent with the claim's language and written description renders the claim invalid, this axiom does not apply and the claim is invalid. Id (quoting Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999)).

Looking first to the claims of the '253 patent, claim 1 discloses:

1. A method of doing business over a global communications network comprising the steps:
   communicating to a buyer via the global communications network, a description of a product;
   accepting a first request from the buyer to buy the product for a price to be determined within a price range;
   accepting a second request from the buyer to allow the price to be determined based upon a performance of the buyer while participating in a Price-Determining-Activity (PDA);
   receiving data from the buyer over the global communications network, said data representing the performance of the buyer during the PDA; and
   determining the price of the product based at least partially upon the data received, said price being within the price range and scaled to the performance of the buyer.

'253 patent at 9:31-49 (claim 1). While claim 1 does not indicate what type of price-determining activity is contemplated, other dependent claims indicate that the PDA can be a video game. Id. at 9:59-60 (claim 5), 10:32-33 (claim 17), 11:22-12 (claim 29).

In the Background section of the specification, the patentee explains that prior art business models did not allow "a potential buyer to engage in a competitive/entertaining collateral price-determining activity (PDA) which ultimately determines the price of the product or service to be secured, depending on the buyer's performance during the collateral activity." '253 patent at 1:57-62. Throughout the specification, the PDA is referred to as a "collateral" or "intermediary" activity. See, e.g., '253 patent at 1:59,1:62, 2:19, 2:25, 4:1, 4:3,

In the Summary of the Invention section, the patentee further explains that

Various forms of electronic competition and/or entertainment are used as intermediary activities between said buyers and sellers to ultimately determine a contract price…. The ultimate price (within the range) is determined based upon the buyer's performance rating, or score, which the buyer receives from participating in a collateral activity . . . . The activity may be a video game (including audio/visual games), electronic board game, crossword puzzle or other word game, sports bet, card game, or any other activity or combination of activities.

'253 patent at 2:17-35; see also id. at 4:3-5; 5:22-24. Specific examples of PDAs disclosed in the specification include a bridge game where the buyer would be dealer and North and would be playing with three other individuals; a Mark McGwire trivia quiz of ten questions; an offer to predict which major league baseball player will be the first to reach fifty homeruns this season; a game of keno; a classic PacMan video arcade game; a simulated stock market; sports wagering; Trivial Pursuit; Monopoly; and simulated horse racing, among others. '253 patent at 5:53-60, 7:53-54, 7:66-67, 8:6-10, 8:16-26. It is further noted that a "wide variety" of PDAs may be used. Id. at 7:14-16. These disclosures indicate that a broad range of activities are contemplated by the patentee's use of the term "PDA."

The prosecution history further supports this conclusion. After a Final Rejection from the United States Patent and
Trademark Office, the applicant appealed the examiner's decision to the Board of Patent Appeals and Interferences ("BPAI"). See RESPONSE, SISTOS DEC., EXH. 2 at 65, 115. The BPAI held that certain claims were patentable. The BPAI also indicated that it took a broad view of the activities comprising a PDA. Id. at 155.

We find nothing in claim 1 that limits the claim to only "competitive or entertainment-based" activity. Rather, the claim merely recites "a Price-Determining-Activity (PDA)"). Nothing in the claim requires that the PDA be read as competitive or entertainment-based. Further, Appellant's specification recites at page 3, lines 18-29, that the collateral activity may be "any other activity or combination of activities. 5

Id. The intrinsic record makes unambiguously clear that a PDA is not limited to an "inherently entertaining activity," as Defendants propose.

5 This interpretation sets forth the broadest reasonable interpretation of the term. See In re Trans Texas Holdings Corp., 498 F.3d 1290, 1295 (Fed. Cir. 2007). While the courts are bound by different standards for claim construction, this interpretation is a part of the prosecution history and should be considered by the Court as part of the intrinsic record. See Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed. Cir. 1996).

The parties agree that the "collateral" or "intermediary" nature of the PDA should be included in the construction. RESPONSE at 5-6; REPLY at 3-4. However, the parties dispute whether the term "collateral" sufficiently defines the term. REPLY at 4-5. At the hearing, Plaintiff indicated that it would agree to defining "collateral" as "not otherwise part of a conventional or traditional sales transaction." Defendants indicated that they agreed if the terms "conventional" and "traditional" were not in the definition.

In support of including the term "traditional" or "conventional," Plaintiff points to the specification of the '253 patent which indicates that the invention differs from "traditional transaction methods" in a number of ways. '253 patent at 1:19-25. While the patentee does refer to the state of the art in this manner, the Court sees no reason to include the term in the construction. The specification indicates that the PDA is collateral to the purchase transaction between a buyer and seller. See '253 patent at 1:17-48. This purchase transaction comprises "[s]ellers offer[ing] a product or service within a specified price range, and buyers enter[ing] into a contract to buy the product or service within that price range. Id. at 2:20-23. The specification also notes that the buyer may provide payment information in a number of ways, including "via phone, regular mail, e-mail, or any other means" and this disclosure "preferably occurs prior to allowing the buyer to participate in the PDA." Id. at 5:4-35. In conjunction, these excerpts indicate that the PDA is collateral to a sales transaction and one part of a sales transaction involves disclosing payment information, which need not occur in a "traditional" manner--it may occur via e-mail or "any other means." Id. Therefore, the Court finds that the proper construction of the term "price determining activity" is "any form of competition or entertainment activity or combination of such activities that is used to determine the price paid for the product or service and is not otherwise part of a sales transaction."

4. "Price for a Credit Account" and "Price for a Proposed Credit Account"

Walker proposes that these claim terms should be construed to mean "[a]n exchange of value expressed as the composite credit or account parameters that a credit card issuer is willing to offer a customer, together with any fee or credit for modifying or entering into the credit account." Capital One disagrees with this proposed construction and instead proffers that the court should construe this term to mean "[a] one time fee or credit for modifying or entering into a credit account."

Initially, it is important to note that the court finds that there is no support for Capital One's proposed limitation that the fee be limited to "one time." This "one time" limitation can be found nowhere in either of the Walker Patents. Although the preferred embodiment and Figure 7 do indicate that the customer makes a determination as to whether the account price is
acceptable, there is no indication of a limitation that this fee is charged only "one time." Indeed, it is possible that a customer could agree to pay a recurring fee in exchange for the ability to, as an example, keep her interest rate lower than it otherwise would be.

The court also does not find support for Walker's contention that the claim term "price for a credit account" should be construed in terms of "an exchange of value expressed as the composite credit or account parameters that a credit card issuer is willing to offer a customer, together with any fee or credit for modifying or entering into the credit account." The somewhat convoluted definition Walker proffers more appropriately describes: a) a transaction (exchange of value), in the first part of the sentence; and b) that which is received in exchange for the price, in the second half of the sentence. Thus, Walker attempts to construe "price" to mean "everything in a transaction, including the transaction itself." This result does not comport with the ordinary meaning of the term "price." Walker argues that the patentee acted as his own lexicographer when he wrote that:

the phrase 'calculating the price', or equivalent phraseology used herein to describe an exchange of value for a change in credit terms, contemplates not only the computation of a price to be paid by the customer, but also circumstances in which the price or fee may be zero, or even where the credit issuer may provide a payment or credit to the customer for accepting new terms more favorable to the credit issuer."

('478 patent, Col. 8:14-21). The key phrase here is "exchange of value for a change in credit terms." At its essence, this phrase describes a transaction whereby "value" is exchanged "for a change in credit terms." But it is important to note that the price is not the exchange of value in this transaction. Rather, the price is the amount of value that is exchanged. This interpretation is reinforced by the patentee's willingness to interchange the words "price or fee" and the recognition that the price or fee could be zero.

The specification refers to a method of pricing a credit account including "receiving the credit parameters, calculating a price for a corresponding credit account, and outputting the price." ('478 patent, Col. 2:45-49). It also states that the price of modifying the account is based on the credit card parameters received from the agent terminal along with the customer parameters from the customer database. ('478 patent, Col. 6:49-52). The specification also discusses a "base price" ('478 patent, Col. 6:61) that is then adjusted taking into consideration desired changes to the parameters of the existing account and the "price" for the adjustments is then determined. ('478 patent, Col. 7:3-58). The specification also states that the "price calculated based on the credit parameters may also be modified by customer parameters." ('478 patent, Col. 7: 66-67). The preferred embodiment includes a process whereby the customer can trade off various parameters and after the customer revises the credit card parameters, "the new credit card parameters are processed by the system in the same way as the original credit card parameters to generate a new price." ('478 patent, Col. 8:43-48). For new accounts, the '478 patent acknowledges that there are no pre-existing credit parameters on which the "price for opening a new account" can be based and suggests using a set of "standard parameters." ('478 patent, Col 8:65-67).

Given the consistent language used throughout the specification and taking into consideration what a person of ordinary skill in the art at the time of the invention would have considered these claim terms to mean in the context of the entire patent, the court construes the terms "price for a credit account" and "price for a proposed credit account" to mean "a fee or credit (that may be zero) for modifying or entering into a credit account, based on the credit or account parameters."
the price may vary within which the price may vary

Plaintiff argues that, like the previous term, Defendants' construction improperly requires a "specific" upper and lower bound for the price range. OPENING at 30. Defendants argue that the range must be specified because the Abstract and Summary of the Invention sections of the '253 patent use this term. RESPONSE at 27-28.

Claim 1 of the '253 patent discloses:

1. A method of doing business over a global communications network comprising the steps:
   
   communicating to a buyer via the global communications network, a description of a product;

   accepting a first request from the buyer to buy the product for a price to be determined within a price range;

   accepting a second request from the buyer to allow the price to be determined based upon a performance of the buyer while participating in a Price-Determining-Activity (PDA);

   receiving data from the buyer over the global communications network, said data representing the performance of the buyer during the PDA; and

   determining the price of the product based at least partially upon the data received, said price being within the price range and scaled to the performance of the buyer.

'253 patent at 9:31-49 (claim 1). The specification refers to "a specified price range," "that price range," "a certain price range," "a price range," and "the price range." See, e.g., id. at 2:21, 2:22-23, 2:47-48, 2:65, 3:6-7. While the specification does refer to a "specified price range," the specification refers to a price range without this modifier on a number of occasions. See, e.g., id. at 2:65, 3:6-7, 4:52, 3:63. In whole, the intrinsic record fails to indicate that a "specified" price range is required. Therefore, the Court finds that the proper construction for "price range" is "upper and lower bounds within which the price may vary."

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12. Claim Construction of "price selection switch" (11[p.4])

The parties disagree over the meaning of the term "price selection switch" in claim 11. Mars contends that claim 11 of the '903 Patent is directed to and limited to a vend control system capable of vending at multiple prices. As evidence, Mars points to the prosecution history of claim 11. This prosecution history reveals that the initial version of claim 11 of the '903 Patent submitted to the United States Patent and Trademark Office (USPTO) made multiple references to a "price selection switch." (Def's Ex. 471, at 37-38.) After the rejection of the initial version, Mr. Levasseur resubmitted the patent with changes to claim 11 that included replacing three occurrences of "price selection switch" with "product selection switch." (Id.) However, even after this amendment, one occurrence of the phrase "price selection switch" remained within claim 11. (Id.) Thus, the evidence shows that the drafter of the '903 Patent deliberately allowed a single reference to a "price selection switch" to remain within claim 11 of the '903 Patent despite a clear intention to replace other references to "price selection switch" with "product selection switch." The prosecution history makes clear that the drafter of the '903 Patent intentionally chose to use the different words "price" and "product" to refer to two separate concepts. This raises the question of to what extent the Court should construe the term "price selection switch" differently from a "product selection switch." Mars is correct that "the use of [two] terms in close proximity in the same claim gives rise to an inference that a different meaning should be assigned to each." Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1373 (Fed. Cir. 2004); see also Ethicon Endo-Surgery, Inc., 93 F.3d at 1579. Although "it is not unknown for different words to be used to express similar concepts, even though it may be poor drafting practice," Bancorp Servs., 359 F.3d at 1373, the specification of the '903 Patent provides ample evidence that "price selection switch" and "product selection switch" refer to two different capabilities. The description of the single-price embodiment of Figure 1 refers to elements 12, 14, 16, and 18 as "product selection switches." '903 Patent col.3, lines 48-49. In contrast, the description of the multi-price embodiment of Figure 6
refers to "price selection switches." '903 Patent col. 6, line 65 - col. 7, line 11. n39 Because the prosecution history shows an intent to differentiate between price and product selection switches, and the specification places the words within different contexts, the Court construes "price selection switch" and "product selection switch" to have different meanings.

n39 The reference to "price selection switches" at column 3, lines 66-67 appears to be a generic reference to elements that come later in the specification.

Therefore, a "price selection switch" actuatable by a customer must mean that the customer is choosing one price from among more than one price. This is separate from a "product selection switch" which differentiates between different products. Because choosing one price from among more than one price requires a vending machine with a multi-price construction, claim 11 must refer to a vending machine that operates at multiple prices. n40

n40 Because the words of claim 11 later refer to a "product selection switch," one reasonable interpretation is that a "product selection switch" includes a "price selection switch." However, the context of claim 11 and the specification also indicates that a "price selection switch" does not necessarily include a "product selection switch."

Just as Mars contends that claim 11 is limited to a multi-price construction, Mars also contends that claim 1 is directed to and limited to a vend control system capable of vending at multiple prices. The Court disagrees. Because the language of claim 1 does not contain the same reference to "price selection switch," the Court construes claim 1 as not limited solely to a multi-price construction. n41

n41 It is not clear to the Court how either party wishes to apply this claim construction to infringement.

Disputed Claim Term or Phrase | Versata's Proposed Construction | SAP's Proposed Construction |
--------------------------------|-------------------------------|-----------------------------|
"pricing adjustment(s)"        | Plain meaning.                | The terms "pricing adjustment" and "price adjustment" mean a denormalized number that may affect the determined price. |
"price adjustment(s)"          | If further construction required, this term means: "adjustment(s) related to pricing." | |

With respect to these terms, the key dispute is whether they should be limited to "denormalized numbers," as suggested by SAP. 1
The '400 patent expressly defines a "denormalized number." "[D]enormalized' numbers refers to numbers that do not have a fixed unit and may assume a different meaning and different units depending on the pricing operation that is being performed. In other words, each denormalized number has a unique significance." '400 Patent, col. 8, ll. 47-52.

Versata argues that the claims are not so limited, and that claim differentiation and consistency counsel against SAP's proposed limitation. For example, claims 6 and 7 of the '350 patent read as follows:

6. The method of claim 1 wherein the pricing information comprises pricing adjustments.

7. The method of claim 6 where the pricing adjustments comprise denormalized pricing adjustments. (emphasis added).

Versata argues that the doctrine of claim differentiation directs that the disputed term as contained in claim 6, e.g., should not be limited by a specific limitation appearing in a subsequent dependent claim. 2

Regarding consistency, claim 2 of the '400 patent requires a "pricing adjustment" to include one or more "pricing types." Applying the stipulated construction of "pricing type"--a class or category of pricing adjustments--and a citation from the specification which indicates that various "pricing types" may include non-denormalized numbers, Versata argues that the court's goal of defining each term consistently would be undermined through the imposition of the limitation urged by SAP.

Turning to the specification, Versata further argues that "denormalized" describes a preferred embodiment. For example, Versata asserts that the specification simply discusses the possibility of using denormalized numbers, which teaches against a limiting construction. See '400 Patent, col. 10, ll. 45-48 (stating, "The numbers in this column are used to arrive at a price adjustment. The numbers in this column are 'denormalized,' meaning that each number in this column has a unique significance.").

In response, SAP argues that pricing adjustments are properly limited to "denormalized numbers" as suggested through the patent's consistent use and reference to the "denormalized" embodiment as "this invention," and through the specification's emphasis on "denormalized" as a distinguishing feature over prior art. See '400 Patent, col. 4, ll. 27-30; col. 8, l. 40-col. 9, l. 2; col. 10, l. 54-col. 11, l. 25; col. 11, ll. 15-36; col. 11, ll. 34-44; col. 11, ll. 45-67. SAP further argues that the patents' use of "this invention" in the abstract and summary of the invention sections provides even stronger support for its contention. See '400 Patent, abstract; col. 3, l. 63-col. 4, l. 6. SAP also addresses Versata's argument, asserting (1) the claimed embodiment is manufactured by Versata; (2) the doctrine of claim differentiation is trumped by the disclaimer as addressed above; and (3) the "non-denormalized" examples cited by Versata are actually discussions of "denormalized" price adjustments.

The court concludes that SAP's argument is persuasive. Under these circumstances, there is convincing evidence that the scope of the invention is limited as proposed by SAP, even in light of the doctrine of claim differentiation and the court's goal of construing claim terms consistently. See O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1582 (Fed. Cir. 1997); Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1301 (Fed. Cir. 1999). The specification consistently describes "this invention" as utilizing denormalized numbers--the patent discusses "this invention" in the context of denormalized numbers or tables no less than ten times. See Alloc, Inc. v. ITC, 342 F.3d 1361, 1368-69 (Fed. Cir. 2003); Watts v. XL Sys., Inc., 232 F.3d 877, 883 (Fed. Cir. 2000); Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1348 (Fed. Cir. 2004); Verizon Servs. Corp. v. Vonage Holds. Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007); Honeywell Int'l Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006). Second, there are a number of instances in which the specification distinguishes the present
invention over prior art precisely for the reason that the prior art did not use denormalized numbers--in fact, in one instance, the specification distinguishes SAP's R3 product as disadvantaged because R3 does not use denormalized price tables. '400 Patent, col. 11, ll. 34-44. The failure to use denormalized tables is criticized because it requires numerous database accesses to multiple price tables. See Astrazeneca v. Mutual Pharm. Co., Inc., 384 F.3d 1333, 1340 (Fed. Cir. 2004); O.I. Corp., 115 F.3d at 1581-82; Alloc, Inc., 342 F.3d at 1368-72; Honeywell Int'l, 452 F.3d at 1318. Under the circumstances, the patentee limited the scope of price adjustments to denormalized numbers.

For these reasons, the court defines "pricing adjustment(s)" and "price adjustment(s)" as "a denormalized number that may affect the determined price."

This term appears in only the '350 patent. The issue regarding this term, similar to the previous term, is whether the term excludes price adjustments that are not denormalized numbers.

Versata argues that "pricing information," as used in the specification, refers to a number of various types of information relating to pricing. See '350 Patent, col. 1, ll. 26-27; col. 9, ll. 12-15; Fig. 1; cl. 8; cl. 9. Furthermore, as indicated by claims 6 and 24, "pricing information" encompasses both price adjustments and denormalized price adjustments. As this term appears in only the '350 patent, SAP argues that the disclaimers that effectively limit the above terms also limit the scope of "pricing information."

As discussed earlier, the '350 patent is a continuation of the '400 patent. "A continuation is a second application for the same invention claimed in a prior nonprovisional application and filed before the original becomes abandoned or patented." MPEP § 201.07 (rev. July 2008); see also Microsoft Corp., 357 F.3d at 1348-49 (finding disclaimer across three continuation patents).

The court is persuaded that the patentee limited price adjustments to denormalized numbers. As such, the court limits the scope of "pricing information," as well and adopts SAP's construction.

A. "primary circuit"

By adopting Chairman Bragg's supplemental views, the Commission adopted her construction of claims 1 and 9 of the '903 patent. The Commission, therefore, determined that "primary circuit" "means the circuitry that performs the primary task for which the semiconductor chip is designed and excludes the auxiliary circuitry that is added to furnish the identification capability." Supplemental Views at 17. In other words, the primary circuit includes "everything but the product information array and the access circuitry." Id. This court detects no error in that construction.
The term "primary circuit" has not been argued by the parties to be a term of art or to have any special meaning to those of skill in this art. The written description informs the meaning of "primary circuit." The written description first defines "primary circuit" as the "portion of the chip which performs the primary function of that circuit." Col.1, ll. 66-68. The written description further describes the primary circuit as being "the memory array and associated decoders, gates and buffers." Col. 3, ll. 36-37. Furthermore, the written description uses the terms "primary circuit" and "memory array" throughout but never limits the primary circuit to the memory array alone. Accordingly, the written description supports the Commission's construction of primary array as "any circuitry present in an integrated chip before the addition of the rest of the circuitry that implements the invention." Supplemental Views at 20.

The doctrine of claim differentiation also underscores that "primary circuit" does not refer to the memory array alone as alleged by respondents. Although claim 2 was found to be invalid for indefiniteness, a finding that Atmel has not contested on appeal, dependent claim 2 provides guidance for the interpretation of broader claim 1. Specifically, claim 2 recites "[a] device as set forth in claim 1, wherein said primary circuit is a semiconductor memory having a first portion arranged to provide a primary memory array . . . ." Dependent claim 2 narrows the meaning of the term "primary circuit" of claim 1 to a semiconductor memory providing a memory array. This claim thus suggests that "primary circuit" as used in claim 1 has a broader scope than a semiconductor memory with only a memory array.

As defined by the Commission, the decoders and buffers are part of the primary circuit. This definition, however, does not define an inoperable device. As explained above, decoders and buffers retrieve and read out information from the product information array. In addition, the "access means" functions to prevent access to the primary circuit when information is read from the product information array. Thus, it might appear that, with decoders and buffers as part of the primary circuit, the product information array could not be read. To the contrary, the Commission's reading of the claim accommodates a meaning of "access means" that includes decoders. The decoders, as already noted, are also part of the primary circuit. Likewise, the output buffer is a common structure to both the "primary circuit" and "output means" claim elements.

This court's predecessor, The United States Court of Customs and Patent Appeals, held that a single structural element may perform two functions and may also support two different claim terms. In re Kelley, 49 C.C.P.A. 1359, 305 F.2d 909, 914, 134 U.S.P.Q. (BNA) 397, 401 (CCPA 1962) (the same cylinder is both the "means for reducing said actuating force" and the "power driven actuator"); cf. Reed v. Edwards, 26 C.C.P.A. 901, 101 F.2d 550, 554, 40 U.S.P.Q. (BNA) 620, 622 (CCPA 1939) (holding that different parts of a single element could support two means clauses); see also Landis, Mechanics of Patent Claim Drafting, § 21 (4th ed. 1999) ("If two differently named elements of a claim each contain some or much common structure, but not entirely common structure, it is not double inclusion to give those elements different names so long as at least some structure is different."). Thus, the Commission correctly discerned that a single structure, such as a decoder or a buffer, may support two different claim limitations when such a reading "is a reasonable construction of the language of the claims." In re Kelley at 1367.

According to the written description and claims of the '903 patent, when the access logic receives the first signal for selecting the primary circuit, it enables the row decoder. The access logic and row decoder thus function as part of the access means. The row decoder and column decoder then "perform the primary function of the circuit," namely retrieving information from the memory array. In this scenario, the output buffer and pins also "perform the primary function of the circuit," presenting the retrieved memory array data. The row and column decoders and the output buffer and pins thus function as components of the primary circuit.

When the access logic receives the second signal for selecting the product information array, it disables the row decoder. This action prevents access to the row decoder and the rest of the primary circuit. In this capacity, the column decoder no longer functions as part of the primary circuit. Rather it retrieves information from the product information array. Similarly, the output buffer and pins perform a non-primary function of presenting the retrieved product information array data. Thus, the output buffer and pins form the structure of the "output buffer" when they are not functioning as part of the primary circuit. Therefore, under this court's construction of primary circuit, including, e.g., decoders and buffers, claims 1 and 9 of the '903 patent remain operable.
Cisco's proposed construction for "primary router address" is "address associated with the router for a particular interface as a principal identifier of the router." Alcatel's proposed construction is "the network layer address of the router."

Alcatel's contends that its proposed construction is supported by the specification, which refers several times to a "primary IP address." See, e.g., Li, at 9:38-42, 10:63-65. While this is certainly true, the specification also refers several times to a "primary MAC address." See, e.g., Li, at 15:41-48, 15:63-16:32. Furthermore, the claim language itself does not indicate whether the "primary router address" is required to be a network layer address or a MAC address, although the patent only identifies the primary address as being either a network layer address or a MAC address. Aside from those references, however, neither the patent language nor the parties offer any additional guidance as to the proper construction of the term "primary router address."

Nevertheless, it is apparent that the claim language does not limit the "primary router address" to only the network layer address, or to any particular type of address for that matter. Additionally, the use of the terms "primary IP address" and "primary MAC address" in the specification indicate that "primary address" is referring to the principal identifying address of the router, as opposed to the "virtual address," which is the address of the router when it is emulating the "virtual router."

Therefore, the Court construes the term "primary router address" as "address associated with the router as a principal identifier of the router."

a. "primary site data"

Claim 1 calls for "a remote server assembly, said remote server assembly including a quantity of primary site data." Citrix contends that the term "primary site data" should be construed as "the principal data that a user of the claimed system seeks to access and interface with," while Rothschild proposes that the term means "data at a location on the remote server assembly." "Primary site data" is not a term of art in the computer science field.

Rothschild argues that "primary" modifies "data" and that "primary site data" is primary because it is located on the primary (first) site one accesses when using the technology described in the '534 Patent. Conversely, Citrix argues that "primary" modifies "data" and is the "principal data" one seeks to access. Citrix's construction is consistent with basic tenets of grammatical construction. Moreover, Citrix's contention is not supported by the Patent. Because the parties are in agreement that the primary site data is located on the remote server assembly as consistently set forth in the '534 Patent, the Court construes "primary site data" to mean: data at a location on the remote server assembly.

a. primary voltage

It appears to the Court that both Fairchild and Power Integrations agree that a "primary voltage" means a "base or initial voltage." (D.I. 152 at 11; D.I. 166 at 37). However, Fairchild contends that the primary voltage must, by definition, be generated by the primary voltage source. Fairchild contends that the voltages and voltage sources must be considered together, because the voltage must be generated from some source. Fairchild contends that a construction which ignores the source blurs the distinction between the primary and secondary voltages, because the claim describes the secondary voltage as being generated from a secondary voltage source. Thus, Fairchild maintains that the primary voltage cannot come from the secondary voltage source as Power Integrations suggests.

Power Integrations contends that any claim limitations with respect to how the secondary voltage is generated should not be imported into the meaning of the term "primary voltage." Power integrations contends that nothing in the patent limits the primary voltage to a voltage generated solely by a primary voltage source. (D.I. 152 at 11-12; D.I. 164 at 18-19).
Reviewing the disputed term in light of the claim language and the specification, the Court concludes that the term "primary voltage" means "a base or initial voltage" and that the term should not be defined by reference to the source from which it may be generated. Neither the claim language nor the specification describe how the primary voltage source is generated, and therefore, the Court declines to construe the term to require a distinct source.

2. "Printed board" and "Wire on a printed board"

The parties have asked the court to construe "printed board" and "wire on a printed board." Because construction of these two terms involves the resolution of a single disputed issue, namely, whether a wire on the printed board must be printed or can be discrete, the court will address the construction of these terms together.

Claim 1 of the '641 patent uses these terms as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

   a printed board containing an electronic element for suppressing noise;

   a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on the printed board;

   a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a wire on the printed board; and

   an insulating housing for encasing the printed board.

As to "printed board," Murata proposes the following construction:

A generally flat piece of material typically fabricated from insulating material that provides support and structural integrity for a plurality of interconnected components comprising a circuit. In printed circuit board technology, some or all of the conducting interconnection pattern is formed on the board.

Murata's Opening Brief, at 17. Bel Fuse proposes:

A flat board made of nonconducting material on which electronic components are adapted to be mounted and electrically connected by a pattern of conductive metal pathways or traces that are printed on the surface of the printed board.

Bel Fuse's Responsive Brief, at 11. Thus, the parties' primary dispute as to the construction of "printed board" is whether all of the wires on the printed board must be printed.

As to "wire on the printed board," Murata proposes: "A conductive metallic element interconnecting various regions, or contributing to the interconnecting of various regions, on the printed board." Murata's Opening Brief, at 20. Bel Fuse proposes: "A conductive metal pathway or trace formed (printed) on a surface of a printed board for electrically connecting components held on the board." Bel Fuse's Responsive Brief, at 11. As with "printed board," the parties dispute whether a "wire on the printed board" must be a printed wire.

The court begins with an examination of the specification of the '641 patent. As part of the summary of the invention, the specification states: "A contactor for contacting with a plug and a terminal for contacting with a circuit board are electrically connected with the electronic element by wires on the printed board." '641 Patent, col. 2, ll. 1-4. The specification also describes three preferred embodiments. As to the first embodiment, it states that "the printed board 30 has printed wires 33 and 34 on both sides," id. at col. 3, ll. 23-24 (emphasis added), and "[i]n order to increase and decrease the number of signal circuits, it is only required to change patterns of the wires 33 and 34 on the printed board 30." Id. at col. 3, ll. 59-62.

"Design of the wires 34 on the printed board 30 is comparatively free, and the pitch P among the holes 32, that is, the pitch
among the terminals 36 can be set to 1.02 mm which is the pitch of an ordinary circuit board on which the modular jack is mounted." Id. at col. 4, ll. 11-16. Likewise, the second and third embodiments disclose printed wires. See id. at col. 4, ll. 22-23 ("printed wires 44 and 45 on the board 41 are connected to chip inductors 40."); col. 4, ll. 37-39 ("printed wires 54 and 55 and an earth electrode 57 on the board 51 are connected to the [chip] capacitors 50."). Finally, the specification states:

Although the present invention has been described in conjunction with the embodiments above, it is to be noted that various changes and modifications are apparent to those who are skilled in the art. Such changes and modification are to be understood as included within the scope of the present invention defined by the appended claims.

Id. at col. 4, 11. 50-56.

Thus, the preferred embodiments in the specification of the '641 teach only printed wires on the printed board, but the specification does not expressly exclude the use of discrete wires and states that the invention includes variations to the preferred embodiments that would be apparent to persons of ordinary skill in the art. The question then becomes whether a person of ordinary skill in the art would recognize that some of the printed wires could be replaced by discrete wires.

Murata argues that jumper wires are well-known in the art; jumper wires create "a direct electrical connection, which is not a portion of the conductive pattern, between two points in a printed circuit." The Modern Dictionary of Electronics 532. Murata also cites a photo of an IBM circuit board which includes a jumper wire and the NASA Workmanship Standards which provide standards for the use of jumper wires on printed boards. Exs. 26 and 30 to Murata's Opening Brief. Because the use of jumper wires is well-known in the art and the patent does not specifically exclude them, Murata argues that "printed board" as used in claim 1 of the '641 patent can include discrete wires as well as printed wires and that "wire on a printed board" as used in claim 1 can be either a discrete wire or a printed wire.

Bel Fuse argues that a "wire on a printed board" as used in claim 1 includes only printed wires. Bel Fuse relies on the description of the preferred embodiments in the specification of the '641 Patent, which, as discussed above, include only printed wires. Bel Fuse also argues that one of the objects of the invention of the '641 Patent is that "[a] change in wire patterns on the printed board meets an increase of the required number of signal circuits, thereby never requiring more space." ‘641 Patent, col. 2, ll. 15-18. Because wire patterns on a printed board are composed of printed wires, Bel Fuse argues that, to achieve this advantage, the invention must include only printed wires. However, Bel Fuse has not explained why this advantage could not be achieved if a discrete wire was used for a connection while the remaining pattern was composed of printed wires, and Bel Fuse does not argue that discrete wires on the type of printed board used in the '641 patent are not known in the art.

Significantly, limiting a "printed board" to one with only printed wires or traces and a "wire on a printed board" to a printed wire would restrict the interpretation of these terms to the preferred embodiments, despite language in the specification saying that modifications apparent to a person of ordinary skill in the art are not excluded. Murata has provided evidence that the use of jumper wires is known in the art, and Bel Fuse has provided the court with no reason to believe that such the modification of using a jumper wire(s) would not have been apparent to a person of ordinary skill in the art. Thus, the court finds that adopting a construction that excludes discrete wires would improperly import a limitation from the specification into the claims. Phillips, 415 F.3d at 1323 (stating that courts should avoid "reading limitations from the specification into the claim"). The court construes "printed board" as "a generally flat piece of material typically fabricated from insulating material that provides support and structural integrity for a plurality of electrically interconnected components comprising a circuit, with some or all of the conducting interconnection pattern formed on the board," and the court construes "wire on the printed board" as "a conductive metallic element interconnecting various regions, contributing to the interconnecting of various regions, on the printed board."

C. Ref. No. 4 "Printed Paper"

This term is recited in Claims 1, 2, 17, 20, and 22 of the '787 Patent.

Plaintiff provides the following construction: "A non-intangible storage medium separate from the memory of the voting
machine (and thus portable), in which the records stored or contained therein if changed would leave evidence of that change. Here, the non-intangible medium is printed by a printer." Defendants' construction is: "A reviewable printout of the voters' voting selections or choices or a corresponding voting session identifier that is retained by the voter." Defendants' interpretation of this term is taken from the Court's construction of the terms "tangible receipt," "printed receipt," and "printed paper" in the prior lawsuit. (See Avante, 4:06cv1978 TCM, Doc. 276 at 26-30.)

The specifications of the instant patent provide that there is a "printed receipt [] for each voter at the conclusion of his voting": that following the voting session, the voting machine provides a tangible record of the individual's vote "in the form of a printed receipt PR, to the voter"; that each voter may use the voting session identifier to check his or her voting record posted on the printed receipt; and that "[t]he voter may keep the printed record for his/her own reference." (Defs. Ex. 3, Col. 6 ll. 7-8; Col. 6, l. 66-Col. 7, l. 4; Col. 7, ll. 45-50; Col. 14, ll. 13-14.)

As in the '730 Patent, the term "printed paper" is used to modify the term "receipt" in the '787 Patent. (See id. Col. 9, l. 63.) Moreover, the '787 Patent specifications provide that each voter deposits the smart card into a collection box but the "voter retains the printed voting receipt." (Id. Col. 6, ll. 37-41.) (Emphasis added.) This is identical to the language in the '730 Patent specifications. Plaintiff presents no new argument or distinction in the Claim or specification of the '787 Patent that causes the Court to construe "printed paper" in a manner different from the construction of the same term in the '730 Patent.

The term is construed as follows:

A reviewable printout of the voters' voting selections or choices or a corresponding voting session identifier that is retained by the voter.

D. Ref. No. 6 "Printer"

The term "printer" is recited in Claim 49 of the '209 Patent. 2 Plaintiff provides the following construction for the term "printer": "A commonly known device that provides a specific type of tangible medium (i.e., a printer paper)." Defendants' construction is: "A printer that retains no record of the data printed (including but not limited to a thermal jet printer, a dot matrix printer, an ink-jet printer, a bubble jet printer, a laser printer, and the like)."

2 In the parties' joint construction of terms, the term "printer" is said to be recited in Claim 31. Defendants' brief refers to Claim 49 as the appropriate Claim. The Court notes that the term "printer" does not appear in Claim 31 and will construe the term as it appears in Claim 49.

Claim 49 states that the printer provides a tangible receipt for each voting session. (Id. Col. 45, ll. 65-66.) The patent specifications provide that the printer is of a type that "retains no record of the data printed" and that the printer is "such as a thermal printer, a dot matrix printer, an ink-jet printer, a bubble jet printer, a laser printer and the like, which are conventional." (Id. Col. 11, ll. 55-63.)

Accordingly, the Court construes the term as follows:

A printer that retains no record of the data printed (including but not limited to conventional printers such as a thermal printer, a dot matrix printer, an ink-jet printer, a bubble jet printer, or a laser printer.)
J. Ref. Nos, 15, 22, and 24 "Printer."

This disputed term is recited in or referred to in Claims 5, 21, and 24.

The parties have agreed that Ref. Nos. 15, 22, and 24 should be grouped together because they can be decided on the construction of the single term "printer."

The Court adopts the reasoning set forth in Ref. No. 13, discussing the inventor's intention that the printer provide no additional record of the voting event. 

A printer that retains no record of the data printed (including but not limited to a thermal jet printer, a dot matrix printer, an ink-jet printer, a bubble jet printer, a laser printer, and the like).

2. Prior

Artesyn urges the Court to define the words "prior to" as meaning "before" in the element of the claim that states "a switch control circuit operating said auxiliary switch in accordance with a control logic such that (a) said auxiliary switch is opened prior [to] the ON period of said primary switch."

In Unitrode, I held: "By its usage of the word 'prior,' Claim One requires some delay between the 'ON period' of the auxiliary switch and the 'ON period' of the primary switch. The claim does not, however, specify the length of the delay." 130 F. Supp.2d at 191. The term "prior" was not a focus of either proceeding because neither Unitrode nor Lucent disputed that the claim language required a delay prior to the "ON period." Artesyn urges the Court to reconsider this construction based on three arguments.

First, citing the dictionary definition, Artesyn argues that the words "prior to" do not require a delay between the ON period of the primary and auxiliary switches, so long as the ON period of the auxiliary switch immediately precedes chronologically the ON period of the primary switch. According to the dictionary, "prior to" means "preceding; before: Prior to that time, buffalo had roamed the Great Plains in tremendous numbers." Random House Unabridged Dictionary, 1540 (2d ed. 1987) (Random House). See Texas Digital Sys. Inc. v. Telegenix, 308 F.3d 1193, 1202 (Fed. Cir. 2002) (emphasizing the importance of ordinary meaning as defined in dictionaries). The words "prior to" mean before or preceding, but the dictionary definition does not indicate how long before. Artesyn fairly argues that in some contexts "prior to" can mean immediately prior to, without a delay. As illustration, counsel explicated: "Yesterday was prior to today, your Honor. But there is no dead time between yesterday and today. . . . If A happens prior to B, there doesn't have to be a delay in between them. One can happen immediately after, the instant in time after the other one." (Hearing Tr. 20.)

Shoehorning its "anticipation" argument into the Markman hearing, Artesyn argues that the claim captures "coincident switching" as it existed in prior art. In idealized coincident switching there is a point in time when the controllable current in each switch is zero. (See Hearing Ex. 2,4.) The element is met, they explain, so long as the auxiliary switch enables current (that could otherwise be blocked) before the primary switch enables current (that could otherwise be blocked). Bassett, Artesyn's expert, testified that "for a coincident switching, the auxiliary switch stops conducting controllable current prior to the [time the] primary switch starts to conduct it." (May Hearing Tr. 33.)

There are two problems with this construction. First, it is inconsistent with the structure of the claim read in light of the specification. Vicor points out that Claim One contains a switch timing "control logic" in three phases. Clause (b) states "Said auxiliary switch remains open throughout the ON period of said primary switch." Vicor argues that Clause (b) ensures no overlap of the switches. If Claim One simply meant no overlap of the switches and permitted coincident switching, then, according to Vicor, Clause (a) and Clause (c) would be redundant. Instead, Vicor explicates, these two clauses are needed to specify delay in the switch timing. This is clarified by the specification, which requires a "delay" and a period of "dead time" in which no current is flowing. Mr. Bassett agreed with the "concept that dead time means there's no current that could otherwise be blocked." (Hearing Tr. 51.) Because the switch-timing requires the delay in the specification, the words "prior to" do not include coincident switching. I Rather, Claim One requires a delay between the opening of the auxiliary switch.
and the "ON period" of the primary switch.

Moreover, while the discussion can become a bit metaphysical, in idealized coincident switching, the transition point could be understood as a theoretical time when the "ON" periods overlap.

Second, a definition of "prior" that included coincident switching would capture prior art. Because the "word to the wise" in 1982 was that overlap was to be avoided, those skilled in the art in 1982 (like Mr. Carsten) practiced coincident switching. The patent history demonstrates that neither the applicant nor the examiner considered coincident switching to be included within Claim One. See Ex. 7 to Vicor's Response to Lambda's Claim Construction Memorandum (Interview Summary of April 1, 1998). Specifically, the examiner noted that Claim One was distinguished over Carsten and Polykarpov based upon the "switch timing." See Id. ("Applicant's attorney was informed that the above two references even if they were earlier art wouldn't anticipate or wouldn't have been obvious over claims 1 and 18, nor do the references disclose the switch timing.")

"Claims amenable to more than one construction should, when it is reasonably possible to do so, be construed to preserve their validity." Karsten Manuf. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1384 (Fed. Cir. 2001). "However when the claim's language embraces the prior art, the Court is not unlimited in the extent to which it can interpret the claims." Id. Claims cannot be rewritten by the Court to avoid the impact of newly discovered prior art. Id. "Therefore, if the only claim construction that is more consistent with the claim's language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply invalid." Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999).

Where there are two reasonable definitions, one which adumbrates prior art, and one which does not, the Court should choose the latter. This is particularly true when the definition that does not embrace the prior art is consistent with the specification and prosecution history. See Vivid Techs, Inc. v. American Science and Engineering Inc., 200 F.3d 795, 804 (Fed. Cir. 1999) (holding that the "prosecution history is often helpful in understanding the intended meaning as well as the scope of technical terms"); Ekchian v. The Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997) (suggesting statements made to the patent office can be the basis for a court to interpret the scope of the claims).

Taking a different tact, Artesyn makes a third argument that one skilled in the art would have taken switch tolerances (measured by the number of nanoseconds it takes for a switch to open and close a circuit) into account in the control switch timing in order to avoid overlap. Artesyn points to the statutory declaration 2 of the inventor filed in the United Kingdom in 1977:

Both suggest only coincident switching. I was the only one of the three to teach the use of both coincident switching (no overlap, minimized delays) and non-coincident switching (no overlap; small, purposeful, delay to utilize the reversed flow of magnetizing current to charge and discharge parasitic capacitances).

(Hearing Ex. 5.) Mr. Bassett explained:

Well, Mr. Vinciarelli is saying there, that his invention would put in just some little bit of delay just to account for some guard-band on your [switch] tolerances, but put in some significant purposeful delay in addition to whatever delay was required just to avoid overlap, considering all tolerances.

(Hearing Tr. 4.) Although the desired outcome was to accomplish coincident switching with no overlap and no dead time, Bassett testified: "And when you strive for coincident switching, just meeting the requirement to avoid overlap, you will likely end up with some of that dead time." (Hearing Tr. 51.) Only in the "worst case" switches (when the tolerances are at their maximum) would there be no dead time because one current would hit zero while the other current began to rise.

(Hearing Tr. 51-52.) Bassett believes that it was well known in the prior art of Carsten and Polykarpov to use delay in the control circuit to avoid overlap by considering switch tolerances. (Hearing Tr. 43-45.)
2 While a statement of a party in a foreign related judicial proceeding is an admission, see Fed. R. Evid. 801(d)(2), the Federal Circuit has never defined it as part of the "intrinsic" evidence used to construe a claim, which has been primarily limited to the claim, the specification and the prosecution history. See Viterionics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). However, if the foreign pleadings (like the German briefs) were submitted during the reissue proceedings, they morph into intrinsic evidence. It is unclear whether this British statutory declaration was filed during these reissue proceedings.

Again, Artesyn is seeking to bootstrap its anticipation argument into the Markman hearing by using extrinsic evidence (i.e., the Bassett testimony and affidavits from related foreign patent proceedings) to explain why the prior art actually, as a practical matter, sometimes had minimized delays in switch-timing, albeit for a different purpose -- to avoid switch overlap, not to discharge parasitic capacitances.

Vicor disputes the contention by pointing out that Carsten's device actually had overlap as did those of others skilled in the art. Moreover, Vicor contends that a small amount of overlap was tolerable in the prior art, and any delays amounted only to accidental anticipation. See generally Tilghman v. Proctor, 102 U.S. 707, 711-712, 26 L. Ed. 279, 1881 Dec. Comm'r Pat. 163 (1880) (unintended and unappreciated occurrences do not constitute anticipation); Eibel Process Co. v. Minnesota & Ontario Paper Co., 261 U.S. 45, 66, 67 L. Ed. 523, 43 S. Ct. 322, 1923 Dec. Comm'r Pat. 623 (1923) (same). Similarly, Vicor floats the doctrine of "inherent anticipation." See Rosco Inc. v. Mirror Lite Co., 304 F.3d 1373, 1380 (Fed. Cir. 2001) ("Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art.") (citation omitted). This debate is beside the point at this stage. Extrinsic evidence concerning possible anticipation cannot vary the meaning of a claim as derived from the intrinsic evidence, specifically, the claim and the specification language itself.

Finally, Artesyn argues that the Court should not import from the specifications a requirement of "purposeful delay" sufficient to discharge parasitic capacitances. The Court need not address this point because Vicor is not pressing for a claim construction that a delay must be "purposeful." (Hearing Tr. 85.)

3 However, a related issue has been raised in VLT, Inc. v. Power-One, Inc., 2003 U.S. Dist. LEXIS 81, Civ. Action No. 10207-PBS. Power-One seeks a functional definition of delay, which I will discuss in the context of the cross-motions for summary judgment in that litigation.

ORDER

The Court orders as follows:

1. Claims 1 and 5 of the '098 patent are not invalid as indefinite;

2. "Closed" means that a switch is enabled to conduct current that it could otherwise block;

3. "Open" means that a switch is not enabled to conduct current that it could otherwise block;

4. "Prior to" means "before" and requires a delay during which neither the primary nor the auxiliary switch is enabled to conduct current that it could otherwise block;

* * *

- Footnotes -

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* * *

- Footnotes -
5 The Court will be construing "delay" in the Power-One litigation.

B. The "Prior" Limitation

VLT next argues that the district court erred in construing the phrase "said auxiliary switch is opened prior [sic] the ON period of said primary switch." VLT asserts that that limitation simply requires some delay between the opening of the auxiliary switch and the closing of the primary switch. Artsyn and Lambda also disagree with the district court's interpretation of the "prior" limitation, but for a different reason: they maintain that the limitation does not require any switching delay. In contrast, Power-One defends the district court's construction, arguing that the "prior" limitation requires a switching delay that is useful to charge and discharge parasitic capacitances and that eliminates or greatly reduces heat loss.

We agree with Power-One that the district court correctly interpreted the "prior" limitation to require a useful switching delay. As the district court observed, the claim language - "said auxiliary switch is opened prior [sic] the ON period of said primary switch" - simply means that the opening of the auxiliary switch must occur before the closing of the primary switch. But we must turn to the other intrinsic evidence of record to determine whether the "prior" limitation requires a switching delay and, if so, how long that switching delay must be.

Although the district court cited the specification as one reason for narrowing the scope of the "prior" limitation, we do not read the specification as identifying any particular delay that must occur between the opening of the auxiliary switch and the closing of the primary switch. On the contrary, the detailed description of the invention refers to opening the auxiliary switch and closing the primary switch at the same time. '098 patent, col. 5, ll. 59-60 ("At time t[1], the auxiliary switch 21 is opened and the primary switch 10 is closed, initiating the first ON period."). Elsewhere, the specification teaches that any delay between the opening of the auxiliary switch and the closing of the primary switch should be kept to a minimum in order to avoid "dead time." Id., col. 7, ll. 4-8. It also discloses, however, that "a small delay is useful to allow the magnetizing current to charge and discharge parasitic capacitances associated with the switches and windings." Id., col. 7, ll. 8-11. To be sure, that statement suggests that a small switching delay may be desirable, but it does so in the context of discussing the design trade-offs between minimizing "dead time" and utilizing a delay during such "dead time" to charge and discharge parasitic capacitances. Viewing the teachings of the specification as a whole, we cannot say that the patentee clearly disavowed reset mechanisms that do not use a small switching delay.

Nevertheless, the prosecution history compels us to construe the "prior" limitation as requiring a switching delay that allows the magnetizing current to charge and discharge parasitic capacitances. During the reissue proceedings, the patentee repeatedly emphasized that the claimed invention, unlike the prior art, introduces a small switching delay for that purpose. For example, the inventor pointed out the lack of "a single prior art reference mentioning the use of a delay in a single-ended forward converter involving active reset for achieving charging and discharging of parasitic capacitances." He further declared that the specification's reference to a "small delay that is useful to allow the magnetizing current to charge and discharge parasitic capacitances" would be sufficient to enable a skilled artisan to achieve "the benefit of the invention." We read those and other statements made by the inventor during the reissue proceedings to represent the patentee's clear disavowal of reset mechanisms that do not employ a small switching delay for charging and discharging parasitic capacitances. 4 See Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452-53 (Fed. Cir. 1985) (stating that claims should be construed so as to exclude any interpretation that a patentee disclaimed during reissue proceedings in order to obtain claim allowance).

4 Although certain claims that were added during reissue specifically recite a "small delay period," the patentee's prosecution remarks also apply to claim 1. During the reissue proceedings, the inventor represented to the Patent and Trademark Office ("PTO") that there are "clearly defined delay requirements" in claim 1 "both as granted and as sought to be amended." The inventor also referred to "the notion (disclosed and claimed in the [original] '146 patent) of using a
Moreover, the examiner relied on the patentee's characterization of the invention as requiring a useful switching delay in allowing the reissued claims, including claim 1, over the prior art. In the Notice of Allowability, the examiner explained that one reason for allowance was that the prior art did not teach "controlling the primary switch to close a short time after the auxiliary switch is opened at the end of the reset interval or [that] the switch timing (small delay) is useful to allow the magnetizing current to charge of [sic] discharge parasitic capacitances associated with the switches and the windings."

Although an examiner's statement does not always limit a claim, the examiner's reasons for allowance in this case make clear that both the patentee and the examiner understood the claimed invention to require a small switching delay. See ACCO Brands, Inc. v. Micro Sec. Devices, Inc., 346 F.3d 1075, 1078-79 (Fed. Cir. 2003) (relying on an examiner's reasons for allowance in interpreting a claim). Thus, in view of the patentee's representations to the PTO during the reissue proceedings and the examiner's reliance on those representations, we conclude that the "prior" limitation of claim 1 requires a small delay between the opening of the auxiliary switch and the closing of the primary switch that is useful to allow the magnetizing current to charge and discharge parasitic capacitances associated with the switches and windings.

The parties further dispute, however, whether the switching delay must also be sufficient to reduce heat loss. We hold that it must. During the reissue proceedings, the inventor criticized the prior art for its "switching losses" caused in part by the "dissipation of energy stored in parasitic capacitances at times when switches are turned on." More importantly, he stated several times that the purpose of using a small delay to charge and discharge parasitic capacitances is to reduce switching losses. We therefore conclude that the switching delay should be long enough to reduce switching losses and, as the district court concluded, includes delay that eliminates or greatly reduces heat loss.

In sum, we affirm the district court's construction of the "prior" limitation as requiring a small delay between the opening of the auxiliary switch and the closing of the primary switch that is useful to allow the magnetizing current to charge and discharge parasitic capacitances associated with the switches and windings. We also agree with the district court that the delay should be long enough to reduce switching losses and that it includes delay that eliminates or greatly reduces such losses.

5 Although it is unnecessary for us to reach the issue, we are not inclined to limit claim 1 through judicial estoppel, as Power-One urges, when the district court did not expressly exercise its discretion to do so. See New Hampshire v. Maine, 532 U.S. 742, 750, 149 L. Ed. 2d 968, 121 S. Ct. 1808 (2001) (observing that "judicial estoppel is an equitable doctrine invoked by a court at its discretion" (citation omitted)).

3. "Prior to any attempted use of the defibrillator" means "prior to any attempted use of the defibrillator to treat a patient, and possibly other uses as well."

The 374 Patent contains several claims covering defibrillator self-test technology with aspects that operate "prior to any attempted use of the defibrillator." 374 Patent Claims 1, 41, 42, 44, 67. Philips relies on the open-ended claim language (i.e., "any attempted use") and contends that the court should construe "use" broadly to encompass non-therapeutic uses including simply turning the defibrillator on or using the defibrillator to perform a manual self-test. Defibtech asserts that "use" is limited to using the defibrillator to treat a patient.

It makes little difference what the phrase "prior to any attempted use" means, because the claims in which it appears impose modifications that resolve the parties' disputes. See supra n.4. Claim 1 covers a defibrillator with "means for" operating a "test signal generator" and a "defibrillator status indicator" "prior to any attempted use." The other four claims, however, contain important qualifying language. Claim 41 is identical to Claim 1 except that, critically, the claimed test signal

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generator is "periodic." Claims 42 and 44 are method claims for "automatically determining and indicating" a defibrillator status "prior to any attempted use." Claim 42 requires a test signal generated "automatically and periodically," whereas Claim 44 requires a test signal generated "automatically in response to a predetermined event or condition." Claim 67 is unique in that its method requires "automatic [] and periodic []" test signal generation "without human intervention" "prior to any attempted use," but does not require that the indication of defibrillator status occur prior to use. These explicit qualifications, when read in light of the remainder of the specification, alter the scope of the phrase "prior to any attempted use."

The 374 Patent discloses numerous self-tests that precede various uses of the defibrillator. It teaches several sets of periodic tests that would occur even if a user never touched a defibrillator incorporating the patented technology. 374 Patent at 6:44-58 (disclosing weekly periodic self-tests, monthly periodic self-tests, as well as daily periodic self-tests). When a user inserts a battery, the defibrillator can perform another series of self-tests. 374 Patent at 6:35-43. Another possible self-test assesses the defibrillator at the moment a user turns it on. 374 Patent at 6:59-65. A set of "runtime" self-tests monitors the defibrillator "continually" after a user turns it on. 374 Patent at 6:66-7:2.

With these examples of self-tests in mind, the court turns to Claim 1 and its requirement of a means for status indication "prior to any attempted use of the defibrillator." If the patented technology required the use of all of the above self-tests, Philips' open-ended construction of the term would be correct, as the defibrillator would have means for performing at least one self-test in advance of any use. The Claim, however, does not require all of these self-tests; it requires only one. Moreover, the Claim does not explain which test the defibrillator has means to perform.

A defibrillator with means for performing a single self-test would be capable of indicating a status before all therapeutic uses, but not necessarily before other uses. Because a defibrillator that has means to perform only one test would satisfy Claim 1, it would not necessarily provide means to indicate status before non-therapeutic uses. For example, although turning the defibrillator on is a "use," a defibrillator that had means for conducting only "runtime" tests would not reveal its status before that use. The same is true of a defibrillator with means to conduct only a manual self-test: it could not indicate a status in advance of the manual self-test, which is itself a "use."

Ultimately, the only "uses" of the defibrillator for which the invention of Claim 1 would invariably have means to provide an indication of pre-use status are uses in treating a patient. For any defibrillator with means to perform a randomly selected self-test, the defibrillator could indicate status before anyone used it to treat a patient, but not necessarily before other uses. Thus, in Claim 1, the phrase "prior to any attempted use" carries a meaning more consistent with Defibtech's proposed construction. The phrase means "prior to any attempted use of the defibrillator to treat a patient, and possibly before other uses as well."

The other claims, however, limit the "prior to any attempted use" phrase. Claims 41 and 42 introduce an additional limitation -- the test signals that initiate the self-tests must be "periodic" or must be generated "periodically." The parties have not asked the court to construe "periodically," but in the 374 Patent it means "on an internal, pre-set schedule." The specification teaches that "periodic" tests are different than tests conducted "in response to predetermined conditions or events." 374 Patent at 2:10-13. Thus, when Claims 41 and 42 require "periodic" test initiation signals, they require at least one periodic self-test. As noted above, the patent teaches that these are tests that occur daily or weekly or monthly, whether the defibrillator is turned on or not. By their nature, these tests occur before any use of the defibrillator, including merely turning the device on. Thus, in Claims 41 and 42, the scope of the phrase "prior to any attempted use" is "prior to any attempted use of the defibrillator, even non-therapeutic uses."

Claim 67 not only requires the "periodic" generation of a test signal, it requires that the generation occur "without human intervention." Thus, like Claims 41 and 42, Claim 67 requires at least one of the periodic self-tests, and thus requires status indication "prior to any attempted use of the defibrillator, even non-therapeutic uses."

The method of Claim 44 does not require a "periodic" test signal, but rather requires one generated "automatically in response to a predetermined event or condition." This method requires at least one self-test, but it excludes the periodic self-tests. If the test was a "runtime" self-test, the method of this Claim would be (like the defibrillator of Claim 1) incapable of indicating status before the defibrillator is turned on. In this Claim, therefore, "prior to any attempted use" carries the same meaning as in Claim 1 -- "prior to any attempted use of the defibrillator to treat a patient, and possibly before other uses as well."
The prosecution history of the 374 Patent does not alter the court's construction. In overcoming the PTO's objection that the prior art Eikefjord Patent (United States Patent No. 5,097,830) anticipated the invention, Philips argued that its claims required operating the self-test system "prior to any attempted use of the defibrillator," whereas the Eikefjord Patent disclosed testing that occurred "during" use of the defibrillator. J.A. 00463-64 (emphasis in original). The "use" described in the Eikefjord Patent, however, is use or attempted therapeutic use of the defibrillator on a patient. The Eikefjord Patent does not disclose self-testing that occurs prior to therapeutic uses. The prosecution history merely shows that Philips' claims require a means of indicating status prior to therapeutic use. This is consistent with the court's construction.

1. The Claims

   a. The '462 Patent:

   1. A method for producing and locating an apparent origin of a selected sound from an electrical signal corresponding to the selected sound in a predetermined and localized position anywhere within the three-dimensional space containing a listener, comprising the steps of:

      separating said electrical signal into respective first and second channel signals;

      altering the amplitude and shifting the phase of the signal in both said first and second channel signals while maintaining said phase and amplitude differential therebetween for successive discrete frequency bands across the audio spectrum and each successive phase shift being different than the preceding phase shift, relative to zero degrees, thereby producing first channel and second channel modified signals and creating a phase differential and an amplitude differential between the two channel signals;

      maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase;

      respectively applying said first and second channel modified signals that are maintained separate and apart and that have said phase and amplitude differential therebetween to first and second transducer means located within the three-dimensional space and spaced part [sic: apart] from the listener to produce a sound apparently originating at a predetermined location in the three-dimensional space that may be different from the location of said sound transducer means.

   7. A system for conditioning a signal for producing and locating, using two transducers located in free space, an auditory sensory illusion of an apparent origin for at least one selected sound at a predetermined localized position located within the three-dimensional space containing a listener from a single electrical signal corresponding to the selected sound, comprising: first and second channel means both receiving the same single electrical signal, said first and second channel means including respective first and second sound processor means each for altering the amplitude and shifting the phase angle of the respective electrical signal on a frequency dependent basis for successive discrete frequency intervals across the audio spectrum to produce a respective modified signal wherein the amplitude alteration differential and the phase angle shift differential occurring between the two channels are respective predetermined values for each said successive frequency interval of the audio spectrum, said sound processor means shifting the phase angle such that each successive phase angle shift is different and independent of a preceding phase angle shift relative to zero degrees, and said first and second channels being maintained separate and apart prior to being fed to the two transducers.

   b. The '860 Patent:

   1. A method for producing and locating an apparent origin of a selected sound from an input monaural signal corresponding to the selected sound in a predetermined and localized position anywhere within the three-dimensional space containing a listener, comprising the steps of:
separating said input monaural signal into respective first and second channel signals;

providing a sound position control signal derived independently of the input monaural signal for making amplitude and phase adjustments at each of a number of discrete frequency bands over the audio spectrum and relating to a sound location determined by azimuth, height, and depth;

altering the amplitude and shifting the phase of the signal in at least one of said first and second channels in response to said sound position control signal, both altering and shifting being done on a predetermined frequency dependent basis for successive discrete frequency bands across the audio spectrum and each successive phase shift being different than the preceding phase shift relative to zero degrees, whereby producing at least a first channel or a second channel modified signal and creating a continuous phase differential and a continuous amplitude differential between the two channel signals that varies for each of said discrete frequency bands;

maintaining the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase; and

respectively applying at least first and second channel modified signals that are maintained separate and apart and that have said phase and amplitude differential therebetween to first and second transducer means located with the three-dimensional space and spaced apart from the listener to produce a sound apparently originating at a predetermined location in the three dimensional space that may be different from the location of said sound transducer means.

5. A system for conditioning a signal for producing and locating, using two transducers located in free space, an auditory sensory illusion of an apparent origin for at least one selected sound at a predetermined localized position located within the three-dimensional space containing a listener from a single monaural input signal corresponding to be selected sound, comprising: first and second channel means both receiving the same single monaural input signal, one of said first and signal channel means including sound processor means connected to receive a sound position control signal derived independently of the input monaural signal for controlling amplitude and phase adjustments at each of a number of selected frequency intervals of the audio spectrum and relating to a sound location determined by azimuth, height, and depth for altering the amplitude and shifting the phase angle of the respective signal on a frequency dependent basis for successive discrete frequency intervals across the audio spectrum to produce a respective modified signal therefrom in response to said sound position control signal, wherein the amplitude alterations and the phase shifts form a continuous differential between the two channels that varies for each said successive frequency interval of the audio spectrum, said sound processor means shifting the phase angle such that each phase angle shift is different relative to zero degrees, and said first and second channels being maintained separate and apart prior to being fed to the two transducers.

2. The Claim Construction

The first claim at issue of each of the patents is a method claim, while the second claim at issue of each of the patents is a claim to a "system." After examining the prosecution history, the special master gave the phrase "being maintained separate and apart" its ordinary, literal meaning. He distinguished, however, between the term "following" that appears in claim 1 of the '462 and the '860 patents and the phrase "prior to" that appears in claim 7 of the '462 patent and claim 5 of the '860 patent.

The special master interpreted "prior to" as simply requiring that the two signals be kept separate and apart "merely immediately before the loudspeakers [i.e., the 'transducers'] where the signals are clearly separate and apart." "Following," however, was deemed more restrictive. The special master interpreted that term to require the two signals to be kept "separate and apart" from each other immediately after the two signals are initially altered.

Because the two channel signals in the accused Spatializer device are combined after their phase and amplitudes are altered, but are separated immediately before they are fed to the speakers, the special master recommended that the Spatializer does not infringe the "following" claims but potentially could infringe the "prior to" claims. As indicated above, the district court adopted the special master's recommendations as to the "following" claims but not the "prior to" claims. The district court held that Desper was entitled to summary judgment of non-infringement on the "prior to" claims as well as the "following" claims. On appeal, QSound challenges the district court's interpretation of both "following" and "prior to."
2 QSound also challenges the interpretation of "discrete" and "independent," as it must to ultimately prevail. Given our interpretation of "maintained separate and apart," "following," and "prior to," however, we need not reach these issues.

DISCUSSION

"The law governing summary judgment is well established." C.R. Bard, Inc. v. Advanced Cardiovascular, Inc., 911 F.2d 670, 672, 15 U.S.P.Q.2D (BNA) 1540, 1542 (Fed. Cir. 1990). "Summary judgment is as appropriate in a patent case as it is in any other case." Id. Under the Federal Rules of Civil Procedure, a motion for summary judgment should properly be granted when "there is no genuine issue as to any material fact and . . . the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c).

The determination of whether an accused product or process infringes a claim of a patent is universally understood to involve two steps. First, we construe the asserted claim to determine its meaning and scope. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 U.S.P.Q.2D (BNA) 1321, 1326 (Fed. Cir. 1995) (in banc), aff'd, 517 U.S. 370, 38 U.S.P.Q.2D (BNA) 1461, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). In the second step, we compare the accused product or process to the properly construed claim. See id.

Whether a product or process infringes the properly construed claims of a patent, literally or under the doctrine of equivalents, is a question of fact. See Tanabe Seiyaku Co. v. United States Int'l Trade Comm'n, 109 F.3d 726, 731, 41 U.S.P.Q.2D (BNA) 1976, 1981 (Fed. Cir. 1997). Often, as in this case, the composition of the allegedly infringing process or product is undisputed. In such a case, literal infringement collapses into claim construction—a matter of law—amenable to summary judgment. See Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1578, 37 U.S.P.Q.2D (BNA) 1365, 1370 (Fed. Cir. 1996).

To determine the meaning and scope of a claim, we first examine the claim language, the specification, and, if in evidence, the prosecution history. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). Extrinsic evidence, that is, evidence outside the record before the United States Patent and Trademark Office ("PTO"), such as expert testimony about how those skilled in the art would interpret certain language in the claim, may also be considered when appropriate as an inherent part of the process of claim construction and as an aid in arriving at the proper construction of the claim, but may not be used to vary or contradict the otherwise unambiguous meaning of the claim. See id. at 1582, 39 U.S.P.Q.2D (BNA) at 1577. The proper interpretation of a claim is a legal conclusion, over which we exercise plenary review. See Cybor Corp. v. FAS Tech., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (in banc) ("We review claim construction de novo on appeal including any allegedly fact-based questions relating to claim construction.").

I. "Following"

We start first with the claim language itself. See Thermalloy, Inc. v. Aavid Eng'g, Inc., 121 F.3d 691, 692, 43 U.S.P.Q.2D (BNA) 1846, 1848 (Fed. Cir. 1997) ("Throughout the interpretation process, the focus remains on the meaning of claim language.") The first claims of both the '462 patent and the '860 patent require that the system "maintain[] the first channel signal separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase" (emphasis added). The plain meaning of "following" is "subsequent to, after in time" or "next after," depending on the context. Webster's Third New International Dictionary 883 (1986). The problem in this case is that this definition does not tell us how close in time to the "altering" step the signals must be maintained separate and apart. To answer that question we consult the specifications.

Though not definitive, the specifications support an interpretation that requires the two signals to be maintained separate and apart beginning immediately after the amplitude is initially altered and the phase is initially shifted. The word "following" appears only twice in each of the written descriptions and is not used with reference to the channel signals. (The same is true of the phrase "prior to," discussed infra.) The drawings, Fig. 16 and Fig. 18a (pictured supra), however, graphically demonstrate that once the two channel signals are separated they are thereafter kept separate. Thus, the drawings...
support the interpretation that, immediately after the amplitude and phase of the channels signals are initially altered by the filter, they thereafter must be maintained separate and apart.

QSound points to an isolated passage in the written description to support its proposed claim construction that it is only after the alteration of the amplitude and the shifting of the phase by filters and summers are complete that the signals are required to be maintained separate and apart. The passage upon which QSound relies simply indicates that the sound processor "may include some or all of the following circuit elements: filters, delays, [inverters], summers, amplifiers, and phase shifters." '462 patent, col. 11, ll. 11-12. The passage sheds no light as to when the signals must be maintained separate and apart.

In contrast, the prosecution history confirms our claim construction. The limitation that the channel signals be maintained separate and apart was not in the original claim language. The original claims of what is now the '462 patent were rejected as obvious under § 103 in light of British patent No. 942,459. The original application (Ser. No. 07/398,988) was then abandoned in favor of a File Wrapper Continuation ("FWC") (Ser. No. 07/696,989). See 37 C.F.R. § 1.62 (1997). The limitation that the channel signals be maintained separate and apart was then added in a preliminary amendment dated June 12, 1991. In the remarks accompanying that amendment, the patent applicants' attorney stated:

In fact, according to the present invention, once the monaural signal is split into the two channel signals, those signals are forever after isolated one from another and are never combined or commingled. Various operations may take place in each channel provided by the present invention, yet the signals being operated upon are never recombined or mixed. This is in direct distinction to the teaching of the British patent . . . .

(Emphasis added.) In his closing remarks, the attorney further stressed in urging reconsideration:

In view of the amendments to the claims hereby, as well as the above remarks, it is respectfully submitted that a method and apparatus for producing two sound signals derived from a single monaural input signal in which an amplitude and phase shift is provided with such signals being maintained separate and apart up until the actual production of the sounds at the speakers, as taught by the present invention and as recited in the amended claims, is neither shown nor suggested in any of the cited references, alone or in combination.

(Emphasis added). Rather than wait for a formal, written response, the applicants conducted a personal examiner interview. In the resulting "Examiner Interview Summary Record," the examiner indicated that the amended claims "appear to distinguish over art of record in prior case (FR 1,512,059 & B 942,459)." However, the examiner did come up with a new reference on which to base another prior art rejection. Despite this new reference, the examiner indicated that two dependent claims would be allowable if they were to be rewritten in independent form. In response, the applicants abandoned the original independent claims and took what the examiner allowed. The rewritten claims were subsequently allowed and issued as part of the '462 patent.

The prosecution history of the '860 patents tells much the same story. The '860 patent was originally filed as a Rule 60 divisional of the FWC (Ser. No. 07/696,989). See 37 C.F.R. § 1.60 (1997). In a preliminary amendment dated October 31, 1991, after the parent application had been rejected in view of the British patent, the applicants amended all the independent claims to include the limitation that the channel signals be maintained separate and apart. In an office action dated February 5, 1992, the examiner rejected the amended claims as obvious in light of another reference. The applicants' attorney responded with further amendments to the claims, and accompanying remarks in which the attorney distinguished the claimed invention from the cited reference. This amendment was sufficient to overcome the rejection, and the amended claims were issued as part of the '860 patent. Thus, in the file history of both patents, the limitation that the channel signals be maintained separate and apart was added to overcome the prior art rejection based on the British reference, and in both cases it succeeded.

QSound does not argue on appeal that its attorney's comments do not, on their face, limit the scope of the asserted claims.

Rather, QSound argues that the prosecuting attorney's remarks should not be used to interpret the disputed claim language because the remarks, according to QSound, were both erroneous and extraneous -- erroneous because they are contrary to the express teaching of the patent itself and extraneous because they did not become part of the claim. We disagree on both accounts.

Fig. 18a (pictured supra), according to QSound, "proves . . . that counsel's statement was erroneous." Brief for Appellant at - 3667 -
Claim 7 of the '462 patent and claim 5 of the '860 patent, the two other independent claims that are at issue, both claim a
II.

We conclude that the claim construction for claim 1 of the '462 patent and of the '860 patent adopted by the district court is
correct.

II. "Prior To"

Claim 7 of the '462 patent and claim 5 of the '860 patent, the two other independent claims that are at issue, both claim a

QSound argues that the district court misconstrued the functional language -- "said first and second channels being maintained separate and apart prior to being fed to the two transducers" -- appearing in claims 5 and 7. In particular, QSound argues that the court erred in its construction of "prior to." The district court construed "prior to," based on the written description and the prosecution history, consistent with its interpretation of "following." In light of all the intrinsic evidence, we conclude that the district court properly construed this phrase.

The plain meaning of "prior" supports QSound's argument that "prior to" should be construed more broadly than "following." QSound offers a definition for "prior," which Desper does not dispute: "preceding in time; earlier; previous; former," quoting Webster's New World Dictionary 1131 (2d ed. 1984). Accord Webster's II New College Dictionary 879 (1995). All the plain language requires, under this definition, is that the two channel signals must be maintained separate and apart before they are fed into the transducers (i.e., the speakers). There is some appeal to this argument. Common words, unless the context suggests otherwise, should be interpreted according to their ordinary meaning. See Proks v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572, 40 U.S.P.Q.2D (BNA) 1619, 1622 (Fed. Cir. 1996) ("Without an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning.") The problem with QSound's approach in this case is that the context of the specifications strongly suggests that "prior to" should not be given its ordinary meaning.

The drawings and corresponding discussion in the written description show that the two channel signals are initially separated and thereafter maintained separate and apart. The phase and amplitude of each channel signal is altered and then supplied to one of the speakers. The district court construed the "prior to" language as requiring the channel signals to be maintained separate and apart after the phase and amplitude are initially altered. Obviously, this construction is supported by the written description because this is precisely how the preferred embodiment of the invention works. Moreover, maintaining the channel signals separate and apart after the phase and amplitude are initially altered is still before the signals are fed into the transducers.

The district court concluded that the prosecution history tips the balance in favor of construing "prior to" in the same manner as "following" in claim 1. We agree. Prosecution history is an important source of intrinsic evidence in interpreting claims because it is a contemporaneous exchange between the applicant and the examiner. This is true whether the claim element in question is written pursuant to § 112, P 6 or not. See Alpex Computer Corp. v. Nintendo Co., 102 F.3d 1214, 1220, 40 U.S.P.Q.2D (BNA) 1667, 1671 (Fed. Cir. 1996) (prosecution history is relevant to interpreting an element written in means-plus-function language); United States v. Teletronics, Inc., 857 F.2d 778, 782, 8 U.S.P.Q.2D (BNA) 1217, 1220 (Fed. Cir. 1988). During the prosecution of claim 7 of the '462 patent, QSound treated claim 1 and claim 7 (then claim 8) together even though one used "following" language and the other used "prior to" language. In successfully overcoming the prior art rejection based on the British patent, QSound argued that "claims 1 and 8 have been amended hereby to make it more clear that the first channel signal is always maintained separate and apart from the second channel signal following the step of altering the amplitude and shifting the phase in at least one of those signals." (Emphasis added.) Thus, even though only claim 1 included the "following" language, QSound itself considered the scope of claims 1 and 8 commensurate in this regard.

Because the public has the right to rely on the applicants' remarks in seeking allowance of their claims, see Alpex, 102 F.3d at 1221, 40 U.S.P.Q.2D (BNA) at 1673 ("Just as prosecution history estoppel may act to estop an equivalence argument under the doctrine of equivalents, positions taken before the PTO may bar an inconsistent position on claim construction under § 112, P 6."). we agree with the district court that "prior to" should be construed to mean after the altering of the amplitude and shifting of the phase has begun; see Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987) ("Two claims which read differently can cover the same subject matter.").

--- Footnotes ---

3
3 QSound invokes the rule that different words should be interpreted differently, yet it concedes that in other parts of the claims different words should be interpreted the same. For example, the special master found and, QSound concedes, that the phrase "frequency bands" in Claim 1 of the '860 patent and the phrase "frequency intervals" in claim 5 mean the same thing. QSound's argument based on constructional rules therefore loses much of its force.

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F. Ref. No. 64 "Prior to said reading and for each of a plurality of voters, producing by a voting machine a paper ballot including voting selections made by a voter.

This phrase is recited in Claim 26.

The dispute concerning this claim is in two parts. Defendants interpret the phrase "prior to said reading and for each of a plurality of voters" to require that, prior to the reading step, a plurality of voters' paper ballots are produced. Plaintiff interprets this phrase to require the entire process to be repeated for multiple voters. The Court agrees with Plaintiff's construction because of the plain language of the claim.

The phrase "and for each of a plurality of voters" explains that the process described is applied to each individual voter. Defendants' proposal does not provide for this construction and does nothing more than repeat the phrase in their construction.

The second dispute on the claim is about the phrase "producing by a voting machine a paper ballot including voting selections made by a voter." In support of its construction, Plaintiff cites the specification providing for "[a] specialty or security-type of paper, or other medium making authentication of a printed receipt and/or ballot easier . . ." and for a local printer which "prints information identifying the election district, the date and time of voting and similar information that may help to authenticate printed receipt PR and/or optical ballot[.]"] (Col. 11, ll. 21-24.) Defendants refers the Court to Column 10, lines 31-36, which provide that the ballot may be printed in advance of an election. The claim itself provides that a voting machine produces a "paper ballot including voting selections made by the voter." (Claim 26) "In construing claims, we begin with the language of the claims themselves." North Am. Vaccine, Inc., 7 F.3d at 1575. When the meaning of the claims is in doubt, the court looks to the specification for guidance. Id. at 1576.

There is nothing in the specification that negates Plaintiff's construction. To the contrary, the specification referred to herein supports for Plaintiff's construction. When viewing the claim's clear language, the phrase "voting selections made by a voter" refers to the choices made by that voter.

Consequently, the Court construes the term in Ref. No. 64 as: Before the reading step, a ballot is produced with the voter's choices printed thereon. The entire process is then repeated for multiple voters.

3345

IV.

Although the parties nominally agree on the district court's claim interpretation, Hilgraeve also argued before that court that the phrase "prior to storage" must be construed from the ordinary user's perspective, i.e., that whether or not VirusScan screens before or after storage, it will infringe if the user perceives that screening occurs before storage. As support for this argument, Hilgraeve refers to comments the applicant made to the Patent and Trademark Office (PTO) during prosecution, in support of the amendments to its application which resulted in allowance. The amendments added, inter alia, the phrase "prior to storage on the destination storage medium" to claim 1. See Hilgraeve, 70 F. Supp. 2d at 750. In its comments to the PTO, Hilgraeve asserted that "the Applicants' invention requires only one step. The user simply initiates the data transfer. The program automatically screens the data, as it is being transferred . . . ." Hilgraeve asserts that this comment means that
the patented invention requires only that the user perceive screening before storage, regardless of how the program actually operates.

The district court correctly found nothing in the intrinsic evidence to support Hilgraeve's argument based on the perception of the program's operation. See Hilgraeve, 70 F. Supp. 2d at 756. Neither the claims nor the rest of the specification of the '776 patent show that the invention involves the user's perception of the program's operation. The written description supplies some suggestions for user interaction with the program to direct inspection for certain specific error protocols. The claims of the '776 patent, however, do not claim a method of screening data "so that the user perceives that screening occurs before storage," but instead claims a method of actually screening before storage. The patentee claimed a technical method, not a method for projecting a perception.

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
<tr>
<td>&quot;Retrieving via the&quot;</td>
<td>&quot;locating and returning, by means of the&quot;</td>
</tr>
</tbody>
</table>
4. "Priority" and "Highest Priority Test"

I construe "priority" in claims 1, 3, and 5 of the '415 patent to mean "relative importance," and "highest priority test" in claim 1 of the '415 patent to mean "test of the highest relative importance."

As described above, claim 1 of the '415 patent specifies a laboratory automation system that reads the specimen carrier's identification code and determines various "priorities," such as "the priority of the first specimen relative to any other specimens entered into the LAS" and "the priority of each test to be conducted on the first specimen relative to one another." (Filing 64-3, Ex. C, at 6:13-21; see also id. at 6:31, 6:48, 6:62 (more "priority" language).) In each of these usages, "priority" connotes the relative importance of either the specimen or the test to be performed on it.

I decline to read "based on a physician's designation" into the meaning of "priority," as Siemens argues, because such a qualification is at odds with the plain meaning of the language of the patent. While there may be instances where a
physician's designation plays some role in the determination of relative priorities made by the LAS, a physician's designation may play no role in other such determinations. A physician may have no knowledge of other specimens moving through the LAS at the same time as the first specimen, and that physician's designation of the tests to be performed on the first specimen may not impact the LAS's calculation of the relative importance "of the first specimen relative to any other specimens entered into the LAS." (Filing 64-3, Ex. C, at 6:15-16.) Likewise, a physician's designation may play no role in "the LAS recalculating the priority of the first specimen and any other specimens in the LAS upon directing of the first carrier to the first workstation." (Filing 64-3, Ex. C, at 6:31-33.) In addition, one object of the '415 patent "is to provide a method for automating a laboratory which determines optional routing to a particular workstation, and detects any time delays because of other specimens present in a queue at a workstation." (Filing 64-3, Ex. C, at 2:11-15.) Nothing in the '415 patent suggests that such a determination depends on a physician's designation.

After the LAS calculates the priority of the first specimen relative to others and the priority of each test to be conducted on the first specimen, the LAS determines "the most direct route from the receiving station to a first workstation for conducting the highest priority test of the first specimen." (Filing 64-3, Ex. C, at 6:19-21.) The context within which "highest priority test" is used dictates that this phrase must refer to the test of the highest relative importance. There is simply no reason to believe that the term "priority" means something different in the context of the phrase "highest priority test."

C. "A Prioritized Set of Tiers."

The third term to be construed appeared in claims 1 and 16. Claim 16 recited as follows (col. 21:34-59):

16. An information transmission system comprising the steps of:

* * *

scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database one or more scheduled transmission times;

transmitting a stream of data packets containing said selected portions of said information database in accordance with said scheduled transmission times;

said scheduling step including dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate, wherein the repetition rate for higher priority tiers is higher than the repetition rate for lower priority tiers;

* * *

Finisar argues that this term means "things ranked or preferentially designated based on priority, for example, a selected portion of the information database designated to be transmitted at a higher repetition rate than another selected portion." 3 Comcast proposes that it should mean "levels that are ranked in order of importance." Comcast goes on to add that "the top-level indices that a subscriber needs to access the database are not part of any tier."

--- Footnotes ---

3 On this point, the Texas Court construed the term "dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate." The whole term was held to mean "placing each part of the information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" (Melgar Decl. Exh. B at 12). It appears that the Texas Court equated "tiers" to "groups of information."

--- End Footnotes ---
Both the words "priority" and "tier" are commonly understood words in the English language. A "priority" connotes a higher rank. A "tier" is a level. Each tier can include one or more portions of the database.

It is worthwhile to distinguish the "prioritized set of tiers" from the "hierarchically arranged set of indices," i.e., a system of indices and a system of tiers. The system of indices is used to organize the database. The indices are embedded within the database. The system of tiers contains selected portions of the database, with each tier having a set, specific repetition rate for transmission.

The parties disagree over whether the tiers are ranked by "importance" or whether a priority can connote some other kind of ranking. This question is addressed in the specification: "[e]ach successively lower tier of information contains a larger amount of information than the next higher tier, prioritized in accordance with the actual or expected subscriber usage, and is transmitted less often" (col. 14:9-12). Comcast argues that although the tiers are ranked by repetition rate, "priority" must mean something more than that. Comcast is correct. The claims specifically state that apart from priority, the higher priority tiers have a higher repetition rate while the lower priority tiers have a lower repetition rate. Repetition is already inherent in the claim.

Comcast's further proposal that the tiers must be ranked by "importance," however, gives little help in defining the term. Comcast concedes that priorities other than importance can be used when it discusses ordering the tiers by how much a subscriber would pay. The specification contemplates ranking the tiers based on expected or actual usage, not based on a philosophical assessment of importance. Expected or actual usage would embrace a range of possible allocations and need not invariably lead automatically to a single result for a given set of circumstances. As long as expected or actual subscription usage is a basis for the allocation, then the priority element will be satisfied.

Finally, Comcast urges that the "root information" used to define the indices within the database must be separate from the tiers, i.e., the root information would be sent, according to Comcast, separately from the tiers. The specification made clear that the root information had its own repetition rate. That repetition rate is higher than for all other information, but the "root information," even though it may not be called out specifically as a "level," is still part of the set of prioritized tiers (col. 14:2-15, Table 1). The root information is the top tier of the set. It is sent the most frequently and contains the smallest amount of information, the top-level indices used to access the rest of the database.

Accordingly, "a prioritized set of tiers" means a set of levels ranked by expected or actual customer usage possibly together with other allocation factors, wherein each successively lower level of information contains a larger amount of information than the next higher level. The root information described in the specification is part of the top tier.

7. "priority bit"

The term "priority bit" appears in claim 11 of the '819 patent. The issue is whether the priority bit is limited to defining the importance of remote units or whether it can define the importance of other things, such as an application. By limiting the construction to the importance of remote units, the defendants attempt to limit the construction to a preferred embodiment. The language of the claim is entitled to a broader construction, and the court construes this term to mean "a bit that is used to convey the relative importance of the communication."

7. Private branch exchange network

Foundry argues that "private branch exchange network" should be construed to mean "a communication network that enables private branch exchange services." Lucent, on the other hand, submits that the disputed phrase should be construed to mean "a telephone exchange on the user's premises providing a switching facility for telephone lines within the premises and access to the public telephone network and the extension lines and attached telephones." (emphasis added) At issue here
is the meaning of the phrase "private branch exchange." After considering the submissions and arguments of counsel on this point, the court construes "private branch exchange network" to mean "a private telecommunications exchange network that includes access to a public telecommunications exchange. It may be on the user's premises and may provide a switching facility for telephones on extension lines within the premises and access to the public telephone network." See IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1997).

5. Said private branch exchange services including providing substantially real-time voice communications

After considering the submissions of the parties, the court concludes that this phrase requires no construction.

"Local Network"

"Private Local Network"

"Private Network"

The parties agree that these three terms should have the same construction. Cisco's proposed construction for the above terms is "distinct set of interconnected elements used to communicate data." Alcatel's proposed construction is "distinct set of interconnected elements in a trusted environment used to communicate data." The obvious difference between the two parties' proposals is that Alcatel seeks to limit the construction to requiring a "trusted environment," while Cisco opposes such a limitation.

Both parties agree that the term network is given its ordinary meaning. According to the 1996 IEEE Standard Dictionary of Electrical and Electronics Terms, such meaning is "a series of points interconnected by communication channels." Id. at 683 (6th ed. 1996). However, Cisco seeks to limit the construction of "private local network" to the definition of "network." Clearly, the inclusion of the modifiers "private" and "local" were meant to limit the above terms to something more narrow than simply a network.

In the patent specification, references are specifically made to local area networks (LANs) as being operated by private customers. See Valencia, at 1:19-20, 3:48-51. As Cisco even admits, a "private network" is "a network of communications channels confined to the use of one customer." See Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,918,019 (Valencia) ("Cisco's '019 Opening Brief"), at 16; IEEE Dictionary, at 683.

While Alcatel argues that the Court should construe the terms to include a "trusted environment," based primarily on the presence of a firewall 66 in Figure 2 of the '019 patent, the Court finds that this requirement is not sufficiently supported by the patent language. The patent language does not appear to alter the ordinary meaning of the terms, and therefore the Court construes the terms "private local network," "private network," and "local network" as "distinct set of interconnected elements confined to the use of one customer used to communicate data."

--- Footnotes ---

66 The parties agree that the term firewall means "system that precludes unauthorized access to a device or network." See Revised Joint Statement, Ex. F, at 84.

--- End Footnotes ---
There is no dispute that a "probability density function estimation" ("PDFE") is, in some manner, an "estimation" of a "probability density function" ("PDF"). In the words of Wavetronix's expert, "probability density function is a precisely defined term in statistics which corresponds to the probabilities of the different possible outcomes of some experiment." EIS agrees that "PDF" is a well known mathematics term and offers the following dictionary definition: "a function of a continuous variable whose integral over a region gives the probability that a random variable falls within the region." 6 While the parties agree upon the definition of "PDF," they dispute the definition of "PDFE." We conclude below that the salient difference between the two concepts is that a PDF is a mathematical function, whereas a PDFE is an approximation of such a function using actual finite data. We also explain below that, in light of the teachings of the specification and the recitation of the PDFE within the claim language, for the purposes of claim 1 a PDFE must estimate a PDF with sufficient precision to indicate both where vehicles are located and where they are not. In other words, as the specification teaches, a PDFE should at a minimum provide enough data to ascertain "peaks" and "valleys" approximating the centers and boundaries of traffic lanes, respectively.

6 Random House Webster's Unabridged Dictionary 1541 (2d ed. 2001). This definition comports with those found in other general reference and technical dictionaries. See, e.g., Webster's Third New International Dictionary 1806 (2002) ("a function of a continuous random variable whose integral over an interval gives the probability that its value will fall within the interval"); McGraw-Hill Dictionary of Scientific and Technical Terms 1674 (6th ed. 2003) ("[a] real-valued function whose integral over any set gives the probability that a random variable has values in this set").

In advocating for its construction of "PDFE," EIS focuses on the term "probability" and argues that a PDFE must represent some sort of probabilistic analysis. Wavetronix argues that the "E" in "PDFE" modifies the whole phrase "PDF," not just "P" or "probability." According to Wavetronix, an "estimate" of a PDF need not have all of the characteristics of an actual PDF, including estimating the actual probability that a vehicle has driven in a given lane. Rather, as we understand Wavetronix's argument, any histogram that allows for an estimation of lane boundaries is a PDFE, because any graph that accurately allows for lane detection must have some correlation with the number or probability of cars in each lane. Wavetronix argues that the definition that most aligns with the specification and includes all of the disclosed embodiments is "a tabulation of frequencies of vehicle positions."

The claim language itself provides little guidance on how to define "PDFE," and the parties have not relied upon the patent's prosecution history to define the proper scope of the claim limitations referencing a PDFE. 7 The patent's specification does provide guidance, but its references to PDFE are not entirely consistent. Nowhere does the patent set forth an explicit definition of PDFE. See Phillips, 415 F.3d at 1316 (patentee may act as own lexicographer); Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999) (same). The specification refers variously to: a PDF "as estimated," '916 patent col.6 l.6; using a PDF "to estimate" lane boundaries, id. col.6 ll.14-15; "PDF estimation," id. col.6 l.32; a "PDF estimator," id. col.6 l.33; and "estimated PDFs," id. col.8 l.13. In some places, the specification appears to refer to PDF and PDFE interchangeably. Id. col.4 ll.1-7, col.7 ll.30-39.

7 The parties look to the patent's prosecution history only for the purposes of supporting their respective positions on the question of whether claim 1 requires the counting of discrete vehicles. EIS points out that Wavetronix remained silent in the face of the patent examiner's characterization of the patent's method as "determining . . . the number of cars which pass beneath [the sensor]." According to EIS, Wavetronix conceded through its silence that the patent claimed the counting of discrete vehicles as opposed to mere vehicle detections that may or may not yield an accurate tally of individual vehicles. The parties have expended considerable effort arguing this point. Whatever the merits of the argument, see 3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1373-74 (Fed. Cir. 2003) (silence does not necessarily indicate acquiescence to examiner's characterization when allowance is on grounds unrelated to characterization), it is unnecessary to decide whether the claim encompasses only detections of discrete vehicles. Even if the claim also encompasses vehicle
detected, an accused system must still generate a PDFE and define lanes from the PDFE to infringe. For the same reason, it is also unnecessary to determine whether a PDFE requires "unbiased" or "normalized" data, as asserted by EIS.

The concept of "PDF" is defined with greater clarity and consistency in the specification than is the concept of "PDFE" standing alone. Both the summary of the invention and the description of the preferred embodiments describe the concept of PDF in terms of a graph in which enough data is collected to observe peaks, which represent the centers of lanes, and valleys, which represent the lane boundaries or edges. See, e.g., id. col.4 ll.2-7 (summary of invention) ("The probability density function describes the probability that a vehicle will be located at any range. The peaks of the probability function represent the center of each lane and the valleys of the probability density function represent the lane boundaries."); id. col.6 ll.15-19 (explanation of Figure 3, a diagram of the method) ("The peaks of the PDF represent the center of each lane and the low spots (or valleys) of the PDF represent the lane boundaries (or regions where cars don't drive). The lane boundaries are set to be the low spots (or valleys) between peaks."). This "peaks and valleys" arrangement allows for the definition of lanes from the PDFE as recited in step (c) of claim 1.

The understanding of PDF as a data plot showing a range of high values ("peaks") and low values ("valleys") as explicated in the specification aligns well with the standard mathematics definition of PDF. A PDF is a theoretical mathematical function that seeks to model reality. As Wavetronix's expert noted, a PDF does not represent actual data. When displayed on a histogram, the PDF is a smooth line or curve, because it is produced by a mathematical equation. When a finite set of actual data is plotted on a histogram, the resulting plot will not be a smooth curve but rather a disjointed one. See, e.g., '916 patent col.7 ll.25 ("The number of vehicles in each bin is counted . . . ."). Two embodiments apparently refer to a count of individual vehicles (Figures 6 and 8), see '916 patent col.7 ll.25 ("The number of vehicles in each bin is counted . . . ."). While a third (Figure 7) could just as easily refer to vehicle detections, i.e., the number of signals bounced back to the transceiver, which may be more than one per vehicle. What is the same about all of the disclosed embodiments (Figures 6, 7 and 8) is that each of them represents, in the form of a histogram, a comparison of the number of vehicles or vehicle detections across a range. This ability to compare the data across a range is significant, because it provides information not only about where vehicles are but where they are not--i.e., where traffic lanes begin and end. Such data is used for "defining . . . traffic lanes . . . from said [PDFE]." The record reveals no material intrinsic or extrinsic evidence indicating that the attribute of a PDF that a PDFE does not possess is the fundamental property of functioning over a range.

The specification is hardly a paragon of clarity, but this understanding of PDF estimation comports with the various descriptions and explanations of the PDF and PDFE concepts found in the specification. There are differences between the embodiments disclosed in the specification, but each of them suggests that a number of data points is used to estimate a hypothetical mathematical model, i.e., a PDF. One embodiment (shown in the histogram at Figure 7) uses "normalized" data, i.e., data displayed as a percentage of a total rather than as raw counts, while at least one (shown in the histogram at Figure 8) does not. Two embodiments apparently refer to a count of individual vehicles (Figures 6 and 8), see '916 patent col.7 ll.25 ("The number of vehicles in each bin is counted . . . ."); while a third (Figure 7) could just as easily refer to vehicle detections, i.e., the number of signals bounced back to the transceiver, which may be more than one per vehicle. What is the same about all of the disclosed embodiments (Figures 6, 7 and 8) is that each of them represents, in the form of a histogram, a comparison of the number of vehicles or vehicle detections across a range. This ability to compare the data across a range is significant, because it provides information not only about where vehicles are but where they are not--i.e., where traffic lanes begin and end. Such data is used for "defining . . . traffic lanes . . . from said [PDFE]." The record reveals no material intrinsic or extrinsic evidence indicating that the attribute of a PDF that a PDFE does not possess is the fundamental property of functioning over a range.

8 That Figure 7 represents a normalized graph is indicated by the fact that the y-axis is scaled from zero to one. A given value is expressed as a fraction of the whole, rather than as a raw count of detections. Determining the fraction of the whole represented by a given value in Figure 8, which is not normalized, would require dividing that value by the total number of counts measured in all positions.

9 The patent contains two references suggesting that some embodiments may have only one range bin per lane. See '916 patent col.7 ll.7-8 ("[A] lane may be comprised of a plurality of bins") (emphasis added); id. col.9 ll.58-61 (a limitation in claim 3 claiming a plurality of range bins in each lane, which appears redundant if claim 1 already implies this limitation).

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No doubt, using one bin per lane would not result in an optimal lane definition using the "peaks" and "valleys" method. Nevertheless, there is nothing plainly suggesting that, if only one bin per lane were used, the method would take advantage of some technique other than comparing values across a range of lanes to define lanes. The specification teaches that range bins of a width that results in histograms without "peaks" and "valleys" are incapable of providing useful information about where vehicle lanes begin and end. This teaching is an essential characteristic of the patented system, and is relevant to the analysis of both literal infringement and infringement under the doctrine of equivalents.

In summary, what makes a PDFE an estimate of a PDF in the context of the '916 patent is the fact that a PDFE is based on actual data points, rather than a perfectly smooth, if hypothetical, mathematical function or model. But a PDFE, like a PDF, has the characteristic of comparing values across a range of positions. The court therefore construes a PDFE to be "a finite data set large enough to approximate a function of a continuous variable whose integral over a region gives the probability that a random variable falls within the region." This construction applies equally to step (b) ("generating a [PDFE] . . .") and step (c) ("defining . . . traffic lanes . . . from said [PDFE]") of claim 1; however, our infringement analysis infra focuses on step (c).

2. Parameter Values & Procedure Routine Specifications

The parties dispute the definition of the terms "parameter values" and "procedure routines specifications" in claim 1. At its core, the parties' argument turns on whether the terms are numbers or software code. Roche contends that both terms refer to numbers or data values of different types. Defendants contend that "parameter values" are numbers, while "procedure routine specifications" are code. The Court agrees with Roche.

Although the parties dispute the proper construction for the term "parameter values," their definitions for the term are very similar. Roche contends that the term means "data values used in the algorithm," while Apex/HDI argue that the term means "constants and variables that are critical to the operation of the meter," and Biosite avers that the term means "constant values that are assigned to variables for a specified application." The Court finds the term "parameter values" has its ordinary meaning of "constants that are assigned to variables."

The ordinary meaning for the term "parameter" is a constant or value associated with a particular value or variable. See, e.g., WEBSTER'S THIRD NEW INT'L DICTIONARY at 1638; IEEE Std. Glossary of Software Eng't Term., IEEE St. 610.12-1990, at 55; Biosite Exh. 5, Louder Rep. P 15; Roche Exh. 5, Dunsmore Dep. at 55. The other claims of the 609 patent confirm that the ordinary meaning of the term should apply in this instance. Claim 4 is perhaps the most revealing claim with respect to the varied types of constants or data intended to be included as a "parameter:"

. . . pluggable memory key means including a plurality of stored parameter values for controlling operations of said meter; and

processor means . . . wherein the processor means is responsive to parameter values accessed from said pluggable memory key means, to cause said excitation supply means to apply a plurality of voltages to said first electrode, each said voltage having a potential and being applied for a duration that is determined by said processor means from parameter values accessed from said pluggable memory key means, and to further control said sense amplifier means to provide a plurality of signal outputs over a set duration and to further calculate from said signal outputs a value equivalent to a concentration of an analyte in said analyte-containing fluid in said sample well, all in conformance with parameter values accessed from said memory key means.

'609 Patent, col. 9, ll. 48-68. Likewise, claim 5 also designates that control values, or parameters, are accessed on the pluggable memory key means, including "values of said first and second excitation potentials and the number of signal outputs from said sense amplifier means controlled by parameter values accessed from said memory key means." Id. col. 10, ll. 31-35.
The specification also indicates that the plain meaning of "parameter values" should apply to the term in the context of the 609 patent. The summary of the invention teaches that "[a] microprocessor is responsive to a procedure routine and parameter values accessed from the pluggable memory key to cause the excitation supply to apply a plurality of potentials for preset durations, both the values of the potentials and the time duration of their application determined from parameter values derived from the memory key." Id. col. 3, ll. 49-55. Similarly, the 609 patent reads: "the sense amplifier [is] operated under control of specific parameter values derived from the pluggable memory key." Id. col. 3, ll. 57-60. From these passages alone, it is clear that a "parameter value" is a constant or data that is assigned to a variable in the programs that are run by the microprocessor. This is also consistent with the language used to describe the interaction between the microprocessor and the ROM key: "When ROM key 30 is inserted into meter 10, a plurality of flexible contacts ... enable a microprocessor within meter 10 to access data stored in ROM chip 32." Id. col. 4, ll. 52-56.

The most compelling support for the ordinary meaning of "parameter value" in the 609 patent specification, however, is found in the more detailed descriptions of the contents of the ROM key. The 609 patent reads, in pertinent parts:

A microprocessor 59 ... provides overall control of the operation of biosensing meter 10 in combination with data read from ROM key 30. ROM key 30 is pluggable into biosensing meter 10 and contains non-volatile memory that includes constants and other data required to carry out analyte-determination procedures. In general, a ROM key 30 will accompany each batch of disposable sample strips 18 and will contain constants and procedure code that enable meter 10 to adjust its measurement parameters to match the specific batch characteristics of disposable sample strips 18. Further, ROM key 30 will also contain a large number of additional variable values that control the operation of microprocessor 59 in performing the actual analyte determination tests.

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As above indicated, the operation of a biosensing meter 10 is substantially controlled by data contained in ROM key 30. ROM key 30 will contain a variety of data values that are critical to the proper operation of meter 10. Those values encompass measurement delay times, an incubation time, the number of measurements to be taken during a measurement period, various thresholds against which voltage levels are to be compared, values of excitation voltage levels to be applied to sample strip 18 during a test procedure, glucose value conversion factors, and a variety of failsafe test threshold values.

Id. col. 5, ll. 3-18; id. col. 5, ll. 66-68, to col. 6, ll. 1-8. These passages indicate that "parameter values" must be "constants or data" because the same language is used to describe how those "constants or data" are used to control the microprocessor of the meter that is used in claim 1 to describe what the "parameter values" do to control the processor means. Compare id. col. 5, ll. 3-18 and id. col. 5, ll. 66-68 to col. 6, ll. 1-8 (the passages listed here), with col. 9, ll. 4-11 (describing the interaction between the processor means and the parameter values and procedure routine specifications on the memory key).

Roche contends that there are two types of constants, "parameter values" and "procedure routine specifications," where "parameter values" are constants used in the algorithm, but "procedure routine specifications" are data values or numbers used to control execution of the algorithm. Roche asserts that the first passage above teaches "constants and other data" and "additional variable data," which is two different types of data. Roche argues that the former type of data is "parameter values" and that the latter type of data is "procedure routine specifications." Furthermore, Roche argues that because dependent claim 2 specifically requires that the pluggable memory key means contain "procedure routines," which Roche agrees with Defendants must be code, the only way to differentiate claim 2 from claim 1 is if "procedure routine specifications" is not code, but numbers or data. In addition, Roche asserts that in the prosecution history, the inventors clearly intended to include two types of data: parameters and specifications. Roche Br. at 45-46. Defendants do not really address this reference in the prosecution history.

Although the Court does not agree with Roche's argument in its entirety, the three sources of intrinsic evidence indicate that "procedure routine specifications" are data rather than code. The Court looks to the claims first. Claim 1 uses the term "procedure routine specifications" three times:

... said pluggable memory key means including a plurality of stored parameter values and procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter that enables determination of an analyte concentration value, said procedure routine specifications including stored values from which time values can be determined for controlling said sense means during execution of said algorithm; and
processor means . . . responsive to parameter values and procedure routine specifications accessed from said pluggable memory key means, for controlling operation of said sense means in accordance with said algorithm and for calculating from signal outputs from said sense means a concentration value of an analyte in said analyte-containing fluid is said sample well.

Id. col. 8, ll. 62-68, to col. 9, ll. 1-11 (emphasis added). It is clear from the second usage of the term that "procedure routine specifications" must include "stored values from which time values can be determined for controlling said sense means during execution of said algorithm," therefore, to that extent, "procedure routine specifications" include values, or numbers. No other claims of the 609 patent uses the term "procedure routine specifications." Instead, the remainder of the claims use the term "parameter value" to describe all types of data values, including ones that Roche asserts are "procedure routine specifications."

Roche contends that two different types of data are referred to in the specification: "measurement parameters" and "additional variable values." Id. col. 5, ll. 12-15. The former, Roche argues, are "parameters" and the latter are "procedure routine specifications." However, several of the "additional variable values," described in more detail later in the specification, are identified by other claims as "parameter values." Compare, e.g., id. col. 5, ll. 3-18 and id. col. 5, ll. 66-68 to col. 6, ll. 1-8 (describing particularly the "additional variable values"), with col. 9, ll. 55-68 (describing the interaction between the processor means and the parameter values in claim 4). This evidence points away from a definition of "procedure routine specifications" that would limit the type of values that could serve as "parameter values," and suggests that an argument for an arbitrary distinction between the two types of data is flawed.

Roche also argues that the doctrine of claim differentiation supports its argument that "procedure routine specifications" are data. Apex/HDI contend that this is unworkable given the strong evidence that "procedure routine" is code and that the 609 patent specifically identifies that the pluggable memory key means has both procedure and code. See id. col. 5, ll. 9-11. To varying degrees, Roche and Biosite urge the Court to look to the plain meaning of the term "specification" to resolve the parties' dispute. The Court agrees that this approach helps illuminate the difference between "procedure routine specifications" and a "procedure routine" as those terms are used in the 609 patent. The plain meaning for specification is to make something more specific, or to identify something in greater detail. See WEBSTER'S NEW INT'L DICTIONARY at 2187; WEBSTER'S COLLEGIATE DICTIONARY(10th Ed.). Claim 1 already teaches that "procedure routine specifications" include "stored values from which time values can be determined for controlling said sense means during execution of said algorithm," 609 Patent, col. 9, ll. 1-3, therefore, it is not a stretch to combine the plain meaning of "specification" with "procedure routine" to decide that a "procedure routine specification" is something that identifies a procedure routine, or an identifier for something within the procedure routine. But, how is type of data distinguishable from a parameter value?

A definition for "procedure routine specification" that is data is consistent with the 609 patent specification's apparent reference to at least two different inventions, one in which there are two types of data on the pluggable memory key means, see id. col. 5, ll. 5-9 ("ROM key 30 is pluggable into meter 10 and contains non-volatile memory that includes constants and other data required to carry out analyte-determination procedures."). and one in which there are both "constants and procedure code." See id. col. 5, ll. 10-11 (stating "a ROM key 30 . . . will contain constants and procedure code"); id. col. 6, ll. 8-13 ("In addition, ROM key 30 may contain either a portion of or the entire code listing that controls the procedures of meter 10 so that, by substitution of a new ROM key, test procedures performed by meter 10 can be altered accordingly."). Moreover, it is the only definition that is consistent with the use of the term "specification" in the prosecution history. The prosecution history reads:

Claims 1-5, 15 and 16 were rejected under 35 USC [sic] 102(b) in view of Keiser et al. Prior to considering the rejection, it is worthwhile to briefly review Applicants' invention. Applicants biosensing meter resembles the meter of Keiser et al. in several respects, but departs therefrom in such a manner as to provide substantial functional improvements. Applicants' biosensing meter receives a pluggable memory key that contains a memory chip which stores (1) plural parameters, (2) specification values which are used to control the operation of an algorithm that analyzes a sample to determine the presence of analyte and (3) further contains in certain configurations, the actual procedure to be used by the meter. By inserting these parameters, values and procedures into the meter via a pluggable key, Applicants have enabled the meter to be reprogrammed at any time there is an improvement in the algorithm (e.g. an improvement which enables a faster or more accurate analysis procedure to be performed). Prior art biosensing meters were incapable of being modified to accept an
improved algorithm for the performance of a test function. As a result, prior art biosensing meters had to be structurally altered so as to accommodate a revised algorithm, test procedure or other improvement.

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Keiser et al. include no teaching that the pluggable memory chip contain parameters which define "procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter . . . said procedure routine specifications including stored values from which are determinable time values used to control said sense means during execution of said algorithm" (see claim 1 [as then amended]). Claim 2 is dependent upon claim 1 and indicates that the pluggable key means includes "a procedure routine that when executed by said processor means, enables execution of said algorithm". [sic] Keiser et al. have no such data in their pluggable memory key.

Defs.' Exh. 2, at A71-A73 (emphasis added).

This section of the prosecution history teaches two things. First, that the inventors saw a distinction between "plural parameters" and "specification values." Id. at A71. Second, that in distinguishing their invention from that of the prior art, the inventors seemed to refer to the language of claim 1 regarding "procedure routine specifications" as a subset of "parameters" within the context of claim 1. Id. at A72 ("Keiser et al. include no teaching that the pluggable memory chip contains parameters which define procedure routine specifications that are employed in controlling execution of an algorithm performed by said meter . . . ’ (see claim 1).”). It is this piece of information, in conjunction with the lack of evidence in the other claims or in the 609 patent's specification as to how to distinguish between data that comprises "parameter values" and data that comprises "procedure routine specifications," that convinces the Court that "procedure routine specifications" should be limited to the definition given it by claim 1 itself: "procedure routine specifications including stored values from which time values can be determined for controlling said sense means during execution of said algorithm." 609 Patent, col. 8, l. 68, to col. 9, ll. 1-3.

Roche's expert, Dr. H.E. Dunsmore ("Dr. Dunsmore"), an Associate Professor of Computer Science at Purdue University in West Lafayette, Indiana, opines that "procedure routine specifications" means "values that determine what the algorithm is," and distinguishes "procedure routine specifications" from "parameter values" by stating that the "parameter values" in claim 1 are narrower than the "parameter values" referenced in the remaining claims. Roche's Exh. 5, Dunsmore Rep. P 41. But, the Court sees no real way to distinguish between what is a "parameter value" and what is a "procedure routine specification" under this analysis. Yes, Dr. Dunsmore's report explains that a procedure routine specification could refer to numbers that change the formula for calculating a particular unknown, while parameter values are constants in the same formula, but there is nothing in the claims, the specification or the prosecution history that supports this distinction. Compare id. PP 15-22 with id. PP 23-41. In other words, this is an arbitrary differentiation between the two types of values that is only resolved by consultation with the description for "procedure routine specification" contained in claim 1.

The Court recognizes that limiting the definition of "procedure routine specification" to that found in the claim itself is extraordinary, however, the Court finds no better way to reconcile the clear meaning of the term "parameter value," the lack of evidence to support a more clear distinction between "parameter values" and "procedure routine specifications," and the evidence of two types of values in the prosecution history.

For the foregoing reasons, the Court finds that "parameter values" means: constants that are assigned to variables; and the term "procedure routine specifications" means: stored values from which time values can be determined for controlling a sense means during execution of an algorithm.

7. "process"

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<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
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<tr>
<td>&quot;process&quot;</td>
<td>Storing and/or manipulating</td>
<td>manipulate the electronic image data</td>
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Fotomedia proposes that the Court incorporate "storing" as part of "processing." Fotomedia notes that the specification recites "processing on the server consists of one or more of the following: captioning, formatting, storing, . . . " 774 patent, col. 2, ll. 64-67. Here, Fotomedia argues, the patentee chose to be his own lexicographer and defined the term "process" to include the storing of data.

The defendants point to the use of the term "store" in the claims. Claim 1 of the '936 patent describes a program that directs a CPU to store electronic image data and to process the electronic image data. Defendants, therefore, argue that construing "process" to include "store," would lead to the result that the claim uses two different terms to mean "store." Further, the defendants argue that specification discloses that the "server is adapted to store and process data," thereby treating these steps as separate. 774 patent, col. 4, ll. 66-67.

Despite the language of the specification relied on by Fotomedia, the claim language requires that the "processing" step in claim 1 be read as being different and separate from the "storing" step.

"Process" means "manipulate the electronic image data."

The Court construes "process" to mean "a series of actions or operations executed by a computer program for a given purpose." AVG argues the term should be construed to mean "a series of actions or operations conducted by a computer system for a given purpose." AVG asserts that this definition comports with the entire technological and temporal context of the term, in view of the patent's specification and prosecution history. However, AVG's use of the phrase "computer system" results in a definition that is too broad and not sufficiently software-centric given the clear reference to a software process in the specification and file history. In particular, AVG's proposal provides no limitation on the number of programs or amount of time used for completing the "given purpose." This is inconsistent with the specification's clear reference to a "process" as a software process. Alternatively, Microsoft argues that "process" should be construed as "a program in execution." This definition is confusing because the phrase "in execution" implies that the "program" must have microprocessor attention in order to be a process. Such an implication contradicts the term's plain meaning and the specification. Thus, Microsoft's proposed definition will not sufficiently enlighten the jury.

Claim 1 describes the clerk system as operable "to process auction bids." Similarly, Claims 2 and 3 describe a method comprising, in part, "processing auction bids." The term "process auction bids" is not explicitly defined in the patent, however, all parties appear to agree that one reasonably skilled in the art would understand this term to refer to performing operations on bid data. While the plain meaning of this processing limitation is extremely broad and potentially reaches any number of potential operations, all claims of the patent describe "receiving," "accepting," and "transmitting" bids separately from "processing auction bids." Therefore, these operations must be excluded from the definition of that term. Accordingly, the Court adopts the following construction: The term "process auction bids" appearing in Claim 1 shall mean "perform operations on bids other than receiving, accepting, or transmitting bids," the term "processing auction bids" appearing in Claims 2 and 3 shall mean "performing operations on bids other than receiving, accepting, or transmitting bids."

1. A process for downloading a data file from a server computer to a client computer
The Court's Construction: Transferring a file capable of being stored from a server computer to a client computer.
Markman Tr. 5:12-13.

Ethos found the Court's construction "an appropriate definition." Markman Tr. at 5:9-17. RealNetworks, however, objected to the phrase "capable of being stored," as inconsistent with the term as used in the claim and specification. Id. at 6:11-7:5.

The term "a process for downloading" is common to claims 7 and 8 of the '892 patent and claims 1 and 2 of the '709 patent. The specifications of both patents contain a definition of the term "download" in the following sentence: "In most computer networks it is desirable to have the capability to download, i.e., transfer, data from one computer to another." '892 patent col.1 ll.12-14 (emphasis added); '709 patent col.1 11.19-21. The patents, therefore, appear to equate "downloading" with the transfer of data. Such a definition, however, would encompass every instance of data retrieval on the Internet, including simply clicking on a hypertext link. The specification of the patents eschew such a broad construction of the term by distinguishing between "downloading" and a more basic transfer of data: "Several client programs are available, such as browsers for the World Wide Web which may download files or read and display HTML documents . . . ." '892 patent col.5 11.60-62 (emphasis added); '709 patent col.6 11.1-3. By contrasting "download" and the "read and display" functions of browsers, the patent specifications exclude that function from its characterization of the term "download." Limiting the construction of "download" to "data capable of being stored" is also consistent with the expressed field of the invention as identified by the specifications, which contemplate the storage of the data transferred. Both patents state: "The present invention is related to processes and apparatus for transferring information between computers, particularly between a client computer and a server computer where the information is stored." '892 patent col.1 11.6-9; '709 patent col.1 11.13-16.

The specifications also make several references to the storage of data. See Pl. Br. [Doc. No. 264], Ex. F (citing the numerous references to the storage of data). RealNetworks contends that these references relate only to those claims which contain an additional storage step, citing, by way of example, claim 2 of the '709 patent, which does not have a separate storage step. Markman Tr. 9:1-7. Because it is unclear whether the references to storage relate only to the claims that contain a storage step, the Court does not rely on these references in making its determination. The Court noted that the specifications of the patents describe embodiments of the invention where the executed client program stores data, see '892 patent col.3 11.8-9, col.6 11.29-30, col.10 11.3-4; '709 patent col.3 11.15-16, col.6 11.37-38, col.10 11.11-12, and that claim 8 of the '892 patent and claim 2 of the '709 patent teach the download process involving the execution of a client program, see '892 patent, claim 8, col.14 11.34-38, '709 patent, claim 2, col.12 11.29-31. It is likely, therefore, that some of the "storage" references in the specifications relate to those claims that do not teach a storage step.

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B. Process(ing) . . . to Select

The terms "process . . . to select" and "processing . . . to select" may be found in the '932 Patent, claims 1 and 18; the '052 Patent, claim 1; the '561 Patent, claims 1 and 6; the '429 Patent, claims 1 and 23; and the '064 Patent, claims 1 and 35. Sprint construes these terms to mean process/processing to participate in the selecting. Big River construes these terms to mean a processing system processing/those processes [the information] and making/makes the selection.

In its summary judgment ruling in the Vonage case, the Court did not construe this particular term, but it noted that this language in two patents did not require that the processing system actually "select" a network code, but instead required only that the system "process [the signaling] to select" the code. See 500 F. Supp. 2d at 1323. Therefore, a fact question remained regarding infringement in light of evidence that Vonage's processing system was "involved in the selection of the network code." See id.

Subsequently, Sprint and Vonage asked the Court to construe this term "process(ing) to select." See 518 F. Supp. 2d at 1320-21. Relying on the Court's summary judgment order, Sprint argued that the term should mean process/processing to participate in selecting; Vonage, on the other hand, argued that the term should mean process/processing and make/making a selection. See id. In response to Sprint's argument, the Court noted that it had not approached the issue as one of construction in the prior order, and "did not ascribe the definitive meaning to the claim terms that the processing must do nothing more than merely 'participate' in the selection." See id. at 1321. The Court also rejected Vonage's argument based on
a portion of the prosecution history in which the applicant distinguished another invention as one that selects actions for switches instead of selecting connections, as in the present invention; the Court held that the excerpt was not helpful because it did not address this distinction between making a selection and merely participating in the selection. See id. at 1321-22. Because neither party had directed the Court to relevant supporting evidence in the intrinsic patent record, the Court rejected both parties' constructions and concluded that the claim term did not require further construction. See id.

In the present case as well, the parties dispute whether the processing system must make the requisite selection or merely participate in making the selection. Big River relies on the same excerpt from the prosecution history that Vonage cited. Big River has not explained how the Court erred in considering that excerpt in Vonage, however, and the Court again finds that excerpt to be unhelpful. Big River also notes that the goal of the invention in the '301 Family of patents is to avoid having to use the processing capabilities of switches; recognition of that goal does not resolve whether the processor must make the selection or merely participate, however.

As Sprint notes, the specification does make clear that information from elements other than the processor may be used in selection. With respect to the parties' dispute regarding the scope of the claims, the Court agrees with Sprint and concludes, as it did in Vonage, that the claim language does not require the processing system actually to select the network element, but only that it "processes [information] . . . to select" the element. Thus, the Court rejects Big River's proposed construction. The Court further concludes that the scope of the claims might be ambiguous on this issue, to the extent that someone might believe that the selection must be made without help from any other network elements. Therefore, the Court adopts Sprint's proposed construction, and construes the terms "process . . . to select" and "processing . . . to select" to mean process/processing to participate in the selecting. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008) (court may be required to determine scope of claim when reliance on claim terms' ordinary meaning does not resolve parties' dispute).

7. Process travel along a route

The fourth subpart of claim 1 reads: "wherein the device is adapted to process the device's location and travel along a route." The disputed phrase is underlined. Defendant contends that the phrase needs no construction (besides the term "route"), but plaintiff argues that "process . . . travel along a route" should be construed as "monitor progress along an established or selected route." Plaintiff's definition of "process" as "monitor" is consistent with the specification, which explains that "the server processes the majority of a device's travel along the route using a set of processing algorithms and the cartographic and route data . . . ." '873 pat., col. 8, Ins. 28-30. It is clear that the server uses processing algorithms to keep up with, or monitor the device's travel. However, plaintiff's inclusion of "establish or selected" in the definition is inappropriate because it adds functions that were not included in the claim. The claim discloses nothing about who or what establishes or selects the route. I construe the phrase, "process . . . travel along a route" to mean "monitor . . . travel along a route."

E. "processed" / "processing"

Claim 1 contains the term "processed": "wherein data directed toward the public network from the one of the users' computers are processed by the redirection server according to the individualized rule set." Claim 8 contains the term "processing": "processing data directed toward the public network from the one of the users' computers according to the individualized rule set." As in the term "individualized rule set," Linksmart believes that no construction is necessary, and the defendants wish to limit the scope of this term to filtering and redirecting.

Based on the context of the claim language, it is evident that the "processed" or "processing" stepped performed by the redirection server is analogous to the redirection server "control[ling] data passing" to the public network. Thus, "processed" and "processing" should be given the same construction as "control data passing": "redirect[ing], allow[ing], or block[ing]"
a. Claim term one

"digital signals" (claims 1 and 38) & "processed signals" (claim 6)

The parties' dispute with respect to term one is a dispute as to whether the '672 patent applies only to video signals or also to other types of signals (including, significantly, still images). Plaintiff argues that term one should be construed as: "A sequence of data to be runlength encoded, having multiple values and a predetermined length." Defendants argue that this term should be construed as: "A digital signal or processed signal is a set of data representing frames of a video."

As Defendants argue, in the context of the "typical[]" utilization of the ordered redundancy coding system, the specification of the '672 patent clarifies that "processed signals" include only video signals: "The processed signals are in the form of a plurality of multivalued digital numbers, X(k), typically one number X(k), for each frame." '672 Patent col.3 11.49-56 (emphasis added). Plaintiff argues that the foregoing definition must include a typographical error because there are necessarily many numbers in a block and many blocks in a frame. Tr. 117:3-10. However, because the specification makes clear that "X(k)" represents a series of values, n the foregoing description of "processed signals" is consistent with Plaintiff's view that there are many numbers in a block. Accordingly, as explained in the specification, "processed signals" typically are comprised of plural frames, thus indicating that processed signals are video signals.

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n3 "In general, a K-valued digital number, X(k), is formed by a series of K values, x(k), as follows: X(k) = x(1), x(2), x(3), . . . x(k), . . ., x(K) where 1=k=K." '672 Patent col.12 11.38-43.

--- End Footnotes ---

Plaintiff contends that its construction of "processed signals" and "digital signals" is supported by the doctrine of claim differentiation. This doctrine "refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006); see also Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir., 2004) ("the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim."). While claim 19 is limited to "input signals represent[ing] images . . . presented in sequential frames," claim 6, which addresses "processed signals" and upon which claim nineteen is dependent, does not include such a restriction. '672 Patent col.24 11.13-16; col.25 11.52-65. Plaintiff argues that this necessarily means that claim six does not include a requirement that the signals be video signals. However, "that the claims are presumed to differ in scope does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ." Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000). As Defendants point out, because claim 19 adds limitations that are not in claim 6-the steps of forming the mean-square difference and error and selecting a mode-the doctrine of claim differentiation does not compel the Court to read out the restriction that the processed signals in claim 6 are video signals.

Although the specification does not provide a similar explanation of "digital signals," the parties initially agreed "that the Court should construe the terms 'processed signals' and 'digital signals' identically for the purposes of the claims at issue." n4 Defendants and Declaratory Judgment Plaintiffs' Responsive Markman Brief, p. 7 n.3. Because "processed signals" are a subset of "digital signals," the Court was hesitant to apply the above explanation of "processed signals" also to "digital signals." Accordingly, the Court requested and received supplemental briefing addressing the question of whether "digital signals" and "processed signals" should be given the same construction and, if so, why.

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n4 Plaintiff's expert, Dr. Sheila Hemami, indicated that both "digital signals" and "processed signals" have a special
meaning: "The terms 'digital signals' and 'processed signals' normally have a very broad meaning, but those terms are given a special and more particular meaning in the specification of the '672 Patent and as they are used [in] the claims." Declaration of Tibor L. Nagy ("Nagy Decl."), Ex. 2, p. 18. During oral argument, Plaintiff's counsel indicated that this was an "error" and that Dr. Hemami and Plaintiff's counsel "both regret having opened this can of worms [that Plaintiff conceded that the term 'processed signals' is not being used in the patent in accordance with how those ordinarily skilled in the art would commonly understand it] by suggesting that there is some special meaning to 'digital processed signals.'" Tr. 109:4-20. While the Court finds it somewhat instructive that Dr. Hemami wrote that "digital signals" and "processed signals" have a special and particular meaning in the '672 patent, the Court's construction of these terms does not turn on her statement.

Plaintiff argues in its supplemental brief that, if the Court gives the above construction to "processed signals," n5 "digital signals" should not be similarly limited. Plaintiff emphasizes that "processed signals" are a subset of "digital signals," pointing out that "digital signals" are equivalent to "input signals" n6 and "input signals" are processed to form "processed signals." n7 Plaintiff argues also that the "processing" referred to in claims 1 and 38 is different than the "processing" in claim 6. However, assuming arguendo that "digital signals" are not video signals, Plaintiff does not provide any explanation for how the processing of "digital signals" to create "processed signals" converts non-video signals into video signals. As Defendants argue, if "processed signals" are video signals, and processing does not convert non-video signals into video signals, the input signals or "digital signals" must also be video signals. In light of Plaintiff's initial concession that the terms should be construed identically, and in the absence of a persuasive argument as to how processing "digital signals" would convert non-video signals into video signals, the Court concludes that, if "processed signals" are video signals, "digital signals" must be given the same restriction.

n5 Plaintiff disputes that "processed signals" should be limited to video signals in its supplemental brief. Plaintiff's Second Supplemental Brief, p. 1.

n6 "Digital signals to be processed are input on lines 5 to the transmitter 2. The input signals on lines 5 are processed in one of a number of different modes so as to efficiently compress the data input signals to form processed signals for transmission to a receiver." '672 Patent col.4 11.33-37.

n7 Claim 6 describes "[a] method for processing input signals to reduce the amount of data utilized to represent the input signals, the steps comprising, processing the input signals to form processed signals where the processed signals are digital numbers having first values, second values, and other values." '672 Patent col.24 11.10-16; see also id.

Considering that the above explanation of "processed signals" is given in the context of a "typical[ ]" system, it does not on its own persuade the Court that "processed signals" and "digital signals" must be construed as video signals. However, this clear explanation of "processed signals," combined with numerous other indications that the patent applies exclusively to video signals, most logically supports such a construction. As noted above, where "the specification makes clear at various points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claim." Alloc, 342 F.3d at 1370.

The abstract of the '672 patent indicates that the patent is limited to video data: "The present invention specifically relates to methods and apparatus useful in video compression systems." '672 Patent, abstract; Hill-Rom Co., Inc. v. Kinetic Concepts, Inc., 209 F.3d 1337, 1341 (Fed. Cir. 2000) ("We have frequently looked to the abstract to determine the scope of the invention, [citations], and we are aware of no legal principle that would require us to disregard that potentially helpful source of intrinsic evidence as to the meaning of claims."). The location of a statement within the specification "can signal the likelihood that the statement will support a limiting definition of a claim term." C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004). Specifically, "[s]tatement that describe the invention as a whole [which are more likely to be found in certain sections of the specification], rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term." Id. Although "certain sections of the specification are more likely to contain statements that support a limiting definition of a claim term than other sections," the Court must determine
the significance of language in the specification "on a case-by-case basis." Id. Because the abstract of the '672 patent states that it is "useful in video compression systems," this language in itself does not necessarily limit the patent to video data. However, the language is another significant factor supporting the Court's conclusion that the patent applies specifically to video signals.

Another such factor is the explanation in the specification that the '672 patent was designed to solve a problem specific to video data. "In construing claims, the problem the inventor was attempting to solve, as discerned from the specification and the prosecution history, is a relevant consideration." CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed. Cir. 1997). The patent specification describes the need that the '672 patent was designed to meet:

If the communications link is an earth satellite, an unprocessed video signal typically occupies nearly the entire bandwidth of the satellite, with very few channels, if any, left over for other uses. A T1 communication channel is typical and has only a 1.5 megabit per second bandwidth. A practical yet effective way to reduce the bandwidth of digitalized television signals is needed so that fewer channels are required for transmission over a communications path and so that the quality of transmitted signals is maintained even when reduced bandwidth transmission is employed.

'672 Patent col.1 11.34-44 (emphasis added).

Plaintiff argues that video data is referred to in the specification as an example of how the ordered redundancy coding system may be applied. n8 However, Plaintiff does not identify any examples in the patent that do not involve video data. Plaintiff's argument that the specified application of the patent to the "intraframe mode" demonstrates that the patent was intended to be applied to still images is not persuasive. The specification explains that "[t]he decision as to which mode to select is made based upon an analysis of the frame-to-frame differences (motion) between the current input signals and the previous input signals." '672 Patent, col.3 11.61-64. While the specification describes a "single image frame" in intraframe coding, it does so in the broader context of describing video:

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n8 See, e.g., "The present invention specifically relates to methods and apparatus useful in video compression systems," '672 Patent, col.1 ll.19-20; "The ordered redundancy coding of the present invention is typically utilized in a system that processes input signals, such as spatial domain image signals occurring in successive frames, to form processed signals for each frame," id. col. 3 11.49-53.

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The U.S. Pat. No. 4,302,775 patents reduces redundancy by employing intraframe coding techniques utilizing intraframe comparisons of cosine transform coefficients. While the patent provides significant improvement over other techniques, there is a need for even greater compression.

In addition to intraframe coding techniques, interframe coding techniques have been used to reduce the rate required for video transmission as described, for example, in the above-identified application. Typically, each video frame is held in memory at both the transmitter and the receiver and only frame-to-frame changes are transmitted over the communication link. In contrast to intraframe coding schemes in which the quality of coded images is dependent upon the amount of detail in each single image frame, the quality of the coded image in interframe coding is dependent upon the differences from frame to frame. Frame-to-frame differences are often referred to as "motion."

'672 Patent, col.2 11.12-31 (emphasis added). Nor is Plaintiff's argument that Defendants' proposed construction excludes intraframe coding persuasive, as intraframe coding is a type of video coding.

Considered together, the explanation that "processed signals" typically are comprised of plural frames, the language of the abstract, the purpose of the invention, and the absence of any example expressly identified as applying to still images all point to the conclusion that the '672 patent applies exclusively to video data. Defendants note that Plaintiff's conduct over the past two decades n9 is persuasive extrinsic evidence that the '672 patent applies exclusively to video data. This line of argument is unnecessary to support the Court's conclusion that "digital signals" and "processed signals" are video signals and is in the outer bounds of the type of extrinsic evidence that a Court should consider in construing patent claims.
Accordingly, while evidence that Plaintiff may have delayed asserting that the use of JPEGs infringes the '672 patent would be highly relevant to a defense of laches at a later stage of litigation, the Court need not and does not rely on this argument in construing term one.

n9 For example, Defendants argue that even though Plaintiff was aware of the work being done by JPEG standard-setting committee and itself voted to approve the JPEG standard, it neither disclosed the '672 patent to the committee nor sought to license it. See Scarsi Decl., Ex. 2, pp. 202-204; Ex. 3, pp.153-56; Ex. 15. In contrast, Plaintiff was involved in the MPEG committee and disclosed the '672 patent to that committee. See, e.g., Scarsi Decl., Exs. 12 and 13.

For the reasons stated above, the Court adopts Defendants' proposed construction of term one.

B. Construction of "Processing"

Brown contends that it is not necessary to construe the term "processing," arguing that the term is clear without construction and that "[a]nyone sitting in the jury box would be able to relate 'processing' with a processor of a computer." (Docket Entry Nos. 132 at 20-21; 140 at 8-9). Brown argues in the alternative that "processing" should be construed as "performing a series of comparisons and/or calculations on data that lead toward a particular result." (Docket Entry No. 132 at 21). The defendants argue that "most laypersons do not readily understand the meaning a person of skill in the art of computer systems in 1986 would assign to the term 'processing.'" (Docket Entry No. 138 at 25). They propose that "processing" should be construed as "performing a series of comparisons and calculations on data that lead toward a particular result." (Id.).

The '713 Patent claim recites a portable processing means for "processing" bar codes "so as to determine" if a particular medication, good, service, or procedure is "permitted to be delivered" to a particular patient at a particular time. This "determination requires that said identified medications . . . would be delivered to said identified patient at an appropriate time according to when identified medications . . . were last delivered." (Docket Entry No. 132, Ex. A, col. 4 ll. 30-40). This requires the system to calculate the time elapsed since the last delivery, as recorded in the patient instruction file, and compare this with the interval prescribed in the physician instruction file. The plain language of the claim requires "processing" to involve both comparisons and calculations. The specification supports the claim language by explaining that the portable computer means "calculates the time interval since the last recorded delivery" and then compares the calculated interval "with the interval prescribed in the physician instruction file." (Id., Ex. A, col. 3 ll. 27-32).
4. "processing" (claims 1 and 6)

The plaintiff proposes defining this term to mean "putting through the steps of a prescribed procedure" while the defendant defines the term to mean "manipulating the data access operation requests into a format usable by the external storage device." The plaintiff argues that "processing" is an ordinary word with an ordinary meaning. The plaintiff cites an extrinsic source for the dictionary definition of processing.

The term "processing" occurs twice in claim 1. In the first occurrence, the claim language addresses directly accessing data or information in the flash memory using the USB or IEEE 1394 standard"...by implementing and processing the data access operation requests issued by users." The second instance of "processing" in claim 1 is as follows: "processing the operation request in magnetic disk operation format issued from users upon plug..." The patent specification teaches that user requests are converted to special instructions by the driver. See e.g., 2:45-64; 3:19-40. In these passages, the patent specification specifically discloses converting user requests from a magnetic disk storage device to special instructions for the flash memory.

The claim language must be construed in light of the disclosures in the specification and the context of the claim itself. "Processing" means "manipulating the data access operation requests into a format usable by the external storage device."

8. Processing: Echometer argues that "processing" should be construed consistent with its ordinary meaning as the manipulation of digital information. Lufkin seeks to limit Echometer's broad definition of processing by requiring the term to include the step of determining acoustic velocity, which requires collar counting or detection of collar frequency.

As previously defined, acoustic velocity, used only in claim 25, is the speed of sound through a medium and does not necessarily require the determination of collar counting or collar frequency to calculate its numeric value. Further, the Court finds processing to be a general term which is defined, or limited, by the context in which it is used, e.g. claim 6 describes the step of processing the digital samples to detect an echo return from the liquid surface and claim 7 describes the step of processing digital samples to detect a reflection from the liquid surface. '399 Patent, at 41, (col. 37, 1. 4-5, 33-34). The general term processing, therefore, is further defined and limited by its context in the asserted claims; the Court does not find that the term processing need be limited to processing via specific equations or calculations. The Court, therefore, defines processing generally as the manipulation of digital information and does not adopt Lufkin's additional limitations concerning the method by which the processing must occur.

3. "Processing"

The next term the parties presented to the Court for construction from the Analysis Control System patents is "processing." In Claims 104 and 117 of the '707 patent, the term appears in context as "means for processing at least certain of said data developed by said terminals and said calling number identification data relating to certain select ones of said individual callers." In Claim 192 of the '707 patent, the terms appears in context as "analysis structure for receiving and processing said caller data signals under control of said record testing structure." The final analysis control system claim at issue in which "processing" appears reads "means for processing at least certain of said data developed by said remote terminals relating to certain select ones of said individual callers." Claim 171 of the '863 patent.

The parties agree and the Court concludes that the phrase "means for processing" is a means-plus-function limitation subject
to 35 U.S.C. § 112, P 6. The structures corresponding to the "means" in "means for processing" include the Processing Unit 92 in Figure 4, the Central Processing Unit 251 in Figure 9, or the Processors PR1 through PRn in Figure 1.

The defendants argue that the term "analysis structure" in "analysis structure for . . . processing" is also subject to means-plus-function analysis. To support their position, the defendants contend that in the ’739 patent, which shares the same specification as the ’707, ’863, and the ’309 patents, Katz used the term "analysis means" in limitations similar to the limitations which contain "analysis structure." The plaintiffs contend that "analysis structure" had meaning to those in the art and connoted computer hardware and software used to analyze data, such as a processor. (Pls' App at 160-61). The Court concludes that the term analysis structure is written in functional language and does not connotate sufficient structure to avoid the application of 35 U.S.C. § 112, P 6, despite the presumption to the contrary. The function of the analysis structure in the terms of the claim language is "receiving and processing said caller data signals under control of said record testing structure." The structures that correspond to "analysis structure" are the same as those that correspond to the "means" in "means for processing," i.e., the Processing Unit 92 in Figure 4, the Central Processing Unit 251 in Figure 9, or the Processors PR1 through PRn in Figure 1.

The core dispute between the plaintiffs and defendants is whether "processing," as used in "means for processing" or otherwise in the patents, requires a specific type of processing. The defendants contend, in the context of their means-plus-function arguments, that the structures that correspond to the "means" in "means for processing" also include the software that performs the function of processing, and because the only type of processing disclosed in the specification is statistical analysis to isolate a subset of callers in the context of the specific formats disclosed, the computer must be programmed with software that performs this particular kind of processing. Specifically, the defendants argue that all of the disclosed formats in the specification, including a health poll format, mail order format, instant lottery format, auction sale format, television game show formats, and television poll format, require the use of statistical analysis to isolate a subset; thus, they argue, "processing" and "statistical analysis" are synonymous. The defendants also argue that if the term "processing" is given a broad, unlimited meaning, it would render other limitations that call out specific functions of a computer surplusage, such as "accessing" a file, "storing" data, and "testing" data.

The plaintiffs argue that the defendants' proposed construction of "processing" has no support in the claim language, and that the defendants are attempting to define the function of "processing" by importing structural limitations from the specifications. The plaintiffs argue that the term should be given its ordinary meaning, which is "performing some operation or sequence of operations on data and/or telephone calls." (Pls.' Appendix at 7).

The term "processing," even as part of the phrase "means for processing," is not subject to means-plus-function analysis, so an immediate resort to the specification for meaning is not appropriate unless there is some "hook" in the claim language on which limitations from the specification may be hung. See Renishaw, 158 F.3d at 1252. Thus, if the term "processing" in the context of the claim language had a common, ordinary meaning to those of ordinary skill in the art, that meaning is the proper construction of the term, even if it is broad. See Johnson, 1999 WL 243570, *3.

Contemporary technical dictionaries indicate to the Court that "processing" had a broad meaning to those of skill in the art for some time. In the context of these claims it is clearly implied that the processing is being performed on data. The Standard Dictionary of Computers and Information Processing by Martin H. Weik (1969) defines the verb "process" as follows: "In data processing, to handle, manipulate, or perform some operation or sequence of operations on data in accordance with a specified or implied algorithm, usually as a series of discrete steps, including operations such as compute, assemble, compile, interpret, generate, translate, store, retrieve, transfer, select, extract, shift, search, sort, merge, transliterate, read, write, print, erase, and punch. The processing usually results in a solution to a problem." (Ex. 458). In the Computer Dictionary, by Charles J. Sippl (1966), the term "process" is defined as a "generic term that may include compute, assemble, compile, interpret, generate, etc." (Ex. 498). In the Dictionary of Computing and New Information Technology, by A.J. Meadows et al. (1984), the term "data processing" is defined as including "all clerical, arithmetical and logical operations on data. Data processing in the context of information technology always implies the use of a computer for these operations." (Ex. 483).

The claim language also shows that the term "processing" does not by itself indicate statistical analysis to isolate a subset of callers. Many claims, dependent and independent, in the ’707, ’863, and ’309 patents specifically call out processing to isolate a subset of callers. For example, Claim 169 of the ’707 patent specifically calls out processing to isolate a subset of callers. Claim 174 of the ’863 provides for "subsequent" processing that isolates a subset of callers; however, Claim 171,
upon which Claim 174 depends, does not require such a parameter on the initial processing. Similarly, Claim 181 of the '863 provides for "processing . . . responsive to said approval signals." Claim 185 of the '863 patent, which is dependant on Claim 181, specifically provides for processing to isolate a subset callers. The fact that "processing" is called out in some claims, and then specifically "processing to isolate a subset of callers" is called out in other claims, some of which are dependant on the claims that call out "processing" generally, indicates that the independent claims which contain the term "processing" do not necessarily require that the processing perform statistical analysis to isolate a subset of callers or data. See Rodime PLC v. Seagate Technology, Inc., 174 F.3d 1294, 1999 WL 216236, *9 (Fed. Cir. 1999). If the term "processing" were given the limited scope explicitly called out in the dependent claims, those claims would be rendered superfluous, a result that should be avoided if the claim language will allow under the doctrine of claim differentiation. See Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Ct. 1991). 18

There is nothing in the specifications that requires the Court to alter the broad meaning of "processing" conveyed in the claims, even though the subject of statistical analysis to isolate a subset of callers is repeatedly discussed. The name of the patents under consideration is "Telephonic-Interface Statistical Analysis System." At several points in the specification, Katz describes his invention generally or one of the formats generally as performing statistical analysis to isolate a subset of callers. See Column 1, line 58-67 of the '707 patent (providing that "in general, the present invention comprises a telephonic-interface system and related process . . . in a variety of different interface formats or programs, as to . . . statistically analyze acquired data, as in combination and is association with external data (time independent), and accordingly to isolate a subset of the callers with variable identification"); Column 2, line 22-26 of the '707 patent (providing that "in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data"); Column 5, lines 53-55 of the '707 patent (providing that "in general, the processing evolves a subset (at least one caller) the members of which may be verified or confirmed"); Column 21, lines 33-38 (providing that "in view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern").

It is no surprise that Katz discussed statistical analysis to isolate a subset of callers in the specifications to the '707, '863, and '309 patents because he specifically called out this function in some, but not all, of the claims in those patents. Conversely, there is no mention in the specifications to the '285 and '150 patents of "statistical analysis" or "isolating a subset of callers" because none of the claims in those patents specifically call out such processing, even though the term "processing" appears in the claims of those patents. While the specifications of the '707, '863, and '309 patents call out several embodiments of the Katz invention in which processing is performed to isolate a subset of callers through statistical analysis, not all of the claims that contain the broad term "processing" require this limitation. Whether, as defendants argue, Katz's claims are broader than his disclosure in the specifications of his patents, is a question for another day and does not alter the construction of "processing," a term that clearly had a broad and common meaning to those of ordinary skill in the art.

The portions of the prosecution history highlighted by the defendants do not conflict with the common understanding of "processing." During the prosecution of the '968 patent, from which the patents-in-suit descended, Katz distinguished his invention from a collection of prior art in part on the basis that his invention variously incorporated "(1) personal participant selectivity, (2) participant record development and (3) analytical inter-related data processing with respect to developed records." (Ex. 33, March 2, 1988 Amendment at 14). The defendants argue that this statement by Katz indicates that all of his claims, including pending Claim 37 which did not explicitly call out "statistical analysis to isolate a subset," incorporate statistical analysis or "inter-related processing." However, pending Claim 38, which was dependent on Claim 37, added the specific limitation of "processing said statistical data as to isolate a subset of said individual callers." Katz's assertions during the prosecution of the '968 patent that his invention variously incorporated three elements does not require, and this Court will not, import the limitation of "analytical inter-related data processing" or "statistical analysis to isolate a subset" into the definition of "processing" in claims of the '968 patent, or of any of the patents at issue in the Markman hearing.
During the prosecution of the '923 patent, which has the same specification as the '707, '863, and '309 patents, Katz attempted to distinguish his invention from a patent to Riskin by stating that the Riskin patent did not "suggest any interrelated processing between callers, nor are processing files formed other than merely to accommodate billing." (Ex. 38). In an Appeal Brief dated September 11, 1992 during the same prosecution, Katz described his invention as systems that "statistically acquire data, as in combination with and in association with external data (time independent), and accordingly isolate a subset of the callers with verifiable identification." (Ex. 38). Similarly, in the Information Disclosure Statement dated January 31, 1996 at 13 during the prosecution of the '185 patent, Katz informed the PTO that "in various applications, Applicant's inventive systems have utilized an operation of processing data to isolate a subset of callers. In a refined form, the operation involves processing data from callers in combination to isolate a select subset of the callers by 'interrelated' processing." (Ex. 56). These statements by Katz indicated that his patents suggest or include interrelated processing or statistical analysis to isolate a subset of callers, which is clear by the claims which explicitly call out this function. However, none of these statements by Katz indicates that any particular claim includes this type of processing or that all processing suggested in his patent is of this type.

Based on the foregoing, the Court construes the term "processing" to mean: manipulation of data which performs some operation or sequence of operations on the data.
standard and the number of data layers on the disk. He did not disclaim the processing of an optical signal reflected from pits located in the read-in area which represent other encoded TOC data.

--- Footnotes ---

2 An optical disk contains, in general terms, a read-in region, a program area, and a read-out region. The read-in area is an area of the disk reserved for storing table of contents data and other information. The actual data program is stored on an optical disk in the program area of the disk. The read-out (or lead-out) area follows the program area.

--- End Footnotes ---

To illustrate the difference, one might observe an object, such as a chair, and conclude by looking at it that the object is in fact a chair. That same person might also read a sign on the object that says "this is a chair" and conclude that the object is a chair by virtue of the information communicated by the sign. It is the former situation that is analogous to the processing step described in claim 3. It is the latter situation that is more akin to the reading limitation imposed by claims 1 and 2. The optical signal reflected from the pits might reveal, as the prosecution history suggests, the bit rate, which, in turn, would reveal the pit configuration standard. The total number of data layers might also be revealed by the dimensions of the tracks and the pits. That those pits might represent other types of TOC data, as, for instance, playback time, does not mean that their characteristics could not aid in a determination of the type of disk in the drive. There is nothing in the file history that suggests that the encoded pits from which the beam is reflected cannot be located in the read-in area of the disk.

Although the prosecution history does not impose the limitation sought by the defendants, the defendants also urge that the language of the claims mandates this result. Claims 1 and 2 require that the TOC data be read from the read-in portion of the disk. Claim 3 requires that the optical signal be reflected from "encoded pits" on the optical disk (emphasis added). Data is encoded before it is stored on an optical disk. For instance, a video file must be compressed before it is stored on a disk. The defendants argue that the patentee's use of the term "encoded pits" suggests that the patentee was referring to the pits which store the actual data on the disk and those pits are located in the program area of the disk, outside of the read-in region. A review of the specification, however, reveals that the patentee used the term "encoded" to refer to both the pits that represent TOC data as well as pits that reflect the program data stored on the disk. See '981 patent, col. 1, ll. 51-54 ("In an optical disk such as a compact disk (CD), a Mini-Disk (MD) and a digital video disk (DVD), a TOC data is encoded in the read-in region of the disk"); col. 3, ll. 48-52 ("In case that the TOC data is not encoded on the optical disk in step 2 (S2) and the case that type of the optical disk is not identified in step 5 (S5), the system controller operates the pickup to read any data on the optical disk by modulating the servo control circuit, tracking servo circuit, and the focusing servo circuit (S6)). These passages suggest that the patentee used the term "encoded pits" more broadly than the defendants suggest. Those pits may be located in either the read-in region as well as elsewhere on the optical disk, such as the program area.

III.

We ultimately conclude that it was proper to grant the motion for summary judgment of non-infringement albeit taking issue with some of the reasoning relied upon by the district court. Although the district court determined that it need not decide "whether the condenser is part of the process chamber or a separate unit," Semitool Order, 2005 U.S. Dist. LEXIS 4889 at *11, we find that summary judgment of non-infringement can only be properly granted if we determine that the condenser is inside the processing chamber.

The district court decided it did not have to reach that issue because "regardless of whether the condenser is merely an area within the process chamber or a separate unit, it does not 'supply a drying gas to the process chamber.'" Id. "The Tornado system is a closed system, meaning no external air enters or exits the machine during operation," and in the Tornado system "there is no introduction of 'drying gas' into the process chamber." Id.

As stated above, the Claim Construction Order construed "supplying drying gas to the process chamber" to require that "supplying gas is introduced into the process chamber" and furthermore "once inside the process chamber, all that is required is that the "drying gas" . . . is capable of readily absorbing evaporated cleaning liquid from the carriers and
removing said vapor(s) from the process chamber as it is evacuated therefrom." Id. The Claim Construction Order focuses on introduction of gas into the process chamber and evacuation of drying gas from the process chamber. Whether gases enter or are evacuated from the process chamber, as required by the claims, is quite different from whether "air enters or exits the machine during operation" as described by the district court in its infringement determination. For example, depending on how the processing chamber is defined, air may not exit the machine but nonetheless could be introduced into the processing chamber and could remove vapors from the processing chamber. Specifically, as argued by Semitool, if the condenser were located outside the processing chamber and yet still within the machine then the condenser could potentially introduce drying gases into the processing chamber and could remove vapors when drying gases are evacuated from the processing chamber despite the fact that the apparatus as a whole is a closed system. Because of this, we find it is necessary to reach the question that the district court did not reach: Is the condenser inside the processing chamber or is it outside the processing chamber?

While the Claim Construction Order does not explicitly construe the term "processing chamber," the term appears throughout the Claim Construction Order. As a result, in order to resolve this dispute, we must turn to the standard tools of claim construction to determine what the Claim Construction Order meant when it used the term "processing chamber."

In order to properly understand how the district court was using this term in its Claim Construction Order, it is necessary to define the relationship between the processing chamber and the major structural limitation in the patent: the processing vessel. Semitool argues that the processing chamber encompasses only the area inside the processing vessel where wafer carriers are loaded, cleaned, and dried. In other words, the processing chamber is only the central region of the processing vessel; the other outlying regions of the processing vessel are not part of the processing chamber. In contrast, DMS argues that the processing chamber encompasses the entire enclosed area bounded by the processing vessel's walls and that this interpretation is based on the specification from the '127 and '113 patents.

In resolving this issue, we begin with the claims. "Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc). "First, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Asserted independent claims 1 and 39 of the '113 patent have the limitation that the apparatus contain "a processing vessel defining a process chamber therewithin." In fact, as described above, Semitool supports its interpretation by pointing to DMS's own admissions wherein DMS stated that "the central area of the DMS Model 300 contains a vessel defining a process chamber in which wafer carriers are loaded, cleaned, and dried." Semitool argues that this supports their interpretation of process chamber. We do not agree. In fact, according to the explicit language of the claims themselves, the process chamber is defined as the interior of the processing vessel. For these claims, there is no doubt that the processing chamber encompasses the entire interior of the processing vessel and this conclusion is consistent with DMS's interpretation of processing chamber.

Asserted claim 28, however, presents a more complex question. In contrast to the other asserted claims, independent claim 28 of the '127 patent does not itself contain the limitation of "a processing vessel defining a processing chamber therewithin." Rather, that claim only specifies "a processing chamber within the processing vessel." All that can be concluded from claim 28 itself is that the processing chamber must be within the processing vessel. In other words, according to claim 28, the processing chamber could constitute the entire interior of the process vessel or it could constitute some smaller space within the processing vessel. However, the clear definition of the process chamber language in the claims of the earlier '113 patent application suggests the same definition of the processing chamber in the continuation application which issued as the '127 patent. See, e.g., NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1293 (Fed. Cir. 2005); Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1350 (Fed. Cir. 2004).

In any event, the specification makes clear that the processing chamber is coextensive with the processing vessel. As we stated in Phillips, "the specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" 415 F.3d at 1315 (quoting Vitronics, 90 F.3d at 1582).

DMS argues that the specification emphasizes that the processing chamber is meant to include the entire interior of the processing vessel. In other words, even regions of the processing vessel that are not areas where wafer carriers are loaded,
cleaned, and dried are described by the patent as part of the processing chamber. In contrast, Semitool argues that the specification limits the process chamber because the specification describes a bottom baffle that separates the area where wafers are cleaned and dried from the rest of the processing vessel. Such a partition, according to Semitool, is quite relevant as the infringing device has a spray guard between the condenser and the area where the carriers are cleaned and dried.

The specification states that "the processing chamber 47 is also most preferably provided with a false bottom or bottom baffle 85." '127 patent, col. 5, ll. 57-60. The specification describes the baffle as a "false bottom" rather than an actual bottom. As argued by DMS, this suggests that the area below the baffle is still part of the processing chamber. The specification also further describes this region below the bottom baffle by stating that "the outer bottom wall piece 77 [of the processing vessel] has a processing chamber outflow opening or port formed therethrough adjacent to the outflow box." '127 patent, col. 7, ll. 26-30. Because this opening is specifically labeled as the "processing chamber outflow" rather than the "processing vessel outflow," the specification further reinforces the conclusion that the area below the false bottom baffle is still part of the processing chamber. Therefore, contrary to Semitool's contentions, the specification supports an interpretation of processing chamber as the entire interior of the processing vessel.

Furthermore, the specification treats the three terms processing bowl, processing chamber, and processing vessel synonymously thus further reinforcing the fact that processing chamber should be interpreted to encompass the entire interior of the processing vessel. First, the specification describes the processing vessel synonymously with the "bowl." The specification introduces these two terms together by discussing "a processing bowl or vessel 21." '127 patent, col. 2, l. 66. Similarly, the specification describes a "sidewall of processing vessel or bowl 21." '127 patent, col. 3, l. 20. From these passages, the specification makes it clear that the processing vessel and the processing bowl are one and the same structural element.

But the specification also uses "bowl" in association with the processing chamber. The specification describes that "the processing chamber bowl and other conduits which supply gas or liquids are preferably made of stainless steel." '127 patent, col. 11, l. 44. This passage indicates that the processing chamber is associated with the "processing bowl" and in every other portion of the specification the processing bowl is used synonymously with the processing vessel. The specification makes no meaningful distinction between the vessel, the bowl, or the chamber and therefore the specification further reinforces that the entire interior of the processing vessel and the processing chamber should be interpreted to be coextensive.

Thus, for claims 1, 4, 9, 17, 19, 39, 55, 56, and 57 of the '113 patent, the claims themselves state that the "processing vessel defines a process chamber therewithin." Therefore, we agree with DMS that the processing chamber encompasses the entire interior of the processing vessel. Similarly, for claims 28-33 of the '127 patent, although the claims themselves leave room for argument, the specification makes clear that the processing chamber is coextensive with the entire interior of the processing vessel. Having interpreted processing chamber to be coextensive with the processing vessel, we now turn to the question of the alleged infringement of the asserted claims by DMS's Tornado wafer carrier cleaner.

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6. "Processing data"

The term "processing data" means the execution of a systematic sequence of mathematical and/or logical operations.

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3. "Processing Electronically"

<table>
<thead>
<tr>
<th>Simplification's Construction</th>
<th>Block's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic performance of operations, such as data manipulation, merging, sorting, and computing</td>
<td>The act of performing the appropriate computations (e.g., addition, subtraction, multiplication, and division)</td>
</tr>
</tbody>
</table>
accomplished by way of automatically without manual
devices, circuits, or systems intervention from the user.
utilizing electron devices.

The parties offer competing constructions for the word "processing" in the term "processing electronically." Simplification offers a definition from the IEEE Standard Dictionary of Electronic Terms. (See D.I. 80, Exh. D.) Block, on the other hand, points to the portion of the specification that describes how the "electronic intermediary process the tax data," which explains that this includes "appropriate tax computations" such as "addition, subtraction, multiplication, and division . . . ." (’052 patent at 6:42-47.) Simplification contends that this definition is inappropriate because it limits the claims to examples in the specification. However, Block's proposed construction is, in fact, quite broad, referring only to "appropriate computations." Furthermore, it is inherently non-limiting, explicitly stating that listed operations are only exemplary. The Court further favors Block's construction because, rather than being based on a dictionary that the Court has found inappropriate for other disputed terms, it is based on evidence in the specification. Accordingly, the Court concludes that "processing electronically" means, as Block contends, "performing the appropriate computations (e.g., addition, subtraction, multiplication, and division) without manual intervention from the user."

The dispute between the parties concerning the construction of "processing hub" is whether the hub is capable of processing anything besides authorizations and activations. Defendant Humana asks the Court to retain its construction for this term from its Datastream Markman Order. In construing this term in that case, the Court had found that the ’608 patent specification provided a definition of the "processing hub" as used in this invention. See Datastream Markman Order at 10. The Court, therefore, adopted the definition for this term as recited in the specification. Id. Humana argues that the Court's prior construction is also in line with the prosecution history of the ’608 patent where the applicant highlighted the ability of the system to be activated through existing POS devices.

Alexsam argues that the Court's prior construction was only appropriate to other claims of the patent; Claim 32 was not at issue in that case. Here too, Alexsam argues that Claims 32 and 33 are different and have nothing to do with activation. According to Alexsam, the Court's prior construction is inappropriate in this case because it does not account for the types of medical-related transactions and processing of "medical-related" data that claim 32 contemplates. As examples of other transactions that the hub can be used for, Alexsam points to sections of the specification that deal with medical information retrieval and adding loyalty data to a card. See, e.g., ’608 patent, 5:11-12, 10:13-14, 10:22-27. Because the Court agrees with Alexsam that Claims 32 and 33 do not involve activation, and these are the only claims asserted in this case, the Court will modify its previous construction to exclude "activation" from its prior construction this term. However, in light of an express definition of the term in the specification, the Court is not persuaded to adopt plaintiff's proposed construction. Alexsam's proposed inclusion of the phrase "other functions depending on the card type or transaction" makes the claim term much broader than ’608 patent specification would allow. The Court, therefore, construes the term "processing hub" as "a computer which provides front-end POS device management and message processing for card authorizations."
"activation" means. See Datastream Markman Order, at 10 (construing the term "activating an account").

4. Construction of Claims 1, 2, and 33

Turning to the substantive claim construction issue, WMS Gaming restricts computer-implemented means-plus-function terms to the algorithm disclosed in the specification. Construing the term "means for assigning a plurality of numbers representing said angular positions of said reel, said plurality of numbers exceeding said predetermined number of radial positions such that some rotational positions are represented by a plurality of numbers..." the court in WMS Gaming rejected the argument that the corresponding structure was merely "an algorithm executed by a computer," holding instead that it was limited to the specific algorithm disclosed in the specification. WMS Gaming, 184 F.3d at 1348-49. The specification's algorithm resembled the functional language "assigning a plurality of numbers..." in the claim itself and this court ultimately relied on that functional limitation to hold that there was no infringement. Id. at 1352. On that basis, Harris argues that this court's construction in WMS Gaming was merely a restatement of the function, not a legal holding that means-plus-function claims involving a microprocessor are always limited to the disclosed algorithm. We do not read WMS Gaming to be so limited. The WMS Gaming court could have relied on the function to limit the claim, but explicitly based the claim construction portion of its ruling on structure instead. Id. at 1348-49. A computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure is the algorithm.

Ericsson is correct that WMS Gaming applies to the means-plus-function claims in this case. Like the claim in WMS Gaming, Harris's claim 1 includes a means-plus-function limitation implemented by a microprocessor. Specifically, it recites 

- time domain processing means for simulating the time domain effect of said dispersive medium on signals transmitted through it by deducing prescribed characteristics of said medium, and for producing estimates of said information signals in accordance with a preselected relationship between said prescribed characteristics of said simulated effect and said known and received signals.

The district court did not have the benefit of briefing on WMS Gaming, but this precedent establishes that corresponding structure of the "time domain processing means" cannot be merely a "symbol processor," as the district court held. The "symbol processor" construction does not incorporate any disclosed algorithm. We hold that the corresponding structure for the "time domain processing means" is a microprocessor programmed to carry out a two-step algorithm in which the processor calculates generally nondiscrete estimates and then selects the discrete value closest to each estimate. Specifically, the patent discloses, as corresponding structure, a processor 37, "advantageously comprised of a pair of processors - a support processor (SUPP) [37A] and a fast array processor (FAP) [37B]," shown in Figure 4 and described at col. 11, l. 37 -col. 12, l. 32, which is programmed to carry out the disclosed "data recovery algorithm" illustrated in Figures 8A, 8B, and 9 and described at col. 7, l. 18 -col. 8, l. 38; col. 13, l. 45 -col. 14, l. 20; and col. 15, l. 2 -col. 16, l. 11. Processor 37A carries out the first part of the algorithm: calculating the effect of the medium and applying it to the received symbols. '338 patent, col. 15, II. 2-6. Processor 37B "examines the ... estimates and compares these codes with those corresponding to the code values capable of being transmitted." Id. col. 15, II. 13-17. Thus, each processor performs one of the steps.

Aspects of this algorithm can vary based on implementation, as the specification implies. For example, the algorithm need not be applied to "an eight-ary PSK transmission scheme"; this is an "illustration of the effect of [the] thus-far described decision process as applied" to such a transmission scheme. Id. col. 15, II. 27-29. The same "decision process" could be applied to another type of transmission scheme. Likewise, as Ericsson concedes, the corresponding structure of the "time domain processing means" is not limited to Equation (7) disclosed in column 8, line 30 of the patent. However, the specification characterizes the two-step process as "the invention," not merely an implementation of the invention. See id. col. 5, II. 50-55; col. 7, II. 18-27. Thus, we reject Harris's argument that the disclosed algorithm is broad enough to literally encompass one-step processes.
4 Even if we agreed with Harris that a one-step process was consistent with the disclosed algorithm, we would not follow Harris to its conclusion that "the district court's construction is correct[.]" Harris is clearly referring to the district court's "one-step" jury instruction as part of the court's "construction." Assuming that label is proper, we still do not believe that the instruction "claims 1, 2, 33, and 45 are not limited to equation 7 and cover a one or two-step process" constitutes a claim construction limited to the disclosed algorithm.

Figure 9 illustrates how this algorithm is implemented. In Figure 9, the point labeled "A" represents the received symbol value. See id. col. 15, ll. 31-33. The point labeled "B" represents the estimate obtained from the matrix calculations performed by processor 37A. The algorithm then involves the further step of choosing the allowed value that is closest to the estimate. In Figure 9's example, this closest discrete value is 010. Id. col. 15, ll. 37-39.

Thus, the district court erred in holding that claims 1, 2, and 33 can cover systems that implement either a one-step or two-step process. The corresponding structure limits the "time domain processing means" to a two-step algorithm in which the processor calculates generally nondiscrete estimates and then selects the discrete value closest to each estimate, or structural equivalents thereof.

16. "user response processing modules for …" (366 patent)

Beneficial's Proposed Construction

Defendants' Proposed Construction

No construction is necessary.


Alternatively, "user response processing modules" means "devices, components or units of a computer program that process information received by a user"

Function: One or more of: evaluating an effectiveness of said corresponding presentation, and obtaining another one of said advertising presentations for providing to said combiner, said processing modules receiving said one or more user data items.

Structure: A computer that is programmed to carry out the algorithm for performing the claimed function. However, the '366 patent lacks disclosure of all of the structure or algorithm for performing the corresponding function, which renders this term indefinite.

The parties' primary dispute with respect to this term is whether it should be construed as a means-plus-function limitation under § 112, P 6. Beneficial argues that because the claim element does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. Beneficial argues that the presumption cannot be overcome because the phrase "user response processing modules…” is a claim term that recites a sufficient structure and the term has a well understood meaning in the art. Defendants argue that the "user response processing modules" limitation should be construed under § 112, P 6. Defendants generally argue that a limitation that does not recite the term "means" can still be construed as a means-plus-function limitation if it can be shown that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. Defendants argue that generic or software-related terms do not connote sufficient structure. Defendants argue that the phrase "user response processing modules" does not recite sufficiently definite structure, does not appear anywhere in the specification of the '366 patent, and does not have a generally understood meaning to a person of ordinary skill in the art. Defendants argue that the generic words "modules"
and "user response processing" do not convey sufficient structure. Defendants further argue that the remainder of the limitation merely recites function and does not convey sufficient structure for performing that function. However, Defendants argue that the specification does not recite sufficient structure for performing the claimed function, and therefore, the claim is indefinite.

The Court finds that, because the claim element "user response processing modules" does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the Defendants have not met their burden to rebut the presumption. The Court finds that one of ordinary skill in the art would understand the term "user response processing modules" to recite sufficient structure and to have a reasonably well understood meaning to one of skill in the art. Beneficial has provided dictionary definitions for "processing" as "the manipulation of data within a computer system" and "module" as "a collection of routines and data structures that performs a particular task or implements a particular abstract data type." The Court finds that the term "user response processing modules" is not "simply a nonce word or a verbal construct that is not recognized as the name of structure." See Lighting World, 382 F.3d at 1359-60. Here, technical dictionaries supply ample evidence that the claim term designates structure. Other courts have also found that a "module" provides sufficient structure. PalmTop Productions, Inc. v. Lo-Q PLC, 450 F. Supp. 2d 1344, 1364-66 (N.D. Ga. 2006) (finding that "communications module" and "module" represents more than a mere verbal construct serving as a means for substitute); Stanacard, LLC v. Rebtel Networks, AB, F.Supp.2d , 2010 U.S. Dist. LEXIS 1109, 2010 WL 46006, *13-15 (S.D.N.Y. 2010) (finding "module" limitations to have sufficient structure such that § 112, P 6 is not invoked). The Court notes that the Defendants have not provided an alternative construction, and have not argued against Beneficial's proposed construction, if the term is not construed under § 112, P 6. Thus, the Court construes the term "user response processing modules" to mean "components or units of a computer program that process information received by a user."

A.1.g.1. "processing qualified calls"

According to Verizon, the claim language requires that the calls received by the first response unit are qualified before the common processing operations. Katz contends that the plain meaning of the functional language expresses no such requirement.

The functional language "processing qualified calls" requires that the calls be qualified prior to execution of common processing operations. This interpretation is consistent with the claim language, as the qualification means provides "qualified calls," while the "means for processing" processes "qualified" calls. This is also consistent with the specification of the 734 patent which teaches a preliminary qualification phase and a common interface format phase, where qualified calls are coupled to the interface processor. See, e.g., 734 patent, Col. 4:21-25 ("Accordingly, with overall supervision by the control unit 28, the audio response units 18, 20 and 22 answer and preliminarily qualify callers from the terminals T1-TN for connection through the coupler 24 to the interface processor 26."); Col. 4:66-67 ("The audio response unit 22 accepts calls without initial qualification."); Col. 8:27-29 ("With the entry of a call into the common phase, the line carrying the call is connected through the coupler 24 (FIG. 1) to the interface processor 26."). Moreover, Katz, during prosecution, appears to have distinguished the claimed invention on this basis. See Rooklidge 1/31/03 Decl. Ex. 1 ("Applicant's claims are distinct from Gordon because Gordon does not show receiving calls by one response unit and coupling those calls after qualification with calls received by another response unit.") (emphasis in original).
at least one item of audio/video information at the non-real time rate to the means for receiving.

1. "processing station"

The parties dispute the proper construction of the phrase "process station" as used in Claim 6 of the '720 Patent.

Claim 6 is a dependent claim to Claim 4. The introductory language of Claim 6 uses the phrase "further comprising," which means that the elements of Claim 6 are in addition to those recited in Claim 4. The phrase "process station" is used in the claim but it is not used in the written description. Therefore, the Court must determine whether a skilled artisan reading the patent document would understand the meaning of the phrase even if it is not used elsewhere in the specification. See Bancorp Services, 359 F.3d at 1372.

In Section IA2 above, using the principles of claim construction discussed in the Bancorp Services, the Court construed the phrase "central procession location" to be "a single transmission system, as previously defined, from which compressed, digitized data, representing a complete copy of at least one item of audio/video information, is transmitted at a non-real time rate to at least one of a multiple of local distribution systems." The Court finds that the phrase "processing station" is synonymous to a "transmission system."

The Court construes the phrase "process station" as follows:
the transmission system as previously defined by the Court.

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E. "Processing System"

Claims 1 and 5 of the '429 patent and claims 1 and 7 of the '064 patent recite the claim terms "processing system." Sprint contends that this phrase does not require further construction, whereas Vonage contends that the court should construe it to mean any processing system platform that can receive and process signaling to select virtual connections, and then generate and transmit signaling to identify the selections.

Vonage argues that its proposed claim construction is warranted because the patentee specifically defined the phrase "processing system" in the specification. The excerpt in the specification upon which Vonage relies states as follows: "Signaling processing system 160 is any processing platform that can receive and process signaling to select virtual connections, and then generate and transmit signaling to identify the selections." '429 Patent at 4:21-24. Vonage's argument is without merit for two reasons. First and foremost, this statement appears in a discussion concerning one version of the invention, id. at 3:36 ("FIG. 1 depicts a version of the present invention" wherein 160 is labeled the "signaling processing system"), and absent some clear intent to the contrary such examples from the specification are generally not read into the claims. In re Omeprazole Patent Litig., 483 F.3d 1364, 1372 (Fed. Cir. 2007). No such clear intent appears here, particularly where the specification concludes that "[t]he invention should not be restricted to the above embodiments, but should be measured by the following claims." '429 Patent at 25:39-41. Second, Sprint persuasively points out that Vonage's proposed claim construction which centers around the selection of "virtual connections" is nonsensical when considered in the context of the claims in question. For example, in claim 1 of the '064 patent, the "processing system" expressly processes set-up signaling to select a "DSO connection," which is not a "virtual connection." In claim 1 of the '429 patent, the processing system must process information to "select an identifier" rather than a "virtual connection."

Vonage also contends that Sprint relied on the fact that the "processing system" is defined as a system that receives and processes signaling in order to overcome the Skoog prior art during prosecution of the "928 patent (a child in the '301 Family Patents)." 2 Although the prosecution history of ancestor patent applications can be relevant to construing the claim terms of subsequent patent applications, the Federal Circuit has not applied the reverse of this principle. See, e.g., Ormco Corp. v. Align Tech., Inc., -- F.3d --, 2007 WL 2404723, at *5 (Fed. Cir. Aug. 24, 2007) (publication forthcoming) (prosecution history of claims of "parent" patent application were relevant in construing claims of "child" patents); Goldenberg v. Cytogen, 373 F.3d 1158, 1167 (Fed. Cir. 2004) (prosecution history of the parent application is treated "as part of the intrinsic evidence" of the child application when construing claim terms); Omega Eng 'g, Inc. v. Raytek Corp.,

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E. "Processing . . . the electronic advertisement . . . in compliance with the presentation rules of the internet media venue"

Claim 1 of the '025 patent states in part: "A computer system for creating and publishing customized electronic advertisements, for a seller, to internet media venues owned or controlled by other than the seller, comprising: . . . a computer controller of the computer system processing . . . the electronic advertisement . . . in compliance with the presentation rules of the internet media venue, whereby the electronic advertisement is displayed on each of the one or more of the selected internet media venues in compliance with the presentation rules of the internet media venue." (emphasis added). FM contends that "processing . . . the electronic advertisement . . . in compliance with the presentation rules of the internet media venue" means "executing a systematic sequence of mathematical and/or logical operations upon the inputted information to create an electronic advertisement customized for each selected internet media venue in a form that complies with the presentation rules set by that media venue." In contrast, Google argues that this term means "executing a systematic sequence of mathematical and/or logical operations upon the electronic advertisement to process it in compliance with the presentation rules of the internet media venues." The relevant difference between the two proposed constructions is the object of the processing step: "the electronic advertisement" or "the inputted information." Nowhere within the computer controller limitation does the term "inputted information" appear. The claim language unambiguously states that the act of "processing" is applied to the "electronic advertisement." Therefore, the court construes the term "processing . . . the electronic advertisement . . . in compliance with the presentation rules of the internet media venue" to mean "executing a
systematic sequence of mathematical and/or logical operations upon the customized electronic advertisement to make it comply with the presentation rules of the internet media venues.

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c. Processing time parameters

The parties dispute the meaning of the phrase "processing time parameters." ITI proposes that the limitation means a set of values that determine the duration of one or more of a series of actions in manufacture. Defendants' proffered construction includes quantities (such as the mean or a variance) that describe random fluctuations in processing times. ITI contends that defendants' construction is too narrow because not all parameters pertain to random fluctuations. The Court agrees.

Nowhere does the patent suggest that processing time parameters must involve means and variances or that the term "parameters" is limited to describing random fluctuations in processing times. The specification describes the second step of the invention's algorithm as determining the parameters that describe the specific factory. U.S. Patent No. 4,796,194, col. 5, lines 26-28. Parameters are determined for many aspects of the factory other than processing time, including the factory's products, fabrication sequences, machines, equipment reliability, and set-up time. See id., col. 5, lines 48-50; col. 7, lines 21-22. These parameters are defined in terms of data structures of the individual factory model. Id., col. 5, lines 28-29. The term "parameters" should not be defined in a manner that would not make sense in the context of other types of factory variables. In addition, the specification states that "fabrication sequence parameters . . . define allowable process flows." Id., col. 11, lines 1-2. This does not indicate that the parameters describe random fluctuations in process flows.

Finally, defendants place too heavy an emphasis on their proffered dictionary definition of "parameters." They argue that ITI's proposal ignores the express dictionary definition of parameters, which includes mean and variance as descriptive terms. But although dictionaries can inform claim construction, the focus should remain on the how the term is used within the patent. Courts must be careful to not adopt a definition that contradicts the intrinsic evidence. Phillips, 415 F.3d at 1322-23. But even so, the definition that defendants propose is only one possible definition of "parameter." The same dictionary includes the following definitions of "parameter": "any of a set of physical properties whose values determine the characteristics or behavior of something" and "something represented by a parameter: a characteristic element." Webster's Ninth New Collegiate Dictionary 854 (1986). These definitions align with ITI's interpretation. In short, the Court accepts ITI's proposed construction: a set of values that determine the duration of one or more of a series of actions in manufacture.

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K. "Process[ing] . . . to Select"

Claim 1 of the '561 patent, claim 1 of the '429 patent, claim 1 of the '064 patent, claim 38 of the '572 patent, and claim 18 of the '932 patent require "processing . . . to select" or "process . . . to select." Sprint contends that these phrases should be construed to mean process/processing to participate in selecting. Vonage contends that they should be construed to mean process/processing and make/making a selection.

Sprint's argument is based on this court's stated view of the claim language in the court's prior ruling on the parties' motions for summary judgment. There, the court reasoned that a rational trier of fact could find that the Vonage processing system processes signaling "to select" a network code (as required by claim 1 of the '561 patent and claim 1 of the '052 patent), "i.e., that the processing system is involved in the selection of the network code." Sprint Commc'ns Co. v. Vonage Holdings Corp., F. Supp. 2d , 2007 WL 2263955, at *25 (D. Kan. Aug. 7, 2007) (publication forthcoming). Importantly, however, at that time the parties presented the issue as a question of fact as to infringement, not as an issue of law as to claim construction. Consequently, the court's reasoning was simply that a rational trier of fact could conclude that "processing signaling to select" was satisfied by the system's involvement in processing the selection. The court certainly did not ascribe the definitive meaning to the claim terms that the processing must do nothing more than merely "participate" in the selection. And, indeed, Sprint has not directed the court's attention to any evidence in the intrinsic record which would require defining those claim terms in such a manner. Thus, the court rejects Sprint's claim construction argument.
Vonage, on the other hand, presents its claim construction argument as one of prosecution disclaimer. The prosecution history relied on by Vonage is an excerpt relating to one of the claims in the '780 patent in which Sprint responded to rejections over D'Amato and explained as follows:

Claim 139 recite[s] that the signaling processor processes the telecommunications signaling to select a "connection" for the communications path. In D'Amato, signaling director 151 does not select a connection, but selects an action for switch 130; either to: (a) proceed, (b) wait, or (c) deny . . . . None of these responses is a connection. If response (a) is given, switch 130 must possess the IAM to select the connection. Because it selects connections, the signaling processor of claim 139 is different than signaling director 151 of D'Amato. The signaling processor of claim 139 is advantageous in that it can avoid the need for this level of processing complexity in the switch.

(Emphasis added.) Vonage contends that the second boldfaced phrase means that the processor must actually "select" connections rather than merely perform "processing . . . to select."

The court disagrees and finds, once again, that this is too ambiguous to constitute a clear disclaimer of claim scope. The remark explains that in D'Amato the signaling director does not select a connection at all but instead selects an action for a switch, none of which is a connection. It makes the distinction that the signaling processor in the subject claim is different because it selects connections. Notably, the first boldface phrase states that the claim recites a signaling processor that "processes . . . signaling to select" a connection. Thus, this remark in the prosecution history does not purport to make any distinction between "selecting" and "processing to select." Rather, the distinction made is that the claim recites a processor that is involved in making the selection rather than simply selecting an action for a switch. There was no argument made that the signaling director in D'Amato performs the action of "processing . . . to select" and the remark itself does not make any distinction as to whether the processor must actually make the selection or whether it may simply perform "processing to select" the connection. Consequently, the excerpt set forth above does not clearly disavow the full scope of the claim and, therefore, the court rejects Vonage's prosecution disclaimer argument with respect to this claim term. Because neither of the parties has directed the court to intrinsic evidence which would support their proposed claim constructions, then, the court finds that these claim terms do not require further construction.

2. "processor"

In his Part B, the Special Master found that "[n]one of the asserted claims of the patents in suit appear to require that the software that is part of the claimed inventions be executed 'outside of the FDC'" 71 as argued by Defendants. The Special Master held that there is a significant difference in the industry between the meaning of the terms "CPU" and "processor," with the Federal Circuit using an industry standard definition for CPU. He held that evaluating the '414 claim in light of its calling out a CPU meant it "should be construed to require a CPU that is separate from the FDC and that controls the interpretation of instructions and their execution" but that "no such limitation should be applied to the term 'processor' in the asserted claims of the remaining patents." 72

A comparison of the Claim 1 of the '414 claim's calling out a CPU to the claims of the subsequent patents shows the difference. Claim 1 of the '414 patent reads in part as follows:

1. A method for detecting and preventing floppy diskette controller data transfer errors in computer systems having:
a central processing unit (CPU);

a system interrupt timer;

a floppy diskette, the floppy diskette having at least one sector for receiving multiple data bytes;

a floppy diskette controller (FDC) for controlling the transfer of data to the floppy diskette;

means associated with the FDC for providing a data request (DREQ) signal and a data acknowledge (DACK) signal, the DREQ signal being provided when data transfer is requested and the DACK signal being provided when data transfer is permitted; . . . 73

--- Footnotes ---

73 '414 patent (emphasis added).

--- End Footnotes ---

A comparison with the claims of the remaining patents, quoted above in section B, reveals they do not similarly call for a "CPU," but instead use the much broader term "processor." Thus, the Special Master found that the term "processor" in the '002 and '222, patents should not be construed as limited to a processor that is separate from the FDC. He also found that it was even more inappropriate to construe the '858 patent as containing the same restriction as the '414 patent because the '858 patent does not use the term "processor" in its claims.

The Special Master further explained that the Defendants' contention that the term "processor" should be construed to not be part of the FDC--dubbed the "outside the FDC" contention--was part of Defendants' broader contention that it would be improper to construe the claims to cover code that is contained within a properly functioning FDC. In other words, Defendants' position is that the patents should be construed to exclude a redesigned FDC that incorporates the claimed solutions.

Defendants agree with the Special Master's construction of "CPU" and of the '414 patent as requiring a CPU that is separate from the FDC. They make no objection to his interpretation of how a person ordinarily skilled in the art would have understood "CPU" at the time of the '414 patent. However, they argue that the key term "processor" in the '002 and '222 patents should be construed in the same manner as was the term "central processing unit (CPU)" for the '414 patent, as limited to a processor that is separate from and not part of the FDC; and that the '858 patent should also be so construed.

In making this argument, Defendants rely heavily on the specifications of the '002 and '222 patents. But the limitation they seek to impose, "outside of the FDC," appears nowhere in the '002 or '222 specifications or claims. Having reviewed all of Defendants' arguments and the specification language they cite, including the figures cited, the Court finds that their argument is an example of Defendants "reading a limitation from the specification into the claim." As the Special Master explained, he was "well aware of the fine and tortured difference between construing a claim term in light of the specification and reading a limitation from the specification into the claim. The former is required; the latter forbidden." 74 Defendants' position on the construction of "processor" as requiring one "outside of the FDC" is one of those rejected by the Special Master as straying toward the forbidden ground of reading a limitation from the specification into the claim. 75

--- Footnotes ---

74 R & R at 21-22 (citing Comark Comm. Inc. v. Harris Corp., 156 F.3d 1182, 48 USPQ2d 1001, 1005 (Fed. Cir. 1998)).
75 Id.

--- End Footnotes ---

The Special Master is correct that the Federal Circuit has warned against the risks of improperly reading a preferred embodiment into the claims, most recently in Trading Technologies International, Inc. v. eSpeed, Inc.: 76
The claims “must be read in view of the specification, of which they are a part.” A patent’s specification “is always highly relevant to the claim construction analysis.” When consulting the specification to clarify the meaning of claim terms, courts must not import limitations into the claims from the specification. Therefore, when the specification uses a single embodiment to enable the claims, courts should not limit the broader claim language to that embodiment “unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest execution or restriction.’” “In addition, other claims of the patent . . . can also be valuable sources of enlightenment as to the meaning of a claim term.” 77

As did the Special Master, the Court rejects Defendants’ attempt to read a limitation from the specifications into the claim. Defendants argue that in the claims of the ’002 and ’222 patents the element “processor” is identified as a separate claim element from “floppy disc controller” and, therefore, they are separate components. Defendants do not cite case law supporting this argument. More importantly, it is not supported by a reading of the patents. Accordingly, it is not persuasive.

The Court adopts the Special Master’s claim construction as follows: no limitation requiring a CPU that is separate from the FDC and that controls the interpretation of instructions and their execution should be applied to the term “processor” in the asserted claims of the ’002 and ’222 patents or in the ’858 patent. Further, the Court agrees with and adopts the Special Master’s finding that “[t]here is absolutely no warrant for construing the claims of these patents in a way that would exclude redesigned FDCs that nonetheless incorporate the claimed solutions.” 78

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Claim Construction

The independent claims of the ’751 patent call for “an interface between a joystick device having a first source voltage and a processor, comprising . . . an interface circuit having a second source voltage that is lower than the first source voltage, including a buffer circuit . . . and a pulse generator . . . .” 11 The Court’s claim construction opinion defined “interface circuit” as “a circuit that connects the joystick and the processor.” See Claim Construction Opinion at 8. The parties dispute the meaning of several terms within this limitation.

First, the claims call for an interface "between" a joystick device and "processor." Fenner argues that the "interface circuit"
can include the periphery of the processor. 12 Fenner points out that a "processor chip" is composed of many different parts. According to the argument, the word "processor" in the '751 patent refers to only the "central processing unit (CPU)" of the chip or the "processor core." Fenner makes this distinction because the processor core is the only component of Defendants' accused products that operates at a lower source voltage than the "joystick device." Defendants assert that processor includes the whole "processor chip" and urges that a "processor" (or what Fenner calls a "processor core") would not be functional without its component parts. Neither party disputes that the "interface circuit" must be between and not include the "joystick device" or whatever is meant by the "processor." Thus, the central dispute is whether the "processor" includes the entire "processor chip" or only the "processor core."

12 Fenner urges that "processor" needs no further construction, but consistently uses different language to describe its conception of the claims' use of the word "processor." Compare Fenner's Response to Microsoft's Motion, 6:07-CV-8-LED, Docket No. 226 at 8 (12/17/2008) (describing the "processor" as a "processor core" and "chip" as a "processor circuit") with Fenner's Response to Defendant's Motion for Clarification, 6:07-CV-8-LED, Docket No. 328 at 9 (3/16/2009) (referring to the "chip" as "processor chip" and the "processor" as the "central processing unit").

The only description of "processor" used in the specification describes it as "being a host computer" but specifies that the definition is "[f]or purposes of discussion only." '751 Patent at 2:24-25. Additionally, Figure 2 of the specification contains no part of any "processor" in the "interface circuit" (marked as 200). The description suggests that the preferred embodiment does not include the "processor core" or the "processor chip" within the "interface circuit" and even suggests that the "processor" could be analogous to an entire host computer. Therefore, no part of the description or specification supports Fenner's argument. In fact, the figures and specification suggest that the term "processor" could be used even more broadly than Defendants suggest. However, given the ambiguity inherent in these intrinsic definitions, "processor" will be accorded its plain and ordinary meaning to one skilled in the art.

The parties, though recognizing the ambiguity in the terms, provided no extrinsic definitions of "processor." The IEEE defines "processor" as "a data processor." The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996); The IEEE Standard Dictionary of Electrical and Electronics Terms (7th ed. 2000). "Data processor" is further defined as "a processor capable of performing operations on data. For example: a desk calculator or tabulating machine, or a computer." The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996); The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000). Thus, the extrinsic definition of "processor" is in accordance with the understanding suggested by the specification: that the term is broad rather than narrow. Additionally, the definition requires the "capability" of performing operations on data. Fenner does not dispute that a "processor core" without its supporting structure, will not function at all. 13 This definition, along with the supporting context of the claim supports a definition of "processor" that includes its peripheral circuitry. Thus, in accordance with the intrinsic and extrinsic evidence, the term "processor" is defined as "the CPU along with its peripheral circuitry."

13 The IEEE Dictionary has no definition of "processor core."

2. processor (Claim 1)

Keystone proposes the term "processor" be given its ordinary meaning. It contends that the term "processor" is used in a manner consistent with its ordinary meaning throughout the claims and specification of the '123 Patent. Alternatively, Keystone's proposed construction is adopted from the Communications Standard Dictionary as "a part of a computer that executes instructions." See COMMUNICATIONS STANDARD DICTIONARY, 722 (1983 New York: Van Nostrand
Reinhold Company Inc.) (defining "processor" as "[I]n computers and communications systems, a functional unit that interprets instructions and executes them.").

Defendants argue that the term processor be construed consistently with their proposed construction of the term "computer system." According to the defendants, a "processor" means "a device for executing general purpose personal computer instructions in the computer system." The Court finds that "processor" in the '123 patent means "a part of a general purpose computer that interprets and executes instructions."

# 5

"processor" -- (appears in claims 14, 15, 17, 19, 29, 30, 32, 34, 44 and 45) Luma's Construction (Luma May 4, 2005, p. 3).

MASTER'S CONSTRUCTION

"processor" -- means a central processing unit in a computer for processing data and executing a program.

REASONS

INTRINSIC EVIDENCE

The Patent Specification refers to a "processor" * * * performing processing operations" (Col. 1, Ls. 33-35). There are numerous functions recited in the Specification of the Patent as to what a processor does in the system. The Master found the Markman hearing helpful in this regard and is discussed in the "EXTRINSIC EVIDENCE" section below.

EXTRINSIC EVIDENCE

A central processing unit in a computer is a processing unit. The processor processes data and executes a program (Markman Hearing, Nutter Tr. 115: Ls. 22-25; 116: Ls. 1-25; 117: Ls. 1-18; 130: L. 16; 131: Ls. 1-5).

LUMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's Construction is set forth in (Luma May 4, 2005, p. 3) Luma construes the processor as a device for processing or acting upon data. The Master agrees and has given a construction consistent with Luma's proposal. Luma includes "information" and "images". To the extent that data can include information or images the Master's construction is in accord with Luma's position.

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth (Stryker May 23, 2005, p. 7-8). Stryker objects to "piecemeal" construction by Luma. The Master has addressed this issue in # 2 above. Stryker agrees that all the claims require a processor but just not any processor and that different claims require a special processor based upon the actions that must be performed by the processor. Stryker wants all of the other language in the claims to define the type of processor. The Master's position is that is the purpose of determining the scope of the claim as a whole and not just the scope of one element in the claim.

The Master notes that Luma has asked that only the term "processor" be construed. Luma is entitled to a construction of that single one-word term. Further modifications or limitations of that term that Stryker asks to have added are stated in the claims where the word "processor" appears. Those additional terms in the claims further modify the term "processor" as the Master has construed the meaning of the term "processor". Various claims state various functions or features of the "processor" and the claims by their individual wording will further modify the term "processor" as the Master has construed it.
KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 6).

KSEA agrees that the plain meaning should be given and that it is any device that processes. The Master has given a construction that is limited to that where a processor is used when one is referring to computers. KSEA argues that the particular processors of the claims are defined by the particular processing operations they perform and are recited after the word processor. The Master agrees. However, Luma has asked that only the term "processor" be construed and the Master has construed the term "processor" by itself.

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2. The word "PROCESSOR" (claims 5, 7, and 16) requires no construction.

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2. The terms "PROCESSOR CALCULATOR" (claim 9) and "CALCULATING" (claim 20) require no construction.

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The '140 patent describes a method and apparatus in a communication receiver for selecting and generating a unique and/or default audible alert (e.g., a ring). The user stores in a phone's memory a phone number and associates a special alert with the stored number. When a communication with the same phone number is received and recognized, the stored associated "special" alert will be generated by the device. Moreover, if a received phone number does not match a phone number stored in memory, a default alert is generated.

The parties dispute the meaning of ten claim limitations. According to VTech, five limitations ("receiver means," "storage means," "processor means," "audible alert generation means," and "first processor element") are written in "means-plus-function" format and should be interpreted pursuant to 35 U.S.C. §112, P6. Conversely, Motorola asserts the five terms are not "means-plus-function" terms governed by 35 U.S.C. §112, P6. (Docket Entry # 93 at A7-A11). Before reaching the specific terms at issue, the Court will first address the applicability of 35 U.S.C. §112, P6 in general. Then, in the separate discussion portions below, the Court will address any remaining disputes for each term.

For each of the terms "receiver means," "storage means," "processor means," and "audible alert generation means," Motorola cites Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1348 (Fed. Cir. 2002) for the proposition that even when the term "means" is utilized, 35 U.S.C. §112, P6 does not control if the term itself and surrounding claim limitations provide sufficient structure. (Docket Entry # 76 at 23-38). For the term "receiver means," Motorola asserts that the term "receiver" and the surrounding claim language which includes "processor means coupled to the receiver means" provides adequate structure such that § 112, P6 does not apply. (Id. at 23). For the term "storage means," Motorola asserts that the term itself and the surrounding claim language of "processor means ... coupled to the storage means" and "the storage means comprises a non-volatile memory" provide sufficient structure. (Id. at 24). For the term "processor means," Motorola asserts that the term itself and the surrounding claim language of "processor means coupled to the receiver means ... coupled to the storage means" provide sufficient structure. (Id. at 25). For the term "audible alert generation means," Motorola asserts that the term itself and the surrounding claims language of "coupled to the processor means" provide sufficient structure. Motorola further cites cases in which district courts have found that "receiver means," "storage means," and "processor means" are not governed by §112, P6. (Docket Entry # 88 at 10-12).

VTech counters that the use of means language creates a presumption that § 112, P6 controls. VTech asserts that the claim terms in Allen Eng'g Corp. were laden with structure. (Docket Entry # 83 at 26-27). VTech asserts that the claim terms at issue are defined in a functional manner and that Motorola's surrounding structure is generally merely another means plus function term (i.e., "processor means coupled to the receiver means"). (Docket Entry # 83 at 27). VTech asserts that the
claim terms themselves do not provide any structure whatsoever and are exactly the type of generic claim language which invokes § 112, P6. (Id. at 31-32).

This Court notes that the use of the word "means" triggers a presumption to "invoke the statutory mandate for means-plus-function clauses." Allen Eng'g Corp. v. Bartell Industries, Inc., 299 F.3d 1336, 1347 (Fed. Cir. 2003). The Federal Circuit has stated that the presumption may be overcome in two ways: first, if the claim element recites no function corresponding to the means, and second, "even if the claim element specifies a function, if it also recites sufficient structure or material for performing that function, §112, P6 does not apply." Id. Here, the claim language in question is drafted in the means plus function format and the particular language is generalized language without the use of specific structural language. Under such circumstances, the Court shall construe the language to be subject to 35 U.S.C. §112, P 6. See Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1372 (Fed. Cir. 2003); Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1361 (Fed. Cir. 2000).

As for Motorola's citation to the surrounding claim language, VTech accurately notes that such language often merely just recites the other means elements. The claim language of the terms in question does not rise to the level of that in Allen Eng'g Corp. so as to justify deviating from the presumption that § 112, P6 governs. The Court finds that the terms receiver means, storage means, processor means, and audible alert generation means are means plus function terms governed by §112, P6.

Motorola asserts that in contrast to the terms discussed above, the "first processor element" does not include the words "means for" and as such there is a presumption that §112, P6 does not apply. (Docket Entry # 76 at 29)(citing TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1364 WL 2437764 at *8 (Fed. Cir. 2008)). Further, Motorola asserts that the term "processor element" includes structure. (Docket Entry # 88 at 13).

VTech counters that even if the word "means" is not utilized, when a word such as "element" is used with insufficient structure to perform the claimed function, the limitation is still a means plus function limitation under §112, P6. (Docket Entry # 83 at 32-33)(citing MAS-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213-1214 (Fed. Cir. 1988)("lever moving element" subject to 35 U.S.C. §112, P6). VTech asserts that taken in context of the entirety of claim 1, "first processor element" does not contain sufficient structure.

The parties acknowledge that a different presumption applies when the disputed claim term does not include "means." The lack of inclusion of "means" creates a presumption that §112, P6 does not apply. TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1373-74 (Fed. Cir. 2008). The Court finds that VTech has not provided adequate justification overcoming the presumption that a term that does not include the "means" language is not controlled by § 112, P6. The term in question recites a "processor element" which in light of the governing presumption the Court finds sufficiently definite such that §112, P6 does not apply.

3. Processor Element

The next term in dispute is "processor element." This term is not drafted in means-plus-function format and accordingly the plaintiffs are entitled to the ordinary meaning of the term, unrestricted by limitations in the preferred embodiment. The plaintiff contends that this term means "a device in a computer that executes instructions." The defendants argue that the term means "a microprocessor or CPU." Although the court agrees with the defendants that the term "processor element" connotes a device that does more than simply "execute instructions", the court disagrees that the patentee used the term "processor element" and microprocessor to mean the same thing. In addition, portions of the specification support the view that the processor element is capable of both interpreting and executing instructions. The court has considered the parties' briefing and is persuaded that the term "processor element" means "a device that is capable of interpreting and executing instructions."
17. Said processor elements being connected

Claim 37 of the '755 patent requires a plurality of processor elements, "said processor elements being connected to said plurality of sets of shared resources." The question is whether this limitation is drafted according to § 112 P 6. The court holds it is not. The claim language does not recite the term "means," and Intel and ADI have not overcome the presumption attaching to the claim language.

6. "processor executing detection executables effective to determine an underrun error undetected by a floppy diskette controller" ('002 and '222 patents)

The Special Master noted that the Defendants' contentions regarding a processor being neither "outside the FDC" nor limited to a CPU. However, he found that the word "executable" might cause some puzzlement to jurors, and suggested a construction adopted from various online dictionaries as meaning "software" that can run on the processor. He went on to define "software" in its broadest sense of the term as including firmware (as somewhere between hardware and software).

Defendants reiterate their objections to the term "processor" not being limited to processors not part of the FDC and also argue without elaboration that "executables" should be limited to application programs executing on a processor not part of the FDC. Plaintiff, also without elaboration, argues that the processor-not-part-of-the-FDC argument has been decided.

The Court adopts the following claim construction: The term "processor" means an element capable of controlling the interpretation of instructions and their execution; this element need not be the CPU nor need it be outside the FDC. The term "executables" means software that can run on the processor. The term "software" is used in its broadest sense, and includes high-level applications, portions or "modules" of programs, and so-called "firmware" (instructions or data that are embedded in a particular hardware device).

6. "processor within a computing device" and "processor includes a computing device"

a. The Parties' Proposed Constructions

The parties also dispute the terms "processor within a computing device," found in dependent claim 8 of the '082 patent, and "processor includes a computing device," found in dependent claim 16 of the '082 patent. Ingenio asserts that "processor within a computing device" means "the processor is a component of a computing device," citing to the specification of the patent where examples of computing devices are given. (D.I. 113 at 23.) GameLogic asserts, on the other hand, that this term should be construed to be synonymous with the term "processor" as set forth in claim 1, as the processor of claim 1 must be in a computing device to perform its claimed functions. (D.I. 117 at 26.) GameLogic further claims that any other construction of the term "processor within a computing device" would make claim 1 indefinite. (Id.)

As to "processor includes a computing device," Ingenio asserts that this term should be construed to mean that the processor "has a component device that can perform computations." (D.I. 113 at 24-25.) Ingenio cites to the portions of the specification of the patent that disclose that a home computer could be implemented to access the system, and states that, "at the time of the invention, home computers were known to include . . . software that could perform computations." (Id. at 24.) GameLogic, on the other hand, argues that the term should be construed to mean that "the processor, such as a microchip, contains within it a personal computer." (D.I. 116 at 28.) GameLogic also contends that this claim term is unclear.
b. The Court's Construction

The ordinary meaning of the term processor is "[a] device that performs one or many functions, usually a central processing unit" n8 or "[a] program that transforms some input into some output, such as an assembler, compiler, or linkage editor." McGraw-Hill Dictionary of Scientific and Technical Terms 1676 (6th ed. 2003). n9 Thus, a processor can either be circuitry or it can be a program in a computer that performs a particular function. Computer circuitry or a computer program, standing alone, cannot perform the functions of the patent, such as allowing the player to "enter[] the code . . . into a processor." That function, and others required by the patent, can be performed by the processor only where the processor is part of a computing device. For that reason, the term "a processor" in claim 1 of the '082 patent must be construed such that the processor of claim 1 is within a computing device. As a result, "processor within a computing device" will be construed to mean the same thing as "a processor." The language "within a computing device" adds no additional limitation to the term "a processor," as a processor must be within a computing device to perform the functions it is required to perform in claim 1 of the '082 patent.

--- Footnotes ---

n8 A central processing unit is "[t]he part of a computer containing the circuits required to interpret and execute the instructions." McGraw-Hill Dictionary of Scientific and Technical Terms 356 (6th ed. 2003)

n9 No one contends that the ordinary meaning of "processor" in the context of computer science has changed between the time the patents issued and today.

--- End Footnotes ---

The term "processor includes a computing device" is indecipherable. As Ingenio points out, the patent describes "a home computer or an interactive TV system" as examples of "a computing device." (‘082 patent at 5:60; see also id. at Fig. 6.) Because a processor itself must be a part of a computing device to function, it cannot also include "a computing device," as that terminology is used in the patent. Ingenio attempts to avoid this conclusion by arguing that the computing device in this claim is simply "a component device that can perform computations." (D.I. 113 at 24-25.) The patent's own description of what a "computing device" is, as cited by Ingenio, does not comport with this construction. Therefore, I find that the term "processor includes a computing device" is indecipherable in the context of this patent.

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3. "Processor Means"

Data General maintains that "processor means" refers to the central processor of any general purpose computer system, while IBM argues that the term refers to FU 10120, an unconventional processor described in the Common Specification, not including MRU 27017 or PU 27019.

Claim 10 refers to "processor means" as follows:

…processor means connected to said memory means for providing said memory commands and providing and receiving said data items in response to sequences of instructions of said data items executed by said processor means….

‘603 Patent, col. 7, ll. 9-13 (emphasis added).

Data General contends that § 112(6) does not apply to the construction of the term "processor means" because the claim recites a structure which performs the functions associated with the "means", while IBM responds that there is no detailed and specific structure set forth in the claim.

The functions performed by the "processor means" set forth in Claim 10 are 1) providing memory commands, 2) providing and receiving data items which are sequences of instructions and 3) executing those sequences of instructions. See ‘603 Patent, col. 7, ll. 10-13.
This Court is persuaded by the testimony of Data General's expert, Professor Finkel, that, to one of ordinary skill in the art, "processor" refers to a central processing unit which provides memory commands and provides and receives data items. (Finkel T. 1/103-04). Because Claim 10 refers to a structure, i.e., a "processor" which a person of ordinary skill in the art would consider to be a structure that performs the same functions as the "means", § 112(6) does not apply to the construction of that term. Thus, this Court concludes that the term "processor means" in the '603 Patent refers to the central processing unit of a general purpose computer system.

4. "Processor Means"

Finally, IBM and Data General dispute the meaning of the term "processor means". IBM argues that it refers to FU 10120, the hardware implementation of the processor in the preferred embodiment in the Common Specification, which includes numerous specialized components. Data General responds that "processor means" also includes a conventional CPU of a computer system, a software interpreter and an operating system.

7 IBM claims that the corresponding structure is FU 10120, except for Memory Reference Unit 27017 and Protection Unit 27019.

The parties agree that § 112(6) applies to the term "processor means" in the '797 Patent and thus, the construction of that term is limited to the corresponding structures in the specification which perform the function associated with the "processor means." 8

The function of the processor means of Claim 1 is:

...receiving said items including said instructions and responding to each said received instruction by performing said operation defined for said operation code in said received instruction in said operation code set to which said operation code in said received instruction belongs.

'797 Patent, col. 4, ll. 39-44. The Court has previously found that "said instructions" refers to S-Instructions which are a level below high-level language instructions and a level above conventional machine language instructions.

The Common Specification provides, in pertinent part, that:

Principal functions of FU 10120 include: (1) Fetching and interpreting instructions, that is SINs comprising SOPs and Names, and data from MEM 10112 for use by FU 10120 and EU 10122; (2) Organizing and controlling flow and execution of user programs; (3) Initiating EU 10122 operations; (4) Performing arithmetic and logic operations on data; (5)
Controlling transfer of data from FU 10120 and EU 10122 to MEM 10122; and, (6) Maintaining certain stack register mechanisms.

'602 Specification, col. 172, ll. 20-29. It is clear that FU 10120 performs the function performed by the "processor means" in Claim 1.

In addition, Data General contends an alternative corresponding structure may also perform the function of the "processor means." In Micro Chemical, Inc. v. Great Plains Chemical Co., 194 F.3d 1250, 1258-59 (Fed. Cir. 1999), the specification disclosed three kinds of structures: (1) the preferred embodiment, (2) several alternative embodiments and (3) a suggested embodiment. The Federal Circuit Court held that the pertinent means element includes each of the three embodiments or an equivalent structure.

Data General argues that a conventional CPU, together with a software interpreter and an operating system, could perform the function of the "processor means." The Common Specification states that FU 10120 may be "replaced by a conventional CPU, such as Data General Corporation's Eclipse(R)." '602 Specification, col. 73, ll. 33-36.

IBM concedes that a conventional CPU is mentioned in the Common Specification, but asserts that 1) it is not sufficiently described to be an alternative corresponding structure and 2) the Common Specification never states that a conventional CPU can perform the claimed processor means function. When the Common Specification notes, however, that FU 10120 may be replaced by a conventional CPU, it implies that a conventional CPU can perform the same functions that FU 10120 performs and thus be considered an alternative corresponding structure.

Furthermore, IBM's contention that a software interpreter is not disclosed conflicts with the intrinsic evidence. The Common Specification discloses a software interpreter:

In the present embodiment, the interpreters consist of dispatch tables and microcode, but in other embodiments, the interpreters may themselves be written in high-level languages.

'602 Specification, col. 360, ll. 27-31. As Data General's expert witness, Professor Gruner, testified, interpreters written in high-level languages are software interpreters. (Gruner T. 2/42-43).

This Court finds that "processor means" may refer to either FU 10120 (except for Memory Reference Unit 27017 and Protection Unit 27019) or a conventional CPU, together with a software interpreter and an operating system.
sense amplifier; (3) calculate the analyte concentration value by comparing the current flow measured by the sense means to a Cottrell curve.

n6 Biosite takes no position on the processor means per se, however, argues about the "coupled to" limitation within the claim element.

Roche argues that "processor means" has a well-understood meaning in the art and is simply a microprocessor or central processing unit ("CPU"). Roche contends that the presumption that the term is a means-plus-function term because of its language is overcome by the fact that the term has enough structure to perform the function without more. Moreover, Roche asserts that even if the term is a means-plus-function term, Apex/HDI have added an additional functional limitation to the claim, "accessing data from the memory key means," that is unsupported in the claim.

Unlike with the "pluggable memory key means" element, the Court finds that there is not enough structure defined by claim 1 to rebut the presumption that "processor means" is subject to interpretation under § 112, P 6. As already discussed, the use of the term "means" creates a presumption that section 112, paragraph 6 [sic] has been invoked, but that presumption may be rebutted if the properly construed claim limitation itself recites sufficiently definite structure to perform the claimed function." Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361 (Fed. Cir. 2000) (citing Personalized Media Commc'ns LLC v. ITC, 161 F.3d 696, 704 & nn. 9 & 10 (Fed. Cir. 1998)). The focus is on whether the claim "recites sufficiently definite structure to avoid the ambit of § 112, P 6." Personalized Media Commc'ns, 161 F.3d at 704 (citing Sage Prods. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997)). A term with a well-known meaning in the art may also connote enough structure to fall outside the ambit of § 112, P 6. See id. at 704-05 (discussing a term "detector" without the qualifier "means" after it). Here, Roche contends that "processor" has a well-known meaning in the art, which rebuts the presumption that § 112, P 6 applies. There is no dispute that this is true. However, here it is clear that the "processor" of claim 1 is not a generic one, but one that runs a particular algorithm to control a sense amplifier and to calculate the concentration of an analyte. In such a case, the Federal Circuit has suggested that "in a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm. " WMS Gaming, 184 F.3d at 1349 (citing In re Alappat, 33 F.3d 1526, 1545). See also Tehrani v. Hamilton Med., Inc., 331 F.3d 1355, 1362 (Fed. Cir. 2000) (remanding the case for determination of the algorithm that "forms part of the structure of the means for processing' limitation of" the disputed claim).

n7 The Court recognizes the difference in the claim term in Tehrani and the one at issue in this case because "processing" in Tehrani is actually part of the function rather than the means, however, there is little difference between the term at issue in WMS Gaming and the one in this case, and the Tehrani court clearly relied upon WMS Gaming to determine that the district court in the Tehrani case had erred by not more particularly describing the relevant algorithm that corresponded to the means.

There are other clues that the Court should construe the "processor means" term as a means-plus-function term. See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999) (instructing to look for the term "means" first, then look "to whether the element specifies a function for performing the claimed means" next). As the Court just eluded to in the prior discussion, the element itself specifies functions for the "processor means," namely "controlling operation of said sense means" and "calculating . . . a concentration value of an analyte." 609 Patent, col. 9, ll. 7-10. For these reasons, the Court concludes that the "processor means" limitation must be construed according to § 112, P 6.

Although the Court has identified the two functions clearly outlined by the "processor means" limitation, Apex/HDI contend that there is an additional function, although their corresponding structural definitions imply that they think there are two additional functions performed by the "processor means." Specifically, Apex/HDI argue that the "processor means" also
performs the function of accessing parameter values and procedure routine specifications from the pluggable memory key means. To support this argument Apex/HDI cite In re Donaldson, 16 F.3d 1189 (Fed. Cir. 1994), and Ferguson Beauregard/Logic v. Mega Sys., 350 F.3d 1327 (Fed. Cir. 2003). Those cases refer to disputed terms that contain the word "responsive." Ferguson Beauregard/Logic, 350 F.3d at 1333; In re Donaldson, 16 F.3d at 1195.

The Court disagrees with Apex/HDI's analysis and the applicability of those cases to the instant claim. In re Donaldson never refers to the "responsive" phrase as a functional limitation; it merely includes it as part of the means. In re Donaldson, 16 F.3d at 1196 (repeating the phrase as part of the means, but never referring to it as an additional function). In the Ferguson Beauregard/Logic case, the Federal Circuit sidestepped the claim construction question because the dispute on appeal centered around an additional function that neither the lower court nor the appellate court found in either the claim or the allegedly infringing device. Ferguson Beauregard/Logic, 350 F.3d at 1344 (stating that the argument presented was based on a factual comparison of the allegedly infringing device to the claim rather than claim construction).

In the instant case, the Court sees no reason to include an "accessing" function to the processor means. The phrase "and responsive to parameter values and procedure routine specifications accessed from said pluggable memory key means" only describes the interface of the "processor means" with the memory key, it does not describe a functionality of the "processor means." The "accessed from" language is merely descriptive of where the "processor means" finds certain data. To the extent that the phrase "responsive to" can be construed as a function, the only disclosure in the specification for a structure that corresponds to that function is a microprocessor, without more. 609 Patent, col. 3, ll. 49-51.

Having determined the functions associated with the "processor means," namely to control the sense means and to calculate the concentration of an analyte, the Court must now determine the algorithm associated with those functions disclosed by the 609 patent. See WMS Gaming, 184 F.3d at 1348. With respect to the "controlling the sense means" function, Apex/HDI contend that the microprocessor is programmed to open and close the switch of the sense means to change the gain of the amplifier while the output current from the reaction is being measured to prevent saturation of the sense amplifier. Roche argues that this is not the only manner in which the microprocessor controls the sense means as disclosed by the specification.

The Court agrees with Roche that there is more to the algorithm that controls the sense means. The 609 patent teaches that a "microprocessor controls the sense amplifier to provide a plurality of signal outputs over a predetermined duration. . . ." 609 Patent, col. 3, ll. 55-57. This is the first, and perhaps most important, function performed by the microprocessor to control the sense means. This part of the algorithm is also described later in the specification: "Trace 78 is either displaced upwardly or downwardly in the plot of FIG. 66 depending upon glucose concentration. During the period of trace 78, microprocessor 59 causes a plurality of current measurement values to be sampled. . . . The sense current measurements enable a glucose determination to be made. . . ." Id. col. 7, ll. 19-28. This shutting on and off of the sense amplifier is further described in the more specific description of the sense means and its controls:

A further delay measurement interval value is also derived from ROM key 30 and represents a count of a number of measurement intervals during which current measurements are inhibited after reapplication of excitation potential 76 to excitation electrode 24.

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During the delay measurement interval (key), microprocessor 59 causes switch 106 to be closed thereby shunting amplifier 100. . . . This action prevents saturation of amplifier 100 during the period when the Cottrell current exceeds a maximum measurable current level (key). Subsequent to the delay measurement time, microprocessor 59 causes switch 106 to open so that operational amplifier 100 exhibits its normal gain characteristics and enables measurements 82, 84, etc. to be taken.

Id. col. 7, ll. 46-65. The 609 patent also teaches that "sense amplifier 50 receive[s] [its] commands from microprocessor 59. . . . Sense amplifier 59 is controlled to have two different levels of gain so as to avoid a saturation condition upon an initial application of an excitation voltage to sample strip 18." Id. col. 5, ll. 19-26. This seems to the be algorithm referenced by Apex/HDI.

Apex/HDI's description is too narrow because it only accounts for one of the ways in which the microprocessor is
programmed to control the sense amplifier. The passages in the specification calls for two different algorithms, one that inhibits current measurement and one that allows for current measurements to be sampled at specific time durations. Therefore, the Court finds that the structure of the "processor means" that performs the "controlling" function is: a microprocessor programmed to open and close the sense means to change the gain of the amplifier alternatively to inhibit current measurements, to avoid saturation, or to take current measurements.

Turning next to the function of "calculating the analyte concentration," Apex/HDI argue that the corresponding structure of the "processor means" is: a microprocessor programmed to calculate the analyte concentration value by comparing the current flow measured by the sense means to a Cottrell curve. The Court also finds this definition too narrow.

The 609 patent teaches that a microprocessor "performs the actual analyte determination tests," using variable values from the pluggable memory key means. Id. col. 5, ll. 14-17. With respect to glucose determinations specifically, the 609 patent teaches that

subsequent to the Cottrell currents being recorded and stored, meter 10 proceeds to determine a glucose concentration by performing conversion of current values to glucose values from a calibration curve defined by values in ROM key 30; and then performing a temperature compensation correction procedure (key) in accordance with a temperature estimation procedure (key).

Id. col. 7, ll. 66-68 to col. 8, ll. 1-5. The first passage indicates that the inventors intended to change the type of analyte tested for by the different analyte determination tests employed by the microprocessor. The algorithm would be determined by the actual "analyte determination test" and the variable values from the pluggable memory key means. Moreover, the second passage indicates an intent for determination of glucose values, specifically, through a comparison of measured current values to a calibration curve defined by values from the pluggable memory key means. This disclosed algorithm is broader than the algorithm proposed by Apex/HDI because it allows for different types of calibration curves to be used. The Court finds that the broader algorithms discussed here are supported by the specification.

For this reason, the Court finds that the structure of the "processor means" for performing the "calculating" function is: a microprocessor programmed to perform an analyte testing procedure using variable values from a pluggable memory key means or, for glucose values specifically, a microprocessor programmed to compare measured current values to a calibration curve defined by values from a pluggable memory key means.

3. "processor systems"

The district court construed "processor systems" to require that each system have "at least one [CPU] capable of running application type software, and at least one mass storage subsystem." Seachange, 115 F. Supp. 2d at 483. C-COR argues that the district court erroneously imported the "capable of running application type software" limitation from a preferred embodiment. Seachange counters that C-COR's position is inconsistent with the patent's objective of applying RAID-5 at the system level. Seachange asserts that because the system runs application software, if each processor system did not run the application software, then the claims would simply cover a prior art RAID-5 arrangement. Seachange points us to the language that a component of a "single processor system" is a "remote file provider," '312 patent, col. 8, ll. 39-42, that "the remote file provider represents any third party application or device driver that might use the cluster technology," id., col. 9, ll. 7-9, and that "examples include Lotus Notes, medical applications, or database systems," id., ll. 9-11. C-COR responds by noting that nothing in the ordinary meaning of CPU or in the intrinsic record requires that the claimed processor system be capable of running application software. C-COR adds that Seachange's citation to the written description bolsters C-COR's own position because the citation suggests that processors can simply execute device driver instructions.

The claim states that "each processor system comprises at least one [CPU] and at least one mass storage sub-system." '312 patent, col. 22, ll. 19-20. The claim requires that "data [be] stored at each of [the] processor systems," id., col. 22, ll. 25-28, presumably within the mass storage sub-system. However, the claim provides no more detail about the CPU and does not state that it must be capable of running application-type software. The ordinary meaning of CPU is "the unit of a computing system that includes the circuits controlling the interpretation of instructions and their execution." IEEE 171. That definition
likewise says nothing about a CPU being capable of running application-type software. Moreover, although the written description teaches an embodiment in which the CPU runs a "third party application," that is not the only embodiment. The written description says that the remote file provider can be any third-party application or device driver. '312 patent, col. 9, ll. 7-9. A device driver need not be the same as application-type software. See IEEE 387 (defining "driver"). Thus, C-COR is correct that the written description supports a broader construction. Because we do not import limitations from a preferred embodiment, Fuji Photo Film Co., Ltd. v. Int'l Trade Comm'n, 386 F.3d 1095, 1106 (Fed. Cir. 2004), each "processor system" need not have a CPU capable of running application software.

Seachange's final argument is a plea for the import of a limitation to help preserve the validity of the asserted claims. However, we must decline Seachange's invitation to import a limitation to preserve validity because this is not a case in which "the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous." Liebel-Flarsheim, 358 F.3d at 911. The limitation finds no support in the claims, written description, prosecution history, or technical dictionary.

For the foregoing reasons, we hold that the district court erred in its construction of the "processor system" limitation. A "processor system" must have a CPU but it need not be capable of running application-type software.

B. "Processor Systems"

The dispute over "processor systems" raises the following question: does claim 37 disclose a processor capable of running "application level" software? nCUBE argues that "processor system" should be construed to mean "at least one of any sort of central processing unit, regardless of the nature of the processing performed, and at least one mass storage subsystem." (D.I. 79 at 2.) nCUBE characterizes the issue as "boiling down to whether 'application-level' processing or computation is a necessary part of the definition of 'central processor unit'." (D.I. 79 at 20.) nCUBE cites two dictionary definitions as indicia of the meaning of central processor unit to one of skill in the art:

(1) "The unit of a computing system that includes certain circuits controlling the interpretation of instructions and their execution." The New IEEE Standard Dictionary of Electrical and Electronic Terms (5th ed. 1993); and

(2) "the part of a computer system that operates on data." Merriam-Webster Online Dictionary - Thesaurus (visited August 29, 2000) <http://www.m-w.com>.

nCUBE also looks to the specification, arguing that there is no clear definition provided by the patentee that would add something else to the dictionary definitions cited. (D.I. 79 at 21-22.)

After a review of the specification, the Court cannot agree with nCUBE. Figure 4 of the patent, reproduced below, "illustrates the software architecture in accordance with the invention." ('312 patent col. 5, ll. 7-8.)

[SEE FIGURE 4 IN ORIGINAL]

Figure 4 depicts the processor system 12, also shown in Figures 1 and 2. The mass memory storage unit 26 shown in Figure 2 is also depicted in Figure 4. The text of the specification states: "Referring now to FIG. 4, the major components of a single processor system 12 ('also called a cluster member') include a . . . remote file provider 54. . . ." ('312 patent col. 8, ll. 39-45.) The remote file provider is further described as "representing any third party application or device driver that might use the cluster technology. Examples include Lotus Notes, medical applications, or database systems." ('312 patent col. 9, ll. 7-11.) In the Court's view, this reference to application type software as a part of the processor 12 is a clear statement by the patentee that the processor at a minimum must be capable of operating the software described. Also, the specification describes an embodiment that not only stores the video data, but plays it as well. ('312 patent, col. 10, ll. 34-35.)

Accordingly, the Court concludes that the proposed construction advanced by nCUBE is too broad, in view of the disclosure. That is, the processor and its central processing unit must be capable, at a minimum, of operating the application software described in the specification. Therefore, the Court construes "processor systems" to mean "at least one central
processing unit capable of running application type software, and at least one mass storage subsystem."

6. "processor within a computing device" and "processor includes a computing device"

a. The Parties' Proposed Constructions

The parties also dispute the terms "processor within a computing device," found in dependent claim 8 of the '082 patent, and "processor includes a computing device," found in dependent claim 16 of the '082 patent. Ingenio asserts that "processor within a computing device" means "the processor is a component of a computing device," citing to the specification of the patent where examples of computing devices are given. (D.I. 113 at 23.) GameLogic asserts, on the other hand, that this term should be construed to be synonymous with the term "processor" as set forth in claim 1, as the processor of claim 1 must be in a computing device to perform its claimed functions. (D.I. 117 at 26.) GameLogic further claims that any other construction of the term "processor within a computing device" would make claim 1 indefinite. (Id.)

As to "processor includes a computing device," Ingenio asserts that this term should be construed to mean that the processor "has a component device that can perform computations." (D.I. 113 at 24-25.) Ingenio cites to the portions of the specification of the patent that disclose that a home computer could be implemented to access the system, and states that, "at the time of the invention, home computers were known to include . . . software that could perform computations." (Id. at 24.) GameLogic, on the other hand, argues that the term should be construed to mean that "the processor, such as a microchip, contains within it a personal computer." (D.I. 116 at 28.) GameLogic also contends that this claim term is unclear.

b. The Court's Construction

The ordinary meaning of the term processor is "[a] device that performs one or many functions, usually a central processing unit" n8 or "[a] program that transforms some input into some output, such as an assembler, compiler, or linkage editor." McGraw-Hill Dictionary of Scientific and Technical Terms 1676 (6th ed. 2003). n9 Thus, a processor can either be circuitry or it can be a program in a computer that performs a particular function. Computer circuitry or a computer program, standing alone, cannot perform the functions of the patent, such as allowing the player to "enter[] the code . . . into a processor." That function, and others required by the patent, can be performed by the processor only where the processor is part of a computing device. For that reason, the term "a processor" in claim 1 of the '082 patent must be construed such that the processor of claim 1 is within a computing device. As a result, "processor within a computing device" will be construed to mean the same thing as "a processor." The language "within a computing device" adds no additional limitation to the term "a processor," as a processor must be within a computing device to perform the functions it is required to perform in claim 1 of the '082 patent.

The term "processor includes a computing device" is indecipherable. As Ingenio points out, the patent describes "a home computer or an interactive TV system" as examples of "a computing device." ('082 patent at 5:60; see also id. at Fig. 6.) Because a processor itself must be a part of a computing device to function, it cannot also include "a computing device," as that terminology is used in the patent. Ingenio attempts to avoid this conclusion by arguing that the computing device in this claim is simply "a component device that can perform computations." (D.I. 113 at 24-25.) The patent's own description of what a "computing device" is, as cited by Ingenio, does not comport with this construction. Therefore, I find that the term

n8 A central processing unit is "[t]he part of a computer containing the circuits required to interpret and execute the instructions." McGraw-Hill Dictionary of Scientific and Technical Terms 356 (6th ed. 2003)

n9 No one contends that the ordinary meaning of "processor" in the context of computer science has changed between the time the patents issued and today.
"processor includes a computing device" is indecipherable in the context of this patent.

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9. Producing (First appearing in claim 1 at col. 12, l. 57, and as used similarly thereafter in claims 1-31, e.g. as "produces" in col. 14, l. 62)

Websidestory contends that "producing" does not need to be construed by the Court, and that its plain meaning should control. Joint Claims Construction Chart at 4. Netratings contends that "producing" should be construed to mean "generating," and cites the specification in support. Joint Claims Construction Chart at 4. Netratings contends that the specification defines "producing" as "generating."

As the terms "producing" and "generating" are similar, the Court notes disputed terms are generally to be given their ordinary and customary meaning. Phillips, 415 F.3d at 1312, 1314. Webster's Third New International Dictionary defines "produce," the root word of producing, as either "something that is brought forth or yielded either naturally or as a result of effort and work," or "to cause to have existence or to happen." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1810 (1986). Webster's Third New International Dictionary defines "generate" as "to cause to be . . . bring into existence." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 945 (1986).

Netratings cites the specification which states, "then the traffic analysis server generates an initial cookie," for the proposition that the '479 Patent defines "producing" as "generating." See Patent at col. 8, ll. 36-37. However, in order to assign meaning to a term which is different from the term's ordinary and customary meaning, a patent applicant must define the term with reasonable precision and clarity. See Teva Pharms., 395 F.3d at 1370-72 ("When a patentee acts as his own lexicographer in redefining the meaning of particular claim terms away from their ordinary meaning, he must clearly express that intent in the written description."). After reviewing the '479 Patent's claims and specification, the Court concludes that no part of the '479 Patent defines "producing" with sufficient precision and clarity so as to define its meaning as "generating." In fact, though the specification does use the phrase "generates an initial cookie" on one occasion, see Patent at col. 8, ll. 36-37, the specification also uses the word "produced" consistent with the language of the claims. See Patent at col. 6, ll. 56-58. The Court notes again that it is improper to read limitations from a specification into a claim. Callicrate, 427 F.3d at 1368; see also Phillips, 415 F.3d at 1312.

The Court concludes that "producing" is used in the claims in accordance with its ordinary meaning, and no construction is necessary.

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A. Noninfringement

"We review a district court's grant of summary judgment of non-infringement without deference." O2 Micro Int'l, Ltd. v. Monolithic Power Sys., Inc., 467 F.3d 1355, 1359 (Fed. Cir. 2006). Our de novo review of summary judgment of noninfringement requires two steps--claim construction, which we review without deference, and infringement, which we review to determine whether there was no genuine issue of material fact. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999).

On appeal, Ormco argues that the district court erred when it interpreted the claims to require automatic determination of finish tooth positions, contrary to their plain language, and when it failed to tie that interpretation to specific language in each claim. Ormco further argues that the statements referenced by the court to support its application of the automatic determination limitation do not meet the standard for an intentional disavowal of claim scope and that statements from the prosecution history of the '562 patent are limiting only as to the particular claim language with respect to which they were made (e.g., "ideal dental archform").

In response, Align argues that a patentee can make a disavowal of scope as to the general nature of an invention that in turn
limits all claims even though specific claim language is not being interpreted. Align argues that the statements in the Ormco patents' specification and the prosecution history of the '562 patent constitute such a disclaimer. In the alternative, Align argues that all of the asserted claims except claims 37-40, 45, and 69 of the '444 patent contain express language that requires a construction that includes the automatic determination limitation.

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citation and internal quotations omitted); see also Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[W]e look to the words of the claims themselves . . . to define the scope of the patented invention."). However, "claims 'must be read in view of the specification, of which they are a part.'" Phillips, 415 F.3d at 1315 (quoting Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996)), and "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction," id. at 1316 (quoting Renishaw PLC v. Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)) (emphasis added).

Consistent with that precedent, we conclude that the district court correctly determined, as to most, but not all, of the asserted claims of the Ormco patents, that requiring automatic determination of finish tooth positions is a proper construction of the asserted claims. Interpreting most of the claims to require automatic determination of finish tooth positions "most naturally aligns with the patent's description of the invention." From the beginning of the common specification of the Ormco patents, it is clear that the inventors' primary basis for distinguishing their invention was its high level of automation in the design of custom orthodontic appliances as compared to the prior art. In the Background of the Invention, the inventors stated, "In reality, the treatment of patients is in many cases more of an art than a science, with results ranging from poor to excellent, and generally variable." '444 patent col.3 ll.7-10. The inventors specifically stated that the prior art had encountered difficulties in "the task of developing an automated system that includes reliable and efficient decision making algorithms and techniques for automatically determining an ideal finish position of the teeth." Id. at col.3 ll.17-22 (emphases added).

The specification then indicates a clear emphasis in the patent on removing the referenced variability in the orthodontic treatment process by relying on a predetermined set of calculations rather than human judgment to determine final tooth positions. "A primary objective of the present invention is to provide a practical, reliable and efficient custom appliance automated design and manufacturing system and methods of automatically designing custom orthodontic appliances and treating patients therewith." '444 patent col.3 ll.41-45 (emphases added). "In accordance with the preferred embodiment of the present invention, there is provided a computerized system and method with which finish positions of the teeth of a patient are derived from digitized information of anatomical shapes of the patient's mouth . . . ." '444 patent col.4 ll.16-20 (emphases added). "The computer 30b at the appliance facility 13 calculates, based on the digitized information 26, the final position of the patient's teeth . . . ." '444 patent col.14 ll.6-8 (emphases added).

Nowhere does the specification suggest or even allow for human adjustment of the computer-calculated tooth finish positions. Statements in the specification cited by Ormco to support human participation in the process are limited to input from the orthodontist and/or computer operator at the start of the process (i.e., when particular "landmarks," data points related to teeth and jaw anatomy and geometry, are selected for input into the automatic calculation process) and not related to determination of tooth finish positions. See, e.g., '444 patent col.10 l. 63--col.11 l.2, col.13 ll.51-57. The first of those passages again emphasizes that the invention "applies automated decision making processes in the appliance design." Id. at col.10 ll.66-67.

The specification goes on to state, "In the computer analysis procedure (95), the digitized information input by the input procedure (94) is analyzed to calculate the finish position of the teeth, so that the custom appliance (25) can be designed in computerized design procedure (96) and manufactured in computer controlled manufacturing procedure (97)." Id. at col.24 ll.25-30 (emphases added). Further, the detailed recitation of the formulas and algorithms for automatic calculation of final tooth positions that follows, see id. at col.39 l.41--col. 53, l. 52, concludes with the statement, "At this point, the final positions of the maxillary teeth have been calculated, and thus, the finish positions of all of the teeth." Id. at col.53 ll.50-52. There is no discussion of operator or orthodontist review or adjustment of those finish positions or of the bases on which such review and adjustment might be made. Instead, the specification turns to a description of the "Appliance Design Procedure," which utilizes the finish tooth positions that have been automatically determined. The specification thus provides clear indication that the invention is in the automatic determination of tooth position.
While all those statements by the inventors in the specification of the Ormco patents, standing alone, may not be conclusive in showing that the claims require completely automatic determination of final tooth positions, those in the prosecution history make it even clearer. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Phillips, 415 F.3d at 1317 (emphasis added). Thus, we turn to the prosecution history of the Ormco patents, and other patents from the same family, to determine if there are statements there that should further inform our construction of the claims. As the district court correctly observed, we have held that "prosecution disclaimer may arise from disavowals made during the prosecution of ancestor patent applications." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1333 (Fed. Cir. 2003). When the application of prosecution disclaimer involves statements from prosecution of a familial patent relating to the same subject matter as the claim language at issue in the patent being construed, those statements in the familial application are relevant in construing the claims at issue. See, e.g., Wang Lab., Inc. v. Am. Online, Inc., 197 F.3d 1377, 1384 (Fed. Cir. 1999); Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990). In this case, the specifications of the prior '562 patent, which is the parent of three of the patents in issue, and all the presently litigated patents, have the same content. Thus, the prosecution history of the claims of application number 07/973,973, which led to the '562 patent, are relevant in construing the claims of the '432, the '243, the '861, and the '444 patents.

The claims of the parent 07/973,973 application were rejected by the United States Patent and Trademark Office ("PTO") under 35 U.S.C. § 103 in an Office Action on September 13, 1993, based in part on U.S. Patent 5,011,405 to Lemchen. In a Response on March 16, 1994, the inventors made a number of statements characterizing the Lemchen patent and seeking to distinguish their invention. The first part of the Response describing Lemchen, noted by the district court, states:

Using such a CAD [computer-aided design] program in a conventional manner, as Lemchen describes, an operator would manipulate the tooth images to provide the desired occlusion. This would presumably involve some decision making by the operator. As the operator manipulates the images, the computer, under the control of the conventional CAD program, would perform the calculations that would generate data of the tooth movements made by the operator and thus of the finish positions of the teeth.

(emphases added). This passage illustrates the inventors' characterization of the Lemchen prior art, viz., that it involves use of an operator. The inventors then distinguish between their automated design process and processes that are merely computer assisted and involve human input in a further characterization of the Lemchen patent:

The Lemchen patent relies, to produce the calculations, on the conventional calculation techniques employed in generalized CAD software. This in turn relies on a user interactive interface by which an operator contributes human decision making powers to manipulate images until the operator is satisfied that finish tooth position criteria have been met. . . . However, with conventional CAD programs, the reliance on human decision making is heavy, and rigorous fully automated arrival at tooth finish positions is lacking.

(emphases added). The inventors thus distinguished Lemchen by emphasizing its reliance on an operator for the decision-making process.

Further statements by the inventors in arguing for allowance of their claims in their Response continued to characterize their method by which final tooth positions may be determined. They stated, "The present invention of applicants is directed toward the most complete and fully automated method for orthodontic appliance design and manufacture made." (emphasis added). None of the prior statements in the Response were limited to particular claims. Again, in a section entitled "Deriving Finish Positions from Derived Ideal Dental Archform," the inventors argued, "The judgment, or decision making, on the acceptability of tooth positions must be imposed externally of Lemchen's system. This leads to human error and inconsistencies from patient to patient. Lemchen does not disclose this being done automatically thereby avoiding such errors and inconsistencies." In that same section, the inventors conclude, "Therefore, Lemchen, while primarily concerned with bracket placement, uses a user interactive computer system to calculate tooth finish positions, [but] applicants have provided a computerized system with the intelligence to decide for itself the best finish positions of the teeth." (emphasis added). That statement was directed to amended claims 1-30, 35-38, and 65-72, but was not associated with particular language from those claims. Furthermore, the method of amended claim 1 included the step of "deriving with the computer tooth finish positions," demonstrating that the same subject matter of automatic determination of finish tooth positions was
included in those claims. In an effort to further bolster their arguments to the examiner, the applicants also submitted a Declaration from an orthodontist, Michael W. Scott. Dr. Scott's declaration states, "In applicants' overall method, it is a computer, not an orthodontist or an orthodontically skilled computer operator that makes the decision on the finish positions in which the teeth are to be placed."

With these and other similar statements from the prosecution history of the '562 patent in mind, we address the claims of the Ormco patents involved in this lawsuit. Ormco has asserted infringement of claims 1, 9, and 10 of the '432 patent; claims 1 and 2 of the '243 patent; claims 1, 3, 4, 9-12, and 16-18 of the '861 patent; and claims 10-17, 23-29, 30-36, 46-68, and 70-79 of the '444 patent.

All of the above claims require determining the finish positions of the teeth. E.g., '432 patent, claim 1 ("producing desired tooth position signals containing digitized data of desired positions of a plurality of the patient's teeth"); '243 patent, claim 1 ("a computer programmed . . . to calculate finish positions of the teeth of the patient"); '861 patent, claim 1 ("determining treatment positions of the teeth"); '444 patent, claim 10 ("a computer programmed to apply at least some automated tooth position criteria to produce a digital model of the teeth of the scanned shapes in desired positions"). Although their claim language does not expressly recite automatic control of the finish tooth positioning, that is what they mean, and that is all that the specification describes; the specification does not support operator positioning. Moreover, the prosecution of the '562 patent, with the same specification, makes clear that the inventors understood their invention to encompass only automatic positioning because they so argued in order to distinguish their claims over Lemchen. We are mindful of the precaution that we must not incorporate into the claims limitations only found in the specification. We are not doing so here, nor did the district court. We are interpreting the claims in light of the specification. The situation here involves specifications that in all respects tell us what the claims mean, buttressed by statements made during prosecution in order to overcome a rejection over prior art. Accordingly, to attribute to the claims a meaning broader than any indicated in the patents and their prosecution history would be to ignore the totality of the facts of the case and exalt slogans over real meaning. We thus agree with the district court that in light of the specification of the Ormco patents and statements from the prosecution history of the parent '562 patent, the claims specified above require automatic computer determination of the finish positions of the teeth without human adjustment of the final results.

Ormco has also asserted infringement of claims 1-5, 8, 9, and 18-22 of the '444 patent. Claims 2-5, 8, and 9 depend from independent claim 1. The method of claim 1 does include the limitation "through an operator interacting with a computer located remote from the orthodontic practitioner, altering the graphic representation to arrange a plurality of the teeth in relation to each other in accordance with the prescription, to produce a digital model of a desired arrangement of the teeth of the patient." Ormco argues that the specific recitation of an operator in this clause differentiates this claim from other claims in which the operator is not mentioned and supports the scope of the claim to allow for the operator to select the finish tooth positions or at least aid in the process. We do not agree. The role of an operator in this claim and its dependent claims is only to help generate and enter the tooth data into the computer that is needed for the automatic process to operate. The operator does not determine the finish positions of the teeth; that is still done automatically. Thus the district court did not improperly construe claims 1-5, 8, and 9 of the '444 patent to require automatic determination of tooth positions.

The method of claim 18 includes the limitation of "a computer . . . programmed to select geometric parameters on the patient's teeth from the digitized data by operator-interaction and to produce a digital model of the teeth in desired positions." Claims 19-22 of the '444 patent depend from independent claim 18. As with claim 1, the fact that a role for the operator is required by the claim language at the beginning of the process does not support Ormco's argument that determination of finish tooth positions in claim 18 is not done automatically. Thus, in light of the specification of the Ormco patents and statements from the prosecution history of the '562 patent as a whole, "altering the graphic representation to arrange a plurality of the teeth in relation to each other . . . to produce a digital model of a desired arrangement of the teeth of the patient" and "producing a digital model of the teeth in desired positions" each require automatic computer determination of the finish positions of the teeth without human adjustment of the final results.

We reach a different conclusion with respect to claims 37-40, 45, and 69. The district court treated those claims in the same manner as all the others. Align argues that the methods of claims 37-40, 45, and 69 similarly relate to automatic design or automatic calculation of finish tooth positions. We do not agree. Those claims relate to the preliminary gathering and organization of tooth data as an aid to further unspecified orthodontic treatment or for use in creation of a digital model, not to the specific automatic determination of finish tooth positions. Such preliminary gathering and organization do not, by themselves, determine finish tooth positions. We therefore conclude that claims 37-40, 45, and 69 do not require automatic
computer determination of finish positions of teeth, and that the district court thus erred in so concluding. However, each of
the dependent claims 41-44 requires "manipulating the separate digital representations of the generated data in a computer
to rearrange the shapes of the individual teeth" into "desired relative positions." Such rearrangement requires determination
of the finish positions of the teeth and therefore as with the other claims in suit discussed previously, automatic
determination of those finish positions is implicit in those claims. Thus, in light of the specification of the Ormco patents
and statements from the prosecution history of the '562 patent as a whole, "manipulating . . . the individual teeth" into
"desired relative positions" requires automatic computer determination of the finish positions of the teeth without human
adjustment of the final results.

In summary, we conclude that all of the asserted claims of the Ormco patents, except claims 37-40, 45, and 69 of the '444
patent, require automatic computer determination of the finish positions of the teeth without human adjustment of the final
results. Since Ormco does not challenge the district court's finding that Align relies on skilled operators rather than a fully
automated computerized process to determine finish positions of the teeth, we affirm the district court's grant of summary
judgment of noninfringement as to claims 1, 9, and 10 of the '432 patent; claims 1 and 2 of the '243 patent; claims 1, 3, 4, 9-
12, and 16-18 of the '861 patent; and claims 1-5, 8-36, 41-44, 46-68, and 70-79 of the '444 patent. However, because claims
37-40, 45, and 69 of the '444 patent do not require automatic computer determination of teeth finish positions, we reverse
the district court's grant of summary judgment of noninfringement as to those claims and remand for further proceedings
consistent with this opinion.

We accept that Ormco's argument, and that of the dissent, that the district court failed to conduct a claim construction in this
case focusing on specific claim language, is not lacking in force. However, we review decisions, not opinions, see
Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1540 (Fed. Cir. 1983), and when we are able to fully comprehend the specification, prosecution history, and claims and can
determine that, to the extent we have indicated, the district court arrived at the correct conclusion, we need not exalt form
over substance and vacate what is essentially a correct decision.
While I sympathize with the district court's desire to resolve the case before it without resort to the daunting task of construing ninety-two claims in four separate patents, a non-infringement decision which eschews the very exercise of claim construction is inconsistent with this court's repeated directives to district courts. I believe, accordingly, that the district court's failure to construe the claim language in this case, standing alone, warrants remand.

II.

Rather than remand the matter, the majority chooses, instead, to conduct its own infringement analysis. It opens that analysis by recognizing that claim construction begins with the language of the claims themselves. In support, the majority cites Phillips and Markman for the truisms that, "the claims of a patent define the invention to which the patentee is entitled" and that, though claims, "must be read in view of the specification, of which they are a part," it is the language of the claims that is to be construed, not the specification. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc); Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The majority, nevertheless, appears to ignore its own opening admonitions in the remainder of its opinion. First, the majority does not "begin" with the language of the claims. Indeed, it never actually tells us what word or words in the claims in suit it purports to construe. At best, after examining the specification of one of the patents in suit (but not its prosecution history), and the prosecution history of a patent which is not in suit, it backs into a form of claim construction by asserting that all of the claims address themselves to the practice of determining finish tooth positions. Nowhere, however, does the majority tell us what language is used in which claims to describe that practice, or why such language is in need of interpretation.

The majority concedes, as it must, that none of the claims in suit "expressly recite automatic control of the finish tooth positioning." Despite the absence of this language in the claims, however, the majority concludes that this unstated (and seemingly important) limitation is "what [the claims] mean."

In its analysis of the specification, the majority first cites to general statements in the Background and Summary of Invention sections of the patent where the inventors discuss the benefits of computer-assisted (i.e., automated) methods for designing orthodontic appliances, most particularly the greater accuracy that can be gained by reducing reliance on human decision-making. It then examines the preferred embodiments and concludes that those embodiments only contemplate human or operator input into the process at the front end--i.e., when the user first inputs the data into the computer for processing. From these portions of the specification, the majority concludes that the essence of Ormco's invention requires, "automatic determination of the finish positions of teeth without human adjustment of the final results." This exercise of attempting to glean the intended invention from sources other than the claims themselves is precisely what Align asked that we do. (See Appellee's Br., 36, 39 ("Ormco made it very clear in the specification . . . that the very nature of its invention was for automatic computer determination of the finish positions of teeth . . .;" and "the statements Align drew from the specification and the file histories are admissions concerning the fundamental nature of Ormco's invention, not narrow statements concerning the meaning of some particular specific term.") (emphases in original).)
This court, however, has rejected a claim construction process based on the "essence" of an invention. See, e.g., Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1345 (Fed. Cir. 2002) ("It is well settled that 'there is no legally recognizable or protected essential element, gist or heart of the invention in a combination patent.'") (citing Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 345, 81 S. Ct. 599, 5 L. Ed. 2d 592, 1961 Dec. Comm'r Pat. 635 (1961)). Indeed, this court has done so quite forcefully and quite recently. See MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1330-31 (Fed. Cir. 2007) ("We sympathize with the district court's choice, since we agree that [the feature] is an essential element of the invention . . . . However, we cannot endorse a construction analysis that does not identify 'a textual reference in the actual language of the claim with which to associate a proffered claim construction.'") (quoting Johnson Worldwide Assocs., Inc. v. Zebo Corp., 175 F.3d 985, 990 (Fed. Cir. 1999)). Simply stated, "automatic determination of finish tooth positions without human adjustment of the final results" is a limitation that the majority has amalgamated from the specification of one of the patents in suit without reference to the specific language of any claim of any of the patents.

The court's recent decision in Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc., 473 F.3d 1173 (Fed. Cir. 2006), counsels against this practice. In Ventana, the issue was the proper construction of the term "dispensing" in a patent claiming automated methods for staining microscope slides. Ventana, 473 F.3d at 1176. The district court construed "dispensing" to require "direct dispensing," because the embodiments in the specification involved direct dispensing (much as the district court here determined that processing, determining, and calculating orthodontic solutions require automatic processing, automatic determining, and automatic calculating). Id. at 1178. On appeal, Biogenex argued that the specification, when read in its entirety, would lead to the "inescapable conclusion" that the heart of the invention involved "direct dispensing," and that the specification implicitly defined the term "dispensing" to mean "direct dispensing." This court, in Ventana, rejected that narrowed construction of the claims, noting this court's previous repeated warnings against confining claims solely to disclosed embodiments. Id. at 1181 ("[While] the fact that the disclosed embodiments are limited can assist in interpreting claim language . . . [it] does not in and of itself mean that the method claims at issue are limited to the disclosed embodiments."); see also Phillips, 415 F.3d at 1323 (rejecting, "the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment"). The court should do so again here.

As mentioned above, there are four separate patents in suit, the '444, the '861, the '243, and the '432. Ormco points to ninety-two claims in those patents which it claims Align has infringed, seventy-six of which are found in the '444 patent. By way of example, independent claim 1 of the '444 patent claims:

A method for use in the orthodontic correction of maloccluded teeth of a patient in accordance with the individual anatomy of the patient and a prescription of an orthodontic practitioner for treatment of the patient, the method comprising:

- generating data by scanning shapes of the teeth of a patient;

- displaying a graphic representation of the teeth of the patient with a computer from the generated data; and

- through an operator interacting with a computer located remote from the orthodontic practitioner, altering the graphic representation to arrange a plurality of the teeth in relation to each other in accordance with the prescription, to produce a digital model of a desired arrangement of the teeth of the patient that includes data of the shapes of a plurality of the teeth positioned relative to each other.

'444 patent col.67 l.57--col.68 l.6. Though this claim does not exclude operator involvement in the process and, indeed, claims the involvement of an operator in certain steps of the process, and though the claim never uses the term "automatically," the majority concludes that this claim, and virtually every other claim in suit, claims a process that is "completely automatic" and allows for no skilled operator involvement. In short, the majority has: imported the terms "automatically" and "automated" from the specification to the claims; found that the terms "automatically" and "automated," when used in the specification, are the same terms (without a record of how one skilled in the art would construe those terms); 3 concluded that, in every instance, the words "automatically" and "automated" mean "completely automatically" or "completely automated;" found that, where a claim is silent on the issue, use of an operator is wholly precluded; and found that, where involvement of an operator is claimed, that operator cannot be skilled. Given the limited record in the trial court, I cannot find support either in the claims or in the record for these determinations.
The absence of a record regarding how one of ordinary skill in the art would have understood the terms "automated" and "automatically" at the time the application was filed is particularly important. In fast-moving technologies, like the computer technology at issue here, words can mean vastly different things at different points in time. Thus, what we would consider to be meaningful advances in the use of computers in a particular process (i.e., injecting automation into a process previously done by hand) today could be far different from what one skilled in the art would understand was possible—and, thus, was novel—even a few years earlier.

In reaching these conclusions, moreover, the majority necessarily ignores those places in the claims where the addition of an automatic process is discussed. For instance, claim 4 of the '444 patent recites: "The method of claim 3 further comprising: generating machine code in response to the designed geometry; and transmitting the machine code to a manufacturing machine to substantially automatically operate the machine in accordance with the shapes of the plurality of teeth." '444 patent, col. 68, ll. 19-26 (emphasis added). Why would a claim use the phrase "substantially automatically operate the machine" if the inventors intended that every claim included a requirement that the machine be operated "completely" or "wholly" automatically? Who or what completes the "substantial" operation of the machine if not an operator? These kinds of questions emphasize the need for an assessment of the actual language used in the claims, rather than a construction of the invention that is reached despite that language.

Applying the ordinary meaning approach, this court concludes that the claims require completely "automatic determination of finish tooth positions." To support its construction of the claim, the majority turns to the prosecution history of the '562 patent and finds that the doctrine of prosecution history disclaimer mandates the conclusion the majority reaches. This approach is similarly unavailing. See Armament Sys. & Procedures, Inc. v. Monadnock Lifetime Prods., 168 F.3d 1319 (Table), 1998 WL 537746, at **3 (Fed. Cir. Aug. 7, 1998) (citing Markman, 52 F.3d at 980) (emphasis added) (noting that "Monadnock next argues that the prosecution history requires that the four-step process be read into claim 1 of the '297 patent. Again we disagree," and finding that "any argument based on prosecution history must fail for the same reason as the specification argument: lack of textual support in the claim"); id. ("Accordingly, statements appearing in the file history of the patent are not sufficient to add entirely new limitations to a claim.").

Prosecution disclaimer requires a patentee to clearly and unmistakably disavow certain interpretations, and I find no such disavowal here. SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1287 (Fed. Cir. 2005) ("There is no 'clear and unmistakable' disclaimer if a prosecution argument is subject to more than one reasonable interpretation, one of which is consistent with a proffered meaning of the disputed term."); Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). Importantly, while the quotations lifted from the '562 patent history do appear to support the majority's conclusion that the process contemplated in that potential invention was a highly automated one, that language was proffered to the examiner in connection with claims in that patent which do not share claim language with the majority of the claims at issue in this suit. The amendments were all made in response to the examiner's concerns regarding the formation of "ideal dental archforms," and the use of a computer to "derive . . . tooth finish positions . . . to place the teeth on the ideal dental archform." That process simply is not claimed in the '444 patent. The majority conceives this fact, but finds no limitations on the application of prosecution disclaimer posed by it. The majority cites Wang Laboratories, Inc. v. America Online, Inc., 197 F.3d 1377, 1384 (Fed. Cir. 1999), and Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990), for the proposition that statements in the prosecution history of an ancestor patent are relevant as long as the patents in suit address the same general subject matter.

The court's more recent decisions, however, set forth a more restrictive rule—requiring common language or a linguistic "hook" among the claims before resort to a parent application's prosecution history is appropriate. Invitrogen Corp. v. Clontech Labs., Inc., 429 F.3d 1052, 1078 (Fed. Cir. 2005) ("[T]he prosecution of one claim term in a parent application will generally not limit different claim language in a continuation application."); ResQNets.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1383 (Fed. Cir. 2003) ("Although a parent patent's prosecution history may inform the claim construction of its descendent . . . prosecution history is irrelevant to the meaning of [a] limitation [if] the two patents do not share the same claim language."); Advanced Cardiovascular Sys., Inc. v. Medtronic, Inc., 265 F.3d 1294, 1305-06 (Fed. Cir. 2001) (finding prosecution history of parent patents to be irrelevant where "there are no common claims in dispute"); see also Alloc, Inc. v.
experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many 

Co. v. Teva Pharms. USA, Inc., 418 F.3d 1326, 1337 (Fed. Cir. 2005) (citations omitted). "Furthermore, 'whether undue 

An enablement inquiry turns on whether the specification of a challenged patent: "provide[s] sufficient teaching such that 

III. 

The district court's rulings regarding enablement were based wholly upon this flawed claim construction and, therefore, are unsustainable as well. See Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1254 (Fed. Cir. 2004) (stating: "an enablement 

An enablement inquiry turns on whether the specification of a challenged patent: "provide[s] sufficient teaching such that 

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factual considerations." Id. (quoting In re Wands, 858 F.2d 731, 737 (Fed. Cir.1988)). "Some of these considerations, commonly referred to as 'the Wands factors,' include '(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.'" Id. (quoting Wands, 858 F.2d at 737).

Here, however, the district court did not examine the specifications to determine whether one of ordinary skill in the art could make and use the invention without undue experimentation. Indeed, there is no indication that the district court considered any of the factors enumerated in Wands. Ormco Corp. v. Align Tech., Inc., No. 03-cv-00016, slip op. at 3-7 (C.D. Cal. Aug. 23, 2004). Instead, Align only produced, and the district court only focused on, evidence of whether Ormco had perfected a commercially successful version of the invention. Commercial success, however, is not determinative of enablement. See CFMT, Inc. v. YieldUp Int'l Corp., 349 F.3d 1333, 1338 (Fed. Cir. 2003) ("Title 35 does not require that a patent disclosure enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect."). 6 I believe, therefore, that the district court's limited, improper examination of the enablement issue could not have supported summary judgment in Align's favor on this issue.

6 It is also apparent that the district court improperly shifted the burden of proof to Ormco by requiring it to produce corroborated testimony on the issue of enablement. "[C]orroboration is required of any witness whose testimony alone is asserted to invalidate a patent, regardless of his or her level of interest." Finnigan Corp. v. Int'l Trade Comm'n, 180 F.3d 1354, 1369 (Fed. Cir. 1999) (emphasis added). Here, Align, not Ormco, sought invalidation of the patent.

IV.

For the foregoing reasons, I cannot endorse the district court's infringement analysis or its analysis of enablement, and cannot agree with the majority's construction of the claims in the face of an inadequate record upon which to do so. While it ultimately may be true that some language of some of the claims in suit may require the very "construction" the district court and the majority afford them (because the specification is critical to a proper claim construction process, and a parent application does meaningfuly inform construction of similar claim language in later patents), it is impossible to tell from the current record whether, and to what extent, that fact is true. It appears, moreover, that, as to many, if not most, of the critical claims at issue, the construction the majority endorses is simply not supported by a proper application of this court's precedents. Accordingly, I would reverse the district court's grants of summary judgment, and remand with direction that the claim language at issue be construed and that a record supporting that construction be developed.
Dealix argues that there is no support for construing the term in such a way that product identification data can be both displayed to and submitted by a potential buyer.

Autobytel contends that the term should be construed as "information submitted by and displayed to a potential buyer that identifies a product sought to be purchased." Autobytel argues that Dealix tries to limit the term's construction to exclude the embodiment in which information can be displayed to a potential buyer. Autobytel points to Column 7, lines 6 to 9 of the specification to support its argument that in one embodiment product identification data is displayed to a potential buyer. See Col. 7:6-7. The Court is persuaded by Autobytel's argument and agrees that the claim language should not be limited to exclude the embodiment in which identification data can be displayed to a potential buyer. However, the claim language does not require that information be displayed, and the Court will not construe the term in such a manner. Therefore, the Court modifies Autobytel's proposed construction so that information can be displayed to, "and/or" submitted by, the potential buyer.

3402

2. Product Name

Generally the "product name" describes a designation of a commercial software program. The Isogon invention searches for and recognizes these product name designations on computer systems in order that it can report on their existence and use. Markman Tr. at p. 45. Amdahl argues that a "product name" designates only the "name by which the software is generally known to the public." Def.'s Mem. at p. 18. Isogon argues that the "product name" refers interchangeably to the name "generally" known to the public, an "alphanumerical designation," a "product code," a "vendor name and description," or any other designation by which the software programs may be recognized by the invention for purposes of reporting on their use. See Isogon Reply to Amdahl's Memorandum of Law Concerning Construction of the Claims of U.S. Patent Nos. 5,499,340 and 5,590,056 ("Pl.'s Reply Mem."), p. 5.

"Product name" is not defined in the claims. Rather the term is referenced as that which the invention associates with a "program module name". '340 Pat. at col. 12, ll. 53-65, col. 13, l. 3, col. 14, ll. 8-28. The resulting association is stored by the invention for the purposes of monitoring, correlating, and reporting. See id.. The specification likewise fails to define "product name." Further, nowhere in the claims or the specification is "product name" even referred to as a "generically known name" of a software program.

At one point in the specification "product name" is referred to within a list of items that may be contained in a "product record": "For each product, a product record contains the product ID, the product name, the vendor ID, and (optionally) the product code used by the vendor for that product." Id. at col. 5, ll. 32-35. While such specification language suggests that the terms listed are distinct, and thus that "product code" and "vendor ID" could not refer interchangeably to the same concept as "product name," the specification does not require that these terms be distinct, nor that a "product name" exclude the other listed terms. Because limitations not required by the specification may not be read into the claims, see Specialty Composites, 845 F.2d at 987, the inference that "product name" is distinct from, and thus exclusive of, other terms appearing along with it in a list within the specification, may not be read as a limitation on the claims. Thus, a "product name" could refer to a "product code" or a "vendor ID."

Although Dr. Kaliski testified that in his expert opinion the "product name" is the name "that we are going to want to use in the user readable reports for the unsophisticated user," Mr. Keohane noted that some software programs may have more than one commercially known name or more than one version under the same commercially known label, such as "Wordperfect". Markman Tr. at pp. 143-44, 188. Mr. Keohane implied that because there could be more than one "generically known name," that name may not identify a specific product adequately for the purposes of the invention or its users. Nothing in the patent, its specification, or the testimony of those skilled in the art suggests that the invention requires use of a "generically known name" as its product name. Indeed, as Mr. Keohane testified, use of such generic designation may not suffice for the purposes of the invention or its users.

For the reasons set forth above, the term "product name" is not limited to a "generically known name". It may include an "alphanumerical designation," a "product code," or a "vendor name and description," or any other designation by which the software programs may be recognized for the purpose of reporting on their use.
Defendants urge the Court to construe "product pictures" as: "More than one picture, each of which is of a product and does not include a product environment picture or text segment. Each product picture must be capable of being placed within more than one product environment picture." Defendants urge the Court to construe "product environment pictures" as: "More than one picture, each of which is an environment that will serve as a background within which a product picture is placed and which does not include either a product picture or text segment. Each product environment picture must be capable of serving as a background for more than one product picture."

Given the interrelatedness of Defendants' proposed constructions for these terms, the Court considers them together. To a great extent, these terms determine the "separate and distinct" issue since it is these items that Defendants contend must be stored and selected separately and distinctly. Defendants' constructions place two limitations on both terms: (1) exclusivity ("does not include . . .") and (2) the ability to be superimposed on the other type of picture.

The specification does not define "product pictures" or "product environment pictures," but the specification does give various examples of both. According to the Abstract, "the pictures may include various products, environments in which the products may be used, and available product options." In describing Figure 1B, the specification also explains that

Based upon the answers to the queries, the system may "fill in" the template 60 to customize a proposal for the customer. For example, if the customer has an interest in sailing or boating, the system may choose a picture of a marina environment 51 to use as the background or environment 62 in picture 61 of template 60. Likewise, if the customer has an interest in golfing, the system may choose a golf course environment 52. Within the environment 62, the system places a product 63 by selecting one of the plurality of product picture 56 based upon the customer's answers.

Each product 63 typically has several options available to the customer, such as the type of engine and wheels. Based upon the customer's answers, which indicate the customer's desired options, the system may select parts from the picture database 50 for parts 64 and 65 on product 63 in the template.

Col. 5:4-20. In that example, the environment picture is used as the "background" for product picture 63. The "parts" are illustrated as being superimposed on product picture 63. Finally, the specification explains,"the system may also select one of the plurality of text segments 59 to fill in text frame 66. The text in text frame 66 would typically correspond to picture 61 and, for example, provide a description of the product or its performance specifications." Col. 5:20-24. Those text segments are not illustrated as being superimposed on environment picture 62. But all of this is only exemplary since "one skilled in the art will recognize that the system is capable of creating different types of templates or proposals based on different picture building blocks or different combinations of the building blocks." Col. 5:48-53. Further, "the user may select from several generic types of pages to include in the printed proposal. The types of pages typically include cover sheets, personalized letters, product description pages, product specification pages, performance specification pages, trade-in specification pages. . . ." Col. 11:63-12:3. That is, the template may vary.

Exclusivity limitation

Thus, although the specification does not define what constitutes "product pictures" as opposed to "environment pictures," the specification does describe "environment pictures" as relating to the environment in which a product may be used and "product pictures" as relating to features and benefits of a product. The patentee used the terms (1) "product pictures," (2) "environment pictures," and (3) "text segments" to refer to three separate types of pictures. But that does not necessarily
mean that a "product picture" must be devoid of anything but the product or that an "environment picture" must be devoid of anything but the environment.

Although the specification describes the invention in the context of selling vehicles, claim 1 is not limited to that context, but rather is drawn to "[a] computer assisted method of generating a customized proposal for selling products to particular customers." Claim 11 is similar. There is no inherent limitation on the types of "products" that may be sold. Thus, while it is fairly easy to visualize a pickup truck as a "product," and a "marina" as an "environment," that is not necessarily the case when the products change. An exclusivity limitation is not required by the claims, the specification, or the disclosed invention.

Superimposed limitation

The "storing" and "selecting" limitations of claim 1 do not go beyond the steps of "storing" and "selecting." Nothing in those limitations expressly or inherently requires that "each product picture must be capable of being placed within more than one product environment picture" or "each product environment picture must be capable of serving as a background for more than one product picture." The "generating" step also does not expressly or inherently require those limitations. The claim language simply calls for "generating" a proposal "using the particular product picture. . . ." This step does not say how the pictures and text are used and does not require that the product picture be superimposed or placed within the environment picture.

As noted above, the user has flexibility in designing the template and formatting the proposal. See col. 17:38-43; 18:64-19:27. Although superimposing a product on a background or environment is certainly described in connection with the embodiment of Figure 1B, there is nothing in the specification that necessarily limits the invention to doing so. Nor is there anything in the prosecution history of either the 342 patent or its parent application that would so limit the claims.

Thus, the method steps of "selecting" and then "generating a customized proposal" are not necessarily limited to the template of Figure 1B in which the "product picture" is superimposed on the "product environment picture." Such a limitation is inconsistent with the claim language. Claim 1 calls for "selecting" (1) "a particular product picture," (2) "a particular product environment picture," and (3) "a particular text segment." The claim requires "selecting" a "text segment," but Figure 1B does not illustrate the "text segment" as being superimposed on the background or "product environment picture."

The specification speaks in terms of "linking" together product pictures, environment pictures and text, but "linking" is not restricted to "superimposing" or placing a product picture "within" an environment picture. See col. 1:9-12.; 2:20-31. The specification speaks in terms of "linking" textual descriptions, yet even in the preferred embodiment, the textual description is not "superimposed" on a background or a "product environment picture."

Conclusion

Nothing in the claim language, specification, or prosecution history supports Defendants' proposed limitations. Thus, the Court does not adopt them. Without these limitations, Defendants' proposed construction of "product pictures" is "more than one picture, each of which is of a product." This is no different than how "product pictures" would ordinarily be understood. Accordingly, "product pictures" does not require construction. Without these limitations, Defendants' proposed construction of "product environment pictures" is similarly reduced to "more than one picture, each of which is an environment." Likewise, this adds nothing to the term "product environment pictures," and the term does not require further construction.

n3 "Product images" and "product environment images" are used in Claim 11.
In the Staples case, the Court determined these terms did not require further construction after resolving the parties' disputes about the terms. Hyundai asks the Court to clarify that the "'product pictures' and 'product environment pictures' must be separate items in terms of content." Hyundai argues such clarification is necessary to prevent juror confusion and because, as presently construed, the '342 patent reads on intrinsic prior art. n4 Specifically, Hyundai wants the Court to construe "product pictures" as "pictures of products that are separate from the product environment pictures" and "product environment pictures" as "pictures of surroundings in which the product may be used that are separate from the product pictures."

n4 As previously discussed, the Court rejects this argument because "[c]onstruction of the claims here is not so difficult a problem as to require resort to the validity maxim." MBO Labs., 474 F.3d at 1332.

The Staples Defendants urged the Court to construe "product pictures" as "More than one picture, each of which is of a product and does not include a product environment picture or text segment. Each product picture must be capable of being placed within more than one product environment picture." They urged the Court to construe "product environment pictures" as "More than one picture, each of which is an environment that will serve as a background within which a product picture is placed and which does not include either a product picture or text segment. Each product environment picture must be capable of serving as a background for more than one product picture." The Staples Defendants argued that these items must be stored and selected separately and distinctly.

Thus, Hyundai reurges the Staples Defendants' position that the product pictures [images] and product environment pictures [images] must be separate, i.e., they cannot contain the same content. Based on the specification, the Court previously rejected such an exclusivity requirement. See Staples Markman opinion, at 20 ("An exclusivity limitation is not required by the claims, the specification, or the disclosed invention."). Hyundai also argues that the prosecution history supports such an exclusivity requirement. However, the sections from the prosecution history that Hyundai relies on are taken out of context. In proper context, the applicant first acknowledged that Donald mentions combining composite images and then distinguished Donald for not disclosing gathering and formatting customer-specific information. See June 19, 1995 Amendment and Response, 7,878,602 application, at 3. The applicant then distinguished Yourick for failing to combine various pieces of customer-specific information and format the information for a particular layout. Id. at 4. Finally, the applicant distinguished Yourick's "best guess" technique from the present invention's method of obtaining information specifying the customer's desired product features and uses. Id. Thus, taken in context, the applicant did not disclaim the use of composite images.

Accordingly, the Court's rejects Hyundai's exclusivity requirement and its proposed constructions.

3405

1. Product relationship.

The term "product relationship" is used in claims 1, 20, 60, and 73 of the 651 patent and in claims 18 and 20 of the 308 patent. Trilogy contends that the court should define product relationship as "a classification of the specific association that exists between a product and one or more parts." Selectica contends that the court should define the term to mean "a relationship between a product on the left hand side of a table and a set of elements on the right hand side of a table." The court construes the term to mean "an association between a product and one or more parts, the association having a left-hand side and a right-hand side. The product represents the left-hand side of the relationship, and the set of elements represents the right-hand side of the relationship."
"Product records" and "information records," used synonymously in the claim language, are contained in the knowledge base for the purposes of identifying a software product. Id. at p. 14. Isogon and Amdahl disagree as to which elements a "product record" must contain. Amdahl contends that it must contain a "product ID," a "product name," and a "vendor ID." Id. at p. 65. Isogon contends that a "product record" may contain such information that is sufficient "to allow software users to recognize the software product that has been identified," but "it has to do this other than by file names or module names..." Id. at p. 14. The claims do not define "product record" or "information record." Instead the '340 patent claims refer to "information records" as contained in the knowledge base and as associated with "at least one module name." '340 Pat. at col. 14, ll. 66-67-col. 15, ll. 1-13. The '056 patent claims refer to "product record" when describing an inventorying method which operates in part by "storing said module identifier as a product record in said first memory means..." '056 Pat. at col. 17, ll. 6-9.

The specification states: "Product Records: For each product, a product record contains the product ID, the product name, the vendor ID, and (optionally) the product code used by the vendor for that product." '056 Pat.at col. 5, ll. 47-50. Amdahl contends that this specification language defines the minimum of what a product record must contain. See Markman Tr. at p. 65. This language does suggest that the first three items listed are not optional elements of the product record because of the placement of "optionally" modifying only the fourth listed element, "product code." '056, at col. 5, ll. 47-50.

However, as noted above, the specification also states that a "module identifier" can be stored as a "product record". '056 Pat. at col. 17, ll. 6-9. A "module identifier" is a string of text characters which could consist of information available in a "copyright statement" embedded within a software program. '340 Pat. at col. 5, ll. 59-60 (explaining information scanned by "file reader 12B" in order to formulate module identifiers includes "copyrights statements...") See also Markman Tr. at p. 102. Mr. Keohane explained that a copyright statement may contain:

- the word copyright, there may be the copyright symbol and then the text after that might be, company name, might be a date, might be a product name...something that helps identify the module. The module identifier in that case could be looking for the word 'copyright' and pulling out from the module the information following, preceding, whatever, to hopefully identify where the module came from.

Id. This testimony supports the conclusion that a "module identifier" does not require a "product ID," "product name," and "vendor ID," but could be composed of whatever elements are found within the copyright statement. The specification clearly states that the "module identifier," when stored, may be stored as a "product record," and is then stored in the "first memory means." '056 Pat. at col. 17, ll. 7-8. The '056 patent specification later explains that the "first memory" includes the "knowledge base" which contains "data representative" of "information records." Id. at col. 19, ll. 4-10. Thus the specification teaches that a "module identifier" can be stored as a "product record," and such a product record will be stored in the "knowledge base". Id. at col. 17, ll. 7-8. Further, that "product record" may include less than the "product ID," the "product name," and the "vendor ID" if the "product record" is made from a "module identifier" that has been gleaned from a copyright statement, which contains less than all three of those elements. Id.; '340 Pat. at col. 5, ll. 59-60. See also Markman Tr. at p. 102. It follows that a "product record" in the "knowledge base" is not required to contain the "product ID," the "product name," and the "vendor ID".

Dr. Kaliski testified that information not contained in the knowledge base which the invention uses to identify a monitored program would not constitute "a product record a priori in the knowledge base," but would instead be stored in "the system configuration file." Markman Tr. at p. 191. However, expert testimony "may not be used to vary or contradict the terms of the claims as understood from the intrinsic evidence." Intellectual Property Development, Inc. v. U.A-Columbia Cablevision of Westchester, Inc., 1998 U.S. Dist. LEXIS 3901, 94 Civ. 6296, 1998 WL 142346, at *21 (S.D.N.Y. March 26, 1998) (citing Markman, 52 F.3d at 981, 983). The intrinsic evidence reveals that a "product record" may include less than all three elements when it is comprised of a "module identifier," and, under such conditions, will be stored in the knowledge base, or "first memory means". '056 Pat. at col. 17, ll. 7-8; '340 Pat. at col. 5, ll. 59-60. Dr. Kaliski's limiting interpretation, which contradicts the teaching of the intrinsic evidence is rejected. The "product record" is not limited to the "product ID," the "product name" and the "vendor ID," and is not required to contain a "product name," but may contain whatever information
Step 1

The parties dispute the proper construction of Step 1, which provides "creating at least one customer profile for each eligible recipient of said data, said customer profile including a profile of data previously accessed by said customer." The key phrases in dispute are "for each eligible recipient of said data" and "said customer profile including a profile of data previously accessed by said customer."

Amazon asserts that "for each eligible recipient of said data" means "every user that is qualified to receive the data from a plurality of data sources." Amazon relies on two general purpose dictionaries defining "each" and "eligible" as meaning respectively "being one of two or more considered individually; every" and "qualified to be chosen or used." Def. Mem. at 27 (quoting The American Heritage Dictionary of the English Language (4th ed. 2000) and Webster's Third New International Dictionary of the English Language Unabridged (Philip Babcock Gove et al. eds, 1993)). Amazon further contends the phrase "eligible recipient" does not apply to the World Wide Web, but only to subscription-based services, such as cable television. In contrast, Pinpoint asserts claim construction is not required, and challenges Amazon's attempt to distinguish between cable television and the Worldwide Web as in conflict with the patent specification. The court finds the phrase "for each eligible recipient of said data" unambiguous, and claim construction unnecessary. The court is unpersuaded by Amazon's unsupported construction of the claim term "eligible" as excluding the World Wide Web. Indeed, the patent specification indicates otherwise. See Def. Mem. Ex. 1, Col. 51 ("the method of... selecting preferred video programming... may be generalized for use in other types of data retrieval systems... such as the Internet").

Nor is Amazon's proposed construction of "said customer profile including a profile of data previously accessed by said customer" as "the customer profile is based (at least in part) on the degree of content the predetermined characteristics indicated in the profiles of data that the user previously accessed" acceptable. As Pinpoint correctly argues, the language of Claim 43 does not include the phrase "degree of content" or the phrase "predetermined characteristics." Amazon lifts this language from other asserted claims. Compare Def. Mem. Ex. 1, Col. 55, Claim 17 ("said customer profile indicating the customer's preferences for data having predetermined characteristics") and ("said content profiles indicating the degree of content of said predetermined characteristics in data from each data source") with Col. 59 ("said customer profile including a profile of data previously accessed by said customer"). Amazon's proposed construction must therefore fail. Pinpoint's proposed construction is based upon the same construction of "customer profile" accepted by the court. Thus, "said customer profile including a profile of data previously accessed by said customer" is construed as, "the customer profile includes data that describes the significant characteristics of the data previously accessed by the customer."

Program: A sequence of coded instructions that can be loaded into a mechanism such as a computer.

Application Program: A software program that performs substantial useful functions for a user (e.g., electronic mail programming, word processors, spreadsheets, personal calendar programs, games) as opposed to software that primarily controls the allocation and use of computer resources (e.g., memory, display, storage devices, modem).

"program" in the '638 patent

Lexar's proposed construction: the operation of injecting electrons onto the floating gate

Toshiba's proposed construction: -- none --

Pretec's proposed construction: Write
of the memory cell.

Only Lexar and Pretec disagree about the proper construction of "program" in the '638; Toshiba does not propose a construction. Pretec proposes that "program" should simply be construed as "write." Lexar, however, argues that programming is just one part of the write cycle and that the two terms are not synonymous. Lexar relies on the IEEE treatise for its proposed construction, arguing that the IEEE provides the ordinary meaning of the term "program" and that the patent itself provides no indication that a different meaning was intended. The Court agrees with Lexar here.

Both the 1991 and 1998 versions of the IEEE Standard Definitions and Characterization of Floating Gate Semiconductor Arrays indicates that "program" means "the operation of injecting electrons onto the floating gate of the memory cell." The IEEE definition is relevant, then, to the construction of "program" in the '638 patent, the application for which was filed in 1993. Additionally, Lexar relies on Figure 5, which indicates that programming is one part of the write cycle but is not synonymous with "write." The Court agrees with Lexar. Pretec's proposed construction, "write," is incorrect. Column 2, lines 48-52 indicate that in the erase cycle, each bit is programmed and then the bits are erased in a block. This suggests that writing is something different from programming and that Lexar is right. The Court therefore construes "program" as the operation of injecting electrons onto the floating gate of the memory cell.

ii. "program" in the '314 patent

Lexar's proposed construction: the operation of injecting electrons onto the floating gate of the memory cell.

Toshiba's proposed construction: issuing a write command, followed by address and data.

Toshiba has failed to propose a construction for the disputed claim term "program" in the '314. However, Toshiba does propose a construction for the disputed claim term "programming . . . simultaneously." The Court therefore considers "issuing a write command, followed by address and data," the first portion of Toshiba's proposed construction of "programming . . . simultaneously," to be Toshiba's proposed construction for "program" here.

Lexar again urges the Court to adopt the meaning of "program" offered in the IEEE treatise. Toshiba contends that because the '314 contains no discussion of injecting electrons onto floating gates as "programming," the IEEE definition is inapplicable. Toshiba instead proposes that the proper construction is "issuing a write command, followed by address and data." The Court first rejects the "followed by address and data" portion of Toshiba's construction. This excess verbiage is simply unnecessary and the Court declines to include it in the construction. Toshiba's remaining language, "issuing a write command," is, as in the '638, not the proper construction. Claim 1 of the '314 patent discusses programming and Claim 2 discusses writing. If the two processes were synonymous, there would be no need for the two separate claims. Programming is clearly a phase of the larger write cycle. The Court therefore agrees with Lexar and construes "program" as follows: the operation of injecting electrons onto the floating gate of the memory cell.

3. "synchronizing the movements of the spraying device and the conveying device using a stored processing program"

Although both parties propose constructions of this limitation, the limitation itself is not particularly confusing. Indeed, most of the '538 Patent is written in clear and concise language. Inasmuch as "[t]he construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims," Embrex, 216 F.3d at 1347, the court sees little necessity for further complicating matters when, as here, the plain language of the claim is relatively straightforward. Nonetheless, both parties present proposed constructions, and the court
Durr asserts that this limitation means "maintaining a specific relationship between the spraying device and the conveying device based upon instructions from a stored processing program." (Durr Opening Br. at 11.) FANUC proposes a much more complex construction of this phrase: "using a stored processing program containing a plurality of individually defined paint-impact points to establish and maintain a pre-programmed position of each of the spraying device's axes for each pre-programmed position of the conveying device." (FANUC Opening Br. at 9.)

n9 FANUC spends much of its claim construction argument on this phrase debating whether the '538 Patent was meant to encompass "Cartesian-Space Control," or merely "Joint-Space Control," as described by FANUC's expert, Dr. Louis Whitcomb. (See FANUC Opening Br. at 13-16.) Such arguments, however, are better asserted at the infringement stage of this litigation. The court does not view them as construing at the claim construction stage.

Durr's proposed construction restates the claim limitation, in simple terms, while remaining generally faithful to the claim language and the specification. The court has already construed "spraying device" and "conveying device," and the court will construe "stored processing program" below. Thus, the only words Which conceivably require construction are "synchronizing," and possibly "using." Durr suggests that synchronizing means "maintaining a specific relationship," but the court finds that this construction is ambiguous. The preferred embodiment, for example, details a process by which the movement of the spraying device and the conveying device are "synchronized and controlled." (538 Patent at 2: 24-25, 29.) Such controlled synchronization involves more than maintaining a specific relationship because it involves a degree of correlation between the two devices. Indeed, in its brief, Durr itself uses "correlated" as synonymous with "synchronized." (Durr Opening Br. at 11.) The court finds that "correlating" is a more understandable and accurate construction of "synchronizing" than is "maintaining a specific relationship."

The court does agree, however, with Durr's construction of the remaining portion of this limitation. The limitation specifies how synchronization occurs by requiring synchronization of the spraying device and the conveying device "using a stored processing program." Durr thus construes this portion of the limitation to mean that the devices are synchronized (or correlated) "based upon instructions from a stored processing program." (Durr Opening Br. at 11.) This construction is consistent with the plain language of the claim and is unobjectionable.

In contrast, FANUC's construction, rather than clarifying the language, further confuses the issue while simultaneously improperly adding limitations to the claim. See Liquid Dynamics Corp. v. Vaughan Co., Inc., 355 F.3d 1361, 1368 (Fed. Cir. 2004) (reversing district court "[b]ecause the plain language of the claim was clear and uncontradicted by anything in the written description or the figures, [and thus] the district court should not have relied upon the written description, the figures, or the prosecution history to add limitations to the claim"). Specifically, FANUC seeks to add limitations found in the preferred embodiment regarding "axes" and "paint impact points." "Not only does FANUC's construction overly complicate what is otherwise a straightforward limitation, it also violates the Federal Circuit's consistent instruction that "unless required by the specification, limitations that do not otherwise appear in the claims should not be imported into the claims." N. American Container, Inc. v. Plastipak Packaging, Inc. 415 F.3d 1335, 1348 (Fed. Cir. 2005) (citing E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed.Cir. 1988) ("Where a specification does not require an extraneous limitation, that limitation should not be read from the specification into the claims."). (emphasis in original)).

Finally, as Durr points out, FANUC's proposed construction would violate the principles of claim differentiation, which "refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc. 438 F.3d 1374, 1380 (Fed. Cir. 2006); Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."). Because FANUC's construction seeks to import would "paint impact points" from Claim 5 into Claim 1, the court will reject it.

For these reasons, the court will adopt Durr's construction, in part, and construe the phrase "synchronizing the movements of the spraying device and the conveying device using a stored processing program" as "correlating the movement of the
spraying device and the conveying device based upon instructions from a stored processing program."

Within this limitation, the parties also debate how "stored processing program" should be construed. Durr contends that it means "a set of instructions stored on a computer," while FANUC argues it means "a program containing a plurality of individually-defined paint impact points for coating workpieces that is placed and retained on an electronic storage medium for later retrieval by a computer." (Am. Joint Claim Construction Chart at 2, FANUC's Ex. 1.)

For the reasons discussed above, the court again reject's FANUC's attempt to import the "paint impact points" into this construction. The court also agrees with Durr that FANUC's construction implies that the data is stored on a device, an electronic storage medium, which is external to a computer. There is no support for this construction in the claim language, and the court will therefore reject it.

While the court is inclined to adopt Durr's construction and construe "stored processing program" as "a set of instructions stored on a computer," this construction fails to construe the meaning of the term "stored," which the parties also debate in connection with later limitations. Durr does not suggest a construction of the term, while FANUC argues it should be construed as "placed and retained." While "retained" is fairly synonymous with the word "stored," adding the term "placed" is redundant and is not necessary for a proper understanding of the word "stored." Thus the court will adopt portions of Durr's proposed construction, slightly modified by FANUC's proposal, and construe "stored processing program" as "a set of instructions retained on a computer."

GO BACK

3411

Means-Plus-Function

GL and FuturePath argue that 432 patent claim 8 is a "means-plus-function" claim subject to the limitations of 35 U.S.C. § 112, P 6 (1994). The statute states:

An element in a claim for a combination may be expressed as a means or step

for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Paragraph 6 was included in the statute to "allow the use of means expressions in patent claims without requiring the patentee to recite in the claims all possible structures that could be used as means in the claimed apparatus." Med. Instrumentation and Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1211 (Fed.Cir. 2003) (citing O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1583 (Fed.Cir. 1997)). The Federal Circuit further held, however, that "[t]he price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." Id. Based on that reasoning, GL and FuturePath assert that claim 8 is a means-plus-function claim, that neither the claim itself nor the specifications provide sufficient structure to fulfill the stated functions, and that, therefore, claim 8 and claims dependent thereon are invalid.

First, we must determine whether claim 8 is a means-plus-function claim. The claim reads:

A computer readable medium having program code recorded thereon, for execution on a computer having a graphical user input device, to place a trade order for a commodity on an electronic exchange having an inside market with a highest bid price and a lowest ask price, comprising:

[1] a first program code for setting a preset parameter for the trade order;

[2] a second program code displaying market depth of a commodity, through a dynamic display of a plurality of bids and a plurality of asks in the market for the commodity, including the bid and ask quantities of the commodity, aligned with a static display of prices corresponding thereto, wherein the static display of prices does not move in response to a change in the inside market;
[3] a third program code for displaying an order entry region comprising plurality of areas for receiving commands from the user input device to send trade orders, aligned with the static display of prices, each area corresponding to a price of the static display of prices; and

[4] a fourth program code for receiving a command as a result of a selection of a particular area in the order entry region by a single action of the user input device with a pointer of the user input device positioned over the particular area, to set a plurality of additional parameters for the trade order and send the trade order to the electronic exchange.

'132, Claim 8.

In determining whether a claim falls under the ambit of § 112, P 6, we first look to whether the claim language itself includes the term "means." The Federal Circuit has "made clear that use of the term 'means' is central to the analysis: 'the use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' (particularly as used in the phrase 'means for') generally invokes [§ 112, P 6] and that the use of a different formulation generally does not.'" Personaliised Media Communications, LLC v. Int'l Trade Commission, 161 F.3d 696, 703 (Fed.Cir. 1998). Thus, both parties agree that because Claim 8 does not employ the term "means" or "means for," there is a presumption that the claim is not a means-plus-function claim. The presumption can be rebutted, however, if the intrinsic evidence so warrants, and "the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112, P 6." Id., at 704.

GL and FuturePath argue that claim 8 does not provide sufficient structure to remove it from the scope of § 112, P 6, regardless of the fact that the claim language does not include the term "means." Specifically, they argue that the claim asserts four functions, and that the term "program code" is insufficient to provide accompanying structure through which to perform the stated functions. We agree that claim 8 provides four functions, or outcomes. We disagree, however, that "program code" is insufficient to provide sufficient structure.

In determining whether a claim provides sufficient structure to remove it from § 112, P 6, the Federal Circuit has not required the claim term to set forth a specific structure. Rather, "it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." Lighting Worldling, v. Birchwood Lighting, Inc., 382 F.3d 1354, 1359-60 (Fed.Cir. 2004). The term "code," with regard to computer technology, is defined as: "In software engineering, computer instructions and data definitions expressed in a programming language or in a form output by an assembler, compiler, or other translator." THE NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS, FIFTH ED. (1993). Such a definition is not a 'generic structural term such as 'means,' 'element,' or 'device'; nor is it a coined term lacking a clear meaning, such as 'widget' or 'ram-a-frain.'" Personalized Media Communications, 161 F.3d at 704 (finding that "digital detector" was sufficient structure to remove a claim from § 112, P 6). See also Affymetrix, Inc. v. Hyseq, Inc., 132 F. Supp. 2d 1212, 1231-32 (N.D.Cal.2001) (finding that "computer code" recited a sufficient structure, understood by one skilled in the art, to be able to accomplish the stated functions); Harmonic Design, Inc. v. Hunter Douglas Inc., 88 F. Supp. 2d 1102, 1105 (C.D.Cal.2000) (finding that "electronic circuit" recited sufficient structure). We turn to the recent case of Massachusetts Institute of Technology and Electronics For Imaging, Inc. v. Abacus Software, 462 F.3d 1344, 2006 U.S. App. LEXIS 23281, 2006 WL 2613439 (Fed.Cir. 2006) for analysis assistance. There, the Federal Circuit, in analyzing claim language of two claims, neither of which employed the term "means," determined that one should be viewed as a means-plus-function claim and the other should not. First, the court determined that the term "colorant selection mechanism" invoked § 112, P 6 because "mechanism" was used synonymously with means, "colorant selection" was defined in neither a dictionary nor the specification, and there was no indication that "colorant selection" had a generally understood meaning. 462 F.3d 1344, [WL] at *7-8. In contrast, the court found that "aesthetic correction circuitry" did not fall within the ambit of § 112, P 6. The court noted that dictionary definitions establish that the term "circuitry," by itself, connotes structure, pointing to, for example, Linear Tech. Corp. v. Imnala Linear Com., 379 F.3d 1311, 1320 (Fed.Cir. 2004), which relied on the Dictionary of Computing's definition of "circuit" as "the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function." The definition of "code," noted above, places "program code" in a category more analogous to the court's analysis of "aesthetic correction circuitry," than "colorant selection mechanism." See also WEBSTER'S II NEW COLLEGE DICTIONARY 2001, 216 (defining "code" with respect to computer science as "A set of symbols and rules used to represent instructions to a computer").
CL's and FuturePath's use of Altiris, Inc. v. Symantec Corp., 318 F.3d 1363 (Fed. Cir. 2003), is of no assistance to their argument in this case. In Altiris, the claim included the language "means of," and therefore the court began with the presumption of means-plus-function. Such is not the case here. Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206 (Fed. Cir. 1998), can be distinguished as well. In Mas-Hamilton, the Federal Circuit affirmed a district court's reading of means-plus-function into a claim for a "lever moving element," even where the claim did not utilize the term "means " The Mas-Hamilton court found it persuasive that LaGard could not point to any evidence demonstrating that the term "lever moving element" was reasonably well understood in the art. 156 F.3d at 1214. Such is not the case here. In addition to the case law discussed above, plaintiff pointed us to the Manual of Patent Examining Procedure (U.S. Dep't of Commerce, MANUAL OF PATENT EXAMINING PROCEDURE, (8th ed. 2001, rev. Oct. 2005)), wherein the guidelines indicate that "a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." n8 Although the guidelines are not binding, they do provide some evidence that computer-readable mediums, such as the one claimed in claim 8, are known in the art to include a structural component.

n8 Defendants GL and FuturePath argue that the MPEP only allows for the patenting of computer systems where a specific data structure is coupled with a computer-readable medium. We agree, but find that "program code" provides sufficient structure for the reasons stated herein.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

Defendants GL and FuturePath argue that the fact that the patent's inventors admit that they struggled for over two years to reduce the invention to practice "makes abundantly clear that the 'program code...' limitations in the context of the '132 Patent, do not use simple, off-the-shelf programs that one skilled in the art can readily implement without undue experimentation" (defs' reply at 5). We do not buy such an argument. Here, defendants' allegedly infringing products have managed to create systems that seemingly realize the functions stated in claim 8 - set preset parameters, display market depth, display an order entry region, and receive a single action command. While we make no determination of infringement, it seems to us that the inventors or developers of defendants' products, all of whom are reasonably skilled in the art, were either able to develop plaintiff's (or another's) program codes, or develop their own. Thus, either plaintiff supplied sufficient structure to develop its claimed program codes or one reasonably skilled in the art was able to develop the codes independently. Either way, plaintiff wins this argument.

Because we begin with the presumption that claim 8 is not a means-plus-function claim, and because defendants GL and FuturePath have failed to rebut that presumption, we find that claim 8 does not come within the ambit of § 112, P 6.

3412

3. "programmable controller"
The parties' third dispute concerns the clause "programmable controller." This clause appears in Claims 1 and 22 of the '134 Patent and Claim 7 of the '512 Patent. The specification of each patent is nearly silent as to the meaning of the clause. The specification of each patent simply states:
A programmable controller 208 is provided to control all of the various operations of the ball-throwing machine. A particularly preferred controller is the MultiPro+ MC controller, manufactured by Control Technology, Inc.

'134 Patent, col. 10, ll. 50-54 (emphasis in original); '512 Patent, col. 10, ll. 59-64 (emphasis in original).

In the JACC, ProBatter declines to propose a construction for the clause, because it argues that "programmable controller' is a well understood term ... and the plain meaning of the clause is clear . . . . " JACC (docket no. 174), at 7. Joyner argues that the court should construe "programmable controller" as "a control device, normally used in industrial control applications, that employs the hardware architecture of a computer and a relay ladder diagram language [and also] known as a programmable logic controller [("PLC")]. Id. Joyner avers that "[p]rogrammable controllers are different than cam timers and microcontrollers, but equivalent to desktop computers." Id.
At the Hearing, the nature and extent of the parties' dispute became less clear. On the one hand, ProBatter argued that Joyner's proposed construction of "programmable controller" as including a PLC was wrong, because the specification of each patent proves that a "programmable controller" is not a PLC. Specifically, ProBatter claimed that the MultiPro+ MC controller is not a PLC and, therefore, a "programmable controller" is not a PLC. ProBatter argued that the MultiPro+ MC controller is not a PLC, because its specification makes clear that it has a central processing unit ("CPU") like a computer and is, in essence, a computer. See ProBatter's Ex. FF (docket no. 159-7), at 1 (reflecting that the MultiPro+ MC controller has a "CPU").

On the other hand, notwithstanding its original position that "programmable controller" need not be construed, ProBatter indicated that it would be "fine" if the court construed the term. ProBatter argued that the court should accept a definition in the McGraw-Hill Dictionary of Scientific and Technical Terms ("SciTech Dictionary")--extrinsic evidence that Joyner relied upon in the briefing. In pertinent part, the SciTech Dictionary states:

- programmatic controller . . . A control device, normally used in industrial control applications, that employs the hardware architecture of a computer and a relay ladder diagram language. Also known as programmable logic controller.
- programmable controllers . . . Electronic computers that are used for the control of machines and manufacturing processes through the implementation of specific functions such as logic, sequencing, timing, counting, and arithmetic. They are also known as programmable logic controllers (PLCs).


Accordingly, the court shall construe "programmable controller" as set forth above in the SciTech Dictionary, because it appears the parties do not dispute the accuracy of the SciTech Dictionary definition or the appropriate use of the same. 13 Although the construction is admittedly based upon extrinsic evidence, the court shall enforce the parties' concessions.

13 The court notes that, in addition to stating that a programmable controller is also known as a PLC, the SciTech Dictionary also states that "[m]icroprocessors used in programmable controllers are similar or the same as those used in personal computers." Ex. GG (docket no. 159-8), at 1. This undercuts ProBatter's argument at the Hearing that the presence of a CPU in the MultiPro+ MC controller somehow proves that such controller is not a PLC.
4. "Switch"

The district court interpreted the term "switch" in as a device that opens or closes a circuit to form a direct path between inputs and outputs. The district court adopted this narrow interpretation at the behest of Raritan, without explanation. In the art of networking, the ordinary meaning of the term "switch" is "a device capable of forwarding packets directly to the ports associated with particular network addresses." Microsoft Computer Dictionary, (4th ed. 1999). According to the written description of the patents in suit, a signal conditioning unit receives mouse and keyboard signals from a workstation. The signal conditioning unit generates a serial data packet and sends the mouse/keyboard packet to a central crosspoint switch. The central crosspoint switch routes the data packet to another signal conditioning unit coupled to the remote server that decodes the mouse/keyboard packet. '176 patent, col 1, ll. 54-64. The written description discloses one embodiment of this "crosspoint switch" or "programmable switch." Id. at col. 6, ll. 15-61. This switch includes a master CPU and a number of input and output cards for transmitting and receiving signals. The written description does not limit the term switch to a device that opens or closes a circuit to form a direct path. Nothing was identified in the prosecution history to suggest this direct path. Thus, properly construed, a "programmable switch" or "crosspoint switch" is a programmable device capable of forwarding packets from one computer/workstation/server to another. Therefore, we reverse the district court's claim construction of the term "switch."

15. "programmatic elements for…" (702 patent)

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<tr>
<th>S&amp;N's Proposed Construction</th>
<th>Arthrex's Proposed Construction</th>
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<tr>
<td>Alternatively, &quot;programmatic elements&quot; means &quot;computer readable instructions to perform a function, task or step&quot;</td>
<td>Function: Combining advertising related information with service related information to obtain a resulting combination that is in a format: (a) acceptable for being transmitted on the network by the SPNAN to at least the first user, and (b) processed by the first network accessible node so that, as a consequence of such processing, a display of an advertising presentation corresponding to said advertising information is provided on said first network accessible node.</td>
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</table>

The parties' primary dispute with respect to this term is whether it should be construed as a means-plus-function limitation under § 112, P 6. Beneficial argues that because the claim element does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. Beneficial argues that the presumption cannot be overcome because the phrase "programmatic elements" is a claim term that recites a sufficient structure and the term has a well understood meaning in the art. Defendants argue that the "programmatic elements…" limitation should be construed under § 112, P 6. Defendants generally argue that a limitation that does not recite the term "means" can still be construed as a means-plus-function limitation if it can be shown that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. Defendants argue that generic or software-related terms do not connote sufficient structure. Defendants argue that the phrase "programmatic elements" does not recite sufficiently definite structure, does not appear anywhere in the specification of the '702 patent, and does not have a generally understood meaning to a person of ordinary skill in the art. Defendants further argue that the generic words "elements" and "programmatic" do not convey sufficient structure. Defendants argue that this limitation should be construed as a means-plus-function limitation. However, Defendants argue that the specification does not recite sufficient structure for performing...
the claimed function -- it does not describe any specific algorithm for combining advertising related information with service related information to obtain a resulting combination. Thus, Defendants argue that the claim term is indefinite.

The Court finds that, because the claim element "programmatic elements" does not use the word "means," there is a rebuttable presumption that § 112, ¶ 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the Defendants have not met their burden to rebut the presumption. The Federal Circuit has indicated that the generic term "element" typically does not connotate sufficiently definite structure. See id. ("The generic terms 'mechanism,' 'means,' 'element,' and 'device,' typically do not connote sufficiently definite structure.") However, in this case, the Court finds that one of ordinary skill in the art would understand the term "programmatic elements" to recite sufficient structure and to have a reasonably well understood meaning to one of skill in the art. The Court finds that Beneficial has provided a dictionary definition for the term "programmatic" as "of, relating to, or having a program" and "program" as "a set of coded instructions that enables a machine, especially a computer, to perform a desired sequence of operations." The Court also finds that Beneficial has provided a dictionary definition for the term "program element" as "part of a central computer system that carries out the instruction sequence scheduled by the programmer." The Court finds that the term "programmatic elements" is not "simply a nonce word or a verbal construct that is not recognized as the name of structure." See Lighting World, 382 F.3d at 1359-60.

Here, technical dictionaries supply ample evidence that the claim term designates structure. Other courts have also found that computer code or program code provides sufficient structure. See Affymetrix, Inc. v. Hyseq, Inc., 132 F. Supp. 2d 1212, 1232 (N.D. Cal. 2002) ("The Court finds that 'computer code' is not a generic term, but rather recites structure that is understood by those of skill in the art to be a type of device for accomplishing the stated functions."); Trading Technologies Intern., Inc. v. eSpeed, Inc., 2006 U.S. Dist. LEXIS 80153, 2006 WL 3147697, *11-13 (N.D. Ill. 2006) (finding "program code" to not be a generic term and to have sufficient structure); Aloft Media, LLC v. Adobe Systems Inc., 570 F. Supp. 2d 887, 894-96 (E.D. Tex. 2008) (finding that the "computer code" elements referenced by the "wherein" clauses showing operation of the code recite sufficiently definite structure to avoid § 112, ¶6). Further, the term "program element" is recited in another limitation of claim 53 without any implications of a means-plus-function limitation, implying that the terms "program element" and "programmatic element" should not be construed under § 112, ¶ 6. The Court notes that the Defendants have not provided an alternative construction, and have not argued against Beneficial's proposed construction, if the term is not construed under § 112, ¶ 6. Thus, the Court construes the term "programmatic elements" to mean "computer readable instructions to perform a specific function."

Finally, the parties dispute whether a "programmed digital computer" must process measurement data. Consistent with its interpretation of the altering step, the court construes "programmed" to mean programmed with algorithms which process the lip position data and control point data, resulting in data representing the new pixel configuration of the altered first facial display.

The plain and ordinary meaning of the term "programmed channel signal" includes any video signal carried by a channel. A "programmed channel" would be understood by a person of ordinary skill in the art to be a cable channel or network such as CNN and MTV. Additionally, it is an inherent limitation of the claim that the programmed channel signal must include time slots for local advertising insertion; otherwise, there would be no need for switching between the programmed channel signal and the commercial insert signal. Because programmed channel signals typically include cue tones to signal upcoming local avails, a person of ordinary skill in the art would so understand the term "programmed channel signal" to include this limitation.

Defendants argue that the programmed channel must be "received and monitored at a remote Control Center." SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language, at 12 (emphasis deleted). This limitation does not properly belong in the definition of programmed channel signal.
5. "Programmed response mode." Used in Claim 1(c).

E-Watch now argues that this term means "the server receives and logs the surveillance sensor appliance data in a pre-programmed response to a condition, situation, or event." March Networks suggests "the sensor appliance responds to the event in a mode of operation established by the server."

E-Watch's construction has the phrase modifying what the server does. But what is claimed is "a surveillance sensor appliance," not a server. The parties have previously agreed that the claim is for a system "comprising a plurality of sensor appliances [which are connected] to a network based server. . . ." There is no basis in the specification to adopt a grammatically strained construction of Claim 1(c), in which "programmed response mode" does modify "server" rather than "surveillance sensor appliance."

The plain language of the claim states that the appliance monitors an area, and generates a signal indicating a condition in the area. This monitoring and generation of a signal is described as being in a "programmed response mode controlled by the server." The appliance may respond automatically to certain conditions or events, if programmed or instructed to do so by the server. See '183 patent, col. 4, ll. 21-22 (a server may provide "auto response generation.").

The appliance, such as a wireless camera, can send data to the monitoring station, "continuously, periodically as programmed, or upon event detection. . . ." '183 patent col. 17, 11.14-17. Again, it is the appliance responding either automatically in accordance with prior instructions from the server, or reacting as an event occurs, in compliance with instructions from the server. See '183 patent, col. 30, ll. 58-61; '183 patent, col. 37, ll. 22-27.

March Network's argument was in accord with this interpretation. Tr. p. 53, p. 54, ll. 14-16. E-Watch agreed that this was one way to interpret the claim. Tr. p. 46, ll. 21-23. E-Watch wanted to emphasize that the server was controlling the programmed response mode, but that is already in other language of the claim. The court therefore defines the term as follows:

"Programmed response mode" means "the surveillance sensor appliance responds to the condition in accordance with predetermined instructions which are, or previously have been, received from the server."

5. "Programmed with Information to Simulate the Natural Motion of Gestures" ('053 patent, claim 20)

The fifth phrase in dispute is "programmed with information to simulate the natural motion of gestures." Plaintiff's proposed construction is "to include information in a motion which makes the motion appear more realistic." Defendant's proposed construction is "encoded with procedures that define normal body movements."

Plaintiff's principal objection is to the word "procedures" in defendant's construction because, as plaintiff's expert Dr. Badler testified, the word "procedures' is narrow," and "doesn't particularly explain how to simulate the natural motion of gestures." See Tr. at 82; see also Tr. at 87. But defendant's use of the word "procedures" is supported by the '053 specification, which states that "[t]he present invention uses the procedural texture synthesis approach to control limb motion," '053 patent at 2:39-40 (emphasis added), as well as by Dr. Perlin's deposition testimony, where Dr. Perlin stated that "[t]here are procedures involved which define component movements, and there are other procedures which combine those component movements to make what I call composite movements," "[a]nd together the whole conglomeration expresses human body movement," Perlin Dep. at 271-73 (emphasis added). Further, the Court credits Dr. Booth's testimony that someone skilled in the art of computer animation at the time of the patent would have understood the claim at issue to entail "procedural animation" and would have understood defendant's construction to be a "normal use" of the term "procedures." See Tr. at 136-37.
n3 With respect to the word "normal" in defendant's construction, the word "realistic" in plaintiff's construction, and the word "natural" in the '053 patent itself, the Court finds (and the parties essentially agreed) that there is no material difference between these terms. See Tr. at 92, 187.

Accordingly, the Court hereby adopts defendant's construction of "programmed with information to simulate the natural motion of gestures."

The parties next dispute Step 4 of Claim 10. This step reads:

programming said dispensers by means of electronic instructional signals transmitted from a central location, said programming including value information to be borne by said token, said step of programming occurring subsequent to exposure of individuals to said stimulus, and prior to an individual requesting the dispensing of a token through entry of a command in said dispenser,

VTB argues that it does not program "dispensers" i.e. customers' printers, and that there is no programming "subsequent to exposure of the individuals to said stimulus." See Defendant's Reply in Further Support of its Motion for Summary Judgment ("Def. Reply") at 4. AI asserts that when VTB's customers select the hyperlink "Print this coupon" using their Internet browsers, they activate a "javascript:window.print()" function and cause the browsers' printing functions to activate and print the factory tour coupon. See Pl. Opp'n at 6; Print-out of Javascript Commands for Coupon Web Page ("Javascript"), Ex. 3 to Qualey Decl.

Neither the '874 patent nor the parties explicitly define the term "programming." The Academic Press Dictionary of Science and Technology defines "programming" as "a general term for the process of designing, coding, and testing programs for carrying out operations on a computer." Id. (1992). The dictionary definition is adopted and the term "programming" means "the process of designing, coding, and testing programs for carrying out operations on a computer." Nothing in the specification of the '874 patent contradicts this construction.

1. "programming" ('181 patent, claim 1, '664 patent, claims 1 and 3, '768 patent, claims 1 and 19)

While both sides are agreed that the term "programming" as used in the claims here in issue refers to a data stream containing signals, defendants argue that it specifically here refers, more narrowly, to a single integrated data stream that contains a video signal, an audio signal and one or more URLs, while plaintiffs argue that it refers, more broadly, to a data stream containing video signals, audio signals, and/or uniform resource locators, with no requirement that all the signals be contained in a single data stream. Plaintiffs' reading is the more natural one, and there is nothing in the function or structure of the patents that compels defendants' definition; on the contrary, such a construction would exclude the embodiment shown in Figure 4 of the '664 and '768 patents and described in the specification, as well as the means for receiving at the user's end as shown in Figure 2 and described in all of the patents in dispute. Accordingly, the Court rejects defendants' definition, see Dow Chemical v. Sumitomo Chemical Co. 257 F.3d 1364, 1378 (it is "well established that a claim construction that excludes a preferred embodiment is 'rarely, if ever, correct.'") (citation omitted), and accepts plaintiffs'.

"programming mode"
The invention has two modes: a "programming mode" and a "menu choice selection mode." '717 patent, 2:23-25. A mode selector allows the operator to choose between the two modes. '717 patent, claim 1. The parties dispute the meaning of the term "programming mode" as used repeatedly in claim 1 and throughout the '717 patent claims.

Merit construes this phrase as "a mode in which selectable game menu items are chosen." Pl.'s Suppl. Br. at 11. Once again, JVL proposes a lengthier construction, suggesting that "programming mode" is "a mode in which video game menu options, which appear on a display, are selected to be video game menu choices, which appear simultaneously on the same display as the video game menu options." Def.'s Presentation, '717 patent at 19.

The primary dispute is whether the video game menu options and video game menu choices must be displayed simultaneously. According to JVL, the intrinsic evidence demonstrates that they must. The specification distinguishes the "simultaneous display of video game menu options and video game menu choices on the video screen when the mode selector is in the programming mode," from the display of only "video game menu choices when the mode selector is in the menu choice selection mode." '717 patent at 2:28-31. The brief description of Figure 2 contained in the '717 patent explains that menu options are selected by the operator in the programming mode. '717 patent at 4:8-9.

The prosecution history also lends support for JVL's interpretation. During reexamination, Merit distinguished the '717 patent from a piece of prior art called the Super Duper Casino. At the time, Merit argued the Super Duper Casino's manual "does not suggest that a display controller simultaneously displays "video game menu options" and "video game menu choices" on a video display when a mode selector is in a programming mode." JVL's Supplemental Claim Construction Brief, Ex. E at 15 ("Def.'s Suppl. Br.") (emphasis in original). Merit's invention does.

Though the display controller does cause "a simultaneous display of video game menu options and video game menu choices on the video screen when the mode selector is in the programming mode," this is not sufficient reason to construe "programming mode" as JVL suggests. The language that JVL relies on describes what a display controller does. It is not meant to describe the meaning of "programming mode." Nothing in limitation (a) of claim 1, which describes what the programming mode does, indicates that the display of options and choices must be simultaneous. Similarly, claim 13 which describes selecting video game menu options in the programming mode does not describe video game menu options and video game menu choices as being displayed simultaneously. Indeed, the specification explains that in one embodiment of the programming mode, selected menu options are deleted from the first region of the display when placed in the designated video game menu choice location. '717 patent at 2:19-28. Thus, the video game menu options and choices are not always displayed simultaneously.

"Programming mode" is construed as "a mode in which video game menu options are selected to be video game menu choices."

2. "Progressive prize"

Both patents claim "a method of awarding one progressive prize from a plurality of progressive prizes . . . . " '215 Patent at 8:49-51; '603 Patent at 8:10-11. The specification does not define "progressive prize", but the plain meaning of "progressive" and the disclosure in the specification suggest that the prize increases according to some criteria. The '215 Patent abstract, for example, states that "the jackpot controller is arranged to receive each of the machine operation signals and to increment the value of a random jackpot prize on the occurrence of each of these operation signals." The parties agree that the prize should be increased based on some criteria, but disagree as to whether the prize must be paid from a "pool." The parties propose the following constructions of "progressive prize":

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<tr>
<th>Term or Language Requiring Construction</th>
<th>Aristocrat's Proposed Construction</th>
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<tr>
<td>&quot;progressive prize&quot;</td>
<td>a prize that increases based on some criteria (i.e., time, games played, marketing money, coin</td>
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</table>
IGT points to the following language from the "Summary of the Invention" where the patent describes a "fifth aspect" of the invention:

such that the progressive feature jackpot is implemented using a central feature jackpot system connected to the network to provide an incrementing jackpot pool which increases in response to signals from the connected consoles, and the feature jackpot game on each machine awards a jackpot drawn from the jackpot pool.

'215 Patent at 3:19-24. The preferred embodiments also use the term "pool" to describe the jackpot system, stating that "the machine contributions go into the prize pool as with known prior art jackpot systems, while the overhead display shows the incrementing prize value." Id. at 5:64-67; '603 Patent at 5:24-27. Finally, IGT offers the testimony of Scott Olive ("Olive"), the inventor, that a progressive jackpot, understood by one skilled in the art, uses a system of networked gaming machines that share the same bonus pool. Def.'s Claim Construction Brief 3:7-14 (hereinafter "IGT CC"). Olive gives an example top prize, called a "Grand Progressive" which was a "fixed prize" of $50,000 or two motorbikes. Id. Aristocrat responds that the claims themselves nowhere require that the prize come from a pool, and that Claim 1's requirement that the machine award "one progressive prize from a plurality of progressive prizes" indicates that the progressive prize need not come from a pool. Pls.' Reply Claim Construction Brief 5 (hereinafter "Reply CC").

The parties seem to have different understandings of the term "pool." In including "pool" in its construction, IGT seems to require that the prize amount is paid into by each of the networked machines and can also be paid out to any of them. Aristocrat, on the other hand, appears to suggest that a pool has contents of similar type (and therefore, according to Aristocrat, a plurality of progressive prizes, some of which may be supplemented by other sources, are not in a "pool"). The abstract of the '215 Patent supports what appears to be IGT's construction:

Each of the electronic gaming machines are provided with a network interface arranged to provide a signal onto the network on each occurrence of an operation of a respective machine and the jackpot controller is arranged to receive each of the machine operation signals and to increment the value of a random jackpot prize on the occurrence of each of these operation signals.

'215 Patent abstract. In fact, the reason the gaming machines are networked appears primarily to be to allow the prize to be increased by operation signals from each machine, and to be paid out to any of the networked machines. The court finds that the term "pool" relates to but inadequately captures this idea. Therefore, the court construes the term "progressive prize" to mean "a prize amount or value that increases based, at least in part, upon contributions from networked gaming machines."
counter that undue emphasis should not be placed on the article "a," as Claim 11's references to "a progressive prize" in the preamble and Step (B) mutate into "the progressive prize" in Step (G). However, the term that we are called upon to construe is that attached to the total wager amount determined in Step (B). While the use of "the" in Step (G) may shed some light on its meaning in other steps, it does not negate any inferences contained in the prior uses of "a." As argued by Plaintiff, the use of "the" indicates that Step (G) is merely referring to the progressive prize described in Step (B), not that the prize must be singular. We adopt that reasoning as the most plausible interpretation of the use of different articles modifying "progressive prize" in Claim 11, and focus our construction on the use of the open-ended "a" in Step (B).

Second, there are several references to multiple progressive prizes in the specification. (See, '460 Patent, col. 4 throughout.) Indeed, in a discussion of the Free Play apparatus, the preferred embodiment provides a selection button to choose from multiple prizes. (Id. col. 15:63 - col. 16: 2.) The specification even allows for more than one winner for a prize. (Id. col. 4:36-38.)

In her argument against a singular limitation, Plaintiff suggests that a prize could be a valuable object plus a variable monetary amount, or a choice between different prizes. While the specification's references to multiple prizes and winners stop short of expressly providing for the possibility of multiple prizes attaching to a particular total wager amount or a handle pull, we have not found any language in the specification that would rule out this possibility. Thus, we find no basis to limit the meaning of "a progressive prize" to a singular prize.

In addition, we do not find sufficient basis at this time to limit the meaning of "increment value" to the "difference between the prize's starting value and the prize's current value." Although Defendants argued for such a limitation in their briefing, they did not so argue at the hearing, and the succinct arguments in their brief were not persuasive, as they primarily relied on expert testimony merely claiming that the ordinary meaning was such. In addition, it is not obvious that Defendants' proposal is easily reconciled with the specification's definition and usage of "increment value." The specification's definition, although less than crystal clear, does provide that "the increment value is the result of multiplying the value of the wagers made by a contribution percentage." ('460 Patent, col. 7:51-53.) In addition, the specification describes the use of a "prior increment value" within the equation for calculating current prize values. (Id. at col. 19:18-38.) In that equation, the prior increment value is added to the minimum prize amount, and that sum is added to a figure that is the result of the multiplication of accumulated wagers with a particular exchange rate, increment percent, and surcharge percent. (Id.) The multiplied portion of the equation appears to be a more detailed version of "the result of multiplying the value of the wagers made by a contribution percent," put forth as the definition of the increment value in the specification as described above. While these equations from the specification may be compatible with Defendants' proposed definition of increment value, without more compelling evidence in support of how they are compatible, we are not persuaded that it should be adopted as a limitation.

Therefore we adopt the definition of progressive prize put forth in the specification at col. 7:50-53, without any of the limitations proposed by defendants.

I. Project Manager

The Plaintiff argues that this term should be construed as "an individual or entity assigned to carry out and be responsible for construction of all or a specified portion of a project," if a construction is necessary. The Defendants propose the construction "the contractor who is responsible for the methods and sequences of construction processes, and for the pavement construction material mixture meeting specifications." This term is found in claims one and thirteen.

While the Defendants argue that this disputed phrase has a specific meaning in the context of the patent, they also concede that the patent does not provide an express definition of this term. The Defendants argue that only contractors perform "quality control" in the context of this patent (an argument rejected above) and that they are responsible for "keeping material processes within specifications." Although it is true that one of the benefits of the patent is described as allowing quality control, the patent never links quality control performance to the project manager beyond his role in the claims or in receiving an email for viewing the final report online. The patent also never limits quality control to a contractor, as discussed above, so the Defendants cannot limit the project manager to a contractor through his supposed role in quality
The Plaintiff cites to a Construction Dictionary and a treatise on Construction Project Administration in support of its definition. These sources, however, depict the project manager as an individual, not as "an individual or entity" as the Plaintiff suggests. The ordinary meaning of the term as it would be to one of ordinary skill in the art is plain with the support of these technical resources.

**Construction:** An individual assigned to carry out and be responsible for construction of all or a specified portion of a project.

3426

C. Projection Format Information (Claims 1, 3, 11, 13)

HP contends that the term means "information sufficient to reproduce later the same view of a 3D model, such as data representing, but not limited to, the orientation, distance, and view angle with respect to the 3D model." In contrast, Intergraph proposes that the term means "data that represents the orientation, near depth, far depth, distance and view angle, of the viewer with respect to the 3D model."

HP's proposed construction attempts to take into account that there are numerous methods available to generate a projection of a 3D model into a 2D view. HP states that two of the most well known methods of projection include "parallel" and "perspective," and each method requires different data or information. HP argues that the '241 patent does not limit the types of projections (and thus information) that can be used to generate its 2D drawings. See '241 patent, col. 6:33-57.

Intergraph's proposed construction purportedly reflects that in order to reproduce a certain view, it is necessary for the projection information to include the "orientation" and "view angle" with respect to the 3D model. Intergraph states that in certain other projections, other data, such as distance, near depth, and far depth will be required. Therefore, Intergraph's proposed construction attempts to encompass the projection information needed for any possible projection. 2

--- Footnotes ---

2 As noted by HP, Intergraph's argument here seems self-defeating. Intergraph states that in order to reproduce a view, only the "orientation and view angle" are necessary. Intergraph also states that such data as "distance, near depth, and far depth" will be required in certain other projections. If Intergraph is correct, and the "orientation and view angle" are the only information necessary to reproduce a certain view, then Intergraph's proposed construction which include information such as "distance, near depth, and far depth" is clearly too broad.

--- End Footnotes ---

The problem with Intergraph's proposed construction is quite clear. While Intergraph's proposed construction attempts to encompass the projection format information required for each possible type of projection, the '241 Patent does not require one particular type of projection. The "exemplary embodiment" of the '241 Patent states that project format information needed for each type of view will be different. See '241 Patent, col. 6:33-57. Accordingly, it would be a mistake for the Court to limit the term "project formation information" to any particular set of parameters. The Court construes "projection data information" as the data necessary to permit a particular 2D representation of a 3D model to be reproduced.

3427

4. "projector means connected to said one or more computers for receiving and projecting said screen video displays onto said display screen" (claim 1)

PolyVision's proposed construction

Smart's proposed construction
An LCD projector panel projected by an overhead projector.
A projector that receives screen video displays from one or more computers and projects the screen video displays onto a display screen, and structural equivalents thereof.

The term at issue is "projector means," although it is unclear whether the parties disagree over the construction of this term. In the chart attached to its claim construction brief, PolyVision stated that the parties were in agreement regarding the construction of this limitation, although the parties' Markman hearing materials addressed this claim term. There is no dispute that this is a means-plus-function limitation and that the specification must be consulted to determine the structure.

The specification discloses that:

An overhead projector 7 is oriented so as to project an image onto the surface of touch-sensitive screen 1. The image is generated by means of LCD projector panel 9 which is connected to the graphics output of the personal computer 5.

(Col. 3, ll. 40-44.) This configuration is shown in Fig. 1, with the LCD projector panel placed on top of the overhead projector. The specification also states that an integrated unit, with the LCD panel incorporated into the projector, would also be within the scope of the claim. (Col. 15, ll. 12-15.) Accordingly, this term is properly construed to mean a structure formed from an overhead projector and a separate LCD panel, an integrated overhead projector/LCD panel unit, and structural equivalents thereof.

4.


Paymentech correctly observes that the patent specifications contain numerous references to the Telepay system. However, while claims must be interpreted in light of the specifications, not everything expressed in the specifications must be read into the claims. See Watson & Chalin Manufacturing, Inc. v. Boler Co., 227 F. Supp.2d 633, 640 (E.D. Tex. 2002), citing E.I. du Pont de Nemours & Co. v. Phillips Petroleum, 849 F.2d 1430, 1433 (Fed. Cir.), cert. denied, 109 S. Ct. 542, 488 U.S. 986, 102 L. Ed. 2d 572 (1988). This is especially true where, as here, the specifications provide that "the embodiments shown herein are intended to illustrate rather than to limit the invention[.]" (Plf. App., Exh. 1 at 16 & Exh. 3 at 42). The court therefore concludes that the definitions of "prompting," "accessing," and "determining" should not be limited to actions performed by any particular person, entity, or device, including the payee's agent's system.

Having resolved this issue, the parties are able to agree on the definitions of two of the three disputed claim terms. BMC and Paymentech both agree that "accessing" means "connecting to." (Def. Resp. Br. at 6; Plf. Reply Br. at 7). The parties also agree that "determining" means "coming to a decision." (Def. Op. Br. at 6; Plf. Op. Br. at 2). Those definitions are consistent with the ordinary and customary meanings of the terms and should be accepted by the court.

The parties disagree as to the meaning of "prompting." Paymentech suggests a definition of "inducing to action." (Def. Op. Br. at 14). BMC argues that the term means "urging or suggesting that information be input." (Plf. Op. Br. at 13). The court declines to adopt the construction proposed by either party. The dictionary defines "prompting" as "causing someone to do something." THE WORLD BOOK DICTIONARY at 1666 (1996). That definition also is consistent with claim language, which describes:

A method of paying bills using a telephone connectable to at least one remote payment card network via a payee's agent's system, wherein a caller places a call using said telephone to initiate a spontaneous payment transaction that does not require pre-registration, to a payee, the method comprising the steps of:
The court should construe the term "prompting" to mean "causing someone to do something."
Accordingly, the Court construes "prompting said first application server" as follows:

"giving a cue to a server running the service application"

1. Determining geographic coordinates corresponding to the property identification data.

The first disputed phrase appears in the 326 patent and is "determining geographic coordinates corresponding to the property identification data." The parties agree that "geographic coordinates" means "latitude and longitude or other coordinate set that defines the position of the property on the earth's surface." The dispute concerns the term "determining.

The plaintiff suggests that the term needs no construction. Alternatively, the plaintiff suggests that the term means "identifying." The defendants contend that the term "determining" means "converting" such that the phrase means "converting" the received property identification data into geographic coordinates. The court rejects the defendants' position. As the plaintiff points out, in other portions of the defendants' brief, the defendants define "determining" synonymously with "identifying." The court agrees with the plaintiff's alternate construction and construes the term "determining" to mean "identifying."

The parties also dispute the meaning of "property identification data." The plaintiff proposes it means "street address, legal address, metes and bounds, latitude and longitude, or the like." The defendants propose that the term means "street address, legal address, or metes and bounds." Contrary to the defendants' arguments, the patent specification does not restrict the term to the examples stated therein. As such, the court construes the term "property identification data" to mean "street address, legal address, metes and bounds, latitude and longitude, or the like."

3. "generating a signal proportionate to the denomination of each validated bill"

Tidel proposes the term means "creating a communication that indicates the value of the bill as read by the bill receiving apparatus." FKI takes a different approach and seeks construction of "signal" and "proportionate" separate from the combined term. The specification provides that after a bill is accepted by the bill validator, "a signal pulse emitting a credit valuation proportionate to the denomination of the validated bill is initiated. . . ." [2:33-39]

Tidel argues the phrase is detailed enough to clearly indicate what it means, therefore, the plain and ordinary meaning of the phrase should apply. FKI proposes "signal" should be construed as "a fluctuating electric quantity, such as voltage, current or electric field, whose variations represent information." FKI argues this construction is the plain and ordinary meaning of "signal" in the electrical arts. FKI's proposed construction is an attempt to limit the signal to an analog signal. The specification makes clear that some electrical "pulse," associated with a particular denomination of a bill, is emitted. FKI comes forward with no meaningful support for its proposition that the signal must be analog.

Next, FKI proposes that "proportionate" means "corresponding in size, degree, or intensity while having the same or a constant ratio." FKI cites to an extrinsic source for the definition of "proportionate": "corresponding in size degree or intensity." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 997 (11th ed. 2003). It argues, however, that "proportionate" requires an additional limitation as it is used in the patent. FKI argues that the term must be construed as to require a constant ratio be maintained between the denomination of the bill and the signal. FKI argues this is because "proportionate" modifies "signal." FKI's argument is unpersuasive and there is no support for this limitation in the specification.

FKI proposes the phrase means "generating a signal that varies some signal attribute (e.g. amplitude or duration) based upon a mathematical relationship with the value of the bill being validated." FKI argues the plain and ordinary meaning of the term "becomes clear" once the constructions of "signal" and "proportionate" are read into this construction. As discussed
above, FKI finds no meaningful support in the specification for its proposed construction. The court, therefore, construes the term "generating a signal proportionate to the denomination of each validated bill" to mean "creating an electrical communication that indicates the value of the bill as read by the bill receiving apparatus."

3. "Proposal"

In its moving papers Walker proffered that the claim term "proposal" be defined simply as "[s]omething proposed." Capital One disputes this assertion and instead offers that the claim term should be defined as "[a] contractual offer." The claim term "proposal" is not used in any of the claims in the '478 patent and it does not appear in the specifications for either of the Walker Patents. The claim term "proposal" does appear in claims 1, 2, 3, 12, 13 and 14 of the '230 patent. During the hearing on May 28, 2010, the court questioned counsel as to why they presented this claim term to the court for construction and the basis for their proposed constructions. During this hearing counsel for Walker conceded that there was no need to construe this term. Counsel for Capital One persisted in arguing for a specific definition of "a contractual offer" claiming that Figure 7 of the Walker Patents supports that construction because as shown in that diagram once the account price has been transmitted to the customer, the customer decides whether the account price is acceptable and if the answer is yes, the customer's credit card is billed for the cost of the new account. The specification does not use the term "proposal" but it does describe a process that after the price information is submitted to the customer, the customer decides whether the price is acceptable and if he accepts the price, the system "can" process the "sale" or alternative methods of payment may be used. ('478 patent, Col. 8:22-38). Nothing in the specification states that the transmission of the price information to the customer constitutes a contractual offer. As argued by counsel for Walker, the acceptance of the price submitted by the customer could then prompt a final credit review by the issuer or the issuer may require actual receipt of payment before entering into a binding agreement.

The claim term "proposal" is a plain English, non-technical term and it derives no special meaning from either the patent or the specification. Neither party has presented evidence that the claim term "proposal" would have any special meaning to a person of ordinary skill in the art at the time of the invention. Any attempt to provide a construction of the claim term "proposal" would only result in the court functioning as a thesaurus and would not be of any assistance to the jury. The claim term "proposal," as it is used in the '230 patent, has its ordinary meaning and it is a term that would be familiar to a lay juror. As such, the court declines to construe the claim term "proposal."

Proposal

"Proposal" is common to both patents, and, although the patents are not related, the parties agree it should be construed consistently for both patents. The Court construes "proposal" to mean "information intended for conveyance to a potential customer." Orion argues the term should be construed as "sales information presented to a customer for promoting a sale." Defendants urge the Court to construe the term as "information to be considered for a potential sale." Thus, according to Orion, Defendants' construction does not limit the term to sales information or to information presented to a customer.

Orion argues its construction reflects the term's plain and ordinary meaning as understood by those skilled in the art. Orion contends that because both patents are for the purpose of selling, the relevant information must be "sales information." Because Defendants' construction does not require "sales information" or presentation to a customer, Orion argues it ignores the inventions' very purposes.

Defendants argue that claim 1 of the 627 patent describes the proposal as containing parts-related information, which Orion's construction ignores. See 627 patent, col. 30:21-22 ("compiling the parts-related information into a proposal"). Defendants also argue that the Summary of the Invention in the 627 patent explains the "computerized system is provided for providing a salesperson with assistance related to . . . sales of parts. . . ."; thus the 627 patent does not require the proposal be shown to a customer. See 627 patent, col. 1:53-55.
The Court agrees with Defendants that Orion's phrase "sales information" is too vague to be helpful. The Court also agrees with Defendants that, based on both patents' claim language and the 627 patent's Summary of the Invention, it is clear that the patents do not require that a proposal is shown to the customer. The Court however agrees with Orion that the patents intend that this information is conveyed to the customer, otherwise it would do little to assist in a sale to a customer. Accordingly, the Court construes "proposal" to mean "information intended for conveyance to a potential customer."

G. "proposed reservation time"

The parties' constructions of this disputed phrase are similar in that they agree that the ordinary meaning of the phrase includes the fact that the reservation time can be accepted or rejected by the patron. (See Pl.'s Resp. to Defs.' Opening Claim Construction Br. at 15.) However, both the Plaintiff and the Defendants propose additional elements in their constructions. Incorporating its construction of "reservation," the Plaintiff claims that "proposed reservation time" means "a time reflective of a position in the virtual queue to be set forth for acceptance or rejection." n4 The Defendants argue that the proper construction of "proposed reservation time" must adequately distinguish between a "proposed" and an "actual" reservation time. Specifically, the Defendants advocate the following construction: "a reservation time that can be accepted or rejected by the patron, and requires an acceptance response from the patron before it becomes an actual reservation." Nothing in the claims or the specification support the Defendants' contention that the construction of this phrase should contain language regarding converting a proposed reservation time to an actual reservation time through patron acceptance. Rather, the fact that "reservation time" is modified by "proposed," i.e., set forth for acceptance or rejection, is sufficient to indicate that the reservation time is merely a requested or pending reservation that is not yet an actual reservation. Although the specification discusses the fact that proposed reservations will be cancelled absent an acceptance response by the patron, it is not necessary to read this limitation into the ordinary meaning of "proposed reservation time." Thus, the Court rejects the second clause of the Defendants' construction and construes "proposed reservation time" to mean "a time reflective of a position in the virtual queue that can be accepted or rejected by the patron."

--- Footnotes ---

n4 The Plaintiff originally construed this phrase to mean "an estimated time reflective of a position in the virtual queue to be set forth for acceptance or rejection." However, the Plaintiff amended its construction to eliminate the "estimated" requirement. (Pl.'s Resp. to Defs.' Opening Claim Construction Br. at 16.)

--- End Footnotes ---

B. Prospective Wagerer

Both parties agree that the term "subscriber" in the claims means "one who wishes to enroll or wager with the system." See Gtech's Sur-reply Claim Construction Brief at p. 2. However, with respect to the term "prospective wagerer," Lottotron submits that, pursuant to the context of the '865 patent, "prospective wagerer" should be construed to mean the same as a "subscriber." On the other hand, Gtech contends that "prospective wagers" are a subset of the category of the individuals who are "subscribers." Particularly, "prospective wagerer" is a subscriber who then goes on to access the system to enter one or more wagers. Based upon the intrinsic evidence, the Court adopts Gtech's definition of this term.

Lottotron submits that based upon the language of claims, "prospective wagerer" is used interchangeably with "subscriber" without any distinction. For example, Lottotron cites to claim 8 of the '865 patent, which reads in relevant part, "receiving incoming communications from prospective wagers and routing each of said communications according to which one of said plurality of different wagering formats is requested by a subscriber." '865 patent, col. 12, ll. 38-41. Lottotron contends that the if the two terms were to have different meanings, it would render the claim language illogical because "subscriber"
and "prospective wagerer" would be two different users both accessing the system at the same time. The Court finds this argument unpersuasive and insufficient to demonstrate the meaning of the term. Under Gtech's proposed definition, a "prospective wagerer" is simply a subset of "subscriber." Therefore, it is consistent for a "subscriber" user, who has enrolled with the system, to call in to make a wager. The Court finds that the ordinary meaning of the term "prospective wagerer" controlling.

The term "prospective wagerer" is not used in the specification, but its ordinary meaning is consistent with the specification's use of the synonymous phrase "subscribers who wish to wager with the system" described in the specification. For instance, in the "Summary of Invention" section, the patentee specifically references "subscribers who wish to enroll with the system, and for receiving incoming wagering calls from subscribers who wish to wager with the system." '865 patent, col. 2, ll. 5-9. This statement specifically differentiates between users that "wish to enroll" and users that "wish to wager." Although both parties agree that "subscribers" are users that wish to enroll and wager with the system, the Court finds that to afford "prospective wagerer" the same meaning as "subscribers" would render this statement meaningless. More importantly, without explicitly defining the "prospective wagerer" in the specification, the Court is to accord the plain and ordinary meaning of the term "prospective wagerer"; simply put, a subscriber who has enrolled [not who simply wishes to enroll] and "wish[es] to wager." Accordingly, based on the foregoing reasons, the Court construes the term "prospective wagerer" to mean "a subscriber who then goes on to access the system to enter one or more wagers."

7. "password protecting the entries" (claim 1) and "password protecting the entry" (claims 4 & 7)

The plaintiff contends that this term means "that the database entry or entries are protected by a word, string of characters and/or numbers which must be supplied before a user can create, access, or update an entry." The defendant proposes that the term should be construed to mean "restricting access to the data by means of a password." Plaintiff's proposed construction asks the court to import a variety of limitations from the specification to the claim language. Specifically, Plaintiff asks the court to limit "password protecting" the entry or entries such that a password is required to access, update, or create a database entry. But the patent states that users are asked to choose a password and that the password "may be required to access some system services." 7:60-67.

The claims make it clear that the password must be used to "protect" the database entries. The court is persuaded that Defendant's proposed claim construction "restricting access to the data by means of a password" is consistent with the plain meaning of "protecting" without importing additional unsupported limitations from the specification. Accordingly, the court construes this term to mean "restricting access to the data by means of a password."

2. "protection circuit"

Claim 1 of the '054 Patent refers to a "protection circuit." Philips asserts that this term should be construed as "a circuit for protecting the steering circuit from a fault condition by selectively controlling the delivery of therapeutic electrical energy from the storage circuit to the steering circuit." Cardiac Science contends that a "protection circuit" is "a circuit that limits energy delivery from the storage circuit to the steering circuit and discharges or otherwise disarms the storage circuit in the event of a fault condition."

The specification describes the preferred embodiment as follows:

The protection circuit 48 (shown in FIG. 3) functions to limit energy delivery from the ESC 42 to the steering circuit 46 (and hence to the patient) and to discharge or otherwise disarm the ESC 42 in the event of a fault condition. ('054 Patent at c. 5, ll: 6-9.) Yet, the specification also states, more broadly, that "the protection circuit may include a limit
circuit that limits the rate of delivery of the electrical energy from the storage circuit to the steering circuit." (Id. at c. 2, ll: 60-62.) Dependent Claims 2 and 9 also appear to offer alternate embodiments: Claim 2 including a disarm circuit and Claim 9 including a disarm circuit and a limit circuit. The doctrine of claim differentiation would provide that Claim 1, the claim from which Claims 2 and 9 depend, is broader and encompasses both of the constructions of Claims 2 and 9 -- a disarm circuit alone, or a disarm circuit plus a limit circuit. Based on this language from the specification, the Court finds that both ways of protecting -- the disarm circuit and the limit circuit -- are not required elements of the protection circuit. Philips' proposed construction encompasses this notion. (Id. at c. 2, ll: 55-57 ("The protection circuit selectively controls the delivery of the electrical energy from the storage circuit to the steering circuit.").) For these reasons, the Court construes "protection circuit" as "a circuit for protecting the steering circuit from a fault condition by selectively controlling the delivery of therapeutic electrical energy from the storage circuit to the steering circuit."

3439

The Claim Construction Order issued by this Court construed the term "protection MOSFET" as "a MOSFET connected to a circuit in such a way that it tends to prevent one or more circuits from undergoing electrostatic breakdown." Order, Feb. 14, 2006, at 10:17-18.

3440

Protective MOS transistor

The Court agrees with MEI and construes the term as "a MOS transistor that provides a discharge path for current to flow from the first power supply terminal to the second power supply terminal when activated by a voltage on the drain that exceeds a predetermined level." Samsung argues that the term should be construed as "a MOS transistor that shunts the surge/ESD event by the breakdown of the MOS transistor due to the punch-through effect."

Both parties agree that the protective MOS transistor provides a discharge path or shunts current. Samsung's proposed construction limits the claim to "punch-thru effect" MOS breakdowns. Samsung argues that the patentees disclaimed breakdown of the MOS by avalanche effect in statements made during patent prosecution. See '588 Pros. Hist., June 3, 1992 Amendment at 9 (Docket No. 120, Exh. 9). The applicants' discussion of punch-through effect in the prosecution history is not a clear disclaimer of claim scope for numerous reasons. First, the patent specification shows a MOS transistor configured to operate in an avalanche mode. See '588 Patent Fig. 5. Second, the applicants' statements that the MOS transistor could operate in "punch-through" mode were not critical to distinguishing the claimed invention over the prior art, and the applicants never limited the MOS transistor to operating in the punch-through mode. See Pros. Hist., June 3, 1992 Amendment at 9-10 (distinguishing Armstrong prior art reference as capable of operating in avalanche mode only, whereas applicants' invention was capable of operating in punch-through mode).

3441

Protective transistor

The Court agrees with MEI and construes the term as "a transistor which provides a discharge path for current to flow between the first power supply wire and the second power supply wire when activated." This term simply refers to a single one of the "plural protective transistors" of claim 2. See '588 col. 9:3-14; col. 10:10-13.

Footnotes

5 In the parties' Joint Claim Construction Charts, MEI's proposed construction is listed as "a transistor which provides a discharge path for current to follow between the first power supply wire and the second power supply wire when activated." However, MEI's brief and its construction of "plural protective transistors" use the word "flow" rather than "follow." Accordingly, the Court construes the term as stated above using the word "flow."
a. "Protocol"

Claims 1, 13, 18, 23, and 27 of the '539 Patent disclose a "protocol" in various contexts. The claim language teaches that different "protocols" are associated with different devices. See, e.g., '539 Pat. col.10 ll.2-7 (describing a "controller" with a "controller command protocol," a "first remotely controllable surgical device" with a "first command protocol," and a "second remotely controllable surgical device" with a "second command protocol"); id. at col.10 ll.9-13 (describing an "interface" for "converting the controller command protocol to the first and second command protocols").

KSEA argues that "protocol" should be construed as a "set of rules governing the communication and/or transfer of data." (Proposed Constructions Chart 9.) S&N contends that it should be construed as a "set of rules governing the exchange of information between electronic devices; the touchscreen controller uses a protocol that is different from the protocols used by the first and second remotely controllable surgical devices." (Id.)

The Court adopts KSEA's proposed construction. S&N has not established why it is necessary at this time to restate the claims' teaching that the touchscreen controller's "protocol" is different than the remotely controllable surgical devices' "protocols." Claim construction "is not an obligatory exercise in redundancy." U.S. Surgical Corp., 103 F.3d at 1568. The Court construes "protocol" as a "set of rules governing the communication and/or transfer of data."

(a) Protocol Data Unit (PDU) Network Policy

StorageTek's proposed construction is "network policies are rules and procedures that govern PDUs. Examples of PDUs are data packets, cells, or frames which contain voice, video, or data information." Cisco's proposed construction of PDU network policy is "a filtering or auditing rule which determines if and why a PDU should be forwarded, not where a PDU should be forwarded." The main dispute between the parties is whether the "network policies" of the 040 patent include policies directing where a PDU packet should be forwarded or are limited to policies that determine if and why a PDU should be forwarded.

Cisco argues that a network policy in the 040 patent is limited to filtering or auditing rules. 9 To supports its argument, Cisco cites to portions of the specification discussing enforcement of "network policies" by filtering and/or auditing packets to ensure network security. StorageTek accuses Cisco of citing to portions of the specification discussing the preferred embodiment of the 040 patent, thus attempting to impermissibly read limitations from the preferred embodiment into the broader claim language, and of ignoring the broad definitions of "network policies" given in the background to the invention section of the patent. See 040 Patent Col. 1, In. 22-26; Col. 2, In. 9-13 (defining communications network policies as "routing, bridging, switching, filtering, and auditing functions"); Hughes Decl., PP 9-10, 19. However, Cisco also cites to the section of the patent discussing the "summary of the invention," as opposed to the general technological background of the invention, which refers to examples of network policies appropriate for caching as filtering and/or auditing policies. See 040 Patent, Col. 2, In. 61-Col. 3, In. 1. The summary of the invention describes how the "instance of policy network policy is performed by filtering or auditing the related-received PDUs." Id., Col. 3, In. 9-11. 10

9 In the summary of the invention portion of the patent, the patent provides examples of network policies including "filtering (e.g., forward or not forward the PDU) and/or auditing (e.g., send a copy of the PDU to a third party)." 040 Patent, Col. 2, In. 65 -- Col. 3, In. 1.

10 The Court notes that Cisco's expert, Dr. Smith, states that "one of ordinary skill in the art would understand in the context
of the 040 patent that the terms network policy, PDU network policy and policy refer to a specific type of rule -- i.e., a filtering or auditing rule." Smith Decl. P 21.

Additionally, in support of its claim construction Cisco relies on the prosecution history of the 040 patent. In distinguishing the 040 patent from the prior art, the patentee asserted:

Unlike a bridge, which analyzes source or destination addresses to determine where data should be forwarded, the present invention more broadly analyzes the content of the PDUs in order to perform filtering and auditing functions which determine if and why data should be forwarded. In addition to source and destination addresses, information which can be filtered includes network protocol, transport protocol, source and destination ports, and security options.

See Declaration of Thomas A. Lewry in Support in Support of StorageTek's Proposed 040 Claim Construction ("Lewry 040 Decl."), Exh. 3, 11/4/97 Amendment and Response at 3 (emphasis in original). StorageTek argues that this statement demonstrates that the invention has more functionality than just a bridge, and that "in addition" to determining "where" data should be forwarded, the invention also determines "if and why" the data should be forwarded. However, this statement clarifies that the invention "more broadly analyzes" the PDU to perform "filtering and auditing functions." The "in addition to" signifies that source and destination address information can be used, not to determine where to send the PDU, but in the filtering and auditing of the PDU. Therefore, the prosecution history does not support StorageTek, but supports Cisco's proposed construction. 11

Finally StorageTek argues that to interpret "network policies" as limited to filtering and auditing rules would violate the doctrine of claim differentiation. Under the doctrine of claim differentiation "there is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." U.S. v. Telecommunications, Inc., 857 F.2d 778, 783-84 (Fed Cir. 1988) (quoting Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed.Cir. 1987)). StorageTek points out that network policies are specifically limited to filtering and auditing in claim 8 of the 040 patent. See StorageTek Reply Brief in Support of its Proposed 040 Claim Construction ("StorageTek 040 Reply") at 5. 12 Therefore, StorageTek argues that it would be improper, under claim differentiation, to limit the scope of "network policies" in claim 1 to the same scope as in claim 8.

Finally StorageTek argues that to interpret "network policies" as limited to filtering and auditing rules would violate the doctrine of claim differentiation. Under the doctrine of claim differentiation "there is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." U.S. v. Telecommunications, Inc., 857 F.2d 778, 783-84 (Fed Cir. 1988) (quoting Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed.Cir. 1987)). StorageTek points out that network policies are specifically limited to filtering and auditing in claim 8 of the 040 patent. See StorageTek Reply Brief in Support of its Proposed 040 Claim Construction ("StorageTek 040 Reply") at 5. 12 Therefore, StorageTek argues that it would be improper, under claim differentiation, to limit the scope of "network policies" in claim 1 to the same scope as in claim 8.

12 StorageTek admits that claim 11 limits the policies to filtering and auditing. See StorageTek's Claim Construction Slides, Exh. 36; StorageTek 040 Brief at 13. Claim 11 recites a "policy caching method for use in a communication device, comprising steps of . . . (f) performing the instance of network policy by filtering or auditing the stream of PDUs."
reference to filtering and auditing in claim 8 superfluous in violation of the claim differentiation doctrine, because the scope of claim 1 is different from the scope of claim 8. Claim 1 addresses the "determination" of a network policy. Claim 8, however, claims the "policy caching method of claim 4 further compromising a step of performing the instance of network policy by filtering or auditing the stream of PDUs." (emphasis added). A consistent interpretation of "network policies" in claim 1 and claim 8 would not make claim 8 superfluous, since claim 8 includes the additional step of performing the identified policies.

13 Cisco also argues that even if the doctrine of claim differentiation could apply in this instance, the Court does not have to "blindly" apply that doctrine when application would conflict with proper construction of the claims given the claim language, the specification, and the prosecution history, all of which support a definition of network policy limited to filtering and auditing rules. See Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc., 246 F.3d 1368 (Fed. Cir. 2001) (declining to "blindly apply the doctrine in this case to supplant other canons of claim construction").

The Court finds that "network policy" as used in the 040 patent is limited to filtering and auditing rules based on the use of this term in the specification and in the prosecution history. 14 Therefore, the Court construes this element as:

"protocol data unit (PDU) network policy" means a filtering or auditing rule which determines if and why a PDU should be forwarded.

14 On August 16, 2001, StorageTek submitted to the Court two documents filed by Cisco with the PTO: a patent application and an interference request form seeking an interference between Cisco's patent application and the 040 patent. See Plaintiff's August 16, 2001 Letter Brief. StorageTek points out that in its application, Cisco defines "policy treatment" as including switching, access control, accounting, encryption, and any other special treatment for packets. See Exhibit 1 at C025089-90. In the request for interference, Cisco asserts that the "term policy treatment' of the application claim is equivalent in meaning to the term network policy' as used in the Hughes et al. patent claim." Exhibit 2 C0250721. StorageTek argues that this demonstrates, contrary to Cisco's argument to this Court, that "network policies" include switching and other policies. Cisco responds that it did not represent that the terms were "synonymous," as it did in the following sentence with respect to another term, but that the terms were "equivalent." Because the terms are only equivalent, Cisco asserts that the term "policy treatment" can still be broader in scope than "network policy" for purposes of an interference proceeding. See Defendants' August 20, 2001 Letter. However, even assuming that Cisco's admission of "equivalence" can be equated with an assertion that the terms are coextensive or synonymous, the Court will not rely on this extrinsic evidence in construing the claim language at issue. The minimal relevance of this extrinsic evidence does not outweigh the clear intrinsic evidence that StorageTek limited "network policies" to auditing and filtering rules.

The sole claim construction issue with respect to claims 14 and 23 of the '170 patent is whether the "protocol data unit processor" (or "first processor" in claim 23), which adds "next operation information" to the packet header, and the "forwarding processor" (or "second processor" in claim 23), which forwards the packet based on the added next operation information, must be part of the same forwarding device. StorageTek contends that the district court erred in interpreting the term "forwarding device," which appears only in the preamble of each claim, to be a limitation. In StorageTek's view there is no "forwarding device," and the two processors recited in the claims may be anywhere in the communication network.

In this case, we agree with the district court that the preamble term "forwarding device" limits the claims. The written description emphasizes that a key benefit of the invention is that the use of the next operation information within a forwarding device reduces the processing otherwise performed by the forwarding device. For example, the "Summary of the
"Invention" states that "a protocol data unit preprocessor is used in a protocol data unit forwarding device... such that subsequent processing of the protocol data unit by the protocol data unit forwarding device is reduced." '170 patent, col. 4, l. 64 - col. 5, l. 11 (emphasis added). Figure 2 of the patent shows a forwarding device 100 that contains preprocessor 104 and forwarding processor 108. Because the written description makes it abundantly clear that the preprocessor and the forwarding processor are part of a single forwarding device, the term "forwarding device" in the preambles of claims 14 and 23 limits the scope of the claims such that both processors must be contained within one forwarding device. See Catalina Mktg., 289 F.3d at 808, 62 USPQ2d at 1785 ("When reciting additional structure or steps underscored as important by the specification, the preamble may operate as a claim limitation.").

The prosecution history supports the district court's claim construction. Claims 14 and 23 as originally filed contained the phrase "such that subsequent processing of the protocol data unit by the protocol data unit forwarding device is reduced," referring back to the "forwarding device" recited in the preamble. Had the claims issued in that form, the term "forwarding device" unquestionably would have been a limitation. See id. ("Dependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention."). The patent applicants, however, deleted that phrase in an amendment during the course of prosecution. In some circumstances that deletion might have removed the "forwarding device" as a limitation, because it is the claims as allowed that we must examine. See Intervet, 887 F.2d at 1054, 12 USPQ2d at 1477. Nevertheless, we are not persuaded by StorageTek's argument that removal of the reference to "forwarding device" eliminated any limiting effect of the preamble. The reason is that in their remarks accompanying the amendment, the applicants stated that, in response to an indefiniteness rejection, the language was deleted as unnecessary "because the use of the added next operation information by the forwarding device is recited as part of each claim." (Emphasis added.) Because the claims recite the use of the next operation information by the forwarding processor (claim 14) or second processor (claim 23), it follows that the applicants considered the forwarding processor or second processor to be part of the forwarding device recited in the preamble, which therefore operates as a limitation upon the claims.

The applicants also relied on the existence of a "forwarding device" in distinguishing their invention over prior art. In comparing the claimed invention to the Johnston reference, the applicants stated: "Instead of being part of a forwarding device in a communication network as required by the present invention, the ATM/AAL interface of Johnston et al. is more aptly characterized as an interface device." (Emphasis added.) The passage goes on to allege that there is no teaching or suggestion in Johnston of a preprocessor that "will modify media header information by inserting next operation instructions so as to decrease the amount of processing that would otherwise be required to be performed by the primary processor in the forwarding device." (Emphasis added.) These statements further support the district court's conclusion that the term "forwarding device" is a limitation of the claims and that both processors recited in the body of claims 14 and 23 are part of the forwarding device. See Catalina Mktg., 289 F.3d at 808, 62 USPQ2d at 1785 ("Clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention.").

We also reject StorageTek's argument that even if the claims require both processors to be contained in a forwarding device, the term "forwarding device" can be interpreted broadly to include a data communication network or the Internet itself. The '170 patent provides as examples of forwarding devices a data packet switch, a bridge, and a router. '170 patent, col. 1, ll. 31-32; col. 2, ll. 14-15. There is no suggestion in the claim language or the written description that the term could refer to an entire network.

Because we affirm the district court's claim construction, and it is undisputed that in Cisco's MPLS technology the alleged "next operation information" is added by one network device and used by a second, downstream network device, we affirm the district court's grant of Cisco's motion for summary judgment that it does not literally infringe the '170 patent.

We also affirm the district court's judgment regarding infringement under the doctrine of equivalents. In particular, we agree with the district court that prosecution history estoppel bars StorageTek from arguing that Cisco's MPLS technology contains an equivalent of the forwarding device recited in claims 14 and 23 of the '170 patent. As discussed above, during prosecution the applicants clearly stated that the next operation information added by the preprocessor is used to reduce the processing time of the processor in the forwarding device. StorageTek cannot now assert that the existence of a forwarding device containing both processors is unnecessary and that any communication network may be the equivalent of a forwarding device. See Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1350, 63 USPQ2d 1769, 1776 (Fed. Cir. 2002) ("[Prosecution history] estoppel also may be found on the basis of arguments made during prosecution of the
CONCLUSION

The district court erred in its claim construction of the terms "caching policy identification information" and "protocol data unit (PDU) network policy" in the '040 patent. Accordingly, we vacate the district court's grant of summary judgment of noninfringement of the '040 patent and remand for further proceedings consistent with this opinion. The district court, however, properly granted summary judgment of noninfringement of the '170 patent. Finally, the United States District Court for the Western District of Wisconsin did not abuse its discretion when it transferred the case to the Northern District of California.
Defendant asks the court to construe the following phrase in claim 38:

wherein the initial voice guidance, the advance voice guidance and the confirmation voice guidance provide different prompts to provide specific guidance when the decision point is within an initial guidance range, within an advance guidance range, and within confirmation guidance range.

Defendant proposes a construction of this phrase to link the initial voice guidance more explicitly with the initial guidance range, the advance voice guidance with the advance guidance range and the confirmation voice guidance with the confirmation guidance range. (Defendant's proposed construction is: "wherein the initial voice guidance is provided when the decision point is within the initial guidance range, the advance voice guidance is provided when the decision point is within the advance guidance range and confirmation voice guidance is provided when the decision point is within the confirmation voice guidance range.") I agree with plaintiff that the phrase is clear and unambiguous and no judicial construction is necessary.

GO BACK

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(3) Provide Power to Said Power Meter

The parties next dispute the appropriate construction of the phrase "provide power to said power meter," which appears in both the '364 and the '934 patents. The '364 patent claims, among other things,

41. A revenue meter for measuring the delivery of electrical energy from an energy supplier to a consumer through an electric circuit, said meter comprising:

  bayonet terminals disposed on said meter mateable with matching jaws of a detachable meter mounting device;

  a seal connected between said meter and said detachable meter mounting device, said seal operative to prevent removal of said meter and indicate tampering with said meter;

  a first power supply coupled with said electric circuit and operative to provide power to said meter from said electric circuit under normal operating conditions;

  a second power supply operative to provide power to said meter when a power quality event occurs on said electric circuit, said second power supply including:

    at least one first capacitor coupled with said electric circuit and operative to store electrical energy from said electric circuit; and

    at least one second capacitor coupled with said at least one first capacitor and said meter and operative to store electrical energy from said electric circuit;

  said first and second capacitors further operative to provide said energy to said meter when said power quality event occurs.

U.S. Patent No. 6,792,364 B2, col. 43, lines 21-45.

Square D contends that the phrase "provide power to said power meter" should be construed to mean "provide power to the power meter"; EI argues that the phrase should be construed to mean "provide operating power to said meter sufficient to meet the energy requirements of the meter to continue monitoring and data storage." The dispute thus centers on whether the plain language of the claim requires a specific, or threshold, amount of power. The Court finds that it does not. To be sure, the patentee knew how to include claim language specifying a particular threshold of power; indeed, in claim 41 of the '364, the patentee did just that: the plain language of the claim discloses a first power supply, which must provide enough power to run the meter under normal operating conditions, and a second power supply, which must provide enough power to operate the meter when a power quality event occurs. U.S. Patent No. 6,792,364 B2, col. 43, lines 31-37. Here, he chose not
to do so. Accordingly, the Court will not limit the claim language "provide power to said meter" to require a specific or threshold amount or level of power, other than as specified in the plain language of the claims.

4. "The speech synthesis system provides a message to the surgeon stating information about the movement of the surgical camera." Requires synthesized speech informing the surgeon about the movement of the surgical camera.

In the Markman hearings, Defendant urged the Court to construe the word "providing" to mean "making the generated form available to the user." The Court rejected that construction and agreed with Plaintiff that the term "is an everyday word[] used in [its] ordinary, everyday sense and, thus, [it] need[s] no construction." In particular, Defendant argues that uploading the applicant information to a student-information system requires colleges to convert the flat-file format provided by the XAP System into a relational database format or a proprietary database format for use in the colleges' student-information systems. Defendant points to the expert opinion of Justin Tygar, Ph.D., to support Defendant's proposition that the XAP System does not provide information in a format specified by the institution.

The parties first focus on Step 2 of Claim 10 of the '874 patent. This step, and the following step to which it is linked, read:

providing said individuals with electronically programmable token dispensers capable,

upon the request of individual ones of said individuals, of dispensing a token having value to said requesting individual, said value being available upon the performance of said act and upon surrender of said token,

VTB construes the term "electronically programmable token dispensers" to refer to an article of hardware for printing a hard copy record such as a coupon. See Defendant's Local Rule 56.1 Statement of Undisputed Facts ("Def. 56.1") P 4; Def. Mem. at 11. VTB maintains that it has never provided its customers with electronically programmable token dispensers. See 06/17/05 Declaration of Elisabeth B. Robert, President and Chief Executive Officer of The Vermont Teddy Bear Co., Inc. ("Robert Decl.") P 3–4. Further, VTB asserts that it had no involvement with its prospective customers when they obtained token dispensers. See Def. Mem. at 13.

AI accepts VTB's construction of "electronically programmable token dispensers" for purposes of this motion for summary judgment of non-infringement. See Plaintiff's Local Rule 56.1 Statement of Undisputed Facts ("Pl.56.1") P 4; Pl. Mem. at 7. To the contrary, AI asserts that the genuine issue of fact is that VTB had a direct connection to each and every prospective customer, and that VTB's promotion of an online coupon for a free factory tour induced its web site visitors to provide their own computers and printers to print the coupon in question. See Pl. Opp'n at 6-9.

The parties' dispute hinges on the meaning of the term "providing." Unfortunately, neither party offers a construction of this
term, but it appears that VTB interprets "providing" narrowly to mean "supplying newly-acquired [equipment]," that is, that customers "provide" equipment when they purchase or obtain computers and printers they did not previously possess, or to which they did not previously have access. To the contrary, AI reads the term broadly to mean "making available already-acquired [equipment]," that is, that customers "provide" equipment when they make use of computers and printers they already own, or to which they already have access. Because the ‘874 patent does not explicitly define the meaning of the term "providing," and neither party argues that the term has an established specialized meaning in technical dictionaries, encyclopedias, or treatises of the relevant field of art, a standard English dictionary is a proper resource to understand the ordinary and accustomed meaning of this term. The most closely applicable definition of "provide" in The Oxford English Dictionary is "to supply or furnish for use." Id. (2d ed. 1989). The American Heritage Dictionary offers the definitions "to furnish; supply" or "to make available." Id. (4th ed. 2000). Neither dictionary requires that the thing supplied, furnished, or made available be newly acquired. Therefore, for purposes of this motion, I construe the term "providing" to mean "furnishing, supplying, or making available already-existing [equipment]." Nothing in the specification of the ‘874 patent contradicts this construction. This construction supports AI's argument that Step 2 of Claim 10 of the ‘874 patent is satisfied by VTB's customers supplying or making available their already-acquired computer systems and printers to print VTB's factory tour coupon.

14. "Providing": "Supplying." The crux of the invention is presenting information (via thumbnail images) to the user, not simply transmitting these images. 4 (See Abstract ("A method and system for presenting internet information to a user. . ."); col. 1, ll. 10-15 ("The present invention relates to internet methodologies and systems generally and more particularly to systems and methodologies for displaying information received over the internet.")). Neither is Yahoo's advocated definition of "displaying" correct; the drafters specifically used that term to impart information regarding the location of the visual image (versus the supply of that image). (Compare claim 1 with claims 2-4) Further, an image server ("that stores and provides said thumbnail visual image") cannot "display" images itself, but it can "supply" them. (See, e.g., claim 1) Finally, the drafters consistently referred to providing web pages or visual images "via the internet" or "over the internet," indicating that content moves over the internet from a remote server to a user's computer. (See claims 1, 8, 12, 18, 25, 29, 35, 46; col. 2, ll. 5 & 17; col. 3, ll. 33 & 45-46; col. 5, l. 47; col. 6, ll. 2 & 6) This is further indication that "providing" implicates the "supply" (or movement) of information, in contrast to simply the "display" or "making available" of information as plaintiff suggests.

4 At oral argument, Snap argued that the image server is "transmitting" the thumbnail visual image to the browser for rendering and display.

IT IS ORDERED that the court's memorandum order dated September 15, 2009 is hereby revised to reflect that the following limitation of U.S. Patent No. 6,864,904 ("the '904 patent") shall be construed consistent with the tenets of claim construction set forth by the United States Court of Appeals for the Federal Circuit in Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005), as follows: "Providing to a user a visual image of a web page" and "providing [to a user] a thumbnail visual image" means "displaying to a user a thumbnail visual image."

During claim construction, the parties traversed different meanings of the term "providing" as it appears in the '904 patent claims. The court construed "providing" as "supplying." Upon additional review, however, the court believes that "providing" cannot be isolated from the remainder of the relevant phrase. The terms "providing to a user a visual image or a web page" and "providing [to a user] a thumbnail visual image" require definition commensurate with the disclosure of the '904 patent.

The '904 patent discloses a web browser as being the mechanism by which an annotated web page is provided to a user. (e.g., col. 2, ll. 19-24; Figs. 1 & 2; col. 5, ll. 48-50) "Providing to a user a visual image or a web page," therefore.
contemplates the use of a web browser (and display screen).

More specifically, the specification provides that visualization functionality 103 "download[s]" "via the image server 104 from the image database 106 images of web pages referenced in hyperlinks" on the web page and then "provide[s] to a user, via the web browser 100," an annotated web page also displaying the thumbnail visual images. (col. 5, II. 59-65 (describing Fig. 1); see also col. 6, II. 24-31 (describing Fig. 2)) In one embodiment (Fig. 1), the visualization functionality (itself) "download[s]" the images; in another (Fig. 2), the visualization functionality sends commands to the web browser which "download[s]" the images via the image server. (Id.) The images are generally stored in the image database prior to retrieval; the patent teaches, however, that the image server may also "store" the images before they are "provid[ed]" to a user. (See, e.g., claim 1 (image server "stores and provides" the thumbnails; col. 11, I. 8 (image server has at least 1 GB of its own memory)) It is unclear from the specification for how long the image server may "store" the image before it is "provid[ed]" to the user. The claims require that the thumbnail is "provided" "at least partially concurrently" with the original web page, thereby contemplating that the image server may hold the image for some amount of time prior to relaying it to the user via the web browser. 1

--- Footnotes ---

1 The web browser receives HTML and, essentially, translates a web page for viewing. (col. 5, II. 43-53) There is no indication that the web browser has any storage capabilities.

--- End Footnotes ---

Upon further study, it is the court's conclusion that the invention is directed to the (at least partially concurrent) display of images to the user, as compared to the (at least partially concurrent) rendering of images for a user's (perhaps future) viewing. The invention is consistently described as a methodology for "displaying" information for a user's benefit. (See, e.g., col. 1, I. 14; col. 1, II. 39-41) The claims are drawn to the user's vantage point ("presenting internet information to a user"), as compared to describing the underlying system by which images are (concurrently) rendered by the web server and image server (via the web browser) for viewing. The term "providing [to a user] a thumbnail visual image" is construed, therefore, as "displaying to a user a thumbnail visual image."

**3453**

C. Ref. No. 8 "Provides" and "Providing."

These terms are recited in Claims 1, 21, 42, 49, 54, 82, and 83.

The parties agree that the terms "provides" or "providing" as used in Claims 1, 42, and 83 mean "generating or creating." Defendants propose that the same construction should also be applied to the terms as used in Claims 21, 49, 54, and 82. Plaintiff contends that in the latter claims the terms mean "making available a tangible medium with a voting record and/or a unique voting session identifier for review."

The disputed terms used in Claims 1, 42, and 83 each involve supplying a voting session identifier and, in Claim 1, a voting record. In Claims 21, 49, 54, and 82, the term refers to supplying a receipt or paper.

There is "a presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from reviewing the specification and prosecution history that the terms have different meanings at different portions of the claims." PODS, Inc., 484 F.3d at 1366 (quoting Fin Control Sys. Pty. Ltd., 265 F.3d at 1318). Nothing cited in Plaintiff's supporting evidence makes it clear to the Court that the terms have different meanings when used at different portions of the patent. In the context of the disputed claims, generating or creating is a logical and rational meaning for "provides" and "providing."

Accordingly, the Court construes the terms "provides" and "providing" in Ref. No. 8 to mean "generating" or "creating."
8. Claim 5 -- "Providing to Said User Station Map/Subscriber Electronic Information"

Defendants contend that Claim 5 is comprised of step-plus-function limitations controlled and limited by 35 U.S.C. § 112 P 6 and the precise embodiments and specifications of the claim. CIVIX disagrees and asserts that Claim 5 is a method claim and not limited by Section 112. I disagree with Defendants' characterization of this claim as steps-plus-function and hold Claim 5 to be one of method.

35 U.S.C. § 112 P 6 states, in relevant part:

An element in a claim for a combination may be expressed as a . . . step for performing a specified function without the recital of . . . acts in support thereof, and such claim shall be construed to cover the corresponding . . . acts described in the specification and equivalents thereof.

35 U.S.C. § 112 P 6; see also O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1582-1583 (Fed. Cir. 1997). However, this paragraph "is implicated only when steps plus function without acts are present." Id. at 1583. The paragraph allows that "an element in a combination method or process claim may be recited as a step for performing a specified function without the recital of acts in support of the function." Id. The price for this convenience is limitation of the claim to the steps specified in the written description and equivalents thereof. Id. However, merely claiming a step or even a series of steps without recital of a function does not implicate 35 U.S.C. § 112 P 6.

Claim 5 reads, in pertinent part:

A method for identifying the location within a predetermined region of a selected group of a set of a plurality of subscribers relative to the location of a user station comprising,

- providing to said user station map electronic information representing a map of said predetermined region around said user station,

- providing to said user station subscriber electronic information representing the location and at least one characteristic for each subscriber of said set of subscribers,

- said at least one characteristic being common to the members of a group,

- selecting at said user station at least one of said characteristics as a group characterization identifying a group of said subscribers,

- searching said subscriber electronic information with respect to said group characterization,

and providing said map at said user location displaying the locations of members of said selected group identified by said group characterization relative to the location of said user station.

Defendants contend that the emphasized elements of this claim, beginning with the terms providing, providing, selecting, searching, providing, constitute steps-plus-function limitations. 35 U.S.C. § 115 P 6. I disagree. Although not determinative, the term "step for" does not appear in this method claim. See Seal-Flex, Inc. v. Athletic Track and Court Construction, 172 F.3d 836, 849 (Fed. Cir. 1999) (Rader, J., concurring) (holding that only the words "step for" raise the presumption that 35 U.S.C. § 112 P 6 applies). Further, this method claim is not composed of steps aimed at performing a specified function.

The Federal Circuit addressed an analogous situation in O.I. Corp., 115 F.3d at 1576. This case involved a method claim that read, in pertinent part:

A method for removing water vapor from an analyte slug passing between a sparge vessel, trap and gas chromatograph, comprising the steps of:
(A) passing the analyte slug through a passage heated . . . ;

(B) passing the analyte slug through the passage that is air cooled . . . .

The Federal Circuit rejected the Defendants' arguments that both "passing" limitations were part of a means plus function limitation. The Court stated,

Claiming a step by itself, or even a series of steps, does not implicate 35 U.S.C. Section 112, P 6 . . . . If we were to construe every process claim containing steps described by an "ing" verb, such as passing, heating, reacting, transferring, etc. into a step-plus-function limitation, we would be limiting process claims in a manner never intended by Congress.

Id. at 1583. I find no reason here to limit Claim 5's terms by 35 U.S.C. 112 P 6. Thus, I reject Defendants' contention that "providing to said user station map electronic information" is limited to only the eight acts specified by Defendants and present as specifications in the patent. I further reject the contention that "providing to said user station subscriber electronic information," is limited to the specified six acts. Instead, I construe the term "providing" in both phrases according to its ordinary usage, "supplying for use." Websters' Third New International Dictionary, p. 1827. Nothing in the '170 patent suggests a different meaning. In all the embodiments discussed in the specification, map and subscriber electronic information is supplied to the user station by loading this information into the user station. Likewise, the act of "providing" a map to a user at a user station is limited as it was above, through the element of a printer.

For these reasons, I reject Defendants' contention that the terms within this claim are limited to specific acts within the '170 patent. Instead, I construe the term "selecting" according to the specification which provides that the step of selecting at least one desired characteristic at a user station merely requires the entry of one or more desired characteristics to interrogate a database. Although the preferred embodiment represents the pressing of a single key representing at least one desired characteristic, limitations from these precise embodiments should not be read into the claim. See, e.g., Burke, Inc., 183 F.3d at 1341 ("an attribute of the preferred embodiment cannot be read into the claim as a limitation."). "In the absence of ambiguity, it is fundamental that the language of a count should be given the broadest reasonable interpretation it will support." Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 500 (Fed. Cir. 1997).

Likewise, I find that the ordinary meaning of "searching" in database technology applies, such as "querying" a database. (Oxman Declaration, P 13). This is supported by the specification: "A user activates the apparatus by pressing one of the input keys. This causes an electronic element to search the subscribers to determine the group of subscribers having that characteristic." ('170 Patent, Abstract). Thus, "searching said subscriber electronic information with respect to said group characterization" denotes the act of querying the database to provide all subscribers within the database which have the user-selected group characterization.

Likewise, Plaintiff Netcraft Corporation owns several patents related to internet billing methods. It contends that defendants Ebay, Inc. and PayPal, Inc. are infringing its patents by providing a third party payment system to customers wishing to make secure purchases over the internet. Defendants deny the contentions and have moved for summary judgment.

The question presented in defendants' motion for summary judgment is whether the phrase "providing a communications link through equipment of a third party" in U.S. Patent Nos. 6,351,739 and 6,976,008 imposes a limitation that a third party, such as a company like defendants, must provide internet access to the customer. All parties agree that defendants do not provide their customers with access to the internet, meaning that the allegation of infringement rises and falls on a conclusion that plaintiff's patents do not include such a limitation. Because I agree with defendants that plaintiff's patents do include such a limitation because "providing a communications link" means "providing customers with internet access" in the context of plaintiff's asserted patents, I will grant defendants' motion for summary judgment. (Because the question of infringement hinges entirely on this one question of claim construction, it is unnecessary to discuss the parties' proposed findings of fact.)
OPINION

The basic purpose behind plaintiff’s patents is undisputed: to allow customers to make purchases over the internet through a trusted third party intermediary so that the customer does not have to provide sensitive financial information to an unfamiliar vendor. As is usually the case, the dispute is in the details.

The first and only question I must answer relates to the construction of the phrase "providing a communications link through equipment of the third party," which appears in all of the asserted claims in both asserted patents. Claim 1 of the '739 patent is representative. The first step of that method claim is to establish a billing agreement between the customer and the trusted third party. The second step is "providing a communications link through equipment of the third party between the purchasing customer and the selling vendor through which the purchasing customer obtains information from the selling vendor with respect to a purchase of a product or service by the purchasing customer from the selling vendor."

The question in dispute is whether "providing a communications link through equipment of the third party" means providing internet access to the customer. Defendants say it does; plaintiff says the phrase is not so limited (though plaintiff never identified a definitive construction of the phrase).

Plaintiff is correct that the claim itself does not define "communications link" the way defendants propose. And plaintiff is also correct that the lay understanding of "communications link" is much broader than "internet access." However, courts cannot look at the claims in isolation or at just the lay understanding of them, but must consider the patent as a whole. As the court explained in Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (citations and quotations omitted):

The claims, of course, do not stand alone. Rather, they are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims. For that reason, claims must be read in view of the specification, of which they are a part. . . . [T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

The phrase "communications link" is never used in the specification, which is the same in both asserted patents, but the specification makes it unmistakably clear that the invention requires that the third party provide internet access to the customer. Because the phrase "communications link" is the only part of the claim that could incorporate this requirement, I construe "providing a communications link" to mean "providing customers access to the internet."

The first two sentences of the abstract support this construction: "An Internet billing method comprises establishing an agreement between an Internet access provider and a customer . . . . The provider creates access to the Internet for the customer." '739 pat., abstract. Thus, the abstract is unambiguous: the third party intermediary is "an Internet access provider" and that provider does in fact connect the customer to the internet. The Court of Appeals for the Federal Circuit has recognized on multiple occasions the importance of the abstract in construing the scope of a claim term. Pandrol USA, LP v. Airboss Ry. Products, Inc., 320 F.3d 1354, 1363 (Fed. Cir. 2003); SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337 (Fed. Cir. 2001). Plaintiff advances no argument for disregarding it in this case.

The same understanding of the invention is repeated throughout the Summary of the Invention as well. In describing the invention, the patent states that "a provider establishes an agreement with a customer," '739 pat., col. 2, Ins. 19-20 and even more explicitly that "the provider creates access to the Internet for the customer through the provider's equipment," '739 pat., col. 2, Ins. 27-29. In countless instances, the specification refers to the third party as the "provider," which plaintiff conceded at the claim construction hearing means "internet access provider."

Plaintiff attempts to dismiss these references in the specification as discussions of embodiments, but its efforts are unconvincing. To be sure, the embodiments in the patents require the third party to provide the customer with access to the internet. For example, the second step of Figure 2 is "Connect Customer to Internet." But the references in the Summary of the Invention to the "provider" are made in the context of discussions of "the present invention," which, in accordance with Federal Circuit precedent and common sense, means what it sounds like: the limitation of a provider connecting the customer to the internet applies to the invention as a whole and not just to a particular embodiment. Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present
Plaintiff argues that other parts of the patent support a more expansive construction, but none of these arguments is persuasive. First, plaintiff points to dependent claim 6 of the '739 patent, which provides: "The method according to claim 1, 2, 3, 4, or 5, wherein the third party is an Internet access provider, a cable television company, a telephone company, or a company offering financial services." Plaintiff argues that claim 6 would be "meaningless" under defendants' proposed construction because there would be no need to identify an "Internet access provider" as an example of a third party if claim 1 required the third party to connect the customer to the internet.

Plaintiff's argument has some surface appeal, but I agree with defendants that a reasonable reading of claim 6 is that it simply lists examples of entities that may provide customers with access to the internet. Thus, in claim 6, "Internet access provider" means a company like America On-Line, "whose only business is to offer connection to the Internet," '739 pat., col. 1, Ins. 26-27; the other examples, such as "a cable television company," are entities that may offer internet access as an additional service.

This reading is supported by the specification, which contemplates in multiple locations the possibility that a cable television company or telephone company will provide the customer with internet access. E.g., '739 pat., col. 1, Ins. 29-30 ("[T]elephone companies and cable television companies have announced plans to provide Internet access."); id. at col. 2, Ins. 64-65 (access to internet may be provided by "cable television companies" or "telephone companies"). In any event, plaintiff's reliance on a presumption of claim differentiation cannot overcome the plain language of the patents. Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1369-70 (Fed. Cir. 2007).

Plaintiff seizes on the patents' references to "companies offering financial services" as an example of a potential third party intermediary, but never explains why "companies offering financial services" could not also be internet access providers. Although the patent does not include financial service companies in its lists of examples of internet access providers, e.g., '739 pat., col. 2, Ins. 61-65, that does not mean that such companies cannot be providers. An invention is not limited to its examples.

Further, the Summary of the Invention appears to contemplate that financial service companies will provide internet access: "The main object of the present invention is to create a new business opportunity for telephone companies, cable television companies, existing internet access providers, and companies offering financial services . . . ." '739 pat., col. 1, Ins. 61-64 (emphasis added). By distinguishing "existing" internet access providers from other types of companies, the specification suggests that the "new business opportunity" for those other companies involves providing internet access.

Finally, plaintiff points to passages in the patent discussing vendors that obtain internet access from a source other than the third party intermediary. In other words, the patent permits vendors to connect to the internet however they wish. This gets plaintiff nowhere because the dispute is not related to where vendors get internet access, but where customers obtain it. The specification makes it clear that customers must get their internet access from the third party intermediary. Plaintiff can cite no passage to the contrary despite its best efforts.

Both sides advance arguments supporting their view of how the prosecution history informs the meaning of "communications link," but it is unnecessary to consider those arguments when the patent itself is clear. Phillips, 415 F.3d at 1317 ("[B]ecause the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.") Accordingly I conclude that "providing a communications link" means "providing customers access to the internet." Because it is undisputed that defendants do not provide their customers with internet access, I conclude as a matter of law that defendants do not literally infringe plaintiff's asserted claims. Further, because plaintiff failed to respond to defendants' argument that defendants do not infringe under the doctrine of equivalents, I conclude that plaintiff has forfeited that issue.

GO BACK
4. "providing"

The parties dispute the meaning of the term "providing" in the phrase "providing a decode control key to the receiver station" of claim 21. Echostar argues that "providing" includes the process by which a decode control key is permanently stored in a memory of the receiver, while IPPV argues that "providing" describes the act of making something available that was previously unavailable. Thus, IPPV contends that if the receiver station accesses the decode control key after it has been permanently stored in a memory, it has not been "provided" with the key.

In support of its position, Echostar argues that the plain and ordinary meaning of "provide" is to furnish or supply. It contends that in accordance with the plain meaning, "providing" includes permanently storing in a memory at the receiving station. Echostar also refers the court to the preferred embodiment where a master key is permanently stored in read-only memory. This type of memory is a permanent memory. Finally, Echostar cites the following exchange from Sherwood's deposition testimony:

Q. So if the decode control key is stored in the receiver, that doesn't meet your definition of the word "provide." Is that correct?

A. It depends upon how it is stored.

Q. Tell me what kind of storing would meet the definition of "provide" and what kind of storing would not.

A. It could be stored in electronic form.

Q. Would that meet the definition of provide or not?

A. Yes.

* * *

Q. You answered one question by referring to something being stored in electronic form.

A. Yes.

Q. Are you referring to memory?

A. I -- yes. I can't think right now of any other method of storing in electronic form.

Echostar argues that Sherwood's deposition testimony that "providing" includes storing in a memory is consistent with its construction.

IPPV counters that the plain meaning of "providing" describes the act of making something available that was previously unavailable. It explains that after the key is stored in a memory, it is available, and therefore, when the receiver station accesses the key, it has not been "provided" with the key. Thus, IPPV argues that in accordance with the plain meaning of "providing," the act of storing the key in a memory does not constitute "providing."

IPPV views "providing" as containing an element or condition of immediate need. The court finds no reason to insert that condition into the plain meaning of "providing." In the same way that an oil supplier provides heating oil to homes before it is needed to produce heat, the method in claim 21 provides the decode control key to the receiver station before it is needed for decryption. The key is still provided by the method even though the receiver does not need or use the key immediately. As a result, the court concludes that "providing" includes permanently storing in a memory at the receiving station.
C. Providing a Driver

The term "providing a driver" or "providing a first driver" appears in a number of claims. Timeline argues that if the court construes this term, it should be construed as "to supply or make available a driver." Defendants argue that the term should be construed as "identifying and initializing a driver."

The word "providing" is not a term of art and its ordinary meaning is not difficult to determine. Defendants themselves refer to the following definition of the term from a standard dictionary:

provide: "1. archaic: to prepare or get ready in advance 2 a: to supply or make available (something wanted or needed) . . . . b: to make something available to . . . . 3: to have as a condition." Webster's Ninth New Collegiate Dictionary, 1987.

Timeline's proposed definition matches one of the definitions in the dictionary cited by Defendants.

In support of their proposed construction, Defendants note that the '511 patent specification states:

In the procedure depicted in FIG. 10, the first step after the procedure starts 1002 is to identify and initialize the dynamic drivers 1004.

511 patent, col. 11:39-41. The "1004" in this sentence refers to block number 1004 in Figure 10. Defendants then point to claim 1 of the '511 patent, which discloses a method comprising of "a first step for providing a first driver. . . ." (as well as "a second step for using said first driver. . . ."). Defendants suggest that the "first step for providing a first driver" in claim 1 relates to the "first step after the procedure starts" in block number 1004, which involves "identify[ing] and initializ[ing] the dynamic drivers."

In response, Timeline argues that Defendants' own briefing suggests that block number 1004 (i.e., identifying and initializing the dynamic drivers) relates to "using" a driver, rather than "providing" a driver. Timeline notes that in Defendants' briefing on one of the means-plus-function claims, Defendants assert that block number 1004 is part of the structure that performs the function of "using" a driver. See Dkt. No. 218 at 14-16. Specifically, Defendants state that block 1004 involves "activating drivers" and that block 1004 is one of "four steps relating to the function 'using said driver . . . '", Id. at 15.

The terms "providing" a driver and "using" a driver both appear in a number of the same claims. As Timeline notes, Defendants contend in one section of their brief that "providing a driver" means "identifying and initializing" a driver as shown in block number 1004, but argue later in their brief that block number 1004 relates to "using" a driver. As Timeline suggests, Defendants' arguments appear to be inconsistent.

Therefore, the court adopts Timeline's proposed construction of "providing a driver," which is consistent with its ordinary meaning. The term "providing a driver" means "supplying or making available a driver."

"Providing a Level of Service to the Traffic Associated with the Particular Customer of the Packet-Based Network Independent of All Other Traffic on the Packet-Based Network Outside of the Virtual Private Network's Logical Domain"

Alcatel's proposed construction for the above term is "a customer's virtual private network receives an agreed upon performance for its traffic regardless of any traffic in the network that is not associated with that virtual private network."

Cisco's proposed construction is "resources providing a particular level of service to a particular customer's virtual private network."
Again, both parties are largely in agreement as to the meaning of the above term. In fact, both parties essentially argue that the above language is plain on its face. Cisco argues that the above claim language is "self-explanatory," and Alcatel has stated that it "agrees with [Cisco's] assessment." See Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,768,271 (Seid) ("Cisco's '271 Opening Brief"), at 13; Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,768,271 (Seid et al.) ("Alcatel's '271 Responsive Brief"), at 13.

In light of the parties' arguments regarding the self-explanatory nature of the above term, and the Court's own reading of the term, the Court finds that the language in the above term is plain on its face and requires no further construction. 54

54 The only words in the above term that require independent construction are "virtual private network," which the Court has already construed previously.

G. "Providing A Readout Of The Glucose Concentration In The Blood Sample"

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<tr>
<th>Claim Term</th>
<th>Plaintiffs' Construction</th>
<th>Defendants' Construction</th>
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<tbody>
<tr>
<td>&quot;providing a readout of the glucose concentration in the blood sample&quot;</td>
<td>An output indicating the concentration of glucose in the blood sample.</td>
<td>Displaying the blood glucose concentration on a device that can be read by the user.</td>
</tr>
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Plaintiffs contend that Defendants are attempting to improperly "impose a 'display' and 'read by user' requirement." (D.I. 397 at 32:21-23.) Plaintiffs assert - and the Court agrees - that "[t]he specification of the patents in suit does not expressly define the term 'readout.'" (D.I. 357 at 31.) Accordingly, Plaintiffs purport to draw their proposed construction from a number of general purpose dictionary definitions, which is not inappropriate. See, Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1351 (Fed. Cir. 2006) (where the specification failed to define a claim term, explaining that "it is appropriate . . . to look to dictionary definitions of the terms").

However, on reviewing Plaintiffs' dictionary definitions, the Court concludes that they actually tend to support Defendants' proposed construction. For instance, Plaintiffs note that the Oxford English Dictionary defines "readout" as "[t]he display of data by an automatic device in an understandable form." (Id. (citing Oxford English Dictionary Online, Oxford University Press 2008 (emphasis added))). Similarly, Plaintiffs point out that WordNet, a lexical database of English, provides that "readout" means "1. the output of a computer in readable form; 2. the information displayed or recorded as an electronic device; and 3. an electronic device the displays information is a visual form." (Id. at 32 (citing WordNet 3.0,
http://wordnet.princeton.edu/ (emphasis added)). Referring to "understandable" and "readable" forms and the use of "devices" that "display," the Court concludes that Plaintiffs' dictionary definitions comport most closely with Defendants' proposed construction for this claim term. And, in the Court's view, these definitions also comport with the plain and ordinary meaning of "readout." Accordingly, the Court will construe the claim term "providing a readout of the glucose concentration in the blood sample" to mean, as Defendants contend, "displaying the blood glucose concentration on a device that can be read by the user."

5. "providing a second substantially transparent substrate member having a continuous layer of transparent conductive material disposed on one surface thereof, said second substrate being spacedly disposed from said first substrate and arranged so that the layer of transparent conductive material of said second substrate faces the layer of transparent conductive material of the first substrate" (Claim Element 9) (Claim 26 of the '711 Patent; Claims 22, 25, 26, and 29 of the '682 Patent)

ATI has proposed that this term means:

Providing a second substrate having a continuous layer of transparent conductive material placed on one surface. The substrates are assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other.

Dkt. No. 113, Ex. at 7. Sharp has proposed:

The phrases "providing a second substantially transparent substrate member having a continuous layer of transparent material" and "said second substrate" mean a "continuous transparent conductive layer on the second substrate."

The overall phrase means "providing a second substrate having a continuous layer of transparent conductive material placed on its surface, where said second substrate is assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other."

Id. DNP has proposed that this term means:

Providing a second substrate having a continuous layer of transparent electrically conductive material placed on its surface (i.e., directly onto the second substrate), where the first and second substrate are assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other.

Id.

The Order construed this term to mean "providing a second substrate having a continuous layer of transparent conductive material placed on one surface. The substrates are assembled so that the first and second substrates are spaced apart from each other and the layer of conductive material of the first substrate and the layer of conductive material of the second substrate face each other." Dkt. No. 117 at 48-49.

a. Objections

Sharp submitted a Request for Clarification of the Order, which requested that a third sentence be added to the construction as follows: "With respect to claim 26 of the '711 patent, when the two substrates are assembled so that they face each other, the conductive layer on the second substrate is continuous." See Dkt. No. 120. Sharps argued, in part, that "the use of 'said second substrate' in Claim Element 9 demonstrates that the conductive layer must be 'continuous' because there is no reference in claim 26 of the '711 patent to a patterning step or a patterned conductive layer." Id. at 2. In support, Sharp argues that "a layer cannot be both 'continuous' and 'patterned' at the same time. Id. ATI responded that terms should be construed consistently across claims and that a 'comprising' method claim should not be construed to exclude additional
steps. Dkt. No. 121 at 2-3. Sharp replies that because the antecedent basis for "the layer" in Claim Element 9 refers to "a continuous layer," the layer must remain continuous, i.e., cannot be patterned. See Dkt. No. 122. Magistrate Judge Bryant denied Sharp's request, finding that "no such clarification of Claim Element 9 is necessary." Dkt. No. 127 at 1-2.

b. Discussion

Claim Element 9 appears in both Claim 26 of the '711 Patent and claim 22 of the '682 Patent. The '682 Patent is derived from a continuation of the '711 Patent, and these two patents share a common parent application. See '682 Patent and '711 Patent at item [63] of cover page. Where "patents all derive from the same parent application and share many common terms, we must interpret the claims consistently across all asserted patents." NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1293 (Fed. Cir. 2005); see also Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990) ("The '912 patent is the result of a continuation-in-part application from the original '008 application, which led to the '251 patent. Hence . . . the construction of the term 'diffuse light' contained in that patent, is relevant to an understanding of 'diffuse light' as that term is used in the '912 patent."). Claim Element 9 should therefore be interpreted consistently in both the '711 Patent and the '682 Patent if possible. The Court therefore rejects Sharp's argument that Claim Element 9 should be construed such that patterning is permissible in Claim 22 of the '682 Patent but impermissible in Claim 26 of the '711.

Further, Claim 26 of the '711 Patent is a method "comprising" several steps, which should generally not be construed to exclude additional steps. Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997); Smith & Nephew v. Ethicon, Inc., 276 F.3d 1304, 1311 (Fed. Cir. 2001). Sharp has not shown that a layer cannot be "provided" as "a continuous layer" and then "patterned." Instead, the recitation of such a scenario in Claim 26 of the '711 Patent teaches that Claim Element 9 does not exclude patterning. The specification also suggests that a layer can be provided or disposed in a continuous manner and then patterned, as discussed in § III.6, below. Sharp points to the absence of the words "continuous" or "patterned" in a similar step in Claim 18 of the '682 Patent, but Claim 18 does not outweigh, nor even contradict, the noted intrinsic evidence suggesting that a layer that is continuous can undergo patterning.

The Court expressly rejects the clarification requested by Sharp, and the order (Dkt. No. 127) on Sharp's Request for Clarification should accordingly be modified to reflect this rejection. The construction of Claim Element 6 in the Order (Dkt. No. 117) should be affirmed.

3462

a. "providing a signal based on the measured pressure in the chamber to a control module"

ATI contends that no construction is necessary whereas Defendants argue that the court should construe this phrase to parallel Claim 1: "providing a signal indicating the measured pressure in the chamber to the control module."

For subsequent claims that reproduce relevant language construed above (particularly, "a signal based on the measured pressure"), the court's construction of those claims shall correspond to the above construction. 3 The Federal Circuit has instructed that "[u]nless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim." Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004); see also Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632 (Fed. Cir. 1987), overruled on other grounds by Cardinal Chemical Co. v. Morton Intern., Inc., 508 U.S. 83, 113 S. Ct. 1967, 124 L. Ed. 2d 1 (1993); see generally Digital Biometrics, Inc. v. Identix, Inc. 149 F.3d 1335, 1345 (Fed. Cir. 1998) ("[W]hatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently.").

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

3 Indeed, the parties' claim construction chart relies heavily upon "see above" as the parties refer back, and even across patents, to various phrases in the claim construction chart. The court sees no reason to deviate from a consistent construction of this language across all of the patents. Likewise, where the parties rely upon earlier constructions, across claims or patents, the court will adhere to consistent constructions. While in some cases like language in different patents might result in differing constructions, in this case the parties agree that the language should be construed similarly.
However, the court will use the indefinite article "a" rather than "the" because no prior mention of a "control module" is given in this claim to which to refer. Accordingly, the court will construe the phrase "providing a signal based on the measured pressure in the chamber to a control module" as "providing a signal based upon the measured pressure in the chamber to a control module."

3463
C) "Providing access to a personal computer . . . from a remote computer"

The parties disagree about the definition of this phrase. First, 01 Communique contends that this phrase requires no construction at all. In the alternative, 01 Communique proposes that it means "Providing access to (i.e., permission, liberty, or ability to enter, approach, or pass to and from a place or to approach or communicate with a person or thing) the claimed personal computer . . . from a remote computer." Citrix, meanwhile, suggests a more literal translation, to wit, "Providing a connection (i.e., a physical link via wire, radio, fiber-optic cable or other medium) between the claimed personal computer and the claimed remote computer."

When evaluating a claim term, "[i]n those cases where the ordinary meaning of a claim term as understood by a person of ordinary skill in the art is readily apparent even to lay persons, the ordinary meaning becomes the acquired meaning of the term." Herbert F. Schwartz, Patent Law and Practice § 5.I.A.2. (5th ed. 2006) (citing Phillips, 415 F.3d at 1314). This phrase falls within that category; the court finds that it requires no construction.

3464
8. "providing access . . . to each component provided for the computer selected from the group consisting of"

This term appears in the '408 patent claim 9. It is helpful to provide the full language of that claim, which recites:

A computer comprising:

- a main board having I/O connectors including one or more data transmission ports mounted thereon; and
- a chassis comprising a front panel providing access to the I/O connectors including the one or more data transmission ports and access to each component provided for the computer selected from the group consisting of removable power supplies, removable drives, removable media drives, one or more plugs for external drives and devices, and ports for switches.

At the hearing, the court noted that in its claim construction brief, Supermicro had proposed a construction different from that proposed in the joint claim construction statement, without complying with the court's standing order. Supermicro advised the court that any change was inadvertent, and that it would rely upon the joint claim construction statement. Accordingly, that is the construction that the court now considers.

Rackable contends that "providing access . . . to each component provided for the computer selected from the group consisting of" means "to each removable power supply, removable drive or removable media drive, if present." Supermicro asserts that "providing access . . . to each component provided for the computer selected from the group consisting of" means "providing the user or operator of the computer with access to each of the following parts of the computer if present [see claim language for list of items]."

According to Rackable, the issue concerns which of the items must each be located on the front, if present, as opposed to being potentially found on both the front and back of the computer. Rackable breaks down the subsequent claim language into three categories, including: (1) removable power supplies, removable drives, and removable media drives; (2) plugs for
external drives and devices; and (3) ports for switches. According to Rackable, the claim language requires access only to the items included in category (1) -- the removable power supplies, removable drives, and removable media drives to the extent that these removable components are present. In other words, it asserts that the members of the group for which access is required are only those referred to as "removable."

Rackable thus argues that the access described does not apply to the "plugs for external drives and devices, and ports for switches." It argues that only one plug for external drives and devices need be present on the front panel, and that redundant or duplicate plugs may indeed be located on a rear panel. Regarding the third component, the "ports for switches," Rackable implies that the "providing access" language does not apply to the ports. Instead, the ports are simply located on the front panel.

Supermicro, on the other hand, argues that "providing access" refers to all components -- not just the removable ones. In other words, Supermicro asserts that the access language applies to all three groups that Rackable has listed, including the (1) removable power supplies, removable drives, and removable media drives; (2) plugs for external drives and devices; and (3) ports for switches. To the extent that any of the three groups of components is present, Supermicro argues that they must be located on the front of the computer.

Supermicro argues that Rackable's construction makes no sense because it is ignoring words that actually appear in the disputed claim language, and instead improperly imports other limitations into its construction. It further notes that there is a "linguistic dispute" among the parties regarding the phrase "group consisting of." Supermicro asserts that because all of the items following that phrase are listed in succession, and separated by commas, its reading is the more natural of the two. It argues that Rackable misreads the placement of the word "and."

The term "consisting of" means that the list of ingredients following the term is a closed list, such that additional ingredients cannot be present in the composition. Robert C. Karhl, Patent Claim Construction § 4.03[1], Transitional Words and Phrases (Aspen 2005 Suppl.); Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999). The term, however, "does not necessarily mean that no other components can be used with the invention, but only that the list of ingredients of the same type cannot be augmented." Id.; Norian Corp. v. Stryker Corp., 363 F.3d 1321, 1331-32 (Fed. Cir. 2004); see also Mars, Inc. v. H.J. Heinz Co., 377 F.3d 1369, 1375-76 (Fed. Cir. 2004).

Rackable's proposed construction is contrary to the normal construction of a group following "consisting of" language. It attempts to limit the closed group inappropriately. There is nothing in the claim language or the specification that suggests that the plugs and ports, which follow the removable components, are not a part of "the group consisting of," as Rackable implies.

Additionally, Supermicro's construction is a more grammatically correct interpretation of the disputed language, as endorsed by the Federal Circuit. See SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870, 885 (Fed. Cir. 2004). Where a phrase such as "group consisting of" "precedes a series of categories of criteria, and the patentee used the term "and" to separate the categories of criteria," this "connotes a conjunctive list." Id. In other words, applying the correct grammatical principle, the phrase "group consisting of" "modifies each member of the list, i.e., each category in the list." Id. (relying in part on William Strunk, Jr. & E.B. White, The Elements of Style).

Accordingly, the court adopts Supermicro's definition and construes "providing access . . . to each component provided for the computer selected from the group consisting of" as providing the user or operator of the computer with access to each of the following parts of the computer if present: removable power supplies, removable drives, removable media drives, one or more plugs for external drives and devices, and ports for switches. In other words, the court construes "group consisting of" to include all three categories that follow the phrase, including removable components, plugs, and ports. Rackable's attempt to limit the group to the removable components improperly narrows and modifies the claim language. See Renishaw, 158 F.3d at 1250 (claim may not be construed to "add a narrowing modifier before an otherwise general term that stands unmodified in a claim").
EMC contends that the phrase "write is pending," which is used solely in the claims of the ’792 patent, means that a write operation has not yet been completed. Although HP does not specifically dispute that definition, it maintains that the phrase "write is pending" means that data for a predetermined data element is stored in cache memory on the controller and waiting to be "de-staged" to the storage device. The prevailing dispute, therefore, is whether "write is pending" includes only write operations pending from cache memory.

As an initial matter, this Court has already determined that the ’347 and ’792 patents do not disclose an invention that requires cache memory. Likewise, neither the claim language nor the Specification of the ’792 Patent defines the phrase "write is pending" to mean data stored in the cache memory of the controller and waiting to be "de-staged" to a storage device. Indeed, Claim 10 of the ’792 Patent states, in relevant part,

maintaining, in said data storage system, a third indicator providing an indication of whether a write is pending to said predetermined data element stored on said data storage system . . . .

’792 Patent, Col. 62, ll. 32-35 (emphasis added). Nothing in that language explicitly or implicitly requires that the third indicator provide an indication of whether there is data stored in the cache memory of the controller waiting to be "de-staged" to the storage device. Moreover, dependent Claim 12 of the ’792 patent states, in relevant part,

[t]he method as claimed in claim 10, wherein said data storage system contains a cache memory and a disk data storage device, said third indicator provides an indication of whether a write is pending from said cache memory to said disk data storage device. . . .

’792 Patent, Col. 62, ll. 52-56 (emphasis added). Pursuant to the doctrine of claim differentiation, therefore, there is a presumption that the phrase "write is pending," as used in Claim 10 of the ’792 patent, includes more than write operations pending from cache memory.

Although the Specification of the ’792 Patent refers, in some instances, to cache memory when discussing the "write pending" indicators, EMC did not become its own lexicographer by redefining the term "write is pending" to mean a write pending from cache memory. For example, the Specification states that

when a host computer writes data to a primary data storage system, it sets both the primary and secondary bits . . . of the write pending bits . . . when data is written to cache.

’792 Patent, Col. 11, ll. 31-33 (emphasis added). Prior to that statement, however, the patentees explain that data for which a write is pending can be stored in places other than the cache memory of the controller when they state that

the primary data storage system must maintain a log file of pending data which has yet to be written to the secondary data storage device. Such data may be kept on removable, non-volatile media, in the cache memory of the primary or secondary data storage system controller . . . or in the service processor . . . .

’792 Patent, Col. 10, ll. 51-57 (emphasis added).

Neither the plain and ordinary meaning of the phrase "write is pending" nor the language of the Specification of the ’792 Patent require that it be defined as data stored in the cache memory of the controller and waiting to be "de-staged" to the storage device. As used in the ’792 Patent, therefore, the phrase “providing an indication of whether a write is pending” will be construed to mean providing an indication of whether a write operation is in progress but not yet completed. 11

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -
in vain.

The parties dispute the meaning of the limitation "providing fabrication sequences" found in claim 1. IPI interprets the phrase to mean providing an alterable series of operations for the manufacture of a part or parts. Defendants argue that to provide a sequence of process operations, it is necessary for the patented method to include both the type of the processing operations being modeled and the order in which those operations are conducted. Thus, defendants propose that the limitation should be construed to mean supplying the type and order of process operations that are required to complete the products manufactured in the plant with the type and order of process operations being capable of changing during modeling.

The claim itself indicates what is meant by the phrase "fabrication sequence." Claim 1 reads "providing fabrication sequences consisting of process steps for the products manufactured in the plant." (emphasis added). Consistent with this definition, the specification defines a fabrication sequence as "a sequence of process operations that are required to complete a product." U.S. Patent No. 4,796,194, col. 11, lines 39-40. Among other things, the patent provides that allowable variations include changes in the attributes of a small set of process steps and the addition or deletion of one or more process steps. Id., col. 11, lines 53-56. The term is more nuanced than what is conveyed by defendants' inclusion of "type and order of process operations." Similarly, the defendants have not convinced the Court that the insertion of "during the modeling" is necessary.

Both parties' definitions include the notion that fabrication sequences are "alterable" or "capable of changing." Though the patent makes it clear that this is the case, the Court does not find that the term itself encompasses this meaning. If it did, the patent's references to "dynamic fabrication sequences" would be repetitive. Moreover, claim 17, which is dependent upon claim 1, discloses "the process for modeling a manufacturing plant of claim 1 in which the fabrication sequences are dynamic, time-varying fabrication sequences." As a dependent claim, claim 17 must be narrower in scope than claim 1. See Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005) (noting that the concept of claim differentiation normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend). Claim 17 adds the limitation that the fabrication sequences of claim 1 are dynamic and time-varying. The Court therefore adopts the following construction of the phrase "providing fabrication sequences" in claim 1: providing a series of operations for the manufacture of a part or parts.

Claims 1 and 18 of the '352 patent also require "providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima." This limitation was amended during prosecution to distinguish prior art that inherently produced a finger profile with two maxima separated by a minimum when two fingers were placed on the touchpad. Applicants explained the amendment stating that "[t]he present invention uniquely utilizes the detection of two maxima to determine if two fingers are present on the touchpad. Nowhere does [the prior art] suggest analyzing profile information to obtain this result, or to use the result to provide an indication of two fingers." Declaration of Karl J. Kramer in Support of Synaptics' Motion for Summary Judgment of Noninfringement of the Asserted Claims of the '352 patent ("Kramer SJ Decl."), Ex. 5, April 6, 1998 Amendment at 4. The Court did not construe the meaning of the "providing an indication" limitation in the Claim Construction Order.

Synaptics alleges that the parties agreed that "providing an indication" is "[t]he function of detecting the simultaneous presence of two fingers and reporting that presence to the host." Synaptics' MSJ Brief at 11:18-20 (emphasis supplied).
Elantech disputes that the claim requires an indication of multiple fingers returned to the host; instead, Elantech argues that any form of indication is sufficient to satisfy the claim limitation. For example, Elantech argues that the "providing an indication" step is met by Synaptics' [redacted] code module. This module processes the finger profile to determine the location of the user's primary finger on the touchpad. [redacted] creates a temporary data structure which implicitly identifies multiple fingers in contact with the touchpad, although the code never attempts to "provide" such indication outside of the code module itself. Elantech alleges creating this data structure alone is sufficient to meet the "providing an indication" limitation.

Neither party's argument is persuasive. Nothing in the claim language or prosecution history supports Synaptics' argument that an indication of multiple fingers must be returned to the host in order to infringe. On the other hand, Elantech's position reads the limitation out of the claims. Elantech argues that implicit identification of multiple fingers is all that is required to meet the claim limitation. But simply recognizing a finger profile with two maxima separated by a minima also implicitly identifies the presence of multiple fingers, and the "providing an indication" limitation was added to the claims of the '352 patent during prosecution for the express purpose of overcoming prior art that produced such a finger profile. See Kramer SJ Decl., Ex. 5, April 6, 1998 Amendment at 4. Thus, Elantech's argument that implicit identification of multiple fingers is all that the claim requires eviscerates the claim limitation and cannot stand.

The "providing an indication" limitation does not require that the "indication" of two fingers be returned to the host. However, the limitation does require that infringing methodology perform some affirmative step to provide an indication of multiple fingers.

3468

d. "Providing Said At Least Partially Surrounding Image Elements In Respect To Said Particular Position"

Though this term appears in the claim construction chart, the only discussion provided for its construction appears in IP's brief, which advances its definition and provides what it contends to be Lexmark and Dell's proposed definition. IP proposes that the term means making at least some of the image elements of the original image that surround the particular position available for inspection. Lexmark and Dell supposedly propose that it means making the pixels of the electronically coded input image that at least partially surround the particular position simultaneously available for electronic inspection.

Lexmark and Dell's apparent position would add terms unsupported by the plain language of the claim, namely that the input image be "electronically coded," that the pixels be "simultaneously" available, and that inspection be "electronic." For the reasons described above where similar insertions were attempted, we conclude that IP's definition is preferable here. Thus, we construe this term to mean making at least some of the image elements of the original image that surround the particular position available for inspection.

3469

"DNS proxy server"

The '135 patent, claim 10 contains the term "DNS proxy server." VirnetX contends that "DNS proxy server" means "a computer or program that responds to a domain name inquiry in place of a DNS." Microsoft contends that "DNS proxy server" means "a computer that intercepts a DNS request from a client computer to a DNS server and checks the request to determine whether access to a secure web site has been requested." The parties dispute whether the "DNS proxy server" must check the DNS request or if it "responds" to a domain name inquiry, whether "DNS proxy server" can only be a computer or if it can be a computer or a program, and whether the "DNS proxy server" must be separate from the client computer.

The Court adopts VirnetX's proposed construction and construes "DNS proxy server" as "a computer or program that responds to a domain name inquiry in place of a DNS." First, the claim language supports that a "DNS proxy server" "responds to a domain name inquiry in place of a DNS." Claim 10 states
a DNS proxy server that receives a request from the client computer to look up an IP address for a domain name, wherein
the DNS proxy server returns the IP address for the requested domain name if it is determined that access to a non-secure
web site has been requested, and wherein the DNS proxy server generates a request to create the VPN between the client
computer and the secure target computer if it is determined that access to a secure web site has been requested.

Col. 48:6-15 (emphasis added). This excerpt shows that a DNS proxy server receives a request from the client computer to
look up an IP address for a domain name and then responds by returning the IP address for the requested domain name or by
creating a VPN, depending on the type of request made by the client computer. Thus, a DNS proxy server "responds"
according to the type of request made by the client computer.

Second, the specification supports that the "DNS proxy server" is a "computer or program." The specification discusses a
"DNS proxy server" in the following context: "It will be appreciated that the functions of DNS proxy 2610 and DNS server
2609 can be combined into a single server for convenience. Moreover, although element 2602 is shown as combining the
functions of two servers, the two servers can be made to operate independently." Col. 38:61-65. This excerpt discusses a
DNS proxy server as potentially being combined into a single server, and those skilled in the art understand "servers" as
including computers. See IEEE 100: THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 1031 (7th
ed. 2000) (defining "server" in the third definition as "In a network, a device or computer system that is dedicated to
providing specific facilities to other devices attached to the network"). Then, the specification discusses "combining the
functions of two servers." Functions on servers/computers are understood by those skilled in the art to be controlled by
software. Thus, the specification discusses a "DNS proxy server" as a "computer or program." Accordingly, the Court
construes "DNS proxy server" as "a computer or program that responds to a domain name inquiry in place of a DNS."
4 The term "pseudo-random" is contained in claims 1, 12, 17, and 26 of the '646 patent and claim 1 of the '612 patent.

--- Footnotes ---

Plaintiff's Proposed Construction: No construction necessary; alternatively, "apparently random, but repeatable and predictable."
Defendants' Proposed Construction: "refers to output that is repeatable and predictable to anyone who knows the function's input but appears to be totally random to those without such knowledge."

The patents-in-suit both contain the claim term "pseudo-random," and the parties agree that this term has the same meaning in all of the asserted claims. In the specifications, the claim term is recited as "output that is repeatable and predictable to anyone who knows the E-Key seed input to the function producing the output." The specifications further states that "without such knowledge, the output appears to be totally random." '646 patent at 5:14-18; '612 patent at 4:1-5.

--- Footnotes ---

5 The presumption that the same claim term retains the same meaning throughout related patents will be applied throughout the instant Memorandum Opinion and Order. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003) ("we presume, unless otherwise compelled, that the same claim term in . . . related patents carries the same construed meaning").

--- Footnotes ---

PACid contends that this term does not need to be construed because the jury may apply its plain meaning. OPENING at 3. Alternatively, PACid proposes a construction that incorporates the "relevant properties of a pseudo-random output." In particular, PACid suggests a construction for pseudo-random that it is "repeatable and predictable, yet apparently random." Id. at 4. Defendants contend that a lay juror will not be familiar with the claim term and the Court should adopt the explicit definition in the specifications. RESPONSE at 3-4.

A review of the disputed claim term suggests that even while "pseudo-random" should be accorded its "ordinary and customary meaning," in this case, determining the plain and ordinary meaning of "pseudo-random" goes beyond the application of widely accepted meaning of commonly understood words. See Phillips, 415 F.3d at 1314. Accordingly, it is appropriate to provide a construction that would assist a lay jury in understanding what a person of ordinary skill in the art would understand "pseudo-random" to mean in light of the '646 and '612 patent. See O2 Micro International Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362-63 (Fed. Cir. 2008).

The Court finds that the inventor provided an express definition for the disputed term:

The term 'pseudo-random' as used in this specification means that the output referred to is repeatable and predictable to anyone who knows they E-Key seed input to the function producing the output. Without such knowledge, the output appears to be totally random.

'646 patent at 5:14-18; '612 patent at 4:1-4. The inventor's express definition offers a construction that includes three elements that the patentee considered important at the time of the invention: (1) "without knowledge of the function's input," the output "appears to be totally random"; (2) the function is repeatable and predictable "to anyone who knows the function's input; and (3) the output appears to be "totally" random. See '646 patent at 5:14-18; '612 patent at 4:1-5. Since these elements were clearly set forth, a construction not including all of the inventor's requirements-- as provided in the specification-- would impermissibly broaden the term beyond its express definition. PACid considers the explicit requirements of the specification to be "surplus language," but by explicitly defining "pseudo-random" in the specification, the patentee instructed those skilled in the art that all three requirements would be present in the claim term. See Cook Biotech Inc. v. Acell, Inc., 460 F.3d 1365, 1372 (Fed. Cir. 2006) (recognizing that the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification). Where, as here, the inventor provided an explicit definition for "pseudo-random," that definition will govern. Phillips, 415 F.3d at 1313; Martek Biosciences Corp. v. Nutrinova, Inc., 579
Accordingly, the Court finds that a construction is needed to resolve the parties' dispute and that the claim scope is best defined by combining passages in the specification. The construction for the term "pseudo-random" is "refers to output that is repeatable and predictable to anyone who knows the function's input but appears to be totally random to those without such knowledge."

**3472**

"Pseudo Virtual Path"

Alcatel's proposed construction for the term "pseudo virtual path" is "a logical connection transmitted over a physical path for carrying data that is not associated with any virtual private network." Cisco's proposed construction is "a virtual path for carrying data that is not associated with any virtual private network." The primary difference between the parties' proposals is that Cisco is seeking to import the construction of "virtual path" (and hence, the limitations associated with that construction) into the construction of "pseudo virtual path."

Nevertheless, in their briefs, the parties appear to agree on the meaning of "pseudo virtual path," they just disagree on the proper way to phrase the construction of the term. Both parties acknowledge that a "pseudo virtual path" is not associated with any virtual private network, and the language of claim 23 makes that point clear. See Seid, at 24:44-46 ("[A] pseudo virtual path is provided on each physical path to carry traffic not associated with a virtual private network.").

Therefore, since the non-association of the "pseudo virtual path" with a virtual private network is its primary identifying feature, the Court construes the term "pseudo virtual path" as "a logical connection transmitted over a physical path for carrying data that is not associated with any virtual private network."

**3473**

E. "Pseudorandom Number Generator Device"

The parties agree that a pseudorandom number is "a number having a seemingly random occurrence but which in fact was specifically selected or generated." Claim 1 uses the phrase "pseudorandom number generator device" as follows: (1) col. 6, l. 13-14 ("pseudorandom number generator device located in the computer"), (2) col. 6, l. 19-20 ("said pseudorandom number generator device including a sealed casing"), and (3) col. 6, l. 23-25 ("coupled to said reading means and said pseudorandom number generator device").

1. Disputed definitions

Plaintiff defines the generator as "hardware, software or a combination thereof, which provides one or more pseudorandom numbers as an output." Defendant defines the generator as "hardware that generates, in a deterministic fashion, a sequence of numbers that appear to be random."

The parties' dispute is whether the generator device consists of hardware only, software only, or a combination thereof.

2. Analysis

Claim 1 refers to a pseudorandom number generator device. The use of the word "device" implies the use of hardware, rather than software. For example, the '353 repeatedly uses the phrase "external memory device." "Device," as used in this phrase, refers to hardware, such as a disk drive or CD ROM and supports an interpretation of "pseudorandom number generator device" as also referring to hardware.

Moreover, the phrase "pseudorandom number generator device including a sealed casing" indicates that hardware must be
involved. At the claim construction hearing plaintiff conceded that the sealed casing would cover the hardware, although he contended that software could also be included. His concession, however, demonstrates that his proposed definition -- which would allow the pseudorandom number generator device to consist of only software -- is contrary to what is claimed.

Further, the specification identifies the "pseudorandom number generator" as hardware. In Fig. 3, the '353 identifies a generator that comprises a "shift register." Col. 4, l. 4-10.

Finally, the construction of "pseudorandom number generator device" as excluding software is consistent with the prosecution history. The Patent Examiner, in an action dated July 27, 1984, specifically stated that plaintiff "has claimed and disclosed a hardware random number generator 22 whereas [the prior art] discloses the software generation of random numbers." (Emphasis added.) There is nothing in the subsequent prosecution history that suggests that plaintiff objected to the characterization of his invention as claiming a hardware PRN generator. Rather, in his reply to the Patent Examiner, plaintiff specifically distinguished his invention from the prior art by stating that the prior art "does not have the pseudorandom number generator device including a sealed casing." Plaintiff stated further that his PRN generator device "includes a sealed casing, thereby preventing identification of the pseudorandom number generator device algorithm." Nov. 4, 1984 response at pages 3-4. Plaintiff thus agreed that his invention involves a hardware generator; as plaintiff conceded at the hearing, a software-only PRN generator would not require a sealed casing to prevent identification of the algorithm.

The fact that the specification states that "by implementing the PRN algorithm using software, rather than in a discrete generator, it is possible to render the algorithm reasonably inaccessible by essentially 'burying' the routine in the software," col. 5, l. 28-32, does not compel a definition of "generator device" that includes software only. As stated above, the claim uses the term "device" and states that the "device" includes a "sealed casing," thus requiring that hardware be involved. The reference to software in the specification may support an argument that a software implementation of the PRN generator is equivalent to the hardware implementation claimed, see generally Warner-Jenkinson co. v. Hilton Davis Chemical Co., 520 U.S. 17, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997), but it is insufficient to demonstrate that plaintiff claimed a software-only device in light of the overwhelming evidence showing that he claimed a hardware PRN generator. Plaintiff's argument that the PRN generator device may include a combination of hardware and software is likewise an equivalence argument; there is nothing in the language of the claim, the specification or the prosecution history to support the conclusion that plaintiff specifically claimed a combination hardware/software PRN generator device.

F. "Pseudorandom Sequence"

Claim 1 provides that a second authorization code be a part of a "pseudorandom sequence." Col. 6, l. 10.

1. Disputed definitions

Plaintiff proposes that "sequence" means "an ordered set of pseudorandom numbers" (emphasis added). According to plaintiff, a "set," in turn, is a collection of particular things; a "set" can have zero, one or many elements.

Defendant proposes that a sequence be "a sequence of numbers produced by a pseudorandom number generator device."

2. Analysis

Plaintiff's proposed definition renders the word "sequence" meaningless. He does not explain how no number, that is, zero numbers, constitutes a "sequence" of numbers. Moreover, the specification supports an interpretation of sequence as requiring more than one number. "Pseudorandom sequences are characterized by sequences of long strings of numbers that appear as noise within portions of the sting." Col. 3, l. 58-60 (emphasis added). A "sting" must consist of two or more numbers.

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"Public packet switched computer network" means "a packet switched computer network, accessible by the public through communication common carriers to provide data transmission services." "Packet switching" means "a message-delivery technique in which small units of information (packets) are relayed through stations in a computer network preferably along the best route available between the source and the destination." See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 741 (6th ed. 1996) (defining "packet switching"). "Public data network" is "a network established and operated by common carriers for the specific purpose of providing low error-rate data transmission services to the public." See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 834 (6th ed. 1996) (defining "public data network").

D. "Publishing the electronic advertisement to one or more of the selected internet media venues"

Claim 1 of the '025 patent states in part: "A computer system for creating and publishing customized electronic advertisements, for a seller, to internet media venues owned or controlled by other than the seller, comprising: . . . a computer controller of the computer system . . . publishing the electronic advertisement to one or more of the selected internet media venues in compliance with the presentation rules of the internet media venue, whereby the electronic advertisement is displayed on each of the one or more of the selected internet media venues in compliance with the presentation rules of the internet media venue." (emphasis added). FM contends that "publishing the electronic advertisement to one or more of the selected internet media venues" means ". . . placing or making available the customized electronic advertisement within the framework of each internet media venue so that it is accessible by the end users, consumers, viewers, or buyers . . . ." In contrast, Google argues that this term means "placing or making available the electronic advertisement at one or more of the selected internet media venue location for public display." The primary differences between the two proposed constructions are how closely they track the glossary's "publishing" definition and whether they add the modifiers "customized" and "each."

FM and Google's proposals apparently differ on the meaning of "publishing," as used in the claim. The '025 patent specification contains a "Patent Application Glossary," which defines several terms. The glossary defines "publishing" as "[t]he act of placing or making available the presentation or information within the framework of media venue so that it is accessible by the end users, consumers, viewers, or Buyers. . . ." [025 Patent, 11:48-52]. FM's proposed construction closely tracks the glossary's definition of "publishing:" The Federal Circuit recently affirmed that "[w]hen a patentee explicitly defines a claim term in the patent specification, the patentee's definition controls." Martek Biosciences Corp. v. Nutrinova, Inc., 579 F.3d 1363, 2009 U.S. App. LEXIS 20001, 2009 WL 2780367, at *13 (Fed. Cir. Sept. 3, 2009).

Therefore, the court adopts the portion of FM's proposed construction containing the phrase, "so that it is accessible by the end users, consumers, viewers, or Buyers." Next, Google suggests that the actual claim language requires "publishing . . . to one or more of the selected internet media venues." (emphasis added). As a consequence, Google includes the word "at" in its proposed construction. The court agrees with Google's position and thus adopts a construction reflecting that the publication occurs "at" the selected internet media venues.

As stated above, FM proposes a "customized electronic advertisement within the framework of each internet media venue," whereas Google does not include the modifiers "customized" or "each." Neither the glossary definition of "publishing" nor the body of the claim contains the word "customized." Claim 1's preamble, however, does state, "A computer system for creating and publishing customized electronic advertisements . . . ." (emphasis added). Moreover, the parties have agreed that "create an electronic advertisement for publication to the selected internet media venues" means "create an electronic advertisement for publication in a form customized to each of the selected internet media venue's presentation rules." See Section IV (emphasis added). In light of this agreement, the court will include the term "customized" in the construction.

Like "customized," the "each" modifier does not appear in the glossary definition of "publishing." But "each" does appear in the body of claim 1: "whereby the electronic advertisement is displayed on each of the one or more of the selected internet media venues."
media venues." (emphasis added). The use of "each" in the "whereby" clause teaches that the advertisement must be displayed on every selected internet venue. The court finds that the inclusion of "each" in the claim construction is proper. Therefore, the court defines the term "publishing the electronic advertisement to one or more of the selected internet media venues" to mean "placing or making available the customized electronic advertisement within the framework of and at each internet media venue so that it is accessible by the end users, consumers, viewers, or buyers."

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3477
Disputed Claim Language

"assigning a pulse value for each of said reflected signal pulses with respect to said series of signal pulses transmitted to said target;"

Analysis

Plaintiff argues that the claim term "pulse value" should be construed according to its plain meaning. Plaintiff's Memo, 3. The plain meaning, according to Plaintiff, would require "assigning a pulse value to reflected signal pulses received in the receiving section of the laser range finder." Id. "Pulse value" would mean "a value that provides information sufficient to permit correlation of the received signal with other received signals to determine which of the received signals represents the actual return-reflected signals, as opposed to noise signals." Id.

This claim language does not define "pulse value." What is clear from the claim language, however, is that each reflected signal pulse is assigned a pulse value, whatever its definition may be. There is one "pulse value" for each of "said reflected signal pulses."

The '779 patent specification sheds light on the term "signal pulses" as related to "pulse value." It reads: "The system includes means responsive to the central processing section for determining a desired signal-to-noise ratio for a series of possible signal pulses, including both noise and actual signal pulses received through the signal receiving section. The possible signal pulses each have a representative pulse value with respect to a pulse previously transmitted from the signal transmitting device." '799 Patent, col. 2, lines 22-29 (emphasis added). From this, I conclude that the term "signal pulses" covers both noise and actual pulses, which fall into the category of "possible" signal pulses. Further, I conclude that each signal pulse, including both noise and actual pulses, has an associated pulse value.

Other sections of the '779 specification support my conclusions. The device must arrange all of the "possible signal values" before the "predetermined number of them coincide within a specified precision." Id. at col. 2, 30-32. Then, "the value of one or more of the predetermined number of the possible signal values is … considered to be representative of the actual return signal." Id. at col. 2, 32-35. The specification then states "a method for discriminating between an actual return signal and associated noise … [which] comprises the steps of transmitting a series of signal pulses to a target and receiving a number of possible reflected signal pulses therefrom with the possible reflected signal pulses including both noise and actual signal pulses." Id. at col. 2, 55-62.

So, the "possible" signal values consist of both noise and target signals, because the device could not parse out the noise values before receiving all possible values, consisting of both noise and those values "representative of the actual return signal." That the target signal is the "actual" return signal is buttressed by the statement that pulses are transmitted to the target, with possible reflected signals including both noise and actual signal pulses. I conclude that this statement also clarifies that both noise and actual signal pulses are reflected signal pulses.

I agree with Plaintiff that "pulse value should be construed to mean a value that provides information sufficient to permit correlation of the received signal with other received signals to determine which of the received signals represents the actual return-reflected signal, as opposed to random noise signals." Plaintiff's Reply Memo, 3.

I reject Defendants' contention that a pulse value should only refer to "reflected" signals but not "noise" signals. Defendants' Reply Memo, 12. See also, Defendants' Memo, 26 (Defendants argue that "pulse value" is undefined). The '779 patent specification reads, "the possible reflected signal pulses include both noise and actual signal pulses." '779 patent, col. 2,
The '779 patent specification clearly acknowledges that the possible signal pulses include both noise and actual signals. Indeed, even I, a layperson, understand that in order to determine whether a signal is one reflected from the target--here, the "actual" signals--or reflected from other light-reflecting surfaces--here, "noise" signals, there must be a way to identify them so that they may be separated from one another in the process of target discrimination.

Finally, Defendants argue that "pulse value" itself lacks clear meaning. Defendants' Memo, 28-30; Defendants' Reply Memo, 12. Although Defendants point to deposition testimony as support for their contention, see id., they need not go so far. Neither in the plain language of Claim 11 nor in the patent specification is there clear indication of what "pulse value" means. But Defendants assume, and virtually conceded at oral argument, that "the pulse value assigned is a time of flight," contending "… this is not done by the Nikon/ AOI laser range finder." Id.

In any event, construing "pulse value" to mean "time of flight" makes the most sense. As Plaintiff argues, "the claim term pulse value should be construed to mean a value that provides information sufficient to permit correlation of the received signal with other received signals to determine which of the received signals represents the actual return-reflected signal, as opposed to random noise signals …. Indeed, why else would one assign a value to a pulse for the purpose of target discrimination other than to assist in the discrimination process?" Plaintiff's Memo, 3 (citing McAlexander Decl. PP 18-19). Discounting the parties' "battle of experts" over the meaning of "pulse value," I construe "pulse value" to identify time-of-flight data.

CONSTRUCTION: Pulse value should be construed to mean a value identifying time-of-flight data, including noise and signals reflected from the target, that provides information sufficient to permit correlation of the received signal with other received signals to determine which of the received signals represents the actual return or target-reflected signal, as opposed to random noise signals.

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3478

1. Pulse width (claim 1)

Plaintiff's construction: No construction needed

Defendants' construction: "the time interval between the leading and trailing edges of the pulse"

Although plaintiff initially argued that no construction was necessary for this term, at the claims construction hearing, it stated that it would not object to a construction that clarified that "width" was measured in time rather than distance. However, plaintiff objects to defendants' proposal specifying that the width is measured using the "edges" of the pulse. In fact, plaintiff objects to including in the construction any explanation of how the width is measured.

Plaintiff's explanation for this objection is not completely satisfactory. On the one hand, plaintiff says that "[p]eople of ordinary skill in the art know how to measure pulse duration. Engineers do this all the time." Dkt. # 186, at 11. In other words, plaintiff appears to be saying that it is so obvious to one of ordinary skill in the art how to measure pulse width that it is unnecessary to put it in the construction. However, plaintiff also says that "it's easy enough to tell where the edges are" only "when you have an idealized waveform;" a "real waveform doesn't have that kind of edge," suggesting that it will be too difficult to use the edges to obtain a measurement. Similarly, plaintiff acknowledges that experts may disagree about how to measure pulse duration, but suggests "that is a debate [to be resolved by] the jury." Dkt. # 186, at 12.

So, is the term too easy to construe or too hard? Plaintiff never gave a straightforward answer to this question. However, regardless whether it is easy or difficult to measure a pulse, surely plaintiff agrees that a pulse (or anything else) is measured from its beginning to its end, which is essentially what defendants propose to include in the construction. Although it may
be that the beginning and end are sometimes difficult to discern, this does not mean there is no beginning or end or that the
beginning and end are ignored in calculating a measurement.

More open to debate is defendants' choice of the word "edges" to demarcate the beginning and the end. I agree with plaintiff
that defendants have not adequately justified this choice. Defendants cite a computer science dictionary as the source of
their proposal, but in Phillips the court of appeals cautioned district courts not to rely solely on dictionary definitions
because doing so is "unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of
the intrinsic evidence," such as the specification. Phillips, 415 F.3d at 1319. Further, defendants' definition does not come
directly from a dictionary; it is one that defendants modified. The dictionary definition cited by defendants states that a
"pulse width" is "the time interval between the points on the leading and trailing edges of the pulse." Dkt. # 175, Exh. F, at
894 (emphasis added). At the hearing, defendants said they decided to drop the reference to "points" in part because the
patent teaches waveforms with straight edges. However, their only support for this assertion is one figure shown in the
specification:

[SEE FIG.4B IN ORIGINAL]

Defendants' reliance on this figure is unpersuasive for two reasons. First, a description of one preferred embodiment cannot
be read into the claim unless the specification makes it clear that the description relates to the invention as a whole rather
2001)(limitation from specification could be read into claim when specification made it clear that limitation applied to all
embodiments). Defendants have not shown this. Rather, the specification refers to Figure 4B as "an example." '109 Patent,
col. 10, ln. 28. Further, defendants point to nothing in the specification suggesting that Figure 4B represents what the
waveform actually looks like rather than an idealized or simplified form of it used for purposes of demonstration.

Accordingly, I conclude that defendants have not established that claim 1 of the '109 patent requires the pulse to be
measured from its "edges." Further, because neither side advocates a construction using "points on the edges," I am not
prepared to adopt that construction at this time. Plaintiff may be right that the precise method of measurement is a question
of fact that cannot be resolved as a matter of claim construction. Markman v. Westview Instruments, Inc., 517 U.S. 370, 384
(1996) (claim construction is question of law, not fact). However, because the parties appear to agree that the pulse is
measured in time and that the pulse is measured from the beginning to the end, I will incorporate these concepts into the
construction of "pulse width."

**Court's construction: the time interval between the beginning and the end of the pulse.**

### 3479

b. "ON/OFF pulses"

On the basis of some of the invention's preferred embodiments, Ecolux argues that the "ON/OFF pulses" of electrical energy
called for by claim 1 must have a rectangular wave form. Relume contends that the "ON/OFF pulses"' limitation does not
require a specific wave form but only that the invention's power supply employ a switching action to control the current
delivered to the LEDs.

Ecolux's construction ignores the clear meaning of both the claim language and the specification. Claim 1 recites no
limitation on the shape of the pulses' wave form. Nor does the specification. In fact, it notes that at least two types of wave
forms can be utilized by the invention: rectangular and a.c. sinusoidal. Accordingly, I hold that one of ordinary skill in the
art of LEDs would understand that "ON/OFF pulses" does not limit the shape of the pulses' wave form but instead requires
that a switching power supply create the pulses by turning a switch on and off.

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### 3480

(2) Operative to Punch Through a Firewall
The term "operative to punch through a firewall" also appears in claim 53 of the '562 patent. According to Square D, this language should be construed to mean "an application that can initiate the transmission of data from the IED using a trusted, standard application protocol, such as SMTP (email), HTTP (web), or FTP." EI contends that it should be construed to mean that "at least one application that encapsulates or reconfigures power management data contained in a protocol that is blocked by a firewall into a protocol that is not blocked by said firewall." At the Markman hearing, Square D offered an alternative construction: "an application that has the ability to communicate through a firewall."

The specification discusses in some detail the issue of firewalls and the importance to the invention of being able to communicate through a firewall. See U.S. Patent No. 6,751,562 B1, col. 23, line 22 - col. 29, line 3. And, to be sure, the specification discusses embodiments where data is reconfigured (as email, for example). But the specification also states that the described embodiments are "illustrative" and not "limiting." Id., col. 29, line 49. And the Court does not read the specification as requiring that data be "encapsulated" or "reconfigured," as EI urges in its proposed construction. Instead, the specification - consistent with the claim language - simply requires that the application be operative to communicate through the firewall.

The Court adopts Square D's proposed alternative construction and construes the phrase "at least one application operative to punch through a firewall" to mean "an application that has the ability to communicate through a firewall."

The Court agrees with Autobytel's proposed construction and construes the term as "information concerning a potential purchase transaction submitted by a potential buyer and received by a Data Center system." Dealix argues that the term should be construed with the limitation that a purchase request must go directly from a potential buyer to the Data Center system. Dealix cites various excerpts from the specification in support of its argument. See, e.g., Col. 5:9-36, Col. 6:31-33, Col. 7:24-25, Col. 13:37-40. Autobytel contends that the claim language and specification both contradict Dealix's proposed construction. Claim 1 requires, "receiving said purchase request over a computer network from a potential buyer," and Autobytel argues that no limitation is placed on the purchase request requiring it to go directly from the potential buyer to the Data Center system. Col. 18:9-10. Autobytel also points to the language in claim 2 that states, "wherein said act of receiving said purchase request comprises receipt of a request that is transmitted through a plurality of web pages" arguing that because the purchase request can go through a "plurality of web pages" it is not limited to traveling directly from the potential buyer to the Data Center system. Col. 18:30-32. Furthermore, Autobytel points to Column 7, lines 7 to 9 of the specification, which states "in yet another embodiment, the potential buyer may also submit a vehicle purchase request from the third-party computer" arguing that a purchase request does not have to come directly from the potential buyer's computer.

The Court is persuaded by Autobytel's arguments. Claim 2 claims a method for receiving a purchase request through a plurality of web pages. To prevent claim 2 from being superfluous, claim 1 is differentiated in that a purchase request under claim 1 is not transmitted through a plurality of web pages. However, nothing in the claim language or specification prevents a purchase request under claim 1 from traveling through some other type of computer network, one not employing a plurality of web pages, in an indirect path between the potential buyer and the Data Center system. Accordingly, the Court does not construe purchase request with the limitation that it must travel directly from a potential buyer to the Data Center system.

SVS proposes that the term "purchasing value of a card in response to card use" be construed to mean "a value in an account associated with a card or a value stored on a card itself." (D.I. 43 at 15) CAT takes issue only with SVS's use of the word "account." (D.I. 46 at 8) CAT instead construes the disputed term to mean "a value in a central data base identified by the
card (for magnetic stripe cards) or stored on the card (for chip cards).” (D.I. 44 at 18) I agree with SVS that the value of a card is in an account or stored on the card itself.

SVS argues for the "account" limitation here based on the same intrinsic evidence presented in support of the "account" limitation in the term "debit styled card." (D.I. 43 at 15) CAT concedes that use of the word "account" is not per se objectionable, but expresses concern that the word could be used to limit the scope of the patent claims through the implied requirement of a business arrangement between the card holder and the host data processor. (D.I. 44 at 19) I agree with CAT that there is no such requirement. Although the claims, viewed in light of the specification, are broad enough to encompass the situation where a card holder has a business arrangement with the host data processor, nothing in the ’859 patent expressly or impliedly requires such an arrangement.

Thus, I recommend that the Court construe the term "purchasing value of a card in response to card use" to mean "a value stored on a card itself or a value in an account associated with a card (but not limited to situations where the card holder has a business arrangement with the host data processor)."

e. "Qualification Structure"

"Qualification structure" appears in many of the Analysis Control System Claims, and the limitations in which this term appears vary from claim to claim. 16 Claims 104 and 117 of the ’707 patent and Claim 171 of the ’863 patent include the broadest limitation including the term, providing for a "qualification structure controlled by said record structure for controlling access to said system by said individual callers.” The other limitations containing this term vary on how and on what basis access to the system is controlled.

16 The term "qualification structure" appears in Claim 51 of the ’309 patent, Claims 33, 104, and 117 of the ’707 patent, and Claims 49, 50, 65, and 171 of the ’863 patent.

The plaintiffs argue that this term is not subject to means-plus-function analysis because the term "qualification structure" was well known to those of ordinary skill in the art of building interactive voice applications. The plaintiffs contend that "qualification structure" would have brought to mind a computer processor and its software programs to those of skill in the art.

The defendants argue that this term is subject to means-plus-function analysis because it is written in functional terms and has no meaning to those of ordinary skill in the art without more information than is provided in the claim language. The defendants argue that the term does not escape application of 35 U.S.C. § 112, P 6 because it calls to mind a computer processor and its programs, as plaintiffs contend. The defendants argue that the structure in Figure 4 that corresponds to this term is the Qualification Unit 93, the Processing Unit 92, the Memory 98, and the software required to qualify callers. See Column 6, line 56 to Column 7, lines 36 and Column 16, lines 19-31 of the ’707 patent. The defendants contend that the only software that is disclosed in the patents is in the context of the specific formats discussed by Katz, such as game shows, lotteries, and auctions.

The Court concludes that although the term "qualification structure" does not include the term "means," it is subject to 35 U.S.C. § 112, P 6. "Qualification structure" is written in functional terms and the Court is not convinced that it would not have brought to mind sufficient structure to a person of ordinary skill in the art without further reference to the specification. The function performed by the "qualification structure" is controlling access to the Katz system by individual callers. The structures disclosed in the specification that perform this function are the Qualification Unit 93 and the Processor 92 in Figure 4. 17
17 For the term "qualification structure" in Claim 33 of the '707 patent, which provides for "an analysis control system according to claim 26, wherein said limit on use restricts relates to a dollar amount," the defendants claim that the corresponding structures are the Qualification Unit (93) and Look-up Table (99) or Use Rate Calculator (100) in Figure 4, as well as the software required to perform the function of testing the data from callers to specify a basis for entitlement to assess to the Katz system. See Column 17, lines 38-62 of the '707 patent. The Court concludes that these structures designated by the defendants correspond to the qualification structure in Claim 33 of the '707 patent.

4. The term "QUALITY" (claim 22) requires no construction.

1. "quality of result" or "desired quality of result" (claims 9 and 23, respectively)

Omax proposes that the Court adopt the following construction:

Desired quality of result means and includes any characteristic(s) of a part or other work piece that a user desires to result from operation upon the work piece of a machine tool following a desired trajectory. These characteristics include surface finish and dimensional accuracy and precision, as well as uniformity of cut surface. More specific examples include: accuracy in cutting curves; accuracy as to the desired depth of a cut when cutting only partially through a workpiece; and avoidance of any of the following: undesirable marks or troughs, rounding of sharp corners, excessive kerf width; excessive taper, errors (beyond desired tolerance limits) caused by jet lag; deflection of the jet into areas not intended to be cut; and failure to cut portion intended to be cut.

Flow proposes the following construction: "The relative grade of cut surface finish of a work piece (specified by the user) that is cut at a speed just fast enough to cut through a work piece having a virtual thickness equal to or greater than the actual thickness of the material being cut, the grade of quality increasing as the virtual thickness of the material increases. Quality of result does not include dimensional tolerance or precision (e.g. error)." The first parenthetical is included where the construed phrase includes the term "desired."

This claim appears in the following context: "9. A method for determining tool motion control commands for operation of a machine tool on a desired trajectory to achieve a desired quality of result. . . ." '596 Patent, col. 17, ll. 14-16. The term "quality of result" or "quality" appears throughout the specification, as well, including the following:

The resulting finish is assigned a quality of 1. The top half of a material that has just barely been cut through has a much better surface finish than the bottom half. If the speed is reduced so that the jet could just cut through a piece twice as thick, the surface finish is much better. This finish is assigned a quality of 2. Moving slowly enough to cut more than 5 times the material thickness does not significantly improve the finish. Therefore, quality 5 is regarded as the best finish possible.

'596 Patent, col. 14, ll. 58-67 (emphasis added). This explanation in the patent specification appears to suggest that the quality value (Q) relates exclusively to the resulting finish of the piece that is cut. Flow relies heavily on this passage to argue that "quality of result," as used in the claims, is either ambiguous or refers to a single feature of quality: surface finish. Flow argues that the Court should defer to the term as defined by the patentee in this passage. Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999) (requiring "the entry of a definition of a claim term other than its ordinary and accustomed meaning [when] the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term").

Omax concedes that the above-quoted passage focuses exclusively on the finish of the cut, but argues that Flow relies on
that passage to the exclusion of many passages that address other aspects of quality. For example, the claim terms frequently refer to the "uniformity of resulting cut surface." '596 Patent, claim 10, 11. The claims also refer to a method for which the goal is to "limit lag error." '596 Patent, claim 12. The specification frequently refers to both the surface finish and the "precision" of the cut. E.g., '596 Patent, col. 7, l. 31. Other references to characteristics of quality include tapering, troughs, marks, and excessive kerfs, issues that arise in the context of the regularity of speed and the traversing of curves and corners. '596 Patent, col. 14, ll. 30-53, col. 15, l. 40--col. 16, l. 10. These references make clear that the passage referring only to surface finish is only an exemplary, and not limiting, embodiment. See Phillips, 415 F.3d at 1323 (reiterating the requirement to "avoid the danger of reading limitations from the specification into the claim").

The Court finds that this claim term and its use in the patent do not support the narrow reading proposed by Flow. First, it is clear that contrary to Flow's argument, Dr. Olsen never "acted as his own lexicographer" in regards to "quality," nor defined it exclusively as surface finish. According to Flow's approach, if quality does not refer only to surface finish, then it is ambiguous beyond retrieval. This argument is unpersuasive. While the patent's construction of "quality" does not reach the exacting specificity proposed in Flow's construction, it is clear that quality or "cut quality" refers to a variety of characteristics that are recognizable by all experts of ordinary skill in the art. Flow's expert, Dr. Garris, does not deny that issues like lag are related to quality, but limited his argument largely to the notion that an individual of ordinary skill in the art would have read the passage quoted above and assumed that quality for the purpose of the patent focused only on surface finish. Finding this argument unavailing, the Court adopts the following construction: "Quality of result refers to any number of features or characteristics of a cut, including but not limited to surface finish, uniformity of cut surface, precision and dimensional accuracy. A user specifies his or her desired quality of result using an associated value."

A. Quality of Service (claims 10, 13-14, 21, 26 and 28-29 of the '700 patent, claims 1 and 15 of the '248 patent and claims 1 and 5 of the '438 patent)

Plaintiff's Proposed Construction: A quantifiable measure of service provided

Defendant's Proposed Construction: A quantifiable measure of service provided, the measure of the service being provided in terms of a packet loss rate, a maximum delay, a committed minimum bandwidth, or a limited maximum bandwidth.

The parties agree that this term can be defined in part as "a quantifiable measure of service provided," which is how it is defined in the specifications. E.g., '700 pat., col. 3, Ins. 39-41 ("'Quality of Service' in this context essentially means that there is a quantifiable measure of the service being provided."). Although there is some tension in defining "quality" as "quantity," neither party takes issue with that part of the construction, making it unnecessary to consider that point further.

The only dispute is whether the ways in which "quality of service" may be measured are limited to those provided in defendant's proposed construction. Although those types of measurement are identified in the specification, they are identified as examples and not as a restricting definition. '700 pat., col. 3, Ins. 42-44 ("The measure of service being provided may be in terms of a packet loss rate, a maximum delay, a committed minimum bandwidth, or a limited maximum bandwidth, for example.") (Emphasis added.) Because examples may not be read into the claims, In re Omeprazole Patent Litigation, 483 F.3d 1364, 1372 (Fed. Cir. 2007), I must reject defendant's proposed construction and adopt plaintiff's: "a quantifiable measure of service provided."

The Court agrees with Plaintiff and thus adopts Plaintiff's construction of these disputed terms. The phrase "quality value" is construed as "a value that indicates the value of a wireless communications link." The phrase "first link quality" is construed as "a value that indicates the quality of a downlink." The phrase "second link quality" is construed as "a value that indicates the quality of an uplink.

A. Parties' Construction Arguments
Plaintiff argues its constructions are supported by the teachings of the '759 patent, will assist jury, and make the meaning of
the terms clearer. Defendants argue "quality value" should be construed as the "value of a link quality," and Defendants
argue the terms "first link quality" and "second link quality" do not need construction. At the hearing, Defendants agreed
that if the Court wished to construe "first link quality" and "second link quality" that they agreed with Plaintiff insofar as the
"first link" represented the downlink and the "second link" represented the uplink. However, Defendants argue Plaintiff
conflicts the construction of "link quality" with "link quality value" by construing both phrases as "a value." Additionally,
Defendants argue the quality value is a value of the quality of the link, rather than something that "indicates" the quality of
the link. Finally, Defendants argue that Plaintiff incorrectly inserts a requirement that the link be "wireless" without support.

B. Analysis

The Court agrees with Plaintiff's proposed constructions. "Claim construction is a matter of resolution of disputed meanings
and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the
determination of infringement." U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997). Defendants'
proposed constructions are not helpful because they do not add any meaning to these phrases that need clarity. The Court
will first consider "first link quality" and "second link quality." The specification does not explicitly define the terms in
question, but taking an in-depth look at the specification supports Plaintiff's construction. The specification specifically
states that "FIG. 4 illustrates . . . six modulation thresholds (L1-L6, where L1 indicates the lowest link quality and L6
indicates the highest link quality)." '759 patent, 9:5-10 (emphasis added). This supports Plaintiff's "indicates" language.
Further, Figure 4 is an illustration that includes variables representing the values of link quality (e.g., L1-L6), but Figure 5
actually includes example values, such as values of signal to noise ratio, instead of just variables. See '759 patent, 9:66-
10:17. So when reading Figure 5 in conjunction with Figure 4, it becomes clear that the variables L1-L6 are actually values
that indicate the link quality. These variables, L1-L6, are also called the modulation threshold values in the specification,
which are the values used select the modulation scheme. See '759 patent, 2:48-52 (describing the process of "comparing
the determined first downlink quality to a second plurality of modulation threshold values"). Since the modulation scheme
requires comparing the "downlink quality" to the "values," see id., it necessitates that the "downlink quality" or "first link
quality" is a value. Otherwise, if "first link quality" referred to a qualitative measurement as Defendants suggested at the
hearing (as opposed to "value" which is a quantitative measurement), then the comparison with the modulation threshold
values that the specification discusses would not be possible. Consequently, while Defendants argue "first link quality"
cannot be a value or the terms "quality value" and "first link quality" would be conflated, the specification itself conflates
those terms by making the "first link quality" a value, so Plaintiff's construction of "first link quality" and "second link
quality" is accurate.

- - - - - - - - - - - - Footnotes - - - - - - - - - - - -

1 Note that the patent uses "first downlink quality" and "first link quality" interchangeably. See generally '759 patent, 2:8-
57. This is why Defendants at the hearing agreed that "first link quality" refers to the downlink.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

Plaintiff's construction of "quality value" is also accurate. The specification does not mention "quality value." The phrase
only appears in the claim language of claims 11, 13, and 14. But Plaintiff's construction of "quality value" is supported by
reading the context of the claim language. "A claim term used in multiple claims should be construed consistently." Inverness Med.
Switzerland GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1371 (Fed. Cir. 2002). Reading the language in claim 13 and claim 14 is instructive. Claim 13 includes "a signal to noise ratio configured to measure the quality
value" and claim 14 includes "a bit error rate module configured to measure the quality value." So in claim 13 the quality
value is the signal to noise ratio value because presumably the signal to noise ratio module measures signal to noise ratio
values. Likewise, in claim 14 the quality value is the bit error rate value. Therefore, referring back to Figure 4 again, the
specification states that "L1 indicates the lowest link quality," '759 patent, 9:9-10, and the specification in Figure 5 shows
that L1 may be a signal to noise ratio value. Compare '759 patent, FIG. 4; '759 patent, FIG. 5. So in claim 13 the quality
value refers to the signal to noise ratio value that indicates the quality of the wireless communications link. '759 patent, 9:5-
10 ("L1 indicates the lowest link quality") (emphasis added) More generically, therefore, "quality value" is "a value that
indicates the quality of a wireless communications link." Defendants' final argument that Plaintiff's construction erroniously
includes the word "wireless" is groundless—the entire patent relates to wireless communications links—it is even titled

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Hence, the Court agrees with Plaintiff and thus adopts Plaintiff's construction of these disputed terms. The phrase "quality value" is construed as "a value that indicates the value of a wireless communications link." The phrase "first link quality" is construed as "a value that indicates the quality of a downlink." The phrase "second link quality" is construed as "a value that indicates the quality of an uplink."

that at least one of the halogens Cl, Br or I is present in a quantity

The '181 Patent's "Summary of the Invention" describes the potential for tungsten evaporated from the electrodes to be deposited on the wall of the envelope (bulb), thereby causing blackening of the walls which would lead to higher wall temperatures and a shorter life of the lamp. It further describes how the presence of a small quantity of a halogen (chlorine, bromine or iodine) creates a cycle by which the evaporated tungsten is transported back to the electrodes, thereby lessening the blackening. (col. 2, ll. 30-34)

The parties dispute the interpretation of the phrase "that at least one of the halogens Cl, Br or I is present in a quantity between 10^{-6} and 10^{-4} \text{ mol/mm}^3." Neither party disputes that "Cl," "Br" and "I" are the abbreviations for the halogens chlorine, bromine and iodine. I construe "quantity" to mean a concentration--the amount per unit volume.

Philips reads the phrase "is present in a quantity" to mean only such of the halogen that is "participating, supporting and keeping in existence the tungsten transport cycle during lamp operation." (Philips Br. at 14-18; Philips Reply Br. at 4-5.) Philips relies upon the preamble language--"a halogen for maintaining a tungsten transport cycle during lamp operation"--preceding the transitional phrase "characterized in that." I conclude that the phrase "a halogen for maintaining a tungsten transport cycle during lamp operation" identifies a filling material and describes the function of that material and nothing more. The phrase, fairly read, does not qualify or limit the halogen that "is present in a quantity."

Reading the claim as a whole, one of ordinary skill in the art would conclude that the quantity that is stated following the transitional phrase "characterized in that:" means the quantity of halogen in the bulb or envelope. It would be a strained construction to interpret the language to mean an amount of halogen less than the total quantity of halogen present in the envelope, i.e. only such of the quantity of halogen that is necessary "for participating, supporting and keeping in existence the tungsten transport cycle during lamp operation." I also have considered the extrinsic evidence and do not find it persuasive in Philips' favor.

2 "I would say that the quantity being added, when we look to measure this quantity, it is this quantity has to be there that is for the tungsten transport cycle. Any quantities that are there that are not used for the tungsten transport cycle are irrelevant. We're only claiming the quantities in the bulb for maintaining a tungsten transport cycle." (Counsel for Philips, Nov. 22 Hr'g at 38)
a quantity between $10^{-6}$ and $10^{-4}$ [\text{mu mol/mm}^3]$

The parties also dispute the meaning of the phrase "a quantity between $10^{-6}$ and $10^{-4}$ [\text{mu mol/mm}^3]." There is no dispute that the phrase "[\text{mu mol/mm}^3]" means micromoles per cubic millimeter. Iwasaki contends that "$10^{-6}$ and $10^{-4}$" is intended to express a specific numerical range between $1 \times 10^{-6}$ and $1 \times 10^{-4}$ while Philips argues that the phrase refers to a range between two orders of magnitude. Philips points out that there is no multiplier preceding the values "between $10^{-6}$ and $10^{-4}$ [\text{mu mol/mm}^3]." Iwasaki points out that there are no words used such as "on the order of" or "approximately" or "of a magnitude of" that would give a person of ordinary skill in the art an awareness that the number that followed was not a specific numerical value.

I have examined other uses of scientific notation in the specification. There are references to quantities of methyl bromine in quantities of "5.10^{-6}". (col. 3, l. 53) Elsewhere there is a reference to "5.10^{-4} to 5.10^{-2} g atoms of at least one of the halogens per cubic millimeter are fed into the envelope." (col. 1, l. 22.) While the use of a numerical multiplier is of some significance, it is also true that a numerical multiplier is not universally used when the multiplier is 1. 3 For example, to one skilled in the art, $10^5$ means 100,000 and it may also be expressed as $1 \times 10^5$. But, depending upon how it is used, it could also mean an order of magnitude of $10^5$, i.e. any numerical value in the hundreds of thousands. The specific context becomes critical to understanding. Here, I conclude that the use of two numbers in the phrase "a quantity between ____ and ____" implies a specific range, as argued by Iwasaki. It does not imply a range between two values which are themselves ranges.

Philips disclaims inexactitude in its interpretation. (Nov. 22 Hr'g at 78) To bring precision, Philips urges that, utilizing rounding principles, "$10^{-5}$ [\text{mu mol of Br/mm}^3]" (col. 3, l. 54) and conclude it to be ambiguous for the reasons discussed at the hearing. (Nov. 22 Hr'g, compare 25-27 with 56-59.)

Philips relies upon Holmes, et al. (U.S. Patent No. 3,382,396). In that patent in this field of art, quantities of iodine are displayed in a one single table in the form "1x 10^{-5}" and also in the form "10^{-4}". For the reasons discussed at the November 22 hearing, these references are ambiguous.

I note that Claim 5 employees the language "that the mercury vapor pressure is about 400 bar." (emphasis added).
I conclude that the phrase "a quantity between 10^{-6} and 10^{-4} [mu] mol/mm^3" means that the halogen is present in the envelope or bulb in a quantity between 1 divided by 1,000,000 and 1 divided by 10,000 micromoles per cubic millimeter.

C. Claim Construction

We next turn to the question of claim construction. U.S. Philips argues that the term "between 10^{-6} and 10^{-4} [mu] mol/mm^3" expresses a range of orders of magnitude, not a range of more-precise numbers, and that it was therefore error for the district court to construe the claim to mean "between 1 \times 10^{-6} and 1 \times 10^{-4} [mu] mol/mm^3." According to U.S. Philips, one of ordinary skill in the art of lamp chemistry would understand "10^{-4}" to mean something different and less precise than "1 \times 10^{-4}"; i.e., the absence of a coefficient ("1") means that the term encompasses all values that are closer on a logarithmic scale to 10^{-4} than to 10^{-5} or 10^{-3}, or a range of approximately 3.2 \times 10^{-5} to 3.2 \times 10^{-4}. Thus, according to U.S. Philips, the full range should be construed as approximately 3.2 \times 10^{-7} to 3.2 \times 10^{-4} [mu] mol/mm^3, and Iwasaki's lamps with admitted halogen concentrations of 1.2 \times 10^{-4} to 2.0 \times 10^{-4} [mu] mol/mm^3 literally infringe.

--- Footnotes ---

1 In other words, under U.S. Philips's proffered construction, the term "10^{-4}," as an order of magnitude, encompasses a range of values from 10^{-4.5} and 10^{-3.5}--the set of numbers with base-10 logarithms that round to -4. This range is approximately 3.2 \times 10^{-5} to 3.2 \times 10^{-4}. Mathematically, 10^{-4.5} = 10^{-0.5} \times 10^{-5} = \sqrt{10} \times 10^{-5}, and 10^{-3.5} = 10^{-0.5} \times 10^{-4} = \sqrt{10} \times 10^{-4}; the square root of 10 is approximately 3.2.

--- End Footnotes ---

We disagree with U.S. Philips and, like the district court, conclude that the claim limitation is properly construed to mean "between 1 \times 10^{-6} and 1 \times 10^{-4} [mu] mol/mm^3." Although the upper and lower bounds of the claimed range are expressed as powers of ten, this alone is no reason for treating them as anything other than the ordinary numbers that they are. As the district court observed, the overall phrase--"a quantity between --"is a construction that "implies a specific range . . . . It does not imply a range between two values which are themselves ranges." Claim Construction Opinion at 8. The limitation does not refer to either bound as a range, an order of magnitude, or an approximation.

The specification fully supports this construction. In the LAMP 1 embodiment, under the heading "halogen," the '181 patent refers to "5 \times 10^{-6} [mu] mol of CH[2]Br[2]/[mm^3] (10^{-5} [mu] mol of Br/mm^3)." '181 patent, col. 3, ll. 53-54. The parenthetical expression apparently refers to the fact that one molecule of CH[2]Br[2] contains two bromine atoms, so the concentration of atomic bromine (Br) should be double the concentration of CH[2]Br[2]--two times 5 \times 10^{-6}, or 1 \times 10^{-5}. See Tr. of 11/22/2005 motion hearing at 57, ll. 10-11 (Dist Ct. Dckt. No. 64; Fed. Civ. J.A. 1233) ("You simply multiply the number on the first line by 2 because there are two bromines in every mole."). This suggests that "10^{-5}" is used as a synonym for "1 \times 10^{-5}." Moreover, the LAMP 1 example specifies particular quantities for a number of attributes of the embodiment: e.g., an envelope volume of 23 mm^3, filling mercury at a concentration of 0.261 mg/mm^3, and power of 50W. It would be odd to infer in this context that "10^{-5} [mu] mol of Br/mm^3," alone among the specified quantities, refers to a range or order of magnitude, solely because it uses a power of ten. Indeed, there is no use of a power-of-ten quantity such as 10^{-5} anywhere in the specification that requires the broader construction that U.S. Philips advocates. We therefore affirm the district court's claim construction of the halogen range "between 10^{-6} and 10^{-4} [mu] mol/mm^3" as meaning "between 1 \times 10^{-6} and 1 \times 10^{-4} [mu] mol/mm^3."

However, there remains the question of how this construction is to be applied to the accused lamps. Before the district court, U.S. Philips argued that even under a claim construction of "between 1 \times 10^{-6} and 1 \times 10^{-4} [mu] mol/mm^3," a lamp with a halogen concentration toward the lower end of Iwasaki's admitted range--for instance, with a concentration of 1.2 \times 10^{-4} [mu] mol/mm^3--might still literally infringe due to rounding. The question of whether and how to apply rounding, it argued, is a question of fact that should have been left for the jury rather than decided as part of the claim construction or at summary judgment. See Summary Judgment Opinion, 2006 U.S. Dist. LEXIS 71276 at *18-19. The district court disagreed and held that the question of whether to apply rounding should be treated solely as a claim construction issue that did not
present any factual questions for a jury. 2006 U.S. Dist. LEXIS 71276 at *20. U.S. Philips declined to argue its position as to rounding as a matter of claim construction, instead limiting its claim construction argument to its contentions regarding the meaning of the phrase "between 10^-6 and 10^-4 [mu] mol/mm^3," as discussed supra. 2006 U.S. Dist. LEXIS 71276 at *21.

In its opening brief on appeal, U.S. Philips does not challenge the district court's decision to treat the question of rounding as an issue of claim construction, nor does it challenge the district court's entry of summary judgment of no literal infringement under the district court's claim construction. Its sole infringement arguments on appeal are that the bounds of the claimed range refer to orders of magnitude rather than ordinary numbers—the claim construction argument we reject above—and that the doctrine of equivalents should have been available, an argument we address below. Accordingly, we deem the argument based on rounding to have been waived as to the Iwasaki products that the district court considered. See SmithKline Beecham Corp. v. Apotex Corp., 439 F.3d 1312, 1319 (Fed. Cir. 2006) (“Arguments not raised in the opening brief are waived.”). We therefore affirm the entry of summary judgment of no literal infringement as to Iwasaki's alleged acts of infringement after the filing of the complaint. 2 We do not reach U.S. Philips's argument that the question of rounding should have been presented to a jury, nor do we determine in this case where the process of claim construction ends and the literal infringement analysis begins.

--- Footnotes ---

2 In so doing, we do not decide whether and to what extent this waiver applies to further proceedings in this case on remand with respect to alleged literal infringement occurring between the Rolfes letter and the filing of the complaint.

--- End Footnotes ---

We emphasize that the claim construction we affirm today should not be read to state the endpoints of the claimed range with greater precision than the claim language warrants. In some scientific contexts, "1" represents a less precise quantity than "1.0," and "1" may encompass values such as 1.1 that "1.0" may not. See Viskase Corp. v. Am. Nat'l Can Co., 261 F.3d 1316, 1320-21 (Fed. Cir. 2001) (discussing distinction between "0.91 g/cm^3" and "0.910 g/cm^3"). In other words, "1.0" may be said to have more significant digits than "1" with no decimal point. Because "10^-6" and "10^-4" are simply the numbers 0.000001 and 0.0001 expressed as powers of ten, the claim language provides no basis for inferring any level of precision beyond the single digit "1." The way that power-of-ten quantities are used in the specification, discussed supra, confirms that the quantities of halogen described by the claims are not intended to be more precise. Thus, it is technically incorrect to assert, as Iwasaki does in its brief before this court, e.g., Br. for Appellee at 35, that "10^-x" should be construed to mean "1.0 x 10^-x." It means, simply, "1 x 10^-x." "1.0 x 10^-x" expresses a quantity with greater precision, reflected in the recitation of a significant digit following the decimal point.

The claim construction that we affirm today is "between 1 x 10^-6 and 1 x 10^-4 [mu] mol/mm^3," not "between 1.0 x 10^-6 and 1.0 x 10^-4 [mu] mol/mm^3." We leave for another day the question of whether this claim construction is sufficient to answer the infringement questions presented by a future record. See E-Pass Techs., Inc. v. 3Com Corp., 473 F.3d 1213, 1219 (Fed. Cir. 2007) (“Any articulated definition of a claim term ultimately must relate to the infringement questions that it is intended to answer.”).
addressed at this stage of the litigation. To the extent that the Court does construe the phrase, however, OTF proposes that the terms "quantity" and "intensity" be given distinct meanings. In particular, OTF submits that "quantity" refers to area under the reflectance curve and "intensity" refers to the peak reflectance of a color on the reflectance curve. According to OTF, the use of the word "or" indicates that quantity and intensity are alternative methods of measurement, not equivalent terms.

In response, SEC counters that the use of the term "or" is not dispositive, as it can be used to introduce synonyms. SEC argues that the patentee, acting as lexicographer, defined "quantity or intensity" as interchangeable terms that both refer to the area under the reflectance curve.

OTF concedes that the specification states that "[t]he relative quantities or intensities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." However, OTF claims that this language explains the meaning of the term "quantity" only. According to OTF, no explanation of "intensity" was provided because that term is commonly understood by those skilled in the art to mean peak reflectance. SEC counters that "intensity" does not have an accepted meaning to a person of ordinary skill in the art. [65 at 19]; Supp. Hunt Decl. P 5.

SEC also argues that if the Court declines to adopt the specification's definition for the "quantity or intensity" of a color, the patent claims will be invalid for indefiniteness because the same color may fall within the scope of the claims if "quantity or intensity" is defined one way, and fall outside the scope of the claims if "quantity or intensity" is defined in a different way.

2. Analysis

As a threshold matter, the Court must determine whether to construe the phrase "quantity or intensity" during the claim construction phase, or whether such a limitation would be extraneous. A claim limitation is "extraneous" if it is not necessary "to interpret what the patentee meant by a particular term or phrase in a claim." Renishaw PLC, 158 F.3d at 1249. Therefore, if the way in which "quantity or intensity" is measured is "necessary to an understanding of what the [claimed colors] mean," then a claim limitation based on that language would not be extraneous. Alza Corp. v. Mylan Labs., Inc., 349 F. Supp. 2d 1002, 1014 (N.D. W.Va. 2004). For example, in Honeywell Int'l, Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1340 (Fed. Cir. 2003), the Federal Circuit held indefinite a claim that included a specified melting parameter of a polymeric yarn because the claim did not state which of four known sample preparation methods should be used, and "knowing the proper sample preparation method [was] necessary to practice the invention."

Conversely, if the methodology for measuring "quantity or intensity" "is solely an issue of infringement," then the Court should "refuse[] to apply any claim limitation that mandates certain" procedures for determining "quantity or intensity." Alza, 349 F. Supp. 2d at 1014. For example, Alza concerned a patent disclosing an extended release version of the drug oxybutynin. The patent claims did not mention any methodology for measuring the claimed release rates of oxybutynin. Nevertheless, the defendant argued that the court should construe the claims to require all methods of in vitro testing to determine oxybutynin release rates. Id. at 1013. The court noted that, "unlike the sample preparation method in the Honeywell patent, no particular dissolution test is required to manufacture the claimed drug," meaning "a skilled artisan could read the * * * patent, create an infringing drug (assuming enablement), and never employ any testing to determine the release rates of that drug." Id. at 1014. Therefore, the court refused to include a claim limitation mandating certain testing procedures. Id.

Here, each claimed color is defined by comparing the "quantity or intensity" in which it reflects the basic colors. In order to create a printing system featuring the six claimed colors, one must be able to measure the "quantity or intensity" with which a given color reflects the basic colors. For example, in order to select an "orange-red," one would need to be able to measure the "quantity or intensity" with which a given color reflects the basic colors to select one that reflects "red followed by orange and then violet." Because the method for measuring "quantity or intensity" is necessary to practice the invention, a claim limitation construing that phrase is not extraneous. Honeywell, 341 F.3d at 1340.

Turning to the proper construction of that phrase, the Court assumes, arguendo, that the term "intensity" has an ordinary and accepted meaning among persons of ordinary skill in the field of color science, as OTF contends. The Court nevertheless "must look at the intrinsic evidence to determine whether the patentee has given the term an unconventional meaning." Bell Atlantic, 262 F.3d at 1269-70 (affirming district court's narrow construction of claim term "mode" despite recognizing that "the ordinary meaning of the word 'mode' [may] support[] a broader meaning than the construction ascertained by the
district court," where "patentees defined the term 'mode' [narrowly] by implication * * * [in the] specification"). If the patentee "clearly" used the term 'intensity' "in the specification * * * in a manner inconsistent with its ordinary meaning," then the presumption that that term should be construed according to its ordinary meaning is overcome. ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1378 (Fed. Cir. 2003) ("a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims").

The specification states that "[t]he relative quantities or intensities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." '339 patent, col. 3, 11. 8-11. The most natural reading of that sentence is the one proposed by SEC -- for purposes of the patent, the terms "quantity" and "intensity" refer to the area under the spectroscopic graph. If the patentee had intended to provide only a definition of "quantity," as OTF contends, he would have done so by stating that "the relative quantities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." By including the term "intensities" in the definitional sentence, the patentee acted as his own lexicographer and provided an unconventional definition of that term -- namely, the area under the spectroscopic graph.

Other statements in the specification confirm that the patentee elected to use the term "intensity" as a synonym for the term "quantity" meaning the areas under the spectroscopic graph. For example, the terms "quantity" and "intensity" appear together in the specification nine times, and in each instance they appear to be interchangeable. '339 patent, col. 3, 11. 7-27; id. at col. 5, 1. 8; id. at col. 5, 1. 13. The words "intensity" and "intense" are used elsewhere in the specification to describe various colors. See, e.g., Id. at col. 1, ll. 58-59 ("Magenta, Cyan and a mid intensity Yellow are felt to be as close to the 'pure' primaries as possible."); id. at col. 5, ll. 41-42 ("Pigment Violet 19 is a transparent, intense pigment, possessing a high violet content."). However, nothing in the specification suggests that quantity and intensity are not synonyms, or that intensity means peak reflectance, as OTF claims.

Rather, it appears to the Court that OTF is seeking to "proffer an interpretation [of the term intensity] for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history." Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1578 (Fed. Cir. 1995). But the public and OTF's competitors were entitled to rely on that public record, including the specification, to ascertain the scope of OTF's claimed invention. Vitronics, 90 F.3d at 1583. Allowing OTF to alter the meaning of "intensity" now would defeat the public notice function of patent claims, the importance of which has been recognized by the Federal Circuit and the Supreme Court. See Superior Fireplace Co. v. Majestic Products Co., 270 F.3d 1358, 1371-72 (Fed. Cir. 2001). Therefore, the Court must apply the definition of "quantity or intensity" set forth in the specification.

19. Query/Querying

The court defines "query" to mean "a request for information."

2. "Query processing mechanism for processing a given query statement, wherein, upon identifying that the given query statement is on said user-defined reference, communicates with said aggregation module over an interface therebetween to retrieve portions of aggregated fact data pointed to by said reference that are relevant to said given query statement"

The analysis for the previous term also applies to the term "query processing mechanism," which appears in claims 1, 2 and 13. Technical dictionaries, the claim language and common sense indicate that one having ordinary skill would be able to design a software component that, in essence, identifies a particular kind of query and if appropriate, communicates with another module over an interface and retrieves certain data. See Microsoft Computer Dictionary 359 (4th ed 1999) ("processing * * * "The manipulation of data within a computer system. Processing is the vital step between receiving data (input) and producing results (output) - the task for which computers are designed."). Hence, the court rejects Hyperion's
proposed means-plus-function construction and declines to construe this term.

**3494**

1. "Query servicing mechanism, operatively coupled to the aggregation module, for servicing query statements generated in response to user input"

The court concludes that the term "query servicing mechanism" as used in claims 1, 3 and 5 would connote sufficient structure to enable one skilled in the art to create that component. First, technical dictionary definitions contemporaneous with the filing of the patent application suggest that the term itself connotes some structure. See IBM Dictionary of Computing 549 (10th ed 1994) ("query: (1) a request for data from a database, based on specified conditions"). Cf Microsoft Computer Dictionary 404 (4th ed 1999) ("service: * * * (3) In networking, a specialized, software-based functionality provided by network servers - for example, directory services that provide the network equivalent of 'phone books' needed for locating users and resources."). Moreover, the claim describes at least some structure, noting that the "query servicing mechanism" is "operatively coupled to the aggregation module" and that the mechanism services "query statements."

But perhaps most persuasive is that as a practical matter, the court believes that a person of ordinary skill in the art would be able to build a "query servicing mechanism" given that databases and querying are, after all, well-known and ubiquitous technologies. See, e.g., IBM Dictionary of Computing 549 (10th ed 1994) (citing as an example of querying "a request for availability of a seat on a flight reservation system"). And in any event, Hyperion has not shown that it is more likely than not that one of ordinary skill would be unable to build this component. Accordingly, the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term.

**3495**

H. "responding to queries"

Plaintiff argues that this phrase should be construed as "replying to requests to a database for information", relying on the American Heritage Dictionary of the English Language 712 (4th Ed. 2001), the Dictionary of Computer and Internet Words at page 227 and the Shames Declaration. (Dkt. 86 at Ex. 1, p. 2). Defendants argue, as noted, that the entire phrase "a PC type computer electronically connected to said database server for controlling said forms as required and responding to queries entered by each browser-based subscriber," should be construed as "(a) PC type computer, as mutually defined by the parties, that: (1) is electronically connected to the database server; (2) is used to develop and customize forms; and (3) submits information requested by a browser-based subscriber in response to a specific set of instructions entered by the subscriber."

The plain language of Claim 1 provides that the second function of the PC type computer electronically connected to the database server is to respond to queries entered by each browser-based subscriber. (229 patent, col. 5, ll. 12-13). The specification provides that "input and query forms are developed within the system II by billing network PC work stations 38 which are connected at hub 36 . . . ." (Id., col. 4, ll. 13-16). The specification provides that "forms which enter a query into the database server 90 will be output back to the browser-based subscriber terminal 72." (Id., col. 5, ll. 26-28). This citation suggests that information will be provided to the browser-based subscriber in response to a query.

The specification also provides that "the forms also establish query links to the database server 32. Query forms (not shown) are also available for transmission to the remote PC screen of each browser-based subscriber 12 and 20. These query forms provide each subscriber with access to the database server 32 which, in combination with drop-down lists, select the desired account for access to the database of the data server 32 to retrieve the requested information to the screen of the remote PC."

(Id., col. 4, ll. 6-13)(emphasis added).

Defendants suggest that the Court include the phrase "in response to a specific set of instructions entered by the subscriber" in the construction of the term. That construction is not suggested by the specification and would improperly import a limitation into the claim. See Burke, Inc., 183 F.3d at 1340. The Court finds that Plaintiff's proposed construction is
consistent with the plain language of Claim 1 and the specification. The phrase "responding to queries" is accordingly construed to mean "replying to requests to a database for information."

Defendants contend "questions" should be construed to mean: "More than one inquiry that requests an answer and ends with a question mark. Commands and statements are not questions. Menus presenting options are not questions. Words or phrases not in question form that are selected with a cursor or selection device are not questions." Defendants argue that this narrowed definition is necessary to reflect the Applicant's disclaimer of a broader meaning during prosecution to overcome prior art.

During prosecution, the Examiner rejected various claims in view of prior-art patents to Donald and Yourick (U.K. Patent No. 2,177,245 and U.S. Patent No. 4,775,935):

Donald fails to expressly disclose presenting questions to users and receiving answers in order to associate the answers with stored images or text portions. Instead, Donald's system is drawn to generating images or other information in response to direct user entries on a keyboard or user selections from a menu-driven software program.

However, question and answer query systems for presenting a product for selection are known in the art. . . . In particular, Yourick's system queries the user for preferences by asking questions and makes suggestions in response to selected answers in order to present a product most suited to the needs and desires of the user. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of Yourick within the system disclosed by Donald with the motivation of presenting items which most likely appeal to the user.

Office Action 8/29/96, pp. 8-9. The Applicant distinguished his invention from Donald and Yourick:

It is respectfully submitted that Donald and Yourick, alone or in combination, fail to disclose this combination of features. Neither Donald nor Yourick teach, for example, teach or suggest the selection of particular pictures and text segments in response to a customer's answers to computer generated questions. Even if the teachings of Donald and Yourick are combined, the specific claimed combination is not suggested without use of hindsight and the teachings of the present application.

Amendment & Request for Reconsideration, 9/24/96. The Examiner accepted the Applicant's argument:

The prior art fails to teach or fairly suggest, either singly or in combination, the utilization of a customer's answers to computer-generated questions to select stored pictures of products, stored pictures of product environments, and stored text segments, and to compile this information accordingly, so as to generate a customized proposal for the sale of the product. . . . Notice of Allowance, 10/2/96. Defendants contend that the Applicant explicitly argued that neither Donald nor Yourick taught "questions" and "answers," thus disclaiming any broader meaning that "questions" might otherwise convey.

The Court disagrees. Neither the Examiner's rejection, nor the Applicant's argument was premised on a narrowed definition of "questions." Rather, the Examiner clearly reasoned that Donald failed to disclose the claimed combination of "presenting questions to users and receiving answers in order to associate the answers with stored images or text portions." The Examiner did not reason that Donald failed to disclose "questions." Similarly, the Applicant responded that the references did not disclose the claimed "combination of features." The Applicant did not contend that Donald failed to disclose "questions," nor would such an argument have succeeded because Yourick taught using questions. Instead, the Applicant argued the invention's novelty (and non-obviousness) was using questions and answers to select stored product pictures, product environment pictures, and text segments to generate a customized proposal.

Thus, there is nothing in the prosecution history indicating that the Applicant disclaimed a broader meaning of "questions." Further, there is no reason within the patent to believe the Applicant used "questions" in any manner besides its ordinary
meaning. Accordingly, there is no need to construe the term, much less to stringently limit the meaning of "questions" as Defendants would like.

3497

Questions

The Staples Defendants contended "questions" should be construed to mean: "More than one inquiry that requests an answer and ends with a question mark. Commands and statements are not questions. Menus presenting options are not questions. Words or phrases not in question form that are selected with a cursor or selection device are not questions." Hyundai now argues a simplified version of the Staples Defendants' proposed construction--"queries that request answers instead of user selections from a menu."

Hyundai also argues that during prosecution, the applicant distinguished his invention from prior art that utilized "menus" on the basis that his invention utilized "questions." The Court previously examined the prosecution history in the Staples Markman opinion and found "there is nothing in the prosecution history indicating that the Applicant disclaimed a broader meaning of 'questions.' Further, there is no reason within the patent to believe the Applicant used "questions" in any manner besides its ordinary meaning. Accordingly, there is no need to construe the term, much less to stringently limit the meaning of 'questions' as Defendants would like." See Staples Markman opinion, at 9-11.

Hyundai also argues that "menus" and "questions" are used in the specification to refer to different things. See '342 Patent, cols. 15:14-39; 17:54-18:7; 20:22-24; 24:53-25:19; 27:22-56; 29:60-30:32; 32:37-33:5; 37:25-57. While the specification does refer to both "menus" and "questions," it also refers to menus or menu-like interfaces as questions. See '342 Patent, cols. 25:15-19 ("The predetermined questions allow the user to select one of a list of predetermined answers that correspond to the trade-in product of the customer who is to receive the proposal."); 30:28-32 ("The predetermined questions allow the user to select one of a list of predetermined answers that correspond to the financing of a product configuration that is of particular interest to the customer who is to receive the proposal."); 33:1-5 ("The predetermined questions allow the user to select one of a list of predetermined answers that correspond to the life cycle cost relating to a product configuration that is of particular interest to the customer who is to receive the proposal."). Thus, the specification does not preclude menus as types of questions.

Since there is evidence that the applicant did not limit the meaning of "questions" to exclude menus, the Court rejects Hyundai's proposed construction. As there is no other dispute about the term's meaning, the term does not require further construction.

3498

(2). "Queue" Implies an Order.

For the phrase "rental queue," the parties have two primary points of contention: whether "queue" implies an order, i.e., sequence of priority, and whether that order is determined by the provider. Netflix defines the term as the "sequence of movies/items used by a rental provider to determine which movies/items to deliver." Blockbuster contends that this proposed definition conflates the definition of "rental queue" with the concept of "ordered list," another disputed term. It proposes that "item/movie rental queue" should mean "two or more items/movies for future rental or possible future rental, or the names or other representations of two or more such items/movies."

A "queue" has a commonly-understood meaning, specifically, "a waiting line especially of persons or vehicles . . . ." Merriam-Webster, Ninth New Collegiate Dictionary, 1984. This definition inherently implies some kind of sequence or order, such as first come, first served. Netflix also cites to a more technical, computer-programming definition of queue, which defined it as "a sequence of stored data programs awaiting processing" (Ramani Decl. Exh. 9). Thus a queue must have some sequence or order; it cannot merely be a group of things as Blockbuster's proposed definition would suggest.
The idea that a queue must have some sequence or order finds support in the specification. Specifically, the '450 patent stated that "the one or more item selection criteria provided by customer 102 to provider 104 indicate the particular items that customer 102 desires to rent from provider 104. Thus the item selection criteria define a customer-specific order queue that is fulfilled by provider 104" (col. 4:54-58). In that embodiment, movies or items can be added to the queue based on customer selection criteria. The specification does not say precisely the order in which those items were added to the queue. It could be according to some other priority determined by the provider.

Blockbuster argues that including some kind of order in the definition of "item/movie rental queue" would render some claims redundant. Specifically, defendant argues that claim 39 of the '381 patent would add no limitation if this were the case. It recited (16:4-8):

39. A computer-implemented method as recited in claim 34, further comprising determining the order of the two or more movies indicated by the movie rental queue based upon preferences of the customer.

This argument, however, disregards the possibility that the provider, in arranging the queue, may take into account different priorities than those used to create the "ordered list." This is supported by the claim language itself. For example, claim 34 of the '381 patent recited "a movie rental queue associated with a customer comprising an ordered list indicating two or more movies for renting to the customer." The ordered list is part of the queue but may contain additional items arranged according to some other priority.

Finally, Blockbuster argues that the queue cannot have an order because during prosecution of the '450 patent, Neil Hunt, Netflix's CEO and a named inventor on both patents, referred to the queue as establishing a "set" of movies to be rented (Ramani Decl. Exh. 3, P 4). Specifically, the Hunt declared "[t]he pay-per-rental model did not include a mechanism, such as a rental queue, for establishing a set of specified movies from which initial and subsequent movies were rented." Blockbuster argues that this declaration means that the "rental queue" is a "set" which inherently cannot have any order. Hunt's statement does not, however, preclude the set's having some sequence. Hunt was trying to distinguish his invention from prior art rental models by showing that his invention did not require the customer to choose the item he or she wanted to rent on the spot; the item would instead be chosen from a preexisting queue. This statement does not mean that a queue has no order whatsoever.

9. Claim 12 - "Queuing"

In Claim 12, the word "queuing" means placing data into a structure in which items are removed in a first in, first out (FIFO) manner (Tr. 79 ).

8. RF Information Transmission Network/RF Information Network/RF Information Transmission System/RF Transmission System: A combination of circuits and devices for transmitting data, which combination includes a plurality of RF transmitters for transmitting RF signals carrying data and one or more RF receivers for receiving data. Each RF transmitter has a substantial geographic RF coverage area and is interconnected with other RF transmitters. [The combination may include pluralities of local, lata and hub switches].

10. RF Receiver: A device for receiving radio frequency electromagnetic signals, for demodulating the radio frequency electromagnetic signals, and for recovering data that is carried by the radio frequency electromagnetic signals. The RF receiver can be carried by a person outside a home or office and can receive data while being carried.
The next portion of Claim 1 which must be construed is Element (c) which provides for "an RF section for receiving instructions from said microcontroller and for receiving radio frequency information from the mixer and a television station and properly converting the information into video signals which may be sent to said television for viewing."

SuperGuide's position is that the language of the claim constitutes a definition of "RF section." Defendants cite the specification to support their position that the RF section must include a tuner and converter.

The claim and the specification recite three functions for the RF section. The first function is performed when the programming guide is off: "television signals received, such as VHF/UHF channels 2-82, or cable channels 2-62, are sent directly through RF section 64 to the television 40 for viewing." Reiter '578, at Col. 4, ll. 1-8. The second function occurs when the viewer uses the programming guide as a remote control system: "The system 10 may therefore function simply as a remote control device which permits the viewer to change channels. In this mode, according to the command of control unit 32, the microcontroller 60 instructs RF section 64 as to which channel is to be received from antenna 22 or cable 24 and sent to the television 40 for viewing on locally non-used channel 3 or 4." Id., at Col. 4, ll. 21-28 (emphasis added). The third function involves the use of the programming guide by the viewer: "The mixed signal would then be sent via RF section 64 to the television 40 for viewing by the viewer." Id., at Col. 5, ll. 13-15.

Because the inventor clearly intended the system to function as a remote control device, the RF section must include a method for selecting one channel from the many being bombarded at the television. "'[A] claim interpretation that would exclude the inventor's device is rarely the correct interpretation.' . . ." Interactive Gift Express, 256 F.3d at 1343 (quoting Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1550 (Fed. Cir. 1996)). Thus, it is unlikely that those skilled in the art would read the claim and specification as not including such a device. Id. Likewise, the RF section must convert information received from the mixer and the television station into "video signals which may be sent to said television for viewing. . . ." Thus, a conversion device is prescribed by the invention. Reiter '578, supra.

The Court finds the term "RF section" to mean the electronics for (1) receiving radio frequency signals from a source external to the invention; (2) receiving instructions from the microcontroller internal to the invention; (3) making a channel selection pursuant to the instructions received from the microcontroller; (4) receiving and converting signals received from the mixer or a television station into video signals capable of being received by the television set; and (5) transmitted the converted signals to the television for viewing.

The Court next considers the term "RFID tag", found in the claims of the '585 Patent and the '169 Patent. Defendants propose that the term be construed to mean a device designed to send a radio frequency signal upon encountering a radio frequency signal or magnetic field. TSI argues that the term need not be construed. In the alternative, TSI argues that if the term is defined in some way, it should be construed to mean a device designed to send a radio frequency signal upon encountering a radio frequency signal or magnetic field from an RFID reader and which comprises (1) an antenna designed to receive and transmit radio frequency signals containing information that is not dependent upon the material properties of the antenna alone and (2) an integrated circuit that can store information in an associated electronic memory.

Thus, as shown by TSI's alternative construction, the parties generally agree that an RFID tag is a device designed to send a radio frequency signal upon encountering a radio frequency signal or magnetic field from an RFID reader. TSI would add the additional limitations that the tag comprise a particular antenna and an integrated circuit or chip. At oral argument, TSI explained that it believed that no construction was necessary for this term, but if the term is defined, the particular type of RFID tag used in the invention should be described.

The Court might ordinarily consider granting a patent-holder's own request to impose a limitation on the scope of its patent's claims. The excerpts cited by TSI for its alternative construction, however, do not support such a limitation, as they refer
only to embodiments and not to the invention as a whole. See '585 Patent at 3:65-67; '169 Patent at 6:54-58. Moreover, TSI first argues that no construction is necessary, and the Court agrees with that assessment. Defendants have not explained why this term requires construction, and it is clear to the Court that a person schooled in the relevant art would understand the meaning of RFID tag in the context of these claims and its use with an RFID reader. Accordingly, the Court concludes that no construction of the term "RFID tag" is necessary.

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1. "rack"

This term appears in the '366 patent claims 1, 4, 6, 18, 23, 29, 30, 32, 35, 37, 41, 42, 46, and 47. Rackable contends that "rack" means "frame or cabinet for holding multiple computer chassis that can be removed and are accessible after installation, such as a standard industry server rack" Supermicro proposes that "rack" means "a frame or cabinet that contains mounting arrangements for holding electronic devices in a stacked manner."

The essence of the parties' dispute concerns whether "rack" should be construed to mean a particular type of frame or cabinet used in the server storage industry, or whether it should be construed as a more general purpose rack capable of holding all types of electronic devices; and whether the device enables the mounting or the removal of the computers or electronic devices.

Rackable argues that "rack" refers to a particular type of electronic device -- computer chassis -- and enables removal. In support of its construction, Rackable contends that the patent itself targets the computer server industry, and notes that the specification example, figure 4, is of a type of rack used for holding computers in the high-density computer industry. It also argues that figure 4 of the patent demonstrates that the rack is a type that enables the removal of the computers after installation. Rackable further asserts that its construction, referring to the "standard industry server rack," is consistent with the patent itself, which describes a rack whose dimensions are those of a "standard industry server rack."

Supermicro contends that "racks" store electronic devices generally, and enable the mounting of the devices. Supermicro responds that figure 4 to the '366 patent supports its construction. It also relies in part on the expert declaration of Sam Wood. In support of its mounting argument, Supermicro also cites to language in the patent for the proposition that "[i]n a typical setup, the rack will have holes and the electronic devices will contain 'ears' that are screwed into the holes, thus connecting the electronic devices to the rack." It further argues that the specification discloses that the rack can hold items other than computers. Finally, Supermicro asserts that its construction is supported by technical dictionary definitions.

Because the patent is not ambiguous, the court declines to consider extrinsic evidence as to this term. It also declines to adopt either party's construction in full. First, the court finds that the intrinsic evidence supports Rackable's construction that the "rack" holds computers, as opposed to Supermicro's more general construction, which encompasses all "electronic devices." The '366 specification's field, background, and summary of the invention clarifies that the patent concerns the storage of computers, as opposed to simply "electronic devices." There is absolutely no suggestion anywhere in the patent that the rack is utilized for holding other types of electronic devices. See, e.g., Phillips, 415 F.3d at 1313 (person of ordinary skill is "deemed to read the claim term not only in the context of the particular claim . . . but in the context of the entire patent, including the specification").

The court also rejects both of the parties' injection of the mounting and removability limitations on the computers held by the racks. Those are limitations that are not properly read into this court's construction of the claims. The law is clear that it is error to import a limitation from the specification into the claim. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904 (Fed. Cir. 2004). The "fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives." Id. at 908. Nor should an embodiment disclosed in the specification limit the claims. Id. at 906.

In conclusion, the court adopts a modified version of Rackable's construction of the term "rack" as a frame or cabinet for holding multiple computer chassis.

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Claim 55 of the '785 Patent contains the term "radial motion." IPI contends the term means "motion or displacement along one or more rays," while Google contends the term simply means "perceived movement along a ray." The parties' dispute centers around whether there can be movement along more than one ray.

IPI derives its proposed construction directly from the specification, which provides: "'Radial motion' or 'radial displacement' is perceived as motion or displacement along one or more rays." '785 Patent, col: 7:55-57. IPI argues that its proposed construction should be adopted because the inventors acted as their own lexicographers in defining the term "radial motion." However, as Google points out, the specification goes on to clarify that "[a] ray extends from a 'radial source.'" '785 Patent, col: 7:55-57. IPI's proposed construction of "radial motion" would allow the motion to take place across multiple rays in an unbounded fashion, which is unsupported by the specification and the claim language. Google interprets the specification to indicate "that although radial motion can begin along one ray and subsequently shift to take place along a different ray, to be radial, motion must be perceived as movement along a ray." Google's Responsive Brief, at 29-30. Google further argues that the plain language of claim 55 supports its proposed construction that "radial motion" is "perceived movement along a ray": "The method of claim 52 in which the first viewpoint motion includes radial motion, the second viewpoint being displaced radially along a ray extending from the second point of interest through the first viewpoint." '785 Patent, col: 27:15-19.

Although the specification defines the term as including "motion or displacement along one or more rays," "radial motion" along multiple rays is inconsistent with the claim language. The claim language and specification allow "radial motion" to take place along different rays, but the motion can only take place along one ray at a time. To further explain,"radial motion" can take place along one ray, then a request to move to a different point of interest can cause the "radial motion" to shift to another ray. This is illustrated in Figure 7 of the '785 Patent:

[SEE Fig. 7 IN ORIGINAL]
Figure 7 of the '785 Patent

The specification's description of Figure 7 further supports the Court's understanding of "radial motion":

FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint 152.

'785 Patent, col: 12:9-19 (emphasis added). Accordingly, the Court adopts Google's proposed construction and construes the term "radial motion" to mean "perceived movement along a ray."

1. "Radiant Energy." Used in Claims 1, 3, 4, 12, and 24-30.

Flashmark suggests "the forms of energy described in [dependent] Claims 3 and 4, or any form of heat or range of light wavelengths." GTECH proposes "energy transferred by electromagnetic waves, rather than by conduction or convection." The main dispute here is whether "radiant energy" is limited to electromagnetic energy, or can include heat transferred by contact with a hot object (conduction) and heat transferred by hot liquid or gas moving past an object (convection).

A common example may help illustrate the difference. A microwave oven uses the part of the electromagnetic spectrum known as microwaves to heat food. A microwave safe plate will not feel hot after being placed in an operating microwave
oven. However, the microwave will heat food on that plate. When the food heats, the plate can become hot from the transfer of heat from the food through conduction.

Flashmark maintains that the patentee acted as his own lexicographer in defining "radiant energy" as both electromagnetic energy, such as visible light and infrared light, and as "heat," of a type which is not electromagnetic energy. Flashmark points to language in the specification such as "a particular form of radiant energy, whether it be heat or light . . . ." '153 Patent Col. 1, 11. 65-66. Several other similar references are made in the specification, and the claims themselves use phrases such as:

"3. The article of claim 1 wherein said particular form of radiant energy comprises heat." Col. 7, 11. 30-31;

"4. The article of claim 1 wherein said particular form of radiant energy comprises a range of light wavelengths." Col. 7, 11. 32-34; and

"5. The article of claim 4 wherein said range of light wavelengths covers from about 750 nanometers to about 950 nanometers." Col. 7, 11. 35-37.

Flashmark invokes the doctrine of claim differentiation to assert that "heat" must therefore surely be different than "light." They are different, but that does not answer the question of whether one of ordinary skill would understand "radiant energy comprises heat" to refer to some form of energy outside of the electromagnetic spectrum. As discussed below, "light" and "heat" are commonly used to describe different bands of wavelengths in that spectrum.

In spite of Flashmark's impassioned arguments, the patentee provided no special definition of "radiant energy." On the other hand, the task is not made easy by a clear intentional disclaimer. The court is faced with the familiar problem of the "twin axioms," which require reading claims in view of the specification but forbid importing limitations from the specification into the claims Liebel-Flarsheim Co. v. Medrad, 358 F.3d 898, 904 (Fed. Cir. 2004). Resort to dueling canons of construction is not going to resolve this dilemma.

No single statement in the patent nor in the prosecution history is sufficient by itself to determine the meaning of "radiant energy." Rather the court must examine the claim, the specification, the prosecution history, and relevant scientific principles to determine how one of ordinary skill trying to use, or design around, the invention would have understood the term.

Scientific Principles Relevant to the Art

A court may not attempt to define claim terms from extrinsic evidence. However, the "customary meaning" of a term "refers to the 'customary meaning in [the] art field.'" Phillips, 415 F.3d at 1313 (citation omitted). A review of basic, uncontroversial scientific principles provides "an objective baseline from which to begin claim interpretation." Id. The words of the claims are viewed from the point of view of one of ordinary skill in the art - in this case, someone with a knowledge of science, including the properties of energy.

The parties agreed that "light," in its everyday meaning, and as used in this patent, is a form of electromagnetic energy that travels at specified wavelengths. The parties also agreed that the electromagnetic spectrum can be divided into ranges, shown generally on the chart, attached as Appendix A, and discussed at the hearing as Court Exhibit 1.

The ranges are marked on the chart in micrometers or one thousandth of a millimeter, denoted by the symbol "[mu] m." The patent uses the unit of measurement known as the "nanometer," 31 which is one thousandth of a micrometer. So Claim 5's description of light wavelengths "from about 750 nanometers to about 950 nanometers" would be shown on the chart from about .750 [mu] m to about .950 [mu] m. As shown on the chart, this would range from about the bottom end of the visible red light spectrum into what is called the "near infrared" area on the chart. Longer wavelengths, from about 5.5 [mu] m to about 1000 [mu] m fall into what is sometimes denoted as "thermal infrared." 31 This is generally the range of electromagnetic radiation felt as heat and used in cooking.

Language in the Claim and Specification

Given a basic understanding of the electromagnetic spectrum, it would not be unusual for one skilled in the art to understand "heat" as referring to energy at a particular wavelength. With this interpretation, Claims 3, 4, and 5 are simply dependent
claims, each of which limits the broad scope of "radiant energy" of Claim 1 to a smaller portion of the electromagnetic spectrum. This does no violence to the presumption that flows from claim differentiation. See Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006). Of course, this does not by itself dispose of Flashmark's claim that "heat" may be something other than radiant energy.

Claim 1, upon which each of these claims is dependent, limits "radiant energy" to "a particular form . . . not normally present in ambient light . . . ." Col. 7, 11. 21-23. This phrase is important, because, as discussed in more detail below, it was added by the patentee to overcome a rejection by the PTO. Flashmark admits that "light" refers to a portion of the electromagnetic spectrum, but insists that "heat" does not. If "heat" as used in this patent is not in the form of electromagnetic waves, it is not going to be "in," i.e., a component of, ambient light. 3 Flashmark has shown no basis to ignore this limitation of the independent claim.

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3 Claim construction can not rest the sophistical argument that anything placed in a room can be "in" the room's ambient light, but since the non-electromagnetic heat source is not normally "in" a room it meets the limitation of Claim 1.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Independent Claim 24 teaches a device that invalidates the voidable articles and documents of Claims 1 - 23. It describes "a radiant energy source which exposes at least a portion of said article to a dose of radiant energy . . . ." Col. 8, 11. 34-35. Again, the dependent claims describe a variety of forms of "radiant energy" including "heat." But all are dependent upon Claim 24, in which the patentee carefully chose "dose" to describe the application of radiant energy. It would be unusual to describe the application of a heated scanner head to an article as a "dose." However the use of "dose" is consistent with radiation in the form of wavelengths of the electromagnetic spectrum. The dependent claims 25, 26, 27, 28, 29, and 30 would then each describe the "dose of radiant energy" of Claim 24 as occurring in different bands of the spectrum.

The use of "dose," by itself, is not enough for the court to construe the term in dispute. It must be taken in conjunction with the other references discussed. However, it is illuminating that in describing the device that voided his voidable articles, the patentee made no attempt to formulate a claim, nor to describe in the specification, any application of "heat" by contact with heated metal, ceramic, or other material (conduction), nor through exposure to moving heated gas or liquid (convection).

One of ordinary skill in the art would know of the different types of energy transfer. A voidable article could be touched with a hot material (conduction) or placed in a blast of hot air (convection). But nearly every use of the word "energy" in this patent is preceded by the word "radiant." Except in the discussion of prior art, there is no hint in the specification, nor in the prosecution history, of an article or document placed in direct contact with a hot surface or exposed to heated air or other gas. Accordingly, the claims and specification support a construction of "radiant energy" as part of the electromagnetic spectrum.

Prosecution History

Another indication of the way in which claim language was interpreted at the time of the application is seen in the "Supplemental Information Disclosure Statement." See Supplemental Information Disclosure Statement, 1.28/1991, FLASH 0000061-63 in GTECH's Ex. E [Doc. #107, Attach. # 11, p. 1-3 of 76]. 4 As required by law, the patentee was disclosing relevant prior art. Obviously an applicant does not submit a disclosure with the statement "this prior art invalidates our requested patent." Instead the applicant points out that while the disclosed art may be relevant, it is distinguishable. Distinctions drawn between the patented invention and prior art may be useful "since they indicate in the inventor's own words what the invention is not." MBO Labs., Inc. v. Becton, Dickinson, & Co., 474 F.3d 1323, 1330 (Fed. Cir. 2007).

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4 The court is not engaging in prosecution disclaimer analysis, but rather is examining how the term was used in the prosecution history at the time of the invention.

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In this case the patentee disclosed European Patent Application No: 0 305 211 ("Herbert"), with the explanation: "Herbert discloses a mail item treated with heat sensitive material. Heating causes the material to turn color." Supplemental
Information Disclosure Statement, 1/28/1991, FLASH 0000063 in GTECH's Ex. E [Doc. # 107, attachment # 11, p. 3 of 76]. The Herbert Application describes applying a thermal print head to items treated with a heat sensitive material that changes color when heat is applied. See European Patent Application No: 0 305 211, pp. 2-3 in GTECH's Ex. J [Doc. # 107, Attach. # 16, pp.3-4 of 8].

In other words, Herbert discloses a heated surface (the thermal print head), applied to "a material peculiarly responsive to" the heat from that heated surface, causing the item to change color. Unless one is to assume that the patentee in the present case intended to inform the PTO of invalidating prior art, the "heat" and "heat sensitive materials" of Herbert are not what was claimed in the '153 patent by "radiant energy" and "material peculiarly responsive to a particular form of radiant energy."

Finally, the correspondence between the patentee and the Examiner indicate that both understood "radiant energy" to refer to energy of particular wavelengths. The Examiner initially rejected claims 1-23 as unpatentable over earlier patents that had disclosed materials that changed colors upon exposure to light. "It would have been obvious to have made the Jenkins tickets respond to non-visible wavelengths of energy as taught by Parrotta in order to obtain energy levels . . . ." Office Action, 3/26/1991, FLASH 0000065 in GTECH's Ex. E [Doc. # 107, attachment # 11, p. 5 of 76](emphasis added).

The patentee did not respond that his invention claimed a form of "heat" that was not part of the electromagnetic spectrum at all, and thus was not affected by these prior references. That would have run afoul of the Herbert patent. Rather, the patentee amended Claim 1 by adding "not normally present in ambient light in amounts sufficient to cause said material to discolor." Response to Office Action, 6/28/1991, FLASH 0000078 in GTECH's Ex. E [Doc. # 107, Attachment # 11, p. 18 of 76]. As discussed above, the added language indicates that the "radiant energy" of Claim 1 can be defined by wavelengths, as can "ambient light." Otherwise, the amendment means nothing, and was used only as a subterfuge to confuse the Examiner.

This understanding is confirmed by the Examiner's Reasons For Allowance, which substitutes "radiation" for "radiant energy."

Claims 1-23 and 36 are considered allowable over the prior art because the art of record does not disclose or teach voidable machine-readable articles or documents utilizing a material responsive to radiation which is not normally present in sufficient amounts in ambient light.

Notice of Allowability, p. 2, 9/10/1991, FLASH 0000085 in GTECH's Exhibit E [Doc. # 107, Attach. # 11, p. 25 of 76] (emphasis added). It strains credulity to argue that either the patentee or the Examiner even imagined that the language of the claims referred to energy that was not part of the electromagnetic spectrum and thus would not be part of the waves that make up ambient light.

Flashmark argues that the Examiner could have been referring only to Claim 14, which describes documents (not articles) exposed not to "radiant energy," but to "a sufficient intensity of non-visible wavelength light . . . ." Col. 7,11.62-63. But Claim 14 simply limits the kinds of articles to documents, and the range of wavelengths to those in the non-visible range. Only a very strained interpretation of the referenced dialogue in the prosecution history would support a conclusion by one skilled in the art that "radiant energy" refers to anything other than energy in the form of specified wavelengths of the electromagnetic spectrum.

In the end, the court must determine what the patentee invented and, more importantly, described. This description can not be read from the point of view of the present patent holder years after the patent was issued, nor of a lawyer, nor even from that of the uneducated inventor operating in a field of art strange to him. The description in the patent is addressed, "as section 112 says, to those skilled in the art to which the invention pertains or with which it is most connected." Phillips, 415 F.3d at 1313 (citation omitted). Accordingly, the court must reject Flashmark's argument that Mr. Johnson had only a high school education and, lacking a sophisticated scientific background, might have created his own definition that "radiant energy not normally present in ambient light" includes heat other than that present in the electromagnetic spectrum. The court construes this term as follows:

"Radiant Energy" means "energy transferred at certain wavelengths and frequencies of the electromagnetic spectrum."
3. A radiation absorbing material with a sheet resistance providing at least 50% absorption in said spectral range (claims 35-38)

Plaintiff argues that this term means "material having sheet resistance, wherein the material absorbs at least 50% of incident radiation in the specified spectral range." Though Defendants originally proposed a different construction, they agreed at the Markman hearing that this term means "a layer of material that absorbs, through its sheet resistance, at least 50% of incident radiation in the specified spectral range." See Transcript of April 9, 2008 Markman Hearing ("Markman Tr."), 68:7-8. Moreover, both parties agreed at the Markman hearing that sheet resistance provides radiation absorption.

--- Footnotes ---
1 The court initially proposed a similar construction--substituting "effective sheet resistance" for "sheet resistance"--to account for the radiation reflected from the ground plane, as discussed herein, although both parties argued that the meaning of "effective sheet resistance" is unclear.

--- End Footnotes ---

The specification describes that "free carrier absorption [] can be optimized by choice of resistivity, thickness, and gap from stack 144 to ground plane 192." '663 patent, 7:53-56. The patent then explains that Fig. 7 illustrates the absorption A on a metal film of thickness t and resistivity [rho], with absorption A approaching slightly less than 50% absorption at its peak. Id. at 7:57-65; Fig. 7. It then describes how "the addition of a thick conducting layer parallel to the metal film and at a distance of 1/4e away" increases absorption to nearly 100%. Id. at 7:66-8:2. The specification, therefore, describes how the spacing of a radiation absorbing material at a distance of 1/4 wavelength from a thick conductive layer will significantly enhance the absorption capability of the radiation absorbing material. Indeed, the "Summary of the Invention" portion of the specification explains that "[t]he distance between the suspended resistance material and the underlying reflective substrate is one-quarter of the wavelength of the center of the infrared spectral band and provides enhanced infrared absorption." '663 patent, 2:27-31.

Describing a preferred embodiment, bolometer 140, the specification then describes that "the distance from electrodes 148 and 152 to ground plane 192 is set at" one quarter wavelength. Id. at 8:3-7. Given this 1/4e spacing, the specification explains that "only the ratio of resistivity-to-thickness enters into the absorption analysis" (i.e., because the spacing has already been determined) and that adjustments may be made to compensate for the resistivity of the material to allow for greater absorption. Id. at 8:18-25. Defendants argue that this statement means that only resistivity and thickness enter into the absorption analysis at any point, although the specification's description of absorption and the preferred embodiment in columns 7 and 8 clarifies that each of resistivity, thickness, and spacing is a factor in a material's ability to absorb radiation. See id. at 7:53-56. The specification statement upon which Defendants rely reiterates that resistivity and thickness are the only factors that enter into the absorption analysis after spacing has been determined.

Plaintiff's primary concern with the court's proposed construction at the Markman hearing was that "a layer of material that absorbs, through its sheet resistance, at least 50% of incident radiation in the specified spectral range" is ambiguous in that it appears to require that the sheet resistance alone--without regard for the spacing from the ground plane and without regard for any radiation reflected from the ground plane--absorbs at least 50% of incident radiation. However, the court's construction necessarily takes into account the total incident radiation absorption, including incident radiation initially absorbed by the sheet resistance and incident radiation absorbed by the sheet resistance as a result of the positioning of the layer of material (e.g., absorption after reflection from the ground plane).

The court construes "a radiation absorbing material with a sheet resistance providing at least 50% absorption in said spectral range" to mean "a layer of material that absorbs, through its sheet resistance, at least 50% of incident radiation in the specified spectral range."
IV. "Radio"

The Court first turns to the term "radio." This term appears in claim 1 of the ’059 patent and claims 1 and 2 of the ’925 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes construing "radio" as "radio receiver and an audio output component." Bosch proposes that "radio" means "radio receiver and a loudspeaker device used to project audible sound."

B. The Construction Of "Radio"

The parties agree that the term "radio" includes a "radio receiver" plus at least one other component. The parties disagree on what that additional component must include. Bosch argues that in order to be a "radio," a "radio receiver" must be combined with "loudspeakers." The Court disagrees and finds that a person of ordinary skill in the art at the time of the invention, after having read the intrinsic record, would have understood the term "radio" to not require the presence of loudspeakers. The plain claim language does not mention loudspeakers or any similar component. Rather, the claim language merely requires that the "radio" is enclosed and that it includes a "radio receiver." Although the specification mentions "loudspeakers" it does not contain any language indicating that they are a required component of a radio. n4 It would be improper for the Court to incorporate the additional structure of loudspeakers into the plain claim language of "radio." Dayco Prods., Inc. v. Total Containment, Inc., 258 F.3d 1317, 1325 (Fed. Cir. 2001).

n4 The Court notes that Bosch's position would require that a person of ordinary skill in the art would not consider a "Walkman radio" a "radio" unless the headphones were connected. Bosch has not convinced the Court that this should be the case. In fact, at the Markman hearing, counsel for Bosch referred to an audio car stereo, not connected to any loudspeakers, as a "radio." (Markman Transcript at 58:4.)

The portions of the intrinsic and extrinsic record relied on by Bosch also support a construction of "radio" that does not require loudspeakers. Bosch relies on the declaration from its expert, Harvey A. Brodsky ("the Brodsky Declaration"). As Black & Decker points out, the Brodsky Declaration suffers from several deficiencies. First, it states its opinions of the understanding of one of ordinary skill in the art in the present tense. Federal Circuit law is clear that the Court is to construe the claims from the vantage point of a person of ordinary skill in the art at the time of the alleged invention, which in this case is around 1997. Phillips, 415 F.3d at 1313 (citing Innova, 381 F.3d at 1116). Next, the Brodsky Declaration does not provide that Mr. Brodsky ever reviewed the intrinsic record. Phillips, 415 F.3d at 1313 (citing Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998)). Rather, the Brodsky Declaration contains conclusory unsupported opinions. See Phillips, 415 F.3d at 1318. Accordingly, the Court assigns this declaration very little probative value. Even if the Court did give weight to the Brodsky Declaration, his testimony confirms that a "radio" does not necessarily include loudspeakers. Referring to various possible components of a radio, Brodsky states that "without any one of these circuits, the tuner circuit, the voltage regulator circuit, or the amplifier circuit, the radio device will not operate properly." (Brodsky Decl. P12.) Brodsky, therefore, concedes that even in the absence of one of these components, the device is still a "radio" device, even if he opines that it will not work properly. Accordingly, under Brodsky's opinion, even if given significant weight, a radio does not necessarily include loudspeakers.

Bosch further relies on the specification, arguing that the "Summary of Invention" section states that one of the goals of the claimed invention is to overcome ambient noise present in construction sites. This stated objective, however, does not require that the "radio" limitation, itself, be capable of overcoming ambient noise. Rather, the claimed invention, comprised of all claimed components, should be capable of achieving this objective. n5
n5 Bosch concedes that the term "radio" as used in the preamble is different than the term "radio" as used in the claim body.

Next, Bosch relies on U.S. Patent No. 6,427,070 (the '070 patent), filed on March 4, 1999, by a Black & Decker engineer, Roger Q. Smith. The '070 patent provides that "radio circuitry may include an FM Front End integrated circuit, [], in combination with a low frequency power amplifier integrated circuit, []." (R. 54-1; Ex. D, col. 3, ll. 63-67.) The '070 patent continues that "the radio circuitry may be replaced with other circuitry for producing audio signals to the speakers via circuitry used with a cassette deck, compact disk or other methods to play music." (Id. at col. 4, ll. 4-7.) The '070 patent is extrinsic evidence and the Court cannot use it to rebut a plain and ordinary meaning provided in the intrinsic evidence. Phillips, 415 F.3d at 1317. Even if the Court did rely on the '070 patent, the portions of the specification cited by Bosch do not require that a "radio" include loudspeakers. Most notably, the specification states that radio circuitry "may" be replaced with other circuitry for producing audio signals, and is therefore permissive. (R. 57-1; Ex. D., col. 3, ll. 54-60.) Accordingly, neither the intrinsic or extrinsic evidence of record supports incorporating a limitation of "loud speaker" into the plain language of the claims and the Court construes the term "radio" as a "radio receiver and an audio output component."

The Court adopts CSIRO's proposed construction and construes the term "radio frequencies" to mean "the frequencies in the portion of the electromagnetic spectrum that is between the audio-frequency portion and the infrared portion." Buffalo urges the Court to construe "radio frequencies" to mean "frequencies, in excess of 10 GHz but still within the electromagnetic spectrum normally associated with radio signal propagation, i.e., less than or equal to 300 GHz," and argues that the doctrine of prosecution history estoppel prevents CSIRO from asserting its preferred construction.

The claim terms' context supports CSIRO's construction. Reading the term "radio frequencies" in both the asserted and unasserted claims, one of ordinary skill in the art would interpret that term to connote all frequencies in the radio portion of the electromagnetic spectrum. Construing "radio frequencies" to mean a range between 10 and 300 GHz would contradict the term's ordinary meaning n2 and render numerous claims substantively identical in scope. The doctrine of claim differentiation makes Buffalo's construction presumptively unreasonable because under the doctrine each claim in a patent is presumed to have a different scope. Comark, 156 F.3d at 1187; Beachcomber v. Wildewood Creative Prods., Inc., 31 F.2d 1154, 1162 (Fed. Cir. 1994). The specification explicitly identifies different embodiments of the invention, some of which operate at "radio frequencies" and others that operate "in excess of 10 GHz."

n2 The parties do not dispute that the ordinary meaning of "radio frequencies" connotes a range of 3 KHz (three thousand cycles per second) to 300 GHz (three hundred billion cycles per second).

Buffalo concedes these points but argues the patentees disavowed CSIRO's construction of "radio frequencies" during prosecution and therefore the doctrine of prosecution history estoppel renders Buffalo's construction the only legitimate one. Accordingly, argues Buffalo, the doctrine of claim differentiation permits adopting that construction.

Specifically, Buffalo argues that although certain claims in the 069 Patent mention an invention transmitting at frequencies exceeding 10 GHz and other claims mention an invention transmitting simply at "radio frequencies," the patentees' 1992 Australian patent application and 1993 U.S. patent application mentioned only an invention transmitting at frequencies exceeding 10 GHz. Buffalo argues that the patentees never intended to patent an invention that transmitted at frequencies exceeding 10 GHz.
less than 10 GHz and that the patentees replaced certain references to the 10 GHz limitation with the less restrictive "radio frequencies" only when they realized Institute of Electrical and Electronics Engineers standards for wireless LANs would likely permit operation at frequencies less than 10 GHz. Buffalo contends that this replacement introduces "new matter" into disclosure of the invention, which 35 U.S.C. § 112 prohibits. Therefore the claims must be limited to the scope of the embodiments describing transmission above 10 GHz.

The claim differentiation doctrine's presumption is rebutted if the claims will bear only an interpretation that makes them identical. Autogiro Co. of Am. v. United States, 384 F.2d 391, 404, 181 Ct. Cl. 55 (Ct. Cl. 1967); see also Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998) ("The doctrine of claim differentiation can not broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence."). However, Buffalo errs when it contends that the law makes its construction of "radio frequencies" the only permissible interpretation. Buffalo cites Schering Corp. v. Amgen, Inc., 222 F.3d 1347, 1352 (Fed. Cir. 2000), to support its argument regarding new matter, but the Federal Circuit in Schering imposed limitations on a term based on the patentee's explicit disavowals during prosecution, not because the patentee improperly introduced new matter. See Affymetrix v. Hyseq, Inc., 132 F.Supp.2d 1212, 1219 (N.D.Cal. 2001); Reiffin v. Microsoft, 64 U.S.P.Q.2d (BNA) 1107, 1112 (N.D. Cal. 2002). Determining whether the patentee introduced new matter during prosecution is not appropriate during claim construction. See, e.g., Pliant Corp. v. MSCMktg. & Tech., Inc., 416 F. Supp. 2d 632, 643 n.5 (N.D. Ill. 2006) (finding that the issue of new matter "is not a matter for claim construction"); Reiffin, 64 U.S.P.Q.2d (BNA) at 1112 ("Courts do not [determine] whether a patent contains new matter at the claim construction stage."

Buffalo likewise misapprehends the law of prosecution history estoppel. Prosecution history estoppel normally arises when a patentee narrows the patent's scope through amendment to avoid prior art. See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 735-36, 122 S. Ct. 1831, 152 L. Ed. 2d 944 (2002) ("Festo II"). This precludes the patentee from recapturing subject matter through the doctrine of equivalents that the amendment relinquished. See id. at 733-34; Wang Lab. v. Mitsubishi Elecs. Am., 103 F.3d 1571, 1577-78 (Fed. Cir. 1997) (holding that prosecution history estoppel "preclud[es] a patentee from regaining, through litigation, coverage of subject matter relinquished during prosecution of the application for the patent"). Prosecution history estoppel helps ensure that the doctrine of equivalents is used only to protect subject matter not affirmatively surrendered. See Festo II, 535 U.S. at 734-35. Though the Supreme Court has held that amendments for purposes other than avoiding prior art may still give rise to estoppel, only a narrowing amendment gives rise to estoppel. See id. at 735-36 ("Estoppel arises when an amendment is made to secure the patent and the amendment narrows the patent's scope."); see also Bus. Objects, S.A. v. Microstrategy, Inc., 393 F.3d 1366, 1375 (Fed Cir. 2005); Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 344 F.3d 1359, 1366 (Fed. Cir. 2003) ("Festo III") (holding that "if the amendment was not narrowing, then prosecution history estoppel does not apply"). In this case, the portions of the 1995 amendment at issue replaced certain references to "in excess of 10 GHz" with "radio frequencies." There is no dispute that these were broadening amendments. Prosecution history estoppel thus cannot apply.

Finally, Buffalo points to nothing in the specification or prosecution history that reflects the patentees' clear and express disavowal of multipath propagation at frequencies below 10 GHz. An express disavowal is the only kind that the law will consider as effective. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324-25 (Fed. Cir. 2003) (disavowal of claim scope in prosecution history must be unequivocal); see also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed Cir. 2001) ("Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the [patent's] claims . . ."); Cutlor Corp. v. A.E. Staley Mfg. Co., 224 F.3d 1328, 1331 (Fed. Cir. 2000) ("Claims are not correctly construed to cover what was expressly disclaimed."). Indeed, Buffalo foregoes any argument that the patentees disavowed multipath frequencies below 10 GHz entirely and relies solely on its prohibited new matter and prosecution history estoppel arguments, neither of which apply.

Therefore, the Court adopts CSIRO's construction and construes "radio frequencies" to mean "the frequencies in the portion of the electromagnetic spectrum that is between the audio-frequency portion and the infrared portion."

Radio Frequency Communication Switch

Fenner seeks to define "radio frequency communication switch" as "a personal communications system switch including
radio frequency links," whereas Defendants argue for, "a telecommunications device, with a radio frequency interface, that selectively connects calls."

Fenner's proposed limitation "including radio frequency links," implies that radio frequency links are incorporated into or constitute a part of the radio frequency switch. However, radio frequency links are better understood as avenues or conduits that connect discrete parts. In support of its construction, Fenner cites a passage of the specification that reads, "[a] plurality of personal identification numbers are able to communicate with a personal communications systems switch via wire line and radio frequency links." '706 Patent, Col 2, In. 32-34. The term "via" in Fenner's reference instructs that the personal identification numbers and personal communications systems switch are separate elements that communicate through the wire line and radio frequency links, whereas Fenner's construction suggests that radio frequency links are a part of a radio frequency switch. Defendants' phrase "radio frequency interface" more accurately reflects the relationship between the radio frequency switch and the radio frequency links.

Neither "a personal communications system switch" nor "a telecommunications device" is necessary or clarifying and could potentially inject confusion into the construction. Further, the Court declines to adopt Defendants proposed phrase "selectively connects calls" for the reasons discussed in the section on "calls." Accordingly, the Court construes radio frequency switch to mean, "a switch with a radio frequency interface."

Element (c) of claim 1 contains the phrase "radio frequency information" which is described as coming from the mixer and a television station. SuperGuide argues that "radio frequency information" is either analog or digital information which may be carried or derived from a radio frequency carrier signal. And, SuperGuide notes the information received from the mixer is not modulated but still qualifies as radio frequency information because it can be modulated in the RF section for viewing on a television. Thus, digital television signals also qualify as radio frequency information because they may be modulated onto a carrier wave.

The Court rejects this attempt to bootstrap technology which was not in the state of the art at the time of this invention. The specification provides that when the programming guide is not in use, "television signals received, such as VHF/UHF channels 2-82, or cable channels 2-62, are sent directly through RF section 64 to the television 40 for viewing." Reiter '578, at Col. 4, ll. 5-8. The Court has construed "regularly received television signals" to mean analog signals.

The Federal Circuit has indicated that in certain situations, a narrow written description may constitute a basis for adopting a narrow construction of otherwise-broad claim language. The Federal Circuit has held that the literal meaning of a claim is fixed upon its issuance. Variants of a claimed invention that are based on after-developed technology could not have been disclosed in a patent. When a claim is written sufficiently broadly to cover after-developed technologies, the claims may be construed to limit their scope to those technologies disclosed in the written description of a patent.

IPPV Enter., 106 F. Supp. 2d at 605 (quoting Wang Labs., Inc. v. America Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999) ("The only embodiment described in the '699 patent specification is the character-based protocol, and the claims were correctly interpreted as limited thereto.")) (other internal citations omitted). Such is the case here. The specification limits radio frequency information to the type of television signals being broadcast in 1985 and may not be broadened to encompass the construction urged by SuperGuide and Gemstar. Thus, the phrase is construed to mean modulated or unmodulated analog signals containing television programming and video information received either from the mixer internal to the system or from a television station. It does not include digital television signals.
The plain and ordinary meaning of "radio receiver" is a receiver that receives radio signals. The radio receiver of Claim 61 must meet the functional limitation that it be capable of "receiving a command." The word "command" has a commonly understood meaning when interpreted with respect to radio signal processing. A "command" is "[o]ne of a set of several signals . . . that occurs as a result of interpreting an instruction; the command[] initiate[s] the individual steps that form the process of executing the instruction's operation." INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERING (IEEE) DICTIONARY OF STANDARDS TERMS, 193 (7th ed. 2000). Thus, a command is a particular species of radio signals, i.e., one which communicates an instruction to perform an operation.

The specification contains the following Figure 5, which illustrates that the inventors used the word "command" with its plain and ordinary meaning:

FIG. 5 is a pictorial diagram of a preferred digital format for a base station to remote unit transmission, generally indicated by the numeral 180. The digital message format 180 includes a command field 182 and a plurality of unassigned bits 190 reserved for future application. . . .

('770 Patent, Col. 7:61-65.) The parties dispute whether the word "command" should be construed to include a radio signal having a particular strength if the signal strength causes the radio receiver to perform an operation.

From the specification as a whole, but in particular from Figure 5 and the accompanying discussion, it is evident that the "command" which the radio receiver must be capable of receiving under Claim 61 is a "command" from the base station. In the specification, the inventors use the word "command" to discuss a particular kind of signal, i.e., one representing an instruction from the base station to the remote unit that requires the remote unit to perform an operation. When used in this fashion, the meaning of "command" is narrower than the meaning of "signal," even were a "signal" to carry the characteristic of "signal strength." A "command" is a certain type of signal--one that communicates an instruction to perform an operation rather than a characteristic upon which an operation may be performed.
12 The construction that the radio receiver receive a command from a "base station" is required by the claim language disclosing a "remote unit" which contains a "selection circuit." It is also required by the specification in which the relevant embodiment of the "selection circuit" discloses that the command be received from a base unit. See discussion in Section (IV)(B)(5).

V. "Radio receiver for receiving radio signals and generating audio output signals responsive thereto"

The Court next turns to the term "radio receiver for receiving radio signals and generating audio output signals responsive thereto" from claim 1 of the '059 patent and claim 1 and claim 2 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker proposes construing the term "radio receiver for receiving audio signals and generating audio output signals responsive thereto" as "a portion of the radio for receiving radio signals and converting the signals to audio output signals." Bosch argues that the term means "radio circuit board including at least a tuner circuit, having a voltage regulator, for receiving radio signals and an amplifier circuit for generating audio output signals responsive thereto."

B. The Court's Construction

Here, the language of the claims plainly defines the term "radio receiver." Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003) (finding that a patentee defined a term by how he used the term in the claims themselves). Because the "radio" includes the "radio receiver," the receiver is a portion of the radio. Further, the claim language specifies that the "radio receiver" receives radio signals and generates audio output signals responsive thereto. Bosch argues that the claimed "radio receiver" must include at least a tuner circuit, having a voltage regulator, for receiving radio signals and an amplifier circuit for generating audio output signals responsive thereto. Bosch, however, does not point to any part of the claim language requiring the structure of an "amplifier circuit" and a "voltage regulator" within the scope of the claimed "radio receiver." Instead, Bosch relies on extrinsic evidence. Extrinsic evidence, however, cannot trump the plain meaning of a term set forth in the intrinsic evidence. Phillips, 415 F.3d at 1317.

Further, even if the Court relied on Bosch's extrinsic evidence, such evidence does not support a construction of the claimed "radio receiver" limited to having an amplifier and a voltage regulator. Bosh first relies on the Brodsky Declaration. As discussed above, however, the Court gives the Brodsky Declaration little weight.

Bosch next argues that the '070 patent from a Black & Decker engineer confirms that a "radio receiver" necessarily includes an amplifier circuit and a voltage regulator. The '070 patent, however, actually evidences that a "radio receiver" is not limited as Bosch suggests. As Black & Decker points out, the '070 patent provides that "Amplifier 46 may also amplify signals received from an auxiliary input 13, allowing a user to play a separate cassette disk or compact disk player through the radio." (R. 57-1; Ex. D.) The fact that an amplifier can receive signals from a cassette disk or compact disk suggests that the amplifier does not necessarily have to be included with the radio receiver. Further, the '070 patent states:

Persons skilled in the art should recognize that the specific circuitry for each component is well known in the art. For example, the radio circuitry 44 may include an FM Front End integrated circuit, such as the Sanyo LA1186N used in a well-known manner, in combination with a low frequency power amplifier integrated circuit, such as the Toshiba TA8227P used in well-known manner.

(Id. at col. 3, ll. 61-68.) This permissive language suggests that a radio receiver is not limited as Bosch proposes.

Last, at the Markman hearing, Bosch introduced various dictionary definitions of the term "radio receiver." The McGraw-Hill Dictionary of Scientific and Technical Terms (5th Edition) defines "radio receiver" as "a device that converts
radio waves into intelligible sounds or other perceptible signals," but that definition goes on to state that a "radio receiver" is a "also known as radio." (Markman Hearing, Bosch Ex. 100.) Because the parties agree that the claim language requires that the terms "radio receiver" and "radio" have different scopes, this definition does not reflect the view of one of ordinary skill in the art after reviewing the intrinsic record. The Illustrated Dictionary of Electronics (1994) defines "radio receiver" as "the complete apparatus that selects, demodulates, and reproduces a radio signal for purposes of communication [ ]." This dictionary, however, also defines "radio" as "2. Radio receiver," and therefore suffers from the safe defect as the McGraw-Hill definition. Further, the definition from the Illustrated Dictionary of Electronics, actually supports Black & Decker's proposed construction. Although that dictionary definition states that a "radio receiver" "selects, amplifies, demodulates, and reproduces a radio signal," the plain claim language of the asserted patents states a "radio receiver for receiving radio signals and generating audio output signals responsive thereto." It does not make sense that the inventor would specify two of the functions of a radio receiver (as set forth in the Illustrated Dictionary of Electronics), if he intended for all of those functions to necessarily be present in structures that were part of the claimed "radio receiver." Rather, the Court finds that one of ordinary skill in the art at the time of the invention would understand that the inventor was setting forth the requirements of the claimed "radio receiver" in the claim language itself. Accordingly, the Court construes the term "radio receiver for receiving radio signals and generating audio output signals responsive thereto" as "a portion of the radio for receiving radio signals and converting the signals to audio output signals."

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n6 The Federal Circuit recently clarified the role of dictionaries in the claim construction process. See Phillips, 415 F.3d at 1322-24. There, the Federal Circuit confirmed that "judges are free to consult dictionaries and technical treatises." Id. at 1322. Although, a claim "should not rise or fall based upon the preferences of a particular dictionary editor, or the court's independent decision, uninformed by the specification, to rely on one dictionary rather than another." Id.

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XII. "Radio receiver means for receiving radio signals and generating electronic audio output signals responsive thereto"

The term "radio receiver means for receiving radio signals and generating electronic audio output signals responsive thereto" appears in claims 9 and 10 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker asserts that the term "radio receiver means for receiving radio signals and generating electronic audio output signals responsive thereto" is a means-plus-function term under 35 U.S.C. § 112, P6. Black & Decker contends that the claimed function is "receiving radio signals and generating electronic audio output signals responsive thereto" and the claimed structure is a "radio circuit board or the corresponding structure thereof." Bosch proposes construing this term as a "radio circuit board including at least a tuner circuit, having a voltage regulator, for receiving radio signals and an amplifier circuit for generating audio output signals responsive thereto."

B. The Court's Construction

The parties agree that the term "radio receiver means for receiving radio signals and generating electronic audio output signals responsive thereto" is a "means-plus-function" limitation, invoking section 112, paragraph 6. That section of the Patent Act provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, P6. The Federal Circuit has held that "claim construction of a § 112, P6 limitation includes identifying the
claimed function and determining the corresponding structure or act disclosed in the specification." Versa Corp. v. Ag-Bag Intern. Ltd., 392 F.3d 1325, 1328 (Fed. Cir. 2004).

The parties agree that the claimed function is "receiving radio signals and generating electronic audio output signals responsive thereto." Further, the parties agree that the corresponding structure in the specification for performing this claimed function is the radio circuit board, identified as reference number 33 in Figures 6 and 7. The parties disagree, however, on whether the radio circuit board must necessarily include a tuner circuit, having a voltage regulator, that receives signals and an amplifier circuit that generates audio output signals. As discussed above in Section V.B. with respect to the term "radio receiver," there is no support in the intrinsic record for the Court limiting the radio receiver or the radio circuit board 33 to having an amplifier and a voltage regulator. Accordingly, the Court construes the term "Radio receiver means for receiving radio signals and generating electronic audio output signals responsive thereto" as a § 112, P6 claim term where the claimed function is "receiving radio signals and generating electronic audio output signals responsive thereto" and the claimed structure is "the radio circuit board disclosed as item 33 in Figures 6 and 7, and any equivalent structure thereof."

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2. "a radio transmitter connected for receiving the remote unit location, the at least one switch output, defining a switch status, and transmitting the remote unit location and the switch status"

There are several aspects to the dispute with respect to the radio transmitter limitation of Claim 55: (a) whether the limitation is subject to § 112 P 6; (b) the construction of the phrase "radio transmitter," particularly with reference to the functions it performs; and (c) the construction of the phrase "switch status." The Court proceeds to consider each issue in turn.

a. Inapplicability of means-plus-function

As with the navigational receiver limitation discussed above, the Court finds that although functional language is included in the claim, the radio transmitter limitation is not a means-plus-function limitation subject to construction under § 112 P 6.

b. "for receiving the remote unit location, the . . . switch output, . . . and transmitting the remote unit location and the switch status"

The second issue is the construction of the functional phrase radio transmitter 5 "for receiving the remote unit location, the . . . switch output, . . . and transmitting the remote unit location and the switch status."

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5 The parties have not indicated that there is a dispute over the phrase "radio transmitter." The Court invites the parties to address this issue if there is a dispute.

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The claim language describes a particular type of radio transmitter--one that is capable of the following functions: (1) "receiving the remote unit location" and "switch output, defining a switch status" and (2) "transmitting the remote unit location and the switch status." The Court examines the specification for any discussion of these functions.

Figure 11 of the '770 Patent, reproduced below, is an embodiment useful for construing the functional language of Claim 55. It illustrates a "radio transmitter connected for receiving the remote unit location" and for "transmitting the remote unit location and switch status." 6

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6 For purposes of this patent, the inventors use "switch" and "sensor" interchangeably.

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The written description which discusses Figure 11 states:

The navigational receiver 304 receives navigational information, as for example from global positioning satellites 336. The navigational receiver 304 converts the navigational information into a location of the remote unit 302 and outputs the location 338 to the radio transmitter 314 for transmission to the base station 318. The sensor 308 provides an output signal 310 and defines a sensor status. The output signal 310 is connected to the radio transmitter 314 for transmitting the sensor status to the base station 318.

('770 Patent, Col. 11:29-38.) Thus, for purposes of defining the function "for receiving the remote unit location, the . . . switch output, . . .and transmitting the remote unit location and the switch status" as used in Claim 55, a person of ordinary skill in the art would understand that the inventors meant the functionality and connectivity illustrated in Figure 11 and described in the associated written description.

The parties have agreed that "switch status" means "the description of the state of the switch." (Joint Claim Construction Chart at 17, Docket Item No. 212.) This definition is largely in accordance with the plain meaning of switch status.

However, the Court modifies the construction submitted by the parties to mean: "information on the state of the switch."

The parties dispute whether the switch status must be "directly" received from the switch in light of the prosecution history of Claim 11 of the '390 Patent. 7 The Court finds that Claim 11 of the '390 Patent describes a different radio transmitter than does Claim 55 of the '770 Patent. 8 Since the claim language is different, the prosecution history with respect to Claim 11 of the '390 Patent does not constitute a disavowal of claim scope for purposes of construing Claim 55 of the '770 Patent. See Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc., 473 F.3d 1173, 1182 (Fed. Cir. 2006). Although the plain language of Claim 55 requires that the radio transmitter be "connected," the Court declines to read into the claim any limitation with respect to "connected" as "direct," "indirect" or otherwise.

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7 (See, e.g., Plaintiffs' Responsive Claim Construction Brief at 17, hereafter, "Opposition CCB," Docket Item No. 202.)
8 The "for" clause of each of these claims defines a purpose for each radio transmitter limitation. Particularly, Claim 11 of the '390 Patent requires "a radio transmitter for transmitting demodulated navigational information, the precise time-of-day information, and the switch status" while Claim 55 of the '770 Patent requires "a radio transmitter connected for receiving the remote unit location, the at least one switch output, defining a switch status, and transmitting the remote unit location and the switch status." (See '390 Patent, Col. 29:50-53; '770 Patent, Col. 22:60-23:2.) Thus, each of these radio transmitters form different limitations, as they are defined by different functional requirements.

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Accordingly, the Court construes the phrase "a radio transmitter connected for receiving the remote unit location, the at least one switch output, defining a switch status, and transmitting the remote unit location and the switch status" as used in Claim 55 of the '770 Patent to mean: a radio transmitter that is connected: to the navigational receiver and receives the remote unit location from the navigational receiver; to at least one manually operated switch and receives switch output, defining the state of the switch. The radio transmitter transmits the remote unit location and information on the state of the switch.

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3. Random Access Memory

Lectrolarm proposes that "random access memory" should be construed to mean:

"a read/write memory that permits access to any of its address (storage) locations in any desired sequence with similar access time to each location."
The Defendants would interpret "random access memory" to mean:

random access memory is completely synonymous with RAM and means a volatile memory that permits access to any of its address (storage locations in any desired sequence with similar access time to each location, and that also has a read access time that is similar to its write access time. RAM is one of two mean classes of electronic memory that are mutually exclusive, the other class of which is ROM. RAM includes static RAM and dynamic RAM. ROM includes masked ROM, PROM, EPROM, and EEPROM (including flash memory).

The parties agree that to a person of skill in the art the terms "random access memory" and "RAM" can have different meanings but disagree about which definition applies in the '088 patent. (Pl.'s Br. at 81.) In particular the parties disagree about whether "random access memory" includes both volatile and non-volatile memory.

The claim states that the storing means includes a "random access memory." U.S. Patent No. 4,974,088, Column 10:48-49. The structure that performs the function claimed in a means-plus-function claim must be disclosed in the specification. See, e.g., Gemstar, 383 F.3d at 1361. The specification never uses the words "random access memory;" it uses the term "RAM" extensively. The court concludes that the phrase "random access memory" in the claim refers to the term "RAM" in the specification. Because these terms are used in conjunction with a means-plus-function claim, it is the duty of the court to construe the term used to disclose a structure in the specification, not in the claim. Therefore, "random access memory" is defined as "RAM" as that term was understood in 1989.

The specification includes structures labeled RAM and structures labeled ROM. The patent clearly contemplates that RAM and ROM are different. Whatever definition the court chooses for RAM must exclude ROM as that term was understood in 1989.

Whether the definition of "random access memory" includes both volatile and non-volatile memory depends on the definitions of "RAM" and "ROM" to a person of ordinary skill in the art in 1989. Lectrolarm has presented the definition of "random access" from the fourth edition of the IEEE Dictionary, which was printed in 1988:

random access (computing systems). (1) Pertaining to the process of obtaining data from, or placing data into storage where the time required for such access is independent of the location of the data most recently obtained or placed in storage. (2) Pertaining to a storage device in which the access time is effectively independent of the location of the data.

IEEE Dictionary, 411 (4th ed. 1988). This definition does not address the term "RAM," the issue of volatility, or the difference between "RAM" and "ROM."

Absent illuminating intrinsic evidence or useful dictionary definitions or treatises from the relevant time period, extrinsic evidence should be consulted. Vitronics, 90 F.3d at 1584. The intrinsic evidence demonstrates only that "RAM" and "ROM" are different, it does not discuss how they are different. The parties have not offered any dictionary definitions or treatises from the relevant time period that discuss the difference between "RAM" and "ROM." Therefore, any extrinsic evidence can assist in construing the term "random access memory."

The distinction between "RAM" and "ROM," and whether "RAM" includes both volatile and non-volatile memory, was argued extensively in Pelco. (Pelco Decision at 85.) The Pelco court heard testimony from experts for both Lectrolarm and Pelco and appointed an independent expert to present evidence on the issue. The Pelco court determined that "in 1988 the terms RAM and ROM were mutually exclusive. The Random Access memory (RAM) referred to in the patent is a volatile memory with fast write capability and similar read and write times." (Pelco Decision at 84.) The Pelco court disposed of the issue as follows:

A court appointed expert consultant testified October 15, 2002. His testimony unequivocally establishes that Random Access Memory (RAM) as used in the '088 patent, is volatile and that as of 1988, to one skilled in the art, the term ROM, including PROMs, CPROMs, and EEPROMs, were mutually exclusive from Random Access Memory (RAM). The definition of random access memory, RAM, as used in the '088 patent, is interpreted as a volatile memory with high-speed read-write memory that permits access to any of its address (storage) locations in any desired sequence with similar access time to each location.
Both Lectrolarm's expert, Dr. Rhyne, and the Defendants' expert, Dr. Horowitz, agree that "RAM" means a volatile memory. (Rhyne Decl., P 58; Horowitz Report, P 36.)

Lectrolarm's expert Dr. Rhyne included in his expert report citations from a number of dictionaries and treaties that suggest that around 1989 the term "RAM" was a synonym for "random access memory" and would have included non-volatile memory. This argument misses the central point. The question is not whether the term "RAM" when presented in isolation would have been understood by a person of skill in the art in 1989. The question is what a person of skill in the art would have understood "RAM" to mean when presented in the context of a document showing it to be something different from "ROM."

The court construes "random access memory" as "synonymous with the term 'RAM' as that term was used in 1988, but not including 'ROM' as that term was understood in 1988. It is a volatile memory that permits access to any of its address (storage) locations in any desired sequence with similar access time to each location. ROM includes masked ROM, PROM, EPROM, and EEPROM."

Burst argues that the applicable functional language is "storing the time compressed representation." Burst notes that both experts concede that this term is specific enough to connote a particular class of structures. In particular, Burst argues that Apple's expert, Dr. Halpern, agreed that "random access storage" describes a "general class of structure." Halpern Dep. at 253. Burst further relies upon the prosecution history of the '995 Patent to demonstrate that the applicant used "random access storage" as a noun without the word "means" to connote structure. See, e.g., '995 Patent File History, Payne Dec., Exh. 9 at APBU 89 (describing new claims as directed at the ability to "store the time compressed representation of the audio/video source information in a random access storage.") Burst also points to devices in the '995 Patent that provide random access memory, such as DRAM and optical disc memories, as examples of the types of random access memory. See
The report of Burst's expert supports this view. While Dr. Hemami contends that the term would be "self-descriptive" to one ordinarily skilled in the art in 1988, she further notes that "[i]t would be clear that random access storage could be provided by many types of media and that any such media would be acceptable as long as it provided [this] subject to design constraint." Hemami Report at 44. The specification discloses certain examples of the types of random access storage that would meet these constraints. See '995 Patent at 6:8-19 (listing DRAM, SRAM and CMOS memory as types of random access storage). Apple's expert, Dr. Halpern, observed that "there are a wide variety of different classes of structures that provide random access storage, including magnetic and optical disks, RAM and ROM." Halpern Dec. 34-35; see also Halpern Dep. at 258 (noting that "random access storage . . . [is] a general class of structure). While Halpern concludes that the term "random access storage" does not connote sufficient structure, his identification of various structures associated with the term belies this conclusion. "That the disputed term is not limited to a single structure does not disqualify it as a corresponding structure, as long as the class of structures is identifiable by a person of ordinary skill in the art." See Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1322 (Fed. Cir. 2004). Halpern's admission that the term connotes a set of structures, however general, indicates that "random access storage" is structural in nature. See id. (construing "circuit" as structural because it connoted a general class of structures). Thus, the court is satisfied that "random access storage", unlike "storage", connotes sufficient structure to one ordinarily skilled in the art. Section 112(6) does not apply to this term.

Burst's proposed construction comports with this understanding of the term. Therefore, the court construes "random access storage means" to mean "storage that provides for random access to any given segment of stored audio/video source information."

4. Randomly Selected

The final term requiring construction is "randomly selected," which appears in Claims 13 and 14. Those claims describe each particular object as being associated with unique "randomly selected" authorized information comprised of machine-readable code elements. The term is thus substituted in Claims 13 and 14 for the term "detectable series" in Claims 1-12. The specification does not define the term.

Alliance contends that the term means exactly what it says: selection according to a random process, without any pattern or predictability whatsoever, as in a generator that selects digits based on cosmic noise. It argues further that the term cannot include pseudo-random selection, which is apparent randomness that has been generated purposefully, as by a computer algorithm or other program. CIAS does not disagree with Alliance's definition of pseudo-random or argue that a computer or algorithm can generate anything besides a pseudo-random number. It contends, however, that a person of ordinary skill in the art understands "randomly selected" to include information selected by both true and pseudo-random means.
Each side has provided expert testimony to support its position, but neither expert provides additional support, making their assertions less helpful. The specification is silent. Alliance makes the somewhat convoluted argument that because the specification does not teach the use of an algorithm for information selection - which no party disputes would be a pseudo-random selection process - "randomly selected" should be construed to refer only to true random selection. But Alliance does not argue, nor could it, that the use of an algorithm is the only means of pseudo-random selection, so that its absence necessitates the exclusion of pseudo-random selection altogether.

Each side points to prior art to support its position. Alliance cites to Shoshani, which explicitly defines "random numbers" as true random numbers, as well as pseudo-random numbers." Alliance argues that Shoshani must have included this definition because the normal meaning of "random" as excluding pseudo-random would otherwise apply. In other words, Shoshani had to provide its own definition to bring pseudo-random within "random." In turn, CIAS cites to U.S. Patent No. 6,048,269 ("Burns"), a slot machine system patent, which discloses use of a "unique random number" that nonetheless is generated by a computer and therefore pseudo-random. CIAS cites also to U.S. Patent No. 4,448,419 ("Telnaes"), a gaming machine patent, which uses a "random number generator" to select the machine's stopping position. See generally id., Exhibit N ("Telnaes Patent"). It is not clear from the Telnaes claims or specification, however, whether the patent relies on a true or pseudo-random number generator, and thus it is also not clear what Telnaes meant by "random." Although Mr. Storch, one of the '422 patent inventors, states that he is familiar with the "type of slot machines described in" the Telnaes patent and that they do not use true random number generators, his professed experience with that genre of slot machines (which may very well include slot machines other than those described in Telnaes) cannot circumscribe the Telnaes language itself. See Storch Decl. P15.

Finally, Alliance argues further that a sibling patent by the same inventors, U.S. Patent No. 5,367,148 (the "'148 patent"), recognizes that "random" does not include pseudo-random. A court may look to a sibling patent and the common application for the meaning of shared terms used in similar contexts. Both the '148 and '422 patents include the term "randomly selected" in the context of choosing information for counterfeit detection.


The '148 patent describes a system in which "each random portion may contain one or more randomly selected digits. A random number generator may be used which may, e.g., randomly select digits based on cosmic noise." n112 The '148 specification goes on to state, "with the applicants' random technique, the problems and worries described above for traditional serial numbers and ID numbers in accord with a secret algorithm are simply avoided." n113 This distinction between the results of the '148 "randomly selected" technique and those of pseudo-random algorithmic methods indicates that the '148 technique is a true random one and, therefore, that the '148/'422 inventors used "random" to mean true random.


N113 Id. at 10:63-65.

Further, during prosecution of the '148 patent, the inventors described another patent, Zoltai, as disclosing a system in which

"[so-called] random process units at a central and remote location output the same code in response to the same unit. The "random" in [Zoltai's so-called] random process units is a misnomer. If both [Zoltai] units are truly random generators, there should be an infinitesimal or no chance for them both to output the same number at the same time . . . [In fact,] Zoltai [elsewhere] discloses that the patterns are not random but 'predetermined from within the units' . . . Thus, [Zoltai does] not disclose the use of random numbers." n114

Thus, the '148 inventors took prior art to task for using the term "random" incorrectly to include pseudo- or non-random information. This correction further clarifies that when the inventors themselves used "randomly selected" in the '148 patent, they referred to true random selection.

n114 Roberts Decl., Exhibit P ("'148 File History") at 7.

Since the '148 and '422 patents are siblings, the identical claim language of the former can be considered in construing the '422 patent's claims. n115 Although it is a close question, the Court concludes that "randomly selected," as used by the '148 and '422 inventors, refers to true and not pseudo-random selection.

The district court construed "unique authorized information" as meaning "information associated with each object, unique to that object and authorized by the '422 patent's system, but excluding information other than serial information alone or randomly-selected information alone." Taking cognizance of Alliance's accused systems and drawing on the prosecution history, the district court ruled that "unique authorized information" excluded a combination of serial and randomly-selected information. The district court held, and CIAS had conceded, that "[s]ince part of the SDS eTicket identification number is not a detectable series, the entire held numbers are not a detectable series, and so that SDS series does not include that element." CIAS argues that this does not avoid infringement, on the correct construction of "unique authorized information."

CIAS argues that "unique authorized information" includes "multi-digit identifying numbers unique to a [gaming] ticket," including data such as associated pairs or sets containing pseudo-random computer-generated numbers. Alliance points out that such associated pairs were described in a patent to Shoshani, U.S. Patent No. 3,833,795, that CIAS presented during reexamination of the '422 patent. CIAS argues that the claims were not rejected on Shoshani, and that during reexamination the inventors explained that "Shoshani, like Simjian, applies to a set or an associated pair of numbers . . . one number of the pair is a serially-selected identification number . . . . The other number of the pair is a randomly-selected control number . . . ."

The district court observed that during reexamination the inventors emphasized that the '422 invention did not include comparison of pairs of numbers as in Shoshani. Although CIAS stresses that there was no rejection based on Shoshani, and thus no amendments were made or needed, this does not negate the arguments made during reexamination in order to distinguish Shoshani. We agree with the district court that the reexamination recharacterization of Shoshani requires the construction that the '422 claims exclude information other than serial information alone or randomly-selected information alone.

During reexamination the inventors also addressed the previously cited reference to McNeight, U.S. Patent No. 4,463,250 entitled "Method and Apparatus for Use Against Counterfeiting." McNeight describes a system that detects counterfeit mass-produced articles such as currency notes, drivers licenses, passports, share bonds, tickets for sporting events, etc., according to a detectable series and through the use of a secret algorithm. Upon amendment of the '422 claims during the original prosecution, the CIAS inventors had explained to the examiner: "[T]he claims herein may be distinguished from McNeight et al. [who teach] use of an algorithm . . . . This is risky from a security standpoint . . . because once the algorithm was either deduced or stolen, then a counterfeiter could . . . counterfeit with increased impunity." The '422 inventors thereby distinguished McNeight, explaining that the '422 patent's authorized information is "not generated by an algorithm."

Applying the positions taken during the '422 examination and reexamination, the district court construed "randomly selected" in claim 13 to mean "true random" numbers, that is, numbers "without any pattern or predictability whatsoever," rather than "pseudo-random, which is apparent randomness that has been generated purposefully, as by a computer algorithm or other program." The court reasoned that the scope of the patent was voluntarily narrowed, in light of McNeight and Shoshani, to exclude the use of solely serial information or solely randomly-selected information.

CIAS argues that it did not disavow "multi-part" numbers during reexamination, and that the statements made during reexamination were not disclaimers. CIAS points out that to constitute a disclaimer, any statements made during the patent's prosecution require "clear and unmistakable statements of disavowal" of the specific claim interpretation at issue, quoting Cordis Corp. v. Medtronic AVE, Inc., 339 F.3d 1352, 1358 (Fed. Cir. 2003). CIAS contends that no clear and unmistakable disavowal occurred in the '422 patent's prosecution, and that the additional reference of Shoshani presented for reexamination was merely cumulative of the prior art previously of record. CIAS states that its discussion of Shoshani and McNeight did not limit any claim or disavow any subject matter.

The district court held that the inventors, by limiting the '422 claims to a counterfeit detection system relying on a "detectable series," had disavowed use of a secret algorithm. The court held that this precluded now reading the claims on the accused SDS systems, which use a secret algorithm. The court also concluded that the reexamined claims now excluded systems that employ an identification number that is neither serial nor randomly-selected information alone.

The district court ruled that "randomly selected" can mean only "true random" numbers, and excludes pseudo-random. In construing this term the court looked first to the patent document, and found that the '422 specification did not elaborate on the meaning of this term. The court examined several prior art references and a CIAS sibling patent to reach its construction of this term. It was generally undisputed at trial that the usual computer algorithm generates only pseudo-random numbers.
We agree with CIAS that persons of skill in the field of computer randomization would recognize that the product thereof is most aptly understood as pseudo-random; CIAS conceded that another of its patents shows generation of true random numbers. The district court, receiving conflicting opinions on this point, deemed it a "close question." However, it is not controlling of the question of infringement, for the district court's judgment of non-infringement is supported alone by the court's construction of "unique authorized information."

We discern no error in the district court's construction of the scope of the '422 claims. Although the usage "comprised of" does not of itself exclude the presence of additional elements or steps, this does not permit recovery of claim scope that was limited during prosecution. The district court was correct that the amendments and arguments during examination and reexamination bar interpretation of "unique randomly selected authorized information" to include the accused systems.

"range"

Claim 1 of the '819 Patent contains the term "range." IPI contends that the term means "the distance of text around a retrieved word," while Google contends the term means "a window of contiguous words." The parties disagree as to whether the claimed "range" covers a distance "measured in the number of words, . . . characters, . . . sentences[,] or paragraphs" or whether the "range" is limited to "contiguous words."

Google asserts that the claim language clearly shows that "range" should be defined in terms of contiguous words only. For instance, claim 1 recites the steps of "recording a number of times a co-occurring word co-occurs in a same document within a predetermined range of the retrieved word" and "repeating the recording step for every co-occurring word located within the predetermined range for each occurrence of the retrieved word in the corpus." '819 Patent, col. 24:45-50 (emphasis added). IPI counters that the word every in the claim language relates to the co-occurring words, not the predetermined range. Indeed, there is nothing in the specification that states that the predetermined range must be a "contiguous" string of words. IPI further argues that '819 Patent teaches the elimination of certain "stop words," such as "the" or "an," from the process. See '819 Patent, col. 15:51-53 ("For example, the B-subset contains the 20,000 most frequent words, excluding stop words.") and col. 20:57-60 ("Many words in the Tipster topic descriptions are not relevant for the query in question, but they should not be placed on a stop list either because they could be relevant for other queries."). In light of the foregoing, there is no basis in the claim language or the specification to limit "range" to "a window of contiguous words."

IPI's proposed construction is consistent with the specification and the claim language. However, the Court modifies IPI's proposed construction slightly to make it clearer to the fact finder. Accordingly, the Court construes the term "range" to mean "the distance within a body of text surrounding a retrieved word."

2. range

O2 Micro proposes that the term "range" means "the set of values that a quantity or function may assume." Rohm proposes a construction of "the set of values between the highest and lowest value that a quantity or function may assume." Claim 3 of the '129 patent is instructive. In this regard, claim 3 states "[a] circuit as claimed in claim 2, wherein said predetermined range is zero amps to a first predetermined current value." As such, the court concludes that the term "range" means "the set of values between the highest and lowest value that a quantity or function may assume."

4. range value
Hyperion contends that a range value is "a name associated with certain data that is used to extract that data from the database." OutlookSoft asserts that the proper construction is "a shortcut to refer to several data cells each having a different SEPT value where the user can extract data from all desired cells at once."

OutlookSoft seeks to incorporate the limitation of SEPT from the preferred embodiment into the term "range values." In fact, OutlookSoft seeks to incorporate the SEPT limitation into many claim terms, arguing that SEPT is the invention rather than the preferred embodiment. While OutlookSoft points to some statements made during prosecution and in the summary of the invention, the Court is not persuaded that the Hyperion patents are limited exclusively to SEPT.

The plain language of the claims supports the Court's view. For example, claim 1 of the 141 patent requires the use of only three attributes: S, E, and P. Claim 5 of the 141 patent does not require any particular number of attributes, nor does it require that the attributes be of any particular type. Claim 1 of the 609 patent (and claim 1 originally filed with the application for the 141 patent) requires that at least three attributes be used, but (like claim 5 of the 141 patent) it does not specify what they must be. Thus, the Hyperion claims make clear that the inventors made use of the attributes in general and did not limit their invention to SEPT. Any construction limited to SEPT would therefore be incorrect. Accordingly, the Court adopts Hyperion's construction of the term "range value."

Raster clock signal

The Court modifies MediaTek's proposed construction and construes the term as "a periodic signal used to synchronize a display device in response to a program clock reference ("PCR")." MediaTek argues that the term should be construed according to its ordinary meaning--"a periodic signal used to synchronize a display device." Sanyo argues that the patent provides a special meaning for the term raster clock signal--"a signal with a nonstandard frequency easily derived in response to a PCR."

MediaTek agreed at the hearing that the raster clock signal is produced in response to a PCR. Sanyo asserts that the raster clock signal must be "nonstandard" and "easily derived" because the prosecution history and specification require minimal circuitry. Sanyo argues that using minimal circuitry leads to an "easily derived" raster clock signal. Sanyo further argues that a nonstandard signal is required because the specification only contemplates nonstandard signals.

Sanyo's arguments are unpersuasive. First, claims 1 and 2 do not require that the raster clock signal have a nonstandard frequency or be easily derived. See '486 Patent col. 14:7-54. Second, the specification allows--but does not limit this invention to--raster clock signals with nonstandard frequencies. '486 Patent col. 2:33-34 ("display raster signals need not conform to the waveforms commonly used"). The specification deals explicitly with nonstandard frequencies, but also states that "the invention contemplates the use of other native display formats and other raster frequencies." '486 Patent col. 13:8-9. Finally, requiring the raster clock signal to be easily derived is not supported by the specification. It would instead add a vague term which would not assist the trier of fact. Sanyo argued at the hearing that "easily derived" is not vague because it means created with "minimal circuitry." This proposed construction is not helpful because "minimal circuitry" is itself vague.

Rate adapting said Ethernet frame based data by adapting an Ethernet data frame to at least one bit stream, each bit stream having a data rate which can be multiplexed into a synchronous digital network virtual container

The Court modifies both Ciena's and Nortel's proposed constructions and construes the term as "converting Ethernet frame based data and the data rate into one or more bit streams, each bit stream has a data rate which can be multiplexed into a synchronous digital network virtual container, the bit stream is not encapsulated in an intermediate format." Ciena argues that the term should be construed as "converting the data rate of the data in Ethernet frames to a data rate of at least on bit stream by dividing the data in Ethernet frames among one or more bit streams, where each bit stream has a data rate which
can be multiplexed into a synchronous digital network virtual container. The bit stream is not encapsulated in an intermediate format.” Nortel argues that the term should be construed as “converting Ethernet frame based data into one or more bit streams, each bit stream has a data rate which can be multiplexed into a synchronous digital network virtual container.” The parties mainly dispute whether the Ethernet frame based data or the data rate of the data in the Ethernet frames is being converted or adapted.

Ciena argues that the data rate in the Ethernet frames is being adapted. Ciena contends that the presence of the words “rate adapting said Ethernet frame based data” at the beginning of the claim term requires such a conclusion. Ciena also points to Column 7, Lines 60 through 63 of the specification, which state, “Rate adaption means 203 comprises a plurality of multiple channels each adapting an IEEE standard 802.3 rate data frame channel to a 2 Mbits/s, 50 Mbits/s or 100 Mbits/s bitstream channel” arguing that it proves that the whole point of the invention is rate adapting the data received at a higher rate into one or more bit streams at a lower rate. Furthermore, Ciena argues that a Response to an Examiner’s Office Action found in the file history of the patent supports its construction. The Response states, “The invention provides means to adapt the Ethernet data frames to a rate which matches a rate which can be multiplexed into a virtual container and maps each Ethernet data frame into one or more virtual containers without any further encapsulation in intermediate protocols.” Response to Office Action for ‘519 Patent dated July 17, 2001, at 9.

The Court proposed the first part of its construction to the parties during the Markman Hearing. This portion of the proposed construction reads, “converting Ethernet frame based data and the data rate into one or more bit streams, each bit stream has a data rate which can be multiplexed into a synchronous digital network virtual container.” Ciena’s only objection to the proposed construction was the fact that the construction did not address the encapsulation issue discussed below. Therefore, Ciena agreed that the Ethernet framed based data is also converted under the claim language.

However, Nortel still argues that only the Ethernet framed based data is being adapted. Nortel contends that the claim language requires its construction. Nortel points to the claim language, which reads, “rate adapting said Ethernet frame based data by adapting an Ethernet data frame to at least one bit stream,” arguing that the claim does not limit the Ethernet rate adaption to rate adaption of a frame because the claim language does not contain the word “rate” before the second occurrence of the word “adapting” in the quoted excerpt. Nortel also argues that its construction is supported by the specification, which states, “Rate adaption means 203 comprises a plurality of through channels for adapting IEEE standard 802.3 data frames into bitstreams . . . .” Col. 7:57-60. Nortel further cites Column 7, Lines 60 through 63 of the specification that state, “Rate adaption means 203 comprises a plurality of multiple channels each adapting an IEEE standard 802.3 rate data frame channel to a . . . bitstream channel.”

The claim language and the specification indicate that both the data rate and the Ethernet frame based data are converted under claims 1, 23, and 24. The claim language starts off with the words “rate adapting.” These words indicate that the data rate is being converted by this step of the method. This claim language cannot be ignored in construing the term. The parties and the Court agree that the Ethernet frame based data is converted under the claim. Accordingly, the Court construes the term such that both the data rate and the Ethernet frame based data are converted.

Ciena further contends that the term should be construed such that the bit stream is not encapsulated in an intermediate format. Nortel argues that this limitation is improper because: “(1) the inventor did not clearly disclaim intermediate encapsulation in the asserted claims; (2) intermediate encapsulation is not a part of the asserted claims; and (3) the specification’s discussion of intermediate encapsulation relates to the mapping step, not the rate adapting step.” Ciena cites Home Diagnostics, 381 F.3d at 1358, arguing that nothing in the specification or file history amounts to a clear and unambiguous disavowal of “intermediate encapsulation.” Ciena contends that a specific absence of intermediate encapsulation in the specification is only a preferred embodiment and not a required limitation. See Cols. 3:18-21; 2:52-3:2. Furthermore, Nortel argues that claims 1, 23, and 24 leave open the possibility that the Ethernet frame based data can pass through an intermediate protocol and that the limitation on intermediate encapsulation only applies to other claims that state that the Ethernet frame based data is “mapped directly” to a synchronous digital network. Finally, Nortel argues that there are two steps to the method asserted in claims 1, 23, and 24 and that the absence of intermediate encapsulation only applies to the “inputting” step, while the claim language at issue deals with the “adapting” step. Nortel looks to a continuation patent of the 45 ’519 patent to support this argument.

Ciena argues that no language in claim 1 indicates that the bit stream is encapsulated in an intermediate format but rather indicates that the rate adapted bit stream is passed along the synchronous digital network. Ciena cites the abstract of the
patent, which states, “frame based data is incorporated directly into a synchronous virtual container without encapsulation in an intermediate protocol” and several excerpts from the specification arguing that the patent prohibits the bit stream from being encapsulated in an intermediate format. Specifically, Ciena points to an excerpt from the summary of the invention that states, “Another object of the present invention is to incorporate frame based data directly into a synchronous digital hierarchy payload, without encapsulation in an [Asynchronous Transfer Mode] cell or other intermediate carrier.” Col. 2:62-65; see also 7:16-21.

The abstract and the quoted section of the specification refer to the invention as a whole and not just a preferred embodiment. When the specification reveals an intentional disclaimer or disavowal, “the inventor has dictated the correct claim scope and, and the inventor’s intention, as expressed in the specification, is regarded as dispositive.” Phillips, 415 F.3d at 1316. Furthermore, there is not compelling intrinsic evidence from the ‘519 patent that the limitation only applies to claims that involve “mapping” and not claims such as 1, 23, and 24 that relate to adapting. Accordingly, the Court construes the term to include the encapsulation limitation.

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C. "Ratings"

The parties dispute the meaning of the word "ratings" and the various phrases utilizing that word. Part of the difficulty is that the word is used in two broad contexts: ratings assigned to consumers and ratings assigned to financial card offers or data.

a. consumer ratings

Defendant suggests all phrases referring to consumer ratings should be defined the same, and the appropriate definition is "a letter grade and a numerical score (e.g., A-760) assigned to the applicant calculated based on the application data." In other words, all customer ratings must have both a letter grade and a numerical score. This limitation is not justified by the intrinsic evidence.

Critical to Defendant's argument is the meaning and importance of certain provisions in the Preferred Embodiments.

A 'grading system' process may be employed which uses the application data, as well as other data, as input to determine which financial card offers may be presented to the applicant. Preferably, the grading system assigns a grade/score to the applicant by using the application data and other information such as credit bureau data to derive a letter grade and a numerical score (e.g., A-760). The assigned grade/score may then be used to search each participating financial institution's selection criteria to locate the offers that may be presented to the applicant. Preferably, a financial institution's selection criteria are organized in a matrix that associates financial card term data with a minimum grade/score combination. For example, a bank may have the following selection matrix.

Col. 4, lines 17-29 (emphasis supplied). There follows a sample table assigning a "grade" to various "score" ranges, with corresponding offers (and specified terms) for each grade/score range (the "Table"). Defendant reads this passage as requiring the customer rating -- regardless of the phrase actually used to refer to the customer rating -- consist of a letter and number combination. However, the form of the rating described in the Preferred Embodiment is an example; the rating is not required to take any particular form. Examples set forth in thePreferred Embodiment cannot limit the scope of the Claims. E.g., Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1362 (Fed. Cir. 2000).

Patent '645's claims also defeat Defendant's narrow construction and support Plaintiff's interpretation. Claim 11 identifies an electronic method comprised of several steps, one of which is "assigning a rating to [the] applicant." Col. 7, line 28. Several claims depend on Claim 11 and further limit the definition of the rating assigned to an applicant. For instance, Claim 14 is "[t]he method of claim 11 wherein said rating is a financial risk rating." Col. 7, lines 41-42. Narrower still is Claim 15, which consist of "[t]he method of Claim 11 wherein said rating is a grade and score combination." Col. 7, lines 43-44. Claims 14 and 15 are dependent claims and thus cannot mean exactly the same thing as Claim 11 (the claim upon which they depend). E.g., Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005). Therefore, Defendant's definition cannot be accepted because it effectively equates Claims 14 and 15 with Claim 11, rendering them
Defendant also insists that the grade/score must be calculated, but even if this is true this does not mean the grade/score must take any particular form. Defendant believes the requirement of a calculation excludes the possibility that a financial institution will "borrow a preexisting value or measure from one aspect of the borrower's financial or credit profile -- such as an applicant's credit score or income level -- and compare that to a single lender criteria." Defendant's Markman Brief at 19. A necessary corollary of this argument is the existence of a list of criteria that must be considered in establishing the rating, but no such list exists. In any event, the extent of effort necessary to conduct a "calculation" is beyond the scope of the present discussion. Defendant's proffered definition of "rating" goes further than necessary to impose a calculation requirement -- assuming such a requirement exists -- because the grade/score can take other forms and still be the product of a calculation as posited by Defendant.

Defendant also argues its interpretation is consistent with the prosecution history. In explaining its final decision on the reexamination, the PTO approved Claims 11-20 and 34 and explained that it "interprets the rating assigned to the applicant . . . as exemplified and disclosed in col. 4 L 20-43 of the specification," referring to the Table referenced in the discussion of the Preferred Embodiments, above. Defendant correctly observes Plaintiff did not object or otherwise respond to this understanding and so must be deemed to have accepted it. E.g., Fuji Photo Film Co., Ltd v. International Trade Comm'n, 386 F.3d 1095, 1100 (Fed. Cir. 2004). However, nothing in this sentence suggests the format or components of the grade/score, so it sheds no light on the matter. The Table is offered as an example, not as a requirement. In context, (the entirety of which is not set forth here in the interest of brevity), the sentence only explains the PTO's understanding of the difference between (1) the rating assigned to the applicant and (2) the criteria or "chart" used to determine whether a particular customer is qualified for the offer in question.

Plaintiff suggests the term "rating," as related to an applicant, means "a value or measure assigned to the applicant." This is an accurate definition of the term, and allows for consistency between the various claims comprising the patent. Claim 11 describes an electronic method comprised of several steps, one of which involves assigning some value or measure to the applicant. Claim 11 is further narrowed by Claim 14, which specifies that the value assigned in Claim 11 is some measure of financial risk. Claim 15 further narrows the term. As between Plaintiff's definition and Defendant's definition, Plaintiff's definition has greater support in the record.

While it is tempting to include in the definition a requirement that the rating be intended to reflect the financial risk ascribed to the applicant, such inclusion would render Claim 14 redundant.

b. financial card term data ratings

Claim 11 also comprises "ratings associated with . . . financial card data," and similar phrases are used in other claims as well. Defendant reasons that the financial card data's rating must be compared to the applicant's rating and so concludes the proper definition for the financial card terms' rating is "a letter grade and numerical score (e.g., A-760) assigned to the terms of each financial card offer that a participating financial institution is willing to make." There must be correlation between the financial card data's rating and the applicant's rating in order to insure the terms are presented only to applicants with the necessary rating -- but as with the applicant's rating, the '645 Patent does not proscribe the form or content of the financial card term rating. In light of the Court's rejection of Defendant's rigid definition in the applicant's context, the Court must also reject Defendant's rigid definition in this context.

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B. Proper Construction of the Term "Ratio"

The parties agree that Stanley's motion for summary judgment of no literal infringement may be decided based on the proper construction of the term "ratio" as it is used in every independent claim of the '091 patent. Stanley proposes that the
term "ratio" of the '091 patent should be construed as "a result of dividing two values." Zircon proposes that the term should be construed more broadly as "relation in degree or number between two similar things." For the following reasons, the Court adopts Stanley's proposed construction.

1. Stanley's Proposal: A Result of Dividing Two Values

Stanley argues that all of the intrinsic evidence supports its proposed construction and that the plain meaning of the term ratio is limited to division and does not include subtraction. Specifically, Stanley contends that the specification confirms its proposed construction of the term by explicitly defining "ratio" as the result of dividing two values. For example, the specification provides that: "A ratio between the first and second capacitance measurements may be computed . . . If the capacitance measurements are equal or the ratio is approximately equal to unity, both plates may be centered over the stud's edge [] and the centerline [] of the sensor [] may be centered over the centerline [] of the stud[]." '091 Patent at 7:20-23 (internal numbering omitted). A description of Figure 5E explains that a ratio of capacitance measurements of the two plates "may be computed as the smaller capacitance divided by the larger capacitance, thereby resulting in a ratio that is equal to or less than one." Id. at 7:45-52. Similarly, the specification provides that:

When the first plate [] produces a capacitance that is greater than the capacitance produced by the second plate[], a ratio is calculated by dividing the second plate's change in capacitance value by the larger first plate's change in capacitance value. Similarly, when the first plate [] produces a capacitance that is less than the capacitance produced by the second plate [], the ratio is calculated by dividing the smaller first plate's change in capacitance value by the second plate's change in capacitance value. Formulaically, the ratio curve [] may be computed by:

\[ \text{cap	extunderscore ratio}(D) = \min \left[ \text{FirstPlaceValue}(D), \text{SecondPlateValue}(D) \right] / \max \left[ \text{FirstPlace Value}(D), \text{SecondPlate Value}(D) \right] \]

Id. at 12:27-45. The specification also states that, "Dividing the smaller of the two capacitance measurements by the larger gives an updated capacitance ratio. The centerline of a stud may be determined when the capacitance ratio is equal to unity." Id. at 16:39-46. Stanley argues that these explicit references to dividing two numbers to obtain a "ratio" expressly support its proposed construction. The Court agrees with Stanley that these portions of the specification indicate that the term "ratio" connotes a division of two numbers, as opposed to subtraction.

Additionally, the fact that the references explain that the centerline is determined when the ratio is equal to "unity" (i.e., one) also shows that division, and not subtraction, is contemplated. Specifically, when two equal values are divided, the result is one, whereas when two equal values are subtracted, the result is zero. Stanley persuasively contends that Zircon understood this difference during drafting, because the specification states that a centerline has been detected "if the capacitance ratio is approximately equal to unity," or "alternatively," "if the capacitance measurements are approximately equal to each other." Id. at 19:30-34. Additionally, column 14:47-53 explains that the comparison circuit "may compute a ratio" or "may determine whether the capacitive measurements are within a predetermined value of each other." These portions of the specification, presenting ratio and subtraction as alternative operations, also point toward construction of the term "ratio" as limited to division, and not subtraction.

Stanley also persuasively argues that the way the ratio value is expressed throughout the patent supports the fact that it refers to a division of two values. Stanley asserts that, "[b]y definition, a ratio of two values measured in the same units has no unit. For example, 2 farads [a unit of capacitance] divided by 2 farads equals 1 (unitless)." Motion at 13. Stanley points out that, in the '091 Patent, all of the "ratio" values described in the patent are similarly unitless, which is consistent with the plain meaning of the term "ratio" and only make sense if they result from division that eliminates the units. See id. at 21:67, 22:16, 22:46, 22:67, 24:6, 24:33, 24:55. If they resulted from subtraction, the values would retain a unit; i.e., 2 farads minus one farad equals one farad. Zipicon did not dispute this basic mathematical concept.

Stanley next argues that the prosecution history, and specifically Zircon's amendment of claim 1, confirms the correctness of its proposed construction. Stanley points to Zircon's statement that:

Claim 1 has been amended to include the subject matter of allowable Claim 39 and Claim 37 upon which Claim 39 was dependent. Thereby the final clause of Claim 1 now recites "providing an indication of the ratio, and wherein if the indication is approximately one, thereby locating a centerline of the structure." The Claim 1 is now allowable for at least the same reasons as indicated by the Examiner for Claim 39.
Kiersz Decl. Ex. G (5/5/06 Amendment) at S146. This passage also shows that Zircon understood the meaning of "ratio" to be the unitless result of dividing the two values of the capacitance of the sensor plates, and acknowledged that because the values of the plates will be substantially equal when over the centerline of the stud, the value would be "approximately one" (always the result of dividing any two numbers of equal value).

Finally, Stanley argues that extrinsic evidence confirms that the plain and ordinary meaning of the term "ratio" connotes an elementary mathematical operation where two values are divided to obtain a "ratio." The Court agrees that Stanley's definition comports with the plain meaning of the term. Also, Stanley cites various dictionaries and other literature defining the mathematical term "ratio" in terms of division of two values. See generally Kiersz Decl. Exs. J, H, B. Most specifically, Stanley relies on the third, mathematical definition of the term listed in the American Heritage Dictionary that a ratio is: "the relative size of two quantities expressed as the quotient of one divided by the other." American Heritage Dictionary, 2d Ed. 1028 (Houghton Mifflin Co. 1991) (attached as Kiersz Decl. Ex. I). Zircon does not challenge Stanley's reliance on the American Heritage Dictionary to determine the plain meaning of the term "ratio," but argues that the Court should use the first definition listed, or "relation in degree or number between two similar things." Opp. at 7; see also Kiersz Decl. Ex. I. However, the Court agrees with Stanley that the mathematical dictionary definition (as opposed to the first dictionary definition) is appropriate, because the references to "ratio" in the patent refer to a mathematical operation.

2. Zircon's Proposal: Relation in Degree or Number Between Two Similar Things

Zircon relies on the first American Heritage Dictionary definition of ratio as "relation in degree or number between two similar things," but spends very little time explaining how it is consistent with most of the claims and specification. Instead, Zircon's primary argument is that Stanley's proposed construction of "ratio" is inconsistent with patent claims 10, 19 and 21. Specifically, claim 10 discloses a method of "finding a feature" that includes the step "computing a ratio." '091 Patent at 21:48-60. Dependent claim 19 provides that the "computing a ratio" of claim 10 comprises "comparing the first and second capacitances." Id. at 22:20-24. Claim 21, which is in turn dependent on claim 19, further provides that the act of "comparing" as claimed in claim 19 includes "determining whether the first and second capacitances differ by less than a threshold." Id. at 22:33-39. Zircon argues persuasively that the term "differ" in claim 21 is shorthand for "difference," which relates to subtraction and not only division. Indeed, Stanley agrees that the term "differ" in the '091 Patent means subtraction and not division. See Motion at 18-19 (arguing this point in the context of the prosecution history).

Zircon contends that, under applicable rules of claim construction, independent claim 10 must be broader than its dependent claims 19 and 21, which serve to limit claim 10. Opp. at 9 (citing Monsanto Co. LLC v. Syngenta Seeds, Inc., 503 F.3d 1352, 1357 (Fed. Cir. 2007) (“a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”). Therefore, according to Zircon, the "computing a ratio" of claim 10 cannot be limited to division, because it necessarily also includes the subtraction approach of claim 21, which is incorporated into claim 10 through claim 19. If the Court construed "ratio" to include only division and not subtraction, Zircon contends that this would be inconsistent with claims 10, 19, and 21 because they include the subtraction method as part of "computing a ratio," and therefore run afof the rule that claims must be interpreted in context with other claims.

However, to accept this argument would be to create much more inconsistency between the claims and to only selectively apply applicable patent law regarding dependent claims. Patent claims 1, 17, 22, 23, 31 and 32 expressly contemplate the invention finding a centerline when it detects a "ratio" of "approximately one" or some derivative thereof (i.e., 0.9-1.1). See '091 Patent at 21:66, 22:16, 22:46, 22:66-67, 24:6. 2 This claim language only makes sense if the invention is computing a ratio by dividing equal or almost-equal values to get a result of approximately one, and not if the values were instead being subtracted, because in the latter case the result of subtracting two equal values would be zero. If "ratio" were interpreted to include subtraction in each of those claims specifying that the result of the ratio should be close to one (i.e., in the range of 0.9 to 1.1) to determine a centerline, then the device would not function properly to indicate that it was centered over the stud in the very instance where it is most centered.

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2 At oral argument, Zircon argued that claim 1 states that "if the indication is approximately one," then the device is located over a center line. See '091 Patent at 20:65-67. For the first time, Zircon focused on the term "indication" and argued that this is somehow distinguishable from a "ratio" of approximately one. However, Zircon's argument fails to take into account - 3830 -
the context in which the term "indication" is used in claim 1, and that it is an "indication of the ratio" which must be approximately one. Additionally, claims 22, 23, 31 and 32 do not use the term "indication" and require that the ratio be within a range of approximately one. Therefore, the Court rejects Zircon's argument.

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Central to both arguments is the relationship between dependent and independent claims and how they should be construed. Monsanto quotes 35 U.S.C. § 112 P 4: "[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." Monsanto Co. LLC v. Syngenta Seeds, Inc., 503 F.3d 1352, 1357 (Fed. Cir. 2007). Zircon is correct that under its construction the independent claim would be read more broadly than its dependent claim as required, but the same is true under Stanley's construction. Further, the statute does not mandate that the limitations in claims 10 and 19 must be read more broadly than drafted to sustain the validity of claim 21. To support this argument, Stanley relies on Michilin Prosperity Co. v. Fellowes Mfg. Co., 450 F.Supp. 2d 35 (D.D.C. 2006), where the district court was asked to construe a dependent claim term. In Michilin, the patent at issue claimed invention of a shredder with at least two "touch switches" at claim 1 (though it disclosed the possibility of a one-switch shredder in the specification). Claim 4, dependent on claim 1, claimed a "single touch switch." Michilin argued that the single switch of claim 4 should be construed as a single-switch embodiment of the invention. Id. at 39. The defendant countered that dependent claim 4 could not be construed that way because of its dependent status, which meant that it must incorporate all of the limitations of claim 1 in addition to any additional elements claimed. Id. However, the court reasoned that because independent claim 1 required at least two switches, the single switch of dependent claim 4 had to be construed as a third switch, in addition to the two switches of claim 1 because "[a]ny other result would amount to redrafting Michilin's claims, a power this court lacks." Id.

Stanley argues that, following the reasoning of Michilin, to be a valid dependent claim, claim 21 must be construed as narrower than the independent claim it depends from, by covering an embodiment combining the features of both variations (the division of claim 10 in addition to the subtraction of claim 21). Alternatively, Stanley contends that if claim 21 as drafted does not contain a further limitation of claims 10 and 19, and instead contains a limitation of non-overlapping scope, then it is invalid under § 112 P 4. See Pfizer, Inc. v. Ranbaxy Laboratories Ltd., 457 F.3d 1284, 1292 (Fed. Cir. 2006) (reversing district court and invalidating a dependent claim that failed to "specify a further limitation of the subject matter" of the claim to which it referred because it was completely outside the scope of claim). 3 The Court agrees. Either way, claim 10 cannot be construed more broadly to accommodate dependent claim 21, especially where this construction would create significant inconsistency with other claims.

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3 When questioned at oral argument, however, Stanley acknowledged that it is not moving on grounds of invalidity.

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Zircon also contends that Stanley's proposed construction does not comply with the doctrine of claim differentiation. This doctrine provides that "[t]here is presumed to be a difference in means and scope when different words or phrases are used in separate claims. To the extent that the absence of such differentiation would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Zircon argues that Stanley's proposed construction of "ratio" would render claim 21 meaningless because "determining whether the first and second capacitances differ by less than a threshold" is a limitation on the "act of comparing" in claim 19, which is a limitation on "computing a ratio" in claim 10. To give claim 21 any meaning, according to Zircon, "ratio" must include both subtraction as well as division, and to find otherwise would violate the doctrine of claim differentiation. Stanley counters correctly that the doctrine of claim differentiation does not apply because neither party is advancing a construction of "ratio" that would give claim 21 the same scope as another claim. Zircon's construction of claim 10 is broader than Stanley's because it includes both division and subtraction in "ratio," and then its construction of claim 21 is narrower than its own construction of claim 10 because it is limited to subtraction, whereas Stanley's construction of claim 10 is narrower than Zircon's because ratio is limited to division, but its construction of claim 21 is narrower still because it must do both methods of subtraction and division to detect a centerline. Given the above, the Court does not find Zircon's claim differentiation argument persuasive.
Finally, Zircon contends that Stanley's proposed construction improperly imports limitations from the specification into the claims. Zircon points out that, even if the specification discloses only one embodiment or implementation for a claim element, that does not necessarily mean that all requirements of that embodiment must be read onto the claim. Instead of following up on this argument, however, Zircon changes course and argues that the proposed construction is defective because it is in conflict with the preferred embodiments described by Figures 12 and 13. Zircon's real argument appears to be, not that Stanley's proposed construction impermissibly relies on the specification, but that it impermissibly conflicts with the specification.

Specifically, Zircon contends that the preferred embodiments described in Figures 12 and 13 show computing a ratio by methods other than "dividing two values." The description of Figure 12 specifies that the capacitance circuit processes capacitance measurements, and states: "For example, the comparison circuit [] may compute a ratio between capacitive measurements. The comparison circuit may determine whether the capacitive measurements are within a predetermined value of each other." '091 Patent at 14:47-53. The description of Figure 13 explains that in that embodiment a "microcontroller carries out the comparator functions of the comparison circuit of FIG. 12." Id. at 15:25-26. Zircon's position appears to be that, because these embodiments disclose methods other than specifically division (i.e., by use of a microcontroller) for computing a ratio, Stanley's proposed construction is impermissibly narrow. However, this argument is circular because its success depends on the proper construction of the term "ratio," and does not support Zircon's position unless the Court agrees with its proposed construction. Moreover, as addressed below, Stanley also argues persuasively that although the specification disclosed the division method, during the course of the prosecution history, that method was dropped from the claims, resulting in its dedication to the public.

Accordingly, the Court concludes that the intrinsic evidence, including the surrounding patent claims and the language of the specification, as well as the plain meaning of the term, establishes that the "ratio" of the '091 Patent should be construed as "a result of dividing two values."

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4. "a reaction force caused by movement of the mask stage and the object stage"

For similar reasons, the court construes "a reaction force caused by movement of the mask stage and the object stage" to mean precisely what the claim term implies: "an equal and opposite counterforce spurred by the shifts and vibrations of the mask stage and the object stage." Repeating, by implication, its claim differentiation doctrine argument, Nikon asks the court to read "a reaction force . . . stage" to mean "a reaction force produced by a motor drive in moving the mask stage and a reaction force produced by a motor drive in moving the object stage." The specification language does discuss "transmitting the reaction forces of the reticle stage mechanism drive motors." See Patent '500 at 5:23-31. But this specification language says nothing about motor drives acting specifically on mask or object stages. Read in context, the term "a reaction force caused by movement of the mask stage and the object stage" concerns transference of this operation-related force to the reaction frame. Id. at 7:42-59. The "cause[]" of the force is specified by the claim language itself, and the court need not import limitations from elliptically relevant specification language. "[A] reaction force caused by movement of the mask stage and the object stage" should be read consistently with "a drive to move the mask stage and the object stage." Thus, the court construes "a reaction force caused by movement of the mask stage and the object stage" to mean "an equal and opposite counterforce created by the shifts and vibrations of the mask stage and the object stage."

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a. Definition of "Read"

The Court first considers Symbol's contention that the term "read" should be construed as "decoded." This argument is the product of several inferences that Symbol draws from the specification in which the patentees appear to utilize the word "read" to describe functions described elsewhere as decoding. For instance, Symbol points out that the "patent teaches that bar code decoding occurs during the 'bar code symbol reading' state." (Symbol's Rebuttal Br. 22.) While the occurrence of
"decoding" during the "reading state" might superficially imply that reading means decoding, it could just as easily mean that decoding is a subset of reading, thus illustrating why the Federal Circuit has "consistently warned against" importing limitations from inferences drawn from the specification. Liquid Dynamics, 355 F.3d at 1361. Symbol argues that elsewhere, the specification "equates a bar code that is read with one that is "scanned and decoded."" (Symbol's Rebuttal Br. 22.) See, e.g., '971 Patent col. 1 11. 38-39 ("... reading (i.e. scanning and decoding)..."); id. col. 7 11. 18-19 (same); id. col. 16 11. 53 ("... successfully read (i.e. scanned and decoded)... "); id. col. 25 1. 55 (same). This argument actually seems to undercut Symbol's argument that the term "read" should be construed to mean only "decoded," and in any event does not imply that every use of the term "read" in the '971 patent means "scanned and decoded." It is more likely, in light of its differing usage elsewhere in the specification, that the patentees intended the term "read" to mean "scanned and decoded" only where they expressly indicated. As such, Symbol's argument once again seeks impermissibly to add a limitation based on an inference drawn from selected portions of the specification. SeeResonate Inc., 338 F.3d at 1364-65.

Symbol also notes that with respect to the state diagram of Figure 13, which schematically represents the operation of the preferred embodiments disclosed in the specification, n13 the "bar code symbol reading" state (State C or State F) is depicted as occurring after the "bar code symbol presence detection" state (State B or State E) but before the "symbol character data transmission/storage" state (State D), '971 Patent Fig. 13. The specification teaches that activation control signals trigger the transition between states, and that activation control signal A3, which causes the system to transition from State C or State F to State D, is produced "[w]hen the symbol decoding module successfully decodes a bar code symbol" within a predetermined time period. Id. col. 13 11. 23-31; see also id. col. 17 11. 16-19; col. 27 1. 68-col. 28 1. 13. Thus, the '971 patent discloses that in both preferred embodiments, the "bar code symbol reading" state ends when the system controller receives signal A3, signifying a successful decode. See id. col. 17 11. 16-30; col. 26 11. 21-35. From this disclosure, Symbol concludes that "reading" cannot mean more than "decoding."

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n13 The Court disagrees with Symbol's contention that Figure 13 represents a separate embodiment of the claimed invention. Under the heading "Brief Description of the Drawings," the '971 patent describes Figure 13 as "a state diagram illustrating the various states that the automatic bar code symbol reading devices of the illustrative embodiments may undergo during the course of their operation." '971 Patent col. 5 1. 67-col. 6 1. 2 (emphasis added). It is therefore apparent that the state diagram of Figure 13 applies to both of the preferred embodiments disclosed in the specification, and is not itself a preferred embodiment.

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Once again, Symbol's argument proves too much, placing undue significance on the labels attached to State C and State F and drawing sweeping inferences from the figures and illustrative embodiments. This is not an instance in which the patent makes repeated and consistent limiting statements or represents that important objects of the invention are served by a bar code symbol reading state that is conterminous with bar code symbol decoding. Cf.Honeywell Int'l, 452 F.3d at 1320; Alloc, Inc., 342 F.3d at 1370. Nor is claim 44 a means-plus-function claim, which at least would require the Court to look to the structure disclosed in the specification to ascertain the limits of the claim. The preferred embodiments disclosed in the '971 patent do not represent limitations on the claimed invention, and therefore do not support Symbol's argument that reading and decoding are the same. See Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.").

If the '971 patent consistently used the term "read" to mean decode, as Symbol suggests, then the Court might have less difficulty in adopting Symbol's proposed construction. However, with respect to its use of the term "read" and variations on that word, the '971 patent is far from consistent. Throughout the patent, examples are legion of the terms "read" or "reading" being used to indicate more than simply "decoding." The very title of the claimed invention is "Automatic Bar Code Reading System Having Selectable Long Range and Short Range Modes of Operation," and even Symbol would concede that the claimed invention purports to do more than simply "decode" bar code symbols. Cf. '971 Patent Abstract ("Method and apparatus for automatically reading bar code symbols is disclosed."). Elsewhere, the specification equates reading with
Finally, the Court takes note of Metrologic's argument that defining "read" to mean "decoded" effectively would exclude the consecutively identical bar code symbols. By extension, the Court finds no basis in the IDS for defining "read" to mean rejecting Symbol's crabbed reading of the June 23, 1993 IDS as expressly distinguishing over prior art that decodes that Ouchi may be capable of possessing some of the qualities of the Metrologic system, but not all. Therefore, the Court sequencially produces only symbol character data representative thereof. (Id.) In essence, Metrologic was saying in its IDS which being a processor that "sequentially detects and decodes a plurality of consecutively different bar code symbols and sequentially produces only symbol character data representative thereof." (Id.) In essence, Metrologic represented that Ouchi lacked the combination of qualities possessed by the Metrologic system, one of which being a processor that "sequentially detects and decodes a plurality of consecutively different bar code symbols and sequentially produces only symbol character data representative thereof." (Id.) In essence, Metrologic was saying in its IDS that Ouchi may be capable of possessing some of the qualities of the Metrologic system, but not all. Therefore, the Court rejects Symbol's crabbed reading of the June 23, 1993 IDS as expressly distinguishing over prior art that decodes consecutively identical bar code symbols. By extension, the Court finds no basis in the IDS for defining "read" to mean "decoded."

Finally, the Court takes note of Metrologic's argument that defining "read" to mean "decoded" effectively would exclude the
preferred embodiments. See SanDisk Corp. v. Memorex Prods., 415 F.3d 1278, 1285 ("A claim construction that excludes a preferred embodiment . . . 'is rarely, if ever, correct.'" (quoting Vitronics, 90 F.3d at 1583)). One of the objects of the invention disclosed in the '971 patent is "to provide an automatic bar code symbol reading device which prevents multiple reading of the same bar code symbol due to dwelling of scanning beam upon a bar code symbol for an extended period of time." '971 Patent col. 3 11. 36-40. The patent teaches that bar code symbol decoding occurs before the system controller compares consecutive bar code symbols to determine whether they are different. See id. col. 18 11. 8-20; col. 27 11. 18-29; Fig. 8E (Block Y and Block Z); Fig. 12E (Block Y and Block Z). Therefore, Metrologic reasons, the preferred embodiments must both decode and compare bar code symbols in order to carry out the object of preventing multiple "reading" of the same bar code symbol. While this argument is some evidence of the patentees' intention to define "read" as including both decoding and comparing, it arguably conflicts with the specification's disclosure elsewhere that activation control signal A3 indicates "that a bar code symbol has been successfully read." See, e.g., id. col. 26 11. 22-23; cf. id. Fig. 8E (Block Y); Fig. 12E (Block Y). Nevertheless, it appears that a certain amount of inconsistency is inevitable in this patent. (See Markman H'r'g Tr. 111:25-112:6 (conceding that the '971 patent sometimes uses "read" to be limited to functions occurring before the compare function.).) The Court finds that even if the patent fails to signal uniformly and unambiguously the patentees' intention to define "read" to include decoding and comparing, it does clearly refute Symbol's argument that "read" is narrowly limited to mean "decoded."

For all of these reasons, it is evident that the term "read," as it appears in claim 44, cannot be construed narrowly to mean "decoded." Its use elsewhere in the '971 patent suggests a broader meaning, and its use within claim 44 suggests a meaning that includes decoding bar code symbols and producing symbol character data for consecutively different bar code symbols. When read in conjunction with the specification, see id. col. 18 11. 8-20; col. 27 11. 18-28; Fig. 8E; Fig. 12E, this broader meaning dictates that "reading" includes the function of comparing consecutive, decoded bar code symbols. (See Metrologic's Rebuttal Br. 22-23.) Nothing in the prosecution history of the '971 patent clearly and unmistakably refutes this conclusion. Accordingly, the Court rejects Symbol's argument that the '971 patent defines the term "read" to mean "decoded."

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C.

Mediamatics has also challenged LaserDynamics' definition of "read" or "reading" contained in the '743 Patent. LaserDynamics would have the term construed as covering both extracting information from the pits 4 on the disk as well as retrieving information stored in memory. Mediamatics proffers that "read" should mean the process of "projecting a laser beam at the optical disk, receiving a reflection of the laser beam, and producing an electrical signal from the reflection of the laser beam." Mediamatics argues that there is no basis in the claims or specification that support the broader definition. Thus, Mediamatics argues that the term is limited by its uses in claims 3, 7 and 11.

4 Pits are hollow depressions made on the layers of a disc plane into which data is stored or compressed. [See Webster's Twentieth-Century Dictionary, Publishers Guild, Inc (1939)]

Again, Mediamatics' reference is to the specification. Clearly, the claims refer to retrieving the data and storing it in memory. It follows logically that the data in memory is there for the purpose of being retrieved at some point in time. In these claims, the terms "read and reading" are used in paragraphs (iv) and (v) where the claims state: "(iv) reading [read] out and routing [route] the recorded data... and ... (v) read out recorded data...." The process described starts with data stored in pits and that is to be stored in memory on the DVD disk. The process also describes the technique for retrieving that data and making it available to the viewer. If the invention expressed in the '743 patent were limited to a single instance of read and store, the process whereby data may be transferred to other products, even other DVD disks that have memory capacity, is eliminated and would require yet another term to define the procedure for retrieving the stored data from memory. Thus, the Court rejects Mediamatics more constricted definition and adopts the definition proffered by LaserDynamics that, in the Court's opinion is the ordinary meaning and use of the terms. "Read," therefore, means "to extract data from memory or a
storage medium and [usually] transfer it to another area of memory or other medium "for use or extraction at a point in time."
See, The Illustrated Dictionary of Electronics, [8th Ed.].

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B. Ref. No. 57 "Reading," Optically Reading," and "Read."

These terms and phrases are recited or referred to in Claims 1, 13, 18-20, 23, 26, 30, 31, 42-44, and 49.

Plaintiff asserts that the term "reading" in Claims 1, 13, 18, and 31 should be construed as "scanning/sensing/reading" and "detecting and/or imaging" in Claims 30, 42, and 44. Plaintiff says nothing about the contested terms in Claims 19, 20, 23, 26, 42-43, and 49. Plaintiff argues that the term "reading" in Claims 1 and 31 does not require the Court to construe its meaning, yet Plaintiff proposes the above construction. Defendants, on the other hand, first argue that the contested terms are used interchangeably and such "flexibility" deprives the term of clarity; therefore, the scope of the claim using these terms cannot be ascertained. Defendants alternatively argue that the definition "capturing data from the ballot or from the image of a ballot" is appropriate in every claim in which these terms are recited.

The Court finds it instructive to analyze each disputed claim in which the contested terms appear. In Claims 1, 13, 18, 43, and 49, the term "reading" is described as "optically" reading ballots. Claims 19, 20, 23, and 26 detail the "method" of Claim 18. In Claims 1, 13, 30, 31, and 42, "reading" also includes "imaging" the ballots. In Claim 30 "reading" is "using any of a keyboard, a touch screen, a button, a switch, voice recognition apparatus, a Braille keyboard, [or] a pen with writing recognition interface." (Alteration added.) Claim 44 describes the "method" of "reading" ballots as comprising "reading each ballot" to obtain specific information such as the jurisdiction identifier and the voting selections marked thereon.

As noted above, there is a presumption that the same term appearing in different portions of the patent should be given the same meaning unless it is clear from the specification and prosecution history that the term has different meanings at different locations in the patent. See PODS, Inc., 484 F.3d at 1366. There is also a presumption that a claim is valid and is to be found indefinite only if the claim is "insolubly ambiguous" and "no narrowing construction can properly be adopted." Honeywell Int'l, Inc., 341 F.3d at 1338-39.

In reviewing the contested terms cited herein, the Court does not find their usage deprives the claims of clarity. The three terms in dispute all relate to the same functions -- collecting, gathering, observing data, and then reading the data in some manner. Column 3, lines 25-28 of the specification provides that, after the ballot is marked by the voter, it is read and tabulated by a reading machine or optical reader that "reads or senses the defined mark spaces to determine" the voting selections. With respect to Figure 8, the specification describes it as "a schematic flow diagram of an example ballot reading process . . . " (Col. 2, ll. 43-44.) Figure 8 begins with "pass ballots through reader (310)" and then depicts two paths, 320a and 320b, in which the ballot is passed through to be read or imaged and decoded. At the end of paths 320a and 320b, the voting selections are tabulated (330), and the "read" ballot is stored (332). The ballots are "read" by the alternative processes in 320a and 320b. In essence, the term "reading," "optically reading," and "read" refer to the same process. Information is either scanned, read, or captured from the ballot, and, through that process, the votes are tabulated and stored. This construction is consistent with the Court's construction of the term "optically readable" in Ref. No. 38 of the '730 Patent as meaning "capable of being read by an optical scanner." The Court's construction is also consistent with that in Ref. No. 59 in the '944 Patent, wherein the terms "imaging," "image," and "imaged" are construed to mean "electronically capturing and reproducing images and data from a ballot in a pixilated or bitmapped format."

For the foregoing reasons, the Court construes the terms "reading," "optically reading," and "read" as: Scanning, reading, or capturing data from the ballot or from the image of a ballot.

3532

Claim 1f
the compatibility comparison including reading a characteristic of each option

The parties disagree on the meaning of the above-stated language. Dell argued that the ordinary meaning of the above-stated language should suffice. Lucent, however, proposed the following: "reading a tag indicating compatibility with other options in the master data base for each option."

The court agrees with Dell that no construction of this claim term is required. The ordinary meaning suffices.

5. "reading the code by a processor"

a. The Parties' Proposed Constructions

The only asserted claim that contains the term "reading the code by a processor" is claim 1 of the '603 patent ('603 patent at 16:6.) Ingenio asserts that the term "reading" in the context of the phrase "reading the code by a processor" means "to receive input of the code (a system of symbols that represent an assigned and secret meaning) from some source. That source may thus include a computer program/software source." (D.I. 113 at 22.) Ingenio relies on the ordinary meaning of the term "read," as well as the specification to support its proposed construction. (Id. at 21-22.) GameLogic asserts, however, that "reading" should be construed to mean "actively examine and grasp the meaning of the code." (D.I. 117 at 29.) In support of its proposed construction, GameLogic cites the specification of the '603 patent and the testimony of one of Ingenio's experts. (Id. at 29-30.)

b. The Court's Construction

The ordinary meaning of the term "read," In the context of a computer processor, is, as Ingenio asserts, "to input data from a storage device, a data medium, or any other source." See Computer User's High-Tech Dictionary, http://www.computeruser.com/resources/dictionary/dictionary.html (cited by Ingenio at D.I. 113 at 21). The specification of the '603 patent confirms that this Is the proper definition of the term "reading". (See '603 patent at 2:20-22 (the "code is stored on the gaming piece in a memory device. . . . The code is read by a processor.".) Nothing in the portions of the specification cited by GameLogic indicates that a different definition of "read" should be used. (See id. at 11:13-16 (describing an embodiment "using gaming pieces in the form of casino chips or tokens containing Destiny Codes to allow a player to simulate wagering games with cash"); id. at 12:1-7 ("the amusement +actualization game system reads the Destiny Code contained on the gaming piece. The reading operation takes place by a processor which reads the Destiny Code stored in the memory device contained on the gaming piece.") Therefore, the term "reading" in the context of the phrase "reading the code by a processor" will be construed to mean "receiving input of the code from some source, which may include a computer program/software source."

21. reading the command from a user interface

This phrase only appears in claim 35 of the '927 patent. The defendants contend that the phrase is indefinite because it is incomprehensible and the specification fails to provide meaning to this phrase. The court disagrees and finds one of ordinary skill in the art would understand the phrase to refer to a command initiated by the user. Accordingly, the defendants' indefiniteness argument is rejected and the phrase is construed to mean "reading a command initiated by a user through a user interface."

G. Claim Construction of "real time" 7

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7 Both parties' proposed constructions for this term changed from what was offered in the claims construction briefs.

The term real time appears in Claim 51 of the '513 Patent. Plaintiff asserts that the term means "substantially immediately, given processing limitations." Plaintiff further argues that the Federal Circuit's definition, as stated in Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075 (Fed Cir. 2009), is applicable to the instant claim term. Defendant, however, asserts that the term means "substantially immediately" without any additional limiting language. Defendant argues that real time is a term of art and is not defined in the '513 Patent or in the prosecution history. Defendant further argues that the construction established in Paragon is inappropriate to the instant claim because the Paragon court relied on intrinsic evidence, whereas there is no intrinsic evidence in the instant case regarding processing limitations. Finally, Defendant explains that, unlike the invention in Paragon, there is no need to qualify the timeliness of the processing once the merchant has created and posted the information to the system.

The Court finds neither the specification nor the patent prosecution history useful in defining this term. Since the intrinsic evidence does not provide meaningful guidance as to the proper construction of the term, the Court finds it appropriate to consult the Federal Circuit's opinion in Paragon. The court in Paragon spent a great deal of time on the intrinsic evidence regarding the claimed system's ability to process, transmit and calculate the data being displayed. Unlike the claimed system in Paragon, the system claimed in the '513 Patent does not require measurement of data requiring the passage of time; instead, the instant Patent claims "inputting of information that occurs in real time," which does not require the processing or calculation extensively discussed in Paragon. This Court finds that the limiting language regarding intentional delay and processing limitations, as announced in Paragon, is inapplicable to the '513 Patent. Neither intrinsic nor extrinsic evidence for the instant claim supports such additional limitations. Accordingly the Court FINDS that real time as defined in the '513 Patent means "substantially immediately."

C. "Real Time," (or "Real-Time," or "In Real Time")

I adopt the following definition: "at the same time that a transaction is taking place."

"Real-time," as used in the patent, can be either an adjective, as in "real-time monitoring" ('725 Patent, col. 20:31), or a noun within an adverbial phrase, as in "enables a cardholder to monitor, in real time, activity involving his or her card(s)" (Id., col 20:33-34). The patent also uses the phrases "in real-time" and "in real time" (no hyphen) interchangeably.

Plaintiffs offer the following four definitions: "immediately, or instantaneously, or at once, or at the actual time as something takes place." These four definitions are derived from different definitions of "real time" in standard English dictionaries. Defendants offer the definition, "simultaneously with the execution of the banking transaction."

"Real-time" has a technical definition, meaning a program that operates within a brief interval of time. When the term was coined, it was used to describe computer systems which had to work reliably within a pre-defined time interval, usually a matter of milliseconds, such as anti-lock braking systems in cars. However, it is clear from the patent that the drafters did not intend the technical definition. The invention does not impose any actual time limits, absolute or relative, on how long the transaction security protocol takes. Therefore, I must look to some other definition of the term.

"Immediately," "instantaneously," and "at once" are essentially synonymous, meaning without perceptible duration or interval of time. Merriam-Webster Online Dictionary at http://www.m-w.com/dictionary/instantaneous. However, "at the actual time as something takes place" -- plaintiff's fourth proposal -- is not the same as "immediately" -- there may be a small, barely perceptible delay of time between the inception of a transaction and subsequent notification, although notification could still occur before the transaction concluded.
"Immediately" (or "instantaneously," or "at once") also does not reflect the speed at which a system processes real-time notifications. A slow central processing computer may nevertheless provide real-time information, if the information provided is current as of the time the request is made and processed. The patentee could not have intended to limit their invention to systems in which such notification must be instantaneous; otherwise, one could design around the patent by building a system which imposes a delay of a few seconds before issuing the warning.

The phrase offered by defendants -- "simultaneously with the execution of the banking transaction"—is fine, except that I would eliminate the word "banking" (since the invention was clearly intended to extend beyond banking transactions). According the Merriam-Webster Online dictionary, "simultaneous" means "existing or occurring at the same time." As I understand the invention, the monitoring and notification of the account holder are designed to take place after the transaction begins but before it ends, so that the holder has an opportunity to stop the transaction before it is concluded. Thus, notification in real time is notification that occurs at the same time as (simultaneously with) the transaction.

Similarly, the Court finds no evidence that the patentee acted as his own lexicographer for the term "real-time." Consistent with Phillips, The Court, therefore, adopts the plain and ordinary meaning for this term, as defined in the Merriam-Webster online dictionary, "the actual time during which something takes place." Merriam-Webster Online Dictionary, available at www.merriam-webster.com.

We agree with the district court that claims 1 and 15 require that information be presented to the user in a manner that allows the user to access the information at the same time that he is observing the field of view. Claim 1 requires the information to be "simultaneously presented to the user as the user observes the field of view" (emphasis added), and claim 15 requires the information to be "provided . . . to the user . . . in real-time as the user observes the field of view." Especially when followed by the preposition "to," the verb "present" (or "provide," in the case of claim 15) suggests the act of making something immediately accessible for the user to view. Webster's New International Dictionary 1955 (2d ed. 1954) (defining "present" as "[t]o exhibit or offer to view"); id. at 1994 (defining "provide" as "[t]o supply for use"). It would be strange to say that an image is "presented to" a user as the user observes the field of view if the user is not in a position to view the image while observing the field of view.

In the context of the '203 patent, there is a significant difference between displaying information on a side screen that the user cannot see while observing the field of view, as opposed to simultaneously presenting information to a user as the user observes a celestial object in the field of view. The specification makes it clear that one of the key features of the invention is that the user can receive information about a particular celestial object while using the device to observe the object in the field of view. For example, the patent explains that one of the main disadvantages of observing aids such as star charts is that the observer "has to refer back and forth from the sky to the star chart." '203 patent, col. 1, ll. 30-31. But that is precisely what users of Yamcon's accused device must do with respect to the screen display, because Yamcon's device lacks the simultaneity feature touted in the patent.

All of the embodiments described in the patent allow information to be presented so that the user is exposed to the information and the field of view at the same time. In one embodiment, the device "superimposes on the observed night sky within the instrument's field of view an image in the form of a graphic representation of a prominent astronomical feature such as a constellation." '203 patent, col. 2, ll. 22-25. In discussing alternative embodiments, the specification notes that the "display is placed in the user's line of sight for direct viewing." '203 patent, col. 4, ll. 20-21. Nothing in the specification indicates that the relevant claim language can be interpreted to cover devices that do not present information to the user while the user is viewing the field of view.
Meade makes several arguments in support of its interpretation, but they are not persuasive. First, Meade challenges the district court's conclusion that the "user of the device must actually be aware of and receive the data at the same time that he or she is viewing the celestial object." Meade argues that the claims do not require "awareness" of the information on the part of the user, but only require that the information be "presented or provided." While it is true that the claim limitations are directed to the capabilities of the device, not the capabilities of the user, we do not interpret the district court's claim construction to require that the user actually absorb textual information at the same time that he is viewing an object. All that is required is that the information be made available to the user so that the user can access it while observing the field of view. In that regard, the district court's claim construction is entirely consistent with the prosecution history of the '203 patent, in which the applicant asserted that the invention "provides a device that a user can hold in his or her hand, point it in a desired direction, look through it at the night sky, and see both the actual night sky (in some limited field of view) and also see educational information about the prominent feature or features in that portion of the sky."

Second, Meade makes the related argument that the district court's claim construction excludes the embodiments disclosed in the specification, because even in the embodiments that call for overlaying information on the field of view it would be impossible for a user to read the displayed textual information and look at a celestial object in the field of view at the same moment. That is because, according to Meade, a user must shift the focus of his eyes away from the celestial object in order to focus on the overlaid visual display. Again, that argument overlooks the claim language. The claims require that the user be able to access the information at the same time that he is "observe[ing] the field of view." If the user can detect the information while using the device to observe the field of view, then even if the user must shift his attention from the celestial object in order to read the information that is displayed in or around the eyepiece field of view, the user is still observing the field of view as he accesses the information.

Finally, Meade raises a claim differentiation argument in support of its interpretation of the claim language. Meade argues that the only distinction between independent claim 1 and some of the dependent claims, such as claims 2 and 3, is that the dependent claims require real-time display of textual information overlaid on the field of view. Thus, in Meade's view, claim 1 must include some means of presentation other than overlaying information on the field of view. Although we agree that claim 1 must be broader than the claims that depend on claim 1, we disagree that the broader scope of claim 1 includes Yamcon's side screen display. Rather, the additional breadth of claim 1 includes methods of simultaneous presentation to the user other than overlaying the information as text on the field of view. For example, claim 1 may include audio presentation of information, see '203 patent, col. 11, ll. 39-42 ("certain data from the database may be provided to the user aurally with known speech synthesis integrated-circuit chips in place of the visual display"), or overlaying textual information within the observer's vision but outside the field of view of the eyepiece. Particular embodiments are not at issue in this appeal, so we need not rule on whether they would fall within the scope of claim 1; it is sufficient simply to note that there are various embodiments that might fall within claim 1 but outside the dependent claims. Therefore, we reject Meade's claim differentiation argument.

1. "Real Time"

The phrase "real time" appears throughout the patents, each of which addresses either a real-time reporting system or a specific feature or apparatus to make such a system easier to use. Engate asks us to construe this phrase to mean:

as instantaneously as possible, limited by a reporter's ability to transcribe text, the CAT [computer-aided transcription] system's ability to convert the transcribed text into readable text, and the ability of the utilized software and hardware to display the converted text.

Engate's Claim Construction Brief, p. 3. The defendants argue that "real time" means that a written, video or audio record "is generated virtually simultaneously during the speaking of words during a testimonial proceeding so that the user can immediately use the record." Defendants' Claim Construction Brief, p. 4.

The Court was initially fuzzy as to whether the parties' constructions actually posed a conflict; after all, even in the context of real time reporting involving a court reporter, the words do not magically appear on a screen once spoken, but appear
only after the court reporter has entered corresponding keystrokes and the transcription system has interpreted those keystrokes. At the January 3 hearing, the defendants explained that the conflict exists because of the "utilized software and hardware" language in Engage's definition. The defendants have no quarrel with the limitations concerning human (court reporter) capability and CAT system capability allowed under Engage's construction. They argue, however, that the way Engage has worded the limitation regarding software and hardware, it is really no limitation at all, and that the claim could encompass, for example, hardware consisting of "a can and a string," or the situation where a party takes a disk from the CAT system back to his office and downloads the disk to his hard drive -- an event which could take place hours or days after the signals were originally transcribed. Under anyone's definition, neither of these scenarios produces a "real time" result. Thus, although these situations are unlikely -- especially because the parties using the patented inventions will in all probability be more technologically sophisticated than that -- we agree that Engage's definition is insufficient to capture the spirit of the technology. Accordingly, we construe the phrase "real time" to mean: as instantaneously as possible, limited by the ability of the reporter to transcribe text, the ability of the CAT system to convert the transcribed text into readable text, and the ability of the software/hardware that is directly connected to the transcription means to display the converted text.

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4. In data communication with

The Court lets stand its previous definition of "in data communication with" to mean two or more devices connected such that data is being transferred between the devices in real time. During the September hearing, questions arose as to the meaning of "in real time" after the previous order was issued. The Court defines "in real time" to mean that the receiving system receives the data in the same electronic time frame as the transmission system sends the data.

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2.1 Real Time

The dispute about "real time" arises from claim 1, which comprises "a means for correlating the voice information and business transaction data in real time and for generating a written report containing the combined information and data in real time," along with an ACD and a host computer for supplying information about the call ("voice information") to agents, and generating business transaction data. Rockwell proposes that real time means "fast enough for the purpose intended" which in the context of the 117 patent is a minute-to-minute time frame in which reports are printed within minutes of being requested and can include reports of data summarized in 15 to 30 minute time periods." According to Rockwell, real time does not require that correlation or printing occur "instantly." Apropos proposes that real time means "immediately, as it happens; in the context of a system that processes data, it means processing the data as it is received (as against storing the data as it is received and processing the data later on)."

The idea of the 117 patent is to take caller information that is generated by the ACD (data which indicates to an administrator how well calls are being answered, and generally how well the phone staff are performing) and correlate it with business information (reports of customer sales, reservations, complaints) to enable the call center manager to be more accurate in business decisions. (See col. 1, l. 5-45). In the background section of the patent, the inventor reports that typically the ACD-generated information is available in real time and summarized in 15 to 30 minute time periods, but the business information is usually "batched and available on a daily basis." The improvement he proposes is to correlate the two streams of information in one report and to do it in a "rapid manner." Rockwell relies on various references in the specification, which uses phrases such as "15-30 minute time periods" for ACD summaries, managing call centers on a "minute-to-minute" (as opposed to daily) basis with only partial information available in real time, and that a report may be prepared "when needed," 7 as evidence that real time is a flexible term that means merely "fast enough to meet the need." Rockwell contends that real time simply means the appropriate time sequence for taking the appropriate action, citing IBM DICTIONARY OF COMPUTING, at 558-59, which defines real time as "... pertaining to the processing of data by a computer in connection with another process outside the computer according to time requirements imposed by the outside process" and "...pertaining to an application such as a process control system or a computer-assisted instruction system in which response to input is fast enough to affect subsequent input." It relies further on MacCrisken, who opined that real
time could have more than one meaning and in this instance could be as long as 15 to 30 minutes, and the inventor Andre Zazzera's testimony stating that real time might be different in different contexts. 8 In opposition, Apropos cites a long list of places within the patent and prosecution history where real time is used in the context of immediate, as soon as technically possible, 9 as well as MacCrisken's concession that GeoTel's GLOSSARY OF COMPUTER TELEPHONY TERMS defines data that is stored in 5 and 30 minute intervals as "historical data," whereas data that is collected as the events happen is called "real time data" and various witnesses who testified that real time is essentially immediate. 10

7 Rockwell cites Interactive Gift Express, Inc. v. Compuserve Inc., which states "Then [after looking to the claim language] we look to the rest of the intrinsic evidence, beginning with the specification and concluding with the prosecution history, if in evidence." 231 F.3d at 865, withdrawn, 256 F.3d at 1327; see also col. 1, l. 27-28, and col. 3, l. 3-6 (ACD information is summarized in "15 to 30 minute time periods"); col. 1, l. 44-45 ("call centers are managed minute-to-minute"); col. 4, l. 36 ("This correlation of data may be formed in a simplified manner and may be prepared for the person when needed.").

8 Brady also testified that "real-time" is "always" "context-dependent." (Markman Tr. at 91-92). In the context of a physicist at Fermi labs, "real time" might mean nanoseconds (Brady Dep., p. 123), to a filmmaker, "real-time" means faster than a thirtieth of a second (1/30 sec.) because slower than that is visible as a flicker to the human eye (Brady Dep. at 123), and to a computer telephony engineer it might mean 10 to 15 seconds (Id. at 156).

9 Apropos cites to 117 Patent, col. 1, l. 35-47 (in an air traffic control system, distance and altitude data are available in real time), col. 1, l. 45-46 (call centers are managed on a minute-to-minute basis), col. 3, l. 3-4 ("The ACD generated information is typically available in real-time and summarized in 15 to 30 minute time periods."); and col. 3, l. 8-10 ("as quickly as technically possible"); Pros. Hist. of 117 patent, at R000048 (" information and data is [sic] printed in real time such that the user has immediate access . . ") (emphasis added).

10 Apropos cites Ex. 22, Zazzera Dep. at 31 and at 58-59 (inventor Andre Zazzera testifying that the ordinary meaning of "real time" is "now," "immediately," "what's happening right now"); Ex. 53, WEBSTER'S 973 ("real-time" the actual time during which something takes place . . ."); Brady Dep. at 147, l. 16 to 149, l. 18 ("real-time" in the context of a call center "needs to happen in seconds"); id. at 169, l. 17 to 171, l. 20 (the industry would not accept a definition of "real time" as applied to a report that's printed every 15 minutes); id. at 177, l. 14 to 178, l. 4 (the two uses of "real time" in claim I have to have the same time horizon because "it seems to clearly say that these things are kind of happening one leading to . . . the other"); Markman Tr. at 175 (Forys) (real time means "immediately, right now, without perceptible delay."); id. at 177 (Forys) (explaining that Rockwell uses the term real time in the context of displays (RTDs) to provide immediate feedback on call center operations in a form of status and performance data); id. at 127-28 (MacCrisken) (unable to identify even a single example of a telephone system where 15 to 30 minutes was viewed as real time); MacCrisken Dep. at 181 (describing review of historical data regarding routed calls as, "It's not real time. It's not now."); id. at 442 (agreeing that data sent "as it happens is being sent in real time") and id. at 446 ("'real time' means as those systems have the data available . . . . In a typical system, the information for reporting to the database would be available within a second.").

Again, Apropos' evidence is more convincing than that offered by Rockwell. The definition contained in the IEEE STANDARD DICTIONARY OF ELECTRICAL TERMS 879 (6th ed.) (Rockwell Pre-Hr'g Mem., Ex. 7), defines real time as "pertaining to the actual time during which a physical process transpires . . . ." Although the amount of time that constitutes real time may be different in other contexts, in every context the notion is that data is processed as soon as received rather than stored and processed later. The description (at col. 3, l. 20 ff.) of the "interaction between the ACD and the host computer 26 and display 28" as shown in Fig. 2 strongly indicates that the correlation of data is to occur on a immediate basis and that a delay of 15 minutes would not be real time in this context. The court accepts Apropos' definition of real time.
Claims 7 and 12 of the '969 Patent describe a "real-time clock." Philips asserts that this term should be construed as "a device that keeps track of the actual date and time, and not just elapsed time." Cardiac Science, on the other hand, contends that the term should be defined as "a component that keeps track of time."

In support of its construction, Philips points to the specification, which states that upon completion of the periodic self-tests, the processor causes a record of the self-test to be stored in memory. ('969 Patent at c. 8, ll: 6-8.) The specification further states that "each stored record includes data representative of the date and time of the test and the results of the test." (Id. at c. 8, ll: 8-10.) The specification also references stored memory data in the form of the "real time" or "actual time" that certain events occurred related to the use and testing of the defibrillator unit. (Id. at c. 7, ll: 56-67.)

Consistent with the specification, the Court construes "real time clock" to mean "a clock that keeps track of the actual date and time."

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3. "displaying real-time data"

The district court construed "displaying real-time data" to mean "displaying data substantially immediately without contextually meaningful delay so that the information is displayed in a time frame experienced by people." Claim Construction Op. at 9. As an alternative basis for affirmance, Timex argues that this construction was incorrect and that its products cannot infringe under the correct construction. Both before the district court and on appeal, Timex argues that "displaying real-time data" means "displaying the measured parameter at the given moment in time that the measurement of the parameter occurs." Id. at 8. Paragon argues that the district court's construction was correct and that Timex's proposed construction would require instantaneous display, which is not possible in practice.

a. Claim Language

Although not addressed by the district court or the parties, we find important aspects of the claim language itself to provide at least some insight into the meaning of "real-time." Specifically, claim 1 recites that the "display unit configured for displaying real-time data" is "separate from [the] data acquisition unit" that includes the electronic positioning device and the physiological monitor that provide the data. '759 patent col.28 ll.3-6. Thus, when the claimed system is in operation, the displayed data must first be acquired by the electronic positioning device and the physiological monitor and then transmitted to the display unit for display. Even assuming that this transmission happens at the speed of light, it still takes a non-zero amount of time. Thus, what the claims describe as "displaying real-time data" cannot possibly mean displaying data literally instantaneously, because the claims themselves require a transmission that necessarily takes some time, however minute that might be.

Second, claim 1 identifies five types of "real-time data," at least one of which must be displayed: "location, altitude, velocity, pace, and distance traveled." Three of these types of real-time data--location, altitude, and distance traveled--require the electronic positioning device to receive three or more signals that enable the device to calculate a position. See, e.g., '759 patent col.3 ll.6-10 ("The electronic positioning device is configured to receive electromagnetic signals from three or more sources so that the monitoring system can determine at least one of a subject's location, altitude, velocity, pace, and distance traveled."); id. col.6 ll.46-52 ("The electronic positioning device uses electromagnetic signals from three or more sources in order to provide data indicative of one or more of the subject's location, altitude, velocity, pace and/or distance traveled. By way of example, the electronic positioning component may comprise a GPS device which utilizes signals from satellites of the Global Positioning System . . . ."). Receiving and processing these signals necessarily takes a non-zero amount of time. See, e.g., id. col.9 ll.27-28 (describing "processing of GPS signals in order to determine the subject's location").

Moreover, the other two of the claimed types of real-time data--velocity and pace--are calculations of the rate of movement. Because a rate of movement is simply distance moved over time (or time over distance moved), calculation of a rate of movement necessarily requires the passage of a non-zero amount of time. More particularly, calculation of a rate of movement requires sufficient time to have elapsed to allow for a meaningful measurement. Similarly, in dependent claim
14, the "physiological monitor comprises a heart rate monitor." Id. col.28, ll.51-52. The measurement of a heart rate necessarily requires the passage of time between at least two heartbeats.

Thus, from the claim language alone, it is clear that in this case "real-time" cannot mean instantaneous, and must permit at least some amount of time to pass to allow for both the processing limitations of the system and the time required to accurately measure the data that is to be displayed.

b. Specification

Each of the parties relies heavily on the specification for its construction of "real time." Timex first points out that the specification is critical of prior art that does not provide "instantaneous" feedback, because "[h]uman nature requires instantaneous feedback for motivation and encouragement." '759 patent col.1 ll.29-30; see also id. col.23 ll.50-52 (criticizing prior art because runner cannot determine "instantaneous velocity"). Timex is correct that the specification criticizes the prior art as failing to provide "instantaneous" feedback. However, taken in context, the specification's criticisms are targeted at systems that do not provide any feedback during the course of the physical activity itself, so that the person engaged in the activity would have the opportunity to modify his activity in response. Specifically, immediately following the sentence concerning "instantaneous feedback for motivation and encouragement," the specification states:

[Many athletes also do not know how to train effectively for maximal improvement. For example, competitive runners may have difficulty determining whether their pace on a particular day of training is too fast or too slow.

Id. col.1 ll.31-36. The specification also includes a section entitled "Analytical and Training Methods," in which it describes in detail the use of the electronic monitoring system--including various alarms--to allow the user to modify his or her activity in response to data collected and displayed during the activity. See id. col.23 l.28-col.27 l.63. Thus, the specification's criticism of prior art as not providing "instantaneous" feedback cannot be read as suggesting that the patented invention displays data literally instantaneously. Rather, the criticism of prior art is more appropriately read to distinguish the invention's "real-time" display from prior art methods that stored data for review only after the activity was complete, so that the user could not make modifications during the course of the activity. Thus, the specification supports a construction of "real-time" in this case that precludes intentionally delaying the display of data by storing it for later review. The specification's references to "instantaneous" feedback do not preclude some delay to allow for the processing limitations of the system and the time required to accurately measure the data that is to be displayed.

Timex also relies on the specification's references to providing data "at any given moment." See '759 patent col.13 ll.4-8 (disclosing that "an individual can use the GPS device of the monitoring system . . . in order to determine their velocity at any given moment (e.g., in miles per hour), their pace at any given moment (e.g., in terms of minutes per mile)"; id. col.13 ll.16-29 (disclosing that "a heart rate monitor device incorporated into a monitoring system according to the present invention may display a subject's heart rate at any given moment"). The problem with Timex's reliance on the language "at any given moment" is that this language is no more or less clear than "real-time." The term "at any given moment" might mean literally instantaneously, or it might allow for the passage of some amount of time. As the district court recognized, Timex's "given moment" language is therefore unhelpful in ascertaining the meaning of "real time."

In addition to the portions of the specification identified by the parties and the district court, we note two additional aspects of the specification relevant to the construction of "displaying real-time data." First, the specification expressly states that the invention can be practiced using commercially available technology. See '759 patent col.12 ll.1-4 ("In order to provide the above-described functionality, the GPS device utilized in embodiments of the present invention may employ conventional, commercially-available components."); id. col.14 ll.52-55 ("The oximeter device utilized in embodiments of the present invention may employ commercially-available components in order to provide the functionality described above."). Plainly, the commercial GPS technology available at the time of filing--November 9, 1999--was not able to display data literally instantaneously. Thus, the fact that the specification describes embodiments using commercially available products confirms that "displaying real-time data" does not require instantaneous display.

Second, like the claims, the specification expressly describes measuring rate data, which necessarily requires the passage of time. See, e.g., '759 patent col.3 ll.6-10 ("The electronic positioning device is configured to receive electromagnetic signals from three or more sources so that the monitoring system can determine at least one of a subject's location, altitude, velocity, pace, and distance traveled.") (emphases added); id. col.3 ll.11-13 ("The physiological monitor may be chosen from the
group consisting of: an oximeter and a heart rate monitor." (emphasis added); id. col.22 ll.16-23 (describing a display unit with regions displaying "the subject's heart rate (in beats per minute)" and "the subject's velocity (in miles per hour or kilometers per hour) or the subject's pace (e.g., in minutes per mile)"). In this respect, the specification again confirms that that "displaying real-time data" must permit the passage of time required to accurately measure the data that is to be displayed.

Paragon defends the district court's construction by referring to a separate portion of the specification—the only part of the specification in which the term "real-time data" actually appears. That portion of the specification states that "[t]he systems and methods of the present invention, for example, provide real-time data and feedback useful to individuals performing a physical activity (such as athletes)." '759 patent col.6 ll.39-41. According to Paragon, this sentence supports the district court's construction of real-time as "substantially immediately without contextually meaningful delay." Claim Construction Op. at 9. In essence, in the views of both Paragon and the district court, the amount of delay that the system can impose and still be "displaying real-time data" depends on the use to which the system is being put. Under the district court's construction, if the system is being used in a "context" in which the delay is "meaningful," then the "displaying real-time data" limitation is not met; if, however, the system is being used in a "context" in which the delay is not "meaningful," the display is in "real-time" and the limitation is met. Thus, the district court offers as an example that, "for a runner, [data must be displayed] presumably within the stride" to meet the "displaying real-time data" limitation. Id. at 8.

The problem with construing "displaying real-time data" as used in the claims of the '759 patent to preclude "contextually meaningful delay" is that such a construction injects a use limitation into a claim written in structural terms. "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb, Inc., 909 F.2d 1464, 1468 (Fed. Cir. 1990). If the district court's construction were correct, then the same apparatus might infringe when used in one activity, but not infringe when used in another. For example, consider a device that had a delay of thirty seconds between the time at which it calculated a user's velocity and the time that it displayed it. A thirty-second delay might be insignificant in some contexts—including "walking," "climbing," and "snowshoeing," all of which are listed in the specification as activities for which the patented invention is suitable. '759 patent col.4 ll.52, 54. By contrast, a thirty-second delay in determining velocity would be highly significant in other contexts—for example, short- and middle-distance running or skiing. See id. col.4 l.53. Moreover, the wide variety of contexts disclosed as suitable uses for the claimed exercise monitoring system would render it nearly impossible to determine in advance whether the delay in a particular system would be sufficient to avoid infringement. See, e.g., id. col.4 l.53 (listing "flying" as suitable physical activity); id. col.4 l.53 (listing "singing" as suitable physical activity); id. col.5 ll.38-39 (describing use of invention to monitor activity of "horses and camels"); id. col.7 ll.27-28 (describing use of invention for "rehabilitating an injured animal"). See also, e.g., Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1311 (Fed. Cir. 1999). (discussing importance of public notice function in claim construction). Absent an express limitation to the contrary, any use of a device that meets all of the limitations of an apparatus claim written in structural terms infringes that apparatus claim. See, e.g., Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 809 (Fed. Cir. 2002) (holding that "a patent grants the right to exclude others from making, using, selling, offering to sale, or importing the claimed apparatus or composition for any use of that apparatus or composition" (emphasis added)); see also Roberts v. Ryer, 91 U.S. 150, 157, 23 L. Ed. 267, 1876 Dec. Comm'r Pat. 439 (1875) ("The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not."). Construing a non-functional term in an apparatus claim in a way that makes direct infringement turn on the use to which an accused apparatus is later put confuses rather than clarifies, frustrates the ability of both the patentee and potential infringers to ascertain the propriety of particular activities, and is inconsistent with the notice function central to the patent system. See, e.g. PSC Computer Prods., Inc. v. Foxconn Int'l, Inc., 355 F.3d 1353, 1361 (Fed. Cir. 2004) (emphasizing "the important public notice function of patents—the mechanism whereby the public learns which innovations are the subjects of the claimed invention, and which are in the public domain"); see also Halliburton Energy Servs., Inc. v. M-I LLC, 514 F.3d 1244, 1255 (Fed. Cir. 2008) (emphasizing that claim language should "provide a clear-cut indication of the scope of subject matter embraced by the claim" and noting "that the patent drafter is in the best position to resolve the ambiguity in the patent claims").

c. Prosecution History

Timex argues that the prosecution history supports its construction requiring instantaneous display of data. Specifically, Timex argues that "the applicants stressed the 'real-time data' limitation in their Remarks to overcome the Examiner's rejections" and "argued that the 'real-time data' limitation was supported by the specification," which "disparages non-instantaneous systems." Br. of Appellee Timex Corp. at 58.
To the contrary, we conclude that the prosecution history offers further evidence that "real-time," as used in this case, does not mean instantaneous. After claims 1 and 18 were rejected as anticipated by Root, the applicants amended the claims to add the "displaying real-time data" limitation. Doc. 21, Ex. 2-P (J.A. 310); id., Ex. 2-Q (J.A. 318). In their remarks, the applicants stated, "Furthermore, the personal computer depicted in Fig. 7 of Root cannot be used to display real-time data, as required by claim 1. Rather, the personal computer in Fig. 7 of Root will merely display performance data after the athlete has completed their activity." Doc. 21, Ex. 2-P (J.A. 308). The applicants similarly remarked that "Claim 18 also requires that the display unit display real-time data acquired by the electronic positioning device." Id. (J.A. 309). The applicants' remarks distinguishing Root therefore echo the criticism of the prior art in the specification. In the applicants' view, the invention is preferable because it does not intentionally delay the display of data by storing it for later review after the athlete has completed his or her activity (as in Root). Rather, in this invention, the data is displayed without any intentional delay—i.e., in "real time."

d. Extrinsic Evidence

The district court relied heavily on extrinsic evidence—namely, a dictionary definition—in construing "displaying real-time data." Specifically, the district court relied on a Microsoft Computer Dictionary, which defined "real time" as "[o]f or relating to a time frame imposed by external constraints." Claim Construction Op. at 9 (quoting Microsoft Computer Dictionary 375 (4th ed. 1999)).

We have made clear that "dictionaries and treatises can be useful in claim construction," particularly insofar as they help the court "to better understand the underlying technology and the way in which one of skill in the art might use the claim terms." Phillips, 415 F.3d at 1318. However, we find the dictionary definition relied on by the district court too vague to be of significant help in resolving the dispute in this case. The cited definition sheds no light on whether "real-time" means "instantaneous" or, if not, how much of a delay is permissible.

Moreover, we note that definitions of "real-time" in other technical dictionaries suggest that a real-time process cannot involve intentional delay or storage for later processing. See Rudolf F. Graf, Modern Dictionary of Electronics 627 (7th ed. 1999) (including definition of "real time" as "The performance of a computation during the actual time that the related physical process transpires in order that results of the computations are useful in guiding the physical process"); id. (including definition of "real-time operation" as "Data-processing technique in which information is utilized as events occur and the information is generated, as opposed to batch processing at a time unrelated to the time the information was generated"); IEEE 100: The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000) (including definition of "real time" related to "software" as "Pertaining to a system or mode of operation in which computation is performed during the actual time that an external process occurs, in order that the computation results can be used to control, monitor, or respond in a timely manner to the external process. Contrast: batch."); Steven M. Kaplan, Wiley Electrical and Electronics Engineering Dictionary 639 (2004) (including definition of "real-time" as "In computers, that which is processed, or otherwise acted upon, without any delay."); Harry Newton, Newton's Telecom Dictionary 758 (22d ed. 2006) ("In data processing or data communications, real time means the data is processed the moment it enters a computer, as opposed to BATCH processing where the information enters the system, is stored and is operated on at a later time.").

For the foregoing reasons, we modify the district court's construction of "displaying real time data" to reflect that, while the data need not be displayed instantaneously, it must be displayed without any intentional delay, taking into account the processing limitations of the system and the time required to accurately measure the data. We therefore construe "displaying real-time data," as used in the claims of this case, as "displaying data without intentional delay, given the processing limitations of the system and the time required to accurately measure the data."

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Real Time Operation

The Court adopts ST's proposed construction of "real time operation" and construes it to mean "processing fast enough to keep up with an input data stream." In part, the Court finds that a person of ordinary skill in the art would apply ST's proposed construction as the term's ordinary meaning because the relevant technical dictionary defines "real time" as "a
system or mode of operation in which computation is performed during the actual time that an external process occurs." IEEE Standard Dictionary of Elec. & Elecs. Terms, at 879 (6th ed. 1996). The relevant dictionary definition indicates that real time concerns the processor's ability to "keep up with" the data input. Moreover, because the term is concerned with the processor's ability to keep up with the input, Motorola's proposed construction 2 improperly shifts the focus to the viewer or listener.

Motorola's proposed construction is: "operation of the decoder so that the rate of decoding is faster or the same as the display rate and the human viewer or listener cannot detect any loss of information."

The parties dispute the meaning of the term "real-time video" as that term appears in Claim 3. The parties propose substantially identical constructions with one exception. Defendants posit that the term should mean "non-buffered video transmitted and displayed to the remote users without perceived delay between the events as they occur and the events depicted in the video," while AMS urges the Court to exclude the "non-buffered" limitation.

The specification clearly states that the video must be non-buffered. First, the patent abstract states that the invention comprises, in part, "an audio/video system for streaming instantaneous and buffer-free live audio and video data from a live auction site to one or more remote auction bidders. . . ." Second, in the Summary of Invention, the patent states that the "present invention removes the buffering without sacrificing quality" (612 Patent col. 3, 11. 5-6); describes the "two overarching design elements that firmly define and delineate the unique nature of the A/V System 100: connectionless and non-buffered performance;" and clarifies that the "A/V System 100 uses connectionless, non-buffered designs." In view of these clear statements in the specification, the Court finds that the term "real-time video" shall mean "non-buffered video transmitted and displayed to the remote users without perceived delay between the events as they occur and the events depicted in the video."

The purpose of "realizing" the "initial intended delay" is to ensure that "predetermined timing constraints are met." (See
The specification of the '446 patent recognizes that timing constraints may be met when the delay is less than intended. It expressly notes that in the prior art, one way of "increasing the probability of meeting timing constraints" is to make the size of the gates larger than necessary, (see id. at 1:61-2:3), and further notes that although such an approach "increases the probability of meeting timing constraints," gates that are "larger than the necessary size are wasteful in both silicon area and power consumption," (see id. at 1:63-2:1). The invention set forth in the '446 patent is intended to address this problem, (see id. at 3:12-13), by permitting the size of each cell to be adjusted during or after placement to more closely achieve the desired delay. (See id. at 16:24-26.) Nothing in the specification, however, requires that the cell size be adjusted to exactly achieve the initial intended delay. Indeed, the specification recognizes that timing constraints are met if "slack is zero or positive," 8 (see id. at 13:29-30), and further provides that "it is preferable to maintain a small amount of slack for a path, in order to compensate for downstream delay effects, such as wire delay." (See id. at 15:44-46.)

--- Footnotes ---

8 Dr. Harris attests that "[s]lack is the difference between the actual path delay and the maximum path delay permitted by the timing constraint." (See Harris Decl. P 71.)

9 The Court notes that Magma's own expert, Dr. Sechen, testified that "there's a certain goal, . . . a certain timing constraint, and then you have to be below it, at or below it." (See Boyce Decl. Ex. A (Sechen Dep.) at 32:8-13.)

--- End Footnotes ---

Accordingly, the Court agrees with Synopsis that the "initial intended delay" is "realized" if "the delay obtained is less than or approximately equal to the initial intended delay."
8. Rebooting

The term "rebooting," as used in Claims 1, 8, and 13, must be construed in accordance with its plain and ordinary meaning to a person skilled in the art. Citec's proposed construction is supported by reference to the Random House Unabridged Dictionary (2d ed. 1993), which defines "boot" as "to start (a computer) by loading the operating system" and the prefix "re" as "again" or "again and again." In addition, the claims and specification identify "rebooting" as a function associated with the central processing unit. See, e.g., Col. 5, ll. 46-47 ("reset means for rebooting said central processing unit"); Col. 2, ll. 9-10 ("activating the reset switch reboots the CPU"). Accordingly, the Court construes the term "rebooting" to mean the restarting of the central processing unit of a computer.

3. "Recalculating pricing data with the yield management system in a manner consistent with a pricing strategy implemented by the yield management system, so that price changes caused by a reduction in available inventory due to the customer request are taken into account" Used in '691 patent, claim 1 [Parties' Joint Claim Construction Chart, term # 5].

"Recalculating pricing data with the yield management system in a manner consistent with a pricing strategy implemented by the yield management system, so that price changes caused by a reduction in available inventors [sic] due to the customer request are taken into account, wherein the recalculating system is configured to operate with sufficient frequency such that the effect of each customer order on pricing is taken into account before a price quote for a subsequent customer order is generated." Used in '691 patent, claim 14 [Parties' Joint claim Construction Chart, term # 5].

These terms, submitted at the request of Clear Channel, are entire steps from the respective claims. As with "yield management system," Clear Channel did not seem to be seeking a definition of a particular word or term, see Tr. at p. 111, l. 14- p. 115, l. 20, and in fact agreed that the word "recalculating" itself meant "calculating again." Tr. at p. 114, l. 23- p. 115, l. 5. The court will not enter an advisory opinion delineating all of the systems and methods that are not described by the claims. Arguments over whether a particular system infringes are inappropriate at the claim construction stage and will be dealt with at a later time. Likewise, the court will not undertake to rewrite paragraphs of claim language in a patent.

Clear Channel asserts that any "recalculating" terms should be read as being limited to "real time" because, in Clear Channel's view, the specification only discloses one preferred embodiment as to the time when the calculations should be performed - right after each inventory change. '691 patent, col. 4, ll. 15-21. Although the specification discloses a second situation in which "a slight delay in updating may also be acceptable," Clear Channel argues that this is not a preferred embodiment and is directly contrary to the optimum state the specification does disclose, namely a system where the recalculating performed after each order is done before the next order is placed. See '691 patent, col. 4, l. 22; co. 2, ll. 62-67.

Again, courts should avoid importing limitations from the specification into the claim terms, absent a clear disclaimer of claim scope. Phillips, 415 F.3d at 1323. Here, the specification of the '691 patent allows for a second embodiment in which a "slight delay" may be acceptable. Clear Channel can point to no place in the specification or anything in the prosecution history which would suggest that the preferred embodiment of updating right after an inventory change was meant to limit the claims to this embodiment, other than the language in the '691 patent, col. 2, ll. 62-67. This portion of the specification, however, states that a system where the recalculating is done before a subsequent order is placed is "optimum," not that it is required or necessary for the system. Thus, absent any clear disclaimer of claim scope, this court will not import limitations from the specification into the claim language. The court will define this term as follows:

"Recalculating pricing data" means: "calculating pricing data again."
Next, Plaintiffs ask the Court to insert the word "directly" before the claim term "receive." (See R. 82, Pls.’ Mem. at 20.) In support of their proposal, Plaintiffs point to the language in claim 1, which recites "a principal market maker operative to receive and automatically execute primary currency futures purchase and sale trades and orders." ’923 patent, col. 10, ll. 49-53. According to them, "[b]y the plain language of [this] claim, PMM computers, not the electronic trading systems such as the GLOBEX or Project A systems, directly receive the purchase and sales trades and orders." (R. 82, Pls.’ Mem. at 20.) Thus, they contend, the inclusion of the modifier "directly" before the claim term "receive" is proper. (Id.) The Court disagrees.

Plaintiffs point to various portions of the intrinsic record-- specifically, the specification along with figures and their accompanying text--that suggest a direct relationship between the PMM computer and orders to support their request that the Court insert the modifier "directly" before the claim term "receive." (Seeid.) The Court finds Plaintiffs’ arguments unconvincing as they improperly seek to import a claim limitation from the specification and patent figures. The Federal Circuit has clearly warned against such a practice. See, e.g., Playtex, 400 F.3d at 907 (finding that a district court's reliance on figures to limit claim to a preferred embodiment was improper); Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed. Cir. 2003) ("Because the claims are best understood in light of the specification of which they are a part, however, courts must take extreme care when ascertaining the proper scope of the claims, lest they simultaneously import into the claims limitations that were unintended by the patentee."). The Court therefore refuses to modify the term "receive."

Newbridge contends that this term is indefinite, or to the extent that it was capable of construction, should be defined as a customer terminal that receives data from a packet switch node. After reviewing the specification, the Court concludes that the specification refutes Newbridge's construction, because it indicates that the customer terminal equipment actually resides outside the network and is not co-located with a packet switch node. (810 Patent, col. 4, ll. 38-56, Fig. 1). Further, the monitoring and marking described in this claim is not performed by customer terminal equipment, but rather, is performed at the packet-switching node. That the receive terminal is an input port is supported by the specification which describes that the data packet is "received by an access node." (810 Patent, col. 3, ll. 57-60, col. 5, l.67-col. 6, l. 1, 3). In addition, the Court's construction is supported by the meaning ascribed to the word "terminal" by those of ordinary skill in the art. Specifically, the word "terminal" is defined as "[a] point in a system or communication network at which data can either enter or leave." The New IEEE Standard Dictionary of Electrical And Electronics Terms 1351 (5th ed. 1993).

AMS proposes this claim term should mean "live audio and video received concurrently at a remote location with auction item information such as characteristics of the auction item and status of bids over one or more ports associated with an IP address." The Court finds no basis to support AMS's proposed definition in either the '612 Patent or its prosecution history, and finds the testimony of AMS's expert on this point unconvincing. The Court therefore adopts the definition proposed by Manheim, and this term as it appears in claim 3 shall mean "audio and video streams travel on the same channel as the data stream containing information about the item being auctioned and information about the acceptance and rejection of bids."
1. "receiver"

The disputed claim term "receiver" appears in claims 1, 2, 4, 7, 25, 35, 36, 43, and 44 of the '416 Patent and claims 1, 2, 4, 5, 8, 10, 13, 14, 17, 34, and 35 of the '186 Patent. Kyocera seeks to have the court construe "receiver" as "circuitry for receiving RF transmissions operably coupled to a paging network." (Dkt. No. 207 ("Kyocera Br.") at 6.) Intellect Wireless, on the other hand, challenges the "operably coupled to a paging network" limitation in Kyocera's proffered definition. Intellect Wireless contends that the "receiver" is simply a "circuit or device for receiving signals." (Dkt. No. 212 ("Intellect Wireless Resp.") at 7.) The dispute between the parties centers on whether the "receiver" in the asserted claims of the '186 and '416 Patents must include circuitry which enables it to communicate with a paging network.

In construing the disputed terms, the court first looks to the claim language. See Phillips, 415 F.3d at 1312. Here, the asserted claims in the '186 and '416 Patents do not expressly require that the "receiver" be coupled to or able to communicate with a paging network. Claim 1 of the '186 Patent and claims 1 and 43 of the '416 Patent state that the "receiver" is "operably coupled to receive a message from a message center over a wireless connection." '186 Patent, col.46 ll.46-47; '416 Patent, col.46 ll.41-42, col.50 ll.30-31. Those claims additionally only identify "a communications network" without expressly defining the type of network, i.e. paging or cellular. '186 Patent, col.46 l.50; '416 Patent, col.46 l.45, col.50 l.34.

The doctrine of claim differentiation further supports Intellect Wireless's position that the claimed "receiver" is not necessarily operably coupled to a paging network. Under that doctrine, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1315. Dependent claim 14 of the '186 Patent, for example, claims "[a] wireless portable communication device according to claim 1, wherein the receiver comprises at least one of: a page receiver; a cellular telephone receiver; a radio frequency receiver; and a personal digital receiver." '186 Patent, col.47 ll.48-53. By stating that the "receiver" includes at least a "pager receiver," claim 14 indicates that the "receiver" in independent claim 1 is not required to include a page receiver or, in other words, a receiver operably coupled to a paging network. If, as Kyocera argues, the claimed "receiver" in independent claim 1 of the '186 Patent must be operably coupled to a paging network, the inclusion of a "page receiver" in dependent claim 14 would be redundant.

Dependent claims 7 and 8 of the '416 Patent also undercut Kyocera's argument that the claimed "receiver" in the asserted claims must be able to communicate with a paging network. Dependent claim 7 states that "the communication network includes a cellular system and the wireless portable communication device includes one of a cellular telephone device or a two-way communication device." '416 Patent, col.47 ll.14-18. The communications network which provides the caller ID in claim 1 of the '416 Patent presumably is broader than the communications network in dependent claim 7. Dependent claim 7, therefore, indicates that the communication network in independent claim 1 is not limited to a paging network, as Kyocera contends, but could instead be a cellular communications system. As a result, the claimed "receiver," which receives the message, need not be operably coupled to a paging network.

Additionally, dependent claim 8 of the '416 Patent claims "[a] wireless portable communication device as in claim 1 where the communications network includes a paging system and the wireless communication device is a pager." Id. at col.47 ll.19-21. Again, because the communications network in the independent claim is presumed to be broader than in the dependant claim, requiring the communications network in claim 1 of the '416 Patent to include a paging system would render superfluous the language in dependent claim 8 specifying that "the communications network includes a paging system." Accordingly, the language of the claims does not support the "operably coupled to a paging network" limitation in Kyocera's proposed definition. See Bradford Co. v. Conveyor N. Am, Inc., 603 F.3d 1262, 1271 (Fed. Cir. 2010) (relying on claim differentiation to determine that disputed claim term was "entitled to a broader scope than the district court allowed").

Nor do the specifications or the prosecution histories of the patents at issue support imposing Kyocera's "paging" limitation into the claims. Admittedly, Kyocera is correct that the specifications are replete with references to "paging" and "pagers." The Field of Invention, for example, explains that "[t]his invention relates in general to communications systems and in particular to wireless communications systems which include paging devices." '186 Patent, col.1 ll.25-28. Similarly, the specifications' Description of the Prior Art "is specifically related to stored voice paging receivers and paging systems." Id.
Nevertheless, "[t]he claims, not specification embodiments, define the scope of patent protection." Kara Tech., Inc. v. Stamps.com Inc., 582 F.3d 1341, 1348 (Fed. Cir. 2009). "Generally, a claim is not limited to the embodiments described in the specification unless the patentee has demonstrated a 'clear intention' to limit the claim's scope with 'words or expressions of manifest exclusion or restriction.'" i4i Ltd. v. Microsoft Corp., 598 F.3d 831, 843 (Fed. Cir. 2010) (quoting Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004)).

3 Although Kyocera's counsel relies upon the Federal Circuit's en banc opinion in Ariad Pharmaceuticals, Inc. v. Eli Lilly & Co., 598 F.3d 1336 (Fed. Cir. 2010), to bolster its position that the "paging" limitation should be imported into the claims, the court is not persuaded that Ariad alters the specification's role in the claim construction analysis. To the contrary, in Ariad, the Federal Circuit merely reaffirmed the well-established requirement that "the specification must describe an invention understandable to the skilled artisan and show that the inventor actually invented the invention claimed." Id. at 1351. Furthermore, to the extent that Kyocera relies on Ariad to suggest that the patents in suit are invalid for lack of enablement, that question is not currently before the court. By way of dicta, this court hereby suggests that the statutory requirements of enablement and validity appear satisfied.

In this case, the specifications do not support requiring the "receiver" to be operably coupled to a paging network. First, the Abstracts for the '186 and '416 Patents illustrate that the court's construction of "receiver" should not depart from the term's plain and ordinary meaning. See Hill-Rom Co. v. Kinetic Concepts, Inc., 209 F.3d 1337, 1341 n.* (Fed. Cir. 2000) ("We have frequently looked to the abstract to determine the scope of the invention, and we are aware of no legal principle that would require us to disregard that potentially helpful source of intrinsic evidence as to the meaning of claims.") (citations omitted); Lucent Techs., Inc. v. Gateway, Inc., 525 F.3d 1200, 1207-10 (Fed. Cir. 2008) (reviewing patent's abstract in determining that specification did not support the district court's claim construction). The '186 Patent's Abstract, for example, recognizes that "[t]he personal communication device can be a cellular telephone, PDA or pager." Similarly, the '416 Patent's Abstract states: "The wireless communication device may include a cellular or paging link and can receive Caller ID data originating from the public switched telephone network over a wireless communication system." Notably, the Abstract for the '416 Patent does not require that the claimed "receiver" be able to communicate with a paging network but rather merely indicates that the "receiver" may have such a capability.

Regarding the remainder of the specifications, although Intellect Wireless directs the court to the various references to "cellular" throughout the patent, the court finds that the following discussion of the AT&T "EO" is persuasive support for Intellect Wireless's position that the claimed "receiver" is not necessarily coupled to a paging network:

Personal communication device 61 [sic] may be a receive-only device, such as a paging device, or a more sophisticated bi-directional communication device, such as a personal communication device or personal digital assistant, such as the personal digital assistant sold under the trademark "Macintosh Newton" by Apple Computer, or the product sold by AT&T under the trademark "EO."

'186 Patent, col.36 l.66-col.37 l.5. According to a February 1993 article titled "EO Personal Communicator" which is cited in the specifications, the AT&T "EO" is a personal communication device which "connects to the cellular or external telephone system." (Dkt. No. 233 at 3.) Noticeably absent from the 1993 article is any discussion of paging networks or a paging receiver (see id. at 2-3), and Kyocera has not presented any evidence that the AT&T "EO," without additional equipment, could communicate with a paging network. Thus, the court agrees with Intellect Wireless that the specifications' reference to the "EO" would have indicated to one of ordinary skill in the art in the mid-1990s that the "receiver" in the claimed personal communication device was not limited to those only possessing circuitry enabling communication with a paging network.

As additional support for its proposed construction, Kyocera emphasizes the specifications' discussion of various paging communication protocols such as "POCSAG," arguing that the absence of any cellular communication protocols would suggest to one of ordinary skill in the art that the "receiver" must be able to communicate with a paging network. The
specifications, however, recognize that such protocols "are not essential to the main concept of the embodiments." '186 Patent, col.36 ll.61-62. Furthermore, Kyocera's wireless communications expert, Dr. Harold Poor, admitted that one of ordinary skill in the art in the mid-1990s would have understood that cellular protocols applied to communications involving cellular phones even if the patent did not specifically identify such a cellular protocol. (4/8/10 Tr. 154:7-155:24.) The court, therefore, does not find that the absence of cellular protocols in the specifications would indicate to one of ordinary skill in the art that the claimed "receiver" must be operably coupled to a paging network.

Kyocera also relies on the '186 Patent's prosecution history to attempt to justify its proposed construction and directs the court to the inventor's Rule 131 Declaration to the U.S. Patent & Trademark Office ("PTO") as well as to a letter attached to that declaration. The prosecution history, like the specification, "provides evidence of how the PTO and the inventor understood the patent." Phillips, 415 F.3d at 1317. "[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003). The Federal Circuit, however, has "consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope." Id. at 1325. In this case, the court finds that the excerpts from the prosecution history are too vague and ambiguous to be held to disavow embodiments that are not operably coupled to a paging network.

Specifically, in the Rule 131 declaration cited by Kyocera, the inventor attempted to convince the examiner that his invention disclosed in the '186 Patent was conceived before February 10, 1993--the filing date for U.S. Patent No. 5,452,356 ("'356 Patent") which the examiner had cited against the '186 Patent's claims. As support for his asserted date of conception, the inventor stated:

5. . . . Applicant conceived the subject invention prior to February 10, 1993, as evidenced by a block diagram and flow chart indicating the wireless transmission of an image and caller ID to a wireless portable communications device.

6. That this block diagram describes a pageable device, namely the paging receiver, in which an image and the caller's telephone number are transmitted over a paging network.

7. That this caller identification information is transmitted along with the image to the paging network, which caller identification information is then transmitted through the paging network to the portable communication device.

(Joint Appendix ("J.A") at 186FH000997.)

"An argument to the examiner constitutes a disclaimer only if it is 'clear and unmistakable.'" Schindler Elevator Corp. v. Otis Elevator Co., 593 F.3d 1275, 1285 (Fed. Cir. 2010) (quoting Purdue Pharma L.P. v. Endo Pharms, Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006)). In this case, although the inventor explains that the diagram demonstrating the date of conception includes a "paging receiver" and "paging network," those comments do not clearly and unmistakably limit the invention to paging communications. "In evaluating whether a patentee has disavowed claim scope, context matters." id Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 843 (Fed. Cir. 2010). Here, the inventor was not distinguishing his invention from the prior art to avoid rejections based on either anticipation under 35 U.S.C. § 102 or obviousness under 35 U.S.C. § 103. The inventor was merely illustrating that his invention was conceived prior to the filing date of the '356 Patent. In fact, the '356 Patent relates to paging communications; it is titled "Paging Transmission System" and, according to its Abstract, discloses a "[m]ethod and apparatus for sending, receiving, and displaying custom coded textual and/or graphic data via an alphanumeric paging system." Thus, when viewed in the appropriate context, the inventor's references to "paging" in the Rule 131 Declaration can be interpreted as describing one embodiment of the invention which was relevant to the cited '356 Patent. This interpretation is further supported by the inventor's more general description of his invention as related to the "wireless transmission of an image and caller ID to a wireless portable communications device." (J.A. at 186FH000997 P 5.) Therefore, the court does not find that the inventor's statements in his Rule 131 Declaration constitute a disclaimer supporting Kyocera's "paging" limitation.

The court similarly disagrees with Kyocera that the inventor's October 1, 1993 letter to Sho Saito of Shinwa Communications of America Inc. ("Shinwa"), which he attached to the Rule 131 Declaration, warrants requiring the "receiver" to be operably coupled to a paging network. In that letter, the inventor described his invention as follows: "Thank you for taking an interest in me and my new invention related to intelligent numeric paging devices and systems. . . . My vision is to change the way in which pagers are used in the future and improve the information that is available to the end-
user." (J.A. at 186FH001098.) Like the Rule 131 Declaration, the court is not persuaded that the inventor's description of one embodiment of his invention to a potential licensee supports imposing limitations on the claimed "receiver" that are not found in either the specifications or the asserted claims of the patents in suit.

Nor does the testimony of Kyocera's expert, Dr. Harold Poor, compel a different result. As the Federal Circuit has explained, "[w]hile helpful," "extrinsic evidence such as expert testimony is 'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" Kara Tech., Inc. v. Stamps.com Inc., 582 F.3d 1341, 1348 (Fed. Cir. 2009) (quoting Phillips, 415 F.3d at 1317). In this case, the court finds that Dr. Poor's testimony does not overcome the intrinsic record's support for Intellect Wireless's proposed claim construction.

Dr. Poor testified that in his opinion, one of ordinary skill in the art in the mid-1990s would have found that the claimed "receiver" must have the capability of receiving and understanding transmissions from a paging network and have the ability to turn those transmissions "into useful information"; in other words, the "receiver" must be "operably coupled to a paging network." (4/8/10 Tr. 102:13-19; 103:25-104:8.) As one of the reasons supporting his position that the patents at issue involve paging as opposed to cellular networks, Dr. Poor contrasted how each network operated in transmitting communications between users. Paging networks, according to Dr. Poor, were "store and forward networks" where "[t]he person wanting to page another person would leave a message at a center, which would then be stored and then forwarded on to that person." (Id. at 86:12-16.) Cellular networks, on the other hand, "were designed for . . . realtime communication between two people talking on the phone." (Id. at 86:17-21.) Thus, Dr. Poor opined, because the patents at issue relate to this store and forward type of communication, they involve paging networks.

The evidence in the intrinsic record, however, suggests that other types of networks in addition to paging networks performed this store and forward service. According to the article discussed above about the AT&T "EO," that device provided "store and forward fax services" where the "[n]ext time a [user is] in range of the cellphone system or . . . plug[s] into a wall socket, all [his or her] messages are transferred to [the user]." (Dkt. No. 233 at 2.) Again, that article makes no reference to "paging" or a "paging network," and Kyocera has not presented any evidence that the "EO," without the assistance of any additional equipment, was capable of connecting to a paging network. The intrinsic evidence, therefore, contradicts Dr. Poor's distinction between paging and cellular networks, instead suggesting that store and forward messaging was available on devices that did not connect to paging networks. Hence, as evidenced by the AT&T "EO" article, the presence of store and forward technology does not inherently require the involvement of a paging network. Accordingly, the court, with all due respect to Dr. Poor's expertise, has not relied on or credited Dr. Poor's testimony on this point because the court finds that his opinions cannot overcome the plain language of the asserted patents' claims or specifications.

After carefully reviewing the '186 and '416 Patents, including their claims, specifications, and prosecution history, and considering Dr. Poor's testimony, the court finds that a person of ordinary skill in the art would not have understood that the claimed "receiver" must be "operably coupled to a paging network," as argued by Kyocera.

Instead, the court adopts Intellect Wireless's construction which captures the plain and ordinary meaning of "receiver": "circuit or device for receiving signals."

"Receiver" is construed to mean, "A device for receiving signals or data from an outside source and converting those signals or data to usable form."

Defendants urge that the term be construed in accordance with the definition that appears in the relevant technical dictionary, McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNOLOGICAL TERMS, 1759 (6th ed. 2003). In connection with the field of electronics, which for our purposes appears the most germane of the fields listed, that source defines a "receiver" as:

The complete equipment required for receiving modulated radio waves and converting them into original intelligence,
such as into sounds or pictures, or converting to desired useful information as in a radar receiver.

Plaintiff argues that defendants' construction is too limiting, because the term "receiver" is used to cover different sorts of devices in different parts of the patent. Indeed, plaintiff urges that the '725 patent discloses at least nine receivers in nine separate elements.

Plaintiffs' proposed definition, however -- "A device that can receive something" -- is almost ridiculously overbroad, not to mention tautological. Defendants are correct that this definition fails to provide the court with any elucidation of the intended scope of the term.

A review of the relevant specifications contains no indications that plaintiffs did not intend for receiver to have its ordinary meaning.

I choose to modify the McGRAW-HILL definition by eliminating its unnecessary and confusing references to radio and radar. Plaintiffs' patent clearly contemplates the use of computers and computer terminals; indeed, the specifications indicate that the receiver is to receive signals and/or data from a "central processing computer." Radar has nothing whatever to do with the sort of "receiver" contemplated here.

The next disputed claim term is "receiver." The plaintiff contends that the term does not require construction. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues that "receiver" means the electronics of an integral television set that receive the signal from the transmitter means. Id. The DIRECTV defendants argue that "receiver" is a device that receives the scrambled analog signal from the transmitter means. Id.

One embodiment of the receiver is "the electronics of and the user output 140 the video screen of an integral television set," but the specification does not limit the term to this one embodiment. I therefore reject EchoStar's proposed construction, which would improperly limit the claim to a single embodiment imported from the specification. Texas Digital, 308 F.3d at 1204; CCS Fitness, 288 F.3d at 1367.

I have construed scrambling to apply to both analog and digital signals. I therefore reject the DIRECTV defendants' proposed construction that would limit the receiver to a device that receives scrambled analog signals.

I construe the term "receiver" to have its ordinary and accustomed meaning as an apparatus for receiving television broadcasts. Webster's Ninth New Collegiate Dictionary, at p. 982.

This construction is supported by the specification, which states that "as with the transmission circuit 10 certain items, namely the receiver 110, the override switch 130 and the user output 140, are standard purchase items." '066 Patent, col. 3, lines 1-3 (emphasis added).

Claim 19 of patent 768 claims "a receiver, for receiving a video signal and the playlist. . .." As with the term "programming," supra, there is no need to read the conjunction "and" to require that the playlist must be integrated with the video signal. Since, rather, the specification describes a playlist being sent to students' desktops during playback of a pre-recorded program, see '768 patent, col. 10, 11. 47-49, it is clear that the playlist and video signal need not be integrated. Thus, "receiver" here means a device that can receive video signals and playlists either together or independently.
Next, the court considers the term "message receiver." Brooktrout argues that the term needs no construction. The defendants, however, urge the court to construe the term according to 35 U.S.C. § 112 P 6. The court has considered the pertinent portions of the briefs and arguments and is not persuaded that the term is drafted in means-plus-function format. The claim term does not invoke the word "means;" therefore, a presumption applies that the term is not drafted according to 35 U.S.C. § 112 P 6. Apex v. Raritan Computer Inc., 325 F.3d 1364 (Fed. Cir. 2003); Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1998). Contrary to the defendants' arguments, the court holds that one of skill in the art would have understood receiver to connote specific structure such that the term is not drafted according to 35 U.S.C. § 112 P 6.

A. Heterodyne Receiver Circuit, Common Heterodyne Receiver and Receiver

According to the parties, the prominent issues in dispute in the '582 patent are the meanings of the terms "heterodyne receiver circuit," "common heterodyne receiver" and "receiver," as those terms are used in claims 1, 26, 35 and 44. Trilithic maintains that those terms should be given their ordinary meanings, as such meanings are consistent with the dictionary definitions, as well as the use of the terms in the patent and in the prior art. According to Trilithic, the three terms are not interchangeable. Furthermore, Trilithic maintains that Wavetek's suggested definitions are incorrect as they violate the claim differentiation doctrine. In contrast, Wavetek maintains that the three terms are vague, generic terms that do not have an unambiguous definition that is consistent with the way the terms are used in the patent. Wavetek argues that the terms of the patent must be read in light of the specification and that the prosecution history should be examined in order to determine how a person of ordinary skill in the art would define the terms in the context of the patent. Highlighting that claim differentiation cannot broaden a claim beyond its proper scope, Wavetek contends that nothing in the specification provides a basis for construing the terms "heterodyne receiver circuit," "common heterodyne receiver" and "receiver" to have different meanings.

Trilithic urges that the terms "heterodyne receiver circuit," "common heterodyne receiver" and "receiver" be given their ordinary and well-understood meanings. Claim 1 of the '582 patent reads:

A combined signal level meter and leakage detector for a cable television system comprising: a CATV cable signal level input; a CATV leakage signal antenna; a heterodyne receiver circuit connected to said CATV cable signal level input and said CATV leakage signal antenna, said heterodyne receiver circuit having a greater sensitivity for CATV leakage measurement than for CATV cable signal level measurement; a detector having an input connected to said heterodyne receiver circuit; a processing and controlling circuit having an input connected to said detector . . . .

'528 patent, col. 10, ln. 61-col. 11, ln. 6. Claim 26 reads:

A method of measuring signal level and leakage in a cable television system comprising the steps: obtaining a CATV cable signal from a CATV cable; obtaining a CATV leakage signal radiated from the CATV cable using an antenna; supplying said CATV cable signal and said CATV leakage signal to a common heterodyne receiver; providing greater sensitivity for CATV leakage measurement than for CATV cable signal level measurement; a detector having an input connected to said heterodyne receiver circuit; a processing and controlling circuit having an input connected to said detector . . . .

Id. col.12, ln.66- col. 13, ln. 4. Claim 35 reads:

A cable television instrumentation system, comprising: a source of CATV signals; a cable distribution system connected to said source and carrying CATV signals; and a combined signal level meter and leakage detector coupled to said cable distribution system and compromising a) a CATV cable connector connected to said cable distribution system; b) a CATV
leakage signal antenna in proximity to said cable distribution system; c) a receiver connected to said CATV leakage signal antenna, said receiver having greater sensitivity for CATV leakage measurement than for CATV cable signal measurement; . . .

Id. col. 13, ln.42-58. Claim 44 describes a cable television system comprising, among other things, "a receiver separately connected to said CATV cable connector and one of said CATV leakage antennas." '528 patent, col. 14., ln. 45-47. That receiver is to include a tuned preamplifier, at least one mixer for CATV signal level measurement, one mixer for CATV leakage measurement, one common mixer for CATV signal level measurement and CATV leakage measurement, an IF stage with a wide bandwidth for CATV signal level measurement and a relatively narrow bandwidth for CATV leakage measurement. Id. ln. 48-61.

Both parties agree that the term "heterodyning" refers to the process of beating two signals together in order to get the sum and the difference signals. Tr. at 118, 189. The parties also agree that the term "circuit" generally refers to a collection of components arranged in a loop that performs some type of function. Id. at 118, 191. Accordingly, Silva defined "heterodyne circuit: to be an electronic circuit that beats two frequencies together. Id. at 118. Silva then went on to offer a definition from the McGraw-Hill Dictionary for "heterodyne reception" which defines the term as "radio reception in which the incoming radio-frequency signal is combined with a locally generated RF signal of different frequency, followed by detection." Pltf.'s Ex. 9 at 929; Tr. at 119. The dictionary definition of "receiver" is "the complete equipment required for receiving modulated radio waves and converting them into the original intelligence . . . or desired information . . . ." Pltf.'s Ex. 9 at 1661. Silva explained that under claim 1 of the '582 patent, the detector is separate from the heterodyne receiver circuit and is instead part of the receiver circuit. Tr. at 120. Both he and Large stated that although a detector is usually considered part of a receiver, claim 1 treats the detector as being separate from the heterodyne receiver circuit. Silva concluded that given these ordinary meanings, a person of ordinary skill in the art would define a "heterodyne receiver circuit" to be a heterodyne circuit that operates inside a receiver. Id. at 119.

In the process of offering definitions that people of ordinary skill in the art would give the terms, Silva narrowed the possible components of a heterodyne receiver circuit to include amplification at the radio-frequency ("RF") stage, one or more mixers, one or more local oscillators, one or more intermediate frequency ("IF") stages and no detectors. Id. at 128. He testified that such a definition was consistent with the dictionary definition of "heterodyne reception" and with the prior art according to the Armstrong patent. Tr. at 123; Pltf.'s Ex. 30. Moreover, Trilithic offered into evidence another patent that also used the term "heterodyne receiver circuit," and Silva testified that the introduced patent used the term in the same manner as did the '582 patent. Tr. at 128. Silva identified two heterodyne receiver circuits in Figure 3 of the '582 patent, stating that although the boundaries of the two circuits are not clear, neither includes the third mixer located at 70 on Figure 3. Id. at 161-62; '582 patent, Fig. 3. Silva explained that this interpretation was in accordance with the language of claim 1 that states "a combined signal level meter and leakage detector for cable television system comprising . . . a heterodyne receiver circuit connected to said CATV cable signal level input and said CATV leakage signal antenna, said heterodyne receiver circuit having greater sensitivity for CATV leakage measurement than for CATV cable signal level measurement." Tr. at 162; '582 patent, col. 10, ln. 61 - col. 11, ln. 4. According to Silva, there are "fuzzy borderlines . . . between the input of the common heterodyne receiver and the output of the heterodyne receiver circuit associated with the antenna input and that associated with the signal level input." Tr. at 162.

Although Silva stated, and Large agreed, that the addition of the word "circuit" to "heterodyne receiver" is relatively unimportant to the term's meaning, Silva stressed that the addition of the word "common" in front of "heterodyne receiver" in claim 26 gives that term a very specific meaning. Id. at 160, 191, 207. The term "common" means that there is more than one input and either signal from the inputs can use the same circuit or components. Id. at 127. Silva defined the "common heterodyne receiver" as including an amplifier, mixer, local oscillator and IF output. Id. at 144. He emphasized that the signal path and the leakage path come together at node 64 of Figure 3 and then share a common path. Id. at 113-14. Trilithic notes that Wavetek's definition of common heterodyne receiver is wrong because it includes significant portions of circuitry that are not common to the signal and leakage paths. It points to the "Summary of the Invention" to support its conclusion, as the summary states that the preferred embodiment maximizes the common circuit portions for both modes of operation. '582 patent, col. 2, ln. 17-21. As to the reference of a "receiver" in claim 35, Silva testified that the term refers "to this instrument, this whole instrument here, or the receivers in the instrument, the one on the right, the right-hand position having more sensitivity than the one on the left-hand portion of the diagram." Id. at 148. In a later exhibit offered to the Court, Trilithic suggested that the term encompassed the same components as did the heterodyne receiver circuit, with the addition of the detector. Pltf.'s Post-Hearing Reply to Claim Construction, Att. 3.
Wavetek argues that Trilithic's approach of piecemeal definitions is inappropriate and inaccurate. Large suggested that the terms at issue are not unambiguous and that the "cobbling" together of ordinary definitions, even if the two parties agree as to the definitions of certain individual words, is not proper within the context of the patent. Id. at 189, 191-92 For example, Large highlighted that the ordinary understanding of the term "receiver" implies a detector will be included. Id. at 191-92, 200-01. Yet, claim 1 of the patent specifies that a detector is separate from the heterodyne receiver circuit. Id. at 191-92. Large suggested that because the term "heterodyne receiver circuit" would not be understood by a person skilled in the art to be a mere compilation of the definitions of each term, the person of ordinary skill would look to the patent description to determine the meaning of "heterodyne receiver circuit," "common heterodyne receiver" and "receiver." Id. at 193.

According to Large, a careful reading of the claims and the specification leads to the conclusion that the three terms at issue here are used almost interchangeably, as they in essence refer to the same basic structure with only some minor alterations in the claims. Id. at 275. Large viewed the language of claim 1 and claim 26 as parallel. Id. at 200-01. Thus, he determined that a person of ordinary skill in the art would conclude that the use of the term "common heterodyne receiver" is synonymous with the term "heterodyne receiver circuit" as used in claim 1. Id. Furthermore, Large proposed that the term "receiver" in claim 35 refers to essentially the same structure as is described in claims 1 and 26. Id. at 201. Wavetek's proposed definition of all three terms, "heterodyne receiver circuit," "common heterodyne receiver" and "receiver" is

- a device that has two separate RF front ends, respectively comprising a signal level meter ("SLM") input and a leakage input. The RF front end to which the SLM input is connected is a dual-conversion front end, having two IF stages, each of which includes a local oscillator and a mixer. The RF front end to which the leakage input is connected is a single-conversion front end, having only one IF stage which includes a local oscillator and a mixer. The output of the two RF front ends is input to a third, common IF stage which includes a local oscillator and a mixer.

See Def.'s Ex. 13.

In support of its definition, Wavetek cites to the prosecution history and a notice of allowance issued to the patentee which stated that the prior art of record failed to teach the "claimed invention of a combined signal level meter and leakage detector comprising, first RF input, second RF input, a wideband dual-conversion receiver end connected to said first RF input." Def.'s Ex. 2 (Notice of Allowability 10/29/96). Given this allowance, Wavetek suggests that the examiner's understanding of the device comports with Wavetek's proposed definition of the three terms. Trilithic points to an amendment after the allowance notice in which Trilithic stated that

- the reasons for the allowances as stated by the Examiner do not necessarily apply to all the claims. For example, among other reasons for allowance of this application, the prior art fails to teach or suggest a combined CATV signal level meter and leakage detector, as claimed in claim 3, including a heterodyne receiver circuit connected to a CATV cable signal level input and a CATV leakage signal antenna and having greater sensitivity for CATV leakage measurement than for CATV cable signal, a processing and control circuit, and a display means for selectively displaying signal level information and leakage information corresponding to signals supplied to the CATV cable signal level input and the CATV leakage signal input circuit, respectively.

Id. (December 13, 1996, Amendment After Allowance at 4-5). In response to that proposed amendment, the Patent and Trademark Office sent confirmation that the amendment filed December 13, 1996, had been considered, entered and entered as directed to matters of form not affecting the scope of the invention. Id. (Amendment 2213, Paper Number 7).

Furthermore, Trilithic contends that Wavetek's definition violates the doctrine of claim differentiation and limits the claims to the preferred embodiment. According to Trilithic, claims such as dependent claims 15 and 16 would be rendered superfluous by accepting Wavetek's definition because those two claims specifically address the dual conversion and single conversion front end requirements, which are not addressed in claim 1. The doctrine of claim differentiation presumes that there is a difference in the scopes of the patent's claims. Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Such a presumption, however, "is a guide, not a rigid rule." ATD Corp. v. Lydall, Inc., 159 F.3d 534, 541 (Fed. Cir. 1998) (citing Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391 (Fed. Cir. 1967)). According to the Federal Circuit, "the doctrine cannot alter a definition that is otherwise clear from the claim language, description, and prosecution history." O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1582 (Fed. Cir. 1997). The doctrine cannot broaden claims beyond their correct scope as that scope has been determined in light in the specification, prosecution.

1. **Heterodyne Receiver Circuit**

In claim 1, the language of the claim itself requires that the "heterodyne receiver circuit" be connected to the CATV cable signal level input and the CATV leakage signal antenna. ‘528 patent, col. 10, ln. 65-67. Therefore, Silva’s suggestion that a person of ordinary skill in the art could read that to mean there are two separate heterodyne receiver circuits, one attached to the signal input and one attached to the leakage antenna, seems to be in direct conflict with the language of the claim itself.

The language of claim 1 requires that there be a "detector having an input connected to said heterodyne receiver circuit." Id. col. 11., ln. 3-4. Both parties agree that the audio detector is not part of the heterodyne receiver circuit. Tr. at 120, 200-01; Pltf.’s Post-Hearing Reply to Claim Construction, Att. 3. In fact, when the Court examines how both parties interpret claim 1 in accordance with the specification, it appears that the parties agree as to what elements are included in the "heterodyne receiver circuit." In its reply brief, Trilithic suggested that the term "heterodyne receiver circuit" in claim 1 refers to only one circuit which includes nodes 32, 38, 40, 42, 44, 46, 50, 52, 54, 58, 60, 62, 64, 66, 68, 70, and 72 in Figure 3. See Pltf.’s Post-Hearing Reply Br. Ex. 3. The Court acknowledges that although the claims must be read in light of the specification and the preferred embodiment found therein, limitations from the specification cannot be imported into the claims. Accordingly, the Court is not limiting the definition of "heterodyne receiver circuit" to the embodiment depicted in Figure 3. However, for convenience sake, the Court will refer to Figure 3 of the patent which provides illustrations of the preferred embodiment.

In accordance with the claims and specifications, the audio detector must have an input connected to "said heterodyne receiver circuit." ‘582 patent, col. 11, ln. 3-4. That input must come from the "heterodyne receiver circuit" after the signal has passed through the common circuitry that can be shared by either the cable signal or the leakage signal. Thus, in order for the combined signal level meter and leakage detector to work according to claim 1 of the patent, whether it is phrased in such terms or not, that signal must go through the common circuitry before getting to the audio detector. Therefore, the heterodyne receiver circuit referenced in claim 1 must include the circuitry that connects to both the cable signal level input and the leakage antennas, as well as the common circuitry that then leads into the said detector. See Fig. 3. Before providing input for the detector, the common circuitry must receive and mix a signal from either the cable signal input or the leakage input. See id.

Furthermore, the wording of claim 1 explains that the said "heterodyne receiver circuit" must have greater sensitivity for CATV leakage measurement than for CATV cable signal level measurement. ‘582 patent, col. 11., ln.1-2. This tells a person of ordinary skill in the art that the circuitry that is attached to both of these inputs may require different uses of components such as oscillators, mixers and amplifiers for each respective side. The specification provides a suggestion for how this can be done. See ‘582 patent, Fig. 3.

Although the parties agree on which components are included in the term, Trilithic advocates for a very broad definition while Wavetek suggests that a much narrower definition be given that specifically includes the components required for the circuitry depicted in Figure 3. The Court cannot give the claim a broader scope than is required by the claim language and the specification, yet it also cannot import limitations from the specifications into the claim language. A person of ordinary skill in the art would understand "heterodyne receiver circuit" as it is used in claim 1 to mean that such a circuit must be connected to both the cable signal level and the leakage antenna inputs, and the circuit must have greater sensitivity for the leakage antenna input. Accordingly, a person of ordinary skill in the art would know that a certain combination of oscillator and mixers must be used in order to make one side of the circuit more sensitive. Implicit in this understanding is knowledge concerning the use of dual conversion or single conversion front ends and IF stages. A person of ordinary skill in the art would also know what combination of oscillators, mixers and circuitry are required to get either of those two signals from the input of the cable signal or leakage to the point of becoming input for the detector. Because the claim specifically provides that the input from the heterodyne receiver circuit is separate from the detector, the person of ordinary skill in the art will know that the detector is not part of the receiver. Although the construction is not limited to the embodiment found in the specification, such information will assist the person of ordinary skill in the art to determine what type of circuitry may be used. If both parties agree as to what nodes in the specification are included in the "heterodyne receiver circuit," given the language of the claim and the explanation in the specification, a person of ordinary skill in the art will be able to determine the same.
2. "Common Heterodyne Receiver"

Claim 26 of the '582 patent is a method claim. It specifically calls for "a method of measuring signal level and leakage in a cable television system comprising the steps . . . supplying said CATV cable signal and said CATV leakage signal to a common heterodyne receiver; . . . demodulating the output signal of said heterodyne receiver." '582 patent, col. 12, ln. 66- col. 13, ln.4. Wavetek suggests that the same circuitry in Figure 3 that comprises the heterodyne receiver circuit of claim 1 comprises the common heterodyne receiver circuitry of claim 26. Trilithic maintains that the term should be given the ordinary meaning of "common heterodyne receiver" proposed by Trilithic to be a circuit in which two signals are connected to an input terminal of a single heterodyne receiver.

There is a difference between the language of claim 1 and claim 26. In claim 1, the heterodyne receiver circuit is "connected to" the signal input and the leakage antenna. "Connected to" means "joined or fastened." Webster's II New Riverside University Dictionary 299 (1984). Claim 26 addresses a step of "supplying" the two different signals to a common heterodyne receiver. "Supplying" means "making available for use." Id. at 1164. Large suggested that there is no difference between "connected to" and "supplying." However, a difference does exist between those two words and the two claims. The first two steps listed in Claim 26 are "obtaining a CATV cable signal from a CATV cable" and "obtaining a CATV leakage signal radiated from the CATV cable using an antenna." '582 patent, col. 12, ln. 63-65. These steps cover the method for connecting the circuitry to the cable signal and the leakage signal. Some circuitry must be connected to those inputs in order to obtain the signals and make the signals useful. The next step talks of supplying the signals, in the required manner, to the common heterodyne receiver. This wording indicates that those signals undergo some process in between being obtained from the their sources and being delivered to the common heterodyne receiver. This process is described in many of the other claims of the patent. The circuitry that is used to get the two signals to the common heterodyne receiver is therefore not included as part of the common heterodyne receiver.

Moreover, claim 26 does not include the requirement that the common heterodyne receiver have greater sensitivity for one signal verses the other signal. Therefore, claim 26 does not require that the elements considered to be the common heterodyne receiver actually be the circuitry that is connected to the two different inputs-- the cable signal input and the leakage antenna. Instead, claim 26 addresses the common circuitry that either of those two signals can utilize. The elements of the common heterodyne receiver do not have to be as all-encompassing as the elements included in the heterodyne receiver circuit as it is defined in claim 1 because the elements of the common heterodyne receiver do not have to be connected to the cable signal input and the leakage antenna, nor do they have to provide components that account for greater sensitivity to one side.

The language of the claim allows the person of ordinary skill in the art to know that somehow, as explained in other claims, each of the signals needs to get through the other circuitry that is connected to the common heterodyne receiver. The ordinary meaning of "common" is "shared." Therefore, in the context of this claim, the common heterodyne receiver includes the part of the circuitry where there is a single input into a heterodyne receiver that is shared by the signals coming from either the cable signal input or the leakage antenna. In its next step, the claim further defines what is included in the common heterodyne receiver by requiring that the common heterodyne receiver produce some sort of output signal that is then demodulated. '582 patent, col. 13, ln. 3-4. Accordingly, a person of ordinary skill in the art would understand that the common heterodyne receiver begins with a single input to the heterodyning circuitry, providing a point where the cable signal input and the leakage input come together to share circuitry. The common heterodyne receiver includes whatever components are necessary to complete the heterodyning process, and whatever components are necessary to produce an output that can then be demodulated. A person of ordinary skill in the art should know what components those processes encompass. Although the claim is not limited by this reading of the specification, the specification assists a person of ordinary skill in the art to determine what is included in the term "common heterodyne receiver" as it applies in claim 26. In the context of Figure 3, and according to Silva's testimony, at the very least, the common heterodyne receiver includes an amplifier, a mixer, a local oscillator and an IF input. Tr. at 144; see '582 patent, Fig. 3.

3. "Receiver"

Claim 35 of the '582 patent refers to a "receiver" in terms of it being one of the elements that comprises the combined signal level meter and leakage detector which is coupled to the cable distribution system. '582 patent, col. 13, ln. 47-48. The claim requires that the receiver be connected to the CATV cable connector and the CATV leakage signal antenna and that the
receiver have greater sensitivity for the CATV leakage measurement than for the CATV cable signal level measurement. Id. In. 54-58. The McGraw-Hill Dictionary defines "receiver" as a unit that receives modulated material and converts the material into original intelligence or other useful information. Pltf.'s Ex. 9 at 1661. A receiver generally has a detector for detecting or demodulating the material. Tr. at 200-01; Ptf's Ex. 9 at 550. In the previous claims that involved the terms "heterodyne receiver circuit" and "common heterodyne receiver" the language of the claims made clear that the detector was not considered to be part of either of those terms, even though the word "receiver" was used in the phrase. Unlike claims 1 and 26, this claim does not specify that the detector is separate from the "receiver" term. Accordingly, the use of the term "receiver" in claim 35 encompasses all the circuitry that is attached to both the CATV signal level meter input and the CATV leakage antennas that is needed to move the signals from the inputs to and through the detector. The claim also specifies that the receiver must have greater sensitivity for the leakage side than the signal level side, and as previously discussed, a person of ordinary skill in the art will understand the circuitry and components that are needed to accomplish this. However, in addition to that circuitry and the circuitry that is required for taking those input signals and getting them to the detector, the detector itself is also included in this use of the term "receiver."

In claim 44, the patent again uses the term "receiver." However, this claim makes quite clear what is included in the receiver referenced in claim 44. The patent specifies that

a receiver separately connected to said CATV cable connector and one of said CATV leakage antennas, said receiver including a tuned preamplifier having an input connected to said one CATV leakage signal antenna; at least one dedicated mixer for CATV signal level measurement; at least one dedicated mixer for CATV leakage measurement; at least one common mixer for CATV signal level measurement and CATV leakage measurement; and an IF stage having a relatively wide bandwidth for CATV signal level measurement and a relatively narrow bandwidth for a CATV leakage measurement

is required. '582 patent, col. 14, ln. 45-59.

2. "receiver incorporating an unscrambling circuit"

I have construed "receiver" to mean an apparatus for receiving television broadcasts. Claims 10 and 11 contain the term "receiver incorporating an unscrambling circuit." I construe the term "receiver incorporating an unscrambling circuit" to mean an apparatus for receiving television broadcasts which includes a circuit that restores a modified signal to its unmodified condition.

4. "Receiver means" (Claim 1)

a. The Parties' Proposed Constructions

Motorola's Proposal
Not subject to 35 U.S.C. § 112 (6):
"Receiver means" is "a circuit that obtains and demodulates radio signals."
Agreed to structure and disputed function if § 112 (6) applies:
Function: "receiving a message comprising at least a received call-back number."

VTECH's Proposal
Subject to 35 U.S.C. § 112(6):
Function: "to receive and derive address and message information. The message information contains an instruction to call back the sender on a phone."
Agreed-to Structure: "an antenna and receiver"
Agreed-to Structure: "an antenna and receiver"

b. Discussion

If § 112, P6 was found to apply, and it has been herein, the parties agreed that the structure for the "receiving means" is "an antenna and receiver." (Docket Entry # 93 at A7). Motorola asserts that the function of the receiving means is "receiving a message comprising at least a received call-back number." Id. VTech asserts that the function is: "to receive and derive address and message information. The Message information contains an instruction to call back the sender on a phone." Id.

Motorola notes that its language parrots the language used in the claim itself. (Docket Entry # 76 at 23). Motorola asserts that great care should be taken to avoid adopting a function different from that recited in the claim. (Docket Entry # 88 at 11)(citing Cardiac Pacemakers, Inc. v. St. Jude Med. Inc., 296 F.3d 1106, 1113 (Fed. Cir. 2002)) (The court must construe the function of a mean-plus-function limitation to include the limitations contained in the claim language, and only those limitations) and (citing Generation II Orthotics, Inc. v. Med. Tech., Inc., 263 F.3d 1356, 1364-65 (Fed. Cir. 2001)) ("When construing the functional statement in a means-plus-functional statement in a means-plus-function limitation, we must take great care not to impermissibly limit the function by adopting a function different from that explicitly recited in the claim."). Finally Motorola asserts that the function language is not ambiguous or confusing for a jury such that additional construction would be needed. (Docket Entry # 88 at 11).

VTech asserts that its construction is consistent with the function as described within the specification of the '140 Patent. VTech cites to a portion of the specification to support its construction and quotes the case Smiths Indus. Medical Sys. Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1357 (Fed Cir. 1999) for the proposition that "for a claim drafted as a means-plus-function under 35 U.S.C. §112 P6, a court must first look to the patent specification to determine the 'corresponding structure' that performs the claimed function: the claim is then construed to cover that corresponding structure as well as 'equivalents thereof.'" (Docket Entry # 83 at 27-28).

The Court agrees with Motorola that the starting point for construing the claimed function is the claim language itself. As noted, the Federal Circuit has cautioned against deviating from the claimed functional language. The functional language of the claim term itself is "receiving a message comprising at least a received call-back number." The Court does not find the need for additional construction of this term. VTech has not presented a valid reason from deviating from this language. VTech correctly notes that the corresponding structure is determined from the corresponding structure in the specification. However, the issue at hand is determining the functional limitations of the means plus function term and VTech is attempting to import functional limitations from the specification.

c. The Court's Construction

Accordingly, the Court construes the structure of the "receiver means" term to be "an antennae and receiver." The function is construed to be "receiving a message comprising at least a received call-back number."

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H. "receiving a proposed reservation time"

The Defendants argue that "receiving a proposed reservation time" is not an independent phrase that warrants construction but, rather, is a limitation associated with "personal communication device." Alternatively, the Defendants argue that if "personal communication device" is construed as a means-plus-function under § 112, P 6, then "receiving a proposed reservation time" indicates a function. As discussed above in relation to the construction of "personal communication device," the Defendants' arguments are without merit. The Court has previously construed "proposed reservation time," and "receiving" is a widely recognized term and does not require further construction.

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19. receiving a command for performing an operation with said picture from image data

The defendants contend that the phrase is indefinite because it is incomprehensible and the specification fails to provide meaning to this phrase. The court disagrees and finds that the phrase, as written and in the context of the whole patent, can be understood by one of ordinary skill in the art. Accordingly, the phrase requires no construction and the defendants' indefiniteness argument is rejected.

- "receiving a packet" is construed to mean "receiving a packet" in accordance with the plain meaning of the term. The Court declines to further construe this term.

Lucent contends that this term should be given its ordinary meaning. (D.I. 396 at 8.) Defendants contend that this phrase means "acquiring a packet at the receive side (i.e., input port) of an access node." (D.I. 395 at 13; D.I. 385 at 14.) For the reasons discussed in Section II.B of this Opinion, the Court will not limit the claims of the '810 patent to access nodes. This, in the Court's view, the Court's construction is consistent with the plain language of the claim and the patent's specification and prosecution history.

- "receiving a request for retrieval of stored data," "retrieving stored data," & "transferring the retrieved data" in accordance with the plain meaning of the term. The parties dispute the meaning of "receiving a request for retrieval of stored data," "retrieving stored data," and "transferring the retrieved data," as used in claims 1, 16, and 21 of the '920 patent. NICE contends that Witness' proposals improperly add the limitation that the data retrieved is stored in the digital logger. The claims themselves, NICE contends, show this construction to be wrong. Claims 6 and 21 recite "wherein the step of retrieving stored data comprises accessing archived data at the Web server." NICE contends this language (1) directly contradicts Witness's proposed construction, and (2) mandates, according to principles of claim differentiation, that claims 1 and 16 must be broad enough to cover, at the least, data stored at the logger or at a Web server. With respect to language "Web server," NICE contends that only the "receiving a request" step of the method of claim 1 occurs "at a Web server."

Witness contends that the intrinsic evidence and the claim structure support its proposal that all three steps, "receiving," "retrieving," and "transferring," are performed by the Web server. The specification, Witness contends, reveals only the Web server as the device or component that retrieves or transfers data after a request is made, citing col. 13:21-25 ("In response to [client requests], Web server accesses the loggers records directly . . . and sends the requested files to the requesting client."). With respect to the "digital logger" language it proposes, Witness contends that claim requires the "digital logger" limitation, and that NICE's claim differentiation argument only shows that claim 6 is invalid.
The Court construes the disputed terms to include the language "Web server" but not "digital logger." With respect to "Web server," NICE did not attempt to rebut Witness contention regarding the specification. With respect to "digital logger," the claim language and the principle of claim differentiation establish that data received need not be stored in the digital logger.

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3. "receiving an indication of a speed" (claim 1)

Flow proposes that this phrase should be construed as: "To acquire a value related to speed, such as supplied by a computer system." Omax agrees generally, but argues that "related to speed" changes the meaning of the claim term and, moreover, is equally ambiguous. Omax proposes instead that the term "speed" be specifically construed as "distance per unit time."

Omax's expert endorses this approach, but fails to note that in the claim term, the word "speed" is preceded by the words "an indication of." These words support the use of the more general construction proposed by Flow. Their inclusion would signal to someone of ordinary skill in the art that the value acquired by the computer system might not be an actual velocity, in distance per time, but something more generally related to speed. Omax is correct, however, that "related to" opens up the realm of possibilities too far, at the risk of the inclusion of every aspect of the cutting process, such as the "nozzle orifice diameter." Instead of introducing a new term to the claim construction, the Court finds the term "indicating" to be adequately understandable by a lay jury. See Phillips, 415 F.3d at 1314. As such, the Court will construe the claim term as: "To acquire a value indicating speed, such as supplied by a computer system."

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C. "Receiving and Screening the Transferred Digital Data"

The parties next dispute the meaning of the phrase "receiving and screening the transferred digital data." Plaintiff contends that the phrase should be construed as "receiving and screening the digital data resulting from the transfer." JCCS, Appx. A, at 5 (term 21). Defendant contends that the phrase means "the computer system having a destination storage medium acquires and examines the digital data resulting from the transfer." Id.

Defendant correctly notes that plaintiff's proposed construction does not actually construe the language; it merely restates the phrase. Plaintiff nevertheless contends that the phrase is unambiguous, and that defendant's proposed construction improperly attempts to limit the claim by requiring the receiving and screening step to be performed by a single computer. As explained above, however, the Court has concluded that the term "computer system" as used in the patent means a personal computer or workstation. And the patent makes clear that it is in this "computer system having a destination storage medium" that the receiving and screening occurs. See '776 Patent, col. 4 lns.7-13. Thus, regardless of whether there is some other destination ultimately intended by the user, for purposes of the patent it is the computer system which is doing the "receiving" and "screening." Accordingly, the Court adopts defendant's proposed construction of this phrase.

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[a] receiving, at a financing institution-accessible facility, [a] receiving, transmitted data within a computer system accessible by a financing institution.

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H. FOR RECEIVING EXCLUSIVELY THERE THROUGH USB BASED DISPLAY SIGNALS
Claim 1 of the '788 patent requires that the USB controller be "detachably connected to a USB port of the computer for receiving exclusively therethrough USB based display signals from the computer. . . ." (emphasis added). The parties propose the following constructions for the highlighted language:

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>For receiving exclusively therethrough USB based display signals</td>
<td>Indefinite under 35 U.S.C. §112, P2 or, in the alternative, For receiving all of the USB display signals into the USB controller</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>For receiving exclusively therethrough USB based display signals</td>
<td>For receiving only USB based signals containing display information and forwarding them to the bridge in the signal form understood by the bridge</td>
</tr>
</tbody>
</table>

MCT asserts that the term "receiving exclusively therethrough" refers to the process whereby display signals are sent by the USB port of the computer "exclusively" to the USB controller and not another structure. However, MCT contends nothing in the intrinsic evidence limits the USB controller from receiving information other than display signals. DisplayLink asserts that the term means that the USB controller can receive only USB based display signals and nothing more. Thus, the parties agree that all USB based display signals emanating from the computer must pass through the USB controller. However, the parties do not agree on whether the USB controller can receive signals other than USB based display signals.

DisplayLink supports its position by pointing out that during prosecution of the '788 patent, in March 2006, MCT amended claim 1 in response to an interview with the PTO examiner by replacing "for receiving USB based display signals" with "for receiving exclusively therethrough USB based display signals." Jones decl. P 59. However, MCT correctly observes that the amendment was made to clarify the scope of claims 1 and 19 such that the "converter includes among its combination of features that of a USB controller 'external to the computer' which 'detachably' connects to the computer's USB port for 'receiving exclusively therethrough' the 'USB based display signals from the computer.'" Id. Thus, this amendment appears to have been intended to clarify that all USB display signals are received by the USB controller to the exclusion of any other controller or device, not that only USB display signals are received by the USB controller to the exclusion of any other type of signal.

DisplayLink also argues that its position is supported by the '788 patent specification which states that "an object of the present invention is to provide a USB-to-VGA converter which converts USB based display signals from a host computer into VGA signals that can be received and recognized by a display device whereby image to be displayed can be transmitted from the host computer in USB form." 788 patent at 1:31-36. In addition, the specification states that a "further object of the present invention is to provide a USB-to-VGA converter that allows for direct transmission of USB signals from a host computer to a display device without adding any display interface card inside the host computer." Id. at 1:41-45. The abstract of the invention states "[a] USB-to-VGA converter includes a USB controller connectable to a USB port of a computer for receiving USB based display signals from the computer . . . ." Id. at Abstract. And finally, DisplayLink points to the specification language that "[t]he USB controller (10) is connectable to a USB port (210) of a host computer for receiving USB based display signals from the host computer (200)." Id. at 2:6-29.

The citations from the specification support the fact that the USB controller is the device that receives the USB based display signals to the exclusion of any other device. But they are not inconsistent with the USB controller's receipt of signals other than display based signals. For these reasons, the court construes the phrase "for receiving exclusively therethrough USB based display signals" as follows:

"for receiving exclusively therethrough USB based display signals" means that the USB controller receives all of the
USB display based signals

19. "receiving data to be stored in memory in an alterable fashion . . . said alterable data being permanently stored until purposely altered" ('409 patent, claim 8)

AVID contends that the term should be construed as "receiving data to be stored in memory in a manner such that the data can be changed . . . the alterable data being stored in a non-volatile manner until it is purposely altered." According to AVID, the specification at 1:64-68, 2:36-43, and 6:57-7:2 supports what it contends is the plain meaning of the term. AVID also suggests that dictionary definition of "non-volatile storage" confirms the plain meaning of the term. The Defendants argue that the term should be construed as "receiving data to be stored in non-volatile reprogrammable memory in which the data can be changed." According to the Defendants, the requirement of a reprogrammable memory is consistent with the specification at 1:64-68, 2:13-19; 2:36-43, and 6:60-7:2. After carefully considering the parties' proposed constructions, the Court agrees with AVID's proposed construction and adopts it.

2. Receiving [receives] from the renderer; Providing [provides] the renderer

I construed the term "renderer" in the first Markman Memorandum as a "software and/or hardware object that performs at least the following-functions: (1) determining and providing to another object the required coordinates in the terrain along with a respective resolution level; (2) receiving the data blocks corresponding to the specified coordinates; and (3) using the received data blocks to display a three-dimensional image." Skyline Software Sys. v. Keyhole, Inc., 421 F.Supp.2d 371, 388 (D. Mass. 2006) (emphasis supplied). Google now argues that the phrases "receiving [receives] from the renderer" and "providing [provides] the renderer" should be construed to emphasize that something separate from the renderer either receives or provides the information handled by the renderer, depending on the context. Skyline simply maintains that these phrases should not be construed, and provides no alternate construction.

To the extent necessary to clarify the matter, I agree that the renderer must interact with other objects, n7 whether hardware or software, and does not exist in a self-contained universe. The '189 Patent is based on the conception of a renderer that receives information, over a communication link, and uses the transferred data to display three-dimensional terrain. In every description in the claims and specifications, and in the explanatory drawings, the renderer is depicted as receiving data from another location, and providing information to other discrete objects. n8 This construction is consistent with the prior construction of "renderer," where I found a key function of the renderer to be "providing [information] to another object." n9

n7 Skyline has expressed concern over the use of the word "object," which has a specific meaning in the context of computer programming. (Skyline's Claim Construction Slides, Nov. 1, 2006 at 13-15; Nov. 1, 2006 Transcript pp. 15:21-16:15). "Object," as used in this discussion, should not be read to refer specifically to software objects of the sort used in object-oriented programming. I use "object" in the more general sense of a "thing," which could be a software object, but need not be.

n8 See, e.g., col. 11, 11. 19-38 (describing the renderer).


Construction: (Receiving from the renderer; Receives from the renderer) Something distinct from the renderer receiving
with respect to this term, the key dispute is whether a limitation reciting a user sending the image data has to be included as a step of the claims at issue. plaintiff contends that no further construction is necessary because the claim language provides that it is the server that "receives" the image data. foto/media contends that the preamble requires the step be performed "by the server," and defendants' proposed construction would require the "receiving" to be performed "at the server." further, foto/media argues that there might be instances where the server already possesses the image data. in such a case there would be no need for the user to send such data.

defendants argue that prosecution history makes it incontrovertible that a user (sender) must provide the image to be shared. as originally filed, the "receiving image data" step in claim 1 read "receiving image data representing an electronic image." the examiner rejected this claim over the wright patent disclosing an electronic greeting card system that allowed users to send cards by pulling images from a library of images stored on a server. see '774 file history, january 11, 1999 resp. to office action at 2-3. the sender's computer in the wright system had a local listing of library images and would simply tell the server which of the images it wanted to pull into the electronic greeting card being processed. id. therefore, the examiner rejected the applicants' claim language that broadly claimed "receiving image data" at the server, regardless of where it came from. in response, the applicants distinguished their claims from wright based on the source of the image:

the system of wright et al. teaches selecting a greeting card image stored on a central image server. the presently claimed invention is directed to a system wherein the image data is created by the sender, and not selected from a preexisting list of greeting card images.

id. at 3.

the amended language, as the claim issued, reads:

receiving image data embodying an electronic image, the image data transferred under control of the user at the sending computer, the image data residing in the sending computer or an image source separate from and in communication with the sending computer.

'774 patent, col. 14, ll. 23-27.

in the notice of allowability, the examiner wrote: "none of the prior art of record teaches . . . the image data residing in the sending [sic] and transferred under control of the user at the sending computer . . . ." see '774 file history, notice of allowability, at 2.

defendants contend that the amended "receiving" limitation must therefore be read as requiring that the user provide the
image to be shared. Defendants propose that the Court ignore any inconsistency between this requirement and the fact that the preamble recites that all the steps are performed "by the server." See N. Am. Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1344-46 (Fed. Cir. 2005) (adopting construction preserving inconsistency added during prosecution).

According to the defendants, it is important that the Court inform a lay jury, unfamiliar with the prosecution history, that this claim requires that a user issue a command to send the image data.

Fotomedia responds by arguing that the claims were amended simply to identify the source of the received image, rather than to require a transfer step performed by a user. Although the Court disagrees with Fotomedia on the scope of the amendment, the Court concludes that the amendment already captures the requirement of the image data being sent by the user at the sending computer. See Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1348 (Fed. Cir. 1998) (holding that the scope of an amendment made to overcome claim rejection should be determined in light of the written description, the prosecution history and the language of the respective claims). What the amendment does not do is require a user to perform a step of the method. See BMC Resources, Inc. v. Paymentech, L.P., 498 F.3d 1373, 14381 (Fed. Cir. 2007) (reasoning that claim drafting allows a patentee to structure a claim to capture infringement by a single party or multiple parties). This claim is drafted from the perspective of the server, not the sender.

"Receiving image data" is construed as "receiving by the server, image data."

Receiving information identifying a customer's parts requirements for the equipment

The Staples Defendants contended this term should be construed as "Receiving information identifying the parts required by the customer for the equipment. Identification of the equipment alone is not sufficient because it is not enough to identify the parts which the customer requires for that equipment." Orion contended that claim 1's structure requires no more than an "identification of the equipment," which was the opposite of the Staples Defendants' construction. The Court agreed and determined the term did not require further construction.

Hyundai argues the term should be construed to mean "receiving information identifying a customer's parts requirements and at least a portion of a manufacturer's part number for the equipment" in order to preserve the claim's validity over prior art. Hyundai argues is that "Nagano's teaching arguably invalidates" claim 1. Hyundai "cannot avoid a full-blown validity analysis by raising the specter of invalidity during the claim construction phase." See Rhine v. Casio, Inc., 183 F.3d 1342, 1346 (Fed. Cir. 1999). Whether a claim is valid or not depends on the claim as a whole, not simply one limitation. Whether Nagano teaches "selection of parts in response to an identification of only the equipment owned" or not says nothing about the validity of the claim as a whole.

Nor has Hyundai shown that the claim language or specification requires receiving information at least a portion of a manufacturer's part number for the equipment. In the Staples Markman opinion, the Court rejected the contention that the limitation should be construed to include that "identification of the equipment alone is not sufficient . . . ." Having already resolved that dispute, no further construction is necessary. Thus, the Court rejects Hyundai's proposed construction and determines the claim language does not require further construction.

A. Claim Construction: "Receiving Means"

The claimed CCTV system requires a "receiving means for receiving said video signals and said first code signals." Because this limitation uses "means for" there is a presumption that the claim invokes 35 U.S.C. § 112, P 6. See Biomedino L.L.C. v. Waters Techs. Corp., 490 F.3d 946, 950 (Fed. Cir. 2007). Neither party contends that the presumption has been rebutted; we agree that it has not. Our case law provides the appropriate framework for construing a claim limitation expressed in means-plus-function format. "First, the court must determine the claimed function." Applied Med. Res. Corp. v. U.S. Surgical Corp., 448 F.3d 1324, 1332 (Fed. Cir. 2006). Once the function has been identified, we turn to the specification to determine
which structures disclosed in the specification perform that function. Id.

The function recited in the "receiving means" limitation is the reception of video signals and first code signals. As for the structure, the specification states that

[the receiving device 16 includes a low-pass filter 54 which allows the video signals to pass and prevents the high frequency output signals of the controller device 14 from passing. The output signals of the filter are supplied to a television receiver or monitor via an interface 56 which superposes the display signals from the controller 46 on the output signals of the filter 54.]

[SEE FIG. 1 IN ORIGINAL]

'085 patent, col.5 ll.55-61. The receiving device (16) is depicted in Figure 1 of the '085 patent, as reproduced below. '085 patent, Figure 1. The receiving means includes an input line, a low pass filter, an interface and a television receiver or monitor and any equivalents thereof under § 112, P 6.

Claim terms are entitled to a "heavy presumption" that they carry their ordinary and customary meaning to those skilled in the art. See Superguide Corp. v. DirecTV Enters. Inc., 358 F.3d 870, 874 (Fed. Cir. 2004); Omega Eng'r, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003). However, when a patent applicant surrendered claim scope during prosecution before the PTO, the ordinary and customary meaning of a claim term may not apply. This doctrine of prosecution disclaimer has been "adopted . . . as a fundamental precept in our claim construction jurisprudence." Omega Eng'r, 334 F.3d at 1323 (citing cases). Prosecution disclaimer "promotes the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution." Id. at 1324. This doctrine does not apply "where the alleged disavowal is ambiguous;" the disavowal must "be both clear and unmistakable" to one of ordinary skill in the art. Id. at 1326; Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1373 (Fed. Cir. 2005) ("A disclaimer must be clear and unambiguous."); Rambus Inc. v. Infineon Techs. AG, 318 F.3d 1081, 1089-91 (Fed. Cir. 2003) (finding no clear disclaimer because the statement made was "facially inaccurate" in light of the remainder of the prosecution history); Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc., 249 F.3d 1341, 1348 (Fed. Cir. 2001) (finding no clear disclaimer because "a person of reasonable intelligence would not be misled into relying on the erroneous statement, for it is contrary not only to the plain language of the claims and the specification, but also to other statements in the same prosecution document"); Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc., 222 F.3d 951, 956-57 (Fed. Cir. 2000) (finding disavowal because "reasonable competitor . . . would have no reason to believe that a mistake was made"); Desper Prods., Inc. v. QSound Labs., Inc., 157 F.3d 1325, 1334-36 (Fed. Cir. 1998) (concluding prosecution statements were clear and unmistakable disclaimer because they were entirely consistent with written description and knowledge of those skilled in the art).

In the present case, the district court found that the inventor limited the "receiving means" that receives the first code signal to a "monitor" that receives the first code signal. Implicit in its determination is a finding that the inventor clearly and unmistakably surrendered any claim scope between the "receiving means" that receives first code signals as expressly recited in the claims, and a "monitor" that receives first code signals. We cannot agree. The statements to the effect that the code signal is received by the monitor did not amount to a clear and unmistakable surrender of claim scope.

First, the statement in the prosecution history is unsupported by even a shred of evidence from the specification. The specification never suggests that the monitor of the receiving means receives first code signals and returns a corresponding code to the cameras. Figure 1 above shows that the first code signal would be received by the receiving means 16 on an input line from the transmitter and then would travel to the controlling means 14. After receiving the first code signal, the controlling means decodes and manipulates the first code signal and then generates the second code signal which is transmitted back to the camera along with the control signals via the receiving means. See, e.g., '085 patent, col.1 ll.62-67; col.2 ll.32-36; col.2 ll.39-42. As Figure 1 shows, the receiving means receives the first code signal, but the monitor does not. There is nothing in the specification to suggest that the first code signal ever reaches the monitor.

Second, read in isolation, the statement in the prosecution history could be argued to be a disclaimer. When the prosecution history as a whole is considered, the inventor's response to the PTO is not as clear. Because of the potential for such ambiguities, we have recognized that "because the prosecution history represents an ongoing negotiation between the PTO and the applicant . . . it often lacks the clarity of the specification and thus is less useful for claim construction purposes."
Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). In this case, two paragraphs after the alleged disclaimer, the inventor also included the following statement to distinguish a reference relied on by the PTO examiner:

The Bellman reference fails to suggest that the code received by a display device is sent back to the camera along with the control signal and that the camera is operated by control signals only upon the coincidence of the original camera code with the code returned to the camera.

Amendment & Remarks at 6. The specification equates the "display device" and the "receiving device." See '085 patent, col.3 l.4 ("... a displaying device or receiving device 16 ..."). This statement, unlike the alleged disclaimer, is fully supported by the written description and provides further indication that the earlier statement in the same document was not a clear and unmistakable surrender.

Third, reading the specification and remainder of the intrinsic record as a whole would lead those skilled in the art to the conclusion that the inventor's statement that the monitor received the first code signals and, "based upon" that code, transmits a second code signal "back to the camera" was not a clear and unmistakable surrender of claim scope. Amendment & Remarks at 5-6. This prosecution statement if taken literally would result in an inoperable system. Even if the monitor contained the necessary hardware to receive and generate a second code signal corresponding to the first code signal to be sent back to the cameras (a technological concept not at all supported by the specification), the second code signals would not reach the cameras. The low pass filter is positioned between the monitor and the cameras. The sole purpose of that filter is to "prevent the high frequency output signals [i.e., the "second code signals"] of the controller device 14 from passing." '085 patent, col.5 ll.55-58. Hence, the second code signal would be filtered out before it ever reached the camera. Even Sensormatic's own technical witness testified that he "ha[d] trouble figuring out how [transmitting the code signals to and from the monitor] would work."

For a prosecution statement to prevail over the plain language of the claim, the statement must be clear and unmistakable such that the public should be entitled to rely on any "definitive statements made during prosecution." Omega, 334 F.3d at 1324. On this unique amalgamation of facts, including (1) the absence of support in the specification or drawings for a monitor that receives code signals from and returns code signals to the cameras; (2) the ambiguity created by other statements in the same prosecution document; (3) the fact that Sensormatic's own technical witness did not understand how the system would operate consistent with the erroneous statement; and (4) the inoperability of a device constructed in accordance with the incorrect statement, we conclude that this is not a case of prosecution disclaimer. One of skill in the art would understand the claim to cover a receiving means (not limited to a monitor) for receiving the video signals and the first code signals.

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1. "Receiving Station"

First, the parties dispute the meaning of the term "receiving station." The parties agree that the term "receiving station" as used in these claims did not have an understood meaning in the art in 1989, the date of the applications. Generally speaking, however, the language of the term suggests simply a "station" that "receives" something.

Both sides offer suggested definitions in an attempt to describe this term, given the context in which it appears. The plaintiff urges that the court should define "receiving station" as "an apparatus that answers a telephone call." The defendants argue that the court should define the term to mean "one or more devices which accepts a signal from a network."

Each side notes problems with the other's suggested definition. The defendants argue that the plaintiff is attempting to define the term too narrowly. They point out that the plaintiff's proposed definition—a device which simply answers a telephone call—fails to account for the primary "receiving" function of the receiving station. The defendants argue that the plaintiff, by describing the claim term by reference to one of the several non-receiving functions performed at the station, is suggesting a definition at odds with the plain language of the claim. For its part, the plaintiff argues that the defendants' proposal is too vague. The plaintiff points to the written description and notes that many devices in the system "accept signals" from the network, but not all of these devices are appropriately classified as receiving stations. For instance, a Central Office would accept a signal from the network, but, according to the description of the invention, a Central Office is
something distinct from a receiving station.

To define the terms in the context of this invention, the court has reviewed the claims in light of the specification and the prosecution history to determine what meaning the patentee gave to the terms. As Claim 1 of the '546 patent illustrates, the claim language itself sets forth various functions performed at the receiving station. See claim elements 1(d) and (g) (imposing limitations of answering telephone call, receiving part of the telephone address signal and receiving the sent message at the receiving station). The written description is no different. In the '546 patent specification, the patentee states in the Summary of Invention that:

In general, in one aspect, the invention features a method for causing information including at least a FAX message sent via a telephone system to be subjected to prespecified actions at a receiving station. In this feature, a telephone call is initiated via the telephone system to the receiving station by dialing a telephone number enabling the telephone call to be routed to the receiving station, the telephone number also indicating the prespecified action to which a message is to be subjected at the receiving end. The telephone number is passed through the telephone system in the form of a telephone address signal as part of the call initiation process. At the FAX receiving station, the telephone call is answered and the telephone address signal is received. When the call has been established, the FAX message is sent via the telephone system to and received at the FAX receiving station. Stored action information associates each possible telephone address signal with a prespecified action to be taken with respect to each received FAX message corresponding to the telephone address signal.


The Summary of Invention also states:

In general, in another aspect, the invention features a FAX receiving station which includes (i) a FAX message receiver which answers the telephone call, receives the telephone address signal, and, when the call has been established, receives the FAX message via the telephone system, and (ii) storage for storing the action information. The FAX receiving station is arranged to handle the received FAX message in accordance with the prespecified action based on the telephone address signal.

'546 Patent, Col. 2, ll. 16-25.

In the course of the prosecution of the '546 patent, the applicant stated the following in connection with a July 12, 1993 amendment:

In the system of the present invention, a receiving station comprises a message receiver which receives telephone address signals such as DID address signals and handles the received telephone message in accordance with a prespecified action stored in memory for that address.

See Remarks, attached as Exhibit G to Defendants' Claim Construction Brief, BKT 000166.

After considering the claims and the intrinsic record, the court is persuaded that both parties are correct to criticize the other's proposed definition. In the context of this patent, the receiving station performs a variety of functions, but many of these functions are set forth as additional limitations in the language of the claims. At a minimum, however, a receiving station must have the capability to answer a telephone call and accept a telephone address signal. Accordingly, the court defines a receiving station as "a device which answers a telephone call and accepts a telephone address signal."

4. "receiving system"

The parties dispute the proper construction of the phrase "receiving system" as that phrase is used in Claim 19 of the '992 Patent. One aspect of the dispute is the patentee's use in the specification of the phrases "receiving system" and "reception system." The dispute is whether the two phrases are used interchangeably in the patent specification and should, therefore,
be given the same definition.

The specification uses the phrases "receiving system" and "reception system" interchangeably. n2 For example, Figures 1a - 1g are block diagrams which contain graphic figures labeled "200," entitled "RECEPTION SYSTEM." With respect to Figures 1a - 1g, the written description describes them as illustrations of an embodiment of "receiving systems:"

With respect to the transmission and receiving systems set forth in Figures 1a - 1g...

***

In any of the transmission and receiving systems illustrated in FIGS. 1a - 1g, the requested material may be copy protected.

('992 Patent, Col. 4:64-65; Col. 5:34-35.)

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n2 The Court's attention is drawn to Claim 2 of the '275 Patent which also shares the same specification as the '992 Patent. Claim 2 of the '275 Patent does not use the terms interchangeably. Instead, Claim 2 refers to "receiving system" and "reception system" as being two separate but "associated" systems:

A distribution method responsive to requests from a user identifying items in a transmission system containing information to be sent from the transmission system to receiving systems at remote locations, the method comprising the steps of:

***

sending a request, by the user to the transmission system, for at least a part of the stored information to be transmitted to a reception system associated with a receiving system at one of the remote locations selected by the user; ...

Except for their use in Claim 2 of the '275 Patent, throughout the specification the patentee used the two phrases interchangeably. The Court will defer consideration of the effect of its construction on Claim 2 of the '275 Patent until that Claim is formally brought into consideration.

- - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - -

With specific reference to Figure 1d, the specification uses the phrases "receiving systems" and "reception systems" interchangeably:

**FIG. 1d shows a high level block diagram of the transmission and receiving system of the present invention including a transmission system 100 distributing to a plurality of users via a reception system 200 configured as a cable television system.**

('992 Patent, Col. 4:14-18.)

At one point in the specification, graphic block 200 is called a "receiving system." At another place it is called a "reception system:"

... for communication with the receiving system 200 ...

***

The received information is preferably buffered (step 418) by a storage means analogous to element 203 shown in FIG. 3. The information is preferably buffered so that it may be stored by the user for possible future viewings. The requested information is then payed back to the reception system 200 of the user at the time requested by the user (step 419).
In light of the specification, the Court finds that the phrases "receiving system" and "reception system" should be given common definitions.

A second aspect of the dispute with respect to the phrase "receiving system" is the definition of the phrase itself. In the July 12 Order, the Court construed the phrase "reception system," used in Claim 1 of the '702 Patent, to mean "an assembly of elements, hardware and software, capable of functioning together to receive items of information." (July 12 Order at 28-29.)

The '702 Patent shares the same specification as the '992 Patent. Upon reconsideration following the June and September hearings, the Court finds that the patentee intended "receiving system" to have a specialized meaning:

Additionally, the present invention comprises a receiving system responsive to a user input identifying a choice of an item stored in a source material library to be played back to the subscriber at a location remote from the source material library, the item containing information to be sent from a transmitter to the receiving system, and wherein the receiving system comprises transceiver means for automatically receiving the requested information from the transmitter as compressed formatted data blocks; receiver format conversion means, coupled to the transceiver means, for converting the compressed formatted data blocks into a format suitable for storage and processing resulting in playback in real time; storage means, coupled to the receiver format conversion means, for holding the compressed formatted data; decompressing means, coupled to the receiver format conversion means, for decompressing the compressed formatted information; and output data conversion means, coupled to the decompressing means, for playing back the decompressed information in real time at a time specified by the user.

Figure 6 is a block diagram illustrating an embodiment of a reception system which has the necessary components to perform the method disclosed in Claim 19. The specification also contains the phrase "receiving device." The specification provides that a "receiving device" is not part of a "receiving system:

The outputs from converters 211-214 are produced in real time. The real time output signals are output to a playback system such as a TV or audio amplifier. They may also be sent to an audio/video recorder of the user. By using the reception system 200 of the present invention, the user may utilize the stop, pause, and multiple viewing functions of the receiving device. Moreover, in a preferred embodiment of the present invention, the output format converters may be connected to a recorder which enables the user to record the requested item for future multiple playbacks.

The Court finds, however, that the use of the word "directly" in its construction would clarify that the invention is one which discloses transmission directly to receiving systems with no intermediary.

The Court construes the phrase "receiving systems" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, the phrase "receiving systems" means "an apparatus which directly receives information from the transmission system. The apparatus comprises the following interconnected components: transceiver means, receiver format conversion means, storage means, decompressing means and output data conversion means, as illustrated in Figure 6. The corresponding structure for each means is the structure identified in the specification for performing the recited function. A "reception system" is the same apparatus as a "receiving system." A "receiving device" is not part of a receiving system.
C. "A Receiving Terminal"

For the following reasons, this court construes the claim term "a receiving terminal" in claim 9 to mean:

One or more devices that receive a WDM optical signal.

The court employed similar reasoning in construing "a receiving terminal" as it did in construing "a transmitting terminal." See section II.A, supra. The term "a receiving terminal" occurs in context as "a receiving terminal receiving the amplified WDM optical signal from the optical amplifier." (’681 patent, col. 23:1-2.)

Within the specification, receivers are represented as both a single device and as a combination of devices. Specifically, Figure 25 illustrates "a transmitter (Tx) transmits a SV light beam to a receiver (Rx), were an SV light beam is light that is wavelength-multiplexed with a main signal." (’681 patent, col. 19:40-44.) So, a receiving terminal, as represented by receiver Rx, can be a single device. Figure 1 of the ’681 patent, however, depicts:

The wavelength-multiplexed optical signal is transmitted through an optical fiber to an optical demultiplexer. Optical demultiplexer branches the wavelength-multiplexed optical signal into four separate optical signals having the wavelengths [lambda] 1- [lambda] 4, respectively. The four separate branched optical signals are then detected by receiving units, respectively.

(’681 patent, col. 1:53-59; see Fig. 1.) Thus, the receiving terminal that receives a WDM optical signal in Figure 1 of the ’681 patent can be more than one device that includes the receiving units and the demultiplexer.

3. Reception system at a second location

The Court lets stand its previous definition of "reception system at a second location" to mean a reception system at one particular location separate from the location of the transmission system.

9. "Recharge information." Used in ’768 patent, Claims 2, 3, 6, 10, and 11.

TGIP offers "data received in connection with the recharge of an account." Defendants argue for "information including the security number communicated during the recharge of the calling card account." For the reasons stated above, the court concludes that there must be a combination of numerals, letters, and/or characters associated with each activated account. This is referred to in the claims as "access information" See, e.g., ’768 Reexam Cert, col. 1, 11. 47-51. For marketing purposes it might be given any number of names, including "security code" as seen in the specification. ’768 patent, col. 5, 1. 47. For convenience the court will use "password."

As explained above, the claims do not require transmission of the password to the host computer at the time of activation of the card. The question is whether the password must be used to recharge the card?

An example from the specification and claims may clarify the differences and similarities between activation, access and recharge. See ’768 patent, col. 5, 1. 64 - col. 6, 1. 13; ’768 patent Reexam. Cert., col. 1, 11. 18-57. To activate an account, a customer asks a store clerk for $12.00 of calling time. The clerk selects card number 55 and uses the data terminal to transmit that number, which designates a calling card account number in the database, to the host computer. The computer
associates $12.00 with account 55 and with a password, say 44, and transmits the message that the password has been activated for the amount of $12.00.

To access a phone network the customer dials a number to which the host computer is connected and is prompted to enter the password, 44, but not necessarily the card number, 55. The computer keeps track of the time used and deducts it from the $12.00 balance. To recharge the card the customer goes back to the clerk and asks for $15.00 to be added to the account. The clerk must transmit information identifying the account number. The account now has two numbers associated with it - the card number 55, and the password 44. As written, the claims allow a programmer to program the host computer to accept either or both numbers for a recharge, since both now identify the account.

It might make sense in a recharge situation to follow the preferred embodiment and transmit a "security code" (the password) from the card. '768 patent, col. 5,11.42-50. But there is nothing in the claim language or specification to indicate that the account number can't be combined in the same data field with the password at the time of initial activation. In such a case it would be feasible to transmit the card number and not the password, although once the card is activated those numbers are inextricably linked. Therefore the court defines this term as follows:

"Recharge information" means: "data transmitted that makes it possible to associate a dollar amount with a particular previously activated calling card account."

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C. "recipient"

Stanacard proposes that "recipient" be given its plain and ordinary meaning. Rebtel seeks to define "recipient" as a "person, or device or address associated with the person, which the caller is attempting to connect" on the grounds that it is necessary to clarify that a recipient is not limited to a person, but may include various devices or addresses associated with a person.

Like "telephone number," recipient is a commonly used and understood term that does not require a lengthy definition that would only serve to confuse the jury. Moreover, although the parties agree that "recipient" would include not only people, but also entities and businesses, Rebtel's specific reference to a "person" or "items associated with a person" in its proposed definition would imply that certain non-person entities are excluded from the scope of the term "recipient" as used in the '156 Patent.

"Recipient" is therefore given its plain and ordinary meaning. GO BACK

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B. "recipient"

The magistrate judge recommended that "recipient" be construed as: "The party which receives the transaction from the originator." First Report at 4. No objections have been filed with respect to the magistrate judge's proposed construction. After careful review of the magistrate judge's findings and conclusions, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "recipient" in patent '878 is correct, and it is hereby accepted as the court's construction of "recipient."

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<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;recognition of&quot;</td>
<td>N/A</td>
<td>&quot;the passenger identification&quot;</td>
</tr>
</tbody>
</table>
Defendants note that the Patents-in-Suit fail to establish the meaning of the term "recognition" as it relates to identification codes. Plaintiff has provided no counter-definition of the term "recognition" as it relates to identification codes.

The Court finds that the definition of the term "recognition" cannot be discerned from the plain meaning of the claim language or the specification. Therefore, it is appropriate to look to extrinsic evidence to inform the meaning of "recognition." See generally Phillips, 415 F.3d at 1318 (noting that dictionaries, and in particular technical dictionaries, "have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention"); Alloc, Inc. v. Int'l Trade Comm'n, 342 F.3d 1361, 1368 (Fed. Cir. 2003) ("Dictionaries and scientific treatises may also help supply the pertinent context and usage for claim construction.") (citations omitted). The McGraw-Hill Dictionary of Scientific and Technical Terms defines "recognition" as "[t]he act or process of identifying (or associating) an input with one of a set of possible known alternatives, as in character recognition and pattern recognition." McGraw-Hill Dictionary of Scientific and Technical Terms 1761 (6th ed. 2003). This meaning controls "unless the intrinsic evidence clearly redefines the claim term so as to put one reasonably skilled in the relevant art on notice that [the patent applicant] intended to assign the term a different meaning." Union Carbide Chemicals & Plastics Tech. Corp. v. Shell Oil Co., 308 F.3d 1167, 1177 (Fed. Cir. 2002) (citation omitted).

The Court finds that this dictionary definition of recognition, meaning "identifying" or "associating," is consistent with the available intrinsic evidence as explained above. Therefore, the Court concludes that "recognition of identification codes of passengers" means "the passenger identification codes are associated with each individual passenger's identity as well as that passenger's destination floor."

Recognizable Relationship

Konami proposes that "recognizable relationship" should be construed as "having a correspondence such that one can be identified with another," while Defendants argue that "visually apparent association" is more appropriate. However, neither proposal offers any more guidance than the ordinary and accustomed meaning of the claim language itself. As that ordinary meaning is consistent with a proper understanding of "recognizable relationship" the Court sees no reason to construe this term.

"Recognizable relationship" is employed in Claim 11 to describe the relationship between the "first display parts" and the "corresponding actuateable parts," n4 and in Claim 12 to describe the relationship between "first display parts" and "second display parts." n5 19:48-50, 65-67. n6 Although neither proffered construction is inappropriate or misleading, neither construction would assist a jury in adducing the meaning of this phrase. See Sulzer Textil A.G. v. Picanol N. V., 358 F.3d 1356, 1366 (Fed. Cir. 2004). Both parties offer constructions that merely re-characterize the claim language without adding any helpful guidance about the meaning of "recognizable relationship" that is not already apparent from the language itself.

--- Footnotes ---

n4 "Recognizable relationship" also describes this relationship in claims 22, 28, 36, 42, 45, 46, 48, 49, and 50, but claim 11 is a fair exemplar of how "recognizable relationship" is used in those claims.

n5 "Recognizable relationship" also describes this relationship in claims 27, 29, and 37, but claim 12 is a fair exemplar of how "recognizable relationship" is used in those claims.

n6 The surrounding language in claim 11 reads "a plurality of actuateable parts for actuation by a player's feet; a display unit
Claim 12 depends from claim 11 and reads, "[d]ance apparatus according to claim 11 wherein said second display parts have a recognizable relationship with corresponding first display parts."

In essence, Defendants' construction "visually apparent association" substitutes "visually apparent" for "recognizable" and "association" for "relationship." However, "visually apparent" does not advance the meaning of "recognizable" beyond its ordinary and accustomed meaning, and "association" does not measurably clarify "relationship." Similarly, Konami's construction "having a correspondence such that one can be identified with another" simply restates the ordinary understanding of "recognizable relationship." These constructions are not incorrect. In fact, they are both fairly accurate characterizations of the disputed term, but the Court declines to adopt any construction because a proper understanding of this term may be reached from the ordinary and accustomed meaning of these terms in the context of the claims. Accordingly, the Court elects not to construe "recognizable relationship."
be an inaccurate interpretation. See Vitronics, 90 F.3d at 1583 (construction that necessarily excludes the preferred embodiment "is rarely, if ever, correct"); see also Hoechst Celanese Corp. v. BP Chemicals, Ltd., 78 F.3d 1575, 1581 (Fed. Cir. 1996) (unlikely that inventor would define invention in way that excludes preferred embodiment or that those skilled in the art would read it that way). However, I concluded at the hearing that the examples recited in the specification would fit within defendant's definition. Accordingly, "record" and "data record" as used in claims 49 and 53 of the '461 patent mean components of a database composed of fields arranged in a particular predefined structure.

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a. "Record" and "Multiple Records."

Judge Hubel construed "record" to mean "a Collection of related data items stored in named data fields" and "multiple records" to mean "multiple Collections of related data items stored in named data fields." Judge Hubel explained:

In the preferred embodiment, this construction includes the understanding that one record is one row. In other embodiments, however, the restriction of record to one row may not be workable. For example, with XML, there is no traditional "row."

Construction Order 1 at 55. In reaching this construction, Judge Hubel rejected Plaintiff's argument that "record" can comprise "multiple rows of information." Construction Order 1 at 51. Although Judge Hubel acknowledged the "preferred embodiment" should be understood as a single row in the table subject to the caveat that it might not work in other embodiments, he specifically rejected Defendant's proposed construction of "multiple records" as "rows of a single relation." Construction Order 1 at 54. This Court adopted Judge Hubel's construction.

3586

Purchase request record

The Court modifies Autobytel's proposed construction and construes the term as "a collection of fields populated by dealer information and buyer information." Dealix argues that the term should be construed as "purchase request formatted for entry into the system database." Dealix contends that there is no intrinsic support for Autobytel's construction and that the Court must turn to extrinsic evidence to construe the term. However, Autobytel contends there is intrinsic evidence, specifically the specification, that supports its construction of purchase request record as "a collection of fields populated with dealer information and validated buyer information." Autobytel argues that the dealer information is part of the purchase request record. To support this conclusion, Autobytel looks to the specification, which states, "The Data Center system receives the purchase request information from the buyer and determines an appropriate seller to receive the purchase request. The Data Center then proceeds to create and store the appropriate purchase request record in the database region exclusively assigned to the seller." Col. 3:5-9. Autobytel contends that this language illustrates that the record must include dealer information if it is to be directed to the appropriate seller. Autobytel also points to the specification's description of Figure 7 as an example of a purchase request record that includes dealer information. See Col. 11:9-18. The specification describes "a set of information fields comprising a new vehicle purchase request record according to one embodiment of the invention" and lists "dealer identification number" as one of the items found in said purchase request record. See id. The Court is persuaded by Autobytel's argument and agrees that the term should be construed to include both dealer information and buyer information. However, the Court does not agree with Autobytel that the word "validated" or "checked" should modify buyer information.

Autobytel cites language from the specification that states, "Once the buyer information is entered, the Data Center moves to a step wherein a check is performed to determine if the buyer has previously submitted a new vehicle purchase request within the previous 48 hours." Col. 15:47-50. Dealix argues this language only demonstrates that one embodiment of the invention includes a step for checking to see if a potential buyer has previously submitted a request and does not justify adding a "validated" or "checked" modifier to buyer information. The Court agrees with Dealix that there is no other mention of any other buyer information being validated or checked in the patent. Accordingly, neither term should be
4. "record of an input channel" & "record of a communication channel"

<table>
<thead>
<tr>
<th>NICE's Construction</th>
<th>Witness's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stored voice and/or call information received from an input channel.</td>
<td>A record identified by an input channel.</td>
</tr>
<tr>
<td>Stored voice and/or call information received from a communication channel.</td>
<td>A record identified by a communication channel. 2</td>
</tr>
</tbody>
</table>

2 The Court lists the constructions used by Witness in its claim construction briefings. For reasons the Court cannot discern, Witness proffers different constructions in the "November 8, 2007 Revised Joint Claim Construction Chart."

The parties dispute the meaning of "record of an input channel" and "record of a communication channel," as used in claims 3 and 21 of the '920 patent. NICE contends that its proposal is based on the specification, which echoes the plain meaning of the words, citing col. 10:30-34.

In a particular embodiment directed to storing voice records, the function of recorder stage 104 can be described broadly as creating voice files and providing an associated database with stored call information.

(col. 10:30-34.) NICE further contends that Witness's construction improperly adds the limitation that the record is "identified by the input [or communication] channel." Witness contends that the word "of" in the disputed term equates "identified by," and cites col. 11:14-19 to support its construction.

After reviewing the claims and the specification, the Court concludes that NICE's construction is the correct one. The specification makes clear that a record can be identified by more than just an input channel:

[Records that correspond to different input channels appear to the user as separate files having unique record addresses. In a preferred embodiment, these files are identified by the call record information and contain, for example, information about the caller ID, the date and time of the communication, its duration, and others.

(col. 11:14-23.) Accordingly, the disputed terms are construed without Witness's proposed limitation.
the '707 patent, and Claims 49, 50, 65, and 171 of the '863 patent. The wording of the record structure limitations varies across these claims; however, all include "memory and control means" and the concept of receiving information about callers from the interface structure or the communication facility and then storing, updating, accessing, or testing that information. Thus, the definition of the term "record structure" will be the same across the claims at issue in which it appears.

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The plaintiffs argue that "record structure" is not subject to means-plus-function analysis because the term connotes structure to those of ordinary skill in the art. Morganstein testified at the Markman hearing that a person of ordinary skill in the art who had read the Katz patents would have understood "record structure" to refer to a set of structures; Morganstein testified that the record structure would correspond to one of the building blocks of interactive voice applications, including processors, memory, and software. (Transcript volume 1 at 181-182). Larky did not disagree with Morganstein and testified that "record structure" would have connoted structure to those in the field. (Transcript volume 3 at 67-68). The plaintiffs also argue that the phrases "including memory" 14 and "connected to receive said caller data signals from said interface structure" are additional structural descriptions of record structure in the claims which support their position that the term does not implicate 35 U.S.C. § 112, P 6. The plaintiffs' proposed construction of this term is "a hardware device with associated software, including memory and control means, used to store information." (Pls. ' Appendix at 132).

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14 It appears that both sides agree that the term "memory" does not implicate 35 U.S.C. § 112, P 6. Morganstein testified at the Markman hearing that a person of ordinary skill in the art would have been aware of many kinds of "memory," such as RAM, tapes, cassettes, and disks. See Morganstein Testimony, Transcript volume 1 at 106. Thus, the Court construes the term "memory" according to its plain meaning as: computer hardware that stores information, such as disks, RAM, or tapes.

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The defendants argue that "record structure" is subject to 35 U.S.C. § 112, P 6 because the term is defined by the function it performs - accessing a file and storing data -- and because it lacks a sufficiently definite structure to those of ordinary skill in the art. The structures that correspond to this term, the defendants argue, are the Processing Unit 92, Memory 98 with storage cells C1 through Cn in Figure 4, and the required wiring to connect these structures together. The defendants argue that "record structure" also corresponds to the required software for performing the disclosed functions. The defendants contend that the only software programs disclosed in the specifications are in the context of the specific "formats" described by Katz, such as game shows, lotteries, and auctions. 15

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15 The defendants argued as well on other claim terms that the structures corresponding to the means in mean-plus-function limitations included software that was particularly programmed to carry out one of the seven formats disclosed in the specifications or to perform "statistical analysis to isolate a subset." In support of this argument, the defendants submitted the recent case of WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 1999 U.S. App. LEXIS 16696 (Fed. Cir. 1999) after the close of the Markman hearing. Upon full consideration of the WMS Gaming case and the letters submitted to the Court by the parties regarding this issue, the Court concludes that the new decision by the Federal Circuit does not require that the software corresponding to the means in these limitations be specifically programmed to perform one of the seven formats disclosed in the specifications or statistical analysis to isolate a subset of callers or data.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Based on contemporary technical dictionaries and the testimony of the experts, the Court concludes that the term "record structure" is not subject to 35 U.S.C. § 112, P 6 because the term would have connoted sufficient structure to those of ordinary skill in the art. The Court construes the term "record structure" to mean: computer hardware and software required to receive data signals, update files, and store information.

The limitations containing the term "record structure" provide that the record structure includes memory and "control
means . . . for accessing a file." The parties agree that "control means" is subject to 35 U.S.C. § 112 P 6. The plaintiffs point to the Processing Unit 92 and Memory 98, including cells C1 through Cn in Figure 4 or Processors PR1 through PRn in Figure 1 as the structures that correspond to "control means." The plaintiffs contend that an alternative structure for control means disclosed in the patents is a microcomputer or microprocessor, such as the Central Processing Unit 251 in Figure 9, programmed to perform the disclosed functions. The defendants agree that the term "control means" corresponds with the structures the plaintiffs have identified, but the defendants contend that the term also must include the associated wiring and software.

The first step in means-plus-function analysis is to identify the function performed by the means; here, the function of the "control means" is to receive calling number identification data, to access a file, and to store data relating to certain of said individuals callers. The Court concludes that the patent discloses that the control means correspond to the Processing Unit 92 and Memory 98, including the cells, C1 through Cn in Figure 4 and the Processors PR1 through PRn in Figure 1. See Column 16, lines 24-28, and 44-46 of the '707 patent and Column 18, lines 21-25 of the '707 patent. In addition, "control means" corresponds to the software that enables these structures to perform the functions of receiving and storing data and accessing files. The Court concludes that the control means also correspond to a microprocessor, such as the Central Processing Unit 251 in Figure 9, programmed to perform the disclosed functions, as such a structure can also perform the disclosed functions of the control means. See Column 5, lines 12-33, Column 9, lines 59 to 67, and Column 21, lines 9-20 of the '707 patent.

The core dispute between the parties in relation to the record structure limitations is over the meaning of the term "accessing." The plaintiffs argue that the term "accessing" includes anything a computer can do to a file, such as creating or opening records or storing additional information entered by callers. The defendants argue that the term "accessing" does not encompass deleting a file or creating or initiating a file because a file must exist before it can be "accessed." The defendants point to passages of the specification in which the ideas of updating a file are distinct from creating a cell in memory in the first instance. See Column 12, line 63-65, Column 16, lines 29-32, and Column 17, lines 29-30 of the '707 patent. Thus, they contend that the term "accessing" must mean retrieving a file that already exists.

In Claim 51 of the '309 patent, Katz recites a "record structure, including memory and control means, . . . for updating a file." This indicates to the Court that the use of the word "accessing" in a similar limitation in another claim connotes a different meaning. Further, although Katz describes updating files and assigning cells in memory as different functions in the specification, there is nothing in the specification that indicates that the term "accessing" could not encompass both of those functions.

Webster's Dictionary defines the verb "access" as "to get at, gain access to." Addenda to Webster's 3rd New International Dictionary at 55a (1986). As a noun, the term is defined as "permission, liberty, or ability to enter, approach, communicate with, or pass to and from" or "freedom or ability to obtain or make use of." The Court concludes that the term "accessing" means in the context of the Katz patents: gaining or obtaining the ability to enter or make use of files. The Court further concludes that the term "accessing" in the context of the Katz patents does not delineate or restrict the types of functions that may be performed on the files once they are accessed, such as updating files, creating new files, or deleting files.
The defendants argue that "record testing structure" is subject to 35 U.S.C. § 112, P 6. The structures the defendants contend corresponds to the function performed by the record testing structure are the Processing Unit 96, the Qualification Unit 93, the Buffer Storage 97, either the Look-up Table 99 or the Use Rate Calculator 100, and the logic within the qualification unit to receive information regarding the calling number from the interface. Further, the defendants argue that the structure corresponding to "record testing structure" cannot be any computer with any type of memory; if this were the case, the defendants argue, 35 U.S.C. § 112, P 6 would have no meaning. The defendants contend that the processing unit must be programmed to receive decoded personal identification data from the callers and to test it against stored data for the callers.

The Court concludes that "record testing structure" implicates 35 U.S.C. § 112, P 6 because "record testing" is clearly a functional term and it does not connote any structure for performing the function of receiving and testing said caller data signals including said calling number identification data and said caller personal identification data against previously stored calling number identification and caller personal identification data. The Court concludes that the structures disclosed in the specification that correspond to "record testing structure" are the Processing Unit 96, the Qualification Unit 93, and the Look-Up Table 99 in Figure 4. See Column 10, lines 1 through 25 of the '707 patent. Contrary to the defendants' contentions, the described functions of the Use Rate Calculator 100 and the Buffer Storage 97 in Column 10, lines 1 through 25 of the '707 patent are not required to perform the function of receiving and testing signals against stored data called out in the claim. Thus, these structures do not correspond to record testing structure.

2. "Recording" and "Storing"

Variations of the words "Record" and "Store" appear throughout the '686 Patent. Illustrative examples are:

"A method of incrementally storing data on a compact disc of the type having a lead-in area, a program area having a plurality of sectors, and a lead out area . . . ."

('686 Patent, col. 18, ll. 65-67.)

"The method of claim 1 including recording with each selected file link information to the recorded location of at least one other selected file."

('686 Patent, col. 19, ll. 22-24.)

Each party's proposed claim construction of "Recording" and "Storing" is as follows:

<table>
<thead>
<tr>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Construction</td>
</tr>
<tr>
<td>&quot;Recording&quot;</td>
<td>Writing information to the CD.</td>
</tr>
<tr>
<td></td>
<td>No construction is needed for this term because this term is plain English.</td>
</tr>
<tr>
<td>&quot;Storing&quot;</td>
<td>Writing information to the CD or to the updatable memory of a host system.</td>
</tr>
<tr>
<td></td>
<td>No construction is needed for this term because this term is plain English.</td>
</tr>
</tbody>
</table>

The Court agrees with Optima that "Recording" means "writing information to the CD," as that construction is in line with the ordinary meaning; of the term and there is nothing in the claim language of the '686 Patent to suggest a contrary interpretation. The Court, however, rejects Optima's proposed construction of "Storing" because the plain English meaning of the word suffices. The word "Store" is defined as follows: "To copy (data) into memory or onto a storage device, such as a hard disk." AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed. 2000). The Court finds this definition in accord with the language of the '686 Patent 10 and thus adopts it as the proper construction of the term "Store." Moreover, the patent itself makes clear that "Storing" is not limited to a CD (See '686 Patent, Claims 10, 11.)
10 For example, Claim One of the '686 Patent states, "A method of incrementally storing data on a compact disk . . . ." ('686 Patent, col. 18, l. 65-66 (emphasis added)).

<table>
<thead>
<tr>
<th>3591</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. &quot;recording device&quot;</td>
</tr>
<tr>
<td>NICE's Construction</td>
</tr>
<tr>
<td>A device which records IP audio and/or video data.</td>
</tr>
</tbody>
</table>

The parties dispute the meaning of "recording device," as used in claim 1. NICE contends that Witness's construction imposes a negative requirement - "does not require an additional connection or port in the network" - that is ambiguous and is not used anywhere in the specification. Witness contends that NICE distinguished, in a foreign counterpart to the '109 patent's parent (the '106 application), the prior art by disclaiming all recording devices except those that could be connected to a conference call as a participant, "without any need to change the number of connected extensions, etc." (EPO Proceedings., File Hist. for W02001IL0100805, Amend. 3.) In response, NICE contends that the out-of-context quote was made after the '109 patent issued, was made in passing and prefaced by "it should be mentioned," and clearly did not constitute a "clear and unmistakable" disavowal of claim scope.

In light of the claim language and pertinent prosecution history, the Court construes "recording device" to mean "a device which records IP audio and/or video data." Witness has not demonstrated that the prosecution history it cites constitutes a "clear and unmistakable" disavowal of claim scope.

<table>
<thead>
<tr>
<th>3592</th>
</tr>
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<tbody>
<tr>
<td>A. &quot;Recording plane&quot;</td>
</tr>
</tbody>
</table>

Plaintiff's construction: a recording layer of a disc

Defendants' construction: [not seeking construction]

Plaintiff requests construction of "recording plane," contending that this term must be construed to clarify that "recording plane" can mean "layers" of a disc and does not refer exclusively to a "side" of a disc. Defendants do not seek construction of this term, contending that plaintiff's proposed construction unnecessarily limits the term to a "disc." I agree with defendants. By limiting "recording plane" to a layer of a "disc," plaintiff's construction is too narrow. Claim 1 recites specifically "a recording medium" rather than a disc. The parties agree that a "recording medium includes, but is not limited to, any single-sided or double-sided disc having any number of recording layers." Defs.' Mot., dkt. 69, at 4; Busey Decl., dkt. 76-2, at 4. The patent specification states that "[t]he present invention relates to a recording medium, such as an optical disc . . . ." '966 patent, 1:9-10 (emphasis added), and throughout the "Summary of the Invention," the inventors repeatedly use the term "recording medium" rather than "optical disc." The words "such as" indicate that the present invention could be applied to recording mediums that are not optical discs. Although the figures in the specification depict an optical disc, the specification states that it is depicting only "an embodiment" of the invention.

In addition, plaintiff's proposed construction is not necessary to clarify the meaning of "recording plane" because the claim itself provides a meaning. Claim 1 states that a recording plane is a construct on which "data is recorded." '966 patent, 16:23-24. Defendants have not argued that a recording plane cannot include a layer of a disc. Dfts.' Resp. Br., dkt. 81, at 33.
("The defendants are not arguing that a recording plane must be limited to a side of a disc.") In fact, defendants state in their brief that recording planes include "the number of recording sides/layers on a disc." Dfts.' Br., dkt. 71, at 50. Because plaintiff's proposed construction is too narrow and is unnecessary to clarify the meaning of "recording plane," I conclude that construction of this term is unwarranted.

**Court's construction: no construction necessary**

C. "Circuit Means For Recording Time Of Energy Use"

Independent claims 5 and 10 disclose a device for recording time of energy use for use with electric meters having a rotatable disc which has a housing containing "circuit means for recording time of energy use." The focus of the parties' dispute with respect to this term concerns the meaning of the phrase "recording time of energy use." Itron contends that the term "must include the ability to determine and record the time that energy is used." Itron's Memorandum, 18:20-21. CellNet asserts that the term is broader than Itron's interpretation:

The ordinary meaning of the words circuit means for recording energy use is much broader than a circuit with an internal clock that tracks time in years, weeks, hours, minutes, and seconds. Ordinary usage would permit tracking energy use with other types of time-keeping circuitry and recording time of use other than by year, day, or hour. For example, time could be measured in terms of usage during high-rate and low-rate time periods.

CellNet's Opening Brief, 20:1-5. During the claim construction hearing, CellNet explained that the term "recording time of energy use" simply refers to the ability to record the number of revolutions over a period of time. CellNet's proposed definition is also set forth in the June 12, 1998 expert report of inventor Larsh Johnson. In the expert report, Mr. Johnson represents that "recording time of energy use means recording energy use over time." Johnson Expert Disclosure, 3:15-17. In short, CellNet argues that the disputed term has nothing to do with recording the time of day, week or year when energy is used.

13 The parties dispute whether the subject term is a means-plus-function limitation. Since the Court has already explained the reasons supporting its conclusion that the term "circuit means" is a structural rather than a means-plus-function element, that discussion will not be reiterated here.

CellNet contends that the term "time of energy use" is a special term that was used for the first time in the '623 patent. CellNet also contends that the term is to be distinguished from the term "time of use" which was well known in the electric utility meter field at the time the purported invention was conceived. According to CellNet, the term "time of use" refers to the ability to record the amount of energy used at certain times of the day, week or year. Itron argues that the terms "time of use" and "time of energy use" are equivalent phrases and have the same meaning. Itron points out the term "time of use," as it is commonly understood by those skilled in the art, clearly refers to the use of energy. Finally, Itron argues that there is no indication or suggestion in the '623 specification that the patentees intended a give "time of energy use" a special meaning.

The Court has reviewed the intrinsic evidence and found no indication or suggestion that the patentees intended to use the phrase "time of energy use" in a special way. In particular, the Court notes that the phrases "time of use" and time of energy use" are used interchangeably in the patent specification with no disclosure to the public that they have different meaning. '623 patent, 1:8; 1:50; 2:42-43; 2:46; 2:49; 2:58-59; 4:21; 4:24; 4:64. The Court also notes that CellNet specifically indicated in its supplemental claim chart and proposed claim construction statement that the first clause of claims 5 and 10, where the phrase "time of energy use" appears, should be given its ordinary meaning. Since the patentees did not expressly or impliedly indicate a special definition, the Court must adopt the common and ordinary definition of the phrase "time of energy use." See Vitronics, 90 F.3d at 1582; and Wolverine, 38 F.3d at 1196.
The Court construes the disputed term "circuit means for recording time of energy use" to mean a circuit for use with standard electric meters capable of recording information regarding the amount of energy used or consumed and the time of day, week or year when the energy was used or consumed. Furthermore, the Court construes the term "circuit means" to mean:

The combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function such as amplification, filtering, or oscillation. Penguin Dictionary of Electronics (2nd Ed. 1988).

The Court's interpretation comports with the plain meaning of the disputed language and the disclosures made in the specification. Although CellNet contends that the specification mentions the possibility of "recording time of use other than by year, day, or hour," the plain language of the term and the specification contradict this broad reading of the claim element. First, the specification clearly states that the disclosed invention is intended to address the inefficiencies resulting from the different demand levels for electricity during different times of the day:

Since there are peak and slow periods occurring at different times of the day, electrical distribution and generations systems are overloaded at certain times and underutilized at other times. This results in substantial inefficiencies as a much larger generation and distribution system than is economically desirable is required to meet the peak demands. Additionally, the low demand consumer is in effect subsidizing the high demand consumer as they are both charged the same rate for power consumption.

'623 patent, 1:15-24. The patentees then discuss other methods previously employed to attempt to "spread the demand for energy over greater portions of the day." '623 patent, 1:25-27. In each example discussed, the purpose of the method was to equalize electricity demand over different times of the day. '623 patent, 1:25-2:6.

The second reason for rejecting CellNet's proposed construction as overly broad is that the cited portion of the specification does not indicate or suggest the recording of energy use in intervals other than by time of day:

Time-of-day meters measure and record power consumption on a demand meter register during demand intervals of predetermined lengths. The demand register is capable of being engaged at the start of a demand interval, as determined by a program in the meter, and disengaged to terminate the demand interval as determined by an interval counter. The demand intervals occur at fixed times throughout the day.

'623 patent, 2:7-16 (emphasis added). Finally, the specification indicates that the disclosed circuitry is also capable of recording information concerning the time of week or year when the energy is used. '623 patent, 4:38-43. Itron agrees that the circuit means disclosed in the '623 patent allows the user to track energy use by time of day, week and year.

Next, the Court concludes that the proposed definition advanced by CellNet finds no support in the evidence or in reason. As discussed above, the patentees made no effort to distinguish the term "time of energy use" from the equivalent term "time of use" in the patent specification or during the prosecution of the patent. Thus, they have waived their right to claim a special meaning for the term. Furthermore, the Court discerns no meaningful difference between the recording of the amount of energy use over a period of time and the recording of the time of day, week or year of energy use. The very definition of the period of time, in other words, must be performed by reference to a time when the period begins and the time when the period terminates. Otherwise, if the entire function of defining the time of use is left to another device with the required circuitry, which is a possibility suggested by CellNet during the claim construction hearing, then the claimed device is indistinguishable from the prior art. 14

14 CellNet's strained interpretation of "time of energy use" would cover a substantial portion of the prior art. Under CellNet's construction, electric utilities have arguably had the capability of recording energy use over time for decades since their meter readers defined the period (usually the billing month) when energy was consumed.
During the claim construction hearing, CellNet's counsel argued that the following portion of the '623 patent specification also supports its position:

The device measures time of energy use by detecting the rate of rotation of the meter's disc. A black mark (not illustrated) is located on the lower surface of the disc. Sensor means are mounted within a housing of device 10 to detect the black mark as it rotates past an optical port 32 in the top surface 33 of housing 30. The sensor means may comprise an infrared light-emitting diode and a phototransistor that generate a signal in response to the passage of the disc past optical port 32. The rotating black mark interrupts reflection of infrared light to the sensor means, once each revolution. The phototransistor generates a different signal in response to that interruption. The signals are processed and stored by appropriate circuitry in device 10.

'623 patent, 4:24-37 (emphasis added). According to CellNet, the above passage of the specification proves that recording "time of energy use" merely means recording energy use over time since there is no clock or calendar mechanism disclosed. The Court cannot agree. In the above passage, the patentees were simply describing how the claimed device determines the amount of energy used. This is done through the disclosed sensor means which is not incorporated in claim 5 or claim 10. The discussed circuit means has no role whatsoever in the detection of the rate of disc rotation. Thus, there is no suggestion or indication in the above portion of the specification to support CellNet's contention that "recording time of energy use" has a definition other than simply recording the time of day, week or year when energy is used.

4. "records"

The plaintiff contends that the term "records" as used in the '094 Patent means entries in a database. Joint Claim Construction Brief, Exh. A. The defendants argue that as used in the patent, "records" are complete units of related data intended for display on a television screen. Id. The issue is whether all "records" must be "displayable records." I agree with the plaintiff that "records" are distinct from "displayable records" and that the term "records" as used in the claims are not required to be displayable.

The term "records" appears in each of the four claims at issue. Looking to claim 8 as an example, it provides in relevant part that the improvement of the patent involves "constructing a data stream from the records of a transmission database . . . [with] at least one of the first records comprising executable program code or an object." This last provision, "at least one of the first records comprising executable program code," appears in each of the four claims in suit. The specification makes clear that data may be of at least two types--displayable data intended for display, and executable code which is not intended for display--stating:

Broadly the data may be of a displayable nature intended for display and which is termed displayable data in this specification. Alternatively the data may be in the nature of executable code which can, for example, be directly executable by the data manipulator/CPU 123 or can be executable by the data manipulator/CPU after passing through an interpreter (which itself can form part of the control programme) or can comprise look up table data adapted for modification of the behavior of executable code already resident in executable data store 126.


Because the specification provides that executable code is not necessarily displayable, and because the language of each of the four claims at issue expressly provides that at least one record is to be comprised of executable code (which is not necessarily displayable), it is axiomatic that the claims do not require that every record be a displayable record. To construe the claims otherwise would do violence to their unambiguous language.

One of ordinary skill in the art would understand a record to be "an item in a database." The Illustrated Computer Dictionary, 245 (3d ed. 1986). I adopt this construction of the term.
The defendants contend that records must be displayable records, arguing first that such a construction is consistent with the core context of the '094 Patent which employs records to replace the teletext page as a variable sized display unit. The defendants point to the following language of the specification:

It should be appreciated that the present invention described with respect to the first embodiment has many advantages over previous distributed database systems such as Videotex and Teletext. Moreover, the particular concept of using a data record as the basic logic unit rather than a fully formatted page, as is the case with Teletext[,] provides for more records to be transmitted more quickly. This is especially useful if the records are small such as in small advertisements.

Furthermore, the particular method of processing the received information and determining storage before displaying the same and the methodology of searching and displaying selected records instead of complete pages, overcomes many limitations of Teletext. Accordingly, in the present system, the majority of data which is transmitted are actual displayable records, whereas this is not the case in Teletext. Moreover, in Teletext, the pages for eventual display are pre-formatted at the central station and therefore are transmitted as complete pages with display information, formatting characters and display colours. Thus, normally a large amount of empty space must be transmitted in every page that is transmitted making the Teletext method of broadcasting extremely inefficient.

'094 Patent, col. 9, lines 43-65 (emphasis added).

There is nothing inherently inconsistent in using a data record rather than a fully formatted page as the basic logic and display unit, on the one hand, and having both displayable and non-displayable records within the data stream, on the other hand. The specification recognizes this through the use of the distinct terms "records" and "displayable records."

The defendants argue, however, that the specification consistently equates the terms "records" and "displayable records," and that the terms therefore must be construed to have the same meaning, citing Pickholtz v. Rainbow Technologies, Inc., 284 F.3d 1365 (Fed. Cir. 2002). In Pickholtz, the Court of Appeals for the Federal Circuit held:

We agree . . . that the proper construction of the term "computer" follows without ambiguity from the intrinsic evidence . . . The '353 patent uses the terms "computer" and "computer system" as synonyms. Although we would typically be inclined to give meaning to the word "system," rather than regard it as surplusage [citing Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1307 (Fed. Cir. 2000)], the patent in this case provides no indication that the two terms mean different things. Instead, the patent uses the term "computer system" in the specification and the term "computer" in the claims; nothing in the patent itself explicates their relationship or indicates any difference in meaning.

Here, however, in contradistinction to the facts in Pickholtz, the terms "records" and "displayable records" both appear in the specification. According to the defendants, the term "records" appears 43 times in the specification, 26 times as "displayable records" and 17 times simply as "records."

I do not agree that the terms "records" and "displayable records" are used as synonyms. For example, the specification uses the term "records" more broadly to include displayable and non-displayable records, as follows:

The central station 11 for the purposes of datacasting generally comprises a data store in the form of a computer file server 17 which is adapted to accumulate and store data in the form of digital records to form the database.

'094 Patent, col. 4, lines 26-29.

Thus, it is apparent that "displayable records" are a subset of "records." This distinction is further supported by the fact that the specification provides that "the majority," but not all, "of the data which is transmitted are actually displayable records." Id., at col. 9, lines 56-59. See Johnson Worldwide, 175 F.3d at 989 ("General descriptive terms will ordinarily be given their full meaning; modifiers will not be added to broad terms standing alone").

I construe the term "records" to mean an item in a database.

GO BACK
Also disputed are the construction of the terms "records recovered from the data stream" and "records recovered from the broadcast database records." The specification provides:

In accordance with one broad aspect of the present invention, there is provided a distributed system comprising:

a central station for accumulating and distributing data on a database; and

a plurality of receiver stations for receiving said data. . . .

* * *

a said receiver station comprises: decoder means to receive and decode transmitted data so as to reconstitute said data therefrom. . . .


The specification makes clear that "records recovered from" means records received from a transmission. Those records are decoded so as to reconstitute their data. Reconstitute means to restore to a former condition. Webster's Ninth New Collegiate Dictionary, 984 (1984).

I construe the terms "records recovered from the data stream" and "records recovered from the broadcast database records" to mean records received from the transmission and decoded so as to restore the transmitted data to its former condition.

"Rectifier Circuitry" in the '067 Patent's Claim 4

Another disputed claim from the '067 Patent is its claim 4, which includes as an element:

rectifier circuitry connected with the AC terminals and operative to provide a substantially constant DC supply voltage across a pair of DC terminals.

Nilssen says (and Motorola does not quarrel with the proposition) that "rectifier" has a well known meaning in the relevant art and cites its definition in Penguin at 479: "[a] device that passes current only in the forward direction and can therefore be used as an a.c. to d.c. converter." That definition goes on to elaborate on the typical structure of a rectifier. While Nilssen uses the term "rectifier" not as a noun on its own but as an adjectival noun modifying "circuitry," this Court finds unpersuasive Motorola's extensive efforts (M. Resp. 8-11) to convert that difference in terminology into a difference in analysis.

Just as this opinion has indicated earlier that "inverter" alone would qualify as a sufficient designation of "structure" to satisfy the cases that rely on that factor to take a claim element out of the constraints imposed by Paragraph 6, this Court views "rectifier" alone as equally sufficient to that end. And for that purpose "rectifier circuitry" is really synonymous with "rectifier." Accordingly the use of "rectifier circuitry" in claim 4 of the '067 Patent does not trigger means-plus-function treatment, and that claim element limitation is not subject to Paragraph 6.

"Rectifying and Filtering Circuitry" in the '067 Patent's Claim 21

At long last, the final round of the means-plus-function battle royale involves this language from claim 21 of the '067 Patent:
rectifying and filtering circuitry connected with the AC terminals and operative to provide a substantially constant DC supply voltage across a pair of DC terminals;…

Here M. Mem. 16-17 and M. Resp. 11 advance essentially the same conceptual arguments as to "rectifying and filtering circuitry" that were found wanting as to "rectifier circuitry" in the preceding section of this opinion. Those arguments are no more convincing here, and the same result follows.

That means "rectifying and filtering circuitry" will be construed consistently with the commonly understood meaning of those terms. Once again Paragraph 6 does not come into play.

B. "Recycling the magnetizing energy stored in said transformer to reset it"

Lambda argues that the phrase "recycling the magnetizing energy stored in said transformer to reset it" must be construed to require that all of the magnetizing energy (except for energy loss attributed to the non-ideal nature of circuit components) in the transformer be recycled to reset the transformer. Vicor argues that the claim requires only that sufficient magnetizing energy be returned to the core to reset it, i.e., bring the transformer's magnetic core back to the approximate state of magnetization present at the beginning of the ON period. In Vicor's view, the requirement of "recycling" is met so long as no energy is wasted - that is, dissipated as heat. Thus, energy is "recycled" if it is returned to the source, used to reset the core transformer, or transferred to the load, so long as it is not wasted as heat. This dispute matters because Lambda's devices deliver some of the magnetizing energy to the load during core reset, rather than returning it exclusively to the transformer.

1. It Depends On What the Word "The" Means

The first skirmish involves the word "the." The claim language states "circuitry for recycling the magnetizing energy stored in said transformer to reset it." (Emphasis added). Lambda asserts that the word "the" means all of the magnetizing energy in the transformer. Vicor contends that the claim allows for the possibility that some of the energy may be recycled to reset the core while other energy is delivered to the load. In other words, it argues that the word "the" can mean "some of the," and explains that the word "the" was used to distinguish "the magnetizing" energy from the more general term "energy" that is used earlier in the preamble. Nice linguistic jousting, but the use of the word "magnetizing" alone would have been an adequate adjective to single out the kind of energy intended for recycling. If only some of the transformer's energy needed to be recycled, the word "the" would not have been used.

Lambda's argument that the word "the" connotes all the magnetizing energy is persuasive because it gives ordinary and common sense effect to the word "the" in the claim language. See Merriam-Webster's Collegiate Dictionary 1221 (10th ed. 1993) (giving one definition of "the" as: "used as a function word before a noun . . . to indicate reference to a group as a whole"). This claim thus describes an invention that recycles all of the magnetizing energy to reset the transformer core.

2. Recycle

The determination that all the magnetizing energy in the transformer must be recycled does not resolve the dispute. Vicor argues that the claim requires only that the magnetizing energy that is removed from the core not be discharged dissipatively. In other words, it argues that "recycling" the magnetizing energy includes sending it to the source or the load, so long as it is not wasted as heat.

Again, the place to start in construing the claim is the ordinary meaning of the word "recycling" as it is used in the claim preamble. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("Sensibly enough, our precedents show that dictionary definitions may establish a claim term's ordinary meaning.") "Recycle" has a variety of meanings which could apply to Claim One, all of which include the concept of using again:

"1. to treat or process (used or waste materials) so as to make suitable for reuse; recycling paper to save trees. 2. to alter or adapt for new use without changing the essential form or nature of: The old factor is being recycled as a theater. 3. to use
again in the original form or with minimal alteration. The governor recycled some speeches from his early days. 4. to cause to pass through a cycle again: to recycle laundry through a washing machine. 5. to pass through a cycle again; repeat a process from the beginning. 6. to undergo reuse or renewal; be subject to or suitable for further use, activity, etc. The industry will recycle and become profitable once more. 7. The act or process of recycling.

Random House Unabridged Dictionary 1614 (3rd ed. 1993). "Recycle" does not have a special meaning to one skilled in the art of electronic engineers, according to Dr. Paul Horowitz, Vicor's expert.

Both sides point to portions of the specification to support their definition of recycling. "Among the intrinsic evidence, 'the specification is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term.'" Teleflex Inc. v. Ficosa North America Corp., 299 F.3d. 1313, 1325 (Fed Cir. 2002), quoting Vitronics Corp., 90 F.3d at 1582.

Vicor highlights language that uses the word "recycled" in connection with the term "non-dissipative." See e.g., Col. 3, ll. 51-52 ([the "optimal" reset mechanism] should be non-dissipative in nature, i.e., it should recycle the core's magnetization energy), Col. 3, ll. 22 to 25. It points out that a transformer can be reset even if some of the magnetizing energy is not returned to the core. To support the argument that recycling the magnetizing energy does not require that all of the energy be returned to core, Vicor cites a portion of the specification describing a prior art reset method, which states:

"Following time $t[2]$, I decays as magnetizing energy is returned to the voltage source $V[0]$. At time $t[3]$, the recycling of the magnetic energy is completed . . . ."

Col. 2, ll. 8-10. While the meaning of this description of the prior art is elusive, Vicor urges the Court to conclude from this snippet that recycling can occur even when some of the energy is returned to the voltage source, and not returned to the core.

Lambda emphasizes that the claim must be understood in light of the "summary of the invention," which provides:

"Aside from transient conditions, during which the voltage $V_c$ across the storage capacitor changes to adjust itself to a
vaying duty cycle, the magnetizing current mirror and the transformer's core define an essentially closed system: magnetizing energy transferred from the transformer to the storage capacitor is injected back into the transformer within the converter's OFF period. This internal recycling is only incomplete to the extent that non-deal circuit elements give rise to energy losses. These may be accounted for by modifying the resonant circuit of FIG 4d with the addition of resistive components representing the effects of losses associated with the transformer's core, the winding resistance and the equivalent series resistances of the storage capacitor and the auxiliary switch.

Lambda argues that the disputed terms must be understood in light of the specification's twin objectives to create a magnetizing current mirror and to "maximize the flux swing," both of which requires that all of the energy be returned to the core for reset. See Report of Mark N. Horenstein, Ph.D., in Connection with Defendant Lambda Electronic, Inc.'s Opening Brief on Claim Construction, Tab A, pp. 7-8 (pointing out that achieving a magnetizing current mirror requires that all of the magnetizing energy stored in the transformer be recycled.) This is undisputed extrinsic evidence. Indeed, Vicor conceded the point in its Memorandum in Support of the Motion for Partial Summary Judgment in the Unitrode case, p. 5.

Vicor does not dispute the key argument that a device which diverts energy from the core fails to maximize the flux swing in the transformer; and it concedes that no embodiment is presented in which the flux swing is not maximized and in which only some of the energy from the core is recycled to reset the core. Rather, Vicor argues that Lambda has wrongly singled out a description only of a preferred embodiment of the invention and argues that the Court should not limit the language of the claim with the condition of a maximized flux swing.

Vicor's contention that the term "recycling" permits transfer of some of the energy to the load fails for four reasons: First, the description of recycling as a closed system is contained in the self-described "summary of the invention" and "detailed description of the invention," not a description of a "preferred embodiment." Second, every dictionary definition of the word recycle includes the concept of using again. If the magnetizing energy is transferred to load, it can not be used again "to reset the core." Third, transfer of energy to load would defeat two of the objectives of the optimal reset mechanism -- to create a magnetizing current mirror and to "maximize the flux swing" -- which are stated at least twice in the patent itself. The prosecution history provides additional intrinsic evidence that the inventor Vinciarelli considers this flux swing part of the invention, stating: "This invention is non-dissipative, maximizes the available flux swing, minimizes the voltage stress on the switch of the primary winding, and simplifies transformer construction as it can be implemented without auxiliary windings." (Vinciarelli Response to Office Action, July 13, 1983, at 2). Fourth and finally, while there is a prior art description which might be stretched to read that the term "recycling" could mean transferring energy back to source (rather than to the core), there is no persuasive intrinsic evidence to suggest that transfer to load is included within the meaning of recycle.

Accordingly, based on the ordinary and accustomed meaning of the claim terms "recycling" and "the", and the description of the invention in the specification, I adopt Lambda's claim construction.

A. The "Recycling" Limitation

On appeal, VLT first contests the district court's construction of the phrase "recycling the magnetizing energy stored in said transformer to reset it." VLT asserts that the "recycling" limitation requires that the magnetizing energy removed from the transformer's core be put to some use, which may include powering the load, and not be dissipated as heat. Artesyn, Lambda, and Lucent respond that the court did not err in interpreting the "recycling" limitation to require that all of the magnetizing energy removed from the transformer's core be returned to the transformer to reset it.

We agree with Artesyn, Lambda, and Lucent that the district court correctly interpreted the "recycling" limitation. To begin with, claim 1 provides that "recycling the magnetizing energy" occurs for a specific purpose: to reset the transformer. The claim language itself thus suggests that "recycling" involves returning the magnetizing energy to the transformer. In addition, the specification clearly teaches that the claimed reset mechanism returns all of the transformer's magnetizing
energy back to the core. The summary of the invention explains that the invention resets the transformer's core by implementing a "magnetizing current mirror," which takes the magnetization at the end of the primary switch's ON period and reflects it through the storage capacitor to create a "mirror image" of the magnetization prior to the next conversion cycle. '098 patent, col. 4, ll. 9-13. Resetting the core's magnetization to its "mirror image" - i.e., a value that is equal in magnitude but opposite in orientation - enables the reset mechanism to maximize the available flux swing. Id., col. 4, ll. 20-26 ("The new apparatus . . . maximizes the available flux swing, as it creates a mirror image of the magnetic flux between ON periods . . . "). Resetting the core's magnetization to its mirror image and maximizing flux swing can only be achieved by recycling all of the transformer's magnetizing energy to the core. The specification thus teaches that "recycling the magnetizing energy" to reset the transformer requires all of the magnetizing energy to be returned to the transformer.

VLT argues, however, that the specification refers to the use of a current mirror and the maximization of flux swing only as objectives that are implemented in the preferred embodiment. We disagree. Not only do all of the disclosed embodiments utilize a current mirror, but the patent explains that the invention, in all its varied forms, employs a magnetizing current mirror as its reset mechanism. E.g., id., col. 7, ll. 12-14 ("A different perspective on the operation of the magnetizing current mirror as a reset mechanism for single ended forward converters is offered by FIG. 4d . . . "); id., col. 7, ll. 60-63 ("Useful variations of the new reset mechanism are indeed obtained by connecting the mirror in parallel with different transformer windings."). Furthermore, as discussed above, the specification repeatedly and consistently describes the claimed invention, and not just the preferred embodiment, as a current mirror that maximizes flux swing. The patent thus leaves no doubt that the claimed invention requires all of the magnetizing energy to be returned to the transformer.

Accordingly, we affirm the district court's construction of the phrase "recycling the magnetizing energy stored in said transformer to reset it" as requiring that all of the magnetizing energy removed from the transformer's core be returned to the transformer to reset it. As such, claim 1 does not read on reset mechanisms that transfer some of the transformer's magnetizing energy to the load.

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(7) In claims five, eight and nine, the term "red wavelength spectral range." Defendants submit that the term "red wavelength spectral range" should be given its ordinary meaning and that to people skilled in the art, that range is approximately 620 to 800 nanometers. Plaintiffs argue the specification only provides for a definition of about 630 nanometers, but would agree to a range of 615 to 685 nm. 613 Patent at 6:48; 7:43-44; Plaintiffs' Proposed Claim Construction Order.

Defendants' expert, Dr. Walmsley, explained that a person of ordinary skill in the art would understand the term to mean that there is a "range of wavelengths associated with this light and that it had to do . . . with illuminating the particular fluorophore in the target material." Tr. 223-24. He explained the range is somewhat indefinite in that people of ordinary skill in the art understand that it is not precisely defined. Tr. 224. 630 nanometers is given as an example of light in the red spectral range, it is not a definition. Tr. 226. Dr. Walmsley submitted that figure 2 of the patent contemplates a situation in which red would be 730 nm. Tr. 228. Further, he testified that what people see as red can vary because the determination is somewhat physiological, but generally the range is 600 to 800 nm. In support of this range, Dr. Walmsley read from two textbooks that described red as 622 to 780 nm and 620 to 800 nm, respectively. Tr. 232-35. Additionally, Dr. Walmsley testified that Zeiss' own website describes the red range as including 780 nanometers. Tr. 304. Dr. Svoboda testified that the term is somewhat opaque in that people do not agree on a precise range, he has seen 600 to 800 nm as the broadest range and 620 to 750 nm as the narrowest. Tr. 343.

Dr. Fraser testified in support of Plaintiffs' definition that people skilled in the art would understand the red range to include 615 to 685 nm. Tr. 500. Yet, as discussed above, he admitted that up to 800 nm could be seen as red. Tr. 502.

As the Court is not convinced that the patent or its prosecution history provides definitive guidance on this term, it must rely on extrinsic evidence to determine what people skilled in the art in 1991 understood the red range to cover. Key Pharm. v. Hercon Labs. Corp., 161 F.3d 709, 716 (Fed. Cir. 1999) (approving use of extrinsic sources when intrinsic evidence is not sufficient to construe a patent term); Wiener v. NEC Elecs. Inc., 102 F.3d 534, 539 (Fed. Cir. 1996) (noting the Court must consider the term's meaning at the time of patent application). Dr. Walmsley read from a textbook entitled Optics, by Eugene Hecht. The book was originally published in 1974 and reprinted with corrections in 1990. It supported a red range
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

from 622 to 780 nanometers. Defendants' Markman Exhibit 9. 10 Accordingly, since the Plaintiffs' expert agreed that the red range could begin as low as 615 nanometers and the Optics textbook supports an upper limit of 780 nanometers, the Court will define the red spectral range as "615-780 nanometers."

--- Footnotes ---

10 The second text from which Dr. Walmsley read was Chemistry, by James Birk, published in 1994. Defendants' Markman Exhibit 8. Although it supports a definition of red in the 620-800 nanometer range, the Court will not rely on it since it was published after the 613 Patent was accepted.

--- End Footnotes ---

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G. "redirection server"

Claim 1 contains the term "redirection server": "a redirection server connected to the dial-up network server and a public network," "wherein the authentication accounting server . . . communicates the individualized rule set . . . to the redirection server," and "wherein data directed toward the public network from the one of the users' computers are processed by the redirection server according to the individualized rule set." "Redirection server" is found throughout the '118 patent's specification:

The redirection server [] is logically located between the user's computer [] and the network, and controls the user's access to the network . . . . The redirection server [] receives the IP address and rule set, and is programed to implement the rule set for the IP address, as well as other attendant logical decisions such as: checking data packets and blocking or allowing the packets as a function of the rule sets, performing the physical redirection of data packets based on the rule sets, and dynamically changing the rule sets based on conditions.

('118 patent, 4:50-52 & 59-66) (emphasis added). The plaintiff asserts the following construction of this term: "hardware and/or software that dynamically controls the user's access to the network." The defendants' proposed construction is "a server that causes a user to be sent to a location other than the one requested by the user."

According to the defendants, the plain meaning of "redirection" requires the redirection server to redirect traffic, i.e., "cause[] a user to be sent to a location other than the one requested by the user." But the specification teaches that the redirection server performs functions other redirecting, such as blocking or allowing packets. This additional redirection server functionality is confirmed by dependent claims 2 and 3: "wherein the redirection server further blocks the data" and "wherein the redirection server further allows the data." Based upon the specification's explicit description of the redirection server, quoted above, the court construes the term to mean "a server logically located between the user's computer and the network that controls the user's access to the network."

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3601

1. "Redirector String"

IDNT argues that "redirector string" should be construed as "delegation instructions -- information that is part of a path under a root -- for enabling domain name servers to provide information (e.g., an IP number) corresponding to a compliant domain name request." VeriSign contends that "redirector string" means "one or more contiguous domain labels, including a top level domain that was not part of the originally entered domain name, which identify the domain name server responsible for resolving the transformed compliant domain name."

In the language of the claims, the "redirector string" is identified only as something that "includes information for resolving" the compliant domain name or the domain name request. The parties agree that "redirector string" does not have an ordinary
meaning and is not generally known in the art. In such cases, the specification of the patent becomes the best source of meaning. Novartis Pharmaceuticals Corp. v. Abbott Labs, 375 F.3d 1328, 1334-35 (Fed. Cir. 2004). Both sides find support for their proposed constructions in the specification. VeriSign also claims that the prosecution history supports at least part of its proposed construction -- the requirement that the TLD in the "redirector string" not be entered by the user. IDNT argues, however, that the prosecution history does not shed light on the meaning of "redirector string."

a. IDNT's proposed construction

IDNT argues that "redirector string" means "delegation instructions," as stated above. IDNT cites to the specification, which states that "the redirector string . . . provides delegation instructions for resolving the compliant domain name," col. 2, lines 49-53; that "the redirector information . . . provides delegation instructions for resolving the international domain name," col. 8, lines 1-3; and that "the redirector information controls the delegation path for resolving the domain name," col. 8, lines 32-37. VeriSign contends, however, that none of the statements in the specification actually defines what a "redirector string" is, suggesting that stating what something provides is not the same as stating what it is.

IDNT asserts that "delegation instructions" is commonly understood to mean "information that is part of a path under a root," citing Paul Albitz & Cricket Liu, DNS and BIND (3d ed. 1988) ("Albitz") chapter 2.0. 9 IDNT describes the concept of the "delegation path," from root to TLD to SLD, and explains that this delegation path enables a domain name server to resolve the domain name. IDNT argues that the specification of the 148 patent provides a specific example as to how such "delegation instructions" are used for resolving IDNs, and an explanation of what they are and what they do to facilitate resolution. The example cited by IDNT states that the "redirector information" ar.i18n.net "provides the following exemplary delegation instructions for resolving the international domain name."

The "i18n" identifies the domain name as "international" and the "ar" further identifies it as being in Arabic which is determined from the UNICODE range of the domain name characters. The domain resolution is explained as follows. The transformed compliant domain name including the redirector information is received by the domain name server 30 where it is attempted to be resolved. The domain name server 30 identifies the top level domain ".net" for which it is not an authoritative DNS. As such, the domain name server consults an authoritative root server which is responsible for net domain, for example, root server m from the root server group 35. Examining the second level domain "i18n", root server m determines from its database that the authoritative domain name server for this domain is, for example, DNS2 40. DNS1 30 then communicates the entire domain to DNS2 40. DNS2 40 first determines whether it is authoritative and delegated for this domain by scanning its database of registered domains. In this case, DNS2 40 determines from the redirector information that the delegated server for "ar.i18n.net" (Arabic domains) is the root server i3 from root server group 60. The resolution continues in the predescribed manner until the authoritative DNS for the current domain is determined which returns the IP number of the domain name. The foregoing example assumes that the domain "i18n.net" and sub-domain "ar.i18.net" were properly pre-assigned and registered to the appropriate root servers and domain name servers.

Col. 8, lines 1-31. IDNT does not analyze this example, however, or explain it any further other than to assert that "the specification describes precisely how the path under the root is traversed in order to resolve a domain name."

9 Albitz states that "the term delegation refers to assigning responsibility for a subdomain to another organization."

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VeriSign contends that "delegation instructions" is an undefined term without an ordinary meaning. VeriSign disputes IDNT's assertion that the phrase "delegation instructions" is well-known and commonly understood in the art to mean "information that is part of a path under a root." VeriSign asserts that the Albitz reference does not support IDNT's proposed construction, noting that Albitz discusses "delegation" in the context of the delegation of subdomains by the organization that administers a given domain, much as a manager delegates responsibilities to his/her subordinates. VeriSign argues that "delegation" -- which involves the granting of authority to someone else over something that is currently controlled by the person or thing doing the delegating -- is not analogous to the description of "redirector string" or "redirector information" as it appears in the 148 patent, because a "redirector string" does not grant authority over anything to anyone.
VeriSign notes three differences between the concept of "redirector string" and "delegation." First, delegation occurs in a domain name server controlled by a domain name registrant, whereas a redirector string would reside in an Internet user's application or resolver. Second, delegation is executed by the registrant of a particular domain name or domain name server to give authority to another zone, whereas a redirector string can be created by anyone (such as by an application) to alter the resolution of the domain name to which a redirector string is appended. Third, delegation is analogous to instructions that configure a domain name server or system to function a certain way, occurring relatively rarely, while a redirector string is analogous to an instruction to go to a particular place, and is automatically generated each and every time an IDN is accessed,

b. VeriSign's proposed construction

VeriSign claims that the purpose of a "redirector string" in the 148 patent is to "provide a particular transformed IDN (in compliant format) with a specialized international" TLD . . . where that IDN can be resolved." VeriSign argues that the specification and the prosecution history reveal several essential characteristics, which, taken together, define a "redirector string" in the 148 patent. VeriSign contends that "redirector string" means "one or more contiguous domain labels, including a top level domain that was not part of the originally entered domain name, which identify the domain name server responsible for resolving the transformed compliant domain name."

First, based on the examples in the 148 patent, VeriSign claims that a "redirector string" includes one or more contiguous domain labels. As indicated above, a domain label is part of a domain name, and consists of a string of characters delineated by dots. The specification states that "any identifiers can be used to represent a domain set." Col. 8, lines 3-4. The specification states further that "the redirector information can be a single unique top level domain which identifies an international root server," referred to as an "iroot server," or "may include multiple levels of identifiers such as "ar.i8n.net." Col. 8, lines 34-37. Put another way, the examples of redirector information provided in the specification all consist either of one domain label or of multiple contiguous domain labels.

Second, based on the specification, VeriSign asserts that a "redirector string" in the 148 patent must include a TLD. The specification identifies a string -- "ar.i8n.net" -- as "redirector information" that is "appended to" the converted string of domain labels and which "functions like a top level domain" and "identifies the authoritative domain name server responsible for the current domain name." Col. 7, lines 50-54. The specification states further that a domain name becomes a fully-qualified domain name once "redirector information" is appended to the domain name. Col. 7, lines 54-58. According to the Albitz reference, a "fully-qualified domain name" must, by definition, include a TLD. As explained in the patent, a compliant domain name can be resolved only if it is a fully-qualified domain name, thereby including by definition a TLD that identifies the domain name server responsible for resolving the compliant domain name, Id.

Third, VeriSign argues that the TLD in the "redirector string" cannot be part of the originally entered domain name. VeriSign contends that this requirement is established by the fact that every embodiment of the 148 patent requires a TLD that is not part of the originally entered domain name, and by the fact that the only detailed example in the 148 patent that attempts to explain how to append a "redirector string" to a domain name does not include a TLD in the string entered by the user (citing to col. 7, lines 5-46, where the entered foreign script or text does not include a TLD and the TLD appears for the first time as part of the "redirector information"). 10 VeriSign argues that this requirement is also implied by the definition in the specification -- "the redirector information . . . is appended to the converted string and functions like a top level domain" (citing col. 7, lines 50-53).

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10 The specification includes two additional examples in which the TLD portion of the "redirector string" is not part of the originally-entered IDN, but rather is automatically provided by the computer system running the translation process.

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resolution of the entered IDN. The Examiner found that the claims of the 148 patent application were anticipated by prior art (the i-DNS reference).

In response to the Examiner's rejection of the claims, the applicant added the word "automatically" to the phrase "generating a redirector string" in each of the independent claims, arguing that this distinguished the claimed invention from the prior art, where the user entered the redirector information. The applicant argued that "with the present method, international domain names can be used with existing internet protocols" and "without additional steps performed by a user." VeriSign claims that these "additional steps" referred to by the applicant include the entry of a TLD by the user as defined in the i-DNS reference. In other words, in the system claimed in the 148 patent, the user does not need to input or even to know what TLD is required to resolve an IDN. Thus, VeriSign claims, the patent requires that the system automatically generate the "redirector string" without any user input of the TLD or any other portion of the redirector string.

IDNT contends that the patent provides no basis for construing "redirector string" as argued by VeriSign, and asserts that the three "essential characteristics" are not defined in the specification, the claims, or the prosecution history. First, IDNT argues that it is not essential for a "redirector string" to include one or more domain labels. IDNT cites to the statement in the specification which states that "any predetermined string can be used to identify an international domain and identify a responsible server." Col. 9, lines 1-2. IDNT contends that there is no requirement in the 148 patent that the "redirector string" include a single label, let alone one or more contiguous labels. IDNT asserts that according to the 148 patent, a "redirector string" need only be delegation instructions, and any "predetermined" string can suffice. IDNT argues that examples from the patent specification cannot not be read into the claims as limitations, and that claims of a patent cannot be limited by preferred embodiments.

IDNT also contends that the requirement that a "redirector string" include "one or more contiguous labels" contravenes the doctrine of claim differentiation. This doctrine provides that an independent claim is to be afforded a broader scope than a claim that depends from it. AK Steel Corp. v. Sollac and Ugine, 344 F.3d 1234, 1242 (Fed. Cir. 2003). In the case of the 148 patent, claim 30 depends from claim 28. Claim 28 recites "[a] software program . . . comprising . . . instructions for performing the following steps: . . . automatically generating a redirector string which includes information for resolving the domain name request." Claim 30 recites "[a] software program . . . including instructions for automatically generating the redirector string where the redirector string identifies a domain name server for resolving the transformed compliant domain name." Under the doctrine of claim differentiation, claim 28 must be interpreted as broader than (or at least not narrower than) claim 30. Thus, the "redirector string" in independent claim 28 can include, but is not limited to, a "redirector string" that identifies a domain name server. IDNT contends that VeriSign's interpretation requiring "one or more contiguous labels" -- which IDNT claims effectively requires that the "redirector string" identify a domain name server -- cannot be correct.

Finally, IDNT asserts that it is not necessary for a "redirector string" to include a top-level domain. IDNT points to the specification, which states at col. 8, lines 34-35, that "the redirector information can be a single unique top level domain." IDNT argues that there is nothing in the specification that requires that the "redirector information" include a TLD, and asserts that the inventor's use of the open-ended word "can" -- as opposed to "must" -- mandates the opposition conclusion. IDNT claims that the DNS tree could be structured so that the "redirector string" functions as an SLD, rather than a TLD.

IDNT also disputes VeriSign's contention that it is necessary under the 148 patent for the "redirector string" to include a TLD because the patent does not teach through experimentation or example what a "redirector string" would look like if the user entered a TLD with the IDN. IDNT asserts that while it is true that a patent application must adequately disclose the claimed invention, it is not necessary that there be a description of "every nut, bolt, or detail used to practice the invention." IDNT claims that a person skilled in the art would know that a prerequisite for any implementation of IDNs is a set of rules governing how IDNs are handled in DNS, including the way a "redirector string" is generated. Once those rules are set, it would be a simple matter of routine programming to generate the "redirector string."

c. construction of "redirector string"

The court finds that VeriSign's proposed construction is the better of the two. While it is true, as IDNT contends, that the specification indicates that the "redirector string . . . provides delegation instructions," that does not mean that the "redirector string" is delegation instructions. Moreover, as VeriSign persuasively argues, the concept of "delegation" -- a term that is well-known in the art -- is not analogous to the concept of "redirector string" or "redirector information" as it
appears in the claims of the 148 patent, because a "redirector string" does not grant authority over anything to anyone. Nor can "delegation instructions" (or "redirector string") be defined in turn as "information that is part of a path under a root." As VeriSign's counsel noted during the hearing on claims construction, "information" can mean anything or everything, and "the path under the roof includes everything in the Internet.

One of the questions underlying the parties' dispute with regard to the construction of "redirector string" is the extent to which the specification should limit the construction, in a case where there is no common meaning for the disputed term and the patentee did not directly indicate a definition. The general rule is that the court is required to interpret the claims in light of the specification, but must avoid impermissibly importing limitations from the specification. The balance between the two turns on how the specification characterizes the claimed invention. Alloc, Inc. v. Int'l Trade Com'n, 342 F.3d 1361, 1370 (Fed. Cir. 2003), cert. denied, 158 L. Ed. 2d 963, 124 S. Ct. 2390 (2004).

In this respect, the court looks to whether the specification refers to a limitation only as a part of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment. For example, it is impermissible to read the one and only disclosed embodiment into a claim without other indicia that the patentee so intended to limit the invention. On the other hand, where the specification makes clear at various points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claims.

In a case such as the present one, where a term has no meaning outside of the patent, the general rule that the court cannot read limitations into the claims from the examples in the specification does not apply in the same way. Instead, the specification may act as a dictionary when it defines the claim terms by implication, just as when it expressly defines claim terms. See Vitronics, 90 F.3d at 1582. When a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term "by implication." Bell Atlantic Network Servs., Inc. v. Covad Communications Group. Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001); see also Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2002) (while it is true that the claims define the scope of the right to exclude and that the claim construction inquiry begins and ends in all cases with the actual words of the claim, the written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitonal format).

VeriSign's proposed construction finds support in both the specification and the prosecution history. First, the "redirector string" must include a TLD. The specification states that "[a] redirector string . . . includes information for resolving the RFC1035 compliant domain name" and is "appended to the RFC1035 compliant domain name." Col. 1, lines 61-64. This "redirector information . . . functions like a top-level domain," and once it is appended to the compliant domain name, "the domain name becomes a fully qualified domain name" that includes at least a TLD and a SLD, "which is enough information to resolve the domain name." Col. 7, lines 49-57.

Second, the "redirector string" contains one or more contiguous labels. 11 The only way to specify a TLD is with a label. According to the specification, the redirector information "can be a single unique top-level domain" -- a single label -- or it "may include multiple levels of identifiers" -- several contiguous labels. See Col. 8, lines 34-37. The court does not agree with IDNT that this construction violates the principle of claim differentiation as to claims 28 and 30. It is true that a "redirector string" in claim 28 can include, but is not limited to, a "redirector string" that identifies a domain name server for resolving the compliant domain name. However, it does not follow from this that defining "redirector string" as having one or more contiguous labels effectively requires that the "redirector string" identify the domain name server responsible for resolving the compliant domain name.

--- Footnotes ---

11 It is more accurate to say that a "redirector string" consists of either a single label or two or more contiguous labels.

--- End Footnotes ---
requires a TLD that is not part of the originally entered domain name. Moreover, the only detailed example that explains how to append a "redirector string" to a domain name does not include a TLD in the string entered by the user. See col. 7, lines 5-46.

This requirement is also reflected in the prosecution history, which indicates that the patent applicant added the word "automatically" to the phrase "generating a redirector string" in the independent claims, arguing that this distinguished the claimed invention from the prior art (where the user entered the information). It is well-established that statements made during prosecution are used to interpret the scope and meaning of ambiguous claim terminology. Schumer v. Lab. Computer Sys., Inc., 308 F.3d 1304, 1312 (Fed. Cir. 2002) (citing Vitronics., 90 F.3d at 1582).

**3602**

H. "Redirects the Client Computer to a Post Login Page on the Personal Information Provider" ('245 Patent)

This phrase appears in independent claim 1 of the '245 patent. CashEdge construes this language to mean "redirects the client computer to automatically log onto and be connected to a post-login page on the provider's Web site without user input," while Yodlee again asserts that no construction is necessary. The Court agrees with Yodlee; read in context, it is clear that the redirection of the client computer to the post login page does not involve further user input other than what has already taken place in the first portion of claim 1(b). '245 patent col. 17, lines 7-15. **Construing this claim is thus unnecessary, and would needlessly complicate jury instructions at trial.**

**3603**

1. "method of operating the instrument at a reduced power consumption level"

Plaintiffs' construction: a method of using the portable ultrasonic diagnostic instrument for its intended purpose, including acquiring and/or displaying ultrasonic images, on no more than 25 watts of electrical power

Defendant's construction: a method of operating the instrument by altering the function of selected circuits to reduce power consumption by those circuits

The parties disagree about two aspects of this claim language. First, plaintiffs argue that the phrase "method of operating the instrument" requires construction; defendant does not believe that construction is necessary. Next, the more substantive dispute relates to whether the phrase "reduced power consumption level" means no more than 25 watts of power.

I turn first to the phrase "method of operating the instrument." Plaintiffs contend that it is necessary to import the limitation that "operating the instrument" means "using" it for its "intended purpose." However, this limitation is not supported by the cited portions of the patent specification. Nor is it clear that the phrase "using the portable ultrasonic diagnostic instrument for its intended purpose" is any more clear than the claim language itself. Therefore, I conclude that no construction is necessary.

In contrast, the patent specification provides numerous references to a 25-watt limitation. Throughout the patent specification, the patentee describes an instrument that "operates on no more than 25 watts of electrical power." e.g., '651 pat., Abstract; Id. at col. 2, Ins. 11-12. In fact, the Summary of the Invention begins by explaining "In accordance with the invention a portable ultrasonic instrument is provided . . . wherein the instrument operates on no more than 25 watts of electrical power." '651 pat., col. 1, Ins. 66-67, col. 2, Ins. 5-6 (emphasis added). This is not a reference to a particular embodiment of the invention, but rather the description of "the invention" as a whole.

In the face of this strong evidence that the patent discloses a particular power consumption limitation, defendant argues that limitation applies only to claims 14 through 26 of the '651 patent, which are apparatus claims, and not to claims 1-13, which are method claims. The apparatus claims all include a specific reference to the 25-watt power consumption level, while the method claims do not. However, this argument is not persuasive. As defendant itself argued at other points in its claim
construction materials, claim language may be limited by unambiguous statements included in the specification. The court of appeals explained in Phillips, 415 F.3d at 1315,

The claims, of course, do not stand alone. Rather, they are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims. For that reason, claims must be read in view of the specification, of which they are a part. . . . [T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

(citations and quotations omitted). Given the unambiguous limiting language included in the Abstract and the Summary of the Invention, I conclude that it is proper to read claim 1 of the '651 patent to include a 25-watt power consumption limitation.

3604

9. "reference"

The term "reference" is found in four claims of the '374 patent (claims 1, 4, 7, 9). Informatica proposes the construction "A denotation of shareable metadata." BODI proposes the construction "Metadata is accessed through the use of an object reference, i.e., a shortcut. Basically, a reference points to the object stored in the global repository. Rather than storing an object directly in each of the data marts desiring to access that particular object, a reference to that object is stored instead in those data marts. By using multiple references, the same object can be accessed, used, and shared by multiple users across many different data marts." Once again, Informatica's proposed construction is too vague and BODI's proposed construction is too narrow. The Court declines to adopt either construction.

The patent discloses in several places throughout the specification that a reference is an abstraction for pointing to an object, which may be stored in various places. This definition is consistent with the use of the term in claims one, four, seven, and nine. The claims instruct that references residing in various data marts "specify a link to metadata in the shared folder," or "point[] to the metadata residing within the global repository" or "specify a link to where the metadata is stored in [a particular] database." Thus, in the context of the '374 patent, a reference is an abstraction for either denoting or pointing to the contents of a shared folder, which may reside in either the same repository or in the global data mart repository.

The Court construes the term "reference" to mean: A reference represents an abstraction for pointing to the contents of a shared folder within the same repository or in the global data mart repository.

3605

5. reference file

Hyperion's construction of "reference file" is "computer instructions that tell the computer how to extract data from a database and where to place that data in a spreadsheet." OutlookSoft asserts that the proper construction is "a modified worksheet that begins with one or two predefined characters (for example a pound sign (#) or a double pound sign (##)) used to tell the computer how to extract data from a database and where to place that data in the modified worksheet."

OutlookSoft points to the specification to support its construction:

After a worksheet is selected, it is modified by the addition of codes in the first column and row of the worksheet which tell the computer system what data to extract from the database and where to display it in the modified worksheet. This modified worksheet is referred to as a reference file.

Thus, OutlookSoft is correct that the specification requires that the reference file be, at a minimum, some sort of modified worksheet. Where OutlookSoft goes wrong is in the attempt to incorporate additional limitations from the preferred embodiment into its construction. Accordingly, "reference file" means a "modified worksheet that includes computer instructions that tell the computer how to extract data from a database and where to place that data in a spreadsheet."

3. "Reference generating mechanism for generating a user-defined reference to aggregated fact data generated by the aggregation module"

The court concludes that the term "reference generating mechanism" as used in claim 1 would connote sufficient structure to one skilled in the art to construct that component. As with the previous terms, technical dictionaries suggest that generating "references" is something that a person of ordinary skill in the art could do. Cf Microsoft Computer Dictionary 378 (4th ed 1999) ("[to] reference * * * "To access a variable, such as an element in an array or a field in a record"). And again, the claim language provides some structure to guide a would-be programmer. Moreover, as mentioned earlier, a "reference" may simply be a "pointer" in some embodiments; common sense indicates that at least in these situations, one skilled in the art would be capable of creating a program that generates something as basic as a pointer. Accordingly, the court rejects Hyperion's proposed means-plus-function construction and declines to construe this term.


There are two phrases that use the term "signal." The court agrees with O2 that the patent uses the term signal according to its ordinary meaning. As such, the court defines the term "reference signal" to mean "a signal that provides a reference" and "frequency selection signal" to mean "a signal used to select a frequency."
G. Reflecting surface/Reflecting surface on the tip of the waveguide

AMS maintains that no construction of "reflecting surface on the tip of the waveguide" is required other than a construction of "reflecting surface" and "tip of the waveguide." As a construction for "reflecting surface," AMS proposes "surface that internally reflects essentially all of the incident electromagnetic radiation communicated by the waveguide." LP offers "an angled surface of the prism or the bevelled far end of the optical fiber having a core cladding over a fiber core and may include a reflective coating" as a construction of "reflecting surface on the tip of the waveguide." Having construed "tip of the waveguide," the Court turns to the construction of "reflecting surface."

Claims 1 and 25 recite "a reflecting surface . . . for internally reflecting electromagnetic radiation communicated by the waveguide in a direction lateral to the propagation direction toward a particular area on the transmitting surface" and "a reflecting surface . . . for internally reflecting electromagnetic radiation communicated in the first propagation direction by the waveguide in a second propagation direction toward the transmitting surface." Claim 25 recites that the first propagation direction is "to the tip of the waveguide." Accordingly, the claim language indicates that the reflecting surface is a surface that internally reflects electromagnetic radiation that is communicated by the waveguide toward the tip in a direction lateral to the propagation direction.

With respect to LP's inclusion of the terms "angled surface of the prism" and "bevelled far end of the optical fiber," the Court finds no support in the specification or prosecution history for limiting "reflecting surface" to the embodiments disclosed in the specification. See Phillips, 415 F.3d at 1323. Moreover, the doctrine of claim differentiation weighs against including these limitations because claim 2, which depends from claim 1, recites "wherein the reflecting surface comprises a bevelled surface." See Nazomi Commc'n's, 403 F.3d at 1370.

AMS asserts that "internally reflects" means "total internal reflection," which occurs when all angles of incidence on a surface are greater than the critical angle such that none of the incident light propagates through the interface of the surface and adjacent medium. This contention is supported by the explanation in the specification that essentially all light incident on an interface between two substances is internally reflected when the angle of incidence on the interface is greater than the critical angle, which is a function of the indices of refraction of the substances, see '699 Patent col.6, l.57-col.7 l.3, and by the explanation in the Abstract that internal reflection off the transmitting surface is prevented when electromagnetic radiation is incident on the transmitting surface at below the critical angle. The specification also explains that the bevelled end in Figure 5b must be at an angle above the critical angle to cause the internal reflection of incident light off the bevelled end at an angle lateral to the longitudinal axis of the waveguide. '699 Patent col.7 ll.4-11.

In addition, AMS offers the declaration of Tom D. Milster, a Professor of Optical Sciences, Electrical Engineering and Computer Engineering, in support of its construction of "internally reflects." Milster states that "total internal reflection" occurs when no light propagates through an interface because all angles of incidence are greater than the critical angle. He further states that a person of ordinary skill in the art would understand "internally reflects" to mean "total internal reflection." LP offers no evidence indicating that a person of ordinary skill in the art would not construe "internally reflects" as "total internal reflection" or that "total internal reflection" does not occur when all angles of incidence on a surface are greater than the critical angle such that no light propagates through the interface. The Court concludes that "internally reflects" refers to total internal reflection, which occurs when all angles of incidence on a surface are greater than the critical angle.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

10 In two footnotes in its response brief, LP purportedly moves to strike the Milster Declaration on the ground that its submission violates the scheduling order in this case. A "motion to strike" contained in a footnote in a response brief does not comply with the requirements for non-dispositive motions set forth in Local Rule 7.1(a). The Court declines to strike the
LP's proposed construction of "reflecting surface" states that the reflecting surface "may include a reflective coating." The claim language offers no guidance as to whether a reflective coating is a reflecting surface. The specification states: "Although it is not necessary as long as the angle of the bevelled end 95 is greater than the critical angle, a reflective coating 99 can be included on the reflecting surface 95." '699 Patent col.13 ll.7-10 (emphasis added). This language indicates that a "reflective coating" is a separate element from the "reflecting surface." LP asserts that this language indicates that light reflected off of the reflective coating is reflected internally. This argument ignores the meaning of "internally reflects." Further, Milster states in his declaration that light that is reflected by a coating on a glass surface is not "internally reflected" because it is reflected by a medium external to the glass, not the surface of the glass. LP offers no evidence contradicting this statement. The Court concludes that a "reflective coating" is not a "reflecting surface," but rather a separate component.

The Court construes "reflecting surface" as "surface that internally reflects essentially all of the incident electromagnetic radiation that is communicated by the waveguide toward the tip, where 'internally reflects' means the electromagnetic radiation is reflected because it is incident on the reflecting surface at an angle greater than the critical angle." Given the Court's construction of "reflecting surface" and "tip of the waveguide," no construction of "reflecting surface on the tip of the waveguide" is necessary.

3611

Step 2

The parties' dispute with respect to Step 2 parallels Step 1. Amazon relies on the concept "predetermined characteristics," which is not mentioned in the plain language of claim 43, in formulating its proposed construction. See Def. Mem. at 28 ("This construction makes sense because the customer profiles and content profiles are represented using the same set of predetermined characteristics, e.g., descriptive attributes of movies") (emphasis added). Amazon's proposed construction therefore fails. Pinpoint solely directs the court to Merriam-Webster Dictionary for the ordinary meaning of "reflect" as "to bring as a result." Pl. Opp. Mem. at 20. Accordingly, the court construes "said content profiles reflecting the customer profiles of those customers who have previously accessed said data from each data source" as "content profiles contain data that results from the customer profiles of those customers who have previously accessed data from each data source."

3612

3.3 Interpretation of the "Reflector Means" Claim Limitation

Genlyte argues that the "reflector means" claim limitation limits the scope of that claim element to a one hundred percent reflectivity reflector as opposed to a partially reflective reflector or a partially transmissive reflector. Genlyte further contends that the "reflector means" claim limitation excludes from its scope a reflector which provides uplighting or upwardly directed light rays.

Before addressing the intrinsic evidence relevant to the interpretation of this claim term, it is important to note that Federal Circuit precedent states that an interpretation of a claim limitation in a way that would exclude an inventor's preferred embodiment disclosed in a patent represents an "… interpretation [which] is rarely, if ever correct, and would require highly persuasive evidentiary support." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). See also, Modine Mfg. Co. v. Int'l Trade Comm'n, 75 F.3d 1545, 1550 (Fed. Cir. 1996).

The Tickner '414 patent discloses three distinct preferred embodiments. Tickner's first preferred embodiment is illustrated in Figs. 2-8 of the '414 patent where the reflector is identified by Reference Nos. 14A and 14B. Tickner's second preferred embodiment is disclosed in Figs. 9-15 where the reflector is designated by Reference No. 100. Tickner's third embodiment is illustrated in Fig. 16 where the reflector is designated by Reference No. 200.
The written description of the Tickner '414 patent recites a detailed explanation of design features implemented to provide for the circulation of cooling air through various openings in the second and third embodiments. At Column 8, lines 28-48, Tickner describes open spaces 112, central aperture 130 and smaller apertures 136 which provide openings designed to circulate cooling air -- and inherently the radiation of light through those holes -- literally through the reflector itself. At Column 9, lines 15-22, Tickner further describes how his structural ribs 121 cooperate with openings 130 and 136 to provide air circulation -- and necessarily for radiation of light through the reflector itself.

At Column 9, lines 56-61, Tickner describes his Fig. 16 third reflector embodiment which includes a plurality of elongated vertically oriented slots designated by Reference No. 215. Those slots similarly provide for both the circulation of cooling air through the reflector as well as the radiation of light through the reflector.

This intrinsic evidence in the form of Tickner's patent drawings and the written description clearly teaches the incorporation of numerous apertures, or open spaces and slots all representing holes in the reflector in two of his three preferred embodiments to provide cooling flow air, -- and inherently for the escape compact fluorescent light radiation through the reflector itself. The light passing through these numerous holes in the reflectors radiates both laterally to the side as well as vertically upwardly.

With Genlyte's proposed claim interpretation requiring total containment of all compact fluorescent light radiation within the reflector with one hundred percent reflectivity, two of Tickner's three embodiments would be excluded from the scope of the "reflector means" claim limitation. In view of Vitronics and the intrinsic evidence, however, the Special Master interprets the "reflector means" limitation as encompassing either a totally reflective reflector, a partially reflective reflector, as well as a partially light transmissive reflector, with or without apertures or openings in the reflector itself, where the reflector is capable of radiating light through or out of the reflector in all directions, including both laterally and upwardly. This interpretation expressly encompasses a reflector providing uplighting. This interpretation is consistent with and is, in fact, required by the claim interpretation guidelines stated in the Vitronics case which requires that a claim limitation be interpreted to encompass the preferred embodiments disclosed in the intrinsic evidence. In the present case, the intrinsic evidence does not stand in the way of such a broad interpretation. To the contrary, it requires it.

This interpretation is consistent with a lighting industry publication which was jointly submitted to the Court by the parties which defines the term "reflection" as the process by which a part of the light falling on a medium leaves that medium from the incident side. Lighting Handbook Reference & Application (8th ed. 1993) (Illuminating Engineering Society of North America). That definition is consistent with the Special Master's interpretation of the "reflector means" claim limitation.

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17. reformatting

The plaintiff proposes "reinitializing." The defendants propose "repeating a formatting operation to prepare a particular memory module for reuse." The defendants agree that, according to the customary usage in the computer field, "reinitializing" is the same thing as "reformatting." The plaintiff does not object to the defendants' general proposal. Accordingly, "reformatting" means "reinitializing a particular memory module for reuse."

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7. "refund operation[s]" (11[a])

(i) Claim Construction

Claim 11 also describes "means to inhibit the accumulator from initiating a . . . refund operation . . . " '903 Patent col. 9, lines 59-60. Mars has asked the Court to construe "refund" as including both the refund of amounts deposited in excess of a vend price and the full refund of all money deposited. As far as the Court can tell, Coinco has asked the Court to construe
"refund" in claim 11 as limited to the refunding of amounts deposited in excess of a vend price.

As stated above, generally, the same terms in a patent should have the same meaning. Phillips, 415 F.3d at 1314. In this case, the claims and specification of the patent make it difficult to determine exactly which meaning of the word "refund" is intended for any given use. This is because in some cases the word is qualified so that it only applies to either full refund or the return of excess deposit, whereas in other cases the word is unqualified. See, e.g., '903 Patent col. 1, line 45; col. 4, line 37; col. 5, line 18; col. 7, line 48. Claim 11 itself first refers to "accumulator means including means to control the refunding of amounts deposited in excess of the vend price of a selected product." This text contains a qualified use of the word "refunding" and therefore defines the word. Accordingly, the Court construes all other uses in claim 11 of the word "refund" in the same way, to mean "refunding amounts deposited in excess of the vend price of a selected product."

However, as with the "means to inhibit the accumulator from initiating a vend," described above, this means to inhibit a refund is also stated in means-plus-function format. As with the discussion regarding inhibiting a vend operation, the function here is inhibiting the accumulator from initiating a refund operation. The Court had difficulty finding a structure within the specification which enables this function. See, e.g., '903 Patent col. 5, lines 13-32. Without a disclosure of structure in the specification, the claim must be rendered invalid as indefinite. Mass. Inst., 462 F.3d at 1361.

9. Regardless of the presence of markers, frame boundaries, and other boundaries that may occur within said data

The Court's Construction: The download restarts at any point within the data file heedless of markers, frame boundaries, or other boundaries that may occur within the data. Markman Tr. 56:2-5.

Neither party objected to the Court's construction of this phrase. Markman Tr. 56:7-8; 57:12-13. The Court simply adopted the ordinary meaning of the term "regardless of." See Webster's II New College Dictionary 955 (3d ed. 2005) (defining "regardless of" as "in spite of").

4. "substantially a same informational content regardless of which of said advertising presentations are combined therewith" ('366 patent)

Beneficial's Proposed Construction
No construction is necessary.

Defendants' Proposed Construction
"informational content that is unrelated to the advertising presentation combined therewith"

The Court rejects Defendants' proposal. The Court finds that "regardless" does not mean "unrelated." Thus, the Court finds that Defendants' proposal to equate the phrase "regardless of which" with "unrelated" should be rejected. The Court construes the phrase "substantially a same informational content regardless of which of said advertising presentations are combined therewith" to mean "informational content that is not substantially changed based on which of said advertising presentations are combined therewith."

3617

(3) In the part of Claim 4 of the '901 patent that says "regenerating the video signal for a given period of time after sensing the sync pulses in a manner attenuating at least some of the AGC pulses,"

(a) "Regenerating" means "forming, constructing or creating anew," and
d. "Regenerating"

Macromedia contends that the term "regenerating" should be construed to mean "automatically recalculating new derived elements, and discarding the old derived elements, without requiring user interaction." (D.I. 470 at 16). Adobe contends that the term "regenerating" should be construed in accordance with the definition expressly provided in the specification, namely "to automatically recalculate the new derived elements and discard the old derived elements." (D.I. 479 at 13).

In construing the term "regenerating," the Court has considered the specification of the '443 Patent. ( '443 Patent, Col. 5, line 67 - Col. 6, line 2). Because the specification expressly defines the term "regenerating" as Adobe contends, the Court construes the term "regenerating" to mean "to automatically recalculate the new derived elements and discard the old derived elements."

The terms "a first region" and "a second region" appear in claim 2 of the '717 patent:

(2) An apparatus according to claim 1 wherein the video display includes a first region for displaying the video game menu options and a second region for displaying the video game menu choices.

Because it refers back to claim 1, claim 2 is considered "dependent" on claim 1. In addition to its own limitations, it also includes all of the limitations of claim 1. 35 U.S.C. § 112, P 4. Accordingly, the "video display" of claim 2 is the same "video display" claimed in limitation (b) of claim 1.

"a first region" and "a second region"

Again relying on Figure 2 of the '717 patent and the constructions it propounded for claim 1, JVL argues that "a first region" and "a second region" are "separate and distinct areas. The first region displays all video game menu choices and the second region simultaneously and separately displays all video game menu options." Def.'s '717 Presentation at 35. Merit proffers an alternative construction of claim 2: "The apparatus of claim 1, wherein: The video screen includes a first area for showing images relating to all of the selectable game menu items. And a second area for showing images relating to the chosen game menu items." Pl.'s '717 Presentation, Ex. 3 at 4.

The primary dispute concerns JVL's use of the additional words "separate and distinct" and "simultaneously and separately." Merit argues nothing in the specification or prosecution history supports the insertion of these words. It specifically takes issue with JVL's reliance on the '717 patent's description of the preferred embodiment. JVL argues that the "detailed description of preferred embodiments" teaches that Figure 2 is a game menu screen "divided into first, second and third regions." '717 patent at 3:48-50. This justification for the "separate and distinct" construction is improper because Figure 2 is a preferred embodiment of the '717 patent that should not limit construction of the claims. Phillips, 415 F.3d at 1323. ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."); Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998) (cautioning against limiting claimed invention to preferred or specific embodiments or examples). More importantly, the specification expressly notes that the invention is "not limited" to preferred embodiments depicted in the drawings. '717 patent at 2:65 - 3:2.

Nonetheless, there can be no doubt that "a first" and "a second" region are distinct regions. Anyone, including one of ordinary skill in the art, would understand these terms to refer to two different regions. The specification advises "[t]he present invention is an apparatus for providing menu choices of video games on a video screen having first and second regions." '717 patent at 2:20-22. As JVL points out, Merit stated during the reexamination that "menu options from a region are placed into specific locations in another region" when addressing the construction of claim 8, 3 which also includes the terms "a first region" and "a second region." Def.'s Suppl. Br., Ex. E at 8 (emphasis added).
3 Claim 8 reads as follows:

(8) An apparatus for programming video game menu choices on a display from a group of video game menu options, the apparatus comprising:

(a) a video screen having

   (i) a first region for displaying video game menu choices;

   (ii) a second region for displaying video game menu options, the video game menu choices and video game menu options being simultaneously displayed; and

(b) a display controller for causing video game menu options selected from the second region to be displayed in the first region as a video game menu choice.

Relying on the fact that claim 2 depends on claim 1, JVL argues that the first and second regions "simultaneously and separately" display options and choices. The basis for JVL's current interpretation is its earlier construction of "displaying … options and … choices" as requiring simultaneous and separate display. Because that construction was rejected, it does not support JVL's current construction of "a first region" and "a second region."

There is no clearer way to interpret "a first region" and "a second region" than the language of the claim itself. The clear and unambiguous meaning is that they are two different regions. No further construction is necessary.

17. Register controllable cross bar switch

The plaintiff asserts that "register controllable cross bar switch" means "a routing device that selectively couples a plurality of outputs to a plurality of inputs under the control of the contents of a register." The defendants propose that "register controllable cross bar switch" means "a switch which can independently connect any input to any output, and that is controlled through the use of hardware storage locations in the media processor that are available to the user/programmer."

At issue is whether the "cross bar switch" must be able to connect any input with any output.

The plaintiff contends that "switch 104," which is described in the specification of the 061 patent, is the cross-bar switch recited in the claims. According to the plaintiff, the specification does not require that "switch 104" be able to connect any input with any output. The defendants, on the other hand, argue that "cross bar switch" is a term of art that means "a switch that allows any input to be connected to any output." The defendants note that the term "cross bar" does not appear in the specifications of the media processor patents and that there is no indication that the patents use the term "cross bar" in a manner different from its ordinary meaning. After considering the submissions of counsel, the court construes "register controllable cross bar switch" to mean "a routing device that selectively couples a plurality of outputs to a plurality of inputs under the control of the contents of a register."

B. "Registered Juxtaposition" and "Juxtaposed Registry"

Ultratech argues that the phrase "registered juxtaposition" and "juxtaposed registry" has no special technical meaning in the context of the '996 patent. Thus, Ultratech contends that the analysis should focus on the ordinary meaning of the words. It
argues that in accordance with the patent specification, the clear meaning of "registered juxtaposition" is "aligned with patterns previously placed on the wafer." Jt. Cl. Constr. at 4-5.

ASML argues that the phrase "registered juxtaposition" and "juxtaposed registry" must be considered in light of what one skilled in the art would know. Accordingly, one skilled in the art of lithography would recognize that the terms describe an application that can only be performed in the context of imaging with a stepper. Thus, ASML asserts that the meaning of the term must be construed as "aligned and meeting along an edge in the context of imaging with a stepper device." Jt. Cl. Constr. at 6.

This Court rejects ASML's proposed definition based on the principle of claim differentiation. Under this principle there is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.


Claim 13 of the '996 patent refers to a microcircuit device which is imaged in portions, with portions "formed in juxtaposed registry with each other until all of said mask is imaged on said wafer." '996 Patent, col. 8, lns. 24-29. According to ASML, the term "juxtaposed registry" necessarily requires that the imaged portions be imaged while the wafer and mask are stopped. ASML's Cl. Constr. Br. at 16.

However, Claim 17 depends from Claim 14, which in turn depends from Claim 13. Thus, Claim 14 and 17 include the "juxtaposed registry" limitation recited in claim 13. Claim 17 provides a single limitation: "The method of Claim 14 including stopping the imaging during movement of said mask and said wafer." Id., col. 8, Ins. 38-39. Applying ASML's definition, Claim 13 and 14 would already embody the limitation of Claim 17, making that claim superfluous. Furthermore, Claim 18 refers to the "method of Claim 13, including forming images on said wafer during movement of said mask and said wafer." Id., col. 8, Ins. 40-42. This Claim directly contradicts ASML's assertion that the term "juxtaposed registry" requires imaging using a "stepper" method because Claim 18 contemplates the imaging of patterns in juxtaposed registry which occurs "during movement."

While ASML argues that claim differentiation is a doctrine and not a hard and fast rule, it fails to cite any "express and contrary intentions of the patent draftsman" to prompt the Court to depart from the doctrine. Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990). Instead, ASML cites only one phrase in the patent which implies that a "stepper" limitation should apply: "Imaging by our methods can also be done in intervals between movement of the mask and wafer stages ...." '996 Patent, col. 2, INS. 14-18 (emphasis added). This reference is unpersuasive.

The Court declines to insert an additional claim limitation based on this language, and instead, will apply the ordinary definition for these terms, so as to give effect to every claim. Accordingly, the Court will construe the terms "registered juxtaposition" and "juxtaposed registry" to mean: "next to and aligned with."

Ultratech's proposed definition uses the language "next to and aligned with" but it also adds the language "with patterns previously placed on the wafer." Ultratech's Cl. Constr. Opening Br. at 3. This language is redundant due to how the term is used in the patent. For example, Claim 8, the first claim to use the term, recites "images of said mask portions are formed in registered juxtaposition on said wafer." '996 Patent, col. 7, Ins. 49-50. Similarly, Claim 13(c) states that the "images are formed in juxtaposed registry with each other until all of said mask is imaged on said wafer." Id., col. 8, Ins. 27-28. Since the proposed additional language appears to already be included in the patent, it may be argued that its inclusion in the definition is unnecessary. However, for purposes of clarity, the Court will include the additional language in its construction.

In conclusion, the terms "registered juxtaposition" and "juxtaposed registry" are construed to mean: "next to and aligned with patterns previously placed on the wafer."
b. Claim 5

Claim 5 of the '892 patent reads (bracketed text and letters provided for ease of reference):

[Preamble] 5. A method of providing a bingo game comprising the steps of:

[A] providing a bingo operator for determining at least one winning bingo pattern;

[B] registering at least one bingo card bearing a plurality of bingo numbers with said operator;

[C] generating a predetermined number of random bingo numbers; and,

[D] identifying all registered bingo cards on which the generated random bingo numbers form one of said at least one [sic] winning bingo pattern and,

[E] awarding the holder of the winning bingo card an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed.

c. Defendant’s Proposed Constructions

Defendant contends the Court should give the following terms the meaning they would have had to a person of ordinary skill in the art in light of the intrinsic record. In this regard, Defendant asserts that the following terms should have the following constructions

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

c. Plaintiff’s Proposed Constructions

Plaintiff contends that, based upon the general acceptance of certain terms by the public and by using dictionary definitions, the following terms should be constructed as follows:

"Bingo game" - a "traditional" bingo game as that term is understood by the general public. In this regard, Plaintiff suggests that the Court construct the term "bingo game" within Claim 5 as:

a game simultaneously played by multiple players that contains the following elements: (1) displayed cards that bear numbers, (2) which must be daubed on each card when numbers are determined by random means during the game, and (3) which game is won by at least the first person to hold a card on which a previously designated arrangement of numbers has been covered.
"Predetermined number" of random bingo numbers: Plaintiff argues that the term "predetermined number" should be construed in accordance with the dictionary definition of "predetermined." In this regard, Plaintiff argues that the construction should be: "A number or range of numbers that is determined, decided, or established in advance."

"Registered": Plaintiff argues that the term should be constructed as follows:

identifying a discrete bingo card chosen by a player, communicating the pattern of that card to the game operator, and having the game operator record the pattern of the card prior to play of a discrete bingo game.

III. CONCLUSION

Having carefully reviewed the text of Claim 5, the specification, and the prosecution history of the '892 patent, and having considered the parties' arguments presented at the Markman Hearing, the Court finds that the construction proposed by Defendant is, in all respects, proper. The '892 patent was proposed and amended in order to distinguish the patent from prior art. Plaintiff's proposed construction would have the opposite effect. Therefore, the Court finds as a matter of the law that the following terms from Claim 5 shall have the following constructions:

The term "bingo game" from the preamble: A game of bingo limited by the elements and limitations [A]-[E] from the body of Claim 5.

The term "bingo operator" from paragraph [A]: A person or entity, or a machine or the software in it, that operates a bingo game.

The term "registering at least one bingo card" from paragraph [B]: Assigning each card an identify that will differentiate that card from all the others in play.

The term "a predetermined number of random bingo numbers" from paragraph [C]: The specific and predesignated quantity of random bingo numbers that will be played during a complete bingo game after which the game will end.

The term "an award wherein the amount of said award is independent of the number of registered bingo cards on which a winning bingo pattern is formed" from paragraph [E]: An award of any type in which the value of the award is not based upon how many cards have a winning pattern.

IT IS SO ORDERED.

2. "Registering Use" or "Registering the Use"

VendingData argues that the terms "registering use" or "registering the use" are ambiguous at best because the dictionary provides multiple definitions of the terms "register" and "use," VendingData also argues that the patentee acted as his own lexicographer and defined the terms "registering use" or "registering the use" in two different ways in the written description of the patent such that the term "register" means "in alignment" and the term "use" relates to shuffling cycles. In turn, VendingData argues the shuffling cycle refers to a selected number of riffles sufficient to adequately and completely shuffle the cards. VendingData supports its argument by referring to the written description and prosecution history. It urges the court to construe the terms "registering use" or "registering the use" to mean:

counting the number of shuffling cycles the machine has performed, thereby facilitating the determination of a lease rate or sales price based on accurate quantification of use of the machine, where a "shuffle cycle" is a selected number of riffles sufficient to adequately and completely shuffle the cards.

The court finds VendingData has not rebutted the presumption of ordinary meaning with respect to the terms "registering use" or "registering the use." While it is true that a standard dictionary provides multiple definitions for the terms "register"
and "use," Federal Circuit authority makes it clear that, "If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings." Brookhill-Wilk, LLC v. Intuitive Surgical, Inc., 326 F.3d 1215, 1222 (Fed. Cir. 2003). It is also well established that, "Where there are several common meanings for a claim term, the patent disclosures serve to point away from the improper meanings and toward the proper meanings." Id., quoting, Renishaw PLC v. Marposs Societa 'per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998). Viewed in the context of the intrinsic record before the court, it is clear the term "registering use" refers to recording, indicating or making note of the amount of use of the shuffler. The claim term is not limited to the number of times the shuffler has completely shuffled a stack of cards as VendingData argues.

VendingData's reliance on the specification is equally unavailing. The citation to the specification relied upon is simply one embodiment of the claimed invention. The specification itself does not define the term "registering use." Rather, it uses the term "register" in a manner consistent with its ordinary meaning. Finally, the prosecution history does not support VendingData's proposed limitation. The portions of the prosecution history cited by VendingData consist of an exchange between the patent Examiner and Shuffle Master.

The patent Examiner rejected three of Shuffle Master's claims as originally filed, concluding that the prior art Stevens Patent, U.S. Patent No. 5,000,453, described an automatic shuffler and card shuffling method that were identical to the shuffler and shuffling method cited in Shuffle Master's pending claims. (Schwartz Decl., Exhibit 8, '258 Patent Prosecution History, at SM0363-64). Shuffle Master responded by amending its claims and deleting the requirement that the shuffler count "the number of shuffling cycles." The amended claims required a counter "for registering the use of the apparatus." Id. at SM0372-76. Shuffle Master explained to the Examiner that this change from counting shuffling cycles to tracking the amount of use of the apparatus distinguished Shuffle Master's invention from the Stevens' shuffler. Id. at SM0377. It seems clear to the court in reviewing the prosecution history that Shuffle Master's remarks to the Examiner explain how its claims were intended to cover registering or quantifying the use of the apparatus to facilitate a lease rate or sales price based on the use of the shuffling apparatus as distinguished from the prior art that counted and displayed shuffling cycles to confirm the cards had been shuffled a sufficient number of times to be removed to the shoe assembly for security purposes. A patent applicant's remarks during prosecution will limit the scope of the claims only where the remarks are not to occlude the disclaimer of the claim's scope. "Absent a clear disclaimer of particular subject matter, the fact that the inventor anticipated that the invention may be used in a particular manner does not limit the scope to that narrow context." Brookhill-Wilk, 326 F.3d at 1223.

Finally, Shuffle Master points out Shuffle Master deleted the requirement of counting shuffle cycles in the claims as originally filed, and added the requirement that the counter "register use" of the shuffler. This clarification clearly communicated that registering the amount of use of the shuffler instead of simply counting shuffle cycles is what distinguish Shuffle Master's claims from the Stevens shuffler.

4. Element [B] -- "Registries"

WeddingChannel argues that the term "registry" in a "registry database" describes, at minimum, a registrant, an event, and the items that the registrant would like to acquire to celebrate the event. The Knot defines a "registry" in a "registry database" as a collection of data that describes either (A) a registrant, an event, and the products and/or services that the registrant would like to acquire in celebration of the event; or (B) a registrant and a wishlist of products and/or services that the registrant would like to acquire.

In the description of the related art, the specification provides the following general definition for the term "registry":

Each registry in a registry database describes a registrant, an event, and the items that the registrant would like to acquire in celebration of the event. Further, rather than representing an event, a registry may simply represent the generalized wish list of the registrant.

'753 Pat. at col. 1, ll. 24-33. WeddingChannel acknowledges that this text from the specification describes two types of registries -- the first describing three things (the registrant, the event, and item information) and the second describing two
things (the registrant and a wishlist of items).

This broad definition notwithstanding, WeddingChannel argues that the term "registry" was given the following more narrow definition during the course of the prosecution of an earlier-filed parent application:

Registry databases are collections of registries. Each registry in a registry database describes a registrant, an event, and the items that the registrant would like to acquire in celebration of the event.

(Qualey Decl. Ex. 3 at WC002937 (quoting from the parent application's specification).) WeddingChannel argues that this narrower definition was a "clear disavowal of claim scope" that limited the term "registry" in the '753 claims to the definition cited by WeddingChannel. See Int'l Rectifier Corp. v. IXYS Corp., 361 F.3d 1363, 1370 (Fed. Cir. 2004).

Furthermore, WeddingChannel argues that the preamble of claim 35, which states "[a] computer system for purchasing a gift for a registrant of an event[,"] provides further support for its construction of the term "registry." See Poly-America, L.P. v. GSE Lining Technology, Inc., 383 F.3d 1303, 1309 (Fed. Cir. 2004) (stating that "whether to treat a preamble as a limitation is a determination resolved only on review of the entire . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.") (quoting Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)).

The Knot offers three arguments in support of its position that in the context of the '753 patent, the term "registry" should be interpreted to include wishlists.

First, the Knot argues the above-quoted text from the prosecution history did not function as a disavowal of the language in the specification. Rather, according to the Knot, the above-described discussion of registries in the prosecution history was addressed to the distinction between the '753 patent (which involves associating a unique identifier with an already constructed registry) from an invention in the prior art that involved the construction of a registry from (1) personal information about the registrant and (2) information about items the registrant would like to acquire. The Knot argues that the above-described narrow definition of the term "registry" was merely incidental to this recitation of the differences between the prior art and the claimed invention. On this basis, the Knot concludes that the term "registry" was not narrowed by the prosecution history. See, e.g., York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1575 (Fed. Cir. 1996) (stating that "unless altering claim language to escape an examiner rejection, a patent applicant only limits claims during prosecution by clearly disavowing claim coverage.")

Second, the Knot disputes WeddingChannel's argument that the preamble of claim 35 serves to limit the definition of the term "registry." The Knot argues that the preamble is not regarded as a limitation on a claim unless it "breathes life and meaning" into the claimed language. In re Paulsen, 30 F.3d 1475, 1479 (Fed. Cir. 1994). Furthermore, the Knot argues that nothing in the preamble requires that the term "registry" necessarily exclude wishlists.

Third, the Knot argues that regardless of whether WeddingChannel expressly disclaimed wishlists during the prosecution of the '753 patent, it submitted a continuation application to the USPO on June 30, 2003 that contained new dependent claims 41, 59, and 87, each of which defined a "registry" as comprising "a registrant and a plurality of items that the registrant would like to acquire . . . wherein said plurality represents a generalized wish list of the registrant." (See Qualey 2d Supp. Decl. Ex 20 at LO002001 (claim 41), LO002003 (claim 59), and LO002006 (claim 87)). According to the Knot, this continuation application demonstrates that WeddingChannel did not disclaim wishlist registries during the prosecution of the '753 patent.

In response to the Knot's argument concerning the continuation patents, which was first raised in a supplemental brief filed on September 13, 2004, WeddingChannel argues that it cancelled the continuation claims at issue on October 7, 2003. (See 2d Supp. Qualey Decl. Ex. 21 at LO002091, L0002102). Furthermore, WeddingChannel argues that once claims have been narrowed by a prosecution history disclaimer, they cannot be re-broadened. See Hockerson-Halberstadt, Inc. v. Avia Group Intern., Inc., 222 F.3d 951, 957 (Fed. Cir. 2000) (stating that "[p]laintiff's argument . . . reduces to a request for a mulligan that would erase from the prosecution history the inventor's disavowal of a particular aspect of a claim term's meaning. Such an argument is inimical to the public notice function provided by the prosecution history").

The text quoted from the prosecution history does no more than highlight a difference between the '753 invention and the
The court stated that the parties agreed that, at least as it is received in the RF section from the outside, the video data is in analog format. The mixer does not function as a switch.

The principal issue with respect to the disputed claim language is whether claim 1 covers digital signals. The district court observed that the only type of television signals that were broadcast in 1985 were analog signals. SuperGuide Corp., 169 F. Supp. 2d at 498. Relying on a portion of the specification explaining that when the programming guide is not in use the received television signals are sent directly through the RF section to the television for viewing, the district court reasoned that the terms "radio frequency information" and "regularly received TV signals" must be limited to analog signals and, more specifically, do not embrace digital television signals. In light of its construction that the '578 patent is limited to the type of television signals that were broadcast in 1985, i.e., analog signals, the district court held in its infringement decision that the patentees disclosed but did not claim digital captioning and that the patentees could not invoke the doctrine of equivalents to extend the scope of the '578 patent to encompass digital technology. Id. at 510. The district court suggested that the patentees' failure to enlarge the scope of the claims to explicitly include digital signals or closed captioning signals indicates that the disclosed embodiment directed to closed captioning was dedicated to the public. To reach such a conclusion, the district court operated under the assumption, which we find to be incorrect below, that the claimed invention is limited to analog television signals. The district court concluded that "regularly received television signal" means "an analog signal modulated onto a carrier wave and transmitted via terrestrial antennae or through a cable or satellite system" and does not include "a digital television signal as understood in the state of the art in the mid-1990's." SuperGuide Corp., 169 F. Supp. 2d at 509. The court construed "radio frequency information" to mean "modulated or unmodulated analog signals containing television programming and video information received either from the mixer internal to the system or from a television station" and as not including "digital television signals." Id. at 526.

The court also relied on the specification and the state of the art in 1985 to construe the disputed term "mixer." The court noted that the information generated by the microcontroller is in digital format and that the specification states that the mixer converts such digital information into a format which can be viewed in the same way as the video data received from the RF section. The court found that the video data received in the RF section is in analog format. 4 Recognizing that the literal scope of a claim term is limited to what it was understood to mean at the time the patent was filed, the court concluded that in 1985, one of ordinary skill in the art would have understood that the digital data received from the microcontroller would of necessity be converted into analog format. Thus, the district court determined that the "mixer" first converts the digital signal from the microcontroller into an analog format and then mixes it with the video data. The court therefore construed the term "mixer" as follows:

- the electronics for (a) receiving an unmodulated digital signal generated by the microcontroller which contains television programming information and converting the same into an analog format; (b) receiving from the RF section an analog television signal, whether demodulated or unmodulated, which contains television video information; (c) receiving and stripping a modulated analog signal which contains television video information from the RF section; and (d) mixing the two analog signals to produce an analog signal containing television programming and video information which is then transmitted to the RF section. The mixer does not function as a switch.

Id.

4 The court stated that the parties agreed that, at least as it is received in the RF section from the outside, the video data is in

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analog format. SuperGuide Corp., 169 F. Supp. 2d at 504. Based on the record, however, it is unclear how the court arrived at this conclusion.

On appeal, Gemstar maintains that the '578 patent covers systems that receive digital as well as analog television signals. It specifically argues that the district court misapplied cases involving "means-plus-function" claims and "after-arising technologies." In addition, Gemstar contends that the court failed to apply the plain meaning of the disputed claim language, erred by reading analog limitations from one embodiment into claim 1, and improperly adopted a claim construction inconsistent with a preferred embodiment.

According to Gemstar, "regularly received television signal" means non-customized, acquired electrical information representing visual images with the form of the signal not being relevant; "radio frequency information" means the information received from the mixer, microcontroller, and/or a television station that is carried on or derived from a radio frequency signal; and "mixer" means the electronics that receive the "regularly received television signal" and a signal generated by the microcontroller, and that combine those two signals as instructed by the microcontroller.

In response, relying primarily on the state of the art when the '578 patent was filed in 1985 and the knowledge of those skilled in the art at that time, EchoStar argues that the phrases "regularly received television signal" and "radio frequency information" refer to the ordinary analog television signals that were being broadcast in 1985 and that an ordinary television could receive and process at that time. It contends that nothing in the specification or prosecution history suggests that the '578 patentees gave these phrases a different meaning. Thus, according to EchoStar, the district court correctly construed the disputed claim language as excluding digital television signals. EchoStar next relies on the specification and its interpretation of "regularly received television signal" and "radio frequency information" as limited to analog signals to argue that the recited mixer requires circuitry that converts the signal from the microcontroller into analog signals. It adds that the district court correctly concluded that the "mixer" does not function as a "switch" because the patentees disclaimed switching or toggling when distinguishing their invention over a prior art reference.

We begin our review of the district court's construction of the asserted claim by agreeing with Gemstar that the court improperly relied on cases involving means-plus-function claims to conclude that later or "after-arising technologies" cannot fall within the literal scope of the claim at issue. Method and apparatus claims not written in means-plus-function format are not necessarily limited to that disclosed in the specification but rather are defined by the language of the claims themselves. See SRI, 775 F.2d at 1121 ("It is the claims that measure the invention.").

In construing the terms "regularly received television signal," "radio frequency information," and "mixer," the district court should have begun its analysis by first examining the claim language. The district court held and the defendants argue essentially that "regularly received television signal" refers to the format of television signals that were "regularly" received by televisions as of 1985, and that because no televisions existed as of that date that could receive digital signals, the term, as understood by those skilled in the art, necessarily excludes digital technology.

While that argument appears persuasive at first blush, closer analysis of the intrinsic record does not bear support for such a claim construction. The claim language does not limit the disputed phrases to any particular type of technology or specify a particular type of signal format, such as analog or digital. Indeed, neither "analog" nor "digital" appears in any of the asserted claims.

We find that the district court's and EchoStar's reliance on Kopykake Enters., Inc. v. Lucks Co., 264 F.3d 1377 (Fed. Cir. 2001), as authority for limiting the meaning of the disputed claim language to analog technology is likewise misplaced. The limitation at issue in Kopykake required "screen printing" of images on foodstuffs and the accused product used "ink jet printing." Id. at 1380. Thus, the issue was whether the claim language "screen printing" literally covered ink jet printing. Id.
The specification explicitly defined the term "screen printing" as limited to "conventional" or then-existing technologies. Id. Specifically, the specification stated that "the term screen printing as used herein encompasses not only conventional screen printing, but also includes any other conventional printing process and any other conventional means." Id. (citation omitted). Although ink jet systems were well known in the field of paper printing, it was not a conventional printing process for applying images to foodstuffs. Id. at 1383-84. We therefore held that ink jet printing was not covered by the claim term at issue. Id. at 1384. That holding, however, does not have relevance here because the patentees in Kopykake explicitly limited the claim term to technologies that were "conventional" at the time of the invention. In contrast, the '578 patentees did not explicitly limit the disputed claim language to technologies that were "conventional" at the time of the invention.

The "regularly received television signal" received by the mixer is referred to in the specification as "video data." '578 patent, col. 5, ll. 3-6; col. 6, ll. 44-47; fig. 1. "Regularly received television signal" therefore refers not to signal directly received by the RF section and sent directly to the television, but rather to the video data received by the mixer. It appears indisputable that it was known to those skilled in the art during the pendency of the '578 patent application that video data could be communicated in either analog or digital format. Although analog may have been the dominant format of video data when the '578 patent application was filed, we have little doubt that those skilled in the art knew of the existence of digital video data at the time. 6 Indeed, the first digital television standard was created in 1981, and as early as 1983, systems were used to transmit digital data to provide videoconferencing and videotext. By 1985, work on developing a standard for the transmission of digital video data for telephony had begun, and by 1988, the year the '578 patent issued, there was sufficient interest by those in the video industry to establish a Motion Picture Experts Group to create a digital video standard for television broadcasts. Moreover, a review of the '578 patent specification reveals that the patentees were aware of the existence of analog and digital signals. For example, the specification describes examples of transmitting digital signals, such as those conveyed to and from the microprocessor and from digital sound files. Had the patentees intended to limit the disputed claim terms to "analog" technology, they could have easily done so by explicitly modifying the disputed claim language with the term "analog." We find nothing in the written description of the '578 patent, much less the claim language, that precludes the mixer of the claimed invention from receiving video data in digital format. The law "does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention." SRI, 775 F.2d at 1121. We find no reason here to limit the scope of the claimed invention to analog technology, when "regularly received television signals," i.e., video data, is broad enough to encompass both formats and those skilled in the art knew both formats could be used for video.

6 The district court also did not resolve the disagreement between Gemstar and EchoStar as to the state of the art in 1985. On appeal, EchoStar asserts that in the 1985-1988 time frame, digital television was still in its infancy, while Gemstar would have us believe that digital television was at a more advanced stage of development. EchoStar acknowledges, however, that when the '578 patent was filed, "conceptual work for digital television had begun but was 'little known'" and "the essential 'Motion Picture Expert Group' (MPEG) standards for compressing video for digital transmission were not issued until 1988." It further characterizes digital television as "at best an 'emerging technology' in the 1985-1988 time frame." Based on these statements by EchoStar, we are confident in stating that in 1985 the '578 patentees were at least aware that digital television signals could be broadcast in the future.
1098 (6th ed. 1976) (defining "regular" to mean "customary"), and not to video-on-demand signals, such as those received by the military in the Lindman invention or pay-per-view, which other customers ordinarily would not receive unless special ordered.

Nothing in regard to the Bourassin reference alters our interpretation of the pertinent claim language. The Examiner initially rejected the claim at issue over the Bourassin reference, which describes the mixing of two analog television signals in a picture-in-picture display. The Examiner stated that Bourassin's "regular TV signal" met the applicant's "regularly received TV signal" limitation. In distinguishing Bourassin, the patentees argued that "the image-on-image of Bourassin is regular TV signals as opposed to TV signals overlaid by signals being generated by a microprocessor." (Emphasis added). According to EchoStar, this prosecution argument shows that the patentees and the Examiner equated the "regularly received television signal" with the analog television signals in Bourassin. Gemstar, on the other hand, argues that because the '578 patent undisputedly covers at least analog signals, they had no reason to argue that the analog television signals described in Bourassin were different from a "regularly received television signal." We agree with Gemstar. The patentees distinguished their invention from Bourassin on the ground that it overlaid "image on image" regular television signals "as opposed to TV signals overlaid by signals being generated by a microprocessor," and thus the patentees had no reason to distinguish the signal format used in Bourassin.

Thus, the prosecution history does not preclude a construction of the asserted claim as covering any particular type of signal format. It is irrelevant that the patentees did not argue during prosecution of the '578 patent that "regularly received television signal" also included digital technology because the absence of such an argument does not necessarily indicate a clear and deliberate disavowal. See DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1326 (Fed. Cir. 2001) (stating that silence cannot serve as a basis for prosecution history estoppel because "we can draw no inference from what [the patentees] did not argue"). Therefore, we see nothing in the prosecution history to alter our conclusion that claim 1 is not limited to analog technology.

Accordingly, we construe "regularly received television signal" to mean video data that is customarily received by the television viewing public and not video-on-demand. The form of the television signal is irrelevant; it could be an analog signal, a digital signal, some combination of the two, or another format. The '578 patent defines "radio frequency information" as the signal generated from the antenna, mixer, and microcontroller. '578 patent, col. 2, l. 48. We therefore construe "radio frequency information" to mean the information received from the mixer, microcontroller, and/or a television station that is carried on or derived from a radio frequency signal. Finally, we construe the term "mixer" to mean the electronics that receive the "regularly received television signal" and a signal generated by the microcontroller, and that combine those two signals as instructed by the microcontroller. The mixer is not limited to any particular electronics because the claim language does not so limit the scope of the mixer. The preferred embodiments may describe the mixer as including certain components, including a digital-to-analog converter, but that does not mean that the claims are so limited. Accordingly, for the reasons stated, we reverse the district court's construction of the disputed claim language and adopt the constructions discussed above.

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MICHEL, Circuit Judge, concurring in the result.

The majority's claim constructions expand the scope of the '578 patent far beyond what the named inventors say they actually invented in their application, and what it describes and enables. Thus, the patent now covers home receivers for digital television signals not even transmitted by television stations until nearly a decade after the '578 patent issued. Further, the court's constructions ignore the expert declarations and rely instead on a literalistic and abstract reading of the term "signal," and the absence of a clear disavowal of digital signals in the specification or claim language. Indeed, under the court's analysis, the term "regularly received television signal" would have to have read "regularly received analog television signal" for it to be limited to the technology actually in use at the time. With such fundamentally incorrect constructions and methods, I must respectfully disagree.

Construing "regularly received television signal," "radio frequency information," and "mixer" in the '578 patent, the majority holds that these terms encompass receiving and processing digital signals not transmitted by television broadcasters at the time the patent issued. As in the majority opinion, I treat these three terms together because they present
the common issue of whether digital signals fall within the literal scope of the claim; that is because the latter two terms involve downstream processing of the "regularly received television signal."

The majority's only support for its broad meaning of "regularly received television signal" as encompassing digital television signals is that, because digital television standards were under development in the early 1980s, and because videoconferencing and videotext systems transmitted digital data at the time, a person of ordinary skill in the art would have known that regularly received television signals could someday be transmitted in either analog or digital form. This statement ignores the fact that such videoconferencing and videotext systems are distinct from systems for digital television signals from television stations, which were indisputably not broadcast until the mid-1990s. Moreover, the majority states that because the patentees were surely aware of the difference between digital and analog technology, having described certain intra-system digital data in their patent disclosure, they could have easily limited the "regularly received television signals" to analog signals, and that digital signals must be included because they did not. I disagree.

The question is not the meaning of the term, in isolation, to laymen or later, but whether "regularly received television signal" would have had a particular meaning to one of ordinary skill in the television art at the time, in the context of this patent disclosure. Though it cites to "indisputable" evidence of the state of the art at the time, the majority cites no evidence whatsoever indicating how one of ordinary skill in the art would have understood the critical claim term in 1985, despite expert declarations on that precise issue. 1 The majority never even mentions, much less rebuts, the declaration of Martin Sperber, an expert retained by DirecTV and Hughes. Mr. Sperber unequivocally asserted that in the 1985 time frame, one skilled in the art would have understood the phrase "a regularly received television signal" in claim 1 of the '578 patent to mean an "analog NTSC television signal transmitted from a regular television station," and that in 1985, "a person skilled in the television art would not have interpreted this to mean a digital satellite signal." (emphasis added). S. Merrill Weiss, although an expert retained by Gemstar, confirmed that "originally, all television signals were analog signals" and only "in the mid-1990's, various system providers began transmitting digital television signals." (emphasis added). Though Mr. Weiss went on to state that a "regularly received television signal" could be in digital or analog form, this assertion was not temporally limited to the 1985 time-frame. Nor could it have been. Superguide's expert, Teresa Dahlberg, noted that, while she had "not been asked to state opinions on the meaning of the claim language," she disagreed with "the essence of Mr. Sperber's opinions and regards them as not correct as relates to the meaning of the claim language." Ms. Dahlberg did not, however, specifically contradict Mr. Sperber's two assertions about signal transmissions circa 1985 being analog signals, as quoted above. Neither did Ms. Dahlberg, or any other plaintiffs' expert, offer an opinion on how one of ordinary skill in the art would have read these terms in 1985. Surely, the declarations of these experts are the best evidence, particularly as the specification gives little, if any, guidance, and the two critical assertions of Mr. Sperber were not directly challenged by Mr. Weiss or Ms. Dahlberg.

--- Footnotes ---

1 Neither does the majority cite any technical treatises, technical dictionaries, or other technical publications, or contemporaneous or prior art patents, to support its ordinary meaning of "regularly received television signal."

--- End Footnotes ---

In my view, the expert evidence briefly summarized above establishes that a person of ordinary skill in the art in 1985 would have read the critical claim term to mean only the analog television signals that were being regularly transmitted at the time, and not the later-developed, later-transmitted digital signals. 2 I therefore cannot extend the literal scope of the claims to systems for receiving signal technology that was not then in use by the television industry, nor even conceived of and reduced to practice by these inventors, much less described and enabled in their '578 patent application filed in 1985.

--- Footnotes ---

2 Though it is undisputed that digital signal technology was under development by other technologists in the mid-1980s, the patentees in this case were not developing systems that receive such signals. The claimed invention was, moreover, undeniably directed to marketable commercial products for use in the home, not the laboratory. It is undisputed that, as of 1985, reception for home use was limited to analog television signals. Thus, claim construction here is less a matter of the state of the laboratory art than of the history of commercial television.
Nor does it matter that the district judge did not discuss the expert declarations in his opinion, as we must uphold trial judge rulings when supported by the record, even if not discussed in its opinion.

But the cause of my alarm extends far beyond this case. I am also concerned that the court's opinion relies on certain imprecise statements prior panels of this court have occasionally made in recent years concerning the "plain" or "ordinary" meaning of claim terms. Despite the now-common references to the "plain meaning" or "ordinary meaning" of claim terms, or even the "ordinary dictionary meaning" cited in the majority's opinion, our precedent requires that the correct meaning of claim terms is that determined from the standpoint of a person of ordinary skill in the relevant art and at the time of the patent. I am concerned then that the use of these "short-hand" expressions about ordinary meaning obscures the correct analysis, tempting panels to look for an "ordinary meaning" divorced from the proper perspective -- the artisan's -- and the preferred, proper sources of interpretation -- the disclosure, technical dictionaries, prior art patents, and expert testimony. The ultimate result of this trend is claim constructions providing the broadest possible scope to claim terms, absent express limiting language in the claim, specification or prosecution history, but regardless of what the inventors actually invented.

If we fall into such error, we may render ineffective the examination process at the Patent and Trademark Office, for patents will later get broader scope than what the examiner understood, and found new and non-obvious, and hence patentable, at the time. Such error also compromises two fundamental tenets of the patent system: first, that the applicant must be the "inventor" of the things covered by the patent claims, and second, that the right to exclude will be no broader than the inventor's enabling disclosure. The inventors here most assuredly did not invent a system that receives digital signals; their patent cannot therefore cover such systems.

Because I agree with the court that there is at least a triable issue as to infringement of the '578 patent under the doctrine of equivalents, I concur in the result as to the '578 patent. As to its rulings respecting the other patents and terms, I have no disagreement with the majority and join its opinion.

J. "Regulate the transfer"

This language appears in claim 7 of the '734 patent in describing the role of the integrated circuits with respect to the transfer of signals: "said second party control integrated circuit and said first party control integrated circuit regulate the transfer of the desired digital video or digital audio signals . . . ." (Docket # 69, Exhibit I, Column 10, lines 29-32). Identical language appears in claim 15 of the '440 patent (Id., Tab K, Column 11, lines 20-23).

Defendants assert that this means "receive or transmit." Sightsound responds that "the claimed term 'transfer' may not be exactly the same as receive or transmit, as such verbs may describe part of the transfer but not the whole occurrence thereof." (Docket # 74 at 29). Clearly, the transfer of the digital signals involves transmitting on one end and receiving on the other. To "regulate" that transfer, however, bespeaks more than simply transmitting or receiving. The use of the term "regulate" indicates that the transmitting and receiving are being controlled, directed or governed. See, Webster's New World Dictionary, Third College Edition (1988). Thus, in the context of the patent claims at issue, the phrase "regulate the transfer" is construed to mean that the first party and second party integrated circuits control the transfer of the digital signals, i.e., control the transmitting and receiving of such signals.
regulated DC output" controlled towards a predefined value during normal operation.
"regulating" "producing a regulated [DC] output during normal operation."
"regulation" "the state of regulating"
that is controlled towards a predefined value"
"controlling an output towards a predefined value"
"controlling an output towards a predefined value"

The parties propose fairly similar constructions for these terms and agree that "regulation" generally means controlling the output voltage. The primary dispute is regarding SynQor's "during normal operation" language. The phrase "during normal operation" only appears in the '021 patent as a result of added matter during the continuation-in-part application leading to the '021 patent. See, e.g., '021 patent, 2:1-22. The phrase does not appear in any of the other patents' specifications or claims. During prosecution of the application leading to the '021 patent, the inventor explained that "[t]he claims are not limited with respect to potential control during system transients such as during turn on or turn off of the converter system. Such control may or may not be included." In the initial office action of the reexamination of the '021 patent, the PTO rejected claims in the '021 patent and found that the '021 patent claims were only entitled to a late priority date because the discussion of "normal" versus non-normal operation was not found in the original application.

SynQor argues that one of ordinary skill in the art would understand that "regulating" or "regulation" could not mean "all the time" regulation. Rather, one of ordinary skill would know that if a converter regulates during its normal operation, it is regulation, and it need not regulate under every conceivable condition or mode of operation. Thus, SynQor argues that a person skilled in the art would understand that the "regulation stage" would not regulate at voltage or current levels outside its normal operating range, or when the control circuit is first powered on. SynQor argues that the specification describes converters that "regulate" under specified operating conditions and that the prosecution history confirms that "regulation" does not require regulation "all the time." Further, SynQor argues that the claims do not require any particular operation during non-normal operating conditions. SynQor argues that no known power converter regulates under every conceivable condition, and that such a construction is absurd. SynQor argues that the finding by the examiner in reexamination is not conclusive in this case and that it has not yet had a chance to respond.

Defendants argue that there is nothing in the term "regulation" or "regulating" or the claims themselves that suggests a limitation as to time or to specific modes of operation for these terms. Defendants argue that there is no hint as to how one would determine what is normal operation versus abnormal operation in any of the patents but for the '021 patent. Further, Defendants argue that there is no circuitry disclosed in these patents that would sense and differentiate between a "normal" mode of operation and another mode of operation. In the '021 patent, Defendants argue that when the patentee meant to modify "non-regulating" to mean "during normal operation," the patentee did so explicitly by adding the word "normally" before "non-regulating" and discussing the control of the circuit as being only "during normal operation." Defendants argue that when the patentee intended a claim term to apply only "during normal operation," the patentee explicitly added those words to the claim. Defendants argue that the specification of the '021 patent supports their interpretation because the '021 patent specifically describes regulation during "other than normal operation," and it would contradict the specification to construe the term "regulating" to mean "regulating during normal operation." See '021 patent, 2:1-21. Thus, the Defendants argue that the term "regulation" is general and is not restricted to any particular mode or timeframe. Defendants argue that the examiner's finding in reexamination that "normal operation" was not supported by the original filed application is directly contrary to SynQor's argument that the terms "regulating" and "non-regulating" by themselves implicitly incorporate the concept of "during normal operation."

The Court rejects SynQor's attempts to add the "during normal language" limitation to these claim terms. The "during normal operation" language only appears in the '021 patent. There is no support for such language in any of the other patents, and the Court rejects SynQor's arguments that there is such support. Further, in the '021 patent, the disputed "regulating" terms appear in the claims in addition to the "normal" operation language, implying that the "regulating" terms are not limited to just "during normal operation." It is not the Court's job to rewrite the claims, and where there is no support for the inclusion of such a term, either in the claim language or the specification, the Court will not do so. As the inventor stated during the prosecution history, whether control or regulation in the claims during system transients such as during turn on or turn off "mayor may not be included." The Court finds that there is no temporal limitation in the term. Thus,
"regulated" is not necessarily limited to only "during normal operation." The Defendants' proposal does not include the "all the time" limitation, and the Defendants stated during oral argument that they are not seeking to add the "all the time" limitation. The Court rejects the contention, if there is still such a contention, that the term requires regulating "all the time." Likewise, the Court rejects the addition of the phrase "during normal operation" in all other instances where that language is otherwise not present.

The parties are in agreement, but for the dispute of "during normal operation," that a "regulated output" is an output that is controlled towards a predefined value, and thus the Court adopts the parties' similar language for the term "regulated output." The Court finds that the construction for the term "regulating" should resemble the essentially undisputed language for the term "regulated output." "Regulation" is generally defined as "the act of regulating" or "the state of being regulated." Thus, the Court adopts the following constructions:

"regulated output" means "an output that is controlled towards a predefined value;"

"regulated DC output" means "a DC output that is controlled towards a predefined value;"

"regulating" means "controlling an output towards a predefined value;" and

"regulation" means "the act of controlling an output towards a predefined value."

c. "generating regulated voltage

Defendants argue that the plain meaning of "generating regulated voltage" excludes from the scope of claim 1 those power supplies designed to regulate current. Relume argues that because of the basic electrical principle of Ohm's Law (voltage = current x resistance) current regulation will result in voltage regulation in a certain circumstance - specifically when resistance is constant. Relume argues that the voltage regulation performed by its invention is limited to that circumstance and, therefore, devices designed to regulate current can fall within the scope of its invention.

I begin my claim construction with the ordinary meaning of the disputed phrase. See Phillips, 157 F.3d at 871. The basic meaning of "generate" found in Webster's is that of a thing producing something else. 11 The meaning of "regulated" is likewise straightforward; Webster's conveys the idea of something being ordered and controlled. 12 Finally, Webster's defines "voltage" as "electric potential or potential difference expressed in volts."

--- Footnotes ---

11 Webster's most pertinent definitions of "generate" are 1) "to cause to be: to bring into existence," 2) "to originate (something material) by a physical or chemical process," and 3) "to be the cause of (a state of mind, an action, or something immaterial or intangible)."

12 Webster's most pertinent definitions of "regulate" are 1) "to reduce to order, method, or uniformity" and 2) "to fix the time, amount, degree, or rate of."

--- End Footnotes ---

By combining these dictionary definitions, it is clear that "generating regulated voltage" means, on its face, the function of producing controlled electric potential. This function has a specialized understanding to those in the field of electronics. According to The Illustrated Dictionary of Electronics (7th ed. 1997), "voltage regulation" is "the stabilization of a voltage against fluctuations in source or load." 13 Thus, upon reading the words "regulated voltage," a person of ordinary skill in the art would understand claim 1 to require the "power factor correction converter means" to stabilize the voltage it generates against fluctuations either in the input line voltage (the source) or in the LED array (the load).
13 Relume is correct to point out the significance of the "or" in this definition of "voltage regulation." A device need not regulate voltage against fluctuations in both source and load to be called voltage regulating in the art. The specification of the '645 patent makes it clear that claim 1's "converter means" is a voltage regulator concerned only with minimizing source voltage fluctuations.

Yet that is not all the language of claim 1 communicates regarding its voltage regulation function. As held above, the ordinary meaning of "converter" also implies to one of ordinary skill in the art the structure necessary to perform voltage regulation: a switching power supply. At its most basic, a switching power supply must have some sort of switch and a controller circuit. See Power Supply Cookbook at 25-26. For a voltage-regulating power supply, the controller circuit's "main purpose" must be "to maintain a regulated output voltage." Id. at 26. It does so by acting as a voltage feedback loop. See id. at 73.

These structural limitations implied by the ordinary meaning of "converter" cannot be ignored. Voltage regulation calls for unique componentry - for example, the controller's output voltage feedback loop. Yet there is an even more important point: a voltage-regulating power supply is a device expressly designed to stabilize the electrical property of voltage and thus generate regulated voltage. It is built to act on voltage, not current.

Relume's tortured construction of "generating regulated voltage" turns a blind eye to these realities. Relume wants claim 1 to be nonsensically construed so that any device, regardless of its design and structure, would fall within its scope so long as that device effects source voltage regulation in the limited circumstance when resistance is constant. I have a duty, however, to give meaning to all the words in claim 1 in order to determine the scope of its claimed invention; the drafter has linked the "converter means" to the "generating regulated voltage" function. Thus I cannot ignore the implicit structural limitations in the term "converter" - structural limitations, I note, that Relume urged me to recognize in order to avoid the application of 35 U.S.C. section 112, paragraph 6 to the "converter means."

There is another flaw in Relume's construction. The much trumpeted truth of Ohm's Law is ultimately immaterial to the resolution of the claim construction question before me. All it tells me is that in a certain situation, when resistance is controlled, current-regulating and voltage-regulating power supplies will have the same effect on their output voltage. It does not tell me anything about the purpose, design, and structure of current-regulating and voltage-regulating devices in the art. Thus, while interesting, the scientific fact of Ohm's Law does not address the underlying issue posed by the construction of "generating regulated voltage": What does it mean in the art when a converter regulates voltage instead of current?

The specification of the '645 patent reinforces these points. In its discussion of prior art power supplies, it recognizes the distinction drawn in the art between current regulation and voltage regulation. 14 That distinction is based on meaningful engineering reasons. For instance, the specification notes that current regulation will result in better LED light output than voltage regulation. '645, 4:51-54. The reason: LED light output is directly related to the current flowing through the LED, not the voltage. There is of course a more obvious basis for the distinction in the art: current regulation and voltage regulation act on, and regulate, different electrical properties. Thus it is clear that treating power supplies designed for current regulation like those designed for voltage regulation - the effect of Relume's construction - would violate precepts in the art.

14 So too does The Illustrated Dictionary of Electronics. It gives distinct definitions for voltage regulation (quoted above) and for current regulation ("the stabilization of current at a predetermined level or value").
The converter 38 includes a power factor correction (P.F.C.) integrated circuit (I.C.) controller 40, which is a commercial device available from many sources and functions by allowing current to charge a storage capacitor C (LARGE) only in phase with the rectified a.c. voltage thereby assuring a power factor close to unity. The control I.C. 40 also provides voltage regulation in the switchmode buck/boost converter by monitoring the output voltage and adjusting the high frequency on-off switching period of the pass element commensurately.

'645, 5:41-53. Not surprisingly, the specification nowhere instructs the reader on how a current-regulating power supply could be used instead of a voltage-regulating power supply to effect the aims of the invention.

For all of the reasons discussed, then, I hold that a person of ordinary skill in the art of LED array power supplies would understand "generating regulated voltage" to mean that claim 1's "converter means" is designed to produce stabilized voltage at its output despite fluctuations in its input voltage. Because the intrinsic evidence of the patent provides a clear meaning for "generating regulated voltage," I decline to consider the extrinsic testimony of the '645 patent's inventor, Mr. Hochstein, which Relume offers in support of its construction. See Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1578 (Fed. Cir. 1995); see also Vitronics, 90 F.3d at 1583.

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The difference in the parties' infringement analyses comes down to an issue of claim construction. Medrad's analysis rests on its construction of the term "related to" as describing a direct one-to-one relationship. 12 According to Medrad, the asserted claims require that the information detected from the physical indicia must actually be the capacity of the syringe, the distance of the plunger from the end of the syringe, the amount of fluid in the syringe, the end of travel position of an injector ram, the range of travel of an injector ram, or an offset value. (Doc. Nos. 250/251, p. 19). L-F, on the other hand, views the term "related to" as encompassing direct and indirect relationships. As such, L-F argues that the physical indicia are "related to" various syringe properties if the information detected from physical indicia is the actual syringe properties or is merely used in some manner to determine syringe properties, as in the case of the Accused Injectors which use the information detected from the physical indicia as an index to look up syringe parameters in a table and then use those parameters to determine various syringe properties. (Doc. No. 257, p. 22; Doc. No. 262, p. 8).

12 The Court did not construe the term "related to" in its Oct. 18th Order. The Court used the term in its definition of the term "physical indicia" but took no position on the meaning of the term "related to" as it is used in the asserted claims.

13 Independent Claims 7 of the 612 and 1, 7, 13, 19, and 25 of the 197 patent describe the injector claimed in the patents. (Doc. No. 30, Exhs. 3 and 4). Independent Claims 10 of the 612 patent and 4, 10, 16, 22, and 27 of the 197 patent describes...
methods of using an injector which correspond to the claims describing the injector. (Id.).

The pertinent claim language of Claim 7 of the 197 patent states as follows:

An injector and syringe, comprising:

a syringe having . . . physical indicia related to the amount of fluid in the syringe . . ., and . . .

a controller in the injector . . . comprising:

a detector . . . for detecting the physical indicia on said syringe, and generating an electrical signal representative of said physical indicia, and a control circuit . . . wherein said control computes the amount of fluid in said syringe, using said electrical signal and the tracked location of said motor.

From this language, one can conclude that the after detecting the physical indicia on the syringe, a detector located in the injector generates an electrical signal that represents the information detected from the physical indicia:

a detector . . . for detecting the physical indicia on said syringe, and generating an electrical signal representative of said physical indicia, and

The control circuit of the injector then uses this electrical signal and the tracked location of the motor to compute various syringe properties:

control circuit computes 14 the amount of fluid in said syringe, using said electrical signal 15 and the tracked location of said motor. 16

Of key importance to the Court's analysis is that the electrical signal referenced in the asserted claims is generated by the detector and not the control circuit. 17 It is the signal generated by the detector that is used in the computation of various syringe properties. The claim language does not describe using the electrical signal generated by the detector to ascertain information from another source and then using this ascertained information to compute syringe properties. Thus, the information from the physical indicia that is represented by the electrical signal generated by the detector must be of the type that can be directly used in the computation of various syringe properties without reference to some outside source of information. 18 Under the plain language of the asserted claims, therefore, physical indicia is/are "related to" various syringe properties when the information detected from the physical indicia is/are the actual syringe properties or can be directly used in the computation of the various syringe properties without reference to some other source of information.

--- Footnotes ---

14 Claim 13 of the 197 patent uses the term "determines" rather than "computes". The parties have not argued nor does it appear that this difference in language has any significance.

15 Claim 7 of the 612 patent uses the term "by relating said electrical signal" rather than "using said electrical signal". The parties have not argued nor does it appear that this difference in language has any significance.

16 Claim 19 of the 197 patent computes the "range of travel of said ram" using the electrical signal without reference to the tracked location of the motor.

17 L-F's expert, Helmicki, states the following in his affidavit:

[Medrad's] assertion is based upon the erroneous assumption that the "electrical signal" referenced in the claims is, and can only be, the signal output by the optical sensors (slotted detectors) themselves, excluding the multiple electrical signals derived from the output of the optical sensors, which also represent the syringe information encoded in the indicia. (Doc. No. 257, Exh. 8, Helmicki Post-Claim Construction Aff., P 10).
This excerpt demonstrates that L-F's argument is based on the assumption that the electrical signal disclosed in the claims does not necessarily have to be the same electrical signal generated by the detector. L-F's (and Helmicki's) assumption is incorrect. The only electrical signal described in the claims is the original electrical signal generated by the detector.

18 Claims 25 and 27 do not track the language of the other asserted claims. As already discussed in footnote 7, the physical indicia described in Claim 25 constitutes an actual offset value rather than just relating to an offset value. Claim 27, which describes the method of controlling an injector, states in pertinent part that:

A method of controlling an injector . . . comprising:

  detecting a physical indicia on a syringe installed on said injector, said indicia being related to the capacity of said syringe, to obtain an offset value, . . .

(Doc. No. 30, Exh. 4).

At first glance, it would appear that the term "obtain", as it used in Claim 27, is not the same as the term "compute" and could, arguably, encompass references to an outside source of information. However, the term "obtain" must be read in light of the specification of the 197 patent, which states that "the offset value may be automatically computed by detecting physical indica on the syringe or extender which indicates the length of the syringe." (Doc. No. 30, Exh. 4, Col. 3, line 1 - Col. 4, line 1-2). Thus, the specification equates the term "obtain" with the term "compute".

Thus, the Court adopts neither parties' proposed construction of the term "related to" as it is used in the asserted claims. Rather, the Court finds that the term "related to" encompasses both a direct and indirect relationship, with the indirect relationship being limited to information that can be directly used in the computation of the various syringe properties without reference to some other source of information.

19 L-F argues that its construction of the term "related to" is supported by the deposition testimony of Thomas Braunstein, Medrad's 30(b)(6) witness. L-F is incorrect. First, Braunstein's deposition testimony is irrelevant to the Court's claim construction analysis because the Court can construe the term "related to" based solely on the intrinsic evidence. Therefore, the Court should not rely on any extrinsic evidence, such as Braunstein's deposition testimony. Second, Braunstein's deposition testimony regarding the relationship of the indents on the Accused Syringes to various syringe properties is of little assistance to the Court because Braunstein was not testifying about such relationships in terms of the Court's construction of the term "relate to" as it is used in the asserted claims. Consequently, Braunstein's deposition testimony does not support L-F's proposed claim construction. Furthermore, despite L-F's argument to the contrary, there is nothing inconsistent between Braunstein's deposition testimony and his Second Post-Claim Construction Declaration. (Doc. No. 262, pp. 6-7).
the control circuit must use the signal generated by the detector, rather than a signal generated by the control circuit, to compute the value of the property in question. The court thus construed the claims as requiring a direct relationship between the physical indicia and the property to which the physical indicia are related. That direct relationship, the district court reasoned, would exclude products, such as the Medrad injectors, that "indirectly" compute the value of the syringe property by using the electrical signal to reference a look-up table.

The language of the claims at issue does not support the interpretation adopted by the district court. The term "related to" by itself does not limit the relationship between the physical indicia and the properties in question to a direct relationship. The issue, then, is whether the claim language setting forth how the control circuit must use the electrical signal confines the relationship between the physical indicia and the syringe properties to a direct relationship. The exemplary claim quoted above requires that the "control circuit compute[] the amount of fluid in said syringe using said electrical signal." That language does not specify that the control circuit must use the electrical signal in any particular way. In the ordinary sense of the word "using," the act of employing the electrical signal to obtain a syringe property value from a look-up table constitutes "using" the electrical signal to compute that syringe property value. Therefore, the very language relied on by the district court to restrict the scope of the claims at issue does not exclude an injector in which the control circuit uses the electrical signal to compute the syringe property indirectly, for example by using the electrical signal in conjunction with a look-up table.

Medrad asserts that during prosecution the applicants distinguished the '612 and '197 patent claims from prior art substantially similar to Medrad's accused devices and that the asserted claims therefore must be read restrictively. During prosecution of an application that matured into the '612 patent and that gave rise to a continuation that matured into the '197 patent, the examiner rejected the claims as obvious over two prior art references, McDaniel and Arthur. The McDaniel reference disclosed associating the type of syringe with its corresponding properties using a look-up table, while the Arthur reference disclosed a detector for detecting a bar code on a syringe. The examiner asserted that it would be obvious to combine the detector and bar coding of Arthur with the McDaniel device to arrive at Liebel's claims. The applicants overcame that rejection by arguing that McDaniel and Arthur should not be combined because they addressed different problems. Liebel argued that the bar code "indicia" in Arthur did not indicate any syringe properties at all, but rather provided information regarding the concentration of the medication in the syringe. McDaniel, according to Liebel, disclosed a mechanical system for determining the syringe type, such as by measuring the angle of the conical forward end of the syringe. Instead of arguing that McDaniel did not teach detecting information "related to" syringe properties, Liebel argued that McDaniel did not teach detecting physical indicia at all. The applicants thus did not disclaim an "indirect" relationship between the physical indicia and the syringe properties.

Because both the plain language of the claims and the prosecution history do not support a claim construction limiting the relationship between the physical indicia and the syringe properties to a direct relationship, the district court erred in so ruling. It was therefore improper for the court to enter summary judgment of noninfringement of the asserted claims of the '612 and '197 patents. The district court will have to reconsider the infringement claims in light of the claim construction we have set forth above.

In view of its claim construction ruling, the district court did not need to analyze claim 25 separately from the other asserted claims of the '612 and '197 patents, other than to note that the language of claim 25 differs somewhat from that of the other claims. To the extent that Liebel continues to assert claim 25 on remand, the district court will have an opportunity to consider the proper construction of that claim in light of our interpretation of the language of the other asserted claims of the '612 and '197 patents.

22. Predefined text area "related to each fields of the second set of fields based on the selected fields:" 22 The predefined text area "has text which is predefined on the basis of the contents of the second set of fields, which in turn are based on the fields selected from the first set of fields." This construction is consistent with Figure 1B of the specification.
A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
<tr>
<td>&quot;Retrieving via the terminal&quot;</td>
<td>&quot;locating and returning, by means of the terminal, ID information and a card number stored on the debit card&quot;</td>
</tr>
<tr>
<td>&quot;Computer&quot; and &quot;Computer means&quot;</td>
<td>&quot;a data processing device&quot;</td>
</tr>
<tr>
<td>&quot;Transmitting to a computer&quot;</td>
<td>&quot;sending by means of a signal path to a computer&quot;</td>
</tr>
</tbody>
</table>
"Validation" and "Valid" "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely" "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means" "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means" function "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" structure "a modem or a signal path"

"Selected from a group of ID information" (Claim 2) "chosen from one of the following ID information"

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

--- Footnotes ---

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Step 3

Step 3 provides for "relating said at least one customer profile with the content profiles for the data available from each data source to the customer." Amazon's proposed construction, "comparing the customer profile with the content profiles for the data available from each one of the data sources by comparing the corresponding values for each of the predetermined characteristics," fails on the same grounds as its claim construction in Steps 1 and 2. Amazon improperly narrows the claim language of Step 3 by reading the phrase "predetermined characteristics" into the claim language, despite the fact the term is conspicuously absent. In contrast, Pinpoint's proposed construction is buttressed by the ordinary meaning of the term "relating," as meaning "to show or establish a logical or causal connection between." Pl. Opp. Mem. at 22 (quoting Merriam-Webster Dictionary at 621). The court construes "relating said at least one customer profile with the content profiles for the data available from each data source to the customer" as "establishing a logical connection between the customer profile and content profiles for the available data."

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b. Relative delay value

Disputed Claim Language Synopsys's Proposed Construction Magma's Proposed Construction
The phrase "relative delay value" appears in claims 28, 29, 51 and 52 of the '446 patent and claims 1, 12, 13, 14 and 16 of the '438 patent. (See '446 Patent at 19:24-34, 22:13-31; see also '438 Patent at 17:8-27, 18:26-38, 18:42-45.) Magma contends that "relative delay value" has the same meaning as "initial intended delay," while Synopsys contends that the two terms have different meanings.

Other than claim 1 of the '438 patent, each of the claims that contains the term "relative delay value" mentions "stretching" or "compressing" the "relative delay value" of a cell. (See '446 Patent at 19:24-34, 22:13-31; see also '438 Patent at 18:26-38, 18:42-45.) For example, claim 28 of the '446 patent requires the step of "stretching the associated relative delay value of a selected cell after the step of placing and before the step of determining the area." (See '446 Patent at 19:26-28.) Claim 1 of the '438 patent, by contrast, does not provide for any change to the "relative delay values." (See '438 Patent at 17:8-27.)

As an initial matter, the Court notes that "different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope." See Seachange In'l, Inc. v. C-Cor, Inc., 413 F.3d 1361, 1368 (Fed. Cir. 2005) (quoting Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999)). Because the claims of the '446 patent include both the phrases "initial intended delay" and "relative delay value," it is presumed that the two phrases have different meanings. "However, the doctrine only creates a presumption that each claim in a patent has a different scope; it is not a hard and fast rule of construction" and cannot be used to "broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence." See id. at 1369 (internal quotations and citations omitted).

As Magma correctly points out, the '446 patent application was amended in May 2000 to replace, in some instances, the phrase "relative delay value" with the phrase "initial intended delay." (See Huffsmith Decl. Ex. 17 at SY002223.) Magma contends that this substitution indicates the two phrases have the same meaning. 5 Magma also points out that references to "relative delay value" in the dependent claims of the '446 patent are based on independent claims that appear to use the phrase "initial intended delay" to describe the same thing. Specifically, claim 21 of the '446 patent refers to "an initial intended delay associated with each cell" and contains no reference to "relative delay value," (see '446 Patent at 18:55-56), while dependent claims 28 and 29 describe, respectively, stretching or compressing "the associated relative delay value of a selected cell," and make no mention of "initial intended delay." (See id. at 19:24-33.) The Court agrees that "relative delay value" in dependent claims 28 and 29 appears to refer to the "initial intended delay" set forth in independent claim 21. Similarly, independent claim 49 refers to "computing the initial intended delay value of each cell based on the initial intended gain value," while dependent claims 51 and 52 discuss changing the gain value in order to change "the associated relative delay value of said cells." (See id. at 22:7-8, 13-20.) The Court agrees with Magma that "relative delay value" in claims 51 and 52 appears to refer to the "initial intended delay" set forth in independent claim 49.

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5 At his deposition, Dr. Sechen testified that "initial intended delay has units of time, whereas the relative delay value is unitless," but further testified that the difference in measurement of the two terms did not constitute a difference in meaning. (See Boyce Decl. Ex. A (Sechen Dep.) at 80:3-15, 85:5-86:1.)

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Moreover, the only reference in the specification to "relative delay" appears in the "Summary of the Invention" section, which states that the invention "broadly provides a method for designing an integrated circuit layout based upon an electronic circuit description and by using a cell library containing cells that each have an associated relative delay value[.]" (See id. at 3:17-21.) The summary of the invention further provides that "the initial intended area of at least some of the selected plurality of cells" is "determined using the associated relative delay value of the selected cell and the initial intended lengths of some of the wires coupled to the selected cell[.]" (See id. at 3:31-35.) Other than in the language of the
claims, no other reference to "relative delay value" appears in the '446 or '438 patents. Although Synopsys argues that "relative delay value" is "not an initial delay at all, but rather is a delay that has already been adjusted 'relative to' another value such as the timing constraints in the circuit," (see Reply at 10), the claim language, as well as the above-cited language from the specification, contradicts Synopsys's argument. In particular, claim 1 of the '438 patent makes no reference to adjusting the "relative delay value"; rather, it notes that the cells in a cell library already have "an associated relative delay value" when selected from the library, and that the "area" of some of the selected cells is adjusted based on the "relative delay value" of those cells in order meet predetermined timing constraints. (See '438 Patent at 17:8-28.) The Court finds there is no distinction in the patent between the "initial intended delay" and the "relative delay value." 6

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6 Synopsys concedes that the terms "initial intended delay" and "relative delay value" are "at least similar," as its proposed constructions of the two terms and its own expert's testimony demonstrate. (See Harris Decl. P 93 ("It appears that the parties are in agreement that the 'relative delay value' is at least similar to the 'initial intended delay' set forth in the claims of the '446 Patent.")

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Accordingly, the Court will construe "relative delay value" in the same manner as it construed "initial intended delay": "a delay set as a target." 3636

Relative Movement

Konami argues that "relative movement" should be construed as "continuous movement of one thing with reference to another." Defendants Roxor and Redoctane contend that the term requires no construction, and Defendant MadCatz proposes that if the Court decides to construe the term, it should mean "movement of one thing with reference to another." In addition to whether "relative movement" should be construed at all, the parties disagree about the propriety of Konami's requirement that the movement be "continuous." The Court finds that the term requires no construction because the patentee used the term in accordance with its ordinary accustomed meaning, and additionally finds that Konami's "continuous" limitation lacks support as applied to "relative movement." n10

"Relative movement" is generally found in the following context: n11

a guidance unit effecting display of relative movement between said first and second display parts;

said guidance unit including a control section for controlling said relative movement to display a matching relationship between said first and second display parts in timed relationship with said rhythmic piece to thereby direct the player to actuate said actuable parts (emphasis added).

This claim language suggests that the patentee used the term "relative movement" in accordance with its normal and accustomed meaning, which encompasses all types of movement including "continuous" and "non-continuous" movement. Rexnord Corp., 274 F.3d at 1342. However, Konami argues that the specification teaches that the display parts are, in fact, a series of discrete stationary images rapidly displayed to create the illusion of continuous movement. In support, Konami points to a part of the preferred embodiment describing the allocation of memory that loads the display parts "without interruption." See 8:26-29. The Court finds this excerpt is insufficient to overcome the presumption that "relative movement" should carry a broader meaning, which is in accord with its ordinary and accustomed meaning. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d at 1366.

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n10 The Court finds that "movement of one thing with reference to another" is not helpful because it merely confirms the ordinary meaning of "relative movement." Thus, the Court will focus on Konami's "continuous" limitation, and on whether
Konami's proffered support is a one-line description of the process by which display parts appear on the screen in a preferred embodiment. However, the surrounding language indicates that the references to "continuous" movement or movement "without interruption," applies more directly to the concept of "scrolling" than to "relative movement." The surrounding language reads:

A scroll display control section 110 is used to perform scroll display on the display surface of the monitor 3. The stepping position indication data for one set of data, which is set by the rhythm setting section 107, read from the stepping position indication data memory 105, is replaced with image data (hereinafter referred to as "stepping position indication marks") and is temporarily input to a mark memory 111. In this mark memory 111, an amount of two sets of data which are continuous so that the images of the stepping position indication marks are always displayed without interruption on the display surface 31 of the monitor 3 in scroll display is written. The scroll display control section 110 causes a stepping position indication marks from the mark memory 111 to be written as scroll images into a display memory 3a in such a manner that the reading addresses are shifted sequentially at predetermined time intervals. In this manner, in addition to dance images which are not scrolled, stepping indication marks which are scrolled are also transferred in sequence to the display memory 3a, and furthermore, the contents of the display memory 3a are repeatedly read and displayed in known display scanning means at a cycle, such as 1/60 seconds, and on the display surface 31, the stepping position indication mark is scrolled and displayed on the display surface 31 and the dance image is displayed in a moving-picture manner as a background image (emphasis added). 8:19-44.

The emphasis on "scrolling," which appears in dependent claim 32 as a particular sub-category of "relative movement," indicates that this excerpt describes a preferred embodiment including "scrolling" but the more general concept of "relative movement" is not implicated.

As noted above, the patentee used "relative movement" in its normal and accustomed meaning, which includes both "continuous" and "non-continuous" movement. The claims do not suggest that any particular type of movement was contemplated, and although Konami argues that the specification teaches a particular type of movement, that guidance is not particularly strong or clear as to "relative movement" and seems to read more directly on "scrolling." Therefore, the Court finds that this term's ordinary and accustomed meaning controls, and no construction is necessary.

3637

Relative Position

The '754 patent teaches:

a programmable microcomputer control apparatus for controlling the relative motion between a tool and a workpiece comprising ... indicator means for providing at an output digital signals indicative of the relative position between the tool and the workpiece.

Def. Ex. A (Pat.) at col. 14, ll. 41-46. Defendants argue that this is a means-plus function element. Defendants are correct; the element discloses a function (providing output signals indicative of relative position) and does not describe the structure used to accomplish that function. See Cole v. Kimberly-Clark, 102 F.3d 524, 531 (Fed. Cir. 1996) (means-plus-function elements "must not recite a definite structure which performs the described function."). In such cases, the Court must adopt the structures set forth in the specification as a limit on the element.

Defendant also argues that this element must be limited to an indicator which directly measures the relative distance between the tool and the workpiece rather than indirectly calculating this distance by measuring the absolute distances of the tool and the workpiece from some fixed reference point. Plaintiff argues that the indicator successfully indicates the
"relative distance" between the tool and the workpiece regardless of whether it directly measures the distance between the tool and the workpiece, or indirectly determines their relative distance from each other by reference to some fixed point. Plaintiff therefore argues that the language of this element does not support such a distinction. To the contrary, plaintiff argues that the patent specification mandates against it.

Defendants contend that plaintiff relied on a distinction between direct and indirect calculation of the distance between the tool and the workpiece by distinguishing between devices that measure "relative" and "absolute" position in the prosecution history. For example, Hurco distinguished the Kokai patent by stating: "Kokai discloses current position register 7 storing absolute position, but no apparent indication of relative position," See Def. Ex. D at HA022961, while simultaneously claiming that the '754 patent "requires the indication of the relative position of the tool and the workpiece."

In response, plaintiff notes that although the '754 patent uses the phrase "relative position," the patent's specification itself describes the position of the workpiece as being determined by reference to an absolute, fixed point on the machine tool table. In particular, the specification states:

When the program is in data block zero the table zero may be established over the full range of table travel by pushing table zero [button] 222 when the table is in the desired location. Programmed coordinates are then measured from the point.

Def. Ex. A (Pat.) col 6, ll. 30-34. Plaintiff therefore argues that the phrase “indicative of the relative position between the tool and the workpiece” must be construed to include systems that measure the location of the workpiece from some fixed point on the machine tool table. Although plaintiff cannot explain the prosecution history excerpt defendant cites regarding "absolute position," the exact meaning of this excerpt is unclear, and plaintiff's interpretation seems to accord better with the language of the specification itself. The Court therefore rejects defendants' proposed limitation.

2. Claims 1, 17 & 26 -- "Relative To"

In the course of the December 10, 1999 Markman hearing and in pre-hearing filings, it became apparent that the meaning of "relative to" is disputed. CIVIX contends the term "relative to" was inserted in the '525 patent only to address the patent examiner's concern about relativity. (Dec. 10, 1999 Tr., p. 14). CIVIX contends that the '525 patent makes clear that the transmitted information must be displayed relative to the positional coordinates. (Dec. 10, 1999 Tr., p. 15). Defendants argue that "relative," as used in the '525 patent, is opposed to "absolute" positioning along universal latitude and longitude coordinates.

CIVIX directs my attention to the amendments made to the '525 patent in response to the patent examiner's initial rejection of the claims as indefinite. On October 2, 1996, the PTO issued a First Office Action rejecting each of the thirty-seven claims pending in the '525 patent's application. (Detailed Action, CIV 0000214). In so doing, the examiner stated:

The use of terms "positional coordinates" and "identification of a position," as recited in line 4 and 11 of claim 1 (and in independent claims 17, 26, and 35) is unclear because the position of an element (or an item) can be absolute or relative. If the position is meant to be relative it is necessary to distinctly point out the relativity.

(CIV 0000214) (emphasis added). In response, the inventors submitted the following amendments addressing relativity (emphasis shows language added by amendment):

Claim 1: (C) means for transmitting a portion of the information in the database to the user via the link upon receipt of a request signal representative of a selected category and geographic vicinity, the transmitted portion of the information including identification of a position for each of the items of interest within the selected category and geographic vicinity and relative to the positional coordinates and other items of interest within the vicinity, and

Claim 17: (B) means for transmitting a portion of the information to the user via the link upon receipt of a request signal representative of a geographic vicinity and a selected category of the items of interest, the transmitted portion of the information including identification of a position for each of the items of interest within the selected category and
geographic vicinity, the position for each of the items of interest within the selected category and geographical vicinity being defined relative to the positional coordinates and other items of interest within the selected category and geographic vicinity.

Claim 26: (B) means for generating a request signal representative of a selected category and a selected geographic vicinity of the items of interest in response to inputs by the user, the remote access port having a user interface for accepting the inputs and for indicating to the user the position of each of the items of interest within the selected category and geographic vicinity, the position for each of the items of interest within the selected category and geographic vicinity being defined relative to the positional coordinates and other items of interest within the selected category and geographic vicinity.

(CIV 0000224-0000227). In the "Remarks" section concerning the above amendments, the inventors state that the amendments make clear that the items of interest are spatially related to each other and relative to the positional coordinates selected for the geographical vicinity. (CIV 0000227). Given the clear concern by the patent examiner, the inventors chose relative positioning rather than absolute positioning.

In response to these amendments, the Examiner allowed each of the thirty-seven claims of the '525 patent and provided his reasons for doing so in an Examiner's Statement of Reasons for Allowance. The Examiner emphasized that a primary factor distinguishing the claimed invention from prior art was that the position of the items of interest were defined, not absolutely, but rather in relation to the positional coordinates and other points in the selected vicinity:

The prior art does not teach or fairly suggest an apparatus or a method for . . . remotely accessing the database through a user interface to obtain information that includes the position for each of the items of interest within the selected category and geographic vicinity being defined relative to the positional coordinates and other items of interest within the selected category and geographic vicinity as recited in all independent claims.

(Examiner's Statement of Reasons for Allowance, P 1.1, CIV 0000287) (emphasis in the original). Accordingly, it is reasonable to infer that the '525 patent was issued because the positions of items of interest were defined in relative rather than absolute terms.

Because the term "relative" remains somewhat ambiguous in light of the intrinsic evidence, both sides have submitted expert declarations assisting in my technical understanding of absolute versus relative positioning. See Phillips Petroleum, 157 F.3d at 870. However, I heed Vitronic's warning that such opinion testimony on claim construction should be treated with the utmost caution. See Vitronics, 90 F.3d at 1585.

In support of its position, CIVIX submits the declaration of Rebecca McKinley. She testifies that the concept of "absolute" positioning means the use of precise measurement such as that involving surveyors instruments. (McKinley Declaration, P 6). She further states that the assignment of a latitude/longitude coordinate pair does not necessarily constitute absolute positioning. (McKinley Declaration, P 7). Instead, she contends that a latitude/longitude location would ordinarily suggest a relative location to other objects defined by this same coordinate system. (McKinley Declaration, P 7).

Defendants submit contrasting declarations supporting their view on absolute versus relative positioning. For example, Timothy Woods testifies:

The terms "absolute position" or "absolute coordinates" typically refers to positions defined in relation to the origin of a generally accepted coordinate system (e.g., 35 degrees latitude, 45 degrees longitude specify a position in relation to the equator and prime meridian.) By contrast, "relative positioning" or "relative coordinates" refers to positions defined in relation to an arbitrary point, not the origin of a generally accepted coordinate system. For example, the location of a drug store can be specified without knowing its absolute latitude and longitude, as two miles north and six miles east of a shopping mall whose location is otherwise known. In that case, "two miles north" and "six miles east" specify the relative position of the drug store.

(Wood Declaration, P 6). This is confirmed by the Defendants' other submitted declarations of Robert French and Robert Mavis. This view is further confirmed by recent United States Geological Survey documents that suggest ways of teaching students about mapping. http://rockyweb.cr.usgs.gov/public/outreach/topoteach.html. One education suggestion addresses "absolute versus relative location," and recommends that this notion be taught to elementary students:
Discuss absolute location versus relative location. What is the difference between 42 07 31'' 1at / 101 15 31'' long versus the phrase "northeast of Pleasant Grove"? When is absolute location important, and when is relative location important?


CIVIX makes no argument that its product uses latitude/longitude positioning. Instead, when I presented CIVIX with a simple hypothetical concerning these positioning concepts, CIVIX provided insight into their concept of "relative" positioning:

THE COURT: You know, if you have an air observer, you may only have to drop five zero and then fire for effect the whole battery. But that is a known point or position defined by an acceptable method of latitude and longitude.

You could also be from Rocky Ford, like I am, and somebody drives up and says, "Where's Maud's place?" And you say, "Well, you go down this lane about a mile and a quarter, hang a left through the cemetery. When you get through the cemetery turn right about a quarter of a mile and Maud's is on the right up the lane."

MR. SHEIKH [CIVIX]: Uh-huh.

THE COURT: That defines her location.

MR. SHEIKH [CIVIX]: Yeah... I would say it's much closer to showing your second example, you know, up there to the right, past the cemetery, than your military analogy.

Evidence was also presented that instead of latitude/longitude positioning, CIVIX uses an internal positioning grid system specific to each geographic vicinity. (Mavis Declaration, P 6). The items of interest are then located relative to the positional coordinates that specifically define the geographic vicinity.

I conclude that the term "relative to" denotes the concept of relative positioning as opposed to absolute positioning. CIVIX does not employ a universal system of latitude and longitude coordinates. Instead, it uses its own internal grid system and the information transmitted to a user of the system displays the items of interest only relative to the positional coordinates within this grid system.
Various methods of manufacturing MOS transistors have been described, whereby a semiconductor is produced by forming a thin layer of dielectric material (the oxide in the illustration) on a silicon substrate, then depositing gate electrode material such as polysilicon on the dielectric layer, "doping" the polysilicon with activating ionic substances so that it will conduct electricity, and vertically implanting or doping the source and drain regions of the silicon substrate with ions so that they become conductive. The portion of the substrate under the gate electrode is shielded from the vertical ion implantation, whereby after implantation the edges of the source and drain regions are generally vertically aligned with the sides of the gate electrode.

After implantation, the entire structure is heated to activate the ions in the implanted regions, as is necessary to make the regions conductive. This step leads to an undesirable consequence because during this heating process the implanted ions tend to diffuse through the substrate. Diffusion under the gate electrode causes buildup of an electric charge known as "Miller capacitance," which reduces the transistor's operating speed. The '943 patent is directed to a MOS transistor fabrication method that reduces the occurrence of Miller capacitance.

In accordance with the '943 method, dielectric oxide layers are thermally grown on the top and sides of the gate electrode. This oxide serves as a mask during the ion implantation of the substrate, thereby spacing the source and drain regions from the region under the gate, as shown in Fig. 1 of the '943 patent:

The dielectric oxide layers are differentially grown, meaning that the oxide (18) grown on the top and sides of the gate electrode (16) (POLY for polysilicon) is thicker than the oxide grown over the source and drain regions (20 and 22) of the substrate. The grown oxide on the top and sides of the gate electrode shields the gate electrode and the underlying portions of the substrate from ion implantation during creation of the source and drain regions, forming a gap that is free of implanted ions. Upon heat activation there is some migration of ions, but the conditions are controlled whereby there is substantially zero overlap in the vertical alignment of the gate electrode and the implanted source and drain regions. Since the ions do not migrate beyond the gap into the area underneath the gate electrode, Miller capacitance is avoided and operating speed is increased. Claim 1 of the '943 patent states the claimed process:

1. A method for fabricating on a substrate an MOS transistor having a gate electrode and a self-aligned source/drain region with zero overlap comprising:

   (a) forming a doped polysilicon gate electrode upon but insulated from the substrate; then

   (b) differentially thermally growing an oxide to serve as an implant mask having controlled thickness on both the top and sides of the gate electrode whereby a relatively thicker layer of oxide is developed on the top and sides of the gate electrode and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate; then

   (c) anisotropically etching said oxide;

   (d) implanting a source/drain region in the substrate such that said implant mask shields an underlying portion of the substrate from implantation to result in a gap between a side edge of the gate electrode and a side edge of the implanted region; and then

   (e) heat driving the implanted source/drain region until its side edge is substantially aligned with the previously separated side edge of the gate electrode, whereby the source/drain edge is aligned with the gate electrode edge and there is substantially zero overlap.

EMI charged that certain of Intel's MOS transistor fabrication methods infringe claim 1, literally or under the doctrine of equivalents.

INFRINGEMENT
Determination of infringement entails a two-step analysis wherein the claims are first construed by the court as a matter of law, following which the construed claims are applied to the accused device or method, a question of fact. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 U.S.P.Q.2D (BNA) 1321, 1326 (Fed. Cir. 1995) (in banc), aff'd, 517 U.S. 370, 38 U.S.P.Q.2D (BNA) 1461, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). In Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455, 46 U.S.P.Q.2D (BNA) 1169, 1173 (Fed. Cir. 1998) (in banc), the Federal Circuit confirmed that any disputed questions concerning the meaning and scope of patent claims, including the meaning of technologic and other terms ("the totality of claim construction") are treated as questions of law and are determined de novo on appeal, without deference to the decision of the trial court.

On appeal of the district court's grant of summary judgment we first must construe the claims, and then apply the rules governing summary judgment to the district court's rulings on the factual issues of infringement. When disputed questions of material fact underlie the summary judgment "the evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 254, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). The appellate tribunal must assure itself that there is no reasonable version of the facts, on the summary judgment record, whereby the nonmovant could prevail, recognizing that the purpose of summary judgment is not to deprive a litigant of a fair hearing, but to avoid an unnecessary trial. See id. at 250. On this basis the grant of summary judgment is reviewed de novo on appeal. See, e.g., Stark v. Advanced Magnetics, Inc., 29 F.3d 1570, 1572-73, 31 U.S.P.Q.2D (BNA) 1290, 1292 (Fed. Cir. 1994).

The Markman Hearing

Construction of the claims by the trial court is often conducted upon a preliminary evidentiary hearing, called a Markman hearing in homage to the decision, cited supra, that established that this step must be performed by the judge, not the jury. This case illustrates the resolution of most of a complex infringement case with no more trial than a two-day Markman hearing.

At the Markman hearing the district court heard extensive testimony from the technical experts on the various issues and arguments concerning the scope of the claims in the context of the accused structures, and made findings thereon in construing the claims. The Federal Circuit has admonished that claims should preferably be interpreted without recourse to extrinsic evidence such as expert testimony, other than perhaps dictionaries or reference books, and that expert testimony should be received only for the purpose of educating the judge. See Markman, 52 F.3d at 983, 34 U.S.P.Q.2D (BNA) at 1133 (expert testimony can not "relieve the court of its obligation to construe the claims according to the tenor of the patent. This opinion testimony also does not change or affect the de novo appellate review standard for ascertaining the meaning of the claim language.") In Cybor the court reaffirmed that extrinsic evidence including expert testimony is not to be relied upon for purposes of claim interpretation, other than to aid the judge in understanding the technology; such evidence is only "an aid to the court in coming to a correct conclusion as to the true meaning of the language employed in the patent." 138 F.3d at 1454 n.3, 1455-56, 46 U.S.P.Q.2D (BNA) at 1173 n.3, 1174.

At the hearing the court received the testimony of expert witnesses for both sides. The witnesses explained the technology of MOS field effect transistor fabrication, analyzed the cited references, and testified as to the technologic facts of the patented and the accused processes and their effect. The expert witnesses discussed the specification and the prosecution history and the meaning of certain rejections, arguments, and amendments during patent prosecution. The expert witnesses expressed their views on the meaning and scope of the claims, as well as on legal and technologic issues relating to prosecution history estoppel and equivalency.

Following the Markman hearing the district court construed the scope of the claims, with respect particularly to the relative thickness of the grown oxide on the top of the POLY gate. This construction was dispositive of the issue of literal infringement. The district court granted Intel's motion for summary judgment that there was not literal infringement, and a few weeks later upon Intel's renewed motion the court granted summary judgment that there was not infringement under the doctrine of equivalents. EMI argues that the district court incorrectly construed the claims, denying the patented invention its proper scope. EMI states that the court's overly narrow claim construction incorrectly excluded the accused Intel processes.

Several complex and disputed technologic questions have been raised concerning the scope of the claims and their construction, particularly in the context of the accused structures. In our de novo review we have considered the analysis
and conclusions of the district court, as well as the testimony and opinions of the expert witnesses, in resolving these questions. Although both sides have attempted to provide basic education in this field of technology, our determination of the issues on appeal has drawn on the record of the Markman hearing and the testimony of the expert witnesses, including their conflicting views of the significance of various distinctions drawn during patent prosecution with respect to the prior art, as well as with respect to the accused Intel methods and their relation to the EMI method and prior art methods.

The Oxide Thickness, Claim Clause (b)

The district court construed clause (b) to require that the dielectric oxide grown on top of the gate electrode must be sufficiently thick of itself, without additional deposited dielectric, to serve as an implant mask for the gate electrode. This requirement is not stated in the '943 specification, but Intel argued that it is implicit in the patented invention, and that this can be discerned from the prosecution history and the prior art.

The issue was debated by the expert witnesses, who disputed the purpose of the grown oxide on top of the gate, applied the prior art to set limits to the top oxide thickness, and discussed the implications for Intel's process. Drawing heavily on this testimony, the district court construed claim clause (b) to require the following characteristics of the grown oxide on the top and sides of the gate, some of which are stated in the claim and some of which are not:

1) the grown oxide must be thick enough on top of the gate electrode to serve as a mask for the implant of step (d);

2) the grown oxide must be thick enough on the side of the gate electrode to block the implant of step (d), thereby making a "gap;" and

3) the top oxide thickness must be in a proportion of at least 1.77 to 1 to the substrate oxide thickness.

EMI assigns several errors to this claim construction. First, EMI argues that clause (b) does not require that the grown oxide on top of the gate electrode be sufficiently thick by itself to serve as a mask during implantation of the source/drain region. This aspect is relevant to the issue of infringement, for Intel adds dielectric to the top of the gate in order to achieve this masking result. EMI states that the doping (implanting) of the gate electrode itself is not part of the '943 invention, and that it is irrelevant to the construction of the claim to consider how the top of the gate is masked. EMI states that neither the specification nor the prosecution history concerns the mask thickness of the oxide on top of the gate, or whether that oxide is grown, or additional dielectric is deposited, or both. Thus EMI argues that the district court incorrectly construed the claim by imposing the enumerated limitations on the claim element of clause (b).

EMI points out that clause (b) as written requires only that the oxide grown on the top and sides of the gate electrode has a "controlled thickness," thicker than the oxide grown on the substrate (this is the agreed meaning of "differentially" growing), and requires only that the grown oxide on top and sides "serves as an implant mask" during implanting of the source and drain regions. EMI states that this does not mean or require that the grown oxide must be sufficiently thick on top of the gate to serve as a complete implant mask to the gate electrode itself, which has already been doped. EMI states that the '943 claims do not exclude Intel's deposit of additional oxide on the top of the gate to add to the masking effect of the grown oxide. EMI argues that the phrase in clause (b) "having controlled thickness on both top and sides" refers, grammatically and technologically, to the term "oxide," not the term "implant mask." EMI states that the '943 patent is directed to masking the substrate during ion implantation of the drain and source regions, and that it is irrelevant how the top of the gate is shielded during this step.

Thus EMI argues that clause (b), correctly construed, requires only that the differentially grown oxide must have controlled thickness on the gate electrode as compared with the substrate, but does not also require the grown oxide on top of the gate electrode to serve as a total mask to the top of the gate during the implantation of the substrate in accordance with clause (d). EMI argues that the specification supports the claim construction that only the oxide grown on the sides of the gate electrode must serve as a complete mask to the underlying substrate, pointing out that column 3, lines 42-44, of the '943 patent states that "the oxide 18 on the sides of the gate electrode acts as an implant mask to shield underlying portions of the substrate from implantation."

During patent prosecution the claims were rejected on the ground of obviousness based on U.S. Patent No. 4,182,023 (the Cohen patent) in light of U.S. Patent No. 4,356,623 (the Hunter patent). The Cohen patent describes the implanting of MOS...
source and drain regions when there is formed on top of the gate electrode a layer of oxide slightly larger than the gate electrode, thereby providing an overhanging mask that shields a portion of the substrate below the overhang during the vertical implantation of ions into the source and drain regions. The Hunter patent describes depositing an oxide layer over the top and sides of the gate electrode, then etching away the oxide on the top of the gate (so that the top can be implanted with dopant), leaving the oxide on the sides of the gate to serve as an implant mask for the substrate. To overcome the rejection on the combination of Cohen and Hunter, EMI amended clause (b), which had initially stated "forming an implant mask of a controlled width on the sides of the gate electrode" without mentioning the top of the gate electrode, to "forming an implant mask of a controlled thickness on both the sides and on the top of the gate electrode." EMI's patent attorney pointed out to the examiner that the Hunter patent required etching away the oxide on top of the gate electrode and,

if enough oxide is etched away to permit implanting the source and drain, because there is no differential, between the gate oxide thickness and the source/drain oxide thickness, the gate would similarly be implanted. This too is a severe problem. [Emphasis in original.]

Thus EMI stressed to the PTO that in its invention failure to totally mask the gate would result in a "severe problem."

Again rejecting the pending claims, the examiner next cited the Steinmaier patent (U.S. Patent No. 4,139,402) in view of the Cohen patent. Steinmaier shows grown oxide on the top and sides of the gate, and was distinguished by the applicant's stressing that in the '943 invention the oxide was differentially thermally grown, that the gate was already doped before the oxide was grown, and that the oxide in Steinmaier was too thin to serve as an implant mask for the doped polysilicon or to prevent diffusion of ions from the source and drain regions into the area under the gate. The rejection was also based on the Stoffel patent (U.S. Patent No. 4,287,661), which showed an implant mask having deposited oxide on top of the gate and grown oxide on the sides of the gate and on the substrate. EMI argued that Stoffel was distinguishable on the basis that,

the top of the gate is covered with a coterminous layer of deposited silicon oxide. Next, to get to Fig. 4, a thermal growth occurs as described in column 4, lines 15-27. Clearly this oxidation is entirely of polysilicon, because polysilicon is the uppermost layer. There is no differential growth because there is only one substance being oxidized. (A difference in thickness results only because there is the added thickness of deposited silicon oxide 32.) [Emphasis in original.]

At the same time, claims covering alternate embodiments, including those to composites of two dielectrics to mask the gate, were cancelled and claim 1 was amended and limited to "(b) differentially thermally growing an implant mask of oxide . . . on the top and sides."

The oxide grown under the conditions of the '943 patent was consistently described to the examiner as having the advantage of producing a "relatively thicker" oxide covering the gate electrode. Although it is undisputed that Intel's grown oxide is also "relatively thicker" on the gate, it was stipulated that it is not thick enough to mask the top during ion implantation, and requires a supplemental deposit of dielectric material for that purpose. We observe that EMI's claims all state that the gate electrode is already "doped" before implantation of the source/drain region, see clause (a) of claim 1, thus requiring that the top be masked during implantation of the source/drain regions.

With the guidance of expert testimony on all of these issues raised by the prior art and the prosecution history, the district court held that the differentially thermally grown oxide on top of the gate electrode in the '943 patent's process must be thicker than the oxide grown on the substrate by a ratio of at least 1.77 to 1. This ratio does not appear in the '943 specification, but is derived from the Steinmaier reference, which was distinguished during prosecution as inadequate to satisfy the masking requirements of the '943 process because the differential available from Steinmaier was only 1.77 to 1. Thus the district court placed this numerical threshold on the term "relatively thicker" in claim clause (b). EMI argues on appeal that the specification and claims require only that the oxide grown on top of the gate electrode is relatively thicker than the oxide grown over the substrate, that the prosecution history did not focus on the top thickness of the mask, which is irrelevant to the '943 invention, and that the numbers extracted from the prior art are inapty imported into the '943 claims.

Although we agree with EMI that the 1.77 to 1 ratio is not the only way of defining "relatively thicker," it was presented to the examiner, in distinguishing the Steinmaier reference, as a ratio below which differential thermal growth is not deemed to be achieved. It was not incorrect for the district court to construe the claims as requiring at least the relative thickness that was invoked to distinguish the '943 method from the prior art. In all events, it is clear that the oxide grown on top of the gate must be thick enough to serve as a mask for the gate during the implant step (d), for this was the basis on which EMI
overcame the final rejection on the Cohen and Steinmaier references; and EMI concedes that the differentially thermally grown oxide of Intel, without additional dielectric, does not mask the gate during step (d).

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f. "Relay having an operational position and a test position"

Claim 5 requires a "relay having an operational position and a test position." The court begins by construing "operational position" and "test position." As the parties agreed, the claimed relay is the element that separates the high voltage delivery system from the rest of the defibrillator. In one position, which is referred to in the specification as the "normally closed" or "closed" position (374 Patent at 9:13-14, 10:24-25), the high voltage delivery system is capable only of self-tests in which it sends a current through a test load. 374 Patent at 11:30-42. In this position, the defibrillator cannot shock a patient. 374 Patent at 8:34-38.

In another position, which is referred to as "normally open" or "open," the high voltage delivery system can deliver a shock to a patient, as the parties agree. In addition, however, the defibrillator can conduct other self-tests with the relay in open position. E.g., 374 Patent at 9:4-21 (describing the "Defibrillator Connector/Relay self-test"), 10:14-22 (describing the "HV Isolation Relay self-test").

The "test position" of Claim 5 is the relay position in which the high voltage delivery system can only perform self-tests and cannot shock a patient. The "operational position" is the relay position in which the high voltage delivery system can deliver shock to the patient, although the defibrillator can perform other relay self-tests in this position as well.

The parties' dispute over this term centers on whether the relay may consist of a combination of relays and can have more than two positions, as Philips contends, or whether the relay is a single relay with only two positions, as Defibtech contends.

Philips can point to no intrinsic evidence that discloses more than one relay or more than two positions. Instead, it relies on three arguments: that the specification does not exclude such relays, that dictionary definitions of "relay" do not exclude such relays, and that the inventors' decision to claim a "relay having an operational position and a test position" is no different than using the open-ended terms "comprising" or "including."

The court finds Philips' first two arguments unavailing. The specification speaks only of a relay with two positions. n10 It does not state that such positions are preferred, and it does not suggest that a relay with more than two positions could have any function in this invention. As for Philips' dictionary definitions, the court declines to rely on them for the reasons stated in its prior order. October 25 order at 5.

As to Philips' third argument, the term "having" does not carry the presumption of open-ended interpretation that accompanies the term "comprising." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed. Cir. 2001). Instead, a court must look to the specification to determine what the inventors intended. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed. Cir. 2000). As already noted, if the inventors intended "having" to be non-limiting, n11 they left no hint in the specification. The specification speaks uniformly of a single two-state relay. The court construes the term accordingly. A "relay having an operational position and a test position" is a single relay with only an operational position and a test position, where "operational position" and "test position" have the meanings the court provided above.

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n10 The specification also teaches that the relay may become stuck in a position between the open and closed position. 374 Patent at 10:26-28 (discussing possibility that relay could "fail[] to move completely to the normally closed position").

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n11 As Defibtech noted at oral argument, the inventors used the term "having" only twice in the 73 claims of the 374 Patent, whereas they used the presumptively open-ended term "comprising" more than 60 times.

--- End Footnotes ---

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Turning now to the relaying step, claim 14 reads as follows:

14. A method for automatically regulating the release of the drill string of a drilling rig drill, comprising the steps of:

   relaying said selected signal or signals to a drill string controller which regulates the release said drill string in response to said selected signal or signals.

'142 patent, col. 28, ll. 34-38 (emphasis added).

As outlined above, nothing in the claim language requires or even suggests the use of pneumatically operated valves in performing the relaying step. Rather, the only discussion of pneumatically operated valves in the intrinsic record comes from the specification: "In the preferred embodiment, valves 236-239 are pneumatic valves that operate as relays to supply compressed air to air motor 204." '142 patent, col. 7, ll. 35-37. This disclosure and corresponding Figures do not limit the invention as a whole to the use of pneumatically operated valves; rather they merely list such valves as but one example of relays operable in the present invention. See C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term.") (citing Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998)); SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.") (quoting Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988)); Gillette, 405 F.3d at 1374 ("This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.") (quoting Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed. Cir. 1986)); Gart v. Logitech, Inc., 254 F.3d 1334, 1342 (Fed. Cir. 2001) (noting that "drawings [depicting the preferred embodiment] are not meant to represent 'the' invention or to limit the scope of coverage defined by the words used in the claims themselves."); see also '142 patent, col. 24, ll. 27-35 (stating the present invention is not limited to the preferred embodiment).

Moreover, the specification's disclosure of valves that "operate as relays" implicitly suggests that "relay" has a broader meaning than simply the preferred pneumatically operated valves. To illustrate, the applicant could have used terminology such as "relays are pneumatically operated valves" that expressly disavows alternative structures. As written, however, the specification contemplates that other structures may "operate as relays" in addition to the preferred pneumatically operated valves. Hence, the intrinsic record does not support the district court's interpretation of the relaying step.

Finally, the extrinsic evidence in this case confirms that the relaying step is not limited to pneumatically operated valves. For example, Pason's expert, presumably one of ordinary skill in the art, testified that "relaying" in claim 14 was not limited to the use of pneumatically operated valves:

   Court: It's not your opinion, is it, that claims 11 and 14 are limited to a pneumatic control system -

   Expert: No. Well -- no. It's not limited to a pneumatic control system as the way they're written, that's true.

In addition, Pason's counsel at oral argument similarly conceded that relaying in claim 14 should not be limited to pneumatically operated valves. Hence, there is no support, either in the intrinsic or extrinsic record, for the district court's interpretation of the relaying step. Thus, as with the selecting step, the district court's interpretation of the relaying step is unduly narrow.
10. “Releasing”

“Releasing” is utilized in asserted claims 1, 9 and 11 of the ‘554 Patent and 1, 15, and 29 of the ‘335 Patent. The Plaintiff asserts that the “releasing” does not need construction. Alternatively, if construed, the Plaintiff asserts that the proper construction is “freeing.” The Defendants assert that the term should be construed as “communicating to said Web server that it may now process other requests.”4 A central point in the dispute between the parties is the Plaintiff’s arguments that releasing can implicitly occur as a result of routing without communication to the Web server. The Defendants assert that there must be communication to the Web server.

The Plaintiff asserts that the term “freeing” is supported by the specification and notes that the specification states that the result of routing is that the Web server is free to continue servicing client requests. In particular, the Plaintiff points out that the specification states “Web server executable 201(E) is thus free to continue servicing client requests on Web server 201 while the request is processed ‘off-line.’” Col. 5:16-18. Thus, the Plaintiff asserts that the specification implies that releasing is an automatic consequence of routing the request to another processing element and that nothing in the specification requires communication to the Web server to effectuate the release.

The Defendants assert that the ‘335 Patent prosecution history shows that merely routing a request from a Web server to a Page server and thereby implicitly releasing the Web server was disclaimed by the Applicants during the prosecution history as being different from releasing. The Plaintiff counters by asserting that the full context of the prosecution history quote in question does not stand for the proposition asserted by the Defendants. The portion of the prosecution history in question includes:

At no time does Rogers teach or suggest ‘concurrently’ processing other requests or ‘releasing said Web server to process other requests’ because merely retrieving data from multiple sources does not teach or suggest these elements. Response to Office Action, Nov. 27, 2001 at 9.

The Court is persuaded that by reviewing the full context of the portion of the prosecution history in question a clear disavowal was not made by the Applicants. Thus, the prosecution history does not mandate that releasing cannot implicitly occur due to routing from a web server to a page server. However, the Defendants raise a more relevant argument with regard to the claim language itself. “Releasing” is used in each claim as part of the phrase “said page server receiving said request and releasing said Web server to process other requests.”5 It is therefore the Page server that does the releasing. The larger context of the use of releasing in the claims themselves indicates that the Page server has a role in the releasing as in the claims themselves it is the Page server that releases the Web server. This language also conforms to the Summary of Invention and Abstract. Col. 2:25-26; Abstract, line 8.

The Court is thus persuaded that the Defendants are partly correct that as required by the claim language itself the Page server takes some action to releasing the Web server. However, the Defendants do not provide adequate support in the specification or elsewhere to mandate that such action is limited to communication from the Page server to the Web server. As there could be other actions that the Page server may take to affirmatively release the Web server, it would be inappropriate to limit the claim to one type of action, particularly when support is lacking in the record for that particular type of action. The specification does not necessarily limit the claims to a particular technique by the Page server as to how the claimed release by the Page server is accomplished. For example, the limitations proposed by Defendants could be argued to not include Page server actions that are communications from the Page server to other intermediate elements (such as the Dispatcher) or Page server actions that involve affirmatively not sending some expected regular communication. The Court therefore interprets “said page server receiving said request and releasing said Web server to process other requests” to mean “said page server receiving said request and said page server performing an act (separate from merely receiving the request) to free the Web server to process other requests.” Claims 9 of the ‘554 Patent and claims 15 and 29 of the ‘335 Patent are likewise construed with the substitution of “second
computer system” and “HTTP-compliant device” respectively for “Web server.”

The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

Relieving the institution of the administrative burden of processing forms and payments.

Judge Hubel construed the term "relieving" to mean the "elimination of anything the institution must do to use the data." Construction Order 1 at 74 (emphasis in original). Thereafter, Plaintiff argued that "relieving the burden" meant merely "to lessen the burden." This Court, however, rejected that construction and confirmed "relieving" means "[t]he described acts of the third party eliminate the administrative burden to the institution of processing forms and payments."

"Optical remodulator" or "remodulator" means "an optical interface between space-division transmission and wavelength-division transmission."

The parties also disputed the construction of several terms from the Civix patents. After briefing, and a Markman hearing on March 14, 2005, the Court made the following claim construction rulings. "Spatial detail" means "geographic information relating to an area or region." "Internet" means "a system of linked computer networks, worldwide in scope, that typically is associated with using TCP/IP as a standard protocol" and "internet" means "a group of networks that have been connected by means of a common communications protocol." "Remote" or "Remotely" means "separated by an interval or distance with "separated" meaning "to be set or kept apart."

3. "remote command center"

The phrase "remote command center" appears in several sections of claim 17. Plaintiff proposes to define the terms as, "a dedicated location for monitoring and managing the care of hospitalized patients, which location is apart from the geographically dispersed ICUs." Defendants counter with, "a dedicated center for monitoring and directing intervention of hospitalized patients by health care professionals, which center is apart from the geographically dispersed ICUs, twenty-four hours a day 7 days a week." These proposals differ in numerous respects.

At the outset and for reasons set forth above, we reject defendants' addition of a 24/7 temporal component. Thus, the remaining three disputes are as follows: "location" versus "center;" "managing the care" versus "directing the intervention;" and the proposed addition by defendant of "by health care professionals."

Plaintiff has not set forth a specific argument regarding its use of "location" versus "center" in its brief. (Pl.'s Br., pp.16-18.) At the Markman hearing, plaintiff argued that the remote command center is a location and that the best support for this
interpretation is the frequency with which the word "location" appears in the patent itself. (Hr'g., p. 107.) Defendants spend little time on this issue, asserting only that a "location" is an unnecessary and inaccurate definition for "center," which has its own commonly understood connotation. (Defs.' Br., p. 15.) We prefer plaintiff's argument and its reliance on intrinsic evidence and determine that the construction will begin: "a dedicated location."

Next, plaintiff seeks the construction "managing the care" as opposed to defendants' proposed "directing intervention." Plaintiff argues that defendants' construction would improperly limit the meaning of the claim term to intervention. (Pl.'s Br., p. 17; Hr'g., pp. 112-13.) Defendants assert that plaintiff represented its invention as different from prior art because it directed the intervention of care. (Defs.' Br. at 14; Hr'g., pp. 133, 159.) Defendants seem to urge the Court to apply the "disclaimer doctrine," supra, to narrow the meaning of the disputed claim term. Defendants also point the Court to examples in the specification where the phrase "directing intervention" is used. Plaintiff's counter that the phrase "proactively intervening" was taken out of the claim terms and the Court cannot now use the specification to add a limitation. (Hr'g., pp. 159-60.)

The Court finds that defendants' construction "directing intervention" would improperly narrow the meaning of "remote command center." The specification does not justify the addition of this language to the claim construction and defendants have provided no evidence that plaintiff has disclaimed a broader meaning. Therefore, the Court adopts the construction: "managing the care."

Lastly, defendants ask the Court to add the language, "by health care professionals" (or alternatively, "by intensivists," "by intensivist-led care team," or "by doctors and nurses") to the definition of remote command center. Plaintiff objects, arguing that "intensivist" was specifically taken out of the claim terms during the patent approval process and that it would be impermissible to now add it back in. (See Hr'g., pp. 121, 123, 126.) Plaintiff cites Kistler Instrumente AG v. United States, 628 F.2d 1303, 1308, 224 Ct. Cl. 370 (Ct.Cl.1980) and United States v. Telectronics, Inc., 857 F.2d 778, 782-83 (Fed. Cir. 1988) to support this proposition. A review of this precedent supports plaintiff's proposed construction. The phrase "by health care professionals" will not be included in the claim construction.

In sum, in defining remote command center, the Court adopts plaintiff's proposed construction for "remote command center" in its entirety. "Remote command center" is construed as: "a dedicated location for monitoring and managing the care of hospitalized patients, which location is apart from the geographically dispersed ICUs."

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1. Remote link adapters; RLA devices

The term "remote link adapters" appears in claim 12 of the '121 patent by virtue of its dependence from claim 11, and the term "RLA devices" appears in claim 52 of the '121 patent. The defendants ask the court to limit RLA devices to those that receive vestigial sideband (VSB) broadcasts and thereafter route the decoded data to data terminal equipment ("DTE"). The defendants improperly support their proposed construction with non-limiting passages from the 774 patent specification and prosecution history. The plaintiff asks the court to construe the term "RLA devices" to include the addressing and data detecting features that are characteristic of a modem. The court has considered the parties' briefing and is not persuaded to adopt either proposed construction.

The defendants suggest that certain claim limitations in the '121 patent family are limited by the disclosure and prosecution history of the '774 reissue patent because the '774 patent is incorporated by reference within the specification of the '121 patent family. Upon review of the '121 patent specification, however, the court is unable to locate an explicit incorporation of the '774 patent by reference, or an incorporation of its underlying application (serial number 08/340,733). n9 Therefore, the defendants are apparently basing their assertion solely on the incorporation by reference of the parent application to the '774 reissue patent, U.S. Patent No. 5,347,304 ("the '304 patent), within the specification of the '121 patent family. Although the court does not necessarily endorse the defendants' argument as to the effect of such an incorporation by reference, for the reasons explained below, the court does not need to decide this issue.
n9 Additionally, the defendants' brief fails to include a pinpoint citation to any supporting text.

The '304 patent is incorporated by reference into the '121 patent specification with the following language:

U.S. Pat. No. 5,347,304 (1994) assigned to Hybrid Networks, Inc., and describing an example of an RLA is hereby expressly referenced and incorporated herein in its entirety.

'774 patent at 5:59-62 (emphasis added). Assuming that the above incorporation of the '304 patent effectively incorporated the '774 patent by reference, such incorporation fails to limit the claims of the '121 patent because the patentees expressly incorporated only "an example of an RLA" from the '304/'774 patent. '774 patent at 5:60-61. Cook Biotech, Inc. v. Acell, Inc., 460 F.3d 1365 (Fed. Cir. 2006) is distinguishable for two reasons. First, the patentees in Cook. expressly incorporated the entire disclosure of the limiting patent within the patent specification at issue. This is in contrast to the incorporation at hand, which serves to incorporate the '304 patent disclosure as only an illustrative example or embodiment. Id. at 1375-76. Second, the limiting language in Cook was found solely in the disclosure of the incorporated patent disclosure; not in both its disclosure and prosecution history. Id. Therefore, under the facts of this case, the court rejects the defendants' argument that certain claim terms of the '121 patent family are limited by the incorporation of the '304 patent. The court will, however, examine the disclosure of the '304 patent for guidance on the construction of certain claim terms, as is appropriate.

The term "remote link adapter" or "RLA" was coined in the '304 patent specification. It is repeated used in the specification of the '121 patent family. As discussed above, the disclosure of the '304 patent specification was incorporated by reference within the specification of the '121 patent family to show an example of an RLA. See '121 patent at 5:59-62. Although the patentees incorporated the '304 patent as merely an example of an RLA, the '304 patent expressly describes several RLAs, and each description is consistent with the '121 patent specification. Thus, each description includes "a hybrid interface, a user interface, and a control means." See '774 patent at 2:15-16. An illustrative implementation of an RLA is shown in Figure 3 of the '774 patent as follows: [SEE FIG. 3 IN ORIGINAL]

As shown, the RLA includes a hybrid interface 22, a user interface 20, and a control means or engine 24. The hybrid interface is described as a high speed (approximately 10 Mbps) RF modem to receive broadcast channel signals. See '774 patent at 3:62-63. The engine 24 includes a microprocessor and memory to decode the incoming digital data. See id. at 3:65 - 4:3. The user interface 20 provides an output port for connection of data terminal equipment, such as a personal computer. Id. at 3:47-51, 60-62. The interface port is described as an Ethernet interface. Id. at 4:3-7.

The defendants propose definitions that require the RLA to decode data addressed to it "for routing to the DTE in contrast to using the media access layer" (i.e., MAC address). The plaintiff counters that there is no basis to restrict the RLA to a "router." The parties agree that a router is a device performing a communication function at Network Layer 3 Protocols (e.g., Internet Protocol) rather than at a Link Layer 2 Protocol (Data Link Layer), which includes Media Access Control (MAC) rules. However, the plaintiff proposes a definition that includes both MAC addressing and IP addressing (i.e., layer 3 protocols).

The written description of the '774 patent indicates that the protocol rules used by the RLA "described in accordance with this invention" serve to "filter" the packets of digital information being broadcast based upon a unique digitally encoded address. '774 patent at 4:44-50. This filtering is indicated as detecting packets with a particular address, which are then forwarded to the DTE for further processing. Id. at 4:60-65. There is no mention of "routing" of digital data packets among several DTE. The operation of the RLA is further described as establishing a link layer connection over the downstream broadcast channel. Moreover, the connection is characterized as one that "looks like a transparent remote Ethernet bridge and, therefore, is compatible with all upper layer protocols (e.g., TCP/IP, AppleTalk, ISO, DECNET, etc.) that can run over Ethernet." Id. at 5:42-45. Thus, according to the written description, it is not necessary that the RLA perform a routing function.

As discussed above, any statements regarding "routing" made by the patentees during prosecution do not limit the scope of the claims. Instead, the RLA may operate on the basis of only a MAC address to perform filtering. Therefore, the court construes the terms "remote link adapters" and "RLA devices" to mean "a device that has a unique address and includes a hybrid interface, a user interface, a microprocessor, and memory to detect data at a rate of 10 or more megabits per second."
Disputed Claim Term	Anthurium's Proposed Construction
Remote computer	A computer associated with a scribe
Disputed Claim Term	Defendants' Proposed Construction
Remote computer	A computer and software system for human user interaction that is physically close to the scribe or his principal place of business and includes an information system that stores databases of information used to process jobs, and that is physically remote from the central computer.

Much like "local" and "central" computer, the defendants seek to impose the same general limitations upon the present term. The defendants seek to impose both a system and geographic proximity limitation. Also, like above, the patent imposes abstract terminology. Here, the parties generally agree that the "remote computer" refers to the scribe's computer.

As discussed above, the Court is unwilling to impose a geographic proximity limitation on the term. The Court does impose a system limitation for the same reasons discussed above.

As such, the Court defines "remote computer" as follows: "a computer associated with a scribe that includes an information system that stores databases of information used to process jobs."

--- Footnotes ---

13 Claim 1 of the "523 patents recites

1. A system for providing a retrievable record of flight performance of an aircraft comprising:

   a ground data link unit that obtains flight performance data representative of aircraft flight performance during flight of the aircraft, said ground data link unit comprising:

   a) an archival data store operative to accumulate and store flight performance data during flight of the aircraft, and

   b) a widespread spectrum transceiver coupled to said archival data store, and comprising a transmitter that is operative
after the aircraft completes its flight and lands at the airport to download the flight performance data that has been accumulated and stored by said archival data stored during flight over a wideband spread spectrum communication signal that comprises a signal in the range of about 2.4 to about 2.5 Ghz:

an airport based wideband spread spectrum transceiver comprising a receiver that receives the wideband spread spectrum communication signal from the aircraft and demodulates the signal to obtain the flight performance data;

an airport based archival data store coupled to said airport based wideband spread spectrum transceiver that receives and stores the demodulated flight performance data;

an airport based processor coupled to said archival data store for retrieving flight data performance for the airport based archival data store:

a remote flight operations control center; and

an airport based communication network operative connecting said remote flight operations control center and airport based processor to allow the remote flight operations control center to receive and analyze the flight performance data.

The specification of the '523 patent provides substantial guidance as to the meaning of the term "remote flight operations control center." The specification states that the remote flight operations control center is a location "where flight performance data from plural aircraft parked at different airports may be analyzed and from which the uploading of in-flight data files may be directed by airline systems personnel." U.S. Patent No. 6,108,523 col.1 1.18-22 (filed Feb. 17, 1999). The specification further states that "[t]he airport base station forwards flight performance data files from various aircraft by way of a separate communications path . . . to a remote flight operations control center for analysis," and that the flight operations control center "supports a variety of airline operations including flight operations, flight safety, engineering and maintenance and passenger services, includes a system controller segment and a plurality of FOQA workstations . . . ." Id. col.3 1.1-4, 8-12. The detailed description states that the flight operation control center "allows flight performance systems analysts at the control center to evaluate the aircraft data files conveyed to the flight operations control center from the airport base station segments " Id. col.7 1.54-61. The "remote flight operations control center" limitation of the '523 patent therefore refers to a location, distinct from the airport base station, supporting a variety of airline operations including flight safety, flight operations, engineering, maintenance, passenger service, a system controller segment and FOQA workstations, where analysts can evaluate aircraft data files conveyed from the airport base station.

5. Remote locations

"Remote locations" was defined in the previous order as part of the 992 patent claim construction. The Court includes the construction for the 992 patent in the 702 patent claim construction with its justification outlined in the previous order. The term "remote locations" means positions or sites distant in space from some identified place or places.
Therefore, the Court finds "remote locations" to have its ordinary meaning "positions or sites distant in space from some identified place or places." In claims 1 and 41 of the '992 Patent, the term "remote locations" means "positions or sites distant in space from the transmission system."

In light of the Court's determination that the Preamble of Claim 19 is limiting, the Court reexamines its construction of the phrase "remote locations," which is one of the limiting terms.

The Court construes "remote locations" as follows: In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, the phrase "remote locations" means "positions or sites distant in space from the transmission system."

--- Footnotes ---

This construction also applies to the phrase as it appears in Claim 41 of the '992 Patent and Claims 2 and 5 of the '275 patent.

--- End Footnotes ---

2.

The terms "remote payment card network" and "remote payment network" appear in Claims 1 and 13 of the 298 Patent and Claims 1 and 6 of the 456 Patent. The parties agree that the definition of "debit card network," found in the specifications of each patent, provides guidance with respect to the meanings of these terms:

A debit card network is a third party processor that will process the transaction for a fee, providing connectivity to either the financial institution that issued the debit card number, or another debit card network that has the capability to connect with the financial institution that issued the debit card number.

Those skilled in the art are aware that a debit card network, i.e., Pulse in Houston, Tex., MOST in Washington, D.C., Honor in Maitland, Fla., etc., process primarily ATM (Automated Teller Machine) transactions, and do not rely on the Automated Clearing House (ACH) to process individual transactions.

(Plf. App., Exh. 1 at 14 & Exh. 3 at 40). The patent specifications also make clear that the term "debit card" means both debit and credit cards. (Id., Exh. 1 at 11 & Exh. 3 at 37). Thus, a "debit card network" refers to a debit card network or a credit card network. Having previously construed the term "payment number" to include both debit card numbers and credit card numbers, the court construes "payment network" and "payment card network" to include both debit card networks and credit card networks.

BMC is satisfied with a construction of "remote payment card network" and "remote payment network" that mirrors the definition of "debit card network." Paymentech suggests a more restrictive definition, limiting these terms to "a third party network separate and apart from the payee's agent's system and from the debit or credit card issuing financial institution and not comprising an automated clearing house." (Def. Op. Br. at 9). However, such a limitation would be improper. If the patent specification expressly defines a term, that definition controls. See3M Innovative Properties Co. v. Avery Dennison Corp., 350 F.3d 1365, 1374 (Fed. Cir. 2003), cert. denied, 124 S. Ct. 2877, 159 L. Ed. 2d 777 (2004); Renishaw, 158 F.3d at 1249. Nothing in the specifications of the 298 Patent or the 456 Patent supports the construction advocated by Paymentech. The court should construe the terms "remote payment card network" and "remote payment network" to mean "a third party processor that will process the transaction for a fee, providing connectivity to either the financial institution that issued the payment card number, or another payment card network that has the capability to connect with the financial institution that issued the payment card number."
2. Element [A] - "Remote Server"

WeddingChannel argues that a "remote server" is a computer system that provides services to other computers on a network and may be accessed by the central server over the network. In contrast, the Knot argues that a "remote server" is a computer unit, separate and independent from the central server, that provides services to other computers on a network.

WeddingChannel argues that its construction is supported by the intrinsic evidence. According to WeddingChannel, Figure 1 of the specification shows that remote server 142 can store registries (from registry database providers) that are accessible to the central server (computer system 100) over the internet through network interface 112. Pat. at col. 11, ll. 34-37. According to WeddingChannel, this disclosure shows that the remote server is coupled to a network and may be accessed by the central server over the network. WeddingChannel also points out that element [H] of claim 1 recites instructions in the central server for identifying a registry item in a registry where the registry is "stored in one or more remote servers."

The Knot argues that the specification supports its argument that the "remote server" is a computer unit that is separate and independent from the "central server," which is itself a single computer unit. The Knot points out that Figure 1 depicts the central server (system 100) and remote server 142 as separate elements, connected only by network interface 112. The Knot argues that WeddingChannel's construction is impermissible because it attempts to read this limitation out of the claim. See, e.g., Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1582 (Fed. Cir. 1996).

In essence, the Knot has argued that the specification provides that the central and remote server must each be single, physically integrated computer units that are connected by a network. Based on the foregoing construction of the term "server," this construction of the term "remote server" is impermissible. Rather, Figure 1 demonstrates that the remote server and the central server are separate computer systems, and that the remote server is accessible by the central server via a computer network. Therefore, WeddingChannel's construction of the term "remote server" is adopted.

a. "remote server assembly"

Citrix contends that the proper construction of the term "remote server assembly" is: "[a] computer that is in a network usually shared by multiple users; it is separate from the user and local computer assembly, but is accessible to the user and the local processor assembly via an online connection." Rothschild proposes that the disputed term means: "[a] computer that is in a network usually shared by multiple users; it is separate from a user computer but can communicate with a user computer via an online connection." These two proposed constructions are similar, but have two key distinctions: (1) Rothschild suggests that the "remote server assembly" need be separate only from the user, while Citrix contends that the "remote server assembly" must also be separate from the local processor assembly; and (2) Rothschild's construction requires only that a user be able to communicate with the remote server assembly via the on-line connection, whereas Citrix claims that the remote server assembly must also be accessible to the user and the local processor assembly.

In addition to the claim language itself, Citrix points to the '534 Patent specification as support for its construction. For example:

The local processor and the remote server assembly are connected in data transmitting and receiving communications with another, such as through a typical on-line connection. Moreover, the local processor assembly is structured to access the primary site address in order to achieve the data transmitting and receiving communication with the remote server assembly, and in particular, so as to be able to access the primary site data contained at the primary site address.

* * *

The local processor assembly 25' is coupled, preferably through a conventional on-line connection, [in] data transmitting
and receiving communication with the remote server assembly 50. As such, the local processor assembly 25' is structured to access the primary site address [of the remote server assembly] and thereby achieve the data transmitting and receiving communication with the remote server assembly 50 and especially with the primary site address which contains the primary site data sought to be accessed and interfaced by a user of the local processor assembly 25'.


According to Citrix, these passages reveal how the '534 Patent specification uses "remote" to identify the computer assembly that is "remote" -- i.e., located away -- from the user and the local processor assembly and, therefore, must be accessed using an online connection. It also contends that these portions of the specification explain that not only must a user be able to communicate with the remote server assembly via the on-line connection, but the remote server assembly must also be accessible to the user and the local processor assembly.

Citrix points to extrinsic evidence in the form of dictionary definitions and expert testimony to confirm that its proposed construction of "remote server assembly" is consistent with the term's customary meaning to one of ordinary skill in the art. For example, Citrix points to the dictionary definitions found in technical dictionaries:

remote: adj. Not in the immediate vicinity, as a computer or other device located in another place (room, building, or city) and accessible through some type of cable or communications link. (Microsoft Computer Dictionary, 4th ed. 1999)

remote system/remote computer system: n. The computer or network that a remote user is accessing via a modem. (Id.)

remote: located on a computer far away from the user. Contrast "local." (Dictionary of Computer and Internet Terms, 9th ed. 2006)

remote: controlled, operated, or used from a distance, as by modem or over cables. (Dictionary of Computer Words, Revised Edition 1995)

Citrix also relies on the testimony of its expert Dr. Newman, who testified at the Markman hearing that a "remote server assembly" is a computer that is not local to the user.

Rothschild claims that its proposed construction is correct because the '534 Patent does not describe the term "remote server assembly" in connection with a user. Rothschild, relying on the same portions of the specification cited by Citrix above, contends that Citrix's definition is too limiting because the "remote server assembly" need only be remote from the "local processor assembly," not from a user who may or may not be present at the "local processor assembly." Rothschild also relies on its expert, Dr. Rajkumar, who testified that a "user computer" does not require that a user necessarily be present at the computer.

Rothschild's position that the remote server assembly need not be separate from the local processor assembly contradicts the accepted meanings of "remote" and "local," as well as the '534 Patent's oft-repeated descriptions that the remote server assembly is "remote" from the local processor assembly and must therefore be accessed from the local processor assembly via a connection such as telephone or broadband line. Rothschild's position also is contradicted by Rothschild's proposed construction of "local processor assembly," which is "a computer at a location distinct from the remote server assembly," and by its own expert who testified at his deposition that he would insert the phrase "local computer assembly" in Rothschild's construction of "remote server assembly" to make clear that the "remote server assembly" is separate from the "local computer assembly."

Rothschild's position that the local processor assembly need not be able to access the remote server assembly is likewise flawed. Rothschild's contention that the user need only be able to communicate with, not access, the remote server assembly is contradicted by the accepted technical meanings of "remote" set forth above and the '534 Patent's repeated explanation that the local processor assembly must be able to access the primary site data stored on the remote local processor assembly n1. And if the local processor assembly could only communicate with the remote server assembly (say, send the remote server assembly an e-mail), the display system would not work -- indeed, Claim 1 explicitly requires that the local processor assembly "be structured to access" the remote server assembly's primary site address. Moreover, Rothschild's contention that the user can somehow communicate with/access the remote server assembly but the local processor assembly cannot
contradicts the definitions set forth above, the descriptions provided in the '534 Patent, and Claim 1's requirement that the local processor assembly be able to access the remote server assembly. Accordingly, the Court construes "remote server assembly" as "a computer that is in a network usually shared by multiple users; it is separate from the user and local computer assembly, but is accessible to the user and the local processor assembly via an online connection."

n1 In its reply claim construction brief, Rothschild concedes that "the remote server assembly manipulates data on the local processor assembly in order to initiate access to data located on the local processor assembly."

--- Footnotes ---

2. Remote site(s); remote locations

The term "remote site(s)" appears in claims 11 and 24 of the '774 patent, and the term "remote locations" appears in claim 24 of the '774 patent by virtue of its dependence from claim 20. The disagreement between the parties stems from each party's inclusion of the term "remote link adapter" within their proposed construction. As such, the plaintiff again asks the court to require the terms in dispute to include a modem, and the defendants again request that the court limit the above terms to include a router. The court rejects those constructions and construes the terms to mean "end-user locations, such as homes, offices, or schools, that have end-user equipment and a remote link adapter."

--- End Footnotes ---

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F. "Remote System Controller"

The term "remote system controller" appears in claim 16 of the '253 patent and claim 1 of the '943 patent. ABC asserts that a "remote system controller" is "one or more computer elements separate from, and facilitating communication between a local and a remote computer, and validating logon commands to control access between a plurality of local and remote computers." 166 WebEx contends that the term "remote system controller" should be defined as "a computer or controller that checks validity of logon commands and interfaces signals between the local portion/computer unit and the remote computer unit to operate the remote computer unit, but excluding devices that forward packets without regard for content and websites." 167

--- Footnotes ---

166 ABC's Brief, Docket Entry No. 154, at 19.

167 WebEx's Brief, Docket Entry No. 156, at 8.

--- End Footnotes ---

1. "Computer Elements" or "Computer or Controller"

ABC contends that a remote system controller is made up of "one or more computer elements." ABC, however, does not cite any evidence that clearly supports this description. Instead, the evidence cited by both of the parties supports WebEx's position that a remote system controller consists of "a computer or controller."

The common specification of the '943 patent and the '253 patent explicitly states that "[t]he remote system controller can be any type of computer or controller which is capable of receiving signals transmitted from at least one local portion . . . and supplying such signals to at least one of the remote computer units to permit bi-directional communication therebetween."
168 The specification also gives a more specific example of a remote system controller, explaining that "the remote system controller can be a network control computer which stores a list of access codes for individuals authorized to use the remote computer units." 169 In light of this intrinsic evidence, the court concludes that a remote system controller consists of "a computer or a controller."

2. Functions of a Remote System Controller

a. Validating Logon Commands

The parties agree that the remote system controller checks the validity of logon commands. 170 This limitation is supported by the language of claim 16 of the '253 patent 171 and claim 1 of the '943 patent. 172 Accordingly, the court will include this limitation in the definition of remote system controller.

b. Interfacing the Local Portion/Computer Unit with the Remote Computer Unit

ABC contends that the remote system controller "facilitat[es] communication between a local and remote computer." 173 WebEx asserts that the remote system controller "interfaces signals between the local portion/computer unit and the remote computer unit." 174

Claim 1 of the '943 patent describes the action performed by the remote system controller as "interfacing . . . the local computer unit with the remote computer unit," 175 and claim 16 of the '253 patent similarly describes the action as "interfac[ing] each individual's local portion with the individual's remote computer unit." 176 The language used in the claims is slightly different from that proposed by the parties to describe the function performed by the remote system controller. Although the differences are minor, for consistency's sake, the court will define remote system controller using the same terminology employed in the claim language itself. Consistent with the claim language, the court's definition will describe the action performed by the remote system controller as "interfacing the local portion/computer unit with the
c. Operating the Remote Computer Unit

WebEx's proposed definition states that the remote system controller validates logon commands and interfaces the local computer unit with the remote computer unit "to operate the remote computer unit." ABC's proposed definition does not include any such phrase to explain the purpose of validating logon commands and interfacing the local computer unit with the remote computer unit.

Because ABC's definition fails to mention the purpose of logon command validation and interfacing the local computer unit with the remote computer unit, WebEx contends that ABC's definition is incomplete. On the other hand, ABC argues that this aspect of WebEx's proposed definition is misleading because it suggests that the remote system controller, and not the local computer unit, operates the remote computer unit. 178

The court agrees with WebEx that the definition is more accurate, complete, and helpful if it explains why the remote system controller checks the validity of logon commands and interfaces the local computer unit with the remote computer unit. The court also agrees with ABC, however, that WebEx's definition could be understood to suggest that the remote system controller, as opposed to the local computer unit, operates the remote computer unit. Therefore, to avoid any confusion, the court will adopt language similar to claim 1 of the '943 patent, which explains that the remote system controller validates logon commands and interfaces the local computer unit with the remote computer unit "to permit the local computer unit to operate the remote computer unit . . . ." 179

3. Location Limitations

ABC's proposed definition includes the limitation that the remote system controller must be "separate from . . . a local and a remote computer." WebEx's definition does not include this limitation on the location of the remote system controller.

Claim 1 of the '943 patent explicitly provides that the remote system controller must be "remote from the local computer unit and the remote computer unit." The language of claim 16 of the '253 patent, however, does not include the same explicit limitation. Claim 16 describes the remote system controller as part of the "remote portion" of the split personal computer system. By use of the term "remote," claim 16 strongly suggests that the remote system controller, a component of the remote portion, must be located separately from the local computer unit. It does not, however, suggest that the remote system controller must necessarily be located separately from the remote computer unit as required by claim 1 of the '253 patent.
the '943 patent, and leaves open the possibility that the remote system controller could be co-located with the remote computer unit.

180 '943 patent, claim 1 (as amended).

181 '253 patent, claim 16 (as amended) ("the remote portion comprising: a remote system controller . . .").

The specification of the '253 patent provides additional guidance. It explains that the "remote portion 22" -- of which the remote system controller is a part -- is the portion of the split personal computer system that is "disposed remotely with respect to the local portions," and "is provided with a plurality of remote computer units 24." 182 Furthermore, Figure 1 of the '253 patent depicts the remote portion (22) as consisting of the remote system controller (26), along with multiple remote computer units (24a, 24b). 183 This strongly indicates that the remote system controller need only be located separately from the local portion(s), but may be co-located with the remote computer unit(s) as part of the "remote portion."

182 '253 patent, col.4 ll.47-55.
183 See '253 patent, Figure 1.

Because the two asserted claims that include the term remote system controller do not both require that the remote system controller be located separately from both the local computer unit and the remote computer unit, the court will not include ABC's proposed "separate from" limitation in its definition. The language of each claim sufficiently describes the necessary location of the remote system controller. Therefore, the court need not include any limitation regarding the location of the remote system controller in the definition of the term.

4. Exclusions

WebEx asserts that ABC disclaimed two categories of devices from the scope of the term remote system controller during the prosecution of the asserted patents, and that these exclusions should be reflected in the court's definition of the term. Each alleged disclaimer will be addressed.

a. Switches, Routers, and Other Similar Passive Devices WebEx first asserts that during the reexamination of the '253 and '943 patents, ABC distinguished the claimed remote system controller from switches, routers, and other such passive devices that appeared in a particular prior art reference known as "Crawford," thereby excluding them from the scope of the term remote system controller. 184 ABC does not deny that it disavowed the passive devices from the scope of the term remote system controller. Instead, ABC contends that the court need not note the exclusion of passive devices in the definition of remote system controller because a remote system controller, which receives and checks the validity of logon commands, by definition, is not a passive device. 185

184 WebEx's Brief, Docket Entry No. 156, at 10-11.
The only components in Crawford that interfaces the customer computer with the online replica computer are the switches and routers detailed in Figure 4 . . . . Switches and routers, however, are not a 'remote system controller' as recited in claim 16.

As previously discussed, switches and routers are devices that are capable of determining the source and destination of data packets, and forward the data packets accordingly . . . . These routers, switches, and the like are merely passive conduits for data. They merely forward the data packets without regard for their content. As such, it is unclear to the Patent Owner how a router or switch could read on a 'remote system controller' as recited in claim 16. 186

Similarly, during the reexamination of the '943 patent, ABC stated in a Response to Office Action:

[T]he only component in Crawford that interfaces the customer computer with the online replica computer are the switches and routers detailed in Figure 4 . . . . But switches and routers are not the same as the 'remote system controller' or 'network control computer' in the Patent Owner's claims.

Generally, these types of switches and routers are devices that are capable of inspecting data packets, determining the source and destination of the data packets, and forwarding the data packets . . . . [S]uch switches, routers, and the like are merely passive conduits for the commands received and transmitted by them. Specifically, they merely forward data packets without regard to the contents, senders, or recipients of the data packets. As such, it is unclear to the Patent Owner how a mere switch or router could be considered to 'receive' a valid logon command as recited in independent claims 1 and 2. 187

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186 Response to Office Action in Ex Parte Reexamination, at 13, Ex Parte Reexamination of U.S. Patent No. 6,360,253, Control No. 90/008,052 (Feb. 19, 2008) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 4H).


--- End Footnotes ---

The court agrees with WebEx that these statements by ABC constitute "a clear and unmistakable disavowal of scope during prosecution." Computer Docking Station Corp., 519 F.3d at 1374 (quoting Purdue Pharma L.P., 438 F.3d at 1136). Accordingly, ABC cannot recapture the disavowed devices to prove infringement. See id. at 1379 ("[The plaintiff] cannot recapture claim scope disavowed during prosecution to prove infringement."). To ensure that ABC does not attempt to recapture the disclaimed devices, the court will note the exclusion in its definition of remote system controller. Even if such devices are already excluded by the definition as ABC suggests, the court sees no reason not to make the exclusion explicit.

b. Websites

WebEx asserts that ABC also disclaimed websites from the scope of the term remote system controller during prosecution. 188 ABC counters that it did not clearly and unmistakably disavow websites from the scope of the term remote system controller; and therefore, an express exclusion of websites from the definition of remote system controller is unwarranted. 189

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188 WebEx's Brief, Docket Entry No. 156, at 11-12.


--- End Footnotes ---

The term "website" does not appear in the common specification of the '253 and '943 patents. 190 In October of 2004 ABC
submitted an amendment to the application for the '943 patent canceling all prior claims and submitting three new claims, numbered 45, 46, and 47, that included the term website either in addition to or in place of the term remote system controller. 191 Specifically, ABC proposed two method claims -- proposed claims 45 and 46 -- including the step of "establishing a remote system controller as a website on an internet," and another method claim -- proposed claim 47 -- including the step of "operating a website." 192

--- Footnotes ---
190 See '253 patent; '943 patent.
192 Id.
--- End Footnotes ---

The Examiner rejected these new proposed claims because the specification, which does not mention the term "website," failed to adequately describe the claimed invention or enable one skilled in the art to make and/or use it. 193 See 35 U.S.C. § 112, P 1 ("The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same . . .").

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--- End Footnotes ---

In response to the Examiner's rejection of the new claim language including the term "website," ABC withdrew its proposed claim 45 and modified claims 46 and 47 to remove the term website. 194 Proposed claim 46, which became claim 1 of the issued '943 patent, was amended from "establishing a remote system controller as a website on an internet" to simply "establishing a remote system controller." 195 Proposed claim 47, which became claim 2 of the issued '943 patent, was amended from "operating a website" to "operating a network control computer." 196 ABC stated that although it disagreed with the Examiner's conclusion that the specification did not support the claim language including the term "website," ABC agreed to remove the term "in an effort to expedite the allowance of claims 46 and 47 . . . ." 197

--- Footnotes ---
195 Id. at 2.
196 Id. at 3.
197 Id. at 4-5.
--- End Footnotes ---

The court concludes that ABC did not make "a clear and unmistakable disavowal of scope during prosecution" with regard to websites. Computer Docking Station Corp., 519 F.3d at 1374 (quoting Purdue Pharma L.P., 438 F.3d at 1136). To the contrary, ABC maintained at the time it removed the term "website" from the claim language that the concept of a website was adequately disclosed in and enabled by the specification. ABC's withdrawal of the term "website" from the claim
language was "merely a part of the 'ongoing negotiation' process with the PTO, and not an indication that [ABC] intended to
Accordingly, the court will not specifically exclude websites from the definition of remote system controller.

5. Conclusion

The term "remote system controller" means "a computer or controller that checks the validity of logon commands and
interfaces the local portion/computer unit with the remote computer unit to permit the local portion/computer unit to operate
the remote computer unit, but excluding passive devices that merely forward data packets without regard for their content." 4

A. "Remote System Controller"

The term "remote system controller" appears in claim 16 of the '253 patent and claim 1 of the '943 patent. ABC initially
argued that the term should be construed as "one or more computer elements separate from, and facilitating communication
between a local and a remote computer, and validating logon commands to control access between a plurality of local and
remote computers." 3 The court concluded that the term means "a computer or controller that checks the validity of logon
commands and interfaces the local portion/computer unit with the remote computer unit to permit the local
portion/computer unit to operate the remote computer unit, but excluding passive devices that merely forward data packets
without regard for their content." 4

3 Plaintiff ABC's Opening Claim Construction Submission, Docket Entry No. 154, at 19 (emphasis added).

4 Memorandum Opinion on Claim Construction, Docket Entry No. 190, at 83-84 (emphasis added).

The court adopted the phrase "a computer or controller" over the phrase "one or more computer elements" preferred by
ABC because ABC offered no argument or evidence in support of this aspect of its proposed definition and because the
common specification of the '943 and '253 patents explicitly states that "'[t]he remote system controller can be any type of
computer or controller . . . ." 5 ABC now asks the court to clarify or reconsider its ruling and declare that a remote system
controller "is not limited to a single device or any particular hardware or software configuration so long as the hardware or
software work together to perform the functions identified for the remote system controller." 6

5 Id. at 73 (quoting '253 patent, col.5 ll.9-14; '943 patent, col.5 ll.13-18 (emphasis added)).

6 ABC's Motion, Docket Entry No. 191, at 5.

1. Not Limited to a Single Device

ABC first asserts that the term "remote system controller" cannot be limited to a single device because the term appears in
"comprising" claims and is preceded by the article "a." See Baldwin Graphic Sys., 512 F.3d at 1342 (explaining that "an
indefinite article "a" or "an" in patent parlance carries the meaning of "one or more" in open-ended claims containing the
transitional phrase "comprising.""

This argument is inapt. Assuming arguendo that the cited rule of claim construction applies, the claims at issue would be construed to cover accused devices that include "one or more" remote system controllers. The rule, however, does not offer any guidance as to the composition of each particular remote system controller. The rule does not suggest that a particular remote system controller may consist of multiple devices as ABC contends.
ABC next argues that neither the claim language nor the specification limits the term "remote system controller" to a single device or any particular hardware or software configuration. In support of this argument, ABC points out that the common specification of the '253 and '943 patents states that "[t]he remote system controller can be any type of computer or controller . . . ." 7 ABC then cites extrinsic evidence that it contends shows that a computer and/or a controller may consist of more than one device.

7 '253 patent, col.5 ll.9-14; '943 patent, col.5 ll.13-18 (emphasis added).

ABC cites several dictionary definitions of the word "computer" and contends that they define the word based only on functionality and do not limit it to any particular physical embodiment. See Microsoft Press Computer Dictionary 75 (1991) ("Any machine that does three things: accepts structured input, processes it according to prescribed rules, and produces the results as output. Computers exist in a remarkable range of sizes, shapes, abilities, and applications.") (included in ABC's Motion, Docket Entry No. 191, at Exhibit 1); Webster's New World Dictionary of Computer Terms 108 (5th ed. 1994) ("A device capable of solving problems or manipulating data by accepting data, performing prescribed operations (mathematical or logical) on the data, and supplying the results of these operations.") (included in ABC's Motion, Docket Entry No. 191, at Exhibit 2); Random House Webster's College Dictionary 271 (1998) ("A programmable electronic device designed for performing prescribed operations on data at high speed, esp. one housed with or linked to other devices for inputting, storing, retrieving and displaying the data.") (included in ABC's Motion, Docket Entry No. 191, at Exhibit 3). As WebEx points out, however, each of these definitions defines the word "computer" in terms of a single device or machine, not in terms of multiple or plural devices or machines.

With regard to the word "controller," ABC cites a number of cases that hold that a "controller" may consist of more than one device or element. 8 ABC relies primarily on Automated Technologies, Inc. v. Microfil, LLC, 244 F. App'x 354 (Fed. Cir. 2007). In Automated Technologies the Federal Circuit affirmed the District Court's definition of "controller" as a "single control system that regulates the entire process," but contrary to the District Court, the Federal Circuit clarified that the "controller need not be limited to a single device . . . ." Automated Techs., 244 F. App'x at 357-58. Unlike the patents at issue in this case, however, the patent at issue in Automated Technologies did not disclose any "single device . . . which performs or is capable of performing all of the functions recited" in the claim language. Id. at 357. In fact, the specification described "at least two structures that perform control functions." Id. In the '253 and '943 patents, the specification always refers to the remote system controller as a singular device or element that alone performs all of the functions required of it by the claim text. 9

8 Two of the cases cited by ABC do not hold that a "controller" may consist of more than one device or element. In Animatics Corp. v. Quicksilver Controls, Inc., 102 F. App'x 659, 666 (Fed. Cir. 2004), the Federal Circuit concluded that the trial court erred by requiring that the "PID controller" be a physically separate circuit than the "microprocessor," but did not discuss whether the "PID controller" could consist of multiple devices or elements. In Goss International Americas, Inc. v. K&M Newspaper Services, Inc., 469 F. Supp. 2d 547, 557-59 (N.D. Ill. 2006), the court concluded that the "control means" element of the asserted claim was not to be interpreted pursuant to 35 U.S.C. § 112, P 6 because the claim recited the structure necessary to perform the stated function -- a "main controller" and a "plurality of sheet material feed controllers" -- but the court did not discuss whether the two types of controllers could consist of multiple devices or elements. The Goss court stated, however, that a person of ordinary skill in the art would understand the term "sheet material feed controller" to mean "a device used to control the operation of a sheet feeder." Id. at 558 (emphasis added). Therefore, the court does not find these cases relevant to this claim construction dispute.

9 See '253 patent; '943 patent.
Nor does the court find the other relevant cases cited by ABC to be persuasive. In Dane Industries, Inc. v. Ameritek Industries LLC, No. 03-3488, 2004 WL 5683721, at *3 (D. Minn. May 4, 2004), the court defined "controller" as "at least one mechanism or device." But unlike this case, the primary dispute between the parties was apparently not whether the "controller" at issue could consist of multiple components. Instead, the court discussed only whether the components of the controller should be referred to as an "electrical circuit or group of electrical circuits" or as a "mechanism or device." Dane Indus., 2004 WL 5683721, at *3.

In DisplayLink Corp. v. Magic Control Technology Corp., 615 F. Supp. 2d 1051, 1062-63 (N.D. Cal. 2009), the court defined the term "VGA controller" as "a component or components that control the routing of VGA signals pursuant to the VGA standard" (emphasis added). The court, however, did not explain why it interpreted the term to cover multiple components. Conversely, the court, also without explanation, defined the term "USB controller" in a singular manner as "a device that receives a USB display signal, holds it until it receives a bus command, and then forwards the USB display signal out on a FIFO basis." DisplayLink Corp., 615 F. Supp. 2d at 1062 (emphasis added).

ABC also cites the deposition testimony of Srinath Anantharaman, a former employee of WebEx who is the named inventor on a patent application filed by WebEx that involves technology similar to that claimed in the patents at issue in this action. Anantharaman agreed that the "central computer system," as described in WebEx's patent application, was a "type of controller." He then testified that the "central computer system" could include different types of servers, and then explained that different servers "could be one computer having seven different server demons or, you know, thousands of computers running lots of server demons." 11

Assuming that Anantharaman is one of ordinary skill in the art, the court agrees that this extrinsic evidence suggests that a person of ordinary skill in the art could understand that a controller may consist of multiple devices, i.e., multiple computers. But as WebEx points out, the same dictionaries cited by ABC for their definitions of the term "computer" unanimously define the term "controller" in terms of a single device, unit, or mechanism. See Microsoft Press Computer Dictionary 83 (1991) ("A device upon which other devices rely for access to a computer subsystem.") (included in WebEx's Response, Docket Entry No. 196, at Exhibit 1); Webster's New World Dictionary of Computer Terms 127-28 (5th ed. 1994) ("The electronic board or unit that regulates the operation of a peripheral device.") (included in WebEx's Response, Docket Entry No. 196, at Exhibit 2); Random House Webster's College Dictionary 288 (1998) ("a regulating mechanism") (included in WebEx's Response, Docket Entry No. 196, at Exhibit 3). Therefore, at best for ABC, the extrinsic evidence with respect to the word "controller" is mixed. More importantly, ABC has failed to point to any specific intrinsic evidence that supports its position. The court is not persuaded that it should clarify its definition by declaring that a "remote system controller" is not limited to a single device.

2. Not Limited to Any Particular Hardware or Software Configuration

The concepts of hardware and software were not mentioned in either party's opening claim construction brief or response brief with regard to the term "remote system controller." Accordingly, the court did not consider whether it should define "remote system controller" in such terms. ABC now asserts that a remote system controller "is not limited to . . . any particular hardware or software configuration so long as the hardware or software work together to perform the functions identified for the remote system controller." 12

--- Footnotes ---

10 Videotaped Deposition of Srinath Anantharaman, at 112 (May 21, 2009) (included in ABC's Motion, Docket Entry No. 191, at Exhibit 4).

11 Id. at 117.

--- End Footnotes ---

12 ABC's Motion, Docket Entry No. 191, at 5.
In support of this aspect of its proposed clarified definition, ABC cites two cases. In Automated Technologies the Federal Circuit held that the term "controller," in addition to not being limited to a single device, was also not limited to "any particular hardware or software." Automated Techs., 244 F. App'x at 358. Although the Court of Appeals explained in great detail why it concluded that the "controller" was not limited to a single device, it did not explain why it also noted that the controller was not limited "to any particular hardware or software." See id. at 357-58. Therefore, the court does not find this case particularly helpful or persuasive.

The second case cited by ABC can be clearly distinguished from the case at bar. In Witness Systems, Inc. v. Nice Systems, Inc., No. 1:06-cv-126-TCB, 2008 U.S. Dist. LEXIS 38061, 2008 WL 2047633 (N.D. Ga. May 10, 2008), the Special Master had previously defined the term "communication traffic controller" to mean "a device that manages information flow within the monitoring system." 13 Witness Sys., 2008 U.S. Dist. LEXIS 38061, 2008 WL 2047633, at *4. The parties disputed whether the term "device" as it appeared in the Special Master's definition of "communication traffic controller" encompassed only hardware or both hardware and software, and asked the Special Master to resolve the dispute. 2008 U.S. Dist. LEXIS 38061, [WL] at *5. The Special Master pointed to specific citations from the abstract and figures of the asserted patents that suggested that the device at issue could include both hardware and software. Id. Accordingly, the Special Master concluded that the term "device" "encompasses elements of hardware and software," id., and the court adopted the Special Master's recommendation. 2008 U.S. Dist. LEXIS 38061, [WL] at *1-2. In this case, ABC has not pointed to anything in the specification or claim language of the '943 and '253 patents that suggests that the remote system controller may consist of any combination of hardware or software.

13 The court notes that the definition of "communication traffic controller" as "a device . . ." by the Special Master in Witness System suggests, contrary to ABC's position, that the term "controller" does not necessarily connote multiple devices.

The court will not adopt a definition stating that the remote system controller is not limited to any particular hardware or software configuration based solely on the definitions adopted by other courts in unrelated cases dealing with different patent terms merely because they happened to include a single common word, i.e., "controller." ABC has failed to persuade the court that it should clarify, alter, or augment its definition of the term "remote system controller" in the manner suggested.

The same is true of the phrase "remote terminal means" found in the following claim language:

plural remote terminal means, each including (a) modem means for effecting input/output digital data communications with said central computer means via the telephone lines of a telephone network, (b) local memory means for locally storing digital data representing at least the first portion of the selected block of information received via said modem means from the central computer and for processing digital data, (c) display means for visually displaying such a locally stored first portion of a block of information and (d) keypad means connected to communicate data to at least said local memory means for manual entry of keyed digital data; and

further memory means being provided as part of said local memory means at each of said remote terminal means for receiving and storing said second portion of the selected block of information in response to the selection of the block and when its respective first portion is transmitted thereto, said local memory means utilizing keyed digital data of less extent than any one of said complete addresses for another block of information but nevertheless uniquely indicative of one of the complete addresses contained in said second portion of the block of information which contains the first portion then being displayed for selectively accessing said further memory means and for supplying data to be transmitted by said modem means and indicative of the complete address of the next block of information which is to be retrieved and utilized for
display purposes.

662 patent, col. 6, 11. 25-56. The claim language discloses the structure of the remote terminal means. It describes the component parts of a terminal. The phrase starts "plural remote terminal means, each including . . ." -- in other words, the remote terminals are comprised of the component parts that follow that language. The function of the remote terminal means, although it is not stated in the usual means-plus-function format, is to store, retrieve and display at a remote site digital information obtained from the computer means. The explanation of these components contains sufficient structure to perform this function. Therefore, the claim language overcomes the means-plus-function presumption.

In Turbocare, the Federal Circuit found that "radial positioning means" in the following claim language was not a means-plus-function:

a radial positioning means comprising a compressed spring means biased against said ring segments to forcibly cause said segments to move to said large clearance position, while working fluid which is freely admitted to the annular space between said casing and said ring segments toward said small clearance position, whereby at low speed and small turbine loads the spring forces will predominate, while at high flows and high working fluid pressure the pressure forces will predominate.

264 F.3d at 1119. The structures for performing the function of positioning the ring segments were the compressed spring means and the working fluid. Id. Similarly, in the case at hand, I find that the component parts listed in the claim language describing the remote terminal means state its structure. Unlike in Turbocare, I have decided that some of these component parts are means-plus-function terms. However, I do not find that this distinction makes the meaning of the remote terminal means a means-plus-function where radial positioning means was not. The structure of the component parts is present -- it is just found in a different part of the patent, in the specification, rather than in the claim language. Hence, I find that the phrase "remote terminal means" is not a means-plus-function.

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6. "Remote Terminals"

The parties dispute the meaning of the term "remote terminals," which appears in claims throughout the body of patents to Katz. The parties agree that the term refers to traditional telephones, but the plaintiffs contend that the term may comprise other devices as well, such as wireless phones or a computer that can access the telephone network.

The plaintiffs contend that a person of ordinary skill in the art reading the Katz patents would understand that "remote terminals" could refer to devices other than traditional telephones. The defendants argue that there is no support in the specifications for any device other than traditional telephones.

The claim language in the patents does not support the defendants limited definition. Claim 96 of the '707 patent is exemplary of many of the claims that contain the term "remote terminals." Claim 96 provides for "an analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphanumeric buttons for providing data." The use of the words "may comprise" indicates that remote terminals includes, but is not limited to, traditional telephones.

The specification does not limit "remote terminals" to conventional telephones only. In Column 3, line 55 through Column 4, line 18 of the '707 patent, Katz describes the remote terminal illustrated in Figure 1. Although Katz describes what would be considered a traditional or conventional telephone, the specification is clear that the remote terminal in Figure 1 is the illustrative embodiment and that the description of it is exemplary.

The prosecution history cited by the defendants does not restrict the definition of "remote terminals." In the prosecution history of the '968 patent, in an Amendment dated March 2, 1988, Katz attempted to distinguish his patent from other patents containing, among other devices, "a special form of terminal apparatus at a data source" by noting that "contrary to the operations of the systems described in the above references, applicant's system interfaces with a conventional telephone.
instrument." (Ex. 33). Katz went on further to explain regarding "special-purpose telephone instruments" that "clearly, such telephones could be employed in cooperation with applicant's system; however, a very significant feature of applicant's system is its ability to function cooperatively with a conventional telephone instrument. Accordingly, specific forms of transaction telephone instruments or data phones are not deemed to be particularly applicable to the claims as set forth herein. . ." Contrary to the defendants' contention, the Court concludes that this statement by Katz indicates that his system could accommodate conventional telephones, as well as other devices, not that it was limited to use with conventional telephones.

Thus, the Court concludes that there is nothing in the claim language, specifications, or prosecution history that indicates that "remote terminals" can only include conventional or traditional telephones and not wireless phones or computers connected to the telephone network. Based on the foregoing, the Court construes "remote terminals" to mean: a device or instrument for connecting callers to the telephone network for voice and digital communication, including, but not limited to, conventional telephones.

"remote user"

The '639 patent defines the term "remote user" as follows: "the remote user may either be a telecommuter or a road warrior, or may be a resident in a branch office, also referred to as a remote small office" who accesses a corporate office from a physically distant location over a transmission media.

The claimed invention described in claims 1, 14 and 39 provides a "remote user" with a "virtual presence" to a corporate office. The claimed invention can be practiced with connectivity between one or more remote users and the corporate office. The Court rejects plaintiff's proposed construction of "remote user" since it omits the reference to a resident in a branch office.

The joint claim construction chart indicates that initially defendant proposed the same construction (docket no. 76); defendant revised its interpretation in connection with the hearing.

Although defendant originally did not dispute plaintiff's proposed definition of "remote user," Lucent did object at the hearing. The Court rejects the argument (docket no. 114 at 2) that claim 40 limits the consistent definition of "remote user" in claims 1, 14 and 39.

The term "remote user stations" appears in claims 35, 36, 37 (by virtue of its dependency), and 38 (by virtue of its dependency) of the '774 patent. The term "remote clients" appears in claims 12 (by virtue of its dependency), 39, and 52 of
the '121 patent and in claim 119 of the '845 patent. The plaintiff asserts that the above terms should be construed as an RLA and a DTE. The defendants assert that the above terms should be construed as an RLA.

With respect to the '774 patent, the term "remote user stations" appears only in the claims. A review of claim 25 shows that the term "remote user station" is used separately from the term "remote interface." Additionally, the term "remote interface" is further defined to include an example of an RLA. Because the two terms are separately used, a "remote user station" does not necessarily include an RLA.

With respect to the '121 patent, the term "remote client" appears only in the claims and figures. Claims 8 and 9 each use the terms "remote clients" and "remote link adapters." Therefore, the term "remote clients" is not necessarily inclusive of a "remote link adapter." The same rationale holds true for claim 9 of the '845 patent.

Because neither a "remote user station" nor a "remote client" necessarily includes an RLA, the court construes those terms to mean "data terminal equipment located at an end-user location."

3663

This Court entered an Order on Claim Construction (Dkt. # 71) in this patent case on March 2, 2006. The factual background of this case is set forth in detail in that Order. Also in that Order, the Court construed the term "remote vendor network site," contained in Claims 1, 6 and 7 of the patent at issue, as "the location of information regarding a particular vendor that is remote to the local user and that may include real vendor sites, real internet vendor sites, or virtual internet vendor sites, including sites that have no connection on the internet but have information loaded onto, accessible from and local to the database." The Court rejected defendants' proffered construction, which defined the term as "a server application, such as a website, that accepts connections from client programs at a specified network location, such as a website address, and allows retrieval of information about products, such as by 'navigating' a series of web pages; it is owned and operated by an entity which accepts payment in exchange for such products and which is a different commercial entity from that which provides the database and database interface; it is on a different computer from the database and associated database interface." Ex. B at 3, Disputed Claim Terms, attached to Amended Joint Claim Construction Statement (Dkt. # 66).

Defendants have presented no evidence that the previous construction was erroneous as a matter of law or that new evidence exists to justify a reconsideration or modification of the previous construction. See Adams v. Reliance Standard Life Ins. Co., 225 F.3d 1179, 1186 n.5 (10th Cir. 2000) (motion for reconsideration should be granted only to correct manifest errors of law or to present newly discovered evidence). Rather, their argument appears to be merely a second bite of the claims construction apple-asking this Court to impose a limitation on a term that has been previously rejected. For example, although the patent certainly contemplates vendor sites being owned and operated by a vendor, nothing in the patent precludes such a site from being owned and operated by a third-party who is under contract with the vendor to operate its site. The patent also allows for a remote vendor site that is owned by the vendor, but not operated by the vendor or some other combination of ownership and operation. Use of the term "vendor's site," while indicating possession, also indicates description of the site, and does not necessarily indicate ownership and operation, as defendants posit. Although defendants' description may well be the most common example of the term "remote vendor network site," it is not the only possible description. The patent does not so limit itself or require such a construction.

For the foregoing reasons, Defendants' Motion for Clarification or Reconsideration (Dkt. # 77) is DENIED.

3664

Remotely accessible

In its briefing, Lantronix argued "remotely accessible" should be construed to mean "able to be electrically accessed from outside the connector." Digi contended "remotely accessible" should be construed to mean "able to allow the connector to receive instructions from one of the external electronic devices." Lantronix agreed with Digi's construction except for the
italicized language. Lantronix contended the "to allow" language requires that there is some other entity or piece of equipment that is "allowing," or giving permission to, the connector to receive instructions. Digi did not counter Lantronix's argument regarding the "to allow" language and offers no support for it.

During the hearing, the parties agreed, as Lantronix proposed, "remotely accessible" should be construed as "able to be electrically accessed from outside the connector." The Court agrees that, based on the claim language and specification, Lantronix's proposed construction is accurate.

3665

4. remotely located (claims 1, 3-6)

Plaintiff's Construction: Not directly physically attached, and at a different location

Defendant's Construction: Not located within the same physical device.

Are two devices "remotely located" only if they are at different locations or is it sufficient that they not be part of the same device? Certainly, the common understanding of "remote" would suggest that there must be some distance between the two devices and that two devices are not "remotely located" if they are in the same closet, as defendant suggests. If the inventor wanted to convey the simple requirement that the two devices be separate, he could have said so much more clearly. Defendant points to no language in the claims or the specification suggesting a special meaning of "remote"; its arguments relying on the prosecution history are not persuasive. Further, as plaintiff points out, the purpose of the invention is to permit monitoring of a port from a location other than where the port is. Thus, defendant's reading of this term could render the invention meaningless. I agree with plaintiff that "remotely located" means "at a different location." (Plaintiff's additional proposed phrase of "not directly physically attached" is redundant and therefore unnecessary.)

3666

8. Claim 9 - "Remotely Located"

In Claim 9 the reference to more than two stations that are "remotely-located" means that there are more than two stations that use different central processing units. (Tr. 75-76). Thus, two stations in the same physical room, each served by a different CPU, would be "remotely located" while two stations in two different cities using a common CPU (wherever the CPU might be located) would not be.

3667

5. Includes Relationship/Excludes Relationship/Removes Relationship/Requires Choice Relationship/Optional Relationship

The parties have grouped these terms together. The dispute is whether the "relationship" language requires a construction which imposes a "left-hand side" and "right-hand side" limitation to the terms. Trilogy contends that the term "includes relationship" means "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Selectica contends that the term "includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included."

In discussing the relationship terms, the patents state "[a] relationship relates a first set of parts with a second set of parts." 651 patent, col. 2, 11. 13-14. The patents also state:

    Preferably, the part relationships are: included, excluded, removed, and requires choice. An included part is included automatically. A part is excluded from the configuration when it inclusion would result in an invalid configuration. A part
may be removed when another part is added. Thus, when a first part exists in the configuration and a second part is added, the first part is removed from the configuration. The requires choice relationship is used to allow a set of choices to be made from a group of parts.

'651 patent, col. 2, 11. 23-31. For essentially the reasons discussed previously, the court adopts the following constructions of these terms:

"includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included;"

"excludes relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be excluded when all elements of the left-hand side are already included;"

"requires choice relationship" means "a relationship in which a number of elements must be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included;"

"removed relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be removed when all elements of the left-hand side are already included;"

"optional relationship" means "a relationship in which a number of elements may be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included."

3668

ii. Removing a defective image element to produce a void at said particular position

IPI proposes that the phrase "removing a defective image element to produce a void at said particular position" means eliminating a defective image element, such as through the replacement of the defective image element with a valid image element. Sony interprets the phrase to mean eliminating a defective image element from the image to produce, at the specific position, a location with no image information. It argues that if one simply removes an element from the image, that particular location becomes a point that no longer contains image information.

IPI's construction overlooks the distinct steps set forth in claim 145 by attempting to combine the determining/removing step added by dependent claim 159 with the final "filling the void" step of claim 145. In other words, IPI's construction of the disputed term in claim 145 effectively would render dependent claim 159 superfluous. Moreover, Sony's construction makes intuitive sense and is consistent with the specification, which provides that locations with no image information constitute one possible type of void. The Court therefore adopts Sony's proffered definition: eliminating a defective image element from the image to produce, at the specific position, a location with no image information.

3669

(1) In Claim 25 of the '901 patent, "removing added pulses occurring after normal sync pulses" means "removing one or more added pulses such as added AGC pulses and/or added pseudo-sync pulses."

3670

g. "removing said fuse portion from said interconnect line by exposing said optically absorptive refractory metal to directed energy source that explosively removes said fuse portion without damaging the substrate"

EMI contends that the phrase "without damaging the substrate" means causing no damage to the silicon substrate by the explosion. The section of the specification that supports this proposed construction, however, discloses other structures not
to be damaged by the explosion, such as underlying polysilicon structures or a nearly metal fuse. It would be improper to limit the claim to "causing no damage to the silicon substrate," as other characteristics of the preferred embodiment would be foreclosed. See Vitronics, 90 F.3d at 1583. Rather, the court holds that the claim language needs no clarification, as it is clear on its face.

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H. Renderer

Plaintiff offers the following construction for this term:

something that may be implemented entirely in software or may include a dedicated hardware processor along with a software package running on a general purpose processor, which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided.

Defendants contend that it is not nearly so broad, offering the following construction instead:

a software and/or hardware object that performs each of the following steps: (1) determines the coordinates of the terrain data required to create an image and sends the needed coordinates along with a specified resolution level to another object; (2) receives the data blocks corresponding to the provided coordinates; and (3) uses the received data blocks to create an image.

Claim 1 teaches a "method comprising: receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level" and "providing the renderer with a first data block . . . from a local memory." (col. 16, 11. 31-37) Claim 12 provides for an "apparatus for providing data blocks . . . to a renderer . . . comprising: a local memory which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer" and "a
processor which receives one or more specified coordinates along with indication of a respective resolution level from a render, [and] provides the renderer with a first data block." (col. 18, 111. 12-13, 16-18, 21-24) This language shows that important aspects of the method run through the renderer. But according to Claim 9, the renderer does not simply act as a go-between, providing coordinates and receiving data blocks, it also has the undisputed job of ultimately converting the information into an image and rendering the view from the current viewpoint. (col. 17, 11. 65-67)

The specifications provide a similar picture of the renderer's three functions in the preferred embodiment with references to render', renders', and rendering program'.

In some preferred embodiments of the present invention, the processor runs a rendering program which displays the three dimensional images based on the viewpoint, the size of the displayed image and the blocks received from the server. The rendering program orders the blocks it needs using a cache manager, which is preferably a software routine running on the processor. If the cache manager has the ordered block, it provides it to the rendering program. However, if the block is not carried by the cache manager, it is ordered from the server, and a replacement block from a lower resolution level is passed to the rendering program.

When the rendering program requires a block including a new point or area for display, the cache manager first requests the block of the lowest resolution level which covers the area with the least detail and then requests subsequent blocks with successively increasing detail, until the block with the level of detail required by the rendering program is sent. The rendering program renders the three-dimensional image using the blocks it has on hand. Each time another block is received, the image is rendered again. Thus, the user sees an image at substantially all times and is not prevented from moving the viewpoint while additional data is being sent from the server.

There is therefore provided in accordance with a preferred embodiment of the present invention, a method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the method including receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level, providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory, and downloading from a remote server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.

Preferably, the method includes downloading excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer.

Preferably, the renderer renders a view from a current viewpoint.

Detailed descriptions of the figures in the patent further substantiate that the renderer performs at least three functions: it determines the coordinates needed; receives the appropriate data blocks; and renders an image with the data provided. (See, e.g., col. 11, 11. 19-24 ("Processor preferably . . . comprises a renderer, which calculates the view from the viewpoint and continuously renders the view on display" and "determines the coordinates of the pixels it needs in order to render the view and requests the descriptions of these pixels from a cache manager."); col. 12, 11. 58-63 ("Renderer uses blocks from cache manager to render the required view on display. Preferably, when cache manager provides a block of a lower resolution level than that requested by renderer, the renderer uses the provided block to interpolate a higher resolution-level block."); col. 14, 11. 10-13 ("Preferably, renderer determines the exact blocks needed and calls for them using their (x, y) coordinates and their resolution level. Alternatively or additionally, renderer specifies, for each resolution level, the coordinates of the boundaries of the necessary areas, and cache manager determines the identities of the required blocks."); see also col. 14, 11. 27-46; col. 15, 11. 33-46.)

The parties do not dispute that the renderer is an object that may be implemented entirely in software or may include hardware, (Transcript, p. 22), for as the specification describes:

Preferably, renderer is as described in the above mentioned U.S. patent application Ser. No. 08/939,948. n5 Alternatively or additionally, renderer may operate in accordance with any other method known in the art. Renderer is preferably
implemented entirely in software. Alternatively, renderer includes a dedicated hardware processor, such as a 3D graphic accelerator, along with a software package running on general purpose processor which provides blocks to the dedicated hardware processor.

(col. 13, 11. 8-17)

n5 "It is appreciated that the [terrain rendering] method of FIGS. 1A-1C may be implemented partly in computer hardware and partly in software, or entirely in custom hardware. Preferably, the apparatus of the present invention is implemented in suitably programmed computer hardware comprising, for example, a Pentium-Pro/MNX based central processing unit (CPU)." (583 Patent, col. 6, 11. 4-10)

The parties also agree that the renderer receives data blocks corresponding to the specified coordinates and uses the data provided to display real-life images of terrain or three-dimensional images of an object or material. n6 (Transcript, p. 22) The Plaintiff disputes, however, whether the renderer is limited by the three steps identified by the Defendants and whether something else, namely the cache manager, may perform those steps. More specifically, the essence of the debate crystallized during the Markman hearing into understanding the impact of the statement in the specification that "alternatively, cache manager determines the identity of the required blocks and/or sub-blocks." (col. 11, 11. 26-27) (Transcript, pp. 24, 27, 31-33)

n6 The Plaintiff insists on the verb "assists" (Pl. Brief, p. 10), citing to col. 11, 11. 19 -- col. 13, 11. 17 and Figs. 5, 8. I do not agree that the word "assists" is necessary. It is clear from the specification that it is the renderer that renders the view. See col. 11, 11. 19-21 (The renderer "calculates the view from the viewpoint and continuously renders the view from the viewpoint and continuously renders the view on display."); col. 12, 11. 58-59 ("Renderer uses blocks from cache manager to render the required view on display."); and col. 12, 11. 66-67, col. 13, 11. 1-7 ("When cache manager finishes downloading an additional block of a higher resolution level from server, the block is provided to renderer, which updates the rendered view accordingly. Preferably, when the viewpoint is in motion, renderer updates the view at least ten times per second so that the user has a perception of constant movement, although other rates of update may also be used. Preferably, renderer renders the view each time from scratch without using previously-rendered views.") To the degree that other components are required for the renderer to render the view, such assisting components do not detract from the renderer's function of using the received data block to display an image.

It is clear from Claims 1 and 2 that in describing both the method and the apparatus, a part of the system (the processor in Claim 12) "receives one or more specified coordinates along with indication of a respective resolution level from a renderer[.](col. 16, 11. 32-34; col. 18, 11. 20-23)" (emphasis supplied). This step is also described in the specification as the "renderer determines the coordinates of the pixels it needs in order to render the view and requests the descriptions of these pixels from a cache manager." (col. 11, 11. 21-24) As a result, something must perform the function of determining which data blocks correspond to the coordinates identified as required by the renderer so that the appropriate data block may be sent to the renderer. Preferably, it is the "renderer [that] determines which blocks and/or sub-blocks include the required pixels", (col. 11, 11. 24-26), and therefore the "cache manager downloads from server the blocks and/or sub-blocks required by renderer . . . " (col. 11, 11. 62-63) Alternatively, however, it is the "cache manager [that] determines the identity of the required blocks and/or sub-blocks" from the coordinates received from the renderer. (col. 11, 11. 26-27) But, in both embodiments of the method, it is clear that the renderer at least performs the function of determining and specifying to another object what coordinates are required along with identifying the respective resolution level.

Construction: (renderer) software and/or hardware object that performs at least the following functions: (1) determining and providing to another object the required coordinates in the terrain along with a respective resolution level; (2) receiving the data blocks corresponding to the specified coordinates; and (3) using the received data blocks to display a three-dimensional
"Re-Ordering Packets from Different Conversations on Said Common Link When the Detected Congestion Exceeds a Predetermined Mild Congestion Threshold While Maintaining the Order of Transmission for Each Conversation"

Alcatel's proposed construction for this phrase is "arranging packets from different conversations and preparing them for transmission on the common link without affecting the sequencing of packets within such conversation when the number of packets queued on a common link exceeds a predetermined mild congestion threshold." Cisco's proposed construction is "selecting packets for transmission from among more than one conversation by choosing the packet with the earliest transmission time as determined by the packet's size."

Cisco's proposed construction improperly imposes limitations in claim 8 that are explicitly stated in claim 12. Claim 12 states: "A method as claimed in claim 8, wherein the time when a packet in each conversation would be transmitted is computed on the basis of packet size assuming each conversation had a dedicated link, and the order of transmission is arranged so that the packets with the earliest start of transmission time are sent first." Therefore, the principles of claim differentiation instruct the Court to reject Cisco's proposed construction. See Envtl. Designs Ltd. v. Union Oil Co. of Cal., 713 F.2d 693, 699 (Fed. Cir. 1985) (holding that it is improper for courts to read into an independent claim a limitation explicitly set forth in another claim). Nowhere in the plain meaning of the language used in claim 8 does it require that the packet with the earliest transmission time be determined based on the packet's size.

Alcatel contends that its proposed construction is proper in the context of the claim in which it appears. See Hockerson-Halberstadt, Inc. v. Converse, Inc., 183 F.3d 1369, 1374 (Fed. Cir. 1999) ("Proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation."). In claim 8, the claim language makes clear that the purpose of re-ordering packets is "to achieve fair allocation of bandwidth among different conversations." Watt, at 8:4-6. The preferred embodiment supports this construction by describing a method for re-ordering packets "to attempt to provide a fair allocation of bandwidth to all conversations," whereby the packets from multiple conversations may be re-ordered across a whole link, but not reordered within each conversation. Figure 4 is shown as an example of this re-ordering technique. See Watt, at 6:12-17. Cisco's proposed construction, on the other hand, seeks to limit the claim to the preferred embodiment.

Cisco argues, however, that one of ordinary skill in the art would not be aware of any particular methods for such re-ordering of packets (where packets are re-ordered along a link shared by multiple conversations but the order of packets within each conversation remains the same) other than the method described in the preferred embodiment and the file history (by choosing the packet with the earliest transmission time as determined by the packet's size). In support of this contention, Cisco cites the expert report of its expert, Anthony Acampora. However, nowhere in that report does Acampora claim that one of ordinary skill in the art would not be aware of any method for re-ordering of packets in the manner discussed above other than the method described in the patent. Acampora merely asserts that the patent specification provides only one such method. See Acampora '532 Report, at 10. Furthermore, in the declaration of Alcatel's expert, David Lucantoni, he declares that one of ordinary skill in the art would have known of other methods to accomplish such re-ordering, and provides an example of such a method. See Lucantoni '532 Decl., at PP 47-49.

Therefore, in light of the rules of claim construction, the language of the patent, and the expert testimony used to clarify any potential ambiguity, this Court will not limit the disputed term to only the method disclosed in the preferred embodiment, and specifically claimed in claim 12. Thus, the Court construes "re-ordering packets from different conversations on said common link when the detected congestion exceeds a predetermined mild congestion threshold while maintaining the order of transmission for each conversation" as "arranging packets from different conversations and preparing them for transmission on the common link without affecting the sequencing of packets within such conversation when the number of packets queued on a common link exceeds a predetermined mild congestion threshold."
1. "Repetitive Sequentially Varying Relationship"

The parties dispute the interpretation of "repetitive sequentially varying relationship" as stated in the preamble of Claim 1. Plaintiff Faroudja would like the Court to construe "repetitive sequentially varying relationship" to mean "a varying repeating relationship between sequences of video fields derived from film frames in which the field/frame rates do not match and the field rate is greater than the frame rate." Final Chart at 1. Defendant Dwin, on the other hand, proposes a slightly different construction: "'repetitive sequentially varying relationship' means a video signal produced such that the ratio of video fields to film frames changes between different ratios within the video signal in a predetermined repetitive pattern." Final Chart at 1. The Court adopts Dwin's interpretation as the more legally proper construction of "repetitive sequentially varying relationship."

In construing "repetitive sequentially varying relationship," the Court is guided by general principles of claim construction and begins with the phrase's ordinary meaning. See Vitronics, 90 F.3d at 1583 (instructing the court to look first at the words themselves). The Court may look to other words in the preamble to provide contextual support for the proper interpretation. At first blush, this phrase appears to lack any obvious "ordinary or customary meaning." See Wolverine World Wide, Inc. v. Nike, Inc., 38 F.3d 1192, 1196 (Fed. Cir. 1994). However, its meaning becomes evident when the Court considers the phrase in context.

First, the "relationship" at issue is the relationship between video fields and film frames. This relationship is better expressed as a ratio. The parties do not appear to disagree that this is the relationship to which the preamble refers. See Plaintiff's Opening Claim Construction Brief at 8:6-7; Defendant's Claim Construction Brief at 7:4-5. This ratio, when monitored for a particular sequence, must be "varying" in that the number of video fields derived from a single film frame must change. In addition, the ratios must vary repeatedly within a particular sequence. The sequence referred to is a sequence of video fields. See Plaintiff's Opening Construction Claim Brief at 8: 6 ("sequences of video fields"); Defendant's Claim Construction Brief at 7:4-5 ("video field sequence").

The '287 specification supports this interpretation as seen in the examples shown in Figures 1 and 7. See '287 patent Figs. 1, 7. These diagrams illustrate the relationship between the video fields and the film frames specifically in the context of a 3:2 pull down film-to-video conversion. 3 For example, in Figure 1, the relationship between the video fields and the film frame is 3 (fields) to 1 (frame) for the first film frame or 3:1; 2 (fields) to 1 (frame) for the second film frame or 2:1; 3 (fields) to 1 (frame) for the third film frame or 3:1; 2 (fields) to 1 (frame) for the fourth film frame, and so forth. Thus, the relationship of video fields to film frame within this video field sequence varies sequentially between 3:1 and 2:1 in a repetitive pattern: 3, 2, 3, 2, etc.

--- Footnotes ---

3 The 3:2 pull down method is a common technique used to convert film to video. Other techniques, such as a 4:3:3 pull down method, would involve a transfer process whereby four video fields are derived from the first film frame, three video fields from the second frame, three fields from the third frame, four fields from the fourth frame, and so forth. In such a system, the ratio of video fields to film frames would vary sequentially between 4:1 and 3:1. Film that was transferred to video using a 4:3:3 pull down method would be distinguished by a repetitive predetermined pattern of 4, 3, 3, 4, 3, 3, etc. Using such a process instead of the 3:2 pull down method would also meet the limitations of the preamble of Claim 1 as construed.

--- End Footnotes ---

Faroudja accuses Dwin of trying to "import an example of a repetitive sequentially varying relationship, namely the 3:2 pull down method, into the claim interpretation." Plaintiff's Opening Claim Construction Brief at 6:28-7:1. Although Dwin may have attempted this at one time, see Joint Claim Construction ("JCC"), p. 1, col. 3, it does not appear that Dwin does this now, see Final Chart, p. 1, col. 3. However, to the extent that either party proposes to import an example of a repetitive sequentially varying relationship into the claim interpretation (e.g. such as the repetitive sequentially varying relationship associated with the 3:2 pull down method), their interpretation must be denied. The illustrations provided in the
specification provide only one example of a repetitive sequentially varying relationship. The interpretation of "repetitive sequentially varying relationship" is not limited to the specific relationship which arises from the use of 3:2 pull down techniques and encompasses any varying relationship of video fields to film frame that repeats sequentially.

Faroudja's proposed interpretation of "repetitive sequentially varying relationship" is "a varying repeating relationship between sequences of video fields derived from film frames in which the field/frame rates do not match and the field rate is greater than the frame rate." Final Chart, p. 1, col. 2. The language, "in which the field/frame rates do not match and the field rate is greater than the frame rate," is superfluous. Faroudja has stated that the relationship between video fields and film frames is a "varying repeating relationship." It is unnecessary to repeat this limitation again by stating that the "field/frame rates do not match". Also, Faroudja attempts to import a limitation from another part of the preamble which already requires the field rate to be greater than the frame rate into the construction of this phrase. See '287 patent at 8:1-10 ("the video fields having been produced at a greater rate than the film frame rate"). Such a limitation which requires the field rate to be greater than the film rate is not required for the interpretation of the phrase "repetitive sequentially varying relationship," nor is it a limitation supported by plain language or the specifications.

Although the Court does not believe that the parties’ proposed interpretations differ much in substance, the Court adopts Dwin’s proposed construction of the phrase "repetitive sequentially varying relationship" as correct.

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On Demand

Claim 3's language requires the recording circuit to be capable of "replaying the recorded information upon demand." Its plain language does not, as Zircon contends, require that a covered device record upon demand. I hold that the on-demand limitation in Claim 3(C) is restricted to a device's play function and does not include the record function.

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d. "Image, replicating a control interface"

Claims 1 and 13 disclose an "image, replicating a control interface particular to the first and second remotely controllable surgical devices, for display on the touchscreen to receive inputs and to display a status of the first and second remotely controllable surgical devices." 539 Pat. col.10 ll.18-21; id. at col.11 ll.11-14. Claim 23 recites a method for "providing an image replicating the control interface of the first and second remotely controllable surgical devices for display on the touchscreen and for receiving input commands." '539 Pat. col.12 ll.17-20.

The Parties respectively propose a single construction for all three claims. The Court adopts this framework because of the similarity of the claims' language. KSEA proposes construing this term as a "replica of the control panel/faceplate," while S&N proposes an "exact replica of each device's control panel that allows the touchscreen to receive and display the exact same input and status as the devices' actual control panels." (Proposed Constructions Chart 10.)

The Court adopts KSEA's proposed construction because it accurately describes the disclosure. The ordinary meaning of replica does not necessarily require exactness, see Webster's New International Dictionary 1925 (3d ed. 1986), and S&N has cited no authority for the proposition that one skilled in the art would understand "replica" to require exactness.

Further, S&N's argument based on the '539 Patent's prosecution history is incorrect. "The doctrine of prosecution disclaimer attaches where an applicant, whether by amendment or by argument, 'unequivocally disavowed a certain meaning to obtain [the] patent.'" Schindler Elevator Corp. v. Otis Elevator Corp., 593 F.3d 1275, 1285 (Fed. Cir. 2010) (quoting ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580 (Fed. Cir. 1988)). "An argument made to an examiner constitutes a disclaimer only if it is clear and unmistakable;[;] an ambiguous disclaimer will not suffice." Id. (quoting Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1126 (Fed. Cir. 2006); Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1375 (Fed. Cir. 2008)).
In the prosecution history to which S&N points, the applicant stated that the "touchscreen 24 is capable of displaying exact replicas 26 and 28 of device control interfaces supplied by various manufacturers." (See Def.'s Opening Claim Construction Br. Ex. G, May 26, 2004 Resp. to Official Action 11 (emphasis added).) This language indicates that the touchscreen may display exact replicas, not that it only displays exact replicas. S&N has failed to show that the patentee "clear[ly] and unmistakabl[y]" disavowed a touchscreen that displays inexact replicas. Schindler Elevator Corp., 593 F.3d at 1285.

The Court construes the "image, replicating a control interface" term as a "replica of the control panel/faceplates."

2. Replying Agent

A "replying agent" is an agent that performs a transfer operation with the bus owner.

2. "Report Algorithm" (042 Patent)

"Report algorithm" appears in both independent claims of the '042 patent. Yodlee asserts that this term needs no construction, and alternatively proposes that it be construed to mean "a sequence of operations followed by the system in order to generate a requested report." CashEdge asserts that this term should be defined to mean "the distinct algorithms for accessing Internet sites to extract raw data relating to the request and for defining the resulting report." The Court agrees with Yodlee that CashEdge's definition leads one to believe that the report algorithm performs data extraction, which is not the case; the claims make clear that the data gathering system extracts the data according to the needs of the report algorithm. '042 patent, col. 25, lines 34-43. Adoption of the term "distinct" is also redundant, as the claims make clear that each report request is associated with its own report algorithm. Id. at col. 25, lines 27-30; col. 26, lines 16-20. However, the Court agrees with CashEdge that definition of report algorithm should refer to its role in data extraction. In line with one of the dictionary definitions advanced by Yodlee, the Court construes "report algorithm" to mean "a set of rules followed by the system to determine what data is to be extracted by the data gathering system and how that data is to be processed by the report processor in response to a report request."

B. Noninfringement of Claims 7 and 8 of the '033 Patent

On appeal, MicroStrategy argues that the district court misconstrued claim 7 of the '033 patent, and that, therefore, the district court's infringement analysis of claim 7 was incorrect.

Claim 7 recites:

A network-based system for enabling users connected via a network user interface over the network to an OLAP system to asynchronously submit requests for reports to be processed by an OLAP system, the network-based system comprising:

- report receiving means for receiving a request from an instance of the network user interface for the OLAP system to process a report;
- storage means for storing a report entry for reports that have been requested, including reports requested by other users and reports that are being processed;
- report control means for adding a request by that user to the report entry of a particular report in the report list if the
on-line analytical processing means for generating requested reports.

In construing the claim, the district court held that the preamble, particularly the term "asynchronously," was a limitation. MicroStrategy, 410 F. Supp. 2d at 358. The district court then construed the asynchronously submitted requests referred to in the preamble to be the requests that the report control means checks against the list of previously submitted requests for substantial similarity. Id. On appeal, MicroStrategy does not disagree that the term "asynchronously" is a limitation of the claim; however, it contends that the district court erred in construing the "report control means" to operate in response to asynchronously submitted requests. MicroStrategy argues that the preamble of claim 7 only requires that the system enable users to asynchronously submit requests, and that this does not foreclose the system from also enabling users to synchronously submit requests. In other words, MicroStrategy contends that the requests referred to in the body of claim 7 need not be the asynchronously submitted requests referred to in the preamble. Instead, MicroStrategy contends that the requests referred to in the body could be synchronously submitted and unrelated to the asynchronously submitted requests mentioned in the preamble.

In support, MicroStrategy cites claims 17 and 21 of the '033 patent, which recite "method[s] of asynchronously processing requests for reports to processed by an OLAP system." According to MicroStrategy, the difference in claim language between claim 7 and claims 17 and 21 indicates the patentee did not intend to limit claim 7 to asynchronously submitted requests. This argument, however, is unpersuasive.

The Summary of the Invention of the '033 patent clearly states that one "object of the invention is to provide a system and method enabling users to asynchronously request reports in a multi-user networked OLAP system that compares each request with all requests already processed or being processed by the system to avoid duplicative processing of requests." '033 patent, col. 4, ll. 16-21 (emphasis added). Similarly, figures 1 and 2 of the '033 patent illustrate the comparison of the newly submitted request to previously submitted requests as part of the asynchronous operation of the OLAP. Lastly, during reexamination of the '033 patent, MicroStrategy stated that "[e]ach independent claim [including claim 7] recites a feature that specifies asynchronous operation," not merely asynchronous capability.

In light of these statements and disclosures, which inextricably link the comparison of new requests against previously submitted requests with the asynchronous submission of requests to the OLAP, the district court did not err when it construed the requests handled by the report control means to be the asynchronously submitted requests mentioned in the preamble of the claim. The district court's grant of summary judgment of noninfringement was, therefore, not erroneous.

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"Report processor" also appears in both independent claims of the '042 patent. Yodlee asserts that the term need no construction, and alternatively proposes that the term be construed to mean "a computing device used to process the gathered data necessary to generate the requested report." CashEdge asserts that the term should be defined as "a processor that processes raw data according to a report algorithm into meta-summarized information defined by the report algorithm." CashEdge's definition needlessly involves construing the term "report," which the Court has already construed. The Court finds that the meaning of this term is clear in light of the surrounding claim language and the construction of "reports" and "report algorithm" and declines to construe "report processor."

GO BACK

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"Report request" and "user request" appear in both independent claims of the '042 patent. Yodlee again asserts that no
construction is needed, while CashEdge proposes a definition that would read "one of a plurality of possible requests each associated with an individual one of a plurality of report algorithms such that the user can request an array of completely different results." The surrounding claim language makes clear that each report request is associated with one report algorithm. Id. at col. 25, lines 27-30; col. 26, lines 16-20. CashEdge's construction is thus redundant; the Court declines to construe this term.

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1. "Reports"/"Presenting Reports From the Data" ('042 Patent)

"Reports" and "presenting reports from the data" appear in both independent claims of the '042 patent. Yodlee contends that these terms need no construction. Alternatively, Yodlee proposes that "reports" be construed to mean "presentation of user data to the end user," while CashEdge seek to construe the phrase "presenting reports from the data" as "presenting calculated and solution-oriented results derived from data." The specification describes the report that is presented to the end user as containing some kind of analysis as opposed to raw data. '042 patent col. 3, lines 18-27, 45-49. Furthermore, the applicant described the report as a "meta-summary" involving interpretation and calculation of data in order to report a solution-oriented result in order to distinguish it from prior art that merely presented data to the end user. CashEdge Ex. 14 at CE 00003509-00003510. The specification repeatedly refers to the report as consisting of "metasummarized" and calculated data, doing so in descriptions of the invention as a whole, and not just in descriptions of the preferred embodiments. See, e.g., '042 patent abstract; col. 1, lines 22-30. Accordingly, the Court adopts CashEdge's construction.

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6. "repositioning the spraying device relative to the conveying device to the relative synchronized position based upon the stored positions"

The last contested phrase of Claim 1 is the "repositioning step." Durr suggests that this step be construed as "moving the spraying device and/or conveying device to reestablish the specific relationship between the spraying device and the conveying device based upon the stored positions." (Am. Joint Claim Construction Chart at 4, FANUC Ex. 1) FANUC does not dispute that "repositioning" should be construed as "moving," nor does FANUC disagree that either the spraying device or the conveying device, or both, can be moved in the repositioning step. Thus the court will adopt the use of the phrase "moving the spraying device, the conveying device, or both" in its construction.

FANUC, however, characteristically argues that in construing the remainder of this phrase, the court should specify exactly how the "relative synchronized positions" should be calculated. Specifically, FANUC argues that the repositioning step should be construed as follows:

After actuation of a restart switch or the like: 12 (1) retrieving the four stored positions from the storage medium; (2) calculating a travel path for the spraying device using those four stored positions; (3) determining which is more desirable: (a) to resume at the specific paint-impact point located in the program sequence before the point of interruption, or (b) to resume at the specific paint-impact point located in the program sequence after the point of interruption; and (4) moving the spraying device and/or the conveying device so that the spraying device occupies a position relative to the conveying device at the selected paint-impact point.

(Am. Joint Claim Construction Chart at 4, FANUC's Ex. 1.) The court, however, will reject FANUC's attempt to add specificity to what is a clearly written in broad terms. See Liquid Dynamics Corp., 355 F.3d at 1368. FANUC attempts to justify importing this host of limitations into the repositioning step by arguing that it found this language in the Patent specification. However, "[i]n examining the specification for proper context, . . . this court will not at any time import limitations from the specification into the claims." Varco, L.P. v. Pason Systems USA Corp. 436 F.3d 1368, 1373 (Fed. Cir. 2006) (quoting CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1231 (Fed. Cir. 2005)). The language that FANUC
seeks to import is indeed found in the preferred embodiment. The Federal Circuit has repeatedly "cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." Id. at 1375 (citing a string of cases in support of this proposition). The court finds nothing in the claim language or the specification that would justify importing the detailed steps which FANUC proposes into Claim 1. Rather, as Durr suggests, the court will construe the repositioning step more generally, as it is listed in general terms in the claim itself.

--- Footnotes ---

13 The court is not persuaded by FANUC's argument that the '538 Patent's scope is coextensive with the preferred embodiment. (See FANUC's Resp. at 2, citing Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1551 (Fed. Cir. 1996) and Honeywell Intern., Inc. v. ITT Industries, Inc. 452 F.3d 1312 (Fed. Cir. 2006)). The inventors here, however, did not give clear indication that the Patent's scope is limited to the preferred embodiment. FANUC unavailingly tries to analogize this case to Honeywell by arguing that "the '538 patent's written description discloses only one preferred embodiment and uses the term 'invention' in the singular form nine times." (FANUC Resp. Br. at 2.) All but two of those citations, however, are not found in the preferred embodiment but in the general description of the invention, the abstract or the background art. The preferred embodiment of the '538 Patent is clearly labeled as such, and the specification explicitly states that "[i]t is . . . to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described." (538 Patent 3:35-37.) Contra Honeywell, 452 F.3d at 1318 ("[T]he written description does not indicate that a fuel filter is merely a preferred embodiment of the claimed invention.").12 The court will quickly reject FANUC's proposal that this step begins "after actuation of a restart switch or the like." Although FANUC contends this language is taken directly from the specification, the language refers to the resumption step, and is not appropriately imported into the repositioning step. (See '538 Patent at 3:4-7 ("This resumption of the programmed coating operation may be initiated by the operating crew by manual actuation of a restart-switch or the like after the cause of the emergency shut-down has been eliminated.").)

--- End Footnotes ---

Thus, consistent with the court's previous constructions and the intrinsic evidence, the court will construe this step as follows: "moving the spraying device, the conveying device, or both to reestablish the correlation between the spraying device and the conveying device based upon the stored positions."

D. "repository"

Claim 26 contains the disputed term "repository": "retrieving one or more predetermined responses corresponding to the interpretation of the electronic message from a repository for automatic delivery to the source." The specification discusses "repository" in the following sentence: "[O]ne or more predetermined responses . . . are retrieved from a repository (or database), preferably the archive 32 (step 116a), of the automatic message reader 30 for automatic delivery to the source 52." (947 patent, 9:26-29) (emphasis added). Bright Response argues that this term should be construed as "a place where electronic information is stored." The defendants' proposed construction is "database."

The defendants argue that the specification defines "repository" as "database": "one or more predetermined responses . . . are retrieved from a repository (or database)." (947 patent, 9:26-27). But this passage is not defining the term "repository"; it provides an embodiment of the term. Nowhere in the specification or claims does the patent disclaim other potential repositories, such as a text file. Thus, the term should be construed according to its customary meaning as understood by a person having ordinary skill in the art. See Phillips, 415 F.3d at 1312-13. The dictionary definition of "repository" is "a place, room, or container where something is deposited or stored." Merriam-Webster's Collegiate Dictionary 1056 (11th ed.). In the context of the field of invention, it is clear that data is being stored. Therefore, the court construes "repository" to mean "a place where data is stored."
A. "a representation of an intra-oral radiograph holder"

This terms appears in Claims 1, 2, and 4 of the patent as follows:

1. A method of displaying stored intra-oral radiographs, comprising:
   displaying a representation of an intra-oral radiograph holder including target intra-oral radiological sites arranged according to anatomical location of said sites;
   . . .

2. A method for storing and displaying intra-oral radiographs, comprising:
   generating and displaying intra-oral radiographs of dentition; generating and displaying a representation of an intra-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites;
   . . .

4. A device for storing and displaying intra-oral radiographs, comprising:
   a display; means for generating and displaying on said display a representation of an intra-oral radiograph holder including selectable intra-oral radiological site arranged according to anatomical location of said sites; . . .

The parties agree that a radiograph is an image produced by x-rays and that "intra-oral radiographs" are images produced by x-rays captured by a film or sensor placed within the mouth. Plaintiffs contend that "a representation of an intra-oral radiograph holder" should be construed as "a representation of a device having a plurality of windows or image placeholders, arranged in anatomical order, for displaying intra-oral dental x-ray images." Plaintiffs assert that the invention appropriates the organizational and interpretational advantages of film holders, but does not incorporate their aesthetic or non-functional characteristics, and thus a representation of an intra-oral radiograph holder is simply a representation of a device having a plurality of windows or image placeholders, arranged in anatomical order, for displaying intra-oral dental x-ray images.

Defendants argue that "a representation of an intra-oral radiograph holder" should be construed as "a representation of what those skilled in the art would recognize as a collection of one or more positions organized in the format of a conventional intra-oral radiograph holder." Defendants rely primarily on the prosecution history to support their position, claiming that Plaintiffs' proposed construction is inconsistent with the prosecution history by side-stepping the addition of the "representation of an intra-oral radiograph holder" language and returning to the anatomical arrangement rejected by the PTO. Defendants argue that the prosecution history contains a substantive narrowing amendment and the Court must reject Plaintiffs' efforts to reclaim surrendered rights. Defendants argue that Plaintiffs seek to isolate one attribute of an intra-oral radiograph holder-anatomical arrangement -- as its entire definition. Defendants assert that the original patent application claimed all anatomical arrangements of radiographs and was deemed unpatentable due to prior art. In response, Plaintiffs amended the claims to include "a representation of an intra-oral radiograph holder," and this critical limitation was an explicit disavowal of claim scope and prohibits Plaintiffs from asserting any construction that excludes an intra-oral radiograph holder. Defendants further argue that Plaintiffs' proposed construction would expand the scope of the claims to include arrangements that are not film holders, such as the dental arch representations displayed in Figures 6 and 7 of the patent, but this cannot be correct because the specification clearly distinguishes dental arches from intra-oral radiograph holders. See 579 patent, col. 2, lines 27-31 ("The preferred application for the present invention is in intra-oral radiology. In such an application, sets of stored radiographs are displayed by using a representation of a dental film holder, or of dentition such as a dental arch.").
The Court finds that both sides have strong arguments regarding the proper construction of this term. Defendants argue that what was patented was a representation of a film holder familiar to dentists. There is some language in the specification and prosecution history to support this view. On the other hand, Plaintiffs point to the specification, noting that it emphasizes the organizational and interpretational characteristics of a film holder, and contend that the language of column 4, lines 56-61, which "emphasizes that other anatomical connotations can be applied to the various portions of the [intra-oral radiograph holder] icon,. . . so long as the anatomical sites represented by the icon . . . appear in normal anatomical relation to one another" means that the patent is broad enough to encompass all kinds of representations, not just conventional film holders, provided that the anatomical locations that are designated by the sites in the icon are arranged in anatomical order. Plaintiffs also contend that their construction is consistent with the prosecution history, and that when amending the claims, the applicant's incorporation of claim 4 into claim 3 expressed the patent attorney's understanding that claim 3, as amended, was the same as original claim 4, which noted that an image of an intra-oral radiograph holder was one method of displaying "a representation of target intra-oral radiological sites arranged according to anatomical location of said sites."

The claim refers to "a representation of an intra-oral radiograph holder" three times. Each time, the phrase is followed by "including selectable intra-oral radiograph sites arranged according to anatomical location of said sites." Thus, the claim itself makes clear that the holder representation includes selectable "intra-oral radiological sites" arranged according to their anatomical location. In addition, because the intra-oral radiological sites are arranged according to their anatomical location, the sites must have an "anatomical location." These limitations contained in the claim language itself are consistent with the description in the specification, which states that (1) film holder positions ("selectable intra-oral radiological sites") correspond to particular anatomical sites within the dental arch, Col. 6, lines 18-20, (2) each mounting position in a dental film holder corresponds to a particular anatomical site or anatomical region, Col. 1, lines 27-30, (3) mounting positions in the film holder have anatomical significance, Col. 2, lines 36-37, and (4) the anatomical sites ("selectable intra-oral radiological sites") in the holder representation appear in normal anatomical relation to one another, Col.4, lines 60-61. Plaintiffs' proposed construction of "intra-oral radiograph holder" expressly incorporates the anatomical arrangement limitation contained in the claim language, but does not expressly incorporate the feature that each position in the film holder representation correspond to an anatomical location. This may be implicit, however, in the fact that windows can only be arranged in anatomical order if they have anatomical significance. Further, this limitation is incorporated into their definition of "intra-oral radiological sites" as "icons or sites included in a representation of an intra-oral radiograph holder designating respective anatomical regions of the dental arch," which is discussed in the next section.

The specification makes clear that the term used in the claim, "an intra-oral radiograph holder," is a film holder, or film mount, and that it is "well known" in the field of oral radiology to mount dental radiographs in a film holder. The specification does not expressly equate a representation of an intra-oral radiograph holder to a "conventional" film holder. Rather, the background of the invention describes film holders by stating that (1) "such film holders can hold as few as one dental radiograph, n3 or as many as 20 or more radiographs," (2) "each mounting position in a dental film holder corresponds to a particular anatomical site or anatomical region," (3) "film holders present films taken of these anatomical landmark sites in positions that are consistent from holder to holder." The "summary of the invention" states that "use of a representation of a dental film holder permits a dentist to use his or her knowledge of the anatomical significance of the positions of the mounting positions in the film holder." Thus, these portions of the specification indicate that the relation between positions in a film holder and anatomical locations is consistent and that dentists would know them. However, though the specification describes the use of a representation of "a full mouth examination 20-film holder" in the detailed description of the preferred embodiment and specifies which film positions contained in the representation relate to which anatomical site, it "emphasizes that other anatomical connotations can be applied to the various portions of the icon appearing in icon field 53 [the representation of the film holder], without departing from the spirit and scope of the present invention, as long as the anatomical sites represented by the icon in icon field 53 appear in normal anatomical relation to one another." Thus, this language supports Plaintiffs' position that the only mandatory characteristics of a representation of an intra-oral radiograph holder, or film holder icon, are that the positions within the icon/representation represent anatomical sites and appear in normal anatomical relation to one another.

n3 The Court notes that, while the description of film holders states that they can hold as few as one dental radiograph, the invention does not include representations of intra-oral radiograph holders with only one position. The claim language requires that the film holder representation include intra-oral radiological sites, a plural term requiring there to be more than one position. Further, positions in the holder representation may only be arranged according to anatomical location if there
is more than one. This limitation is supported by the specification as well, which states that "sets of stored radiographs are displayed by using a representation of a dental film holder." Column 2, lines 28-30. Thus, while the specification describes attributes of film holders, not all of those attributes are necessarily true of a representation of an intra-oral radiograph holder.

Turning to the prosecution history, the original patent application demonstrates that the patentee believed that displaying "an image of an intra-oral radiograph holder" was one method for displaying a representation of target-intra-oral radiological sites according to anatomical location of said sites, while displaying an image of dentition was a second method. In its amendment, the patentee removed the image of dentition and retained the image of an intra-oral radiograph holder, noting that "all claims remaining in this application require the display of an intra-oral radiograph holder." The patentee further noted in its letter of explanation accompanying the amended claims that, "as explained in the Specification, dentists are familiar with such radiograph holders, and are trained to associate certain positions in the holder with specific portions of dentition." This language is consistent with the specification's statement that "use of a representation of a dental film holder permits a dentist to use his or her knowledge of the anatomical significance of the positions of the mounting positions in the film holder." The Court must thus consider whether this language limits the term intra-oral radiograph holders to "conventional" film holders (those with which dentists are familiar and for which dentists are trained to associate certain positions in the holder with specific portions of dentition), as Defendants urge.

As noted, the language in the specification seems to be somewhat contradictory, noting that film holders present films taken of anatomical landmark sites in positions that are consistent from holder to holder and that dentists have knowledge of the anatomical significance of the positions of the film holder, while simultaneously stating that "other anatomical connotations" can be applied to the icon positions, as long as the anatomical sites represented by the positions appear in normal anatomical relation to one another. However, the specification's "emphasis" that other anatomical connotations may be applied to the positions in the representation of the film holder can only be construed as the patentee's disavowal of a limitation that would require the positions of the film holder representation to correspond to particular anatomical locations in the mouth. In other words, though the positions must correspond to anatomical locations in the mouth, they do not necessarily have to correspond to the anatomical locations conventionally assigned to them. Thus, although dentists are trained to associate film holder positions with specific anatomical locations and the invention purports to take advantage of this training and knowledge, it is not strictly limited to use of representations of conventional film holders. To be sure, the patentee's language in the amended patent application correspondence with the PTO is consistent with the notion that a representation of an intra-oral radiograph holder is a representation of a film holder with which dentists are familiar and for which they have been trained to associate the mounting positions with specific anatomical locations. However, the Federal Circuit has instructed that the prosecution history, though useful, is less reliable than the specification, which appears to disavow such a strict limitation. n4 Further, when distinguishing Aisaka, the patentee's use of more circumscribed language in describing the use of film holders did not expressly disavow the language of the specification that other anatomical connotations could apply to the positions in the holder representation. Rather, the only thing the patentee clearly disavowed was a representation of anatomy: "While the Aisaka et al. reference contemplates the display of a representation of anatomy (for example, a stomach in Fig. 2A or a lung in Fig. 7C), there is no suggestion in Aisaka et al., or in any of the art of record, to display a representation of an intra-oral radiograph holder, and the use of that representation to store and retrieve dental radiographs." Thus, the prosecution history does not limit the invention to representations of conventional film holders.

n4 The Court notes, however, that in this case the specification seems less reliable because it is a description of the originally submitted invention, which included a representation of dentition, and thus some of the language in the specification either does not apply or was written broadly enough to cover both the image of an intra-oral radiograph holder and image of dentition originally included as methods for displaying target intra-oral radiological sites arranged according to anatomical location of said sites.

The extrinsic evidence does not contradict this construction. Defendants read testimony from David Bahler into the record during the Markman hearing:
Q: What do you recall generally about the technology that is at issue at the patent in suit?

A: Generally, it is a method and perhaps an apparatus for displaying intraoral radiographs on a computer display -- actually, dental x-rays on a computer display in a way that is recognizable to dentists, generally.

Defendants argue that this testimony establishes that the film holders must be recognizable to dentists as conventional film holders. However, the testimony states only that the invention involves displaying x-rays in a way that is recognizable to dentists. Use of a representation of a film holder would be recognizable to dentists, regardless of whether they recognized the specific representation as a "conventional" film holder.

The Court finds that Plaintiffs' proposed construction is more consistent with the claim and specification, though it unnecessarily incorporates limitations that are already contained in the claim language. Were the Court to use Plaintiffs' proposed construction, claim 2, for example, would read "generating and displaying [a representation of a device having a plurality of windows or image placeholders, arranged in anatomical order, for displaying intra-oral dental x-ray images] including selectable intra-oral radiological sites arranged according to anatomical location of said sites." Thus, Plaintiffs' construction would create redundancy. The specification (and prosecution history) makes clear that "a representation of an intra-oral radiograph holder" is simply "a representation or image of a dental film holder." And, a dental film holder is a device for mounting dental x-rays.

The Court has attempted to follow the applicable claim construction guidelines from the Federal Circuit, and finds that, based on the claim language, the specification, and the prosecution history, an ordinary artisan (a dentist) would construe the term "representation of an intra-oral radiograph holder" in claims 1, 2, and 4 as "a representation or image of a dental film holder (a device for mounting two or more dental x-rays)."

C. Representative

The term "representative" appears in claims 34, 37, 40 and 42 of the '580 patent. Microsoft's proposed definition of the term is "that replaces (without loss of meaning) or is equivalent to." AT&T's proposed definition of "relates to, represents, or describes." (Joint Letter, Ex. B.; Tr. 108-09, 117.) AT&T also stated at the Markman hearing that it "would be fine with something like represents, typifies or describes." (Tr. 118-19.)

"Dictionary definitions may establish a claim term's ordinary meaning" that "would have been attributed by those of skill in the relevant art." Texas Digital Sys., 308 F.3d at 1202 (quoting CCS Fitness, 288 F.3d at 1366); accord Vitronics, 90 F.3d at 1584 n.6. In doing so, "the intrinsic record must always be consulted to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." Texas Digital Sys., 308 F.3d at 1203. Moreover, "if more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings." Texas Digital Sys., 308 F.3d at 1203 (citations omitted).

Webster's Dictionary defines "representative" as "one that in some way corresponds to, replaces, or is equivalent to someone or something else," and as "serving to represent, portray, or typify." Webster's Third New Int'l Dictionary of the English Language Unabridged at 1926 (G.&C. Merriam Co. 1981). The American Heritage Dictionary defines "represent" as "to stand for; symbolize." Am. Heritage Dictionary at 1104 (Am. Heritage Pub. Co., Inc. 1973). AT&T also presented additional definitions from Webster's dictionaries: "serving to represent, portray or typify; serving as a characteristic example; illustrative of the class; serving as a typical or characteristic example." (Tr. at 109.)

The specification and the prosecution history do not indicate any intent by the patentees to deviate from the plain meaning of the term. See Altiris, 318 F.3d at 1370-71 (citing Teleflex, 299 F.3d at 1327). Reading the term in light of the specification, several dictionary definitions are consistent with the use of the claim terms. Altiris, 318 F.3d at 1369 (citing Texas Digital Sys., 308 F.3d at 1203). Accordingly, this Court incorporates those consistent terms and construes "representative" as "one that in some way symbolizes, represents, replaces, or is equivalent to something else." See Texas Digital Sys., 308 F.3d at 1203.
3. "having at least one representative child node represent a subset of the child nodes" Used in Claim 9.

In spite of their agreement on the preceding two similar terms, the parties differ on this claim term. Cisco proposes "having at least one child node be a graphical representation of multiple child nodes." Telcordia suggests "at least one representative child node represents a subset of the child nodes located on the same level of the hierarchy." Initially, the parties disputed all three claims, with the difference in each being that Telcordia wanted all of them to contain the limitation "on the same level of hierarchy," as seen in its proposal for Claim 9. After the briefs were filed, Telcordia agreed that such limitation was not needed for Claim 1, and Cisco agreed that the limitation was appropriate for Claim 6. Needless to say, the briefs of the parties do not provide any guidance as to whether Claim 9 should be construed similarly to Claim 1 or to Claim 6.

Since the parties have agreed on the construction of the similar terms in Claims 1 and 6, a comparison of the language of the three claims is helpful. All three of the claims describe the limitation of the number of nodes/objects around another node/object. All three claims also describe using one object to represent multiple objects. For clarity, this will be referred to as the "representative node." The question is whether in Claim 9 this representative node can only represent nodes on the same level of hierarchy (as agreed for Claim 6) or can represent nodes on more than one level (as agreed for Claim 1).

Unlike Claim 1, Claim 6 and Claim 9 refer to child objects or nodes representing other child objects or nodes. Claim 1's only limitation is that "one object represents multiple objects" with no limitation that the represented objects be "child" objects. Claim 9 is therefore more like Claim 6, in which the parties have agreed the "representative node" represents only nodes on the same level of the hierarchy.

Cisco argues that the representative child node of Claim 9 could also be a parent node and represent children and/or grandchildren nodes on lower levels, so that it would be like Claim 1, in which "one object represents multiple objects." A close examination of the claim language shows that this is a tortured interpretation.

Claim 9 describes "a method for displaying hierarchical data" in which the second step describes a plurality of child nodes being arranged "adjacent to the parent node . . . ." '304 patent, col. 21, ll. 45-46. (emphasis added). Grammatically, the use of the definite article "the" generally indicates a single or unique parent node.

Continuing on in the second step, each child node depends from "the parent node in the hierarchy . . . ." '304 patent, col. 21, ll. 46-48. (emphasis added). Then we get to the term in dispute which is contained in the following phrase:

. . . limiting the number of child nodes depending from the parent node to within a predetermined number of child nodes by having at least one representative child node represent a subset of the child nodes . . .

'304 patent, col. 21, ll. 53-56. (emphasis added). The emphasized terms raise two points.

First, the definite article "the" is again used with "parent node." The patentee had unbridled discretion in his choice of words, and he chose to use the definite article each time "parent node" is used in this claim. This is an odd choice if he intended the representative child node to also be a "parent node."

Second, the nodes which depend from the parent, the nodes whose number is predetermined, the "representative node," and the nodes which it represents, are all "child nodes." Cisco argues that this is some sort of generic use of "child." But the specification is very consistent in using "child" to refer to a node depending directly from a parent. An indirect node, or a node more than one hierarchical level below a given parent node is referred to as a "grand-child" or "great-grand-child."

'304 patent, col. 8, l. 51; col. 9, ll. 61-63; col. 10, ll. 4-6; col. 11, ll. 13-14 & 20-21; and col. 14, ll. 55-57.

Likewise, the other claims are also consistent in using "grand-child" when referring to nodes more than one level down from a "parent." See '304 patent, Claim 7, col. 21, ll. 1-5; '304 patent, Claim 11, col. 22, ll. 10-17; and '304 patent, Claim 33, col. 24, ll. 16-17. Claims 11 and 33 are also significant because they describe limiting the number of "child or grand-child objects," whereas Claim 9, like Claim 6, speaks only of limiting the number of "child" nodes or objects. The use of different
language in the claims supports the interpretation that the "child nodes" of Claim 9 are on the same hierarchical level, just as the parties have agreed the "child objects" of Claim 6 are on the same hierarchical level.

Cisco contends that the prosecution history suggests that the 'virtual' hierarchy enabling one object to represent multiple levels was used to overcome the prior art, U.S. Patent No. 6,144,962 ("the Weinberg patent"). The applicant argued that "a 'virtual' hierarchy that includes objects that represent multiple objects" was a critical feature distinguishing their invention over that of Weinberg. Application, January 13, 2003, Bates stamped 00000508-509, p. 10, Exhibit F of Cisco's Opening Claim Construction Brief, [Doc. # 51, Attachment # 3]. Such a statement relates to the phrase in Claim 1, which Telcordia agrees, may encompass multiple objects on multiple levels. However, when discussing the claim at issue, the applicant argued that "a parent node in the hierarchical structure of objects has child nodes that exceed that predetermined number, a single object may be created to represent a subset of the child nodes . . . ." Id. Although this does not, as Telcordia suggests, unambiguously restrict the claims to one child node representing other child nodes that are on the same level, it certainly indicates that the applicant recognized a distinction between a claim using merely "one object" to represent "multiple objects," and a claim with the additional limitation that one "child node" or child object represents other "child nodes" or "child objects." The court construes this disputed term as follows:

"having at least one representative child node represent a subset of the child nodes" means "at least one representative child node represents a subset of the child nodes located on the same level of the hierarchy."

The parties dispute the following three terms: (1) "value that is representative of amount of time to transpire" used in the '916 patent; (2) "value which is representative of a delay time" used in the '263, '365, and '195 patents; (3) "value which is (or code being) representative (or indicative) of a (preprogrammed) number of clock cycles" used in the '263,'443, '214, '918, '592, '152, '120, and '916 patents. Hynix proposes each of these terms be defined as "information representing a particular access time." JCCS, Ex. A at 26-28. Rambus contends the terms are self-explanatory in light of their context within the claims. Rambus is correct The court finds the patents used these terms in a manner equivalent to delay time code or "delay time." The problems discussed with Hynix's proposed construction of "access time register" and "delay time" apply equally to its construction of these terms.

Accordingly, the court adopts Rambus's proposed construction for each of these terms. Each term is interpreted to represent a value conceptually similar to the delay time code and "delay time" discussed above. "Value that is representative of amount of time to transpire" is construed as "information that indicates an amount of time which is to occur." JCCS, Ex. A at 26. "Value which is representative of a delay time" is construed as "information which indicates a delay time." Id. "Value which is (or code being) representative (or indicative) of a (preprogrammed) number of clock cycles" is construed as "information which indicates a number of clock cycles."

Data General maintains that "represented address of said addresses" refers simply to one of the addresses represented by an ordinary unresolved pointer. IBM contends that the phrase refers to two different kinds of logical addresses, of which the second kind of address is used to represent the first.

Claim 10 recites in the third paragraph:

said data items include ordinary unresolved pointers, each one of said ordinary unresolved pointers representing a represented address of said addresses …

An ordinary unresolved pointer does not itself contain one of "said addresses", which specifies a location in the memory means, but rather represents a "said addresses", which is subsequently to be determined. The address for which the pointer is a proxy is the "represented address." Thus, "represented address" is the address into which the pointer will eventually be resolved and "said addresses" refers to the set of addresses specifying locations in the memory means of which the "represented address" is one.

Data General argues that Claim 10 does not expressly claim any specific kind of address -- physical, logical or otherwise. IBM responds that "represented address of said addresses" refers to logical addresses and, more specifically, that "said addresses" found in memory commands are a particular kind of logical address, AON-offset addresses, which are resolved into a second kind of logical address, UID-offset addresses.

The Common Specification describes the use of logical addresses in the computer system at issue as follows:

CS 10110's addressing mechanisms are based, first upon UID addressing of objects. That is, all information generated for use in or by operation of a CS 10110, for example, data and procedures, is structured into objects and each object is assigned a permanent UID.

Effectively, UID addressing means that the address (or memory) space of a particular CS 10110 includes the address space of all systems, for example, disc drives…. 2

U.S. Patent No. 4,455,602 ("the '602 Specification" or "Common Specification"), col. 72, ll. 13-17, ll. 24-26 (emphasis added). 3

--- Footnotes ---
2 "UIDs" stands for Unique Identifiers, one aspect of the described logical addressing system. U.S. Patent No. 4,455,602 consists primarily of a specification, which is incorporated by reference in numerous patents, including both the '603 and '797 Patents.
--- End Footnotes ---

The Common Specification clearly describes the use of logical addresses in connection with the resolution of unresolved pointers:

The Pointer Resolution System translates pointers, i.e., data items which contain location information, into UID-offset addresses.

'602 Specification, col. 327, ll. 15-17.

Although the Common Specification describes the use of logical addresses in its addressing system, limitations from the specification should not necessarily be read into the claims. See Sjolund v. Musland, 847 F.2d 1573, 1581-82 (Fed. Cir. 1988). While "represented address of said addresses" may be logical addresses, they are not limited to logical addresses.

This Court concludes that "said addresses" refer to the addresses in memory commands specifying a location in memory means and "represented address" is the address derived from the ordinary unresolved pointer.
Hamilton next argues that the court failed to set forth its construction of the terms "representing," "indicative of," and "of the patient." Claim 1 requires means for processing data "representing . . . measured levels of carbon dioxide and oxygen levels of the patient." Claim 16 requires the step of "measuring levels of carbon dioxide and oxygen of the patient and providing a first pair of data signals indicative of the same." Dr. Tehrani responds that the court defined the first two terms according to their ordinary meanings and that the meaning of the third term "of the patient" was not in dispute and therefore did not require construction.

Both sides rely on dictionary definitions of the term "representing." Hamilton argues that "representing" should be construed to mean "equivalent to," and that Dr. Tehrani used the term "representing" because it would be improper to use the term "equivalent" to refer to digital data signals that correspond to a physical measurement. Dr. Tehrani proposes broader terms such as "to stand for" or "symbolizing" as the proper definition of the term "representing." The district court acknowledged the dispute over the term, but failed to state explicitly which party's proposed definition it adopted. We find it implicit in the district court's opinion, however, that it chose the broader definition of "to stand for" or "symbolizing" because its analysis is not consistent with the narrower definition of "equivalent to."

We look to the ordinary meaning of the term "representing" because the record does not suggest that the applicant assigned a special meaning to the term. When a term has multiple dictionary definitions, we must consult the intrinsic record "to identify which of the different possible dictionary meanings of the claim terms in issue is the most consistent with the use of the words by the inventor." Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002). We agree with Dr. Tehrani that the ordinary meaning of "representing" is broad enough to include "symbolizing" or "to stand for," and that the '268 patent did not assign the term a narrower meaning. On the other hand, the statement that one item "represents" another cannot be interpreted so broadly as to include any case in which the two items are related in some way. Rather, the first item must be directly related to and stand for, or be a reasonable proxy for, the latter item.

THREE 3691
THE "PULSE WIDTH" LIMITATION

Independent claims 1, 9, and 14 of the '751 patent require a pulse generator that generates "a pulse . . . a width of said pulse representing a coordinate position of said joystick device." In its August 22 opinion, the Court defined "pulse" as "a single cycle of variation in the logical level of a signal" in accordance with its ordinary meaning to one skilled in the art. The Court also construed the phrase "a width of said pulse representing a coordinate position of said joystick device" as "the width of the pulse, as assessed in time or distance, represents a coordinate position of the joystick device." Therefore, the limitation, read together with its construed definitions requires an infringing product to produce "a single cycle of variation in the logical level of a signal, a width of the single cycle of variation, assessed in time or distance, represents a coordinate position of said joystick device." For ease of reference this limitation will be referred to as the "pulse limitation."

Context of Dispute

In order to put the parties' dispute regarding the pulse limitation into an understandable context, a brief explanation of the accused devices is warranted. 2 There is no dispute over the operation of the accused devices. The Microsoft Xbox game controllers implement miniature joysticks or "thumbsticks." The Xbox thumbstick is connected to a potentiometer that generates particular voltage signals depending on the unique position of the thumbstick. The analog voltage signal is then converted into a digital signal using either an 8-bit or 10-bit 3 successive approximation analog to digital converter ("SAADC"). The SAADC compares the analog voltage arriving from the potentiometer with successive approximations of voltage to arrive at a corresponding 10-bit digital representation of the thumbstick's position.

Footnotes

2 This is particularly true because Fenner attempts to frame its "interpretations" regarding claim terms and the Court's construction as questions of fact.

3 Early versions of the Xbox used an 8-bit rather than 10-bit SAADC. The distinction between the two is irrelevant for the purposes of this opinion. For the purposes of illustration, the remainder of this opinion will refer only to the 10-bit SAADC.
The 10-bit digital word is then transmitted over a carrier signal (either through USB wired bus or radio technology) with two logic levels. A low logic level would indicate a "0" and a high logic level would indicate a "1." The 10-bit "digital word" indicates the particular position of the thumbstick to the processor. In some accused devices, an encoding scheme is used rather than transmitting high logic for a "1" and low logic for a "0." An encoding scheme does not change the nature of the 10-bit digital word. Rather, the same 10-bit digital word is encoded during transmission. For example, in some products, Microsoft uses NRZI encoding, which is a coding scheme that uses two logic levels and where a logic "0" bit is indicated by any transition between the logic levels. Alternatively, Logic "1" bits are indicated for portions of the signal (whether high or low) where there are no transitions for multiple clock cycles (i.e. a logic "1" bit is indicated for each clock cycle where there is no logic transition). Whether or not encoding is used, the 10-bit word is re-assembled when it is received at the console. The processor may then interpret the 10-bit word to calculate the corresponding position of the thumbstick.

The Nintendo Gamecube and Wii consoles operate similarly, converting the analog voltage signal into an 8-bit digital signal. Both of the Nintendo accused products use encoding. In particular, the analog to digital converter (ADC) in the Gamecube creates a short pulse to indicate a "0" and a slightly longer pulse to indicate a "1." Eight of these successive pulses creates an 8-bit digital word that corresponds to a particular thumbstick position. The Wii game controller, in turn, generates no pulse over a clock cycle to indicate a "0" and a short pulse to indicate a "1."

Claim Construction

Fenner makes several arguments for how this limitation is achieved by the 8 or 10-bit digital pulses created by the accused devices. As an initial matter, the parties agree that all of the accused devices produce pulses with a width assessed in time or distance. For instance, the Wii and Xbox controllers will produce the 8-bit word "01100000" by producing no variation for the first clock cycle, a variation in the logical level for the two following clock cycles, then a return to the original logical level for the remaining 5 clock cycles. 4 Therefore, the "width," of the variation in the logical level, measured by time, is two clock cycles. Similarly, the "width" of the "pulse" in the 8-bit word "00110000" would also be two clock cycles.

4 Of course, this is merely exemplary because the 8-bit "digital word" may be produced in the carrier signal in a variety of ways depending on the encoding.

Fenner argues that the accused devices meet the "pulse limitation" simply because each device creates a pulse with a width that can be measured, and sometimes, based in part on this measurement, the position of the joystick can be determined. Defendants argue that the pulse width has no relevant meaning in the accused devices, but rather, it is the representative "digital word" that reveals joystick position. The dispute centers around the meaning of the word "represents" in the Court's construction of the pulse limitation. Fenner uses the term to mean that pulse width "provides some information about" or "symbolizes" a coordinate position of the joystick device. 5 Defendants suggest that the term means that the pulse width "fully communicates" a position of the joystick device. Thus, the critical question is a claim construction dispute regarding whether a "pulse width" must provide all the information necessary to determine a particular joystick position.

5 Though Fenner has vigorously argued that "represents" has its plain meaning and needs no further construction, it consistently uses the term to mean different things. Sometimes it even indicates that the term means "directly corresponds" or "fully communicates." See Fenner's Response to Microsoft's Motion for Summary Judgment of Non-Infringement, Docket No. 226 at 21 ("A reasonable juror could find that the pulse and pulse widths of each of Microsoft's pulses correspond to a distinct joystick coordinate position").
The Court's original claim construction opinion rejected Defendants' argument that "represent" meant that a pulse width required a "direct relation" to the joystick position. See Memorandum Opinion, Docket No. 142 at 12-13 (August 22, 2008) ("Claim Construction Opinion"). Defendants' argument, at that time, was that "represent" required the relationship between the joystick position and pulse width be such that there was a direct mathematical correspondence between the position of the joystick and the width of a pulse. The specification did not require such a mathematical relationship. See id.

For example, a larger pulse would indicate a joystick in the forward position and a smaller pulse would indicate a joystick in the backward position.

However, intrinsic evidence strongly suggests that the width of a pulse must communicate all the information necessary to determine a joystick position. Foremost, all of the claims (as well as the Court's construction) require that the pulse width represents "a coordinate position." The words "coordinate position" require precision beyond that of a simple "position." "Coordinates" are precise and not general or simply indicative. In addition, the use of the article "a" reveals that the claims call for only a single "coordinate position." In respecting the patentees' specific claim language to relate the pulse width with a single specific joystick position, the Court cannot construe the word "represent" as Fenner suggests. To do so would completely marginalize the meaning of these specific terms.

Furthermore, the patent's abstract further supports this conclusion. A patent's abstract may often be helpful in determining the proper meaning of claim terms. See Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1398-99 (Fed. Cir. 2008) (citing several statements in the abstract for construing disputed claim limitations). Here, the abstract recites that the claimed invention operates by "outputting a digital pulse signal to a processor which signifies a joystick coordinate value." '751 Patent, Abstract. Importantly, the abstract does not indicate that the pulse only provides some information about joystick position, but rather, that the pulse "signifies . . . a joystick coordinate value." The words "coordinate value" unambiguously require that the pulse signal pinpoints the position of the joystick with a degree of mathematical particularity. Furthermore, the use of the article "a" and the use of the term "value" in the singular indicate that the pulse information does not generally determine a subset or group of possible joystick positions, but a singular joystick position.

Similarly, the summary section of the patent supports this interpretation by also using the words "a joystick coordinate position" to describe the information gleaned from the pulse. Id. at 2:2-3. Indeed, this language is almost identical to the language used in the claims themselves. Additionally, in describing the operation of the preferred embodiment the specification explains that "[t]he duration that PCin remains at a logic "1" level indicates the joystick potentiometer resistance for the corresponding coordinate axis." Id. at 4:36-38. The use of the phrase "corresponding coordinate axis" also indicates that the pulse information provides a degree of particularity that precludes Fenner's interpretation. Also, the argument that the invention encompassed methods other than calculating the "duration" of a pulse to determine joystick position is not supported anywhere in the file history, written description, or claim language.

Lastly, a corollary to Fenner's position is that the "width" of a pulse combined with other data (such as the position of the pulse within a given 8 or 10-bit word) does, in some circumstances, indicate a particular joystick position. Fenner's arguments indicate that it views the term "represent" as meaning "pulse width" can be included in some multi-variable
formula that, in some circumstances, will produce a particular coordinate position of the joystick. However, the prosecution history indicates that the width of the pulse itself—without the necessity of other information—constitutes the relevant data for determining joystick position. During prosecution, independent claims 1, 9, and 14 were amended to include the limitation that "the capacitance value of said capacitor [is] a function of said predetermined threshold that prevents deviation of the width of said pulse from expected values." Prosecution History, 12/19/01 Amd., at 2, 4, 6. This language regarding the expected width of a pulse is also repeated in the claims and confirms that "pulse width" itself has an expected value for a particular joystick position (this would not necessarily be the case if the pulse width were merely a component in a multi-variable position indicator). Further, the claim amendment is particularly instructive when coupled with the language in the specification explaining that "pulse width, which represents rise time, however, should not be less than or exceed expected minimum or maximum pulse width values . . . to ensure optimal joystick position sensing . . . ." '751 Patent at 4:64-67. This language clearly indicates that pulse width, and not other data, is what is "sensed" to determine joystick position.

Thus, it is clear from the context of the patent and claims that the term "represents" means more than "provides some information about," "symbolizes," or even "suggests." Rather, one skilled in the art would understand that the width of a pulse must itself provide the information necessary to determine joystick position. Accordingly, the Court amends the definition of "a width of said pulse representing a coordinate position of said joystick device" to mean "the width of the pulse, as assessed in time or distance, provides all the information necessary to determine a coordinate position of the joystick device."
2. “Request”

“Request” is utilized in asserted claims 1, 9, 11 of the ‘554 Patent and 1, 15, and 29 of the ‘335 Patent. The Plaintiff asserts that the proper construction of “request” is “a message that asks for content.” The Defendants assert that the term should be construed as “a message containing a URL that asks for a Web page specified by the URL.”

The Court first notes that the term “request” generally appears in the claims in different circumstances. In some claims (for example claim 1 of the ‘554 Patent), request is first utilized with relation to “a dynamic Web page generation request” and multiple references are then made to “said request.” Such claims also use the term “other requests” which imply a request different from “said request.” Other claims (for example claim 15 of the ‘335 Patent) begin with the general use of “a request” but later refer to “dynamically generating a page in response to said request.” These claims also refer to “other requests.” As noted in the specification, a request can refer to static Web pages (such as a static document) or dynamic Web pages (such as a Web page dynamically generated by an application). Col. 1:38-56, Col. 4:16-32 Thus, in its general use, request is not limited to dynamic or static requests. It is also noted that both types of claims consistently refer to either “Web page” generation or “page” generation. The specification uniformly refers to pages in the context of Web pages. Thus, it is not unreasonable that in light of the consistent specification one would interpret “requests” as relating to requests for Web pages.

The primary point of distinction between the proposed constructions relates to inclusion of “URL” in the construction of request. The specification notes that “a Web browser allows a Web client to request a particular Web page from a Web site by specifying a Uniform Resource Locator (URL). A URL is a Web address that identifies the Web page and its location on the Web.” Col. 1:29-32

The Defendants cites numerous places in the specification text in which “URL request” is utilized to refer to what is requested. The Plaintiff asserts that a request may be made at multiple points, such as shown in Figure 4 between the Web client and Web server, between the Web server and the Dispatcher and between the Dispatcher and the Page servers. The Plaintiff further argues that once a message is received by a Web server a full URL is not utilized subsequently, such as by Page servers.

The Defendants counter by noting numerous specification citations to the term “URL request” including “route the URL request to a Page server” and “the dispatcher sends the URL request to an appropriate Page server.” Col. 6:9-10, Col. 8:38-39, See Defendants’ Brief at 13-14. The Plaintiff responds that there is no teaching in the specification that a page server utilizes a URL. Moreover, the Plaintiffs assert that it would be illogical for a request provided to the page server to utilize a URL as such address would refer to the Web server.

The Court notes that within the claims “request” is used in context of multiple steps of the page generation process. For example, within claim 1 a request may be provided to a Web server while “said request” is also received by a Page server. The specification provides varied and not always consistent uses of the terms “request” and “URL request.” As noted above, URL request is often utilized. However, the more general term “request” is also often utilized. Col. 2:1-12; Col. 2:18-35; Col. 4:33-53; Col. 5:8-59; Col. 6:20-32; Col. 7:5-6. In at least two of these instances, language stating “requests or ‘hits’” is utilized. Col. 4:38-39; Col. 7:5-6. Further, the Defendants have not shown within the specification that a Page server utilizes a URL. Thus, even when “URL request” is provided in the specification it is not clear that such request is required to contain a URL or is merely a request generated from an initial URL provided at a Web client. To require “request” to include a URL would thus include limitations that the specification does not clearly support and clearly require.

The remaining dispute between the parties relates to the use of “content” verse “Web page.” This dispute relates to the underlying meaning of the term Web page as discussed above and thus does not need to be re-addressed. As the Court has noted, the context of the patent is uniformly directed towards Web page requests. Under the guidance provided in Phillips, it is appropriate when viewing the specification and the language of the claims themselves to limit “request” to Web page
applications. Thus, the Court construes "request" to mean "a message that asks for a Web page" (with the term Web page having the construction provided herein).

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The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

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f. "request"

Claims 1, 7, 11, and 14 refer to the term "request." This term is not highly contested, and the Court finds the proposed interpretations of the parties very similar. A "request" is a communication, message or directive that asks a remote computer for a response, including the download of electronic data. "To request" is to send such a message. This is an active term, not a passive one. This interpretation is consistent with the ordinary meaning of the claim language and the patent specification.


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B. Read Request

The district court construed "read request" to mean "a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a read of data from a memory device." The court similarly construed "write request" and "transaction request" by replacing the language "needed to request a read of data from a memory device" with "needed to request a write of data from a memory device" and "needed to perform a transaction over the bus with a memory device."

Claim 18 of the '918 patent is representative of the claims reciting a "read request:"

18. A method of operation of a synchronous memory device, wherein the memory device includes a plurality of memory cells, the method of operation of the memory device comprises:

- receiving an external clock signal;

- receiving first block size information from a bus controller, wherein the first block size information defines a first amount of data to be output by the memory device onto a bus in response to a read request;

- receiving a first request from the bus controller; and

- outputting the first amount of data corresponding to the first block size information, in response to the first read request, onto the bus synchronously with respect to the external clock signal.

'918 patent, col. 26, ll. 13-27 (emphases added). The relevant claim language thus recites only that data is output onto a bus in response to a "read request."

Both parties agree that the term "read request" has no unambiguous ordinary meaning to one of skill in the art. Infineon argues that because the claims contemplate a response to a "read request," the "read request" must contain all information necessary to perform the requested read. Thus, Infineon argues that the "read request" must include both address and control information. Rambus agrees that in order to actually perform a read the device must be given address and control
information. Rambus asserts, however, that such address and control information is part of the "request packet," not the "read request" Rambus argues that "read request" refers only to an instruction to the memory device to perform a read action. According to Rambus, the "read request" is one component of the "request packet" -- comprising the first four bits of the packet. Figure 4 of the '918 patent illustrates a "request packet."

[SEE FIGURE 4 IN ORIGINAL]

As shown above, the "request packet" has multiple fields, including an AccessType field, Address fields, and a BlockSize field. Rambus contends that the four-bit AccessType field contains the "read request." The first bit instructs the memory device to perform a read; the next three bits tell the device what type of read to perform (e.g., page read, normal access read, etc.).

The district court interpreted the claim language requiring a response to a "read request" to mean that the "read request" must include address and control information. To the contrary, the claim language itself shows the fallacy of holding that outputting data in response to a "read request" necessarily implies that the read request must contain all information necessary for a memory device to respond. Claim 18 recites receiving a "block size" that defines an amount of data to be output onto a bus in response to a read request. By specifying the "block size" as separate from the "read request," claim 18 indicates that the block size is not part of the read request. Nevertheless, block size, which tells the device how much data to read, is necessary to permit the device to respond to a read request. n5 Thus, even though the device needs a block size to respond, such block size is not part of the read request. See '918 patent, col. 24, l. 58-col. 25, l. 3 (Claim 1 recites providing a "block size" to the memory device in one limitation and issuing a "read request" to the memory device in another limitation.).

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n5 To tell the memory device what data to read, the controlling device (e.g., the CPU) may provide a start and stop point for the data location, or provide a start point and a value for how much data to read (i.e., block size). The claimed invention uses the "block size" method.

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In addition, the district court's interpretation of "read request" conflicts with other passages of the specification. While the memory device must respond to a read request, the specification indicates that the address and control information is part of the request packet -- not the read request. In other words, the specification does not use read request and request packet interchangeably. Rather, it shows a difference between a read request and a request packet. Each reference to address and control information consistently indicates that such information is a part of the request packet, which the specification defines as "a contiguous series of bytes containing address and control information." '918 patent, col. 8, l. 59-col. 9, l. 4; see also col. 9, ll. 24-43; col. 6, ll. 61-62 (defining request packet as "a sequence of bytes comprising address and control information"); col. 9, ll. 11-13 (request packet has control information). Other than in the abstract and the claims, the term "read request" appears only twice in the specification. See id., col. 9, l. 2 & col. 12, ll. 33-35. Neither reference to "read request" suggests the presence of address and control information. The specification merely indicates that the "read request" requests data from a memory device and specifies what type of read (e.g., page mode, normal mode, etc.) to perform. See id., col. 9, l. 39-col. 10, l. 39; col. 8, l. 66-col. 9, l. 3 & Figure 4.

Moreover, the dependent claims demonstrate that a read request is distinct from a request packet. Dependent claims 27 and 28, which depend from claim 18, recite:

27. The method of claim 18 wherein the first block size information and the first read request are included in a request packet.

28. The method of claim 27 wherein the first block size information and the first read request are included in the same request packet.

id., col. 27, ll. 6-11. Although one of ordinary skill would know that a memory device needs a block size and address and control information to respond, the claims do not state that such information forms a part of the read request. In fact, the
claims do not even require that such information be part of the same request packet. Even though the memory device needs this information, the claims need not recite every component necessary to enable operation of a working device. Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1303, 50 USPQ2d 1429, 1435 (Fed. Cir. 1999) (applicant need not claim every feature of a working device). The district court's construction would render claim language in dependent claims 27 and 28 meaningless. This court disfavors such a construction. Comark Communications, 156 F.3d at 1187; Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1445, 43 USPQ2d 1837, 1841 (Fed. Cir. 1997).

The district court also relied on a statement made during prosecution as an admission by Rambus that a "transaction request" includes "identification information." At the time of this statement, however, pending claim 186 (issued claim 1 of the '918 patent) referred to "a transaction request including identification information." The examiner amended the claim by inserting the word "packet" after each occurrence of "request" in pending claim 186, which in fact clarifies that identification information is part of a request packet, not a "transaction request." Notably, the examiner did not make such amendments to pending claims 200 and 208, which recited "identification information and a read request." See also '804 patent, col. 26, ll. 4-5.

Finally, this court perceives no justification for including multiplexing as a part of the meaning of "read request." Multiplexing, if necessitated by the claims, is applicable to the construction of the term "bus," not "read request." The claims do not support reading multiplexing into "read request."

From the correct perspective of one of skill in the art at the time of invention, the term "read request" means a series of bits used to request a read of data from a memory device where the request identifies what type of read to perform. The terms "write request" and "transaction request" mean, respectively, a series of bits used to request a write of data to a memory device and a series of bits used to request performance of a transaction with a memory device.

5. "request for access to the metadata"

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>FotoMedia's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a request for access to the metadata&quot;</td>
<td>a request to, for example, view, add, edit, modify, read, write, etc., metadata, wherein the request may be made independently, or in conjunction with any other request elements</td>
<td>a request to access one or more metadata apart from a request for the image</td>
</tr>
</tbody>
</table>

The parties dispute whether a request for metadata may accompany a request for any other type of information, i.e. whether "combined" requests are within the scope of this term. According to the defendants, claim differentiation requires that "a request for access to the metadata" is limited to requests for metadata, not anything else. The defendants contend that the applicants clearly differentiated requests that seek only metadata from requests that seek both metadata and the image. See '231 patent, Cls. 25, 33. Therefore, defendants argue, only the later claims, namely 25 and 33, should be entitled to the scope of the "combined" requests. In addition, the defendants point to dependent claim 3, which adds the additional limitations "allowing the user to read, write, or modify the metadata." According to the defendants, Fotomedia's proposed construction, including read, write, and modify in the independent claim term, would render claim 3 meaningless.

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11 The defendants also contend that the patentee highlighted this ability during his deposition. The Court agrees with Fotomedia that inventor testimony is irrelevant here.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
Fotomedia points to the specification for support that a request for access to metadata may be made in conjunction with any other request: "After the metadata elements in the image file has [sic] been populated with data and stored on a server or other device, users may make requests from the server to access the image and its metadata." '231 patent col. 3, l. 65 - col. 4, l. 2. Furthermore, Fotomedia argues, claims 3, 24, and 33 have other differences in scope than the one highlighted by the defendants.

The Court finds the doctrine of claim differentiation applicable here. The patentee knew how to refer to a request for access to both metadata and the image. The Court cannot now interpret both of these claim terms to mean the same thing.

"A request for access to the metadata" is "a request to access one or more metadata elements apart from a request for the image."

6. Request(s)/private branch exchange service requests

Several of the claims of the '864 patent recite the terms "request(s)" and "private branch exchange service requests."

Foundry contends that only the term "request(s)" needs to be construed because the parties agree on the meaning of "private branch exchange services." Thus, Foundry submits that "request(s)" should be construed in accordance with its ordinary meaning. Lucent argues that both "request(s)" and "private branch exchange service requests" should be construed to mean "control signals requesting the initiation of private branch exchange services."

After considering the language of the claims, the court concludes that Foundry is correct. Lucent's proposed construction of "request(s)" does not make sense in the context of all the claims in which the term appears. For instance, claim 53 recites "a request sent through said first network by providing telecommunication services that correspond to said request." Further, claim 70 recites "providing telecommunication services in response to a request . . ." As will be discussed below, "telecommunication services" are not limited to "private branch exchange services." Thus, in the context of these claims, Lucent's definition would improperly limit the claims. The court therefore construes "request(s)" consistent with its ordinary meaning - "a command, generated by a requester, to initiate an action on a responder." See IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1997). Accordingly, the court construes "private branch exchange service requests" to mean "a command, generated by a requester, to initiate private branch exchange services."

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C. "Read Request," "Write Request," and "Transaction Request"

The next three disputed terms are closely related, and, as the parties agree, it is appropriate to accord joint consideration. The purpose of memory devices (i.e., a DRAM) is to store data for later use. To this end, when a controller (or master) accesses the memory device to either store or retrieve data, it must send that device an instruction indicating what type of transaction is to be performed. At the most basic level, a read request is an instruction to the memory device to read data from the memory cells; a write request instructs the memory device to write data to the memory cells; and a transaction request instructs the memory device to perform some function, which could include reading or writing data. The controversy surrounding these terms involves whether these requests must contain not only the instruction of what action to perform (found in an "AccessType" field), but also must include address information indicating where in the memory cells the data should be read or written. Rambus contends that read, write and transaction requests contain only the instruction of what action to perform. For example, it proposes that read request be defined as "an instruction to read data from specified memory cell(s) of the memory. This instruction is specified by a binary code 30 provided to the memory device during a single clock cycle and received by the memory device in response to a clock transition."

Footnotes

30 Binary code, a term not in dispute here, is "a code that makes use of members of an alphabet containing exactly two
Infineon, on the other hand, argues that such requests must contain both the instruction of what kind of action to perform and address information indicating where that action is to occur on the memory device. Address information, containing both row and column identifiers, tells the memory device where the desired data is located (or to be located) within the plurality of the memory cells. In Infineon's construction, a "read request" means 'a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a read of data from a memory device.' In addition to objecting to the failure of Rambus' definition to include address information, Infineon disagrees with the limitations inherent in Rambus' definition, specifically the requirements that the request be a "binary code," that it can be no longer than "a single clock cycle" of information, and that it must be "received in response to a clock transition." In its view, these limitations are not required by the intrinsic evidence, and in some cases are actually inconsistent with the embodiments disclosed in the specification.

1. The Claim Language

Both parties agree that the terms "read request," "write request," and "transaction requests" are not terms of art and were used for the first time in the 1990 '898 application. Therefore, there is no ordinary and accustomed meaning for these terms. Some information, however, can be gleaned from the language of the claims. 31

31 The term "read request" occurs in claims 1, 6, 8, 13, 18, 19 24, 29, and 34 of the '918 patent; claims 1, 2, 6, 14, 15, 16, 18, and 29 of the '214 patent; claims 1, 2, 14, 24, 15, 27, and 30 of the '263 patent; and claim 26 of the '804 patent.

The term "write request" occurs in claims 2 and 20 of the '918 patent.

The term "transaction request" occurs in claims 18 and 25 of the '263 patent.

Infineon uses the language of claim 1 of the '918 patent, claim 1 of the '214 patent, claim 1 of the '263 patent and claim 26 of the '804 patent to demonstrate that all claims require that a device respond to 'read request':

1. A method of controlling a synchronous memory device, wherein the memory device includes a plurality of memory cells, the method of controlling the memory device comprises:

   providing first block size information to the memory device, wherein the first block size information defines a first amount of data to be output by the memory device onto a bus in response to a read request . . .

'918 patent, claim 1 (emphasis added).

1. A method of operating a synchronous memory device, wherein the memory device includes a plurality of memory cells, the method comprising:

   providing first block size information to the memory device, wherein the first block size information defines a first amount of data to be output onto a bus in response to a read request . . .

'214 patent, claim 1 (emphasis added).

1. A synchronous semiconductor memory device having at least one memory section which includes a plurality of memory cells, the memory device comprises:
a programmable register to store a value which is representative of a delay time after which the memory device responds to a read request.

'263 patent, claim 1 (emphasis added).

26. An integrated circuit device having at least one memory section which includes a plurality of memory cells, wherein the integrated circuit device outputs data on an external bus synchronously with respect to first and second external clock signals, the integrated circuit device comprises:

a first internal register to store a value which is representative of a number of clock cycles to transpire before the integrated circuit device responds to a read request. . .

'804 patent, claim 26 (emphasis added).

The claims clearly so provide. Indeed, all but two of the disputed claims containing these terms 32 explicitly state that information is supplied "in response to" a read request, a write request or other transaction request. It is, of course, true, as Infineon contends, that, in order to "respond" to a request (i.e. outputting or inputting data), the desired response can only occur if the selected device is given the information necessary to generate that response. Because one of ordinary skill in the art would understand that both address and control information are required for the memory device to respond to a request, that request must contain more than just the binary code or "AccessType" suggested by Rambus.

Given the nature of the information and the way the invention works, it seems self-evident from the claim language that a request is, as Infineon posits, a series of bits transmitted over the bus containing address and control information. This conclusion is further buttressed by the explanations of Mr. McAlexander. See Markman Hearing, Tr. pg. 417, ll. 18-25 ("certainly the read has to have some control. It tells you what kind of transaction is being requested. If the memory is to respond to that, it must know where to respond from, what address"). Thus, the claim language, although not dispositive, strongly supports the view of read, write and transaction request taken by Infineon.

32 Indeed, of those claims mentioning read request, write request and transaction request, only claims 14 and 29 of the '214 patent do not explicitly mention that the memory device is to respond to the read request and even those mention a read request in such a way as to indicate that the term means there what it means elsewhere (Claim 14 "before executing another read request"); (Claim 29 "after executing another read request.")

2. The Specification

Although not discussed as extensively as other terms, such as "bus," the terms here at issue are the subject of explication in the specification. For example, in the "Comparison With Prior Art" section, the inventors explain:

"Yet another object of this invention is to provide a method for transferring address, data and control information over a relatively narrow bus and to provide a method of bus arbitration when multiple devices seek to use the bus simultaneously."

'918 Patent, col. 3, ll. 35-39 (emphasis added). This statement of object remarks the key role of address, data and control information. And, as explained in the cited text, and above in construing the term "bus," the significance of the invention of the system is to accomplish quickly the commands necessary to initiate a request and secure a response.

Then, in the ensuing "Summary of Invention" discussion, the inventors say that "in this system of the invention, DRAMs and other devices receive address and control information over the bus and transmit or receive requested data over the same bus." '918 Patent, col. 4, ll. 9-11 (emphasis added). Though not explicitly mentioning a "request," this quote lends credence to the basic notion that a memory device should receive both address and control information in order to be able to transmit or receive data.
Then, shortly thereafter, in describing a preferred implementation of the invention, the specification explains how a bus transaction is initiated "by sending a request packet (a sequence of bytes comprising address and control information)." '918 Patent, col. 6, ll. 60-63. This, too, teaches that a request (be it a read request, write request, or transaction request) includes the address and control information necessary to accomplish the request. 33

--- Footnotes ---

33 Again, this conclusion is supported by the expert testimony of Infineon's Mr. McAlexander. See Trans. pg. 417, lines 20-22 ("I found the control and address information were required in every instance that it was addressed in the specification").

--- End Footnotes ---

Having established that the specification contemplates both address and control information are needed for a response, it is necessary to ascertain whether a read request should contain both categories of information. The definition which Rambus presses proposes that a transaction request would consist only of the "AccessType" found in the top row 34 of Figure 4, the preferred embodiment.

--- Footnotes ---

34 As shown in Figure 4, the rows represent time or clock cycles.

--- End Footnotes ---

[SEE FIG.4 IN ORIGINAL]

In the preferred embodiment, the AccessType instruction, which contains the control information specifying the type of request, would be a binary code 4-bits wide. The specification explains:

The AccessType field[sic: field] specifies whether the requested operation is a read or write . . . . In a preferred implementation, AccessType[0] is a Read/Write switch: if it is a 1, then the operation calls for a read from the slave (the slave to read the requested memory block and drive the memory contents onto the bus); if it is a 0, the operation calls for a write into the slave (the slave to read data from the bus and write it to memory).

'918 patent, col. 9, ll. 47-56. Rambus would limit the terms "read request," "write request" and transaction request" to only this AccessType field. In contrast, according to Infineon's interpretation, the requests must contain both the AccessType control information and the address information indicated on the remaining rows of Figure 4. To support its definition, Infineon points to the following passage from the specification:

In a preferred implementation of the invention, to initiate a bus transfer over the bus, a master sends out a request packet, a contiguous series of bytes containing address and control information . . . .

The device-selection function is handled using the bus data lines. AddrValid is driven, which instructs all slaves to decode the request packet address, determine whether they contain the requested address, and if they do, provide the data back to the master (in the case of a read request) or accept data from the master (in the case of a write request) in a data block transfer.

'918 patent, col. 8 l. 66 through col. 9, l. 4. The specification also explains that "in some cases, a slave [memory device] may not be able to respond correctly to a request, e.g. for a read or write. In that situation, the slave should return an error message . . . or a retry message." '918 patent, col. 12, ll. 4-8. These references and others 35 illustrate that the memory should respond to the request. In order to respond, the memory device also must be given address information specifying where the data is to be read or written.

--- Footnotes ---

35 See e.g. '918 patent, col. 8, ll. 48-49 ("a slave should preferable respond to a request in a specified time"); '918 patent,
col. 8, ll. 24-29 ("AddrValid is used to indicate when the bus is holding a valid address request, and instructs a slave to decode the bus data as an address and, if the address is included on that slave, to handle the pending request."

Additionally, though one must understand the technology to comprehend the import of the statement, the specification actually states that address rows are to be accessed during a request. The patent explains that the DRAM sense amps should be pre-charged and "this precharging allows access to a row in the RAM to begin as soon as the access request for either inputs (writes) or outputs (reads) is received and allows the column sense amps to sense data quickly." '918 Patent, col. 10, ll. 21-24 (emphasis added). Because one skilled in the art would recognize that "row" refers to a particular location on the plurality of memory cells, it follows that address information must be conveyed in order to access that row. That address information is contained in "the access request for either inputs (writes) or outputs (reads)."

Rambus' definition would only indicate what type of operation to take place. See Markman Hearing, Tr. pg. 122, ll. 11-13 (testimony of Dr. Huber) ("We don't need the rest of the information [address information] to know that it's a read request"). The specification and the claims, however, clearly demonstrate the memory devices are not only to recognize the requested operation, but also respond to the request. Even Dr. Huber admitted that address information must be received for there to be a response. Dr. Huber took the view that this information could be conveyed at some other unspecified time. See Markman Hearing, Tr. pg. 141, ll. 20-22 (testimony of Dr. Huber). That approach is untenable because nowhere in the specification is it mentioned that address information should be sent at any other time than contemporaneous with the request.

Nor does the specification support the other foundational components of the narrow view of these terms expressed by Rambus.

The construction urged by Rambus essentially attempts to equate the term "read request" with "AccessType," as shown in Figure 4, as the predicate for its requirement that "a read request" must be a binary code, occur in a single clock cycle, and be in response to a clock transition. The specification offers no warrant for such a limited construction, and, as Infineon points out, Rambus here is attempting artificially to limit the invention to the preferred embodiment of Figure 4, which describes a bus transaction that uses the preferred implementation of a 9-bit wide external bus. See '918 patent, col. 9, ll. 26-27 ("Each request packet uses all nine bits of the multiplexed data/address lines"). Because Figure 4 indicates that the AccessType is only 4-bits wide, it is possible for Rambus' proposed definition to occur in a single clock cycle. However, this requirement stems solely from Rambus' view that AccessType is a request. If a request contains both control and address information, then this would not be true. See Markman Hearing, Tr. pg. 431, ll. 8-12 (testimony of McAlexander) ("There is a specific control set of bits called the access type that does occur as a set of bits in a particular single cycle as shown in a preferred embodiment, but all that does is establish the type.") Similarly, there is nothing in the specification to support Rambus' requirement that the transaction request be received by the memory device in response to a clock transition. See Markman Hearing, Tr. pg. 432, ll. 2-9 (testimony of McAlexander) (indicating that nothing in the specification supports this requirement).

Rambus contends that Infineon's construction incorrectly equates "read request" (or "write request" or "transaction request") with a request packet, arguing instead that a read request is actually a component of a request packet. For example, the specification states that "FIG. 4 shows the format of a request packet." '918 patent, col. 4, l. 66. It also explains that, in a preferred implementation, "a master sends out a request packet, a contiguous series of bytes containing address and control information." '918 patent, col. 8, ll. 60-63. The criticism is superficially appealing; however, the confusion results in large part from the fact that the specification uses the term "request" and "request packet" interchangeably. For example, the inventors explain, "FIG. 5 illustrates the format of a retry message 28 which is useful for read requests, . . . All DRAMs and masters can easily recognize such packet as an invalid request packet, and therefore a retry message." '918 patent, col. 12, ll. 33-39. See also '918 patent, col. 12, ll. 49-52 ("The master sends request packets and keeps track of periods when the bus will be busy in response to that packet. The master can schedule multiple requests so that the corresponding data block transfers do not overlap."); '918 patent, col. 12, ll. 58-61 ("Situations will arise, however, where two or more masters send a request packet at or about the same time and the multiple requests must be detected. . . .) That drafting lapse is unfortunate, but it certainly is not dispositive because that text too must be interpreted in perspective of the whole specification.

Considering the claim language and the specification in its entirety and for the reasons explained above, the construction
offered by Infineon is better supported by the patent document. Although that construction results in some overlap in the meanings of request and request packet, that overlap is inherent in the patent specification itself. Indeed, the most significant passage of the specification discussing read requests and write requests indicates that such a request is related to (if not synonymous with) a request packet: "AddrValid is driven, which instructs all slaves to decode the packet address determine whether they contain the requested address, and if they do, provide the data back to the master (in the case of read request) or accept data from the master (in the case of a write request) in a data block transfer." '918 Patent, col. 8, l. 66 through col. 9, l. 4 (emphasis added).

3. The File History

Those constructions derived from the claim language and specification are supported by the fact that, in the prosecution of the '804 patent, Rambus made statements to the PTO relating to the term "transaction request." In February 1999, Rambus submitted a Preliminary Amendment in U.S. Patent App. 08/798,525 (issued as the '804 patent) in which it admitted that transaction requests are not simply a single clock-cycle access-time code. In response to a rejection by the Patent Examiner, Rambus stated that a "transaction request" contains identification information:

When the identification information contained in the transaction request corresponds to the identification value stored in the internal register in a particular memory device on the module, that memory device executes the transaction request. Memory devices on the module having identification values which do not correspond to the identification information contained in the transaction request do not execute or respond to the request.

Supplemental Preliminary Amendment, U.S. Patent App. 08/798,525, p. 12 (emphasis added). Thus, Rambus explicitly represented that a transaction request contains more than just a binary code in the AccessType field: the above passage shows that device identification information also is contained in the transaction request. While this representation does not necessarily imply that Infineon's definition is unquestionably correct, it certainly undermines the construction now urged by Rambus.

4. Claim Differentiation

Claim 15 of the '214 patent refers to a "read request" without further limitation, while dependent claim 22 recites: "The method of claim 15 wherein the first block size information and the first read request are contained in a request packet." Rambus argues that this language distinguishes a "read request" from a "request packet." As stated previously, the specification sometimes uses the terms "request" and a "request packet" interchangeably. Notwithstanding that drafting laxity, the differences in claim 15 and 22 do not refute the notion that a request contains address and control information. These claims simply add a third type of information, block size information, as a component of a request packet.

Given that the claim language clearly illustrates that a memory device is to respond to a read, write or transaction request and that Rambus has not explained how the device would respond without receiving address, data and control information, the claim language on its face supports the requirement that requests contain both address and control information. The specification, while not pellucid, also indicates that a request must contain such information so that it can respond to the request, whether the request be packetized or not. Rambus' narrow definition is not supported by the specification, and indeed, is refuted by the file history. Therefore, it is appropriate to conclude that "read request," "write request," and "transaction request" contain both address and control information indicating what type of transaction to perform and where the data should be located on the memory device.

5. Construction

For the foregoing reasons, the term "read request" is construed to mean "a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a read of data from a memory device." The term "write request" is construed to mean "a series of bits transmitted over the bus that contain multiplexed address and control information needed to request a write of data to a memory device." The term "transaction request" is construed to mean "a series of bits transmitted over the bus that contain multiplexed address and control information needed to perform a transaction over the bus with a memory device."

GO BACK
2. "request for payment instructions"

The differences between the parties' proposed claim interpretations are as follows:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Emergis's Construction</th>
<th>Cable One's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;request&quot;</td>
<td>solicitation of an</td>
<td>a request of the customer to pay</td>
</tr>
<tr>
<td>for payment</td>
<td>opportunity to make</td>
<td>an invoice from one of multiple</td>
</tr>
<tr>
<td>instructions&quot;</td>
<td>payment toward an</td>
<td>customer payment accounts</td>
</tr>
<tr>
<td></td>
<td>outstanding balance</td>
<td></td>
</tr>
</tbody>
</table>

Emergis contends that the specification supports its construction. The specification describes "to request payment instructions" as follows: "[t]his request provides the customer the opportunity to select either the bank account from which the invoice will be paid, or it provides the customer with the option to pay via a debit card, credit card, ATM, stored value card or some source of funds." n40 Further, when the invoicer "requests payment instructions," the customer has the opportunity to do a number of things besides simply choosing among multiple customer accounts, as Cable One proposes. The customer has the opportunity to modify pre-arranged payment instructions by changing the amount to pay, the date for payment, and the source of funds for the payment. n41 Thus, because the language in the specification supports Emergis's construction, the Court will construe the phrase, "request payment instructions" as a "solicitation of an opportunity to make payment toward an outstanding balance."

--- Footnotes ---

n40 (4:35-39.)
n41 (7:61-66.)

--- End Footnotes ---

E. Request for Quotations: The claims of the '328 patent refer to a "request for quotation" and/or a "quotation." Noting that neither term is expressly defined in the specification, defendants assert that they are commonly used terms in the field of purchasing and procurement and that "[t]he well-understood ordinary meaning of the term 'quotation' is 'the quoting of current prices and bids for securities and goods; the prices or bids cited.' AMERICAN HERITAGE COLLEGE DICTIONARY 1124 (3d ed. 2000), or 'the naming . . . of current prices . . . of securities or commodities' WEBSTER'S THIRD NEW INT'L DICTIONARY 1868 (2002). Accordingly, a 'request for quotation' may be defined as simply 'a request for the current price of something.' (Defs' Opening Br., at p. 9).

The specification and the file history clearly demonstrate that the use of "quotation" and "request for quotation" is not confined to the narrow dictionary meaning that Defendants seek to impose. For example Figure 2A of the '328 patent refers to "The Price Quotation System" but elaborates with the statement "[t]he system provides a list of options, one of which is 'Do you want to request a price quotation? The buyer selects this option.' (emphasis added). A price quotation was not the only option. When the buyer decides on the item or items in which he is interested, "[t]he Buyer submits the request by selecting an option on the internet site request form" (emphasis added). In due course "[each selected vendor responds to the request(s) by providing its pricing and other information to the quotation system." (emphasis added). This concept is reflected in the description of the invention: " . . . the quotation system would interrogate [sic] the vendor's product database (using suitable software which links or cross references the vendor's inventory to the quotation system product and services lists) and retrieve pricing and other information necessary to respond to the RFQ". (Col. 5, ll. 43-48) (emphasis added). The February 16, 1996 Office Action Response at p. 5 includes the statement that "[t]he quote may include such items as delivery terms, price, etc., none of which are stored in the central database."
In addition figures 7 and 8 of the '326 patent and the implications of claim 12 demonstrate the "quotation" and "request for quotation" include contract terms other than price. Rather, as SST contends, a request for a quote is a request for the price and other terms of a particular transaction "in sufficient detail to constitute an offer capable of acceptance."

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(2) The words "request for specified content data" in the term "in response to identifying a request for specified content data and a user identifier; (a)...(e)...) do not require construction. The language is unambiguous within the context of the claim. Dow, however, seeks three limitations upon the word "request." First, Dow proposes adding the phrase "wherein the request was transmitted by a browsing device." This addition is unnecessary, because it is redundant with language earlier in the claim ("identifying requests from browsing devices").

Second, Dow proposes that the request include "a format identifier that is separate and distinct from the user identifier." Although claim 1 is unclear on this point - it states only that a format identifier can be "received" and does not indicate whether it must be received with the request or can come from another source - dependent claims 2, 10, and 16 offer clarity. Those claims state that "said format identifier" is "received with said request." If a request, by definition, already includes a format identifier, the language in claims 2, 10, and 16 would be redundant. See Phillips, 415 F.3d at 1314 (finding that the term "steel baffles"...strongly implies that the term 'baffles' does not inherently mean objects made of steel."). Moreover, under the doctrine of claim differentiation, the limitations in claims 2, 10, and 16 that the format identifier is received with the request implies that the same limitation should not be read into claim 1. 4 Phillips, 415 F.3d at 1315 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation is not present in the independent claim.").

--- Footnotes ---

4 Dow Jones contends that the doctrine of claim differentiation is not relevant, because claim 2 adds an additional requirement that "viewable data is served to a browser" and thus is not rendered "superfluous." Anderson Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1369 (Fed. Cir. 2007). Dow Jones does not extend that argument to claims 10 and 16, however.

--- End Footnotes ---

Claim differentiation is only a guide, Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2007), and "cannot be used to broaden claims beyond their correct scope, determined in light of the specification and prosecution history." Multiform Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998). Yet neither the specification nor the prosecution history supports Dow's limiting construction. Although the specification teaches that, in the preferred embodiment, a request "will include" a format identifier, '737 Patent, Col. 14, 11. 3-7, mere inclusion of a feature in the preferred embodiment does not disavow claim scope absent "words or expressions of manifest exclusion" or "explicit disclaimers." Gillette Co., 405 F.3d at 1374 (Fed. Cir. 2005)(citing Houser Pharmas., Inc., 366 F.3d at 1352). The specification for the '737 patent does not demonstrate "a clear intention to limit the claim scope" in the manner that Dow Jones suggests, and indeed contemplates that the format identifier could come from at least one other possible source: a user database. '737 Patent, Col. 15, ll. 31-34 and Col. 16, ll. 8-14.

The prosecution history offers no additional guidance. Dow points to a section of the history in which the applicants distinguished their invention from prior art that did not "teach[] serving the same text/graphic content in different viewable page formats -- depending upon receiving requests incorporating respectively different format identifiers." Decl. of Brian Rosenbloom, Ex. M, Amendment, Dec. 16, 2003, at 13. When that section is read within the context of the entire file history, however, it is clear that the distinction the applicants were making between their invention and the prior art centered on the definition of "format," rather than "request." As with the specification, there is no "clear and unambiguous disavowal" of the claim scope in the prosecution history. Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1124 (Fed. Cir. 2004).

Dow's third proposed limitation is that "request" means something other than "a request for a predetermined file" or "a request to retrieve and execute a specified file." As Dow points out, the specification discloses that the prior art included...
retrieving and executing a specified file, specifically a CGI.bin program, in response to identifying a request. '737 Patent, Col. 8, 11. 19-44. Dow contends that this section of the specification "makes clear that the invention does not include a particular feature," and so should be "deemed to be outside the reach of the claims." Honeywell Intern., Inc. v. ITT Industries, Inc., 452 F.3d 1312, 1319 (Fed. Cir. 2006). That contention is rejected. The specification merely distinguishes the prior art from the applicants' invention. The specification does not criticize CGI.bin programs or claim that they would not work in conjunction with the present invention. The applicants did not "disparage" requests to retrieve and execute a specified file.

3. "Request interface [that] receives requests for video programs made over the telephone network."

Technical Background - "Interface"

One of ordinary skill in the art would know that in general terms, the common meaning of "interface" in the field of computer science is a boundary through which information passes. It could be a physical connection between two pieces of hardware, such as a USB port. It could also denote the software that allows information to be transferred from one program to another. An example of this would be the printer driver that allows a printer to begin printing in response to a print command entered on a personal computer. See discussion in Tr. at pp. 73-79.

In the context of the patent-in-suit the incoming interface allows signals from the switched telephone network to be received by the central data facility and converted into the language used by the central processing unit ("CPU"). The distribution interface allows signals from the central data facility to be converted to go out as electronic signals on the telephone network. Tr. at p. 68, l. 6- p. 69, l. 25.

Request Interface

For the definition of this term, Time Warner suggests "a device (distinct from the distribution interface) that receives call-in user requests sent over the switched telephone network, including requests for video programs, from users who are located somewhere other than the remote receiving locations."

USVO proposes "Hardware and/or software that receives data representing a request for a video program, the request being made over a switched telephone network." The parties dispute a number of points, including whether the interface can be software, whether the request interface is distinct from the distribution interface, and whether the requesting party can be located somewhere other than the remote receiving location.

Claim 1 recites a "request interface" that is connected to the central data facility and the telephone network, which receives video programs that are made over the telephone network and communicated to the central data facility. '792 Patent, col. 7, ll. 45-49. Time Warner argues that the request interface must be a hardware device, rather than a software interface, and points to the language in Claim 1 (the request interface is "connected to said data facility and to the telephone network"[emphasis added]) as well as Figure 2 (which they claim depicts the request interface as a physical hardware device) to support their position. USVO, on the other hand, argues that "interface" is commonly understood in the art and the scientific community as encompassing software as well as hardware, and that there is nothing in the claims, specification, or prosecution history to indicate that any other construction was intended.

As discussed above, the common meaning of the term "interface" encompasses both hardware and software connections. For example, the Microsoft Press Computer Dictionary defines "interface" as "[t]he point at which a connection is made between two elements so that they can work with one another," which can be hardware or software. MICROSOFT PRESS COMPUTER DICTIONARY A-421 (1991); see also IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 540-41 (6th Ed. 1996)(defining "interface" as a "shared boundary," which can be "[a] hardware of software component that connects two or more components for the purpose of passing information from one to the other.").

At the hearing, Time Warner argued that the use of the terms "connection" or "through" in the claims and specification to refer to the passing of information through the interface implies that the interface must be hardware. The court finds it hard to imagine what alternate phrases the patentees could have used that would have denoted both. Moreover, the definitions
cited above demonstrate that "connection" has meaning in the context of a software interface. Finally, the argument over "hardware only" and "software only" is, to a large extent, a distinction without a difference. Except for a few special purpose devices, such as a music box, hardware without software is a collection of metal and plastic. Software without hardware to run it is just a program on a disc sitting in a package. See Tr. at p. 80, ll. 11-13; p. 105, l. 21 - p. 106, l. 18.

The parties also dispute whether the individual requesting the video can be located somewhere other than the remote receiving location. At the hearing, Time Warner took the position that every embodiment of the invention must allow for remote requests. Tr. at p. 86, ll. 7-15. In their brief, Time Warner cites several portions of the specification which refer to the requests for video programs being called in using an ordinary telephone, rather than a remote receiving unit to support their theory. '792 Patent, col. 2, ll. 61-69; col. 6, ll. 19-30; Figure 1. USVO argues that while a remote request is envisioned by the invention, every embodiment does not have to allow for it and that Time Warner's construction improperly imports limitations from the specification into the claims.

Defendants' position is that they do not import limitations from the specification into the claims because the applicants disclaimed their construction during prosecution by distinguishing the claims over the prior art. For example, the applicants stated that Claim 1 "allow[s] a user to request a program from anywhere other than the receiving unit," and that it gives users "the convenience of being able to order a program from anywhere." Amendment of 5/22/91, Def. Claim Const. Br., Ex. 1-A at 8-9 [Doc. # 152, pp. 9-10 of 12]. However, the language to which Time Warner points only suggests exactly what USVO stated at the hearing: some embodiments of the invention involve remote requests, but this is not required of every single embodiment. Disclaimer during prosecution must be "unequivocal" in order to "narrow[] the ordinary meaning of the claim congruent with the scope of the surrender." Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005). While the applicants distinguished the prior art on the basis of their invention's additional feature of remote requests, there is no indication that they unequivocally disclaimed the possibility of their invention ever having an embodiment which did not allow for remote requesting.

Finally, Time Warner argues that the request interface is separate from the distribution interface, and that distinction should be part of the court's claim construction. Claim 1 clearly states that these two components must be present ("A system… comprising…a request interface… [and] a distribution interface…")., but not that they have to be distinct. '792 Patent, col. 7, ll. 40-50. They are depicted in Figure 2 as two separate components of the central data facility and described in the specification as performing different functions ("incoming requests for programs are connected to a request interface 28… [o]utgoing programs being transmitted to remote receiving units are routed through a distribution interface 30."). '792 Patent, col. 3, ll. 17-21. While Dr. Mirhan, Defendant's expert, opined that the two interfaces were distinct, he agreed that "you could certainly package various functionalities in different ways." Tr. at p. 72, ll. 18-19. The court will define the term as follows:

"Request interface" means "the connection that permits data to be conveyed from the telephone network to the central processor."

V. "request processor"

In the context of describing what the computer comprises, claim 5 contains the disputed term as follows:

[A] request processor coupled to the communications module, the virtual queue, and the information storage device, for determining a proposed reservation time for a received reservation request responsive to reservation information for previously-made reservations.

(col. 27, ll. 51-56) (emphasis added). The term appears in a similar manner in claims 17 and 18. (col. 31, ll. 1-5, 10-13.) Asserting that "request processor" does not connote any structure to one of ordinary skill in the art, the Defendants argue that the term must be construed as a means-plus-function limitation. However, once again the term "means" is missing from each of the claims and the Defendants have not presented any evidence to overcome the presumption that § 112, P 6 does not apply. That sufficient structure is recited is evidenced by the fact that the claims provide that the "request processor" is coupled to various other hardware contained in the attraction computer. Additionally, in the computer science field, a
"processor" is the part of a computer that does data processing. See The American Heritage Dictionary of the English Language (4th ed. 2000) (defining "processor" as "a. a computer; b. a central processing unit; c. a program that translates another program into a form acceptable by the computer being used."). This connotes some structure. In the context of the present invention, the adjectival phrase "request" gives the structure greater definition. It is not uncommon for devices to take their names from the functions they perform. Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996). Thus, to a person of ordinary skill in the art, "request processor" means part of the computer system that determines reservations based upon information received relevant to reservation requests.

The Plaintiff contends that "request processor" means "hardware and associated software application of computer system that receives requests and determines a proposed reservation position in the virtual queue." This is consistent with the ordinary meaning of "request processor" as set forth in the specification. For instance, the specification describes the "request processor" as follows:

Attraction computer 101 contains a request processor 209 for processing reservation requests received by communications module 211, using information from virtual queue 201, attraction information storage 213, and physical queue monitor 103. Request processor 209 is implemented as a software module running on CPU 120 in attraction computer 102. Request processor 209 operates as described below in connection with the state diagram shown in FIG. 6.

(col. 9, l. 63 to col. 10, l. 3) (emphases added). The Defendants agree that the request processor includes certain software to process reservation requests. Unlike the Plaintiff's more general construction, the Defendants contend that the software must perform in accordance with the algorithms described by Figure 7. However, the specification makes clear that Figure 7 represents how a request may be processed in one embodiment. (col. 22, ll. 23-27; see also col. 24, ll. 51-52 ("Other embodiments may be used in place of the method described by FIG. 7.").) Thus, the limitations set forth in Figure 7 and the corresponding description in the specification will not be read into the claim. The Court finds that the Plaintiff's construction is supported by the claims and the specification and construes "request processor" as "hardware and associated software application of computer system that receives requests and determines a proposed reservation position in the virtual queue."

7. Claims 1, 17 & 26 -- "Request Signal"

CIVIX contends that "request signal" means an electronic representation of one or more queries. Defendants, on the other hand, state that a "request signal" is a "single transmission from the port to the database sent over the communication link which identifies both a selected category and a selected geographic vicinity."

Both Claims 1 and 17 describe "the port generating the request signal in response to inputs by the user which are representative of the selected category and geographic vicinity." (525 Patent, Claims 1 & 17) (emphasis added). Thus, the "request signal" is the result of a user's selection of a category and a geographic vicinity. Each "request signal" must have, therefore, one or more inputs based on each a category and a vicinity. This is supported by other portions of the specification which emphasize that:

The system also provides for transmitting a portion of the information in the database to a user via the link upon receipt of a request signal representative of a selected category and geographic vicinity. . . . Specifically, the port generates the request signal in response to inputs by a user of the system; that signal being representative of the selected category and geographic vicinity.

(525 Patent, Col.2 lines 18-28) (emphasis added).

I conclude that "request signal" is a single electronic representation of a user's selection of at least one category and at least one geographic vicinity. Both categories of information must be in a single "request signal" in the '525 patent.
F. "Requested."

For the sixth and final term, Comcast argues that it should indicate that "requested data packets are the data packets that a subscriber has asked to be transmitted." Finisar contends that the term "requested" should mean "something asked for or sought" irrespective of what or who does the asking or seeking. The plain meaning of the term "requested" is simple enough. It means "asked for" or "sought." Within the context of the patent, however, the parties part company as to who or what makes the request.

--- Footnotes ---
6 The Texas Court construed the term "requested data packets" and not "requested" as addressed here. The term "requested data packets" was held to mean "data packets that are requested by subscribers or subscriber stations" (Melgar Decl. Exh. C at 2).

--- End Footnotes ---

The final two paragraphs of Claim 16 are instructive here. They recited (col. 21:60-68):

at each subscriber stations, storing filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets;

at each subscriber station, downloading into a memory storage device those of said received data packets which match said specified set of requested data packets.

From the claim, the filter specifies which packets are requested. The incoming data packets are matched up with the filter data, and the matching packets are downloaded to a storage device.

The use of the term in claim 22 provides further clarification. It recited (col. 22:37-47):

22. The information transmission method of claim 16, wherein said scheduling step includes reserving a portion of transmission bandwidth available for said transmitting step for transmitting portions of said information database requested by subscribers;

said method including receiving requests from subscribers, said requests each specifying a portion of said information database; and

said scheduling step including scheduling transmission of requested portions of said information database.

Claim 22 was drawn to processing requests for information not included in the tiered system, and thus not automatically scheduled for transmission. A portion of the bandwidth for the system can be reserved for such requests. Such requests are scheduled for delivery independent of the tiered system because they ask for data that is not assigned to any tier.

Claim 23 is instructive as well as it was drawn to information requests by subscriber stations. It recited (col. 22:48-65):

23. The information transmission method of claim 16, wherein one or more subsets of said subscriber stations are interconnected via a local area network including a network server;

said method including receiving at said network server said transmitted stream of data packets on behalf of an associated set of subscriber stations, storing data in said network server referencing a specified set of data packets requested by said associated set of subscriber stations, and downloading into a memory storage device associated with said network server those of said received data packets which match said specified set of requested data packets;

whereby overhead associated with receiving the stream of data packets and downloading for storage a specified subset
thereof is shared by a set of subscribers.

In this claim, a set of networked or linked subscriber stations, not the subscribers themselves, makes requests for data packets on behalf of the whole network. The data packets are then downloaded to community storage space. This indicates that in a broad, independent claim such as claim 16, the term "requested" should not be confined to packets explicitly requested by the subscriber.

The specification supports this view as well. A feature of the invention is its ability to generate "look-ahead requests" that anticipate information that the subscriber will want to view before they actually ask for it (col. 16:16-30). The subscriber station requests additional data packets related to that which the subscriber requested. The data packets are then downloaded into storage for quick access by the subscriber. Another feature is the ability to update the system’s software without action by the subscriber (col. 8:47-56). Neither of these features would be possible if no entity other than the subscriber were ever able to make requests.

This order construes the sixth and final term "requested" as programmed for retention in the subscriber's filter.

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B. Disputed Claim Term # 2: "a requested time"/"a viewer-requested time"

The second term in dispute is: 7

"a requested time" ('320 Patent, Claim 1)

"a viewer-requested time" ('078 Patent, Claim 10)

. Plaintiff's Proposed Construction: "the time a viewer asks to receive a program"

. Defendants' Proposed Construction: "a specific time of day chosen and scheduled by the viewer where at the time the choice is made the viewer can choose from among multiple available times of day"

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

7 As with the first term in dispute, the parties agree that this term, which is phrased differently in the two patents, has a single meaning.

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Defendants argue that Plaintiff's proposed construction, "the time a viewer requests a program," oversimplifies the term by failing to distinguish between the two "times" at issue in the instant patents: (1) the time that a request is made, and (2) the time scheduled by the viewer for the transmission of the chosen program to begin. 8 The Court agrees. As explained by the specification, the instant patents differed from prior art that did "not allow the viewer to determine when the program is to be scheduled." '320 Patent, 2:42-43. Indeed, during the prosecution history of the patents, the applicants distinguished the present invention from prior art that scheduled transmission times (a) by the provider only (meaning that viewers could never schedule the time of the program), or (b) on-demand (meaning that programs are transmitted as soon as possible after the viewer requests the program, but viewers cannot schedule the program at a later, specific time). See '078 Patent, 5/21/90 Resp. to Office Action at 9-10 (noting the examiner's statement that none of the prior art "shows the system where the viewer has control over the time of showing of the selection as claimed by Applicants" and explaining that permitting viewers to control scheduling was a "distinguishing feature" of the '078 Patent). Because of the ambiguity engendered by "a time a viewer requests a program," which can be read in a way specifically disclaimed by the applicants (i.e., a viewer can "request" a time by ordering a program that arrives immediately, but cannot order a program to arrive in the future), the Court declines to adopt Plaintiff's proposed construction. 9

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8 For example, a person using the system could, at 6:00 p.m., schedule a program for transmission at 8:00 p.m. Thus, Defendants explain, Plaintiff's proposed construction "the time a viewer asks to receive a program" is ambiguous as to which "time" it refers.

9 For the same reason, the Court rejects Plaintiff's argument that the term need not be construed. The prosecution history makes clear that the applicants gave the term a special meaning by distinguishing the patents from prior art. Because a "requested time" could be read in the same ambiguous manner as "a time a viewer requests a program," the Court rejects the argument that the claim is clear on its face.

However, Defendants' proposed construction "a specific time of day chosen and scheduled by the viewer where at the time the choice is made the viewer can choose from among multiple available times of day" is also misleading because the phrase "multiple available times of day" suggests that there is a predetermined number of times from which a viewer can select (e.g., in fifteen-minute increments, or every hour on the hour). Nothing in the specification or prosecution history would require such a limitation. 10 After the Markman hearing, Defendants proposed "a specific time of day chosen and scheduled by the viewer where at the time the choice is made the viewer can choose from any time of day." Defs.' Post-Hearing Resp. 1. The Court finds this construction consistent with the specification and prosecution history, as it clarifies that when the viewer selects the time, the viewer may request any time (including, for example, "right now").

10 Defendants state that they "are not trying to limit the construction [of this term] to any particular times or time increments, e.g., 8:00, 8:15, or 8:30." Defs.' Resp. 25 n.23. Nevertheless, the word "multiple" in this context is ambiguous in that it might suggest a finite number of choices (whether two, three, or even ten) when the system can, at least in theory, accommodate any requested time of day.

11 Plaintiff's response to Defendants' original proposal assumed that "multiple available times of day" would exclude "immediately." See, e.g., Pl.'s Reply 1 ("A viewer can request a program for immediate viewing and view it immediately. Defendants' construction reads this actuality out of the scope of the claims."). This potential ambiguity is remedied, however, by use of the word "any," as the revised construction clearly encompasses "immediately" as a possible viewing time.

CAT proposes that the term "requesting a response of approval or disapproval from the host data processor," as it appears in claims 1 and 20, be construed to mean "a request to verify that sufficient funds are available in the account/card for the proposed debit purchase transaction." (D.I. 44 at 27) SVS contends that the term does not require construction because it is self-explanatory and, thus, should be governed by plain meaning. (D.I. 47 at 31-32) I agree with SVS that the term is self-explanatory, but believe it will be helpful to the jury to state just what that plain meaning is.

CAT relies on dictionary definitions to construe the purportedly related term "requesting authorization of the debit purchase transaction from the host data processor," which appears in Claims 10 and 29, as meaning to "permit" a debit purchase transaction. (D.I. 44 at 27-28) (emphasis added) CAT then relies on claim differentiation to argue that the disputed term -- "requesting a response of approval or disapproval from the host data processor," which appears in claims 1 and 20 -- must be interpreted as something other than "to permit." (D.I. 44 at 28) (emphasis added) The other thing it must mean, CAT concludes, is "a request to verify that sufficient funds are available in the account/card for the proposed transaction." (Id.)

CAT's argument that "approve" really means "verify" is unpersuasive. CAT provides no citations to the intrinsic record in
support of its position. The plain meaning of the disputed term is clear when read in the context of the claims. Accordingly, I recommend the Court construe the term "requesting a response of approval or disapproval from the host data processor" according to its plain meaning, which is "requesting that the host data processor approve or disapprove a debit purchase transaction."

GO BACK

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IV. '645 patent

The '645 patent discloses a digital computer system that has devices called agents that are inter-connected by a system bus. The claimed system and corresponding method require one agent, the requesting agent, to request access to a memory stored on another agent, called the replying agent. The requested data is organized as a matrix of memory cells, having column and row coordinates. The "memory controller" of the replying agent processes the request from the requesting agent by asserting a plurality of memory address control signals, including at least one row address strobe ("RAS") signal and one column address strobe ("CAS") signal. This "page mode memory access" operates by the assertion of an entire row of data followed by the assertion and deassertion of multiplecolumn addresses. By the RAS signal accessing an entire row followed by the assertion and deassertion of particular column addresses, this page mode memory access differs from the conventional memory access, which separately accessed each memory cell by asserting its individual row address and column address. In the claimed invention, after the data is accessed, it is then transferred to the requesting agent over the system bus.

LGE alleged infringement of system claims 1-4 and 6 and method claims 12-15 and 17. The trial court granted summary judgment of noninfringement of all asserted claims, concluding that the RAS/CAS signals in defendants' devices did not travel over the system bus. However, the '645 patent claims do not contain a limitation requiring that the strobe signals travel over the system bus. Moreover, the specification does not suggest that the strobe signals must travel over the system bus. To the contrary, Figure 5 shows an embodiment of the invention in which the strobe signals travel only internally within the replying agent, not across the system bus.

In an attempt to impose this limitation on the claims, defendants rely on the prosecution history. While the prosecution history is relevant to claim construction, "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Phillips, 415 F.3d at 1317 (citations omitted). Here, defendants point to statements in the prosecution history that the prior art does not teach "a page mode type of access over a system bus from a requesting agent to a replying agent." While we agree that this and other statements in the prosecution history lack ideal clarity, we do not find that they rise to the level of disclaiming or limiting the scope of the express claim language. Therefore, the trial court erred in construing the '645 claims to require the RAS and CAS signals to travel over the system bus. In addition, there is a genuine issue of material fact as to whether the accused devices and methods utilize strobe signals. LGE's expert submitted an affidavit that the accused devices employ strobe signals, which precludes summary judgment.

In the alternative, defendants contend that LGE failed to present evidence of an "end of access signal." This signal, which is required by the claims, is generated by the requesting agent and received by a detecting means coupled to the memory address control signal asserting means. When the detection means receives this end of access signal, the operation is halted. Defendants contend that LGE failed to establish the existence of a genuine issue of material fact as to whether the accused devices contain this limitation. However, the trial court did not consider this argument, and we will not address this factual issue in the first instance. LGE also argues that the trial court's construction of the "requesting agent" claim limitation was in error. The court construed this term as "a device coupled to the system bus that requests access to a memory located on a replying agent." Claim Construction Order at 6-9. LGE contends that an industry standard, which was incorporated into the specification by reference, provides the proper claim construction of this term. '645 patent col. 3 ll. 51-56. n3 The incorporated standard explicitly defines the term "requesting agent" as "an agent that has entered into the arbitration function for bus access." Defendants contend, however, that the patentee did not act as its own lexicographer by incorporating this industry standard by reference. The trial court did not accept LGE's proposed construction, concluding that it was a preferred embodiment and did not limit the claimed invention. The difference in the two constructions is temporal: LGE's proposed construction defines an agent as a requesting agent only when it is engaged in arbitration for bus access, whereas the trial court's construction defines a requesting agent regardless of whether it is actively engaged in arbitration.
Although the method and apparatus of the invention will be described herein in the context of a Multibus II environment, it should be appreciated that the invention may be practiced in many digital computer systems having a bus for transferring data between at least two agents interconnected upon the bus.

The operating characteristics of the Multibus II are described in a document entitled "High Performance 32-Bit Bus Standard P1296" which was produced by the IEEE microprocessor standards committee P1296 working group, Jun. 20, 1986, draft 2.0, the disclosure of which is incorporated herein in its entirety.

'645 patent col. 3 ll. 45-56.

We have recognized that the "interpretation of descriptive statements in a patent's written description is a difficult task, as an inherent tension exists as to whether a statement is a clear lexicographic definition or a description of a preferred embodiment." E-Pass Techs., Inc. v. 3COM Corp., 343 F.3d 1364, 1369 (Fed. Cir. 2003). "Thus in determining whether a statement by a patentee was intended to be lexicographic, it is important to determine whether the statement was designed to define the claim term or to describe a preferred embodiment." Id. We agree with the trial court and defendants that the patentee did not act as its own lexicographer here. Instead, the industry standard was incorporated as a preferred embodiment. The specification makes this clear by explaining that "although the method and apparatus of the invention will be described herein in the context of a Multibus II environment, it should be appreciated that the invention may be practiced in many digital computer systems having a bus for transferring data between at least two agents interconnected upon the bus." '645 patent col. 3 ll. 45-49.

Chimie v. PPG Industries, Inc., 402 F.3d 1371 (Fed. Cir. 2005), does not compel a different result. In Chimie, we were confronted with the claim terms "dust-free and non-dusting." After concluding that these terms were relative and could only be understood by comparison with the prior art, we concluded that only one standard was disclosed in the specification for making such a comparison. We limited these claim terms to the disclosed standard. Here, however, there is no relative term that cannot be understood without reference to an industry standard.

But, this does not end our inquiry. The proper claim construction is "the ordinary and customary meaning . . . that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips, 415 F.3d at 1313 (citations omitted). "When prior art that sheds light on the meaning of a term is cited by the patentee, it can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning." Arthur A. Collins, Inc. v. N. Telecom Ltd., 216 F.3d 1042, 1045 (Fed. Cir. 2000). Although we have concluded that the patentee did not expressly adopt the definition of "requesting agent" in the incorporated industry standard, that standard remains relevant in determining the meaning of the claim term to one of ordinary skill in the art at the time the patent application was filed, and it is treated as intrinsic evidence for claim construction purposes, see V-Formation, Inc. v. Benetton Group SpA, 401 F.3d 1307, 1311 (Fed. Cir. 2005) ("This court has established that 'prior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence.'") (citations omitted).

Here, the trial court erred by failing to give proper weight to the incorporated industry standard; it failed to consider the standard as intrinsic evidence of the meaning to one of ordinary skill in the art as of the filing date. After considering the standard, in addition to the patent claims and specification, we conclude that LGE's proffered definition based on the standard is correct. Thus, we construe "requesting agent" as "an agent that has entered into the arbitration function for bus access." This construction is entirely consistent with the specification, which provides that "at one time in the operation of the system . . . the requesting agent 12 may be a replying agent, and that the replying agent 16 may at that time be a requesting agent." '645 patent col. 4 ll. 8-11. This language makes clear that the classification of an agent depends upon the function the agent is performing at any given time, i.e., whether it is engaged in arbitration at a given moment.
1. Requesting Agent

A "requesting agent" is an agent that has entered arbitration for bus access, where arbitration is the process by which agents attempt to gain exclusive access to the parallel system bus.

3. Required Data

Hyperion does not offer a proposed construction as it contends that such a construction is unnecessary if the Court adopts its construction for the phrase recited in Section 2. OutlookSoft's proposed construction for "required data" is "all data needed to create a spreadsheet." However, OutlookSoft's proposed construction is too broad. The correct construction for "required data" is "all data necessary to create a spreadsheet that is not contained in the cache."

Requirements

"Requirements," according to First Graphics, means "something that is needed." M.E.P. offers as its proposed construction of the word "the mandatory provisions of the selected standard indicated by the word 'shall.'" M.E.P. cites to National Fire Protection Association guidelines (NFPA 13) for support, but First Graphics properly notes that these guidelines are extrinsic evidence upon which the Court cannot rely unless the intrinsic evidence is ambiguous.

We derive the meaning of "requirements" from the term's ordinary meaning and the intrinsic evidence. A requirement is commonly defined as "something called for or demanded: a requisite or essential condition," Webster's Third New International Dictionary of the English Language (Unabridged) 1929 (1993), and we see nothing in the intrinsic evidence to indicate any deviation from this ordinary meaning. The software integrates layout plans ("generic dimensional requirements") with building standards ("requirement of at least one building standard from which distribution systems can be evaluated") and produces a finished layout plan that complies with the standard. In other words, the computer identifies the requirements of the plan and the standard and generates a layout that meets the requirements. The Court finds that "requirement" means something that is necessary.

5. Includes Relationship/Excludes Relationship/Removes Relationship/Requires Choice Relationship/Optional Relationship

The parties have grouped these terms together. The dispute is whether the "relationship" language requires a construction which imposes a "left-hand side" and "right-hand side" limitation to the terms. Trilogy contends that the term "includes relationship" means "a classification in which a second set of one or more elements is included when all members of a first set of one or more elements exist in a configuration." Selectica contends that the term "includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included."

In discussing the relationship terms, the patents state "[a] relationship relates a first set of parts with a second set of parts." 651 patent, col. 2, 11. 13-14. The patents also state:

Preferably, the part relationships are: included, excluded, removed, and requires choice. An included part is included
automatically. A part is excluded from the configuration when it inclusion would result in an invalid configuration. A part may be removed when another part is added. Thus, when a first part exists in the configuration and a second part is added, the first part is removed from the configuration. The requires choice relationship is used to allow a set of choices to be made from a group of parts.

'651 patent, col. 2, 11. 23-31. For essentially the reasons discussed previously, the court adopts the following constructions of these terms:

"includes relationship" means "a relationship that causes the elements on the right-hand side of the relationship to be included in the configuration when all elements of the left-hand side of the relationship are already included;"

"excludes relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be excluded when all elements of the left-hand side are already included;"

"requires choice relationship" means "a relationship in which a number of elements must be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included;"

"removed relationship" means "a relationship that causes the elements of the right-hand side of the relationship to be removed when all elements of the left-hand side are already included;" and

"optional relationship" means "a relationship in which a number of elements may be chosen from a second set of elements on the right-hand side of the relationship when all elements of the left-hand side are already included."

Second, MercExchange challenges the district court's construction of the following claim limitation, which appears in claims 10 and 12:

Requiring a seller to establish a seller's account, the seller's account being based at least on the seller's identity and a financial instrument associated with the seller.

In its Markman order, the district court ruled that "a seller's account must be established based at least on the seller's identity and a financial instrument associated with the seller." MercExchange disagrees with the district court's construction on the ground that the comma between the words "account" and "the" in the claim makes the "identity" and "financial instrument" features optional. If the patentee had intended the two to be mandatory, MercExchange argues, the limitation would not have used a comma and would have read: "requiring the seller to establish a seller's account based at least on the seller's identity and a financial instrument associated with the seller."

MercExchange's textual argument is unconvincing. The claim states that a seller must establish "a seller's account," and then, after the comma, the word "seller's account" is used a second time and is directly preceded by the article "the." The use of the definite article indicates that the second use of the term "seller's account" refers to the term directly preceding the comma. We uphold the district court's construction.

E. "requiring assistance from a human operator"

The term "requiring assistance from a human operator" is found in claim 28: "classifying the electronic message as at least one of (i) being able to be responded to automatically; and (ii) requiring assistance from a human operator." The specification states the following:

The interpretation of the E-mail message 11 by the automatic message reader 30 includes classifying the E-mail message
means "a position or positions in the virtual queue for an attraction." Ordinary meaning of the term as well as the specification, particularly attraction. (See col. 12, ll. 51-52; col. 13, ll. 29-32.) Because the Plaintiff's construction is consistent with the term appearing in the specification, the court construes this term as "requiring that a manual reviewer review the electronic message or information derived from the electronic message, or review, revise or compose the response to be delivered to the source." Therefore, in the context of this invention, "reservation" refers to a time or position, secured in advance and recorded in the virtual queue, when the patron may be admitted to a particular attraction. (See col. 12, ll. 51-52; col. 13, ll. 29-32.) Because the Plaintiff's construction is consistent with the ordinary meaning of the term as well as the specification, the Court adopts the Plaintiff's construction. "Reservation" means "a position or positions in the virtual queue for an attraction."
D. "reservation request"

The Plaintiff proposes the following construction: "a signal that initiates the processing of a reservation." The Defendants appear to agree that a "reservation request" is a type of signal or message sent to request a reservation. However, they argue that the Plaintiff's construction is too broad because it does not specify what types of information must be included to identify the signal as associated with requesting a reservation and distinguish it from other transmitted messages. Thus, the Defendants propose the following more detailed construction of the term:

A data message including the following content: (a) an identifier of the message as a reservation request; (b) unique identifier designating the attraction to be reserved; (c) either (1) data designating a particular requested reservation time slot or (2) data representing a request for the next available time slot for the reservation; (d) request ID, which is a unique identification number for the particular request; and (e) a unique PCD ID.

The Plaintiff argues that the Defendants improperly import from the specification examples of data that may be included in a request message. "Reservation request" is not defined in the specification. But the specification does describe the components of a reservation request message, which mirror those proposed by the Defendants, i.e., PCD ID, reservation request identifier, request ID, attraction ID, and time. (col. 15, l. 56 to col. 16, l. 27.) However, that section merely describes one embodiment of the invention and makes clear that it is only preferable for the reservation request to include the specified information. (col. 15, ll. 48-56.) In fact, the inclusion of an identifier of the message as a request is expressly described by the specification as a preferred embodiment. (col. 15, l. 61 to col. 16, l. 4.) Moreover, the specification states that additional information and formatting may be included in the data structure of a reservation request. (col. 16, ll.28-38.) Because this portion of the specification merely describes a preferred embodiment, it cannot be used to limit the construction of the term. see Phillips, 415 F.3d at 1323.

The Defendants also argue that the construction requires a "unique identifier designating the attraction to be reserved." This is known in the specification as an Attraction ID. Construing "reservation request" as inherently including an Attraction ID would render superfluous other portions of the claims. Specifically, claim 5 refers to the PCD generating and the computer receiving a reservation request "specifying a selected one of the attractions" or "specifying the attraction associated with the computer." (col. 27, ll. 31-32, 38-39.) Because the Attraction ID is the mechanism by which the selected attraction is specified or identified, the "specifying" clause following reservation request would be redundant and unnecessary if the ordinary meaning of "reservation request" included this data. Accordingly, this limitation will not be read into the claim.

Although a number of the Defendants' proposed limitations cannot be read into the claim, the specification does support limiting the construction of "reservation request" to some extent. The specification states that "the [reservation] request may specify a particular time of day that the patron is interested in, or it may simply request the next available time for attending the attraction." (col.12, ll. 27-29.) Additionally, the Plaintiff acknowledges that in order to process a reservation, the signal must identify either the patron or the personal communication device associated with the patron. (Pl.'s Resp. to Defs.' Opening Claim Construction Brief at 17-18.) Therefore, the Court construes "reservation request" to mean "a data message that initiates the processing of a reservation that includes at least a patron or PCD identification."

The plaintiff proposes that "reservation request generator" means "a device or process that adds to a message a request for additional time slots" and that "reservation request processor" means "a device or process for receiving and processing requests for additional time slots from a reservation request generator." The defendants contend that the terms do not need construction. However, if the court decides that the terms require construction, the defendants propose that "reservation request generator" means "a device or process that sets reservation bits in a message to request additional time slots" and "reservation request processor" means "a device or process that can grant a request from a remote unit for more time slots in
order for the remote unit to transmit a longer message."

The defendants' proposals improperly limit the terms to preferred embodiments. The court adopts the plaintiff's proposed constructions for both terms.

6. "reservation request generator" and "reservation request processor"

The plaintiff proposes that "reservation request generator" means "a device or process that adds to a message a request for additional time slots" and that "reservation request processor" means "a device or process for receiving and processing requests for additional time slots from a reservation request generator." The defendants contend that the terms do not need construction. However, if the court decides that the terms require construction, the defendants propose that "reservation request generator" means "a device or process that sets reservation bits in a message to request additional time slots" and "reservation request processor" means "a device or process that can grant a request from a remote unit for more time slots in order for the remote unit to transmit a longer message."

The defendants' proposals improperly limit the terms to preferred embodiments. The court adopts the plaintiff's proposed constructions for both terms.

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"Transmission bandwidth." Used in two claim terms:

11a. "wherein a portion of the transmission bandwidth available to said transmitter is reserved for transmitting portions of said information database requested by subscribers." Used in claim 7.

11d. "wherein said scheduling step includes reserving a portion of transmission bandwidth available for said transmitting step for transmitting portions of said information database requested by subscribers." Used in claim 22.

The patent describes a system that divides available bandwidth into tiers and transmits information at different repetition rates depending on the demand for, or anticipated demand for, the information. Part of the bandwidth is reserved "for satisfying requests for access to information not provided with the basic subscriber service." See' 505 patent Abstract col. 3, 11. 5-10.

The only dispute between the parties is that DirecTV believes the reserved portion of the transmission bandwidth is to be used only to respond to direct requests from subscribers. Finisar argues that the reserved portion of the bandwidth may be used to provide information requested by subscribers on a general, or long term basis, as well as for responses to particular requests.

The language of this claim phrase is clear and straightforward -- part of the transmission bandwidth, or transmission capacity, available to the transmitter is reserved, or set aside, for transmitting portions of the information database that have been requested by subscribers. The parties appear to be focused on whether "requests" by a subscriber are "direct" requests or "general" or "long term" requests. The specification indicates that requested data may be included in the basic subscriber service. 505 patent, col. 5, 11. 45-65. The specification also indicates that subscriber-requested data is transmitted "in the portion of the . . . bandwidth that is not used for transmitting the regularly scheduled basic programming." 505 patent, col. 4, 11. 55-65. Hence, whether data is "requested" does not appear to depend on whether the request is "direct," "general," or "long term." Rather, requested data is simply data a subscriber has asked to have access to, without regard for whether the request is "direct," "special," "long term," or "general." There is no basis for limiting the use of transmission bandwidth which is "reserved," to direct responses to one time requests for information. Moreover, this claim phrase does not exclude also providing "requested" data using bandwidth that is not reserved. This term will be defined as follows:
"Transmission bandwidth" is "reserved" by setting aside part of the transmission capacity for transmitting portions of the information database that are requested by subscribers.

The thrust of Leviton's "reset lock-out" argument is that the district court improperly held that the function of the reset lock-out is to inhibit the reestablishment of electrical continuity unless the circuit interrupter is operational. Leviton points out that the reset lock-out can also inhibit the reestablishment of electrical continuity if there is an open neutral condition or if the circuit interrupting device is reverse wired. For example, the "reset lock-out" limitation in claim 1 of the '558 patent reads:

said circuit interrupting device further comprising a reset lockout portion that prevents reestablishing electrical continuity in said phase and neutral conductive paths if said circuit interrupting portion is non-operational, if an open neutral condition exists or if a reverse wiring condition exists[;]

'558 patent col.12 ll.20-25 (emphasis added). Thus, according to Leviton, electrical continuity can be reestablished in some embodiment seven if the circuit interrupter is non-operational.

We are not persuaded. Leviton's argument is essentially that the district court's construction requires "or" to be replaced with "and." However, the conditional statement in the excerpt above (i.e., "are set lockout portion that prevents reestablishing electrical continuity . . . if said circuit interrupting portion is non-operational, if an open neutral condition exists or if a reverse wiring condition exists") is exactly the same as the following conditional statement: "a reset lockout portion that permits reestablishing electrical continuity . . . only if said circuit interrupting portion is operational, an open neutral condition does not exist, and a reverse wiring condition does not exist." It is therefore clear that, even in those claims where additional features are incorporated through "or if" statements, the circuit interrupter must be operational in order to reestablish electrical continuity. As such, Leviton has not demonstrated a need to reverse the district court's construction. Because Leviton provides us with no alternative basis on which to disturb the summary judgment of noninfringement entered below, we affirm that portion of the district court's order on appeal.

Leviton argues, citing Dr. De La Ere's declaration, that the term "reset portion" is clear on its face to one of ordinary skill in the art. See Leviton's Memo at 20; De La Ere Declaration P 24, at 12-13. Leviton also contends that "reset portion" is a structural limitation and not a means-plus-function clause subject to § 112, P 6. See id. In support of its position, Leviton cites Col. 3, ll. 5-8 of the '766 patent, which states: "A reset portion is disposed at least partially within the housing and is configured to reestablish electrical continuity in the open conductive paths." The '766 Patent at Col. 3, ll. 5-8; Leviton's Memo at 20. Leviton, in maintaining its position, also asserts that the "reset portion" claim element does not use the word "means." See Leviton's Memo at 20-21. In further support of its position that the "reset portion" claim element is clear on its face and not subject to § 112, P 6, Leviton states that "reset portion" has, over the years, acquired a reasonably well understood meaning in the art that is reasonably associated with a particular structure. See id.

The Court does not agree with Leviton's position that "reset portion" is clear on its face to one of ordinary skill in the art and that it is not a means-plus-function clause. While "means" is not used in the "reset portion" claim element, the presumption that a claim element not containing the word "means" is not subject to § 112, P 6 can be overcome. See Cole v. Kimberly-Clark Corp., 102 F.3d at 531 ("Merely because an element does not include the word 'means' does not automatically prevent that element from being construed as a means-plus-function element."); Personalized Media Commc'n's, LLC v. Int'l Trade Comm'n, 161 F.3d at 704. The Court, agreeing with the Defendants, believes that presumption is overcome here; the relevant claim element does not provide sufficient structure. See Defendants' Memo at 34-35; Defendants' Response at 15-
The Defendants, citing Massachusetts Institute of Technology and Electronics for Imaging, Inc. v. Abacus Software, 462 F.3d 1344 (2006), contend that the presumption that a claim element lacking the word "means" is not a means-plus-function element is overcome here, because the claim does not contain sufficient structure and the words "reset" and "portion," when assessed either independently or in conjunction, do not connote sufficient structure. See id. at 1353 ("[A] limitation lacking the term 'means' may overcome the presumption against means-plus-function treatment if it is shown that 'the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'"). The Defendants note that pertinent dictionaries either do not define those terms or do not define them in a manner that connotes structure. See Transcript at 58:14-60:13 (Fry); Defendants' Markman Hearing Presentation at tabs 31-34, 36-40. The Defendants also point out that Dr. De La Ere testified that "reset portion" did not refer to any specific structure. See Transcript at 60:21-62:17 (Fry); Defendants' Response at 16-17 (citing August 31 De La Ere Deposition at 78:17-79:5). Further, the Defendants note that the Court previously, in its construction of the '558 patent's claims, determined that the "reset means" claim element was subject to § 112, P 6, and that, in the '558 patent, Leviton uses the terms "reset means" and "reset portion" interchangeably. See Transcript at 59:12-21 (Fry); Defendants' Memo at 34-45.

The Court finds the Defendants' position concerning "reset portion" persuasive. The Court believes that the language of the "reset portion" claim element cannot be said to impart sufficient structure. See The '766 Patent, Claim 1. The Court also believes that it is noteworthy that the Defendants’ search did not reveal, nor did Leviton present, evidence that the term "reset portion" or the individual terms "reset" and "portion" impart sufficient structure within the art. See Mass. Inst. of Tech. & Elec. for Imaging, Inc. v. Abacus Software, 462 F.3d at 1354 (analyzing disputed claim element terms together and independently, and finding that § 112, P 6 applied where those terms did not impart sufficient structure and none was otherwise included within the claim). The Court, moreover, acknowledges that Dr. De La Ere conceded that the term "reset portion" does not connote any specific structure, see August 31 De La Ere Deposition at 78:17-79:5, and that Leviton does appear to use "reset means" and "reset portion" interchangeably in Claims 3 and 4 of the '558 patent, see The '558 Patent, Claims 3 & 4, Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d at 1334 ("We presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning."). Considering the foregoing, the Court concludes that the Defendants have overcome the presumption that § 112, P 6 is not applicable, and that the "reset portion" claim element is a means-plus-function element.

Citing Ventana Med. Sys. v. Biogenix Labs, Inc., Leviton contends that the "reset" language used in Claim 1 of the '766 patent and Claim 3 of the '558 patent is different, and that, therefore the Court's construction of Claim 3 of the '558 patent is irrelevant and the Court should not find that "reset portion" is a means-plus-function element. See Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d at 1334 (stating that, while a parent patent's prosecution history may inform the claim construction of its descendant, the parent patent's prosecution history is irrelevant to the meaning of a descendant's limitation if the two patents do not share the same claim language); Transcript at 14:10-15:17 (Magidoff). The Court notes, however, that the "reset portion" claim element's lack of accompanying structure, and not its language's similarity to that of Claim 3 of the '558 patent, drives the Court's conclusion here.

Because the Court concludes that "reset portion" is a means-plus-function element, it must determine its function. See Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d at 1322. The Court concurs with the function that the Defendants put forth. The language of the "reset portion" claim element is largely identical to that of the "circuit interrupting portion" claim element, for which the Court adopts the Defendants' proposed construction. See The '766 Patent, Claim 1. Moreover, the word "said" indicates that the term "predetermined condition," as used in the "reset portion" claim element, should be construed as it was with respect to the "circuit interrupting portion" element. Phillips v. AWH Corp., 415 F.3d at 1316-17 (stating that use of the term "said" indicates that the term in question has previously been used within the claim and that the earlier understood meaning should be maintained). Given the use of "said," given that the Court adopts the Defendants' construction of the "circuit interrupting portion" construing identical language, given that it is presumed that the same claim term in the same patent or related patents carries the same construed meaning, see Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d at 1334, and given that, while Leviton states that the Defendants' proposed § 112, P 6 function is incorrect, Leviton
does not present the Court with an alternative, see Leviton's Response at 15-17, the Court will adopt the Defendants' proposed construction of the "reset portion" claim element. The Defendants' proposed construction provides:

This claim element is a means-plus-function element in accordance with 35 U.S.C. § 112, P 6. The function to be performed by the "reset portion" is reestablishing electrical continuity between the first and second electrical conductors and between the first and third electrical conductors after the occurrence of a current imbalance (in this case an artificially induced electrical fault) that activates the circuit interrupting portion.

Defendants' Presentation at 88.

Because the Court concludes that "reset portion" is a means-plus-function element, it also must identify the structure that corresponds to the function. See Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d at 1322. The Court finds that the pertinent specification language contained within the '766 patent for completing the function assigned to the "reset portion" is the same structural language contained within the '558 patent for completing the function that was assigned there to "reset means." See The '766 Patent, Col. 8, ll 25-56; The '558 Patent, Col. 8, ll 25-56. Given that the language the Court used to describe the function of the "reset means" in the '558 patent is nearly identical to the language it adopts to describe the function of the "reset portion" of the '766 patent, and given that the relevant specification language is the same in both the '558 and '766 patents, the Court will apply its finding with regard to the structure of "reset means" from the '558 patent to the "reset portion" claim element appearing in the '766 patent. Thus, the necessary structures corresponding to the function assigned to the "reset portion" are: reset button 30; return spring 120; latch number 100; latching finger 102; movable contract arms 50 and 70; reset contacts 104, 106, 52, 62, 56, 66, 72, 82, 76, and 86; coil assembly 90, plunger 92, banger 94, banger dogs 96 and 98; operable ends 116 and 118; and a circuit that senses the "predetermined condition" and causes coil assembly 90 to actuate plunger 92. See The '766 Patent at Col. 8, ll 25-56.

Next, subsection (d) of Claim 1 requires construction. Claim 1(d) states:

| deactivating said generator only upon expiration of said predetermined time period or in response to a reset signal. |

There are two terms in Claim 1(d) that require construction: "deactivating" and "reset signal."

With respect to the "deactivating" term, Agrizap argues that it should be construed as:

any manner of deactivating the generator at the end of the predetermined time period or in response to a reset signal, the end of the predetermined time frame being determined in any manner and the reset signal being produced and sensed in any manner including hardware, software/ firmware or any combination thereof.

(Agrizap's Reply Br., at 14). Woodstream argues that "deactivating means stopping the activated generator" and that "the generator can be deactivated only upon the two enumerated conditions and not any other conditions, i.e., deactivating can occur only upon expiration of the predetermined time period or in response to a reset signal" and "the generator must be capable of being deactivated under both [of these] recited conditions." (Woodstream's Reply Br., at 10-11). In response, Agrizap argues that requiring the deactivation to be performed only by these two conditions and requiring that the generator must be capable of performing both of these conditions are unsupported and unrelated limitations to this claim construction.

This Court will construe "deactivating" as:

the stopping of the activated generator either upon the expiration of the predetermined time period or in response to a reset signal. The activated generator can be deactivated only upon either of these two conditions (expiration of predetermined time period or in response to a reset signal) and the generator must be capable of being deactivated by both of these conditions.

First, the ordinary and customary meaning of "deactivating" means making the activated generator inactive, or more simply, stopping the activated generator. See Webster's 3d. New Int'l Dictionary 579 (3d ed. 1993) (defining "deactivate" as "to
make inactive or ineffective"). The essential disagreement between the parties, however, is not about what "deactivating" means, but rather about how "deactivating" of the activated generator occurs. The words of Claim 1(d) themselves clearly state that deactivation occurs "only" upon (1) the expiration of the predetermined time period or (2) in response to a reset signal. See Phillips, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."). Therefore, deactivation can occur only upon these two conditions and the generator must be capable of being deactivated by both of these conditions.

The "reset signal" term in Claim 1(d) requires construction. In addition, "reset signal" appears in Claim 1(e) and also requires construction. Claim 1(e) states that:

inhibiting said triggering step once activation of said generator is triggered, until said reset signal is detected.

Essentially, Agrizap and Woodstream are arguing over whether "reset signal" in both Claims 1(d) and 1(e) refers to one specific reset signal, the power on reset signal, or whether the term encompasses various reset signals. Agrizap argued that the "reset signal" term in Claim 1(d) can be "produced and sensed in any manner including hardware, software/ firmware or any combination thereof." With respect to the "reset signal" term in Claim 1(e), Agrizap ignores the "said reset signal" term in the claim construction it provided for Claim 1(e). Woodstream argues that the "reset signal" term in Claim 1(d) is the same as the "said reset signal" term in Claim 1(e) and that the only description of a reset signal in the 636 patent is the power on reset signal. n2 Agrizap responds that Woodstream is erroneously interpreting the specification and prosecution history because the power on reset signal is not the only reset provided for in the specification.

--- Footnotes ---

n2 In addition, Woodstream argues that the patent specification fails to disclose any "reset signal" that deactivates the generator thus making Claim 1(d) invalid under 35 U.S.C. § 112. The invalidity of any claims will be discussed below in the summary judgment section.

--- End Footnotes ---

After analyzing the wording of Claim 1(d) and Claim 1(e) in conjunction with the intrinsic evidence, this Court will construe the "reset signal" term in both Claim 1(d) and Claim 1(e) as: the power on reset signal. The power on reset signal is the signal that is generated upon the powering up of the circuit from its off condition. It is labeled as POR 97 in Fig. 4 and Fig. 5 of the 636 patent.

The "reset signal" term in Claim 1(d) and 1(e) must be interpreted the same way. The ordinary and customary meaning of the word "said" when it is modifying a term is that it means the "above-mentioned" term. Black's Law Dictionary, 1363 (8th ed. 2004). When "said" is used in a document, it refers to something that has been previously mentioned in the document. Greeley Nat. Bank v. Wolf, 4 F.2d 67, 69 (8th Cir. 1925). Here, "said reset signal" in Claim 1(e) must refer to the previously mentioned "reset signal" term in Claim 1(d) because that is the only "reset signal" mentioned prior to Claim 1(e). Thus, the reset signal in Claim 1(d) and 1(e) are the same reset signal.

The construction of "reset signal" as the power on reset signal is supported by the 636 patent. Intrinsic evidence, such as the patent itself, "is the most significant source of the legally operative meaning of disputed claim language." Vitronics, 90 F.3d at 1582. The abstract of the 636 patent states that "the invention will not retrigger until reset by turning it off and then on again, thereby activating the power on reset circuit." (636 patent, abstract). The following statements from the specification show that the power on reset signal is the reset signal that needs to be detected before retrigerring:

Timer Module 112 cannot be retriggered until it is reset via an active low logic signal on POR 97. (636 patent, col. 7, lines 63-65);

Once triggered, the electronic portion 1 cannot be retriggered until power is turned off and then on again via switch 2. (636 patent, col. 6, lines 46-48); and

The logic low value of ARM 93 therefore prevents any retrigger of Timer Chip 18 until the power is cycled off and then on by the user." (636 patent, col. 9, lines 5-10).
Moreover, the prosecution history also shows that Agrizap argued that the "reset signal" is the power on reset signal. See Phillips, 415 F.3d at 1317 (stating that court should consult patent's prosecution history). The following is Agrizap's response to one of the Patent Examiner's questions pertaining to the retriggering of the timer after deactivation:

Applicants [Agrizap] respectfully direct the Examiner to page 21, lines 4-8, where it is explained that when the predetermined time has elapsed, the generator is inactive because the output of the time becomes inactive and that the timer cannot be retriggered until reset via POR. Page 21, line 11 through page 22, line 2 discusses the power on reset circuit and how it operates to initialize the electronic portion, including the arming of the trigger circuit of the resistive switch. Page 24, lines 5-14 discuss how the trigger circuit of the resistive switch becomes disarmed until reset once again by cycling the power and thus activating POR.

(Woodstream's Markman Ex. 2, at 000081). The patent's prosecution history shows that the triggering step is inhibited until reset by the power on reset signal. n3 Thus, the intrinsic evidence supports the construction that the reset signal in Claim 1(d) and 1(e) is the power on reset signal.

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n3 Agrizap tries to argue that the patent's prosecution history shows that there is a difference between the power on reset signal and other reset signals. It contends that the following statement supports its argument: "[Agrizap] amended the claims to differentiate the power on reset (POR) from the individual reset inputs of the time components." (Woodstream Markman Ex. 2, at 000080). These individual reset inputs, however, are not the reset signal addressed in Claim 1(d) and 1(e) for the reasons explained above. Furthermore, having the "reset signal" term encompass many possible different reset signals is inconsistent with the wording of Claim 1(d) and 1(e).

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Nevertheless, in contrast to the above discussion of the proper construction for "coup message," where the patent specification did not indicate that the "coup message" necessarily had to be unicast in all circumstances, the patent specification does explain that the "resign message" must be unicast in response to a "coup message," otherwise it would conflict with the purpose of the patent. See Li, at 12:61-13:3. Therefore, the Court will construe the term so that it comports with the purpose of the patented invention. See Apple Computer v. Articulate Sys., 234 F.3d at 25.

Additionally, the Court disagrees with Alcatel that the term "resign message" cannot be defined using the word "resign." The Court finds the meaning of the word "resign" to be plain on its face, and, furthermore, the patent itself uses this term to explain the purpose of a "resign message."

Thus, the proper construction for "resign message" is "a message, sent by the active router to inform other routers that the active router will be resigning from its status as active router, which is unicast by the active router in response to the active router's receipt of a coup message, and is otherwise broadcast."

b. "resistance"

LGD contends that the term resistance should be defined as "a circuit component designed to provide opposition to electric current flowing through itself and to minimize current surge in the TFT array from electrostatic discharge." D.I. 376 at Exh. B-8. LGD contends that its construction is appropriate, because the specification indicates that resistance minimizes discharge current surge. LGD also contends that its construction is similar to the construction adopted by the Court in the Tatung case, except that it offers further clarification by (1) replacing the term "resistance" in the construction with its plainly understood dictionary meaning, i.e. "the opposition offered by a body or substance to the passage through it of a steady electric current;" and (2) "clarifying that the current surge must be minimized in the TFT array, to be consistent with the claims and specification." D.I. 384 at 10.

CMO contends that the term "resistance" should be defined consistently with the definition rendered by the Court in the Tatung case. Specifically, CMO contends that "resistance" means "a circuit component that has a specified resistance to the flow of electric current and is used to minimize the current surge from electrostatic discharge." D.I. 376 at Exh. B-8.

In response, AUO contends that the proper construction of resistance is "a circuit component that has a specified ratio between voltage and the flow of electric current, and is used to minimize the current surge from electrostatic discharge." Id. AUO also contends that its construction is consistent with the Court's previous construction, except that the term "resistance" is replaced with the plain technical meaning of the term resistance from the IEEE Standard Dictionary of Electrical and Electronic Terms. AUO contends that LGD's construction eliminates the "specified" value of resistance that the Court incorporated into its prior construction.

In reply, LGD contends that AUO's construction seeks to limit the term "resistance" to a "resistor." LGD contends that this construction is not supported by the specification, and one skilled in the art would not understand the term "resistance" to be limited to a resistor. D.I. 430 at 4.

In the Tatung action, the Court specifically rejected a construction which would "limit 'resistance' to one specific electric component, a resistor." 434 F. Supp. 2d at 298. In so doing, the Court noted that the term "resistance" is used in the claims in a manner somewhat different from its ordinary meaning to one of skill in the art. Id. at 299. Specifically, the Court stated that "[i]n the claims, the term 'resistance' is used consistently to denote only a circuit component used to couple the outer ESD guard ring to the interconnected row and column lines and the pickup pad." Id. (citations omitted). With this understanding, the Court will not depart from its previous construction or rationale, and will define "resistance" as "a circuit component that has a specified resistance to the flow of electric current and is used to minimize the current surge from an electrostatic discharge."
The parties agree that one of ordinary skill in the art would understand "resistance" to mean a physical property of a material or device characterized by opposition to the flow of electric current. (D.I. 135 at 13; D.I. 137 at 9.) They also agree that in the '002 patent, "resistance" is used to denote a circuit component. (D.I. 135 at 13; D.I. 160 at 2.) LPL contends that because "[a]ll circuit components . . . have the characteristic of resistance," the Court should construe "resistance" as "any component used to cause a voltage drop during current flow." (D.I. 135 at 13.) CPT's proposed construction is "[a] resistance, as it is used in the claims, means a resistor, which is a circuit element that has a specified resistance to the flow of electrical current. A resistance does not include switching elements such as transistors and diodes." (D.I. 137 at 9.)

LPL's proposed construction cannot be correct because, as CPT points out, (D.I. 137 at 12), it would exclude the single preferred embodiment that incorporates a "resistance." (See '002 patent, col. 8, ll. 1-48.) The only purposes stated for the "resistance" in that embodiment are to provide an "ESD short for high electrostatic potentials . . . ." (Id., col. 8, l. 31), and to minimize "the discharge current surge . . . ." (Id., col. 8, l. 35). Thus, "resistance" as used in that embodiment, would not fall within the scope of LPL's proposed construction of "any component used to cause a voltage drop during current flow." A claim construction that excludes a preferred embodiment "is rarely, if ever, correct and would require highly persuasive evidentiary support. . . ." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996) (citations omitted). The Court finds no such evidentiary support in this case.

On the other hand, CPT's proposed construction unnecessarily limits "resistance" to one specific electric component, a resistor. There is no support in the intrinsic record for such a narrow interpretation. Moreover, a person skilled in the art would certainly understand the meaning of "resistor" so it is logical to conclude that the inventor would have chosen that term had he intended to refer only to that specific component.

LPL correctly notes, (D.I. 163 at 3), that it is improper to import limitations from a preferred embodiment into the claims. See JVW Enterprises, Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1335 (Fed. Cir. 2005). However, "there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (quoting Comark Commun., Inc. v. Harris Corp., 156 F.3d 1182, 1186-87 (Fed. Cir. 1998)). Here, because "resistance" is used in the claims in a manner somewhat different from its ordinary meaning to one of skill in the art, the only guidance as to how the Court should construe the term is how it is used in the single embodiment in which it appears. That embodiment mentions a "resistance" three times:

The [ESD guard ring] line 210 is connected to the other set of gate or source lines by a shunt line 224, a shunt transistor 226 and a large resistance 228, such as 100 K ohms (illustrated schematically). . . . The resistance provides an ESD short for high electrostatic potentials which can be incurred during manufacturing . . . . The resistance minimizes the discharge current surge . . . .

('002 patent, col. 8, ll. 23-34.) In the claims, the term "resistance" is used consistently to denote only a circuit component used to couple the outer ESD guard ring to the interconnected row and column lines and the pickup pad. (See e.g. Id., col. 9, ll. 63-65; col. 10, ll. 6-8.)

Reading the claims in light of the specification, which describes the "resistance" only in general terms, the Court concludes that the patentee intended the claims and this embodiment in the specification to be coextensive at least in regard to the term "resistance", n3 Therefore, the Court will construe "resistance" as "a circuit component that has a specified resistance to the flow of electric current and is used to minimize the current surge from an electrostatic discharge."

--- Footnotes ---

n3 The Court also notes that the patentee explicitly stated that certain elements of the invention could vary from the specific descriptions in that embodiment, but did not include the "resistance" among those elements. ('002 patent, col. 8, ll. 49-62.)
The parties dispute over the meaning of the phrase "resistant to," which appears in independent Claim 1 of the '661 Patent. It also appears in Claims 6, 9, 11, 15, 26, 27, and 29 of the '661 Patent; Claims 22 and 28 of the '783 Patent; Claims 1, 13, 18, and 31 of the '442 Patent; Claim 39 of the '658 Patent; Claims 2, 11, and 31 of the '518 Patent; and Claim 1 of the '884 Patent.

The parties dispute whether "resistant to" refers to "reduce" or "significantly reduce."

The plain and ordinary meaning of "resistant to" suggests that construction of "resistant to" as either "reduce" or "significantly reduce" would be improper. Unlike "reduce" which is used to compare the level of an entity with that entity's previous level, "resistant to" ordinarily describes a relationship between the entity and an external force. The written description of the invention supports this distinction. "Reduction" in S/N ratio involves a lessening of the original quantum of S/N ratio. See '661 patent, col. 4, 11. 1-5. On the other hand, "resistance," is referred to in relation to an "attack," as in "enabling the construction of devices that are significantly more resistant to attack than devices of similar cost and complexity." '661 patent, col. 14, ll. 6-10.

"Resistant to" is also used in the claims in a manner which is consistent with its plain and ordinary use: "resistant to discovery," Claim 1, '661 patent, "resistant to external detection," Claim 1, '442 patent, and "resistant to detection," Claim 13, '442 patent.

The intrinsic evidence does not disclose a particular quantum of resistance as necessary to a definition of the phrase.

The Court construes "resistant to" to mean: "less susceptible to external influence."

B. The Kurimoto Patent

The parties ask the Court to construe the phrase "resistive component" in Claim 1 and 6 of the Kurimoto Patent. Joint Statement at 10. AMD asks the Court to construe "resistive component" as a type of resistance. Id. Oki asks the Court to construe the term according to an abstract definition that is divorced from the language of the patent. See Oki's Opening Claim Construction Brief at 6. The Court chooses to define the disputed phrase as a type of resistance in accordance with the Kurimoto patent's idiosyncratic usage.

1. The Claims of the Kurimoto Patent

Taken out of context, Oki's definition of a resistive component as a component possessing the property of resistance to electrical current seems reasonable. However, a close reading of the language and specification reveals that the patent defines the phrase by implication.

The claims reveal the first cracks in Oki's definition. As noted above, the Kurimoto patent prevents latch-up by introducing a "resistive component" into a complementary metal oxide semiconductor (CMOS) transistor circuit. 986 Patent, at [57]. First, Claim 1 requires that the "resistive component" be "provided" at the source of a "MOS transistor." Id. at col.5 ls.17-18. A MOS transistor is nothing more complicated than the MOSFET described in the construction of the Kurachi patents. See Fair Decl. at P 18. This limitation is consistent with both Oki's and AMD's interpretation since either a component or a resistance could be provided at the source of an MOS transistor.

Second, the "resistive component" must be "serially connected to a parasitic bipolar transistor." 986 Patent col.5 ls. 17-20.
At first glance, this limitation seems to favor Oki's definition because the phrase serially connected seems to indicate structures that are linked together in a chain. However, Claim 11, using the same language as Claim 1, states that a "parasitic resistance" must be "serially connected to a parasitic bipolar transistor." Id. at col.8 ls.9-11. The parties agree that "parasitic resistance" as used in the Kurimoto patents is defined as "a resistance in an integrated circuit that arises inherently due to the nature of the materials used to implement the other elements of the integrated circuit." AMD's Markman Reply Brief at 10; Oki's Claim Construction Reply Brief at 1. Thus, the claims indicate that both a resistive component and a type of resistance may serially connect to a transistor. This parallel language suggests that the patentee is using the disputed phrase to mean something different from the meaning found in a regular dictionary.

The final claim limitation suggests that the resistive component has no separate physical structure. Claims 1 and 6 require the "resistive component" to be "formed from a layout in which a distance between a contact for [the] source of [a] MOS transistor [] and a gate of [the] MOS transistor [] is longer than a distance between a contact for [the] drain of [the] MOS transistor [] and the gate of [the] MOS transistor []." Id. at col.5 ls.21-29; col.6 ls.29-36. The claim language indicates that the resistive component is not present as a result of the addition of some external wire or body. Instead, the resistive component arises from rearrangement of the preexisting structures of the MOSFET. According to Claim 6, this same "asymmetry provid [es] a parasitic resistance." Id. at col.8 ls.7-8. The claim language again uses that the phrases "resistive component" and "parasitic resistance" to mean the same thing.

2. The Specification of the Kurimoto Patent

The specification indicates the patentee uses the phrases resistive component and parasitic resistance interchangeably. Figure 3 of the patent illustrates a preferred embodiment of the invention. Id. at col.2 ls. 13-15; 18-19. Referring to this figure, the specification describes exactly what gives rise to the "resistive component."

As shown in FIG. 3, the arrangement of the contacts . . . is asymmetric with respect to the gate. . . . That is, in this layout of the CMOS output circuit, a distance between each [source] contact . . . and the gate . . . is longer than a distance between each [drain] contact . . . and the gate . . ., so as to render the resistive component . . . high.

Id. at col.4 ls.13-15; 18-19. If resistive component as used in the specification referred to a structure, the phrase "to render the resistive component" high would be nonsense. Nothing in the figure or the patent suggests that the resistive components are physically higher than other components in the patent. However, when resistive component is construed as a type of resistance, the sentence makes sense. According to this reading, placing the source contacts farther from the gate than the drain contacts raises the resistance. Later, the specification again uses the phrase resistive component to refer to a type of resistance. Referring to an embodiment of Claim 5, the specification states that "the number of the contacts . . . on a side of the source . . . being less than the number of the contacts . . . on a side of the drain . . . increases the resistive component at the source." Id. at col.4 ls.30-34. Again, this sentence only makes sense if "resistive component" is read to be a type of resistance. Read properly, the sentence indicates that having less source contacts than drain contacts increases the resistance at the source.

3. Construction of Disputed Terms in the Kurimoto Patent

The specification is dispositive. The Court holds that "resistive component" as used in Claims 1 and 6 of the Kurimoto patent refers to a resistance in an integrated circuit that arises due to the nature or layout of the materials used to implement the other elements of the integrated circuit.
This claim will be construed as: a switch that is physically connected across the electrodes. The switch includes a distinct trigger circuit with a trigger output and an arm/disarm input.

1. Resistor stack (claim 18)

Plaintiff contends that "resistor stack" means "resistor formed as a layered structure," while Defendants contend that this term means "structure having a resistive material between two layers of conductive material that are designed to carry electrical current and absorb infrared radiation."

The "Summary of the Invention" section of the '663 specification describes that "[t]he present invention provides infrared radiation imagers in the form of a monolithic array of bolometers with a high fill factor geometry together with high sensitivity resistance material. Preferred embodiments use . . . an architecture suspending the resistance material over silicon detection circuitry." '663 patent, 2:20-27. The term "resistor stack" in claim 18 refers to the "high sensitivity resistance material" that is suspended over the silicon detection circuitry.

Stack 144 of a preferred embodiment, illustrated in Fig. 4a of the '663 patent, is a structure comprising resistive material (150) between two layers of conductive material (148 and 152), as Defendants' proposed construction requires. See '663 patent, 2:23-26, 3:37-43 The crux of the parties' dispute, however, is whether the term "resistor stack" is limited to this single embodiment disclosed in the specification--a layer of resistive material "sandwiched" between two layers of conductive material.

Defendants argue that the '663 patent only discloses a single embodiment and, therefore, that the inventor did not conceive of any resistor stack other than the single disclosed "sandwich" embodiment. Accordingly, Defendants argue, the claims should be limited to a "sandwich" structure. The Federal Circuit, however, "has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (citations omitted). Defendants have not identified any such words or expressions of manifest exclusion or restriction or other intrinsic support for limiting this term to only the preferred embodiment described in the specification.

The Federal Circuit has also made clear that "a particular embodiment appearing in the specification may not be read into a claim when the claim language is broader than the embodiment." SuperGuide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 875 (Fed. Cir. 2004). The term "resistor stack" appears only in independent claim 18 and dependent claim 20, while other independent claims use the term "stack" modified by subsequent claim language specifically requiring a "sandwich" structure. For example, claim 1 requires a "stack including a first conductive layer, a resistive layer, and a second conductive layer . . . ." Claim 1, therefore, was drafted to more narrowly claim the "sandwich" embodiment that Defendants' proposed construction would require. Claim 18's "resistor stack," however, does not include subsequent qualifying language and was thus intended to be broader than the "sandwich" embodiment.

Indeed, claim 20, which depends from independent claim 18, requires that the "resistor stack" of claim 18 include the relevant elements of the "sandwich" embodiment. If the "resistor stack" of claim 18 was already limited to the "sandwich" embodiment, claim 20 would be redundant and would add no additional limitations. Such a construction would be improper. See 35 U.S.C. § 112, P 4; Robotic Vision Sys. v. View Eng'g, Inc., 189 F.3d 1370, 1376 (Fed. Cir. 1999) ("If claim 1 were limited to separate fabrication of index pads, claim 4 would necessarily be redundant and add no additional limitations. This would again be an absurd construction of claim 4 as a dependent claim of claim 1."). The term "resistor stack" is broader than the "sandwich" embodiment discussed in the specification and specifically claimed in, for example, independent claim 1 and dependent claim 20.

Defendants also rely on the "Modification and Advantages" portion of the specification in support of their proposed construction, which states:
Various modifications of the preferred embodiment devices and methods may be made while retaining features such as [1] a temperature dependent resistor suspended over related processing circuitry for a high fill factor and avoidance of resistor edge passivation, [2] a temperature dependent resistor made of a radiation absorbing material on a transparent high temperature coefficient material, [3] a quarter wavelength filter absorber, and [4] in situ deposition of resistor materials for uniform and reproducible resistors.

'663 patent, 11:9-18. Thus, according to Defendants, the specification lists four features of the devices and methods that must be maintained according to the inventors. Defendants point to the second feature--"a temperature dependent resistor made of a radiation absorbing material [conductive material] on a transparent high temperature coefficient material [resistive material]"--to argue that the disclosed "sandwich" embodiment is a critical feature of the invention that must be present in every embodiment.

However, even assuming Defendants' assertion that this portion of the patent recites features that must be present in any covered embodiment, the cited portion of the specification does not say that the resistor must necessarily be a "sandwich" configuration. Rather, it clarifies that the resistor comprises at least a conductive material on a resistive material, which may or may not contain an additional conductive material to form a "sandwich" structure. This portion of the specification does, however, identify "in situ deposition of resistor materials for uniform and reproducible resistors" as one of the four features. The specification thus clarifies that the resistor "stack" of the present invention may be formed by in situ deposition, i.e., formed as a layered structure.

For all of these reasons, the court construes "resistor stack" to mean "resistor formed as a layered structure."

2. Resistor(s) (claims 22, 26-28, 33, 35-38)

Plaintiff contends that "resistor," as used in the claims, means "element used to offer resistance to an electric circuit," while Defendants contend it means "portion of the resistor stack between the leads." The specification does not purport to alter the ordinary meaning of this common component of an electric circuit, and neither party argues otherwise. The parties' primary dispute concerning this construction is whether a jury would be best aided by a construction defining "resistor(s)" in functional terms or in terms of the location of the circuit component.

When discussing a preferred embodiment, the specification describes that "[a]s shown in Fig. 5a, stack 144 is square with two pairs of elongated openings 160, 162, and 164, 166 defining leads 170 and 174 between interconnects 156 and 158 and the remainder of stack 144 (resistor 141)." '663 patent, 3:46-50. In a preferred embodiment, then, resistor 141 is "the remainder of stack 144" other than the leads and interconnects--the "portion of the resistor stack between the leads," in addition to the remainder of the resistor stack, other than the leads and interconnects, that is not between the leads.

Although "resistor 141," as illustrated in Fig. 4a, is indeed "between the leads," the court finds that construing "resistor" based solely on the label in Fig. 4a is unduly restrictive. For example, the only portion of resistor 141 in Fig. 5a that might arguably be considered a "resistor" under Defendants' proposed construction would be the narrow sliver of resistor 141 running diagonally between the ends of the leads. However, as discussed above, the specification makes clear that resistor 141 is "the remainder of stack 144."

Defendants' proposed construction also defines resistor with reference to "resistor stack," a disputed term that does not appear in the claims in which "resistor(s)," standing alone, appears. Defendants' proposed construction thus potentially imports the additional limitation of a "resistor stack" into the claims containing only the "resistor(s)" requirement. As discussed above, "resistor stack" appears only in independent claim 18 and dependent claim 20; the term "resistor(s)" appears only in claims 22, 26-28, 33, and 35-38. The court declines to construe "resistor(s)" with reference to a disputed term from different claims.

Moreover, the court finds that use of the word "element" in Plaintiff's proposed construction is potentially confusing to a jury. "Component of an electric circuit" is a more precise description of a resistor. In the same vein, rather than offering "resistance to an electric circuit," a resistor offers resistance to the flow of an electric current in an electric circuit.
Because the patentee did not purport to alter the ordinary meaning of "resistor," and because the court finds that Defendants' proposed construction is unduly restrictive and potentially imports the limitation of a "resistor stack," the court construes "resistor(s)" to mean "component(s) of an electric circuit used to offer resistance to the flow of an electric current."

E. "resizing"

- Plaintiff's proposed construction: "changing the size (width/height) of the video"
- Defendants' proposed construction: "changing the frame size"

The term "resizing" is found in claims 1 and 12 of the '655 patent and claims 1, 12, 16, and 19 of the '172 patent. Plaintiff argues for a construction of "changing the size (width/height) of the video" while Defendants argue for "changing the frame size."

Plaintiff supports its construction by quoting from the specification. The specification states that "the method directly resizes the raw video information in the uncompressed format into a size associated with the desired output media format and the desired TV standard ..." 8 Plaintiff then points to a table in the specification that describes video size in pixel height and width (e.g. 720 x 480). 9 In arguing for its construction, Plaintiff emphasizes that the term must be read to allow resizing of both width and height.

Defendant's proposed construction of "frame size" attempts to specify that the "resizing" term refers to the height/width of the video rather than its length. In the briefing and again at the hearing, Defendants sought to distinguish between their construction and Plaintiff's construction by claiming Plaintiff's construction would allow changing the length of the movie. The Court does not share this view of Plaintiff's construction. Plaintiff's and Defendants' definitions are essentially identical in meaning, but Plaintiff's construction is more direct and better supported by the specification. The patents in suit do not use the term "frame size" but instead define the video frame sizes by their height and width. Using Defendants' definition would require adding a term not found in the patent to the claims and then defining that term using the height and width language proposed by Plaintiff for "resizing." Because Plaintiff's proposed construction is well supported and the parties essentially agree that resizing refers to changing the height and width but not the length of the video, the Court adopts Plaintiff's definition of "changing the size (height/width) of the video" for the term "resizing."

ICR alleges that the Harpo website infringes the '252 patent by allowing users to access excerpts from the books selected for OBC. At issue in this decision are the terms "resolution" and "graded resolution" as used in claims 1 and 9 of the patent. These claims read as follows:

1. A method, comprising:

   In a server of a network, storing a plurality of images representing pages of a book, said images stored with a resolution effective to enable said book to be read;
responsive to a request over the network, sending one of said images to a remote node; and
determining if the request for pages exceeds a certain threshold, and sending said information only if said threshold is not exceeded.

9. A method comprising:

receiving, at a client of a network, information about which of a specified plurality of images to be displayed, each of specified plurality of images showing textual information and at least a plurality of said images showing non-textual information, said textual information representative of contents of a book;

displaying said images responsive to said requests; and

wherein each of said images use a graded resolution, which provides readable resolution for readable parts and a different resolution for non-readable parts.


A. Proposed constructions

Claim 1 describes an image stored with a "resolution effective to enable said book to be read." '252 Patent, col. 7:46-47. In its original claim construction brief, Harpo argued that the proper construction of "resolution effective to enable said book to be read" is "a value stored in an image file that is used to determine if a stored image is of sufficient pixel density for reading textual information from images of real pages of a physical book." Def.'s Mem. on Claim Constr. (docket no. 93) at 9. In its March 24 decision, the Court rejected Harpo's contention that the claim language covers only images of the actual pages of a physical book and therefore rejected Harpo's proposed construction.

In the claim construction chart submitted at the May 10 evidentiary hearing, Harpo offered a new proposed construction of "resolution": "pixel density." ICR maintains, as it has all along, that the correct construction is "sharpness to the eye." For the term "graded resolution," Harpo proposes "variations in pixel density"; ICR proposes "variations in image sharpness as perceived by the eye." Joint Claim Construction Chart, Evid. Hrg. Ex. 1.

B. Gray Testimony

At the evidentiary hearing, Harpo presented testimony from Stephen Gray, a computer technology consultant. Gray testified to the basic functioning of a website, including an explanation of how website content and images are stored on servers and rendered as HTML files that are viewable by browser software. During his testimony, Gray was presented with an example of a page from the Oprah.com website that showed a picture of the cover and an excerpt from an OBC book. The page contained an image of the book cover, which Gray explained is stored on a server as an image file. When image files are stored on a server, Gray testified, they include a resolution, which determines the pixel density of the image being stored. He contrasted this with the excerpt of the book as presented on the OBC section of the Oprah.com website, which he described as "actual text," and "different than an image."

Gray testified that the proper construction of the term resolution as used in claims 1 and 9 must reflect the fact that the term is used to refer to images stored on a server. He testified that in his view, the Microsoft Computer User's Dictionary correctly defines resolution when it states: "the resolution of a video display is taken as the total number of pixels displayed horizontally and vertically." Gray concluded that the correct construction of resolution as used in claims 1 and 9 is "pixel density."

In its briefs on claim construction, ICR submitted the affidavit of an expert, J. Carl Cooper. Cooper expressed his opinion that resolution is "sharpness . . . to the eye of the viewer." Pl.'s Resp. to Def.'s LR 56.1 Stat. (docket no. 98), Ex. 2 at 6. Gray testified that he believed that definition did not fit with the context of the '252 patent because "the claims talk about resolution being stored with the image," and the reference to the human eye's perception doesn't ":[map] back to something that is stored with the image on a server."

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Discussion

Claim construction is a question of law requiring the Court to determine the meaning and scope of the patent claims alleged to be infringed. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 970-71 (Fed. Cir. 1995). A court construing a patent should give the words of a claim their ordinary and customary meaning, which is the meaning that the term would have to a person of ordinary skill in the relevant field at the time of the invention. Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005). In determining the meaning of a disputed claim term, a court looks to "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." Id. (citing Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

Before considering any extrinsic evidence to construe a claim, a court should first examine the intrinsic evidence. This includes the context in which the term is used in the asserted claim; differences among the claims; the written description contained in the patent specification; and, if it is in evidence, the patent's prosecution history. Id. at 1314-17. The intrinsic record "usually provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the [relevant field] at the time of the invention." V-Formation, Inc. v. Bennetton Grp. SpA, 401 F.3d 1307, 1310 (Fed. Cir. 2005).

Though a court's task is to establish a term's meaning to a person of ordinary skill in the relevant field, the scope of inquiry is not unfettered: it must do so "in the context of the written description and the prosecution history," Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed. Cir. 2005).

The specification of the '252 patent provides helpful context. In the description of a preferred embodiment, the specification states: "[t]he final image can also be graduated. It can include lower resolution portions which show the ornamental portions of the object, and higher-resolution portions which show the readable portions of the object. In one embodiment, the higher-resolution portions are formed from ASCII text." '252 Patent, col. 2:46-52. The '252 patent also describes an embodiment that consists of different "zones" of pictures for different portions of a product being displaced, with "a highly compressed JPEG image portion for the ornamental part, a less compressed JPEG portion for more important parts, and finer resolution parts. The fine resolution part can be ASCII or rich text format type textual information." Id., cols. 2:67-67 & 3:1-3.

ASCII is a text format, not an image. In response to questions at the evidentiary hearing, Gray testified that ASCII text is not expressed or described in pixels. Because the specification of the '252 patent includes ASCII text as an example of high or fine resolution, the construction of resolution as used in the patent claims must be broad enough to include ASCII text as well as images. It would be erroneous to construe resolution in a way that excludes an embodiment described in the specification. See, e.g., Medrad, 401 F.3d at 1319.

In short, as it is used in the '252 patent, resolution is not a concept limited to images. The Court therefore rejects Harpo's contention that resolution is a term that applies only the pixel density with which images are stored on a server.

Pixel density certainly plays a role in resolution. Both parties' experts noted that the term resolution is often applied to monitors and video displays. Monitors that display web pages do so in pixels, and the term resolution in the context of video display is, in fact, measured in pixel density. This is consistent with the Microsoft Computer User's Dictionary definition cited by Harpo, which states that "the resolution of a video display is taken as the total number of pixels displayed horizontally and vertically." Def.'s Mem. on Claim Constr., Ex. E. (emphasis added). The parties agree that resolution on a video display is measured in pixels, and the Court sees no reason to find otherwise.

As used in the '252 patent, however, the word resolution is used in the context of images or representations that are displayed, not the monitor or video screen that displays that image. Harpo's proposed construction, "pixel density," does not fully capture the concept of resolution as it is used in the '252 patent, for the reasons the Court has described.

The Court also rejects Harpo's argument that the term resolution applies only to images (in image formats such as JPEG) as they are stored on a server. The '252 patent specification makes it clear that text, including ASCII text, can be one "fine resolution" way to display readable parts of a product's packaging. '252 Patent, col. 4:1-2. The Court is persuaded, based on the intrinsic evidence, that resolution as used in the '252 patent must be defined by reference to sharpness or clarity to the
viewer rather than by reference to pixel density. To the extent that Gray's affidavit and hearing testimony are to the contrary, the Court rejects them because they fail to fully take account of context, including the specification's description of preferred embodiments.

Harpo also objects to ICR's proposed construction, "sharpness to the eye," on the ground that eyesight varies, and thus what one can perceive differs from person to person. The Court accepts this point. That does not mean, however, that ICR's construction should be rejected out of hand. The Court concludes that the proper construction of the term resolution, as it is used in the claims at issue, is "sharpness or clarity to a person with normal vision." The term graded resolution is thus properly construed as "variations in sharpness or clarity as perceived by a person with normal vision." This, the Court finds, is how a person with ordinary skill in the field would read the terms in light of the context in which they are used and in light of the specification.

Resolution means "the fineness of an image, as measured by the number of image elements or pixels making up the image."

Cytyc contends that "resolution" means "pixel spacing," whereas TriPath argues that this meaning is too restrictive, and the term should be construed as "the act, process, or capability of rendering distinguishable the individual parts of an object or closely adjacent optical images whether it be by magnification or pixel spacing."

At first glance, the answer appears to be straightforward. If the claims use "image", "displaying", and "visual display" in a computer science sense, then "resolution" must be construed as "pixel spacing." Indeed, Cytyc urged and TriPath appeared to concede this line of reasoning in Markman hearings held on September 6-8, 2005. However, a close reading of claim 2 and the written description leads to the conclusion that "resolution" refers to the magnification setting of the automated microscope, not pixel spacing.

Claim 2 provides: "The method of claim 1 wherein such first image is of a lower resolution than such second image." Patent at col. 14, 11. 57-58. The question is whether the "first image" in claim 2 is "of a lower resolution than the second image" because of the magnification setting of the microscope on which the specimen slide is placed or because of the microns per pixel of the digital image captured by the camera and analyzed by the processing system.

Focusing on the claim language, claim 2 reads "wherein such first image is of a lower resolution" (emphasis added). "Of" indicates that the "resolution" refers to the object of the image, not the image itself. Had the patentee chosen a different preposition, such as "at" or "in", then "resolution" would relate to the pixel spacing of the image.

The specification comports with this reading. When describing the image created by the scan, the terms "low resolution" and "high resolution" refer to the magnification setting of the microscope:

The first scan [by the microscope] of the slide is performed at a relatively low magnification, for example 50 power, and is called the low resolution scan. The second scan is performed at a higher magnification, for example 200 power, and is called the high resolution scan. The third scan is referred to as the high resolution rescan and is also performed at a high magnification.

Id. at col. 3, 11. 58-65. See also id. col. 7 11. 1-3 ("During the low resolution scan the objective of the microscope is set, for example, at its 50 magnification power").

The specification uses "resolution" to refer to pixel spacing only when describing the digital image itself. See id. at col. 6, 11. 44-52; col. 7, 11. 49-59. The distinction is clear in the following passage:
Once digitized by the image processor, each analysis field will be represented by a 256 by 242 matrix or array of pixels which corresponds to a resolution of approximately two microns per pixel during a low resolution scan or a high resolution scan, or a 512 by 484 array of pixels corresponding to a one micron per pixel resolution during a high resolution rescan pass.

Id. at col. 6, 11. 44-51. The resolution of the image is the same -- two microns per pixel -- for both the low resolution and the high resolution scans. The resolution of the image changes to one micron per pixel for the high resolution rescan, but the "resolution" of the rescan remains at the same 200 power magnification. Id. at col. 3, 11. 61-65 and col. 14, 11. 13.

Claim 2 includes only the first and second images. As discussed earlier, these represent the low resolution scan and the high resolution scan. Since the specification in the above quoted passage indicates that the images of these scans may be of the same resolution, "resolution" as used in claim 2 must refer to magnification.

In sum, "resolution" is not "pixel spacing", but the magnification setting of a microscope.

F. Resolution Level

In construing "indication of a respective resolution level", the Defendants suggested that resolution level referred to "the amount of detail per unit area." In its Reply Brief, the Plaintiff argued that "the amount of detail" is not tied to a "unit area." However, in the Plaintiff's Memorandum in Support of Motion for Preliminary Injunction, the Plaintiff indicated that "the blocks with the highest resolution level have the most amount of detail per unit area. '189 Patent, col. 3, lns. 6-9." While not specifically addressed at the Markman hearing by either party, Defendants' construction appears appropriate.

Although, the specification anticipates that "the data streaming methods of the present invention may be used to convey large databases of data which are to be displayed graphically, such as in graphic displays of stock values, " (col. 16, 11. 20-24), as opposed to just three-dimensional views of the surfaces, Claims 1 and 12 specifically claim a "method of providing data blocks describing three-dimensional terrain" and an "apparatus for providing data blocks describing three-dimensional terrain." (col. 16, 11. 28-29; col. 18, 11. 12-13) Consequently, classifying data blocks describing three-dimensional terrain "according to the height from which they view the terrain and, therefore, the level of detail which they include," (col. 8, 11. 62-64), requires that the concept of resolution levels include a per unit area dimension. The specification affirms this meaning by stating plainly that "the blocks at lower resolution levels include less detail per unit area, while the blocks of higher resolution levels include more detail per unit area." (col. 3, 11. 6-9) I construe the term "resolution level" as the level of detail of the data per unit area, even though in the preferred embodiment "the resolution level is also dependent on the number of pixels in the image displayed on display. Preferably, the resolution levels are chosen so that an approximate 1:1 ratio is achieved between the number of displayed pixels and the number of data pixels." (col. 11, 11. 32-37) (emphasis supplied)

Construction: (resolution level) the level of detail of the data per unit area.

4. Term 5('645 Patent, Claim 1)

Term: ... the alphanumeric string is resolved without reference to a filename for the given object ...

Court's Construction: ... the alphanumeric string is translated into an IP address without reference to the name of the object ...

The parties do not appear to disagree on the explicit limitation in this term requiring resolution of the string without regard
to the object name. Limelight, however, argues that the term should be further limited to require the name resolution to resolve to the "Internet Protocol address of the optimal content server." (See Docket # 71, 26.) Reading the contested term in light of the rest of the claim demonstrates that the claim itself provides explicit limitations on string resolution. Claim 1 requires that the IP address returned by the contested term be associated with one of the content servers associated with the "close" DNS server selected in the previous step, and also that the content server be selected according to a load-sharing algorithm. ('645 Patent, Claim 1.) The word "optimal" does not appear in the specification (or the claims) of the '645 Patent, and adding it as a limitation, where the claim step itself limits the result of the string resolution, would muddy, rather than clarify, an understanding of the claim step.

In the '776 patent, the last element of each of claims 1, 3, and 24 is construed to be a step or means that energizes, or turns on, a compressor in response to an increase capacity signal and deenergizes, or turns off, a compressor in response to a decrease capacity signal. The claims do not allow for energizing a compressor in response to a decrease capacity signal or deenergizing a compressor in response to an increase capacity signal.

In the specification, where "respective" is used many times, it also means "in the order given." See, e.g., Column 4, line 66 through Column 5, line 4. The prosecution history further supports this interpretation. See JX-776, Response, Bates Nos. 144-45, example showing that a compressor was energized only in response to an increase capacity signal and that a compressor was deenergized only in response to a decrease capacity signal.

The language in claim 1 is exemplary and states that the last step comprises "selectively energizing and deenergizing compressors in response to respective increase capacity signals and the decrease capacity signals." To understand why "compressors" and "signals" are plural, the Court examined other portions of the claims, the specification, and the prosecution history. The next to last element in each of claims 1, 3, and 24 indicates that a single increase capacity signal is generated when more compressor capacity is needed and that a single decrease capacity signal is generated when lesser compressor capacity is needed. The use of the plural "signals" in the last element of claims 1, 3, and 24 reflects a history of operation, i.e., a result of controller operation over a time interval. The Court accepts and adopts Dr. Rhine's testimony that a person of ordinary skill in the art would give this interpretation to the word "respective."

It is the independent control of each compressor of the present invention without regard to the energized or deenergized state of the other compressors in the system which makes the number of combinations of compressors available greater than the number of available compressors.
23 The specific languages is

providing an increase capacity signal when said operating suction pressure exceeds said upper limit and a decrease capacity signal when said operation suction pressure is below said lower limit.

Furthermore, this last element of claims 1, 3, and 24 of the '776 patent is construed to be a step or means for energizing or deenergizing a single compressor at a time and in such a manner that compressors are turned on and off in sequence until the appropriate compressor combination to meet the load demand is eventually achieved. Thus this last element of claims 1, 3, and 24 is not so broad as to cover the situation where a specific capacity signal is generated, the controller analyzes the signal, and in response turns on the specific combination of compressors that matches the load demand without cycling through a sequence of compressors.

The claim further needs interpretation in light of the collective limitations of the words and phrases, "selectively," "in respective response," and "to provide a greater combination of compressors." In combination with other limitations of "respectively" and "to provide a combination of compressors . . .," "selectively" means energizing or deenergizing compressors according to some particular logic or criteria. Thus the claim element takes on the construction indicated supra.

Support is found in the specification, Column 7, 11. 45-51, DX-119:

As described above, it will be evidence that controller circuit 10 will "cut-in" or "cut-out" the next compressor or compressor stage as above described until the combination of stages has an operating capacity closest to matching the system load, i.e., causing the system suction pressure to return to the previously established . . . range as hereinabove described and shown in FIG. 4 [emphasis added].

Similarly, the prosecution history also supports this construction. On page 30, Response, JX-776, Bates Nos. 146), the applicant was commenting upon the example provided on the prior pages which compared the operation of "the invention" to the prior art (in which the example clearly cycled through compressors until the correct capacity match was made) and explained

Successive reiterations of the FIFO strategy enables [sic] the present invention to more efficiently match the system load with the expanded set of compressor combinations available than previous systems, such as in Golber, having only a limited number of combinations available [emphasis added].

The Court accepts and adopts Dr. Rhyne's testimony that a person of ordinary skill in the art at the time would have understood and interpreted the use of "selectively" and "respective" in the claims in the '776 patent as limited with respect to choosing the optimal combination without the cycling through individual compressors until the proper combination for the needed capacity was achieved.

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(ii) . . . a plurality of data storage units each having a mechanically driven medium, said media of said different storage units being driven independently of each other, said data storage units storing data words with each data storage unit storing in parallel a respective one of said multi-bit data portions for each data word each data storage unit including an arrangement for writing data portions onto its respective storage media . . .

This limitation deals with "data striping," which is the salient storage feature of the '979 patent. Data striping refers to a process of storing portions of a single unit of data (in this case, the previously defined "data word") in multiple memory units. Striped data is literally spread out over several different storage media, so that all those media must be accessed in order to obtain the entire data unit. To offer a simple example: if the word "cat" were split into its three component parts, and each part were stored in a different memory unit, the word would be striped. This particular limitation calls for striping data so that each data storage unit in the system stores in parallel one multi-bit data portion of each data word. Thus, as noted above, the patent claim contemplates that there will be an equivalent number of data storage units and multi-bit data portions within a data word.
The units in this limitation are specifically referred to as "data storage units." IBM argues, as it did in connection with the '342 patent, that, to fall within the patent, these storage units may store only data and may not contain error correction code. As was true with the '342 patent, TM disagrees.

I find that I must reach a different conclusion with the '979 patent than I did with the '342 patent on this particular point, because there are two significant differences between the two sets of claims. First and foremost, the plain language of the '979 claim is not the same as the language of the '342 claim. The '979 language identifies two types of storage units: "data storage units" (this limitation) and "correction bit storage units" (the next limitation). Second, confirming that the inventor intended the plain meaning of the words he used in drafting the claim, there are no fewer than five prior art distinctions in the patent on the ground that the disks in the '979 invention are dedicated either to data or to memory, while the disks in prior art were not so dedicated. To take one example, in a Preliminary Amendment following the rejection of its original claims, the patentee distinguished a prior art reference in an article by Professors Haran Boral and David J. DeWitt, entitled Database Machines: An Idea Whose Time Has Passed? (A 725), by noting that the article did "not suggest providing a separate error correction storage device . . ." (A 670.) In another submission, TM advised the Patent Examiner that "One general feature of applicants' invention (recited in claim 1) is in storing a data word on one mechanically driven medium (i.e., a disk drive) and storing one or more error correction bits for the data word independently on a medium that is mechanically driven independently from the medium on which the data word is stored (e.g., on a separate disk drive) . . ." (emphasis added). (A 440.)

Finally, the parties disagree about the meaning of the term "storing in parallel" as used in this particular limitation. IBM contends that a necessary construction of the patent is that none of the data storage units can operate independently of the others; they must all be accessed simultaneously (synchronously), in a single operation, in order to store the data word. In support of its argument, IBM points out that, at column five, lines 24-28 of the patent, the inventor writes, "The storage and retrieval of data via all of the SCSI buses to the controllers occurs synchronously in parallel. That is, from the point of view of the bus adaptor, related data is passed in a single operation over all of the SCSI buses at the same time."

TM argues that the phrase "storing in parallel" should be read literally, as applying only to storage, which TM concedes must be across multiple storage media. It urges that this phrase neither literally says nor fairly implies anything about how data are retrieved and contends that data may be accessed asynchronously as well as synchronously within the literal terms of the patent. TM also points out that Thinking Machines's response to the Patent Examiner that "One general feature of applicants' invention (recited in claim 1) is in storing a data word on one mechanically driven medium (i.e., a disk drive) and storing one or more error correction bits for the data word independently on a medium that is mechanically driven independently from the medium on which the data word is stored (e.g., on a separate disk drive) . . ." (emphasis added). (A 608.)

The phrase "storing in parallel" is discussed extensively in the file history, primarily by way of differentiating the '979 patent from other inventions of the time. It appears that the Examiner allowed the claims as proposed because of the addition of the words "in parallel" to the claim in question. Construction of this term, then, would appear to be key to this invention. I find it to be the most difficult question of all those presented to me, precisely because the file wrapper contains references that can be read to support either point of view.

The Court's expert, Professor Lipovski, has written a letter that affords valuable assistance in this regard. Professor Lipovski notes that the SCSI protocol -- which is described in the patent (and therefore constitutes intrinsic evidence), and which all parties agree is pertinent to the reading and writing of data under this patent -- does not have a command to synchronize multiple disks so as to read or write data in parallel (i.e., at exactly the same time). It does, however, have commands that can be sent to multiple disks so that data can be sent to or from the disks on which they are stored using a common clock (i.e., synchronously). This suggests that IBM's construction -- which relies upon the phrase "from the point of view of the bus adapter, related data (i.e., a data word) is passed in a single operation over all of the SCSI buses at the same time" (the SCSI buses are the connections between the adapter and the disk drive units) -- is correct. Moreover, because the SCSI protocol as contained in the patent lacks a command to synchronize multiple disks for reading and writing data in parallel, IBM's construction is not inconsistent with the prior art reference to the Boral article, which distinguished the '979 application as permitting asynchronous data transfer.

Thus, this second limitation will be described to the jury in the following terms:

Second, in the '979 patent, the data portions have to be "striped" in order to be stored. Now just what is "data striping"?
Well, when you stripe data, you split it up so that sub-portions of the basic unit of data are stored in different storage units. To take a very simple example, if we think of the word "cat" as a data word, we would stripe that data word by taking it apart and placing one letter on each of three different disk drives. In order to figure out what the data word said, we would then have to read all three disk drives. By contrast, if you did not stripe the data, you would store all three letters of the word "cat" on the same disk drive.

So in this '979 patent, we have two or more data storage units, each one mechanically driven independently of the others, and each one of those data storage units stores one of those multi-bit portions of our data word. The multi-bit portions of the data word are thus said to be stored "in parallel." For this purpose, the data storage units have to have some way to write the data portions onto their storage media.

The patent claim specifies that each data storage unit stores "a respective one" multi-bit word portion. "A respective one" means exactly one, no more and no less. That means there must be an equal number of data storage units and multi-bit word portions in a system covered by the '979 patent. And the system needs to have the ability to transfer all of these multi-bit word portions over the connections between the disk drives and the adapter -- the so-called SCSI buses -- at the same time.

A. Claim Construction of Element [c.3]

Patent infringement analysis is a two-step process. Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1454 (Fed. Cir. 1998). First, the Court must construe the claim--or in this case the particular limitation--at issue. The proper construction of the claim is a matter of law to be decided by the Court without reference to the allegedly infringing device. Markman v. Westview Instruments, 52 F.3d 967 (Fed. Cir. 1995) (en banc), aff'd 517 U.S. 370 (1996); Pall Corp. v. Hemasure Inc., 181 F.3d 1305, 1308 (Fed. Cir. 1999). "Ascertaining the meaning of the claims requires that they be viewed in the context of those sources available to the public that show what a person of skill in the art would have understood the disputed claim language to mean." MBO Labs., Inc. v. Becton, Dickson & Co., 474 F.3d 1323, 1329 (Fed. Cir. 2007) (internal quotation marks omitted).

When conducting this claim construction analysis, the Court may consider various sources. The starting point for the analysis is the claim language itself. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Other than the actual claim language,

[the most relevant source is the patent's specification, which is the single best guide to the meaning of the disputed term. Next in importance is the prosecution history, which is also part of the "intrinsic evidence" that directly reflects how the patentee has characterized the invention. Extrinsic evidence--testimony, dictionaries, learned treatises, or other material not part of the public record associated with the patent--may be helpful but is less significant than the intrinsic record in determining the legally operative meaning of claim language.]

MBO Labs., 474 F.3d at 1329 (internal quotation marks and citation omitted).

Here, the disputed question is whether the proper construction of element [c.3] requires a one-to-one relationship between vend selection switches and vend price establishing devices. Mars argues that it does. Coinco disagrees and argues that there is no requirement of a one-to-one association.

To resolve this question, the Court turns first to the claim language. Element [c.3] requires "a vend price establishing device associated respectively with each of the vend selection switches." The article "'a' normally refers to the singular." North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1575-76 (Fed. Cir. 1993). Accordingly, the claim language can be restated as "one vend price establishing device associated respectively with each of the vend selection switches." Mars argues that the word "respectively" in this sentence mandates the one-to-one relationship between vend price establishing devices and vend selection switches. Coinco disagrees. Coinco maintains that the following illustration depicts a situation wherein a vend price establishing device ("PD") is associated--but not "associated respectively"--with each vend selection switch ("SW"): 
Coinco asserts that the PDs and SWs are not "associated respectively" in the above example because there is overlap--i.e., some selection switches are associated with more than one vend price establishing device. Coinco contrasts this situation with the one depicted below:

[SEE ILLUSTRATION IN ORIGINAL]

Coinco maintains that in this latter illustration, a vend price establishing device is "associated respectively" with each of the vend selection switches, despite the lack of a one-to-one relationship, because each selection switch is associated with only one price establishing device.

Accordingly, the proper construction of claim limitation [c.3] depends on whether the word "respectively" in the limitation requires a one-to-one relationship between PDs and SWs (as Mars contends), or whether it permits multiple SWs to be associated with a single PD as long as no SW is associated with more than one PD (as Coinco contends).

As a general rule, all terms in a patent claim are given their "plain, ordinary and accustomed meaning," Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001), "unless the text of the patent makes clear that the word was used with a special meaning," Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1299 (Fed. Cir. 1999). An example, as provided below, illuminates the ordinary use and meaning of the word "respectively," and indicates that Mars' interpretation of the language as requiring a one-to-one relationship is more sensible.

Compare, for example, the following two sentences: (1) The cat and the dog belong to John and Jane, respectively. (2) The cat, the dog, and the fish belong to John and Jane, respectively. Sentence (1) represents a typical use of the word "respectively." The meaning of the sentence is clear and understandable--the cat belongs to John and the dog belongs to Jane. Sentence (2) by contrast is incoherent. Unlike in sentence (1), it is impossible to be certain which animal belongs to which person. The only difference between the two sentences is that there is a one-to-one relationship between animals and people in sentence (1), but not in sentence (2). The addition of a third animal in sentence (2) eliminates the one-to-one relationship, and renders the sentence effectively meaningless.

This indicates that the word "respectively" generally requires a one-to-one relationship between the words it modifies in order to remain meaningful. Translating this idea back to the context at hand, the word "respectively" in the claim limitation would require a one-to-one relationship between selection switches and vend price establishing devices. Accordingly, the Court finds that the plain language of the claim limitation supports Mars' construction of the claim as requiring such a one-to-one association.

Further support for this conclusion is found in the patent's specification, which, after the claim language itself, has been characterized by the Federal Circuit as the "most relevant source . . . [and the] single best guide to the meaning of the disputed claims." MBO Labs., 474 F.3d at 1329. Figure 1 is a "block diagram of the vending control circuit of the instant invention." '839 patent, col. 2, lines 22-23. The figure reflects a one-to-one relationship between vend price establishing devices and vend selection switches. Specifically, selection switch 74 is associated with price establishing device 96 via motor hold switch 158 and motor 78, and selection switch 90 is associated with price establishing device 136 via an unnumbered motor hold switch and motor 94. Id. at Fig. 1; see also id. at col. 4, lines 43-50; col. 5, lines 36-39. Nowhere in the figure are two or more selection switches associated with a single price establishing device. See id. at Fig. 1; see also Trial Trans. 39/27/19-29/9 (Kesner). This clearly bolsters the conclusion that the proper construction of limitation [c.3] requires a one-to-one relationship between vend price establishing devices and selection switches.

Moreover, the Court's task when construing a claim is to ascertain what a person of ordinary skill would have understood the claim language to mean. MBO Labs., 474 F.3d at 1329. Mars' expert witness, Mr. Kesner, testified that an engineer of ordinary skill would expect from the figure that if another selection switch were added, then another motor hold switch, motor, and vend price establishing device would be added as well, thus maintaining the one-to-one relationship reflected in figure 1. n2 Trial Trans. 39/29/9-19 (Kesner). Coinco offered no contrary evidence indicating that a person of ordinary skill would have understood the claim language any differently. Two of Coinco's witnesses did testify that additional selection switches could be added without having to add additional price establishing devices by creating a diode "or" connection to an existing price establishing device. See Trial Trans. 35/143/11-144/21 (Morley); 37/101/4-10 (Levasseur); see also Mars,
Inc. v. Coin Acceptors, Inc., Civ. Act. No. 90-49 (JCL), 2007 U.S. Dist. LEXIS 20094 (D.N.J. Mar. 21, 2007) (explaining "or" connections). However, the mere fact that one could modify the invention by attaching additional switches to existing price establishing devices does not indicate that such a configuration was covered by the '839 patent. Indeed, the Court sustained an objection by Mars to further questions on this topic for precisely this reason. See Trial Trans. 35/145/1-151/16. Nor does anything in the patent suggest that such a configuration was contemplated by the inventors. See Trial Trans. 39/29/30-31/11 (Kesner). Mr. Kesner testified that if such a configuration had been contemplated, one would expect to see certain features, such as diodes, in the figure 1 diagram of the vending control circuit.

n2 Although trial testimony is "extrinsic evidence," which is considered "less significant than the intrinsic record in determining the legally operative meaning of claim language," MBO Labs., 474 F.3d at 1329, the Court finds this testimony to be helpful--indeed critical--to illuminating and interpreting the meaning of the patent specification and how it would be understood by a person of ordinary skill.

Accordingly, the undisputed evidence indicates that the person of ordinary skill would understand figure 1 as requiring a one-to-one relationship between selection switches and vend price establishing devices. This, in conjunction with the Court's independent interpretation of figure 1 as well as the claim language, supports Mars' interpretation of claim limitation [c.3].

Mars also argues that aspects of the written description as well as "market factors" indicate that the '839 is limited to circuits having a one-to-one ratio of selection switches and vend price establishing devices. See Mars Post-Trial Br. at 14-18. The Court is not persuaded by these arguments. Nor, however, does the Court find that these factors weigh in favor of Coinco's broader interpretation of the patent claim. Notably, Coinco does not argue that these factors support its interpretation. Nor does Coinco point to any other evidence--intrinsic or extrinsic--that supports its position. Accordingly, the only relevant and informative sources of guidance (the claim language and the figure included in the patent specification) weigh in favor of Mars' claim construction position, which the Court accepts.

Alternatively, Coinco's arguments at most present a case of ambiguity in claim construction, and the Federal Circuit has stated that "where the claim is so ambiguous as to support two differing interpretations, and resort to other intrinsic and extrinsic evidence does not resolve the confusion, a court should adopt the narrower of the suggested interpretations." Quickie Mfg. Corp. v. Libman Co., 180 F. Supp. 2d 636, 645 (D.N.J. 2002); see also Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1581 (Fed. Cir 1996); Athletic Alternatives, Inc. v. Prince Manufacturing ("AAI"), 73 F.3d 1573, 1581 (Fed. Cir. 1996).

In the AAI case, AAI had patented a stringing arrangement for tennis rackets in which the strings were offset at distances which "varied between" a minimum and a maximum distance from the racket's central plane. AAI, 73 F.3d at 1577. Both parties agreed (1) that the phrase "varied between" unambiguously covered a stringing arrangement in which three or more offset distances were used and (2) that a stringing arrangement which employed only a single offset distance was anticipated by the prior art. Id. at 1577, 1575. The disputed question in the case was whether AAI's claim was sufficiently broad to cover a stringing arrangement which employed exactly two offset distances. The Federal Circuit examined the claim language as well as other intrinsic and extrinsic evidence, but ultimately concluded that the reach of the claim was ambiguous and that it was impossible to tell with reasonable certainty whether it covered a racket with only two offset distances. AAI, 73 F.3d at 1578-81. The Court then found, based on its understanding of the second paragraph of 35 U.S.C. § 112, that to the extent that a claim is ambiguous, a narrow reading which excludes the ambiguously covered subject matter must be adopted. AAI, 73 F.3d at 1581; see also Ethicon Endo-Surgery, 93 F.3d at 1581.

Applying this principle to the instant case, the Court finds that the narrow interpretation of the limitation proffered by Mars must be adopted. This conclusion is bolstered by the facts noted above, namely that both the claim language and figure 1 of the patent favor Mars' position and that Coinco does not point to any evidence demonstrating that its proffered interpretation should be accepted over any other. In sum, the Court finds that the proper construction of claim limitation [c.3] requires a one-to-one relationship between selection switches and vend price establishing devices.
12. "Responding . . ./invoking countermeasures": n12 Taking an action in response, including both passive and active responses.

<table>
<thead>
<tr>
<th>Term</th>
<th>VIA &amp; Intel's Proposal</th>
<th>CCCC's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;responding to the first indicating signal when said one of said first plurality of bus masters is reading data by placing the generated second address and SNOOP signal on the second bus&quot;</td>
<td>&quot;responding to the first indicating signal when one of the bus masters connected to the first bus has initiated a read transaction by placing the generated second address together with the SNOOP signal on the second bus.&quot;</td>
<td>&quot;Responding to the indicating signal when a bus master is reading data by placing an address and a SNOOP signal on the second bus.&quot;</td>
</tr>
</tbody>
</table>

Via separately asserts in its motion for summary judgment that because there is no "second indicating signal," the "first indicating signal" referenced in this disputed language, claim 1 is indefinite. The court does not find this argument persuasive. As set forth above, the patent specification does not refer to an indicating signal. "Indicating signal" appears twice in claim 1: "first mapping means . . . for asserting an indicating signal . . ." and "bus interface means . . . for responding to the first indicating signal." 369 patent at 13:16-19; 14:3-4. CCCC has presented evidence that a person of ordinary skill in the art would readily understand that the "first indicating signal" is in reference to the prior use of "indicating signal" in claim 1. Dubois Decl. (dkt. # 160) P 13. Via presents no evidence to the contrary.

Further, neither side's proposal provides any particularly helpful clarification to the claim language at issue. However, as CCCC's proposed construction eliminates any reference to the "first plurality of bus masters," the court feels it necessary to construe the use of "first" and "second" in this disputed claim language. Consistent with its discussion of "first" and "second" above in conjunction with the construction of "address space," the court construes "responding to the first indicating signal when said one of said first plurality of bus masters is reading data by placing the generated second address and SNOOP signal on the second bus" to mean "responding to the indicating signal from the first bus when one of the bus masters connected to the first bus is reading data by placing the generated second address and SNOOP signal on the second bus." 7

7 The court notes that elsewhere in claim 1 is recited "said second bus including means for conveying a SNOOP signal with an address appearing on the bus." 369 patent at 13:9-11 (emphasis added).
C. "In Response to Step B), Redisplaying All Data Fields Not Having An Item Selected Therefrom with Data Related Only to the At Least One Item Selected in Step B)"

This phrase appears in claim 1. Contois argues that the claim language is clear on its face, but seeks to add that the data fields without a selected item are "automatically" and "immediately" redisplayed. Otherwise, the proposed claim constructions do not differ significantly.

It is clear from the claim language that the redisplay of the data fields occurs in response to the action of selecting an item from one of the data fields, but the claim language does not support the further limitations of "automatically" and "immediately." In the specification, describing the preferred embodiment, the patentee does point out that displaying a data field after an item is selected is automatically accomplished. '868 Patent, col. 10:7-10. But if the claim language is broader than the written description of an embodiment, then the limitation of the embodiment will not be imported into the claim. Resonate, 338 F.3d at 1364-1365.

Moreover, Contois used the term "automatically" in other claims to indicate that an action was intended to occur automatically. See '868 Patent, col. 16:11-12 ("allowing the user to select media information and to automatically control" in claim 11); col. 16:44-45 ("automatically change the second data field" in claim 12); col. 16:55-56 ("automatically change the third data field" in claim 13). Had Contois intended to limit the redisplay in claim 1 to automatic redisplay, it would have expressly included the term.

The patent does not address the timing of the redisplay of data fields in response to the selection of an item, either in the claims or the written description. Contois has therefore not persuaded the Court to add "automatically" or "immediately" to the plain meaning of the words at issue.

The phrase is construed as "in response to the step b) selection, redisplaying all data fields not having a selected item with data related only to the selected item(s)."

a. "First Response Unit Means"

The first term presented by the parties to the Court for construction from the '984 patent is "first response unit means." The term in context reads "first response unit means for receiving calls in said '800' call mode." The plaintiffs argue that this term is not subject to means-plus-function analysis, despite the use of the word "means."

The Court concludes that "first response unit means" is not subject to means plus function analysis, despite the presumption to the contrary due to the word "means." The article presented by the plaintiffs, entitled "AT&T 2: Reaches Agreement with Rockwell" and dated August 26, 1986, discusses the use of audio response units in merging computer speech technology with automatic call distribution systems. (Ex. 362). The Court concludes that this article demonstrates that the term "audio response unit" or "ARU" was used by people in the art of computer telephony and would have connoted sufficient structure to those of ordinary skill in the art at the time. See Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996).

The parties also dispute the meaning of the term "800 call mode" which appears in the same limitation. The plaintiffs contend that this term encompasses "800," "888," and other "toll-free" calls. The defendants agree with this construction, but argue that the term encompasses any call in which the charges are reversed and the call is free to the caller, including foreign access calls and "collect" calls.

Column 1, line 66 through Column 2, line 2 of the '984 patent provides that "telephone calls may be accommodated without charge using '800' service or calling mode. Generally, the '800' calling mode accommodates free calls by callers in various areas to a particular station incurring the charges." The Court concludes that it is not proper to determine at the construction
stage whether "foreign access calls" and the like are specifically encompassed in the term "800 call mode." The Court agrees with the parties that the proper construction of "800 call mode" is: a toll-free call, i.e. a call in which the caller is not charged for the call, such as an "800" or "888" call and the like.

Z. "responsive to"

The disputed phrase "responsive to" of claims 5, 17, and 18 is found in the following context: "a request processor . . . for determining a proposed reservation time for a received reservation request responsive to information. . . ." (See col. 27, ll. 51-55; col. 31, ll. 1-4, 10-11.) n6 The Defendants argue that "responsive to" should be construed in this context and not in a vacuum. The Plaintiff, however, contends that "responsive to" should be construed to mean "based on." This construction is consistent with the ordinary meaning of the phrase and, thus, the Court adopts the Plaintiff's construction of "responsive to."

n6 The slight differences in claims 5, 17, and 18 with regard to the phrasing of the surrounding context do not affect the construction of "responsive to."

C. "Responsive to"

This term appears in Claims 2 and 4 as follows:

2. A method for storing and displaying intra-oral radiographs, comprising:

   generating and displaying intra-oral radiographs of dentition; generating and displaying a representation of an intra-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites;

   storing said intra-oral radiograph images responsive to selection of intra-oral radiological sites in said representation along with indicia of respective selected intra-oral radiological sites; and

   subsequently retrieving and displaying said intra-oral radiographs responsive to selection of respective intra-oral radiological sites in said representation.

4. A device for storing and displaying intra-oral radiographs, comprising:

   . . .

   a display;

   means for generating and displaying on said display a representation of an intral-oral radiograph holder including selectable intra-oral radiological sites arranged according to anatomical location of said sites;

   means, responsive to selection of said selectable sites, for displaying corresponding stored x-ray images.

Plaintiffs argue that "responsive to" should be construed as "in response to," while Defendants contend that the term needs no construction. Defendants' briefing repeatedly asserts primarily that there is no reason to replace the simple phrase "responsive to" with Plaintiffs' proposed language. In their response to Plaintiffs' Opening Claim Construction Brief and in
their presentation to the Court at the Markman hearing. Defendants also asserted that, as used in the 579 patent, "responsive to" is a phrase that modifies the term radiographs (radiographic images), whereas Plaintiffs propose that "responsive to" modifies the claimed acts of storing and displaying. Defendants argue that "the [radiographic] images are responsive to selection' of sites within the film holder representation." Defendants' Response to Plaintiffs' Opening Brief at 19.

Though the Court would generally conclude that this term is plain and requires no construction, the fact that Defendants offer a construction at odds with Plaintiffs' construction leads the Court to conclude that construction of the term is appropriate. The Court finds that a plain reading of the claim language indicates that "responsive to" means "in response to." The Court finds Defendants' construction to be nonsensical, as it does not understand how images can be responsive to selection as Defendants urge. Plaintiffs' construction is further supported by the use of the term in claim 4: "means, responsive to selection of said selectable sites, for displaying corresponding stored x-ray images." There is no term "images" in claim 4 as there is in claim 2, and in claim 4, "responsive to" clearly means "in response to." Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can illuminate the meaning of the same term in other claims. Phillips, 415 F.3d at 1314. Because "responsive to" in claim 4 means "in response to," it supports Plaintiffs' construction of the term in claim 2 as well. Plaintiffs' construction is further supported by the description of the invention in the specification, which makes clear that images are stored after selection, or in other words, in response to selection of the icon in the film holder representation, and that they are similarly retrieved and displayed after selection, or in other words, in response to selection, of positions in the representation.

Accordingly, the Court adopts Plaintiffs' construction of "responsive to" as "in response to."

3. "responsive to a potential of"

Claims 1, 4, 7, 10, 18 and 21 contain the phrase "responsive to a potential of." Toshiba contends that this simple term requires no construction. Jt Cl Const, Ex B at 12. Alternatively, Toshiba proposes that "responsive to a potential of" means "responding to a voltage of." Id. Hynix construes the phrase as "directly supplied with and reacting to the potential of." Id (emphasis added).

Hynix again seeks to import a limitation from the specification based on an exemplary embodiment. In particular, Hynix relies on Figure 13 to argue that the "gates of transistor Q7 are directly supplied with the potential on the bit lines (BL1, BL2, BL3)." Id at 16 (emphasis added). Hynix provides no other support for its proposed "directly" limitation. As noted previously, the court cannot import this limitation into a claim construction based on a preferred embodiment. See Teleflex, 299 F3d at 1326.

Because Hynix's construction is flawed and Hynix has not provided any reason why this seemingly simple term must be construed, the court declines to construe "responsive to a potential of."

5. Issuing a "command" "responsive to a predetermined event" means issuing a command in reply or reaction to the occurrence of one or more conditions chosen in advance. There is no requirement that the command or message be issued immediately following the condition, absent any intervening events, so long as it is issued in reaction to the condition. (See, e.g., '885 patent, col. 26, II. 32-35 (using term "after"))

VII. "CONSTRUCTION" OF CLAIM 33 OF THE '250 PATENT

Claim 33 of the '250 patent is a method claim. Limitation (c) 27 is a step that includes, "selectively adding a current to [a
signal] wherein the amount and/or polarity of said current is responsive to [another signal] . . . . There has been no prior claim construction as to this limitation, and Gennum contends the Court should engage in claim construction now. TLC argues that no claim construction per se is necessary, and that its meaning is clear from the language of the claim. In Gennum's view, TLC is treating this claim as if it contained the word "variable" prior to the term "current." Gennum argues that such a construction would be improper and urges the Court instead to construe the claim such that it would read on a method that adds a fixed amount of current.

For the same reasons that Gennum contends it would be improper to insert the word "variable" before current, it would be equally improper to add the phrase "fixed or variable," which, in essence, is the construction Gennum is advocating. The issue, however, is not one of claim construction. TLC is correct that the language of the claim is sufficiently clear as it stands, and that is the construction it will be given.

While Gennum has presented the issue as implicating claim construction, at heart, the question is only whether a method that adds only a fixed current is within the scope of that claim language, either for purposes of determining infringement or for evaluating whether the claim is valid in light of the prior art. As such, it would be improper to resolve that question as part of construing the claim.

A claim is construed in the light of the claim language, the other claims, the prior art, the prosecution history, and the specification, not in light of the accused device . . . [C]laims are not construed "to cover" or "not to cover" the accused device. That procedure would make infringement a matter of judicial whim. It is only after the claims have been construed without reference to the accused device that the claims, as so construed, are applied to the accused device to determine infringement.

SRI Intern. v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1118 (Fed. Cir.1985).

Although not phrased in such terms, Gennum's argument essentially is that the language of claim 31 "covers" a method that adds a fixed current. That argument can be evaluated, but not as a matter of "claim construction."

**TLC is correct that a method that adds a current in a fixed amount would not infringe this claim.** The feature of adding current in a "responsive" amount also provides a basis for distinguishing this claim from prior art in which only a fixed amount of current was added. This is not the result of construing the claim as if it contained the word "variable," but the simple consequence of the plain words of the claim. As TLC points out, limitation (c) first calls for "selectively adding" current. In other words, current is either added, or it is not. Then, however, the claim requires that any current added be in an "amount and/or polarity" that is "responsive" to a particular signal. If a current is added in an amount that is fixed, the amount is not "responsive" as required by the language of the claim.

Gennum argues that merely adding or not adding current, even in a fixed amount, satisfies the requirement that the current be "responsive." Gennum points out that the claim calls for the amount "and/or" polarity to be responsive and that polarity can only be one of two states (positive or negative). Gennum reasons that if polarity can be "responsive" when it can only be either positive or negative, then amount can be "responsive" if it is either off or on. 28 The flaw in this argument is that even though polarity can only be one of two states, there is a third possibility--if there is no current, there is no polarity. This third "state" of polarity exists when current is not added to the signal, and the "amount" of current added is "none." Once current is "selectively added" to the signal, however, that current must have a polarity that is either positive or negative and an amount other than zero. For that amount to be "responsive" it cannot be always the same, non-zero, value.

--- Footnotes ---

27 Unlike the unlabeled claim limitations in the '869 patent discussed above, the '250 patent labels the four steps of claim 33 as (a) through (d).

28 Gennum notes that some devices may use circuits that change between "low" and "high," rather than "off" and "on." That possibility, however, does not affect the analysis.
Put differently, by saying that a fixed amount of current is "responsive" because it can be either "on" or "off," Gennum has overlooked the fact that the claim only refers to an amount of current that has been selectively added--i.e. that is not "off." Again, the claim reads, "selectively adding a current . . . wherein the amount . . . of said current is responsive . . ." If current has not been added, it has no amount. Thus, TLC is correct to argue, as it does, that a method using an "on/off" circuit to add current would meet the "selectively adding" condition of this claim, but it would not meet the requirement of "wherein the amount . . . is responsive." 29

29 Despite its consistent advocacy that the limitation of claim 33 is met by circuitry that injects a fixed current amount, Gennum's Proposed Findings include a curious distinction in its descriptions of purportedly invalidating prior art references. In the case of three of the references, Gennum proposes a finding that the claim limitation is satisfied where the prior art device "sink[s] a small nearly constant current", "when required in response to the compared signal." Gennum's Proposed Findings at 51:17-19; 54:19-22; and 57:14-16. (Emphasis added). (In the case of a fourth prior art reference, the LM 1881, the circuit is simply described as satisfying the limitation by either injecting current or not. Gennum's Proposed Findings at 48:17-20.) In contrast, Gennum proposes that the Elantec prior art reference meets the claim limitation because "current is selectively added . . . in an amount responsive to the compared signal." Gennum's Proposed Findings at 59:11- 14 (emphasis added). However inadvertent it may have been, the fact that Gennum's proposed findings match the actual claim language when describing the one piece of allegedly prior art that injects a variable current but depart from the claim language when describing prior art circuits with fixed current, further supports the conclusions reached in this section.

Again, this conclusion does not mean that the claim has been "construed" as if it contained the word "variable." Rather, the claim, on its face, requires that when a current is added (i.e., when the current is on, not off), the amount of that current be "responsive" to another signal. 30 As a matter of infringement analysis, or in evaluation of prior art (rather than a matter of claim construction) it is apparent that a circuit that adds a fixed amount of current is not within the scope of this claim, because an unchanging amount of current cannot be said to be "responsive" to another signal. 31

30 While this conclusion appears from the plain language of the claim, it also is consistent with the specification. Gennum argues that the specification does not expressly refer to a variable current being added and that, to the contrary, the description found at column 7, line 55 to column 8, line 4 of the '250 patent, "is an 'on or off' description." Gennum Brief at 18:16-17. The drawings and text of the specification, however, disclose that "OPS" (sometimes mis-written in the specification as "OPS") is an operational amplifier in a closed loop, with an output that varies according to the voltage of the video signal at its negative input. See '250 patent, col. 7, lines 45-51; Figure 2. As part of its argument that this claim should be construed such that a circuit adding a fixed amount of current would be within the meaning of the claim, Gennum points to prosecution history that the word "responsive" was a replacement for earlier language calling for the current to be added in an amount "accurately corresponding" to another signal. In making the amendment, Cooper asserted to the Patent and Trademark Office ("PTO") that "responsive" was the "broader but better defined." It is unclear why Cooper believed the term was "better defined" as it does not appear to be defined anywhere in the patent or the prosecution history. It probably is "broader" in that "responsive" seems unlikely to require as precise a correlation between the amount of current added and the other signal as called for by the prior language. Nevertheless, the mere fact that "responsive" is broader than the prior language does not change the conclusion that a current fixed in amount cannot be considered "responsive."

Trans Texas first argues that the Board erred in construing the term "responsive to the rate of inflation" in the '461 patent and the related terms "as a function of a rate of inflation" and "based on a rate of inflation" in the '673 patent. Trans Texas has treated these terms as equivalent and focused on the "responsive to the rate of inflation" limitation, and we will do likewise.
Trans Texas primarily argues that the Board should have given preclusive effect to the district court's Markman order, which construed "responsive to the rate of inflation" to mean "directly responsive to a market indicator of prior actual inflation and is not meant to include the market's expectation of future inflation." Markman Order at 15. As discussed above, we assume, as Trans Texas argues, that the district court construed the term to require a "continuous, one-to-one correlation with the inflation rate." Appellant's Br. 20; see also Markman Order at 12.

Traditionally, issue preclusion, also known as collateral estoppel, applied only where the same parties to an earlier proceeding were involved in later litigation involving the same issue. See Restatement (Second) of Judgments § 27 (1982); Id. § 29 Reporter's Note. More modern decisions in some circumstances apply issue preclusion even where the parties to the subsequent suit are not the same. See Parklane Hosiery Co. v. Shore, 439 U.S. 322, 326-33, 99 S. Ct. 645, 58 L. Ed. 2d 552 (1979); Restatement (Second) Judgments § 29. The latter doctrine is known as non-mutual collateral estoppel, and it is this latter doctrine that Trans Texas relies on here.

Issue preclusion is not warranted in this case because the PTO was not a party to the earlier litigation. Our case law has identified four prerequisites to the application of issue preclusion: "(1) identity of the issues in a prior proceeding; (2) the issues were actually litigated; (3) the determination of the issues was necessary to the resulting judgment; and, (4) the party defending against preclusion had a full and fair opportunity to litigate the issues." Jet, Inc. v. Sewage Aeration Sys., 223 F.3d 1360, 1365-66 (Fed. Cir. 2000) (emphasis added).

The PTO as "the party against whom the earlier decision is asserted" thus must have been accorded "a 'full and fair opportunity' to litigate that issue in the earlier case." Allen v. McCurry, 449 U.S. 90, 95, 101 S. Ct. 411, 66 L. Ed. 2d 308 (1980); Freeman, 30 F.3d at 1467 (Fed. Cir. 1994). However, the PTO was not even a party to the earlier district court litigation and cannot be bound by its outcome. Trans Texas nevertheless argues that this requirement should somehow be excused because the PTO proceedings were ex parte. This argument simply makes no sense. The PTO is plainly a party to these appeal proceedings, and if it were not treated as a party, there would be no basis for even considering the application of issue preclusion in the first place.

We have never applied issue preclusion against a non-party to the first action. In fact, the Supreme Court has specifically held that "litigants . . . who never appeared in a prior action[] may not be collaterally estopped without litigating the issue. . . . Due process prohibits estopping them despite one or more existing adjudications of the identical issue which stand squarely against their position." Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found., 402 U.S. 313, 329, 91 S. Ct. 1434, 28 L. Ed. 2d 788 (1971); see also Parklane Hosiery, 439 U.S. at 327 n.7 ("It is a violation of due process for a judgment to be binding on a litigant who was not a party or a privy and therefore has never had an opportunity to be heard."); Restatement (Second) of Judgments § 29 Reporter's Note ("The proposition that a non-party cannot be bound by a judgment, unless he is represented by a party or has interests that are derivative from a party, is a rule of Constitutional law.").

Recognizing the general rule against collaterally estopping a non-party, Trans Texas asserts that it somehow represented the PTO's interests in the district court action. However, the "presumption that nonparties are not bound by a judgment" can only be rebutted in limited circumstances, such as when the non-party was in privity with a party, has interests that are derivative from a party, or "participate[d] in an active and controlling way" in the litigation. See 18A Charles Alan Wright, et al., Federal Practice & Procedure § 4449 (2d ed. 2002); Restatement (Second) of Judgments § 29 Reporter's Note. The PTO's interests were not represented in the earlier litigation even though Trans Texas there urged that the district court reject the construction that the district court adopted. Since the PTO was not a party to the district court litigation, issue preclusion does not apply.
Contrary to Trans Texas's argument, our decision in Freeman does not require the application of issue preclusion. In Freeman, we held that a patentee in a PTO proceeding was barred by issue preclusion from asserting a claim construction already rejected in a district court infringement action brought by the patentee against a third party. 30 F.3d at 1469. Nothing in Freeman suggests that issue preclusion could be applied against the PTO or another non-party to the infringement proceeding.

Footnotes

7 In light of our resolution of Trans Texas's issue preclusion argument, we have no need to decide whether non-mutual collateral estoppel against the government would be permissible at all in the circumstances of this case. See United States v. Mendoza, 464 U.S. 154, 104 S. Ct. 568, 78 L. Ed. 2d 379 (1984).

Footnotes

8 Trans Texas also points out that some of the deposit accounts in Mukherjee had features requiring: (1) that a threshold value be exceeded before any inflation-adjustment was made; (2) a proportional adjustment (i.e., every one point inflation increase leads to a one-half percent inflation-adjustment). Trans Texas argues that these accounts were not "directly responsive" to the rate of inflation. This is beside the point given the disclosures described in the text above with respect to other accounts that did not include such limiting features.

Footnotes

Trans Texas's argument is not persuasive. Claims are given "their broadest reasonable interpretation, consistent with the specification, in reexamination proceedings." In re Yamamoto, 740 F.2d 1569, 1571 (Fed. Cir. 1984). The term "responsive to the rate of inflation" is defined in the specification as "mean[ing] directly responsive to a market indicator of prior actual inflation and it is not meant to include the market's expectation of future inflation." '461 patent col.3 ll.11-14. As the Board noted, the specification's definition only requires that the inflation adjustment be "directly responsive" to a market indicator of inflation. There is nothing in the specification or the prosecution history that requires an immediate inflation-adjustment every time the rate of inflation increases. Trans Texas argues that immediate responsiveness is the only construction consistent with the specification because "each of the examples in the '461 specification . . . [is] adjusted on a one-for-one basis." Appellant's Br. 19. Even if the examples are so limited (which the PTO disputes), Trans Texas's argument conflicts with our decision in Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc). In Phillips, we held that while "the specification [should be used] to interpret the meaning of a claim," courts must not "import[] limitations from the specification into the claim." Id. at 1323. We specifically noted that it is improper to "confin[e] the claims to th[e] embodiments" found in the specification, as Trans Texas asks us to do. Id.

Under Phillips, dictionary definitions are also pertinent. See id. at 1318 ("[T]he court has observed that dictionaries . . . can be useful in claim construction."). The dictionary definition of "directly" confirms that the specification's requirement that the adjustment be "directly responsive" to a market indicator does not require that an inflation-adjustment occur immediately after any increase in the reported rate of inflation. While some definitions define "directly" as "simultaneously and exactly or equally" or "immediately," other definitions define it as "after a little: in a little while: shortly, presently."
Webster's Third New International Dictionary Unabridged 641 (2002). In view of the latter definitions, we conclude that the broadest reasonable interpretation of "directly responsive" is not limited to situations in which the inflation-adjustment occurs immediately after any increase in the reported rate of inflation, but also includes situations in which the inflation-adjustment occurs "a little while" after an increase in the reported rate, such as when the increase reaches one percent. The Board did not err in concluding that the broadest reasonable interpretation of the term "responsive to the rate of inflation" (and related terms) is not limited to a continuous, one-to-one relationship but also includes a delayed relationship, in which adjustments are made in one percent increments.

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10. "responsive to revision selection list"

Disputed Term the computer program accesses a revision selection list of revised publications and identifies maintenance required by the publications, the computer program being responsive to the revision selection list for updating the compliance record for the identified profile to include maintenance required based on revisions to the publications.

Plaintiff's Construction reacting to changes in a selection list

Defendant's Construction automatically updating based on revisions to the publications

The focus of the parties' final dispute with respect to Claim 9 relates to the effect of the revision selection list on the computer program. On the one hand, Plaintiff contends that the program reacts to changes in the list, while Defendant asserts that the program is automatically updated as a result of changes to the list. (Jt. Stmt. at 27.) In support of its proposed construction, Plaintiff relies on the Tdata decision which ruled that, "The language 'responsive to the revision selection list for updating maintenance required' means 'reacting to changes in a selection list for revising information related to required maintenance.'" Tdata, Slip. Op. at 20. However, the TData court provides no analysis to support its construction other than noting that "the clause refers back to the words 'revision selection list' set forth earlier in the same claim....” Id. Given its lack of any meaningful analysis, the Tdata court's construction is neither helpful nor instructive on this point.

In contrast, the Court finds that the Defendant's proposed construction accurately describes the interaction between the computer program and the revision selection list under the '806 Patent. The language set forth in Claim 9 clearly states that the computer program is used to access the revision selection list, which is a list of revised publications and the maintenance specifically required by those publications. Based on the information contained in the revision selection list, the program updates both the maintenance requirements and the compliance record for the particular equipment, which corresponds to profile being utilized by the user. Thus, the program is not merely "reacting to changes in the selection list," as suggested by Plaintiff. Rather, upon revision to a publication in the database, the program updates the maintenance requirements and compliance record.

Based on the above, the Court construes "responsive to the revision selection list" as "updating based on revisions to the publications."

5 Defendant did not provide support to include the limitation "automatically" updating.

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7. "restrict unit functions to authorized users" (Claim 2)

Defendants seek to construe "restrict unit functions to authorized users" as "the persistent unique hardware identification is
used to prevent unauthorized users from accessing, controlling, operating, or programming the unit." Keystone argues that defendants attempt to improperly narrow the claim limitation by proposing that "restricting unit functions" requires preventing users from "accessing, controlling, operating or programming" the unit. Plaintiff argues there is no support for this limiting definition in the intrinsic evidence. Keystone's proposed construction of the term instead is "prevent the unit from performing one or more actions for unauthorized users."

Defendants argue that the inventor has emphasized the importance of the theft deterrence feature, noting that the "entire system can only be accessed by authorized users," the authorization being based on the "persistent unique hardware identification" of the unit. Therefore, defendants argue both these aspects must be included in the claim construction. However, the claim itself recites that "the persistent unique hardware identification is used to restrict unit functions." It would be redundant to include the basis of the restriction in the construction of this term as well. The Court agrees with defendants that the inventor anticipated complete restriction of unauthorized access and not partially permitted access as claimed by the plaintiff. The Court therefore construes this term to mean "prevent the unit from operating for unauthorized users."

3754

3. "Image Data Resulting From A Number Of Previous Processing Operation[s] During The Stroke"

The fifth element of claim 64 recites that "each processing operation after an initial portion of the stroke comprises processing image data resulting from a number of previous processing operation[s] during the stroke." Adobe contends that the phrase "image data resulting from a number of previous processing operation[s] during the stroke" means image data that "is not the original image data that existed prior to the very first processing operation in the stroke." The court agrees. It is clear from the claim language itself that "image data resulting from a number of previous processing operation[s] during the stroke" simply cannot be image data that existed before the first processing operation. During the initial processing operation, the image data as it existed before the occurrence of that processing operation is modified. By definition, something that is modified does not exist in its original state.

Quantel objects to Adobe's proposed construction on the ground that Adobe's construction would appear to mean that "image data resulting from a number of previous processing operation[s] during the stroke" could not include any original data. The court holds only that "image data resulting from a number of previous processing operation[s] during the stroke" cannot be image data precisely as it existed before the initial processing operation because such data is modified during the processing operation. This construction does not exclude the possibility that some of the original image data may be part of the "image data resulting from a number of previous processing operation[s] during the stroke."

3755

The Court construes "resume signal" as a "signal used for the purpose of exiting a low-power state." Here again, the Court's construction is essentially Plaintiff's proposed construction except it substitutes the words "low-power state" where Plaintiff incorporates its construction of low-power state.

A. Parties' Construction Arguments

Plaintiff seeks a construction of "resume signal" as a "signal used for the purpose of exiting a [low-power state]." Plaintiff cites to the specification for support here. See '323 patent, 5:47-48 ("To return a unit that is in low power mode to full power operation, a resume signal is sent to the unit."); 5:60-62 ("Upon receipt of the resume signal, the receiving ADSL unit returns to the signal processing 111, transmitting 112, and receiving 113 circuitry to full power mode."). But Defendants argue in return that Plaintiff's construction is improper because it may allow a signal sent after the power up sequence has began to qualify as a resume signal. Therefore, Plaintiff's construction might be read improperly to cover any signal transferred between units during the power up sequence rather than the first signal sent over the loop that initiates the power up sequence.
Defendants seek a construction that reads a "signal that starts the process of restoring circuitry to an operational state." Defendants argue that the resume signal must "start[] the process" of activating the return to full power mode. As noted above, Defendants argue this is different than Plaintiff's construction which would allow a signal sent after the power up sequence begins to also qualify as a resume signal. Defendants also state its construction is supported by the specification. See '323 patent, claims 7 & 16 ("detect a resume signal . . . and then initiate the power up sequence for the first circuitry" and "detect a resume signal . . . and then to initiate the power up sequence for the first circuitry") (emphasis added).

B. Analysis

The Court disagrees with Defendants that the resume signal "starts the process" of restoring the circuitry to an operational state. The specification makes clear that in fact the "start-up signal" starts the process and not the "resume signal." See '323 patent, 6:19-22 ("To return the loop 220 to an active state, a start-up signal is sent to the CPE (step 301) . . . . The CPE ADSL unit then transmits a 16 kHz resume signal . . . .") (emphasis added); '323 patent, Figure 3 (illustrating that the "start-up signal" comes before the "resume signal" on the flow chart showing how full power mode is resumed). Further, the Court disagrees with Defendants' construction where it uses the language "operational state" because it implies there is a non-operational state for the circuitry. As the Court stated above when construing "low-power state," the specification never requires or mentions the circuitry being in a non-operational state. To the contrary, the specification inserts the qualifying word "fully" when discussing "reaching a fully operational state," which implies there may be some middle ground between operational and non-operational. '323 patent, 6:1-2.

The Court primarily agrees with Plaintiff's proposed construction of "resume signal." The Court is unconvinced of Defendants' argument that this construction is improper because it may allow a signal sent after the power up sequence has begun to qualify as a resume signal. In fact, as discussed above, since the power up sequence begins with the start-up signal, the resume signal by definition may be a signal sent after the power up sequence has begun. The specification supports the Court's construction. See '323 patent, 6:30-33 ("If the COT unit is in a low power state, it will return to full power operation upon detection of the resume signal from the CPE unit . . . ."). Therefore, the Court construes "resume signal" as a "signal used for the purpose of exiting a low-power state."

4. Reticle Image or Pattern

The final disputed claim term is "reticle image" or "reticle pattern," which appears in claims 1-14, 17-19, and 22 either expressly or by reference. As used in the '908 Patent, the term "reticle image" or "reticle pattern" means one of a series of lines, dots or crosshairs, capable of serving as a reference for centering or otherwise adjusting an optical element in a telescope.

The parties' dispute over this term concerned Glatter's assertion that the reticle image was required to be "axially symmetric." (Def.'s Opp. Br. at 3.) It was initially unclear what Glatter meant by "axially symmetric," whether he meant symmetric about one axis or two, and if it were two whether those reference axes had to be at right angles to one another. It appears that Glatter meant the last possibility, the sort of two-dimensional crosshair images that appear in Figures 6-8 and 12-15: two lines lying at right angles to one another, or a shape that is symmetric about each of those lines. (Markman Tr. at 35:10-14.) Such images, especially when they contain spaced gradations, function well as a reference tool for (1) determining the center of an optical element, (2) determining whether an optical element's angular orientation is perpendicular with the laser beam's path, and (3) measuring the difference made by a particular adjustment. However, there is an issue as to whether or not "reticle image," as used in the patent, is limited to such a specific image.

n8 Plaintiff called "axial symmetry" "line symmetry," which means having the quality of being equally distributed on either side of a single dividing line in two dimensions. (Markman Tr. 35:15-18.)
Looking first to the claims, claim 1(a) provides "a reticle image having one of a series of lines, dots, or crosshairs." '908 Patent at 6:31-32. Glatter's brief cites an online dictionary definition for "reticle" as "a network of fine lines, dots, cross hairs, or wires in the focal plane of the eyepiece of an optical instrument." (Def. Opp. Br. at 3)(citing http://www.hyperdictionary.com.) Glatter comments that in light of his definition of the word reticle, the phrase "reticle image having one of a series of lines, dots, or crosshairs" in claim 1 is redundant. (Id.) The Court agrees with Glatter's comment, which indicates that claim 1 contains the definition of "reticle image," as used in the patent. Therefore, the patent contains a clear definition of the term in claim 1, which contains no limitation of "axial symmetry."

Next, the term "axially symmetric" does not appear anywhere in the '908 Patent. However, figures 6-8 and 12-15 in the '908 Patent contain reticle images that happen to be "axially symmetric" by Glatter's definition. Additionally, the only references to specifically shaped reticle images are to images that happen to be axially symmetric. '908 Patent at 2:21-27, 3:13-6:27. Nonetheless, the figures and descriptions are limited to the preferred embodiment, and courts should "avoid the danger of reading limitations from the specification into the claim[s]." Phillips, 2005 U.S. App. LEXIS 13954, 2005 WL 1620331, at *15. There are examples of common geometric images, "composed of one of a series of lines, dots, or crosshairs" that are not "axially symmetric," according to Glatter's definition. n9 Therefore, the problem with imposing "axially symmetric" on the term "reticle image" is the danger that it unduly limits the scope of the patent by "confining the claims to [the preferred] embodiments." Id. There is nothing in the patent's specification that limits term "reticle image" to "axially symmetric" images.

n9 The most glaring example would be a triangular pattern or crosshair with three lines, equally spaced from one another in a two-dimensional plane, coming from a center point. Such an image would not be "axially symmetric" - having lines spaced at ninety degrees from one another, or shapes symmetric about such lines - but could serve the same function according to the patent. (The same would be true of any crosshair with an odd number of equally spaced lines stemming from its center.) Other examples of common patterns that are not "axially symmetric," or symmetric about any line, are those that only exhibit point symmetry - shapes wherein all of the components can be reflected through a center point and form the same image. These can include shapes that are not axially symmetric, like the letters "Z" and "S," and any geometric shape with a single diagonal line (that does not run along an axis of symmetry existing in the shape alone) passing through it, e.g., a rectangle with a diagonal passing from one corner to he opposite corner through its center.

Nonetheless, Glatter argues that a person of ordinary skill in the art would interpret the term "reticle image" to be limited to "axially symmetric" images. (Id. at 1-2.) It is clear that a person of ordinary skill in the art would be familiar with the term reticle. In fact, some definitions of the term reticle reference telescopes. The Oxford English Dictionary (2d ed. 1989), for example, defines "reticle" as "[a] set of parallel wires, threads, etc., with others intersecting them at right angles, or of lines similarly ruled upon a sheet of glass, placed in the object-glass of a telescope, in order to facilitate accurate observations." However, Webster’s Third New Int’l Dictionary 1938 (1986), similar to Glatter's proffered dictionary definition, supra, defines "reticle" as "a system of lines, dots, cross hairs or wires in the focus of the eyepiece of an optical instrument (as a gunsight, microscope, telescope, or transit) used typically for estimating speed or distance, for measuring or counting, or as a centering or aiming device." The issue is whether one of ordinary skill in the art would understand the term reticle to be limited to "axially symmetric" patterns or images. The above dictionary definitions of "reticle" differ on the issue, because one presents examples that are "axially symmetric," as Glatter uses the term, while the other is silent as to that limitation. Thus, there is no clear indication that one of ordinary skill in the art would presume that limitation. Since there is no limitation in the claims, no limitation in the specification, and no mention of axial symmetry in the patent or the dictionary definition, this Court will not impose that limitation on the term "reticle."

GO BACK

4. "retrieving"; "retrieve"; "retrieved"

<table>
<thead>
<tr>
<th>Disputed Claim Term or Phrase</th>
<th>Versata’s Proposed Construction</th>
<th>SAP’s Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;retrieving&quot;</td>
<td>&quot;retrieving&quot;</td>
<td>&quot;retrieved&quot;</td>
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<td>&quot;retrieved&quot;</td>
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- 4042 -
The issue regarding this term is whether it allows for multiple accesses, as SAP suggests, or one access, as Versata argues.

In support of its limitation, Versata points to portions of the specification that "consistently describes the use of an access to a data source in order to retrieve information." Pls.' Opening Brief at 14; see, e.g., '350 Patent, col. 19, ll. 7-22; Figs. 15A-C; col. 8, ll. 17-30. Furthermore, Versata cites to claim 20 of the '350 patent. Specifically, the cited portion states, "using a query to a data source." Finally, Versata cites one instance in which the patentee discusses a disadvantage of prior art--that being multiple database queries.

As argued by SAP, however, Versata's assertions are not persuasive. First, Versata overlooks the rule "that 'a' or 'an' can mean 'one or more.'" See Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008). Second, claim 20 is a dependent claim, and construing all the claims in such a limiting manner would not be consistent with the doctrine of claims differentiation. See Phillips, 415 F.3d at 1315. Finally, those portions of the specification cited by Versata in support of its limitation do not rise to the level required to find that the patentee disclaimed multiple accesses and/or expressly claimed only a single embodiment.

For these reasons, the court adopts SAP's construction.

### Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
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<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
</tbody>
</table>
"Relates . . . in a predetermined manner"  "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched"  "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal"  "locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means"  "a data processing device"

"Transmitting to a computer"  "sending by means of a signal path to a computer"

"Validation" and "Valid"  "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely"  "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"  "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means function"  "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means structure"  "a modem or a signal path"

"Selected from a group of ID information" (Claim 2)  "chosen from one of the following ID information"

--- Footnotes ---

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

--- End Footnotes ---

9. "Return Electrode."
As contrasted with an active electrode, the term "return electrode" means "an electrode having a larger area of contact than an active electrode, thus affording a lower current density." 4

4 The court notes that the area of contact in the present invention contacts the electrically conductive fluid. In the prior art, the area of contact contacted the body.

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construction of "revenue projection" which is more general: "a forecast of receipts of money."

For claim 8 of the '464 patent, Grantley proposes "software or any hardware programmed to calculate the total dollar value of orders for future advertising time for multiple stations. The 'system' does not include a human being attempting to perform the task or function manually." For the remainder of the claims, Grantley suggests that their meanings are self-evident from the words of the claims themselves, from the proposed construction of the term in claim 8 of the '464 patent, and from the construction of phrases like "billing system" and "means for generating a revenue projection." Clear Channel suggests that the phrases are indefinite or not capable of being construed.

Since the parties have withdrawn the phrase "means for displaying revenue projections" as a term to be construed, the real dispute between the parties is the meaning of revenue projection as it is used in each particular context. For example, claims 8 and 11 of the '464 patent cover a "system for generating [and displaying] revenue projections." 3 Claim 11 of the '824 patent and claims 12 and 18 of the '187 patent use the phrase "generate a revenue projection." Claim 13 of the '824 patent covers "determining projected future revenues."

Indefiniteness

Validity analysis is not a regular component of claim construction. The oft-cited maxim that "claim language should generally be construed to preserve validity, if possible," Tate Access Floor Inc. v. Interface Arch. Res. Inc., 279 F.3d 1357, 1367 (Fed. Cir. 2002)(emphasis in original), applies only in the case where the court concludes, after applying all the available canons of claim construction, that the term at issue is still ambiguous. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 911 (Fed. Cir. 2004).

In that situation, claims can be construed to preserve their validity "where the proposed claim construction is 'practicable,' is based on sound claim construction principles, and does not revise or ignore the explicit language of the claims." Generation II Orthotics, Inc. v. Medical Tech. Inc., 263 F.3d 1356, 1365 (Fed. Cir. 2001). As a general rule, however, claims need not be plain on their face in order to avoid condemnation for indefiniteness; rather, what [the court will ask] is that the claims be amendable to construction, however difficult that task may be…. [t]he test for indefiniteness does not depend on a potential infringer's ability to ascertain the nature of its own accused product to determine infringement, but instead on whether the claim delineates to a skilled artisan the bounds of the invention.

Smithkline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1340-41 (Fed. Cir. 2005).

Here, there is little dispute between the parties as to the meaning of "revenue projection" as it is commonly understood. The court should only undertake a validity analysis if it finds the term ambiguous after employing the canons of claim construction. See Liebel-Flarsheim, 358 F.3d at 911. Such is not the case here. As noted supra, the specifications of the patents-in-suit incorporate by reference two publications by the inventor Mr Fox, which are described as exemplifying "sound economic principles and station management practices" that can be used to design demand curves. '691 patent, col. 8, ll. 42-56. 4

4 "This [designing demand curves] can be accomplished by close adherence to sound economic principles and station management practices such as those set forth in Pricing & Rate Forecasting Using Broadcast Yield Management, B. Shane Fox, published by the National Association of Broadcasters, 1992, and Broadcast Revenue Management: Pricing Inventory Management in Today's Broadcast Environment, B. Shane Fox, published by the National Association of Broadcasters, 1997, the contents of which are incorporated by reference herein."
These Fox references define, for example, what a yield management system does ("creates demand projections for each future broadcast day based upon the booking patterns of previous periods"), explains how broadcast companies develop pricing strategies, and describes the price forecasting process. See B. Shane Fox, Pricing & Rate Forecasting Using Broadcast Yield Management 1, 38-47, Chapter III (pp. 49-108) (National Association of Broadcasters, 1992). For example, the key to profitable pricing is to determine the level of cost which can profitably be incurred, "given the revenue that is expected to be earned from the number and type of advertisers." Id. at 31. In short, both publications provide a methodology for predicting or forecasting prices and revenues, taking into account inventory, pricing history, and demand.

The proposed construction of "revenue projection," then, is based on the specification and the references it incorporates, and explicitly takes into account the language of the claims. While the court is cognizant of Clear Channel's concerns, broad claims are not indefinite where, as here, they can be construed in a non-ambiguous manner. See, e.g., In re Gardner, 427 F.2d 786, 788, 57 C.C.P.A. 1207 (C.C.P.A. 1970)("Breadth is not indefiniteness.").

Prosecution Disclaimer

Clear Channel also argues that the patentee disavowed many of these common definitions of revenue projection during prosecution. Tr. at p. 41, ll. 9-13, p. 42, ll. 6- p. 44, l. 13. Specifically, Clear Channel points to applicant's statement distinguishing his invention over a prior art reference (U.S. Patent No. 5,615,106 to Eder, hereinafter "the Eder patent") on the basis that "means for generating revenue projection for some or all media stations based upon orders for advertising time segments recorded in the traffic billing system for each selected media station" refers to the "amount of money represented by actual orders placed for future advertising time for multiple stations." 6/17/04 Statement of Applicant, Pl. Cl. Const. Br., Ex. S, at 6 [Doc. # 56, p. 7 of 17]. According to Clear Channel, this means that revenue projection can only encompass the money deriving from selling future advertising time, and that the applicant disclaimed money deriving from accounts receivable (i.e., existing orders which have not yet been paid for).

In order to limit the scope of a claim, a prosecution disclaimer must be "both clear and unmistakable to one of ordinary skill in the art." Elbex Video, Ltd. v. Sensormatic Elec. Corp., 508 F.3d 1366, 2007 U.S. App. LEXIS 27399 at *11-12 (Fed. Cir. Nov. 28, 2007)(citing cases in which no clear disclaimer was present). The court does not think that such a clear disavowal occurred in this case. The applicant actually distinguished the prior art reference on the grounds that the forecast referred to by Eder was a "prediction, i.e., an attempt to extrapolate future sales and cash receipts based on past trends and history," rather than based on actual reservations, as the applicant's invention was. 6/17/04 Statement of Applicant, Pl. Cl. Const. Br., Ex. S, at 10 [Doc. # 56, p. 11 of 17]. So long as the order or reservation occurred and was for future advertising time at the time it was placed, it appears to have been contemplated by the applicant and included in his invention. The court will define this term as follows:

"Revenue Projection" means "a forecast of receipts of money"

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7. being subject to application of a reverse-bias voltage

Fairchild contends that this phrase "being subject to application of a reverse-bias voltage" means "experiencing a bias voltage applied to a semiconductor junction with polarity that permits little or no current to flow." (D.I. 156 at 13). Fairchild contends that the specification does not require the "top layer" or the "surface adjoining layer" to be connected to the ground.

Power Integrations contends that "reverse bias voltage" means "a voltage applied across a rectifying junction with a polarity that provides a high-resistance path." Power Integrations further contends that a proper construction of this phrase means that "the surface adjoining layer of material and the substrate recited in the claims are connected in some way to 'ground.'" (D.I. 152 at 34). Stated another way. Power Integrations contends that the top layer and the substrate are connected together, and thus grounded.
Reviewing the claim language in light of the specification of the '075 patent, the Court concludes that the term "reverse bias voltage" means "a voltage applied across a rectifying junction with a polarity that provides a high-resistance path." Indeed, it does not appear to the Court that the parties substantially dispute that this definition of the term is the more technically accurate definition. (D.I. 166 at 19; D.I. 152 at 34). Rather, the parties' disagreement centers on the issue of whether "reverse bias voltage" requires the surface adjoining layer of material and the substrate recited in the claim to be connected to the ground. The specification of the '075 patent clearly states that the "top layer is either connected to the substrate or left floating." '075 patent, col. 2, ll. 61-63. Accordingly, the Court concludes that the patent does not provide for a grounding limitation, and therefore, the Court concludes that "reverse bias voltage" means "a voltage applied across a rectifying junction with a polarity that provides a high-resistance path."

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"Reverses at Least One of the Magnetization Directions"

Plaintiffs suggest the term "reverses at least one of the magnetization directions" in claims 1 and 23 should be construed to mean "moving at least one of the magnetization directions towards a contrary direction or tendency." Defendants propose, "causes at least one of the magnetization directions to point in the opposite of its previous direction, resulting in a parallel or antiparallel alignment." Basically, the parties disagree as to whether the change in magnetization must be a full 180[degrees] rotation from its original position, or whether some lesser degree of rotation is sufficient. To resolve this ambiguity we must analyze the term within the context of the claims and the specification, reading both "with a view to ascertaining the invention." Astrazeneca AB v. Mutual Pharm. Co., Inc., 384 F.3d 1333, 1337 (Fed. Cir. 2004).

As always, we begin by looking at the claims themselves. Vitronics, 90 F.3d at 1582. Both claims 1 and 23 state: "… wherein applying a small magnitude of electromagnetic energy to the junction reverses at least one of the magnetization directions and causes a change in the resistance by at least 10% at room temperature." '922 patent at 8:50-54; 10:33-37. This claim language suggests that any reversal must be sufficient to "cause a change in the resistance by at least 10% at room temperature." As discussed above, the change in resistance is a function of the relative magnetization directions of the FM layers, with resistance increasing as the layers move toward an antiparallel alignment and decreasing as they move towards a parallel alignment. This emphasis on resistance change is consistent throughout the patent.

Claim 27, which is a dependent claim based on independent claim 23, explains how the invention can be put to use as a memory device: "[t]he memory device of claim 23, wherein the resistance of each junction indicates a binary state such that the change in resistance correspondingly changes the binary state, and such state can be maintained without the electromagnetic energy." Id. at 10:49-53. This claim suggests that the 10% change in resistance, not the orientation of magnetization directions, is the more important aspect of claims 1 and 23, because it is the change in resistance, and not the alignment of the magnetization directions, which translates into the binary data necessary for memory usage. The Background and Summary of the Invention sections only bolster this conclusion.

The Background states:

Scientists, for many years, have known in theory about the fundamental dynamics of the tunnel resistance arising from conduction electron spin polarization. However, the past efforts in this area have failed to produce an adequate level of change in the tunneling resistance ([Delta]R/R) for any practical and effective use of the phenomenon. Consequently, a need exists for an FM-I-FM trilayer junction construction in which the magnitude of the junction resistive change is at least 10%. Such a junction would then find practical use as a memory or sensor device.

Id. at 2:3-12 (emphasis added). This passage demonstrates that the key attribute of the present invention which differentiates it from the prior art is its ability to achieve at least a 10% change in resistance at room temperature, not its ability to achieve some particular alignment of magnetization directions.

The Summary of the Invention also describes the current invention as a solution to the inadequate resistance change in prior-art devices: "In the present invention, some of the problems leading to low values of resistance change ([Delta]R/R) … have been solved. Over a ten percent change in the tunneling resistance … has been observed in devices constructed in accordance with the invention." Id. at 2:44-49 (emphasis added). The Summary goes on to conclude that "the present
The invention provides a spin polarized electron tunneling device and method which overcomes the past ineffectiveness for application in nonvolatile memory or sensor elements.” Id. at 2:61-64. As in the Background section, the professed utility of the invention is its application in electronic data storage, and the essential attribute which permits such application is its ability to achieve at least a 10% change in resistance. Accordingly, when considering how a person of ordinary skill in the art would understand the term "reverses at least one of the magnetization directions,” we consider how that term contributes to this ultimate purpose.

The patent describes the invention as being designed to achieve at least 10% change in resistance at room temperature, thereby solving the problem of low resistance change which plagued the prior art. The application of electromagnetic force and resultant change in magnetization direction are simply steps in the process by which that resistance change is achieved. By applying electromagnetic energy in the right quantity, the magnetization direction of the FM layer with the lower coercive force begins to turn towards an opposing position. As this rotation occurs, the resistance of the junction changes. When the magnetization direction of one of the FM layers turns towards an antiparallel alignment the resistance increases, and as it turns towards a parallel alignment the resistance decreases. As Fig. 3A makes clear, this process is a continuous one wherein the degree of resistance and alignment of magnetization directions can be measured at varying points over time. A movement from parallel to antiparallel, or vice-versa, would correspond to the greatest possible change in resistance. However, nothing in the claims or the specification limits the invention to only those two alignments.

The specification describes a number of tests during which devices constructed in accordance with the invention were able to achieve resistance changes of 10% or higher. Id. at 5:32-37. These tests measured change in resistance between the parallel and antiparallel states. See id. Fig. 3A. Defendants argue that these examples demonstrate that the term "reverses" should be restricted to a change in magnetization direction which causes a full 180[degrees] rotation between completely parallel and antiparallel alignments. We disagree that the claims are so limited.

The tests described in the specification were conducted in order to demonstrate the maximum change in resistance that could be achieved with particular devices under particular conditions. Because resistance is highest at antiparallel and lowest at parallel, a researcher attempting to demonstrate the maximum resistance change for a particular device would necessarily use the parallel and antiparallel alignments as the ends of the resistance spectrum within which change would be measured. However, the claims in question do not specify a maximum change in resistance of 10%, but rather a change in resistance of at least 10%. The specification describes devices embodying the invention which were capable of achieving resistance changes of as high as 11.8%. Id. at 5:36-37. If a device achieves a change in resistance of greater than 10% when the magnetization direction is turned a full 180[degrees] from parallel to antiparallel (or vice versa), then that device will necessarily achieve "a change of resistance of at least 10%" before the full 180[degrees] rotation is complete, that is, when the magnetization direction is turned by less than 180[degrees].

In sum, by interpreting the word "reverses" within the context of the entire patent, we find that a person of ordinary skill in the art at the time of the invention would interpret the term "reverses at least one of the magnetization directions” to mean a turning or change of the magnetization direction of at least one of the electrodes or film layers, towards an opposing alignment, to such a degree as necessary to achieve at least a 10% change in resistance.

Defendants raise two objections to such a construction, neither of which is persuasive. First, defendants claim that such a construction runs contrary to the ordinary meaning of the word "reverse" and would allow the absurd result that a 1[degrees] rotation could be deemed a "reversal" so long as it achieves at least a 10% change in resistance. The problem with this argument is that there is no evidence that a 1[degrees] rotation or change is capable of causing a 10% change in resistance. To the contrary, the highest reported change in resistance using a device constructed according to the patent is 11.8%, and that was measured across a full 180[degrees] rotation. None of the examples described in the patent indicates that a change in resistance of at least 10% is possible with anywhere close to a 1[degrees] rotation of magnetization direction. See 'Id. Fig. 3A.

Second, Defendants argue that, by interpreting "reverses" to mean a change in direction which causes a 10% change in resistance, the word "reverses" is rendered superfluous. This is incorrect. The term "reverses" is necessary to explain the means by which the change in resistance is achieved.
9. "revision selection list"

Disputed Term The system of claim 8 wherein the technical database further comprises a cumulative index of revisions to publications and the computer program accesses a revision selection list of revised publications and identifies maintenance required by the publications, the computer program being responsive to the revision selection list for updating the compliance record for the identified profile to include maintenance required based on revisions to the publications.

Plaintiff's Construction a list of items having revisions, for example, revised publications, from which one or more items may be selected

Defendant's Construction a list of revised publications from which individual revised publications can be selected but excluding an up-to-date list

The first question presented regarding this term is whether the "list" (which is part of "revision selection list") referenced in Claim 9 is limited to "publications," as advocated by Defendant, or alternatively, whether the "list" refers more generally to "items" in the database that have been revised as claimed by Plaintiff. Neither party is entirely correct. The language of Claim 8 as well as the patent specification clearly state that the revision selection list refers to changes or updates to "publications." Claim 9 expressly provides that the system tracks any "revisions to publications" and allows the user to identify, perform and comply with any "maintenance required based on revisions to publications." ('806 Patent at 83:47-84:4 (emphasis added).) Thus, the Court construes "revision selection list" to mean a list of "revisions to publications" as proposed by Plaintiff--as opposed to either "a list of items having revisions" or "a list of revised publications," as advocated by Defendant.

With respect to the issue of what the user may select from this list of revisions to publications, Defendant argues that Claim 9 includes a limitation that the user cannot select revisions to publications from an "up-to-date list." (Jt. Stmt. at 26.) As support, Defendant relies on the description of the preferred embodiment, and in particular, the discussion concerning changes in maintenance and repair publications. (Id. (citing '806 Patent at 61:19-58).) However, there is no discussion of an "up-to-date list" in this section of the patent. But even if there were, the law is clear that a court should "not ordinarily rely on the preferred embodiments alone as representing the entire scope of the claimed invention." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1370 (Fed. Cir. 2002). Thus, the Court construes "revision selection list" to mean "a list of revised publications from which individual revisions to publications can be selected."

G. Revision Status

In Claim 1, the method calls for "storing and maintaining" a "main revision status" in the main computer's memory and a "remote revision status" in the remote computer's memory. '490 Patent, Col. 21, ll. 57-59, 63-66. Both of these terms' definitions are suggested in the claim itself as "indicating the revision level of the constant [remote] data stored in the main [remote] computer." Id. Because the revision status is "stored and maintained," or transmitted from one computer to the other, it must comprise information similar to the data files referred to elsewhere in the patent. Hill's proposed definition of revision status is "something that indicates the last time an item was revised." Compuserve proposes a definition containing more details:

"A main revision status" is a single current version level number or symbol and is capable of being associated with multiple files. When compared through remote revision status, it permits identification of all constant data files on the main computer necessary to achieve synchronization with the constant data on the remote computer.

Def's Brf. at 27. Its proposed definition for "remote revision status" is virtually the same with respect to the remote computer. Essentially, three elements have been added by Compuserve that the Court will address: 1) the notion of a "single
The next term is "ring oscillator." The plaintiffs contend that this term means "an oscillator having a multiple, odd number
of inversions arranged in a loop." The defendants propose "an [oscillator] having an odd number of inverting logic stages connected in a loop." The main dispute is whether a ring oscillator is required to have multiple inverters or whether it can have just one.

The plaintiffs argue that a single inverter would not be appropriate because it could not maintain an oscillating output. The defendants, on the other hand, rely on extrinsic evidence to support their proposed construction. Specifically, the defendants cite to a semiconductor textbook depicting a ring oscillator with only one inverter.

The plaintiffs have the better argument. The extrinsic evidence cited by the defendants also supports the plaintiffs' construction. It states that timers are built as "chains of inverters," not just one inverter. Defendants' Claim Construction Brief, Ex. U, MEAD & CONWAY, INTRODUCTION TO VLSI SYSTEMS (1980), at 234. Accordingly, the Court adopts the plaintiffs' proposed construction.

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7. Rise Time

Rise time is the time it takes a signal to rise to substantially its final steady value. Rise time as used in claim 1 of the '892 patent refers to the rise time of the clock pulse.

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A. The Pocrass '317 Patent

Claim 1 of the Pocrass '317 patent is set forth below. The parties dispute the meaning of the underlined language:

1. An RJ type modular connector for receiving a plug to form an electrical connection in data communication or telecommunication applications comprising:

   a housing formed by front, rear, top and bottom wall and having a plug receiving opening formed with the front wall thereof;

   at least one light emitting source integrally secured within said housing adjacent the plug receiving opening thereof to provide visual verification of the status of the electrical connection;

   a plurality of conductor wires, including conductor wires from said light emitting source, extending through one of said housing walls arranged in a predetermined spaced-apart array, adapted for insertion within a corresponding array of spaced holes in a printed circuit board.


1. Whether the claim is limited to "RJ type modular connectors"

The parties dispute whether the specification indicates that the invention is directed to RJ type modular connectors in particular or electrical connectors in general. While "RJ type modular connectors" are mentioned in the preamble, Maxconn asserts that the language does not function as a limitation, and that the claims themselves describe the particular connector of the invention. Conversely, Plaintiffs argue that the claim should be read as limited to RJ type modular connectors. 1

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1 An RJ modular connector is a specific type of electrical connector which receives a plug containing several conductor wires to form an electrical connection with each wire.
The determination of whether preamble recitations are structural limitations or mere statements of purpose or use "can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." Corning Glass Works v. Sumitomo Electric U.S.A., 868 F.2d 1251, 1257 (Fed. Cir. 1989). Where a patentee uses the claim preamble to recite structural limitations of his claimed invention, the PTO and courts give effect to that usage. See id. On the other hand, where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation. See Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed. Cir. 1995); Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152 (C.C.P.A. 1951). To determine whether the preamble provides a limitation to the invention claimed, the court should assess whether the claim preamble gives "life and meaning" to the claims. See Kropa, 187 F.2d at 152. The court may look to the patent specification to determine whether the claimed invention includes preamble recitations. See Bell Communications, 55 F.3d at 621; Vaupel Textilmaschinen KG v. Meccanica Euro Italia SPA, 944 F.2d 870, 880 (Fed. Cir. 1991); Corning Glass Works, 868 F.2d at 1257.

In the Pocrass '317 patent, the patentee uses the claim preamble to recite structural limitations of the claimed invention. The specification makes it clear that the invention of the '317 patent is limited to electrical connectors known as RJ type modular connectors. As background to the invention, the inventor repeatedly states that his invention relates to RJ connectors. Pocrass '317 patent, col. 1:12-25. The inventor also states that he has "invented an RJ connector with at least one LED integrated into the module," Pocrass '317 patent, col. 1:26-27, and that "it is the object of the present invention to provide an RJ connector including an LED formed integral therewith," Pocrass '317 patent, col. 1:45-47. In addition, in the prosecution history, the term RJ type connector was specifically relied upon in arguments to distinguish the claims over the prior art.

Accordingly, the claim should be construed such that "RJ type modular connectors" serves as a limitation to the claim. The Court adopts Plaintiffs' interpretation as follows: "a connector for receiving a plug to form an electrical connection of the type referred to as an RJ modular connector." At oral argument, Maxconn did not dispute this interpretation.

5. "Roaming terminal/device" ('311, Claim 14; '366, Claims 7, 24; '771, Claims 1, 2, 3)

At oral argument, Broadcom proposed the compromise construction of "roaming" as "designed to be able to be moved" (R. at 169 (May 6, 2004)), while Agere proposed "designed to move" (id. at 174). 33 Regarding Broadcom's construction, the Court agrees with Agere that there is some ambiguity in the phrase "able to be moved," which could theoretically refer to anything not carved in bedrock. The Court, however, does not find Agere's construction to be a viable alternative. Agere supports its position with the testimony of Dr. Goodman, who cites a portion of the specifications referring to "mobile portable transceiver units being moved about a warehouse." ('771 patent, col. 3, ll. 41-43 (emphasis added)). 34 The Court agrees that this phrase is instructive, although not in the manner Agere suggests. The two adjectives "mobile" and "portable" are both defined by Webster's dictionary as "capable of being moved." See WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1450, 1768 (1993) (defining mobile as "capable of moving or being moved" and portable as "capable of being carried[,] easily or conveniently transported"). The "being moved" language in the specification is not to the contrary, for when placed in context it refers to the fact that the "mobile portable transceiver units" "may be communicative with" their base stations while the former are "being moved." ('771 patent, col. 3, ll. 41-43.) In other words, the specifications describe devices that are capable of being moved while still remaining in contact with the network. Thus, the Court finds that the most appropriate construction of "roaming terminal/device" is "a terminal/device that is free from cable connections and designed to be able to be moved while receiving or transmitting signals."

33 To the extent that Agere has not abandoned its original construction of "roaming" as "moving" (R. at 165 (May 6, 2004)), the Court finds that this construction is unsupported by the claim language. The '771 patent teaches "roaming terminals" that receive transmissions from base stations. There is no doubt that these transmissions can occur even if the "roaming terminal" happens to be stationary at the time of transmission, as is often the case with, for example, laptop computers.
Agere's construction, however, would require the opposite--the transmissions could occur only when the terminals were moving, for otherwise the terminals would not be "roaming" at that time. This construction is therefore contrary to the functioning of the patent as a whole. The only extrinsic support Agere provides for its argument is a Webster's Dictionary definition of "to roam" as "to move." As discussed below, however, this definition supports construing the term to specify that transmissions may be received while the terminal is in motion, rather than that the terminal itself must be in motion while receiving transmissions. Agere's original proposed construction is therefore without evidentiary support and is accordingly rejected.

34 Although Agere disputes Broadcom's use of the '771 patent specifications to interpret the '311 and '366 patents in other contexts, the parties seem to agree that the customary meaning of the instant term is consistent throughout these patents. To the extent that Agere maintains its objection, the Court notes that its analysis of the "roaming" term is primarily dictionary-based and equally applicable to all three patents.

--- Footnotes ---


--- End Footnotes ---

The Court adopts the definition from the article cited by both parties. A "role" is "an intermediary designation that brings
Plaintiffs also ask the Court to construe the term "rolling spot." (R. 82, Pls.' Mem. at 22-23.) According to Plaintiffs, "rolling spot" was known in the financial art as a proprietary contract: the CME's Rolling Spot contracts. (R. 82, Pls.' Mem. at 22.) Thus, they contend that the '923 patent's use of the term "rolling spot" should be understood as referring to CME's trademarked Rolling Spot Currency contracts and construed accordingly. 20 (Id. at 23.) To construe the term "rolling spot," the Court must engage in a two-step inquiry to determine: (1) whether "rolling spot" as used in the claims refers to CME's Rolling Spot contracts; and (2) if "rolling spot" refers to CME's Rolling Spot contracts, how the term should be construed in light of that relationship. The Court addresses each question in turn.

Support for Plaintiffs' position with regard to the first question can be found in the intrinsic record. In the '584 provisional application, Garber notes that "Rolling Spot Currencies are contracts of the Chicago Mercantile" and that the CME "retain[ed] exclusive rights" to the use of the Rolling Spot name. (R. 82, Pls.' Mem., Ex. 6 at 13.)

In light of this relationship, the Court finds that a construction of the term "rolling spot" must be based on how a person of ordinary skill in the art at the time of the invention would have understood CME's Rolling Spot Currency contracts. As part of their arguments related to the proper construction of the term "rolling spot," Plaintiffs, relying upon Manual of Patent Examining Procedure ("MPEP") 2173.05, first contend that any claim containing the term "rolling spot" is indefinite because it uses a trademark as a claim limitation. (R. 82, Pls.' Mem. at 23.) Paying heed to the Federal Circuit's instruction that claims should be construed to sustain their validity, Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999), the Court finds it unnecessary to find that the claims containing the term "rolling spot" are invalid on indefiniteness grounds. Instead, the Court will construe the term "rolling spot" as a person of ordinary skill in the art at the time of the invention would have understood the term. Based on the conclusion that the term "rolling spot" refers to CME's Rolling Spot Currency contracts, the term will be construed in accordance with how CME's Rolling Spot Currency contracts were defined at the effective filing date of the patent application. 22
Such a definition can be found in chapter 35 of the CME Rulebook in effect at the effective filing date of the patent application.

5. root bus controller

Claim 1, as noted above, indicates that when the computer system of the patent comprises more than 2 bus controllers, one of the bus controllers is a "root bus controller" that connects the remaining bus controllers, which are in a binary tree configuration, to the host computer. Plaintiff construes this disputed term to mean "any bus controller that is the highest level bus controller in the tree or subtree," Pl. Br. at 21, thus incorporating its view that "binary tree computer system" includes a partitionable portion such as a "subtree." Pl. Reply at 21. 6 Defendant asserts that the term is best defined as "one bus controller at the highest order position of the binary tree computer system that connects the binary tree to the host computer and which has no parent bus controller." Def. Br. at 23; Def. Reply at 23. Both parties thus essentially agree that the root bus controller is the "highest order" bus controller in the system, and therefore has no parent bus controller. Claims 1 and 7 also clearly indicate that the root bus controller as the link between the binary tree of bus controllers and the host computer. Hence, the principal dispute is whether a bus controller of a portion of the system could be designated the root bus controller.

Since the Court has already construed "binary tree computer system" to not include a partitionable portion thereof, such as a subtree, plaintiff's arguments emphasizing that a binary tree can be divided into subtrees is unavailing, see Pl. Reply at 22-23, as there is no support in the patent for the idea that the parent node of a subtree could be designated a "root bus controller." That the root bus controller is located at the highest order of the binary tree computer system itself is unequivocally established by both Claims 1 and 7, which specify that there be "one" root bus controller. '024 Patent at 7:17; 8:18. The specification also repeatedly refers to "one" bus controller that connects the binary tree to the host computer. See id. at 1:52-53; 2:41-42; and 2:51-53.

Plaintiff cites Professor Stolfo’s testimony as extrinsic evidence that "every node can be a root." Pl. Reply at 24, Ex. L, at 190. Although the court may consider expert testimony in claim construction, see Phillips, 415 F.3d at 1318, here plaintiff seeks to take Professor Stolfo’s assertion that every node can be a root out of its original context of a discussion of a binary tree configuration and extrapolate from it support for the notion that any bus controller can also be a root bus controller. This contradicts the portion of the written record that the root bus controller links the binary tree to the host computer. '024 Patent at 7:18-19. Arbitrarily designating a particular bus controller to be a "root bus controller" would violate this requirement, and thus the Stolfo testimony, as applied in this context, must be discounted. See Phillips, 415 F.3d at 1318 ("[A] court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves'. . . ") (citation omitted).

Accordingly, the Court hereby reaffirms its construction of "root bus controller" as the bus controller at the highest order position of the binary tree computer system that connects the binary tree to the host computer and which has no parent bus controller.
13. Rotary Switches

The term "rotary switch" is identified in dependent Claim 4 as a permissible structure for the "user actuated switching means" identified in Claim 1. Because it is not defined, except generically by reference to a "conventional rotary selector switch," see Col. 3, ll. 11-12, it must be given its ordinary meaning to one skilled in the art and is not limited by the embodiment shown in the specification. Citec has referred the Court to the definition contained in the Encyclopedia of Electronics, 2nd Edition: "Rotary switches switch alternate circuits in a sequence dictated by a coaxial shaft with a rotary-detent action. A pointer knob selects the options." The Court construes "rotary switch" to mean a switch that alternates circuits in a sequence dictated by a coaxial shaft with a rotary-detent action, depending on the position of the pointer knob.

This court has repeatedly stated that while claims are to be construed in light of the specification, they are not necessarily limited by the specification. See Markman, 52 F.3d at 980. Claims terms are also to be interpreted so as to give the terms their ordinary meaning, absent some clear special definition. See Vitronics, 90 F.3d at 1582; Athletic Alternatives v. Prince Mfg., Inc., 73 F.3d 1573, 1578, 37 U.S.P.Q.2D (BNA) 1365, 1370 (Fed. Cir. 1996). "Generally, particular limitations or embodiments appearing in the specification will not be read into the claims." Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867, 228 U.S.P.Q. (BNA) 90, 93 (Fed. Cir. 1985); SRI Int'l, Inc. v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 n.14, 227 U.S.P.Q. (BNA) 577, 585 n.14 (Fed. Cir. 1985) (in banc) (merely because "a specification describes only one embodiment does not require that each claim be limited to that one embodiment"); Transmatic, Inc. v. Gulton Indus., Inc., 53 F.3d 1270, 1277, 35 U.S.P.Q.2D (BNA) 1035, 1040-41 (Fed. Cir. 1995) ("[A] patent claim is not necessarily limited to a preferred embodiment disclosed in the patent."). Enercon has shown no reason to depart from this well established rule.

Only in the preferred embodiment is the more specific "rotational transformation" procedure described as a method to rotate the waveform. The remainder of the specification uses the words "rotate" and "shift" interchangeably. As the ITC noted, NWP's chief technology officer also used the words "rotate" and "shift" interchangeably in describing the operation of the patented device. Even Enercon's own expert admitted that he had heard the terms used interchangeably.

We have also considered Enercon's extrinsic evidence purportedly demonstrating what the term "rotate" means to one of skill in the art and find it to be unhelpful at best and misleading at worst. Submitted as part of Enercon's claim construction argument, the Mohan, Ooi and Thorburg references make no mention of the disputed claim term. Not only does the text of the references not purport to aid in determining the meaning of the term "rotating," but the argument accompanying the citation of these references in Enercon's brief apparently attempts to show that several of the limitations of claim 131 can be found in the prior art. Because the validity of the '039 patent was not appealed to this court, these references may not be considered for that purpose.
As we have stated above, the specification clearly uses the terms "rotate" and "shift" interchangeably. In addition, all parties agreed that the phrase "rotating the reference waveform" indicates a shift in phase of the desired waveform. Because we see no evidence to indicate that the term "rotate" was intended to refer to the specialized method of performing a phase shift known as a "rotational transformation," we hold that the term "rotating" is to be given its ordinary meaning. We therefore hold that the ITC was correct in interpreting the term "rotating" to mean merely a phase shift in the desired waveform.

Enercon argues that the term "rotating" is limited to a special type of phase shift that is disclosed in the written description of the '039 patent. All parties agree that the process of "rotating" a waveform results in a phase shift of the waveform in a plot against time. However, Enercon argues that the term "rotating" in claim 131 refers not to the generic process of phase shifting a waveform, but to a specific process used to perform the rotation known as a "rotational transformation." Enercon relies primarily upon the specification of the '039 patent to support its interpretation. Enercon asserts that because the only method disclosed in the specification for performing a rotation is a rotational transformation which is described as part of the preferred embodiment at col. 17, ll. 29-45 of the '039 patent, the term "rotating" must be limited to this method of performing the rotation. Enercon finally points to other, extrinsic sources which also purport to describe a rotation as a "transformation."

This court has repeatedly stated that while claims are to be construed in light of the specification, they are not necessarily limited by the specification. See Markman, 52 F.3d at 980. Claims terms are also to be interpreted so as to give the terms their ordinary meaning, absent some clear special definition. See Vitronics, 90 F.3d at 1582; Athletic Alternatives v. Prince Mfg., Inc., 73 F.3d 1573, 1578, 37 U.S.P.Q.2D (BNA) 1365, 1370 (Fed. Cir. 1996). "Generally, particular limitations or embodiments appearing in the specification will not be read into the claims." Loctite Corp. v. Ultrasense Ltd., 781 F.2d 861, 867, 228 U.S.P.Q. (BNA) 90, 93 (Fed. Cir. 1985); SRI Int'l, Inc. v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 n.14, 227 U.S.P.Q. (BNA) 577, 585 n.14 (Fed. Cir. 1985) (in banc) (merely because "a specification describes only one embodiment does not require that each claim be limited to that one embodiment"); Transmatic, Inc. v. Gulton Indus., Inc., 53 F.3d 1270, 1277, 35 U.S.P.Q.2D (BNA) 1035, 1040-41 (Fed. Cir. 1995) ("[A] patent claim is not necessarily limited to a preferred embodiment disclosed in the patent."). Enercon has shown no reason to depart from this well established rule.

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As we have stated above, the specification clearly uses the terms "rotate" and "shift" interchangeably. In addition, all parties agreed that the phrase "rotating the reference waveform" indicates a shift in phase of the desired waveform. Because we see no evidence to indicate that the term "rotate" was intended to refer to the specialized method of performing a phase shift known as a "rotational transformation," we hold that the term "rotating" is to be given its ordinary meaning. We therefore hold that the ITC was correct in interpreting the term "rotating" to mean merely a phase shift in the desired waveform.
Like thoroughfare, the term route is prevalent throughout the disputed claims in the '615 patent. Plaintiff defines "route" as "course of travel" and defendant defines it as "course of travel from one place to another." This term does not require much discussion. I will adopt plaintiff's definition and construe "route" as "course of travel" because it is implicit in the concept of "travel" that one is going from one place to another; defendant's definition is redundant.

C. "Route" and "Routing"

The verbs "route" and "routing" are used in the '561 Patent, claims 1 and 24; the '429 Patent, claims 2 and 24; and the '084 Patent, claim 1. In the Vonage case, Sprint contended that these terms meant direct/directing through a communication system, while Vonage argued that they meant deliver/delivering to the destination through a communication system. See 518 F. Supp. 2d at 1311. The Court decided that both parties were partially correct in their arguments, as follows:

The intrinsic record concerning use of these claim terms comports with the widely accepted meaning of these commonly understood words. On the one hand, "route" means to "direct" or "send". But, to "route" something does not mean to direct or send it aimlessly. Rather, it means to send it by a selected route, or in a specified direction, or by selecting a course to be followed for final delivery, or by dispatching it to its appropriate destination. In this sense, the term "route" is consistent with the specification language relied on by Vonage, in which various items are routed for delivery to their destinations. At the same time, however, neither the plain meaning of the word nor the specification indicates that "routing" requires that the item actually be delivered to its final destination.

Accordingly, the court construes the claim terms "route" and "routing" consistently with their commonly understood meaning, which is also consistent with the intrinsic record, to mean direct/directing through a communication system by a selected route or in a specified direction.

Id. at 1311-12 (citations omitted) (citing Webster's Third New International Dictionary at 1981 (unabridged ed. 1993)).

In the present case, Sprint argues in favor of the same construction made by the Court in Vonage. Big River argues that the proper construction would not include the alternative meaning "in a specified direction;" thus, Big River urges the Court to construe "route" and "routing" to mean direct/directing through a communication system by a selected route. The Court rejects this argument by Big River.

First, Big River cites to various dictionaries that appear to define the verb "route" to include directing or sending by a selected route, but do not appear to include sending in a specified direction as a meaning of the word. The Court concludes, however, that the ordinary meaning of "routing" may include sending in a particular direction, as shown in the unabridged dictionary cited by the Court in Vonage. Indeed, one of the dictionaries cited by Big River includes "direct"--which is obviously related in meaning to "direction"--as a synonym for the verb "route". See Webster's, supra, at 640 (definition of to "direct" includes to aim or guide); see also id. at 45 (definition of to "aim" includes to point in a particular direction). The main point of the Court's prior construction was that to be "routed", something must be directed, though not aimlessly, and the Court's construction of the term to include directing by a selected route or in a specified direction accurately captures that meaning.

Second, Big River relies on the specifications' references to the concepts of a communication path and virtual connections, in arguing that a specific route or course is required in the inventions. The Court again rejects Big River's attempt to limit the patents' claims in those ways. See supra Part III.A, IV.B. Moreover, as Sprint points out, the claims specify that the "routing" is to network elements, not along communication paths.

For these reasons, the Court retains its prior construction of the terms "route" and "routing" to mean direct/directing through a communication system by a selected route or in a specified direction.
A. "Route" and "Routing"

Claim 1 of the '561 patent recites the claim term "route" and claim 19 of the '294 patent recites the claim term "routing." Sprint contends that these claim terms should be construed to mean direct/directing through a communication system. Vonage contends that they should be construed to mean deliver/delivering to the destination through a communication system.

Sprint points out that the specifications disclose routing devices, such as signaling transfer points and switches, that process signaling messages by directing messages through the communication system. Sprint contends that the specifications disclose that these devices do not deliver the routed messages to the end-user or destination, but rather serve to direct such messages from element to element within the network based on an identifier contained in the message. For example, "the route function of the MTP 3 would forward the message to CCM 250," '294 Patent at 6:34-35; the signal transfer point (STP) "reads portions of the signaling information and either discards or routes the information to a network element," '561 Patent at 2:15-25; and the communication control processor (CCP) "will route calls over the broadband network to another narrowband switch," id. at 21:10-11.

Vonage relies on other portions of the written specifications which use the term "route" in the context of delivering the signaling message to its final destination: "CCM 250 would be identified by its own signaling point code. STP 260 would route signaling messages addressed to this point code to CCM 250." '294 Patent at 6:23-26; see also id. at 9:55-56 ("STP 520 would be configured to route the IAM to CCIM 534."). The '294 patent specification also uses "route" in terms of delivering voice to a destination, stating that "[t]he LAM would indicate that a call was being routed to user 516 and would identify the selected virtual connection being used to reach mux 530." Id. at 10:5-7. Additionally, the '561 patent specification states that STP "routes the signal to CCP 350." '561 Patent at 11:38-39. Thus, Vonage contends that the specifications clearly use "routing" to mean delivering to a destination.

Upon consideration of the parties' arguments, the court believes that both parties are partly correct as to the proper construction of the disputed claim terms "route" and "routing." The intrinsic record concerning use of these claim terms comports with the widely accepted meaning of these commonly understood words. See Phillips, 415 F.3d at 1314 ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words."). On the one hand, "route" means to "direct" or "send." Webster's Third New International Dictionary 1981 (unabridged ed. 1993) (listing "direct" and "send" as synonyms for "route"). But, to "route" something does not mean to direct or send it aimlessly. Rather, it means to send it by a selected route, or in a specified direction, or by selecting a course to be followed for final delivery, or by dispatching it to its appropriate destination. Id. (listing various definitions for the term "route"). In this sense, the term "route" is consistent with the specification language relied on by Vonage, in which various items are routed for delivery to their destinations. At the same time, however, neither the plain meaning of the word nor the specification indicates that "routing" requires that the item actually be delivered to its final destination.

 Accordingly, the court construes the claim terms "route" and "routing" consistently with their commonly understood meaning, which is also consistent with the intrinsic record, to mean direct/directing through a communication system by a selected route or in a specified direction.
host can be modified at any time to capture additional fares, even after the vehicle has begun traveling its route. Defendants' Brief at 27. According to the defendants "[d]ynamic does not imply that the routes are constantly changing, but merely that a salient feature of the routes is that they can be changed to accommodate transportation requests as received." Defendants' Brief, at 28. Consistent with the court's view that the patents describe real-time methods, the court construes the term "route" to mean "a course or pathway that is capable of changing based on received transportation requests."

D.

In independent Claims 3, 7 and 11, the terms "route" or "routing" is used. The customary meaning of "route" in computer technology means "forwarding data to its destination." See, Computer Desktop Encyclopedia, [9th Ed. McGraw-Hill]. Mediatics rejects this definition while suggesting that it agrees with LaserDynamics' definition of "route." It argues that "route," as revealed in the Patent, is the process of "selecting one of a plurality of available data paths and sending the recorded data through the selected path." Interestingly, the definition proffered by Mediatics includes what may be referred to as a "routing protocol" or a built in formula for determining the path that data must take. The term "routing," in its most basic meaning, is simply the forwarding of data without regard for the technology that directs the method or protocol. Therefore, the Court adopts the industry's ordinary meaning for the term. See Texas Digital Systems, Inc., 308 F.3d at 1202-03.

"The Router Will Attempt to Become the Active Router"
"The Physical Router Will Attempt to Become the Active Router"
"The Ability to Issue Coup Messages Can Be Disabled at Least Temporarily"
"Disable, at Least Temporarily, the Router's Ability to Issue a Coup Message"

The Court agrees with Cisco that these terms are plain on their face and do not require additional construction.

"routes"

The term "routes" means to choose an appropriate destination from two or more possibilities and to direct based on that choice.

The VPS routes by directing a voice or data communication meant for a particular remote user over the transmission media to the appropriate remote user communications device. Communications are "routed from either the telephony server or the [LAN] to said user communications device" by means of the "transmission media." Routing implies a choice between alternative destinations. Although plaintiff's proposed construction requires "routing" to be based on "identification information," and although a person with ordinary skill in the art would understand how an IP address is used in data routing, the patent does not specify a single method of routing. 145

145 Witt testimony, Tr. 557-61.
The term "automatically routes" or "automatically routing" as used in claim 39 means that routing, as defined above, is accomplished without the further intervention or instruction to the user communication device or by the remote user.

1. Routine

The term "routine" appears throughout the disputed claims of patent '042. Plaintiff maintains that it means "software instructions or algorithm." Defendant defines it as "a set of procedures or programmed instructions." The term is not defined in the specification. However it is clear from the claim language itself that it means "a set of procedures for providing route guidance" and I construe it in this manner.

12 The term to be construed appears in claim 1 of the '703 Patent. Akamai is asserting that claim 5, which is dependent on claim 1, is infringed by Limelight.
Exhibit 96.) In that case, Akamai argued "[a] 'routine' has its ordinary meaning of a set of instructions, e.g. a computer program or process." (Id.) "E.g.," however, denotes an example and is therefore not limiting. 14

While the hash value calculations described in the preferred embodiment would be difficult to calculate manually, simpler embodiments might be more amenable to hand calculation. For example, the specification describes an alternate method for modifying the object URL with a serial number which contains information about the object. ('703 Patent, col.6 l.65 - col.7 l.29.) Therefore, there is insufficient support in the specification to limit the "routine" which modifies object URLs solely to automated or computer programs.

A "routine" is a computer program or a portion of a computer program designed to accomplish a defined task. In this case, the contribution data packet is accepted by the physically separated contribution-accepting devices, using a routine which allows it to accept information representing one or more contributions.

Plaintiff proposes that “routing” is an “easily understood term that does not require construction by the Court.” (Plaintiff’s Opening Claim Construction Brief 32:21-22.) Defendants, on the other hand, propose that “routing” means “sequencing (order) and timing.” (Joint Constructions 1.)

Courts customarily give terms in a patent their ordinary meaning. Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002) (“The terms used in the claims bear a ‘heavy presumption’ that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.”). Still, “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” Phillips, 415 F.3d at 1316. A court may find that a specification gives a term a meaning contrary to its ordinary meaning if the specification “communicates a deliberate and clear preference for this alternative definition.” Kumar v. Ovonic Battery Co., Inc., 351 F.3d 1364, 1368 (Fed. Cir. 2003.)

The ordinary meaning of “routing” is “sending or forwarding by a particular route.” American Heritage Dictionary, Fourth Ed., 2006. Defendant contends that the ‘403 patent has given “routing” a definition more specific than its ordinary meaning. The Court disagrees. Defendants cites parts of the specification that purportedly define “routing” as “sequencing (order) and timing.” For instance, the specification states that “the present invention provides flexibility in the funding source selection, and routing, i.e., sequencing and timing.” (‘403 Patent 22:39-41.) The specification also states that “[i]f multiple sources are to receive the credit application, then the timing and order of sending is also selected, that is, the
routing of the credit application.” (Id. at 22:46-48.) While these two quotes seem to indicate that “routing” refers only to sequencing and timing, they conflict with the rest of the patent. For instance, the patent refers to “the inventive system routing the application to all requested funding sources,” and “routing means for selectively forwarding the credit application data to remote funding sources.” (Id. at 8:54-56, 15:39-43.) These quotes indicate that the destination of the application data is also a part of “routing.” To define “routing” as “sequencing (order) and timing” would render these quotes, and others, senseless.

More generally, the entire invention is frequently referred to, in shorthand, as a “credit application and routing system.” (See, e.g., id. at 37:50.) The stated goal of the patent is to enable dealers to forward credit application data to selected funding sources in selected sequences. But defining “routing” as Defendants request would eliminate the “selection of funding sources” aspect from the short description of the invention.

Defendants argue that the Federal Circuit has held that the use of “i.e.” is definitional. (Defendants David L. Huber and Finance Express LLC’s Opening Claim Construction Brief 7:9-10 (quoting Abbott Labs v. Novopharm Ltd., 323 F.3d 1324, 1327, 1330 (Fed. Cir. 2003).) But the Federal Circuit in Pfizer, Inc. v. Teva Pharmaceuticals, 429 F.3d 1364, 1373 (Fed. Cir. 2005), limited that holding, cautioning that the “i.e.” should be read in light of the patent as a whole. “I.e.,” as used in this patent, is not definitional. Instead, it appears to supply examples. For instance, the patent refers to “selecting the funding sources for a type of credit application, i.e., finance versus lease, ‘A’ quality versus ‘B & C’ quality.” (‘403 Patent 10:41-44.) Also, the patent refers to the ability to check “account status, i.e., current charges, transactions processed, etc.” (‘403 Patent 5:59-60.)

Considering the patent as a whole, it does not show a “deliberate and clear preference” for Defendants’ proposed definition. Kumar, 351 F.3d at 1368. Accordingly, the claim term is construed to mean: “sending or forwarding by a particular route.”

A. Function of Routed and Routing

Lottotron takes claim 1 1 of the ’047 patent as an example of a claim that uses the terms "routing" and "routed." Clause (a), which contains the term "routing," is a mean-plus-function limitation. From the face of the claim, the ACD means performs two functions: (1) it receives incoming messages from subscribers and (2) routes each of said messages according to which one of said plurality of different wagering formats is requested by a caller. Lottotron contends that the term "route" should be treated as equivalent to "transmit." Scientific Games contends that routing, in addition to transmission, requires "(i) an identification of a characteristic of the calls, communications or messages" and "(ii) a selection of a destination for the calls, communications, or messages depending on the identified characteristic." Scientific Games ("S.G.") Br. at 4.
Neither the specification nor prosecution history clearly spells out the definition of "routing" and "routed." I will presume, as the parties do here, that the terms carry the ordinary meaning as understood by persons of ordinary skill in the art. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366-67 (Fed. Cir. 2002). Despite the agreement that dictionaries may be used to help construe the terms, see Lottotron Repl. at 4; S.G. Br. at 10, the parties interpret the significance of the dictionary definitions differently. Scientific Games suggests that the dictionary definitions are wholly consistent with its construction that requires the ACD means to identify a characteristic of the message, select a destination for such message, and transmit the messages. Scientific Games notes that the verb "route" is defined to mean: "to send by a certain route," or "to assign a route to," Webster's II New Riverside Dictionary 595 (Revised ed. 1996) (emphasis added); "to send or forward by a particular route," Webster's Encyclopedic Unabridged Dictionary of the English Language 1676 (1996) (emphasis added); "to send by a select route," or "to divert in a specified direction," Merriam Webster On-Line, at http://www.merriam-webster.com (last visited June 19, 2003) (emphasis added). In addition, defendant observes that Newton's Telecom Dictionary defines "routing" as "the process of selecting the correct circuit path for a message." Newton's Telecom Dictionary 618 (14th ed. 1998) (emphasis added).

Lottotron argues that Scientific Games' definition is wrong because, inter alia, it ignores the ordinary definition of the term, which "does not inherently require 'identification' or 'selection,'" Lottotron Repl. at 4, and because it imports limitations from one embodiment in the specification into the claim term. Id. at 5. Further, Lottotron notes that it would be entirely consistent to substitute the word "transmit" in place of "route" in the specification.

Neither party disputes that the term "route" or "routing" in the claims entails transmitting messages. The issue that must be resolved here concerns whether one skilled in the art would understand "routing" to also include identifying a characteristic of the message and selecting a destination for the message based on the characteristic. Although "dictionaries . . . are particularly useful resources to assist the court in determining the ordinary and customary meanings of claim terms," Tex. Digital Sys. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002), the Federal Circuit "cautioned against the use of non-scientific dictionaries 'lest dictionary definitions . . . be converted into technical terms of art having legal, not linguistic significance.'" Bell Atlantic Network Services, Inc. v. Covad Communications Groups, Inc., 262 F.3d 1258, 1267 (Fed. Cir. 2001) (quoting Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed. Cir. 1998)). The communications systems and protocols claimed and described in the Scagnelli patents relate to the telephonic communications art, see Classification Search 379 listed on '416 patent, '619 patent,'047 patent, and '865 patent, and hence, telecommunication dictionaries appear to be a natural and reasonable place to begin my inquiry into the ordinary meaning of the terms "route" and "routing." See Vitrionics, 90 F.3d at 1584 n.6 ("Technical treatises and dictionaries . . . are worthy of special note. Judges are free to consult such resources at any time . . . and may also rely on dictionary definitions when construing claim terms."). As noted above, Newton's Telecom Dictionary defines "routing" as "the process of selecting the correct circuit path for a message." Newton's Telecom Dictionary 618 (14th ed. 1998) 3. The Glossary of Telecommunications Terms published by the National Communications System Office of Technology and Standards defines "routing" to mean "the process of determining and prescribing the path or method to be used for establishing telephone connections or forwarding messages." Federal Standard 1037 C: Glossary of Telecommunication Terms, Office of Technology and Standards, at http://www.its.bldrdoc.gov/fs-1037/ (1996); see also T1 Glossary 2000: Glossary of Telecommunication Terms, American National Standard for Telecommunications, at http://www.atis.org/tg2k/t1g2k.html (2001) (adopting 1037 C Federal Standard definition of "routing"). The definitions clearly suggest that "routing" must specify the path on which to transmit the message. Assuming my reliance on these specialized dictionaries is misplaced, I would add that the standard English dictionaries also support the view that the process of "routing" a message must entail determining the particular route that the message will follow. The particularity of the route would be lost if the ACD means lacked the ability to specify the path on which to transmit the message. See, e.g., Webster's Encyclopedic Unabridged Dictionary of the English Language 1676 (1996) (defining "routing" to mean "to send or forward by a particular route" (emphasis added)).
which issued in 1995 and the other three patents-at-issue, which issued in 1999, and thus I may rely on dictionary definitions up through approximately 1999, when the later three patents issued. See Inverness Medical Switzerland GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1370 (Fed. Cir. 2002).

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Lottotron contends that the selection of the destination arises not from the ACD means, but rather from the wagerer. Although Lottotron is in some respects correct that the destination of the transmission is specified by the wagerer when there are a "plurality of different wagering formats," '047 patent (claim 1), that choice must be translated to the ACD means, which specifies the appropriate subsystem of the invention to transfer the call. One must discriminate between the selection by the subscriber, and the selection taken by the ACD means to effectuate the request placed by the subscriber. If the ACD means lacked the capacity to specify which, among the plurality of wagering formats subsystems to transfer the call, the lottery wagering system would be inoperative. In other words, the wagerer could make his selection, but if the ACD means did not have the ability to specify the appropriate subsystem to which the call was to be transferred, the invention would be unable to "route each of said messages according to which one of said plurality of different wagering formats [was] requested by [the] caller." '047 patent (claim 1).

Scientific Games contends that the specification supports its position that the process of routing further includes the step of identifying a characteristic of the call or message. None of the definitions from the standard English or technical dictionaries, however, inherently requires "routing" to include such a step. Scientific Games notes that if a subscriber called, for example, 1-800-ENROLL, the disclosed ACD should transfer the call to the enrollment VRU, whereas if the caller dialed 1-800-WAGER, the ACD should transfer the call to the wagering VRU. From the described process, Scientific Games concludes that the ACD, and hence the ACD means, must identify the number dialed, e.g., 1-800-WAGER or 1-800-ENROLL. Scientific Games assumes that the ACD corresponds to the ACD means. It would be improper, as Scientific Games seeks to do here, to look at the structure described in the specification and attempt to superimpose the function performed by it onto the function recited in the means-plus-function clause. See Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999). Furthermore, it would be a cardinal sin of patent law for a court to "read into a claim a limitation from a preferred embodiment, if that limitation is not present in the claim itself." Bayer AG v. Biovail Corp., 279 F.3d 1340, 1348 (Fed. Cir. 2002); see also CCS Fitness, 288 F.3d at 1366 ("An accused infringer . . .cannot [narrow a claim term's ordinary meaning] by simply pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history.").

Scientific Games further argues that the addition of the "routing" limitation according to the requested wagering format to overcome prior art adds weight to its argument that "routing" includes more than simply transmitting a message. I see no evidence that the inventors sought to differentiate their inventions from prior art on the ground that prior art that "routed" calls did not identify a characteristic of the incoming message. Indeed, the patent examiner acknowledged the existence of prior art that routed incoming calls based on the subscriber's financial institution information to make electronic fund transfers. See, e.g., Walsh Exh. I, Tab 30 (11/17/98 Office Action Summary for '047 patent) at 5. The examiner found that the amended claims were patentable because the prior art neither disclosed nor suggested "routing incoming calls based upon [the] wagering format requested." Id. (emphasis added); see also Gulia Exh. E, Tabs 6, 7 (Amendment and Notice of Allowance in '619 patent) (allowing claims after inventors amended claim to "route each of said communications [according] to one of a plurality of different wagering formats as requested by a subscriber."); Gulia Exh. F, Tabs 6, 8 (Office Action and Amendment in the '865 patent). In the examiner's view, the basis for routing the calls was the principle distinguishing feature that made the claims allowable over prior art. I find nothing in the intrinsic evidence that precludes the claimed invention from having a separate element that identifies a property of the incoming call, and conveys such information to the corresponding structure that performs the routing function, so that it may route the call in accordance with the wagering format selected by the caller. The ramifications of the amendment cannot be stretched so far as to suggest that the inventors sought to distinguish their inventions from prior art on the basis that routing must include identifying a characteristic of the message from the subscriber, as Scientific Games perhaps implies in its argument. I find no limitation in the claim language nor any clear statement in the specification or prosecution history that redefines the definition of "routing" to include the task of identifying a characteristic of the incoming message from subscribers.

In sum, I concur with defendants that "routing" must entail more than simply transmitting calls, contrary to plaintiff's argument. Rather, "routing" further includes specifying the path on which to transmit the subscriber's call. For the foregoing reasons, the term "routing" in the context of the claims is construed to mean:
(1) specifying the path for a subscriber's incoming message according to a characteristic of the incoming message; and
(2) transmitting the incoming message on the specified path.
Messages are "routed" if they arrive at a destination via a "routing" process as defined above.

Routing Information

Fenner argues that "routing information" should mean "information indicating the next path for the data packet to take" and Defendants offer the compromise construction "information indicating the next outbound communication link for the data packet to take." n9 The Court construes the term to mean, "information indicating the next physical media path (as construed herein) for the data packet to take." The Court selects "physical media path" instead of "link" or "path" to maintain consistency among the constructions.

n9 Defendants' original construction is, "identification of the physical media path that has been associated with the mobile receiver's IP address."

11. "ROUTING SUCH STREAM TO ONE OR MORE USERS"

AOL: "Sending the stream over a network path to one or more users."
TWM: No construction required.
In the alternative, "Sending the stream over the communications network to one or more users."

AOL contends that the ordinary meaning of "routing," a term of art in communications networking, is "the process of selecting the correct path for a message." TWM counters that AOL's definition requires that every packet in a stream follow the same path from origin to destination. According to TWM, this would exclude the preferred embodiment, and is, in fact, inconsistent with how the Internet works.

As the Court recalls from AOL's own tutorial, routers act as "interchanges" or "on/off ramps" on the highway, and, a "stream" consists of packets. AOL's proposal, then, seems to require all the packets in a stream to move through the same path from the server to the user. This definition violates bedrock computer networking principles that each individual packet ultimately follows one particular path and that all the packets of a stream need not follow the same path. See KUKROSE & ROSE, COMPUTER NETWORKING 313 (2005). An ordinary skilled person would have this understanding of computer networking. With that understanding, the disputed language in the claim needs no construction.

4. "row"

Claims 9 and 19 of the '046 Patent claim, in pertinent part:

a first conductive strip of material overlying and electrically contacting central portions of a first row of said source regions . . . ; and
a second conductive strip of material overlying and electrically contacting central portions of a second row of drain regions adjacent to said first row of said source regions . . .

('046 Patent at 8:32-39, 10:19-28.) Micrel contends that "row" be construed as "a linearly organized group," and MPS argues it should be construed as "a straight line." Other than the above quoted language from Claims 9 and 19, the '046 Patent does not describe or discuss "row" and thus, provides no guidance on its meaning. Both Micrel and MPS point to various dictionary definitions which define row as follows: (1) "a number of objects arranged in a usu. straight line;" (2) "a continuous extent of length, straight or curved, without breadth or thickness;" (3) "a number of people or things arranged as to form a line, esp. a straight line;" and (4) "a series of objects place next to each other, usually in a straight line." (See Final Joint Claim Construction and Prehearing Statement, Ex. A at 5.) While all of these definitions would include a "straight line," none of them require that a row be limited to a straight line. Thus, these definitions provide support for the broader construction proposed by Micrel, "a linearly organized group." Because the ordinary meaning of "row" includes, but is not limited to straight lines, and because there is nothing in the '046 Patent which limits row to straight lines, Court adopts Micrel's proposed construction for row. According, the Court construes "row" to mean "a linearly organized group."

Rule

JuxtaComm argues "rule" means "one or more statements." Defendants contend "rule" means "one or more statements that are executed from top to bottom to perform a specific operation to achieve a desired result." Thus, the parties dispute whether rules must be "executed from top to bottom to perform a specific operation to achieve a desired result."

The specification states:

The purpose of a rule is to perform a specific operation to achieve a desired result. A rule is one or more statements. These statements are executed from top to bottom and when the last statement within the rule has been executed, or an Exit statement is encountered, the rule ends.

Col. 5:22-27. The additional language that Defendants seek to include in the construction concern the purpose of a rule and how the rule statements are executed. Those aspects of the disclosure do not further define what a rule is. Additionally, those limitations would exclude disclosed embodiments that use conditional processing or looping. See Fig. 9; col. 7:33-35; 8:54-60. Accordingly, the Court does not include those limitations in its construction. The Court construes "rule" as "one or more statements."

Rule set processor responsive to said script processor

JuxtaComm argues "rule set processor" should be construed to mean "software that processes rule sets." Defendants contend "rule set processor" should be construed as "a software component invoked by the script processor to execute rule sets."

Although the parties briefed the term "rule set processor," at the claim construction hearing they agreed the dispute includes the meaning of "responsive to said script processor." Accordingly, the Court will address and construe the entire phrase.

Defendants contend the rule set processor is an entirely separate component of the system. Defendants also seek to replace "responsive to," used in the claims, with "invoked by," used in their construction. Defendants seek to improperly limit the term to the disclosed embodiments and characterizations of the written description rather than what is recited in the claim.

Although the claim sets forth "script processor" and "rule set processor" as separate claim limitations, such a recitation does not require them to be separate physical components as indicated by Defendants' proposed construction. Nothing in the intrinsic evidence indicates that the two processors, admitted to be software, cannot be folded together and implemented as
a single module. While the system functional diagram of Fig. 2 relied upon by Defendants shows the processors as separate functional blocks, the depiction does not restrict an implementation of the system to separate components or modules.

As to Defendants' request to include "invoked by" in the claim construction in place of "responsive to," the contention is that the terms are synonymous. If that is so, as JuxtaComm says, there is no reason to replace the term "responsive to." Moreover, the use of the term "invoked" in dependent claim 9 suggests to one skilled in the art a difference in scope between the two terms regardless of the presence of other possible limiting recitations in the dependent claim that form a basis for claim differentiation.

Accordingly, the Court construes "rule set processor responsive to said script processor" as "software component that processes rule sets responsive to said script processor."

F. a set of cell selection rules

Ricoh contends that the disputed term is defined as "a plurality of rules for selecting among the hardware cells from the hardware cell library, wherein the rules comprise the expert knowledge of highly skilled designers formulated as prescribed procedures." Aeroflex contends that the term is properly defined as "a set of rules embodying the knowledge of expert designers for application specific integrated circuits, each rule having an antecedent portion (e.g. IF) and a consequent portion (e.g., THEN), which enables the expert system to map the specified stored definitions for each logical step and decision represented in the flowchart to a corresponding stored hardware cell description."

Aeroflex states that its proposed construction is consistent with contemporaneous technical dictionaries, treatises, and the prior art. See Ex. 15 at 74-75, Ex. 17 at 10-11, Ex. 14 at 10, 53, Ex. 18 at 8, Ex. 20 at 14-15, Ex. 21 at 269, "The two parts of a rule are a premise and a conclusion, a situation and an action, or an antecedent and a consequent. These statements are written in an IF-THEN format." Ex. 15 at 74, Louis E. Frenzel Jr., Understanding Expert Systems. The technical dictionary provided by Aeroflex defines "rule" as follows: "(If-Then Rule). A conditional statement of two parts." Ex. 21, Paul Harmon, Expert Systems: Tools & Applications. Aeroflex also argues that the patent's specification requires that the "rules" not only embody expert knowledge, but that the expert knowledge also be used for mapping the specified definitions in the flowchart to the hardware cell descriptions. Aeroflex Responsive Brief at 48; see '432 patent, cal. 8:21-23; 8:34-37.

Ricoh contends that the general usage dictionary definition of "rule" should apply. Also, while Ricoh admits that the preferred embodiment of the '432 patent disclosed that "rules" could be in the format of "an antecedent portion (IF) and a consequent portion (THEN)," it also asserts that nothing in the public record justifies restriction of the claimed "rules" to the exemplary format disclosed as the preferred embodiment. Richo additionally contends that the '432 patent states specific rules in the specification that are not stated in the if/then format. See '432 patent, col. 12:31-35. Moreover, Ricoh also disagrees with Aeroflex's inclusion of the following requirement: "embodying the knowledge of expert designers for application specific circuits." Ricoh argues that to the extent Aeroflex is attempting to create a distinction between the knowledge of designers for ASICs and the knowledge of designers skilled in VLSI design, the claim should be construed broadly to include either skill. See, e.g., '432 patent, col. 2:58-61 ("The KBSC utilizes a knowledge based expert system, with a knowledge base extracted from expert ASIC designers with a high level of expertise in VLSI design . . ."); col. 4:8-11 ("In the KBSC system of the present invention, however, integrated circuits can be designed at a functional level because the expertise in VLSI design is provided and applied by the invention.")

Based on Aeroflex's citation to the technical dictionary, it appears that "rule" as used in the '432 patent would have had a particular meaning to one of ordinary skill in the art. Therefore, to the extent Ricoh's definition relies on a general dictionary definition, it must be rejected. See Vanderlande Industries Nederland BV v. I.T.C., 366 F.3d 1311, 1321 (Fed. CIT. 2004). The technical dictionary definition offered by Aeroflex demonstrates that the ordinary meaning of "rules" when used to refer to rules that are contained in the knowledge base of a rule-based expert system must include an "IF-THEN" component. The Court is not persuaded that column 12, lines 31 to 35 of the '432 patent state "rules" as that term is understood in the patent. Rather, lines 31 to 35 appear to be discussing other actions that a user could take if additional rules were present.

However, the Court finds little support for Aeroflex's argument that claim 13 requires that the rules stored in the knowledge
base of the rule-based expert system embody the expert knowledge for mapping the specified definitions in the flowchart to the hardware cell descriptions. Certainly, the plain language of claim 13 does not dictate that the "rules" encompass the "mapping" function. Moreover, while the patent's specification does suggest that the rules might play such a role in the preferred embodiment, see '432 patent, col. 8:34-37, such a conclusion is not compelled from the specification language. In any event, the Court should not "limit[] the claimed invention to preferred embodiments or specific examples in the specification." Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997).

Furthermore, Ricoh correctly states that the definition should not make a distinction between the knowledge of designers for ASICs and the knowledge of designers skilled in VLSI design. The specification clearly contemplated that both sets of knowledge would be included in the knowledge base. See '432 patent, col. 2:58-61; col. 4:8-11. Furthermore, Aeroflex's attempt to include the following language in the definition - "for each logical step and decision represented in the flowchart" - should be rejected for the reasons discussed supra. Accordingly, the Court construes "a set of cell selection rules" as a set of rules embodying the expert knowledge of highly skilled VLSI designers, each rule having an antecedent portion (e.g., IF) and a consequent portion (e.g. THEN).

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"run-time executor"

Claims 1 and 12 of the '362 patent contain the term "run-time executor." The parties agree that the term has no ordinary meaning and that it is not specifically described in the patent. Defendants claim, based on these two facts, that the term is indefinite. Typhoon argues that the term was used, and indeed meant to be used, interchangeably with the term "run-time utility."

As noted above, the '362 patent is a continuation of the '057 patent, which in turn claims priority to U.S. Application No. 07/271,237 filed on November 14, 1988. The term "run-time executor" was first used in new claims added to the '057 patent application on January 28, 1994. See Amendment dated January 28, 1994, Defendants' Motion for Summary Judgment Ex. 3, Docket No. 354-4 at 6-8, 10. After those claims were rejected by the patent examiner for lack of a written description, the applicant replaced the term "run-time executor" with the term "run-time utility" described in the specification. See Office Action dated March 17, 1994, Defendants' Motion for Summary Judgment Ex. 4, Docket No. 354-5 at 3; Amendment dated May 31, 1994, Defendants' Motion for Summary Judgment Ex. 6, Docket No. 354-7 at 6. The term "run-time executor" was reintroduced in the continuation application which led to the '362 patent. See Preliminary Amendment dated October 4, 1994, Defendants' Motion for Summary Judgment Ex. 8, Docket No. 354-9 at 1, 13-15, and 17-18. The claims in the continuation application were not rejected on the basis of lack of a written description. Thus, the term "run-time utility" is used in the '057 patent and the term "run-time executor" is used in the '362 patent.

This history manifests a clear intention by the patentee that the terms "run-time utility" and "run-time executor" are synonymous and interchangeable. C.f. Telecom Ltd. v. Samsung Elecs. Co., 215 F.3d 1281, 1294 (Fed. Cir. 2000) (holding that patentee must use "reasonable clarity and deliberateness" in prosecution history in order for a court to limit the scope of claim terms based on such history). In addition, by the time the continuation application leading to the '362 patent was filed, the PTO also agreed that the patentee used the terms interchangeably. At the time of the original application there was no evidence that "utility" and "executor" had similar definitions. However, given those terms' subsequent history, Defendants' argument that "run-time executor" is insolubly ambiguous has no support. The patent history decisively yields the conclusion that "runtime executor" be given the same definition as "run-time utility." Therefore, Defendants' motion for summary judgment is denied with respect to the term "run-time executor" and the term is defined as "a software program invoked during execution of a data collection application to manage the various tasks involved in executing the data collection application."

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8. The term "running time" should be interpreted as follows: "the period of time during which a program is being executed."
2. "safety switch mechanism . . . for connecting a pre-qualified release of a defibrillation shock to patient electrode terminals"

Claim 1 of the '085 Patent discloses a "safety switch mechanism . . . for connecting a pre-qualified release of a defibrillation shock to patient electrode terminals." As to the claim construction of this term, Philips contends that Claim 1 describes a "safety switch that connects a 'pre-qualified release' of a defibrillation shock to patient electrode terminals." Thus, Philips argues that "the safety switch does not close until after the processor receives the defibrillation shock release request and pre-qualifies release of the defibrillation shock." Cardiac Science initially asserted that no construction of this term was required. Just prior to the Markman hearing on this matter, however, Cardiac Science asserted that "safety switch mechanism" should be defined as "a fail-safe device that requires two shock release requests before it will allow the AED capacitors to deliver a defibrillation shock to the electrodes attached to the patient." n5

--- Footnotes ---

N5 Philips objects to Cardiac Science's proposed construction on the terms of the '085 Patent, on the grounds that Cardiac Science's new constructions were barred by the Court's April 28, 2005 Order (Court Doc. No. 172) and because the Court previously denied Cardiac Science's attempt to submit these constructions through additional briefing. (Court Doc. No. 377.) The Court sustains Philips' objections. The Court's April 28, 2005 Order specifically stated that Cardiac Science would submit alternate claim constructions to Philips by April 29, 2005. (April 28, 2005 Order at 1.) The Court stated that, "to the extent that Cardiac Science provides no alternate claim construction for the terms and phrases identified solely by Philips as needing to be construed, it will be precluded from later offering a new construction." (Id.) The Court also denied Cardiac Science's attempt to later submit additional constructions after new counsel took over representation of Cardiac Science on this matter. (January 6, 2006 Order). Clearly, Cardiac Science was not allowed, by virtue of the Court's orders, to provide alternative claim construction after April 29, 2005. Consistent with the Court's January 6, 2006 Order, and in the interest of fairness, the Court is not willing to reconsider these issues at this late stage of the proceedings.

As a result of sustaining Philips' objections, the Court will not consider Cardiac Science's proposed constructions, submitted on the eve of the Markman hearing. Rather, the Court will consider Philips' proposed construction, Cardiac Science's objections to Philips' proposed construction, and Cardiac Science's previous argument that no construction of these terms was required.

--- End Footnotes ---

Philips argues that the safety switch does not close until after the processor receives the defibrillation shock release request and pre-qualifies release of the defibrillation shock. Philips points to Figure 2 of the '085 Patent and to the specification in support of its construction. The patent specification describes the safety switch mechanism as follows:

Processor 30 functions to receive monitoring signals, analyze the signals and if appropriate, close switches 26(a) and 26(b) Signals which are monitored preferably include impedance between electrodes connected to terminals 24(a) and 24(b) and fitted to a patient's chest. The acceptable and appropriate impedance is within the range which should be observable across a patient's chest cavity. Only when the impedance is within preset parameters does the processor 30 allow switches 26(a) and 26(b) to be closed. Processor 30 also monitors and analyses the patient's cardiac electrical output. Only if the monitored cardiac signal, also preferably received from electrodes connected to patient electrode terminals 24(a) and 24(b), is identified as a ventricular fibrillation condition, does the processor 30 allow the switches 26(a) and 26(b) to be closed.

The processor 30 is in communication with a manual trigger switch or "rescue switch" 32. The rescue switch 32 is manually actuated by rescue personnel to signal the processor 30 to release and deliver a defibrillation shock if the processor's criterion [sic] for release and delivery have been met. In effect, the processor serves to control a pre-qualification of release of a defibrillation shock.

The rescue switch 32 also independently closes switches 28(a) and 28(b) to allow the shock to be released. This independent closure serves as a significant safety check against inadvertent shock delivery which might result from a
malfunction at the processor 30. In effect, the independent closure serves as a fail safe device to assure that an emergency medical operator has indeed requested that a defibrillation shock be delivered if the processor's pre-qualification criterion [sic] have been met.

(Id. at c. 4, l: 58-c. 5, l: 21.)

The Court agrees with Philips' proposed construction. The safety switch mechanism is depicted in Figure 2 as switches 28(a) and 28(b). When the processor receives signals from the electrodes that a patient is in fibrillation, the processor recognizes that a shock is appropriate. When the shock is pre-qualified and the rescue switch 32 is manually actuated, the processor closes switches 26(a) and 26(b). And the closure of the rescue switch and safety switches 28(a) and 28(b) allows the shock to be delivered to the patient.

Thus, the Court construes "safety switch mechanism," consistent with Philips' proposed construction, as "the safety switch does not close until after the processor receives the defibrillation shock release request and pre-qualifies release of the defibrillation shock."

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3. "safety switch mechanism . . . separately responsive to the defibrillation shock release request signal"

Claim 1 of the '085 Patent describes the safety switch mechanism as "separately responsive to the defibrillation shock release request signal." Philips asserts that this phrase should be construed as "the safety switch responds to the signal from the trigger switch, without input from the monitoring and analysis circuit." In its briefing, n6 Cardiac Science contends that this phrase should be construed consistent with its construction of the previous term. In other words, Cardiac Science asserts that "safety switch mechanism" should be construed as "a fail safe device that requires two shock release requests before it will allow the AED capacitors to deliver a defibrillation shock to the electrodes attached to the patient."

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n6 Consistent with the Court's remarks in the previous term, the Court will not consider Cardiac Science's arguments that occurred on the eve of the Markman hearing.

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The Court agrees with Philips that the specification requires safety switches 28(a) and 28(b) to close without input from the processor. ('085 Patent at c. 5, ll: 13-21.) The specification describes the manually actuated trigger/rescue switch as the source of the signal to release the defibrillation shock. (Id. at c. 5, ll: 6-11.) Then, the rescue switch independently closes the safety switches to allow the shock to be released. (Id. at c. 5, ll: 13-14.) As noted in Figure 2, the safety switches are not connected to the processor. Thus, the safety switch responds to the signal from the trigger switch without input from the processor (i.e., the monitoring-and-analysis circuit). This is consistent with the specification, which states that the independent closure protects against malfunctions in the processor that otherwise could result in inadvertent shock delivery to a patient. (Id. at c. 5, ll: 14-17.) Accordingly, the Court construes this phrase as "the safety switch responds to the signal from the rescue/trigger switch without input from the monitoring and analysis circuit."

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18. Where subsequent uses of a claim term within a claim make reference to the first usage as an antecedent (through the use of introductory definite articles such as "said" or "the"), the claim term must be interpreted consistently across all such uses. See Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356-57 (Fed. Cir. 1999).

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Moll furthermore argues that the trial court "erred . . . by limiting the first and second detecting means as operating only on analog input signals." The claim language, specification, and prosecution history refute Moll's position. The claim covers a "system for minimizing the storage . . . requirements of digital representation of analog signals comprising a means for converting an analog signal to said digital representation . . . first means for detecting the complete absence of said analog signal, second means for detecting the duration of said absence of said analog signal . . .," (emphasis added). "Said analog signal" refers only to "analog signal." The district court was correct that the specification and prosecution history support this construction.

Substep (a) claims as part of the "tracking movement" step, periodically forming largely overlapping images of a field of view of "said array." When an element uses the word "said," it is referring back to a device already disclosed. See Nautilus Group, Inc. v. Icon Health and Fitness, Inc., 308 F. Supp. 2d 1198 (citing Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1356 (Fed. Cir. 1999), cert. denied, 529 U.S. 1037, 120 S. Ct. 1531, 146 L. Ed. 2d 346 (2000)). The phrase "said array" refers to the "two-dimensional array of photosensors" of the device disclosed in step (1).

With reference to FIG. 1, a hand-holdable controller device 10 is shown as including an integrated circuit package 12 for acquiring and processing image data. On the surface of the package is an optoelectric integrated circuit chip 14 having a two-dimensional array 16 of photosensors and having processing circuitry 18. The array and processing circuitry are used to acquire successive frames of image data, permitting the attitude of the device to be tracked.

('804 Patent, Col. 5:3-11.)

A person of ordinary skill in the art would understand that the inventor of the '804 Patent is using the phrase "said array" to mean the two-dimensional array of photosensors and associated circuitry of the hand-held device. Although the written description discusses a 32 X 32 array 2, the device is not limited to an array of a particular size.

We now focus on the correct interpretation of "said assembled data" in the context of the asserted claims of the '715 patent, and conclude that the Commission was correct in ruling that "said assembled data" refers to an entire Sector of CD-ROM data as it is stored in random access memory ("RAM").

The intrinsic record in this case is entirely consistent with this interpretation. The '715 patent contemplates a two-step data "assembly" process as data is read from the CD-ROM disk. First, the bit-by-bit serial stream of CD-ROM data is assembled into 8-bit bytes. Then, as specified by the Yellow Book, a group of bytes of the appropriate size is assembled into a Sector.
and stored in RAM. The written description of the '715 patent confirms this two-step data assembly process:

The drive controller 10 accepts digital data from the CD drive's electronics 12, particularly the microcontroller 29 and DSP 28 in a serial stream, descrambles the data, and assembles it into 8-bit bytes. The controller 10 then stores the data into the DRAM buffer 50. The error correction and detection operations performed by the ECC 40 and EDC CRC 42 on each sector of data are managed by the DRAM controller 38, which insures, through the direction of the host interface or control 44, that a sector of data is being corrected while the transfer of previously corrected sectors of data is occurring in real-time and without interrupting the flow of data from the drive controller 10 to the IDE bus 16.

'715 patent, col. 7, ll. 15-26. In other words, immediately after mentioning that CD-ROM data is normally read from the disk as a serial stream, assembled into 8-bit bytes, and stored in a RAM buffer, the written description acknowledges that error correction functions (abbreviated as "ECC" in the written description) and error detection functions (abbreviated as "EDC" in the written description), in the context of CD-ROM technology, operate on a sector-by-sector basis. Id. at ll. 19-22. Thus, the claim language and the written description both describe a straightforward, sector-by-sector, sequential "assembly line" process. Specifically, the written description states that the "assembled data" (i.e., a Sector of data) is first processed by the "error correction circuitry." When this process is completed, the "cyclic redundancy checker" processes the output of the error correction circuitry and produces "corrected data."

Oak argues that the Commission's interpretation of "said assembled data" was "misguided from the outset." Oak's view is that "according to the specification, 'assembled data' is simply another term for CD-ROM data that is sent from the compact-disc drive's electronics to the controller serially (i.e. one bit at a time) and organized into 8-bit bytes, not an entire 16,000 bit sector of data." (emphasis Oak's). In other words, Oak focuses on the first of the two steps in the data assembly process (i.e., converting a serial bit stream into a stream of 8-bit bytes), and ignores the second step (i.e., grouping a specified number of bytes into a Sector of data).

Based on the intrinsic record, support for the Commission's interpretation of "said assembled data" is overwhelming. First, the Yellow Book leaves no doubt that both error correction and error detection are to be performed on a sector-by-sector basis, and Oak readily admits that "Oak's patent contemplates Yellow Book compliance." Ordinarily skilled artisans would know that not every byte of a Sector is used for purposes of either error correction or error detection. Specifically, the Yellow Book plainly specifies that Reed-Solomon error correction operates on bytes 12 through 2075 of each Sector, while CRC error detection operates on bytes 0 through 2063.

Oak attempts to argue that interpreting "said assembled data" to refer to an "entire sector of data as a unit" would create "insurmountable" problems, because there are actually some bytes in each Sector that are not involved in the error correction or error detection operations at all. This argument has no merit, because it incorrectly assumes that ordinarily skilled artisans will not be able to select the appropriate bytes in the Sector for each of the two operations. Indeed, we believe that it is Oak's interpretation of "said assembled data" that presents insurmountable problems. Oak does not attempt to explain how error correction and detection, as defined in the Yellow Book and claimed in the '715 patent, could be performed on any grouping of data smaller than a Sector.

To support its position that "said assembled data" does not refer to a Sector, Oak relies solely on following portion of the written description:

The drive controller 10 accepts digital data from the CD drive's electronics 12, particularly the microcontroller 29 and DSP 28 in a serial stream, descrambles the data, and assembles it into 8-bit bytes. The controller 10 then stores the data into the DRAM buffer 50.

'715 patent, col. 7, ll. 15-19. From Oak's perspective, this passage is appealing because it does not specify exactly how much data is being stored in the DRAM ("dynamic random access memory") buffer. According to Oak's view, therefore, there is no legally valid reason to narrow the meaning of the claimed term "said assembled data" to any particular size, much less to an entire Sector of data.

In fact, the written description of the '715 patent itself describes how Sectors of data compliant with the Yellow Book can be broken up into their constituent parts and stored in RAM in a way that is conducive to sector-by-sector error correction and detection. The written description makes it clear that Sectors are read out of the CD-ROM disk, one Sector at a time, and...
that the data stored in the DRAM buffer each time a Sector is read takes up exactly 2048 bytes, an amount corresponding to
the User Data in the Sector:

FIG. 19 and FIG. 20 are ECC block pointer/write address counters. PTL and PTH form a pointer used by the ECC logic,
and contain the 12 least significant address bits of the first header byte of the CD-ROM block that is being corrected. Due to
the DRAM page organization of one embodiment of the controller, the value of PTH,PTL will always be 00,00h, making it
unnecessary to read or write PTL or PTH. The starting location of each block is controlled by write block counter registers
WBKL and WBKH (28h and 29h). Error correction is processed on the block before that indicated in the write block
counter (WBKH,WBKL-1). The controller organizes the DRAM into 2048-byte pages, allowing PTL and PTH to remain
unchanged. PTL and PTH are undefined following hardware reset or firmware reset.

'715 patent, col. 12, ll. 1-14 (emphasis supplied). In other words, in the only embodiment described in the '715 patent, there
is a DRAM buffer for storing CD-ROM data that is organized into "pages" of memory, with each page containing exactly
2048 bytes. As mentioned earlier, the Yellow Book specifies that the User Data field in each Sector of data is exactly 2048
bytes long (at least in Sector Mode 01, which is the only relevant operating mode in this case). Lest there be any doubt
about what is being stored in each 2048-byte DRAM buffer page, the '715 patent explains that "the microcontroller writes
the starting address that corresponds to the required starting point in the CD-ROM block," and that "the first byte of User
Data is located at address 00h." '715 patent, col. 11, ll. 27-28; Id. at ll. 31-32.

In other words, the disclosed controller locates the beginning of the 2048-byte User Data field in each Sector of data based
on its knowledge of Sector organization as specified by the Yellow Book, and lines up the data so that the User Data is
stored starting at the first memory location in one of the 2048-byte pages of memory in the DRAM buffer. As each new
Sector is read from the CD-ROM disk, a new page in the DRAM buffer is used to store the User Data in that Sector, and a
set of "pointers" (i.e., high-byte pointer PTH and low-byte pointer PTL) is used to keep track of the particular page in the
DRAM buffer currently being operated on. '715 patent, col. 12, ll. 2-5 ("PTL and PTH form a pointer used by the ECC
[error correction code circuitry], and contain the 12 least significant address bits of the first header byte of the CD-ROM block
that is being corrected.").

In short, we must reject Oak's allegation that "there is no support for [the Commission's interpretation of 'said assembled
data'] in the '715 patent or prosecution history."

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37. Claim 7, clause 3, recites the language: storing a plurality of covers for books to be printed in said computer, said covers
being stored in a bit mapped format. The parties do not dispute that this clause requires the covers for the books to be stored
in a bit mapped format. Defendants argue, however, that this clause requires that the covers of books to be printed are stored
in the same computer as the text of the books to be printed. See Doc. 69 at 44. Defendants base their position on their
assertion that the patent in this case encompasses only one computer, rather than a network of computers. The court has
found above that the '213 patent does not disavow or relinquish a broad meaning of the term computer to preclude the use of
a computer network. Therefore the plain meaning of Claim 7, clause 3, does not require that the covers be stored in the same
computer as the text of the books to be printed. Additionally, the specification and prosecution history to not establish that
the inventor intended otherwise.

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J. "said http server," as used in claim 1.

Claim 1's preamble states that the claimed invention involves a method of state information transfer "between an http server
and an http client." '670 Patent Claim 1. Subsequent references to "an http server" in the patent claims use the words "said
http server." Here, the parties dispute whether the use of "said http server" refers back to the same http server that receives a
request from an http client. Specifically, plaintiff asserts that no claim construction is necessary, while defendants propose
the claim construction, "the same server from which the user/client requested the HTML document." In this case,
application of Federal Circuit decisions governing the import of "said" when used in claims leads to the conclusion that "said http server" refers to "the same http server that received the request from the http client."

As explained in Baldwin Graphics Systems, Inc. v. Siebert, Inc., 512 F.3d 1338, 1343 (Fed. Cir. 2008), the use of the article "a" in a patent's claims carries the generic meaning of "one or more," as opposed to "the," which indicates a singular. Significantly, the use of "said" in subsequent references "does not change the general plural rule, but simply reinvokes that non-singular meaning." Id. Yet, an exception to this subsequent reference rule is made where "the language of the claims themselves, the specification, or the prosecution history necessitate departure." Id.(citations omitted).

While ordinarily "said http server" as used in the '670 patent refers back to multiple http servers because of the patentee's use of the article "an" in claim 1's preamble, the '670 patent specification provides strong justification to depart from this general rule. Specifically, the specification teaches that a server is a passive entity, which acts only when it receives a request from a client. See, e.g., '670 Patent Specification col. 1 11. 59-62 ("[T]he server serves a passive role, i.e., it accepts commands from the client and cannot request the client to perform any action."); id. col. 711. 12-13 ("Using the teachings of the present invention, when a server responds to an http request . . . ."). It follows that in the context of claim 1, "said http server" will only transmit a file or state object when "said http client" places a request. Logically then, the http server receiving the request must be the same http server that responds to the request.

The specification does not support the view that an http server receiving a request may essentially forward the request to another third-party server, which ultimately sends the desired information to the http client. Nor do the scenarios addressed in the course of the October 16, 2009 claim construction hearing suggest otherwise. Specifically, the parties discussed whether a primary http server receiving a request for an html document might: (i) transmit html text, which contains embedded reference tags directing the http client's Web browser to make additional secondary requests for other files to third-party servers, as depicted in figures 2, 3A, and 3B; or (ii) gather other media, such as images, from other third-party servers, and ultimately transmit a complete, integrated html document to the http client. Importantly, in the first scenario, the http client makes an initial request to the primary http server by entering a URL, and, upon receipt of the unfinished html document, the Web browser automatically makes secondary requests to third-party http servers to complete the Web page, albeit absent any additional affirmative act by the user. Thus, both the primary and third-party http servers transmit files to the http clients only after receiving requests directly from the http client. Similarly, in the second scenario, third-party servers respond to requests made by the primary http server; they do not respond directly to the http client, nor are they necessarily aware of the http client's underlying request to the primary server because the http client has not established a connection with the third-party http server by making a request. Accordingly, only the primary server transmits a file directly to the http client because only the primary server has received a request directly from the http client.

In addition, it must be noted that the parties disagreed in the course of the October 16, 2009 hearing as to whether a third scenario is permitted under the http protocol, namely that an http client makes a request to a primary http server, which then directs a third-party http server to send a file directly to the http client. Such a scenario, however, must be rejected as implausible. The http protocol--upon which the claimed invention builds, but does not alter--does not allow an http server to initiate the establishment of a direct connection with an http client. Instead, only an http client may open a connection to an http server by sending a request. Thus, the parameters of the http protocol exclude the possibility that "said http server," as used in claim 1, refers to an http server that does not receive a request from an http client.

In response, plaintiff argues that the specification includes references to multiple clients and multiple servers. Specifically, plaintiff cites the background of the invention section, see id. col. 1 11. 48-55, and the description of client-server computing, which includes figure 1 A, see id., col. 4 11. 17-27, which make reference to multiple "clients" and multiple "servers." These specification passages, however, at most establish the undisputed proposition that the Internet is a "network of networks," comprised of a veritable panoply of servers and indeed over a billion Internet users. This intrinsic evidence does not elucidate whether "said http server" as used in the '670 patent claims must be the same server that receives that request, and is not inconsistent with the fact that, as noted previously, a Web browser may make multiple requests to both primary and third-party servers in the course of assembling an integrated Web document.

In sum, the specification rebuts the presumption that the use of "an" is a generic use. By contrast, plaintiff's argument--which essentially requires an http server to transmit a state object or file even where it does not first receive an http client request--is inconsistent with the fact that http servers are passive entities. Accordingly, "said http server" is construed to mean "the same http server that received the request from the http client."
3. "said information" (claims 1, 2, 5, 6, 16, 19, 20)

Plaintiff argues that this term means "information submitted by the user to be included in a record." Defendant argues that there is no antecedent basis for this term and the court should invalidate the claim as indefinite. The requirement of antecedent basis is a rule of patent drafting. The Manual of Patent Examining Procedure states that the failure to provide explicit antecedent basis does not always render a claim indefinite. MPEP § 2173.05(e) (8th ed. Rev. 2 May 2004). The Federal Circuit has held that "despite the absence of explicit antecedent basis, 'if the scope of a claim would be readily ascertainable by those skilled in the art, then the claim is not indefinite.'" Energizer Holdings, Inc. and Eveready Battery Co., Inc. v. International Trade Commission, 435 f.3d 1366, 1370-71 (Fed. Cir. 2006)(citing Bose Corp. v JBL, Inc., 274 f.3d 1354, 1359 (Fed. Cir. 2001)).

Within the context of independent claims 1 and 15, "said information" is clearly understood to mean the information submitted by the user to be included in a record. For example, in claim 1, the pertinent part states "said information to be included in said record responsive to said request" while claim 15 states in relevant part "means for receiving said information to be included in said record responsive to said transmitting said request." See claims 1 & 15 of the '940 patent. Accordingly, the court construes "said information" to mean "information submitted by the user to be included in a record."

Claim Construction

HDI's motion for summary judgment of noninfringement was concentrated on claim 1, as representative of the '487 claims:

1. A method of causing an analytical measurement to be made in a reflectance-reading device at the end of a predetermined time period after an analyte reacts with a reagent in a porous, reflectance-reading matrix located in said device, which comprises:

   taking a first reflectance reading from a dry first surface of said porous matrix prior to application of a sample of body fluid suspected of containing said analyte to a second surface of said porous matrix from which said sample can travel to said first surface by capillary action and react with said reagent in said porous matrix if said analyte is present in said sample;

   applying said sample to said second surface of said porous matrix;

   taking an additional reflectance reading from said first surface after said sample is applied to said porous matrix;

   comparing said additional reflectance reading to said first reflectance reading;

   initiating said predetermined time period upon a predetermined drop in reflectance sufficient to indicate that said sample has reached said first surface; and

   taking a measurement reflectance reading at the end of said predetermined time period without having determined the time at which said sample was initially applied to said porous matrix.

The district court construed the claims as limited to a method wherein the initial measurement of the dry reflectance is taken on the same test strip just before the blood is applied, and not on a sample test strip whose reflectance is taken at the factory. The court held that although the HDI method functions in the same way as the claimed invention, the HDI device differs in that it "compare[s] the reflectance readings of the test strips, whether they are wet or dry, to a threshold reflectance reading which is programmed into the meter at the factory."
Lifescan states that there is no material difference between comparing two reflectance readings to each other, and comparing both readings to a third (threshold) reading that was previously taken at the factory. Thus Lifescan states that the district court erred in construing the claims, arguing that neither the '487 specification nor its prosecution history supports the district court's interpretation of the claims to exclude the possibility of infringement. Lifescan states that the reflectance reading taken at the factory constitutes "taking a first reflectance reading" as called for by claim 1, and that when this reading is compared with the additional reflectance reading taken by the HDI device after the blood sample has been applied, this literally constitutes "comparing said additional reflectance reading to said first reflectance reading," as the patent requires. Lifescan argues that direct comparison is not the only way of comparing values, and that HDI's method of comparing both reflectance readings to a factory-determined "standard" is the same as or equivalent to comparing them to the initial reading by the Lifescan meter. In both devices it is the amount of drop in reflectance that is measured, but in the HDI device both the initial "wet" reflectance after the plasma penetrates to the far side of the matrix, and the reflectance after the incubation period, are compared to the "standard" instead of directly to each other.

Lifescan argues that neither the specification nor the claims of the '487 patent requires that the reflectance readings be compared directly to each other, and that the district court erred in finding the claims to be so limited. Lifescan states that the district court improperly read into the claims the details of its preferred embodiment, although these details are not required by the specification, are not included in the claims, and are not required to preserve the validity of the claims. See E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 U.S.P.Q.2D (BNA) 1129, 1131 (Fed. Cir.) (prohibiting reading limitations from the specification into the claims "wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim"), cert. denied, 488 U.S. 986, 102 L. Ed. 2d 572, 109 S. Ct. 542 (1988); Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 867, 228 U.S.P.Q. (BNA) 90, 93 (Fed. Cir. 1985) ("Generally, particular limitations or embodiments appearing in the specification will not be read into the claims.").

Lifescan is correct that the claims do not include a limitation to how the reflectance readings are compared. Nor do the claims require that the reflectance readings be compared directly to each other instead of comparing each to a "standard" reflectance. However, the claims state that the dry and wet reflectances are taken from the same strip. Claim 1 states: "taking a first reflectance reading from a dry first surface of said porous matrix." The district court held that the claims can not be literally infringed when the dry reflectance reading is not taken from the same test strip that is used in the test, but is measured in advance at the factory. We conclude that the district court correctly interpreted the claims. Thus by programming its reflectance meter with a predetermined dry reflectance, HDI did not literally infringe the '487 patent. We affirm the summary judgment that the claims are not literally infringed.

**D. Said Scanning Head**

The parties dispute whether the scanning head that samples the output signals must also produce or generate the characteristic signal samples that it uses for comparison. The relevant portion of claim 1 states: "a memory for storing characteristic signal samples produced by scanning said preselected segments of bills of different denominations with said scanning head." '196 Patent, Col. 32, ll.5-8. Glory argues that the characteristic signal samples must be produced and stored by the specific scanning head that is present in the device. Cummins argues that such a construction is improperly narrow, and that the scanning head need only have a memory for storing the signal samples.

The Court agrees with Glory's proposed construction. The use of "said scanning head" is a reference to a term of art in patent law in which the court must identify the antecedent basis for an element preceded by "said." See Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352, 1379 (Fed. Cir. 2004). The "scanning head" is a specific, defined element in Claim 1; therefore, the plain language of the claim requires the characteristic signal samples to be produced and stored by that particular scanning head. Cummins could have drafted this claim differently so as to allow the scanning head to receive pre-programmed characteristic signal samples, but Cummins did not draft the claim in such a way. Courts may not redraft the plain language of a claim. Chef Am., Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004). The language of the claim requires the patented device to produce and store the master characteristic patterns.
5. "said silicon surface"

Agere argues that the phrase "said silicon surface" in claim 2 should be construed as "a silicon surface." Atmel does not propose a construction of the phrase "said silicon surface," but rather contends that the phrase lacks an antecedent basis and is therefore indefinite and invalid. Because there is no actual dispute over the construction of the term "silicon surface," no construction is necessary at this time. Rather, the issue here is whether the term "silicon surface" is rendered indefinite and therefore invalid by the existence of the preceding word "said."

Atmel is certainly correct, and Agere appears to acknowledge, that the phrase "said silicon surface" lacks an antecedent basis (i.e., there is no prior reference to a "silicon surface" in the claims). However, this does not necessarily render the phrase invalid for indefiniteness. The definiteness requirement arises out of 35 U.S.C. § 112, which requires that the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. 35 U.S.C. § 112, P 2.

Under 35 U.S.C. § 282 …, a patent is presumed valid, and at trial [the defendant has] the burden of proving facts by clear and convincing evidence showing that the patent is invalid. Compliance with the definiteness requirement is a question of law which we review de novo. Whether a claim is invalid for indefiniteness depends on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the specification.


Here, when claim 2 is read in light of the specification, it is clear that "said silicon surface" means "a silicon surface." For example, the specification states: "We have found that tungsten can be blanket deposited with good adhesion over a dielectric covering a portion of a silicon surface …. The glue layer film may be deposited, through openings in the dielectric, directly on the silicon or on a conducting material, such as a silicide, overlying the silicon." '335 Patent at col. 3:3-10. Thus, the patentee expressly contemplated that the glue layer would be used both where the exposed underlying material beneath the dielectric is simply a silicon surface, and also where the exposed underlying material beneath the dielectric is a metallic silicide overlying a silicon surface. These two possible scenarios identified in the specification comport perfectly with the two scenarios addressed in claims 2 and 3, which assert "[a] method as recited in claim 1 in which said [exposed underlying] material comprises said silicon surface," and "[a] method as recited in claim 1 in which said [exposed underlying] material comprises a metallic silicide," respectively. '335 Patent at col. 6:7-10. Therefore, the Court concludes that those skilled in the art would understand the scope of the claim when read in light of the specification, and thus Atmel's argument that the claim is invalid for indefiniteness is rejected.

C. What Constitutes the Uppermost Surface of the Insulation Layer?

The parties dispute whether formation of the first and second gate electrodes must occur on exactly the same surface. The claim recites, in relevant pan:

selectively forming a plurality of spaced-apart first gate electrodes on the uppermost surface of said at least one layer of insulation material;

selectively forming a plurality of second gate electrodes on said uppermost surface of said at least one insulating layer between said plurality of spaced-apart first gate electrodes, each of said second gate electrodes substantially occupying the space between adjacent first gate electrode;
According to the claim, the process forms the second gate electrodes on "said uppermost surface of said at least one insulating layer between said plurality of spaced-apart first gate electrodes."

The language "said uppermost surface of said at least one insulating layer" refers to the same place where the process previously formed the first gate electrodes. This language specifies the positioning of the second gate electrodes, but does not limit or specify the number of steps involved in formation of these electrodes. Dr. Wen testified that one skilled in the art would understand that the '674 process envisions many steps not specified in the claim 1 procedure. Dr. Fordemwalt agreed, as well, that the '674 process envisions many intermediate steps. Transcript at 344-45. Counsel for Loral questioned Dr. Fordemwalt, "You could have steps that would add a few additional layers [of insulation]." Dr. Fordemwalt responded that "we are talking a lot of layers." Id. In fact, Dr. Fordemwalt agreed that these intermediate steps may involve cleaning or regrowing portions of the exposed surface of the insulation layer. Id. The nature of the '674 process teaches one skilled in the art that "the uppermost surface of said at least one layer of insulation material" would not and could not be the identical atomic surface originally formed. As Dr. Wen explained, "in a semiconductor process environment, it is basically extremely difficult, if not impossible, to preserve the real atoms on a layer-by-layer basis on the surface of a layer . . . it is virtually impossible to have the same exact atoms on the surface." Transcript at 242.

With this understanding of the process from the vantage of a skilled artisan, the claim describes the position for formation of the second gate electrodes between the first gate electrodes. The claim requires this formation on the same material at roughly the same thickness as the material under the first gate electrodes. Transcript at 242-43. One skilled in the art would not understand this language to describe the formation of the second gate electrodes on the exact atomic surface of insulation material on which the first gate electrodes were formed. Nothing in the specification or prosecution history suggests limiting this positioning description to an exact atomic layer formed earlier in the multi-stepped process. Consequently, the court concludes "said uppermost surface of said at least one insulating layer" requires formation of the second gate electrodes between the first gate electrodes on the upper surface of the same continuous insulation layer upon which the first gate electrodes were formed.

The Commission held the claim invalid because the term "said zinc anode" lacked an antecedent basis, and because of the claim's imprecise statement of the role of the test parameters. EBC argues that these flaws do not render the claim "insolubly ambiguous," in the words of Marley Mouldings, Ltd. v Mikron Industries, 417 F.3d 1356, 1361 (Fed. Cir. 2005), which held that when a claim "is not insolubly ambiguous, it is not invalid for indefiniteness." See also Bancorp Servs., L.L.C. v Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004) ("We have held that a claim is not indefinite merely because it poses a difficult issue of claim construction; if the claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness.").

EBC argues that a person of ordinary skill in this field would readily understand the claim despite imperfect drafting, for the specification makes clear that the test parameters included in the claim do not mean that every cell must be discharged for 161 minutes. EBC points out that the '709 patent is directed to a standard electrolytic alkaline cell, and that the specification clearly states that the purpose of the test is to identify zinc anode material used in the invention. Claim definiteness is analyzed "not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art." In re Moore, 58 C.C.P.A. 1042, 439 F.2d 1232, 1235 (CCPA 1971). The definiteness inquiry "focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed. Cir. 2001). Although neither the Commission nor the courts can rewrite claims to correct material errors, the issue here is not correction of error, but understanding of what the claim covers. When the meaning of the claim would reasonably be understood by persons of ordinary skill when read in light of the specification, the claim is not subject to invalidity upon departure from the protocol of "antecedent basis."

The requirement of antecedent basis is a rule of patent drafting, administered during patent examination. TheManual of Patent Examining Procedure states that "obviously, however, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite." MPEP § 2173.05(e) (8th ed. Rev. 2, May, 2004). In Slimfold Manufacturing Co. v. Kinkad Industries, Inc., 810 F.2d 1113, 1117 (Fed. Cir. 1987) the court held that "the missing antecedent clause, the absence of which was not observed by the examiner of the original patent or by Kinkad in its reissue protest documents, did not fail to inform the public during the life of the [274] patent of the limits of the monopoly asserted." The Slimfold
court held that addition of the missing antecedent basis during reissue was not a substantive change. Whether this claim, despite lack of explicit antecedent basis for "said zinc anode," nonetheless has a reasonably ascertainable meaning must be decided in context. In prosecuting the '709 patent, the examiner made several objections to the claims, but the claims were not rejected or objected to on the ground of lack of antecedent basis. In Bose Corp. v. JBL, Inc., 274 F.3d 1354, 1359 (Fed. Cir. 2001) the court held that despite the absence of explicit antecedent basis, "If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite." Moreover, we noted in Slimfold that an antecedent basis can be present by implication. Slimfold, 810 F.2d at 1116. See Cross Medical Products v. Medtronic Sofamor Danek, 424 F.3d 1293, 1319 (Fed. Cir. 2005).

Neither the Commission nor the Intervenors argued that they did not understand the intended scope because of the absence of an antecedent. The Commission erred in holding that the need to construe a claim, or the proffer of alternative constructions, renders the claim indefinite. A claim that is amenable to construction is not invalid on the ground of indefiniteness. In Exxon Research & Engineering, 265 F.3d at 1375, the court stated that "if the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." See also Novo Indus., L.P. v. Micro Molids Corp., 350 F.3d 1348, 1353 (Fed. Cir. 2003) (determining whether claim is "amenable to construction"); Honeywell Int'l, Inc. v. ITC, 341 F.3d 1332, 1338 (Fed. Cir. 2003) (a claim is not indefinite because it is hard to construe). Here, it is apparent that the claim can be construed. In that regard, we conclude that "anode gel" is by implication the antecedent basis for "said zinc anode." The Commission's holding of invalidity on the ground of indefiniteness is reversed.

GO BACK

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10. "sale calendar module which allows the user to search the auction data and to display on the video monitors at the workstations a list of one or more auctions by date, by location, and by vehicle sale type"

Claim 1(e) recites a "sale calendar module which allows the user to search the auction data and to display on the video monitors at the workstations a list of one or more auctions by date, by location, and by vehicle sale type." ('873 patent col. 11,11.27-30.) AMS and BidSoft propose the following definition: "a computer program for searching a motor vehicle auction database and viewing data concerning future vehicle auctions; the program allowing the user to search the auction database for vehicle auctions matching a user-selected parameter, wherein the parameters available to the user must include date, location, and vehicle sale type." Under Manheim's proposed construction, the term would mean "a portion of a program that performs the particular tasks of allowing users to search the auction data and displaying a list of auctions sorted by date, location or vehicle sale type."

The first issue the Court must resolve with respect to this term is whether the phrase "by date, by location, and by vehicle sale type" modifies "search the auction data," as AMS and BidSoft argue, or "display" as Manheim contends. It is Manheim's position that the claim phrase represents two distinct elements related to the sale calendar module: first, the user must be able search the auction data, and second, the results must be displayed by date, location, and sale type. Thus, according to Manheim, the phrase "by date, by location, and by vehicle sale type," modifies only "to display on the video monitors at the workstations a list of one or more auctions," and not "search the auction data." In contrast, AMS and BidSoft argue that while the claim term as it appears is ambiguous in this regard, the inventors resolved this ambiguity during prosecution by expressly stating that the sales calendar module "allow[s] the user to search a 'calendar' of different auction sales by location, date, and/or sale type." ('873 patent file history, Oct. 17, 1997 Response and Amendment [377-7] at 5.)

Upon review of the intrinsic evidence, the Court agrees, at least for the most part, with AMS and BidSoft. The inventors' statements during prosecution make clear that users must be able to search the auction data by the claimed parameters. (See id. ("Applicant believes that the term 'sale calendar' is appropriate for the functions performed by this module: allowing the user to search a 'calendar' of different auction sales by location, date, and/or sale type."); id. at 7 ("[T]he system of Applicant's Claim 1 includes a 'sale calendar' module that allows the user to search for different auctions by date and location.").) This understanding of the claim language is confirmed by the specification. Notably, the flow chart diagrams showing the sequence of events associated with the sale calendar module clearly indicate that the search parameter--e.g., sale type or location--is selected by the user to generate an SQL query which is then transmitted to the server which returns results matching the selected parameter--that is, to search the auction data--which are then displayed on the video monitors. (See '873 patent, Figs. 2A1 to 2E.)
Accordingly, the Court agrees with AMS and BidSoft that the term "by date, location, and vehicle sale type" modifies "search the auction data" and adopts the following construction: "a portion of a program which performs the particular tasks of allowing the user to query a motor vehicle auction database for auctions matching a user-selected parameter, wherein the parameters available to the user must include date, location, and vehicle sale type, and displaying the results of that search on the video monitors at the user workstations."

AMS and BidSoft contend that the term "sale catalog review routine" appearing in claim 6 should mean "a user application residing on the user's PC workstation allowing the user to search the vehicle condition information and to display the results of the search on the video monitor of the user's PC workstation." Manheim counters that the term should mean "a portion of an application that allows users to display a list of sale dates and sale inventory associated with a selected motor vehicle auction." Much as with the term "market reports routine," the Court finds none of the proposed constructions appropriate.

Claim 6, which is dependent of claim 1, claims "The system of claim 1 wherein the auction data includes vehicle detail information . . . and the set of user application modules includes a sale catalog review routine whereby the user can search the auction data and display the vehicle detail information." Therefore, the plain language of claim 6 requires that the user be able to search the auction data and display on the user's workstation "the vehicle detail information." The parties agree that "vehicle detail information" means "information about minute and distinct aspects of the vehicle," and that "such information may include options, status, dates, charges, notes, and condition information." Therefore, the "sale catalog review routine" must be capable of searching and displaying this information.

With respect to AMS and BidSoft's proposed construction which would require that the "sale catalog review routine" be a "user application residing on the user's PC workstation," the Court declines to impose such a limitation for the reasons set forth in the Court's discussion of "market reports routine," supra.

In view of the plain language of the claims, the Court concludes that the term "sale catalog review routine" in claim 6 shall mean a "portion of a program that performs the particular task of allowing the user to search the auction data and display on the user workstation information about minute and distinct aspects of the vehicle, where such information may include options, status, dates, charges, notes, and condition information."
The defendants argue that the district court construed and instructed the jury on "sales information" too broadly. They argue that the patent specification and prosecution history require that "sales information" always includes information that is promotional in nature, and that the term is not met by the provision of only price and identifying information such as title or ISBN. ODMC responds that the claims are not limited to the embodiment illustrated in the specification, and that "sales information" is infringed even when there is no promotional information included with the identifying information. In finding infringement the jury necessarily accepted the ODMC view, for the orders to Lightning Source carry only identifying information, and Lightning Source provides no promotional information.

In general, the scope and outer boundary of claims is set by the patentee's description of his invention. Phillips, 415 F.3d at 1313-14. The specification makes clear that sales information is that which would help the consumer to choose a book. We agree with the defendants that the prosecution history requires this claim construction, for the inclusion of promotional information was a material distinction from the prior art. Mr. Ross stressed that in his invention a customer can browse among books based on information concerning the substantive content of the book. The specification identifies "descriptive material such as a synopsis, plot outline, author's biographical summary, etc." as promotional information. Col. 6, lines 18-21. ODMC stressed this distinction from the prior art on reexamination:

It is submitted that in no way is a job file descriptor to be confused with means for allowing a customer to browse among a multiplicity of books stored on Patent Owner's system and to select the book of interest for on-demand printing and delivery to the customer.

The reexamination examiner agreed, stating as the ground of patentability that:

The prior art does not disclose or suggest the storing of sales information for customer review which provides descriptive information relating to stored books in a computer in combination with the customer selection of books or portions of books, . . . .

ODMC states that the term "sales information" is met by identifying information such as title or ISBN alone, for the specification states that the computer stores a "Book Attributes Description" and lists eleven attributes that "include the title of the book, its ISBN number and other information (as shown in FIG. 5) which help to describe the book and to provide the potential customer [with information] about the book." Col. 11, lines 3-9. ODMC argues that the ISBN is sufficient sales information, and that this claim term is met whether or not promotional material such as book reviews are also made available to customers. ODMC argues that the jury necessarily so found, in finding infringement.

The defendants argue that ODMC disavowed this interpretation in order to obtain the patent, and represented to the patent examiner that the inclusion of promotional material is what distinguishes this invention from the prior art. We agree with the defendants that "sales information" requires that promotional information is stored in the computer that is made available to the customer. The ISBN or the title and author are file identifiers, not promotional information. The jury instruction, if read to mean that identifying information alone can satisfy the "sales information" term, is incorrect.

We conclude that on the correct construction of "sales information," claim clauses [3] and [4] cannot be met by Lightning Source's activities, for it was not disputed that the books ordered from Lightning Source were ordered solely upon identifying data such as title or ISBN, without promotional information from Lightning Source. ODMC argues that Amazon.com provides sales information, producing joint infringement as to the 10% of Lightning Source's production that is ordered by Amazon. We discuss this aspect in Part II, infra.

3813

A. "SAMPLE WELL"

Roche contends that "sample well" means: "the reaction zone, i.e., a reservoir, or other structure or area, that receives a sample fluid." The crux of Roche's argument that the "sample well" is simply the reaction zone is because that is how "sample well" is referred to in the specification of the 609 patent. The patent states in the Background of the Invention
section: "Biosensing instruments used for the detection of analyte levels in blood (such as glucose and cholesterol) often employ disposable sample strips that include a well or reaction zone for receiving a blood sample." Id. col. 1, ll. 13-16. Moreover, the patent teaches: "Sample strip 18 contains a well 20 (i.e., a reaction zone). . . ." Id. col. 4, ll. 31-32.

Although Apex Defendants take no position on this term, HDI contends that "sample well" means: "a well, i.e., an open-topped container or reservoir into which an analyte-containing fluid sample is emplaced." HDI finds support for the "sample well" to have an open top in Figure 3, and in the following passage from the specification: "[A] glucose determination is made by initially emplacing in well 20, a sample of blood." Id. col. 5, ll. 48-50. Figure 3 shows an example of a sample strip inserted into a meter. HDI also supports its construction for the term "sample well" with the testimony of its expert, Professor Anthony P.F. Turner ("Dr. Turner"), who opines about the difference between a "well," which requires only one opening, and "contemporary capillary-fill devices," which require a second aperture to allow air to escape. Turner Rep. P 36. Dr. Bruce K. Gale ("Dr. Gale"), also testified that he would not describe a "microfluidic channel" as a "well," apparently to distinguish one of the allegedly infringing devices. Gale Dep. at 148.

Similarly to HDI, Biosite contends that "sample well" means: "a chamber or other discrete space in a device defining a container or reservoir into which an analyte-containing fluid sample is emplaced." Biosite also wants to include other parameters in this definition: "In claim 1 of the 609 patent, the sample well is required to contain an analyte reactant, and further required to be the location in which reactions occur between the analyte-containing fluid sample and the analyte reactant." In other words, Biosite contends that the proper construction for "sample well" includes the specification that the "sample well" "must contain an analyte reactant and be the location where reactions occur." Biosite Br. at 35 n. 13. The Court finds that the later requirements are unnecessary given the recitation of these elements in claim 1 itself. In other words, "sample well" need not be further defined by what occurs there or what is contained there, because the remainder of claim 1 has elements that explicitly state what is required. Moreover, other claims also use the term and also clearly state the requirements of the "sample cell." See 609 Patent, claims 4 & 6.

The Court finds that the proper definition for "sample well" is "a container or reservoir for the sample," which best comports with the plain meaning of the term in the 609 patent. Beginning with the claims of the 609 patent the term "sample well" appears in four independent claims of the patent, claims 1, 4, 6, and 12. The plain meaning of the term in the context of those claims is a reservoir or container for a sample. There is no reason to interpret the term "sample well" to include limitations that appear otherwise in the claims. All of the independent claims particularly describe the contents of or the purpose for the "sample well" of that claim. For example, claim 4 states, that the sample strip "includes a sample well with an analyte reactant therein" and that a current output occurs at a second electrode on the sample strip "when an analyte containing fluid is present in said sample well. . . ." 609 Patent, col. 9, ll. And, claim 6 requires that the sample strip include "excitation and sense electrodes and a sample well bridging thereacross [sic], said sample well including an analyte reactant. . . ." Id. col. 10, ll. 7-9. See also, col. 11, l. 23 to col. 12, l. 6 (claim 12). In other words, adding to the plain meaning of "well" what must also be included therein or what must happen therein is redundant.

The specification also supports a plain meaning definition for "sample well." The 609 patent teaches that the invention includes a meter that "is enabled to receive a sample strip that includes a sample well. . . ." 609 Patent, Abstract. Further, in the abstract the 609 patent teaches that the meter senses a current from the sample strip "when an analyte containing fluid is present in the strip's sample well." Id. Both usages are repeated in the Summary of the Invention section of the patent. See id. col. 3, ll. 36-45. Neither one of these usages require that the sample well have an open top nor do they require that the sample be "emplaced" therein. Both merely require that the well exist and that the meter sense when fluid or a sample is present in the well.

Another section of the 609 patent that describes the "sample well" states: "Sample strip 18 contains a well 20 (i.e. reaction zone) that encompasses a pair of conductive electrodes 24 and 26. A layer (not shown) of enzymatic reactants overlays electrodes 24 and 26 in well 20 and provides a substrate on which an analyte-containing fluid sample may be emplaced." Id. col. 4, ll. 31-36. The 609 patent also teaches that "a glucose determination is made by initially emplacing in well 20, a sample of blood." Id. col. 5, ll. 48-50. A similar description is also found later in another section of the Detailed Description of the Invention. That description states, in relevant part:

If the leakage current (sensed by sense amplifier 50 and fed to microprocessor 59 via A/D converter 52) is found to be less than a threshold (key), microprocessor 59 indicates via display 12, that the user may apply a drop of blood to well 20.
Time delay \(d\) enables the drop of blood to entirely wet the enzyme layer within well 20. If the voltage senses at time 70 is below a sample size threshold 72 (key), the test is aborted as the volume of blood is determined to be insufficient to assure complete hydration of enzymatic reactants within well 20.

"609 Patent, col. 6, ll. 41-68 to col. 7, l. 1. These descriptions also use the term "well" to mean a container or reservoir for the sample.

In the first description, the patent provides an example description of the well -- "a reaction zone" -- however, this is just an example, as indicated by the "i.e." before the term "a reaction zone." Id. col. 4, l. 32. Moreover, there is no indication in the claims or elsewhere in the patent that the construction of the term "sample well" should be narrowed to "reaction zone." The same section also uses the word "emplaced," which both HDI and Biosite contend limits the term "sample well," similarly to the requirement at column 5 where the process of measurement requires emplacing blood into the well. There is nothing in these descriptions, however, that limit the term "well" to require what is put inside the well. In other words, adding a phrase defining what is emplaced in the well to the definition of well unnecessary imports a requirement from the specification into the claim.

Moreover, a close reading of the specification teaches that the sample may be emplaced on a substrate in the well, id. col. 4, ll. 35-36, not that the sample is emplaced in the well. In other words, it is possible for the sample to be carried to the well, container, or reservoir, through a substrate or other means that wicks the fluid to the well. Furthermore, the patent clearly teaches that the emplacement is not mandatory by using "may" rather than "shall." Similarly, in the last passage quoted above, it is clear that the sample reaches some reactant layer within the well, however, there is no language that would limit the plain meaning of the term well either to have an open top or to have the sample emplaced therein.

For these reasons, there is nothing in these passages that convinces the Court that the inventors intended to limit the plain meaning of the term "sample well." The Court finds that the term "sample well" means: a container or reservoir for the sample.

The court begins the infringement inquiry where its November 2004 claim construction order left off. In that order, the court held that the various "performing procedures" terms of 366 Patent must be given their ordinary and customary meaning. First Claim Construction Order at 10. Furthermore, having not been asked by the parties to construe the meanings of the terms "satisfying" or "request," the court assumes that those terms are also intended to carry their ordinary lay meaning in the claims at issue. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted) (noting that courts must "indulge a heavy presumption' that a claim term carries its ordinary and customary meaning") (citations omitted). Like the verb "to perform," the ordinary meaning of "to satisfy" encompasses a wide range of actions. Nonetheless, at least one dictionary definition suggests that "satisfying" a request involves "fulfilling" or "complying with" that request. 14 The Oxford English Dictionary 505 (2d ed. 1989) (definition of "satisfy"). This definition accurately reflects the sense in which the term "satisfying requests" is used in the 366 Patent. The preferred embodiment of the invention discloses a "first processing unit" (the "local host") that responds to a class of non-NFS requests from client computers on a data network. 366 Patent, 10:60-11:53. According to the specification, the local host computer "has three main purposes: to run Unix, to provide standard ONC [i.e., Sun Open Network Computing] network services for clients, and to run a Server Manager." Id. at 10:61-63. By carrying out these tasks in response to requests from clients on the data network, the local host computer performs procedures for "satisfying" -- i.e., for fulfilling-such requests.

The court thus construes the claim term "satisfying requests" according to its ordinary meaning: that is to say, "fulfilling" or "complying with" requests.

Because the parties have presented no evidence that the claim terms "satisfying" and "request" have specialized meanings in the field of network file server architecture, it is proper to rely on nontechnical dictionary definitions to determine the ordinary meaning of those terms. See Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352, 1366 (Fed. Cir. 2004) (citing Inverness Med. Switz. GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1369 (Fed. Cir. 2002)).
Of course, if "satisfying" a request means "fulfilling" or "complying with" that request, it necessarily follows that the claimed second processing unit, which does "not satisfy any requests from said network which are within said predefined non-NFS class of requests," does not fulfill or comply with requests that fall within that predefined class. Obviously, a request that is not directed toward or routed through a processing unit is "not satisfied" by that processing unit. However, as the preferred embodiment of the claimed invention illustrates, it is also possible for a processing unit to receive and transfer a client's request without "satisfying" that request. Indeed, the specification describes a "second processing unit" that receives non-NFS requests, identifies the nature of those requests, and passes them to the host computer for processing. 366 Patent, 8:18-22, 9:49-50. If the claims of the 366 Patent are construed to read on the preferred embodiment of the invention, as they almost always must be, see Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996), the actions taken by the disclosed file server to recognize and transfer non-NFS requests cannot be deemed to "satisfy" those requests. Thus, a request may be "not satisfied" within the meaning of claim 1 if it is received, recognized as a request within a predefined non-NFS class of requests, and transferred without taking any action for the purpose of fulfilling or complying with that request.

On January 24, 2004 this court conducted a limited claim construction for the '741 Patent and accompanying certificates, construing the word "saturation" to mean "the state in which the ratio of collector-current to base-current is forced lower by excess base current" and the phrase "in saturation" to mean "the working of the covered invention consistently at a state of forced current gain." Memorandum & Order, No. C 94-1633 MHP, slip op. at 12, 17 (Jan. 22, 2004).

II. "price being . . . scaled to the performance of the buyer" 6

Plaintiff argues that the standard for scaling a price can be a formula, ratio, table or algorithm. OPENING at 7-9. Plaintiff
adds that this standard is not limited to a predetermined table of prices. Id. at 8-10. Plaintiff also argues that a lower price does not "always" correspond to a better performance at the PDA. Id. at 12-13. Defendants contend that the specification discloses that the scaling occurs according to a scaled set of prices. RESPONSE at 13-14. Defendants also argue that a lower price always corresponds to a better performance at the PDA. Id.

As set forth above, claim 1 of the '253 patent discloses that the price of the product or service is determined "based at least partially upon the data received, said price being within the price range and scaled to the performance of the buyer." '253 patent at 9:31-49 (claim 1). As Plaintiff points out, the claim language indicates that the price is not exclusively determined based on the buyer's performance. Id. at 9:44-46. The specification discloses:

The ultimate price [of the product or service] (within the range) is determined based upon the buyer's performance rating, or score, which the buyer receives from participating in a collateral activity. Thus, if a buyer performs poorly at the activity, the price will be higher, whereas if the buyer does well, the price will be lower.

'253 patent at 2:23-28. The specification also discloses that the scaling may occur according to a price-determining or mapping algorithm, a table of values, or a score comparison among players. '253 patent at 7:42-49, 57-62, 8:10-13. With respect to scaling, the specification also discloses that "a price determining algorithm associated with a PDA may involve considerations of the number of players or buyers involved, and the skill level of those players." Id. at 8:10-13. In order to take into account such variables as the number of players or the skill level of the players, the scaling cannot be limited to only a predetermined set of graduated prices and corresponding performance levels, as Defendants argue. Moreover, as previously noted, the specification explicitly discloses scaling methods that are not so limited.

Plaintiff argues that a better price does not always correspond to a higher score. OPENING at 12-13. The specification consistently indicates that if a buyer performs poorly at the activity, the price will be higher, whereas if the buyer does well, the price will be lower. See '253 patent at 2:26-28, 52-56, 3:64-67, 4:1; see also id. at 5:39-67; 7:40-52; 8:14-23, 46-58. While the specification does note that considerations other than score may be taken into account, it limits these considerations to the number of players involved and the skill level of the players. Id. at 8:10-13. The specification neither lists other considerations, nor indicates that this list is non-exhaustive. The listed considerations do not indicate that a better price does not always correspond to a higher score.

Moreover, the prosecution further supports this conclusion. The "scaling" limitation was disclosed at the point of novelty during prosecution. RESPONSE, SISTOS DEC., EXH. 2 at 48. Later, the applicant indicated that "[t]ypically, the better the buyer performs during the PDA, the lower the price will be of the product being purchased" and "price is scaled . . . such that the better the buyer performs during the PDA, the lower the price will typically be of the product being purchased." Id. at 118, 129. The applicant also emphasized that "[t]he PDA is directly connected to the price of the product" and claim 1 "recited [a] direct link between a Price-Determining-Activity (PDA) and the price of the product." Id. at 125, 129 (emphasis omitted). The decision of the BPAI also reflects these contentions: "if a buyer performs poorly at the activity, the price will be higher, whereas if the buyer does well, the price will be lower." Id. at 149. Therefore, the intrinsic record indicates that a buyer's score or performance level is directly connected to the price of the product and a better performance results in a lower price.

Plaintiff argues that this is not always the case and sets forth a number of hypothetical formulas where a better performance would not necessarily result in a lower price. OPENING at 12-14; REPLY at 9-11. However, such speculation does not change the disclosures set forth by the patentee in the intrinsic record. The patentee specifically emphasizes the "direct connection" and "direct link" between a better performance and a lower price. Id. at 118, 125, 129. The statements are unambiguous, and Plaintiff points to nothing in the intrinsic record that indicates that a better performance could ever result in a higher price. Therefore, the Court finds that the proper construction of the term "price being . . . scaled to the performance of the buyer" is "price being adjusted by a ratio, table, or algorithm, wherein a lower price always corresponds to a better performance or better performance level in the PDA and a higher price always corresponds to a worse performance or worse performance level in the PDA."
The court shall apply the ordinary definition of the phrase "scaled voltage." Thus, the phrase "scaled voltage" shall be construed to mean "a voltage that is some fraction of the input voltage."

The parties dispute the meaning of the claim term "scanner." The first element of claim 1 recites, in pertinent part, "a scanner for producing from said color original a set of three tristimulus appearance signals dependent on the colors in said original." '919 patent, col. 15, ll. 34-36 (emphasis added).

The district court concluded that the scanner must have "relative movement between the scanning element and the object being scanned." We agree.

"Claims must be read in view of the specification, of which they are a part." Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (internal quotations omitted). Indeed, the specification is "[u]sually . . . dispositive" and "is the single best guide to the meaning of a disputed term." Id. In this case, however, the specification does not define the term "scanner" either explicitly or implicitly. The most that can be said is that the specification is not inconsistent with a relative movement requirement. The specification discloses only one type of scanner, a "Hell Model 299," which is a drum scanner that rotates a two dimensional original image past a scanning element. '919 patent, col. 5, ll. 40-43. The drum scanner operates by moving the original past a scanning element, and thus requires "relative movement between the scanning element and the object being scanned."

Under such circumstances it is appropriate for us to look to dictionary definitions of the terms. See Phillips, 415 F.3d at 1322 ("Dictionaries or comparable sources are often useful to assist in understanding the commonly understood meaning of words and have been used both by our court and the Supreme Court in claim interpretation."). Dictionary definitions of "scan" and "scanner" at the time the patent application was filed in 1982 confirm that these terms require relative movement between a scanning element and an object being scanned. For example, the 1968 version of Webster's Third New International Dictionary defines "scan" as "to cause a narrow beam of light to . . . traverse (an object) in order to translate light modulations into a corresponding electrical current." Subsequent dictionary definitions include the same limitation. The 1984 edition of McGraw-Hill Dictionary of Scientific and Technical Terms defines "scanner" as "[a]ny device that examines an area or region point by point in a continuous systematic manner, repeatedly sweeping across until the entire area or region is covered." The definition in the 2002 version of Webster's is identical to the definition in the 1968 version. Thus the definitions, both before and after 1982, require relative movement.

MIT argues that "flying spot scanners" existed in 1982 (although not referenced in the specification) and lacked the relative movement limitation. Thus, MIT urges that to a person of ordinary skill in 1982, a scanner would not have required relative movement. In a "flying spot scanner," "[a] moving spot of light, controlled either mechanically or electrically, scans the image field to be transmitted." Electronics and Nucleonics Dictionary 249 (3d ed. 1966) (emphasis added); see McGraw-Hill Dictionary of Scientific and Technical Terms 784-85 (5th ed. 1994) (defining "flying-spot scanner" as "[a] scanner used for television film and slide transmission, electronic writing, and character recognition, in which a moving spot of light, controlled mechanically or electrically, scans the image field, and the light reflected from or transmitted by the image field is picked up by a phototube to generate electric signals"). A 1982 dictionary of computing defines a "flying spot" as "[a] point of light or the end of an electron beam that is movable at high speed back and forth across a field." Frank. J. Galland, Dictionary of Computing 107 (1982). This type of scanner is disclosed in U.S. Patent No. 2,790, 844 (the "844 patent"), filed on May 11, 1954. '844 patent, col. 4, ll. 33-44, 63-65. MIT argues that because a flying spot scanner has no mechanical movement, it is an example of a scanner that is inconsistent with the district court's relative movement limitation. Although the mechanical components of a flying spot scanner may remain fixed, the scanner operates by sweeping a light beam across the object to be scanned. See McGraw-Hill definition; '844 patent, col. 4 ll. 33-44, 63-65. We agree with the district court that the light beam qualifies as a scanning element, and thus that the flying spot scanner operates with movement between the scanning element and the object being scanned.
Plaintiffs similarly argue that television cameras, which were available in 1982, are "scanners" that operate without relative movement. We disagree. Although a camera may achieve the same result as a scanner, the dictionary definitions confirm that a "scanner," as it was understood in 1982, required relative movement between a scanning element and the object being scanned. Plaintiffs assert that U.S. Patent No. 4,037,249 (the "Pugsley" patent) used the term "scanner" to refer to a camera and thus reveals that in 1982 a person of ordinary skill in the art viewed a camera as a type of scanner. However, the specification of the Pugsley patent explicitly distinguishes between a camera (which does not require relative movement) and a scanner (which does) when it states that "it is usual to form three separate images by photographing or scanning the original." Pugsley patent, col. 1, I. 27 (emphasis added). n2

n2 MIT relies on three other patents as supposedly recognizing that a camera is a type of scanner. But these references either make clear that a scanner is distinct from a camera, see U.S. Patent Nos. 4,393,398 (employing "a cathode ray tube scanner or a color television camera"); 4,328,515 ("a scanning unit can be employed which works with a color television camera"), or are ambiguous, see U.S. Patent No. 4,349,279 (referring both to "an electronic color scanner in the form of a color camera" and to a "color scanning device in the form of a color scanner or a primary color camera").

We conclude that a camera that operates without relative movement is not a scanner within the meaning of the '919 patent. Go Back
Here, the district court (relying on the '919 specification, expert testimony, and technical references) concluded that in 1982 a person of ordinary skill in the art would have known of two general types of scanners, drum scanners and flatbed scanners. Both these scanners require close proximity between the color original and the scanner. We see no basis for disturbing this conclusion and agree that the term scanner should be defined by what was known in the art at the time. Plaintiffs argue that in 1982 cameras were scanners that did not require close proximity, but as we noted above, a camera that lacks the relative movement limitation is not a scanner. We conclude that the term scanner in 1982 should be construed to include a requirement of close proximity.

B. Ref. No. 78

*Image document scanner* or *document image scanner.*

These phrases are recited in or referred to in Claims 13 and 18.

Defendants' major dispute with Plaintiff's claim construction is that conventional ballot readers are not capable of imaging a document or ballot. Plaintiff agrees with Defendants on this point, as does the patent specification. "It is noted that such conventional ballot readers employ sensors positioned on a fixed grid pattern . . . and such readers do not image a ballot . . . ." (Col. 17, ll. 62-67.) Consequently, Plaintiff has offered to modify its construction by adding the following disclaimer: "Excluding non-imaging conventional ballot readers which employ sensors positioned on a fixed grid pattern."

The specification provides that ballot readers "may utilize all or part of conventional ballot readers and/or may utilize parts of conventional office equipment such as copiers, scanners, facsimile (fax) machines, and other commercial imaging and/or scanning devices and the like, e.g., for imaging and/or optically reading the information contained on an optically-readable paper ballot." (Col. 17, ll. 50-57.) Claim 18 of the '313 Patent provides that the document image scanner includes a copier, scanner, fax machine, commercial imaging device, and a commercial scanning device. This language is consistent with Plaintiff's use of the phrases "are part of" and "not limited to."

For the foregoing reasons, the Court construes the phrase as set out in Ref. No. 78 as follows:

The document image scanner includes, but is not limited to, optical readers, commercial imaging scanners, and all or part of conventional ballot readers, (excluding non-imaging conventional ballot readers which employ sensors positioned on a fixed grid pattern) conventional office equipment such as copiers, scanners, facsimile (fax) machines, and other commercial imaging and/or scanning devices, and the like.

H. *scanning a symbol comprising of a data field of information data cells and orientation means for indicating an orientation of the field*

The disputed phrase "scanning a symbol comprising of a data field of information data cells and orientation means for indicating an orientation of the field" appears in claim 27 of the '524 Patent. The parties contend that this is a step-plus-function limitation subject to 35 U.S.C. § 112, P 6, but disagree on how much of the disputed phrase is subject to section 112, P 6. 4 The Court rejects the parties' arguments in this regard and concludes that the disputed phrase is not subject to construction under the provisions of 35 U.S.C. § 112, P 6.

4 Similar to means-plus-function limitations, step-plus-function limitations are construed pursuant to 35 U.S.C. § 112, P 6. See O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1581 (Fed. Cir. 1997). The term "steps" refers to the generic description of elements of a process, and the term "acts" refers to the implementation of such steps.
Claim 27 of the '524 Patent provides as follows:

A decoding process, comprising the steps of: (a) scanning a symbol comprising a data field of information data cells and orientation means for indicating an orientation of the field; (b) identifying the location of the data cells; and (c) decoding the symbol from the located cells.

The phrase "comprising a data field of information data cells and orientation means for indicating an orientation of the field" in the disputed phrase modifies the word "symbol." Thus, use of the term "orientation means" does not describe a step in the decoding process structure; it merely describes the components of the symbol to be scanned in the scanning step of the decoding process. See O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1581 (Fed. Cir. 1997) (holding that the step of "passing the analyte slug through a passage" was not subject to section 112, P 6 because the term "passage" referred to the place where the recited function occurs rather than the structure that accomplishes the function). Consequently, the disputed phrase's use of the word "means" does not raise a rebuttable presumption in favor of interpretation pursuant to 35 U.S.C. § 112, P 6. See Sage Prods., 126 F.3d at 1427. Pursuant to the ordinary and customary meanings of the language used in claim 27, the decoding process includes (a) scanning a symbol; (b) identifying the location of the data cells; and (c) decoding the symbol from the located cells. The two-step construction method applicable to means-plus-function limitations pursuant to section 112, P 6 are inapplicable here. Instead, the Court gives the terms of the disputed phrase their ordinary and customary meaning and concludes the proper construction of the disputed phrase is "scanning a symbol."

### I. "Scanning Process"

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<thead>
<tr>
<th>Claim Term</th>
<th>BarTex's Proposal</th>
<th>FedEx's Proposal</th>
</tr>
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<tbody>
<tr>
<td>Scanning Process</td>
<td>The process by which the bar code is read that requires a link or call to a database</td>
<td>Ordinary meaning, i.e. the process by which the bar code is scanned</td>
</tr>
<tr>
<td>Claims 1 and 10</td>
<td>Alternatively: the process by which the bar code is read and decoded</td>
<td></td>
</tr>
</tbody>
</table>

Plaintiff contends that the term "scanning process" requires a link or call to a database. Plaintiff argues that the patent discloses two embodiments, one where the bar code itself represents information and a second where the bar code represents an address in a database where the information is stored. Plaintiff notes that independent claims 1 and 10 include a "scanning process" whereas claim 17 does not. Plaintiff argues that claims 1 and 10 are directed to the second embodiment and thus the term "scanning process" implicates a link or call to a database. Plaintiff contends the specification supports this construction.

Defendants contend the term does not require construction and that Plaintiff's proposal improperly imports an alternative embodiment into the claims. Defendants argue that the term simply refers to the process of reading a bar code to obtain the information encoded in a bar code portion or part - a process familiar to a lay jury. Alternatively, Defendants propose construing the term as "the process by which the bar code is read and decoded." Defendants argue that regardless of the particular scanning method utilized, a scanning process obtains only the information encoded within the bar code itself. That is, although the information encoded in a bar code may be a reference to a database, a call to a database is not part of the scanning process. Defendants argue that Plaintiff's present argument is inconsistent with its argument during reexamination where Plaintiff represented claim 17 implicitly included a scanning process involving a call to a database. Defendants further argue that the doctrine of claim differentiation bars Plaintiff's proposal because proposed claims in Plaintiff's reexamination and reissue applications explicitly recite a call to a database. Finally, Defendants argue that Plaintiff's proposal is legally improper as it would render the claims invalid by importing a method step into an apparatus claim.

In its reply, Plaintiff argues that Defendants' inclusion of decoding in its alternative proposal is improper because the described scanning process reads a bar code but does not decode it. Plaintiff identifies an express limitation in claim 17, but
absent from claims 1 and 10, that the information is encoded. Plaintiff argues its present argument is not inconsistent with the positions it has taken during reexamination, there is no authority for applying the doctrine of claim differentiation to pending claims, and in any event claim differentiation would be inapplicable because the pending claims do not depend from any of the present independent claims. Finally, Plaintiff contends that its construction would not introduce a method step to its apparatus claims; rather its proposal simply makes clear that the apparatus is capable of being used to call to a database.

As an initial matter, the Court declines to consider whether Plaintiff's present argument is inconsistent with its position before the PTO in the co-pending reexamination. Although a position taken before the PTO may bar an inconsistent position in subsequent litigation, see Intermatic, Inc. v. Lamson & Sessions Co., 273 F.3d 1355, 1367 (Fed. Cir. 2001), vacated on other grounds, 535 U.S. 722, 122 S. Ct. 1831, 152 L. Ed. 2d 944 (2002), Defendants fail to cite to, and the Court is unaware of, any authority applying this principle where the reexamination was still pending. See Edizone, L.C. v. Cloud Nine, No. 1:04-cv-117, 2008 U.S. Dist. LEXIS 15792, at *5-6 (D. Utah Feb. 29, 2008) (finding the same). Similarly, consideration of any proposed amendments or new claims is inappropriate. See Id. at *6 (“Even though the PTO ‘will treat the proposed amendments as though they have been entered, the proposed amendments will not be effective until the reexamination certificate is issued and published’” (quoting 37 C.F.R. § 1.530(k))). Thus, Defendants' arguments are inapplicable to the present facts.

Likewise, the Court is not persuaded by Plaintiff's argument differentiating claims 1 and 10 from claim 17 on the basis of the inclusion of the term "scanning process." The ’377 patent teaches "[t]he bar codes can represent the information itself, or can represent an address from a look up database which includes more information about a bar code." ’377 Patent col. 1:33-35. The specification goes on to describe numerous methods of scanning a bar code. See, e.g., ’377 Patent col. 2:3-7 (disclosing the use of a camera to scan a bar code). Nothing in the specification, the claim language, or the differences between claims 1, 10, and 17, compels the conclusion that the term "scanning process" must be associated with bar codes used to call or link to databases.

The Court finds that the term "scanning process" refers to a process by which information is derived from a bar code. This process may or may not include calling or linking to a database. Compare ’377 Patent cols. 1:32; 3:56-62; 4:24-33; 5:29-31 (describing embodiments where the bar code represents information itself) with ’377 Patent cols. 1:33-35; 3:63-64; 4:33-37; 4:49-64; 6:36-38) (describing embodiments where the bar code represents a database address from which information may be obtained). Although the inventions of claims 1 and 10 are capable of being used to call or link to a database, the claims do not require interaction with a database. 1 The Court will not import limitations from the specification into the claim language. See Phillips, 415 F.3d at 1323 (warning against limiting claims to specific embodiments disclosed in the specification).

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1 The Court recognizes the parties dispute whether the claim language is indefinite for importing a method step into an apparatus claim. Defendants filed a summary judgment motion on that matter (Doc. No. 115). The Court declines to address the matter here and instead will consider it in the context of the summary judgment motion.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

Having resolved the parties' claim scope dispute, the Court must now determine how best to communicate the term to a lay jury. The Court finds that the term does not have a plain and ordinary meaning that would be readily understood by a lay jury. The Court will essentially adopt Defendants' proposal and therefore construes the term "scanning process" as "the process by which the bar code is read."
scanned and the incident beam of P-polarized light such that the entire surface is inspected. Id. ADE further argues that the '525 written disclosure teaches many different ways of "scanning the surface of the workpiece" such as through translation or rotation of the workpiece or movement of the beam of P-polarized light. Id. KLA attempts to limit "scanning the surface of the workpiece" to a deflection of the beam of P-polarized light across the surface of the workpiece in a relatively narrow scan path. D.I. 344 13-20. Furthermore, KLA asserts, this proposed construction is different from one that permits the workpiece to be translated or rotated during a scan. Id.

This court is not inclined, as KLA suggest, to limit "scanning the surface of the workpiece" to "scanning" along a relatively narrow scan path without also encompassing other relative movement between the workpiece and directed beam of P-polarized light. "Scanning" is a broad term, similar to "workpiece," that brings to mind many different concepts. The context in which the word is used in the claim, though, is not helpful because it does not indicate how "scanning" is accomplished. One skilled in the art, therefore, must turn to the remainder of the intrinsic record to determine what the inventors intended.

The '525 disclosure teaches several ways to perform a surface scan of a workpiece. '525 at 5:15-7:5. During some of these scans, the workpiece is translated and rotated along its material path as it is inspected. Id. Figures 2 and 5, reproduced below, support translation and rotation of the workpiece during scanning.

One skilled in the art would recognize in Figure 2 that the curved arrow in the center of the silicon wafer with the Greek symbol [SEE GREEK SYMBOL IN ORIGINAL] attached thereto represents that the wafer (or workpiece) is undergoing rotation. Again, in Figure 5 this can be seen, however, Figure 5 also depicts a translation of the wafer (WAFER FLOW) during a scan by the beam of P-polarized light (LASER BEAM).

Claim 1 of the '525 patent does not limit "scanning" to any particular type of scan; instead, the claim plainly states that one step in the disclosed inspection method is to scan the surface of the workpiece at the inspection station. '525 at 12:19-25. In contrast, KLA would have this court read a non-existent limitation into the phrase "scanning the surface of the workpiece" from dependent claim 21. D.I. 344 at 13-20. 35 U.S.C. § 112, P4 does contain the requirement that a dependent claim further narrow the independent claim from which it depends. Dependent claim 21, however, fulfills this requirement.

Simply because dependent claim 21 explicitly provides that the workpiece is translated and rotated during the surface scan does not raise the negative limitation that "scanning" in claim 1 excludes this possibility. ('525 14:17-22) See Marsh-McBirney, Inc. v. Montedoro-Whitney Corp., 882 F.2d 498, 504 (Fed. Cir. 1989) ("Narrow claim limitations cannot be read into broad [claims] whether to avoid invalidity or to escape infringement.") (quoting Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1054 (Fed. Cir. 1988). Thus, the presence of a limitation to "scanning" in dependent claim 21 does not prevent the broad word "scanning" in independent claim 1 from encompassing other relative movement between the workpiece and the beam of P-polarized light. Some movement must exist between the light beam and the surface to inspect the entire surface "scanned" and effectuate the inventors' invention. Claim 1 of the '525 patent ensnares all such movement whereas dependent claim 21 specifies that the movement is translation and rotation. Any other construction is simply illogical and inconsistent with the invention taught in the '525 patent.

KLA, however, points to the fact that the written description describes the beam of P-polarized light as "narrow" and attempts, therefrom, to read this limitation into the word "scanning" in claim 1. Patent claims define and limit the invention. Claim 1 does not limit "scanning" to a narrow scan path. This court will not read such a limitation into the claim. Since a clear meaning of "scanning the surface of the workpiece" is readily ascertainable from the written description, no extrinsic evidence need be considered. Interactive Gift, 231 F.3d at 866; Hockerson-Halberstadt, 222 F.3d at 955 (citing Key Pharms., 161 F.3d at 716). This court, therefore, construes "scanning the surface of the workpiece" to mean that the entire surface of the workpiece is inspected through relative motion of the incident beam of P-polarized light and/or the workpiece being inspected.

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2. Group/ set of software scheduled instructions.
Intergraph argues this term carries its ordinary meaning to one skilled in the art. Intel again inserts elements from other claims to define "group of software scheduled instructions" as a set of 2 or more instructions within the same VLIW which have a common group identifier and which are executed simultaneously. The Court construes "groups of software scheduled instructions" and "sets of software scheduled instructions" as sets of one or more instructions that have been identified by software as being capable of being processed in parallel. '003 patent at 3:61-63.

3. '769 Patent Claim 23: "scheduled time"

Claim 23 similarly describes the method of updating subscriber databases. The claim contains four elements, only the first of which is in dispute:

Each subscriber station calling at a scheduled time a rate provider having billing rate parameters for each calling station, wherein the scheduled time for each call is such that the calls from each calling station are substantially spaced apart from each other.

Unlike Claims 1 and 11, Claim 23 uses the term "scheduled time" rather than "predetermined date and time" to limit contact between the calling station and the rate provider. Contact must be scheduled, according to the claim, so that calls are "substantially spaced apart in time from each other." Neither party raises an argument that this distinct language should have a distinct meaning. Rates and MediaCom each insist that "scheduled time" has a meaning equivalent to "predetermined date and time".

Notwithstanding the parties' positions, different usages in different claims are presumed to have different meanings. Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Because Claim 23 uses a different term, and imposes the additional requirement that calls be spaced apart, this Court must ascertain the meaning of this language. The specification explains that the spacing of calls is advantageous because it prevents the calling stations from overloading the rate provider by calling in all at once. It is difficult to conceive of any way to ensure that calls from numerous calling stations are spaced apart from each other without central direction. If individual calling stations independently were to select times to call in, even if they selected those times far in advance, there would seem to be no way to eliminate the possibility, however remote, of overloading the rate provider.

Rates argues that, even if individual users set their own call-in schedules, those decisions would be random and independent of one another, and so satisfy the requirement that the calls be scheduled so that they are spaced apart. That is an argument properly addressed to factual questions of infringement, and not claim construction. It suffices to construe Claim 23 to encompass a method in which the time for calling the rate provider is determined and planned in such a way as to ensure that there are substantial intervals of time between each call received by the rate provider from all users.

27. Scheduling

This term appears in claims 8 and 9 of the '037 patent, asserted against ADI. In its brief, ADI asks the court to construe the term "scheduling" to mean "adding to each of the branch instructions computer code that assigns an instruction firing time." Biax argues that the term needs no construction and, in any event, the term "scheduling" is broader than adding an instruction firing time. The court agrees with Biax. Scheduling could also embrace the concept of re-ordering instructions. Accordingly, the court declines to limit the term as proposed by ADI. The term "scheduling" is entitled to its ordinary meaning and needs no construction.
2. "scrambling"

The plaintiff argues that "scrambling" means a modification of a signal. Joint Claim Construction Brief, Exh. B. The defendants argue that it means modifying an analog signal so as to render it unusable. Id. The dispute is over whether "scrambling" applies only to analog signals, as the defendants contend, or applies to both analog and digital signals, as the plaintiff contends.

Again, claims are to be construed in light of the specification. Vitronics, 90 F.3d at 1582. With respect to whether "scrambling" applies only to analog signals, or also to digital signals, the specification discloses the following:

Currently, this unscrambling occurs in an expensive digitally controlled decoder such as the M/A-Com Video Cipher II or the familiar cable black box.

'066 Patent, col. 1, lines 16-19 (emphasis added).

The Declaration of Henry H. Jenkins 3 and its attachments establish that the Video Cipher II technology disclosed in the '066 Patent involved "scrambling" of both analog and digital signals. In particular, a January 1986 article in the Satellite Orbit, published prior to the filing of the '066 Patent, states:

The VC I system is a Cadillac scrambling system that digitally encrypts the audio and video signals. CBS currently is using VC I to scramble its feed on Telstar 302, transponder 19. HBO found that the VC I system, however, was too expensive and asked M/A-Com to design a scrambling system that was more affordable. In making the new system, M/A-Com decided to use analog scrambling of video signal (a more traditional method), while digitally encrypting the audio signal. This new system was dubbed Video-cipher II.

Declaration of Henry H. Jenkins (the "Jenkins Decl."). Exhibits to Broadcast's Consolidated Brief In Opposition to Defendants' Opening Brief on Claim Construction, at Exh. A (emphasis added). Another pre-filing article attached to the Jenkins Declaration explains:

The scrambled satellite signals in question are currently descrambled by M/A-Com Video Cipher II and Oak Orion equipment. Although industry insiders expressed little surprise that the VC II video—which is analog encrypted—was cracked, they doubted that the audio—which is digitally encrypted—would fall victim to such "low cost" alternatives as Anderson and others propose.

Id. at Exh. B (emphasis added).

--- Footnotes ---

3 Mr. Jenkins is the inventor named in the '066 Patent.

--- End Footnotes ---

One skilled in the art would understand the term "scrambling" to apply to both analog and digital signals. I reject the defendants' position that it applies only to an analog signal. I construe the term "scrambling" to mean modifying a signal so as to render it unusable until unscrambled.

3. "unscrambling"

The plaintiff argues that "unscrambling" means returning a modified signal to its previous unmodified state. Joint Claim Construction Brief, Exh. B. The defendants argue that it means restoring a scrambled signal to its original unscrambled condition. Id. If I had construed "scrambling" to be limited to an analog signal as the defendants urged, a distinction would exist between the competing proposals. In view of my construction of "scrambling" to include both analog and digital signals, however, the parties agree that "unscrambling" is simply the reversal of the scrambling process. I construe "unscrambling" to mean restoring a modified signal to its unmodified condition.

GO BACK
1. "scrambling transmitter"

The plaintiff contends that the term "scrambling transmitter" means a transmitter that includes a scrambling circuit. Joint Claim Construction Brief, Exh. B. The defendants assert it means a transmitter that scrambles and transmits an analog signal. Id. The sole disagreement appears to be whether "scrambling" is limited to analog signals only, a construction I already have rejected.

I construe the term "scrambling transmitter" to mean a transmitter that includes a scrambling circuit.

Screen process

The Court modifies AVG's proposed construction and construes "screen process" to mean "a process indirectly monitoring instructions regarding window control operations and using said instructions to generate and maintain in memory a subrectangle list." Microsoft criticizes AVG's proposed construction arguing that the claim language of "maintaining a subrectangle list" does not necessarily include "monitoring instructions regarding window control operations." Microsoft supports their argument by claiming that the specification describes two embodiments—one in which the screen process monitors the operator's instructions and one in which the display operating system monitors the operator's instructions and sends that information to the screen process—and the inventor chose to claim only the latter embodiment. Compare Col. 2:53-56 with 7:1-8:16. AVG argues that the specification's later description is a more detailed recitation of its earlier description, and that the screen process may indirectly "monitor" the operator's instructions by receiving information from the display operating system.

The Court agrees with AVG that the patent discloses only one embodiment, but in two levels of detail. The specification generally describes the screen process as monitoring the operator's instructions and then goes on to describe in more detail how this occurs. Specifically, the display operating system monitors the operator's instructions and then communicates that to the screen process. The plain language of the claim requires "a screen process for maintaining a subrectangle list." In this context, "maintaining" the subrectangle list means keeping the list current with information regarding window control operations. Thus, "maintaining" is not possible without cognizance regarding window control operations. Therefore, "maintaining" must include some sort of monitoring, albeit indirect, of instructions regarding window control and necessarily uses those instructions.

Script and Script processor

Although the parties briefed these terms separately, Defendants seek the same limitations, for the same reasons, in both terms. Accordingly, the Court will address them together. JuxtaComm contends a "script" is "a group of commands to control data movement into and out of the system, and to control data transformation within the system." Defendants contend a "script" is "a series of text commands interpretively run by the script processor, such that one command at a time is translated and executed at runtime before the next command is translated and executed, and that control data movement into and out of the system and control data transformation within the system." Both sides agree that scripts are commands that control data movement into and out of the system and control data transformation within the system. Defendants seek to further limit "script" to text commands as opposed to graphical commands. Defendants also seek to limit scripts to being interpretively run by translating and executing one command at a time.

JuxtaComm contends the Court should construe "script processor" as "software component that processes a script." Defendants contend the Court should construe the term as "a software component that interpretively runs scripts by
translating and executing one script command at runtime, before translating and executing the next script command." Both sides agree a script processor is a software component that processes or runs scripts, but Defendants seek to add the same additional limitations to the construction as they sought with "script."

The specification expressly defines "script": "Scripts 55 must be defined to control data movement into and out of the system, and to control data transformation within the system." Col. 5:65-67. Defendants seek to further limit scripts to text commands and to being interpretively run by translating and executing one command at a time.

Defendants contend script should be limited to textual commands because graphical or visual scripts are not described in the patent and all of the examples in the patent are of text commands. The claims are not limited to textual scripts, and the Court will not import implied limitations from the specification when the claims are not so limiting. Defendants are correct that the '662 patent does not specifically disclose graphical or visual scripts. While all of the preferred embodiments described in the '662 patent are textual scripts, nowhere in the '662 patent or its claims does the inventor disavow coverage of other scripts. Defendants are unable to point to any place in the specification or prosecution history where the patentee clearly disavowed such coverage. Accordingly, the Court will not import the limitations of the preferred embodiments into the claims, and the Court rejects Defendants' limitation that would limit scripts to textual commands.

Defendants argue that scripts should be limited to being interpretively run by translating and executing one command at a time, rather than being compiled. Defendants contend that this is the ordinary meaning of script and that any other meaning was disclaimed during prosecution to overcome a rejection in light of Morgenstern.

In the specification, a script is one item of metadata in the metadata database. Col. 4:32-39. A script is "run" on the script processor. Col. 4:41-43. There is no indication in the written description of a requirement for running a script using an interpreter; nor is there any indication that a script in the metadata database cannot be compiled by the script processor. A script is indicated as being nothing more than a task oriented program (batch file set of commands) that controls data transformation by the rules processor and the movement of data. The specification does not speak to exactly how the script is being "run." In general, a script is a program that is executed by another program rather than being directly run on the hardware processor. Accordingly, the specification does not limit "scripts" to being interpretively run.

As originally filed, the claims recited "a script processor for controlling data transformation . . . ." The examiner rejected the claims as being obvious over Morgenstern and Mitchell. In making the rejection of claim 2, which is claim 1 of the issued '662 patent, the examiner confusingly referred to "browser," while citing to the disclosure in Morgenstern of the information bridge mediator 60, as being a "script processor" for controlling data transformation. See Office Action April 3, 2000 at 3, P 6. Morgenstern is diagramed as:

[SEE FIG. 2 IN ORIGINAL]

What Morgenstern describes is data transformation using transformer engine 66 of bridge 60, which is a compiled program of transformation rules that are executed on the computer processor. The code for bridge 60 is built during a system generation phase. The source and target data structure specifications are applied to a transformation generator 42, which generates code files that describe the transformation rules to be applied. The code is then compiled for running on the computer processor. Morgenstern does not have a batch file that is pulled from a database during run time to control the transformation.

In response to the obviousness rejection, the applicants amended claims 2 and 18 to recite that the script processor "utilizes metadata" to control data transformation. They generally characterized Morgenstern as describing a generation module 30 which outputs a compiled information bridge 60 adapted to convert data from a source format to a target format. They then argued that Morgenstern teaches a different methodology.

The applicants also made separate arguments in regard to claims 2 and 18. The arguments in regard to claim 18, which recites "executable code for providing a script processor . . . to control data transformation," were that metadata (i.e., a script) stored in a database is utilized to "interpretively convert data from a source to a target." This statement does not say "interpreatively convert the metadata (script)." In context, the applicants' argument was not making a distinction between "compiling" and "interpreting," but rather it was indicating that there is use of a sequence of commands (scripts generated by a user) extracted from a database that are processed by a script processor program before execution by the computer.
processor rather than being executed directly by the computer processor. In arguments related specifically to claim 2, the applicants reference the absence in both Morgenstern and Mitchell of "scripts or a scripts processor," 9/05/2000 Response at 7. In other words, in contrast to Morgenstern, a sequence of commands pulled from a database is being carried out by another program (script processor) rather than by the computer processor.

The prosecution history does not evidence a clear restriction of "script processor" to a program that is interpreting a script for execution rather than compiling a script for execution. The distinction that was made over Morgenstern is that of using an intermediate program (script processor), whether it is an interpreter or a compiler, that executes a script program pulled from a database. The compiler program in Morgenstern, col. 8:58-61, could be labeled a script processor. However, the automatically generated code that is compiled, even if labeled a "script," is produced by the transformer generator 42 and is not pulled from a database. Thus, even if the transformer generator 42 would be labeled a "configuration management user interface," absent from Morgenstern would be a database storing scripts. Finally, if "interpreatively run" was necessary and being used to distinguish Morgenstern, the examiner would have required the claims to be amended to state that limitation. Accordingly, the Court will not limit "script" based on the prosecution history.

Accordingly, the Court adopts JuxtaComm's proposed construction and construes "script" as "a group of commands to control data movement into and out of the system, and to control data transformation within the system." The Court also adopts JuxtaComm's proposed construction and construes "script processor" as "software component that processes a script."

D. "Scroll Sequence"

Claims 37 and 38 use the phrase "scroll sequence." Claim 37, for example, describes a "memory means for storing a marker value for at least one of said channel tuning designations, and means for retaining said channel tuning designations in a plurality of scroll sequences ….") (Doc. # 1, Exh. A at col. 30).

Beery asserts that the phrase "scroll sequence" does not require a viewer to program it, but more broadly refers to one or more channel tuning designations which are retained in the memory means.

Thomson argues that a scroll sequence must consist of entries made by a viewer. Thomson bases this contention on the specification by arguing, "Scroll sequence is … given a specific meaning in the '952 patent's explicit description of 'scroll sequence' using the precise special definitions given to 'cue' and 'select code.'" (Doc. # 272 at 11). Thomson reasons, "a 'scroll sequence' is expressly described by the '952 patent as a 'cue' with a 'marker bit' or 'scroll marker.' The 'scroll sequence,' like the 'cue,' … is … defined by the '952 patent to include 'the listing in memory of various programmed entries made by the viewer, wherein each select code is stored along with its corresponding channel code and display code." (Doc. # 193 at 17 (original italics)).

The manner in which the phrase "scroll sequence" appears in the context of the '952 patent provides no hint about its meaning. Indeed, it is a technical phrase inviting reference to the specification to learn its meaning. See Zebco Corp., 175 F.3d at 990 (and cases cited therein).

Contrary to Thomson's contentions, the phrase "scroll sequence" is not specifically defined in the specification, for several reasons. First, it is not among the four terms and phrases explicitly listed and defined in the specification. This list includes only "channel code," "select code," "display code," and "cue." By not including in this list a clear and explicit definition of the phrase "scroll sequence," Beery did not act as his own lexicographer with regard to this phrase. See Zebco Corp., 175 F.3d at 990.

Second, the specification's description of the term "scroll" beginning at column 9, line 16 does not contain a sufficiently explicit and clear limitation of "scroll sequence" to only be a feature capable of use by viewers. This is so because the specification describes the "scroll" as a feature of the preferred embodiment. This portion of the specification states, in part, "Yet another feature of the preferred embodiment is the ability of the operator to designate only certain channels to be placed into a 'scroll' so that the operator may later 'scroll' by actuating a single key through a number of frequently watched
channels. Those channels to be placed in the scroll are flagged with a marker bit ...." (Doc. # 1, Exh. A at col. 9). The specification continues using the term "operator" to describe how entries are programed into a scroll. See id. Use of the term operator in this description of the preferred embodiment does not require the scroll sequence to be used by viewers only but is merely an example of how this particular preferred embodiment can be used. Without such a requirement, the preferred embodiment merely serves as an example of how this feature can be used. "Claims are not to be interpreted by adding limitations appearing only in the specification .... Thus, although the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments." Electro Medical Sys. SA v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994). Because the claim language of the '952 patent does not limit the phrase "scroll sequence" to use by viewers only, the specification's use of the term "operator" when describing the preferred embodiment provides no ground for limiting the "scroll" feature to use by viewers only. 

In addition, Thomson's focus on the specification's use of the terms "cue" and "viewer" along with the phrase "select code" does not convince the Court that the specification sets a more limited definition of the phrase "scroll sequence." Although the specification's preferred embodiment of a "scroll" includes a program that enters the channel code, select code, display code, and scroll marker into the channel selection cue, see Doc. # 1, Exh. A, col. 9 at 11. 27-29, and although both "cue" and "select code" are specifically defined in the specification to include use by the "viewer," the specification's use of the broader term "operator" to describe the preferred embodiment of the "scroll" establishes that the scroll feature is not limited by the narrower definitions of "cue" and "select code." To hold otherwise would require limiting the term "operator" to viewers only; a limitation that is not supported by the claim language or the specification, see supra, § VI(B).

Lastly, this construction of the phrase "scroll sequence" naturally aligns with the patent's description of the invention, which again is a reissue patent that not only includes but goes well beyond the apparatus described in the '734 patent. See Renishaw, 158 F.3d at 1243. Thomson's proposed limitation of "scroll sequence" to use by viewers only ignores this broader reissued nature of this reissue patent.

Accordingly, the phrase "scroll sequence" as used in the '952 patent does not require a viewer to program it but more broadly refers to one or more channel tuning designations, which are retained in the memory means.

"Scrolling" appears in dependant claim 32, and variations of the word "scroll" are found throughout the specification describing a particular type of movement in the preferred embodiment. See 8:19-44 supra. The parties agree that "scrolling" means, "moving viewable elements from a first displayed location to a second displayed location," but the parties disagree about how to characterize the movement between the first and second displayed location. Defendants argue for, "moving viewable element from a first displayed location to a second displayed location in a manner reflecting the path traveled (emphasis added)," while Konami argues for "moving viewable element from a first displayed location to a second displayed location in a continuous manner (emphasis added)." The Court finds that "scrolling" implies "continuous" motion.

"Scrolling" appears in independent claim 32, which reads, "[a] method according to claim 28 wherein said step of displaying said second display parts comprises scrolling said second display parts." Claim 28 states that there is "relative movement" between matching "first and second display parts," and claim 32 narrows claim 28 by stating that the "second display part" is "scrolling." Unlike the more general "relative movement" appearing in independent claim 28, the term "scrolling" describes movement that is "continuous." First, "scrolling" is generally understood to mean the movement of text or graphics on a display similar to an unrolling scroll, which implies continuous motion. Generally, the movement can be in any direction, but the necessary implication is that the movement is "continuous." Second, the above quoted specification excerpt, when read in conjunction with claims 28 and 32, supports the notion that scrolling is a narrower type of relative movement that necessarily implies continuity. Thus, the Court adopts Konami's construction.

The phrase "scrolling" as used in the '952 patent does not require a viewer to program it but more broadly refers to one or more channel tuning designations, which are retained in the memory means.
Defendants offer no support for the "tight and perfect fit" limitation in the language of the claims or the specification. Instead, they refer to a dictionary definition of "seal." See Mosko Dec., Exh. X at 1052. Absent any motivation to impose the requirement of a tight and perfect fit in the intrinsic record, the court finds that the phrase "sealing structure" means "a structure, made after the second substrate is laid on the first, which may help to contain the liquid crystal material within the cavity between the two substrates or to keep impurities out."

C. "To perform a search"

We next turn to the phrase "a search on at least said updated television programming information contained in RAM." In construing this claim language, the district court quoted a portion of the specification and summarily stated, "it is clear from the language of the claim and the specification that the search is of all the information contained in the RAM in order to produce the subset of data specified by the viewer." SuperGuide Corp., 169 F. Supp. 2d at 511. The district court noted that the invention, as described in the specification, also envisions storing information other than television scheduling information, and that the claim states that the search will be conducted on "at least said updated television programming information." The court therefore construed the disputed phrase to mean "a user-directed examination by the microcontroller of all the television programming information stored in the random access memory of the system and the retrieval of a subset of that information which meets the criteria specified by the user for display on the television set." Id. at 526.

On appeal, Gemstar challenges the court's construction of this claim limitation. According to Gemstar, the claim phrase does not require a search of all television programming information stored in memory. Gemstar specifically argues that the district court's analysis of this phrase did not address the absence of claim language requiring any particular method of searching, the specification's teaching that listings may be coded for searching, or the specification's discussion of searching less than all the information contained in the RAM.

EchoStar responds that the limitation at issue requires an examination of all the records in memory. In support, EchoStar notes that during prosecution the '578 patentees distinguished their invention over a prior art reference by arguing that in their system a "search of all the coded information is carried out by the microcontroller." EchoStar further explains that a search is not complete until all the items in memory that meet the search criteria have been located.

We begin with the claim language. Although claim 1 requires "a search on at least said updated television programming information contained in RAM," that requirement is not commensurate with examining all of the programming information in RAM. One of the dictionary definitions of "search" is "to look into or over carefully or thoroughly in an effort to find something." Webster's Third New International Dictionary 2048 (1993). This definition, however, says nothing about how the search is to be conducted. Thus, the ordinary dictionary meaning of the disputed language covers any method of searching the program listings stored in RAM to retrieve those that satisfy a user's search criteria. It does not require that all the records in memory be searched as urged by EchoStar.

An examination of the specification does not overcome the presumption that the patentees intended to adopt the ordinary meaning. The two specification excerpts relied upon by the district court in construing this language state that a search is conducted on the information in the RAM, without specifying what portion of the RAM, and emphasizes that only the requested information is retrieved. '578 patent, cols. 5-6. These excerpts do not expressly or implicitly limit the search to "all" the program listing information in memory or otherwise limit the covered method of searching.

EchoStar's main argument in support of the district court's construction is that the '578 patentees disclaimed all searches other than a search that touches all records. EchoStar maintains that during prosecution of the '578 patent, the Examiner rejected the asserted claims in view of the Skerlos reference. Skerlos discloses an invention that allows the user to assign a
location in memory where a desired telephone number is stored. To retrieve a stored telephone number, the Skerlos user enters the specific address location to recall the number from memory. In response to the Examiner's rejection, the patentees explained that in Skerlos "no search of the information in RAM takes place." The patentees further stated that the '578 patent involves "a search of all of the coded information." EchoStar focuses on this statement to argue that it mandates a claim construction that requires examination of all the records in memory.

We are not persuaded by EchoStar's reliance on the prosecution history to support the district court's construction for two reasons. First, the '578 patentees were merely distinguishing their invention from one that requires no searching at all by pointing out that their invention provides for searches of coded information stored in memory. They did not clearly disavow the scope of searches covered by claim 1 because Skerlos did not conduct any type of search. See Amgen, 314 F.3d at 1327. Moreover, a statement that a search is conducted on "all of the coded information" is not commensurate with an examination of every piece of data stored in memory. If the memory is ordered in such a way that a search of only part of the memory can retrieve all the records that meet the user's criteria, the search has been conducted on all the coded information without having examined every record in memory. EchoStar does not argue that such a search is not possible or that the '578 specification does not enable such a search. Indeed, the specification contemplates that the "microcontroller 60 must be logically arranged . . . in order to accomplish the quick display of the requested information." '578 patent, col. 5, ll. 55-57. Accordingly, we conclude that the claim phrase "to perform a search" means any examination of the program listings stored in RAM to find those that meet a user's search criteria.

AMS and BidSoft contend that the term "search the auction data" appearing in claim 6 should be construed to mean "query a relational database for vehicle detail information relating to vehicles being auctioned at a user- selected auction event and displaying on the video monitors vehicle detail information corresponding to the user selected auction event." Manheim argues that the term should mean "a query is made of the auction data."

The primary basis for AMS and BidSoft's construction derives from their construction of the term "database server," which they argued should be construed to mean a relational database server. Having rejected this proposed construction, supra, the Court finds no basis for requiring the "search" to be "a query of a relational database." Accordingly, the term "search the auction data" in claim 6 shall mean "a query is made of the auction data."

--- Footnotes ---

3 The Court notes that the same term appears in claim 1. AMS and BidSoft did not propose a construction for that term which required a query of a relational database. Rather, they proposed that the term "search the auction data" in claim 1 should mean "to query a motor vehicle auction database matching a user-selected parameter. . . ." AMS and BidSoft point to nothing in the claims, specification, or file history which would indicate that the same term appearing in both claim 1 and claim 6 should be construed differently, and the Court therefore adopts a construction of the term "search the auction data" which is consistent throughout the '873 patent.

--- End Footnotes ---
Rather, the "second" and "third" circuits must only perform their stated functions. For example, what is required is that the narrowly construing the terms to require a specific structural requirement or entirely distinct "second" and "third" circuits. 

We agree with the Commission's construction of "second circuit" and "third circuit," defining the terms broadly to not allow the second and third circuits to differ by merely including an additional component, but instead contends that the proper construction requires that the additional component must "participate[ ] in performing the claimed function." More specifically according to AATI, the additional component in the "third circuit" must at least help perform the function of that circuit and cannot be an arbitrary component, which is unrelated to the function of the "third circuit." In contrast, both Linear and the Commission advocate that the Commission's construction is correct.

We now turn to the "second circuit" and "third circuit" limitations, which appear in apparatus claims 2, 3, and 35, but not method claim 34. The Commission modified the ALJ's initial construction because the ALJ "too narrowly construed the asserted claims as requiring that the 'second' and 'third' circuits be entirely distinct without common circuit elements, that every element in the second circuit be completely distinct from every element in the third circuit, and as precluding shared use of the same circuitry by the 'second' and 'third' circuits of the asserted sleep mode claims." 2007 ITC LEXIS 1108 at *69. Accordingly, the Commission found that "even a difference such as having an additional [component] can cause the circuits to be different and distinct in their topology and their operation." Id. AATI does not appear to take issue with allowing the second and third circuits to differ by merely including an additional component, but instead contends that the proper construction requires that the additional component must "participate[ ] in performing the claimed function."
"second circuit" "generates a first control signal ... to vary the duty cycle," not that any particular components make up this circuit. 258 patent col.16 ll.48-52. In fact, the '258 patent's specification expressly discloses that the "second circuit" and "third circuit" can share common components. For example, figure 2 shows that components of the "second circuit"—such as the reference circuit 37—can also be part of the "third circuit." See id. fig.2 (disclosing that the reference circuit 37 sends a signal to the hysteretic comparator 74, which can be a part of the "third circuit for generating a second control signal"). Accordingly, we think the terms "second circuit" and "third circuit" should be accorded their full scope. See, e.g., Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004) ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language."); Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320 (Fed. Cir. 2004) (construing the term "circuit" in the parent '178 patent of this case and acknowledging that the term is normally recognized broadly as "the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function"); cf. In re Translogic Tech., Inc., 504 F.3d 1249, 1257-58 (Fed. Cir. 2007) (construing "input terminals coupled to receive" without a specific structural requirement because "the claim terms [did] not specify any structural connection for the input terminals . . . and the . . . figures show[ed] no structural connection for the input terminals . . . or the control input terminals").

Moreover, AATI does not contest that the "second circuit" and "third circuit" can contain overlapping components. Rather, it advocates that the distinct component must aid in the function of the claimed circuit. 3 As pointed out by the Commission, however, the claim language itself mandates that the components comprising the claimed second and third "circuits" must aid in the claimed function—e.g., the "third circuit" must "cause both switching transistors to be OFF." 258 patent col.16 ll.53-57. Thus, because the claim language already requires the components to aid in the circuit's function, AATI's proposed additional language is unnecessary. See, e.g., Linear Tech., 379 F.3d at 1320 (construing the nearly identical claim limitations "second circuit" and "third circuit" of the '178 patent, although under § 112 P 6 analysis, to not require additional structural clarification because the "limitations . . . are accompanied by . . . language [in the claims] reciting their respective objectives or operations"). The Commission did not err in its construction of the "second circuit" and "third circuit" limitations.

3 In particular, AATI argues that the Commission's construction is erroneous because it allowed "a difference such as having an additional ZC comparator" to distinguish the second and third "circuits." Final Determination, 2007 ITC LEXIS 1108 at *1323 (a comparator is an electronic device that can compare two voltages or currents and subsequently output a signal to indicate which is larger). Accordingly, AATI apparently does not contest that the second and third circuits can generally be distinguished by an additional component, if that component aids in the function of the claimed circuit. In contrast, AATI takes specific issue with identifying the "ZC comparator" as the distinguishing component because, according to AATI, it does not aid in the function of the "third circuit"—namely, causing both switching transistors to be OFF. This argument—whether the ZC comparator aids in the function of the third circuit—however, is one of AATI's noninfringement positions and does not impact our claim construction analysis. See Int'l Rectifier Corp. v. IXYS Corp., 361 F.3d 1363, 1369 (Fed. Cir. 2004) ("Although IXYS's arguments on claim construction often conflate with its arguments on infringement, we address these issues separately, turning first to claim construction.").
construction, contending that the language, and in particular "cause," was correctly given its broad ordinary meaning--to make happen, to result in, requiring neither a "direct" nor immediate cause.

We hold that the Commission properly construed the limitation "a second control signal . . . to cause both transistors to be OFF" as requiring the second control signal to neither directly cause both transistors to be OFF nor be entirely distinct from the first control signal. The '258 patent's specification does not indicate that the "second control signal" must directly cause both transistors to be OFF. Indeed, a direct causation requirement--without the intervention of other signals or components--would be nearly unworkable to articulate or ascertain. Also, such a requirement would allow an accused infringer to evade infringement by merely identifying an intermediary signal or component that allegedly breaks the "chain of causation." Cf. Resonate Inc. v. Alteon Websys., Inc., 338 F.3d 1360, 1365 (Fed. Cir. 2005) ("The patentee's . . . choice not to specify a transmission path from the server to the client" did not require direct transmission to the client because "such a rule likely would prove unworkable."). In addition, such a requirement would be contrary to the specification, which in fact discloses components that are located between the generation of the second control signal and the switching transistors. See, e.g., '258 patent fig.2. Tellingly, in construing the nearly identical, but more restrictive, claim limitations of the parent '178 patent, we held that "to cause both switching transistors to be simultaneously OFF for a period of time" should not be construed to include a narrow causation requirement. See Linear Tech., 379 F.3d at 1324 (holding that the district court construed the limitations too narrowly "because simultaneously merely requires a condition to exist at the same time or concurrently," "encompasses the simultaneous state of both switching transistors being disabled or held off," and "does not require the switching transistors to be turned off or disabled at the same instant").

Nor does the specification indicate that the "second control signal" must be entirely distinct from the claimed "first control signal." In fact, the specification discloses the contrary--that a portion of the "first control signal" impacts whether the "second control signal" turns both transistors OFF. Indeed, figure 2 discloses that the signal from hysteretic comparator 74 in combination with the signal 25A from constant off time one-shot circuit 25--part of the disclosed "first control signal" that "var[ies] the duty cycle of the switching transistors"--"cause[s] both switching transistors to be OFF." See, e.g., '258 patent fig.2; id. col.6 ll.38-55. Thus, the patent shows that the first control signal can be a part of the second control signal, precluding a requirement that the two control signals must be entirely distinct. The Commission's construction of "a second control signal . . . to cause both transistors to be OFF" is correct.

3840

"Second Information Indicative of Said Total Traffic Load Constituted By Communication Packets Belonging to Communications Handled By the Switching Module"

Alcatel's proposed construction for this term is "information indicative of the total traffic load." Cisco's proposed construction is "values reflecting the accumulated traffic load for all of the communications that flow through a port." 32

32 In its briefs, Cisco represents that its proposed construction is "the value or values reflecting the accumulated traffic load for all of the communications that flow through all of the ports of a switching module." Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,020,052 (DePrycker) ("Cisco's '052 Opening Brief"), at 15; Cisco's '052 Responsive Brief, at 14. This proposed construction differs from the proposed construction indicated in the Revised Joint Statement, which is quoted above. In order to avoid confusion, the Court will consider both of Cisco's proposals in determining the proper construction of the disputed term.

Alcatel does not identify any support for its proposed construction, which the Court finds to be overly broad. According to the language in the claim, the term is referring to information describing the total traffic load for all communications flowing through the switching module. Cisco acknowledges this in its opening brief. See Cisco's '052 Opening Brief, at 15 ("The claim language is also self-explanatory in describing the second information as indicating the total traffic load for all of the communications that flow through a switching module.").
However, as described in the specification, the "second information" consists of "the average and maximum values of the accumulated traffic loads constituted by all the communications flowing through [a] transmit port TX1/TX8." DePrycker, at 4:34-37. According to the patent, that information is necessary to determine whether that transmit port can accept the communication seeking to be transmitted by comparing the traffic load of the communication (identified in the path setup packet) with the total traffic load flowing through that transmit port, and determining whether the additional traffic load of the communication would exceed the maximum allowed traffic on that communication line. See id. at 4:31-5:14.

Thus, while the claim language containing the disputed term does not expressly limit the "second information" to information indicative of the total traffic load for only one output source, and in fact seems to imply that the information is indicative of the total traffic load for the entire switching module, the preferred embodiment does limit the information to describing the accumulated traffic load on only one given output port among many output ports on the switching module. In this regard, the term cannot be construed, as Cisco suggests, as referring to the "second information" as the combined accumulated traffic loads for every output port on a switching module, as that construction would read out the preferred embodiment, identified in Figure 2, which shows that the information is for a single transmit port, in order to allow a decision to be made as to whether the communication path would be able to flow through that transmit port.

Therefore, the Court construes the term "second information indicative of said total traffic load constituted by communication packets belonging to communications handled by the switching module" as "information indicative of the accumulated traffic load for all of the communications flowing through at least one output of the switching module."

3841

1. "a second memory associated with the scanhead and outside of the console and communicating with the console through a second connector, the second memory storing software and data necessary for use of the transducer scanhead in the ultrasound diagnostic instrument" or "the second memory storing software and data necessary for the use of the transducer scanhead in the ultrasound diagnostic instrument"

Plaintiffs' construction: memory that stores system executable code and transducer specific data required for system setup, drive, imaging and optimization, and that obviates manual field upgrade or system swap when a new function, application, or transducer scanhead is introduced

Defendant's construction: No construction of the full phrase. Instead, construction of the phrase "the second memory storing software and data necessary for use of the transducer scanhead in the ultrasound diagnostic instrument" as "the second memory stores portions of software and data that the transducer scanhead in the ultrasound diagnostic instrument needs to function properly"

The parties disagree about several aspects of claim construction with respect to claim 1 of the '839 patent. The most fundamental dispute relates to which terms require construction. Plaintiffs contend that it is necessary to construe the full phrase that appears in part d of claim 1; defendant argues that the phrase need not be construed in its entirety and that if any construction is needed, shorter phrases and terms should be construed instead.

Neither party has persuaded me that its proposed construction is correct. I will start with defendant's proposed construction of the phrase "the second memory storing software and data necessary for use of the transducer scanhead in the ultrasound diagnostic instrument." Defendant's construction of the phrase is "the second memory stores portions of software and data that the transducer scanhead in the ultrasound diagnostic instrument needs to function properly." However, no intrinsic evidence supports the addition of the terms "portions of software and data" or "function properly." These terms broaden the reach of the claim language impermissibly.

On the other hand, plaintiffs' proposed construction narrows the scope of the claim language impermissibly by importing a requirement that the second memory obviate the need for manual field upgrade or system swap. It is true that the patent specification, in the Summary of the Invention, touts the advantage of using a second memory because it obviates the need to perform "manual field upgrade[s]" or "system swap[s]" when a new "function, application, or transducer scanhead is introduced." '839 pat., col. 2, lns. 9-12. However, it does not follow that this stated advantage must be read into the language of individual claims. Ventana Medical Systems v. Biogenex Laboratories, Inc., 473 F.3d 1173, 1181 (Fed. Cir. 2006);
Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1331 (Fed. Cir. 2004) ("[P]atentees [are] not required to include within each of their claims all of [the] advantages or features described as significant or important in the written description.").

Plaintiffs' argument that the prosecution history requires the importation of this limitation into the claim language is equally unavailing. As noted above, a patentee may limit the meaning of a claim term by making a "clear and unmistakable disavowal of scope during prosecution." Purdue Pharma L.P. v. Endo Pharmaceuticals, Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006). Claim 1 of the '839 patent was rejected initially because of U.S. Pat. No. 5,690,114. '839 file history, dkt. # 64, First Office Action, SONO-GE0059874-78. After the rejection, claim 1 was amended to clarify that the second memory was associated with the scanhead and outside the console. '839 file history, dkt. # 64, Response to First Office Action, SONO-GE0059889-92. In their effort to overcome the rejection, the inventors pointed out that the memory described in U.S. Pat. No. 5,690,114 was not included in the scanhead itself and was instead included in the console. Id. at SONO-GE0059891. They noted also that this obviated the need for manual field upgrade and system swap. Id. Again, this is a statement of the advantage of including a second memory within the scanhead; it is not an "unambiguous disavowal" of scanheads that include a second memory but do not obviate the need for manual field upgrades and system swaps. E.g., Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003) (declining to apply doctrine of prosecution disclaimer when alleged disavowal is ambiguous).

Because I conclude that both parties have failed to propose an appropriate construction, I will decline to construe "a second memory associated with the scanhead and outside of the console and communicating with the console through a second connector, the second memory storing software and data necessary for use of the transducer scanhead in the ultrasound diagnostic instrument" or "the second memory storing software and data necessary for the use of the transducer scanhead in the ultrasound diagnostic instrument."

D. "First portion of the dose" (claim 1)

Per the agreement of the parties, the court construes this claim language to mean: "That portion of the dose which is diffused first."

E. "Second portion of the dose" (claim 1)

The parties' disagreement over this term has coalesced around the question of whether the "second portion of the dose" must be applied after the first portion, in addition to being diffused after it, or if they may be applied together. Ixys contends that the plain language of the claim itself demands that the second portion be applied after the first portion. In evaluating this claim, it is worth quoting a larger section of the claim than the parties have here put at issue in order to establish context:

… an improved minority carrier lifetime control process comprising… determining and depositing a dose of the transition metal not exceeding the maximum dose sufficient to effect lifetime control without substantially increasing leakage current of the device; and diffusing the metal atoms throughout the substrate at a temperature within said range, including; diffusing a first portion of the dose throughout the substrate; and diffusing a second portion of the dose….

'202 patent, 28:56-29:5 (emphasis added). Not only does this language fail to support Ixys' position, it actually undermines it. The diffusion of the dose is explicitly described as taking place in two steps and involving a first and a second portion. But the initial deposition is mentioned only once; the process requires "determining and depositing a dose of the transition metal," not two doses in sequence.

The specifications trace a similar pattern. The relevant portion of the specifications, cited by both parties, teaches:

"First, the substrate is lightly dosed with, e.g., 10<11> Pt atoms/cm<2>, and diffusing the Pt atoms throughout the device at first elevated temperature, e.g., 850 [degrees] -865 [degrees] C. for one hour for a PIN. Second, an additional dose of Pt atoms is applied to a selected surface of the device and is diffused at a higher temperature, e.g., 950 [degrees] -1100 [degrees] C. for 5-20 seconds (rapid thermal anneal) such that the additional dose is retained in a gradient band near the..."
selected surface. Preferably, the doses can be applied in a single implant or silicide formation step.

'202 patent, 24:13-22 (emphasis added). The disclaimer in the last sentence effectively negates the full thrust of support that this section might have provided for Ixys' position, and thus the specifications do not provide sufficient justification for amending the clearer claim language.

The court construes this claim term to mean: "That portion of the dose which is diffused after the first portion."

3. second telecommunications network(s)

The term "second telecommunications network" would be understood by a person of ordinary skill in the art to be a telecommunications network over which the switch system at the local cable headend receives from a remote control center the commercial insert video signal and the switch commands, and, in the '825 Patent, the insert locator data. Additionally, it would be understood that the second telecommunications network is distinct from the "first telecommunications network," over which is sent the programmed channel signal. Finally, the second telecommunications network must be connected to the switch at a video input and at an Input/Output ("I/O") port, since its function is to allow the commercial insert signal and the channel switch commands to be sent from the remote control center to the switch. See infra § II.A.4 (construing "first, second and third (channel) switch commands").

Nothing in the claims themselves supports the additional limitation advanced by Defendants that the second telecommunications network connects a source that is located "at a significant distance" from the headend to the switch system. 10 SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language, at 16. Defendants also argue that the commercial insert signal and the switch commands must be continuously received 11 over the second telecommunications network. This limitation does not properly belong in the definition of second telecommunications network.

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10 Defendants rely on the preferred embodiments, which describe the second telecommunications network as being a satellite or fiber optic cable link, to argue that there is a significant distance between the remote control center and the switch system. The court will not import this limitation from the specifications into the claims. See infra note 12.

11 The court understands "continuous receipt" to mean that the switch commands and commercial insert signal are sent from the remote control center to the switching system when the cue tones are detected (the detector being located at the remote control center), as opposed to being sent and stored at the headend well in advance of the local avail.

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3844

Secondary Power Source

The parties agree to part of the construction of secondary power source. The agreed portion states: secondary power source "means a source of power connected to provide power between the data node and the access device using the data signaling pair." The parties disagree on the relationship between the recited main and secondary power sources. The Court modifies D-Link's proposed construction and further construes the term as "the secondary power source is physically separate from the main power source." Network-1 argues the secondary power source may be derived from the main power source, or separate.

The claim language describes a main power source and a separate power source. Col. 4: 17-20. The parties do not dispute
that two sources exist; however Network-1 argues that these two sources do not have to be separate, but they can both be derived from the main power source. Network-1 points to Claims 1 and 6 in support of its argument that there is no language in the patent that restricts the configuration, placement or construction of the main or secondary power sources, nor do the independent claims specify any relationship between the two power sources. See Col 4:10-30, 50-65. However, Network-1 was unable to demonstrate in the Markman hearing or in its briefing how these two power sources, which perform two separate functions according to the claim language, could be the same, or "not separate."

Claim 1 specifies that the main power source provides a driving point for the load established by the data node and specifies that the secondary power source provides an additional driving point for the load established by the access device. See Col. 4:18-22. Claim 1 does not specify whether or not the additional driving point derives the power that it delivers to the access device from the main power source. The additional driving point, however, would necessarily be physically separate from the main power source driving point because each "drives" separate loads. Looking at the plain language of the claim, the Court construes the claim as requiring the secondary source to be physically separate.

Network-1 asserts that since the D-Link case, Federal Circuit cases have demonstrated that the "secondary power source" need not be physically separate from the "main power source." See, e.g., Linear Tech. Corp. v. ITC, 566 F.3d 1049, 1055 (Fed. Cir. 2009) (holding that the terms "second circuit" and "third circuit" do "not require entirely separate and distinct circuits" with each "requir[ing] a specific structural requirement"); Oatey Co. v. IPS Corp., 514 F.3d 1271, 1275 (Fed. Cir. 2008) (holding that the term "first and second juxtaposed drain ports" does not require "two separate identifiable physical elements"). Network-1 also asserts that the claim language does not specify that the sources are physically separate, and inclusion of this limitation in the construction excludes a preferred embodiment from the scope of the claim. Finally, Network-1 asserts that the claim refers to a secondary mode of operation, not to a separate connection.

Defendants counter that the claims recite two distinct power sources that must be physically separate, where the main power source supplies power to the data node and the secondary power source supplies power from the data node. Defendants also argue that the Federal Circuit cases cited by Network-1 do not support its position because they involve embodiments where components are shared. Finally, Defendants argue that there is no support for Network-1's contention that two modes of operation of a single power source are being described in the '930 Patent.

The Federal Circuit cases cited by Network-1 are inapposite. Unlike in Linear, the terms at issue in this case are not "second" and "third" as mere identifiers; rather, the terms "main" and "secondary" set forth an operational hierarchy. Furthermore, the Court's construction in the D-Link case does not impose a requirement of "entirely separate and distinct." Linear, 566 F.3d at 1055 (emphasis added). Unlike in Oatey, the Court's construction in the D-Link case does not require "separate identifiable physical elements" for each of the power sources. Oatey, 514 F.3d at 1275 (emphasis added). The Court's construction in the D-Link case requires only that there be physically separate "driving points" because each power source "drives" a separate load. Network-1 Sec. Solutions, Inc. v. D-Link Corp. & D-Link Sys., Inc., Case No. 6:05cv291, 2006 U.S. Dist. LEXIS 84510, Memorandum Opinion and Order (Docket No. 137) (E.D. Tex. Nov. 20, 2006). The hierarchy of "main" and "secondary" also indicates a physical separateness, particularly because two different loads (the data node and the access device) are being driven. This is true even though the electrical energy applied to the access device via the data node originates from the main power source.

Network-1 is incorrect that an embodiment is excluded with the requirement of physical separateness. The argument is based on Power Source 16 in Figure 1, which Network-1 asserts shows that the main and secondary power sources are the
same. Although Power Source 16 is depicted as a single power source in Figure 1, it must provide the electrical energy that goes to both the data node and the access device. See '930 Patent, fig. 1. Thus, the functional block diagram of Figure 1 does not identify where the main and secondary power sources are located, nor how they are physically arranged.

The functional block diagram of Figure 1 is shown in detail in Figure 3 where main power supply 70 supplies power to Ethernet switches 68. '930 Patent, col. 3:66-4:1. Ethernet switches 68 include the power detector 22 of Figure 1 and the power supply 34 of Figure 2. Id. at 4:1-4. In Figure 2, the feed and return lines of the remote power supply are identified as lines 39 and 45, respectively. Id. at 3:37-38. The RJ45 connector 43 of Figure 2 is specified for a network cable connection using the CAT-5 Ethernet Premises Wiring of Figure 3. See id. at figs. 2-3. The feed line corresponds to line 18 in Figure 1, and the return line corresponds to return path 20 in Figure 1. Id. at 2:52-59. Thus, Figure 1, when read in conjunction with Figures 2 and 3 by one of ordinary skill in the art, does not show an embodiment without separate power sources. Instead, the figures show a clear hierarchy of the main power source, then the secondary power source to the data node, and finally the access device from the data node.

Figure 2 below identifies terminals 6 and 3 as an active pair and, similarly, terminals 1 and 2 as an active pair. '930 Patent, col. 3:31-37. Ethernet networks utilize at least two signaling pairs. See id. at 1:56-58. Delivering supply power from the data node via the data signaling pairs to the access device, which is the operative arrangement of the secondary power source, finds support in the specification discussing Figure 2. See id. at 3:28-42. The disclosure of transformers between the feed and return lines and the data signaling pairs also implies physical separateness. See id. The arrangement of transformers electrically isolates the electrical load of the access device from the electrical load of the data node. Thus, electrically separate power sources are established for the data node (from the main power source) and the access device (from the secondary power source).

Thus, the main power source in the disclosed embodiment is main power supply 70 of Figure 3, and the secondary power source is power supply 34 of Figure 2. See '930 Patent, figs. 2-3. The primary power to drive the data node established by the Ethernet switches 68 is provided by the connection of the Main Power Distribution Bus in Figure 3. See id. at fig. 3. The secondary power to drive the access device is provided by the RJ45 connector in Figure 2 at the end of the CAT-5 Ethernet Premises Wiring in Figure 3. See id. at figs. 2-3.

Finally, the claim language specifies that a low level current is supplied from the main power source to the access device over the data signaling pair. '930 Patent, col. 4:22-25. This indicates that, in view of the other claim elements as to the secondary power source, the secondary power source is physically separate from the main power source. See id. at 4:10-29. The element that supplies power to the access device is the secondary power source. Id. at 4:19-21. In light of the specification, the claim language indicates that the secondary power source is used between the main power source and the access device as a type of controlled valve for electrical energy applied from the main power source to the access device. Claim 4 is more specific than Claim 1 in placing the secondary power source in the data node. See id. at 4:43-45. Claim 4 further confirms the indication in Figure 3 that power supply 34 of Figure 2 is the secondary power source. See id. at fig. 2.

Accordingly, the Court adopts its previous construction in the D-Link case and Defendants' construction and construes the term "secondary power source" to mean "a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source."

b. secondary voltage

Fairchild contends that a "secondary voltage" means "a voltage generated by the secondary voltage source." (D.I. 156 at 36). In advancing this claim construction, Fairchild specifically argues that the "secondary voltage sources are additional voltage sources which are distinct from the primary voltage source."

In response, Power Integrations contends that a "secondary voltage" means "a subsequent or additional voltage." In advancing this construction, Power Integrations also refers to the definition of secondary voltage source. Power Integrations contends that, in accordance with its plain meaning, a "voltage source" means a "source of voltage," and the term...
"secondary" means something that comes second or subsequent. Thus, Power Integrations maintains that a "secondary voltage source" means "one or more voltage sources used to generate the secondary voltage," and therefore, secondary voltage means "subsequent or additional voltage." (D.I. 152 at 12-13).

Reviewing the claim language and the specification, the Court concludes that the term secondary voltage means "subsequent or additional voltage." While the claim language does require the secondary voltage to be generated by the secondary voltage source, there is no requirement that the secondary voltage source be distinct from the source of the primary voltage as discussed previously. Further, in the Court's view, identification of the voltage source for the secondary voltage is not a necessary part of defining the claim, because the source of the secondary voltage is clearly recited in the claim language. Accordingly, the Court construes "secondary voltage" to mean "a subsequent or additional voltage."

### J. "Secret Key of the Credential Issuing Entity"

The court shall apply the ordinary definition of the word "secret"-"kept from the knowledge of any but the initiated or privileged." 6 The phrase contemplates the initiated being the credential issuing entity. Thus, the term "secret key of the credential issuing entity" shall be construed to mean "a key that is known only to the credential issuing entity and those intended to know it and that exists beyond the duration of a particular transaction."

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### B. "Secret Key of the First Party"

The court shall apply the ordinary definition of the word "secret"-"kept from the knowledge of any but the initiated or privileged." 1 The disputed phrase contemplates the initiated being the first party. Thus, the term "secret key of the first party" shall be construed to mean "a key that is known only to the first party and those intended to know it and that exists beyond the duration of a particular transaction."

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1 The Random House College Dictionary, 1189 (revised ed. 1980)

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### C. "secret key of the first party/payor/originator"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;the payer creating a variable authentication number (VAN) on a computer using at least a portion of the document&quot;</td>
<td>A private key that is created by the payor, or an entity originating an instrument on the document</td>
<td>A key that is known only to the payor and those intended to know it and that exists beyond the duration of the document</td>
</tr>
</tbody>
</table>
information, and a secret key of the payor" '148 patent, Claim 28.
"creating the VAN on a computer by coding the EDC1 using a secret key of the originator"
'148 patent, Claim 35.

This term, found in claims 28, 34, and 35 of the '148 patent, does not appear in the specification. The parties dispute whether the disputed term refers to the "PIN" or the "joint key" of the specification. The Delaware court construed this claim term, adopting plaintiff's proposal in the previous litigation. Defendants propose the Delaware Court's construction.

Plaintiff argues that the "secret key" refers to the "joint key" because Claim 34 recites, "[a] VAN being created using at least a secret key of the first party." According the Plaintiff, only the joint key (or joint code) is used to create the VAN. See '302 patent, 5:13-15. Plaintiff argues that the secret key cannot be the PIN because the authenticating party must recreate or uncover the secret key, which cannot be done with a PIN.

Concluding that the secret key is the joint key, Plaintiff goes on to define "joint key." Plaintiff determines that a joint key is "created by coding 'information associated with at least one of the parties involved in the transaction (in this case, the originator and recipient).'" Pl. Brief at 15. Plaintiff further explains that the key is secret because "only the first party/payor/originator can provide the secret PIN that is used to create a joint key." Pl. Brief at 16.

Defendants argue that the "secret key" is the PIN because, of all the pieces of data used to create a VAN, "[t]he only thing in that process that the patent describes as 'secret' and 'of a party' is the originator's PIN." Def. Brief at 24. Defendants argue that the secret key cannot be a joint key because "the joint key can be created by someone other than the party to whom it belongs and is not a 'secret key of a party.'" See Def. Brief at 24.

Defendants also argue that the secret key must exist beyond the duration of a transaction. According to Defendant, "[t]he PIN exists before a transaction, during enrollment, and after a transaction, so that the PIN remains associated with the first party and can be used to authenticate that party." Def. Brief at 25. The bank, so it follows, must have a relatively static reference point in order to perform a meaningful authentication.

Contrary to Plaintiff's interpretation, the Court is of the opinion that the PIN is indeed used to create a VAN, as described in the '302 patent, Column 5, Lines 3-18. Notably, "the originator's PIN is converted to a coded PIN (CPNO), which is applied as the key input to coder 28." '302 patent, 5:5-6. The coded PIN is then used to code the payment recipient's information into the joint key. Furthermore, it is the coded PIN that is used to authenticate the originator of an instrument, which means it is known by those intended to know. Finally, Plaintiff's argument that the VAN cannot be created without the joint key applies equally as well to the coded PIN. The Court finds no error and adopts the Delaware Court's construction. This term means "a key that is known only to the payor and those intended to know it."

F. "Secret Key of the Originator"

The court shall apply the ordinary definition of the word "secret"-"kept from the knowledge of any but the initiated or privileged." 3 The phrase contemplates the initiated being the originator. Thus, the term "secret key of the originator" shall be construed to mean "a key that is known only to the originator and those intended to know it and that exists beyond the duration of a particular transaction."
3 The Random House College Dictionary, 1189 (revised ed. 1980)

D. "Secret Key of the Payor"

The court shall apply the ordinary definition of the word "secret"—"kept from the knowledge of any but the initiated or privileged." The phrase contemplates the initiated being the payor. Thus, the term "secret key of the payor" shall be construed to mean "a key that is known only to the payor and those intended to know it and that exists beyond the duration of a particular transaction."

2 The Random House College Dictionary, 1189 (revised ed. 1980)

2. "secret state"

A limitation on the "first device" is that it includes a computer-readable memory having an internal "secret state." The parties dispute the meaning of the phrase "secret state."

The plain and ordinary meaning of the word "state" is the condition of a device at a given instance. See Institute of Electrical and Electronics Engineering (IEEE) Dictionary of Standards Terms, 1102 (7th ed. 2000). A person of ordinary skill in the art reading the patent documents at the time of the invention would understand that the phrase "secret state" refers to a collection of parameters which are stored in a memory. The "base secret cryptographic value" and the "updated secret cryptographic value" are examples of such parameters. The written description provides:

In one embodiment, a cryptographic client device (e.g., a smartcard) maintains a secret key value as part of its state . . . [a] state's secret key value typically, but not necessarily, includes a secret session key.


In addition, "secret state" also refers to the condition of the memory when it is holding a secret value:

In an exemplary embodiment, the client is initialized with a secret key K[0] for a symmetric cryptosystem, where K[0] is also known to (or derivable by) the server. The key K[0] is usually (but not necessarily) specific to a particular client device or party.

* * *

FIG. 1 shows an exemplary sequence of client device secret state values usable to perform a series of transactions, typically (but not necessarily) using one state per transaction. (The client process used to produce the sequence will be described with respect to FIG. 2 and the corresponding server process will be described with respect to FIG. 3.) A state's secret value typically, but not necessarily, includes a secret session key; therefore, as a matter of convenience, the secret value will be denoted by K and the term "secret value" may be used somewhat interchangeably with "key."
Accordingly, the Court construes the phrase "secret state" to mean: one or more parameters, the attributes, conditions or values of which are secret, which are stored in computer-readable memory of the device.

Disputed Claim Language

"a precision timing section coupled to said laser transmit section and said laser receive section for determining a flight time of said laser pulses to said target and said reflected laser pulses from said target"; "based upon a flight time of a pulse"

Analysis

Plaintiff argues that this claim should be construed in accordance with its plain language and that there is no basis for construing the claim subject to § 112 P 6. I agree.

As discussed above, means-plus-function formatting applies to claim limitations that portray a function to be executed, but provide no instruction as to the structure or materials for executing that function. See CCS Fitness, Inc., 288 F.3d at 1369, 1370. Claim 8 does not fit this format. First, the Claim 8 language is not written in means-plus-function format, typified by the use of the word "means." See id. at 1369. Therefore, the rebuttable presumption applies that the element should not be construed according to means-plus-function format. Personalized Media Communns., 161 F.3d at 702. Second, a claim term can avoid application of 112 P 6 even if it does not espouse a precise physical structure. CCS Fitness, 288 F.3d at 1370.

Once again, Defendants may rebut the presumption that § 112 P 6 does not apply by "demonstrating that the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function." 288 F.3d at 1369. "In deciding whether [the] presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112 P 6." Personalized Media Communns. 161 F.3d at 704. To determine whether the claim term recites such sufficient structure, I may examine whether the claim term has an understood meaning in the art. See CCS Fitness, Inc., 288 F.3d at 1370. Defendants fail to rebut the presumption as to this claim language.

The disputed language in Claim 8 describes definite structure. The precision timing section is "coupled" to the laser transmit and laser receive sections. The verb "couple" means "to fasten together" (2), or "to bring (electric circuits) into such close proximity as to permit mutual influence" (2d-2), or "to join (electric circuits or devices) into a single circuit." (2d-3). WEBSTER'S 3RD NEW INTERNATIONAL DICTIONARY 521 (3rd ed. 1986). This joining or increase in proximity connotes the relationship of two or more parts. Structure itself is defined as "something made up of more or less interdependent elements or parts" (2b), "the interrelation of parts dominated by the general character of the whole" (5), and "the elements or parts of an entity or the position of such elements or parts in their external relationship to each other" (6). Id. at 2267.

While the claim language here might not describe a "known specific structure," it need not do so. See CCS Fitness, 288 F.3d at 1370. I conclude that the claim language recites sufficiently definite structure to resist application of 112 P 6.

I also conclude that Claim 8 does not require more than one separate precision timing section or clock, and does not require a capacitor. See Defendants' Memo, 29-30. Both of these interpretations would have me look beyond the plain claim language. Markman construction of a claim requires me to look first to the plain text of the claim language. See CCS Fitness, 288 F.3d at 1366. While Defendants suggest I look beyond the plain language, it is not apparent from the specification that Plaintiff intended the claim language to embody anything but its ordinary meaning. And, "references to a preferred embodiment, such as those often present in a specification, are not claim limitations." Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988), cert. denied, 490 U.S. 1068, 104 L. Ed. 2d 634, 109 S. Ct. 2069 (1989).

Defendants refer to extrinsic evidence to support their conclusion that Claim 8 requires a separate clock. See Defendants' Memo, 29 (citing Creusere Decl. P 35). They argue that "[since] the precision timing section is not defined by components
specified in Claim 8, construing the claim element requires reference to the '910 patent specification." Id. I conclude there is no basis to import the limitation of a separate clock into the claim from the specification sections-parts of the preferred embodiment--that Defendants cite (’910, col. 8, lines 1-25 and 52-55; col. 12, lines 26-31 and 34-38).

As Plaintiff argues, the precision timing section includes a transistor that charges a capacitor, but the capacitor itself is not the precision timing section. See Plaintiff's Reply Memo, 28 (citing '910 patent, col. 8, lines 31-35). The capacitor effectively "stretches" the time-of-flight of received laser pulses. That information then goes to a system clock. The preferred embodiment clearly depicts a capacitor that expands the flight time "so that the slower clock in the CPU section can then count it accurately." ’910 patent, col. 8, lines 29-34.

While the capacitor is part of the preferred embodiment of Claim 8, there is no reason to construe the claim to require the capacitor. There is no mention of a capacitor in the claim itself, and the capacitor is not the precision timing section. Although the capacitor assists the laser range finder's ability to clock laser-pulse flight times by "stretching" the times-of-flight, it does not determine the times-of-flight. Therefore, I conclude that Claim 18 requires "a precision timer coupled to the transmitter and receiver that determines a flight time of laser pulses reflected from a target." Plaintiff's Reply Memo, 26.

CONSTRUCTION: A precision timer coupled to the transmitter and receiver that determines a flight time of laser pulses reflected from a target. A separate clock or timer is not required.

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C

"[S]ectors" (claims 1 & 10)

As a starting point, both SanDisk and Ritek agree that a "sector" is the "basic unit of erase." The Federal Circuit endorsed this interpretation. SanDisk Corp v Memorex Prods, Inc, 415 F3d at 1281. Judge Breyer also adopted this construction in the Lexar litigation. In full, Judge Breyer's construction was:

A "non-volatile memory sector" is the basic unit of erase for the non-volatile memory. It is not limited to 512 bytes of user data and 64 bytes of overhead data.

SanDisk Corp v Lexar Media, Inc, 1999 U.S. Dist. LEXIS 2682, 1999 WL 129512, 3 (ND Cal 1999). The parties agree with this construction as far as it goes, but this does not end their dispute.

The dispute is whether the construction of "sector" should include some reference to size or number of memory cells. JCC (Doc # 371), Ex A at 6. SanDisk proposes that the court adopt Judge Breyer's construction and add that a sector is "further understood to refer to a substantial number of memory cells." Id. Ritek contends that SanDisk is playing "fast and loose with the courts" since they previously argued that "sector" was not limited to the size recited above. Ritek Br (Doc # 148) at 15.

SanDisk's position in Lexar (that size was not limited to a specified value) was essentially arguing that the example provided in the specification should not be read into the claim. See Lexar, 1999 U.S. Dist. LEXIS 2682, 1999 WL 129512, 3; Berta Reply Decl (Doc # 397-2), Ex A at 8-12. This is consistent with arguing that size must be a certain minimum number of cells, i.e., more than an insubstantial number. Ritek's judicial estoppel argument lacks merit.

Ritek also argues that inserting SanDisk's proposed language is incorrect because the specification refers to "Flash EEprom" and traditional (non-flash) "EEprom." Ritek argues that since the invention did not exclude EEprom, and in fact refers to EEprom, that the invention relates to both flash EEprom and traditional EEprom. This distinction is significant, Ritek argues, because traditional EEprom memories would only allow sectors to contain small units of memory.

The court need not visit the issue whether the invention relates to flash EEprom only or both flash and traditional EEprom because it is unnecessary to insert SanDisk's proposed addition ("further understood to refer to a substantial number of memory cells") in the court's construction. Nothing in the construction which the parties agree to ("the basic unit of erase")
precludes the size of the "basic unit of erase" from being a "substantial," according to one having ordinary skill in the art, "basic unit of erase." The court reaches this conclusion without deciding whether Ritek's argument, that the invention is not limited to flash EEprom memories, has merit. The court also reaches this conclusion without deciding whether SanDisk's arguments that one having ordinary skill in the art would understand the invention to relate only to flash EEprom memories.

Since Ritek does not argue, as Lexar did, that a sector was limited to a described embodiment in the specification (512 bytes of user data and 64 bytes of overhead data), it is unnecessary to include that clarification here.

Accordingly, the court adopts the following construction for "sector" means:

The basic unit of erase.

The parties' dispute over sector" in the '051 patent centers around the amount of data a "sector" can contain. Lexar contends that a sector must contain at least 512 bytes while Pretec and Toshiba suggest that a sector can be much smaller. Toshiba and Pretec contend that Lexar's proposed construction is not supported by the '051 claim language. Indeed, the actual language of the claims at issue in the '051 patent do not provide a numeric limitation on the size of a sector. Toshiba argues that the '051 specification confirms that no numeric limitation was intended. In support of its argument, Toshiba points to that part of the specification describing the preferred embodiment which states that "a preferred sector size of 512 bytes is used in these examples whereas other sector sizes may be employed without departing from the scope and spirit of the present invention." ('051 patent, 12:54-57 (emphasis added).) There is no indication that by "other sector sizes," the patentee only meant "larger sector sizes." Nothing in the patent indicates that the patented technology can only be used with an operating system in which the sector size is 512 bytes. Therefore, a sector, as recited in the '051 patent, can contain 512 bytes, fewer than 512 bytes, or more than 512 bytes and, accordingly, the Court rejects this aspect of Lexar's proposed construction.

Having resolved the question of the size of a "sector" in the '051, the Court must now address the remaining portions of the parties' proposed constructions. Lexar's proposed construction does not actually articulate a definition of the term "sector." Lexar does not explain whether a "sector" is a unit of memory or of data or some other type of "unit." Toshiba and Pretec do each provide an actual construction of "sector," but neither party provides the Court with any support for the language it chose. Toshiba contends that a "sector" is a "subdivision of the nonvolatile memory or the data stored therein;" Pretec argues that a "sector" is the "smallest unit of memory that can be read or written to at one time in a system." Toshiba's proposed construction is overly broad. Pretec's proposed construction does not appear to match how a person of ordinary skill in the art would understand "sector" here. As Lexar argued at the claim construction hearing, the smallest unit of memory that can be read or written at one time here is a byte and no one skilled in the relevant art would ever equate a "sector" with a byte. At oral argument, Pretec did not rebut Lexar's argument, instead focusing on the number of bytes in a sector. The Court therefore rejects Pretec's proposed construction and construes "sector" in the '051 as follows: a unit of memory containing user data and overhead.

ii. "sector" in the '918 patent

The parties' dispute over sector" in the '918 patent centers around the amount of data a "sector" can contain. Lexar contends that a sector must contain at least 512 bytes while Pretec and Toshiba suggest that a sector can be much smaller. Toshiba and Pretec contend that Lexar's proposed construction is not supported by the '918 claim language. Indeed, the actual language of the claims at issue in the '918 patent do not provide a numeric limitation on the size of a sector. Toshiba argues that the '918 specification confirms that no numeric limitation was intended. In support of its argument, Toshiba points to that part of the specification describing the preferred embodiment which states that "a preferred sector size of 512 bytes is used in these examples whereas other sector sizes may be employed without departing from the scope and spirit of the present invention." ('918 patent, 12:54-57 (emphasis added).) There is no indication that by "other sector sizes," the patentee only meant "larger sector sizes." Nothing in the patent indicates that the patented technology can only be used with an operating system in which the sector size is 512 bytes. Therefore, a sector, as recited in the '918 patent, can contain 512 bytes, fewer than 512 bytes, or more than 512 bytes and, accordingly, the Court rejects this aspect of Lexar's proposed construction.
The Court instead construes "sector" as it did in the '051 patent: a unit of memory containing user data and overhead.

iii. "sector" in the '314/138 patent
Lexar's proposed construction: a unit of 512 bytes or more, including user data and/or overhead.
Toshiba's proposed construction: a subdivision of the nonvolatile memory or the data stored therein.

Again, the parties disagree about how much data a sector can contain. And again, Lexar proposes to improperly limit a "sector" in the '314/138 patent to a unit of 512 bytes or more when the claim language does not so limit sector size and when the specification does not reflect an intent on the part of the patentee to act as his own lexicographer. The '314/138 specification notes that "[i]t is common in the industry for each sector to include 512 bytes of user data plus overhead information." ('314 patent, 7:42-44; '138 patent, 7:34-36.) However, as in the '051 and '918 patents, the '314/138 specification explains that although the preferred embodiment employs sectors of 512 bytes of user data and 16 bytes of overhead, "a sector may include other numbers of bytes of information." ('314 patent, 7:44-47; '138 patent, 7:36-40.) That the Preferred Embodiment section permits sectors sizes other than the 512 bytes counsels against limiting a sector's size to 512 bytes plus overhead. Therefore, the Court construes "sector" in the '314/138 as a unit of memory containing user data and overhead.

1. Claim Construction
The parties agree on all matters of claim construction except one -- the meaning of the term "sector", which appears in independent claim 13 and the dependent claims that incorporate claim 13 (claims 14 through 23). Claim 13 requires that securities be separated into a "sector" that "comprises a subset of the group of securities" and "satisfies a specific criteria."

9 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

10 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

The intrinsic evidence in this case makes clear that the term "sector" is used in the '685 Patent to mean a subdivision or subsection, which may or may not relate to a particular industry. Because the patent specification does not give the term "sector" any special meaning, it must be given its ordinary meaning, which is, in this context, the meaning that persons experienced in ETFs would give the term. The best place to look for that meaning are financial or investment dictionaries. See Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1203 (Fed. Cir. 2002) (acknowledging that dictionaries "may be the most meaningful sources of information to aid judges in better understanding . . . the terminology used by those skilled in the art to describe the technology."). Although financial dictionaries provide varied definitions of the word "sector", they all agree that the core meaning of the term is the idea of a subdivision, which may (but not must) relate to a particular industry. See, e.g., investorwords.com, at http://www.investorwords.com/cgi-bin/getword.cgi?4430&sector (defining sector as "a distinct subset of a market, society, industry, or economy, whose components share similar characteristics"); Money Words Empowerment Venue, at http://www.mone ywords.com/glossary/detail.CFM?ID=3726&SearchTerm=Sector (defining sector as a "distinct part of a market, society, industry, or nation's economy"); Campbell R. Harvey's Hypertextual Finance Glossary, at http://www.duke.edu/charvey/Classes/wpg/bfgloss.html (defining sector as "a group of securities that are similar with respect to maturity, type, rating, industry, and/or coupon); Yahoo! Financial Glossary, at http://biz.yahoo.com/f/g/bfgloss.html (same); Bloomberg Financial Glossary, at http://www.bloomberg.com/money/tools/bfgloss.html (same). 16

15 Mopex relies primarily on the deposition testimony of experts and witnesses for its definition of "sector". See Mopex Mem. at 18 (citing the definitions provided by Weber, Gastineau, and Nathan Most, a former senior vice president of the AMEX). Such reliance on extrinsic evidence is unnecessary and improper here.

16 A court must consider an array of dictionaries in determining the "plain meaning" of a term. See Geoffrey Nunberg, High
Moreover, the patent specification uses the term "sector" interchangeably with "subgroup", thereby suggesting that the two words are synonymous. See Patent '685 at column 7, lines 36-46 ("The index of mutual funds described herein provides a means for identifying superior historical performance within each subgroup . . . . The hope is that by identifying and investing within an index of funds that have demonstrated superior risk/return ratios within a particular sector, these funds will continue to produce superior returns with low risk.") (emphasis added).

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E. "secure access"

Plaintiff contends that one need only consider the specification to construct "secure access."

(Dkt 64, p. 10). Additionally, Plaintiff relies on the Dictionary of Computer and Internet Words at pages 1 and 247 for definitions of "security" and "access," arguing that "secure access" should be construed as "the prevention of unauthorized entry or use of a directory, file, program, or device on a computer system or over a network." (Dkt. 86 at Ex. 1, p. 1). Plaintiff does not, however, include a construction of 'access' in its ordinary meaning.

Defendants on the other hand contend that the entire phrase "said home page providing only secure access by each browser-based subscriber to one of a plurality of subscriber areas within said system" must be construed. The Court disagrees. Those additional substantive terms are being construed separately. Further, Defendants' suggested construction of "[a] home page of a web site, as construed above, that provides only for the entry of a unique subscriber log-in and password..." (emphasis added), would improperly import a limitation from the specification into the claim. See Burke, Inc., 183 F.3d at 1340. The specification explains that a "unique subscriber log-in and password" provides a "secure access" to a subscriber area. The claim merely references the home page as "providing only secure access by each browser-based subscriber to one of a plurality of subscriber areas" and says nothing about a "unique subscriber log in and password."

The term "secure access" can be construed in accordance with its ordinary meaning, considered in the context of the entire claim. Its meaning is readily apparent and does not require elaborate interpretation. General purpose dictionaries are helpful in this circumstance, however. Phillips, 415 F.3d at 1314. A person skilled in the art would understand the term "secure access" to mean "the ability to gain entry to and make authorized use of, such that unauthorized entry and use is prevented."

The plain language of Claim 1 states that the home page provides only secure access to one of a plurality of subscriber areas. (229 patent, col. 5, ll. 60-63). The Court interprets this plain language to mean that the only type of access provided is "secure." The specification supports this conclusion. "Each of the subscribers 12 and 20 enter the system 11 via a home page 18 of the system 11. A unique subscriber log-in and password provides a secure access to a subscriber area 28 which then provides access to data forms (not shown) of a software application which are transferred to, and appear on the screen of each remote subscribers PC." (Id., col. 3, ll. 50-57).

The Dictionary of Computer and Internet Words defines "security" as the "prevention of unauthorized use of a program and device" and "access" as "the ability to locate, gain entry to, and use a directory, file, or device on a computer system or over a network." (Dkt. 64 at Ex. 6, pp. 1, 247). These definitions are consistent with the patent claim and specification. Accordingly, the Court construes the term "secure access" to mean "the ability to gain entry to and make authorized use of, such that unauthorized entry and use is prevented."

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"secure computer network address"
The '180 patent, claims 1, 17, and 33 contain the term "secure computer network address." VirnetX contends that "secure computer network address" means "a network address associated with a computer capable of virtual private network communications." Microsoft contends that "secure computer network address" means "a network address that requires authorization for access." The parties dispute whether the network address "requires authorization for access."

The Court construes "secure computer network address" as "a network address that requires authorization for access and is associated with a computer capable of virtual private network communications." First, the claim language supports that the network address requires authorization for access. Claim 1 of the '180 patent states "[a] method for accessing a secure computer network address, comprising the steps of." Col. 56:48-50. The claim then goes on to list the method steps including "receiving from the secure domain name service a response message containing the secure computer network address corresponding to the secure domain name" and "sending an access request message to the secure computer network address." Col. 56:55-57; 56:58-59. This supports that the "secure computer network address" requires authorization because there must be a request made to the "secure computer network address" in order to access the "secure computer network address." Accordingly, the Court uses "requires authorization for access" in construing "secure computer network address."

Second, the claim language supports that a "secure computer network address" is associated with a computer capable of virtual private network communications. Claim 1 states "A method for accessing a secure computer network address, comprising steps of." Col. 56:48-50. The claim later states the step "sending an access request message to the secure computer network address using a virtual private network communication link." Col. 56:59-61. Thus, the secure computer network address receives an access request message via a virtual private network communication link. This shows that the secure computer network address is associated with the computer at the secure computer network address that is using the virtual private network communication link. Accordingly, the Court construes "secure computer network address" as "a network address that requires authorization for access and is associated with a computer capable of virtual private network communications."

GO BACK

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"secure domain name"

The '180 patent, claims 1, 17, and 33 contain the term "secure domain name." VirnetX contends that "secure domain name" means "a domain name which indicates that it is to be translated into a secure computer network address by a secure domain name service." Microsoft contends that "secure domain name" means "a non-standard top-level domain name (such as .scom, .sgov. or .sorg) that corresponds to a secure computer network address." The parties dispute whether the claimed invention is limited to "non-standard top-level domain name."

The Court construes "secure domain name" as "a domain name that corresponds to a secure computer network address." "Secure domain name" ordinarily includes "non-standard top-level" domain names or equivalents as suggested by the specification, but "non-standard top-level" is not a limitation. Claim differentiation shows that "secure domain name" is not limited to "non-standard top-level" domain names. Differences among the claim terms can assist in understanding a term's meaning. Phillips, 415 F.3d at 1314. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. Id. at 1314-15. Dependent claims 11, 27, and 41 contain the "top-level" limitation whereas their corresponding independent claims 1, 17, and 33 do not. Thus, it is presumed that independent claims 1, 17, and 33 do not contain the "top-level" limitation. As a result, "secure domain name," without further express limitations provided in the claims, presumably does not contain the "top-level" limitation.

Microsoft argues that there is clear disavowal in the specification. The specification states:

The present invention provides a domain name service that provides secure computer network addresses for secure, non-standard top-level domain names. The advantages of the present invention are provided by a secure domain name service for a computer network that includes a portal connected to a computer network, such as the Internet, and a domain name database connected to the computer network through the portal. According to the invention, the portal authenticates a query for a secure computer network address, and the domain name database stores secure computer network address for the computer network. Each secure computer network address is based on a non-standard top-level domain name, such as .scom, .sorg, .snet, .snet, .sedu, .smil and .sint.
Col. 7:36-42 (emphasis added). Thus, the specification asserts that the invention provides the secure domain names that are "non-standard top-level," using the "present invention" language. However, such language is not necessarily limiting. "Use of the phrase 'the present invention' does not 'automatically' limit the meaning of claim terms in all circumstances, and . . . such language must be read in the context of the entire specification and prosecution history." Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1398 (citing Rambus Inc. v. Infineon Techs. AG, 318 F.3d 1081, 1094 (Fed. Cir. 2003)). The claims show that "non-standard top-level" should not be imported as a limitation into the claims. Accordingly, the Court does not use "non-standard top-level" in construing "secure domain name."

There is no dispute as to whether "secure domain name" "corresponds to a secure computer network address." In any case, the claim language itself states that a secure domain name corresponds to a secure computer network address. Claim 1 states "sending a query message to a secure domain name service, the query message requesting from the secure domain name service a secure computer network address corresponding to the secure domain name." Col. 56:51-55 (emphasis added). Thus, the claim language clearly establishes that a secure domain name corresponds to a secure computer network address. Accordingly, the Court construes "secure domain name" as "a domain name that corresponds to a secure computer network address."

The '180 patent, claims 1, 17, and 33 contain the term "secure domain name service." VirnetX contends that "secure domain name service" means "a service that receives requests for secure computer network addresses corresponding to secure domain names, and is capable of providing trustworthy responses." Microsoft contends "secure domain name service" means "a domain name service that provides secure computer network addresses for secure, non-standard top-level domain names."

The Court construes "secure domain name service" as "a lookup service that returns a secure network address for a requested secure domain name." This construction is consistent with the claim itself. Claim 1 states

sending a query message to a secure domain name service, the query message requesting from the secure domain name service a secure computer network address corresponding to the secure domain name; receiving from the secure domain name service a response message containing the secure computer network address corresponding to the secure domain name.

Col. 56:51-61. This language shows that the secure domain name service receives a query message requesting a secure computer network address that corresponds to a secure domain name. Then, the secure domain name service sends a response message containing the secure computer network address that corresponds to the requested secure domain name. As such, the secure domain name service looks up a secure domain name network address in response to a requested secure domain name. Accordingly, the Court construes "secure domain name service" as "a lookup service that returns a secure network address for a requested secure domain name."

IV. "secure hash operation" and its relevant permutations

<table>
<thead>
<tr>
<th>Permutation of Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
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</thead>
<tbody>
<tr>
<td>&quot;secure hash operation&quot; 14</td>
<td>&quot;algorithm that produces a deterministic output having no known relationship with the input that may be used to recover the input from the...&quot;</td>
</tr>
<tr>
<td>Permutation of Claim Term</td>
<td>Defendants' Proposed Construction</td>
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<tr>
<td>&quot;secure hash operation&quot; 14</td>
<td>&quot;an operation that accepts an input that can be of variable bit length, but always produces an output having the same bit length such that it is computationally infeasible to determine (a) the input from the output and (b) two inputs that produce the same output, and where if a single bit of the input is changed, on average approximately 50% of the output bits are changed&quot;</td>
</tr>
<tr>
<td>&quot;secure hash algorithm&quot; 15</td>
<td>&quot;an algorithm that accepts an input that can be of variable bit length, but always produces an output having the same bit length such that it is computationally infeasible to determine (a) the input from the output and (b) two inputs that produce the same output, and where if a single bit of the input is changed, on average approximately 50% of the output bits are changed&quot;</td>
</tr>
<tr>
<td>&quot;secure hash computer program&quot; 16</td>
<td>&quot;computer program that uses a secure hash algorithm&quot; (as defined above)</td>
</tr>
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</table>
14 The term "secure hash operation" is contained in claim 1 of the '646 patent and claim 1 of the '612 patent.

15 The term "secure hash algorithm" is contained in claim 12 of the '646 patent.

16 The term "secure hash computer program" is contained in claim 12 of the '646 patent.

The patents-in-suit both contain permutations of claim terms that will be collectively referred to as the "secure hash terms" or "secure hash function." The secure hash terms include "secure hash operation," "secure hash algorithm," and "secure hash computer program."

PACid argues for a construction of the secure hash terms that includes two important properties of secure hash operations: (1) that the output is deterministic (i.e., repeatable in that the same inputs always produce the same outputs), and (2) that the output has no known relationship with the input that may be used to recover the input from the output. REPLY at 6. PACid's proposed construction is premised on language in the specifications reciting, "There is no known relationship between the input and output of a hash algorithm which may be used to recover the input from the output." OPENING at 7 (citing '646 patent at 2:8-10; '612 patent at 2:15-17).

Defendants argue that the specifications and extrinsic evidence known to a person of skill in the art require a secure hash function to include the four key properties of a secure hash, a "well-known tool used in cryptography": (1) that the output is always the same binary length regardless of the size of the input, (2) that it is computationally infeasible to determine the input from the output, (3) that it is computationally infeasible to determine two inputs that produce the same output, and (4) that on average, approximately 50 percent of the secure hash output bits are changed when only one single bit is changed. RESPONSE at 6-10; see also id. at 5, n.2 (citing cryptography handbooks and other technical resources)). Defendants present specific arguments contending that these four requirements of a secure hash were embraced by the patentee at the time of the invention and are further supported through intrinsic evidence and technical standards established in the prior art. Id. at 5-6. Given the disagreement surrounding the four criteria in Defendants' proposal for "secure has operation," each requirement will be evaluated in turn.

1. Accepting the proposal that the output is always the same binary length regardless of the size of the input

The first requirement proposed by Defendants is well-supported by the intrinsic language of the '646 and '612 patent specifications. Both patents clearly state that a "characteristic of a hash algorithm is that the output is always the same binary length regardless of the size of the input." '646 patent at 2:2-4; '612 patent at 5:5-11. This is further clarified in the '612 patent in describing "the present invention" by stating that a secure hash function produces a message digest of constant binary length, regardless of the length of the input. '612 patent at 2:54-65. Importantly, while this specification language appears to describe the properties of secure hash functions generally, the Court notes that the use of "present invention" does not automatically trigger a narrowing of the claim language. See Fenner Investments, Inc. v. 3Com Corp., No. 6:08-cv-61, 2009 U.S. Dist. LEXIS 44842, 2009 WL 1505407, at *11-12 (E.D. Tex. May 26, 2009) (stating that the Court will not read a specification discussing "present invention" to be magic words that automatically triggers a narrowing of the claim language) (citing Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007)).

Instead, as the language is used here, the description of "the present invention" in the '612 patent offers additional insight as to the patentee's understanding of the secure hash terms in a manner that comports with relevant teachings cited in the prior art. 17 Defendants have put forward a comprehensive showing that the definition of "secure hash" was known at the time of the invention through a consistent collection of prior art representing that when there was a variable length input, there was always a fixed length output. See RESPONSE at 7 (citing technical resources). In particular, the patentee's knowledge of this property was characterized through the disclosure of the SHA-1 reference, as well as through the of the Schneier Book instructing one of ordinary skill in the art as to "general information related to file encryption techniques." '612 patent at 2:49-51. Recognizing that cited prior art "can have particular value as a guide to the proper construction of the term," the body of prior art identified by Defendants effectively demonstrates the basic requirements of a "secure hash" known at the time of the invention. Arthur A. Collins, Inc. v. N. Telecom Ltd., 216 F.3d 1042, 1045 (Fed. Cir. 2000). Therefore, based on the consistent representation of this property in the intrinsic record, the Court accepts as a key requirement of a secure hash
function that an input of variable bit length will always produce an output having a fixed length.

17 For example, both patents-in-suit disclose the Secure Hash Standard, FIPS PUB 180-1 ("SHA-1") as an example of "secure hash." '646 patent at 2:26-28; 5:27-28; '612 patent at 2:2-5; and 5:2-4. SHA-1 demonstrates that an input can be of variable length, but always produces an output having the same bit length.

2. Rejecting proposals (a) that it is computationally infeasible to determine the input from the output and (b) that it is computationally infeasible to determine two inputs that produce the same output

It was clarified at the hearing that the "computationally infeasible" language in Defendants' proposal is not present in the PACid patents, but Defendants suggest that it is nonetheless intrinsic because it derives from the SHA-1 reference disclosed in the '646 and '612 patent specifications. See '646 patent at 2:26-28; 5:27-28; '612 patent at 2:2-5 and 5:2-4. While it has previously been noted that cited prior art can guide the construction of a claim term because it may indicate the meaning of the term to a person of skill in the art at the time of the invention, Defendants' incorporation of "computationally infeasible" improperly imports an unclaimed limitation into the proposed construction.

18 Defendants seek to include these requirements based on language in the SHA-1 standard reciting that "[t]he SHA-1 is called secure because it is computationally infeasible to find a message [i.e., input] which corresponds to a given message digest [i.e, output] . . . ." RESPONSE at 8, n.7 (citing SHA-1 standard).

Even with the support of the SHA-1 or Schneier Book prior art references, the Federal Circuit's claim construction teachings strongly weigh against interjecting limitations that are not present in the claims, the specification, or the prosecution history of the patents. Dayco Products, Inc. v. Total Containment, Inc., 258 F.3d 1317, 1325 (Fed. Cir. 2001) (declining to read an unclaimed and potentially undisclosed limitation into the claims). It is a basic canon of claim construction that one may not read a limitation into a claim from the written description, Simmons, Inc. v. Bombardier, Inc., 73 Fed. Appx. 421, 423 (Fed. Cir. 2003) (citing Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998)), and the same holds true for limitations imported from intrinsically cited prior art. In evaluating the prosecution history and cited prior art, a court should consider how the evidence demonstrates the inventor understood the invention and whether the inventor intended to limit the scope of the invention. Trading Technologies Intern., Inc. v. eSpeed, Inc., 595 F.3d 1340, 1352 (Fed. Cir. 2010) (internal citations omitted). Here, there is no indication that the inventor was seeking to include the meanings presented in the SHA-1 reference, and in the absence of clear intent, the proposed limitation unnecessarily restricts the scope of the claim terms. See Saunders Group, Inc. v. ComforTrac, Inc., 492 F.3d 1326, 1332 (Fed. Cir. 2007) (holding that claim scope is not limited to the disclosed embodiments "unless the patentee has demonstrated a clear intention to [do so]").

Despite related language cited from the written description that purportedly confirms the "computational infeasibility" of the secure has function, the Court finds that the patentee failed to identify Defendants' proposed requirement when defining the invention or otherwise negotiating with the PTO during the prosecution history. Accordingly, the definition provided for these claim terms will not include the "computationally infeasible" restriction, but will encompass the underlying substantive teachings as presented in the patents.

3. Altering the proposal that on average, approximately 50 percent of the secure hash output bits are changed when only one single bit is changed

Lastly, Defendants propose the written description requires that if a single bit of the input is changed, on average approximately 50% of the output bits are changed. RESPONSE at 11. PACid, however, maintains that this improperly imports a limitation from the specification in to the claims and unnecessarily complicates the construction of the "secure hash" terms. REPLY at 5. As a preliminary matter, this limitation, unlike the "computationally infeasible" language, finds
support in the intrinsic record. At the hearing both parties cited to the Background of the Invention section, stating: "if only one bit in a message or file is changed, approximately 50% of the bits in the output change." '646 patent at 2:2-8; '612 patent at 2:13-15. Similarly, the '646 specification states that, "[t]he irreversibility of the encryption key was made even more difficult by using a secure hash algorithm, which has the property of changing on average approximately 50 percent of its output bits when only a single bit in the input is changed." '646 patent at 6:5-9. In general, the effect of Defendants' argument and proposal regarding these specification passages could confuse the jury into applying an approximate floor and ceiling to the bits that may change as a result of the claimed hash operations. The Court finds that the application of such a floor or ceiling is at odds with the specification and the statistical underpinning of a secure hash operation.

Looking first at the cited passages, it is determined that, in context, neither passage imposes a strict floor or ceiling to the percentage of bit changes that may occur in a secure hash operation. Rather, both passages were reciting a desirable characteristic of secure hash function and an apparently true characteristic of the preferred embodiment SHA algorithm. For example, in both instances, the SHA algorithm is identified within just a few lines of the passage. Furthermore, even referring to the SHA algorithm or strict avalanche criteria cited by Defendants, there may only be a 1/2 probability that each bit will change. See RESPONSE at 10 (citing ALFRED J. MENEZES, PAUL C. VAN OORSCHOT & SCOTT A. VANSTONE, HANDBOOK OF APPLIED CRYPTOGRAPHY 277 (1997) (defining "strict avalanche criterion" as "whenever one input bit is changed, every output bit must change with probability of 1/2")). Since there is simply a statistical 1/2 chance of each bit changing, on rare occasions, far greater than 50% of the bits will change. Thus, if the jury misunderstood that any strict ceiling or floor applied, then the preferred embodiment would fall outside the claims in certain instances.

Of course, while the fact finder may be confused into applying a floor or ceiling, Defendants do not technically argue for literal bit-change limits, but rather propose a statistical average limit of approximately 50%. A general notion of an average 50% change is indeed supported in the intrinsic evidence quoted above. Defendants further cite extrinsic references to bolster and enforce the necessity of its proposed 50% average limit. In particular, Defendants point to extrinsic definition for the term "strict avalanche theory." However, Defendants do not sufficiently support that strict avalanche theory applies to all secure hash algorithms such as the non-SHA algorithms listed in the specifications. See '646 patent at 5:30-43; '612 patent at 5:5-16. Nevertheless, the Court is persuaded that the specifications reference to a 50% average bears on the definition of the secure hash terms at least to require the "dramatic change" to the input, as referenced in the specifications. See '646 patent at 5:21-24; '612 patent at 4:64-67. Further, the specifications' repetitive recitation of "dramatic change" supports Defendants' proposal with respect to the notion that a high percentage of bits must change on average. Thus, the 50% language should not be completely ignored, but should be applied in a way that respects the specifications' teachings regarding dramatic change and does not set a strict ceiling.

Finally, at the hearing, Plaintiff suggested that, if the Court were to adopt the 50% principle, then there would be agreement in applying the words "at least," thus implying a floor on average, but not a ceiling. Defendants agreed that they had proposed that language. See TRANSCRIPT at 60-61. Accordingly, the Court provides the following constructions:

- The term "secure hash operation" means "a deterministic operation that produces a fixed output bit length regardless of input bit length such that it is practically impossible to determine (a) the input from the output, and (b) two inputs that produce the same output and where if a single bit of the input is changed, on average at least approximately 50% of the output bits are changed."

- The term "secure hash algorithm" means "an algorithm that implements a secure hash operation."

- The term "secure hash computer program" means "a computer program that implements a secure hash operation."

"secure web site"

The '135 patent, claims 1 and 10 contain the term "secure web site." VirnetX contends that "secure web site" means "a computer associated with a domain name and that can communicate in a virtual private network." Microsoft contends that "secure web site" means "web site that requires authorization for access." The parties dispute whether a "secure web site"
requires authorization for access and whether a "secure web site" can communicate in a virtual private network.

The Court has construed "web site." See supra. The Court construes "secure web site" as "a web site that requires authorization for access and that can communicate in a VPN." First, the specification supports that a "secure web site" "requires authorization for access." The specification states

According to certain aspects of the invention, a specialized DNS server traps DNS requests and, if the request is from a special type of user (e.g., one for which secure communication services are defined), the server does not return the true IP address of the target node, but instead automatically sets up a virtual private network between the target node and the user. The VPN is preferably implemented using the IP address "hopping" features of the basic invention described above, such that the true identity of the two nodes cannot be determined even if packets during the communication are intercepted. For DNS requests that are determined to not require secure services (e.g., an unregistered user), the DNS server transparently "passes through" the request to provide a normal look-up function and return the IP address of the target web server, provided that the requesting host has permissions to resolve unsecured sites. Different users who make an identical DNS request could be provided with different results.

Col. 37:63-38:13 (emphasis added). These italicized portions explain that "secure" relates to registered users who have the ability to set up a virtual private network with a target node. This supports that "secure" means "requiring authorization for access." 6

Second, the claims themselves support that a "secure web site" "can communicate in a VPN." Claims 1 and 10 state "transparently creating [create] a virtual private network (VPN) between a client computer and a target computer." Col. 47:20-22; Col. 48:3-5. The "client computer" may seek access to a "secure target web site," which is on the target computer. See Col. 47:20-22; Col. 48:3-5. Because a VPN may be established between the client computer and target computer, the "secure target web site" can communicate in the VPN so that the client computer can access the "secure target web site" at the target computer. See Col. 47:29-32; see Col. 48:16-19. Accordingly, a "secure web site" "can communicate in a VPN," and the Court construes "secure web site" as "a web site that requires authorization for access and that can communicate in a VPN."

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Claim 36 of the '179 patent is representative of the claims at issue on appeal: 1

36. A method for establishing the validity of a display created by a non-secure printer, said method comprising the steps of:

placing in said printer paper upon which information may be created, said paper containing preestablished data which is unique to said paper;

communicating at least a portion of said preestablished data to a location independent from said printer, said independent location operable to send to said printer a security indicia, as part of a human readable display, said security indicia created in part by information contained in said preestablished media data and whereby said security indicia is validatable at a subsequent time partially under control of data contained in said preestablished paper data, said unique data being created on said paper defining one or more from the group consisting of:

postage stamps, money orders, bank drafts, letters of credit, legal documents, legal certificates, diplomas, passports, birth certificates, visas, drivers licenses, social security cards, medical insurance cards, vacation packages, travel vouchers,
car rental vouchers, hotel vouchers, meal vouchers, drink vouchers, food stamps, tickets, baggage tags, prescriptions (Rx), vehicle licenses, vehicle titles;

wherein said paper is divided into sections each section adapted for printing thereon information pertaining to a different display, each such display having associated therewith a security indicia.

The central dispute concerns the meaning of the underlined language describing the creation and validation of the security indicia. The claim construction dispute pertains to three separate terms or phrases:

1) "security indicia"

2) "said independent location operable to send to said printer a security indicia, as part of a human readable display, said security indicia created in part by information contained in said preestablished media data" (the creation limitation)

3) "and whereby said security indicia is validatable at a subsequent time partially under control of data contained in said preestablished paper data" (the validation limitation)

The construction of all three terms, however, turns on the same issue: whether the security indicia must be created and validated under control of a key contained in the preestablished data. In its Markman Order, the district court construed "security indicia" by stating that the indicia must "be created under control of a key" and stated that the "information contained in" the preestablished data must be a "key." Kara Tech. Inc. v. Stamps.com, Inc., No. 05-1890, 2007 U.S. Dist. LEXIS 98764, *28 (C.D. Cal. Sept. 10, 2007) (Claim Construction Order). The district court further construed the creation limitation as "said independent location having a computer programmed to create a security indicia under control of a key contained in the preestablished data that is capable of sending to the printer a security indicia, and that the security indicia is part of a human readable display." 2007 U.S. Dist. LEXIS 98764 at *31. Finally, the court construed the validation limitation as "and by which it may be established at a subsequent time, under control of the key contained in the preestablished [media or] paper data, that the security indicia is authentic." 2007 U.S. Dist. LEXIS 98764 at *32. In doing so, the district court explained that "the history of secure systems design supports that this invention requires a key." 2007 U.S. Dist. LEXIS 98764 at *28. It also referred to the detailed embodiment in the specification describing the use of a key in the preprinted data to support its construction. Id.

Kara argues that the term security indicia should be construed as "any distinctive mark that can be used to establish the validity of a document or display." It further argues that these claims do not require that the security indicia be created or validated by a key contained in the preestablished data. In response, Stamps.com argues that only a cryptographic key embedded in the preestablished data allows for the creation, control, and validation of the security indicia, as required by the patent claims. We agree with Kara that the preestablished data does not have to contain a key, and, as logically follows, that the security indicia does not have to be created or validated by a key in that data.

The claims at issue do not state that the preestablished data contain a key; they state that the data contain "information." Specifically, the plain language of the claims requires that the security indicia be "created in part by information contained in preestablished media data." See, e.g., ‘179 patent col.12 ll.14-15. This language does not require that the preprinted data contain a key, and certainly not a cryptographic key (as argued by Stamps.com), from which the security indicia would be generated. The preestablished data must, as the claim requires, simply contain information that will be used to create the security indicia--the information will be part of what creates the security indicia. Similarly, the claim requires that "security indicia is validatable at a subsequent time partially under control of data contained in said preestablished paper data." This merely requires that the data in the preestablished paper data (in this case the serial number on the preprinted label) is part of what must be used to validate the security indicia. It in no way requires a key in the preestablished paper data.

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Moreover, when all of the claims of the '179 and '575 patents are viewed together, it is clear that the claims at issue on appeal do not require a key in the preprinted data. "Differences among claims can . . . be a useful guide in understanding the meaning of particular claim terms." Phillips, 415 F.3d at 1314. Here, when the inventor wanted to restrict the claims to require the use of a key, he did so explicitly. None of the claims at issue on appeal recite the term "key." By contrast, all of the other independent claims require either an "encryption key" or "key data." '179 patent claims 1, 14, 47, 54, 59, 66; '575 patent claims 52, 60. In addition, dependent claim 2 of the '575 patent explicitly adds the limitation to claim 1 of the '575 patent that the security indicia "is validated by key information contained in at least a portion of said preestablished data." This further indicates that the claims at issue on appeal do not require the use of a key in the preprinted paper. See Phillips, 415 F.3d at 1314-15 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.").

To be sure, the specification repeatedly discusses a key embedded in the preestablished data. See, e.g., '179 patent col.2 ll.11-15, col.4 ll.52-59, col.5 ll.57-60, 65-67. In the only detailed embodiments in the patent, the key is embedded in the preestablished data. Id. This is not enough, however, to limit the patentee's clear, broader claims. The claim language read in the context of the specification does not require that a key be contained in the preestablished data, the patentee did not act as his own lexicographer or disavow claim scope. It is the claims that define the metes and bounds of the patentee's invention. See Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989). The claims, not specification embodiments, define the scope of patent protection. The patentee is entitled to the full scope of his claims, and we will not limit him to his preferred embodiment or import a limitation from the specification into the claims. See Phillips, 415 F.3d at 1323.

Thus, in the context of these patents, a security indicia is "a mark printed on a document that can be used to verify the authenticity of the document." The disputed terms and phrases require that the information or data contained in the preestablished data be used to create and validate the security indicia, but contrary to the district court's determination and Stamps.com's arguments, they do not require a key or cryptographic key in the preestablished data.

The expert testimony presented below does not compel a different result. The claims recite "security indicia created in part by information . . . and . . . validatable at a subsequent time partially under control of data." See, e.g., '179 patent col.12 ll.14-17. Stamps.com's expert, Professor McDaniels, testified that the terms "by" and "under control of" are terms of art that would indicate to one skilled in the art of secure systems design that the preprinted information must contain a cryptographic key, which he defined as "a very large number (e.g., 500 to 1,000 digits long)." Kara presented competing testimony by Professor Keromytis, who opined that the terms would indicate to one skilled in the art that while the preprinted information must be used for both creation and validation, it "need not 'contain' a 'key.'" It is not uncommon in patent cases to have such dueling experts. When construing claims, however, the intrinsic evidence and particularly the claim language are the primary resources. We have held that extrinsic evidence such as expert testimony is "less significant than the intrinsic record in determining the legally operative meaning of claim language." Phillips, 415 F.3d at 1317 (internal quotation marks omitted). While helpful, extrinsic sources like expert testimony cannot overcome more persuasive intrinsic evidence. A "court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent." Id. at 1318 (internal quotation marks omitted).

Here, the testimony of Stamps.com's expert cannot overcome the plain language of the claims, which requires only that the security indicia be created "in part" by and validatable "partially" under control of the preprinted information and which does not require a key in the preestablished data. See, e.g., '179 patent col.12 ll.14-17. The asserted claims, in contrast to other claims in these patents, do not contain a limitation to a key embedded in the preestablished data, and we decline to read such a limitation into them.

Although the parties acknowledged for the first time at the Markman hearing that "security measures" and "coded embedding" are not identical, they did not offer the Court any proposed construction for the term "security measures." Consequently, it falls to the Court to determine the meaning of "security measures."
The claimed invention seeks to prevent dishonest persons from misusing the invention by issuing drafts payable to someone other than an authorized payee. The system uses "security measures" to "reduce the likelihood of production of unauthorized drafts." '677 patent, col. 4, lines 31-34. Every time the term "security measures" is referred to in the identified claims, it includes, but is not limited to, "coded embedding." See, e.g., '677 patent, claim 2 ("security measures comprising the coded imbedding of said identification of said payee in said software"); claim 22 (same); claim 37 (same); claim 39 (same). Other security measures that are available in addition to "coded embedding," include password protection and encryption. See, e.g., '249 patent, claim 12 (claiming hard coding and password protection as security measures). Thus, "security measures" is broader than "coded embedding" and shall be construed as "measures taken to preclude the generation of drafts payable to someone other than the payee, including at least coded embedding of the payee identification information." GO BACK

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(1) Security Module

Square D argues that "security module," should be construed to mean "a module that performs the task of preventing access to data, such as by authenticating users through passwords, data encryption, or firewalls." EL contends that the term should be construed to mean "a module including encryption and authentication components." At the Markman hearing, Square D offered an alternative construction: "module including encryption, authentication or firewall components." The emphasis on "or" is Square D's. The dispute, therefore, is whether the term security module" necessarily includes both encryption and authentication components. The Court finds that it does not.

First, the plain language of the claim does not require authentication and encryption; it merely requires that the module be "operative to prevent unauthorized access to said power management data." col. 33, lines 49-50. Second, the specification uses "or" - not "and" when discussing these measures. See, e.g., U.S. Patent No., 6,751,562 B1, col. 15, lines 65-67 ("[i]n an alternate embodiment the Security Sub-layer 321a includes authentication or encryption . . ."). The Court construes the term "security module" to mean "a module that performs the task of preventing unauthorized access to data, including encryption, authentication or firewall components." GO BACK

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2. Claim Construction

NRT argues that the district court erred in incorporating its claim construction in its discussion of enablement and in interpreting claim 1 to require perfect isolation between those signals that pass through irregularities and those that do not. NRT argues that the term "select" means that only those signals that do not pass through irregularities are to be preferred to those signals that do. According to NRT, the term "select" does not require absolute perfection in separating signals that pass through an irregularity from those that do not. Because claim construction is a matter of law that we review de novo, we independently construe claim 1 of the '576 patent.

Claim interpretation begins with the language of the claim itself. See Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 619, 34 U.S.P.Q.2D (BNA) 1816, 1819 (Fed. Cir. 1995). The claim terms are to be given their ordinary meaning unless it is apparent that the inventor intended to use them differently. See York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572, 40 U.S.P.Q.2D (BNA) 1619, 1622 (Fed. Cir. 1996); Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580, 36 U.S.P.Q.2D (BNA) 1162, 1165 (Fed. Cir. 1995). At issue on appeal is the construction of part (d) of claim 1, more specifically, the limitation that requires the claimed invention to "select[] for processing those of said process signals which do not pass through irregularities in the bodies of said material items." The parties agree that the ordinary meaning of the term "select" means "chosen in preference to another or others; picked out, especially for excellence or some special quality; picked." Webster's New World Dictionary (3rd College Ed.) (emphasis added).

The plain meaning of the term "select," including the dictionary meaning agreed upon by the parties, implies that some signals are to be picked or chosen and others are to be excluded based upon some special, unique or discrete quality. A
specific choice is being made. Both claim 1 and the specification of the '576 patent make clear that those signals that do not pass through irregularities are to be chosen for processing to the exclusion of those signals that do pass through irregularities. Nothing in the plain and ordinary meaning of the term "select" indicates that only a preference for signals that do not pass through irregularities is required. Furthermore, nothing in claim 1 indicates that signals are to be picked based on any other characteristic than penetrating a "normal" or regular portion of a container. Claim 1 clearly indicates that the "special quality" for which a signal is selected is whether or not that signal has passed through an irregularity. There is no indication in the plain meaning of the limitation, or from the claim as a whole, that this selection criterion is to apply only some of the time.

Nothing in the specification indicates that the inventor intended to deviate from the plain and ordinary meaning of the word "select." Thus, the plain language of the claim when read in light of the specification is clear that the term "select" does not merely require a "preference" for certain signals. Signals are to be specifically chosen based on whether or not they pass through irregularities in the container.

f. "To Select Voids"

The parties next dispute the meaning of the term "to select voids" that first appears in claim 15. They agree that the construction should include the phrase "to identify particular voids to be altered," but Lexmark and Dell seek to add "as distinguished from the coincidental filling of all voids in a row between existing scan lines which results from deinterlacing" n8 to the end of the definition.

During prosecution, Cooper sought to distinguish his invention from a prior art patent, which disclosed deinterlacing a video signal. He referred to the prior art process as "coincidental" and specified that his invention, by contrast, selectively detected voids before filling them. Lexmark and Dell contend that this amounts to a disclaimer of coincidental filling caused by deinterlacing during prosecution.

As we read IP's proffered definition, the distinction Lexmark and Dell seek to make explicit is already contained within it. The phrase "identify particular voids" makes it clear that voids are not coincidentally or accidentally filled. Rather, the term "identify," much as the term "select," implies some purposeful or deliberate action that is neither coincidental nor accidental. Therefore, the court adopts IP's proposed construction: to identify particular voids to be altered.

This construction applies equally to the related terms "indicating voids" in claim 146 of the 780 patent and "to determine the presence of a void" in claims 1 and 107 of the 637 patent.

B. "selectable categorical information"

The second disputed phrase from the '730 patent is "selectable categorical information." At the claim construction hearing, the parties informed the Court that they had come to a partial agreement on this phrase, and offered two revised constructions for consideration. The revised constructions are shown below.

<table>
<thead>
<tr>
<th>LSI'S PROPOSED CONSTRUCTION</th>
<th>SANDISK'S PROPOSED CONSTRUCTION</th>
</tr>
</thead>
</table>
As seen above, the parties differ only on whether the selectable categorical information must be selectable by a user. In claim 1, "selectable categorical information" is defined as information "related to . . . individual tracks of audio." The dependent claims explain that this may include the category of music for the track and artist information (cols. 6:14-27, 6:34-44). Importantly, there is no limitation that this information must be selectable by any particular person or thing.

At oral argument, SanDisk pointed to various portions of the specification that described user selection. For example, the specification stated that it was "an object of the present invention[] to provide a storage format for pre-recorded music that is easily selectable by a user in regard to general content" (col. 1:40-43) (emphasis added). Elsewhere, the specification described the invention as one that "allows a user to make selections by type of music, mist, etc. which is to be played over a period of time" (col. 1:67-2:3) (emphasis added). 2 This idea of user interaction was reiterated by the specification in other places as well (see, e.g., col. 3:49-53).

Even so, this order declines to read SanDisk's proposed limitation into the claim. A person having ordinary skill in the relevant art at the time the patent application was filed would have understood that individual music tracks could be categorized in ways that would be useful to (and therefore selectable by) a computer program, but not necessarily a user. For example, music files might be categorized by whether or not they are "copy-protected." If a user attempts to copy ten music files to a personal music player, a software program might "select" only those files that are not "copy-protected" and limit the copying to just those music files. In such a scenario, the copy-protection information would be "selectable categorical information" pertaining to individual tracks of audio, but it would not be selectable by the user. As such, "selectable categorical information" is construed by this order to mean "information related to a type of music that can be used to select individual tracks of music."

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1. The word "SELECTED" (claim 29 4) requires no construction.

5. "Selected" (Claims 1, 10, 11)

The term "selected" has a plain and ordinary meaning that is obvious to both skilled artisans and laypersons alike. (Broadcom Reply at 46 (citing Webster's definition of "chosen"); Acampora Rep. at 40.) A claim term assumes its ordinary and customary meaning "unless the patentee . . . redefines the term or . . . characterizes the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex,
299 F.3d at 1327. Agere proposes that the Court adopt the construction that "selected" means "inserted" because, according to Agere, the patentee explicitly redefined the term as such. Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (noting that patentee's explicit definition of term controls).

A review of the claim language reveals no basis for the Court to deviate from the plain and ordinary meaning of this term. Agere derives its limiting construction from the final preferred embodiment described in the specification in which the patentee writes: "In addition, the base module may interrogate the selected ('inserted') communication module(s) to determine which antennas to interconnect." (‘705 patent, col. 37, ll. 58-60.) This parenthetical does not indicate a clear intention on the part of the patentee to redefine the term "selected," but rather as an acknowledgment that the base module cannot "interrogate" the chosen communication module until it has been inserted into the base module. (Acampora Rep. at 41.) This conclusion is consistent with the claim language, which suggests a two-step process comprised of "selecting" a communication module and "inserting" the module into the base module. (‘705 patent, col. 38, ll. 26-27 ("The base module receiving the selected one of the plurality of communication modules in an assembled position") (emphasis added).)

For the foregoing reasons, the Court cannot conclude that one parenthetical, located in one preferred embodiment, exhibits the patentee's "clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Brookhill-Wilk 1, 334 F.3d at 1299. Thus, the Court finds that the term "selected" is used in accordance with its plain and ordinary meaning and requires no construction.

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C. First Server Computer and the "Selected Computer Resources of at least a [or said] first server computer . . ."

Plaintiff contends that the first server computer, or "subscription access server," does not need to actually store all of the selected computer resources it makes available to subscribers. Rather, Plaintiff contends, the first server computer can act as a gatekeeper, controlling access to those resources by instructing a "Service Function" to make those services, applications or content available. (D.I. 266 at 27; D.I. 305 at 17-18).

Defendants contend that the claim language and specification of the '416 Patent require that the first server computer physically store all of the protected content it communicates to subscribers, pointing to language in the specification stating that the invention "control[s] access to selected computer resources of at least a first server computer." (D.I. 306 at 20, citing ‘416 Patent, col. 35, ll. 26, 29-31)(emphasis added). Defendants contend that the use of the word "of" implies possession of resources by the first server. (Id. at 20). However, reading the claim in the context of the entire patent, the Court concludes that Defendants' contentions rely on an overly restrictive concept of possession, and that, given a broader reading, the language cited by Defendants is consistent with the specification.

The specification discusses a system whereby various web sites are hosted through web servers operating in conjunction with first server computers that protect the contents of the sites. (See e.g. col. 5, ll. 14-16, col. 27, ll. 3-4). Figure 3 shows the protected contents residing outside of the first server computer, with the path over which protected contents can be sent crossing through the "Service Function" block rather than the server. (Id., Fig. 3). Likewise, in Figure 4, the protected content resides outside the first server, and is accessed by the server through the "Service Function," which also resides outside the first server computer. (Id., Fig. 4). Thus, the Court concludes that the system disclosed in the specification and corresponding figures does not require the first server computer to store the resources it communicates to subscribers. Rather, it allows the server to act as a gatekeeper, accessing selected computer resources protected by the invention either itself or through a "Service Function" block, and communicating those resources to subscribers.

Accordingly, the Court construes "First Server Computer" to mean "a computer that makes available information or other resources." The Court also construes "selected computer resources of at least a [or said] first server computer" to mean "computer services, applications, or content that can be accessed by (either directly or indirectly) said first server computer."
II. Selected Content and Selected Displayed Content

Defendants propose that the terms "selected content" and "selected displayed content" be construed as "a distinct item clicked, marked or highlighted on a screen to perform an operation on the item. The distinct item, or content, does not include a URL." Aloft argues that no construction is necessary. At the hearing, the parties had difficulty articulating the basis for the disagreement regarding these terms. Nonetheless, a number of discrete agreements were reached. Both sides agree that: (1) "selected content" and "selected displayed content" do not include a URL, "Hr'g Tr. 45:9-10; (2) "selected content" and "selected displayed content" may include an entire web page, Hr'g Tr. 44:8-14, 50:18-19; (3) a product which stores metadata or un-displayed content along with selected content satisfies the claim limitation at issue, Hr'g Tr. 63:6-9, 64:11-21; and (4) "selected content" must be selected with affirmative user action. DEF'S RESP. at 13; PL.'S REPLY at 1-2.

In light of these agreements, the Court finds Defendants' proposed construction to be inappropriate for a number of reasons. First, because the parties have agreed that selected content does not include a URL, there is no need to restate this agreement in a construction of this term. Second, Defendants' proposed construction limits the term "selected" to "clicked, marked, or highlighted on a screen." However, Defendants concede that these "are merely examples of ways the user can specify the selected item." Def.'s Resp. at 15. Because the parties agree that selection requires affirmative user interaction, the Court sees no reason to limit this term to the examples listed by Defendants. Finally, Defendants' reference to a "distinct item" injects unnecessary ambiguity into the claim language. Because this phrase does not appear in the specification of the patents, it is unclear if it would include multimedia files, highlighted text, or portions of a web page. Such a result would be inconsistent with the patent's description of "documentation related to the selected URLs" as "web pages, articles, spread sheets, slide shows, compressed documents such as files in Portable Document Format (.pdf), etc. and can even include multimedia files and streaming multimedia." '443 Patent 9:3-6; Aloft I, 570 F. Supp. 2d at 893-894. The Court has no reason to conclude that the "content" of the asserted claims is narrower than this exemplary list described in the specification.

--- Footnotes ---

1 In Aloft I this Court stated: "Defendants also expressed concern that "content" could potentially encompass non-displayable information that "documentation" could not. However, Defendants do not explain how the word "documentation" will resolve this concern. A URL can just as easily reference a hidden document as it can hidden content." 570 F.Supp. 2d at 894 n. 3.

--- End Footnotes ---

Defendants' primary argument appears to be that the claims require that "selected content" be visually depicted on a computer screen, selected by a user, and stored. For example, consider a web page with an image of a box labeled "audio" that contains a link to an audio file stored on a server. When a user views the web page and clicks on the box, the user's computer retrieves the audio file and plays it. A software product may allow a user to select the box labeled "audio." Defendants argue that if that product stores only the link to the audio file or the audio file itself, but not the box displayed on the web page, that product would not satisfy the claims at issue because it does not store the displayed, i.e. visually depicted, content. Hr'g Tr. 67:14-25. Plaintiff argues that the product would satisfy the claim limitation because it stores content that has been selected, i.e. the link to the audio file. Hr'g Tr. 64:11-21.

--- Footnotes ---

2 The parties presented this example at the Markman hearing, and the Court has relied on it to explain the parties' positions. However, the Court does not offer any infringement analysis or express any opinion as to the functionality of any of the accused products.

--- End Footnotes ---

The Court sees no reason to limit the "selected content" of claims 36 and 37 to the exactly visually depicted content selected by a user. Rather, as explained by the Court in Aloft I, content may include spread sheets, slide shows, pdfs, multimedia, and...
streaming multimedia files, which need not be visually depicted on a screen. The Court must begin its construction by
consulting the claim language at issue. Phillips, 415 F.3d at 1314. Claims 36 and 37 recite "selected content associated with
at least one of the URLs displayed during use of the network browser is . . . stored." This "selected content" may include a
link or an audio file, among other things, as those items may be associated with a "URL[] displayed during use of the
network browser." This is true even though the link or audio file is not visually depicted on the screen. Because Defendants
do not point to any evidence other than the language of the claims at issue, the Court sees no reason to inject Defendants'
limitation into the claims. Having rejected Defendants' argument, the Court finds that this term can be easily understood by
a jury and that no construction is necessary.

For the reasons stated above, Defendants' proposed construction for the term "selected displayed content" is inappropriate. The Court finds that a jury could easily understand this term and that no construction is necessary.

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments,
Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history,
the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-
function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. #
292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2 &quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
</tbody>
</table>
1. At Selected Higher and Lower Pressure Magnitudes

This phrase is found in Claims 3 and 24 of the '802 Patent and Claims 9, 44, and 53 of the '193 Patent.

Phrase: At selected higher and lower pressure magnitudes

Construction: at a higher pressure magnitude and a lower pressure magnitude that have been chosen prior to operation of the computer circuitry that is used to determine whether the patient is inhaling or exhaling.

Reasoning: The dispute between the parties focuses on when, and how, the two pressures must be selected. Plaintiffs contend that they can be selected in any manner and at any time prior to their being applied. In fact, at the hearing, plaintiffs contended that the lower pressure could fluctuate breath by breath while the device is in operation. Defendant
contends that the pressures must be selected manually prior to operation.

In construing the term "selected" it is of primary importance to understand the overall context of the patents themselves. These patents disclose bi-level treatment devices. The claims disclose a treatment method that senses the occurrence of the exhalation or inhalation phase of the breathing cycle, even in the presence of system leakage, based on the spontaneous breathing of the patient, so that the system knows when to apply a higher pressure magnitude (i.e., during inhalation), or a lower pressure magnitude (i.e., during exhalation).

With that said, in arriving at the proper construction of the term "selected", we must look at the entirety of the claims. By way of example, the word "select" appears in Claim 3 of the '802 Patent twice. It is the first occurrence of the term that we are being asked to construe. The first time, "select" is used it appears in the past tense as part of the first step of the claim (i.e., "... for delivery to the airway of such a patient at selected higher and lower pressure magnitudes... "). The second time, "select" appears it is used in the present tense as part of the final "utilizing" step of the claim (i.e., "utilizing said instantaneous flow rate and said reference indicia to select one of said higher and said lower pressure magnitudes"). When the claim is read in its entirety, it is clear that the "selected" higher and lower pressure magnitudes of the first step are pre-selected, before the computer circuitry does its detecting, processing, and utilizing, so that once the circuitry has completed these tasks, it can pick which of the two pressures to apply. Apart from the structure of the claim itself, this is supported by the fact that in the final "utilizing" step, the higher and lower pressures are referred back to as "said", or previously mentioned/referenced, pressures (i.e., "utilizing said instantaneous flow rate and said reference indicia to select one of said higher and said lower pressure magnitudes").

This reading of the claim language is consistent with the remaining intrinsic evidence. The specifications, figures, and prosecution history all presuppose that the two pressures are chosen before the device starts detecting, processing, and utilizing. See e.g., Prosecution History, '802 Patent, Amendment and Remarks (June 11, 1990) at 19-20; '802 Patent, Fig. 4; cl. 2, Ins. 59-63; cl. 3, Ins. 24-28; cl. 6, Ins. 43-46, 55-59, 61-66; cl. 8, Ins. 53-55; cl. 11-12, Ins. 62-62; cl. 13, Ins. 24-32, 40-42. There is no indication in the patents that the lower pressure magnitude can somehow be changed breath by breath, as was asserted at the hearing. While a person of ordinary skill in the art might be able to modify the invention so as to "select" the pressures via computer screen, rather than dial, there is nothing to suggest that the "selected" step is nearly as broad as plaintiffs contend.

4. Selected Matching Items

'683 Patent, Claims 3, 6, 26, 28, 29

'172 Patent, Claim 1

ePlus asserts that this term need not be construed but that, if it is, it should be construed to mean: items returned in search results that are selected for inclusion on an order list or in a requisition. Lawson proposes that the term mean: one or more items selected by a user in the search program from the list of 'matching items' for inclusion in an order list.

a. Words of the Claims

Claim 3 of the '683 Patent claims an electronic sourcing system comprising:

at least two product catalogs containing data relating to items associated with the respective sources;

means for selecting the product catalogs to search;

means for searching for matching items among the selected product catalogs;

means for building a requisition using data relating to selected matching items and their associated source(s);
means for processing the requisition to generate one or more purchase orders for the selected matching items; and
means for converting data relating to a selected matching item and an associated source to data relating to an item and a different source.

'683 Patent at 25:10-23 (emphasis added). Claim 6 of the '683 Patent claims an electronic sourcing system comprising:

a database containing data relating to items associated with at least two sources;
means for searching for matching items in the database;
means for building a requisition using data relating to matching items and their associated source(s);
means for processing the requisition to generate one or more purchase orders for the selected matching items; and
means for converting data relating to a selected matching item and an associated source to data relating to an item and a different source.

'683 Patent at 25:31-42. Claims 28 and 29 of the '683 Patent claim a method comprising the steps of:
maintaining at least two product catalogs on a database containing data relating to items associated with the respective sources;
selecting the product catalogs to search;
searching for matching items among the selected product catalogs;
building a requisition using data relating to selected matching items and their associated source(s);
processing the requisition to generate one or more purchase orders for the selected matching items; and
converting data relating to a selected matching item and an associated source to data relating to an item and a different source.

'683 Patent at 26:62-67; 27:12-17 (emphasis added). Claim 1 of the '172 Patent claims an electronic sourcing system comprising:

a database containing data relating to items associated with at least two vendors maintained so that selected portions of the database may be searched separately;
means for entering product information that at least partially describes at least one desired item;
means for searching for matching items that match the entered product information in the selected portions of the database;
means for generating an order list that includes at least one matching item selected by said means for searching;
means for building a requisition that uses data obtained from said database relating to selected matching items on said order list;
means for processing said requisition to generate purchase orders for said selected matching items.

'172 Patent at 23:56-24:42 (emphasis added). The words of the claim clearly link the selected matching items to the requisition.
b. Specification

The specification shows that the selected matching items are items that are eventually transferred to a requisition. For example, the '683 Patent provides:

When in search program 50, particular items selected can be added to an Order List 48...The items that are sent to the Order List 48 are collected and shown on the Items Selected screen of Shell 52...Upon clicking on "Order" when the Items Selected screen (Appendix VI) is viewed, many or all of these fields on the items in the Order List are transmitted back to REQU program 44A (via the programs of interface 60 shown in FIG. 2) to be added to the pending Requisition Item Table 46.

'683 Patent at 11:30-55.

c. Prosecution History

During prosecution of the '683 Patent, the inventors, in amending the claims, noted that, "[a]pplicants have amended the claims using the following terminology: 'selected matching items' are requisition items..." (Pl. Ex. 22 at 11 (emphasis added).) This statement demonstrates that meaning given to the claim term by the inventors.

d. Proper Construction

The words of the claim and specification make clear that selecting matching items are used to build a requisition. And, the prosecution history unequivocally states that selected matching items are requisition items. Thus, this term is construed to mean: requisition items. That construction is also consistent with the construction in ePlus, Inc. v. Ariba, Inc., Civil Action No. 1:04cv612 (E.D. Va.). (P1. Ex. 10 at 27.)

First, ERM argues that the method used by the ER Mapper does not process tiles using a DWT in a "selected sequence" as required by the representative Claim 1. ERM contends that the term "selected sequence" is limited by the selected sequence of processing tiles described in the specification, wherein the tiles are processed beginning with the tile in the upper left corner of the image. '835 patent at col. 7, II. 46-64. The processing of the tiles in this selected sequence, according to ERM, is central to the claimed invention, since it permits the storage of DWT coefficients from previous tiles for use in performing a DWT on ensuing tiles. Id. at col. 2, II. 45-60. Since the ER Mapper processes images in subparts (which we have construed to constitute "tiles") of single-row pixels, ERM asserts that it does not utilize a processing sequence beginning in the upper-left corner of the image and that therefore, as a matter of law, it does not infringe claim 1.

We decline to affirm the district court's summary judgment of non-infringement on this basis. To do so would require us to ignore the plain meaning of the term "selected sequence" and improperly import the characteristics of the selected sequence described in the specification to limit the claimed invention. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998) ("Claims are to be interpreted in light of the specification and with a view to ascertaining the invention, [but] it does not follow that limitations from the specification may be read into the claims."). The "selected sequence" limitation in the claim simply requires that the processing of tiles occur in a predetermined and planned sequence, not that it follow the particular sequence set forth in the specification. Simply put, we are not persuaded that a predetermined sequence of processing tiles beginning with a tile in the upper right of the image or the bottom row of pixels is not "selected." Nor does the specification support such a conclusion, for ERM fails to point to any language indicating that the particular disclosed sequence is the only processing sequence that meets this claim limitation. Accordingly, we interpret the term "selected sequence" in conformance with its plain meaning, instead of imposing an additional requirement that it correspond to the particular sequence disclosed in the specification.
D. Selecting

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>selecting</td>
<td>to specify a block of data, text, or image on a screen by highlighting it or otherwise marking it with the intent of performing some operation on it</td>
<td>user selects</td>
</tr>
</tbody>
</table>

The next disputed term, "selecting," is related to the previous one because both are found in the same sentence and the dispute about both centers on which actor does the selecting. The sentence containing both terms is the fourth step of Claim One: "selecting keys on the keyboard to provide the desired input." Plaintiff again argues that the actor is the computer, and Defendants again argue that it is the user. Plaintiff would construe "selecting" as "to specify a block of data, text, or image on a screen by highlighting it or otherwise marking it with the intent of performing some operation on it." Defendant's would construe "selecting" as "user selects."

Just as they did with respect to "desiring," Defendants argue that "selecting" is linked to the "user input" mentioned in step one of Claim One. (Defs' Br., at 6-7.) As Defendants see things, because the selecting "provides the desired input," and that "desired input" is the "user input," the user must be the one doing the selecting. This argument has some force even though the court has rejected Defendants' proposed construction of "desired input" based on the user's desire. That the selection is done in order "to provide" the information requested by the computer program certainly suggests that the entity doing the selecting is the same entity that provides the information--the user. Moreover, Claim One is a method of "entering data on a touch screen display." ('873 Patent, col. 20, l. 55.) In ordinary usage, the actor that enters data into a computer is the user, not the computer, so it should be no surprise that the user performs one of the steps of the method.

Plaintiff would read the language of the claim differently; it argues that step four of Claim One must be read as being done by the same actor as the other four steps, the computer program. (Pl's Br., at 16.) Context is, of course, important in interpreting a disputed claim term, Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1396-97 (Fed. Cir. 2008), but Plaintiff provides no support for its argument that the same actor must be behind every step in a single claim. Cf. Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1328-29 (Fed. Cir. 2008) (all steps in single claim not performed by same actor).

Next, Plaintiff argues that because the patentees used the word "user" in other places in the claim, their failure to use it before "selects" is evidence that the user does not do the selecting. (Pl's Br., at 9-10.) By the same token, though, the inventors' failure to use the word "computer program" before "selects" is evidence that the computer program is not the actor doing the selecting. Using the phrase "steel baffles" suggests that not all baffles are made of steel, Phillips, 415 F.3d at 1314, but using the word "baffles" alone does not suggest that the writer intends to exclude baffles made of steel.

Finally, Plaintiff argues that if the computer program does not do the selecting in step four, it will be impossible for the invention to receive the desired input as required by step five. (Pl's Resp., at 8.) This argument also misses the mark as there are dozens of processes that an implementation of the invention would have to perform that are not explicitly stated in the claim. Rambus Inc. v. Infineon Techs. Ag, 318 F.3d 1081, 1093 (Fed. Cir. 2003) ("[T]he claims need not recite every component necessary to enable operation of a working device.")

Moving beyond the claim terms, Defendants support their construction with references to the specification. (Defs' Br., at 7-8, citing '873 Patent, col. 1, ll. 20-22, col. 2, ll. 50-52, col. 3, ll.16-20, col. 20, ll. 42-45.) Only one of those references actually contains some form of the word "select," but that single reference does support Defendants' construction: "Therefore, a user can input data by selecting keys 22 on the keyboard 20 as necessary." (873 Patent, col. 20, ll. 42-45.) Plaintiff responds that the sentence in question describes only a possible implementation of the invention because it includes the word "can," and Defendants' citation to it is another attempt to limit Claim One to one of the specification's examples. (Pl's Resp., at 8.) The court disagrees that Defendants are attempting to limit Claim One. As the court reads the construction, it is a proper use of the text of the specification to understand the claim terms. Abbott Labs, 566 F.3d at 1288-89.

Both sides also refer to the prosecution history, (Pl's Br., at 17-18;Defs' Br., at 8), but the court finds it to be ambiguous.
Defendants point to the inventors' statement that prior patents failed to disclose "determining that input from a user is no longer needed." (Pl's, Ex. 2, at 222.) This statement shows only that the invention involves user input; it does not show anything about how to interpret the word "selecting." The statement suggests that one step in the method might be taken by the user, but it does not require that. Plaintiff's argument about the prosecution history is that the patent examiner understood the "selecting" step to be equivalent to a certain part of the Buxton patent. (Pl's Br., at 17-18.) In summarizing reasons for rejecting the patent, the patent examiner wrote that, in Buxton, "the processor 5 and application program 50 process the data entry (selecting keys on the keyboard) from the display." (Pl's, Ex. 2, at 145.) Ignoring the last three words quoted, this reference supports Plaintiff's argument that selecting is done by the computer because selecting is equivalent to "process[ing] the data entry." When those last three words are considered, though, they suggest that the examiner equated "selected keys on the keyboard" with "data entry from the display," an interpretation that supports Defendants' argument. Accordingly, the prosecution history does not resolve the dispute.

Finally, Defendants appeal to common sense and argue that reading "selecting" as performed by the computer would be nonsensical. (Defs' Br., at 8.) The court does not agree that Plaintiff's construction is nonsensical. Nevertheless, for all the reasons given, the court finds that Plaintiff's construction is not supported by the intrinsic record. The only support that Plaintiff has for its construction is the definition of "select" found in the Computer User's Dictionary published by Microsoft Press:

select vb. 1. In general computer use, to specify a block of data or text on screen by highlighting it or otherwise marking it, with the intent of performing some operation on it. 2. In database management, to choose records according to a specified set of criteria. See also sort. 3. In information processing, to choose from a number of options or alternatives, such as input/output channels.

MICROSOFT PRESS COMPUTER USER'S DICTIONARY at 312 (1998). Although general purpose dictionaries can be helpful in reading claim language, the Microsoft Computer Dictionary is a technical dictionary within the class of extrinsic evidence, so it is less significant than the intrinsic record. Phillips, 415 F.3d at 1314, 1317-18; see also Paragon Solutions, 566 F.3d at 1092 (treating Microsoft Computer Dictionary as extrinsic evidence). In any event, the court does not understand the Microsoft Dictionary definition to be helpful to Plaintiff's argument because the definition does not require that the selecting be done by the computer.

Plaintiff's proposed construction suffers from two more serious defects. First, despite vehemently arguing that the actor doing the selecting is the computer, Plaintiff has proposed a construction that, like the definition it relies on, does not make that clear. The act of "specify[ing] a block of data, text, or image on a screen by highlighting it or otherwise marking it with the intent of performing some operation on it" could be performed by the computer program, but it could also be performed by the user. Second, Plaintiff's construction is simply not grammatical. The result of replacing the word "selecting" with Plaintiff's proposal is the following: "to specify a block of data, text, or image on a screen by highlighting it or otherwise marking it with the intent of performing some operation on it keys on the keyboard to provide the information requested by the computer program." That result would not help the jury.

Accordingly, the court adopts Defendants' proposed construction, "user selects."

GO BACK
The preamble recites that the method steps are to be performed automatically by the drilling rig. This language suggests that the selecting step is not limited to manual operation of valve selectors and/or manual calibration of regulators as construed by the district court. See Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)) ("In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim."); Innova/Pure Water, 381 F.3d at 1118 ("Language in a preamble limits a claim where it breathes life and meaning into the claim ... but not where it merely recites a purpose or intended use of the invention.") (internal citations omitted). Hence, the language of claim 14 (particularly the preamble) does not support the district court's construction of this step.

In addition, the specification does not limit the selecting step to the manual operation of valve selectors or the manual calibration of regulators. Rather, the specification discloses an initial setup procedure in which an operator, using valve selectors 232-235, manually chooses the regulators 200-203 that will control the drilling operation once underway. See '142 patent, col. 7, l. 49-col. 8, l. 6; col. 23, ll. 6-12. The specification also discloses a manual calibration process, a subset of the initial setup procedure, for those regulators 200-203 selected using valve selectors 232-235. See '142 patent, col. 8, l. 51-col. 10, l. 3; col. 23, ll. 12-23. To clarify this setup procedure, the specification explicitly states that this initial setup occurs "before the [selected] regulator ... will automatically regulate" the release of the drill string. '142 patent, col. 8, ll. 57-61 (emphasis added). The district court relied on this portion of the specification to support its requirement of manual operation. To the contrary, this portion of the specification sets forth an initial setup or calibration step that precedes the claimed selecting step. In effect, the district court erred by reading the initial setup or calibration step into the claimed selecting step.

Notably, the specification also describes a conflict resolution process automatically performed by the drilling rig after the initial setup or calibration; i.e., once the drilling rig is up and running. See '142 patent, col. 24, ll. 4-26. Because the valves 236-239 are connected in series, see '142 patent, Figure 2, the valve 236-239 with the largest signal generally provides the signal conveyed to the air motor 204, which ultimately controls the brake 32. With two or more parameters in use (i.e., when the drill rig operator "selects" two or more parameters, such as bit weight and drilling pressure), conflicts will occur between the controlling parameters (e.g., a first parameter may suggest the drill string should be released whereas a second parameter may suggest the drill string should be held steady).

This conflict resolution process led to the 35 U.S.C. § 112, P1 rejection during prosecution, because the Examiner did not understand the drilling system's method for resolving conflicts between the "primary" and "secondary" controls. The Examiner questioned the conflict resolution method:

\[
\text{It is the examiner's view that at the least, applicant has failed to provide a logical explanation with respect to how such conflicts can be resolved. Because it is well known in the art that among other things, the relationship between rate of penetration and the drilling parameters ... one can not simply isolate one parameter from the others ... Specifically the operational procedures illustrated in [the specification] fail to teach ... how and when the secondary control overrides the primary control. Examiner also could not understand why among the four control parameters, the rpm and the torque regulators can be switched off, since as best understood, all these four parameters need to be taken into consideration and should be properly balanced.}
\]

In response, the applicant explained to the Examiner that an operator, as part of the initial setup procedure, can adjust the level for override of the primary control, thus ensuring that only undesirable conditions will trigger intervention. With this initial adjustment in place, the drilling system then automatically selects between the primary and secondary controls during operation. Thus, the prosecution history confirms that selecting in claim 14 does not encompass the initial setup or calibration of the drilling system, but rather the conflict resolution process between primary and secondary controls during operation.

Finally, one potential reading of dependent claim 15 implicitly suggests "selecting" in the context of the initial setup or calibration of the automatic driller differs from "selecting" in the context of claim 14. See '142 patent, col. 2, ll. 20-24 ("relay selectors which ... permit an operator ... to select which one of or which combination of the regulators are to control the drilling operation."). Specifically, claim 15 provides two signals, a signal representing drill string torque and a signal representing drill string RMP, in addition to the two signals required by claim 14. Compare '142 patent, col. 28, ll. 34-38, with col. 28, ll. 39-57. Because claim 15 adds signals to the control process and the addition/subtraction process is described in the specification as occurring during the initial setup/calibration of the automatic driller, "selecting" in claim
14 must refer to the conflict resolution process that occurs between controlling parameters. Otherwise, the provision of additional signals in claim 15 would be subsumed within the "selecting" step already recited in the claims.

In sum, claim 14 does not suggest that the selecting step requires a two-part manual process as interpreted by the district court. Moreover, the specification and prosecution history confirm that the two-part manual process relied upon by the district court is distinct from the claimed selecting step. Thus, the district court's interpretation of the selecting step was unduly narrow.

2. Meaning of "selecting"

The parties also dispute the meaning of "selecting" a conductive line. Defendant argues that "selecting" means bringing the line from a logical low to a logical high voltage; plaintiff argues that it means floating the line at some voltage. Section 112(6) does not apply to this dispute because it concerns not a structure, but rather a function.

The specification does not resolve the parties' dispute. Consistently with defendant's construction, the specification states that when a line has been selected, "it sits at approximately Vcc [a logical high voltage]." '811 Patent, 5:45. The specification also indicates, however, that the line is floated: "During programming word line 8 is dynamically at Vcc; there is no active voltage source holding it at Vcc since device 22 is turned off." '811 patent, 5:51-53.

The Court therefore turns to the expert testimony presented at the Markman hearing. Plaintiff's expert, Mr. Callahan, testified that "selecting" a line simply means to identify it for future action. According to his view, floating a line could select it if none of the other lines were floated. Mr. Callahan, however, provided no examples of any circuit in which a line was selected merely by being floated; defendant's expert, Dr. Fellman, refused to admit on cross examination that such a device was possible. The Court agrees with defendant that merely floating a line does not select it.

The Court does not believe, however, that in the context of the '811 patent, "selecting" necessarily means driving a line to a logical high voltage, as defendant argues. Dr. Fellman himself testified that one skilled in the art would understand "selecting" a line to mean driving it to a voltage that activates a device to which the line is connected. In the context of the '811 patent, this means driving the line to a voltage high enough to activate the transfer means. Adopting this more general definition of selecting is consistent with the principle that where section 112(6) does not apply, a claim should not be limited to the examples used in the specification. See Electro Med. Sys. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

The issue remains whether "selecting" also means floating the line once it has been driven to the level that activates the transfer means. The parties agree that the line must be floated to be able to be pumped up to a higher voltage, and that the post-decoder described in the specification is the device that causes the line to float. See '811 patent, 5:51-53. Floating the line is thus an integral part of what the selection means does; no other structure described in the patent performs that function. Accordingly, the Court holds that "selecting" is used in the '811 patent to mean driving a line to a voltage that activates the transfer means and then floating it.

The parties also dispute whether "selecting" means that all lines can be selected at the same time. Plaintiff argues that they can; defendant maintains that some lines must remain unselected. Defendant first cites a dictionary definition of "select" as "to choose from among several: pick out." That definition, however, does not preclude "selecting" from meaning choosing every item from a set. The claim, moreover, explicitly states that the invention selects "one or more" lines. The applicant was plainly aware of the issue of multiple selection; having specified that more than one line could be selected, his failure to specify that less than all had to be selected appears to have been a conscious decision. Defendant also argues that the patent refers to action on both selected and unselected lines. The Court agrees with plaintiff, however, that nothing in the patent requires that there must simultaneously be some lines that are selected and others that are unselected. The Court therefore holds that in the '811 patent, the meaning of "selecting" includes selecting all lines simultaneously.
B. Claims 40 and 67

Here, I must construe the following elements of the following claims: 19

Claim 40--"the "means . . . for selecting a set of parameters to be compounded."

Claim 67--"means for . . . selecting a set to be compounded based on the particular base solution and amount required by a set to minimize the quantity of containers of base solution required."

19 See supra note 12.

The issue is the meaning of the function "selecting." See 35 U.S.C. § 112, P 6 (claim element expressed in means-plus-function terms). Baxa contends that "selecting" is synonymous with "sorting" appearing in claims 1, 19, 87, and 93, i.e., sorting a set of parameters to be compounded such as to minimize the quantity of containers of base solutions. Clintec counters that "selecting" "means [merely] to pick or choose a set of parameters (i.e. formula) out of a sequence of formulas entered into the system by preference, such as for an emergency." 21 (Pl.'s 12(M) Statement P 37.)

20 The parties agree that Clintec has expressed these elements in the means-plus-function terms, subject to § 112, P 6. 21 The record does not support Clintec's argument that Baxa should not be allowed to offer its definition of "selecting" because it refused to do so throughout discovery.

1. Patent/Claims

The terms of the claims are given "their ordinary and accustomed meaning, unless it appears that the inventor used them differently." Jonsson v. Stanley Works, 903 F.2d 812, 820 (Fed. Cir. 1990) (quoting Envirotech Corp. V. Al George, Inc., 730 F.2d 753, 759 (Fed. Cir. 1984)). To sort is to choose, allot, classify. See WEBSTER'S THIRD NEW INT'L DICTIONARY at 2175 (1981). To select is to choose. Id. at 2058. Thus, the two words are synonyms.

Additionally, the terms of a claim must be interpreted in light of the other claims. Jonsson, 903 F.2d at 819. Claim 67 includes the "means for . . . selecting a set to be compounded based on the particular base solution and amount required by a set to minimize the quantity of containers of base solution required." Claims 1, 19, 87, and 93 all include a step or a means of sorting a set of parameters to be compounded, in accordance with the particular base solutions and their amounts to be included in each set of parameters, such as to minimize the quantity of containers of base solutions. Since the context in which the term "sorting" appears in claims 1, 19, 87, and 93 is identical to that in which "selecting" appears in claim 67, the two terms have identical meanings.

2. Specification

The specification can act as a dictionary when it defines terms by implication. Markman, 52 F.3d at 979. The specification provides that

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in accordance with the present invention a system and a method are provided for compounding a plurality of selected mixtures from one or more base solutions. The system includes a storage device for storing sets of parameters for a group of mixtures which are to be compounded from the base solutions. A compounder is electrically connected to the storage device, and in combination with the storage device, compounds a selected mixture on receiving a set of parameters which define the base solutions to be used and the amounts thereof.

('010 patent, col. 3, lines 3-13) (emphasis added). The above is the first paragraph of the Summary of the Invention. Nowhere else in the specification do the words "select," "selecting," or "selected" appear. Given the importance and the prominence of the sorting feature to the Clintec's invention, it is unlikely that the first paragraph of the Summary of the Invention would refer merely to "picking or choosing a set of parameters" out of sequence in which they were entered into the computer, (Pl.'s 12(M) Statement P 37), without sorting. A more logical interpretation is that the mixtures (or sets of parameters) are "selected" for compounding (or transmitted to the compounder) in the order in which the host computer has previously sorted them to minimize the quantity of containers of base solutions out of which the mixtures will be compounded.

3. Prosecution History

22 Neither party explores the prosecution history of claim 67 in any detail and I do not find it necessary to do so. Vitronics, 90 F.3d at 1582 ("The court may also consider the prosecution history of the patent, if in evidence.") (emphasis added).

"The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution. . . . Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers." Southwall Techs., 54 F.3d at 1576.

Claim 40 (numbered 37 in the patent applications) originally read as follows:

A system for compounding a plurality of selected mixtures comprising:

means for storing sets of parameters for a plurality of mixtures to be compounded from a group of base solutions;

means for compounding a selected mixture corresponding to a selected set of parameters; and

means for coupling said storing means to said compounding means.

(Ex. D at 2-3. 24) The Patent Office Examiner ("Examiner") rejected claim 37(40) for two reasons. First, she said that the claim was indefinite, 35 U.S.C. § 112, P 2:

In claim 37, line 3, again it is unclear what the "sets of parameters" are and how they are inputted into the system. It is also unclear what the "base solutions" are. In lines 5-6, how is the "selected set of parameters" selected


Axelson et al disclose an apparatus for compounding substances which includes a programmable controller for receiving the ratio, and or volume parameters to be used in the compounding apparatus. Axelson et al also teach a control means for selecting which of the substances is to be compounded. These substances have been presorted and placed in a container to facilitate ease when compounding the final mixture. Instead of presorting the substances as disclosed in Axelson et al. it would be obvious to one of ordinary skill in the art to use a programmable sorting routine, as in the instant invention, within the programmable controller of Axelson et al.
23 In discussing prosecution history, I will refer to claim 40 as claim 37(40) and amended claim 37(40).

24 The exhibits cited in the following subsection are attached to Baxa's Statement of Undisputed Facts filed as a response to Clintec's partial summary judgment motion and in support of its own cross-summary judgment motion viz-a-viz claim 40.

25 The statute states, in relevant part, that

[a] patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.


Clintec responded to the Examiner's two objections. In an Amendment letter dated May 12, 1986, Clintec first amended claim 37(40) to address the vagueness concern:

(Amended) A system for compounding a plurality of selected mixtures to produce individual doses of mixture comprising:

means for receiving sets of parameters for a plurality of mixtures to be compounded from a group of base solutions, one set for each dose:

means for storing said sets and for selecting a set of parameters to be compounded [of parameters for a plurality of mixtures to be compounded from a group of base solutions];

means for compounding a selected mixture corresponding to a selected set of parameters to produce individual doses; and

means for coupling said storing means to said compounding means.

(Ex. D at 2-3) (new text underlined and old text bracketed in the original).

Second, Clintec did not dispute that Axelson was prior art. Rather, implicitly acknowledging that it was prior art, Clintec stated that

all of the claims have been rejected under 35 U.S.C. § 103 as being unpatentable over Axelson, Jr. et al. in view of Hawes, Jr. et al. The scope and content of the Axelson, Jr. et al. reference includes the teaching that a plurality of commodities such as various types of feed grains can be blended together to produce a final product which consists of a selected percentage of each of the commodities used to make the blend. The percentage of commodity used to make the blend is controlled by a computer which selectively opens various gates a desired amount to allow a selected amount of each commodity to flow through a chute into a grain bin.

(Id. at 6.) 26

26 Axelson includes "means for selecting the containers whose commodities are to be blended together" and "means for selecting the relative percentages of the commodities to be blended." (Ex. B, col. 1, lines 58-62.)
Clintec next distinguished the amended claim 37(40) from Axelson in the following manner:

the claimed invention, as claimed in Claims 1, 19, 37[, which issued as claim 40], 67, 87, and 93, requires that a plurality of sets of parameters of mixtures be provided and that these parameters are sorted in accordance with the particular base solutions used to make each mixture and the amount of each base solution included in each set of parameters in order to minimize the number of containers of base solution required to make a plurality of individual doses[.]

(Id.) (emphasis added). This was the only fashion in which claim 37(40) was distinguished from Axelson. Clintec also stated that other groups of claims were different from Axelson because they required time intervals, or queuing, or printing labels, or other features not found in Axelson. (Id. at 6-7.) Clintec concluded that since "none of the differences discussed above are either taught or even suggested by the Axelson, Jr. et al. reference, even given the claims their broadest interpretation suggested by the Examiner," the '010 patent claims "contain allowable subject matter over the Axelson . . . reference." (Id. at 7.)

The Examiner allowed the '010 patent after Clintec amended claim 37(40) and distinguished it, among others, from Axelson. The Notice of Allowability was "responsive to the Amendment filed May 12, 1986." (Ex. E.) The record shows that the May 12, 1986 Amendment was the only occurrence between the rejection and the allowability. The distinction drawn between Axelson and claims 1, 19, 37(40), 67, 87, and 93 in the Amendment is consistent with the repeated description of the invention in the specification as sorting mixtures to be compounded so as to minimize the number of source solution containers. (See '010 patent, col. 2, lines 64-68; col. 3, lines 44-51; col. 8, lines 45-49; col. 8, lines 64-68.)

The prosecution history is part of the "public record of the patentee's claim . . . on which the public is entitled to rely . . . [in order to] ascertain the scope of the patentee's claimed invention and [to] design around" it. Vitronics, 90 F.3d at 1583. In this case, based on the prosecution history, a reasonable competitor would be entitled to conclude the following: (1) the Examiner rejected claim 37(40) as unpatentable over prior art because the Axelson patent taught use of a computer to select which substances to compound; 27 (2) Clintec acknowledged that Axelson was prior art; 28 (3) Clintec distinguished Axelson from the amended claim 37(40) on the basis that the latter required sorting to minimize the number of containers of base solutions; (4) the Examiner allowed the amended claim 37(40) based on Clintec's amendment and explanation; and (5) the term "selecting" in claim 37(40), therefore, means the same as the term "sorting" in claims 1, 19, 87, and 93.

27 Clintec points out that the Examiner also found other differences between Clintec's various claims and Axelson. This is correct. However, this fact is irrelevant.

28 Clintec argues that Axelson is not prior art because it pertains to grains, not pharmaceuticals. Clintec cannot make this argument now. First, he did not make it in response to the Examiner's rejection. Second, in a Preliminary Amendment, dated February 14, 1985, Clintec cited numerous references to the Examiner in its Preliminary Amendment and Information Disclosure Statement ("IDS"), (Ex. C), that did not involve pharmaceutical compounding. In the IDS, Clintec said that "each of the above-identified systems is believed to be pertinent to the pending application in that each discloses a form of multicomponent mixing system." See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997) ("holding that statements made in an IDS can be the basis for a court to interpret the scope of the claims").
appear suggests the meaning attributed to it by Baxa, i.e., sorting to minimize the number of source solution containers. See supra; ('010 patent, col. 3, lines 3-13.)

Relying on Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017 (Fed. Cir. 1987), Clintec says that different words in claims are presumed to have different meanings. Although Tandon does make this statement, id. at 1023, it immediately follows with another: "practice has long recognized that claims may be multiplied . . . to define the metes and bounds of the invention in a variety of different ways. (cites omitted) Thus two claims which read differently can cover the same subject matter." Id.

Clintec also relies on the doctrine of claim differentiation. Under this doctrine, "interpretation of a claim should be avoided if it would make the claim read like another one." Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 404 (Fed. Cir. 1967). Clintec points out that claim 62, which depends upon claim 40, includes "means for sorting authorized parameter sets." Thus, the plaintiff says that claim 40 cannot likewise include a "sorting" limitation. However, "although the doctrine of claim differentiation may at times be controlling," it is trumped if

the "definition [at issue] . . . is otherwise clear from the claim language [the specification], and [the] prosecution

O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1582 (Fed. Cir. 1997); see also Autogiro Co. of Am., 384 F.2d at 404 ("Claim differentiation is a guide, not a rigid rule. If a claim will bear only one interpretation, similarity will have to be tolerated."). Such is the case here.

Clintec attempts to invoke the testimony of its expert, Mr. Uhen. However, in cases such as this one, "where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence[ such as expert testimony[,] is improper" because the public is entitled to rely on the public record. Vitronics, 90 F.3d at 1583.

Clintec insists that what Baxa is doing is improperly injecting into claim 40 a "sorting" element appearing in the prosecution history. Clintec says that Kay Hannafan, the attorney prosecuting the patent application, simply made a mistake when she stated that claim 37(40) required sorting. Clintec relies on Intervet Am., Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050 (Fed. Cir. 1989), this court's opinion in Viskase Corp. v. American Nat'l Can Co., 947 F. Supp. 1200 (N.D. Ill. 1996), and International Rectifier Corp. v. SGS-Thomson Microelecs. Inc., 38 U.S.P.Q.2d (BNA) 1083 (C.D. Cal. 1994).

In Intervet the prosecution history was as follows: responding to the second Patent Office action, the attorney prosecuting the patent application sought to distinguish his invention from the prior art on the basis that, unlike the prior art which required two vaccinations, his invention required only one. In the third Patent Office action, the Examiner pointed out that the claims were not expressly limited to a single vaccination which would patentably distinguish them from the prior art. In response, the attorney amended only three of the claims to refer to a single vaccination. In the "Remarks" accompanying the amendment, however, the attorney said that all claims were restricted to a single vaccination. The attorney subsequently admitted that the "Remarks" statement was incorrect. 887 F.2d at 1053-54.

The court held that

when it comes to the question of which should control, an erroneous remark by an attorney in the course of prosecution of an application or the claims of the patent as finally worded and issued by the Patent and Trademark Office as an official grant, we think the law allows for no choice. The claims themselves control.

Id. at 1054.

The court acknowledged that

there are . . . situations in which what an attorney says or does during prosecution may be held against a patentee . . . . For example, when a patentee attempts to expand the literal meaning of a claim . . . and the prosecution history shows that the expanded scope would be inclusive of subject matter the attorney had represented to the examiner was not intended to be included in order to get the claim allowed, the patentee may be estopped to contend otherwise.

Id. (emphasis in the original). The court concluded that the instant case was different because "the patentee was granted broad claims in spite of the statement by the attorney that he was amending them, though he never did so." Id. (emphasis added). The court pointed out that "the examiner was not misled or deceived[because] the erroneous remark was not the end
of the prosecution." Id. There were two telephone interviews between the attorney and the examiner, the examiner made two "examiner's amendments," and the absence of the "single vaccination" limitation in all but three claims "may very well have been discussed." Id.

The present case is different. In Intervet three claims were expressly limited to one vaccination, while the others were not. The Intervet court did not have to interpret an existing term. The Intervet court itself acknowledged the difference between "interpreting what is meant by a word in a claim[, which is proper via reliance on the prosecution history,] . . . [and] adding an extraneous limitation appearing in the [prosecution history], which is improper." Id. at 1053 (emphasis in the original); Vitronics, 90 F.3d at 1582 (in interpreting claim, "the court may also consider the prosecution history of the patent, if in evidence"). In addition, unlike the Intervet attorney, Ms. Hannafan amended claim 37(40) in response to the Examiner's vagueness, not patentability, concern. Then, in response to the Examiner's patentability objection, she explained how the amended claim 37(40) differed from the prior art, thereby defining "selecting." Unlike in Intervet there is no evidence of further contact between the Examiner and Ms. Hannafan, during which the Examiner could have acquired a different understanding than that conveyed by the May 12, 1986 Amendment. Unlike Intervet, the only logical conclusion is that the Examiner allowed claim 37(40) because of Ms. Hannafan's explanation, not in spite of it. See Intervet, 887 F.2d at 1054.

Clintec insists that the Examiner knew that "selecting" and "sorting" had different meanings, see id. ("The examiner was fully aware of what claims he was allowing."); and that Ms. Hannafan's error would be obvious to anyone perusing the prosecution history, see Southwall Techs., 54 F.3d at 1578 (competitors "must be able to rely on the patent documents[, including prosecution history,] . . . in ascertaining the scope of a patentee's right to exclude"), because (1) neither the original nor the amended claim 37(40) contained the term "sorting;" (2) prior to the May 12, 1986 Amendment, the Examiner demonstrated that she knew the difference between "selecting" and "sorting;" (3) Clintec amended the original claim 37(40) to add a "selecting," not a "sorting," function; and (4) the Examiner did not require Clintec to further amend claim 37(40) to include a "sorting" limitation. However, these statements are unresponsive to Baxa's argument, i.e., that in the one and only response by Clintec to the rejection of its patent, Clintec (through Ms. Hannafan) effectively defined "selecting" as "sorting," thereby shaping the Examiner's and the public's understanding of the meaning of that word. 29

29 Clintec relies on the fact that, prior to the May 12, 1986 Amendment, regarding claim 37(40), the Examiner asked "how is the selected set of parameters' selected?" while with respect to claim 87, she asked "how is the sorting accomplished?" (Ex. A at PP 12, 13.) However, the unamended claim 37(40) recited "means for compounding a selected mixture corresponding to a selected set of parameters," while the unamended claim 87 recited "sorting the sets of parameters in accordance with the types of base solutions included in each said set." (Ex. D at 2-3, 4) (emphasis added). The Examiner rejected the above claims, among others, for vagueness. Obviously, in seeking clarification of vague terms, she would have posed the question using the words whose meaning was unclear. One cannot surmise from this that the Examiner knew that "selecting" and "sorting" meant different functions.

In Viskase v. American Nat'l Can Co., also relied upon by Clintec, the issue was the meaning of the term "about" as used in the phrase "a density below about 0.91 g/cm<3>." The plaintiff argued that it meant a number between 0.905 and 0.914. The defendant argued that it meant 0.910. 947 F. Supp. at 1202. One of the defendant's reasons was that in a letter sent to the Patent Office after the plaintiff's patent had been allowed, the plaintiff's attorney stated that the patent "does not have a density below about 0.910 g/cm<3>." Id. (emphasis added). Following Intervet, this court disregarded the attorney's statement because "in no other place in the prosecution history did Viskase use a third decimal point," id., the attorney used the word "about," suggesting numbers "slightly above and slightly below," id. at 1201, "the Examiner certainly knew that the claims themselves included broader language than the limitation of 0.910," 30 and " the Examiner "did not require an amendment." Id. at 1202.

30 This statement was based on the court's earlier observation that the Examiner said that the plaintiff "clearly . . . intended to claim below 0.91," and that the plaintiff's claims included "density of from about 0.86 to about 0.91." Viskase, 947 F. Supp. at 1201.
The present case is different. By limiting "about 0.91" to "0.910," the defendant was advocating a construction contrary to the term's "ordinary dictionary definition" and to its understanding by "persons skilled in the art." Id. The Examiner in the present case did not indicate that she differentiated between "sorting" and "selecting." See supra. The term "sorting" appears more than once in the prosecution history because Clintec's Ms. Hannafan used it to distinguish claims 1, 19, 37(40), 67, 87, and 93 from Axelson. See supra. In addition, the specification abounds with the term "sorting," in contrast to "selecting." See supra. Finally, it is not surprising that the Examiner in this case did not require a further amendment of claim 37(40) since she had been provided with the definition of "selecting" by the May 12, 1986 Amendment.

In the third case relied on by Clintec, International Rectifier, the attorney "plainly wrongly" distinguished prior art. The court concluded that the Patent Office must have "found other grounds on which to distinguish [prior art] and did not rely on the erroneous statement made by counsel." 38 U.S.P.Q. at 1091. Clintec cites this case in support of its contention that the Examiner must have distinguished claim 37(40) from Axelson on grounds other than those represented by Ms. Hannafan. However, Ms. Hannafan's explanation that "selecting" in claim 37(40) required sorting to minimize the number of source solution containers would not have appeared "plainly wrong," see id., to the Examiner who herself rejected claim 37(40) as unpatentable over Axelson.

I conclude, therefore, that the meaning of "selecting" in claims 40 and 67 is identical to that of "sorting" in claims 1, 19, 87, and 93. Since there is no genuine issue of material fact that Baxa's compounders employ the identical or equivalent structure for "sorting" as that disclosed in the '010 patent, see supra, there can be no literal infringement of claims 40 and 67. Carroll Touch, 15 F.3d at 1578 (literal infringement of means-plus-function element requires that accused device (1) perform identical function and (2) do so with identical or equivalent structure). Accordingly, Baxa's summary judgment motion on literal infringement and cross-summary judgment motion viz-a-viz claim 40 are granted. Clintec's summary judgment viz-a-viz claim 40 is denied.

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6. The Selecting Step

For the purposes of claim construction, the "selecting step" is defined as: "selecting a floor broker to whom a further instruction is to be transmitted." 877 Patent col.32 ll.46-47. Papyrus suggests that the selecting step means "choosing a floor broker to whom another instruction will be sent." Pl. PCCO 2. Papyrus argues that the selecting step does not require that the choice of floor broker be based on current-status information or on the number of unfilled orders, and thus, no such limitation should be read into the claim. Pl. Br. 19. Rather, the booth clerk's selection could be based on either the calculating step, the displaying step, or both. Pl. MHSP vol. 1 at 69. Because the invention provides that the programmed computer display the broker status and that the booth clerk "can monitor the progress of one or more of the floor brokers," the clerk's review of the status information may occur as a result of the displaying step, but not necessarily so. 877 Patent col.10 ll.2-5; see id. col.9 ll.24-27. In addition, Papyrus also cites dictionary definitions to support its construction, noting that "select" means "to take preference from a number or group: to pick out: choose." Pl. Br. 19; see Pl. App. Ex. 48 at 473; Pl. App. 49 at 497.

On the other hand, NYSE proposes the following definition for the step: "the operator selects, based on the displayed current status information and number of unfilled orders calculated above using current status information, the identity of a floor broker to whom a further instruction is to be transmitted." Def. PCCO 2. NYSE relies on the patent specification to argue that broker selection depends on the current-status information and the quantity of pending instructions. For example, the Abstract explains that "the method uses a programmed computer to compare a relative number of instructions having a pending status . . . and find the floor broker having comparatively few pending instructions." 877 Patent Abstract (emphasis added). Similarly, the body of the specification explains that

[t]he determination of who among several floor brokers is best able to handle a further instruction may be made, for example, by comparing the relative number of instructions having a pending status that have been delegated to the floor brokers, and finding the floor broker with a comparatively few number of such instructions.

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Id. col.9 ll.55-60 (emphasis added). In addition to the patent language, NYSE also relies on the prosecution history to buttress its argument. Specifically, NYSE argues that Papyrus overcame the prior art by emphasizing a selection process in which brokers with a comparatively smaller number of pending instructions were selected based on status information received at the programmed computer. Def. Br. 23; Def. MHSP 117. The April 23, 1997 amendment states that "[t]he operator's selection is informed by current-status information concerning any delegated instructions which is transmitted to the programmed computer by virtue of the 'transmitting' step and automatically displayed by virtue of the 'displaying' step." Pl. App. Ex. 8 at 183. Further, the September 8, 1997 amendment emphasized that "[t]he real time nature of the claimed invention was stressed [by Papyrus] in the record in connection with the claimed 'current-status' information, as informing the operator's selection of a floor broker to whom a further instruction is to be transmitted." Pl. App. Ex. 12 at 207. Finally, NYSE notes that inventor Mr. L. Thomas Patterson answered affirmatively when asked during his deposition whether "[the person] managing the floor brokers, [is] making the selection based on the display that is recited in the previous step [i.e., the displaying step]." L. Thomas Patterson Dep., Murray Decl. Ex. 18 at 155; Def. MHSP 118.

In light of this evidence, the court disagrees with Papyrus's contention that the selecting step need not be based on current-status information. The intrinsic evidence stands in sharp contrast to Papyrus's proposed construction, and clearly explains that operator's selection is informed by the current-status information. The court therefore construes the selecting step as "the operator selects, based on the displayed current status information and number of unfilled orders calculated above using current status information, the identity of a floor broker to whom a further instruction is to be transmitted."

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1. Term 7 (‘413 Patent, Claims 8, 18, 20)

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… responsive to a DNS query, selecting a given one of the name servers in the content delivery network … [claims 8, 18]</td>
<td>… in response to a DNS query, the content delivery network's domain name system selects a particular name server …</td>
</tr>
<tr>
<td>… responsive to a DNS query received from a client local name server, selecting a given one of the name servers in the content delivery network … [claim 20]</td>
<td>… in response to a DNS query received from a client local name server, the content delivery network's domain name system selects a particular name server …</td>
</tr>
</tbody>
</table>

The crux of the disagreement between the parties here is whether the selection of the particular name server is a result of a DNS lookup, or whether the claim covers any method which results in the selection of a particular name server in response to a DNS query. Limelight argues that there is no support in the specification for any method of choosing a particular name server other than by a DNS lookup. The Brief Summary of the Invention describes the "hosting framework" as including two sets of DNS servers. (‘413 Patent, col. 3 ll.27-32.) "To locate the appropriate hosting servers to use, the top-level DNS server determines the user's location in the network to identify a given low-level DNS server to respond to the request for the embedded object." (Id. col.3 ll.37-41.) In Limelight's view, this requires the invention's domain name system to choose the second-level name server.

Akamai counters that, under Limelight's proposed construction, if the particular name server is selected by a first DNS lookup, the particular name server chosen must therefore be a member of a second DNS level. This, they assert, is in conflict with language earlier in each of the three claims describing the content provider's domain name system as "having one or more DNS levels." (‘413 Patent, Claim 1 emphasis added.) In addition, they point to other claims that explicitly require a two-level DNS system as evidence that the patent differentiates between claims that require a two-level DNS implementation and claims that do not. Therefore, Akamai argues for a broad, dictionary definition of "selecting" as "making a choice." (Docket # 68, 28.)
The error in Akamai's argument is that limiting the selection of a particular name server to the DNS lookup does not necessitate two DNS levels from the client's perspective. While the embodiment describes a global hosting system containing a two-level DNS system, it notes that "the functionality of the top and low-level servers" may be combined in "a single DNS level." (413 Patent, col.5 ll.59-65 (emphasis added).) Thus, the specification supports language claiming a single-level DNS system, but with the requirement that it accomplish the same steps as the described embodiment. For example, in the described embodiment, the top-level DNS server selects a low-level name server and "[re]direct[s] the user to a... low-level DNS[] server that is close-by [the user]." (Id. col.9 ll.49-50.) The user's local name server then makes a second DNS request to this second level of DNS to obtain the object's IP address. 10

Footnotes

10 (See '413 Patent, col.10 ll.26-27 ("[T]he ability to redirect [DNS] requests is a standard feature in the DNS system."); see also Akamai Technologies, Inc. Tutorial -- Corrected Version (Docket # 84) Figure 7 (showing the end user's local domain name server making two separate DNS lookups, steps 2 and 3, to determine the IP address of the Akamai content server.).) In a single-level DNS embodiment, as suggested by the specification, the user's local name server would still contact a content delivery provider's top-level name server to resolve the IP address of a server to serve an object. This name server, however, would then directly communicate with a particular local name server, based on the user's location, to resolve the server's IP address and return it to the user, rather than require the user to conduct a second lookup. Thus, the user would obtain the IP address of the appropriate ghost server with only a single DNS request, however the selection of a particular name server would still be the result of a DNS lookup by the service provider's DNS system. Such an embodiment would satisfy the claimed "one" level of DNS, yet not be in conflict with Limelight's proposed claim construction.

However, Limelight's proposed requirement that "the content delivery network service provider conducts a DNS lookup to select a single specific name server" is excessively limiting. (Docket # 71, 23.) Each of the three claims containing the term to be construed requires a "content delivery network service provider" to establish a "domain name system (DNS) having authority to resolve the alphanumeric strings in the URLs of the objects identified by the participating content providers" having "one or more DNS levels." (413 Patent, Claims 8, 18, 20.) As discussed supra, Term 2, the service provider's domain name system includes "special function[s] that [are] different from regular DNS servers like those of the .com domain" and "appropriate control routines" to select a particular name server. (Id. col.9 ll.44-50.) Read in this light, the selection of a particular name server is made by these special functions in the DNS system in response to a DNS query, but not necessarily by a DNS lookup. 11 The construction adopted by the court reflects this broader understanding of the term in dispute.

Footnotes

11 While a subtle distinction, the court interprets a "DNS lookup" to be the name resolution function provided by normal DNS servers like those of the .com domain.

End Footnotes

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2. Selecting a language from a menu and selecting a currency from a menu

Claim terms should be construed consistently throughout a claim and claims of the same patent. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). The court therefore finds that these phrases should be construed in the same manner. The proper constructions of these terms are "choosing a language after presentation of a language menu and consideration of user input," and "choosing a currency after presentation of a currency menu and consideration of user input." n3

Footnotes
For the purposes of this discussion, the proper construction of the currency term will be described. As noted above, however, the resulting construction is applicable to the language term.

DE contends that the phrase should be construed as "direct selection of a currency by a customer from a list of currency options, or default selection of a currency by a customer and/or by a computer system from a list of information other than currency options." Dell contends that the construction should be "choosing a currency from a list of currency options displayed to the user."

In attempting to limit the construction to a direct user selection, Dell relies upon the specification. For example, the Summary of the Invention provides that "the customer also selects the currency in which to pay for the products to be bought." '020 Patent, col. 3, ll. 44-46. The preferred embodiments section describes that, "this second database provides a 'real time' conversion from the currency of the country in which the catalogue originates to that selected by the customer." Id. at col. 5, ll. 65-67. Although the summary of invention and preferred embodiments refer to customer selection of a currency, that method of selecting a currency is not necessarily exclusive. As Dell notes in its brief, a default currency can be chosen based upon the customer's selection of a language or a country. See Dell's Supplemental Claim Construction Brief and Proposed Conclusions of Law, at 13 (citing '020 Patent, col. 4, ll. 43-45 ("the selection of language operates a default to select the most likely currency of the customer unless the customer indicates otherwise"); id. at col. 5, ll. 16-21 ("the downloading of the country of origin of the selected catalogue also triggers an automatic access of the translation database ... to provide the specific currency conversion between that of the original catalogue country and that of the customer as selected by the automatic defaults")).

The default selection of a currency can be overridden by the user. As the preferred embodiments provide, "the selection of language operates a default to select the most likely currency of the customer unless the customer indicates otherwise." '020 Patent, col. 4, ll. 43-45 (emphasis added). Similarly, the preferred embodiments section states that "normally currency is chosen by default ... however, the customer has the option of selecting a particular currency (step 112) in which he wants the catalogue price of the selected products." Id. at col. 5, ll. 60-63. This override step requires a list of currencies to be presented to the user.

DE contends that default override step 112 is merely an optional feature of the invention, demonstrated by the dotted line used in Figure 1A, and the description of the override step as "optional step 112." See '020 Patent, col. 6, l. 38. The plain language of the preferred embodiments clearly indicate, however, that the description of step 112 as "optional" refers to the fact that the customer does not need to override the default selection if the currency chosen by default is satisfactory. The preferred embodiments section describes that "normally currency is chosen by default ... however the customer has the option of selecting a particular currency (step 112) in which he wants the catalogue price of the selected products." Id. at col. 5, ll. 60-63. This step, in which the customer is given an option to override the default currency selection, requires that the customer be presented with a currency menu.

The plaintiff is attempting to broaden the construction and the defendant is seeking to limit the construction. The court therefore construes the phrase in accordance with the claim language and specification. The court's construction is broad enough to allow for the default possibilities suggested by DE, but requires that a list of currencies always be presented to the user, so that the user can override such a default selection if the user so chooses.

The court adopts the following construction of the phrase, which uses the plain meaning of the claim terms and specification. The term "selecting a language from a menu" means "choosing a language after presentation of a language menu and consideration of user input." The term "selecting a currency from a menu" means "choosing a currency after presentation of a currency menu and consideration of user input."
Claim 56 of the 553 patent provides:

A method of adding a graphic indication of a first down to a video of a football game during a broadcast of said football game, comprising the steps of:

selecting a position in a first video frame corresponding to a location on a football field representing said first down . . .

Sportvision contends that phrase "selecting a position in a first video frame" need not be construed.

SportsMEDIA seeks to construe the phrase as "manually identifying a position in a first video frame using a pointing device, such as a mouse or light pen." (SportsMEDIA's Memo at 11.)

In response, Sportvision proposes as an alternative, "choosing a position in a first video frame" as a counter-point to SportsMEDIA's proposed construction. (Sportvision's Memo at 8.)

It appears to the Court that both parties are merely proposing substitute terms for the operative term "selecting." SportsMEDIA wishes the Court to substitute "manually identifying" for the term "selecting." Sportvision asks the Court to substitute "choosing" for the term "selecting." The ordinary meaning of the term "selecting" is "identifying or designating." In the context of the patent, "selecting a position in a first video frame" is to identifying or designating a location in a video frame which corresponds to a location on the physical football field.

The plain language of Claim 56 is not limited to "manually identifying" a position or location. In contrast, Claim 49 discloses a method for adding a graphic indication of a first down to a video of a football game by, in relevant part, storing an indication of "a location" corresponding to the first down and by then finding "said location's" position in the video. Claim 51, which depends from Claim 49, adds the following limitation to the method in Claim 49: "manually selecting said location." Thus, in Claim 51, the patentee claims a particular method for designating a location for adding a graphic line, i.e, "manually selecting." However, no limitation on "selecting" is present in Claim 56. Therefore, the Court declines to limit "selecting" in Claim 56 to "manually identifying."

The Court gives the phrase "selecting a position in a first video frame" its ordinary and customary meaning, "identifying or designating a position in a first video frame."

1. The phrase "SELECTING A RESULTING ARTERIAL OXYGEN SATURATION" (claim 1) requires no construction.

5. "selecting a timing parameter from a plurality of predetermined timing parameters in response to said timing control bit"

The plaintiff proposes that no construction is needed because this phrase may be understood through its plain and ordinary meaning. The defendant proposes "using a bit from the register to control the selection of one of a plurality of predetermined selectable values which are used to control the timing characteristic of the memory signals." The defendant points to the prosecution history where the patentee, in response to a rejection, stated that "timing parameters are input to selectors which are controlled by bits from a control register . . . ." Response to Office Action, Oct. 14, 1994, at 3.

In reply, the plaintiff argues that the statement in the prosecution history described a preferred embodiment because the response to the office action referenced pages in the application discussing the preferred embodiment. The plaintiff also argues that the defendant adds words, e.g., "using a bit" and "control the selection," without support from intrinsic or extrinsic evidence. For example, the plaintiff points out that the patent teaches that more than a single control bit is used
when selecting more than two timing parameters. n1 '924 patent, 9:2-4.

n1 The defendant conceded during the Markman hearing that one or more control bits could be used.

The Court agrees with the plaintiff and concludes that no further construction is required because the phrase may be understood according to its plain and ordinary meaning. The Court incorporates by reference its previous definition of "timing parameter."

7. "Selecting an item from the table." Used in '691 patent, claim 1. [Parties' Joint Claim Construction Chart, term # 13].

In their briefs, the parties initially disputed the meaning of this term. Once it became clear at the hearing that a human makes a choice of an item and enters the choice into a computer, the parties realized that any conflict was illusory. See Tr. at p. 79, l. 7 - p. 80 l. 24. The claim language is not complicated, and the specification makes clear that the customer, or perhaps the sales agent with input from a customer, chooses an item from the computer-generated table and enters the choice in the computer. See '691 patent, col. 3, ll. 27-40, col. 14, ll. 15-24. The court will define this term as follows:

"Selecting an item from the table" means: "a choice made by the customer and then input into the computer by the salesperson, or possibly by the customer in the case of an on-line purchase."

E. '288 Claim 1: "selecting at least one mode of operation of the implantable heart stimulator which operation includes a unique sequence of events corresponding to said determined condition"

The second step recited in Claim 1 is the step of "selecting at least one mode of operation of the implantable heart stimulator which operation includes a unique sequence of events corresponding to said determined condition." St. Jude contends that the claim language dictates the following limitation:

The step of "selecting at least one mode . . .[corresponding] to said determined condition" of claim 1 of the '288 patent requires that the selection of a mode of operation be based on the currently determined condition of the heart without regard to any previously determined condition of the heart.

Def. Prop. Conc. of Law at 9. CPI contends that the "selecting step" is an act, not a function, and that St. Jude's proposed narrowing limitation is not warranted by the language of the claim.

St. Jude's proposed construction of the claim language is derived from the decision criteria involved in "selecting at least one mode of operation." According to St. Jude, the '288 patent "discloses a system in which the treatment mode is totally independent of history and is a function only of the current detected condition." Def. Br. at 52. 15 The court agrees with St. Jude's contention that the currently determined condition of the heart is the only variable that affects the step of "selecting."

15 St. Jude bases its construction of the "selecting" element primarily on an amendment to the claim language made during the prosecution of the patent that added the phrase "unique sequence of events." See Def. Br. at 51-52, citing Ex. 123, '288 Pros. Hist., at 2, 8-9. The court does not fully agree with St. Jude's analysis of the prosecution history. Had the claim language or the written description suggested that the step of "selecting at least one mode" was a function of a variable in
addition to the determined condition of the heart, the phrase "unique sequence of events" would not limit the claim as suggested by St. Jude.

The language of the "selecting" step states that the device selects an operation (consisting of at least one mode) corresponding to said determined condition of the heart. The phrase "corresponding to" does not by itself foreclose the possibility that the device considers variables in addition to the currently determined condition of the heart. However, the remainder of the claim language and the written description indicate that "corresponding to" should be interpreted to indicate that the selection of an operation is based solely on the currently determined condition of the heart.

First, the claim language states that the selected operation corresponds to "said determined condition." The determined condition, as defined through the determining step in Claim 1, is the result of an evaluation of the current condition of the heart. The evaluation process involves using rate and PDF circuitry to detect the presence of various arrhythmias and to differentiate those arrhythmias from one another. Nothing other than assessing the current condition of the heart is involved in the determining step.

Second, the written description explains how the selecting step is accomplished without ever suggesting that any additional variable affects the selection process. The "at least one mode of operation" is selected by matching the output of the "determining" step (i.e., a current heart condition in need of treatment) to the corresponding treatment. In greater detail, the matching process involves programming the device so that a particular treatment, consisting of one or more modes, is associated with each detected heart condition. A section of program memory contains the instructions for carrying out the sequence of events necessary to execute each treatment operation. Then, when a particular heart condition is detected, the device selects the proper set of instructions (i.e., the unique sequence of events of the treatment operation) by matching the determined heart condition to the area of the program memory that contains the program for treating that heart condition. '288 Patent, col. 12, ll. 11-65; Fig. 3B. At the step of selecting the treatment mode, the only relevant variable is the currently determined heart condition.

In summary, if the patentee intended to claim a method of selection involving criteria other than the currently determined condition of the heart, the claim language and the patent specification fail to provide adequate notice of this intent. See Athletic Alternatives, Inc. v. Prince Manufacturing, Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996) ("Where there is an equal choice between a broader and narrower meaning of a claim, . . . we consider the notice function of the claim to be best served by adopting the narrower meaning."). The court intends to define the "selecting" step in method Claim 1 as follows:

The step of "selecting at least one mode of operation of the implantable heart stimulator which operation includes a unique sequence of events corresponding to said determined condition" involves matching the currently determined heart condition to the unique set of instructions that have been programmed to treat the detected condition. The treatment operation selected by the device is determined exclusively by the currently determined condition of the heart.

16 The court acknowledges that the physician may consider factors other than the currently determined condition of the heart when programming a device. However, at the point where a device itself detects an arrhythmia and selects a treatment mode to execute, no other variables are at work.

G. selecting from said stored data for each of the specified definitions a corresponding integrated circuit hardware cell

Ricoh contends that the term means "selecting from the plurality of hardware cells in the hardware cell library a hardware cell for performing the desired function of the desired ASIC." Aeroflex contends that the term means "mapping the specified stored definitions for each logical step and decision represented in the flowchart to a corresponding stored hardware cell.
Ricoh's argues that this term simply refers to the process of selecting hardware cells from those stored in the hardware cell library that can be used to implement the desired functions of the ASIC to be produced. In support of its argument, Ricoh cites the specification language stating that "[t]he Cell Selector 32 is a knowledge based system for selecting a set of optimum cells from the cell library to implement a VLSI system." '432 patent, col. 8:21-23.

Aeroflex argues that its proposed construction is supported by the language in claim 13, which according to Acroflex, "dictates that mapping the specified definitions to the stored hardware cell descriptions must be performed by a rule-based expert system and not conventional software." Aeroflex Responsive Brief at 41:3-6. Aeroflex relies upon the following specification language to support its argument: "To design a VLSI system from a flowchart description of a user application, it is necessary to match the functions in a flowchart with cells from a cell library. This mapping needs the use of artificial techniques because the cell selection process is complicated and is done on the basis of a number of design parameters and constraints." '432 patent, col. 8:31-37.

Although it is a close question, Aeroflex's argument is ultimately more compelling. As discussed above, the patent file history demonstrates that the patentee distinguished the present invention based on the rule-based expert system's ability "to accomplish a task of selection of cells from the cell library." April 1989 Amendment at 10. This amendment strongly suggests that the mapping of the specified definitions to the stored hardware cells must be performed by a rule-based system. See Aeroflex Responsive Brief at 42. Ricoh's proposed language does not include a reference to a "rule-based system." Aeroflex's use of the word "mapping" is supported by the specification language '432 patent, col. 8:34; col. 9:53. Furthermore, at the claims construction hearing, Ricoh's counsel stated that he had no objection to the use of the term "mapping" in this context. However, Aeroflex's inclusion of the phrase "for each logical step and decision represented in the flowchart" is improper because it attempts to limit the claim to the preferred embodiment of the flowchart input specification, as discussed supra. Therefore, the Court construes "selecting from said stored data for each of the specified definitions a corresponding integrated circuit hardware cell" as mapping the specified stored function to a corresponding stored hardware cell.

"showing … a number of game credits associated with a deposit of one coin of a particular type"

JVL’s construction of "showing … a number of game credits associated with a deposit of one coin of a particular type" is "showing a specific number of game credits associated with a deposit of one coin of a particular type." Def.’s '799 Presentation at 35. Merit's construction simply substitutes the word "insertion" for "deposit." Pl.'s '799 Presentation, Ex. 3 at 13. Thus, the only two issues are whether to adopt JVL's insertion of the word "specific" and Merit's inclusion of "insertion" into the claim construction.

The plain and ordinary meaning of this term is best expressed in the language of the claim itself. The proffered constructions do not add value to the understanding. The specification does not require that "specific" be included in the construction. Nor is it necessary to construe "deposit" to mean "insertion." The only support that Merit offers for this construction is in the specification’s description of Figure 3, which states "[t]he ratio of 'coins inserted to game credits granted per coin can be individually adjusted for each coin type." '799 patent at 6:41-43 (emphasis added). However, construing the claim term to include "inserted" is not necessary because the plain and ordinary meaning of "deposit" is clear. Thus, no construction is required.

"selecting the number of game credits to be associated with a deposit of one coin for each of the different coin types"

According to JVL, "selecting the number of game credits to be associated with a deposit of one coin for each of the different coin types" means "that an operator individually sets the specific number of game credits that are directly associated with the deposit of one coin of each coin type." Def.’s '799 Presentation at 38. Merit construes this term as "choosing the number of game credits associated with the insertion of one coin for each of the types of coins." Pl.'s '799 Presentation, Ex. 3 at 13.

JVL correctly notes that the language of element (a), involving the "deposit of one coin of a particular coin type" is distinct
from element (b), which describes "a deposit of one coin for each of the different coin types." '799 patent at 9:4-7. As depicted in Figure 3 and described in element (b) of claim 7, the operator can adjust the number of credits applicable to a particular type of coin such that a player might receive one game credit if he deposits a nickel and six game credits for depositing a quarter. '799 patent, Fig 3. However, this does not justify JVL's inclusion of the operator's role or the words "specific" or "directly." Nor is such construction necessary to achieve the plain and ordinary meaning as understood by a person skilled in the art. As with other disputed terms in this patent, "selecting the number of game credits to be associated with a deposit of one coin for each of the different coin types" does not require construction.

JVL's interpretation of "selecting the total number of currency units to be associated with each coin type," a term found in element (b) of claim 1, is "an operator individually sets the specific number of meter pulses that are directly associated with each of the distinct symbols representing the different coin types." Merit's construction is "choosing the total number of cents to be associated with each coin type." "Def.'s '799 Presentation at 16. As discussed above, a "currency unit" is neither a "meter pulse" nor a "cent." Therefore, these aspects of the proposed interpretations are not adopted.

Merit and JVL construe the word "selecting" differently. Merit essentially interprets "selecting" as "choosing." JVL is correct in arguing that the '799 patent allows the game operator to set the number of meter pulses associated with each coin type. '799 patent at 2:16-20 ("The present invention . . . [provides] an apparatus and method which allows the game operator to program the meter to advance in accordance with the exact value of the entered currency and to allow such ratios to be individually adjusted.") However, this alone is insufficient reason to read the game operator's role into the claim language. Indeed, the plain and ordinary meaning is clear. Thus, the term "selecting the total number of currency units to be associated with each coin type" does not require additional interpretation.

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Selecting a particular product in response to at least one of the customer answers; selecting a particular environment picture in response to at least one of the customer answers; selecting a particular text segment in response to at least one of the customer answers

Defendants urge the Court to construe this term to mean: "Separately selecting one of multiple product pictures; separately selecting one of multiple product environment pictures; and separately selecting one of multiple text segments. These three selections are performed separately such that one of multiple product environment pictures could be selected for the separately selected product picture. Each of the separate selections must be based on a customer answer to at least one of the questions." This term also raises the "separate and distinct issue" already discussed.

Both claims 1 and 11 require selecting at least three separate items, namely (1) a product picture, (2) a product environment picture, and (3) a text segment. Neither claim 1 nor claim 11 requires selecting a product picture, product environment picture, and text segment based on separate answers. The claims allow selecting each of a product picture, a product environment picture, and a text segment based on the same answer. Although that is difficult to visualize in the context of the preferred embodiment, i.e., cars, trucks, and other vehicles, again the claims of the 342 patent are drawn to "products," which goes far beyond "vehicles."

This term does not require construction. As Defendants' construction reflects, the claim language expressly requires making three selections. The Court rejects Defendants' construction because, in addition to including the limitation the Court rejected in the previous paragraph, it does not clarify the term. The sentence "These three selections are performed separately such that one of multiple product environment pictures could be selected for the separately selected product picture" implies the product picture is selected first. Defendants' construction also implies that the product environment picture is selected "for" the product picture. This implication is ambiguous, since the claim requires that the environment picture be selected "in response to at least one of the customer answers" and does not reference the product picture in this
The Staples Defendants urged the Court to construe these terms to mean: "Separately selecting one of multiple product pictures; separately selecting one of multiple product environment pictures; and separately selecting one of multiple text segments. These three selections are performed separately such that one of multiple product environment pictures could be selected for the separately selected product picture. Each of the separate selections must be based on a customer answer to at least one of the questions." The Court resolved that dispute by concluding that "[n]either claim 1 nor claim 11 requires selecting a product picture, product environment picture, and a text segment based on separate answers." Staples Markman opinion at 24. Having resolved that dispute, the Court concluded that no further construction was necessary, noting that "the claim language is sufficiently clear that a particular product picture, a particular product environment picture, and a particular text segment are selected in three separate steps." Id. It is clear, as the Court concluded in the Staples Markman opinion, that both claims 1 and 11 require selecting at least three separate items, namely (1) a product picture, (2) a product environment picture, and (3) a text segment. Hyundai says that it agrees with that construction.

Nevertheless, turning to Hyundai's first argument that the "context" of the specification supports "matching," Hyundai points to the following in the "summary" portion of the specification:

Based upon the customer's answers to the queries, the system links product pictures, environment pictures, and textual descriptions together in a customized proposal. . . . The customized proposal, therefore, contains pictures, textual descriptions, and pricing information that is all of interest to and relevant to a specific customer, since all of the pictures and text were linked together based upon the customer's answers.

'T342 patent, col. 2:20-30, and urges that "[t]his statement is not merely a description of a preferred embodiment or an illustrative example," but "is Johnson's summary of how his invention operates to provide a novel solution to the problem of generating customized brochures." Hyundai Opening Brief at 11. Even if that is taken as true, "match" is not used here or elsewhere in the specification. "Although this description does not literally use the word 'match,'" Hyundai nevertheless contends that "it is apparent that anything less than 'matching' will not allow the system to select 'pictures, textual descriptions, and pricing information that is all of interest to and relevant to a specific customer.'" Id. In its Reply, Hyundai further argues that "[t]he only way that all of the selected information can [be] assured to be relevant to a specific customer is if each of the those selections are matched to at least one of the customer's answers." Hyundai Reply Brief at 3.

Although Hyundai does not explain what it intends to convey by "match," Hyundai is simply wrong in suggesting that "match" is necessary to achieve the result stated in the specification. The specification explains that "[b]ased upon the customer's answers to the queries, the system links product pictures, environment pictures, and textual descriptions together in a customized proposal. 'T342 patent, col. 2:20. Similarly, the claims call for "selecting a particular product picture [etc.] in response to at least one of the customer answers." That is sufficient to achieve the result stated in the specification.

Hyundai secondly relies on the prosecution history of a parent application to the 'T342 patent, namely application Serial No.
In an Office action dated May 22, 1995, the PTO rejected application claim 30 (and other claims) as having been obvious over a UK patent to Donald et al. and U.S. Patent No. 4,775,935 to Yourick. In the rejection, the examiner reasoned that Donald et al. "fails to expressly disclose presenting questions to users and receiving answers in order to associate the answers with stored images or text portions. Instead, Donald's system is drawn to generating images or other information in response to direct user entries on a keyboard or user selections from a menu-driven software program." However, the examiner reasoned, "question and answer query systems for presenting a product for selection are known in the art. Namely, Yourick discloses a multimode video merchandising system with a variable and adoptive product sequence presentation order, comprising two levels of an inductive learning process based upon user preferences and selections. In particular, Yourick's system queries the user for preferences by asking questions and makes suggestions in response to selected answers in order to present a product most suited to the needs and desires of the user. It would have been obvious to one of ordinary skill in the art . . . to apply the teaching of Yourick within the system disclosed by Donald with the motivation of presenting items which most likely appeal to the user." May 22, 1995 Office Action, Application No. 07/878/602, at 4 (citations omitted).

The applicant amended claim 30:

d) output means, coupled to the receive means and the processing means, for receiving the [gathered] customer-specific vehicle information, for formatting the customer-specific vehicle information according to criteria related to a layout of the customized proposal, and for compiling the [gathered] formatted customer-specific vehicle information into the customized proposal.

June 19, 1995 Amendment and Response (underlining indicating additions and brackets indicating deletions). The applicant argued, inter alia:

Yourick, furthermore, does not associate a user's responses with product pictures, environment and text. Yourick uses inductive learning techniques in order to best "guess" about a customer's desired features of a product. The present invention provides advantages over this technique by querying the customer about his or her desired product features and uses in order to "match" the answer with customer-specific information. This can result in a more persuasive proposal, because the present invention is not simply making "best guesses," but, rather, is obtaining information specifying the customer's desired product features and uses.

Id. at 4 (emphasis added). The emphasized portion is what Hyundai relies on urging that the "selecting" steps require "matching." Hyundai argues that "Johnson distinguished his invention by stating it did not need to 'guess,' because it 'matched' a customer's answers with customer-specific information." Hyundai Opening Brief at 13. This was the sole use of "match" in the prosecution history of the parent.

Two interviews later, it appears that the examiner suggested "incorporating the feature of selecting a particular vehicle picture, environment picture, or text segment in response to one of the answers specified by the customer in the input means . . . ." July 24, 1995 Telephone Interview.

The applicant then amended claim 30 (in relevant part) as follows:

c) processing means for gathering [customer specific] vehicle information for use in generating the customized proposal, comprising:

i) means for electronically selecting a particular vehicle picture in response to at least one of the answers [associating at least one of the answers with a particular vehicle picture];

ii) means for electronically selecting a particular vehicle environment picture in response to at least one of the answers [associating at least one of the answers with a particular vehicle environmental picture]; and

iii) means for electronically selecting a particular text segment in response to at least one of the answers [associating at least one of the answers with a particular text segment]; and

d) output means, coupled to the receive means and the processing means, for receiving the gathered [customer-specific] vehicle information [, for formatting the customer-specific vehicle information according to criteria related to a layout of the customized proposal,] and for compiling the gathered [formatted customer-specific] vehicle information into the customized
proposition.

The applicant argued that "[i]n the present invention, the customer's answers are used to determine the vehicle pictures, vehicle environment pictures, and text segments. This feature is not present in the prior art and in particular the Donald et al. and Yourick references." July 24, 1995 Supplemental Amendment & Interview Summary, Application No. 07/878,602, at 3.

All of the foregoing occurred during prosecution of what is now the '490 patent, parent to the '342 patent-in-suit. Hyundai argues that despite no reference to "match" or "matching" during the prosecution of the '342 patent, the statements made during prosecution of the parent application apply as well to the application maturing into the '342 patent.

Accepting Hyundai's argument that the prosecution history of the '490 patent applies equally to the '342 patent, that does not require (or counsel in favor of) Hyundai's proposed construction. First, Hyundai's proposed construction essentially rewrites the asserted claims to substitute "that is matched to the content of in place of "in response to." As the foregoing prosecution history makes clear, though, the applicant (and the examiner) chose to use the words of the present claims--not "matched" or the phrase "that is matched to the content of," as now Hyundai suggests.

Second, the applicant in the portion of the prosecution history that Hyundai relies on, was not distinguishing "guessing" from "matching," but rather was distinguishing Yourick's inductive learning techniques which did not associate a user's responses with product pictures, environment and text. That response provides no rationale or basis for construing "in response to" as "that is matched to the content of in the issued claims, or otherwise construing the issued claims as Hyundai urges.

Using the word "match" in that response provides no sufficient reason, by itself or in the context in which it was made, for concluding that one of ordinary skill in the art would construe "selecting a . . . in response to at least one of the customer answers" as "selecting a . . . that is matched to the content of at least one of the customer answers." That is especially so in light of the subsequent change in claim language, and subsequent arguments in which "match" is never used. Nor has Hyundai shown that the actual claim language somehow fails to define the actual invention disclosed in the '342 patent and that its proposed construction is necessary to do so.

The point is, and the undisputed facts are, the applicant used the term "match" exactly once throughout the entire prosecution of the '490 and '342 patents and presented no claim nor any further argument using "match." That is not to suggest that an applicant must make the same argument more than once in order to be subjected to a form of argument-based estoppel. Nevertheless, the "context" of the prosecution history simply does not support Hyundai's argument.

Rather, at the suggestion of the examiner, the applicant chose to use "means for electronically selecting a particular vehicle picture in response to at least one of the answers," "means for electronically selecting a particular vehicle environment picture in response to at least one of the answers," and "means for electronically selecting a particular text segment in response to at least one of the answers" in the parent application maturing into the '490 patent, and similar language in the application maturing into the '342 patent. The applicant thereafter argued in prosecuting the '490 patent that "[i]n the present invention, the customer's answers are used to determine the vehicle pictures, vehicle environment pictures, and text segments. This feature is not present in the prior art and in particular the Donald et al. and Yourick references." July 24, 1995 Supplemental Amendment & Interview Summary, Application No. 07/878,602, at 3. The applicant similarly argued in prosecuting the '342 patent that "[t]he present application is directed to a computerized system which utilizes a customer's answers to computer-generated questions to select stored pictures of products, product-related environments and text segments for incorporation into a customized proposal . . . The claimed system selects a particular product picture, a particular product environment picture, and a particular text segment in response to at least one of the customer answers." The selected pictures and text segment are used to generate 'a customized proposal for the customer.' September 24, 1996 Amendment & Request for Reconsideration, Application No. 08/596,575, at 3.

Under the circumstances, Hyundai has simply provided no persuasive reason why one of ordinary skill in the art, reviewing the specification and prosecution history of the '342 patent, as well as the parent '490 patent, would conclude that "selecting a particular product picture in response to at least one of the customer answers," "selecting a particular product environment picture in response to at least one of the customer answers," and "selecting a particular text segment in response to at least one of the customer answers" in claim 1, and "automatically selecting, in response to at least one of the customer answers, a product image, a product environment image and a text segment" in claim 11, meant "selecting a product picture that is
matched to the content of at least one of the customer answers; selecting a product environment picture that is matched to the content of at least one of the customer answers; and selecting a text segment that is matched to the content of at least one of the customer answers,” as Hyundai proposes.

Accordingly, the Court rejects Hyundai’s proposed construction. There being no other dispute about the terms’ meanings, no further construction is necessary.

1. "AUDIO AND/OR VISUAL SELECTION"

AOL: "An individual work such as a song or a music video."

TWM: No construction required. In the alternative, "Audio and/or visual content of a stream made available to user(s)."

AOL argues that its definition is "consistent with the ordinary meaning of a 'selection' as a 'work.'" (D.E. 68, pg. 6). TWM counters that "nothing in the claim language limits 'selection' to an individual song." (D.E. 69, pg. 7). As described above, the Court is mandated to first examine the claim language and specification.

AOL's proposal is inconsistent with the claim language. The claim language does not intimate that a "selection" consists of a whole "individual" work, as AOL suggests. Instead, the disputed term is preceded by the following: "wherein at least one stream of [p]ackets comprises an audio and/or visual selection." (emphasis added). The claim itself reveals that merely a packet of information, which as recalled from both parties' DVD tutorials, is a digitized part of an audio selection--not the whole selection--constitutes a selection. A stream of packets is short segments of a song. Because those segments are not the entire "individual" song, AOL's proposal does not comport with the claim language.

The Court believes a construction is necessary because the ordinary skilled person in the art understands "selection" differently than laypersons. Specifically, laypersons would read "selection" as an individual work; skilled persons in the field would read "selection" as either an individual work or a selection of data. To prevent any confusion, the Court adopts TWM's second proposal. So "selection" is construed as "audio and/or visual content of a stream made available to user(s)."

The Court proceeds to consider the other disputes with respect to the selection circuit.

3. Inapplicability of means-plus-function analysis

The second issue is whether the use of a functional limitation "for selecting the transmission power level" invokes means-plus-function analysis. While the language disclosing a selection circuit uses the functional language, i.e., "for selecting the transmission power level," 13 the Court finds the inventors' recital of a "transmission power level selection circuit" is sufficient structure for performing the claimed function. Accordingly, the Court finds that the selection circuit limitation is not a means-plus-function limitation.

13 The Court considers that the prepositional phrase "for selecting the transmission power level" modifies the noun "circuit" and not the noun "command" because "command" has an antecedent basis in the preceding radio receiver limitation that makes no direct reference to a function for selecting the transmission power level.
The third issue is the construction of the phrase "transmission power level selection circuit." The plain and ordinary meaning of "selection circuit" is "a circuit that selects between or among alternatives." In general, the parties do not dispute this interpretation; they agree that the "selection circuit" disclosed in Claim 61 selects the transmission power level. The dispute is over the phrase "transmission power level." 

--- Footnotes ---

14 (Opposition CCB at 24; Plaintiff's Reply Brief Regarding Claim Construction at 16, Docket Item No. 208.)

--- End Footnotes ---

The specification discusses "transmission power level" with respect to an embodiment of the radio transmitter in a remote unit:

The remote unit transmitter 86 is capable of transmitting at a power-conserving lower power level and also at an emergency higher power level.

('770 Patent, Col. 8:62-64.) Thus, the Court finds that one of ordinary skill on the art would have understood the "transmission power level selection circuit" to be a circuit that selects the power level at which the radio transmitter transmits.

5. "responsive to the received command"

The final issue which must be resolved with respect to the selection circuit is the limitation that the selection circuit be "responsive to the received command."

The antecedent of "the received command" is the "command" received by the radio receiver discussed in Section (IV)(B)(1) above. As discussed above, Figure 5 is a diagram of the "preferred" method of transmission to the remote unit. Both the caption of Figure 5 ("Message format: Base to Remote") and the written description indicate that the "command" received by the radio receiver originates in the base station: 15

The command field 182 includes a coded field of bits 184 used to command a specific remote unit to transmit its response message (using the format 150). The command field 182 also includes a single bit 186 used to command a remote unit such as the embodiment illustrated in FIG. 3, to transmit at high power.

('770 Patent, Col. 7:65-8:4.)

--- Footnotes ---

15 In Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004), the Federal Circuit noted, "Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents."

--- End Footnotes ---

Figure 3 and the accompanying written description discloses an embodiment of a remote unit which receives a power selection command from a base station and which contains a power level selection circuit that is "responsive to the received command":

(SEE FIG. IN ORIGINAL)

Notably, the illustration of Figure 3 and the related disclosure in the specification make reference to a "command" being received by the remote unit radio receiver. The "command" is passed to the "power level select circuit," which then commands the radio transmitter to change the power level of its transmission. (‘770 Patent, Col. 8:64-9:2.) The Court finds Figure 3 and the accompanying written description particularly appropriate for construction of Claim 61 because Figure 3, as well as Figure 12, disclose power level selection based on commands received from the base station, rather than power.
level selection calculated on the basis of the strength of the received signal.

In construing Claim 61, the Court relies on the specification's reference to Figure 3 instead of its reference to Figure 1. In the discussion of Figure 3, the inventors specifically refer to receipt of a "command," while in the discussion of Figure 1, the inventors use the general term "signal." In addition, to meet the limitations of Claim 61, the signal must carry an instruction before it is received by the remote unit. The embodiment illustrated in Figure 3 would satisfy that limitation. There is no discussion of how Figure 1 would meet that limitation. Thus, the Court finds that one of ordinary skill in the art would have understood "responsive to the received command" to mean that the selection circuit selects the transmission power level in response to the signal, or set of signals containing an instruction from a base station that requires the remote unit to perform an operation.

Accordingly, the Court construes the phrase, "the transmission power level selection circuit being responsive to the received command for selecting the transmission power level" as used in Claim 61 of the '770 Patent to mean: a circuit in a remote unit that is responsive to an instruction from a base station to select a power level at which the radio transmitter in the remote unit transmits.

H. "Item Selection Criteria," "Movie Selection Criteria," and "Game Selection Criteria."

These terms were used many times throughout the claims of the '450 patent, but not the '381 patent. By way of example, claim 1 recited (14:43-55):

1. A method for renting items to customers, the method comprising the computer-implemented step of:

   receiving one or more item selection criteria that indicates two or more items that a customer desires to rent;

   providing to the customer up to a specified number of the two or more items indicated by the one or more item selection criteria; and

   in response to receiving any of the items provided to the customer, providing to the customer one or more other items indicated by the one or more item selection criteria, wherein a total current number of items provided to the customer does not exceed the specified number.

The usage of the terms "movie selection criteria" and "game selection criteria" was similar. Claim 31 recited (col. 19:6-19):

31. A method for renting movies to customers, the method comprising the computer-implements steps of:

   receiving one or more movie selection criteria from a customer that indicates two or more movies that the customer desires to rent;

   providing to the customer up to a specified number of the two or more movies indicated by the one or more movie selection criteria; and

   in response to a return of any of the movies provided to the customer, providing to the customer one or more other movies indicated by the one or more movie selection criteria, wherein a total current number of movies provided to the customer does not exceed the specified number.

Similarly, claim 50 recited in part (col. 21:56-65):

50. A computer-readable medium as recited in claim 36, wherein: the two or more items are two or more games,

   the one or more item selection criteria are one or more game selection criteria,
the step of receiving one or more item selection criteria that indicates two or more items that a customer desires to rent includes receiving one or more game selection criteria that indicates two or more games that the customer desires to rent.

Netflix proposes that "item/movie/game selection criteria" should mean "characteristics and/or order of items/movies/games desired by the customer." Blockbuster proposes that the term should mean "any information used to choose a thing (or "item"), regardless of what person or device makes the choice." The sum of parties' disagreement is over who or what entity makes choice -- Blockbuster maintains that it could be any person or thing, while Netflix requires that it must be the customer.

As shown above, the claims use the term in the context of "receiving one or more item selection criteria that indicates one or more items that a customer wants to rent." This shows that the criteria is linked to or reflects the customer's preferences.

Netflix argues that the specification defines the term "item selection criteria" as explicitly being selected by the customer. "[T]he presumption in favor of the ordinary meaning of claim language as understood by one of ordinary skill in the art may be overcome where the patentee chooses to be his or her own lexicographer by clearly setting forth a definition for a claim term in the specification." Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1306 (Fed. Cir. 2003). In the specification, Netflix points to language such as "[t]he one or more item selection criteria provided by the customer to provider indicate the particular items that customer desires to rent from provider. Thus, the item selection criteria define a customer-specific order queue that is fulfilled by provider" ('450 pat. col. 4:54-58). Additionally, "the item selection criteria indicate items that customer desires to rent from provider" (col. 4:22-23). This seems to make clear that the item selection criteria are chosen by the customer. The specification also distinguishes between the item selection criteria and the actual order in which the items will be sent to the customer. The specification taught that the customer can select categorical criteria, such as movies directed by Wes Andersen, that would select items the customer wanted to rent, but would not put them in the customer's desired, specified order. Thus, the use of the term in the specification indicated that the customer chose the selection criteria.

Blockbuster relies mistakenly on Netflix's use of the word "may" in conjunction with specifying item selection criteria. For example, they cite that customers "may specify what items to rent using one or more item selection criteria . . ." ('450 patent at col. 4:9-11). This language refers to an embodiment that gives customers the option of selecting criteria that would add groups of items to their queues. Customers may still select items to rent for no other reason than personal whim. The specification simply does not show that the criteria could be selected by any entity other than the customer.

Accordingly, "item/movie/game selection criteria" will mean the characteristics used by the customer to select items.

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a. "selection keys"

Defendants contend that the term “selection keys” in claims 1 and 7 of the 189 patent means “keys on a keyboard; the keyboard is separate from the display."Resp. Brief, Ex. E at 2. They argue, as they did with regard to the construction of “song selection means” in the 302 patent, that the patent identifies “selection keys” as the keyboard depicted on figure 1. The term “selection keys” in the 189 patent is not, however, expressed in means-plus-function format like the term “song selection means” in the 302 patent. It is therefore unnecessary to look to the specification of the 189 patent for corresponding structure, and it is impermissible to limit the claim term to specific preferred embodiments shown in the specification. Phillips, 415 F.3d at 1323. The term “selection keys” in the 189 patent
should be given its plain and ordinary meaning, as informed by the specification. The specification teaches that the selection keys are used by the user to select a song. Opening Brief, Ex. 3 at 5:32-35 ("[t]he keys 123 provide signals representing user inputs such as displayed song selection."). The Court therefore construes the term "selection keys" as "keys that allow a user to select a song" and declines to limit the claim term to keys on a keyboard separate from the display.

D. "selection keys"

Touchtunes proposes that the term "selection keys" be construed as "mechanical buttons that allow a user to select a song," emphasizing that the keys are separate from the non-mechanical "display" of the jukebox. Arachnid, on the other hand, proposes that the term be construed as "keys that allow a user to select a song."

Because there is no dispute regarding the construction of the term "selection," Touchtunes argues that the proper construction of the term "keys" is essential and that Arachnid's proposed definition fails because it is circular, defining keys as "keys." To support its proposed construction, Touchtunes cites selected dictionary definitions that define keys as mechanical buttons. While these definitions conform to Touchtunes' proposed construction, they do not reflect the ordinary meaning of the word "key." For example, Webster's defines "key" as "a small switch for opening or closing an electric circuit," with no reference to any "mechanical" quality. Merriam Webster's Collegiate Dictionary 640 (10th Ed. 1993).

Touchtunes also relies on the separate recitation of "selection keys" and "display" in the '189 Patent specifications. It argues that merging the display and keys would make both terms redundant. See Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561-62 (Fed. Cir. 1991). However, nothing about the separate recitation suggests or requires that the keys be mechanical. Moreover, this separation does not preclude the possibility that selection keys can be on a visual screen. Touchtunes' reliance on the preferred embodiments shown in the specification is improper, as it is impermissible to limit the claim term to specific preferred embodiments shown in the specification. See Phillips, 415 F.3d at 1323.

Finally, Touchtunes argues that the Court should consider the accused products: Touchtunes jukeboxes use a "touchscreen" computer display for the selection songs, whereas Arachnid's patents do not disclose a touchscreen. Although consideration of the accused products may provide meaningful context, "[a] court may not use the accused products for the sole purpose of arriving at a construction of the claim terms that would make it impossible for the plaintiff to prove infringement." Every Penny Counts, Inc. v. American Express Co., 563 F.3d 1378, 1383 (Fed. Cir. 2009).

Nothing in the intrinsic record requires that "keys" be "mechanical" or separate from the visual display. The term "selection keys" is therefore given its plain and ordinary meaning and construed as "keys that allow a user to select a song."

F. Selection Logic

Agere contends that this term should be construed in accordance with 35 U.S.C. § 112, P 6. PCTEL asserts that the term does not trigger the applicability of § 112, P 6.

There is no dispute that the term "selection logic" does not include the term "means." The absence of the word "means" in a claim term raises the rebuttable presumption that the claim term is not written in means-plus-function format. Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1371-72 (Fed. Cir. 2003). Agere bears the burden of overcoming the presumption
by a preponderance of the evidence. Id. at 1372. To fulfill that burden, it must prove that the claim element "selection logic" fails to "recite[] sufficiently definite structure" or recites a "function without reciting sufficient structure for performing that function." Watts v. XL Sys., Inc., 232 F.3d 877, 880 (Fed. Cir. 2000).

To determine if a claim term recites sufficient structure, courts generally examine "whether it has an understood meaning in the art." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). Here, PCTEL asserts that "logic" is synonymous with circuitry, while Agere contends that term connotes function. A review of the technical dictionaries supports PCTEL's view that "logic," by itself, can connote structure. (O'Grady Decl., Ex. 16, McGraw Hill Dictionary of Scientific and Technical Terms (1994) ("General term for the various types of gates, flip-flops, and other on/off circuits. . ."). The Federal Circuit has stated that courts must not only rely on single words of the limitation, but also view the limitation as a whole. See Apex, 325 F.3d at 1372-73. Specifically, the Apex court stated that "[w]hile we do not find it necessary to hold that the term 'circuit' by itself always connotes sufficient structure, the term 'circuit' with an appropriate identifier such as 'interface,' 'programming' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art." Id. at 1373. Similarly, in Linear, the court stated that "when the structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art. . .." 379 F.3d at 1320.

Claim 1 of the '950 patent claims a host signal processing communication system comprising:

   selection logic coupled between the device and the host processor the selection logic being coupled to select the interrupt signal provided to the host processor wherein the selection logic selects the first signal as the interrupt signal when the device is operating in the first mode and selects a second signal from the communication lines as the interrupt signal when the device is operating in the second mode

'950 patent, col. 6:50-57. The Court finds that this contextual language describes the objective of the "logic" (i.e., selecting the first signal when in first mode and selecting the second signal when in second mode). Additionally, the term "selection" apprises skilled artisans of the function of the claimed "logic."

In response, Agere has only offered a Federal Circuit case construing "selection device" and a district court case construing "logic means." This evidence is not sufficient to overcome the presumption that § 112, P 6 does not apply. Therefore, the Court concludes that Agere has not shown by a preponderance of the evidence that one of ordinary skill in the art believes that "selection logic" does not recite sufficiently definite structure. Because "selection logic" is not governed by § 112, P 6, the Court finds that no further construction of the term is necessary.

12. "SELECTION SIGNALS RECEIVED FROM THE USERS"

AOL: "Signals from users indicating their choice of channel[s]"

TWM: No construction required.

In the alternative, "Signals from users selecting a stream."

TWM contends that the selection signals select a stream. (D.E. 69, pgs. 6-7). Conversely, AOL argues that the selection signals indicate the user's choice of a channel. (D.E., pg. 22).

The pertinent claim language recites "controlling the routing of the stream of packets in response to selection signals received from the users." Obviously, the contested portion is the tail-end of the sentence. Again, an inspection of the claim itself reveals that TWM's interpretation of the contested language is correct. Specifically, the term "channel" does not appear at all in any claim of the '187 patent. In contrast, "stream" appears throughout the claims. Injecting the word "channel" into the claim now would not comport with the claim's language. The Court adopts TWM's alternative proposal.
12. "Selective Access"

The plaintiff argues that this term does not need construction. In the alternative, the plaintiff proposes "access pursuant to some criteria." The defendant proposes "allowing access from or through a central station, to an access account, which is separate from the consumer account, and periodically allowing selected consumers to obtain from the access account, a portion of cash value which has been transferred from the consumer account to the access account."

The defendant argues that the description in the '090 patent specification uses the language in its proposed construction. In addition, the defendant argues that the specification is not broad enough to allow a consumer to have direct access to his account, and, therefore, the plaintiff's construction is too broad.

The court has considered the parties' constructions. The court is not persuaded that the defendant's limitations are proper. The court further concludes that this term needs no additional construction.

Selective Communication Link

"Selective Communication Link" is recited in Claim One, as cited supra. Furnace Brook's proposed construction of "selective communication link" and "switchable communications means" is "a communication link via an online interactive communications network." Overstock's proposed construction of "selective communication link" is "a dial-up connection through a telephone exchange or a private branch exchange ("PBX") to a telephone network such that it is not the Internet."

Furnace Brook argues that Overstock's construction imports embodiments into the claims and ignores intrinsic evidence of other embodiments.

Selective communication link is recited in Claim One as a component of one step of the improved interactive computerized catalog process. The specific step is "establishing a selective communication link initiated by a user between said user's telephone terminal and said computer system." '832 Patent at 10: 62-64. The specification teaches:

In response to a customer initiating a request by dialing a predetermined 800 telephone number, the telephone exchange signals the central data processor that a user has requested service and the processor in response thereto retrieves the digital catalog data selected by the user inquiry for transmission via the telephone exchange and communication link to the user's terminal.

'832 Patent at 3: 20-26. It also teaches in relation to the telephone-associated cable-TV, that

As was described in conjunction with FIG. 1, a user/customer would establish a communication path from a user TV terminal through the communication system[,] for example a PBX telephone exchange network, marketed by AT&T. ... which is functionally and structurally similar to the apparatus described in connection with FIGS. 1 and 4.

'832 Patent at 6: 64 - 7: 5.

It is evident that the selective communications link is the telephone line connection established between the user's terminal and the retailer-end computer. The Court adopts an interpretation similar to Overstock's proposal and concludes that a "selective communication link" is "a dial-up connection through a telephone exchange or a private branch exchange to a telephone network."
5. **selective coupling** / **selectively couple** / **selectively coupling**

2 Rohm asserts that all grammatical forms have the same meaning. See Rohm Response Brief at 24; Microsemi Response Brief at 10 n.3.

Judge Ward has previously construed the term "coupled" to mean "electrically connected, directly or indirectly." O2 Micro v. BiTEK, 2:04-CV-32. Judge Ward also declined to construe the term "selectively coupling" beyond its construction of "coupled." In this regard, however, Judge Ward rejected the argument that the term "selectively" is limited to "alternatingly." In light of this background, Rohm proposes that the term "selectively coupling" means "coupled under some circumstances and not coupled under other circumstances." O2 Micro asserts that no construction of this term is necessary. In view of the parties' arguments, the court adopts the prior construction of the term "coupled," and concludes that "selective coupling" means "coupling under some circumstances and not others."

7. "selective reception of the signals incorporating the differing scrambling techniques"

The plaintiff asserts that this term means reception of a signal modified in accordance with a scrambling technique. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues that "selective reception" means reception of a signal scrambled according to a particular one of the separate and distinct scrambling methods"; and "the signals incorporating the differing scrambling techniques" means each signal transmitted by the scrambling transmitter has a modification that is unique to one of the separate and distinct scrambling techniques." Id. The DIRECTV defendants argue that the term means each of a plurality of information service signals is scrambled according to a different scrambling technique, and the user must select a matching unscrambling card in order to receive a particular information service signal. Id.

The issue appears to be that the defendants seek to restrict the term "scrambling techniques" to one of separate and distinct scrambling techniques. The plaintiff resists the attempted restriction, arguing that "the specification of the '066 patent discloses that a combination of scrambling techniques may be used to scramble a signal." Broadcast's Opening Claim Construction Brief, at p. 33.

I agree with the plaintiff. The specification states:

A particular technique or combination of techniques can be quickly selected and implemented at will via a programming keyboard 32. The master scrambling circuit 31 therefor is able to put out a wide variety of scrambled signals. . . . In contrast with normal scrambling the number of differing techniques is more important to the invention than the sophistication of any particular on technique.

'066 Patent, col. 2, lines 40-54.

Although I have construed differing scrambling techniques to require something more than merely varying the parameters of a single scrambling technique, the specification clearly contemplates that a distinct combination of coding techniques such as, for example, combining some form of signal emphasis with a voltage spike, would be one scrambling technique; and, for example, combining signal emphasis with a frequency shift, would be a differing scrambling technique.

I construe the term "selective reception of the signals incorporating the differing scrambling techniques" to mean reception of a signal modified in accordance with a scrambling technique.
c. "selective voltage" and related claims

The parties disagree as to whether the claimed voltage refers to a voltage difference between the subject electrodes. Claim 1 of the '007 patent describes the addressing procedure as follows:

in conducting addressing, applies a selective voltage between one electrode of a selected pair of the display electrodes and a selected address electrode, such that said address electrode has a potential which is positive relatively to the one electrode of said selected pair of display electrodes, thereby generating a write discharge in a selected discharge cell.

(emphasis added)

LG's construction seems to require the application of a single voltage to multiple electrodes. The claim limitation, read in light of the specification, however, indicates that the claimed selective voltage contemplates a voltage difference. See '007 Patent, cl. 1; Fig. 18. Furthermore, the "and not applied" limitation proposed by LG is unnecessary and confusing.

For these reasons, the court defines "selective voltage" as "voltage difference used to select a cell to be lit during the display period."

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2. "selectively accessing"

The parties disagree about the meaning of the words "selectively accessing" in the phrase "selectively accessing the subscriber location from a remote location to obtain access to each program identification code stored at the subscriber location" of claim 8. Echostar argues that "selectively accessing" requires that the remote location actively connect to the subscriber location, and not vice versa, while IPPV contends that "selectively accessing" simply refers to the process of establishing a communication path, regardless of whether the remote location or the subscriber location initiates the connection.

Having reviewed the claim and the specification, the court finds that the plain meaning of "selectively accessing . . . from a remote location" does not require that the remote location have initiated the connection. The subscriber location could initiate the connection and then allow the remote location computer to access its records from the remote location. This scenario is consistent with the language of the claim. Moreover, this interpretation is consistent with the specification, which explains that "in this connection, the computer [located at the remote location] and access unit [located at the subscriber location] may be connected over the telephone lines through conventional telephone switching equipment as commanded either from the access unit or from the computer." Thus, the court concludes that initiation of the connection can come from either the remote location or the subscriber location, and therefore, "selectively accessing" refers to the process of establishing a communication path, regardless of the origin of the connection.

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7. "selectively according to a particular one of a multiple of differing scrambling techniques"

The plaintiff argues that this term means by using one of the different ways of modifying a signal. Joint Claim Construction Brief, Exh. B. EchoStar argues that it means there exist multiple, distinct predesigned scrambling techniques, which are simultaneously available for selection. Id. The DIRECTV defendants argue that it means there exist multiple distinct, pre-programmed scrambling techniques that are available and from which one can be quickly selected for use at any given time. Id. A principal issue as between the plaintiff, on the one hand, and the defendants, on the other hand, is whether "differing scrambling techniques" means a single scrambling technique having a variable parameter, as the plaintiff's construction would allow, or whether it requires separate and distinct scrambling methods which are something more than merely a variation of one technique's parameters.

I am persuaded by the defendants that the prosecution history requires that "differing scrambling techniques" means something more than a single scrambling technique where the technique's parameters are varied. In particular, during the
prosecution of the patent the applicant distinguished "a single scrambling technique having a variable parameter," stating:

In marked contrast, the invention of this present application uses one of a wide variety of totally distinct scrambling techniques.

* * *

This present invention is thus totally distinct from the teachings of the cited art wherein the parameters of a single scrambling technique are selectively altered to produce differing characteristics for the same scrambling technique.

Declarations of Jose L. Patino In Support of Defendant EchoStar . . . Opening Claim Construction Brief for U.S. Patent 4,993,066 (the "Patino Decl."), at Exh. E., p. 265. See Spectrum Int'l, 164 F.3d at 1378 ("Statements made by a patent applicant during prosecution to distinguish a claimed invention over prior art may serve to narrow the scope of a claim").

This construction finds further support in the specification, where the patentee defined "typical coding techniques" to include the distinct techniques of "signal emphasis/deemphasis, voltage spikes, sync removal, or frequency shifts." '066 patent, col. 2, lines 45-47.

I construe the words "differing scrambling techniques" to mean distinct scrambling methods which are something more than merely varying one scrambling technique's parameters.

Within this term, the plaintiff contends that the words "a particular one" need no construction. The defendants contend that those words should be construed to mean one and only one. In my view, there is no meaningful distinction between the positions of the parties. One is in the singular and means one, whether it is "a particular one" or "one and only one."

The parties also disagree about whether the word "multiple" means more than one, as the plaintiff contends, or more than two, as the defendants contend. "Multiple" normally means "having, pertaining to, or consisting of more than one individual, element, part, or other component. . . ." The American Heritage Dictionary of the English Language, at p. 861. In support of their contention that "multiple" as used in claim 9 means more than two, the defendants invoke the doctrine of claim differentiation and point to the fact that claims 10 and 11, depending from claim 1, concern "more than one scrambling technique. . . ." '066 Patent, col. 5, lines 20-21. The defendants argue that "when read in light of claims 10 and 11 (and their use of 'more than one' to mean 'two or more'), the doctrine of claim differentiation indicates that 'multiple' must have a different meaning than 'more than one.'" Defendant EchoStar . . . Opening Claim Construction Brief for the '066 Patent, at p. 20.

It is apparent that syntax, and not an intention to differentiate, led to the use of the differing phrases in claims 10 and 11, on the one hand, and claim 9, on the other hand. The claim language involved in claims 10 and 11 involves "the improvement of means to incorporate more than one scrambling technique. . . ." '066 Patent, col. 5, lines 19-21. The claim language in claim 9, by contrast, involves introducing interference into a signal "according to a particular one of a multiple of differing scrambling techniques. . . ." Id. at col. 6, lines 30-34. It is apparent that the claim drafter used the word "multiple" in claim 9 to avoid the awkward alternative of "one of more than one of differing scrambling techniques. . . ." See Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 972 (Fed. Cir. 1999)("The canon of claim differentiation is not a rigid rule"); 5A Donald S. Chism, Chism on Patents § 18.03[6][a] (1999 and July 2001 Cum. Supp.)(stating that Federal Circuit decisions "confirm that claim differentiation is not a rigid rule," citing cases).

I construe the word "multiple" in its ordinary and customary manner to mean more than one.

Defendant EchoStar requests a construction of the term to require that the scrambling techniques be simultaneously available. There is no such requirement in the claim or the specification. To the contrary, the specification states that the scrambling technique "can be quickly selected and implemented at will," '066 Patent, col. 2, lines 41-42, not that the differing techniques be simultaneously available. I reject EchoStar's construction requiring that differing scrambling techniques be simultaneously available. In addition, although an embodiment of the invention disclosed in the specification "can be quickly selected and implemented at will," id., that is not a limitation of the claim.

I construe the term "selectively according to a particular one of a multiple of techniques" to mean by selecting a particular
one of more than one distinct scrambling methods, where a scrambling method is something more than merely varying one
scrambling technique's parameters.

I.

When a party appeals from a trial court's post-verdict grant of JMOL, this court reviews the trial court's claim construction,
a matter of law, de novo. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979, 34 U.S.P.Q.2D (BNA) 1321, 1329
(Fed. Cir. 1995) (en banc). The claim limitations at issue in this case are: (1) "means for selectively activating each of said
emitters for predetermined periods of time" in claim 1, (2) "selectively energizing for predetermined periods of time each of
the said emitters" in claim 2, and (3) "synchronously generating a first data signal . . . and a second data signal which
determines the duration of the energization period of said emitters" in claim 2. Both parties agree that the periods of
activation (claim 1) or energization (claim 2) -- the periods during which the printer prints a stripe -- vary with the desired
stripe length. The dispute in this case is whether the claim terms "selectively activating" in claim 1 and "selectively
energizing" in claim 2 cover printing strobed stripes, or whether those claim terms encompass only printing continuous
stripes.

In construing claim language, the court considers the claims at issue, the specification, and the prosecution history.
Markman, 52 F.3d at 979 (quoting Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561, 19 U.S.P.Q.2D (BNA) 1500, 1503
(Fed. Cir. 1991)). The specification of the '311 patent discloses strobing the LEDs to print an exposed "region" or stripe:

(Emphasis added.) Thus, the specification contemplates strobing during the variable periods of selective activation (as in
claim 1) or selective energization (as in claim 2).

Dependent claims 4 and 27 confirm that "selectively activating" in claim 1 and "selectively energizing" in claim 2 cover
strobing. Although each claim is an independent invention, dependent claims can aid in interpreting the scope of claims
from which they depend. Claim 4 which depends from claim 3, in turn depending from claim 1, recites:

4. An electro-optical printing apparatus as recited in claim 3 further comprising means for flashing said emitters a
number of times along said linear regions.

Claim 4 covers an embodiment of the invention recited in claim 1 where the printer flashes, or strobes, LEDs during the
activation period to print "linear regions" or stripes. Claim 27, which depends from claim 2, recites:

27. A method of electro-optically printing alpha-numeric characters on the recording surface of a photosensitive material
as recited in claim 2 wherein said step in which the emitters are selectively energized includes the step of strobing said
emitters during the duration of the energization period.

Claim 27 makes clear that, in one embodiment of the invention recited in claim 2, strobing occurs during the energization
period.

The prosecution history does not suggest a different result, moreover. During prosecution of the reexamination application,
Laitram distinguished claim 2 from two prior art references. The first reference, United States Patent No. 3,085,132 to Innes
(the Innes patent), discloses a dot matrix printer that forms alpha-numeric characters by marking distinct dots on a recording
medium. For example, an "E" produced by the Innes printer appears below:

Laitram distinguished the Innes patent on the basis of the "fixed timing of the Innes dot matrix" and the Innes' "fixed-time-
duration pulses":

In alleging that Innes in the "plot mode" operates in accordance with claim 2 ignores the claimed mode of operation
which records alpha-numeric character images by means of second data signals that determine the duration of the energization period of the emitters coordinated by the constant speed movement along the Y axis as taught [by the '311 patent]. The character style S of Fig. 1 is unique to [the '311 patent] and goes contrary to the fixed timing of the Innes dot matrix. . . . Innes teaches only a dot [point] mode for both alphanumeric and plot modes . . . . Further, it is clear from Innes . . . that all marking is done with "fixed-time-duration" pulses, as contrasted to the claimed second data signal which determines the variable duration of [the '311 patent] line type marks.

(Emphasis in original.) Unlike the claimed printer, the Innes printer does not print stripes of varying length. Rather, the Innes printer produces distinct dots of fixed length by fixed duration pulses. Thus, this passage from [**12] the prosecution history does not define the relevant claim language of the '311 patent to mean something other than strobing during the activation period.

Laitram also distinguished United States Patent No. 1,201,624 to Baylis (the Baylis patent) from claim 2 of the '311 patent. The Baylis patent discloses an electro-optical printer that uses LEDs to record an image on a recording surface. Laitram explained a difference between the claimed printer and that disclosed in the Baylis patent:

"Nor is there anticipation of the step of "coordinating -- including the step of synchronously generating a second data signal which determines the duration of energization period of said emitters" in view of the absence of Baylis of any teaching of determining the duration or of coordinating [Baylis'] continuously energized emitter 114 synchronously with anything. . . . The Faraday shutter cells [of Baylis] are scanned and arranged to selectively gate light one at a time . . . "to build up from rows of spots images of the cells 111." That passage does not anticipate or teach in any way the second data signal defined in Claim 2 of variable duration to effect energization [**13] of the plurality of emitters to form line images. . . . Thus, Baylis does not in the Fig. 2 embodiment anticipate the variable duration defined by the claimed step of "coordinating -- a second data signal which determines the duration of the energization period of said emitters."

(Emphasis in original.) Again, this passage does not define the relevant claim language to exclude strobed striping. Laitram noted that the Baylis printer builds characters from rows of distinct spots. Laitram then pointed out that the Baylis patent does not teach synchronization of a plurality of emitters with the movement of a recording medium to form vertical line images or stripes. At no time during prosecution did Laitram represent that the relevant claim language could not embrace painting stripes by fixed-time strobing during variable periods of activation.

In sum, claims 1 and 2, as properly construed, cover both printing continuous and strobed stripes.
necessarily the case that a display that might conceivably return a vehicle to an original optimal route would be shown only after a vehicle has deviated from said original optimal route. Adding this phrase clarifies the claim language without inserting inappropriate limitations. However, plaintiff's proposed addition of "obtaining user instruction" is inappropriate because it goes beyond the tasks identified in the claim language. The claim states only that the display sometimes shows route guidance information leading the vehicle back to the optimal route and sometimes does not show route guidance information leading the vehicle back to the optimal route. The claim language is silent as to the process for deciding whether to show the information or where to obtain instructions. I construe the claim as:

said step of displaying, after deviation from the original optimal route, sometimes allowing and sometimes prohibiting the display of said route guidance information that returns said vehicle to an original optimal route.

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3. "selectively altering circuitry functions depending on mode of operation of the instrument when a first power limit is reached, thereby reducing power consumption"

Plaintiffs' construction: the instrument monitors its power consumption and, when a first preselected power consumption limit is reached, it changes selected circuitry functions depending on the mode of operation, thereby reducing power consumption.

Defendant's construction: selectively changing the functions of certain circuits based upon mode of operation of the instrument, when a first level of power consumption is reached.

Having reviewed the claim construction briefs and the transcript of the claim construction hearing, it remains unclear whether the parties have a live dispute about this term, other than their disagreement regarding the proper construction of the term "mode of operation," which I have considered above. In their reply brief, plaintiffs indicate that the only real dispute relates to the construction of "mode of operation." Plts.' Br. in Reply, dkt. # 71 at 96. In its reply brief, defendant makes a lengthy argument about how "power consumption" and "power limit" should be understood, but proposes no construction for these terms. Dft.'s Br. in Reply, dkt. # 67 at 22-26. Whether or not this is a contested issue, I do not intend to invent constructions that defendant did not propose, especially when this issue was raised first in defendant's reply brief. Accordingly, I conclude that the phrase "selectively altering circuitry functions depending on mode of operation of the instrument when a first power limit is reached, thereby reducing power consumption" cannot be construed further.

3911

The '674 Patent

A. How is Insulation Selectively Applied?

The parties interpret differently whether claim 1 of the '674 patent requires application of insulation only in certain places and not in other locations over the semiconductor substrate. Claim 1 reads, in relevant part, "selectively applying at least one layer of insulation material to said semiconductor substrate." The claim language does not specify locations or methods for application of insulation.

The term "insulation material" has its common meaning: material that does not conduct electricity. The term "selectively applying" has no common, well-understood meaning. Thus, this court sought expert testimony about its meaning to one of skill in this art at the time of invention.

Dr. Wen testified that one skilled in the art at the time of the invention would have understood this process step to encompass formation of one or more layers of a defined thickness of insulation at different points across the surface of the device. Transcript of September 19, 1995, hearing, at 224 (hereinafter referred to as "Transcript"). According to Dr. Wen, the thickness of insulation varies in different parts of the device. For example, the active part of the circuit, where the light sensing element resides, would have a relatively thin layer of insulation material. A thin layer at this location is necessary to
facilitate sensitivity to light. However, Dr. Wen explained, the periphery of the device or field area would have a relatively thick layer of insulation. Transcript at 224-25.

Dr. Wen explained that at the time of the '674 patent those in the field knew several methods of applying different thicknesses of insulation at various locations on the device. For example, one application process would grow a relatively thick layer of insulation over the whole array. The manufacturer would then use a mask to define the active region of the circuit. After masking, a chemical etch would remove the thick oxide in these areas. Then, the manufacturer would grow a very thin layer of oxide in the active region. Thus, "selectively applying" as understood by those skilled in the art at the time of invention meant application of a thin layer of insulation over the active region leaving a relatively thick layer in the inactive region. Transcript at 225-26.

The specification also suggests the application of insulation material of various thicknesses according to the function of the underlying semiconductor layers. For instance, the specification discusses use of silicon nitride to prevent the formation of additional oxide on the insulation layers:

The second insulating layer 26 is silicon nitride because thermally grown oxides will not form on the nitride. Thus the silicon nitride is very useful in protecting the underlying layer 24 from becoming significantly thicker as would normally occur during the subsequent oxidation steps in the process of this invention.

The '674 patent, column 4, lines 31-37.

The specification further discusses the use of silicon nitride to slow oxide growth: "Moreover, since oxides grow much more slowly on a silicon nitride surface, no substantial oxide grows on the top surface of silicon nitride layer 26." Column 5, lines 16-18. As these passages indicate, insulation material grows in all areas even using the disclosed illustrative method. Thus, the specification does not suggest that the inventor intended to limit this process step to one technique or to a process that insulated certain areas and not others.

Consequently, this court concludes this language describes a process step during which one or more layers of insulation material of a defined thickness form at specific locations on the top surface of the silicon wafer.

C. "Selectively Changing Transmission Rates"

Covad asserts that the Court should construe "selectively changing said first and second transmission rates" as altering both the first and second data rates from one level to another during a communication session. Bell Atlantic argues that the phrase "during a communication session" is a limitation that should not be read into the claims. The patent explains that the transmission rate can "be selected in any one of a number of ways during a transmission session." Col. 13, ll. 63-65; see also col. 15, ll. 4-6 ("The ADSL/AVR service can be changed over a range from conventional ADSL to full AVR functionality at any time during a transmission session."). To implement the recited change, "[a] menu may be displayed at the subscriber end which queries for desired parameters such as the … data rate. The subscriber then selects the desired data rate, or indicates transmission at a variable rate, through software or through selection of buttons on the set top box." Col. 14, ll. 11-16. Alternatively, a selected data rate could be "programmed or controlled so that it is executed upon the performance of some event," such as after a search was completed and a file was ready to be downloaded. See col. 14, ll. 39-43, 55-58.

With regard to the prosecution history, claim 1 initially recited a controller "for selecting the mode in which said first transceiver operates or for controlling said first and second transmission rates." July Amendment, at 3. The PTO rejected the claim over the Arnon patent that disclosed a system that selected either a fault or a normal modes before initiating the communication session. See Arnon, at col. 7, ll. 26-44. Bell Atlantic amended the claim to include the "selectively changing" limitation and argued that "even though Arnon teaches a fault induced substitution mode in col. 7, lines 26-44, the bandwidth or transmission rates in the ADSL loops during the fault mode or during the normal modes remains unchanged. Hence it is submitted that Arnon fails to show, teach, or suggest selectively changing the first and second transmission rates in the subscriber loop." July Amendment, at 15. Covad notes further that one of Bell Atlantic's press releases, issued to announce the grant of the '786 patent refers to the invention's ability to "change the rate of a DSL.
transmission 'on the fly.'" Bell Atlantic Press Release (December 14, 1998).

With regard to this disputed claim construction, Bell Atlantic first looks to the language of the patent itself to support its position that Covad's proposed construction attempts to read language into the claim that was not contemplated by the inventors. The patent states the following:

When a request for a change in modes (e.g., from ADSL to bi-directional) is received during or prior to a communication session, a negotiation is made between the two ADSL/AVR boxes so that they are operating in a compatible mode within a short period of time.

* * *

The changes in the mode and rate for the channel can be accomplished by the ADSL/AVR interface in the subscriber's premises. Any intra-session change should be accomplished within 10 seconds and, preferably, within two seconds so that the subscriber does not experience a long delay between mode or rate changes.

* * *

In addition to direct subscriber selection or control of modes during a communication session mentioned above, the selection of modes may also be made indirectly, programmed or otherwise controlled so that it is executed upon the performance of some event.

Col. 14, ll. 7-11, 22-27, 39-43.

In the alternative, the patent states that "the subscriber could instruct the LAN or file server to utilize a command file to change the mode and download the file or information upon the occurrence of some detectable event or at a designated time." Col. 14, ll. 59-62. In addition, the patent states that:

The use of a common hardware platform and programmable firmware also provides advantages in initial manufacturing and cost, and in product enhancement, upgrade costs, and time to market. For example, a subscriber could receive a fractional T1 service at 384 Kbps using the ADSL/AVR system and then upgrade the capability of the service to higher data rates in the future using a network management system without altering the hardware.

Col. 11, ll. 53-60.

Bell Atlantic states that receiving a 384 Kbps service now, and upgrading the service to higher data rates in the future, is a contemplated advantage of this "common hardware platform."

Covad is attempting to read limitations into the claims that were not contemplated by the inventors. The Court will not limit the claims in such a way, where the meaning of the claim terms are clear. The patent in several instances refers to changing transmission rates at some time in the future, thus no temporal limitation will be read into the claims. Thus, the Court finds that "selectively changing" the first and second transmission rates in claims 1 and 21 means that a change is chosen and occurs, although it need not occur during a communication session.

As an initial matter, Bell Atlantic argues that we lack jurisdiction to decide this issue because Covad did not file a cross-
appeal, and Covad's proposed claim construction would require modification of the judgment on appeal. However, the
general rule is that "without taking a cross-appeal, the prevailing party may present any argument that supports the judgment in its favor" as long as the acceptance of the argument would not lead to "a reversal or modification of the judgment rather than an affirmance." Carnival Cruise Lines, Inc. v. United States, 200 F.3d 1361, 1365 (Fed. Cir. 2000). Thus, where the prevailing party in a motion for summary judgment of noninfringement seeks "a claim construction more favorable to [its] case than the construction adopted by the district court on summary judgment, that would have no different result than affirmance of the [judgment]." Genentech, Inc. v. Wellcome Found. Ltd., 29 F.3d 1555, 1562, 31 U.S.P.Q.2D (BNA) 1161, 1165 (Fed. Cir. 1994). Because Covad's proposed construction of the "selectively changing" limitation would merely lead to an affirmance of the judgment below, there is no requirement for a cross-appeal on this issue.

It is true that the '786 patent specification explains that the transmission rate or mode of the ADSL/AVR may be selectively changed "during a communication session." '786 patent, col. 13, l. 65; col. 15, ll. 4-6. Indeed, the written description describes how a user may selectively change the "mode and/or data rate." '786 patent, col. 14, ll. 11-16. At the same time, however, the specification discusses selectively changing the mode and rate at times other than during a communication session:

In addition to the direct subscriber selection or control of modes during a communication session mentioned above, the selection of modes may also be made indirectly, programmed or otherwise controlled so that it is executed upon the performance of some event.

'786 patent, col. 14, ll. 38-42. Elsewhere, the written description notes that "when a request for a change in modes (e.g. from ADSL to bi-directional) is received during or prior to a communication session, a negotiation is made." '786 patent, col. 14, ll. 7-9 (emphasis added). The specification also recognizes that "the subscriber could . . . change the mode and download the file or information upon the occurrence of some detectable event or at a designated time." '786 patent, col. 14, ll. 59-62 (emphasis added). Thus, the patent clearly contemplates the possibility of selectively changing the transmission mode or rate at times other than during a communication session. Consequently, the specification does not define the limitation, either expressly or by implication, as a change made only during a communication session. The varied use of this limitation throughout the '786 patent specification "demonstrates the breadth of the term rather than providing a limited definition." Johnson Worldwide, 175 F.3d at 991, 50 U.S.P.Q.2D (BNA) at 1611. Covad's proposed construction would improperly import a limitation from the specification into the claim. Comark, 156 F.3d at 1186, 48 U.S.P.Q.2D (BNA) at 1005.

Instead, the significance of the "selectively changing" and "selectively operating" limitations is that the transmission mode or rate may be changed either automatically or manually without altering the transceiver hardware. The specification notes that a subscriber may "upgrade the capability of the service to higher data rates in the future using a network management system without altering the hardware." '786 patent, col. 11, ll. 57-59 (emphasis added). The specification also states:

the structure of the chips in the chip set does not need to be changed to vary the mode of the transceiver or the transmission rates . . . . The use of a single chip set, capable of either transmitting or receiving conventional ADSL, at both ends of the transmission loop in the ADSL/AVR system . . . make it possible to easily and selectively implement the reversible ADSL mode.

'786 patent, col. 13, ll. 46-60. Moreover, in the prosecution history, the patentees distinguished the fixed-bandwidth nature of Arnon:

Even though Arnon teaches a fault induced substitution mode . . . the bandwidth or transmission rates in the ADSL loops during the fault mode or during the normal modes remain unchanged. Hence, it is submitted that Arnon fails to show, teach, or suggest selectively changing the first and second transmission rates in the subscriber loop.

(Emphasis added.)

Thus, the "selectively changing" and "selectively operating" limitations in claims 1 and 21 mean that a change is chosen or occurs without alteration of the transceiver hardware, although the change need not occur during a communication session.
McNulty argues that the district court erred in requiring the current from the power supply to the electronic circuit to flow through the trigger means. The district court also erred, McNulty continues, in its construction of "selectively connecting." Although the electrical discharge sequences of the Taser devices proceed according to a predetermined sequence after the trigger on the Taser devices is released, McNulty explains, continued operation of the trigger causes the discharge sequence to repeat. Therefore, an operator of a Taser device cannot interrupt the discharge sequence, but can control whether that sequence will repeat. Although imprecise, McNulty concludes, it is still a selective disconnection.

Construction of a means-plus-function limitation requires a court to first identify the claimed function, and then to determine what structure disclosed in the specification performs those functions. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1322 (Fed. Cir. 2003). The district court identified SW1 in FIG. 5 of the '048 patent as the structure corresponding to the "trigger means" referenced in claim 39. McNulty's arguments do not challenge this correspondence, but instead dispute the district court's determination as to the limitations on that structure and the functions that it is to perform.

The function of the trigger means is to "connect[] the power supply to the electronic circuit when in a first position." '048 patent, col. 12, ll. 41-43. The plain language of the claim, therefore, suggests that the power supply and the electronic circuit are connected only when the trigger means is in the first position, which the parties agree is the position when SW1 of Figure 5 is closed. "Selectively" modifies the "connecting . . ." phrase, and reflects the option available to the operator as to whether or not to activate the device. The written description of the '048 patent reinforces the correctness of this interpretation, explaining that "the electrical diagrammatic representation of trigger switch 14 is shown as switch SW1, wherein closure of the switch SW1 connects power source BTI with the inverter transformer TI." '048 patent, col. 4, ll. 32-35; see also id. at col. 1, ll. 61-63 ("The circuit thus operates to produce the high voltage for so long as the trigger switch is operated." (emphasis added)). As the appendices submitted by the parties present no prosecution history suggesting a contrary interpretation, we agree with the district court that "selectively connecting . . ." requires that the connection between the electronic circuit and the power supply occur when the trigger means is in the first position and that the operator of the device be able to use the trigger means to select when the power supply and the electronic circuit are connected.

The parties have briefed a series of these terms and the dispute is whether the terms are drafted in means-plus-function form. To illustrate, claim 20 of the '755 patent requires "selectively connecting" stored instructions to the processor elements. The terms do not use the term "means," but the defendants ask the court to construe them as means-plus-function limitations and to incorporate the full-access, non-blocking networks described in the specification. This argument is rejected. The defendants have not overcome the presumption that the limitations are non-means-plus-function terms. No additional construction is required.
2. "Selectively controlling said engine by means of said first computer through at least one additional programmed mode provided by said adapter module, said additional programmed mode not being originally included in said originally provided memory."

Plaintiff advocates the following construction: "selectively changing the vehicle computer through the user's use of at least one additional program in the adapter module, while preserving the originally provided program mode in some location."

Defendants argue that the proper interpretation is "choosing either the originally provided programmed mode or the additional programmed mode, both of which are part of the automotive computer, such that the operator of the automotive computer can select between the two modes by inserting or removing the adapter module." Defendants' construction would require, inter alia, that mode selection be accomplished by physical attachment or removal of the module.

The Court disagrees with Defendants' proposed limitation, finding Mr. Lundell's recommended construction more appropriate: "making a decision to switch control of the engine from the programmed mode provided in the originally provided memory to the additional programmed mode provided by the adapter module, with the adapter module remaining coupled to the bus such that control of the engine can be switched back and forth between the originally provided programmed mode and the additional programmed mode." This construction -- unlike Defendants' proposed reading -- is consistent with Defendants' contention, and the Court's ruling, that the language of the patent requires that the device be permanently attached to the vehicle. The Court therefore adopts Mr. Lundell's construction.

3917

B.

With respect to the method claim, Mr. Adrain argues that the district court erred in granting summary judgment of invalidity. The "selectively controlling" clause n3 of claim 19 was construed to mean "making a decision to switch control of the engine from the programmed mode provided in the originally provided memory to the additional programmed mode provided by the adapter module, with the adapter module remaining coupled to the bus such that control of the engine can be switched back and forth between the originally provided programmed mode and the additional programmed mode." Adrain, 2006 U.S. Dist. LEXIS 25212 at *20. Yet, the court clarified that this interpretation "does not require that the device permit switching between modes while the vehicle is in operation." Id. at n.2. In finding claim 19 anticipated by Berra, the court rejected Mr. Adrain's argument that Berra did not disclose retaining the vehicle's originally provided memory during and after reprogramming of the ECM. Id. at *26-27.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

n3 Claim 19 recites the following limitation: "selectively controlling said engine by means of said first computer through at least one additional programmed mode provided by said adapter module, said additional programmed mode not being originally included in said originally provided memory."

We generally agree with the district court's claim construction. Claim 19 does not recite the "improvement in a vehicle" limitation of the apparatus claims. As such, the claimed method does not require that the adapter module remain attached to the vehicle. Moreover, the language of claim 19 makes no reference to switching back and forth between the originally provided programmed mode and the additional programmed mode during vehicle operation. Nor does claim 19 require the further step of storing the original configuration elsewhere in an additional memory, as Mr. Adrain argues. It merely requires that the adapter module provide at least one additional programmed mode not originally included in the ECM.

3918

PROST, Circuit Judge, dissenting-in-part.
Because, in my view, under the proper construction of claim 19, Berra cannot support the district court's finding of invalidity, I respectfully dissent from part B of the opinion. The majority reads claim 19 as having "no reference to switching back and forth between the originally provided programmed mode and the additional programmed mode during vehicle operation." While lacking a requirement to switch during vehicle operation, the claim does require "selectively controlling" the engine. As the district court properly recognized, "selectively controlling" indicates the ability to switch back and forth between multiple programmed modes.

Giving appropriate meaning to "selectively," Berra fails to anticipate claim 19. As the majority discusses, Berra may allow two programs to exist simultaneously in the on-board controller, and therefore allows the possibility of returning to the original program in the future. To properly anticipate claim 19, however, Berra must disclose the means by which to return to the original program, not just leave open a possibility. Contrary to the majority, I do not believe Berra discloses the ability to return to that program. Accordingly, I would reverse the district court's finding of invalidity based on Berra.

Appellees additionally assert anticipation of claim 19 based on the Microburst device. The district court did not address the Microburst device, and the record on appeal provides insufficient basis to support a grant of summary judgment at this time. I would therefore remand to the district court to evaluate anticipation based on the Microburst device.

**3919**

B. "Selectively controlling said engine by means of said first computer through at least one additional programmed module provided by said adapter module"

This term means that the vehicle's ECM can be selectively changed by the user through the use of at least one of the additional programs in the adapter module. Again, the court declines to add the "in transit" limitation to this term, because it has already read the limitation into claim 19.

**3920**

B. "selectively controlling the durations of the time intervals of activation"

Claims 1 and 3 of both the '481 and '561 patents include the limitation "selectively controlling the durations of time intervals of activation." In its Markman ruling, the district court explicitly refused to provide a distinct definition for this limitation, deeming the phrase "sufficiently defined."

Telegenix contended before the district court, and reiterates on appeal, that this limitation means "specifically controlling the length of time that individual pulses are activated to vary the amount of light emitted from a light source." Telegenix argues that by his disclosure in the specification, the inventor limited the claims to varying color using pulse width modulation ("PWM"), a technique that varies the duration of individual pulses. Telegenix further contends that the inventor limited the asserted claims to PWM by statements and amendments during prosecution of the patents in suit.

TDS responds that the claims are not limited to the particular PWM technique suggested by Telegenix. TDS urges that the claim language uses the plural form of both "durations" and "time intervals" and thus is consistent with an interpretation in which color is controlled with "more than one pulse and includes multiple activations of the same LED within the repetition period." In other words, TDS urges a claim construction that would cover devices which change perceived light intensity by varying either the width of the pulses or the number of pulses.

The words of the claim require "controlling the durations" of the "time intervals of activation." The plain meaning of "controlling the durations" indicates that the claimed invention requires variation of the duration of individual time intervals, or controlling the width of pulses, during which the LEDs are activated, e.g., PWM. This plain meaning is consistent with the specification of the '481 and '561 patents. The structures shown in Figures 9 and 11 of the '481 patent and Figure 1 of the '561 patent depict circuitry for driving the LEDs using PWM. As shown in Figure 9 of the '481 patent, the circuitry includes at least one counter 71f for each color connected to a corresponding memory 76 containing data.
regarding the amount of primary color activation required to produce the desired color. '481 patent, col. 4, ll. 24-59. The counter and corresponding memory are connected to a "flip-flop" 73 which provides the appropriate output to generate the desired color. Id. According to the specification, the "output of the flip flop 73 will be at a high logic level for a period of time proportional to the data" loaded into the counter 71f from the memory 76. Id. at col. 4, ll. 51-52. Thus, the circuitry controls color by setting the output "at a high logic level for a period of time proportional" to the desired color data.

Moreover, the prosecution history is consistent with this interpretation of the claim language. During prosecution of the '481 patent, the inventor distinguished prior art on the basis of PWM. The Patent Office initially rejected all claims in the application as obvious in view of the Kaelin reference, which taught that "LED color display elements can be varied by applying variable timed pulses to the individual diodes." The applicant responded by submitting new claims and arguing that the invention "controls the durations of the pulses that are applied to the primary color light sources in the selected display areas to control the portions of the primary color light signals, to thereby control the color of the exhibited display unit."

On the basis of our review of the ordinary meaning of the words themselves, we conclude that this limitation requires control of pulse width. This is entirely consistent with the intrinsic record. Contrary to TDS's argument, introducing multiple pulses of identical duration during the repetition period does not effect control of pulse duration. Where multiple pulses of identical duration are introduced during a single repetition period, pulse duration remains constant and color is controlled not by varying "the durations of the time intervals of activation" of pulses, as called for in the claims themselves, but by varying the number of constant duration pulses applied. Such a technique does not set the output "at a high logic level for a period of time proportional" to the desired color data nor does it "control the durations of the pulses," and thus is inconsistent with the specification and prosecution history.

We conclude that "selectively controlling the durations of the time intervals of activation" means controlling the width of pulses during repetition periods.

### 3921

(6) Selectively Delay Execution of Said Door Operation Commands

The '628 Patent includes the term "selectively delay execution of said door operation commands." The parties propose the following meanings to the words "selectively delay":

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delaying the execution of door operation commands when movement of the door would cause operational interference between the door and the ramp.</td>
<td>Indefinite. No definition in the specification. Only embodiment disclosed is intercept/transmit/echo.</td>
</tr>
</tbody>
</table>

Braun submits that terms "selectively," "delay," and "execution" have common and ordinary meanings that, when combined, make clear that "whenever the ramp is moving or might otherwise be in the path of a closing door . . . the door control system is prevented from executing door operation commands." (Braun Claims Constr. Br. at 17.)

VMI objects to such an interpretation as overly broad. It argues that "[o]ne skilled in the art would be uncertain as to whether his wheelchair accessible vehicle infringes the patent claims or not as it is absolutely necessary for all wheelchair accessible vehicles to prevent door operation when the ramp is deployed. There is no other way to operate the vehicle. Thus, if the term were defined broadly, the method claims, claim 23 for example, would encompass all methods of preventing operational interference between the door and the ramp." (VMI Resp. at 12-13.) Consequently, VMI submits that the language must be interpreted narrowly to mean "intercept/transmit/echo method of delaying execution of door operation
The Court adopts Braun's interpretation: "selectively delay execution of the said door operation commands" means delaying the execution of door operation commands when movement of the door would cause operational interference between the door and the ramp. This meaning is consistent with the language of the claims themselves which recite that the controller "selectively delay[s] execution of said door operation commands by said door control system while operating said ramp motor to move the ramp" (Claims 1 and 21) and that execution of the door operation commands is selectively delayed "in order to prevent operational interference between the door and the ramp" (Claims 11 and 23).

In challenging the claims as indefinite VMI bears the burden of showing the invalidity of the patent. Its current briefs fail that burden, and the Court is not convinced that the term must be limited to the narrow interpretation of "intercept/transmit/echo method of delaying execution of door operation commands." Claims are indefinite when they are "not amenable to construction or are insolubly ambiguous." Young v. Lumenis, Inc., 492 F.3d 1336, 1346 (Fed. Cir. 2007). That is not the case here.

3922

Selectively Elect to be Included In or to be Excluded From

Furnace Brook asserts that this term should be interpreted to mean "selectively elect, by, for example, depressing the appropriate key on the customer terminal, to be included in, or to be excluded from." Overstock asserts that this term should be interpreted to mean "when placing an order, a customer using a telephone terminal may elect to have his/her name added or deleted by activating a computer code at the customer telephone terminal." Claim One recites, in part:

...enabling a user when placing an order to selectively elect to be included in or to be excluded from said customer profile marketing data file created as part of a completed catalog product or services order transaction.


A customer elects to have his or her name deleted from a computer file after placing an order "by electronically activating a marketing data delete file" and that customer gives his or her approval to having data included in a customer data file by "depressing an appropriate key at the customer terminal." Accordingly, "selectively elect to be included in or to be excluded from" is a "customer's acceptance or denial of an invitation to have his name and address, and, if applicable, his order placed, retained in a customer profile by the retailer."

3923

1. '776 Patent

In the '776 patent, the last element of each of claims 1, 3, and 24 is construed to be a step or means that energizes, or turns on, a compressor in response to an increase capacity signal and deenergizes, or turns off, a compressor in response to a decrease capacity signal. The claims do not allow for energizing a compressor in response to a decrease capacity signal or deenergizing a compressor in response to an increase capacity signal.

The word "respective" in the context of the claim means "in the order given." The order given in the claim is to energize and deenergize in response to increase capacity signals and decrease capacity signals. "Respective" links the energizing steps to the increase capacity signals and links the deenergizing steps to the decrease capacity signals. The Court adopts Dr. Rhyne's testimony that a person of ordinary skill in the art would give this interpretation to the word "respective."

In the specification, where "respective" is used many times, it also means "in the order given." See, e.g., Column 4, line 66 through Column 5, line 4. The prosecution history further supports this interpretation. See JX-776, Response, Bates Nos. 144-45, example showing that a compressor was energized only in response to an increase capacity signal and that a
The compressor was deenergized only in response to a decrease capacity signal.

The language in claim 1 is exemplary and states that the last step comprises "selectively energizing and deenergizing compressors in response to respective increase capacity signals and the decrease capacity signals." To understand why "compressors" and signals" are plural, the Court examined other portions of the claims, the specification, and the prosecution history. The next to last element in each of claims 1, 3, and 24 indicates that a single increase capacity signal is generated when more compressor capacity is needed and that a single decrease capacity signal is generated when lesser compressor capacity is needed. The use of the plural "signals" in the last element of claims 1, 3, and 24 reflects a history of operation, i.e., a result of controller operation over a time interval. The Court accepts and adopts Dr. Rhyne's testimony that a person of ordinary skill at the relevant time would have so understood and interpreted the use of plural "signals" and "compressors" in the claims. Because there is no indication from other portions of claims 1, 3, and 24 whether the use of the plural in "compressors" is also a result of the same time interval or history of operation, the Court looked to the specification and discovered that the specification and disclosure indicate that a single compressor is turned on in response to an increase capacity signal and a single compressor is turned off in response to a decrease capacity signal. See, e.g., Column 4, line 66 to Column 5, line 4 states that "one of the multiple compressors" is energized in response to an increase capacity signal. The prosecution history at pp. 28-29, JX-776, Response, Bates Nos. 144-45, reflects that only one compressor is turned on in response to an increase capacity signal and one compressor is turned off in response to a decrease capacity signal. On page 30 of the same Response, JX-776, Bates No. 146, the applicant argued,

It is the independent control of each compressor of the present invention without regard to the energized or deenergized state of the other compressors in the system which makes the number of combinations of compressors available greater than the number of available compressors.

Thus the last element of claims 1, 3, and 24 of the '776 patent recites a step or means for energizing a single compressor in response to an increase capacity signal and deenergizing a single compressor in response to a decrease capacity signal.

The claim further needs interpretation in light of the collective limitations of the words and phrases, "selectively," "in respective response," and "to provide a greater combination of compressors." In combination with other limitations of "respectively" and "to provide a combination of compressors . . .," "selectively" means energizing or deenergizing compressors according to some particular logic or criteria. Thus the claim element takes on the construction indicated supra. Support is found in the specification, Column 7, line 45-51, DX-119:

As described above, it will be evidence that controller circuit 10 will "cut-in" or "cut-out" the next compressor or compressor stage as above described until the combination of stages has an operating capacity closest to matching the system load, i.e., causing the system suction pressure to return to the previously established . . . range as hereinabove described and shown in FIG. 4 [emphasis added].

Similarly, the prosecution history also supports this construction. On page 30, Response, JX-776, Bates Nos. 146), the applicant was commenting upon the example provided on the prior pages which compared the operation of "the invention"
to the prior art (in which the example clearly cycled through compressors until the correct capacity match was made) and explained

Successive reiterations of the FIFO strategy enables [sic] the present invention to more efficiently match the system load with the expanded set of compressor combinations available than previous systems, such as in Golber, having only a limited number of combinations available [emphasis added].

The Court accepts and adopts Dr. Rhyne's testimony that a person of ordinary skill in the art at the time would have understood and interpreted the use of "selectively" and "respective" in the claims in the '776 patent as limited with respect to choosing the optimal combination without the cycling through individual compressors until the proper combination for the needed capacity was achieved.

As discussed above, the Court finds that the specification at Column 7, line 58 through Column 8, line 10 does not disclose a binary sequence as an alternate logic to the FIFO sequence of operation for controlling compressors. Instead, based upon the prosecution history, the Court interprets the claims as limited to the structure or an act for achieving a FIFO sequence. While the example of the invention given by the applicant was specifically directed at application claims 7, 8, and 10, among others, and did not explicitly limit the sequence to FIFO, the example is clearly a FIFO sequence. See, e.g., the statement at page 29 of the Response, JX-776, Bates No. 145:


By contrast, the second system [in accordance with the present invention] faced with the same five horsepower requirement will energize Compressor Number 3, being the compressor deenergized for the longest period of time, in addition to maintaining Compressor Number 2 in an energized state. This will establish a capacity of six horsepower which, being greater than that required, will initiate a cut-out signal for the compressor which is energized for the longest period of time, i.e., Compressor No. 2. This leaves a total capacity of four horsepower. In the final stage of matching the system capacity to the instantaneous load, the second system will then initial a cut-in signal and increase the capacity of the system by energizing the compressor which has been deenergized the longest period of time (i.e., Compressor Number 1) [emphasis added].

On the following page, the applicant states that "successive reiterations of the FIFO strategy" enabled the present invention to match more efficiently the system load.

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24 The '602 patent makes clear that both the binary and the FIFO sequences cycle through a set sequence of turning compressors on and off until they arrive at the optimal combination to satisfy the load demand.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

On page 2 of a Supplemental Response (JX-776, Bates No. 162) mailed to the PTO on November 10, 1982, moreover, the applicant asserted that

the arrangement claimed by applicant provides an operation that has several subtle advantages over the art which may not be readily apparent, and therefore, the claimed structural and functional operations do not really do justice to the many advantages of applicant's system, except by comparison with operation in accordance with the prior art [emphasis added].

The only comparison of the operation of the present invention against the prior art in the prosecution history is found at pages 28-29, Response (JX-776, Bates No. 144-45). Moreover also on page 2 of the Supplemental Response, the applicant states,

Expressed in shorthand terms, an applicant's claims are directed to a cooling system using a FIFO control strategy applied in tandem to a plurality of commonly piped compressors to enable independent compressor control.

Furthermore, the Court observes that the FIFO sequence is mentioned five more times in the following page and a half. In addition, Dr. Rhyne, whose expertise is greater than one of ordinary skill in the art in 1979, testified that in five readings of the prosecution history, he never construed the "shorthand terms" comment as limited to certain claims.
The statements in the Supplemental Response are not limited to any particular claims, as evidenced by the last quoted statement, which is not restricted to any particular claims. Moreover, the applicant stated in the first paragraph about the description of "THE INVENTION" (JX-776, Bates No. 208),

The claimed invention concerns a novel control system for controlling the capacity of a preselected number of commonly piped compressors, as typically employed in a cooling system. Expressed in shorthand terms, applicant's claims are directed to a FIFO control strategy applied in tandem to a plurality of commonly piped compressors to enable independent compressor control.

In sum, the Court concludes from these arguments and statements made during the prosecution history that all the claims of the '776 patent, regardless of the application of 35 U.S.C. § 112 par. 6, are limited to the structure and acts for achieving a FIFO sequence of operation.

The Court concludes that the last element in each of claims 1, 3, and 24 of the '776 patent invokes application of § 112 par. 6 and satisfies the three requirements indicated supra.

Specifically Claim 1 of the '776 patent is a method claim that recites a series of "steps." The preamble ends with the phrase "steps of," indicating that each of the following elements is a step. (DX-109). Thus the element "selectively energizing" is a step. Moreover the step of "selectively energizing and deenergizing" has a specified function, following the step and linked to the step, "to provide a combination of energized unequal capacity compressors that exceeds in number the preselected number of compressors in the system . . . ." Finally, the step does not recite structure, material or acts for achieving the designated function.

The last elements in claims 3 and 24 are also subject to § 112 par. 6. These claim elements are expressed as "means for," signaling an intention to invoke § 112 par. 6 and raising the presumption that it applies. The elements in claims 3 and 24 have the specified function "to provide . . .," following the recited "means" and linked to that means. There is no recitation of structure, material or acts in those respective elements for achieving the specified function. Dr. Rhyne, testifying that § 122 par. 6 applied, maintained that "selection" or "selection means" had no commonly understood meaning in the art at the time to define a particular structure.

Since claims 1, 3, and 24 are subject to § 112 par. 6, they are limited to the corresponding structure or acts disclosed in the specification for performing the recited function, and their equivalents. As noted supra, the only disclosure for such a means or step to achieve the recited function is a capacity controller circuit that implements a FIFO logic or sequence. Thus the last elements of claims 1, 3, and 24 are limited to a FIFO sequence of operation and structure.

The decision in Altech Controls Corp. v. The Larkin Group, Inc., No. 1:88-CV-499-MHS at *6, 56-61 (N.D. Ga. September 18, 1990), holding that some claims were directed specifically to the FIFO control strategy and others to more combinations, is not binding on this Court. Moreover because E.I.L. was not a party, the doctrine of res judicata does not apply. Substantial questions have been raised about the order, adopted from the plaintiffs' proposed findings of fact and conclusions of law after a settlement was communicated to the court. Furthermore, it was issued prior to Vitronics, which clarified the need to focus on intrinsic evidence, and recent Federal Circuit cases dealing with § 112 par. 6, including Greenberg, York Products, Cole, and Fonar.

3924

e. "Selectively Filling in the Void"

The term "selectively filling in the void" appears in claims 1 and 107 of the 637 patent. This claim term brings up the issues similar to those encountered in the terms "to select voids" and "altering voids" and related terms. For the reasons stated in the discussions pertaining to those terms, we construe this term to mean filling in, replicating, creating, modifying, replacing, substituting, adding to, providing, correcting, or improving the void by varying the input signal without solely modifying the on and off times of the signal carrying the image. Although IP requests that we construe this term differently between these two claims, this construction will apply to both. See Rexnord, 274 F.3d at 1342.

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2. "selectively generating"; "selective transfer"

a. The Parties' Proposed Constructions

Ampex asserts that "selective" means "characterized by selection," and "select" means "chosen in preference to another or others." (D.I. 305 at 14.) Ampex requests that "selectively generating" be construed to mean that "without the operator orchestrating each step, the claimed means automatically determines whether to generate a reduced size version and generates it in those cases." (Id. at 31.) Similarly, Ampex argues that "selective transfer" should be construed to mean that "without the operator orchestrating each step, the claimed means automatically determines whether to generate a reduced size version and generates it in those cases, and transfers the reduced size image so generated to random access memory." (Id.) In support of its position that the selection is made "automatically" by the claimed system, Ampex relies on the prosecution history of the '121 patent, as well as expert testimony. (D.I. 300 at 32.)

Defendants claim that "selective" and "selectively" mean "the ability to choose (i.e., select)." (D.I. 305 at 14.) Accordingly, Defendants ask that "selectively generating" be construed to mean that "there is the ability to choose (i.e., select) whether to generate reduced size images," and that "selective transfer" be construed to mean that "there is the ability to choose (i.e., select) whether to transfer the reduced size images from the size reducer through random access memory to bulk memory." (Id.) The basis for Defendants proposed claim construction is the ordinary meaning of the term "select," the plain language of the claims, and specification. (D.I. 299 at 19-21.) Defendants disagree with Ampex's argument that the claimed system "automatically" makes the selection. (Id. at 21-22.)

b. The Court's Construction

The parties appear to agree that the ordinary meaning of the terms "selective" and "selectively" involves choice. (Id. at 19; D.I. 300 at 32.) The parties also seem to be in agreement that "selectively generating" be construed to mean that "there is the ability to choose (i.e., select) whether to generate" and "selective transfer" means "to choose whether to transfer." (D.I. 299 at 19; D.I. 300 at 32.) The only dispute is as to whether the system or the user performs the selection. Ampex admits that the terms "selective" and "selectively" do not mean that the selection is performed "automatically" by the system. (D.I. 346 at 23.) And, Ampex points to no other language in the claims that can be construed to mean "automatically." Rather, Ampex argues that the purpose of the invention requires that "automatically" be read into the claims. (D.I. 300 at 32; D.I. 346 at 24.) Ampex also provides a statement from the prosecution history, which it claims confirms that the system itself performs the selection. n5 (D.I. 300 at 32.) But, Ampex does not show how these general explanations of the invention relate to any of the specific language in the claims. As discussed above, the specification and prosecution history cannot be used to read limitations into the claims that have no support in the claim language. See Bayer AG, 279 F.3d at 1348. Therefore, I will construe "selectively generating" to mean "to choose whether to generate," and "selective transfer" to mean "to choose whether to transfer."

--- Footnotes ---

n5 "Applicant's invention ... as described and claimed, provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof simultaneously with the corresponding full size image." (D.I. 300 at 32 (emphasis added by Ampex).)

--- End Footnotes ---
Claim 1 of '796 Patent claims, in pertinent part: "(5) forming a masking layer to selectively mask one or more of said second portions from dopants in a subsequent doping step. . . ." (See '796 Patent at 5:33-35.) Micrel proposes that the Court construe "selectively mask one or more of said second portions from dopants in a subsequent doping step" to mean "selectively shield at least a portion of one of said second portions from dopants implanted during a doping process conducted after forming the masking layer (shield)." MPS argues that the Court should construe the disputed term as "select where a third doped region (different that the first and second doped regions) is to be formed, with a boundary defined by the oxide over the first doped regions, by protecting one or more of the second portions from the dopants deposited in step (6)." At the hearing, the Court proposed construing the term to as "selectively shield at least one or more of said second portions from dopants implanted during a doping process conducted after forming the masking layer (shield)."

With the exception of the phrase "a portion of one of said second portion," the Court finds that the construction proposed by Micrel is supported by the intrinsic evidence. Micrel informed the Court at the hearing that it would accept the Court's modification of its proposed construction. The Court concludes that MPS's proposed construction is not supported by the intrinsic evidence. MPS's construction inserts a "third doped region," which would add a limitation that is not supported by the claim language by requiring the formation of a third region and would import into step five conduct which is set out in other steps, i.e. depositing dopants. Therefore, the Court adopts Micrel's proposed construction with the modification regarding "a portion of one of said second portion," and accordingly construes "selectively mask one or more of said second portions from dopants in a subsequent doping step" to mean "selectively shield at least one or more of said second portions from dopants implanted during a doping process conducted after forming the masking layer (shield)."

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Selectively placing the motion detector camera into one or more of a burst state, a pause state, and a test state

The Court construes "selectively placing the motion detector camera into one or more of a burst state, a pause state, and a test state" as "the motion detector camera is placed automatically or by the user into at least one of a burst state, a pause state, and a test state." Defendants' construction, "the motion detector camera is purposely put by the user into the burst state, pause state, or test state or the motion detector camera is purposely put by the user into two or more of such states simultaneously," contains two unnecessary limitations. First, Defendants' construction requires the user to select the camera state. For the reasons already discussed, the Court rejects this limitation. Second, Defendants' construction requires that the camera be placed into "two or more" states simultaneously. The claim language is not so restrictive as it only requires that the camera be placed into "one or more" states. Defendants argue that to give "one or more" any meaning, it must be interpreted to mean "two or more." Defendants have no support for this argument, which belies the very meaning of "one or more." The Court's construction accurately reflects the plain meaning of the claim language.

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Selectively Providing Access

The Court adopts ST's proposed construction of "selectively providing access" and construes it to mean "determining which of a plurality of devices coupled to a bus is allowed access to the memory based on a priority scheme." Comparison of ST's proposed construction with Motorola's 3 demonstrates agreement that the term should include: multiple devices, a bus, memory access, and a priority scheme. The dispute over this term regards Motorola's attempt to include other limitations in this claim term. For example, Motorola would include the limitation "that the decoder operates in real time" in the definition of "selectively providing access." Although it is true that claim 1 of the Diaz patent concerns real time operation, that limitation is found in the claim language "requires access to the memory sufficient to maintain real time operation." '789 Patent, 12: 31-32. The Court adopts ST's proposed construction as following the ordinary meaning to one skilled in the art and denies Motorola's for incorporating unrelated limitations from the claims and specification.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

3 Motorola's proposed construction is: "providing access using a priority scheme that ensures that the decoder operates in
real time, without denying the other components on the bus access to the memory for an amount of time that would interfere with their operation."

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3. "Selectively showing" is construed to mean "choosing whether or not to present something."

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14. "advertising selector for…" ('366 patent)

<table>
<thead>
<tr>
<th>Beneficial's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatively, &quot;advertising selector&quot; means &quot;a device or program that selects or chooses advertisements&quot;</td>
<td>Function: Determining, for each of a plurality of users, a corresponding advertising presentation, from a plurality of advertising presentations.</td>
</tr>
<tr>
<td>Structure: Advertising selection engine 618 (disclosed in Figs. 6A and 8A) including the algorithm for performing the claimed function (disclosed in the '366 patent at col. 23:32-36 and 44-48).</td>
<td>Alternative: To the extent this is not sufficient structure or algorithm, the '366 patent lacks disclosure of all of the structure or algorithm for performing the corresponding function, which renders this term indefinite.</td>
</tr>
</tbody>
</table>

The parties' primary dispute with respect to this term is whether it should be construed as a means-plus-function limitation under § 112, P 6. Beneficial argues that because the claim element does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. Beneficial argues that the presumption cannot be overcome because the phrase "advertising selector" is a claim term that recites a sufficient structure and the term has a well understood meaning in the art. Defendants argue that the "advertising selector…” limitation should be construed under § 112, P 6. Defendants generally argue that a limitation that does not recite the term "means" can still be construed as a means-plus function limitation if it can be shown that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. Defendants argue that generic or software-related terms do not connote sufficient structure. First, Defendants argue that the phrase "advertising selector" does not recite sufficiently definite structure. Defendants argue that neither the generic word "selector" nor the addition of the word "advertising" conveys sufficient structure to a person of ordinary skill in the art. Second, Defendants argue that the remainder of the limitation, "for determining, for each of a plurality of users, a corresponding advertising presentation," merely recites function and does not convey sufficient structure for performing that function.

The Court finds that, because the claim element "advertising selector" does not use the word "means," there is a rebuttable presumption that § 112, P 6 does not apply. MIT, 462 F.3d at 1353-54. The Court finds that the Defendants have not met their burden to rebut the presumption. The Court finds that one of ordinary skill in the art would understand the term "advertising selector" to recite sufficient structure and to have a reasonably well understood meaning. The Court finds that the term is not "simply a nonce word or a verbal construct that is not recognized as the name of structure." See Lighting World, 382 F.3d at 1359-60. The specification of the '366 patent describes the capabilities and uses of the advertising
selection engine. See '366 patent, 23:43-24:42; see also FIG. 8A and 8B (item 618). Further, Beneficial has provided a dictionary definition for the term "selector" as "one that selects." The Court notes that the Defendants have not provided an alternative construction, and have not argued against Beneficial's proposed construction, if the term is not construed under § 112, P 6. Thus, the Court construes the term "advertising selector" to mean "program that selects advertisement presentations."

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E. "song selector"

As with "selection keys," Touchtunes proposes a construction of the term "song selector" -- "a mechanical device, separate from a display, that allows a user to select a song" -- that adds "mechanical" and "separate" requirements. Arachnid proposes a more general construction: "a device that allows a user to select a song."

Touchtunes again contends that the separate recitation of the terms "display" and "song selector" in the '575 Patent supports the limitations it seeks to impose. However, this separate recitation in a specific preferred embodiment does not require physical separation between the "song selector" and the display screen, nor does the fact that the '575 Patent discloses keys and a keyboard as the selection devices in the preferred embodiments limit the claim term to "mechanical" devices. See Phillips, 415 F.3d at 1323.

For these reasons, consistent with its plain and ordinary meaning, the term "song selector" is construed as "a device that allows a user to select a song."

3932

1. "being self-aligned with said conductive gate when forming said first region"

Claim 1 of the '046 Patent claims, in pertinent part, "[a]lateral DMOS transistor structure comprising: . . . a first region formed completely within said semiconductor material of said first conductivity type, said first region being self-aligned with said conductive gate when forming said first region. . . ." (See '046 Patent at 7:20-29.) Micrel proposes that "being self-aligned with said conductive gate when forming said first region" be construed to mean "being formed using the conductive gate as a mask so that the relative position of the first region is controlled by the position of the conductive gate." MPS proposes that this term be construed as: "fabricated by first forming a conductive gate which then blocks the introduction of dopants when forming the first region such that (1) dopants are allowed to be introduced to the surface covered by the conductive gate and (2) the first region extends from the gate to where the second region will be formed."

The crux of the parties's dispute centers around the meaning of "self-aligned with." Both parties agree that the enhanced drift region or "first region" being "self-aligned with" the conductive gate means that the conductive gate controls the position of the enhanced drift region. What the parties dispute is whether the position of the enhanced drift region is fixed or relative with respect to the gate and thus whether the claim language allows for or precludes the use of gate edge spacers attached to the gate before the enhanced drift region is formed. (Opp. at 8; Reply at 1.) In other words, MPS argues that the language of Claim 1 precludes the use of gate edge spacers, and thus, the enhanced drift region or the "first region" forms adjacent to the gate. Micrel argues that the specification describes the use of gate edge spacers and that the location of both the spacers and the enhanced drift region are set off of or relative to the gate.

The specification of the '046 Patent teaches that:

Well known gate edge spacers may be formed, if desired, prior to the P doping process to prevent the P doping from subsequently diffusing too far under the gate. P-type dopants are then implanted to form the body regions and then driven in.

An N dopant is then used to form the N enhanced drift regions 31 . . .
The Court finds that there is nothing inherent in the phrase "self-aligned" which requires that the enhanced drift region be formed in an absolute location, as opposed to being set in relation to the gate. On the other hand, if the Court construes "self-aligned" narrowly to require the enhanced drift region be set in a particular or absolute location, the use of gate edge spacers, which are included in a preferred embodiment, would be excluded. Generally, courts should not construe terms in a manner that would exclude a preferred embodiment. Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("a claim construction that would exclude the preferred embodiment is rarely, if ever, correct and would require highly persuasive evidentiary support . . ."). More importantly, the Court finds that there is no language in the specification or in the claims which specifically disclaims or precludes the use of spacers in the '046 Patent.

At the hearing, for the first time, MPS argued that the preferred embodiment only addresses the use of gate edge spacers on one side of the gate with respect to P-type dopants which form the body regions. Given that the specification discusses implanting N-type dopants after implanting P-type dopants while the gate edge spacers are in place, construing this language to include a gate edge spacer only on one side of the gate would be reading it too narrowly. (See '046 Patent at 5:18-27.)

MPS relies heavily on the prosecution history to support its proposed construction of "self-aligning with," but its reliance is misplaced. To overcome the Patent Office's initial rejection of Claim 1, the inventors amended the claim from "a first region formed in said semiconductor material" to "a first region formed completely within said semiconductor material of said first conductivity type, said first region being self-aligned with said conductive gate when forming said first region." (Declaration of Thomas Rees, Ex. B at MIC000127.) In explaining why these changes made the claim patentable, the inventors explained the claim was amended "to emphasize that the 'first region' (enhanced drift region 31) is self-aligned with the conductive gate 26. Conductive gate 26 is therefore formed before enhanced drift region 31 is formed, and the gate acts as a mask when ions are implanted to form enhanced drift region 31." (Id.) A further examination of the prosecution history reveals that the inventors amended Claim 1 in an effort to distinguish prior art in which the drain region was formed before the gate. (Id., Ex. B at MIC000127-28.) The issue the inventors were addressing by amending the claim language was the timing in which the enhanced drift region is formed, not its location. (Id.) Thus, the prosecution history does not speak to whether using the gate as a mask precludes the use of gate edge spacers attached to the gate, and therefore, does not assist MPS.

Accordingly, the Court concludes that "self-aligned with" does not require the enhanced drift region to be in a fixed location, but rather, merely teaches that the location of the enhanced drift region is controlled by the gate. Whether gate edge spacers are attached to gate would not alter the fact that the gate controls the location of the enhanced drift region. If gate edge spacers are used, then the location of both the gate edge spacers and the enhanced drift region would be set in relation to the gate. Thus, the Court construes the disputed term to mean "being formed using the conductive gate as a mask so that the relative position of the first region is controlled by the position of the conductive gate."

**3933**

3. **"Self-configuring bus"**

Claim 1 discloses a "self-configuring bus and a bus master and a plurality of interfaces interconnecting the instruments to the self-configuring bus." '286 Pat. col.7 ll.10-12. The Parties agree that a "bus" is a "shared communication medium." (Agreed-Upon Constructions Chart 2.) KSEA contends that the "self-configuring bus" is a shared communication medium "in which at least two connected devices automatically communicate with each other." (Proposed Constructions Chart 7.) S&N argues that the "self-configuring bus" is a shared communication medium "connecting multiple stations (e.g., instruments) that has functionality for (i) automatically, based on arbitration provisions or assigned priorities, determining which one of the stations will serve as the bus master, and (ii) automatically detecting the connection or disconnection of stations to or from the bus." (Id.)
The Court rejects KSEA's proposed construction. KSEA's argument rests on the premise that the bus is self-configuring because the bus master configures the bus. (See Pl.'s Opening Claim Construction Br. 28.) This premise is incorrect because the applicant chose to use the phrase "self-configuring," which naturally reads as configuring itself. Counsel for KSEA essentially conceded that KSEA's proposed construction contradicts the words of the claim, (see Hr'g Tr. 175), and KSEA has not shown that the Court should disregard the claim's plain text.

S&N's proposed construction accords with both the text and the assumptions underlying the claim. This proposed construction teaches that the bus configures itself both by selecting a bus master, and by determining at a basic level when an instrument has been plugged in or removed, so that the bus master can then perform its separate configuration function of controlling access to the bus. (See Hr'g Tr. 167-70.)

8 The Court finds that Dr. Ellen Zegura's experience is sufficient with regard to the electrical engineering concepts underlying the relevant aspects of Claim 1.

The Court rejects KSEA's objections to S&N's proposed construction. First, S&N's proposed construction does not require more than one master-capable instrument to be connected to the bus. It simply teaches that the bus is capable of determining, if more than one master-capable instrument is connected, which such instrument will serve as bus master. Second, KSEA's claim differentiation argument fails because Claims 3 and 11 explicitly contain limitations not present in Claim 1: that the bus is a two-wire line, '286 Pat. col.7 l.24, and that the bus master is selected from a defined set of instruments, id. at col.7 ll.49-57. Third, S&N's proposed construction does not, as KSEA contends, suggest that stations are not connected to the bus through the disclosed interface. Fourth, that Dr. Zegura is unaware of other systems where a bus automatically detects the connection or disconnection of stations does not overcome the textual evidence suggesting that Claim 1 discloses such a system.

The Court construes "self-configuring bus" as a "shared communication medium connecting multiple stations (e.g., instruments) that has functionality for (i) automatically, based on arbitration provisions or assigned priorities, determining which one of the stations will serve as the bus master, and (ii) automatically detecting the connection or disconnection of stations to or from the bus."

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6. "second doped regions being self-aligned with said first doped regions"

Claim 1 of '796 Patent claims, in pertinent part:

(6) depositing dopants of a second conductivity type into said second regions not masked by said first making layer to form second doped region, said oxide masking said first doped portions from dopants during this step, said second doped regions being self-aligned with said first doped regions, wherein said first doped regions are N-wells and said second doped regions are P-type regions.

(See '796 Patent at 5:36-43.) Micrel proposes that the Court construe "second doped regions being self-aligned with said first doped regions" to mean "first and second doped regions being formed using the same mask to control the relative locations of said regions." MPS argues that the Court should construe the dispute term as "second doped regions are fabricated by using the oxide over the first doped regions, where the boundaries of the oxide are the same as the boundaries of the first doped regions, to define a boundary of the second doped regions."

The Court already construed "self-aligned" in the '046 Patent. In the context of self-aligning with a gate, which acted as a mask to shield dopants, the Court determined that the gate controlled the location of the region being doped. In Claim 1 of the '796 Patent, the oxide mask shields the dopants and thus controls the location of the doped regions. Micrel's proposed construction of the disputed term here is consistent with the Court's construction in the related '046 Patent. MPS's proposed
construction here is similar to the construction urged by MPS of "self-aligned" in the '046 Patent. MPS proposes that the disputed term here be construed to create fixed boundaries of the regions, a construction the Court already rejected as unsupported. Therefore, the Court construes "second doped regions being self-aligned with said first doped regions" to mean "first and second doped regions being formed using the same mask to control the relative locations of said regions."

3935

A. Single Self-Contained and Autonomous

Digi proposes that "self-contained" means "providing all networking hardware, networking software, and device interface elements needed for networked operation of a device." Digi asserts that the term "autonomous" should be construed as follows: "the module operates independently of the device, does not incorporate any of its functionality or require any changes to the device, and can if necessary provide all processing power and the network communication capabilities required to enable networked operation of the device." Further, Digi adds, "No device specific applications run on the module." Lantronix, on the other hand, contends that the term "self-contained autonomous" "should be defined by the elements listed after the word 'comprises,' which define what the 'self-contained autonomous' module is 'comprised of.'" Lantronix asserts that the word "comprises" is "non-limiting and means that a device may be covered by the claim even if it has additional components or functionality." Finally, Lantronix maintains that "autonomous," as used in Claim 1, does not mean that the module is located outside the device.

As a preliminary matter, the Court disagrees with two crucial aspects of Lantronix's proposed construction. First, Lantronix asserts that the claim language to be construed is a single phrase: "self-contained autonomous." Claim 1, however, uses the language "self-contained and autonomous." ('192 Patent C. 18, 1: 41 (emphasis added).) In light of the actual claim language, the Court will construe the terms "self-contained" and "autonomous" separately. To do otherwise would inappropriately render one of the terms meaningless. See Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc., 296 F.3d 1106, 1115 (Fed. Cir. 2002).

In addition, the Court finds no support for Lantronix's position that the phrase "self-contained and autonomous module," followed by the word "comprises," means that the "module" of Claim 1 merely contains the elements that are subsequently listed in Claim 1. The Court agrees with Lantronix that the word "comprises" acts as a transition, meaning that the claim language "is inclusive or open-ended and does not exclude additional, unrecited elements or method steps." Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999) (citations omitted). However, this transitional language does not render meaningless the terms that precede the word "comprises." In other words, Lantronix's proposed construction would inappropriately render the terms "self-contained" and "autonomous" as mere surplusage. The Court finds that Claim 1 describes a unit that "comprises" the subsequently listed elements, but is also "self-contained" and "autonomous." ('192 Patent c. 18, 11: 41-44.) With this determination in mind, the Court turns to the construction of the words "self-contained" and "autonomous."

1. Self-Contained

As noted above, Lantronix has not provided the Court with an independent proposed construction for the term "self-contained." Digi asserts that the term "self-contained" should be construed as "providing all networking hardware, networking software, and device interface elements needed for networked operation of a device." The Court finds merit in Digi's construction.

The specification supports Digi's construction. The specification describes a module that provides all of the networking capabilities needed to operate or monitor a device from a remote location. The specification specifically states:

the present invention requires only a single, inexpensive integrated circuit chip. Remarkably, this single network interface chip provides all the networking hardware, networking software and device interface elements necessary for network connectivity and web-based or network-based management of any device.

(192 Patent c.2, 11: 45-50.) Further, it describes the invention as follows:
the network interface chip of the present invention provides complete internet enablement without any expensive web server machine. The chip alone is a fully functional internet node, including a web server, and supporting various protocols and hardware connections.

(Id. at c. 3, 11: 11-16.) Finally, the specification reads:

The network interface chip 36 is a single integrated circuit that connects to the control circuitry 38 of virtually any remote device 34 and implements all networking services required to interface the device with a high performance computer network 32 for remote control and monitoring by one or more clients 30.

(Id. at c. 6, 11: 30-35.) This language supports a construction of "self-contained" as providing all of the hardware and software required to operate a device remotely.

In addition, the prosecution history supports Digi's construction. In their reply to the Office Action dated November 30, 2001, the inventors stated:

The present invention clearly claims and describes in the specification (for example Page 3, lines 23-24; Page 4, lines 22-24; Page 5, lines 1-2) a single module (such as a network interface chip) that provides all the networking hardware, networking software, and device interface elements necessary for network connectivity and web-based or network-based management of any device.

(Reply to Office Action at 5-6 (emphasis in original).) This prosecution history is consistent with the specification and supports Digi's construction.

Thus, the Court construes the term "self-contained" to mean that the module "provides all networking hardware, networking software, and device interface elements needed for the networked operation of the device."

2. "self-contained power supply"

Claims 4, 5, 7, and 20 of the '571 Patent describe a "self-contained power supply." Philips contends that this term should be construed as "circuitry contained within a separate housing, that converts power from a power source (e.g., AC power) to another form (e.g., DC power)." Cardiac Science asserts that the phrase should be defined as "a power supply that is complete within itself."

In support of its construction, Cardiac Science asserts that the self-contained power supply of the '571 Patent is analogous to the batteries described in Claim 1, yet embraces a broader concept than just a battery. Cardiac Science maintains that the self-contained power supply is contained within itself, where all the power comes from a single place or a single package. Cardiac Science's construction is consistent with dictionary definitions of the term "self-contained." Merriam-Webster's Collegiate Dictionary, supra, at 1127. Philips, on the other hand, asserts that the '571 Patent clearly distinguishes between a battery and a power supply. Philips asserts that the claim construction should reflect this difference. Moreover, Philips contends that technical dictionary definitions, and thus people of ordinary skill in the art, define a power supply as something that converts power from one form to another.

Column 3 of the '571 Patent describes the electrical system of the invention. The specification states that "during normal operation, power generation circuit 84 generates regulated * 5 V, 3.3 V and 12 V (actually about 13.3 V) supplies with the power provided by the twelve volt battery 80." ('571 Patent at c. 3, ll: 16-19.) The specification continues to describe how each of these voltage supplies is used to power certain things in the AED. However, the patent does not describe an AC to DC conversion of power -- the patent merely describes a power supply with a battery that provides DC power. Philips' proposed construction goes too far in this regard, and would read out a battery, which only provides DC power, as a possible self-contained power supply. In addition, the patent does not describe a power supply that is "contained within a separate housing," as Phillips proposes. Rather, the patent describes a self-contained power supply that is "disposed within the case" of the AED.
The Court finds that, based on the claim language and the patent specification, a straightforward definition of "self-contained power supply" is appropriate. Thus, the Court construes "self-contained power supply" to be "a power supply that is complete in itself."

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- "self initializing" is construed to allow human intervention. Newbridge contends that this phrase should be construed to mean that "the communication system automatically initializes port circuits without human intervention," including working through a keyboard. After reviewing the specification of the 136 Patent, however, the Court disagrees with Newbridge. Indeed, the specification contemplates that type of human intervention which Newbridge seeks to exclude. Specifically, the specification provides: "The CAU also enables a customer to manually input or change the operating parameters of the system ports." (136 Patent, col. 2, ll. 24-26). A CAU is a customer access unit, such as a keyboard.

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8. "self-installation by a subscriber or customer"

In claim 12 of the '347 Patent, the modular type adaptor design housing the alarm filter circuit is capable of "self-installation by a subscriber or customer." Pulse suggests this term is clear on its face using its common meaning and therefore does not require specific construction by the court. Mascon argues the term is indefinite and cannot be construed. In support of this term, the specification recites only that such a design would "allow the subscriber or customer to perform his own connection, thereby avoiding the time and cost for a trained technician to be sent to a subscriber=s (sic) premises to perform the installation." ('347 patent, Col. 1, ll. 37-40.) "Self-installation by a subscriber or customer" is further described as a situation that avoids "having a trained technician visit the premises and perform the installation." ('347 patent at Col. 4:32-34.) This term is unbounded by application of its ordinary meaning to one skilled in the art. The specification provides no source of limiting language the court might rely on in adopting a narrowing construction. Thus, the court finds the term "self-installation by a subscriber or customer" is indefinite under 35 U.S.C. § 112, second paragraph.

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The first step for the court then is to construe Claim 1 by establishing the scope and boundaries of the subject matter that is patented. 11 Claim 1, in pertinent part, is "an electrical device comprising a device supporting substrate, a semi-conducting material on said substrate, said semi-conducting material having a portion thereof converted to its non-conducting oxide…." 12 The parties' disagreement as to how this claim should be construed centers on the meaning of the term "semi-conducting material".

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11 In this case, a finding of non-infringement or infringement as to Claim 1 would dispose of the infringement question as to all the '586 patent-in-suit claims because the other three claims are dependent claims. "Infringement of an independent claim would result in the same damage award as would infringement of all claims dependent thereon and non-infringement of an independent claim carries with it non-infringement of all claims dependent thereon. Wahpeton Canvas Co. v. Frontier, Inc., 870 F.2d 1546, 1552 n.10 (Fed. Cir. 1989).

12 The '586 patent at 12, Exhibit 2 attached to Browner Declaration, Clerk's Docket No. 480 (emphasis added).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

As noted above, in construing a claim, the court starts with the language of the claim itself and follows the general rule that terms are given their ordinary and accustomed meaning to someone skilled in the art at the time the patent application was
filed. There is no dispute of material fact that to someone skilled in the art in 1964, the ordinary and accustomed meaning of "semi-conducting material" would include all materials, whether elements, compounds, or some other material, known to be semi-conducting. As a matter of law, this ordinary meaning controls unless a contrary definition is clearly and deliberately set forth in the specification or the prosecution history. K-2 Corp. v. Saloman S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999).

Cypress first argues that in the specification for the '586 patent-in-suit, Mr. Lemelson clearly limited the meaning of "semi-conducting material" to compounds only and excluded elements that were known to be semiconductors, in particular silicon, from the scope of the term. Cypress's argument is based on a portion of the specification which reads:

semi-conducting materials such as compounds of germanium, silicon, tantalum and others may be selectively oxidized as described to form tunneling barriers, collector domains, electron sinks and integral electronic devices.[sic][16]

Cypress contends that the only way this passage can be construed is that "semi-conducting material" is limited to compounds, in particular compounds of germanium, compounds of silicon, and compounds of tantalum.

The above-quoted passage from the specification is clear on its face and there is no basis for giving it the very constricted meaning that Cypress suggests. Cypress's interpretation of this portion of the specification asks the court to apply a meaning to the phrase "such as" that is contrary to its ordinary meaning. The phrase "such as" commonly indicates that what is to follow is an example or further explanation of what has previously been stated. In this case, the use of the phrase "such as" after the term "semi-conducting material" simply means that what follows are examples of "semi-conducting material." The use of the phrase "such as" in no way limits the meaning of "semi-conducting material" to include only compounds.

Nor does anything else in the specification indicate that Mr. Lemelson was giving the term "semi-conducting material" a meaning limited to compounds only. The specification contains express references to other semi-conducting materials such as "films of silicon or germanium" and even doped silicon itself: "Selective introduction of certain impurities in the oxidizing atmosphere and/or electron beam may also be used to dope the film as it anodized to provide various electronic devices." 17 In addition, the specification contains twenty-five generic references to "semi-conducting material", which indicates that this term had no special or limited meaning. In fact, even Cypress's expert witness admitted that one had to go to the file wrapper 18 to find any indication of a contrary meaning for "semi-conducting material". When asked whether "in the patent specification, the written document with 16 columns of text, there is nothing, nothing that you can see … that limits semiconducting material to only compounds; isn't that right?", Dr. Bower responded, "not within the patent itself, not
unless you look at the file wrapper in that context." 19

--- Footnotes ---

17 Id. at Column 9, Ins. 58-61.

18 "The file wrapper contains the entire record of the proceedings in the Patent Office from the first application papers to the issued patent." Autoigro Co. of Amer. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 398 (Ct. Cl. 1967).


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Because there is nothing in the specification that indicates that Mr. Lemelson limited "semi-conducting material" to compounds only, the court next considers whether Mr. Lemelson gave the term any special or limited meaning during the prosecution of the '586 patent-in-suit. Cypress first argues that during the prosecution of the application for the '586 patent-in-suit, Mr. Lemelson limited the scope of "semi-conducting material" to include only compounds. "The prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985).

As already mentioned, the PTO originally rejected Claim 1 because of obviousness-type double patenting. In an Office Action dated March 24, 1980, the examiner listed two earlier patents that had been issued to Mr. Lemelson that claimed a conductive metal material be used as opposed to Claim 1 in the '586 patent-in-suit which claimed that a "semi-conducting material" be used. The examiner rejected the '586 claims based on this prior art, stating that "it would be obvious to substitute semi-conducting material for the conductive metal." 20 The examiner reiterated this conclusion in Paragraph 4 of the Office Action and explained that:

on page 19, lines 16 and 17, of the specification [Column 9 of the '586 patent specification in evidence] the applicant lists silicon and tantalum as semi-conducting materials. On page 29, lines 26-29, [Column 15 of the patent specification in evidence] the applicant lists tantalum and silicon as conducting metals which may be converted to semi-conducting compounds. [21]

--- Footnotes ---

20 Examiner's Action at 2, P 1, Exhibit 27 attached to Hughes Declaration, Clerk's Docket No. 481.

21 Id. at 3, P 4.

--- End Footnotes ---

The reference to page 19, lines 16 and 17, is the "such as" sentence discussed above, which states that "semi-conducting materials such as compounds of germanium, silicon, tantalum and others may be selectively oxidized as described." 22 At page 29, lines 26-29, the specification states that "in addition to the use of copper and aluminum for the metal films … such other metals as tantalum, silicon, nickel, nickel-chromium and other highly conducting metals and alloys or compounds thereof may also be used…." 23 Based on these portions of the specification, the examiner concluded that Mr. Lemelson was defining silicon and tantalum as both conducting metals and semi-conducting materials, thereby making it obvious to substitute a semi-conducting material for a conductive metal because, according to the specification, they were the same thing.

--- Footnotes ---

22 '586 Patent at Column 9, lines 53-55, Exhibit 2 attached to Browner Declaration, Clerk's Docket No. 480.
In his appeal brief, Mr. Lemelson, acting through his attorney, asserted that the examiner had misread the specification. Mr. Lemelson's attorney stated:

page 19, lines 16 and 17 does not list silicon and tantalum as semi-conductive materials as the examiner claims. The exact language is:

"Semi-conducting materials such as compounds of germanium[,] silicon, tantalum and others may be selectively oxidized as described...." (emphasis added).

The examiner erroneously failed to note that it was COMPOUNDS which were referred to, not the elements themselves. The application then at page 29 consistently states that tantalum and silicon are conducting metals which may be converted to semi-conducting compounds. [24]

While not a model of clarity, the attorney appears to argue--correctly--that the specification did not identify any element as both a conducting metal and a semi-conducting material.

Cypress seizes on the fact that in the appeal brief, Mr. Lemelson's attorney emphasized the word "compounds" and asserts that in doing so Mr. Lemelson was choosing to ignore the words "such as" in the phrase "semi-conducting materials such as compounds of..." By ignoring these words and emphasizing the word "compounds", Cypress contends that Mr. Lemelson made clear he was not listing "compounds" as an example of a type of semi-conducting material, as a plain reading of that sentence would suggest, but that he meant to limit that term to "compounds" only.

This argument is unavailing. Cypress appears to be suggesting that, based on what Mr. Lemelson asserted in the appeal brief, the "such as" portion of the specification should read "semi-conducting materials are compounds, such as compounds of silicon, compounds of tantalum, etc." There is no support for this interpretation of Mr. Lemelson's statements on appeal. Rather, it appears that all Mr. Lemelson and his attorney were doing was correcting the examiner's mistaken reading of the specification and explaining how the '586 patent-in-suit differed from the earlier Lemelson patents, which had to do with conducting metals, not "semi-conducting material."

Cypress also makes much of another statement in the appeal brief, found at page 8, which reads that

the examiner is wrong in his assertion that germanium, silicon, and tantalum are semi-conductive materials as set forth in paragraph 4 at page 4 of this brief. Compounds may be semi-conductive, but not the elements. [25]

Cypress insists that this was a clear, unequivocal statement by Mr. Lemelson that he was defining "semi-conducting material" to include only compounds and that he was excluding elements from the scope of the term.

This argument is also unavailing. All Mr. Lemelson and his attorney were doing was again pointing out that the examiner had read the specification incorrectly, as had already been pointed out in paragraph 4 at page 4 of the appeal brief. The
examiner had read the specification as stating that germanium, silicon, and tantalum are semi-conductive materials. Mr. Lemelson's attorney, although perhaps not as clearly as one would hope, was merely reiterating that what this portion of the specification actually said was that compounds of germanium, silicon, and tantalum are semi-conductive materials.

In sum, nothing in the prosecution history supports Cypress's argument that Mr. Lemelson deliberately and expressly limited "semi-conducting material" to only compounds. Although it is not disputed that in the appeal brief Mr. Lemelson's attorney twice stated that compounds, not the elements, are semi-conducting, in both instances, he was referring to the "such as" sentence in the specification and he was only trying to correct the examiner's erroneous reading of the specification.

Besides arguing that Mr. Lemelson limited "semi-conducting material" to only compounds during the prosecution of the '586 patent-in-suit application, Cypress also argues that Mr. Lemelson specifically disavowed silicon from the scope of "semi-conducting material" during the prosecution of the '586 patent-in-suit. As has been discussed, one of the issues with respect to the '586 claims was obviousness-type double patenting. Cypress argues that to overcome the double patenting rejection, Mr. Lemelson had to put silicon in either the "conducting metal" category or the "semi-conducting material" category and that he chose to put it in the "conducting metal" category, not the "semi-conducting material" category. In making this argument, Cypress relies on the statement in the appeal brief that "the application then at [Col. 15, lines 18-26] consistently states that tantalum and silicon are conducting metals which may be converted to semiconducting compounds." 26 Because silicon could not be both a "conducting metal" and a "semi-conducting material", because of the obviousness double-patenting issue, Cypress argues that Mr. Lemelson clearly disavowed silicon as a "semi-conducting material," instead putting it in the "conducting metal" category. Cypress further argues that Mr. Lemelson brought this point home when the appeal brief stated that "the examiner is wrong in his assertion that … silicon … [is a] semi-conductive material[.]" 27 Cypress argues that if the two statements are read together, it is clear that Mr. Lemelson disavowed silicon from the scope of "semi-conducting material", and that this was not some kind of mistake on the part of Lemelson's attorney.

The court is not convinced by Cypress's argument. As discussed above, the statement that the examiner was wrong in his assertion that silicon was a semi-conductive material refers to the "such as" statement in the specification. All Mr. Lemelson's attorney was doing in making this statement was pointing out that the examiner had read the "such as" sentence incorrectly. Mr. Lemelson's attorney was not expressly taking silicon out of the "semi-conducting material" category. The other statement on which Cypress relies, that silicon was a conducting metal, was nothing more than an obvious misstatement by Mr. Lemelson's attorney.

Mr. Lemelson's attorney stated that the specification "at [Col. 15, lines 18-26] consistently states that tantalum and silicon are conducting metals which may be converted to semi-conducting compounds." 28 This was clearly a mistake. First of all, the specification never identifies silicon as a conducting metal. What this portion of the specification states is that "in addition to the use of copper and aluminum for the metal films … such other metals as tantalum, silicon, nickel, nickel chromium and other highly conducting metals and alloys or compounds thereof may also be used…." 29 The specification states that silicon is a "metal"; it does not state that it is a "conducting metal." Furthermore, the experts all agree that it would be a mistake to classify silicon as a conducting metal. 30 Anyone skilled in the art would recognize that silicon is not a conducting metal. There can be no dispute that Mr. Lemelson's attorney, when he called silicon a conducting metal, made a mistake. A mistaken statement by an attorney during the prosecution of a patent does not control the meaning of a claim. As the court in Intervet America, Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050, 1054 (Fed. Cir. 1989), observed, when it comes to the question of which should control, an erroneous remark by an attorney in the course of prosecution of an application or the claims of the patent as finally worded and issued by the Patent and Trademark Office as an official grant, we think the law allows for no choice. The claims themselves control.
However, the court cannot ignore the fact that Mr. Lemelson identified silicon as a "metal", which it is not, in the specification. This reference cannot be written off as an attorney's mistake during prosecution because it is in the specification itself. On the other hand, Mr. Lemelson also identified silicon as a "semi-conducting" film in the specification. At best, this makes the specification ambiguous. In the end, it is not clear what category the specification put silicon in. Nor is it clear what category Mr. Lemelson would have put silicon in, although it strikes the court as highly improbable that Mr. Lemelson would have deliberately placed silicon, one of the best-known and most common semi-conductors, in the conducting metal or metal category. The court cannot conclude that Mr. Lemelson specifically disavowed silicon as a "semi-conducting material" during the prosecution of the '586 patent-in-suit application, or in the specification itself for that matter.

While there is no doubt that a claim can be amended in the course of an appeal, the court concludes that no amendment was intended or made in this case. Therefore, the language of the claim controls. "Semi-conducting material" is given its ordinary and accustomed meaning, a meaning that, as a matter of law, would include the doped silicon that Cypress uses.

--- Footnotes ---


--- End Footnotes ---

5. "semi-regulation, isolated output" / "semi-regulation" ('034 patent)

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>SynQor's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Semi-regulated, isolated output&quot;</td>
<td>&quot;an isolated output that is controlled towards a predefined value during normal operation without sensing a signal on the secondary side of the isolation transformer and passing a feedback control signal across the isolation barrier to control circuitry on the primary side&quot;</td>
<td>&quot;providing a regulated voltage from a regulation stage to an isolation stage where the regulation stage regulates the provided voltage without sensing the isolated output of the isolation stage&quot;</td>
</tr>
<tr>
<td>&quot;Semi-regulation&quot;</td>
<td>&quot;the state of producing a semi-regulated output during normal operation without sensing a signal on the secondary side of the isolation transformer and passing a feedback control signal across the isolation barrier to control circuitry on the primary side&quot;</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>
SynQor argues that there is no requirement for a separate "regulation stage" as the Defendants contend. SynQor argues that the specification states that "the output can be said to be semi-regulated" where the drops between the voltage on the primary side and the output "are small and proportional to the current flowing through the isolation stage." See '034 patent, 15:7-13. SynQor argues that the specification never mandates that a particular circuitry is required to provide "semi-regulation," much less a regulation stage preceding an isolation stage. SynQor argues that the specification describes an alternative approach that would allow for the sensing and control to occur anywhere on "the primary side of the isolation stage," including in the isolation stage itself. SynQor also argues that the "during normal operation" language is proper because it clarifies that the claimed operation is not required "all the time" in every conceivable situation. Defendants argue that the specification is clear that "semi-regulation" only exists where the regulation stage precedes the isolation stage. Defendants argue that "semi-regulation" and an output "whose voltage value drops due to impedance of an output path" are two different and distinct concepts and SynQor is blending the two concepts. Defendants argue that the claims require two distinctly recited limitations: (i) semi-regulation, and (ii) an output "whose voltage value drops due to impedance of an output path." Defendants argue that SynQor is attempting to broaden the concept of semi-regulation by extending it to multiple configurations. Defendants argue that there is nothing in the '034 patent that suggests the concept of semi-regulation involves the control of an isolated output.

Claims 1 and 20 of the '034 patent contain the disputed "semi-regulation" terms. Only the '034 patent uses the "semi-regulated" terms, as the "semi-regulation" language was inserted in the specification during prosecution of the '034 patent on the basis that it was shorthand for already-existing disclosures:

In some situations, it may be desirable to place the isolation stage first in the power flow, and to have the regulation stage follow. For example, as shown in FIG. 11, when there are many outputs sharing the total power, the circuit might be configured as one isolation/step-down (or step-up) stage 501 followed by several DC-DC switching on-linear regulators 503.

* * *

When the regulation stage precedes the isolation stage, it is not necessary to sense the isolated output voltage to control the regulation. An alternative approach is to sense the voltage on the primary side of the isolation stage, which may eliminate the need for secondary side circuitry and the need to bridge the feedback control signal across the isolation barrier.

For example, in FIG. 6 the voltage across C[B], the capacitor of the third-order output filter of the down converter, could be used. This voltage nearly represents the isolated output voltage (corrected for the turns-ratio). It differs only due to the resistive (and parasitic inductance commutation) drops between C[B] and the output. Since these drops are small and proportional to the current flowing through the isolation stage, the output can be said to be semi-regulated and the error in output voltage they create can either be tolerated or corrected.

'034 patent, 14:49 - 15:13 (emphasis added). The specification also provides another example of "semi-regulated," where the output voltages from multiple isolation stages are not used to provide feedback to the regulation stage. See '034 patent,13:9-23.

Consistent with previous terms and for the same reasons, the Court rejects SynQor's attempt to add "during normal operation" to this term when there is no basis for it in the claims or the specification. The Court also rejects Defendants' argument that semi-regulation only exists where the regulation stage precedes the isolation stage. First, the claims expressly require the "isolation/semi-regulation circuitry" to come before the "switching regulators." Second, while not referencing semi-regulation in the specification, it does so in the actual figure, Figure 11 is described as illustrating "an isolation stage followed by plural regulation stages." '034 patent, 3:66-67. Figure 11 of the '034 patent depicts a structure similar to the claims, where the "isolation/semi-regulation" stage exists prior to the plural regulation stages. Third, the specification expressly states that in some situations "it may be desirable to place the isolation stage first in the power flow, and to have the regulation stage follow." '034 patent, 14:49-55.

The Court finds that "semi-regulation" is related to "regulation," in that while there is not necessarily a measurement or regulation of the actual isolated output voltage, there is a type of regulation (i.e., "semi-regulation") whereby a voltage can be sensed and regulated that represents the isolated output voltage without actually measuring the isolated output voltage. See '034 patent, 13:9-23, 14:49-15:13, Figure 11. The specification expressly states that "[w]hen the regulation stage precedes the isolation stage, it is not necessary to sense the isolated output voltage to control the regulation." Id. at 14:64-66.
The specification then provides an example of semi-regulation where it senses the voltage on the primary side of the isolation stage that represents the isolated output voltage. Id. at 14:64-15:13. Thus, with "semi-regulation," regulation is provided where it is not necessary to sense the isolated output voltage to control the regulation. As further required by the claims, the semi-regulation circuitry "senses a voltage in the primary transformer winding circuit." The Court rejects SynQor's attempts to negatively define "semi-regulation" by the language "without sensing . . . and passing . . ."

The Court defined "regulation" to mean "the act of controlling an output towards a predefined value." Thus, the Court construes the term "semi-regulation" to mean "the act of controlling an output towards a predefined value by sensing a voltage in the primary transformer winding circuit without sensing the isolated output voltage." The Court defined "regulated output" to mean "an output that is controlled towards a predefined value." Likewise, the Court construes the term "semi-regulated, isolated output" to mean "an isolated output that is controlled towards a predefined value by sensing a voltage in the primary transformer winding circuit without sensing the isolated output voltage."

1. "semiconductor/ semiconductor material" Claims 1 and 5.

Claim 1 of the '742 patent, states in part, with the disputed claim term in bold: "A structure having plural layers in semiconductor material,. . . ."

Claim 5 states in part, with the disputed claim term in bold: "The structure claimed in claim 1, wherein said layer comprising said inclusion comprises one of the following semiconductor materials. . . ."

Nichia suggested defining this term as: "a compound made up of two or more of the following elements: gallium (Ga), arsenic (As), aluminum (Al), indium (In), and phosphorus (P)." Seoul proposed that the court construe semiconductor material to mean "a material whose conductivity properties can be controlled by either adding dopants or by applying an electric field."

The background of the invention and the summary of the invention provide references to semiconductors in general. Col. 1, l. 15-16; col. 4, l. 33-36. Nitride semiconductors were known at the time of the patented invention. See e.g. H. U. Baier and W. Monch, Formation of Aluminum Nitride Films on GaAs(110) at Room-Temperature by Reactive Molecular-Beam Epitaxy: X-Ray and Soft-X-Ray Photoemission Spectroscopy, 68 Journal of Applied Physics 586 (1990); R. F. Davis et al, Critical Evaluation of the Status of the Areas for Future Research Regarding the Wide Band Gap Semiconductors Diamond, Gallium Nitride and Silicon Carbide, 104 Mat. Sci. and Eng. 77 (1988). The specification discusses III-V semiconductors, a list that includes more elements than the five identified by Nichia. It is true that the specification names the semiconductors formed from materials on Nichia's list, but these are descriptions of specific embodiments. Col. 1, l. 20-23; col. 3, l. 11-14; col. 6, l. 20-24. Additionally, while Claim 1 uses the general term "semiconductor material," Claim 5 describes semiconductors made of only the five specific elements included in Nichia's list. Since neither the specification nor prosecution history indicates otherwise, this lends support to the argument that "semiconductor material" includes more than those five elements.

As with many scientific terms there are a number of definitions of "semiconductor" that are partly correct, or that convey one or more properties or concepts associated with the term. A simple example would be to define a semiconductor as a material, the conductivity or resistivity of which, is between an insulator and a conductor. In this case that does not help one of skill in the art, or a juror. In the context of this patent the properties of carriers and forbidden bandgaps in semiconductors are important because the object of the invention is to reduce the influence of dislocations on the functioning of multilayer structures made from semiconductor material. See '742 Patent, Abstract; col. 1, l. 8-10; col. 2, l. 46-53; col. 2, l. 65 - col. 3, l. 2.

Based on these specification references, the following definition focuses on these properties of a semiconductor:

"semiconductor" and "semiconductor material" mean "a solid material that conducts limited electric current by means of a small number of carriers (free electrons or holes) and additional carriers that can be freed from their local bonds by the addition of other elements (doping) or by application of an electrical or magnetic field."

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semiconductor substrate

Claims 1 and 12 contain the term "semiconductor substrate." Lonestar argues "semiconductor substrate" means "base material upon which the layers of a capacitor structure are formed, wherein the base material is semiconducting with resistivity being intermediate between a metal and an insulator, and having a conducting medium in which the conduction is by electrons and holes." Nintendo argues "semiconductor substrate" means "base made of a material having a resistivity between a metal and an insulator." The parties do not dispute that "substrate" means a base material having resistivity between a metal and an insulator. They disagree as to whether the construction should include that a semiconductor substrate must have layers of a capacitor formed upon it and whether conduction must be by electrons and holes.

The Court construes "semiconductor substrate" as "a semiconducting base material having resistivity between a metal and an insulator." Lonestar's construction states that "layers of a capacitor structure are formed" on the base material. Although the specification describes that layers of a capacitor structure are formed on a base material, the limitation is already described in the claim. Claim 1 states, "On a semiconductor substrate, a capacitor structure comprising a first layer of conducting strips parallel to each other on said substrate." Col. 6:65-68. Because the limitation is stated in the claim, it is not necessary to repeat the limitation in the Court's construction.

As to conduction by electrons and holes, no part of the intrinsic record limits conduction to electrons and holes. In fact, the patent never makes reference to electrons and holes. Lonestar argues that extrinsic evidence shows that semiconductor conduction occurs by electrons and holes. However, extrinsic evidence also shows that conduction in semiconductors does not exclusively rely on electrons and holes. In particular, Nintendo cites to dictionary definitions that state, only "[c]ertain semiconductors possess two types of carriers, namely, negative electrons and positive holes," THE NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1188 (5th ed. 1993) (emphasis added), and ":[t]he electric current is usually due only to the motion of electrons, although under some conditions, such as very high temperatures, the motion of ions may be important." MCGRAW-HILL ENCYCLOPEDIA OF ELECTRONICS AND COMPUTERS 799 (2nd ed. 1988) (emphasis added). These definitions indicate that conduction can occur in semiconductors in ways other than through electrons and holes. The extrinsic record does not support the limitations sought by Lonestar and is at best contradictory. Thus, the Court rejects Lonestar's construction and does not construe "semiconductor substrate" as limited to "having a conducting medium in which the conduction is by electrons and holes." Accordingly, the Court construes "semiconductor substrate" as "a semiconducting base material having resistivity between a metal and an insulator."

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A. The "Sending," "Transmitting," and "Receiving" Limitations

On appeal, Multi-Tech first challenges the district court's construction of the limitations that refer to "sending," "transmitting," and "receiving" data packets in claim 1 of the '649 patent; claims 1, 2, 5, 7, and 13 of the '627 patent; and claim 11 of the '532 patent. Multi-Tech argues that the court erred in restricting those limitations to the transmission of data packets over a direct point-to-point telephone line connection. According to Multi-Tech, the claims are directed only to the "ends" of the disclosed communications system and do not address what happens once the data packets are sent from the local user to the telephone line. Multi-Tech also argues that the specification describes a telephone line connected to a modem, which may be a direct end-to-end connection or may connect to a packet-switched network such as the Internet. Furthermore, Multi-Tech maintains that it did not disclaim transmission through a packet-switched network during prosecution of the '627 patent because it distinguished the Lewen reference by amending claims 1 and 13 to require a
modem. Multi-Tech also argues that the term "point-to-point," which it used in remarks made to the PTO during prosecution, can refer to a connection made over a packet-switched network. In any event, Multi-Tech contends, any disclaimer arising from the statements made during prosecution of the '627 patent should not be applied to the other two patents because the '649 patent issued before those statements were made and because the inventions claimed in the '649 and '532 patents are distinct from the invention claimed in the '627 patent.

Microsoft and Net2Phone respond that the claim language, particularly that of claim 7 of the '627 patent, and the specification require a direct point-to-point connection over a telephone line. They also argue that the prosecution history of the '627 patent mandates such an interpretation because Multi-Tech defined its invention as establishing a direct connection between the local and remote sites over a telephone line and argued that its claims require a "point-to-point" connection "from the communications system through the [telephone] line to a receiving communications system at the other end of the line." Finally, Microsoft and Net2Phone maintain that the prosecution history of the '627 patent is relevant to an understanding of the other two patents, which stem from the same parent application and share a common specification.

Thus, the parties' dispute over the "sending," "transmitting," and "receiving" limitations reduces to a single issue: whether those limitations are restricted to communications over a telephone line or whether they may encompass communications over a packet-switched network such as the Internet. For the reasons enumerated below, we agree with Microsoft and Net2Phone that the district court properly construed the "sending," "transmitting," and "receiving" limitations in the '649, '627, and '532 patents as being limited to communications over a telephone line and excluding the use of a packet-switched network.

Claim interpretation begins with the claims themselves, the written description, and, if in evidence, the prosecution history. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). "Claim language generally carries the ordinary meaning of the words in their normal usage in the field of invention." Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1367 (Fed. Cir. 2003). Although it is improper to read a limitation from the specification into the claims, Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998), "claims must be read in view of the specification, of which they are a part," Markman, 52 F.3d at 979; see also United States v. Adams, 383 U.S. 39, 49, 15 L. Ed. 2d 572, 86 S. Ct. 708, 174 Ct. Cl. 1293 (1966) ("Claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention."); Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116 (Fed. Cir. 1987) ("Claims are not interpreted in a vacuum, but are part of and are read in light of the specification."). Indeed, "one purpose for examining the specification is to determine if the patentee has limited the scope of the claims." Watts v. XL Sys., Inc., 232 F.3d 877, 882 (Fed. Cir. 2000). When the specification "makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). A patentee may also limit the scope of the claims by disclaiming a particular interpretation during prosecution. Biodex Corp. v. Loredan Biomed., Inc., 946 F.2d 850, 862 (Fed. Cir. 1991).

We thus begin our analysis with the claim language itself. Claim 1 of the '627 patent recites "a modem connected to a telephone line for receiving incoming packets from a remote site and for sending the outgoing packets to the remote site in full duplex communication mode." '627 patent, col. 46, ll. 50-53. Claim 7 of the '627 patent requires "sending the outgoing packets to a remote site over a telephone line using a modem" and "receiving incoming packets through the modem from the remote site." Id. at col. 47, ll. 15-18. Similarly, claim 13 of the '627 patent recites "transmitting the compressed outgoing digital voice packets on a communication line using a modem" and "receiving the compressed incoming digital voice data packets from the communication line." Id. at col. 48, ll. 44-47. Claim 1 of the '649 patent and claim 11 of the '532 patent recite "transmitting the outgoing packet stream" and "receiving multiplexed incoming data." '649 patent, col. 47, ll. 18-19; '532 patent, col. 49, ll. 7-8.

From the plain language of those claims, only claim 7 of the '627 patent explicitly states that the transmission of data packets between the local site and the remote site must occur "over a telephone line." Claim 1 of the '627 patent similarly refers to a telephone line, but is more ambiguous in that it refers to the modem connection rather than the data transmission. And the language of claim 13 of the '627 patent, claim 1 of the '649 patent, and claim 11 of the '532 patent is even more broad. It makes no reference to a telephone line and standing alone does not exclude data transmission over a packet-switched network. n3
n3 We reject Microsoft's contention that the "full duplex" language of claim 1 of the '627 patent and claim 11 of the '532 patent requires a direct telephone line connection. "Full duplex" operation means that the data packets can be transmitted simultaneously in both directions; it does not require that the data packets travel along the exact same path in both directions. See Microsoft Press Computer Dictionary 119 (1991).

n4 For ease of reference, we cite only the specification of the parent '289 patent, although the same statements are also found in the identical specifications of the '649, '627, and '532 patents.

Those statements, some of which are found in the "Summary of the Invention" portion of the specification, are not limited to describing a preferred embodiment, but more broadly describe the overall inventions of all three patents. Indeed, they characterize the entire "personal communications system" as enabling communications between a local site and a remote site over a telephone line. Moreover, those descriptions of the claimed inventions are by no means limited to just the "ends" of the communications system as Multi-Tech argues. On the contrary, they explain that data packets from a local site are transferred "over" or "through" a telephone line "to a remote site," making clear that the communications link between the local and remote systems is a telephone line. In fact, the specification refers to data transmission "over" or "through" a telephone line roughly two dozen times. Nowhere does it even suggest the use of a packet-switched network. In light of those clear statements in the specification that the invention ("the present system") is directed to communications "over a standard telephone line," we cannot read the claims of the '627 patent, the '649 patent, or the '532 patent to encompass data transmission over a packet-switched network such as the Internet. Instead, the specification shared by all three patents leads to the "inescapable conclusion" that the communications between the local and remote sites of the claimed inventions must occur directly over a telephone line. See SciMed Life Sys., 242 F.3d at 1342 (concluding that the common specification of three patents led to the "inescapable conclusion" that their claims required coaxial lumens, even though the claim language itself was not so limited); see also Alloc, Inc. v. ITC, 342 F.3d 1361, 1370 (Fed. Cir. 2003) (concluding that, read as whole, the common specification of three patents led to the "inescapable conclusion" that the claimed inventions must include "play" in every embodiment, even though the claim language was not so limited). Accordingly, we construe the "sending," "transmitting," and "receiving" limitations of the '627, '649, and '532 patents to require that the claimed data packets travel directly from a local site to a remote site (and vice versa) over a telephone line and not a packet-switched network.

Furthermore, an examination of the '627 patent's prosecution history confirms that Multi-Tech viewed its inventions as being limited to communications over a telephone line. In response to the examiner's first office action, Multi-Tech took the opportunity to provide a "summary of the invention" before addressing the § 103 rejection. It stated:

In their specification, Applicants disclose a communications system which operates over a standard telephone line. Such a telephone line is commonly referred to in the art as a "plain old telephone service" (POTS) line and establishes a point-to-
point connection between telephone equipment on each end of the line. Applicants' invention...transmits the packets across a POTS line to a remote site.

(citations omitted). That statement, which expressly related to the specification shared by all three patents and the communications system disclosed in all three patents, makes clear that Multi-Tech viewed the local and remote sites of its inventions as communicating directly over a telephone line. Again, it does not describe just the connection at the "ends" of the claimed communications system, but explicitly states that the data packets travel "across a [telephone] line to a remote site" and further describes that path as being a "point-to-point" connection "between" each end. That statement unambiguously reflects Multi-Tech's own understanding of its inventions in the '627, '649, and '532 patents as being limited to the transmission of data packets over a telephone line. We cannot construe the claims to cover subject matter broader than that which the patentee itself regarded as comprising its inventions and represented to the PTO.

n5 During prosecution of the '627 patent, Multi-Tech went on to distinguish Lewen, which discloses the use of a token-ring local area network ("LAN") to transmit voice, data, and image information, by explaining that "in contrast, Applicants' voice packets do not circulate around a LAN but proceed directly from the communications system through the [telephone] line to a receiving communications system at the other end of the line." (emphasis added). Multi-Tech further distinguished the Arbel reference on the basis that it does not disclose the transmission of packetized voice data "across" or "over" a POTS line. Those statements add further credence to our claim interpretation. However, because they refer more specifically to the references cited against the claims of the '627 patent only, we limit their relevance to our interpretation of the '627 patent.

Moreover, the prosecution history statements that we rely on were made by Multi-Tech in May 1997 and relate to the communications system disclosed in the common specification. We do not, as the dissent suggests, rely on the November 1997 "modem" amendment, which applies only to the '627 patent.

Moreover, although Multi-Tech made the above-quoted statement during prosecution of the '627 patent, it is also applicable to both the '649 and the '532 patents. In the past, we have held that the prosecution history of one patent is relevant to an understanding of the scope of a common term in a second patent stemming from the same parent application. E.g., Jonsson v. Stanley Works, 903 F.2d 812, 818 (Fed. Cir. 1990); see also Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1460 n.2 (Fed. Cir. 1998) (applying the prosecution histories of two sibling patents, which shared a common written description, to one another). We likewise believe that Multi-Tech's statement made during prosecution of the '627 patent is relevant to an understanding of the common disclosure in the sibling '649 and '532 patents. Multi-Tech's statement was expressly directed to the "communications system" disclosed "in the[] specification." That communications system encompasses the inventions of all three patents, see '289 patent, col. 1, ll. 35-37 (stating that the "communications system...contains multiple inventions"), and as noted above, the specification is identical for all three patents. Multi-Tech's statement to the PTO was thus not limited to the invention disclosed in the '627 patent, but was a representation of its own understanding of the inventions disclosed in all three patents. We therefore conclude that that statement from the '627 patent's prosecution history is pertinent to an interpretation of the later issued '532 patent. See Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 980 (Fed. Cir. 1999) (applying the prosecution history of one patent to a related, subsequently issued patent).

Furthermore, even though the '649 patent had already issued, we think that it is not unsound to apply the same interpretation to that patent. We take the patentee at its word and will not construe the scope of the '649 patent's claims more broadly than the patentee itself clearly envisioned. We also reject Multi-Tech's argument, based on Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1333 (Fed. Cir. 1999), that the statements made during prosecution of the '627 patent should not be applied to the '649 patent because the examiner could not have relied on those statements in allowing the claims of the '649 patent. We have stated on numerous occasions that a patentee's statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation. Laitram Corp., 143 F.3d at 1462 ("The fact that an examiner placed no reliance on an applicant's statement distinguishing prior art does not mean that the statement is inconsequential for purposes of claim construction."); E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1438 (Fed. Cir. 1988) ("Regardless of the examiner's motives, arguments made during prosecution shed light on what the applicant meant by its various terms."). Georgia-Pacific is not to the contrary. In that case, we rejected the argument that the patentee was
"bound by" statements made by the applicant in connection with a later application after the patent in suit had already issued. Georgia-Pacific Corp., 195 F.3d at 1333. The accused infringer argued that the patentee was foreclosed by the later statement from arguing in favor of a broader construction of the earlier patent, even though intrinsic evidence supported that broader construction. We rejected the argument that the patentee was bound, or estopped, by a statement made in connection with a later application on which the examiner of the first application could not have relied. We did not suggest, however, that such a statement of the patentee as to the scope of the disclosed invention would be irrelevant. Any statement of the patentee in the prosecution of a related application as to the scope of the invention would be relevant to claim construction, and the relevance of the statement made in this instance is enhanced by the fact that it was made in an official proceeding in which the patentee had every incentive to exercise care in characterizing the scope of its invention. Accordingly, we conclude that Multi-Tech's statements made during the prosecution of the '627 patent with regard to the scope of its inventions as disclosed in the common specification are relevant not only to the '627 and '532 patents, but also to the earlier issued '649 patent.

In sum, based on our analysis of the claim language, the specification, and the prosecution history, we conclude that the district court properly interpreted the "sending," "transmitting," and "receiving" limitations of the '627, '649, and '532 patents as requiring the direct transmission of data packets between the local and remote sites over a telephone line and excluding the use of a packet-switched network such as the Internet. This conclusion in and of itself leads to our affirmance of the district court's decisions. However, inasmuch as other issues of claim construction were decided by the district court and argued before us, we consider it to be in the interest of judicial efficiency, as well as in the interest of any future litigation concerning these patents, to review the other contested claim limitations. n6

n6 Net2Phone has not responded to Multi-Tech's arguments regarding the remaining claim terms because the district court's final judgment of noninfringement in the Net2Phone case was based solely on the court's interpretation of the "sending," "transmitting," and "receiving" limitations. However, because the final judgment of noninfringement in the Microsoft case was based on the court's claim construction in its entirety and not just its interpretation of particular limitations, we will review all of the disputed claim terms that Multi-Tech has appealed.

This court today concludes that the invention claimed in any patent sharing the specification of the '649, '627, and '532 patents cannot encompass the use of a packet-switched communications network like the Internet. As all parties agree, the claim language in no way rules out the use of a packet-switched network. The specification also does not foreclose use of the Internet. The prosecution history of the '627 patent falls far short of a "clear and unambiguous" disclaimer of Internet coverage (as the majority finds), but rather suggests the contrary conclusion. Finally, this court today dismisses the rule in Georgia-Pacific Corp. v. United Gypsum Co., 195 F.3d 1322 (Fed. Cir. 1999) and applies the prosecution history of a later patent to limit the narrower claims of a patent issuing before such statements were made. For these reasons, I must respectfully dissent.

This court today asserts that the language in the specification regarding "over" and "through" a telephone line somehow requires the claims to cover only those communication networks where nothing but a telephone line lies between the two end sites. To my eyes, that leap in logic is akin to Evel Knievel jumping the Snake River Gorge on a motorcycle. Like Mr. Knievel, this court's conclusion falls short. In the first place, this limitation does not appear anywhere in the claims. In addition, nothing in this record indicates that a person of skill in this art would find that limitation in the specification.

When I connect to the Internet (a packet-switched network) at home using my modem, I do it "over a telephone line." When I send email to my colleagues from home, I do it "through a telephone line" as well as across the Internet. If I travel over the river and through the woods to grandmother's house, this court would apparently conclude that I have traveled through nothing but rivers and woods. The terms "over" and "through" do not denote the sole medium of transmission or travel. If a
person asks me to send them a file "over" the Internet, that request certainly would not preclude the use of a telephone line connected to a modem connected to the Internet. In sending the file, I would be sending data over my telephone line as well as over the Internet. The record contains no evidence to support the leap that "over a telephone line" must mean exclusively over a telephone line.

Most of the claims at issue never refer to the communication network between the end sites of the system. The claims focus on the "ends" of the communication system. The "middle" portion is essentially irrelevant to the invention. Claim 1 of the '532 patent is a method claim directed to "multiplexing," "transmitting," "receiving," and "demultiplexing" voice and video data. Claim 1 of the '649 patent identifies a method that places headers on outgoing video and computer data packets, and then multiplexes, transmits, receives, and demultiplexes the data packets. These claims address what happens at each end of the communication system, not the travel routes for the packets between the ends.

This court today, however, goes beyond merely importing a limitation from the specification into the claims. First the court manufactures an unreasonable limitation out of vague specification references to "over" and "through." Then the court imports that unstated limitation into the claims. At most, the specification can be read to require that all of the claims require the use of a telephone line in the transmitting, sending, or receiving elements. To my eyes, this court leaps into thin air when it says that the claims require the exclusive use of telephone line transmission.

To bolster the absence of limitation in the claims or specification, the court stretches to find a clear and unambiguous disclaimer in the prosecution history of the '627 patent. To the contrary, the examiner, who actually participated in that history, considered the applicant's statements regarding the '627 patent and found that the claims do not limit themselves to a standard telephone line. In fact, because the claims encompassed more than a mere telephone connection, the examiner renewed a rejection. In response to the examiner's rejection in light of the Lewen reference, the applicant stated that Lewen operates using a "local area network (LAN)" requiring the data packets to "circulate around the LAN until reaching either the gateway or the node" where they can be sent to a remote site. The applicant explained that the '627 patent claims a system that does not use a LAN, but "operates over a standard telephone line . . . and establishes a point-to-point connection between . . . each end of the line."

The examiner responded by renewing the rejection and explaining that "the claims do not recite a limitation of a POTS telephone connection" and that "Lewen's token ring transmission medium is a telephone line in the sense that it carries voice between telephones [] separated by some distance." Thus, the examiner did not limit the invention to an exclusive telephone line connection. The examiner even considered the LAN in Lewen to satisfy the telephone connection proposed by the applicant. The LAN in Lewen connects to a packet-switched network.

Ultimately, the applicant amended the '627 claims to include the limitation of a modem. At that point, the PTO allowed the claims. The entire discussion in this prosecution history focused on the structure at each end of the communication system, not the middle medium of transmission. The applicant unambiguously disclaimed the use of a LAN and any system that does not connect modems at each end site. Neither the applicant nor the PTO, however, considered that disclaimer to extend to the use of a packet-switched network between sites. How can such circumstances show a clear and unambiguous disclaimer?

Rather than disclaiming connection to the Internet, the prosecution history more convincingly suggests that the inventor and the PTO saw these inventions as directly relevant to the Internet. The applicant eventually added the term "modem" to the '627 patent claims in order to distinguish the LAN in the Lewen reference. At the time of this amendment, a modem was the common and accepted way to connect to the Internet over a standard telephone line. U.S. Patent No. 5,594,490, which issued January 4, 1997, states: "Modem 45 communicates with a corresponding modem 17 at distribution station 3 via a conventional point-to-point land-link such as a public switched telephone network (PSTN) or internet."

Col. 9, ll. 47-56 (emphasis added). Contrary to this court's conclusion, a person of ordinary skill in the art at the time of invention would consider the addition of a modem as a clear indication that the inventor intended to connect the invention to packet-switched networks, such as the Internet. Even though modems connect to the Internet, as even the examiner acknowledged, this court emphasizes the "point-to-point" phrases in the prosecution history to exclude the Internet. This conclusion leaps to assume that the Internet does not allow point-to-point connections. The record, however, indicates exactly the opposite. As cited above, U.S. Patent No. 5,594,490 describes a point-to-point connection using the Internet. Moreover, according to Microsoft's Computer Dictionary of 1997, Third Edition, a point-to-point communication protocol is "[a] data link protocol developed . . . in 1991 for dial-up telephone connections, such as between a computer and the Internet." Thus, within the
context of this art, and at the time of the amendment, the term point-to-point referred to a variety of communication networks, including the Internet.

As a question of law, however, this court's conclusion significantly erodes the requirement that a disclaimer of subject matter must be clear and unambiguous. See, e.g., Schwing GmbH v. Putzmeister Aktiengesellschaft, 305 F.3d 1318, 1324-25 (Fed. Cir. 2002) ("Prosecution history . . . cannot be used to limit the scope of a claim unless the applicant took a position before the PTO that would lead a competitor to believe that the applicant had disavowed coverage of the relevant subject matter.") This record - the examiner's responses and understanding, the definitions of "point to point" in the patents and the art, and more - do not show clarity and a lack of ambiguity, to say the least. See Omega Engineering, Inc. v. Raytek, Corp., 334 F.3d 1314, 1326 (Fed. Cir. 2003) ("To balance the importance of public notice and the right of patentees to seek broad patent coverage, we have thus consistently rejected prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope."). The only subject matter unambiguously disclaimed in this case was a connection other than a modem-telephone line at each communication end.

To make this court's conclusion a longer leap, the alleged disclaimer by its terms applies only to the "modem" amendment that distinguished Lewen. Only the '627 patent's claims use the term "modem." In fact, the '627 patent was the only patent in this case rejected in light of Lewen. The '649 and '532 patents actually relied on Lewen as prior art. The examiner did not cite Lewen to reject the claims in those patents. The other patents do not even refer to a "modem." Because the inventions in the various patents are different, the '627 patent needed to distinguish Lewen while the others did not. The '649 patent claims the transmission of packetized voice and computer data. The '532 patent claims the transmission of packetized voice and video data. In contrast, the '627 patent claims only the transmission of packetized voice data. According to the PTO, the transmission of voice data only was not sufficiently narrow to avoid the Lewen reference. Thus, the applicant added the limitation of a modem connected to a standard telephone line. This simply illustrates that the broad claims of one patent, in this case the '627, may require an additional limitation to avoid prior art, while narrower claims in related patents do not need the same limitation to avoid the same prior art. The '627 amendment does not explain the reason that this court extends the limitation to narrower claims in the other patents.

By way of illustration, assume three patents (A, B, and C) share a common specification directed to a method for hanging a picture. Patent A claims an attaching step and a leveling step. Patent B claims an attaching step and a centering step. Patent C claims only the attaching step. The prior art contains a reference to attaching pictures using nails. Because they contain limitations beyond attaching, patents A and B issue without rejection. Patent C, however, is rejected in light of the prior art. To distinguish the prior art, the applicant clarifies the attaching step is limited to using Velcro, not nails. Under what logic would a court limit the claims in Patents A and B to Velcro based on the later and inapplicable prosecution history of Patent C? That, however, is exactly what the majority does in this case.

Finally, the majority essentially disregards the holding of Georgia-Pacific. In this case, for the first time, this court applies the prosecution history of one patent to limit the claims of a related patent that was allowed before the creation of the prosecution history at issue. The '649 patent issued before the prosecution history of the '627 patent. Georgia Pacific states that for an applicant "to be bound by the statement made to the PTO in connection with a later prosecution of a different patent, the statement would have to be one that the examiner relied upon in allowing the claims in the patent at issue." 195 F.3d at 1333. In this case, the statements during the prosecution of the '627 patent could not have influenced the allowance of the '649 patent, because the '649 patent issued before those statements occurred.

In short, I cannot support this court's many leaps of illogic. I would not import the exclusive telephone line limitation, if it even exists in the specification, into the claims. Moreover, I cannot find a clear and unambiguous disclaimer in the prosecution history of the '627 patent. Even if the modem amendment in that patent disclaimed subject matter, I cannot find a justification to apply that limitation to the unambiguous claims of the '649 and '532 patents, which cover different inventions. For these reasons, I cannot join this opinion of the court.

F. Sending Information Collected from the Pavement Construction Material Mixture to the Server

This term is found in independent claim one. The Plaintiff argues that this term does not need construction, but it proposes
"sending data collected from the testing of the pavement construction mixture to the server." The Defendants contend that this term means that information is sent to the server computation spooler, and so they propose the term "sending test data that has been collected from testing of the pavement construction material mixture to a server computation spooler." The fundamental dispute over this term is whether it requires the information to be sent to the server computation spooler.

The Plaintiff argues that it is improper to limit the claims to a preferred embodiment. The Plaintiff also cites col. 4:3-5, which describes part of FIG. 2: "browser based user interfaces are used to collect test result inputs (step 201). These inputs are collected by the server 100 . . . " The Defendants argue that the Plaintiff's intrinsic evidence is really an explanation of collecting the information, not sending it as is used in this disputed phrase. The Defendants argue that the description of FIG. 2 is the only depiction of information being sent to a server, and that the figure shows the information from the "Inputs via Browser I/F" going to a computation spooler. The Defendants again cite to col. 8:15-19 as limiting the patent to the specific embodiments given in FIG. 2, as they have for other terms. As explained previously, col. 8:15-24 is not a clear limitation of the claims to any specific embodiment provided.

The only explicit mention of sending information to the server in the patent comes in the claims or in language echoing the claims (e.g., in the abstract) without providing further guidance as to their meaning. Although claims are to be construed in light of the specification, of which they are a part, it is important not to import limitations from the specification that are not found in the claims. Phillips, 415 F.3d at 1323. Here, the specification does not give a meaning to the disputed phrase to one of ordinary skill in the art that requires sending information to the server to mean that information is sent to a computation spooler. The Defendants are improperly attempting to import this limitation.

**Construction: Sending data collected from the testing of the pavement construction mixture to the server.**

5. "message originator sending the caller ID with the picture to the message center"

The disputed claim term "message originator sending the caller ID with the picture to the message center" appears in claims 1, 2, 4, 7, 25, 35, and 36 of the '416 Patent and claims 1, 2, 4, 5, 8, 10, 13, 14, 17, 34, and 35 of the '186 Patent. As an initial matter, the court notes that it has already determined that the phrase "message originator sending the caller ID with the picture to the message center" does not require that the message originator actually undertake the action of sending the message. Instead, as this court previously found,

> [t]he plain language of the claims indicates that direct infringement is limited to a communication device possessing the recited structure and capable of receiving a message from the message originator via the message center; infringement does not require that "the message originator [send] the caller ID with the picture to the message center."

(Dkt. No. 199, 10/8/09 Mem. Op. & Order 10.) The phrase "message originator sending the caller ID with the picture to the message center," therefore, although not directly describing a function of the claimed personal communication device, is akin to functional language explaining the type of message the personal communication device must be capable of receiving. See Manual of Patent Examining Procedure § 2173.05(g) (8th ed. 2001, rev. 2008) ("A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients).") Having made that observation, the court now turns to the parties' respective claim construction arguments.

Kyocera argues that "message originator sending the caller ID with the picture to the message center" means that "the third party from whom the picture is received sending the caller ID together with the picture to the message center." Intellect Wireless, on the other hand, contends that the proper construction is "a message originator sending a picture to a message center, the picture being associated with the message originator's caller identification information."

According to Intellect Wireless, Kyocera's proposed construction is flawed for two reasons. First, it requires the message originator, as opposed to the cell phone and/or personal communication device, to send the caller ID and the picture to the message center, thereby suggesting that the message originator must manually enter the caller ID. Second, Kyocera's proposed construction could be interpreted to mean that "the picture must be sent simultaneously with the caller identification information to the message center." (Intellect Wireless's Resp. 24.) As explained below, the court agrees with
Intellect Wireless but ultimately construes the claim term with a slightly modified definition from Intellect Wireless's proposed construction.

a. Manual Entry by the Message Originator Is Not Required

As discussed more thoroughly above in the court's discussion of the "automatically provided by a communications network" claim term, the court has determined that the message originator does not manually enter the caller ID, but rather the caller ID data is "supplied by either the telecommunications network or the telecommunications network via the message originator's device without manual entry by the message originator." Because the court agrees with Intellect Wireless that Kyocera's proposed construction is susceptible to an improper interpretation that manual entry by the message originator is required, the court declines to adopt it.

Intellect Wireless's proposed construction, however, is also problematic. To address its concern that the claim language be inappropriately interpreted as requiring manual entry of the caller ID by the message originator, Intellect Wireless eliminates the phrase "message originator sending the caller ID," from the claims, instead replacing that language with "the picture being associated with the message originator's caller identification information." Cognizant that it should not rewrite the claims, see Lucent Technologies, Inc. v. Gateway, Inc., 525 F.3d 1200, 1215 (Fed. Cir. 2008), the court instead construes the first part of the disputed claim term, "message originator sending the caller ID," to mean "message originator sending the caller ID, without manual entry of the caller ID," which reiterates that in composing and sending the message, the message originator does not manually enter the caller ID.

b. Simultaneous Transmission of the Caller ID and the Picture Is Not Required

Regarding Intellect Wireless's second contention that Kyocera's use of "together with" in its proposed construction improperly implies that the caller ID must be sent simultaneously with the picture, the court agrees with Intellect Wireless that such a temporal limitation is not supported by the intrinsic evidence. Claim 1 in both the '186 and '416 Patents simply states: "the message originator sending the caller ID with the picture to the message center"; the court does not find that the use of "with" in this context imposes a limitation requiring that the "sending" of the caller ID and the picture occur simultaneously. See Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1346 (Fed. Cir. 2008) (declining to "impose[] a temporal constraint" in claim because use of the term "with" in specification did not "unequivocally preclude a different order of steps").

Nor do the specifications support such a limitation. For example, as described in one embodiment, the caller-identification information is transferred separately from the additional "optional data" entered by the message originator:

[The caller identification information, if any exists, is automatically transferred to the central office, where it is decoded and preferably utilized in accordance with the software block 255 in a recorded menu exchange, wherein the information is verified and/or corrected and/or supplemented.]

In software block 257, the page-originating communicant enters optional data. This optional data may be numeric data, alphanumeric data, digitized speech, facsimile messages, or images.

'186 Patent, col.42 ll.49-58. The court, therefore, disagrees with Kyocera's position that the caller ID is sent "together with" the picture. Instead, the court finds that one of ordinary skill in the art would have understood the claim phrase "message originator sending the caller ID with the picture to the message center" to mean "message originator sending the caller ID, without manual entry of the caller ID, and the picture to the message center."
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2. sense signal (Claims 29, 32, 34, 64 and 65)

Arbitron asks the Court to adopt the ordinary and customary meaning of "a sense signal" as "a signal indicating that something is sensed." Arbitron notes that wherever the term is used in the claim language, it describes what is being sensed: "whether the device is being carried with the person of the audience member."

The '276 patent claims include several disputed terms with parallel usage in a means plus function format and non-means plus function format. As defendants point out, the format used by the apparatus claims includes a claim element written in means plus function format, such as: means for providing [a specific signal] [to perform a specific function]. The parallel method claim uses the same term in a non-means plus function format, such as: providing [a specific signal] [to perform a specific act]. Defendants argue that where the same term is used in such parallel claims, the non-means-plus-function method claim term, [a specific signal], should be construed consistently with the other related means plus function term. To this end they argue once the Court has construed the supporting structure for the means plus function term, the parallel non-means plus function term should simply be construed as the output of such structure. For instance, in this case, Ipsos asks the Court to construe 'sense signal' as "the output of either one or more of a pressure detector, motion detector, or temperature sensor." Their construction is based on their proposed means definition for the related means plus function limitation "means for providing a sense signal." In support of its approach to the construction of such related terms, defendants cite Federal Circuit case law requiring courts to give same terms appearing in different portions of the patent claims the same meaning, unless the specification and prosecution history make clear otherwise. See PODS, Inc. v. Porta Stor, Inc., 484 F.3d 1359, 1366 (Fed. Cir. 2007); see also Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995) ("The fact that we must look to other claims using the same term when interpreting a term in an asserted claim mandates that the term be interpreted consistently in all claims."); Georgia-Pacific Corp. v. U.S. Gypsum Co., 195 F.3d 1322, 1331 (Fed. Cir. 1999) ("Unless the patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent."). Further, defendants argue the requirement of construing a term in context of the entire claim mandates such an approach. See Pause Technology, LLC v. TiVo, Inc., 419 F.3d 1326, 1331 (Fed. Cir. 2005).

Although the Court agrees with the defendants with regard to consistently construing same terms, the Court finds that these related terms are in no way the "same" terms. The Federal Circuit has made clear the distinction between the scope entitled to means plus function claim terms as compared to non-means-plus-function claim terms. See O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1580-81 (Fed. Cir. 1997) (explaining this difference). Adopting the defendants' approach would simply limit the scope of these non-means-plus-function terms to the disclosed embodiments. This approach has been rejected by the Federal Circuit. See SciMed Life Sys. Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1340 (Fed. Cir. 2001) (describing "reading a limitation from the written description into the claims" as "one of the cardinal sins of patent law"); Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.").
The parties agree on the function part of most of the means plus function limitations in this claim construction.

Finally, in support of their argument, defendants contend that the inventors in this case acted as their own lexicographer, defining and limiting the meaning of the non-means-plus-function terms through such use. See Sinorgchem, Co., Shandong v. Int'l Trade Comm'n, 511 F. 3d 1132, 1138 (Fed. Cir. 2007) ("We have frequently found that a definition set forth in the specification governs the meaning of the claims."). The Court finds nothing in the specification of the '276 patent that indicates that the inventors intended to limit these related terms to specific structures or define these related terms in any manner.

The Court concludes that in each of these cases, there is no reason to limit these non-means-plus-function terms to the embodiment disclosed in the patent. Therefore, this and all other constructions proposed by the defendants for such related terms are rejected. The Court adopts plaintiff's construction: "A signal indicating that something is sensed."

GO BACK

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(3) "sensing a torque occurring at a drive shaft of the washer due to an impact from the clothes"

The parties also dispute the term "sensing a torque occurring at a drive shaft of the washer due to an impact from the clothes," which appears in Claims 3 and 4. LG proposes construing the term to mean "sensing torque occurring at a drive shaft of the washer due to an impact [i.e., contact] from the clothes." (Chart at 6.) Whirlpool proposes instead that the term be construed to mean "sensing a torque occurring at a drive shaft of the washer due to a collision from the clothes." (Id.) For reasons already discussed, the Court will adopt Whirlpool's proposed construction. The term "sensing a torque occurring at a drive shaft of the washer due to an impact from the clothes" is therefore construed to mean "sensing a torque occurring at a drive shaft of the washer due to a collision from the clothes."

GO BACK

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(2) "sensing a torque occurring at a drive shaft of said washer due to the twist of clothes, to sense the distribution of impact applied to an agitator of the washer by said clothes"

The parties also dispute the term "sensing a torque occurring at a drive shaft of said washer due to the twist of clothes, to sense the distribution of impact applied to an agitator of the washer by said clothes," which appears in Claim 1. LG proposes that the term be construed to mean "sensing torque occurring at a drive shaft of the washer due to the twisting [i.e., uneven distribution] of clothes, to sense the distribution of impact [i.e., contact] applied to an agitator of the washer by the clothes." (Chart at 5.) Whirlpool proposes instead that the term be construed to mean "sensing a torque occurring at a drive shaft of the washer due to clothes that are entwined together, to sense the distribution of collisions between the clothes and the agitator of the washer." (Id.)

Comparing the parties' proposed constructions, the main issue is whether the term "impact" should be construed to mean "contact" or "collision[.]") Figure 3 is an illustration of a washer to which the invention was applied. ('474 Patent, col. 3, ll. 21-23.) The written description of Figure 3 states that "[i]n accordance with the present invention, the clothes twist determining apparatus comprises a clothes twist sensing unit 10 for sensing a torque occurring at the drive shaft 6 due to the distribution of impact applied to the agitator 8 and generating a clothes twist signal according to the sensed torque." (Id., col. 3, ll. 42-47.) The use of the word "applied" favors Whirlpool's argument that the term "impact" means "collision" rather than "contact." The written description also states that "[b]y the normal and reverse rotations of the agitator 8, the clothes 1 are agitated normally and reversely. The clothes 1 being agitated strike against the agitator 8, so that the agitator is subjected to an impact." (Id., col. 5, ll. 18-21.) The use of the word "strike" in describing how the "impact" is applied to the agitator further supports Whirlpool's proposed construction.
The claimed invention seeks to distinguish twisted and untwisted clothes based on the "distribution of impact applied to the agitator . . . ." (Id., col. 3, ll. 42-47.) LG, however, fails to explain how determining the distribution of "contact" -- for example, differences in the amount of surface area in contact with the agitator -- would affect the torque occurring at the drive shaft.

The Court will therefore construe the term "sensing a torque occurring at a drive shaft of said washer due to the twist of clothes, to sense the distribution of impact applied to an agitator of the washer by said clothes" to mean "sensing a torque occurring at a drive shaft of the washer due to clothes that are entwined together, to sense the distribution of collisions between the clothes and the agitator of the washer."

J. ‘472 Claim 18: "sensing an abnormal cardiac rhythm, wherein cardioversion is required."

In contrast to the first several disputed elements in Claim 18, the recited step of "sensing an abnormal cardiac rhythm, wherein cardioversion is required" is actually a step in the method claim rather than a recitation of components. The parties dispute whether "sensing an abnormal cardiac rhythm" is a step-plus-function element subject to 35 U.S.C. § 112 P 6. St. Jude argues that 35 U.S.C. § 112 P 6 controls and that the sensing step is performed by human intervention in both disclosed embodiments of the invention. Def. Br. at 38. CPI contends that the element recites an act, not subject to 35 U.S.C. § 112 P 6 and that the element should not be confined to "sensing" that involves human judgment. Pl. Reply Br. at 47-48.

The 35 U.S.C. § 112 P 6 limitations apply to an element in a method claim "only when steps plus function without acts are present." O.I. Corp. v. Tekmar Co., 115 F.3d at 1583 (emphasis in original). Thus, the initial task is to determine whether the contested element recites an act or a function. Judge Rader has provided extensive comments on the often difficult-to-draw distinction between acts and functions:

Claim elements without express step-plus-function language may nevertheless fall within 35 U.S.C. § 112, P 6 if they merely claim the underlying function without recitation of acts for performing that function. Unfortunately, method claim elements often recite phrases susceptible to interpretation as either a function or as an act for performing a function. Both acts and functions are often stated using verbs ending in "ing." For instance, if the method claim element at issue in this case had merely recited the "step of" "spreading an adhesive tack coating," it would not have been clear solely from this hypothetical claim language whether "spreading" was a function or an act. In such circumstances, claim interpretation requires careful analysis of the limitation in the context of the overall claim and the specification.

In general terms, the "underlying function" of a method claim element corresponds to what that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to how the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, i.e., it's [sic] underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then 35 U.S.C. § 112, P 6 applies even without express step-plus-function language.


The preamble of Claim 18 recites the overall purpose of the claimed method and introduces a series of steps for accomplishing that purpose with the words "steps of." Such a general statement of purpose in the preamble does not constitute an associated function for each of the method steps that follow. See O.I. Corp. v. Tekmar Co., 115 F.3d at 1583. In addition, functions are more likely to be introduced by the phrase "steps for" rather than "steps of." See Seal-Flex, 172 F.3d at 850 (Rader, J., concurring). Thus, the language in the preamble of Claim 18 suggests that 35 U.S.C. § 112 P 6 does not apply. However, the language of the specific claim element in question -- "sensing an abnormal cardiac rhythm" -- recites a step at a very abstract level. Upon encountering the step of "sensing an abnormal cardiac rhythm," even one skilled in the art could reasonably ask how does the device sense the abnormal cardiac rhythm? The language of the disputed "sensing" element in this claim provides nowhere near as much detail as the "passing" steps found to be acts in O.I. Corp. v. Tekmar Co. See 115 F.3d at 1579, 1583 ("passing the analyte slug through a passage heated to a first temperature higher than abient,
as the analyte slug passes from the sparge vessel to the trap” is not a step-plus-function limitation). In Serrano v. Telular Corp., the Federal Circuit found that the step of “automatically determining the last-dialed number of the telephone number dialed on the telephone communications-type device” was an act and not a function. 111 F.3d 1578, 1583 (Fed. Cir. 1997). The “determining” step in Serrano was actually a sub-step to a more general step stated in the claim and explains a detailed point in the claimed method that is simply not comparable to the generic step of "sensing an abnormal cardiac rhythm.

Analyzing the "sensing" limitation in the context of the overall claim and the specification, the court concludes that the step recites a function rather than an act, even though the element is not introduced by "step for" language. First, the "sensing" step obviously is critical to the overall process. Second, the rest of the language in Claim 18 does not aid construction of the "sensing" step by filling in details that would answer the critical "how" question. Third, the specification discloses specific acts for accomplishing the sensing function. In light of the need to answer the critical question of how the patentee intended to accomplish the step of "sensing an abnormal cardiac rhythm," the court concludes that the "sensing" step in Claim 18 is a step-plus-function element controlled by 35 U.S.C. § 112 P 6.

The specification expressly teaches two manual "sensing" methods. In the physician-operated embodiment of Figure 1 and Figure 2, the external display and control console receives an ECG signal through an input device. The physician views a display of the ECG signal and determines the presence of an abnormal cardiac rhythm. In the patient-operated embodiment, the patient is taught to recognize the symptoms of arrhythmia based on sensing his or her heartbeat. Once the patient senses an arrhythmia, he or she places the magnet over the proper switch on the implanted device. 11

--- Footnotes ---

11 CPI claims that a second "automatic" sensing process takes place in the patient-operated device. According to CPI, the circuitry in the device "automatically" senses that an abnormal cardiac rhythm is present "due to the expiration of the time out period of timer 116 before the magnet is removed by the patient." Pl. Reply Br. at 47. The court disagrees. The "sensing" done by the timer, if anything, is sensing the elapse of the time delay and sensing that the magnet is still in place. If the first shock to the heart corrects the arrhythmia, but the magnet is left in place and the timer expires, another shock will be delivered to the heart even though the patient is no longer experiencing arrhythmia.

--- End Footnotes ---

The court intends to define "sensing an abnormal cardiac rhythm" as limited to the disclosed sensing methods of (1) displaying the ECG signal for observation and interpretation by a physician, or (2) direct observation of the heartbeat by the physician or patient, or (3) sensing methods equivalent to method (1) or (2).

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B. "sensing intervals between successive synchronization codes"

The last phrase disputed in this order is "sensing intervals between successive synchronization codes." Proposed constructions are shown below.

<table>
<thead>
<tr>
<th>LSIS PROPOSED CONSTRUCTION</th>
<th>SANDISK'S PROPOSED CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;SENSING INTERVALS BETWEEN SUCCESSIVE SYNCHRONIZATION CODES&quot;</td>
<td>&quot;SENSING INTERVALS BETWEEN SUCCESSIVE SYNCHRONIZATION CODES&quot;</td>
</tr>
<tr>
<td>&quot;Measuring the frame length(s) between successive synchronization codes based on the number of bits between the codes&quot;</td>
<td>&quot;Measuring the magnitudes of the intervals between the two successive synchronization codes&quot;</td>
</tr>
</tbody>
</table>

As stated, keeping the decoder synchronized with the audio bitstream was one of the primary objects of the present invention. The invention ideally accomplished this task by performing three steps: (1) calculating the expected interval between successive synchronization codes using the bitrate and sampling frequency of the audio data; (2) measuring the actual interval between successive synchronization codes; and (3) comparing the expected interval with the actual interval.
If the two intervals matched, then the decoder and bitstream would be "in sync" with each other (see col. 2:66-3:4).

A person having ordinary skill in the relevant art at the time the patent application was filed would have understood that the asserted claims covered this three-step approach. In particular, such a person would have understood that the "predetermined interval" found in the claims referred to the interval that was calculated using bitrate and sampling frequency information contained in the data header (see col. 10:5-25, 10:38-58, 11:29-47, 12:1-17).

The question presented is whether the phase "sensing intervals between successive synchronization codes" is limited to one specific approach disclosed in the specification for measuring the actual interval between synchronization codes (step two of the three-step process), or whether alternative approaches at measuring the interval between synchronization codes could be used. Specifically, LSI's construction limits the "measuring" step to counting the number of bits between successive synchronization codes, while SanDisk's construction does not.

The claims provide insight into the proper construction of this phrase. Both claim 1 and claim 5 include a "sensor for sensing intervals between successive synchronization codes" (col. 10:38-58). LSI's proposed construction would require this sensor to "measure the frame length" between successive synchronization codes "based upon the number of bits between the codes." This construction, however, is inconsistent with claim 15. As shown below, claim 15 -- which is dependent upon claim 5 -- adds a new element to the system called a "counter." The "counter" performs the very function that LSI's proposed construction would impart on the "sensor":

15. A system as in claim 5, wherein:

said bitstream comprises bits of data such that said intervals between successive synchronization codes corresponds to a number of said bits; and

the system further comprises a counter for counting said bits between successive synchronization codes to determine said number of said bits and said interval between successive synchronization codes.

Given this language, claim differentiation weighs strongly against a finding that the "sensor for sensing intervals between successive synchronization codes" in claim 5 is limited to the exact same function as the "counter" in claim 15. Additionally, nowhere in the claim language is the term "frame length" -- used in LSI's proposed construction -- used to describe the interval between successive synchronization codes. Rather, the claims exclusively refer to the term "interval" to describe the separation between successive synchronization codes. In light of the clear language of the claims, LSI's proposed construction must be rejected.

SanDisk's proposed construction, by contrast, properly employs the term "interval" used throughout the claims, and is consistent with the description of the present invention set forth in the specification (see 2:66-3:3, 3:37-42). Moreover, it does not improperly limit the "sensor" or the "sensing" step to counting "the number of bits between" synchronization codes. Given the intrinsic evidence set forth above, a person having ordinary skill in the relevant art would have understood "sensing intervals between successive synchronization codes" to mean "measuring the interval between successive synchronization codes."

IV. Interpretation of the Term "Sensor"

The parties dispute the meaning of the term "the sensor" in claim 107 of the 855 Patent and claims 12, 20, and 47 of the 480 Patent. Hunter Douglas argues that these claims are indefinite under 35 U.S.C. § 112, P 2 because they refer to a non-existent element called "the sensor" in preceding claims from which they depend.

Under 35 U.S.C. § 282, a patent is presumed valid. See 35 U.S.C. § 282. The defendant has the burden of proving facts by clear and convincing evidence establishing that the patent is invalid. See North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1579 (1993). Indefiniteness is a question of law. See id. The determination of whether a claim is invalid as indefinite "depends on whether those skilled in the art would understand the scope of the claim when the claim is read in
light of the specification." Id. While claims may be rendered indefinite for lack of antecedent basis, such claims may nevertheless remain definite when read in light of the specifications. See Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116-17 (Fed. Cir. 1987); Messerschmidt v. United States, 29 Fed. Cl. 1, 42 (1993).

The language of the disputed claims refers to "the electronic circuit [that includes] a switch electrically connected to the sensor for receiving the control signal." Neither the disputed claims nor the claims from which they depend refer to or define a sensor element. The independent claims, however, do refer to a "control signal generator for generating a control signal." Hunter Douglas argues that it is unclear whether the term "the sensor" refers to "the sensor for receiving the control signal" from the control signal generator of the independent claims or whether "the sensor" is part of the control signal generator itself. Hunter Douglas argues further that the specifications do not resolve the ambiguity because they refer to two sets of sensors, one that generates signals and one that receives those signals.

Contrary to Hunter Douglas' argument, the specifications of the patents at issue do resolve the ambiguity. The specifications refer to "[a] control signal generator, preferably a daylight sensor 28 . . . [that is] electrically connected to electronic components within the actuator 10 to send a control signal to the components." 480 Patent, col. 9, lines 30-38; 855 Patent, col. 8, lines 22-30. The specifications also refer to "another control signal generator, preferably a signal sensor 29 . . . [that is] electrically connected to the electronic components within the actuator 10 [and] that can generate an electrical control signal to activate the actuator 10." 480 Patent, col. 9, lines 43-58; 855 Patent, col. 8, lines 34-49. Thus, it appears that the term "the sensor" in the disputed claims refers to the control signal generator in the independent claims.

Hunter Douglas is correct that the specifications refer to a second set of sensors, namely the "first and second stages 144, 146 of a type 4538 activity sensor." 480 Patent, col. 13, lines 39-40; 855 Patent, col. 12, lines 26-27. But the specifications also make clear that these devices receive the signals produced by the signal sensor 29 through the means of an electrically connected "switch." Thus, it appears clear that the "switch" in the disputed claims is the device that "receives" the control signal generated by "the sensor."

Because the specifications resolve the ambiguity of the claim language, the Court is inclined to find that the claims are not invalid as indefinite. Furthermore, the Court is also inclined to find that one of ordinary skill in the art would understand the term "sensor" to mean a "device designed to respond to a physical stimulus (as heat or cold, light, a particular motion) and transmit a resulting impulse for interpretation or measurement or for operating a control." Webster's Third New International Dictionary (unabridged edition) (1986), p. 2068.

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E-Watch proposes "a server-controlled network device that contains a sensor for monitoring an area and which generates and transmits an IP signal indicating a condition in the monitored area." March Networks suggests "a device which detects occurrence of an event and generates an output indicating that the event has occurred."

The specification teaches that a "sensor appliance" is different than just a sensor. See 183 patent, col. 5, 1. 7 ("multiple sensors and appliances . . ."). The two are also listed separately in col. 5, ll. 39-43.

The parties agree that a "sensor appliance" is a "network device," which means that it generates an output or signal that is internet protocol compliant. This distinguishes the sensor appliance from a conventional sensor which generates a signal or an output that must be modified or processed before it can be transmitted over the internet. Examples of a conventional sensor would be a household fire alarm with a siren, or a pressure monitor with an analog dial gauge.

March Networks limits its definition to detecting an event. However, an IP camera, an audio monitor, or a thermostat might monitor both static, unchanging conditions in an area, as well as discrete events in the same area. E-watch limits its definition to a device that indicates a condition. There is no support in the specification for limiting the device in either way. The sensor appliance may monitor conditions, such as temperature and/or events, such as an intrusion into an area. See 183 patent, col. 5, ll. 39-50 (specifications describe detection for temperature and smoke conditions); see also 183 patent, col. 7, ll. 50-55 (specifications describe "event detection such as by motion detection, contact closure. . . ."). At the Markman
hearing, the parties seemed to agree that a sensor appliance may monitor a condition or event. Transcript from July, 12, 2006 Markman Hearing ("Tr.") pp. 17-24.

Contrary to the E-watch proposal, the claim is not limited to a device which is server controlled. There are sensor appliances which monitor continuously and/or automatically and which may be unresponsive to any "control" from a server. See 183 patent, col 42, ll. 17-19. E-Watch is not opposed to deletion of the term "server-controlled." See Tr. p.15. The court therefore defines the term as follows:

"Sensor appliance" means: "a network device which contains one or more sensors for monitoring an area and which generates and transmits an IP signal indicating a condition or event in the monitored area."

Where an element in a claim is expressed as a means or step for performing a specified function without reciting structure, it "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112, P 6. This two-step inquiry involves determining (1) whether § 112, P 6 applies and, if it does, (2) identifying the claimed function and corresponding structures in the written description. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1360 (Fed. Cir. 2000).

The court recognized that the use of the word "means" in the claim language invokes a rebuttable presumption that § 112, P 6 applies; conversely, the failure to use "means" invokes a presumption that § 112, P 6 does not apply. Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1365 (Fed. Cir. 2003). Here, the key disputed phrases are "sensor means," "control circuit means," and "switching means." Nonetheless, the presumption that § 112, P 6 applies may be rebutted if the claim recites no function or recites sufficient structure for performing that function. Sage Prods. v. Devon Indus., 126 F.3d 1420, 1427, 28 (Fed. Cir. 1997).

The district court ultimately rejected DESA's argument that the asserted claims contained sufficient structural language to escape the application of § 112, P 6. Hr'g Tr. at 659:12-15.

Although the district court seemed to rely upon expert testimony, we note that its conclusion could have been reached without the aid of extrinsic evidence. First, the claims use both means-plus-function language (i.e., "sensor means," "control circuit means," etc.) and structural language (i.e., lamp, zero crossing detect circuit, etc.), which suggests that the patentee intentionally used "means" language to invoke § 112, P 6. Second, the claims recite a function for each of these "means" limitations without specifying what structure(s) would be required to perform that function. Third, we reject DESA's argument that the use of "sensor," "control circuit," and "switching" before the word "means" was sufficient to denote structure. Rather, those modifiers were simply used to distinguish between subsequent references to different "means" limitations within the same claim, i.e., "said first and second sensor means" as opposed to "said control circuit means." Finally, DESA argues that this court has previously stated that "it is clear that the term 'circuit' by itself connotes some structure." Apex, 325 F.3d at 1373. In Apex, however, the word "means" was not used, so the reverse presumption--i.e., that § 112, P 6 does not apply--was invoked. Here, we agree with the district court that DESA failed to overcome the presumption that § 112, P 6 does apply to "sensor means," "control circuit means," and "switching means."

n4 While the court did not explain in detail the reasons behind its oral decision, we infer that the court found the expert testimony of Mr. Thesz and Professor Massengill to be more persuasive.
3. "separate from"/"the operation terminal which is separate from the business office device and connected to the business office device"/"separate device"

The next disputed claim terms concern the meaning of "separate" in the context of the patents. These terms appear in various claims of the '289 and '120 Patents. (Chart at 15-17). Claims 62, 68, 69 and 72 of the '289 Patent recite that the operation terminal is "separate from" the business office device. The relevant claims of the '120 Patent recites either a "separate device" or a computer that is "separate from" the business office device. See e.g., '120 Patent, Claims 1, 16 & 126. The parties agree that these variations of the claim term "separate" should be construed in the same way. (Chart at 17).

Ricoh argues that "[a] module of an office machine system is separate from another module if it has its own intelligence and communication capability and is an interchangeable module." (Id. at 15). Ricoh further argues that the "intelligent modules communicate by using an intelligent communication protocol." (Id.). Pitney asserts that the operation terminal and the business office device are "physically apart" from each other and are only connected by a communication line. (Id.). Pitney also contends that a "separate device" means "[a] device that is external or apart from another device during operation, but connected to the external device by a communication line." (Id. at 17).

Again, this Court must determine whether the claim term requires "physical separation" between the devices. Ricoh offers a construction analogous to the one offered for "office machine system" -- that is, one focused on the modular communication between the devices. Ricoh relies on various portions of the '289 Patent specification and the prosecution histories of the '779, '554 and '289 Patents in support of its construction.

Pitney likewise offers an analogous construction which emphasizes the physical configuration of the invention. Pitney relies on the plain language of the claims of the '289 Patent and '120 Patents. For example. Claims 62 reads:

A system, comprising:

a business office device including:

a memory which stores state data of the business office device;

a transmitting device which transmits the state data out of the business office device;

a receiving device which receives commands; and

an engine for performing mechanical functions within the business office device,

an operation terminal, separate from the business office device and connected to the business office device . . . .

'289 Patent, Claim 62. Additionally, Pitney relies on similar intrinsic evidence that it relied on in support of its construction of "office machine system."

Consistent with this Court's analysis and conclusion regarding "office machine system," and based on the plain meaning of the word "separate" which suggests distance between the elements, the Court concludes that these disputed claim terms also require physical separation between the devices. The Court does not find, nor does Ricoh provide, sufficient support that would lead this Court to a different conclusion. Since Pitney's construction best supports this interpretation, the Court adopts it. Accordingly, the term "separate" in the context of the relevant claims requires "physical separation."
The parties dispute whether the "separate and discrete additional element" can be combined with the discrete lottery elements, for example by adding the additional element if color to a discrete lottery element like a number. FortuNet asserts that adding color to the number was one of the specific embodiments in the specification as shown in Figure 6. FortuNet also contends the claim language does not indicate the additional element must be mother game piece. Additionally, FortuNet argues the patentee withdrew its distinction of the Grossman patent, and therefore the patentee's statements related to that distinction no longer apply. FortuNet also argues dependent claim 5 includes the limitation of separate game pieces, so this limitation should not be read into independent claim 1.

Planet Bingo argues the claim language requires the additional elements be "discrete," "separate," and "distinct" from the discrete lottery elements. Planet Bingo contends the patentee had to make these distinctions to overcome the Grossman reference which mixed together the usual element and an additional factor by coloring the die face. Planet Bingo notes this interpretation is consistent with the embodiment in Figures 9-12, and requiring the additional element to be a unique game piece is critical to the invention's operation because each additional element drawn affects the player's odds of matching the remaining lottery elements drawn. Planet Bingo further continues its argument that FortuNet cannot rely on other embodiments in the specification other than Figures 9-12 because the patentee elected not to pursue those embodiments.

Claim 1's plain language requires the additional element to be "separate and discrete" from the discrete lottery elements. Separate does not mean combined. The plain meaning is bolstered by the patentee's own statements during prosecution. In response to the examiner's rejection, the patentee distinguished his invention from Grossman by stating Grossman combined elements whereas the present invention had entirely separate game pieces. The prosecution history does not support FortuNet's assertion that the patentee withdrew this distinction in a subsequent amendment. First, the patentee did not expressly withdraw his distinction of Grossman. Second, in the same amendment the patentee removed the word "single" which he originally used to distinguish Grossman, he inserted the word "separate" to describe the additional elements. FortuNet offers no explanation for what significance the Court should give to the word "separate," and is unable to articulate a difference between "single" and "separate." Further, the patentee made no effort to distinguish Grossman on a different basis during the subsequent amendment. Finally, in the amendment in which the patentee added the word "separate," he remarked that the dependent claims "have been amended for consistency with the amendments made to the independent claims from which they depend and in particular that the 'single' and 'individual' nature of the game pieces is now part of the independent claims." (JA0309 (emphasis added).)

The prosecution history is clear. The patentee amended his claims to overcome prior art. The additional elements must be separate and cannot be combined with the lottery elements. The patentee's understanding is reflected in the amended claim language which requires the additional elements be "separate."

This construction does not render superfluous dependent claim 5. Dependent claim 5 adds the limitation that "the lottery elements are game pieces which are identically shaped and have different indicia thereon, and wherein said adding step includes the adding of at least one additional game piece which is identically shaped to the lottery game pieces as the additional element to a group formed from the lottery game pieces." (JA0207.) Claim 5 adds the limitations of game pieces of identical shape, a limitation not expressed in independent claim 1.

The Court therefore holds that "separate and discrete additional element" means "an element having no value, and not being available for designating by the player as one of the winning numbers or symbols of the usual lottery series. A separate and discrete additional element cannot be combined with a discrete lottery element."

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B. "a Separate Audio Programming channel of the television carrier"; "an SAP associated with television signals" 5

--- Footnotes ---

5 The term "a Separate Audio Programming channel of the television carrier" is used in claim 5 of the '195 patent, and the term "an SAP associated with television signals" is used in claim 30 of the '334 patent. See Rawlinson Decl., Exhs. 4 ('195 patent), 6 ('334 patent).
The parties dispute with respect to these two terms is limited to the scope of the term "Separate Audio Programming channel" (hereinafter, "SAP channel" or "SAP subchannel"). Plaintiff contends that "persons of ordinary skill in the art understand and use 'SAP channel' to [include] any channel that carries [separate audio programming]." Reply at 12:9-13. Defendant, however, contends that the term is more limited:

Separate Audio Programming channel (also known as the 'Second Audio Program' or 'SAP' subchannel) is the channel containing the frequency-modulated second audio program subcarrier. The second audio program subcarrier is the particular subcarrier of the standard terrestrial analog television signal designated by the BTSC (Broadcast Television System Committee of the Electronics Industries Association) to carry the second audio program, if any.

Opposition at 7:5-10 (emphasis added).

In support of its definition, Defendant relies primarily on the Office of Engineering and Technology's ("OET") Bulletin No. 60, Revision A (February 1986), entitled Multichannel Television Sound Transmission and Audio Processing Requirements for the BTSC System (hereinafter, "the Bulletin"). See Rawlinson Decl., Exh. 8. The Bulletin contains the "standards for the BTSC system," including (1) definitions, (2) transmission standards, (3) transmission system requirements/multichannel sound requirements, and (4) modulation levels. Id. at A434-47.

The Bulletin defines a "multiplex transmission" as "[t]he simultaneous transmission of the TV program main channel audio signal and one or more subchannel signals." Id. at A435. One of the four subchannels discussed in the Bulletin is the "SAP subchannel," 7 which is defined as "[t]he channel containing the frequency-modulated second audio program subcarrier." Id. at A436. Therefore, according to the Bulletin, an "SAP broadcast" is "[t]he multiplex transmission of a second audio program utilizing the second audio program subchannel." Id. at A435. The Bulletin also indicates that the "SAP subchannel" exists at a specific location on the terrestrial analog broadcast signal. Id. at A437 ("[t]he subcarrier frequency shall nominally be equal to the fifth harmonic of the horizontal line rate"; "the second program encoded signal shall frequency modulate the subcarrier to a peak derivation of +/- 10kHz")

7 The additional subchannels are the (1) stereophonic subchannel, (2) non-program related subchannel; and (3) pilot subcarrier. Rawlinson Decl., Exh. 8 at A435.

Analog cable broadcasts are no different (i.e., the "SAP channel" is similarly situated in both terrestrial and analog cable transmissions). See Rawlinson Decl., Exh. 9 (Walter Ciciora, et al., Modern Cable Television Technology, Morgan Kaufman Publishers, Inc., 1999) at A452 ("[a] limited bandwidth (10 kHz) monaural second audio program (SAP) channel is frequency modulated onto a carrier at five times the horizontal scan frequency"). The only distinction is the mode of transmission (i.e., a cable signal is transmitted over wires as opposed to terrestrially). Thus, the Bulletin's limitation to terrestrial signals is of no moment. 8

8 This is also consistent with the Court's prior ruling that the terms "data from a television carrier" and "television signals"
were not limited to terrestrial audio signals. See April Order 4:9:21-10:10.

The more difficult question is whether the term "SAP channel" is broad enough to include digital broadcast transmissions. In order to resolve this question, the Court must first explain how a digital broadcast system works in context (e.g., digital satellite television). First, the analog programming, including the information inserted into the "SAP channel," is "converted into a high-quality, uncompressed digital stream" at a central location or broadcast center. Baker Decl., Exh. G (Karim Nice & Tom Harris, How Satellite TV Works (online)) at 3. After the digitalized programming is compressed and encrypted, the broadcast center transmits the signal directly to a satellite; the satellite, in turn, retransmits the signal to individual satellite dishes. Id at 4. The end component is the receiver, which de-scrambles the encrypted digital signal and "converts it into an analog format that a standard television can recognize." Id. at 6.

Although the programming, including information inserted into the "SAP channel," still exists while in digital form, it is no longer cognizable in the same way. In other words, the broadcast signal described in the Bulletin does not exist in the digital medium. Id. at 4 (describing the digital data in terms of megabits per seconds (Mbps)). However, it is evident that, even in the context of a digital broadcast system, the programming both begins and ends in analog format. Thus, the dispute here revolves around the interim period during which the programming is digitized.

Unfortunately, the parties provide little information regarding the implication of digitalization on the definition of "SAP channel." Although the technical sources submitted by Defendant (the Bulletin and pages from Modern Cable Television Technology) provide a clear explanation of analog broadcast signals (including the contours of the term "SAP channel"), they are silent with respect to digitalization of an analog signal.

Plaintiff's expert, Charles Jablonski, is equally uninformative. First, Mr. Jablonski asserts that "the only difference between the SAP channel of an analog television carrier and the SAP channel in a digital broadcast is that in the latter signal the SAP channel has been digitalized." Declaration of Charles H. Jablonski ("Jablonski Decl.") P 5. This statement, of course, belies the fact that the "SAP channel," which exists as part of an analog signal, does not exist in the same way in the digital medium, although the content remains.

Moreover, Mr. Jablonski concludes that "[b]ecause users can listen to Second Audio Programming channels either when they are broadcast as BTSC standard subchannels or when they are digitized for satellite or digital cable broadcast, persons of ordinary skill in the art understand and use 'SAP channel' to mean both the standard subchannel (i.e., spectrum allocation) and any channel that carries SAP." Id. P 6. However, it is clear from the intrinsic record that the term "SAP channel," as used in the '195 and '334 patent, is not broad enough to include any channel that carries separate audio programing. The claims themselves distinguish the "SAP channel" from other locations that might carry the prescribed "data" or "audio." See Rawlinson Decl., Exh. 4 ('195 patent), Claim 4 ("wherein the tuner extracts data from a vertical blanking interval of the television carrier"); Exh. 6 ('334 patent), Claim 35 ("wherein the audio is carried in an FM subcarrier associated with television signals") (emphasis added). This distinction would be rendered meaningless if these additional locations were also defined as "SAP channels" whenever they carried separate audio programming. See CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000) ("[i]n the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings")

However, the disputed claims themselves provide the Court with some guidance on this issue. First, claim 5 of the '195 patent, as a dependant of claim 1, describes a "receiver" which is comprised, in part, of a "tuner [which] extracts data from a Separate Audio Programing channel." See Rawlinson Decl., Exh. 4. Moreover, claim 30 of the '334 patent describes a "receiver" that is comprised, in part, of "a controller coupled to the television tuner and which provides audio from a signal received at the television tuner, wherein the audio is carried in an SAP associated with television signals received at the tuner." Thus, the only requirement with respect to the two disputed terms respectively is that the "tuner" "extract []" or "receive []" "data" or "audio" from the "SAP channel." In other words, the events that transpire prior in time to extraction or receipt by the "tuner," including prior digitalization, are not the subject of these terms.

Therefore, the Court defines "SAP channel" as "the part of the analog signal specifically designed to carry second audio programming," but notes that this definition must be applied in light of the preceding discussion.
Ventana next urges that the verdict of infringement with regard to claim 8-15 of the '061 patent should be set aside because the district court erred in its construction of "separate electrical power connections being provided to said first and second heating elements" in those claims. n8

The district court construed the phrase to mean "each heating element has a separate connection to power and ground." (J.A. at 30.) The district court's construction did not require the separate connections to be off the moving platform. Ventana argues that its devices would not infringe if the phrase were construed to include an "off the moving platform" limitation.

The language of claim 8 makes no reference to an "off the moving platform" limitation. Claim 8 of the '061 patent reads:

8. A microscope slide stainer with random access slide staining capability comprising:

   a moving platform adapted to carry microscope slides, said moving platform moving the slides to a dispensing station for adding liquid reagent to said slides;

   a first heating element positioned on the moving platform, said first heating element adapted to move with the platform and to be located immediately adjacent to at least one microscope slide and having a first electrical power connection;

   a second heating element positioned on the moving platform, said second heating element adapted to move with the platform and to be located immediately adjacent to at least one microscope slide and having a second electrical power connection, separate electrical power connections being provided to said first and second heating elements;

   a motor drive capable of indexing said microscope slides adjacent to said dispensing station; and

   electronic control for heating the first and second heating elements.

There is no requirement in the claim that the electrical power connections be "off the moving platform." Furthermore, the preferred embodiment of the invention described in the specification has electrical power connections that are on the moving platform. See '061 patent col. 5, l. 50-col. 6, l. 4 & Fig. 7. We have previously held that "[a] claim construction that excludes a preferred embodiment . . . is rarely, if ever, correct." SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1285 (Fed. Cir. 2005) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996)). Ventana's tortured arguments based on the specification and prosecution history do nothing to undermine the plain language of the claims and the fact that the preferred embodiment has electrical power connections on the moving platform. The district court correctly construed the phrase. We sustain the jury verdict concluding that the "separate electrical power connections" limitation of claims 8-15 of the '061 patent is satisfied.
B. "A separate set of queue replenishment control rules"

Independent claims 13 and 23 both recite a step of "monitoring the subscriber rental queue with a computer in accordance with said set of notification rules and a separate set of queue replenishment control rules." Plaintiff proposes that "a separate set of queue replenishment control rules," in this context, be construed to mean "a set of rules (distinct from the set of notification rules) relating to the refilling of the subscriber's rental queue." Defendants contend that the claim term is indefinite, or in the alternative, if the claim term is amenable to construction, it should be construed to mean "a set of rules (distinct from the set of notification rules) governing when to review the subscriber's rental queue and whether to automatically add media items to the queue."

1. Indefiniteness

As discussed above, defendants' argument in support of rendering the claim terms indefinite is based on the fact that the specification of the '243 patent fails to explicitly define the boundaries of the terms "notification rules" and "replenishment control rules." However, the Court finds that reasonable efforts will enable a person of ordinary skill in the relevant art to understand the meaning of these terms, thereby rendering these terms amenable to construction.

2. Claim Construction

With regard to construction of the claim term, plaintiff argues that defendants are attempting to improperly narrow the construction of the claim term to cover only one portion of a preferred embodiment of the claimed invention that is disclosed in the specification. Defendants contend that, based on the plain meaning of the terms "replenishment," "control," and "rules," and the specification describing the options and parameters related to queue replenishment, the term "queue replenishment control rules" must be construed to govern when to review the rental queue and whether to automatically add items to the queue.

First, defendants contend that the queue replenishment control rules must govern whether to automatically add items to the queue. Defendants assert that the plain language of the term "queue replenishment control rules" means the rules must control the replenishment of the subscriber's queue. Defendants also assert that the specification confirms that the replenishment is under the control of the computer system so that it must be performed automatically, rather than manually by the subscriber. Defendants further assert that during prosecution of the '243 patent, the patentee confirmed that he was claiming "a set of rules which automatically cause a modification to a subscriber's rental queue." Amendment A and Response 9, Chivvis Decl., Ex. J (Docket No. 171-6). Second, defendants contend that the "queue replenishment control rules" must also govern when to review the subscriber's rental queue in light of the claim language indicating that the computer uses the notification rules and the queue replenishment control rules to monitor the subscriber's rental queue and determine if an electronic notification should be sent to the subscriber. '243 patent 27:21-28, 27:36-39, 28:20-29.

Plaintiff argues that defendants are attempting to construe the claim language to cover only the preferred embodiments described in the specification. Plaintiff particularly objects to defendants' proposed construction to limit "queue replenishment control rules" to rules governing whether media titles should be automatically added to the queue, and exclude rules for simply determining whether the queue is in need of replenishment and rules relating to the type of media items with which the queue may be replenished.

Again, the Court finds that while plaintiff's construction of the claim term is overly broad, defendants' construction is too narrow. Step (b) as recited in claim 13 reads as follows:

"monitoring the subscriber rental queue with a computer in accordance with said set of notification rules and a separate set of queue replenishment control rules authorized by the subscriber so that said computer can determine if a composition of such rental queue should be altered through additions of playable media titles and/or ordering of playable media titles in the subscriber rental queue should be altered."

'243 patent, 27:21-29 (emphasis added). Step (b) as recited in claim 23 reads as follows:
monitoring the subscriber rental queue with a computer in accordance with said set of notification rules and a separate set of queue replenishment control rules authorized by the subscriber so that said computer can determine if a composition and/or ordering of playable media titles in the subscriber rental queue should be altered.

Id. 28:20-25 (emphasis added). Based on the claim language, it is clear that "a separate set of queue replenishment control rules" refers to a set of rules that is used by a computer to determine whether to add media titles to the subscriber queue. As defendants point out, the term "queue replenishment" clearly implies addition, and not just alteration, of media titles. Also, during prosecution of the '243 patent, the patent examiner made claim rejections based on the fact that queue replenishment rules "employed to determine if the ordering of the titles in the queue should be changed" are disclosed in the prior art Hastings patent. See First Office Action 6. In response, the patentee argued that "[i]n the Hastings system . . . titles are taken out, but there is no 'replenishment' shown or suggested." The patentee further asserted that his invention is distinguishable over the prior art in that it includes a feature of altering the subscriber queue "through additions of playable media titles." Amendment A and Response 9-10 (emphasis in original). 6

Further, it is clear from the intrinsic evidence and the prosecution history that the asserted claims only cover automatic replenishment of the subscriber queues. First, the claim language clearly indicates that a computer determines "if a composition . . . and/or ordering of playable media titles in the subscriber's rental queue should be altered" based on the notification rules and the queue replenishment control rules. This language clearly implies that the computer, not the subscriber, determines whether it should automatically modify the subscriber's rental queue. '243 patent, 27:25-26, 28:24-25. 7

Second, a non-automatic queue replenishment feature is neither taught nor suggested in the '243 patent. Any feature related to queue replenishment is described as being automatically implemented by a computer system in the specification. See e.g., '243 patent, 10:28-31 (disclosing automatically replenishing a queue without burdensome participation by the subscriber), 18:36-40 (disclosing a service provider server device that includes a function for prompting a subscriber to select automatic notice/auto-replenish/auto-ship options). Also, the background of the '243 patent describes how, in the prior art system, subscribers run the risk of unwittingly leaving their queues empty and thereby not receiving media items they would otherwise be entitled to receive "unless they constantly monitor their own rental queue to make sure it is stocked with selections for shipping." '243 patent, 2:15-18. The summary of the invention states that its object is "to provide a recommender system that coordinates with a queue monitoring system, so that the subscribers/purchasers can enjoy the benefits of such system even during periods when they are not actively engaged with an online rental/purchase system." '243 patent, 3:17-21. The detailed description specifies one of the advantages of the claimed invention as "automatically ensuring that [the subscriber's] preference queue is never allowed to completely run 'dry' so to speak." Id. 5:60-62. Further, plaintiff does not refute defendants' assertion that the queue replenishment feature must be automatic and instead argues that the automatic modification of the subscriber queue is merely an optional feature of the claimed invention in light of the language in the specification that describes the primary advantage of the claimed invention as providing automatic

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notification to a subscriber about his/her queue status. This argument, however, struthiously ignores the fact that both claims 13 and 23 explicitly recite the term "queue replenishment control rules." Although a subscriber may choose not to benefit from the automatic queue replenishment feature, the subscriber still has to be presented with this option, and a computer must determine whether the subscriber has selected this option. In other words, the feature of determining whether to automatically replenish media titles is an essential element of the claimed invention, not merely an optional feature.

Third, the patentee confirmed during prosecution of the '243 patent that his invention was directed to techniques "in which a user can set up a set of rules which automatically cause a modification to a subscriber rental queue." Amendment A and Response 9 (emphasis added). Plaintiff argues that the patentee merely noted that a user "can" (but does not necessarily have to) set up rules for causing automatic modification of the subscriber queue. However, plaintiff's somewhat forced reading of the "can" language is inconsistent with the claim language explicitly reciting the term "queue replenishment control rules" and the intrinsic evidence describing the queue replenishment feature as an automatic feature implemented by a computer.

The Court notes that claim 13 recites language further requiring the queue replenishment control rules to include "a trigger event to be used in determining when said subscriber rental queue should be modified." '243 patent, 27:29-31 (emphasis added). However, in light of the fact that this language is not recited in claim 23, the Court finds that defendants' proposal to construe the term "queue replenishment control rules" to govern "when to review the subscriber's rental queue" is improper. Therefore, the Court shall construe "a separate set of queue replenishment control rules" to mean "a set of rules (distinct from the set of notification rules) governing whether to automatically add playable media titles to the subscriber's rental queue."

I. Claim Construction of "interposed field oxide film"

The plain meaning of the claim language common to both patents is that a field oxide film is interposed between and separates the impurity diffusion layers associated with the buffer MOSFETs from the impurity diffusion layers associated with the protection MOSFETs. The buffer MOSFETs are those that are part of the output buffer circuit. The protection MOSFETs are those that are part of a protection circuit provided to protect the above-mentioned output buffer circuit. Taken as a whole, the structural and functional relationships among the elements as required by the plain meaning are apparent: protection MOSFETs are part of the protection circuit that functions to protect an output buffer circuit, and the impurity diffusion layers of the protection MOSFETs must be separated from, and have a field oxide film interposed between, the impurity diffusion layers of buffer MOSFETs that are part of said output buffer circuit.

The claims make no express qualifications as to whether "any," "at least one," "some," "most," or "all" of the various MOSFETs are the subject of the claims. The plain meaning, however, is that all of the MOSFETs comprising the respective circuits are subject to the limitations. The claim language provides that the set of buffer MOSFETs are separated from the set of protection MOSFETs by an interposed oxide film; the plain language does not permit an interpretation that some within the set might not be separated, notwithstanding the open claim language introduced by the term "comprising" in the claim preamble.

The specifications of the patents further support the Court's construction. The title and field of the invention inform the reader that the aim of the invention is to provide a "protection device" or "protection elements" for preventing the electrostatic breakdown of output buffer MOSFETs. '571 patent at [54], 1:9-12. The patentee notes that a device having buffer MOSFETs and offset gate MOSFETs (for the prevention of electrostatic breakdown), wired in parallel, were known in the prior art. Id. at 1:14-30. Because these prior art devices were still subject to electrostatic breakdown, the purpose of the invention is to provide improved circuitry "capable of more effectively preventing... electrostatic breakdown." Id. at 1:38-40.

The specification implies that at least one improvement over the prior art included separating the protection elements from the buffer elements. The specification describes this in detail:

When the electrostatic discharge flows into the channels and the semiconductor substrate 12 near the channels, a potential
at the semiconductor substrate is raised. Since, however, each of the impurity diffusion layers 18 of the buffer MOSs [sic] 14 and 14' and each of the impurity diffusion layers 20 of the protection elements 16 are separated from one another by the semiconductor substrate 12 and the field oxide film 44 as mentioned above, the resistance between the impurity diffusion layers 18 and 20 increases. Thus, since a voltage drop is developed by the resistance, the potential at each of the channels of the buffer MOSs 14 and 14' and the potential at the semiconductor substrate 12 provided near the channels can be prevented from increasing or being reduced. As a result, the drain withstand voltages BV[sd] of the buffer MOSs 14 and 14' are little reduced, thereby making it possible to prevent snapback of each of the buffer MOSs 14 and 14'.

'571 patent at 6:35-52. Thus, the specification explains that the underlying cause of electrostatic breakdown in the devices is due to the lack of a sufficiently resistive medium between the respective MOSFETs, that is, it is a consequence of the chip construction and layout.

The layout of the device of the invention is described as "the impurity diffusion layers of each buffer MOS 14 and the impurity diffusion layers 20 of each protection element 16 are respectively separated from one another and disposed so as to be spaced away from one another. This is because the substrate 12 and the field oxide film 44 are interposed between the impurity diffusion layers 18 and 20." Id. at 6:4-10 (emphasis added). All the embodiments described in the specification adopt a similar physical separation between the respective sets of buffer and protection MOSFETs.

n5 The specification enumerates six embodiments and proceeds to describe only those features that differ from the previously described embodiments. Nothing in the specification contradicts the concept that the buffer and protection elements have a field oxide film interposed between each element as a set.

n5 The prosecution history of the '571 patent also supports the interpretation derived from the plain meaning of the claim language. In the response to the first office action, the patentee describes the "present invention," as a prelude to addressing the substantive rejections, as follows: "The buffer MOSFETs have impurity diffusion layers (18) which are spaced from impurity diffusion layers (20) of the protection MOSFETs. A field oxide film separates the buffer MOSFETs from the protection MOSFETs. This arrangement of semiconductor device (10) prevents electrostatic breakdown of each buffer MOSFET."

Id. at 18. The patentee uses similar language to distinguish the claimed invention from a reference applied under section 103 for obviousness. The patentee explains that the reference does not "disclose that the impurity diffusion layers of the buffer MOSFETs are spaced from the impurity diffusion layers of the protection MOSFETs, and that a field oxide film is disposed between the buffer MOSFETs and the protection MOSFETs." Id. at 18-19. The patentee consistently characterized the invention as having the set of buffer MOSFETs separated from the set of protection MOSFETs.

The Court thus concludes that the limitation "said buffer MOSFETs having impurity diffusion layers separated from said impurity diffusion layers of said protection MOSFETs by an interposed field oxide film" requires that all impurity diffusion layers of the protection MOSFETs be separated by an interposed field oxide film from the impurity diffusion layers of the buffer MOSFETs that the protection MOSFETs serve to protect.
The term "respective separately executed" appears in claim 1 of the 037 Patent. 037 Patent, 55:27. The related term, "executed separately from said kernel," is found in claims 7 and 11. Id. at 56:41-42, 57:10-11. Plaintiff argues that no construction of these terms is necessary, while defendant requests that the court construe "respective separately executed" to mean "executed by a processor that does not execute the kernel or any other facility." Defendant also argues that "executed separately from the kernel" should be construed as "executed by a processor that does not execute the kernel."

Once again, the court looks first to the language of the claims. Plaintiff contends that "respective separately executed" is unambiguous. However, from the plain meaning of the term alone, it is unclear that a person of ordinary skill in the art would be able to discern what is being separately executed from what. Fortunately, the court need go no further than the language of claim 1 to answer this question. In that claim, the phrase "respective separately executed" describes a "software entity"—i.e., one the operating system peer-level facilities. See id. 55:26-27. The claim language also recites a processor unit that is associated with each of the peer-level facilities and executes the "respective separately executed software entity." Id. at 55:21-25. Synthesizing these elements, the court construes the term "respective separately executed software entity" as "an operating system peer-level facility executed separately from other operating-system peer-level facilities." 8

--- Footnotes ---
8 As discussed above, the specification of the 037 Patent defines the kernel as a peer-level facility. Thus, by implication, the court agrees with defendant's assertion that the definition of "executed separately" must mean executed separately from the kernel.

--- End Footnotes ---

Similarly, Claims 7 and 11 recite "operating system peer-level facilities" or "additional component facilities executed separately from said kernel." Id. at 56:37-42, 57:10-11. Taking claim 11 as an example, the claim also recites "a plurality of processors executing [the] operating system, each of said processors including local memory for the storage and execution of a respective component facility," Id. at 57:16-20. In other words, each of the component facilities—including the kernel as well as the "additional component facilities"—are executed by a separate processor. Accordingly, the court, adopting defendant's proposed construction, construes "executed separately from the said kernel" to mean "executed by a processor that does not execute the kernel."

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D. Claim Construction of "separately, independently, and simultaneously"

To determine the proper construction of this term, the Court first turns to the claim language. Claims 1, 2, 5, and 6 of the '511 Patent call for "display means responsive to said first and second electrical signals for separately, independently, and simultaneously producing first and second separate visual displays, said display means including a first display means responsive only to said first electrical signals to produce said first visual display . . ., a second display means responsive only to said second electrical signals to produce said second visual display . . . ."

Plaintiff argues this term means that the images resulting from the transmission and scatter detection are not displayed as one integrated image, but that an image could be colorized based on images derived from either detector. Defendants argue that "separately, independently, and simultaneously" means that the visual displays are all produced and made perceptible at the same time, and each display is derived from electrical signals arising solely and completely from a distinct single source. Essentially, Plaintiff argues that the phrase applies only to the image, while Defendants argue that the phrase applies to the entire process that produces the images.

A person of ordinary skill in the art would understand that this phrase means that there are two display means which operate without reliance on each other and produce images at the same time. This clearly suggests that the phrase applies to the process rather than the end product, as claim reads that the display means are separately, independently, and simultaneously producing images, rather than that the display means are producing separate, independent, and simultaneous images.
The Court next turns to the specification. In distinguishing this patent from prior art, the specification states that

the present invention does not combine the signals produced by any detector with signals produced by any other detector. Rather the signal produced by each of the detectors is separately, independently, and simultaneously displayed in the form of a video image. The images are independent in the sense that each image is produced by the respective signal, without addition of any other data. . . . Applicants have found . . . that attempts to combine the signals from different detectors has the drawback of obscuring significant information.

(‘511 Patent, Col. 3, lines 10-23.) The description of the invention includes "display means responsive to said electrical signals for separately, independently, and simultaneously displaying said electrical signals as a function of time." (‘511 Patent, Col. 3, lines 62-64.) The description of preferred embodiments also states that it would be "inappropriate to sum the forward transmitted and any scatter signal . . . [because] it would reduce the effectiveness of the result as compared to either signal alone." Thus, the specification accords with the construction based on the claim language. The Court is not aware of any prosecution history directly relevant to this term.

Because the Court finds that the claim language is clear and supported by the specification, there is no need to consider extrinsic evidence. Accordingly, the Court FINDS that the term "separately, independently, and simultaneously" as defined in the ‘511 Patent means that each display means responds to different and distinct electrical signals to produce different and distinct visual displays (i.e. images) at the same time.

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2. separating into frequency components (Claim 1)

Arbiron argues that this term means "splitting up the digital sound signal to frequency components by digital transform processing." Ipsos argues for a narrow construction of this term, proposing that the Court specifically identify the type of digital transform processing used to split up the digitized signal. It proposes the following construction of this term: "splitting up the digitized signal into multiple frequency bands by a Fourier or wavelet transform." Such a construction would unnecessarily limit the scope of the claims to the embodiment disclosed and is rejected. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("This court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."). The specification recites that splitting is "conventionally performed by a Fourier transform, or else by a wavelet transform." ‘962 patent, 6:12-16. It states that "the data processing means 14 are designed to perform an operation of splitting up the digitized signal provided by the converter into frequency components" Id. Given this broad disclosure, the Court is persuaded to adopt plaintiff's proposed construction. This term means "splitting up the digital sound signal to frequency components by digital transform processing."

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4. "separator layer"

Claim 4 of the ‘919 Patent discloses "a separator layer between the conductive gel layers of the electrodes to enable the electrical interconnection of the conductive gel layers." Claim 16 of the ‘919 Patent, a dependent claim, discloses a packaged set of electrodes wherein "the separator layer enables the electrical interconnection of the gel layers to form an electrical circuit." The parties agree that "a separator layer between the conductive gel layers of the electrodes" means "a thickness of material that physically separates the gel layers of the electrodes." It appears undisputed that the separator layer allows the rescuer to physically separate the first electrode from the second electrode before applying the electrodes to the patient. However, the parties dispute the further qualities of the "separator layer." Philips contends that "the separator layer is conductive to facilitate a low impedance path between the electrodes." Cardiac Science, on the other hand, asserts that "the separator layer is a liner that permits an electrical connection between the two gel layers."

Philips also asserts that the separator layer is a solid layer that physically separates the gel layers of the two electrodes and
does not allow them to touch. Further, Philips asserts that the layer must be formed of a conductive/resistive material. ('919 Patent at c. 7, ll: 19-20.) The Court finds no merit to Philips' arguments. First, neither the claim language nor the specification requires that the separator be a continuous layer. Second, although the preferred embodiment describes the "conductive/resistive" properties of the separator layer, the Court finds no reason to import this embodiment into the structure. The context of the two claims that include the separator layer specify that the separator layer "enables the electrical interconnection" of the gel layers. Thus, the term "separator layer" speaks for itself and needs no further construction.

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D. "Sequence encoder."

1. The term "sequence encoder" has no ordinary and customary meaning.

In addition to Claim 1, the term "sequence encoder" is also used in Claims 7, 17, 18, 32 and 33 of the 702 patent. In its tentative conclusion, the Court determined that the term "sequence encoder" had no ordinary and customary meaning in the field of the invention.

Initially, Acacia objected to that conclusion. n1 However, at the September 2005, hearing, Acacia tendered Mr. S. Merrill Weiss as an expert witness on how persons of ordinary skill would understand the terms used in the 702 patent claims and specification in 1991.

n1 Acacia contended that an encoder is "a device or system that encodes data." Acacia asserted that a "sequence encoder" is "an encoder which creates a sequence."

Mr. Weiss opined that the field of the invention disclosed in the 702 patent was "system design" in the broadcast television industry. (TR. 18:23-25, 19:1-1.) Mr. Weiss opined that he had a sufficient background to express an opinion on the education and experience of a person skilled in that field in 1991. In that regard, Mr. Weiss testified that one skilled in system design in the television broadcast industry was one who had a Bachelor of Science degree in electrical engineering, computer science or computer engineering or the equivalent in experience in the broadcast television industry. (TR. 43.)

Specifically, with respect to whether the term "sequence encoder" had an ordinary and customary meaning to one skilled in system design in the television broadcast industry, Mr. Weiss testified:

Q. In 1991, did the term "sequence encoder" have an ordinary meaning to one of ordinary skill in the art?

A. No.

* * *

Q. In 1991, would the term "sequence encoder" have been a term of art to one of ordinary skill in the art?

A. No.

* * *

Q. Are you aware of any dictionary in 1991 where it would have defined the term "sequence encoder"?

A. No.
Accordingly, the Court confirms its tentative finding that the term "sequence encoder" is a technical term which had no ordinary and customary meaning in the field of the invention at the time the patent was filed.

2. "Sequence encoder" is a coined technical term which is not expressly defined.

A patentee is free to act as his or her own lexicographer. Acting as lexicographer, the patentee may either define a term used in a claim differently from its ordinary meaning or coin a new term. However, if the patentee chooses to act as his or her own lexicographer, the special definition must be clearly stated within the patent specification or file history. Vitronics Corp., 90 F.3d at 1582.

Acacia now acknowledges that the term is a "coined term," meaning that the patentee made up the term acting as lexicographer. However, there is no clear statement of definition of the coined term "sequence encoder" in the specification or file history. Indeed, as the Court noted in its July 12 Order, other than in the claims themselves, the term "sequence encoder" is never used in the specification of the 702 patent and was never used or referred to in the prosecution of the 702 patent.

If a patentee uses a coined technical term as an element of a claim and fails to clearly define the term elsewhere in the specification or prosecution history, the meaning of the term is left to speculation and subjective judgment. A patent claim, which includes as an element a term, the meaning of which is left to speculation and subjective judgment, is indefinite.

To avoid an ultimate finding of indefiniteness, Acacia contends that, although the term is not expressly defined in the specification, a person skilled in the art would infer a meaning for the term "sequence encoder" from the description in the specification of other devices. Specifically, Acacia contends that one skilled in the art would infer that by "sequence encoder" the patentee meant "a time encoder."

3. A patent claim is not indefinite if based on the specification, a meaning for an otherwise undefined term can be inferred from the specification.

Acacia directs the Court to two decisions of the Federal Circuit which it asserts as authority for a methodology of defining coined claim terms that have no meaning in the art and are not referred to in the specification: Bancorp Services L.L.C. v. Hartford Life Insurance Co., 359 F.3d 1367 (Fed. Cir. 2004) and Network Commerce, Inc. v. Microsoft Corp., 422 F.3d 1353 (Fed. Cir. 2005).

In Bancorp a patent describes a system for administering and tracking the value of life insurance policies in separate accounts. Bancorp Services, 359 F.3d at 1369. The independent claims used the term "surrender value protected investment credits." Except for use in the claims themselves, the term was not used in the patent. The trial judge found the term to be unclear in meaning as to render the patent claims invalid. Bancorp argued that the challenged term meant the same as "stable value protected investment," a term which was commonly understood in the insurance field and which was used and defined in the specification. Id. at 1370. On appeal the Federal Circuit agreed with Bancorp that based on the specification the terms were equivalent to one another. Id. at 1373. Thus, Bancorp Services stands as authority that the failure to define a term is not fatal if the meaning of the term can be fairly inferred from terms in the specification which were commonly used in the field and which those of skill in the industry regarded as synonymous.

In Network Commerce the term "download component" was used in the claims. Network Commerce, 422 F.3d at 1357. It was found to be a term which had no commonly understood meaning nor one with a specialized meaning in the field of the invention. However, the Federal Circuit gave a definition to the term based on the specification. The claims stated how the "download component" functioned in the claimed method. The Circuit Court relied on references to "download file" in the specification to define "download component." Id. at 1360-1361.

This Court notes that Network Commerce is not a case where the claim was being reviewed to determine if it met the "definiteness" requirement. The issue in Network Commerce was whether or not the definition of the term should include a "boot program" which interacts with the operating system of the computer. The Circuit held that it did:
In summary, the specification makes clear that the download component must include a boot program, and that the boot program interacts directly with the operating system of the computer without the assistance of any other program. Accordingly, we construe "download component to mean . . .

Id.

Acacia is correct, however, that in both cases, the Federal Circuit gave definition to a coined term which was not expressly defined in the specification. However, in both cases, the Federal Circuit relied on the intrinsic language of the patent specification to construe the meaning of the subject terms. The question in this case becomes whether based on the specification of the 702 patent, it can be reasonable inferred that the term "sequence encoder" means "time encoder."

4. A "time encoder" is referred to in the specification.

The term "time encoder" is itself a coined technical term with no ordinary and customary meaning to one skilled in the field of system design at the time the 702 patent was filed. Mr. Weiss, though, testified that in his opinion a "time encoder" was essentially a "time code generator," which was known at the time of the invention (TR. 173:23-25.)

The Court considered the device called "time encoder" when the Court defined the term "ordering means" in construing the 992 patent. The 702 patent shares the same specification as the 992 patent. With respect to "time encoder," the specification states:

"The transmission system 100 of the present invention also preferably includes ordering means for placing the formatted information into a sequence of addressable data blocks. As shown in FIG. 2a, the ordering means in the preferred embodiment includes time encoder 114. After the retrieved information is converted and formatted by the converter 113, the information may be time encoded by the time encoder 114. Time encoder 114 places the blocks of converted formatted information from converter 113 into a group of addressable blocks. The preferred addressing scheme employs time encoding. Time encoding allows realignment of the audio and video information in the compressed data formatting section 117 after separate audio and video compression processing by precompression processor 115 and compressor 116."

('702 patent, 7:50-64.)

From this and other references in the specification, the Court finds that the "ordering means" may include a "time encoder" which is a device that can be used in a preferred embodiment of the claimed "transmission system." If a "time encoder" is used as part of the ordering means, its function is to place blocks of converted data into a "group of addressable data blocks." The "time encoder" uses "time encoding" to do so. There is nothing in the specification which discloses that the "time encoder" can encode any sequence other than "time." Thus, to give "sequence encoder" the definition of the "time encoder disclosed in the specification" would limit the "sequence encoder" to encoding "time" as the only sequence it is capable of encoding.

5. There is no suggestion in the specification that "time" is the only "sequence" which could be used to practice the invention.

There is nothing in the specification of the 702 patent which supports the contention that the patentee intended time to be the only encodable sequence.

If a patentee uses a broad undefined term (such as "sequence encoder") in claiming an invention, when the validity of the patent is called into question in a legal proceeding, the owner of the patent cannot avoid invalidity by adopting a more limited definition (such as "time encoder"), unless that limitation can be fairly inferred from the specification.

Mr. Weiss opined that, since the patent is "fundamentally" about audio and video information and since such information is naturally processed and stored using time, a person of ordinary skill in the art would understand "sequence encoder" to be a "time encoder."

Q. Now, if as you said earlier without regard to any part of the patent the term "sequence" can mean any sequence and not necessarily a time sequence, why would a person of ordinary skill in the art understand the term "sequence encoder" to be a
time encoder rather than some other encoder in the context of this patent?

A. Because this patent is fundamentally about video and audio processing and storage and handling and the natural way that video and audio are, are -- their inherent structure is along a time line. They are naturally divided by -- into time.

(TR. 161:2-13.)

However, on cross-examination, Mr. Weiss acknowledged that, based on the specification, time was not the only natural sequence for organizing the type of data covered by the invention:

Q. And so you agree that as of the time of the filing of the patent application in January of 1991 packets of data were organized and in sequences that were unrelated to time?

A. I think you last said they could be and yes they could be.

Q. And they actually were; correct?

A. In some applications they were.

(TR. 210:9-16.)

Later, in his testimony, Mr. Weiss acknowledged that a "time encoder" was only "one example" of the broader term "sequence encoder." (TR. 225:10-14.) He stated his opinion that the terms were synonymous was based on a process of elimination. In other words, since a "time encoder" and an "identification encoder" were the only encoder mentioned in embodiments of the invention, by process of elimination, Mr. Weiss drew the conclusion that the "sequence encoder" meant the "time encoder." Mr. Weiss' testimony went beyond the bounds of his expertise. The Court rejects his methodology.

Furthermore, it is fundamental that while the specification should be consulted to obtain an understanding of a claim, the limitation of a preferred embodiment disclosed in the specification is not to be read into a claim, unless reading the limitation in is required by the language of the claim. As the Federal Circuit observed in Phillips v. AWH Corp., "although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." 415 F.3d 1303 at 1323 (Fed. Cir. 2005). There are notable exceptions to the rule for not limiting the claim to a preferred embodiment, such as when the preferred embodiment is described in the specification as the invention itself. In other words, where the patentee describes an embodiment as being the only way of utilizing the invention, it is permissible to limit the claim to the embodiment.

In this case, given the types of materials which can be transmitted in practicing the invention (books, photographs, musical instruments and other items-digitized for transmission) from the specification, there is no basis for the Court to conclude that "time" is the only sequence which one skilled in the art would have used in 1991 to practice the invention.

6. To import into "sequence encoder" the definition "time encoder" as disclosed in the specification would be importing a limitation which the patentee expressly did not import.

Accepting Acacia # s definition of "sequence encoder" would violate the doctrine of claim construction, called "claim differentiation." n2

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n2 The Court has previously considered and rejected Acacia's argument that "sequence encoder" should be defined as the time encoder disclosed in the specification. The Court reconsiders its ruling in light of the briefs and testimony presented at the September hearing.

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In deciding the scope of a claim, the Court is obliged to consider the other claims in the patent. Howes v. Medial

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Components, Inc., 814 F.2d 638, 643 (Fed. Cir. 1987); Moeller v. Ionetics, Inc., 794 F.2d 653, 656 (Fed. Cir. 1986). Under the doctrine of "claim differentiation," the presence of limitations in narrow claims is evidence that these limitations are not to be read into a broader claim. The patentee is entitled both to a narrow claim particularly directed to a preferred embodiment described in the specification and to a broad claim which defines the invention without reference to those details. The presence of the narrow claim negates limiting the broad claim to the preferred embodiment. The presence of a specific limitation in one claim gives special significance to the absence of that specific limitation in another claim, in that it shows that when the limitation was intended it was expressed. Hoganas AB v. Dresser Indus., Inc., 9 F.3d 949, 950 (Fed. Cir. 1993) (quoting E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir.), cert. denied, 488 U.S. 986, 109 S. Ct. 542, 102 L. Ed. 2d 572 (1988); SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1122 (Fed. Cir. 1985).

In this case, dependent claim 7 reads:

A communication system as recited in Claim 1, wherein said sequence encoder transforms digital data blocks into a group of addressable data blocks.

The Court has construed the apparatus which transforms digital data blocks into a group of addressable data blocks to be the "time encoder," which is part of the ordering means. The same terms should be given the same meaning in all of the claims, unless it is clear from the specification that the terms have different meanings. Fin Control SYS. Pty. v. AM, Inc., 265 F.3d 1311, 1318 (Fed. Cir. 2001). Based on their common function, the Court finds that "sequence encoder that transforms digital data blocks into a group of addressable data blocks" in claim 7 is the same device as the one described in the specification as part of the ordering means called the "time encoder," which transforms the data into a "group of addressable blocks," employing "time" as the preferred addressing scheme.

Claim 1 differs from claim 7 in that it does not limit the sequence encoder to one which transforms digital data blocks into a group of addressable data blocks nor is it limited to using time as the preferred addressing scheme. Therefore, claim 1 is broader than the sequence encoder disclosed in claim 7. The sequence encoder in claim 1 could possibly be the ordering means and the structure in claim 7 could possibly be the time encoder. n3 Hence, the Court cannot infer that the "sequence encoder" is a "time encoder" as that term is used in the patent specification.

n3 The "sequence encoder" in claims 7 could be construed to read on the "ordering means" in the written description. This is consistent with the testimony of Mr. Weiss, where he said that other encoding schemes, besides time encoding, may be used in the system (TR. 212:20-24, 224-225.) These other encoding schemes would be necessitated by source library items that contained other than audio/video information, like books or violins. There may also be other functions associated with the ordering means. Mr. Weiss said that he would have known how to build a time encoder, since time encoding techniques were well known in 1991 (TR. 174.) However, it would not have been obvious how to build the "ordering means," since the written description does not fully specify all the functions nor does it teach any structure for the "ordering means" from which such functions could be deduced.

n4 The Court also considered Masami Corp. v. Mallinckrodt, Inc., 18 Fed. Appx. 852 (Fed. Cir. 2001), where the court found "adaptive filter" and "adaptive signal processor" to mean an "adaptive noise canceler." The latter term was used interchangeably with the other terms during the prosecution of the patent and in dependent claims. No such interchangeable use is involved in this case.
However, upon reconsideration the Court limits its finding of indefiniteness to the independent claims 1, 17 and dependent claim 32. Dependent claims "shall be presumed valid even though dependent upon an invalid claim." 35 U.S.C. § 282. The Court leaves for later consideration upon motions by the parties whether or not the limitations in dependent claims 7, 18 and 33 provide additional information about "sequence encoder" to allow the Court to define it and to satisfy the definiteness requirement.

7. There is a lack of indication of a cooperative relationship between the "sequence encoder" and the other elements of the claim.

Patents claiming a system, are indefinite under § 112 if the claim does not recite structural relationships of essential elements. See In re Collier, 397 F.2d 1003, 55 C.C.P.A. 1280 (C.C.P.A. 1968). If the system is one for which the relationship of elements is conventional and commonly known, the Court can take notice of a relationship, even if one is not stated. However, when the element is not known in the field of invention, the claim must specify the relationship.

Claims 1 and 32 of the 702 patent disclose a communication system, comprising a transmission system and a reception system. The "sequence encoder" is disclosed as an element of the transmission system. Unlike other elements of claims 1 and 32, n5 the term "a sequence encoder" omits disclosure of a cooperative relationship with the other elements. There is no specification of its input or its output. This omission is particularly troublesome because as a coined term which is not defined, there is no way to determine a relationship.

n5 Claim 7 also lacks an express relationship between the "sequence encoder" and the other elements. The term "in data communication with" is lacking. However, if the "sequence encoder" in Claim 7 is equated with the "time encoder," the specification shows a relationship.

Thus, an additional basis for indefiniteness of claims 1 and 32 is the lack of a disclosed cooperative relationship between the "sequence encoder" and the other elements leaves a gap between essential structural connections. n6

n6 As shown in claims 17 and 18, the patentee was capable of specifying a relationship between the "sequence encoder" and other claim elements if there are any.

2. "[A] sequence of groups of digital bits which represent the respective values of said analog electrical output signal at said periodic instants."

DTL argues that the term should mean, "a series of groups of digital bits in which each group of bits corresponds to values taken at the periodic instants of the analog electrical output signal." Cingular proposes "successively ordered groups of digital bits in the same order as the sampled values they represent. The sampled values refer to the values of said analog electrical output signal at said periodic instants." The primary dispute is whether the groups of digital bits must be in the same order as the sampled values. Cingular argues that the word "respective" combined with the word "sequence" connotes a lockstep order of the groups of digital bits.

The analog to digital converter changes the output of the transducer into a "series of digital pulses" representing the incoming acoustic signal. '799 patent, Abstract. In addition, the specification discloses that the output of the analog-to-
digital converter is a "stream of digital bits", '799 patent, col. 5, ll. 55-56. Therefore, it appears that the specification does not suggest that the groups of digital bits must be in the same order as the sampled values. In the claim, "respective" refers to the relationship between the sampled values and the periodic instants when values are taken. This requires that each group of bits correspond to the values of the analog signal taken at periodic time instants. The court cannot find, and Cingular does not point to, any place in the specification which require that the groups of digital bits must be in order. One skilled in the art reading the claim term in context of this particular claim and in the context of the entire patent, including the specification, would not conclude that the sequence must be "successively ordered." Therefore, this court finds that:

"[A] sequence of groups of digital bits which represent the respective values of said analog electrical output signal at said periodic instants" means: a series of groups of digital bits in which each group of bits corresponds to values taken at the periodic instants of the analog electrical output signal.

"sequence of tournament games" first appears in claim 1(b), a means-plus-function claim. Pursuant to 35 U.S.C. § 112, a means-plus-function claim expresses a "means or step for performing a specified function" without identifying the equipment used to perform the function. To construe a means-plus-function claim, it is necessary to first identify the claimed function, and then, determine what, if any, structure named in the specification performs the disclosed function.


Merit contends that the function disclosed in claim 1(b) is "programming in advance at least one sequence of tournament games from the more than one tournament game." 5 Merit's Claim Construction Presentation '887 patent, Ex. 4 at 14 ("Pl.'s '887 Presentation"). JVL defines "sequence of tournament games" as "two or more successive tournament games. A series of standard games played as rounds in a single tournament is not a sequence of tournament games." Def.'s '887 Presentation at 11.

JVL advances a number of arguments in support of its construction. First, the plain and ordinary meaning precludes a sequence of games from including any less than two games. While acknowledging that dictionaries are extrinsic evidence that are not determinative of claim construction, it points out that in the initial, pre-reexamination Markman briefing in this case, both parties offered dictionary definitions of "sequence" as meaning "following of one thing after another; succession." JVL's Opening Markman Br. at 62; Merit's Opening Markman Br. at 90.

In this instance, the dictionary definition is valuable to "understanding the commonly understood meaning" of "sequence." Phillips, 415 F.3d at 1322-23. ("[J]udges are free to consult dictionaries … and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.") (citations omitted). The "following of one thing after another" undoubtedly references more than one thing. Notwithstanding this commonly understood meaning of "sequence," Merit argues that playing a game once is enough to constitute a sequence. Tr. At 118-19. Given that the claim language itself refers to a sequence of "tournament games," not a sequence of "a tournament game," JVL insists it would be nonsensical to construe a "sequence of tournament games" to be one game.

Resolution of this dispute hinges on the significance afforded certain drawings included in the patent. Figures 11 (a) through 11(d) are "four examples of programmable tournament sequences." '887 patent at 7:20-21. The depictions of each of the four sequences includes five spaces, labeled from left to right, "current," "next," "next + 1," "next + 2," "next +3." Within each space is either the name of one of five video games or a repeat or end symbol. As the patent describes, "[i]n the example shown in the figures, a series of five consecutive tournaments can be set at one time and may be set to repeat in

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Merit points to Figure 11 (c), in which Solitaire is listed in the "current" space, and the end symbol appears in the space labeled "next." Three different game names appear in the spaces labeled "next +1," "next +2" and "next +3." Figure 11(c) states, 'The Sequence will run SOLITAIRE and then END.'

Relying on Figure 11(c), Merit insists that playing a game once constitutes a sequence. Tr. At 118-19. In further support of its position, it notes that in describing the Figure 11 examples, the specification states "[i]f the video game 12 is dedicated to playing only a single game, the tournament sequence will be set to either continuously run the tournament using a single game or to run the tournament for only a discrete number of times." Id. at 9:25-29. This language allows for the possibility that a tournament sequence might include only one type of game, such as Solitaire or Royal Flash. However, it does not demonstrate that a "sequence" can be comprised only of a single play of one type of game. It would be inconsistent with the meaning of "sequence" to define it as including anything less than two.

This is not an instance in which Merit acted as its own lexicographer to give "sequence" a definition different from its commonly understood meaning. To do so, it would have had to "clearly express that intent in the written description." Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005). Yet, Figure 11(c) is what Merit relies on to support its redefinition of "sequence." This depiction, which is subject to varying interpretations, does not evidence the patentee's intent to impart a novel meaning to the word "sequence." See Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc., 214 F.3d 1302, 1307 (Fed. Cir. 2000).

As explained above, a "tournament game" is a game playable in the tournament mode. Merit's arguments to the contrary, "sequence" retains its plain and ordinary meaning. Here, "sequence of tournament games" refers to "one or more types of tournament games played at least two times in succession." A single play of a single tournament game is not a "sequence."

3. "sequence transformation object"

The term "sequence transformation object" appears in three claims of the '670 patent (claims 13, 25, 39) and three claims of the '775 patent (claims 1, 9, 11). Information proposes the term be construed as "A transformation object that generates keys from an initial value." BODI proposes the term be construed as:

A transformation object that is used for creating unique keys for records as they are processed in a mapping. Each instance of a sequence transformation is created with an initial value, which is used at the start of an execution, an increment value to compute the values of subsequent indexes, and an end value. Default values will be used if any of these parameters are omitted. This transformation has two predefined output ports, curval and nextval, that contain the current value and the next value of the sequence index, respectively.

A sequence has the following specification:

CREATE Sequence <sequence_name> (  
curval INTEGER OUT,  
nextval INTEGER OUT,  
[Startvalue [<integer>] ATTR,]  
[increment [<integer>] ATTR,]  
[Endval [<integer>] ATTR,]

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Once again, BODI's proposed construction comes directly from the specification of the '670 and '775 patents, and the parties present essentially the same arguments regarding the appropriate use of the limitations disclosed in the specification. For the reasons stated above, the Court declines to import those limitations into the claim language. The Court adopts Informatica's proposed construction and construes the phrase "sequence transformation object" to mean: A transformation object that generates unique keys from an initial value.

3970

1. Sequencer

Defendant claims that the term sequencer has no common meaning in the telecommunications field and that because the use of the term in Claim 1 does not specify what is necessary to a sequencer, Seeq proposes that the term be construed to include the column-length description of the sequencer found in the specification. Level One asserts that sequencer does have a common meaning in the field, and cites to the IEEE Dictionary, which apparently defines it as a device that sequences the items in a set. Plaintiff contends that consistent with this common definition, the sequencer in Claim 1 ensures that the multiplexer outputs waveform data in a sequence that represents a desired waveform. Level One proposes the following construction: "The sequencer described in the specification and any equivalent device that utilizes digital logic, a clocking function, and the input NRZ data to generate a unique set of "mode" and "step" select signals for controlling the selection of data representing a waveform from memory by a multiplexer.

Neither of the proposed definitions is satisfactory. Seeq's would improperly incorporate the entire description of the preferred embodiment into the claim as a limitation. See Laitram, 863 F.2d at 865 ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."). The court is unwilling to treat detailed descriptions as definitions. Furthermore, while it is axiomatic that patentees can choose to be their own lexicographers, they are only assumed to do so when the special definition is clearly stated in the patent specification or file history. Vitronics, 90 F.3d at 1582; Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed. Cir. 1996) (unless the inventor gives it a special meaning, a technical term is interpreted to have the meaning given by persons with skill in the relevant art).

However, Level One's construction is also distressingly unrelated to the claim language and, with the exception of mentioning the utilization of digital logic and a clocking function, loosely restates the claim language. Seeq objects to Level One's definition on the grounds that it is functional rather than structural. Yet Seeq cites no authority for the proposition that all claims must be defined structurally. Absent defendant's desire to incorporate the preferred embodiment into the claim, the court cannot see what about the term is ambiguous. The sequencer indeed sequences data through its mode select and step select outputs, which are addressed below. Accordingly, the court believes that the claim language is plain enough for someone skilled in the art and that it defines a sequencer as a device that performs certain tasks, namely "receiving data in a non-return to zero format and providing a mode select output for selecting one of a plurality of data patterns and a step select output for selecting one of a plurality of time segments in response thereto." '269 Patent at 6:51-53.

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14. "sequencing data"

Power-One advocates two proposals. The first is "data used to control the order of operation of multiple POL regulators."
The Court finds this proposal to be incorrect because this term is used in relation to a single POL regulator. See, e.g., '999 patent, claims 2, 15, and 17. Power One's second proposed construction is "data used to determine a delay period between some event and the generation or termination of an output." Artesyn proposes "data specifying the duration of a delay period between the POL's receipt of a turn-on or turn-off command and generation or termination of a desired output."

This term is found in several claims of the '999 patent. For example, claim 2 recites "sequencing data providing a delay period between either a turn-on or turn-off command and actual generation of a corresponding output." Claim 10 calls for "sequencing data" and recites "using said sequencing data to determine when said output should be generated." Claim 15 also calls for "sequencing data" and recites "using said sequencing data and said enable data to determine when said output should be generated." Thus, from the claims, "sequencing data" is information related to the timing of the generation of an output. The specification of the '999 patent states that "the delay period can either be provided by the controller 210 (e.g., sequencing data) or calculated using data that has been provided by the controller 210 (e.g., turn-on data)." From the specification, the "sequencing data" specifies a delay period between some event (e.g., activation) and the generation of an output. '999 patent, col. 4:23-32. In this example, the event from which the generation of an output is delayed is the activation of the POL. However, the Court sees no basis in the claims or the patent specification for limiting the event or events from which the delay can be measured.

Accordingly, the Court will construe "sequencing data" to mean "data specifying a delay period between some event and the generation or termination of an output."

A. Support by the Written Description

The jury found claims 15 and 16 "not supported by the description contained in the specification." M3 Systems explains that the issue was the meaning of the claim terms "sequential energizing" and "energizing means." The district court had permitted the jury to resolve this disputed issue of claim construction. On this appeal we give de novo review to the issues relevant to the construction and interpretation of the claims. See Cybor, 138 F.3d at 1454-56, 46 U.S.P.Q.2D (BNA) at 1172-75.

M3 Systems states that "sequential" should be construed, and was construed by the jury, to permit no overlap of needle movement during the energizing step. M3 states that since the patent shows that the second needle can start to move before the first needle has completed its movement, the written description does not support the claims. M3 states, as it did at trial, that since the specification does not describe how to obtain elimination of all overlap of needle movement, the claims are not supported by the written description and are invalid.

Bard agrees that the specification shows a slight overlap in the movement of the needles, whereby the second needle starts to move just before the first needle has completed its movement and the first spring latches. Thus, Bard contends, correct interpretation of the claims allows for this slight overlap in needle movement. Bard states that it is incorrect to construe the claims contrary to the specification, and then to hold the claims invalid because they are contrary to the specification. Bard is of course correct; the claims are construed in accordance with the rest of the specification of which they are a part, and not contrary to it. See Slimfold Mfg., 810 F.2d at 1116, 1 U.S.P.Q.2D (BNA) at 1566; SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1125, 227 U.S.P.Q. (BNA) 577, 585 (Fed. Cir. 1985) (in banc).

The specification illustrates the sequential energizing of the needles as having some overlap in movement of the needles. The term "sequential" in the claims is in accordance with this description in the specification; no usage or exemplification of the sequential movement requires eliminating all overlap. It is incorrect to construe the claims as barring all overlap, as urged by M3 Systems. On the correct claim construction, no reasonable jury could have found that the claims are not supported by the description in the specification. It is thus apparent that the jury either adopted M3's erroneous claim construction, or incorrectly applied the law governing claim construction to the undisputed facts of the structure described in the specification.

On the correct claim construction the written description is in accordance with and in support of the claims. The judgment of invalidity on this ground is reversed.
2. "Sequential from each said data line"

In prior litigation, Datastrip brought suit against Symbol Technologies, Inc. in the U.S. District Court for the District of Delaware, alleging infringement of the '221 patent. During the litigation, the court construed the term "sequential" in claim 1 to mean "that the data in the data strip is written, or encoded, sequentially from beginning to middle to end." Datastrip Ltd. v. Symbol Techs., Inc., No. 97-70, at 9 (D. Del. Apr. 20, 1999). The parties agree that this is the correct construction; thus, the Court need not decide whether to apply the doctrine of issue preclusion. See Markman, 517 U.S. at 391 ("principles of issue preclusion would ordinarily foster uniformity"); Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found., 402 U.S. 313, 350, 91 S. Ct. 1445, 28 L. Ed. 2d 788 (1971) (non-mutual defensive collateral estoppel may be raised as defense to patent infringement claim). Compare Abbott Labs., Inc. v. Dey, L.P., 110 F. Supp. 2d 667, 669-71 (N.D. Ill. 2000) (doctrine of issue preclusion barred plaintiffs from relitigating claim construction issues decided in prior action against different alleged infringer), with Graco Children's Prods, Inc. v. Regalo Intl', LLC, 77 F. Supp. 2d 660, 664-65 (E.D. Pa. 1999) (declining to apply doctrine where claim construction in previous litigation was not essential to final judgment).

Intacta, however, urges the Court to construe the phrase "sequential from each said data line" to mean that the "sequential information within the said data lines is sequentially related to the information in the lines preceding and following the data line." (Def.'s Mot. for Summ. J. at 15.) Datastrip disagrees with this interpretation.

Thus, the Court need not construe "sequential" because the parties agree on its meaning, but the clause "from each said data line" is in dispute. Beginning again with the ordinary meaning of the words, "from" is "used as a function word to indicate a starting point ...." Webster's at 913. As used in the patent specification, data lines consist of "a totality of dibits .... running sequentially." (Springut Decl. Ex. 2, '221 patent, col. 4, 11. 33-35.) Figure 4 of the patent depicts "an enlarged view of a portion of a data strip." (Id. at Sheet 2.) From this figure and the specification, it is apparent that the data lines in a data strip are "parallel, contiguous, and start along a common line." (Id. col. 4, 11. 47-48.) The specification further states: "Preferably, information is encoded sequentially along each data line 11, and sequentially along contiguous data lines, beginning at the top of encoded portion 23 and running to the bottom of portion 23, though other sequencing may be used." (Id. col. 4, 11. 49-54.) The consistent use of the word "contiguous" in the specification supports Intacta's construction.

"Contiguous" means "touching along boundaries often for considerable distances;" "immediately preceding or following in time or sequence." Webster's at 492. Reading the plain meaning of "sequential from each said data line" with the patent specification, it appears that not only is the information encoded from beginning to middle to end within each line, but it is also encoded from beginning to middle to end starting at one line and moving to the next.

This construction is supported by the prosecution history. The phrase under consideration was not part of claim 1 in the original application. (See Toone Decl. Ex. D at D-3 (showing original language).) Indeed, the applicants added the phrase to overcome prior art references, in particular, the Ogden patent. As the applicants explained, Ogden's "lines are laid out to be read in parallel, rather than sequentially." (Toone Decl. Ex. D at D-69.) Indeed, the applicants distinguished the data strip by explaining, "the information in one data line of the data strip is sequentially related to that in the preceding and following line, making the data portion an integrated whole." (Id. at D-68 (emphasis added).) Thus, the prosecution history is consistent with the ordinary meaning of the words and supports a construction that acknowledges that data is encoded sequentially from beginning to middle to end and from one line to the next. Accordingly, the Court construes the language "sequential from each said data line" to mean that the sequential information within the data lines is sequentially related to the information in the preceding and following lines.

3. "sequentially display four calibration marks" (claims 13, 17-19)

PolyVision's proposed construction
Four calibration marks are displayed

Smart's proposed construction
Four calibration marks are displayed

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individually in four separate successive images.

PolyVision contends that this claim limitation is ambiguous and requires construction because it can be construed in one of two ways: (1) that four calibration marks are displayed in sequence any number of times; and (2) that an individual calibration mark is displayed four times in sequence. Smart contends that the term is unambiguous and should be given its plain meaning, although it offers a construction that essentially permits either meaning.

The Court agrees with PolyVision that the term is ambiguous and requires construction. The specification and drawings support PolyVision's construction. Figs. 12 and 13a-13d illustrate that four individual calibration screens with alignment images are presented in sequence. The written description confirms this as well, describing a "first alignment image" or "calibration screen," a "second calibration screen," a "third calibration screen," and finally a "fourth calibration screen." (Col. 8, ll. 17-18, 45-47, 62-64; Col. 9, ll. 11-13.) Smart argues that this construction improperly imports limitations from the specification into the claim language. However, the Court disagrees. As noted above, Phillips not only authorizes, but requires courts to resort to the written description in order to resolve claim construction issues. The Court believes that construing the claim language as PolyVision suggests constitutes a permissible use of the intrinsic record and not an improper limitation of the claim language.

III. CLAIM CONSTRUCTION

Having considered the papers submitted by the parties and the arguments of counsel during the claim construction hearing, the court interprets the disputed claim terms as set forth below.

CLAIM LANGUAGE                          CONSTRUCTION
"data error detection and correction circuitry" means "any error detection and correction circuitry."
"precluded from accessing" means "the BSY bit indicates when it is impossible for the host computer to access the ATA command block registers." Access is precluded when a read request is directed away from the command block register.
"sequentially contiguous" requires the device to have the ability to store multiple command bytes in a sequentially contiguous manner
"drive controller" includes translation circuitry but excludes circuitry located on an external adapter card.
"ATA register address" The ATA register address of claim 3 is not required to receive both single-byte and multi-byte commands from the host computer.
ATA block registers and multi-byte command packet buffer It is not required that the ATA block registers and multi-byte command packet buffer be distinct or separate structures.
of the previous data unit to the bus master is complete."

As a preliminary matter, the Court notes that the question of what constitutes a data transfer does not appear to be in dispute. OPTi characterizes a "transfer" as "moving data units from one place to another, in this instance, between the bus master and the secondary memory." Likewise, nVidia describes a "transfer" as the process of "moving data units on the bus . . . from secondary memory . . . to the bus master." These definitions are consistent with one another and with the use of the term in the Pre-Snoop patents.

The primary dispute between the parties appears to be whether the language calling for a sequential transfer means that the transfer of one data unit cannot begin until the transfer of the prior unit is complete as nVidia contends. The principal application for the invention described in the Pre-Snoop patents was "burst" transfers. Sequential ordering in which data units are transferred is what makes the basic mechanism of the burst transfer possible:

The PCI bus achieves very high performance, in part because its basic data transfer mode is by burst. That is, data is always transferred to or from a PCI device in a known sequence of data units defined by a known sequence of data unit addresses in an address space. In the "cache line" burst mode, exactly four transfers take place. In the "linear" burst mode, any number of transfers (including 1) can take place to/from linearly sequential addresses until either the initiator or the target terminated the transaction. In either mode, the initiator need only specify the starting address because both parties know the sequence of addresses which follow.

'n906 patent, Col. 5:5-16. This would tend to undermine nVidia's proposed construction. In fact, the Court can find nothing in the specification or prosecution history of the Pre-Snoop Patents that would limit the construction in the manner nVidia proposes.

nVidia's principal basis for its proposed construction is the assertion that claim limitations must be construed from the perspective of the PCI bus or bus master. The Court finds this argument unpersuasive, albeit novel. nVidia has not pointed to, nor has the Court found, any support in the specification for the requirement that certain limitations be read from the perspective of the bus master or PCI bus. Nor has nVidia cited to any case law to support this position. nVidia's argument is simply an attempt to limit the construction to the preferred embodiment. Such a methodology must be rejected. Accordingly, "sequentially transferring data units between said bus master and said secondary memory" is construed to mean "moving data units from the bus master and the secondary memory in the sequence in which they are stored."

Bellcore further defines the phrase "consisting of a continuum of an interleaved multiplicity of data bytes of predetermined size derived from a plurality of identically-formatted contributory frames each containing a plurality of said data bytes" to mean that the serial bit stream consists of transmitted SONET-like frames greater than STS-1. In proffering this definition,
Bellcore specifically defines "a continuum of an interleaved multiplicity of data bytes of predetermined size" as a sequence of interspersed bytes, usually eight bits in size, but not required to be eight bits in size. Bellcore also defines "derived from a plurality of identically-formatted contributory frames each containing a plurality of said data bytes" as the format of the sequence of interspersed bytes. Specifically, Bellcore contends that this phrase means having a format based on multiple basic frames having the same byte format.

In contrast to Bellcore's interpretation, FORE contends that the preamble requires each frame of the serial bit stream that is being demultiplexed to have been formed by interleaving all eight bit bytes of two or more contributory frames. (D.I. 146 at 25). In other words, FORE's definition focuses on how the serial bit stream referred to in the claim was formed. According to FORE, the serial bit stream consists of a train of repeating higher-level frames. Each higher level frame is constructed by combining two or more pre-existing, distinct and complete lower-level frames called "contributory frames." FORE further contends that this language means that there can be no gaps or pauses or breaks in the interleaving of the contributory frames. In support of its position, FORE contends that the specification makes clear that demultiplexing is the process of disassembling previously multiplexed (or combined) lower-level SONET frames. ( '768 Patent, col. 1, lines 37-44; col. 2, lines 28-30; col. 5, lines 41-47). Stated another way, FORE contends that "demultiplexing" is the process of separating higher-level, higher speed STS-N frames transmitted in the serial data bit stream into the lower-level, lower speed STS-1 frames that make up each STS-N frame. Thus, according to FORE, the claim is limited to taking multiplexed STS-N frames and separating them into the original STS-1 frames that were previously combined to create the STS-N frames.

In addition, FORE specifically disputes Bellcore's construction of the words "continuum," "interleaved" and "byte." FORE contends that the word "continuum" means "continuous" and not "a sequence" as Bellcore contends. As for Bellcore's interpretation of the words "interleaved" and "byte," FORE contends that Bellcore's definitions are overly-broad, and therefore, inconsistent with the patent's specification.

The Court agrees with FORE that the preamble limits this claim of the patent to taking multiplexed STS-N frames and separating them into the original STS-1 frames that were previously combined to create the STS-N frames. The specification of the '768 Patent speaks solely in terms of multiple, lower-speed frames that are multiplexed together to form a higher speed frame. The patent does not address the type of SONET framing structure which consists of larger frame formats generated in a single operation, using the higher bit rate and multiple STS-1 frame format. In order for the invention to perform its demultiplexing function, the bit stream must be multiplexed. The specification of the '768 patent expressly defines a multiplexed bit stream as follows: "[A] multiplexed serial bit stream is assembled by interleaving repeated sequential extractions of one byte from each of the component STS-1 frames." ( '768 Patent, col. 1, lines 37-40). The patent specification further provides:

It is necessary, therefore, that the signal receiver [the device receiving the SONET-formatted serial bit stream] reconstruct from this serial bit stream the original base frame, or some frame multiple thereof, in order that the correct substance of the transmitted signal may be recovered.

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[The] stream must be reformatted into the original bytes and frames in order for the receiver processing circuitry to properly extract the transmitted data and messages.

( '768 Patent, col. 1, lines 37-44 (emphasis added); col. 2, lines 28-30 (emphasis added)). Further, the specification explains:

Upon completion of the formatting of the high-speed input serial data stream to a low-speed, properly synchronized byte-parallel data stream, there remains the problem of identifying the boundaries of each frame of the original transmission in order that the payload, as well as the relevant overhead information bytes, may be demultiplexed to the basic STS-1 level.

( '768 Patent, col. 5, lines 41-47 (emphasis added)). Accordingly, based on the claim language and the specification, the Court concludes that the phrase "demultiplexing a bit stream" refers to taking multiplexed STS-N frames and separating them into the original STS-1 frames that were previously combined to create the STS-N frames.

The Court further agrees with FORE that the serial bit stream that is being demultiplexed must have been formed by interleaving the bytes of two or more contributory frames, that each of the contributory frames must have exactly the same
format, and that there can be no gaps or pauses in the interleaving. In the Court's view, the specification and Figure 2 support FORE's position that the bytes are continuously interleaved from each of the contributory frames. ( '768 Patent, col. 1, lines 37-40; col. 4, lines 9-27). Indeed, byte-interleaving is described in the specification as requiring a byte to be taken, one at a time, from the same byte position of each contributory frame and placed in the bit stream. ( '768 Patent, col. 4, lines 9-27). However, the Court cannot accept FORE's contention that a byte is limited to 8 bits. Although Bellcore concedes that a byte is usually 8 bits, the Court cannot conclude that the patent limits a byte to 8 bits, because the express language of the claim indicates that the data bytes are of a "predetermined size." If bytes were limited to 8 bits only, then the language "predetermined size" would be superfluous and unnecessary. Each and every word in a claim must have meaning and cannot be ignored. See e.g. Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1557 (Fed. Cir. 1995). Accordingly, in order to give effect to the language "predetermined size" the Court will not exclude the possibility that a byte could be more than 8 bits.

As to the parties' dispute concerning the phrase "consisting of," the Court concludes that in this case, the phrase "consisting of" is used as a transition between the claim element "a serial data bit stream" and the clause that follows and modifies the claim element. Because the phrase "consisting of" introduces the modifying clause, "a continuum of an interleaved multiplicity of data bytes of a predetermined size derived from a plurality of identically-formatted contributory frames each containing a plurality of said data bytes," the Court concludes that it excludes any bit stream that does not have the exact limitations recited in the modifying clause. Georgia-Pacific Corp. v. U.S. Gypsum Co., 195 F.3d 1322, 1327 (Fed. Cir. 1999); Mannesmann Demag Corp. v. Engineered Metal Prods. Co., 793 F.2d 1279, 1282 (Fed. Cir. 1986).

In sum, the Court concludes that the phrase: "The method for demultiplexing a serial data bit stream consisting of a continuum of an interleaved multiplicity of data bytes of predetermined size derived from a plurality of identically-formatted contributory frames" means that each frame of the serial bit stream that is being demultiplexed was formed by interleaving the bytes of two or more contributory frames. Each contributory frame must have exactly the same format and there can be no gaps or pauses in the interleaving.

2. "Serial data packet"

The district court interpreted the term "serial data packet" in the claims of the '176 patent as "one that can, but need not, include both keyboard and mouse signals." The district court determined that the specification and Examiner's Reasons for Allowance of the '176 patent "required" the serial data packet to be capable of including both keyboard and mouse signals. The Examiner's Reasons for Allowance stated:

The prior art of record does not teach nor fairly suggest the system arrangement as claimed with circuitry for creating serial data packet from keyboard and mouse electronic signals, and crosspoint switch for connecting keyboard/mouse/video monitor from a number of workstations to plurality of remote computer systems.

This standard reason for allowance, however, states only that the prior art does not teach or suggest the claimed system arrangement. This reason for allowance merely summarizes the claimed invention and fails to specifically state that patentability is based on the serial data packet including both keyboard and mouse signals.

According to claim 1, a serial data packet "includes the electronic signals." The electronic signals are produced by the keyboard and mouse. A "data packet" is defined as "a unit of information transmitted as a whole from one device to another on a network." Microsoft Computer Dictionary, (4th ed. 1999). This definition suggests that a data packet, contrary to the district court's decision, need not be capable of including both keyboard and mouse signals.

Moreover, claims are interpreted in light of the written description and with the knowledge and understanding of those of ordinary skill in the art. Vitronics, 90 F.3d at 1582, 39 USPQ2d at 1576-77. Nothing in the written description suggests that a keyboard signal must accompany a mouse signal. In fact, while the district court interpreted "serial data packet" to require the capability of including both keyboard and mouse signals, it recognized that the packet could include only mouse or only keyboard signals. In other words, the district court recognized that one of ordinary skill in the art would understand that a signal data packet includes a mouse signal, a keyboard signal, or both. The prosecution history does not evidence a need to
depart from the ordinary meaning supported by the written description. Accordingly, the term should be given its ordinary meaning. Inverness Med. Switz. Gmbh v. Princeton Biomeditech Corp., 309 F.3d 1365, 64 USPQ2d 1926 (Fed. Cir. 2002). The ordinary meaning of serial data packet is a unit of information transmitted as a whole from one device to another on a network that includes a keyboard signal, a mouse signal, or both. Therefore, we reverse the district court's claim construction of the term "serial data packet."

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3. "Serial Interface"

The parties also offer differing constructions of the term "serial interface" in the phrase, "An information station comprising . . . a serial interface coupled to said computer and capable of receiving said digital electronic signals produced by said facsimile transceiver." Plaintiffs propose that the phrase be constructed to as follows:

The computer includes an interface through which the computer is connected to the facsimile transceiver. One or more electrical conductors connect the interface of the computer to the facsimile transceiver. The interface allows digitized information from the facsimile transceiver to be sent to the computer.

Joint Claim Construction Statement at 10. Defendants suggest that the phrase be constructed to state:

Within the context of the '911 patent claims and specification, the term "serial interface coupled to said computer and capable of receiving said digital electronic signals produced by said facsimile transceiver" must include as part of it a modem connected to the computer. A modem is a devise for encoding digital electronic signals compatible with a computer into analog signals and decoding analog signals into digital electronic signals compatible with a computer.

As the claim language states, this limitation means: "serial interface coupled to said computer and capable for receiving said digital electronic signals produced by said facsimile transceiver."

The term "serial" means transmitting information over a single date line sequentially. The term "serial" does not include "parallel" in which information is transmitted in parallel over a plurality of date lines.

The term "serial interface" does not include an RS-232C interface, a Centronis interface, or any other computer interface that does not include a modem or not for transmitting information sequentially over a telephone-compatible line.

The phrase "receiving said digital electronic signals produced by said facsimile transceiver" refers to the digital electronic signals produced by the facsimile transceiver representing printed information scanned by the facsimile transceiver and transmitted by the modem of the facsimile transceiver over a telephone-compatible line to the modem of the computer.

Id. at 12.

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1 Plaintiffs' proposed claim construction initially contained the following sentence: "Serial interface' covers standard parallel interfaces as well as serial interfaces." Plaintiffs have removed this sentence from its proposed claim construction for this limitation, stating that it was "intended to convey Kirsch's argument regarding the range of equivalents for the term rather than its literal construction." See Pls.' Reply Br. at 6 n.1.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -

Defendants claim that the "serial interface" referred to in claim 1 must be construed as being limited to an interface having a modem for communicating with the modern of a facsimile transceiver. See Defs.' Br. at 24-27, Plaintiffs respond that such a limitation is unjustified. See Pls.' Resp. Br. at 8.

The term "serial" is commonly understood to mean that data is transmitted sequentially, one bit at a time. See Pls.' Br. at 6;
The Court notes that the plain language of claim 1, which expressly states that the serial interface is coupled to said computer and receives signals produced by said facsimile transceiver, supports Kirsch's contention that his invention contemplated the serial interface being "coupled to said computer," and not to the facsimile transceiver. Similarly, the plain language of claim 1 does not support a construction requiring a common interface between the computer and facsimile transceiver. See Pls.' Br. in Supp. of Proposed Claim Construction at 6 (hereinafter referred to as "Pls.' Br.").

Defendants contend that intrinsic evidence adds a limitation not evinced by the plain language of claim 1. For support, Defendants cite the '911 patent to argue that the serial interface described in claim 1 contains a modem. Defendants observe that the '911 patent states:

"The computer includes a serial interface in the form of a synchronous communication circuit and modem for communicating with the facsimile transceiver." (911 patent, col. 2, lines 60-63; emphasis added.)

"[T]he modem 20 . . . together with synchronous communication card 18 comprises a serial interface for connection to computer 10." (911 patent, col. 8, lines 8-11; emphasis added.)

"The computer has a serial interface including a synchronous communication interface and modem for communicating with the facsimile transceiver. (sic) (911 patent, Abstract; emphasis added.)

"Preferably modem 20 provides a serial communication link at least 9,600 baud in a synchronous fashion," (911 patent, col. 4, lines 27-29; emphasis added.)

"The digital electronic signals are transmitted by the serial communication link comprising modem 20 and synchronous communication card 18 to the personal computer 10." (911 patent, col. 4, lines 62-67).

"The information station of claim 1 wherein said serial interface comprises a synchronous communication interface attached to said computer and a modem coupled to said synchronous communication interface." (911 patent, claim 4; emphasis added.)

Defendants have not attempted to rebut the citations of intrinsic evidence specifically cited above. Instead, Plaintiffs claim that "[t]he language of claim 1 does not include the word 'modern.'" See Pls.' Resp. Br. at 8. Plaintiffs further claim that "the specification and prosecution history of the '911 patent use the term 'serial interface' in a manner consistent with its ordinary meaning." Id. Defendants do not contest this latter point. See Defs.' Br. at 24.

Because the language of claim 1 states that the interface is "capable of receiving digital electronic signals produced by said facsimile transceiver," Plaintiffs contend that the limitation does not allow for a construction requiring a modem as part of the serial interface, since "a computer modem is designed to receive analog signals from an external device such as a facsimile transceiver." See Pls.' Resp. Br. at 8-9 (emphasis in original). Plaintiffs asserts this same argument in connection with their contention that the specification refutes Defendants proposed construction.

Plaintiffs next argue that constructing the "serial interface" limitation in claim 1 to require a modem would render claim 4 superfluous. See Pls.' Resp. Br. at 9. Claim 4 recites the specific embodiment "wherein said serial interface comprises a synchronous communication interface attached to said computer and a modem coupled to said synchronous communication interface." Citing Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc., 206 F.3d 1440, 1446 (Fed. Cir. 2000), Plaintiffs contend that adopting Defendants proffered construction of claim 1 would violate the principle of claim construction requiring claim differentiation. See Pls.' Resp. Br. at 9.

Referring to the prosecution history, Plaintiffs assert that Defendants' construction must be rejected because "[c]laim 1 was initially rejected by the U.S. Patent and Trademark Office . . . as anticipated by U.S. Patent No. 4,652,933 ("Koshiishi")." Id. at 10. Plaintiffs argue that the interface connecting the computer and facsimile transceiver in Koshiishi does not include a modem in its reference. Because each element of a prior art reference must be disclosed in the reference, Plaintiffs claim that the U.S. Patent and Trademark Office did not construe the "serial interference" limitation as requiring a modem. Id. Defendants did not rebut this particular argument.
The Court conurs with the Plaintiffs' arguments. Defendants' proposed construction of "serial interface" is not tenable. As stated earlier, the portion of claim 1 relevant to this discussion states that the embodiment contemplates "a serial interface coupled to said computer and capable of receiving said digital electronic signals produced by said facsimile transceiver."

The plain language of this claim and the specification do not allow for Defendants' assertion "that the modem of the computer's serial interface (i.e., the "modem coupled to said computer") is capable of being directly connected to the modem of the fax modem to modern serial communication of analog signals through their respective telephone-compatible ports." See Defs.' Reply Br. at 6. The plain language of the claim does not state that analog transmission must be used. Rather, the claim embodies the transmission of digital electronic signals. It is undisputed that a modem cannot receive digital electronic signals. Therefore, the serial interface cannot be read to include a modem. If such a construction were adopted, the serial interface could not, as the claim requires, receive digital electronic signals produced by a facsimile transceiver.

The Court notes that the examples cited by Defendants are susceptible to Defendants' interpretation. Notwithstanding the fact that Plaintiffs have not attempted to address the examples Defendants offer as support for their construction, the Court is not convinced that these examples are definitively determinative of the appropriate construction of claim 1.

Further, Plaintiffs' argument that adopting Defendants' construction of claim 1 would render claim 4 superfluous is persuasive. Under Clearstream, 206 F.3d at 1446, the doctrine of claim differentiation requires this Court to presume that different words used in different claims result in a difference in meaning and scope for each of the claims. While this doctrine cannot be used to make a claim broader than what is contained in the written description, it does prevent the "narrowing of broad claims by reading into them the limitations of narrower claims." Id. In accordance with this principle, the Court concludes that the "serial interface" embodied in claim 1 does not necessarily include a modem; claim 4 evinces that Kirsch knew how to qualify a claim's embodiment by so indicating.

Finally, the Court finds Plaintiffs' contention regarding the Koshiishi patent convincing. Under In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999), "[a]nticipation under 35 U.S.C. § 102(c) requires that 'each and every clement as set forth in the claim is found, either expressly or inherently described, in a single prior art reference'"(citing Verdegaal Bros., Inc. v. Union Oil Co. of Cal., 814 F.2d 628, 631 (Fed. Cir. 1987)). That claim 1 was initially rejected by the U.S. Patent and Trademark Office under § 102(c) informs the Court that a modem was not expressly or inherently described in the Koshiishi patent. A finding that claim 1 does not envision the "serial interface" containing a modem is consistent with the Patent and Trademark Office's initial rejection or claim 1 of the '911 patent.

This claim term appears in claim 14, which reads in relevant part:

wherein said registration number algorithm combines information entered by a prospective registered user unique to that user with a serial number generated from information provided by the environment in which the software to be protected is run.

'216 Patent, col. 14, ll. 52-56. From claim 14, therefore, it is clear that the serial number is a number generated from computer environment information, which obviously forms the basis of Uniloc's proposed construction. Microsoft, however, points out that Uniloc's proposal reads the word "serial" out of the claim term and simply adds a layer of redundancy to the language of claim 14. This Court agrees and finds that the ordinary meaning of the term "serial number" is readily apparent from its widely accepted definition.

Accordingly, this term shall be construed as follows: A number that is one of a series.
1. "Serially connected intelligent cell[s] ("SICs")"

SercoNet contends that SICs should be construed as: "two or more intelligent cells directly connected using point-to-point medium", where "intelligent cells" refers to programmable elements for providing remote control, sensing and/or communications that when interconnected with other like elements form a communications, control and sensing network or system with distributed intelligence." NetGear agrees with SercoNet's construction of "intelligent cells." NetGear differs in its interpretation of "serially connected", and its proposed construction is: "A device, which is connected to at least one other such device, by means of a bi-directional communication channel. The devices are arranged in a serial (i.e., daisy-chained) fashion, but not a bus or star topology."

To begin its analysis, the court first turns to the claims themselves. The term "serially connected intelligent cell[s]" appears in claims 1-6 and claim 21 of the '360 patent and claim 1 of the '510 patent. Claim 1 of the '510 patent -- which sets forth the general type of local area network for data communication, sensing, and control claimed by SercoNet -- generally states that the network consists of a plurality of "serial intelligent cells" interconnected "exclusively by electrically-conducting media into at least one communicating pair" wherein each said media "interconnects no more than two of said serial intelligent cells" and each pair includes one conducting media and exactly two serial intelligent cells." Claim 1 of the '360 patent similarly sets forth the "network topology" claimed by SercoNet, which comprises a power source, and a "plurality of line-powered, serially connected intelligent cells coupled to the power source and to each other via respective communication channels each allowing mutually independent communication in either or both directions and comprising at least two electrical conductors." Claims 2-6 and 21 of the '360 patent also refer to line-powered serially connected intelligent cells, further defining where the controls, components, and various elements are located in the technology.

Reviewing the claims in which the phrase is used, there is no indication that the phrase is to be given a specific definition in any one claim versus another, and no indication that the phrase has been particularly defined, or referred to differently, in any specific claim. This being the case, the next question is whether any language from the claims is useful in helping to define precisely what "serially connected" is. The claims themselves do not really define this term. The claims do, however, describe how the cells are connected to one another, noting how many cells each connecting media connects, and defining that each pair of cells includes one conducting media. The language therefore defines the connections at the cell-to-cell level, indicating that the term "serial" is focused on how each cell is connected to another cell, rather than referring to a pattern of cells in a larger topology. However, because the claim language does not define the term, the court turns to the specification for further guidance.

The '510 patent specification explicitly states that every communication between SICs is a "point-to-point communication" which term herein denotes a "communication that takes place between exactly one sender and exactly one receiver." See '510 patent at 4:35-39; see also '510 patent abstract (noting that "a LAN can be configured from a plurality of SICs interconnected so that all communications between two adjacent SICs is both point-to-point and bidirectional"). It notes that this is in contrast to a bus-based communication, in which there are many potential receivers and many potential senders. This type of connection allows chaining. Id. at 4:1. The specification, therefore, makes clear that the unique feature of the communication is that each conducting media connects and communicates with no more than two intelligent cells, consistent with SercoNet's proffered construction. While this is also consistent with NetGear's exclusion of bus-based topologies from the claim, importing this exclusion would be redundant, as point-to-point communications by definition cannot be bus-based.

As to whether "point-to-point" is a more accurate description of "serial" than "daisy-chained," the parties noted at the hearing that both terms essentially mean one after the other. Because the phrase "point-to-point" explicitly appears in the specification, and is a clearer term than "daisy-chain," the court finds that this term is more appropriate. Furthermore, the patent makes clear that each SIC can be connected to one or more other SICs, forming branching chains. See '510 patent at 4:3-5 (inner SICs may be equipped with multiple connections, noting that one SIC is equipped with three connections and more are possible); Figure 7. The term "daisy-chain" might imply one single chain, which would improperly limit the claim. The term "point-to-point" does not have the same potentially misleading connotation, as "point-to-point" communications are defined in the specification, but the term "daisy-chain" is not.

NetGear's proposed construction also excludes star topologies. Figure 7 in the '510 patent specification, however, shows SICs arranged in a modified star topology. It is true that the background section of the '510 patent distinguishes SICs from prior art that used star and bus topologies. See '510 patent at 1-2. The background emphasizes that prior art star topology
generally used a multiplexer (i.e., a network "hub"), in which a connection between each unit and the hub is required. Id. at 2:20-25. See also '360 patent at 2:54-60 (which sets apart a topology allowing serial connection of the cells which allows for data to be passed in either direction from one cell to an adjacent cell from hitherto proposed systems employing star or bus topology). While SercoNet's patented technology does not require a network hub, each SIC in the invention can have multiple connections emanating from it -- which is like a star topology. SercoNet's definition of "intelligent cell" itself excludes a topology which depends upon a central hub: it requires a "system with distributed intelligence," which directly contradicts a system with centralized intelligence such as the star topology. Importing NetGear's proffered exclusion of "star topologies" therefore would be redundant, given the limiting definition of "intelligent cells." It would also be potentially inaccurate, since the figures and description in the patent specification show that SICs may be deployed within a variety of networks, including a star (or at least a hybrid/modified star) topology. See Fig. 7 of '510 patent. The court cannot read these unstated limitations excluding certain topologies into claim language.

The court, therefore finds that the claim language and specification support SercoNet's construction. While NetGear argues that the patent prosecution history shows that "serial connection" means "daisy-chain", that history would not alter the court's construction. While the prosecution history states that the claimed network employs daisy chain architecture, noting that each node receives power from a preceding node and feeds it to a succeeding node, this description of the overall architecture does not focus on the type of connection between each cell, and it describes how power is fed across lines, not how each cell is connected to another cell. See Parry Decl., Ex. 1 at 4. In addition, while SercoNet drew the patent examiner's attention to figures depicting bus and star topologies, noting that these examples do not show the type of network in the invention, the inventor used these examples to focus the examiner's attention on the peer-to-peer connection between cells allowing independent communication. See id., Ex. 1 at 7. As discussed above, defining this connection according to the claim language and specification eliminates the need to exclude bus and star topologies from the construction, as such exclusions are redundant and potentially inaccurate.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "SICs" and construes the term "SICs" as: "two or more intelligent cells directly connected using point-to-point medium", where "intelligent cells" refers to "programmable elements for providing remote control, sensing and/or communications that when interconnected with other like elements form a communications, control and sensing network or system with distributed intelligence."

A. Infringement

Daewoo states that the jury's finding of infringement was due to the district court's erroneous claim construction. Referring to the requirement in claim 5 of "a series circuit connecting in series through a series junction point said entire-width erasing head and said linear record erasing head," Daewoo argues that the district court incorrectly construed the "series circuit" limitation by "vitiating" the phrase "through a series junction point." The question is whether the claim requires that the series junction point must lie between the erasing heads, or whether the claim is met when the series circuit includes a series junction point that is not between the heads. The district court construed the claims, stating that "[t]he claim language does not require that the series junction point must be between the two heads, but only that all three must be in series." (Emphasis in original). The court referred to the specification, and observed that Figure 2 of the patent shows the series junction point located between the two erasing heads, and Figure 5 shows a series junction point that is not located between the two erasing heads.

Daewoo argues that the claim requires that the series junction point lies between the two erasing heads. The district court stated that Daewoo's argument is an "attempt[.] to limit the claim to a preferred embodiment, even though this limitation is not found in the language of claim 5." We affirm the district court's claim construction, for it is in accordance with the specification including the drawings, whereas Daewoo's construction would exclude the embodiment in Figure 5. See, e.g., Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1581 (Fed. Cir. 1996) (a claim construction that excludes a preferred embodiment is rarely, if ever, correct).

On the district court's construction of the claims, the jury verdict of infringement is not challenged on appeal.
C. "a server"

"a server" is found in the '414 patent, claim 4: "A media asset management system comprising: a server comprising: a user account . . . a server database application . . . ; and a server application . . . ." The plaintiff contends that "a server" means "one computer server or a group of computer servers, where each computer server is a computer used to provide services (such as stored data or files, processing power, or management of network resources) to other computers or devices in a network." According to the defendant, "a server" should be construed as "a computer or device on a network that manages network resources."

The plaintiff argues that "a server" should not be limited to a single server, but may mean one or more servers. See Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008) ("That 'a' or 'an' can mean 'one or more' is best described as a rule, rather than merely as a presumption or even a convention."). But Apple points out that the claim language requires the server to have specified features, and these requirements are not satisfied by one or more servers collectively having those features. See Summit Tech., Inc. v. Nidek Co., 363 F.3d 1219, 1228 (Fed. Cir. 2004) (holding that the limitation "a light spot" requires a single light spot, not a combination of light spots). Therefore, while an accused system may have multiple servers, each server must independently be capable of performing all of the limitations listed in the claim language.

Next, Apple proposes a dictionary definition that includes "manages network resources." There is no need for the servers in this context to manage network resources. Thus, the court construes "a server" as "one or more computers or devices on a network, with each computer or device having user account(s), server database application(s), and server application(s)."

B. "server, " as used in claim 14.

The term "server" appears only in claim 14, 17 a system claim. Plaintiff proposes the construction, "a provider of a data," while defendants propose the construction, "a computer that communicates, (i.e., provides documents) with a client over a network by using any communication protocol." Again, dispositive of this dispute is the claim construction principle recognizing the patentee's ability to act as his own lexicographer. When this principle is applied, it becomes clear that "server" means "a computer that provides data."

In the '670 patent, the patentee explicitly defines "server" as "refer[ring] to a computer's general role[] as a . . . provider of data (the server)." '670 patent Specification col. 11 11.49-51; see also id. col. 4 11. 28-30. Significantly, the patentee's intention to act as lexicographer is evidenced by two recognized indicators: (i) the use of quotation marks around the claim term and (ii) the patentee's use of the word "are." See Sinorgchem Co., 511 F.3d at 1136 ("The term 'controlled amount' is set off by quotation marks--often a strong indication that what follows is a definition. . . . Moreover, the word Ms' . . . may signify that a patentee is serving as its own lexicographer."). Here, the patentee's intent to define the term "server" is manifest and accordingly controls.

By contrast, both parties' proposed constructions are inconsistent with the patentee's lexicography. Plaintiff's proposed construction--"a provider of data" is underinclusive because it omits the part of the definition referencing a computer. See Sinorgchem Co., 511 F.3d at 1136-39 (holding that plaintiff's construction incorrectly encompassed only part of the
In sum, because the patentee "has elected to be a lexicographer by providing an explicit definition in the specification for a claim term . . . the definition selected by the patentee applicant controls." Renishaw PLC v. Marposs Societa per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1999). Accordingly, the claim term "server" is construed, pursuant to the patentee's instruction, to mean "a computer that provides data."
This term is found in claims one and claim thirteen. The Plaintiff contends that the term does not require construction, but submits "a computer that provides services to another computer." The Defendants submit "a computer that applies one or more test methodologies to the collected information; generates one or more reports from the test methodologies; and sends the one or more reports to a project manager."

The Plaintiff's definition is supported by citation to technical dictionaries. The Defendants state that claim thirteen and the description in the specification of server 100 gives a particular meaning to the disputed term in the context of this patent. In particular, the Defendants point to col. 4:1-3, where the patentees state that FIG. 2 is an exemplary process for providing a Laboratory Information Management System on the server.

The patent specification does not support the Defendants' definition. The server is accessed on a wide-area network and receives information collected from the material mixture. Col. 1: 62-64. The server is connected to a network and can have a web site. Col. 3:6; 10-12. In one embodiment, the server collects inputs (col. 4:5). The server can be an individual server or a collection of several. Col. 3:25-26. The server can be protected by a firewall. Col. 3: 46. It allows a consumer to log on to a software package incorporating standard testing methods. Col. 3:60-65. None of these uses requires that the server apply the test methodologies, generate the reports, and send the reports to a project manager.

It is possible for a patentee to act as his own lexicographer and redefine a term away from its ordinary meaning. Phillips, 415 F.3d at 1316. But when he does so, the patentee must express an intent to redefine a term. Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp., 493 F.3d 1358, 1367 (Fed. Cir. 2007)(citation omitted). The patentees in this case have not expressed intent to redefine this term.

The Defendants are attempting to require that tasks explicitly assigned to the server in claim thirteen also be included as limitations in claim one through the redefinition of the word "server." While the server must be capable of performing the functions explicitly recited in claim thirteen, the definition of server in claim one is not limited to the functions of claim thirteen. Claims are presumed to have differing scopes. AllVoice Computing, 504 F.3d at 1248 (citations omitted). To redefine "server" so that it has the same functions in claim one as in claim thirteen without some other basis for doing so would be improper. 2

Footnotes

2 It is also unnecessary to define "server" to include the claim language that follows it in claim thirteen since the claim already has that language.

End Footnotes

In some cases, the ordinary meaning of the claim language is readily apparent and involves little more than the application of the widely accepted meaning of a commonly understood word. Phillips, 415 F.3d at 1314. That is the case with this term. The Plaintiff supports its construction with technical dictionaries that have definitions for "server" such as "a computer or software package that sends requested information to a client or clients in a network." MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 1905 (6th ed. 2003). Another relevant definition is "on the Internet or other network, a computer or program that responds to commands from a client." MICROSOFT COMPUTER DICTIONARY 403-04 (4th ed. 1999). Finally, a server is also defined as "a computer whose role in a network is to provide services and resources to users." MICROSOFT ENCYCLOPEDIA OF NETWORKING 1107 (2000). The Defendants do not offer contradictory dictionary citations, but merely rest on the argument that the patent specifically defines this term.

The Defendants also contend that this term is part of a means-plus-function term only in its use in claim thirteen. For the reasons discussed in construing the term "Server Applying One or More Test Methodologies to the Collected Information;
Generating One or More reports from the Test Methodologies; and Sending the One or More Reports to a Project Manager" below, this Court does not agree. The Defendants also provide no basis for departure from the rule that claim terms are to be interpreted consistently throughout various claims of the same patent. See Callicrate v. Wadsworth Manuf. Co., 427 F.3d 1361, 1371 (Fed. Cir. 2005); Research Plastics, Inc. v. Federal Packaging Corp., 421 F.3d 1290, 1295 (Fed. Cir. 2005) (citing Phillips, 415 F.3d at 1313-14 and Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001)).

Construction: A computer that provides services to another computer.

6. "server"

The parties dispute the construction of the term, "server," as it appears in claim element 3 ("server"). 6

--- Footnotes ---
6 The term, "server," appears in claim elements 1 ("file server means"), 1(b) ("file server means"), 3 ("file server means"), 3(b) ("file server means"), 3(c) ("file server means"), 3(d) ("file server means"), 3 ("file server means"), 5 ("server's unit"), 6 ("server's unit"), 7 ("server's unit"), and 8 ("server's unit"). (Herbst Decl. P 5, Ex. 3.)

--- End Footnotes ---

Plaintiffs' proposed construction for the term, "server," is "a computer system that receives requests and provides responsive information." Defendants' proposed construction is "system that receives digital property information and stores digital property information." As such, the parties agree that the proper "server" construction should describe "server" as a "system." The parties also agree that under the doctrine of claim differentiation, the construction of "file server means" and "server's unit" are presumed to be different. See Inpro II Licensing, S.A.R.L. v. T-Mobile U.S.A., Inc., 450 F.3d 1350, 1354 (Fed. Cir. 2006) (citing Tandon Corp. v. U.S. International Trade Com., 831 F.2d 1017, 1023-24 (Fed. Cir. 1987) (stating that under the doctrine of claim differentiation, different claims are presumed to be of different scope.). However, because the Court separately construes the terms, "file server means" and "server's unit," the Court will limit its current construction of the term, "server," only to the extent it appears in claim element 3.

In support of their competing constructions of "server," both parties primarily rely on the '025 Patent specification. However, before turning to the specification, the Court must first addresses the claim language. See Vitronics Corp., 90 F.3d at 1582 (stating that in construing disputed terms, the Court first looks to the words of the claims ascribing the words their ordinary and customary meaning.) ["T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips, 415 F.3d at 1313. In construing the ordinary and customary meaning, the Court notes that the dictionary definition for "server" reads, "[a] computer that manages centralized data storage or network communications resources. A server provides and organizes access to these resources for other computers linked to it." American Heritage Science Dictionary (2007); See also Microsoft Computer Dictionary (4th Ed. 1994) (defining "server" as "[o]n a local area network, a computer running administrative software that controls access to all or part of the network and its resources (such as disk drives or printers). A computer acting as a server makes resources available to computers acting as workstations on the network."). Although not dispositive, the Court finds that the claim language in light of the ordinary and customary meaning of "server" to be illustrative.

--- Footnotes ---
7 Dictionary definitions and other objective reference materials available at the time that the patent was issued may also provide evidence of the ordinary meaning of a claim. Phillips, 415 F.3d at 1322; Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002). A dictionary "has the value of being an unbiased source, accessible to the public in advance of litigation." Phillips, 415 F.3d at 1322 (internal quotation omitted). Thus, district courts "are free to consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584 n. 6. A court should be cautious, however, not to place too much reliance on dictionaries, as the resulting construction may be too broad. Phillips, 415 F.3d at 1321.
Turning to the '025 Patent specification, Defendants insist that it clearly defines "server" as, "Server--The computer system which stores all files. Input facilities for raw data may be located at the Server's location." (Herbst Decl., P 5, Ex. 3 at col. 5, ll. 23-25.) Plaintiffs argue that Defendants misapply the specification because the specification explicitly qualifies its "server" description by providing that "the following terminology is used for consistency and should in no way limit the scope of the invention." (Id. at col. 5, ll. 2-4.) Plaintiffs also assert that Defendants' construction unduly restricts "server" to "digital property information" per the disclosed embodiment.

The Court finds that construction of term, "server," is somewhere in between the parties' proposed constructions. Most compelling is the specification's description of the term, "server." See Vitronics, 90 F.3d at 1582 ("Usually, [the specification] is dispositive; it is the single best guide to the meaning of a disputed term."). From that description it is clear that "server" includes a "system which stores files" and also has "input facilities for raw data." (Herbst Decl., P 5, Ex. 3 at col. 5, ll. 23-25.) Also instructive is the specification's description of the invention. The specification repeatedly describes "server" as a component with an "input/output [device]" for "receiving and providing [or transmitting] data [and database storage]." (Id. at col. 3, ll. 33-35; col. 4, ll. 10-14.) As such, the Court construes "server," in part, as "computer system that receives, stores, and provides data." The remaining issue is whether the "data" at issue should be limited to "digital property data."

It is evident that the disclosed embodiments of the '025 Patent describe "server" as a component "storing digital real estate information," (id. at col. 3, ll. 35-36) and "stor[ing] information regarding property profiles, real estate professionals, community profiles, real es [sic] state financing, local businesses and services . . . ." (id. at col. 4, ll. 2-5). However, because it is improper to read limitations from the specification into the claim, the Court may not limit "data" to "digital data" as Defendants' proposed construction does. See, e.g., Phillips, 415 F.3d at 1323. For this reason, the Court refuses to adopt Defendants' proposed limitation.

Having considered the claim terms, the specification, and the relevant patent prosecution history, the Court construes "server" as "computer system that receives, stores, and provides data."

M. Server Applying One or More Test Methodologies to the Collected Information; Generating One or More Reports from the Test Methodologies; and Sending the One or More Reports to a Project Manager

This term is found only in claim thirteen. Here, the claim language specifies that the server must perform the steps. The Court has previously construed the components of this term, so this construction includes the previous constructions.

The Defendants also argue that this term is a means-plus-function term. The Defendants argue that there are three functions in the claim - "applying one or more test methodologies to the collected information," "generating one or more reports from the test methodologies," and "sending the one or more reports to a project manager." The Defendants acknowledge that none of these terms employs the classic "means-for" language that invokes a rebuttable presumption that means-plus-function claiming applies. Callicrate, 427 at 1368. The lack of the use of the word "means" invokes a rebuttable presumption that means-plus-function claiming does not apply. Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed.
Cir. 2004) (citation omitted). The Defendants, however, argue that the claim recites a function without sufficient structure, which is sufficient to invoke means-plus-function claiming without using the word "means." See Duratech Indus. Int'l v. Bridgeview Mfg., 292 Fed. Appx. 931, 933 (Fed. Cir. 2008).

The Defendants' argument is inconsistent with its previous arguments. The Defendant previously addressed the terms "applying one or more test methodologies to the collected information," "generating one or more reports from the test methodologies," and "sending the one or more reports to a project manager" in claim one without arguing that they lacked sufficient structure such that means-plus-function claiming would apply. The Defendants now argue that the addition of the word "server" means that there is insufficient structure in these phrases.

The Defendants' argument is backwards. If means-plus-function applies, then a server alone is not sufficient structure. Aristocrat Techs. Austl. PTY Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008). Here the Defendants are arguing that the addition of the server invokes means-plus-function claiming. The Defendants rely only upon the words of the claim to do so; they do not cite the prosecution history or other intrinsic evidence to show a use of the term that comports with means-plus-function claiming. The Federal Circuit has held that the presumption against means-plus-function treatment is strong in claim terms that do not include the word "means." See Mass. Inst. of Tech. v. Abacus Software, 462 F.3d 1344, 1356 (Fed. Cir. 2006) (citing Lighting World, 382 F.3d at 1362 ("[W]e have seldom held that a limitation not using the term 'means' must be considered to be in means-plus-function form," and "the circumstances must be [unusual] to overcome the presumption . . ."). It is an error to require that the claim limitation identify specific structure instead of a generic term that includes a wide variety of structures. Lighting World, 382 F.3d at 1359. "[I]t is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." Id. at 1359-60. The Federal Circuit went on to state that "[w]hat is important is whether the term is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term 'means for.'" Id. at 1360.

As with the disputed word in that case, dictionary definitions in evidence here make clear that a server is a noun that denotes a type of structure. In this case, the noun is modified by the functional phrases - "applying . . .," "generating . . .," and "sending . . .." Thus the structure of the server is further specified by the function that it is performing in each step.

While it may seem a paradox that the patentee be allowed to use a server performing specific functions in a claim to avoid means-plus-function language, it is because the statute allows the patentee the choice to present his claim in means-plus-function format and rely on the specification for structure or to specify a particular claim that passes the patent examination in non-means form. The patentees used means-plus-function language in dependent claims, proving that they knew of the doctrine and how to employ it in the claims. For this disputed term, the patentee chose non-means language, and the Defendants have not met the their burden to show that this Court should overturn that choice.

Construction: A server that (1) performs calculations for one or more test methodologies using the data collected from the testing of the pavement construction material, (2) generates one or more reports based on the results of the test methodologies, and (3) provides the one or more reports to a project manager.

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14. Server computer

This term is used throughout the '542 patent claims. Seven contends that the term means "a machine on a network that provides a particular service to other machines," Visto argues that the term means "the FormLogic Server responsible for directly manipulating the client database, including retrieving data and inserting new data." Visto's construction would limit the claims to the preferred embodiment and is rejected. The court construes the term "server computer" to mean "a machine on a network that provides a particular service to other machines."

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C. First Server Computer and the "Selected Computer Resources of at least a [or said] first server computer . . ."

Plaintiff contends that the first server computer, or "subscription access server," does not need to actually store all of the selected computer resources it makes available to subscribers. Rather, Plaintiff contends, the first server computer can act as a gatekeeper, controlling access to those resources by instructing a "Service Function" to make those services, applications or content available. (D.I. 266 at 27; D.I. 305 at 17-18).

Defendants contend that the claim language and specification of the '416 Patent require that the first server computer physically store all of the protected content it communicates to subscribers, pointing to language in the specification stating that the invention "control[s] access to selected computer resources of at least a first server computer." (D.I. 306 at 20, citing '416 Patent, col. 35, ll. 26, 29-31)(emphasis added). Defendants contend that the use of the word "of" implies possession of resources by the first server. (Id. at 20). However, reading the claim in the context of the entire patent, the Court concludes that Defendants' contentions rely on an overly restrictive concept of possession, and that, given a broader reading, the language cited by Defendants is consistent with the specification.

The specification discusses a system whereby various web sites are hosted through web servers operating in conjunction with first server computers that protect the contents of the sites. (See e.g. col. 5, ll. 14-16, col. 27, ll. 3-4). Figure 3 shows the protected contents residing outside of the first server computer, with the path over which protected contents can be sent crossing through the "Service Function" block rather than the server. (Id., Fig. 3). Likewise, in Figure 4, the protected content resides outside the first server, and is accessed by the server through the "Service Function," which also resides outside the first server computer. (Id., Fig. 4). Thus, the Court concludes that the system disclosed in the specification and corresponding figures does not require the first server computer to store the resources it communicates to subscribers. Rather, it allows the server to act as a gatekeeper, accessing selected computer resources protected by the invention either itself or through a "Service Function" block, and communicating those resources to subscribers.

Accordingly, the Court construes "First Server Computer" to mean "a computer that makes available information or other resources." The Court also construes "selected computer resources of at least a [or said] first server computer" to mean "computer services, applications, or content that can be accessed by (either directly or indirectly) said first server computer."

C. Server Remote From the Client Computer System (Claims 1, 8, 14)

HP proposes that this term be construed as "a computer or a program that can be connected to a network and that can respond to requests from one or more client computer systems and that is located at a distance from the client computer." Intergraph contends that the proper construction of the term is "a computer that responds to requests from the client computer system via the Internet." Once again, the parties disagreement focuses on whether the definition of a contested term incorporates the use of the Internet.

HP argues that its proposed construction is consistent with the ordinary meaning that the term would have to those of ordinary skill in the art. HP directs the Court to the following language in the specification: "Client computer 300 also includes a network adaptor 390 that allows the client computer 300 to be intercepted to a network 395 via a bus 391. The network 395, which may be a local area network (LAN), a wide area network (WAN), or the Internet, may utilize general purpose communication lines that interconnect a plurality of network devices." '028 Patent, col. 3:44-49. Based on this language, HP concludes that the client computer system and remote server are not restricted to the Internet.

Intergraph argues that the term "network" is used interchangeably with the term "Internet." Intergraph illustrates this point by stating that the figure number 395 assigned to designate "Internet" has been used to denote the term "network" in a number of figures. See Figs. 1, 2, 3A, 3B, 3C, and 9. Intergraph also notes that Fig. 13 clearly depicts a client computer that is enabled to transmit a request to access and download a web page from the Internet.
HP concedes, as it must, that the Internet is obviously one example of a network that can be used with the systems of the '028 Patent. Indeed, the preferred embodiments of the patent often use the Internet as the "network" connection in the designed system. However, as previously noted, the Court should not "limit [] the claimed invention to preferred embodiments or specific examples in the specification." Ekchian, 104 F.3d at 1303. As noted by HP, the claims of the patent consistently use the word "network," and not "Internet." Therefore, Intergraph's attempt to limit the claims to server requests "via the Internet" is ultimately unpersuasive. The Court construes "server remote from the client computer system" as a computer that responds to requests from the client computer system through a network connection.

The parties dispute the construction of the term, "server's unit." The term at issue appears in Claim 5 of the '025 Patent as follows:

5. A system of tracking real estate and real estate related demographic information using a computer network system comprising:

... 

a server's unit, said server's unit having:

a computer, said computer having storage capabilities; communication means, said communication means enabling said server to interact with remote terminals;

a plurality of databases, at least one of said plurality of databases being an automatically updated demographic pattern database, said demographics pattern database being updated automatically by analyzing database information requests, said database information requests being a plurality of inquiries from a plurality of individual remote terminals, said remote terminal inquiries being the retrieving and viewing of text and/or graphic data from a database;

demographic database updating means, said updating means automatically updating said demographics pattern database by compiling and merging a plurality of end user inquiries and storing said compiled and merged inquiries in said demographics pattern database.

(Herbst Decl. P 5, Ex. 3 at col. 15, ll. 67-col. 16., ll. 18.)

Plaintiffs' proposed construction of the term is "a server system providing storage information." Defendants' proposed construction of the term is "a single unit that includes a modem, computer and multimedia database." In support of their respective constructions, the parties primarily rely on the '025 Patent specification.

The Court finds that Defendants' proposed construction is improper for the same two reasons as its previously proposed construction. First, by limiting the claimed function to "modem, computer and multimedia database," the proposed construction improperly imports limitations from the specification. See, e.g., Phillips, 415 F.3d at 1323. Second, by restricting the claim in such a manner, the proposed construction also improperly limits the claimed function to the preferred embodiment. See Northern Telecom Ltd., 215 F.3d at 1292; see also Kemco, 208 F.3d at 1362. Accordingly, Defendants' proposed construction is too narrow. However, Plaintiffs' proposed construction is too broad and is therefore similarly unacceptable.

Having considered the claim terms, the specification, the relevant patent prosecution history, and construction of earlier claim terms, the Court construes "server's unit" as "a computer unit with storage capabilities and communication means that also contains demographics databases."
5. Terms 14 and 15 (703 Patent, Claim 5) 18

18 The terms to be construed appear in claim 1, upon which claim 5 depends.

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>… at least one first level name server that provides a first level domain name service (DNS) resolution … [Term 14]</td>
<td>… a computer or program running on a computer in the hosting framework that receives a request to resolve a name or other identifier into an IP address, and returns the IP address of a name server or servers …</td>
</tr>
<tr>
<td>… and at least one second level name server that provides a second level domain name service (DNS) resolution … [Term 15]</td>
<td>… a computer or program running on a computer in the hosting framework that receives a request to resolve a name or other identifier into an IP address, and returns the IP address of a content server or servers …</td>
</tr>
</tbody>
</table>

Akamai argues that a proper construction of these terms should include the regular Internet DNS root 19 and top-level (e.g. ".com") name servers, while Limelight insists that the patent limits the invention to name servers within the "distributed hosting framework" cited in the claim preamble. (703 Patent, Claim 1.) Akamai bases its argument on an appellate decision in a prior case, Akamai Techs. v. Cable & Wireless Internet Servs., 344 F.3d 1186 (Fed. Cir. 2003) ("C&W"). Akamai, however, misreads that decision. The issue addressed by the Federal Circuit in C&W was "a single point of contention--the placement of the load balancing software at either the DNS servers or the origin server." Id. at 1193. The court found that claim 1 of the '703 Patent did not require the load balancing software to be located at the DNS server, and therefore was anticipated by an earlier C&W patent. Id. at 1194.

19 The root servers are a worldwide set of domain name servers at fixed IP addresses which can be queried to provide the location of the next level of lower-level DNS servers supporting the top-level domains such as .com, .org, etc. They provide a known starting place at the top of the domain name hierarchy for a client's local name server to begin in order to resolve a hostname. (See Docket # 84, 14.)

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This additional argument, however, fails to address C&W's contention that hierarchical DNS is inherent in any Internet system. Indeed, C&W proffered documentary evidence and testimony at trial that redundant domain name servers are inherent in any Internet-based application. See Dayco, 329 F.3d at 1369.

Id. at 1195 (emphasis added). Contrary to Akamai's contention, this language does not construe the terms of claim 1 concerning limitations on the location of the claimed name servers. Indeed, the Federal Circuit had no reason to examine claim 1 further, having already determined it invalid. Rather, it holds that, given an invalid claim 1 anticipated by an earlier patent, the additional limitation of a redundant name server in claim 3 does not sufficiently limit claim 1 to create a valid claim.

A plain reading of claim 1 in the ’703 Patent describes the two-level DNS service as part of "[a] distributed hosting framework operative in a computer network . . . the framework comprising: . . . at least one first level name server . . . and at least one second level name server . . ." (’703 Patent, Claim 1.) The specification supports a construction of this language that limits the location of the name servers to the claimed invention's hosting framework:

The hosting framework of the present invention comprises a set of servers operating in a distributed manner. . . . In particular, the framework includes a second set of servers (or server resources) that are configured to provide top level Domain Name Service (DNS). In addition, the framework also includes a third set of servers (or server resources) that are configured to provide low level DNS functionality. (Id. col.3 11.4-5, 19-24 (Summary of the Invention) (emphasis added).)

[T]he global hosting system 35 comprises three (3) basic types of servers (or server resources): hosting servers (sometimes called ghosts) 36, top-level DNS servers 38, and low-level DNS servers 40. (Id. col.3 11.51-54 (Summary of the Invention) (emphasis added).)

Step 3: As previously described, preferably there are two types of DNS servers in the inventive system: top-level and low-level. The top level DNS servers 38 for ghosting.com have a special function that is different from regular DNS servers like those of the .com domain. (Id. col.911.31-35 (emphasis added) (distinguishing the DNS servers in the inventive framework from those of the Internet root and top-level servers).)

Thus, both the claim and the specification limit the invention to a global framework containing two levels of DNS servers different from the DNS servers providing root and top-level name resolution.

The Court finds little support in the claims or specification for Defendants' proposal. However, the Court finds that the repeated use of the term "service" in the claim denotes something more specific than the generic construction proposed by Beneficial. Beneficial provides definitions for service as "conduct or performance that assists or benefits someone or something" and "an act of assistance or benefit." The specification of the ’702 patent has numerous references to service or services. The Summary of the Invention states that the present invention exchanges information on goods and/or services between the players or users and the sponsors or advertisers. ’702 patent, 4:2-7. Further, the specification repeatedly refers to "goods or services" of the sponsor or advertiser, that the user has the ability to purchase or view sponsor goods and/or services, that the product or service relates to an advertisement, that the service presentations can be informational or interactive, and that the user may access gaming and advertisement services of the website. See ’702 patent, 4:3-66; 29:52-56. Thus, "services" is referenced throughout the specification in conjunction with a sponsor's products or goods, information exchange service within a gaming context, and advertisement services of a website. See id. Further, the parties
acknowledge that in dependent claim 54 the service is a "game." The Court finds that the term is not as limited as the Defendants' proposed construction. Thus, the Court construes the term "service" to mean "beneficial activity provided to a user."

A. The preamble

Pixion argues that the preamble gives meaning to the claims and, therefore, must be construed. Specifically, Pixion contends that the term "service application" requires interpretation. PlaceWare disagrees, arguing that the body of each claim "describes the three basic steps of prompting, forwarding, and transferring required for a structurally complete invention." Def.'s Opening Br. at 6:9-10. Further, PlaceWare contends that the preamble term "service application" is similar to "first application server," a term used in the body of each claim. Citing Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002), PlaceWare argues that because the claim body defines a structurally complete invention the preamble is not limiting.

Regarding the relevance of the preamble for claim construction, the Federal Circuit has held the following: "Whether to treat a preamble as a limitation is a determination 'resolved only on review of the entire [] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.' Catalina Marketing, 289 F.3d at 808 (citing Corning Glass Works v. Sumitomo Electric U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)). Catalina Marketing goes on to state that "in general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." Id. (citing Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). There is no definitive test to determine when a preamble limits claim scope, but there are some guideposts. The following are among the things that can be considered: (i) indication of intent to use the preamble to define the claimed invention; (ii) dependence on a particular disputed preamble phrase for antecedent basis; and/or (iii) importance of the preamble for understanding the limitations or terms in the claim body. See Catalina Marketing, 289 F.3d at 808.

In the '694 patent, the preamble has greater weight than PlaceWare acknowledges. The Court finds that the preamble is, in fact, "necessary to give life, meaning, and vitality" to the claim. In fact, the preamble is the very thing that differentiates the two claims at issue. Without the preambles of these two claims there would be no need for claim 9 as the "three basic steps of prompting, forwarding, and transferring required for a structurally complete invention," Def.'s Opening Br. at 6:8-11, have already been disclosed in claim 1. Claim 1 identifies a method of redirecting a client service session from a first application server to a second application server without terminating the client service session. Claim 9 identifies a computer-readable medium having computer-executable instructions for performing the method described in Claim 1. The preamble gives each claim its identity. Without the preamble, Claim 9 would be pure repetition.

Finding that the preamble gives "life, meaning, and vitality" to the claim, the Court considers the term in dispute: "service application."

Pixion proposes the following construction for "service application": "On-line services offered to end-users in the form of client server application program, including a server portion that runs on one or more of the servers, and a client portion that runs on a microcomputer of an end user." Pixion borrows this construction of "service application" from the detailed description of the preferred embodiments. See Col. 6:57-64. Limitations from a preferred embodiment described in the specification generally should not be read into the claim language. See Comark, 156 F.3d at 1187. The detailed description of a preferred embodiment of the invention "in no way sheds light on either the meaning of the term to the inventor, or the common meaning of the term to one of skill in the art." Id. Pixion's construction is too narrow because, based on the preferred embodiment, it limits the claim to on-line services. The patent explicitly contemplates applicability to other types of distributed systems. See Col. 4:47-52 ("Although the architecture is described in the context of an on-line services network, it will be recognized that various aspects and features of the architecture are applicable to other types of distributed systems.").

PlaceWare provides an alternative construction of "service application": "a program running on a server that provides a service to a client." Def.'s Reply Br. at 5:23-24 The Court finds that PlaceWare's construction is true to the meaning of the
term in the claim language as well as the specification. See Col. 6:58-59 ("client-server applications programs (or 'server applications')"); Col. 7:24-26 ("The term 'service' refers generally to the abstract function or functions performed by a particular service application (or group of related service applications)"). Accordingly, the Court construes "service application" as follows:

"a program running on a server that provides a service to a client"

'027 patent, col. 10, 11. 7-22 (emphasis added).

The '027 specification contains the following description of the service center:

A central location service center is established at which a call-back telephone number is provided for each subscribing call originator. A number is assigned for use for all calls that are placed by that originator. This assigned number is used to call the service center whereupon the originator is identified by the service center.

A signal is sent from the service center to the originator, thus indicating that the originator is identified whereupon the originator is instructed or prompted to terminate the call. Termination by the calling party is sensed at the service center followed by seizing of a first outbound circuit over which the service center outputs the call-back number for the identified originator. This operation reconnects the service center via a voice connection to the originator.

The originator is prompted to input the telephone number of the called party the originator intends to call. A second outbound circuit is seized at the service center whereupon the called party number is outputted to this second outbound circuit. Finally, the originator is bridged to the second outbound circuit thus connecting the originator with the called party.

The process, or system apparatus, in accordance with this invention, is preferably contained at a central location or service center. Since it is essentially self-contained for its purpose and requires a minimal number of lines connecting it to an exchange, the present invention is adaptable for relatively easy relocation to interface with the most economic tariff rate location wherever that might physically present itself throughout the world.

'027 patent, col. 3, 11. 33-62 (emphasis added). The paragraphs that follow describe the function of the "central location":

The process and apparatus of this invention interactively establishes communication links between a calling party and one or more parties called by that calling party. It employs input and output connections to a telephone exchange that provides interface switching of the calling party with the central location. A signal is generated containing data uniquely identifying the originating station of the calling party which signal is placed on the input connection to the central location whenever the calling party places a call to that input connection from their station.

The central location stores the unique identifying data of one or more authorized calling party subscribers. A signal on the central station input connection attempting to establish communications between the exchange and the central location
causes the system to compare the data of the identifying signal associated with the connection attempt with the contents in the data storage.

In response to a favorable comparison, a call is originated from this central location to the calling party station. Signals are then received from the calling party station for identifying a called party station with which the calling party desires to establish a communication connection. That is, these calling party originated signals identify a third party station. The central location finally bridges a communication connection between the calling party station and the third party station.

Preferably, the present invention responds to a favorable identification comparison as mentioned above by returning an audible signal to the calling party. This indicates the favorable comparison result so that the calling party will know to terminate the call attempt so as to allow the central location to originate a call to the call originating station. Failure of the calling party to terminate the call attempt a predetermined period of time after the recognition signal is given or from the time of commencement of an attempt to establish a connection from the calling party station terminates further processing of the connection attempt at the central location.

Connection attempt termination, because of the time-out function or a failure to produce a favorable comparison, can trigger a process which results in temporarily establishing a communication connection with the calling party station for presenting an audio message thereto. The central location typically will disconnect from the calling station after completion of an audio message.

The present invention is particularly well suited for advantageously utilizing the calling party identifying data in the form of the contemporary direct inward dial number produced by the exchange. Thus, the central location stores in a memory the direct inward dial number for each calling party authorized to utilize the system. Following a favorable comparison of the calling party number with a stored number, the system obtains the direct inward dial number from storage for placing that number on an output connection to the exchange.

A failure of the called party to answer the call attempt from the central location can result in provision of an indication to the calling party that they can select between terminating connection attempts or attempting to establish a connection with another third party. The invention can accommodate establishment of a multiple party conference call in response to calling parties instructions to the central location.

The system is likewise well suited for receiving and collecting management and billing information on calls established by the system. This enables a determination of the extent of use of the system by authorized and/or unauthorized calling parties. After establishing a communication connection with the calling party station, the central location can respond to a special signal originated from the calling party station so as to terminate further communication and communication attempts with the calling party station. This invention can utilize a dual tone multi-frequency signal as the above mentioned special signal from said calling party station.

The method and apparatus of this invention provides an economical telephone service by employing the most advantageous tariff between all originator and one or more called parties. A service center is established at which a call-back telephone number is provided for each originator, and at which a number is assigned for use for all calls that are placed by that originator. The assigned number is used to call the service center whereupon the originator is identified by the service center.

A signal is sent from the service center to the originator thus indicating that the originator is identified whereupon the originator is instructed to terminate the call. Sensing originator call attempt termination, the service center responds by seizing a first outbound circuit over which the service center outputs the call-back number for the identified originator thereby reconnecting the service center to the originator.

The originator is prompted to input the telephone number of the called party the originator intends to call. A second outbound circuit is seized at the service center whereupon the called party number is outputted to the second outbound circuit. Bridging the originator to the second outbound circuit thus connects the originator with the called party.
From this, it appears the inventor used "service center" and "central location" interchangeably. Defendants argue that "service center" means "a single location housing the service center master system which has: (a) a computer or switch including integrated components for performing switching functions to handle circuit connections, including a circuit connection to receive DID service from the LEC central office, (b) the database controller, (c) the DTMF generator, (d) the bridging function, and (e) the subscriber table server (the database)." Cygnus argues that "service center" "certainly does not mean 'a single location housing' particular equipment" because "it is commonplace for international call-back providers to have equipment and personnel at more than one location." Regardless of what the standard industry practice may now be, the patent itself shows that the inventor clearly preferred that the process or system apparatus of the invention be located at a "central location" ("service center") and adaptable for easy relocation to interface with the most economic tariff rate location wherever that was physically located. Therefore, although the inventor may have contemplated the possibility of having the system equipment located at more than one place despite his preference for a central location, by use of the term "service center" in claim 1 of the '027 patent the inventor is referring to a "central location" rather than a series of separate locations. "Service center" means the central location at which the system apparatus carries out the process of the invention.

6. "Service monitor": n6 A network monitor that provides local real-time analysis of network packets transmitted by a network entity, such as a gateway, router, firewall or proxy server.

Fenner argues "service profile" "describes the services for which a personal identification number is authorized," but Defendants contend this term means, "a description of the valid service area and any authorized calling services (e.g., call waiting, paging, voicemail)." For the following reasons, the Court construes "service profile" to mean, "a description of services for which a personal identification number (as construed herein) is authorized."

Defendants agree that a service profile describes services a PIN is authorized to use, but do not agree to Fenner's construction because it suggests that a PIN may only have one service profile. By inserting "the" before "services," Fenner's construction may improperly suggest that a PIN may only be authorized for one service profile, but it is clear from the patent that a PIN may be associated with more than one service profile. Thus, the Court will cut the word "the" from Fenner's proposed construction.
Regarding whether "valid service area" is necessarily a part of the "service profile," n4 Defendants point out that Claim 8 is dependent from Claim 1, and provides, "a mobile user is denied log-on if the switch is not in valid service area for the service profile maintained by the billing authority identified by the billing code." Col. 6, In. 59-62. Defendants argue Claim 8 establishes that the service profile referred to in Claim 1 includes a "valid service area," but the language of Claim 8 does not necessarily require such a limitation, and the specification provides "[a] service profile identifies the services available to a particular personal identification number." Col. 2, In. 45-47. Accordingly, the Court construes "service profile" to mean "a description of services for which a personal identification number (as construed herein) is authorized."

n4 Defendants' examples of calling services "call waiting, paging, and voicemail" are not supported by the claims or specification, and the Court will not include them in the construction.

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4001

B. "service provider"

The term "service provider" is found in the preamble of the '404 patent's claim 9: "A method of making communication process management decisions in a wireless over-the-air communications system having a plurality of service providers and an MTSO comprising . . . ." This term is used throughout the specification, e.g., "a wireless over-the-air communications system that can efficiently work with emergency service providers," ('404 patent, 8:25-27), "billing and taxing issues are important to current land based wireless communications systems service providers," ('404 patent, 14:37-39), and "two or more bordering service providers could erect single cells on or very near the border," ('404 patent, 14:61-62) (emphasis added). The plaintiffs state that the ordinary meaning of "service provider" is clear and unambiguous and thus requires no construction. The defendant's proposed construction is a "provider of wireless communications service (i.e., wireless carrier)."

Centennial contends that one of ordinary skill in the art, reading the claim language and specification, would understand that the term "service provider" refers to wireless service providers (providers of wireless communications services). Centennial argues that whenever the specification uses the term "service provider" without qualifiers, the term always refers to wireless service providers: e.g., "competing service providers can locate their cell sites anywhere where the wireless reception will allow them to provide the best wireless coverage of their territory." ('404 patent, 8:58-61) (emphasis added).

EMSAT and LBS argue that the plain and ordinary meaning of "service provider" is self-evident, and the scope of this term should not be limited to wireless carriers. The plaintiffs note that the specification's use of "service provider" is not limited to only wireless service providers: "It is another object of the present invention to provide a wireless over-the-air communications system that can efficiently work with emergency service providers." ('404 patent, 8:25-27) (emphasis added). Most importantly, claim 39 illustrates that the term "service provider" includes emergency service providers: "wherein said service provider includes an emergency service provider." See Phillips, 415 F.3d at 1314 (noting that "the usage of a term in one claim can often illuminate the meaning of the same term in other claims"). 1 As such, the court holds that "service provider" is not limited to wireless service providers and construes this term to mean "a company that makes services available to third parties."

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8. "a service providing network accessible node" ('702 patent)

**Beneficial's Proposed Construction**
"a device or devices (such as computers or servers) used for providing a service that is accessible over a network"

**Defendants' Proposed Construction**
"server that provides a particular service and that can be accessed via the communications network"

The Court finds that the primary difference between the parties' proposed constructions is that Defendants limit the term to a singular node of a specific type, a server, whereas Beneficial argues for a much broader construction for the term node as device or devices. The Court finds that the term network, as used in the claims and illustrated throughout the specification, exists separate and apart from the "network accessible node" and the "SPNAN." The Court finds that in the claims, "node" appears in the context of a "service providing network accessible node" and a "first network accessible node." The Court finds that there is no limitation in the specification or prosecution history that the service providing network accessible node be limited to a server. Thus, the Court rejects Defendants' proposal. The parties agree that the phrase "first network accessible node" means "a user's device that can be accessed via the communications network." The parties' agreed upon construction implies that a node is a type of "device." Thus, the Court construes the phrase "service providing network accessible node (SPNAN)" to mean "a device used for providing a service that is accessible via the communications network."

**4003**

"Service request(s)"

"Service request(s)" means "a solicitation of services from a client to a server. A service request may entail the exchange of any number of messages between the client and the server." See IEEE Standard Dictionary of Elec. & Elecs. Terms, at 974-74 (6th ed. 1996). Amazon's proposed construction limits this to an HTTP request message using the 1995 version of HTTP. For reasons already discussed, the Court rejects this limitation.

**4004**

Disputed Claim Term 5: Service Response

A significant portion of the oral argument was consumed with the dispute over the meaning of the term "service response." Tacoda proposes that it be construed as follows: "Information stored in association with the Web address of the downloaded Web page that controls user access to additional Web page functionality." Modavox offers a much more general definition: "A response to a query, including a reply or non-reply."

It behooves me to place the phrase in context.

The first thing that happens after the first code module issues the first command to retrieve the second code module is that the a second code module "having a service response" is "assembled" in response to "said issuing operation." The first code module then issues a second command, which initiates execution of the second code module at the end user's computer (the processor platform) in response to the request. ('636 patent Claim 1). So the service response is something that is assembled (built/programmed) into the second code module.

Modavox's proposed definition is quite broad; literally any answer to any type of question would fall within the term "service response." Tacoda's proposal is narrower. It contends that the service response is information, stored in connection
with the downloaded Web page (i.e., the one that contains the first code module embedded therein), that "controls user access" to some additional functionality (such as streaming media, as in the preferred embodiment). Tacoda adopts this definition because, in its view, the specification discloses only three possible service responses -- predetermined service (which is, for Tacoda, the default mode), denial of service, or customized (conditional) service. Whatever the "service" is, the "response," as far as Tacoda concerned, is either, 'You can access the service," "You can't access the service" or "You can access a customized form of the service." The "service," it seems, is whatever functionality is supposed to be added to the Web page.

The problem with Tacoda's proposed definition is that it conforms exactly to a dependent claim in the patent, which means that the principle of claim differentiation would be violated if the term were so defined. Dependent Claim 8 of the '636 patent discloses, "A method as claimed in claim 1 wherein said service response is one of a denial of service indication, a conditional service indication, and a predetermined service." Under the doctrine of claim differentiation, discussed above, one presumes that Dependent Claim 8 adds some new and different requirement that is not present in the independent claim (Claim 1) from which it derives. The only new requirement that is apparent from the language of the claim limits the service response to one of the three responses claimed in Dependent Claim 8. Thus, the term "service response," which appears in Claim 1, must not be limited to the three possible responses set forth in Claim 8 -- which is to say, it must be possible for a "service response" to me something other than one of the three answers specified in Claim 8.

Similarly, Dependent Claim 11(as well as Independent Claim 17) identifies the "service response" as "a metaphor," which the parties advise (and the specification confirms, see 5:47-53) is a software device that exists in the realm of electronic communication and has a counterpart in the real world -- for example, a graphic (visual) representation of something that looks and behaves like its real world counterpart. In the specification, the patentee uses the example of a representation of a radio image, which, when mouse-clicked by an end user, "turns on" to connect the end user with a music channel. So while not all "service responses" are "metaphors," some service responses may be (indeed, pursuant to Claim 17, will be). This accords with the preferred embodiment disclosed in the specification, which uses metaphors to indicate whether service is accepted or denied.

In light of the above, the court concludes that the service response referred to is indeed, the "reply to a query" (the answer to a question), as Modavox contends -- but it is not the answer to any and every question. Rather, as used in these patents, it is the answer to a very specific question: "Will you, the end user, accept this service and on what terms?" The answer need not be limited to "yes" or "no" and it need not be displayed in the form of a metaphor. But it must be an answer to that singular question.

This definition is in keeping with the specification's disclosure that the invention is "able to tailor the added function based on information about the Web page in which the first code module is embedded and based on visitor specified preference." (14:35-38)(Emphasis added). At oral argument, Tacoda suggested that "visitor specified preferences" would include pop-up blockers, cookie blockers and parental controls -- features that render a particular web site compatible with the end user's preferences. In defendant's view, the "service response" determines whether an end user will have access to the additional Web page functionality that is added as a result of the plaintiffs' invention. I agree that all of the disclosures of the patent support such a view of what the "service response" might be. Additionally, defining "service response" as the answer to the question, "Will you accept this service and on what terms?" accords with the natural meaning of the words "service" (something that is provided) and "response" (answer or reply).

Defendant insists that its definition is the only possible definition in view of the prosecution history. Among the prior art cited by the Patent Examiner in his Office Action rejecting the '791 application as "obvious" was the Fields patent. The Examiner drew a parallel between the "service response" claimed by Modavox and an aspect of Field called the "filter definition." In a January 2003 Amendment filed to the '791 application, Modavox explained the difference between the "service response" and the "filter definition" as follows:

[Certain] passages from Fields [were] cited in the Office Action Although the correlation is unclear, Applicants presume that the Examiner is drawing a parallel between the claimed service response and the Fields filter definition. Applications describe the claimed service response on page 14, lines 17-26 as being a media appliance metaphor, a media appliance metaphor with a slash through it, or the absence of any media appliance metaphor. Moreover, as recited in amended claim 6, the service response is included in the second code module. The Fields filter definition is not a service response included in the second code module, as recited in amended claim 6. Rather, the Fields filter definition is used to modify the content of
Tacoda argues that this response to the Examiner effectively disclaims any other meaning for the term "service response" than one of the three media appliance metaphors described in the preferred embodiment.

Modavox's use of the words "the claimed services response" (highlighted in the paragraph quoted above) could be read as indicating that it intends to limit what it is claiming in that manner. However, I do not so read it. Rather, Modavox is specifying what is claimed at a particular point in the specification; it them distinguishes Fields on the basis that the feature of Fields considered analogous to the service response by the Examiner -- the filter definition -- is not included in the second code module.

The citation to the patent application in the above-quoted passage refers to language found in the '636 patent at 7:42-60. That language plainly and unmistakably supports the court's conclusion, it clearly discusses "service response" in terms of whether the end user's processor will accept or reject the "service" offered -- the "service" being the Web page with added function. Whether the answer to that question takes the form of a metaphor (with or without a slash) appears irrelevant to the meaning of the term.

I thus conclude that the answer to the question, "Will you accept service and on what terms?" is not limited to Claim 8's "Yes, yes with explanation and no" -- and is certainly not limited to metaphor form -- in all instances. Such a conclusion accords with the doctrine of claim differentiation.

Therefore, the court will define the term "service response" as follows:

"The service response is the answer to the question, "Will you the end user accept (display) the web page containing added function, and on what terms will you accept it?"

C. "service-specific information about a state of the client service session"

PlaceWare's proposed construction for the above claim phrase is "the current conditions of an active communication between the server running a particular service application and a client computer." Again Pixion splits the claim phrase, construing it in three parts: (i) "service-specific information," (ii) "state of the client service session," and (iii) "client service session." For "service-specific information," Pixion professes: "information that describes the internal state of the service session." For "state of the client service session," Pixion proposes: "information about the services that is normally meaningful only to the specific service." Finally, Pixion construes "client service session" as "the use of a particular service by a single client-user (from the opening of the service to the closing of the service)." The Court finds Pixion's three-part construction confusing and, most importantly, inconsistent. The construction of the individual claim terms does not provide a coherent construction of the claim phrase "service-specific information about a state of a client service session."

Here, again, Pixion relies too heavily on the preferred embodiment, see Pixion's Br. at 8 and col. 17:62-66, without illuminating the disputed claim terms. In other words, Pixion's proposed constructions are recitations of the terms themselves, which PlaceWare accurately points out. See Reply Br. at 7-9. While Pixion's constructions are generally accurate they are unhelpful. In contrast, the Court finds PlaceWare's proposed construction accurate as well as comprehensive. The Court notes Pixion's concerns about the improper broadening of the claim language with PlaceWare's inclusion of "active communication." Pixion argues that "the 'communication' must be limited to 'server-specific information' as contemplated in the specification and claim language." Pixion's Br. at 8:24-26. However, the Court finds that PlaceWare's proposed definition does clarify that the "active communication" is one that occurs between the server running a particular service application and a client computer. This sufficiently sets the boundaries of the claim phrase.

Accordingly, the Court construes "service-specific information about a state of a client service session" as follows:

"the current conditions of an active communication between the server running a particular service application and a client computer"
"Session"

"Session" means "a series of requests and responses to perform a complete task or set of tasks between a client and a server system." Amazon's proposed construction limits a session to an "uninterrupted series of requests and responses." This limitation is unsupported by the specification. The specification contrasts two embodiments in which the user gains access to a document. In one, the user has a prepaid subscription and gains access by an authorization indicator embedded in a session identifier, allowing the user to access the document multiple times during the prepaid period. In the other embodiment, the user is charged and billed each time he views the document. Taken together, these embodiments disclose that a session can be either interrupted or uninterrupted. Additionally, Amazon's proposed construction requires that the client be identified by its network address and user name or address. This limitation is unsupported by the claim language. Claim 2, which is dependent to claim 1, requires that the session identifier include a user identifier. It is presumed that an independent claim does not include a limitation that is expressed in a dependent claim. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). Accordingly, in order for claim 2 to have any meaning, claim 1 must not require the inclusion of a user identifier in the session identifier. Thus, the preferred embodiments and the claim language contradict Amazon's proposed limitations.

"Port" as "a defined physical or logical connection where data enters or leaves a network device."

"Switching" and "transferring" as "shifting or reassociating PPP state to another session associated with the new call set-up message."

The court construed "session" to be "a PPP session."

The parties' agreed upon construction of "PPP Session" is "the time during which a communications device and a network access server are maintaining a negotiated PPP state."

The parties' agreed upon construction of "PPP State" is "a set of parameters negotiated pursuant to PPP sufficient for a PPP session."

Based on the parties' agreement at the claims construction hearing, the court construed "dormant PPP Session" as "a PPP session in a dormant state."

Claim Four of the '531 Patent recites, "The method of claim 1 which further allows a user to repeatedly add and interchange recordable CDs between a CD reader and a recordable CD drive using sessions." (531 Patent, col. 6, ll. 41-43). Similarly,
Claim Fifteen of the '686 Patent states, "The method of claim 1 wherein the method is repeated to create multiple sessions on the same compact disc." (686 Patent, col. 19, ll. 56-57).

Each party's proposed claim construction of "Session" is as follows:

<table>
<thead>
<tr>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Session&quot;</td>
<td></td>
</tr>
<tr>
<td>An area on a recordable compact disc consisting of a Program Area, where user data is recorded, and when finalized (closed), a Lead-In Area and a Lead-Out Area.</td>
<td>A finalized portion of a recordable disc.</td>
</tr>
</tbody>
</table>

The parties' dispute over the term "Session" is based on whether a session must be finalized or not. The customary meaning of the term "Session," as established in the Orange Book, is "[a]n area on the [compact] disc consisting of a Lead-In area, a Program area and a Lead-Out area." ORANGE BOOK, p. 141. Moreover, the Orange Book makes clear that a session need not be finalized, but can be "if the Lead-in and Lead-out Areas of the Session are recorded." Id at 179. The Court finds that this is the correct construction of the term "Session" as used in the '686 Patent.

Again, however, the Court finds that Optima acted as its own lexicographer and modified the customary definition of "Session" in its '531 Patent. Under the "Definitions" section of that patent, a "Session" is defined as "A finalized portion of a recordable CD." ('531 Patent, col. 3, l. 41.) The Court finds this definition controlling in the '531 Patent because it, like other terms defined in the "Definitions" section of the '531 Patent, is sufficient to provide notice of the term's intended meaning to an individual of skill in the art. See In Re Paulsen, 30 F.3d at 1480. 15

--- Footnotes ---

14 See note 4, supra.
15 See note 5, supra.

--- End Footnotes ---

13. Session module

Seven contends that the term "session module" simply means "software on the server." Visto suggests that the term means "a software module on the gateway computer/server computer that controls the tasks for a communication session. The session module may not reside on the client." As the proposals reflect, the parties agree that the session module must reside on the server computer. They disagree, however, on the functionality of the module and, in particular, that the module must "control" the tasks for a communication session.

The specification describes one aspect of the invention as "a server computer, comprising a server data source, a session module, in communication with the server data source, to non-persistently connect to the communications module and access the client database from time to time." '542 patent, col. 2, ll. 52-55. One limitation of claim 1 of the '542 patent reads similarly, requiring "a session module, in communication with the data storage, to non-persistently connect to the communications module and directly manipulate the client database during the connection from time to time." '542 patent, claim 1. From these passages, it does not appear that the claims require the session module to "control the tasks for a communication session." Instead, the claim language describes the functionality required by the routines. Compare '542 patent, claim 1 ("a session module .. to non-persistently connect ... and directly manipulate") with claim 22 ("plurality of session modules executing on the server computer, each session module in data communication with the other session modules, wherein one of the plurality of session modules non-persistently connects to at least one of the plurality of
The court accordingly construes the term "session module" as "a group of software routines located on the server." The balance of the claim language defines the functionality required by the module.

II. Construction of the '684 Patent

Neither party has pointed to extrinsic evidence, other than dictionary definitions of the word "set," to support its claim construction position. The parties agree that the Federal Circuit indulges a "heavy presumption" that a claim term carries its ordinary and customary meaning. Johnson, supra at 989; C.C.S. Fitness, Inc., v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002). Further, VendingData agrees that the term "set" should be given its "ordinary" meaning. Opposition Brief at 15. VendingData does not contend that the patentee "acted as his own lexicographer" to explicitly define the term as VendingData would have the court construe it, or that the patentee has disavowed or described the scope of coverage by using words or expressions that manifest exclusion or restriction. The court's task, therefore, is to determine the ordinary meaning of the word "set."

Initially, the court considers the context provided by the remainder of claim 20 and the other claims of the '684 patent. See, e.g., Abbott Labs. v. Syntron Bioresearch, Inc., 334 F.3d 1343, 1351 (Fed. Cir. 2003)("The usage of disputed claim terms in the context of the patent claims as a whole informs the proper construction of the terms."); see also Vitronics, supra at 1582 ("we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention"). The term "set" appears more than once in claim 20. The third and fourth elements of claim 20 refer to delivery of an "individual set." Shuffle Master contends that its proposed construction is consistent with its different use of "set" and "individual set." Specifically, Shuffle Master contends that "the use of the more specific term 'individual set' for the delivery tray confirms that the more general term 'set' is entitled to a broader scope consistent with the ordinary meaning of 'set."

Opening Brief at 12. VendingData argues that since claim 20 discloses a "method for delivering hands of randomly mixed cards from an apparatus," and claim 20 addresses the delivery of a "first individual set" or a "second individual set," an "individual set" must be one hand. Opposition Brief at 17-18. Thus, if an "individual set" is one hand, then "at least one set" means one or more hands (or parts of hands). Id.

The claim language supports VendingData's construction. First, the court is reluctant to construe "set" to mean one thing in one element and something quite different in another element of the same claim. "Certainly, the same word appearing in the same claim should be interpreted consistently." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1310 (Fed. Cir. 1999)(citations omitted); see also Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Int'l Inc., 389 F.3d 1370, 1377 (Fed. Cir. 2004)("The same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that terms have different meanings at different portions of the claims.").

Secondly, a review of the prosecution history indicates that the term "individual" was not used to narrow the scope of the term "set." Rather, because the Patent Examiner had rejected claim 20 as being "anticipated by [the] Kelley [patent]," the term "individual" was simply used to distinguish the '684 patent from U.S. Patent No. 5,431,399 (the Kelley patent). Opening Brief, Exh. J ("File History") at 11. The Kelley patent discloses an apparatus that evenly divides a 52-card deck directly into four 13-card bridge hands, without forming any set between the deck and the outputted hands. See id. generally at Exh. L. It appears that the term "individual" was used in order to "more clearly define" that the '684 patent delivers individual hands, one at a time, whereas the Kelley patent is designed to form multiple hands at the same time. File History at 10. As explained to the Patent Examiner:

Kelley deals all of the hands at the same time into distinct shelves from which the hands are directly removed, each
distinct shelf holding a distinct hand. These shelves are the equivalent of a delivery tray. The nature of the Kelley device requires that all hands be formed at the same time in the distinct shelves.

The present claim requires that sets of cards be formed inside the apparatus and then that individual sets of cards be provided to a delivery tray from the sets of cards (either with one set of cards being a complete hand or by sets of cards being combined to form a complete hand) and that subsequent hands be provided to the delivery tray after an earlier hand has been removed, providing a second individual hand into the delivery tray ...

Id. at 14-15, see also Opening Brief at 14-16 (illustrating Kelley patent).

Finally, the fact that the claim language refers to "at least one" set is significant. The "at least one" language contemplates that there are one or more sets of cards within the apparatus. According to the specification, more than one "set" of cards can be contemplated within the apparatus only if the term "set" refers to the cards within each compartment. The specification explains that each card-receiving compartment is filled with the assigned number of cards for a hand or with discards. The "first individual set" (or hand) is delivered to the delivery tray from these compartments filled with cards. Because a hand is delivered to the delivery tray, and the cards in that hand come from the "at least one set" of cards within the apparatus, the cards in that compartment cannot simply refer to a "number of cards." If it did, then the method contemplated by claim 20 - "delivering hands of randomly mixed cards from an apparatus" - could not be accomplished.

Shuffle Master also contends that consideration of unasserted claim 36 strengthens the conclusion that the term "set" is used more broadly than urged by VendingData. Ordinarily, each claim in a patent has a different scope. See, e.g., Karlin Tech. v. Surgical Dynamics, 177 F.3d 968, 972 ((Fed. Cir. 1999). Under the doctrine of claim differentiation, "when a patent claim does not contain a certain limitation and another claim does, that limitation cannot be read into the former claim in determining either validity or infringement." SRI Intern. v. Matsushita Elec. Corp. Of Am., 775 F.2d 1107, 1122 (Fed. Cir. 1985). Claim 36, like claim 20, refers to activity within the apparatus. However, unlike claim 20, claim 36 uses the terms "first individual group" and "second individual group." Claim 37 specifies that each formed group of cards is a "hand of cards." Claim 36 is not particularly helpful. VendingData has not attempted to use the term "individual" in claim 36 to modify or limit claim 20's "at least one set." VendingData does not rely on the term "individual" to support its position that "set" means a hand or part of a hand. See Opposition Brief at 18-19.

Lastly, looking to the '684 patent specification and prosecution history, there is additional evidence supporting VendingData's construction of claim 20. Because the words in a claim are not meant to be considered in a vacuum, the particular use of those words in the patent cannot be ignored. See Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1301 (Fed. Cir. 1999). The specification is "the single best guide to the meaning of a disputed term." Vitronics. supra at 1582. Contrary to Shuffle Master's contention, VendingData has not read limitations into claim 20 by relying on a preferred embodiment in the specification. See Zenith Lab., v. Bristol-Myers Squibb Co., 19 F.3d 1418, 1423 (Fed. Cir. 1994). Rather, VendingData points to the specification as a whole to determine the ordinary meaning of the claim. Its references to the specification are not limited to how the terms are used in the preferred embodiments. See Generation II Orthotics, Inc., v. Medical Tech., Inc., 263 F.3d 1356, 1367 (Fed. Cir. 2001) (a claim's scope cannot be limited by "importing a characteristic of a disclosed or preferred embodiment into that term"). For instance, the specification provides:

In one embodiment, an apparatus moves playing cards from a first group of unshuffled cards ["the at least one deck of playing cards"] into shuffled hands of cards, wherein at least one and usually all of the hands contains a random arrangement or random selection of a preselected number of cards. In one embodiment, the total number of cards in all of the hands is less than the total number of cards in the first group of unshuffled cards (e.g., one or more decks of playing cards). In another embodiment, all of the cards in the first group of unshuffled cards are distributed into hands.

'684 Patent at col.4:25-34 (emphasis added). Moreover, in addition to the specification's references to the broader fact that the '684 patent supports the delivery of hands from the apparatus, the specification contains repeated, specific references to the formation of hands within the apparatus. The following excerpts are illustrative:

Each slot or compartment [located within the apparatus] may therefore be identified or treated to receive individual hands or defined numbers of randomly selected cards or the slots may be later directed to deliver individual cards into a separate hand forming slot or tray. In the first example, a hand of cards is removed as a group from an individual slot. In the second example, each card defining a hand is removed from more than one compartment (where one or more cards are removed
from a slot), and the individual cards are combined in a hand-receiving tray to form a randomized hand of cards.

* * *

Generally, the operation of the card handling apparatus of the present invention will form at least a fixed number of hands of cards corresponding to the maximum number of players at a table.

* * *

Preferably, a vertical rack assembly or the carousel or partial carousel assembly has nine compartments. Seven of the nine compartments are for forming player hands, one compartment forms dealer hands and the last compartment is for accepting unused or discard cards.

* * *

When actuated, the second card moving mechanism empties a compartment by pushing the group of cards therein into a card receiving platform. In this way, a complete hand is pushed out, with usually one hand at a time fed to the card receiving platform (or more properly, card retrieving platform). The hands are then, usually, manually retrieved by a dealer and placed at player positions.

Id. at col. 4-5:61-4 (emphasis added), col. 6:22-26 (emphasis added), col. 13: 46-51 (emphasis added), col. 20-21:65-6 (emphasis added); see also col. 5:45-48, col. 7: 31-34. On the other hand, the specification contains no reference to the formation of "a number of cards" within the apparatus. Hence, the language of the specification does not support Shuffle Master's argument that to one skilled in the art, the term "set" means "a number of cards."

Additionally, because claims issue after an examination process, the particular use of claim language and the applicant's statements in the patent's prosecution history cannot be ignored. Toro, supra at 1299. Here, the prosecution history contains express representations made by Shuffle Master regarding the scope of the meaning of "set." Originally, the Patent Examiner rejected original claim 20 under 35 U.S.C. § 102(b) as being anticipated by the Kelley patent. In response, Shuffle Master amended claim 20 and dependent claims 21-26 to add many of the terms now at issue. All references to "hands" were changed to "sets of randomly mixed playing cards." Shuffle Master also advanced an argument to the Patent Examiner why the claim, as amended, was not anticipated by Kelley. Referring to the method disclosed by the '684 patent, Shuffle Master stated:

This method is impossible to perform with the Kelley apparatus. It is practiced in the present invention, for example, by the formation of the complete or partial hands within the apparatus, then delivery of the complete hands or partial hands plus cards to complete the partial hands, into the delivery tray.

File History at 15 (emphasis added).

Shuffle Master contends that its statements in the prosecution history are insignificant because it never used "words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Opening Brief at 13-14 (emphasis in original). The court disagrees. Because VendingData has not relied on the prosecution history to support an interpretation that constricts the usual meaning of the terms or the meaning supplied in the written description, VendingData need not show that Shuffle Master expressly limited the scope of the term "set." See, e.g., Storage Tech. Corp. v. Cisco Sys., 329 F.3d 823, 833 (Fed. Cir. 2003)(clear and unambiguous disavowal of claim scope required to depart from the meaning provided by the written description). Rather, Vending Data relies on the prosecution history to support an interpretation of claim terms that is consistent with both the specification and the usual meaning of the term. Indeed, VendingData concedes that the ordinary meaning controls.

Relying on Gemstar-TV Guide Int'l, Inc. v. ITC, 383 F.3d 1352, 1375 (Fed. Cir. 2004), Shuffle Master contends that the use of the expression "for example" illustrates that it was merely giving examples of the differences between its patent and the Kelley patent. Citing to other portions of the prosecution history, VendingData contends that Shuffle Master did more than merely provide examples of what could comprise the "at least one set" of cards formed within the apparatus of claim 20. VendingData contends that Shuffle Master "unambiguously defined" the meaning of "set." Opposition Brief at 22.
VendingData relies on the following statements made by Shuffle Master to the Patent Examiner:

The present claim 20 requires at least one set of cards to be formed in the apparatus and then a first individual set to be delivered to a delivery tray from the sets of cards (either with one set of cards being a complete hand or by sets of cards being combined to form a complete hand), subsequent removal of the first individual hand, and the forming of a second individual hand on that deliver tray.

* * *

The present claim requires that sets of cards be formed inside the apparatus and then that individual sets of cards be provided to a delivery tray from the sets of cards (either with one set of cards being a complete hand or by sets of cards being combined to form a complete hand) and that subsequent hands be provided to the delivery tray after an earlier hand has been removed, providing a second individual hand into the deliver tray (either with one set of cards being a complete hand or by sets of cards being combined to form a complete hand) ... .

File History at 14-15 (emphasis added). VendingData correctly notes that none of these statements uses the words "for example" or otherwise suggests that the parenthetical definitions were merely illustrative. According to Shuffle Master's unequivocal statements to the Patent Examiner, the "sets" formed in the apparatus either constitute a complete hand or part of a hand. Shuffle Master specifically inserted language ("either ...or ...") to alert one skilled in the art to the ordinary meaning it now asks this court to reject. See, e.g., Voice Techs. Group, Inc. v. VMC Sys., Inc., 164 F.3d 605, 615 (Fed. Cir. 1999)("The inventor cannot by later testimony change the invention and the claims from their meaning at the time the patent was drafted and granted."). Thus, the '684 patent specification, and the arguments made by Shuffle Master to the Patent Examiner in order to obtain issuance of claim 20, provide further support for VendingData's construction of the term "set."

Finally, the court notes that in advancing their respective constructions the parties point to dictionary definitions of the term "set." According to the Cambridge Advanced Learner's Dictionary, a "set" is defined as "a group of similar things that belong together in some way." Opening Brief, Exh. I. For instance: "We bought Charles and Mandy a set of cutlery as a wedding present ... I always keep a tool set in the back of my car ... The doctor said that he hadn't seen this particular set of symptoms before ... We need to establish a new set of priorities." Id. The second definition defines "set" as "a number of items or pieces of equipment needed for a particular activity, especially playing a game: a chess/train/chemistry set." Id. (italics in original). Based on these definitions, Shuffle Master contends that "at least one set of cards" should be construed to mean "a number of cards." VendingData argues that Shuffle Master's construction of "an undefined, fluctuating, functionless number of cards" fails to comport with either of the above dictionary definitions of the term "set." Opposition Brief at 16. Specifically, VendingData argues that

Shuffle Master's view of a 'number of cards' is not 'a number of items or pieces of equipment needed for a particular activity, especially playing a game.' Logically, the number in a 'set' must mean the number of items needed for someone to engage in the activity or to play the game. What are involved in this case are card games. A 'set' of cards accordingly must be a hand or hands, or part of a hand or hands.

Because the intrinsic evidence provides a sufficient basis for construing the term "set" as used in claim 20, the court need not address the parties' disagreement over the dictionary definitions in question. See Phillips v. AWH Corp., supra.

The intrinsic evidence in this case compels the conclusion that VendingData's construction is most consistent with the ordinary meaning of the words in the claim and specification, and the patentee's statements during prosecution. Based on the foregoing, the court concludes that the word "set" as used in claim 20 means "a hand or part of a hand" of cards, such that the second element of claim 20 should be construed to mean "creating one or more discrete hands or discrete parts of hands within the apparatus from the at least one deck of playing cards."
The parties' dispute with respect to the construction of this term is the same as their dispute with respect to claim terms three, four, and five: whether runlengths of zero length are necessarily required by the claim terms. Plaintiff proposes that this term should be construed as: "A sequence of zero or more values;" while Defendants propose that it should be construed as: "A count of consecutive first values followed by said second value;" "A count of consecutive first values followed by one or more of said other values." As with the proposed constructions of term five, the Court perceives little if any substantive difference between the proposed constructions for term nine. While neither construction necessarily requires that runlengths of zero length be used, both allow runlengths of zero length as a possibility. Additionally, the Court is not persuaded that this term would be clarified further by using either "sequence" or "count" instead of set. No party has addressed whether there is any difference between the terms "sequence" and "count" or why it would be beneficial to use either of these terms rather than "set." Accordingly, without any persuasive argument for giving term nine any construction other than its plain meaning, the Court will provide no additional construction for this term.

Shuffle Master owns U.S. Pat. No. 6,655,684 ("the '684 patent"), which is entitled "Device and Method for Forming and Delivering Hands from Randomly Arranged Decks of Playing Cards." Only claim 20 of the '684 patent is at issue here. Shuffle Master alleges that one of VendingData's automatic shufflers, the PokerOne, infringes that claim. VendingData contends that the PokerOne does not fall within the scope of the claim, as properly construed.

Automatic card shufflers, which have been available for some time, deliver hands of randomly mixed playing cards. Claim 20 of the '684 patent recites a particular method for delivering shuffled hands, which comprises:

- providing at least one deck of playing cards;
- forming at least one set of cards within the apparatus from the at least one deck of playing cards;
- delivering to a delivery tray from the at least one set of cards within the apparatus a first individual set of randomly mixed playing cards for a game;
- delivering the first individual set of randomly mixed playing cards from the delivery tray of the apparatus, with all cards in the first individual set delivered at the same time, and then providing a second individual set of randomly mixed playing cards into the delivery tray.

For present purposes, the critical claim limitation is the one that recites "forming at least one set of cards within the apparatus from the at least one deck of playing cards." Before the district court, VendingData contended that the PokerOne does not form a "set of cards within the apparatus" within the meaning of that phrase in the asserted claim.

VendingData offered evidence that the PokerOne operates by randomly ejecting cards from an unshuffled deck to form an "internal stack" within the apparatus. The random ejection process continues until the internal stack contains at least 21 cards. When the number of cards required for at least two hands of the game that is being played have been collected in the internal stack, the device begins the dealing process. The PokerOne deals by delivering cards to the output tray, one-by-one from the bottom of the internal stack, until a complete hand is formed in the output tray. When that first hand of cards is removed from the output tray, the dealing process begins again, and new cards are delivered, one-by-one from the bottom of the internal stack, to the output tray to form a second hand. After each hand of cards is removed from the output tray, additional cards are ejected from the unshuffled deck into the internal stack, while at the same time new cards are delivered to the output tray to form another hand.

Shuffle Master argued to the district court that the internal stack formed in the PokerOne falls within the limitation requiring that "at least one set of cards [be formed] within the apparatus." In its papers opposing the motion for a preliminary injunction, VendingData argued that the specification and the prosecution history make clear that the internal stack formed within the PokerOne device does not read on that limitation, because the "set of cards" limitation covers only a set of cards...
constituting a single hand or a part of a hand. Consequently, according to VendingData, the internal stack is not a "set of cards," because no hands or portions of hands are formed there. Instead, cards simply accumulate in the internal stack until the stack contains at least 21 cards, and the dealing process does not begin until the number of cards in the internal stack is equal to at least two hands of cards. The hands, according to VendingData, are formed for the first time when cards are delivered, one-by-one, to the output tray.

In making its claim construction argument in the district court, VendingData referred to the portion of the specification in which the patentee described the operation of the claimed shuffler. According to the specification, the device described in Shuffle Master's patent randomly places cards into slots or compartments. Each of those slots or compartments, according to the specification, "may therefore be identified and treated to receive individual hands of defined numbers of randomly selected cards or the slots may be later directed to deliver individual cards into a separate hand forming slot or tray." '684 patent, col. 4, ll. 62-65. In the first case, "a hand of cards is removed as a group from an individual slot." Id. col. 4, ll. 66-67. In the second case, "each card defining a hand is removed from more than one compartment (where one or more cards are removed from a slot), and the individual cards are combined in a hand-receiving tray to form a randomized hand of cards." Id. col. 4, line 67 through col. 5, line 4.

VendingData also relied on the prosecution history to support its proposed construction of the "set of cards" limitation. VendingData argued that the patentee restricted the method to "forming hands inside the unit." In particular, VendingData noted that in response to a rejection by the patent examiner, the patentee stated that claim 20 requires sets of cards to be formed within the apparatus and requires individual hands to be formed from those sets, "either with one set of cards being a complete hand or by sets of cards being combined to form a complete hand."

Following arguments by counsel regarding the request for a preliminary injunction, the district court issued an injunction barring the sale of the Poker One. Although the question of the proper construction of claim 20 was clearly in dispute, the court did not address the claim construction arguments made by VendingData and did not provide an explicit construction of the critical claim language. Rather, the court simply concluded that Shuffle Master was likely to succeed on the merits in proving that the operation of the PokerOne infringes Shuffle Master's rights under claim 20 of the '684 patent. The district court also found that Shuffle Master was likely to succeed on the merits in proving that the '684 patent is valid, that Shuffle Master showed that the effect of sales of the PokerOne would result in irreparable harm to Shuffle Master, and that the public interest in protecting patent rights supported the issuance of a preliminary injunction.

VendingData subsequently made requests for modification and clarification of the preliminary injunction order. VendingData also requested a stay of the injunction pending appeal. In its request for a stay, VendingData argued that the district court had failed to construe the critical language of claim 20 and that its failure to do so undermined its conclusion that the operation of the PokerOne likely infringed the claim. The district court denied each of those requests. A panel of this court, however, granted a stay of the injunction pending the disposition of the appeal, noting that the district court had failed to construe the claim.

II

As its principal ground for appeal, VendingData asserts that this case turns on the proper construction of the limitation that requires the formation of "at least one set of cards within the apparatus." Accordingly, VendingData contends, the district court's failure to provide any explicit construction of that claim language renders the preliminary injunction improper.

A

Shuffle Master argues at the outset that VendingData did not preserve its present argument that the district court should have conducted at least a preliminary claim construction. We have reviewed the parties' submissions to the district court, and we conclude that VendingData adequately preserved its argument on that point. First, VendingData featured its claim construction argument in its papers in opposition to the preliminary injunction. Second, in its motion to the district court for a stay of the preliminary injunction order, filed approximately three weeks after the original order was entered, VendingData complained that the district court "did not analyze any specific claim or claim element of the patent." Third, VendingData made the same point in its reply memorandum to the district court in support of its motion for a stay. n1
In support of its argument that VendingData waived its right to contest the district court's failure to conduct an adequate claim construction, Shuffle Master points to VendingData's submission of a proposed order in the injunction proceedings. The submission of such an order does not constitute a waiver of challenges to the propriety of entering the injunction. The order simply reflected VendingData's understanding of the grounds for the court's ruling. In any event, when it submitted a proposed order granting the injunction, VendingData stated that it "reserved its right to challenge" the court's findings of fact and conclusions of law "at a later time."

From our review of the record, including those pleadings, it is evident that the definition of the term "set of cards" played a prominent role in the proceedings. In particular, VendingData made it clear that the outcome of the case would likely depend on the court's construction of claim 20. VendingData raised the claim construction issue prior to the court's ruling and protested the inadequacy of the court's claim construction after the ruling. For that reason, we do not agree with Shuffle Master that VendingData has waived its right to raise on appeal the district court's failure to provide a sufficient construction of the claim language.

We have held that a district court does not have to conduct a comprehensive and final claim construction in a preliminary injunction proceeding. Sofamor Danek Group, Inc. v. DePuy-Mitech, Inc., 74 F.3d 1216, 1221 (Fed. Cir. 1996). Similarly, it is not necessary for a court to conduct an explicit claim construction if the claim construction issue is a simple one that needs no analysis, or in which there is no reasonable ground for dispute as to claim meaning. Toro Co. v. Deere & Co., 355 F.3d 1313, 1322 (Fed. Cir. 2004). However, a district court in a preliminary injunction proceeding has the duty to determine whether the movant is likely to prevail on the merits, and if that question turns on a contested issue of claim construction, the court must give the claim construction issue the attention necessary to determine the likelihood of success. In this case, the dispute over the meaning of the "set of cards" limitation is central to determining whether Shuffle Master is likely to prevail on the merits of its infringement claim. The district court was therefore required to provide some form of claim construction, even if abbreviated, preliminary, or tentative.

Shuffle Master argues that the phrase "at least one set of cards within the apparatus" means any number of cards that serve as the source from which the apparatus delivers hands to the delivery tray. Under that construction, it appears likely that the PokerOne device would infringe, since the internal stack in the PokerOne forms within the device and serves as the source from which dealing begins after the collection reaches a size equal to two hands of cards of the game being played. On the other hand, VendingData argues that the "set of cards within the apparatus" must be construed to refer to a set consisting of no more than one hand of cards. Under that interpretation, it appears likely that the PokerOne device would not infringe, since the internal stack accumulates cards until it contains at least two hands of cards before dealing begins. Thus, resolution of the claim construction issue framed by the parties is of critical importance to the issue of infringement.

Seizing on the fact that the dealing process in the PokerOne device begins as soon as the internal stack contains the number of cards needed for two hands, Shuffle Master contends that the PokerOne therefore operates in accordance with claim 20, even under VendingData's proposed construction, because the PokerOne "forms two hands of cards within the apparatus as the source for the delivery of the first and second hands of cards to the tray." In other words, Shuffle Master argues that the PokerOne device infringes even under VendingData's proposed claim construction (or at least the construction put forth before the district court). That, however, does not appear likely to be the case.

In the court below, VendingData argued that claim 20 requires "that a hand (or partial hand) of cards be formed inside the shuffler from a deck of cards" and that "no hands are formed within the PokerOne." VendingData further argued that the PokerOne "does not form a hand (or partial hand) until the number of cards required for a hand have been delivered one-at-a-time to the external output tray." In other words, under VendingData's proposed construction the PokerOne likely does not infringe because no hand or hands are actually formed within the apparatus; the accumulation of a number of cards equal to two hands is not the same as the formation of a hand or hands within the device. Accordingly, in the absence of any claim construction by the district court we cannot accept Shuffle Master's argument that the dispute over claim construction is immaterial to the outcome of this case and that Shuffle Master is likely to succeed on the merits regardless of which claim construction is ultimately adopted.
While claim construction is a question of law, the district court's analysis is important to the process of claim construction, and in this context, as in others, we decline to construe the claim without the guidance of the district court's construction. See Nazomi Commun., Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1371 (Fed. Cir. 2005) ("This court's review of a district court's claim construction, albeit without deference, nonetheless is not an independent analysis in the first instance. Moreover, in order to perform such a review, this court must be furnished 'sufficient findings and reasoning to permit meaningful appellate scrutiny.'"); Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1311 (Fed. Cir. 2003) ("In order to review the court's finding of noninfringement, we must know what meaning and scope the district court gave to the asserted claims."); Gechter v. Davidson, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (vacating and remanding decision of the Board of Patent Appeals and Interferences because it failed to "set forth ... specific findings of fact and conclusions of law adequate to form a basis for ... review"; noting that "claim construction must ... be explicit, at least as to any construction disputed by [the] parties"); Graco, Inc. v. Binks Mfg. Co., 60 F.3d 785, 791 (Fed. Cir. 1995) ("entire omission of a claim construction analysis from the opinion ... provides an independent basis for remand"). We therefore vacate the preliminary injunction and remand this case to the district court for further proceedings consistent with this opinion.

MAYER, Circuit Judge, dissenting.

While I agree that trial courts should provide an express claim construction, I do not believe this case requires vacatur and remand. Instead, because the trial court would not have abused its discretion in granting the preliminary injunction under either party's proposed claim construction, I would affirm.

We have recognized that the lack of an express claim construction by the trial court may require a remand in certain circumstances. See Graco, Inc. v. Binks Mfg. Co., 60 F.3d 785, 791 (Fed. Cir. 1995). However, common sense dictates that if a likelihood of infringement is established under both parties' proposed constructions, then the trial court did not abuse its discretion in granting the preliminary injunction, so long as all other criteria were met. * Cf. Toro Co. v. Deere & Co., 355 F.3d 1313, 1322 (Fed. Cir. 2004) (affirming an infringement finding in the absence of an express claim construction because no claim construction was offered that would avoid infringement); Optical Disc Corp. v. Del Mar Avionics, 208 F.3d 1324, 1334 n.4 (Fed. Cir. 2000) (reviewing a noninfringement judgment on the merits based on a claim construction inferentially set forth by the trial court). Here, bearing in mind that the application of the claims to the accused device is a question of fact upon which we afford deference to the trial court, Bai v. L & L Wings, 160 F.3d 1350, 1353 (Fed. Cir. 1998), I believe a finding of likelihood of infringement under either party's proposed claim construction is fully supported.

* Although the trial court must independently construe the claims and may reject either party's proposed claim construction, it appears that the only possible constructions here are those alternatives argued by the parties.

It is clear from the evidence, as the court concedes, ante at 6-7, that Shuffle Master established a likelihood of infringement under its own proposed construction. The disputed contention, however, is whether infringement was shown to be likely under VendingData's proposed construction. VendingData contends that "a set of cards" means "a discrete hand or part of a hand." Under that construction, however, the trial court could have determined that the internal stack consisted of multiple sets, wherein each set consisted of no more than one hand of cards. This determination is possible since the claims clearly allow more than one set of cards within the apparatus. See U.S. Patent No. 6,655,684 claim 20 (requiring "at least one set of cards within the apparatus" (emphasis added)). Although the sets are not physically divided, they are arranged or organized in the internal stack. ** Moreover, requiring that the sets be physically separated, such as placed into slots or trays as in the embodiment disclosed in the specification, would amount to reading a claim limitation into the claims from the specification. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) ("Although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." (citations omitted)).
** After the trial court issued its injunction, the magistrate conducted a claim construction analysis and issued his recommendations to the district court. Vendingdata Corp. v. Shuffle Master, Inc., 2005 U.S. Dist. LEXIS 38685, No. 04-1373 (D. Nev. Sept. 26, 2005) (Report & Recommendation). Although these recommendations were not before the trial court when issuing the preliminary injunction and have not yet been accepted by the trial court, it is worth noting that the parties appear to have agreed that "forming" means "create" where "create" includes "arranging," "organizing," and "ordering." 2005 U.S. Dist. LEXIS 38685 at *7 n.1.

This understanding is further supported by the fact that the PokerOne recognizes each set within the internal stack as separate and distinct. In particular, the PokerOne delivers the first set, which is a single hand of cards, from the internal stack to the output tray. After the first hand is removed from the output tray, a second set, which also constitutes a single hand of cards, is delivered to the output tray. Therefore, a factual determination by the trial court that the PokerOne is likely to infringe under VendingData's construction is not reversible error.

Finally, despite VendingData's arguments to the contrary, I believe that Shuffle Master sufficiently established the remaining criteria necessary for a preliminary injunction, including irreparable harm. In particular, Shuffle Master presented evidence that its commercial product under the patent accounts for 50% of its business and that VendingData sought to significantly decrease pricing. This evidence is sufficient to support a finding of irreparable harm and the remaining factors are not challenged on appeal. Therefore, bearing in mind that "the decision to grant a preliminary injunction is within the sound discretion of the district court," Ranbaxy Pharms., Inc. v. Apotex, Inc., 350 F.3d 1235, 1239 (Fed. Cir. 2003) (citations omitted), I dissent.

** A Claim Construction Order was issued construing the disputed claim language of the '694 patent, including "set" and "color" from the claim language "reference set of colors." In the '694 patent, set denotes "a group of two or more articles grouped together according to a system of classification" and color means a "particular hue or tint being one of the constituents into which white or colorless light can be decomposed, the series of which constitutes the spectrum; also any mixture of these" as well as "the quality or attribute in virtue of which objects present different appearances to the eye."

Claim Construction Order at 2, 24. In addition, the Claim Construction Order noted that "[a]s is recited in Claim 1 of the '694 Patent, the end goal of the color-matching system [of the '694 patent] is to generate a 'colour map and/or enhanced photograph identifying the colour(s) of the associated articles relative to an absolute set of colour(s) so that an objective color-match can be made. …[And c]omparing an article's colors against that of an absolute reference set with a single color would result in a binary match or no-match result, effectively eviscerating the purpose of the patent."

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Set of identification information; set of log-in information; set of log-in data

The parties agree all three terms should be accorded similar meanings, but propose different constructions. MyMail proposes that "set of identification information" be construed as "information reflecting a user's identity, such as a PAP ID, used to authenticate the user's right to communicate with an ASP via an NSP" and the other two terms be construed as "information or data used to authenticate a user's right to connect to the network via an NSP." Defendants propose all three terms be construed as "user ID and password." The Court adopts elements of both proposed definitions for "set of identification information" and substantially adopts MyMail's definition for the other two terms.

"Set of identification information" appears in Claim 13. Read in the context of that claim, it is synonymous with "access information," which "comprises the previously mentioned access telephone number, the PAP ID, the PAP password, and
additional ISP specific information required by the user [] to gain access to the Internet [] via the predetermined ISP." 6:42-46. MyMail's definition, in large part, flows from this portion of the specification. Defendants assert their definition is correct since, according to the specification, the "set of identification information" must include at least a user ID and password. Defendants also assert that the structure of the claim language already reflects that additional information may be included, so the definition of "set of identification information" should only reflect the minimum requirements of a user ID and password. Although the Court agrees in principle with Defendants' argument, adopting Defendants' proposed construction would in practice do little to "elaborate the normally terse claim language in order to understand and explain . . . the scope of the claims." Embrex, 216 F.3d at 1347. The Court instead adopts a definition with a structure similar to MyMail's proposal and defines this term as "information reflecting a user's identity, such as a PAP ID or PAP password, used to authenticate the user's right to communicate with the network." This definition reflects the open-ended nature of this term yet also sets the elements necessary to authenticate a user's rights as threshold requirements.

"Set of log-in information" and "set of log-in data" are cleanly defined by the claims in which they appear. To the extent definition is necessary, the Court defines both terms as "information or data used to authenticate the user's right to connect to the network." This definition flows directly from the claim language. As such, MyMail's "via an NSP" limitation is redundant.

"Set of indices for referencing data in said information database." Used in claims 1 and 37.

To one skilled in the art, the terms "index" and "indices" do not always refer to a list, such as one finds at the back of a reference book. In the context of data management, an index can be a single data item. This is how the term is used in this patent. See 505 patent, col. 6, 11. 31-36; see also The IEEE Standard Dictionary: Compilation of IEEE Standard Computer Glossaries: 610 107 (1990) (definition one).

The parties initially disputed whether an index was used to "identify and/or locate specific items of data" (Finsar's proposal), or merely to "locate specific items of data." (DirecTV's suggestion). At the hearing the following definition was discussed: "pieces of digital information, (each of which contains an identification value, and in many cases other information) used to reference specific items of information in the database." Finisar agreed with this formulation. DirecTV preferred to replace "reference" with "select."

The claim language itself is "referencing data in said information database." The patentee did not provide a special definition of "reference." There is no indication in the patent that "referencing" has any special technical meaning, or is used in any sense other than the widely accepted and commonly understood meaning of "refer to." The specification describe:

1. a "set of indices referencing all of the data in the information database . . . ." 505 patent, col. 6, 11. 38-39;

2. "a set of assigned indices to reference each distinct portion . . . ." of the information in the database. 505 patent, col. 13, 11. 23-24; and

3. "The indices associated with reference data . . . may be embedded in various portions of the transmitted data for the purposes of cross-referencing related information." 505 patent, col. 13, 11. 33-36.

It is true that the indices may be used in various ways, such as to select data packets, col. 5, 11. 28-30, or to request data, col. 5, 11. 45-52. While various uses are illustrative, they are not needed for the jury to understand the definition, nor to describe how a person skilled in the art would understand the word. This claim term is therefore defined as follows:

"Set of indices for referencing data in said information database" means "the pieces of digital information, (each of which contains an identification value plus, in many cases, other information) used to refer to specific items of information within the database."
Set of identification information; set of log-in information; set of log-in data

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A. Claim Construction

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<tr>
<th>TERM</th>
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<tbody>
<tr>
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<td>Comparing a detected program classification code to more than one code, each of which has been assigned a value by the user</td>
</tr>
</tbody>
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<td>Comparing a detected program classification code to one or more user selected codes.</td>
</tr>
</tbody>
</table>

Both Guardian and the NG Parties agree that "comparing the detected code" means "comparing a detected program classification code." The sole dispute centers on the term "to a set of selected codes," which appears in claims 8, 9, 19, and
20.

i. Parties' Arguments

The NG Parties urge the Court to define "set of selected codes" as "more than one code." They argue the phrase "set of codes" is clearly plural, therefore, requires the inclusion of multiple codes. In their reply, the NG Parties make a cursory reference to the specification.

Guardian argues "set of selected codes" means "one or more user selected codes." First, Guardian relies on mathematical definitions. Guardian cites the definition of the word "singleton" in Webster's dictionary, which means "a set consisting of one given element." (Harsell Decl. ISO Def. Motion, Ex. 7 at 5.) Additionally, Webster's defines a "set" as "a collection of objects or elements classed together." Id. Further, Guardian cites two cases finding "set" to have a plain meaning of "one or more." Dow Jones & Co. v. Ablaise, Ltd., 2007 U.S. Dist. LEXIS 49750, at *12 (D.D.C. July 11, 2007); Power-One, Inc. v. Artesyn Techs., Inc., 2007 U.S. Dist. LEXIS 20458, at *26-27 (E.D. Tex. Mar. 22, 2007).

Moreover, Guardian believes the NG Parties represented to the PTO that a "set" means "one or more" during reexamination. Guardian asserts the NG Parties argued a prior art reference involving "one or more" codes satisfied the "set of selected codes" limitation in the '158 patent. (Hartsell Decl, Ex. 16, "Request for Ex Parte Reexamination" at 15.) The PTO agreed and found when a user selects "one or more rating levels," a set has been selected. Id. at 5, 12. Guardian believes the Court should not allow this inconsistent argument because the NG parties violated their duty to act with "candor and good faith" during reexamination, citing Ball Corp. v. Xidex Corp., 967 F.2d 1440 (10th Cir. 1992).

ii. Analysis

The claim language supports the proposed construction by the NG Parties. Regardless of how the Court defines the word "set," the Court's interpretation of the word "codes" is dispositive. Turning to the language of the claim, the patentee decided to use the plural word "codes" when defining the contents of the set. This indicates he intended the contents of the set to be multiple selected codes. If he had intended the set to contain only one code, he could have used the singular word "code." Accordingly, the use of the plural "codes" weighs in favor of the NG Parties' construction.

This inference is supported by the claim language adjacent to the disputed term. The patentee used the word "code" earlier in the claim element. Specifically, the claim requires the "comparing of the detected code to a set of selected codes." The use of the singular "detected code," closely followed by the plural "codes," indicates an intent to distinguish between the plural and singular forms. Accordingly, the claim language supports the definition proposed by the NG Parties.

The specification does not compel a different conclusion. Throughout the specification, the patent only exemplifies "set of codes" as multiple codes. (See '158 Patent, Col. 3:37 - 4:31.) For example, in column four of the patent, the specification describes an embodiment where the set of codes is comprised of "three bits, corresponding to the classifications: (1) Violent, (2) Sexually explicit, and (3) Adult only." (158 Patent, 4:11-15.) Although the specification cannot impose additional limitations into the claim, in this case, it reinforces the plain meaning of the claim.

The "duty of candor and good faith" does not estop the NG Parties from presenting their definition. The "duty of candor and good faith" requires parties to a patent reexamination to "bring materials to the attention of the PTO as they 'are aware, or become aware' of them." Ball Corp., 967 F.2d at 1447. This duty is codified at 37 C.F.R. § 1.555, which only addresses the duty to disclose information. The section simply does not apply to arguments made during the reexamination. During reexamination, the NG Parties argued a specific piece of prior art, the Chard reference, allowed "a user to select one or more rating levels that will be blocked, for both video and audio, thereby 'enabling selection of a of a set of classification codes.'" (Hartsell Decl., Ex. 16 at 12.) Guardian does not indicate what materials were withheld from the PTO, therefore, the Court rejects this argument. 4

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4 Moreover, even if a reviewing court believed estoppel could apply, the statement regarding the Chard reference is not in direct contradiction to the current position of the NG parties. The NG Parties noted the Chard reference allowed a user to select ratings levels for both the video or audio. This would require the selection of two codes, a.k.a., more than one code.
The extrinsic sources submitted by Guardian are unpersuasive. Guardian submits the declaration of Richard Ferraro, an expert in the field. Ferraro believes one ordinarily skilled in the art would understand "set of selected codes" to mean "one or more selected codes." (Ferraro Decl., Ex. 11 to Hartsell Decl., P99.) However, the opinion is conclusory and only addresses the definition of "set" without explaining why "codes" would mean one code.

In sum, the language of the claim, the specification, and extrinsic sources all support the proposed construction of the NG Parties.

iii. Construction

The Court construes the term "comparing the detected code to a set of selected codes" as "comparing a detected program classification code to more than one code, each of which has been assigned a value by the user."

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C. "Set-Up Signaling Associated with the Call"

Claims 1 and 35 of the '064 Patent include the phrase "set-up signaling associated with the call." Sprint would construe this phrase to mean a message or messages used to set up the call, a construction that follows the Court's construction of the term "set-up signaling" in V onage. See 518 F. Supp. 2d at 1317-18. Big River seeks to construe the phrase to mean a signaling message created at call initiation used to select a pre-provisioned virtual connection for the call. Big River thus seeks to inject two additional limitations into the Court's prior construction.

In V onage, the Court noted that its construction was supported by excerpts from the specification's background and summary of the invention. See id. at 1318. The Court rejected V onage's attempt to limit the claim term to mean a narrowband signaling message, noting that the specification's references to initial address messages (IAMs) (a type of narrowband signaling) were merely exemplary. See id. at 1317-18.

Big River first argues that the construction of this phrase should include the requirement that the signaling message be "created at call initiation." The claims do not include such a limitation. The Court does not agree that the language "associated with the call" bears on this issue of whether the message must be created at call initiation. Big River also points to the very same references in the specification to IAMs that the Court found to be merely exemplary in V onage. Big River stresses that it is not attempting to limit the claim to IAMs, but argues that the IAM examples are consistent with, and therefore support, its argument based on the claim language. Again, however, the Court cannot conclude that the claim language permits Big River's inclusion of the "created at call initiation" requirement.

With respect to its addition of language relating to the selection of a PPVC, Big River relies on its previous argument concerning the construction of the term "identifier". The Court rejects that argument for the same reasons stated above. See supra Part IV.B. Moreover, as Sprint points out, the claim language indicates that the set-up signaling is processed to select a DS0 connection, not a PPVC.

Accordingly, the Court rejects Big River's additions to its previous construction, and it construes the phrase "set-up signaling associated with the call" to mean a message or messages used to set up the call.

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G. "Set-up Signaling"

Claim 1 of the '064 patent recites the claim term "set-up signaling." Sprint contends that this claim term should be construed
to mean information or commands used to set up calls. In support of this argument, Sprint relies on a portion of the background of the invention which states that "[s]ignaling refers to messages that are used by telecommunications networks to set-up and tear down calls." '064 Patent at 1:25-26. Vonage contends that this claim term should be construed to mean a narrowband signaling message. Vonage relies on an excerpt from the summary of the invention which states that "[t]he signaling for the call could be a call set-up message, such as Signaling System # 7 (SS7) initial address message (IAM)." id. at 2:25-27 (emphasis added), and a portion of the detailed description which states that IAM (which is indisputably a narrowband signaling message) "initiates the call and contains call set-up information, such as the dialed number. LAMs [another abbreviation for initial address message] are transferred in the calling direction to set up the call." Id. at 17:43-46.

Vonage's argument is an attempt to limit the plain meaning of the claim term based on the specification. An inventor may use the specification to intentionally disclaim or disavow the broad scope of a claim. Phillips, 415 F.3d at 1316. This intention, however, "must be clear." Conoco, Inc. v. Energy & Envtl. Intl, L. C., 460 F.3d 1349, 1357 (Fed. Cir. 2006); see also Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The patentee may demonstrate an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). Here, the specification of the '064 patent does not contain a clear disavowal of claim scope. The background of the invention broadly refers to messages that are used to set-up and tear down calls. The summary refers to signaling that could be a call set-up message, and gives IAM as an example. The detailed description which sets forth a description of IAM call processing appears to be simply a continuation of IAM being an example of call set-up messaging. Consequently, the specification does not clearly disclaim or disavow the broad scope of the claim.

The excerpts from the background and summary of invention establish that "set-up signaling" means "messages used to set-up calls." Sprint also contends that the disclosed "messages" necessarily contain "information or commands." Sprint has not, however, directed the court to any evidence in the intrinsic record which requires such a claim construction and therefore the court rejects that argument. Accordingly, the court construes the claim term "set-up signaling" to mean a message or messages used to set up calls.

B. The Meaning Of The Disputed Term "Set(s) Of Information"

Adobe contends that the phrase "set(s) of information" should be construed to mean "a collection of tools or commands used to perform operations on a document." (D.I. 241 at 18). Macromedia contends that the phrase "set(s) of information" should be construed to mean "data naturally connected by location or order." (D.I. 292 at 5).

In construing the phrase "set(s) of information," the Court has considered the specification of the '528 Patent and the prosecution history of the '528 Patent. (See D.I. 255, Ex. A, '528 Patent, Col. 1, lines 8-20, 56-65, Col. 2, lines 43-67; D.I. 255, Ex. B, Paper # 4 at 4-5). Based on this review, the Court construes the phrase "set(s) of information" to mean a collection of tools or commands used to perform operations on a document.

13. Setting the traffic path analysis data of the web site cookie to initial values if the website cookie has expired (First Appearing in claim 1 at col. 12, ll. 65-67, and as used similarly in claims 1-31)

The parties dispute the meaning of the phrase "setting the traffic path analysis data of the website cookie to initial values if the website cookie has expired." See Joint Claims Construction Chart at 6. Websidestory contends that the phrase does not need construction outside of the individual terms which the Court has already construed. Joint Claims Construction Chart at 6. Netratings contends that the phrase should be construed as "replacing existing website traffic analysis data in the website cookie with the website traffic path analysis data for the current website consisting of the current website page requested and cumulative values and statistics set to zero." Joint Claims Construction Chart at 6.
The Court concludes that the terms "setting . . . to initial values" and "expired" have readily apparent ordinary and customary meanings, and do not need to be construed by the Court. Though Netratings argues that "setting . . . to initial values" actually requires the replacing of the data in an expired cookie with a new set of data, the Court concludes that Netratings' proposed construction which utilizes the word "replacing" in lieu of "setting" would improperly import limitations into the claims from the specification. Callicrate, 427 F.3d at 1368; Phillips, 415 F.3d at 1312. The Court also notes that there is no evidence that the '479 Patent intended the word "setting" to be used in a manner inconsistent with its ordinary meaning. Teva Pharms., 395 F.3d at 1370-72. Finally, the Court notes that it cannot re-write claims in a patent. ChefAm., 358 F.3d at 1374.

After reviewing the '479 Patent and the parties' arguments, the Court concludes that no construction is necessary.

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3. "shadow set"

HP asks the Court to construe this term as: "Two or more copies of data that may be located in different places. If a change is made to any copy, that change is reflected in the others." EMC proposes: "Two or more identical copies of data that has been written to a storage medium, and that are treated as one from the host processor's point of view. If a change is made to any copy, that change is automatically made to the other copies."

At first glance, the plain language of the claim appears to indicate that a "shadow set" is composed of storage media that are accessible by one or more host processors for I/O requests. The claim states that data are transferred between different storage media within a shadow set and that the storage media are accessed by a host processor. The shadow set thus would comprise defined storage media that contain the data to be transferred within the defined storage media. However, in the context of the claim, the language "shadow set of storage media" could mean a limited set consisting of part of the storage media that contain a shadow set. In other words, a shadow set could be composed of data that are moved between storage media, in which case the identity of the storage media would be irrelevant. Indeed, the parties characterize a shadow set as "copies of data" either written to a storage medium or located in different places. Thus, it is unclear from the claim language itself whether the shadow set is composed of storage media or data.

The specification indicates that "shadow set" refers to data. For example, the "preferred embodiment is described in connection with a system for establishing and maintaining one or more duplicate or shadow' copies of stored data." 618:1/27-30. Similarly, "systems have been developed that create multiple copies of stored data, usually on separate storage devices. . . . Such multiple copies are known as the shadow set." 618:1/42-47. However, the parties each seek to add an additional limitation relating to whether all copies in a shadow set are identical or reflect each other and whether a change to one copy results in a change on all copies. The specification provides that "[i]n a shadow set, typically data that is stored in particular blocks on one member of the shadow set is the same as data stored in corresponding blocks on the other members of the shadow set." 618:1/47-50. Thus, because the shadow set by definition contains redundant copies of the data, each copy must be the same, and necessarily, any change in one copy correspondingly is made in other copies within the shadow set. If a change in one copy is not made to the others, then that copy no longer can be a member of the shadow set. Dictionary definitions support this interpretation. For example, "shadow" is partially defined as "a link between duplicate objects. . . . If a change is made in either the duplicate or the original, the change takes effect in the other as well." Landgraft Decl., Separate Appendix, vol. 1, p. 0197 (IBM Dictionary of Computing).

EMC proposes adding additional limitations, requiring the copies of data to be "treated as one from the host processor's point of view" and updated "automatically." However, nothing in the claim language or specification supports or requires limiting the claim in this way.

Accordingly, a person of ordinary skill in the art would have understood the "shadow set" term of claim 1 to mean: "Copies of data located on one or more storage media. If a change is made to any copy, that change is reflected in the others."
b. "Shape"

Macromedia contends that the term "shape" should be construed to mean "a definition of an open or closed geometric region, made up of curved or straight lines." (D.I. 470 at 14). Adobe contends that the term "shape" should be construed in accordance with the definition expressly provided in the specification, namely "a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines." (D.I. 479 at 13).

In construing the term "shape," the Court has considered the specification of the '443 Patent. ( '443 Patent, Col. 2, lines 30-32). Because the specification expressly defines the term "shape" as Adobe contends, the Court construes the term "shape" to mean "a mathematical representation of a geometric construct, which can be open or closed, and which is composed of curves or straight lines."

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3. Wherein a Shape of Said Predetermined Pressure Profile . . .

This phrase is found in Claims 21 and 43 of the '575 Patent.

Phrase: Wherein a shape of said predetermined pressure profile is set independently of any monitored respiratory characteristics of such a patient

Construction: Wherein the magnitude and duration of the predetermined pressure profile are set without reference to or consideration of any monitored breathing characteristics of such a patient.

Reasoning: The dispute between the parties is whether the shape of the Predetermined Pressure Profile is synonymous with its magnitude and duration, or is a wholly different characteristic. After close review of the intrinsic record, we find that the shape of the profile is made up of its duration and magnitude.

The predetermined pressure profile is used in the less complex, and more cost effective version, of the invention. The predetermined pressure profile is applied to reduce the constant pressure of CPAP or the reduced EPAP pressure of bi-level therapy once the device detects the expiratory breathing phase. According to the teachings of the patent, the predetermined pressure profile has two parts: a magnitude, that represents the drop in pressure from the higher pressure value; and a duration that is ideally based on an average expiration period of the patient. These pre-set or pre-programmed magnitude and duration values approximate the values that would be generated by the proportional version of the invention. '575 Patent, cl. 20, lns. 44-65. Read in context of the language of the patent, the predetermined pressure profile is programmed into the computer with a magnitude value and a duration value so that the device can reduce the pressure during expiration independently of the patient's breath (other than sensing when exhalation begins). '575 Patent, cl. 20, lns. 66-67 and cl. 21, lns. 1-8.

The term shape appears in the '575 Patent four times, apart from being included in Claims 21 and 43. The first three times it appears, it does not refer to the shape of the predetermined pressure profile. '575 Patent, cl. 16, lns. 21, 55; cl. 18, lns. 43-44. The last time the word appears, it does refer to the predetermined pressure profile. '575 Patent, cl. 20, ln. 25. In describing a preferred embodiment of the invention, the patent states that the defined pressure profile has a shape that generally corresponds to a patient's normal flow. Because, in the proportional version of the invention, the patient's normal flow is used to determine the magnitude and duration of the pressure, this reference to the term "shape" indicates that the shape of a profile is comprised of its magnitude and its duration. This reading is further supported by the overall context of the patent, wherein pressure profiles, sometimes called waveforms, are consistently comprised of magnitudes and durations. '575 Patent, cl. 20, lns. 54-58.

This construction is also supported by the prosecution history. The limitation that the shape be set independently of any
patient monitored characteristic was added to these claims to differentiate them from prior art. The prior art generated an expiratory model waveform based on the inspiratory waveform, which was set by monitoring patient flow. Prosecution History, '575 Patent, Response to Office Action (Nov. 24, 1999) at 13. At the time, plaintiff distinguished the prior art by explaining that the shape of its predetermined profile is not based on any monitored respiratory characteristics. Id. In the context of these inventions, the pressure profiles are defined by how large a drop in pressure there will be, and for how long. In that context, the argument that the profile is independent of the respiration of the patient, indicates that these factors, i.e., magnitude and duration, will be set without reference to the patient.

Our construction is also in accord with the dictionary definition of the applicable term. In discussing this issue in the office action response, plaintiffs used the terms waveform profile, waveform, model waveform, and shape of the expiratory waveform model interchangeably. The dictionary definition of a waveform is a graphic representation of the shape of a wave that indicates its characteristics (as frequency and amplitude), called also waveshape. Merriam-Webster's Medical Dictionary (2002).

We do not accept plaintiffs' argument that the "shape" of the profile is separate and apart from the characteristics that define the profile. According to plaintiffs, the pressure profile's shape is "a bathtub." There is no support in the patent for such a construction. The only time that the patent describes how the waveform or profile might look it speaks to the pressure dropping off quickly at the start of expiration and then rising slowly toward the baseline pressure, which actually describes more of an off-center U, or rounded checkmark, shape, rather than a "bathtub" shape. '575 Patent, cl. 20, lns. 61-65. Regardless, in so describing this form, the patent labels it the "contour", not the shape, of the profile. Id.

Based on the patent language and the prosecution history, and buttressed by the dictionary definition of the relevant term, the shape of the pressure profile is its magnitude and duration. And, according to the plain language of the patent, these values must be set independently of any respiratory characteristic of the patient.

Finally, there is no support for plaintiff's argument that the magnitude and duration are not set in Claim 21 because Claim 22 recites the act of setting the magnitude or duration. Claim 22 claims an apparatus "comprising the means for setting" these values. A claim for the means for doing an act does not mean that Claim 21 does not claim the act itself.

4. By Shaping Input Signals and Selected Unwanted Frequencies

The third element of claim 10 also provides:

"… causing the data storage device to alter seek trajectory shape by shaping input signals to the data storage device to reduce selected unwanted frequencies from a plurality of frequencies…" (emphasis added)

The two underlined terms are in dispute. Plaintiff argues that the term "shaping" includes frequency-based filtering, and that "selected unwanted frequencies" can be some or all of the unwanted frequencies. Defendant insists that filtering, which is found in prior art references, cannot be encompassed by the invention. They also argue that the term "selected" precludes selection of all unwanted frequencies.

Defendants' assertion that including filtering in the term "shaping" would result in invalidity is premature. The specification unambiguously indicates that shaping includes conventional filtering techniques. ('473 patent, Col. 22:60 - 67). The patentee's offered construction does not conflict with the explicit language of the claim, and follows from the plain meaning of the term. Rhino v. Casio, 183 F.3d 1342, 1346 (Fed. Cir. 1999) (the court should "sustain the patent and the construction claimed by the patentee himself, if this can be done consistently with the language which he has employed.") This construction may later be found invalid, but it is inappropriate to argue invalidity during claim construction. Rhino v. Casio, 183 F.3d 1342, 1346 (Fed. Cir. 1999) (defendant "cannot avoid a full-blown validity analysis by raising the specter of invalidity during the claim construction phase.")

Accordingly, the term "shaping" as used in claim 10 is interpreted to mean: "applying a transformation to a signal."
The third element of claim 10 also provides: "shaping input signals to the data storage device to reduce selected unwanted frequencies" (473 patent Col. 44 lines 43-45) (emphasis added).

Plaintiffs assert that "selected unwanted frequencies" should be interpreted to mean some unwanted frequencies, and could include, but need not include, all unwanted frequencies. (Pls.' Claim Construction Br. For U.S. Patent No.'s '635, '267, and '473 at 29). Defendants respond that selected cannot encompass all unwanted frequencies. (Defs' Responsive Brief for '473 Patent at 24).

Neither party has presented any special meaning of the term "selected" in the art. The dictionary definition most relevant to the context of the patent is "choose from a number or group." Merriam-Webster's Third New International Dictionary Unabridged, Merriam-Webster, Inc., 1993. Plaintiffs note particularly that when the method reduces certain specific unwanted frequencies, such as would be the case if less than all unwanted frequencies are selected, other unwanted frequencies may also be reduced. (Transcript of Markman Hearing on 3/31/2004 at 278). As a natural consequence of the robustness built into the system, plaintiffs maintain, when any specific frequency is reduced, there will be collateral reductions in other frequencies. (Transcript of Markman Hearing at 279). These arguments do not directly address the question of "selection" of frequencies. A method which reduces frequencies other than those selected is not excluded from the patent since there is no limiting language requiring that only specific frequencies are reduced.

Defendants agree on the ordinary meaning of the term "selected" (Transcript of Markman Hearing at 254), but assert that the prosecution history of the '473 patent discloses a surrender of any method where all unwanted frequencies are reduced. In an interview on May 9, 2001, the PTO asserted that U.S. Patent 6,011,373 (hereinafter "McConnell patent") teaches selection by the user between fast response time and noise reduction mode. Plaintiffs amended the language "reduce unwanted frequencies" to "reduce selected unwanted frequencies from a plurality of frequencies" in the '473 patent. The PTO rejected the "reduce unwanted frequencies" language since "McConnell et al teach that the user can select between the fast response time and noise reduction modes. However, McConnell et al can't reduce selected unwanted frequencies …" (Akerley Dec. Exh. V, PLFS-C 008898). The McConnell invention "allow[s] the user to select a command input from a given group of command inputs … by ranking the importance of three characteristics … response time, robustness, and noise generation potential." (McConnell patent Col. 11 lines 21-25). Whereas the '473 patent identifies specific unwanted frequencies to reduce, and generates a command input which reduces them, the McConnell patent takes a set of pre-determined command inputs, categorizes these commands by the three characteristics above, and applies the input best suited to the user's preference.

Amendments made during prosecution are a guide to understanding the language of the patent, although they do not "enlarge, diminish, or vary the limitations in the claim." Markman, 52 F.3d at 980. Plaintiffs did not give up any claim to a reduction of all unwanted frequencies. The amendment made to overcome rejection by the PTO clearly indicates that the '473 patent is differentiated from the McConnell patent by the fact that the McConnell patent does not perform selective reduction of unwanted frequencies. The McConnell patent applies methods known to reduce all frequencies, and picks one based on the user specified criteria. The term "selected" was imposed to distinguish the '473 patent from the McConnell patent, and it is a significant distinction that the '473 patent targets specific frequencies to reduce as opposed to indiscriminately reducing all frequencies. The fact that under this interpretation the '473 patent could result in a reduction of more than the selected frequencies is unimportant. The inventor has disclosed a method which provides that certain targeted frequencies will definitely be reduced, which the PTO considered sufficiently novel in light of the prior art to grant a patent.

Accordingly, the term "selected unwanted frequencies" as used in claim 10 is interpreted to mean: "at least the chosen unwanted frequencies."

B. "Shared Addressable Memory Space"

Here, the parties' dispute appears to focus on whether the "shared addressable memory space" must be addressed by a common addressing scheme. Oracle asserts that it must, while Mangosoft disagrees. Specifically, Mangosoft says:

The shared addressable memory space is shared by the plural computers. That method of sharing and addressing,
however, need not be through the use of common addresses. Indeed, it is the shared memory subsystem, . . . that allows the different computers to address the shared addressable memory space without the requirement of common addresses. As [Mangosoft's expert] explained, the shared memory subsystem provides the necessary translation to allow the various nodes to address the shared addressable memory space, even if they don't utilize common addresses, or by the analogy, a common language (e.g., some speak English, some French, some Norwegian). While Oracle argued that the nodes all must speak English (or use common addresses), that argument ignores entirely the role of the shared memory subsystem in providing the necessary translation. Moreover, it ignores the claim language that does not contain the "common addresses" limitation, the Federal Circuit law that prohibits reading into the claim limitations from the preferred embodiment, and the doctrine of claim differentiation.

Mangosoft's Supplemental Brief (document no. 46) at 11.

Claim 1 of the '377 patent does not specifically require that the nodes participating in the shared memory system utilize a "common" addressing scheme. Instead, claim 1 simply provides that the memory subsystem component of each participating node tracks the data and available memory space in the system. See, e.g., '377 patent 7:27-37 ("The memory subsystems further track the data stored in the local memory of each node and further operate network connections with network 38 for transferring data between the nodes 12a-12c. In this way, the memory subsystems 32a-32c access and control each memory element on the network 38 to perform memory access operations that are transparent to the operating system 16. Accordingly, the operating system 16 interfaces with the memory subsystem 32 as an interface to a global memory space that spans each node 12a-12c on the network 38."). It would, then, appear that the "memory subsystem" functions in a manner similar to a traditional network server, translating the various addressing schemes utilized by each node on the system.

In other words, the memory subsystem is capable of translating the various "languages" spoken by each participating node; they need not all speak a common language. And, contrary to Oracle's suggestion, claim 1 of the '377 patent does not require the use of either "common memory addresses" or "global memory addresses;" those requirements appear only in particular embodiments of the patented system. The court will not read those embodiments into the patent as limitations. See, e.g., Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed. Cir. 1994) ("Although the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.").

Accordingly, the court construes the phrase "shared addressable memory space" to mean memory space distributed across the volatile and non-volatile memory of all nodes participating in the patents' shared memory system (though not necessarily all nodes on the network), which shared memory space can be accessed by the various participating nodes using one or more addresses. The participating nodes need not, however, utilize a common or global addressing scheme. As described in the embodiment depicted in Figure 3 of the '377 patent, the use of a "global address generator" is optional. '377 patent at 8:41-47.

19. Shared context storage mapping (SCSM) information

Claim 35 of the '945 patent recites the phrase "shared context storage mapping information." Biax contends that this term means "information identifying a context file." Intel and ADI argue that this term means "static and dynamic information attached to each instruction identifying the context file assigned to a given user and the register level assigned to a given instruction."

Once again, this term was not defined in the art as of 1985. As such, the court turns to the specification. The patent states:

The additional and required information comprises two components, a static and a dynamic component; and the information is termed "shared context storage mapping" (SCSM). The static information results from the compiler output and the TOLL software gleaned from the compiler generated instruction stream and attaches the register information to the instruction prior to its being received by an LRD. The dynamic information is hardware attached to the instruction by the LRD prior to its issuance to the processors. This information is composed of the context/LRD identifier.
corresponding to the LRD issuing the instruction, the absolute value of the current procedural level of the instruction, the
process identifier of the current instruction stream, and preferably the instruction status information that would normally be
contained in the processors of a system having processors that are not context free.

'945 patent, col. 34, 1. 61-col. 35, 1. 10. Although the language appears in the description of the preferred embodiment, use
of the phrase "is termed" suggests that the patentees were defining the term "shared context storage mapping information."
The court accordingly defines "shared context storage information" as "static and dynamic information that identifies the
register level for the instruction as well as the context file."

8. "shared folder"

The term "shared folder" appears in claims one and two of the '374 patent. Informatica proposes the construction: "A folder
whose contents may be accessed through or by a local repository." 4 BODI proposes the construction "A folder represents
the abstraction for grouping related objects and metadata in a repository. Folders can be of type regular or shared. The
content of shared folder can be accessed by other folders in the same repository, and by other linked repositories if the
shared folder is in a global data mart repository through the use of a 'reference.'"

--- Footnotes ---

4 Again, Informatica indicated in its opening brief that it does not object to the use of BODI's "linked" modifier in lieu of its
proposed modifier "local."

--- End Footnotes ---

Informatica argues that the term should be given its plain meaning. BODI counters that the term has no ordinary meaning in
the art, and thus points the Court to the specification. Informatica's proffered construction is too broad and provides
insufficient detail to be useful going forward. The specification and drawings contemplate that the term "folder" represents
an abstraction for grouping related objects and metadata in a repository. Folders can be of type regular or shared. The
content of shared folder can be accessed by other folders in the same repository, and by other linked repositories if the
shared folder is in a global data mart repository through the use of a 'reference.'"

BODI's proffered construction, on the other hand, is too narrow. The proposed construction reads in detail that is
unnecessary to the definition of a "shared" folder, i.e. that folders can be either regular or shared. Further, the construction
includes a specific feature that is addressed separately in the claim language, namely that the content of a shared folder in a
global data mart repository can be accessed by other linked repositories. This feature in the claim language would be
unnecessary if persons of skill in the art inherently understood that the contents of a shared folder located in a global data
mart repository could be accessed by other linked repositories. Moreover, the final construction can be structured to convey
similar meaning to the term without reading in a limitation from the preferred embodiment.

The only remaining issue is whether the definition of "shared folder" must include the limitation that a reference is used to
access the metadata in the shared folder. A review of the patent reveals that the invention was directed, in part, at a "method
and system for accessing and sharing metadata amongst a number of data marts through the use of object referencing." The
Summary of the Invention teaches that "[g]iven proper authorization, the metadata is accessed through the use of object
referencing." Finally, the detailed description states that the "actual mechanism which allows for the sharing of metadata is
through the use of 'object references.'" Thus, the specification teaches that the invention, as a whole (and not merely as a
preferred embodiment), requires that the content stored in the shared folders is accessed through the use of a reference.

The Court construes the phrase "shared folder" to mean: A folder represents the abstraction for grouping related objects and
metadata in a repository. The contents of a shared folder may be accessed by other folders in the same repository and/or by
other linked repositories through the use of a reference.
B. Effect of Prior Litigation

As stated above, SunTiger prevailed in a prior patent infringement suit against Scientific Research Funding Group (SRFG) on the same patents now in question. Both SunTiger and Sunglass Products have stipulated that the claim construction in the prior suit will control here:

The patents-in-suit have already been construed by the U.S. District Court for the Eastern District of Virginia [and that] construction . . . is binding on the parties in this case. To the extent that the terms in the asserted claims were not construed in the said prior litigation, the parties are asking the Court to make a claim construction based on the arguments submitted in the summary judgment motions.

Stipulation at 1-2. "In a patent litigation action, where the parties do not dispute any relevant facts regarding the accused product but disagree over possible claim interpretations, the question of literal infringement collapses into claim construction and is amenable to summary judgment." Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1324 (Fed. Cir. 2002).

The relevant terms and their stipulated construction are as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Stipulated Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;substantially block&quot;</td>
<td>&quot;... in reference to wavelengths, it is defined as blocking over 99% of the incident radiation at each and every wavelength&quot; and &quot;[in] reference to polarization, it is defined as blocking 80% or more of the horizontally polarized incident radiation at each and every wavelength&quot;</td>
</tr>
<tr>
<td>&quot;substantially transmit&quot;</td>
<td>&quot;... in reference to wavelengths, [it] is defined as transmitting more than 1% of the incident radiation at each and every wavelength&quot; and &quot;[in] reference to polarization, it is defined as transmitting more than 20% of the horizontally polarized incident radiation at each and every wavelength&quot;</td>
</tr>
</tbody>
</table>
| "sharp cut-on" | "... sharp cut-on is defined in the context of a dye or filter, having a cut-on slope that at some concentration or dye density rises more than one half percent (0.5%) change in transmission for every one nanometer of increasing wavelength change. The cut-on slope is that portion of the transmission spectra of a cut-on dye that represents the transition between [the] substantially blocking and the substantially transmitting region."
| "cut-on filter" | "... an optical filter that substantially blocks all wavelengths shorter than the cut-on wavelength and substantially transmits all wavelengths that are longer than the cut-on wavelength. The cut-on wavelength is that wavelength in the transition zone at which the transmission is 1%." |
| "portion" | "... part or share of something"

Plaintiff SunTiger contends that this Court cannot apply the stipulated construction in a way that would contradict the finding of the Eastern District of Virginia that YE-82 infringed SunTiger's patents. Pl.'s Mot. at 1 ("[T]he YE-82 lens material must literally infringe whatever claim construction the Court adopts in this case."). In essence, SunTiger argues the following: (1) the parties have stipulated to the prior construction, (2) the decision in the prior suit does not bind this Court, but (3) any ruling that this Court issues must not be inconsistent with the fact that YE-82 was found to infringe its patents.

I disagree with this assessment. My decision is not foreordained by the result in SunTiger, Inc. v. Scientific Research Funding Group. SunTiger attempts to elevate the prior claim construction to the level of a decision. Despite the parties' agreement that the prior claim construction would be binding, that prior court's decision applying its own construction is only persuasive. Although the parties have agreed to be bound to the use of the prior construction, they have not agreed that this Court's application of that construction must be consistent with prior decisions involving a different defendant and different lenses. Indeed, were consistency with prior results necessary, that would be tantamount to an improper form of collateral estoppel against a current party, i.e., Sunglass Products, which was not a party (nor a party in privity) to SunTiger v. Scientific Research Funding Group. Cf. MCA Records, Inc. v. Charly Records, Ltd., 865 F.Supp. 649, 654 (C.D. Cal. 1994) ("[D]ue process requires that the party to be estopped must have had an identity or community of interest with, and adequate representation by, the losing party in the first action as well as that the circumstances must have been such that the party to be estopped should reasonably have expected to be bound by the prior adjudication.").

**4032**

1. "Sheet" and "Sheet-like"

The parties contend that the proper construction of claim terms "members of conductive sheet material" (claim 1) and "electrically conductive sheet-like members" (claim 6) is critical to this appeal. We agree. The pertinent portion of the district court's "claim meanings" reads as follows (emphasis added):

"Sheet" or "sheet-like" mean conductive material that can be shaped to furnish electrical contact between the resistor and the outside contact in the steering column and can be shaped into contacts with a long dimension along the axis of the key. The use of the sheet in the claims merely shows the advantages of that method and is not a part of the claim.

The district court erred when it instructed the jury that the use of the term "sheet" is "not a part of the claim." The claimed "members of conductive sheet material" (claim 1) and "electrically conductive sheet-like members" (claim 6) are clearly limitations of the claims. Although the claims themselves do not define the terms "sheet" and "sheet-like," the specification variously refers to "sheet metal," "flat sheet metal," "conductive sheet metal," and "electronically conductive sheet metal." In addition, the applicants added the references to "sheet" and "sheet-like" to the independent claims in their response to the first examiner's action. This is apparent from the following example, which is the result of our comparison between originally filed claim 1 and issued claim 1 (text that is present in the issued claim but absent from the original claim is underlined and text that is absent from the issued claim but present in the original claim is bracketed):

A packaged electronic component includes an insulating body, [completely enclosing] an electronic chip disposed within the insulating body and having a pair of terminals, and two members of conductive sheet material which connect to opposite terminals, the two members extending laterally from said terminals to the outside of the insulating body and forming a pair of runner-like leads that terminate said laterally extending members [which are electrically connected to the terminals of the chip and which extend outwardly from said body, said leads being particularly adapted for making and breaking sliding electrical contact with stationary contacts in an electronic circuit].

As may be seen, the added limitations more particularly define how the terminals of the electronic chip are electrically connected to the runner-like leads. In their amended claim, the applicants made it clear that conductive sheet material connects to the terminals of the electronic chip and forms the runner-like leads. Similar limitations were added in the other independent claim that eventually issued as independent claim 6. Importantly, the applicants also specifically relied on these new limitations in the remarks portion of their first amendment. They distinguished the teachings of U.S. Patent No. 3,808,506, which describes wire leads electrically connecting circuit elements to button contact pads, by arguing that in their claimed invention the electrical connection between the electronic chip and the runner-like leads is provided by members of conductive sheet material, as opposed to wire leads, extending laterally from the terminals of the electronic chip.
to the outside of the insulating body.

A review of the '482 patent and its prosecution history reveals that the terms "sheet" and "sheet-like" do not have any special meanings in the art and that the '482 inventors used these terms in their ordinary, everyday sense, i.e., to describe something flat with a fairly broad surface relative to its thickness. The claims thus include within their literal scope only devices with conductive material that comprises a fairly broad surface relative to its thickness.

**4033**

I. "shift register"

a shift register connected to said latching device; and wherein:

the display data and timing signals enter said shift register;

said shift register passes on a portion of display data to said latching device for retention for a certain period of time; and

said interface means receives display data from said shift register via said latching device and provides signals to said first and second sets of drivers.

Defendants propose that this term should be construed as "[a] register in which, at each common shift clock cycle the pattern of 0's and 1's in the register shifts to the right or left, with the data at the input of the register entering from the left or right, respectively." Honeywell agrees that Defendants' proposed construction is a well known description of a "shift register," but Honeywell contends that the term "shift register," as used in the '823 patent, also has a broader meaning, i.e. "a circuit 1 that includes an array of linearly connected cells which receive binary digits that, in response to clocking, shift in a common direction." Honeywell's proposed construction essentially states that a shift register is any circuit that contains a "shift register" as construed by Defendants.

--- Footnotes ---

1 A register is a single component; a circuit is an interconnection of components. Def.'s Br. at 8-9.

--- End Footnotes ---

The block diagram of Figure 6 is an embodiment of an LCD column driver for applying digital display data to an LCD and is covered by claim 1. The parties agree that block 34 in Figure 6 is a shift register in accordance with Defendants' proposed construction.

[SEE Fig. 6 IN ORIGINAL]

The '823 patent also discloses an embodiment of a column driver for applying analog display data to an LCD. This embodiment is shown in Figure 10. The analog column driver shows analog intensity data being applied to an inverting amplifier 62, which in turn provides the analog data to first and second ping-pong sample-and-hold capacitor banks 68 and 70.

[SEE Fig. 10 IN ORIGINAL]

Honeywell relies upon claim 7 and the embodiment of Figure 10 to support its proposed construction of "shift register." Honeywell argues that, because timing signals are shown entering shift register block 76 and display data is shown entering capacitor banks 68 and 70, in order to read claim 7 onto the embodiment of Figure 10, the shift register recited in claim 7 must be read in a broader sense to include the capacitor banks 68 and 70 and not restricted to just shift register block 76. Honeywell argues that its construction of "shift register" is required in order for claim 7 to be read consistent with the embodiment of Figure 10, which claim 7 is intended to cover.
Defendants counter that claim 7 separately recites the shift register from the first and second capacitor banks. Moreover, claim 7 specifies that the shift register is "connected to" the capacitor banks. In view of that claim language, Defendants argue that Honeywell is advancing a clearly erroneous interpretation of claim 7 that combines the shift register and capacitor banks. Defendants are correct. Honeywell's analysis of claim 7 in relation to Figure 10 is flawed and, therefore, does not support its proposed construction of the term "shift register."

Honeywell offers no further intrinsic evidence to support its construction. Defendants, on the other hand, point out that their construction is consistent with every other use of the term "shift register" in the '823 patent. For example, the specification twice refers to "shift register 76," which strongly implies that box 76 in Figure 10, standing alone, embodies a shift register. See '823 Patent at 7:18-7:19; 7:38-7:41. In addition, the specification refers to box 76 as a "timing mechanism," and states that its purpose is to "provide[] timing for sampling the input analog voltage." See '823 Patent at 7:18-7:19; 7:38-7:44. These statements contradict Honeywell's contention that both timing data and display data enter the "shift register" in Figure 10. Defendants also point out that their construction is consistent with several pieces of extrinsic evidence, including technical treatises and data sheets for off the shelf shift registers sold at the time of the patented invention. See, e.g., THE ART OF ELECTRONICS 525 (2d ed. 1989); ELECTRICAL ENGINEERING FUNDAMENTALS 571 (2d ed. 1986). 2

--- Footnotes ---

2 Honeywell argues that THE ART OF ELECTRONICS contains statements consistent with Honeywell's construction, but this argument mischaracterizes statements made in that book. Honeywell claims that it refers to a RAM circuit as a shift register. THE ART OF ELECTRONICS 527. More accurately, the book states that a RAM circuit can be used as a shift register, not that a RAM circuit is a shift register.

--- End Footnotes ---

The Court therefore rejects Honeywell's proposed construction of "shift register," which would include a circuit structure that, in response to timing signals, shifts a "1" bit from cell to cell in one array of cells ("walking 1") while entering display data into a separate array of cells. Honeywell's proposed construction would broaden the term "shift register" to merely require a circuit structure operative to perform serial-to-parallel conversion of binary data. While a shift register can be used to perform serial-to-parallel conversion of binary data, the term "shift register" denotes a more particular type of electronic component in accordance with Defendants' proposed construction.

Accordingly, the Court adopts Defendants' construction.

--- 4034 ---

33. The term "shopping cart model" is described in the Background of the Invention section of the '411 patent beginning at column 2 line 17: "The selection of various items is generally based on the 'shopping cart' model. When the purchaser selects an item from the electronic catalog, the server computer system metaphorically adds that item to a shopping cart. When the purchaser is done selecting items, then all the items in the shopping cart are 'checked out' (i.e., ordered) when the purchaser provides billing and shipping information." As described at column 2 lines 34 through 43, in some cases the billing and shipping information may be prestored by the merchant and need only be confirmed to complete the checkout process.

34. The definition of shopping cart model in the background section of the '411 patent is consistent with that provided by Amazon.com's e-commerce experts Dr. Johnson and Mr. Mulligan. (See Ex. 10, Johnson Decl. at P 14; Ex. 12, Mulligan Del. at P 7; Tr. at 167:19-168:9 (Mulligan)).

35. Dr. Lockwood defined a shopping cart model more broadly in a manner that could potentially include any method for buying on-line. (Tr. at 279:5-282:4). In general, the Court found Dr. Lockwood's description of the term "shopping cart model" to be confusing and inconsistent. Barnesandnoble.com's Chief Information Officer, Mr. King, gave a similarly broad definition of shopping cart model. (Tr. at 428:1-21). According to its own expert Dr. Lockwood, under Defendants' definition of shopping cart model, claims 1 and 11 would appear to be internally inconsistent. (See Tr. at 284:22-285:22).
Similarly, Mr. King testified that with Barnesandnoble.com's definition of shopping cart model, claims 1 and 11 would not cover the single-action purchasing method described in the '411 patent. (Tr. at 428:1-21).

36. A claim interpretation that excludes the preferred embodiment is "rarely, if ever, correct." Vitronics Corp. v. Conceptronics, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). "When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity." Modine Mfg. Co. v. U.S. Int'l Trade Comm'n, 75 F.3d 1545, 1557 (Fed. Cir. 1996). The Court, therefore, rejects the definition of "shopping cart model" propounded by Defendants.

37. The Court adopts instead a definition which is consistent with the patent specification, preserves the validity of the claims, and allows the claims to be read on the preferred embodiment described in the patent specification. In construing the claims, the Court, therefore, takes the term "shopping cart model" to mean a method for on-line ordering in which a user selects and accumulates items to be purchased while browsing a merchant's site and then must proceed to one or more checkout or confirmation steps in order to complete the purchase. (Ex. 12, Mulligan Supp. Decl. PP 5-6).

**GO BACK**

**4035**

(2) *In claim one, the term "short wavelength spectral range."* The term refers to the photons that will excite the fluorophore in the target material. Defendants contend that this phrase should be given its ordinary meaning and that, while the specification includes examples of short wavelength, it does not specify a particular definition. Rather, short wavelength is relative to the long wavelength light photons emitted by the laser, as recited in claim element 1[c], and depends on the particular target material. Plaintiffs allege that the specification requires that the term be limited to 315 nanometers (nm) or the UV wavelength range. 613 Patent at 6:6 ("short wavelength, for example, ultraviolet"); 7:33-44 (describing figure 2).

For the Defendants, Dr. Walmsley testified that a person of ordinary skill in the art would interpret the phrase to mean the excitation wavelength associated with the target material, that is, the wavelength that causes the fluorophore in the target material to fluoresce. Tr. 124. Dr. Walmsley asserted that language in the patent made the meaning of this phrase quite clear. For example, claim one states that "the target material [to be imaged includes] fluorescent means responsive to excitation by photons in short wavelength spectral range to produce characteristic fluorescence." 613 Patent at 9:65-68. According to Dr. Walmsley, the definition of "short" depends on the target material, since the exciting short wavelength is a "characteristic" of the fluorophore in the target material. Tr. 181. Dr. Walmsley explained that the short wavelengths are the absorption wavelengths and are related to the long wavelengths. 5 He also explained that a person of ordinary skill in the art would not expect the term short wavelength range to be limited to 315 nm or the ultraviolet range and pointed to several places in the patent that supported his interpretation. See, e.g., 613 Patent Abstract ("Fluorophores having single photon absorption in the short (ultraviolet or visible) wavelength range are excited by a stream of strongly focused subpicosecond pulses of laser light of relatively long (red or infrared) wavelength range."); 6:48-53 ("Thus, for example, two photons in the visible red region at 630 nm would combine to excite a fluorophore which normally absorbs light in the ultraviolet region at 315 nm, while two photons in the infrared region of, for example, 1070 nm, would excite a fluorophore which absorbs at 535 nm in the visible light region."); 5:68-6:10 ("To accomplish this, the laser produces a very short pulsed laser beam of high instantaneous power and of a relatively long wavelength, for example in the visible red or the infrared range. This light is directed to a specimen containing a fluorophore normally excited by a single photon in the short wavelength, for example, ultraviolet range . . . ").

--- Footnotes ---

5 As will be explained below, Dr. Walmsley stated that the long wavelength is also a characteristic of the target material and is the laser light that illuminates the target material. Tr. 175.

--- End Footnotes ---
normally respond. The particular wavelengths are a function of a fluorophore to be detected, the point of the invention being that the fluorophore will respond to two photons of the long wavelength." Prosecution History at 88 & 107. After this explanation by the applicants the patent examiner allowed the claims. Tr. 196

Finally, Defendants' second expert, Dr. Karel Svoboda, defined short wavelength spectral range as "the characteristic fluorescence of the fluorophore that one is imaging, but it is clearly referred to as short compared to the long wavelength spectral range that is used for exciting the fluorophore." 6 Tr. 334. He testified that the term is as precise as the subject matter allows because "two photon excitation microscopy can be done with fluorophores that have characteristic fluorescence in many regions of the wavelength spectrum, and so short wavelength spectral range certainly covers all those and some more." Tr. 335.

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6 The Court recognized Dr. Svoboda as an expert in the field of two-photon microscopy. Dr. Svoboda received his bachelor's degree cum laude in physics from Cornell and a doctorate in biophysics from Harvard. He has extensive research and teaching experience and has lectured and published frequently. He is currently an associate professor at Cold Springs Harbor Laboratory and the State University of New York at Stony Brook. Curriculum Vitae of Karel Svoboda, Defendants' Markman Ex. 31. Dr. Svoboda testified that a person of ordinary skill in the art at the time of the invention would have a bachelor's degree in physiology, biophysics, physics or engineering, some postgraduate education and some experience with microscopy and laser scanning microscopy. See Tr. 318-19.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

Plaintiffs' expert, Dr. Fraser, testified that short is synonymous with ultraviolet and pointed to the patent in support. Tr. 446; 613 Patent 2:57-58 ("a short wavelength, typically ultraviolet"), 3:65-4:1 ("normally requires excitation by light in the ultraviolet range"), 6:3-10 ("short wavelength, for example ultraviolet range"). Although ultraviolet is clearly given as an example of the short wavelength range and Dr. Fraser testified that the term "for example" would not narrow the definition, he claims ultraviolet is the only example offered. Tr. 464-65.

The Court finds that Plaintiffs' interpretation of "short wavelength range" is unsupported by the intrinsic evidence. The abstract clearly states that short can be in the ultraviolet or visible range. The patent provides an example contemplating absorption in the visible light region. 613 Patent 6:53. Also, the inventors explained in the prosecution history that "short wavelength range" depends on the target material's fluorophore and the long wavelength illuminating light. Accordingly, the Court adopts the Defendants' definition: "This short wavelength light has a wavelength that is shorter than the wavelength of the long wavelength light recited in claim element 1[c]. The specific wavelengths of the 'short' and 'long' wavelengths recited in Claim 1 depend on the particular fluorophore used in the target material."

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Shortest path

The Court modifies Ciena's construction and construes the term as “path through the network having the shortest distance (distance being a function of the time delay incurred by a packet moving from one switch to another, sometimes referred to as ‘cost’ or ‘delay’).” The parties do not dispute that the term “shortest path” is not limited to physical distance. However, the parties disagree as to how distance should be explained in the definition of the term. Nortel argues that the term should be construed as “the best path according to established criteria (such as, for example, least cost, least delay and least traffic).” Nortel relies on the declaration of its expert Dr. Enslow for this definition.

In discussing Figure 5d, which depicts the distance of each trunk to the next switch, the specification states,

Note that the use of the term “distance” in the present context does not mean physical distance but rather is a term well known in this art that is a function of the time delay incurred by a packet moving from one switch to another. A normalized value of distance is typically used (ranging, for example, from 0 to 2,048 for a single trunk). This concept is also sometimes referred to as “cost” or “delay.”
Col. 3:63-4:2. “Words of a claim ‘are generally given their ordinary and customary meaning.’” Phillips, 415 at 1312 (citing
Vitronics, 90 F.3d at 1582). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would
have to a person of ordinary skill in the art in question at the time of the invention . . . .” Id. at 1313. In determining the
meaning of a claim term as understood by persons of skill in the art, courts should look to “‘the words of the claims
themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific
principles, the meaning of technical terms and the state of the art.’” Phillips, 415 F.3d at 1314 (citing Innova/ Pure Water,
381 F.3d at 1116).

Phillips instructs the Court to first look to the specification to determine the ordinary and customary meaning of a claim
term. Here, the specification indicates the definition of the term distance, a term which is integral to the understanding of the
claim term “shortest path,” as it was understood within the art at the time of the invention. In this situation, it is not
necessary to look to extrinsic evidence such as an expert’s declaration. Accordingly, the Court defines “shortest path” using
the word distance and explains the definition of distance as the specification indicates it would have been understood by a
person of skill in the art at the time of the invention.

JVL’s construction of "showing … a number of game credits associated with a deposit of one coin of a particular type" is
"showing a specific number of game credits associated with a deposit of one coin of a particular type." Def.’s '799
Presentation at 35. Merit's construction simply substitutes the word "insertion" for "deposit." Pl.'s '799 Presentation, Ex. 3 at
13. Thus, the only two issues are whether to adopt JVL's insertion of the word "specific" and Merit's inclusion of "insertion"
into the claim construction.

The plain and ordinary meaning of this term is best expressed in the language of the claim itself. The proffered
constructions do not add value to the understanding. The specification does not require that "specific" be included in the
construction. Nor is it necessary to construe "deposit" to mean "insertion." The only support that Merit offers for this
construction is in the specification's description of Figure 3, which states "[t]he ratio of 'coins inserted to game credits
granted per coin can be individually adjusted for each coin type." '799 patent at 6:41-43 (emphasis added). However,
construing the claim term to include "inserted" is not necessary because the plain and ordinary meaning of "deposit" is clear.
Thus, no construction is required.

JVL argues that "selecting the number of game credits to be associated with each coin type" means "that an operator
individually sets the specific number of game credits that are directly associated with each of the distinct symbols
representing the different coin types." Merit's only change is to substitute "choosing" for "selecting" and "type of coin" for "coin type."

For the same reasons discussed above, the substitution of "choosing" for "selecting" is unnecessary and "type of coin" for "coin type" is unnecessary. Accordingly, they are not adopted.

The specification teaches that different numbers of game credits may be selected for each of the coin inputs. '799 patent at 6:24-25. The fact that this occurs does not justify JVL's expanded construction. Once again, JVL's proposed construction unnecessarily adds to the plain and ordinary meaning of the claim term. Thus, this term does not require construction.

"showing … the total number of currency units associated with each coin type"

JVL's construction of "showing … the total number of currency units associated with each coin type" is "showing a specific number of meter pulses to be associated with each of the distinct symbols on the setup screen representing the different coin types." JVL's Markman Hrg. Presentation, '799 patent at 12 ("Def.'s '799 Presentation"). On the other hand, Merit construes this claim as "showing the total number of cents associated with each coin type." Merit's Markman Hrg. Presentation, '799 patent, Ex. 3 at 3 ("Pl.'s '799 Presentation"). The inquiry focuses on whether the "the total number of currency units" is a "specific number of meter pulses" as JVL contends or "cents" as posited by Merit.

As JVL explains, the "meter pulses" column of Figure 3 indicates that a certain number of "meter pulses' are associated with each coin input. In describing the preferred embodiment of Figure 3, the patent states "the meter pulse is equal to the number of currency units deposited in the game device (i.e. the total currency amount deposited in the game device)" '799 patent at 6:35-37. JVL emphasizes that the patent uses the generic term "currency units" and not a particular form of currency such as "cents" or "pesos." Furthermore, Figure 4 of the patent depicts, among other things, a currency input device 110 that sends a signal to the computer 102 which then sends "pulses" to a tally meter 120.

Both parties place unjustified limitation on the meaning of the term "currency units." In fact, Merit concedes that the machine is not limited to being programmed for United States cents, and can, as JVL argues, be set up to receive pesos or other forms of currency. Tr. at 173. It offers no basis in the patent for its use of the term "cents" and admits that the term "currency units" might not require construction. Id. ("… the machine can be set up for pesos, pounds or anything else. Maybe we should have left it as currency units.") Similarly, JVL relies on Figure 3 and its description to argue that "currency units" and "meter pulses" are interchangeable, without explaining why we should not also associate "coin type" with "credits" which are listed in the third column of Figure 3 and can also be adjusted for each individual coin type. '799 patent at 6:3-14.

"Currency units" are neither "cents" nor "meter pulses" exclusively. Neither of the proffered constructions is adopted. Indeed, the term "showing … the total number of currency units associated with each coin type" as used in the '799 patent, says it all and does not require construction.

III. "shuffled bit result" and its relevant permutations

<table>
<thead>
<tr>
<th>Permutation of Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;shuffled bit result&quot; 8</td>
<td>&quot;the result of an operation that mixes the bits of its inputs&quot;</td>
</tr>
<tr>
<td>&quot;bit shuffling operations&quot; 9</td>
<td>No separate construction (in light of the others);</td>
</tr>
</tbody>
</table>
alternatively, "operations that mix the bits of inputs"

"bit shuffling function" 10 No separate construction (in light of the others);
alternatively, "a function that mixes the bits of its inputs"

"function to shuffle bits" 11 No separate construction (in light of the others);
alternatively, "a function that mixes the bits of its inputs"

"bit shuffle computer program" 12 No separate construction (in light of the others);
alternatively, "a computer program that mixes the bits of its inputs"

Permutation of Claim Term
"shuffled bit result" 8 Defendants' Proposed Construction
"the result of an operation that mixes and maps the bits of its inputs"

"bit shuffling operations" 9 "operations that mixes and maps the bits of their inputs"

"bit shuffling function" 10 "a function that mixes and maps the bits of its inputs"

"function to shuffle bits" 11 "a function that mixes and maps the bits of its inputs"

"bit shuffle computer program" 12 "computer program that performs a bit shuffle operation"

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8 The term "shuffled bit result" is contained in claims 1, 3, and 18 of the ’646 patent.

9 The term "bit shuffling operations" is contained in claim 18 of the ’646 patent.

10 The term "bit shuffling function" is contained in claim 19 of the ’646 patent.

11 The term "function to shuffle bits" is contained in claim 1 of the ’612 patent.
The term "bit shuffle computer program" is contained in claim 12 of the '646 patent.

The patents-in-suit both contain permutations of claim terms that will be collectively referred to as the "shuffle bit terms." The shuffle bit terms include "shuffled bit result," "bit shuffling operations," "bit shuffling function," "function to shuffle bits," and "bit shuffle computer program." In all instances, the parties agree that shuffling requires mixing bits, but they disagree as to whether shuffling also requires mapping bits. The primary dispute for these claims terms is whether mapping should be included in the definition of "shuffling".

PACid argues that the '646 specification supports an understanding of the shuffle bit terms that singularly includes the mixing of bits. OPENING at 6 (citing '646 patent at 4:60-65; and 5:1-2). PACid contends that the specification distinguishes between shuffling and mapping, and that mixing is the result of a specific algebraic, cryptographic, and/or logic function that is not random. Id.Arguing that the term "shuffled" in the context of the '646 and '612 patent means mixed, PACid also suggests that the meanings of the shuffle bit terms is "readily understood by a lay jury" and does not require separate construction. REPLY at 6.

Defendants argue that "bit-shuffle" is not a term that has a well-known definition in the field of encryption and must be construed in light of the patent specifications. RESPONSE at 16. Defendants then cite to relevant portions of the specifications to argue that the Summary of the Invention section requires both mixing and mapping and that the disclosed embodiments require a bit shuffling generator "to mix the input bits and to map the input bits to a result." Id. at 16-17 (citing '646 patent at 3:22-28 (Summary of the Invention); '646 patent at 4:60-5:1; '612 patent at 4:47-53). Defendants also maintain that the specification supports the suggested mixing and mapping to occur "randomly."

"When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." O2 Micro, 521 F.3d at 1362. Appreciating that the shuffle bit terms present both disputed meanings and divergent depiction as to the terms' technical scope, the instant terms require construction. See U.S. Surgical Corp. v. Ehticon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997).

1. Bit Shuffling does not require "mapping"

While the patents provide no definition for the word "mapping," the context of its usage is clear, particularly in view of the parties' briefings and arguments. The intrinsic record coupled with the common meaning of the term instruct that a mapping of an input value into an output value requires a correlation between particular input bits and particular output bits. In effect, the non-technical common meaning of the word "map" would also imply input-output correlation in that it would suggest a path between an input bit and an output bit. However, unlike the common meaning of "map," the patents clearly discuss many-to-few bit mapping, and in doing so, clearly eschew any notion that mapping requires that each input bit maps to a unique output bit.

The intrinsic record presents that mapping and shuffling are distinct concepts, and therefore, mapping should not be included in the definition of shuffling. Starting with the language of the claims, claim 1 of the '612 patent approaches "shuffle bits" and "many-to-few bit mapping" as separate actions: "combining a constant value and secret plural bit sequence in accordance with an algebraic function to shuffle bits, perform a first many-to-few bit mapping, and produce a first pseudo-random result." '612 patent at 7:36-39 (claim 1) (emphasis added). A plain reading of this claim language supports the conclusion that mapping and shuffling are not one and the same. Defendants suggest there is a double requirement to mix and map because certain portions of the specification use the words "mixed" and "mapped" when describing the same bit shuffling process. This conjunctive language, however, does not support the conclusion that mapping necessarily occurs when shuffling takes place. Instead, the specification distinguishes between the two concepts by using "mixing" and "mapping" in alternative forms. In particular, the '646 patent recites: "employs a many-to-few bit mapping and a combination bit shuffle." '646 patent at 1-4. The patentee is clearly requiring that the bits be mapped, but this mapping is not required to be one and the same as the alternative mixing process.

This point was further illustrated at the Markman hearing, where the meaning of "mapping" was flushed out in the context of a logical XOR function. 13 The '646 specification provides, as an example of a preferred embodiment, a bit-shuffling
generator that employs the XOR function as expressed in the equation $A \oplus B = C$. In this example embodiment, the XOR function operates on the two input values "A" and "B," and results in the output "C." The parties agreed at the hearing that the XOR function effects a mapping. TRANSCRIPT at 76. The Court agrees because the application of the XOR function correlates or maps the particular input bits ("A" and "B") to one particular output bit ("C"). Thus, through use of the logical XOR function as a bit-shuffling example, the patent is clear that mapping may occur during the process of bit-shuffling. There is equal clarity, however, that bit-shuffling need not employ a logical function such as "XOR." The patent clearly states that bit-shuffling may employ algebraic, cryptographic and/or logic function. See '646 patent at 4:60-65. Unlike the logical functions--such as the XOR function--algebraic and cryptographic functions do not necessarily yield output bits that specifically correlate to input bits. Thus, mapping is not a requirement of bit shuffling.

13 A two-input logical XOR function yields a true ("1") result if one or the other of two inputs is true ("1"), but not if both inputs are true ("1").

Lastly, during the hearing, Defendants argued that bit-shuffling requires mapping (correlation), but not a one-to-one correlation between input and output bits. This argument offers only a limited explanation as to how a larger number of input bits may be mapped into a smaller number of output bits--i.e., that mapping is nevertheless mapping even if two or more input bits map to fewer output bits. Although this argument is well-taken, the premise does not bear on whether mapping itself is a requirement of bit-shuffling. Furthermore, while the Court finds that "mixing" is a requirement of shuffling, the Court does interpret mixing so confined as Defendants' implied during the hearing. See TRANSCRIPT at 69.

2. Bit Shuffling is not random

Additionally, the proposed constructions dispute whether to include a limitation that the mixing occurs "randomly." PACid argued to exclude this language because it imposes a requirement that is contrary to the pseudo-random result in the specification. REPLY at 6-7; '646 patent at 3:22-28 (reciting in the '646 patent: "a bit-shuffling which results in the mapping of a large number of bits into a first pseudo-random number"); '612 patent at 3:18-24 (reciting in the '612 patent: "shuffles the bits and provides a pseudo-random result"). Defendants, however, maintain that the specification expressly requires that the bits are "randomly mixed and mapped." RESPONSE at 17 (citing '612 patent at 4:47-53) ("The bits. . . thereby are randomly mixed and mapped from a large binary length to a smaller binary length.").

While acknowledging the specification's use of "randomly" in its description of the claimed invention, the Court concludes that rather than limiting the claims, this language is an express example that uses the world "random" in a broad capacity that includes "pseudo-random." This is apparent because the word "random" is expressly applied to the XOR operation discussed above. As indicated above, an XOR operation is completely deterministic and not random. As such, a skilled artisan would understand that only a pseudo-random result may apply to an XOR function.

This result is also supported by the express deterministic requirements of the claims and specifications. The patents are directed to deterministic keys and the specifications explain what that means: "Encryption keys may in addition be classified as deterministic or non-deterministic. A deterministic encryption key is one which is repeatable each time a specific input is applied to the encryption key generator." '612 patent at 2:19-23. Given these teachings, the result of the key creation operation could not employ randomness in the manner suggested by Defendants and yet remain deterministic. Thus, the isolated citation to the word "random" in the '612 patent at column 4, lines 47-53 must be interpreted broadly in including a pseudo-random operation.

Accordingly, finding that (1) shuffling does not include both mixing and mapping, and (2) that mixing, as used in the shuffled bit terms, is not "random," the Court provides the following constructions:

- The term "shuffled bit result" means "the result of an operation that mixes the bits of its inputs."
- The term "bit shuffling operations" means "operations that mix the bits of inputs."
The term "bit shuffle computer program" means "a computer program that mixes the bits of its inputs."
Still another alternative is for the CPE unit to stop sending ADSL framing information . . .

The shut-down signal may be an expressly transmitted signal or may be inferred . . .

Therefore, the Court construes "shut-down condition" as "an express signal used for the purposes of entering a low-power state or a loss of framing."

GO BACK

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B. Side View

The dispute over the term "side view" in claim 1 raises two issues: first, whether the side view image created by the second camera must be crescent shaped; and second, what range of angles generates a side view image. As to the first issue, Scanner asserts that a side view image is not limited to only a crescent shape; ICOS contends that a side view image must be a crescent shape. As to the second issue, Scanner asserts that with no crescent shape limitation, a side view image is not limited to one taken at a low angle; ICOS contends that a side view image must be taken from an angle between 14 and 25 degrees. I first address whether the term "side view" is limited such that a side view image must be crescent shaped.

The plain language of the patents and the doctrine of claim differentiation show that while the preferred embodiment may include a crescent shaped side view image, a side view image is not limited to only crescent shapes. In analyzing the language of the patents, the Court first looks to the claim language; here, the language of claim 1, the independent claim, does not expressly include such a limitation. (See, e.g., Col. 18, ll. 46-47).

Next, the Court looks to the language of the specification for aid in construing the claims. Kraft Foods, 203 F.3d at 1368. See also Ethicon Endo-Surgery, 93 F.3d at 1578. Here, in the specification, side view is described as producing a crescent shape. (See e.g., Col. 4, l. 16 & Col. 12, l. 41). Nowhere in the specification, however, are side view images limited only to crescent shapes. The specification, instead, demonstrates that the preferred embodiment includes a crescent shaped side image. But "there is no basis for reading a limitation from the preferred embodiment into the language of the claim."

Turbocare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co., 264 F.3d 1111, 1123 (Fed. Cir. 2001) (citing Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988)) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.").

ICOS argues that the limitation written in the specification may be read into the claim, and ICOS relies on the recent Federal Circuit decision in Kraft Foods for that proposition. Kraft Foods, 203 F.3d at 1368 (adopting written description of rigidity of back panel where claim lacks language of rigidity). While the Federal Circuit decision in Kraft Foods does support this argument, the same court held otherwise in another recent decision. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1343, 2001 U.S. App. LEXIS 24810, 60 U.S.P.Q.2D (BNA) 1851 (Fed. Cir. 2001) (reversing the district court's decision because the district court "relied solely on the preferred embodiment in the written description and its drawings (which admittedly read on the narrower meaning of the key word) and . . . the prosecution history").

The two Federal Circuit cases, however, are not contradictory because the facts differ. After careful analysis it is apparent that Rexnord is applicable here. Specifically, the language of the written description in Kraft Foods -- that "any of the back panels would be constructed of a relatively stiff material[,]" Kraft Foods, 203 F.3d at 1367 (emphasis in original, internal quotation omitted) -- indicates that there is only one embodiment, i.e., one with relatively stiff material. Here, the language of the specification does not limit the side view image to only crescent shapes. Instead, the mere fact that the specification refers to the side view image as crescent shaped suggests that the preferred embodiment is one that creates a crescent shaped image. Accordingly, the plain language of the patents does not limit a side view image to a crescent shaped image.

Under the doctrine of claim differentiation, independent claim 1 and dependent claim 2 must be read to have different limitations. Because claim 2 expressly defines the second image as a crescent shape, and because claims 1 and 2 are presumptively different in scope, the doctrine would suggest that a crescent shape limitation cannot be read into claim 1. Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001). See also 35 U.S.C. § 112. The only different limitation added by claim 2 is that the second image is a crescent shape; the requirement of a crescent shape therefore cannot be found in claim 1.

Although "claim differentiation only creates a presumption that each claim in a patent has a different scope[,] . . . at least
one limitation must differ." Kraft Foods, 203 F.3d at 1368 (citation omitted). Here, if a crescent shape limitation were read into claim 1, claim 2 would be superfluous. Moreover, the doctrine applies here because "claim differentiation . . . is clearly applicable when there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim, and that limitation is the only meaningful difference between the two claims." Wenger Mfg., 239 F.3d at 1233.

Hence, I conclude that the term "side view" in claim 1 is not limited to a view that produces only crescent shapes.

I turn next to the issue of the position of the second camera such that the camera produces a side view image. As an initial note, it is uncontested that a side view image cannot be one taken from a 90 degree angle or a top angle view, and it must differ from one taken by the first camera. (See Scanner Br. at 14-15; ICOS Post-Hr. Br. at 19).

Scanner asserts that there are no limits to the viewing angle other than those that are uncontested. ICOS argues that to produce a side view image, the viewing angle must be a low angle, specifically between 14 and 25 degrees. ICOS's argument to limit the viewing range is based on the presumption that the side view image is crescent shaped. Specifically, ICOS argues that it is this range of angles that will produce the crescent shaped image. Because the Court has concluded that there is no crescent shape limitation, and because the patents contain no language limiting the viewing angle to 14 to 25 degrees, ICOS's argument to limit the viewing angle to 14 to 25 degrees is rejected.

ICOS's argument that the viewing angle must be a low angle fails under the doctrine of claim differentiation. Because claim 7 is dependent on claim 1, and because claim 7 expressly states that the second image is obtained at a low angle, a low angle limitation cannot be read into the term "side view." See 35 U.S.C. § 112. If a "low angle" limitation were read into claim 1, then claim 7 would have no limitations separate from claim 1. Wenger Mfg., 239 F.3d at 1233.

In sum, as to the term "side view": the side view image is not limited to crescent shaped; the viewing angle may not be a 90 degree angle, a top view angle, or identical to the angle created by the first camera; and the viewing angle is not limited to a "low angle."

5-6. **single instruction multiple data mode (SIMD mode)/ multiple instruction multiple data mode (MIMD mode)**

These terms appear in dependent claim 8, which reads "the apparatus of claim 7 wherein each sub-tree is operated in a single instruction multiple data mode and the plurality of sub-trees are operated in a multiple instruction multiple data mode." '201 Patent at 72:29-32. The parties agree that SIMD mode and MIMD mode are two modes by which the binary tree computer system divides tasks and handles data and instructions. Pl. Reply at 14; Def. Br. at 16-17. The patent specification states that "in SIMD mode, each [processing element] is first loaded with its own data and then a single stream of instructions is broadcast to all [processing elements]. . . . In MIMD mode, each [processing element] is first broadcast its local program and data and then each [processing element] is logically disconnected from its neighbor [processing elements] and executes independently." '201 Patent at 10:41-43, 48-51.

Defendant's constructions track almost verbatim the definitions of these terms provided in the specification. See Def. Br. at 15. By contrast, plaintiff construes SIMD mode to mean that "[e]ach processing element has its own data but executes the same instruction as other processing elements," and construes MIMD mode to mean that "[e]ach processing element has its own program and data and executes independently of its neighbor processing elements." Pl. Reply at 14. According to plaintiff, in SIMD mode, processors execute the same instructions on different sets of data, whereas in MIMD mode, processors execute different instructions on different sets of data. Id. The crux of plaintiff's objection to defendant's construction is that defendant has imported into the claim from the specification how each mode is initiated, thus imposing a limitation from the preferred embodiment. In short, plaintiff objects that the manner in which these modes are implemented are distinct and separate from the modes themselves. See tr., 08/20/09, at 75.

The Court disagrees. The terms are undefined in the claim, and thus the specification, upon which defendant predominantly relies, provides the appropriate definition of those terms. See Phillips, 415 F.3d at 1321 (emphasizing that the specification "acts as a dictionary when it expressly defines terms used in the claims . . . ."); Irdeto Access Inc., v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("Even when guidance is not provided in explicit definitional format, the
specification may define claim terms by implication...

The '540 Patent, which is incorporated by reference, see Pl. Br. at 7, provides additional support for defendant's construction. It confirms that the SIMD mode is operative where "data processing elements contain multiple subsets of the data set F and each operate on the same instruction." '540 Patent at 6:43-45. Moreover, it further specifies that "the data processing elements remain logically connected to the root data processing element to receive inquires [sic] (as simply instructions or unknown data) and to report the results of the data processing operation." '540 Patent at 46-50. This at least confirms that in SIMD mode, in contrast with MIMD mode, the processing elements are provided a data set and then remain connected to the root processor so as to receive the instructions that all of the processing elements will execute. Similarly, for MIMD mode, the patent indicates that data processing elements can be provided with different instruction sets to be used on their own data: "The logical disconnection state of a data processing element from its parent during the data processing is called multiple instruction multiple data (MIMD) mode." Id. at 6:59-62. Hence, the '540 Patent corroborates that in MIMD mode, the processing elements are disconnected from other processing elements while executing their independent set of instructions.

Accordingly, the Court confirms the construction of the two terms set forth in the August 31 Order. SIMD mode is "where each processing element is first loaded with its own data and then a single stream of instructions is broadcast to every processing element in the binary tree." MIMD mode is "where each processing element has broadcast to it its local program and data and then each processing element is logically disconnected from its neighbor processing element and executes independently."

Claim term seven
"sign value" (claims 3 and 8)

A sign indicates whether a number is positive (+) or negative (-). The value of the number without the sign is a magnitude (i.e., an absolute value). For example, the numbers -3 and 3 have the same magnitude, but with different signs. Plaintiff argues that "sign value" should be construed as "A bit or code which indicates the sign." Defendants suggest that it should be construed as "An indicator of the sign of a value-i.e., whether a value is positive or negative-independent of the representation of the magnitude of the value."

The essence of the parties' disagreement is whether the sign value must be "independent of the representation of the magnitude of the value." Defendants argue that, for the purpose of later establishing infringement, Plaintiff seeks to construe "sign value" in such a way as to establish that a "one's complement" system of coding uses a sign value. The following charts show two possible systems for indicating positive and negative values:

<table>
<thead>
<tr>
<th>n14</th>
<th>Defendants provided these examples in their brief, and they have not been challenged by Plaintiff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>011 -3 00</td>
</tr>
<tr>
<td>3</td>
<td>111 3 11</td>
</tr>
<tr>
<td>-4</td>
<td>0101 -4 011</td>
</tr>
<tr>
<td>4</td>
<td>1101 4 100</td>
</tr>
</tbody>
</table>

In the first coding system, the magnitudes of each value are represented by the same code, and the first bit of each code represents the sign value. In this case, "0" represents negative and "1" represents positive. In the "one's complement" coding system, the negative and positive values of each magnitude are represented by inverting the code. However, in this example, each positive value begins with a "1" and each negative value begins with a "0." Defendants suggest that Plaintiff's
proposed construction inappropriately would allow for an interpretation of "sign value" that would include the first bit of the code in a "one's complement" coding system, even though the first bit is "integrally part of the representation of the value itself." Defendants and Declaratory Judgment Plaintiffs' Responsive Markman Brief ("Responsive Br."). p. 42 n.37.

Defendants contend that "sign value" must be construed as "independent of the representation of the magnitude of the value" because it must be distinct from "first values, second values and other values" in independent claims 1 and 6. Dependent claims 3 and 8 state:

The method of claim [1/6] further including the step of encoding said first and second runlength code values with a sign value.

'672 Patent, col.23, 11.63-65; col.24, 11.30-32 (emphasis added). Dependent claims 3 and 8 represent distinct elements which, arguably, require that the sign value is encoded separately and during a separate step than the magnitude of first and second runlength code values. However, this does not necessarily imply that the term "sign value" must itself encompass the requirement that the sign value is construed independently from the magnitude. As stated in the specification, it is possible to encode the sign within a table:

The TABLES 6 and 7 were formed based upon the assumption that a separate sign bit, S or S, not in the tables is to be used to indicate the sign of each value coded in the manner indicated in TABLE 5. Alternatively, the sign information can be encoded into TABLE 6 or TABLE 7. For example, a table like TABLE 6 can be used to represent runlengths of 0's that are followed both by positive and by negative non-zero numbers. Such a table would be greater in length than TABLE 6 (expanded essentially to double the length) to provide entries for runlengths of 0's followed by both negative and positive non-zero numbers. Of course, such a table would be ordered in accordance with the statistical frequency of both positive and negative numbers.

'672 Patent, col.18, 11.6-17 (emphasis added). The possibility that a table may include positive and negative values, not necessarily with the sign value separately encoded, does not lead to the conclusion that claims 3 and 8 do not require separate encoding of a sign value. However, this possibility does caution against incorporating an unnecessary limitation into the construction of the term "sign value."

The Court will not incorporate the requirement that a "sign value" is "independent of the representation of the magnitude of the value" into the construction of this term. However, the first portion of Defendants' proposed construction is consistent with the use of "sign value" in the patent. Accordingly, the Court construes "sign value" as "An indicator of the sign of a value-i.e., whether a value is positive or negative."

E. "Signal"

"Signal" means, "A visual, aural or other indication used to convey information."

Defendants' proposed definition of "signal" -- which I accept -- also comes from the DICTIONARY OF SCIENTIFIC AND TECHNOLOGICAL TERMS, page 1929. The dictionary definition captures the plain meaning of the word and encapsulates precisely what a signal is. The word "signal" is quite common in our language, and there is not the slightest indication in the specifications that plaintiff intended anything other than the word's plain and ordinary meaning. Indeed, the dictionary definition is completely consistent with the repeated use of the word "signal" in the 61 pages of quotations from the '725 patent. I cannot imagine what else the word could mean -- in any of the quoted passages -- if it did not mean what the dictionary says it means.

Plaintiffs' proposed definition, "Something having information," is not only vague and uninformative, but wildly overbroad. Lots of things have information but are not signals. A book has information; a book is not a signal. The periodic table of elements has information; the periodic table is not a signal.

Plaintiffs' proposed alternative definition, "An indication having data, information, and/or a message, and/or an indication
conveying data, information, and/or a message," when parsed (or "deconstructed," as English scholars would put it), is nothing more than a complicated and inelegant way of rephrasing the dictionary definition's spare, non-redundant prose.

Plaintiffs' complaint that the dictionary definition is "too limiting in light of the manner in which Plaintiffs have used the term throughout the specification" is unpersuasive. For example, plaintiffs contend that the word "signal" corresponds to a "transaction." If plaintiffs are suggesting that the word "signal" equates to the word "transaction," then they are simply talking nonsense. "Signal" does not mean "transaction" in either common or technical parlance. If, on the other hand, they are saying that there exists a signal corresponding to a particular transaction (which is, in fact, what the claim says -- "a processing device for processing the transaction information and for generating a first signal corresponding to the transaction" -- then I fail to understand plaintiffs' objection, since there is no necessary inconsistency between the dictionary definition of "signal" and the fact that a particular signal would correspond to a particular transaction. The "visual, aural or other indication" -- the "signal" -- would "convey information" about a particular transaction. That appears to be the way the word is used in the specifications highlighted by plaintiffs.

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B. The Claims on Appeal

The claims whose disallowance Nuijten appeals are not traditional step-by-step process claims, nor are they directed to any apparatus for generating, receiving, processing, or storing the signals. As mentioned above, such claims have been allowed. The claims on appeal seek to cover the resulting encoded signals themselves. Claim 14 of Nuijten's application is the only independent claim of the four rejected by the PTO. It reads:

A signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

(emphasis added). Claims 22, 23, and 24 depend on Claim 14, respectively adding requirements that the embedded data be a watermark, that the signal be a video signal, and that the signal be an audio signal.

C. Procedural History

The Examiner rejected a number of claims in Nuijten's application for obviousness-type double patenting, and rejected Claims 14, 15, and 22-24 as directed to nonstatutory subject matter under § 101. On appeal, the Board reversed the double-patenting rejections. As to Claim 15, it found that "[t]he storage medium in claim 15 nominally puts the claim into the statutory category of a 'manufacture'" and thus reversed the Examiner's § 101 rejection of that claim. However, it affirmed the Examiner's § 101 rejections of Claims 14 and 22-24 on two grounds. First, it noted that "[t]he signal . . . has no physical attributes and merely describes the abstract characteristics of the signal and, thus, it is considered an 'abstract idea'" unpatentable under Diamond v. Diehr, 450 U.S. 175, 185, 101 S. Ct. 1048, 67 L. Ed. 2d 155 (1981). Second, the Board determined that the claims at issue fell into none of the four statutory categories of patentable subject matter: "process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. In the Board's view, the claims were not directed to a process because they did not "recite acts"; not a machine because "the signal . . . has no concrete tangible physical structure"; and "not composed of matter and [therefore] clearly not a 'composition of matter.'" Finally, the Board noted that "[t]he signal does not have any physical structure or substance and does not fit the definition of a 'manufacture' which requires a tangible object." Accordingly, the Board rejected Claims 14 and 22-24 solely on the basis of unpatentability under § 101. Nuijten timely appealed the Board's decision to this court, which has jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II. DISCUSSION

Whether a claim is valid in light of § 101 is a question of law that we review de novo. AT&T Corp. v. Excel Communs., Inc., 172 F.3d 1352, 1355 (Fed. Cir. 1999). Section 101 states:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
Language setting forth a variety of categories of matter deemed patentable has existed throughout the history of American patent law. The country's first patent statute permitted a patent on "any art, manufacture, engine, machine or device." Patent Act of 1790 § 4, 1 Stat. 109, 111 (1790). Soon thereafter, Congress amended the patent laws, changing the language to allow a patent for "any new and useful art, machine, manufacture or composition of matter." Patent Act of 1793 § 1, 1 Stat. 318, 319 (1793). The next substantial amendment to the patent laws left this statutory language unchanged. Patent Act of 1836 § 6, 5 Stat. 117, 119 (1836). This four-category language has persisted to the present day, with the exception of the technical change of "art" to "process," defined as "process, art or method," in 1952. 35 U.S.C. § 100; see Part II.B.1, infra.

The claims on appeal cover transitory electrical and electromagnetic signals propagating through some medium, such as wires, air, or a vacuum. Those types of signals are not encompassed by any of the four enumerated statutory categories: "process, machine, manufacture, or composition of matter." Before addressing in detail our rationale for this rejection, though, we begin by resolving a dispute between Nuijten and the PTO about the claims' scope.

A. Claim Construction

As in any other context in which the scope and meaning of the claims bears on the ultimate determination at hand, we must start by considering the issue of claim construction. See State St. Bank & Trust Co. v. Signature Fin. Group, 149 F.3d 1368, 1370 (Fed. Cir. 1998) (stating that "whether the . . . patent is invalid for failure to claim statutory subject matter under § 101[:] is a matter of both claim construction and statutory construction"). Claim construction is a question of law reviewed de novo on appeal. In re Baker Hughes, Inc., 215 F.3d 1297, 1301 (Fed. Cir. 2000); Cybor Corp v. FAS Techs., Inc., 138 F.3d 1448, 1451 (Fed. Cir. 1998) (en banc).

The claim construction dispute between Nuijten and the PTO turns on a somewhat esoteric and metaphysical point, namely: are the claims at issue limited to covering only physical instances of signals, or do they also cover intangible, immaterial strings of abstract numbers? The PTO suggests that "claim 14 can be read to claim a signal that is merely data"--that is, merely numerical information without any physical embodiment. Nuijten disagrees, arguing that "a signal must have sufficient physical substance to be discerned and recognized by a recipient." That is, a signal can be sensed and received by some physical apparatus, if not directly by a person.

Nuijten's position on this issue is correct in a limited way. A "signal" implies signaling--that is, the conveyance of information. To convey information to a recipient a physical carrier, such as an electromagnetic wave, is needed. Thus, in order to be a "signal," as required by the claim, some carrier upon which the information is embedded is required. See Arrhythmia Research Technology, Inc. v. Corazonix Corp., 958 F.2d 1053, 1059 ("The view that there is nothing necessarily physical about 'signals' is incorrect." (quotation marks omitted)).

However, while the claims are limited so as to require some physical carrier of information, they do not in any way specify what carrier element is to be used. The only limitations in Claim 14 address the signal's informational content. Specifically, the signal must encode some supplemental data, it must have been encoded according to a "given encoding process," and a sample, or single data point, located before the location of the supplemental data must be different from the original. The text of the claims is not limited by any specified physical medium, nor do the dependent claims add any physical limitations. They again require only that the signal carry certain information--a watermark, video, or audio. Therefore, any tangible means of information carriage will suffice for all of the claims at issue. Nuijten's claims can of course be embodied by conventional, known means, such as electrical signals, modulated electromagnetic waves, and pulses in fiber optic cable. So long as some object or transmission carries the information specified by Nuijten's claim, it falls within that claim's scope regardless of its physical form. In summary, some physical form for the signal is required, but any form will do, so long as a recipient can understand the message--the nature of the signal's physical carrier is totally irrelevant to the claims at issue.
The Court is asked to construe three similar terms that appear in the '213 and '059 Patents: test pulse, test signal, and signal. The term "test pulse" appears in Claims 1, 10, 17, and 26 of the '213 Patent and Claims 1 and 8 of the '059 Patent. The purpose of the "test pulse" is to test the condition of the defibrillator and its electrodes. Philips asserts that this term should be construed as "any pulse that is associated with testing." Cardiac Science maintains that this term should be defined as "a simulated shock." "Test signal" appears in Claims 8, 10, 15, and 24 of the '213 Patent. The parties acknowledge that "test signal" differs in meaning from "test pulse," but each party presents a different proposed construction of "test signal." Cardiac Science asserts that "test signal" should be construed as "a simulated ECG signal." Philips contends that "test signal" should be construed as "any signal associated with testing." "Signal" appears in Claims 1 and 9 of the '059 Patent. Philips asserts that "signal" should be construed as "a detectable physical quantity or impulse (as voltage, current, or magnetic field strength) by which messages or information can be transmitted." Cardiac Science contends that "signal" should be defined as "a simulated ECG signal."

The specifications describe the test pulses as follows:

If the system passes the ECG tests, it then performs a defibrillator test by generating a pulse through its normal pulse generating circuitry and sending the pulse to the electrodes 204. To initiate the pulse test, the microprocessor sends a charge command to a charge controller 230, which begins charging capacitor 232 in a known manner from power supply 234. When the charge on capacitor 232 has reached the required level (either the charge level required for normal operation or some other test charge level), switch relay 228 moves switches 212 to their other position. This switch position permits the pulse circuit to discharge the capacitor to deliver a damped sinusoidal shock to the electrodes. (213 Patent at c. 5, ll: 47-59; 059 Patent at c. 5, ll: 43-55.) Yet, the specification also states that "the test pulse may be a voltage pulse of any magnitude, including but not limited to voltage magnitudes used for actual defibrillation." (213 Patent at c. 3, ll: 39-42.) The test pulses of the '213 and '059 Patents are not limited to a pulse that reaches the magnitude of a shock to a patient, as Cardiac Science suggests. The Court finds that "test pulse" is appropriately construed as "a pulse of any magnitude associated with testing."

The specification repeatedly refers to test signals. (213 Patent at ll: 24-45.) Cardiac Science asserts that "test signal" is used only in reference to the ECG test. However, the claim language alone points to a broader construction. A comparison of the claims in which "test signal" appears makes clear that the "test signal" is not limited to an ECG signal. (See '213 Patent at cls. 8, 10, 24, 27.) The Court construes "test signal" as "a signal associated with testing."

The specification of the '059 Patent refers to many different types of "signals." The term is not limited to ECG signals, as Cardiac Science proposes. In fact, the specification describes "[a] signal substantially similar to an ECG signal," thus ruling out the "signal = ECG signal" construction that Cardiac Science proposes. (059 Patent at c. 3, ll: 59-65.) The Court finds that the patent's usage of the term signal is consistent with the dictionary definition set forth by Philips, and the Court construes "signal" accordingly: "a detectable physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted."
6. "signal"

The plaintiff asserts that "signal" does not require construction. Defendant EchoStar argues that "signal" means a television baseband video and/or audio signal. Joint Claim Construction Brief, Exh. B. The DIRECTV defendants argue that "signal" means an information service signal (e.g., a television program signal) that is directed to a user output (e.g., a television screen). Id.

I have construed "scrambling" to apply to both analog and digital signals. Consistent with that, I construe the term "signal" to include both analog and digital signals. I reject EchoStar's attempt to limit the term to an analog baseband video and/or audio signal.

The DIRECTV defendants seek to narrow the term to an information service signal that is directed to a user output. This requested construction improperly imports to the claim limitations from disclosed embodiments in the specification. For example, although the specification describes an embodiment of the invention where the end user is a consumer of a television broadcast (e.g., "the user having previously purchased the card at a local card distribution outlet," '066 Patent, col. 4, lines 25-34), the specification does not necessarily preclude use of the invention where, for example, a scrambled satellite signal is received, unscrambled, and retransmitted by cable to more than one end user. In this example, the signal is not "directed to a user output (e.g., a television screen)" as the DIRECTV defendants propose.

I reject the limited constructions of the term "signal" advanced by the defendants. I adopt the ordinary and customary meaning of the term and construe "signal" to mean an impulse by which messages or information can be transmitted. Webster's Ninth New Collegiate Dictionary, 1096 (1984).

D. Signal-Dependent noise; Signal-Dependent branch metric function

Following the claim construction hearing, it is apparent that the parties' dispute over the "signal-dependent noise" terms centers around whether the "signal-dependent noise" must come from the "media noise." See (Docket Nos. 128 at 8-10; 129 at 10-11). Both parties agree that "media noise" as used in the patents is limited to magnetic recording. (Docket No. 119 at 25:11-21; 34:4-21; 38:20-23). Furthermore, based on the language, "[t]he non-stationarity of the media noise results from its signal dependent nature" '839 Patent col. 1 ln. 39-41, it would be clear to the PHOSITA that "media noise" is a type of "signal-dependent noise. The dispute becomes whether "media noise" is the only type of "signal-dependent noise" being referred to in the claims.

"Signal-dependent noise" is used in claims 2 and 5 of the '839 Patent and claim 1 of the '180 Patent. "Signal-dependent branch metric function" is found in claims 3 and 4 of the '839 Patent and claim 2 of the '180 Patent. Claims 2 and 5 of the '839 Patent and claim 1 of the '180 Patent are reproduced above. Supra at 16-17. Claim 3 of the '839 Patent is illustrative of how "signal-dependent branch metric function" is used and is as follows:

3. The method of claim 1 wherein said branch metric functions for each of the branches are selected from a set of signal-dependent branch metric functions.


CMU's construction of "signal-dependent noise" and "signal-dependent branch metric function" are as follows:

"Signal-dependent noise" means "media noise in the readback signal whose noise structure is attributable to a specific sequence of symbols (e.g., written symbols)."
"Signal-dependent branch metric function" means "a branch metric function' that accounts for the signal-dependent structure of the media noise."

RDCTC at 11-12.

Marvell's constructions of "signal-dependent noise" and "signal-dependent branch metric function" is:

"Signal-dependent noise" means "noise that is dependent on the signal."

"Signal-dependent branch metric function" means "a 'branch metric function' that accounts for 'signal-dependent noise.'"

RDCTC at 11-12.

The entire term "signal-dependent noise" does not appear in the specification. However, the terms "signal-dependent" and "signal-dependence" do appear in the specification and are used as follows:


The trellis/tree branch metric computation of the present invention is correlation-sensitive, being both signal-dependent and sensitive to correlations between noise samples.

These covariance matrices are different for each branch of the tree/trellis due to the signal dependent structure of the media noise.

Due to the signal dependent nature of media noise in magnetic recording, the functional form of joint conditional pdf \( f(r_1, \ldots, r_N | a_1, \ldots, a_N) \) in (1) is different for different symbol sequences \( a_1, \ldots, a_N \).

[The branch metric] is also dependent on the postulated sequence of written symbols \( ai -K1, \ldots, ai +L+Kt \), which ensures the signal-dependence of the detector.

The noise is now considered to be both correlated and signal-dependent.

First, \( wi \) and \( \sigma_i^2 \) can be obtained directly from Equations (20) and 2 (16), respectively, once an estimate of the signal-dependent covariance matrix \( Ci \) is available.

It is important to point out that, due to the signal-dependent character of the media noise, there will be a different covariance matrix to track for each branch in the tree-trellis of the Viterbi-like detector.

The reason for this is that the PR4 shaping filter averages noise samples from different symbols, which masks the signal dependent nature of the media noise.

'839 Patent col. 1 ln. 39-51; col. 2 ln. 9-12; col. 2 ln. 18-20; col. 4 ln. 24-27; col. 5 ln. 49-52; col. 6 ln. 38-39; col. 8 ln. 11-14; col. 10 ln. 18-21; col. 12 ln. 51-54. (emphases added). It is apparent from these sections of the specification that the only conjunction of the terms "noise" and "signal-dependent" is with the term "media noise."

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

10 The term "signal-dependent" appears in both patents with and without a hyphen. No distinction is made based on the hyphen and for the sake of consistency, except where being quoted in the patents, the Court will use the term with the hyphen.
Another intrinsic use of the terms is found in two of the articles cited in the specification by the patentee as "combating media noise and its signal dependent nature," which describe what is defined in the specification as the "variance dependent branch metric." In Zeng, et al., "Modified Viterbi Algorithm for Jitter-Dominated 1-D2 Channel," IEEE Trans. Magn., Vol. MAG-28, pp. 2895-97, Sept. 1992, the abstract states that "one way to improve data capacity in magnetic recording is to increase linear density by storing magnetic transitions more closely in each track. . . . Transition noise cannot be modeled as additive noise since it is data-dependent." 11 (Docket No. 82-10 at 2). In the Zeng article, the metric that is concluded to account for the data-dependent transition noise is "ln σk² + (Zk - yk) / σk² rather than (Zk - yk)², the standard error metric for the [Viterbi algorithm]." (Docket No. 82-10 at 3). The PHOSITA would recognize this metric to be the same as what is represented in the specification as the variance dependent branch metric, equation (10).

11 Marvell does not dispute that data-dependent and signal-dependent have the same meaning. (Docket No. 119 at 36:2-10).

Similarly, in Lee et al., "Performance Analysis of the Modified Maximum Likelihood Sequence Detector in the Presence of Data-Dependent Noise," Proceedings 26th Asilomar Conference, pp. 961-64, Oct. 1992, the abstract states "as recording densities grow in magnetic storage, transition-dependent noise becomes more significant . . . . A first conclusion is perhaps to derive a new error metric that considers data-dependent noise . . . ." (Docket No. 82-9 at 2). The Lee article explains what the authors mean by data-dependent media noise as follows:

There are two main sources of data-dependent media noise. The first is non-deterministic transition shift. As the boundary of transition, inter-reaction of the magnetic material causes transition shift, depending on write patterns. The second is pulse amplitude fluctuation, caused by fluctuation of transition width with data pattern.

(Docket No. 82-9 at 2)(emphasis added). The Lee article then provides an error metric for data-dependent noise that is the same as what is found in equation (10) in the specification.

Based upon the above articles, the PHOSITA would understand the variance dependent branch metric to be a signal-dependent branch metric. The specification explains for the variance dependent branch metric the "variance depends on the written sequence of symbols." 839 Patent col. 6 ln. 17-18. From this, the PHOSITA would conclude that the noise attributable to the written sequence of symbols on the disk is "media noise", and would further conclude that the variance dependent or signal-dependent metric function is specifically stated to account for the noise from the written sequence of symbols, that is to say "media noise." This is further confirmed by the language discussing the branch metric function from which the euclidean, variance dependent and correlation-sensitive branch metric functions are derived. "[The branch metric] is also dependent on the postulated sequence of written symbols ai -Kt, . . . , ai +L+Kt, which ensures the signal-dependence of the detector." 839 Patent col. 5 ln. 49-52. Thus, to ensure signal-dependance, the branch metric accounts for the sequence of written symbols.

Marvell cites to the last paragraph of the specification as evidence that the patentee intended the scope of patent to be
beyond magnetic media.

While the present invention has been described in conjunction with preferred embodiments thereof, many modifications and variations will be apparent to those of ordinary skill in the art. For example, the present invention may be used to detect a sequence that exploits the correlation between adjacent signal samples for adaptively detecting a sequence of symbols through a communications channel. The foregoing description and the following claims are intended to cover all such modifications and variations.

'839 Patent col. 13 ln. 51-59. The Court is cognizant that, as stated above, "there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." Phillips, 415 F.3d at 1323 (citing Comark, 156 F.3d at 1186). However, based upon the consistent pairing of "signal-dependent" with "media noise" as well as the specification's explicit statements that metrics are signal-dependent because they account for the written sequence of symbols, the PHOSITA would conclude that "signal-dependent noise" is media noise attributable to the written sequence of symbols.

Thus, the construction of the terms "signal-dependent noise" and "signal-dependent branch metric function" is as follows:

Signal-dependent noise means "media noise in the readback signal whose noise structure is attributable to a specific sequence of symbols (e.g., written symbols)."

Signal-dependent branch metric function means "a 'branch metric function' that accounts for the signal-dependent structure of the media noise."

2. "signal point"

The plaintiff proposes that the term "signal point" means "a value that is transmitted by a modulator in one signaling interval." The defendants propose "a single mapped point in a signal constellation." The defendants support this construction by arguing that one of ordinary skill in the art would understand the term "signal point" to refer to a mapped point in a signal constellation. The defendants also contend that signal constellations include many different dimensionalities. In addition, the defendants argue that a "signal point" is not actually transmitted; instead, a waveform representing the bits values associated with the signal point is transmitted.

The plaintiff responds by arguing that the '627 patent does not mention "mapping." The plaintiff also points to the specification which states that "signal points are thereupon communicated over the channel." '627 patent, 4:1-3.

The court agrees with the plaintiff that the intrinsic evidence fails to require a signal point "mapped" in a constellation. Based on the cited portion of the specification, the court agrees that the proper construction for this term is "a value that is transmitted by a modulator in one signaling interval."

1. "signal processing circuit"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;signal processing circuit&quot;</td>
<td>a circuit, within a communications controller circuit, that executes program instructions to process communications signals and executes program instructions to encipher or decipher such signals</td>
</tr>
</tbody>
</table>
The claims at issue require that enciphering/deciphering and signal processing be performed by a "signal processing circuit." The parties proposed constructions for this term are essentially equivalent except that Saxon's proposal is broad enough to include general purpose microprocessors and signal processors, but Defendants' proposal requires a "signal processing circuit" to be a signal processor. Saxon argues that Defendant is importing a limitation from the preferred embodiment into the claim language. Defendants argue that the patentee disclaimed broader scope in the specification and the prosecution history.

The claims at issue do not explicitly require that a "signal processing circuit" must be a signal processor. The plain meaning of the word "circuit" implies a broader structure, which may or may not include a signal processor. Thus, the Court will presume that Defendants' proposed construction is improper unless Defendants identify statements of "clear disclaimer" expressly indicating "manifest exclusion or restriction." Liebel-Flarsheim Co., 358 F.3d at 913; Brookhill-Wilk 1, LLC, 334 F.3d 1294, 1301; see also Phillips, 415 F.3d at 1312-13.

Defendants argue that the only embodiment disclosed in the specification is one in which enciphering/deciphering and signal processing are performed by a single digital signal processor ("DSP"), rather than different portions of circuitry within a circuit. '555 Pat. at 4:39-47, 6:52-55. Defendants further argue that the patentee disclaimed broader embodiments when it told the PTO that "[e]ach of Claims 1, 21 and 43 require signal processors having an integrated ability to perform enciphering or deciphering functions." '555 Pat. Amendment at 30 (July 17, 1996). The patentee made this statement to distinguish a prior art reference which incorporated separate devices to perform the enciphering/deciphering and signal processing functions. Id. However, in the same paragraph, the patentee also stated that the prior art reference was distinguishable because the claimed invention "implements encryption/decryption as an additional task performed by the signal processing circuit." Id.

While the Court recognizes Defendants' concern that the patentee should not be able to acquire claim scope over devices present in the prior art, Defendants have not shown that the patentee has disclaimed claim scope. Omega Eng'g, Inc., 334 F.3d at 1324. While Defendants are correct that the only embodiment discussed in detail uses a DSP to perform enciphering/deciphering and signal processing, Defendants have not shown that the limitation of this embodiment should be imported into the claims. See Comark Commc'ns, Inc., 156 F.3d at 1187. In fact, the patent specification contemplates a variety of embodiments. '555 Pat. at 10:52-59 (stating that "[t]he present invention makes possible digital signature authentication and message encryption using either a single DSP or a single microprocessor, or using both a DSP and a microprocessor"). Similarly, Defendants have not presented a valid prosecution disclaimer argument. At best, Defendants have cited to an ambiguous passage in the prosecution history. Cf. Omega Eng'g, Inc., 334 F.3d at 1323.

Saxon's proposed construction is consistent with the specification's use of the term "signal processing circuit." '555 Pat. at 10:23-28. However, the phrase "within a communications controller circuit" is superfluous since this limitation is already present in the claims. The Court finds that the proper construction for this term is "a circuit that executes program instructions to process communications signals and executes program instructions to encipher or decipher such signals."

1. "signal processor"

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;signal processor&quot;</td>
<td>processor for executing instructions</td>
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<tr>
<td></td>
<td>to perform programmed tasks</td>
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</table>
### Claim Term

<table>
<thead>
<tr>
<th>&quot;signal processor&quot;</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a programmable device that interprets and executes instructions for performing signal processing</td>
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</table>

Defendants argue that a signal processor is a processor specifically tailored to perform signal processing operations. Saxon argues that this term refers to a general purpose microprocessor, which need not be specifically designed to perform signal processing. 4 Contrary to Saxon's argument, the '394 Patent reinforces the idea that there is a generally recognized distinction between signal processors and general purpose microprocessors.

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4 This position is arguably inconsistent with Saxon's proposed construction for the term "signal processing circuit" discussed above, which Saxon supported by arguing that the term was broad enough to cover "both a DSP and a general microprocessor." PL.'S REPLY at 6.

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The '394 Patent specification states: "The above and other objectives of the invention are accomplished by a system which includes a general purpose microprocessor and one or more streamlined signal processors to which critical functions can be dedicated." '394 Pat. at 2:5-8. This statement strongly implies that a "signal processor" is not simply a synonym for a "general purpose microprocessor." The Court finds that Saxon's proposal would read the word "signal" out of the claim term at issue. Therefore, the Court adopts Defendants' proposed construction.

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3. The term "SIGNAL PROCESSOR" (claim 17) requires no construction.

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H. Signal Representative of the Differences Between Said Interval Speech Pattern and the Interval Representative Set

The parties also dispute the meaning of the phrase "signal representative of the differences between said interval speech pattern and the interval representative set" (the "Differences Phrase"). ( ’580 patent, Col. 19:10-12.) Both parties maintain that this phrase requires construction.

AT&T urges the Court to adopt its proposed construction: "a sequence of values representative of the differences between the interval speech pattern and the predicted speech pattern based on the set of signals representative of the speech pattern of said time interval." (Joint Letter, Ex. B.) Microsoft's proposed definition is: "a sequence of values representing the subtraction between the speech pattern for an entire time segment and the representative signal set for that entire time segment." (Joint Letter, Ex. B.) The two main points of contention between the parties' positions are: (1) the construction of the Differences Phrase as a whole; and (2) whether the term "differences" encompasses the concept of the degree or amount things differ or, in contrast, a mathematical subtraction.

1. The "Differences Phrase"

The parties both acknowledge that the Differences Phrase, as written, is unclear in that it describes a comparison of unlike items: a speech pattern with an interval representative set. AT&T, however, asserts that the specification teaches that the "difference" between the two values may be formed in the predictor residual generator 118. More specifically, AT&T urges the Court to consider the specification's description of the operation of the Differences Phrase:
The delayed samples are supplied to the input of prediction residual generator 118. The prediction residual generator, as is well known in the art, is responsive to the delayed speech samples and the prediction parameters a(k) to form a signal corresponding to the difference there between. The formation of the predictive parameters and the prediction residual signal for each frame shown in predictive analyzer 110 may be performed according to the arrangement disclosed in U.S. Pat. No. 3,740,476 issued to B.S. Atal June 19, 1973 and assigned to the same assignee or in other arrangements well known in the art.

(‘580 patent, Col. 3:41-53.) AT&T also points to Figure 7 to demonstrate the specification's illustration of the Differences Phrase.

Microsoft argues that the Court should not impermissibly re-draft the claim phrase to accommodate AT&T's proposed construction, and acknowledges that its proposed construction would render claims incorporating the Differences Phrase invalid.


Although the claim language itself is unclear, the ‘580 patent's written description clarifies the meaning of the Differences Phrase by describing how the comparison operates. See Teleflex, 299 F.3d at 1325 ("The intrinsic evidence may provide context and clarification about the meaning of claim terms.") The passage describing Element 118, the residual generator signal, makes clear that the proposed comparison is performed on interval speech pattern and the predicted speech pattern based on the set of signals representative of the speech pattern. (See ‘580 patent, Col. 3:40-53.) See Teleflex, 299 F.3d at 1325 ("The specification may assist in resolving ambiguity where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.") (citing Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547, 1554 (Fed. Cir. 1997)).

Analyzing the prosecution history, it is silent concerning the Differences Phrase despite the fact that the PTO examined the reissue patent twice. See Interconect Planning Corp. v. Feil, 774 F.2d 1132, 1139 (Fed. Cir. 1985) (the "burden of proving invalidity [is] made heavier" with respect to a reissue patent).

AT&T urges the Court to consult certain expert testimony to confirm the meaning of the Differences Phrase as understood by one of ordinary skill in the art. Microsoft counters by emphasizing that "expert testimony is often useful to clarify the patented technology and to explain its meaning through the eyes of experience, but it may not correct errors or erase limitations or otherwise diverge from the description of the invention as contained in the patent documents." Aqua-Aerobic Sys, v. Aerators Inc., 211 F.3d 1241, 1245 (Fed. Cir. 2000). Expert testimony "may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language." Vitronics, 90 F.3d at 1584 (citing Markman, 52 F.3d at 967); accord Pitney Bowes, 182 F.3d at 1308; Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed. Cir. 1995); see also Teleflex, 299 F.3d at 1328 (referring to expert witnesses' testimony concerning the ordinary meaning of a claim term); Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1382 (Fed. Cir. 2001) (considering expert testimony concerning the view of one skilled in the art). "It is entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." Pitney Bowes, 182 F.3d at 1309.

In this case, both parties submitted expert testimony concerning the interpretation one skilled in the art would attribute to the Differences Phrase: AT&T presented Dr. Nikil S. Jayant and Microsoft presented Dr. Allen Gersho, both accomplished engineers. In paragraph 7 of his declaration, Dr. Jayant states that one of ordinary skill in the art of speech compression in 1981 would have understood that the Differences Phrase
refers to the difference between an original speech signal a prediction or estimate of the original speech signal. The person of ordinary skill in the art would have understood that a residual signal, or a prediction error, would be consistent with such a difference between the original speech signal and the prediction or estimate of the original speech signal.

(Jayant Decl. at P 7.)

Microsoft's expert, Dr. Gersho averred in his declaration:

I agree that persons skilled in the art of speech compression in 1981 would have understood that the inventors intended the 'differences' phrase to refer to the difference between (1) 'an original speech signal' and (2) 'a prediction or estimate of the original speech signal,' but I disagree that the differences phrase, as written by the claim drafter so states.

(Gersho Decl. at P 12.)

Microsoft conceded, however, at the Markman hearing that its own expert, Dr. Gersho, supports Dr. Jayant's position in his declaration, (Tr. at 239-40), and similarly acknowledged that the Court should consider the experts' declarations in analyzing the disputed phrase. (Tr. At 228.) See Teleflex, 299 F.3d at 1328; Budde, 250 F.3d at 1382; Vitronics, 90 F.3d at 1584; Pitney Bowes, 182 F.3d at 1309. Thus, the Court's consultation of the experts' determinations confirm the teachings of the specification that one of ordinary skill in the art of speech compression in 1981 would have understood the Differences Phrase to refer to the difference between an original speech signal and a prediction or estimate of the original speech signal. See Renishaw, 158 F.3d at 1250 ("Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim."); accord Vitronics, 90 F.3d at 1584; Pitney Bowes, 182 F.3d at 1309.

The instant situation is distinguishable from the decisions upon which Microsoft relies. For example, in Aqua-Aerobic Sys., Inc. v. Aerators Inc., 211 F.3d 1241, 1245 (Fed. Cir. 2000), the Federal Circuit declined to rely on expert testimony to vary or contradict the terms of the claims stating: "[the expert's testimony] is directly contrary to the limitations in the claims and the description in the specification." Aqua-Aerobic Sys., 211 F.3d at 1245; see also Process Control Corp. v. HydReClaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999) (declining to apply contrary written description where one skilled in the art would understand that the "claim was susceptible to only one reasonable construction"); Allen Eng'g Corp. v. Bartell Indus., 299 F.3d 1336, 1349 (Fed. Cir. 2002) (finding claim invalid where specification described a claim structure in "contrary terms" to the claim language). Here, however, a review of both experts' testimony confirms that the specification describes the Differences Phrase consistent with, not contrary to, the understanding of one skilled in the art. See Vitronics, 90 F.3d at 1583-84 (stating a court may consider expert testimony to aid it in "coming to the proper understanding of the claims"); accord Pitney Bowes, 182 F.3d at 1308. Thus, the construction of this claim term is appropriately based on the intrinsic evidence, as confirmed by the experts' testimony.

2. Differences v. Subtraction

The parties also disagree as to whether the proper construction of the Differences Phrase should retain the term "differences" or instead use the term "subtraction." To restate, AT&T's proposed definition is: "a sequence of values representative of the differences between the interval speech pattern and the predicted speech pattern based on the set of signals representative of the speech pattern of said time interval." (emphasis added.) Microsoft's proposal is: "a sequence of values representing the subtraction between the speech pattern for an entire time segment and the representative signal set for that entire time segment." (Joint Letter, Ex. B) (emphasis added.)

AT&T argues that the term "differences" should retain its plain meaning, since infusing the term "subtraction" into the phrase would render the encompassing claims inoperable. See ACS Hosp. Sys., 732 F.2d at 1577 ("claims should be … construed, if possible, as to sustain their validity"). AT&T further asserts that the patentees did not manifest a clear disavowal of the plain meaning of "differences."

Microsoft counters that its version of the plain meaning of "differences" should apply: "the result of subtracting one number from another." (See Microsoft PHB at 24-25; citing McGraw-Hill Dictionary of Scientific and Technical Terms at 448 (3rd ed. McGraw-Hill 1984).) Microsoft argues that the written description supports the use of the word "subtraction," in that the correlation processor 125 generates "a signal corresponding to the weighted difference" between "signals Y and [YHAT].", (580 patent, Col. 4:60-64), and that this difference is the result of subtractions, as illustrated by the source code in Appendix A, line 201, depicting a subtraction between the "Y" signal and the "YHAT" signal.
Starting with the words of the claim, Microsoft cites to the mathematical definition "the result of subtracting one number from another" in support of its proposed "subtraction" claim language. See McGraw-Hill Dictionary of Scientific and Technical Terms at 364. AT&T offers two dictionary definitions of "difference" in support of its broader proposed language: "the amount by which one quantity is greater or less than another," Am. Heritage Dictionary of the English Language at 367 (Am. Heritage Publishing Co., Inc. 1973), and "the degree or amount by which things differ in quantity or measure," Webster's New Collegiate Dictionary, at 315 (G.&C. Merriam Co. 1981). AT&T also submits a definition for "differ": "to be unlike or distinct in nature, form, or characteristics." Webster's New Collegiate Dictionary at 315 (G.&C. Merriam Co. 1981). Where terms have multiple dictionary definitions "the intrinsic record must always be consulted to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." Texas Digital Sys., 308 F.3d at 1203 (citing cases). Here, the specification's description of the operation of the Differences Phrase ( '580 patent, Col. 3:41-53) confirms a broader definition of the term "differences," as it depicts a comparison rather than a mathematical subtraction between the interval speech pattern and the predicted speech pattern.

Further, the patentees did not clearly disavow the broader, comparative definition of "differences" in the specification or the prosecution history. The specification source code in Appendix A, to which Microsoft cites in support of its proposed term, is merely one embodiment of the mathematical operation in Element 118, which itself is one part of the embodiment described in Figure 1. To narrow the claim term as Microsoft suggests would be to impermissibly import a limitation from the specification. See Teleflex, 299 F.3d at 1325. Accordingly, the intrinsic evidence does not support the infusion of the word "subtractions" into the Differences Phrase.

In conclusion, this Court construes the claim phrase "signal representative of the differences between said interval speech pattern and the interval representative set" as "a sequence of values representative of the differences between the interval speech pattern and the predicted speech pattern based on the set of signals representative of the speech pattern of said time interval." See '785 Patent, col. 26:57-60.

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"motion requesting signal set"

Claim 52 of the '785 Patent contains the term "motion requesting signal set." IPI contends the term means "signals representative of data for viewpoint motion and/or point of interest motion in a three-dimensional workspace." Google contends the term means "a group of commands indicating a point of interest motion and a viewpoint motion relative to the point of interest."

The term "motion requesting signal set" appears in claim 52 in the following context: "receiving a first motion requesting signal set from the user input means, the first motion requesting signal set requesting a first viewpoint motion and a first point of interest motion." '785 Patent, Col. 26:57-60. IPI argues that a preferred embodiment of the patented invention includes at least two different types of signal sets: (1) a signal set requesting viewpoint motion relative to a stationary point of interest and (2) a signal set requesting both viewpoint motion and point of interest motion. IPI's Opening Brief, at 25. However, this statement is not completely accurate. The preferred embodiment includes only a single signal set, but that content of the signal set may request either (1) only viewpoint motion relative to a stationary point of interest or (2) both viewpoint motion and point of interest motion. See '785 Patent, col. 9:27-37.

Google again takes issue with IPI's inclusion of "and/or" in its proposed construction. However, here it is clear that IPI uses "and/or" to indicate that one type of motion requested by the signal set may be "no motion." For example, a signal set requesting viewpoint motion and no point of interest motion would result in only viewpoint motion relative to a stationary point of interest. However, the "and/or" language in reference to the two types of motions is unnecessary in view of the further claim language specifying the two types of motion that can be requested. '785 Patent, col. 26:57-60 ("the first motion requesting signal set requesting a first viewpoint motion and a first point of interest motion"). Google's proposed construction suffers from the same error. Further, Google's reference to "a group of commands" deviates from the plain language of the claim and specification which describe the requests in terms of "signals" or "signal sets."

Accordingly, the Court rejects both parties' proposed constructions and construes the term "motion requesting signal set" to
mean "data indicating a user's request for movement of an image presentation on a display." Other recitations in the claim control any further limitations such as those addressed by the parties' proposed constructions.

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1. The '359 patent

With respect to the phrase "signal structure identification data," the district court noted that the parties did not dispute that "signal structure" was defined in the specification to mean "infrared signals having particular characteristics that the appliance understands, such as frequency, pulse width, and bit timing." It thus focused the inquiry on the claim terms "identification" and "data," adopting their ordinary meanings as proffered by Philips. The phrase was construed to mean "information (data) that identifies a signal structure.

CMT argues that the district court erred in failing to adopt its own proposed construction, i.e., "information (data) that constitutes part of an address used to address one table in a multiplicity of product code tables." It makes three arguments on this issue. First, it argues that the specification uses this phrase only in describing the particularly preferred embodiment, wherein it is made clear that "the stored signal structure identification data constitute part of an address, the remainder of the address being provided by user selection of the category to which the appliance belongs. . . [which] is used to address one table in a multiplicity of product code tables." '359 Patent col. 2, ll. 35-41. Second, it points out that during prosecution, the claim was amended from "storing signal structure identification data corresponding to said required signal structure of said response-evoking signal, thereby creating stored product identification data" to "thereby creating stored signal structure identification data." Third, CMT stresses that the claim language itself requires "generating subsequent appliance command signals at least in part under control of said selected category signal and said stored signal structure identification data," which suggests that the latter is only part of an address used to look up product codes.

We agree with the district court that the phrase "signal structure identification data" is entitled to its plain and ordinary meaning. The district court correctly rejected CMT's invitation to read into the phrase a limitation from the preferred embodiment. See Electro Med. Sys., S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1054 (Fed. Cir. 1994). It also accepted, as we do, Philips' explanation that the claim amendment was only made to maintain consistency, as the final phrase of Claim 1 refers to "said stored signal structure identification data," which otherwise does not appear earlier in the claim.

We review a district court's grant of summary judgment de novo. IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.3d 1377, 1380 (Fed. Cir. 2005). Here, because CMT stipulated that the accused products would literally infringe the '359 patent under the definition of "signal structure identification data" proffered by Philips and adopted by the district court, we must affirm the summary judgment of infringement.

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1. "signal transfer device"

The plaintiff asserts that "signal transfer device" does not require construction. The defendants, by contrast, argue that the term means a device that incorporates both a transmission circuit and a reception circuit and transfers signals there between. Joint Claim Construction Brief, Exh. B.

I agree with the defendants, based on the ordinary and customary meaning of the claim language. Claim 8 expressly claims a "signal transfer device" comprising (1) a scrambling means; (2) a transmitter transmitting the signal; (3) a receiver receiving the signal from the transmitter; and (4) an unscrambler for removing the interference or distortion from the signal. '066 Patent, col. 6, lines 30-40.

I construe the term "signal transfer device" to mean a device that incorporates both a transmission circuit and a reception circuit and involves the transfer of signals between the two.
D. "Signaling Message"

The parties ask the Court to construe the term "signaling message," found in the '561 Patent, claims 1, 3, 6, 24, and 26. Sprint argues that the term means a message used to set up or tear down a call, which is the same construction that the Court adopted for this term in Vonage. See 518 F. Supp. 2d at 1318. Big River argues that term means signaling in a particular format used to set up or tear down a communication path for a call. Thus, Big River seeks to add the concepts of a "particular format" and a "communication path" to the Court's previous construction.

With respect to the latter addition, Big River relies on its prior argument that a communication path is needed, and it points to language in the specification defining "signaling" as the transfer of information "to establish communications paths." (605 Family at 5:23-25.) The Court again rejects this construction, based on the same reasons stated above. See supra Part III.A. Moreover, as Sprint notes, this excerpt from the specification refers to "paths" in the plural, and therefore it cannot support a limitation of a single path for a call. The excerpt also describes "signaling" and not "signaling message." Big River has clearly not attempted to define "signaling" generally, as it repeats that term in its proposed construction. Finally, Big River's limitation is further undermined by the language of the claim itself, which requires the "signaling message" to select not a path, but rather a network code. (561 Patent, claim 1.) The Court rejects Big River's proposed addition of a reference to "a communication path" in its construction of "signaling message."

In support of its other proposed addition, Big River cites to references in the specification that distinguish between a "signaling message" and mere "signaling". Big River thus argues that "message" connotes "format", in the sense that if one changes the format, then a new signaling message results. Sprint finds it unremarkable that a given signaling message would have a format, as all messages must. On this issue, the Court agrees with Sprint. In retaining "signaling" in its construction, Big River has essentially attempted to define "message", but it has not explained why that word needs defining. Moreover, the Court finds Big River's proposed language potentially confusing, as it suggests that the signaling must be in one particular format without defining that required format, instead of merely suggesting that messages have formats (as apparently intended by Big River).

Accordingly, the Court retain its previous construction of "signaling message" to mean a message used to set up or tear down a call.

H. "Signaling Message"

Claim 38 of the '572 patent, claim 1 of the '561 patent, and claim 19 of the '294 patent recite the claim term "signaling message." Sprint contends that these claim terms should be construed to mean information or commands used to set up or tear down a call. In support of this argument, Sprint relies on essentially the same specification language set forth above. Vonage contends that these claim terms should be construed to mean a message used to transfer information among points and network elements to establish communication paths. In support of this argument, Vonage relies on narrowing disclaimers that Sprint made during prosecution history in which Sprint amended claimed phrases in the '928 patent from receiving and processing "information" to receiving and processing "signaling." But, as set forth above the court finds that the intrinsic record does not support the claim construction "information or commands" in any event. Vonage offers no further argument in support of its proposed claim construction. Accordingly, for essentially the same reasons set forth above, the court construes the claim term "signaling message" to mean a message used to set up or tear down a call.

2. "Signaling modes" (Claims 1, 7)
The key issue regarding this term is whether a "signaling mode" is always used to transmit a "packet of data," as Broadcom suggests, or whether this construction would constitute an improper limitation of the claim term, as Agere suggests. Broadcom's expert, Dr. Cox, admits that this claim term does not have a customary meaning in the field. (Cox Rep. at 44.) Furthermore, the term "packet" cannot be found anywhere in the claim language. Nonetheless, Broadcom draws support for its limiting construction from two sources.

First, as noted above, this patent describes the transmission of symbols of equal length. According to Dr. Cox, a person of ordinary skill in the art at the time the '786 patent was filed "would understand packets of data to contain data symbols of the same length in the payload portion of the packet because in OFDM systems of that time, symbol and guard time lengths were not generally changed in the middle of the transmission of a packet of data." (Cox Rep. at 45.) This statement, however, employs questionable logic. Even assuming that a person of skill in the art would understand a "packet" to consist of data symbols of equal length, this does not compel the conclusion that a claim describing the transmission of data symbols of equal length must necessarily describe the transmission of a packet. Accordingly, the disputed claim term will not be limited on this basis.

Second, Broadcom draws support for its limitation from the description of the preferred embodiment in the specifications:

In the preferred embodiment of the present invention, a first signaling mode (the 'normal' mode) uses signal length T, a guard time T[G ]and a set of N sub-carriers and a second mode (the 'fallback' mode) uses a symbol length KT, a guard time KT[G ]and the same set of N sub-carriers, where K is an integer greater than unity.

('786 patent, col. 1, l. 66-col. 2, l. 4.) According to Dr. Cox, one of ordinary skill in the art would understand the terms "normal mode" and "fallback mode" to refer to the transmission of an entire packet of data, rather than some subset of a packet. (Cox Rep. at 45.) Even if Dr. Cox's opinion is accurate, however, the terms "normal mode" and "fallback mode" are only found in the description of one preferred embodiment. As Broadcom readily admitted at the Markman hearing, this invention is not limited to the preferred embodiment. (R. at 116 (May 7, 2004).) Accordingly, the Court will not limit the claim term on this basis. See Teleflex, 299 F.3d at 1328 ("To the extent that the district court construed the term 'clip' to be limited to the embodiment described in the specification, rather than relying on the language of the claims, we conclude that the district court construed the claim term . . . too narrowly.").

In conclusion, as the claim language describes the transmission of symbols, not packets, ('786, col. 1, ll. 62-63, col. 4, ll. 54-55, col. 5, ll. 21-23 (describing devices operating in one of a "plurality of signaling modes in each of which the duration of each information-carrying symbol is KT where K is a positive integer" (emphasis added))), and as Broadcom has not provided a persuasive reason to limit the claim term, the Court finds no basis to accept the limitation Broadcom proposes. Although Agere's proposed construction does not contribute greatly to an understanding of the term, it is an accurate reflection of the claim text, and therefore is adopted: "One of a plurality of OFDM transmission modes."

4. "first signals"

Klausner contends that the term needs no construction. Vonage proposes "signals received with a voice message recognizable by the telephone answering device and generally unique to the caller." To support its proposal, Vonage cites to a portion of the specification that provides "[i]t is to be understood that any incoming signals over the telephone line with a voice message that is recognizable by the TAD and is generally unique to the caller may be used instead of DTMF tones." See Col. 9:51-54.

The claim language itself describes the "first signals" as "specifying each caller of each incoming call." See Col. 13:47-48. The Court fails to see how the portion of the specification cited by Vonage does anything more than clarify that signals other than "DTMF tones" may be used to specify the caller. To hold that this statement constitutes the exclusive definition of the term would seem to clearly import unnecessary limitations into the claim language. See Phillips, 415 F.3d at 1323. Moreover, the proposed limitations, "recognizable by the telephone answering device" and "generally unique to the caller," are ambiguous and could inject confusion into the construction.
The Court notes that in the prosecution history of the '236 patent, 4 the Applicant describes "signal" as a "[g]eneral term referring to a conveyor of information." See Ex. 12 to Klausner's Claim Constr. Br. at 7. Also, the Applicant refers to "caller identity information," "identifying information" and "caller identifying information." See Ex. 6 to Klausner Opening Br., p. 21, and Ex. 7 to Klausner Opening Br., p. 20.

The Court finds that the meaning of "first signals" in the context of the patent is "information."

C. "Signals Representative Of"

Claim 1 of the '080 patent further requires that the apparatus have "an input for receiving signals representative of a position of the aircraft, a flight path angle of the aircraft and the speed of the aircraft coupled to a data base of stored terrain information." (emphasis added). The district court interpreted the phrase "signals representative of" to mean "[t]he signals received by the apparatus are instantaneous values of the recited variables; i.e. they indicate the numerical value of that variable at a given sampling time." Claim Construction Decision, 264 F. Supp. 2d at 145. In explaining this claim construction, the district court stated:

Honeywell argues that its patent covers any signal relating to the angle, position, and speed of the flight . . . The terrain awareness systems compare flight data with stored terrain information, in order to warn the pilots of danger. If the court construed Honeywell's patent to include any signal representing one of the previously mentioned variable, it would claim both signals which indicate threat, and signals which do not. Since the point of the invention is to warn of dangerous conditions, the patent should be limited to signals which represent threat. Because a pilot cannot read a signal, the signals are transformed into numbers, thus "dangerous signals" are understood in terms of numbers . . . Thus, reading the patents in the broad manner that Honeywell proposes, that is, allowing the patents to apply to the entire spectrum of signals, would defeat the purpose of the patent.

Id. at 145-46.

Honeywell argues on appeal that the district court unduly narrowed the term "signals." Honeywell contends that the term should encompass any electronic, visual, audible, or other ways to convey such information. Further, Honeywell argues that "signals representative of" are, by definition, such signals that represent or portray. Honeywell argues that nothing in the claims, specification, or prosecution history limits the signals to instantaneous and numerical values.

Universal states that the term "signals representative of" should mean "that the input receives signals from other devices which represent discreet and instantaneous numeric values of recited variables that warn a pilot of dangerous conditions." However, Universal offers no argument to support this interpretation.

Sandel supports the district court's construction as based on the claim language itself; i.e. that the claim requires "signals representative of" position, flight path angle, and speed in calculating distances and creating alert envelopes. According to Sandel, only numerical terms allow the system to function, but Sandel offers no evidence in support of this assertion.

This court has acknowledged: "In some cases, the ordinary meaning of claim language . . . involves little more than the application of the widely accepted meaning of commonly understood words." Phillips, 415 F.3d at 1314. Consistent with that guidance, this court perceives that the signals represent the inputs into the system, namely the position, flight path angle, and speed of the aircraft. The patent does not require numerical or instantaneous signals. In context, one of ordinary skill in this art would consider the district court's construction too narrow.
Apparently the district court unduly narrowed the claim based on its overall perception of the invention. Specifically, the district court assumed that the pilot reads the signals at issue. Claim Construction Decision, 264 F. Supp. 2d at 145-46. To the contrary, the signals represent the inputs into the system about aircraft position, speed, and flight angle, not a data representation for pilot consumption. The pilot does not read these inputs. Instead the system's software processes these inputs to generate visual and aural warnings. Thus, the trial court erred by stating that the pilot would read these signals.

In sum, one of ordinary skill in this art would not limit this term to numerical or instantaneous values. Rather these signals are inputs into the system which uses its algorithms to process this information into appropriate warnings.


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n16 '212 patent, multiple claims.

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('212 patent, col. 7, 11. 33-51)

4064

"Signing," "Key," and "Signed File"

As used in the patent claims' language and specifications, the definitions of "signing," "key," and "signed file" are closely related. "Signing" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that "signing" means "the process of hashing input to compute a hash result and using a cryptographic function with a private key to transform the hash result into a digital signature" (Doc. 62 at 12). The plaintiff argues "signing" means simply "applying a unique identifying characteristic of a unique entity" (Doc. 60 at 12). The plaintiff's significantly elastic definition admittedly encompasses "a lawyer signing a brief" and "an illiterate person marking their X" (Doc. 60 at 11). However, the intrinsic evidence directly contradicts the plaintiff's unbounded construction.

Attempting to distinguish his invention over prior art, the patentee, in the specifications in both patents, expressly and unambiguously defines "signing":

To sign a document, or for that matter any other digital data file, a "signer" must first delimit the borders of the digital data file to be signed. As used herein, the term signer refers to any person who creates a digital signature for a message, such as message 110. The information delimited by the signer, in turn, refers to that message 110. A hash function 120 in the signer's software is used to compute a hash result 130, which is unique for all practical purposes to the message 100. Thereafter, a signing function 140 is used to transform the hash result 130 into a digital signature 160, but only after input of the signer's private key 150.

(536 Patent at 8:9-20; 709 Patent at 8:5-16). The patentee expressly defines signing as "creatin[g] a digital signature" by hashing a document or "any other digital data file" (536 Patent at 8:9-20; 709 Patent at 8:5-16). This definition reveals that "signing" does not encompass a physical, written signature.

Further, the patents' claims ubiquitously speak of "maintaining trust in the content of a digital data file" by "signing said digital data file," "hashing said signed file to produce a digest," and "signing said digest with a key to produce a certificate" (536 Patent at 40:22-41:21; 709 Patent at 43:4-43:67). The patent's use of "sign" consistently depicts "digital data" as the recipient of a signature, and the patent is unconcerned with the unlimited application of "a unique identifying characteristic
of a unique entity." In this context, "signing" obviously means the signing of digital data and the creation of a digital signature. "The claims of a patent define the invention to which the patentee is entitled the right to exclude." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). Nothing in the patents' claims supports the plaintiff's suggestion that "signing" encompasses a non-digital, handwritten signature.

Because the claims of both patents' limit "signing" to digital signing, the plaintiff's proposed construction is inconsistent with the written descriptions' express definition. As the defendants persuasively argue, one of ordinary skill in the art understands "signing" (as used in the patents) to mean creating a digital (but not a written) signature. Consistent with the patent and its specifications, "signing" means "the process of computing a hash result, which result is converted into a digital signature using a cryptographic function and the signer's private key."

The patents' definition of "signing" contemplates the use of a signer's private "key" (536 Patent at 8:9-20; 709 Patent at 8:5-16). The patents expressly state that a key is not used for encryption:

Thereafter, a signing function 140 is used to transform the hash result 130 into a digital signature 160, but only after input of the signer's private key 150. This transformation is sometimes referred to as a process of encryption. However, such a characterization would be inaccurate, because message 110 itself may, or may not be, confidential.

Further, the specifications state "[s]ystems that generate and employ a secure key pair (i.e., a 'private key' for creating the 'digital signature' and a 'public key' for verifying that digital signature) are typically known as asymmetric cryptographic systems" (536 Patent at 7:48-51; 709 patent at 7:45-49). Consistent with the language of the patents, "key" means "a unique sequence used to create or verify a digital signature."

Finally, the defendants propose that a "signed file" is "a file with its digital signature" (Doc. 62 at 17). The plaintiff argues that a "signed file" means simply "a file with its signature" (Doc., 60 at 16). However, the patents' claims specify that a digital file joined with a date and time is signed to create a "signed file" (536 Patent at 40:37-40, 41:15-18). Accordingly (and perforce the above constructions), a "signed file" means "a file with its digital signature."

2. The term "SIGNIFICANT" (claim 19) requires no construction. Nellcor's argument that the term is indefinite is based on the erroneous notion that unless something can be quantified to an exact amount, it must be invalid. One of the main purposes of requiring patentees to set forth specific claims is to provide proper notice to the public. Where exactitude is possible, it clearly advances this goal. However, a patentee is not required to draw bright lines for the sake of clarity when those bright lines would obscure rather than enhance disclosure. See Exxon Research and Eng. Co. v. U.S., 265 F.3d 1371, 1377-80 (Fed. Cir. 2001).

Here, the question of how much the signal must be a function of the primary or secondary signal defies an exact description. That the significance cannot be quantified by an absolute value does not render the notice function of the element meaningless. Lack of meaning is a determination reached only if Nellcor can demonstrate that as stated, the claim is indeterminate to those of ordinary skill in the art. The mere fact that a term cannot be quantified into an absolute value, even when taken in conjunction with the fact that the specifications do not provide examples of what is or is not significant, cannot be said to rise to the level of meeting the "clear and convincing standard to show that one of ordinary skill would not understand" what is included in claim 19. N. Amer. Vaccine v. Amer. Cyanamid Co., 7 F.3d 1571, 1579 (Fed. Cir. 1993).

B. "Significant Oxide Growth"

As a separate claim element, the '584 patent cautions that the temperature and time of heating used during the partial reflow step must be "insufficient to form a significant oxide growth on the exposed portion of the semiconductor body." The term "significant oxide growth" is not defined within the claims, nor is it a term that has a generally accepted meaning.
independent of the patent. Nevertheless, a review of the specification and the background to the invention reveals the proper scope of this disputed term.

As the patent makes clear, the partial reflow step that is central to the claimed invention is designed to improve metal connection within the semiconductor by tapering the edges of a formed contact hole while otherwise maintaining the essential integrity of the hold. Yet, reheating may inevitably result in some new oxide formation within the contact hole, which if significant, could defeat the purpose of the partial reflow step. Thus, the patent teaches that the temperature and heating time during the reflow step must be such that any formation of oxide growth "will be so thin that any subsequent deposition of a metallic interconnect thereon will readily punch through and provide good contact to the surface of the silicon." '584 patent, col. 3, 11. 50-53. It follows from this passage that the meaning of the disputed term "significant oxide growth" is a thickness of oxide growth that a metallic interconnect will not readily punch through when deposited thereon.

Yet, this interpretation does not end the claim construction process, for although the specification suggests that a separate etching step will not be necessary to remove any oxide growth that has formed, the claims of the patent do not preclude such a step. Rather, the patent merely describes the potential disadvantage of a separate etching. Specifically, etching to remove the undesirable oxide that has formed during the reflow step may also remove the desirable oxide from the insulating layer, and thereby disrupt the integrity of the hole. It is this complication associated with a separate etching step, and not the step itself, which must be avoided under the '584 patent. Thus, an alternative definition of "significant oxide growth" is a thickness of oxide growth that requires removal by a separate etching step that will simultaneously remove desirable oxide and thereby disrupt the integrity of the contact hole. Thus, the term "significant oxide growth" is properly defined in full, as follows:

A thickness of oxide growth on the exposed portion of the semiconductor body (1) that a metallic interconnect will not readily punch through when deposited thereon, or (2) that requires removal by a separate etching step that will simultaneously remove desirable oxide and thereby disrupt the integrity of the contact hole.

And, in the instant case, while Atmel performs a separate etching to remove the oxide formed during the reflow step, the record does not disclose (1) whether a metallic interconnect would readily punch through that oxide layer were it not removed, nor (2) whether the separate etching removes desirable oxide and thereby disrupts the integrity of the contact hole. Accordingly, it is unclear whether the temperature utilized in the accused process is "insufficient to form significant oxide growth," and hence whether the accused process infringes this element either literally or under the doctrine of equivalents.

"Signing," "Key," and "Signed File"

As used in the patent claims' language and specifications, the definitions of "signing," "key," and "signed file" are closely related. "Signing" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that "signing" means "the process of hashing input to compute a hash result and using a cryptographic function with a private key to transform the hash result into a digital signature" (Doc. 62 at 12). The plaintiff argues "signing" means simply "applying a unique identifying characteristic of a unique entity" (Doc. 60 at 12). The plaintiff's significantly elastic definition admittedly encompasses "a lawyer signing a brief" and "an illiterate person marking their X" (Doc. 60 at 11). However, the intrinsic evidence directly contradicts the plaintiff's unbounded construction.

Attempting to distinguish his invention over prior art, the patentee, in the specifications in both patents, expressly and unambiguously defines "signing":

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(536 Patent at 8:9-20; 709 Patent at 8:5-16). The patentee expressly defines signing as "create[ing] a digital signature" by hashing a document or "any other digital data file" (536 Patent at 8:9-20; 709 Patent at 8:5-16). This definition reveals that "signing" does not encompass a physical, written signature.

Further, the patents' claims ubiquitously speak of "maintaining trust in the content of a digital data file" by "signing said digital data file," "hashing said signed file to produce a digest," and "signing said digest with a key to produce a certificate" (536 Patent at 40:22-41:21; 709 Patent at 43:4-43:67). The patent's use of "sign" consistently depicts "digital data" as the recipient of a signature, and the patent is unconcerned with the unlimited application of "a unique identifying characteristic of a unique entity." In this context, "signing" obviously means the signing of digital data and the creation of a digital signature. "The claims of a patent define the invention to which the patentee is entitled the right to exclude." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). Nothing in the patents' claims supports the plaintiff's suggestion that "signing" encompasses a non-digital, handwritten signature.

Because the claims of both patents' limit "signing" to digital signing, the plaintiff's proposed construction is inconsistent with the written descriptions' express definition. As the defendants persuasively argue, one of ordinary skill in the art understands "signing" (as used in the patents) to mean creating a digital (but not a written) signature. Consistent with the patent and its specifications, "signing" means "the process of computing a hash result, which result is converted into a digital signature using a cryptographic function and the signer's private key."

The patents' definition of "signing" contemplates the use of a signer's private "key" (536 Patent at 8:9-20; 709 Patent at 8:5-16). The patents expressly state that a key is not used for encryption:

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Further, the specifications state "[s]ystems that generate and employ a secure key pair (i.e., a 'private key' for creating the 'digital signature' and a 'public key' for verifying that digital signature) are typically known as asymmetric cryptographic systems" (536 Patent at 7:48-51; 709 patent at 7:45-49). Consistent with the language of the patents, "key" means "a unique sequence used to create or verify a digital signature."

Finally, the defendants propose that a "signed file" is "a file with its digital signature" (Doc. 62 at 17). The plaintiff argues that a "signed file" means simply "a file with its signature" (Doc. 60 at 16). However, the patents' claims specify that a digital file joined with a date and time is signed to create a "signed file" (536 Patent at 40:37-40, 41:15-18). Accordingly (and perforce the above constructions), a "signed file" means "a file with its digital signature."

"substantially similar in design" and "similar in design"

Claims 1, 5, and 7-10 of the '8,415 Patent; claims 1, 2-7, 17-18, 25-26, 33-38, 81-82, and 84-85 of the '981 Patent; claims 1-5, 31, 55-57, 65, 74, 79, and 84 of the '297 Patent; claims 79, 86, and 88 of the '3,415 Patent; and claims 1 and 3-10 of the '416 Patent either include limitations of "substantially similar in design" or "similar in design," or depend either directly or indirectly on a claim that includes these limitations. An exemplary claim containing the "substantially similar in design" limitation recites:

A computer system . . . comprising . . . a plurality of computer modules . . . wherein each of the computer modules is substantially similar in design to each other to provide independent processing of each of the computer modules in the computer system, and wherein any two of the computer modules can replace each other in operation.

'8,415 Patent, col. 10:46-62. Defendants contends the terms are indefinite and thus the claims containing these limitations are indefinite. After a review of the arguments and relevant evidence, the Court concludes that the terms "substantially similar in design" and "similar in design" meet the definiteness requirement of 35 U.S.C. § 112, ¶ 2.
Defendants contend that nothing in the specifications or the claims of the patents-in-suit provide any guidance or measure of when two or more computer modules are "substantially similar in design" or "similar in design" to each other. Defendants further contend that the terms have no ordinary meaning to those of skill in the art, and there is nothing in the patents-in-suit that enables one of skill in the art to determine what aspects of the computer modules must be similar, or the required extent of similarity necessary to satisfy the limitations. Specifically, Defendants contend that the claims require that each computer module (1) have the specified components identified in the claim, and (2) be "substantially similar in design" to the other modules. Defendants assert that the specified component requirement cannot be equated with the "substantially similar in design" requirement because the two requirements are separately recited, and equating the two would improperly read out the "substantially similar in design" limitation. Defendants' central argument is that the claims are indefinite because they fail to specify whether the "substantially similar in design" limitations apply to the additional components in the computer modules, to the physical layout of the components in the modules, to the design, shape, and dimensions of the modules, or to the intended operation and performance of the modules.

ACQIS counters that the patent specifications inform one of skill in the art to determine when computer modules are "substantially similar in design" or "similar in design" by providing clear examples of computer modules that meet these limitations. ACQIS contends that Figures 2 and 3 of the patent specifications provide illustrations of computer modules that share common "architecture" and are "substantially similar in design." ACQIS further identifies portions of the specifications that address the "substantially similar" language and demonstrate the scope of the computer module "architecture." See ACQIS's Responsive Indefiniteness Brief, Docket No. 286, at 8-10, 13-14. For example, the written description relating to Figure 2 of the '8,415 Patent, produced below, provides that "[t]he second ACM has the same or similar components as the first ACM." '8,415 Patent, col.7:5-6. Although ACQIS correctly points to the module components and circuit configuration in characterizing the scope of the "substantially similar in design" and "similar in design" limitations, it incorrectly characterizes the scope of the limitations in terms of "architecture," rather than "design."

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The terms "substantially similar in design" and "similar in design" are clearly limited in scope by specifying that substantial similarity is in regard to "design." The specification and the claims provide a framework for one of skill in the art to determine what "design" means within the context of the claimed subject matter (i.e., "a computer system for multi-processing purposes" comprising "computer modules"). The claims define the computer modules as having the same electronic components and specify that the computer modules are interchangeable. The meaning of "design" would be understood by one of skill in the art to refer to the "electronic circuit configuration operative to implement the processing operations of the computer system." Characterizing the scope of the limitations in terms of computer module "design" is more restrictive than ACQIS's "architecture" characterization because one of skill in the art would understand "architecture" to refer broadly to "the structure and organization of a computer system's hardware," rather than the specific circuit configuration or design of the computer module.

One of ordinary skill in the art would understand the scope of the claims and be able to determine what constitutes infringement. Because Defendants have not shown by clear and convincing evidence that the terms "substantially similar in design" and "similar in design" are insolubly ambiguous rendering the claims indefinite, the Court DENIES Defendants' Motion for Partial Summary Judgment of Indefiniteness Under 35 U.S.C. § 112, ¶ 2 (Docket No. 274). In addition, the claim language is clear and understandable to the fact finder and any substitute for the claim language is likely to cause confusion rather than aid. Thus, the terms do not require construction.

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Defendants CHE and York move for summary judgment on the '569 Patent, claiming invalidity (# 617) and non-infringement (# 616). Both issues depend upon interpretation of the term "simulated LMU."

Claim construction presents purely legal questions. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 978 (Fed. Cir. 1995), aff'd 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). Claim terms are given their "ordinary and customary meaning," which is the meaning that a "person of ordinary skill in the art" would give the term, "not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). The court's primary resource is intrinsic evidence,
including the claim itself, other claims of the patent, "both asserted and unasserted," the patent's specification or written description, and the prosecution history. Id. at 1314-15. The specification may "teach and enable those of skill in the art to make and use the invention," but it does not define the scope of the claim terms, and courts therefore "avoid importing limitations from the specification into the claims." Id. at 1321. Extrinsic evidence—though "less significant" than intrinsic evidence—may nevertheless "shed useful light" on a claim term. Id. at 1317 (internal quotation marks omitted). Such evidence may include dictionaries, treatises, and expert testimony. However, extrinsic evidence is considered "less reliable" than intrinsic evidence; courts assume it is "unlikely to result in a reliable interpretation . . . unless considered in the context of the intrinsic evidence." Id. at 1318-19.

The Patent describes a method for testing the Library Storage Module ("LSM") component of an STK silo system. The LSM stores data cartridges, which are retrieved and read by a robotic arm. Several LSMs are controlled by an LMU, which in turn receives commands from host computers. The method is intended to aid STK library owners when they wish to add additional LSMs to an existing system. ('569 Patent 1:25-27). Before a new LSM is added, it must undergo diagnostic testing. (Id. at 1:39).

Such testing was previously accomplished after an LSM was assembled and connected to the library, but it required customers to "shut down . . . operations." (Id. at 1:47-48). The '569 Patent reduces this downtime. Instead of first connecting the new LSM to the system and thereafter performing diagnostic testing, the patent describes a method for testing a new LSM "prior to its incorporation into the library." (Id. at 2:6-7).

Such testing is accomplished by means of a "simulated LMU," a term that appears in each asserted claim. The parties offer divergent definitions of the term and hotly dispute each distinction. One of these disputes, however, is dispositive as to infringement. CHE argues that a simulated LMU must be "capable of being used to perform diagnostic testing on an LSM . . . before such LSM is ever connected to an LMU." This assertion is supported by the intrinsic record, though the diagnostic testing is perhaps more accurately described taking place before the LSM is connected to a library, rather than an LMU. As STK concedes (# 683, at 8-9), unasserted Claims 1 and 8 of the '569 Patent both specify that diagnostic testing be conducted via a simulated LMU before the LSM is connected to a library. ('569 Patent, 5:58, 6:37-39). Because Claims 1 and 8 therefore use the term "simulated LMU" to refer to a device that is capable of conducting diagnostic testing before the LSM is attached to a library, and because claim terms are "normally used consistently throughout the patent," Phillips, 415 F.3d at 1314, the same definition applies to the asserted claims. That the purpose of the simulated LMU is to perform such prior testing is further apparent from the rest of the patent. (569 Patent, Abstract (simulated LMU "tests[ ] the new LSM prior to its incorporation into the library"); Summary, 2:4-7 (same)). Therefore conclude that term "simulated LMU" refers to a device capable of being used to perform diagnostic testing on an LSM before the LSM is connected to a library.

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U. "simulating a virtual file system"

The phrase "simulating a virtual file system" is found in Claim One of the '449 Patent as follows: "wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a directory structure." '449 Patent, col. 12:4-6; see also id., col. 14:4-7 (Claim Seventeen) ("the virtual file system including a file allocation table and a directory structure"); id., col. 14:29-32 (Claim Eighteen) (same). The phrase might be thought a bit circuitous, in that a virtual file is already a simulated file. See Tr. 3:119 (Papst) ("[T]his is unusual language. It probably wouldn't have been my first choice . . . ."). With the additional word "system," however, the phrase can be readily construed.

As Claims One, Seventeen, and Eighteen of the '449 Patent make clear, the Patent covers a virtual system of files, with a virtual directory structure. See '449 Patent, col. 12:6. Dependent Claim Two identifies additional types of virtual files which could be in the virtual system referenced in Claim One: a virtual configuration file, a virtual executable or batch file, or a virtual data file. See id., col. 12:8-12; see also id. col. 12:27-28 (Claim Seven) (referencing a "virtual boot sequence"). A "virtual file system," such as that described in the '449 Patent, is one that is "not physically existing as such but made by software to appear to do so." Oxford English Dictionary at 674 (defining "virtual" in the context of computers) (attached to CMs' Markman Br. as Ex. P); accord New IEEE Dictionary at 1461 ("virtual record" is a record that "appears to be but is not physically stored") (attached to CMs' Markman Br. as Ex. G). The Court construes "simulating a virtual file system" to mean "appearing to be a system of files, including a directory structure, that is not physically stored; rather, it is constructed
5. "Simulation"

Although neither party requested that the Court construe the claim term "simulation," the Court ordered the parties to brief the proper interpretation of the term because the term is central to Plaintiff's contentions in opposition to Defendant's invalidity arguments. (See Order of July 28, 2009; see also Part II.C.2.) In the parties' supplemental briefs, Defendant asks the Court to construe "simulation" to mean an "interactive representation for a prospective application," whereas Plaintiff proposes that the Court construe the term to mean simply "an interactive representation." 7 (See Def.'s Supp. Brief 1; Pl.'s Supp. Brief 1.) As such, the parties' proposed constructions vary only with Defendant's addition of "for a prospective application."

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7 Plaintiff's supplemental brief also includes a proposed construction of the term "simulation of a computer application." (See Pl. iRise's Supp. Brief Re "Simulation" Supp. Opp'n Def. Axure Software Solutions, Inc.'s Mot. Summ. J. Non-Infringement & Invalidity ("Pl.'s Supp. Brief") 1.) The Court declines to construe this term because not only is it unnecessary but also the Court ordered additional briefing only on the term "simulation" and Defendant therefore did not have an opportunity to brief this additional term that Plaintiff unilaterally decided to include. (See Order of July 28, 2009; Axure's Supp. Brief Re: Meaning Term "Simulation," Submitted Supp. Axure's Mot. Summ. J. Non-Infringement & Invalidity ("Def.'s Supp. Brief").)

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a. The Claim Language

The independent claims, Claims 1, 10, 20, 30, and 40, feature the term "simulation" several times: in the preamble, "a programming environment for programming of a simulation of a computer application," in the first limit, "for programming of the simulation of the computer application," and in the second limit, "receiving control indications from the user to arrange the one or more primitives to program the simulation." U.S. Patent No. 7,349,837 col.83 l.38-46, col.84 l.38-l.47, col.85 l.46-l.56, col.86 l.61-col.87 l.3, col.88 l.8-17 (filed Jan. 22, 2004). This claim language suggests that Plaintiff's proposed construction is proper because substituting Defendant's construction for "simulation," "an interactive representation for a prospective application," into the claim language "simulation of a computer application" creates the phrase "an interactive representation for a prospective application of a computer application," which is repetitive and nonsensical.

Claims 8, 18, 28, 38, and 48 feature the language "wherein at least one of the primitives simulates computation available in the computer application." U.S. Patent No. 7,349,837 col.84 l.33-35, col.85 l.39-l.41, col.86 l.54-l.56, col.88 l.1-l.3, col.90 l.4-6 (filed Jan. 22, 2004). Although this claim language is not particularly helpful in deciding between the parties' proposed constructions, it does suggest a distinction between a simulation and what will ultimately be available in the computer application. In other words, it emphasizes that a simulation of a computer application is merely an interactive representation of a computer application.

Accordingly, the claim language supports Plaintiff's proposed construction of simulation as an "interactive representation."

b. The Specification

The specification further supports Plaintiff's proposed construction of the term "simulation." Defendant contends that the term "simulation" is "expressly defined" in the specification of the '837 Patent, which states: "Each user accesses the interface and/or simulator applications to manage the requirements and access the interactive representation, sometimes referred to as the 'simulation,' for a prospective application." U.S. Patent No. 7,349,837 col.61 l.63-65 (filed Jan. 22, 2004);
Def.'s Supp. Brief 1. The Court is not convinced that this is an express definition of the term "simulation," as "sometimes referred to" does not demonstrate an unambiguous and explicit intent to define the term. See Renishaw PLC, 158 F.3d at 1249 (internal citations omitted); see also Jack Gutman, Inc., 302 F.3d at 1360. Nevertheless, even if this portion of the specification were construed to define the term "specification," it would support Plaintiff's construction of the term as an "interactive representation." The comma placement in the quoted language makes clear that an "interactive representation" is "sometimes referred to as the simulation," not that an "interactive representation . . . for a prospective application" is "sometimes referred to as the simulation." See U.S. Patent No. 7,349,837 col.61 l.63-65 (filed Jan. 22, 2004).

Similarly, another portion of the specification shows that the added phrase in Defendant's proposed construction is improper. The specification states: "For the purposes of the present invention, the term interactive representation means (1) a simulation of the behavior of a prospective application that is used to review conformance of behavior to the desired or necessary behavior of the prospective application before it is developed and deployed." U.S. Patent No. 7,349,837 col.7 l.45-49 (filed Jan. 22, 2004). The portion demonstrates the interchangeability of "interactive representation" and "simulation." Furthermore, it shows the impropriety of Defendant's additional limitation "for a prospective application" because, like in the claim language, replacement of Defendant's proposed construction, "interactive representation for a prospective application," for "simulation" in this portion of the specification leads to the phrase, "interactive representation for a prospective application of the behavior of a prospective application," which again is repetitive and nonsensical. 8

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8 In addition to aiding the Court in deciding which of the parties' proposed constructions is proper, this portion also suggests that the purpose of a "simulation," i.e., an "interactive representation," is to review the prospective application's conformance with the expected traits of the application "before it is developed and deployed." See U.S. Patent No. 7,349,837 col.7 l.45-49 (filed Jan. 22, 2004) (emphasis added). As such, the simulation is an interactive representation of a computer application before it is actually developed. In other words, a user is not viewing an actual application, but merely a representation of the application.

Similarly, in describing the purpose of "simulation" and "simulcasting," the specification states that the "user[] or several users determine if the requirements and the IRM are completed sufficient . . . to warrant proceeding to providing outputs to design and delivery of the actual code for the prospective application . . . ." See U.S. Patent No. 7,349,837 col.13 l.32-36 (filed Jan. 22, 2004) (emphasis added). This portion of the specification again suggests a distinction between the simulation, i.e., the interactive representation, and an application that is actually developed and coded.

Finally, the specification states that "simulation" presents the user "with an experience very similar to what would be experienced if that user were interacting with the completed proposed application." U.S. Patent No. 7,349,837 col.12 l.61-64 (filed Jan. 22, 2004). Again, this portion of the specification of the '837 Patent suggests that the "simulation," though similar to the completed application, is distinguishable from the completed, coded application. This provides further support for the idea that a simulation is merely a representation of a computer application, it is not the actual application itself.

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The construction of "simulation" as an "interactive representation" also conforms with the specification's usage of the term "simulator." For example, the specification defines the term "simulator" as "a software component of the present invention that renders an interactive representation of a proposed application and related requirement information based on an interactive representation model and associated requirement information" and later states that a "simulator[] is a computer program that renders interactive representations of prospective computer applications." U.S. Patent No. 7,349,837 col.11 l.62-67, col.53 l.62-65 (filed Jan. 22, 2004) (emphasis added). Replacing the term "simulation" for the term "interactive representation" in these portions of the specification demonstrates the propriety of the proposed construction, as it is entirely appropriate that the "simulator" renders a "simulation" of the proposed application.

Accordingly, the specification of the '837 Patent demonstrates that Plaintiff's proposed construction of the term "simulation" as an "interactive representation" is proper.

c. Extrinsic Evidence
Because the intrinsic evidence is unambiguous as to the meaning of the term "simulation," see Vitronics Corp., 90 F.3d at 1584 (internal citation omitted); see also Omega Eng'g, Inc., 334 F.3d at 1332 (internal citations omitted), the Court finds it inappropriate to consider the positions of the parties' experts on the term.

d. Conclusion

Based on the claim language and the specification of the '837 Patent, the Court adopts Plaintiff's proposed construction of the term "simulation," specifically "an interactive representation."

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c. Automatic and Simultaneous

Again, unless the patentee has clearly acted as his own lexicographer, the terms data and information are presumed to have their plain and ordinary meaning. Johnson Worldwide, 175 F.3d at 989. The Court finds no evidence that the patentee acted as his own lexicographer and, therefore, construes these terms to have their plain and ordinary meaning.

The Court finds that in construing these terms, it is appropriate to consult dictionaries. Phillips, 415 F.3d 1303, 2005 WL 1620331 at *6. According to the Merriam-Webster's online dictionary, "simultaneous" means "existing or occurring at the same time" and automatic means "having a self-acting or self-regulating mechanism." Merriam-Webster Online Dictionary, available at www.merriam-webster.com. The same conclusion results from a plain reading of the specification.

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A

We agree with the district court that claims 1 and 15 require that information be presented to the user in a manner that allows the user to access the information at the same time that he is observing the field of view. Claim 1 requires the information to be "simultaneously presented to the user as the user observes the field of view" (emphasis added), and claim 15 requires the information to be "provide[d] . . . to the user . . . in real-time as the user observes the field of view." Especially when followed by the preposition "to," the verb "present" (or "provide," in the case of claim 15) suggests the act of making something immediately accessible for the user to view. Webster's New International Dictionary 1955 (2d ed. 1954) (defining "present" as "[t]o exhibit or offer to view"); id. at 1994 (defining "provide" as "[t]o supply for use"). It would be strange to say that an image is "presented to" a user as the user observes the field of view if the user is not in a position to view the image while observing the field of view.

In the context of the '203 patent, there is a significant difference between displaying information on a side screen that the user cannot see while observing the field of view, as opposed to simultaneously presenting information to a user as the user observes a celestial object in the field of view. The specification makes it clear that one of the key features of the invention is that the user can receive information about a particular celestial object while using the device to observe the object in the field of view. For example, the patent explains that one of the main disadvantages of observing aids such as star charts is that the observer "has to refer back and forth from the sky to the star chart." '203 patent, col. 1, ll. 30-31. But that is precisely what users of Yamcon's accused device must do with respect to the screen display, because Yamcon's device lacks the simultaneity feature touted in the patent.

All of the embodiments described in the patent allow information to be presented so that the user is exposed to the information and field of view at the same time. In one embodiment, the device "superimposes on the observed night sky within the instrument's field of view an image in the form of a graphic representation of a prominent astronomical feature such as a constellation." '203 patent, col. 2, ll. 22-25. In discussing alternative embodiments, the specification notes that the "display is placed in the user's line of sight for direct viewing." '203 patent, col. 4, ll. 20-21. Nothing in the specification indicates that the relevant claim language can be interpreted to cover devices that do not present information to the user while the user is viewing the field of view.
Meade makes several arguments in support of its interpretation, but they are not persuasive. First, Meade challenges the district court's conclusion that the "user of the device must actually be aware of and receive the data at the same time that he or she is viewing the celestial object." Meade argues that the claims do not require "awareness" of the information on the part of the user, but only require that the information be "presented or provided." While it is true that the claim limitations are directed to the capabilities of the device, not the capabilities of the user, we do not interpret the district court's claim construction to require that the user actually absorb textual information at the same time that he is viewing an object. All that is required is that the information be made available to the user so that the user can access it while observing the field of view. In that regard, the district court's claim construction is entirely consistent with the prosecution history of the '203 patent, in which the applicant asserted that the invention "provides a device that a user can hold in his or her hand, point it in a desired direction, look through it at the night sky, and see both the actual night sky (in some limited field of view) and also see educational information about the prominent feature or features in that portion of the sky."

Second, Meade makes the related argument that the district court's claim construction excludes the embodiments disclosed in the specification, because even in the embodiments that call for overlaying information on the field of view it would be impossible for a user to read the displayed textual information and look at a celestial object in the field of view at the same moment. That is because, according to Meade, a user must shift the focus of his eyes away from the celestial object in order to focus on the overlaid visual display. Again, that argument overlooks the claim language. The claims require that the user be able to access the information at the same time that he is "observ[ing] the field of view." If the user can detect the information while using the device to observe the field of view, then even if the user must shift his attention from the celestial object in order to read the information that is displayed in or around the eyepiece field of view, the user is still observing the field of view as he accesses the information.

Finally, Meade raises a claim differentiation argument in support of its interpretation of the claim language. Meade argues that the only distinction between independent claim 1 and some of the dependent claims, such as claims 2 and 3, is that the dependent claims require real-time display of textual information overlaid on the field of view. Thus, in Meade's view, claim 1 must include some means of presentation other than overlaying information on the field of view. Although we agree that claim 1 must be broader than the claims that depend on claim 1, we disagree that the broader scope of claim 1 includes Yamcon's side screen display. Rather, the additional breadth of claim 1 includes methods of simultaneous presentation to the user other than overlaying the information as text on the field of view. For example, claim 1 may include audio presentation of information, see '203 patent, col. 11, ll. 39-42 ("certain data from the database may be provided to the user aurally with known speech synthesis integrated-circuit chips in place of the visual display"), or overlaying textual information within the observer's vision but outside the field of view of the eyepiece. Particular embodiments are not at issue in this appeal, so we need not rule on whether they would fall within the scope of claim 1; it is sufficient simply to note that there are various embodiments that might fall within claim 1 but outside the dependent claims. Therefore, we reject Meade's claim differentiation argument.

The second dispute over construction of the asserted claims of the '306 patent concerns the requirement imposed by the district court that "two or more empty frames are filled at the same time by different data sources." The district court drew this requirement from the preamble language, "for transmitting data from said plurality of sources simultaneously via said bit stream." The dispute, as presented by the parties, is whether this limitation requires two or more data sources to be inserting data into empty frames at the same moment in time.

We agree with Bellcore that data sources need not insert data into empty frames at the same moment in time. The claim speaks not of simultaneous insertion of data into empty payload fields, but of the simultaneous transmission of data from several sources in the bit stream. Perhaps the term "simultaneously" is ambiguous because it could refer either to events taking place at the same moment in time, or to events that both take place within a defined interval of time. But reference to the specification unquestionably shows that the latter meaning is correct. The entire '306 patent is directed to time division multiplexing, and the essence of time division multiplexing is that a single communications line transmits the signals from two or more sources by allocating sequential portions of the bit stream to the competing input sources. '306 patent, cols. 1-2, 5. While any given point of the bit stream is dedicated exclusively to a single input source, over an interval of time (determined by the bit rate of the slowest data source) the bit stream will carry data from all the input sources. Hence, a time division multiplexed signal carries several input signals "simultaneously" without regard to the precise timing of data.
The district court drew the opposite conclusion—interpreting "simultaneously" to mean at the same moment in time—from the specification's single use of the term "simultaneously" to describe the operation of demultiplexing circuitry. '306 patent, col. 13, ll. 49-51. But this portion of the specification refers to an entirely different aspect of the invention. Moreover, as Bellcore notes, the disclosure nowhere suggests that data is inserted into two or more empty frames at the same moment in time. According to the specification, the timing with which interface units insert data into the bit stream is controlled solely by whether the interface unit has data stored in its FIFO, and whether upstream interface units have left empty frames available in the bit stream. Id. col. 9, ll. 50-53; col. 7, ll. 46-61. There is no mention of any mechanism to coordinate simultaneous insertion of data.

FORE points out that it is possible for multiple data sources to insert data simultaneously into the bit stream, if two or more interface units have data stored in their FIFOs and have empty frames positioned in their framer units at the same time. But of course, a claimed invention is not limited to a particular mode of operation simply because it is capable of operating in that mode. We conclude that "simultaneously" in the claim preamble refers to the capability of the multiplexed bit stream to carry signals from multiple sources during a finite interval, not to any requirement that several data sources must be inserting data into empty frames at the same instant in time.

IV. "simultaneously" in the 351/696 patent

Lexar's proposed construction: at the same time
Toshiba's proposed construction: at the same time without intentional delay

Claim 6, wherein "simultaneously" appears in the 351 patent, reads as follows:

The memory system of claim 1, wherein the memory cells are divided into a plurality of erase blocks each of said erase blocks are erased simultaneously, and a plurality of data groups are written in each of said erase blocks.

"Simultaneously" appears in claim 7 of the 696 patent as follows:

The memory system according to claim 2, wherein the program termination detector simultaneously determines whether each data latch circuit stores the second logic level.

Lexar argues that the plain meaning of "simultaneously" is "at the same time," and that the Court should adopt this as the proper construction of the term. Lexar notes the Federal Circuit's finding in Linear Technology Corp. v. Impala Linear Corp., 371 F.3d 1364 (Fed. Cir. 2004), that the plain meaning of the word "simultaneously," according to Webster's Third New International Dictionary, is "at the same time; concurrently." Lexar also contends that the 351 specification supports its construction in that it equates the term "simultaneously" with the language "at the same time." Indeed, column 2, lines 3-4 of the 351 says that "[i]n the erase operation, data in all memory cells within the NAND cell are erased at the same time."

Toshiba argues that the context of the claim language requires that the claim term be construed as "at the same time without intentional delay." Toshiba suggests that Lexar's proposed construction is overly broad and that Toshiba's proposed construction is better because it clarifies that it is the erasing that occurs simultaneously, not the condition of being erased that is simultaneous. However, Toshiba's argument relies on the specification of the 933, unrelated to the 351 or the 696. The Court declines to import limitations from one patent into the construction of a common claim term in a wholly unrelated patent. Moreover, however, Toshiba's proposed construction does not add anything substantive to the term's meaning. The Court finds that the ordinary meaning of the term, as offered by Lexar, is the proper construction. "Simultaneously" in the 351/696 is therefore construed as at the same time.

V. "simultaneously" in the 933 patent

Lexar's proposed construction: at the same time
Toshiba's proposed construction: at the same time without intentional delay
Claims 1, 4, 15, 18, 31, and 34 of the 933 patent employ the disputed claim term "simultaneously." The parties propose the same respective constructions of "simultaneously" in the 933 patent that they proposed in the 351/696 patent. The Court looks first to the claim language itself. Claim 1 of the 933 patent teaches:

A semiconductor memory device comprising:

a memory cell array having a plurality of memory cells arranged in a matrix; and word lines, each word line being connected to plural memory cells and forming one page, wherein a number of pages selected simultaneously when a read or write operation is performed, is variable.

Claim 4, dependent from claim 1, teaches that "the number of pages selected simultaneously is varied by a command input from outside a chip." Claim 15 teaches a semiconductor memory device comprising a memory cell array with a plurality of sub-cell arrays, wherein "each of the sub-cell arrays includes a memory cell which is coupled to a word line and a bit line, a data circuit being coupled to the bit line, and a number of sub-cell arrays to be selected simultaneously is variable when a read or a write operation is performed." Claim 18, dependent from claim 15, teaches that the number of sub-cell arrays selected simultaneously is varied by a command input from outside a chip. Claim 31 teaches a semiconductor memory device comprising a memory cell array with a plurality of sub-cell arrays wherein each of the sub-cell arrays has at least one page respectively, and a number of pages selected from said plurality of sub-cell arrays simultaneously when a read or a write operation is performed, is variable. Claim 34, dependent from claim 31, teaches that "the number of pages selected simultaneously is varied by a command input from outside a chip."

Lexar, citing Linear Technology Corp., argues that the ordinary meaning of the word "simultaneously" should be adopted as the proper construction of the term. 371 F.3d 1364 (the plain meaning of "simultaneously," according to Webster's Third New International Dictionary, is "at the same time; concurrently"). Lexar contends that there is nothing about the claim language or the specification that suggests that the inventor intended a different meaning for the term and that, in fact, the specification supports adopting the ordinary meaning. Indeed, column 10, lines 42-43 explain that "[w]hen the page size is 1024 bytes, the sub-cell arrays A, B, C, and D are selected at the same time." This language appears in the Detailed Description of the Invention Section and strongly suggests that "simultaneously," as that term is used in claims 15, 18, and 31, means "at the same time." Similarly, column 10, lines 50-54 and 63-64 explain that pages are selected "at the same time." This language, also appearing in the section that describes the invention itself, suggests that "simultaneously," as that term is used in claims 1, 4, and 34, means "at the same time."

Toshiba argues that it is the selection of pages and sub-cell arrays that occurs simultaneously, "not the condition of being selected that is simultaneous." The Court agrees but does not find that Lexar's proposed construction suggests otherwise. Moreover, Toshiba's proposed language "without intentional delay" does not clarify the meaning of "simultaneously," but instead, as Lexar suggests, muddles its construction further.

The Court finds that Lexar's proposed construction is more appropriate here and construes "simultaneously" in accordance with its ordinary meaning. Simultaneously in the 933 patent is therefore construed as at the same time.

In its Opening Brief, St. Clair lists several terms that it contends may be disputed by the parties. However, the only remaining term disputed by the parties is the use of the word "simultaneously" in claim 8 of the '219 patent.

Claim 8 of the '219 patent describes simultaneously storing digital audio signals associated with subject images. St. Clair contends that "simultaneously storing" means "storing at or about the same time." (D.I. 427 at 21.) Canon contends that "simultaneously storing" means "recording at exactly the same time." (D.I. 426 at 22.) Each party contends that its construction conveys the plain and ordinary meaning of the term.

After reviewing the claim language in the context of the specification of the patents, the Court concludes that "simultaneously" should be construed to mean "at or about the same time." This construction is consistent with the
specification of the '219 patent, which describes concurrent operations being performed in a certain interval of time at different rates of speed. '219 patent, col. 6, 11. 2-5. This construction is also consistent with the plain meaning of the word "simultaneous" as it is used in the computer context. See Microsoft Press Computer Dictionary 410 (4th ed. 1999) ("Loosely, concurrent operation in which more than one task is processed by dividing processor time among the tasks.").

In making its findings of invalidity in its second order, the court further construed additional claim terms as follows:

- simultaneously active windows - two or more defined and separated areas on the computer screen which are open at the same time and may be operated on by the user;

- active - simultaneously available for operation.

2. Apple next argues that the district court's construction of "simultaneously active windows" is incorrect in that it improperly fails to lend separate meaning to the requirement that the claimed active windows be operable on. Claim 1, argues Apple, is exemplary of this distinction in the '540 patent in that it first recites that "both" the first and second windows are "simultaneously active," and then, in a separate limitation, requires "said user operating on both said first window and said second window without altering the window order." Apple also argues that this same distinction is present in claim 23 and in the patent specification.

"Operating on a window," Apple insists, must mean manipulating the window or data in the window as if an actual file or other physical object were being manipulated. Thus, Apple claims, an operable window is distinct from an active window. And taking this construction, Adobe Photoshop does not anticipate claims 1 and 23 because, while the tool palette is active, it may not be "operated on" within Apple's proposed definition. It may be moved about the display screen, but it may not be resized, nor may the contents be reorganized, nor may the palette be otherwise manipulated.

We reject this argument as well. The district court correctly found that, in the context of the '540 patent, "active" means available for operation, 7 As the specification describes:

Using the techniques of the present invention, the presentation window 300 or access window 130 'floats' above other application windows, such as window 302, and are simultaneously active, thereby allowing the user to operate on both windows 302 and 300 without altering the ordering of the window layers.

Col. 12, lines 46-55 (emphasis added). In contrast, prior art systems were distinguished in that they required an initial mouse click to activate the window before operation on that window was possible. Thus, "active," in the context of the '540 patent, means available for operation, and the invention of the '540 patent allowed multiple windows to be available for operation (active) without the need of a preliminary mouse click.

7 Specifically, the district court found that "active' means simultaneously available for operation." Viewed in context, however, the court actually defined "simultaneously active" in order to construe the limitation "simultaneously active windows."

As for the separate recitation of the requirements that both windows be active and operable on without changing the ordering of the windows, contrary to Apple's assertions, the district court's interpretation does preserve these separate limitations. The second limitation concerns the effect of a user operating on a window, not the fact that it may be operated on. Both windows could potentially be active (or operable on), yet, operating on the windows could change the display order. In contrast, the claim separately specifies that the windows are both active (operable on) and that operating on these
windows will not change their display order; one window "floats" over the other. Thus, both limitations are preserved.

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A. The Rejection of Claims 4 and 6

Our first task on the merits is to decide whether the PTO's rejection of claims 4 and 6 under section 102(b), as being anticipated by Rockwell, was proper. Claims 4 and 6 read as follows:

4. A test system and method for testing the integrity of the interconnections of electronic systems by testing for continuity from each point on the interconnect of an electronic system under test simultaneously to multiple selected power, ground and other connection points or wires, comprising the steps of:

(a) controllably applying a test signal sequentially [sic] to each point on the interconnect of the electronic system under test;

(b) simultaneously monitoring the selected multiple connection points or wires for presence of the test signal which is applied sequentially [sic] to each point on the interconnect of the system under test;

(c) identifying each interconnect point and selected multiple connection point or wire which are connected or shorted together; and

(d) comparing test data to records of the system under test for errors.

6. An automatic test system for testing the integrity of the interconnections of electronic systems versus selected multiple connection points or wires using a continuity test technique, comprising:

(a) a testpoint select and control circuit portion for controllably applying a test signal sequentially [sic] to single points on the interconnect of an electronic system under test;

(b) a processor interface circuit portion for interfacing a processor to both the testpoint select and control circuit and the multiple selected connection points or wires;

(c) a processor portion for performing automatic testing;

(d) a computer program portion for system operation and control[;]

(e) a recording device portion such as a printer for data collection; and

(f) a power source portion for supplying electrical power to said testpoint select and control circuit portion, the processor portion and the recording device portion.

The Board found that Rockwell teaches continuity testing of wire harnesses and using scanners to apply test signals and to monitor their presence. According to the Board, Rockwell teaches obtaining test data and comparing it to known good data. The Board also found that Rockwell describes an interface adapter, a processor unit, a read-only memory, a recorder, a frequency shifted key modulator, and a power supply. In view of the above, the Board concluded that Rockwell meets all of the limitations of claims 4 and 6 and thereby anticipates these claims. We agree and accordingly affirm the rejection.

The dissent expresses the view that Rockwell fails to teach element (b) of claim 4. This raises two issues: proper construction of claim 4 and what Rockwell teaches.

As construed by the dissent, element (b) requires the simultaneous monitoring of each of multiple connection points or wires (i.e., each of multiple output points). The Board, on the other hand, construed element (b) to require the simultaneous monitoring of input and output points, but not necessarily the simultaneous monitoring of an input point and multiple output
points. We conclude that the Board properly gave claim 4 as broad a reading as possible not inconsistent with the applicant's disclosure. See, e.g., DeGeorge v. Bernier, 768 F.2d 1318, 226 U.S.P.Q. (BNA) 758 (Fed. Cir. 1985) ("Claims during prosecution . . . are also given the broadest reasonable interpretation possible, consistent with the specification." Id. at 1322 n.2, 226 U.S.P.Q. (BNA) at 761 n.2 (citing In re Yamamoto, 740 F.2d 1569, 222 U.S.P.Q. (BNA) 934 (Fed. Cir. 1984))); In re Sneed, 710 F.2d 1544, 1548, 218 U.S.P.Q. (BNA) 385, 388 (Fed. Cir. 1983).

Even assuming, however, that the dissent's construction of claim 4 is correct, Rockwell nevertheless anticipates claim 4, even if it does not specifically disclose simultaneous monitoring of the output points, if simultaneous or parallel monitoring is within the knowledge of a skilled artisan. See, e.g., In re LeGrice, 49 C.C.P.A. 1124, 301 F.2d 929, 133 U.S.P.Q. (BNA) 365 (CCPA 1962) (anticipates a claim if it discloses the claimed invention "such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention." 301 F.2d at 936, 133 U.S.P.Q. (BNA) at 372 (emphasis in original)); In re Donohue, 766 F.2d 531, 533, 226 U.S.P.Q. (BNA) 619, 621 (Fed. Cir. 1985) (same) (citing In re LeGrice, 301 F.2d at 939, 133 U.S.P.Q. (BNA) at 373-74). Even the applicant, in item 12 of his request for reconsideration of the Board's 30 September 1994 decision, stated that one with knowledge of "basic electronics and simple logic" would understand the difference between the operation of the series circuit of Rockwell and the parallel circuit of the claimed invention. Thus, even under the dissent's construction of claim 4, the Board correctly held that a skilled artisan could take Rockwell's teachings in combination with his own knowledge and be in possession of the device of applicant's claim 4.

In summary, we find that the Board's claim construction is reasonable, and its determination of what Rockwell teaches is not clearly erroneous. We cannot say, therefore, that the Board's conclusion that Rockwell anticipates claims 4 and 6 is clearly erroneous.

I would reverse the Board's decision that claim 4 is anticipated by Rockwell. Claim 4 requires "simultaneously monitoring the selected multiple connection points or wires for presence of the test signal." I construe that claim language to mean that multiple points must be monitored for the test signal, a single test signal, at the same time -- i.e., "simultaneously." The Board concluded that Rockwell taught this claim element "since continuity testing requires that the input and output points be simultaneously selected for application of an input potential and an output 'ground' potential." Under this construction, with which the majority apparently agrees, the word "simultaneously" is rendered superfluous. It is axiomatic that, in a continuity test of a wire, one must monitor the connection point at the same time the test signal is applied.

Regarding the construction of claim 4, the majority states:

The Board, on the other hand, construed element (b) to require the simultaneous monitoring of input and output points, but not necessarily the simultaneous monitoring of an input point and multiple output points. We conclude that the Board properly gave claim 4 as broad a reading as possible not inconsistent with the applicant's disclosure.

While I agree with the majority's restatement of the Board's construction, that construction is inconsistent with plain language of the specification. Graves' specification clearly states, in several different places, the "one-to-many" concept of applying a single test signal and simultaneously monitoring multiple points for the presence of the test signal. For example, the specification recites:

No prior test systems or methods utilize [sic] the present invention's technique for testing the integrity of an electronic system's interconnections versus selected multiple connection points or wires. The technique comprises applying a test signal sequentially [sic] while simultaneously monitoring all the selected multiple points for the presence of said test signal, thus indicating continuity to the single point under test.

* * * *

The present invention tests for possible miswires, missing wires and shorts from each point on the interconnect simultaneously to selected multiple power, ground, processor control and other connection points or wires.
The present invention applies a test signal sequentially [sic] to single points on the interconnect of an electronic system unit under test while simultaneously monitoring the different selected multiple connection points or wires for the presence of said test signal. The presence of such signal indicates continuity between the (multiple point) connection point(s) or wire(s) to the single interconnect point under test.

This language squares with claim 4, which recites the steps of (1) controllably applying a test signal sequentially to each test point, and (2) simultaneously monitoring the selected multiple connections points for the presence of the test signal. As such, I can only conclude that both the Board and the majority have utterly failed to give claim 4 "as broad a reading as possible not inconsistent with the applicant's disclosure." Indeed, the majority's claim interpretation is indisputably inconsistent with the unambiguous language of the specification.

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g. "Can be simultaneously operated"

Claims 1 and 10 disclose that "each of the plurality of self-contained pieces of surgical equipment can be simultaneously operated with the operation thereof controlled and monitored from the surgeon's operating station." '688 Pat. col.20 l.7-10; id. at col.21 ll.16-19.

KSEA argues that "can be simultaneously operated" should be construed as "are operable at the same time." (Proposed Constructions Chart 3.) S&N proposes instead "all of the surgical equipment can be controlled and monitored at the same time from the surgeon's control panel." (Id.)

The claims' language suggests that S&N's proposed construction is correct. The word "operation" is key in this regard. The claims teach both that the surgical equipment may be "simultaneously operated," '688 Pat. col.20 l.8, and that the surgical equipments' "operation [is] controlled and monitored from the surgeon's operating station," '688 Pat. col.20 ll.9-10. The latter use of operation indicates that operation relates to the control and monitoring of the surgical equipment, rather than merely meaning "turned on" or "connected" as KSEA contends.

The Court construes "can be simultaneously operated" as meaning that "all of the surgical equipment can be controlled and monitored at the same time from the surgeon's control panel."

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C. Simultaneously supplying

The parties dispute the meaning of the term "simultaneously" in the "means for simultaneously supplying the first input-output bus line with one of a logic 1 or 0 signal and the second input-output bus line with the other of a logic 1 or 0 when the memory circuit is enabled in the write operation mode" element of claims 6, 7, and 8 of the '865 patent. Hyundai argues that two events happen "simultaneously" when one continues while the other occurs, claiming that this is the meaning of the term "simultaneously" in ordinary English usage, and that the term "simultaneously" in the '865 patent should be construed accordingly. Specifically, Hyundai argues that the application of a logic "1" signal to one data bus line while the other data bus line is already at a logic "0" signal works to supply a "1" and "0" signal to the two input/output lines "simultaneously." NEC advocates a narrower construction of "simultaneously," reading it to require both events (i.e., the application of a "1" and a "0" signal) to commence at the same time.

Words in a claim are usually "given their ordinary and customary meaning," but a patentee "may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or history." Vitronics, 90 F.3d at 1582. The technological context of the claim may also make reliance on a common, dictionary definition for a word inappropriate, since "[a] word describing patented
technology takes its definition from the context in which it was used by the inventor." Anderson v. International Eng'g and Mfg., Inc., 160 F.3d 1345, 1998 U.S. App. LEXIS 27995, at *9, 1998 WL 770652, at *3 (Fed. Cir. 1998).

The context of the word "simultaneously" in the '865 patent compels construction of the term "simultaneously" according to the narrower definition propounded by NEC. In the '865 patent, the structure of the "means for simultaneously supplying" is a pair of write gates shown as 19 and 19' and transistors Q[26] and Q[26'] in Figures 4 and 5 of the patent. The parties do not dispute that these devices are activated by the same signal at the same time. The specification states that "the low and high level signal [sic] are applied to terminals IN and /IN through the write timing signal W, respectively." The fact that these high and low signals are applied by the same signal at the same time is made even more explicit by the prosecution history of the '865 patent, which includes the statement that "if it is assumed that the potential at the terminal of the differential amplifier is at the logic "0" level after a read operation, and the potential at the other is at the logic "1" level, to write logic "1" level information in the memory cells, the logic "1" and "0" level signals are applied to the terminals /IN and IN at the same time through the write gates operated by the write timing signal W" (emphasis added). Thus, in a "read modify write" operation complementary signals are sent at the same time to the terminals at both sides of the differential sense amplifier, rather than conveyed through a two-step process involving a greater time lag, in which both terminals are brought to the same level initially and then one of the terminals is brought to the desired level. Since this ability to send complementary signals quickly during a RMW operation appears to lie at the heart of the '865 patent, "simultaneously" is construed as meaning starting and subsisting at the same time.

GO BACK

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F. "Simultaneously Testing to Determine if at Least One of at Least Two Predefined Sequences Are Present in the Digital Data Received"

In Claim 6, the patent claims "[t]he method of claim 1 wherein said screening step includes simultaneously testing to determine if at least one of at least two predefined sequences are present in the digital data received." '776 Patent, col. 17, Ins. 42-45. The parties dispute the meaning of this claim.

1. "Simultaneously Testing"

Plaintiff contends that "simultaneously testing" means testing for at least two predefined sequences "at the same time." JCCS, Appx. A, at 9 (term 37). Defendant contends that simultaneous testing does not require testing for at least two predefined sequences at the same instant of time, but rather requires testing "in one pass over the digital data[.]" Id.

Plaintiff's construction of the phrase accords with the ordinary dictionary definition of "simultaneously." See OXFORD ENGLISH DICTIONARY (2d ed. 1989) (online edition available at www. dictionary. oed. com/cgi/entry/5 022519 8? query_type=word&queryword=simultaneously); MERRIAM-WEBSTER ONLINE (online edition available at www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=simultaneously). Nothing in the specification indicates an intent by the patentee to adopt a different definition. Although the description of the preferred embodiment does indeed show a simultaneous testing in which it appears that only one pass over the digital data occurs, that same description also shows a testing protocol in which the various predefined sequences are tested at the same time. See '776 Patent, col. 4, Ins. 59-64. Nothing in the specification or the claims indicates that the former aspect was meant to define the term "simultaneously." Further, despite its argument that plaintiff's construction would render the claims unworkable, defendant does not indicate why testing for multiple predefined sequences cannot be done at the same instant in time. Accordingly, the Court adopts plaintiff's proposed construction.

2. "To Determine if at Least One of at Least Two Predefined Sequences Are Present"

Plaintiff contends that, under this claim, the simultaneous testing must test "for the presence of at least two predefined sequences." JCCS, Appx. A, at 9 (term 37). Defendant contends that the phrase should be construed exactly as it is written, requiring testing only for at least one of multiple predefined sequences. See id. Defendant argues that plaintiff's construction implies that the search must find at least two predefined sequences, whereas the language of the claim requires only that the search encompass at least two predefined sequences.
It does not appear to the Court that there is any significant difference between the parties' constructions. Plaintiff's proposed construction requiring "testing for the presence of at least two predefined sequences" implies nothing about the results of that search. Nevertheless, the Court does agree with defendant that its proposed construction is more complete, as well as consistent with both the plain language of the claim and the specification. See '776 Patent, col. 4, lns. 59-64. Accordingly, the Court will adopt defendant's proposed construction.

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41. The third point of disagreement concerns the terms "single action" and "single-action ordering component" as used in claims 1, 6, 9, and 11.

42. The term "single action" is not defined by patent specification. However, the patent specification provides that "once the description of an item is displayed, the purchaser need only take a single action to place the order to purchase that item." (Ex. A-1 at col. 3, ll. 64-66). The specification also provides that "a single action may be preceded by multiple physical movements of the purchaser (e.g., moving a mouse so that a mouse pointer is over a button)." (Ex A-1 at col. 10, ll. 2-4). In addition, the specification indicates "in general, the purchaser need only be aware of the item or items to be ordered by the single action and of the single action needed to place the order." (Ex. A-1 at col. 4, ll. 14-17 (emphasis added)). As a result, the term "single action" as used in the '411 patent appears to refer to one action (such as clicking a mouse button) that a user takes to purchase an item once the following information is displayed to the user: (1) a description of the item; and (2) a description of the single action the user must take to complete a purchase order for that item.

43. The parties dispute what mouse clicks "count" in determining whether the single-action requirement of the '411 patent claims is satisfied. The Court finds that clicks "count" after both information identifying the item and a description of the single action the user must take to complete a purchase order for that item are displayed to the user.

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V

It is clear from the district court's opinion that the meaning it ascribed to the "single action" limitation includes a temporal consideration. The "single action" to be taken to complete the purchase order, according to the district court, only occurs after other events have transpired. These preliminary events required pursuant to the district court's claim interpretation are the presentation of a description of the item to be purchased and the presentation of the single action the user must take to complete the purchase order for the item.

Amazon defends this temporal interpretation based on statements made by the applicant during prosecution of the patent. These statements, set forth below, are significant, because they were made at the point in the file history where the claims were amended to include the single action limitation.

In remarks accompanying an amendment dated February 26, 1999, Amazon provided the following comments (not limited to specific claims) to explain proposed amendments to the claims and to "clarify that the claimed single-action ordering technology is different from the shopping cart metaphor":

Applicants' single action ordering technology facilitates electronic ordering of items by reducing the number of purchaser interactions needed to place an order and reducing the amount of sensitive information that is transmitted between a client computer and a server computer when placing an order. To order an item using single-action ordering technology, the purchaser first locates the item by browsing through a catalog of items, by searching for the item, by selecting a link to the item, or by using any other means for locating the item. Once the item is located, the purchaser need only perform a single action to generate an order for the item and to fulfill that generated order. The single action may be, for example, the selecting of a button that is displayed on the web page or the speaking of a command. Because information (e.g., billing and shipping) about the purchaser has been saved (e.g., from a previous purchase), that information can be combined with the identification of the located item to generate and fulfill an order when the single action is performed.
On its face, this passage from the file history establishes that once a purchaser has located an item by any means, only a single action is required to generate an order for the item. Amazon, however, would put a special reading on the concept of a purchaser locating an item by any means. In Amazon's view of the file history, a purchaser has not located the item, for the purpose of counting the number of steps thereafter to generate the order, until the purchaser has made the decision to purchase the item. As applied to the present case, Amazon argues that display of information about an item on BN's menu page does not indicate an item located with an intent to place the order; only after one moves from BN's menu page to its product page has one "located" the item for purposes of placing the order by a single action. Since it only takes a single action on BN's product page to place the order, Amazon contends that BN likely infringes the '411 patent.

Amazon's reading of the key passage from the file history injects subjective notions into the infringement analysis. For example, if a would-be purchaser has made the decision to purchase an item before coming to BN's menu page, and there the purchaser sees the item displayed, Amazon would have to concede that no single action taken after the item display would achieve placement of the order. Instead, the purchaser would need to take a first action to advance from the menu page to the product page, and then a second action to place the order. We are not prepared to assign a meaning to a patent claim that depends on the state of mind of the accused infringer. We thus reject Amazon's special meaning for the location of an item to be purchased.

However, as we now discuss in detail, we ultimately agree with Amazon and construe all four independent claims (i.e., claims 1, 6, 9, and 11) to call for the single action to be performed immediately after a display of information about an item and without any intervening action, but not necessarily immediately after the first display or every display.

Our analysis begins with the plain language of the claims themselves. The term "single action" appears in the independent claims of the '411 patent in the following forms: "in response to only a single action being performed" (claims 1 and 9), "single-action ordering component" (claims 1, 6, and 9), "in response to performance of only a single action" (claim 6), "in response to only the indicated single action being performed" (claim 11), and "displaying an indication of a single action that is to be performed to order the identified item" (claim 11).

In claims 1, 6, and 11, the context of the claim makes it clear that the single action is performed after some information about the item is displayed. Claim 1 provides for "displaying information identifying the item," and then immediately recites that "in response to only a single action being performed," a request to purchase the item is sent to a server system. Claim 6 provides for "a display component for displaying information identifying the item," and then immediately recites "the single action ordering component that in response to performance of only a single action" sends a request to purchase the item to a server system. Claim 11 provides for "displaying information identifying the item and displaying an indication of the single action," and then immediately recites that "in response to only the indicated single action being performed" a request to purchase the item is sent to a server system. The context also indicates that the single action is performed, or is capable of being performed, after information about the item is displayed, without any intervening action. Nothing suggests, however, that the single action must be performed after every display or even immediately after the first display of information. Claim 9 does not explicitly provide for displaying information. It merely recites that a request to order an item is "sent in response to only a single action being performed." However, although claim 9 does not recite "displaying," the written description defines the claim 9 language of "single action being performed" to require that information has been displayed.

The ordinary meaning of "single action" as used in the various claims is straightforward, but the phrase alone does not indicate when to start counting actions. Therefore, we must look first to the written description of the '411 patent for further guidance.

The written description supports a construction that after information is "displayed," single-action ordering is an option available to the user, and the counting falls within the scope of the claim when single-action ordering is actually selected by the user. To the extent that the claims are considered ambiguous on this point, the written description defines "single action" to require as much. In the Summary of the Invention, the written description describes an embodiment that "displays information that identifies the item and displays an indication of an action . . . [and] in response to the indicated action being performed" orders the item. Col. 2, ll. 54-59. Similarly, in the Detailed Description of the Invention, the written description states that "once the description of an item is displayed, the purchaser need only take a single action." Col. 3, ll. 65-66. This is consistent for all of the disclosed embodiments.
Therefore, neither the written description nor the plain meaning of the claims require that single action ordering be possible after each and every display of information (or even immediately after the first display of information). The plain language of the claims and the written description require only that single action ordering be possible after some display of information. Indeed, the written description allows for and suggests the possibility that previous displays of information will have occurred before the display immediately preceding an order.

The Detailed Description of the Invention describes the first figure (Fig. 1A) by stating that "this example Web page [containing a summary description of the item] was sent . . . when the purchaser requested to review detailed information about the item." Col. 4, ll. 7-9 (emphasis added). Given that the written description earlier described on-line purchasing as involving "browsing" (col. 1, l. 55), it is reasonable to conclude that some less detailed information about the item has already been displayed.

This passage also allows for the possibility that the purchaser sees a display of the less detailed information on an item, decides to browse elsewhere, then ultimately returns to obtain more detailed information on the item and to finally order it. Thus, there could be intermittent displays of information on an item, in addition to successive displays of information on an item, and each and every display need not have single action ordering capability.

The above passages indicate that the written description is not concerned with what happens on every display of information, or even immediately after the first display, but only that there be some display from which single action ordering can be performed.

The prosecution history of the '411 patent also supports the above claim construction. In response to an office action, in the passage from the prosecution history cited earlier in this opinion, the patentee stated "a purchaser first locates the item [1] by browsing through a catalog of items, [2] by searching for the item, [3] by selecting a link to the item, or [4] by using any other means for locating the item. Once the item is located, the purchaser need only perform a single action to generate an order" (enumeration added). This enumeration of the various ways an item may be located allows for information on the item to be displayed prior to single action ordering being enabled. This is seen most clearly in the third enumerated method, "selecting a link to the item." If it is to serve as "a link to the item" (emphasis added), then there must be some display of information on the item either in the link or around the link. Thus, information on the item may sometimes be displayed before "locating" the item (and, hence, before single action ordering is enabled).

Likewise, the first enumerated method (browsing) is explained in the written description to entail requesting "detailed information" about an item before single action ordering is enabled. This presumes that "un-detailed" or general information was previously displayed. Similarly, the second enumerated method (searching) commonly entails first displaying information on various items that match a search string, such as a list of all books written by a particular author or dealing with a particular subject. The purchaser then typically selects one of these items to receive more detailed information, at which point the selected item is presumably "located" and single action ordering is enabled.

Facing arguments overlapping with the "order entry region" debate, we once again see no need to depart from the construction we adopted during the preliminary injunction phase. Thus, we construe "single action of a user input device" to be "an action by a user within a short period of time that may comprise one or more clicks of a mouse button or other input device." Defendant eSpeed has attempted to resuscitate its argument that "single action" must send a "single computer command to make the selection." Again we reject such a limitation. eSpeed's attempt harkens back to the pop-up window, and focuses the "single action" on the computer, rather than the user. As we have continually noted, however, plaintiff's patents generally were written from the perspective of the user. Therefore, this claim refers to the user's single action, not the action(s) the computer performs to execute the user's command. Further, eSpeed's reference to a single line in the prosecution history for support (". . . a trader places a trade order with the pointer in the area of the order entry region of the dynamic market depth region, through a single computer implemented action . . .") (notice of allowability, eSpeed claim construction, exh. G, at eS65384), without any support in the claim language or specification, is insufficient evidence for us.
to include such limiting language in the construction. See Phillips, 415 F.3d at 1317 ("because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes")

Defendant CQG advocates limiting the construction of "single action" to a "single click or a double click of a user input device" and defendant RCG advances a construction focused on invalidity, using "double clicking a mouse button and striking the Enter Key" as an example of a single action. We reject both constructions. The patents' specifications clearly state:

"[T]he specification refers to a single click of a mouse as a means for user input and interaction with the terminal display as an example of a single action of the user. While this describes a preferred mode of interaction, the scope of the present invention is not limited to the use of a mouse as the input device or to the click of a mouse button as the user's single action. Rather, any action by a user within a short period of time, whether comprising one or more clicks of a mouse button or other input device, is considered a single action of the user for the purposes of the present invention."

(‘132,4:9-19; ’304, 4:13-23). We will not disregard such a clear explanation. And, while the issue of double click/enter was repeatedly raised at the Markman hearing, invalidity is not before us at the moment, and therefore we decline to decide the issue during the construction phase.

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Defendants move for judgment as a matter of law that plaintiff's patents-in-suit are indefinite and thus invalid. Defendants argue that the claim term "single action of a user input device" is indefinite because it fails to alert one of ordinary skill in the art as to the bounds of the claimed invention. For the following reasons, we deny defendants' motion.

After the Markman hearing, this court defined the disputed claim term as "an action by a user within a short period of time that may comprise one or more clicks of a mouse button or other input device." That definition was based mainly on the language located in the patent description, which states:

"Further, the specification refers to a single click of a mouse as a means for user input and interaction with the terminal display as an example of a single action of the user. While this describes a preferred mode of interaction, the scope of the present invention is not limited to the use of a mouse as the input device or to click of a mouse button as the user's single action. Rather, any action by a user within a short period of time, whether comprising one or more clicks of a mouse button or other input device, is considered a single action of the user for the purposes of the present invention."

During trial, plaintiff presented this court with a motion in limine seeking to preclude expert testimony that it argued contradicted this court's construction of "single action." We granted the motion in part, holding that it was very clear that defendants' purported evidence of the Tokyo Stock Exchange (TSE) system, in which an order is entered by means of a double click, followed by the entry of a quantity, followed by an "enter," did not constitute a "single action" as we construed the term. Trading Techs. Int'l v. eSpeed, Inc., No. 04 C 5312, 2007 U.S. Dist. LEXIS 68115 (N.D. Ill. Sept. 12, 2007). The jury did not render a verdict on indefiniteness.

Defendants argue that the claim term is indefinite as construed because it fails to alert one of ordinary skill in the art as to what is claimed by the invention. Specifically, defendants argue that the phrases "one or more clicks" and "short period of time" are indefinite because nothing in the specification or description provides guidance as to the boundaries of these terms. Plaintiff's arguments are that (1) because the court was able to construe the term, "single action," it cannot be indefinite under controlling Federal Circuit precedent; (2) defendants' arguments improperly focus on certain words used to construe the term, instead of the claim language itself, and fail to note the requirement that a single action must be determined from the perspective of the user; (3) this court's determination that the TSE order entry system did not constitute a single action demonstrates that the claim term is not indefinite.

The Federal Circuit has stated that a patent claim is sufficiently definite if "one skilled in the art would understand the bounds of the claim when read in light of the specification." Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001); Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). "The statutory
requirement of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." United Carbon Co. v. Binney & Smith Co., 317 U.S. 228, 63 S. Ct. 165, 87 L. Ed. 232, 1943 Dec. Comm'r Pat. 758 (1942); see also SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1340 (Fed. Cir. 2005).

However, absolute clarity is not required, and only claims "not amenable to construction" or "insolubly ambiguous" are indefinite. See Datamize, LLC, 417 F.3d at 1347; Energizer Holdings v. ITC, 435 F.3d 1366, 1371 (Fed. Cir. 2006); Honeywell Int'l, Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1338 (Fed. Cir. 2003); Exxon, 265 F.3d at 1375. Further, patents enjoy a statutory presumption of validity and a challenger must demonstrate indefiniteness by clear and convincing evidence. See 35 U.S.C. § 282; Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001). "By finding claims indefinite only if reasonable efforts at claim construction prove futile, we accord respect to the statutory presumption of validity." Exxon, 265 F.3d at 1375.

We agree with plaintiff that the claim term is sufficiently definite. First, the fact that the term is amenable to construction -- that it can be construed to alleviate ambiguity -- renders it definite. Exxon, 265 F.3d at 1375. We found the term to be amenable to construction because it was essentially construed by the patent description itself. Additionally, the phrases, "one or more clicks" and "short period of time," do not render the term indefinite. These phrases are not part of the claim language, and thus, to the extent defendants argue that the claim term is indefinite based on those phrases, their argument is improper. See Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1567 (Fed. Cir. 1992) (improper to use language of court's construction to render claim indefinite). Regardless, "one or more clicks" merely describes how the single action may be performed, and "short period of time" is not unduly ambiguous when taken in the context of the market for the patent -- commodity trading.

Furthermore, both phrases are necessarily less than precise because a single action is determined from the perspective of the user. See Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576 (Fed. Cir. 1986). As defendants themselves point out, users vary in their skill, their speed, their background and their customization of the software. Therefore, what constitutes a single action from the perspective of a very experienced trader, or one who has customized his software to certain specifications, may be different than a single action from the perspective of a new trader or one unsure of the shortcuts and customization possibilities available. For example, a user who changes the default setting so that his mouse only recognizes double-clicks as two mouse clicks that occur within .3 seconds of each other, would consider two clicks that took 1 second as two separate actions, whereas a person who has a setting recognizing two clicks of the mouse within 1 second as a double-click, would consider that to be a single action. Both fall within the scope of the patents-in-suit because both users perceive that they are engaging in a single action -- a double-click. Since the benchmark for determining indefiniteness is one of ordinary skill in the art, in other words, the "average" user, any attempt to further pin down the boundaries of this claim term would import limitations into the claims that do not exist. It is enough that one of ordinary skill in the art would understand that, in the hypothetical above, whether the double-click took .3 seconds or 1 second, the fact that it was a double-click from the perspective of the user makes it a single action.

In addition, we find that the claim term, as construed, does alert one of ordinary skill in the art as to the boundaries of the claimed invention. This court was easily able to determine that the TSE system’s method of order entry did not fall within the boundaries of the patents-in-suit because the combined actions of double-clicking, entering quantity, and pressing "enter," even though it literally constitutes "one or more clicks" of a mouse button, et cetera, did not constitute a single action from the perspective of a user. Our very ability to determine that the TSE does not fall within the claim's ambit is evidence that the claim term is sufficiently definite. Therefore, defendants have failed to meet their burden of proving by clear and convincing evidence that the claim term "single action" is indefinite.

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VI.

The parties dispute whether the limitation "single action of a user input device" is indefinite as construed. A patent specification must "conclude with one or more claims particularly pointing out and distinctively claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P.2. "The statutory requirement of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and

This court agrees with the district court that the claim term as construed is sufficiently definite. The district court construed "single action of a user input device" to mean "an action by a user within a short period of time that may comprise one or more clicks of a mouse button or other input device." Trading Techs., 2006 U.S. Dist. LEXIS 80153, at *11. In this context, the word "an action" means one user action. An action may include multiple sub-elements as long as the user views all sub-elements as one user action (e.g., double-click comprising of two single-clicks is "an action"). The invention is different from prior art inventions that required a trader to click on multiple locations before submitting the order. The district court's construction correctly sets objective boundaries by distinguishing the invention from multiple-action systems found in the prior art.

Moreover, one of ordinary skill in the art would distinguish user actions as singular or multiple. The claim construction provides an example of a singular action--one or more clicks of a mouse button. Importantly, the district court's construction requires that the "action" must be done in a "short period of time." Although a "short period of time" may vary slightly from one circumstance to the next, an artisan of ordinary skill would not find the term insolubly ambiguous. In fact, eSpeed's expert agreed that the following actions are all single actions: a single mouse click, double mouse clicks, a single key press, and a modal shift on the keyboard (such as combination of the Control key or the Alt key with another key). eSpeed's expert also agreed that other actions, such as a right click followed by a left click, and pressing two keys in sequential order, constituted multiple actions. Given the record and the trial court's definition of the term "single action," this court agrees that the claim terms set forth the boundaries of the claim scope.

C.

The district court determined that the dialer unit of the claimed invention has only a "single, bi-state switch" operable from the exterior of the case for activating the signal. In other words, the district court observed that the term "single, bi-state switch" bolsters its claim construction excluding a keypad from the dialer unit. A keypad, after all, has a number of switches.

The "single, bi-state switch" refers to a switch on the dialer unit that can activate "said signal means to produce said sequence of dual tone modulated frequency [DTMF] signals during said dialing mode corresponding to said digits in said reprogramming memory means." See element [f] of claim 22. In other words, a single switch on the dialer unit activates the tones to dial a telephone number. Col. 4, ll. 53-58 ("In the preferred embodiment, switch means 207 is a single bi-state . . . switch that is operable from the exterior of the case. Switch means 207 . . . serves to activate the last number redial feature of the signal means."); col. 6, ll. 1-6 ("The operator then depresses switch means 207. . . . This activates the last number redial feature of the signal means 201 to produce a sequence of [DTMF] signals corresponding to the digits stored in the reprogrammable memory means 203."). This language about "a single, bi-state switch," however, does not preclude a dialer unit from having other switches as long as a single switch activates the signal means to produce dial tones. The claim language explains well the function of the single switch. This language alone does not preclude other switches for other functions that may not be specified in this claim. Indeed, by using the transition term "comprising" at the outset of the claim, the claim drafter signaled that an accused device could have additional elements - such as switches - beyond those expressly recited and still literally fall within the claim terms. AFG Indus. v. Cardinal IG Co., 239 F.3d 1239, 1244-45, 57 U.S.P.Q.2d (BNA) 1776, 1780 (Fed. Cir. 2001).

For the reasons stated above, the dialer unit does not have a keypad. The term "single, bi-state switch," as well as the specification describing that term, do not limit the dialer unit to only one bi-state switch. The claim language does not preclude other switches on the exterior of a dialer unit, such as another switch to choose a different preprogrammed telephone number. The term "single," however, precludes the use of multiple switches to perform the activating function for one phone number. Only a single switch activates the dialing function for a preprogrammed number.
The critical claim in the '998 patent to defendants' motion is claim 34, set forth below:

A physiological electrode system providing for the connection of a monitoring device, a therapeutic device or a stimulating device to a patient through a single common instrument-to-body interface and comprising:

first and second electrode elements to be attached to the patient's body, said electrode elements constructed to have the characteristic required for monitoring, stimulating and therapeutic applications, including the capability of handling relatively large energy requirements for stimulating and therapeutic applications and the sensitivity to low level signals required for monitoring applications;

standardized connecting plug means;

first and second electrically conducting lines connected from said electrode elements to said connecting plug means, said electrode elements, said connecting plug means and said conducting lines constituting a disposable electrode set;

connector means to engage said connecting plug means; and

cable means electrically joined to said connector means for selectively connecting the monitoring device, the therapeutic device or the stimulating device to said electrode elements by engagement of said connector means and said connecting plug means.

--- Footnotes ---

13 Claims 35, 36 and 37 each depend on the limitations set forth in claim 34. Therefore, if there is no infringement of these limitations, either literally or under the doctrine of equivalents, then the dependent claims also are not infringed. Teledyne McCormick Selph v. U.S., 214 Ct. Cl. 672, 558 F.2d 1000, 1004 (Ct. Cl. 1977).

--- End Footnotes ---

Figures 1 and 28 of the '998 patent illustrate a system simultaneously connecting the electrode set through three types of cables to all three devices. Figure 28 reveals the system in its entirety, with the connectors and protective circuitry to permit all three of the cables to connect the electrodes simultaneously to the three devices. 14

--- Footnotes ---

14 In particular, the specification describes a "low pass filter network" and "high voltage protection circuit" to protect the ECG monitor from damage and undue interference from the employment of simultaneously attached defibrillation and therapeutic devices.

--- End Footnotes ---

The parties' dispute focuses on the meanings of a "single common instrument-to-body interface" and "cable means." Defendants contend that "single common interface" must refer to a system capable of simultaneous connection to all three devices in light of the plain language, the specification, and the file history. First, because the claim requires the devices attach to a "single common instruments-to-body interface," defendants argue that claim 34 must refer to one apparatus actually hooked to all three devices. Otherwise, defendants question what meaning the adjectives, "single common," add to the description. Consequently, defendants contend that the claim must refer to a cable system constructed with all components necessary, such as the connecting cables and protective circuitry, to permit the simultaneous connection to all three devices.
Defendants also point to the specification and its drawings as limiting claim 34 to a system simultaneously attached to all three devices. Without dispute from R2, defendants argue that the cable component of the invention, the "cable means," is presented as a "means-plus-function" limitation. 35 U.S.C. section 112, paragraph 6 restricts a "means-plus-function" limitation to equivalents of the structures provided in the specification to carry out the function. See Valmont Industries, Inc. v. Reinke Mfg. Co., Inc., 983 F.2d 1039, 1043 (Fed. Cir. 1993). Defendants contend that these specifications only set forth a structure capable of simultaneous connection to all three devices.

Third, defendants argue that the prosecution history reveals that the inventor disavowed a system incapable of simultaneous connection in order to obtain the patent grant from the Patent Examiner. The inventor, Heath, originally submitted 117 claims and 28 figures in relation to the '998 patent. In response, the Examiner issued a requirement for restriction asserting that these claims were "specific to more than one species of the generic invention," and identified the species by reference to the drawings. Pursuant to 35 U.S.C. section 121, the Examiner directed Heath to elect a single species. Heath elected the species disclosed by figures 1 and 28, depicting the system simultaneously connected to all three devices, and 45 of the 117 claims that Heath asserted read on the species. Defendants argue that, through this election, Heath abandoned any claims covering systems incapable of connection to all three devices as depicted in figures 1 and 28.

R2 responds that the "single common interface" refers to the multifunctional electrodes, connector plugs and sets of cables that may be combined in various permutations to permit attachment to any of the three devices, but not necessarily to two or three devices at once. In support, R2 argues that defendants' interpretation would render claim 34 redundant of the '998 patent's other independent claim that expressly provides for the "simultaneous" connection to two or more devices. With respect to "cable means," R2 argues that the specification discloses an embodiment that includes a system that only selectively attaches to any of three devices. Finally, R2 contends that Heath abandoned only claims related to the electrodes alone, the cables alone, or to systems using only the electrodes and one or two types of devices irrespective or their ability to selectively connect to the other devices. Accordingly, R2 interprets the inventor's remarks to elect claims related to a species that contemplates both the selective connection of the multifunctional electrodes with the three devices as well as one including the connectors and circuitry necessary for simultaneous connection.

2. Interpretation of Claim 34

a. The Claims Themselves

In contrast to defendants' reading, the plain language of claim 34 does not indicate a cardiac system including cables and protective circuitry permitting simultaneous connection to all three cardiac care devices. Claim 34 describes an "interface" capable of connecting "a monitoring device, therapeutic device or a stimulating device" to the patient. This interface is comprised of a disposable electrode set, a connector plug, connector means and cables. Neither the monitoring device, therapeutic device nor stimulating device, themselves, are presented as elements of the invention. Rather, electrodes, connectors and cables constructed for connection to these devices comprise the invention. The "cable means" is defined as intended for "selectively connecting the monitoring device, therapeutic device or stimulating device" to the electrode sets. None of the limitations refer to simultaneous connection or use. Thus, the "selective" character indicates that the "cable means" refers to any of three cables that may be attached at any one time to employ the desired device.

In contrast, another independent claim of the '998 patent, claim 1, specifically describes a system using connectors and protective circuitry for "simultaneous" connection. Claim 1 and claim 34 read substantially similar in providing the fundamental limitations on invention. Instead of calling for a "cable means," however, claim 1 requires the use of an "interrelating means" that provides for "the simultaneous connection of said electrode elements to at least two said devices." Claim 1 also requires the additional element of a "protective means associated with said interrelating means for selectively permitting desired combinations of . . . [the three devices] . . . to be simultaneously connected to the patient solely through first and second said electrode elements." Thus, in contrast to claim 34, claim 1 explicitly refers to a system using cables and circuitry that permit the simultaneous connection of two or more devices. 15

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15 In fact, there are a total of seven independent claims in the '998 patent; claims 1, 20, 25, 27, 31, 32 and 34. Claims 20, 25, 27 and 31 all require an "interrelating means" as well as the attachment of a "protective means" for "permitting the
desired combination" of devices to be "simultaneously connected to the patient." Claim 32 appears to require the actual connection of all three types of devices to the system.

Under the interpretive doctrine of "claim differentiation," an interpretation of a claim should be avoided if it would make that claim read identically to another claim in the same patent. Autogiro, 181 Ct. Cl. 55, 384 F.2d 391, 404; see Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987); DMI, Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985). Defendants respond that "claim differentiation" only restricts the reading of express limitations from a dependant claim into an independent claim, and is not applicable to the comparison of two independent claims in the same patent. As defendants note, the doctrine has greater argumentative force when an interpretation would render an independent claim identical to its own dependant claim. See Hormone Research Foundation, Inc. v. Genentech, Inc., 904 F.2d 1558, 1567 n. 15 (Fed. Cir. 1990) ("It is not unusual that separate claims may define the invention using different terminology, especially where . . . independent claims are involved"). Dependant claims are generally used to narrow an independent claim by describing the disclosed invention with greater detail, and so, stricter scope.

However, defendants cite no precedent limiting "claim differentiation" to this context. Cf. id. (interpreting independent claims as identical where specification and file history require that interpretation). More importantly, the Federal Circuit has applied the doctrine to interpret one independent claim in light of another independent claim. See Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1055 (Fed Cir. 1988); Caterpillar Tractor Co. v. Berco, SPA, 714 F.2d 1110, 1116 (Fed. Cir. 1983). Defendants have not pointed to any distinction between claim 1 and claim 34 other than claim 1's limitations describing an "interrelating means" and "protective means" and claim 34's "cable means." Therefore, the redundant character of defendants' interpretation of "cable means" further supports R2's more natural interpretation of "cable means."

This interpretation of claim 34 does not render the terms "single common," modifying the "instrument-to-body interface," superfluous. As a general matter, the fact that "single common instrument-to-body interface" appears in the preamble of claim 34 does not necessarily indicate that it imposes a structural limitation on the claim. See Gerber Garment Technology, Inc. v. Lectra Systems, Inc., 916 F.2d 683, 688 (Fed Cir. 1990) (description in preamble constitutes limitation only if necessary to precisely define and give meaning to the invention set forth in the formal limitations). Regardless, the "single common interface" refers to the fact that the same disposable electrode set, connector plug and set of cables are used regardless of the device selected. The fact that the specific cable connected at any one time is different does not contradict the description of a "single common" interface between the patient and the device chosen. The other elements of the actual entity used, the disposable electrode set, remain the same. Only the final element of the cable used at any one time is altered.

b. Mean-Plus-Function Analysis

Defendants argue that 35 U.S.C. section 112, paragraph 6, restricts claim 34 to devices capable of simultaneous connection. Instead of reciting a particular structure, a "means-plus-function" limitation describes an element of a product claim as "a means or step for performing a specified function." 35 U.S.C. § 112 P 6. In contrast to the usual interpretive rule against reading limitations from the specification into the patent claims, see Constant, 848 F.2d 1560, 1571, a "means-plus-function" limitation is restricted to the description, and equivalents thereof, of structures set forth in the specification intended to carry out the function described in the limitation. Valmont, 983 F.2d 1039, 1043-44. The parties do not dispute that the "cable means" constitutes a "means-plus-function" limitation. Claim 34 never describes the structure of its "cable means" other than to note its connection to the connector means and the cardiac care devices. If the specification only presents the structure of a "cable means" that is capable of simultaneous connection, then this limitation must be read into claim 34 regardless of the tenant of the "claim differentiation." Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991).

Defendants point to the specification's description of "the preferred approach disclosed" with the utilizing of a cable "electrically joined to the desired instrument or instruments," where "these cables may then be relatively permanent, with only the electrode sets being replaced for each usage." In the subsequent more detailed section on the preferred embodiment, the specification describes cable structures for each of the three devices, as well as connectors and circuits to be attached with each cable that protect the devices from damage when employing another simultaneously connected device. In addition, the drawings in figures 1 and 28 depict a system using a "cable means" with protective circuitry that
simultaneously hooks the electrodes to a monitor, a defibrillator and an electrosurgical device. As these drawings in the specification illustrate a configuration of the cables and connectors permitting simultaneous connection, defendants argue that the "cable means" must be limited to equivalents of such a configuration.

As defendants argue, the specification presents a preferred embodiment where all three devices are simultaneously attached to the electrode set. In setting forth the system in structural detail, the specification further describes connectors and circuitry attached to each of the cables for various permutations of simultaneous connection to the devices. But a "means-plus-function" limitation is not limited to the equivalents of a single preferred structure. Rather, it is limited to the equivalents of any structures described therein necessary for carrying out the function. See United States v. Telectronics, Inc., 857 F.2d 778, 782 (Fed. Cir. 1988) (defining means-plus-function limitation as including structural alternative presented in specification).

In addition, a "means-plus-function" limitation incorporates only the disclosed structure necessary to perform the specified function. See General Elec. Co. v. U.S., 215 Ct. Cl. 636, 572 F.2d 745, 776 (Ct. Cl. 1978) (refusing to incorporate elements into limitation from the specification not necessary for performing function); see also Lockheed Aircraft Corp. v. U.S., 213 Ct. Cl. 395, 553 F.2d 69, 81 (Ct. Cl. 1977) ("a 'means-plus-function' claim covers the structure necessary to perform the specified function"). The function which defines the limitation is determined by the terms of the claim, not the specification. See DMI, 755 F.2d 1570, 1573. As explained above, claim 34 does not indicate that the "cable means" is for the function of simultaneous connection of the devices, but rather that it is for the function of "selectively connecting the monitoring device, the therapeutic device or the stimulating device" to the connector means and electrode sets.

In the preferred embodiment, the specification details the structure of a cable for each device, and the necessary connector means so that the cable may attach to a standardized connector plug. Although the specification further describes connectors and protective circuitry to connect the devices together and the disposable electrode set, these additional structures are only required for the preferred embodiment. Accordingly, the preferred embodiment presents an "interrelating arrangement" depicted in figures 1 and 28 that includes the attachment of the protective circuitry and connector means for the simultaneous connection of all of three cables and devices.

But the specification never limits the "cables means" to either figure 1 or 28. Cf. Hormone Research Foundation, 904 F.2d at 1563 (specification and prosecution history explicitly limited claimed invention to single accompanying figure). Instead, the specification provides that in addition to the preferred embodiment the invention includes sub-systems using many of the same elements:

Each of these instruments be connected to the patient's body through the electrode elements by itself or in combination with one or more of the other instruments by means of an appropriate interrelating arrangement.

After presenting the preferred embodiment, the specification explains that the invention includes the separate connection of each of the devices to the electrode elements:

In addition to the provision of a multiplicity of functions through a single pair of electrode elements, this invention also provides for the separate connection of each of the instruments to that pair of electrode elements. . . Therefore this invention not only relates to the unique system, but it also relates to a number of novel and unobvious sub-systems and components of that physiological electrode system.

The specification details the structures of all the elements necessary for a system capable of only selective connection to the cardiac care devices. Therefore, the specification presents an embodiment of the "cable means" where only one device is connected at a time as well as one in which a number of devices are connected.

c. Prosecution History

Under 35 U.S.C. section 121, and regulations promulgated thereunder, the patent examiner has the discretion to restrict a patent application to one invention if "two or more independent and distinct inventions are claimed in one application." A species of an invention is a particular embodiment of the invention disclosed in a patent application. Manual of Patent Examining Procedure (MPEP) § 806.04(e) (6th ed. 1995). A species claim, in turn reads on that embodiment. Id. If there is no disclosed relationship between different species, the patent examiner generally will consider them "independent"
inventions. MPEP § 808.01(a); see § 806.04(b). A generic claim, in contrast, is defined as a claim with limitations that both include the primary organizational structure of more than one disclosed species and whose limitations read on each of the pertinent species. MPEP § 806.04(d).

Where an application contains a generic claim for all of the disclosed species, a restriction usually is not proper. 16 See MPEP § 809.02(d). But if an application contains no generic claim that covers separate species disclosed in that application, then the patent examiner may issue a restriction requiring the applicant to elect a single disclosed species and those claims that read upon that species. 37 C.F.R. § 1.141. Although the applicant may contest ("traverse") the restriction and try to convince the patent examiner that the identified separate species does not reflect independent and distinct inventions, the applicant must provisionally elect one of the species. If the patent examiner concludes that the species are independent and distinct, he or she may make the requirement final. Subsequently, the patent examiner has the authority to restrict, and so refuse to consider, any submitted claims that are not directed to the elected species. 17 At the time of the final action on the application, the patent examiner may compel the applicant to either cancel the unelected, and unreviewed, claims or petition the restriction to the Commissioner of Patents. See MPEP § 821.01. If not appealed through the petition process, the applicant may either pursue the unelected claims in a divisional application for a separate patent or abandon them.


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16 It also is improper to issue a restriction if the separate species are not "mutually distinctive"—if either species would be clearly obvious in light of the other species. MPEP § 806.04(h). Because contesting a restriction on this basis involves arguing for the obviousness of the invention, it is unlikely that applicants would contest a restriction on this basis.

17 To restrict a claim from a species thereafter, it must contain "mutually exclusive" limitations with those claims considered to read upon the species—each claim must contain an element that is not contained in the other claim. MPEP § 806.04(f).

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Heath originally submitted 117 claims in relation to the '998 patent, along with the 28 figures currently set forth in the specification. Considering these claims to disclose several distinct inventions, the Examiner issued a requirement for a restriction in his first office action:

This application contains claims specific to more than one species of the generic invention, as for example, the species of Figs. 1-4 and 28; Figs. 5-7; Figs 8-9; Figs. 10-13; Figs. 14-17; Figs. 18-20; Figs. 21-25 and Figs. 26-27, respectively. Applicant is required under 35 USC 121 (1) to elect a single disclosed species of and the preferred embodiment to which the examiner's action will be limited until a generic claim is finally held allowable, and (2) to list all claims readable on such elected species includes any claims subsequently added.

In his response, Heath attempted to traverse the restriction requirement, arguing that the figures and claims disclosed the related embodiments of a single invention of a system combination, sub-systems, sub-combinations and related components and functions. In explaining the claims, Heath stated in the response:

Turning now to the claims, it should be understood that the relating of the claims to particular portions of the drawing is for purposes of identification and it is not for intended to limit the scope of the claims to which the applicant is entitled in any way. Thus, [the ultimately elected claims] are directed to a system able to selectively obtain a multiplicity of functions through a single pair of electrodes. These claims relate to the overall system, and its equivalents, depicted Figures 1-4 and 28, but many of the features of the system, as claimed in these claims are included in the various portions of the system illustrated more fully in other figures of the drawing.

After reviewing all of the claims and arguing that they presented a single invention, Heath provisionally elected to prosecute 45 claims that he described were "basically directed to the subject matter, and its equivalents, illustrated in figures 1-4 and 28, with other features of the dependent claims shown in various other figures of the drawing." 18 This list included the claim currently designated as claim 34. Ultimately, the Examiner made his restriction final:

--- End ---
The requirement for restriction is repeated and made final. Applicant argues that only one invention is disclosed. It would appear that the combined units is only one way the individual units can be used separately or in various combinations. Therefore, the alleged system combination represents one species.

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18 Apparently, Heath did not abandon all of the remaining 72 claims, but pursued and obtained a number of them, in altered or identical form, in the related electrode patents, the '356 patent or the '552 patent. These include claims covering the electrode elements, a monitoring system, a defibrillation system, and various cable constructions for use with ECG and defibrillation devices.

--- End Footnotes ---

Defendants contend that this prosecution history demonstrates that Heath limited his invention under the '998 patent to the system capable of simultaneous connection to all three devices ("simultaneous system"). Regardless of Heath's intent, defendants interpret the Examiner's restriction to require Heath to exclude any claims that did not disclose a simultaneous system. When the Examiner made his restriction final, defendants argue that his action acted as collateral estoppel to prohibit Heath thereafter from asserting that any of the claims under the '998 patent that do not disclose a simultaneous system.

The prosecution history informs the interpretation of a patent claim "by excluding any interpretation of the claim language that would permit the patentee to assert a meaning for the claim that was disclaimed or disavowed during prosecution in order to obtain claim allowance." Zenith, 19 F.3d 1418, 1421. As a general matter, the claim is construed in light of the applicant's arguments and remarks seeking to establish the patentability of the invention by distinguishing references to the prior art. See, e.g., Carroll Touch, 15 F.3d 1573, 1577. Narrowed language or discarded broader claims may indicate surrendered subject matter. Similarly, applicant's explanations of why the new or previous language is nonobvious often assert specific interpretations of the limitations and thereby disavows subject matter.

In contrast to this standard usage of prosecution history, defendants interpret claim 34 in light of the administrative matter of a requirement for a restriction. In a restriction, an applicant and patent examiner do not dispute what subject matter is included in the invention versus the public domain, or even if the application employs adequately descriptive language to satisfy the requirements of 35 U.S.C. section 112. Rather, for the purposes of case management and control of filing and search fees, the patent examiner requires the applicant to divide his or her claims among distinct, though related, patent applications. See Application of Weber, 580 F.2d 455, 458 (C.C.P.A. 1978) (purpose of restriction power is to permit Patent and Trademark Office control over research filing fees and caseload management). Neither an applicant's traverse nor his election of species attempts to induce the grant of patent protection. A restriction is not a rejection. See id. The applicant is free to pursue withdrawn claims in divisional applications, usually enjoying the same priority date and scope of prior art as the original patent. 35 U.S.C. § 121; see 37 C.F.R. § 1.147. Consequently, there is some question whether an applicant's response to a restriction has the same preclusive effect as a response to a rejection. In fact, the court has not identified any precedent using prosecution history of the election of a species in order to restrict or otherwise interpret the scope of a patent claim.

However, "the court has broad power to look as a matter of law to the prosecution history of the patent in order to ascertain the true meaning of the language used in the patent claims." Markman, 52 F.3d 967, 980. The "avowed understanding of the patentee, expressed by him, or on his behalf," may confirm the construction of the patent. See id. (quoting Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227, 26 L. Ed. 149 (1880)). Although this record may aid in understanding the terms of the claim, "it too cannot 'enlarge, diminish, or vary' the limitations in the claims." Id. (citations omitted). Accordingly, the court will review the prosecution history in order to discern if it reveals an "avowed understanding" that claim 34 discloses a system capable of simultaneous connection.

As an initial matter, the prosecution history does not reveal that Heath expressly abandoned from the '998 application subject matter relating to a system capable of selective but not simultaneous connection to the three devices from his patent application ("selective system"). None of the unelected claims require an electrode system capable of connecting any of the three devices. Some of these unelected claims disclose specific components, such as cables or electrodes. Others disclose an electrode system for attachment to only one or two of the devices. But even these do not require the cables or connectors.
necessary for selective connection to all of the three devices. Similarly, none of the figures depicting the ultimately unelected species, as identified by the Examiner, illustrated a selective system. Rather, some figures illustrate a system connected to a single specific device while others illustrate a system connected to two devices. As no single unelected group of figures depicts all three types of cables, it is questionable whether claim 34, as interpreted to disclose a selective system, would read upon any one group of these unelected figures. Therefore, none of the explicitly unelected species or claims embody a selective system.

Neither does the record reveal that Heath clearly expressed an understanding of his elected claims as limited to a system capable of simultaneous connection. Although he stated in his response that the elected claims, including claim 34, "relate to the overall system" depicted in figures 1 and 28, it is not clear that this "overall system" does not embody a system capable only of selective connection as well as one capable of simultaneous connection. See Lemelson v. TRW, Inc., 760 F.2d 1254, 1263 (Fed. Cir. 1985) (noting that "the enumeration of figures in which an elected species is illustrated cannot always be interpreted as meaning that everything in those figures is part of the elected species"). The preferred embodiment of the invention illustrated in figures 1 and 28 contain all of the essential elements in the selective system that R2 proposes is disclosed by claim 34. As noted, none of the figures in the unelected groups depicted all of the elements necessary for such a selective system. Thus, of the figures in the drawings, only figures 1 and 28 illustrated all three cables and connectors as required for each device under either a selective system or a simultaneous system. Further, interpreting Heath's reference to figures 1 and 28 as limiting the scope of the claims to a simultaneous system would ignore his immediately preceding caution that the use of figures was for identification only and "not intended to limit the scope of the claims." In sum, Heath's response does not indicate that he interpreted the elected species or claims to disclose only a simultaneous system.

Defendants argue that Heath's statements and intent are irrelevant to determining what subject matter he abandoned. Defendants contend that it only matters what subject matter the Examiner required Heath to surrender. Arguing that the Examiner required the '998 patent to be restricted to an invention capable of simultaneous connection to three devices, defendants propose that Heath may not assert subsequently granted claims beyond the scope of that subject matter. In construing the meaning of the claim, neither the applicant's nor the patent examiner's subjective intentions is determinative. See Markman, 52 F.3d at 985-87. Rather, the meaning of the claim is affected by what the written record of the file wrapper confirms. Id. at 980. If the record demonstrates that the Examiner restricted the species elected by Heath to a simultaneous system, then Heath's subsequent election of claims may constitute an avowed understanding that those claims were directed to that subject matter. Therefore, if the Examiner identified the elected species as directed to a simultaneous system, then Heath's response that the elected claims, including claim 34, were directed to that species may constitute an avowal that claim 34 is directed only to a simultaneous system.

The problem with defendants' position is that the prosecution history does not reveal that the Examiner ever clearly identified the elected species as restricted to a simultaneous system. Because the restriction occurred in the first office action before any review of the merits of the claims, it is not entirely surprising that the exact boundaries of these species were vague. In issuing the restriction, the Examiner only identified the alternative species through reference to groups of figures. As noted, none of the unelected groups of figures illustrate a selective system. Figures 1 and 28, in contrast, illustrate an embodiment that contains all of the principle components of a selective system. Therefore, these references do not reveal whether the Examiner perceived the elected species as requiring simultaneous connection.

The Examiner's only other characterization of the elected species occurred after Heath had provisionally elected his claims and the restriction was made final. The Examiner concluded that "the alleged system combination represents one species." However, the language of the claims and specification indicate that Heath's "alleged system combination" involves both the combination system for simultaneous connection and the combination system for only selective connection. Further, both a simultaneous system and selective system involve all of the cables and the selective use among any of the three cardiac care devices. This scant prosecution history on the scope of the elected species does not demonstrate that it excluded systems capable of only selective connection to all three devices. In light of the plain language of claim 34 and the specification, the court finds that the Examiner's restriction requirement did not circumscribe the identified elected species to only simultaneous systems. See Intervet Am. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1054 (Fed. Cir. 1989) (ambiguous prosecution history may not vary unambiguous claim language).

For the reasons set forth above, claim 34 discloses a cable system capable of selective connection to either a monitoring device, a stimulating device, or a therapeutic device. It does not require that the system protected is capable of simultaneous connection to all three devices.
2. "Another single connector on the housing, said single connector comprising a set of pins, said set further comprising a plurality of subsets of computer-peripheral-device-specific pins being in electrical communication with said microprocessor such that one of each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors, said single connector for making all connections from the microprocessor to said specific computer peripheral devices"

For ease of reference, I will adopt the parties' convention and refer to this phrase as the "long phrase." The long phrase appears in independent claims 17(c), 20(d) and 28(d) of the '645 patent. The parties raise four construction issues concerning it. I will start with the dispute that was resolved at the claims construction hearing.

At the hearing, the parties agreed that the claims of the '645 patent establish two paths through which the microprocessor may communicate with peripheral devices. First, the devices may be connected to the microprocessor through their corresponding individual connectors, which are mounted on the housing. Second, the devices may be connected to the microprocessor through a docking connector, which mates with a single connector found on the housing. At the hearing, plaintiff stated that it was under the impression that defendants' construction of the long phrase required the connections between the microprocessor and the peripheral devices to pass through the single connector, even when the peripheral devices were connected to the microprocessor through their individual connectors. Trans., dkt. # 101, at 53. As a result, when the peripheral devices are connected to the microprocessor through the individual connectors, the claims would be infringed only when the signals to each peripheral device passed from the microprocessor to the single connector and then from the single connector to the individual connectors. Defendants stated that this was not their position. Id.

The remaining three disputes concerning the long phrase are as follows. First, defendants contend that a portion of the long phrase is indefinite under 35 U.S.C. § 112. Second, defendants argue that another section of the long phrase, "said single connector for making all connections from the microprocessor to said computer peripheral devices," should be construed to require that "all individual peripheral devices connections on the housing that connect to the microprocessor also pass through the single connector." Dfts.' Opening Br., dkt. # 86, at 10. Third, defendants contend that this section should be construed to require that "the microprocessor directly drives all peripheral devices, either through the housing's individual connectors or through the single connector." Id.

a. Indefiniteness

Defendants contend that a portion of the long phrase, "one of each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors," is indefinite under 35 U.S.C. § 112. Defendants argue that this portion is indefinite because it is subject to more than one reasonable interpretation. Plaintiff contends that defendants have failed to carry their burden on this point. In addition, they argue that the portion is not indefinite, citing a construction provided by the applicants in the prosecution history. I agree with plaintiff that defendants have not shown that the portion is indefinite. I am persuaded that the applicants' intent was to establish a one-to-one ratio between the subsets of pins on the single connector and the plurality of individual connectors. In other words, each subset of pins on the single connector provides the same computer-peripheral-device-specific data link as one of the individual connectors.

Section 112, P 6 requires that a patent's specification have "one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." "The legal standard for definiteness is whether a claim reasonably apprises those of skill in the art of its scope." In re Warmerdam, 33 F.3d 1354, 1360 (Fed. Cir. 1994). This standard is satisfied if "one skilled in the art would understand the bounds of the claim when read in light of specification." Exxon Research & Engineering Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001); see also Marley Mouldings Ltd. v. Mikron Industries, Inc., 417 F.3d 1356, 1359 (Fed. Cir. 2005). Absolute clarity is not required; rather, definiteness is present only when "a claim is insensibly ambiguous, and no narrowing construction can properly be adopted." Exxon Research, 265 F.3d at 1375; see also Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). A claim is not indefinite merely because it is subject to more than one reasonable interpretation. Exxon Research, 265 F.3d at 1375. Because issued patents are entitled to a presumption of validity, indefiniteness must be shown by clear and
At the claims construction hearing, defendants focused their indefiniteness argument on the words at the beginning of the portion of the long phrase at issue, "one of each of." According to defendants, the words "one of" and "each of" do not make sense when they are placed together. Therefore, defendants contend, the court must ignore either "one of" or "each of" to arrive at a coherent construction. If the words "one of" are read out, the portion becomes "each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors." Under this reading, each of the subsets of pins on the single connector would have to provide the same data links as each of the individual connectors. Defendants provide the following illustration for this construction.

Dfts.' Opening Br., dkt. # 86, at 25. On the other hand, if the words "each of" are read out, the portion becomes "one of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors." Under this reading, the claims would require one subset of pins on the single connector to provide the same data links as all of the individual connectors. Defendants illustrate this reading as follows:

Plaintiff contends that this last construction is the correct construction. It notes that the applicants advanced this construction during prosecution of the '645 patent. Specifically, in a supplemental amendment dated July 21, 1992, the applicants amended claims 17 and 20 by adding the long phrase in its entirety to both claims. (The long phrase was already included in claim 28.) The applicants made the following remarks to explain their amendments:

The Applicants' system also provides a separate single connector which allows peripheral devices to communicate with the microprocessor. The connector consists of a set of pins which consists of subsets of pins, each subset being specific to a single computer peripheral device.

Aff. of Vito Canuso, dkt. # 87, exh. N, at 11 (emphasis added).

Plaintiff has the better of this argument. In determining whether a claim is indefinite, it is appropriate to consult the specification and prosecution history. Datamize, 417 F.3d at 1348. In this case, the specification does not discuss the correlation between the subsets of pins on the single connector and the individual connectors. However, the July 21 amendment indicates that each subset of pins corresponds to one peripheral device, and by implication, that device's individual connector. At a minimum, this indicates that the phrase "one of each of said subsets of computer-peripheral-device-specific pins provides the same computer-peripheral-device-specific data link as said each of said plurality of computer-peripheral-device-specific connectors" is subject to a narrowing construction and therefore is not "insolubly ambiguous." Exxon Research, 265 F.3d at 1375. Accordingly, I conclude that the phrase is not indefinite under 35 U.S.C. § 112 P 2.

b. "All connections" limitation

Defendants argue that a portion of the long phrase, "said single connector for making all connections from the
microprocessor to said computer peripheral devices," should be construed to require that all connections on the housing pass through the single connector. In other words, the single connector must provide a connection to each peripheral device that could be connected to the microprocessor through an individual connector on the housing. At the hearing, the parties agreed that the practical effect of defendants' proposed construction is that all of the connections on the housing must be replicated on the docking station. Trans., dkt. # 101, at 54-55.

Plaintiff argues that the section should be construed to require "that there be a 'plurality' of individual connectors and that the single connector is only required to replicate those connectors which comprise that 'plurality.'" Plt.'s Reply Br., dkt. # 98, at 13. Under plaintiff's proposed construction, the claims would be infringed by a computer that had three individual connectors on its housing and a single connector that replicated only two of those connectors because two constitutes a plurality of the connectors on the housing. Plaintiff argues that the words "said computer peripheral devices" at the end of the portion refer to "a plurality of computer-peripheral-device-specific connectors," which appears in claims 17(b), 20(c) and 28(c).

I will adopt defendants' proposed construction because it is the most natural reading of the claim language and because it is supported by the specification and prosecution history.

Beginning with the claim language, the section at issue indicates that the function of the single connector is to make "all connections from the microprocessor to said specific computer peripheral devices." Plaintiff's proposed construction would read out the word "all" and replace it with "a plurality of." Plaintiff is correct that the claims require a plurality of individual connectors on the housing but its argument goes off the rails when it transfers that "plurality" to the number of connections that must pass through the single connector. In all of the independent claims, the single connector makes all of the connections from the microprocessor to the peripheral devices. Accordingly, all of the connections that pass through the individual connectors on the housing pass through the single connector as well.

The specification provides further support for defendants' proposed construction. Repeatedly, the applicants describe the single connector as making all of the connections between the peripheral devices and the microprocessor. '645 pat., Abstract ("The use of the docking connector allows all peripheral connections to be realized through a single connector."); col. 1, Ins. 29-31 ("A docking connector allows all peripheral connections to be realized through a single connector."). Moreover, the applicants stated that the advantage of their invention is that it allows the user to connect and disconnect his computer to peripheral devices by connecting and disconnecting a single connector. The peripheral devices are connected through the connectors on either the docking station itself or on a "peripheral connection port" that is connected to the docking station. Id. at col. 4, Ins. 47-51. Nowhere in the specification is an embodiment discussed in which some of the peripheral devices are connected to the microprocessor through the single connector while others are connected through their corresponding individual connectors on the housing.

Finally, defendants' proposed construction is supported by the prosecution history, specifically the June 15 response and the notice of allowability. The patent examiner rejected the applicants' original application in light of the patent issued to Herron, which disclosed a docking module in which each individual connector on the housing mates with a corresponding connector on the docking module. The peripheral devices connect to the mates on the docking module and the connections pass from the microprocessor through the individual connectors and through the mates on the docking module to the peripheral devices. In the June 15 response, the applicants distinguished their system from Herron in part by noting that "[a]ll of the interface connections from all of the device interfaces are provided at [the] single connector." Aff. of Vito Canuso, dkt. # 87, exh. F, at 13. One of the reasons given by the patent examiner for allowing the claims was that the prior art did not disclose a computer microprocessing system that has a plurality of individual connectors and a single connector "such that all connections between specific computer peripheral devices and the microprocessor can be made through either the plurality of connectors or the single connectors." Notice of Allowability, Aff. of Vito Canuso, dkt. # 87, exh. O, at 3.

In sum, the evidence indicates that the claims in the '645 patent require all of the connectors on the housing to be replicated in the single connector. Therefore, I will adopt defendants' proposed construction of the phrase "said single connector for making all connections from the microprocessor to said specific computer peripheral devices." That phrase will be construed to require that all individual peripheral device connections on the housing that connect to the microprocessor also pass through the single connector.

c. "Directly drives" limitation
Defendants invoke the doctrine of prosecution disclaimer as support for their argument that the phrase "said single connector for making all connections from the microprocessor to said computer peripheral devices" should be construed to require that the microprocessor "directly drive" the peripheral devices, whether they are connected to the microprocessor through the individual connectors or through the single connector. Defendants contend that, in the June 15 response, the applicants distinguished their invention from other systems that connected to peripheral devices through a single connector on a docking device on the ground that those systems connected the microprocessor to the peripheral devices through a system bus:

There are other laptop systems which dock via a single connector, but these systems only implement the system bus on the docking connector. Therefore, in order to drive the peripheral devices, it is necessary for the docking device to emulate the peripheral device drivers in order to drive the devices. The Applicants' system on the other hand, provides access to the actual device interfaces themselves as an alternative to the individual peripheral connectors. The device drivers within the microprocessor housing drive the peripheral devices, either through the individual connectors or through the docking device.

Aff. of Vito Canuso, dkt. # 87, exh. F, at 15.

Plaintiff cites the same excerpt from the June 15 response in support of a similar limitation. Plaintiff argues that the section of the long phrase requiring each subset of pins on the single connector to provide the "same computer-peripheral-device-specific data link" as the individual connectors "means that the data link between the microprocessor and the peripherals through the single connector is identical to the data link between the microprocessor and the peripherals through the plurality of individual connectors." Plt.'s Opening Br., dkt. # 84, at 13. When peripheral devices are connected to the microprocessor, either through the individual connectors or the single connector, data links are established between the microprocessor and the devices. Plaintiff argues that the "same data link" limitation in the long phrase means that the signal from the microprocessor is not changed or processed by the docking device. Instead, the single connector on the docking device acts as a passive conduit for the signal.

At the claims construction hearing, the parties suggested that the "directly drives" limitation and the "same data link" limitation were different ways of stating the same limitation. Trans., dkt. # 101, at 60-61, 71. I agree that the proposed constructions address the same limitation. Defendants' contention that the claims require the microprocessor to directly drive the peripheral devices whether they are connected to the microprocessor through the individual connectors or the single connector is captured in the language of the long phrase that requires each of the subsets of pins on the single connector to provide the same "computer-peripheral-device-specific data link" as one of the individual connectors. Accordingly, it is unnecessary to construe the phrase "said single connector for making all connections from the microprocessor to said computer peripheral devices" to include defendants' "directly drives" limitation.

B. What does "single ended forward converter" mean?

Lambda argues that a single ended forward converter must be defined as "a device in which a single switch gates all the power transfer across the transformer, and power is transferred from the transformer's primary winding to its secondary winding only during the ON period of that switch." Vicor, on the other hand, contends that the term should be construed so as to allow for the transfer of energy either during the primary switch's ON or OFF periods. It seeks the following claim construction:

A 'forward' converter is one in which the power transformer is simultaneously connected to source and load. A 'single ended' converter is one in which all the power flow from source to load is gated by a single switch (the 'primary switch').

Lambda's devices transfer power from the primary winding to the secondary winding during the primary switch's OFF period, as well as during the ON period.

Again the analysis begins with the plain language of Claim One. The preamble begins, "In a single ended forward converter
in which energy is transferred from a primary to a secondary winding of a transformer during the ON period of a primary switch . . . " Here the inventor was his own lexicographer. The specification provides an explicit definition of single ended forward converter in the opening paragraph of the "Background of the Invention":

The invention relates to converters of the forward type, in which the power transformer is simultaneously connected to the source and the load. More particularly, the invention relates to forward converters of the single ended type, in which the power flow from source to load is controlled by a single solid state switch.

Col. 1, ll. 15-28.

In Unitrode , in a background description of single ended forward converter technology generally, I wrote: "The necessity of resetting the core introduces a significant inefficiency into the converter since during periods of core reset, no power transfer is occurring." 130 F. Supp.2d at 181. Because the period of "core reset" means the OFF period of the primary switch, this statement means that in a single ended forward converter there is no energy transfer during the OFF period of the primary switch. However, the construction of "single ended forward converter" was not in controversy in the Unitrode litigation, and this statement did not refer specifically to the invention claimed by the '098 patent. Accordingly, tempting as it may be simply to recycle (that means use again) this Unitrode claim construction, the Court must move forward with a new one.

Lambda makes several arguments in support of its position that single ended forward converters must be construed as devices that transfer power only during the ON period. First, it argues that the intrinsic evidence mandates this construction even though the claim language does not explicitly state that the time of power transfer is limited to the ON period of the switch. Lambda places heavy emphasis on language in numerous places in the specification that in a single ended forward converter "power flow" from source to load is gated (controlled) by a single solid state switch. See e.g., Col. 1, lines 25-29; Col. 1, lines 31-37, stating:

This invention relates to the class of DC-to-DC converters which incorporate the topology represented in Fig. 1. A converter in that class is referred to as a "single ended forward converter" because power flow is gated by a single switch and energy is transferred forward from the primary winding to the secondary winding of the transformer 11, during the ON period of the switch 10.

See also "Summary of the Invention," stating that "the primary switch controls the converter's power flow." (Col. 3, l. 67 to Col. 4, l. 1). Lambda also points to the prosecution history, in which Vicor explained that its invention was different from the prior art because in its invention magnetizing energy recycled to reset the core "between power transfer periods (ON periods)." (Response, Tab. 4, p.2).

Based on these references, Lambda urges the Court to find that because a single primary switch gates the flow of power, power will not flow when the switch is OFF. The problem with this argument is that there is no intrinsic evidence that supports this scientific proposition. It is not self-evident given the complexity of the technology and energy flows within these power converters.

Implicitly acknowledging this flaw, Lambda resorts to extrinsic evidence in the form of the expert report of Dr. Horenstein, who states: "A circuit with the configuration of Figure 1, in operation, will only transfer power from the primary to the secondary winding during the ON period of the primary switch." (Horenstein Report, Tab A, pp. 4-5). However, as Lambda notes, if one were to add additional elements to Figure 1, one could modify the behavior of the resulting circuit so that power was transferred at other times. This point vitiates Lambda's argument because the patent states that it "relates to the class of DC-to-DC converters which incorporate the topology represented in Fig. 1." Col. 1, l. 31-32. (Emphasis added). The use of the word "incorporate" does not preclude converters with additional elements.

Pressing forward, Lambda points out that every circuit described in the specification Figure 4a (the preferred embodiment), and Figures 4e and 4f (other embodiments) conforms to Lambda's proposed construction, and no embodiment is presented in which power also is transferred during the OFF period of that switch. Again, Lambda fairly points out that Figure 4a is discussed under the heading "Detailed Description of the Invention." This argument invokes the prong of the caselaw that narrows the breadth of claims in certain circumstances: where a particular feature is neither disclosed nor suggested in the specification, it cannot be within the reach of the claims "even though the language of the claims, read without reference to
the specification, might be considered broad enough to encompass the feature in question." Scimed Life Sys. Inc., 242 F.3d at 1341.

In response, plaintiffs point out that the patent states: "Other embodiments are within the following claims." (Col. 8, l. 50). Moreover, they flag two articles in the "Description of the Prior Art" section of the '098 Patent, both of which describe single ended forward converters which, through added circuitry, transfer energy to the load during the OFF period as well as during the ON period. (See Col. 2, ll. 36-43) ("Similar limitations apply, to a varying degree, to any other reset mechanisms which involves a variable dead time to accommodate variations in the switch duty cycle. Reset methods falling into this category are found in S. Hayes, Proceedings of Powercon 8, Power Concepts Inc. 981 and in R. Severns, ibid.") 2; Hearing Tr. Day 3, 16-25, 43-46, 87.)

These prior art articles describing an embodiment transferring power during an OFF period do not resolve the dispute because the Court must construe the claim in light of the patent's specification. While there were single ended forward converters in 1982 that permitted the transfer of energy to the load during the OFF period, neither the claim nor the specification expressly includes them in the description or summary of the invention.

Finally, Lambda points to extrinsic evidence to support its claim construction. For example, in the background section of another patent (U.S. Patent 5,805,434), Vinciarelli stated "In some such converters, called 'single-ended forward converters,' forward energy transfer from the input source toward the load occurs during the time that the switch is closed . . . In yet other single-ended converters a portion of the energy may be transferred during the ON and OFF times of the switch." ( '434 Patent, Col. 1, lines 12-24). Vicor retorts that the specification of the '434 patent was filed in 1995, thirteen years after the specification of the '098 patent was filed.

On balance, Vicor has the better argument under the reasoning of Teleflex:

"Claims take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."

Teleflex, 299 F.3d 1324. Here the express words of the claim do not preclude energy transfer during the OFF period. Although the embodiments described in the specification of the invention do not include transfers during the OFF period, there are no "words or expressions of manifest exclusion or restriction representing a clear disavowal of claim scope." Id. at 10. Lambda has failed to overcome the heavy presumption in favor of the claim language. Id. at 10. Accordingly, I reject Lambda's claim construction that precludes energy transfer during the OFF period. 3

3 I decline to be drawn into the emerging debate on the meaning of a single primary switch "gating" power flow because no one has pressed me to construe that term and the record is inadequate to determine whether various additional features and/or different circuit topologies are infringing. Vicor's claim construction chart in the Artesyn litigation states: "A 'single ended' converter is one in which all power flow from source to load is gated by a single switch (the 'primary switch'). A switch gates the flow of power to the transformer if it intermittently enables and blocks the flow of current to the transformer and the current flowing in the switch results in a net transfer of energy to the transformer." Vicor's Response to Lambda's Claim Construction Brief at 15-19. However, in this litigation, Vicor has not asked for this construction. (Hearing Day 3, Tr. 66.) Accordingly, I do not address it. This is not an invitation for more briefs; indeed any request for a Markman hearing on that claim will be denied as untimely.

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CONCLUSION AND ORDER

For the foregoing reasons the Court construes the '098 patent as follows:

I. "Recycling the magnetizing energy stored in said transformer to reset it" means that all of the magnetizing energy stored in the transformer (except that lost due to the non-ideal nature of the circuit elements) must be recycled from the transformer, back to the transformer, for the purpose of resetting the transformer.

II. "Single ended forward converter" means a device in which (a) the power flow from source to load is controlled (gated) by a single solid state primary switch; (b) energy is transferred forward from the primary winding to the secondary winding of the transformer during the ON period of the switch; and (c) the power transformer is simultaneously connected to the source and the load.

We agree with VLT that the district court did not err in its interpretation of the term "single ended forward converter." The preamble of claim 1 refers to "a single ended forward converter in which energy is transferred from a primary winding to a secondary winding of a transformer during the ON period of a primary switch." Lambda and Lucent argue that claim 1 establishes the complementary nature of the primary switch's ON and OFF periods and, in so doing, implicitly requires that forward energy transfer occur only during the ON period. We cannot agree, for nothing in the intrinsic evidence restricts the term "single ended forward converter" in such a way. On the contrary, the patentee acted as his own lexicographer in defining the term. The specification states:

The invention relates to converters of the forward type, in which the power transformer is simultaneously connected to the source and the load. More particularly, the invention relates to forward converters of the single ended type, in which the power flow from source to load is controlled by a single solid state switch.

A converter in that class is referred to as a 'single ended forward' converter [sic] because power flow is gated by a single switch 10 and energy is transferred forward, from the primary winding to the secondary winding of the transformer 11, during the ON period of the switch 10.

'098 patent, col. 1, ll. 22-37. The district court's interpretation of the term "single ended forward converter" is entirely

- 4355 -
consistent with - indeed, it is identical to - the specification's definition: it requires that a single switch control power flow from source to load, that energy be transferred forward from the primary winding to the secondary winding of the transformer during the ON period of the primary switch, and that the transformer be simultaneously connected to the source and the load. Again, nothing in the intrinsic evidence mandates a narrower interpretation. We therefore affirm the district court's claim construction and hold that the term "single ended forward converter" does not require that forward energy transfer from source to load occur only during the ON period of the primary switch.

### 4093

1. **Single In-line Memory Module (SIMM)**

A compact circuit board with memory chips mounted on it which can be inserted into a connector within a computer system to expand the computer's memory and which derives all necessary electrical signals from the connector.

### 4094

F. **Single Memory Cell**

1. Proposed Constructions

The "single memory cell" term does not appear in the specification; it appears solely in claims 1 and 2 of the '726 patent as part of the memory subsystem. The parties do not dispute that the single memory cell is a component of the shared memory subsystem and must be shared. Defendants' '736 Br. at 18; Plaintiffs' '736 Br. at 20. Plaintiffs assert that "single memory cell" should be construed as "a shared memory" where the "single memory cell" is shared between the decoders called for in the respective claims. Plaintiffs' '736 Br. at 20. Defendants, however, propose that "single memory cell" be construed as the circuitry for storing one bit of data. Defendants' '736 Br. at 17. 10

--- Footnotes ---

10 Defendants also contend that plaintiffs' expert has gone through a number of definitions of "single memory cell" over the course of the ITC Investigation. Defendants' '736 Br. at 18, n.16.

--- End Footnotes ---

2. Claim Language

Claims 1 and 7 incorporate "single memory cell." Specifically, claim 1 includes a "single memory cell coupled to the memory data output register and the memory data input register." Claim 7 includes a "single memory cell coupled to the signal processor, a write [FIFO] buffer, a read [FIFO] buffer, and an MPEG [FIFO] interface." Claim 7 also describes the "single memory cell receiving data via the write FIFO buffer and providing data to the [ECC] subsystem via the read FIFO buffer." 11

--- Footnotes ---

11 Plaintiffs assert that the claim language, specification, and prosecution history dictates that the single memory cell be shared by system components responsible for both DVD and CD data, but this point is not in contention between the parties. Plaintiffs' '736 Br. at 20; Defendants' '736 Br. at 18.

--- End Footnotes ---

3. Ordinary Meaning
Defendants assert that since the terms "single memory cell," "memory cell," and "cell" are not used in the specification, "single memory cell" should be given its customary meaning. Defendants contend that the plain meaning of "single memory cell" is "a single storage element of a memory, (viz, one bit), together with associated circuits for inserting and removing one bit of information." Defendants' '736 Br. at 17; DiEuliis Decl. P 88 (relying upon dictionary definitions from the 1997 McGraw-Hill Electronics Dictionary defining a "single memory cell" as a "single storage element of a memory, together with associated circuits for storing and reading out 1 bit of information" and The 1999 Modern Dictionary of Electronics for a similar definition).

4. Specification

To rebut defendants' interpretation of the specification, plaintiffs argue that the "single memory cell" of claim 1 is coupled to two registers. Plaintiffs' '736 Br. at 20. Plaintiffs contend that those registers hold more than a bit of data and actually hold either a byte or word of data, which, respectively, are equivalent to eight and sixteen bits. Id. Giving an example to support their assertions, plaintiffs note that the shared memory resource of the preferred embodiment is dynamic random access memory (DRAM) 116 in Fig. 5. Id. at 21; '736 patent at 8:14-18, Fig. 5. Plaintiffs assert that a DRAM is generally not a single bit storage device and that the specification teaches that a DRAM 116 specifically stores information via MDRO 112 using a 16-bit bus interface, not a single bit data line. Plaintiffs' '736 Br. at 21; see '736 patent at 8:14-21.

In support of their own construction that "single cell memory" is a single memory cell shared between the decoders called for in the claims, plaintiffs contend that the '736 patent does not indicate that the single memory cell must be in the integrated circuit along with the rest of the controller. Plaintiffs' '736 Br. at 20. Plaintiffs also assert that the preferred embodiment explains that the shared memory resource holds more than one bit of data. According to plaintiffs, the specification states that Figure 1 "depicts a typical prior art playback system" that "typically includes . . . a CD digital signal processor (CD-DSP) 22 along with its associated memory 24" and "a digital audio processor 34, a DVD DSP 26 along with its associated memory 28. . . ." Reply at 11; Plaintiffs' '736 Br. at 21. Plaintiffs assert that this specification language means that prior art Fig. 1 depicts separate memories, each of which is dedicated to its own processor and each of which is a multi-bit memory capable of storing thousands of bits. Id. They contend that the specification does not teach consolidating all such memory into a "single memory cell" capable of holding a single bit as required by defendants' construction.

5. Prosecution History

To validate their construction of "single memory cell," plaintiffs argue that the prosecution history amendment through which "single memory cell" was first introduced into the claims used "memory cell" to refer to multi-bit memories. Reply at 11; Plaintiffs' '736 Br. at 21. According to plaintiffs, the prosecuting attorney stated that the prior art playback system of Fig. 1 had "separate memory 24 and 28 for storing processed CD and DVD data" in arguing that the admitted prior art does not disclose the "single memory cell." Id.; see Schwartz Decl., Ex. B at ZC000339, ZC000341, ZC00256-61. Specifically, plaintiffs cite to the following commentary by the prosecutor in the file wrapper:

[w]ith respect to amended claims 5, prior art playback system 1 does not disclose a single memory cell for storing processed data received from a CD and a DVD. Playback system 1 has separate memory 24 and 28 for storing processed CD and DVD data.

Schwartz Decl., Ex. B at ZC000339. Plaintiffs further contend that it would be impossible to perform the complicated signal processing tasks done by the respective signal processors with a memory that stored only one bit of information, as required by defendants' construction of "single cell memory." Id.

In response, defendants contend that the statement in the prosecution history regarding the prior art not utilizing a single memory cell does not constitute an express intent to impart the novel meaning of "shared memory" to the claim term, as required by Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002), and thus, "single memory cell" should take on its ordinary meaning. Defendants' '736 Br. at 19; see Schwartz Decl., Ex. B at ZC000339. 12 They further contend that even if the prior art memories were multi-bit memories, that does not also make the shared, single memory cell a multi-bit memory. Defendants' '736 Br. at 19.

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12 Defendants also argue the following: 1) that plaintiffs made this allegation at the time that plaintiffs added "single memory cell" to the then-pending claim 5 to distinguish over prior art and 2) that plaintiffs cite to this fact in their brief at 20-21. Defendants' '736 Br. at 19.

--- End Footnotes ---

6. Conclusion

It is undisputed that the controller of the '736 patent contains a memory subsystem that provides memory resources used for storing data output from the signal processor and error correction code subsystems and used as input to the MPEG decoder. The claim language is not particularly helpful in determining whether "single memory cell" is a shared memory or not. As Phillips suggests, when the claim language is insufficient, it is appropriate to look to the specification for guidance. The specification indicates that shared memory is an important feature, '736 patent at 4:31:39, and that DRAM 116 provides memory resources in the Fig. 5 embodiment, id. at 8:8-13. The court also finds that the prosecution history supports the construction, as it agrees that the accompanying statement to the amendment adding the "single memory cell" limitation cited above supports plaintiffs' construction that "single memory cell" is a shared memory. In discussing the multiple memories required to store processed CD and DVD data in the prior art, the prosecutor distinguished the present invention by stating that the prior art did not have a "single memory cell." This indicates that the prosecutor intended to refer to the number of memories, not the number of bits that memory was capable of storing. Thus, based on the specification and prosecution history, it is clear that "a single memory cell" refers to a single storage element of memory.

--- Footnotes ---

13 At the claim construction hearing, defendants asserted that DRAM could not be the shared memory, presumably because they contend that it is not depicted as integrated into the memory subsystem in the specification.

Likewise, the claim language alone, in light of the prosecution history indicating the "single memory cell" provides a shared memory for memory elements 24 and 28 of the prior art, does not provide sufficient context to determine the size and scope of the memory storage provided. In the specification, the memory resource in the memory subsystem is described in Fig. 5 as DRAM 116. See also '527 patent at 8:12-14. The plain meaning of DRAM is a computer memory capable of storing thousands or millions of bits of data. The specification teaches that the size of the memory resource component of the memory subsystem 102 is merely illustrative of an embodiment of the invention rather than representative of the scope of the invention. Defendants' argument that single memory cell should be construed as storage for single bit of data would render the preferred embodiment inoperable. Thus, the court construes "a single memory cell" as a "shared memory."

GO BACK

4095

6. "sink object" and "obtains data stream buffers"

TiVo argues these terms require no construction beyond a definition for "object," or, if construed, should mean "the portion of computer program that [1] obtains data stream buffers from said transform object and [2] outputs said streams to a video and audio decoder." See TiVo's Op. Br. at 23; '389 patent at cols. 7:48-50, 8:39-40, 15:3-5, 18:19-21; TiVo's Markman Slides at 140-49, 158-62.

EchoStar argues "sink object" means "a software object that receives video and audio data." See '389 patent at cols. 7:47-57, 8:8-18, 8:52-65; EchoStar's Opening Br. at 23-25; EchoStar's Slide Presentation at 127-28. EchoStar further argues that "obtains data stream buffers" means "obtains a set of buffer memory addresses from the transform object and reads the data from that buffer." See EchoStar's Opening Br. at 28; EchoStar's Response Br. at 14.

The term "object" will be construed throughout the patent as set forth above. In light of the claims and specification, a "sink object" will be construed as "a collection of data and operations that (1) obtains data stream buffers [memory where data can be temporarily stored for transfer] from a transform object and (2) outputs the streams to a video and audio decoder."

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Further, the Court finds that the claim phrase "obtains data stream buffers" has a plain meaning readily understood by persons of ordinary skill in the art. For clarification purposes, however, the Court incorporates its definition of "buffer" and construes the claim phrase as "obtains data stream buffers [memory where data can be temporarily stored for transfer]."

4096

Defendants argue the patent specification sets forth the minimal hardware configuration for a slave game device, and thereby limits the definition of this term to at least those hardware components. One of these components is a transceiver, which Defendants argue by definition must be capable of both receiving and transmitting data. Defendants also argue the specification requires the slave game device be capable of transmitting data to the master device because the specification states communication between master and slave is bi-directional. Defendants differentiate dependent claim 6, which requires the slave send game status and accounting data to the master, from independent claim 1. Defendants assert claim 6 requires the actual transmission of the data, whereas Defendants' definition of "slave game device" would require it merely to be capable of such transmission through means such as a transceiver. Defendants note claim 6 does not specify any means for transmitting the data because independent claim 1's definition of "slave game device" already includes transceiver means.

FortuNet responds that nothing in claim 1's language requires the slave be capable of transmitting data to the master. FortuNet also argues the specification's reference to bi-directional communication is in the context of the preferred embodiment. With respect to the minimal hardware configuration, FortuNet argues this is only a description of the preferred embodiment, not a definition of "slave game device."

Figure 2 in the patent application shows a diagram of a slave game device. (JA003.) The patent specification states:

Although the FIG.2 shows only the simplest, minimal hardware configuration of the slave game device, the opportunities of playing a broad number of different games within the framework of the suggested game network can be greatly enlarged by expansion of the input and output (I/O) means 11 of the slave game device 7 as shown in FIG. 7.

(JA0010, Col. 4 at 29-35.) The description of the preferred embodiment states Figure 2 is "an intelligent (smart) game terminal comprising the microprocessor 10, the local data input and output means 11 including the keypad 8, and the transceiver 12, the latter providing the direct interface with the rest of the network 6 via the coaxial cable 13." (JA0009, Col. 2 at 57-62.)

Defendants argue that because the specification describes Figure 2 as the "minimal" hardware configuration for a slave game device, and further describes Figure 2 as containing a transceiver as part of this minimal configuration, the patentee defined the slave game device to include a transceiver. Defendants argue that, by definition, a transceiver both sends and receives information, so a slave game device must be capable of both sending and receiving data, even if claim 1 does not require that it actually makes the communication back to the master game device.

Beginning with the claim language, claim 1 does not define the term slave game device other than that it be connected through the network to the master, that it execute concurrently two games, and that it is at least partially controlled by the master. (JA0011, Col. 6 at 18-30.) The claim language does not suggest a minimal hardware configuration requiring the slave be capable of transmitting data to the master.

The specification states the minimal configuration of a slave game device includes a transceiver, implying anything less than that would not qualify as a slave game device. However, the specification makes this comment in the context of describing the preferred embodiment. The preferred embodiment includes bi-directional communication, so for the preferred embodiment, this would be the minimal configuration. The discussion of the minimal configuration in context of the preferred embodiment therefore is not necessarily definitional of the general claim term "slave game device." While the slave game device must have some means of connecting to the network and receiving commands from the master, claim 1 does not define a "slave game device" to include the capability of transmitting information back to the master. Nothing in the prosecution history suggests the patentee limited or altered the meaning of this term to require the capability of bi-directional communication. The Court therefore holds a "slave game device" means "a secondary data processing device for
b.  

Identix argues that properly construed the term "slice data" provides an alternative ground on which to affirm the district court's judgment. See Ethicon, 93 F.3d at 1582, 40 U.S.P.Q.2D (BNA) at 1027 (appellate court "must affirm the decision of the district court if it is supported by any ground properly preserved on appeal"); Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co., 66 F.3d 285, 289, 36 U.S.P.Q.2D (BNA) 1095, 1098 (Fed. Cir. 1995) (appellate court can affirm on alternative basis that is "purely legal and was fully briefed to the district court").

Identix argues that the phrase "slice data" is synonymous with "active area." According to Identix, because the TP-600 does not generate a two-dimensional sub-set of the full image by filtering some of the image data before merging the remaining data into the "composite array," in the words of the patent, the TP-600 does not "generate arrays of slice data" as required by claim 16. Therefore, the TP-600 does not infringe.

DBI, on the other hand, offers the following definition: "A slice is a broader term than active area. A slice is each piece which is used to make up the final rolled fingerprint, and slice data is the data in that slice." Reply Brief of Appellant 9. Furthermore, DBI argues that an active area is a subset of the slice data "that is calculated to approximate the actual slice's data." Id. DBI distinguishes "slice data" from what it calls in its brief "blue sky data," which is the data in the image array that corresponds to that portion of the image propagating surface that is not in contact with any part of the finger. DBI does not argue that the image array itself is an array of slice data.

The written description supports the conclusion that a slice is an active area and the data therein is "slice data." "Slice" is used synonymously with "active area" in two instances in the written description. See col. 6, ll. 37-38 ("Following the copying of the first 'slice' or active area"); col. 7, ll. 16-17 ("the current active area or slice being processed"). The written description also speaks of the overlap between the current active area and the composite array in terms of "slice data": "In the preferred embodiments, the composite array is generated as a mathematical function of a comparison and an average of the overlapping slice data characteristic of the overlapping portions of adjacent slices." Col. 2, ll. 15-19 (emphasis added). The only description given is that of merging the overlapping portions of the active areas. Thus, the written description fully supports the conclusion that "slice data" in claim 16 refers to the data in the active area. See also col. 7, ll. 34-37 ("Processor 12 requires a predetermined minimum overlap such as eight pixel values PVn,m/ between the active areas of the current image array and the composite array.")

In contrast, DBI's proposed claim construction finds no support in the written description. Nowhere is there a description of identifying merely the non-blue-sky data and merging that data into the composite array. The patent only describes merging active areas into the composite array. Moreover, absent some form of processing, the system has no way to distinguish between blue-sky data and non-blue-sky data. The only processing that is described is defining the left, right, top, and bottom boundaries of the active area, not some amorphous combination of pixels in the image array, as DBI's claim construction would require.

DBI finds support for its position in the other claims, which explicitly use the phrase "active area." The argument is that because "active area" was used in some of the claims and not others, the term must have a meaning unique to itself. This argument might have some force if the claims that used "active area" actually depended from claim 16, but none do. As used here, we disagree with DBI's premise. Just because certain words are used in different claims does not mean that those terms cannot have application elsewhere in the patent. See Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1024, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987).

The prosecution history supports this reading. Claim 16, then 19, was originally presented in the preliminary amendment. It initially read:

19. A method for generating data characteristic of a rolled fingerprint image, including:
generating arrays of data characteristic of adjacent and two-dimensional slices of the fingerprint images; and

merging the arrays of data into a composite array of data characteristic of the rolled fingerprint image.

That claim was rejected under 35 U.S.C. § 102(b) "as being anticipated by Ruell (German Patent No. 3423886 A1)." (Ruell describes a system much like the present system in that it records a digital representation of a fingerprint image, but it does so in a different way.)

In response to that rejection, the applicants amended the claim as follows (with words added underlined and words deleted in square brackets):

19. A method for generating data characteristic of a rolled fingerprint image, including:

generating arrays of slice data characteristic of adjacent and over-lapping two-dimensional slices of the fingerprint images; and

[merging the arrays of data into] generating a composite array of data characteristic of the rolled fingerprint image as a mathematical function of overlapping slice data from a plurality of overlapping slices.

In the accompanying remarks, applicants' attorney distinguished Ruell, with our emphasis added:

Unlike the applicants' claimed invention, there is no provision for generating the composite array as a function of overlapping image portions of the finger. Similarly, Ruell does not teach a system which identifies active portions of the image which are representative of the fingerprint features as a mathematical function of the stored data, and generates the composite array as a mathematical function of the data representative of the identified active portions.

Appellants ask us to parse through the prosecution history and limit these remarks to those claims in which "active area" explicitly appears. The remarks are not as limited in scope as DBI suggests. The remarks contained in the block quote recited above were made without reference to a particular claim. Instead, the remarks were made with respect to "all of the pending claims [that] stand rejected under 35 USC 102(b) or 35 USC 103 over the Ruell German Patent 3,432,886." While it is true that the applicants went on to specifically distinguish each claim, or group of claims, including claim 19, from Ruell on more narrow grounds, that does not eliminate global comments made to distinguish the applicants' "claimed invention" from the prior art.

The public has a right to rely on such definitive statements made during prosecution. Notice is an important function of the patent prosecution process, as reflected by the statute itself, see 35 U.S.C. § 112, P 2, and recently confirmed by the Supreme Court, see Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 117 S. Ct. 1040, 41 U.S.P.Q.2D (BNA) 1865, 137 L. Ed. 2d 146 (1997). Absent qualifying language in the remarks, arguments made to obtain the allowance of one claim are relevant to interpreting other claims in the same patent. Cf. Southwall Techns., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579, 34 U.S.P.Q.2D (BNA) 1673, 1679 (Fed.Cir. 1995) ("Arguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary.").

Even were we to agree with DBI that its claim construction was plausible, we would still be compelled under Athletic Alternatives to adopt Identix's claim construction. Identix's narrow construction is clearly supported, if not compelled, by the intrinsic evidence. As in Athletic Alternatives, we were to construe claim 16 in the manner suggested by DBI, we are not sure the resulting claim would be enabled. In fact, this case is even more compelling than Athletic Alternatives because in that case the only question was whether the distance between strings of a tennis racket could be varied in a particular manner, not a particularly difficult technological step. Just the opposite is true in this case. To adopt DBI's claim construction would require the steps of distinguishing between the blue-sky data and the non-blue sky data, storing those data in an array, and combining some, but possibly not all of those data. The manner in which such steps would be performed are not readily apparent and, thus, raise precisely the same question of notice as the court faced in Athletic Alternatives. Accordingly we reject DBI's claim construction on that ground as well.
"slot"

Various asserted claims of the '981, '446, '297, '3,415, and '416 Patent contain the term "slot." ACQIS contends the term means "a space for receiving a module and providing guidance to a connector," while Defendants contend the term means "an opening capable of housing only one computer module." The parties' main dispute is whether a "slot" is limited to receiving a single computer module.

Although the relevant specifications describe a preferred embodiment where a "slot" receives only a single module, see '8,415 Patent, col. 4:25-27 ("Each ACM module has a respective slot 121, 119, which mechanically houses and electrically couples each ACM to the computer console.")., importing limitations from a preferred embodiment into the claims is improper. Phillips, 415 F.3d at 1323. Furthermore, limiting the claims in this manner would be inconsistent with the claim language. See, e.g., '446 Patent, 21:63-65 ("each coupling site comprising a connector and a slot"); 22:1-2 ("a plurality of computer modules, each coupled to one of the coupling sites through the connector and the slot"). Accordingly, the Court construes the term "slot" to mean "a space for receiving a computer module," where "a computer module" means "one or more computer modules." Tate Access Floors, Inc. v. Interface Architectural Res., Inc., 279 F.3d 1357, 1370 (Fed. Cir. 2002) ("It is well settled that the term 'a' or 'an' ordinarily means 'one or more.'").

"A Small Magnitude of Electromagnetic Energy"

Plaintiffs suggest that the term "a small magnitude of electromagnetic energy" in claims 1 and 23 does not require construction. Defendants propose that the term be construed to mean "the electromagnetic energy associated with an applied magnetic field of approximately 100 Oe or less." Contrary to plaintiffs' suggestion, we find the term "a small magnitude of electromagnetic energy" to be in need of construction, because quantifying electromagnetic energy is not something with which the jury can be expected to be familiar.

Although the claims do not define the term, they do provide some guidance. According to claims 1 and 23, "a small magnitude of electromagnetic energy" is a magnitude of energy sufficient to "reverse at least one of the magnetization directions" and cause "a change in the resistance by at least 10% at room temperature." '922 patent at 8:50-54; 10:33-37. For additional context, we look to the remainder of the patent. See Phillips, 415 F.3d at 1313.

The Background and Summary sections of the patent state that an important attribute of the present invention is its ability to achieve a change in junction resistance of at least 10% at room temperature. '922 patent at 2:9-12, 44-46, 61-64. The patent states that prior-art devices were only capable of creating very low changes in resistance at room temperature. '922 patent at 1:65-67. Although some prior-art devices achieved moderate resistance change (2-6%), this was only at extremely low
temperatures (-450[degrees]F). Id. at 1:62-64. By obtaining such a high change in resistance at room temperature, the patentee believed that the present invention provides "significant promise for application in magnetic recording devices, such as high density fixed disk drives found in personal computers." Id. at 2:59-61.

The invention achieves this all-important change in resistance through manipulation of the relative magnetization directions of the ferromagnet layers ("FM layers"). As noted above, "[t]he junction resistance is higher when the magnetization of one [FM layer] is antiparallel to that of the other [FM layer] and lower when they are parallel to one another." Id. at 1:29-32. Therefore, to achieve a change in resistance of at least 10%, electromagnetic energy is applied to the junction in such a way as to reverse the magnetization direction of one FM layer, but not the other. By manipulating the magnetization of only one FM layer, the relative directions of magnetization of the two layers can be modulated between parallel and antiparallel states, thereby causing a fluctuation in resistance. By contrast, if the magnetization direction of both FM layers were reversed, then the magnetization direction of each FM layer relative to the other would remain constant, and a change in resistance would not result. Therefore, it is essential that only one FM layer experience a reversal in magnetization direction.

6 For the purposes of this section we describe the first and second "electrodes" or "film layers" as FM layers. However, the claims themselves are not limited to this one, specific embodiment.

To ensure that the magnetization direction of only one FM layer is affected, the patent provides that each of two FM layers have a different coercive field magnitude or "coercivity." Id. at 8:55-58; 10:38-41. Coercive field magnitude, measured in oersteds (Oe), relates to the gross magnitude of applied electromagnetic energy required to reverse the magnetization direction for a particular type of ferromagnetic material. Id. at 2:29-31. By fabricating one FM layer with a material that exhibits lower coercivity, and the other with a material that exhibits higher coercivity, a quantity of electromagnetic energy can be applied which is large enough to reverse the magnetization direction of one FM layer but not the other, thereby changing the alignment of the two magnetization directions and causing a change in resistance of at least 10%.

7 For example, Fig. 3A shows the change in resistance measured in a device in which one FM layer was constructed using cobalt (Co), which has a coercive field magnitude of 100 Oe, and the second FM layer constructed using cobalt-iron (CoFe), which has a coercive field magnitude of 200 Oe. '922 patent at 5:3-17.

Defendants would have us restrict the term "a small magnitude of electromagnetic energy" to "the electromagnetic energy associated with an applied magnetic field of approximately 100 Oe or less." Although this limitation is found nowhere in the claims, defendants argue that such an interpretation is compelled by statements in the patent's Summary and Abstract.

The Summary states "[a] small change of magnitude, approximately 100 oersted (Oe), in applied magnetic field is capable of changing the junction resistance of the device by at least 10% at room temperature." Id. at 2:19-22. The Summary goes on to say that this change in magnitude of the applied magnetic field is appropriate where the material used in the bottom FM layer provides a coercive force of 100-1000 Oe and the material used in the top layer provides a coercive force of 20-100 Oe. Id. at 2:24-29. Clearly, when a device is constructed with FM layers exhibiting these specific coercive force values, a 100 Oe change in magnitude of the magnetic field would be sufficient to reverse the magnetization direction of the bottom layer but not the top layer.

However, this level of change in magnitude is entirely relative and contingent on the materials used to create the FM layers. The claims themselves do not specify the materials with which the FM layers may be constructed. Although the specification provides examples of devices wherein the FM layers were constructed with particular materials, it does not "demonstrate[] a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim, 358 F.3d at 906 (internal quotation marks omitted). To the contrary, the patent explicitly disclaims using
the examples as placing limitations on the claims. See '922 patent at 3:2-7; 8:38-42. The specification merely provides examples of ways in which the patent could be constructed, not how it must be constructed, and we therefore refuse to read defendants' suggested limitation from the specification into the claims. See In re Cruciferous Sprout Litig., 301 F.3d at 1348-49.

Nor will we read the Abstract to limit the claim language. The Abstract reads: "[f]erromagnetic/insulator/ferromagnetic tunneling has been shown to give over 10% change in the junction resistance with H less than 100 Oe, at room temperature …." Again, this language does not demonstrate a clear intention to limit the claim scope. Liebel-Flarsheim, 358 F.3d at 906. As noted above, a change in magnitude of 100 Oe is sufficient only where the device is constructed using certain materials for each FM layer, a limitation which does not appear in the claims.

Thus, having read the claim term in light of the remainder of the claims and the specification, we find that a person of ordinary skill in the art at the time of the invention would understand "a small magnitude of electromagnetic energy," as used in claims 1 and 23, to mean that magnitude of electromagnetic energy which is sufficient to reverse the magnetization direction of the electrode or film layer with a lower coercive force (thereby achieving a change in resistance of at least 10%) but less than the amount necessary to reverse the magnetization direction of the electrode or film layer with a higher coercive force.

4100

Smart card

Again, the parties propose similar constructions except that Defendants seek to impose an additional limiting phrase. Plaintiff proposes the construction, "a card that contains an integrated circuit such as a microprocessor or a memory," while Defendants advance the construction, "card containing an integrated circuit, such as a microprocessor or a memory, that can be used to make purchases."

This is the same issue as presented by "debit card," although the term "smart," unlike the term "debit" does connote a structural aspect. Likewise, the Court declines to include the additional phrase proposed by Defendants and construes the term "smart card" as "a card that contains an integrated circuit such as a microprocessor or a memory."

4101

K. Ref. No. 16 "Smart card" and "smart card for storing."

These terms are recited or referred to in Claims, 6, 7, 9, 19, 20, 22, 24, 25, 26, 27, 29, 40, 44, 45, 46, 48, 54, 55, 73, and 77.

As to these terms, the parties disagree about the size of a "smart card." Column 4, lines 22-37 describes a smart card's function and uses. It is of "convenient size for handling and for printing desired indicia or other information on the surfaces thereof." (Col. 4, ll. 26-28.) "Also typically, the card is about the size of a conventional credit card or the like, but may be larger or smaller." (Id. ll. 33-35.) Smart cards may be referred to as "chip cards" or "access cards." (Id. ll. 35-37.)

The key word is "card," as in "credit card." The description allows for larger or smaller sizes, but the term "card" limits the range. Larger or smaller, the item is a "card."

For these reasons, the Court construes the term "smart card" in Ref. No. 16 as: "A credit card-sized and shaped, portable memory device, separate and independent from the memory of the voting machine."

4102

3. "SNOOP Signal"
The main dispute between the parties appears to be whether a "SNOOP signal" indicates whether an address refers to a cached memory or whether it merely triggers that determination. The proper construction of SNOOP signal can be ascertained by reviewing the specification and asserted claim of the patent. First, in the Background section of the patent, the term SNOOP signal is introduced in the context of prior art where a bus master asserts a SNOOP signal on a single bus to check whether "a second bus master [. . .] is using a cache memory for data stored at that memory address." '369 patent at 1:36-45. Next, the Summary section explains in the context of a two-bus system that the SNOOP signal is a signal "indicating whether the Futurebus address references a cached data storage location on the Futurebus." '369 patent at 2:19-30. This portion of the Summary makes it clear that two buses are involved: the first address originates from the VMEbus and the Futurebus address corresponds to a second address. Finally, in the claims, SNOOP is again defined as a signal "indicating when a generated second address is mapped to one of said particular subset of the second data storage locations." '369 patent at 13:23-14:2. This language is consistent with that set forth in the Summary section. In either the context of single bus (prior art) or two buses (the invention), the SNOOP signal indicates whether an address references a cached storage location, it does not merely trigger a determination whether data is cached.

Defendants' proposed claim construction seeks to limit a SNOOP signal to determining whether a "second generated address" references a cached location. However, as plaintiff points out, part of the claim specifies that the first mapping means generates "a SNOOP signal of a state indicating when a generated second address is mapped to one of said particular subset of the second data storage locations." '369 patent at 13:24-14:12. Because this portion of the claim specifies that a SNOOP signal must be in a particular state "indicating when a generated second address is mapped" to a cached location, it cannot be that the general definition of SNOOP signal must always include determining whether a "second generated address" references a cached location. However, although the construction of term "SNOOP signal" is not limited to indicating whether a second generated address references a cached data storage location, the language of the claim itself requires the first mapping means to generate a SNOOP signal with the particular "state indicating when a generated second address is mapped to one of said particular subset of second data storage locations." '369 patent at 13:23-14:2.

Based on the foregoing, the court construes "SNOOP signal" as "a signal indicating whether an address references a cached data storage location."

4103

I. Citation of Athletic Alternatives

At claim construction, the court construed the term "SNOOP signal" as "a signal indicating whether an address references a cached data storage location." Claim Construction Order at 10:9-11:17. The parties then disputed the meaning of the phrase "cached data storage location" at summary judgment. According to Intel and VIA, the court's use of "cached data storage location" meant that the SNOOP signal must indicate that data is in fact cached at the referenced location. Summary Judgment Order 13:17-19. CCCC contended that the SNOOP signal indicated only whether a particular address was subject to caching (in other words, whether the address was "cacheable"). Id. at 13:19-22 The court concluded that the language of claim 1 "strongly indicates that the SNOOP signal understands which addresses are in cache" (id. at 18:15 9-20), and, therefore, that "the SNOOP signal is only asserted by the interface device when an address map to an address on the second bus at which data is known to be cached" (id. at 18:27-28). After reaching that conclusion, the court wrote, "[f]urther, if after the reasoned analysis set forth above, both [CCCC's and defendants'] interpretations are equally plausible, the patentee's statutory burden to distinctly claim subject matter favors the narrower construction." Id. at 19:6-9 (citing Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996)).

In its motion for reconsideration CCCC contends that the court misapplied Athletic Alternatives and argues that the case does not stand generally for the proposition that the narrower of two equally plausible constructions should be adopted.
According to CCCC, Athletic Alternatives held only that a narrower enabled construction should be selected over a broader non-enabled one.

Before considering whether the court correctly cited to the principle of Athletic Alternatives, it must be recognized that the court did not base its claim construction on any purported rule or principle from Athletic Alternatives. Rather, it based its construction on the intrinsic evidence including the abstract and, most importantly, the claim language itself.

Only after explaining the basis for its construction, did the court suggest that if after a reasoned analysis CCCC's and defendants' proposed claim constructions were equally plausible, the defendants' narrower construction should be favored because of the inventor's statutory burden to distinctly claim the subject matter which he or she regarded as the claimed invention. The court followed this proposition by "[s]ee Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1996). "See' is used . . .when the proposition is not directly stated by the cited authority but obviously follows from it: there is an inferential step between the authority cited and the proposition that it supports." THE BLUEBOOK, A Uniform System of Citation (Seventeenth Edition 2000) at 22-23. CCCC contends that Athletic Alternatives does not hold either directly or inferentially what it was cited for.

Courts have read Athletic Alternatives to require adoption of only a narrower enabled construction over a broader non-enabled one. See Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1344 (Fed. Cir. 1998); Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1581 (Fed. Cir. 1996). As these cases note, Athletic Alternatives relies on the requirement in 35 U.S.C. § 112 that a patentee "distinctly claim[] the subject matter which the applicant regards as his invention." Athletic Alternatives, 73 F.3d at 1581. In light of this requirement, adopting a broader, non-enabled construction would "undermine the fair notice function of the requirement that the patentee distinctly claim the subject matter disclosed in the patent from which he can exclude others temporarily." Id. Because narrower constructions are not intrinsically more definite (a broad claim can be as distinctly described as a narrow one), Athletic Alternatives may not have application to the present case and arguably should not have been cited even following the signal "see" because the claim as construed may not be enabled. The specification does not disclose how the interface device would know that an address has been cached. Nevertheless, as noted above, the court's construction was not dependent, or even based, on Athletic Alternatives.

The Court construes the term "soft mask" in claim 11 of the '339 patent and claim 3 of the '442 patent as "a mask is an erodable layer of material used to cover selected areas of a surface during etch. A soft mask erodes more rapidly than a hard mask, which erodes slowly or not at all." The patents-at-issue use "soft mask" as a relative term to "hard" mask, which is described as a mask which "erodes slowly or not at all." See '339 Patent col. 3:54-55. These terms lack an ordinary and accustomed meaning in the relevant art, and no other definition of "soft mask" or "hard mask" is provided in the patent.

Samsung's proposed construction--"an erodable layer of material used to cover selected areas of a surface during etch"--improperly reads "soft" out of the term. MEI's construction--"a rapidly erodable layer of material used to cover selected areas of surface during the claimed step of applying a first etch or applying a second etch"--reflects the relative erosion of hard and soft masks, but adds a limitation of "rapid" erosion that is not supported by the claims or specification and would itself likely require construction. Furthermore, MEI's proposed limitation that a mask be used in an etch is an improper and redundant inclusion of other limitations from the claims.

The parties propose the following constructions for the term "soft switch." Peerless's proposed construction is:

"telecommunications equipment required to switch calls for which policy-based call control and services is separated
from the underlying transport network and hardware, and which includes software that manages network devices to set up calls across IP, ATM, and circuit networks."

NT's proposed construction is "a system with call control and service decoupled from the underlying transport and switching network hardware."

Both sides cite the following language from the specification in support of their positions: "The separation of policy-based call control and services from the underlying transport network and hardware is a key defining element of soft switches." NT asserts that a soft switch is switching equipment that separates hardware devices from the software that controls how calls are switched. NT's proposed construction is consistent with the cited language from the specification. By contrast, Peerless does not explain how its proposed construction is derived from the quoted language. Therefore, the Court construes "soft switch" as "a system with call control and service decoupled from the underlying transport and switching network hardware."

1. "Software-adjustable memory for storing an ion output current reference value"

ITW offers the following construction: "a digital data storage element that holds a value which can be changed (i.e. adjusted) to a new value. The value is changed via software, as opposed to hardware or circuitry." Pl.'s Revised Proposed Order Regarding Claim Construction at 2. Ion proposes: "a semiconductor memory device that preserves a binary number used as a reference value that corresponds to an ion current output in a storage device." Def.'s Proposed Order re Claim Construction for the '756 patent at 5.

I have already defined the words "reference" and "value" for purposes of understanding the phrase "ion output current reference value." See supra. These definitions should be used consistently throughout the patent. See Epcon Gas, 279 F.3d at 1030-31. I will therefore ignore Ion's repeated effort to insist that "value" must be a digital number. Those words that remain to be defined are therefore "software-adjustable memory" and "storing."

The dictionary definition for "to store" is: "to reserve or put away for future use." American Heritage Dictionary of the English Language (4th 2000). This definition is similar to the parties' own proposals, "hold" and "preserve". The computer science definition for "memory" is: "a unit of a computer that preserves data for retrieval." Id. The parties have offered no intrinsic evidence for why these dictionary definitions, insofar as they represent the words' ordinary and accustomed meaning, should be altered. For this reason, I will define the term "software-adjustable memory for storing an ion output current reference value" as follows: "a unit of a computer that holds a value that can be changed to a different value via software."

5. "Operational software for executing unique functions with the transducer scanhead"

Plaintiffs' construction: system executable code for executing specific applications such as cardiac analysis, neo-natal analysis, gynecology analysis and prostate analysis

Defendant's construction: software that is collectively used to operate functions that a particular model of the transducer scanhead is capable of performing

The parties' dispute regarding the proper construction of this term focuses on two issues: (1) whether the term "software" in the context of the '839 patent means "executable code" and (2) the proper definition of the "unique functions" of the "transducer scanhead." With respect to the second issue, the plaintiffs' arguments appear to be the same as their arguments regarding the terms "operational data for the scanhead" and "operational data unique to the transducer scanhead." As discussed above, I find plaintiffs unpersuasive when they argue that these terms are limited in scope by the patent.
specification. However, with respect to this term, defendant has not explained why its construction is correct (or even better). On its face, defendant's construction appears to expand the scope of the claim term. Absent some evidence that this expansion is appropriate, I cannot adopt defendants' construction.

The remaining question is whether "software" means "executable code," as plaintiffs contend. (By its inclusion of the term "software" in its proposed construction, defendant appears to take the position that the term software requires no additional construction in the context of this phrase.) The claim language itself provides a clear answer. Claim 7 of the '839 patent discloses: "The ultrasound diagnostic instrument as defined by claim 1 wherein the software and data stored in the second memory includes system executable code for the digital processor." This claim language would make very little sense if "software" meant "system executable code."

At a minimum, the patent's use of both words raises a presumption that they do not mean the same thing. Applied Medical Resources, 448 F.3d at 1333 n.3 ("in the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connoted different meanings."). Plaintiffs are unable to overcome this presumption with persuasive evidence. Instead, they attempt to support their position with their expert's broad statement that a person of ordinary skill in the art would understand that software must be system executable code in order for the invention to provide its stated improvement over the prior art, that is that it obviates the need for manual field upgrade or system swap.

Therefore, I conclude that "operational software for executing unique functions with the transducer scanhead" as used in the '839 patent would not benefit from either proposed construction.

K. Client Software Means

The parties agree that "Client Software Means" is a means-plus-function element construed pursuant to 35 U.S.C. § 112, P 6. (D.I. 207, at 7). They disagree, however, about the scope of the function and the corresponding structure.

1. Scope of the Function

Under Section 112, P 6, the Court must first determine what function is performed by the claim element. In making this determination, the Court must be careful to neither "narrow the scope of the function beyond the claim language" nor "broaden the scope of the claimed function by ignoring clear limitations in the claim language." Cardiac Pacemakers, Inc. v. St. Judge Med., Inc., 296 F.3d 1106, 1113 (Fed. Cir. 2002). The parties disagree about two different parts of this element's functional scope. First, they disagree as to whether the language "adapted to" is part of the function. Second, they disagree about whether the function should be temporally limited.

As to the first dispute, Plaintiff contends that, by including the language "adapted to," the claim demands only a capability, not a requirement, to forward a subscriber client computer's identity data to a first server computer. (D.I. 266 at 12). Defendants contend that the "adapted to" language should be read out of the function, just as the word "for" would be in a conventional means-plus-function clause. (D.I. 306 at 2-3). The result of Defendants' proposed construction would be to require the client software means to forward a subscriber client computer's identity data to said first server computer. Id.

As to the second dispute, Plaintiff contends that the functional recitation is not temporally limited. While acknowledging that this element's language includes the phrase "at the beginning of an operating session in which access to selected computer resources is requested[,]" Plaintiff contends that this language is not a functional limitation of the element, and, therefore, should be subject to traditional claim construction principles rather than means-plus-function construction. (D.I. 266 at 7). Conversely, Defendants contend that the function must include the temporal limitations of the claim language to avoid improperly broadening the scope of the claimed function. (D.I. 266 at 30-32). They contend that the claimed function for "Client Software Means" is not forwarding the identity data at any time, but rather, forwarding the identity data at a particular time. Id.

Often means-plus-function limitations are written as a "means for" performing a recited function. See Lucent Techs., Inc. v. Extreme Networks, Inc., 367 F. Supp. 2d 649, 669 (D. Del. 2005). Here, the applicants used the formulation "means adapted
to" perform a recited function. The issue before the Court, then, is whether "adapted to" merely precedes the claimed function or whether it is a part of the claimed function. The Court agrees with Plaintiff that ignoring the "adapted to" language introduces an unintended requirement into the claim element, because the claim language only discloses a capability. See Berg Tech., Inc. v. Foxconn Int'l, Inc., 1999 U.S. App. LEXIS 2796, at *8 (Fed. Cir. 1999) ("adapted to" is commonly understood to mean "capable of"). Therefore, the "adapted to" language does more than precede the recited function; it is a part of the recited function.

A means-plus-function clause does not limit all terms in the clause to what is disclosed in the patent or equivalents. 
"[Section] 112, P 6 applies only to interpretation of the means or step that performs a recited function when a claim recites insufficient structure or acts for performing the function." IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1432 (Fed. Cir. 2000). In this case, the client software means is "adapted to forward the subscriber client computer's identity data to said first server computer at the beginning of an operating session in which access to selected computer resources is required." (See '416 Patent, col. 256, line 42-45). The beginning of an operating session, however, is not the means or step for performing the data forwarding, and therefore, is not subject to Section 112, P 6. Accordingly, the Court concludes that while "client software means" is a means-plus-function element, the means-plus-function interpretation does not apply to the phrase "at the beginning of an operating session in which access to selected computer resources is requested."]

Thus, the function performed is "adapted to forward a subscriber client computer's identity data to said first server computer." "At the beginning of an operating session in which access to selected computer resources is requested[,]" is not construed pursuant to 35 U.S.C. § 112, P 6, and is instead construed in accordance with the Court's previous construction of "operating session."

2. Corresponding Structure

Second, the Court must determine what structure corresponds to the claimed function. The parties disagree about the structure of the client software means, and the algorithm to be performed by that structure. The Court finds that the '416 Patent specification links the claimed function of the client software means to software products that were available at the time of the patent application. ('416 Patent at 5:48-50, 56-63). Therefore, the structure is that software identified in the specification that can carry out the function, namely "that portion of the identity and access components (e.g. that portion of the subscriber software running on the subscriber client computer (Fig. 2)) that preferably uses the transmission control protocol/internet protocol (TCP/IP) and/or user datagram protocol/internet protocol (UDP/IP) to communicate with the first server computer and equivalents there of." (contra McKesson Info. Solutions LLC v. TriZetto Group, Inc., 2006 U.S. Dist. LEXIS 16097, at *9 (D. Del. 2006)(structure limited to disclosed algorithm only because specification linked to software that did not exist at time of patenting).

- - - - - - - - - Footnotes - - - - - - - - -

n4 The Court declines to define the exact algorithm disclosed in the specification, but notes that the client software means structure is limited to carrying out the algorithms described in the '416 patent. See WMS Gaming Inc. v. International Game Tech., 184 F.3d 1339 (Fed. Cir. 1999).

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E. Construction of "a software modem"

The disputed term appears in Claim 1 of the 305 patent as follows:

a software modem adapted to convert digital samples from the device to data values transmitted to the UART emulation and adapted to convert data values from the UART emulation to digital samples for the device.

PCTEL contends that the claim means "software that performs modulation and demodulation" whereas Agere proposes "a modem that utilizes the software executed by the host processor to perform modem signal processing functions rather than
including a digital signal processing (DSP) chip."

Agere contends that the term "software modem" as construed by PCTEL gives it a greater scope than that which was actually claimed by the 305 patent. Pointing to the title of the patent, "Host Signal Processing Modem Using a Software Simulation of a UART", and sections of the prosecution history in which PCTEL describes its invention as a HSP modem, n11 Agere argues that the term "software modem" should be understood as synonymous with "HSP modem," Agere cites portions of the prosecution history in which PCTEL distinguished the 305 patent from the prior art on the basis that the prior art contained DSP chips, whereas the 305 patent performed digital function processing using software. n12 The patentee distinguished the 305 patent from the prior art, stating that the prior art:

"[D]id not even recognize the desirability of replacing the DSP chip (i.e. the element for performing digital processing functions) with a software modem."

Malz Declaration, Ex. 9 at 17972 (1/6/03 Response).

Based on this language, Agere contends, PCTEL cannot now claim that the patent covers non-HSP modem devices, such as those that contain DSP chips.

--- Footnotes ---

n11 See Malz Declaration, Ex. 7 at AL 17658 (12/23/97 Response), Ex. 9 at AL 17974 (1/6/03 Response).

--- End Footnotes ---

PCTEL counters that the digital system processing which occurred in the prior art was modulation and demodulation. Thus, PCTEL contends, the disclaimer concerning modems with DSP chips is entirely consistent with their construction of "software that performs modulation and demodulation" because that functionality is performed in the 305 patent through software. PCTEL cites the claim language following the phrase "software modem" in which the modem is "adapted to convert digital samples from the device to data values . . ., arguing that this is simply modulation and demodulation, in accordance with PCTEL's construction.

Under the plain meaning of the claim, illuminated by the context of the surrounding words, the term "software modem" is explained by the language "adapted to convert digital samples from the device to data values." However, PCTEL expressly distinguished the 305 patent from the prior art based upon the fact that the prior art had a dedicated DSP chip, and the 305 patent did not. It is well established that "the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Springs Window Fashions LP v. Novo Industries, L.P., 323 F.3d 989,994 (Fed Cir. 2003). The Court finds that the patentee disclaimed systems which include digital signal processing performed by hardware. Accordingly, the Court construes the claim "software modem" to be "a modem that utilizes the software executed by the host processor to perform modulation and demodulation rather than including a digital signal processing (DSP) chip."

--- Footnotes ---

6 The court discusses this limitation at page 75 of its memorandum opinion of the same date.

--- End Footnotes ---

GO BACK

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9. "SOI wafer" ("812 patent) is not limited to a bond and etch back silicon-on-insulator (or "BESOI") wafer. 6

--- Footnotes ---

6 The court discusses this limitation at page 75 of its memorandum opinion of the same date.

--- End Footnotes ---

GO BACK
"Solely contained within" is found in claim 1 of the '493 Patent and claim 16 of the '882 Patent. Claim 1 of the '493 Patent is representative and covers:

1. A system for facilitating a windowed content manifestation environment within a web browser, comprising:

   a server system . . . ; and

   a web browser client . . . coupled to said server system . . . having a content manifestation environment, said web browser client . . . to process said software system and said associated content to produce window objects solely contained within said content manifestation environment, each window object of said window objects is associated with a set of controllable attributes and is . . . [configured] to . . . manifest at least a portion of said associated content therein, said controllable attributes configured to affect manifestation of said each window object by said web browser client within said content manifestation environment, wherein said each window object executes within and is directly controlled by said web browser client which operates within said data processing system, . . . .

'493 Patent Cl. 1 (emphasis added). Having placed the disputed term within the context of the patents in suit, the Court will discuss the Special Master's recommended construction, Simple's objection and CA's corresponding counter-arguments.

A. The Special Master's Recommended Construction

The Special Master recommended that "window objects solely contained within said content manifestation environment' means that the window objects only appear inside the boundaries of the content manifestation environment." (R&R at 162.) The Special Master arrived at his conclusion in a three step process. First, he used a dictionary to define "within" as "inside." (Id. at 161.) Second, the Special Master used a dictionary to define "contain" as "to keep within limits." (Id.) Finally, the Special Master interpreted the glossary definition of a content manifestation environment which stated that "a CME is a 'controllable WWW browser content display window,'" to conclude that "solely contained within" dealt with the visual appearance of a window object within the boundaries of a content manifestation environment. (Id.)

B. Simple's Objection and CA's Counter Argument

Simple argues that the "proper construction [of solely contained within] is [that] ' . . . window objects are only kept inside the boundaries of the content manifestation environment." (Simple's Claim Construction Objections at 17.) According to Simple's statements during the Markman hearings as well as its expert testimony, for a window object to be solely contained within a content manifestation environment: (1) a user must not be able to drag the entire window object out of the content manifestation environment and (2) no portion of the window object can be displayed outside the content manifestation environment. (Markman Tr. 23:2-23; HC Belgard Expert Report P 167 (referring to a representation of CA "Portal Components," p. 44 fig. 1.).

SPECIAL MASTER PETERSON: . . . And the full phrase is . . . -- quote, "... to process said software system and said associated content to produce window objects solely contained within said content manifestation environment,..."  

MR. UNGERMAN: [on behalf of Simple] And that's as opposed to window objects which might move outside the content manifestation environment. That's the limitation that it's getting at.

SPECIAL MASTER PETERSON: All right. Jumping to the bottom line, what you're saying is that that means you could not drag one of those windows outside the CME?

MR. UNGERMAN: Correct, and still be within the limitations of the claim.

SPECIAL MASTER PETERSON: So if a software system allowed you to drag a window outside the CME, that would
take it outside the scope of the claim as you interpret it?

MR. UNGERMAN: Right, Your Honor.

SPECIAL MASTER PETERSON: Okay.

(Markman Tr. at 23:3-23.) For its part, CA argues that the Special Master correctly placed a visual emphasis on content manifestation. (CA's Claim Construction Response at 17-18 ("As the Special Master correctly concludes, so long as the window object does not appear outside the CME it does not violate the requirement of being 'solely contained within' it.").) Having summarized the Special Master's proposed construction of the term as well as the parties' corresponding objections and counter arguments, the Court will put forth its own analysis.

C. Analysis

The Court's analysis of the disputed phrase "solely contained within" will focus on the 84 functional aspects of window objects within the context of the patents in suit and then address the deficiencies in the Special Master's proposed construction.

1. The Phrase "solely contained within" Should Be Construed so as to Comport with the Functional Aspects of Window Objects and the Claimed Content Manifestation Environment

The Court does not base its interpretation of "solely contained within" solely on visual parameters because window objects can deliver content without it being seen by a user. The Court takes care to note that a window object can be "solely contained within" a content manifestation environment even when part of it cannot be seen because: (1) window objects, particularly DMODs, "act like any other window such as those within a windows based operating system desktop environment" and (2) the specifications of the '493, '563, and '882 Patents clearly establish that content manifestation is more than what appears on screen. See, e.g., '493 Patent col. 8, ll. 29-34, col. 9, ll. 7-20. Indeed, windows within a windows based operating system desktop environment can be moved partially out of the viewable display area but still be solely contained within a windows desktop operating environment. For example, even if one were to move a window object such that only its control section could be seen, the window object would still be contained solely within a content manifestation environment despite the fact that part of it was hidden. This is analogous to window objects equipped with scroll bars to "allow [for the] management of content that extends beyond a bottom edge of a visible area." E.g., '493 Patent col. 9, ll. 7-20 (describing the scroll function in modules); see also, e.g., '493 Patent fig. 1D. At this point, a working example may be in order.

Indeed, CA's own implementation of the source code disclosed in the '493 Patent shows that a window object can be solely contained within a content manifestation environment without being seen. (Supplemental Decl. of Danny Goodman in Supp. of CA's Objections to the Special Master's R&R as to Anticipation & Obviousness (Dkt. No. 620) ("Second Goodman Supplemental Anticipation and Obviousness Decl.").) CA's expert, Mr. Goodman, "was asked . . . to reconstruct the browser page of . . . the '493 Patent . . . from the source code . . . displayed within the patent's text." (Id. P 2.) Although certain typographical errors needed to be corrected and some source code was missing, such as the "d&d.js [file necessary] for dragging and dropping operations," Goodman was able to "reconstruct the rest of the HTML and JavaScript files to . . . load the page into Microsoft Internet Explorer 4." (Id.)

In addition to completing his reproduction, Goodman provided the Court with two screen illustrations. (Id. at 2-3.) The first screen illustration shows a content manifestation environment displaying "three window objects" corresponding to the "News, Homepage, and Chat" functions. (Id. P 3.) Goodman's description of the first screen shot provides:

3. The following screen illustration shows the results of loading the reconstructed code into an Internet Explorer 4 browser window maximized to fill an 800x600 pixel screen, a very common screen resolution at the time of the patent filing. Because I did not have access to the image files referenced in the code, the browser displays a placeholder (white box with a red "x" and alternative text) where an image would have appeared. The titlebars of three window objects (News, Homepage, and Chat) can be seen in the initial view.

4. In this example, the browser window is maximized to fill the display screen. Even in this configuration, one of the
5. When I clicked the unmaximize button of the browser window, the browser window reduced in size, as shown in the following screen illustration. This reduces the size of the browser display area.

(Id. PP 3-5.) A copy of the Screen illustration is shown below:

[SEE FIGURE IN ORIGINAL]

(Id. at 2.) As one can observe, certain window objects can only be partially seen. Even so, they are still solely contained within their content manifestation environment. Though Goodman's initial screen illustration was "maximized to fill an 800x600 pixel screen," his subsequent illustration showed the same web page, but in a web browser window that did not take up the entire screen. (Id. at 3.) Goodman observed that by reducing the size of the web browser window, the "News window" became only partially visible and the "Chat window" could not be seen at all. (Id. P 6 ("Upon reducing the browser window size, the News window is partially not visible. Additionally, the Chat window is now not visible at all.").)

Goodman's second screen illustration is produced below.

[SEE FIGURE IN ORIGINAL]

Notably, Goodman does not claim that the "Chat window," which cannot be seen, is not "solely contained within" its content manifestation environment. This is because it is possible for one to scroll further down the web browser in an Internet Explorer 4 web browser. Indeed, just as window objects can be equipped to manage "content that extends beyond a bottom edge of a visible area," the Internet Explorer 4 web browser can deliver content that extends beyond the bottom edge of its visible area. See generally '493 Patent col. 9, ll. 7-20 (describing the scroll function in module window objects); col. 2, ll. 18-23 (stating that prior art browsers had "scroll bars" which could be used to "scroll through a relatively large amount of text"). In short, merely because a window object is: (1) partially obscured by another window object; (2) in a portion of the web browser that the user must scroll to, to see; or (3) minimized so that only its control section can be seen, does not mean that it is not solely contained within its content manifestation environment. Goodman's screen illustrations serve as an excellent visualization of the Court's finding, that the term "solely contained within" should not be based solely on visual perception. Having analyzed the relevant intrinsic evidence and filings on record, the Court will define the term "solely contained within."

2. "[S]olely contained within" Defined

The Court interprets "solely contained within" to mean that a window object cannot be moved from or displayed, in whole or in part, outside a content manifestation environment. "Solely contained within" a content manifestation environment includes the following requirements: (1) the user cannot move a window object out of the content manifestation environment; (2) no portion of the window object can be displayed outside the content manifestation environment; and (3) though a portion of a window object may not be displayed or may be obscured or hidden, said window object is still solely contained within a content manifestation environment.

3. The Special Master's Recommended Construction Overemphasizes Visual Perception

In view of the foregoing analysis, the Court declines to adopt the Special Master's proposed construction of the term "solely contained within" because it focuses too much on a user's visual perception of a window object. As discussed above, a window object need not be seen to be within a content manifestation environment.

D. The Court's Ruling on the Phrase "solely contained within"

The Court sustains, in part, Simple's objection to the Special Master's recommended construction of "solely contained within." The Court agrees with Simple, and finds that the phrase "solely contained within" should not be linked exclusively to the visual representation of a window object but adopts a more detailed construction of the term, which better comports with the behavior of window objects rather than adopting Simple's proposed construction. (See Simple's Claim Construction Objections at 16-17.)
B. Solid Modeler (Claims 1 and 11)

HP contends that the term means "a computer representational system for describing objects in 3D space." Intergraph states that the term means "a software package for representing solid objects, which, unlike wireframe and surface modeling, ensures that all surfaces meet properly and that the object is geometrically correct."

HP states that its proposed construction is consistent with the explicit definition of "solid modeler" found in the specification. Specifically, HP relies upon language in the section entitled "Background of the Invention" in which "solid modeling" is described as "a computer representational system for describing objects in three-dimensional space. '241 patent, col. 1:12-14; see also '241 Patent, col. 3:61-63 ("A method is described for interfacing between a solid modeler system which describes objects in three-dimensional (3D) space . . .")."

Intergraph supports its proposed construction by citing specification language which provides that "solid models are commonly constructed either with primitive or boundary definition, which permit modeling the solid nature of the object, though the models often appear on the output device in a similar manner as wire frame representations." '241 patent, col. 1:16-20. Intergraph relies upon this language to support its conclusion that wireframe modelers and surface modelers are functionally different from solid modelers and the inventors clearly made this distinction in the '241 patent.

The parties disagreement stems from whether "solid modeling" as used in the claim is distinct from "wireframe modeling" and "surface modeling." After examining the claims, it is far from clear that the inventors intended to exclude "wireframe modeling" or "surface modeling" from their claims. The claims do not require that a solid model be created. Rather, the claims describe using a "solid modeler" to create "an original 3D analytical model," and throughout the claims the term "3D model" is used. Accordingly, although the specification language cited by Intergraph could lead to the inference that "wire frame" and "solid" modeling are distinct processes, such a conclusion is certainly not compelled by the claim language. See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997) (cautioning "against limiting the claimed invention to preferred embodiments or specific examples in the specification"). Thus, Intergraph's proposed construct cannot be correct.

Rather, the Court adopts HP's proposed construction in light of the fact that the Court's analysis must "remain centered on the language of the claims themselves." Vitronics, 90 F.3d at 1582. The claims state that a solid modeler "describes objects in a three-dimensional [] space." (Claim 1 and 11). The Court relies heavily upon this language in defining a "solid modeler" as a computer representational system for describing objects in three-dimensional (3D) space.

A. The Claim Term "Song" Means "Studio Quality Musical Recording" and Has No File Size Limitation

Most of the asserted patent claims at issue in this dispute recite the claim term "song." In September 2009, the parties agreed that "song" would be construed as a "studio quality musical recording." (See Mot. 3; Opp. 7.) The parties now disagree as to the meaning of "studio quality."

In its motion for summary judgment, TouchTunes contends that "studio quality" music has a size-per-minute of at least 10.1 megabytes ("MB"), and can have sizes-per-minute as high as 66 MB. (Mot. 5.) In support of this construction, TouchTunes cites Arachnid's efforts to distinguish prior art, in which it confirmed that "studio quality" songs require the songs to "take[] around 10MB per one minute of stereo sound." (Id. (citing Declaration of Patrick Rice ("Rice Decl.")) ¶ 9.) According to TouchTunes, Arachnid repeatedly argued before the U.S. Patent and Trademark Office (the "PTO") that its claims were patentable because the prior art technology could not accommodate the large volume of data contained in "complete songs of studio quality." (Mot. 9.) TouchTunes also states that the MP3-128 files used in its jukeboxes have a size-per-minute of only 0.94 MB, and argues that these files therefore do not contain "studio quality" recordings and are not "songs" as the parties have construed the claim term. (Id. 5-6.)
In its opposition, Arachnid argues that the prior art it sought to distinguish before the PTO concerned karaoke devices, which utilized Musical Instrument Digital Interface ("MIDI") files rather than recorded music or complete songs. (Opp. 3.) Arachnid used the term "studio quality" and similar terminology throughout the reexamination proceedings before the PTO as a way to define and refer to commercially available recorded music, as opposed to the MIDI data utilized by karaoke devices. (Opp. 4.) For example, with respect to the reexamination of the '834 Patent, Arachnid stated that once a patron has selected a desired song, "[t]he jukebox would then play the selected song, which was typically an artist's studio recording of a commercially available song." (Id.) In its submissions to the PTO, Arachnid consistently defined the phrase "studio quality," as that phrase relates to the jukebox patents at issue, as musical recordings that are suitable for commercial distribution. By doing so, Arachnid acted as its own lexicographer. See Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1329 (Fed. Cir. 2009); Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005). Nothing in the intrinsic record indicates that Arachnid used the term "studio quality" to refer to any file size requirements.

Because the claim term "song" is in dispute, the Court must construe that term, as a matter of law. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). This is true even though the parties had previously reached an agreement as to the construction of the term "song." See, e.g., Civix-DDI, LLC v. Celco P'ship, No. 03 C 3792, 2005 U.S. Dist. LEXIS 43908, 2005 WL 831307, at *8 (N.D. Ill. Apr. 6, 2005) (construing a term where "the parties have a finite and well-defined dispute over the meaning of what they thought was an agreed construction"); Fernandez Innovative Techs., L.L.C. v. Gen. Motors Corp., No. 07 C 1397, 2008 U.S. Dist. LEXIS 41537, 2008 WL 2168843, at *7 (N.D. Ill. May 23, 2008).

The Federal Circuit has instructed that claims are to be construed in light of the claim language and the specification. "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Phillips, 415 F.3d at 1316. The plain meaning of the claim term "song," the specifications, and all of the intrinsic evidence make it clear that a "song" is not limited to a specific or minimum file size. Each of the specifications in the patents at issue explain how the song is taken from its original source — specifically, a commercially available recording — to a central management station, where the song is compressed to reduce its size before being transmitted to the computer jukebox. The file sizes for songs in the preferred embodiments are minimized, and the preferred embodiments do not mention any particular file size. It would be improper to apply numerical limitations to a claim term when the specification provides no such limitation. See, e.g., Kapusta v. Gale Corp., 155 Fed. Appx. 518, 521 (Fed. Cir. 2005) ("Because numerical dimensions are absent in the specification, it was improper for the district court to construe the claim term with the lower limit dimensions.").

For its definition of "studio quality," TouchTunes relies on the opinion of a retained expert and two sentences from the Declaration of Patrick Rice, which refer to a single example file format. The former is extrinsic evidence that is outweighed by the intrinsic record showing Arachnid's repeated definition of studio quality songs as musical recordings suitable for commercial distribution. The excerpted language from the Rice Declaration is mischaracterized by TouchTunes. Read in context, Rice's statement did not constitute a disavowal of claim scope or a definition of any specific claim terminology. Rather, Rice merely provided background information about the size of the most popular type of uncompressed music file format — the WAV format — used to convert songs stored on compact discs to computer files in 1992.

Because the specifications and intrinsic evidence do not teach that the phrase "studio quality," as it relates to the patents in dispute, reflects any minimum file size requirement, the claim term "song" is construed to have no file size limitations. Rather, based on the intrinsic record, "song" is construed to mean a "studio quality musical recording," where "studio quality" means that the recording is suitable for commercial distribution.

**4114**

a. "song record"

Plaintiffs contend that the term "song record" should be interpreted to mean that there must be information regarding at least one of the following categories: song title, song category, song address, song size, graphics address, graphics size, and play count. Defendants contend that the term means that...
the song record must include at least one piece of information for each of those fields. The patent teaches that for any single song, the song record can only have a maximum of one record for each category. For example, a song can only have one title, category, etc. See Opening Brief, Ex. 4 at 3:41-55. Defendants' proposed construction would therefore render superfluous the claim's use of the words “at least one of.” In other words, if “song record” required information in each of the seven categories as defendants propose, the claim would not need the phrase “at least one of.” Rather, it would describe “a song record including song identity data comprising a song title, a song category, song address ... [etc.]”. Defendants contend that SuperGuide Corp. v. DirecTV Enters., Inc., 358 F.3d 870, 884-86 (Fed.Cir.2004), requires that the term be construed to require at least one piece of information in every field. SuperGuide, however, did not state a universal rule for construction of the phrase “at least one of.” Rather, SuperGuide was fact-specific; the court's construction of the term was consistent with the specification of the patent in that case. Id. at 887. In the present case, defendants' proposed construction would render claim language superfluous and would be inconsistent with the specification, which teaches that, at least sometimes, certain fields may be blank. Opening Brief, Ex. 4 at 3:50-51 (“graphics address field” is used for “a graphic image, if any, to be associated with a song.”) (emphasis added). The Court therefore adopts plaintiffs' proposed construction.

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b. “song selector”
The term “song selector” in claim 1 of the 575 patent is similar to the term “selection keys” in the 189 patent, which the Court construed to mean “keys that allow a user to select a song.” The term “song selector” is similarly straightforward and should be given its ordinary meaning. Defendants contend, however, that “song selector” should be limited to a “keyboard that is separate from the display.” They argue that there is no disclosure that supports a broader construction in any of the patents at issue in this case. Defendants overlook, however, that the patent applicants utilized different terminology in the various patents to describe how a user selects a song. The 302 patent disclosed “song selection means” in a means-plus-function format (in which the corresponding structure is a keyboard); the 189
patent disclosed "selection keys." The term "song selector" is broader than both of these other terms; there is no corresponding structure to identify, and, on its face, the term is not limited to keys. The Court sees no reason to limit "song selector" to the examples shown in the specification and therefore construes the term to mean "a device that allows a user to select a song."

7. Claim Terms Involving "sorter"

The Court will analyze disputed terms [30] and [31] together as they both depend on the Court's construction of the term "sorter." The first disputed term, which is found in Claim 12, is "sorter for supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices." (Chart at 10). Plaintiff asserts that this element is governed by 35 U.S.C. § 112, P 6. Plaintiff contends that the functions are: 1) "sorting" and 2) "supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices," and that no corresponding structure is disclosed in the specification. (Id.). Defendants submit that the term is not governed by § 112, P 6 and should be construed to mean an "apparatus that sorts." (Id.). In the alternative, should the Court conclude that this term is a means-plus-function limitation, Defendants argue that the function is "supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices," and that the corresponding structures are the sorter 42 and the microprocessor control unit 68. (Id.).

The second term, which is found in Claim 22, is "sorter for sorting the carriers in accordance with the stored values." (Id.). Again asserting that § 112, P 6 governs, Plaintiff submits that the function is "sorting the carriers in accordance with the stored values" and that there is no corresponding structure in the specification. (Id.). Conversely, Defendants argue that this is not a means-plus-function limitation. Defendants propose that the term should be construed as "an apparatus that sorts." (Id.). In the alternative, Defendants propose that the function is "sorting the carriers in accordance with the stored values," with the same corresponding structure as the two previous terms. (Id.).

Thus, the Court must determine whether the strictures of § 112, P 6 are applicable to these two terms. In both instances, the word "means" is not used. Instead, the patentees purposely used the term "sorter." As previously discussed, "a claim term that does not use 'means' will trigger the rebuttable presumption that § 112, P 6 does not apply." Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1371 (Fed. Cir. 2003) (citing CCS Fitness Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). The presumption may collapse, however, "when a limitation lacking the term 'means' nonetheless relies on functional terms rather than structure or material to describe performance of the claimed function." Id. at 1372. That is not the case here. The Court concludes that "sorter" connotes structure. First, the claim itself uses the structural language "sorter," as opposed to a functional term such as "sorting means," which the patentees chose to use in Claim 11. Second, "sorter" is constantly referenced throughout the patent in structural terms and is depicted as a structure in a figure. See '604 Patent, col. 3, ll. 60-62; col. 5, ll. 34 & 42; col. 8, ll. 3, 15 & 28; figure 2. Additionally, Defendants' expert Dr. Williams opines that a "sorter" is a structure with a well-understood meaning in the field of digital communications. (Williams 2d Report, P 27). Dr. Williams cites various references in which "sorter" is used as a term connoting structure. (Id.). Therefore, the Court finds that the claim recites sufficient structure, that is a "sorter," and does not rely on functional terms.

Having concluded that the term is not a means-plus-function limitation, the Court is left to construe the term "sorter."
Unfortunately, the Court finds the record devoid of any assistance by the parties. Neither Plaintiff nor Defendants provide the Court with the ordinary meaning or dictionary definitions for "sorter," the key word in these disputed terms. The only definition given to the Court is the one proposed by Defendants, namely "an apparatus that sorts." 22 Plaintiff offers no other definition, nor stated any objection to Defendants' proposed construction if the Court were to conclude that § 112, P 6 did not apply. Without any other information from which a construction may be drawn, the Court adopts Defendants' proposed construction for "sorter."

22 The Court notes that Defendants offered a dictionary definition for the term "sorting," but does not offer a definition for "sorter." Defs.' Opening Br. at 31.

Accordingly, the Court concludes that disputed term [30] "sorter for supplying signal amplitudes supplied by the trellis coder to storage locations of the IFFT apparatus identified by the respective carrier indices" and disputed term [31] "sorter for sorting the carriers in accordance with the stored values" are not governed by § 112, P 6. The Court further concludes that the term "sorter" means "an apparatus that sorts."

7. Sorting said memory requests based on their addresses

The plaintiff urges that "sorting said memory requests based on their addresses" means "segregating memory requests into one or more groups based on their addresses." The defendants argue that the disputed phrase means "segregating memory requests into two or more groups according to their addresses." At issue is the number of groups into which "memory requests" can be segregated. The court adopts the plaintiff's construction of "sorting said memory requests based on their addresses" and construes this phrase accordingly.

5. "sorting the subcarrier-indexed estimates of the transmission quality, scaled by the desired subcarrier bit-error-rates, into an invertible ordering" 9

9 The parties stipulated that the meaning of "bit-error-rates" is "on average, the ratio of the number of bits in error to the total number of bits received." (Chart at 16).
invertible." '447 Patent, col. 7, 11. 49-52; col. 8, 1.65 - col. 9, 1. 1. Based on this disclosure, Dr. Hartogs suggests that a person of ordinary skill in the art would understand "that the result of the sort is an ordering of estimates from the highest to the lowest." (Hartogs Report, P 42).

Conversely, Defendants argue that the claim does not require a reordering of the data. Defendants contend that the term is used in a manner that is consistent with its ordinary and customary meaning. (Defs.' Opening Br. at 33-34.) Defendants offer a general definition of the word "sort" from Webster's New World Dictionary. According to this reference, "sort" means "to arrange according to class or kind." WEBSTER'S NEW WORLD DICTIONARY 563 (1995). Defendants also provide a technical definition for "sort" from the International Organization for Standardization. In this reference, "sort" means "to segregate items into groups according to specified criteria without necessarily ordering the items within each group." INT'L ORG. FOR STANDARDIZATION, ISO 2382-6 Info. Processing Sys. - Vocabulary - Part 6: Preparation and Handling of Data 10 (2d ed. 1987) (emphasis in original).

This Court agrees that the term "sorting" does not require reordering of the data. The ordinary meaning of the word "sort" suggests that mere placing or arranging into a class is sufficient. Although the claim uses the words "sorting. . . into an invertible ordering," Plaintiff's construction rests on the incorrect assumption that "invertible ordering" is synonymous with a "new order." This assumption is unsupported. The word "invertible" does not mean "new." The plain meaning of the word "invert" means "to reverse the order, position, direction . . . of." WEBSTER'S NEW WORLD DICTIONARY 313 (1995). Consequently, an "invertible ordering" is something that is capable of being reversed, not necessarily a new order.

The Court concludes that the preferred embodiment should not limit the meaning of the term. To sort the estimates into a "descending order," as described in the preferred embodiment, is only one example of how the estimates may be "sorted." To adopt the requirement that the estimates must be "sorted," and thus "reordered," on this basis would violate the general prohibition against importing a limitation from the specification into the claims. See Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 831 (Fed. Cir. 2003). Therefore, Plaintiff's construction must be rejected.

Accordingly, the Court concludes that disputed term [5] "sorting the subcarrier-indexed estimates of the transmission quality, scaled by the desired subcarrier bit-error-rates, into an invertible ordering" requires mere "sorting" of the estimates, i.e., segregating the estimates into groups based on specified criteria, and does not require reordering.
examples in the specification including a stereophonic sound system with a tape player or tuner near the automobile dash, requires the more limited "audio system" interpretation of the claim language. In the patent's description of preferred embodiments, however, the listed examples are introduced with the phrase "such as" and are thus not presented as an exhaustive list or definition of the sound signal. Nor does the patent's specification limit any claim terms to a "tuner or tape player." Consequently, limiting the recited "sound signal source" to a "music" signal source as suggested by Bose, would violate In re Yamamoto's prohibition against reading limitations appearing only in the specification into the claims. See id.

Moreover, the Board correctly determined that the Electronics phone system provided an "acousto-electrical transducer" as a source of a sound electrical signal, and thus disclosed the "sound signal source" element. Beyond question the transducer converts sounds to sound electrical signals. Because it is the source of a sound electrical signal, the transducer falls within the broadest reasonable interpretation of "sound signal source" in Bose's claims. Thus, Bose fails to show that the Board's determination that the sound signal source element is disclosed in Electronics is clearly erroneous.

10. Sound signals generated from digital information

The phrase "sound signals generated from digital information" appears in claim 1 of the '482 Patent. Diagnostic asserts that "sound signals generated from digital information" should be construed as "analog signals representative of voice instructions and/or messages." Benson does not propose a definition, but asserts that the "digital information" must be stored in the computer, arguing that this phrase should be construed as a "sound signals generated from digital information in the computer."

"Sound" is defined as a "sensation perceived by the sense of hearing." Webster's Third New Int'l Dictionary of The English Language Unabridged 2176 (2002). A "signal" is "a detectable physical quantity or impulse (such as voltage, current, or magnetic field strength) by which messages or information can be transmitted." Webster's 2115. Therefore, the ordinary meaning of "sound signal" is "a detectable physical quantity or impulse that can be perceived by the sense of hearing and by which messages or information can be transmitted."

Next, the Court turns to the intrinsic evidence to determine whether the ordinary meaning has been rebutted. Both parties refer to the Description of the Preferred Embodiments to support their proposed constructions. Diagnostic argues the '482 Patent specification explains that "sound signals from digital information" are analog signals representative of voice instructions and/or messages. ('482 Patent, col. 10,11. 28-35; col. 11,11. 13-21; col. 12,11. 56-69.) Benson, on the other hand, argues that it would be improper to rewrite the limitation that, in the end, makes the claim language more complicated. Benson also argues that the specification language requires that the digital information be in the computer because the description of a preferred embodiment provides that "the test subject may . . . receive the following instructions generated from the digital data stored by [the] computer." ('482 Patent, col. 11,11. 37-39.)

While the Court acknowledges that "sound signals generated from digital information" certainly can be representative of voice instructions and/or messages, the specification does not explicitly set forth a definition different than the claim language. The '482 Patent specification also indicates that "the particular signals could be representative of virtually any type of information which is subject to derivation from digital data … for example, visual graphics and images and others." ('482 Patent, col. 10, 11. 35-40.) Even though the claim itself specifically limits its scope to sound signals, it does not specifically limit it to sounds representative of the human voice.

The Court finds that there is nothing in the patent specification that rebuts the presumption giving "sound signals generated from digital information" its plain and ordinary meaning and therefore refuses to import the limitations proposed by Diagnostic into the claim. In addition, as previously discussed, the Court rejects Benson's attempt to import structural limitations into claim 1. The Court therefore construes the term as "detectable physical quantities or impulses, generated from digital information, that can be perceived by the sense of hearing by which messages or information can be transmitted."
Source information; destination information; channel identification information

The Court adopts Ciena’s proposed construction and construes the terms as “information identifying the source, destination, or channel.” Nortel argues that the terms should be construed as “bits included in an appended bit stream that identify the source, destination, or channel.” Nortel claims that the specification of the ‘176 patent “expressly explains that source, destination, and channel identification information are bits appended to an existing data frame through an overhead bit stream.” Nortel cites Column 6, Lines 47 through 52 of the specification, which state:

Advantageously, forward error correction in the [wavelength division multiplexing] optical system of the present invention enables a “channel trace” function that encodes the channel ID, source, and destination into a small overhead bit stream which would permit the remodulating channel selector to respond only to an incoming signal with the proper addressing.

Nortel argues that this excerpt from the specification supports its proposed construction by indicating that the identification, source, and destination information are bits that are added to the existing data by appending an “overhead bit stream.” Ciena argues that the terms do not require construction, and alternatively that the term should be construed as “information identifying the source, destination, or channel.”

The language of claim one states “transmitting a plurality of signals . . . each of said plurality of optical signals carrying data associated with a respective one of said plurality of encoded information streams and source information associated with a respective one of said plurality of optical channels.” Col. 10:54-64. The claim language indicates that each optical signal carries source information related to one of the optical channels. Neither this claim language nor any other claim in the patent indicates that the source, destination, or channel identification information is added to an optical signal in the form of “bits included in an appended bit stream.” Furthermore, the language from the specification cited by Nortel describes a preferred embodiment of the invention. “Although the written description may aid in the proper construction of a claim term, limitations, examples, or embodiments appearing only there may not be read into the claim.” Kraft Foods Inc. v. Int’l Trading Co., 203 F.3d 1362, 1366 (Fed. Cir. 2000). Accordingly, the Court does not read the preferred embodiment into the claim and construes the terms as “information identifying the source, destination, or channel.”

IV. Disputed Terms to be Construed

<table>
<thead>
<tr>
<th>Claim Language</th>
<th>Fast Memory's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;source leakage&quot; (&quot;whereby source leakage of the semiconductor device is reduced&quot;)</td>
<td>This phrase does not require construction. In the alternative substrate only, construe as: &quot;an unwanted and slow escape or entrance of particles or material which may be conveyed between the source terminal and ground or other parts&quot;</td>
<td>leakage from the source terminal to the terminal that occurs during source erase</td>
</tr>
</tbody>
</table>

Defendants argue that the ‘959 patent is limited by its specification to source erase. Plaintiff Fast Memory contends that source leakage occurs during multiple erase procedures, including channel erase, and that the reference to a reduction of source leakage covers all such procedures.
Fast Memory argues that the term "source leakage" should not be construed, since it appears in a "whereby" clause, which generally states the result of a patented process. However, when a term in a whereby clause "states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention." Such an issue must be decided on the particular facts of the case. A court may find that words in a whereby clause limit the claim when it "is more than the intended result of a process step; it is part of the process itself." The words in a whereby clause are analyzed in light of the specification and prosecution history.

Footnotes:

20 See Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 988 F.2d 1165, 1172, 1175 (Fed. Cir. 1993) (holding that a "whereby" clause was not limiting when it only expressed the necessary result of what was recited elsewhere in the claims); see also Lockheed Martin Corp. v. Space Systems/Loral, Inc., 324 F.3d 1308, 1319 (Fed. Cir. 2003) ("a whereby clause that merely states the result of the limitations in the claim adds nothing to the substance of the claim.").

21 Hoffer v. Microsoft Corp., 405 F.3d 1326, 1329 (Fed. Cir. 2005).


23 Hoffer, 405 F.3d at 1330; see, e.g., Lonestar Inventions LP v. Nintendo of America, Inc., No. 6:07-CV-261, 2009 U.S. Dist. LEXIS 31753, *29, 2009 WL 1011734 (E.D. Tex. Apr. 14, 2009) ("Although 'said first and second nodes form two opposing nodes' appears in a 'whereby clause,' the term requires construction because nowhere else in claim 1 is there a requirement to form 'opposing nodes' other than in the whereby clause. Thus, 'opposing nodes' adds a meaningful limitation to claim 1 rather than only stating an intended result.").

24 See id.

Footnotes:

25 '959 Patent, at Title ("Semiconductor device having reduced source leakage during source erase").

26 '959 Patent, at Abstract ("In one aspect, the current invention provides a method for reducing the source leakage of a semiconductor device.").

27 '959 Patent 1:2-9 ("More particularly, the current invention relates to reducing leakage during source erase of flash EPROM cells. More specifically, the present invention provides new process techniques that reduce source leakage during source erase of flash EPROM cells. The current invention also provides novel semiconductor devices with a differentially doped source region that reduces leakage during source erase.") (emphasis added).

28 '959 Patent 2:2-3 ("Source diode leakage must be minimized to increase source erase speed.").

29 '959 Patent 3:27-28 ("The present invention addresses this need by providing new process methods that minimize source diode leakage."); 4:13-16 ("The second doped region has a higher concentration of dopant than the first doped region, which reduces source leakage of the semiconductor device."). 30 '959 Patent 7:40-42 ("The culmative [apparently meaning cumulative] effect of these aforementioned advantages is to provide a semiconductor device with reduced levels of leakage during source erase."); 9:29-30 ("These aforementioned advantages provide a semiconductor device with reduced levels of leakage during source erase.")
Defendants urge that the reference to "source leakage" in Claim 1 should be construed to refer only to leakage from the source to the substrate that occurs during source erase. Plaintiff broadly defines "source leakage" to encompass leakage during source erase, channel erase, drain erase, and gate erase. As a preliminary matter, the Court must address a disputed technical issue—whether source leakage occurs only during source erase, or whether there is also source leakage during other erase procedures.

The '959 specification discusses source leakage in the context of source erase, and does not refer to source leakage during channel or other erase procedures. However, the specification does not disclaim the possibility of source leakage during channel or other erase procedures. Fast Memory offers evidence from its expert, Dr. Liu, whose published article shows that source leakage occurs during channel erase, though there is less band-to-band tunneling than in source erase. In deposition, Dr. Liu states that source leakage can travel from the source to other parts of the semiconductor device, such as the drain. In response, Defendants cite the declarations of their experts, Drs. Brown and Taylor. Dr. Brown concludes that "[t]here is no source diode leakage problem or current leakage problem in channel erase . . . particularly those that float the source and drain . . . ." Dr. Taylor opines that source leakage does not occur during channel erase, because no voltage is applied to the source terminal, and the source is left floating. Thus, the parties' experts disagree on this important issue.

The Court is persuaded by Dr. Liu's peer-reviewed work, which was published in a respected technical journal, prior to this litigation, in which he concludes that source leakage can occur during other erase procedures. Defendants produced no published works contradicting Dr. Liu's conclusions.

Although source leakage during channel erase is seemingly possible, that does not end the inquiry. The claims of a patent cannot be "of broader scope than the invention that is set forth in the specification." Fast Memory's proposed construction of source leakage to include "an unwanted and slow escape or entrance of particles or material to ground or other parts" is not found in or supported by the intrinsic record. The specification states that source leakage is to the substrate during erasure, without mentioning the ground or other parts. While Defendants cite no fewer than six statements in the specification describing the invention as limiting leakage during source erase, Plaintiff Fast Memory points to no language in the specification which discusses the benefits of the patent in other erase procedures. In fact, the patent distinguishes channel erase as a "different method" from source erase, and the specification critiques channel erase for requiring source isolation by the triple well process, which is complicated and expensive. In contrast, the specification extols the benefits of source erase, which is "simpler and less expensive to implement than channel erase." All of the embodiments apply to source erase. The specification addresses the problem of leakage to the substrate, not to other parts of the cell. The sole support in the specification for Plaintiff's broader interpretation is a reference to "alternative ways of implementing both the process and apparatus of the present invention." An analysis of that statement in context reveals that the inventor was referring to dopant concentrations, not to the patent's applicability to channel erase. As noted in Praxair, the "claims of the patent must be read in light of the specification's consistent emphasis on [the]
fundamental feature of the invention." 46

37 On Demand Machine Corp. v. Ingram Indus., Inc., 442 F.3d 1331, 1340 (Fed. Cir. 2006) (limiting a claim to the patent's specification despite a "comprising" term); see also Alloc, 342 F.3d at 1370 ("[W]here the specification makes clear at various points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claims.").


39 '959 Patent 1:2-4 ("More particularly, the current invention relates to reducing leakage during source erase of flash EPROM cells."); 1:4-6 ("More specifically, the present invention provides new process techniques that reduce source leakage during source erase of flash EPROM cells."); 1:6-9 ("The current invention also provides novel semiconductor devices with a differentially doped source region that reduces leakage during source erase."); 2:17-20 ("Thus, the difficulties caused by band to band leakage in generating and maintaining the voltage required to erase the device are frequently the limiting factor in source erasing flash cell."); 7:40-42 ("The culmative [apparently meaning cumulative] effect of these aforementioned advantages is to provide a semiconductor device with reduced levels of leakage during source erase."); 9:29-30 ("These aforementioned advantages provide a semiconductor device with reduced levels of leakage during source erase.").

40 '959 Patent 1:50-51.

41 '959 Patent 1:56-58. See, e.g., Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1332-33 (Fed. Cir. 2009) (limiting a claim to its specification, where the inventor disparaged prior art in the "background art" section of the specification); see generally Astrazeneca AB v. Mut. Pharm. Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004) ("Where the general summary or description of the invention describes a feature of the invention . . . and criticizes other products . . . that lack that same feature, this operates as a clear disavowal of these other products . . . .").


44 '959 Patent 1:66-2:1 ("However, a significant problem with source erase of flash EPROM cells is source diode leakage to the substrate during erasure."); 2:13-15 ("Band to band leakage wastes power since some of the diode current is dissipated in the substrate during erasure.").


46 Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1324 (Fed. Cir. 2008).

Citing Epistar, Fast Memory argues that Defendants' proposed construction would impermissibly limit the '959 patent to one of its preferred embodiments. 47 However, source erase is not merely a preferred embodiment; analysis of the specification leads to the "inescapable conclusion" that the claims address only source erase. 48 In contrast to Epistar, support for limiting the disputed term is found throughout the specification, and the reduction of source leakage during source erase is critical to the invention. 49 Even Dr. Liu, in his declaration, noted that the '959 patent "addresses the issue of reducing source leakage during erasure of the source of a semiconductor device." 50 Reading the claim in light of the specification, a person of ordinary skill in the art would clearly understand that the invention refers to source erase, not to other types of erase procedures. Thus, the Court construes "source leakage" as: "leakage from the source terminal to the substrate terminal that occurs during source erase."

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -
"Source Means" in the '146 Patent's Claim 19

Claim 19 of the '146 Patent includes this language:

[a] source means having AC terminals and being operative to provide an AC voltage thereat.

Because the word "means" is present, the presumption is that the claim is in means-plus-function form. Here the claim is in purely functional language ("being operative to provide..."), except possibly for the use of the word "source."

In that respect Nilssen contends that "source" is a structural term denoting a device that is a source of power. Even so, "source of power" alone is hardly a sufficient structural recitation to remove the claim from the presumed ambit of Paragraph 6. Cole, 102 F.3d at 531 is not to the contrary, because the presumption in that case was overcome by the claim element's "precise structural character." There is no way that, as N. Mem. 18-19 attempts to argue, the word "source" amounts to a detailed recitation of structure that overcomes the claim element's functional language. Indeed, the definition offered by N. Mem. 18--"any device that produces electrical energy"--is purely functional and denotes no structure whatever. 14 Nor does the claim's added description of the "source means" as "having AC terminals" serve to convert the imprecision of the term "source means" into a term of "precise structural character."

Hence this Court concludes that the "source means" element of claim 19 in the '146 Patent is in means-plus-function form. 15 As such, claim 19 is limited to the structure set forth in the corresponding specification and its equivalents.

14 N. Mem. 18 uses the definition for the term "power supply" and equates that term with "source."

15 See, e.g., Unidynamics Corp. v. Automatic Prods. Int'l, Ltd., 157 F.3d 1311, 1318-19 (Fed. Cir. 1998), holding that the claim limitation "spring means tending to keep the door closed" was in means-plus-function form because, though "spring" was a structural term, it did not sufficiently connote a specific structure to perform the claimed function.
point, a brief hearing is needed to decide exactly what portion of the specification corresponds with the claim. 16

--- Footnotes ---

16 As the rest of this opinion reveals, this is the sole claim for which a Markman hearing will be necessary. Neither Nilssen nor Motorola should regard that hearing as an opportunity to reargue any other claims.

--- End Footnotes ---

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e. "source node" and "destination node"

(i) does the meaning of source node and destination node include intermediate nodes

The parties dispute the meaning of the terms "source node" and "destination node." According to Intel, a "source node" is a node that has the capacity to transmit data, whether it is the original creator of the data that is first transmitting the data or is another node (i.e. an intermediate node) that is transmitting the data. A "destination node" is a node that has the capacity to receive data, whether it is the ultimate recipient of the data, or is another node (i.e. an intermediate node) that is receiving the data. In support of this construction, Intel argues that for these terms the 830 inventors were their own lexicographers. When the terms "source node" and "destination node" were first introduced in the patent specification, the specification identified what those terms meant:

Data is transferable from one node (the "source node") to another node (the "destination node") over the communication medium (e.g. cable 1). Typically, but not necessarily in every case, each node is capable of functioning as a source node (i.e. has the capability to transmit data) and as a destination node (i.e. has the capability to receive data).

Col. 2:46-52. In the above section, in contrast to the non-exhaustive example of a communication medium, indicated by "e.g.," the inventors indicated the definitional nature of their references regarding the nodes by using "i.e.," an abbreviation for the Latin term id est, which means "that is" or "that is to say." See Black's Law Dictionary (6th ed. 1990). Intel, thus, contends that by linking the terms to the phrases in parentheses with the term "i.e." the inventors were stating that each phrase in parentheses was another way to express the terms "source node" and "destination node." The definitions that they gave to those respective terms are, "[a node that] has the capability to transmit data" and "[a node] that has the capability to receive data." This meaning is consistent with the language of claim 1, which recites that the data is to be transmitted from a source node, a node capable of transmitting data, to a destination node, a node capable of receiving data.

Broadcom argues that the terms "source node" and "destination node" are not explicitly defined in the specification because the statement referred to by Intel merely states that to function as a source node, a node must be able to transmit data and to function as a destination node, a node must be able to receive data. Broadcom, thus, contends that in the context of this patent, a person of ordinary skill in the art would understand that the plain meaning of the term "source node" as a device that initiates the transfer of data. Broadcom similarly contends that the plain meaning of the term "destination node" is a device that is the intended recipient of the data.

When the inventors explicitly state the meaning that they are assigning to certain claim terms, the court should give that meaning to those terms. See Renishaw, 158 F.3d at 1249 ("The definition selected by the patent applicant controls"). Broadcom's reading of the "i.e." language above is strained. The specification does not describe certain nodes that function as source nodes or destination nodes, but are nonetheless not source nodes or destination nodes. Nothing in the patent indicates that the inventors intended to adopt the narrower meaning that Broadcom seeks, which requires the source node to be the original source of the data to be transmitted and the destination node to be the ultimate destination of the transmitted data. Rather, the patent provides, as specific examples of nodes, devices such as bridges and gateways that would rarely, if ever, be the original source of the data or the ultimate destination of data, but would instead act as intermediate nodes. Nowhere in the specification does the patent indicate that such nodes could not function as source or destination nodes. Rather, the specification states that "data is transferable from one node (the "source node") to another node (the "destination node") and pointed out that a single node can be both a "source node" and a "destination node" if it is both capable of
sending and receiving data.

Therefore, the court finds that the meaning of the term "source node" is a "node," as defined above, that has the capability to transmit data. A "destination node" is a "node," as defined above, that has the capability of receiving data.

(ii) Are the meanings of source node and destination node limited to include network addresses or to store information about its own data transfer format capabilities and the data transfer format capabilities of other nodes coupled to the network

Broadcom further submits that the meanings of the terms "source node" and "destination node," as used in the claims, are limited in a number of ways. First, each "source node" is required to store information about its own data transfer format capability (or capabilities), as well as the data transfer format capability (or capabilities) of the other nodes coupled to the network. Second, each "source node" and each "destination node" must have a network identification or address to permit a source node to select a destination node to which it wishes to transfer data.

With respect the Broadcom's argument that each "source node" must have the capability to store information about its format sets and the format sets of other nodes coupled to the network, Intel argues that Broadcom's argument finds no support in the claim language. Rather, Intel notes the "cache" element is not brought into the claims until dependent claim 2, which claims:

A computer communication system in accordance with claim 1 wherein said transfer format selection means is comprised of a source node cache for node format sets and a destination node cache for node format sets; and wherein transfer format selection is made by the source node by searching for the destination node format set in said source node cache and by selecting a format which is included in said destination node format set and the source node format set.

Col. 11: 56-64.

The court finds that although the examples in the specification support Broadcom's contention that each "source node" must have the capability of storing such information in its cache, or memory, see Col. 4:59 - 5:11, claim 1 cannot be so limited. In interpreting claims, it is improper for courts to read into an independent claim a limitation that is explicitly set forth in another claim. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed. Cir. 1985). Rather, each claim of a patent constitutes a separate invention and gives rise to separate rights. Jones v. Hardy, 727 F.2d 1524, 1528 (Fed. Cir. 1984). This concept, known as claim differentiation states that claims should be presumed to cover different inventions.

In one example given, which appears to be an implementation of the more narrow claim 2, the format capability (or capabilities) of the destination node must be stored because that is what the source node's transfer format selection means uses to select the proper data transfer format. The specification notes that, in this particular embodiment, when the cache of a given node is incomplete and does not contain an entry for the destination node's formats, an inquiry dialog must be initiated, in which the source node cache determines the destination node supported transfer formats and updates its cache with the format set of the destination node. However, because "cache" is the only element that is added in dependent claim 2, under the doctrine of claim differentiation, the court rejects Broadcom's proposed limitation on claim 1. See Beachcombers Intl v. Wildewood Creative Prods., 31 F.3d 1154, 1162 (Fed. Cir. 1994).

If the court were to adopt Broadcom's proposed construction, claim 2 and other claims, such as claim 7, that are dependent on claim 2 would be rendered superfluous. See id. Therefore the court declines to adopt a construction that so limits the source node's "transfer format selection means" as disclosed in claim 1.

Second, as noted above, the 830 patent does not indicate that only nodes called out by particular fields in a frame can be "source nodes" and "destination nodes." The examples cited by Broadcom for the proposition that the source node address and the destination node address are always included in a frame data transmission between the source and destination nodes, see Fig. 9-13, are only examples of the preferred embodiment, Appletalk. Specialty Composites, 845 F.2d at 987. The broad claim language and express language of the specification indicate that the invention is not to be limited to that particular system or a system that uses the same data types as that system. Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 973 (Fed. Cir. 1999) (stating that "the general rule, of course, is that the claims of a patent are not limited to the preferred embodiment, unless by their own language"). Therefore, the court finds that the definition of "source node" and "destination node," like the definition of "data" is not limited to require a "source node address" or "destination node address." Naturally,
the transfer format selection means element must have some ability to identify the supported format sets that are compatible with the destination node in order to allow it to select a data transfer format that is compatible with the destination node. However, this ability to identify is not limited to implementations that use an addressing scheme with specific "source addresses" and "destination addresses" that are transmitted in frames. Moreover, it is part of the function and corresponding structure of the transfer format selection means, and not a limitation on the definition of "source node" or "destination node."

In sum, the court finds that a "source node is a "node" that has the capability to transmit data. A "destination node" is a node that has the capability to receive data.

4. "source object"

TiVo argues an "object" is "a collection of data or operations, i.e., portions of a computer program." See TiVo's Opening Br. at 11-12; TiVo's Op. Br. at 21-22, citing IEEE 100: THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS at 752 (7th ed. 2000)(defining "object" as "a collection of data and operations"); TiVo's Markman Slides at 140-53. It further argues no construction beyond "object" is needed for "source object" or, if construed, should mean "the portion of a computer program that (1) 'extracts video and audio data from said physical data source,' (2) 'converts video data into data streams,' (3) 'obtains a buffer from said transform object,' and (4) 'fills said buffer with said streams.'" See TiVo's Op. Br. at 22; '389 patent at cols. 7:48-50, 8:39-40, 14:59-61, 14:65-67, 18:9-10, 18:13-15; TiVo's Markman Slides at 140-53.

EchoStar argues "object" means "an item written with an object-oriented computer programming method (for example, in C++) that encapsulates data and the procedures necessary to operate on that data and can inherit properties from a class or another object." See '389 patent at cols. 8:9-18, 8:40-42, 11:27; EchoStar's Opening Br. at 22-23; EchoStar's Response Br. at 10-14; EchoStar's Slide Presentation at 113-20.

EchoStar further argues "source object" means "a software object that serves as a point of origin of video and audio data." See '389 patent at cols. 7:47-50, 8:9-18; 8:38-65, & Fig. 8; EchoStar's Opening Br. at 23-25; EchoStar's Slide Presentation at 127-28.

After a thorough examination of the intrinsic record, the Court has concluded that "object" is used according to its plain meaning to one of ordinary skill in the art at the time of the invention. Neither the claims nor specification, however, elaborate on the plain meaning of this term. The Court therefore turns to extrinsic evidence in order to assist its understanding of the term. Phillips, 415 F.3d 1303, 2005 WL 1620331 at *15. In this instance, the Court looked to a technical dictionary, the IEEE 100: THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS at 752 (7th ed. 2000) which defines "object" as "a collection of data and operations." The Court notes that EchoStar's expert witness, Dr. Rhyne, has acknowledged that this is a widely accepted technical dictionary in the electrical engineering field. Rhyne Decl. at 45. Thus, for clarification purposes the Court construes "object" as "a collection of data and operations." This same construction of "object" applies to the terms "transform object," "sink object," and "control object."

The Court further finds that persons of ordinary skill in the art readily understand the meaning of "source object" upon a reading of the claim language and its context in the specification. See '389 patent at cols. 14:59-61, 14:65-15:2, 15:15-16, 18:9-10, 18:13-17, 18:29-30. The specification states: "[w]ith respect to FIG. 8, the program logic within the CPU has three conceptual components: sources 801, transforms 802, and sinks 803." Id. at col. 7:48-50. In addition, specification describes a class hierarchy of the program logic according to the invention and refers to the source 901, transform 902, and sink 903 objects. See id. at col. 8:9-18 & Fig. 9. Therefore, in accordance with its ordinary meaning, the Court construes "source object" as "a collection of data and operations that (1) extracts video and audio data from a physical data source, (2) obtains a buffer [memory where data can be temporarily stored for transfer] from a transform object, (3) converts video data into data streams, and (4) fills the buffer [memory where data can be temporarily stored for transfer] with the streams."
12. "a source of more than one and up to M direct sequence spread spectrum codes, where M is the number of chips per direct sequence spread spectrum code;"

<table>
<thead>
<tr>
<th>Wi-LAN's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a device that originates more than one and up to M direct sequence spread spectrum codes, where M is the number of chips per direct sequence spread spectrum code&quot;</td>
<td>Invalid for failure to meet 35 U.S.C. § 112, if M does not equal N</td>
</tr>
<tr>
<td>&quot;Alternatively, a source of more than one and up to M direct sequence spread spectrum codes, where M is the number of chips per direct sequence spread spectrum code, where M equals N&quot;</td>
<td></td>
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</table>

Claim 2 requires a source of M direct sequence spread spectrum codes, where M is the number of chips per code. The specification provides that "[t]he computing means shown in FIG. 1 includes a source 16 of N direct sequence spread spectrum code symbols and a modulator 18 to modulate each Ith data symbol from each set of N data symbols with the Ith code symbol from the N code symbol to generate N modulated data symbols, and thereby spread each I data symbol over a separate code symbol." ‘802 patent, 4:7-12. Similar to the "first computing means" term of claim 33, Defendants argue that the "source" term in claim 2 is indefinite, and thus renders claim 2 invalid, if M does not equal N. Defendants argue that, like independent claim 33, dependent claim 2 is invalid because the specification does not provide structure corresponding to the "M" chips per code function. Similar to its previous findings as to the "first computing means" term of claim 33, the Court finds that changing N to M for certain terms is not an impermissible broadening of the claims during reissue. The Court finds that M need not equal N, and conversely, the Court is not convinced that M cannot be a different number than N. Thus, the Court rejects Defendants' arguments that claims 2, 4, 12, and 33 reciting the term "M" is invalid if M does not equal N. The Court further rejects Defendants' argument that this dependent claim is broader than claim 1 by eliminating the fixed numerical relationship between the number of data symbols and chips per code. The Court finds that the ordinary meaning of the term "source" is any thing or place from which something comes, arises, or is obtained; the point of origin; or the point at which something springs into being or from which it derives or is obtained. Wi-LAN proposes a definition for the term "a source of" that is consistent with the ordinary meaning of that term, while Defendants do not provide a definition and only argue that M must equal N. The Court finds that while a source can be a device, it may not necessarily be limited to a device. Thus, the Court construes the term "source of" to mean "place or device that originates."

3. "source of illumination"

Avago submits that "source of illumination" does not require construction and that the ordinary meaning should apply. Elan proposes that "source of illumination" be construed as "a device that provides illumination at a grazing angle."

As detailed in Claim 4, the source of illumination "illuminates a portion of the work surface opposite the aperture" thus "producing a pattern of highlights upon surface height irregularities." Just as the shadows cast by the sun decrease in length as the sun approaches noon, illumination directly perpendicular to the work surface micro texture would be unlikely to produce a "pattern of highlights and shadows from the surface height irregularities of the illuminated portion of the work" required by Claim 4.

Elan argues that inherent in the illumination disclosed in Claim 4, is the concept of grazing angle, and thus the angle of incidence must be between 5 and 20 degrees. In support of its position Elan relies on the following line in the specification: "A surprisingly wide variety of surfaces create a rich collection of highlights and shadows when illuminated with a suitable
angle of incidence. That angle is generally low, say, on the order of five to twenty degrees, and we shall term it a 'grazing' angle of incidence” and argues that anything outside 5 to 20 degrees therefore must not be suitable by the terms of the specification.

A comparison of Claim 1 with Claim 4 indicates that a particular angle limitation should not be included in the construction of Claim 4. Claim 1 specifies "an angle of incidence in the range of about five to twenty degrees," whereas Claim 4 contains no such limitation. The plain language of Claim 4 requires that the source of illumination produce a pattern of highlights and shadows, and Elan may very well be correct that nothing outside of a 5-20 degree range will produce such a pattern, but that is a question of fact for future determination. The Court declines to construe "source of illumination" in Claim 4 as requiring an angle. The Court declines to further construe the phrase at this time.

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(8) In claim one, the phrase "a source of subpicosecond monochromatic coherent light pulses of high instantaneous energy . . . to produce in target material at said object plane simultaneous absorption of two incident photons to thereby excite characteristic fluorescence." Plaintiffs assert this phrase, which is combined from two separate paragraphs ([c] and [e]), must be read together as a means-plus-function clause. Plaintiffs argue that the first portion of the phrase describes a means of producing light pulses and the second portion recites the function of producing in the target material a simultaneous absorption of two incident photons. According to Plaintiffs, there is no recited structure in the claim for the performance of the function. Thus, Plaintiffs submit, the structure must be garnered from the specification, which, they submit, dictates that the structure be a colliding pulse mode-locked dye laser.

Defendants disagree. Defendants argue that the word "means" is not used in the term, the specification does not specify a function that necessarily corresponds to this claim element and the claim element provides sufficient structure, thus making § 112, P 6 inapplicable. For example, Defendants argue that the terms "light source," "subpicosecond monochromatic coherent light pulses," "light pulses of high instantaneous energy intensity comprised of photons in a long wavelength spectral range" and "pulses having a high repetition rate" are all recited in claim one and establish sufficient structure and material for the claim -- that is, a laser. Tr. 345.

The applicants were clear and signaled their invocation of the means-plus-function analysis with the word "means" throughout the patent. See, e.g., 613 Patent 9:64 ("stage means"); 10:1 ("lens means"). In the claim elements that the parties agree are to be interpreted as means-plus-function elements, there is no description of structure provided. That is not the case here where sufficient structure is recited. Because the word "means" does not appear in the phrase at issue, the Plaintiffs must overcome the presumption that § 112, P 6 will not apply. The Plaintiffs have not met their burden. The Court finds there is sufficient structure recited in the claim and the phrase will not be construed as a means-plus-function element.

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5. Spacer layer defining a well (claims 28, 38)

Plaintiff contends that "spacer layer defining a well" means "a layer that defines a gap that will be created when the layer is removed," while Defendants contend that it means "a layer forming walls that define an empty space."

The terms "spacer layer" and "well" appear only in the claims of the '663 patent. Neither term appears anywhere else in the specification. As described below, however, the claims and the specification reveal that the "spacer layer" is polyimide layer 196 in a preferred embodiment, while the "well" that the spacer layer defines is the space that exists between the resistor and the ground plane in a completed bolometer (the "vacuum gap" illustrated in Fig. 4a).

The claimed "spacer layer" is the polyimide layer 196 described in a preferred embodiment method of the '663 specification. See '663 patent, 9:8-10:12. As described in the specification, the polyimide layer 196 is deposited in step (b) prior to depositing, in situ, the layers that will form stack 144. Id. at 9:8-19. As illustrated in Figs. 8b-8g, the thickness of the spacer layer defines the spacing between stack 144 and the aluminum layer 192 in the completed bolometer, because the layers that
form stack 144 are deposited on top of polyimide layer 196 during the fabrication process. See id. at 9:18-29; Fig. 8c. The specification describes how, after the layers of stack 144 are deposited in situ (among other steps), the photoresist layers 204 and 208, together with the polyimide layer 196, are etched away to leave the completed bolometer. Id. at 10:9-11. The "spacer layer" is thus used during the fabrication process to define the spacing between the resistor and the ground plane in the completed bolometer, but is thereafter etched away--it is not a physical layer that exists in the completed bolometer.

Defendants' primary argument in opposition to Plaintiff's proposed construction is that the claims in which this term appears are directed to a final, functional array of bolometers, and, therefore, the claimed "spacer layer" must be a physical layer that is present in the completed bolometer (and not a layer that has been removed). In support of this argument, Defendants rely on the preamble, which states "An array of bolometers having resistors which vary with received radiation in a spectral range of infrared radiation . . . ." '663 Reexamination Certificate, 3:48-50; 6:17-19. According to Defendants, the resistor that exists in an intermediate bolometer in the fabrication process (such as that illustrated in Fig. 8g) would not vary with received radiation, so the claim must necessarily be directed to a completed bolometer. And because the claim is directed to a completed bolometer, Defendants argue, it would be illogical to construe this term to require a "spacer layer" that is removed during the fabrication process and that does not exist in a completed bolometer. 3

3 Defendants also point to subsequent claim language requiring "resistors supported by said spacer layer" in support of their argument. According to Defendants, if the claim is directed to a completed bolometer, and the spacer layer "support[s]" the resistors, the "spacer layer" must necessarily be in existence in the final product.

Defendants' argument is more accurately characterized as an argument for non-infringement than an argument related to construction of this term. Whether the resistor in an intermediate bolometer in the fabrication process, such as that illustrated in Fig. 8g, varies with received radiation is a fact question better left to the jury. According to Defendants' argument, either the claims are directed to a completed bolometer, in which case a "spacer layer" is no longer present (and a requirement of the claims would be missing), or the claims are directed to an intermediate bolometer, in which case the resistors do not vary with received radiation (and a requirement of the claims would be missing). 4

4 The parties did not address whether or not the preambles of claims 28 and 38 are limitations of the claims. The court, therefore, declines to construe the preambles or determine whether they are limitations of the claims at this time.

In the context of the specification and the claims, "a layer forming walls that define an empty space" does not define a "spacer layer." Defendants did not identify any structure in the completed bolometer--either in their briefing or at the Markman hearing--that would qualify as a "spacer layer" under their proposed construction. Indeed, under Defendants' proposed construction (as Plaintiff points out), interconnects 156 and 158 appear to be the only structures that may possibly qualify, as they are the only structures that arguably "form[] walls that define an empty space" in the completed bolometer. The intrinsic record, however, does not support a construction that renders the interconnects a "spacer layer."

"Spacer layer," in the context of the intrinsic record, is a layer that is deposited during the fabrication process, upon which materials comprising the resistor are deposited, that is thereafter removed to form the space between the resistor and the ground plane (reflector layer). (See Fig. 4a). The court, therefore, construes this term to mean "a layer that defines a space that will be created when the layer is removed." Indeed, when read in conjunction with the next disputed claim term ("supported by said spacer layer"), it is clear that the "spacer layer" is a layer, such as polyimide layer 196, that supports the resistor during the fabrication process and that defines a space that will be created when the layer is removed.
c. "source pad"

LGD contends that the term "source pad" means "a portion of patterned, electrically conductive material that is provided near the periphery of the thin film transistor array to receive a data signal." D.I. 376 at Exh. C-13. LGD contends that the '449 patent discloses that the source pad receives signals for the driving circuit, but the source pad may extend past the point of contact with the data driving circuit. D.I. 1396 at P 1445-1446.

The constructions of AUO and CMO are similar, except that AUO does not provide for "a portion," and both AUO and CMO require "the thin film transistor array to receive a data signal from a data driving circuit." D.I. 376 at Exh. C-19. In this regard, CMO and AUO point out that the specification of the '449 patent makes it clear that the gate and source pads receive data from "gate drive and data driver respectively." '449 patent col. 1, ll. 27-30. AUO also contends that there is no intrinsic support to limit the gate/source pad to only "a portion."

The '449 patent was previously the subject of litigation in the Central District of California between LG Phillips LCD Co., LTD. and Tatung Co. of America, Tatung Company and Chunghwa Picture Tubes, Ltd. (the "California litigation"). In the California litigation, the court construed source pad consistently with the construction proffered by CMO. LG Phillips LCD Co., Ltd. v. Tatung Co. of America, Civ. Act No. 02-6775-CBM (JTLx), at 17 (C.D. Cal. May 5, 2005). While the Court is not bound by this construction, the Court concludes that it is consistent with the specification which makes it clear that the data is received from the gate drive and data driver respectively. '449 patent col. 1, ll. 27-30. AUO also contends that there is no intrinsic support to limit the gate/source pad to only "a portion."

Accordingly, the Court concludes that the term "source pad" means "a portion of patterned, electrically conductive material that is provided near the periphery of the thin film transistor array to receive a data signal from a data driving circuit."

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The Shaffer-Moore Patents

The parties also dispute the meaning of the term "spatial key" which appears in the claims of nearly all of the Shaffer-Moore Patents. Defendants' proposed definition is "a single number that identifies a small, specific geographically defined area, line, or point that is defined by a set or sets of coordinates." (Doc. No. 240, pp. 19-20). In support of this definition, Defendants point to the use of the term in the specification of the patents and to the construction given to this term by the United States District Court for the Eastern District of Virginia. (Id.).

800 Adept argues that "spacial key" should be construed as that term was defined in the Shaffer-Moore Patents. (Doc. No. 268, pp. 17-20). Plaintiff contends that it would be inappropriate to insert "small" in the definition of this term because (1) the specification does not limit spatial keys to "small" geographic areas but merely calls these "preferred" or "unique," (2) "small" adds nothing to the definition because it is a relative term, and (3) the ruling of the District Court of the Eastern District of Virginia is not binding on this Court. (Id.).

Although the Court recognizes that a uniform treatment of claim construction is desirable, the claim construction of another district court in no way binds this Court under the instant circumstances. The parties provide only a single Order of the Court, without its reasoning, discussion of the arguments of the parties, or reference to the underlying facts. The claim construction of the Virginia District Court was not appealed to the Federal Circuit. Defendants do not provide any authority that would afford that Order preclusive effect. Defendants do not argue that issue preclusion, collateral estoppel, or judicial estoppel are applicable. Simply put, this Court "will render its own independent claim construction." See Maurice Mitchell Innovations, L.P. v. Intel Corp., 2006 U.S. Dist. LEXIS 41453, 2006 WL 1751779, *4 (E.D. Tex. 2006).

The Court construes "spacial key" as that term is taught in the specification of the '897 Patent. It is defined there as:

The spacial key is a single number that identifies a specific geographically defined area, line, or point that is defined by a set of coordinates.

('897 Patent, col. 9, ll. 39-42). The specification discloses that the spacial key can be "a coded version of the coordinate description of" "simple geographies like points and rectangles." (Id., col. 9, ll. 43-45). Further, the specification teaches:
The postal zip+4 code is the preferred spacial key used to link the master table to the client table, but there are other small geographic areas capable of having unique spacial keys, such as zip+6 code areas, census blocks, or very small latitude/longitude grids, tiles, windows, or quad-trees. (Id., col. 9, ll. 46-50). Except for this single reference, the figures, tables, and disclosure of the specification only disclose the use of a zip+4 code as a spacial key. (See id., col. 11, l. 45 to col. 12, l. 12; id., col. 12, ll. 40-50; id., col. 13, ll. 8-30; id., col. 17, ll. 29-33; id., col. 21, ll. 38-40; id., col. 24, ll. 13-16; id., col. 24, ll. 30-34).

The specification also characterizes the operation of prior routing systems and their problems. Prior art systems, the applicants note, "are very coarse in their level of precision and cannot handle small service areas with legally defined franchise territories like pizza delivery." (Id., col. 3, ll. 35-37). Another problem with prior art routing systems "is that they divide the United States into many large arbitrarily defined areas and there is no ability to route a call to the closest service location if the closest location is not located in the same artificially created area as the caller." (Id., col. 3, ll. 48-52). Moreover, the specification teaches that the desired system should "not use artificially created areas such as telephone wire centers, telephone prefixes, or 5-digit zip codes where calls can only be routed within their area." (Id., col. 3, ll. 56-59). The specification also characterizes U.S. Postal Service zip+4 codes as "small geographic areas" and the first six digits of the Automatic Number Identification system as designating a "fairly large" area. (Id., col. 4, ll. 53-56; id., col. 4, ll. 64-67).

Accordingly, two strands wind through the disclosure of the Shaffer-Moore Patents. On the one hand, the Shaffer-Moore Patents teach that a spacial key is a single number that identifies a specific geographic area. The size of the geographic area is omitted; it is the specificity or "uniqueness" of the area that is important. On the other hand, the specification also systematically discloses the advantages of choosing "small" geographic areas to use a spacial keys. In particular, the use of telephone exchange numbers and five-digit zip codes where calls can only be routed within their area. In that case, the patent-in-suit claimed a wet-shave safety razor with multiple blades. Id. at 1369. Specifically, the patent claimed a "safety razor comprising . . . a group of first, second, and third blades," but the defendant manufactured a four-blade safety razor. Id. After reviewing the patent specification, the District Court limited the scope of the claim to a razor having solely three-blades. Id. On appeal, the Federal Circuit reversed this claim construction. Id. at 1374.

After discussing the use of open language in the claim, the Court focused on the patent's written description. Id. at 1373. The specification, noted the Court, first characterized the scope of the invention broadly when it taught that the invention relates to safety razors having blade units with a plurality of blades. Id. The Court then emphasized that although the specification makes numerous references to a preferred embodiment with three blades, such "narrower embodiment does not impose a limit on the broader claim language as elucidated by the reference to 'the invention' as embracing a 'plurality of blades.'" Id. at 1374. Additionally, despite the numerous cites to three-bladed razors plucked from the written description, the Court noted that "no statement in the patent surrenders or excludes a four-bladed razor." Id.

The written description of the Shaffer-Moore Patents is similar to the written description at issue in Gillette. In each case, the written description broadly defines a claim term but nonetheless provides a disclosure of examples of limited scope. As in Gillette, this Court will construe the term broadly because there is no explicit or manifest disclaimer of claim scope in the Shaffer-Moore Patents.

Accordingly, the Court construes "spacial key" to mean "a single number that identifies a specific geographically defined area, line, or point that is defined by a set of coordinates."
The parties also disputed the construction of several terms from the Civix patents. After briefing, and a Markman hearing on March 14, 2005, the Court made the following claim construction rulings. "Spatial detail" means "geographic information relating to an area or region." "Internet" means "a system of linked computer networks, worldwide in scope, that typically is associated with using TCP/IP as a standard protocol" and "internet" means "a group of networks that have been connected by means of a common communications protocol." "Remote" or "Remotely" means "separated by an interval or distance" with "separated" meaning "to be set or kept apart." (R. 273-1.)

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b. "Heads Up"/"Eyes Free" Writing; "Symbol Independent Delimiting" with "Spatial Independence of Symbols"

Palm argues that Unistrokes' "spatial independence" limitation requires that symbols be recognized no matter where they are written on the writing surface or in relation to each other, enabling "heads up" writing. Palm asserts that Graffiti is not "heads up" because the exact same symbol will be interpreted differently depending on where it is written on the writing surface. Symbols must be written on the left side of the writing surface to be recognized as letters. The exact same symbols written on the right side of the writing surface will be recognized as numbers. Defendants have obtained a patent on this split-screen technology.

Xerox argues that this spatial independence feature of Unistrokes is not a separate limitation on any of the patent's claims, but rather is part of the claimed delimiting operation, such that all that is required by the 656 patent is that the delimiting operation must distinguish unistroke symbols from each other "totally independent of and without reference to their spatial relationship with respect to each other". Thus, Xerox argues that the defendants' addition of separate writing areas "has nothing to do with" pen-up delimiting. However, Xerox's proffered interpretation is broader than the patent language and the prosecution history will allow.

The language of all four of the independent claims of the '656 patent requires that the unistroke symbols be distinguished "from each other totally independently of [and] without reference to the spatial relationship with respect to one another." ('656 Patent, Col. 7, lines 18-21; see also Col. 8, lines 45-48; Col. 9, lines 3-6; and Col. 10, lines 17-20).

The prosecution history provides some meaningful guidance as to the intended meaning of this "spatial independence" requirement. Upon re-examination of the '656 patent, the PTO patent examiner noted that one of the "crucial features" of the invention is that "Unistroke recognition is spatially independent; i.e. the symbols can be written in any location, even on top of each other, and still be properly distinguished." (May 24, 1999 Examiner's Interview Summary, p. 2) (emphasis supplied). Xerox's summary of the May 24, 1999 PTO interview clarified that the "features" of the 'Unistrokes' invention include "...delimiting of unistroke symbols is spatially independent, i.e., a unistroke symbol can be written without reference to where a previous unistroke symbol was written (in a preferred embodiment, symbols can be written on top of one another), and still be properly distinguished and recognized;" (Xerox's May 24, 1999 Interview Summary, p. 2) (emphasis supplied).

The '656 patent specification also provides some guidance as to the meaning of "spatial independence". In the "Field of the Invention" section, the patentee notes that "this invention . . . [is] especially well-suited for "eyes-free" (e.g. "heads up") applications and for other applications where it is inconvenient or impractical to spatially distinguish between successive, manually entered alphanumeric characters." ('656 Patent, Col. 1, lines 8-14). The "Detailed Description of the Preferred Embodiments" also notes that "unistroke symbols may be written one on top of another because they are interpreted in the order in which they are written and they are unambiguously differentiated from each other by being different strokes." ('656 Patent, Col. 6, lines 16-20).

Furthermore, in order to distinguish the prior art during the original patent prosecution, Xerox argued that Unistrokes was different from the prior-art Whitaker system because some of the Whitaker symbols differ only in their positioning within the so-called "character space," pointing specifically to the Whitaker symbols for "2" and "8". (Xerox January 23, 1996 Information Disclosure Statement, p. 3, para. 2). In Whitaker, the symbol for "2" and "8" is the same, but must be written in different areas of the "character space" in order to be recognized correctly. The symbol must be written in the northeast quadrant to be recognized as a "2", or written in the southwest quadrant to be recognized as an "8". Xerox argued that "symbols appear to be delimited by Whitaker based on their spatial relationship to each other, rather than by a user controlled predetermined, symbol independent, delimiting operation. (Xerox January 23, 1996 Information Disclosure
Xerox's arguments to the PTO in 1996 in order to obtain its patent are inconsistent with the interpretation Xerox now urges.

I find that "spatial independence" is a limitation on all four of the '656 patent's independent claims. I further find that "spatial independence" requires the invention to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface.

The district court noted that the '656 patent discloses that "the performance of interpreted text entry systems could be improved if all text was entered using characters that are well separated from each other in 'sloppiness space.' . . . If there is little, if any, overlap between the variants of different symbols, the symbols are 'well separated from each other in sloppiness space.'" '656 patent, col. 1, l. 61 - col. 2, l. 9. However, the term "sloppiness space" appears only in claims 9 and 11, which require that "said unistroke symbols are well separated from each other in sloppiness space." Id., col. 8, ll. 28-30, 54-56. The dependent limitation for the symbols to be well separated from each other in sloppiness space is clearly separate and additional to the requirements to be considered a "unistroke symbol." If we were to read the "even when perfectly formed" requirement into the graphical separation limitation for all claims, we would effectively be rendering claims 9 and 11 superfluous. This we will not do. Comark Comms., Inc. v. Harris Corp., 156 F.3d 1182, 1187, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998) ("There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." (quoting Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987))).

Xerox argues that the spatial independence feature of Unistrokes is part of the claimed delimiting operation, which requires only that the delimiting operation must distinguish unistroke symbols from each other "totally independent of and without reference to their spatial relationship with respect to each other." The specification of the '656 patent states that "unistroke symbols may be written one on top of another because they are interpreted in the order in which they are written and they are unambiguously differentiated from each other by being defined by different strokes." '656 patent, col. 6, ll. 17-20. During original prosecution, Xerox argued that unistrokes were different from the prior art Whitaker system because some of the Whitaker symbols differ from each other only in their positioning within the so-called "character space." Xerox specifically asserted "symbols appear to be delimited by Whitaker based on their spatial relationship to each other, rather than by a user controlled predetermined, symbol independent, delimiting operation." Xerox, slip op. at 21-22 (emphasis omitted). During reexamination, Xerox clarified in its summary of the May 24, 1999, PTO interview that the "unistrokes invention includ[e the feature that] delimiting of unistroke symbols is spatially independent, i.e., a unistroke symbol can be written without reference to where a previous unistroke symbol was written (in a preferred embodiment, symbols can be written on top of one another), and still be properly distinguished and recognized." Id. at 20.

The key to the spatial independence requirement, as shown in the plain language of the claims, the specification, and Xerox's arguments over the prior art, is the recognition of symbols without reference to where the last symbol was drawn. The district court properly found "spatial independence" requires the invention to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface. We therefore affirm the court's claim construction that (1) the definition of "unistrokes" itself does not require an entire alphabet, (2) the term "unistroke symbols" requires sufficient graphical separation that the computer can definitively recognize a symbol immediately upon delimitation or pen lift, and (3) "spatial independence" requires the accused device to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface.
Multi-Tech next argues that the district court erred in its interpretation of the terms "hands-free speaker phone," "full-duplex speaker phone," and "full-duplex hands-free speaker phone" in claims 1, 2, 5, 7, and 13 of the '627 patent. Multi-Tech maintains that the court erred in limiting the "speaker phone" limitations to traditional speaker phones because the claim language discloses a speaker phone that is simply a microphone and a speaker, regardless of its physical housing. Multi-Tech further argues that the court improperly construed the "full-duplex speaker phone" limitations to require echo cancellation, an optional feature disclosed in the specification.

Microsoft responds that, according to its ordinary meaning, the term "speaker phone" must include structure beyond just a microphone and a speaker in order to be a telephone. Microsoft also argues that the term "full-duplex speaker phone" must include echo cancellation because the specification states that the use of a microphone and a speaker "necessitates the use of an acoustical echo cancellation algorithm to prevent feedback from destroying the voice signals."

We agree with Multi-Tech that the district court construed the "speaker phone" limitations too narrowly. Neither the claims nor the specification describes any physical housing that must comprise the "hands-free speaker phone." Claim 1 of the '627 patent simply recites a "hands-free speaker phone" with a microphone and a speaker. '627 patent, col. 46, ll. 37-39. Dependent claims 2 and 5 further require that the "hands-free speaker phone" include, respectively, a "deskset microphone" and a "deskset speaker," id. at col. 46, ll. 55-57, or a "headset microphone" and a "headset speaker," id. at col. 46, l. 66 to col. 47, l. 1. Claim 7 recites a "full-duplex speaker phone," id. at col. 47, l. 7, and claim 13 recites a "full-duplex hands-free speaker phone," id. at col. 48, ll. 22-23. Moreover, the specification repeatedly refers to three alternative telephone interfaces: a handset, a headset, and a hands-free microphone and speaker. E.g., '289 patent, col. 8, ll. 20-21 & fig. 3. It consistently describes the hands-free interface as simply a microphone and a speaker. To require more structure would impermissibly exclude a preferred embodiment from the claim limitation. Vitronics Corp. v. Conceptronics, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996) (stating that it is "rarely, if ever, correct" to interpret a claim to exclude a preferred embodiment). We therefore conclude that the term "speaker phone" requires no physical structure beyond a microphone and a speaker.

We agree with Microsoft, however, that the district court properly construed the "speaker phone" limitations to require the use of echo cancellation. Although the language of the independent claims does not expressly refer to echo cancellation, the specification provides that the "use of the speaker and microphone necessitates the use of an acoustical echo cancellation algorithm to prevent feedback from destroying the voice signals" and that "a line echo cancellation algorithm is needed no matter which telephone interface . . . is used." '289 patent, col. 31, l. 67 to col. 32, l. 4 (emphasis added). Those statements clearly mandate the use of acoustical and line echo cancellation. We therefore conclude that the "speaker phone" limitations require the use of echo cancellation.
other regards. Although the system envisions that each accounts' code is unique from the others', nothing in the specification precludes the system operator from using, for example, a user's home phone number or credit card number as a special code. Indeed, to the extent the specification speaks to this possibility, it suggests it is within the scope of the disclosed invention. (See col.3 ll.6-9 ("The code, the credit amount and telephone numbers may be acquired, for example[,] through the regular credit card companies and charged to the acquirer's credit card.").) The Court therefore rejects Telco's contention that the special code cannot be tied to an existing identifier, such as a user's home phone number. Rather, the Court agrees with the Washington Court that the special code must be sufficiently unique to connect only one credit account to only one code. See Washington Court, 16-18.

The Court also finds that the claim and specification do not support the limitation that the special code is obtained "by a user from a prepaid service provider." Clearly, such a limitation is not required by the language of step (a), which is written in the passive voice and speaks only to "obtaining a special code by depositing a prepayment amount[]." The specification is similarly ambiguous, as are the statements that Telco cites to show a narrowing of the claim during reexamination. (See, e.g., col.3 ll.3-5 ("The customer, such as a regular telephone user or a traveler[,] acquires a special code . . . ." (emphasis added)); col.4 ll.45-46 ("Here again the customer calling party must have a prepaid code number . . . ." (emphasis added)); Reply to Office Action in Reexamination 3 (Feb. 20, 2001) ("In the prepayment transaction, the customer pays a predetermined amount and receives a ticket . . . ."), Maldonado Decl. Ex. 3.) The Court therefore finds that the claim does not require that any particular person deposit the prepaid amount. 6

6 The Court further notes, for the sake of clarity, that claim 1 contains no limitation requiring that the prepayment amount be paid directly to the prepaid system operator. The language of the claim contains no such limitation, which would be inconsistent with the process of acquiring a special code described at col.3 ll.6-12.

Telco's suggestion that the code must be received in return for the deposit of a prepayment, however, is well-supported. In a single grammatical unit, step (a) refers to "obtaining a special code by depositing a prepayment amount." Similarly, the specification teaches that "[t]he customer . . . acquires a special code, a credit amount and the telephone number of the special central offices by either a cash or credit payment." (Col.3 ll.3-6.) In both the claim and the specification, the preposition "by" signals how the code is acquired--namely, in return for receipt of a prepayment amount. The Court therefore finds that the code is received in return for a prepayment amount.

"Special code" means a code that is received in return for the deposit of a prepayment amount that is linked to a particular account.

7. "special read instruction" (claim 6)

The plaintiff asks the court to construe this term to mean "output from driver's conversion of a read command," and the defendant asks the court to define the term to mean "a read instruction in a format different from the read command." The plaintiff opposes the defendant's proposed construction because of the defendant's use of "format." The plaintiff agrees that a "special instruction" is different from the read command, but does not agree that the difference is necessarily format.

The parties' proposed constructions debate whether the read command must be in a different format from the read instruction. The specification states that the standard magnetic disk operation format is different from the operation format of the USB and flash memory. Col. 10, ll. 14-18. The specification further mentions the conversion of magnetic disk operation requests into special instructions at col. 2, ll. 51-57 and col. 3, ll. 26-28.

Claim 6 depends on claim 1 and reads in part as follows:

The external storage method according to claim 1, wherein a read operation comprising steps: upper layer operating
system receives the read command from user, wherein the command format is the conventional magnetic disk operation format; upper layer operating system sends said read command to the driver; the driver converts the read command into special read instruction with can be understood and executed by the firmware. . . .

(emphasis added)

The claim explicitly requires the driver to convert the read command in the conventional magnetic disk operation format into a special read instruction that can be understood and executed by the firmware. By requiring the driver to convert the read command into an instruction that can be understood and executed by the firmware, the driver must change the format of the read command or else the word "converts" has no meaning in light of the claim language and the specification.

The court defines "special read instruction" to mean "a read instruction in a format different from the read command."

V. "specific driver for the multi-purpose interface"

Claim Eleven of the '399 Patent states:

wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface . . . .

'399 Patent, col. 14:4-15 (emphasis added). Claim Seventeen of the '449 Patent cites the same phrase as:

wherein the interface device is configured using the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface . . . .


The Camera Manufacturers contend that "the specific driver for the multi-purpose interface" means the set of software routines that control the multi-purpose interface that are developed for the particular multi-purpose interface. CMs' Slides at 240. Ignoring the word "specific," Papst asserts that this means a driver for the multi-purpose interface, i.e., a software driver that enables a host system to communicate via a multi-purpose interface. Papst's App. at 5.

The specification explains why the word "specific" is used in these Claims:

[C]ommunication between the host device and the multi-purpose interface can take place not only via drivers for input/output devices customary in a host device which reside in the BIOS system of the host device but also via specific interface drivers which, in the case of SCSI interfaces, are known as multi-purpose interface ASPI (advanced SCSI programming interface) drivers. This ASPI driver, which can also be referred to as an ASPI manager, is specific to a special SCSI host adapter, i.e. to a special multi-purpose interface, and is normally included by the manufacturer of the multi-purpose interface.


Papst's construction ignores the term "specific." Because the Court should avoid interpreting the Claims in a way that
renders any term superfluous, see Merck, 395 F.3d at 1372, the Court will not adopt Papst's proposal. "Specific driver for the multi-purpose interface" is deemed to mean "the set of software routines that control the multi-purpose interface and that are developed for the particular multi-purpose interface." 

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Specification for the parts and Specifications corresponding to the . . . parts

Defendants urge the Court to construe these terms as "specific characteristics of the parts, such as part numbers, part attributes or part descriptions." Defendants contend "the patent specification lists part number,' part attribute' and part description' as examples of specifications.' Dictionaries, in turn, consistently define specification' to include a specific character.' Defendants entirely fail to inform the Court why these terms should be limited to what the specification "may" include. See col. 6:33-35. To support their construction, Defendants also turn to the Oxford English Dictionary as an example of the "consistent dictionary definition." Thus, Defendants do not contend that the terms have any meaning unique to the technology-at-issue. Defendants' only explanation for why these terms need construction is so that "Orion is not allowed to argue any meaning to the jury." The same could be said for every single word in any claim. This is not a sufficient reason to construe a term.

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P. "specified parameters"

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<th>Term</th>
<th>Ameranth's Definition</th>
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<td>specified parameters</td>
<td>criteria which limit the available choices or options in a generated menu</td>
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<th>Term</th>
<th>Defendants' Definition</th>
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<td>specified parameters</td>
<td>Other than parameters, Defendants do not believe that a construction is required for this term. If the Court concludes that a construction is required, the term should be construed as: Specified means &quot;user selected&quot; and &quot;parameters&quot; has the meaning discussed above.</td>
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The disputed term is located in claim 9 of the '325 patent: "wherein the facilitation of second menu generation by said application software takes into account specified parameters." Quoted below is the only use of the term "specified parameters" in the specification:

"For example, in the restaurant menu generation embodiment, a modified menu can be generated to comply with a particular specification or group of criteria such as, e.g., "dinner", "low cholesterol", "low fat", "fish", "chicken", or "vegetarian". In this embodiment, only items from the master menu that satisfy specified parameters will be included in the generated menu."

('850 patent, 13:64-14:3) (emphasis added). The defendants do not believe that a construction of "specified parameters," apart from "parameters," is necessary. In contrast, Ameranth believes that "parameters" and "specified parameters" are defined separately by the patents. In particular, dependent claim 10 of the '325 patent further limits "specified parameters" to
"recipe content." It is doubtful that recipe content would be a modifier or sub-modifier below a menu item. Therefore, "specified parameters" is different from "parameters." "Specified parameters" is construed to mean "criteria that limit the available choices or options in a generated menu."

F. "specifying a selected one of the attractions"

This disputed phrase appears as follows in claim 5: "[A]t least one personal communication device (PCD), each PCD associated with at least one patron, each PCD for generating at least one reservation request specifying a selected one of the attractions . . . " (col. 27, ll. 29-32) (emphasis added). Similarly, claim 19 provides for "generating on a personal communication device (PCD) a reservation request specifying a selected one of the attractions." (col. 31, ll. 16-18) (emphasis added). The Plaintiff claims that the phrase means "identifying one of a plurality of attractions." The Defendants do not propose a different construction of this phrase. Rather, they simply state that the plain language of the phrase makes clear that the generated reservation request must specify one attraction and that the particular attraction must have been chosen by the patron. (Defs.' Responsive Claim Construction Br. at 9.) Therefore, it appears that the parties are effectively in agreement as to the proper construction of this phrase. Seemingly relying on a dictionary definition of "specifying," neither party addresses how a reservation request "specifies" the selected attraction. However, as discussed above in relation to "reservation request," the specification indicates that the particular attraction is identified in the reservation request through an Attraction ID:

ATTRACTION ID 423 is a unique identification number that identifies the attraction for which the reservation is intended. This enables the communications modules 207, 211 to properly direct the request to the appropriate attraction computer 101.

(col. 16, ll. 12-16.) Although the ordinary meaning of "reservation request" by itself does not require inclusion of an Attraction ID, it is clear that this data is used to specify the attraction for which a reservation is requested. Therefore, based on the intrinsic evidence, the Court construes "specifying a selected one of the attractions" as "identifying one of a plurality of attractions chosen by the patron through a corresponding Attraction ID."

I. specifying for each described action and condition of the series one of said stored definitions

Ricoh proposes that this term be construed as "specifying for each desired function to be performed by the desired ASIC one of the definitions of the architecture independent actions and conditions stored in the library of definitions that is associated with the desired function." Aeroflex contends that the proper construction of the term is "the designer assigns one definition from a set of stored definitions to each of the logical steps and decisions represented in the flowchart." The parties dispute centers around whether the "specifying" step must be performed manually by a user, or whether the assignment of macros can be done automatically.

Ricoh admits that the patent discloses a "manual mapping" embodiment. '432 patent, col. 7:24-25 ("Edit actions allows the designer to assign, actions to each box."). However, Ricoh argues that the construction of the claim should not be limited merely because it is the only embodiment disclosed. See Liebel-Flarsheim Co., 358 F.3d at 913. Furthermore, Ricoh contends that the patent describes macros being "mapped" automatically through the application of rules. See '432 patent, col. 9:14-18. Ricoh argues that if col. 9:14-18 is read in context, the passage shows that the quoted rules are to be applied "during this stage," which refers to the "first step of cell list generation." Accordingly, Ricoh contends that this passage does not apply to a statelist in which the "macros" have already been assigned to the desired actions.

Aeroflex disagrees with Ricoh's proposed construction. First, Aeroflex argues that the prepositional phrase "for each described action and condition of the series" refers only to the fact that the "specifying" step is performed for each action and condition in the described series resulting from the previous "describing" step. Thus, Aeroflex concludes that the claim
language for this "specifying" step requires that "the designer assigns one stored definition for each logical step and decision described in the flowchart." Second, Aeroflex argues that other claims demonstrate that for each action and condition described, this step requires the designer to specify one stored definition (from a macro library) and that this "specifying" step and the previous "describing" step together are the steps that define the input specification for the claimed invention's method. Third, Aeroflex argues that Ricoh's proposed construction impermissibly attempts to replace the phrase "for each described action and condition" with the phrase "for each desired function to be performed by the desired ASIC" Finally, Aeroflex argues that the '432 patent does not contain an automated "mapping" embodiment.

The Court finds that Aeroflex's attempt to limit the "specifying" step to encompass only a user manually assigning a single definition to each action and condition is too narrow of a construction. The plain language of the claim simply does not support this construction, and the Court should not "limit[] the claimed invention to preferred embodiments or specific examples in the specification." Ekchian, 104 F.3d at 1303. Moreover, while Aeroflex is correct that claim 1 and claim 9 require the designer to "specify" one stored definition for each action and condition described, this contention alone does not suggest that the Court should juxtapose these claims onto claim 13. Claim 13 simply does not contain similar language.

9 Aeroflex's proposed construction is also flawed because of its inclusion of the phrase "logical steps and decisions represented in the flowchart." See discussion supra.

Additionally Ricoh's attempt to replace the phrase "for each described action and condition" with the phrase "for each desired function to be performed by the desired ASIC" is permissible. Throughout the specification, each "action and condition" is referenced as a "function." See '432 patent, col. 2:21-30. Therefore, the Court construes "specifying for each described action and condition of the series one of said stored definitions" as specifying for each desired functional specification to be performed by the desired ASIC one of the definitions from the set of stored definitions.

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1. "Spectral Analysis"

Comark argues that the term "spectral analysis" means "analysis of a signal to determine its components over the range of frequencies of the relevant portion of the spectrum of the signal." Harris contends that the term means "analysis of a signal to determine its component frequencies in terms of amplitude and frequency over the range of frequencies for the relevant portion of the spectrum."

Neither the claims of the '904 patent nor its specification address the two issues in dispute: (1) whether spectral analysis requires identification of noise levels at each individual frequency or whether one can perform spectral analysis by looking at a band of frequencies; and (2) whether an oscilloscope is capable of performing a spectral analysis. (Pl.'s Post-Hr'g Mem. at 20; Def.'s Post-Hr'g Mem. at 23-33.)

The third step of the aural carrier correction method recited in Claim 14 requires "performing a spectral analysis of the demodulated aural signal to determine the presence and frequency of unwanted aural signal noise resulting from unwanted aural carrier modulation[.]." (Ex. DMX-1 at col. 8, lines 7-10.) Claim 20 also refers to this spectral analysis. Id. at col. 8, lines 43-50. The patent's specification states that the spectral analysis "determine[s] the presence and frequency of unwanted aural noise." Id. at col. 4, lines 8-11. The '904 patent depicts a flowchart of the method, step three states: "perform spectral analysis of demodulated aural signal to determine presence of unwanted aural signal noise." Id. at Fig. 2. Thus, while the patent describes the function of a spectral analysis, it sheds no light on whether it requires the identification of noise levels at each individual frequency or whether it can be done by looking at a band of frequencies.

Based on the expert testimony offered at the claim construction hearing, the court finds that "spectral analysis" is a process for determining the components of a signal at specific frequencies or at a band of frequencies. (Tr. 10/21/96 at 95.) The
The court will adopt Comark's proposed construction.

The court will decline to decide, as part of its claim construction analysis, whether the spectral analysis claimed in the '904 patent can be performed by an oscilloscope. Whether an oscilloscope is capable of performing a spectral analysis has nothing to do with determining the meaning of "spectral analysis," which is the court's only task. The court believes that this is a question of fact to be decided by a jury, not a question of law that the court to be decided by the court in its interpretation of the disputed claims of the patent.

The term "spectral analysis" in Claim 14 means a process for determining the components of a signal at specific frequencies or at a band of frequencies.

A. Spectral Representative Signals

The limitation "spectral representative signals" is found in claims 34, 36, 37, 39, 40 and 42. Those claims describe a process or apparatus to decode information to form a speech message. The phrase does not appear in the specification, and both parties argue that this term requires construction. AT&T proposes the definition "signals that relate to, represent, or describe the frequency characteristics of speech for a time interval." (Joint Letter, Ex. B.) Microsoft counters that the term's definition should be "speech parameters needed to form predicted speech and reflecting the frequency spectrum (i.e., the whole range of frequencies) of speech for a time interval." (Joint Letter, Ex. B.) At the Markman hearing, Microsoft also agreed to the definition, "speech parameter constants needed to form predicted speech and that reflect the frequency spectrum, that is the whole range of frequencies of speech." (Tr. at 81.)

This Court construes "spectral representative signals" to mean "signals representing the frequency spectrum (i.e., the whole range of frequencies) of speech for a time interval."

1. "Frequency Spectrum"

First, this Court agrees with Microsoft that "frequency spectrum (i.e., the whole range of frequencies)" should be used to describe "spectral representative signals" rather than AT&T's proposed "frequency characteristics." The word "spectral" is derived from "spectrum," which the parties have agreed to define as "the range of frequencies of a particular sound (as a noise or speech sound)." (JCCS Tab A at 1-3; Webster's Third New Int'l Dictionary at 2188 (G. & C. Merriam Co. 1981).) Similarly, the parties agree that "signals" refers to "sequences of numbers or values." (See, e.g., JCCS Tab B at 34-36.) In contrast, AT&T's suggested phrase "frequency characteristics" reads the term "spectral" out of the phrase completely. See Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1582-83 (Fed. Cir. 1996) (declining to read a limitation out of a claim).

The specification and prosecution history also confirm the inclusion of "frequency spectrum" as opposed to "frequency characteristics" in the definition. The specification states that the spectral representative signals reflect a "short time spectrum" of speech. ('580 patent, Col. 3:33-39; Col. 3:55-56 ("speech spectrum.").) Further, the prosecution history supports use of the term "spectrum" rather than AT&T's broader proposed definition "frequency characteristics of speech." ('580 Pros. Hist. at 51; Tr. at 83-86).

Second, this Court rejects AT&T's assertion that the word "whole" is improper in the definition. The word "whole" does not change the scope of the claim, but merely aids the fact finder in understanding the claim's language. While AT&T argues that the encoder removes speech frequencies above 4.0 KHz, as shown in an embodiment in the specification ('580 patent, Col. 3:25-27), the phrase "spectral representative signals" only appears in the decoder claims of the '580 patent. (See Claims 34-43.) The decoder generates speech from the "spectral representative signals" without adding back the speech frequencies above KHz that were removed at the encoder. ('580 patent, Col. 7:3-10.) Thus, the "spectral representative signals" necessarily reflect the whole range of speech frequencies generated by the decoder.
2. Intrinsic Record

The Court declines to read into the claim Microsoft's narrow proposed language "speech parameters needed to form predicted speech." (Joint Letter, Ex. B), and instead adopts AT&T's broader proposed word "signals," which most reflects the plain meaning of the phrase. See RF Delaware, Inc. v. Pacific Keystone Techs., Inc., 326 F.3d 1255, 1263 (Fed. Cir. 2003). Specifically, the adoption of Microsoft's proposed phrase (1) would not harmonize with the evidence in the intrinsic record, and (2) would violate the doctrine of claim differentiation, as that interpretation renders claims 37 and 39 identical. See Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233-35 (Fed. Cir. 2001) (declining to limit independent claim with language recited in dependent claim).

First, Microsoft's claim that the intrinsic record demonstrates that the patentees disavowed a broader meaning of the claim phrase is misplaced. Microsoft cites to part of the prosecution history in support of its proposed, narrower construction: "The object of the instant invention is to provide high quality speech …. This is accomplished in the instant application by analyzing each successive interval of a speech pattern … to generate a set of predictive parameter signals …." (Prosecution History for U.S. Patent No. 4,472,832 ("Pros. Hist.") at 111-12.) 4 However, this general statement does not evince an intent by the patentee to "clearly and unambiguously" disclaim or disavow a broader reading of the claim term as "signals." Middleton, Inc. v. Minnesota Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed. Cir. 2002) (finding statements made during prosecution were not a clear and unambiguous waiver of claim scope); accord Inverness Med. Switzerland GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1372 (Fed. Cir. 2002) (same). Accordingly, the Court declines to include the narrowing phrase "needed to form predicted speech."

4 Unless otherwise indicated, all references to "Pros. Hist." relate to the prosecution of the underlying '832 patent.

Second, although the written description and embodiments ( '580 patent, Col. 3:33-39; Col. 3:54-55; Col. 10:47-49; Figure 1) convey a parameterized nature of the values used to represent the frequency range of speech for a time interval, Microsoft's proposed language "speech parameters needed to form predicted speech" would violate the doctrine of claim differentiation. 5 "Under the doctrine of claim differentiation, 'each claim in a patent is presumptively different in scope."

Ecolab Inc. v. Paracle Inc., 285 F.3d 1362, 1376 (Fed. Cir. 2002) (quoting Intermatic Inc. v. Lamson & Sessions Co., 273 F.3d 1355, 1364 (Fed. Cir. 2001); accord Donald S. Chisum, 5A Chisum on Patents, § 18.03[6] (Matthew Bender 2002) ("Ordinarily language of one claim should not be so interpreted as to make another claim, such as a claim dependent on the first claim, identical in scope."). "This presumption is especially strong where there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim …." Ecolab, 285 F.3d at 1376. Although "the doctrine of claim differentiation creates only a presumption that each claim in a patent has a different scope that 'can not broaden claims beyond their correct scope,'" that presumption is usually only overcome when the patentee has expressly disclaimed the subject matter in the prosecution history. Fantasy Sports Properties, Inc. v. Sportsline. com, Inc., 287 F.3d 1108, 1115-16 (Fed. Cir. 2002) (quotation omitted).

5 Microsoft's proposed construction would also have the phrase "spectral representative signals" equate to "predictive parameters." While the specification refers to predictive parameters in discussing the embodiments, predictive parameters are merely one type of spectral representative signal. Indeed, the specification expressly states that other spectral representative signals may be used such as "formant parameters or other speech parameters well known in the art." ( '580 patent, Col. 10:47-48.) Thus, any restriction to "predictive" parameters would be misplaced. See ATD Corp. v. Lydall, Inc., 159 F.3d 534, 540 (Fed. Cir. 1998) (claim terms must be read in light of the specification).
overcome by express disclaimer of subject matter in the prosecution history). In examining the claims, the only difference between claims 37 and 39 is that independent claim 37 recites the broad phrase "spectral representative signals," ('580 patent, Col. 22:50-23:4), while dependent claim 39 more narrowly asserts that the "spectral representative signals are speech interval predictive parameter signals." ('580 patent, Col. 23:21-24.) The only meaningful difference between the two claims is the limiting term "predictive parameters." Without that limiting term, the claims would be redundant. Thus, this Court declines to read such limiting language from the dependent claim into the independent claim. Dow Chem. Co. v. United States, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000) (applying doctrine of claim differentiation, finding independent claim should be given broader scope than dependent claim to avoid rendering dependent claim redundant).

Microsoft argues that while claim 37 refers to "signals," the meaning of that word in the claim is unclear in that neither the claim nor the specification provide any further explication of "signals" separate and apart from parameters. Thus, Microsoft asserts that the claims bear only one interpretation, and the presumption of claim differentiation does not apply. In this vein, Microsoft's citation to Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed. Cir. 1991), for the proposition that if the claims "will bear only one interpretation similarity will have to be tolerated" (Tr. at 75), is inapplicable to the phrase at issue. In Laitram, the Federal Circuit found that pursuant to 35 U.S.C. § 112, P 6, the usual prohibition on reading a limitation from a dependent claim into the independent claim was inapplicable to the means-plus-function claim at issue. 939 F.2d at 1538; accord Wenger Mfg., 239 F.3d at 1233. As Laitram's holding is limited in application to means-plus-function claims, this Court declines to apply Microsoft's proposed exception to the phrase at issue, and instead applies the customary presumption of claim differentiation, namely that an independent claim should be given a broader scope than a dependent claim to avoid rendering the latter redundant. RF Delaware, Inc. v. Pacific Keystone Techs., Inc., BCA, 326 F.3d 1255, 1263-64 (Fed. Cir. 2003).

3. Representative

Finally, the Court declines to construe the term "spectral representative signals" to incorporate the word "reflecting," as Microsoft proposes, and instead adopts AT&T's view that "representing," the plain meaning of a term in the disputed phrase, should be used here. (Tr. at 60.) Webster's Dictionary defines "representative," as "serving to represent, portray or typify." Webster's Third New Int'l Dictionary on the English Language Unabridged at 1926 (G.&C. Merriam Co. 1981); see Inverness Med. Switzerland GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1369 (Fed. Cir. 2002) ("It is well settled that dictionaries provide evidence of a claim term's ordinary meaning"). Additionally, the word "representing" is the present participle of "represent." Webster's Third New Int'l Dictionary at 1927. Accordingly, this Court adopts the term "representing" rather than "reflecting," which is not found within the language of the claim here. See Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-71 (Fed. Cir. 2003).

In conclusion, the Court construes the term "spectral representative signals" to mean "signals representing the frequency spectrum (i.e., the whole range of frequencies) of speech for a time interval."

F. Speech Pattern

The phrase "speech pattern" appears in several '580 claims, including claims 2, 11, 40 and 42. Microsoft proposes the definition "an audible speech message formed from or into a sequence of time varying values." AT&T asserts the definition should be "a configuration (e.g., a waveform) of information that is based on audible speech." (Joint Letter, Ex. B.) The crux of the dispute is whether "speech pattern" must be audible, as Microsoft contends, or whether it can be merely based on audible speech, as AT&T asserts.

As the term "speech pattern" is not defined in the specification, the dictionary meaning of the phrase sheds light on its ordinary meaning. Texas Digital Sys., 308 F.3d at 1202; Vitronics Corp., 90 F.3d at 1584 n.6. Webster's Dictionary defines "speech" as "something that is spoken: an uttered word: statement", and "pattern" as "a natural or chance configuration (as of markings or of events)." Webster's Third New Int'l Dictionary at 2189, 1657 (G. & C. Merriam Co. 1981). Additionally, a technical treatise defines "speech" as an "audible set of sounds." McGraw Hill Dictionary of Scientific and Technical Terms, 21. Both dictionaries contemplate speech as audible.
Neither the claims nor the specification explicitly define "speech pattern" or its component words. However, the use of the phrase in the specification is instructive. ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580 (Fed. Cir. 1988) ("The specification aids in ascertaining the scope and meaning of the language employed in the claims."). The specification contemplates "speech pattern" as audible speech. In describing Figure 1, the specification states "a speech pattern such as a spoken message is received by [a] microphone" on the speaking end. (‘580 patent, Col. 3:20-22.) In describing the output of the claimed invention on the listening end, the specification states that in Figure 1, "an analog signal [is] … transformed into a speech pattern by transducer [speaker] 160." (‘580 patent, Col. 7:8-10.) AT&T points to Figure 7, the depiction of a "waveform" to justify its position that a "speech pattern" is "a configuration … of information that is based on audible speech," because "one doesn't hear anything from the speech pattern [illustrated by the waveforms] coming off this page." (Tr. at 180; Joint Letter, Ex. B.) Figure 7, however, does not suggest that a "speech pattern" refers to anything other than audible speech; rather, it merely depicts waveforms that "illustrate[] a typical speech pattern." (‘580 patent, Col. 3:15-16, 61-62.) Indeed, even considering the waveform of Figure 7 as an analog electrical signal, the specification teaches that such signals merely "correspond[]" to a "speech pattern, such as a spoken message," and are not themselves speech patterns. (‘580 patent, Col. 3:20-23.)

The Court declines to adopt Microsoft's proposed phrase "formed from or into a sequence of time varying values." Such a phrase is not within the plain meaning of "speech pattern." See Texas Digital Sys., 308 F.3d at 1201-02 (recognizing the "heavy presumption" that the terms in the claims have their ordinary meaning).

Accordingly, this Court construes the ordinary meaning of "speech pattern" as "an audible speech message configuration."

1. "Speech synthesis, "voice synthesis" or "synthesized voice messages." Electronically creating specific units of sound and combining those units of sound to produce audible words that are output from the robotic surgical system to the surgeon.

--- Footnotes ---

1 The ’984 patent refers to "synthesized voice messages" as one type of "audible" message issued from the robotic surgical system. (Claims 24, 32; col. 16, ln. 55 to col. 17, ln. 3) The patent being otherwise silent on the nature of "synthesis," the court concludes that the plain meaning of the term is instructive, i.e., an "action of putting together" or a "combination of parts or elements so as to form a whole." (Webster's Third New Int'l Dictionary 2321 (1993)) Because the court finds that the term requires an assembly of fabricated elements of sound, the pre-recorded playback of sound does not constitute "synthesis."

--- End Footnotes ---

3. "A speech synthesis system to provide the surgeon with voice messages containing information about the operation of the system," "a voice synthesis system for providing audible information to a surgeon regarding operation of the system during the surgery" or "a speech synthesis system provides the surgeon with voice messages containing information about the operation of the system." Requires synthesized speech informing the surgeon about the state of the system or a change in the state of the system.

I. "Spending Vehicle"

<table>
<thead>
<tr>
<th>Claim</th>
<th>Plaintiff's Proposal</th>
<th>Defendant's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>spending</td>
<td>A financial product with value</td>
<td>Anything of value to the payee</td>
</tr>
<tr>
<td>Claim 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>vehicle for spending, including a credit card, a debit card, a cash card,</td>
<td>which the payee agrees to accept … instead of receiving a</td>
<td>regular payment by check or cash or direct deposit.</td>
</tr>
<tr>
<td>a checking card, a spending account, a checking account, an e-wallet account,</td>
<td>Anything that may be of value to a payee that the payee agrees</td>
<td>to accept in place of a &quot;regular payment,&quot; including without</td>
</tr>
<tr>
<td>electronic spending account, a gift card, a discount card, discount</td>
<td>to accept in place of a &quot;regular payment,&quot; including without</td>
<td>limitation, a credit card, a debit card, a cash card, a checking</td>
</tr>
<tr>
<td>certificate, a rebate, a coupon, or a voucher, but not cash.</td>
<td>limitation, a credit card, a debit card, a cash card, a checking</td>
<td>card, a spending account, a checking account, an e-wallet</td>
</tr>
<tr>
<td></td>
<td>card, a spending account, a checking account, an e-wallet</td>
<td>account, an electronic spending account, a gift card, a discount</td>
</tr>
<tr>
<td></td>
<td>account, an electronic spending account, a gift card, a discount</td>
<td>card, a discount certificate, a rebate, a coupon, a voucher, an</td>
</tr>
<tr>
<td></td>
<td>card, a discount certificate, a rebate, a coupon, a voucher, an</td>
<td>electronic account, and any vehicle in which a taxpayer</td>
</tr>
<tr>
<td></td>
<td>electronic account, and any vehicle in which a taxpayer</td>
<td>receives spending power in a particular dollar amount.</td>
</tr>
<tr>
<td></td>
<td>receives spending power in a particular dollar amount.</td>
<td>Moreover, a &quot;spending vehicle&quot; may: include cash or check</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from a third party (including a government entity), but not</td>
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<td></td>
<td></td>
<td>cash or check in the form of a regular or periodic payment</td>
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<td>from the government entity; and be in any form including</td>
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<td></td>
<td></td>
<td>electronic accounts, paper accounts, and physical cards.</td>
</tr>
</tbody>
</table>

Plaintiff argues that Defendant's proposal improperly broadens the definition of the term. Although the specification does not specifically define spending vehicles, it does provide context and support for construing the term more narrowly than anything of value to the payee. Plaintiff contends that spending vehicles operate like financial products, and that all the recited examples of spending vehicles are financial products used in place of regular cash payments.

Defendant counters that the specification defines a spending vehicle as "something of value to the taxpayer." Thus, Defendant urges the Court to construe the term to include anything of value to the taxpayer that may be accepted in place of a regular payment. Defendant argues that, contrary to the specification's broader language, Plaintiff's proposal limits the construction of the term to disclosed embodiments.

The '829 specification provides context limiting the scope of the term "spending vehicles" such that it is narrower than "anything of value." The patent's abstract describes a spending vehicle as "a credit, debit, or cash card, spending account, coupon, or rebate. . . ." The specification later identifies a spending vehicle as "a financial vehicle such as a credit card, debit card, e-wallet account, gift card, or any other type of spending vehicle that would enable the holder of the spending vehicle to purchase products or services." '829 Patent col. 3:27-32; see also '829 Patent col. 4:1-7 ("The spending vehicle may take the form of many different embodiments, including but not limited to, credit cards, debit cards, cash cards, spending accounts, electronic spending accounts, coupons, discount certificates, rebate certificates, and any other vehicle in which a taxpayer receives spending power in a particular dollars amount . . ."). The "something of value" language identified by Defendant does not describe the spending vehicle, but rather what the spending vehicle can be used for. See '829 Patent col. 4:5-6, 9-11 (a "vehicle in which a taxpayer receives spending power in a particular dollar amount useable at . . . any participating entity through which a taxpayer may purchase something of value to the taxpayer" (emphasis added)). Thus, the specification creates context for construing the term by providing examples of spending vehicles and disclosing their intended use. Given this context, the Court rejects Defendant's contention that a spending vehicle may constitute anything of value to a taxpayer.
Having resolved the parties' claim scope dispute, the Court must now determine how best to communicate the term to a lay jury. The Court finds that the term does not have a plain and ordinary meaning that would be readily understood by a lay jury. Although the Court agrees with Plaintiff's proposal to the extent that it recites examples of spending vehicles identified in the specification and excludes cash, the Court finds it unnecessarily lengthy and potential confusing to a jury. Therefore, the Court will construe the term "spending vehicle" as "a financial product, but not cash, used for purchasing something of value."

2. "Spiculation information" is construed to mean "the computation of all spiculation features. Spiculations are lesions within the breast that have diffuse, irregular appearances such as radially oriented filamentous structures or lines."

J. "Split Personal Computer System"

The term "split personal computer system" appears in claim 16 of the '253 patent. ABC asserts that a "split personal computer system" is "a system where a local computer acts as the input/output device communicating through the remote system controller to operate a remote computer." 262 WebEx contends that the term should be defined as "a single personal computer that has its components split into an input/output portion and a processing/storage portion the portions spaced a large distance apart and operable to provide the illusion of a complete personal computer." 263

1. One or Multiple Computers

ABC's definition of split personal computer system involves two computers: a local computer and remote computer. Conversely, WebEx asserts that a split personal computer system consists only of a single personal computer system with its physical components located in two different locations. WebEx contends that two separate, complete computers cannot constitute a split personal computer system under any circumstances.

Claim 16 provides that the split personal computer system is composed of a "local portion" and a "remote portion." 264 The remote portion includes one of "a plurality of remote computer units selectively performing the computational portions and the storage portions of the personal computer tasks . . . ." 265 The local portion is "located remotely from the remote computer units and [is] adapted to selectively perform the video portions and the input/output portions of the personal computer tasks . . . ." 266

264 '253 patent, claim 16 (as amended).

265 Id.

266 Id.
As the quoted language illustrates, the claim does not define or limit the local portion and the remote computer unit in terms of their respective physical components. Instead, the claim defines the local portion and the remote computer unit in terms of their respective functions when they are linked by the remote system controller and operating collectively as a split personal computer system. The claim language requires only that, when linked by the remote system controller, the local portion performs the "video portions and the input/output portions of the personal computer tasks," and the remote computer unit performs the "computational portions and the storage portions of the personal computer tasks." 267 Importantly, the claim does not limit what functions the local portion and remote computer units may perform on their own when they are not linked via the remote system controller. Accordingly, the claim language itself does not limit the split personal computer system to a single personal computer as WebEx asserts. It does not foreclose the possibility that either or both the local portion and/or the remote computer unit could, on their own, be a complete personal computer. On the other hand, the claim does not require that either component be a complete computer as ABC’s definition suggests.

267 Id.

The court must therefore consider whether the specification and/or prosecution history limits the scope of the term "split personal computer system." WebEx first points to the summary of the invention included in the specification. It provides that

[t]he remote portion of the split personal computer system is adapted to perform the heavy computational and storage portions of the personal computer tasks, and the local portion of the split personal computer system is adapted to solely perform the video and the input/output portions of the personal computer tasks so that an individual manipulating the local portion of the split personal computer system is provided with the illusion of utilizing a complete personal computer system. 268

WebEx contends that the necessary implication of the statement that the invention provides an "illusion" of operating a complete personal computer system is that the local portion, of which the user has actual physical possession, cannot itself be a complete personal computer.

268 '253 patent, col.2 ll.18-26 (emphasis added).

WebEx also cites an excerpt from the prosecution history of the '253 patent. In an amendment to a Response to an Office Action submitted by ABC to the Examiner during the prosecution of the '253 patent, ABC explained that

[f]rom the standpoint of the user, the inventive concept of claims 1 and 18-22 in effect converts the personal computer industry from a hardware and software product industry to a service industry. That is, the split personal computer system of claim 1 and 18-22 provides a service to at least one user and preferably a large number of users such that the user(s) do not have to purchase an entire personal computer system. The user(s) only have to purchase or obtain a 'local portion' and sign up with a service provider, such as AOL, to provide the 'remote portion.'

[O]nce the user signs up with the service provider, the user is no longer concerned with many of the problems set forth above. The user does not care whether Intel or AMD have come out with a new chip; it is the service provider's job to maintain an adequate amount of processing power. Likewise, the user does not care how much memory the remote portion has; it is the service provider's job to maintain an adequate amount of memory. As a practical matter, the user is mainly
concerned about who to complain to if the split personal computer system is to [sic] slow. 269

WebEx asserts that because ABC represented to the Examiner that an advantage of the invention is that a user only has to purchase a "local portion," and not a complete personal computer, the local portion alone cannot be a complete personal computer, and the split personal computer system is necessarily limited to only a single personal computer.

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269 Amendment in Response to Office Action Mailed 02/14/2001, at 6-7 (June 4, 2001) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 4D). These statements refer to prosecution claims 1 and 18-22. WebEx asserts that claim 16 was referred to as claim 34 during prosecution. WebEx's Brief, Docket Entry No. 156, at 7. Therefore, these statements do not directly relate to the claim at issue in this litigation. These statements do, however, relate to the term "split personal computer system," as it is used in other claims in the same patent. "Because claim terms are normally used consistently throughout the patent," the court finds these statements relevant. Phillips, 415 F.3d at 1314.

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In response, ABC points to other portions of the specification and prosecution history that explicitly discuss the possibility that the local portion may, by itself, be a complete personal computer. The specification, in describing a particular embodiment of the invention, explains that the local portion can include a "local computer," which "can be any type of suitable computer and desirably includes temporary and permanent storage devices, and an operating system loaded thereon." 270 Furthermore, in the same amendment to a Response to an Office Action cited by WebEx, ABC explained to the Examiner that

the local portion can be a personal computer having communication software thereon for communicating with a remote portion of the split personal computer system. In this instance, the personal computer may solely perform the video and the input/output portions of the personal computer tasks when acting as a local portion of the split personal computer system, even though the personal computer functioning as the local portion is capable of performing other tasks. 271

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270 '253 patent, col.6 ll.8-10.

271 Amendment in Response to Office Action Mailed 02/14/2001, at 8 (June 4, 2001) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 4D).

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The excerpts from the specification and prosecution history cited by ABC effectively refute WebEx's position. Accordingly, the court concludes that the split personal computer system is not limited to being a single personal computer with its components physically split and located in different locations as WebEx contends. The local portion and the remote computer unit may each, on their own, be a complete computer if, when they are linked via the remote system controller, the local portion solely performs the input/output functions and the remote computer unit performs the processing/storage functions.

Although the court disagrees with WebEx's position that the split personal computer system is limited to a single personal computer, the court is not persuaded that ABC has correctly described the local and remote components of the split personal computer system. Specifically, ABC's definition uses the terms "local computer" and "remote computer" instead of the terms used in the claim itself, i.e., "local portion" and "remote computer unit." 272

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272 '253 patent, claim 16 (as amended).

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By using the terms "local computer" and "remote computer," ABC's definition implicitly suggests that the local portion and the remote computer unit must each consist of a complete computer. Although the specification and prosecution history reveal that the local portion may include or consist of a complete computer, neither suggest that the local portion must include or consist of a complete computer. Moreover, as explained above, ABC explicitly stated during prosecution that one advantage of the claimed invention is that a user need not purchase an entire personal computer, but need only purchase the "local portion." 273 This statement implies that the "local portion" need not constitute a complete computer. It would therefore be misleading and inaccurate to refer to the local portion as a "local computer." The court will use the term "local portion" in its definition.

273 See Amendment in Response to Office Action Mailed 02/14/2001, at 6 (June 4, 2001) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 4D).

Similarly, the cited excerpts from the prosecution history and specification do not require that the remote computer unit be a complete computer. The claim language does not use the term "remote computer," but instead speaks in terms of a "remote computer unit." It would therefore be misleading and inaccurate to refer to the remote computer unit as a "remote computer." The court will use the term "remote computer unit" in its definition.

2. Large Distance Apart

During the prosecution of the '253 patent ABC attempted to differentiate prosecution claims 1 and 18-22 from a particular prior art reference known as "Naiff." In doing so, ABC stated the following:

[T]he communication means defined in claims 1 and 18-22 and described in the Specification specifies that the remote portion and local portion of the split personal computer system be spaced a large distance apart. The user interface module 24 and the personal computer 20 of Naiff, on the other hand, are located in close proximity to each other. For this reason, it is respectfully submitted that Naiff does not teach or suggest a remote portion, as such term is defined in claims 1 and 18-22. 274

274 Amendment in Response to Office Action Mailed 02/14/2001, at 11 (June 4, 2001) (emphasis added) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 4D).

WebEx asserts that, in light of this representation, the definition of split personal computer system should specify that the local portion and the remote computer unit must be "spaced a large distance apart." ABC argues that including this indefinite distance limitation in the definition is not helpful or necessary because the definition already uses the words "local" and "remote," which adequately convey that the local portion and remote computer unit are physically separated by a significant distance.

The court agrees with ABC. "Local" means "pertaining to, characteristic of, or restricted to a particular place." 275 "Remote" means "far apart; far distant in space." 276 These two adjectives effectively communicate that the local portion and remote computer unit are not located in close physical proximity to each other. Adding the phrase "spaced a large distance apart" is redundant and unnecessary.

3. The Functions of the Local Portion and the Remote Computer Unit

WebEx’s proposed definition includes the function of the local portion, describing the local portion as "an input/output portion" of the split personal computer system. Similarly, ABC’s definition describes the local portion as "the input/output device." The claim itself explains that the local portion "perform[s] the video portions and input/output portions of the personal computer tasks." Consistent with the claim language, the court’s definition will explain that the local portion performs the video and input/output portions of the personal computer tasks.

WebEx’s definition also includes the function of the remote computer unit, describing the remote computer unit as the "processing/storage portion" of the split personal computer system. ABC’s definition omits the function of the remote computer unit. Claim 16 states that the remote computer unit "perform[s] the computational portions and the storage portions of the personal computer tasks." Consistent with the claim language, the court’s definition will explain that the remote computer unit performs the computational and storage portions of the personal computer tasks.

4. The Role of the Remote System Controller and the Purpose of the Split Personal Computer Unit

ABC’s proposed definition explains that the local portion communicates through the remote system controller to operate the remote computer unit. WebEx’s definition, on the other hand, completely fails to mention the remote system controller, a key component of the split personal computer system. It also describes the purpose of the split personal computer system as "provid[ing] the illusion of a complete personal computer system."

The court concludes that this aspect of ABC’s proposed definition better captures the core purpose of the split personal computer system described in claim 16. It also describes the role of the remote system controller, a key component of the split personal computer system, while WebEx’s definition omits any mention of the remote system controller. Accordingly, the court concludes that the definition of split personal computer system should explain that the local portion communicates through a remote system controller to operate the remote computer unit.

5. Conclusion

The court concludes that a "split personal computer system" is "a system where a local portion, which performs the video and input/output portions of the personal computer tasks, communicates through a remote system controller to operate a remote computer unit, which performs the computational and storage portions of the personal computer tasks."

H. "sponsored community with prescribed rules and procedures for participants"

As to this term, this Court ordered the following claim construction:
A group defined by a user or a third-party sponsor, having a facility to conduct negotiations according to prescribed rules and procedures.

Tr. 45:16-20; 48:22-24.

4153

G. "sponsorship software which enables the creation of a sponsored community with prescribed rules and procedures for participants"

As to this term, this Court ordered the following claim construction:

Software that permits rules and procedures to be created by a user or a third-party sponsor, which are applicable to a group of participants and provides a facility to conduct negotiations.

Tr. 43:15-18; 44:7-45:9.

4154

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Claim Construction

"The construction of a patent, including the terms of art within its claim, is exclusively within the province of the court."
Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 1386, 134 L. Ed. 2d 577 (1996). In determining the meaning of a claim, the court first examines the intrinsic evidence of the record, including the claims, specification, and the prosecution history. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Intrinsic evidence is "the most significant source of the legally operative meaning of the disputed claim language." Id. at 1582. If the intrinsic evidence does not sufficiently resolve ambiguities, then the court may consider extrinsic evidence, including expert and inventor testimony, in order to arrive at a "proper understanding of the claims." Id. at 1583.

1. Intrinsic Evidence

a. Language of the Claims

HP first argues that the meaning of the phrase "spots of different sizes" as used in the claims of the '272 patent is ambiguous. They contend that the term "spot" can mean either a light spot generated by the laser beam or a discharged region on the photoreceptor. HP argues that "the claim language alone does not reveal its intended meaning."

PB responds that the claim language clearly indicates the term "spots" means "discharged regions on the photoreceptor which attract toner." They argue that the claims reveal that "spots of different sizes" give rise to "generated shapes" which have the appearance of "smoothed edges." They contend that since "a single laser beam projected spot... will not result in generated shapes having the appearance of smoothed edges," the word "spot" must refer to discharged areas on the photoreceptor.

Interpreting the claim language is of primary importance. The "language of the claims frames and ultimately resolves all issues of claim interpretation." Abtox, Inc. v. Exitron Corp, 122 F.3d 1019, 1023 (Fed. Cir. 1997). Claim terms are to be given their ordinary and customary meaning, unless it is apparent that the inventor expressly intended a different meaning. Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed. Cir.), cert denied, 519 U.S. 911, 117 S. Ct. 275, 136 L. Ed. 2d 198 (1996). When reviewing claim language, a court must apply the "normal rules of syntax" and consider the context of the claim. Eastman Kodak Co. v. The Goodyear Tire and Rubber Co., 114 F.3d 1547, 1553 (Fed. Cir. 1997).
In the instant case, the plain language of the claims does not unambiguously support either proposed definition of the phrase "spots of different sizes." As used in the claims of the '272 patent, the term "spot" could mean either light spots or discharged areas on the photoreceptor. The relevant dictionary definition for the word "spot" is "any small portion of a surface differing from the rest." See Funk and Wagnall, Standard College Dictionary (1963). This definition alone does not differentiate between the two proposed definitions. Additionally, applying the normal rules of syntax to the claims do not clearly delineate the meaning of the word. For example, the phrases "each beam of light generating a spot" and "controlling a parameter of the light beams to produce spots of different sizes" could be construed to mean either spots of light or discharged areas on the photoreceptor.

Further, PB's assertion that shapes with smoothed edges can not be generated by light spots is not determinative of the meaning of the terms "spots." The claims are not directed toward the generated shapes themselves, but rather a method of making those shapes (Claims 1 and 2) or an apparatus for generating those shapes (Claim 3). The formation of different sized light spots is the first step in the process which gives rise to the shapes. Thus, the shapes are generated by the formation of light spots.

The claim language does not plainly reveal whether the term "spot" means a light spot or a discharged area on a photoreceptor. Since the language of the claims is ambiguous, we turn to an analysis of the specification, "which is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

b. The Specification

HP next argues that the specification of the '272 patent "clearly uses the word spot to refer to a light spot." They point to numerous instances where the specification "refer[s] to [the] motion of a spot, a property . . . certainly not possessed by an exposed region on a photoreceptor."

PB replies that the word spot has two different meanings in the specification. They claim that "up to column 5, line 62, the terms 'spots' is used in the specification to refer to the laser light beam spot." However, PB argues that "there is a clear transition in the context and usage of spots" after that point. They argue that after column 5, line 62, the term spots is used to refer to discharged areas on the photoreceptor, and this definition should be applied when interpreting the claim language.

After reviewing the claim language, the court must review other parts of the patent document, including diagrams or figures, which are collectively referred to as the specification. Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 1387-88, 134 L. Ed. 2d 577 (1996); see also Al-Site Corp. v. Bonneau Co., 22 F.3d 1107 (Fed. Cir. 1994). "The specification contains a written description of the invention that must enable one of ordinary skill in the art to make and use the invention. For claim construction purposes, the description may act as sort of a dictionary, which explains the invention and may define terms used in the claims." Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (internal citations omitted). Although "inventors may be their own lexicographers, they must use words in the same way in the claims and in the specification." Fonar Corp., v. Johnson and Johnson, 821 F.2d 627, 632 (Fed. Cir. 1987). When a patentee uses "words which were defined in the specification," they "must be given the same meaning when used in the claims." McGill Inc. v. John Zink Co., 736 F.2d 666, 673 (Fed. Cir. 1984). A court reviews the patent specification to determine whether the patentee "used any terms in a manner inconsistent with their ordinary meaning." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

In the instant case, the specification of the '272 patent indicates that the word "spot" means a spot of laser light. The word "spot" is used 44 times in the specification. PB concedes that 42 of the 44 times the word "spot" is used it refers to the light spot created by the laser beam. Their assertion that the remaining two uses of the word "spot" require a different definition is incorrect. Specifically, they refer the court to the following section:

The use of different spot sizes can effectively be employed as letters or numbers are created so as to avoid roughened edges and improve character formation. The system of this invention can also employ two power sources using parallel laser beams with each of the beams being of a different diameter and corresponding spot size. This will provide a matrix of dots having different sizes for forming a single generated character. The different dot size will intermesh to create letters and numerals having smoother appearance.
When read in light of the entire specification, this section is consistent with the word spot meaning a spot of laser light. PB's invention does employ light spots to form generated characters. The characters are not formed directly by the light spots themselves, but by the discharged areas on the photoreceptor subsequently created by the light spots. The discussion in the cited section above is fully consistent with this interpretation. It discusses how the laser beams create spots which "in turn provide a matrix of dots." These "different size dots intermesh to create letters and numeral having a smoother appearance."

Read in its entirety, the specification of the '272 patent indicates that the word "spot" means a light spot. Since inventors "must use words in the same way in the claims and in the specification," it is logical to conclude that the word spot also means a light spot when used in the claims of the '272 patent. Fonar Corp. v. Johnson and Johnson, 821 F.2d 627, 632 (Fed. Cir. 1987); see also McGill Inc., v. John Zink Co., 736 F.2d 666, 673 (Fed. Cir. 1984) (holding that words defined in the specification must be given the same meaning when used in the claims). 2 Allowing PB to employ two different definitions for the same word in a single specification would undermine the requirement that the claims clearly "demarcate the boundaries of the purported invention." Athletic Alternatives Inc. v. Prince Mfg. Inc., 73 F.3d 1573, 1581 (Fed Cir. 1996).

2 PB also argues that interpreting the word spot to mean light spot would exclude the preferred embodiment from being covered by the claims of the '272 patent. Specifically, they contend that varying the intensity of the laser beam, which is the preferred embodiment as recited in claim 2, "does not change the size of the diameter of the projecting laser beam light spot." However, the court's determination that "spot" means "light spot" does not invalidate or exclude any claim of the '272 patent. One common convention in the digital printing field is to define the size of a light spot as the area of light where the intensity exceeds a fixed threshold. Under this definition, the size of a projected light spot would change when the intensity of a light beam is varied. Thus, the preferred embodiment as recited in claim 2 is encompassed by the court's claim construction and no new limitations have been introduced. See Eastman Kodak Co. v. The Goodyear Tire & Rubber Co., 114 F.3d 1547, 1556 (Fed. Cir. 1997) (courts should seek to interpret claims to preserve, rather than defeat, their validity).

The prosecution history is consistent with the conclusion that the word "spots" means "light spots" in the '272 patent. According to Patent Office procedure, "where the title is not descriptive of the invention claimed, the examiner should require the substitution of a new title that is clearly indicative of the invention." M.P.E.P. § 606.01 (1979). After evaluating the application, the examiner was in the best position to fully understand the nature of the invention and the meaning of the terms used in the patent. It is relevant that he chose to modify the noun "spots" with the adjective "light." This is reflective of his understanding that the word "spots" means "light spots" in the '272 patent.

2. Extrinsic Evidence

The court concludes that the use of extrinsic evidence is unnecessary in this case. Extrinsic evidence may be evaluated "in
order to aid the court in coming to a correct conclusion as to the true meaning of the language employed in the patent."
Markman v. Westview Instruments, Inc., 52 F.3d 967, 981 (Fed. Cir. 1995) (internal citations omitted). However, "reliance on such evidence is unnecessary, and indeed improper, when the disputed terms can be understood from a careful reading of the public record." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996).

In this case, the meaning of the phrase "spots of different sizes" can be understood from a careful reading of the claims, the specification, and the prosecution history. Accordingly, consideration of extrinsic evidence is unnecessary and improper.

* * * * *

CONCLUSION

For the forgoing reasons, the court concludes that the phrase "spots of different sizes" as used in the '272 patent means light spots of various sizes. Since it is undisputed that the accused devices do not employ light spots of different sizes, the defendant's motion for summary judgment (document no. 178) is GRANTED.

II.

The principal question we address on appeal concerns the first of these two analytical steps. Specifically, we must decide, based upon a de novo review, whether the district court's construction of the claim term "spots of different sizes" was erroneous. Our review of the patent document as well as the pertinent aspects of the prosecution history leads us to conclude that the district court erroneously interpreted the term to refer to spots of light generated by the beam of light, rather than the spots of discharged area on the photoreceptor. Because the district court's summary judgment of non-infringement derived from its erroneous claim construction, we vacate its judgment and remand for further proceedings consistent with this decision.

The claim language

The starting point for any claim construction must be the claims themselves. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). Here, both independent claims 1 and 3 contain a preamble stating that they claim either a method of, or an apparatus for, "producing on a photoreceptor an image of generated shapes made up of spots . . . ." '272 pat., col. 6, ll. 22-24, 33-35. Based upon this language, the "spots", which are the subject of this dispute, "produce . . . an image of generated shapes". The "generated shapes" are, of course, the letters, numbers or other characters formed with fewer jaggies than under the prior art methods. These characters, "made up of spots", are "produced on a photoreceptor". Thus, based upon this preamble language, the "spots" are the constituent parts that make up the image of the desired character on the photoreceptor. The spots of light generated by the light beam cannot be the "spots" referenced in the preamble because the spots of light generated by the light beam are, it is not disputed, transient and do not themselves form the image of the desired character. The spots of discharged area created by the beam of light, however, last long enough to combine to form images of characters and they produce those images "on the photoreceptor". Accordingly, the language in the preamble of the claims strongly militates towards construing the claim term "spots of different sizes" to refer to the spots of discharged area on the photoreceptor, not the light spots generated by the beam of light.

Although our initial discussion has focused on the preamble, as opposed to the remainder of the claim language, this does not undercut its significance. "[A] claim preamble has the import that the claim as a whole suggests for it." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 U.S.P.Q.2D (BNA) 1816, 1820 (Fed. Cir. 1995). If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is "necessary to give life, meaning, and vitality" to the claim, then the claim preamble should be construed as if in the balance of the claim. Kropa v. Robie, 38 C.C.P.A. 858, 187 F.2d 150, 152, 88 U.S.P.Q. (BNA) 478, 480-81 (CCPA 1951); see also Rowe v. Dror, 112 F.3d 473, 478, 42 U.S.P.Q.2D (BNA) 1550, 1553 (Fed. Cir. 1997); Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257, 9 U.S.P.Q.2D (BNA) 1962, 1966 (Fed. Cir. 1989). Indeed, when discussing the "claim" in such a circumstance, there is no meaningful distinction to be drawn between
the claim preamble and the rest of the claim, for only together do they comprise the "claim". If, however, the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation. See Rowe, 112 F.3d at 478, 42 U.S.P.Q.2D (BNA) at 1553; Corning Glass, 868 F.2d at 1257, 9 U.S.P.Q.2D (BNA) at 1966; Kropa, 187 F.2d at 152, 88 U.S.P.Q. (BNA) at 480-81.

Here, the preamble is "necessary to give life, meaning, and vitality" to the claim. Kropa, 187 F.2d at 152, 88 U.S.P.Q. (BNA) at 480-81. The preamble statement that the patent claims a method of or apparatus for "producing on a photoreceptor an image of generated shapes made up of spots" is not merely a statement describing the invention's intended field of use. Instead, that statement is intimately meshed with the ensuing language in the claim. For example, both independent claims conclude with the clause "whereby the appearance of smoothed edges are given to the generated shapes". Because this is the first appearance in the claim body of the term "generated shapes", the term can only be understood in the context of the preamble statement "producing on a photoreceptor an image of generated shapes made up of spots". Similarly, the term "spots" is initially used in the preamble to refer to the elements that make up the image of generated shapes that are produced on the photoreceptor. The term "spots" then appears twice in each of the independent claims. 1 That the claim term "spots" refers to the components that together make up the images of generated shapes on the photoreceptor is only discernible from the claim preamble. In such a case, it is essential that the court charged with claim construction construe the preamble and the remainder of the claim, as we have done here, as one unified and internally consistent recitation of the claimed invention.

--- Footnotes ---

1 In claim 1, the first appearance of the term is in the singular, but its context indicates that it is used to refer to the same type of "spots", albeit in the singular, that are mentioned in the preamble.

--- End Footnotes ---

Having noted the support in the preamble of the claims for construing the term "spots" to refer to the spots of discharged area on the photoreceptor and having further noted the necessity of the term's construction being consistent with that preamble language, we find further support for our claim construction in the language of the body of the claims. The independent claims refer to beams of light "generating a spot on the photoreceptor" (claim 1) or "generating a plurality of spots on the photoreceptor" (claim 3). '272 pat., col. 6, ll. 26-27, 37-38. While not dispositive, the reference to "spots" as being generated on the photoreceptor certainly supports a construction of "spots" as being the spots of discharged area on the photoreceptor. Indeed, it would seem to be more accurate to describe the spots of discharged area as being "generated . . . on the photoreceptor", than to describe the spots created by the light beams in that manner.

The final clause of both of the independent claims also supports construing the term "spots" to mean the spots of discharged area on the photoreceptor. This clause, which is materially the same for both claims, refers to producing or generating "spots of different sizes whereby the appearance of smoothed edges are given to the generated shapes". '272 pat., col. 6, ll. 28-30, 39-41. To be consistent with the preamble, this clause must mean that the "spots of different sizes" make up "the generated shapes", which have "the appearance of smoothed edges". However, the spots of light created by the beam of light do not make up "the generated shapes". Rather, they cause the elimination of charge at certain locations on the photoreceptor, which spots of discharged area make up "the generated shapes".

The expert affidavits

The use of the term "spots of different sizes" in the final clause of the independent claims also supports construing "spots" to refer to the spots of discharged area on the photoreceptor. The diameter of the beam of light is not altered when the intensity or pulse width is changed. However, changing these parameters does change the size of the discharged area on the photoreceptor. Thus, assuming argendo that the size of the light spot generated by the beam of light is the same as the diameter of the beam of light, the parameters of pulse width and intensity cannot be used to create "spots of different sizes" and, consequently, based upon this assumption, the term "spots" would have to refer to the spots of discharged area on the photoreceptor.

Although Pitney Bowes argued before the district court that the size of the light spot generated by the beam of light does not
alter in size when these parameters are adjusted, the district court rejected that argument. Instead, the district court reasoned that:

One common convention in the digital printing field is to define the size of a light spot as the area of light where the intensity exceeds a fixed threshold. Under this definition, the size of a projected light spot would change when the intensity of a light beam is varied.

March Non-Infringement Ruling, slip op. at 13 n.2. Pitney Bowes argues on appeal that, by relying upon this "common convention" in its claim construction, the district court erroneously relied upon extrinsic evidence to contradict the meaning of the claim term "spots" otherwise apparent from the intrinsic evidence.

The district court's statement that there exists a "common convention" in the "digital printing field" to define spot size "as the area of light where the intensity exceeds a fixed threshold", mirrors the terminology used in a supplemental affidavit submitted by William J. Hanson that was attached to Hewlett-Packard's reply brief in support of its motion for summary judgment of non-infringement based upon the "spots of different sizes" limitation. Adopting the terminology later used by the district court, Mr. Hanson averred that there was a "common convention" in the "digital printing field" to define spot size "as the area of the light spot where the intensity exceeds a fixed threshold". Mr. Hanson's affidavit responded to an earlier affidavit submitted by Michael Bass in support of Pitney Bowes's opposition. Professor Bass had declared:

[Hewlett-Packard's] interpretation of Claims 1, 2 and 3 as referring only to projected laser beam spots rather than the exposed regions on the photoreceptor or developed spots is wrong. Anyone skilled in the art of optics recognizes that a projected light spot does not change by varying the intensity of the laser beam. In other words, if a laser was pointed at a wall and the intensity of a laser was increased, the size of the projected beam on the wall would not change. By varying the intensity of that laser, however, one can vary the size of the developed spot in the electro photographic process. Thus, it is clear that the spot referred to in Claims 1, 2 and 3 is not simply referring to the size of the projected spot.

Rebuttal Aff. of Michael Bass, P 6 (Oct. 3, 1997). In response, Mr. Hanson, Hewlett-Packard's expert, declared:

Professor Bass'[s] reasoning . . . may apply in the field of optics where optical spot size is typically defined as the diameter where the intensity is at a specified fraction of the maximum intensity. However, in fields other than optics, such as the digital printing field of the '272 patent, various definitions of light spot size are employed depending on the circumstances. For example, in high contrast imaging processes (of which laser printing is one), a common convention is to define the spot size as the area of light spot where the intensity exceeds a fixed threshold. Under this common convention, the size of the project light spot does change by varying the intensity of the laser beam.

Supplemental Decl. of William J. Hanson, P 3 (Dec. 9, 1997). In earlier deposition testimony, Professor Bass had testified that he had "never heard of" spot size being measured in this manner. Dep. of Michael Bass, at 154, l. 23 (Jun. 17, 1997). Neither party cites, nor have we found, any other reference to this "common convention" in the record. Pitney Bowes argues that, while the district court might have considered the existence of this "common convention" to be an uncontested background fact, the affidavits demonstrate that there was conflicting expert testimony regarding whether there was a "common convention" to define spot size in this particular manner. Pitney Bowes contends that reliance upon this "common convention" was ultimately determinative of the March Non-Infringement Ruling because, unless this "common convention" is accepted, the claim language and the written description both suggest that the "spots" are the spots of discharged area on the photoreceptor.

In Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584, 39 U.S.P.Q.2d (BNA) 1573, 1578 (Fed. Cir. 1996), we explained that "extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles." Despite the district court's statements to the contrary, Vitronics does not prohibit courts from examining extrinsic evidence, even when the patent document is itself clear. See, e.g., March Non-Infringement Ruling, slip op. at 15 ("In this case, the meaning of the phrase 'spots of different sizes' can be understood from a careful reading of the claims, the specification, and the prosecution history. Accordingly, consideration of extrinsic evidence is improper."). Moreover, Vitronics does not set forth any rules regarding the admissibility of expert testimony into evidence. 2 Certainly, there are no prohibitions in Vitronics on courts hearing evidence from experts. Rather, Vitronics merely warned courts not to rely on extrinsic evidence in claim construction to contradict the meaning of claims discernible from thoughtful examination of the claims, the written description, and the prosecution history -- the intrinsic
evidence. See id., 90 F.3d at 1583, 39 U.S.P.Q.2D (BNA) at 1579 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence. In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper." (citations omitted and emphasis added)); see also Bell & Howell Document Management Prods. Co. v. Altek Sys., 132 F.3d 701, 706, 45 U.S.P.Q.2D (BNA) 1033, 1038 (Fed. Cir. 1997) ("Use of expert testimony to explain an invention may be useful. But reliance on extrinsic evidence to interpret claims is proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence . . . ." (emphasis added)). As Vitronics states:

the district court relied on the expert testimony and other extrinsic evidence solely to help it understand the underlying technology, we could not say the district court was in error. But testimony on the technology is far different from other expert testimony, whether it be of an attorney, a technical expert, or the inventor, on the proper construction of a disputed claim term, relied on by the district court in this case. The latter kind of testimony may only be relied upon if the patent documents, taken as a whole, are insufficient to enable the court to construe disputed claim terms. Such instances will rarely, if ever, occur.

Vitronics, 90 F.3d at 1585, 39 U.S.P.Q.2D (BNA) at 1579. Thus, under Vitronics, it is entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction it is tending to from the patent file is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field. This is especially the case with respect to technical terms, as opposed to non-technical terms in general usage or terms of art in the claim-drafting art, such as "comprising". Indeed, a patent is both a technical and a legal document. While a judge is well-equipped to interpret the legal aspects of the document, he or she must also interpret the technical aspects of the document, and indeed its overall meaning, from the vantage point of one skilled in the art. See Smithkline Diagnostics, Inc. v. Helena Lab. Corp., 859 F.2d 878, 882, 8 U.S.P.Q.2D (BNA) 1468, 1471 (Fed. Cir. 1988). Although the patent file may often be sufficient to permit the judge to interpret the technical aspects of the patent properly, consultation of extrinsic evidence is particularly appropriate to ensure that his or her understanding of the technical aspects of the patent is not entirely at variance with the understanding of one skilled in the art. See Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc., 152 F.3d 1368, 1373, 47 U.S.P.Q.2D (BNA) 1732, 1737 (Fed. Cir. 1998) ("Although [expert testimony] always may be admitted by the trial court to educate itself about the patent and the relevant technology, the claims and the written description remain the primary and more authoritative sources of claim construction."); Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437, 1444, 45 U.S.P.Q.2D (BNA) 1269, 1274 (Fed. Cir. 1997), abrogated on other grounds by, Cybor, 138 F.3d at 1456, 46 U.S.P.Q.2D (BNA) at 1174 ("Extrinsic evidence may be particularly helpful to the court when a specific technical aspect that is potentially of dispositive weight was not discussed in the specification or explored during the patent prosecution.").

--- Footnotes ---

2 Although the case was not cited by the parties, the additional views considers pertinent the Supreme Court's recent statement "that the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable." Kumho Tire Co. v. Carmichael, 526 U.S. 137, 143 L. Ed. 2d 238, 119 S. Ct. 1167, 1176 (1999). The Supreme Court in Kumho Tire was discussing whether expert testimony was "reliable" for purposes of the "basic gatekeeping obligation" imposed on trial judges under Federal Rule of Evidence 702 to ensure that scientific, technical or other specialized knowledge is sufficiently "reliable" to be admitted into evidence. 119 S. Ct. at 1174. Vitronics, however, did not decide under what circumstances expert testimony should be admitted or excluded, but merely concerns whether and under what circumstances courts can rely on already admitted extrinsic evidence as dispositive in their claim constructions. Thus, contrary to the implication of the additional views, Vitronics did not discount the skill of trial judges in serving as gatekeepers, because Rule 702's gatekeeper function, as discussed in Kumho Tire, relates solely to the admissibility of evidence -- a separate issue to claim construction.

--- End Footnotes ---

In the instant case, therefore, had the district court relied upon the extrinsic evidence to contradict the claim construction unambiguously apparent from the intrinsic evidence it would have been error. However, we do not doubt the district court's express statements that it did not rely on extrinsic evidence in its claim construction. Having concluded that the claim language "did not unambiguously support either proposed definition", March Non-Infringement Ruling, slip op. at 9, the
district court found support for its claim construction in the written description and the examiner's amendment of the patent title, see id. at 11-15. The district court merely referred in footnote two of its opinion to there being "one common convention in the digital printing field" in order to address the collateral argument made by Pitney Bowes that Hewlett-Packard's proffered construction would exclude the preferred embodiment from being covered by the claims of the '272 patent. The extrinsic evidence of this "common convention", therefore, was not relied upon by the district court to contradict the meaning otherwise apparent from the intrinsic evidence. Rather, the district court relied upon the intrinsic evidence to reach its claim construction, albeit an erroneous construction, and referred only briefly to the extrinsic evidence, which it quite properly examined, in discussing a collateral argument made by Pitney Bowes.

This did not constitute error.

The written description and the prosecution history

To ascertain the meaning of claims, we consider three sources: the claims, the written description, and the prosecution history. See Markman, 52 F.3d at 979, 34 U.S.P.Q.2D (BNA) at 1329 (quoting Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561, 19 U.S.P.Q.2D (BNA) 1500 (Fed. Cir. 1991)). We thus turn next to the two remaining sources for claim construction -- the written description and the prosecution history.

The district court placed significant weight on Pitney Bowes's concession that in forty-two out of forty-four uses of the term "spot" in the written description that usage referred to the spots of light generated by the beam of light and not the spots of discharged area on the photoreceptor. See March Non-Infringement Ruling, slip op. at 12. Based essentially upon this, the district court reasoned that "since inventors 'must use words in the same way in the claims and in the specification,' it is logical to conclude that the word spot also means a light spot when used in the claims of the '272 patent." 3 Id. at 12-13 (quoting Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632, 3 U.S.P.Q.2D (BNA) 1109, 1113 (Fed. Cir. 1987)).

--- Footnotes ---
3 The district court also relied upon our statement in McGill Inc. v. John Zink Co., 736 F.2d 666, 674, 221 U.S.P.Q. (BNA) 944, 949 (Fed. Cir. 1984), overruled on other grounds, Markman, 52 F.3d at 976, 979, 34 U.S.P.Q.2D (BNA) at 1327, 1329, that "words which were defined in the specification must be given the same meaning when used in a claim." March Non-Infringement Ruling, slip op. at 11.
--- End Footnotes ---

As a general principle, we agree with the district court's "logic". Certainly, "the same word appearing in the same claim should be interpreted consistently." Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1345, 47 U.S.P.Q.2D (BNA) 1418, 1425 (Fed. Cir. 1998). Indeed, our conclusion that the district court's claim construction was erroneous because it would assign a different meaning to the term "spot" in the preamble from that in the rest of the claims is broadly based upon this very principle. Nevertheless, we have also recognized that a patent's written description can set forth more than one definition of a claim term. In Genentech, Inc. v. Wellcome Foundation, Ltd., 29 F.3d 1555, 31 U.S.P.Q.2D (BNA) 1161 (Fed. Cir. 1994), we noted that with respect to the claim term "human tissue plasminogen activator", "there are at least four possible definitions of the phrase set forth in the specification." Id. at 1563, 31 U.S.P.Q.2D (BNA) at 1167. We explained that, to select among these definitions, we would "avoid those definitions upon which the PTO could not reasonably have relied when it issued the patent." Id. at 1563, 31 U.S.P.Q.2D (BNA) at 1167.

The case at bar presents a somewhat analogous situation to Genentech. The portion of the written description which Pitney Bowes contends uses the term "spot" to mean a spot of discharged area on the photoreceptor occurs at the very end of the written description and reads, in relevant part:

"The scanning system of this invention, however, can be implemented by introducing an intensity modulator 64 for applying an amplitude modulated correction signal for maintaining laser illumination at a constant level. The intensity modulator 64 could also be used for control of spot size by varying the intensity. The use of different spot sizes can effectively be employed as letters or numbers are created so as to avoid roughened edges and improve character formation."

'272 pat., col. 5, l. 64 to col. 6, l. 5 (emphasis added). That the PTO focused on this part of the written description in
granting the ’272 patent is demonstrated by the irrelevance of the earlier parts of the written description to the invention actually claimed in the ’272 patent. Indeed, the earlier parts of the written description relate to the inventions claimed by the ’157 and the ’757 patents. For instance, the written description describes in detail an apparatus and method for correcting imperfections in the polygonal mirror during the scanning process, as claimed in the ’157 patent. The written description further describes in detail apparatus for correcting the scanning speed during the scanning process, as claimed in the ’757 patent. As may be recalled, the ’272, ’157, and ’757 patents all stemmed from the same parent application, or a divisional or continuation application thereof. Thus, it is perhaps unsurprising that their written descriptions are apparently identical and, consequently, not relevant in toto to all three inventions.

The earlier parts of this apparently identical written description do, indeed, use the term "spot". However, the usage of the term "spot" is noticeably different in the earlier portions of the written description. These earlier uses of the term refer to a "spot" in the sense of a moving spot, which surely must be the spot of light produced by the beam. Thus, for example, the written description explains that:

The edge detector 62 will indicate when spot 34 has passed a fixed terminal point beyond the scan path. The time differential as detected between the first edge detector 58 and the second detector 62 can be interpreted through logic circuitry to indicate the flight time for spot 34 to cover a fixed length scan path.

’272 pat., col. 5, ll. 52-57. The spot of discharged area on the photoreceptor cannot, of course, have a "flight time" and thus it is apparent that this usage of the term "spot" must refer to a spot of light. The two uses of the term "spot" in the later part of the written description, however, do not refer to "spot" in the context of a moving spot, but rather in the context of the "spot size" to be employed "so as to avoid rough edges and improve character formation." This usage of the term appears quite distinct from the dynamic "spot" referred to earlier in the written description. Indeed, read in context, this usage of the term "spot size" relates to the spots that are used as the constituent parts of the printed characters, not the "spot" that moves within the apparatus described in the written description. Moreover, the earlier uses of the term referred generally to "the spot 34", in reference to the identical Figure 1 of all three patents, whereas these later uses referred only to "spot size", again indicating a different usage.

In circumstances such as this, where the language of the written description is sufficient to put a reader on notice of the different uses of a term, and where those uses are further apparent from publicly-available documents referenced in the patent file, it is appropriate to depart from the normal rule of construing seemingly identical terms in the same manner. This entirely accords with the public notice function of claims. See Vitronics, 90 F.3d at 1583, 39 U.S.P.Q.2D (BNA) at 1577; Hoganas AB v. Dresser Indus., 9 F.3d 948, 951, 28 U.S.P.Q. 2D (BNA) 1936, 1939 (Fed. Cir. 1993). The prosecution history indicates to a reviewing member of the public that the ’272 patent was one of several patents to be issued based upon the same written description disclosure. Parsing the written description, in the context of the prosecution history, puts the reader on notice that the term "spot" has different meanings in the written description depending on its context. Like Genentech, therefore, the term must be read to correspond to the only plausible meaning in each context. In light of the prosecution history, the only plausible meaning of the term "spot size", as used in the disputed part of the written description, is the area of discharge on the photoreceptor. The district court therefore erred when it relied upon the frequency of occurrences of the term "spot", in the context which all parties agreed meant the spot of light from the laser beam, to draw a "logical" conclusion that the two disputed occurrences of the term in the written description and all the occurrences of the term in the claims must also have that meaning.

The patent title

Under the general heading of "The Prosecution History", the district court considered the effect of the amendment of the title of the ’272 patent to include the term "Light Spots". See March Non-Infringement Ruling, slip op. at 13-15. The district court reasoned that:

In the instant case, the prosecution history is consistent with the conclusion that the word "spots" means "light spots" in the ’272 patent. According to Patent Office procedure, "where the title is not descriptive of the invention claimed, the examiner should require the substitution of a new title that is clearly indicative of the invention." M.P.E.P. [The Manual of Patent Examining Procedure] § 606.01 (1979). After evaluating the application, the examiner was in the best position to fully understand the nature of the invention and the meaning of the terms used in the patent. It is relevant that he chose to modify the noun "spots" with the adjective "light." This is reflective of his understanding that the word "spots" means "light spots" in the ’272 patent.
Id. at 14-15.

We conclude that the district court attached too much weight in its claim construction to the patent title and to the amendment of that title. Certainly, the district court is correct that Section 606.01 of the M.P.E.P. provides that the examiner may require a change in the title if the proffered "title is not descriptive of the invention claimed". However, Section 606.01 goes on to explain that "this may result in slightly longer titles, but the loss in brevity of the title will be more than offset by the gain in its informative value in indexing, classifying, searching, etc." Thus, as indicated by the M.P.E.P., the purpose of the title is not to demarcate the precise boundaries of the claimed invention but rather to provide a useful reference tool for future classification purposes. In any event, if we do not read limitations into the claims from the specification that are not found in the claims themselves, then we certainly will not read limitations into the claims from the patent title. See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 U.S.P.Q.2D (BNA) 1129, 1132 (Fed. Cir. 1988). Consequently, an amendment of the patent title during prosecution should not be regarded as having the same or similar effect as an amendment of the claims themselves by the applicant.

The near irrelevancy of the patent title to claim construction is further demonstrated by the dearth of case law in which the patent title has been used as an aid to claim construction. We are only aware of one case from this court in which the patent title was accorded any significance whatsoever in a claim construction. In Exxon Chemical Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 35 U.S.P.Q.2D (BNA) 1801 (Fed. Cir. 1995), the court reasoned that:

Exxon's claims are drawn to a specific product which has particularly defined ingredients. Nothing in the claims, the specification, or the prosecution history suggests that Exxon's claims are not drawn to a product that contains particular ingredients. Indeed, to the contrary, the title to the '890 patent reads . . . "Lubricating Oil Compositions Containing Ashless Dispersant, [ZDDP], Metal Detergent and a Copper Compound". See Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. (BNA) 773, 777-78 (Fed. Cir. 1985) (referring to patent's title as interpretative aid). 4

64 F.3d at 1557, 35 U.S.P.Q.2D (BNA) at 1804. While the court in Exxon Chemical Patents mentioned the patent title in its claim construction, this one-sentence statement was made simply to illustrate the point that the patent-in-suit claimed a product containing certain ingredients. Indeed, the claim construction relied, not upon the patent title, but upon the standard sources of the claims, the specification, and the prosecution history. See id. ("In sum, a review of the claims, the specification, and the prosecution history all point to the conclusion that Exxon claims a product, not merely a recipe for making whatever product results from the use of the recipe ingredients."). Consequently, that the patent title has only been mentioned once by this court in the context of claim construction and, even then, merely to make an illustrative point in one sentence, makes a powerful statement as to the unimportance of a patent's title to claim construction. It was therefore error for the district court to impart as much weight in its claim construction as it did to the amendment of the title of the '272 patent.

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4 Titanium Metals was cited as "referring to patent's title as interpretative aid". The issue being addressed in Titanium Metals was not claim construction but rather anticipation under 35 U.S.C. § 102. In this context the Titanium Metals court stated:

The patent law imposes certain fundamental conditions for patentability, paramount among them being the condition that what is sought to be patented, as determined by the claims, be new. . . . The title of the application here involved is "Titanium Alloy," a composition of matter. Surprisingly, in all of the evidence, nobody discussed the key issue of whether the alloy was new . . . .

Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. (BNA) 773, 777-78 (Fed. Cir. 1985). The Titanium Metals court, therefore, did not refer to the patent's title as an "interpretative aid", but instead merely expressed surprise that the apparent simplicity of the patent's title did not alert the parties to present evidence as to whether the invention claimed in the patent application was novel and unanticipated by the prior art as required by section 102.

- - - - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - -
The grant of summary judgment of no literal or equivalent infringement based upon the claim construction of the term "spots"

The district court's grant of summary judgment of no literal or equivalent infringement was entirely derivative of its claim construction of the term "spots". Because the accused Hewlett-Packard devices do not have "spots" of light produced by their laser beams that can be "of different sizes", the district court concluded that they could not infringe either literally or equivalently. See March Non-Infringement Ruling, slip op. at 16-20. However, because we hold that the "spots" that can be "of different sizes" are the spots of discharged area on the photoreceptor, not the spots of light produced by the laser beam, we vacate the district court's grant of summary judgment to Hewlett-Packard and remand for further proceedings in accordance with this decision.

IX. "a plurality of spread-spectrum devices for spread-spectrum processing the plurality of subchannels of data, thereby generating a plurality of spread-spectrum-subchannel signals, respectively" 22

22 The term "a plurality of spread-spectrum devices for spread-spectrum processing the plurality of subchannels of data, thereby generating a plurality of spread-spectrum-subchannel signals, respectively" is contained in claim 33.

Plaintiff's Proposed Construction
"a plurality of devices that process signals using a form of communication in which the signal energy of the data is distributed across the allowed spectrum, where that spectrum is typically greater than or equal to the bandwidth required to carry the data."
Linex does not believe that the construction of this phrase should be governed by 35 U.S.C. § 112(6).

Defendant's Proposed Construction
This phrase is a means plus function claim element. The corresponding structure that performs the function of "spread-spectrum processing the plurality of subchannels of data, thereby generating a plurality of spread-spectrum-subchannel signals" is a plurality of multiplication circuits or exclusive-or gates that multiply a plurality of subchannels of data by a plurality of pseudonoise (PN) chip-sequence signals, respectively.

Plaintiff argues that although Linex's prosecution counsel specifically noted during prosecution of the '322 patent that claim 33 uses means-plus-function claim language, this statement was incorrect and a mere mistake. REPLY at 9. Plaintiff asserts that no less than thirty-one of the claims of the '322 patent are written in traditional means-plus-function format, specifically using the word "means," and claims 9 and 33 are not, indicating they were not intended to be construed as means-plus-function claims. Id. at 9-10.

Defendant responds that Linex specifically advised the patent examiner during prosecution that "claims 33 and 41 employ means plus function, as elements in the claims," and therefore Linex should be held to this representation. RESP. at 29. Defendant also argues that this claim limitation is defined in terms of a function, and therefore it is appropriate to construe this claim limitation as being in means-plus-function format. RESP. at 30. In support of this argument, Defendant cites to two Federal Circuit cases which construe claim limitations lacking the word "means" to be in means-plus-function format. Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1214 (Fed. Cir. 1998); Welker Bearing Co. v. PHD, Inc., 550 F.3d 1090, 1095-96 (Fed. Cir. 2008).

In the Request for Reconsideration after a denial of a Certificate of Correction filed with the Patent Office after the '322 patent originally issued, Linex's prosecution counsel noted that "claims 33 and 41 employ means plus function, as elements
that claim 33 is in means-plus-function format, as Plaintiff points out there is evidence that this may have been a mere prosecution counsel's statement that claim 33 is in means-plus-function format. While in isolation the statement indicates not in means-plus-function format--the Court finds that, like C.R. Bard, it is unclear what import, if any, to affix to Linex's draft patent claim 33. It discloses "a plurality of despreading devices for detecting" the first and second spread-spectrum signals.

Similarly here, a correction to claim 33 was allowed based on the understanding that claim 33 was in means-plus-function format, despite the fact that--unlike claim 41--it failed to use the word "means." As Defendant argues, claim 33 was drafted in language that could be considered functional. It discloses "a plurality of despreading devices for detecting" the first and second spread-spectrum signals. '322 patent at 20:36-40. As long as "a plurality" of despreading devices is not sufficient structure to take the limitation outside the realm of section 112, paragraph 6, it could be construed as a means for detecting the first and second spread-spectrum signals.

Given the competing doctrines at issue--prosecution history disclaimer and the rebuttable presumption that the limitation is not in means-plus-function format--the Court finds that, like C.R. Bard, it is unclear what import, if any, to affix to Linex's prosecution counsel's statement that claim 33 is in means-plus-function format. While in isolation the statement indicates that claim 33 is in means-plus-function format, as Plaintiff points out there is evidence that this may have been a mere mistake. Specifically, the term "means" is used in claim 41, but not in claim 33. Further, absent this single statement in the
Request for Reconsideration asserted to be a mistake, there is no evidence to suggest that the claim limitation was intended to be in means-plus-function format. In other words, the patent issued after a thorough prosecution without any indication that the limitation was in means-plus-function format. This single indication that claim 33 is in means-plus-function format arose only when Linex's prosecution counsel filed a Request for Reconsideration of a denial of a Certificate of Correction. As previously noted, the Court cannot simply ignore the remainder of the file history, specification, and claim set, none of which include any indication that claim 33 was intended to be in means-plus-function format. Given the entirety of the evidence, it seems highly likely that the statement that claim 33 was in means-plus-function format was a mere mistake. As such, the Court cannot say that this was a clear disavowal, and the presumption that the claim term is not in means-plus-function format has not been rebutted.

23 Defendant's citations to Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1214 (Fed. Cir. 1998), and Welker Bearing Co. v. PHD, Inc., 550 F.3d 1090, 1095-96 (Fed. Cir. 2008), have no bearing on this conclusion. Defendant cites both cases merely for the proposition that it can be appropriate to interpret a claim limitation as means-plus-function when a structure is defined in terms of its function. See RESP. at 29-30.

Therefore, the Court finds no justification for construing this claim term as being in means-plus-function format. The term "a plurality of spread-spectrum devices for spread-spectrum processing the plurality of subchannels of data, thereby generating a plurality of spread-spectrum-subchannel signals, respectively" is therefore properly construed as "a plurality of devices for processing the plurality of subchannels of data with one or more codes that distributes the signal across the available bandwidth, thereby generating a plurality of signals which correspond to each of the subchannels of data."

Plaintiff's Proposed Construction
subchannel signals processed using a form of communication in which the signal energy of the data is distributed across the allowed spectrum, where that spectrum is typically greater than or equal to the bandwidth required to carry the data

Defendant's Proposed Construction
signals, each corresponding to a different one of the subchannels of data, and each having been processed with a different pseudonoise (PN) chip-sequence signal

Plaintiff contends that the parties' main dispute underlying all of the spread-spectrum terms centers on a different understanding of spread-spectrum modulation. OPENING at 10. Plaintiff asserts that spread-spectrum modulation "spreads a signal carrying data across an allowed spectrum of frequencies, such that the allowed spectrum is typically greater than or equal to the bandwidth of frequencies required to carry the provided data." Id. Plaintiff argues that Defendant's proposed construction improperly limits the claimed spread-spectrum system to that disclosed in the preferred embodiment. Id. at 14. Further, Plaintiff contends that adopting Defendant's proposed construction would violate the doctrine of claim differentiation, as dependent claim 49 specifies a particular type of spread-spectrum that uses chip sequence signals. REPLY at 5.
Defendant responds that the term is defined by the specification. RESP. at 19. Defendant argues that the specification repeatedly points to a chip-sequence code and notes that the signals are created or defined by processing the signal with the chip-sequence spreading code. Id. at 19-20. Specifically, Defendant asserts that the '322 patent discloses that spread-spectrum processing is performed by a "chip sequence signal generator" involving a pseudonoise ("PN") spreading code. Id. Finally, Defendant argues that Plaintiff's proposed construction is overly broad and ignores the portion of the claim that requires that the subchannels be spread. Id. at 21-23. Defendant also argues that spread-spectrum processing is not a "form of communication." Id. at 21-22.

As previously noted, the parties' main dispute underlying all of the spread-spectrum terms centers on a different understanding of spread-spectrum modulation. See OPENING at 10. While actively contested, the parties do agree on a number of aspects of spread-spectrum modulation. The parties agree that spread-spectrum systems spread the transmitted signal over a particular bandwidth of frequencies that is generally larger than that required to carry the signal. See id. at 12; DEFENDANT'S TUTORIAL ON WLAN CONCEPTS ("DEF.'S TUTORIAL") at 50. The parties also agree that direct sequence ("DS"), frequency hopping ("FH"), and time hopping ("TH") are all spread-spectrum modulation techniques. OPENING at 14; DEF.'S TUTORIAL at 55.

However, the parties disagree on the breadth of modulation techniques encompassed by the term "spread-spectrum." Plaintiff asserts that Defendant's proposed construction is unduly narrow because it limits the term to DS systems and omits FH and all multicarrier spread-spectrum systems such as orthogonal frequency division multiplexing ("OFDM"). OPENING at 14. Defendant, on the other hand, asserts that Plaintiff's construction is overly broad and would improperly encompass OFDM processing. RESP. at 21. This dispute essentially centers on how spread-spectrum signals are processed. Defendant asserts that the '322 patent requires that spread-spectrum processing be performed by a chip sequence signal generator involving a PN code, RESP. at 20, while Plaintiff asserts that this would limit the patent to a particular modulation technique and the '322 patent discloses that it may be implemented with any spread-spectrum modulation scheme. REPLY at 3-4.

A. Intrinsic Evidence

Looking first to the intrinsic evidence, the patent specification, claims, and prosecution history fail to reconcile this dispute. While the claims and specification of the '322 patent repeatedly refer to "a spread-spectrum communications system," '322 patent at 1:59-60; "spread-spectrum devices," id. at 2:14-15; "spread-spectrum subchannel signals," id. at 2:21; and "spread-spectrum devices" which "spread-spectrum process" the data, id. at 3:25-26, the patent does not disclose what the term "spread-spectrum" means in this context. The prosecution history similarly fails to explain this fundamental principle. As a result, both parties have submitted extrinsic evidence which they contend shows how one of ordinary skill in the art at the time the patent was filed would understand the "spread-spectrum" terms.

Defendant contends that the '322 patent specification and claims together resolve the dilemma, but submits extrinsic evidence to rebut Plaintiff's arguments. Defendant contends that the '322 patent requires that the spread-spectrum processing be performed by a chip sequence signal generator involving a PN code. RESP. at 20. The specification repeatedly refers to chip sequence signals and chip sequence signal generators. See, e.g., '322 patent at 2:16-17, 3:43, 5:17-19, 6:28; see also id., Figs. 1, 2, 4, 5. However, the use of a PN code is only referenced twice in the specification. Id. at 6:28-30 ("The first, second, third and fourth chip-sequence signals . . . typically are pseudonoise (PN) spreading sequences."); id. at 7:9-11 ("A chip-sequence signal typically is generated from a pseudo noise (PN) sequence, as is well known in the art."). It is also worth noting that the asserted claims never refer to a PN code, spreading code, spreading function, or chip sequence signal.

With respect to the PN code, the patent fails to limit itself to the use of a PN code for the disclosed spread-spectrum modulation technique. This specific method of spread-spectrum processing is referenced only twice within the patent, and each time is within the preferred embodiments. The Federal Circuit has directed district courts to focus on the specification and prosecution history during claim construction, while taking care not to read particular embodiments into the claims. Tate Access, 222 F.3d at 966 ("[a]lthough claims must be read in light of the specification of which they are part . . . it is improper to read limitations from the written description into a claim"). Because the use of a PN code is not required by the claims and is disclosed only in the preferred embodiments, it would be improper to read this limitation for generating chip sequence signals into the asserted claims.

Moreover, in each of these two references, the specification notes that a chip sequence signal is "typically" generated from a PN sequence, implying that a chip sequence signal may be generated by other techniques. '322 patent at 6:28-30 ("The first,
A means of transmission in which the signal occupies a bandwidth in excess of the minimum necessary to send the information; the band spread is accomplished by means of a code which is independent of the data, and a synchronized

A means of transmission in which the signal occupies a bandwidth in excess of the minimum necessary to send the

second, third and fourth chip-sequence signals . . . typically are pseudonoise (PN) spreading sequences." (emphasis added); id. at 7:9-11 ("A chip-sequence signal typically is generated from a pseudo noise (PN) sequence, as is well known in the art.") (emphasis added). For these reasons, the Court declines to adopt Defendant's proposed construction.

Despite the fact that the specification repeatedly refers to the use of a chip sequence signal as the means for spread-spectrum processing, the Court is not convinced that this is a necessary limitation either. Looking first to the asserted claims, the patent fails to disclose how the transmitted signal is spread across the available bandwidth. Looking to the other claims, claim 61 discloses:

61. The method as set forth in claim 25 with the step of detecting the first spread-spectrum signal and the second spread-spectrum signal, including the step of detecting, responsive to a first chip-sequence signal and to a second chip-sequence signal, the first spread-spectrum signal and the second spread-spectrum signal as the first plurality of detected spread-spectrum signals and the second plurality of detected spread-spectrum signals, respectively.

'322 patent at 24:23-30. If the Court were to hold that the spread-spectrum modulation techniques disclosed in the asserted patent necessarily utilized a chip-sequence signal to spread the transmitted signal, this would render claim 61 unnecessary, as it would be identical in scope to claim 25. Noting the importance of both asserted and unasserted claims in properly construing claim terms, the Federal Circuit has noted that "[d]ifferences among claims can also be a useful guide in understanding the meaning of particular claim terms." Phillips, 415 F.3d at 1314 (citations omitted). Particularly relevant here, the Federal Circuit has specifically said, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1314-15 (citations omitted). Thus, the Court presumes that the chip-sequence signal limitation is not present in independent claim 25.

Furthermore, although the specification repeatedly refers to a chip sequence signal as a means for spread-spectrum modulation, nothing in the intrinsic evidence requires the use of this modulation technique. This modulation technique is disclosed in the preferred embodiment, however nothing in the claims, specification, or prosecution history limit the invention to the use of a chip sequence signal. To import this limitation from the preferred embodiment would be improper. Tate Access, 222 F.3d at 966 (Fed. Cir. 2000) ("[a]lthough claims must be read in light of the specification of which they are part . . . it is improper to read limitations from the written description into a claim"); Arbitron, 2009 U.S. Dist. LEXIS 1381, 2009 WL 68875 at *3 ("although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments").

Having fully reviewed the intrinsic record and taking the parties' agreements into consideration, the Court is left with undisputed examples of spread-spectrum modulation--DS, FH, and TH--but no resources from which to ascertain the scope of a proper construction consistent with the understanding of one skilled in the art. The patentee uses the term "spread-spectrum" repeatedly throughout the specification and claims to describe devices, signals, the system, and a type of processing. See '322 patent at 1:59-60; 2:14-15; 2:21; 3:25-26. However the patentee neither explains how one skilled in the art would understand this term, nor explicitly defines this term. See Johnson Worldwide, 175 F.3d at 990. The intrinsic evidence fails to disclose what one skilled in the art would understand this term's ordinary and customary meaning to be. See Phillips, 415 F.3d at 1313 ("the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention"). After fully reviewing the intrinsic evidence, the meaning of this disputed term is ambiguous.

B. Extrinsic Evidence

Because the intrinsic evidence fails to disclose the proper scope of the term "spread-spectrum" as used in the '322 patent, the Court will now look to the extrinsic evidence submitted by the parties to ascertain a proper construction. Vitronics, 90 F.3d at 1584 (noting that if ambiguities remain after consideration of all available intrinsic evidence, only then should a trial court resort to extrinsic evidence in order to properly construe the claims). Plaintiff submits a tutorial co-written by Dr. Schilling entitled, "Theory of Spread-Spectrum Communications--A Tutorial." OPENING, EXH. C ("Schilling Tutorial"). Because it was published in 1982, this tutorial only provides background information regarding spread-spectrum techniques that existed sixteen years prior to the grandparent application being filed. This tutorial defines spread-spectrum as:

A means of transmission in which the signal occupies a bandwidth in excess of the minimum necessary to send the information; the band spread is accomplished by means of a code which is independent of the data, and a synchronized
reception with the code at the receiver is used for despreading and subsequent data recovery.

Id. at 855. The tutorial also notes the importance of the "means by which the spectrum is spread," before going on to describe how signals are spread in DS, FH, and TH systems. 8 Id.

8 The tutorial also notes that "to adequately cover the spread-spectrum system completely is the task for an entire text," and given the parties' considerable dispute over the term, the Court finds this conclusion applicable here as well.

Plaintiff also submits a section from the Code of Federal Regulations entitled, "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations." OPENING, EXH. D ("CFR Regs."); 47 C.F.R. § 2.1 (1996). This section defines many of the terms and principles discussed herein. DS systems are defined as "spread-spectrum system[s] in which the incoming information is . . . added to a higher speed code sequence. . . . [which] is the direct cause of the wide spreading of the transmitted signal." Id. at 330. FH systems are defined as:

[S]pread spectrum system[s] in which the carrier is modulated with the coded information . . . causing a conventional spreading of the RF energy about the carrier frequency. . . . [which] changes at fixed intervals under the direction of a pseudorandom coded sequence. . . . [requiring a] wide RF bandwidth . . . to accommodate the range of frequencies to which the carrier frequency can hop.

Id. at 331. Similarly, TH systems are defined as "spread-spectrum system[s] in which the period and duty cycle of a pulsed RF carrier are varied in a pseudorandom manner under the control of a coded sequence." Id. at 338. Finally, spread-spectrum systems are defined as "information bearing communications system[s] in which: (1) [i]nformation is conveyed by modulation of a carrier by some conventional means, (2) the bandwidth is deliberately widened by means of a spreading function over that which would be needed to transmit the information alone." Id. at 337.

Defendant also submits a number of exhibits that it contends are relevant extrinsic evidence. First, Defendant submits portions of Newton's Telecom Dictionary. RESP., EXH. D ("Telecom Dict."). This dictionary defines spread-spectrum:

    Spread Spectrum . . . is a modulation technique in wireless systems. The data to be transmitted are packetized, and spread over a wider range of bandwidth than demanded by the content of the original information stream. Spread spectrum takes an input signal, mixes it with FM noise, and spreads the signal over a broad frequency range. Spread spectrum receivers recognize a spread signal, acquire and de-spread it and thus return it to its initial form (the original message).

Id. at 672.

Second, Defendant submits two patents listing Dr. Schilling as the inventor. The first patent describes spread-spectrum as providing a "means for communicating in which a spread-spectrum signal occupies a bandwidth in excess of, or equal to, the minimum bandwidth necessary to send the same information." RESP., EXH. E, U.S. Patent No. 5,081,643 ("the '643 patent") at 1:54-57. Defendant points to the portion of the patent which notes that this spread is "accomplished using a chip-code signal which is independent of an information-data signal." Id. at 1:58-59. The second patent notes that a spread signal may be despread by a receiver by "using a product detector with a chipping sequence . . . or a matched filter having an impulse function matched to the chipping sequence of the received spread-spectrum signal." RESP., EXH. F, U.S. Patent No. 5,422,908 ("the '908 patent") at 1:54-60.

Defendant also submits a number of other exhibits which, while probative on the issue of whether OFDM is a spread-spectrum modulation technique, are not probative of how one skilled in the art would understand the term "spread-spectrum" during the relevant time period. Defendant submits a decision from the Federal Communications Commission regarding spread-spectrum devices. RESP., EXH. G ("FCC Decision"). However, this decision is from 2001 and therefore does not assist the Court in determining how one skilled in the art would have understood the term spread-spectrum in 1998 when the patent application was filed.
Defendant also submits two decisions from this District which generally discuss spread-spectrum modulation and OFDM processing. RESP., EXHS. H, I. The decisions are from 2006 and 2008, respectively, and both involve a patent entitled, "Wireless LAN." See U.S. Patent No. 5,487,069 ("the '069 patent"). The application for this patent was filed in 1993, and the patent teaches a combination of three techniques for overcoming multipath interference in a wireless networking environment: 1) specific parallel-subchannels; 2) data reliability enhanced by forward error correction; and 3) data reliability enhanced by bit interleaving. Microsoft Corp. v. Commonwealth Scientific and Indus. Research Organisation, 572 F. Supp. 2d 786 (E.D. Tex. 2008). Importantly, the patent does not teach, nor focus on spread-spectrum modulation. In fact, the patent refers to spread-spectrum processing only once to note that the technique "consume[s] too much bandwidth . . . to be effective." '069 patent at 2:6-9. As a result, the discussion of spread-spectrum in Defendant's Exhibits H and I were not only unnecessary to the holdings--dicta--but were included merely as general background to the patents-in-suit. Therefore, this extrinsic evidence does not assist the Court in determining a proper construction for the "spread-spectrum" terms.

The extended time period from which the parties' extrinsic evidence was produced is further evidence that the term "spread-spectrum" was well-known in the art at the time the patent application was filed. One of ordinary skill in the art would have attributed meaning to this term, and the repeated and differing uses of the term within the specification and claims of the '322 patent support this conclusion. As a result, the Court will next move to framing a construction which embodies the ordinary and customary meaning of this term.

C. Means for Modulating a Spread-Spectrum Signal

As a result, it is clear and undisputed that DS, FH, and TH are all spread-spectrum modulation techniques. What remains in dispute is whether this Court's construction of the "spread-spectrum" terms should include a limitation regarding the means for modulation and, if so, how that means should be defined. The intrinsic evidence denotes a chip sequence signal for modulating the signal, but as previously noted, the patent is not so limited. The extrinsic evidence denotes multiple modulation means: 1) a code, SCHILLING TUTORIAL at 855; 2) a high speed spreading code (DS), CFR REGS. at 330; 3) a PN coded sequence causing spreading about changing carrier frequencies (FH), id. at 331; 4) a coded sequence which varies the period and duty cycle of the signal carrier in a PN manner (TH), id. at 338; 5) a spreading function, id. at 337; 6) a chip code signal, '643 at 1:58-59; and 6) a chipping sequence, '908 at 1:54-60.

While Plaintiff argues that a proper construction does not require a limitation as to the means of modulation for the spread-spectrum terms, such a construction--as proposed by Plaintiff--would be improperly broad. Plaintiff's proposed construction defines spread-spectrum by the function resulting from the modulation, but fails to limit the term to any means for modulation. Both the intrinsic and extrinsic evidence discuss and define spread-spectrum systems in terms of the means of modulation. With only one exception, each of the exhibits surveyed above defines spread-spectrum by its means for modulation. SCHILLING TUTORIAL at 855 ("the band spread is accomplished by means of a code with is independent of the data"); CFR REGS. at 337 ("the bandwidth is deliberately widened by means of a spreading function"); '643 patent at 1:58-59 (spreading is "accomplished using a chip-code signal which is independent of an information-data signal"); '908 patent at 1:54-60 (despreading occurs by "using a product detector with a chipping sequence . . . or a matched filter having an impulse function matched to the chipping sequence"). 9 Further, the importance of the means for modulation is highlighted by the '322 patent's repeated references to chip sequence signals and chip sequence signal generators. See, e.g., '322 patent at 2:16-17, 3:23, 6:17-19, 6:28; see also id., Figs. 1, 2, 4, 5. Merely defining this term by the result of the modulation is insufficient, and as a result, the Court finds that it is necessary to define the "spread-spectrum" terms by the signal spreading means. See, e.g., SCHILLING TUTORIAL at 855 ("The means by which the spectrum is spread is crucial.").

--- Footnotes ---

9 Newton's Telecom Dictionary is the only exhibit which does not explicitly define spread-spectrum in terms of the means for modulation. Instead, this exhibit notes that, "[s]pread spectrum takes an input signal, mixes it with FM noise, and spreads the signal over a broad frequency range." TELECOM DICT at 672. However, even the FCC Decision submitted by Defendant, which was not discussed in detail previously, defines spread-spectrum in terms of the means for modulation, further supporting this Court's conclusion. See FCC DECISION at 7 ("the bandwidth is deliberately widened by means of a spreading function").

--- End Footnotes ---
Therefore, the Court finds that a spread-spectrum system is a wireless communications system in which data to be transmitted is processed with one or more codes to generate a signal which is distributed across the available bandwidth. Incorporating that definition, the term "spread-spectrum subchannel signals" is properly construed as "signals, corresponding to each of the subchannels of data, which have been processed with one or more codes that distributes each signal across the available bandwidth."

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A. The District Court's Claim Construction

The district court looked to the prosecution history of the '745 patent to interpret the claim term "sputter-deposited dielectric." The district court concluded the prosecution history requires that a "sputter-deposited dielectric" be formed by a one-step reactive sputtering process and specifically not by a two-step process in which a metal layer is first deposited and then later oxidized. Because Cardinal's titanium oxide layer is formed by a two-step process in which the titanium is first deposited as a metal layer and then later oxidized, the district court concluded Cardinal's titanium oxide layer could not be a "sputter-deposited dielectric." Because Cardinal's product does not have a "sputter-deposited dielectric" layer "directly contiguous" with the silver layer, the district court further held that, as a matter of law, Cardinal's product could not literally infringe the '745 patent.

6 Although the district court erred in assuming that the entirety of Cardinal's dielectric layer, rather than only the titanium oxide layer, was formed by a two-step process, this error did not undermine the court's analysis because claim 14 requires that the "sputter-deposited dielectric" layer be "directly contiguous" with the silver layer. Thus, if the titanium oxide layer, which is "directly contiguous" with the silver layer, cannot be described as a "sputter-deposited dielectric," Cardinal cannot literally infringe that claim even though its zinc oxide layer can be described in this manner.

We agree with this analysis. Arguments and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims. E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1438, 7 U.S.P.Q.2d (BNA) 1129, 1135 (Fed. Cir.), cert. denied, 488 U.S. 986, 102 L. Ed. 2d 572, 109 S. Ct. 542 (1988). The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution. ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580, 6 U.S.P.Q.2d (BNA) 1557, 1561 (Fed. Cir. 1988); Senmed, Inc., 888 F.2d at 818-20, 12 U.S.P.Q.2d (BNA) at 1511-13 (rejecting patentee's interpretation of claim term "on" as inconsistent with position taken during prosecution of patent application). Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers. Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562, 19 U.S.P.Q.2d (BNA) 1500, 1504 (Fed. Cir. 1991).

In the office action, dated July 5, 1988, the examiner made only one rejection based on prior art, rejecting all the pending claims as anticipated by, or alternatively, as obvious in view of Franz, U.S. Patent No. 3,846,152:

Franz teaches employing alternate layers of metal/metal oxide to a transparent substrate such as glass or plastic and the use of a protective layer to make a transparent heat reflecting window . . . . The metal layer is sputter deposited and the metal oxide layer is sputter deposited as a metal and then oxidized, see col. 4, lines 25-28. It is unclear whether the "metal oxide is sputter-deposited" limitation is meant to encompass the situation where the metal oxide is sputter deposited as a metal and later oxidized. Until clarification the examiner most [sic, must] interpret the claims broadly.

In response, Southwall amended an independent claim to describe the dielectric as a "sputter-deposited inorganic metal oxide, compound or salt." 7 Southwall explained the amendment:

7 Earlier versions of some original '745 claims had also used the narrower limitation "inorganic metal oxide, compound or salt" rather than "dielectric," which was used later. Although Southwall attempts to make much of this difference, it does not
affect our analysis because in both instances the key phrase the meaning of which is at issue, "sputter-deposited," is used in exactly the same manner, to modify the general class of dielectric materials as the list of specific dielectric materials. The arguments regarding the "sputter-deposited inorganic oxide, compound or salt" made during prosecution are thus relevant to our interpretation of "sputter-deposited dielectric" for purposes of literal infringement as well as to the application of prosecution history estoppel to limit the range of equivalents accorded that term.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

It is believed that the claims as last presented distinguished patentably over the Franz and Yatabe disclosures but to provide yet additional clear bases for distinction the claims have been amended to specify that the dielectric layer is laid down as a sputter-deposited inorganic metal oxide, compound or salt[.] As pointed out in the specification such layers can be laid down directly by reactive sputtering processes in which the metal is sputtered off of a metal target and directly converted to the oxide, compound or salt by the presence of a suitable gaseous reactant.

(Emphasis added.) In this response Southwall necessarily disclaimed the examiner's interpretation of "sputter-deposited" metal oxides as encompassing a two-step process in which metal is first deposited as a metal and then oxidized. In contrast to the examiner's interpretation in his office action being responded to, Southwall explained that its sputter-deposited dielectric is laid down in a one-step reactive sputtering process. Thus, the prosecution history limits the interpretation of "sputter-deposited dielectric" layer to exclude any dielectric layer formed by the two-step process. Because Cardinal's titanium oxide layer is formed in this manner it cannot be a "sputter-deposited dielectric."

Southwall argues, however, that Cardinal's two-step process is an indirect method of forming a "sputter-deposited dielectric," but is still a sputter-deposition process because Cardinal's titanium dioxide layer exists only by virtue of sputter-deposition. The titanium metal is sputter-deposited and converted to the oxide during sputter-deposition of zinc oxide. According to Southwall, the statement in the prosecution history, "such layers can be laid down directly" implies that the layers can also be laid down indirectly. However, Cardinal's titanium oxide layer is not laid down by sputter deposition as defined in the '745 patent, only the titanium metal layer is. The titanium oxide is formed by treating deposited titanium metal with oxygen. Although this occurs while a different material, zinc oxide, is being sputter-deposited, the reason for the presence of the oxygen does not change the post-deposition oxidation process by which the titanium oxide is formed and does not convert that process into a sputter deposition, i.e., a one-step process.

Because we conclude that a "sputter-deposited dielectric," as that term is used in claim 14, cannot be formed by a two-step process in which a metal layer is first sputter-deposited and then oxidized, we can only conclude that Cardinal's product does not have a "sputter-deposited dielectric" layer "directly contiguous" with the silver layer. Therefore, like the district court, we hold that as a matter of law Cardinal's product cannot literally infringe the '745 patent.

B. Southwall's Arguments

Southwall argues that "sputter-deposited dielectric" must be interpreted to also include a dielectric layer formed by the two-step deposition process oxidizing it because Southwall presented evidence that persons of ordinary skill in the art construe the expression to include any dielectric that results from materials laid down by sputtering. Southwall's evidence is affidavit testimony by its two experts describing Cardinal's titanium oxide layer as a "sputter-deposited dielectric." Alternatively, Southwall argues that any conflict between its experts and the prosecution history as to the meaning of "sputter-deposited dielectric" creates a genuine fact issue which makes summary judgment inappropriate.

Southwall imposes a contorted and incorrect analytical framework on the issues of claim interpretation and literal infringement when it argues:

2. The uncontroverted testimony of the experts below establishes that those skilled in the art consider a dielectric layer formed either by reactive sputter-deposition or by sputter up-oxidation [the two-step process] of a sacrificial layer to constitute a "sputter-deposited dielectric." Thus, the term "sputter-deposited dielectric" is literally met by the accused Cardinal structure;

3. Therefore, since the claim as written literally describes the Cardinal structure, the arguments made with respect to that term in the file history must be reviewed to determine whether that expression was given a special meaning in Southwall's
arguments which excludes the Cardinal structure. If the phrase was accorded a special meaning in the file history, a determination must be made as to whether the file history should be used merely to "interpret" the claims, or whether a file history estoppel by argument exists as to one or more of the claims.

Appellant's Brief at 35.

Southwall's framework fails in several respects. First, the evidence offered by Southwall does not establish the ordinary meaning of "sputtered-deposited dielectric" to one skilled in the art. In his declaration Dr. Stephen F. Meyer merely stated "it seems to me that [Cardinal's] dielectric layer as a whole (including both the titanium dioxide [sic. oxide] and the zinc oxide) could quite fairly be characterized as a 'sputter-deposited dielectric.'" Similarly, Robert L. Cormia's declaration states, "it is my opinion that the 'titanium' barrier layer that Cardinal deposits immediately after each of the silver layers is a 'sputter-deposited dielectric' in the LOE2 coatings, as that phrase is used in the '745 Patent." Neither Meyer nor Cormia testified as to how one skilled in the art would interpret the term "sputter-deposited" when viewed in light of the claims, specification and prosecution history. This testimony provides only conclusory legal opinions as to whether Cardinal's titanium oxide is a "sputter-deposited dielectric" rather than evidence of how that term is commonly used and understood in the art. See Becton Dickinson & Co., 922 F.2d at 797, 17 U.S.P.Q.2D (BNA) at 1100 (affidavit of expert on what constitutes an "extension" in the context of the asserted claim was only legal opinion which did not create a material fact issue).

Second, Southwall assumes that a claim term is only interpreted by first looking to its meaning in the art and then limiting that meaning in accordance with any relevant prosecution history, by either interpretation or prosecution history estoppel. The terms in a claim, however, are not given their ordinary meaning to one of skill in the art when it appears from the patent and file history that the terms were used differently by the applicant. Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387, 21 U.S.P.Q.2D (BNA) 1383, 1386 (Fed. Cir. 1992). A patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history, and treat the claims as a "nose of wax." Senmed, Inc., 888 F.2d at 819 n.8, 12 U.S.P.Q.2D (BNA) at 1512 n.8. In other words, evidence extrinsic to the patent and prosecution history, such as expert testimony, cannot be relied on to change the meaning of the claims when that meaning is made clear by those documents.

Because the meaning of "sputter-deposited dielectric" as used in claim 14 is clear from the prosecution history of the '745 patent, Southwall's expert affidavits cannot alter that meaning. Even if Southwall could show that "sputter-deposited dielectric" has a meaning to one skilled in the art different from the definition in the '745 specification and file history, the definition in the patent documents controls the claim interpretation. See Markman, slip op. at 21. Thus, we may not consider Southwall's opinion expert testimony as we interpret claim 14 as a matter of law. Because the expert testimony is entitled to no weight, it cannot create a genuine issue of material fact precluding summary judgment. Claim interpretation, as a question of pure law, is amenable to summary judgment and disagreement over the meaning of a term within a claim does not necessarily create a genuine issue of material fact. See id. at 18; Intellicall, Inc., 952 F.2d at 1387, 21 U.S.P.Q.2D (BNA) at 1386. Any other rule would be unfair to competitors who must be able to rely on the patent documents themselves, without consideration of expert opinion that then does not even exist, in ascertaining the scope of a patentee's right to exclude.

Third, Southwall seems to imply that principles of prosecution history estoppel are relevant in the claim construction step of a determination of literal infringement. There is, however, a clear distinction between following the statements in the prosecution history in defining a claim term, and the doctrine of prosecution history estoppel, which limits expansion of the protection under the doctrine of equivalents when a claim has been distinguished over relevant prior art. Biodex Corp. v. Loredan Biomedical, Inc., 946 F.2d 850, 862, 20 U.S.P.Q.2D (BNA) 1252, 1262 (Fed. Cir. 1991), cert. denied, 504 U.S. 980, 119 L. Ed. 2d 579, 112 S. Ct. 2957 (1992). Claim interpretation in view of the prosecution history is a preliminary step in determining literal infringement, while prosecution history estoppel applies as a limitation on the range of equivalents if, after the claims have been properly interpreted, no literal infringement has been found. See Senmed, Inc., 888 F.2d at 819-21, 12 U.S.P.Q.2D (BNA) at 1511-13. The limit on the range of equivalents that may be accorded a claim due to prosecution history estoppel is simply irrelevant to the interpretation of those claims.

Southwall further argues that the district court erred by failing "to recognize that in some claim combinations, the two-step process would not be literally covered by the claims, while in other claim combinations, the claim may be patentable for other reasons and literally cover a two-step dielectric process." Appellant's Brief at 44. Southwall then presents extended discussion tracing the development of claim 14 from the application through the prosecution to show that the cited
arguments it made during prosecution did not apply to any earlier version of claim 14.

Whether claim 14 derived from any application claim discussed in the prosecution history is irrelevant to our interpretation of claim 14 in light of that history. "Sputter-deposited dielectric" cannot be interpreted differently in different claims because claim terms must be interpreted consistently. See Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632, 3 U.S.P.Q.2d (BNA) 1109, 1113 (Fed. Cir. 1987), cert. denied, 484 U.S. 1027, 98 L. Ed. 2d 764, 108 S. Ct. 751 (1988).

Interpretation of a disputed claim term requires reference not only to the specification and prosecution history, but also to other claims. Id. at 631, 3 U.S.P.Q.2d (BNA) at 1112. The fact that we must look to other claims using the same term when interpreting a term in an asserted claim mandates that the term be interpreted consistently in all claims. Id. at 632, 3 U.S.P.Q.2d (BNA) at 1113 (examining use of term "standard" in nonasserted claims to interpret same term in asserted claims). Accordingly, arguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary.

II. Infringement Under The Doctrine of Equivalents


The issue presented by this appeal is whether, because of the manner of its manufacture, Cardinal's titanium oxide layer is excluded, as a matter of law, from the range of equivalents that can be accorded the limitation "sputter-deposited dielectric." 8 The district court applied prosecution history estoppel in holding that the range of equivalents could not extend to Cardinal's dielectric layer because, "the Examiner specifically rejected any process where the 'metal oxide is sputter-deposited as a metal and later oxidized.' The Cardinal process is such a process." Slip op. at 20. Having concluded that the range of equivalents accorded this limitation in claim 14 could not encompass Cardinal's titanium oxide layer, the district court correctly held that as a matter of law Cardinal's product could not infringe the '745 patent under the doctrine of equivalents.

8 Cardinal does not contest for purposes of this appeal that "but for" the titanium oxide sacrificial barrier layer, factual issues exist as to whether its product infringes claim 14 under the doctrine of equivalents. Because claim 14 recites a "sputter-deposited dielectric" layer which is "directly contiguous" with a silver layer, additional layers in Cardinal's product intervening between its own "sputter-deposited dielectric" and silver layers would prevent infringement because a limitation would be entirely lacking from the accused device. Southwall suggests no way in which Cardinal's product can satisfy the "directly contiguous" limitation, even equivalently, if the titanium oxide layer is not a "sputter-deposited dielectric."

1. "Second Stage"

Fiori asserts that claim 28 calls for a "second stage," operatively coupled to the first stage, for generating an output signal which is a sum of the at least one intermediate signal generated in the first stage minus a potential of the at least one return reference signal plus an output return reference signal. (Pl.'s Markman Br. at 27-28.) Fiori claims that the specification of
the Reissue Patent provides explicit guidance as to the meaning of this terminology. According to Fiori, "second stage" is clearly described in an example as an operational amplifier in connection with resistors. 

n27 As set forth at column 7, lines 24 to 44, the process whereby this output operational amplifier produces a potential at its output which is a sum of the intermediate signal generated in the first stage minus a potential of the one return reference signal plus an output return reference signal.

Defendant submits that the "second stage" of claim 28 of the Reissue Patent specifies a gain factor of one (1). (Def.'s Markman Br. at 2, 31.) Rockford claims that the specification in the Reissue Patent and a comparison of claims 28 and 36 illustrate that the patent uses the word "proportional" synonymously with "gain." Rockford concludes that claim 36 defines the term "intermediate signal" as "the sum of the input source reference potential and a proportion of the input signal." Id. at 31. According to Rockford, "sum" cannot inherently encompass gain because if it did, the word "proportion" would add no meaning to claim 36. Id. Thus, similar to "output portion" of claims 1 and 17, Rockford argues that claim 28 specifies a gain factor of one (1) because the ordinary meaning of the words of claim 28 specify such and the claim calls for addition and subtraction of signals without multiplication. Id.

As previously discussed, there is no gain factor recited in either patent-in-issue. There is no requirement that "gain" have any value in any of the claims, let alone a requirement that gain have a value of 1 or unitary gain. Moreover, similar to its previously discussed interpretation of the term "output stage," Rockford overwhelmingly relies upon the testimony and the intent of the inventor Fiori. As previously stated, the testimony and the intent of the inventor offers extremely little probative value in determining the scope of the claims, except to the extent that it is documented in the prosecution history. See Engel Indus., Inc. v. Lockformer Co., 96 F.3d 1398, 1405 (Fed. Cir. 1996) (citing Markman, 52 F.3d at 985). As a matter of law, Fiori's testimony is irrelevant to the matters which presently face this Court. Thus, Rockford's interpretation of the term "second stage" is erroneous and unsupported. Finally, an indefinite article "a" in patent parlance, as in the "a sum" clause of claim 28 carries the meaning of "one or more" in open ended claims containing the transitional phrase "comprising." KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351 (Fed. Cir. 2000). Thus, Rockford's interpretation that claim 28 specifies a gain factor of one (1) is erroneous and unsupported by intrinsic evidence.

GO BACK

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5. "staging data in a first said plurality of transformation components"

The phrase "staging data in a first said plurality of transformation components" appears in claim one of the '990 patent. Claim one reads (with the disputed phrase in bold):

1. A computer implemented method for transforming data in a data warehousing application, comprising the steps of:

   specifying at least one source containing data;
   constructing a plurality of transformation components for manipulating data according to pre-determined sets of rules;
   coupling the transformation components to form one or more pipelines;
   specifying a target for storing data generated by one or more of the pipelines;
   staging data in a first of said plurality of transformation components; and
   streaming data in a second of said plurality of transformation components, wherein said staging and said streaming of data are performed automatically by software without human intervention.
Informatica proposes the definition "in a first transformation component, storing some amount of incoming data far processing." BODi proposes the construction "Staging data is the storing of incoming data fields as the transformation component processes the data fields. The degree of requisite staging by each transformation component is automatically determined and implemented, without any human intervention. Depending on the nature of the transformation, each transformation component will automatically select the optimal amount of staging. The staging can range continuously from zero staging (also known as streaming) to full staging."

Informatica contends that the term "staging" when used in the context of data is generally understood in the field to mean storing data prior to processing. Further, Informatica maintains that the patent sets out that staging can range continuously from zero, which is referred to as streaming, to full staging. Therefore, staging involves storing some amount of incoming data. BODi derives its proposed construction from the Summary of the Invention section of the specification. The complete text surrounding the language BODi urges states (with the BODi's proposal in bold):

The autonomy of each transformation software component is manifested in two dimensions: The first dimension of a component autonomy relates to how each transformation component implements staging (storing) the incoming data fields as it processes these data fields. The degree of requisite staging by each transformation component is automatically determined and implemented, without any human intervention. Depending on the nature of the transformation, each transformation component will automatically select the optimal amount of staging. The staging range continuously from zero staging (also known as streaming) to full staging. A transformation with zero staging is called streaming transformation. The second dimension of component autonomy relates to how each transformation component automatically selects its own mode of manipulating data input/output. Depending on the nature of the transformation, each transformation component, together with the server, automatically selects a push mode, a pull mode, or a push and pull mode that optimizes throughput.

Informatica posits that BODi's construction is incorrect for two primary reasons. First, the portion of the specification upon which BODi relies is discussing only a preferred embodiment. Second, the proposed construction reads into this term specific features that are included separately in the claim language, namely that the requisite degree of staging of data is performed automatically by software without human intervention. The Court agrees that BODi's construction results in redundancy in the claim language and renders portions of the remaining claim language superfluous. Claim one explicitly teaches that "staging and said streaming of data are performed automatically by software without human intervention." It is unlikely that the patentee contemplated that the phrase "staging data in a first said plurality of transformation components," appearing earlier in the same claim, also contained that feature. Indeed the additional text would be unnecessary if persons of skill in the art understood that staging data in a first said plurality of transformation components inherently serve such a function.

The Court adopts Informatica's proposed construction and construes the phrase to mean: In a first transformation component, storing some amount of incoming data for processing.

4161

A. "Data aggregation server" and "stand-alone data aggregation server"

The term "data aggregation server" appears with the modifier "stand-alone" only in the preamble of independent claim 1 and in the preambles of its dependent claims. As used in claim 1, it is apparent that "data aggregation server" and "stand-alone data aggregation server" refer to the same structure. See '544 patent at claim 1 ("A stand-alone data aggregation server" later referred to as "the data aggregation server comprising"). Hence, although these terms were briefed separately, the court construes them simultaneously.

Hyperion contends that "data aggregation server" means a "computer system programmed to perform data aggregation functions and not analysis or graphical user interface functions." Joint Cl Const at 48. Hyperion further contends that a "stand-alone data aggregation server" is a "data aggregation server that is external (self-contained) and operable independently from an OLAP server." Id at 51.

HyperRoll contends that both of these terms should not be construed because Hyperion did not assert they needed
construction in Hyperion's original Pat L R 4-1 contentions. Id at 48. Hyperion also contends that these terms do not need to be construed because they appear in only the preamble of the claims. HyperRoll Br at 4, 7. To the extent the court does construe these terms, HyperRoll defines "data aggregation server" as a "system or computer program for performing data aggregation functions" and "stand-alone data aggregation server" as a "data aggregation server that works with an independently operable OLAP server." Joint Cl Const at 48, 51.

First, the preamble of independent claim 1 appears to limit claim scope because limitations in the bodies of various claims derive their antecedent basis from the preamble. Compare '544 patent at claim 1 preamble ("A stand-alone data aggregation server for use with any one of a plurality of different OLAP servers **.") (emphasis added)) with id at claim 1 body ("the interface receiving requests communicated from any one of said plurality of different OLAP servers") and id at claim 2 body ("wherein the plurality of different OLAP servers comprise a plurality of different OLAP servers distributed by different vendors"). See also Catalina Marketing Intl, 289 F3d at 808 ("[D]ependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention. Likewise, when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope.").

Turning to construction of the term, the crux of the dispute between the parties appears to center on two issues: (1) whether the data aggregation server can perform "analysis or graphical user interface functions" or whether it is limited to performing "data aggregation functions" and (2) whether the data aggregation server is "external (self-contained) and operable independently from an OLAP server" or whether the server merely works with an independently operable OLAP server.

Regarding the first issue, the court finds that Hyperion's construction improperly limits the functions that a data aggregation server can perform. This is evident based on dependent claim 5, which states: "The stand-alone data aggregation [sic] server of claim 1, wherein computational tasks performed by the aggregation engine is [sic] restricted to data aggregation operations." Because Hyperion's proposed construction would render this claim superfluous, it conflicts with the doctrine of claim differentiation and is disfavored. See Free Motion Fitness, 423 F3d at 1351 (Fed Cir 2005) (quoting Comark, 156 F3d at 1187). On the other hand, HyperRoll's proposed definition for "aggregation server" is consistent with the specification and claim language. See, e.g., '544 patent at 10:17-21 ("[T]he stand-alone Aggregation Server [in FIG 6A] performs aggregation functions (e.g. summation of numbers, as well as other mathematical operations, such as multiplication, subtraction, division etc) and multi-dimensional data storage functions"); id at claim 1 (the "data aggregation server" includes an "aggregation engine" that "perform[s] data aggregation operations").

Regarding the second issue, HyperRoll appears to interpret the modifier "stand-alone" as requiring the OLAP server to be "independently operable." But "stand-alone" does not modify "OLAP server"; "stand-alone" modifies "aggregation server," thereby suggesting that the aggregation server must be the claim element that is able to stand by itself.

But what does it mean to "stand alone?" The specification uses the term "external" interchangeably with "stand-alone." See '544 patent at 6:52-53 ("novel stand-alone (i.e., external) data aggregation server"). The specification also teaches that a stand-alone aggregation server could be physically external to an OLAP server. See, e.g., id at 13:19-27 ("[T]he Aggregation Server 603 can be plugged into (e.g. interfaced to) OLAP Servers (two shown as 605' and 605") of different users or vendors. ** This dramatic move discontinues the restricting dependency of aggregation from the analytical functions of OLAP **."). But the specification further teaches that a "stand-alone" aggregation server need not be physically external to the OLAP server, as demonstrated by one embodiment in which the data aggregation server "shares the same hardware platform and operating system (OS) that is used to run the [OLAP server]." Id at 15:44-46. Hence, "standing alone" does not necessitate physical separation between the aggregation server and the OLAP server.

Rather, the specification consistently describes the "stand-alone" aggregation server as functionally separate from, but working with, an OLAP server. See, e.g., FIGS 6A, 6E, 7A, 7B. It would appear that, at a minimum, this would require the software module for the stand-alone aggregation server to be "separate" from the software module for the OLAP server; otherwise, the "stand-alone" limitation would be meaningless. This usage fits with Hyperion's proposed construction, which requires the "stand-alone aggregation server" to be "external [to] and operable independently from an OLAP server." Relevant technical dictionaries also support Hyperion's construction. See Webster's New World Computer Dictionary 354 (10th ed 2003) ("standalone *** [s]elf-sufficient; not requiring any additional component or service"); IBM Dictionary of Computing 644 (10th ed 1994) ("stand-alone *** [p]ertaining to operation that is independent of any other device,
In sum, the court adopts HyperRoll's definition of an "aggregation server" as a "system or computer program for performing data aggregation functions." The court adopts a blend on the parties' constructions for a "stand-alone aggregation server," which is "an aggregation server that could operate independently from, but works with, an OLAP server."

### 4162

(5) Standard Control Module

Independent claim 1 includes the term "standard control module." The parties propose the following meanings to this term:

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>A controller that controls features or components installed by the OEM.</td>
<td>Indefinite, limited to body control module (CBM); or simply another controller.</td>
</tr>
</tbody>
</table>

Braun's and VMI's interpretations of "standard control module" concentrate on two different things. Braun defines "standard control module" by what it controls, that is, features or components installed by the OEM, whereas VMI defines the same instrument by what it is, namely, a mere controller or a body control module ("CBM"). In a word, neither definition excludes the other.

Therefore, the Court adopts Braun's definition: "standard control module" is a controller that controls features or components installed by the OEM. Neither the claims nor the specification limit the "standard control module" to just body control module, as suggested by VMI. At the same time, the specification recognizes that a "standard control module" need not be a device installed by the OEM (see '628 Patent col. 4:64-65 ("Standard control module is typically an OEM installed component." (emphasis added); see also id. at col. 5:5-8 ("... standard control module [is] standard component[] supplied by a manufacturer of vehicle or installed by the vehicle owner or a third party." (emphasis added))); it only controls OEM equipment.

### 4163

13. "[S]tandardized tasks:" 13 "Tasks commonly performed." The parties agree with the court's construction. The specification provides that the task library contains the list of "all the standardized tasks across the organization," col. 104:66-67, thus suggesting that "standardized tasks" are tasks common to the entire organization. The court's construction results from supplementing this sparse intrinsic guidance with the plain and ordinary understanding of "standardized" as "common."

--- Footnotes ---

13 '284 patent, claim 3.

--- End Footnotes ---
Cisco's proposed construction for "standby router" is "a router that backs up the active router and may become the active router under certain circumstances." Alcatel's proposed construction is "the router operating in the standby state based on an election to designate that router as the router that will assume the duties of the active router when the active router leaves the network."

Once again, the parties' arguments follow the same pattern: Alcatel argues that, because this is not a term generally known to one of ordinary skill in the art, the Court must look to the patent specification to ascribe meaning to the term; Cisco argues that the claim language does not limit the term in the manner that Alcatel suggests, and hence the term should be construed as broadly as the claim language supports. Again, the Court finds it necessary to look to the language and the purpose of the patent in order to discern the claim term's intended meaning, which cannot be inconsistent with the manner in which the term is used in the claims. See Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d at 1332 ("The specification of the patent in suit is the best guide to the meaning of a disputed term."); Apple Computer v. Articulate Sys., 234 F.3d at 25.

The essential differences between the parties' proposed constructions for "standby router" is that Alcatel contends that (1) there can only be one standby router existing at a given time, (2) the standby router is selected by an "election," and (3) the standby router will automatically assume the duties of active router when the active router leaves the network. Cisco's proposed construction does not contain these limitations.

Alcatel points to portions of the specification that support its construction. In particular, the specification describes an example of when the standby router is selected by election, in order to replace the previous standby router that automatically took over as the active router when the previous active router left the group. See Li, at 9:6-26. Furthermore, the specification and the claim language appear to contemplate only one standby router operating at a time. See, e.g., Li, at 9:67-10:11, 17:67-18:1.

However, Cisco points out that claim 19 adds an additional limitation to claim 10 that includes a "means for determining a priority of the routers in the network segment." Id. at 18:47-50. Cisco contends that the routers' priorities are the values by which an election may be held, 37 and thus the standby router discussed in claim 10 cannot be limited to a designation by election, because the criteria used in such an election (i.e. the routers' priorities) are specifically incorporated in dependent claim 19.

Nevertheless, there is no other indication in the patent of how the new standby router is to be designated once the previous standby router becomes the active router, other than by election. This process is so fundamental to the patent, that it is even explained in the abstract: "If the standby router becomes inoperative or takes over for the active router, other routers in the group hold an election to determine which of them should take over for the standby router." Li, at Abstract. However, nothing in the claims or the specification require that the standby router always be designated by election (for example, if the network administrator chooses to designate the standby router), and therefore the Court will not read this requirement into the claim.

Finally, while the patent allows for only one router to function as the standby router at a given time, as Alcatel asserts, the patent does contain instances where the standby router does not become the active router when the active router leaves the network, as Cisco asserts. In particular, when the active router resigns in response to a coup message, as defined above, the active router unicasts a resign message to the sender of the coup message, and the sender, not the standby router, then becomes the active router. See Li, at 12:61-13:3. However, the patent does require that the standby router automatically

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become the active router when the standby router receives a resign message from the active router, or when the standby router does not receive a hello message from the active router within a specified amount of time. See, e.g., Li, 14:1-7, 14:57-15:3. Additionally, the patent recognizes other scenarios under which a standby router will become the active router. See id. at 9:60-64.

Therefore, the Court construes the term "standby router" to mean "the router that backs up the active router and becomes the active router under certain circumstances, such as upon receipt of a resign message from the active router, or when a hello message is not received from the active router within a specified amount of time."

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(3) star-topology network

N-Data and National both agree that the court should give this term its plain and ordinary meaning. N-Data also provides an alternative construction. Dell asserts that the court should construe the term in accordance with the specification. N-Data argues that Dell's definition improperly includes unnecessary configuration and activity requirements. Dell points to a specific paragraph of the specification, which states "[p]referably, the present system is implemented as a star-topology network with data sources transmitting to a central hub which, in turn, transmits the data to data sinks. A single node can act as both a source and a sink." '261 Patent, col. 4, ll. 10-16 (emphasis added). This cited passage clearly defines what the patentee intended "star-topology network" to require.

As such, the court defines "star-topology network" as follows: "network configuration with data sources transmitting to a central hub which then transmits the data to data sinks. A node can act as both a data source and a data sink."

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2. starting a formatting process for said optical disc as a background process (claims 8 and 9)

Plaintiff's Construction: "Starting formatting of an optical disc, which an optical disc drive does as a background process"

Defendants' Construction: "initiating or beginning a formatting operation for said optical disc, in which a recording operation or a reproducing operation can be accepted while the formatting operation is being performed"

This term represents the strongest example of the parties' tendency to make much ado about nothing. Plaintiff admitted when addressing this term at the hearing that "the distinction between parties' position[s] is not obvious from looking at their proposed constructions." Dkt. # 186, at 42. I will take this one step further by saying that the substance of the parties' respective definitions is essentially identical, with the only difference being that defendants propose replacing the word "starting" with "initiating or beginning." However, during the hearing, defendants conceded that "I think everyone pretty much knows what starting means." Dkt. # 186, at 55.

If the parties' constructions are the same, what is the dispute about? Both in its briefs and at the hearing, plaintiff devoted much argument to the question whether the formatting process must remain in the background at all times. However, nothing in plaintiff's proposed construction reflects the answer to this question and I am not going to invent a construction when neither side advanced one, particularly because the term addresses the "starting" of a formatting process, not any other part. Plaintiff argues also that this term should not be construed to require that the formatting process begin as a background process. On its face, this proposal is directly contrary to the claim language. Plaintiff does not explain how "starting a formatting process . . . as a background process" can be read to mean that the formatting process does not start as a background process. In any event, plaintiff does not propose a construction that reflects its understanding. Accordingly, I conclude that this term cannot be construed further at this time.

Court's construction: No construction needed.

GO BACK

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7. First state and second state.

Samsung contends that the court should define the terms "first state" and "second state" to mean modes of operation. In other words, an accused device would operate in a "first state" or "first mode of operation" and a "second state" or "second mode of operation." Samsung argues that O2, in the case against MPS, suggested a similar construction. In particular, Judge Wilken's order reflects O2's argument that "conduction state" should be construed with reference to the ordinary usage of "state." O2 contended that the ordinary usage of "state" was the "mode or condition of something." Moreover, O2 sponsors a similar definition in this case. See O2's Amended Opening Claim Construction Brief, at 28 ("Rather, 'conduction state' means 'the mode of a switch, either on or off'). This court agrees that the ordinary usage of state means the "mode or condition" of something and as such defines a "state" for purposes of this case to mean "a mode or condition." The term "first state" means "first mode or condition" and the term "second state" means "second mode or condition.

Changes in State Characteristic of an Event

Claims 1, 20, and 40 of the '525 Patent contain the term "changes in state characteristic of an event." SFA contends that the term means "changes in information relating to the status of an event." SFA argues that its definition is in accord with technical dictionaries that define "state" as "status." SFA suggests that the word "status" is more commonly understood than "state" and will thus aid the jury in understanding the scope of the patent. Defendants contend that the term is indefinite, but alternatively argue that the term means "changes in a data field stored in the database of the event manager." Defendants urge that because the term is borderline ambiguous, the term should be limited to the four corners of the preferred embodiment disclosed in the specification in order to serve the notice function of the claim. In support of their indefiniteness argument, Defendants suggest that the patentee served as his own lexicographer in defining "state characteristics" but failed to provide any soluble definition. However, as explained below, the term is not indefinite and means "a change in a unique configuration of information within the system that is indicative of the occurrence of an event within the system."

Both parties provided definitions for the term "state characteristics," and assumed that the patentee had coined the noun "state characteristics" to describe some aspect of an event. However, the term "state characteristics" never appears in any of the claim language. In fact, the proper reading of the phrase separates "state" from "characteristic" and applies the term "characteristic" as an adjective. Therefore, the correct reading is to the effect that changes in state are characteristic of an event occurring within the system.

The confusion regarding this term is understandably based on the Patent's prosecution history. In response to a rejection of all the claims in the original patent application as obvious in light of prior art (specifically the "Negrino reference"), the claims in the application were dramatically amended. See Plaintiff's Opening Construction Brief Ex. 2, Amendment of December 10, 1997. The phrase "changes in state characteristic of an event" was first added to the claims during this amendment. Id. at 2, 7-8. In conjunction with these amendments, and in an attempt to distinguish the invention from the Negrino reference, the patentee explained that the invention "has the ability, based on the particular changes in state detected, to infer the particular context in which the event occurs." At this stage of the prosecution history, there is no reference to events having "state characteristics" or the patentee's intention to be his own lexicographer with respect to the term. Similarly, there seems to be no indication that the patent examiner mistook the phrase "state characteristic" to be a new term coined by the patentee. See Plaintiff's Opening Ex. 2, Office Action dated March 1, 1998 at 5. However, the examiner rejected claim 1 as indefinite for failing to particularly point out the subject matter of the invention. Specifically, the function of the "event manager" was described in claim 1 as "inferring occurrence of an event based on detecting a change in state characteristic to said event," and then described in the specification as "recognizing the occurrence of events and then determining the context in which the event occurred." The examiner believed that because of the differences in these descriptions, the patentee was describing the "event manager" as having inconsistent functions. Id. at 5-6.
In response to the March 1998 office action, the patentee explained that the two descriptions described the same function. See Plaintiff's Opening Ex. 2, Amendment of July 14, 1998 at 2. The term "state characteristics" first appears in that explanation. In trying to provide a word-for-word translation of the two descriptions the patentee sloppily equated both the occurrence and context surrounding an event (words used in the specification description) with "state characteristics" (words used in the claim description). In reviewing this word-for-word translation, the examiner incorrectly concluded that the patentee was attempting to redefine "state characteristic" in order to conform the claim description with the description in the specification. See Plaintiff's Opening Ex. 2, Office Action of September 9, 1998 at P 4 ("The Examiner recognizes that Applicants can be their own lexicographers and accepts their explanation regarding 'state characteristic of an event'.").

After reviewing the entire record including the descriptions of the function of the "event manager" in the specification and the claims, it is evident that the descriptions describe the same function to one skilled in the art without necessitating a unique definition of "state characteristic." Therefore, both sides' suggested definitions must be rejected. It is also evident that the patentee did not intend to redefine "state characteristic" when explaining the discrepancy to the patent examiner. Rather, the explanation in the July 1998 Amendment was a muddled attempt to explain that the "event manager" performs its function by recognizing changes in unique data configurations, and thus, the claim language and specification description were in agreement. A "state" is well understood in the art to mean a certain unique configuration of information. This definition of "state" is well illustrated in the specification. For example, data concerning customer interests provided to the "lead generation" component of the system will change the unique configuration of information, thus prompting the "event manager" to transfer the data to other components of the system for "action or follow-up." See '525 Patent at 11:23-26. There are numerous other examples. See, e.g. id. at 13:20-24, 15:4-16, 27:41-46. Given the examples provided in the specification, along with the generally understood definition of state, one skilled in the art would understand "changes in state characteristic of an event" to mean "a change in a unique configuration of information within the system that is indicative of the occurrence of an event within the system."

--- Footnotes ---


--- End Footnotes ---

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"Shuffler State Information"

VendingData asks the court to construe the term "shuffler state information" to mean:

either a "shuffle counting" or "card counting," where "shuffle" means "riffle."

VendingData again argues that because the dictionary offers multiple definitions for the terms "state" and "information," the terms are ambiguous and require construction. VendingData acknowledges that the term "shuffler state information" is not used in the written description, but asserts the prosecution history reflects that the patentee distinguished this claim term from the prior art Lorber patent by identifying shuffle counting and card counting as part of the display function of the shuffler. Thus, VendingData argues the patentee defined the term "shuffle cycle" for the '373 patent as "single riffle." Therefore, "shuffle counting" means "riffle counting."

The term "shuffler state information" appears in claims 8 and 9 of the '373 patent. VendingData concedes that the construction it offers is not the ordinary meaning of the term "shuffler state information." Although the terms "state" and "information" have multiple dictionary definitions, it does not take an exercise in genius to eliminate the dictionary definitions that do not apply to the claims described. The claim can easily be construed to encompass all consistent dictionary meanings. Viewed in the context of the intrinsic record before the court, it seems clear the term "shuffler state information" means "shuffle counting" or "card counting."
information" refers to information concerning the condition of the shuffler, or the machine that mixes the cards as described in the patent. VendingData has not overcome the presumption of ordinary meaning, and no claim construction is required.

E. "state object" and "state information" as used in claims 1, 9, 10, and 14.

The parties' dispute focuses on whether (i) "state object" and "state information" should have identical constructions, and (ii) if construed separately, what those constructions should be. Each question is discussed in turn.

1. State Object and State Information Are Different Claim Terms

Dispositive of this issue is the Federal Circuit's prohibition against stripping claim terms of their meaning. See, e.g., In re Gabapentin Patent Litig. 503 F.3d 1254, 1263 (Fed. Cir. 2007) (accepting district court's construction because it "gives full meaning to every word of the entire claim term"); Bicon, Inc. v. Straumann Co., 441 F.3d 945, 950 (Fed. Cir. 2006) (refusing construction that would leave a claim term with no meaning). Further, as a corollary rule, the Federal Circuit has sensibly held that "[i]n the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connote different meanings." CAE Screen Plates v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000).

The application of these principles here points persuasively to the conclusion that the patentee ascribed different meanings to "state object" and "state information," and that defendants' attempt to give an identical construction is unavailing. For example, in claims 9 and 10, substitution of "state object" for "state information" yields: "receiving[/transmitting] a state object which specifies a state object." Likewise, reverse substitution leads to the equally awkward result of "receiving[/transmitting] state information which specifies state information." Clearly, then, the terms "state object" and "state information" cannot have identical meanings because, absent evidence to the contrary, it is presumed that the patentee did not intend such redundancy. See Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc., 520 F.3d 1358, 1362-63 (Fed. Cir. 2008) (rejecting nonsensical result).

Defendants' arguments to the contrary are unpersuasive. Specifically, they point to a statement in the specification that allows the "term state object [to] also [be] used herein to refer to the state information." '670 Patent Specification col. 7 11. 26-27. While defendants correctly observe that the two claim terms can be used interchangeably in some instances, the quoted statement does not require that the claim terms bear the same construction. Indeed, it is natural to use the claim terms interchangeably in some circumstances, given their close relationship. For instance, it would be appropriate to make reference either (a) to a server's sending a state object containing state information, or (b) to a server's sending the state information itself.

In sum, because the use of different claim terms gives rise to the presumption that the claim terms should be construed separately, and because defendants present no persuasive evidence rebutting this presumption, "state object" and "state information" are given separate constructions here.

2. Construction of "State Object" and "State Information"

Plaintiff offers two separate constructions for these two claim terms. As to "state object," plaintiff proposes that the claim term be construed as "data having a predetermined structure that specifies state information." Relatedly, plaintiff proposes that "state information" be construed as "information, such as a cookie, that specifies an identity, a characteristic, or a condition of a client and/or a server." By contrast, because defendants believe the two claim terms are one and the same, they propose a single construction--"information concerning the web server's condition or transition as a result of the web user/client's request"--for both claim terms.

a. "State Object," as used in claims 1, 9, 10, and 14.

In this instance, it is appropriate to begin with the language of the claims. See Advanced Cardiovascular Sys., 265 F.3d at 1304. Here, claims 9, 10, and 14 make clear that a "state object" is the form by which "state information" is transmitted. See
'670 Patent Claims 9, 10, 14 (referring to "a state object which specifies state information"). This construction is confirmed by two embodiments found in the patent specification's summary of the invention. See '670 Patent Specification col. 2 11. 32-33 ("[S]tate information . . . is typically in the form of a state object."); id- col. 2 11. 52 (describing a "state object, which specifies the state information"). By contrast, defendants' proposed definition--"information concerning the web server's condition or transition as a result of the web user/client's request"--is more appropriately considered with reference to the claim term "state information" because it relates to the type of data transmitted, rather than its form. Accordingly, because the claim language, confirmed by the specification, makes clear that a state object contains state information, the claim term "state object" is construed to mean "data having a predetermined structure that specifies state information." 

b. "State Information," as used in claims 1, 9, 10, and 14.

The disagreement between the parties' interpretations of "state information" focuses on whether state information includes client state information, server state information, or both. Plaintiff argues that "state information" encompasses both client and server information. Defendants agree that server state information is included, but argue that client state information was disclaimed in the course of patent prosecution. Dispositive here is the specification's explicit reference to both client and server state information.

Where, as here, the ordinary meaning of the claim term is ambiguous, it is the specification that provides the "single best guide to the meaning of a disputed term." Vitronics, 90 F.3d at 1582. The parties sensibly agree that the specification describes an online shopping embodiment establishes that "state information" may contain server state information, such as memory of the products presently held in an online shopping cart. See, e.g., '670 Patent Specification col. 2 11. 60-62. In addition, the specification plainly indicates that

the client system may access a Web server that is specified in the received cookies such that the client system transmits the cookies to the server, thus providing state information about the client system to the server system.

Id. col. 7 11. 40-44 (emphasis added). Accordingly, the intrinsic evidence strongly supports a construction of "state information" that includes data pertaining to both a client or server. 18 "State information" is therefore construed to mean "information, such as a cookie, that specifies an identity, a characteristic, or a condition of a client and/or a server."

18 Defendants contend that plaintiff may not rely on the online subscription service embodiment to support its argument that "state information" includes data relating to the client because the embodiment was disclaimed during the patent's prosecution in the PTO. Whether the patentee in fact disclaimed the online subscription service need not be reached, given that the specification clearly evidences the possibility that state information may contain data about the client. Nonetheless, out of an abundance of caution, and to define the scope of the disputed claim term more precisely, it is noted that the record evidence weighs against finding a prosecution disclaimer. Importantly, a district court undertaking claim construction may only recognize a clear and unambiguous disclaimer excepting a given construction from the scope of the patent. See Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374-75 (Fed. Cir. 2008) (citation omitted). No such showing can be made here, as the prosecution history evidence points persuasively to the conclusion that the patent examiner included the online subscription service embodiment within the '670 patent's scope. Specifically, paragraph 1 of the Notice of Allowability, which states the patent examiner's reasons for allowing the patent prosecution to proceed, makes reference to the following passage, now found at column 7, lines 45-54 of the issued '670 patent:

Examples of new applications [using this claimed extension of the http protocol] include on-line shopping that stores information about items currently selected by consumers, fee-for on-line services that can send back registration information and thus free users from retyping a user-id on next connection, and Web sites that can store per-user preferences on the client system and have the client supply those preferences every time the site is later accessed.

'670 Patent Specification col. 7 11. 45-54. The patent examiner's reference to these "applications" of the claimed invention in its Notice of Allowability evidences an understanding that the online subscription service embodiment was included within the scope of the '670 Patent. Accordingly, defendants fall short of establishing a clear and unambiguous disclaimer.
C.

An additional limitation of claim 1 is found in the requirement that the "conversation type record structure" define the "state of the conversation." '603 patent, col. 8, l. 63. Although the district court did not explicitly construe the term "state of the conversation," the court determined that no reasonable juror could conclude that this limitation was not met in MONSTR because the MONSTR system defines various states of conversation such as "in-transit" and "accepted." See Action Techs., 1997 WL 337577, at *5. Furthermore, the district court determined that the action of accepting an STR has communicative content and therefore changes the state of the conversation. See id. The court noted that acceptance of an STR in MONSTR indicates to the party sending the STR that the receiving party is taking responsibility for the problem. See id.

The specification addresses "state of the conversation" as follows:

For the programming of the current embodiment the programming notational convention of naming "States of Conversations" was adopted. The notation is used in this way: a series of States, corresponding to general conditions of incompletion found recurringly in conversations, is named. Then, based upon the incompletions found in those states, rules are developed about what roles may be permitted what moves at that state.

'603 patent, col. 20, ll. 53-61. This is consistent with the ordinary meaning of the term "state" which is "a set of circumstances or attributes characterizing a person or thing at a given time." Webster's at 1309. We therefore construe the phrase "state of the conversation" to mean a set of attributes characterizing the conversation at a particular point in time. The Designing Systems reference discloses that MONSTR tracks the state of each STR and checks the state of the STR to determine what actions are permitted. See Designing Systems at 187. Specifically, the reference shows that MONSTR characterizes the conversation at a particular point in time based on the activity being performed on the STR. MONSTR tracks this information using states with names such as "generate query," "evaluate patch proposal," and "in transit." We have no difficulty concluding that the district court did not err in holding that there was no genuine issue of material fact as to whether this limitation was met in MONSTR. We reject the argument advanced by Action Tech that MONSTR does not meet this limitation because accepting an STR does not constitute acceptance of responsibility for fixing software bugs, but merely acknowledges receipt of the STR. As Communication-Oriented and Designing Systems make clear, the acceptance of an STR and the selection of options under MONSTR do have conversational significance.

b. "state transformation operation"

The parties dispute the meaning of the phrase "state transformation operation." The Court has already defined the word "state." See supra A(2). The word "transformation" is a common term generally meaning "to change." The Court finds no basis for giving the phrase "state transformation operation" any different construction than its plain ordinary meaning of "a process for changing the state." The Court declines to include in its construction the phrase "mathematical function," on the ground that its inclusion would improperly import a limitation into the claim.

1. "state variable" Used in independent Claims 1, 6, & 20 and in dependent Claim 25.

This term is commonly used in the mathematical modeling of systems. It was not specifically defined by the patentee acting as his own lexicographer. Cisco proposes that it should mean "something that represents data or a type of data that is used to determine whether to update a memory." Telecordia contends that "state variable" should be defined as "information describing an aspect of a network element."
The arguments of both parties concerning this term are terse, citing only a few places in the specification where the term is used, and making no reference to the prosecution history. In fact, "state variable" is used ten times in independent Claims 1, 6, and 20, once in independent Claim 25, and no fewer than twenty times in the specification.

Cisco points to '656 patent, col. 6, ll. 47-56, which describes three "variables" representing information about, or information stored in, a network element. The specification states that these or other "state variables stored in MIB 24" can be used to determine whether to perform a full or partial database reconciliation. '656 patent, col. 6, ll. 57-59.

Claim 1 describes how the "state variable" is used by the network manager to determine whether to update part of the memory. '656 patent, col. 13, ll. 9-16. See also, '656 patent, col. 6, ll. 3-8. Accordingly, as Cisco agreed at the hearing, describing how a state variable is used, in the definition of "state variable," is not necessary.

Telcordia suggests that a state variable is "information describing an aspect of a network element." But the specification makes it clear that each state variable represents certain information - it is not information itself. For example, the variable SRNE represents the number of set requests . . . " '656 patent, col. 6, ll. 51-53 (emphasis added). See also, '656 patent, col. 6, ll. 45-56. As soon as a value is assigned to that variable, the network manager has information about the number of set requests that have been made at that particular time.

In construing this term, one of ordinary skill in the art would know, and the parties agreed at the hearing that:

1. "Variable" means that it is a data item, the value of which can change;
2. A value can be assigned to a state variable;
3. When a value is assigned to a state variable in this case it tells us something about (or defines) a characteristic of, or event concerning, a network element.

In other words, there is no indication that the patents are using "state variable" in any way other than as commonly used by those skilled in the art, in references cited in the '656 patent, and as defined in technical dictionaries. See U.S. Patent No. 6,058,445, col. 3, ll. 34 - col. 4, ll. 14. "a variable that defines one of the characteristics of a system or component," in this case, a network element. See also, IEEE Standard Dictionary of Electrical and Electronics Terms 1040 (6th ed. 1990). The court will define this term as follows:

"State variable" means "the value of a data item, the value of which can change, that defines a characteristic of, or event concerning, a network element."

The parties dispute the meaning of "static" in "static display of prices" and "common static price axis." Plaintiff argues that the price axis is static, or unmoving, in relation to a change in the inside market. Plaintiff further argues that the patents limit the movement of the price axis in order to increase the likelihood that a trader will not miss his price. Therefore, plaintiff encourages us to adopt a construction of "price levels that do not normally change positions when new market data reflecting a change in the inside market is received," Defendants urge adoption of their various constructions, all of which limit movement of the price axis to a manual re-centering or re-positioning command. At the center of this fight is the question of automatic re-centering-do plaintiff's patents cover automatic re-centering? Plaintiff answers in the affirmative and, not surprisingly, defendants answer in the negative.

Although our preliminary injunction construction aligned with plaintiff's view, such construction was, simply put, preliminary. Jack Guttman, Inc. v. Kopykake Enterprises, Inc., 302 F.3d 1352, 1361 (Fed.Cir. 2002) ("District courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves"). Today we have a better understanding of the technology, and all parties have had
the opportunity to flesh out their arguments.

We now choose to alter our initial construction, construing "common static price axis" as "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." We construe "static display of prices" similarly, as "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Defendant eSpeed pointed us to MSN Encarta Dictionary to set forth the ordinary and customary definition of static: "motionless: not moving or changing, or fixed in position." Our search of Webster's II New College Dictionary yielded similar results: "Having no motion: at rest" While we recognize that Phillips teaches us that a dictionary definition should only be used for context. Phillips also teaches that the "words of a claim are generally given their ordinary and customary meaning."...[is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." 415 F.3d at 1312-13. Plaintiff has given us no reason to think that such a person of ordinary skill in the art would construe "static" as anything other than non-moving at the time of the invention. n4

n4 We do find it interesting that in all of plaintiffs filed exhibits with regard to claim construction, including two dictionary excerpts, plaintiff has never argued that the ordinary and customary meaning of "static" is something other than stationary or non-moving.

If "static" ordinarily means non-moving, then we cannot see how we can construe it any other way. The only exception can be the one explicitly stated in the specifications and prosecution history—movement due to receipt of a manual re-centering command. If we were to construe the term inclusive of additional unstated exceptions, such as automatic re-centering, we would not know where to stop. Defendant eSpeed aptly asks, "Why is a price display which automatically recenters after every two seconds 'static,' but a price display which automatically recenters after every five seconds is not?" Why is a price display that automatically recenters when the inside market exceeds three ticks from the center price 'static,' but a price display which automatically recenters after every fifth tick is not?" (eSpeed's post-Markman brief, at 6, n4). Plaintiff's own argument raises the same questions. Plaintiff notes, "In fact, with eSpeedometer (which contains a slow drift recentering component,) a price level never suddenly changes position under a trader's cursor causing him to miss his intended price. This is in contrast to the eSpeed product addressed by the Court at the PT hearing which provided for an instantaneous automatic recentering when the inside market moved off the top or bottom of the screen. Thus, eSpeedometer is more 'static' than eSpeed's previous product because it provides the trader with virtually a 100% guarantee that he will not miss his intended price" (plf's post-Markman brief, at 8-9, n5). n6 How can any movement be "more static"? What is static enough to fall within the ambit of plaintiff's static construction? Because we cannot say, we must construe the term "static" in its ordinary meaning, non-moving, and allow for the only exception plainly stated in the written description: manual re-centering.

We now choose to alter our initial construction, construing "common static price axis" as "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." We construe "static display of prices" similarly, as "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Defendant eSpeed pointed us to MSN Encarta Dictionary to set forth the ordinary and customary definition of static: "motionless: not moving or changing, or fixed in position." Our search of Webster's II New College Dictionary yielded similar results: "Having no motion: at rest" While we recognize that Phillips teaches us that a dictionary definition should only be used for context. Phillips also teaches that the "words of a claim are generally given their ordinary and customary meaning."...[is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." 415 F.3d at 1312-13. Plaintiff has given us no reason to think that such a person of ordinary skill in the art would construe "static" as anything other than non-moving at the time of the invention. n4

n4 We do find it interesting that in all of plaintiffs filed exhibits with regard to claim construction, including two dictionary excerpts, plaintiff has never argued that the ordinary and customary meaning of "static" is something other than stationary or non-moving.

If "static" ordinarily means non-moving, then we cannot see how we can construe it any other way. The only exception can be the one explicitly stated in the specifications and prosecution history—movement due to receipt of a manual re-centering command. If we were to construe the term inclusive of additional unstated exceptions, such as automatic re-centering, we would not know where to stop. Defendant eSpeed aptly asks, "Why is a price display which automatically recenters after every two seconds 'static,' but a price display which automatically recenters after every five seconds is not?" Why is a price display that automatically recenters when the inside market exceeds three ticks from the center price 'static,' but a price display which automatically recenters after every fifth tick is not?" (eSpeed's post-Markman brief, at 6, n4). Plaintiff's own argument raises the same questions. Plaintiff notes, "In fact, with eSpeedometer (which contains a slow drift recentering component,) a price level never suddenly changes position under a trader's cursor causing him to miss his intended price. This is in contrast to the eSpeed product addressed by the Court at the PT hearing which provided for an instantaneous automatic recentering when the inside market moved off the top or bottom of the screen. Thus, eSpeedometer is more 'static' than eSpeed's previous product because it provides the trader with virtually a 100% guarantee that he will not miss his intended price" (plf's post-Markman brief, at 8-9, n5). n6 How can any movement be "more static"? What is static enough to fall within the ambit of plaintiff's static construction? Because we cannot say, we must construe the term "static" in its ordinary meaning, non-moving, and allow for the only exception plainly stated in the written description: manual re-centering.

We find unpersuasive plaintiff's argument that the patent only increases but does not guarantee the user's likelihood of accurately selecting his desired price. Plaintiff's patents are designed to achieve simultaneous goals: speed and accuracy. With regards to accuracy, the patent specification states, "The 'Mercury' display and trading method of the present invention ensure fast and accurate execution of trades by displaying market depth on a vertical or horizontal plane, which fluctuates logically up or down, left or right across the plane as the market price fluctuates" ('132, 3:5-9; '304, 3:9-13) (emphasis added). Like defendants, we read such language as a guarantee. It is only with regard to speed that the patents cannot guarantee accuracy -it is impossible to know how quickly a trader will process a desired price, move his hand to the user input device, and select the bid or ask region. It is with that in mind that the patent states "[t]he faster a trader can trade, the less likely it will be that he will miss his price and the more likely he will make money" ('132, 2:60-62; '304, 2:65-67).
find that the purpose of the patents' invention would be frustrated by the inclusion of any movement uncontrolled by the user. See Curtiss-Wright Flow Control Corp. v. Vclan, Inc., 438 F.3d 1374, 1379-81 (Fed.Cir. 2006) (limiting the claim term "adjustable" to the patent's consistent description that adjustment occurs during operation of the de-header system, in part because "]any construction to the contrary is not consistent with the overall context of this invention and this field of art as described in the specification"). Thus, we are further convinced of our construction.

We take time to note that the construction of "common static price axis" includes the phrase, "where the line of prices corresponds to at least one bid value and one ask value." We do so to clarify that with regard to the 'Mine of prices," orientation of the axis is irrelevant - it can be horizontal, vertical or angled, for example. We find that use of the claim language "common," "corresponding to" and "aligned" are all used as synonyms for "in relationship with." See Id., 438 F.3d at 1380 ("this court has acknowledged that two claims with different terminology can define the exact same subject matter"). The specification's language states that "Mercy displays market depth in a logical, vertical fashion or horizontally or at some other convenient angle or configuration' ("304, 7:42-45, '132, 7:22-25). That market depth, which includes the best bid and the best ask, can be displayed on an angle gives further support to plaintiff's contention that "common" connotes no more than a relationship between the price axis and the hid and ask display regions.

We also note our use of the term "price levels" in the construction of both "common static price axis" and "static display of prices." While recognizing that the '132 patent does not use the term "price level" in the claims, as compared to the '304 patent, we find that the intrinsic evidence compels us to adopt such language in both constructions. We re-assert our preliminary injunction analysis regarding this issue: "the real issue is what 'static display of prices' means, and we understand that phrase to include price levels, which is where the prices are located and displayed. In other words, the display of prices is a region in which prices, represented by numbers, are shown." Trading Technologies Int'l. Inc. v. eSpeed, Inc., 370 F.Supp.2d 691, 699 (N.D.II.). ("Trading Technologies Int'l"). We reject defendants' contention that "price levels" are synonymous with prices or representation of prices. The written descriptions of both patents consistently refer to "price rows" and "price levels." For example, "The market depth display shows the trader the interest the market has in a given commodity at different price levels" (304, 6:17-19, '132, 5:50-52). "The status of each order is displayed in the price row where it was entered" (204, 8:23-24, '132, 7:56-57). "Thus, a right click in the AskQ column in the 87 price row will send a sell order to market at a price of 87 and a quantity of 150" (304, 10:46-48, '132 10:8-10). "A left click would enter an order with a price corresponding to the price row clicked . . ." (304, 11:21-22, '132, 10:50-51). n6 Found in the preferred embodiment, it is clear that both patents intended to showcase a "price level" that was broader than simply price. Pfizer, Inc. v. Teva Pharmaceuticals. USA. Inc., 429 F.3d 1364, 1374 (Fed.Cir. 2005) ("A claim construction that excludes a preferred embodiment...is 'rarely, if ever, correct'"). Thus, we define "price level" as "a level on which a designated price or price representation resides."

--- Footnotes ---

n6 Defendant eSpeed argues that the use of "price levels" with respect to Figure 2 ("The working bid and ask quantity for each price level is also displayed in columns 202 and 205 respectively" (304, 5:27-29, '132, 5:23-25)), wherein 202 and 205 are on the same horizontal row, proves that "price levels" are synonymous with "prices." Plaintiff counters by arguing that Figure 2 does contain "price levels" under its proposed construction - the trading screen has a level or region on which the price resides that does not extend across the entire row, as compared to patents' preferred embodiments-We find plaintiff's argument persuasive.

--- End Footnotes ---

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We begin with plaintiff's primary concern -- our previous construction of "static." In TT Markman I, we construed "common static price axis" (304 patent) as "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." 2006 U.S. Dist. LEXIS 80153, 2006 WL 3147687, at *4. Similarly, we construed "static display of prices" (132 patent) as "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Id. Plaintiff assures us that it does not take issue with our construction, but urges clarification that the claim element would be met "if the accused product ever embodies the claimed element, irrespective of how long it does so or whether such a product also
has the capacity to act in an uncovered manner” (TT’s motion, at 1).

Analysis of a patent infringement claim is a two-step process. First, we construe the claims, an issue of law for the court to determine. Warner-Lambert Co. v. Teva Pharmaceuticals USA, Inc., 418 F.3d 1326, 1340 (Fed.Cir.2005). Second, we compare the accused product or process to the properly construed claims, an issue of fact for the fact-finder. Id. Plaintiff's patent infringement claim will be successful "only where the accused product or process contains each limitation of the claim, either literally or under the doctrine of equivalents." Id. (citing Deering Precision Instruments, L.L.C. v. Vector Distrib. Sys., Inc., 347 F.3d 1314, 1324 (Fed.Cir.2003)). Defendants argue that plaintiff is conflating the two steps. By arguing that defendants' products may still infringe on plaintiff's patents under a part-time infringement theory, eSpeed suggests that TT is putting the cart before the horse. eSpeed contends that "[t]he theory of part-time infringement is not a canon of claim construction and does not override the plain meaning of the claim or the disclosures in the specification and file history... It is the claim construction, which is derived from the plain meaning of the claim and intrinsic evidence, that dictates whether the theory of part-time infringement has any relevance to the infringement analysis. Under the plain meaning of the claim and the Court's claim construction, part-time infringement is inapplicable because a price axis that moves other than through a manual re-centering command is not a static one’’ (eSpeed response, at 5).

We agree with defendants that the analysis of part-time infringement is, as the name implies, one of comparison -- the second step of patent infringement analysis. Because there seems to be some confusion on the construction of the term "static," however, we will address the merits of plaintiff's arguments. Specifically, we will address whether the term "static" in "common static price axis" and "static display of prices" requires a permanent state of lack of movement.

Plaintiff's arguments center on two overlapping principles. First, plaintiff contends that Claim 1 of each patent-in-suit is an open claim, designated by the term "comprising" in its preamble. Plaintiff asserts that such a claim does not preclude the existence of additional unrecited features of an accused product or process. Second, plaintiff asserts that part-time infringement- infringement for any length of time, regardless of whether the accused product or process also has times of non-infringement -- covers its claims. Although plaintiff's briefs imply that the two arguments are part of the same theory, we are not so sure. TT's "comprising" argument seems to assert that automatic re-centering is an unrecited additional feature that is made possible by the fact that the price axis was already in a static condition (TT reply, at 2). We read that to mean that the automatic re-centering is separate from the static claim limitation. TT's part-time infringement theory, on the other hand, seemingly suggests that the mere presence of a static price axis -- regardless of whether it moves at some time-- is still infringing (id., at 1). In our view, such an argument suggests that automatic re-centering takes an accused product or process out of the purview of plaintiff's patent protection, but only for the split second that it is moving, so that the time when the accused product's price axis is not moving, it is still infringing. Ultimately, however, plaintiff's arguments both suggest that the addition of movement does not preclude a finding of infringement.

We begin by assessing plaintiff's "comprising" argument. To do so, we must lay out Claim 1 of each patent-in-suit. Patent '304, Claim 1, reads:

A method for displaying market information relating to and facilitating trading of a commodity being traded in an electronic exchange having an inside market with a highest bid price and a lowest ask price on a graphical user interface, the method comprising:

[1] dynamically displaying a first indicator in one of a plurality of locations in a bid display region, each location in the bid display region corresponding to a price level along a common static price axis, the first indicator representing quantity associated with at least one order to buy the commodity at the highest bid price currently available in the market;

[2] dynamically displaying a second indicator in one of a plurality of locations in an ask display region, each location in the ask display region corresponding to a price level along the common static price axis, the second indicator representing quantity associated with at least one order to sell the commodity at the lowest ask price currently available in the market;

[3] displaying the bid and ask display regions in relation to fixed price levels positioned along the common static price axis such that when the inside market changes, the prices levels along the common static price axis do not move and at least one of the first and second indicators moves in the bid or ask display regions relative to the common static price axis;

[4] displaying an order entry region comprising a plurality of locations for receiving commands to send trade orders, each location corresponding to a price level along the common static price axis; and

[5] in response to a selection of a particular location of the order entry region by a single action of a user input device, setting a plurality of parameters for a trade order relating to the commodity and sending the trade order to the electronic
A method of placing a trade order for a commodity on an electronic exchange having an inside market with a highest bid price and a lowest ask price, using a graphical user interface and a user input device, said method comprising:

[1] setting a preset parameter for the trade order
[2] displaying a market depth of the commodity, through a dynamic display of a plurality of bids and a plurality of asks in the market for the commodity, including at least a portion of the bid and ask quantities of the commodity, the dynamic display being aligned with a static display of prices corresponding thereto, wherein the static display of prices does not move in response to a change in the inside market;
[3] displaying an order entry region aligned with the static display prices comprising a plurality of areas for receiving commands from the user input devices to send trade orders, each area corresponding to a price of the static display of prices; and
[4] selecting a particular area in the order entry region through single action of the user input device with a pointer of the user input device positioned over the particular area to set a plurality of additional parameters for the trade order and send the trade order to the electronic exchange.

Plaintiff correctly notes that the addition of unclaimed unrecited elements does not traditionally defeat a finding of infringement where the patent uses an open transitional phrase such as "comprising." Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1347 (Fed.Cir.2005); CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1235 (Fed.Cir.2005); Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371 (Fed.Cir.2005). Therefore, when the term "comprising" appears in the preamble of the claim, as it does here, it is generally read to mean including, but not limited to, the following elements. Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1370 (Fed.Cir.2005) ("Comprising' is often synonymous with 'including"); Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l., Inc., 246 F.3d 1336, 1348 (Fed.Cir.2001) ("In the parlance of patent law, the transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements").

Plaintiff's "comprising" argument, however, fails. Unlike many of the cases cited by plaintiff, its patents' claims include a limitation of a static or non-moving condition. n5 Any movement takes a product or process outside the scope of plaintiff's claim. See W.E. Hall Co., Inc. v. Atlanta Corrugating, LLC, 370 F.3d 1343 (Fed.Cir.2004) (where an accused product failed to meet each of the elements or limitations required by the claim language itself, a partially open transition term could not enlarge the scope of the claim); Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261 (Fed.Cir.1986) (the term "comprising" did not affect the scope of the particular structure recited within the method claim's step). Unlike Smith & Nephew, Inc. v. Ethicon, Inc., 276 F.3d 1304 (Fed.Cir.2002), failure to include movement of the static price axis in plaintiff's claims would not exclude a reasonable practice taught in the specification of the patent. And unlike CollegeNet, Inc., 418 F.3d at 1235, failure to include movement of the static price axis in plaintiff's claims would not be inconsistent with the problems the invention sought to redress. Rather, including movement of the static price axis would work against the patents' stated purpose: "If a trader intends to enter an order at a particular price, but misses the price because the market prices moved before he could enter the order, he may lose hundreds, thousands, even millions of dollars" (304, 2:61-65, '132, 2:57-61). It is a basic principle of patent law that an infringing use of a patented method or claim requires practice of every limitation of the claim or every step of the method. Zoltek Corp. v. U.S., 442 F.3d 1345, 1359 (Fed.Cir.2006). Addition of the term "comprising" does not remove the limitations that are present in the claim, Power Mosfet Technologies, L.L.C. v. Siemens AG, 378 F.3d 1396, 1409 (Fed.Cir.2004). Therefore, we do not read "comprising" as allowing some movement of the static price axis. Our earlier constructions remain, and we clarify that the price axis never changes positions unless by manual re-centering or re-positioning.

n5 We have already determined that "static" means non-moving. TT Markman I, 2006 U.S. Dist. LEXIS 80153, 2006 WL 3147697. In addition to the plain and ordinary meaning we focused on in TT Markman I, we also note several instances in the intrinsic record suggesting such a construction. See, e.g., '304, 7:65-67 ("The values in the price column are static; that is, they do not normally change positions unless a re-centering command is received..."); Amendment and Reply under 37 CFR § 1.111 (eSpeed Markman exhibits, Exh. E, at eS0000064873) (same); Notice of Allowability (id., Exh. OO, at
An examination of the Supreme Court's ruling in Markman shows multiple references to factual components of claim construction. The Court was addressing under which category, fact or law, claim construction should fall. Cybor, 138 F.3d at 1455. This court interpreted Markman as holding that claim construction was solely a question of law, which this court should review without deference. Nevertheless, in Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448 (Fed. Cir. 1998) (en banc), this court interpreted Markman as holding that claim construction was solely a question of law, which this court should review without deference. The Supreme Court in Markman held that "the construction of a patent, including terms of art within its claim, is exclusively within the province of the court." Id. at 372. The Supreme Court recognized that claim construction "falls somewhere between a pristine legal standard and a simple historical fact." Id. at 388 (quoting Miller v. Fenton, 474 U.S. 104, 114, 106 S. Ct. 445, 88 L. Ed. 2d 405 (1985)). Although claim construction is not a purely legal matter, the Supreme Court found "sufficient reason to treat construction of terms of art like many other responsibilities that we cede to a judge in the normal course of trial, notwithstanding its evidentiary underpinnings." Id. at 390.

Once we determine that the term "comprising" does not allow for any movement of the static price axis, it is easy to dispose of plaintiff's part-time infringement argument. Plaintiff correctly points out that "an accused product that sometimes, but not always, embodies a claimed method nonetheless infringes." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 622 (Fed.Cir.1995). The statute governing patent infringement, 35 U.S.C. § 271(a) (2003), also suggests that any infringement -- even de minimis infringement -- is actionable; the level of infringement is a question of damages, not liability. Embrex, Inc. v. Service Engineering Corp., 216 F.3d 1343, 1352-53 (Fed.Cir.2000) (Rader, J., concurring). Where, however, the claim limitation itself -- here, a static condition -- requires permanency, any movement (outside of manual re-centering or re-positioning) negates one of the specified claim limitations. Therefore, introduction of such movement takes an accused device out of the protection of plaintiff's patents.

The situation at hand is different from those cases finding part-time or de minimis infringement. For example, the court in Seal-Flex, Inc. v. Athletic Track and Court Const., 172 F.3d 836, 845 (Fed.Cir.1999) found infringement where defendant's customary method was non-infringing, and defendant only used plaintiff's patented method one time. Or, in SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1341-42 (Fed.Cir.2005), the Federal Circuit affirmed the district court's determination that trace amounts of the patented compound found in the infringing device would infringe under the construction of the claims. Or, in Embrex, 216 F.3d 1343, the court found infringement when defendants engaged in testing for commercial purposes using plaintiff's patented technology. In this case, in order to literally infringe, defendants must practice all elements of plaintiff's patented technology. Zoltek Corp., 442 F.3d at 1359. Therefore, any movement of the static price axis leaves accused technology outside the protection of plaintiff's patents.

Plaintiff makes various other arguments and points to various extrinsic evidence in support of its position that any period of a static condition falls within our construction of "common static price axis" and "static display of prices." None is persuasive. We have already determined the influence of the phrase "ensure fast and accurate execution" in the claim construction. Free Motion Fitness, a case cited by plaintiff to support its argument that the patents did not guarantee accuracy, tells us "to scrutinize the intrinsic evidence in order to determine the most appropriate definition" of a claim term. 423 F.3d at 1349. That is exactly what we did -- we turned to the specification, which suggested that the patented technology would "ensure fast and accurate execution" to construe "common static price axis" and "static display of prices." Thus, we need not alter our construction. And the extrinsic evidence presented -- in light of our construction, based almost entirely on intrinsic evidence -- will not change our construction.

The Supreme Court in Markman held that "the construction of a patent, including terms of art within its claim, is exclusively within the province of the court." Id. at 372. The Supreme Court recognized that claim construction "falls somewhere between a pristine legal standard and a simple historical fact." Id. at 388 (quoting Miller v. Fenton, 474 U.S. 104, 114, 106 S. Ct. 445, 88 L. Ed. 2d 405 (1985)). Although claim construction is not a purely legal matter, the Supreme Court found "sufficient reason to treat construction of terms of art like many other responsibilities that we cede to a judge in the normal course of trial, notwithstanding its evidentiary underpinnings." Id. at 390.

Nevertheless, in Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448 (Fed. Cir. 1998) (en banc), this court interpreted Markman as holding that claim construction was solely a question of law, which this court should review without deference. Id. at 1451. The question presented before the Supreme Court was "whether the interpretation of a so-called patent claim . . . is a matter of law reserved entirely for the court, or subject to a Seventh Amendment guarantee that a jury will determine the meaning of any disputed term of an art about which expert testimony is offered." Markman, 517 U.S. at 372. Although the Supreme Court addressed only the role of the trial court in claim construction, this court understood that "the Supreme Court was addressing under which category, fact or law, claim construction should fall." Cybor, 138 F.3d at 1455. This court concluded that "[n]othing in the Supreme Court's opinion supports the view that the Court endorsed a silent, third option—that claim construction may involve subsidiary or underlying questions of fact." Id.

An examination of the Supreme Court's ruling in Markman shows multiple references to factual components of claim construction.
A construction:

. "[C]onstruing a term of art following receipt of evidence" is "a mongrel practice." Id. at 378.

. Claim construction "falls somewhere between a pristine legal standard and a simple historical fact." Id. at 388.

. "We accordingly think there is sufficient reason to treat construction of terms of art like many other responsibilities that we cede to a judge in the normal course of trial, notwithstanding its evidentiary underpinnings." Id. at 390.

These references in the Supreme Court opinion leaves this court stranded between the language in the Court's decision and the language in this court's Cybor decision.

In order to resolve this case, this court must confront findings by the trial court about the meaning of the disputed claim term "static." In reaching the meaning of that term, the trial court explored and made findings about the technical background of the invention--the inventive features and the timing of those features against the backdrop of the prior art. In addition, the district court determined the meaning that an artisan of ordinary skill in this discipline would assign the term "static." The trial court also made findings about the understanding of such an ordinary artisan about the metes and bounds of the asserted claims. In still another factual setting, the district court determined the way that the ordinary artisan would interpret the patent applicant's statements made to the PTO examiner during the prosecution of the patents-in-suit. These factual determinations about the timing and nature of the history of the patent acquisition process also informed the trial court's claim construction. In sum, claim construction involves many technical, scientific, and timing issues that require full examination of the evidence and factual resolution of any disputes before setting the meaning of the disputed terms.

Of course, as the Supreme Court repeatedly clarified in Markman, the trial court occupies the best vantage point and possesses the best tools to resolve those evidentiary questions:

. "[A] jury's capabilities to evaluate demeanor to sense the mainsprings of human conduct or to reflect community standards are much less significant than a trained ability to evaluate the testimony in relation to the overall structure of the patent." Id. at 389-90 (citations and internal quotation marks omitted).

. "The decisionmaker vested with the task of construing the patent is in the better position to ascertain whether an expert's proposed definition fully comports with the specification and claims and so will preserve the patent's internal coherence." Id. at 390.

Despite the Supreme Court's emphasis on the trial court's central role for claim construction, including the evaluation of expert testimony, this court may not give any deference to the trial court's factual decisions underlying its claim construction. This court's prior en banc decision requires a review of the district court's claim construction without the slightest iota of deference. See Cybor, 138 F.3d at 1451.

B.

To construe a claim, courts must determine the meaning of disputed terms from the perspective of one of ordinary skill in the pertinent art at the time of filing. Chamberlain Group, Inc. v. Lear Corp., 516 F.3d 1331, 1335 (Fed. Cir. 2008). The claim terms "are generally given their ordinary and customary meaning." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "The claims themselves provide substantial guidance as to the meaning of particular claim terms." Id. at 1314.

But the claims "must be read in view of the specification, of which they are a part." Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). A patent's specification "is always highly relevant to the claim construction analysis." Phillips, 415 F.3d at 1315 (quoting Vitronics, 90 F.3d at 1582 (Fed. Cir. 1996)). When consulting the specification to clarify the meaning of claim terms, courts must not import limitations into the claims from the specification. Abbott Labs., 566 F.3d at 1288. Therefore, when the specification uses a single embodiment to enable the claims, courts should not limit the broader claim language to that embodiment "unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest execution or restriction.'" Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 905 (Fed. Cir. 2004) (quoting Teleflex, Inc. v.
Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002). In addition, "other claims of the patent . . . can also be valuable sources of enlightenment as to the meaning of a claim term." Id. (citing Vitronics, 90 F.3d at 1582).

In claim construction "a court should also consider the patent's prosecution history . . . ." Phillips, 415 F.3d at 1318 (quoting Markman, 52 F.3d at 980). "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. (citing Vitronics, 90 F.3d at 1582-83). For example, "a patentee may, through a clear and unmistakable disavowal in prosecution history, surrender certain claim scope to which he would otherwise have an exclusive right by virtue of the claim language." Vita-Mix Corp. v. Basic Holding, Inc., 581 F.3d 1317, 1324 (Fed. Cir. 2009) (citations omitted). At the same time, because prosecution history represents an ongoing negotiation between the PTO and the inventor, "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, (Fed. Cir. 2008).

TT disputes the construction of the word "static" in the phrase "static display of prices" in the '132 patent and in the phrase "common static price axis" in the '304 patent. All asserted claims of the '132 patent include the limitation "static display of prices." Likewise, all asserted claims of the '304 patent include the limitation "common static price axis." TT and eSpeed agree that the difference in terminology between "static display of prices" and "common static price axis" is immaterial.

The district court construed "static display of prices" in the '132 patent as "a display of prices comprising price levels that do not change positions unless a manual re-centering command is received." Trading Techs. Int'l, Inc. v. eSpeed, Inc., 2006 U.S. Dist. LEXIS 80153, at *11 (N.D. Ill. Oct. 31, 2006) (emphasis added). The district court similarly construed "common static price axis" as "a line comprising price levels that do not change positions unless a manual re-centering command is received and where the line of prices corresponds to at least one bid value and one ask value." Id. (emphasis added). A "price level" is "a level on which a designated price or price representation resides." Id. at *15. The district court later clarified that "a static condition -- requires permanency" and, thus, "the price axis never changes positions unless by manual re-centering or re-positioning." Trading Techs. Int'l, Inc. v. eSpeed, Inc., 2007 U.S. Dist. LEXIS 12965, at *20, 22 (N.D. Ill. Feb. 21, 2007) (emphasis added). Under the district court's construction, the patents-in-suit only cover software with a manual re-centering feature and without automatic re-centering feature. Given that Dual Dynamic and eSpeedometer automatically re-center the price columns in response to changes in the inside market, TT argues for a broader construction of the word "static" (i.e., "static" does not mean immovable).

The inventors acted as their own lexicographers and defined the word "static:"

The values in the price column are static; that is, they do not normally change positions unless a re-centering command is received (discussed in detail later).

'132 patent col.7 ll.46-48; '304 patent col.7 ll.65-67. The district court made two important changes to this express definition in construing the word "static." First, the district court added the word "manual" in front of the term "re-centering command." Second, it deleted the word "normally." The district court's definition may seem narrower than the inventors' express definition at first glance. However, the claims, the rest of the specification, and the prosecution history support the district court's definition. Therefore, this court, after reconstruing this term based on its own understanding of the claims, specification, prosecution history, and record, agrees with the district court's claim construction of the word "static."

In the first place, the "re-centering command" must indeed occur as a result of a manual entry. The specification shows that the inventors defined the term "static" in the specification. Notably, that definition expressly promises to discuss "a re-centering command . . . later" in the specification. Id. From that point forward, the specification only discusses manual re-centering commands. The specification contains no reference to automatic re-centering. Perhaps in response to the promise to discuss re-centering later, the patents describe the invention as follows:

As the market ascends or descends the price column, the inside market might go above or below the price column displayed on a trader's screen. Usually a trader will want to be able to see the inside market to assess future trades. The system of the present invention addresses this problem with a one click centering feature.

'132 patent col.8 ll.49-54; '304 patent col.9 ll.14-19 (emphasis added). This reference to "the present invention" strongly suggests that the claimed re-centering command requires a manual input, specifically, a mouse click. See Honeywell Int'l,
Inc. v. ITT Indus., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (concluding that the invention was limited to a fuel filter because the specification referred to the fuel filter as "this invention" and "the present invention").

This court recognizes that this interpretation relies heavily on the specification and risks reading improperly a preferred embodiment into the claim. See Saunders Group, Inc. v. Comfortrac, Inc., 492 F.3d 1326, 1332 (Fed. Cir. 2007) (holding that claim scope is not limited to the disclosed embodiments "unless the patentee has demonstrated a clear intention to [do so]"). This court takes some comfort against this risk from the inventors' use of the term "the present invention" rather than "a preferred embodiment" or just "an embodiment." The inventors' own specification strongly suggests that the claimed re-centering feature is manual.

Because an inventor must evince a "clear intention" to limit the claim terms to a specification embodiment, this court examines other claims to detect any contrary intentions. In that respect, this court observes that all claims of the '132 patent have a "wherein" clause explaining that "the static display of prices does not move in response to a change in the inside market." '132 patent col.12 l.1-col.16 l.57. Although the "wherein" clause does not exclude automatic re-centering from the claim scope (it does not exclude software that automatically re-centers whenever the trader enters an order, for example), it expressly excludes software that automatically re-centers when the inside market changes. These clauses thus support the district court's claim construction.

TT argues that even if this court construes the "re-centering command" as manual, this court cannot limit the claims to only the enumerated elements (i.e., manual re-centering command). According to TT, because the claims use the transitional phrase "comprising," they also cover un-recited features such as automatic re-centering. To the contrary, automatic re-centering is not an additional feature, but rather negates a claimed requirement that the price level remains static and does not move. See Spectrum Int'l v. Sterilite Corp., 164 F.3d 1372, 1380 (Fed. Cir. 1998) ("Comprising' is not a weasel word with which to abrogate claim limitations."). A price level that only moves in response to a manual re-centering command cannot also move in response to an automatic re-centering command. Thus, this court construed the claims to require a manual re-centering command.

The claims also contain a limitation that "the price axis never changes positions unless by manual re-centering or re-positioning." Trading Techs., 2007 U.S. Dist. LEXIS 12965, at *22. The district court found that the ordinary and customary meaning of "static" was "motionless: not moving or changing, or fixed in position." Trading Techs., 2006 U.S. Dist. LEXIS 80153, at *11. TT did not present evidence or dispute that a person of ordinary skill in the art would understand the word "static" differently. Moreover, allowing the price axis to automatically change positions would defy the invention's goal to "ensure[] fast and accurate execution of trades." '132 patent col.3 ll.5-6. The invention would present the same problem as the prior inventions if the price axis moved automatically even in rare instances. The "static display of prices" could automatically re-center just as the trader was getting ready to execute a trade, causing the trader to miss the intended price.

Also, the inventors jettisoned the word "normally" during prosecution. The PTO examiner initially rejected the claims because the term "'static display' [was] vague and indefinite." The examiner requested the applicants 'to claim 'to what extent', 'to what degree', and 'on what basis' the displays 'change.' In response, the applicants explained that "the values in the price column . . . do not change (unless a re-centering command is received)." The examiner allowed the claims at least partly based on the understanding that the price column did not re-center itself automatically. The manual re-centering feature also avoided the possibility of mistakes when the price column moved automatically at the same time a trader wished to make a purchase. Of course, traders might make mistakes despite precautions built into the software. Nonetheless, to "provide the trader with improved efficiency and versatility in placing," '132 patent col.3 ll.21-24, the price column cannot shift unexpectedly.

This court also addresses claim 55 of the '132 patent, a dependent claim from claim 1:

The method of claim 1 wherein the market depth is based on an exchange order book and the static display of prices never moves in response to a price change in the exchange order book relating to a price which is displayed.

Id. col.16 ll.52-55 (emphasis added). TT argues that construing "static" to mean the price axis never moves would render dependent claim 55 superfluous. To the contrary, claim 55 adds another limitation to claim 1, namely, that the market depth is based on "an exchange order book." Moreover, problems with any overlapping claim scope "will be overcome by a contrary construction dictated by the written description or prosecution history." Regents v. DakoCytomation, 517 F.3d
1364, 1375 (Fed. Cir. 2008). The invention's contribution to the prior art, its specification, and its prosecution history show that the static display of prices cannot move without a manual re-centering command from the trader. Accordingly, the district court correctly construed the disputed word "static."

4177

1. Means (160) for statically adding intelligence to each instruction in each of said plurality of basic blocks

This phrase appears in claims 11, 12, and 13 of the '755 patent. It is a means-plus-function limitation. The parties dispute the proper construction of the function as well as the proper identification of the structure. In particular, the parties dispute whether "statically adding intelligence" should be construed to mean adding information prior to program execution (as the plaintiff contends) or after compilation and prior to execution (as the defendants contend). The defendants argue that this is a means-plus-function limitation, and the only embodiment described in the patent has the TOLL software operating on the output from the compiler.

The function is construed to mean "statically adding intelligence to each instruction of said plurality of basic blocks." The term "statically adding intelligence" means "adding information prior to program execution." See '755 patent, col. 2, lines 42-46 ("Static allocations' are performed once, prior to execution, whereas "dynamic allocations" are performed by the hardware whenever the program is executed or run. The present invention uses a static allocation strategy and provides task allocations for a given program after compilation and prior to execution."). The corresponding structure is the TOLL software operating on output from the compiler. The court includes in the corresponding structure the corresponding algorithms disclosed in Figs. 1, 8, 9, 10, and 11.

n1 Pursuant to the relevant statute, the claim is construed to cover the corresponding structure described in the specification and equivalents thereof 35 U.S.C. § 112 P 6.

End Footnotes

4178

3. Station

Claim 1 refers to a system comprising "at least two stations." The word "station", in context, means a location at which there is a monitor, input and transmission means. This would include, for example, a desk or table 6 on which a person would have a computer input device and monitor connected to the system even if the "computer" or central processing unit itself were not at the same location.

n6 Or anything else for that matter, so that even if the computer input device and monitor were on the floor of an unfurnished room, that room would be a "station" within the meaning of the claim language.

End Footnotes

4179

The next claim term at issue is "a statistical decoder coupled to said I/O port for decoding variable-length-encoded compressed video signals." The term "statistical decoder" means a device that takes as input variable-length-encoded data and reverses the encoding process to provide decoded data as output. As stated previously, the term "coupled" means
electronically connected, either directly or indirectly. The "said I/O port" refers to the "I/O port" that has been construed above in section II.B.2.b.

15. "A statistical detection method": n15 A method of detecting suspicious network activity by applying one or more statistical functions in the analysis of network traffic data. This method is not a signature matching detection method.

b. Claim term two

"[to form statistically coded signals such that] the more frequently occurring values of digital signals are represented by shorter code lengths and the less frequently occurring values of digital signals are represented by longer code lengths" (claims 1 and 38)

"[to form statistically coded signals such that] the more frequently occurring values in the digital numbers are represented by shorter code lengths and the less frequently occurring values of coded signals are represented by longer code lengths" (claim 6)

The constructions proposed by Plaintiff and Defendants reflect disagreement over two issues. First, the parties dispute whether "values" should be construed to encompass "groups/sets/sequences of values" or instead to include only "each value in the 'digital numbers' or 'digital signals'" or an "individual value." Second, the parties dispute whether the term "how often," which would require that the statistical coding be based on the actual number of times a value occurs in a digital signal, should be included in the construction of term two. Plaintiff proposes the following construction for term two:

To form coded signals based on the statistical frequency of occurrence such that more frequently occurring values or groups/sets/sequences of values are represented by shorter code lengths and less frequently occurring values or groups/sets/sequences of values are represented by longer code lengths. See also the definitions of digital signals and digital numbers set forth above.

Defendants propose that term two should be construed as:

To form statistically coded signals such that the length of the code representing each value in the 'digital numbers' or 'digital signals' depends on how often that individual value appears in the 'digital numbers' or 'digital signal.'

During oral argument, the parties initially conceded to using the plain language of the term without further construction. Tr. 201:9 -- 202:24. However, Defendants later withdrew their concession as to the second issue, that is, whether the statistical coding must be applied to the actual values being coded. n10 With respect to the first issue, the Court will not give additional construction to the term "values."

n10 Counsel for Defendants stated: "We said we thought we would be okay with this construction, but we were concerned
that there might be more guidance actually needed. And, in fact, what's been pointed out to me is that it appears that there
still, in fact, is an issue hanging out there. And I don't know if the proposed construction resolves that. And here's the issue:
The issue is whether the statistical coding is applied to the values in the signals that are actually being coded, if you will, or
processed." Tr. 208:15 -- 209:2.

Defendants argue that the language of the specification and claims requires that the statistical coding of signals be done with
actual data rather than with representative or model data. Defendants argue that the following language in claim 6 requires
statistical coding of actual data: "processing the input signals to form processed signals where the processed signals are
digital numbers having first values, second values, and other values" and "that the more frequently occurring values in the
digital numbers are represented by shorter code lengths." '672 Patent, col.24, 11.13-24 (emphasis added). However, this
language does not establish clearly that the actual data must be coded. While it is possible to infer that the clause "that the
more frequently occurring values in the digital numbers" indicates that the values in the particular digital data must be
coded, this is not the only conclusion that may be drawn from this language. It is also possible to conclude that this term
simply specifies what type of code length is assigned to the more frequently occurring values, without inferring how the
frequency of the values is determined.

Neither Plaintiff's nor Defendants' arguments based on the opinions of their experts are persuasive. Plaintiff's expert, Dr.
Sheila Hemami, explained that "the required frequency of occurrence information can be computed from a statistical model,
from a set of training data, or from a particular signal-there is no requirement that it represent only how often a particular
value appears in a signal or group of signals." Declaration of Tibor L. Nagy ("Nagy Decl."), Ex. 2, p. 20. Dr. Hemami
concludes that requiring "the length of the code to represent how often a value appears is not commensurate with any
practical implementation." Id. Defendants' expert, Dr. James A. Storer, stated that "it was well-known in the mid-1980s to
create statistical codes from the actual data being compressed." Declaration of Dr. James A. Storer in Support of Defendants
and Declaratory Judgment Plaintiffs' Responsive Markman Brief ("Storer Decl."), P 69. Dr. Storer's statement that it was
well known at the time of invention how to compute frequency with the actual data is consistent with Dr. Hemami's
statement that it is possible to compute frequency of occurrence from a model. To the extent that Dr. Hemami reaches the
further conclusion that the analysis of actual data would not be practical, that opinion is conclusive and without clear
evidentiary support. Accordingly, the Court relies on neither expert's opinion in reaching its conclusion as to the proper
construction of term two.

Defendants' argument that the specification requires coding of the actual data is not persuasive. While Table Three does
describe how to create statistical codes from the amplitude values, it is merely an example of a preferred embodiment. '672
Patent, col.14, ll.3-6 ("The TABLE 3 formulation is for one preferred embodiment of the ordered redundancy coding. Many
variations, some hereinafter described, are possible."). n11

n11 When arguing that runlengths of zero length are not required, Defendants themselves point out that Table Three is
merely an example. Responsive Br., p. 21; Tr. 178:16-24.

Instead, the specification indicates that coding of "probable frequencies"-rather than actual frequencies-may be used:
"Typically, the statistical frequencies of the values to be coded have an order. Particularly, that order is based upon the
probable frequency of occurrence of the different values." '672 Patent, col.5, 11.22-25. Defendants argue that "probable
frequency" applies to "the probability that any value in the digital signals to be coded will have a particular numerical
value." Responsive Br., p. 36, n. 28. However, this interpretation of "probable frequency" is not required by the language
cited by Defendants:

The signals to be coded are typically multiple values where the multivalued digital numbers, X(k), are typically the
integers 0, 1, 2, 3, 4, . . ., and so on arranged in any order. Frequently, some values are repeated in forming digital numbers
and hence the probable frequency of occurrence of some values is different than for other values.
'672 Patent, col.3, 11.16-22 (emphasis added). The specification merely explains that some values are more likely to occur than others; it does not establish a clear requirement that the probable frequencies are generated from the actual data that is coded. Moreover, this portion of the specification expressly describes a typical scenario.

Accordingly, the Court concludes that there is no clear evidence in the language of the claim terms nor in the specification that statistical coding of the actual data is required. The Court will adopt neither of the parties' proposed constructions. Instead, as it suggested it would do during oral argument, the Court will use the plain language of the claim term as its construction.

K. Statistically Comparing Test Results in Determining Pay Factor Adjustments and Material Acceptance

This term is found in claim twelve, which depends from independent claim one. The Plaintiff proposes that this term does not need to be construed, but offers "using a computer to perform statistical analysis and to compare the results of the analysis to the specification requirements for the pavement construction material mixture in order to determine pay factor adjustments and material acceptance." The Defendants propose "the server performing statistical analysis and comparing the results of the analysis to the specification requirement for the pavement construction material mixture in order to determine pay factor adjustments and material acceptance."

As is clear from the proposed definitions, the only dispute is whether the step must be performed by a server or by a computer. Here the Defendants again argue that the claims are limited to the embodiment in FIG. 2. This argument has been previously rejected and the Court rejects it here for the same reasons.

The patent describes statistical analysis in col. 7:4-14. It states that the software can statistically compare the test results and that statistical comparisons are performed by plotting test results against quality acceptance results. It also states that various statistical tests can be used that are important for both contractors and owners to determine pay factor adjustments and determine material acceptance. The patent does not limit statistical analysis to performance by a server.

Construction: Using a computer to perform statistical analysis and compare the results of the analysis to the specification requirement for the pavement construction material mixture in order to determine pay factor adjustments and material acceptance.

4183

c. "Status information"

The term "status information" appears in Claims 61 and 64, both of which depend from Claim 44. "Status information" appears as an additional limitation on the "indicating step" of Claim 44. The indicating step is "indicating the operational status of the defibrillator based on the result of the self-test." The court already construed this term to mean "providing a visible or audible alert of whether the defibrillator is capable of treating a patient and possibly other indications of operational status." October 25 order at 23. n9 Claim 61 requires the defibrillator to display the "status information" on a "visible display." Claim 64 requires the defibrillator to provide the "status information" audibly.

n9 The court reiterates its implicit holding from the October 25 order that "operational status" is broader than "operable" (or "inoperable") status.

Given the relationship between these claims, the court concludes that "status information" is simply any subset of the
information required in Claim 44. There is no indication that the inventors intended Claims 61 and 64 to introduce a novel concept of "status information" that differs from "operational status." Instead, these claims were intended to limit the method of indicating status to a user -- visually or audibly. The use of "status information" instead of "operational status" means simply that the visual or audible displays of Claims 61 and 64 need not be responsible for displaying all operational status information. For example, a defibrillator according to Claim 61 could indicate a "stuck button" indicator visually, while indicating the inoperable/operable status with an audible alarm, a vibration, or some other means. Likewise, a defibrillator according to Claim 61 could indicate an inoperable/operable status audibly, while using other means to indicate other operational statuses. "Status information" is thus "any subset of information related to whether the defibrillator is treating a patient or other indications of operational status."

4184

1. "Status information" is construed to mean "information about the state or condition of something."

4185

M. Term 18: Status information therein regarding the status of the electrical device after adjustment of the status in response to the control information as affected by the control information and the manual actuator (as used in claim 84).

Lutron contends that Term 18 means "Information regarding the status of the electrical device, whether the electrical device is being controlled based on control information or based on adjustment of the manual actuator of the control device."

Control4 contends it means "Information regarding the true status of the electrical device after adjustment in response to the control information, where the status information indicates the effect that the control information and the manual actuator have had on the status of the electrical device."

The disputed term in the claim is essentially the same as Term 8, discussed in section I.F above, except it adds on the following language in the middle of the term: "after adjustment of the status in response to the control information." (Emphasis added.) Claim 84 provides a method for controlling the electrical device discussed in claim 62. Claim 62 requires a command signal that changes the status of the electrical device, without use of a repeater. Otherwise, claim 62 is substantially similar to claim 1. While the apparatus claims are substantially similar, this method claim does involve a specific timing element through use of the term "after." Because this is a limitation, the claim construction should include the added phrase.

The term has an internal conflict, however, because of another phrase. On the one hand, the term states that status is adjusted in response to control information. On the other hand, it states that status is affected by the control information and the manual actuator. A main point Lutron made to distinguish this invention from prior art is that status can be changed either by control information or by the manual actuator. That point is present throughout the patent, and was reaffirmed during the Markman hearing when Lutron indicated the phrase "in response to the control information" likely was a drafting error when Lutron modified the claim language during the patent prosecution.

The term is clearer when that phrase is removed. Nevertheless, "courts may not redraft claims to cure a drafting error made by the patentee," unless the error "is an obvious administrative or typographical error not subject to reasonable debate." 36 The exception does not appear to apply here. Consequently, the Court concludes the term means "Information about the condition of the electrical device, after the condition has been altered in response to the control information, regardless of whether the condition of the electrical device is being directed by control information or by the manual actuator."

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36 Lucent Techs., Inc. v. Gateway, Inc., 525 F.3d 1200, 1215 & n.8 (Fed. Cir. 2008) (citations omitted).

--- End Footnotes ---
10. Status signal

With respect to the term "status signal," Foundry contends that the term does not require construction. Lucent submits that "status signal" should be construed to mean "a signal providing information regarding the response of the target telephone to the call such as ring-no-answer, busy, or live answer." After considering the parties' submissions, the court construes "status signal" to mean "a signal that provides the status of a telephone call such as ring-no-answer, busy, or live answer." (See '864 patent, col. 5, ll. 22-24.)

3. "steering circuit"

The '054 Patent also describes a "steering circuit." Cardiac Science asserts that this term be construed as "a circuit containing multiple switching elements that can produce at least two different paths for delivery of electrical energy from a single storage circuit to thereby create a multiphasic or biphasic waveform." Philips, on the other hand, proposes that "steering circuit" be construed as "a circuit for directing the therapeutic electrical energy from a storage circuit to the patient through at least two different paths." Thus, both parties agree that the steering circuit "steers" electrical energy along two different paths. However, the parties dispute whether the paths originate at a single energy source, as Cardiac Science contends.

The preferred embodiment of the '054 Patent teaches a steering circuit directing electrical energy along two different paths, with those paths originating at a single capacitor (or energy source). However, the term "steering circuit" is not limited to that preferred embodiment. ('054 Patent at sheet 3, Fig. 3; c. 10, ll. 1-15.) Nothing else in the patent restricts the steering circuit to one specific circuit configuration. Thus, the Court construes the term "steering circuit" as a "circuit for directing the therapeutic electrical energy from a storage circuit to the patient through at least two different paths."

I.

Caterpillar Inc. filed this suit against Detroit Diesel Corporation alleging that Detroit Diesel's "CruisePower" feature infringes its United States Patent No. 4,914,597 ("'597 patent"). The patent relates to a system providing variable engine power while using vehicle cruise control; the claim at issue--Claim 1--involves a method of operating a vehicle engine with cruise control by use of a fuel delivery system that controls the rate of fuel delivery by responding to a command signal generated through the retrieval of sets of data from memory, the set retrieved depending on whether the cruise control is "engaged."

Claim 1 of the '597 patent provides the following:

1. A method of operating a vehicle engine (12) equipped with a cruise control (44) which is engageable to control the speed of the vehicle (38) in response to a set speed wherein the engine includes a fuel delivery system (14) which is responsive to a command signal to in turn control the rate of fuel delivery to the engine, comprising the steps of:

   providing a memory (86) having stored therein two sets of data representing two different fuel delivery limit curves wherein each fuel delivery limit curve defines predetermined fuel delivery limits as a function of engine speed;

   determining when the cruise control (44) is engaged;

   retrieving one of the sets data from the memory (86) representing one of the fuel deliver limit curves when the cruise
control (44) is engaged;
retrieving the other set of data from the memory (86) representing the other fuel delivery limit curve when the cruise control (44) is not engaged; and
using the retrieved data to develop the command signal.

The parties agree that under the Markman decision, the court must determine the meaning of Claim 1 as a matter of law before the issue of infringement may be resolved with reference to the claim's meaning. In construing a patent as a matter of law, the court considers the claim itself, the specification, and the prosecution history ("file wrapper"). Markman v. Westview Instruments, 52 F.3d 967, 979 (Fed. Cir. 1995) (citing Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1561 (Fed. Cir. 1991)). The court is to construe the claim's language; the court cannot narrow or broaden the scope of a claim to give the patent owner something different than what is set forth. E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988); Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 396 (Ct. Cl. 1967). The court may also consider extrinsic evidence as an aid in understanding the meaning of the claims' language, Markman v. Westview Instruments, 52 F.3d at 980, though extrinsic evidence may not be used "for the purpose of varying or contradicting the terms of the claims." Id. 52 F.3d at 981.

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1 Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises. This evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history. Extrinsic evidence may demonstrate the state of the prior art at the time of the invention. It is useful to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.

… The court may, in its discretion, receive extrinsic evidence in order to aid the court in coming to a correct conclusion as to the true meaning of the language employed in the patent.

52 F.3d at 979 (internal quotation omitted).

--- End Footnotes ---

A claim must be read in light of the entire specification, which contains an explanation of the invention that must enable one of ordinary skill in the art to make and use the invention. "The description may act as a sort of dictionary, which explains the invention and may define terms used in the claims." 52 F.3d at 979. Although the patentee is granted license to define his terms, 2 any special definition assigned to a word must be clearly defined in the specification. Id. (citing Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388 (Fed. Cir. 1992)); see Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580 (Fed. Cir. 1995) ("The words of a claim will be given their ordinary meaning to one of skill in the art unless the inventor appeared to use them differently."); cert. denied, 134 L. Ed. 2d 666, 116 S. Ct. 1567 (1996). The claim defines the scope of the invention, SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc), and although the specification may aid in divining the true meaning of the claim, the court cannot read into a claim a limitation that appears in the specification but not the claim. Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, 976 F.2d 1559, 1566 (Fed. Cir. 1992); E.I. DuPont de Nemours, 849 F.2d at 1433. References to a preferred embodiment, such as those in the specifications or drawings, are not claim limitations. Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988); Raytheon Co. v. Roper Corp., 724 F.2d 951, 957 (Fed. Cir. 1983). And although the patent's prosecution history is relevant to determining claims' meaning, 52 F.3d at 980 (citing Graham v. John Deere Co., 383 U.S. 1, 33, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966)), it similarly cannot change the scope of the claims, 52 F.3d at 980.

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2 The Court of Claims described the reasoning for this in Autogiro Co. of America v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 397 (Ct. Cl. 1967):
An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law. This conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled. Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things. To overcome this lag, patent law allows the inventor to be his own lexicographer.

II.

The parties disagree on the meaning of Claim 1, as well as on the more fundamental question of the proper categorization of Claim 1, and thus the proper method employed to determine the claim's meaning. Detroit Diesel contends that the '597 patent contains "step-plus-function" components that the court must, pursuant to paragraph 6 of § 112 of the Patent Act, construe with reference to the corresponding portions of the specification. Caterpillar argues that the '597 patent is a method patent, and that no authority exists for the application of paragraph 6 to method claims.

A. Background

The Patent Act provides that "whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101; see also Diamond v. Chakrabarty, 447 U.S. 303, 309, 65 L. Ed. 2d 144, 100 S. Ct. 2204 (1980) (Congress intended § 101 to include "anything under the sun that is made by man"). A "process" is further defined as a "process, art or method." 35 U.S.C. § 100(b). Three of the four classes of utility inventions--machines, manufactures, and compositions of matter--may be grouped into "products," leaving products and processes as the two general categories of patents. 1 Donald. S. Chisum, Patents, § 1.01, at 1-5, 1-7 (1996).

A patent specification contains a description of the invention, a description of how to make and use the invention that would allow one reasonably skilled in the art to make and use it, and a description of the "best mode" contemplated by the inventor for carrying out the invention. 35 U.S.C. § 112(1). The specification must conclude with "one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112(2). Patent claims may be drafted in "functional" language, which "describes an invention in terms of what it accomplishes rather than in terms of what it is." 2 Chisum, Patents, § 8.04 at 8-53. Functional language is by its nature broad, and may run afoul of the Patent Act's requirement that a patent claim "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112(2) (based on 35 U.S.C., 1946 ed., § 33).

Just such a situation occurred in Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1, 91 L. Ed. 3, 67 S. Ct. 6 (1946), in which the Supreme Court held that a claim drafted as a "means-plus-function" was invalid. The functional language of the patent at issue in Halliburton 4 described a resonator in relation to the rest of the apparatus as "means associated with said pressure responsive device for tuning said receiving means to the frequency of echoes from the tubing collars of said tubing section to clearly distinguish the echoes of said couplings from each other." 329 U.S. at 8-9. "The language of the claim," the Supreme Court explained, "thus describes this most crucial element in the 'new' combination in terms of what it will do rather than in terms of its own physical characteristics or its arrangement in the new combination apparatus." Id. at 9. It was this "broadness, ambiguity, and overhanging threat of the function claim" that troubled the Supreme Court:

What he claimed in the court below and what he claims here is that his patent bars anyone from using in an oil well any device heretofore or hereafter invented which combined with the Lehr and Wyatt machine [(the prior art)] performs the function of clearly and distinctly catching and recording echoes from tubing joints with regularity. Just how many different devices there are of various kinds and characters which would serve to emphasize these echoes, we do not know. The Halliburton device, alleged to infringe, employs an electric filter for this purpose. In this age of technological development
there may be many other devices beyond our present information or indeed our imagination which will perform that function and yet fit these claims. And unless frightened from the course of experimentation by broad functional claims like these, inventive genius may evolve many more devices to accomplish the same purpose. Yet if Walker's blanket claims be valid, no device to clarify echo waves, now known or hereafter invented, whether the device be an actual equivalent of Walker's ingredient or not, could be used in a combination such as this, during the life of Walker's patent.

329 U.S. at 12 (citations omitted).

In 1952 Congress reacted to the Halliburton decision by enacting paragraph six of § 112 (then paragraph 3), which provides that "an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(6). As explained in Greenberg v. Ethicon Endo-Surgery, Inc.:

The record is clear on why paragraph six was enacted. In Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1, 91 L. Ed. 3, 67 S. Ct. 6 (1946), the Supreme Court held invalid a claim that was drafted in means-plus-function fashion. Congress enacted paragraph six, originally paragraph three, to overrule that holding. In place of the Halliburton rule, Congress adopted a compromise solution, one that had support in the pre-Halliburton case law: Congress permitted the use of purely functional language in claims, but it limited the breadth of such claim language by restricting its scope to the structure disclosed in the specification and equivalents thereof.

The court in Motorola, Inc. v. Interdigital Technology Corp., 930 F. Supp. 952, 963 (D.Del. 1996), described this simple example regarding the effect of paragraph 6: "If a patent contains a means-plus-function limitation claiming a 'means for fastening' and the specification discloses a 'button' as a possible fastening means, under Markman a court must resolve any disputes regarding both the 1) function of the fastening means, and 2) the meaning of the word 'button,' as a matter of law."

B. Paragraph Six Applies to Methods Claims

Though Caterpillar is correct in its observation that case law directly on point is sparse, the court concludes that, contrary to Caterpillar's assertion, paragraph six of § 112 applies to method claims, and not only to apparatus claims. The court's conclusion is based on the statute's plain language, commentary of one of its drafters, case law at the time of enactment of
paragraph six and since then, and on Patent and Trademark Office guidelines.

Contrary to Caterpillar's expert's interpretation, 6 paragraph six of § 112 does not define a new and distinct variety of patent claim. Rather, the plain language of paragraph six makes clear that the method it prescribes applies on an element-by-element basis and that it applies to both apparatus and methods claims: "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof …" (emphasis added). From the statute courts derive the terms "means-plus-function" and "step-plus-function" for functional language contained in apparatus and methods claims respectively.

6 Caterpillar's expert, James M. Amend, asserts in his affidavit that, "depending on the type of patent (e.g. method, means-plus-function, apparatus, etc.), certain statutory and/or common law rules will govern the manner in which the claims of the patent should be construed," and that "because Claim 1 of the '597 patent is a method claim, P6 of 35 U.S.C. § 112 does not apply to the construction of that claim." Amend Aff. (exh. B to Caterpillar's response), P 15.

The last paragraph of section 112 relating to so-called functional claims is new. It provides that an element of a claim for a combination (and a combination may be not only a combination of mechanical elements, but also a combination of substances in a composition claim, or steps in a process claim) may be expressed as a means or step for performing a specified function, without the recital of structure, material or acts in support thereof.


7 That paragraph six applies to method/process claims also finds support in PTO guidelines published in the wake of the Federal Circuit's decision in In re Roberts, 470 F.2d 1399 (C.C.P.A 1973), and Ex parte Zimmerley, 153 U.S.P.Q. 367 (Bd. App. 1966), respectively:

(5) reducing the coefficient of friction of the resulting film [step plus function; "step" unnecessary], and

(6) raising the Ph [sic] of the resultant pulp to about 5.0 to precipitate …

The guidelines also provide that "step" and "act" are related in the same way as "means" and "structure." 47 Pat Trademark & Copyright J. (BNA) at 573.

7 The court is mindful of the Federal Circuit's warning in In re Donaldson, Inc., 16 F.3d 1189, 1193 n.3 (Fed. Cir. 1994), that Mr. Federico's comments do not constitute legislative history per se because Mr. Federico, though a textual author of the 1952 Patent Act's provisions, was not a legal author, and so was "merely stating his personal views." Lawrence Kass, Comment, Computer Software Patentability and the Role of Means-Plus-Function Format in Computer Software Claims, 15 Pace L. Rev. 787, 852-853 (1995). The Donaldson court's warning, however, was made in the context of a different issue (whether application of paragraph six of § 112 is appropriate during patent examination). With respect to the application of
paragraph six, the United States Court of Customs and Patent Appeals expressed its agreement with Mr. Federico's interpretation of paragraph six as applying to "not only a combination of mechanical elements, but also a combination of substances in a composition claim, or steps in a process claim." Application of Fuetterer, 50 C.C.P.A. 1453, 319 F.2d 259, 264 (C.C.P.A. 1963).

In Roberts the Court of Customs and Patent Appeals reversed the examiner's rejection of four method claims. 470 F.2d at 1403. The examiner's rejection was based on the claims' functional language; the examiner thought the step of "reducing the coefficient of friction--to below about 0.40' defined a result but failed to identify the specific act or acts required to produce the result claimed." Id. at 1402. The court disagreed with the examiner's conclusion because "the [sixth] paragraph of [section 112] specifically allows the use of functional language to define claim limitations." Id. at 1402. "The absence in the claim of specific steps which would bring about the desired friction property is no defect. The claims define the limits of the claimed invention, and it is the function of the specification to detail how this invention is to be practiced." Id. at 1403. In Zimmerley, the Patent Office Board of Appeals reversed a rejection of a method claim for failing to particularly point out and distinctly claim the invention; specifically, the examiner thought that the claim element of "raising the pH level of the resultant pulp to about 5.0 to precipitate dissolved molybdenum as molybdenum trihydroxide" should have recited a specific way of raising the pH level. 153 U.S.P.Q. at 369. The court found the examiner's rejection improper because paragraph six of § 112 "sanctions functionally defined steps in claims drawn to a combination of steps." Id. at 369.

From Roberts, Zimmerley, and Cohn, the court concludes that § 112 applies to functional methods claims where the element at issue sets forth a step for reaching a particular result, but not the specific technique or procedure used to achieve the result. Such an interpretation is consistent with the statute's plain language, which exempts from the purview of § 112 (6) an element in a claim for a combination that is expressed as a means or step for performing a function with the recital of supporting acts. 8

8 Indeed, the Federal Circuit has found § 112(6) inapplicable in situations where an element's language is functional, but some recitation of structure exists and the "means" is not tied to the function. York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1574 (Fed. Cir. 1996).

The Federal Circuit's treatment of means-plus-function language reveals that paragraph six's application is not triggered simply by the use of functional language or the magic words "means for 'ing" or "step for 'ing." 9 In Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed. Cir. 1996), the Federal Circuit found that the district court erred in applying § 112(6) to a claim element that defined a component as a "detent mechanism." The district court based its decision on the functionality of the "detent" (i.e., "a device for positioning and holding one mechanical part in relation to another"), and on the fact that the "detent means" was used twice in the specification's summary of the invention. Id. at 1583. The Federal Circuit disagreed with the district court's reasoning on three bases. First, the court explained that "the fact that a particular mechanism ... is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of section 112(6)." Id. More important than the fact that "detent mechanism" was defined in terms of what it does was the fact that "the term, as the name for structure, has a reasonably well understood meaning in the art." Id. Second, that the specification contained the term "means" was of little significance because "means" was used "simply as a shorthand way of referring to each of the key structural elements of the invention," and that those elements later were described in detail without using "means." Lastly, the court considered the patentee's intent: "the element in question did not use 'means-plus-function' language, no other element of the claim was in means-plus-function form, and nothing cited to use from the prosecution history or elsewhere suggests that the patentee intended to
claim in that fashion." Id. at 1584. The court then noted the general principle that "the use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' (particularly as used in the phrase 'means for') generally invokes section 112(6) and that the use of a different formulation generally does not." Id. at 1584.

9 For a broader view of the application of § 112(6) to method claims, see Kenneth R. Adamo, Drafter's Dilemma: Means Plus Function and Guidelines and Hilton Davis. 78 J. Pat & Trademark Off. Soc'y 367, 389 (1996) ("It is fundamental that nearly all steps recited in process claims fall within this provision [§ 112, para. 6] of the Patent Statute," (citations omitted)). Though the Federal Circuit has not directly addressed the issue, the Federal Circuit has clearly not adopted such an expansive view of the application of § 112(6) to method claims.

Greenberg thus teaches that an element's language is not dispositive of whether § 112(6) applies, see York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1574 (Fed. Cir. 1996) ("Mere incantation of the word 'means' in a clause reciting predominantly structure cannot evoke section 112, P 6."). And, the court should consider whether the functional term has a "reasonably well understood meaning in the art," and the drafter's intent, as may be evidenced by the language, reference to other elements or claims, and the prosecution history.

C. Section 112(6) Does Not Apply to the Elements of Claim 1 of the '597 Patent

Applying the factors discussed above to the elements of Claim 1, the court concludes that § 112(6) is not applicable. The elements of Claim 1 of the '597 patent are written as steps-plus-functions, which support an intent to invoke § 112(6): "steps of: providing a memory ... determining when the cruise control is engaged; ... retrieving one of the sets [of] data ...; retrieving the other set of ...; and using the retrieved data...." That factor, however, is not determinative, and the remainder of the factors counsel the court not to apply § 112(6). Nothing in the prosecution history suggests an intent to invoke § 112(6), see ex. D to Caterpillar's response, and the elements at issue in Claim 1 are not result-oriented, as were those in Roberts, Zimmerley, and Cohn, in which the Federal Circuit discussed the application of § 112(6) to method or process claims. The elements of Claim 1 involve the actions of "providing," "determining," "retrieving," and "using," which do not merely describe an achieved result, but are specific acts in themselves. The acts set forth in Claim 1's elements are "functional" only in the manner in which all acts are functional, and nothing before the court suggests that the acts set forth in the claim lack a "reasonably well understood meaning in the art." See Greenberg, 91 F.3d at 1583.

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1. "Step Plus Function"

As an initial matter, the parties dispute whether subsection (a) of claim 1 of the '446 patent is a "step-plus-function" claim subject to 35 U.S.C. § 112, P 6, which provides:

An element in a claim for a combination may be expressed as a means or a step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, P 6. Under this provision, an inventor "can describe an element of his invention by the result accomplished or the function served, rather than describing the item or element to be used (e.g., 'a means of connecting Part A to Part B,' rather than 'a two-penny nail')." See Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17, 27, 117 S. Ct. 1040, 137 L. Ed. 2d 146 (1997).

The statute "can apply not only to a combination of mechanical elements, but also to 'a combination of . . . steps in a process claim.'" See Masco Corp. v. United States, 303 F.3d 1316, 1326 (Fed. Cir. 2002). The Federal Circuit has held that the statute permits "an element in a combination method or process claim [to] be recited as a step for performing a specified
function without the recital of acts in support of the function." See O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1583 (Fed. Cir. 1997). "The price that must be paid for use of that convenience," however, is that "such a claim covers only the specific acts recited in the specification for performing that function, and equivalent acts." See id.; see also Seal-Flex, Inc. v. Athletic Track and Court Construction, 172 F.3d 836, 850 (Fed. Cir. 1999) (Rader, J., concurring).

There is a presumption that the claims are in step-plus-function format when the drafter uses the term "steps for." See Masco, 303 F.3d at 1326. By contrast, where the claim employs the term "steps of," there is no presumption that the claims are in step-plus-function format, see id. at 1327, because "[m]ethod claims necessarily recite the steps of the method, and the preamble words that 'the method comprises the steps of' do not automatically convert each ensuing step into the form of § 112 P 6." See Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc., 381 F.3d 1371, 1382 (Fed. Cir. 2004). "[W]here a method claim does not contain the term 'step[s] for,' a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act." See Masco, 303 F.3d at 1327. 3

3 "[T]he 'underlying function' of a method claim element corresponds to what that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. 'Acts,' on the other hand, correspond to how the function is accomplished." See Masco, 303 F.3d at 1327 (quoting Seal-Flex, 172 F.3d at 849-50 (Rader, J., concurring) (emphasis in original)); see also O.I. Corp., 115 F.3d at 1583-84 ("We interpret the term 'steps' to refer to the generic description of elements of a process, and the term 'acts' to refer to the implementation of such steps.").

"[E]ven where the drafter employs the "step for" language," however, "section 112, P 6 is implicated . . . only when steps plus function without acts are present" in the claim language. See Masco, 303 F.3d at 1326 (quoting O.I. Corp., 115 F.3d at 1582) (ellipses and emphasis in original). If the claim language sets forth an act to perform the desired function, then the claim is not in step-plus-function format. See id. at 1327. In addition, "merely claiming a step by itself, or a series of steps, without recital of a function does not trigger the application of § 112, paragraph 6." Epcon Gas Systems, Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1028 (Fed. Cir. 2002).

"Only a few cases have found the existence of a step-plus-function claim element." See Seal-Flex, 172 F.3d at 850 n.5 (Rader, J., concuring) (citing In re Roberts, 470 F.2d 1399 (CCPA 1973) and Ex Parte Zimmerley, 153 U.S.P.Q. 367 (BPA 1966)). In Roberts, the claim language at issue provided: "The method of corrugating polyethylene terephthalate film which comprises shaping said film at a temperature in the range of about 100 [degrees] to 175 [degrees] C. by pressing said film between two coacting rotating surfaces and reducing the coefficient of friction of the resulting film to below about 0.40 as determined by the Bell test." See Roberts, 470 F.2d at 1400. The Court of Customs and Patent Appeals held that the phrase "reducing the coefficient of friction of the resulting film to below about 0.40" fell within the scope of § 112 P 6 (then codified as § 112 P 3) because of "the absence in the claim of specific steps which would bring about the desired friction property." See id. at 1402-03. In Zimmerley, a lengthy process claim set forth a number of steps, including "raising the pH of the resulting pulp to about 5.0 to precipitate dissolved molybdenum trihydroxide, leaving the ferrous iron values in solution." See Zimmerley, 153 U.S.P.Q. at 368. The Patent Office Board of Appeals held that this claim language fell within the scope of § 112 P 6 (then codified as § 112 P 3) and, accordingly, there was no need for the claim to "recite a specific way of raising the pH." See id. at 369.

Here, claim 1 of the '446 patent states:

An automated method for designing an initial integrated circuit layout of a digital circuit with a computer, based upon an electronic circuit description and by using a cell library containing cells, comprising the steps of:

(a) selecting a plurality of cells from the cell library that are intended to be coupled to each other with a plurality of wires and that can be used to implement the digital circuit based on the electronic circuit description input to the computer to obtain a selected plurality of cells, having an initial intended delay associated therewith for ensuring that predetermined timing constraints are met;

(b) determining a placement of the selected plurality of cells and the wires coupled thereto using a sequence of
instructions from the computer program; and

(c) determining the area of the some cells, the area of each some cell being determined using the lengths of the wires coupled to each of said some cells such that the initial intended delay of each some cell is realized, the length of each wire being determined by the placement of the cells coupled to that wire.

('446 patent at 17:14-35.) As noted, the parties dispute whether subsection (a) is stated in step-plus-function format.

Because the claim "does not contain the term 'step[s] for,' a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act." See id. at 1327. In subsection (a), the claim specifies the act of "selecting a plurality of cells from the cell library . . . at least some of the selected plurality of cells having an initial intended delay associated therewith" as a way of achieving the specified function, in particular, "ensuring that predetermined timing constraints are met." (See '446 patent at 17:18-26.) As subsection (a) includes both a function and an act, it is not in step-plus-function format. See Masco, 303 F.3d at 1327.

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1. The Order of the Steps of Claim 21

The parties dispute the order of the steps of Claim 21. Claim 19, in the first "storing" step, has only one step, namely that of "storing" information in the compressed data library 118, performed by the compressed data storing means 117. Claim 21 further limits Claim 19 to storing in more than one compressed data library. Claim 21 also necessitates that the first "storing" step in Claim 19 actually performs the step of storing information in the compressed library. If this were not the case, Claim 21 would be invalid. Independent claims are not to be construed to invalidate dependent claims.

The Court construes Claim 21 the '992 Patent as follows:

In a distribution method in which a transmission system is storing information in a compressed data form, the storing of the information can be in any order in several compressed data libraries.

D. The '992 Patent - Claim 41

Claim 41 of the '992 Patent provides:

A method of transmitting information to remote locations, the transmission method comprising the steps, performed by a transmission system, of:

storing items having information in a source material library;

retrieving the information in the items from the source material library;

assigning a unique identification code to the retrieved information;

placing the retrieved information into a predetermined format as formatted data;

placing the formatted data into a sequence of addressable data blocks;

compressing the formatted and sequenced data blocks;

storing, as a file, the compressed, formatted, and sequenced data blocks with the assigned unique identification code; and

sending at least a portion of the file to one of the remote locations.
1. The Preamble of Claim 41

For the reasons stated with respect to Claim 19, the Court finds that the Preamble of Claim 41 of the '992 Patent is limiting in that the method of transmitting information must be performed by a "transmission system," capable of performing the method.

2. The Order of the Steps of Claim 41

The parties agree that the steps of Claim 41 must be performed in the order enumerated in the claim. However, there is a dispute with respect to whether a prior step must be completed before a succeeding step may commence. (See Joint Chart of the Parties Proposed Definitions for Claim Terms From the '992 and '275 Patents at 9, P 22.)

The language of Claim 41 makes each step antecedent to each succeeding step. As discussed in the order of the steps of Claim 19, a step, which is an antecedent to a succeeding step, must commence before the succeeding step commences, and the antecedent step must finish before the succeeding step can finish.
Luma's construction is set forth in (Luma May 4, 2005, p. 4).

Luma proposes hardware or software and a video image. The Master has not used "hardware" or "software" or "video" in the construction. They may or may not be included depending upon how they fit with the Master's Construction. The still frame buffer is not to be limited; however, to those terms. The evidence does not limit the "still frame buffer" with "hardware", "software" or "video".

STRYKER'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Stryker's position is set forth in (Stryker May 23, 2005, p. 10).

Stryker argues that this Patent Specification does not provide any support for Luma's Construction that the "still frame buffer" refers to any medium in "hardware" or "software". The Master agrees. The Master has not made "medium in hardware or software" part of the construction. Stryker's objection to "piecemeal construction" has been addressed by the Master in "# 2" above.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 8).

KSEA objects to using "video". The Master has not inserted "video" in the Construction and agrees with KSEA. KSEA argues that using "saves" is improper. The Master has not used the word "saves" in the Masters' Construction.

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2. Construction of Disputed Claim Language

The '776 patent discloses an improvement to a personal computer data transfer program. The claimed advance over the prior art is the invention's ability to prevent computer viruses from entering and infecting a computer system in the first instance by transferring digital data virus-free to a destination storage medium. 3 The '776 patent discloses a method for scanning for computer viruses during the transfer of incoming digital data and before storage on the destination storage medium, and, in response to the screening step, for automatically inhibiting virus-infected data from being stored and automatically storing virus-free data. 4 At issue here are Claims 1, 2, 6, and 18 of the '776 patent. Claims 1 and 18 are independent claims, whereas Claims 2 and 6 are dependent claims. 5 Accordingly, a finding that Network's accused product does not infringe either of the independent claims will dispose of Plaintiff's case. See Desper Products, Inc. v. QSound Labs, Inc., 157 F.3d 1325, 1338 n.5 (Fed. Cir. 1998); London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1539 (Fed. Cir. 1991).

Footnotes

3 The '776 patent specification asserts that the claimed invention solves the problems of the prior art "by performing an in transit detection of computer viruses... which allows multiple virus signatures to be simultaneously tested for... on the fly" and by inhibiting "the virus from entering the computer in the first place." '776 patent, Col. 1, Lines 45-62. 4 The '776 patent specification discloses that "if any one or more of the [virus] signatures are detected, the file into which the incoming bitstream would have been stored is closed or aborted so the virus does not take up residency on the storage medium." Id. at Col. 1, Lines 65-69, Col. 2, Line 1 (emphasis added). Thus, the inventive advance of the '776 patent is its capability to scan for viruses during the transfer and before the incoming digital data is stored on the destination storage medium thus preventing viruses from infecting this computer system in the first instance. 5 Hilgraeve does not dispute Defendant's contention that Claims 2 and 6 are dependent upon Claim 1.

End Footnotes

The parties' dispute focuses on the meaning and scope of language contained in Claims 1 and 18. 6 To resolve their dispute, the Court must construe these claims, ascertain the specific order in which the disclosed sequential steps are to be performed, and define the "storage" and "prior to storage" terms as used in Claims 1 and 18.
Jump to: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

--- Footnotes ---

6 This dispute centers around the meaning and scope of the language highlighted below.

Claim 1 reads as follows:

1. In a system for transferring digital data for storage in a computer storage medium, a method of screening the data as it is being transferred and automatically inhibiting the storage of screened data containing at least one predefined sequence, comprising the steps of:

   causing a quantity of digital data resident on a source storage medium to be transferred to a computer system having a destination storage medium;

   receiving and screening the transferred digital data prior to storage on the destination storage medium to determine if at least one of a plurality of predefined sequences are present in the digital data received; and

   in response to said screening step:

   (a) automatically causing the screened digital data to be stored on said destination storage medium if none of the plurality of predefined sequences are present, and

   (b) automatically inhibiting the screened digital data from being stored on said destination storage medium if at least one predefined sequence is present.

'776 patent, Col. 17, Lines 9-29 (Emphasis added).

Claim 18 reads as follows:

18. A method of preventing the spread of computer viruses to a computer having a storage medium, comprising the steps of:

   simultaneously searching for a plurality of virus signatures, each of which comprising an identifiable digital sequence, while said computer is receiving a stream of digital data for storage on said storage medium;

   providing an indication of the detection of a virus from said searching step; and

   automatically inhibiting the storage of said digital stream on said storage medium if any of said virus signatures have been detected.

'776 patent, Col. 28, Lines 45-57 (Emphasis added).

--- End Footnotes ---

The parties agree that these are method claims which disclose sequential steps of operation and that the steps must be performed in a particular order. See Plf.'s Resp. at 4, n.5. The disclosed order is as follows: (1) incoming digital data is first screened for viruses while the digital data is being received or is "in transit" and before storage on the destination storage medium, and (2) in response to the screening step, virus-infected digital data is automatically inhibited from being stored whereas virus-free data is automatically stored.

Because Claims 1 and 18 require that virus screening be completed during transfer and before storage on the destination medium, the Court must construe the meaning of the word "storage" as used in those claims. The parties' essentially agree on the meaning of storage. This Court construes "storage" as follows: storage occurs when the incoming digital data is sufficiently present on the destination storage medium, and accessible by the operating system or other programs, so that any viruses contained in the data can spread and infect the computer system. The intrinsic evidence; i.e., the '776 patent
The '776 specification discloses that:

which is the place "most computer operating systems buffer data being written to the storage medium." Id. at Col. 4, Lines 24-26. The screening process is performed at step 32. Thus, in the '776 invention, incoming data is screened before it reaches buffer 38 comprising a portion of RAM 20." Id. at Col. 3, Lines 64-67. Unlike the prior art, the invention's error and virus infection prevention mechanism using the invention to test the data transmission in transit". Id. at Col. 2, Lines 65-66. Below is a drawing from the '776 patent diagraming the invention using a telecommunications link between two computer systems.

The processing or screening step (step 2) is pivotal here and best understood when examined along with the embodiments described and illustrated therein, corroborate this claim construction. They disclose that Claims 1 and 18's sequential steps are to be performed as follows. First is the transmission or screening step. Here, incoming digital data is received and screened "in transit" for computer viruses and before storage on the destination storage medium. Second is the processing or screening step. Here, digital data is caused to be transmitted from one computer storage medium to another. Third is the inhibiting step. Here, in response to the screening performed in step (2), virus-free digital data is automatically stored on the destination storage medium and virus-infected digital data is automatically inhibited from being stored on the destination storage medium.

The '776 patent specification, including the embodiments described and illustrated therein, corroborate this claim construction. They disclose that Claims 1 and 18's sequential steps are to be performed as follows. First is the transmission step. Here, digital data is caused to be transmitted from one computer storage medium to another. Second is the processing or screening step. Here, incoming digital data is received and screened "in transit" for computer viruses and before storage on the destination storage medium. Third is the inhibiting step. Here, in response to the screening performed in step (2), virus-free digital data is automatically stored on the destination storage medium and virus-infected digital data is automatically inhibited from being stored on the destination storage medium. Id. at Col. 2, Lines 17-34.

The '776 invention first "simultaneously" searches for "a plurality of virus signatures" "while said computer is receiving a stream of digital data for storage". Id. at Col. 18, Lines 48-52. Second, if a virus is detected "from said searching step", an indicator is provided showing that a virus has been detected. Id. at Col. 18, Lines 53-54. Finally, if any viruses have been detected, the '776 invention "automatically inhibit[s] the storage of said digital stream on said storage medium." Id. at Col. 18, Lines 55-57. Accordingly, both Claims 1 and 18 teach that the virus screening or searching is done while the digital data is being received or transferred and before it is stored on the destination storage medium.

The '776 patent specification, including the embodiments described and illustrated therein, corroborate this claim construction. They disclose that Claims 1 and 18's sequential steps are to be performed as follows. First is the transmission step. Here, digital data is caused to be transmitted from one computer storage medium to another. Second is the processing or screening step. Here, incoming digital data is received and screened "in transit" for computer viruses and before storage on the destination storage medium. Third is the inhibiting step. Here, in response to the screening performed in step (2), virus-free digital data is automatically stored on the destination storage medium and virus-infected digital data is automatically inhibited from being stored on the destination storage medium. Id. at Col. 2, Lines 17-34.

The processing or screening step (step 2) is pivotal here and best understood when examined along with the embodiments illustrated in Figures 1 and 2 of the '776 patent. These illustrations provide diagrams of "a data communications system in which data transmitted over a telecommunications link between two computer systems is tested in transit using the invention," Id. at Col. 2, Lines 59-64, an overall flow diagram of the in transit detection process", Id., and "a file copying mechanism using the invention to test the data transmission in transit". Id. at Col. 2, Lines 65-66. Below is a drawing from the '776 patent diagraming the invention using a telecommunications link between two computer systems.

[SEE DRAWING IN ORIGINAL]
Typically, the input buffer 30 is configured to hold one or more blocks of data which have been transmitted over communication line 26 by the computer system 12. A cyclic redundancy check (CRC) or other error checks are performed on the data in input buffer 30. If a transmission error is detected, many communications protocols cause the block containing the error to be resent.

When the incoming data stream has been error checked and the input buffer becomes filled, in a conventional data communications system, the data in buffer 30 would be stored on the destination medium 24b. The present invention intervenes at this point by subjecting the buffered data to a character by character virus signature string search analysis depicted at 32.

Id. at Col. 3; Lines 67-68; Col. 4, Lines 1-13 (emphasis added).

In the preferred embodiment, the "string search routine" disclosed in the '776 patent is performed at step 32 and is implemented using a finite state machine based on preloaded finite state tables 34", Id. at Col. 4, Line 1, which tests each character as it enters looking for a match to a virus signature. Id. at Col. 5, Lines 2-21. Blocks of data are transmitted, screened for viruses, and stored in the designed receive file if virus-free, and then the next block of data is transferred and the process is repeated. Id. at Col. 6, Lines 22-68; Col. 7, Lines 1-14. If, in response to the "in transit" screening step, a virus is detected in a block of data being transmitted, "the transfer will of course be cancelled prematurely." Id. at Col. 6, Lines 14-16. Also, "if a virus was detected during the transfer," the data in the file can be purged or deleted by overwriting. Id. at Col. 6, Lines 24-31 (emphasis added). "For added safety, any portion of the file already written can be overwritten with 1's or 0's to ensure that none of the virus remains." Id. at Col.2, Lines 1-3.

The patent specification further teaches that, if "a virus signature is detected" during the incoming virus screening step at 32, "the user is alerted at step 36, typically by an appropriate warning message displayed on the computer system monitor," Id. at Col. 4, Lines 16-19, and any storage of the data onto the destination medium 24b is terminated, with the receiving file being deallocated or marked to be overwritten", Id. at Col. 4, Lines 19-22. However, "if no virus signature is detected, the data is stored on destination medium 24b as depicted at 38 and 40." Id. at Col. 4, Lines 23-24.

Accordingly, only virus-free digital data passes through to buffer 38 on the way to storage on the destination storage medium 40. Virus-infected digital data is automatically inhibited from storage. Virus-infected data will cause the transfer to be interrupted mid-stream, will trigger a flag which notifies the user that a virus signature has been detected in a block of incoming data, and will notify the user that it must decide whether the transfer should be prematurely terminated. If the transfer is terminated, then virus-infected data is stopped before it reaches buffer 38 and is never stored on the destination storage medium 40. Moreover, blocks of virus-free data which have passed through and have been stored on the destination storage medium can be purged or deleted by overwriting as an added anti-virus safety.

In sum, the '776 patent-in-suit operates as follows: The invention receives a quantity of data in buffer 30 during the transfer of digital data from a source medium to a destination medium. The invention scans the data in buffer 30 for the presence of a predefined digital sequence, such as a virus signature, before storing the data on the destination medium 40. If a predefined sequence is found in the digital data, the data in buffer 30 is inhibited from being stored on the destination storage medium. If a predefined sequence is not found in the digital data, the virus-free data is transferred from buffer 30 to a file on the destination storage medium where it is then stored. If a predefined sequence is subsequently detected in an incoming block of digital data, the previously stored, virus-free block of digital data can be purged or overwritten as an added anti-virus safety.

The patent's prosecution history likewise supports the Court's construction of the order within which the sequential steps of Claims 1 and 18 are to be performed as well as the Court's construction of "storage." The Court is mindful that "the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Southwall Technologies, 54 F.3d at 1576. The Court is also mindful that it may consider the prior art cited in the prosecution history for clues as to what the disputed claim does not cover. See Vitronics, 90 F.3d at 1583. The Court cannot, however, use the prosecution history to "enlarge, diminish, or vary the limitations in the claim." Markman, 52 F.3d at 980 (internal quotes and citations omitted). The prosecution history below reveals that, in the screening step, the "prior to storage on the destination storage medium" requirement was added to distinguish the '776 invention from the prior art.
As originally filed, Claim 1 disclosed a method for identifying and inhibiting the storage of data containing at least one predefined sequence or virus signature. Unlike the final amended version of the screening step of Claim 1, there was no sequential limitation that virus screening be performed before storage on the destination storage medium. See Def's Ex. 11, 4/19/90 Patent Application at 25.

In the first Office Action, dated October 24, 1991, the examiner rejected all the claims as unpatentable under 35 U.S.C. § 103 for obviousness in view of an existing patent to Nagata et al. (No. 4,979,210). See Def's Ex. 12, 10/24/91 Patent and Trademark Office Correspondence at 3. All claims were likewise rejected under 35 U.S.C. § 112, second paragraph, "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Id. at 8.

The applicants responded by submitting the following November 7, 1991 amendment: 8

1. (Amended) In a [data transfer] system for [receiving a transmission of] transferring digital data for storage in a computer storage medium, a method of [identifying and] inhibiting the storage of data containing at least one predefined sequence, comprising the steps of:

   causing a [transmission] quantity of digital data resident on a source storage medium to be transmitted to a computer system having a destination storage medium;

   receiving and processing the [transmission] transmitted digital data to determine if at least one of a plurality of predefined [sequence is] sequences are present in the [transmission] digital data received; and

   in response to said processing step:

   (a) causing the digital data of said transmission to be stored on said destination storage medium if none of the plurality of predefined sequences are present, and

   (b) inhibiting the digital data of said transmission from being stored on said destination storage medium if at least one predefined sequence is present.

Def.'s Ex. 13, 11/7/91 Amendment at 2, 4-5. Claim 18 was also added as a new claim. Id. at 4.

--- Footnotes ---

8 Consistent with Patent Office practice, deletions are shown in brackets and additions are underlined. See 37 C.F.R. § 1.121.

--- End Footnotes ---

Applicants also argued that the examiner's rejection for obviousness under § 103 was inappropriate because, unlike the prior art, the '776 invention scanned for viruses in transit and thus prevented viruses from infecting the computer system in the first instance:

While virus scanning programs exist, they do not provide an effective answer to the problem, as they scan files which have already been stored. In other words, a computer virus has the opportunity to attack, mutate and otherwise spread before the file containing the virus is scanned. In contrast, the present invention provides a real and complete solution to this problem by providing a way to check for virus signatures while a digital data file is in transit, so that the receiving computer is protected in the first instance from ever being infected.

Importantly, the present invention has the capability to simultaneously test for a multitude of virus signatures while the digital data is being received. . . . The present invention also has the capability to respond to the detection of a virus by not only preventing the copying of the complete file, but also to mark the file for erasure, and even write over any portion of the file that was copied at the option of the operator.
Id. at 6-7 (emphasis in original).

The examiner did not agree with the applicants' arguments, and, in the next Office Action, dated February 13, 1992, continued the prior rejection and made it final. See Def.'s Ex. 14, 2/13/92 Patent and Trademark Office Corresp. at 4. It was explained that the rejection of all claims under § 103 was in view of prior art; i.e., IBM's Virus Scanning Program and John Rex's "Simultaneous Searching for Multiple Strings", and was based on the fact that the combination of these prior art references disclosed all the features of claims 1 and 18 and others in the '776 patent application. As to the only missing feature; i.e., causing or inhibiting the storage of data on the destination medium, the examiner considered it obvious to inhibit a detected computer virus from being stored on the computer system. Id. at 5-6.

An interview was conducted on June 19, 1992 without any agreement being reached as to patentability. See Def.'s Ex. 15, 6/19/92 Patent and Trademark Office Memo. Thereafter, in August 1992, applicants submitted a proposed amendment, together with a declaration of one of the inventors, Matthew Gray. The proposed amendment was not entered because the examiner found that it raised new issues. See Def.'s Ex. 16, 8/13/92 Amendment; Ex. 17, 8/12/92 Decl. of Matthew H. Gray. Subsequently, applicants filed a continuation application, refiled the amendment, and the claims were allowed. By this action, Claims 1 and 18 were amended to read as follows:

1. (Twice Amended) In a system for transferring digital data for storage in a computer storage medium, a method of screening the data as it is being transferred and automatically inhibiting the storage of screened data containing at least one predefined sequence, comprising the steps of:

   - causing a quantity of digital data resident on a source storage medium to be [transmitted] transferred to a computer system having a destination storage medium;
   - receiving and [processing] screening the [transmitted] transferred digital data prior to storage on the destination storage medium to determine if at least one of a plurality of predefined sequences are present in the digital data received; and
   - in response to said [processing] screening step:
     - (a) automatically causing the screened digital data [of said transmission] to be stored on said destination storage medium if none of the plurality of predefined sequences are present, and
     - (b) automatically inhibiting the screened digital data [of said transmission] from being stored on said destination storage medium if at least one predefined sequence is present.

   * * * *

18. (Amended) A method of preventing the spread of computer viruses to a computer having a storage medium, comprising the steps of:

   - simultaneously searching for a plurality of virus signatures, each of which comprising an identifiable digital sequence, while said computer is receiving a stream of digital data for storage on said storage medium;
   - providing an indication of the detection of a virus from said searching step; and
   - automatically inhibiting the storage of said digital stream on said storage medium if any of said virus signatures have been detected.

Def.'s Ex. 16, 8/13/92 Amendment at 1-2, 4.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

9 Added language is underlined.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -
Important here is the addition of the requirement in the screening step that the screening be performed "prior to storage on the destination storage medium."

The Gray Declaration emphasized that the unique feature of the '776 invention was its ability to screen for a multitude of virus signatures while digital data was being transferred and its ability to stop the transfer midstream when a virus was detected and "before the virus was copied into the system." See Def.'s Ex. 17, Gray Decl. of 8/12/92 at P 4. Because it would preclude the copying and storage of virus-infected data on the computer system in the first instance, the '776 invention was "the best method of protecting against computer viruses". Id. It was this prophylactic feature which distinguished the '776 invention from the prior art which scanned, detected and then removed "infected files from a computer's storage media such as a hard disk drive." Id. at P 3. It is also the key feature that distinguishes the '776 invention from Defendant's accused product, VirusScan.

Having properly construed the language in Claims 1 and 18, the Court now addresses the question whether Defendant's accused product infringes Hilgraeve's '776 patent by practicing the same method steps.

a. Claim construction

Since the proper construction of claims 1 and 18 of the '776 Patent is the identical issue previously adjudicated in McAfee Associates, and because this issue can be determined regardless of the particular defendant before the Court, the claim construction provided by Judge Edmunds has collateral estoppel effect to the extent that the determination of the scope of the '776 Patent claims was essential to a final judgment on the question of non-infringement. See Pfaff v. Wells Electronics, Inc., 5 F.3d 514, 518 (Fed. Cir. 1993); Molinaro v. Fannon/Courier Corp., 745 F.2d 651, 655 (Fed. Cir. 1984); A.B. Dick Co. v. Burroughs Corp., 713 F.2d 700 (Fed. Cir. 1983)). Therefore, this Court adopts Judge Edmunds' opinion on claim construction and only will summarize the relevant analysis below.

In the claim construction step, the Court must consider three kinds of intrinsic evidence: (1) the patent claims, (2) the patent specification, and (3) the prosecution history, if it is in evidence. See e.g., Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); Markman, 52 F.3d at 979; McAfee Associates, 70 F. Supp. 2d at 742. First, in construing the language of the patent claims, the Court must give the words their "ordinary and customary meanings" unless the patentee has given the terms special definitions as "clearly stated in the patent specification or file history." Vitronics Corp., 90 F.3d at 1582; see McAfee Associates, 70 F. Supp. 2d at 742. Second, the patent specification is the written description of the invention and "may act as a sort of dictionary, which explains the invention and may define terms used in the claims." Markman, 52 F.3d at 979; see Vitronics Corp., 90 F.3d at 1582; McAfee Associates, 70 F. Supp. 2d at 742. A claim construction should include the preferred embodiment set forth in the patent specification, see Hoechst Celanese Corp. v. BP Chemicals Ltd., 78 F.3d 1575, 1581 (Fed. Cir. 1996), although the preferred embodiment does not necessarily limit the scope of a claim, see Transmatic, Inc. v. Gulton, Industries, Inc., 53 F.3d 1270, 1277 (Fed. Cir. 1995). See McAfee Associates, 70 F. Supp. 2d at 742. Third, the prosecution history, if in evidence, "limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution," Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995), but it may not "enlarge, diminish, or vary the limitations in the claim." Markman, 52 F.3d 967 (quotation omitted); see McAfee Associates, 70 F. Supp. 2d at 743.

If the meaning and scope of a claim is clear after considering the language of the patent claims, the patent specification, and the prosecution history, then the Court should not consider any extrinsic evidence. See Vitronics Corp., 90 F.3d at 1583; McAfee Associates, 70 F. Supp. 2d at 743. If, however, the meaning and scope of a claim remains unclear, then the Court may consider extrinsic evidence "including expert and inventor testimony, dictionaries, and learned treatises." Markman, 52 F.3d at 980; McAfee Associates, 70 F. Supp. 2d at 742.

In the instant case, Plaintiff accuses Defendant of infringing claims 1, 2, 6, 12, 14, 16, and 18 of the '776 Patent. Claims 1 and 18 are independent claims, whereas claims 2, 6, 12, 14, and 16 are dependent upon claim 1. A finding that Defendant's accused products do not infringe the independent claims will dispose of Plaintiff's case. See Desper Products, Inc. v. Qsound Labs, Inc., 157 F.3d 1325, 1338 n.5 (Fed. Cir. 1998); London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1539 (Fed. Cir.
Claim 1 reads as follows:

1. In a system for transferring digital data for storage in a computer storage medium, a method of screening the data as it is being transferred and automatically inhibiting the storage of screened data containing at least one predefined sequence, comprising the steps of:

causing a quantity of digital data resident on a source storage medium to be transferred to a computer system having a destination storage medium;

receiving and screening the transferred digital data prior to storage on the destination storage medium to determine if at least one of a plurality of predefined sequences are present in the digital data received; and

in response to said screening step:

(a) automatically causing the screened digital data to be stored on said destination storage medium if none of the plurality of predefined sequences are present and

(b) automatically inhibiting the screened digital data from being stored on said destination storage medium if at least one predefined sequence is present.

( '776 Patent, column 17, lines 9-29 (emphasis added).)

Claim 18 reads as follows:

18. A method of preventing the spread of computer viruses to a computer having a storage medium, comprising the steps of:

simultaneously searching for a plurality of virus signatures, each of which comprising an identifiable digital sequence, while said computer is receiving a stream of digital data for storage on said storage medium;

providing an indication of the detection of a virus from said searching step; and

automatically inhibiting the storage of said digital stream on said storage medium if any of said virus signatures have been detected.

( '776 Patent, column 18, lines 45-57 (emphasis added).)

As Judge Edmunds explained, "claims 1 and 18 teach that virus screening or searching is done while incoming digital data is being received or transferred and before it is stored on the destination storage medium." McAfee Associates, 70 F. Supp. 2d at 746. Claim 1 discloses that incoming digital data is first screened for viruses while the digital data is being received and "prior to storage on the destination storage medium," and then, "in response to said screening step," the "screened digital data" is either automatically "stored on the destination storage medium" if a virus is not detected or automatically inhibited from "being stored on said destination storage medium" if one is detected during the screening step. Claim 18 discloses simultaneous searches for "a plurality of virus signatures . . . while said computer is receiving a stream of digital data for storage," and then, if a virus is detected "from said searching step," the '776 Patent invention "automatically inhibit[s] the storage of said digital stream on said storage medium."

Judge Edmunds concluded that the term "storage" used in claims 1 and 18 required some clarification. Plaintiff had urged the McAfee Associates Court to recognize that "storage occurs 'when the incoming file or data is sufficiently present on the destination disk medium so any viruses can spread and infect the system.‘" McAfee Associates, 70 F. Supp. 2d at 745 n.7. The defendant in that case had asserted that "storage occurs 'when the digital data is written to, and present on, the destination medium, and accessible by the operating system or other programs, so any viruses contained in the data can spread elsewhere in the computer system.'" Id. Judge Edmunds noted that "the parties essentially agree on the meaning of
storage," id. at 745, and concluded that, "storage occurs when the incoming digital data is sufficiently present on the destination storage medium, and accessible by the operating system or other programs, so that any viruses contained in the data can spread and infect the computer system." Id.

Defendant here, in effect, urges this Court to delete from this definition the requirement that data must be "accessible by the operating system or other programs" in order to be considered stored. (See Def. Br. at 14-15.) Defendant argues that "because claim interpretation is a question of law, . . . a claim should not be interpreted based on an agreement by the parties in a related, but different, case." (Id. at 15.) While the "related, but different, case" to which Defendant refers has preclusive effect on this Court's claim interpretation, as explained above, this Court agrees that proper claim interpretation may not be based solely on the agreement of the parties.

As explained above, when construing patent claims, this Court is required to consider only the intrinsic evidence of the patent claims, the patent specification, and the prosecution history, unless the meaning and scope of those claims are unclear. Furthermore, while the Court is not required to adopt the meaning proffered by one or more of the parties, see Exxon Chemical Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1555 (Fed. Cir. 1995), a party should not be permitted to argue for a different definition than the one it successfully urged the court below to adopt. Therefore, in light of there being no apparent requirement in claims 1 or 18, the patent specification, or the prosecution history that the stored data be "accessible by the operating system or other programs," and Plaintiff having argued below that "storage" occurs "when the incoming file or data is sufficiently present on the destination disk medium so any viruses can spread and infect the system," this Court will construe "storage" here as follows: storage occurs when the incoming digital data is sufficiently present on the destination storage medium so that any viruses contained in the data can spread and infect the computer system. By omitting from the definition a restriction that does not have a basis the patent claims, patent specification, or prosecution history, this definition is closer to the ordinary and customary meaning of the term in this context and still appears to be consistent with the definitions offered by the parties' experts.

According to the patent specification, the invention receives part of the incoming digital data in a buffer during the data transfer. McAfee Associates, 70 F. Supp. 2d at 748. The invention scans the data in the buffer for the presence of a predefined digital sequence, such as a virus signature, before storing the data on the destination medium. Id. If a predefined sequence is found in the digital data, the data in the buffer is inhibited from being stored on the destination storage medium. Id. If a predefined sequence is not found in the digital data, the data is then transferred from the buffer to a file on the destination storage medium where it is then stored. Id. If a predefined sequence is subsequently detected in an incoming block of digital data, the previously stored, virus-free block of digital data can be purged or overwritten as an added anti-virus safety. Id.

In the preferred embodiment, the "string search routine" disclosed in the '776 Patent tests each character within a block of data as it enters the buffer by searching for a match to a virus signature. ( '776 Patent, column 5, lines 2-21.) See McAfee Associates, 70 F. Supp. 2d at 747. A block of data is transmitted, screened for viruses, and stored in a file if it is virus-free, and then the next block of data is transferred, and the process is repeated. ( '776 Patent column 6, lines 22-68; column 7, lines 1-14.) See McAfee Associates, 70 F. Supp. 2d at 747. If, in response to the screening step, a virus is detected in a block of data being transmitted, the transfer is canceled prematurely, (id. column 6, lines 14-16), and the data in the file can be purged or deleted by overwriting. (id. column 6, lines 24-31.) See McAfee Associates, 70 F. Supp. 2d at 747.

Finally, the prosecution history shows that "prior to storage on the destination storage medium" was added to distinguish the '776 Patent invention from the prior art. See McAfee Associates, 70 F. Supp. 2d at 748.

4. "Storage"

The court next turns to the term "storage." Like the term "message receiver," the parties' primary dispute is whether the term "storage" is drafted in means-plus-function format. The patentee did not use the term "means" and a presumption arises that the claim term is not drafted according to § 112 P 6. The court concludes that the term "storage" connotes specific structure and that the term is not drafted in means-plus-function format. The also concludes that the claim term does not need any further construction.
2. '472 Claim 18: "a storage element for storing electrical energy"

The first step defined in Claim 18 of the '472 patent is the step of "implanting an electronic package beneath the skin of a wearer." The claim then identifies various components of the electronic package, several of which are nearly identical to the components identified in the apparatus Claim 1 and will be interpreted similarly.

The "implanting" step of Claim 18 states that the electronic package must include "a storage element for storing electrical energy to convert an abnormal cardiac rhythm to normal sinus rhythm." '472 Patent, col. 10, ll. 65-67. The significant difference between this statement and the similar statement in Claim 1 is the substitution of the word "element" for the word "means." Because the claim language does not use the word "means" there is no presumption that 35 U.S.C. § 112 P 6 applies. However, the element is stated in purely functional terms, so 35 U.S.C. § 112 P 6 still controls. See Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213-15 (Fed. Cir. 1998) (interpreting "lever moving element" and "movable link member" under 35 U.S.C. § 112 P 6); accord, Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed. Cir. 1999) ("When it is apparent that the element invokes purely functional terms, without the additional recital of specific structure or material for performing that function, the claim element may be a means-plus-function element despite the lack of express means-plus-function language.").

The proper construction of "storage element" in Claim 18 is identical to the construction provided for "storage means" in Claim 1 above. The term "storage element" in Claim 18 will be defined as "a capacitor and equivalents thereof."

4. "storage facility"

The next term disputed by the parties is "storage facility," which appears in claims 5 and 6 of the 037 Patent. The parties proposed claim language parallels the definitions advanced in support of their construction of the term "network communications facility" and "filesystem facility." Thus, adopting the reasoning set forth above, the court construes "storage facility" to mean "a peer-level facility for performing storage control functions." See 037 Patent, 3:53-3:56.

5. "Storage means" (Claims 1-3)

a. The Parties' Proposed Constructions

Motorola's Proposal
Not subject to 35 U.S.C. § 112(6). The "storage means" is "a memory element."

* * *

Vtech's Proposal
Subject to 35 U.S.C. § 112(6):

b. Discussion

If §112, P6 was found to apply, and it has been herein, the parties agreed that the structure for the "storage means" is "memory within the communication receiver." (Docket Entry # 93 at A8).

Motorola asserts that the storage means function is "storing at least one user-programmed call-back number along with data defining at least one corresponding special audible alert, and further for storing data defining a user-programmed default
audible alert." (Docket Entry # 93 at A8). VTech asserts that the function is: "electronically storing at least one user programmed call back phone number previously entered into the memory by the user. The user also programs and stores in the memory data defining an audible alert associated with the previously entered phone number and comprising alert cadence and alert tone frequency. The user also programs and stores in the memory data defining a default audible alert comprising alert cadence and alert tone frequency." Id.

As urged with "receiver means," Motorola argues the functional language for the "storage means" should track the claim language. (Docket Entry # 76 at 24-25) (Docket Entry # 88 at 12). VTech asserts that its construction is consistent with and supported by the specification. (Docket Entry # 83 at 29). For the same reasons as stated above with regard to "receiver means," the Court construes the function of the "storage means" to be the function as stated in the claim language.

c. The Court's Construction

Accordingly, the Court construes the structure of the "storage means" term to be "a memory within the communication receiver" and the function as "storing at least one user-programmed call-back number along with data defining at least one corresponding special audible alert, and further for storing data defining a user-programmed default audible alert."

"storage means"

The term "storage means" appears twice in the '705 Patent. See '705 Patent, claims 1 & 2. Claim 1 from the '705 Patent reads as follows:

1. An audio/video transceiver apparatus comprising:

   input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames collectively representing at least one full motion video program;

   compression means, coupled to said input means, for compressing the said audio/video source information into a digital time compressed representation thereof, wherein said digital time compressed representation of said audio/video source information is capable of being transmitted in a burst transmission period that is substantially shorter than a time period associated with a real time viewing by a receiver of said audio/video source information;

   storage means, coupled to said compression means, for storing said digital time compressed representation of said audio/video source information; and

   transmission means, coupled to said storage means, for transmitting said digital time compressed representation of said audio/video source information away from said audio/video transceiver apparatus in said burst time period.


Burst argues that the court does not need to construe this term. It argues that this term conveys, with requisite specificity, a set of structures to one ordinarily skilled in the art. Burst provides dictionary definitions--from lay as well as technical dictionaries--and an expert declaration to support this point. However, unlike the definitions discussed previously, the technical definitions provided do not contain the requisite specificity. The most specific definition provided, that from the IEEE Standard Dictionary of Electrical and Electronic Terms, defines storage as "any device in which information can be stored, sometimes called a memory device." IEEE Standard Dictionary of Electrical and Electronic Terms at 956. In contrast to the definitions and declarations provided for "input", the description of storage as a "memory device" underscores the conclusion that "storage" is a functional term. Id. A memory device does not connote a particular structure--such as an input port, according to definitions provided. Burst's proposed construction of the term does not solve this issue: "a medium in which data is retained for subsequent retrieval." In this regard, "storage" is sufficiently similar to "lever moving element," a term which the Federal Circuit concluded invoked section 112(6). See Mas-Hamilton, 156 F.3d at 1214. The court concludes that section 112(6) applies to "storage means."
In their proposed constructions pursuant to section 112(6), the parties offer substantially similar descriptions for the corresponding structure for "storage means." Apple contends that the '705 Patent discloses DRAM, SRAM, CMOS memory, optical disc memory, bubble memory, magnetic disk and digital paper. See '705 Patent at 6:16-29. Burst identifies DRAM, SRAM, CMOS, magnetic disk, or optical disk memories, plus equivalents. n6

--- Footnotes ---
n6 At the claim construction hearing, Burst expanded its proposed construction under section 112(6) to include bubble memory and digital paper.

--- End Footnotes ---

Therefore, the court construes "storage means" to include "DRAM, SRAM, CMOS, optical disc memory, bubble memory, magnetic disk and digital paper, plus equivalents." n7

--- Footnotes ---
n7 Section 112(6) requires the inclusion of equivalents in the construction of a means-plus-function term. 35 U.S.C. 112, P 6 ("[S]uch [a] claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."); see also Caterpillar, Inc. v. Deere & Co., 224 F.3d 1374, 1379 (Fed Cir. 2000). Therefore, for each term governed by section 112(6), the construction will include the identified structure and equivalents.

--- End Footnotes ---

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4. Data Storage Means, Storage Means

Romtec argues that the term "data storage means" in Claims 1, 8, and 13 invokes a means-plus-function limitation. 35 U.S.C. § 112, paragraph 6 provides that

An element of a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Where a claim uses the word "means" to describe a limitation, a court must presume "that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses." Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1240, 1247 (Fed. Cir. 1997) (citation omitted). The presumption may be rebutted where the claim, in addition to the functional language, recites structure sufficient to perform the claimed function in its entirety. Id. at 1247-28. Once the court has determined that the claim limitation is a means-plus-function limitation, it must identify the function of the limitation. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999). Next, the court must determine the corresponding structure in the written description that is necessary to perform that function. Id. "Structure disclosed in the specification or prosecution history is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. B. Braun Med. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed. Cir. 1997).

**The Court finds that "data storage means" is a means-plus-function limitation.** The presumption of a limitation has not been rebutted by the inclusion of a structure sufficient to perform the function of data storage. Therefore, the Court looks to the specifications to determine whether there is some corresponding structure necessary to perform that function.

The specifications are quite clear that, although the preferred embodiment depicts the use of a fixed IDE hard drive and a removable IDE hard drive to store data, "it is contemplated that the . . . invention can be used with other forms of data storage such as SCSI drives, read/write optical drives, etc." Col. 3, ll. 3-10. Romtec seeks further to narrow the structures by
requiring that the IDE hard drive, SCSI hard drive, or read/write optical drive be disconnected from the drive active and ground lines, be connected to a switching means through an interrupt request line and a single chip select line, and be directly connected to the motherboard through all remaining lines. While the preferred embodiment admittedly contains the recited structural features, such features do not actually perform the claimed function of data storage and thus do not constitute claim limitations. Wenger Manufacturing, Inc. v. Coating Machinery Systems, Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001); Asyst Technologies, Inc. v. Empak, Inc., 268 F.3d 1364, 1370 (Fed. Cir. 2001). The Court may not import structural limitations that merely enable the pertinent structure, here the IDE hard drives, to operate as intended. Asyst Technologies, Inc., 268 F.3d at 1371. Accordingly, the Court construes the term "data storage means" to mean a device associated with a computer system for storage of data, including an IDE hard drive, a SCSI drive, or a read/write optical drive, or an equivalent structure.

4200

O. First Store/Second Store

The '192, '131, and '708 patents use the term "first store" and "second store." Visto proposes the term "store" means "a storage location for data that may reside on any type of memory device." Seven argues that the term "first store" means "a permanent storage device, such as a magnetic hard disk, but not including temporary memory such as random access memory (RAM) which is located within a firewall-protected corporate LAN and stores workspace elements." According to Seven, the term "second store" means "a permanent storage device, such as a magnetic hard disk, but not including temporary memory such as random access memory (RAM), which is located on a global server and stores independently modifiable copies of workspace elements."

Seven is attempting to particularize the location of the stores as well as the type of the memory that can serve as a store by pointing to the disclosed embodiments. Seven asserts that those of skill in the art would disagree about whether "store" could include all types of memory or whether a more limited definition is appropriate in the context of the patents. The parties agree, however, that a "store" suggests some type of memory device and, in the context of these patents, the court is not convinced that the patentee limited the term as Seven proposes. The court defines the term "store" as a "storage location for data that may reside on any type of memory device." The court declines to define further the terms "first store" and "second store."

4201

6. "a store for storing user identification" ('702 patent)

<table>
<thead>
<tr>
<th>Beneficial's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>No construction is necessary.</td>
<td>&quot;medium that stores user registration information&quot;</td>
</tr>
<tr>
<td>Alternatively, &quot;a device or medium that stores data used to identify a user.&quot;</td>
<td></td>
</tr>
</tbody>
</table>

The Court finds that the primary dispute between the parties as to this term is whether the stored information is the generic "data used to identify a user" or the more specific "registration information." Because the phrase "a store for storing user identification" and the relevant claim language does not limit the stored information merely to "registration information," the Court finds that Defendants' construction improperly limits the phrase to an example in the specification. Thus, the Court finds that "user identification" information is not limited to merely "registration information." Because the medium is the material within the storage device that retains the stored information, the Court finds that the more appropriate term for where the information is stored is "medium." Thus, the Court construes the term "a store for storing user identification" to mean "a medium that stores data used to identify a user."
Claims 1 and 13-16 of the '516 Patent contain the term "stored" or "storing." Individual Networks contends the term means "retained/retaining, other than temporarily for display purposes." Apple contends that the term means "retrievable from memory upon request." The parties' dispute, therefore, is whether the term should be construed broadly to include data that is merely being held and made available for access within the user's computer or whether the term should be construed more narrowly to exclude data that has merely been put into temporary internet cache memory at the user's computer to be used, for example, for display purposes. See Apple's Responsive Claim -Construction Brief at p. 14.

Claim 1 recites a method that includes steps of "storing" the customized media list and the customized media at the computer system. Claim 1 also requires that the customized media be delivered to the user "without storing the customized media local to the user." See col. 14:1-4. Claim 13 recites a method that includes steps of "storing" the customized media list at the computer system, wherein the customized media list is "not stored at the user. See col. 15:1-3. Method claim 14 is similar to claim 1 in that customized media delivered to a user is received without storing it local to the user. See col. 15:20-25. Claim 15 recites that personal profile information is not stored local to the user. See col. 15:31-33. Claim 16 recites that media preference information is not stored local to the user. See col. 15:51-52.

As discussed above, these negative limitations were added by amendment to the claims to gain allowance over the Logan reference. Specifically, in characterizing the Logan reference, Applicant argued as follows:

In Logan et al., the customized media (download compilation) is downloaded into program data storage 107, i.e. stored, in the client/player 103 (see col. 6, line 56 through col. 7, line 3 in Logan et al.) then the user accesses the downloaded customized media at the client computer 103.

'516 Patent file history, Response After Final With a Request for Continued Examination, Oct. 21, 2005 at 12 (APP 0271) (italics added). Thus, Applicant defined "stored" in the context of Logan's downloading into program storage 107 in the client (user) computer 103.

Logan describes use of a data storage system that would exist in a conventional laptop or desktop computer and that includes both high speed RAM storage and a persistent mass storage device such as a magnetic disk memory. Audio, text and image data are stored locally in program storage device 107. The program content data may include compressed audio recordings and/or text files. See col. 3:1-18. To one skilled in the art, in conventional personal computer architecture, RAM storage provides the main memory accessed by the CPU during software program execution and stores the currently executing software program and immediately needed data, including image data that is to be sent to a display. The disk storage provides archival data storage for software programs and data. Further, downloading is understood by one skilled in the art to refer to transferring a file to a user computer's archival data storage, which will later be transferred to RAM storage for execution. Logan indicates that downloading of the programming content for the user is made in segments stored in randomly addressable locations in the local mass storage unit. Thus, the downloading described in Logan, and what is referenced by Applicant in the prosecution history as "stored," is a data transfer that is placed into the persistent mass storage device of the data storage system and is other than a temporary storage of data for display purposes.

The arguments in the prosecution history regarding Logan's download into program storage indicates that the terms "stored and storing" are being used by Applicant in the context of the persistent mass storage device portion of the data storage system in Logan. Accordingly, the Court adopts Individual Networks' proposed construction that "stored/storing" means "retained/retaining, other than temporarily for display purposes."
H. "said data storage unit having a song storage location storing song data and an advertisement storage location receiving advertisement data"

Touchtunes argues that the "song storage location storing song data" and the "advertisement storage location storing advertisement data" in this term are expressed as separate and predefined storage locations in the data storage unit and proposes that the term be construed as "a data storage unit having separate structural advertisement and song locations within the data unit." Arachnid contends that the only word of this claim term about which the parties disagree is "location," which it defines as "a place in the memory where information is stored." Contrary to Arachnid's contention, however, Touchtunes appears to agree as to the definition of location. The parties disagree as to whether these locations are "separate" and "structural."

Touchtunes' proposed construction tracks the specification, which discloses that the "advertisement data is stored at a separate location on the storage unit 93 so that they can be easily located and tracked." '834 Patent 9:11-12. Touchtunes' construction is also supported by Arachnid's statements to the PTO during the prosecution of the '834 Patent, when it sought to distinguish the prior art ("Wain" and "William"):

Clearly, a separate advertisement location within the data storage unit is a structural limitation . . . . Much like Wain, William simply does not describe separate structural advertisement and locations within a data storage unit.

Decl. of Joseph S. Presta ("Presta Decl.") Ex. 14. Arachnid argues that this statement is taken out of context and that it merely conveys Arachnid's argument that the prior art did not teach advertising, much less a data storage unit with locations for advertisement and song data. The Court agrees with Touchtunes, however, that Arachnid sought to distinguish the prior art by relying on separate and predefined storage locations for song data and advertisement data. Arachnid may not now change its position. See Bd. of Regents of the Univ. of Texas Sys. v. BENQ Am. Corp., 533 F.3d 1362, 1372-73 (Fed. Cir. 2008).

Arachnid also cites Judge Kennelly's rejection in the Ecast case of a "structural" or "physical" limitation in this term. However, the prosecution history was not discussed in the Ecast decision, and there is no suggestion in Touchtunes' proposed construction that "structural" means "physical." Rather, Touchtunes clarifies that the term "structural" corresponds to the terms "folders" or "subfolders" used by Arachnid, in that it describes a predefined and preexisting place for receiving and storing particular data.

Touchtunes' proposed construction is consistent with the intrinsic evidence, including the prosecution history of the '834 Patent. The disputed term is therefore construed as "a data storage unit having separate structural advertisement and song locations within the data unit."

4204

B. '472 Claim 1: "storage means for storing"

The second disputed phrase in Claim 1 of the '472 patent is "storage means for storing." In addition to the standard hierarchy of intrinsic and extrinsic interpretive resources, this phrase is the first of several elements in the '472 patent that potentially brings into play a special subset of interpretive rules under paragraph 6 of 35 U.S.C. § 112 ("35 U.S.C. § 112 P 6"). Section 35 U.S.C. § 112 P 6 provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Claims phrased under 35 U.S.C. § 112 P 6 are often called "means-plus-function" or "step-plus-function" claims. In operation, 35 U.S.C. § 112 P 6 allows a patentee to state claims in broad, general language by stating the "functions" of the invention, rather than by repeating the detailed structures or materials (in apparatus claims) or detailed acts (in method claims) that perform the claimed functions. A "means-plus-function" or "step-plus-function" statement in a claim may be an economical way of expressing the more complex structure or acts covered by the claim. The patentee may use 35 U.S.C. §
112 P 6 function statements so long as the "missing" detail appears in the specification. See Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1360 (Fed. Cir. 2000) (the duty to link structure to function is the "statutory quid pro quo" for the convenience of employing 35 U.S.C. § 112 P 6). The relevant structural details or relevant acts from the specification are then essentially incorporated into the function claims. See Multiform Desiccants, 133 F.3d at 1479 (discussing the form and purpose of claims containing functional limitations written in the 35 U.S.C. § 112 P 6 "means-for" form).

The "cost" of using a 35 U.S.C. § 112 P 6 function statement, especially if done unintentionally, is that the scope of the claim is restricted to the particular structures or acts disclosed in the specification, as well as their equivalents. See Personalized Media Communications, LLC v. International Trade Comm'n, 161 F.3d 696, 703 (Fed. Cir. 1998) ("35 U.S.C. § 112, P 6 operates to restrict claim limitations drafted in such functional language to those structures, materials, or acts disclosed in the specification (and their equivalents) that perform the claimed function.").

Structure in an accused device will be a 35 U.S.C. § 112 P 6 "equivalent" if (1) it performs the identical function as the function stated in the claim, and (2) it is otherwise insubstantially different with respect to structure as the disclosed structure. See Kemco Sales, 208 F.3d at 1364, citing Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1267 (Fed. Cir. 1999); Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 934 (Fed. Cir. 1987) (en banc). Significantly, the test developed for the doctrine of equivalents is not wholly transferable to the 35 U.S.C. § 112 P 6 statutory equivalence context due to the functional identity requirement. See Odetics, 185 F.3d at 1267.

The word "means" is a generic description of an apparatus element, and the implementation of such a concept is by structure or material. See O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582-83 (Fed. Cir. 1997). The term "steps" refers to the generic description of elements of a process, and the term "acts" refers to the implementation of such steps. Thus, for apparatus claims, means-plus-function interpretation rules apply if the claim is expressed as a means for performing a specified function without also identifying in the claim itself the specific material or structure that accomplishes that function. For method claims, step-plus-function rules apply if the claim element is expressed as a step for performing a specified function without stating in the claim itself the more specific acts that explain how to accomplish the function. See id.

If 35 U.S.C. § 112 P 6 applies to a claim, a court construing the claim must then (1) "construe the function recited in that claim," and (2) "determine what structures [or acts] have been disclosed in the specification that correspond to the means [or steps] for performing that function." Kemco Sales, 208 F.3d at 1361. Sometimes, however, the threshold issue is whether 35 U.S.C. § 112 P 6 applies at all. The Federal Circuit has established some general rules of thumb.

First, the specific language of the claim can create a presumption that 35 U.S.C. § 112 P 6 either does or does not apply:

Use of the word "means" creates a presumption that 35 U.S.C. § 112, P 6 applies, see York Prods., Inc. v. Central Tractor, 99 F.3d 1568, 1574 (Fed. Cir. 1996) ("In determining whether to apply the statutory procedures of [35 U.S.C. § 112, P 6], the use of the word 'means' triggers a presumption that the inventor used this term advisedly to invoke the statutory mandates for means-plus-function clauses.")., and . . . the failure to use the word "means" creates a presumption that 35 U.S.C. § 112, P 6 does not apply, see [Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed. Cir. 1998)]. These presumptions can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant.

Personalized Media, 161 F.3d at 703-04 (footnotes omitted); see also Kemco Sales, 208 F.3d at 1361 (discussing the quoted language from Personalized Media with approval; "plastic envelop closing means" limitation invokes the presumption and is in means-plus-function format). Similarly, if a claim drafter uses "steps for" to express a method claim element, it is a signal that the drafter intended to invoke 35 U.S.C. § 112 P 6. See Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996).

Second, if an apparatus claim element itself arguably identifies some structure, the test is whether one of skill in the art would understand the term at issue to connote sufficiently definite structure. See Personalized Media, 161 F.3d at 703-05 (finding that the term "digital detector" recited sufficient structure to avoid 35 U.S.C. § 112 P 6; "Even though the term 'detector' does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of
structures known as 'detectors.'"; Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d at 1583 (stating that the inquiry is whether the term used as the name for structure "has a reasonably well understood meaning in the art"). Where a claim recites a function but the claim itself also sets forth sufficient structure or material to perform entirely the recited function, the claim is not a means-plus-function claim even if it uses the term "means." See Personalized Media, 161 F.3d at 704, citing Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1427-28 (Fed. Cir. 1997).

Third, in method claims, merely claiming a step without recital of a function is not analogous to a means plus a function. See O.I. Corp. v. Tekmar Co., 115 F.3d at 1583 (holding that the step of "passing the analyte slug through a passage . . ." was not subject to 35 U.S.C. § 112 P 6). Thus, claiming a "step" by itself, or even a series of steps, does not invoke 35 U.S.C. § 112 P 6. See id. Under this rule, a patentee can define a method or process claim containing steps that begin with a gerund such as passing, heating, reacting, transferring, etc. without necessarily subjecting the claim to 35 U.S.C. § 112 P 6 limitations. See id.

Applying these rules to Claim 1 of the '472 patent, the parties disagree as to whether 35 U.S.C. § 112 P 6 controls the element "storage means for storing." St.Jude contends that "storage means for storing" is a means-plus-function recital and that "storage means" therefore should be limited to "a capacitor" -- the structure disclosed in the specification that performs the stated function. CPI initially asserts that 35 U.S.C. § 112 P 6 does not apply and that there is no need for further interpretation of the phrase. Pl. Reply Br. at 37. Arguing in the alternative, and assuming that 35 U.S.C. § 112 P 6 does apply, CPI offers the following construction: "The corresponding structure is a capacitor and equivalents thereof. A combination of capacitors is the equivalent of a single capacitor." Pl. Amd. Prop. Conc. of Law at 5.

The phrase "storage means for storing" is subject to 35 U.S.C. § 112 P 6. As written in the claim, some unidentified "storage means" performs the function of "storing energy to convert an abnormal cardiac rhythm to normal sinus rhythm." '472 Patent, col. 8, ll. 65-66. The claim is stated in means-plus-function form. Because the claim uses the key phrase "means for," it is presumed that the claim falls under 35 U.S.C. § 112 P 6. CPI has not shown any basis for departing from the presumption in this instance. One skilled in the art would not understand the broad term "storage means" to connote sufficiently definite structure.

Because 35 U.S.C. § 112 P 6 applies, the court must identify the structure disclosed in the specification that performs the function of "storing energy to convert an abnormal cardiac rhythm to normal sinus rhythm." See Kemco Sales, 208 F.3d at 1361. The court agrees with St. Jude that the capacitors disclosed in the two embodiments of the device are the only structures that perform the function at issue. See '472 Patent, Figs. 1 & 3; col. 7, ll. 44-64.

CPI has asked the court to include in the claim construction the statement that a combination of capacitors is the equivalent of a single capacitor. It is not appropriate to define as a matter of law at the stage of claim construction the structures that may be "equivalents" of the disclosed means. "Whether an accused device or method infringes a claim either literally or under the doctrine of equivalents is a question of fact. Literal infringement of a 35 U.S.C. § 112, P 6 limitation requires that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent to the corresponding structure in the specification." Caterpillar Inc. v. Deere & Co., 224 F.3d 1374, 1379 (Fed. Cir. 2000) (internal quotation and citation omitted); accord, IMS Technology, Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1430 (Fed. Cir. 2000) ("Whether an accused device or method infringes a claim with a 35 U.S.C. § 112, P 6 limitation, i.e., whether it performs the identical function with the same structure, materials, or acts described in the specification or an equivalent thereof, is a question of fact."). The court therefore will not adopt the portion of CPI's proposed construction stating that a "combination of capacitors is the equivalent of a single capacitor." It is not possible to say at this point that a reasonable jury would be required to conclude that multiple capacitors are the equivalent of a single capacitor. The term "storage means" in Claim 1 of the '472 patent will be defined as "a capacitor and equivalents thereof."

5 In its brief, Gemstar appears to dispute the construction of "supplying program schedule information to a data processor"
in claim 32 of the '121 patent. Appellant's Br. Appx. at 1-A. Gemstar noted that the ITC made no independent findings pertaining to claim 32. Appellant's Br. at 60. Gemstar presented no independent claim construction arguments for claim 32, stating only that its arguments pertaining to claim 18 of the '121 patent also applied to claim 32. Id. The ITC interpreted "data processor" in claim 32 consistent with its preceding interpretation of "data processor" in claim 18. FID Opinion 2002 ITC LEXIS 812 at *123. On this limited record, it appears that the only aspect of claim 32 that Gemstar is appealing is the construction of the term "data processor" in claim 32. Thus, our revised construction of "data processor" for claims 18 and 66 also applies to claim 32 of the '121 patent.

The relevant limitation of claims 18 and 66 of the '121 patent is: "supplying program schedule information to a storage means in a data processor." Gemstar argues that dictionaries establish that the phrase "storage means in a data processor" meant, to persons skilled in the art in the mid-1980s, the internal memory of a computer. In support of its proffered ordinary meaning, Gemstar relies on dictionary definitions of "data processor" and "internal storage." Gemstar argues that the ITC erred by ignoring the ordinary meaning and instead reading in limitations from the written description in construing this term to encompass the five particular buffers referenced in the written description. Scientific-Atlanta responds that the ITC correctly found that "storage means" had no clear meaning to a person of ordinary skill in the art. Scientific-Atlanta disputes Gemstar's proffered definitions, instead arguing that the ITC correctly construed the limitation in accordance with the written description and prosecution history.

The ITC construed "data processor" to be a CPU. This construction was based on the "relevant evidence" of the abstract, which four times matched "data processor" with reference number "110." FID Opinion 2002 ITC LEXIS 812 at *67. The ITC found that, because the front page of the patent identified CPU by the reference number 110, therefore the "data processor" was a CPU. Id. The ITC next concluded that the "storage means" had to be located physically within a CPU. 2002 ITC LEXIS 812 at *66. Citing its own precedent, the ITC found that the ordinary meaning of "in" was "within." Id. The ITC further concluded that the "storage means" had to be physically located within the "data processor" because the examiner rejected Gemstar's proposed amendments to claim 18 that an electronic memory was "associated with" a data processor. 2002 ITC LEXIS 812 at *68.

The ITC then construed "storage means" to be the five buffers of a CPU disclosed in the '121 patent: the program list buffer, theme buffer, screen buffer, channel buffer, and prime time buffer. 2002 ITC LEXIS 812 at *59. Holding that "storage means" did not have a clear meaning to one of ordinary skill in the art, 2002 ITC LEXIS 812 at *58, the ITC looked to the following passage of the written description in defining "storage means" as these five buffers:

A search of the program listing 352, stored in program list buffer 303, is made. The search is dependent on the status of the channel buffer, the theme buffer, the prime time buffer, and the direction of search. . . . The search continues until the screen buffer is full 354 in which case the search is terminated. The status lines information is passed to the screen buffer and displayed 355 by the TV. Program list buffer 303, screen buffer 353, and the other buffers discussed above comprise a data storage means.

Re'121 patent, col. 2, ll. 38-52 (amending the '121 patent, col. 17, ll. 38-49) (emphases indicate material added during reexamination) (quoted in FID Opinion 2002 ITC LEXIS 812 at *447). The ITC also considered several of Gemstar's proposed reexamination amendments in early 1993 which attempted to define "storage means" as an electronic memory. FID Opinion 2002 ITC LEXIS 812 at *115. The ITC noted that Gemstar eventually abandoned the proposed amendments and instead amended the '121 patent written description to add the above-quoted passage concerning "data storage means." 2002 ITC LEXIS 812 at *446; see also Re'121 patent, col. 2, ll. 38-52.

The ITC's construction of "storage means in a data processor" is erroneous. The ITC initially held that "storage means" did not have a clear meaning to one of ordinary skill in the art. FID Opinion 2002 ITC LEXIS 812 at *58. Our consideration of technical dictionaries reveals otherwise. See Inverness Med. Switz. GmbH v. Warner Lambert Co., 309 F.3d 1373, 1378 (Fed. Cir. 2002) (noting that technical dictionaries are useful in "providing specialized meanings as used in particular fields of art"). Further, the ITC failed to consider whether the specific expression "data processor" had an ordinary meaning to one skilled in the art that would have provided insight and context for the claim language "storage means in a data processor."

Contemporaneous technical dictionaries defined "data processor" as "[a] device capable of performing operations on data,
such as a digital computer, an analog computer, or a desk calculator," Charles J. Sippl, Computer Dictionary 117 (4th ed. 1986) ("Computer Dictionary"), or "a device capable of performing data processing, such as a desk calculator, a punched card machine, or a computer," Jerry M. Rosenberg, Dictionary of Computers, Data Processing, and Telecommunications 128 (1984) ("Dictionary of Computers"). These dictionaries also defined "storage" as "[a] device capable of receiving data, retaining them for an indefinite period of time, and supplying them upon command," Computer Dictionary at 473, and "a device, or part of a device, that can retain data," Dictionary of Computers at 504. General use dictionaries define "in" as "used as a functional word to indicate location or position in space or in some materially bounded object." Webster's Third New International Dictionary 1139 (1993). From these definitions, the ordinary meaning of "storage means in a data processor" is a device capable of retaining data located within a data processing device or system.

The passages the ITC relies upon from the written description fail to redefine this claim term or to expressly disclaim or disavow claim scope. The ITC relies on the following passage: "Program list buffer 303, screen buffer 353, and the other buffers discussed above comprise a data storage means." Re'121 patent, col. 2, ll. 50-52 (amending the '121 patent, col. 17, ll. 38-49) (emphasis added). This passage falls far short of a clear disavowal of claim scope using words of manifest exclusion. See ACTV, 346 F.3d at 1091. Instead, this passage provides only an example or embodiment of a "data storage means" and does not limit the otherwise broad claim language. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998) (cautioning against the limitation of the claimed invention to preferred or specific embodiments or examples in the specification). Thus, the written description provides no basis for redefining or otherwise limiting the construction of this claim term.

Based on the foregoing, we conclude that the ITC erred and should have construed the claim limitation "storage means in a data processor" in the '121 patent to mean a device capable of retaining data located within a data processing device or system.

II. Claim Construction Issues

As noted above, this is our second case involving the '776 patent. In McAfee II, we accepted the claim construction of "storage" urged by both parties and adopted by the district court in McAfee I. That claim construction differs slightly from the claim construction adopted below in the district court in this case in that the McAfee II claim construction views "storage" as occurring "when the incoming digital data is sufficiently present on the destination storage medium, and accessible by the operating system or other programs, so that any viruses contained in the data can spread and infect the computer system." McAfee II, 224 F.3d at 1351 (emphasis added to differing language).

Symantec argues that "storage" should not be construed to occur when data become "accessible by the operating system or other programs," Hilgraeve, 90 F. Supp. 2d at 857, or when "any viruses contained in the data can spread and infect the computer system," but that "storage" should be construed to occur when the data become physically present (i.e., magnetically recorded) on the storage medium.

We need not decide here whether our claim construction in McAfee II is binding on us in this case as a matter of stare decisis. Our decision in McAfee II was precedential, but it merely adopted the district court's claim construction in McAfee I based on the parties' agreement that the district court's claim construction was correct. We have independently considered the issues of claim construction and conclude that the construction of "storage" in McAfee II is indeed correct.

The '776 patent distinguishes prior art virus scanning programs because they "do not automatically prevent the virus from being stored on the medium in the first place, hence they cannot totally prevent the virus from attacking or spreading." '776 patent, col. 1, ll. 51-54. Thus, "storage" of the virus is identified with the virus's ability to spread and infect the computer system. A virus may not spread or infect the computer system, however, unless it is accessed by the operating system or other programs. Given this, we agree with the McAfee II court that "storage" occurs "when the incoming digital data [are] sufficiently present on the destination storage medium and accessible by the operating system or other programs so that any viruses contained in the data can spread and infect the computer system." 1 McAfee II, 224 F.3d at 1351.
The parties also dispute whether "destination storage medium" as used in claim 1 and "storage medium" as used in claim 18 mean the ultimate destination of the digital data or whether the terms may be construed to include an intermediate storage medium. In accordance with the definition of "storage" we have adopted, we conclude that "storage medium" refers to any storage medium of the computer system, if the data, when stored on the medium, are accessible to the operating system or other programs, such that viruses in the data can spread and infect the computer system.

--- End Footnotes ---

4207

S. "stored"

<table>
<thead>
<tr>
<th>Term</th>
<th>Ameranth's Definition</th>
<th>Defendants' Definition</th>
</tr>
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<tbody>
<tr>
<td>stored</td>
<td>temporarily or permanently</td>
<td>persistently saved and retained</td>
</tr>
<tr>
<td>residing</td>
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The disputed term is located in each of the asserted independent claims: "said first menu stored on said data storage device." The parties dispute whether "stored" requires persistent storage or whether data that is stored is merely saved temporarily. The plaintiff argues that persistence would undermine the goal of the invention because it would allow obsolete menu configurations to be retained. The only support for limiting storage to persistent storage comes from the preferred embodiment, and the court declines to import that limitation into the claim. The term "stored" means "saved temporarily or permanently."

GO BACK

4208

I. Store/Storing

Defendants propose that the term "store/storing" be construed as "kept/keeping for use while disconnected from the Internet." Defendants contend that this construction is consistent with the patent's description of the invention as a computer program product for storing content on a user device. They argue that the only embodiment disclosed in the patent is one in which content is stored by a user on a user device, rather than on a server. Because the user would not need an Internet connection to access this stored content, Defendants argue that the content is stored for use while disconnected from the Internet. Aloft argues that no construction is necessary, and that none of the claims are limited to storing content on a user device for offline use.

The Court begins its construction by consulting the claim language. Phillips, 415 F.3d at 1314. In general, courts must impose a "heavy presumption" in favor of the ordinary meaning of claim terms, which can only be overcome by statements of "clear disclaimer" expressly indicating "manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004); Brookhill-Wilk 1, LLC v. Intuitive Surgical Inc., 334 F.3d 1294, 1301 (Fed. Cir. 2003); see also Phillips, 415 F.3d at 1312-13. In this case, the plain and ordinary meaning of the term "storing" is not limited to storing for use while disconnected from the Internet or solely on a user device. Nothing in the claim language contradicts this conclusion.

In fact, Defendants' construction is inconsistent with other claim language in the patent. Phillips, 415 F.3d at 1314 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term."). Independent claim 40 recites "selected content . . . is capable of being manually added by the user, for being stored in user computer memory." This claim limitation strongly implies that the term "storing" does not inherently mean storing on a user device. See Phillips, 415 F.3d at 1314 ("the claim in this case refers to 'steel baffles,' which strongly implies that the term 'baffles' does not inherently mean objects made of steel").

Defendants argue that their construction is mandated by the specification and prosecution history. They argue that the only
type of data storage described in the specification is storage on a user device. Defendants point out that the only "memory" described in the patent is random access memory ("RAM") and read only memory ("ROM") coupled with a central processing unit ("CPU") of a workstation. '443 Pat. Fig. 2, 4:65-67. They cite numerous statements in the specification which describe information being "stored in memory," and identifiers being correlated with URLs by "the processor coupled to the memory." See '443 Pat. Figs. 6, 10, 5:57-60, 9:1-20. Based on these statements, Defendants argue that the only embodiment disclosed in the specification is one in which content is stored by a user on a personal computer. See Praxair Inc. v. ATMI, Inc., 543 F.3d 1306, 1324 (Fed. Cir. 2008) ("The claims of the patent must be read in light of the specification's consistent emphasis on [the] fundamental feature of the invention."); see also Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1351-52 (Fed. Cir. 2004).

While Defendants correctly point out that the word "memory" is only used to describe RAM and ROM, and that Figure 2 depicts a user device with RAM and ROM connected to a CPU, Defendants have failed to show that the patentee disclaimed storing content on a server or that storing content for offline use is a "fundamental feature" of the invention. The patent specification explains that Figure 2 is a "representative hardware environment that may be associated with the various network components of Fig. 1." '443 Patent at 4:58-60. Because Figure 1 depicts both user devices and servers, '443 Patent at 3:17-19, one of ordinary skill in the art would understand that Figure 2's depiction of a "representative hardware environment" would not necessarily limit the memory discussed in the patent to that found on a user device. Thus, one of ordinary skill in the art would also understand that the portions of the specification cited by Defendants are consistent with the idea that storage may occur on a user device or a server. At best, Defendants have shown that one preferred embodiment may store content only on a user device. See Comark Commc'ns, Inc., 156 F.3d at 1187 (courts must not read limitations of the preferred embodiment into the claim language).

Furthermore, the patent describes storing content "in memory of a present machine or across a network." '443 Pat. at 10:38-40. Although this passage appears to describe an aspect of the invention not covered by any of the asserted claims in this case, it strongly implies that content may be stored either on a user device or on a network server. At the very least, this passage indicates that the patentee did not implicitly define the term "storing" as "storing for offline use," or disclaim storage across a network. See Liebel-Flarsheim Co., 358 F.3d at 913.

Finally, the one feature of the invention described as "critical," is that "the documentation related to the selected URLs may be archived for later use . . . as content of URLs are often subject to change." '443 Pat. at 9:6-10. Because, as shown above, documentation or content may be stored for later use on a user device or a server, the patent specification offers no indication that storage for offline use is a "fundamental feature" of the invention. See Praxair Inc., 543 F.3d at 1324.

Defendants also look to the prosecution history for support. "[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." Omega Eng'g, Inc., 334 F.3d at 1324. During prosecution, the patentee criticized the prior art reference Microsoft Internet Explorer, because it required a user to enable a "Make available offline" feature in order for a user to store content. The patentee argued that the claimed invention did not require this sort of cumbersome step for a user to "store content for offline use." '443 Pat. Pet. to Make Special, May 3, 2004, at 5-7. Later, during prosecution, the patentee stated: "By this claimed feature [of pre-selecting identifiers], the cumbersome nature of the above prior art is avoided, since a user does not have to post-select an identifier when attempting to store content for offline use." '443 Pat. Amendment D, May 5, 2006, at 16. Defendants argue that these statements constitute a clear disavowal of claim scope.

Defendants' argument is unavailing. The primary purpose of prosecution disclaimer is to prevent a patentee from recapturing claim scope that was disclaimed in order to obtain claim allowance. Omega Eng'g, Inc., 334 F.3d at 1323-24. In this case, the patentee distinguished the prior art by emphasizing the pre-select feature of the claimed invention and its lack of cumbersome steps, not the fact that the invention could store content for offline use. '443 Pat. Amendment D, May 5, 2006, at 16; '443 Pat. Pet. to Make Special, May 3, 2004, at 5-7. In fact, the prosecution history clearly shows that both the prior art and the claimed invention were capable of storing content for offline use. '443 Pat. Pet. to Make Special, May 3, 2004, at 5-7. Thus, the Court cannot conclude that the patentee's recitation of storage for offline use as a feature of the invention constitutes a clear and unequivocal disclaimer of any other sort of storage.

Having rejected Defendants' proposed construction and thereby resolving the parties' claim scope dispute, the Court finds that the term "stored/storing" will be easily understood by a jury and that no construction is necessary.
## II. Stored Association

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stored Association</td>
<td>No construction necessary</td>
<td>an index value, created by arithmetically compressing a MAC address, that points to a record that relates that MAC address to a communications port on the node</td>
</tr>
</tbody>
</table>

In the alternative:
A table record that relates a MAC address to a communications port on the node.

Defendants argue that the term "stored association" does not have an ordinary meaning either to a lay person or to a person having ordinary skill in the art. Instead, the Court should construe the term to require the use of arithmetic compression for constructing and accessing routing tables. Defendants contend the meaning of the term is limited by the specification because the patent described arithmetic compression as a feature of the invention. See Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("[w]hen a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention").

Plaintiff agrees with the rationale behind the Court's earlier determination that construction of the term "association" was unnecessary and argues that construction of the "stored association" is similarly unnecessary. Alternatively, it argues that, in the context of the claim, the term means "a table record that relates a MAC address to a communications port on the node." Plaintiff contends that Defendants' language would improperly limit the claim term to a preferred embodiment. See Comark Communications, 156 F.3d at 1187.

In general, courts must impose a "heavy presumption" in favor of the ordinary meaning of claim terms, which can only be overcome by statements of "clear disclaimer" expressly indicating "manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 913 (Fed. Cir. 2004). However, this "heavy presumption" does not arise when the patentee acts as his own lexicographer and gives a claim term a different meaning than the term would otherwise possess. See Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1301 (Fed. Cir. 2004). In these situations, the inventor's lexicography governs. Phillips, 415 F.3d at 1316.

In this case, the relevant claim language of the '906 patent recites a "stored association" utilized when a packet is either received or forwarded. The term does not appear elsewhere in the '906 patent. Defendants argue that the claim language implicates a routing table, and that the specification describes the use of arithmetic compression to construct and access routing tables. Defendants urge the Court to find this discussion disclaimed embodiments of the invention that do not employ arithmetic compression.

A patent specification may contain an intentional disclaimer of claim scope despite broadly worded claims. See Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1345 (Fed. Cir. 2001). The Federal Circuit has found disclaimers where the specification describes features as "critical" or distinguishable over the prior art. See Verizon, 503 F.3d at 1308. In contrast, when a patentee addresses several problems present in the prior art, the patentee may direct a claim to a solution for only one of those problems. See Resonate Inc. v. Alteon Websystems, Inc., 338 F.3d 1360, 1367 (Fed. Cir. 2003); Honeywell Inc. v. Victor Company of Japan, 298 F.3d 1317, 1326-27 (Fed. Cir. 2002).
Defendants attempt to distinguish the present term from the term "associated" as construed by the Court in the '061 opinion. In the previous opinion, the Court found that the '224 patent disclosed two solutions to problems in the prior art: 1) a fixed, unique, and unchanging logical address and 2) arithmetic compression for quickly accessing information in directory tables. Defendants argue that the Court declined to impose the arithmetic compression limitation because the claim included the logical address limitation. Here, the logical address limitation is absent; thus, Defendants argue that limiting the claim term to stored associations created by arithmetic compression is now proper. The Court disagrees.

Footnotes

1 In the '061 opinion, the Court focused on the '224 patent, because the '224 patent and '906 patent were children of the '480 Patent and, most, if not all, of the '224 patent citations provided appeared verbatim in the '906 patent.

Plaintiff identifies several inventive concepts that constitute the solutions disclosed by the claimed inventions. The present term appears in claims directed toward the inventive concept of source address filtering based on a packet's MAC source address. While it is true that the claim is not directed toward the logical address concept, the Court's prior opinion does not compel the conclusion that the claim is directed at the arithmetic compression concept. The source address filtering concept identified by Plaintiff does not involve either the logical address or the arithmetic compression concepts. The Court finds the claim is not directed toward the arithmetic compression concept. Therefore, it is improper to import the arithmetic compression limitation from the preferred embodiment. See Resonate Inc., 338 F.3d at 1367; Honeywell, Inc., 298 F.3d at 1325-26; see also Comark Communications, 156 F.3d at 1187. Furthermore, it is clear from the claim language that the disputed term refers to whether a record exists in a table. It is immaterial to the construction of this term how the record was created. Thus, the Court does not find a clear disclaimer of the ordinary meaning of the claim term. See Liebel-Flarsheim, 358 F.3d at 913.

Finally, the Court finds that some claim construction is necessary to insure that a jury will understand what is claimed. See Sulzer Textile A.G. v. Picanol N.V., 358 F.3d 1356, 1366 (Fed. Cir. 2004). The Court construes the term consistent with its plain meaning as understood by a person of ordinary skill in the art. See Phillips, 415 F.3d at 1312-13. Therefore, the Court construes the term "stored association" as "a table record that relates a MAC address to a communications port on the node."

1. Claim interpretation.

Claim 1 of the '326 patent recites:

In a method for synthesizing a musical tone signal on the basis of a predetermined modulation operation employing a modulating signal and a carrier signal, wherein a predetermined waveshape signal is generated in accordance with a stored waveshape table and is used for defining at least one of a modulating wave function and a carrier wave function, wherein the predetermined waveshape signal is a periodic signal having a regularly progressing form within each period, the steps comprising:

specifying a phase section of each period of the waveshape signal, said phase section including plural table values and being less than one period of the waveshape signal;

modifying the waveshape signal in the specified phase section to provide a modified waveshape signal which has a different form in the specified phase section than that of the remainder of the waveshape signal; and

executing said modulation operation by utilizing the modified waveshape signal as said modulating signal or said carrier signal.

(emphasis added).
The disputed issue with respect to this claim is the meaning of the words "stored waveshape table." The district court construed this phrase as "requiring the use of some type of memory, such as a ROM." Yamaha contends that this interpretation is unduly narrow.

The ordinary meaning of "stored" is data retained in a device from which it can be copied or obtained at a later time. See The New IEEE Standard Dictionary of Electrical and Electronics Terms 1296 (5th ed. 1993). A "waveshape" is "the graph of the wave as a function of time." Id. at 1485. Finally, a "table" is "an array of data, each item of which may be unambiguously identified by means of one or more arguments." Id. at 1335.

Defined in this manner, the claim requires that an array of data representing the wave as a function of time be retained in a device for subsequent retrieval. This definition is equivalent to that of the district court because the New IEEE Dictionary of Electrical and Electronics Terms defines "memory" as "any device in which information can be stored . . . ." Id. at 979, 1294.

Although an inventor may be his own lexicographer, Quantum Corp. v. Rodime, PLC, 65 F.3d 1577, 1580, 36 U.S.P.Q.2D (BNA) 1162, 1165 (Fed. Cir. 1995), nothing in the specification indicates that these terms are to have other than their ordinary meanings. Similarly, the prosecution history reveals that the words "stored waveshape table" were added for clarification, but it does not indicate that the words had extraordinary meaning. We therefore agree with the district court's interpretation of "stored waveshape table."

4211

I. "storing said state object on said http client" or "storing said state object in one of said memory and said computer readable medium."

Defendants urge construction of the term "store" to mean "placing the state/object information in memory such that it can be sent back to the server from which the web user/client requested the HTML document." Plaintiff, meanwhile, asserts that no construction of the "storing" step is necessary. Here, the parties' disagreement, sharply focused, centers on whether the claim term "store" should reference the fact that a state object must be stored in a client system such that it may be sent back to a server. Dispositive of this interpretive dispute is the claim construction principle that "the words of the claims themselves . . . define the scope of the patented invention." See Vitronics, 90 F.3d at 1582 (citation omitted). When this principle is applied to the instant dispute, it becomes clear that "store" simply means "placing the state object in memory or a storage device."

The parties sensibly agree that the definition of "store" includes, at the least, "placing the state object in memory," as such a construction is fully supported by the language of claims 1 and 14. In particular, claim 14 reads, as follows: "[S]toring said state object in one of said memory and said computer readable medium." See ‘670 Patent Claim 14. Yet, defendants seek to attach an additional attribute to the claim term "store," namely that a state object must be stored in a manner that allows for later retransmission. This argument, however, impermissibly relies on a description found in the specification, rather than the claim language itself, to define the claim term, thereby redefining the word "store" apart from its plain meaning and contravening a "bedrock principle" of patent law. See Markman, 52 F.3d at 980 ("The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims."). Put simply, the plain meaning of "store" does not imply that storage must occur in a particular manner.

Accordingly, "store," as used in the ‘670 patent claims, means exactly what its plain meaning would suggest: "placing the state object in memory or a storage device."

4212

3. "storing"

<table>
<thead>
<tr>
<th>Claim</th>
<th>FotoMedia's Proposed</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
</table>

- 4491 -
The parties disagree over whether storage requires storage in a database. The defendants contend that in every instance where the specification refers to storage, the only storage disclosed is database storage. The defendants point out that the specification includes an entire section dedicated to describing the various databases, entitled "Database on Server," describing both temporary and permanent storages as being in databases. See '774 Patent, col. 4, ll. 65-67, col. 5, ll. 37. Defendants argue that the lack of disclosure of any other type of storage medium in the specification mandates a limiting construction.

Fotomedia argues that defendants' proposed construction would be improper under the doctrine of claim differentiation. Fotomedia points out that the patentee has used the word "database" in claim 17 of the '936 patent, reciting "storing the received image in a database." See '936 Patent, Cl. 17. Fotomedia, therefore, contends that this requires that the term "storage" not be construed as a "database." Claim 17, however, includes other significant limitations that differentiate it from other claims. Moreover, the Federal Circuit has held that doctrine of claim differentiation cannot serve to broaden claims beyond their meaning in light of the specification. Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1302 (Fed. Cir. 1999); see also Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1400 n. 1 (Fed. Cir. 2008) ("While claim differentiation may be helpful in some cases, it is just one of many tools used by courts in the analysis of claim terms.").

Next, Fotomedia points to the specification as disclosing that "data are stored in the file system of the server in a directory specifically created to store the temporary image files, herein designated as the Temp Image Database 65." See '774 Patent, col. 5, ll. 19-22. FotoMedia argues that the inventors at least contemplated a file system storage, which need not necessarily be a database. The Court finds this argument unpersuasive. Turning to the very section of the specification that Fotomedia points to, the patentee designates these file systems as the "Temp Image Database." Defendants properly note that the specification lacks any teaching or support for storage in any other type of storage medium, either hardware or software. In light of the intrinsic record, the storage related terms are limited to database storage systems. See Phillips, 415 F.3d at 1317.

"Storing" means "placing into a database."
or claims suggests that the ordinary meaning of the term does not control. Because it is consistent with the ordinary meaning of the term, the Court adopts the Plaintiff's construction of "storing."

6. Storing

The Court's Construction: Data written to a nonvolatile form of storage medium (nonvolatile means the data is not lost when the circuit is broken). Markman Tr. 48:9-11; 60:23-61:1, 63:9-10.

Ethos accepted the Court's construction of this term. Id. 48:12. RealNetworks argued that the term "storage" means placing data in either volatile memory (not capable of being retained when the power is turned off) or nonvolatile memory (capable of being retained when the power is turned off). Def. Rep. at 9; see Markman Tr. 32:23-34:25. At the outset, the language of the claims belies RealNetworks' position. Claim 7 of the '892 patent and claim 1 of the '709 patent refer to "storing said data successfully received by the client computer." '892 patent, claim 7, col.14 11.13-14; '709 patent, claim 1, col.12 11.9-10. For data to be received by or transferred to a computer, at a minimum it must be placed in a computer's volatile memory. As Ethos noted at the hearing, all data received by the computer "comes initially into volatile memory." Markman Tr. 39:10-11. RealNetworks, in arguing for its construction of "downloading" as "transferring," suggested that a download of data only involved a transfer into a computer's volatile memory. Def. Rep. at 5 ("To Ethos, downloading must include storing in nonvolatile memory, otherwise the file may not be 'retained' after the transfer is complete. . . . Computers, of course, use both volatile and nonvolatile memory. Ethos ignores the fact that files can be transferred without being stored . . . ."). As such, the "storage" of such data successfully received must do something beyond placing data -- or leaving data -- in the computer's volatile memory. n7

Footnotes

n7 "The amount of data successfully received by the client is stored when an error is detected that terminates the download." '892 patent col.3 11.48-50 (emphases added).

The specifications support the construction of storage as referring only to nonvolatile memory. In both patents, Figure 1 purports to illustrate "a server computer and a client computer which improves the likelihood of a successful download of information." See '892 patent fig.1 & col.5 11.18-20; '709 patent fig.1 & col.5 11.26-27. The figure has a box labeled "client computer" within which there is a smaller box labeled "executed client program." '892 patent fig.1; '709 patent fig.1. Below, but separate from the box representing the client computer, is a cylindrical figure -- labeled number 24 -- connected to the client computer by a line. '892 patent fig.1; '709 patent fig.1. The specifications discuss figure 24 in one embodiment, stating: "This process monitors the data as it is received and while it is stored on the storage medium 24." '892 patent col.6 11.29-30; '709 patent col.6 11.37-38. This suggests storage removed from the typical workings of the client computer. The server computer side of the diagram has the same cylindrical figure - labeled number 20 and identified as "client program and other files." '892 patent fig.1; '709 patent fig.1. The specifications, in discussing the invention generally, refer to figure 20 as a "storage device." '892 patent col.5 1.67, col.6 1.1; '709 patent col.6 1.25. It would seem reasonable to conclude that the same cylindrical figure on the client side is the storage device where the data file is stored after being downloaded.

RealNetworks pointed to the following statement in the specifications to support its construction: "It should also be understood that the invention is not limited to a particular memory system." Def. Rep. at 10 (quoting '892 patent col.8 11.2-3); Markman Tr. 42:20-43:8. This, however, does not appear to refer to the type of memory - nonvolatile versus volatile. In describing the makeup of a computer system, the specifications identify the memory system as one of the components of the computer system. '892 patent fig.2 & col.7 11.6-10; '709 patent fig.2 & col.7 11.14-19. The specifications go on to identify the components of that memory system as typically consisting of a "nonvolatile recording medium" and a "volatile, random access memory such as dynamic random access memory (DRAM) or static memory (SRAM)." See '892 patent fig.3 & col.7 11.46-61; '709 patent fig.3 & col.7 11.54-67, col.8, 11.1-2. The Court concluded, therefore, that the statement -- "the invention is not limited to a particular memory system" -- does not relate to the different types of memory available within a memory system, volatile and nonvolatile.

These terms appear in the claim language as follows:

1. A method of displaying stored intra-oral radiographs, comprising:
   displaying a stored intra-oral radiograph corresponding to said selected target intra-oral radiological site.

2. A method for storing and displaying intra-oral radiographs, comprising: generating and displaying intra-oral radiographs of dentition;
   storing said intra-oral radiograph images responsive to selection of intra-oral radiological sites in said representation along with indicia of respective selected intra-oral radiological sites; and
   subsequently retrieving and displaying said intra-oral radiographs responsive to selection of respective intra-oral radiological sites in said representation.

3. A program storage device readable by a machine and tangibly embodying a representation of a program of instructions adaptable to be executed by said machine to perform the method of any one of claims 1 or 2.

4. A device for storing and displaying intra-oral radiographs, comprising:
   a memory in which said x-ray images are stored;
   means, responsive to selection of said selectable sites, for displaying corresponding stored x-ray images.

5. The device of claim 4, further comprising:
   an image digitizer for digitizing x-ray images produced by said sensor before storage in said memory.

The parties originally submitted an agreed construction of "stored, storage, and memory" as referring to "any form of volatile or non-volatile data storage, including but not limited to hard disk drives, random access memory ["RAM"], floppy disks, and optical media, in addition to any other data storage devices or means." However, Plaintiffs later withdrew their agreement to this construction.

Defendants argue that the Court should order that these terms include any means or device for data storage, including but not limited to random access memory ("RAM"). Otherwise, Defendants assert, jurors might incorrectly draw a distinction between easily recognizable and dedicated devices for data storage, such as floppy disks and hard drives, and RAM. However, Defendants argue, the specification clearly includes RAM as a means for storing information in conjunction with the claimed invention, and thus the jury should have clear guidance that RAM is one possible form of memory and carries out the function of storage.

Plaintiffs agree that "memory," "storage," and "stored," encompass all types of computer memory, but take issue with Defendants' request for clear guidance that RAM carries out the function of storing because it would conflate the media on which the action of storing may be done with the action of storing. Plaintiffs assert that whether the RAM in an accused device or an alleged prior art device is being used to perform the function of recording, retaining, or preserving radiographic images and whether that function is being done "responsive to selection" is a fact issue that should be reserved to the jury. Thus, whether the RVG performed the function of "storing" is a fact issue for the jury. Plaintiffs contend that the terms are plain and ordinary on their face and need no construction. Plaintiffs argue that construing these terms could be confusing to the jury. Plaintiffs are also opposed to a jury instruction stating or suggesting that the mere existence of data in volatile
memory or RAM necessarily and always establishes that the data has been stored there.

"Storage" is used in claim 3 in the context of a "program storage device." Program storage devices are defined in claim 3 as being readable by a machine and tangibly embodying a representation of instructions adaptable to be executed by said machine, and thus program storage device refers to a device for storing the software that performs the methods of claims 1 and 2, which is loaded onto a computer. The specification states that "program storage medium can be any machine readable storage medium such as, for example, a floppy or hard magnetic or optical disk, or a programmable read-only memory."

Column 3, lines 4-7. Contrary to Defendants' argument, see Joint Claim Construction Statement (docket no. 75) at 11, this portion of the specification does not describe the memory onto which x-ray images are stored, but describes only the program storage medium, i.e., the media on which the software to be loaded onto the computer memory can be stored. The program storage medium (item 23 on Figure 1) and the memory (item 22) are clearly distinct, and thus the listing of program storage media does not apply to the memory.

Claims 4 and 5 refer to a memory in which x-ray images are stored and to x-ray images being digitized before storage in said memory. The summary of the invention also states that, "the images are then stored, preferably after digitization, in a computer memory." Column 2, lines 18-20. Figure 1 depicts the memory, and the specification also states that the CPU loads software embodying the present invention into memory. However, neither Figure 1 nor the specification describe the memory. The only possible description can be in the preferred embodiment, which describes a computer with 8 megabytes of system RAM and 40 megabytes of hard disk drive. The claim language also makes clear that stored x-ray images correspond to selectable sites and are stored in response to selection of those sites. Further, the images are "subsequently" retrieved and displayed in response to selection of the sites, indicating that they are stored for subsequent retrieval. Thus, "storing" means "placing in memory for subsequent retrieval," and "stored" means "placed in memory for subsequent retrieval." "Storage" as used in claim 5 means "placement in memory for subsequent retrieval." The real dispute centers on what is meant by the term "memory" and whether it includes random-access memory ("RAM"). n7

n7 This is relevant because the parties dispute whether the RVG 32000, which apparently utilized RAM but not long-term storage media, "stored" the radiographs or merely displayed them.

As noted, Plaintiffs originally stipulated that "memory" could include RAM, but now oppose a construction stating that placement of the x-rays in RAM would constitute the act of storing. Plaintiffs argue that placement of the x-rays in RAM or volatile memory "does not necessarily establish that the action of storing' has occurred -- at least not in the sense of saving the information long-term for later retrieval, as described on columns, 5-6 of the 579 specification." Further, Plaintiffs argue, though the specification describes a preferred embodiment of a computer system that includes RAM, it never describes RAM as a storage device, and the specification indicates that a radiographic image can reside on display memory (RAM) before it is stored.

Defendants argue that Plaintiffs should be held to their prior agreed construction, which is consistent with the specification's description of the preferred embodiment and is consistent with the extrinsic evidence. Defendants point to Dr. Dove's deposition testimony in a related case over the same patent, in which he testified that "stored" means "it resides somewhere . . . it can be in computer RAM memory, on memory. It could be stored on the hard drive, CD-ROM. It could be stored somewhere. There are more storage devices in computers." He also agreed that "both volatile [RAM] and nonvolatile memory is what the patent was referring to in terms of retrieving images that were stored." Defendants further point to Plaintiffs' argued construction in the recently filed and settled patent infringement suit (involving this same patent) against Planmeca U.S.A., in which they stated that "the 579 specification supports a broad construction of these computer memory and storage terms. The 579 specification describes both volatile and non-volatile types of computer memory. The preferred computer at that time included 8 megabytes of RAM,' which is a type of volatile memory, and 40 megabytes of hard disk drive,' which is a type of non-volatile memory."

The Court agrees with Defendants that "memory" is not limited by the specification to any particular type of memory, but could include RAM or hard disk space as described in the specification. Plaintiffs argue that placement in RAM is not storage "in the sense of saving the information long-term for later retrieval, as described on columns 5-6 of the 579
specification." However, while the specification indicates that various exams corresponding to different dates and times can be stored, see Column 3, line 59-60, Column 4, lines 3-5, and Figure 2 (displaying four intra-oral examinations conducted over sixteen months), tending to indicate a long-term storage, a close reading of the specification reveals that there is no indication that the invention relates only to such long-term storage. It does not even state that the x-rays will continue to be stored after the computer or program is shut down. Thus, the Court construes the term "memory" as "any form of volatile or non-volatile computer memory, including random-access memory (RAM) and hard disk drive space."

4216

B. Storing

The '490 patent frequently uses the term "storing" in the claims and specification. Hill suggests that the term should be given its "ordinary, well understood meaning of 'recording (information) in an electronic device (as a computer) from which the data can be obtained as needed.'" Hill's Post-Hearing Brf. on Claim Construction (hereafter "Hill's Brf.") at 16. Compuserve, on the other hand, offers a more detailed definition of the claim term. According to Compuserve, storing means "permanently keeping it in a computer memory so that it is not deleted by the electronic catalog system. Such storing also does not mean storage in a cache memory." Def's Markman Post-Hearing Brief (hereafter "Def's Brf.") at 20. The gravamen of the parties' dispute about the meaning of this term is whether storing should include a period of time in which the information must be kept available. In other words, the question is whether storing must be defined to include a temporal element.

The Court finds that it does, given the objective of the invention, the context of the specification, and the import of both parties' proposed definitions. First, however, it is helpful to review the use of the term "storing" or "stored" in some of the claims at issue. Claim 1, which is an independent claim and one of the broadest, describes a method with seven steps, designated as follows:

1. A method for generating information related to a product, the method comprising the steps of:

   storing and maintaining variable data and constant data . . . in a memory of a main computer . . . .

   storing constant data related to the at least one product . . . in a memory of a remote computer . . . .

   *

   *

   *

   updating constant data stored in the memory of the remote computer with constant data maintained in the memory of the main computer that is different from the constant data stored in the memory of the remote computer . . . .

'490 Patent, Col. 21-22 (emphasis added).

The term is also used in Claim 10, which depends on Claim 1, and which is a method claim with three steps. It provides:

10. The method of claim 1, wherein the constant data updating step includes the steps of:

   determining updated portions of the constant data stored in the main computer that are different than the constant data stored in the remote computer;

   transmitting the updated portions of the constant data stored in the main computer from the main computer to the remote computer; and

   replacing portions of the constant data stored on the remote computer with the updated portions of the constant data.
received from the main computer.

'490 Patent, Col. 22, Cl. 10 (emphasis added).

In the specification's summary of the invention, the term "storing" or "stored" is used to reflect the notion of data being "contained" on the remote and main computer. Id., Col. 1, ll. 51-53 ("Catalog data is stored on both the vendor's computer and the customer's computer . . . vendor's computer contains variable data"), ll. 56-58 ("customer's computer contains all constant data"). It is also used to suggest some degree of permanence, as when the summary describes the customer browsing "through general catalog data residing on the customer's computer." Id., Col. 2, ll. 5-7 (emphasis added). Although the claim language differentiates between data that is "stored and maintained" on the main computer, but only "stored" on the remote, the Court finds that the distinction relates to the meaning of the term "maintain" and not to the word "store." See Col. 3, ll. 11-14. For example, both the specification and the claim language refer to constant data as being "stored" in the remote and the main computers. When accurate product information is needed, the system automatically "updates" the constant data on the remote computer with constant data "stored" in the memory of the main computer. Col. 3, ll. 19-21; Col. 21, ll. 60-61; see also Col. 22, ll. 50-53 ("determining the updated portions of the constant data stored in the main computer"); Col. 23, ll. 17-20, Col. 23, ll. 45-46 ("updating . . . with constant data stored in the memory of the main computer"); Col. 22, ll. 35-38 ("constant data stored in the memory of the main computer and . . . in the memory of the remote computer includes both graphics data and textual data."). The use of the term "stored" when referring to data in both computers suggests that the data is expected to remain in the memory in which it is stored.

By reviewing the background and summary of the invention, the Court finds that "storing" suggests a temporal element in that, as long as a remote user wants to take advantage of the invention (i.e., the distributed data electronic catalog system), constant data must be available on the remote computer. See Tr., Vol. I at 48 (agreeing that the data must stay on the main computer for the system to work). Otherwise, a customer could not reap the benefits of instant access to the most up-to-date product information available or minimize on-line computer time. Both of these objects would require the availability of constant data on the remote computer. Moreover, in considering the dictionary definitions of the verb "store," the Court notes a temporal element in many of the ordinary definitions, including the one proposed by Hill. In Hill's proposed definition, the phrase "data can be obtained as needed" connotes some degree of permanence or availability in that the data cannot be "obtained as needed" from a device that allows the data to be involuntarily deleted or removed. Plf's Ex. 104, citing Webster's New Int'l Dictionary of the English Lang. (3d ed. 1993).

A second dictionary meaning offered by Hill declares that to store is "to leave or deposit in a store, warehouse, or other place for keeping, preservation, or disposal." Id. (emphasis added). Using an earlier version of that same dictionary, the Court notes alternative definitions of "to stock or furnish against a future time" and "to collect as a reserved supply." Webster's Third New Int'l Dictionary of the English Lang. (1981) (emphasis added). Another dictionary provides similar definitions: "to reserve or put away for future use" and "to deposit or receive in a storehouse or warehouse for safekeeping." American Heritage Dictionary (1976) (emphasis added). What each of these definitions has in common is the notion that the one who is doing the storing intends for it to be available for subsequent retrieval and use.

The full import of the ordinary meanings found in the cited dictionaries is consistent with the meaning that can be discerned in the patent claims and specification. A key aspect of the invention is that all catalog data will be kept on the main computer to be accessed by users of remote computers who need the latest product information. Tr., Vol. I at 28-29, 33, 51, Direct Testimony of Dr. Hubert E. Dunsmore, Jr. ("Dr. Dunsmore"). Claim I specifically refers to constant data on the main computer; Col. 21, ll. 60-61 ("indicating revision level of the constant data stored in the main computer"). Another key aspect of the invention is that some data will be left on the remote computer to minimize the amount of time it takes later to obtain the most complete, up-to-date information about a product. Tr., Vol. I at 24-25 (explaining the technology of a "distributed data design"), 28 ("concepts in the Hill invention are to try to make it as efficient as possible so that information is available on the remote, or customer's computers, with a minimal amount of time required to transfer that from the main to the remote.").

Another important concept in the patent is that the "constant data stored in the memory of the remote computer" will be updated "with constant data maintained in the memory of the main computer that is different from the constant data stored in the memory of the remote computer." Id., Col. 22, ll. 5-8 (Claim 1). This step in Claim 1's method suggests that constant data be present in the memory of the remote computer so that it can be updated, and the language "that is different from" suggests a comparison between information stored in the memory of the remote computer and information in the memory of
the main computer. For either of these steps to be useful, there must be constant data in the memory of the remote computer. Again, this language suggests that storing means more than just placing the data in a memory of the remote computer without regard for what happens to it. It suggests that the data remain there for some period of time.

Hill's proposed definition addresses this temporal notion with the phrase, "can be obtained as needed," but the wording leaves the definition vague and subjective. Essentially, Hill states that "storing" is a "simple word" with an ordinary, well-understood meaning. Hill's Brf. at 20. Nevertheless, Hill argues that because the claims use the word "storing" followed by "in a memory," the Court should eliminate the qualifying language "in an electronic device from which the data can be obtained as needed" to avoid any redundancy. Hill's Brf. at 21, n. 11. To do so, however, would eliminate the temporal element from the definition, which would be inconsistent with the meaning of the word in the context of the patent. The Court finds that the better definition for "store" is "to place or record in a storage device so that it will not be involuntarily removed or deleted." This definition varies the "ordinary" definition Hill proposed by refining the element of being able to obtain the information as needed -- a refinement that is consistent with both the patentee's claimed objectives of instant access and minimizing on-line time, and the concept of a distributed data design.

Hill's claim construction theme has been that Compuserve is attempting to narrow the broad language of the claims with extraneous limitations from the specification, which is improper. In Markman I, the court identified two aspects of claim construction: 1) determining the meaning of the language in the claim; and 2) ascertaining the scope of the claim. 52 F.3d at 979. The rule against importing limitations from the specification into the claim relates more to the second step, ascertaining the scope of the claim, and not to the first, determining the meaning of a specific claim term. In Renishaw, the Federal Circuit reiterated the two familiar canons of claim construction cited frequently by the parties: 1) a court may not read a limitation into a claim from the written description; and 2) the court may look to the written description to define a term already in the claim limitation. 158 F.3d at 1248. When trying to determine the meaning of the term "when" in a disputed claim, the Renishaw court noted that the issue brought into "sharp focus the convergence of the two canons. . . ." Id. at 1251. On appeal, the patentee argued that the trial court erred by reading a narrowing limitation into "when" from the written description, while the defendant asserted that the meaning of the term "when" was "embedded throughout the specification." Id.

To resolve the dispute, the court reviewed the specification's description and the preferred embodiment, both of which described the mechanism in terms of an electrical signal occurring as soon as possible after contact between a probe and an object. Noting that the descriptions in the specification could not be read into the claims "without some hook," the court found the hook to be the term "when" in the disputed claim Id. at 1252. The patentee's suggested meaning was found to be so broad that it would require the court to ignore "the abounding statements in the written description that point decidedly the other way." Id. Similarly, the claim language here uses a term that does not have a technical meaning in the applicable industry, yet has several common meanings, and one that provides a hook for reading the written description's intent into the claim. The written description shows that the invention is directed at providing the most accurate, up-to-date information available about a product in the least amount of time. It also specifically refers to the constant data as "residing" on the remote computer. Moreover, the whole point of distributing the data between the two computers is so that it would not take as long to transmit the information from the main computer to the remote. This would be defeated if the constant data being "stored" on the remote computer could be put in a memory where it could be involuntarily deleted.

If the relevant objects of the invention are to provide instant access to data and to minimize on-line computer time, then defining "storing" broadly enough to include temporary storage in random access memory ("RAM") or cache memory, both of which are temporary and subject to involuntary deletions, Tr. at 20, 43-44, 46, would be inconsistent with any of the invention's objectives. Instead, it is much more sensical, in light of the purpose and description in the specification, that the constant data be recorded with the expectation that it would remain until the user removes it of his or her own volition. In sum, the claim term "storing" means "recording in a storage device so that it will not be involuntarily removed or deleted."
argues that because its software deletes data from the cache memory of a user's personal computer when the cache is full and space is needed for newer data, the data that is copied into the cache is not "stored" within the meaning of the '490 patent. Hill responds that just because data is removed from the user's cache when the user's cache is full and removing some data is necessary to make space for newer material does not mean that there is no "stored" data in the cache.

We agree with Hill. The '490 patent expressly contemplates that some constant data stored on the remote computer will be deleted automatically by the system, and such deletions are clearly involuntary from the user's perspective. The patent recites that when a user logs on to the remote computer and clicks on a particular product, the remote computer sends the revision number of its constant data to the main computer, and the software compares that number with the revision number of the constant data stored on the main computer. If the revision number on the remote computer indicates that its constant data related to the product is not current, the constant data files on the remote computer are automatically updated, which means that the outdated information is deleted and replaced with current information. The deletion process is automatic and involuntary; there is no indication in the patent specification or in the claims that the user is asked for permission, consulted, or even notified that outdated product information is being deleted.

CompuServe argues that "storing" is compatible with automatic updating but not with the involuntary removal of material from a personal computer's cache. That argument is not persuasive, as it is based on an artificial distinction between data that is automatically removed by updating and data that is automatically removed to make room for more data. If data is "stored" even though it is subject to automatic removal upon updating, it is hard to see why it is not "stored" simply because it is subject to automatic removal when removal is required by space limitations in the user's cache.

The ordinary meaning of the term "stored" does not require that "stored" material will never be subject to involuntary removal. For example, goods that are retained in a warehouse for retrieval would be considered to be "stored" in the warehouse even if the goods were subject to being discarded if they were not retrieved within a year. The fact that CompuServe's system uses a system such as the "Least Recently Used" algorithm to remove some data when necessary to make space in the cache does not mean that data is not "stored" in the cache prior to its removal. As long as data remains in the user's cache for a period long enough that it could be retrieved in accordance with the retrieval system described in the '490 patent, that data can be said to be "stored" within the meaning of the patent. The fact that some data may be removed from the user's cache and therefore not be available to be compared with the corresponding data in the main computer means that the comparison and updating process would no longer work with regard to the deleted data, but the remainder of the data in the cache would still be subject to comparison and updating, and thus would be "stored" as that term is used in the '490 patent.

Because the district court's summary judgment of noninfringement was based in part on its construction of the term "stored," and because we disagree with the court's construction of that term, we cannot uphold the court's ruling on that ground.

3. "storing a first image as a reference image"

Agilent construes the above phrase as "storing a first set of pixel values, in which each pixel value is indicative of light intensity received at a particular photosensor at a specific time." Elan submits that the phrase, properly construed, means "storing a first set of pixel values representing a field of view of the array as the reference image."

The method by which a reference image is acquired is detailed in the '804 patent: "The two-dimensional array of photosensors is used to acquire a reference frame for tracking attitude of the device." Col. 3, ll. 28-30. The patent also describes the optics of the photosensors that acquire the reference frame: "While not critical, the device includes optics which provide a focus nominally at infinity, intentionally presenting an off-sharp image to the array of photosensors." Col. 3, ll. 35-38. The remainder of the written description similarly includes a disclosure of the reference image as captured by an array of photosensors. Absent any other indication that the reference image could be acquired by any other means, the Court reads the claims in light of the specification and construes "storing a first image as a reference frame" as "storing a first set of pixel values representing that which is captured by the array of photosensors as the reference image."
1. STEP [of] STORING (a LICENSE in a LICENSE FILE)

The first determination necessary to the proper construction of the term "step [of] storing," is whether step-plus-function interpretation is warranted. "Method claim elements may begin with the phrase 'steps of' without invoking application of § 112, P6." Seal-Flex, Inc. v. Athletic Track and Court Construction, 172 F.3d 836, 849 (Fed.Cir. 1999) (Rader, concurring) (citing O.I. Corporation, 115 F.3d at 1583).

In Seal-Flex, the court dealt with a claim which referred in its preamble to "steps of . . .," and referred in the element under consideration to "spreading an adhesive tack coating for adhering the mat to the foundation . . .." Seal-Flex, 172 F.3d at 850 (Rader concurring). Judge Rader noted in his concurring opinion that the element was not in step-plus-function form because, despite the expression of an ultimate function ("adhering the mat to the foundation"), it also expressed the act necessary to accomplish the function ("spreading an adhesive tack coating"). Judge Rader further explained as follows:

Claim elements without express step-plus-function language may nevertheless fall within § 112, P 6 if they merely claim the underlying function without recitation of acts for performing that function. Unfortunately, method claim elements often recite phrases susceptible to interpretation as either a function or as an act for performing a function. Both acts and functions are often stated using verbs ending in "ing." For instance, if the method claim element at issue in this case had merely recited the "step of" "spreading an adhesive tack coating," it would not have been clear solely from this hypothetical claim language whether "spreading" was a function or an act. In such circumstances, claim interpretation requires careful analysis of the limitation in the context of the overall claim and the specification.

In general terms, the "underlying function" of a method claim element corresponds to what that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to how the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, i.e., it's underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then § 112, P 6 applies even without express step-plus-function language.

Unlike the element at issue in Seal-Flex, the predicate language of the first element of Claim 18 contains but a single verb. It is therefore not clear "solely from this . . . claim language whether [\'storing\'] is a function or an act." Id. at 849. The first step in resolving whether "storing," is a step or an act is to determine the meaning of the word. In the context of the '297 Patent, "storing" conceivably could refer either to the initial action of placing "at least one of said licenses in a license file," or alternatively to the feat of maintaining the license(s) in the license file. Reference to earlier use of the word "storing," in Claim 3 is instructive. Specifically, with regard to the term "license file means for storing," the arguments of all parties tacitly rely upon the a definition of "storing" which contemplates the maintenance rather than the initial placement of data. See section III(B)(2), herein.

Therefore, if the first element of Claim 18 warrants step-plus-function interpretation, then the relevant function is "[maintaining] at least one of said licenses in a license file." 14 The Court does not believe that there are any substeps (or acts) described in the specification which may be interpreted to comprise the "step" of "storing." Consequently, if the first element of Claim 18 requires step-plus-function analysis, then Claim 18 is open to a validity attack for failing to disclose an embodiment corresponding to the disclosed function.

Footnotes

14 Such a function of course implies the pre-existence of a license file and of at least one license within the license file.

End Footnotes

However, maintaining data in a computer file when the computer file has already been created and the data to be maintained
already has been deposited does not require explication of component acts. That is, once the function is defined as "maintaining" data it is clear that an act, rather than a step, is at issue. 15

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15 In O.I. Corporation, the court carefully explained why the trial court's stated reasons for applying step-plus-function analysis were incorrect. The Federal Circuit gave no alternative reasoning however, as to why it ultimately concluded that the word "passing," there at issue, did not describe a function. This Court has defined "maintaining" to be an act rather than a step for accomplishing a function. Given that the Court is venturing into largely unmapped territory, it is proper to make explicit the assumption underlying the characterization of "maintaining" as an act. Specifically, the Court believes that the characterization of "act" is appropriate when a person skilled in the relevant art would find the algorithm for performing a function to be virtually dictated by the description of that function. Further, because the "step of" terminology creates no presumption that step-plus-function analysis applies, the Court believes that by default the opposite presumption applies, that is, plain meaning prevails unless the drafter clearly has indicated his intent to act as his own lexicographer.

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So far, the Court has concluded that "step of storing a license in a license file," means "maintaining a license in a license file." The term "license" has already been defined, and the meaning of "license file," is easily deduced from the prior section of this Order to mean "an area of memory on a disk capable of storing at least one license and containing at least a UID."

"STEP OF STORING A LICENSE IN A LICENSE FILE," is maintaining a LICENSE on a disk in an area of memory which is capable of storing at least one LICENSE and which contains at least a UID. 16

- - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

16 There are limitations in the first element of Claim 18 in addition to those contained in the phrase here interpreted. For example, the license file at issue must be "on a workstation."

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F. "Storing A Result Of Said Decoding Step"

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<tr>
<th>Plaintiff's Construction</th>
<th>Defendant's Construction</th>
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<tr>
<td>The input of one or more data items resulting from the</td>
<td>Storing at the user site the</td>
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<tr>
<td>interpretation of the data values that set an expiration</td>
<td>extracted data.</td>
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<tr>
<td>threshold into a memory device from which such data items</td>
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<td>may be retrieved.</td>
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The core dispute between the parties appears to be whether the "result" of the "decoding step" must be "extracted data" (Defendant's position) or not (Plaintiff's position). The Court sees no need to construe the "result" of the "decoding" step to refer to "extracted data." In light of the Court's construction of the "decoding" limitation, which already calls for the limiting data to be "extracted" from the "data stream," such language would be superfluous. Likewise, the Court is reluctant to adopt Plaintiff's construction, which, in the Court's view, is merely a verbose paraphrasing of the claim language that otherwise offers little to assist one of skill in the art in understanding the claims. Indeed, Plaintiff, relying on dictionary definitions, contends that their proposed construction simply corresponds to the ordinary meaning that, for this term, is "readily apparently to even lay judges." (See D.I. 64 at 14 (citing Phillips v. AWH, 415 F.3d 1303, 1314 (Fed. Cir. 2005))). The Court agrees with this sentiment, but disagrees with Plaintiff that the claim term needs paraphrasing with dictionary
definitions. Thus, the Court will not adopt Plaintiff's proposed construction either.

The parties' proposed constructions further appear to reflect a dispute as to whether the result of the decoding step must be stored "at the user site" (Defendant's position) or not (Plaintiff's position). However, after reviewing the briefing, the Court is unable to discern a genuine dispute over this aspect of Defendant's construction. Indeed, at no point in its briefing does Plaintiff directly address this issue. Likewise, during the Markman hearing Plaintiff did not address this issue. Furthermore, Plaintiff appears to agree with Defendant that the "decoding" and "comparing" steps of the claims occur at the "user site." It would make little sense for Plaintiff to contend that the "storing" of the decoded information takes place at a location other than the location of its "decoding" and subsequent use in determining whether viewing limits have been exceeded.

In any event, the Court concludes that the claims confirm that the "storing" of the decoded information takes place at the user site. In particular, the claims explicitly recite that the limiting data is transmitted to the "user site." ('402 patent at 6:3-7, 5:3-7, 4:58-61.) Having been transmitted to the "user site," the limiting information must also be stored there. Plaintiff does not point to any evidence in the specification or claims suggesting any other possibility. The Court will thus adopt Defendant's construction to the extent it calls for the decoded information to be stored at the "user site."

Accordingly, the Court will construe "storing a result of said decoding step" to mean "storing at the user site a result of said decoding step."

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1. Paragraph (1) of Claim 20 of the '998 Patent - "Storing A Sound Waveform"

Macromedia contends that the phrase "sound waveform" must be construed before the phrase "storing a sound waveform" can be addressed. Macromedia contends that it is well recognized in the art that sound is a vibration transmitted in a medium, such as air. (D.I. 243 at 9). When sound is transmitted in air, Macromedia contends that the energy in a sound produces small regions in which the air pressure is lower than average (rarefactions) and small regions in which it is higher than average (condensations). (D.I. 243 at 9). According to Macromedia, these regions of rarified and condensed air propagate in the form of an air pressure wave, comprising of both positive (condensation) and negative (rarefactions) pressure variation. (D.I. 243 at 9). In light of these well recognized principles of sound, Macromedia contends that the phrase "sound waveform" is used in the art to describe a "pattern of pressure variation." (D.I. 243 at 9).

In response, Adobe contends that a "sound waveform" can be either one of pressure (amplitude) or frequency (pitch). (D.I. 305 at 13). Adobe contends that frequency is typically represented as an absolute value representation (i.e. positive) of the pitch of the waveform. (D.I. 305 at 13). Because a "sound waveform" can be used to describe a pattern of pressure or frequency, and because frequency does not necessitate the positive/negative variation requirement, Adobe contends that Macromedia's attempt to limit the meaning of "sound waveform" to a "pattern of pressure variation" is improper. (D.I. 305 at 13). According to Adobe, the phrase "sound waveform" should be construed to mean "an auditory impression of a sound represented as a waveform." (D.I. 243 at 9).

In construing the term "sound waveform," the Court has considered the phrase's ordinary and accustomed meaning, as well as the specification and prosecution history of the '998 Patent. (See D.I. 248, Ex. B, '998 Patent, Col. 1, lines 24-26, 48-50, 54-58; D.I. 248, Ex. C; D.I. 244, Roads Opening Decl. at PP21-23). Based on this review, the Court concludes that a sound waveform as described in the '998 Patent is not one of either pitch (i.e. frequency) or amplitude as suggested by Adobe. Rather, pitch (i.e. frequency) and amplitude are merely characteristics of a sound waveform by which the '998 Patent teaches a means to alter. (D.I. 248, Ex. B, '998 Patent, Col. 1, lines 48-50 (stating "the system provides means to alter the pitch (i.e. frequency) or amplitude of a particular part of any waveform by moving a segment of a line adjacent to the waveform on the screen, which line corresponds to the pitch or amplitude for the adjacent part of the waveform")). Because the Court also concludes that the ordinary and accustomed meaning of sound waveform is a pattern of pressure variation, the Court will construe the phrase "sound waveform" to mean a "pattern of pressure variation." The Court will now turn to the phrase "storing a sound waveform."

Macromedia contends that the phrase "storing a sound waveform" should be construed to mean "storing a pattern of pressure variation in an electronic device (such as memory) from which the information can be obtained as needed." (D.I. 243 at 9).
Adobe contends that the proper construction is "storing an auditory impression of a sound in a computer memory (i.e. RAM) from which the information can be obtained." (D.I. 305 at 16). Because the Court has construed the phrase "sound waveform," the only remaining issue with respect to the construction of the phrase "storing a sound waveform" is whether a sound waveform should be construed to be stored in "a computer memory (i.e. RAM)" or "an electronic device (such as memory)."

Macromedia contends that the phrase "storing a sound waveform" is presented in a method claim that recites a combination of steps or acts. (D.I. 311 at 2). Because method claims should be construed according to their ordinary and accustomed meaning and should not be limited to any particular structure described in the specification, Macromedia contends that Adobe, by its proposed construction, is attempting to improperly read the structure described in the specification (i.e. "a computer memory (i.e. RAM)") into method claims at issue in the '998 and '969 Patents. (D.I. 311 at 2-4).

In opposition, Adobe contends that the phrase "storing a sound waveform," while presented in the form of a method claim, nonetheless implicates 35 U.S.C. § 112 because it recites a step plus function limitation without defining a specific act. (D.I. 305 at 15). Specifically, Adobe contends that the steps and structure disclosed in the specification of accomplishing the act of "storing" must be considered in construing the phrase "storing a sound waveform." (D.I. 305 at 15). Because the specification discloses that sound waveforms are stored in a computer memory, and because computer memory, as it was understood by those of skill in the art in the relevant time frame, refers only to the random access memory (RAM) of a computer, Adobe contends that a sound waveform should be construed to be stored in "a computer memory (i.e. RAM)." (D.I. 305 at 16).


An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereto.

In determining whether a claim element is subject to Section 112, P6, a court considers the phrasing of the element at issue. For example, when determining whether a claim element contains a step plus function limitation, if the claim element uses the phrase "step for," then a step plus function limitation is presumed to exist, and thus, Section 112, P6 is presumed to apply. On the other hand, the term "step" alone and the phrase "steps of" tend to show that Section 112, P6 does not govern that element. See Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 849 (Fed. Cir. 1999).

In the present case, Claim 20 of the '998 Patent uses the phrase "steps of" in the preamble to introduce several "steps." The specific element at issue recites the step of "storing a sound waveform." Because the phrase "step for" is lacking in both the preamble and the disputed claim element, this language tends to show that the verb "storing" recites an act rather than a function. Accordingly, the Court concludes that the phrase "storing a sound waveform" is not drafted in step plus function form, and therefore, will construe this phrase in accordance with the normal principles of claim construction.

In construing the disputed phrase "storing a sound waveform," the Court has considered the specification and prosecution history of the '998 Patent. (See D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-36; D.I. 248, Ex. C). Based on this review, the Court concludes that the phrase "storing a sound waveform" requires storing a sound waveform in a computer memory. (See D.I. 248, Ex. B, '998 Patent, Col. 1, lines 33-36 (stating "the system of this invention provides means for entering and storing sound waveforms in a computer memory . . ."). The Court also concludes that a computer memory, as understood by one of ordinary skill in the art during the relevant time period, is limited to RAM memory. (See D.I. 307 at 3-4). Accordingly, the Court construes the phrase "storing a sound waveform" to mean "storing a pattern of pressure variation in a computer memory (i.e. RAM) from which the information can be obtained."

Plaintiff argues that this term should be construed to mean that the "system stores a transaction ID" while Defendant
proposes that it means "storing an identifier of a specific person." The language of claims 1 and 15 requires that the identification of the user will be used to determine whether the user is authorized to add a record in the database. See claims 1 and 15 of the '940 patent. Based on the specification, the transaction ID is different from the user ID. For example, the specification provides that a unique transaction ID is assigned to each entry. See, e.g., 6:24-28. The specification effectively defines or at least clearly distinguishes a user ID from a transaction ID in columns 7 and 8:

Users providing the requested information are assigned a user ID to be used during subsequent accesses and are requested to choose a password. The password may be required to access some system services. To further encourage voluntary login, users that have complied with the login request and have been assigned a user ID may be afforded the ability to customize the user interface and maintain the resulting look and feel between uses. The customization is performed in a known manner by storing on the host a user preferences file and accessing the file to restore user preferences when a valid user ID is provided.


The patent specification demonstrates that the transaction ID is tied to a particular database entry, while the user ID is tied to a particular user. Plaintiff asks the court to construe this term such that the line between a user ID and a transaction ID is eliminated. The court rejects Plaintiff's proposed construction. The term "storing an identification of said user" means "storing an identifier of a specific person."

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### 4223

3. "storing at least one timing control bit in a control register"

The dispute is whether "storing" means "loading and holding" or simply means "holding." The plaintiff argues that "loading" is necessary because programming requires the system to load data into the control register. According to the plaintiff, simply "holding" values is passive because it requires no action whereas "storing" requires data to be "placed" in a particular location. To support its contention that "storing" includes "loading," the plaintiff points to the Summary of the Invention which states that "timing control bits are preferably loaded into a control register" and the Description of the Preferred Embodiment which states that the information stored in the control register is taken or "loaded" from a read only memory. '924 patent, 2:12-14, 3:23-25; 4:16-19.

The defendant contends that the patentee used "load" and "store" to refer to two different actions in the specification and, therefore, they must mean different things. '924 patent, 1:55-56, 2:12-14. The defendant argues that there is a preference for values loaded during initialization, but that "storing" occurs throughout the operation of the memory controller, not just at startup. The defendant further argues that this phrase appears in Claim 1 of the '924 patent, and, therefore, must be construed consistently. According to the defendant, construing "storing" to include "loading" would not make sense in Claim 1 (the apparatus claim) because a memory controller cannot load something into itself.

The Court agrees with the plaintiff. Although the same terms in different claims are typically given the same meaning, the same terms in different types of claims may be given different meaning. See Epcon Gas Systems, Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1031 (Fed. Cir. 2002) (stating that the same term used in a different manner in two phrases does not necessarily have to be interpreted to mean the same thing in both phrases). In this case, Claim 1 involves a means plus function claim whereas Claim 7 is a method claim. A means plus function claim is limited to the disclosed embodiment while a method claim is not so limited. Furthermore, one of ordinary skill in the art would understand that the term "storing" in the context of programming involves "loading and holding." It would be difficult for a register to hold a control bit without first having it loaded. Accordingly, the Court construes the phrase to mean "loading and holding at least one timing control bit in a register."

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### 4224

2. "storing cells arriving for transmission on said virtual path in a buffer for transmission of cells on said virtual path in
The plaintiff contends that no construction is needed because all the technical terms ("buffer," "cells," and "virtual path") have agreed definitions. The defendants seek a two-part construction for the first limitation of Claim 1.

For the first part, the defendants propose "storing cells arriving for transmission on the VPC in the buffer for that VPC." The dispute is whether a specific buffer is required for each virtual path. The court agrees with the plaintiff that the plain language of the claim requires "a buffer," and not "a buffer for that VPC." Accordingly, the court rejects the defendants' attempt to limit this claim element.

For the second part, the defendants propose that the phrase "when in accordance with said constraint on said rate" modifies, and thus limits, the word "storing," as opposed to the word "transmission." The plaintiff contends that the syntax of the claim language requires the phrase to modify "transmission" and not "storing." Given the claim language, the plaintiff has the better argument. The limitation requires that cells arriving for transmission on the virtual path are stored in a buffer "for transmission of cells on said virtual path in conformance with said constraint on said rate." In the context of the patent, the word "rate" suggests a transmission rate, not a storage rate. As a result, the court holds that the rate constraint portion of this phrase modifies "transmission" as opposed to "storing."

C. "Electronic Storage Media" is "Memory Configured to Store Information in a Format that an Electronic Device Can Read" and "Storing, in Electronic Form, Information" Means "Storing Information in a Format that An Electronic Device Can Read."

The terms "electronic storage media" and "storing, in electronic form, information" appear in asserted claims 1, 3, 6, and 19. In each of these claims, the unit in communication with the central information bank contains a "memory for storing, in electronic form, information transmitted to" the unit from the central information bank.

The unit in turn is configured to transfer information to the "electronic storage media" of system users. The parties' proposed definitions are equivalent – both agree that the terms refer to the storage of information in an electronic format. The parties disagree sharply, however, over the meaning of "electronic." Digeo contends that "electronic" is a generic term that covers a wide variety of storage media, including but not limited to computer hard drives, floppy disks, magnetic tapes, and compact disks. Audible contends that "electronic," as it is used in the claims, covers only memory that stores information in the form of "electrical signals," and excludes all other memory, including magnetic memories (such as hard disks, floppy disks, and magnetic tapes) and optical memories (such as compact disks).

Digeo's interpretation of the term "electronic" seems to the court to be consistent with the ordinary meaning of the term and its use in the claim language. Audible's interpretation seems strained, but as the court is not of skill in the art of networked information systems, the court looks to the specification to illuminate the ordinary meaning.

The court finds the specification inconsistent with Audible's narrow interpretation. The patentees were aware of a broad range of storage mediums, including "tapes, diskettes, cartridges, laser disk[s]," and "compact disk[s]." 823 Patent at 1:22-23. In a list of storage mediums on which publishers might provide content for the invention, the patentees mentioned "magnetic or electronic disks, cartridges, or tape reels or compact disks, laser disks, tape cassettes, etc." Id. at 3:62-63. Audible seizes upon the first "or" in the phrase, insisting that the patentees drew a distinction between "magnetic" media.
and "electronic" media. In Audible's view, because the patentees only claimed "electronic" media, they surrendered all else.

In its briefs, Digeo contended that Audible's interpretation of "electronic storage media . . . would exclude any known computer-readable storage device." Digeo Reply Br. at 11. When the court echoed that concern at oral argument, Audible responded with a 12-page supplemental brief (Dkt. # 41) with extrinsic evidence showing that there is a species of media that is electronic, but not magnetic or optical, and that this species was known in the art during the prosecution of the 823 Patent. With apologies to Shakespeare, the court finds that Audible doth protest too much. The question is not whether specialized "electronic" media existed, but whether the patentees intended to limit the practice of their invention solely to such media. If they had so intended, one would expect the specification to indicate this choice with something other than a single ambiguous use of the word "or." If the patentees had so intended, one would expect the intrinsic evidence to contain a reference to the specialized "electronic" media. If the inventors intended to exclude the most common storage mediums (i.e., hard disks, floppy disks, and compact disks), the court expects that the inventors would have said so.

Moreover, the claims themselves suggest that the patentees were not concerned with specialized "electronic" media. Although several claims refer to the end user's media as "electronic storage media," e.g., Claims 1-5, several others refer simply to "storage media," e.g., Claims 11-14, 17-18, whereas others use the term "memory unit," e.g., Claims 6-10, 27, 29-30. In Claim 19, the inventors simultaneously claimed the more general "storage media" with the supposedly more specific "electronic storage media." In claims depending from Claim 19, the patentees continued to switch between the two terms without explanation. If the court were to follow Audible's logic, it would be forced to conclude patentees sometimes chose to exclude a vast array of media, and sometimes did not, and did so with no explanation whatsoever. The court finds this implausible.

Audible also points to the prosecution history in support of its proposed construction, but again asks the court to read too much into the inventors' choice of words. In a preliminary amendment at the outset of the 292 Application, the patentees inserted the word "electronic" to modify "storage media" in the claims. PH at 500-618-23. Nowhere in the history, however, is there a suggestion that the patentees were making a distinction between "electronic" media in the sense that Audible uses the term and other forms of media. n5 The patentees did not make the distinction in their remarks accompanying the preliminary amendment. PH at 500-628-33. The PTO did not acknowledge the distinction in rejecting the preliminary amendment. PH at 500-638-42. The patentees did not make the distinction in their response to the rejection. PH at 500-645-653. The PTO did not note any distinction when it allowed the claims as drafted in the preliminary amendment. PH at 500-655-56. As the court has already noted, there can be no prosecution disclaimer absent a clear and unambiguous disavowal of claim scope. The court finds no disavowal of claim scope inherent in the patentee's use of the word "electronic."

n5 Although Audible does not acknowledge it, the patentees used the phrase "storing, in electronic form" in their claims since they filed the 056 Application. PH at 500-435. This casts more doubt on Audible's assertion that they surrendered claim scope when they later added the word "electronic" to the claim phrase "storage media."

For the reasons stated above, the court concludes that "electronic storage media" means "memory configured to store information in a format that an electronic device can read," and that "storing, in electronic form, information" means "storing information in a format that an electronic device can read." The term "electronic" does not exclude magnetic or optical media such as hard drives, floppy disks, or compact disks.
Storing in memory

Fenner argues for no construction, while Defendants would define "storing in memory" as "storing in the database memory of the radio frequency communication switch." Defendants argue that "memory" in Claim 1 provides antecedent basis for "the database memory" in Claim 3, and one skilled in the art reading the claims together would understand the "memory" in Claims 1 and 3 to be the same memory. The Court agrees.

Claim 1 describes the switch receiving a PIN and billing code, then requesting a service profile from the billing authority based on the PIN and billing code, and storing the service profile in memory. Claim 3 describes maintaining "a service profile for each mobile user active on the communications switch." Reading the claims together, leads to the conclusion that "the database memory" in Claim 3 refers to the "memory" contained in Claim 1. See Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1331 (Fed Cir. 1999), citing Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579, 34 USPQ2d 1673, 1679 (Fed. Cir. 1995). Further, the specification lends support for this reading. See '706 Patent, Figure 2.

Therefore, the Court construes "storing in memory," to mean "storing in the database memory of the radio frequency communication switch (as construed herein)."

Storing product pictures, product environment pictures and text segments and The computer storing product images, product environment images and text segments

Defendants argue these terms should be construed as "storing each of the product pictures, product environment pictures and text segments as separate and distinct items." Defendants argue that the claims, the specification, and the prosecution history support their proposed construction. This issue of whether the product pictures, product environment pictures, and text segments are "separate and distinct" implicates many of the remaining claim terms in the '342 patent.

Claim language and specification

Defendants contend the claim language supports their proposed construction because the claims recite the product pictures and product environment pictures as separate elements, which are selected through an independent process according to particular customer answers. Further, Defendants argue, the storing step, the selecting step, and the customized proposal step each refer separately to product pictures, product environment pictures, and text segments. Defendants also argue the specification supports their proposed construction because the specification describes the pictures as "building blocks" to create a customized proposal and as being separate and distinct (though those words are not used in the specification). See Abstract; col. 5:31-40, 1:9-16. Defendants argue Figure 1A shows separately stored product pictures, product environment pictures, and text segments and Figure 1B shows how they are combined to create a customized proposal for specific customers. Defendants further contend that Figures 1A and 1B illustrate the invention itself rather than a preferred embodiment. See col. 2:57-59, 60-62.

Orion responds that the claims do not limit whether the pictures and text segments can be stored separately or in combination with one another. Orion contends that Defendants are attempting to limit the claims to the disclosed embodiment. According to Orion, this is improper because the patentee did not demonstrate "a clear intention to limit the
claim scope using words or expressions of manifest exclusion or restriction." See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004). Further, Orion does not agree that the specification supports the Defendants' contentions. Orion contends that one statement from the specification that Defendants use to support their argument, "each combination of pictures for a finished template need not be pre-stored, since the system dynamically builds a template" actually supports Orion's position. See col. 5:37-40. According to Orion, "each combination . . . need not" allows for the possibility that some images may be stored as combinations or sub-combinations. Orion also contends that Figure 1A is merely illustrative and that, in an alternative embodiment, the shown pictures and segments can be stored in any combination. See col. 5:48-51.

The Court agrees with Orion that the claim language does not require that the product pictures, product environment pictures, and text segments be stored separately. Although the "selecting" steps require that three items be selected, the storing step does not limit how those items are stored. The Court also agrees with Orion that the specification does not require that the product pictures, product environment pictures, and text segments be stored "separately and distinctly." Although the preferred embodiment may do so, there is no clear evidence from the specification that the actual invention requires doing so. Given that claims are to be given their broadest meaning unless there is a clear disclaimer or disavowal, see Liebel-Flarsheim Co., 358 F.3d at 906, the Court will not impose this limitation based on the claim language and specification.

Prosecution history

Defendants argue that the prosecution history of both the 342 patent and its parent application, which became the 490 patent, support their proposed construction. Defendants contend that to overcome rejections based on Yourick and Donald, the Applicant argued that his invention did not use complete images but instead assembled different images based on customer-specific information. 490 patent, Amendment & Response 6/19/95, p. 3. Yourick did not combine customer-specific pieces of information, but simply retrieved and displayed predefined complete images. Id. at 4. Donald combined generic images, but did not disclose gathering and formatting customer-specific information. Id. at 3. The Examiner allowed the claim because

the prior art fails to teach or fairly suggest, either singly or in combination, the utilization of a customer's answers to computer-generated questions to select stored pictures of products, stored pictures of product environments, and stored text segments, and to compile this information accordingly, so as to generate a customized proposal for the sale of the product, as recited in independent Claim 30 (now renumbered 1)

490 patent, Notice of Allowance 8/10/95, p. 2 (emphasis added). According to Defendants, the Examiner understood that the product pictures, product environment pictures, and text segments were separate and distinct.

Defendants argue the Examiner also rejected various claims in light of Donald and Yourick reasoning that it would have been obvious to combine the references as discussed above. 342 patent, Office Action 8/29/96, p. 7. Defendants contend the Applicant overcame this rejection by arguing that neither Donald nor Yourick disclose the selection of "particular pictures" and text segments in response to a customer's answers to computer generated questions. The Examiner allowed the 342 patent stating:

The prior art fails to teach or fairly suggest, either singly or in combination, the utilization of a customer's answers to computer generated questions to select stored pictures of products, stored pictures of product environments, and stored text segments, and to compile this information accordingly, so as to generate a customized proposal for the sale of the product, and as recited in independent Claims 30, 35, 40, 45, and 50 (now renumbered 1, 6, 11, respectively).

342 patent, Notice of Allowance 10/2/96.

First, Orion responds that claim 30 of the 490 patent did not include a "storing" element, and the Examiner and Applicant did not discuss whether the product pictures, product environment pictures, and text segments were stored separately or in combination. Orion argues the Applicant distinguished Donald on the grounds that Donald did not teach the claimed steps of gathering and formatting customer-specific information. Orion contends that the Applicant did not make the statement that Donald "shows the combining of generic images and text to make a composite image" in an attempt to distinguish the Applicant's invention from Donald, but rather in an attempt to contrast Donald with Yourick who did "not combine various customer-specific pieces of information." See 490 patent, Amendment & Response 6/19/95, pp. 3-4. Orion argues the
Applicant distinguished Yourick because Yourick did not teach "formatting," not because Yourick taught "predefined complete images." Id. at 4. According to Orion, these statements to the Examiner do not meet the standard for disclaimer. Second, Orion contends the prosecution history of the '342 patent is silent as to how the product pictures, product environment pictures, and text segments are stored. Orion insists this term does not require construction since it retains its plain and ordinary meaning.

The Court agrees with Orion's characterization of the '342 patent's prosecution history. The Applicant distinguished the '342 patent from Donald and Yourick:

The claimed system selects a particular product picture, a particular product environment picture, and a particular text segment "in response to at least one of the customer answers." The selected pictures and text segment are used to generate "a customized proposal for the customer."

... Neither Donald nor Yourick teach, for example, teach or suggest the selection of particular pictures and text segments in response to a customer's answers to computer generated questions.

342 patent, Amendment & Request for Reconsideration 9/24/96, p. 3. The Applicant's statement cannot be fairly characterized as a disclaimer or disavowal of the plain meaning of the claim term.

The Court also agrees with Orion's interpretation of the 490 patent's prosecution history. The Applicant distinguished Donald and Yourick because "the present invention includes means for gathering customer-specific vehicle information' and for formatting the customer-specific vehicle information according to criteria related to a layout, of the customized proposal.'" 490 patent, Amendment & Response 6/19/95, p. 3. The Applicant argued that although Donald mentioned combining composite images, Donald did not disclose gathering and formatting customer-specific information including vehicle pictures, environment pictures, and text. Id. The Applicant also argued that because Yourick displayed complete images rather than assembled images, Yourick did not format the information for a particular layout. Id. at 4. The Applicant further argued that Yourick did not disclose associating a user's responses with product pictures, environments, and text. Id.

Conclusion

Although the claim language requires "storing in the computer product pictures, product environment pictures and text segments," neither the claim language itself, nor the specification, nor the prosecution history clearly limit the storing step to storing the product pictures, product environment pictures, and text segments as "separate and distinct" items. Since Defendants urge the Court to separately construe "product pictures" and "product environment pictures," these terms do not require further construction.

1. "storing items having information in a source material library" (claim 41 of the '992 patent)

The parties request that the Court construe the term "storing items having information in a source material library" that is an element in claim 41 of the '992 patent. Claim 41 in pertinent part recites: "[a] method of transmitting information to remote locations, the transmission method comprising the steps, performed by a transmission system, of: storing items having information in a source material library." ('992 patent, 24:54-56).

Acacia construes the phrase to mean "the act of placing items having information in a source material library for later use where a source material library is a place where source material is kept or a collection of such material, source material are physical things at the point of origin or procurement, items having information are units or members of groups which have information, and information is any meaning assigned to data by known conventions." (Joint Claim Construction Chart, Docket Item No. 151). Acacia rebuts Defendants' assertion that the transmission system has readily accessible for use source items of the transmission system in a library by citing the '992 patent, col. 18, lines 53-59, stating that act of retrieving the information for items is analogous to taking books off a shelf at the local public library.

Defendants construe "storing items having information in a source material library" to mean that "the transmission system has readily accessible for use (stores) source items of the transmission system in a library," where library requires
organization of the items. (Joint Claim Construction Chart, Docket Item No. 151). Defendants assert that Acacia initially required a library to be a collection of materials "arranged for ease of use" and that once Acacia abandoned its previous position Defendants added the phrase "organized collection."

The Court finds that the plain and ordinary meaning of the term "library" could mean either a collection of books or a place where books could be stored. The specification supports defining library to be a collection of material, which contains analog or digital information, that the transmission system may convert, compress, and transmit. In other words, the specification defines the source material library as a collection of sources of information. In the transmission system described in claim 41 of the '992 patent, the Court construes the phrase "storing items having information in a source material library" to mean "adding items having information to a collection of existing materials."

23. Storing partitioned data in registers

The plaintiff contends that "storing partitioned data in registers" means "storing in registers the data that was divided into separate and distinct data fields." The defendants, on the other hand, argue that "storing partitioned data in registers" means "the results of the dynamic partitioning of the data stream is [sic] stored in adjacent portions of registers." The plaintiff disagrees with the defendant's proposed construction because it requires that the results of the dynamic partitioning be stored in adjacent portions of the register. According to the plaintiff, the specifications of the media processor patents disclose storing partitioned data in non-adjacent portions. The defendants contend that a person of ordinary skill in the art would understand that the data are stored in adjacent portions of registers. After considering the arguments of counsel, the court construes "storing partitioned data in registers" to mean "the results of the dynamic partitioning of the data stream are stored in registers."

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G. "a programmable memory storing said song data representing the plurality of songs, said programmable memory also storing said advertisement data representing the at least one advertisement"

Arachnid contends that there is no dispute that the memory in this term stores songs and data, and that therefore the plain and ordinary meaning of "programmable memory" is "computer memory that can be programmed." Touchtunes challenges this proposed construction, arguing that it ignores the requirement that a programmable memory "store both said song data and said advertisement data." (Touchtunes Resp. 12.) Touchtunes therefore proposes the following construction: "A computer storage device that stores both said song data and said advertisement data."

Arachnid takes issue with Touchtunes' use of the term "device" to restrict the claim term to a single physical piece of equipment, contending instead that the programmable memory is not required to be in a single place or serve a single function, because the claim term uses the indefinite article "a" to qualify "programmable memory." See Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (observing that "an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more'"). However, the plain language of the disputed claim term makes it clear that the same programmable memory storing said song data must also store said advertisement data, because "said programmable memory" necessarily refers back to the "a programmable memory" recited earlier in the claim. See, e.g., Intamin, Ltd. v. Magnetar Techs. Corp., 483 F.3d 1328, 1333 (Fed. Cir. 2007) (use of the word "said" in a claim refers to an earlier use of that term in the claim). While the Baldwin case cited by Arachnid acknowledged the rule that "a" and "an" mean "one or more" and also held that the subsequent use of "the" or "said" does not change the potentially plural nature of the "one or more" structures claimed, 512 F.3d at 1342-43, it does not hold that a limitation requiring "said" structure to perform two tasks could be satisfied by splitting those tasks among multiple structures. Here, at least one programmable memory must itself store song data while "also storing said advertisement data" to satisfy the express limitation in the claim.

Arachnid relies on an opinion from a case in the Northern District of Illinois, in which the Honorable Matthew F. Kennelly rejected a construction of this same term that limited programmable memory to a "particular type of memory." Rowe Int'l
Corp. v. Ecast, Inc., No. 06 C 2703, 2008 U.S. Dist. LEXIS 97250, 2008 WL 5100319, at *2 (N.D. Ill. Nov. 28, 2008). In this case, however, Touchtunes does not seek to limit the term to a particular type of memory or challenge the notion that a programmable memory is a "computer memory that can be programmed," but rather it argues that the term requires both song data and advertisement data to be stored in the same programmable memory.

For the foregoing reasons, the Court adopts Touchtunes' proposed construction.

2. "Storing said telephone and said graphical icon together in memory" (Claim 1)

a. The Parties' Proposed Construction

<table>
<thead>
<tr>
<th>Motorola's Proposal</th>
<th>VTech's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Storing both the telephone number and the association to the selected icon in the memory.&quot;</td>
<td>&quot;The telephone number and graphical icon are stored together in memory in the same memory location.&quot;</td>
</tr>
</tbody>
</table>

b. Discussion

Motorola contends its construction of this claim limitation is consistent with the claims, specification, and file history of the '356 patent. According to Motorola, the specification describes the method of claim 1 as a series of steps beginning with a user entering a phone number and then selecting an icon to "associate" with the phone number. ('356, 5:49-54; Fig. 4F). Then, "the information is stored in the memory of the radio communication device." ('356, 5:60-63)(emphasis added). Motorola asserts that this "information" includes: (1) the specific telephone number entered and (2) the "association" or link between the phone number and the selected graphical icon. Motorola states the "graphical icon" of claim 1, however, is to be selected from a "predetermined" set already stored in the phone's memory, and therefore it makes sense that the association or link to that icon (in another portion of the memory) would be stored along with the phone number. ('356, 5:52-59; 9:26-28; Figs. 4 (408) & 4F). Motorola contends the Examiner had a similar understanding of the claim language during prosecution of the '356 patent application.

Motorola takes issue with VTech's requirement that the graphical icon itself be stored in the "same memory location" with the telephone number. According to Motorola, it would make no sense to require a graphical icon already stored in memory be copied and re-saved every time a new contact entry is created by the user. Finally, Motorola asserts there is no requirement in claim 1 or the intrinsic record that the telephone number and graphical icon be stored in the "same memory location." Specifically, Motorola argues VTech's citations for its construction merely show that a "predetermined memory location" identifier can be used to access or display a specific contact entry with a phone number and associated icon ('356, 6:1-18; Figs. 5, 5-B-D) whereas claim 1 relates to storing a phone number and an association with a graphical icon. ('356, 9:20-30).

On the other hand, VTech contends the only disclosure in the specification of the '356 patent relating to the phrase "together in memory" discusses storing the phone number and associated icon together in the same memory location. ('356, 6:12-18) ("Alternatively, the predetermined memory location may be displayed with name and icon associated with the predetermined memory location being shown and with sequentially adjacent memory locations also being shown (FIG. 5-4)"). Therefore, according to VTech, the claim must be read to cover this specific disclosure as it is one of the preferred embodiments. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir.1996) (stating a construction that excludes the preferred embodiment "is rarely, if ever correct and would require highly persuasive evidentiary support").

The Court is not convinced, as urged by VTech, that the phone number and associated icon are required to be stored in the same physical memory location. However, the Court finds the term requires construction and agrees with VTech that the word "together" should be utilized in the Court's construction of this term. Both claims 1 and 5 include the word "together."

c. The Court's Construction
Accordingly, the Court construes the "storing said telephone number and said first graphical icon together in memory" term to mean: "storing together the telephone number and the association to the selected icon in the memory."

Storing the first IP address and associating it with a physical media path from which the first data packet was received

--- Footnotes ---
n8 This language appears in claim 1, but very similar language appears in claim 6, which, Defendants argue, should be construed in the same way.

--- End Footnotes ---

Defendants argue that this phrase should mean, "the 'first IP address' that is associated with the recited 'physical media path' is obtained from the 'first data packet.'" Although this construction is not necessarily incorrect or confusing, it simply reorganizes the claim language to state an idea that is already apparent from the plain and ordinary meaning and the Court's construction of the terms within the phrase. The Court declines to adopt Defendants' construction because it offers no more guidance than the claim language alone. Accordingly, this phrase will mean, "storing the first IP address (as construed herein) and associating it with a physical media path (as construed herein) from which the first data packet was received."

9. "storing ...information ... in a compressed data form the information including an identification code and being placed into ordered data blocks."

Claim 19 provides in relevant parts:

A distribution method * * * comprising the steps of: storing, in the transmission system, information from items in a compressed data form, the information including an identification code and being placed into ordered data blocks; ...

The parties dispute the proper construction of this first "storing" step in the distribution method. Claim 19 contains a second storing step which is part of the receiving system. The Court will refer to this first "storing" step as the "storing information in a compressed data form" step. As part of its construction of this first step, the Court is asked to decide when, in the disclosed method, the unique identification code is assigned.

The specification of the '992 Patent discloses as an invention both apparatus and method claims. The apparatus disclosed is a system for distribution of audio and video information. Claim 19 is a "distribution method" drawn to the inherent functions of this distribution apparatus. In construing the words and phrases of Claim 19, the Court relies on a description of an embodiment of the method which is contained in Figure 7 and in the specification at column 18, line 53. n6 The distribution method in Figure 7 must be performed in the following sequence:

(a) retrieve information for selected items,

(b) assign a unique identification code (storage encoding) n7,

(c) converting and formatting,

(d) ordering into addressable data blocks,
(e) compressing,
(f) compressed data formatting and storing into compressed data library,
(g) transmitting the information in response to a user request,
(h) receive at remote location,
(I) buffer the data,
(j) playback at time requested.

In light of the specification, the Court finds that before the "storing information in a compressed data form" step is performed, the information must already have been assigned an identification code, converted, placed in ordered data blocks and compressed.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

n6 Column 18, lines 50-52 provides: "Method 400 assumes that the items have already been stored in compressed data library 118." This provision contradicts the method illustrated in Figure 7 and described in Column 18: 53-19:36.

n7 The specification defines "storage encoding" and by its definition, it is clear that "storage encoding" is a step in the method different from "storing information in compressed data form." The specification provides:

Prior to being made accessible to a user of the transmission and receiving system of the present invention, the item must be stored in at least one compressed data library 118, and given a unique identification code by identification encoder 112. Storage encoding, performed by identification encoder 112, aside from giving the item a unique identification code, optionally involves logging details about the item, called program notes, and assigning the item a popularity code. Storage encoding may be performed just prior to conversion [conversion means 113] of the item for transmission to reception system 200, at any time after starting the conversion process [conversion means 113], or after storing the item in the compressed data library 118.

('992 Patent, Col. 6:35-47.)

Thus, assigning a unique identification code and other optional encoding of details or notes, all of which are called "storage encoding," may be performed: (a) just before conversion of the data to a suitable format for transmission; (b) during conversion of the data to a suitable format for transmission; or (c) after the data has been stored in the compressed data library.

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Other passages in the specification clarify that the "storing information in a compressed data form" step takes place after the unique identification code has been assigned:

In the preferred embodiment, after identification encoding is performed by identification encoder 112, the retrieved information is placed into a predetermined format as formatted data by the converter 113.

* * *

In accordance with a preferred embodiment of the present invention, the transmission system 100 may further comprise compressed data storing means, coupled to the compression means, for storing as a file the compressed sequenced data with the unique identification code received from the data compression means. After compression processing by compressor 116, the compressed audio and video data is preferably formatted and placed into a single file by the compressed data storage means 117. The file may contain the compressed audio and/or video data, time markers, and the program notes. The file is addressable through the unique identification code assigned to the data by the identification encoder 112.
The first step of the method disclosed in Claim 19 is storing information in the compressed data library which, according to the specification, is performed by the compressed data storing means. Based on the language of this storing step, the information must have been assigned an identification code, compressed and put into order data blocks before the storing step.

The specification of the '992 Patent provides that, if information in the transmission system has already undergone a process otherwise performed by the transmission system, it may be passed directly to the compressed data formatter:

In some cases, such as in inter-library transfers, incoming materials may be in a previously compressed form so that there is no need to perform compression by precompression processor 115 and compressors 128 and 129. In such a case, retrieved items are passed directly from identification encoder 112 to the compressed data formatter 117.

It is apparent that assigning an identification code, formatting and compressing are essential functions which must be performed on the information before transmitting the information to the reception system. Accordingly, the Court interprets the storing step as operating on information which has already been encoded, formatted and compressed prior to the start of the method. Indeed, unless the "storing" step is construed in this fashion, an argument could be made that Claim 19 omits steps in the sequence which are essential to the distribution method as taught in the specification.

The step uses the phrase: "being placed into ordered data blocks." To preserve the validity of the Claim, the Court construes this phrase as "having been placed into ordered data blocks."

The Court construes "storing ... information from items in compressed data form" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, "storing ... the information in a compressed data form, the information including an identification code and being placed into ordered data blocks" means: "storing the information, along with an identification code, in the compressed data library of the transmission system, when, previously to storing: (a) an identification code has already been assigned to the information; (b) the information has been placed into ordered data blocks, and (c) the information has been compressed."
Although the term "positions" seems, to the court, to not require construction, the court accepts Durr's proposal to replace it with the word "locations," which is consistent with the ordinary meaning of the word "positions." FANUC criticizes this construction as not being specific, but the court will not add precision when the simple language of this claim uses general terms, even if to do so would add specificity. See Liquid Dynamics Corp., 355 F.3d at 1368. Moreover, the court finds that FANUC's construction impermissibly attempts to add limitations to this phrase in the form of references to "joint axes" and "position-emitters," terms which appear in description of the preferred embodiment but should not be imported into this claim. See N. American Container, Inc., 415 F.3d at 1348. The claim requires only generally that the positions of the spraying device and the conveying device be stored, it does not detail exactly how those positions should be calculated.

The parties also debate the meaning of "storing," which Durr suggests construing as "to put . . . into a device capable of retaining the data." FANUC asserts that it should be construed, as before, as "placing and retaining." As the court found above, the court finds that "retaining" is a suitable construction of "storing," but that the additional term "placing" is redundant. n10 Thus, the court will construe "storing" as "retaining." n11 See Digital Biometrics, Inc. v. Identix, Inc. 149 F.3d 1335, 1345 (Fed. Cir. 1998) ("[W]hatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently."); see generally, Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("Unless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim."); see also Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632 (Fed.Cir. 1987), overruled on other grounds by Cardinal Chemical Co. v. Morton Intern., Inc., 508 U.S. 83, 113 S. Ct. 1967, 124 L. Ed. 2d 1 (1993).

n10 In any event, it does not appear that Durr has any real disagreement as to the use of the word "retaining," inasmuch as it also suggests that the data should be stored on "a device capable of retaining the data." (Am. Joint Claim Construction Chart at 3.)

n11 The court rejects FANUC's proposal to add the phrase "for later retrieval." As Durr suggests, this phrase implies that the data is stored on a device external to the computer. Moreover, the court finds unnecessary this attempt to "preview" what will occur during the repositioning stage.

Finally, the parties disagree on what type of device the data should be stored. FANUC states that the data should be stored on "an electronic storage medium," while Durr contends it should be stored on a "device capable of retaining the data." The court finds both constructions somewhat superfluous as they both essentially require storing data on a storage device, which does little to elucidate the meaning of the phrase. Nonetheless, FANUC's construction is more consistent with the language of the claim inasmuch as it requires storage on an "electronic storage medium," rather than a device merely capable of storing data.

Accordingly, the court's final construction of "storing the positions of the spraying device and the conveying device at the moment of a movement interruption" is "retaining on an electronic storage medium data representative of the spraying device and conveying device locations at the moment of a movement interruption."

5. "storing the positions of the spraying device and the conveying device after movement of the spraying device and conveying device has ended"

Similar to their previous arguments, Durr proposes that this phrase should be construed as "to put data representative of the spraying device and the conveying device locations after movement of the spraying device and conveying device has ended, into a device capable of retaining the data," and FANUC proposes instead that it should mean:

Placing and retaining on an electronic storage medium, for later retrieval in the repositioning step, the following: (1) the
positions of the spraying device's joint axes after their movement due to inertia has ended, as reported by position-emitters; and (2) the position of the conveying device after its movement due to inertia has ended, as reported by a position-emitter.

(Am. Joint Claim Construction Chart at 3.) Having previously construed the majority of terms at issue in this limitation, the court will logically construe this limitation consistent with its previous conclusions. Digital Biometrics, 149 F.3d at 1345. For this reason, the only additional terms which require construction are those referring to the time at which the devices positions are recorded, that is, "after movement [of the devices] has ended."

The difference between the parties' construction of this phrase is slight. Indeed, they both retain the exact language of the claim ("after . . . movement . . . has ended"). The only substantive distinction between their proposals is that FANUC seeks to add a qualifier to explain what caused the movement. Specifically, FANUC argues that the construction should read "after [the devices'] movement due to inertia has ended." (Am. Joint Claim Construction Chart at 3.) Durr's objection to FANUC's proposed construction focuses on those portions which the court has already rejected, and does not offer any specific resistance to the addition of "due to inertia." This proposed language is supported by the specification, which contains numerous references to the movement being caused by inertia. (See '538 Patent at abstract ("the workpiece would inertially overrun"); id at 1:36-37 ("because of their inertia"); id. at 2:39-40 ("continue to move because of their inertia").) This language is also supported by common sense, in that it is inertia which causes any movement after an unscheduled break in the process's operation.

While the court is inclined to adopt FANUC's proposed construction related to inertia, the court nonetheless finds that merely adding the term "due to inertia" to words already found in the limitation is not the best way to construe "after movement [of the devices] has ended." Instead, the court will replace the term "movement" by a phrase that Dr. David Bourne used during the claim construction hearing: "inertial drift." The court finds this phrase more accurately and succinctly describes the "movement" referenced in this limitation, as supported by the citations to the specification noted above.

Accordingly, consistent with its previous constructions and with the intrinsic evidence, the court's final construction is "retaining on an electronic storage medium data representative of the spraying device and conveying device locations after the inertial drift of the spraying device and conveying device has ended."

33. Claim 7 includes the language: storing the text of a plurality of books in a computer. Defendants argue that, in the context of the specification and prosecution history, the language "storing the text" means that such storage is required to be in a bit mapped format. Plaintiff argues that "storing the text" means that the text of two or more books are stored in a computer.

34. The court will first address the meaning of the words in the phrase "storing the text of a plurality of books in a computer." Plaintiff's cite common dictionary definitions of the terms of this phrase and urge the court to adopt those definitions. Defendants do not address the meaning of the specific words in this phrase. Arguably, however, Defendants urge the court to assume that the inventor was his own lexicographer and to consider the prosecution history more significant than the plain language of the claims. Defendants assert that, "in the context of the specification and prosecution history," this phrase requires that storage of the text be in a bit map format despite the fact that the phrase does not directly reference a bit map format. Doc. 69 at 39. The court, however, is bound by the Federal Circuit's holding that in most cases dictionaries will provide proper definitions and usages for claim interpretation, although the specification and prosecution history should be examined. See Inverness Medical, 309 F.3d at 1369.

"Text" is defined as "[t]he words or wording of something written or printed" or "the formal content of a printed work." Webster's II, New Riverside University Dictionary (1988). Plaintiff states that "text" is widely known to be "the main body of a book excluding the front and back matter." Doc. 68 at 23 (citing Webster's New World Dictionary (1979)). "Store" is defined as "to reserve or put away for future use." Websters II, New Riverside University Dictionary (1988). These terms are used repeatedly in Claims 7 and 8. The language of the patent does not suggest that the inventor intended definitions of the words "text" and "store" which differ from dictionary definitions. The court finds that the claims of the '213 patent, its specification, and its prosecution history do not "clearly set forth an explicit definition of the term[s] "text" or "store"
which are] different from [their] ordinary meaning." Texas Digital, 308 F.3d at 1201.

35. Defendants further argue that "computer" has its commonly accepted meaning of one computer comprised of a central processing unit and that the term "computer," as used in Claim 7 does not refer to collections of computers or networks. Defendants take the position that "a computer" is limited to "one computer comprised of a central processing unit, along with applicable memory, storage, and input and output devices." See Doc. 69 at 42. Plaintiff argues to the contrary and points to Figures 1 and 3 of the '213 patent, which figures display multiple computers connected in a network and connected to a central computer via a modem and public telephone network.

Defendants contend that the article "a" suggests a single computer. See Doc. 69 at 42 (citing AbTox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed. Cir. 1997) (AbTox)). However, the Federal Circuit in AbTox recognized that "patent claim parol]e also recognizes that an article can carry the meaning of 'one or more.'" 122 F.3d at 1023 (citing North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1575-76 (Fed. Cir. 1993)). Most recently, in Altiris, 318 F.3d at 1373, upon determining whether "a" flag referred to a single flag or one or more flags, the Federal Circuit stated that "a generally means 'one or more' in open-ended claims." Because there were "no statements in the specification or the prosecution history inviting, much less requiring, [the court] limit the claims to the only disclosed embodiment," the Federal Circuit found that "a" referenced one or more flags. This court finds this reasoning of Altiris is applicable to the matter under consideration.

Additionally, there is nothing in the specification or the prosecution history of the '213 patent which suggests disavowal of any broad meaning of the term "computer" which would restrict its meaning to a single or stand alone computer which is not part of a network. This proposition is supported by Figures 1 and 3 which disclose multiple computers connected in a network and connected to a central computer via a modem and the public telephone network. The court finds, therefore, that the term "a" computer as used in the claim is not restricted to a single or one computer.

36. As stated above, Defendants argue that "storing the text a plurality of books in a computer," as stated in Claim 7, clause 2, requires that the text be stored in a bit mapped format, while Plaintiff argues that no format is specified. As also stated above, the plain language of this claim clause does not specify a bit mapped format. In support of their position regarding a bit mapped format, Defendants cite prosecution history including the reference of the inventor's attorney to the advantages of a bit map format system over other formats. In particular, Defendants cite the attorney's arguing to the Examiner that:

[O]ne of the main attributes of the invention of the '213 patent is to store text pages of the books in an "as scanned" format which is an "electronic picture" of the text and/or cover page. The digital data corresponding to the text pages are stored in the computer in this digital format … such that upon printing of these pages, the intellectual integrity of the book text is maintained. In contradistinction, with a program like Interpress, the user of the Interpress program has complete freedom to modify the data, to change it and to update it. If the Interpress language were to be used with the applicant's on-demand book publishing system, authors, publishers, and users of the system would have little or no confidence that the books published by the system would be the same as those intended by the author or the publisher. … For this reason, the Interpress system is highly unlike the Patent Owner's apparatus and method.

Def. Ex. 3 at FH 467-68.

Additionally, the inventor's attorney stated, in response to the Examiner's Action, that "there are major, fundamental differences between the vector-based page description Interpress language and the Patent Owner's system and method in which the text and cover of the books are required to be stored in a bit mapped format." See Def. Ex. 9.

Plaintiff acknowledges that On Demand did make arguments to the Examiner regarding the advantages of bit mapped files in regard to other claims that expressly stated the files were stored in the computer in a bit mapped format. Plaintiff argues, however, that these arguments did not apply to the claim terms of Claims 7 and 8, but rather to claims which expressly stated that files were stored in a bit mapped format. See Doc. 68 at 24. The court notes that Claims 1 and 6, which claims were disallowed, specifically mentioned a bit mapped format, and disallowed Claims 2 and 3 were dependent claims which incorporated Claim 1. Claim 7 references bit mapping in clause 3, in regard to storing a plurality of book covers, but does not reference bit mapping in clause 2, in regard to storing the text of a plurality of books.

The court further notes that upon reexamination, the Examiner stated that, with regard to Claim 1, Interpress, the alleged
invalidating prior art, discloses "the storage of bit-mapped images." Joint Ex. 1 at FH 533. The Examiner further stated that, with regard to Claim 5, this claim "has no limitations to storage of information in a bit-mapped format," and that, with regard to Claim 6, "Interpress discloses all the claim requirements for the same reasons discussed above with regard to claim I." Id. The Examiner further stated:

The comments in the request and the preliminary amendment have been considered and are deemed answered in the above rejection. It is further noted that patent owner's comments regarding the storage of information in bit mapped form have been considered. It is submitted that despite the discussion appearing at pages 6 and 7 of Interpress, the discussion at pages 240-243 and all of Chapter 6 clearly indicates the storing of text and graphics in bit mapped form in the system of Interpress.

Joint Ex. 1 at FH 555.

Significantly, the Examiner stated in his action, mailed September 18, 1998, in regard to comparing Claim 7 to prior art XPS, that "there is no disclosure [in XPS] of storing cover information in bit mapped format nor the storing of any sales information as described in the patent." Joint Ex. 1 at FH 556. The Examiner further stated that, in regard to comparing Claim 8 to prior art XPS, that "there is no disclosure [in XPS] of storing cover graphical information nor any feature of allowing a user to visually review the sales information." Joint Ex. 1 at FH 556. Likewise, in regard to comparing Claim 7 with the Gauronski patent, the Examiner stated that "there is no disclosure [in Gauronski] of storing cover information in bit mapped format." Joint Ex. 1 at FH 558. In agreement with Plaintiff, the court finds that these statements establish that the Examiner considered that Claim 7 expressly required covers to be stored in a bit mapped format and that text was not required to be stored in a bit mapped format. Even if statements made during prosecution of the '213 patent indicate that an embodiment of the invention could encompass a bit mapped format, the court cannot limit the scope of the invention to that bit mapped format [absent a clear disclaimer] of other formats. Brookhill-Wilk, 326 F.3d at 1223. Because claim language does not refer to storing the text in a bit mapped format, statements made during prosecution history cannot impose such a limitation. See Storage Technologies, 329 F.3d at 831.

Defendants also direct the court's attention to the specification, Column 11, lines 15-17, which state that "the book format include[s] the actual contents of the book including its cover and the body of the book which may consist of stored graphical images of the cover and the text pages of the book stored in a bit mapped or raster image format." (emphasis added). The court finds that because this reference uses the word "may," not shall, the reference does not limit the storage of books to a bit mapped format. Proper claim construction does not require that this limitation be read into the claim. See Storage Tech., 329 F.3d at 831.

The court finds that the prosecution history and the specification of the '213 patent do not evidence that Plaintiff surrendered the broad meaning of the term "storing the text of a plurality of books in a computer" so as to require that the text files for books be stored in a bit mapped format.

21. Storing the unified media data streams in a general register file

The plaintiff submits that "storing the unified media data streams in a general register file" means "storing the unified media data streams in a set of registers, which may be addressed by their number in the set, in which the registers can be used for various purposes." The defendants assert that the disputed phrase means "storing the unified media data streams in a set of hardware storage locations that are available to the user/programmer for a wide variety of functions." Primarily at issue is whether "a general register file" must be available for a "wide variety" of functions.

The plaintiff contends that the "general register file" need not be available for a wide variety of functions, but must be available for "different" or "various" purposes. The plaintiff asserts that its proposed construction is supported by the specifications of the 060 and 840 patents and that its construction would be understood by one ordinarily skilled in the art. According to the plaintiff, the patent specifications only require that the registers not be dedicated or specific purpose registers. The defendants, on the other hand, contend that the media processor patents use the term "general register file" consistent with its ordinary meaning, which requires that the register file be available for "a wide variety of functions." After
considering the submissions of counsel, the court construes "storing the unified media data streams in a general register file" to mean "storing the unified media data streams in a set of hardware storage locations that are available to the user/programmer for various purposes."

2. Stream of data

The Court's Construction: A stream of raw bytes or words with no used marking or framing for sending included by the application program. Markman Tr. 11:12-14.

This construction was taken directly from the prosecution history. In distinguishing between this patent and prior art, the prosecution history states:

The Miller invention [(prior art)] sends a data file as a stream of frames, responds to ACK's and NAK's of frames/blocks received, and may only send entire intact FRAMES to the client. Thus the Miller invention may only restart a terminated download at the boundaries of frames/blocks, not at any point between these boundaries as is true with the present invention. Claim 47 n5 specifically excludes Miller's stream of a file of frames, and specifically emphasizes that the resumption of the terminated transfer starts at any point within the data file, exclusive of the start of file and end of file, regardless of the presence of spurious markers, frame boundaries, and other boundaries that may occur within the data file. These limitations are included to specifically distinguish the Wanderscheid/Miller combination. . . . In effect the "stream of data" is now specifically defined as a stream of raw bytes or words with no used marking or framing for sending included by the application program.


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n5 Claim 47 of the '892 patent ultimately issued as claim 1 of the '709 patent. Pl. Br. at 18.

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Ethos argued that the Court's construction was incorrect only as to the use of the word "used," which Ethos asserted was a typo in the prosecution history and that "user" should replace the word "used." Markman Tr. 11:20-23; 12:13-16. The Court had no evidence suggesting that this was, in fact, a typo.

RealNetworks argued for "stream of data" to be construed as "[a] sequence of generally undifferentiated bytes transferred with little or no formatting or processing, which can include a plurality of markers or frames." Def. Rep. at 6. RealNetworks relied in part on a sentence in the 11/99 Advisory Action in the paragraph preceding the quoted language above, which states: "The Examiner has rightly interpreted the 'stream of data' as a file that may contain a plurality of frames." Def. Br. at 9 (quoting 11/99 Action at 9); Markman Tr. 14:2-16. At the same time, however, RealNetworks challenged the Court's reliance on a subsequent passage in the same document, expressing doubt that a patent applicant can be his own lexicographer "in a prosecution history setting as opposed to the specification." Markman Tr. 13:22-25.

Although the prosecution history is less useful for claim construction than the specification, the prosecution history can "often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution." Phillips, 415 F.3d at 1317; Vitronics, 90 F.3d at 1582-83. The language relied on by the Court, though it purports to define "stream of data," actually limits the scope of that term so as to disclaim interpretations that would encroach on prior art. See Chimie v. PPG Industries, Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) (explaining that "[t]he purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution" (quotation marks omitted)). The phrase relied on in the prosecution history by RealNetworks does not disclaim or limit the scope of the invention and, in fact, appears to broaden its scope, with the use of the permissive auxiliary verb "may."
13. "STREAM(S) OF ADDRESSED DIGITAL PACKETS"

AOL: "Continuous sequence of self-contained bundles of digital data, each including a destination address"

TWM: No construction required.

In the alternative, "A continuous sequence of bundles of digital data, including destination address information."

At the hearing, the parties agreed that the Court should adopt AOL's proposed construction with two alterations. Thus, the Court construes this claim as follows: "Continuous sequence of bundles of digital data, including a destination address."

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a. "strip[e]-shaped phosphors"

Each of the asserted independent claims of the '590 patent require "stripe" or "strip-shaped" phosphors. See '590 Patent, cls. 1, 9, 10, & 11. The issue regarding this term is whether the bands of phosphors are necessarily a solid line. The '590 patent's claim of "stripe-shaped phosphor" is directed to the patent's disclosure of multiple columns of phosphors, where each column is entirely one color and arranged such that a stripe-pattern is formed. In its attempt at limiting the term to a solid line, LG cites the patentee's alleged attempt at limiting the phosphors to a "continuous" line. See id. at col. 5, ll. 31-32; col. 6, ll. 49-59. As indicated by LG, the seemingly limiting statement is prefaced by the phrase, "present invention." As argued, "when a patent uses the term 'present invention' to describe a disclosed feature, the specification ordinarily limits the scope of the invention." Defs.' Claim Construction Brief at A-8 (citing Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007)). The analysis regarding the patentee's use of "present invention," however, is not conclusive. Verizon instructs that, "[w]hen a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention." Verizon Servs. Corp., 503 F.3d at 1308 (emphasis added). The cited portion, while discussing a continuous layer, does so in the context of a specific embodiment. See '590 Patent, col. 5, ll. 32-33. Notwithstanding LG's argument, the court is unwilling to limit the term to an undivided line. While the patentee uses "continuous" in a number of instances in the patent, there is no disavowal of a divided line.

As such, the court defines "strip[e]-shaped phosphors" as "long, narrow bands of phosphor."

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A. Stripline Sections, Stripline Segments and Stripline Elements

The parties first dispute the meaning of the term "stripline." "When consulting the specification to clarify the meaning of claim terms, courts must take care not to import limitations into the claims from the specification." Abbott Labs. v. Sandoz, Inc., 566 F.3d 1282, 1288 (Fed. Cir. 2009). Thus, "the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, 358 F.3d 898, 906 (Fed. Cir. 2004) (quotation omitted). This is especially true when the claim uses the word "comprising," which the Federal Circuit has consistently held to be an "open" transition phrase that means the claim's "scope may cover devices that employ additional, unrecited elements." AFG Indus., Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1244-45 (Fed. Cir. 2001), cert. denied, 552 U.S. 1141, 128 S. Ct. 1072, 169 L. Ed. 2d 808 (2008).

RYMSA contends that a stripline is not just any shape, rather, it is a flat. RYMSA's proposed construction of stripline is "a flat conductive strip for transmitting electric signals." This, RYMSA argues, is clearly demonstrated in the plan view shown in Figure 2 of the '130 Patent and the cross-section view of the exemplary embodiment shown in Figure 3. (Defs.' Claim
In Liebel-Flarsheim, the Federal Circuit held that "[a]lthough all the embodiments described in the common specification of the '669 and '261 patents include a pressure jacket, the written description does not contain a clear disavowal of embodiments lacking a pressure jacket." Id. at 908. Similarly, in the instant case, although Figure 3 of the '130 Patent shows a flat stripline section, that does not mean that every embodiment must be flat. (See '130 Patent, Fig. 3.) Moreover, Figure 3 was not intended to depict the structure of the stripline, but rather, to "explain the exemplary non-limiting capacitive coupling of the phase shift segment and of the center tap." (Id., Col. 3, ll. 55-58.) The specification further states that Figure 3 shows "that the stripline segments are likewise located at the same distance as the center tap from the reflective plate." (Id., Col. 4, ll. 60-65.) The figure's purpose is not to depict that the stripline sections are flat, and there is no disavowal of non-flat striplines. (Id.) Lastly, the plan view of the embodiment depicted in Figure 2 does not depict a flat stripline because it is not a cross-sectional view. (See '130 Patent, Fig. 2.) Neither the claims nor the specification indicate that the stripline must be flat.

Although RYMSA attempts to bolster its argument with extrinsic evidence, i.e., the declaration of its expert and prior art patents (Defs.' Claim Construction Br. 10), in this case, the Court is not persuaded by such extrinsic evidence because the Court is able to determine the meaning of the claim term from the intrinsic evidence. Further, because defendant's extrinsic evidence that the stripline sections must be flat diverges from the intrinsic evidence, such extrinsic evidence is not a reliable interpretation when considered in the context of the intrinsic evidence. See Phillips, 415 F.3d at 1318 ("[A] court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent."). Because the intrinsic evidence is generally controlling, the limitation of "flat" should not appear in the definition of stripline.

Addressing another aspect of the definition, RYMSA argues that the definition of a "stripline sections" is "devices, each comprising all or a portion of a flat conductive strip for transmitting electrical signals." RYMSA argues that because section and segment are used interchangeably, they should have the same ordinary meaning, i.e., all or a portion of an item. (Defs.' Claim Construction Br. 15.) The Court agrees. (See id., Ex. 2, June 4, 2008 Translation of German Patent Application No. 199 38 862.9-35 ("Ex. 2") at 43; see also '130 Patent, Col. 4, ll. 4-12.) However, the ordinary and customary meaning of the word "section" and "segment" is a portion of a larger whole, not "all or a portion." A reading of the claims and the specification clearly shows that the stripline sections or segments are part of the radio-frequency phase shift assembly. (See '130 Patent, Col. 5, ll. 61-67; id., Col. 6, ll. 1-19; id., Col. 4, ll. 4-12; see Defs.' Claim Construction Br., Ex. 2, at 43.) The Court finds that RYMSA's addition of the extraneous term "devices" does little or nothing to define the terms. The Court construes the term "stripline sections" and "stripline segments" to mean conductive strips that are a portion of the radio-frequency phase shift assembly that transmit electrical signals.

Lastly, RYMSA argues that the term "stripline elements" should be construed differently than "stripline section" and "stripline segment." "The doctrine of claim differentiation stems from the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope." Seachange Int'l, Inc. v. C-COR, Inc., 413 F.3d 1361, 1368 (Fed. Cir. 2005) (quotation omitted). "However, the doctrine only creates a presumption that each claim in a patent has a different scope; it is not a hard and fast rule of construction." Id. The doctrine "can not broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence. . . . [C]laims that are written in different words may ultimately cover substantially the same subject matter." Multiform Desicants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998).

In Pickholtz v. Rainbow Technologies, Inc., 284 F.3d 1365, 1373 (Fed. Cir. 2002), where the accused infringer argued that the patent's use of the terms "computer system" and "computer" showed that the term "computer system" should be given a broader construction, the Court stated that, although it typically would be "inclined to give meaning to word 'system,' rather than regard it as surplusage, the patent . . . provide[d] no indication that the two terms mean different things." Further, the Pickholtz court held that because the patent applicant did not attempt to distinguish "computer system" from "computer" when amending the claims to be allowed over prior art, the prosecution history did not necessitate a different result.

Likewise, in the instant case, the '130 Patent provides no indication that the "stripline elements," "stripline sections" and "stripline segments" mean different things. (Compare '130 Patent, Claim 1, Col. 5, ll. 61-67 & Col. 6, ll. 1-19, with id., Claim 22, Col. 7, ll. 38-41 & Col. 8, ll. 1-6, and id., Claim 23, Col. 8, ll. 23-25.) RYMSA notes that the term "stripline elements" only appears in Claim 22 and dependant Claim 23, which were added during the prosecution of the patent.
application. (Defs.' Ex. 3, March 30, 2004 Amended Patent Application, at 263-64.) However, the prosecution history of the '130 Patent does not indicate that Kathrein sought to distinguish "stripline elements" from the stripline sections or stripline segments in contrasting the claims from prior art. (SeeDefs.' Ex. 3, March 30, 2004 Amended Patent Application, at 263-64.) RYMSA merely presumes that Kathrein's use of the broader nature of the term "elements" in Claims 22 and 23 shows that it sought to obtain broader claim coverage. (Id.) However, RYMSA has not persuaded the Court that the term has a different meaning than "stripline section" or "stripline segment" because the meaning of the term "element" is necessarily dependant on the particular structural device that modifies or describes that particular "element." Having reviewed the intrinsic record, it is clear that Kathrein obstinately insists on using three different terms to mean the same thing. The Court agrees with Kathrein that "stripline elements" should be construed the same as "stripline sections" and "stripline segments" because the intrinsic evidence does not draw any distinction between these terms. (See '130 Patent, Claim 1, Col. 5, ll. 61-67 & Col. 6, ll. 1-19; id., Claim 22, Col. 7, ll. 38-41 & Col. 8, ll. 1-6; id., Claim 23, Col. 8, ll. 23-25; see also Pl.'s Claim Construction Br. 15.) Thus, the Court rejects RYMSA's proffered construction of "stripline elements" as "one or an associated pair." In sum, the Court construes the terms "stripline sections," "stripline segments" and "stripline elements" to mean conductive strips that are a portion of the radio-frequency phase shift assembly that transmit electrical signals.

"Stripping The Forwarding Protocol"

Cisco's proposed construction for the above term is "removing the layer 2 forwarding protocol information." Alcatel's proposed construction is "removing the layer 2 forwarding protocol header from the packet at the local network."

Both parties agree that the term "stripping" means "removing." The dispute lies in whether the construction should identify the location where the removing takes place, and identify exactly what is being removed. Alcatel is correct that the point at which the removing occurs is at the local network. Both claim 9 (the only claim in which the above term appears) and Figure 7 (the only embodiment of above function) reveal that the stripping occurs after the frames reach the local network. See Valencia, at 5:67-6:4, 16:9-21, Fig. 7. However, Alcatel is incorrect in requiring a construction specifically identifying the layer 2 forwarding protocol header as the item being removed when the forwarding protocol is being stripped. Certainly, if all of the layer 2 forwarding protocol information is contained in the header, the header will be removed. Nevertheless, even Alcatel admits that there is no requirement that the header be the only item removed. See Alcatel's '019 Responsive Brief, at 10. Since both parties acknowledge that parts of the packet other than the header may be removed during stripping, then there is no reason to cause confusion and impose a limitation in the construction that requires the header to be removed. That notwithstanding, both parties do agree that stripping requires the removal of information related to the layer 2 forwarding protocol.

Thus, the Court construes the term "stripping the forwarding protocol" as "removing the layer 2 forwarding protocol information at the local network."

4. "being structured"

Disputed Term the technical database being structured to enable a plurality of access modes comprising name of publication, key word, and identified profile with migration capability between related records

Plaintiff's Construction no construction needed due to plain meaning, but if construed, the proposed construction is "set up or arranged"

Defendant's Construction being organized or arranged, in a manner other than a one-dimensional database approach, which allows the same place to be reached through different methods

The parties dispute the term "being structured" as it appears in the following sentence: "A system to provide information to
maintain and repair equipment or provide services, comprising a program running on a computer to enable knowledge-based access to, and management of, a technical database comprising electronically stored publications which are displayable, the technical database being structured to enable a plurality of access modes..." ('806 Patent at 83:32-37.) Plaintiff contends that the "being structured" needs no construction because in context, the term means simply that the database (which stores the aircraft technical information) must be set up in a manner that allows information to be accessible from a variety of "modes." The Court concurs with this construction. As illustrated by the preferred embodiment, the system discloses various modes that can be selected by the user to facilitate his or her search of the database. Among others, there is "an aircraft specific mode," which allows the user to search the database based on the particular make, model and serial number of the aircraft. (Id. at 2:45-49.) Another is the "bookshelf mode," which allows access to information based on the subject and title of the publication. (Id. at 3:5-7.) Thus, it is evident the "being structured" means that the database must be set up in a fashion which enables it to provide the user with access to information based on the type of query or mode being used.

Defendant argues that "being structured" means "being organized or arranged, in a manner other than a one-dimensional database approach, which allows the same place to be reached through different methods." (Jt. Stmt. at 16.) There is nothing in the claim or patent specification to support this assertion. Instead, Defendant again relies on the statement of Plaintiff's expert Mr. Sandifer in his expert report submitted during the reexamination process. In his report, Mr. Sandifer opined that certain prior art was distinguishable because it "appears to manage all its data using a one-dimensional database approach..." (Lavorgna Decl. Ex. 19 at 25.) However, there is nothing in the claim language or specification to support the notion that Plaintiff intended to limit "being structured" to the use of a one-dimensional database. See Linear Tech. Corp. v. Int'l Trade Com'n, 566 F.3d 1049, 1058 (Fed. Cir. 2009) (statements made during patent prosecution insufficient to establish a "clear and unmistakable" intent to limit scope of a claim in a manner different from the claim language). In sum, the Court concludes that the claim term "being structured" means "set up or arranged."

i. Dependent Claim 4

Section 112 of the patent laws requires, among other things, that the "specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P 2. If one of ordinary skill in the art at the time of the patent application would not understand the limitations of a claim, the claim fails to meet this requirement and is "indefinite." E.g., Howmedica Osteonics Corp. v. Tranquil Prospects, Ltd., 401 F.3d 1367, 1371 (Fed. Cir. 2005). Whether a claim is indefinite is a question of law for the Court. Id.

Claim 4 depends from Claim 1 and reads as follows:

4. A system as recited in Claim 1 wherein said remote server assembly is structured internal site and identify an internal site address of said compact, portable and interchangeable computer readable medium relative to said local processor assembly.

Citrix contends, and Rothschild concedes, that the italicized portion of this claim is indecipherable and would have no meaning to one of skill in the art. Further, it is undisputed that the highlighted language in the foregoing quote is a typographical error which was made by the United States Patent and Trademark Office.

Rothschild introduced into evidence a certified copy of the application filed with the USPTO. The application reflects that Claim 4 provides: "A system as recited in claim 1 wherein said remote server assembly is structured to search for and identify an internal site address of said compact, portable and interchangeable computer readable medium relative to said local processor assembly."

Citrix argues that Rothschild should have filed a certificate of correction with the USPTO. Further, that in the absence of such a certificate, the claim is invalid for indefiniteness, and that the Court is without power to rewrite the claim in accordance with the obvious administrative error made by the USPTO. The Court rejects Citrix's argument.

The district court stated that it was powerless to correct the error. We do not agree that such correction exceeds the
judicial power. Absent evidence of culpability or intent to deceive by delaying formal correction, a patent should not be invalidated based on an obvious administrative error. The defendants did not state that they were prejudiced, or even confused, by the error. The district court held that it has no authority to correct or ignore even a typographical error in a patent. That is inaccurate. When a harmless error in a patent is not subject to reasonable debate, it can be corrected by the court, as for other legal documents. See Novo Indus., L.P. v. Micro Molds Corp., 350 F.3d 1348, 1356-57 (Fed. Cir. 2003). Here the error was apparent from the face of the patent, and that view is not contradicted by the prosecution history. We conclude that claim 22 was improperly invalidated.

Hoffer v. Microsoft Corp., 405 F.3d 1326, 1331 (Fed. Cir. 2005).

Here, as in Hoffer, "the error was apparent from the face of the patent, and that view is not contradicted by the prosecution history." Most importantly, the specification of the '534 patent makes clear both the error and what was intended.

In accordance with the previously recited security measures, the interface system 11 preferably includes a specific applet or "cookie" structured to direct the remote server assembly 50 to specifically look for and identify the internal site address of the compact, portable, interchangeable computer readable medium 36 relative to the local processor assembly 25', so that the auxiliary site addresses thereon can be searched.

The applet or cookie of the present invention directs the remote server assembly 50 to only look for and identify the internal site address of the interchangeable computer readable medium . . . .

'534 Patent at 15:3-10, 15:14-17.

The Court, taking all factors into account (including the case law cited by Citrix) finds that even with the typographical error, the construction proposed by Rothschild is consistent with the language of the '534 Patent. Thus, Claim 4 is construed to mean: the remote server assembly can identify where on the local processor assembly the compact, portable and interchangeable computer readable medium is found.

E. "Structured Store of Data"

Finally, the parties disagree as to the meaning of the phrase "structured store of data," as used in the '229 patent. See, e.g., '229 patent at 28:24. Specifically, they disagree as to whether the referenced data must reside exclusively in persistent storage. Oracle asserts that it must, while Mangosoft says storage of the structured data need not be limited to persistent (i.e., non-volatile) devices.

The claims of the '229 patent do not make clear whether the referenced structured store of data may be (or must be) located in any particular form of memory. In support of its view that such data must reside exclusively in non-volatile storage, Oracle points out that the specification repeatedly describes the structured store of data as being "persistent data." See, e.g., '229 patent at 3:19-22 ("The invention can be understood as structured storage systems, and related methods, that employ a globally addressable unstructured memory system to maintain a structured store of persistent data within a shared memory space."). Consequently, says Oracle, if the data themselves are "persistent," they must necessarily reside on a persistent (nonvolatile) storage medium. And, according to Oracle, by repeatedly stating throughout the specification that the data are "persistent," the patentees have (albeit implicitly) defined the phrase "structured store of data" to mean data which are stored on a persistent memory device. See, e.g., Bell Atl. Network Servs., Inc. v. Covad Communs. Group, Inc., 262 F.3d 1258, 1277 (Fed. Cir. 2001) ("The written description provides guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format. Because the patentees used the [disputed] term throughout the entire patent specification, consistent with a single meaning, they defined that term by implication.") (citations and internal punctuation omitted). See also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001) ("While it is true, of course, that the claims define the scope of the right to exclude and that the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim, the written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.") (citations and
The court is not persuaded that the "structured store of data" as referenced in the '229 patent's claims must, as a matter of construction or of necessity, reside in persistent storage. Claim 1 of the '229 patent teaches a "method for providing distributed control over a structured store of data" among all nodes of a cluster participating in the addressable shared memory space system. That system, as described above, includes the use of (and storage of data on) both persistent and volatile memory devices, which are shared and accessible by all participating nodes. See '229 patent at 28:32-37. Nothing in the claim language suggests that, unlike other forms of data (which may be stored in persistent memory, volatile memory, or both), the "structured store of data" is somehow unique and must, instead, reside exclusively in persistent storage. In fact, the entire purpose of the '229 patent would be defeated if such data were restricted exclusively to persistent storage.

The references in the specification to "persistent data" (rather than "persistent storage" or "persistent memory") simply suggest that the system is designed, and the data organized, in such a way that should one or even all of the participating nodes lose data stored in volatile memory, the "structured store of data" is still "persistent" and can be recovered (by, presumably, collecting and compiling the various redundant portions of it that were distributed to the non-volatile memory of the participating nodes). In other words, the "persistent data" are stored in the various volatile and non-volatile memory devices attached to participating nodes in such a way that even if all data are lost from volatile memory, they can be reconstructed from the various portions that were stored on non-volatile memory devices (there is, of course, no requirement that the data not be duplicated - in fact, it is possible that a particular piece of datum could be stored in multiple locations: in the RAM of one node, on the hard drive of another node, and again in the RAM of a third node). In short, the court is not persuaded by Oracle's assertion that by referencing the structured store of data as "persistent data," the patentees have limited the scope of the patent's claims to require that such data reside exclusively on non-volatile forms of storage media.

Accordingly, the court construes the phrase "structured store of data" to mean data that are organized in some recognized fashion (e.g., database files, word processing document files, or Web pages) and stored in the volatile and/or non-volatile memory of the various nodes participating in the shared memory system.

The parties' dispute regarding this limitation focuses on the word "access." Under the language of the claim, the local processor assembly must "access" the claimed primary site address (which contains primary site data stored on the remote server assembly) so as to achieve the claimed coupling between the local processor assembly and the remote server assembly. Rothschild proposes that to access something is to "communicate" with it. Citrix contends that the ordinary meaning of "access" to one of ordinary skill in the art is "to locate, gain entry to, and use."

Despite this disagreement it is noted that the experts for both parties agree that a person skilled in the art would interpret access to mean to either read or write. See Docket No. 49 at 10. Therefore, the definition of "access" proposed by Citrix is unreasonably limiting and, if adopted, would ascribe a meaning inconsistent with the term's ordinary meaning. Citrix also suggests that the phrase should be interpreted to mean that the local processor assembly creates the coupling between it and the remote server assembly. The '534 Patent does not state that the local processor assembly creates the coupling between it and the remote server assembly. In fact, the parties agree that it is the remote server assembly which initiates the utilization of data on the local processor assembly. The Court finds Citrix's definition to be inconsistent with the parties' agreement as well as the language of the '534 Patent.

Based on the foregoing analysis, the Court construes "said local processor assembly being structured to access said primary site address so as to achieve said data transmitting and receiving communication with said remote server assembly" to mean: the local processor assembly can communicate with the primary site address of the remote server assembly in a manner that permits the transmission and receipt of data.
Like the previous disputed term, the parties' dispute regarding this limitation also focuses on the term "access." Citrix proposes that the disputed term be construed as "the remote server assembly can locate, gain entry to, and use the remotely accessible site addresses to cause the select portions of auxiliary site data to be displayed by the local processor assembly in combination with the primary site data." Rothschild contends that the term is properly construed as "the auxiliary site address is capable of being remotely interacted with by the remote server assembly so as to cause the use of select portions of said quantity of auxiliary site data by said local processor assembly at the direction of, intermingled with, or otherwise with some of the primary site data."

There is no dispute between the parties that it is the remote server assembly which manipulates data on the local processor assembly in order to initiate access to data located on the local processor assembly. In addition, Citrix's proposed interpretation of "utilization" is inconsistent with the language of the '534 Patent and with the common, ordinary meaning of the term.

Therefore, the Court construes "said remotely accessible auxiliary site addresses being structured to be remotely accessed by said remote server assembly so as to initiate utilization of said select portions of auxiliary site data by said local processor assembly in conjunction with said primary site data" to mean: the auxiliary site address is capable of being remotely interacted with by the remote server assembly so as to cause the use of select portions of said quantity of auxiliary site data by said local processor assembly at the direction of, intermingled with, or otherwise with some of the primary site data.

ii. Dependent Claim 6

Claim 6 depends from Claim 1 and reads as follows:

6. A system as recited in Claim 1 wherein said compact, portable and interchangeable readable medium is structured to identify an internal site address thereof relative to said local processor assembly, thereby facilitating access thereto by said remote server assembly.

Rothschild contends that the boldface language in Claim 6 should be construed to mean: "[t]he remote server assembly can identify where on the local processor assembly the compact, portable and interchangeable computer readable medium is found so that it can interact with it." Rothschild points to the language of the claim which, it argues, supports the notion that the computer readable medium identifies its internal site address so that the remote server assembly can access the data contained on such medium.

Citrix argues that by its plain language, Claim 6 requires that the compact, portable and interchangeable readable medium be able to identify its location in the local processor assembly (i.e., its "internal site address") to the remote server assembly. Accordingly, Citrix urges the Court to construe Claim 6 to require that the compact, portable and interchangeable readable medium be "put together so as to identify to the remote server assembly the compact, portable and interchangeable computer readable medium's site address within the local processor assembly."

However, as established above, there is no dispute that the remote server assembly initiates the utilization of the auxiliary site data located on the local processor assembly. Therefore, it follows that the remote server assembly also identifies where on the local processor assembly the compact, portable and interchangeable computer readable medium is located, as suggested by Rothschild.
Thus Claim 6 is construed to mean: the remote server assembly can identify where on the local processor assembly the compact, portable and interchangeable computer readable medium is found so that it can interact with it.

A. "student task"

The term "student task" is used throughout independent claim 1. To illustrate, some of the limitations of claim 1 are "a central computer . . . for running individual classroom programs . . . which accept sequences of input associated with student tasks," "a plurality of student terminals . . . for receiving said student tasks from said central computer, for executing said student tasks." The plaintiff's proposed construction is "information representative of instructional activities." The defendants' proposed construction is "instructional activities."

The '491 patent's Summary of the Invention describes "student tasks" as "one or a combination of questions, quizzes, tests, . . . , and other instructional activities." ('491 patent, 4:43-47) (emphasis added). But elsewhere in the specification, according to the plaintiff, the patent explains that a "student task' is "[i]nformation representative of the highlighted question (or program or other instructional activity) [that] is sent in its appropriate respective form to student terminals . . . ." ('491 patent, 17:14-17) (emphasis added). The defendants argue that the preceding passage is not related to student tasks. The defendants point out that claim 1 includes an "activation means" which allows "the teacher to initiate and terminate said student tasks." According to the defendants, this claim language supports their proposed construction, i.e., teachers "initiate and terminate said instructional activities." In contrast, the defendants assert that this claim does not make sense using Better Education's construction, i.e., "initiate and terminate said information representative of instructional activities."

Based primarily upon the "initiate and terminate" limitation of claim 1, the court is persuaded that the defendants' proposed construction is correct. Therefore, the court construes "student tasks" to mean "instructional activities."

This term is used in Claim 1 of the '742 patent: "one of said layers comprising plural substantially parallel sub-layers. . . . each of said sub-layers having three-dimensional inclusions. . . ." Seoul argues that "sub-layer" should be construed as "a portion of a layer," while Nichia suggests "a distinguishable portion of a layer constituted of the same material as the layer." Figures 9 and 10 of the specification illustrate sub-layers. Each is distinguishable as a thin layer of InAs that separates the GaAs sub-layers containing InAs inclusions. The sub-layers are made of the same material as the other sub-layers and thus the overall layer, except that the inclusions are also part of the sub-layer. Thus, to require the entire sub-layer to be made of exactly the same material as the layer is inaccurate. Moreover, graded junction materials also exist in the scientific literature. See e.g. C.K. Peng, S. Sinha, and H. Morkoc, Characterization of graded interface In[x] Ga[1-x]/ In[0.52]Al[0.48]As (0.53 <x<0.70) structures grown by molecular beam epitaxy, 62 J. Appl. Phys. 2880 (1987); H. X. Jiang, Band Structure of Superlattice with Graded Interfaces, 61 J. Appl. Phys 624 (1987). The composition of graded materials varies, such that no two horizontal cross sections contain the same composition or bandgap.

In support of its position that the sub-layer be made of the same material as the layer, Defendant cites Col 4, l. 36-39 of the specification which states: "In particular, the confining layers 3 and 5 may each be constituted by several layers of the same material but with different doping concentrations" for the proposition that each sub-layer must be made from the same material. Tr. at p. 120, l. 20 - p. 121, l. 13. The specification used the word "may," which does not create a firm requirement.

The prosecution history further refutes the requirement that all sub-layers must be made of the same material. During prosecution, the patentee combined Claims 1 and 2 to create current Claim 1. The applicants amended the claims by incorporating the concept of "several substantially parallel planes [of inclusions]" in claim 1 as "plural substantially parallel sub-layers having . . . inclusions." See Pl. Br., Doc. # 53, Ex. 5 (Prosecution File History), Response to First Office Action at
2-3. The patentee and the examiner understood that different materials, namely a plane of inclusions, would be within each sub-layer. Nothing in the specification or prosecution suggests that the patentee acted as his own lexicographer to require the sub-layer to be made of exactly the same material as the rest of the layer.

Therefore, the court will construe the term as follows:

"sub-layer" means "a distinguishable thickness of material in a layer"

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"sub-channel number" & "subchannel"

Sutton suggests that "sub-channel number" means "a value representing a service type or information path" and "subchannel" means "a service type or information path." Nokia urges that both terms should be defined as "one of the 256 addressable subdivisions of a receiver identification address." The central issues are whether a "subchannel" is limited to 256 subdivisions and whether the terms should be defined broadly as a "service type or information path" or more specifically as a "receiver identification address." The parties do not dispute that the term "number" used in claim 1 should have its ordinary meaning. Thus, the true term in dispute is "subchannel," and the term "subchannel number" as a whole does not necessitate a separate construction.

"Subchannel" is limited to 256 subchannels (0-255) in several locations within the patent. The specification explains that "[i]f a RIC channel is enabled to receive Data Messages, each message is assigned to one of the 256 subchannels within each logical channel." '238 Patent at 9:13-15. The specification further notes within the section entitled "summary of the invention" that the invention enables "accept[ing] or reject[ing] data information messages specified for a specific subchannel (0-255) for which the receiver respectively is or is not currently authorized to accept . . . ." Id. at 3:62-65. At times, the range of subchannels is described differently, but the number of subchannel subdivisions consistently remains at 256. See id. at 4:26-29 ("the targeting of encoded or unencoded data packets to subsidiary addresses (1-256) at each network destination receiver identification code (RIC) address"). These are merely examples. As Nokia observes, the patent restricts the number of subchannel subdivisions to 256 in fifteen different locations. In fact, the preamble to claim 3 itself restricts the term "subchannel" to 256 divisions. Id. at 15:11-13 ("as well as being able to accept or reject data information messages specified for a specific subchannel (0-255)").

As discussed above, the preamble acts as a limitation on the claims themselves, furthermore the specification clearly discusses a "subchannel" as having a range of 256 logical subdivisions. Sutton fails to identify any language either within the specification or the claims that suggest that a "subchannel" has a broader range. Additionally, the number of identifiable subdivisions that can logically be transmitted or received by an 8-bit byte is 256. Since the invention only pertains to transmitting and receiving 8-bit byte messages, limiting a subchannel to 256 subdivisions conforms with the context of the patent as a whole.

The specification further teaches that a "subchannel" pertains to subsidiary addresses recognized by a receiver. Id. at 3:62-65 ("data information messages specified for a specific subchannel (0-255) for which the receiver respectively is or is not currently authorized to accept . . . .") (emphasis added). The inventor explains that each "network destination" recognizes a "subchannel" or "subchannel number" as being an "address" corresponding to a particular "receiver identification code." Id. at 4:26-29. Again, Sutton provides no intrinsic or extrinsic evidence that supports defining a subchannel as a "service type or information path." While, generally, a "receiver identification address" may be a type of "information path," the inventor clearly uses the more specific definition when describing a "subchannel" for the purposes of the invention. Accordingly, "subchannel" is defined as "one of the 256 addressable subdivisions of a receiver identification address."

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6. sub-harmonic signal
a signal at a frequency that is a common denominator of the frequency of the first clock signal and the second clock signal.

This term is defined in the following specification language as well as figures 1, 10, and 11 of the patent.

The sub-harmonic signal is selected to have a frequency that is a common denominator of the frequency of the system board clock and a clock signal for the operation of an enhanced microprocessor contained on the accelerator board. ('981 Patent Col 2:35-39)

The Sub-Harmonic generator 3, produces S-HCLK 23 which is a synchronized to SCLK as a low sub-harmonic of SCLK. This permits many different SCLK frequencies to be synchronized as different harmonics of S-HCLK. As an example a slow speed system board may use a 48 Mhz crystal clock and normally divide the clock by 2 to produce a 24 Mhz SCLK signal, but synchronously change SCLK to 16 Mhz for certain I/O operations by changing the divider to 3. By using a Sub-Harmonic frequency of say 4 Mhz, both the 24 Mhz and the 16 Mhz SCLK frequencies can be synchronized, as well as other frequencies of which S-HCLK is a common denominator, such as 12, 20, 28 and 32 Mhz. The Sub-harmonic frequency S-HCLK is sent to Phase Locked Oscillator 4 which multiplies in a standard Phase Locked Loop (PLL) fashion, the Sub-harmonic frequency by a whole number N to produce the high frequency clock signal PCLK for the new microprocessor. ('981 Patent Col 4:67-5:17)

AVID argues that the terms should be construed as "being able to prohibit, for an indefinite period of time, the ability to change the alterable data." AVID argues that the limitation calls for the ability to permanently disable the alterability of data stored in an alterable fashion. One embodiment described in the specification at 7:3-9 teaches using an EEPROM to store alterable data and explains that reprogramming of the EEPROM can be inhibited "by breaking a fused connection (i.e., 'blowing a fuse') in the EEPROM." According to AVID, however, the claim does not require the use of any specific method.

The Defendants contend that the phrase should be construed to mean that "the ability to reprogram the second type of memory can be permanently inhibited, for example, by breaking a fused connection (i.e., 'blowing' a fuse) by the application of a voltage of sufficient magnitude during initial programming prior to implantation in or attachment to the object to be identified." According to the Defendants, the phrase "subject to permanent disablement" serves to underscore the requirement of two distinct and physically different memories structures, that are used to store two different types of data ("unalterable data" versus "alterable data"). The Defendants argue that implicit in the requirement that the alterability is subject to permanent disablement is the understanding that the second type of memory be a type that is reprogrammable. In contrast, the first type of memory is non-reprogrammable and therefore lacks a programmable function that can be "permanently disabled." The Defendants cite the specification as support at 2:13-17 and 7:3-9. The Defendants also argue that AVID, in response to a rejection of the claim by the patent office based upon anticipation by a prior patent, emphasized the purported significance of storing data in two types of memories: a first that stores in an unalterable fashion whose (and thus is never reprogrammable) and a second that stores data in an alterable fashion whose reprogrammability may be permanently disabled.

After carefully considering the parties' proposed constructions, the Court construes the term to mean "being able to prohibit permanently the ability to change the alterable data."
AVID contends that the term should be construed as "being able to prohibit, for an indefinite period of time, the ability to change the data in the alterable memory." According to AVID, the specification makes clear that "the alterability of data in said alterable memory" refers to the ability to change data in the alterable memory. AVID further argues that the specification indicates that "being subject to permanent disablement" refers to the possibility that an event or signal can be indefinitely inhibited.

The Defendants argue that the term means that "the ability to reprogram the second type of memory can be permanently inhibited, for example, by breaking a fused connection (i.e., blowing a fuse) by the application of a voltage of sufficient magnitude during initial programming prior to implantation in or attachment to the object to be identified." The Defendants argue that AVID refuses to acknowledge that the alterable memory must differ from the unalterable memory and that AVID's construction is improperly motivated by its apparent understanding of the accused products.

In reply, AVID states that the Defendants impermissibly attempt to construe the phrase in structural terms and that the Defendants' reference to a "second type of memory" finds no support in the language of the claim or the specification. AVID states that the claim instead refers to "an alterable memory." AVID further argues that the Defendants' proposed construction narrows the scope of the claim limitation by redefining "alterability" to mean "reprogramming." AVID also contends that the Defendants' proposed construction makes no explicit reference to data-a critical element of the limitation. After carefully considering the parties' proposed constructions, the Court construes the term to mean "being able to prohibit permanently the ability to change the data in the alterable memory."

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1. Subjective Data

The specification of the '985 patent explains that "the term 'subjective' data will refer to that data which is input by the patient to the data logger, regardless of whether that data pertains to the patient or the patient's environment, and whether or not the information is objective or factual, such as medication dosage or consumption of a particular food." '985 patent, col. 5, 11. 40-45.

Noting that patentees may act as their own lexicographers, see, e.g., Abbott Labs. v. Novopharm Ltd., 323 F.3d 1324, 1330 (Fed. Cir. 2003), Invivodata and CRF ask the court to give the term "subjective data" the meaning expressly provided in the patent specification — namely, "data which is input by the patient to the data logger, regardless of whether that data pertains to the subject or the subject's environment, and whether or not the information is objective or factual." 1

--- Footnotes ---

1 eTrials believes that it is not necessary to construe the term "subjective data," but does not oppose the construction offered by Invivodata and CRF.

--- End Footnotes ---

PHT agrees that the patentees acted as their own lexicographers with respect to the term "subjective data," noting that the patentees plainly ascribed a meaning other than its ordinary meaning as the specification makes clear. (D.I. 39, at 7.) 2 Despite this agreement, PHT argues that a narrower definition should control. In particular, PHT contends that although the definition of "subjective data" provided in the specification is very broad, claim 22 provides an additional limitation on the type of "subjective data" that can be entered into the data logger. According to PHT, claim 22 requires the subjective data to be data "regarding the subject's psychological condition and subjectively observed physiological condition." (Id. at 8.) Thus, "subjective data," as used in the '985 patent, means "data input by the patient." (Id. at 7.) The court disagrees.

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2 PHT and the defendants have filed the same claim construction briefs in each of the three above-captioned cases. For convenience, the court will cite to the 04-60 case docket.
"Patent law permits the patentee to choose to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term that could differ in scope from that which would be afforded by its ordinary meaning." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). A patentee acts as his own lexicographer when he "clearly set[s] forth an explicit definition for a claim term." Johnson Worldwide Assocs. v. Zebeo Corp., 175 F.3d 985, 990 (Fed. Cir. 1999). That is, when a patentee acts as his own lexicographer, the statement in the specification must have sufficient clarity "to put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term." Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001).

In the present case, PHT acted as its own lexicographer in clearly setting forth the meaning of the term "subjective data." PHT agrees, but then asks the court to limit the definition of "subjective data" based on the remaining claim language. PHT misses the mark. While the scope of the "subjective data" covered in claim 22 may be limited by the other language in the claim, that is an issue the court need not determine to construe this term. The only issue before the court is the meaning of the term "subjective data" and, as previously stated, PHT acted as its own lexicographer. Accordingly, the court will construe the term "subjective data" to mean "data which is input by the patient to the data logger, regardless of whether that data pertains to the patient or the patient's environment, and whether or not the information is objective or factual, such as medication dosage or consumption of a particular food." 4

--- Footnotes ---

3 The court finds this proposition interesting, especially in light of the fact that PHT maintains that Invivodata and CRF "attempt improperly to read a limitation from the specification into the claim." (D.I. 39, at 8.) According to PHT, the definition of "subjective data" in the specification is "very broad." (Id.) This is the very definition that Invivodata and CRF propose. Thus, the court does not understand how Invivodata and CRF are attempting to improperly read a limitation from the specification into the claim.

4 Further support for the court's interpretation lies in claim 14, which also contains the term "subjective data." PHT contends that "subjective data" as used in claim 14 does not include a limit on the type of subjective data that can be collected from the subject. (D.I. 39, at 8.) PHT's argument fails, however, because "interpretation of a disputed claim term requires reference not only to the specification and prosecution history, but also to other claims. The fact that [the court] must look to other claims using the same term when interpreting a term in an asserted claim mandates that the term be interpreted consistently in all claims." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995). Accepting PHT's argument would require the court to interpret "subjective data" differently in claim 22 than in claim 14, and would be contrary to law.

--- End Footnotes ---

TERM # 12: "submitting said bid by transmitting at least some of said inputted data from said bidder's computer over said at least one electronic network" - Defendants propose in their construction that a bid can be submitted only after an interest cost value has been calculated and only entirely from the bidder's computer. We agree with plaintiff that there is no requirement that a bid can be submitted only after an interest cost value is calculated. Just as we have already dismissed defendants' notion that the "computing" step must be performed on the bidder's computer because information is input there, we find no requirement that this "submitting" step also be based solely on information stored in the bidder's computer. This phrase means: "transmitting at least some of the previously input data from the bidder's computer over at least one network for communicating data messages between said computers, including, but not limited to, the Internet."
(4) In claims one, two and seven, the term "subpicosecond." A picosecond is 10^-12 seconds, or one trillionth of a second. Defendants submit that "subpicosecond" should be given its ordinary meaning, which is anything less than a picosecond. Plaintiffs admit that read out of context, subpicosecond would mean "less than a picosecond." In fact, an expert retained by Zeiss testified during his deposition that subpicosecond means "something less than one picosecond." Tr. 396 (reading June 16, 2000 deposition testimony of Dr. Colin Sheppard). However, according to the Plaintiffs, when subpicosecond is read in light of the specification, the term must mean about 100 femtoseconds. 8 613 Patent 2:45-48 (referring to 100 femtoseconds as "these subpicosecond pulses"); 3:17-22 ("means of a stream of fast, high intensity, femtosecond pulses"), 65 (same).

8 A femtosecond is 10^-15 second.

Defendants' expert, Dr. Walmsley testified that a person of ordinary skill would understand a subpicosecond to be less than one picosecond. Tr. 197. While the patent offers 100 femtoseconds as an example of a picosecond, it is not the only definition. See 613 Patent at 2:46-48 (offering 100 femtoseconds as an example of subpicosecond). For example, the patent describes a possible laser light source as "a colliding pulse, mode-locked dye laser generating pulses of light having a wavelength in the red region of the spectrum, for example about 630 nanometers, with the pulses having less than 100 femtoseconds duration . . . ." 613 Patent 6:34-37. Further, according to Dr. Walmsley, equation 2 of the patent demonstrates that "one can vary the pulse duration consistent with obtaining enough fluorescence to obtain an image." Tr. 283 (citing 613 Patent 7:11). Additionally, the inventors explained in the prosecution history that a subpicosecond pulse has a width of less than one times 10 to the minus 12 seconds. Prosecution History at 118; Tr. 201.

Dr. Fraser testified for Plaintiffs that subpicosecond is defined as being 100 femtosecond pulses. Tr. 449. However, he admits that in isolation "subpicosecond" would be anything less than 10 to the minus 12 seconds. Tr. 449, 517. Yet, he insists that 100 femtoseconds is not an example of subpicosecond, it is the definition. Tr. 518. He testified that the patent language itself supports his definition because it refers to 100 femtosecond pulses as "these subpicosecond pulses." Tr. 451; 613 Patent 2:45. Additionally, he testified that at the time of the invention the laser community used the term subpicosecond for lasers of about 100 femtosecond pulses. Tr. 451. Further, Dr. Fraser pointed to a piece of prosecution history in which the applicants describe the embodiment and, according to Dr. Fraser, equate subpicosecond with 100 femtoseconds. See Plaintiffs' Markman Exhibit 87. However, the memorandum Dr. Fraser refers to states the pulses are "approximately 100 femtoseconds." Finally, in response to Dr. Walmsley's reliance on equation 2, Dr. Fraser testified that the equation concerns the two photon effect and does not teach pulse length.

The Court is mindful of its responsibility to impart the ordinary meaning to disputed claim terms. Further, the specification cannot be used to read a limitation into a claim term. Comark Communications, Inc. v. Harris Corp., 156 F.3d at 1186. The 613 Patent uses 100 femtoseconds as an example of a picosecond, but it is not used as a precise definition. 613 Patent 6:34 ("with the pulses having less than 100 femtoseconds duration"). Additionally, the prosecution history states a subpicosecond pulse has a width of less than one times 10 to the minus 12 seconds, it does not define subpicosecond as 100 femtoseconds. Prosecution History at 118. Accordingly, the Court construes the term "subpicosecond" as "less than one picosecond."

3. "subscriber"

The '184 patent claims a method directed to the addition of a PIC indicator whose value is a function of whether a terminating "subscriber," or both the terminating and originating "subscribers," have as an associated 9 PIC a particular IXC. Excel contends in their claim construction briefs that the "subscriber" identified in the '184 patent is "the originating or terminating telephone line as identified by the originating and terminating telephone numbers." (D.I. 190 at 31) Accordingly, Excel avers that the PIC of the terminating subscriber is "the carrier providing 1+ long distance service to the terminating subscriber for the line to which the call is made." (D.I. 300 at 33) AT&T, on the other hand, argues that "subscriber" refers to a particular individual, not a telephone line.
9 The parties agree that the term "associated with" means "PIC'd to." Thus, a carrier "associated with" a subscriber means the PIC of that subscriber.

Neither the claims nor the specification provide a specific definition of the term "subscriber." However, for the most part, the use of the term "subscriber" in the '184 patent is consistent with AT&T's proffered interpretation, drawing a distinction between "subscribers" and "telephone numbers." ('184 patent, col. 1, lns. 35-39, lns. 55-57; col. 2, lns. 17-24, lns. 51-53, lns. 56-61; col. 3, lns. 13-19, lns. 59-65) Commonly understood, "subscriber" means "an individual having commercial telephone equipment installed on his premises." Webster's at 2278. This definition is consistent with the meaning of the term "subscriber" in the telecommunications industry: "a person or company who has telephone service provided by a phone company." (D.I. 213, Ex. N at 618) These usages likewise are consistent with AT&T's proffered construction.

The construction proffered by Excel, on the other hand, would require the court to forego the ordinary meaning of "subscriber." Only two situations provide sufficient justification for defining a claim term in a manner other than its ordinary and accustomed meaning. See Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999). The first of those situations occurs when an inventor has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term. See id. This is not the case here. The other situation occurs when the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used. See id.

Excel urges that the design requirements of the claimed invention mandate that the "subscriber" be a particular telephone line, identified by the telephone number called or used to place the call, rather than an individual. Such an argument ignores the very purpose of the claimed invention. The '184 patent relates to a method for "recording messages used to bill charges for interexchange calls." ('184 patent, col. 1, lns. 7-8) As such, the claimed invention is directed to the process of billing for interexchange calls. Subscribers are billed, not telephone lines. Thus, it is irrelevant whether the individual using a particular telephone to place a 1+ long-distance call is or is not the subscriber who selected the PIC for that telephone line. It is still the "subscriber" associated with that telephone line who will be billed for the call. Moreover, subscribers, not telephone lines, select the IXC over which the 1+ calls made using a particular telephone will be carried or routed.

That the claim language and specification require there to be one and only one PIC per phone call, i.e., that there be but a single PIC for said "terminating subscriber" and a single PIC for said "originating subscriber," is not defeated by equating the term "subscriber" with an individual rather than a telephone line. As Excel notes, the claimed invention operates in the framework of a specific call. With respect to that call, the originating "subscriber" will have associated with him/her one and only one PIC as will the terminating "subscriber." That those subscribers might be PIC'd to other IXCs with regard to other telephone lines is immaterial in the context of that specific phone call. Thus, use of the term "subscriber" as meaning a particular individual rather than a particular telephone line does not "so deprive the claim[s] of clarity" that the scope of the claims cannot be ascertained "from the language used."

The court, therefore, shall construe the term "subscriber" to mean a particular individual, not a telephone line. Consistent with this interpretation and the preceding constructions, "the PIC for said terminating subscriber" shall be construed to mean the IXC selected by the subscriber to provide (i.e., handle and/or arrange for handling) 1+ long-distance service to the telephone number called.

F. "subscriber areas"

Plaintiff initially contended that construction of the term "subscriber areas" could be "readily ascertained" from the specification. (Dkt. 64, p. 10). Plaintiff now relies on extrinsic evidence, including the Shames affidavit. As Defendant correctly points out, "subscriber areas" is not defined in the patent, although the term is used throughout the specification and claim. According to the plain language of the claim, a subscriber gains "secure access" to a "subscriber area," from
which "billing and data entry forms" are transferred to the subscriber, who completes the forms. The completed forms are electronically returned to a "corresponding subscriber area," which are then entered into the database. ('229 patent, col. 5, ll. 60-67). The specification explains this. (Id., col. 3, ll. 53-56, 58-59). The "subscriber areas" therefore provide (1) secure access to and transfer of forms to subscribers, and (2) transfer of data in the completed forms into the database.

Claim 1 provides that the home page provides only secure access by subscribers to one of a plurality of subscriber areas within the system. ('229 patent, col. 5, ll. 60-63)(emphasis added). The claim provides that once these subscriber areas are accessed, subscribers can obtain electronic transfer of "substantially only billing and data entry forms" and "real time electronic viewing and query access of stored data and billings." (Id., col. 5, l. 63-64, col. 6, l. 5-6). As noted, the specification provides that the subscriber area "provides access to data forms (not shown) of a software application which are transferred to, and appear on the screen of each remote subscribers PC" (Id., col. 3, ll. 50-57).

The specification provides that forms are transferred into the database server from Billing network PCs: "Input and query forms are developed within the system 11 by billing network PC work stations 38 which are connected at hub 36, all forms and information input being subject to business rules and logic at 34 before entered into the database server 32." (Id., col 4, ll. 13-18). The specification also provides that "once into the particular browser-based subscriber area 80 within the system 71, each browser-based subscriber 72 will have access to one of several customized forms that they will complete electronically at their work station and transfer to the database server 90. Form development and customization will be done within the system at internal work stations 106 by employees of the system." (Id., col. 5, ll. 12-18). According to the descriptions, Figure I depicts the developed forms passing through the database server in order to reach the subscriber areas.

While Defendants correctly note that the subscriber area is unique to each individual subscriber as evidenced by the secure access provided, Defendants' construction ignores the purpose of the subscriber areas, which is to facilitate the transfer forms and data. (See id., col. 3, ll. 52-54). Accordingly, the Court construes the term "subscriber area" to mean "a system component unique to that subscriber that transfers forms between a database server and a subscriber."

Claim 14 provides:

in response to the stored compressed, digitized data, transmitting a representation of the at least one item at a real-time rate to at least one of a plurality of subscriber receiving stations coupled to the local distribution system

* * *

decompressing the compressed, digitized data representing at least one item of audio/video information after the transmission step wherein the decompressing step is performed in the local distribution system to produce the representation of the at least one item for transmission to at least one subscriber station

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The parties dispute the proper construction of the phrases "subscriber receiving station" and "subscriber station" as those phrases are used in Claim 14 of the '863 patent.

Except for its use in some of the claims of the '863 Patent, neither the phrase "subscriber receiving stations" nor the phrase "subscriber station" appear elsewhere in the specification. In Section IA4 above, the Court defined "local distribution system" to mean "a reception system located geographically close to the subscribers of the system." The Court examines the specification to see if it provides a basis for inferring a definition of the phrases under consideration.

Claim 14 claims a method in which information is transmitted from a central processing location [transmission system] to a local distribution system [reception system], and from there to a "subscriber receiving station." There is no support in the written description or in the drawings for a reception system to communicate with another reception system. Therefore, the Court declines to construe "subscriber receiving stations" as a "reception system."

However, there is support in the written description for a reception system which outputs to a "receiving device." ('863 Patent, Col. 17:43-61). To avoid a construction which is not supported by the written description, the Court construes "subscriber receiving station" as a receiving device. Further, because "subscriber receiving stations" and "subscriber station" are used synonymously, the definition applies to both phrases.

The Court construes the terms "subscriber receiving station" and "subscriber station" as follows:

1. a receiving device at a subscriber's location.

2. "subscriber selectable receiver stations"

The parties dispute the proper construction of the phrase "subscriber selectable receiver stations." In Section IA6 above, the Court construed the phrases "subscriber receiving station" and "subscriber station" as they appeared in Claim 14 of the '863 Patent as "a receiving device at a subscriber's location." The Court finds that the apparatus claimed in Claim 4 of the '720 Patent is the same apparatus, except that as an additional limitation, it must be "selectable," a non-technical term which has a plain and ordinary meaning.

The Court construes the phrase "subscriber selectable receiver stations" as follows:

1. receiving device or devices which can be designated by the subscriber.

8. "Subscriber telephone station"

Cygnus wishes a broad construction of "subscriber telephone station" that would cover any method of making phone calls, including personal computers. The defendants advocate a very narrow construction that would limit the phrase to the telephone handset associated with the telephone number associated with the subscriber. Although in the preferred embodiment, the subscriber is "connected to the system via a telephone handset," '964 patent, col. 6, 11. 40-41, there is nothing else in the patent that suggests "subscriber telephone station" should only be a telephone handset. The Court therefore construes "subscriber telephone station" as "a device that allows audio communication over a telephone network."

The '170 patent uses the term "subscribers" to describe those businesses, historical sites or governmental sites included in the map of the predetermined region given to the user. CIVIX argues that "subscriber" means any and all businesses, historical sites, governmental sites and the like that have an identifiable location that can be stored in a database. Defendants argue that "subscriber" means a business or site that requests to be included in the invention's data. I agree with Defendants' interpretation.

In construing the terms of a patent, I must give such terms their ordinary and plain meanings unless the patentee has defined them differently within the patent. See Process Control, 190 F.3d at 1357 ("a patentee can act as his own lexicographer to specifically define terms of a claim contrary to their ordinary meaning"); see also Karlin, 177 F.3d at 971 (using dictionary to define terms). "Subscriber" in ordinary parlance means "one that agrees or consents." Webster's Third New Int'l Dictionary 2278 (3d ed. 1986). The ordinary meaning of the term "subscriber" implies action on the part of the one to which it refers (e.g., paying a fee or requesting to be part of a service). The '170 patent's specification does not teach differently when it explains that "the subscribers are typically businesses within the predetermined area surrounding the kiosk, or historical or governmental sites." ( '170 Patent, Col. 1 lines 39-42). "Subscribers" is not deliberately or precisely defined in a lexicographical manner by the inventors. Instead, the excerpt gives examples of types of subscribers. See, e.g., Renishaw, 158 F.3d at 1249 ("The patentee's lexicography must . . . appear with reasonable clarity, deliberateness, and precision before it can affect the claim."). The ordinary meaning of the term "subscribers" implies some action on behalf of the listed entities, otherwise the inventors could have used a more generic term such as "entities." Most likely, the patentees envisioned a profit making device whereby subscribers would pay to be included in the directory. (Custom Page Information and Rates, CIV 000083). I conclude that the term "subscribers" in the '170 patent means businesses, historical sites, governmental sites or the like that either agreed or requested in some manner to be a part of the database.

The parties agree that the term "set of subscribers" includes all "subscribers" in the predetermined region stored in the apparatus.

CIVIX contends that the term "group" of subscribers includes those subscribers that share "at least one characteristic." CIVIX disputes the Defendants' limitation of this to a single characteristic. CIVIX argues that a set of subscribers can clearly be searched using more than a single characteristic. Defendants dispute this and contend that "selected group" refers to all of the subscribers within a set of subscribers that have the particular characteristics identified via input means. Defendants contend that there is no indication in the '170 patent that the user station's database can be searched with respect to more than one characteristic at a time. However, I conclude that the language in Claim 1 reciting "input means at said user station for identifying at least one characteristic of said group" denotes that searching with more than one characteristic at a time was contemplated by the inventors. ( '170 Patent, Col. 4 lines 16-17) (emphasis added). I may not incorporate limitations from the specification that are not present in the claims themselves. See E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988); see also Burke, Inc., 183 F.3d at 1341 ("an attribute of the preferred embodiment cannot be read into the claim as a limitation.").

1. "subscription services"

The parties disagree about the meaning of the words "subscription services" found in the phrase "[a] method for providing subscription services involving transmissions from a remote location to a subscriber location" of the preamble of claim 1. Echostar argues that "subscription services" is limited to a group, tier or package of television programs purchased for a flat fee, while IPPV contends that "subscription services" includes pay-per-view programming that is purchased on impulse.

In support of its position, Echostar argues that "subscription services" is a limitation on claim 1 even though the term is only found in the claim's preamble. It then explains that the plain meaning of "subscription" is an arrangement for providing, receiving or making use of something of a continuing or periodic nature on prepayment plan. Echostar also refers the court to the deposition transcript of its expert, Graham Stubbs, where he testified that "subscription services do not include what are commonly referred to as pay-per-view services, wherein customers pay an amount for each program or event viewed." In light of its proposed plain meaning and Stubbs's testimony, Echostar contends that "subscription services" is limited to flat fee arrangements and does not include pay-per-view programming purchased on impulse.
IPPV counters by explaining that "subscription" generally refers to a purchase agreement where the subscriber agrees to purchase a certain number of goods or services to be delivered over a certain period of time. It argues, however, that "subscription" does not include a particular method of payment, and therefore, "subscription services" should not be limited to flat fee arrangements.

Moreover, IPPV contends that even if "subscription" implies flat fee payments, the specification expressly states that subscription programming may be impulsively purchased. As examples, it cites a portion of the specification stating that the present invention includes "an impulse purchase capability which allows a subscriber to purchase a certain amount of subscription programming outside the subscriber's normal prearranged programming at any time during which special information pertaining to that programming is being transmitted," and another portion stating that "the impulse purchase capability permits a subscriber to view subscription programming . . . for which payment is not predetermined in some ordinary manner such as a flat rate . . . ." IPPV argues that in both instances, the specification makes clear that "subscription services" includes pay-per-view programs.

As a preliminary matter, the court finds that "subscription services" of the preamble is a limitation of claim 1. The court further finds that the plain meaning of "subscription" does not require that a subscriber pay for services on a flat fee basis. The plain meaning only requires that a subscriber pay for services prior to delivery, and that the services be delivered over a period of time.

Prepayment for services is one of the main objects of the invention described in claim 1. When a purchaser chooses to view a program, the invention compares the cost of the purchased program against the purchaser's stored credit and only decrypts the programming if there is sufficient credit to cover the cost of the program. As a result, there is a prepayment before each program is viewed. It is of no consequence that the payment is made with stored credit rather than cash. Moreover, the pay-per-view programming is provided for a period of time. Thus, each purchase of a pay-per-view program by the method described in claim 1 falls within the plain meaning of "subscription."

In addition, the portions of the specification referenced by IPPV show that the inventors intended "subscription services" to include pay-per-view programming. In light of the plain meaning of the words and the specification, the court concludes that "subscription services" is not limited to arrangements in which a subscriber pays for services on a flat fee basis.

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4. "Detecting a subsequent launch." (Sixth step of Claim 1 and sixth means element of Claim 2).

The specification describes one way a subsequent launch may be detected. '630 patent, col. 4, ll. 54-63. Grammatically, the way the claims are written, this term refers to a launch of a program which occurs after the one which resulted in the creation of the final log file. See '630 patent, col. 8, l. 5 (stating the file is closed as step 98 of Fig. 5). The same step is shown in the flow chart at Figure 3. If a launch is detected (Fig. 3, item 72) and a log file exists (Fig. 3, item 74), then before the launch sequence executes, the computer program takes the steps for a more rapid launch (Fig. 6, item 102).

CAC suggested "detecting a launch after the log file is created." Microsoft proposed "identifying a launch of a computer program after the final log file for that computer program has been created, stored, and associated with that computer program." After some discussion with the court, the parties agreed on the following definition which the court finds is supported by the claims and specification and comports with the usage of words as understood by one of ordinary skill in the art:

"Detecting a subsequent launch" means: Detecting a launch of a computer program after the final log file for that computer program has been generated and stored in RAM, RAM cache, secondary storage, or some other storage.

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D. "subsequent services"
The term "subsequent services" is found in claim 10 of the '822 patent: "a data storage system for recording said exact geographic location and specific mobile unit identification for use in subsequent services." The specification does not use the term "subsequent services." Claim 22, which depends from claim 10, provides clarification of this term: "wherein said data storage system makes said exact geographic location information available for one or more of rate, message unit, tax, billing or location services provisioning." The plaintiffs initially proposed "a service that obtains the recorded exact geographic location and mobile unit identification after completion of the communication process that recorded them." Later, the plaintiffs offered an alternative construction: "a service occurring during a call in progress, including emergency 911, taxes, communication process rating, message unit, customer service frequency selection, changing frequencies, changing cell site (handover) and changing cell system." According to Centennial, "subsequent services" means "subscriber services occurring after the communication process between the network and the specific mobile unit has ended."

The plaintiffs argue that "subsequent services" includes both "Online Uses (Real Time)" (the left-hand column of '822 patent's Figure 8) and "One-Time Offline Uses" (the right-hand column of '822 patent's Figure 8). The plaintiffs contend that the claim language supports their position, because both sets of services occur "subsequent" to "recording said exact geographic location and specific mobile unit identification." EMSAT and LBS also note that the construction given by the Examiner during reexamination is "a service occurring during a call in progress, including emergency 911, taxes, communication process rating, message unit, customer service frequency selection, changing frequencies, changing cell site (handover)"; these services are the "Online Uses" illustrated in the left side of Figure 8.

Centennial responds that the court should give no weight to the Examiner's construction; the Examiner is required to give a claim its "broadest reasonable interpretation," while the court must apply the Phillips standard of the ordinary artisan's perspective at the time of the invention. The defendants also argue that the plaintiffs' construction renders "subsequent" superfluous because any service must occur after recording the exact geographic location and mobile unit identification. See Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005). Therefore, Centennial contends that the "subsequent services" are the "One-Time Offline Uses" shown on the right side of Fig. 8 and these services occur after the communication process has completed.

The court notes that claim 21, which depends from claim 10, further limits the "data storage" element and teaches that "emergency services provisioning" is one of the "subsequent services": "wherein said data storage system makes said exact geographic location information accessible for emergency services provisioning." Provisioning of emergency services, such as emergency calls made during a non-emergency communication process ('822 patent, 13:1-3, Fig. 8 block 120), must occur before the call has ended. Thus, subsequent services are not limited to offline services that occur after the call ends. The court therefore construes "subsequent services" to mean "a service that occurs after the exact geographic location and specific mobile unit identification have been recorded."

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2 The "Emergency 911" service appears on both the left and right side of Figure 8. But the "Emergency 911" in the right-hand column, block 110, is "emergency 911 call accounting." (822 patent, 12:45-46).
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J. "and having a transmittance level in substantial accordance with the formula T(l)=[D(l)-[S*(l)+(1-N)]/[S(l)+N]"

TLI contends that when construing terms according to their ordinary and customary meaning, the above phrase means "the coating transmits that portion of the element-emitted electromagnetic radiation that substantially satisfies the stated formula." See TLI's Br. at 22. TLI explains that the light-emitting element of the lamp emits electromagnetic radiation. See id. This radiation impinges the "lamp envelope" with its "at least one coating," and some of the radiation passes through the envelope and coating. See id. Accordingly, the coating has a transmittance level. 8 Claim 1, TLI asserts, requires this transmittance level to be only in "substantial accordance" with the above formula. 9 Further, TLI argues that the term "accordance" should be accorded its ordinary meaning. Thus, TLI contends that the claim states that the coating transmits a
portion of the element-emitted electromagnetic radiation that substantially satisfies the above formula. See id.

8 According to TLI, the term "transmittance" is well known in the art and is defined as the fraction of radiant energy that having entered a layer of absorbing matter reaches its farthest boundary. Id. TLI contends that the term "substantial" is defined as "the same or very close to." As discussed on page 6, this Court has rejected this definition of "substantial."

Sylvania argues that the word "substantial" is a word of degree and TLI's use of the word to modify the term "accordance" implies that the transmittance level of the coating need not be exactly in conformity with the formula recited in Claim 1 of the '017 patent. See Sylvania's Br. at 21. However, Sylvania contends that the specification of the '017 patent provides no standard for measuring the level of "substantial accordance" necessary to fall within the scope of the claim. See id. Moreover, Sylvania urges that using basic mathematical principles, a formula is either satisfied or not satisfied, that is, the terms on opposite sides of the equation are either equal or not equal. See id.

I find that the term "and having and having a transmittance level in substantial accordance with the formula T(l)=[D(l)-[S*(l)+(1-N)]][S(l)+N]" be given its ordinary meaning, and that the term requires that coating of the bulb transmit light energy that is in substantial accordance with the stated formula. The mathematical formula recited in the claim discloses a standard for transmittance that the bulb seeks to attain. The patent does not require that the light emitted from the bulb conform exactly to that standard, but instead, teaches that the light transmitted will be adequate as long as it is in "substantial accordance" with the standard defined by the formula.

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2. "substantial loss in transfer of line voltage"

HP asks the Court to construe this term as: "The voltage at the destination of the transfer is substantially less than that at the source." With respect to claim 1, EMC proposes: "A substantial loss in AC line voltage when switching from the first AC feed circuit to the second AC feed circuit. A loss in AC line voltage of 3dB or more is a substantial loss." With respect to claim 12, EMC proposes: "A substantial loss in AC line voltage when switching from the first AC energy source to the second AC energy source. A loss in AC line voltage of 3dB or more is a substantial loss."

Subparagraphs (c) of claims 1 and 12 indicate that the receiving circuits of claim 1 and the transfer circuits of claim 12 are energized without substantial loss from a single feed circuit or energy source, respectively, when compared to the amount of voltage transfer received from both feed circuits or energy sources. That is, each receiving or transfer circuit must be energized in substantially the same amount after failure of one of the two feed circuits or energy sources. Accordingly, for the purposes of this term, the voltage signal at the final destination (either the receiving circuits or the transfer circuits) prior to the de-energization of the first feed circuit or first energy source is compared to the voltage signal at the same final destination after the de-energization of the first feed circuit or first energy source.

The parties dispute whether there may be a "substantial loss in the transfer of line voltage" during the switch. Clearly, the object of the claimed invention is to prevent loss of energy to a circuit if an AC feed line or energy source fails. The specification describes an example of a switch that can achieve this object: for example, the "switching speed of relay 65 must be less than about one signal cycle of the AC main (i.e., about 20 ms), so that continuity of the signal is maintained for the power supply after switching AC mains. " 253:3/60-63. Thus, consistent with the claim language, the specification describes a device in which transfer of line voltage signal is never substantially lost, either during or after the switch, as measured against the extent to which the circuit was energized prior to the switch. Although there may be energy loss during the switch, that loss is not substantially less with respect to the final destination -- because of the nature of the AC signal -- than what would have occurred if there had been no switch. Although the Court concludes that the claim language indicates that substantial loss is measured after "the first feed circuit [or energy source] is de-energized" rather than after the switch is made, it must be noted that there may be energy loss associated with the switch as long as such loss occurs during a specific portion of the AC cycle so that there is not substantial loss of voltage at the final destination when compared to the voltage received prior to the de-energization of the AC energy source.
EMC also seeks to add a limitation defining "substantial loss" as a loss in AC line voltage of 3 dB or more. The term "substantial" is ambiguous. The specification does not expressly define -- indeed it does not discuss at all -- the concept of "substantial loss." In this context, the written description instead consistently describes the invention as providing for redundant sources of energy should a source fail. For example, various embodiments of the invention are described, in which "power supplies . . . remain energized for supplying power to the system," 253:4/4-5, the circuit "always suppl[ies] AC current to the off (third) power supply . . ., regardless of a loss of either of the redundant AC mains," 253:4/12-14, "no matter which AC main fails, all three power supplies remain powered for system 60 via the other live redundant main," 253:4/32-34, if a first AC main fails, a second AC main "provid[es] continued voltage," 253:4/43, and the system may "retain energized both power supplies . . . in the event of failure of either AC main," 253:4/48-49.

While the written description never quantifies the energy loss resulting from the use of "redundant" energy supplies, the patentee discloses an invention in which the circuits may function normally as if a source of energy had not been lost. Thus, it is clear that, whatever precise quantity the parties wish to assign to the term "substantial loss in the transfer of line voltage," it must have significance with respect to the functioning of the device. That is, for "substantial loss" to occur, the output of the electrical system or functioning of whatever device is powered by the claimed invention must be impaired by loss of the redundant energy source. Examples of such impairment are described in the specification. For example, loss of energy could result in "loss of data and down time upon failure." 253:1/14-15. Accordingly, in the claimed invention, the output of the electrical system is not affected by a failed AC line because, through the use of redundancies, there is not a substantial loss in the transfer of line voltage.

EMC argues that substantial loss must be quantified as "3 dB" because a reference discussing a signal loss of up to 3 dB was presented to the patent examiner during prosecution. However, this reference merely showed that a 3 dB signal loss is substantial, a characterization with which HP agrees. Plaintiffs' and Counterclaim Defendants' Reply Brief on Key Terms, p. 19. It did not preclude an argument that something less than 3 dB also is substantial. EMC does not explain what "3 dB" means in the context of the present invention. Because the reference to the prior art in the prosecution history did not address the issue of quantifying "substantial loss" and because the meaning of "3 dB" is ambiguous, the Court finds the prosecution history unhelpful in providing additional clarification.

Accordingly, the Court construes this term as: "Loss of receipt of energy -- as measured by the voltage at the final destination (either the receiving circuits or the transfer circuits) after the de-energization of the first feed circuit or first energy source compared to the voltage at the same final destination prior the de-energization of the first feed circuit or first energy source -- sufficient to impair the proper functioning of whatever device is powered by the claimed invention during and after loss of the redundant energy source."

Terms with "substantially"

Five disputed terms contain "substantially:" (1) "said select-transistor threshold voltage is substantially the same as said logic-transistor threshold voltage," (2) "said select-transistor-gate and said logic-circuit-gate having substantially a same thickness," (3) "substantially a same [thickness]," (4) "substantially the same [threshold voltage]" and (5) "substantially all memory read errors." Jt Cl Const, Ex B at 19-22, 23-25. These terms appear in claims 1 and 5 in the 229 patent and claims 1, 13, 14, 22 and 26 in the 148 patent. The court only construes the term "substantially" in each of these phrases because the other terms either are construed elsewhere in this order or are agreed upon by the parties.

For all terms except "substantially all memory read errors," UniRAM contends that "substantially" means "approximately, but not necessarily exactly." MoSys and TSMC instead propose that substantially means "identical except for differences that would necessarily result from the transistors being manufactured at the same time using the same process." Id.

For "substantially all memory read errors," UniRAM proposes a definition of "approximately all, but not necessarily all, memory read errors." Id at 25. MoSys's proposed construction is "[t]he number of read errors that an error code checking (ECC) and correction means of the prior art could correct." Id. TSMC asserts that this term does not need any construction, but if construed, TSMC proposes the same definition as MoSys but with "memory checking" replacing "error code checking."
(ECC)." Id. Neither MoSys nor TSMC provide any arguments in support of their proposed construction of this term. Other than one section of the specification in which the claims are simply paraphrased, the specification uses "substantially" only once, stating "[t]he sense amplifier used in the present invention is substantially the same as typical sense amplifiers used in the prior art." 229 patent at 11:33-35. UniRAM's construction of "substantially" is consistent with this use of the term, unlike MoSys's and TSMC's proposed constructions.

Nonetheless, both MoSys and TSMC contend that their proposed constructions mimic the specification, which provides many embodiments that teach simultaneously fabricating the select and logic transistors. 229 patent at 21:41-44, 23:10-23. But by importing this limitation from the specification, MoSys and TSMC are asking the court to limit the claims to particular embodiments, which is something that the Federal Circuit has admonished district courts not to do. Phillips, 415 F3d at 1323.

MoSys also notes that UniRAM adopts language similar to MoSys's construction in UniRAM's Patent L R 3-1 disclosure. Id at 36-37. But this disclosure only addresses how MoSys allegedly infringes UniRAM's 229 patent. The disclosure does not address the scope of UniRAM's claims. In other words, UniRAM's particular description how MoSys infringes UniRAM's patent in this case does not mean that UniRAM is limited to that description in all cases.

MoSys also argues that UniRAM's construction would render the claim indefinite because a standard for measuring "substantial" is required to provide notice to a person of ordinary skill what is covered by the claims. Id at 39-40. But the patents do provide some measure of what "substantially" means, albeit indirectly. UniRAM admits that it distinguished between threshold voltages of 0.7 and 1.1 volts, and oxide thicknesses of 70 and 100 angstroms. UniRAM Reply (Doc # 118) at 19:18-28; 229 patent at 21:39-22:44. Accordingly, the difference between two threshold voltages or thicknesses necessarily cannot be greater than or equal to 0.4 volts or 30 angstroms, respectively, if the two values are "substantially the same." Because substantially is not defined explicitly in the patent and does not appear to carry any special meaning in the relevant field, the court turns to the term's customary and ordinary meaning. Schumer v Laboratory Computer Systems, 308 F3d 1304, 1311 (Fed Cir 2002) ("The proper approach is to construe the claim language using standard dictionary definitions, because here, the claims have no specialized meaning."). UniRAM's proposed constructions for "substantially" fit comfortably with the term's usage in the patent. These constructions also match the term's dictionary meaning. See, e.g., Webster's Third New Intl Dictionary 2280 (1981) (substantially[ly]: "being that specified to a large degree or in the main"); Black's Law Dictionary 1428-29 (6th ed 1990) (substantially: "[e]ssentially; without material qualification; in the main; in substance ***"). And because there is no reason to think that the patentee intended to use "substantially" differently in different contexts, UniRAM's consistent definition for that term is preferable to defendants' piecemeal approaches. Accordingly, the court adopts UniRAM's constructions for the terms containing "substantially."

LGD contends that the phrase "interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another" as required by the '002 patent means "electrically connecting with conductive material all or nearly all row lines to at least one other row line and electrically connecting with conductive material all or nearly all of the column lines to at least one other column line." D.I. 376 at Exh. B-3. LGD contends that its construction is supported by the intrinsic record which shows either each row line interconnected to one other row line and each column line interconnected to one other column line, or serially connecting the row lines and column lines where each row or column line is interconnected on one end to one row or column line and is interconnected on the other end to another row or column line.

In response, AUO contends that this phrase should be construed as "joining almost all of the row lines together and joining
almost all of the column lines together." Id. AUO contends that this construction is consistent with the plain meaning of the phrase, the teachings of the patent, and the claim construction the Court rendered in previous litigation concerning this patent. AUO also contends that LGD's claim construction reads out the word "substantially" from the claim and attempts to broaden the claim to include semiconductor material as conductive material.

CMO contends that this phrase should be construed as "electrically connecting with conductors nearly all, but not all, of said row lines to one another and nearly all, but not all, of said column lines to one another." Id. CMO contends that this construction is consistent with the Court's previous construction, and LGD should not be permitted to reargue a claim construction it already argued in previous litigation.

As AUO and CMO note, the Court construed at least part of this phrase in previous litigation involving the '002 patent. In LG Phillips LCD Co., Ltd. v. Tatung Co., the Court construed the term "interconnecting" to mean "electrically connecting with conductors." 434 F. Supp. 2d 292, 296 (D. Del. 2006). The Court is not persuaded that its previous reasoning with respect to this construction is erroneous, and the Court finds no support in the specification for AUO's proposed construction of "joining" as a means of clarifying any ambiguity that may exist from the term "interconnecting." The Court also considered LGD's argument in the previous litigation that the Court's construction improperly limits the claim term to conductors; however, the Court noted that "the consistent use of a claim term by the inventor in the specification may serve to limit the scope of a claim." Id.

In addition, the Court is persuaded that LGD's construction reads out the term "substantially all" from the claim language by permitting "all." Accordingly, the Court concludes that "interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another" means "electrically connecting with conductors nearly all, but not all, of said row lines to one another and nearly all, but not all, of said column lines to one another."

a. Surrounding

To define "surrounding," Google suggests that the plain meaning of the word is to "enclose on all sides." The ambiguity latent in the term in this context is that the rendered display is somewhere between a two-dimensional and a three-dimensional object, so it is unclear whether a circle or a sphere would "surround" a point in the terrain. As Skyline correctly points out, Google's construction would imply that underground blocks of data would have to be downloaded for the "surrounding" data blocks to be considered gathered. It seems unlikely that this result was intended by the claim, because the '189 patent is primarily concerned with the rendering of surfaces with a minimal vertical dimension, not true three-dimensional terrain. Consequently, I find that "surrounding" does not imply a sphere surrounding a point on all sides, but a circle surrounding a point in two dimensions.

The next disputed issue with respect to "surrounding" is whether the area of excess blocks to be downloaded must necessarily be uniform in all directions (or whether a wider area of blocks could be pre-selected in the direction of travel, potentially creating an ellipse around a reference point, rather than a circle). n18 "Surrounding" is customarily read as encircling in a uniform manner, n19 and numerous references in the '189 patent support this reading. n20 At several points, the '189 patent mentions that the user can control the direction of view and look around in all directions, which necessitates downloading blocks in all directions. n21 Based on the common understanding of "surrounding," the specific use of the
term and concept in the '189 patent, and the broader context of the claimed method and apparatus, I construe "surrounding" to mean all of the blocks within a uniform distance from the point in question.

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n18 I also note that the points in the terrain selected as the starting points in Claim 9 could be preferentially chosen based on the direction of travel. Although the blocks surrounding each point would be downloaded to a uniform distance, the points chosen could be weighted towards the direction of travel.

n19 See, e.g., Webster's Third New Int'l Dictionary (Unabridged) (1986) (listing as synonyms "encircle," "circle," "ring," and "encompass").

n20 See, e.g., col. 12, 11. 23-25 ("blocks, which are most preferably organized in a square centered directly below the location of the viewpoint"); col. 16, 11. 4-6 ("cache manager first downloads the eight blocks surrounding the block which is directly below the current viewpoint").

n21 See, e.g., col. 2, 11. 3-5 ("allowing the pilot to see the view seen at any point along the flight course at substantially any desired angle"); col. 2, 11. 19-21 ("A user may select at substantially each point along the route the direction of view and may change the direction dynamically"); col. 7, 11. 6-7 ("Preferably, the viewpoint is controlled by a user of the processor"); col. 11, 11. 9-10 ("there is no compulsory correlation between the flight direction and the view direction"); col. 15, 11. 63-67 ("if the queue is empty, cache manager fills cache memory with the blocks within the range of the current viewpoint, so that, for any direction of view from the current viewpoint, there is no need to download further blocks from the server") (emphasis supplied).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - - -

b. Point in the terrain

The next dispute in the construction of this phrase is whether the "current viewpoint" is a "point in the terrain seen from the current viewpoint," as Skyline argues. The plain language of the phrase makes clear that it is not. The current viewpoint is the current viewpoint. A point seen from the current viewpoint is inherently different from the viewpoint itself. Consequently, I reject Skyline's argument that the current viewpoint is also a point seen from the current viewpoint.

Finally, Google includes "excess blocks" in its construction. This term is unnecessary, as Claim 9, a dependent claim of Claim 7, only covers the download of excess blocks.

Construction: (substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range) Substantially all of the data blocks covering terrain within a uniform predetermined distance from a point in the terrain that is seen from the current viewpoint.

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F. "substantially all" and "switching means"

The parties dispute the meaning of the related terms "substantially all" and "switching means." According to the claim language, the switching means must (1) be included in the transfer means and (2) cooperate with the selecting means to block "substantially all of the flow of current" from the high voltage generating means to unselected lines. '811 patent, 8:40-45.

The Court first construes the term "substantially all." Defendant urges the Court to hold that "substantially all" is indefinite. As support for its indefiniteness argument, defendant relies upon Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200 (Fed. Cir. 1991), a case in which the Federal Circuit upheld a finding of indefiniteness for a patent that claimed a pharmaceutical product with a potency of "at least about 160,000" units. Defendant argues that the term "substantially all" is likewise a term of measurement that provides insufficient information about the range of values it encompasses. Amgen v.
Chugai Pharmaceutical, however, is distinguishable. In that case, the Federal Circuit emphasized the fact that products with a potency of about 120,000 units were known in the prior art. Id. at 1217-18. The court explained that when the meaning of claims is in doubt, it is proper to invalidate them "especially when, as is the case here, there is close prior art." Id. at 1218. In this case, by contrast, defendant cites deposition testimony that the '811 patent reduced current leakage over the prior art by "perhaps a factor of 100 to 1,000." (Def.'s Mot. For Summ. J. of Indefiniteness at 12 (testimony of Pl.'s expert, Mr. Callahan)). Given the vast difference between the '811 patent and the prior art in this respect, slight uncertainty about the precise meaning of "substantially" is less important than was the ambiguity in Amgen v. Chugai Pharmaceutical. For this reason, the Court holds that the term is not indefinite.

As an alternative position, defendant argues that "substantially all" means the amount of current blocked by the particular combination of devices 40 and 46, the devices it maintains constitute the switching means. Plaintiff contends that the term should be given its normal meaning of "all but an insignificant amount." Seeing no reason why the term should be given any other, out-of-the-ordinary meaning, the Court adopts plaintiff's construction.

C. Claim Construction: substantially automated process

Both parties appear to agree that automated process means "without human interaction"; however, the parties differ on the meaning of substantially and its effect on the level of human interaction. Defendant asserts that substantially automated process means "a process that takes place without human interaction such that the need for data entry staff or human screening of the information is eliminated." Relying on language in the patent specification and prosecution history, Defendant argues that Plaintiff's patent eliminates the need for human intervention. Defendant states that the more narrow definition was established when Plaintiff bargained with the PTO in order to overcome the prior art. (Def.'s Answer Mem. 4.) Relying on the terms "without," "eliminated," and "does not require," Defendant argues that Plaintiff previously admitted to these limitations and Plaintiff's current construction is in direct conflict with it's own PTO arguments.

Plaintiff asserts that the term means "a process that largely takes place without human interaction." Plaintiff points to the prosecution history where references to the process always describe it as substantially automated. Plaintiff also cites Federal Circuit case law and the English dictionary to support its argument that the word substantially must have meaning in the claim and can mean "significantly," "considerably," "largely," or "essentially." (Pl.'s Opening Claim Constr. Br. 15; Hr'g Tr. 62.) Plaintiff further argues that, by requiring the process to take place entirely without human interaction, Defendant's construction reads the word substantially out of the claim. Plaintiff's use of "largely without" to measure the level of human interaction does little to clarify the claim term. However, if Defendant's proposed construction were adopted, the word substantially would be re-defined to mean "entirely" and would otherwise be meaningless.

In analyzing the language of the claim, the Court must determine how a person of ordinary skill in the art would understand the term substantially automated process. Both a person of ordinary skill in the art and a layperson would understand that an automated process means that the process is not driven by human interaction. A person of ordinary skill would also understand that there may be some human interaction involved in the process. However, a person of ordinary skill could not determine from the claim language how much human interaction would be involved in a process that was substantially automated.

The Court must also look at the specification to determine the proper construction of the claim language. The '513 Patent specification expresses that the embodiments shown and described are "preferred embodiments," as the heading above the descriptions upon which Defendant relies reads "Detailed Description of the Preferred Embodiment." (Joint App. A80, 10:16-17.) The description of the embodiment states that "merchants can [interact with the system] directly and by themselves" (5:16-20); information can be organized "without the need for employing a large personnel staff . . ." (5:4-5); "operations . . . are all handled online, without the need for a human order taker or processor" (6:65-7:1); and "the need for data entry staff or human screening of the information is eliminated" (5:63-68). (Joint App. A78-A79.)

Next, the Court looks to the prosecution history "to determine whether it contains statements that narrow the scope of the claims." Phillips, 415 F.3d at 1317. During the prosecution of the patent, parties may make statements that clearly restrict the scope of the patent. "This may occur, for example when the patentee explicitly characterizes an aspect of his invention in
a specific manner to overcome prior art.” Id. (internal citations omitted). In distinguishing this patent from prior art the patentee stated: "Unlike the prior art, the present invention does not require the information to be reviewed and/or inputted by a human being associated with the system operator or third party prior to the information being posted onto the web page . . . .” (Joint App. A557.) On this basis, the patentee distinguished its patent from the prior art. In reviewing the prosecution history, the Court does not find any evidence that Plaintiff made any explicit disavowal of scope during the prosecution of the ‘513 Patent. The fact that the claim does not require human interaction does not equate to the claim precluding human interaction.

There is a distinction between construing a claim in light of the specification and inserting a limitation into the claim from the specification. Phillips, 415 F.3d at 1323. Here, the specification supports the Court's reading of the claim based on the claim language that merchants may input information for viewing by consumers through a substantially automated process. However, if the Court were to find that the substantially automated process takes place without any human interaction, the Court would be reading a limitation into the claim from the specification, which is not appropriate. Additionally, while the prosecution history supports a finding that human interaction for the instant claim would be limited, such interaction is not precluded or prohibited. Accordingly the Court FINDS that substantially automated process as defined in the ‘513 Patent means “process that takes place with minimal, if any, human interaction.”

B. Effect of Prior Litigation

As stated above, SunTiger prevailed in a prior patent infringement suit against Scientific Research Funding Group (SRFG) on the same patents now in question. Both SunTiger and Sunglass Products have stipulated that the claim construction in the prior suit will control here:

The patents-in-suit have already been construed by the U.S. District Court for the Eastern District of Virginia [and that] construction . . . is binding on the parties in this case. To the extent that the terms in the asserted claims were not construed in the said prior litigation, the parties are asking the Court to make a claim construction based on the arguments submitted in the summary judgment motions.

Stipulation at 1-2. "In a patent litigation action, where the parties do not dispute any relevant facts regarding the accused product but disagree over possible claim interpretations, the question of literal infringement collapses into claim construction and is amenable to summary judgment.” Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1324 (Fed. Cir. 2002).

The relevant terms and their stipulated construction are as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Stipulated Construction</th>
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| "substantially block" | . . . in reference to wavelengths, it is defined as blocking over 99% of the incident radiation at each and every wavelength and "[in] reference to polarization, it is defined as blocking 80% or more of the horizontally polarized incident radiation at each and every wavelength"
| "substantially transmit" | . . . in reference to wavelengths, [it] is defined as transmitting more than 1% of the incident radiation at each and every wavelength and "[in] reference to polarization, it is defined as transmitting more than 20% of the horizontally polarized incident radiation at each and every wavelength"
| "sharp cut-on" | . . . sharp cut-on is defined in the context of a dye or filter, having a cut-on slope that at some concentration or dye density rises more than one half percent (0.5%) change in transmission for every one nanometer of increasing wavelength change. The cut-on slope is . . . |
that portion of the transmission spectra of a cut-on
dye that represents the transition between [the]
substantially blocking and the substantially
transmitting region."

"cut-on filter" "... an optical filter that substantially blocks all
wavelengths shorter than the cut-on wavelength and
substantially transmits all wavelengths that are longer
than the cut-on wavelength. The cut-on wavelength is
that wavelength in the transition zone at which the
transmission is 1%.

"portion" "... part or share of something"


Plaintiff SunTiger contends that this Court cannot apply the stipulated construction in a way that would contradict the
finding of the Eastern District of Virginia that YE-82 infringed SunTiger's patents. Pl.'s Mot. at 1 ("[T]he YE-82 lens
material must literally infringe whatever claim construction the Court adopts in this case."). In essence, SunTiger argues the
following: (1) the parties have stipulated to the prior construction, (2) the decision in the prior suit does not bind this Court,
but (3) any ruling that this Court issues must not be inconsistent with the fact that YE-82 was found to infringe its patents.

I disagree with this assessment. My decision is not foreordained by the result in SunTiger, Inc. v. Scientific Research
Funding Group. SunTiger attempts to elevate the prior claim construction to the level of a decision. Despite the parties'
agreement that the prior claim construction would be binding, that prior court's decision applying its own construction is
only persuasive. Although the parties have agreed to be bound to the use of the prior construction, they have not agreed that
this Court's application of that construction must be consistent with prior decisions involving a different defendant and
different lenses. Indeed, were consistency with prior results necessary, that would be tantamount to an improper form of
collateral estoppel against a current party, i.e., Sunglass Products, which was not a party (nor a party in privity) to SunTiger
1994) ("[D]ue process requires that the party to be estopped must have had an identity or community of interest with, and
adequate representation by, the losing party in the first action as well as that the circumstances must have been such that the
party to be estopped should reasonably have expected to be bound by the prior adjudication.").

GO BACK

4277

substantially congruent to said first layer of conducting strips in a top view

Claim 1 contains the term "substantially congruent to said first layer of conducting strips in a top view." Lonestar proposes
that the term means "one layer of conducting strips is 'substantially congruent to' another layer of conducting strips 'in a top
view' when the strips of each layer, as viewed from the top, have about the same dimensions and about the same shape." Nintendo proposes that the term means "having the same dimension and the same shape within manufacturing tolerances." The parties disagree on whether "substantially" means "about" or "allowing variation within manufacturing tolerances."

The Court adopts Lonestar's approach and construes "substantially congruent to said first layer of conducting strips in a top
view" as "having the same or very close shape and dimensions when viewed from the top." Nintendo's construction is not in
line with the meaning of "substantially" as used in the intrinsic record, in the case law, and in common usage. Neither the
claims nor the specification explicitly construe "substantially." However, the specification equates congruent to being
"identically dimensioned." In particular the specification states, "the strips 26A and 26B are arranged parallel to the strips
24B and 24A and are identically dimensioned so that the strips 26A and 26B are congruent with the strips 24B and 24A
below." Col. 2:32-35 (emphasis added); see Figure 2. Inherently this citation teaches that "substantially congruent" is
something less than "identically dimensioned." Nintendo cites to the use of "alignment tolerances" as used in the
specification. Col. 6:43-55. However, this citation refers to the impact alignment tolerances has on the formation of vias
between the layers as opposed to the meaning of substantially. The specification does not limit "substantially" to
"manufacturing tolerances."

Dictionaries and case law often define "substantially" as having a meaning consistent with "the same or very close." The Federal Circuit has construed "substantially" consistently with "the same or very close" in cases where the specification did not define the term of approximation at issue. See Anchor Wall Sys. Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1310-11 (Fed. Cir. 2003) (stating that "words of approximation, such as 'generally' and 'substantially,' are descriptive terms . . . to avoid a strict numerical boundary"); see Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1366 (Fed. Cir. 2001) (defining "substantially" as "largely but not wholly that which is specified"); see Liquid Dynamics Corp. v. Vaughan Co., Inc., 355 F.3d 1361, 1368 (Fed. Cir. 2004) (stating that "'substantial' is a meaningful modifier implying 'approximate,' rather than 'perfect'"). Additionally, dictionary definitions define "substantially" to mean "about" and "being largely but not wholly the specified thing." BLACK'S LAW DICTIONARY 1428-29 (6th ed. 1990); THE PENGUIN ENGLISH DICTIONARY 938 (1992); WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 1176 (1986). Thus, in the context of the '725 patent, "substantially congruent" means "having the same or very close shape and dimensions." Accordingly, the Court construes "substantially congruent to said first layer of conducting strips in a top view" as "having the same or very close shape and dimensions when viewed from the top."

**4278**

1. substantially equal

AUO contends that the term "substantially equal" should be construed in accordance with its plain meaning such that "substantially equal" means "a level that is not completely the same but can be accepted as a substantially equal level." LGD contends that the phrase "substantially equal" is indefinite, or in the alternative, should be construed as "a level which is not completely the same but can be accepted as a substantially equivalent level, and includes a level which is closer to an ideal quantity of light than [sic] no preventive measures are taken." D.I. 1388 at 101.

The Court concludes that the term "substantially equal" is not indefinite and should be defined as AUO proposes. This construction is consistent with the plain meaning of the term and the specification, which explains that the "representation 'substantially equal level' refers to a level which is not completely the same but can be accepted as a substantially equivalent level." '160 patent, col. 4, ll. 56-58; col. 9, ll. 19-23 (referring to Fig. 6 and the desire to obtain a "quantity of light (S) . . . which is approximately the same as the quantity of light (S) . . . [from an LC with] ideal response characteristic[s] (S*.S)"); col. 8, ll. 45-47 (quantity of light is "almost the same as" that of an ideal LC). In the Court's view, LGD's construction, improperly imports limitations from the preferred embodiment into the claims.

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8. Substantially Equal

Step (G) of Claim 11 provides: "awarding the progressive prize to the player if the generated random number is substantially equal to the prize winning number."

Defendants claim that the meaning of "substantially equal" is undefined in the patent, and hence indefinite. Plaintiffs suggest that "substantially equal," as used in the claim, means "equal." If Defendants are correct that the meaning of "substantially equal" is indefinite, then the claim would be invalid, and their motion for summary judgment should be granted. See 35 U.S.C. 112 ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."); Seattle Box Co., Inc. v. Indust. Crating & Packaging, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984).

Rejecting "a broad concept of indefiniteness, [wherein] all but the clearest claim construction issues could be regarded as giving rise to invalidating indefiniteness in the claims at issue," the Federal Circuit has created the following standard for assessing indefiniteness: "If one skilled in the art would understand the bounds of the claim when read in light of the specification, then the claim satisfies section 112." Exxon Research & Eng'g Co. v. U.S., 265 F.3d 1371, 1375 (Fed. Cir.
2001). Noting the complexity of the inquiry, the Exxon court stressed that '[i]n determining whether that standard is met, i.e., whether the claims at issue are sufficiently precise to permit a potential competitor to determine whether or not he is infringing,' we have not held that a claim is indefinite merely because it poses a difficult issue of claim construction." Id. (internal citation omitted). "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Id. Once a patent has been issued by the PTO, it possesses a presumption of validity, and a challenging party must present clear and convincing evidence to overcome that presumption. Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347-48 (Fed. Cir. 2005).

When faced with a similar allegation that the use of the term "substantially equal" rendered a claim indefinite, the Federal Circuit emphasized the need to determine whether the specification provides a standard for measuring the degree of equality encompassed by the term "substantially." Seattle Box Co., 731 F.2d at 826 (rejecting indefiniteness where specification identifying the purpose of a device could support a standard for measuring the degree needed to be considered); see also Mickowski v. Visi-Trak Corp. 36 F. Supp. 2d 171, 178 (S.D.N.Y. 1999) ("In this case, it is clear that the term [of art] "substantially" has been included merely to bridge the gap between the abstract description of a method and its practical application in the real world. . . . [and] adds nothing to the claim."). An issued patent should not be invalidated, even where some amount of experimentation is necessary to determine the degree required, if the claims otherwise enable the patent. Exxon Research, 265 F.3d at 1379 (also distinguishing another "substantially" case involving patent application, as opposed to issued patent, and where determining precise degree was critical to invention); Seattle Box Co., 731 F.2d at 826.

Here the specification provides some minimal basis for determining what degree of equality is required. In the portions of the specification addressing the matching of the random number to the prize winning number, it states that the numbers must be equal. (460 patent, col. 23:50-51, col. 16:43-45.) Although the only time the term "substantially equal" is used outside the claims is in connection with total wager amounts, its use in that passage provides some guidance for the meaning of the term and how a person of ordinary skill would understand the term in order to avoid infringement. n4 (Id. at col. 12:66 - col. 13:2 ("From the regulatory viewpoint, these checks ensure that the theoretical total wager amounts are substantially equal."))

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n4 We reject Defendants' argument that because "substantially equal" is used elsewhere in the specification, Mr. Torango should have used it in the portion describing the random number comparison, and since he did not, the term is indefinite.

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The purpose of the patent is to link international gaming devices with diverse regulatory standards and currency fluctuations. The numbers are generated by mathematical formulas which include multiplying incremental and surcharge percentages of such minimal size as .0000015979493 (id. at col. 14:26), indicating that some devices may not present exact integer matches. Furthermore, different devices in different zones may have different regulatory standards requiring different exactitude in matches. A person of ordinary skill in the art should be able to engage in some amount of experimentation with these standards and percentages in order to determine what degree of equality is required between the random generated number and the prize winning number in order to produce an effective match while meeting the regulatory standards. The fact that the specification does not specify this degree is not fatal, given the presumption of validity attached to this issued patent and the fact that the patent does not indicate that the precise degree of equality is critical to the invention. See Exxon Research, 265 F.3d at 1379.

Thus, we find that the use of the term "substantially equal" does not render Claim 11 indefinite and summary judgment should not be rendered in favor of Defendants on that basis. Furthermore, we construe the term "substantially equal" to mean "equal to the extent that diverse regulatory standards and currencies are applied and the purpose of the invention is enabled."
material used as a base for an electronic component or circuit." The term "a first axially symmetric region" means "a region that is symmetric about the central axis of the wafer." The term "substantially free of agglomerated vacancy [or interstitial] defects" means "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm³." The term "agglomerated vacancy intrinsic point defects" means "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." Finally, "agglomerated silicon self-interstitial intrinsic point defects" means "defects caused by the reaction in which self-interstitials agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects."

II. "wherein said first bandwidth is substantially greater than said second bandwidth" 4

4 The parties identified the term "substantially greater" for argument at the Markman hearing. TERMS FOR HEARING at 3. However, the parties include the term "wherein said first bandwidth is substantially greater than said second bandwidth" in the claim chart, so the Court will construe this term. See CLAIM CHART at 64. The term "wherein said first bandwidth is substantially greater than said second bandwidth" is contained in claim 17 of the '937 patent.

Plaintiff's Proposed Construction

wherein said first bandwidth is

defendants' Proposed Construction

indefinite

sufficiently greater than said

second bandwidth such that applying

compression methods would be beneficial

Defendants argue that the specification fails to provide some standard for measuring the degree of the term "substantially greater" in order to apprise those skilled in the art whether they are practicing the claimed invention or not. REPLY at 6. Defendants also contend that Plaintiff's arguments to the contrary rely on portions of the specification that do not relate to comparing bandwidths as recited in claim 17. Id.

Plaintiff contends that the term "substantially" is not only commonly used, but also has been held not indefinite on numerous occasions by the Federal Circuit. RESPONSE at 11-12. Plaintiff points to a portion of the specification where the compression ratio is 3:1 as being an example in the '937 patent where the first bandwidth is "substantially greater" than a second bandwidth. Id. at 12-13.

Claim 17 of the '937 patent sets forth:

17. A method comprising:

receiving a data stream over an input having a first bandwidth;

compressing, in at least real-time, said received data stream using a plurality of encoders to provide a compressed data stream;

transmitting said compressed data stream over an output having a second bandwidth, wherein said first bandwidth is substantially greater than said second bandwidth and said transmitting said compressed data stream effectively increases said second bandwidth; and

wherein said compressing and said transmitting of said compressed data stream over said output occurs faster than a transmission of said data stream in uncompressed form over said output.
'937 patent at 20:9-2.

To the extent that Defendants argue that this claim is indefinite because the specification fails to explicitly delineate numerical boundaries for the "substantially greater" term, this is not required. A patentee is not required to define a claimed invention with mathematical precision in order to comply with the definiteness requirement. Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1341 (Fed. Cir. 2003) (citing In re Marosi, 710 F.2d 799, 802-803 (Fed. Cir. 1983)). In Marosi, the Federal Circuit noted, "[i]nsofar as it requires appellants to specify a particular number as the cutoff between their invention and the prior art, the PTO's position is impractical [because the] invention does not reside in such a number." Marosi, 710 F.2d at 802. There, the Court held that one skilled in the art would determine if a source is "essentially free of alkali metal" when it contains "unavoidable impurities in starting materials and essential ingredients." Id. at 803. In Oakley, however, the numerical value of the "differential effect . . . producing a vivid colored appearance" was a distinguishing feature over the prior art, and therefore particular numerical values should be--and were--disclosed in the specification. 316 F.3d at 1341-42.

In this case, that a first bandwidth is substantially greater than a second bandwidth is not a distinguishing feature over the prior art. As used here, "substantially greater" is a term of degree. The capacity difference between the two bandwidths is merely an initial parameter in defining a system which performs the claimed method of accelerating data storage. Further, the novelty of the invention does not lie in the capacity difference between the two bandwidths. Thus, as in Marosi, the claimed invention does not reside in a number delineating the capacity difference between the two disclosed bandwidths.

Defendants argue that the specification fails to disclose a frame of reference for determining when a first bandwidth is "substantially greater" than a second bandwidth. REPLY at 6-7. Defendants further argue that the portions of the specification that Plaintiff points to for this frame of reference are irrelevant to the relative size of the first and second bandwidths. However, the Court disagrees. That there is a dispute, even among those skilled in the art, as to the proper meaning of "substantially greater" does not, itself, render the claim invalid. Verve, LLC v. Crane Cams, Inc., 311 F.3d 1116, 1120 (Fed. Cir. 2002). Ambiguities which remain after examination of the claims and specification "may be aided by extrinsic evidence of usage and meaning of a term in the context of the invention." Id. at 1119. Thus, the question is not whether the word "substantially greater" has a fixed meaning as applied to the first and second bandwidths, "but how the phrase would be understood by persons experienced in this field of mechanics, upon reading the patent documents." Id. at 1119-20. The Federal Circuit has explained:

Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826 (Fed. Cir. 1984). Thus, the manner in which one skilled in the art would read and understand the '937 patent is the lens through which the Court should view this term in order to determine the proper meaning.

One skilled in the art would understand that the purpose of this invention is to accelerate the transmission of data in a system limited by the second bandwidth because existing memory storage devices at the time this patent issued limited the performance of many disk and memory intensive operations. '937 patent at 2:22-25. Both claim 17 and the specification disclose that compressing the data effectively increases the second bandwidth, resulting in transmission of data faster than would be possible uncompressed. '937 patent at 20:9-25 (claim 17) ("said transmitting said compressed data stream effectively increases said second bandwidth; [resulting in data stream output which is] faster than a transmission of said data stream in uncompressed form over said output"); id. at 2:16-18 ("data compression can reduce the time to transmit data by more efficiently utilizing low bandwidth data links"). Claim 17 is drafted in such a way that one skilled in the art would understand that the difference in the first and second bandwidths is a system constraint related to the problems experienced in the field at the time the patent issued. This system constraint derives directly from the problems in the art, as disclosed by the patentee:

One problem with the current art is that existing memory storage devices severely limit the performance of [] computers for all disk and memory intensive operations. For example, magnetic disk mass storage devices currently employed in a variety of [] applications suffer from significant seek-time access delays along with profound read/write data rate limitations. Currently the fastest available (10,000) rpm disk drives support only a 17.1 Megabyte per second data rate
The specification of the '937 patent also discloses an embodiment with an input data rate of 90 MB/sec, a compression ratio of 3:1, and a maximum data storage rate of the data storage device of 20MB/sec. '937 patent at 10:1-8. While Defendants are correct that this example is not discussed in terms of bandwidth, that does not mean it is bereft of information regarding the relative bandwidths. In other words, if an input data rate is disclosed to be 90 MB/sec, then the first bandwidth of this input transmission line must be at least 90 MB/sec. Further, if the output of the data storage accelerator is 30 MB/sec and the maximum data storage rate of the data storage device is 20 MB/sec, then the second bandwidth--either the output of the data storage accelerator or the incoming transmission line of the data storage device--must be able to accommodate at least 20 MB/sec. Thus, in this example, the first bandwidth is at least 60 MB/sec greater than the second bandwidth or the relative bandwidth transmission rates is a ratio of at least 90 MB/s to 30 MB/s or 3:1. Further, a similar example is disclosed where the first bandwidth is at least 40 MB/sec greater than the second bandwidth--a ratio of 60 MB/s to 20 MB/s or, again, 3:1. '937 patent at 5:40-46. Thus, the '937 patent discloses at least two examples that one skilled in the art would view as a frame of reference for determining when a first bandwidth is "substantially greater" than a second bandwidth.

The '937 patent also indicates that the term "substantially greater" in claim 17 is a term of degree because its bounds depend on a number of variables within the data transmission system--variables which may have differing levels of relative importance depending on the particular application. See '937 patent at 10:8-13 ("[the problem of transmission delay] may be solved by adjusting anyone of the system parameters as discussed above, e.g., by adjusting the compression ratio to provide a data output rate from the data storage accelerator 10 to be equal to the data storage rate of the data storage device 45"); id. at 5:35-40 ("to achieve optimum throughput, the rate that data blocks from the input data stream may be accepted by the data storage accelerator 10 is a function of the size of each input data block, the compression ratio achieved, and the bandwidth of the target storage device"); see also id. at 9:43-61; id. at 14-23. Additionally, different benefits, which may or may not be desirable in particular applications, can result from the degree to which the first bandwidth is greater than the second bandwidth:

Depending on [a number of] factors [including] the bandwidth of the data storage device, and the intended application, the delay may or may not be significant. For example, in a modern database system, recording data for archival purposes, the opportunity for increased data compression may far outweigh the need for minimum delay. Conversely, in systems such as a military real-time video targeting system, minimizing delay is often of the essence.

'937 patent at 8:9-19. Thus, whether the "substantially greater" limitation of claim 17 reads on a particular application is a question that one skilled in the art would look to the particular system parameters in order to resolve because, without the context of the particular application in mind, a pure numerical bandwidth difference will not always establish whether the first bandwidth is "substantially greater" than the second bandwidth. See '937 patent at 20:9-25 (claim 17), Figs. 1, 8. Further, because the claimed invention "applies to all forms and manners of memory devices including storage devices utilizing magnetic, optical, and chemical techniques, or any combination thereof," '937 patent at 2:53-56, the relative bandwidths, and the effect of data compression, will vary greatly among different applications in which the invention is utilized.

In light of the language used in claim 17, the examples disclosed in the specification, the subject matter at issue, and the frame of reference in which one skilled in the art would understand the invention, the Court finds that the term "substantially greater" is expressed in terms that are reasonably precise. Verve, 311 F.3d at 1116 ("usages such as 'substantially equal' and 'closely approximate' may serve to describe the invention with precision appropriate to the technology and without intruding on the prior art"); Exxon Research and Engineering, Co. v. United States, 265 F.3d 1371, 1379 (Fed. Cir. 2001) (holding the term "for a period sufficient" to attain a stated goal was not indefinite because an example of a preferable period was given in the specification and because "the patent makes clear that the period in question
The parties contest the definition of the term "substantially identical in uniformity to" as used in Claim 1. TLI contends that the term "substantially identical in uniformity to" does not need to be construed because it does not limit the claim. See TLI's Br. at 8. However, TLI argues that should the court decide that the preamble is limiting, the term "substantially identical in uniformity to" should be accorded its ordinary and customary meaning. See id. According to TLI, the ordinary and customary meaning of the term "substantially" is "same or very close to." Thorn EMI N. Am. v. Intel Corp., 936 F. Supp. 1186, 1198 (D.Del. 1996). See id.

Sylvania argues that the term "substantially identical" is explicitly defined in the specification of the '017 patent, and therefore, the court should adopt the patent's definition of this term. Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005) (In cases where specification explicitly defines how term should be construed, inventor's lexicography governs). See id. According to Sylvania, there is no support in the specification of the '017 patent for TLI's proposed claim construction that the term "substantially identical" should mean "same or very close to." See id.

The specification of the '017 Patent states, in relevant part that:

As used in this specification, the term substantially identical refers to a total light output which, at each of the wavelengths between about 400 and 700 nanometers on a continuum, is within about 30 percent of the D(l) value determined by the aforementioned formula and wherein the combined average of all of said wavelengths is within about 10 percent of the combined D(l) of all of said wavelengths.

See Specification at col. 6 lines 45-51 (emphasis added). I find that because the inventor specifically defined the term "substantially identical" in the specification of the '017 patent, the patent's definition controls this court's interpretation of that term, and mandates that the term "substantially identical in uniformity to" as used in the '017 patent must be construed to require "a total light output which, at each of the wavelengths between about 400 and 700 nanometers on a continuum, is within about 30 percent of the D(l) value [as determined by a specified formula] and wherein the combined average of all of said wavelengths is within about 10 percent of the combined D(l) of all of said wavelengths." See '017 patent at Col. 6, lines 45-51.
The device of claim 13 wherein:

(i) said plurality of update operations is performed n times; and

(ii) the value of said updated secret parameter after said processor has performed said n update operations can be derived by said receiving device from the value of said secret parameter before said n operations with substantially less computational effort than would be required to perform n update operations.

The parties dispute the construction of the phrase "substantially less computational effort." The "Summary of the Invention" section of the specification describes the process as follows:

If the number of operations that can securely be performed by a client is n (i.e., n different transactions can be performed, without using the same secret value more than a fixed number of times), a server knowing or capable of obtaining the client's initial secret value K (or initial state corresponding thereto) can derive any resulting secret value (or corresponding state) in the series of transactions significantly faster than by performing n corresponding updates. Indeed, the state for any given transaction can often be derived by a server using $O(\log n)$ calculations of $F_A$ or $F_B$ (or their inverses).

('092 Patent, Col. 3:5-15.)

A person of ordinary skill in the art at the time of the invention would understand that the invention is a server which derives a "resulting secret value or corresponding state" by using an algorithm, which is different than the algorithm of the transformation operation used in the client device. Using this algorithm, the server arrives at the same result with fewer computations than it would have to perform if it repeated the transformation operations performed by the client device.

Accordingly, the Court construes "with substantially less computational effort" to mean: with substantially fewer computations.

ATC's argument that none of the experts in this case have heard of the term "substantially monolithic" prior to this case misses the point. Whether or not the phrase existed is not the issue; rather, the question is whether "one skilled in the art would understand the bounds of the claim when read in light of the specification." See Exxon, 265 F.3d at 1375 (citation omitted). In the present case, both Dr. Ewell and Dr. Huebner testified that the term was clear and understandable to persons of ordinary skill in the art. Moreover, a claim term is not indefinite as long as the meaning of the claim is discernible through construction, "even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree." Id. (citations omitted). In the present case, the Court was able to construe the term "substantially monolithic" by adopting the definition proposed by ATC. In light of this, whether or not the term was "new" or "unheard of" is legally irrelevant.

ATC next argues Dr. Ewell's "fracture test" does not cure the indefiniteness of the claim term, but rather confuses it even further. "The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1350 (Fed. Cir. 2005) (citation omitted). Rather, "[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention." Id. According to ATC, these criteria are not satisfied with respect to the term "substantially monolithic" because it is not based on an objective standard, but rather depends on a questionable "fracture test" pursuant to which a capacitor may infringe when used in one activity, but not infringe when used in another. See Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075, 1090-91 (Fed. Cir. 2009); Halliburton Energy Services, Inc. v. M-I LLC, 514 F.3d 1244, 1254-55 (Fed. Cir. 2008) ("When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.").

However, contrary to ATC's arguments, a claim term is not indefinite just because it was "intended to cover the use of the invention with various types of [end products]." See Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1575-76 (Fed. Cir. 1986) ("That a particular chair on which the claims read may fit within some automobiles and not others is of no moment. The phrase 'so dimensioned' is as accurate as the subject matter permits, automobiles being of various sizes." (citation omitted)). In the present case, one skilled in the art can easily use Dr. Ewell's objective "fracture test" to determine whether any resulting capacitor is "substantially monolithic." See id. More importantly, unlike the cases relied upon by ATC, this does not mean that the same capacitor will be infringing in one case and not infringing in another; rather, once built, a particular capacitor designed for a particular use will be either "substantially monolithic" or not. (See Trial Tr. Day 4, at 129:2-130:22; Trial Tr. Day 7, at 74:10-75:2.) Indeed, in light of Dr. Ewell's testimony that 100% "monolithicness" is not possible in any case, the phrase "substantially monolithic" might very well be "as accurate as the subject matter permits." See Orthokinetics, 806 F.2d at 1576.

In this context, the Court rejects ATC's argument that the Court cannot rely on Dr. Ewell's testimony at trial because it constitutes extrinsic evidence that contradicts the intrinsic record. See Phillips v. AWH Corp., 415 F.3d 1303, 1318 (Fed. Cir. 2005) ("[A] court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history . . . '" (citation omitted) (emphasis added)). In light of the fact that the '356 patent does not anywhere define "substantially monolithic," Dr. Ewell's testimony regarding his "fracture test" cannot be "clearly at odds" with the intrinsic record. See id.

Similarly, to the extent ATC's first ground of indefiniteness raises the same arguments as with respect to enablement and written description, those arguments are rejected for the same reasons as set forth above. Specifically, the use of the term
"sufficiently close" does not make the whole claim term less definite. Just like the terms "about" or "substantially," the term "sufficiently close" appears to be a descriptive term used in patent claims to "avoid a strict numerical boundary to the specified parameter." See Ecolab, 264 F.3d at 1367; accord Verve, 311 F.3d at 1120. Moreover, there was sufficient evidence presented at trial to find that the novelty of the '356 patent was precisely the fact that once the external contacts are arranged "sufficiently close," a fringe-effect capacitance is formed. How "sufficiently close" they should be arranged would necessarily depend on the thickness of those contacts and the type of dielectric used. (See Trial Tr. Day 4, at 81:8-81:22.) To specify any particular distance between the contacts would have unnecessarily limited the scope of the claimed invention, thereby depriving the inventors of the "benefit of [their] invention." See Verve, 311 F.3d at 1120.

ATC next argues Dr. Ewell's proposed "test" for whether a fringe-effect capacitance is "determinable" compounds rather than clarifies the ambiguity. As previously noted, "[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention." Datamine, 417 F.3d at 1350 (citation omitted). Rather, "[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention." Id. In the present case, that requirement is satisfied because Dr. Ewell testified that one of ordinary skill in the art can use a capacitance meter--an objective test--to measure whether "determinable" fringe-effect capacitance is present between a particular set of external contacts. 21 (See, e.g., Trial Tr. Day 7, at 111:23-112:3, 114:12-114:17, 115:15-116:21, 119:23-120:12.) Likewise, Dr. Huebner testified that to determine whether the contacts were "sufficiently close" to form a determinable fringe-effect capacitance, a person of ordinary skill in the art could analyze the thickness of the external contacts, the separation distance, the dielectric itself, and the dielectric constant--all of which are objective details. (See Trial Tr. Day 4, at 81:8-81:22.) ATC's own expert, Dr. Dougherty, confirmed the propriety of both of these methods. (See, e.g., Trial Tr. Day 5, at 144:17-146:17.)

--- Footnotes ---

ATC next argues Dr. Ewell's proposed "test" for whether a fringe-effect capacitance is "determinable" compounds rather than clarifies the ambiguity. As previously noted, "[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention." Datamine, 417 F.3d at 1350 (citation omitted). Rather, "[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention." Id. In the present case, that requirement is satisfied because Dr. Ewell testified that one of ordinary skill in the art can use a capacitance meter--an objective test--to measure whether "determinable" fringe-effect capacitance is present between a particular set of external contacts. 21 (See, e.g., Trial Tr. Day 7, at 111:23-112:3, 114:12-114:17, 115:15-116:21, 119:23-120:12.) Likewise, Dr. Huebner testified that to determine whether the contacts were "sufficiently close" to form a determinable fringe-effect capacitance, a person of ordinary skill in the art could analyze the thickness of the external contacts, the separation distance, the dielectric itself, and the dielectric constant--all of which are objective details. (See Trial Tr. Day 4, at 81:8-81:22.) ATC's own expert, Dr. Dougherty, confirmed the propriety of both of these methods. (See, e.g., Trial Tr. Day 5, at 144:17-146:17.)

--- End Footnotes ---

ATC has also failed to show by clear and convincing evidence that the '356 patent fails to differentiate itself from the prior art identified in Figure 2A. "[W]hether the patent expressly or at least clearly differentiates itself from specific prior art... is an important consideration in the definiteness inquiry because in attempting to define a claim term, a person of ordinary skill is likely to conclude that the definition does not encompass that which is expressly distinguished as prior art." Halliburton, 514 F.3d at 1252. In the present case, the '356 patent adequately differentiates what is claimed from the prior art depicted in Figure 2A. For example, in describing Figure 10A, which depicts an embodiment of the claimed capacitor, the '356 patent notes that as compared to the capacitor in Figure 2A, "the external conductive plates 72 and 74 in the lower section 62 of the device have been extended toward each other so as to create a capacitance between plates 72 and 74 based upon fringe electric field extending to and from the adjacent edges of those plates." ('356 patent, col. 7:22-7:26.) In contrast, there is no discussion of any fringe-effect capacitance, much less capacitance that is "determinable," with respect to prior art depicted in Figure 2A. (See id., col. 2:17-2:44.) Likewise, with respect to Figure 2A, there is no discussion of any "external contacts" that are "sufficiently close" to each other. (See id.) Accordingly, the '356 patent sufficiently differentiates the prior art depicted in Figure 2A from what is claimed in the asserted claim 1.

[SEE FIG. 2A IN ORIGINAL]

[SEE FIG. 10A IN ORIGINAL]

Finally, ATC's "functional language" argument fares no better. Particular scrutiny is required where a claim is defined "by what it does rather than what it is." Halliburton, 514 F.3d at 1255. The vice of such "functional claiming" occurs "when the inventor is painstaking when he recites what has already been seen, and then uses conveniently functional language at the exact point of novelty." Id. (quoting Gen. Elec. Co. v. Wabash Appliance Corp., 304 U.S. 364, 371, 58 S. Ct. 899, 82 L. Ed. 1402, 1938 Dec. Comm'r Pat. 813 (1938)). The Federal Circuit, however, has held that claim language is not necessarily indefinite for using functional language. See, e.g., Microprocessor Enhancement Corp. v. Texas Instruments Inc., 520 F.3d
1367, 1375 (Fed. Cir. 2008). There is nothing intrinsically wrong with using functional language in claims, unless it fails to "provide a clear-cut indication of the scope of the subject matter embraced by the claim." Id. (internal quotation marks and citation omitted). In the present case, the '356 patent differentiates its invention from the prior art by requiring that there be external contacts that are located in such proximity to each other as to form a fringe-effect capacitance. In light of Dr. Ewell's testimony, this provides sufficient description of the scope of the asserted claims. See Halliburton, 514 F.3d at 1256.

iii. Conclusion

Accordingly, ATC has failed to show by clear and convincing evidence that the phrases "substantially monolithic" and "sufficiently close . . . to form a first fringe-effect capacitance" are indefinite as a matter of law.

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2. "said substantially opaque material being a black polyimide material" (Claim Element 2) (Claims 4 and 8 of the '711 Patent)

ATI has proposed plain meaning for the term "black polyimide material." Dkt. No. 113, Ex. at 2. Sharp and DNP have proposed that this term means "a polymer with an imido as the monomer unit and is of the color black." Id. The Order construed this term to mean "the material that substantially prevents transmission (or passage) of light is a black polyimide material."

a. Objections

DNP objects that "[t]he Order also errs in failing to construe the term 'polyimide in Claim Element 2 because DNP's construction provides additional guidance on the meaning of the term and properly relies on a dictionary definition, whereas the intrinsic record provides no explanation of the term." Dkt. No. 126 at 18. ATI responds that "DNP's proposed definition of 'black polyimide' was not supported by any intrinsic or extrinsic evidence, as DNP cited but then modified a dictionary definition." Dkt. No. 130 at 19.

b. Discussion

The specification provides no guidance on the meaning of "black polyimide" other than that it is an example of a "polymeric material." '711 Patent at 4:50-55. DNP's proposed dictionary-based definition "provides no more guidance to the jury than 'black polyimide material,'" as the Order found. Dkt. No. 117 at 50. The objections should be overruled and the Order should be affirmed as to "black polyimide material."

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C. "providing orientation information from a substantially omni-directional three-dimensional orientation of capture"

The term "providing orientation information from a substantially omni-directional three-dimensional orientation of capture" appears in numerous claims in the '524 Patent. Both parties cite to the file history of the '524 Patent in proposing constructions of this phrase. Cognex offers the following: "providing information that allows the symbol to be captured in substantially any orientation (up to 360 degrees of rotation) about an axis perpendicular to the plane of the symbol itself and with substantially any angle of tilt of the data field relative to that axis." Cognex contends language of rotation and tilt properly clarify the limitation that orientation information provided by the symbol must allow capture of the symbol both at substantially any angle or rotation of the symbol in a plane perpendicular to the axis of the camera imaging it and at substantially any angle of tilt of the plane of the symbol relative to that axis. Defendants argue Cognex's proposed construction improperly focuses on portions of the file history relating to the capture of the symbol to be acquired, and assert that the capture function is different from providing orientation information, the term that is at issue here. Citing to the file history, Defendants argue the term "omni-dimensional" is specifically defined in the prosecution history of the '524 Patent as meaning "any direction" and propose the following construction: "providing orientation information from
substantially any direction of capture in three dimensions."

The Court concludes that the ordinary and customary meaning of the term "omnidirectional three-dimensional" is "any direction." See Phillips, 415 F.3d at 1312-13; Vitronics, 90 F.3d at 1582 (citing Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed. Cir. 1996) (holding that a "technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning"). The Court's determination is reinforced by the prosecution history cited by Defendants. In a preliminary amendment to the '524 Patent dated May 3, 1995, the patentee, in distinguishing the invention over a prior art reference, remarked to the Patent Office: "The present invention also includes this ability to provide three dimensional orientation information in an 'omni-directional' or from 'any direction' of capture." Accordingly, the Court construes this disputed term as "providing orientation information from substantially any direction of capture."

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27. Substantially peak rates

The court construes "substantially peak rates" to mean "simultaneous parallel processing using all or nearly all of the entire width of the data path."

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4. "side surfaces of said embedded insulator being substantially perpendicular to said semiconductor substrate"

This term appears in claim 1 of the '715 patent and a virtually identical phrase appear in claim 3 with the word "therein" inserted between "insulator" and "being." Toshiba does not believe the term requires construction but alternatively suggests the phrase means "side surfaces of the insulator are to a large degree perpendicular to the semiconductor substrate." Jt Cl Const, Ex C at 11. Hynix asserts that this term is indefinite, but in the alternative, proposes that it means "side surfaces of the embedded insulators are within one or two degrees of perpendicular to the semiconductor substrate." Id.

Hynix argues that the phrase "substantially perpendicular" is indefinite because "it is unclear what degree of taper, if any, may be present" in the side walls of the embedded insulators. Hynix Br at 24. In particular, Hynix argues this phrase embraces only the minor, one or two degree variations in perpendicularity incidentally formed by the reactive ion etching (RIE) techniques used in this invention. According to Hynix, "substantially perpendicular" cannot encompass deliberate attempts to taper the side walls of the embedded insulators through "RIE techniques under taper etching conditions."

But Hynix's arguments ring hollow. First, Hynix's contentions regarding "RIE techniques under taper etching conditions" have no bearing on the degree of taper in the side walls of the embedded insulators. The patent discusses this fabrication technique only once with respect to creating tapered side walls for the etch masks, not the embedded isolators. '715 patent at 25:9-12, FIG 37.

More importantly, the specification depicts numerous embodiments in which the side walls of the embedded insulator are slanted by more than one or two degrees. See '715 patent FIGS 15A, 15B, 18, 19, 20A, 20B, 21, 22, 23A, 23B, 24A, 24B, 25A, 25B, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40. Indeed, the court's measurements of the embodiments in these figures indicate that these side walls deviate by at least seven (7) degrees. Hynix's construction would exclude these embodiments and is therefore disfavored. See C R Bard, 388 F3d at 865 ("[A] construction that excludes a preferred embodiment 'is rarely, if ever, correct.'").

Although the patent does not provide a numerical limitation for the term "substantially," the disclosed embodiments and the ordinary and plain meaning of "substantially" should be sufficient to guide a jury in performing its duties. If necessary, and if the parties marshal any new intrinsic evidence, the court would consider revisiting this issue at a later date. But for present purposes, the court rejects Hynix's construction and declines to construe this term.
10. "substantially replaceable" and "differing unscrambling circuits"

The terms "substantially replaceable" and "differing unscrambling circuits" appear in claim 8 in the following context:

Said unscrambling means being substantially replaceable with differing unscrambling circuits as appropriate to unscramble the particular one of a multiple of differing scrambling techniques selected for said scrambling means.

'066 Patent, col. 6, lines 40-46.

The plaintiff asserts that the terms "substantially replaceable" and "differing unscrambling circuits" do not require construction. Defendant EchoStar argues that "substantially replaceable" is indefinite under 35 U.S.C. § 112, P2 because it provides that some unidentified amount of circuitry or degree of functionality of the unscrambling means is replaceable. The DIRECTV defendants argue that "substantially replaceable" means a substantial part of the unscrambling means is located on a user exchangeable unscrambling card. All defendants argue that "differing unscrambling circuits" means the set of separate and distinct circuits, each of which unscrambles signals that are scrambled according to a single, matching scrambling technique.

The invention concerns a manner to inexpensively control access to a scrambled signal. '066 Patent, Abstract. It begins with a master programmable scrambling circuit which includes a number of differing coding techniques. Id. at col.2, lines 5, 37-47. However, as the patent notes:

To include the wide variety of coding capabilities in the master scrambling circuit would be expensive. However, since only one master scrambling circuit is necessary per system this cost is acceptable.

Id. at col. 2, lines 55-59. In addition, the specification notes that "in contrast with normal scrambling the number of differing techniques is more important to the invention than the sophistication of any particular one technique." Id. at col. 2, lines 50-53.

The invention is made inexpensive and secure through the use of, for example, user exchangeable plastic cards, about the size of credit cards, where "each plastic card contains an electronic circuit with accompanying electronic contacts." Id. at col. 3, lines 12-17. The specification explains:

When any particular unscrambling card is inserted into the slot in the decoding box, a series of spring loaded conductive fingers make electrical connection with the series of electronic contacts on such unscrambling card. This connection has the effect of including the electronic circuit on the card into the reception circuit. . . . By merely removing one card and replacing it with another, the entire decoding characteristic of the reception circuit can be completely changed in an instant.

* * *

Due to the incorporation of at least some of the decoding circuitry into the card, no amount of tinkering with a decoding box would enable a user to override the scrambling. The possession of a decoding box therefor does not advantage anyone--the decoding boxes by themselves are sufficiently worthless for unscrambling a signal that such boxes could even be given away without significant risk.

Id. at col. 3, lines 36-61, and col. 4, lines 34-42.

As noted earlier, "the definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pacific Resources, 236 F.3d at 692. As the Federal Circuit explained in Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826(Fed. Cir. 1984), a case involving whether the term "substantially equal to" was so indefinite as to render the patent invalid:
Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

The thrust of EchoStar's indefiniteness argument is:

There is no way to know whether "substantially replaceable" refers to a percentage of the amount of circuitry in the unscrambling means that is subject to replacement, or instead to either the amount or significance of the functionality being replaced. Further still, there is no guidance on what percentage of circuitry or degree of functionality—which ever one it is—must be subject to replacement to be within the invention.


EchoStar's protestations notwithstanding, it is apparent that one of ordinary skill in the art would understand the term "substantially replaceable" as used in claim 8 to apply to either the amount of circuitry or its functionality, whichever technique is used to alter one user card from the others. The term merely means that when one user card is activated, that card's circuitry replaces the circuitry of any other user card for use in the unscrambling means. Only by inserting the presently activated user card into the decoding box is the unscrambling means able to unscramble the signal. The active user card may, but need not, vary from another user card in the percentage of the circuitry on the card or merely by the functionality of the circuitry on the active user card.

Consistent with this construction of the term, I reject the DIRECTV defendants' construction that a substantial part of the unscrambling means, e.g., a substantial part of the circuitry, must be located on the user exchangeable unscrambling card.

I agree that the term "differing unscrambling circuits" requires that each user card have distinct circuitry.

I construe the terms "substantially replaceable" and "differing unscrambling circuits" to mean that the distinct circuitry of the active user card must take the place of the circuitry of any other user card for use in the unscrambling means.

H. "Receiving and Substantially Simultaneously Processing the Second Quantity of Digital Data to Determine if at Least One of Said Predefined Sequences is Present in the Second Quantity of Digital Data"

Claim 17 of the patent claims the method of Claim 1, further comprising two additional steps: first, causing a second quantity of digital data to be transferred, and second, "receiving and substantially simultaneously processing the second quantity of digital data to determine if at least one of said predefined sequences is present in the second quantity of digital data." '776 Patent, col. 18, lns. 40-43. The parties dispute the meaning of this second step. Plaintiff contends that the phrase means that "the second quantity of digital data is received and processed at substantially the same time as the first quantity of digital data (from claim 1) is received and screened." JCCS, Appx. A, at 15 (term 57). Defendant contends that this phrase means that "the computer system of claim 1 receives the second quantity of digital data and, at substantially the same time as the computer system is receiving the second quantity of digital data, the computer system examines the second quantity of data to determine if the data contains at least one predefined sequence." Id. In other words, plaintiff construes the term as requiring substantial simultaneity between the receipt and screening of the first quantity of data and the receipt and screening of the second quantity of data, while defendant construes the term as requiring substantial simultaneity between receipt of the second quantity of data and the screening of that data.

Defendant contends that plaintiff's construction is open-ended, and would allow plaintiff to argue that different computers can receive and process the two packets of data. Even if that argument were valid in the abstract, it has little weight here in light of the Court's construction of "computer system" as meaning a personal computer or workstation. Claim 17 is dependent upon Claim 1, and requires the second quantity of data to be transferred to "said computer system"—i.e., to the same computer that receives and screens the first quantity of data. The specification does make clear that what is being
taught in the patent is, as defendant argues, multiple data transfers to a single computer system. It also makes clear, however, that Claim 17 relates to simultaneous receipt and screening of overlapping data packets, not merely simultaneity between receipt and screening of one, subsequent quantity of data. See '776 Patent, col. 6, lns. 47-52 ("By use of an assignable MachineHandle, the invention is able to support separate simultaneous data transfers which may overlap in time. In other words, the system could be configured with multiple input ports, such as multiple serial ports, all receiving the data at the same time.").

In other words, both parties are partially correct. Defendant is correct that Claim 17 is properly construed as requiring that receipt and screening of the second quantity of data occur in the same computer system as the receipt and screening of the first quantity of data, and plaintiff is correct that simultaneity refers to overlap between the receipt and screening of the two quantities of data. Accordingly, the Court adopts its own construction of the phrase--to wit, the phrase means: "the computer system of claim 1 receives the second quantity of data and the second quantity of data is received and processed at substantially the same time as the first quantity of digital data is received and screened."

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B. Effect of Prior Litigation

As stated above, SunTiger prevailed in a prior patent infringement suit against Scientific Research Funding Group (SRFG) on the same patents now in question. Both SunTiger and Sunglass Products have stipulated that the claim construction in the prior suit will control here:

The patents-in-suit have already been construed by the U.S. District Court for the Eastern District of Virginia [and that] construction . . . is binding on the parties in this case. To the extent that the terms in the asserted claims were not construed in the said prior litigation, the parties are asking the Court to make a claim construction based on the arguments submitted in the summary judgment motions.

Stipulation at 1-2. "In a patent litigation action, where the parties do not dispute any relevant facts regarding the accused product but disagree over possible claim interpretations, the question of literal infringement collapses into claim construction and is amenable to summary judgment." Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1324 (Fed. Cir. 2002).

The relevant terms and their stipulated construction are as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Stipulated Construction</th>
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<tbody>
<tr>
<td>&quot;substantially block&quot;</td>
<td>&quot;. . . in reference to wavelengths, it is defined as blocking over 99% of the incident radiation at each and every wavelength&quot; and &quot;[in] reference to polarization, it is defined as blocking 80% or more of the horizontally polarized incident radiation at each and every wavelength&quot;</td>
</tr>
<tr>
<td>&quot;substantially transmit&quot;</td>
<td>&quot;. . . in reference to wavelengths, [it] is defined as transmitting more than 1% of the incident radiation at each and every wavelength&quot; and &quot;[in] reference to polarization, [it] is defined as transmitting more than 20% of the horizontally polarized incident radiation at each and every wavelength&quot;</td>
</tr>
<tr>
<td>&quot;sharp cut-on&quot;</td>
<td>&quot;. . . sharp cut-on is defined in the context of a dye or filter, having a cut-on slope that at some concentration or dye density rises more than one half percent (0.5%) change in transmission for every one nanometer of increasing wavelength change. The cut-on slope is that portion of the transmission spectra of a cut-on dye that represents the transition between [the] substantially blocking and the substantially</td>
</tr>
</tbody>
</table>
transmitting region."

"cut-on filter" . . . an optical filter that substantially blocks all wavelengths shorter than the cut-on wavelength and substantially transmits all wavelengths that are longer than the cut-on wavelength. The cut-on wavelength is that wavelength in the transition zone at which the transmission is 1%."

"portion" . . . part or share of something


Plaintiff SunTiger contends that this Court cannot apply the stipulated construction in a way that would contradict the finding of the Eastern District of Virginia that YE-82 infringed SunTiger's patents. Pl.'s Mot. at 1 ("[T]he YE-82 lens material must literally infringe whatever claim construction the Court adopts in this case."). In essence, SunTiger argues the following: (1) the parties have stipulated to the prior construction, (2) the decision in the prior suit does not bind this Court, but (3) any ruling that this Court issues must not be inconsistent with the fact that YE-82 was found to infringe its patents.

I disagree with this assessment. My decision is not foreordained by the result in SunTiger, Inc. v. Scientific Research Funding Group. SunTiger attempts to elevate the prior claim construction to the level of a decision. Despite the parties' agreement that the prior claim construction would be binding, that prior court's decision applying its own construction is only persuasive. Although the parties have agreed to be bound to the use of the prior construction, they have not agreed that this Court's application of that construction must be consistent with prior decisions involving a different defendant and different lenses. Indeed, were consistency with prior results necessary, that would be tantamount to an improper form of collateral estoppel against a current party, i.e., Sunglass Products, which was not a party (nor a party in privity) to SunTiger v. Scientific Research Funding Group. Cf. MCA Records, Inc. v. Charly Records, Ltd., 865 F.Supp. 649, 654 (C.D. Cal. 1994) ("[D]ue process requires that the party to be estopped must have had an identity or community of interest with, and adequate representation by, the losing party in the first action as well as that the circumstances must have been such that the party to be estopped should reasonably have expected to be bound by the prior adjudication.").

2. The district court defined a "substantially uniform magnetic field" as a magnetic field that is "substantially uniform to obtain useful MRI images." Medrad proposes that a substantially uniform magnetic field is a magnetic field "that has largely, but not wholly, the same form throughout." Although Medrad may have waived that construction by arguing it to the district court only after the magistrate judge made his recommendation, we do not have to decide the waiver issue because we agree with the magistrate judge's definition.

Medrad bases its construction of "substantially uniform" on this court's interpretation of the same term in Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358 (Fed. Cir. 2001). Ecolab involved a patent for a solid detergent cast used in commercial dishwashing machines. The disputed claim term described the cast as a "substantially uniform alkaline detergent for ware and hard surface washing." The district court construed "substantially uniform" in that case to mean "a level of continuity of the elements from top-to-bottom throughout the case such that a homogenous cleaning solution is formed over the life of the cast." Id. at 1365. This court reversed. We noted that the claim at issue was entirely structural and contained no functional limitations. In particular, we explained, the claim contained "no claimed functional requirement as to forming a homogeneous wash solution throughout the cast life," other than for the detergent "to contain components capable of 'ware and hard surface'" washing. Id. at 1366. In that setting, we held that there was "no basis on which to require adding a functional limitation" under the guise of construing the term "substantially uniform." A more appropriate definition, we held, would be "largely, but not wholly the same in form." Id. at 1369.

A particular term used in one patent need not have the same meaning when used in an entirely separate patent, particularly one involving different technology. In fact, there are many situations in which the interpretations will necessarily diverge. A patentee may define a particular term in a particular way, and in that event the term will be defined in that fashion for
purposes of that particular patent, no matter what its meaning in other contexts. See Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1563 (Fed. Cir. 1990). Moreover, claim terms are typically given their ordinary and accustomed meaning as understood by one of ordinary skill in the pertinent art, and the generally understood meaning of particular terms may vary from art to art. Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1332 (Fed. Cir. 2001); Dow Chem. Co. v. Sumitomo Chem. Co., 257 F.3d 1364, 1372 (Fed. Cir. 2001). Even absent an express definition of a term in the specification or prosecution history, or a clearly established understanding of the meaning of the term in the art, the manner in which the term is used in the patent may dictate a definition that differs from the definition that would be given to the same term in a different patent with a different specification or prosecution history. See Young Dental Mfg. Co. v. Q3 Special Prods., 112 F.3d 1137, 1143 (Fed. Cir. 1997) ("The specification that is relevant to claim construction is the specification of the patent in which the claims reside.").

That is the situation in the present case. The use of a term in a patent on a detergent is of little pertinence to the use of a similar term in a patent on MRI RF coils. Rather, absent some particular reason to do otherwise, the claim terms must be interpreted as would one of ordinary skill in the art of MRI technology and in light of the particular patent in suit.

Apart from arguing that the Ecolab court's definition of "substantially uniform" should be applied in this case, Medrad invokes the Ecolab case in support of the broad proposition that it is never proper for a court, when construing claim terms, to consider how a claimed device functions. That is an overreading of Ecolab, however. The Ecolab court found no reason to import the requirement that the substantially uniform cast create a homogeneous cleaning solution over the life of the cast. Ecolab, 264 F.3d at 1369. In so doing, the court set forth and applied the unremarkable proposition that where a function "is not recited in the claim itself by the patentee, we do not import such a limitation." Ecolab, 264 F.3d at 1367. Medrad has taken the quoted language from Ecolab and extended it to reach a nonsensical result. Medrad argues that a court may not look to how an invention functions in determining the meaning of claim terms. Yet nothing in Ecolab or any other precedent of this court supports such a proposition, which is as unsound as it is sweeping. As we stated in Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998), "ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim." It is therefore entirely proper to consider the functions of an invention in seeking to determine the meaning of particular claim language.

Medrad would have us look at the words of the claim with no context of what an RF coil does and how it works. We have repeatedly rejected that approach. "We cannot look at the ordinary meaning of the term … in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history." DeMarini Sports, Inc. v. Worth, 239 F.3d 1314, 1324 (Fed. Cir. 2001); see also K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1365 (Fed. Cir. 1999).

The record in the instant case makes it clear that the district court's construction was correct. Unfortunately, the claim itself provides little guidance. The term "substantially uniform first magnetic field" is ambiguous in that it fails to suggest how much a magnetic field may deviate from absolute uniformity before it is no longer uniform. That question is especially significant because Medrad's own expert admits that "magnetic field strength varies routinely in all RF coil systems." Medrad implicitly acknowledged the difficulty created by the use of the term "substantially uniform," and it contended before the magistrate judge that a substantially uniform magnetic field is one that is similar to the magnetic field produced by a "single birdcage coil." There is, however, no support anywhere in the record for that construction. Medrad apparently employed that construction because a birdcage coil is the "gold standard" for coils that generate uniform magnetic fields. But the patent itself rebuts Medrad's suggestion that a substantially uniform magnetic field is comparable to that produced by a birdcage coil. The specification states that RF coils may be "crossed saddle quadrature coils or Helmholtz pairs." '273 patent, col. 6, ll. 15-17. Yet Medrad's own expert admitted that crossed saddle quadrature coils or Helmholtz pairs cannot produce magnetic fields as uniform as a birdcage coil, so by its terms the patent encompasses coils that are not as uniform as birdcage coils. A "claim construction that does not encompass a disclosed embodiment is … rarely, if ever, correct." Johns Hopkins Univ. v. Cellpro, 152 F.3d 1342, 1355 (Fed. Cir. 1998). Thus, the construction that Medrad proposed to the magistrate judge fails as well.

The only guidance for the definition of "substantially uniform" in the claim language comes from the preamble, which claims an "imaging system for forming images of a region of interest." Both parties' experts agreed that it is important to remove inhomogeneities in the magnetic field generated by the RF coils, or the resulting MRI images will be permanently distorted. As Mr. Misic explained, if the coils do not uniformly transmit, the contrast in the images suffers: "it makes things look different" and "you can't re-correct that after the fact." The problem of image distortion puts an upper bound on the
degree of nonuniformity allowable in the magnetic field, which is part of an "imaging system for forming images of a region of interest." That interpretation is further supported by the specification, which gives as an object of the invention "to provide greater image uniformity than provided in the prior art." '273 patent, col. 2, ll. 38-39.

Additionally, that interpretation aligns with the conventional understanding of the term in the MRI industry. MRIDC's expert, Dr. Peter Roemer, explained that a substantially uniform magnetic field "means a sufficient uniformity to give a good image." Dr. Roemer also was able to give a quantitative estimate for the amount of field variation allowable that would "produce good images over a wide range of imaging sequences," putting that variation at around 200 percent. Medrad's expert refused to give quantitative estimates for the amount of field variation allowable. Rather, in defining substantial uniformity, Medrad's expert, Ken Belt, could only refer to the field produced by a birdcage coil. As we stated above, the patent claims are not limited to the uniformity of field produced by a birdcage coil. Still, Mr. Belt's testimony is implicitly consistent with Dr. Roemer's definition. Specifically, Mr. Belt was giving the example of an RF coil capable of producing a good image. Therefore, we hold that the claim language, the specification, and the expert testimony all illustrate that a "substantially uniform magnetic field" is a field that is sufficiently uniform to obtain useful MRI images.

3. What is the meaning of the phrases "substantially zero overlap" and "substantially aligned"?

Throughout this litigation, Intel has asserted that "substantially zero overlap" and "substantially aligned" mean that the edges of the source/drain regions cannot overlap the edges of the gate electrode to any degree. By contrast, TENA has contended that "substantially zero overlap" and "substantially aligned" do not require perfect alignment. Rather, TENA asserts that these phrases allows for a tolerance of +/-10% of the gate electrode length. Neither argument has much credibility.

a. Does the patent require zero overlap and perfect alignment?

Intel essentially wants the court to read the word "substantially" out of the claims. Intel argues that the claims, the specification, and the prosecution history use the phrases "zero overlap/perfect alignment" and "substantially zero overlap/substantial alignment" interchangeably. For example, the title of the patent, the abstract, the summary of the invention, and the preambles of claims 1, 10, and 15 recite "zero overlap," "perfect alignment," and "non-overlapping," whereas the preferred embodiment and step (e) of each claim recite phrases such as "closely aligned," "substantially aligned," "without substantial overlap," and "substantially zero overlap." Moreover, in Amendment B and the First Proposed Amendment, Manzo refers to "zero drain overlap devices" and "perfect alignment" in describing the inventions of the '943 patent.

Intel relies heavily on Amhil Enterprises Ltd. v. Wawa, Inc., 81 F.3d 1554 (Fed. Cir. 1996). In Amhil, the Court of Appeals for the Federal Circuit construed the phrases "substantially vertical sides," "substantially vertical side edges," and "substantially vertical side walls." The court observed that the preferred embodiment was completely vertical but stated that this was not determinative. Id. at 1559. Examining the entire specification, the court stated that the patentee used "substantially vertical" and "vertical" interchangeably, even within the claims themselves. Id. Examining the prosecution history, the court stated that the patentee narrowed "substantially" to overcome similar prior art and again used "substantially vertical" and "vertical" interchangeably. Id. at 1559-62. Finally, the court stated that to avoid prior art in a crowded field, "substantially vertical face" had to be construed "as the same as or very close to 'vertical face.'" Id. at 1562.

Although Amhil is certainly helpful in construing the claims, it is not precisely on point. The invention in Amhil, which is related to plastic coffee mug lids, involves a large physical structure whose dimensions are relatively easy to control and measure. By contrast, the invention of claim 1 of the '943 patent is submicroscopic and has dimensions that are difficult to control and measure. In addition, the '943 patent does not use the terms "substantially aligned" and "aligned" or "substantially vertical" and "vertical" interchangeably within the claims themselves. Furthermore, the Federal Circuit seemed to rely primarily on the fact that the invention in Amhil was in a crowded art that compelled a narrow construction. Finally, the court still found that "substantially" had some meaning in the claim, albeit a very narrow meaning. Therefore, Amhil does not support Intel's effort to deprive "substantially" of any meaning whatsoever.
b. Does the patent allow for a tolerance of +/- 10%?

TENA wants to give the word "substantially" a broad, specific numerical reading. TENA points to the declaration and testimony of Dr. Fair, who defines "substantially zero overlap" and "substantially aligned" as allowing a tolerance as +/-10% of the drawn gate length based on his "knowledge of MOS transistors." TENA also points to the specification, at column 1, lines 21-23, which uses the phrase "substantially aligned" in discussing the prior art: "Conventional fabrication techniques usually cause the edges of the source/drain regions to be initially substantially vertically aligned with the edges of their gate." Dr. Fair asserts that the alignment of these conventional fabrication techniques was within +/-10% of the gate electrode length. Finally, TENA observes that one of Intel's experts, Dr. Frey, testified in a previous litigation that the term "substantially aligned" allowed for tolerances of +/-10% of the gate electrode length.

TENA's evidence is less than convincing. It appears from Dr. Frey's previous testimony that he identified a range of +/-5% on either side of the edge of the gate electrode, making a total range of 10% instead of +/-10% for a total range of 20%. In addition, Dr. Chung testified, and Dr. Fair appeared to confirm, that an underlap of -10% would drastically reduce the performance of an MOS transistor, particularly with respect to the problem of Miller capacitance that the '943 patent seeks to avoid. Finally, Dr. Fair has not cited to anything in the claims or prosecution history in support of his opinion that the +/-10% range is appropriate. His attempt to bootstrap his definition of "substantially" in the claims by defining the word "substantially" in the specification to mean the same thing is questionable without some objective basis.

c. What does "substantially" mean?

The word "substantially" tends to become somewhat of a chameleon when it appears in patent claims. It sneaks in during the prosecution of a patent application without having much substance or importance. The applicant rarely imposes strict mathematical requirements or guidelines for the word unless forced to do so by the examiner or by the prior art. After the issuance of the patent, however, the word swells up to envelop potentially infringing products or processes. The plaintiff's expert opines that a specific percentage range exists and, coincidentally, that the range encompasses the defendant's accused products or processes. Likewise, the defendant's expert opines that a smaller range exists that, coincidentally, does not encompass the defendant's accused products or processes.

Courts are in a bind when it comes to construing the word "substantially." On the one hand, the court has a duty according to Markman to construe the word to provide guidance to the jury as to the proper scope of the claim for determining infringement. This duty is particularly important when the parties' experts have testified to conflicting mathematical ranges required by the claim. Moreover, the ordinary meaning of the word "substantially" -- "in a substantial manner" or "so as to be substantial" -- is practically useless as a guide to understanding or decision. On the other hand, a court should not impose mathematical certainty on a word when none exists. Often the claims, the specification, the prosecution history, and even all the extrinsic evidence will fail to provide any reasonable basis for selecting a mathematical range.

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1 Webster's Third New International Dictionary 2280 (1986).

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - -

In the present case, the specification and the prosecution history present only theoretical limits to the percentage range allowed by the word "substantially." The specification states that the amount of overlap and alignment must be sufficient to prevent the occurrence of Miller capacitances in order to increase the speed of the transistor, but it does not provide a mathematical reference. During the prosecution, Manzo specifically defined "substantially zero overlap" and "zero drain overlap" over the results achieved by Figure 10 of U.S. Patent No. 4,356,623 issued to Hunter, Figure 4D of EPO publication 24 125, and the Steinmaier patent, but he never provided a mathematical explanation of the prior art process. Furthermore, the parties have never offered extrinsic evidence to suggest mathematical ranges based on these theoretical limits, and the court lacks sufficient understanding or skill to ascertain such ranges itself.

The parties instead have offered what appear to be litigation-driven constructions of the term "substantially" that have little support in the claim language, the specification, the prosecution history, or the extrinsic evidence. Intel's construction seeks to write the word out of the patent and to impose a level a mathematical certainty that does not appear physically possible.
By contrast, TENA's construction ignores a specific goal sought by the inventions of the '943 patent and argued by Manzo extensively during the prosecution history: manufacturing an MOS transistor with as little overlap as possible to improve operating speed and reduce Miller capacitances. Thus, at the end of the claim construction hearing, the court was compelled to reject both parties' constructions in favor of its own.

The court adopted the following construction of the word "substantially" -- "the same as or very close to." In other words, "substantially zero overlap" means "the same as or very close to zero overlap" and "substantially aligned" means "the same as or very close to perfect alignment." The court bases this construction on the many references to zero overlap and perfect alignment in the patent and the prosecution history and the stated importance in the specification of near-perfect alignment for the speed and efficiency of the inventions of the '943 patent. No further guidance is possible, however, because nearly every attempt to restate the word "substantially" adds little to its inherent meaning.

The district court construed the phrases "substantially aligned" and "substantially zero overlap" to mean "the same as or very close to perfect alignment" and "the same as or very close to zero overlap," respectively. EMI does not challenge the latter definition, but contests the use of "perfect alignment" in defining "substantially aligned." According to EMI, the term "perfect" is superfluous and inappropriate. However, the district court extensively documented the statements in the '943 specification and the prosecution history that "perfect alignment," along with "zero overlap," was a key distinguishing aspect of this invention.

We also observe that this aspect of the claim construction does not affect the infringement decisions, which accepted that Intel employed, literally, the heat driving step of clause (e) to achieve the alignment and zero overlap required by clause (e).

Broadcom proposes construing the term "substantially zero" to mean "very low," and provides expert testimony supporting its position that a person of ordinary skill in the art would understand the term in this fashion. (Fair '194 Rep. PP 59-62.) Agere proposes to construe "substantially zero" to mean "zero," thereby reading the word "substantially" out of the claim entirely, but provides no technical or evidentiary basis for doing so. 61 Indeed, if the patentee had intended to say "zero static current," he could have done so. See Interactive Gift Exp., 256 F.3d at 1331 (noting that claim construction must "begin and remain centered on" language that patentee "chose to use"). Thus, the Court credits Dr. Fair's unrebutted testimony that a person of ordinary skill in the art would understand the term at issue to mean "very low static current." In total, therefore, the Court adopts Broadcom's proposed construction.

61 In fact, Agere argues that the term "substantially zero" is so ambiguous that it could even be construed to mean "more than substantially zero" (although Agere does not actually request that the Court adopt this construction). (Agere Resp. at 92.) To the extent that Agere contends that the specifications create such ambiguity, the Court rejects this argument because it is belied by Dr. Fair's unrebutted testimony that a person of skill in the art would understand the specifications to refer to "very low" static current dissipation. (Fair '194 Rep. P 62.)

--- End Footnotes ---
C.

The Commission construed "substrate" as "the supporting material in an LED upon which the other layers of an LED are grown or to which those layers are attached" and included the case in which "the supporting material functioning as the substrate is grown on top of, or attached to, the other layers." Commission Opinion, slip op. at 8-12. Epistar disputes the Commission's ruling that a "substrate" need not, by itself, provide adequate mechanical support for the LED. It argues a substrate can only be "a layer which is present as the supporting material that makes the device large and sturdy enough to manipulate, and which provides a surface upon which the other layers can be attached to, grown, or deposited."

Claim 1 of the '718 patent requires only "a semiconductor substrate" and does not impose any limitation on its thickness or amount of mechanical support. '718 patent col.5 ll.33-44. Epistar does not cite to any statement in the specification or file history suggesting that the substrate, by itself, must make the LED "large and sturdy enough to manipulate." While the '718 patent describes a thicker layer as a "substrate," the Commission followed this court's precedent in declining to limit the construction of "substrate" to that embodiment. See, e.g., Phillips, 415 F.3d at 1323 ("A[though the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."). Commission Opinion, 2008 ITC LEXIS 1062 at *6. Moreover, the specification explains that the thickness identified for the substrate is merely "exemplary." '718 patent col.5 ll.3-4.

Epistar also would limit "substrate" to a single layer. Although Epistar urges this court to apply the ALJ's construction, which was modified by the Commission, Epistar does not point to any intrinsic evidence to justify this limitation on the broad term "substrate." The Commission correctly declined to limit "substrate" to the preferred embodiments in the specification.

Moreover, the Commission's construction is consistent with this court's precedent that the disclosure of a preferred or exemplary embodiment encompassing a singular element does not, without more, disclaim a plural embodiment. See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000); see also AbTox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed. Cir. 1997). Therefore, consistent with established precedent, the term "substrate" may include one or more layers of "supporting material" for the active LED layers.

Epistar argues that the ITC's construction renders the term "substrate" meaningless because "every layer below the active layers," such as confining layers, would qualify as a substrate. To the contrary, claim 1 and the specification prevent the substrate from encompassing these other layers. For example, even without the "adequate mechanical support" limitation, the confining layers cannot qualify as a substrate because they are part of the "active p-n junction layers," defined by claim 1 and the specification as "on top of" and "over the substrate." Id., col.2 ll.50-57; col.5 ll.36-37. Indeed, as disclosed in the embodiment of figure 2, the only layer below the active layers 21-23 is substrate 20, which meets the "semiconductor substrate" limitation of claim 1. See id., fig. 2; col.2 ll.48-59; col.5 ll.34-37. Accordingly, this court finds that the Commission did not err in construing the term "substrate."

2. Revising the Definition of "Substrate"

In Rothschild I, Judge Conner construed "substrate" to mean "an underlying base on which an epitaxial layer is grown." Rothschild I, 2007 U.S. Dist. LEXIS 33134, [WL] at *12. Rothschild asks the Court to revisit Judge Conner's allegedly "faulty" definition and to simply define "semiconductor substrate" as "the semiconductor material of interest." Rothschild Mem. Law Supp. Mot. Clarify Claim Construction at 17. In essence, Rothschild wants a definition of substrate that does not require an overlying layer, so that the uppermost Mg-doped GaN layers in twenty of the twenty-one accused processes would be infringing. This is not the first time Rothschild has proposed such an extraordinary definition for the term "substrate." In Rothschild I, Rothschild's proposed definition for "substrate" as "any semiconductor material" was expressly rejected by Judge Conner, who referred to Rothschild's reasoning as a "bewildering non-sequitur." Rothschild I, 2007 U.S.
In support of its position, Rothschild refers to Shealy's expert report on the meaning of "semiconductor substrate" in Claim 10 of the '499 Patent. See Ladow Decl. Supp. Mot. Clarify Claim Construction Ex. 7, Shealy Opening Rep. PP 32-33. Shealy opines that one of ordinary skill in the art would recognize that, "even if the term is not used in its most common manner . . . the term semiconductor substrate is . . . synonymous with the semiconductor material of interest." Id. P 33. Shealy relies on the absence of any discussion in the patent documentation "to the effect that the semiconductor material . . . necessarily must be an underlying base layer for another layer." Id. Further, Shealy states that "no additional epitaxial layer on top of the semiconductor layer of interest is needed, or even relevant to, carrying out the method disclosed and claimed in the patent." Id. In other words, since the claimed method could be applied to any layer, and not just a layer underneath another layer, the term substrate should essentially be read out of the term "semiconductor substrate."

This Court rejects Shealy's reasoning because in the absence of a clearly disclosed special meaning, claim language must be given its customary meaning to a person of ordinary skill in the art. See Markman v. Westview Instruments, Inc., 52 F.3d 967, 980 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996) ("[A]ny special definition . . . must be clearly defined in the specification."); Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005). First, the '499 Patent does not contain any special definitions for "substrate" or "semiconductor substrate." In Rothschild's deposition, she admitted that the '499 Patent expressed no intention to use the term "substrate" in any way other than its customary meaning in the art. Cree Supplemental Claim Construction Br. Ex. 4, Rothschild Dep. 140:16-21, Feb. 5, 2007. Second, Shealy conceded in his expert report that, in common usage, the term ""semiconductor substrate' . . . could mean an underlying base on which an epitaxial layer is grown." Shealy Opening Rep. P 33. At his deposition, Shealy even admitted that neither he, nor anyone in the semiconductor field, would refer to the topmost layer in his own semiconductor device as a "substrate." Shealy Dep. 39:13-23. Rothschild also testified that "the most customary usage" of the term "substrate" was to refer to "a slice of semiconductor material used as a base" or "something you deposited something else on." Rothschild Dep. 136:21-137:11. When writing the patent, Rothschild had the opportunity to define semiconductor substrate any way she desired. See Markman, 52 F.3d 967 at 980 ("[A] patentee is free to be his own lexicographer. The caveat is that any special definition given to a word must be clearly defined in the specification.") (citation omitted). Since Rothschild did not avail herself of that opportunity, the term "semiconductor substrate" must be given its customary meaning to a person of ordinary skill in the art, which requires an overlying layer. Accordingly, this Court rejects Rothschild's contention that "semiconductor substrate" is synonymous with the semiconductor material of interest.

3. Whether the Definition of "Substrate" Has a Mechanical Support Requirement

Cree argues that by using the term "supporting base," Judge Conner imposed a requirement that a "substrate" must provide mechanical support for itself and the layer grown on its surface. Cree Mem. Supp. Non-infringement at 19; Cree Reply Mem. Supp. Non-infringement at 13. Cree's argument centers around the following passage in Rothschild I:  

"Consistent with what was said above in discussing the term "epitaxial layer" in the '618 Patent, if, but only if, an epitaxial layer serves as a supporting base for another epitaxial layer grown on its upper surface, the underlying epitaxial layer may properly be described as a "substrate" for the layer above."


Cree should not place such significance on a single phrase in Judge Conner's discussion concerning the meaning of substrate. The discussions solely focused on the issue whether epitaxial layers should be expressly excluded from the definition of substrate. As Judge Conner stated, Rothschild's "real interest is in obtaining for the term 'substrate' a construction broad enough to cover epitaxial layers," while "Cree takes the diametrically opposite position that a 'substrate' cannot be an epitaxial layer, and that it should be given its plain and ordinary meaning." Rothschild I, 2007 U.S. Dist. LEXIS 33134, [WL] at *9-10. The purpose of the passage was to emphasize that an epitaxial layer can only be a substrate if there is "another epitaxial layer grown on its upper surface," and was directed towards Rothschild's proposed definition of substrate as "any semiconductor material," regardless of whether there is an overlying layer. Further, Judge Conner's declared construction makes no mention of "supporting base" but instead uses the term "underlying base." Rothschild I, 2007 U.S. Dist. LEXIS 33134, [WL] at *12. The term "underlying base" carries with it no thickness or mechanical support connotations. Moreover, Judge Conner's explanation of this definition shows no intention to impose a mechanical support
requirement. As Judge Conner explained: "in defining the term 'substrate,' we do not believe it appropriate, as advocated by Cree, either to specifically exclude epitaxial layers or to do so impliedly by use of the word 'slice,' which is appropriate only with reference to bulk crystals." 2007 U.S. Dist. LEXIS 33134, [WL] at *11. By rejecting Cree's exclusionary construction, and adopting a construction that makes no mention of "supporting base," Judge Conner surely intended that all epitaxial layers that serve as an "underlying base on which an epitaxial layer is grown" are "substrates," regardless of their thickness or ability to offer mechanical support. Finally, in defining "substrate," Judge Conner was mindful not to "exclude epitaxial layers or to do so impliedly." Id. (emphasis added). Importing a mechanical support or thickness requirement into "substrate" would impliedly exclude some or all epitaxial layers because an "epitaxial layer" is, by definition, "thin." Rothschild I, 2007 U.S. Dist. LEXIS 33134, [WL] at *7 (defining "epitaxial layer" as "a thin layer formed by epitaxial growth on a crystalline base"). It would make no sense for Judge Conner to include epitaxial layers that act as an underlying base in the definition of "substrate" only to impliedly exclude them.

For all the foregoing reasons, this Court rules that Judge Conner's definition of "substrate" as "an underlying base on which an epitaxial layer is grown" does not have any mechanical support or thickness connotations.

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1. "substrate"

Agere argues that the term "substrate" should be construed as "any material on which other materials may be formed or deposited." Atmel argues that the term "substrate" should be construed as "the underlying material upon which a device, circuit or epitaxial layer is fabricated." Atmel essentially contends that the term "substrate" applies only to the semiconductor wafer itself, whereas Agere wishes to construe the term more broadly. The Court concludes that the term should not be construed as referring only to the semiconductor wafer itself. However, because the Court finds Agere's construction to be unnecessarily broad, the Court shall provide its own construction of the term.

Claim 1 itself states that the first step of the process is "treating a substrate" and explains that this is accomplished by, first, "forming a passage through a region overlying a device junction," and second, "depositing a material over at least a portion of said region." '672 Patent at col. 6:50-54. The parties have agreed that "passage" as used in the '672 patent means "a hole that exposes a device junction," Joint Statement of Claim Terms at 4, and Atmel readily concedes that "a junction is essentially a region that has been created in the semiconductor substrate," Def.'s Second Brief at 43. It is also undisputed that this "region overlying a device junction" through which a passage is formed refers to a "dielectric layer positioned above the semiconductor substrate." Id.; see also '672 Patent at col. 1:29-32. Thus, since the claim 1 language itself expressly provides that the process of "treating a substrate" includes forming a passage through the dielectric layer above the semiconductor substrate, the "substrate" which is being treated must encompass both the semiconductor substrate and the dielectric region above it. Similarly, claim 1 also recites that tungsten is then deposited by a process in which "said substrate is heated to a deposition temperature in the range 250 [degrees] C. to 600 [degrees] C." '672 Patent at col. 6:65-66. At this stage in the process, it is clear that both the dielectric and the barrier layers have already been deposited on the silicon wafer. Thus, the term "substrate" here clearly refers to more than the silicon wafer alone.

Moreover, an examination of the specification reveals that the patentee consistently used the term "silicon substrate" or "silicon prototype wafer" to refer to a bare silicon wafer with no additional layers of material, and the term "substrate" to refer to the entire entity comprising an underlying silicon wafer and any additional materials, such as a dielectric layer, deposited over the wafer. See '672 Patent at col. 2:45-53; col. 3:22-67; col. 5:44-48. Thus, a person of ordinary skill in the art would have understood the term "substrate" when used without the modifier "silicon" to mean "any underlying material or materials (such as a silicon wafer alone or a silicon wafer combined with other layers such as a dielectric layer) upon which other materials may be formed or deposited."
As with "pattern" and "mask," the parties agree that the word "substrate" has an established meaning in scientific parlance. See, e.g., McGraw-Hill Dictionary of Scientific and Technical Terms (defining "substrate" as, inter alia, "the physical material on which [a] microcircuit is fabricated"). As with "pattern" and "mask," though, the parties disagree regarding the breadth the construction of "substrate" should take. ASML contends, and the court does not disagree entirely, that "substrate" signifies "an item such as a photosensitive member that is exposed with a pattern." But however initially valid ASML's broad phrasing, the term "substrate" does more than signify a purely generic type of device. "Substrate," as it is used in claim 1, denotes an item (e.g., a wafer) to which a photosensitive layer is affixed; the transfer of the pattern through the photolithographic exposure process has nothing to do with the meaning of the bare "substrate" term. A narrower, more particularized usage comports with ordinary meaning of the term and with the specification language, see '041 Patent at 1:19-24, two things the court plainly cannot ignore. See Vitronics, 90 F.3d at 1582.

When construing the "substrate" term, moreover, the court need not articulate a definition that reiterates the meaning of an entire claim or that revisits the function of an entire invention. To a significant degree, Nikon's attempt to affix "during a lithographic operation" as a modifier to its definition--like its "exposed with a pattern" addition--aims to fold a general description of the photolithographic process into the meaning of the unadorned "substrate" term, spurring unnecessary redundancy in the name of claim construction. The claim language suggests that a "substrate" is an item on which a photosensitive layer is placed, and the specification language supports this simple understanding. See, e.g., '041 Patent at 1:19-24 & 3:15-37. Nothing more need be added. Thus, consistent with this intrinsic evidence, the court construes "substrate" to mean "an item on which a photosensitive layer or pattern is formed or placed."

B. "substrate interval correction means"

Plaintiff argues that the phrase "substrate interval correction means" should be construed to mean a "structure located in the region of the sealing material where there is no conductive material that is connected to any electrical circuit." Defendants argue that the phrase should be construed to mean "a structure designed to displace the sealing material by the same amount that the sealing material at a corresponding location is displaced."

Plaintiff's proposal is irreconcilable with the language of the claim. First, plaintiff's construction omits any notion of "correction." Placing a "structure" in the portions of the seal region where no wiring lines exist, with no restriction on the size or shape of the structure, will not necessarily "correct" anything. Also, the additional requirement of plaintiff's proposed construction—that the interval correction means not contain conductive material that is connected to any electrical circuit—is already expressly required by the final element of claim 1: "said substrate interval correction means includes at least a conductive layer that is not electrically connected to one of the matrix circuit or the peripheral drive circuit." Id. at 16:61-64 (emphasis added). The matrix circuit and the peripheral drive circuit are the only two circuits expressly named in the claim. Plaintiff's proposed construction therefore omits a limitation that it should include and includes a limitation that it should omit.

Defendants' proposed construction is closer to what the claim requires, but is unclear in two respects. First, defendants argue that the interval correction means "displaces" the sealing material. Neither the claims nor the specification uses the word "displace" or provides any guidance as to its meaning. Second, defendants argue that the interval correction means must displace the sealing material by "the same amount" as "at a corresponding location." The definition does not make clear what the proper "corresponding location" is.

Looking at the disputed language, "substrate interval correction means," has two elements. First, the means must "correct." Second, the means must correct the "substrate interval." The problem which is the subject of the 189 patent is a lack of uniformity in the interval between the substrates as a result of asymmetry in the wires crossing the sealing region. See, e.g., id. at 2:43-52 ("the wiring structure has no symmetry with respect to top and down as well as right and left... It is difficult to make an interval between the substrates uniform"). The 189 patent solves the problem of asymmetry by placing compensating structures in the areas of the sealing forming region where no wires cross.

The proper construction of the disputed term is "a structure, located in the areas of the sealing forming region where no wires cross, which compensates for the asymmetry in the wires crossing the sealing region."
Subsystem

Claims 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, and 40 contain the term "subsystem." SFA suggests that the term is self-defining and no limitations are necessary beyond the common meaning: "a system that is part of a larger system." Infor concedes that SFA's definition is commonly understood and does not dispute its accuracy. Regardless, it contends that reading the term in context reveals that a "subsystem" must be a) separate from the event manager, b) either hardware or software, and c) must correspond to a phase in the sales process. Thus, Infor defines "subsystem" as "a hardware or software module independent of the event manager and corresponding to a phase of the sales process."

Initially, Infor's use of the word "module" does little to clarify or assist the jury in understanding the scope of "subsystem" and creates more ambiguity than it corrects. Further, each of the limitations that Infor seeks to apply to "subsystem" are contained elsewhere in the claims. As explained, the limitation in independent claims 1 and 40 that the event manager is "coupled to" the subsystems sufficiently discloses the relationship between the event manager and subsystems. Additionally, all independent claims contain the limitation that the system, for which the subsystems are a part, must be "computer implemented" and thus comprised of hardware and software. Finally, all the independent claims require that the system, and thus the subsystems, be used to "facilitate the sales process." Therefore, "subsystems" used to facilitate another process would conspicuously fall outside the scope of the patent. In light of the claims and specification, no additional limitations must be imposed upon a "subsystem." Therefore, the term is construed in accordance with its ordinary interpretation: "a system that is part of a larger system."

D. "Subsystem"

1. Proposed Constructions

Defendants claim that "subsystem" should be construed to mean "an interconnected combination of a set of related components or circuits to form a subdivision of a system." Defendants' '736 Br. at 9. Specifically, defendants contend that the claimed subsystems of the '736 patent each perform a particular function or functions by receiving signals, processing those signals, and outputting the processed signals. Id.

On the other hand, plaintiffs assert that "subsystem" need not be separately construed at all. If construction of the term is required, however, plaintiffs argue that it should be construed according to its plain and ordinary meaning of "a portion of a larger system." Plaintiffs' '736 Br. at 10. Plaintiffs further assert that a "subsystem" may be formed out of a collection of circuits and/or functional blocks. Id. In that case, plaintiffs argue that each of the claimed subsystems would describe its own particular set of limitations, and the term "subsystem" would refer only to the collection of circuits that perform the specified functions. Id.

To clarify the difference between plaintiffs' and defendants' proposed constructions of "subsystem," plaintiffs explain that they do not attempt to construe "subsystem" in the abstract because it is always used in connection with additional language describing the type of subsystem being claimed. Reply at 4. Instead, plaintiffs assert that the context in which "subsystem" is used should be the basis for assigning a meaning to the term. Id.

Both parties contend that their construction comports with the ordinary meaning of the term. Plaintiffs assert that the plain and ordinary meaning of "subsystem" is their proposed construction of "a portion of a larger system." Plaintiffs' '736 Br. at 10. Defendants, on the other hand, assert that the ordinary meaning of "subsystem" is their proposed construction of "an interconnected combination of a set of related components or circuits to form a subdivision of a system." Defendants' '736 Br. at 9. Standing alone, neither assertion is persuasive.
2. Claim Language

Claims 1 and 7 utilize "subsystem" in the following three phrases: "read channel subsystem," "error code correction and detection subsystem," and "memory subsystem."

In support of plaintiffs' proposed construction of "subsystem" as "a portion of a larger system," plaintiffs argue that claims 1 and 7 always use "subsystem" in connection with additional language describing the type of subsystem being claimed, for example, "read channel subsystem," "error code correction and detection subsystem," and "memory subsystem." Plaintiffs' '736 Br. at 10. Defendants, however, argue that the claim language demonstrates that the claimed subsystems of the '736 patent each perform a particular function or functions by receiving signals, processing those signals, and outputting the processed signals. Defendants' '736 Br. at 9.

3. Specification

In support of defendants' proposed construction of "subsystem" as an "interconnected combination of a set of related component or circuits to form a subdivision of a system," defendants assert that the specification identifies the need to increase efficiency by making the processing subsystems "less complex, occupy less real estate (i.e., use less silicon resulting in smaller dies), have a smaller pin count, make efficient use of memory and processing resources, and be cheaper to manufacture than conventional playback systems." Id. at 10; '736 patent at 3:50-58. Defendants contend that the specification confirms that the claimed subsystems of the '736 patent each perform a particular function or functions by receiving signals, processing those signals, and outputting the processed signals. Defendants' '736 Br. at 9.

To refute plaintiffs' proposed construction that "subsystem" should be interpreted to mean "a portion of a larger system," the defendants contend that the specification identifies a problem of separate subsystems in the prior art that "occupy valuable real estate in the playback system and as a whole make the playback system bulky and expensive." Id.; '736 patent at 3:8-23. Defendants further contend that the specification states that this separate-subsystem problem "results in inefficient use of system processing and memory resources and hinders efficient sharing of distributed resources." Defendants' '736 Br. at 9-10; '736 patent at 3:8-23.

It would appear that by their proposed construction, defendants are attempting to define a particular level of integration of components making up a subsystem claimed in the '736 patent. The imposition of such limitations is not warranted by the intrinsic evidence. The court concludes that, because "subsystem" is always used in the claims to refer to the collection of circuits that performs a function specified in the claim, "subsystem" does not require separate construction.

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2. subtree

The term "subtree" likewise appears in every claim. Claim 1 explains that the input/output provides a "means for broadcasting received from a parent processing element to said child processing elements, such that common information is distributed to each processing element of the binary tree or a subtree thereof . . . ." '201 Patent at 70:62-66.

Plaintiff construes "subtree" to mean "a partitionable portion of a tree that is less than the entire tree created by arbitrarily denoting a node to be the root node in a tree," Fifth Generation's Opening Markman Brief on Claim Construction ("Pl. Br.") at 13, asserting that this construction is consistent with ordinary meaning "in the art of computing." 2 Id. Defendant construes the term as "a subset of the binary tree such that each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children." Def. Br. at 10.

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2 Plaintiff originally omitted the term "arbitrarily" in the construction it proposed in a pre-briefing conference with defendant and subsequently added it in its briefs for the Markman hearing. IBM's Rebuttal Markman Brief ("Def. Reply") at 4 n.4.
The parties essentially agree that a subtree is a subdivision of the main binary tree and that a subtree is itself a binary tree with the full functionality of the main binary tree of which it is a subpart. Pl. Br. at 13; Def. Br. at 10-11; Pl. Reply at 7. U.S. Patent No. 4,843,540 ("the '540 Patent") is incorporated by reference into the '201 Patent, and the '540 Patent establishes that "one of the characteristics of the binary tree" is that "it includes sub-sets which are also binary trees." '540 Patent at 3:49-51.

To support its construction, plaintiff cites as extrinsic evidence IBM's Terminology webpage, which defines "subtree" as "a tree structure created by arbitrarily denoting a node to be the root node in a tree." Pl. Br. at 13; Pl. Reply at 6. The '201 patent, according to plaintiff, is consistent with this definition, which describes a binary tree as capable of being "partitioned into any number of subtrees, which maintain the functionality of the tree." Pl. Br. at 13. Yet this extrinsic evidence is insufficient to support this construction, especially in light of the intrinsic evidence, as well as this Court's determination of the proper construction of "binary tree." See Vitronics Corp. v. Conceptronic, 90 F.3d 1576, 1583 (Fed. Cir. 1996) ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence."). Not only does the definition upon which plaintiff relies not reflect the meaning of the patent at the time of filing in 1986, see Phillips, 415 F.3d at 1313, but it impermissibly permits any node, including a node with zero children, such as one of the extremities, to be designated a root node, despite the fact that plaintiff concedes that the subtree must also be a binary tree. See Nystrom v. Trex, Co., 424 F.3d 1136, 1145 (Fed. Cir. 2005) ("In the absence of something in the written description and/or prosecution history to provide explicit or implicit notice to the public i.e., those of ordinary skill in the art that the inventor intended a disputed term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to read the term to encompass a broader definition simply because it may be found in a dictionary, treatise, or other extrinsic source."). Moreover, since the Court has rejected plaintiff's construction of binary tree, which would have permitted a parent node with zero children, so too must it reject plaintiff's similar construction of "subtree."

Plaintiff objects to defendant's construction on the ground that it requires that the "root node" have no parent node. Pl. Reply at 7. The '201 and '540 Patents both establish clearly that subtrees, as partitions, remain connected to higher level nodes in a larger tree. See '540 Patent at 15:61-64. Yet plaintiff concedes that defendant's construction is accurate if it is understood that a subtree's lack of a parent node does not mean that the subtree is not connected to a higher level node, but rather that the higher level node is itself not considered part of the subtree. Pl. Reply at 8 n. 2; see also tr., 08/20/09, at 55. The Court agrees that this is the proper understanding of that construction.

Nor does defendant improperly rely on the functionality of the subtree to dictate its structure, as plaintiff suggests. See Pl. Reply at 7. As it did in the context of a binary tree, plaintiff cites to a single statement in the '201 Patent for the idea that a subtree need not have the same structure: "Since the subtree that is computing the resolve need not be a complete binary tree, the value bits from the children may not arrive in the same clock cycle." '201 Patent at 21:46-49. Yet, as noted previously, this establishes only that the report and resolve functions would not happen simultaneously if a longer leg of the subtree were handling a particular task. See tr., 08/20/09, at 55. It does not, contrary to plaintiff's position, permit a subtree to have a different structure than a binary tree, namely, a parent with one or zero children. Indeed, plaintiff concedes that the subtree must have the same structure as the larger tree. See Pl. Reply at 8 n.3.

The Court thus confirms its construction that "subtree" means a subset of the binary tree such that each node has a single parent and two children nodes, except the root node, which has no parent, and the leaf nodes, which have no children. The Court's construction should be understood to mean that the parent node nevertheless remains connected to a higher level node in the main binary tree of which the subtree is a part because a subtree is always part of a larger binary tree.

4304

1. Succession of resolution levels

The parties dispute one term in Claim 2, "succession of resolution levels." Google proposes a construction of "in order of increasing resolution level" to capture the hierarchical underpinnings of the claim, while Skyline argues that no construction
is needed and does not propose an alternate construction.

When read in context, it is clear that the "succession" referred to is from lowest resolution to higher resolution. The phrase in question is directly followed by instructions to move "from the level immediately higher than the resolution level of the first block up to the maximal existent resolution level on the server not above the indicated resolution level." The process seems quite clear: an initial block (generally of fairly low resolution) is acquired, a new block is downloaded from the next highest resolution level, then additional higher resolution blocks are downloaded until an upper limit (either the highest resolution level stored in the database, or the requested top resolution level) is reached. Claim 2 specifically indicates that this process happens from low resolution to high resolution, in succession. The patent history also supports this reading, as Skyline distinguished the '189 Patent from prior art based on the ordered nature of the download. (See February 26, 1999 Amendment, Goog 000118, GOOG 000153) Consequently, I find that the blocks referenced in Claim 2 are, by definition, downloaded "in order of increasing resolution level."

Construction: (succession of resolution levels) In order of increasing resolution level.

B

The '073 patent has 17 claims. Claim 1, the only independent claim, recites an IGBT-like structure. It provides (emphasis added):

A vertical MOSFET device, comprising:

a semiconductor substrate, including in series, adjacent source, body, drain and anode regions of alternate conductivity type;

the body region being adjacent to a surface of the substrate;

the source and drain regions being spaced so as to define a channel portion in the body region at said surface;

the source, body and drain regions having a first forward current gain alpha [1] and the anode, drain and body regions having a second forward current gain alpha [2], such that the sum alpha [1][+] alpha [2] is less than unity, and no thyristor action occurs under any device operating conditions.

The dispute in this case centers on the emphasized portion of the claim.

In addition to Gentry, the prior art of record includes a U.S. patent issued in 1980 to Plummer. See James D. Plummer, Monolithic Semiconductor Switching Device, U.S. Pat. No. 4,199,774 (issued Apr. 22, 1980) (Plummer). Plummer discloses a four-layer semiconductor device with a structure identical to that of the device recited in claim 1 of the '073 patent. Plummer's device operates as a transistor at lower voltages and currents (i.e., it exhibits no latching behavior), but beyond a certain threshold of voltage or current it acts as a thyristor (i.e., it latches).

C

In 1994, Harris brought this action against IXYS, alleging infringement of the '073 patent. IXYS moved for summary judgment of non-infringement and patent invalidity. Harris cross-moved for summary judgment, arguing that the IXYS devices literally infringe claim 1 of the '073 patent, and that the patent is not invalid.

The district court denied IXYS's motion for summary judgment and, adopting Harris's claim construction, granted Harris's motion. The court ruled as a matter of law that IXYS's IGBTs infringe the '073 patent, and that the '073 patent is not invalid because of indefiniteness, obviousness, anticipation, or non-enablement.

II
On appeal, the parties debate the proper construction of claim 1 of the '073 patent. Specifically, they disagree as to the meaning of the last clause of the claim, which recites "such that the sum alpha [1] + alpha [2] is less than unity, and no thyristor action occurs under any device operating conditions." IXYS construes that clause as covering only four-layer devices that, because of their structure, never act as thyristors (i.e., devices in which the sum alpha [1] + alpha [2] is less than one under all circumstances). Harris, on the other hand, construes the disputed clause as covering four-layer devices that have a transistor (or non-latching) mode of operation in addition to a threshold point beyond which the devices act like thyristors, as long as the devices were intended to be operated below the thyristor threshold. We agree with IXYS.

A

With respect to the first part of the disputed clause, the phrase "such that the sum alpha [1] + alpha [2] is less than unity" merely restates a basic characteristic of four-layer semiconductor devices that is well known to any electrical engineering student and is recited in the 1967 Gentry reference. A four-layer device functions as a transistor whenever the sum of alpha [1] and alpha [2] is less than one, and as a thyristor whenever the sum of alpha [1] and alpha [2] is greater than one, as the specification of the '073 patent acknowledges. That part of the clause therefore does nothing to limit the scope of the claim language. Moreover, the second part of the clause, which refers to "device operating conditions," includes within the scope of the claim "any" device operating conditions, without qualification. Nothing in the language of the claim suggests that it should be construed as limited to conditions under which the device was "intended" to operate in order to ensure that it would not latch.

A further, compelling reason for rejecting Harris's proposed construction of the "any device operating conditions" limitation is that Harris's construction would make the limitation entirely circular. To say that the invention of claim 1 does not latch when the sum of alpha [1] and alpha [2] is less than one is to say only that the device does not latch when the sum of the forward current gains is not great enough to cause latching. The circularity of Harris's proposed construction is revealed by a passage in its brief in which it explains that the devices described in the '073 patent "will not latch 'under any device operating conditions,' i.e., so long as they are properly functioning as they were designed to operate." But Harris further argues that "the patented devices [are] 'operable' so long as the devices continue to operate as a transistor and are latch-free." In plain terms, Harris's claim construction argument is that the intended "operating conditions" of the patented device do not include conditions that cause the device to latch, and therefore the device does not latch under its intended "operating conditions."

We decline to assume, without a stronger textual basis, that the "any device operating conditions" limitation was intended simply to convey that the claimed device does not function as a thyristor as long as it is not operated under conditions that trigger thyristor action. That construction would contribute nothing but meaningless verbiage to the definition of the claimed invention. Nor can we accept Harris's argument that when an IGBT latches "under extreme adverse non-operating conditions," it has failed and therefore cannot be regarded as functioning under "device operating conditions." As the record before the district court makes clear, latching may lead to device failure, but does not necessarily do so. Two technical articles that were before the district court, one of them authored by an inventor of the '073 patent, say as much. It is therefore incorrect to suggest, as Harris does, that a latched state cannot be an "operating condition" for an IGBT.

An additional problem with Harris's proposed construction of claim 1 is that it would cause claim 1 to read on the prior art described in the Plummer patent. Harris attempts to distinguish Plummer's device on the ground that it has a low thyristor threshold and is intended to operate as a thyristor. The inventors of the '073 patent, according to Harris, came up with the novel idea of using the four-layer device in the transistor range, rather than in the thyristor range. Yet despite Harris's assertion that its device has a higher thyristor threshold than Plummer's device as a result of changing the geometries and conductivities of the device, the language of claim 1 of the '073 patent does not reflect that structural distinction.

Moreover, the fact that the inventors recognized that the Plummer device could be used as a transistor rather than as a thyristor would not be sufficient to avoid the effect of the prior art. It is well established that the discovery of a new property or use of an old product does not render the old product patentable. See In re Spada, 911 F.2d 705, 708, 15 U.S.P.Q.2D (BNA) 1655, 1657 (Fed. Cir. 1990); Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 780-82, 227 U.S.P.Q. (BNA) 773, 777-78 (Fed. Cir. 1985). Thus, because claims should be read in a way that avoids ensnaring prior art if it is possible to do so, see Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1557, 37 U.S.P.Q.2D (BNA) 1609, 1617 (Fed. Cir.), cert. denied, 135 L. Ed. 2d 1048, 116 S. Ct. 2523 (1996); Deca, Ltd. v. United States, 210 Ct. Cl. 546, 544 F.2d 1070, 1080, 191 U.S.P.Q. (BNA) 439, 447 (Cl. Cl. 1976), the effect of the Plummer prior art device is to render Harris's...
proposed construction of claim 1 much less plausible than IXYS's competing construction.

B

The specification of the '073 patent provides further support for IXYS's proposed construction of the claim as reciting a device that does not latch under any conditions. The summary of the invention characterizes the invention as the product of manipulating "conductivities and geometries . . . so that the device functions substantially as a [non-latching] transistor." '073 patent at col. 1, 11. 58-60. Later, in the course of describing the claimed invention, the specification explains that although the invention "is a four layer device, it does not function as a thyristor having regenerative [i.e., latching] properties." Id. at col. 3, 11. 53-55.

C

The prosecution history of the '073 patent also provides substantial support for IXYS's construction of the disputed language of claim 1. The applicants repeatedly argued to the examiner that their claimed invention was structurally distinct from the prior art and that the structure of the claimed device prevented it from latching. When the examiner expressed concern that the applicants were merely seeking a patent on the Plummer device operating at voltage and current levels below its thyristor threshold, the applicants amended claim 1 to specify that the device would not latch under "any" operating conditions. In light of the series of exchanges between the applicants and the examiner, Harris cannot persuasively argue that the "any operating conditions" language of claim 1 should be read to include only those conditions under which the designer intended the claimed device to operate.

In the original application, the last clause of claim 1 recited "the source, body and drain regions having a first forward current gain and the anode, drain and body regions having a second forward current gain, such that the sum of the current gains is less than unity." The examiner initially rejected all of the claims as anticipated by Plummer and as obvious over Plummer in view of Gentry. In response, the applicants attempted to distinguish their claimed invention from Plummer's device by arguing that their "invention is structured so as not to operate as [a thyristor]" and that their "invention operates as a transistor at all times" (emphasis added). The applicants also argued that, unlike Gentry, "the sum of the current gains (alpha [1] + alpha [2]) in Applicants' invention is less than 1 at all times," and they represented to the examiner that, because of its structure, their invention "operates as a transistor at all times . . . and this is true at both low and high voltage operating conditions." In responding to the examiner's obviousness rejection, the applicants asserted that "there is no suggestion [in the prior art] of a four layer transistor structure such as [the applicants' structure], wherein the sum alpha [1] + alpha [2] is maintained less than 1 for all operating voltages" (emphasis added).

In the second office action, the examiner again rejected all of the claims as anticipated by Plummer and as obvious over Plummer in view of Gentry. The examiner characterized the applicants' invention as a "device configured to act as a transistor at all times, that is, so the sum [alpha [1] + alpha [2]] is less than unity at all intended operating voltages. This [limitation], however, is not in the claim."

The applicants responded to the second office action by amending the last clause of claim 1 so that it recited "the source, body and drain regions having a first forward current gain alpha [1] and the anode, drain and body regions having a second forward current gain alpha [2], such that the sum alpha [1] + alpha [2] is less than unity under device operating conditions, and no thyristor action occurs." In remarks accompanying their amendment, the applicants stated that they had amended claim 1 "so as to definitively specify that the structure of the present invention behaves at all times as a transistor and not as [a thyristor]" (emphasis added). The applicants characterized Plummer's device as functioning as a thyristor "beyond some threshold voltage," and argued that in contrast to Plummer's invention, their device was "structured such that it will never operate as [a thyristor]" (emphasis added). They contended that their device "does not have a threshold point above which it will change from a transistor to [a thyristor]" and that it "is not merely [a thyristor] operating in the [pre-latching] region." They further noted that they had amended the claim "to further emphasize this structural distinction."

The examiner again rejected all of the claims. The examiner pointed out that for the Plummer device, under certain voltage and current levels, the sum of the forward gains is less than one, "so that no thyristor action occurs under those operating conditions." The language of claim 1, the examiner explained, "does not appear to preclude the existence of device operating conditions under which thyristor action occurs, it appears only to state that there are device operating conditions under which thyristor action does not occur."
During a subsequent interview, the examiner suggested to the applicants that "language such as 'no thyristor action occurs under any device operating conditions' would appear to overcome the rejection" of claim 1. The applicants then adopted that language, which is the current text of the claim. In remarks accompanying the amendment, the applicants stated that "the present language of Claim 1 now precludes the existence of device operating conditions under which thyristor action occurs." The examiner subsequently allowed the claims, and the '073 patent issued.

Harris argues that the prosecution history of the '073 patent supports the proposition "that the '073 patent covers devices that . . . remain latch-free while they are functioning effectively as they were designed to operate." The prosecution history, however, does not support Harris's argument. As the excerpts quoted above illustrate, the applicants repeatedly sought to distinguish their claimed device from Plummer's device on the basis of their device's structure, not its intended operating conditions. The applicants stated to the examiner in their responses to the office actions that, because of its distinct structure, their claimed invention would not operate as a thyristor. In particular, the applicants repeatedly represented to the examiner that the claimed device "never" acts as a thyristor, that the device "does not have a [thyristor] threshold point," and that the device operates as a transistor "at all times." Nothing in the applicants' submissions to the examiner suggested an intention to qualify the terms "never" and "at all times" so as to limit those terms to the particular conditions under which the designer intended the device to operate. Instead, the applicants represented to the examiner that, because of structural differences between the claimed invention and the prior art, their device would "never" act as a thyristor, and we construe the claim consistently with those representations.

To be sure, as Harris points out, during the second office action the examiner characterized the applicants' claimed invention as a device in which the sum of alpha [1] and alpha [2] is "less than unity at all intended operating voltages." In light of the overall prosecution history of the '073 patent, however, that single remark is not sufficient to justify importing a qualification into the plain language of the claim, especially since the remark was not in a statement made by the applicants, but rather appeared in the examiner's characterization of the applicants' claimed invention. Moreover, it was long after the examiner's remark that the applicants substituted the final claim language ("no thyristor action occurs under any device operating conditions") for the earlier version ("under device operating conditions . . . no thyristor action occurs"), a change that emphasizes that thyristor action will not occur at all, rather than that it will not occur under certain conditions. We therefore construe claim 1 as reciting a four-layer IGBT device in which latching does not occur.

1. "Suitably or suitable" (claims 1, 5)

The parties agree that "suitably" and "suitable" mean "appropriate for a purpose." The dispute centers on whether the terms, which appear in the preamble of claims 1 and 5, operate as limitations on those claims. Cytyc argues that "suitably" is not a limitation; it merely describes the purpose or intended use of the invention. TriPath contends that the terms define the invention and therefore serve as substantive limitations on the claims.

A preamble "limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality' to the claim." Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). However, "a preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use of the invention." Id. (quoting Rowe v. Dorr, 112 F.3d 473, 478 (Fed. Cir. 1997)). Ultimately, a judge determines whether a preamble is a limitation only after reviewing the entire patent "to gain an understanding of what the inventors actually invented and intended to encompass by the claim." Id. (quoting Corning Glass Works v. Sumitomo Electric U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)).

The word "suitably" in claims 1 and 5 is more than a mere statement of purpose; it is "essential to understand the limitations or terms in the claim body." Id. The claim body lists four steps:

(a) processing the biological specimen slide with the slide processing system;

(b) measuring at least one machine processing effectiveness parameter;
(c) checking if the at least one machine processing effectiveness parameter has exceeded a limit; and

(d) accumulating scan processing error flags.

'327 patent at col. 8, 11. 37-48. These steps alone do not describe a structurally complete invention. Without the preamble to explain that the steps comprise a slide suitability test, they are no more than a series of unrelated actions. Cf., Catalina Marketing, 289 F.3d at 810 (holding that preamble language confining the use of the claimed free-standing coupon distribution terminal to consumer stores was not limiting because the location of the terminals was not a structural component of the invention).

The specification emphasizes the importance of the term "suitability" to the claims. The abstract, the summary, and the preferred embodiment repeatedly describe the invention as a "suite of suitability tests." 327 patent, Abstract, 1. 2; col. 1, 1. 34; col. 2, 1. 17. The bulk of the specification is spent describing the claimed suitability tests and the mechanisms by which the invention performs the tests. See id. at col. 1, 11. 32-47; col. 2, 11. 3-48; col. 4, 11. 23-60; cols. 5-6. Indeed, only three paragraphs of the written description do not directly describe suitability testing. See id. at col. 2, 11. 49 -- col. 3.

Two of these paragraphs list related prior art that the patentee intended to incorporate by reference. The other describes Figures 1A-1C. Id. at col. 3, 11. 47 -- col. 4, 11. 23. The diagrams make no mention of suitability and appear to depict a stand-alone invention, not unlike the coupon terminal in Catalina Marketing, 289 F.3d at 805. However, as discussed above, the remainder of the specification makes clear that suitability testing is not just one possible use, purpose, or intended result of the invention; it is the only use, purpose, and intended result.

Cytyc argues that this case is analogous to Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc., 246 F.3d 1368 (2001). The preamble at issue in that case provided, "A method for reducing hematologic toxicity in a cancer patient undergoing [antitumor drug] treatment . . ." Id. at 1371. The claims that followed consisted of two steps: premedicating the patient and administering a specific dosage of the antitumor drug over three hours. Id. The Court held that the preamble language "for reducing hematologic toxicity" did not limit the scope of the claims for two reasons. Id. at 1375. First, the steps of the three-hour infusion method were performed in the same way, whether or not the patient actually experienced a reduction in toxicity. Id. Second, the language of the claim itself strongly suggested independence from the preamble. Id.

Bristol-Myers does not apply here. In that case, "reducing hematologic toxicity" was a result that the invention intended to, but need not, reach with each use. Id. In contrast, the steps in claims 1 and 5 of the 327 patent comprise a suitability test. Each use of the steps invariably results in a test of the suitability of a slide. The language of the claims suggest not independence, but dependence on the preamble.

TriPath contends that "suitable" is a claim limitation because the patentee relied upon it during prosecution to distinguish the prior art. See Catalina Marketing, 289 F.3d at 808 ("Clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation."). In support, TriPath cites an Amendment dated December 18, 1995, in which the patentee stated that the prior art did not "disclose the detection of an intermediate cell or an intermediate cell nuclei for determining whether a slide preparation was suitable for processing." TriPath Ex. 8, 327 File History, Document 9, Amendment dated 12/18/95, at 6-7 (emphasis added).

TriPath misreads this statement. The very next paragraph in the Amendment makes clear that the distinction the patentee made between his invention and the prior art turned on the use of the intermediate cell, not on the use of the invention as a suitability test. n9

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

n9 That paragraph provides, in relevant part: 

"[The prior art fails to] disclose the detection of an intermediate cell or an intermediate cell nuclei for determining whether a slide preparation result is suitable for automatic processing. [The prior art] discusses a method of eliminating the effect of overlapping cells, not dilating the intermediate cell." TriPath Ex. 8, 327 File History, Document 9, Amendment dated December 18, 1995, at 6.

The absence of the word "suitable" in the examiner's Statement of Reasons for Allowance provides further evidence that the
The patentee's failure to rely on "suitable" or "suitably" during prosecution, however, does not prevent the words from limiting claims 1 and 5. The claims themselves and the specification amply support the conclusion that "suitable" or "suitably" give "life, meaning, and vitality" to the claims, and thus should be read as limitations. See Catalina Marketing, 289 F.3d at 808.

1. "Suitable bucket size"

SuperSpeed proposes the term should be construed as "bucket size selected based upon the size of the data to be cached." IBM's proposed construction is "bucket size selected based upon the size of the I/O access." The dispute concerns how the system and method determine which bucket size is "suitable."

IBM argues that the size is determined based on the size of the data transfer from the I/O device. SuperSpeed argues that "disk access" is ambiguous. Further, SuperSpeed argues, under IBM's construction, the patent would not achieve the invention's goal of using the cache memory effectively. IBM supports its position by citing to several parts of the specification where the preferred embodiment chooses where the data is put based upon "disk access": "disk data is . . . copied into an available cache bucket depending upon size fit." [226 Patent, 2:24-55], "total cache bucket size associated with it for small, medium, and large, disk access sizes." [226 Patent, 1:54-57], "[u]sing the size fo the read data access the cache driver selects which of the three caches . . . the data transfer fits." [226 Patent, 4:10-12].

Despite the illustrative passages, the invention's goal is to minimize wasted space and speed up retrieval of cached data. There is no support in the intrinsic evidence to support the limitation imposed by IBM's construction. Assuming arguendo that the disclosed embodiment does make some decision based on a "disk access," the invention is not limited to the preferred embodiment. The inventor intended the "suitable bucket size" to be a bucket size that was the most appropriate size available with the least amount of wasted space. The term "suitable bucket size," therefore means "a bucket size selected based on the size of the data to be cached."

4308

"suitable escape character" & "complementary check character"

Sutton suggests that "suitable escape character" means "an indication that special treatment is needed." Nokia contends that the term means "a 7-bit sequence used to indicate that a complementary check character follows the sequence." Sutton contends that "complementary check character" means a "character whose value is relative to a known value" and Nokia urges the definition is "a 7 bit sequence representing a transformation of a prohibited character."

While the terms "suitable escape character" and "complementary check character" never appear in the specification, within the context of the described invention, the purpose and function of those terms are clearly and narrowly defined. When describing the transmission of a message, the specification explains that a "data packet which is in 7 bit format must [] be 'treated' to enable those 7 bit characters which are prohibited from transmission by the network . . . to be transformed. A Transformation Escape Character (TEC) is configured be [sic] selected from the remaining available character set. This character is located in the data string. The TEC character is inserted at that location. A second character is also generated and inserted immediately following." '238 Patent at 6:57-67. The specification then explains that the "second character," or the character following the "escape character," is a transformation of the prohibited 7-bit character. Id. at 6:65-7:14. A formula for transforming the prohibited 7-bit character and for choosing a TEC is provided. Id.
At the receiving end, the specification explains that the TEC is used to identify that the "second character" is a transformation of a prohibited 7-bit character. Id. at 7:47-50. The receiver then removes the transformations within the "second character" and deletes the TEC. Id. Thus, the original message is preserved without transmitting any prohibited 7-bit characters. Claim 1 refers to this process by replacing the terms "TEC" and "second character" with the terms "suitable escape character" and "complimentary check character." See id. at 14:66-15:3 ("analyzing the 7 bit byte packet to ascertain if it contains any prohibited characters and if so substituting such prohibited characters with a suitable escape character and a complimentary check character to produce the message packet").

There is no dispute that the above-quoted portion of the specification describes the process in claim 1 where the terms "suitable escape character" and "complimentary check character" are used. Rather, Sutton relies on general dictionary definitions and its own expert's testimony to urge broad definitions. Construing terms broadly based entirely on this sort of extrinsic evidence in the face of particular language within the specification is clearly improper under Phillips. Sutton's proposed definitions divorce the claim terms from the context of the patent. For instance, Sutton's definition of "suitable escape character" gives no indication what "special treatment" is indicated by an escape character when the process described above clearly explains the function and purpose of the claim term. Likewise, Sutton's proposed definition of "complimentary check character" generally defines "complementary" without addressing the particular context with which the term is used in the claims. The patent specifically describes, using the terms "TEC" and "second character," a process by which a 7 bit character (the "suitable escape character") is used to flag a transformed 7 bit character (the "complimentary check character") in order to avoid transmitting a prohibited character while retaining the original message. Accordingly, Nokia's proposed definitions are adopted, and "suitable escape character" is defined as "a 7-bit sequence used to indicate that a complimentary check character follows the sequence" and "complimentary check character" is defined as "a 7 bit sequence representing a transformation of a prohibited character."

In analyzing the language of the claim, the Court reiterates that the invention neither requires nor prohibits either internal illumination or dichroic mirrors, because the Court has already construed the lens to require neither a dichroic mirror nor internal illumination. Claim 1 of the '653 patent states that the invention is "comprising: a telecentric lens suitable for imaging said multi-sample plate positioned to collect light from said plate. . . ." ('653 patent, col. 5, In. 4-5). Defendant asserts that suitable may include size but, because the patentee did not specifically assert "size" and instead asserted "suitable," the term cannot refer only to size and, in particular, refers to the necessity for internal illumination and suitable for use without a dichroic mirror and, as such, does not have a plain and ordinary meaning.

In determining whether a claim is indefinite, the Federal Circuit has held, "a claim is not indefinite merely because it poses a difficult issue of claim construction; if the claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness." Bancorp Serv., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004). To be sure, claims need not "be plain on their face in order to avoid condemnation for indefiniteness; rather, what [this court has] asked is that the claims be amenable to construction, however difficult that task may be." Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Moreover, "[i]f the meaning of the claim is discernible, even though
the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." Id. Claims are only found to be indefinite where reasonable efforts at construing the claim are in vain. Id. (stating that courts "protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal."). As such, "close questions of indefiniteness in litigation involving issued patents are properly resolved in favor of the patentee." Id. at 1380.

In the matter at hand, multi-sample plates describe contents from the vantage point of the samples whereas multi-well plates describe contents from the vantage point of the wells. Since multiple samples go into multiple wells, in this instance, the plate is the mechanism for holding the wells that contain the samples. Therefore, this Court concludes that the interchangeable use of the terms "multi-sample plate" and "multi-well plate" in claims 1-4 of the '653 patent does not preclude the construction of the claims or create indefiniteness.

Turning to the claim construction, the phrase "said multi-sample plate" refers, for example, in claim 1, directly to "a multi-sample plate having at least one sample in a recessed well." '653 patent, col. 21, In. 5-6. Claims 1-4 of the '653 patent specifically apply to a multi-sample plate with at least one recessed well. Although Plaintiff admits that generally the terms would have different meanings, a person skilled in the art would understand that these claims themselves are limited to plates with at least one recessed well. The multi-well feature is read by the Court as a limitation of the multi-sample plate for purposes of these claims. As such, the Court construes the entire disputed term as "can be used for creating an image of a multi-sample plate having at least one sample in a recessed well."

3. "Suitable for transmission"

Liquidnet construes "suitable for transmission" to mean "meeting the filtering criteria established by the traders and/or the electronic marketplace." 101 ITG/Pulse suggests a broader definition, construing the term to mean "appropriate for transmission." 102 I adopt ITG/Pulse's definition because suitable and appropriate are virtual synonyms. 103 As a result, the adopted definition is nothing more than the language of the claim, while Liquidnet's definition attempts to inappropriately narrow the claim.

While it is apparent from the specification that the patented method will often use a filtering module to determine what data is suitable for transmission, 104 it is also apparent that the patented method does not always use such filtering modules. This is disclosed by a portion of the specification which describes two embodiments of the patented method -- one where "all open orders are suitable for transmission" and another where a "filtering module" is used to determine what orders are suitable for transmission. 105 As ITG/Pulse argues, "Liquidnet's construction of 'suitable for transmission' accounts for the second embodiment but ignores the first." 106 Accordingly, it is inappropriate to limit the term "suitable for transmission" to the use of filtering criteria.

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104 See, e.g., Patent '834 col. 3 ll. 61-65 ("The OIM also preferably includes a filtering module for filtering out specified orders by security type, security name, order type, order price, order quantity, or other category, so that those orders are not
transmitted to the ETM."); id. col. 11, lines 22-27 ("In other embodiments of the present invention, the OIM, through the filtering module, makes the determination of suitable orders based on other criteria, such as the security type (e.g., stock or bond), security name (e.g., IBM or T), order type (e.g., market or limit order), order quantity, and/or order price.").

105 Patent '834 col. 11 ll. 18-27.106 ITG/Pulse Resp. at 20.

Instead, I adopt ITG/Pulse's broader construction of the term. While substituting the word appropriate for the word suitable does little to clarify the meaning of this term, the evidence does not permit a more exacting definition. The patented claim encompasses any means for determining whether a non-binding indication is appropriate for transmission -- including the use of a filtering module or simply allowing all non-binding indications generated from records of open orders to be transmitted.

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B. "Super Block"

One element of independent claims one and ten of the '918 Patent, and the remainder of the Asserted Claims (all of which depend upon those claims) is the formation of "super blocks." This is the only element of the Asserted Claims at issue here.

The Court construed "super block" to mean "two or more blocks that are used to store data, the two or more blocks having addresses that are correlated with a group of logical block addresses that is determined by the number of sectors in a block."

6 The parties do not seem to disagree that when the high-speed erase mode of the Fuji AIMS System is used, four physical blocks in four different physical chips are always erased together. (Niwano Decl., P 11; McAlexander Decl., Exh. A at 111 ("[w]hile the Fuji AIMS card can erase four blocks in parallel...") The parties do, however, dispute whether the four blocks are correlated with a group of logical block addresses ("LBAs").

6 A "block" is "erasable storage for a plurality of sectors."

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V. "super-block" -- '918 patent

The claim term "super-block" appears in only one of Lexar's patents-in-suit: the '918 patent, in independent claims 1 (and dependent claims 3, 4, 5, 7, and 9), 10 (and dependent claims 13, 14, and 15), and 17. Lexar and Toshiba respectively propose that "super block" be construed as follows:

Lexar's proposed construction: Two or more blocks that are used to store data, the two or more blocks having addresses that are correlated with a group of logical block addresses that is determined by the number of sectors in the blocks.

Toshiba's proposed construction: 11 A number of blocks that are in like locations of the different nonvolatile memory devices and residing in parallel with respect to each other.

- 4581 -
11 Pretec offers no proposed construction here. Pretec only proposes constructions for disputed terms in the '638 and '051 patents.

In the Preferred Embodiment section of the '918 patent, a particular embodiment of the invention is described and then the following language appears:

In this respect, a 'super' block is defined by a number of blocks that are in like locations of the different nonvolatile memory devices and residing in-parallel with respect to each other.

('918 patent, 9:11-15.) Toshiba contends that this language is an expression of the patentee's intention to act as his own lexicographer regarding "super block" and that it should serve as the construction of the term throughout the patent. Indeed, where an inventor defines a claim term "with reasonable clarity, deliberateness, and precision," that definition is understood to control the construction of the claim term. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). Here, however, the language relied upon by Toshiba, at column 9, lines 12-15 of the patent, is not such a definition. The "in this respect" language indicates that what follows is relevant only to a preferred embodiment of the invention and to adopt it as the universal construction of "super block" would be too restrictive as it would improperly import limitations from the preferred embodiment into the construction of the claim term itself. The Court therefore rejects Toshiba's proposed construction of "super block." The Court also notes that, as Lexar points out, to adopt Toshiba's construction would exclude a preferred embodiment, represented in Figure 5, which shows blocks positioned vertically, not "in parallel" with one another. This the Court declines to do.

The Court finds that Lexar's proposed construction here is the correct one. The Court therefore construes the term "super-block" as follows: two or more blocks that are used to store data, the two or more blocks having addresses that are correlated with a group of logical block addresses that is determined by the number of sectors in the blocks.

1. Super scaler cache

Both parties seek to define this phrase by incorporating specific elements of the claims into the definition of the term itself. However, the elements comprising the structure vary among the claims. Compare '003 patent at 7:35-55, with id. at 8:18-43. Thus, the Court cannot accept this construction approach and looks to the Patent Office examiner's characterization in the prosecution history. The Court construes "super scaler cache" as a cache capable of holding multiple instructions for issuing and executing in parallel. See Intel's Claim Construction Brief, Exhibit D, tab. 18, p. 3.

2. Super scaler storage

Intergraph contends no construction is required for this term, but that it should be given its ordinary meaning to one skilled in the art. Intergraph identifies this ordinary meaning as "storage such as a cache line, a register or other mechanism for holding one group of the groups of software-scheduled instructions, each software-scheduled instruction within the one group having embedded therein an instruction pipeline identifier of a plurality of instruction pipeline identifiers."

Incorporating its proposed definition of other terms, Intel similarly defines "super scaler storage" as a memory device adapted to hold one group of instructions where each instruction has a pipeline identifier embedded inside. The Court construes "super scaler storage" as a cache line, register, or other memory device capable of holding multiple instructions for issuing and executing in parallel. '003 patent 5:32-35.
B. Supervisory Signals

Similarly, the Court finds that "supervisory signals" must be given its ordinary meaning. The term commonly means signals that control the operation of a telephone system and indicate such information as whether the phone is on or off the hook. Def's. Ex. B; Def's. Ex. C at 23. Furthermore, the 848 patent does not define the term. It does, however, specify that such signals are produced by a telephone set and transmitted through a telephone line. Def's. Ex. A, col. 4, ll. 19-21. Thus, the Plaintiffs cannot now define the term to include "signals used to indicate the identity of a key actuation on a keypad." Paper 53 at 11. See Senmed, Inc. v. Richard-Allan Medical Indus., Inc., 888 F.2d 815, 819 n. 8 (Fed. Cir. 1989) (when term given its ordinary meaning in specification, self-serving testimony giving it a different meaning is of little or no significance). Accordingly, the Court finds that this term means "signals which are produced by a telephone set and sent through a telephone line."

1. "Supplemental display" is construed to mean a "display used to supplement the main display."

3. Claim 19 - supplemental voltage

Claim 19 of the patent depends from claim 17. Claim 19 recites:

19. The method of claim 17 wherein the primary voltage is V and each of the secondary voltage sources generates a supplemental voltage lower than V, further comprising passing the supplemental voltage to the voltage-controlled oscillator. ('876 patent, col. 9, ll. 48-52).

The only term requiring construction in claim 19 is the term "supplemental voltage." Fairchild contends that "supplemental voltage" means "voltage other than the primary or secondary voltage." Fairchild contends that each claim term must have meaning and therefore, the supplemental voltage must be a third voltage which is distinct from the primary and secondary voltages. (D.I. 156 at 37).

In response, Power Integrations contends that the term "supplemental voltage" does not require construction. Power Integrations contends that Fairchild's construction is inconsistent with the language of claim 17 and 19, because according to the plain language of claim 17, "one or more secondary voltage sources, together, generate a secondary voltage." (D.I. 152 at 14) (emphasis in original). Power Integrations also contends that the plain language of claim 19 indicates that each secondary source itself generates a supplemental voltage whose magnitude is lower than V, the magnitude of the primary voltage. Thus, the secondary voltage is the total of the supplemental voltages, each generated by one secondary voltage source. In this regard, Power Integrations contends that it is incorrect to construe supplemental voltage as something other than secondary voltage, as Fairchild contends. To the extent construction of this phrase is required, Power Integrations contends that the phrase should be construed as "a voltage in addition to the primary voltage." (D.I. 152 at 14).

Reviewing the disputed term in the context of the claim language and the specification, the Court agrees with the construction proposed by Power Integrations. Reading claim 17 and 19 together, the Court is persuaded that the secondary voltage is the total of the supplemental voltages which are each generated by one secondary voltage source. Thus, the Court construes the term "supplemental voltage" to mean "a voltage in addition to the primary voltage."
2. "supplied with a potential of"

Claims 7 and 15 contain the term "supplied with a potential of." Toshiba contends that the ordinary meaning of the phrase should apply. Jt Cl Const, Ex B at 20. Alternatively, Toshiba proposes that the phrase means "applied with a voltage of." Id. Hynix construes this term as "directly supplied with the potential of." Id (emphasis added). Again, Hynix seeks to read a limitation into the claim term, requiring that the potential be directly supplied.

Hynix's construction relies on a statement that the patentees made during prosecution of the related '267 patent. See supra "bit line" construction. The patentees distinguished prior art in which the potential of a certain transistor was less than the potential of a bit line by claiming that the '267 patent disclosed circuits supplying the same transistor with the same potential as the bit line. Doc # 14, Ex E at 2. Hence, Hynix argues the distinguishing and necessary feature of the '994 patent, which is virtually identical to the '267 patent, is that the transistor is "directly" supplied with the same potential as the bit line.

But a plain reading of the patent prosecution statement does not yield Hynix's construction. The patentees merely distinguished the prior art by stating that the '994 patent transistor is "supplied with the potential of the bit line" instead of the lower potential available under the prior art. Id. The patentees never said whether the potential is supplied directly or indirectly. Hence, the prosecution history cited by Hynix does not warrant an additional limitation that the "bit line" potential be supplied directly.

Because Hynix has not provided any reason why "supplied with a potential of" should be construed and Toshiba's proposed construction appears nearly identical to the term itself, the court declines to construe this term.

4. "Supporting the housing of the microprocessor in position relative to said docking connection means so that the single connector on the housing is coupled with said additional connection provided in the docking connection means"

Independent claim 17 is a method claim directed at interfacing a microprocessor with a plurality of peripheral devices. Subpart (e) of independent claim 17 recites the step of "supporting the housing of the microprocessor in position relative to said docking connection means so that the single connector on the housing is coupled with said additional connector provided in the docking connection means." '645 pat., col. 10, Ins. 35-39. Plaintiff argues that this phrase should be construed according to the ordinary meaning of the words used: the housing is supported and the single connector on the housing couples or mates with the connector on the docking module. Plt.'s Opening Br., dkt. # 84, at 15.

Defendants contend that claim 17 should be construed to require that the docking connection means holds the portable computer in a vertical position. They argue that subpart (e) of claim 17 should be construed as "supporting the housing of the microprocessor in a vertical position relative to the docking connector." Dfts.' Opening Br., dkt. # 86, at 18. In support of their construction defendants turn again to the prosecution history. They contend that the applicants waived any claim to a physical orientation of the housing other than vertical in order to obtain the '645 patent. Plaintiff contends that this construction is inappropriate because it ignores the plain language of claim 17 and violates the doctrine of claim differentiation. Plaintiff notes that independent claims 1 and 14 contain a vertical orientation limitation but independent claim 17 does not. Defendants contend that claim differentiation is inapplicable because claim 17 has a different scope from claims 1 and 14 because claim 17 is a method claim whereas claims 1 and 14 are apparatus claims.

I start with the language of the claims. Subpart (e) of claim 17 requires that the housing of the microprocessor be supported such that the single connector on the housing couples with the connector on the docking connection means. As defendants concede, there is no explicit language in claim 17 requiring the housing to be held in a vertical position relative to the docking connection means. In contrast, claims 1 and 14 require "a support holding the housing in a vertical position." '645 pat., col. 8, In. 55; col. 9, In. 65.
Turning to the prosecution history, defendants note correctly that, in the June 15, 1992 response to the patent examiner, the applicants distinguished their system from the patent issued to Herron in part by emphasizing that

the microprocessor housing drops into the docking module in such a manner as to permit the two connectors to mate. The docking module also has a support which holds the housing in a vertical or upright position to keep the connectors mated. It is simply the weight of the housing pressing down on the docking module which maintains the connection.

Aff. of Vito Canuso, dkt. # 87, exh. F, at 14. The applicants trumpeted the vertical orientation of the housing as an advantage because it reduced "the footprint of the system on the desk top." Id. at 15. In contrast, the Herron patent disclosed a docking module "which is latched to the rear of a laptop computer. The computer and docking module both rest on a desk top." Id. at 16. Thus, "the computer in Herron is not oriented vertically as in the Applicants' system." Id. at 17.

It is clear that the vertical orientation of the housing when resting in the docking module was one of the novel features of the applicants' system. However, as I noted in discussing the laptop exclusion, the applicants made it clear in the June 15 response that they were not incorporating all of the novel features of their invention into every independent claim in the patent. Instead, they stated only that each independent claim contained at least one point of novelty. Id. at 16. In the case of the laptop exclusion, it is not obvious which of the independent claims contain the exclusion because none of the independent claims contain language explicitly excluding laptop computers. Therefore, the only way to incorporate the limitation into the patent is to infer that it is inherent in the terms "portable computer" and "portable computer microprocessing system."

The situation is different with respect to the vertical orientation limitation, however. I need not infer that that limitation is inherent in all of the independent claims because the applicants indicated clearly which of the independent claims contain this novel feature. Claims 1 and 14 require "a support holding the housing in a vertical position." Claims 17 and 20 do not contain this limitation. Therefore, defendants are not persuasive when they argue that of the prosecution history supports the importation of a vertical orientation limitation into claim 17.

Defendants do not concede the point easily. They argue that where an applicant makes statements during the course of prosecution that limit the scope of his invention as opposed to specific embodiments thereof or claims in his patent, those statements apply to all of the claims in the patent. For support, they cite Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1312, 1318 (Fed. Cir. 1998). That case concerned a patented method for capturing, storing and displaying fingerprint images. At issue in that case was the claim term "slice data." The defendant argued that this term should be construed to mean data with an "active area" while the plaintiff argued that a "slice" encompassed more than an "active area." Id. at 1346. The court of appeals adopted the defendant's construction. It noted that the word "slice" was used "synonymously with 'active area' in two instances in the written description." Id. Also, the court looked to the prosecution history. In response to a rejection by the patent examiner, the applicants in Digital Biometrics added the word "slice" to one of their claims and distinguished their invention from prior art by Ruell with the following remarks:

Unlike the applicants' claimed invention, there is no provision for generating the composite array as a function of overlapping image portions of the finger. Similarly, Ruell does not teach a system which identifies active portions of the image which are representative of the fingerprint features as a mathematical function of the stored data, and generates the composite array as a mathematical function of the data representative of the identified active portions.

Id. at 1347 (emphasis in original). Instead of limiting these remarks to the claims in which the term "active area" appeared, the applicants had made them with respect to all of the claims that had been rejected. Accordingly, the court of appeals held that the limiting construction in the remarks applied to all of the claims that had been rejected. Id.; see also Honeywell International, Inc. v. ITT Industries, Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006)(limiting term "fuel injection system component" to fuel filter in part because patentees had referred to "invention" as fuel filter at four points in specification).

At the claims construction hearing in this case, defendants argued that the present case was analogous to Digital Biometrics because in both cases the applicants discussed distinguishing characteristics of their inventions, not specific claims or embodiments thereof. This is true up to a point. Although the applicants for the '645 patent discussed their "system" as having a docking module that held the housing in a vertical position in the June 15 response, they also made it clear that all of the points of novelty highlighted in the response were not present in all of the independent claims. The prosecution history is useful in determining how the applicants and the patent examiner understood the claims, Phillips, 415 F.3d at
1317, but it is inappropriate to import a limitation from the prosecution history into a claim whose language will not support that limitation. Sofamor Danek Group v. Depuy-Motech, 74 F.3d 1216, 1220 (Fed. Cir. 1996).

Accordingly, I will adopt plaintiff's proposed construction of the phrase "supporting the housing of the microprocessor in position relative to said docking connection means so that the single connector on the housing is coupled with said additional connection provided in the docking connection means." That phrase will be construed to mean that the housing is supported and the single connector on the housing couples or mates with the connector on the docking module.

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b. "Suppressing"

Murata argues that "suppressing" as used in claim 1 of the '641 Patent means "limiting, attenuating, claiming, shunting, or bypassing." Murata's Opening Brief, at 25. Bel Fuse argues that it means "eliminating or attenuating." Bel Fuse's Responsive Brief, at 18. Claim 1 recites "a printed board containing an electronic element for suppressing noise." The court construed "electronic element" above as "an electronic component," and the parties agree that "noise" is properly construed as "undesired electrical signals." Thus, Murata argues that "electronic element for suppressing noise" means "an electronic component which serves to limit, attenuate, clamp, shunt, or bypass undesired electrical signals." But Bel Fuse argues that it means "an electronic component for eliminating or attenuating undesired electrical signals."

Bel Fuse argues that Murata's construction of "suppressing" is overly broad. According to Bel Fuse, the specification of the '641 Patent does not teach noise suppression that occurs by shunting, bypassing, clamping, or limiting. The specification of the '641 Patent, Bel Fuse argues, teaches eliminating and attenuating noise. For example, when describing the first embodiment, the specification states:

In the modular jack with this structure, noise is suppressed by the common mode choke coils 24 built into the coil array 20. Specifically, common mode noise received through the contactors 35 is eliminated in the common mode choke coils 24, and thereby outgoing noise through the terminals 36 is suppressed.


Murata argues that "suppressing" as used in claim 1 of the '641 Patent is entitled to its entire ordinary meaning which includes: "limit, attenuate, clamp, shunt, or bypass." Murata relies on Dr. Hughes' expert report in which he opined that these terms are included within the ordinary meaning of "suppress." To reach this construction, Dr. Hughes relied on two dictionary definitions: one contained in Webster's New World Dictionary of American English 1346 ("suppress" means "keep back"; "restrain, check"; "eliminate or weaken") n9 and one contained in the Modern Dictionary of Electrocs ("suppress" means "elimination of unwanted signals or interference by means of shielding, filtering, grounding, component relocation, or sometimes redesign"; "the reduction to an acceptable level of a certain frequency or frequencies"). Hughes' Report, at 4-5. Dr. Hughes thus concludes that a noise suppressing electronic element in the context of the '641 patent is "an electronic component which serves to limit, attenuate, clamp, shunt, or bypass undesired signals (i.e., noise), and all equivalents thereof." Id. at 5. What is troubling about Dr. Hughes' construction is its conclusory nature. Phillips, 415 F.3d at 1318 ("[C]onclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court."). The terms "limit, attenuate, clamp, shunt, or bypass" do not appear in the dictionary definitions cited by Dr. Hughes, and he gives no explanation as to how he transformed the dictionary definitions into his proposed construction.

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n9 While Murata provided the court with definitions of other terms from this dictionary, Ex. 30 to Murata's Opening Brief, at least in the copy provided to the court, it neglected to include the definition of this term. The court is therefore unable to review this definition in its original source or other entries for this term in this dictionary.

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In eliminating these terms from its proposed construction, Bel Fuse relies only on the preferred embodiments disclosed in
the '641 Patent which it states describe only "eliminating" and "attenuating" noise. Bel Fuse argues that the court should not include "shunt" or "bypass" because these operations would require additional circuitry not disclosed in the '641 Patent. Bel Fuse also argues that, since the patent does not discuss "clamping" or "limiting" noise, it is unclear what those terms would mean in the context of the patent. Because Bel Fuse relies only on the specification with no other supporting evidence, Murata argues that Bel Fuse's construction is "attorney argument." Murata's Reply, at 13.

However, because Dr. Hughes' report is conclusory and it appears that Bel Fuse is correct that the specification does not disclose shunting, bypassing, clamping, or limiting, the court adopts Bel Fuse's proposed construction of "eliminating or attenuating." \[n10\]

--- Footnotes ---

n10 The court notes its role in claim construction is to determine the meaning of the claim term from the viewpoint of a person of ordinary skill in the art. Because the parties' briefing on "suppressing" has been scant, and neither party has made clear the meanings of "shunting," "bypassing," "clamping," or "limiting," the court has been limited in its ability to construe the meaning of this term.

--- End Footnotes ---

4321

Surface mount light elements/ Surface mount semiconductor light elements

The term "surface mount light elements" appears in the '823 patent; "surface mount semiconductor light elements" appears in the '302 patent. Because of the "semiconductor" limitation in the '302 patent, Litepanels contends that two separate constructions are needed for each term. Gekko proposes the following construction for both terms: "light component designed to be soldered to a surface of a circuit board."

Regarding the '823 patent, the specification states that an advantage of the "surface mount" is the heat dissipation capabilities, "particularly as compared to non-surface mount LEDs which tend to dissipate heat typically through their leads." '823 patent, Col. 24:34-36. It teaches that using surface mount light elements provides a "larger and more direct heat conduction path to the mounting surface." Id. at Col. 24:37-38. While the specification describes the advantages of surface mounts, it does not provide a clear definition of the term.

Because the specification lacks clear guidance on the meaning of "surface mount," both Gekko and Litepanels based their proposed constructions on the Wiley Electrical and Electronics Engineering Dictionary's ("Wiley Dictionary") definition of "surface mount." The Wiley Dictionary defines surface mount as "a technology for mounting components and devices in which the connections are soldered to a surface, as opposed to having leads which pass through said surface." Wiley Electrical and Electronics Engineering Dictionary (2004).

When reading the advantages described in the specification together with the definition of "surface mount," Gekko's proposal is too broad. Gekko's construction excludes a key portion of the definition: "as opposed to having leads which pass through said surface." Gekko argues that the Wiley Dictionary's definition does not require the substrate to appear without holes; however, the specification contemplates otherwise. As discussed above, one of the main advantages of surface mounts are the increased heat dissipation because of the increased contact to the mounting surface. '823 patent, Col. 24:34-36. These advantages would be greatly diminished, and possibly nullified, if holes were drilled into the surface. Therefore, reading the claim in light of the specification of which it is a part, Gekko's proposed construction is improper.

Litepanels proposes the phrase means "a light emitting element where the electrical leads are designed to be soldered to a surface of a circuit board, rather than mounted through a hole in the circuit board." The first part of Litepanels's proposed construction tracks the Wiley Dictionary's definition. The second part of Litepanels's construction ties the specification in with the definition by excluding through-hole mounts.
Because the specification teaches the advantage of surface mounting is the lack of holes, the construction needs to include that limitation. Thus, the Court construes "surface mount light elements" to mean "a light emitting element where the electrical leads are designed to be soldered to a surface of a circuit board, rather than mounted through a hole in the circuit board."

The '302 patent claims contain a "semiconductor" limitation. As a continuation of the '823 patent, the '302 patent contains the same discussion of "surface mount" advantages. Gekko's universal construction removes the "semiconductor" limitation present in the '302 patent claims, which impermissibly broadens the claim language. Therefore, the Court construes "surface mount semiconductor light elements" to mean "a semiconductor light emitting element where the electrical leads are designed to be soldered to a surface of a circuit board, rather than mounted through a hole in the circuit board."

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B

The question on which the indefiniteness issue in this case turns is easily stated. All of the independent claims in the '792 patent refer to "surrender value protected investment credits for the life insurance policy." Hartford argues that the term "surrender value protected investment credits" is indefinite because the patent does not expressly define the term; because the meaning of the term cannot be inferred from anything in the patent; and because the term does not have a commonly understood meaning to persons of skill in the pertinent fields of art. Bancorp responds that the patent makes clear that the term "surrender value protected investment credits" means the same thing as "stable value protected investment credits," a term that is used throughout the patent, and that persons of skill in the pertinent art would so understand it. Both Bancorp and Hartford agree that the acronym "SVP," which is used throughout the patent, refers to "stable value protected investments." Bancorp argues that the acronym "SVP" also should be understood to refer to "surrender value protected investments," and that the terms "SVP," "stable value protected investments," and "surrender value protected investments" should all be understood to refer to the same concept.

We agree with Bancorp that the meaning of the term "surrender value protected investment credits" is reasonably discernible and that the asserted claims of the '792 patent are therefore not invalid for indefiniteness. It is true that the entire term "surrender value protected investment credits" is not defined in the patent, and Bancorp has not pointed us to any industry publication that defines the term. Nonetheless, the components of the term have well-recognized meanings, which allow the reader to infer the meaning of the entire phrase with reasonable confidence.

First, the term "surrender value" has a clear meaning to one of ordinary skill in the relevant art. Namely, as the district court noted, "surrender value" is generally interpreted to mean the value of all of the components of a life insurance policy minus any surrender charges and/or outstanding debt. See Bancorp Servs. v. Hartford Life Ins. Co., 2002 U.S. Dist. LEXIS 27200, No. 4:00-CV-70, slip op. at 15 (E.D. Mo. Feb. 13, 2002) (citing Barron's Dictionary of Insurance Terms 76-77 (4th ed. 2000)). Second, the specification of the '792 patent and the extrinsic evidence make it clear that the term "protected investment" refers to the underlying investment components of an insurance policy or policies whose return is stabilized over time in return for a fee. See '792 patent, col. 2, l. 59 to col. 3, l. 4. Finally, the specification makes clear the meaning of the word "credits." The specification explains that the invention "calculates credits due to the targeted return and a present daily investment value." Id. at col. 13, ll. 23-24. A "credit," therefore, is the difference between the actual value of an investment and the smoothed out or targeted return value of that investment. Viewing these components of the claim term together, it is reasonably clear that "surrender value protected investment credits" means the difference between the actual value of a protected investment and the targeted return value of that investment at the time the protected life insurance policy is surrendered. From this analysis, we conclude that the term "surrender value protected investment" is not indefinite, but instead has essentially the same meaning as the term "stable value protected investment," which the parties agree has a well-understood meaning as used in the '792 patent and in the field of stable-value investments.

In support of its argument that the patent makes clear the meaning of the term "surrender value protected investment credits," Bancorp points to dependent claims 4, 12, 23, and 32, and the portion of the specification that corresponds to those claims. Each of those claims recites "notifying a surrender value protected investment writer of the investment value and the value of the underlying securities for the current day." The portion of the specification that corresponds to that claim language states: "In step 1218, the system notifies the SVP writer of the current day's investment value and the value of the
underlying securities." '792 patent, col. 13, ll. 28-10. The correspondence between the claim language and the quoted language from the specification is so close, Bancorp argues, that the inference is inescapable that the term "SVP" is intended to be equivalent to the term "surrender value protected investment." Because it is undisputed that "SVP," as used in the '792 patent, refers at least to "stable value protected" investments, Bancorp argues that the correspondence between the claim language ("surrender value protected investment writer") and the language of the specification ("SVP writer") indicates that the terms "surrender value protected investment," "stable value protected investment," and "SVP" all mean the same thing as those terms are used in the patent.

We agree with Bancorp that the correspondence between the reference to "surrender value protected investment writer" in the specified claims and the reference to "SVP writer" in the portion of the specification relating to those claims provides substantial support for Bancorp's contention that, as used in the patent, the terms "stable value protected investment," "surrender value protected investment," and "SVP" are equivalent. Indeed, Hartford offers no satisfactory alternative explanation for the apparent correspondence between the term "surrender value protected investment" and the acronym "SVP" in claims 4, 12, 23, and 32, and the portion of the specification dealing with the subject matter of those claims.

Instead, Hartford seeks to counter that inference from the text of the patent by pointing out that the term "surrender value protected investment credits" is not defined, or even used, anywhere in the specification, and that each of the independent claims uses both the term "stable value protected investment" and the term "surrender value protected investment." The failure to define the term is, of course, not fatal, for if the meaning of the term is fairly inferable from the patent, an express definition is not necessary (although of course the inclusion of a definition would have avoided the need for this time-consuming and difficult inquiry into indefiniteness). See All Dental Prodx, LLC v. Advantage Dental Prods., Inc., 309 F.3d 774, 780 (Fed. Cir. 2002). The question therefore is whether, even in the absence of any express definitions, it is reasonably clear that the term "surrender value protected investment credit" means the same thing as "stable value protected investment credit."

With respect to that question, Hartford is correct that the use of both terms in close proximity in the same claim gives rise to an inference that a different meaning should be assigned to each. See Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1579 (Fed. Cir. 1996) (stating that if two terms described a single element, "one would expect the claim to consistently refer to this element [with one or the other of the two terms], but not both, especially within the same clause"). That inference, however, is not conclusive; it is not unknown for different words to be used to express similar concepts, even though it may be poor drafting practice.

In this case, moreover, the patent uses the two terms in slightly different ways, which may account for the choice of different language. Each of the independent claims refers to a "stable value protected investment" and then refers to "surrender value protected investment credits." Under Bancorp's interpretation of the claims, "stable value protected investment" refers to investments in which a guarantor, or SVP writer, would ensure a smooth rate of return by promising to make up any difference between the market value of the investments and the agreed-upon smoothed rate of return. The term "surrender value protected investment credits," on the other hand, refers to the credits necessary to make up any shortfall between the actual value of a particular investment at a particular time and the amount the SVP writer had promised to pay on that investment if the policy were surrendered at any particular time. Because of the difference in context, it may be that when referring to the investment the claim drafter intended to emphasize the stability feature (and thus used the term "stable value protected investment").

Addressing the use of the term "surrender value" in light of the meaning of that term in the insurance industry, Hartford argues that "surrender value" normally refers to the value of an entire policy, while a "stable value protected investment" refers only to the account within the policy that is subject to a stable value protected guarantee. Thus, Hartford contends that the two terms necessarily convey different meanings. Again, however, the difference in the way the two terms are used in the patent undercuts Hartford's argument. The reference to "surrender value protected investment credits" is plainly not a reference to the surrender value of the entire policy, but only to the credits allocable to the portion of the investment whose surrender value is protected--something that can easily refer to investments making up less than the entire surrender value of the policy. We therefore do not agree with Hartford that the text of the patent is at odds with Bancorp's argument that the
terms "stable value protected investment" and "surrender value protected investment" are synonymous. To the contrary, the evidence summarized above affords substantial support to Bancorp's interpretation of the claim language; and under that interpretation, the asserted claims are not invalid for indefiniteness.

GO BACK

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1. Substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range

The parties dispute two elements of this phrase: first, the meaning of "surrounding" and whether this word implies a three-dimensional sphere and a uniform distance from a point, and, second, whether the original viewpoint is included in the set of "points" referred to in Claim 9. Google proposes a construction of "substantially all of the excess data blocks describing three-dimensional terrain on all sides (in all directions) out to a pre-established distance from a point in the terrain that is seen from the current viewpoint," while Skyline suggests "substantially all of the blocks which include data covering terrain which is within a predetermined distance range in one or more directions from either the viewpoint or a point in the terrain visible from the current viewpoint."

a. Surrounding

To define "surrounding," Google suggests that the plain meaning of the word is to "enclose on all sides." The ambiguity latent in the term in this context is that the rendered display is somewhere between a two-dimensional and a three-dimensional object, so it is unclear whether a circle or a sphere would "surround" a point in the terrain. As Skyline correctly points out, Google's construction would imply that underground blocks of data would have to be downloaded for the "surrounding" data blocks to be considered gathered. It seems unlikely that this result was intended by the claim, because the '189 patent is primarily concerned with the rendering of surfaces with a minimal vertical dimension, not true three-dimensional terrain. Consequently, I find that "surrounding" does not imply a sphere surrounding a point on all sides, but a circle surrounding a point in two dimensions.

The next disputed issue with respect to "surrounding" is whether the area of excess blocks to be downloaded must necessarily be uniform in all directions (or whether a wider area of blocks could be pre-selected in the direction of travel, potentially creating an ellipse around a reference point, rather than a circle). n18 "Surrounding" is customarily read as encircling in a uniform manner, n19 and numerous references in the '189 patent support this reading. n20 At several points, the '189 patent mentions that the user can control the direction of view and look around in all directions, which necessitates downloading blocks in all directions. n21 Based on the common understanding of "surrounding," the specific use of the term and concept in the '189 patent, and the broader context of the claimed method and apparatus, I construe "surrounding" to mean all of the blocks within a uniform distance from the point in question.

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n18 I also note that the points in the terrain selected as the starting points in Claim 9 could be preferentially chosen based on the direction of travel. Although the blocks surrounding each point would be downloaded to a uniform distance, the points chosen could be weighted towards the direction of travel.

n19 See, e.g., Webster's Third New Int'l Dictionary (Unabridged) (1986) (listing as synonyms "encircle," "circle," "ring," and "encompass").

n20 See, e.g., col. 12, 11. 23-25 ("blocks, which are most preferably organized in a square centered directly below the location of the viewpoint"); col. 16, 11. 4-6 ("cache manager first downloads the eight blocks surrounding the block which is directly below the current viewpoint").

n21 See, e.g., col. 2, 11. 3-5 ("allowing the pilot to see the view seen at any point along the flight course at substantially any desired angle"); col. 2, 11. 19-21 ("A user may select at substantially each point along the route the direction of view and may change the direction dynamically"); col. 7, 11. 6-7 ("Preferably, the viewpoint is controlled by a user of the processor"); col. 11, 11. 9-10 ("there is no compulsory correlation between the flight direction and the view direction"); col. 15, 11. 63-
("if the queue is empty, cache manager fills cache memory with the blocks within the range of the current viewpoint, so that, for any direction of view from the current viewpoint, there is no need to download further blocks from the server") (emphasis supplied).

b. Point in the terrain

The next dispute in the construction of this phrase is whether the "current viewpoint" is a "point in the terrain seen from the current viewpoint," as Skyline argues. The plain language of the phrase makes clear that it is not. The current viewpoint is the current viewpoint. A point seen from the current viewpoint is inherently different from the viewpoint itself. Consequently, I reject Skyline's argument that the current viewpoint is also a point seen from the current viewpoint.

Finally, Google includes "excess blocks" in its construction. This term is unnecessary, as Claim 9, a dependent claim of Claim 7, only covers the download of excess blocks.

Construction: (substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range) Substantially all of the data blocks covering terrain within a uniform predetermined distance from a point in the terrain that is seen from the current viewpoint.


E-Watch proposes "a server-controlled network device that contains a sensor for monitoring an area and which generates and transmits an IP signal indicating a condition in the monitored area." This is the same construction as "sensor appliance." Defendant does not offer a definition, but suggests that the phrase "surveillance sensor appliance . . . for monitoring . . . and generating . . ." is a means plus function term.

The claim does not include the word "means," which invokes a presumption that 35 U.S.C. § 112 (6) does not apply. See Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004). "This presumption can be overcome if it is demonstrated that 'the claim term failed to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.'” Id. at 1358 (quoting CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002)).

In the briefing, and at the hearing, March Networks failed to demonstrate that "surveillance sensor appliance" does not recite sufficient structure, or recites function without reciting sufficient structure. March Networks agrees that the term "sensor appliance" is not subject to § 112, P 6. The addition of the term "surveillance" does not suddenly make the term subject to § 112, P 6. The court concludes that this is not a means plus function term.

The court has already defined "sensor appliance." Some such appliances may send signals to the server but receive no return signal or command. But others, "controlled by the server," may react in response to commands. The specification describes steerable cameras. ' 183 patent col. 5, ll. 65-66. Upon detection of an event some devices may be activated. ' 183 patent, col. 6, ll. 59-61.

March Networks argues that a "surveillance sensor appliance" must be different from a "sensor appliance." Normally each word in a claim should have some meaning, and if the patentee uses "surveillance sensor appliance" that should be different than a "sensor appliance." See CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000)("in absence of any evidence to the contrary, we must presume that the use of different terms in the claims connotes different meanings."). But the court should also presume the patent is valid and strive to construe the claim in light of the specifications.

When asked at the hearing, March Networks could provide no example in the specifications, nor from the point of view of one skilled in the art, of a sensor appliance that did not perform some type of surveillance of a condition, area, or event. Tr.
pp. 29-31. One might not think of a temperature or fluid level sensor as performing "surveillance" but the ordinary definitions of "surveillance" do not exclude that definition. And, the claim itself states that the "surveillance sensor appliance" in question is for "monitoring an area and generating a signal indicating a condition. . . ." This is among the functions described for "sensor appliances" in the specifications. See '183 patent, col. 35, ll. 29-36.

While it may have been less than perfect drafting, the court concludes that "surveillance sensor appliance" has the same meaning as "sensor appliance," as defined above. The court therefore defines the term as follows:

"Surveillance sensor appliance controlled by the server" means "a sensor appliance (as defined previously) which monitors one or more conditions or events in an area, and which can receive and respond to signals from a server."

(7) Suspending Operation of the Door Operation Commands of a Door Control System

The '628 Patent includes the term "suspending operation of the door operation commands of a door control system." The parties propose the following meanings to the words "suspending operation":

<table>
<thead>
<tr>
<th>Braun's Proposed Construction</th>
<th>VMI's Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rendering the door control system temporarily unresponsive to door operation commands.</td>
<td>Indefinite, as is &quot;selective delay.&quot; The only embodiment disclosed is intercept/transmit/echo.</td>
</tr>
</tbody>
</table>

As with the previous term, VMI fails its burden to establish indefiniteness. Moreover, VMI's proposed definition construes "selectively delay execution" and "suspending operation" to mean the same thing. Such an interpretation is contrary to claim construction rules as it would render another claim superfluous. See Comark Communications, Inc. v. Harris Corp., 156 F3d 1182, 1187 (Fed Cir. 1998) (finding a violation of the doctrine of claim differentiation when a proposed construction would render another claim superfluous). For example, claims 11 and 23 recite: "suspending operation of the door operation commands of a door control system to selectively delay execution of the door operation commands." If the Court were to accept VMI's proposed construction, the inclusion of both terms within the same claim would be redundant. Accordingly, the Court accepts Braun proposed construction: "suspending operation" means rendering the door control system temporarily unresponsive to door operation commands.

Nonetheless, at the last minute, and in an untimely way, Lucent requests the following claim construction of "auxiliary switch":

"Auxiliary switch" is a switch that does not control[] the converter's power flow," that is, power that flows from the primary winding to the secondary winding of the transformer and to the load."

Because Vicor has not challenged the timeliness of this proposed claim construction, the Court construes that term. The Court must begin with the claim language. Claim One requires an "auxiliary switch connected in series with said storage capacitor." Col. 8, lines 59-60. The specification provides:

More particularly, the invention relates to forward converters of the single ended type, in which the power flow from source to load is controlled by a single solid state switch.
The portion of the specification entitled "Summary of Invention" provides:

This invention provides new apparatus for resetting the transformer's core in single-ended forward converters. The apparatus consists of a storage capacitor, an auxiliary solid state switch (distinguished from the primary switch which controls the converter's power flow), and of a switch control circuit.

I construe the term auxiliary switch to mean a single solid state switch connected in series with the storage capacitor, which does not control (gate) power flow from source to load.

The word "switch" is a term understood by those of ordinary skill in the art, which Mr. Kesner defined as "means which provides a contact or provides an in circuit connection . . . between two components." (Tr. Vol. 33, 20-22.)

Mr. Kesner used Mars' definition of "in circuit" -- which the Court has rejected -- to describe the meaning of the word "switch." However, this does not change the fact that "switch" appears to be a common engineering term which would be understood by anybody of ordinary skill in the art. For this same reason, the Court does not construe "switch" as a means-plus-function element.

The parties next dispute the proper construction of the term "switch." NT proposes the following construction:

"A device, including mechanical, electrical, electronic or optical devices, which opens or closes circuits, completes or breaks a path, or selects paths or circuits."

Peerless would add the additional phrase "in 'real time' to set up calls based upon internal call control and service capabilities." NT argues that the term switch is a standard term of art with a well-accepted, ordinary meaning, reflected in NT's definition. Peerless offers nothing in support of its proposed additional elements of the definition, requiring the switch to operate "in real time" and "to set up calls based upon internal call control and service capabilities." Nor is any evidence for Peerless's proposed construction found in the patent itself, including the claims, specifications and prosecution history. Therefore, the Court construes the term "switch" as "a device, including mechanical, electrical, electronic or optical devices, which opens or closes circuits, completes or breaks a path, or selects paths or circuits."
1. "Switch" and "Optical Switch"

For the following reasons, this court construes the claim term "switch" in patent '772 claims 1 and 15, and "optical switch" in claims 2, 3, 5, 6, 7, 9, 10, 14, 17, 19, 20, 23, and 24 to mean:

A device to receive an optical signal from at least one input and route the optical signal to one of at least two outputs, or to receive an optical signal from one of at least two inputs and route the optical signal to at least one output.

In determining the construction of the terms "switch" and "optical switch," the court must consider whether differences among other asserted claims can assist the court's understanding of a term's meaning. Phillips, 415 F.3d at 1314. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. Id. at 1314-15.

Intrinsic evidence establishes that the term "switch" in claims 1 and 15 refer to an "optical switch," and therefore both "switch" and "optical switch" should be construed the same. Claim 1 in the patent application issued as claim 1 in the '772 patent. See TLIL0001033. (Nov. 29, 2007 Notice of Allowability.) The amendment and response submitted by the patentee, during the prosecution of the '772 patent and which subsequently led to the allowance of claim 1, clearly stated that the switch in claim 1 is an optical switch. Moreover, in overcoming an initial rejection of claim 1, the patentee explained that amended claim 1 is directed toward a system that comprises "an optical switch operable to optically couple the second optical line interface to (a) the first optical line interface through at least the optical demultiplexer, and alternatively (b) the second transponder." TLIL0000998, TLIL0001002. (Sept. 10, 2007 Office Action Resp. at 14, 18.) Thus, the patentee's explanations at each stage of the prosecution process show that "switch" in claim 1 means an "optical switch."

The meaning of the term "switch" in claim 15 is even more straightforward. Claim 15 is dependent on independent claim 14, which refers to an "optical switch." Because claim 14 is antecedent to claim 15 and claim 15 is dependent on claim 14, the "switch" in claim 15 is an "optical switch."

The specification also discusses the operation of various types of optical switches. (See '772 patent, col. 2:60-3:30; Fig. 1.) Specifically, the operation of the 1x2 switch is described as, "[w]hen in the first position, [lambda] 1 is provided to a transponder which transmits [lambda] 1 to a client apparatus via local port. When in the second position [lambda] 1 is provided to a pass-through port to a corresponding pass-through port in a peer OLT." ('772 patent, col. 2:66-3:3.) Similar descriptions are provided for 2x1 switch, 1xN switch and Nx1 switch. (See '772 patent, col. 2:10-34.) An optical switch therefore can receive an input signal and route the signal to one of multiple outputs, or a switch can receive multiple input signals and route the signals to one output.

Examining the scope of 3(C)(e) first, I find that its plain language, when read in light of the specifications, is not limited to a sliding mode selector switch. Claim 3(C)(e) reads that the audio recording and tape measuring system comprises:

a mode selector switch connected to the circuit controlling and processing means and movable between a RECORD and a PLAY mode, enabling the circuit controlling and processing means to establish the desired operation of the recording circuit.

Zircon argues that the language, "movable between a record and a play mode," requires a slide switch to be read into Claim 3(C)(e) because Claim 2(e), which also defines the mode selector switch, uses "selecting" instead of "movable between." I find that the specifications do not limit the term "movable between" exclusively to the action of a slide switch.

In making this determination, I have presumed that different language between claims signifies a difference in their meaning and scope and that I may interpret claims in light of the specifications that led to the patent. Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, 1023 (Fed. Cir. 1987). However, I note that I cannot read into a claim a limitation that appears only in a specification since the claim, not the specification, measures the invention. SRI Int'l. v. Matsushita Elec. Corp. of America, 775 F.2d 1107 (Fed. Cir. 1985). Furthermore, two claims which read differently may cover the same subject.
The specifications state that the mode selector's preferred embodiment "comprises a slide switch which is movable… between a PLAY position and a RECORD position." This differs from the antecedent basis for Claim 2(e) which calls for a mode selector button for mode selection. Despite this difference I refuse to read a slide switch requirement into Claim 3(e) because the specifications also state that "various alternate switch configurations can be employed…." This specification language clearly indicates that Claim 3(C)(e)'s "movable between" language does not necessarily require a slide switch, but allows for other types of switches.

These three limitations, considered together because of their interrelatedness, are the heart of the computer system contemplated in the invention, and the parties spent most of their time at the Markman hearing disputing the meaning of the terms "switch," "establishing the path," and "maintaining the path."

IBM's primary argument with regard to these limitations is identical to its argument concerning the message transfer circuit -- it contends that TM's use of the word "switch," which it believes to be amorphous as to structure, converts this part of the claim into a means-plus-function claim that is subject to the strictures of Section 112, para. 6. Again, I disagree, and for the same reasons as outlined above. A switch is a commonly understood to be a structure. It is a device for making, breaking, or changing connections in an electrical circuit. Like the word "brake," "clamp," or "screw," the name of the device connotes what it does. The commonly understood meaning of the word is cast in terms of its function. It is well settled that naming a function-specifying device in a patent claim is not sufficient to bring that claim within the ambit of Section 112, para. 6. See Ethicon Endo-Surgery, 91 F.3d at 1583; Implant Innovations, Inc. v. Nobelpharma AB, 1998 U.S. Dist. LEXIS 15794, No. 93 C 7489, 1998 WL 704188, *4 (N.D. Ill. Oct. 1, 1998).

TM did not patent a better means for making, breaking, or changing connections in an electrical circuit. It patented a computer system that is configured so as to route messages more efficiently. One of that system's component parts is a switch -- a switch that must be able to decode, establish, and maintain a path through the system. The switch is the structure that is used to accomplish a certain result. It is incorporated into the system in a particular way -- by connecting it to the input circuits, which are in turn connected to the communications links. This is more than sufficient for me to reject IBM's argument -- and with it, IBM's contention that the scope of this limitation is no broader than the embodiment disclosed in the patent.

I agree with TM that, in the Examiner's statement about "the router node as currently claimed and in the structure as currently claimed," the word "structure" refers to the computer system. I do not agree with IBM that this phrase indicates any intention on the part of the examiner to construe the limitation as a means-plus-function limitation. I also reject IBM's argument that I should construe "switch" in means-plus-function terms because the specifications do not use the word "switch." IBM cites no authority for that proposition, and as a matter of logic it makes no sense.

The path to be established by the switch must run from the input circuit that received the message to the "identified" output circuit. The switch "identifies" that output circuit by decoding some portion of the address element at the head of the message in order to determine the message's destination. The parties agree that "decoding" means examining and translating, or analyzing.

IBM argues that the switch as disclosed in the claim should be limited to one that decodes exactly one, and no more than one, address element. TM contends that this is one of those instances when "one" means "at least one" or "one or more than one," and points out that the preferred embodiment would be excluded if the limitation IBM urges were read into the claim. As TM notes, claim interpretation that would exclude the preferred embodiment is "rarely, if ever, correct and would require
highly persuasive evidentiary support." Vitronics, 90 F.3d at 1583. TM also argues that a switch that decodes more than one element of an address would necessarily infringe the patent, because it would have to decode "one" in order to decode "more than one."

IBM's evidence for a contrary result is not unpersuasive. First, the literal meaning of "one" is singular, not singular and/or plural. Despite the fact that "a" and "an" can apparently mean either the singular or the plural, at least in the patent context, see North Am. Vaccine v. American Cyanamid Co., 7 F.3d 1571, 1575-76 (Fed. Cir. 1993) (citing Robert C. Faber, Landis on Mechanics of Patent Claim Drafting 531 (3d ed. 1990)); Shell Oil Co. v. IC1 Americas, Inc., 33 F. Supp. 2d 523, 525-26 (E.D. La. 1999); Isogon Corp. v. Amdahl Corp., 47 F. Supp. 2d 436, 1998 WL 901723, *4 (S.D.N.Y. 1998)), there are plenty of ways to phrase something if both the singular and the plural are intended to be encompassed ("one or more," "one or more than one," and "at least one" all come to mind). Especially in light of the Federal Circuit's recent pronouncement on the subject, see WMS Gaming Inc. v. Int'l Game Tech, 184 F.3d 1339, 1999 WL 508800, *7 (Fed. Cir. 1999), the meaning of the word "one" would seem to be a very straightforward proposition.

Assigning a singular meaning of "one" seems all the more reasonable in light of the fact that claims canceled during prosecution of the '773 patent contained the phrase "at least one," while the eventual language of the patent is limited to "one." TM correctly notes that this matters to claim construction only if the particular language focused on is altered in order to escape an examiner's rejection. See York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1574 (Fed. Cir. 1996). However, TM's argument for why this particular alteration was of no consequence to overcoming the rejection -- namely, that the patentee "would have known that 'at least one' and 'one' were synonymous" (TM Reply Br. at 36) -- is neither self-evident nor particularly persuasive. Indeed, placing this limitation as originally filed side-by-side with the limitation as eventually allowed, it seems that the only substantive alteration was changing "at least one" to "one." Of course, this particular phrase is only part of the claim, and IBM conceded at argument that there are other differences between the patent as filed and as allowed. (See Tr. of Markman Hearing, Sep. 8-9, 1999, at 346.)

Finally, IBM argues that the claims calling for the decoding of "at least one" address element were rejected over the prior Lawrence '892 patent, and urges that this very phrase was the reason. It cites the Court to the appendix (A 2163-87) in support of its argument. In response, TM, citing the Examiner's Statement of Reasons for Allowance (A 2113), contends that this change was not the reason for the rejection. It points out that the Examiner said that the router node "will establish and maintain, after it receives enough of a message [which TM interprets to mean not just one element of a message] to determine an output circuit over which it will transmit the message, a path from the input circuit to the output circuit until the entire message has been established" (emphasis added).

I have reviewed the cited portions of the Joint Appendix, especially Figure 15 and its corresponding description at A 2183, and I find that they shed little light on the subject. It seems to me, however, that the single most persuasive piece of evidence on this point is the statement of the Patent Examiner himself. If his reason for rejecting the claim as initially filed was TM's use of the phrase "more than one" rather than "one," it is difficult to understand why he would have stated that the router node transmits the message "after it receives enough of a message to determine the output circuit . . ." (emphasis added). The words "enough of a message" are not limited to a single address element, and it would have been easy enough for the Examiner to say what he meant if he intended to so limit the invention. His choice of words seems especially pertinent because both parties agree that the preferred embodiment calls for the switch to decode more than one element. IBM is correct that there are occasions when it is both necessary and appropriate to construe a patent claim in a way that reads the disclosed embodiment out of the patent. See Ultra-Temp v. Advanced Vacuum, 11 F. Supp. 2d 141, 147 (D. Mass. 1998). This, however, does not seem to me to be such a case.

While the question is a close one, and IBM's presentation is impressive, especially as to the file wrapper estoppel point, I do not find the evidence supporting its argument to be "highly persuasive," as required by Vitronics. See Vitronics, 90 F.3d at 1583. I am therefore inclined to interpret "one" as encompassing both the singular and the plural. I confess that I reach this particular conclusion without much confidence (a la Judge Young in the EMC case), and I invite the parties to submit for my consideration anything that they have not already called to my attention that they believe would either buttress my holding or undermine it. It would be infinitely more helpful if the parties could cite me to a single item of correspondence from the Examiner to the patentee articulating the reasons why he disallowed the initial claims. To date, they have not done so.

That the path must run from the input circuit to the very output circuit that was identified in the decoding process is evident from the plain language of the limitation. It admits of no other interpretation. If that identified circuit is busy, then the head
of the message must proceed to a message buffer, which will be discussed later. It cannot be sent to some alternate address.

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14. A switch coupled to the data path and programmable to manipulate data received from the data path, the switch providing data streams to the data path.

The plaintiff asserts that this phrase should be construed to mean the following: "a routing device that is: (1) coupled to and receives data from the data path, (2) rearranges the data fields received from the data path in different ways in response to instructions by performing operations such as deals, shuffles, shifts, expands, compresses, swizzles, permutes, and reverses, and (3) provides the rearranged data fields to the data path." The defendants, however, urge that the disputed phrase should be construed more broadly to "hardware and/or software that performs data handling operations on unified media streams." They argue that the plaintiff's proposed construction imports limitations from the specification by requiring that the switch perform operations such as "deals, shuffles, shifts, expands, compresses, swizzles, permutes, and reverses." In the context of these patents, the court construes "a switch coupled to the data path and programmable to manipulate data received from the data path, the switch providing data streams to the data path" to mean "a routing device that is: (1) coupled to and receives data from the data path, (2) rearranges the data fields received from the data path in different ways in response to instructions, and (3) provides the rearranged data fields to the data path."

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D. THE MEANING OF "SWITCH MEANS."

The fourth disputed term is "switch means." With this term, there is disagreement between the parties as to whether it is in means-plus-function format. General Creation asserts that although use of the word "means" creates a presumption of means-plus-function format, the presumption is rebutted because there is only structural language in the claim and no indication of function. (Pls.' Br. at 16.) LeapFrog contends that the presumption is not rebutted because the claim language does recite a function and does not describe the structure of the element. (Def.'s Br. at 39.)

I find that this claim limitation is not in means-plus-function format. There is a presumption that § 112, para. 6, applies here given the "means" language and the claim language does recite the function of the "switch means." However, the presumption is rebutted because "switch means" is written with sufficient structural language.

The '213 claims provide the invention with a "switch means having at least a first condition and a second condition." ( '213 patent, col. 4, 11. 63-64.) "Switch means" is again described later in claim 1 in association with the "memory storage means":

(v) a memory storage means for storing electronic data corresponding to the written material on said pages of the book and the supplemental book, which storage means is electronically connected to said switch means and said first and second actuators and produces audio signals including:

(1) a first audio signal upon actuation of said first actuator when said switch means is in said first condition;

(2) a second audio signal upon actuation of said second actuator when said switch means is in said first condition;

(3) a third audio signal upon actuation of said first actuator when said switch means is in said second condition;

(4) a fourth audio signal upon actuation of said second actuator when said switch means is in said second condition;

( '213 patent, col. 4, 11. 65-67 & col. 5, 11. 1-15) (emphasis added.)

If a claim is in means-plus-function format, § 112, para. 6, provides that the claim elements are stated not in terms of
structure, but in terms of the function that the element performs. 35 U.S.C.A. § 112, para. 6. Here, the function of the "switch means" becomes clear by looking at its relationship with the "memory storage means." Specifically, the function of the "switch means" is to determine which audio signal the "memory storage means" produces, depending on which "condition" the "switch means" is in. The "memory storage means" actually produces the audio signal, but the "switch means" directs the "memory storage means" to play a particular signal. For example, if the "first actuator" is activated and the "switch means" is in "first condition," the "memory storage means" is directed to produce the "first audio signal." ( '213 patent, col. 5, 11. 4-6.) This function is further elaborated upon in the specification, where the "switch means" is described as the "control pressure switch" and the "memory storage means" is described as the "control unit":

The control pressure switch 76 is used to program the control unit 64 to play the audio signals of the particular audio response set which corresponds with the particular book being read.

( '213 patent, col. 3, 11. 22-25) (emphasis added.)

If the '213 patent claims described the function of the "switch means" without describing a corresponding structure, "switch means" would be in means-plus-function format and would be construed accordingly. However, "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format." Sage Products, 126 F.3d at 1427-28. Here, the claim language recites sufficient structure to rebut the presumption that "switch means" is in means-plus-function format.

First, the term "switch" itself is a structural term. Dictionary definitions make it clear that a "switch" is a type of device that takes its name from the function it performs. See Merriam-Webster's Collegiate Dictionary, 1193 (10th ed. 1996) ("a device for making, breaking, or changing the connections in an electrical circuit"); Webster's II New Riverside University Dictionary, 1171 (2d ed. 1988) ("a device for breaking or opening an electrical circuit and for diverting current from one conductor to another"). Indeed, "many devices take their names from the functions they perform. The examples are innumerable, such as 'filter,' 'break,' 'clamp,' 'screwdriver,' or 'lock.'" Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996). The fact that "switch" "does not call to mind a single well-defined structure" is not dispositive. See id. What matters is that "the term, as the name for the structure, has a reasonably well understood meaning in the art." Id. Because the term "switch" itself imparts structure, its use rebuts the presumption that § 112, para. 6, applies. See also Cole, 102 F.3d at 531 (holding that "perforation means" is not in means-plus-function format because "perforation" describes the structure that performs the tearing function); Enviro Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1365 (Fed. Cir. 2000) (holding that "baffle means" is not in means-plus-function format because "baffle" imparts structure sufficient to rebut the presumption that the term is in means-plus-function format).

While "switch" itself is a structural term, the claims further define the structure of the "switch." The "switch means" is described as "having at least a first condition and a second condition." ( '213 patent, col. 4, 11. 63-64.) The "switch means" is also "electronically connected" to the "memory storage means." ( '213 patent, col. 5, 1. 1.)

Construing "switch means" to be in means-plus-function format would also be inconsistent with the prosecution history of the '213 patent. The inventor's original claims, filed April 22, 1997, contained a "switching means," as it was then called, in claim 11, a dependent claim of claim 1. The claim language provided for a "switching means for designating an active response selected from the group consisting of said first response set and said second response set." (Pls.' Br. Ex. B at 20.) However, the claims were rejected as "being anticipated by [the] Weiner [patent]." (Id. at 34.) The patent examiner specifically noted that the "switching means" in claims 11 and 20 was met by Wiener. (See id.)

The inventor subsequently amended his claims on January 14, 1998, to overcome the rejection. The original "switching means" was brought into claim 1 and claim 1 provided for "a switch having a first position and a second position." (Id. at 40.) The "switch" was further described in relation to the "signal producing means," what is now known as the "memory storage means." (See id.) Similar to the '213 patent, the "signal producing means" produced a certain signal depending on what position the "switch" was in. Telephone conversations between the patent examiner and the inventor in April of 1998 resulted in the inventor submitting amendments on April 9, 1998. These amendments put the claim language in its present form and the '213 patent was issued. There were many changes made in the supplemental amendments, but there are only two changes relevant here. "Switch" was changed to "switch means" and "position" was changed to "condition." The description of the function of the "switch means" in relation to the "memory storage means" remained the same. There is no indication as to why these particular changes were made.

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This prosecution history does not support a construction of "switch means" as a means-plus-function element. The original claim language was clearly in means-plus-function format. A presumption arose given the "means" language, a function was clearly stated, and no structure was disclosed. However, this claim language was rejected as being anticipated by the Weiner patent. Thus, the inventor, in his first amendment, removed the word "means" and described "switch" in terms of its structure. In the second amendment, "means" was again added to the claim language, but additional description of the structure was also added. The "switch means" has a first and second condition and is electronically connected to the memory storage means. Thus, although "switch means" was originally a means-plus-function element, it did not return to that status again, despite the addition of the word "means." A description of the structure of the "switch" remains in the claim language, preventing a means-plus-function construction.

As "switch means" is not in means-plus-function format, I must construe it accordingly. I must start by analyzing the claim language itself. As described above, the claim language discloses that the "switch means" has a "first condition and a second condition" and is "electronically connected" to the "memory storage means." ( '213 patent, col. 4, 11.63-64.) The claim language does not further describe the form that the "switch means" takes. Thus, I must determine the ordinary meaning of "switch means" as determined by one of "skill in the art." Intellicall, 952 F.2d at 1387. Like "actuator," "switch means" is a broad term, capable of many interpretations. There are likely many toys that employ a switch which, depending on its position, determines the activity that the toy will perform. Thus, the ordinary meaning of "switch means" is "a structure that switches."

As this is the ordinary meaning, I must look to the specification to determine whether the inventor intended to deviate from the ordinary meaning. The specification provides the following description of the "switch means":

The toy may also be provided with a plurality of books and a switching means so that actuators cause the toy to read different stories depending on the particular book being read.

A control pressure switch 76 is located in an ear 78 of the toy 10 and connected by a wire 80 to the control unit 64.

To trigger the control unit 64 to provide audio signals which correspond to the particular book 92 being used, the control pressure switch 76 in the ear 78 is depressed the number of times indicated by the unique numeric code 124 .... The control pressure switch 76 is used to program the control unit 64 to play the audio signals of the particular audio response set which corresponds with the particular book being read. In the case identified in FIG. 1, the control pressure switch 76 would be depressed once to match with the unique numeric code 124 of the book 92.

Once the control pressure switch 76 has been depressed the appropriate number of times, the control unit 64 is thereby programmed to "read" the corresponding pages 130 of the supplemental book 126 as described above.

Similar to "actuator," the specification does not support a finding that "switch means" be construed as a "pressure switch," as LeapFrog contends. (Def.'s Br. at 46-47.) Instead, the specification is consistent with the broad ordinary meaning of "switch means."

First, pressure switches are not the only type of "switch" referenced by the inventor in the specification. The preferred embodiment focuses on pressure switches, but the summary of the invention uses only the general term "switching means." ( '213 patent, col. 1, 1. 61.)

Second, even if pressure switches were the only type of "switch" disclosed, as discussed above, it is the claims and not the specification that measures the invention. See SRI Int'l, 775 F.2d at 1122. Again, the analysis of Gentry Gallery does not...
Accordingly, "switch means" will be construed as "a structure that switches, has at least a first and second condition, and is electronically connected to the memory storage means." 

The Court agrees with Intel that this limitation should be construed as a means-plus-function limitation under 35 U.S.C. § 112, P 6. Mitchell argues that the "first switch means" is not a means-plus-function limitation. Mitchell contends that "switch" is a structural term and argues that claim 1 recites sufficient structure and location to perform the function of the "first switch means."

Mitchell cites Vitronics, 90 F.3d at 1584, for the proposition that the term "switch" is commonly used and understood as a structural element by those skilled in the art. Mitchell also points to the IEEE Dictionary, which provides multiple definitions of the word "switch," one being "a device for making, breaking or changing the connections in an electrical circuit." Mitchell contends that the use of the word "means" in association with the word "switch" does not necessitate the application of § 112, P 6. Mitchell also cites two district court opinions where courts found that "switch means" was not subject to § 112, P 6 because the claim language recited sufficient structure and or location to rebut the presumption of its application. See Gen. Creation v. Leapfrog Enters., Inc., 232 F. Supp. 2d 661,672-73 (W.D. Va. 2002); MediaCom Corp. v. Rates Tech., Inc., 4 F. Supp. 2d 17, 27 (D. Mass. 1998).

Mitchell further argues that the specification supports its contention that the "switch means" is not subject to § 112, P 6. Mitchell cites column 19, lines 38 through 41, which state, "These switches are utilized to connect the address, data and control lines necessary for the proper memory access between the buses," and column 19, line 64 through column 20, line 5, which state that each first through seventh switch means "actually represents a plurality of logical elements, each of which can logically connect or logically disconnect an address, data, or control circuit that is mechanically connected to the switch means. . . ." Finally, Mitchell contends that claim language itself identifies the location of the structure as between the dedicated memory address, data, and control circuits of the path configuring means and the sets of contacts.

Intel argues that the presumption that § 112, P 6 applies has not been overcome because the claim does not identify sufficient structure to perform all of the recited functions of the switch means. The parties do not dispute that the stated function of the "first switch means" is "for connecting said dedicated memory address, data, and control circuits of said path configuring means to each of said first three sets of contacts." Also, the claim provides that the "first switch means" is "comprised of three distinct parts." Therefore, as with "path configuring means," the question becomes whether the claim recites sufficient structure, material, or acts to perform the recited function.

In the context of the '154 patent, the word "switch" itself does not connote sufficient structure to overcome the presumption that § 112, P 6 applies. Unlike the district court cases cited by Mitchell, in Overhead Door Corp. v. Chamberlin Group, Inc., the Federal Circuit held that "second switch means" was subject to § 112, P 6 because "this claim element utilizes the term 'means' and the claim does not specify any structure or material for performing the recited function." 194 F.3d 1261, 1271 (Fed. Cir. 1999). The Federal Circuit did not find that the word "switch" provided sufficient structure to overcome the presumption that § 112, P 6 applied.

Contrary to Mitchell's argument, in deciding whether a particular limitation should be construed as a means-plus-function limitation or not, the issue is not solely whether a dictionary definition can be found for a term, but rather how a claim limitation should be construed in the manner intended by the drafter. Insofar as § 112, P 6 is concerned, an applicant has a choice whether to invoke both the advantages and disadvantages of presenting means-plus-function limitations -- or not. An applicant signals an intent to invoke the advantages and disadvantages of § 112, P 6 by using the word "means." Similarly, an applicant signals an intent not to invoke the advantages and disadvantages of § 112, P 6 by not using the word "means." Although the presence or absence of the word "means" is not necessarily dispositive, the Federal Circuit, drawing on the foregoing rationale, has explained that the presence or absence of the word "means" creates a rebuttable presumption that §
112, P 6 applies, or does not apply, respectively. The Federal Circuit has stressed that "[t]he use of the term 'means' is 'central to the analysis,' . . . because the term 'means,' particularly as used in the phrase 'means for,' is 'part of the classic template for functional claim elements,' . . . and has come to be closely associated with means-plus-function claiming." Lighting World, 382 F.3d at 1358. Accordingly, the Federal Circuit has labeled that presumption "a strong one that is not readily overcome." Id.

Here, the patentee has signaled that he intended to invoke § 112, P 6 by using the word "means." As noted above, there are cases in which it is clear that "means" added nothing to a claim, and that the patent drafter was simply enamored with the word "means." See e.g., Allen Eng'g, 299 F.3d at 1348; Cole, 102 F.3d at 531. As also noted above, here the patentee chose to use the word "means" in connection with limitation [2] "a path configuring means," limitations [9] and [10], i.e., "first" and "second" "switch means," and limitation [13] "means for causing. . . ." Thus, unlike cases such as Allen Engineering and Cole, the intrinsic record suggests that the drafter here chose selectively when to use -- and when not to use -- the word "means."

Thus, during prosecution, the patentee signaled his intention to invoke § 112, P 6 by using the word "means," and in doing so created the aforementioned "strong" presumption. Although that presumption is certainly rebuttable, Mitchell has presented no persuasive reason why the patentee should not be held to that choice, especially given that "switch" has both structural and functional connotations and that the patentee most frequently used "switch" in a functional context.

Mitchell, relying on an IEEE Dictionary definition of "switch," urges that "switch" is defined as "a device for making, breaking or changing the connections in an electrical circuit." But Mitchell does not rely on that definition in urging its proposed claim construction. Rather, Mitchell urges that the "first switch means" and "second switch means" limitations should be construed as:

The first switch means is a mechanism including one first part for connecting those circuits at one end of one path of the path configuring means to one distinct set of contacts and to disconnect those circuits from that one set of contacts. A second part of the mechanism acts by switching to connect those circuits at the end of a second path of the path configuring means to a second distinct set of contacts and to disconnect those circuits from that set. A third part of the mechanism acts by switching to connect those circuits at the end of a third such path of the path configuring means to a third distinct set of contacts and to disconnect those circuits from those contacts. Each part of the switch means connects and disconnects the memory address, data and control circuits of the path configuring means to or from one of the distinct sets of contacts.

The second switch means is a mechanism to connect the dedicated memory address, data, and control lines of the path configuring means to the dedicated memory address, data, and control lines of the CPU respectively, and to disconnect those lines from each other.

Thus, Mitchell proposes an expansive, functional construction having little to do with the proffered definition of "switch."

Claim construction is to resolve the disputed meaning of a term or phrase -- not an invitation for wholesale claim revision. Although it is recognized that Mitchell's functional description is patterned after Judge Illston's explanation of the function served by the "first" and "second" "switch means," the actual limitations of claim 1 simply provide:

[9] first switch means comprised of at least three distinct parts for connecting said dedicated memory address, data, and control circuits of said path configuring means to each of said first three sets of contacts, and

[10] second switch means for connecting said dedicated memory address, data, and control lines of said path configuring means to said dedicated memory address, data, and control lines of said CPU respectively.

That is, if Mitchell's argument that § 112, P 6 should not apply was accepted, elements [9] and [10] would simply be viewed without the word "means."

Second, Mitchell does not address the situation where a term can have both structural and functional connotations and seems to assume that if a term has a structural connotation the presumption should be deemed rebutted because using "means" results in a narrower construction than if "means" is not used. That is not necessarily the case.
In Overhead Door, for example, although the term "switch" had a structural connotation, the Federal Circuit recognized that "switch" also has a functional connotation that potentially prevails when used with "Means." See 194 F.3d at 1271. Moreover, Overhead Door illustrates that although "switch" may have a structural connotation as a noun, "switch" likewise has a functional connotation, and the structural connotation does not trump the patentee's choice to invoke § 112, P 6 by using "switch means," at least where there is no evidence in the intrinsic record to the contrary. Mitchell has pointed to no such evidence.

Third, the Federal Circuit looks to the specification to determine whether a term has been used to define structure. See Lighting World, 382 F.3d at 1361 ("it is clear that the parties in this case have used that term to denote structure. The written description of the [patent-in-suit], for example, uses the term 'connector assembly' as the name for structure."). Here, throughout the specification of the '154 patent, the most frequently used term is "switch means," rather than simply "switch." See Col. 19:53-60. The specification also explains that a "switch means" is a "switching device" under the control of the microcomputer. For example, the specification explains that "[t] he fifth switch means 112 is a switching device, under the control of the BICPU microcomputer, that can logically connect and logically disconnect the circuit between the common junction point and the 'B' bus circuits 128 . . .," Col. 20:44-49; "[t] he sixth switch means 114 is a switching device, under the control of the BICPU microcomputer, that can logically connect and logically disconnect the circuit between common junction point and the 'C' bus circuits 132 . . .," Col. 21:31-38. The specification thus indicates that the patentee did not use "switch" in "switch means" in a structural sense, but rather in a functional sense (i.e., a "means" for providing a "switch" function), and used another term for example "switching device," to refer to structure.

The patentee chose to use the word "means" thus signaling an intent to invoke § 112, P 6. That raises the presumption that § 112, P 6 applies. The term "switch" has both structural and functional connotations. If the patentee had wished to rely on the structural connotation, the patentee could have used "a switch," or a "switching device," or even a generic structural term, but did not. Rather, the patentee used "switch means," as he did throughout the specification, in a context indicating that "switch" was being used functionally, not structurally. Overall, Mitchell has not provided persuasive evidence that the presumption arising from using the term "means" has been rebutted. Compare Interspiro USA Inc. v. Figgie Int'l Inc., 815 F. Supp. 1488, 1504 (D. Del. 1993), aff'd, 18 F.3d 927,930-31 (Fed. Cir. 1994)(agreeing with the district court's construction of "detent means . . . for . . ." as a means-plus-function limitation), with Greenberg, 91 F.3d at 1584 (construing "detent mechanism" as defining structure, reasoning "[w] hile the language in the Interspiro case was in classic 'means-plus-function' format, the language in Dr. Greenberg's patent was not.").

Having concluded that the "first switch means" is a means-plus-function limitation governed by § 112, P 6, the Court construes the function of the "first switch means" as "connecting said dedicated memory address, data, and control circuits of said path configured means to each of said first three sets of contacts." See Micro Chem. II, 194 F.3d at 1258.

Judge Illston "construed" the function of the "first switch means" apparently due to a disagreement of the parties in which Mitchell was proposing a construction that did not differentiate between the "first" and "second" "switch means." Maurice Mitchell v. Samsung Elecs. Co., Ltd., slip op. at 19-20. Intel has now proposed a construction of the "function" of the "first switch means" that is identical to Judge Illston's construction, but with an addition that Mitchell opposes. Mitchell, while contending that "first switch means" should not be construed under § 112, P 6, has nevertheless proposed a construction that also substantively tracks Judge Illston's construction with minor changes, for example using "mechanism" rather than "means." To the extent that there was any previous disagreement as to the "three distinct parts," that disagreement no longer exists.

Both Mitchell's and Intel's proposed constructions use the identical language.

Claim construction is intended to resolve disputes between the parties on the meaning of claim terms and phrases. See Vivid Techs., Inc. v. Am Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) (" [O] nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy."). Because there is no longer any dispute between the parties there is no need for the Court to "construe" the "function" of limitation [9]. For the same reason, the Court rejects Intel's proffered addition to Judge Illston's construction.

Intel urges that the specification discloses no corresponding structure for performing the stated function. Judge Illston held the same. Mitchell, on the other hand, points to several places in the specification as allegedly disclosing such structure.

Intel suggests that this issue should be deferred to summary judgment. The Court agrees. The Federal Circuit has held that whether sufficient structure is disclosed in a specification must be based on the understanding of one skilled in the art, and
asserting that a means-plus-function limitation lacks structural support requires clear and convincing evidence because the consequence is invalidity. See Creo Prods, Inc. v. Presstek, Inc., 305 F.3d 1337, 1347 (Fed. Cir. 2002); Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376-80 (Fed. Cir. 2001); S3 Inc. v. nVIDIA Corp., 259 F.3d 1364, 1371 (Fed. Cir. 2001); Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1382 (Fed. Cir. 1999). The Federal Circuit has further held that "corresponding structure" does not require a disclosure of specific circuitry. Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1366-67 (Fed. Cir. 2003).

Accordingly, the issue of whether there is (or is not) "corresponding structure" disclosed in the specification for performing the claimed functions, and if so what that structure may be, is deferred to summary judgment proceedings.

Claim construction is to resolve the disputed meaning of a term or phrase -- not an invitation for wholesale claim revision. Although it is recognized that Mitchell's functional description is patterned after Judge Illston's explanation of the function served by the "first" and "second" "switch means," the actual limitations of claim 1 simply provide:

[9] first switch means comprised of at least three distinct parts for connecting said dedicated memory address, data, and control circuits of said path configuring means to each of said first three sets of contacts, and

[10] second switch means for connecting said dedicated memory address, data, and control lines of said path configuring means to said dedicated memory address, data, and control lines of said CPU respectively.

That is, if Mitchell's argument that § 112, P 6 should not apply was accepted, elements [9] and [10] would simply be viewed without the word "means."

Second, Mitchell does not address the situation where a term can have both structural and functional connotations and seems to assume that if a term has a structural connotation the presumption should be deemed rebutted because using "means" results in a narrower construction than if "means" is not used. That is not necessarily the case.

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Claim construction is intended to resolve disputes between the parties on the meaning of claim terms and phrases. See Vivid Techs., Inc. v. Am Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O] nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy."). Because there is no longer any dispute between the parties there is no need for the Court to "construe" the "function" of limitation [9]. For the same reason, the Court rejects Intel's proffered addition to Judge Illston's construction.

Intel urges that the specification discloses no corresponding structure for performing the stated function. Judge Illston held the same. Mitchell, on the other hand, points to several places in the specification as allegedly disclosing such structure.

Intel suggests that this issue should be deferred to summary judgment. The Court agrees. The Federal Circuit has held that whether sufficient structure is disclosed in a specification must be based on the understanding of one skilled in the art, and asserting that a means-plus-function limitation lacks structural support requires clear and convincing evidence because the consequence is invalidity. See Creo Prods, Inc. v. Presstek, Inc., 305 F.3d 1337, 1347 (Fed. Cir. 2002); Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376-80 (Fed. Cir. 2001); S3 Inc. v. nVIDIA Corp., 259 F.3d 1364, 1371 (Fed. Cir. 2001); Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1382 (Fed. Cir. 1999). The Federal Circuit has further held that "corresponding structure" does not require a disclosure of specific circuitry. Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1366-67 (Fed. Cir. 2003).

Accordingly, the issue of whether there is (or is not) "corresponding structure" disclosed in the specification for performing the claimed functions, and if so what that structure may be, is deferred to summary judgment proceedings.

"second switch means for connecting said dedicated memory address, data, and control lines of said path configuring means to said dedicated memory address, data and control lines of said CPU respectively"

The Court agrees with Intel that this limitation should be construed as a means-plus-function limitation under 35 U.S.C. § 112, P 6. As with the "first switch means," Mitchell argues that "second switch means" should not be construed as a means-plus-function limitation under § 112, P 6. Mitchell provides essentially the same arguments as it did in reference to "first switch means," except that here, Mitchell argues that the claim language identifies the location of the "second switch means" between the dedicated memory address, data, and control lines of the path configuring means and the dedicated memory address, data and control lines of the CPU. However, for the same reasons discussed above with regard to "first switch means," "second switch means" is construed as a means-plus-function limitation under § 112, P 6.

Similarly, also for the same reasons discussed above, the Court declines to adopt the parties' proposed "constructions" of the stated function, as well as Intel's proposed additional language. The stated function of the "second switch means" is "connecting said dedicated memory address, data, and control lines of said path configuring means to said dedicated memory address, data and control lines of said CPU respectively."
Also for the reasons discussed above, the issue of whether there is (or is not) "corresponding structure" disclosed in the specification for performing the claimed function, and if so, what that structure is, is deferred to summary judgment proceedings.

9. Claim 10: "switched" "Switched" is construed to mean "the mode in which the bypass is on or utilized."

D. Switched Telephone Network

Protus requests that the Court construe the term "switched telephone network" as the circuit switched telephone network." Catch Curve argues that the Court should construe the term as "a system for handling telephone calls."

As discussed above, the Court finds that the asserted claims require the use of facsimile protocol - a digital dialogue over the "switched telephone network." The patents confirm that the term "switched telephone Network" refers to the standard worldwide telephone network, and hot the packet switched network used for sending e-mails. (Roberts Decl. at 12.) "Moreover, the file history indicates that, in trying to overcome "a prior art rejection, the patentee argued that "the present application and invention presumes the existence of a switched telephone network." (Protus Ex. G, at CC_P 124677.)

Protus requests that the Court insert the "switched telephone network" term into the definition of all fax-related claims. However, the Court does not believe this is necessary. When a machine operates using "fax protocol," it necessarily is sending fax messages over the switched telephone network. By including the terra "fax protocol" in the fax-related terms, the Court has already complied with Protus' request.

Furthermore, the Court agrees with Catch Curve that Protus' definition is redundant. However, the Court does not agree that the "switched telephone network" term can have the broad definition that Catch Curve proposes. Thus, the Court finds that the term "switched telephone network" may be understood according to its ordinary and customary meaning and does not require construction.

14. Switched wide area network

The parties do not dispute the meaning of the term "switched." Foundry submits that a "wide area network" is defined as "a communications network designed for large geographic areas." Lucent urges the court to construe "switched wide area network" to mean "a switched data network that covers a large geographic area." After considering the submissions of counsel, the court construes "switched wide area network" to mean "a switched communications network designed for large geographic areas."

During claims construction, the court construed the terms "port," "switching/ transferring," and "session." The parties agreed on the construction of "PPP state," "PPP session" and "dormant/dormant PPP session," and the court adopted the agreed-upon construction of those terms.

The court construed "port" as "a defined physical or logical connection where data enters or leaves a network device."
The court construed "switching" and "transferring" as "shifting or reassociating PPP state to another session associated with the new call set-up message."

The court construed "session" to be "a PPP session."

The parties' agreed upon construction of "PPP Session" is "the time during which a communications device and a network access server are maintaining a negotiated PPP state."

The parties' agreed upon construction of "PPP State" is "a set of parameters negotiated pursuant to PPP sufficient for a PPP session."

Based on the parties' agreement at the claims construction hearing, the court construed "dormant" as "no active data transfer for a predetermined period of time allowing reallocation of resources, but from which active data transfer can resume more efficiently than it could from an inactive state."

Based on the parties' agreement at the claims construction hearing, the court construed "dormant PPP Session" as "a PPP session in a dormant state."

9. User Actuated Switching Means

The Court finds that the term "user actuated switching means" in Claims 1, 8, and 13 invokes a means-plus-function limitation. The presumption of a limitation has not been rebutted by the inclusion of a structure sufficient to perform the function of switching the computer system between the three states described in the claims while preventing the transfer of data between the networks. Therefore, the Court looks to the specifications to determine whether there is some corresponding structure necessary to perform that function.

Citec notes that the Patent provides examples of a switch as a switching means: "A user chooses between the activating of two networks by using a two position switch which activates one of the networks or the reset switch." Col. 2, ll. 10-13. The Patent identifies the type of two position switch more particularly as a "rotary, rocker, or push button." Col. 2, ll. 13-14. The file history contains an Amendment dated January 29, 1998, which adds the limitation "user actuated" to the term "switching means" in Claims 1, 8, and 13. The Remarks to the Amendment indicate clearly that the present invention provides a computer system which employs a user actuated switching means, which may either be a mechanical switch or a password security system/software program, to switch the computer between a first network state, a second network state, and a reset state. The '551 Patent however omits any reference to the use of a password security system or software program to perform the function of switching the computer between states.

Romtec defines the phrase by reference to the specifications as "a rotary, rocker or push button two position switch constructed so that it is impossible to switch between the two networks before first activating the reset switch to prevent data from being transferred between two networks." See Col. 2, ll. 13-18. It notes that in the preferred embodiment, the switching means is coupled to the first and second networks by lines that connect to the interrupt request 31st line and the chip select zero 37th line of the storage means, and to the network cards through activate lines, and that "coupled" in that context is depicted as cuts to lines. See Col. 3, ll. 34-38, 42-44. This structure appears to perform the function of switching the computer between the three states described in the claims. Therefore, the Court adopts Romtec's proposed claim construction and construes the term "user actuated switching means" to mean a rotary, rocker, or push button two position switch (1) actuated by a user, (2) coupled to the first and second networks and to the network cards in the manner described in the specifications (as the term "coupled" is defined below), and (3) constructed so that it is impossible to switch between the two networks before first activating the reset switch to prevent data from being transferred between the networks, and equivalents.
14. "switching means"

The parties dispute whether "switching means" is a means-plus-function limitation governed by 35 U.S.C. § 112 P 6. MOSAID acknowledges, as it must, that the claim term includes the word "means" and, therefore, is presumptively a means-plus-function limitation. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1369 (Fed. Cir. 2002). But MOSAID argues that this presumption is rebutted for one of two reasons: 1) the term itself is structural, and 2) even if it is not structural, the claim recites sufficient structure for the identified functions. Defendants on the other hand argue that this term is a means-plus-function limitation because it is not a structural term and fails to recite sufficient structure for each function identified in the claims.

MOSAID argues that the term "switching" is structural in nature. MOSAID asserts that even if "switching" does not call to mind any particular structure to one of ordinary skill in the art, as long as it imparts structure of some fashion it is sufficient to rebut the means-plus-function presumption. (1/5/04 MOSAID Opp. Br. at p. 47). According to MOSAID, a "switching means" is structural because it means a circuit or apparatus that employs switches.

MOSAID cites to three cases where claim terms including the word "means" were found not to be means-plus-function limitations because, in addition to the structure recited for performing the claimed functions, the terms themselves were structural in nature. Cole v. Kimberly-Clark Corp, 102 F.3d 524, 530-31 (Fed. Cir. 1996) (construing the term "perforation means"); Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364-65 (Fed. Cir. 2000) (construing the term "baffle means"); General Creation LLC v. Leapfrog Enters., Inc., 232 F. Supp. 2d 661, 671-73 (W.D. Va. 2002) (construing the term "switch means"). In each of those cases, the court found that the term, e.g., perforation, baffle and switch, possessed an ordinary meaning that imparted structure and thus rebutted the presumption that § 112 P 6 applies.

In this case, however, the word "switching" is not structural in nature; it is a verb that expresses action. In fact, one of MOSAID's cases distinguished between "switch means," which it considered structural, and "switching means," which it stated "was clearly in means-plus-function format." Leapfrog Enterprises, 232 F. Supp. 2d at 673; see also Overhead Door Corp. v. Chamberlain Group, Inc., 194 F.3d 1261, 1271 (Fed. Cir. 1999) (finding that "first switch means" and "memory selection second switch means" were properly considered by the district court to be means-plus-function limitations).

Further, MOSAID has failed to carry its burden of showing that the ordinary meaning of the term "switching" is structural in nature. In sharp contrast to the cases that MOSAID cites to, where the parties submitted dictionary definitions to show that the ordinary meaning of the word contained structure, MOSAID fails to submit a dictionary definition showing that the word "switching" is structural. Instead, MOSAID asserts through attorney argument that the ordinary meaning of "switching means" is a circuit or apparatus that employs switches. Accordingly, MOSAID's argument that "switching means" is itself structure is insufficient to overcome the presumption of § 112 P 6.

MOSAID also contends that "switching means" is not a means-plus-function limitation because the claim recites sufficient structure to perform the claimed function. In order to determine the function or functions of the claim term "switching means," the particular claim language must be examined. Claim 1 of the '201 patent, which includes the claim term "switching means," recites in relevant part:

Switching means including a first switch between one level of the voltage supply and the first terminal of the boosting capacitor and a second switch between the first terminal of the boosting capacitor and a capacitive load, the first and second switches being driven by clock signals, the switching means alternately connecting the first terminal of the boosting capacitor to the voltage supply and to the capacitive load while alternating the level of the voltage supply connected to the second terminal of the boosting capacitor to pump the voltage on the capacitive load to a boosted voltage level greater than and of the same polarity as the DC voltage supply to provide a boosted voltage supply. '201 patent, claim 1 (emphasis added).

MOSAID contends that the claimed function is "to pump the voltage on the capacitive load to a boosted voltage level greater than and of the same polarity as the DC voltage supply." 31 MOSAID then relies on this function to argue that sufficient structure is identified in the claim to rebut the means-plus-function presumption.
31 Originally, MOSAID identified the claimed function as including "alternately connecting the first terminal of the boosting capacitor to the voltage supply and to the capacitive load." (7/18/03 MOSAID's Reply Exh. A at p. 15). MOSAID never revealed to this Court why it discarded that function for its current, proposed function.

MOSAID's asserted function misconstrues the plain claim language. MOSAID's identified function is not a function, but a result of the functions that the "switching means" performs. Claim 1 of the '201 patent requires the "switching means" to perform two different functions. First, it "alternately connect[s] the first terminal of the boosting capacitor to the voltage supply and to the capacitive load." '620 patent, claim 1. Second, it "alterna[es] the level of the voltage supply connected to the second terminal of the boosting capacitor." Id. When the switching circuit performs these two functions, the result is that the voltage level in the capacitive load is boosted higher. See, e.g., '201 patent, col. 4, 1.51 - col. 5, 1. 9.

Having identified the claimed functions, the Court must then identify the corresponding structure for each of those functions. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001); Epcon Gas Sys., Inc. v. Bauer Compressors, Inc., 279 F.3d 1022, 1033 (Fed. Cir. 2002) ("The district court did not err in requiring that 'corresponding structure' include at least that structure necessary to perform each of the functions recited as being performed by the 'control means' in claim 16."). Although the claim does recite structure that corresponds to the first function of "alternately connecting," i.e., the first and second switches, the claim does not recite any structure for the second function of "alternating the [voltage] level." This lack of structure confirms that "switching means" is indeed a means-plus-function limitation, and requires the Court to look to the specification to identify corresponding structure.

"Structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed. Cir. 1997). The parties agree that the structure for the first function includes transistors 23 and 24, and the structure for the second function includes 25 and 26. 32 Defendants, however, also contend that the clock signals, e.g., [PHI][1]<+> and [PHI][2]<+>, that drive those transistors are corresponding structure. MOSAID disagrees and argues that clock signals are voltage levels and, therefore, cannot be corresponding structure. MOSAID has the better argument. The clock signals are clearly voltage levels that are applied to the gates of the transistors. See, e.g., '201 patent, col. 4, 11. 8-11. Therefore, the structure identified by the written description corresponding to the first function is transistors 23 and 24, and the structure corresponding to the second function is transistors 25 and 26.

32 The Court agrees that these transistors are corresponding structure as recited by the written description of the '201 patent. '201 patent, Fig. 3 and col. 3, 1.35-col. 5, 1. 49.

Lastly, the Defendants argue that the patentees disclaimed the use of clock sources to charge the boosting capacitor in the "switching means." The disclaimer of clock sources to charge the boosting capacitor was discussed earlier in the context of the '620 patent. See Section 11 supra. Since the '201 patent is related to the '620 patent, having issued from an application that was a continuation of the '620 application, its specification is materially identical to the '620 specification. Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc., 98 F.3d 1563, 1579 (Fed. Cir. 1996) (Mayer, J., concurring) ("By definition, a continuation adds no new matter and is akin to an amendment of a pending application."). Accordingly, for the same reasons articulated above that found a disclaimer applies, the same disclaimer "without using clock sources to charge the boosting capacitor" applies to "switching means."
The specification defines the switching member as a transistor. (621 patent, col. 6, ll. 57-58) The court shall apply the ordinary definition of the word "transistor." The term "transistor" means "a solid state electronic device that is used to control the flow of electricity in electronic equipment." 2

The phrase "switching member" shall be construed to mean "a solid state electronic device that is used to control the flow of electricity in electronic equipment."

Footnotes


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1. "switching network . . . for establishing a communications link"

The text of claim 14 is set forth below with the key disputed term highlighted in bold type.

A multiprocessor computer system comprising:

a. a plurality of processing units;

b. at least one data storage array system, each having at least one array controller;

c. at least one switching network, coupled to the plurality of processing units and to at least one array controller of at least one data storage array system, for establishing a communications link between at least one selected processing unit and at least one data storage array system.

HP asks the Court to construe this term as: "A component or set of components to which multiple nodes can attach and that selectively enables giving, receiving, or exchanging of information, signals and/or data among attached nodes." EMC proposes: "A circuit switch, not contained within a data storage array system, that is capable of establishing a dedicated path from any input node of the switch to any output node of the switch." The critical dispute between the parties is whether the term "broadly covers both circuit switching' and packet switching" or whether it is limited to "circuit switching." EMC's Response to HP's Opening Claim Construction Brief ("EMC's Response"), p. 12.

The plain language of the claim indicates that a switching network establishes a communications link between the processing units and the data storage array system by coupling to them and that a plurality of processing units is coupled to a switching network. Thus, there must be multiple connection points between the processing units and the switching network. This conclusion is consistent with HP's construction.

Nothing in the claim language limits "switching network" to a particular type of "switch." The switching network only need be coupled to the processing units and the data storage array system by coupling to them and that a plurality of processing units is coupled to a switching network. Thus, there must be multiple connection points between the processing units and the switching network. This conclusion is consistent with HP's construction.

Although the specification does not support importation of the limitation suggested by EMC, it does provide clarification as to the intended meaning of "switching network." That is, a switching network must be capable of coupling any node to any other node. See, e.g., 638:5/25-26 & 5/3840. Dictionary definitions are consistent with this view. For example, "switch" is defined as "a network infrastructure component to which multiple nodes attach," and "network" is defined as "an interconnect that enables communication among a collection of attached nodes." See Landgraff Decl., Separate Appendix, vol. 2, pp. 0324-26 (A Dictionary of Storage Networking Terminology). A person of ordinary skill in the art would
understand a switching network to mean a component or a set of components to which multiple nodes can attach and that selectively enables transferring of information, signals, or data among the attached nodes.

EMC also contends that the switching network must not be located within the data storage array system. However, nothing in the intrinsic evidence supports such a limitation. In the prosecution history cited by EMC, the patentee distinguished the invention from the prior art on the ground that a switching network was used between the processors and the disk storage array system, while the prior art described the use of a switch between the array controller and the storage units. See Landgraff Decl., Separate Appendix, vol. 2, p. 0285. The distinction does not concern the physical location of the switch but rather where the switch is placed logically in the system in relation to each component. Logically, the switching network must be between the processors and the disk storage array system.

Accordingly, the Court construes this term as "a component or set of components to which multiple nodes can attach and that selectively enables transferring of information among attached nodes."

2. "switching network means . . . for establishing a communications link" The text of claim 1 is set forth below, with the key disputed terms highlighted in bold type.

A multiprocessor computer system comprising:

a. a plurality of processing units;

b. at least one data storage array system, each having at least one array controller;

c. switching network means, coupled to the plurality of processing units and to at least one array controller of at least one data storage array system, for establishing a communications link between at least one selected processing unit and at least one data storage array system.

This claim is expressed in means plus function format, and the Court therefore construes it pursuant to 35 U.S.C. § 112, P 6. HP defines the function as "establishing a communications link between at least one selected processing unit and at least one data storage array system." Because HP's proposal is consistent with the plain language of the claim, the Court will adopt it.

HP defines the corresponding structures as found in "Figs. 2, 3A, 3B, 4; Col. 5:1-6:45." See HP's Opening Brief, p. 13. HP thus asks the Court to construe this term as: "A component or set of components to which multiple nodes can attach and that selectively enables giving, receiving, or exchanging of information, signals and/or data among attached nodes, having structures that are the same as or substantially equivalent to those found in Figures 2-4 and described at Columns 5:1-6:45."

EMC defines the structure more narrowly, proposing: "A circuit switch, not contained within a data storage array system, that is either a cross-point or multi-stage switch that is capable of establishing a dedicated path from any input node of the switch to any output node of the switch, as described in Col. 5, 11 4-51 and shown in Figs. 3 A and 3B."

EMC's argument is persuasive in part. The structures described in Figures 3A and 3B and in Column 5, lines 4 through 67 clearly are associated with the function of establishing a communications link between at least one selected processing unit and at least one data storage array system. See Texas Digital Sys., Inc., 308 F.3d at 1208. In contrast, while Figures 2 and 4 show a "switching network," they do not provide the structure of the "switching network," but instead show the "switching network" as part of the overall system configuration. Similarly, the text in the written description corresponding to those figures does not clearly link the function of the switching network means to its structure.

When the patent specification describes multiple embodiments, each of those embodiments may be claimed pursuant to 35 U.S.C. § 112, P 6. Serrano v. Telular Corp., 111 F.3d 1578, 1583 (Fed. Cir. 1997). The structures described in Figures 3A and 3B and in Column 5, lines 4 through 67 generally "may be of any suitable N x N type, capable of directly coupling any node to any other node." The figures and written description also describe specifically "an N x N cross-point switch or an N x N multi-stage switch" as disclosed in Column 5, lines 7 through 51. The written description additionally indicates that the switching network may comprise fiber optic or wired links and is fault -- tolerant and that the switch may be a dual switching network. Accordingly, the structure of the "switching network means for establishing a communications link" is "any suitable N x N type switching network, capable of directly coupling any node to any other node in addition to the
specific embodiments disclosed in Figures 3A and 3B and Column 5, lines 7 through 67."

2 Because it need not determine in the context of claim construction whether Figure 3B (a multi-switch) includes the possibility of "packet switching," the Court will reserve judgment on the issue. The parties may describe the disclosed structure further in the infringement analysis.

--- Footnotes ---

The term "switching structure" appears in Claims 49 and 50 of the '863 patent, and in context reads "switching structure coupled to said interface structure for switching certain select ones of said individual callers at said remote terminals to any one of a plurality of live operators wherein said live operators can enter at least a portion of said caller data relating to said select ones of said individual callers through interface terminals, which is stored in said record structure."

The plaintiffs contend that this term is not subject to means-plus-function analysis because the term "switch" is well known to those experienced in computer telephony and it brings to mind structure to those of skill in the art. The plaintiffs argue that switching structure should be defined as "hardware with associated software used to route calls." (Pls.' Appendix at 164).

The defendants contend that the term "switching structure" is subject to analysis under 35 U.S.C. § 112, ¶ 6 because the term lacks a sufficiently definite structure such that one of skill in the art would not know what structure to build without more information than is provided in the claim. The defendants argue that in the passages that discuss the switching structure, including Column 5, lines 51-55; Column 7, lines 13-17; Column 10, lines 45-52; and Column 11, lines 8-12 of the '863 patent, Katz did not disclose structure to perform the entire function performed by the means, which is switching callers to a live operator, where the live operator enters caller data for storage in the record structure.

During the Markman hearing, all of the experts referred to "switches" in their discussion of computer telephony at the time of the Katz patents. Similarly, the term "switch" was often used in contemporary references and prior art referred to by the parties at the hearing. The Court concludes that, based on these examples of the state of the art and the testimony of the experts, the term "switching structure" does not implicate 35 U.S.C. § 112, ¶ 6. The Court concludes that the term would have connoted a specific set of structures to those of ordinary skill in the art. Thus, based on the claim language and the specification, the Court construes the term "switching structure" to mean: a device including hardware and associated software that can switch or route telephone calls or signals from one location or connection to another.

--- End Footnotes ---

3. "symbol"

The parties dispute the meaning of the term "symbol," which appears throughout most of the claims of the patent. The point of contention is whether a symbol may exist pre-modulation, i.e., in an unmodulated form. (Tr. at 82:13-15). Plaintiff argues that the inventor imparted a particular meaning with respect to "symbol," one that differs from its ordinary meaning. Plaintiff contends that "symbol" should be construed as "the modulated waveform resulting from a single iteration of the modulator." (Chart at 6). Plaintiff relies on the specification for both the '322 Patent and the '447 Patent to support its definition.

Plaintiff refers to the portion of the '322 Patent's specification which states:
By way of example, as part of the initialization process of the system the control unit 36 can control the transmitter 18 to transmit two consecutive symbols the second of which is the negative of the first (i.e. if the first symbol has a waveform of f(t), then the second has a waveform of -f(t)), resetting the transmit symbol counter to a count of zero immediately after the transmission of the second symbol.

'322 Patent, col. 7, ll. 27-34. Plaintiff contends that this language specifies that a symbol must have a waveform. Plaintiff further relies on the disclosure of the '447 Patent, which is incorporated by reference, to support its argument that the waveform must also be modulated. See '322 Patent, col. 1, ll. 11-28. Specifically, the '447 Patent states: "The b[total] bits in each multicarrier symbol are modulated in modulator 16 by N separate carriers with b[j] bits modulated by the i<--th> carrier." '447 Patent, col. 1, ll. 29-31 (emphasis added). In light of both specifications, Plaintiff concludes that a "symbol" must be a modulated waveform. Plaintiff includes the phrase "resulting from a single iteration of the modulator" in its proposed construction based on its understanding that a symbol becomes a modulated waveform as a result of "a corresponding cycle of operation or 'iteration' of the modulator." (Pl.'s Opening Br. at 19).

Defendants assert that Plaintiff's proposed construction is overly restrictive and unsupported by the intrinsic evidence. At the hearing, Defendants explained that the '322 Patent disclosure supports their assertion that a symbol exists prior to modulation. (Tr. at 82:19-84:14). According to Figure 2 of the '322 Patent, which is a functional block diagram of the invention, Defendants assert that the parties do not dispute that modulation occurs at IFFT, D-A, Filter, & Line Interface 34. (Tr. at 83:17-21); see also '447 Patent, col. 1, ll. 32-35 (describing the use of an Inverse Fast Fourier Transform (IFFT) during modulating). Defendants also argue that symbols interact with the trellis coder and the transmit symbol counter. (Tr. at 82:24-83:6). Defendants reason that symbols must exist prior to modulation if they are in fact involved with the transmit symbol counter and the trellis coder, before they even reach the unit 34 which is responsible for modulation.

The Court finds Defendants' reasoning persuasive. The Court agrees that Figure 2 suggests symbols need not be in modulated form. Plaintiff's reliance on the '447 Patent is misplaced for two reasons. First, the excerpt cited by Plaintiff refers to Figure 1 of the disclosure which represents a basic multicarrier transmitter and receiver as known in the prior art, not an embodiment of the invention claimed. See '447 Patent. col. 1, ll. 19-21. Second, the excerpt describes what takes place as the symbols are processed by the modulator. Not surprisingly, the symbols become modulated. This is not sufficient to support the conclusion that symbols are always modulated. Defendants also accurately note that the inventors themselves distinguished between modulated and demodulated symbols in the specification. Focusing on Figure 3 of the '447 Patent, and Column 1, lines 52 to 54 which states: "The general structure of a DMT system is illustrated in Fig. 3 where [X[0], X[1], . . . X[N-1]] are the original, complex, input data symbols, [X[k]] is the modulated data sequence," it is clear that the inventors distinguished between symbols that are modulated and those that are not. '447 Patent, col. 1, ll. 52-54. Therefore, the Court concludes that a symbol does exist prior to modulation, which renders Plaintiff's proposed construction incorrect and overly restrictive. Moreover, the Court finds no basis for imposing the additional restrictive language that the modulated waveform results from "a single iteration of the modulator."

Having concluded that a "symbol" may exist prior to modulation, the Court must now construe the term. There is no competent evidence before the Court that reflects the technical meaning of "symbol," except for the opinion of Defendants' expert. 15 Dr. Williams opines that "symbol" would be understood by a person of ordinary skill in the art as "a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver." (Williams Report, P 85). Given the lack of other viable choices, the Court will adopt this definition.

15 Defendants do submit a general dictionary definition of "symbol." (Defs.' Reply at 14). That definition is "an object used to represent something abstract." WEBSTER'S NEW WORLD DICTIONARY 598 (1995). However, this general definition does not comport with how that technical term is used in the claim. Defendants also submit a technical dictionary definition for "symbol."Defs.' Opening Br. at 9. That definition, however, cannot be taken into consideration because it was set forth in a dictionary that was not published until three years after the patent issued, and therefore may not reflect the meaning of the term as used in the patent.

Accordingly, the Court construes disputed term [15] "symbol" to mean "a finite, pre-selected representation of the
The main issue presented to the Court concerns the claim limitation "symbol count" which pervades most of the asserted claims in the '322 Patent. The Court construed the term "symbol" as "a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver." (Markman Op. at 40). Globespan argues that the accused products do not meet the "symbol count" limitation because the counters in the accused products purportedly only count time. Globespan contends that a period of time cannot be a "symbol" in light of the Court's construction because time is not a representation of information. (See Pl.'s Opp'n to Defs.' Mot. for Summ. J. ("Pl.'s Opp'n") at 6 ("The Court did not rule that the terms 'symbol' or 'symbol count' means 'a period of time.'") (emphasis in original)). Thus, Globespan contends that the accused products cannot satisfy the "symbol count" claim limitation.

Defendants disagree and argue that the Court's construction of "symbol" encompasses a period of time or "symbol period." Defendants argue that the accused products meet this limitation based on the undisputed fact that the counters in the products count symbol periods. This dispute presents a claim construction issue, that is, whether the Court's construction of "symbol," which has been defined as "a finite, pre-selected representation of the information to be conveyed from the transmitter to the receiver," includes time. The Court concludes that it does.

At the outset, the Court notes that Globespan failed to raise the argument that the claim term "symbol" should be construed to exclude periods of time in their claim construction briefs and at the Markman hearing. Instead, Globespan argued that the term "symbol" should be construed as "the modulated waveform resulting from a single iteration of the modulator." (Chart at 6; Tr. of Markman Hr'g at 81:18-22, 84:17-86:15). After performing its claim construction analysis, the Court rejected Globespan's proposed construction and adopted Defendants' broader one. (See Markman Op. at 38-40).

Just as Globespan failed to identify any basis upon which to exclude time from the claim construction during the Markman process, Globespan continues in failing to provide the Court with any factual or legal support sufficient to warrant the adoption of a narrower construction for the claim term. Thus, the Court concludes that time falls within the definition of "symbol." There is no indication in the claim language, specification or prosecution history to indicate that a person of ordinary skill in the art would construe the term "symbol" as excluding time. See Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (reaffirming the importance of the intrinsic evidence, especially the specification, when construing claim terms).

Plaintiff argues that a preferred embodiment in the specification suggests that counting is limited to symbols that exclude time. Plaintiff cites the portion of the specification which states:

Preferably the counts at the transmitter and receiver are synchronized by the steps of: transmitting symbols in accordance with a predetermined criterion from the transmitter and setting the count at the transmitter to a predetermined state in dependence upon such transmission; and detecting received symbols satisfying the predetermined criterion at the receiver and setting the count at the receiver to the predetermined state in dependence upon such detection.

(Pl.'s Opp'n at 9 (quoting '322 Patent, col. 3, ll. 18-26)). This portion of the specification, however, describes the process of synchronizing counts at the transmitter and receiver and does not provide any indication that time must be excluded from the definition of "symbols." Indeed, the portion of the specification that describes the step of identifying a "symbol" by a "symbol count" similarly bears no indication that time is excluded from the definition. See '322 Patent, col. 2, ll. 61-64 ("Preferably the step of identifying symbols comprises maintaining a count identifying transmitted symbols at the transmitter and maintaining a count identifying received symbols at the receiver.").

Having clarified the construction of the term "symbol" as encompassing time, Globespan's argument that the accused products do not infringe the '322 Patent because they count time, as opposed to "symbols," must fail.
2. Terms Which Depend on the Construction of "symbol count"

Disputed term [14] is "identifying symbols transmitted by the system by a symbol count," and disputed term [16] is "symbol count." Because the construction of both terms depends on how the Court construes "symbol count," the Court will analyze these terms together. The terms are found in Claims 1 to 19 of the '322 Patent. The issue presented is whether the "count" identifying transmitted symbols is limited to a count of individual symbols, or includes a count of groups of symbols.

Plaintiff argues that the language of the patent indicates that the "identifying" step of the claim "requires that a symbol count be associated or linked with each symbol, in a way that individually distinguishes that symbol from other symbols." (Pl.'s Opening Br. at 19). Focusing on the language of Claim 1, Plaintiff notes that in addition to the "identifying" step, the claim recites the step of "communicating . . . information identifying a change in said parameter and a symbol count for implementing said change." (Id. at 20 (emphasis in original)). Plaintiff argues that because the claim uses the term "change" in the singular form, the "identifying" step should be limited to individual "symbols" in order to maintain consistency.

Plaintiff also focuses on language in the specification which states: "Preferably the step of identifying symbols comprises a count identifying transmitted symbols at the transmitter and maintaining a count identifying received symbols at the receiver. Conceivably, however, each symbol could instead or additionally be identified by transmission of the symbol count as part of the symbol itself . . . ." '322 Patent, col. 2, ll. 61-67 (emphasis added). The patentees' use of the word "each," Plaintiff contends, evinces the patentees' intent that the identification of symbols is a process only involving individual symbols. (Pl.'s Opening Br. at 20). Further, Plaintiff offers a dictionary definition for the term "identity." According to Webster's New World Dictionary, "identity" is defined as the "state or fact of being a specific person or thing; individuality." WEBSTER'S NEW WORLD DICTIONARY 292 (1995).

Defendants' proposed construction for "symbol count," namely "a count of symbols, either individually or by groups," is based on the plain language of the claims and the specification. Defendants assert that the claim language does not limit counting by individual symbols. Rather, the language of the claims may be read to allow counting by groups of symbols. Defendants further argue that the specification provides an even stronger basis for their position. Defendants posit that the patentees acted as their own lexicographer by providing a meaning for the term "symbol count" in the specification. The specification reads as follows:

   In addition, the transmit and receive symbol counters need not be incremented once for each symbol, but instead could for example be incremented after every N symbols, where N is an integer greater than one; for example N=68. In this case the implementation of the changes is similarly determined in relation to the counts, for example coincident with the boundaries between groups of N symbols.

'322 Patent, col. 11, ll. 55-62 (emphasis added). Thus, Defendants argue that the patent's disclosure specifically describes counting by groups of symbols, and not only by individual symbols. (Tr. at 77:13-78:16).

The Court finds that the specification supports Defendants' proposed construction for the term "symbol count." Although one portion of the specification describes incrementation by the symbol counter occurring after the transmission or reception of each symbol, a subsequent portion expressly discloses that incrementation may occur after groups of symbols. See '322 Patent, col. 7, 11. 9-13; col. 11, ll. 55:62. The specification also describes the term "symbol count" as a process that identifies or links symbols, not only one symbol, as they are transmitted or received through the symbol counter. '322 Patent, col. 2, 11. 61-64. Furthermore, the plain language of the claims supports this construction. For example, Claim 4 refers to "maintaining a count identifying transmitted symbols at the transmitter and maintaining a count identifying received symbols at the receiver." '322 Patent, col. 12, 11. 18-21. The word "symbols" is plural. Accordingly, the Court concludes that disputed term [16] "symbol count" means "a count of individual or groups of symbols."

As for the remainder of disputed term [14], Plaintiff submitted a dictionary definition for the term "identify." This term is defined as "to connect or associate closely." WEBSTER'S NEW WORLD DICTIONARY 292 (1995). The Court will adopt the ordinary meaning of "identify" in its construction. Therefore, the Court concludes that disputed term [14] "identifying symbols transmitted by the system by a symbol count" means "connecting or associating a symbol count with individual
A. "symbol information for uniquely identifying the symbol" / "symbol information"

In the joint claim construction statement, the parties presented a single construction for the claim terms "symbol information for uniquely identifying the symbol" and "symbol information." Defendants, for the first time at oral argument, argued that these two terms should be construed separately. The Court rejects this new argument and construes these terms together as they were presented in the joint claim construction statement. Cognex argues that these terms should be construed as "information in the data field of the symbol that is different for and unique to each symbol in the nature of an electronic fingerprint." Defendants believe the inclusion of "electronic fingerprint" is not appropriate and proffer "information within a symbol that uniquely identifies the symbol."

The '524 Patent is directed to "an identification symbol system for an object." '524 Patent, claim 1. The language of the claims and of the specification teaches that a symbol, formed on or affixed to substrate associated with the object, can be used to identify the object, and that the rectilinear data matrix design of the symbol system provides flexibility in the number of different and unique symbols available in an application of the symbol identification system. There is no dispute between the parties that the '524 Patent teaches that symbols are unique within a specific application of the symbol identification system, and that the '524 Patent does not teach that symbols must be unique across applications of the symbol identification system. Thus, the Court concludes that there is no need for the inclusion of the term "electronic fingerprint" in the construction of the disputed terms. The Court construes the terms "symbol information for uniquely identifying the symbol" and "symbol information" as "information within a symbol that uniquely identifies the symbol."

8. Symmetrical Power and Ground

All of the power and ground leads on the memory module are positioned in such a way that when the memory module is inserted into the connector backwards, all of the power and ground leads on the module line up with comparable power and ground leads on the connector, thereby avoiding damage to the computer or module.

14. The dictionary defines "symmetrical" and "symmetric" as "1. having, involving" symmetry, which in turn is defined as "1. balanced proportions . . . 2. the property of being symmetrical; esp: correspondence in size, shape, and relative position of parts on opposite sides of a dividing line or median plane or about a center or axis." The preferred hexagonal base arrangement disclosed in the specification exhibits "correspondence in size, shape, and relative position of parts" both "on opposite sides of a dividing line or median plane" and "about a center or axis." Thus, "symmetrically disposed" bases would be understood to be bases arranged to correspond in relative position either on both sides of a dividing line or median plane or about a center or axis. Because the bases defining this three-dimensional material are polygonal, this material also would be polygonal in the same sense described above as to the bases themselves. 8

7 Pertinent to '725 Claims 8 and 24 and '767 Claim 7, discussed later, the Court notes that those claims do not include a "symmetrically disposed" requirement.

8 IXYS contends that "symmetrical spacing requires identical spacing between each side of a particular cell and the corresponding sides of the cells adjacent to that cell." (Gwozdz Rebuttal Report, p. 21.) However, only claims not asserted against IXYS ('725 Claims 7, 17 and 21 and '767 Claim 5) recite that the polygonal bases are "equally spaced," a
requirement not stated in the asserted claims. Thus, equal spacing between bases -- which is a separate requirement expressly recited in only unasserted claims -- should not be included in a narrow definition of "symmetry" in the asserted claims not requiring equal base spacing. Indeed, the specification states that in "FIG. 2 the axis 120 is the axis of symmetry 120 that is shown in FIG. 1 ("725 Col. 5, lines 3-4)." An "axis of symmetry" is "a straight line with respect to which a body or figure is symmetrical", Webster's Ninth Collegiate Dictionary, p. 121 (definition of "axis"), which suggests that "correspondence in size, shape, and relative position of parts on opposite sides of a dividing line" is sufficient "symmetry" for purposes of the claims.

--- End Footnotes ---

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15. Synchronization

The parties dispute what is meant by the term "synchronization." Seven's proposed construction is "updating the client and server databases to reflect changes that have happened since the last connection." Visto's construction is "merging data from the client database with the data from the data store." In the context of these claims, "synchronization" means "updating the client and server databases to reflect changes that have happened since the last connection."

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P. Synchronization Agent

Visto contends that "synchronization agent" means "software routines or code that send at least a portion of second version information to a general synchronization module for purposes of synchronization." Seven argues that the term means "a computer software module located on a global server outside the firewall-protected corporate LAN that forwards second version information to a general synchronization module within a firewall-protected corporate LAN." Again, Seven has incorporated the "global server" limitation into its definition of the term and has also limited the location of the synchronization agent to a place outside a firewall-protected corporate LAN. These limitations are not warranted. As such, the court defines the term "synchronization agent" to mean "software routines or code that send at least a portion of second version information to a general synchronization module for purposes of synchronization."

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B. The '617 Patent

The parties have requested that the Court interpret the meaning of the term "synchronization signal" found in claims 1, 2, and 6 of the '617 patent. The term is used in the same manner in all three claims. Claim 1 is representative:

A scanning apparatus for scanning an object to generate three-dimensional data, comprising a scanner mounted on a multiply-jointed arm for movement by an operator to scan the object to capture data from a plurality of points on the surface of the object, the scanner comprising:

- a light source operable to emit light onto the object surface; and

- a light detector operable to detect light reflected from the object surface by recording reflected light at recording times defined by a synchronization signal;

- a position calculator for calculating the position of the multiply-jointed arm, and outputting position data defining the position in response to a trigger pulse; and

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a trigger pulse generator for receiving the synchronization signal for the light detector defining the recording times thereof, and, in response thereto, generating and outputting trigger pulses to the position calculator to cause the position calculator to output position data for each of at least some of the recordings by the light detector; and

a three dimensional data generator for receiving recorded data output by the light detector and associated position data output from the position calculator, and for processing the data to generate three-dimensional data related to the object.

'617 patent col. 29, ll. 34-60. The parties agree that the terms "light detector" and "camera" are interchangeable.

Metris argues that "synchronization signal" should be construed as a "signal used to synchronize (coordinate in time) events or actions." Faro advances a narrower definition: "a series of electrical timed electrical signals defined by the camera which are generated to define when the scanning device captures the reflected light." The present dispute focuses on the portion of the definition underlined above.

While not contesting that the signals at issue are "electrical," Metris argues that the plain language of the claim does not require that the synchronization signal be "defined by the camera." Claim 1 requires that the light detector record "reflected light at recording times defined by a synchronization signal." '617 patent, col. 29, ll. 44-45. Later in the claim, it also requires that the "trigger pulse generator" receive the "synchronization signal for the light detector defining the recording times thereof." '617 patent, col. 29, ll. 49-50 (emphasis added). There is no claim limitation restricting the origin of the synchronization signal.

Faro contends that Claim 1 requires that the camera (or "light detector") define the recording times of the synchronization signal. With respect to the language relating to the trigger pulse generator, Metris argues that the word "defining" modifies "synchronization signal," so that the synchronization signal defines the recording times for the light detector. As discussed at the Markman hearing, the word "defining," read in isolation, plausibly could be read to modify the term "light detector" which it follows directly. However, if that were the intended meaning, the word "for" would likely not have been used. Moreover, earlier, the claim provides that the recording times of the camera are "defined by a synchronization signal." '617 patent, col. 29, ll. 45. No language in the claim compels Faro's conclusion that the synchronization signal is "defined by the camera," in the sense of emanating from it. When the word "defining" is read in combination with other claim language, Metris' reading is more logical. Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.").

To the extent that there is any ambiguity (which there is not), the patent specification amply supports Metris' construction. The specification states that "there are many methods" of performing the synch and trigger function. '617 patent, col. 25, ll. 12-13. It goes on to indicate "[o]ne method," in which the synchronization signal comes "from a CCD camera 25." '617 patent, col. 25, ll. 13-14 (emphasis added). Earlier in the specification, however, the synchronization signal "is fed into the high resolution camera 25 and the colour camera 29." '617 patent, col. 10, ll. 61-62 (emphasis added). As illustrated in Figures 6 and 24 of the patent specification, the synchronization signal may come from the camera or go to the camera 3:

GET DRAWING SHEET 6 OF 24
GET DRAWING SHEET 19 OF 24

A claim should almost never be construed to exclude one of the embodiments found in the specification. Vitronics Corp. v. Conceptronic, 90 F.3d 1576, 1583 (Fed. Cir. 1996) ("Such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support, which is wholly absent in this case.").

--- Footnotes ---

3 In these images, item 25 represents the camera, and items 61 and 240 are both identified as synchronization signals. In Figure 6, the synchronization signal moves from a synchronization generator to the camera. '617 patent, col. 10, ll. 60-62. In Figure 24, the synchronization signal moves from the camera to electronic circuitry. '617 patent, col. 25, ll. 13-15.

--- End Footnotes ---
To support its construction, Faro resorts to the prosecution history. In the Patent Office's Notice of Allowability, the examiner stated, "[T]he cited prior art fails to teach or suggest the features of receiving the synchronization signal for the camera defining the recording times thereof, and, in response thereto, generating and outputting trigger pulses to the position calculator to cause the position [sic] to output position data for each image recorded by the camera." (P.'s Ex. B. 380.) From this thin bullrush, Faro seeks to build a pyramid, arguing that the language demonstrates that the examiner intended to grant a patent only for a synchronization signal that was generated "by the camera." (P.'s Br. 22.) However, as Metris points out, in the prosecution history quoted above, the examiner merely restated the proposed claim verbatim, as is indicated by the examiner's use of quotation marks. The examiner never uses the words "defined by the camera" in the quoted portion of the prosecution history.

Nothing in the claim language, the specification, or the prosecution history compels the claim construction that the synchronization signal must be defined "by the camera".

**CLAIM CONSTRUCTION**

*The term "synchronization signal" is construed as an electronic signal used to coordinate events or actions.*

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T. Synchronization-start module

This term is used in various claims of the '192 patent, the '131 patent, and the '708 patent. The court defines synchronization-start module to mean "software routines or code which initiate the synchronization process." The court has previously rejected Seven's attempt to import location limitations into the claim terms when those limitations are otherwise absent from the claims. This term is no different. The intrinsic record reveals that the synchronization-start module includes a group of software routines which instruct the general synchronization module to begin the synchronization process. However, the court does not read the claims or the specification to require, necessarily, that the synchronization-start module be located within a firewall-protected corporate LAN. See, e.g., '131 Patent, Col. 5, ll. 50-55 ("It will be appreciated that communications with the synchronization agent 126 preferably initiate from within the corporate LAN 1135, because the typical corporate firewall prevents in-bound communications and allows out-bound communications.") (emphasis added).

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1. Synchronizing

The parties ask the Court to construe "synchronizing" as used in Claim One of the '216 Patent, where the inventors claimed "[a] method of synchronizing a mobile radiotelephone in a cellular digital mobile radiotelephone network." '216 Patent at 8:62-64. IPCom proposes that synchronizing means merely "[b]ringing the mobile station's operation in step with the corresponding operation of a base station." Chart at 1. HTC proposes that synchronizing means "[b]ringing a mobile station's operation in step with the corresponding operation of a base station by performing processes that evaluate a continuously running phase angle calculated from burst signals received from the base station." Chart at 1.

While HTC's proposed construction finds support in the specification, see '216 Patent at 3:9-1 ("The synchronization method of the invention is based on the evaluation of a continuously running phase angle . . . ")), it confuse Claim One and Claim Two and therefore cannot be adopted. Phillips, 415 F.3d at 1315. Claim Two of the '216 Patent depends from Claim One and describes the "further steps of: calculating (continuous evaluation of) a phase angle from sequences of pairs of values . . . and thereafter performing a continuous evaluation of said calculated phase angle." '216 Patent at 9:49-54. Given the specificity of Claim Two's disclosed method and the generality of Claim One, HTC's proposed construction erroneously conflates the two.
HTC argues strenuously that the evaluation of phase angles is the only disclosed mechanism for every claimed substep. While this is a slight overstatement, since substep (1.1) does not evaluate phase angles, it remains basically accurate. The point is, however, that Claim One — the only independent claim in the '216 Patent — does not reveal how to accomplish its method. Those particulars are in the dependent claims that follow. Indeed, the prosecution history reflects the understanding of the Patent and Trademark Office (PTO) that the invented method resided in the multiple steps, not in "phase course" analysis. IPCom's Opening Br., Ex. 5, Prosecution History at 1194 ("none of the references teaches or suggests the arrangement of the steps of initial synchronization, normal synchronization and extended synchronization with the substeps of each respective step in order to form a method of synchronization"); see also Tr. 2/16/10 at 43 (IPCom).

HTC additionally argues that the inventors clearly limited the scope of the invention by three statements:

- The synchronization method of the invention is based on the evaluation of a continuously running phase angle, which is calculated again and again from an in-phase component I and a quadrature component Q. '216 Patent at 3:9-12.
- The method of the invention is based on evaluation of phase angle many times per bit interval. Id. at 3:48-49.
- For taking best advantage of evaluating phase angles by I, Q samples, it is important to utilize the various different transmitted synchronization bursts in accordance with the various steps that usefully make up the various aspects of the invention. Id. at 8:47-52.

An inventor may disclaim or disavow the scope of a claim in the specification. Phillips, 415 F.3d at 1316. To limit the scope of his own patent, a patentee must have had "a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (6th Cir. 2004). "In that instance . . . the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification is regarded as dispositive." Phillips, 415 F.3d at 1316.

While the specification in the '216 Patent describes evaluation of phase angles, no expressly limiting language is used in Claim One. The focus of Claim One is the method of sequential steps and substeps, not the precise contours of how one practices the invention. Claim One is not bounded by the limitations of relying on evaluating phase angles, as these limitations appear in dependent claims and not in Claim One. Given the structure of the '216 Patent, the Court cannot conclude that Claim One is so limited.

The Court construes "synchronizing" to mean "bringing the mobile station's operation in step with the frame and frequency of a base station." 6

6 While IPCom proposed that synchronizing means "[b]ringing the mobile station's operation in step with the corresponding operation of a base station," see Chart at 1, at the Markman hearing, counsel for IPCom conceded that it is more accurate to define synchronizing as the Court defines it here. See Tr. 2/16/10 at 40 (IPCom).

17. "synchronizing signal"

Power-One proposes "a signal that identifies the start of a communication cycle," while Artesyn proposes "a clock signal that synchronizes the timing of multiple devices with one another for purposes of communication." Claim 1 of the '916 patent requires a POL regulator be adapted "to initiate a communication cycle by providing a synchronizing signal onto a serial data bus followed by a multi-bit data message that includes at least one of an address set, a command set, and a data set." Claim 5, which depends from claim 1, recites that "said synchronizing signal further comprises a clock pulse that pulls said serial data bus to a low state." Thus, from the broad claims in the '916 patent, a "synchronizing signal" "initiate[s] a communication cycle" and is "followed by a multi-bit data message" that includes an address set, a command set and/or a
The "synchronizing signal" of the claims corresponds to the "start sequence" described in the patent specification, as the start sequence in the specification is at the beginning of a communication cycle and is followed by the sets recited in the claims. '916 patent, col. 4:18-25, Fig. 5.

Artesyn uses the term "clock signal" in its proposal. The '916 patent specification describes a "clock signal" that synchronizes the various communicating devices and creates a series of clock cycles, each one including a data bit. '916 patent, col. 4:4-7. This "clock signal" is not described as initiating a communication cycle and it is not followed by a multi-bit message. Artesyn's proposed construction for the "synchronizing signal" of the claims appear to be more descriptive of the "clock signal" described in the specification that is used to transmit the data bits that comprise the address set, the command set and the data set. As the claims recite, these aspects follow the "synchronizing signal."

Power One's proposed construction accurately describes the start sequence described in the specification, which performs the function of the "synchronizing signal" in the claims. Accordingly, the Court construes this term as "a signal that identifies the start of a communication cycle."

2. "packet data" and "synchronous data"

The plaintiff proposes that "packet data" means "variable bit rate data" and "synchronous data" means "constant bit rate data." The defendants propose that "packet data" means "data that is transmitted in packets" and "synchronous data" means "constant bit rate data that is not transmitted in packets." Both parties appear to agree that "synchronous data" refers to constant bit rate data. The dispute is whether "packet data" can also include constant bit rate data.

The specification defines these terms:

The present invention relates to data communications, and more particularly to communications systems that have channelized network access, and may transport both synchronous data and variable-bit-rate data such as frame relay data (hereafter referred to as packet data), in a time-division multiplexed format.

'858 patent, 1:8-11.

Contrary to the defendants' arguments, the patent defines "variable bit rate data" as "packet data," and the court adopts this construction. Moreover, the court defines "synchronous data" as "constant bit rate data."

Synchronous digital network virtual container

The Court does not adopt either party’s proposed construction and construes the term as “an information payload that can be transported across a digital network that uses time-division multiplexing such as SDH or SONET.” Ciena argues that the term should be construed as “SONET or SDH virtual container.” Ciena contends that the specification and prosecution history indicate that a person of ordinary skill in the art would understand synchronous digital network virtual container as a virtual container for only SDH or SONET networks. In support of its construction, Ciena points to the abstract and specification of the patent. The abstract states, “Each port card comprises a conventional frame based data port, a frame switch, a rate adapter means and a mapping means for mapping data frames into a plurality of SDH virtual containers.” See alsoCols. 7:49-51; 7:63-8:2; 10:53-54. Ciena argues that the specification only references SDH virtual containers. However, Ciena concedes that the file history supports a definition of “virtual container” that also includes the SONET standard.

Nortel argues that the term should be construed as “a data channel that can be combined with other such data channels and
transported across a synchronous digital network.” Nortel contends that the term should not be construed to limit “synchronous digital network” to only the SONET and SDH standards. The parties agree that the term “synchronous digital network” should be construed as a “digital network that uses time-division multiplexing such as SDH or SONET.” Nortel argues that this construction of “synchronous digital network” indicates that SONET and SDH are examples of synchronous digital networks but does not limit the term to only SONET and SDH networks. Nortel contends that to construe “synchronous digital network virtual container” as limited to only SONET and SDH data channels would be inconsistent with the agreed construction of “synchronous digital network.” In further support of its argument that the term should not be limited to only the SDH and SONET data channel, Nortel points to Column 7, Lines 11 through 14 of the specification, which state, “A set of STM frames are assembled to contain a plurality of virtual containers which are carried as an STM payload as illustrated in FIG. 4 herein.”

The portion of the specification cited by Nortel indicates that a virtual container is carried as an information payload. Furthermore, the specification does not limit virtual container to a data channel such as SDH or SONET and to construe the term with such a limitation would be inconsistent with the parties agreed construction of “synchronous digital network.” Accordingly, the Court construes the term “synchronous digital network virtual container” as “an information payload that can be transported across a digital network that uses time-division multiplexing such as SDH or SONET.”

3. Synchronous Memory Device

a. Proposed constructions

Hynix argues that "synchronous memory device" should be construed to mean "a memory device in which an external clock is used for timing purposes." Rambus counters that the term should be construed as "a memory device in which address, input data and control signals are recognized and output data signals are transferred in response to an external clock." The parties agree that a "synchronous" memory device is one in which at least some operations are synchronous with respect to an external clock. See, e.g., Hynix's Resp. CC Br. at 12. The parties disagree, however, over whether "synchronous" requires that all operations on the memory device be timed with respect to an external clock, or whether some operations on the memory device can be "asynchronous" while executing other operations as "synchronous." 10

10 Both parties agree that "synchronized" means "having a known timing relationship with respect to." Opp. at 6 n.2.

b. Claim language

11 of the 15 patents in suit have claims reciting the limitation "synchronous memory device." Claim 1 and asserted claim 2 of the '263 patent, for instance, recite:

1. A synchronous semiconductor memory device having at least one memory section which includes a plurality of memory cells, the memory device comprises:

        a programmable register to store a value which is representative of a delay time after which the memory device responds to a read request.

2. The synchronous memory device of claim 1 further including output drivers, coupled to an external bus, to output data on the bus, in response to the read request, synchronously with respect to an external clock.
Although claiming a "synchronous memory device," nothing in the text of claim 1, upon which claim 2 depends, excludes some asynchronous operations. In addition, claim 1 does not explicitly require that address, input data and control signals be provided synchronously. Notably, claim 1 uses the term "comprises" in describing a memory device with a programmable register, thus apparently not closing the claim to asynchronous elements. See Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1271 (Fed. Cir. 1986) ("The term comprising' denotes a patent claim as being open,' meaning that the recitation of structure in the claim is open to additional structural elements not explicitly mentioned."); M.P.E.P. § 2173.05(h) (6th Ed. 1996); see also '152 patent, cl. 11.

c. Ordinary meaning

Hynix offers definitions of "synchronous" from two dictionaries. Webster's Ninth New Collegiate Dictionary (2d ed. 1989) defines synchronous as:

1: happening, existing, or arising at precisely the same time; 2: recurring or operating at exactly the same periods; . . . 4a: having the same period; also: having the same period and phase.

The Oxford English Dictionary (2d ed. 1989) defines synchronous as:

1.a. Existing or happening at the same time; coincident in time; belonging to the same period, or occurring at the same moment, of time; contemporary; simultaneous . . .; b. . . . Relating to or treating of different events or things belonging to the same time or period; involving or indicating contemporaneous or simultaneous occurrence. . . .

2.a. Recurring at the same successive instants of time; keeping time with; going on at the same rate and exactly together; having coincident periods, as two sets of vibrations or the like. . . . b. Electr. Applied to alternating currents having coincident periods; also to a machine or motor working in time with the alternations of current. . . . c. Computer and Telecommunications. Of apparatus or methods of working: making use of equally spaced pulses that govern the timing of operations. . . .

The Authoritative Dictionary of IEEE (Institute of Electrical and Electronics Engineering) Standards Terms (5th ed. 1993) ("IEEE Dictionary") defines "synchronous" as:

A mode of transmission in which the sending and receiving terminal equipment are operating continuously at the same rate and are maintained in a desired phase relationship by an appropriate means.

Rambus offers the IEEE Dictionary (4th ed. 1988) definition of "synchronous computer," a "computer in which each event or the performance of each operation, starts as a result of a signal generated by a clock." See also THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 1141 (7th ed. 2000).

In contrast, the IEEE Dictionary (5th ed. 1993) defines "synchronous device" more broadly, as "[a] device whose speed of operation is related to the rest of the system to which the device is connected." See also THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 1141 (7th ed. 2000).

Rambus argues that "synchronous memory device" should be defined in the same way as "synchronous computer." In addition, Rambus argues that articles cited by Hynix's expert, David Taylor, all refer to DRAMs that persons of ordinary skill in the art would refer to as "asynchronous DRAMs." Murphy Reply Decl. P 13. In contrast, the IEEE definition of "synchronous device" does not require that every operation be synchronous, but that the device's "speed of operation" be related to the rest of the system to which it is connected. Hynix also suggests that DRAMs in the late 1980's and early 1990's that timed all inputs and outputs to an external clock were more often referred to as "fully synchronous." 11 Taylor Decl. P 21.

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As discussed supra, the Federal Circuit construed "bus" as having its ordinary meaning, and not limited to a "multiplexed bus." Here, there is no clear statement that a "synchronous memory device" must exclude asynchronous functions. Considering the changing nature of bus architecture, the scope of claims in Rambus's related SDRAM patents covering both memory devices and synchronous memory devices, and the lack of any clear statement defining "synchronous memory device" as requiring that all operations be synchronous, a broader construction of memory device than the one offered by Rambus is warranted.

d. Specification

The specification does not use or define the term "synchronous memory device." Rather, Rambus contends that numerous references in the specification imply a memory device where address, input data and control signals are required to be synchronous. The specification references that Rambus cites, however, in large part discuss a clocking scheme in the context of a multiplexed bus architecture. See, e.g., '263 patent col. 8, 11. 8-32. The specification states, for instance, that "another object of this invention is to provide a method for transferring address, data and control information over a relatively narrow bus and to provide a method of bus arbitration when multiple devices seek to use the bus simultaneously." Id. at col. 3, 11. 25-29. The implication that address, data and control information must be asserted in response to an external clock, however, stems from the multiplexed bus limitation.

Although it appears that address, data and control information must be asserted in response to an external clock in order to work with the described bus architecture, nothing in the specification expressly requires it. As with the term "bus," here "none of Rambus's statements constitute a clear disclaimer or disavowal of claim scope." Infineon II, 318 F.3d at 1095. Without a clear disclaimer in the specification, Rambus's attempt to narrow "synchronous memory device" based on references to a multiplexed bus in the specification is not persuasive.

e. Subsequent briefing

During the claim construction hearing, and in light of the original briefing, the court proposed the construction: "a memory device that receives an external clock to govern the response timing of the memory device's operation(s)." Hynix notes that such a construction would cover devices in which the timing of data input and output is governed by an external clock, and finds the construction acceptable. Pl.'s Supp. Memo re: "Synchronous Memory Device" and "Packet" at 2. Rambus also finds the court's tentative construction acceptable if the words "response timing" are replaced by the phrase "the timing of input and output operations" to clarify that input and output timings must both be governed by an external clock. Def.'s Supp. Memo re: "Synchronous Memory Device" and "Packet" at 1. Although the parties agree that the specification discloses a preferred embodiment in which both inputs and outputs are governed by an external clock, as discussed earlier, it appears from the claims that Rambus's construction is too narrow. The court finds that the language of the claim supports the definition of "synchronous memory device" as "a memory device that receives an external clock signal which governs the timing of the response to a transaction request."

4360

A. "synchronously"

The district court construed the phrase "shifting to a power on state synchronously with a received timing of a beacon signal" to mean "shifting to a power-on state at the same time a beacon signal is to be received." Fujitsu Ltd. v. Netgear, Inc., 576 F. Supp. 2d 964, 976 (W.D. Wis. 2008)(Markman Order). Below, Netgear argued that the claim required that the beacon signal activate the mobile station. The district court rejected this argument based on the plain language of the claim. Id. It held that "synchronously" does not require that the beacon signal control the mobile station, only that the beacon signal and the power on happen "at the same time." Id.

Fujitsu argues that the district court's construction is too narrow. It argues that the term "synchronously" does not mean "at the same time." It argues that the term means that "the shifting to a power-on state has a temporal relationship with the beacon signal so that the beacon signal can be received." It argues that the specification does not support the district court's
construction. Fujitsu points first to figure 18, which shows a first step of "Power-on (Beacon Receiving Timing)" followed by "Receive Power-Saved Station Control Beacon." Further, it points to figure 19 and argues that it shows a power-on timing before the beacon signal, rather than at the same time. Finally, Fujitsu argues that the district court erred because its construction raises possible issues with patentability. It argues that by construing "synchronous" to mean "at the same time," the district court improperly required a physical impossibility because a system cannot cause two things to happen at precisely the same time. It argues that this brings the patentability of the claims into question and that the courts should construe claim terms to avoid this issue.

Netgear responds that the district court was correct, the term "synchronous" must mean "at the same time." According to Netgear, Fujitsu's arguments regarding the figures are not persuasive because, for example, figure 19 shows a short "ramp-up" period that simply allows the mobile station to be at full power at the same time it receives the beacon signal. Netgear also argues that this construction of synchronously does not require a physical impossibility. It argues that we addressed a similar situation in Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075, 1088 (Fed. Cir. 2009), and held that the term "real-time" necessarily means a "non-zero amount of time." In other words, Fujitsu argues that "synchronously" may mean "at the same time," but that this will not require the physical impossibility of two things happening at the same instant.

We hold that the proper construction of the term is "just before or at the same time." This is the only construction consistent with the specification. For example, the specification shows in figure 19 that the mobile station powers on just before the received timing V1 of the beacon signal:

[SEE FIGURE 18 IN ORIGINAL]

Further, figure 18 includes a flow chart with a first step of "power-on (beacon receive timing)" and a second step of "receive . . . beacon," which further supports that these two events need not happen "at the same time." The district court's construction, urged by Netgear, is too narrow because it requires the term "synchronous" to mean "simultaneous." This would be in direct contradiction to the disclosure of the '642 patent as evidenced by figures 18 and 19. We cannot do as Netgear asks and strue the term "synchronously" to mean "at the same time." Fujitsu's proposal--some temporal relationship between the beacon and the power-on timing--is too broad and amounts to nothing more than a required ordering. It would only require that the mobile station power-on sometime before the beacon is sent. This ignores the power saving purpose of the invention and is not supported by the specification. The object of the invention involves timing the beacon signals and power-on timing "so that an improved . . . power-saving can be realized." '642 patent col. 3 ll.45-46. Fujitsu's proposed construction would allow for any temporal relationship, even if the mobile station powered-on long before the beacon signal thus wasting valuable power resources. Reading the claim language in light of the specification, we construe the term to mean "just before or at the same time." 2

2 We agree with Netgear that the "at the same time" portion of the construction does not require a physical impossibility. As in Paragon, the phrase "at the same time" takes into account technological constraints and necessarily means a "non-zero amount of time." 566 F.3d at 1088.

--- Footnotes ---

--- End Footnotes ---
Defendant contends that in Claim 6 the claim term "the system" is indefinite because it lacks an antecedent basis. However, "[w]hen the meaning of the claim would reasonably be understood by persons of ordinary skill when read in light of the specification, the claim is not subject to invalidity upon departure from the protocol of 'antecedent basis.'" Energizer Holdings v. ITC, 435 F.3d 1366, 1370 (Fed. Cir. 2006). Furthermore, as noted above, in general, Defendant faces a difficult task in establishing by clear and convincing evidence that a claim term is indefinite.

In attempting to make this showing, Defendant notes that the specification appears to disclose multiple embodiments of the ticketing "system" of the invention. For instance, Defendants contend that Figure 1 of the specification discloses a "system" that includes the home computers of ticket buyers, while none of the claims seem to explicitly include this particular component. (D.I. 57 at 18.) In these circumstances, Defendant contends that claim 6 is indefinite because it "gives no indication as to which of these different systems it is supposed to be connected." (D.I. 57 at 19.) Notwithstanding the lack of antecedent basis for the term "system," the Court is unpersuaded that the disclosure of multiple embodiments of the "system" of the invention renders Claim 6 "insolubly ambiguous" such that "no narrowing construction can properly be adopted." Praxair, 543 F.3d at 1319. In this regard, the Court notes that Figure 1 of the specification includes a description of "the system architecture of the preferred embodiment of the present invention," which includes a data center, venues, and terminals. '809 patent at 2:29-39. The specification goes on to describe the makeup and function of these components. See id. at 2:29-3:50. In its Answering Claim Construction Brief, Plaintiff explains that the "system" is the "entire set of computers, databases, and mechanical or optical equipment used to buy and sell tickets and grant or deny access to sports venues." (D.I. 60 at 38.) In the Court's view, this fairly captures the descriptions of the "system" set forth in the specification. Accordingly, the Court will construe the claim term "system" to mean "the entire set of computers, databases, and mechanical or optical equipment used for electronically exchanging paperless tickets for an event in a secondary market from ticket sellers to buyers."
degree of uncertainty and indefiniteness to the construction of the patent. In response to this argument, Intergraph now states that it is willing to accept a modified version of Toshiba's construction: "a bus having multiple masters and through which the primary memory communicates with the cache memory." This is Toshiba's proposed construction replacing the phrase "each system element that accesses primary memory" with "the cache memory." The main dispute, therefore, is whether the term "system bus" must be construed to require that every component communicates with the main memory via the system bus. Under Toshiba's proposed construction, all components that communicate with the main memory must be able to do so via the system bus, though other communication channels may be available. Under Intergraph's proposed construction, only the cache memory must be able to communicate with the main memory via the system bus. The other components need not be able to use the system bus to communicate with the main memory.

In support of its proposed construction, Intergraph raises only two arguments, one based on claim language superfluity and the other based on the prosecution history. First, Intergraph points to Claim 1 of the '846 patent, which includes the element "system bus monitoring means for monitoring I/O requests over the system bus." According to Intergraph, because Toshiba's construction would require all I/O requests to go over the system bus, the phrase "over the system bus" in Claim 1 would be superfluous under Toshiba's construction. In response, Toshiba claims that the phrase "over the system bus" specifies the location where the monitoring takes place, not where the communication occurs.

Additionally, Intergraph argues that the prosecution history does not indicate that Intergraph adopted Toshiba's interpretation of the system bus. In particular, the Examiner initially rejected claims 16-40 of the '835 patent application, claims that recited a "system bus," as obvious based in part on U.S. Patent No. 4,701,844. Pl's Exh. M at 5. The '844 Patent discloses a system bus involved in communications between the CPU and the "Main Memory," but also discloses other paths for communications with the Main Memory. Pl's Exh. F. This, Intergraph asserts, demonstrates that Intergraph's understanding of the term "system bus" during prosecution did not require that all communications with the primary memory take place over the system bus. As Toshiba points out, however, nothing in the prosecution history shows that Intergraph ever advanced the interpretation set forth in the '844 Patent during prosecution. Furthermore, at the time the PTO rejected the claim based on the '844 Patent, the PTO also cited JP Application No. 58-58666, which teaches a system bus as shown in the Intergraph application. Def's Exh. M at 5. Taken together, these two prior art references show not only that Intergraph had no reason to adopt one reference over the other, but also that both types of system bus were present and understood in the prior art. In light of this ambiguity, the court looks to the patent specification for clarification.

Turning to the specification, Toshiba claims that the '846 Patent and the '835 Patent each require the system bus 141 to be the central system artery that provides the pathway for the system elements to access the main memory. '846 Patent at 4:22-25, 4:40-42, 15:17-20; '835 Patent at 1:45-62, 2:1-4. Intergraph's expert, Dr. Wolfe, confirmed this conclusion, stating that the specification has no technical disclosure of alternatives for the system bus. Def's Exh. 2, Wolfe Dep. at 40:21-41:10, 53:23-57:2, 58:3-11, 64:17-20. The diagram denoted Figure 1, which is common to the two patents, clearly shows that all communications between any component and the main memory pass through the system bus.

Additionally, the specifications of the two patents differentiate between different buses, including the I/O bus, the cache/processor instruction bus, and the cache/processor data bus. The claims of the '846 Patent also identify different types of buses, in particular the "processor bus" as opposed to the "system bus." '846 Patent, Claim 17. Toshiba claims that Intergraph's proposed construction would eliminate this distinction between the system bus and other buses which is explicitly drawn in the claims and specification. Dr. Wolfe was unable to identify any language in Intergraph's proposed construction of "system bus" that would not also apply to the processor buses, and acknowledged that the proposed construction does not differentiate between buses based on purpose. Def's Exh. 2, Wolfe Dep. at 101:16-105:17, 111:24-112:18, 122:23-123:2.

Toshiba also points to the context of the claim language in support of its interpretation. Claim 1 of the '846 Patent recites "a system bus coupled to the primary memory," "a first data processing element coupled to the system bus for processing data from the primary memory," and "cache memory management means, coupled to . . . said system bus" including "a cache memory for storing data from said primary memory" (emphasis added). Toshiba asserts that this language comports with the system bus being the sole pathway to the main memory in light of the written description. Additionally, Claims 1 and 9 each recite "data consistency means" that include a system bus monitoring means to monitor I/O requests "over the system bus." Toshiba claims that because the only monitored I/O requests affecting this data consistency are directed to the main memory, they must traverse the system bus. Toshiba additionally claims that Intergraph's statement of the invention confirms Toshiba's construction of "system bus." The stated aim of the invention is to ensure data consistency between the cache and the main memory, and

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this is achieved by a cache controller that monitors the system bus and maintains data consistency. Toshiba claims that monitoring "system bus" transactions would not ensure data consistency if data could flow into and out of the main memory through channels other than the system bus. Def's Exh. 1 P 64. As discussed above, the data consistency function of the invention is important where components other than the cache memory are communicating with the main memory. For example, if an I/O device alters data in the main memory, the system bus monitoring means detects the change and reacts appropriately to ensure data consistency between the cache memory and the main memory. Because the system bus monitoring means monitors the system bus only, if I/O devices could alter data in the main memory through channels other than the system bus, the system bus monitoring means would fail to detect the data modification, and the data consistency operation would not be triggered. Under such circumstances, one of the key aims of the invention--maintaining data consistency between the cache memory and the main memory--would be thwarted.

In response, Intergraph argues that its data consistency mechanism can operate in a computer containing a separate pathway other than the system bus for I/O to access primary memory. According to Intergraph, in such a configuration data consistency could be maintained where an I/O request is sent over the system bus and monitored by the system bus monitoring means. This argument appears wholly irrational. Intergraph appears to confirm that data consistency is attained only where I/O requests are sent over the system bus, which supports Toshiba's argument. In other words, if the goal of the invention is data consistency and data consistency is only maintained for communications passing through the system bus, then the only reasonable interpretation is that all communications must pass through the system bus.

Toshiba further claims that Intergraph's construction would render the patents invalid as non-enabling. In particular, the fact that the specification teaches only a system whereby all main memory communications to go over the system bus would render invalid a claim that covers main memory communications that do not involve the system bus. While this type of invalidity argument is inappropriate at the claim construction stage, the court is mindful of the tenet that claims should be construed to avoid invalidity.

Finally, Toshiba claims that Intergraph knows that its construction is wrong, pointing to previous statements by Intergraph's CEO and an Intergraph expert in a prior litigation indicating that all communication involving the main memory passed through the system bus. Defs' Exhs. 5 & 8. Intergraph responds that these references are irrelevant, and that they express opinions not relied upon by Intergraph. Intergraph further claims that the CEO opinions cited by Toshiba referred to a configuration in which I/O data was not required to go over the system bus to access memory, and that the expert report did not address whether all communication with the main memory took place over the system bus. Because it is not clear that the specific issue at hand here--whether all communications with the primary memory in the claimed system must pass over the system bus--were at issue in the contexts of these previous statements, the court affords this evidence little weight.

Focusing, as the court should, on the intrinsic evidence available, Toshiba's position that the system bus must carry all communications with the primary memory is correct. The cited references support both readings, but the patent itself uniformly treats the system bus as a component carrying all main memory communications. Intergraph does not seem to dispute the treatment of the system bus in the patent itself, or point to anything in the specification suggesting that communications with the main memory can take place via paths not involving the system bus. Furthermore, Intergraph's superfluity argument is unconvincing. Even if the court were to reject Toshiba's argument regarding the meaning of the phrase at issue, the inclusion of this phrase could easily be interpreted as adding clarity to the claim rather than specifying a particular limitation. In any case, superfluity is not so rigid a doctrine as to require the court to disregard the unambiguous teachings of the specification itself. Finally, Toshiba is correct that Intergraph's broad construction would confuse the system bus with other, distinct buses disclosed by the patents.

In sum, the court adopts Toshiba's construction of "system bus": "a bus having multiple masters and through which the primary memory communicates with each system element that accesses primary memory."

4364

3. System Bus

A "system bus" is a plurality of shared signal lines that interconnects more than two agents for transmission of data, address, and control signals. The system bus must be capable of accommodating multiple requesting agents. If multiple requesting agents are present, arbitration determines access to the system bus.
II. System Bus Means

The term "system bus means" appears in Claim 1 of the '835 Patent. The clause at issue is "system bus means, coupled to the primary memory, for communicating data with the primary memory means." The parties disagree as to whether the term is a means-plus-function element.

The use of the word "means" raises a strong presumption that Section 112(6) applies. Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1427 (Fed. Cir. 1997). However, "where a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format." Id. at 1427.

During prosecution, Intergraph canceled certain claims that recited "system bus" and replaced them with claims that recited "system bus means," Pl's Exh. N at 2, lending further support to the contention that "system bus means" is not coterminous with "system bus." In response, Toshiba cites a patent attorney's opinion from an earlier litigation, in which the attorney opined that Section 112(6) did not apply to the term "system bus means." Defs' Exh. 11 at 8 & 15.

In light of the above discussion and construction of the term "system bus," the term "system bus monitoring means" recites sufficient structure to perform the function of "communicating data with the primary memory means." Accordingly, "system bus means" is not a means-plus function term.

7. "system clock" ('002 and '222 patents)

The Special Master found that "the familiar word 'clock' may have the potential to engender some confusion in the mind of a reasonable juror." Rejcting constructions offered by both sides he recommends that "system clock operably connected to the processor to provide a time base" be construed to mean an element, made up of hardware, software, or some combination of the two, that provides electrical signals at a precise frequency to the processor. 107

The Court agrees with the Special Master that the term should be construed for the ordinary juror and that by its plain language the claim requires that a "clock" provides more than interrupts. The Court adopts the claim construction as follows:
the term "system clock operably connected to the processor to provide a time base" is construed to mean an element, made of up hardware, software, or some combination of the two, that provides electrical signals at a precise frequency to the
The plaintiffs propose "a circuit that generates the signal(s) used for timing the operation of the CPU." The defendants contend that the term means "a circuit that is itself responsible for determining the frequency of the signal(s) used for timing the operation of the CPU." The dispute is whether the circuit alone is responsible for determining the frequency of the signal.

A system clock does not generate the signal alone because the timing can be derived from the ring oscillator. '336 patent, 16:63-67. Accordingly, the Court adopts the plaintiffs' proposed construction.

J. "system controller," "comparator," and "classifier" 36

The phrase "system controller" is used in claims 1, 8, 9, 13, 14, 15, 16, 17, 18, 19, 20, 25, 26, 27, 28, 30, 32, 33, 35, 36, 37, 38, 39, 40, 41, and 42 of the '259 patent. The word "comparator" is used in claims 21, 22, and 29 of the '259 patent. The word "classifier" is used in claims 21, 23, and 24 of the '259 patent.

1. ADE's Position

ADE asserts that a plain and ordinary meaning of "system controller" should be adopted by the Court and suggests that the Court construe the phrase to mean "hardware, software or some combination thereof for controlling the system in whole or in part." (D.I. 595 at 29.) ADE says that "comparator" should mean "hardware, software, or some combination thereof, capable of being configured to receive and compare signals." (JCCS at 17.) ADE also argues that "classifier" should be construed to mean "hardware, software, or some combination thereof, capable of being configured to classify defects." (Id.)

2. KLA's Position

KLA does not "believe that a material dispute exists concerning" the meaning of "system controller." (D.I. 615 at 12 n.4.) KLA, however, suggests that "system controller" means "electronic hardware or an electronic hardware/software combination." (D.I. 575 at 8.) KLA asserts that the "comparator" should mean "electronic hardware or an electronic hardware/software combination configured to receive and compare the signals." (JCCS at 17-18.) "Classifier," asserts KLA, should be construed to mean "electronic hardware or an electronic hardware/software combination configured to classify defects as pits or particles based at least in part on the comparison." (Id.)

3. Analysis

The claim term "system controller" is described in the '259 specification. The terms "comparator" and "classifier" are not.

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37 However, "comparator" and "classifier" are plain and ordinary words. In the dictionary, a "comparator" is defined as "a device for comparing something with a similar thing or with a standard measure," and the definition of "classifier" is "a machine for sorting out the constituents of a substance." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 211, 233 (10th ed. 2002). Nothing in the specification or intrinsic record dictates a more restrictive definition. The Court, therefore, construes "comparator" to mean a device for comparing something with a similar thing or with a standard measure and "classifier" to mean a machine for sorting out the constituents of a substance.

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37 ADE directs the Court's attention to col. 11 II. 24-36 of the '259 patent specification for a construction of the claim terms "comparator" and "classifier." (JCCS at 17.) KLA points the Court to the same intrinsic evidence it cited for a construction of the claim term "system controller" ('259 Patent at Figures 1, 3, and 7; col. 7 II. 54-60; col. 8 I. 55 to col. 9 I. 10). (Id. at 8, 17.)

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As to the term "system controller," the inventors specified that "the system controller … operates the inspection system … under the supervision and direction of a human operator, stores and retrieves data generated by the system …, and performs data analysis preferably responsive to predetermined commands." (D.I. 627, '259 Patent Prosecution File History, '259 Patent at col. 8 II. 27-31.) The inventors further specified that "the surface inspection system … as illustrated in FIG. 7, and as understood by those skilled in the art, preferably is formed of a combination of software and hardware which forms these various components, or combinations thereof, of the system …." (Id. at col. 9 II. 5-10.) The Court, therefore, construes "system controller" to mean a combination of software and hardware operated under the direction of a human operator that is capable of storing and retrieving data generated by the system and of performing data analysis on said data, preferably responsive to predetermined commands.

4369

System database

The Court modifies Autobytel's proposed construction and construes the term as "a database in the Data Center system." Dealix argues that the term should be construed as "a collection of related data stored in one or more computerized files in a manner that can be accessed by users or computer programs via a database management system used by the Data Center system." Dealix's proposed construction comes from the IEEE Dictionary's third listed definition of "database." Dealix argues that the "ambiguous and sometimes contradictory way in which the patent specification refers to the system database and the Data Center Programs in relation to the storage medium 106" requires extrinsic evidence to provide a proper construction to the term. Autobytel contends that Dealix's construction is too limiting and proposes that the term should be construed as "a database associated with the Data Center system." Autobytel relies on the specification's discussion of the system database, which is shown as storage medium 106 in Figure 1, see Col. 6:43-54, and particularly the portion that states, "In an alternative embodiment, the database may conform to any database standard, or may even conform to a non-standard, private specification." Col. 6:45-47. Autobytel contends that the specification supports a wide variety of database implementations and is not limited to the use of a database management system.

The Court agrees with Autobytel that there is no need to look to extrinsic evidence such as dictionaries to construe the term. Furthermore, the Court agrees that the specification supports a wide variety of database implementations and is not limited to the use of a database management system. However, the Court does not agree with Autobytel that the database is simply "associated" with the Data Center system. The Court agrees with Dealix that the word "system" is a reference to the Data Center system. Accordingly, the Court construes the term such that the database is "in" the Data Center system.

4370

5. "system for managing financial instruments"
Southwest argues that "system for managing financial instruments" means "a data processing system, software, display, keypad, and printer," whereas 3T argues that it means a "network of devices and employees that interact to manage financial instruments." Southwest and 3T provide little guidance for their proposed constructions.

The Court finds that Southwest's proposed construction lacks specification support and does not follow the language of claim 11. The Court finds that the 3T's proposed construction for the term "system" is more appropriate for the commonly understood meaning of the term if the extraneous term "employees" is eliminated. Thus, the Court construes the term "system for managing financial instruments" to mean "network of devices that interact to manage financial instruments."

4371

a. "System monitor"

The term "system monitor" appears in Claims 22, 24, 25, and 26. In each of these claims, the "test signal generator" from independent Claim 1 comprises a "system monitor." n6 Claim 22 discloses a "system monitor" without qualification. A series of dependent claims that includes Claims 24 through 26 places limitations on the system monitor. The term first appears in the description of the preferred embodiment:

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n6 In its prior order, the court stated that in Claim 22, "the test signal generator' is limited to the system monitor'. . . ." October 25 order at 16 (emphasis added). The court should have stated that "the test signal generator" comprises the system monitor'. . . ."

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A system monitor mediates the external defibrillator's self-testing functions by watching for scheduled test times and unscheduled power-on events. The system monitor generates test signals periodically at scheduled times and in response to specified events. The system monitor is also responsible for operating a fail-safe defibrillator status indicator or display.


Although the court must look to the preferred embodiment in construing "system monitor," it need not limit the term according to the preferred embodiment. In particular, where claims depending from Claim 22 disclose a limitation on the system monitor, the doctrine of claim differentiation compels a presumption that the term "system monitor" does not contain that limitation. Thus, the "system monitor" presumably need not comprise an application specific integrated circuit as disclosed in Claim 23, need not comprise a separate power supply as disclosed in Claim 24, need not comprise means for generating periodic test signals as disclosed in Claim 25, and need not comprise means for generating test signals in response to specified events or conditions as disclosed in Claim 26.

These disclosures reveal more than what "system monitor" does not mean, they also provide a guide to interpreting "system monitor" in light of the specification. The specification discloses a host of specific capabilities for a system monitor, but when the inventors intended to require the system monitor to perform a specific function, they drafted a dependent claim corresponding to the function. For example, Defibtech insists that the "system monitor" must at least watch for scheduled test times or unscheduled power-on events, as disclosed in the first sentence of the specification describing the element. 374 Patent at 4:60-62. The ability to watch for scheduled test times, however, is necessary only when conducting periodic self-tests. That function is ascribed to the system monitor in dependent Claim 25. Another illustrative example is the "System Watchdog Verify" self-test. 374 Patent at 8:9-17. A defibrillator that ran only this self-test on battery insertion would have no need to monitor for scheduled test times or unscheduled power-on events.

The court thus finds that the bare term "system monitor" refers to a device that performs only the necessary functions that the specification ascribes to the system monitor. Those necessary functions are receiving information from other
components regarding at least one self-test, and operating a fail-safe defibrillator status indicator or display corresponding to that information. As noted in the court's discussion of the term "prior to any attempted use" in its prior order, the 374 Patent does not require any particular self-test or group of tests, but merely requires at least one such test. October 25 order at 17-20. The information that the system monitor receives, and the source within the defibrillator from which it receives that information, necessarily depends on the type of self-test. Thus, absent any suggestion from the parties of information or information sources that are required in any randomly selected self-test, the court declines to impose a more specific limitation. The term "system monitor" thus means "a circuit, component, or device for receiving information regarding at least one self-test and operating a fail-safe defibrillator status indicator or display to correspond to that information."

4372

A. "state" or "system state"

1. The Parties' Proposed Constructions

The plaintiffs say that "state" or "system state" should be construed as "an automated trading procedure that defines the options available to participants and the rules of trading." (D.I. 463 at 3; D.I. 464 at 10.) The defendants' proposed construction is "a condition of a finite state machine embodied in a computer system and used to control an aspect of the system's operation, substantially as described in the '580 patent." (D.I. 463 at 3; D.I. 482 at 6.)

2. The Court's Construction

As discussed, the '580 patent is a business method patent, and not, as the defendants would have it, "a patent on an automated auction protocol processor that implements what could be characterized as a business method." (D.I. 514 at 54:18-21) or "a patent on a computer system that embodies logic…" (id. at 10-12). The defendants' proposed claim construction for "state" or "system state" therefore fails, because it is predicated upon the erroneous conclusion that the invention claimed in the '580 patent is a finite state machine. 8

--- Footnotes ---

8 Furthermore, during prosecution of the '580 patent, the plaintiffs emphasized to the Examiner that a state change referred to changing protocols of trading, and not to the operation of a computer or a computer program. Rather, they said that "change of state refers to the different protocols governing trading securities during different conditions…." (D.I. 463, Ex. E at FN1866-67.)

--- End Footnotes ---

The plaintiffs' proposed claim construction of "state" or "system state" is supported by the intrinsic evidence, specifically, the language of unasserted claim 26, which recites "a plurality of states which define the ability of participants to participate in trading...." ('580 patent, col. 21, II. 24-26.) There is also language in the specification which says that "the workstation "state" determines the options available to [a] trader," (id., col. 5, II. 15-32) and that "as each state is entered, the protocols are shifted and new rules to trading apply" (id., col. 8, II. 55-61). Thus, because the intrinsic evidence clearly supports the plaintiffs' proposed construction of the claim term "state" or "system state", I will construe "state" or "system state" to mean "an automated trading procedure that defines the options available to participants and the rules of trading".

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Systems interface

JuxtaComm contends that "systems interface" does not require construction or, if construed, means "an interface to the distribution system." Defendants contend "systems interface" means "a component that enables a user to interact with the system." Defendants argue that "systems interface" is a user interface because the claimed functions performed by the
systems interface are ones that the patent teaches are performed by a user.

Claim 1 does not expressly mention a user. In claim 2, the applicants expressly claimed a user interface. Thus, the applicants claimed a user when they intended a user to be a claim element. The claim 1 systems interface does not inherently require a user as it could be coupled to another computer system rather than a user terminal. See col. 7:19-22. Accordingly, the Court will not add a user limitation to claim 1. The Court construes "systems interface" as "an interface to the distribution system."

TCP/IP protocol data packet

Claim 1 contains the term "TCP/IP protocol data packet." Accolade contends that "TCP/IP protocol data packet" should be given its plain and commonly understood meaning and does not need construction. Alternatively, Accolade argues that the term means "units of data transmitted in compliance with the TCP/IP protocol between computers on a network." Citrix contends that "TCP/IP protocol data packet" means "a data packet constructed, transmitted, and received according to the Transmission Control Protocol/Internet Protocol format."

In light of the intrinsic record, the Court construes "TCP/IP protocol data packet" as "packets of data in compliance with the Transmission Control Protocol/Internet Protocol ("TCP/IP")." The specification refers to TCP/IP protocol data packets, stating, "The construction and use of TCP/IP protocol networks such as the Internet and private Intranets, and the TCP/IP protocol data packets (or simply 'TCP/IP data packets') sent over such networks, is well known to those skilled in the art." Col. 5:13-17. Thus the specification refers to "TCP/IP protocol data packet" as having its ordinary and customary meaning that is well understood by those skilled in the art. Elaborating on the ordinary and customary meaning, the parties agree that the TCP/IP protocol governs the way that TCP/IP protocol data packets are transmitted. Accordingly, transmission of TCP/IP data packets is in compliance with the TCP/IP protocol. Thus, the Court construes "TCP/IP data packets" as "packets of data in compliance with the Transmission Control Protocol/Internet Protocol ("TCP/IP")."

9 The parties do not dispute that "TCP/IP" is an acronym for Transmission Control Protocol/Internet Protocol.

V. "TV quality"

The phrase "TV quality" appears in dependent claims of the '547 patent, and is used to indicate the quality of video images displayed by the claimed invention. See, e.g., '547 patent at 45:48-49 ("reproducing the video images . . . at TV quality"). The parties disagree as to whether the Specification defines TV quality as a particular resolution in pixels, color depth, and number of frames per second, "30 frames per second at 640*480 pixels per frame and the equivalent of 24 bits of color per pixel with accompanying high-fidelity audio (typically between 7 and 15 KHz)," or whether the phrase should be read more broadly as "generally of the same quality as television (at the time the patent was filed)."

The portion of the Specification cited by Tandberg states that

[i]n the preferred embodiment, it has been found particularly advantageous to provide the above-described video at standard NTSC-quality TV performance (i.e., 30 frames per second at 640*480 pixels per frame and the equivalent of 24 bits of color per pixel) with accompanying high-fidelity audio (typically between 7 and 15 KHz).

Spec. at 6:48-53. The problem with Tandberg's reliance on this passage, however, is that it expressly limits its applicability to the preferred embodiment. It would be erroneous to limit the claim language as Tandberg suggests.
Tandberg also offers excerpts from the file history to show that CPI disclaimed other levels of image and audio quality during prosecution. The excerpts, however, are either taken from the prosecution of different claims from those at issue here or do not support Tandberg's proposed standard. For example, Tandberg's excerpt from the prosecution of U.S. Patent No. 6,898,620 recites a standard of 25 Hz rather than 30 Hz, and mentions several alternate standards for TV quality—NTSC, PAL, and SECAM. Tandberg does not argue that all of these standards conform to its proposed limitation. Moreover, CPI points out that the "TV quality" limitation was added as part of a broadening amendment, replacing the language "greater than 20 frames per second." It would be anomalous to construe the claim more narrowly than it was drafted prior to being broadened.

Finally, Tandberg once again argues that CPI's construction is too vague, and would result in rejection under section 112. Tandberg must raise its validity argument in a motion for summary judgment or at trial.

The court therefore adopts CPI's construction. "TV quality" is construed to mean "generally of the same quality as television (at the time the patent was filed)."

An example of the use of the term is seen in claim 1 of the '691 patent, stating in part, with the disputed term in bold:

1. **A method for inventory management, comprising the steps of:** . . .

(b) generating a table of one or more inventory items that most closely correspond to the customer request using a price forecasting system. . .

Grantley proposed, "a graphically arranged collection of data." Clear Channel proposed, "a single visually viewable grid in a single window from which a computer-implemented selection can be made." Clear Channel agreed that the use of the indefinite article "a" did not in itself indicate there could be only one table. Tr. p. 60, ll. 12-17. As a matter of common patent parlance "a" denotes "one or more that one." Norian Corp. v. Stryker Corp., 432 F.3d 1356, 1359 (Fed. Cir. 2005).

"Table" is used in the first sentence of the Abstract and in the first sentence of the "Summary of the Invention" at col. 3, l. 27. In both places, the full phrase is "a table or menu of one or more inventory items that most closely correspond to the customer request . . . ." After the table of inventory items is generated, a selection of one or more items is made by the customer or salesperson. '691 patent, col. 16, ll. 40-42, col. 3, ll. 34.

One possible layout of the computer screens displayed is shown in Figures 9 and 10 and described in the '691 patent at col. 14, ll.15-31. If there are many stations in the network, and a large and varied inventory of advertising spots are available, one skilled in the art would know that the table or menu may comprise several successive windows. For example, the first window could show stations which may meet the customer's criteria, while successive windows would show more precise information as the customer's choice is refined.

A common example of such a hierarchical organization of information is seen in word processing programs, where the user selects a file, and then may have a choice of several sub-files, and then a choice of several documents. The '691 patent states that such a "hierarchy of screens which become progressively more specific as shown is most preferred." See '691 patent, col. 14, ll. 27-31. A claim construction that excludes a preferred embodiment is "rarely, if ever, correct." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). Here, there is no basis to accept Defendants' invitation to define "table" so as to exclude the preferred embodiment. The court will define this term as follows:

"Table" means: "an arrangement of items of information that assists in choosing one or more of the items."
A. LaserDynamics contends that the term "table of contents" means a concise list or guide. It refers the Court to Merriam Webster's Collegiate Dictionary, Tenth Edition for the "ordinary" meaning of the term. In the specification, LaserDynamics used the term "total of contents," yet, in the claims that term is not used. Thus, the acronym "TOC" and the term "Total of Contents" do not appear in the claims. LaserDynamics argues that the acronym and term are examples found only in the specification, therefore, the Court should interpret the term in the claims more broadly than used in the specification.

Mediamatics argues that the inventor coined "total of contents" and uses the acronym "TOC" to refer to "total of contents." They argue that the term is a technical terms and, therefore, "table contents" as used in the claims must be construed in reference to the "coined" term used in the specification. Given this approach to interpretation, Mediamatics contends that these terms, "table of contents" and "total of contents," when construed together, mean that "table contents" is not a term that is susceptible to its ordinary meaning.

In construing a claim, courts first look to the intrinsic evidence, the claims themselves, the patent specification, and the patent's prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, within the intrinsic evidence, the actual words of the claims are the focus of the analytical exercise. Digital Biometrics, Inc. v. Indentix, Inc., 149 F.3d 1335, 1344 (Fed. Cir. 1998). Thus, the claims are the text and, therefore, the beginning point for understanding the inventor's intent. In this construct, the specification may be used to explain, discuss or illustrate a proper use of a term in a claim. But, the specification cannot be used to limit the meaning of a term in a claim. Teleflex Inc. v. Ficosa North Am. Corp., 299 F. 3d 1313 (Fed. Cir. 2002). This is so because words used in a claim are presumed to have their ordinary meaning. Id. at 1324. And, a departure is not warranted unless the specification or prosecution history expresses a "manifest exclusion" or restriction that is a clear disavowal of the claim scope.

In the case at bar, the evidence and the specification fail to demonstrate that the use of the term "total of contents" was meant to be a "manifest exclusion or restriction" on the term "table of contents" as used in the claims. The same construction applies to the acronym "TOC." The Court need not address whether the terms are synonymous or whether the term "total of contents" and the acronym "TOC" are a class or collection within the term "table of contents." It is enough to say that the use of the term "table of contents" in the claim is not limited by the use of the term "total of contents" or the
acronym in the specification. Indeed, no internal conflict is revealed by the use of these terms as presented. Finally, the fact that the inventor used both, the term "total of contents" and the acronym "TOC," is of no moment because the term and acronym are not defined contrary to the ordinary meaning given the term "table of contents." Moreover, the manner of use, i.e., in the specification or figures, defines only the parameters of the examples not the claims.

Mediamatics also challenges LaserDynamics' reliance on the "ordinary meaning" definition of "table of contents" because LaserDynamics resorted to a dictionary for the definition of the term. This challenge is groundless since the use of dictionaries, encyclopedias and treatises are permitted in determining the ordinary and customary meanings of terms. Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1205 (Fed. Cir. 2002). Thus, dictionaries and the like are not extrinsic evidence but instead are original sources from which the legal presumption of ordinary meaning finds residence.

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6. "tail slots"

| Wi-LAN's Proposed Construction | Defendants' Proposed Construction |
| "groups of frequencies that act as guard bands to reduce power outside of the frequency band" | "divisions within a frame that act as a guard band" |

The construction of this term relates to the construction for the term "points." Claim 7 of the '222 patent expressly states that "the frequency band is formed from … a pair of tail slots each having K2 points." The specification states that the "two tail slots act as guard bands to ensure that the out-of-band signal is below a certain power level." '222 patent, 5:36-38. Both parties agree that the tail slots act as a guard band, but disagree as to the remainder of the proposed constructions. Based upon Figure 2 and the corresponding specification, it is clear that K1 points are located in the frame and K2 points, corresponding to the two tail slots, are located outside the frame but still in the available bandwidth or frequency band. See '222 patent, 5:26-40, FIG. 2. Thus, the Court rejects Defendants' proposed construction that tail slots are necessarily "divisions within a frame." The Court does not find that Wi-LAN's proposal to include the phrase "reduce power outside of the frequency band" is necessary or is entirely based upon the specification. Thus, the Court construes the term "tail slots" as "divisions within the frequency band that act as guard bands."

GO BACK

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I. "Profile tailoring the concentration of transition metal atoms in the substrate relative to the surface of the substrate" (claim 2)

The construction of this claim involves a number of peculiarities, not least of all the fact that APT's explanation of profile tailoring in the background section of its brief provides a clearer and more obvious explication of the term than either of the parties' proposed constructions, the specifications, or the claim itself. In its opening brief, APT wrote that "at least part of the platinum diffusion has a tailored profile, that is, the concentration of platinum with respect to the substrate surface changes as a function of distance from that surface, as shown in Figure 3." APT Opening Br., at 4. This explanation comports well with an intuitive understanding of "profile tailoring," namely the structuring and adjusting of (in this case) transition metal atoms in order to achieve a particular layout or pattern. Nevertheless, since this explanation is offered only in the background section to APT's Brief, the court will turn to the claim and specifications for elucidation.

6 Interestingly, in the section of its brief discussed here, APT cites to the same portion of the specifications that it employs in its argument regarding the construction of this claim language.
Both sides agree that only one portion of the specifications discusses profile-tailoring, and even then somewhat obliquely. The specifications teach that "this technique can also be used to profile-tailor the lifetime control dopant with multiple temperature cycles." '202 patent, 24:1-3. The specifications that succeed this sentence describe a process for diffusing metal atoms into the substrate in a series of steps. In particular, it discusses a particular alignment of metal atoms within the substrate: "Low lifetime control doping in the bulk of the epitaxial layers combined with a higher concentration near the substrate surface adjacent the PN junction can provide the best effect. This doping profile can be obtained...." '202 patent, 24:8-12. This leads to the conclusion that a "profile" is indeed a particular pattern or alignment of transition metal atoms within the substrate. Drawing upon the sentence of the specifications that mentions a technique to "profile-tailor," it would appear that "tailoring" is being used in typical fashion in this context to mean "fashioning, adapting, structuring, or adjusting for a particular purpose." This understanding is congruent with claim 7 of the '202 patent, which discusses tailoring a transition metal to have a "relatively shallow profile." '202 patent, claim 7. In that case the "profile" or pattern of metal concentrations is being adjusted in order to achieve the desired "shallow" pattern.

Strangely, both parties propose a number of limitations that do not appear to be compelled by either the claim language or the specifications. Ixys wishes to add the requirement that the profile of metal atoms must be adjusted in at least two places in the substrate based upon only a preferred embodiment which itself is explicitly non-exclusive. 7 Furthermore, there is no support whatsoever within the specifications or the claims for Ixys' assertion that a tailored profile involves metal atom concentrations that are higher in one place and lower in another than "would be achieved by a single application and diffusion of transition metal atoms at a time and temperature." Ixys' Opp. Br., at 17. Ixys attacks APT's proposed construction because it would not exclude the possibility of a "flat profile," namely one in which the concentration of metal atoms is constant with respect to depth in the substrate. However, the only reliable indication that a "flat profile" must be excluded comes from the Background section of APT's memorandum, which describes a concentration that varies with respect to depth.

7 The specifications refer to "the best effect" and "This doping profile," implying straightforwardly that this is only one of many potential profiles that may be achieved through different tailoring algorithms. '202 patent, 24:11-12.

APT's proposed construction seems both under- and over-inclusive. On one hand, there is no reason to limit the claim language to a process that places metal atoms near the surface of the substrate in a gradient band; the claim language (and the specifications, which describe only briefly a preferred embodiment) is broad enough to encompass types of tailoring that might involve deposition of transition metal deep into the substrate. However, APT's language fails to capture what appears to be the nucleus of the meaning of "profile tailoring," namely that metal atoms are being deposited in certain areas or layers precisely in order to create a particular pattern or "profile."

Finally, neither side has discussed the phrase "relative to the surface of the substrate" in any real "depth." However, the use of this phrase within a semi-conductor patent (a field in which devices are created in stacked layers) and the manner in which it is employed lead the court to believe that a person skilled in the art would reasonably understand it to mean "as a function of depth."

In light of these factors, the court construes this claim term as follows: "Fashioning or adjusting the concentration of transition metal atoms as a function of depth within the substrate in order to create a particular pattern or layout of depth-wise concentrations."

G. "The transition metal is tailored to have a relatively shallow profile compared to a completed diffusion throughout the entire substrate" (claim 7)

Ixys has revised its proposed construction of this language from Claim 7 to read: "Diffusing the transition metal atoms in
the substrate in such a way that there is a higher concentration of transition metal atoms near the surface of the substrate, and a lower concentration of transition metal atoms in the substrate, than there would be with a completed diffusion 'throughout the substrate.'" Ixys' Opp. Br., at 19. APT states that it will accept Ixys' construction as long as the phrase "lower concentration" is understood to be inclusive of zero. APT's Reply Br., at 15. Ixys gives no indication that a "lower concentration" could not include zero, and indeed there is no basis for Ixys to argue such. In the context of this particular phrase of claim language, then, there appears to be no meaningful disagreement. The question of whether (in claim 7) transition metal atoms must exist in all parts of the substrate hinges not on the comparison at issue in this claim term, but on the construction of the word "throughout" in claim 2, which is addressed below.

Since the meaning of "throughout the substrate" is disputed, whereas the meaning of the original term ("throughout the entire substrate") is not (see (H)(1), infra), it seems prudent to make that substitution within Ixys' proposed phrase. The court construes this claim language to mean: "Diffusing the transition metal atoms in the substrate in such a way that there is a higher concentration of transition metal atoms near the surface of the substrate, and a lower concentration of transition metal atoms in the substrate, than there would be with a completed diffusion throughout the entire substrate [construed infra]."

LifeScan also appeals the district court's construction of the claim terms: a) "specified time interval"; b) "upon detecting a predetermined drop in reflectance sufficient to indicate that sample reached said first surface"; and c) "calculating said glucose concentration in said sample from one of said reflectance readings." Because the district court read those terms as limited to predetermined timing methods, those claim terms as well require revision based on the full scope of the claim language as understood by those of skill in the art at the time of invention.

Specifically, the district court erred in construing "specified time interval" to mean "times set in advance" because it limited claim 4 of the '162 patent to a preferred embodiment. Claim Construction Order, 2002 U.S. Dist. LEXIS 27575 at *9. Again consulting dictionaries within the context of this field of technology at the time of invention, "interval" is "a space of time between two events or points of time." Webster's Third New International Dictionary at 1183. This definition does not carry any hint of predetermined time calculations or intervals. Because LifeScan does not clearly disavow this customary meaning of the claim term, "specified time interval" means "a space of time between two events." In this instance, the interval refers to the space of time between reflectance readings from the testing surface of the matrix.

The district court ruled that the '124 patent did not clearly define "telephone emulation," and adopted the Orr definition: The replication of the electrical and functional characteristics of a specific telephone set by another device, including the "electrical signature," a critical component of which is the presence, as distinguished from the utilization, of a voice or talk path.

We agree with VMC that this definition and the underlying definition of "voice or talk path" are contrary to the specification. The distinctions are critical to the outcome of this case.

Oshima explains in his declaration that the term "talk path" in the specification refers to the transmission of voice sounds:
12. Although it is not essential that the talk-path be in analog form, that is a typical mode with PBX systems. Newer models actually are on the market that replace the analog voice path system with digital communications, that is, electrical impulses translatable into binary code, i.e., ones and zeroes. Whether the PBX transmits voice in analog form or translates it into digital form, it is the transmission of the sounds—including the human voice—in a telephone call that we refer to in the patent as the talk path. We say this clearly in column 2, line 66 of the '124 patent:

The present invention does not contain, nor utilize any voice detection circuitry and thus cannot establish a direct talk path with the PBX system. The present invention connects with the data pair of the line card only. Since the establishment of a direct talk path is a necessary function of a telephone set, the present invention cannot perform telephone emulation.

Oshima explains that Orr's affirmations are correct only if "voice or talk path" is defined as voice pair wires supplying electrical power to a telephone set device or PBX communications device, in a situation where the device otherwise would not receive power:

22. Where Orr and Fritzinger confuse the issue is in using the term "voice pair" as a synonym for "talk path," contrary to the above-quoted portion of the specification, and contrary to the way the term "voice path" or "talk path" is commonly used in the industry, in my ten years experience in it. The way in which they use the term talk path apparently includes the use of the voice path as a source of electric power, not as a path for voices. Thus, Orr says that the "accepted definition of 'telephone emulation' in the art, requires the presence of a voice or talk path, whether utilized or otherwise . . . " (emphasis added). She therefore concedes that the talk path does not have to be used in order to complete the "handshake."

* * *

26. The definition that Orr draws for telephone emulation from the erroneous definition of voice path, is also necessarily wrong, in the sense that it is inconsistent with what the patent actually says. To paraphrase Orr, she is correct from a technical standpoint, if [sic] when she says that the VMC device will not work without connection to the voice path, only if what she means is "the VMC device won't work unless it is attached to a power source." She is right that the device will not work without power; she is wrong if she uses the correct definition of voice path as it is defined in the patent specification.

(Citations omitted.) Oshima states that Orr misleadingly implies, and conspicuously avoids stating, that the "electronic signature" confirmation or "handshaking" required for operability is accomplished over the voice pair. Oshima states, and the specification requires, that the required handshaking between the PBX and the communications device takes place exclusively over the data pair:

19. . . . There are no polling messages or handshaking messages sent over the voice pair.

* * *

23. On careful reading of the Orr Affirmation, she does not say that the "handshake" is accomplished over the voice pair. In fact, it is not necessary to complete the handshake over the voice pair at all, in our device. As Figure 4 shows, and as the videocassette demonstration shows, the handshake is completed entirely digitally, over the data pair, and there is no need for the voice pair to be connected to anything, if a separate power source is available. To anyone familiar with the operation of telephones, what Ms. Orr is saying ultimately is nothing more than that the system will not work if it is not plugged in. It is obvious to anyone with skill in the art that the best mode diagram and the accompanying text (column 5, lines 4-5) show the voice pair "is used only for reference ground and power."

See also Col. 6, lines 40-42 ("Polling messages can take many forms, but is normally a predefined data packet addressing a specific device or component.")

Thus Oshima explains that Orr's affirmations merely state that the handshaking between the PBX and the attached device can not take place if the attached device, whether it be a telephone set or a PBX communications device, does not receive power. In the case of a telephone set, the voice pair typically supplies power. If the voice pair is severed, the telephone set will not handshake -- not because there is no voice pair, but because there is no power. On the other hand, in one embodiment of the '124 patent, the voice pair is used for reference ground and power, terminating in a transformer that
draws direct power and reference ground from standard AC power lines, i.e., a standard wall outlet. Even if the voice pair is severed, the PBX communications device will continue to handshake and to operate, because the transformer continues to supply power to the PBX communications device. The demonstrative video shows such an embodiment of the '124 patent. The PBX communications device performs various operations, notwithstanding that the voice pair from the line card hangs in space.

Thus Oshima states that Orr merely affirms that neither a telephone set device nor a communications device is capable of handshaking when power is not supplied to the device. According to Oshima, Orr's analysis is premised on a definition of "direct talk path" contrary to the '124 specification.

The declaration of Oshima exposes ambiguities in the Orr and Fritzinger analyses, and their distortion of the '124 invention. We express concern that this court's Markman decision may have led the district court to exclude the Oshima declaration and video demonstration during claim construction. Although in Markman this court stated that "the subjective intent of the inventor when he used a particular term is of little or no probative weight in determining the scope of a claim," this statement does not disqualify the inventor as a witness, or overrule the large body of precedent that recognizes the value of the inventor's testimony. See Hoechst Celanese Corp. v. BP Chemicals Ltd., 78 F.3d 1575, 1580, 38 U.S.P.Q.2D (BNA) 1126, 1130 (Fed. Cir. 1996) (inventor's testimony considered as "enlarging [Federal Circuit's] understanding of the technology and the usage of the disputed terms"). This court in Markman did not hold that the inventor cannot explain the technology and what was invented and claimed; the Federal Circuit held only that the inventor cannot by later testimony change the invention and the claims from their meaning at the time the patent was drafted and granted.

Patents are written not for laymen, but for and by persons experienced in the field of the invention. An inventor is a competent witness to explain the invention and what was intended to be conveyed by the specification and covered by the claims. The testimony of the inventor may also provide background information, including explanation of the problems that existed at the time the invention was made and the inventor's solution to these problems. See, e.g., Hoechst Celanese, 78 F.3d at 1580, 38 U.S.P.Q.2D (BNA) at 1130. Although Markman and other precedent caution the court against creative reconstruction of an invention by interested persons, courts are not novices in receiving and weighing expertise on both sides of an issue. The Supreme Court in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 125 L. Ed. 2d 469, 113 S. Ct. 2786 (1993) instructed trial judges to exclude scientifically unqualified witnesses, not those with superior qualifications.

The district court's definitions of "telephone emulation" and "direct talk path" are contrary to the clear meanings provided in the '124 specification and therefore must be rejected. See Multiform, 133 F.3d at 1477, 45 U.S.P.Q.2D (BNA) at 1432; Lear Siegler, 733 F.2d at 889, 221 U.S.P.Q. (BNA) at 1031. Although Voice Technologies' expert witness Orr characterized Figure 2 as "ambiguous" and "unclear," stating that "the only way the invention described in the specification, including the drawings, would successfully operate is if the voice pair 14 was properly terminated at transformer 15 such that the PBX could be satisfied that a voice path has been established" this statement contradicts the statements in the '124 patent that the invention does not establish a "direct talk path." Orr's definitions, resulting in a specification that describes an inoperable invention, were not supported by any evidence and were impugned by the videotape showing the invention in operation. Orr's definitions were also contradicted by Voice Technologies' own employees.

We conclude that it is not necessary to establish a voice or talk path in order for the '124 invention to operate as described in the specification. Although the absence of a direct talk path comports with the absence of telephone emulation, and is the correct criterion for construction of the claims, the district court did not properly define "direct talk path." A "direct talk path" requires a voice pair or a data pair used to carry voice sounds and connected to voice detection circuitry, and "telephone emulation" is impossible without "direct talk path."
"At least two remote switches within a metropolitan area, which each have switching intelligence enabling local switching among carriers interconnected at said switches without the need to transport or backhaul 4 traffic to a main switching center to make such connections."

Footnotes
4 The term "backhaul" is generally used to describe a situation wherein traffic is "hauled" (i.e., transported) in a manner that might be considered to provide a less-than-preferred level of efficiency.

NT argues that its straightforward construction of tandem access points can be found in the language of claim 1: "a plurality of tandem access points for connection to switches of a plurality of said public and private wireline and wireless carrier networks." Peerless looks to the specification for its proposed construction. Peerless notes that the '708 Patent states "the NTN 40 provides Tandem access points 41 for all carriers in the region." Thus, Peerless argues, descriptions of element 41 are "inextricably tied" to the construction to tandem access points. Peerless then notes that the '708 Patent states "[e]ach gateway or remote module 41 on the NTN metropolitan network 40 will have switching intelligence, thus enabling local switching among carriers interconnected at the remote site without the need to transport or backhaul traffic to the main switching center to make such connections."

NT counters that Peerless's proposed construction improperly excludes many of the explicit examples of tandem access points in the specification and limits the term to a preferred embodiment. And, further, that Figures 15 and 17, from which Peerless draws the "switching intelligence" and "backhaul" language, depict embodiments of the '708 Patent, not requirements. Moreover, that the part of the specification Peerless relies on speaks of a "gateway or remote module," not tandem access points. Had the language been intended to limit the meaning of tandem access points, that term would have been used.

NT's arguments are persuasive. The construction of a tandem access point as the point at which a carrier's network is connected to the claimed network is drawn directly from the language of the claims. By contrast, Peerless's construction includes terms that appear only in the specifications and are not clearly required elements of the term. See Kara Tech. Inc. v. Stamps.com Inc., 582 F.3d 1341, (Fed. Cir. 2009) ("The claims, not specification embodiments, define the scope of patent protection. The patentee is entitled to the full scope of his claims, and we will not limit him to his preferred embodiment or import a limitation from the specification into the claims.").

Peerless further argues that NT's proposed construction of tandem access points is unworkable because it leads to an unending circular analysis: NT's proposed construction of tandem access points refers to "the claimed network," but a determination of what the claimed network is cannot be made until tandem access points are defined. This argument is not persuasive. It is not logically inconsistent for a tandem access point to be considered both part of the claimed network and the point at which that network connects to a carrier's network. A definition of tandem access points would reasonably refer to the network, and a definition of the network would likewise include tandem access points as a component. That the two terms are necessarily and obviously related to one another does not make the analysis impermissibly circular.

Therefore, the Court construes "tandem access points" as "a point at which a carrier's network is connected to the claimed network."

The Court adopts Ciena's proposed construction and construes the term as “an intermediate switch other than the originating and destination switches.” Nortel argues that the term should be construed as "any path-oriented switch that is intermediate to a destination switch and an originating switch on a path." Nortel presents the same arguments with regard to "path-oriented switch" as it did above in its proposed construction of "destination switch." For the same reasons discussed above, the term “path-oriented switch” should not be included in the construction of the term “tandem switch.” Accordingly, the
Court adopts Ciena’s proposed construction of the term.

D. Ref. No. 9 "Portable tangible medium."

This phrase is recited in Claims 1, 94, and 96.

In the patent specification, the patentee expresses concern over the nature of election records "which are intangible and can be changed without leaving any evidence thereof." (Col. 1, ll. 46-48.) Intangible electronic magnetic records may be altered intentionally or accidentally without any evidence of such alteration. (Col. 2, ll. 16-21.) Concerns about such alterations repeated throughout the prosecution history. (Pl. Exs. F, G.) The same prosecution history provides that the tangible medium includes a "portable non-volatile electronic memory [e.g., a smart card] or a portable printed memory [e.g., a printed receipt] as well as other tangible medium that become independent of the means that stores information for one voting session therein." (Defs. Ex. 4b at 22.) The term "portable tangible medium" as used in Claims 1, 94, and 96 refers to the storage of the voting record and the voting session identifier in the medium, separate from the memory. This, in turn, will accomplish the goals set out above -- a tamper-proof voting record.

For the foregoing reasons, the Court construes the term "portable tangible medium" in Ref. No. 9 as follows:

A non-volatile storage medium (e.g., printed receipt and/or a smart card) separate from the memory of the voting machine (and thus portable) in which the records stored and contained therein if changed would leave evidence of that change.

C. Ref. No. 5 "Tangible Receipt"

The term "tangible receipt" is recited in Claim 49 of the '209 Patent. Plaintiff provides the following construction of the term: "A non-intangible storage medium separate from the memory of the voting machine (and thus portable), in which the records stored or contained therein if changed would leave evidence of that change. Here, the non-intangible medium is printed by a printer." Defendants' construction is: "A reviewable printout of the voters' voting selections or choices or a corresponding voting session identifier that is retained by the voter." The relevant Claim includes "a printer providing for each voting session a tangible receipt . . . ."

Plaintiff directs the Court to its discussion about the voting session identifier contained in its brief and described herein. The Court adopts its reasoning for the construction of the term "voting session identifier" discussed above. Additionally, as noted by Plaintiff, the language of Claim 57 would be in direct conflict with the construction proposed by Defendants. Claim 57 provides that the receipt is taken by the voter, retained by the electronic voting machine and printer, retained by the voting machine and printer if not taken within a reasonable time, or retained by the smart card. (Defs. Ex. 2, Col. 46, ll.36-42.) Therefore, the receipt can be taken or not by the voter.

Accordingly, the Court construes the term "tangible receipt" as follows:

A reviewable printout of the voter's voting selections or choices that can be retained by the voter.
M. Ref. No. 27 "Tangible receipt" or "printed receipt" or "printed paper."

These terms are recited or referred to in Claims 21, 49, 54, 55, 72, 77, 82, 83, 84, 85, 102, and 103.

The dispute as to these terms is whether, as argued by Plaintiff, "printed receipt" has one definition and "tangible receipt" and "printed paper" have another or, as argued by Defendants, all three terms have the same definition. Additionally, as discussed above, there is an underlying dispute whether the voters retain the receipt.

Again, the Court must begin with the inventor's goal to provide a tamper-proof voting system encompassing a verification system. (Col. 1, ll. 35-49; Col. 2, ll. 6-21.) Voter confidence is maintained because a voter can compare his or her individual printed receipt with the unique voting session identifier to the Internet election website listing the votes, voting record, and voting results. (Col. 18, ll. 37-53.) The patent teaches that there are three separate and independent identical records of the voters' vote: one in the stored memory of the voting machine, one in the memory of the smart card, and one printed on the voting receipt. (Col. 6, ll. 27-31.) "Each voter deposits his smart card SC into a secure collection box . . . retains the printed voting receipt," Col. 6, ll. 47-51, provided to the voter at the conclusion of the voting session by the "local printer," Col. 7, ll. 9-14. The voting session identifier is printed on that receipt. (Col. 7, ll. 19-21.) The patent teaches that the local printer is of the type that retains no record of the printed data. (Col. 11, ll. 28-37.) The patent later states that "[t]he tangible receipt device provides a tangible receipt such as a printed receipt." (Col. 17, ll. 54-55.) Therefore a tangible receipt and printed receipt, according to the instructions of the patent, are the same item.

Claim 67 provides that the voting records, including "the voting selections of a particular voter and that voter's random voting identifier, are published or posted on the Internet, thereby allowing the voter to compare his or her voting session identifier with the posted result. With the exception of Claim 55, each of the Claims listed in this section provide that the tangible receipt, the printed receipt, and the printed paper include the voting record and the voting session identifier. All three items are treated the same in the Claim language.

The term "printed paper" appears only once in the specification, when modifying "receipt" in Column 10, line 15. (Col. 10, l. 15.) The term reappears in the contested Claims 102 and 103 in the context of directions for "collecting" the printed paper in those Claims. This is inconsistent with other references to the printed receipt and the tangible receipt.

Defendants argue, without contradiction, that Claims 102 and 103 were added three years after the original application for the '730 Patent in a preliminary amendment dated November 17, 2003. (Defs. Response Brief at 25.) As noted above, when the patent applicant adds a Claim after the original filing date, the new Claim must find support in the original specification. Turbocare, 264 F.3d at 1118. Plaintiff refers the Court to no such support. Moreover, the term "printed paper" is used in the specification to modify "receipt." There is sufficient evidence in the specification and the patent Claim to convince the Court that the receipt is provided to the voter at the conclusion of the voting session. There is no evidence from Plaintiff to the contrary.

In support of its argument to the contrary, Plaintiff cites In re Wright, 866 F.2d 422 (Fed. Cir. 1989), discussing the "description requirement" of 35 U.S.C. § 112, P 1. Id. at 424-25. That paragraph "opens with the words: 'The specification shall contain a written description of the invention . . . .'" Id. at 424 (quoting § 112, P 1.) An issue in that case was whether the phrase "not permanently fixed," a phrase that did not appear in the specification as originally filed, was properly rejected under § 112. Id. at 423-25. The court framed the question as follows: "When the scope of a claim has been changed by amendment in such a way as to justify an assertion that it is directed to a different invention than was the original claim, is it proper to inquire whether the newly claimed subject matter was described in the patent application when filed as the invention of the applicant." Id. at 424. The exact words, i.e., "not permanently fixed," need not be used in the specification if the specification, read "in the light of which all that the claims say must be construed" and considered "against the background of the prior art," convinces the court "that the process of the claims, containing the words 'not permanently fixed,' is described in the specification." Id. at 425. Although "the claimed subject matter need not be described in haec verba in the specification," the specification as originally filed nonetheless "must convey clearly to those skilled in the art the information that the applicant has invented the specific subject matter later claimed." Id. at 424, 425 (interim quotations..."
In the instant case, the specification in the '730 Patent does not satisfy this description requirement as it relates to the "printed paper"; therefore, the Court finds the term to be consistent with other references to the printed receipt and the tangible receipt. Additionally, the Court disagrees with Plaintiff's argument relating to Plaintiff's Group Exhibit I. As stated above, there are numerous references to the receipt being retained by the voter in the inventor's description of his invention.

For the reasons set forth herein the Court construes "tangible receipt," "printed receipt," and "printed paper" as follows:

Tangible receipt, printed receipt, and printed paper mean a reviewable printout of the voters' voting selections or choices or a corresponding voting session identifier that is retained by the voter.

B. Tapping Points

The term "tapping points" appears in Claim 1 of the '130 patent, which claims, in pertinent part:

A radio-frequency phase shift assembly coupled to a feedline, comprising: . . . at least two different pairs of antenna radiating elements coupled to the at least two stripline sections and driven with different phase angles (Φ) at mutually offset tapping points . . . .

('130 Patent, Claim 1, Col. 5, ll. 61-67 (emphasis added).) RYMSA argues that the proper definition is "locations on the stripline sections or the center tap where electrical signals are transferred to or from the tapping element." (Defs.' Claim Construction Br. at 17.) Kathrein argues that the proper construction is "points where a signal is transferred from one circuit or system to another circuit or system." (Pl.'s Claim Construction Br. at 9.)

RYMSA contends that tapping points are necessarily associated with a tapping element, either where the tapping element transfers signals to or from the stripline sections or to or from the center tap. To determine the ordinary and customary meaning, again, the Court must first look to the intrinsic evidence, which includes the claims, specification and prosecution history. See Phillips, 415 F.3d at 1316-17. The Court agrees with RYMSA that "tapping points" may be associated with a tapping element. The specification of the '130 patent states "tapping element 25 forms a coupled tapping section or tapping point 27 in the respective area in which it overlaps an associated stripline segment 21." (See '130 Patent, Col. 4, ll.15-18.) The specification states that "two tapping points 27a, 27b are provided, in this example which are offset in the longitudinal direction of the tapping element 25." (Id., Col. 4, ll. 18-20.) It is clear from the specification that the "tapping points" labeled as 27a and 27b in Figure 2 of the '130 Patent are associated with the tapping element. (Id.) The prosecution history also provides that the center tap 29 depicted in Figure 2 is also a "tapping point." (Defs.' Claim Construction Br., Ex. 2, at 46.)

However, that "tapping points" may be associated with the tapping element does not mean that they must always be associated with the tapping element. The prosecution history makes it clear that "tapping points" mean more than merely the locations at which the tapping element overlaps the associated stripline sections or segments. Claim 1 of the '130 Patent claims, in pertinent part:

A radio-frequency phase shift assembly for coupling to a feed line, comprising:

at least first and second stripline sections which are arranged concentrically, said at least first and second stripline sections for coupling to at least two different pairs of antenna radiating elements driven with different phase angles (Φ) at mutually offset tapping points . . . .

(Ids., Claim 1, Col. 1, ll. 61-67.) The prosecution history of Claim 1 (the amended German specification) shows that the inventors stated that the tapping points also include 39a and 39b in Figure 2, which are not associated with the tapping element in such a way that they are located where the tapping element overlaps the stripline sections or segments. (Pl.'s Claim Construction Br., Ex. C, June 7, 2001 Translation of '130 Patent, at 13.) The inventors stated: "on the at least two
stripline sections (21a, 21b, 21c, 21d), at least two different pairs of antenna radiating elements (1a, 1b, 1c, 1d, 1e, 1f) can be driven with different phase angles (Φ) at mutually offset tapping points (39a, 39b). . . . " (Id.)

RYMSA argues that the German translation of '130 Patent is faulty and that "Abgriffstellen" is more properly translated to "tapping positions" rather than "tapping points." (Defs.' Ex., Wardell Decl. PP 9-10.) This argument is not persuasive because it does not explain why the inventors used the term "tapping" at all to describe 39a and 30b. RYMSA also does not attempt to explain the difference between the terms "points" and "positions." (Defs.' Claim Construction Br. at 18.) The only explanation is that the term "tapping" is not limited to RYMSA's crabbed reading because "tapping points" 39a and 39b in Figure 2 of the '130 Patent are not located where the tapping element overlaps the associated stripline sections or segments.

Lastly, the Court agrees with RYMSA that Kathrein's use of two additional undefined words, "circuit" and "system," as well as the word "points" in its proffered construction of the term "tapping points" creates unnecessary ambiguity. Rather, the Court prefers the term "locations" over the term "points." In addition, in construing the term "tapping points," the Court uses terms already defined by the parties or by this Court herein. The Court interprets the term "tapping points" to mean "locations where electrical signals are transferred between, meaning to or from: (1) the tapping element and the stripline sections, segments or elements, (2) the tapping element and the center tap, or (3) the antenna radiating elements and the stripline sections, segments or elements."

4392

12. "[T]ask assistant:" 12 "A feature that displays a list of tasks to be performed on a claim." This construction is consistent with Figure 13 and col. 105:9-12 of the specification.

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12 '284 patent, claims 1 and 8 (and dependent claims).

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10. "[T]ask engine:" 10 "A feature that generates the tasks that need to be performed in response to an event." Again, the parties' dispute is limited to plaintiffs' request for a construction which includes "any event." The court eliminates potential ambiguity through its construction, which is consistent with the specification: col. 105:64-106:18.

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10 '284 patent, claim 1 (and dependent claims).

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11. "[T]ask library:" 11 "A feature that stores the rules with which tasks are established." Plaintiffs submit that the task library stores, in addition to rules, templates that can be used to create rules. However, neither the specification nor the claims speak to the added feature of storing templates. The court's construction is consistent with claim 1, which requires simply "a task library database for storing rules." col. 107:38-39.

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11 '284 patent, claim 1 (and dependent claims).
The term in question appears either directly or by reference in all claims of both the '653 and '690 patents. Plaintiffs assert that the term should be construed as "a special lens that collects parallel rays." Plaintiffs rely on the specification of the '690 patent which states, for example, that "a telecentric lens collects parallel rays." Defendant asserts that the term reflects an express disavowal to the use of dichroic mirrors and a limitation as to internal illumination.

Beginning with the claims in the '653 and '690 patents, there is no mention or reference in any of the claims to either dichroic mirrors or internal illumination. Claim 4 of the '690 patent, for example, expressly refers to collecting light from a multi-sample plate without noting the light source. Similarly, claim 1 of the '653 patent expressly refers to the lens collecting light and identifies the source as "light incident thereon [the multi-sample plate] or originating from a sample." ('653 patent, col. 21, In. 7-9).

Moving to the specifications, the '653 patent points to a description of "a telecentric lens." "A telecentric lens is free of parallax error." ('653 patent, col. 12, In. 39-40). n1 "A telecentric lens collects parallel rays, over the entire area of a well plate." ('653 patent, col. 12, In. 45-46). n2 In addition, the '653 and '690 specifications point directly to the two items raised by defendant. "A unique property of the present invention is that no dichroic is necessary. The telecentric lens is large, so there is room to install an illumination assembly within its body." ('653 patent, col. 12 In. 11-13). n3

In general, when a term implicitly suggests a broader meaning, there is no express disavowal. See Varco, L.P. v. Pason Sys. USA Corp., 436 F.3d 1368, 1375 (Fed. Cir. 2006). In Varco, the court noted that "the applicant could have used terminology such as 'relays are pneumatically operated valves' that expressly disavows alternative structures. As written, however, the specification contemplates that other structures may 'operate as relays' in addition to the preferred pneumatically operated valves." Id.

In the case at bar, the Court finds that because the patentee made note that "there is room to install an illumination assembly," the Court finds no express disavowal. The term is written in open form and the patent neither requires or excludes the use of an illumination device. Similarly, the phrase "no dichroic is necessary" is not a disavowal of its use and the patent does not require or exclude use of a dichroic mirror. In both situations and as described in Varco, the drafter could have used terminology to expressly disavow dichroic mirrors or require internal (or external) illumination but left the text in open form.

Defendant also bases its assertion, in part, on a letter written by the inventor indicating the inventor's intent. However, such a letter is not within the patents or their prosecution history and is therefore extrinsic evidence. See Phillips, 415 F.3d at 1319. "[U]ndue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the 'indisputable public records consisting of the claims, the specification and the prosecution history,' thereby undermining the public notice function of patents." Id. (quoting Southwall Techs. Inc. v. Cardinal IG Co., 54 F.3d 1570, 1578 (Fed. Cir.), cert. denied, 516 U.S. 987, 116 S. Ct. 1387, 133 L. Ed. 2d 424 (1995)). However, despite what the inventor's intentions may have been, the patent itself serves the public notice function and is a part of the intrinsic evidence, as contrasted with the inventor's letter, which does not serve the public notice function and is extrinsic, and the term itself can
be construed absent the extrinsic evidence. As such, the inventor's letter is not relevant to claim construction here.

As such, the Court finds that the term "a telecentric lens" is construed simply as "a special lens which collects parallel rays."

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(4) "telecentric lens means for peering into the well"

The term in question appears in claim 5 of the '653 patent. Plaintiffs assert that the term should be construed to not limit the claim to the reference of a telecentric lens. Plaintiffs assert that because the structural component, the telecentric lens, is expressly recited in the claim, it is not appropriate to treat the phrase as a means-plus-function limitation per 35 U.S.C. § 112, P6. In contrast, Defendant asserts that because (1) the phrase's express statement is in means-plus-function format, together with (2) the patentee's assertion of applying 35 U.S.C. § 112, P6 during the prosecution history, the Court should treat "telecentric lens" as a limitation to the claim.

"An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112 P6. "Whether certain claim language invokes 35 U.S.C. § 112, [P]6 is an exercise in claim construction and is therefore a question of law." Personalized Media Commc'n's., L.L.C. v. ITC, 161 F.3d 696, 702 (Fed. Cir. 1998).

The use of the word "means" in the claim invokes a presumption that the patentee invokes the statutory mandate for means-plus-function clause. Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed. Cir. 1999), cert. denied, 528 U.S. 1115, 120 S. Ct. 933, 145 L. Ed. 2d 812 (2000).

Two specific rules, however, overcome this presumption. First, a claim element that uses the word 'means' but recites no function corresponding to the means does not invoke § 112, [P]6. Second, even if the claim element specifies a function, if it also recites sufficient structure or material for performing that function, § 112, [P]6 does not apply.

Id. (internal citation omitted). The Court begins its construction by adopting the presumption that the patentee invoked the means-plus-function format. However, moving directly to the second exception, the claim element does specify a function ("peering into the well") but also recites a sufficient structure for performing that function (the "telecentric lens"). Although Defendant asserts that such function is insufficient without illumination, the specification does recognize that such illumination can be from the sample within the well and, as such, external illumination is not necessary and the telecentric lens alone represents sufficient structure.

Defendant also asserts that through the prosecution history, Plaintiffs invoked 35 U.S.C. § 112 P6 and, as a result, prosecution history estoppel requires the Court to construe the telecentric lens as a limitation. To begin with, the prosecution history directs the examiner that the claim should be considered as structure under § 112 P6. n4 However, once the applicant directs the examiner to view the telecentric lens as a structure, the applicant directs the examiner toward the second rule to overcoming the means-plus-function presumption of § 112 P6. The claim was subsequently accepted unchanged by the examiner. In addition, the prosecution history makes no explicit mention of this claim relative to means-plus-function, nor does the examiner explicitly accept it as such. Because the prosecution history points directly at the second rule to overcoming the means-plus-function presumption, the prosecution history supports that the "telecentric lens" is not a limitation to the claim.


As a matter of law, this Court construes that the term "telecentric lens" is a sufficient structure to support the function of
"peering into the well." The Court does not accept Defendant's argument of construing the telecentric lens as a limitation stemming from construing the phrase in means-plus-function format of 35 U.S.C. § 112 P6.

17. Telecommunication services

The parties dispute the meaning of the term "telecommunication services." Foundry proposes that "telecommunication services" should be construed to mean "the transmission of information from one point to another." Lucent, for its part, urges the court to construe "telecommunication services" to mean "services typically provided on telecommunication networks, including voice communications, private branch exchange services, multimedia messaging, and information services." The court adopts Lucent's definition of "telecommunication services" and construes the term accordingly.

F. "Telecommunication Switches"

Claim 5 of the '429 patent and claim 7 of the '064 patent recite the claim terms "telecommunication switches." Sprint contends that these claim terms should be construed to mean devices that set up calls and relay voice and/or data information from one connection to another. In Vonage's response to Sprint's trial brief regarding claim construction, Vonage states that it does not dispute Sprint's proposed construction of these claim terms. Accordingly, the court construes them to mean devices that set up calls and relay voice and/or data information from one connection to another.

6. "[T]elecommunications cable" 8 "Cable capable of transmitting high frequency data." Construing the preamble in this manner comports with the specification, which repeatedly identifies the invention of the '491 patent as a "high frequency cable." (Abstract; col. 1:7-23; col. 2:4-6) The specification further recites that the invention of the '491 patent seeks to rectify nominal characteristic impedance problems for "telecommunications cable[s] . . . designed to operate at high frequencies, perhaps up to 100 megabytes." (col. 3:67-4:5; col. 4:39-44)

8 '491 patent.

Plaintiffs define "telecommunications channel access connector," the next disputed term, as "a device providing a connection such as a plug or a wireless connector," in contrast to defendant's definition of "a physical device providing a connection, such as an outlet, receptacle, or plug." (Pls.' Mem. on Claim Construction 17; Def.'s Rebuttal Claim Construction Br. 24). The specification language cited by both parties states that "[t]he customer selects which utilities or services they require, typically by just connecting to the appropriate connector (also know [sic] as outlet, receptacle, or plug) either through physical means or through wireless connections such as infrared." (400 Patent 2:61-65). This language describes a vending machine device that accepts a customer's means of connection, be it a plug or a wireless connector, and both parties' proposals reflect this description.
Accordingly, I construe the disputed claim language as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications channel</td>
<td>A device providing a connection, such as an outlet, receptacle, or plug</td>
</tr>
</tbody>
</table>

4401

F. Terms which include "Telecommunications Line(s)"

Sightsound asserts that the term "telecommunications line," which is used throughout the claims in suit, should be interpreted in all instances to mean "a medium for the transmission of information from one location to another." Defendants respond that this could refer to, among other things, the Pony Express.

Defendants, on the other hand, wish to focus the inquiry upon the use of the term "connecting" in relation to "telecommunications lines," as in the following examples from the various patent claims: "connecting electronically via a telecommunications line," "forming a connection through telecommunications lines," "telecommunications lines connected," "connecting electronically via the telecommunications lines," and "connecting electronically via telecommunications lines." Defendants assert that each of these formulations of the terms "connection" and "telecommunications lines" entails the following construction:

Establishing a continuous point-to-point conduction path using a telephone service providers' circuit-switched network for the transfer of information. These terms do not include a packet-switched network link, such as a TCP/IP link.

The TCP/IP reference is, of course, addressed to the Internet. Defendants take the position that the use of the terms "connection" and "telecommunications line(s)" bespeak the use of telephone lines and telephone switching services only. A connection over the Internet (which would, in most cases, involve at least some use of telephone lines and the telephone switching system), would not be covered.

The expert testimony in this case was most helpful in describing the distinction between the telephone system and a TCP/IP system such as the Internet. What becomes clear from a review of the testimony and the sources relied upon by the experts, however, is that the distinction which defendants wish to make is not drawn from the claim language, or from the specification.

It is helpful, first, to note that both sides agree that a modem-to-modem connection between two computers over telephone lines would clearly be covered by the claim language. Defendants, however, wish to differentiate from this the process by which an Internet transfer occurs. A common form of such a transaction, and one which was known in 1988, would involve the second party (or buyer) connecting to an internet service provider (ISP) through a modem and over a telephone line. The next part of the process occurs between "nodes" on the packet-switch network (the Internet), until the transmission, in the form of information "packets," reaches another ISP connected to the first party (the seller) by telephone lines. Thus, in each instance, the transmission is ultimately accomplished, at each end, by a traditional telephone communication over telephone lines and through a telephone switching system.

The difference between the two methods of exchanging data occurs in the manner in which the information is sent between the nodes of the packet-switch system, and the manner in which data is sent through a telephone company switching system. However, while a transfer over the Internet differs in some respects from a transfer made directly between two computers over modems and through telephone lines, there is simply no way of reading the plain language of the claims in suit explicitly or implicitly to exclude any means of transferring information so long as it can occur over telecommunications lines.

Defendants, for example, rely upon Figure 1 from the specification of each patent which shows the respective equipment of the first party and second party connected to a "box" entitled "Telephone Lines 30." Even if the use of the phrase "telephone lines" limited the invention, it is not clear that it would do so to omit the Internet, which is normally connected to individual users by telephone lines in any event. Also, Figure 1 is a representation of the preferred embodiment only. It is improper to read into the patent claims limitations from the specification. Comark Communications, 156 F.3d at 1186 ("fine line" exists
between "reading a claim in light of the specification" and impermissible practice of "reading a limitation into the claim from the specification.").

Likewise, defendants' asserted definition of the term "connection" to differentiate telephone communications and an Internet session is not persuasive. Dr. Larky explained in detail how a telephone communication establishes a "continuous point-to-point conduction path," regardless of the use of time division multiplexing (TDM), which results in several different telephone connections sharing the same line. This is so, in his view, because TDM still results in the telephone user having the right to a specific and consistent pathway through which his or her entire conversation is put through to the other party. Resort to the claims and the specification, however, does not yield any basis for making a distinction between the "connection" made in an Internet session, which produces "end-to-end" connectivity, but not a continuous conduction path, and a telephone connection which produces both end-to-end connectivity and a continuous conduction path.

Defendants resort to the prosecution history and note that the term "telecommunications lines" did not become part of the patent until 1992. The manner in which this was accomplished, in defendants' view, should inform the court's interpretation of that term. The original specification and claims disclosed "electronically transferred via telephone lines" (Docket # 70, Tab 4 at 6). This was altered in December, 1988, to "connecting electronically the first memory with the second memory" (Id., Tab 7 at 1). In December, 1991, the first use of the term "telecommunications link" is proposed, and rejected by the examiner as not being well-connected in the system (Id., Tabs 34 and 35). Ultimately, in June, 1992, the term "telecommunications line" was added throughout the claims (Id., Tab 36).

First, defendants assert that, if the term "telecommunications line" is read to reach anything more than a "continuous telephone-circuit network path" this would violate the "written description requirement" which requires a patentee in the initial disclosure to provide an adequate description of what is being patented. See, Purdue Pharma L.P. v. Faulding Inc., 230 F.3d 1320 (Fed.Cir. 2000). This, however, is a validity issue which the court should not reach at this point. And, in any event, the use of the term "telephone lines" in the initial disclosure does not, in light of the fact that the Internet is normally accessed through telephone lines on each end of a transaction between parties, provide support for limiting the definition of "telecommunications lines" to exclude Internet transactions. 15

15 Defendants also assert that "telecommunications lines" is "new matter" which was improperly added to the patent in the years following the initial application. Again, however, defendants seek to introduce a matter normally addressed during the validity stage into the construction phase, and, in any event, it does not serve to raise the distinction which defendants desire.

Defendants also seek to limit the reach of the term "telecommunications line" in light of the changes made during the prosecution of the patents from "link" to "line," a small portion of which the court has already described above. A more complete description of the prosecution history is now necessary.

The original term in the application for the '573 patent was "telephone line." Then, in December, 1988, the term "electronically connecting" was proffered and rejected. This rejection was premised upon the Lightner patent (Docket # 70, Tab 11). The next attempt was simply to recite "connecting" the first and second memories, but this was also rejected over Lightner and the Hughes patent (Id., Tabs 12 and 13). "Connecting electronically" was added (Id., Tab 16), but again a rejection over Hughes resulted because "Hughes . . . shows that the first and second memory are connected electronically . . . such that information can pass therethrough." (Id., tab 30). Claim 11 was amended to state "connecting electronically via a telecommunications link" (Id., Tab 34). The examiner found the term "telecommunications link" to be "not well connected in the system" (Id., Tab 35 at 6). This resulted in the inclusion of the term "telecommunications line" in the next amendment, which was approved (Id., Tab 38 at 6).

Defendants assert that, in view of the prior art, "link" is a broad term, and "line" is a narrower term. Specifically, defendants point to the Hughes patent which discloses "transmitting and recording stations" which are "linked by telephone lines or other signal transmission means" (Defendants' Exhibit 4 at Column 8, lines 39-42). Lightner disclosed a "signal transmission link" with examples thereof including telephone lines, a microwave transmission link and CATV cable.
Lockwood discloses "any suitable remote links . . . such as phone line data communication links" and an indirect link "via a computerized telecommunication network service such as TELENET." (Defendants' Exhibit 7, Column 4, lines 1-16). TELENET is described in Newton's Telecomm Dictionary, 7th Ed., p. 686, as a "private, commercially available network providing both packet-switched and circuit-switched service to subscribers in North America, Europe and some parts of Asia." 16

16 Defendants also point to Freeny (Defendants Exhibit 5) and Elkins (Defendants' Exhibit 6) as examples of prior art which use the term "communications link" as a broad term.

Thus, defendants argue that anything defined in the prior art as a "link" was given up when the Mr. Hair amended his claim from "telecommunications link" to "telecommunications line." This, in defendants' view, includes claiming a packet-switched network, such as that offered by TELENET.

A patentee may limit the definition of a claim term through "altering claim language to escape an examiner rejection" or by "clearly disavowing claim coverage." York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d at 1575. Here, in offering the amendment, the patentee gave the following explanation:

The Examiner has also stated that "telecommunication link" is not well connected in the system. Accordingly, "link" has been amended to the more familiar term "line" and "via telephone line" has been added to the connecting step in Claims 11 and 15.

(Docket # 70, Tab 38 at 15).

Here, the examiner did not reject the term "link" on the basis that it was taught by the prior art. Rather, the examiner indicated that a term more closely connected with the disclosed invention was required. Thus, the applicant indicated during the amendment not that he was giving up coverage, but that he was amending to include a "more familiar term" in the patent. Hence, this is not a situation where coverage was expressly conceded, nor would a person skilled in the art believe that any specific coverage had been conceded through this amendment. In fact, neither the examiner nor the patentee ever indicated that there was any difference beyond familiarity between the terms "link" and "line."

Once again, this review of the prosecution history was an attempt by defendants to establish that Sightsound cannot claim coverage of package-switch networks such as the Internet. The court is not convinced that this is so. Thus, the terms "telecommunications line," even when used in the context of "connecting," should not be interpreted as excluding the Internet.

Further, with respect to Sightsound's construction, it is true that "a medium for the transmission of information from one location to another" is much too broad in the context of these patents. This does not mean, however, that Sightsound is attempting to claim coverage of the Pony Express or notes sent by carrier pigeon. Reading the term in context, "telecommunications lines" is used most often in conjunction with the terms "connecting" and "electronically." Where this is done, the coverage claimed is both narrow and clear. Sightsound is claiming an electronic medium of communicating between computers, which requires end-to-end connectivity. The court has not located any language in the patents which would permit any other reading, in context, of the term "telecommunication line(s)".

G. "Telecommunications Link"

In Claim 14, the patent claims "[t]he method of claim 1 wherein said source storage medium is in the domain of a first central processing unit and the destination storage medium is in the domain of a second central processing unit." '776 Patent, col. 18, lns. 20-23. Claim 16, in turn, claims "[t]he method of claim 14 wherein said first and second central
processing units communicate over a telecommunications link and wherein said digital data is sent over said link." Id., Ins. 29-32. The parties agree that a telecommunications link is a "line or channel for sending data." JCCS, Appx. A, at 14 (term 55). Defendant would leave the term at that, while plaintiff adds that the line or channel is for sending data "over a distance." Id.

Plaintiff is correct that the ordinary dictionary definition of "telecommunications" encompasses communication, usually through electronic or electric means, over long distances. See OXFORD ENGLISH DICTIONARY (2d ed. 1989) (online edition available at dictionary.oed.com/cgi/entry/50248394?single=1&query_type=word&queryword=telecommunication); MERRIAM-WEBSTER ONLINE (online edition available at www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=telecommunication). This makes sense in the ordinary course of everyday life: for instance, there is no need to use the telephone to talk to someone sitting in the same room as you; ordinary "communication" suffices. This common sense "over a distance" definition of telecommunications does not necessarily hold when referring to data transmission between individual computer systems. Indeed, other dictionaries, both lay and technical, refer to telecommunications as any data transmission, without any distance limitation. See COMPUTERUSER.COM HIGH TECH DICTIONARY (available online at computeruser.com/resources/dictionary/definition.html?look-up=7078) ("transmission of information over a communications line."); WEBOPEDIA (available online at www.pcwebopedia.com/TERM/T/telecommunications.html) (telecommunications "refers to all types of data transmission."); ENCARTA WORLD ENGLISH DICTIONARY (available online at encarta.msn.com/encnet/features/dictionary/DictionaryResults.aspx?refid=1861718821); CAMBRIDGE DICTIONARY OF AMERICAN ENGLISH (available online at dictionary.cambridge.org/define.asp?key=telecommunication* 1+0&dict=A). Thus, the dictionary definition is of little help in determining how the term would have been understood by persons skilled in the art in 1990.

Nothing in claim 16 or the specification, however, suggests that there is some minimum distance requirement over which the transfer must occur. Further, the "over a distance" limitation is either meaningless or impermissibly vague. Either it really means over any distance, in which case it is meaningless because any transfer over a line or channel will involve some distance, no matter how slight, or it means over some minimum distance, in which case it is irreparably vague because there is nothing either within the patent or in common usage to indicate how far is far enough. See H C Prods. Co. v. Air Vent, Inc., 468 F. Supp. 750, 755 (C.D. Ill. 1979) ("A court must construe a claim in such manner as will render the same not vague and indefinite."). Accordingly, the Court adopts defendant's proposed construction.
CAT contends that the term "telecommunications means" is not in means-plus-function format. According to CAT, the distance within the claim language between the first use of the disputed term and the element that recites the function of the telecommunications means is inconsistent with means-plus-function claim drafting. (D.I. 60 at 104) However, CAT cites no authority for this proposition.

Relying on its expert and a technical dictionary, CAT next asserts that the word "telecommunications" itself imparts sufficient structure to a person having ordinary skill in the art and thereby overcomes the presumption by calling to mind the structure of a modem. (D.I. 44 at 12-13 Ex. 5 (Grimes Decl.) PP 11-12, 20, 22, 24-31, 34-35) CAT also points to a related case, Card Activation Technologies, Inc. v. Walgreen Co., Case No. 06-C-5578 (N.D. Ill.), in which Magistrate Judge Valdez recommended that the Court construe the term "telecommunications means," as used in the '859 patent, as not being in a means-plus-function format. (D.I. 44 Ex. 6 at 10) Judge Valdez relied primarily on Mr. Grimes' unchallenged declarations that the term connoted a particular structure to one skilled in the art. (See id.) However, as both parties note, the related case settled before Judge Valdez's Report and Recommendation could be adopted and this Court is not required to agree with it. (D.I. 44 at 4; D.I. 47 at 13) Having reviewed all of CAT's extrinsic evidence, I have concluded that the presumption is not overcome.

Having determined that the term "telecommunications means" is in means-plus-function format, it becomes necessary to identify the corresponding function and structure. According to SVS, the function of the "telecommunications means" as used in claims 1 and 20 is "for requesting a response of approval or disapproval from the host data processor," and the function as the term is used in claims 10 and 29 is "for requesting authorization of the debit purchase transaction." (D.I. 43 at 8-9) CAT, on the other hand, proposes that the function of the "telecommunications means" as used in all four claims is "communicating with a host data processor." (D.I. 44 at 13) Claims 10 and 29 recite "communicating with a host data processor through the telecommunications means" ('859 patent, col. 8 lines 51-67 to col. 9 lines 1-7); claims 1 and 20 recite "transmitting a transaction request to the host data processor" and "receiving a response from the host computer" (id. col. 7 lines 46-67 to col. 8 lines 1-4). CAT's construction -- "communicating with a host data processor" -- encompasses the "communicating," "transmitting," and "receiving" functions of the telecommunications means as recited in the claims. SVS's construction, on the other hand, identifies not the function of the "telecommunications means," but the purpose of the communications conducted by the "telecommunications means."

Turning to the structure, SVS proposes "a modem that dials an electronic debit processor via a telephone line." (D.I. 43 at 9) CAT contends the structure is instead "a modem or its equivalent." (D.I. 44 at 18) While the parties generally agree that the structure includes a modem, SVS would limit the modem to one that communicates using a standard telephone line. SVS finds support for its position in several passages of the specification that describe how the terminal "is connected via a modem line to a host computer" and "calls" and "dials" a host. (D.I. 43 at 9-10) The parties appear to be in agreement that at the time the patent was drafted, modems operated almost exclusively on standard "dial-up" phone lines. (D.I. 43 at 11; D.I. 44 at 17) 2 However, Federal Circuit "case law allows for after-arising technology to be captured within the literal scope of valid claims that are drafted broadly enough." Innogenetics N. V. v. Abbott Labs., 512 F.3d 1363, 1371-72 (Fed. Cir. 2008). Here, the claim term "telecommunications means" is sufficiently broad to encompass modern equivalents of modems that formerly relied on standard telephone lines. Nothing in the record suggests that the patentee disclaimed those equivalents.

2 Counsel for SVS emphasized this point by playing for the Court a recording of the now "old-fashioned" set of tones that were once associated with a "dial-up" modem establishing a connection to, for example, the internet, over a standard phone line. (D.I. 60 at 14)
1. "telecommunications ('telecom') stage"

NICE's Construction: The stage that serves to capture and pre-process signals from two or more communication channels and interfaces with the recorder stage.

Witness's Construction: Device that receives input passively, and is not part of the communications system.

The parties dispute the meaning of "telecommunications ('telecom') stage," as used in claim 1 of the '372 patent. NICE contends that the specification clearly supports its construction, citing col. 7:51-54 and col. 9:67-10:1, and that Witness's construction improperly adds the limitations "device" and "passively." Witness contends that NICE disclaimed all but "passive" methods of recording during prosecution, citing '372 Pros. Hist., Office Action at 3, Amend. At 9-10 (wherein NICE distinguished its telecom stage from Knitl prior art by arguing that the telecom stage "monitor[s] information transmitted on communication channels, but are not part of the communications system." Further, Witness argues that the specification supports its construction, citing col. 7:60-8:5 ("[T]elecom stage 102 incorporates a first interface . . . that allows for passive tapping of the phone lines.").

After reviewing the claim language, specification, and relevant prosecution history, the Court concludes that NICE's construction of "telecommunications ('telecom') stage" is the correct one. Under the heading "The Telecom Stage," the specification states:

In accordance with the present invention telecom stage 102 generally functions to capture and pre-process signals from a plurality of communications lines into a format that is recognized by the recorder stage.

(col. 7:51-54.) The specification also states that the telecom and recorder stage interface. (col. 9:67-10:1 (recorder stage has "an interface 120 receiving input from the telecom stage").) Witness's citation to the term "passive" in the specification (col. 7:60-8:5) is unpersuasive because the term is used only in a description of an example of the invention. Likewise, Witness's reference to the prosecution history is also unpersuasive. NICE distinguished a telecom stage from a Private Branch Exchange ("PBX") in a 1993 Knitl patent by explaining:

[T]he PBX cannot be a telecom stage of a data logging system at least because the PBX switch forms part of the communication system, while the telecom stage of [the '372 patent] monitors signals on established communication channels. In fact, the written description at page 3, lines 17-33, specifically mentions problems associated with connecting a logging system to a PBX switch, the clear inference being that a PBX switch is not part of the logging system.

(JCC Ex. 11 at 10.) This is consistent with claim 1 of the patent, and does not support Witness's contention regarding passivity.

GO BACK

1. "for use in a telecommunications system"

The preambles of each of the independent claims at issue state that the invention disclosed in the '184 patent is directed to a method "for use in a telecommunications system." Although the preambles do not provide a specific definition of the term "telecommunications system," they do describe a system wherein interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber . . . .
each subscriber has a primary interexchange carrier (PIC) over which interexchange calls initiated by that subscriber are carried . . .

Focusing on the phrases "routed over the facilities" and "over which . . . calls . . . are carried," Excel argues that the term "telecommunications system" is limited to the "call-carrying facilities that comprise the United States telecommunications system." (D.I. 300 at 59) In support of their argument, Excel references the language of independent claim 24, which discloses a method for use in a telecommunications system comprised of local exchange carriers and interexchange carriers, said system being arranged to establish telephone connections between subscribers of said local exchange carriers in response to requests for same . . .

According to Excel, use of the phrase "telephone connections" limits the LECs and IXCs that comprise the "telecommunications system" to their "call-carrying aspects." Thus, Excel argues, omitted from the term's purview are any ancillary functions performed by the LECs and IXCs, such as collections and sales, which, although necessary for providing long-distance telephone services, do not involve the use of "call-carrying facilities." (D.I. 300 at 60)

The term "telecommunications system" is neither defined nor used in the specification. Instead, the specification refers to "telephone networks" and "a network of interexchange carrier switches." (’184 patent, col. 1, Ins. 7; col. 3, Ins. 3-4) For example, the operation of a telephone network with respect to long-distance calls is summarized in the specification as follows:

When a long-distance call is initiated by the subscriber, the call is routed through the network of the originating subscriber's LEC, over the network of the PIC and, ultimately, through the network of the LEC which has as one of its subscribers the called party.

Excel argues that, given the language and figures of the specification, the "telecommunications system" referred to in the preambles of the independent claims requires the network of a facilities-based carrier.

AT&T, on the other hand, contends that the term "telecommunications system" is not so limited, arguing instead that it refers to the equal access telecommunications system, which consists of all the long-distance service carriers operating in the United States. (D.I. 300 at 16; D.I. 213 at 13) Specifically, AT&T identifies the following language in the specification that speaks to an IXC's use, not ownership, of facilities for the routing of long-distance calls:

The invention more particularly relates to the generation of message records for long-distance--or so-called interexchange--calls, which involve the use of the facilities of a long-distance, or interexchange, carrier, also referred to as an IXC.
AT&T asserts that there is no support in the patent for a construction of the term "telecommunications system" that would require an IXC to have an ownership interest in the facilities used to carry or route the interexchange calls of its customers.

It is axiomatic that IXCs use facilities such as switches, computers, and transmission lines to provide long-distance service, i.e., to route calls. Nowhere in the '184 patent, however, is there any explicit mention that an IXC must own, as compared to use, the facilities over which the interexchange calls of its customers are carried or routed in order to practice the claimed invention. Rather, the claim language itself and the specification contemplate a "telecommunications system" comprised not only of the facilities such as switches and transmission lines that physically establish the call connections, but also the ancillary facilities such as billing and collections that allow such a system to operate. Accordingly, the court concludes that the term "telecommunications system" is not limited to the network of a facilities-based IXC.

7 Consistent with this construction, the court concludes that the practice of the claimed invention is not limited to those IXCs which own the facilities used to transmit their subscriber's calls. There is no basis for reading an ownership limitation into the claims. Rather, the patent is directed to the generation of message records for long-distance calls "which involve the use[, not the ownership,] of the facilities" of an IXC. ( '184 patent, col. 1, lns. 30-34) (emphasis added). Accordingly, the court concludes that (1) the IXC to which a subscriber may be PIC'd need not be a facilities-based carrier but may be any company that provides long-distance telephone service and (2) the "PIC indicator" and "indication which has a particular value" claimed by the '184 patent is not limited to an indicator of the facilities-based IXC over whose network the subscriber's calls are carried.

4406
"Telemetry transmitter."

To define the term, Plaintiff proposes "any transmitter capable of wireless transmission." Defendants argues that the term means "cellular network based transmitter."

The parties did not dispute in their briefs or at the Markman hearing what a telemetry transmitter does. One skilled in the art would know, and the parties agree, that a telemetry transmitter simply transfers measurable data using telecommunication techniques. However, Defendants want to limit the term in this case to the use of a cellular-based transmitter, and Plaintiff wants to impose the limitation that the transmitter be wireless. There is simply no basis for either limitation.

As anyone who has seen a heart or fetal monitor in a hospital knows, telemetry can be transmitted over wires. Just because that may be impractical for most embodiments of the invention does not entitle Plaintiff to include that limitation.

As to Defendant's "cellular telephone" limitation, the specification is replete with descriptions of the transmission of data by satellite, and radio-telephoned. Col. 1, L. 64-65, Col. 2, L. 26-28, Col. 2, L. 44-45, Col. 2, L. 63-64. If there is any doubt, the specification states: "An alternative embodiment of the system that does NO Juse the cellular network is illustrated in FIG. 10." The specification then describes the use of a satellite. Col. 8, L. 29-30.

The court will define this term as follows:

"Telemetry transmitter" means "a device that transfers measurable data using telecommunication techniques or methods."
2. "telephone answering device"

By the time of the hearing, Klausner proposed that this term be construed as "an electronic device for answering telephone calls," while Vonage proposed "a device for answering an incoming telephone call." Vonage does not appear to seriously dispute the inclusion of "electronic" in the definition of this term. Nor does there appear to be any serious dispute to including the word "incoming" in the definition as the preamble of Claim 3 describes "storing and retrieving information from the incoming telephone calls with a telephone answering device." Throughout the '576 patent, the telephone answering device is described as a device that can receive, store and retrieve messages left by a calling party, i.e., messages coming in to a called party. See, e.g., '576 patent, col. 5:23-31, 34-40. Accordingly, the Court construes this term as "an electronic device for answering an incoming telephone call."

4408

1. "telephone call"

NICE's Construction

plain meaning
Witness's Construction
Entire conversation with an entity from a caller's perspective, including transfers and conferences.

The parties dispute the meaning of "telephone call," as used in the '570 patent (claim 6) and '345 patent (claim 14). NICE contends that the disputed term has a plain and ordinary meaning that requires no construction by the court. Further, NICE contends that Witness improperly relies on an excerpt from the description of the preferred embodiment to read a limitation into the claim. Witness's proposed construction is drawn from the following specification passage:

In other words, within the system of the preferred embodiment, recording is managed in a call-centric (rather than event-centric) fashion. This corresponds with the typical caller's point of view, in which a call is the entire conversation with a business entity, even if the conversation involves transfers to other agents or conferencing of multiple parties.

(Pat. '570, col. 8:5-11.)

After considering the claim language and the specification, the Court construes "telephone call" to mean "the entire conversation between a business entity and a caller to that entity, including transfers and conferences." The specification cited above defines "telephone call" within a broader discussion of a preferred embodiment; the definition of the phrase itself is not the preferred embodiment. Further, the language of the claims suggests the need to differentiate between a "telephone call" and a "telephone call segment." See, e.g., ('570 pat., claim 6(a)("receiving audio data regarding one or more telephone call segments relating to one or more telephone calls").

4409

Telephone Call Center

The parties propose the following construction of "telephone call center."

IEX: "Telephone call center" means "an organization of people, telecommunications equipment and management software."

Blue Pumpkin: "Telephone call center" means "an organization of people, telecommunications equipment, and management software, with a mission of efficiently handling telephone-based customer contact."

The Court recommends "telephone call center" be construed as "an organization of people, telecommunications equipment, and management software, with a mission of efficiently handling telephone-based customer contact."
A.2.d. "telephone-communication facility"

In its asserted interpretation of "dialed-number identification signals" and "identification signals" in the representative claims of the 120 patent, Verizon appears to define the term "telephone-communication facility" as a public switched telephone network. 8 Verizon Brief at 29, 32, 33. Katz, relying on the AT&T Order, asserts that "telephone-communication facility" means "that part of a telephone network that enables a caller to connect to the Katz system." Katz Brief at 52; see also AT&T Order at 598.

The term "telephone-communication facility" means a telephone network that connects remote terminals and other devices having telephonic capabilities, such as the audio response units, for communication. It is not clear to the Court, whether the parties consider the term "telephone-communication facility" to have a plain meaning to one of ordinary skill in the art. However, Webster's defines "facility" as "something . . . that is built, installed, or established to serve a particular purpose," see Webster's Ninth New Collegiate Dictionary at 445, suggesting that the term "telephone-communication facility" means something dedicated to the purpose of telephone communications. See Altiris, 318 F.3d at 1372 ("simply because a phrase as a whole lacks a common meaning does not compel a court to abandon its quest for a common meaning and disregard the established meanings of the individual words."). The specification also sheds light on the meaning of "telephone-communication facility" as "accommodating" the remote terminals and connecting the remote terminals to the central station CS. See 120 patent, Col. 3:36-37; see also Col. 3:31-35 ("The indicated terminals T1-TN represent the multitude of telephone terminals existing in association with a communication facility CO which may comprise a comprehensive public telephone network."); Col. 4:12-15 ("Essentially, as a result of telephonic dialing at one of the terminals T1-TN, the communication facility CO couples the select terminal to an audio response unit."); Col. 7:1-5 ("the caller [actuates] the buttons 14 as for example to input: "1 900 5558945". As a result, signals are provided to the communication facility CO resulting in a connection from the remote terminal T1 to the audio response unit 22."); Col. 7:31-34 ("the caller dials a number . . ., actuating the terminal T1 and the communication facility CO to provide a connection with the audio response unit 18.").

With due deference to the AT&T court, Katz' proposed construction does not appear to be warranted, as the 120 patent specification does not define "telephone-communication facility" as only "that part" of a telephone network that enables callers to connect to the Katz system. That being said, however, communication facility, as construed by this Court, does not exclude the possibility that the communication facility is part of a larger telephone network or the public switched telephone network itself. In addition, the Court's construction is not meant to exclude the possibility that the Katz system is an integral part of (operating within) the communication facility. As to Verizon's asserted interpretation, limiting the term "telephone-communication facility" to a public switched telephone network would import limitations of a preferred embodiment into the claim. The 120 patent specification appears to indicate that the communication facility may be other types of networks. See Col. 3:33-35 ("communication facility CO . . . may comprise a comprehensive public telephone network.") (emphasis added).
6. "First telephone connection means"

"Second telephone connection means"

The parties agree that "first telephone connection means" and "second telephone connection means" are means-plus-function terms under paragraph six of 35 U.S.C. § 112. As the Federal Circuit has explained: "Claim construction of a means-plus-function limitation includes two steps. First, the court must determine the claimed function. Second, the court must identify the corresponding structure in the written description of the patent that performs that function." Applied Med. Res. Corp. v. U.S. Surgical Corp., 448 F.3d 1324, 1332 (Fed. Cir. 2006) (citations omitted).

"Telephone connection means" appears only in claim 1 of the '964 patent. The "telephone connection means" clause reads:

first telephone connection means connected to the control means and operable for connecting through a trunk line to the telephone exchange and for receiving an incoming direct inward dial telephone number on the trunk line from the telephone exchange as part of an incoming call attempt from the subscriber telephone station, the incoming direct inward dial telephone number indicating the number called by the subscriber.

'964 patent, col. 10, 11. 14-21. The "telephone connection means" thus appears to have two functions, being "operable for connecting" and "receiving."

Defendants argue that no structure in the specification corresponds to the "first telephone connection means." 112 Mot. (dkt. # 675) at 10-11. Defendants identify some candidates but discount each in turn:

... the system obtains the direct inward dial number from storage for placing that number on an output connection to the exchange.

... CRU 20 includes a computer, controller, or other suitable data processing unit along with appropriate sensing circuit connections as is conventional for data acquisition and control technology.

... This includes switching functions to handle line (circuit) connections; interactive voice response operations; database controller for subscriber identification; and a system message detail recording (SMDR) unit 24 to provide information necessary to create call records.

'964 patent, col. 4, 11.45-47, col. 6, 11. 48-51, 60-65.

Cygnus points to column 5, lines 10 through 24 of the '964 patent as the corresponding structure for "first telephone connection means." This portion of the specification recites that

[a] signal is sent from the service center to the originator, thus indicating that the originator is identified whereupon the originator is instructed or prompted to terminate the call. Termination by the calling party is sensed at the service center followed by seizing of a first outbound circuit over which the service center outputs the call-back number for the identified originator. This operation reconnects the service center via a voice connection to the originator.

The specification also discusses that the invention relates to a "public telephone network." '964 patent col. 2, 11. 49-50, 59-60. The recitation in the specification of "output connection to the exchange" is sufficient structure to satisfy the
requirements of means-plus-function claiming. Although the drafter could have just called the "telephone connection means" what it appears to be, namely a phone line, one skilled in the art would recognize a telephone line as the structure performing the connecting and receiving functions. 4

4 Defendants also argue that disclosure of the details of James Alleman's "386 System" in the specification would have been necessary to satisfy the written description requirement as to "second telephone connection means." Disputed issues of material fact prevent resolution of this issue.

4413

B.

The parties first seek construction of the terms "telephone device" and "telephony device" as used in Claim 13 of the 298 Patent. Although BMC and Paymentech agree that both terms have the same meaning, they offer different definitions of the terms.

The standard dictionary definition of a "telephone" is "a device, system, or process using electricity to send sound or speech to a distant point." RANDOM HOUSE WEBSTER'S BASIC DICTIONARY OF AMERICAN ENGLISH at 451 (1998). A "device" is "a piece of equipment or mechanism for a special purpose." THE MERRIAM-WEBSTER DICTIONARY at 214 (1997). Thus, in ordinary usage, a "telephone device" means "a piece of equipment that uses electricity to send sound or speech to a distant point."

Paymentech proposes a definition that would require the device to be "designed to perform the function of using electricity to send sound to a distant point. (Def. Op. Br. at 4). Such a construction would add an element to the definition not supported by the specification or the prosecution history. See Texas Digital Systems, 308 F.3d at 1202 (in choosing among multiple dictionary definitions, the court must consult the intrinsic record to determine which of the possible meanings is most consistent with the use of words by the inventor). No intrinsic evidence suggests that the invention requires any specialized equipment. Rather, the PIN-less bill payment processing system described by the 298 Patent requires only an ordinary telephone. (See Plf. App., Exh. 1 at12) ("Still another technical advantage achieved with the invention is the elimination of any specialized equipment on the part of the consumer to process an electronic bill payment [i.e., personal computers, specialized telephones or terminals, etc.].") The court therefore determines that the terms "telephone device" and "telephony device," as used in Claim 13 of the 298 Patent, should be construed to mean "a piece of equipment that uses electricity to send sound or speech to a distant point."

4414

5. "Telephone exchange"

The term "telephone exchange" is not defined in the specification of the '964 patent. NEWTON'S TELECOM DICTIONARY 846 (16th edition) defines "telephone exchange" as "[a] switching center for connecting and switching phone lines. "Wikipedia 3 defines "telephone exchange" as "a system of electronic components that connects telephone calls." Defendants argue that the patent's use of the term is ambiguous because one cannot tell whether "telephone exchange" refers to "the domestic and/or international public telephone network (IXC)" or the "local exchange company (LEC)." See '964 patent, col. 6, 11. 42-43, 45.
"Telephone exchange" is mentioned in claim 1 of the '964 patent:

first telephone connection means connected to the control means and operable for connecting through a trunk line to the telephone exchange and for receiving an incoming direct inward dial telephone number on the trunk line from the telephone exchange as part of an incoming call attempt from the subscriber telephone station, the incoming direct inward dial telephone number indicating the number called by the subscriber;

second telephone connection means connected to the control means and operable for dialing out through the telephone exchange;

id., col. 10, 11. 14-24, as well as in claim 6 of the '964 patent:

A method establishing a telephone communication link between a subscriber telephone station and a destination telephone station, both being connected through a telephone exchange,


The use of the term "telephone exchange" in the patents fits with the dictionary definitions and nothing suggests that one skilled in the art reading the '964 patent would interpret the term otherwise.

Defendants' indefiniteness contention is without merit. "Whether a claim is invalid under 35 U.S.C. § 112, P 2, for indefiniteness is a question of law . . . . The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed. Cir. 2001). The court rejects defendants' contention that the multiple mentions of "telephone exchange" in the '964 patent renders it indefinite. Construing "telephone exchange" (which is not defined in the patent) as "a system of electronic components that connects telephone calls" would allow a single meaning of "telephone exchange" to encompass both the IXC and the LEC. Because 35 U.S.C. § 282 gives a patent "a statutory presumption of validity," a challenger bears the burden of proving "by clear and convincing evidence" that a patent is invalid. Monsanto Co. v. Scruggs, 459 F.3d 1328, 1336-37 (Fed. Cir. 2006). Defendants have not met this burden. "Telephone exchange" means "a system of electronic components that connects telephone calls."
Part of the dispute centers on the fact that there are different kinds of switched networks. Time Warner wants the disputed terms limited to a "circuit switched network," specifically the Public Switched Telephone Network ("PTSN").

As set out in the technology synopses submitted by the parties, one of ordinary skill in the art would know that a "circuit switched network" is one which establishes a connection from one user to the other such that these users have dedicated use of the circuit until the connection is released. In a "packet switched network," data packets are relayed through various stations in a network and are reassembled in proper sequence at their destination. These terms are not uncommon. See Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1344-45 n.2 (Fed. Cir. 2004). The terms were also defined in the "Background of the Invention" section of United States Patent No. 5,341,374 (the "Lewen" patent). See col. 1, ll. 21-27, col. 2, ll. 37-41. This patent was filed on March 1, 1991, and issued August 23, 1994, placing it within the time frame of the patent-in-suit. See also United States Patent No. 5,113,392 (the "Takiyasu" patent), filed June 18, 1990 and issued May 12, 1992, "Background of the Invention" (generally describing packet-based transmission).

There is no reason to limit the construction of "switched telephone network" and "telephone network" to the PSTN, as Time Warner suggests. While USVO's expert stated that, to his knowledge, the only definition or use of the phrase "switched telephone network" during the period 1990-1992 was in the context of the PSTN, he also stated that the PSTN did not have the capability to perform the actions recited in Claim 1 for residential users at that time. Report of Dr. Beckmann, Pl. Op. Claim Const. Br., Ex. D, at 11-12 [Doc. # 149, pp. 12-13 of 35]. Dr. Beckmann went on to state that the characteristics of telephone network 12 disclosed by the '792 patent were consistent with those of an asynchronous transfer mode ("ATM") network, as envisioned in 1990-1992. Id. at 13; Tr. at p. 25, ll. 5-11.

Time Warner disputes this, and points to extrinsic evidence that USVO referred to its patented technology as having the PSTN as one element in its 1992 Quarterly Report. Quarterly Report, Def. Claim Const. Br., Ex. 2-A at 11 (filed under seal) [Doc. # 153, p. 8 of 9]. There is nothing in the claims, the specification, or the prosecution history that indicates "switched telephone network" was intended to be synonymous with PSTN. Neither the claims nor the specification define the "switched telephone network" or "telephone network" as only "circuit switched" or solely "packet switched." The court will not include these limitations in the construction of these terms.

"Telephone" Does Not Encompass all Telecommunications

USVO urges the court to construe the terms to encompass all telecommunications systems. The court concludes that this construction is too broad. The specification repeatedly describes the network as a "commercial telephone network." For example, the Abstract begins with: "A system and method for transferring video programs from a first location to a remote location . . . over selected commercial telephone networks." See Abstract [emphasis added]. This description is repeated in the Summary of the Invention:

Therefore, according to the present invention, a system and method for transferring video programs from a first location to a remote location provides for communication of the programs over selected commercial telephone networks.

'792 Patent, col. 2, ll. 3-7 [emphasis added].

The Description of the Preferred Embodiment states that Figure 1 describes a "system for transferring video programs to a remote location [which] includes a central data facility 10 connected to a commercial telephone network 12." '792 Patent, col. 2, ll. 45-48 [emphasis added]. The specification goes on to state that "[t]elephone network 12 preferably includes optical fiber connections . . . expected to be widely available [in the United States] in the future." '792 Patent, col. 2, ll. 50-54. At the receiving end, (the "remote location") "a telephone 14 and receiving unit 16 are connected to the telephone network 12." '792 Patent, col. 2, ll. 55-56 [emphasis added]. A video display device, such as a television set, is attached to the receiving unit. '792 Patent, col. 2, ll. 56-61.

USVO could point to no description of the patented system which does not include a telephone. There is no basis to expand the terms "switched telephone network" and "telephone network" to include other telecommunication systems such as radio or other broadcast media.

The real dispute in this case is not really over such an expansive construction. The suit arises because fiber-optic cables, originally installed and used for simultaneous broadcast of programs to many customers, can now be used for commercial telephone service.
In order to overcome a prior art rejection, the applicants distinguished the prior art references by characterizing them as providing for "broadcasting over a cable." The applicants went on to state that "the broadcast cable techniques are clearly not relevant to the claimed invention; they provide for transmission to many possible users simultaneously while the claimed system sends a program only to a single intended recipient." Amendment of 5/22/91, Def. Claim Const. Br., Ex. 1-A at 8 [Doc. # 152, p. 9 of 12]. In the "Background of the Invention," the patentee states:

["Programs transferred to a remote location along a specially installed, dedicated cable generally have a reliably good picture quality. However the cable must be installed at each remote location, and controlled through a centralized facility. . . . As is the case with broadcast systems, transmitting equipment must be made available at the time any particular program is to be viewed. The selection of programs and times for viewing are made centrally, as is the case with broadcast systems, and are not under the control of a viewer at a remote location."

'792 Patent, col. 1, ll. 34-46. [emphasis added] The patentee continues: "It would be "desirable to provide a system . . . which overcomes various drawbacks as described above."' 792 Patent, col. 1, ll. 55-58.

While the court is mindful of avoiding importing limitations from the specification to the claims absent a clear disclaimer, the patentees clearly disclaimed distribution of programs by general broadcasts over cable networks. Today, however, cable TV providers offer commercial point to point telephone service over the cables originally installed for broadcast of programs. See Tr. at p. 17, l. 23-p. 19, l. 17. The fact that the cable can be used for general broadcasts, which were disclaimed by the patentee, is not a reason to craft a claim construction which, in and of itself, excludes the same cable when used for point to point telephone service. That is an infringement argument which will depend on evidence about how Defendants supply their "video on demand" services.

The court will define these terms as follows:

"Switched telephone network" and "telephone network" mean "a commercial system that establishes a route for telephone communication from one party to another"
"Telephone number" is a simple and widely used term, and there is no indication that the inventors intended to use the term differently from its commonly understood meaning among persons of skill in the art. Rebtel's proposed definition serves only to introduce additional terms into the claim and would result in confusion for the jury. See Am. Patent Dev. Corp. v. Movieline, LLC, 604 F. Supp. 2d 704, 716 (D. Del. 2009) (refusing to adopt a construction which was "merely a verbose paraphrasing of claim language that otherwise offers little to assist one of skill in the art in understanding the claims"); Parker-Hannifin, 2008 U.S. Dist. LEXIS 108152, at *38 (providing no construction for words which should be readily understood by a jury and where defendant's constructions merely offered synonyms for the claim terms); WIMCO, 2007 U.S. Dist. LEXIS 92502, at *11 (providing no claim construction for a term where "any further definition or paraphrasing would serve no useful purpose."). Consequently, "telephone number" is given its plain and ordinary meaning.

"800" Telephone Number

The term "800 telephone number" appears only in Claim 7. MyMail asserts that an "800 telephone number" is defined as a "toll-free telephone number," while Defendants urge the Court to construe this term as "a toll free telephone number for long-distance calls, with a prefix of 800." The Court adopts MyMail's proposed definition. The specification refers to "an 800 type toll-free number," implying any number in the 8xx-family of toll-free calling prefixes (800, 866, 877, 888, etc). See Col. 14:35-36. The Court finds no support for so narrowly construing "800 telephone number" to require the prefix of "800" or importing the requirement that the call must be long-distance.

A. Telephone Set

The Court agrees with the Defendant that the term "telephone set" in the 848 patent has its ordinary meaning. First, the patent claim does not specifically define the term. Id. at 1388. Second, the Plaintiff's expert concedes that a keypad alone is not a "telephone set." Sykes Dep. at 100. Third, in claims not at issue in this case, the term "telephone set" refers to "audible feedback signals" (Def's. Ex. A, claim 3, col. 21, 11. 23-26; claim 49, col. 30, 11. 6-7) and a "synthesized speech signal" (claim 49, col. 30, 11. 6-10; claim 50, col. 30, 11. 9-10). Consequently, the term cannot mean a keypad alone. See Kingsdown Medical Consultants, Ltd. v. Hoolistr, Inc., 863 F.2d 867, 874 (Fed. Cir. 1988), cert. denied, 490 U.S. 1067, 104 L. Ed. 2d 633, 109 S. Ct. 2068 (1989) (claim construction requires analysis of all claims). Therefore, the Court will accept the Defendant's construction of "telephone set" as a "device that transmits and receives sounds" and keypad alone is not a telephone set.

10. "Telephone signal"

This term appears in claim 25 of the '538 patent. SercoNet construes this term as: "An electrical signal carrying bi-directional speech information in either a digital or analog form." NetGear defines it as: "An analog telephone signal (i.e., the signal that is used for plain old telephone service (POTS))".
Starting with the claim language, claim 25 refers to a "network for transporting digital data and telephone signals" but does not define telephone signals. However, claim 30 of the patent describes a network "wherein the telephone signals are digitized telephone signals." From the plain claim language, therefore, telephone signals are broad enough to encompass digitized telephone signals. In addition, other claims in the patent, such as claims 2 and 12, refer to the term "analog." Yet "analog" was omitted in the term "telephone signal" at issue here. Therefore, the claim language indicates that "telephone signals" are not limited to analog signals, as NetGear's construction proposes.

Turning to the specification for further clarification, the specification defines "analog telephony" as traditional analog low frequency audio voice signals referred to as "plain old telephone service" or "POTS." It then specifically contrasts the term telephony, which in general denotes any kind of telephone service, including digital service such as integrated services digital network. See '538 patent at 1:18-32. Furthermore, the specification explicitly refers to an embodiment that describes both analog and digital telephone networks. See id. at 11:58-67. The term at issue, therefore, is not limited to analog telephone signals, and SercoNet's broader construction is proper.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "telephone signal" and construes the term as: "An electrical signal carrying bi-directional speech information in either a digital or analog form."

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3. "telephone signals": The court determines that no construction is necessary and the common meaning of this term applies.

4. "telephone signals in a telephone voice band": telephone signals in the range of frequencies between approximately 0-4 kHz.

Defendants proposed construction is adopted by the court. Inline proposes that "telephone signals in a telephone voice band" means "telephone signals that are expressed as analog signals within the voice frequency band of 0-4 kHz on the network of twisted pair wires and on a trunk line in any analog or digital form." The court finds no intrinsic evidence to support Inline's construction. Indeed, Inline acknowledges that "the common specification does not specifically describe telephone signals in a telephone voice band as analog or digitized on a public trunk line . . . ." n25 The court, therefore, declines to construe this phrase as including Inline's additional verbiage. n26

--- Footnotes ---


n26 Cf. Superguide Corp. v. DirecTV Enters., 358 F.3d 870, 878 (Fed. Cir. 2004) (reversing district court for limiting "regularly received telephone signals" and "radio frequency information" to analog forms; "[t]he district court should have begun its analysis by first examining the claim language. . . . The claim language does not limit the disputed phrases to any particular type of technology or specify a particular type of signal format, such as analog or digital. Indeed, neither 'analog' or 'digital' appears in any of the asserted claims.").

--- End Footnotes ---

4 Telephone Terminal

The first disputed term of the patent is "telephone terminal." Furnace Brook asserts that the term "telephone terminal" should be interpreted to mean "a customer's terminal, whether hard wired or portable." n1 Overstock asserts that the term
"telephone terminal" should be interpreted to mean "a standard customer telephone unit which may be hardwired or portable and has a standard commercial handset, a touchtone pad, a display unit and an audio unit such that it is not a computer system or personal computer."

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n1 As addressed infra, Furnace Brook asserts that the term "customer terminal means" should be interpreted in the same way.

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The term "telephone terminal" first appears in Claim One, which recites, in part:

An improved interactive computerized catalog process comprising the steps of:

    storing digitized graphic catalog data in a selectively addressable computer system memory,
    generating a menu of catalog products and services comprising catalog data available for selective viewing at any user's telephone associated terminal screen,
    establishing a selective communication link initiated by a user between said user's telephone terminal and said computer system,
    transmitting said menu of catalog products and services to a user's telephone terminal in response to a user's initial request,

'832 Patent at 10:54-67. The specification explains:

The telephone terminal 13 comprises a standard customer telephone unit which may be hard wired or portable and has a standard commercial handset 20 and touchtone pad 21, a display unit 24 preferably capable of displaying alphanumeric and graphic data and an audio unit 23 such as the speaker phone arranged to free the user from the normal telephone handset.

'832 Patent at 4:7-13. It goes on to describe that:

There are several commercially available screen phones, for example Northern Telephone's Vista 300 phone or Bellcore's Mediacom System which both include digital data terminal features utilizable in accordance with applicants' improved interactive catalog system.


The parties dispute whether the patent covers the use of a cellular phone or a computer by the consumer. Overstock contends that it does not, and that the use of a cell phone or computer instead of a "standard commercial handset and touchtone pad" would not infringe on the patent. Transcript at 27. Furnace Brook responds that the term "telephone" in 1995 would have been commonly understood to include a cellular telephone.

Furnace Brook argues that Overstock's interpretation excluding cellular phones asks the Court to limit a claim to the embodiments disclosed in the specification, as is forbidden under claim construction law. While it is improper to import into a claim limitations that are not part of the claim, see Superguide, supra, it is nevertheless permissible to look to the specification for explanation and understanding, even where the claim language is broader than an embodiment. In this case, there is no dispute that cellular technology was known and developing in the relevant years, and there is no mention of cellular technology in the patent claims or specification.

As just set forth, the specification describes the telephone terminal as being a standard customer telephone unit, which may be hard-wired or portable, along with other features. It describes a "speaker phone arranged to free the user from the normal telephone handset" as an example of an audio unit. Fairly read in the context of the invention and claim language, as informed by the specification language, the term "portable" reveals that the hard-wired user telephone may have a detachable handset, which does not by itself broaden the term "telephone terminal" to include a cellular phone. The Court need not and does not at this stage of the litigation consider whether the use of a cellular phone would invoke the doctrine of
equivalence if the phone comported in all meaningful respects with the telephone terminal claimed in the patent. While Furnace Brook complains that Overstock has not produced evidence to show that cellular telephones were not considered standard telephones in 1995, Furnace Brook has not produced evidence to show that they were. It is well known that the claims of the patent define the invention to which the patentee is entitled the right to exclude. In the absence of any reference whatever to cellular telephones or cellular technology, this 1995 patent is not read to claim such. This patent, as explained by the specification, claims landline telephones, which may or may not have a portable or detachable handset.

Furnace Brook contends and Overstock denies that a telephone terminal could also be a computer. The use of the words "between said user's telephone terminal and said computer system" in Claim One shows that a computer was not contemplated at the user end. When the Patentee intended to talk about a computer, he did so by using the word computer, as was frequently used when describing the retailer end of the invention, but never used when describing the customer end of the invention. A computer is beyond the specified embodiments, which do not limit, but explain this patent's claim of a telephone terminal as a standard telephone with display screen or as a touch tone telephone associated with a cable TV.

Although the prosecution history is generally not as useful a guide to a claim's meaning as the specification, it is worth here noting that in the prosecution history, the Examiner proceeded to describe the unique combination of concepts that ultimately allowed the patent to issue, specifically the "combination of all of the systems into a method of creating an interactive catalogue where the user is given the option of including data from his transactions into a customer marketing profile data file." Id.

The prosecution history includes the following statement by the patent examiner following the amendments filed on December 27, 1996:

The use of a telephone and a computer to communicate a catalogue over the phone lines is known in the art. Similarly, the use of a phone system as a survey tool is also known. Further, it is known that purchases are often analyzed for data relating to the consumer.

Notice of Allowability at 2, OSTKFB001618.

The Examiner then proceeded to describe the unique combination of concepts that ultimately allowed the patent to issue:

However, the prior art does not teach the combination of all of the above systems into a method of creating an interactive catalogue where the user is given the option of including data from his transactions into a customer marketing profile data file.

Id.

The notice of allowance makes plain that on one end is a computer and on the other end is a telephone, which, the patent makes clear, may or may not be associated with a cable TV system. Furnace Brook argues that because the claims do not require two computers does not necessarily mean that two computers could not be used in the invention. But as just noted, the statements of the patent examiner, when allowing the patent to issue make clear that the unique nature of the invention was the combined interaction of a telephone and computer in communicating a catalog over the phone lines, where the user has the option of whether to include "data from his transactions into a customer marketing profile." It would defy the notice purpose of patents to find a user-end computer claimed in this patent.

As earlier noted, Furnace Brook argues that the terms telephone terminal, customer terminal means, and user terminal are used interchangeably because they all mean the same thing. The Court disagrees. As explained infra, the Court concludes that the patentee's use of "customer terminal means" evidences that at the customer end may only be a telephone terminal or a telephone-associated cable-TV. This is supported by the use of the term "plurality of customer terminal means" in Claim 5.

The Court concludes that neither a cellular telephone nor a computer on the user end is claimed by the '832 Patent. Because the terms standard customer telephone unit (hard-wired or portable), standard commercial handset, touchtone pad, a display unit and an audio unit are the named elements that comprise a telephone terminal, the Court concludes that "telephone terminal" means a "standard landline telephone unit, which has a standard commercial handset, a touchtone pad, a display unit and an audio unit, and which may have a cordless handset."
1. With respect to claim 1, Furnace Brook argues that the "telephone terminal" referred to in one of the limitations may be a cellular telephone or a personal computer. We agree with Furnace Brook insofar as it suggests that a "telephone terminal" refers to a device for communicating over a telephone network: a cellular telephone and a personal computer are capable of such communication, and to the extent that they are used to do so, either device can constitute a "telephone terminal." But telephone communication, as discussed in the patent, requires more than just communication over a telephone line. It requires a dial-up connection to the catalog server at the other end of the connection. The specification states that the telephone terminal "dial[s] a predetermined assigned telephone number" used by catalog companies to permit customers to make calls "to their business." '832 patent, col. 3, ll. 1-5. According to the specification, the act of making that telephone call "connects the customer" to the catalog server. Id., col. 3, l. 6. The specification later confirms that requirement, stating that "a telephone call to a predetermined number, e.g. an 800 number" is "recei[ved] by the central data processor of applicants' improved catalog system." Id., col. 8, ll. 3-8.

Thus, the claim 1 limitation reciting the establishment of a "selective communication link initiated by a user between said user's telephone terminal and said computer system" requires that the communication link be established over a telephone network by dialing the computer system directly. Although a personal computer and a cellular telephone are capable of performing that function, those devices must actually be performing that function in order to be "telephone terminals," as that term is used in the '832 patent. The record contains no evidence that the personal computers or cellular telephones of Overstock's customers place such a call when accessing Overstock's website over the Internet. The district court was therefore correct to hold that those devices fall outside the literal scope of the claim 1 limitation.

Furnace Brook notes that the specification discloses an embodiment in which a "terminal" communicates with a catalog server using an "interactive media contact," of which mail, fax, and telephone are given as examples. '832 patent, col. 9, ll. 37-39. Furnace Brook argues that the Internet is a form of interactive media contact and therefore that communications over the Internet do not fall outside the literal scope of claim 1. Even if we assume that the Internet is a form of interactive media contact, Furnace Brook's argument fails because the portion of the specification to which Furnace Brook refers discusses a "terminal" without any further elaboration, whereas claim 1 recites a "telephone terminal." The modifier "telephone" must add some limitation to the noun "terminal" for the modifier to have any meaning. As explained, the specification tells us what telephone communication requires for purposes of the patent. Thus, we reject Furnace Brook's assertion that any embodiment described as a "terminal" in the specification must be a "telephone terminal" within the meaning of claim 1.

Next, Furnace Brook argues that the accused devices, when used to access the Internet, are captured by the doctrine of equivalents, even if they are not within the literal scope of claim 1. The question of infringement under the doctrine of equivalents is a factual question, however, and Furnace Brook has not introduced evidence sufficient to create a genuine issue of material fact as to that question. In its summary judgment briefing, Furnace Brook pointed to the declaration of Dr. Robert Stevenson and the deposition testimony of Dr. Richard Nemes in an effort to show equivalence. Yet none of the facts stated in those sources are material to the equivalents issue before us. Although Dr. Stevenson stated that a personal computer and a cellular telephone can perform the same functions as a standard telephone set, and that those devices can also access the Internet, he did not explain why accessing a computer server over the Internet is equivalent to dialing a computer server over a telephone network. The deposition testimony of Dr. Richard Nemes suffers from the same flaw. Without record evidence to create a genuine factual dispute on the equivalents issue, the district court properly granted summary judgment that Overstock does not infringe claim 1.

1. "telephone wiring network": the network of twisted pair wires extending from the point of convergence where the signal interface may be installed downstream to telephone devices which is shared by information and telephone signals in a telephone voice band.

Inline's proposed construction is adopted by the court. Defendants argue that the "telephone wiring network" "extends or
runs from the telephone devices to the telephone exchange." The patentee did not claim the entire existing communication pathway over which telephone voice signals travel but, rather a system for communicating information from an external source, through the signal interface and downstream to destination devices over the same twisted pair wires that also carry telephone signals. Defendants' proposed preamble limitation, and related construction, would expand the asserted claims to cover the public trunk line all the way back to the telephone exchange in contradiction to the common specification, the claims, and the court's prior claim construction determinations.

The common specification recites:

The present invention relates to a system for simultaneous two-way communication of video signals and other signals between multiple networks of telephone wiring whose twisted pairs converge together into a single bundle, wiring block, or other common point of access, and a high capacity communication line located at that point of access. Each network includes a set of interconnected, active telephone wires (i.e., a group of wires that create a conductive path for telephonic signals) internal to a house, an apartment unit, or a room in a commercial building. Such wiring internal to houses, apartment units, or rooms in commercial buildings shall be referred to herein as "local networks." n17

* * * *

The present invention relates to a system for simultaneous two-way communication of video signals and other signals between multiple networks of telephone wiring . . . providing distribution of . . . signals to a local network of active telephone wiring (i.e., the wiring internal to a house, apartment unit, or a room in a commercial building) from a distribution device that connects to the trunk line of a public or private telephone network. That device is located where the telephone lines for multiple local networks converge to meet the public network trunk (or PBX, in the case office buildings) . . . . n18

"The interface includes a transceiver/switch that is connected to multiple pairs of telephone wiring and is interposed between the telephone wire pairs from the local telephone exchange (the trunk line) and the extended telephone wire pairs leading to separate local networks of telephone wiring." n19

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n17 '596 patent, 1:22-33.
n18 Id. 1:62-2:4.
n19 Id. 9:1-6.
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The court agrees with Inline that "the fact that there is a communications pathway from telephone devices to . . . a telephone exchange does not mean that the telephone wiring network - of the claims - is coextensive with that entire communications path." n20

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N20 D.I. 480 at 11.

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The claims bear out this determination. Each independent claim of the patent-in-suit demonstrates that the "telephone wiring network" cannot include the entire communications pathway extending back to the telephone exchange. Each includes a limitation describing transmission of high frequency signals over the "telephone wiring network" and, therefore, shows defendants' proposed construction is incorrect. For instance, claim 61 of the '596 patent includes an element requiring "circuitry for transmitting to selected sets of one or more of the plurality of transceivers a corresponding plurality of signals in the high frequency band each encoding one of the plurality of information streams over the telephone wiring network." n21
n21 '596 patent, claim 1; see also '446 patent, claim 1 (including the limitations "circuitry for transmitting over the telephone wiring network to the transceiver an internal signal in the high frequency band encoding the information stream" and "circuitry for limiting transmission of the internal signal in the high frequency band from the telephone wiring network to the telephone exchange." (emphases added)); '585 patent, claim 1 (including the limitation "the signal interface includes circuitry for receiving a plurality of external signals encoding information streams from the external source of information, circuitry for transmitting over the telephone wiring network to the transceivers a plurality of internal signals in the high frequency band encoding the information streams, and circuitry for limiting transmission of signals in the high frequency band from the telephone wiring network to the telephone exchange and for passing signals in the telephone frequency band between the telephone wiring network and the telephone exchange." (emphasis added). The figures of the patents also support this conclusion. See, e.g., '596 patent Fig. 1a, Fig. 1b.

In the 2004 Markman Opinion, the court construed the claimed signal interface to be "[a] device interposed on the opposite end (i.e., the local side) of the public trunk line (as defined by the inventor in the patent) from the telephone exchange that performs the recited functions of the incorporated circuitry." n22 The court stated that:

[T]he signal interface is designed to prevent high frequency signals, coming from the external source, from passing onto the public telephone trunk line. . . . The blocking of these high frequency signals from the public trunk line is accomplished by the specific circuitry in the signal interface, low pass filters 474, which block high frequency signals from passing onto the public telephone network, but allow low frequency telephone signals to transmit. n23

Because defendants' proposed construction of "telephone wiring network" would impermissibly permit high frequency signals to be transmitted over the public trunk line, it must be rejected.

n23 Id. at 323.
The parties dispute the meaning of "telephony events," as used in the '570 patent (claim 6) and '345 patent (claim 14). The parties' constructions are identical except for the addition, in Witness's proposal, of "and are not identifying numbers. Agent-entered information is not data regarding telephone events." NICE contends that this addition is not supported by intrinsic evidence and unnecessarily complicates the construction of the term, making it difficult to understand. Witness bases its proposed language on NICE's argument to the examiner during the prosecution of the patent, citing '345 Pat. Pros. Hist., 2nd Prelim. Amend., 4 ("None of the agent entered information is telephony event data, since a telephony event is an action or occurrence, captured by a computer, relating to a telephone call."). In response, NICE contends that this single statement quoted from the prosecution history specifically discusses the Peavey prior art reference, which did not disclose a system that uses a computer to capture an action or occurrence relating to a telephone call.

The Court construes telephony events to mean "Actions or occurrences detected by a computer program and that related to what happens to a phone call (such as the initiation of the call, the addition or removal of callers, the transfer of the phone call, or the termination of the calls)." After considering the claim and the prosecution history cited, the Court concludes the referenced prosecution history goes to a prior art discussion and does not constitute a clear and unmistakable disavowal of claim scope.

1. "Telescope"

The first term that the parties disputed was the word "telescope." "Telescope" appears in every claim in the patent, either expressly or by reference. Id. at 6:29-8:22. As used in the '908 Patent, this Court construes the term "telescope" to include both "reflecting telescopes," which use mirrors as optical elements, and "refracting telescopes," which use lenses as optical elements. n4

Plaintiff contends that the term "telescope" should be restricted to a "Newtonian telescope." n5 (See Plaintiff's Reply Claim Construction Brief, Mar. 10, 2005, "Pl.'s Reply Br." at 3.) Defendant, in contrast, argues that "telescope" is much broader than plaintiff alleges, urging that the term be construed to include both "reflecting telescopes" and "refracting telescopes," thus comporting with the term's dictionary definition. (See Defendant's Brief Addressing Claim Construction, "Def.'s Opp. Br." at 3.) As discussed supra, a court must begin its claim construction analysis by analyzing the language of the claims themselves.

n4 It is also noted that prisms have been used as optical elements in both reflecting and specialized refracting telescopes. (See Markman Hearing, Def. Ex. B, Isaac Newton, Optics 422-23 (1717); Def. Ex. C, John Texreau, How to Make a Telescope 107 (1957); Markman Tr. at 19:14-21.)

n5 For the most part, Newtonian Telescopes are a subgroup of reflecting telescopes. (Markman Tr. at 4:9-11.)
"The doctrine of claim differentiation . . . creates a rebuttable presumption that each claim in a patent has a different scope." Dow Chem. Co. v. United States, 226 F.3d 1334, 1341 (Fed. Cir. 2000). The doctrine is implicit in 35 U.S.C. § 112, P4, which states that "a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed." (emphasis added). Thus, under the doctrine, a dependent claim and a corresponding independent claim should not be construed to have the same scope; the dependent claim should have an additional limitation. The Federal Circuit recently reaffirmed the doctrine of claim differentiation, without using that title, in Phillips, when it stated that "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." 2005 U.S. App. LEXIS 13954, 2005 WL 1620331, at *7 (citing Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004)). The doctrine precludes interpretations of claim language that render dependent claims too broad or independent claims too narrow, but it should not be used to interpret an independent claim too broadly either. See Tandon Corp. v. U.S. Int'l Trade Comm'n, 831 F.2d 1017, (Fed. Cir. 1987) ("Whether or not claims differ from each other, one can not interpret a claim to be broader than what is contained in the specification and claims as filed.") (citation omitted).

b. Analysis

The doctrine of claim differentiation applies to this situation and resolves the dispute as to the definition of "telescope" in favor of defendant, i.e., that "telescope" includes both reflecting and refracting telescopes rather than being limited to Newtonian telescopes. The term "Newtonian telescope" appears in claim 5 of the '908 Patent. '908 Patent at 6:42-43 ("The method of claim 1, further comprising locating the optical element in a Newtonian telescope."). Claim 5 is dependant on claim 1, which describes: "[a] method of aligning an optical element in a telescope." Id. at 6:30 (emphasis added). The "Newtonian" limitation on the word "telescope" in claim 5 would be unnecessary if a person of ordinary skill in the art would have understood "telescope," as used in claim 1, to be restricted to Newtonian telescopes. Based on the doctrine of claim differentiation, the term "telescope" should not be restricted to "Newtonian telescopes."

The next question is what the term "telescope" includes, if it is not limited to Newtonian telescopes. Plaintiff argues that if "telescope" is not limited to Newtonian telescopes, it should be limited to "reflecting telescopes," which would include Newtonian telescopes as a subgroup. (Markman Tr. at 6:12-13.) n6 The doctrine of claim differentiation answers this question as well. The term "reflecting telescope" appears in claim 4. '908 Patent at 6:40-41. Claim 4 is "the method of claim 1, further comprising locating the optical element in a reflecting telescope." Id. (emphasis added). Applying the doctrine of claim differentiation, the term "telescope," as used in claim 1, presumptively cannot be limited to "reflecting telescopes," which is the limitation added in claim 4. Therefore, this Court looks to the specification to determine whether the term "telescope" includes refracting telescopes, as defendant suggests.

n6 Citations to the Markman hearing transcript reference the page and line numbers in the form Page(s):Line(s).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

Plaintiff asserts that the specification "does not describe any method for using this invention to align a [refracting] telescope," and cites Phillips for the proposition that the claims must be consistent with the specification. (Markman Tr. at 6:4-5.) Nonetheless, as plaintiff concedes, the specification expressly states that "the present invention may be used to align refracting telescopes." '908 Patent at 6:11, 19-21 (emphasis added). In fact, the specification even provides a diagram of the invention being used with a refracting telescope. Id. at Fig. 15. Since the patent mentions refracting telescopes in the specification, included a drawing for the invention with a refracting telescope, and uses "reflecting telescope" as the limitation in a dependent claim, it is clear from the intrinsic evidence that the term "telescope," as used in the claims, includes both reflecting and refracting telescopes. n7

n7 Claims 10, 15, 18, and 20 use the term "telescope" without any dependent claims that limit the term; however, this is of no consequence because claim terms are to be construed consistently across all claims. See Southwall Tech., Inc. v. Cardinal IG Co. 54 F.3d 1570, 1579 (Fed. Cir. 1995); accord Phillips, 2005 U.S. App. LEXIS 13954, 2005 WL 1620331 at *6
3. To what extent may the court base its claim construction on the scope of the disclosure in the patent's specification?

Two competing principles of claim construction are at issue in this case. The first, advanced by IPPV, is that claim terms cannot be narrowed by reference to the written description or prosecution history unless the language of the claims invites reference to those sources. Johnson Worldwide, 175 F.3d at 989-90.

In Johnson Worldwide, the patentee claimed a steering device for boats comprising a directional indicator "coupled to" a trolling motor. The question was whether this claim language required that the directional device be "mechanically attached" to the motor, or whether the claim could be interpreted to read upon a directional indicator connected to the motor by wires. The patent specification describes that the preferred embodiment includes a directional indicator mechanically attached to the motor. The Federal Circuit stated that there is a "heavy presumption" against importing additional limitations into claim language. See id. at 989. The court stated that there are two situations in which a claim term should be accorded other than its ordinary and accustomed meaning. The first arises if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term. Id. at 990. The second is where the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used. Id. The court found that the claim language was sufficiently clear that there was no need to import additional limitations from the specification and the prosecution history.

In this case, the claims recite the phrases "generating a television program signal" and "encrypting said television program signal in accordance with said pseudo-random signal." This language is sufficiently unambiguous that the meaning of the claims terms might be ascertained without reference to the specification. In this respect, Johnson Worldwide teaches that the claim language should not be narrowed by importing the limitation "analog" from the specification.

The second principle of claim construction at issue in this case, advanced by Echostar, is that a patentee should not be entitled to claims that are broader than the scope of the patent's disclosure. See Wang, 197 F.3d at 1383. In Wang, Wang sued America Online and Netscape Communications for infringement of a 1984 patent directed to a system for providing users with textual and graphical information from computer-controlled databases via interactive two-way communications over a telephone network. The issue for claim construction and summary judgment was whether the claim term "frames of information" covered both character-based and bit-mapped-based protocols, or whether the term should have been limited to character-based protocols. The preferred embodiment of the invention was directed to character-based protocol systems, although the specification acknowledged that bit-mapped protocols were part of the prior art. The Federal Circuit found that a person of ordinary skill in the art would understand the specification to refer only to character-based systems, and affirmed the trial court's construction that limited the claims to character-based systems.

Section 112, P 1 of the Patent Code requires that a patent specification "shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same . . . " 35 U.S.C. § 112. The purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification. Reiffin v. Microsoft Corp., 214 F.3d 1342, 2000 U.S. App. LEXIS 12191, 2000 WL 714425 (Fed. Cir. June 5, 2000). Whether the language of a claim is supported by the written description of the patent is a question of fact. See Gentry Gallery, 134 F.3d at 1479. Accordingly, a determination of whether claims comply with the written description requirement is generally made in the context of a summary judgment motion or by a jury.

The Federal Circuit has indicated that in certain situations, a narrow written description may constitute a basis for adopting a narrow construction of otherwise-broad claim language. The Federal Circuit has held that the literal meaning of a claim is fixed upon its issuance. Al-Site Corp. v. VSI International, Inc., 174 F.3d 1308, 1320 (Fed. Cir. 1999). Variants of a claimed
invention that are based on after-developed technology could not have been disclosed in a patent. Chiuminatta Concrete Concepts v. Cardinal Industries, Inc., 145 F.3d 1303, 1310 (Fed. Cir. 1998). When a claim is written sufficiently broadly to cover after-developed technologies, the claims may be construed to limit their scope to those technologies disclosed in the written description of a patent. See Wang, 197 F.3d at 1383 ("The only embodiment described in the '699 patent specification is the character-based protocol, and the claims were correctly interpreted as limited thereto.").

The doctrine of equivalents extends beyond the literal scope of claims, and permits a patentee to exclude others from practicing later-developed technologies that are equivalent to a claimed device. See Overhead Door Corporation v. Chamberlain Group, Inc., 194 F.3d 1261, 1271 (Fed. Cir. 1999) ("Any subsequent change in the state of the art, such as later developed technology would have been eligible for coverage under the doctrine of equivalents, thus defining at least one type of expanded claim coverage under the doctrine.") (citation omitted); Chiuminatta, 145 F.3d at 1310 ("The doctrine of equivalents is necessary because one cannot predict the future."). Later-developed technologies may infringe a patent only under the doctrine of equivalents. Al-Site, 174 F.3d at 1320. ("An 'after arising equivalent' infringes, if at all, under the doctrine of equivalents."). The Federal Circuit has clarified that, although later-developed technologies may infringe a patent under the doctrine of equivalents, such technologies cannot constitute an "equivalent" as would fall within the literal scope of a patent under § 112, P 6. See Al-Site, 174 F.3d at 1320. Accordingly, later developed technologies may not fall within the literal scope of the patent at issue, but may infringe the patent only under the doctrine of equivalents.

The specification of the '942 patent exclusively discusses the encryption of analog signals, without mentioning encryption of digital signals. The apparent reason for the patent's focus on analog signals is that television broadcasting in the early 1980s was conducted solely in an analog format. Both parties acknowledged during oral argument that digital television signals were not developed until after the date of invention. Because the literal scope of the '942 patent was fixed at the date of issuance, the claims must be construed to refer to the kinds of television signals that were being encrypted at that time. See Al-Site, 174 F.3d at 1320. Accordingly, the scope of claim 21 should be limited to refer to the encryption of analog television program signals.

IPPV urges that the claims should not be limited to an analog implementation, because the claims are written in method form. IPPV argues that the scope of method claims should not be limited to the structures discussed in the specification. See Sandisk Corp. v. Lexar Media, Inc., 91 F. Supp. 2d 1327, 1333 (N.D. Cal. 2000).

It is true that method claims are not necessarily limited to the structures recited in the specification. See, e.g., IMS, 206 F.3d at 1432-33. The court finds no support for the proposition, however, that drafting a claim in method format can extend the literal scope of the claim to embodiments that are developed subsequent to the issuance of the patent.

The court will construe the phrase "television program signal" of claim 21 of the '942 patent to mean "analog television program signal."

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The parties dispute the meaning of the term "television program signal" of claim 21. IPPV argues that "television program signal" includes video information, while Echostar argues that "television program signal" comprises video information in combination with audio information.

In support of its proposed construction, IPPV points to the term "display" in the preamble of claim 21, and contends that only visual images may be displayed. IPPV argues that because the preamble modifies the rest of the claim, the inventors' use of the term "display" limits the meaning of the term "television program signal" to video information.

IPPV also cites the specification, which states "the present invention relates to the encoding and decoding of video information, and more importantly, to a method and system for secure transmission of television signals for subscription television or similar video services in which only authorized viewers are permitted to view a video program." IPPV argues the references to "video" in this passage limit claim 21 to video information.

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Echostar counters that the term "television program signal" describes a signal comprising a video signal and an audio signal. As support for its construction, Echostar cites the Modern Dictionary of Electronics, which defines "television signal" as "the audio signal and the video signal that are broadcast simultaneously to produce the sound and picture portions of a televised scene." Echostar also points to other claims of the '942 patent that refer to "encoded video signals." Claim 13, for example, claims an "apparatus for decoding an encoded video signal." Echostar contends that the inventors' specific reference to a video signal means that they must have intended a different meaning for "television program signal."

Having considered the parties' positions, the court finds that the inventors did not intend to limit the term "television program signal" to video information or signals. They specifically referred to video signals in multiple parts of the patent, including claims 1, 4, 6, and 11-13, making it apparent that "video signal" and "television program signal" are not synonymous. Moreover, the portion of the specification cited by IPPV distinguishes between television signals and video information in stating that "the present invention relates to the encoding and decoding of video information, and more importantly, to a method and system for secure transmission of television signals. . . ." (emphasis added). If television program signals were composed of only video information, this passage would be redundant. The court therefore finds no reason to limit the conventional definition of "television program signal," and concludes that it comprises audio and video signals that are broadcast simultaneously to produce the sound and picture portions of a televised scene.

A. Disputed Claim Term # 1: "a television transmission system . . ."

The first term in dispute is: 4

"a television transmission system . . . for transmitting television programs thereover for reception by a plurality of receivers" ('320 Patent, Claim 1 Preamble)

"a television transmission system for transmitting programs thereover for reception by a plurality of receivers" ('078 Patent, Claim 10 Preamble)

Plaintiff's Proposed Construction: "a system for transmitting programs to receivers" 5

Defendants' Proposed Construction: "a system that allows multiple viewers to choose the same program at the same time such that once the chosen program is scheduled for transmission on a particular channel, additional viewers can be added by transmitting the appropriate descrambling signals to the requesting viewer's receiver"

Although the disputed term is phrased slightly differently in each patent, the parties agree that the term should be construed the same for both patents.

Plaintiff argues that all four disputed terms need not be construed by the Court, but in the event the claims are construed, it has offered proposed constructions for each.

1. Whether the Preambles Are Limiting

Plaintiff first argues that because this term appears in the preambles of the claims, it is merely informational and does not limit the claims. Accordingly, Plaintiff maintains, the term is of no significance to claim construction and need not be construed by the Court. See Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999) ("If . . . the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation."). According to Plaintiff, the claim preambles merely clarify that the claimed
methods are to be performed within preexisting cable television systems, but nothing in the preambles should be read to otherwise limit the claims.

As the Federal Circuit has held, a preamble is limiting only "if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim." Symantec Corp. v. Computer Assocs. Int'l, Inc., 522 F.3d 1279, 1288 (Fed. Cir. 2008) (internal quotation marks omitted) (quoting Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002)). "A preamble is not limiting, however, 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.'" Id. (internal quotation marks omitted) (quoting Catalina, 289 F.3d at 808). In Symantec, the Federal Circuit explained the general rule in determining whether or not a preamble should be read as a limitation:

Absent clear reliance on the preamble in the prosecution history, or in situations where it is necessary to provide antecedent basis for the body of the claim, the preamble "generally is not limiting." Thus, in general, the purpose of a claim preamble is to give context for what is being described in the body of the claim; if it is reasonably susceptible to being construed to be merely duplicative of the limitations in the body of the claim (and was not clearly added to overcome a rejection), we do not construe it to be a separate limitation.

Id. at 1288-89 (internal citation omitted) (quoting Catalina, 289 F.3d at 809).

Despite Plaintiff's argument that the preambles merely provide context, however, the Court finds that the preamble of Claim 10 of the '078 Patent recites essential structure--"a television transmission system"--that is referred to later in the method claims. See '078 Patent, 13:17-20 ("providing a central unit having a collection of stored programs stored on a medium allowing selective reproduction and real-time transmission of said programs over the system" (emphasis added)); id. at 13:25-14:3 ("responding in said central unit to said viewer's request by selecting said viewer-chosen program from said collection and by transmitting in real time over the system said viewer-chosen program at said viewer-requested time for reception by the receiver associated with said requesting viewer" (emphasis added)). The introduction of the "system" in the preamble and the references to the "system" in the claim body demonstrate that the preamble does more than provide context: it gives meaning to the claim itself, as the later references to "the system" would be meaningless without their antecedent basis in the preamble. See NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1305-06 (Fed. Cir. 2005) (finding that a preamble limited the claims where the preamble contained "at least one of a plurality of destination processors in the electronic mail system" and the body of the claim referred to "the at least one of the plurality of destination processors"); Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1375-76 (Fed. Cir. 2005) (finding the preamble of a method claim limiting where it described a "processor system" and the body of the claim described several steps of the method that involve "said processor systems"); Pitney Bowes, 182 F.3d at 1306 (finding the preamble limiting where, inter alia, it stated that "the patent claims a method of or apparatus for producing on a photoreceptor an image of generated shapes made up of spots" and the body of the claim contained the term "generated shapes" that could "only be understood in the context of the preamble statement"). The "system" referred to in the claimed methods can only be the same "system" first mentioned in the preamble. If the claimed methods are not performed using the "system," they could not be performed at all.

Likewise, the preamble of Claim 1 of the '320 Patent recites essential structure of the system necessary to give meaning to the methods claimed. For example, the "land lines" of the system are first introduced in the preamble and then referred to several times in the body of the claim. See '320 Patent, 10:46-49 ("providing a collection of stored programs stored on a medium allowing selective reproduction and real-time transmission of said stored programs over the land lines" (emphasis added)); id. at 10:54-55 ("transmitting said chosen program in real-time over said given section of the land lines" (emphasis added)). The same is true for the system's "receivers" described in the preamble. See id. at 10:59-60 ("preventing intelligible viewing of said chosen program at said requested time on all other receivers of said given section" (emphasis added)). Without the structure of the system recited in the preamble, the references to land lines and receivers would be meaningless. Accordingly, because the preambles provide an antecedent basis for the claims, the Court concludes that they should be construed as limiting.

2. Construction of the Disputed Term

With respect to how the term "television transmission system" should be construed, Defendants argue that their construction has support in the specification, which imparts a special meaning to the term. The Court agrees. The specification describes
the system of the "present invention" as one that allows multiple viewers to view the same transmission of a program at the same time:

[T]he present invention minimizes the risk that the viewer will be unable to view the chosen program at the viewer requested time. This risk is minimized for two reasons. First, the preferred embodiment hereof designates sections of the land lines . . . . Secondly, the present invention allows as many viewers as are connected to the system to choose the same program at the same time.

'320 Patent, 10:9-19 (emphasis added). While it would be improper to import limitations from a preferred embodiment to the claim, statements describing "the present invention" (as opposed to "the preferred embodiment") can and do limit the scope of the invention. See, e.g., Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."); SciMed Life Sys. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("[T]he characterization of the coaxial configuration as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure."). Indeed, in the very same paragraph in which the applicants refer to "the present invention," they state that "[t]he preferred embodiment" performs specific functions that help minimize the risk that a viewer will be unable to view a program at a given time. '320 Patent, 10:12-16. 6 The fact that the applicants used "preferred embodiment" and "present invention" in consecutive sentences demonstrates that the applicants knew when they were defining the invention as a whole and when they were discussing only a preferred embodiment. Therefore, the Court accepts the applicants' statement that "the present invention allows as many viewers as are connected to the system to choose the same program at the same time."

6 As discussed at length in the Court's Memorandum and Order denying Cablevision System Corporation's Motion to Dismiss, the patents originally were obtained by H. Vincent Monslow and Steven Dickey. After a series of transfers, Plaintiff now holds both patents. Accordingly, "the applicants" means Mr. Monslow and Mr. Dickey.

Examination of both the specification and the prosecution history supports the conclusion that the applicants gave special meaning to the "system" in the '320 and '078 Patents. They clearly and consistently described a television transmission system that allowed multiple viewers to watch the same program transmission simultaneously and that used descrambling signals to achieve this objective. To construe the disputed term simply as "a system for transmitting programs to receivers" would fail to capture the precise meaning used by the applicants. Accordingly, the Court will adopt Defendants' construction.
<table>
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<th>Term</th>
<th>VIA &amp; Intel's Proposal</th>
<th>CCCC's Proposal</th>
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<td>&quot;the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus&quot;</td>
<td>&quot;The SNOOP signal indicating to one of the bus masters on the second bus when to write cached data to one of the second data storage locations at the address appearing on the bus.&quot;</td>
<td>&quot;The SNOOP signal indicating to a bus master when it may be required to write cached data to the address appearing on the second bus.&quot;</td>
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The language here, "the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus," is describing actions taking place on the second bus, as illustrated in the bottom portion of Fig. 1. To properly construe this language, however, it is necessary to look at the context in which the disputed language arises.

This disputed language (underlined below) appears as part of a wherein clause in the preamble. The antecedent basis for this wherein clause is found in the prior paragraph of the claim preamble. Together these paragraphs read:

the second bus providing a second plurality of bus masters connected thereto with data read and write access to second data storage locations mapped to separate addresses within a second address space, wherein one of said second plurality of bus masters writes data to a first particular one of said second data storage locations by placing on the second bus an address to which the first particular one of said second data storage locations is mapped and transmitting the data via said second bus, and wherein one of said second plurality of bus masters reads data from a second particular one of said second storage locations by placing on the second bus an address to which the second particular one of said second storage locations is mapped and receiving data via said second bus,

wherein one of said second plurality of bus masters connected to said second bus caches data read out of a subset of said second data storage locations, said second bus including means for conveying a SNOOP signal with an address appearing on the bus, the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus


It is clear from the claim language that the SNOOP signal indicates to one of the bus masters on the second bus when to write cached data to an address appearing on the second bus. This is nearly a direct transcription of the claim language "wherein one of said second plurality of bus masters connected to said second bus." '369 patent at 13:6-7. But there appears to an issue regarding whether the cached data writing is limited to the second data storage locations on the second bus. Defendants correctly argue that because the "wherein" clause describes the SNOOP signal on the "second bus" to which the "second plurality of bus masters" that cache data read out of "second data storage locations" is connected, it must follow that "the address appearing on the bus" immediately preceding the disputed claim term should also be construed to originate from a device on the second bus. Thus, in light of the preceding paragraph of the preamble, the court concludes that the claim requires that a SNOOP signal indicate to the bus master on the second bus when to write cached data to the corresponding second storage location at the address on the second bus.

Accordingly, the court construes the language "the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus" as saying "the SNOOP signal indicating to one of the bus masters on the second bus when to write cached data to the one of the second data storage locations at the address appearing on the second bus."
The claim term at issue in this case is "the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus." The district court construed this term to mean "the SNOOP signal indicating to one of the bus masters on the second bus when to write cached data to the one of the second data storage locations at the address appearing on the second bus." The district court clarified that this construction "requires the SNOOP signal to indicate to a device on the second bus that it should write data held in that device's cache memory to main memory on the second bus." The parties dispute whether the claimed SNOOP signal must tell a processor to write cached data, or whether it must merely tell the processor to determine whether it should write cached data.

The plain language of the claim states that the SNOOP signal tells the processor "when to write cached data." '369 patent col.13 ll.11-13. The abstract of the '369 patent states that "when accessing a cached memory address, the bus interface circuit places a signal on the second bus telling the second bus master to copy data from the cache memory into the main memory." Id. abstract. The specification also states that the processor on the second bus responds to the SNOOP signal by asserting a retry signal and writing the requested cached data back to main memory. Id. col.2 ll.26-35, col.12 ll.16-24. Thus, the claim language and the patent specification support the district court's construction.

CCCC argues that the specification does not require the processor to respond to the SNOOP signal by writing cached data. Specifically, CCCC points to the following portion of the specification:

To ensure cache coherency, when computer 4 seeks to read access a main memory 3 address, it may assert a SNOOP signal . . . . If any other device on Futurebus 12 such as computer 6 is maintaining a cache for data stored at that memory address, computer 6 may assert a "RETRY" signal which causes computer 4 to relinquish control of Futurebus 12 before completing the address cycle. At that point, computer 6 obtains control of Futurebus 12 and writes the appropriate data from cache memory 7 back into main memory 3.

Id. col.9 ll.47-57. CCCC argues that the construction of "SNOOP signal telling" cannot require writing data from cache to main memory because the computer "may assert a 'RETRY' signal." See id. col.9 ll.52-53 (emphasis added). This portion of the specification, however, does not discuss the claimed invention. It describes the prior art one-bus system in which the computer, not the interface circuit, asserts the SNOOP signal.

Accordingly, "the SNOOP signal telling said one of said second plurality of bus masters when to write cached data to the address appearing on the bus" means "the SNOOP signal indicating to one of the bus masters on the second bus when to write cached data to the one of the second data storage locations at the address appearing on the second bus." This construction requires the SNOOP signal to indicate to a device on the second bus that it should write data held in that device's cache memory to main memory on the second bus.

The district court construed "temperature controller" to mean "the switch, power amplifier or like device that directly adjusts the flow of electric power to one or more heating elements. The temperature controller includes a means for converting temperature data." (J.A. at 31.) Neither party objected to the instructions at trial. Under these circumstances "the issue [is] limited to the question of whether substantial evidence supported the verdict under the agreed instruction." See Hewlett-Packard Co. v. Mustek Sys., Inc., 340 F.3d 1314, 1320-21 (Fed. Cir. 2003) ("When issues of claim construction have not been properly raised in connection with the jury instructions, it is improper for the district court to adopt a new or more detailed claim construction in connection with the JMOL motion. On JMOL, the issue here should have been limited to the question of whether substantial evidence supported the verdict under the agreed instruction."). The question is thus whether the testimony presented by CytoLogix through its expert witnesses constitutes substantial evidence of infringement under the district court's definitions of the claim terms.
Second, Ventana argues that there is no substantial evidence to support a verdict of infringement with respect to claims 10-12. Again, since neither party objected to the instruction, we look to see whether there is substantial evidence under the agreed instruction. The language of claim 10 is somewhat different than the language of claims 1 and 8. Claim 10 requires "temperature controller electronic circuits." '693 patent, col. 13, l. 24. The district court's instruction defined the phrase to mean "electronic components, wiring, and printed circuit board which comprise the power amplifying device and decoder." (J.A. at 31.) CytoLogix's experts, David Gessel and Alexander Slocum, testified that these claim limitations were satisfied in the accused device. (See, e.g., J.A. at 1113-14; 1538-40.) Thus we conclude that the verdict of infringement with respect to claim 10-12 was supported by substantial evidence.

B. Template

Plaintiff's Proposed Construction: a set of parameterized classes, functions, or variables

Defendant's Proposed Construction: a source code substitution feature that defines a set of parameterized types or functions using placeholders that can be filled in by a source code compiler during compilation of a source file

The parties devoted much of their efforts in the briefs and at the claim construction hearing to this term. Interestingly, both sides agree that a "template" is a familiar term in the art, Dft.'s Br., at 14-15, dkt. #34; Plt.'s Br., at 6, dkt. #32, but neither side did a very good job of explaining the concept. Plaintiff says that this term and several others need no explanation because they are "ordinary computer programming terms" and are "understandable to a jury as written," Plt.'s Br., at 1, dkt. #32, but this assumes incorrectly that the jury will consist of computer programmers. Defendant says that it is difficult to describe templates concisely because "[m]ost programming books . . . devote entire chapters to explaining them," Dft.'s Br., at 15, dkt. #34, so it focused on the aspects of the concept that it believes are important to this case.

At the claim construction hearing, the parties agreed that a template involves "parameterized types" in the sense that it uses "placeholders" that can be filled in later. However, defendant argues that a "template" is a very specific kind of "parameterized type" that is not reflected in plaintiff's proposed construction.

As defendant frames it, the issue is whether a template is used only during compilation (that is, during the conversion of the programming language into the binary code of zeros and ones that can be read by the computer) or whether it is used during runtime as well (that is, when the program is being executed). However, that is not an issue that can be resolved in this opinion.

The extrinsic evidence supports a reading that templates are "instantiated" by the compiler during compilation. (The parties agree that "instantiation" is the process by which templates are filled in with information.) The references cited by defendant are uniform in including this reading in their description of templates. E.g., Nishant Sivakumar, C++/CLI in Action 124 (2007) (included as exh. C to dkt. #34) ("templates" are "[i]nstantiated during compilation by the C++ compiler"); Stephen R.G. Fraser, Pro Visual C++/CLI and the .NET 2.0 Platform 164 (2006) (included as exh. D) ("One major difference between generics and templates is when they are instantiated. For templates, it happens at compile time, whereas for generics, it happens at runtime."); Bruce Eckel, Thinking in C++ 582 (1995) (included as exh. H) ("When you use a template, the parameter is substituted by the compiler.").

Nothing in the patent undermines this understanding. Plaintiff is quick to point out that all of defendant's references discuss "templates" in the context of the programming language C++ and that the '368 patent is not limited to that programming language. Both of these observations are true, but they do not provide support for a view that the references cited by defendant are inaccurate reflections of the term in the context of the patent. The specification makes it clear that the concept of templates in C++ is the same concept used by the patent: "The ANSI/ISO working group X3J16/WG21 has standardized a new programming language, C++, based upon C. One of the many features included in the language is 'templates.'" '368
A "pattern" fits the context of the evidence specified by plaintiff, whereas a "functionality" creates an awkward construction by a person based on the layout of a hard copy document or its image (i.e., its nontextual electronic representation). . . ." Id.

The parties have failed to suggest a definition of "template" that I can adopt. Thus, the only issue regarding this term that may be resolved at this stage of the proceedings is that template can be "filled in by a compiler during compilation."

5. "Template": Plaintiff proposes the meaning "Defined functionality which operates to locate information in a target computer file . . ." Amended Joint Claim Construction Chart, Dkt. # 134-2, p. 9. Because the word "functionality" is itself vague and undefined, the Court finds that defendant's proposed construction better fits the intrinsic evidence offered by plaintiff. Specifically, that is the following section of the '697 Patent specification: "In order to generate an input file for a specific application program, the user selects the option to define a document template for use when each month's XYZ Corporation bill arrives." Id., citing '697 Patent, col. 12, lines 31-34. Defendant proposes the construction "a pattern created by a person based on the layout of a hard copy document or its image (i.e., its nontextual electronic representation). . . ." Id. A "pattern" fits the context of the evidence specified by plaintiff, whereas a "functionality" creates an awkward construction.
that is difficult to understand (reading "... the user selects the option to define a document functionality for use ...") The Court therefore adopts defendant's construction, in part. The Court construes the term as: "a pattern created by a person based on the layout of a hard copy document or its image (i.e., its nontextual electronic representation)" without the additional limitations and explanations proposed by defendant.

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L. "active template containing terms for use during such a negotiation"

As to this term, this Court ordered the following claim construction:

A set of predefined data fields for terms to be negotiated using the automated negotiations engine that is configured so that certain fields can be used automatically by other programs.

Tr. 49:5-11; 51:23-52:3.

4437

H. "temporarily assigned network address" 

Claim 1 contains the term "temporarily assigned network address": "wherein the dial-up network server communicates a first user ID for one of the users' computers and a temporarily assigned network address for the first user ID to the authentication accounting server." Although the specific term "temporarily assigned network address" is not found in the specification, similar phrases are used instead: "[t]he IP address temporarily assigned to the end user is [] sent back to the end user for use in connecting in the network," (118 patent, 3:10-12), and "[u]pon a successful user authentication, the dial-up network server [] completes the negotiation and assigns an IP address to the user," (118 patent, 5:57-59). Linksmart's proposed construction is "an address that identifies a user for the duration of a networking session." On the other hand, the defendants argue that this term means "an address assigned to a user only for the duration of an authorized session." The parties dispute whether the network address must be temporarily assigned or can it be a pre-existing, permanently assigned address. In support of its proposal covering permanent addresses, Linksmart points to the following language from the specification: "In the preferred embodiment Point to Point Protocol (PPP) is used . . . to dynamically assign the PC [] an IP address from a list of available addresses. However, [in] other embodiments . . ., the IP address may also be permanently assigned to the PC []." (118 patent, 3:63-4:2) (emphasis added). Thus, according to Linksmart, the invention should not be limited to the preferred embodiment, which uses temporarily assigned IP addresses. Although the specification discloses both temporary and permanent addresses, the patentee claimed "temporarily assigned network address" not "network address" generally. The "temporarily assigned" limitation excludes embodiments that are permanent or not assigned by the claimed system. Unlike the term "dial-up networking server" where the patentee explicitly defined the term in a manner that differs from its ordinary meaning, the specification provides no specialized definition for "temporarily assigned network address." Thus, the court will construe the term according to its plain language, which requires temporary assignment. The court is persuaded, however, by the plaintiff's argument that the network address is used to identify users. The '118 patent's Background of the Invention explains that "the end user would be identified by the temporarily assigned IP address." (118 patent, 1:35-37). In all, "temporarily assigned network address" is construed to mean "an address that is assigned to a user and identifies a user only for the duration of a networking session."

4438

6. "temporary storage device" (claims 14 and 41 of the '702 patent)

Acacia contends that "temporary storage device" should be construed to mean "a device into which data may be placed, retained for a limited time, and retrieved" or in accordance with the definitions cited by Defendants, "a storage device
capable of storing data on an intermediate, or impermanent, basis."

 Defendants contend that "in the context of data transmission, one of skill in the art would understand that a temporary storage device is a device in which data may be stored on an impermanent basis." (Defendant's Response to Plaintiff's Claim Construction May 13, 2004 at 25).

 The plain and ordinary meaning of the term "temporary storage device" is defined by the intent of the person storing the information, not whether data is stored on media that can be overwritten. The specification supports the plain meaning by explaining in Figure 6 that "storage 203 allows for temporary storage of the requested item until playback is requested." ("702 patent, 17:37-38). The prosecution history does not rebut the plain and ordinary meaning. The Court construes "temporary storage device" to mean "a device intended to store data for an impermanent basis and allows for stored data to be retrieved from the storage device while the data resides therein."

 Terminal

 The parties agree that a terminal is, "an endpoint for the connection of the package to the outside." Tessera would add a limitation that, "the terminal itself could not be made of solder, because it would melt and lose its shape during solder reflow." n1 Tessera offers two arguments in support of its construction. First, Tessera argues that the first sentence, left on its own, may allow Defendants to "conflate terminals with solder balls," or "turn terminals' into a moving target," and the second sentence would properly characterize terminals as components distinct from the material that serves to physically and electrically connect the terminal to the PCB. n2 Plaintiff's Opening Brief, p.29. Second, Tessera argues that its construction became a part of the prosecution history and deserves deference as intrinsic evidence.

 n1 Tessera's entire proposed additional language is as follows: One of ordinary skill in the art would understand that the terminal itself could not be made of solder, because it would melt and lose its shape during solder reflow.

 n2 After the Markman hearing, the parties attempted to reach a compromise concerning the second sentence, and Plaintiff agreed to drop the reference to solder so long as some negative limitation remained that distinguished terminals from the material connecting the terminal to the circuit board. The Court will focus its discussion on the negative limitation rather than the language about solder balls. See Doc. 167 and 169.

 Although Tessera cites no authority to suggest that the ITC's construction of "terminal" became a part of the prosecution history merely because it was submitted to the Patent and Trademark Office ("PTO"), the Court notes that prior art references submitted to the PTO during prosecution are considered part of the intrinsic record. See Kumar v. Ovonic Battery Co., Inc., 351 F.3d 1364, 1368 (Fed. Cir. 2003). But the ITC's construction is distinguishable from the prior art reference relied upon for claim construction in Kumar. First, the ITC's construction is not prior art. Second, Tessera did not highlight the construction to the PTO during patent prosecution and it is unlikely that the PTO relied upon two sentences in a 54 page claim construction section of a 357 page ITC document. Further, the ITC Court deferred to an expert witness in choosing its construction, and provided no further support for its election. See Phillips, 415 F.3d at 1318 (noting that, "conclusory, unsupported assertions by experts as to the definition of a claim are not useful to a court"). Without any discussion clarifying why the ITC chose its construction, the PTO would have had little reason to rely on the statement.

 The Court may consider the ITC opinion in the interest of promoting, "uniformity in the treatment of a given patent," Markman v. Westview Instruments, 517 U.S. 370 at 390, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). However, at least one Article III Court has adopted the contrary construction Defendants advocate, and for two additional reasons, the Court will
not defer to the ITC construction. See Samsung; see also Tex. Instruments, Inc. v. Linear Techs. Corp., 182 F. Supp. 2d 580, 589 (E.D. Texas 2002)(Court may elect to defer to previous claim constructions on a case by case basis). First, as discussed previously, the ITC Court did not explain why it elected its construction, and the Court is reluctant to defer to a decision whose basis is largely unknown. Second, the two previous constructions are different, so the interest of uniformity does not weigh in favor of one construction over another. See Samsung and ITC. Thus, the Court will elect a construction that is best supported by the entirety of the intrinsic evidence.

Plaintiff argues that its construction will prevent the confusion that could arise if Defendants muddle the distinction between terminals and the surrounding elements. Further, Plaintiff contends that the intrinsic record, "could not have more plainly communicated that terminals’ as used in the patents in suit are not solder balls," and highlights several instances in the 977 specification that describe terminals as distinct components from the material disposed between the terminals and the substrate. Tessera's Opening Brief, p. 28-29. During prosecution of the 419 patent, Tessera distinguished a piece of prior art that utilized solder balls, but not terminals. 419 Prosecution History, 8/20/01 Response at 7. Similarly, the claims treat terminals as distinct from the surrounding components, including the material disposed between the terminals and the substrate. Although the Court agrees that the intrinsic record describes that terminals are not solder balls, that fact does not lead the Court to share Tessera's conclusion that the definition should include a negative limitation distinguishing solder balls from terminals.

The claims and specification clearly communicate that terminals retain their autonomy in the completed assembly without using negative limitations, and Defendants' construction closely tracks the claims and specification. Despite Tessera's suggestion that Defendants' construction leaves the door open for confusion, Defendants' construction invites no more confusion about the relationship between terminals and the surrounding components than a construction of any other component that is closely integrated with other components. Thus, the absence of a negative limitation does not render the construction particularly susceptible to confusion.

The Court is similarly unpersuaded that a negative limitation is the proper way to prevent Defendants from blurring the line between terminals and the material disposed between the package and the PCB. Defendants acknowledge that terminals are distinct components whether they are bonded to solder or another material that serves to connect the package to the PCB, and if they attempted to change their stance at trial Plaintiff can refute those arguments. n3 However, the Court is reluctant to adopt a construction in order to cure confusion that may or may not arise particularly when the additional limitation may cause its own confusion.

The first element of claim 12 requires "electrically connecting each of the electrical terminals of the device to a conductor." The Court defined a "terminal" as "any point on a semiconductor device that can be used to connect the device to the leads." Jury Charge at 14. Defendants argue that because approximately 90% of their devices contain terminals that are connected to test circuitry on the device, and which are not connected to leads, this limitation is not met. TI responds, completely ignoring the Court's claim interpretation, 2 that all of the terminals required for the function of the device are connected to a lead. 3

n3 The Court will look very unfavorably upon any attempt by Defendants to depart from the construction adopted in this order.

Therefore, the Court adopts Defendants construction that a terminal is, "an endpoint for the connection of the package to the outside."
2 This problem is endemic to TI's briefing in response to the JMOL motion. TI obviously believes that the Court's claim interpretation was incorrect. The Court remains convinced that its claim interpretation was proper based on the evidence and argument before it. While TI is to be commended for the courage of its convictions, an argument based on a claim interpretation that the Court did not adopt is hardly persuasive. 3 The Court also notes an inconsistency in TI's argument. In attempting to prove its infringement case with respect to the limitation in claim 12 requiring the device to be attached to a "conductor," TI argues that the die pad's function during manufacture (to conduct electricity and thereby protect the chip from static discharge) should be considered. However, in attempting to prove its infringement case with respect to connection of the terminals, TI argues that the terminal's function during manufacture, when they are "required" for testing the device, should be ignored.

The Court is compelled to find that there is insufficient evidence to support a finding of literal infringement of this element. TI does not dispute that some number of Defendants' devices contain terminals that are not connected to leads. 4 TI has not pointed to any evidence in the record upon which a jury could find that those terminals could not be connected to leads, which is what must be established in order to find literal infringement under the Court's definition. 5

4 TI contends that Defendants' argument should be rejected because they did not prove exactly how many devices had unconnected terminals. This contention ignores the fact that TI is the Plaintiff in this case, and thus had the burden of proving how many devices had all of the terminals connected to leads. If there is a failure of proof, it must be charged to TI as the party with the burden. 5 The Court has some hesitation on this point, because it appears from Dr. Rodgers' testimony that these terminals are never connected to leads, even when they are being used for test purposes. It may be that the testing equipment does not allow them to be connected to leads, in which case the limitation would probably be met. This is pure speculation, however, because there was no testimony on this point. Again, the lack of evidence must be charged to TI, as the party with the burden of proof.

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal in</td>
<td>&quot;data stored on the terminal in &quot;</td>
</tr>
</tbody>
</table>

- 4685 -
on the terminal"
"the form of merchant ID, store ID, or terminal ID"

"Stored thereon prior to the transaction"
"stored on the terminal prior to the consumer presenting the debit card to the merchant"

"Relates . . . in a predetermined manner"
"prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched"
"determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal"
"locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means"
"a data processing device"

"Transmitting to a computer"
"sending by means of a signal path to a computer"

"Validation" and "Valid"
"indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely"
"a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"
"a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means" function
"transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" structure
"a modem or a signal path"

"Selected from a group of ID information" (Claim 2)
"chosen from one of the following ID information"

--- Footnotes ---
n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."
B. "Terminal"

Tessera proposes that the term "terminal" should be interpreted to mean "an element adapted to make an electrical connection to a mating element." Joint Claim Construction Statement B1:7-8. Tessera relies on the specification which describes the connection from the chip to the contact to the lead to the terminal, and from the terminal to contact pads on the circuit board. '977 patent at 3:35-41; 8:41-47. Samsung, on the other hand, argues that "terminal" means "an externally accessible point of electrical connection." Joint Claim Construction Statement B1:7-8.

Tessera objects to Samsung's proposed construction as adding an impermissible limitation of external accessibility that is not imposed by the claims. However, Samsung asserts that external accessibility is what differentiates "contacts" from "terminals". Samsung also challenges Tessera's construction as unnecessarily complex. Samsung notes that the term "terminal," not construed in the TI Order, was construed in Sharp to mean "an end point for connection of the package to the outside." Cherensky Dec. Ex. P at 54. It is not clear from the Sharp construction whether the ITC meant "outside" to require external accessibility after assembly.

The construction promoted by Samsung is contrary to how "terminal" is used in the specification and claims. Nowhere do the claims or the specification limit "terminal" to an element that is externally accessible. The Court construes "terminal" to mean "an end point for electrical connection of the package to the outside." It is not necessary that a terminal be externally accessible when the chip package is fully assembled.

The Court's determination of no direct infringement by the accused web servers was based on the failure of these devices to meet the limitation common to all of the claims of the '131 patent at issue, the communication of a host processor with a terminal device. The Court defined a "terminal device" as:

a computing device such as a data terminal, workstation, portable computer, or smart phone that enables a user to communicate with a host processor. It manages its associated display itself and manages its internal memory with the assistance of the host processor.

Key to the interpretation of "terminal device" is the limitation of "manages its associated display itself." The '131 specification states in the summary of invention section:

The terminal device, in turn and in accord with an aspect of the invention, displays the object in a form determined solely by the terminal device but in accordance with respective predefined policies.

('131 patent. Col. 2:19-22) (emphasis added). Furthermore, according to the '131 patent, although the host processor may provide some attributes of the objects displayed on the terminal device, such as by providing commands to hide objects, highlight, and display user buttons, none of these attributes control the location of objects in the display. Referring to how a REGION command (from the host processor) partitions a display into regions, the specification states "[i]t is to be understood, however, that the way in which a display is actually partitioned into such regions is under the control of the station set or computer terminal. . . ." ('131 patent col.8:12-15).

At the summary judgment hearings, the Court also considered the prosecution history of the '131 patent. During prosecution, the patentee distinguished his invention from the prior art of the Busboom patent, stating:

a host computer does not specify where an object is to be displayed on the display of a terminal. The reason for this is that it is the terminal and not the host computer that decides where an object is to be displayed on the terminal display.
The Court therefore found that based on the '131 patent specification and prosecution history, that the definition of the terminal device excludes arrangements where the host processor controls the positioning of objects on the display of the terminal device. Defendants' web servers use a position attribute to display objects at certain coordinates programmed relative to the upper left hand corner of the display or upper left hand corner of items on the web page. The Court found therefore that these web servers (host processors) participates in determining the actual location of items in the display of the client's computer. In the accused devices, the client's computer does not manage its associated display itself; thus, it is not a terminal device under the Court's claim construction. The Court therefore held that there was no direct infringement and therefore, in the absence of any direct infringement, there also was no indirect infringement.

II. DISCUSSION

A. STANDARD OF LAW

Under Fed. R. Civ P. 59(e), a motion to alter or amend judgment must be filed no later than 10 days after entry of the judgment. "A Rule 59(e) motion is appropriate if the district court: (1) is presented with newly discovered evidence, (2) committed clear error or the initial decision was manifestly unjust, or (3) if there is an intervening change in controlling law." Circuit City Stores, Inc. v. Mantor, 417 F.3d 1060, 1064 n.1 (9th Cir. 2005) (quoting Sch. Dist. No. 1J, Multnomah County v. ACandS, Inc., 5 F.3d 1255, 1263 (9th Cir.1993).

B. ANALYSIS

Lucent contends that the Court committed clear error when it ruled on summary judgment that the definition of the terminal device excludes arrangements where the host processor controls the positioning of objects on the display of the terminal device. Lucent argues that the Court's interpretation is not supported by the prosecution history, excludes the preferred embodiment of the patent and threatens to render the patent inoperative. n1

n1 Although Lucent also contends that Defendants mislead the Court by "manufacturing" a discussion at the Markman hearing, the Court finds this issue to have no bearing in the instant consideration. Dell raised the prosecution history in its opening brief to its summary judgment motion, thereby providing Lucent ample opportunity to respond and to make any points relative to this issue in its opposition brief and oral arguments. Thus, to the extent the prosecution history was at play, each party had an opportunity to present its interpretation to the Court.

The Court finds on each of these grounds Lucent has failed to meet its burden to demonstrate clear error. In general, Lucent raises the same arguments presented earlier to the Court and thus provides an insufficient basis for motion for reconsideration. See Taylor v. Knapp, 871 F.2d 803, 805 (9th Cir. 1989) (finding that the trial court properly denied the motion for relief from summary judgment where the motion did no more than raise arguments previously rejected by the trial court); Fuller v. M.G. Jewelry, 950 F.2d 1437, 1442 (9th Cir. 1991).

Additionally, these arguments, even with further elaboration in Lucent's instant motion, are again unpersuasive. First, Lucent's reliance on the '131 patent abstract is misplaced; it is the claims, not the abstract or the specification, which control. Second, with respect to the specification, Lucent has not pointed to support for the contention that the host processor can control the location of objects per se. Although the specification explains that the host processor may partition the display into regions, the specification also acknowledges that it is the terminal device which determines how these regions are actually displayed. ( 131 patent col 8:5-18.)

Third, as considered previously by the Court, the applicant made clear disavowals that contradict Lucent's position. To the extent the specification or abstract did support any relative positioning (and it is unclear that it did), the applicant surrendered those features when it distinguished over the prior art referred to in the prosecution history as "Busboom."
While Lucent attempts to persuade the Court that the applicant's statements in the prosecution history were not meant to
distinguish its claims over Busboom and/or to only distinguish the '131 patent claims over a system that specified exact
positions rather than relative positioning, the applicant made statements in the prosecution history that belie Lucent's
position. The applicants stated:

Thus in contradistinction to the claimed invention, the Busboom apparatus specifies the location at which the object is to
be displayed on a display. . . .

In contrast, a host computer in the claimed invention does not specify where an object is to be displayed on the display of
a terminal. The reason for this is that it is the terminal and not the host computer that decides where an object is to be
displayed on the terminal device. . . . The terminal in response [to the host processor] displays the object on the display at a
location selected by the terminal itself.

(Dec. Micallef Supp. Dell's Opposition, Ex. C at 46; emphasis added.) The applicant therefore chose to distinguish its own
apparatus and methods from the prior art because the object was displayed "at a location selected by the terminal itself."
While Lucent may consider in hindsight that the applicant could have chosen other manners to distinguish over the prior art,
such as by attempting to distinguish one that specified an exact location versus a relative location, the applicant chose not to
make this argument. Instead, the applicant disavowed all positioning of the object by the host processor.

Lucent's additional arguments, that the Court's construction excludes the preferred embodiment and/or renders the patent
inoperative, are also unpersuasive. The '131 patent describes a "smart phone" device with many features and hence many
embodiments of the claimed methods. To the extent that the claims are limited by the prosecution history as described, these
limitations do not render many, if not most, of these embodiments inoperative. Furthermore, the '131 specification offers
very little description of any embodiments that relate to the positioning of objects within the display. Although the
specification describes features which allow the processor to partition the station set's display into regions, assign objects to
regions (id. col. 8:5-22), and set the orientation of subordinate regions or non-region objects to the left or right of one
another (id. at col. 8:19-32), it does not offer any description of setting the location of objects e.g., the distances between
objects or their particular placement within the display.

Moreover, while the Federal Circuit has noted that it is rare that a claim construction would exclude a preferred
embodiments, the prosecution history may compel such a result. See North American Container, Inc. v. Plastipak Packaging,
Inc., 415 F.3d 1335, 1346 (Fed. Cir. 2005). Here, as explained, to the extent the '131 patent specification describes a
particular embodiment where the host processor could assign relative positions of regions or non-region objects, the
applicant chose to surrender these aspects in prosecution.

In sum, the Court finds that its interpretation of the term "terminal device" is consistent with the specification and
prosecution history of the '131 patent.

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4444

3. Terminal device

The court adopts Judge Brewster's construction of "terminal device" in the Gateway action. Accordingly, the court construes
the term "terminal device" to mean "a computing device such as a data terminal, workstation, portable computer, or smart
phone that enables a user to communicate with a host processor. It manages its associated display itself and manages its
internal memory with the assistance of the host processor."

4445

The Court construes "terminal unit" as a "unit wherein voice band services share a loop with modulated data transmission."
The Court agrees with Defendants that no construction is necessary for "modulated data transmitting and receiving unit."
A. Parties' Construction Arguments

Plaintiff argues the phrases "terminal unit" and "modulated data transmitting and receiving unit" should be construed as "digital subscriber line unit." Plaintiff points out that the patent uses the term "ADSL Unit" (or "Assymetric Digital Subscriber Line Unit") repeatedly in the specification to refer to the terminal units located at either end of the communications loop. See, e.g., '323 patent, 3:15-19.

Defendants argue no construction is necessary. Alternatively, Defendants argue "terminal unit" should be construed as "communications device" and "modulated data transmitting and receiving unit" should be construed as "communications transceiver device." Defendants argue no construction is necessary because the terms here are descriptive of the broad range of communications covered by their plain meaning. Alternatively, Defendants argue if the Court wishes to construe the terms, then "communications device" would be broad enough to cover the full range of communications devices covered by the claim (both the wired and wireless devices).

B. Analysis

The Court disagrees with Defendants that "terminal unit" does not require a construction. The term "terminal unit" appears in both the preamble and the body as a limitation in claim 1. Further, the term "terminal unit" is not a term of ordinary use that would be clear to the jury. The Court also disagrees with Defendants' alternative construction of "communications device" because it is overbroad and not grounded in the specification. But the Court disagrees with Plaintiff that "terminal unit" and "modulated data transmitting and receiving unit" should be construed as "digital subscriber line unit." The patent specification never limits either of these phrases to a digital subscriber line (DSL) unit. In fact, the invention states that "while the invention has been described in the context of ADSL units providing an asymmetric data channel, the invention may be applied to other terminal units wherein voice band services share a loop with modulated data transmission, such as Symmetric Digital Subscriber Line (SDSL) and Rate Adaptive Digital SubscriberLine (RADSL) terminal units. '323 patent, 7:34-40 (emphasis added). So according to the specification, the terminal unit could hypothetically be a non-DSL unit where voice band services share a loop with modulated data transmission. The Court concludes, though, that the specification quotation above effectively defines what a "terminal unit" is in the context of this patent. The specification specifically describes a terminal unit as a unit "wherein voice band services share a loop with modulated data transmission." '323 patent, 37-38. Therefore, the Court construes "terminal unit" as a "unit wherein voice band services share a loop with modulated data transmission."

The Court agrees with Defendants that the phrase "modulated data transmitting and receiving unit" requires no construction. The phrase "modulated data transmitting and receiving unit" is only found in the preamble of independent claims 7, 16, and 24, and also in the dependent claims that specifically refer back to the "modulated data transmitting and receiving unit" in the preamble of the independent claims. "Claim construction . . . is not an obligatory exercise in redundancy," U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997). "[D]istrict courts are not (and should not be) required to construe every limitation present in a patent's asserted claims." O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd., 521 F.3d 1351, 1362 (Fed. Cir. 2008). The phrase "modulated data transmitting and receiving unit" is not defined in the specification, and in the few times the phrase is mentioned in the specification it cannot be determined a clear meaning of the phrase. See, e.g., '323 patent, 2:63-67 ("The control signal interface may be used for the exchange of both the start-up signal and of data between the modulated data transmitting and receiving unit and customer premises equipment.").

Instead, the claims themselves define the details of a "modulated data transmitting and receiving unit." For example, in claim 7, the preamble introduces the modulated data transmitting and receiving unit and then the body describes the details. See '323 patent, 8:15-18 ("7. A modulated data transmitting and receiving unit, comprising a connector operatively coupling the unit . . . ."). See also IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1434 (Fed. Cir. 2000) ("The phrase 'control apparatus' in the preamble merely gives a descriptive meaning to the set of limitations in the body of the claim that completely set forth the invention."). So because the claims are instructive of the phrase "modulated data transmitting and receiving unit," no construction is necessary. The Court could alternatively partake an "exercise in redundancy" and merely rearrange the language as to construe "modulated data transmitting and receiving unit" as a "unit that transmits and receives modulated data." But the Court believes that such an exercise is unnecessary and not helpful to the jury. Further, the Court disagrees with Defendants' alternative construction of "communications transceiver device" because it removes the "modulated data" requirement and would be overly broad. Therefore, the Court concludes that the phrase "modulated data transmitting and receiving unit" requires no construction.
D. Terrain

Quoting from The American Heritage College Dictionary 1400 (3d ed. 1997), the Defendants contend that "terrain" has a plain and ordinary meaning -- "the surface features of an area of land; topography" -- and that the use of "terrain" in the patent is consistent with that meaning. The Plaintiff does not offer a dictionary definition of the term, but instead argues that the term "is used in the '189 Patent broadly to include the physical features of an area, object or material, which includes geographic and/or elevation attributes and may include other features, such as color attributes and objects.'"

The purpose of the '189 Patent is to provide three-dimensional images of the Earth's surface to be used by pilots and others, but the specification also provides that "the terrain is not limited to the Earth or parts thereof, and may cover other planets (real or virtual) and/or 3D views of surfaces of real or imaginary objects, such as views showing the atomic structure of a material, and the like." (col. 16, 11. 16-20) Consequently, the term terrain is plainly not limited to the surface of the Earth. The Defendants also accept that the concept of terrain as the surface features of an area can include color. (Transcript, p. 20) The dispute appears to turn, therefore, on whether the term "terrain," as used in the Disputed Claims, includes "objects" overlaid on the surface of the area in addition to underlying topography of the surface of the area. (Transcript, p. 19-20, 21)

The Patent contemplates overlaying additional objects or "virtual structures on the terrain." (col. 8, 1. 51) (emphasis supplied) "For example it is possible to add planned buildings to the terrain and thus see the effect of the buildings on the view. Further alternatively or additionally, the objects may be used to overlay map symbols and other marking on the terrain." (col. 8, 11. 51-55) (emphasis supplied) This allows "an operator of the server and/or the user . . . [to] add to the data which describes the terrain annotations which describe specific points in the scene, such as runways or other destinations. Alternatively or additionally, the operator may add three-dimensional objects, such as planned buildings, vehicles, etc. In a preferred embodiment of the present invention, a group of vehicles are tracked according to their position, and they are constantly superimposed on the landscape images." (col. 2, 11. 55-64) "Preferably, the user is able to switch between viewing the terrain with and without the objects, so that, for example, the user may easily compare the view of a desired area with and without a group of planned structures." (col. 13, 11. 58-61) (emphasis supplied) Accordingly, the additional markings or structures that are overlaid on the terrain or the landscape images are not part of the "terrain".

On the other hand, I find that the specification supports a construction of the term "terrain" that includes existing objects or structures that are captured in the virtual images of the land or other surface. The data blocks are preferably made from "real-life images of terrain areas received from airborne or satellite cameras." (col. 8, 11. 36-37) Such images will include, therefore, structures built on the land, such as existing buildings, that can be viewed sufficiently well. (col. 8, 11. 49-50) In fact, the specification contemplates the processor being able to "automatically derive [] . . . objects from the images. For example, the processor may identify roads and/or runways in the images and represent them as objects so that they appear more clearly in substantially any resolution of display." (col. 10, 11. 9-14) In that example, the roads and runways would be part of the terrain, although the enhancement of them as objects overlaid on the land would not be part the terrain.

Construction: (terrain) the surface features of an area of land, an object, or a material, including color, elevation, and existing objects or structures on the land, object or material.
B. "Terrain Floor Boundary"

Claim 1 of the '080 patent further requires alert envelopes which are calculated in part by a measurement of the "terrain floor boundary." The district court construed the term to mean "a boundary that extends downwardly below the aircraft which is proportional to the distance to the closest runway." Claim Construction Decision, 264 F. Supp. 2d at 150 (emphases added). Honeywell finds no limitation in the claim tying this term to a proportional distance to the closest runway. Again, Honeywell argues that the district court incorrectly read a limitation from the specification into the claim.

As the district court correctly noted, the term "terrain floor boundary" had no ordinary meaning to a skilled artisan at the time of filing of the patent application. Id. at 151 ("Further, there is no evidence to indicate that 'terrain floor boundary' was a term having ordinary meaning known to one skilled in the art at the time of the filing of the patent application."). Without a customary meaning of a term within the art, the specification usually supplies the best context for deciphering claim meaning. Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004). Here, the specification states: "The terrain floor boundary is the basis for the terrain threat boundaries and is similar to the terrain floor developed for the GPWS." '080 patent col.10 ll.38-40. The patent then explains: "The terrain floor relates to a distance H below the aircraft and is proportional to the distance to the closest runway to prevent nuisance warnings when the aircraft is taking off and landing . . . ." '080 patent col.10 ll.40-42 (emphasis added). The district court used this general language about the terrain floor as its primary reference for defining "terrain floor boundary." While Honeywell notes that the patent proceeds later to discuss "terrain floor boundary" more specifically as a "function of the distance from the runway," '080 patent col.11 ll.18-19 (emphases added), and again, in the discussion of terrain warning boundaries, the patent defines the H terrain floor as "a function of the distance from a runway," '080 patent col.12 ll.8-10 (emphases added), this function is defined in the specification as distance proportional to the closest runway. As such, this court disagrees with Honeywell that the district court improperly read a limitation from the specification into the claim.

f. "Relay having an operational position and a test position"

Claim 5 requires a "relay having an operational position and a test position." The court begins by construing "operational position" and "test position." As the parties agreed, the claimed relay is the element that separates the high voltage delivery system from the rest of the defibrillator. In one position, which is referred to in the specification as the "normally closed" or "closed" position ('374 Patent at 9:13-14, 10:24-25), the high voltage delivery system is capable only of self-tests in which it sends a current through a test load. 374 Patent at 11:30-42. In this position, the defibrillator cannot shock a patient. 374 Patent at 8:34-38.

In another position, which is referred to as "normally open" or "open," the high voltage delivery system can deliver a shock to a patient, as the parties agree. In addition, however, the defibrillator can conduct other self-tests with the relay in open position. E.g., 374 Patent at 9:4-21 (describing the "Defibrillator Connector/Relay self-test"), 10:14-22 (describing the "HV Isolation Relay self-test").

The "test position" of Claim 5 is the relay position in which the high voltage delivery system can only perform self-tests and cannot shock a patient. The "operational position" is the relay position in which the high voltage delivery system can deliver shock to the patient, although the defibrillator can perform other relay self-tests in this position as well.

The parties' dispute over this term centers on whether the relay may consist of a combination of relays and can have more than two positions, as Philips contends, or whether the relay is a single relay with only two positions, as Defibtech contends.

Philips can point to no intrinsic evidence that discloses more than one relay or more than two positions. Instead, it relies on three arguments: that the specification does not exclude such relays, that dictionary definitions of "relay" do not exclude
such relays, and that the inventors' decision to claim a "relay having an operational position and a test position" is no different than using the open-ended terms "comprising" or "including."

The court finds Philips' first two arguments unavailing. The specification speaks only of a relay with two positions. n10 It does not state that such positions are preferred, and it does not suggest that a relay with more than two positions could have any function in this invention. As for Philips' dictionary definitions, the court declines to rely on them for the reasons stated in its prior order. October 25 order at 5.

n10 The specification also teaches that the relay may become stuck in a position between the open and closed position. 374 Patent at 10:26-28 (discussing possibility that relay could "fail[] to move completely to the normally closed position").

As to Philips' third argument, the term "having" does not carry the presumption of open-ended interpretation that accompanies the term "comprising." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed. Cir. 2001). Instead, a court must look to the specification to determine what the inventors intended. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed. Cir. 2000). As already noted, if the inventors intended "having" to be non-limiting, n11 they left no hint in the specification. The specification speaks uniformly of a single two-state relay. The court construes the term accordingly. A "relay having an operational position and a test position" is a single relay with only an operational position and a test position," where "operational position" and "test position" have the meanings the court provided above.

n11 As Defibtech noted at oral argument, the inventors used the term "having" only twice in the 73 claims of the 374 Patent, whereas they used the presumptively open-ended term "comprising" more than 60 times.

As to Philips' third argument, the term "having" does not carry the presumption of open-ended interpretation that accompanies the term "comprising." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed. Cir. 2001). Instead, a court must look to the specification to determine what the inventors intended. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed. Cir. 2000). As already noted, if the inventors intended "having" to be non-limiting, n11 they left no hint in the specification. The specification speaks uniformly of a single two-state relay. The court construes the term accordingly. A "relay having an operational position and a test position" is a single relay with only an operational position and a test position," where "operational position" and "test position" have the meanings the court provided above.

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The Court is asked to construe three similar terms that appear in the '213 and '059 Patents: test pulse, test signal, and signal. The term "test pulse" appears in Claims 1, 10, 17, and 26 of the '213 Patent and Claims 1 and 8 of the '059 Patent. The purpose of the "test pulse" is to test the condition of the defibrillator and its electrodes. Philips asserts that this term should be construed as "any pulse that is associated with testing." Cardiac Science maintains that this term should be defined as "a simulated shock." Test signal" appears in Claims 8, 10, 15, and 24 of the '213 Patent. n9 The parties acknowledge that "test signal" differs in meaning from "test pulse," but each party presents a different proposed construction of "test signal." Cardiac Science asserts that "test signal" should be construed as "a simulated ECG signal." Philips contends that "test signal" should be construed as "any signal associated with testing." Signal" appears in Claims 1 and 9 of the '059 Patent. Philips asserts that "signal" should be construed as "a detectable physical quantity or impulse (as voltage, current, or magnetic field strength) by which messages or information can be transmitted." Cardiac Science contends that "signal" should be defined as "a simulated ECG signal."

n9 "Test signal" also appears in claims 1, 2, 6, 21, 22, 25, 41, 42, 51, 52, 61, 64, 65, 67, and 68 of the '374 Patent and Claim
The specifications describe the test pulses as follows:

If the system passes the ECG tests, it then performs a defibrillator test by generating a pulse through its normal pulse generating circuitry and sending the pulse to the electrodes 204. To initiate the pulse test, the microprocessor sends a charge command to a charge controller 230, which begins charging capacitor 232 in a known manner from power supply 234. When the charge on capacitor 232 has reached the required level (either the charge level required for normal operation or some other test charge level), switch relay 228 moves switches 212 to their other position. This switch position permits the pulse circuit to discharge the capacitor to deliver a damped sinusoidal shock to the electrodes.

('213 Patent at c. 5, ll: 47-59; '059 Patent at c. 5, ll: 43-55.) Yet, the specification also states that "the test pulse may be a voltage pulse of any magnitude, including but not limited to voltage magnitudes used for actual defibrillation." ('213 Patent at c. 3, ll: 39-42.) The test pulses of the '213 and '059 Patents are not limited to a pulse that reaches the magnitude of a shock to a patient, as Cardiac Science suggests. The Court finds that "test pulse" is appropriately construed as "a pulse of any magnitude associated with testing."

The specification repeatedly refers to test signals. ('213 Patent at ll: 24-45.) Cardiac Science asserts that "test signal" is used only in reference to the ECG test. However, the claim language alone points to a broader construction. A comparison of the claims in which "test signal" appears makes clear that the "test signal" is not limited to an ECG signal. (See '213 Patent at cls. 8, 10, 24, 27.) The Court construes "test signal" as "a signal associated with testing."

The specification of the '059 Patent refers to many different types of "signals." The term is not limited to ECG signals, as Cardiac Science proposes. In fact, the specification describes "[a] signal substantially similar to an ECG signal," thus ruling out the "signal = ECG signal" construction that Cardiac Science proposes. ('059 Patent at c. 3, ll: 59-65.) The Court finds that the patent's usage of the term signal is consistent with the dictionary definition set forth by Philips, and the Court construes "signal" accordingly: "a detectable physical quantity or impulse (as a voltage, current, or magnetic field strength) by which messages or information can be transmitted."

3. "test pulse"
4. "test signal"
5. "signal"

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Before explaining its construction, the court must specify which instances of "test signal" it is construing. The 374 Patent and the 460 Patent claim a "test signal" in a variety of contexts. The term sometimes appears in the phrase "test signal generator" ('374 Patent Claims 1, 2, 6, 21, 22, 41), and sometimes stands on its own in a set of claims that the court will refer to as "bare" test signal claims. 374 Patent Claims 25, 26, 42, 44, 65, 67-69; 460 Patent Claims 1, 3, 4. n5 In response to
the court's order to choose ten claims for this first round of construction, the parties asserted the bare "test signal" claims but not the "test signal generator" claims. There is no reason to construe these terms separately, however, because the analysis underlying the claims is identical, and because the court must assume, "unless otherwise compelled," that the same claim term used in the same patent "carries the same construed meaning." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003).

n5 Several other patent claims use the term "test signal" (e.g. 374 Patent Claims 45-50), but the parties have not asked the court to consider them. The court assumes that Philips has not asserted these claims in this action.

The specification discloses a preferred embodiment that consists of, inter alia, two components. The first is a "system monitor" that sends signals to a test controller to initiate tests, and the second is a controller or CPU that works in conjunction with other components to actually perform the tests. n6 E.g., 374 Patent at 4:60-6:19 (describing "system monitor"), 3:35-38, 6:19-13:48 (describing "controller" or "CPU"). Unfortunately, the specification's terminology regarding the signals that each component generates is inconsistent. The written description of the system monitor sometimes refers to the signals it sends to the CPU as "test signals" (e.g., 374 Patent at 4:60-67), but at other times refers to "test initiation signals" it sends to the CPU. E.g., 374 Patent at 3:51-53, 5:21-33, 6:18-20. In all such references, however, the description leaves no doubt that the signal that the system monitor generates initiates other self-tests and does not perform them.

n6 The specification also notes the possibility that the system monitor and controller could be combined in the same component. 374 Patent at 3:27-29.

The written description of the signals that the CPU uses to perform tests is similarly inconsistent. In one instance, a signal that the CPU indirectly uses in conducting tests is called a "test signal," (e.g., 374 Patent at 8:56-9:3 (describing a "test signal injector" to verify the function of various elements)), but in all other instances, the test signal has a more specific name that corresponds to a particular self-test. E.g., 374 Patent at 8:52 ("artifact test signal"), 9:10 ("test current signal"). Despite these inconsistent uses of "test signal," the claim language and the written description combined reveal that several claims contain limits on the "test signal." In the bare "test signal" claims, all but two of the claims expressly disclose one or more self-tests performed "in response" to the test signal or other stimuli. 374 Patent Claims 42, 44, 65, 67-69; 460 Patent Claims 1, 3, 4. In these claims, therefore, the test signal is a signal that initiates a test, not one that performs it. In the remaining two bare "test signal" claims, the "test signal" is one that the "system monitor" generates, and is thus also a signal for initiating a self-test. 374 Patent Claims 25, 26.

In all but one of the "test signal generator" claims, however, the claim language does not compel the court to limit the test signal to one that initiates testing. Claim 1 of the 374 Patent, for example, discloses a "test signal generator" and a "means for operating [it] prior to any attempted use of the defibrillator." The claim language suggests that the "test signal generator" is the generator that sends signals used in testing, and the "means for operating [it]" is another generator that sends signals to initiate the claimed "test signal generator." The written description supports this interpretation, as it discloses a "signal generator" used to perform "ECG front end tests" and a test signal generator that is different from the "system monitor" that generates initiating test signals. 374 Patent at 8:19-55. It similarly reveals that other "test signal generator" claims depending from Claim 1 use the term to refer to a generator that performs various self-tests. 374 Patent Claim 2 (adding a "functionality tester" to the test signal generator), Claim 6 (adding a "calibration verifier"), Claim 21 (adding a "battery condition tester"). Claim 41 is identical to Claim 1 except that it discloses a "periodic" test signal generator, and thus it also uses "test signal" in the broad sense that Philips advocates. In Claim 22, however, the "test signal generator" is limited to the "system monitor" that the court has already discussed. Thus, the "test signal generator" of Claim 22 generates only signals used to initiate testing.
To summarize, a "test signal" is a "signal associated with testing." In several of the asserted claims, however, additional claim language limits the term to a "signal that initiates testing." Those claims are all of the asserted bare "test signal" claims, as well as Claim 22 of the 374 Patent.

6. Test signal generator

The term "test signal generator" appears in claim 6 of the '681 Patent. Diagnostic asserts that "test signal generator" should be construed as "a device for generating test tones." Benson argues that signals and tones are not the same and therefore it would be improper to import the word tone into the claim. Benson also asks the Court to locate the "test signal generator" in the conventional audiometer based on its prosecution history estoppel argument. Specifically, Benson argues that in order to argue around the Moser Patent, the patentees asserted that their "invention differs in that the audiometer that provides the test signals has certain logical capabilities to conduct the test responsive to the test subject's inputs."

The Court finds that the intrinsic record does not support a departure from this claim term's ordinary meaning. Specifically, the patent specification does not explicitly set forth that test signals are identical to test tones. Further, as discussed previously, the Court rejects Benson's attempt to import structural limitations into the term. The Court, instead, concludes that the term is sufficiently clear and does not require construction. See Lucent Techs., Inc. v. Newbridge Networks Corp., 168 F. Supp. 2d 181, 191 n.3 (D. Del. 2001); Goldtouch Techs. Inc. v. Microsoft Corp., 2000 U.S. Dist. LEXIS 3370, No. A99CA336SS, 2000 WL 855555, at *4 (W.D. Tex. January 14, 2000).

5. "testing"

The term "testing" from Claim 1 of the '884 Patent is also at issue. Philips contends that "testing" should be construed as "checking continuity between the defibrillator electrodes using a test apparatus." Cardiac Science contends that "testing" need not be construed, but if it is, it should be defined as "making a critical examination, observation, or evaluation."

The claim language plainly states that the "testing" of the '884 Patent refers to testing the electrodes, but this can be derived from the context of the word "testing," without needing to incorporate "electrode testing" into the disputed term. The preferred embodiment describes the "test apparatus" as follows:

The test apparatus 13 includes a current source 23, preferably a battery, test circuitry 24, preferably including measurement components and status indication components such as an analog meter, LCD digital display or light emitting diodes, and connectors 21 and 22 for coupling with the package 12 connectors 19 and 20. In use, the test apparatus 13 is connected to the package connectors 19 and 20. The test circuitry 24 is then activated to form a closed current loop to determine whether continuity exists with respect to the enclosed electrode 11, thereby indicating whether the electrode 11 is still functional. Additionally, a load 86 formed of for example a conductive and semi-conductive material layers 85 and 86, may be added to the current loop as for example is shown in FIG. 17, for purposes of measuring the magnitude of current flow for more precise measurement of electrode 11 condition.

('884 Patent at c. 5, ll: 49-66.) Based on this language, Philips maintains that this term requires the testing to be completed by a test apparatus. However, only the preferred embodiment states this requirement. Neither the claim language nor the specification demands that the "testing" of the electrodes utilize a test apparatus. The Court finds that the term "testing" should be construed as "checking or evaluating."

1. It Depends On What the Word "The" Means
The first skirmish involves the word "the." The claim language states "circuitry for recycling the magnetizing energy stored in said transformer to reset it." (Emphasis added). Lambda asserts that the word "the" means all of the magnetizing energy in the transformer. Vicor contends that the claim allows for the possibility that some of the energy may be recycled to reset the core while other energy is delivered to the load. In other words, it argues that the word "the" can mean "some of the," and explains that the word "the" was used to distinguish "the magnetizing" energy from the more general term "energy" that is used earlier in the preamble. Nice linguistic jousting, but the use of the word "magnetizing" alone would have been an adequate adjective to single out the kind of energy intended for recycling. If only some of the transformer's energy needed to be recycled, the word "the" would not have been used.

Lambda's argument that the word "the" connotes all the magnetizing energy is persuasive because it gives ordinary and common sense effect to the word "the" in the claim language. See Merriam-Webster's Collegiate Dictionary 1221 (10th ed. 1993) (giving one definition of "the" as: "used as a function word before a noun . . . to indicate reference to a group as a whole"). This claim thus describes an invention that recycles all of the magnetizing energy to reset the transformer core.

16. Includes the Average elapsed time between visits (First appearing in claim 5 at col. 13, ll. 23-24, and also appearing in claim 26)

Websidestory contends that this phrase does not need construction. Joint Claims Construction Chart at 8. Netratings contends that the phrase needs to be construed based upon Websidestory's preliminary infringement contentions. Netratings' Responsive Claims Construction Brief at 22.

Netratings requests that the Court construe the phrase as, "includes a single value representing the calculated average time between visits." Netratings contends that Websidestory will attempt to read the word average out of the claim language in later proceedings. Websidestory rejects Netratings' proposed construction as improperly importing limitations from the specification and rewriting the clear claim language. Netratings' arguments find support in the specification. The description of the preferred embodiment section of the specification describes the traffic path analysis data in a typical cookie, and notes that, "the average time between website visits is calculated by the server and kept in the cookie . . . ." Patent at col. 9, ll. 27-30. The average elapsed time data is further described in the specification, as "a statistic that is maintained by the traffic analysis server computer," and which is "calculated." Patent at col. 9, ll. 50-53. Netratings' argument that the "average elapsed time" is represented by a single value is supported by that part of the specification which describes "average elapsed time data" as a "statistic." In addition, Figures 8 and 9 in the '479 Patent indicate that, at least in an exemplary cookie, the average elapsed time is stored in the cookie as a single value. The "single value" aspect of Netratings' proposed constructions is consistent with various dictionary definitions of "average," one of which is "an estimate or approximate representation of an arithmetic mean." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 150 (1986).

Websidestory does not explain how or why Netratings' proposed construction would limit the claims, and the Court agrees that Netratings' construction captures the meaning of this disputed phrase. Accordingly, and after reviewing the '479 Patent and the parties' arguments, the Court adopts Netratings' proposed construction, and concludes that the acquired meaning of "includes the average elapsed time between visits" is: "includes a single value representing the calculated average time between visits."

C. "The Computer" (Second and Fifth Clause of Claim 1; Fifth Clause of Claim 2)

Plaintiff's Proposed Construction: A computer previously recited in the claim.

Defendants' Proposed Construction: All occurrences of "the computer" refer to the same computer.
Defendants propose construing all occurrences of the term "the computer" throughout the claims as referring to the same computer. Defendants cite the plain language of the claim and the prosecution history to argue that all events of the '474 Patent must occur on the same computer. When each individual clause is read in context with the entire claim, however, it is clear that "the computer" refers to a computer recited in the preamble of the claim that is capable of processing unique identification codes. The term "the computer" simply refers to "a computer" that is programmed to perform the functions of the '474 Patent. Although one embodiment of the Patent can operate using a single computer, the plain language of the claim illustrates that the Patent does not require operating only one computer.

This construction is further supported by the specification. Two events occur in this Patent. The first is the encoding event, where a person's identifying information is obtained and stored in a magnetic medium. '474 Patent at 10:57-65; 12:6-9. The second is the recognition event, where identifying information is obtained from a live person and compared with the information stored in the magnetic medium. Id. at 10:66-11:11. The specification makes clear that this second event -- the recognition of a live print -- can occur at a number of locations, such as a retail store, and need not occur at the same computer where the print was first encoded. Id. at 10:24-26. Accordingly, the Court finds that the term "the computer" refers to a computer previously recited in the claim, and does not refer to the same computer throughout the claims.

R. "the digital data"

The phrase "the digital data" comes from the very last phrase of Claim One of the '399 Patent, which states: "wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device." '399 Patent, col. 13:8-12. The Camera Manufacturers note the antecedent reference to "the digital data" -- "the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data." Id., col. 12:55-59 (emphasis added). From these two references, they suggest that "the digital data" should be construed to mean "the same digital data output from the analog to digital converter, unmodified by additional processing." CMs' Surreply at 21. Papst offers a more expansive definition, to wit, "the 'digital data,' while referring to the data digitized in the second connecting device, includes data that has undergone further processing, such as digital signal processing." Papst's Slides at 112; see Papst's App. at 4; '399 Patent, col. 13:26-27 (Claim Five, reciting that the processor is a digital signal processor). When the specification describes the preferred embodiment of the invention, it describes the processing by the interface device of the data acquired from the transmit/receive device -- "the digital signal processor implements a fast Fourier transformation (FFT) in real time and also optional data compression of the data to be transferred from the data transmit/receive device to the host device." Id., col. 9:24-26. Papst has the better approach.

The specification for the '399 Patent states that in the preferred embodiment "[t]he digital signal processor 1300 provides on-board digital data processing." '399 Patent, col. 10:56-57 (the number 1300 refers to the location of the processor on Figure 2). Such digital signal processing is only limited by the size of the memory, as the specification explains:

As a result of the option of storing any files in agreed formats in the memory means 14 of the interface device 10, taking into account the maximum capacity of the memory means, any enhancements or even completely new functions of the interface device 10 can be quickly implemented. Even files executable by the host device, such as batch files or executable files (BAT or EXE files), and also help files can be implemented in the interface device . . . .

'399 Patent, col. 7:49-54; see also id., col. 8:37-42 ("Further, an experienced user can intervene at any time on any level of the existing second connecting device by making use of the above mentioned option of creating a configuration file or adding or storing new program sections for the second connecting device."). Thus, "the digital data" means "the data as it is output by the analog to digital converter, and/or the data as it is output by the analog to digital converter after it has undergone additional processing, such as digital signal processing."
A. Claim Construction

Claim construction is a matter for the court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff’d, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). Claims are construed from the vantage point of a person of ordinary skill in the art at the time of the invention. Id. at 986. In construing a claim, a court looks first to the intrinsic evidence of record, namely, the language of the claim, the specification, and the prosecution history. Insituform Tech. Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1105 (Fed. Cir. 1996). Extrinsic evidence such as expert testimony may be considered if needed to assist the court in understanding the technology at issue or in determining the meaning or scope of technical terms in a claim. Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1579 (Fed. Cir.), cert. denied, 136 L. Ed. 2d 198, 117 S. Ct. 275 (1996). A court may require expert testimony in order to understand how a person of ordinary skill in the pertinent art would construe a claim. See id. at 1578-79. In this case, the court has relied on such testimony where there is no genuine dispute between the parties as to what one of ordinary skill would have understood or recognized at the time of the '027 invention.

Claim 83 of the '027 patent reads as follows:

83. Apparatus for changing the time-base of a digital information signal having a time-base synchronizing component, comprising:

a randomly addressable digital store having addressed storage locations for receiving and storing successive intervals of the digital information;

means for effecting the storage of successive portions of each interval of the digital information signal at different addressed storage locations of the digital store at times determined by a clock signal;

means for effecting retrieval of the stored portions of the information signal from addressed storage locations at the times determined by said clock signal;

and means responsive to the time-base synchronizing component of the information signal and a time-base reference signal for providing a control signal representative of the time difference between the synchronizing component and the reference signal;

and means responsive to said control signal for adjusting during each interval of the digital information signal the time between effecting storage of each portion of the digital information signal at an address and effecting retrieval of said portion from said address.

Claim 83 is expressed in so-called "means-plus-function" language as authorized by 35 U.S.C. § 112(6), which provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Section 112(6) requires that the court construe means-plus-function claims in view of the structure disclosed in the specification of the patent. Alpex Computer Corp. v. Nintendo Co. Ltd., 102 F.3d 1214, 1220 (Fed. Cir. 1996). Here, it is undisputed that the supporting structures of the means-plus-function limitations of claim 83 are found in certain portions of Figure 4, reproduced below, and columns 13 and 14 of the '027 patent specification.

[SEE FIG 4 IN ORIGINAL]

The court has not endeavored to construe each and every element of claim 83. Rather, the court has looked to the parties to identify the issues that the court must resolve. After hearing testimony and argument on claim construction and reviewing the parties' submissions in connection with claim construction, the court understands the following issues to be in dispute:
1) Whether information must be written into and read out of memory at the same frequency or rate;

2) Whether the entire digitized version of an incoming analog signal, including the time-base synchronizing component, must be stored in memory; and

3) Whether the counter represented by Block 168 in Figure 4 of the specification is the only structure supporting the means referred to in the fourth element of claim 83, that is, the means responsive to the time-base synchronizing component of the information signal and a time-base reference signal for providing a control signal representative of the time difference between the synchronizing component and the reference signal.

* * *

2. Storage of the Digital Information Signal

Mitsubishi next contends that claim 83 requires that the entire digitized version of an incoming analog signal, including the time-based synchronizing component, must be stored in memory. Ampex disputes this contention, arguing that claim 83 requires only that the digital information signal being stored have a time-based synchronizing component associated with it. Ampex also argues that the digital information signal referred to in claim 83 is the signal as it exists at the time it is written into memory, not as it exists immediately after it is converted into digital form.

The preamble of claim 83, "apparatus for changing the time-base of a digital information signal having a time-base synchronizing component," refers to "a digital information signal" without specifying its origin or the information it contains. Likewise, the limitations that follow merely refer to "the digital information" and "the digital information signal." (Emphasis added.) Thus, in order to determine what information must be stored in memory, the court must put claim 83 in context by examining the rest of the '027 patent specification.

As discussed above, the '027 invention converts incoming analog signals into digital signals before supplying them to the apparatus described by claim 83. This analog-to-digital conversion is depicted in Figure 1 of the '027 patent, reproduced above.

The parties do not dispute that, in Figure 1, the time-base synchronizing component of the incoming signal in its original analog form is detected and regenerated by means of a sync separator, represented by Block 134, during the analog-to-digital conversion process. The component, represented as "SIG. H," is then separately made available to other parts of the circuitry. The parties also do not dispute that, in Figure 4, the component, again represented as "SIG. H," is compared to the reference signal, represented as "REF. H," so that the differences between them may be measured and used to control retrieval of information from memory. It is thus apparent that SIG. H is derived before any portion of the digital information signal is stored in memory.

Ampex concedes that, in the embodiment of the patent shown in Figure 4, the time-base synchronization component is digitized and stored in memory with the rest of the digital information signal. However, Ampex points out, and Mitsubishi does not dispute, that after the digital information signal is read out of memory and is converted back to an analog signal, a processor represented by Block 116 in Figure 1 inserts reference synchronization and color burst components into the information signal in place of the digitized time-base synchronization component, which is discarded. Given this fact and the fact that SIG. H is derived during the analog-to-digital conversion process before any information is stored in memory, it is apparent that the synchronizing component need not be stored in memory along with the rest of the digital information signal. It is also apparent that, much like the separation of the time-base synchronizing component, other types of information could be separated from the signal and discarded before the signal is written into memory. Thus, the "digital information signal" referred to in claim 83 must be the signal as it exists at the time it is written into memory.

Accordingly, the court concludes that claim 83 does not require that the entire digitized version of an incoming analog signal, including the time-base synchronizing component, be stored in memory, and that the "digital information signal" referred to in claim 83 refers to the signal as it exists at the time it is written into memory.
By its claim construction order of the same date, the court construed "home page" as "the top-level entry point of a website." Its rationale in narrowing the claims to, essentially, one top level domain was in part due to the claims' use of the phrase "the home page," in contrast to the specification's reference to "home pages" (see, e.g., col. 2, ll. 10-11). That is, the claims' use of the article "the" preceding "home page" (i.e., "the home page") implies that any objective definition must identify just one page. Upon further review, the court does not alter its construction.

In its memorandum opinion, the court rejected defendants' indefiniteness challenge to the '904 patent, based on the fact that the algorithm (trimming steps) described in columns 6 and 7 of the '904 patent achieved "the most representative image" of a web page; defendants suggested that the court construe "home page" as "the web page having the URL produced by the trimming steps described in columns 6 and 7" of the '904 patent. (D.I. 331 at 19-20) Because defendants were able to point to a definition for the term, the court found that "home page" was not so "insolubly ambiguous" as to completely foreclose construction and compel a finding of invalidity based upon indefiniteness.

It has since come to the court's attention that, although the algorithm may result in "a" home page (or top level entry site), the algorithm described in column 7 will not result in "the top-level entry point" of the web site, or the single, highest-most entry level point. Moreover, aside from the algorithm, the specification does not define (or specifically exemplify) "home page," let alone define "the home page" disclosed in the claims. As explained in the court's prior opinion, the parties do not genuinely dispute that the term "home page" was generally understood in the art at the time the application leading to the '904 patent was filed. However, plaintiff concedes that a web site may have more than one "home page" and the evidence indicates that no universal definition existed at the time for "the home page."
because of a misused article. As such, the Court will construe "the master controller" as "a master controller."

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A.

The court's claim construction ascribes claim terms the meaning they would be given by persons of ordinary skill in the relevant art at the time of the invention. See 35 U.S.C. § 112; Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004). Claim construction begins with the language of the asserted claims. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The relevant claim language in this case appears identically in independent claims 1 and 10. It provides,

A method of operating a computer system including a processor and a memory system, wherein the memory system includes an array of non-volatile floating gate memory cells partitioned into a plurality of sectors that individually include a distinct group of said array of memory cells that are erasable together as a unit, comprising:

providing said memory array and a memory controller within a card that is removably connectable to the computer system, said controller being connectable to said processor for controlling operation of the array when the card is connected to the computer system, partitioning the memory cells within the individual sectors into at least a user data portion and an overhead portion ...

'987 patent, col. 16, ll. 24-37 (claim 1, emphases added); see also id. at col. 17, ll. 30-44 (claim 10). Although SanDisk also asserted claims 2, 5, 6, 12, and 15 of the '987 patent, each depends from claim 1 or 10 and incorporates the foregoing limitations in relevant part. The parties do not dispute, and the trial court correctly noted, that the preamble recited above is limiting. n2

n2 That is, because "when read in the context of the entire claim" the preamble "recites limitations of the claim ... or ... is 'necessary to give life, meaning, and vitality' to" claims 1 and 10, the trial court properly treated the language as limiting. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999).

Reviewing the partitioning requirement, the trial court concluded that claim 1 and claim 10 require every Flash EEPROM memory cell within an actual device to be grouped into a sector that is partitioned into user and overhead data portions. SanDisk argues that this construction misreads the plain language of the claim. The argument proceeds on two levels. First, by its plain language, claims 1 and 10 require only that the claimed memory system contain some memory cells, grouped into sectors, partitioned into user and overhead data portions. Nothing in the claims precludes additional memory cell configurations, which need not contain such partitioned sectors. Second, claims 1 and 10 are self-evidently drawn to claimed methods. It is fully consistent with practicing the claimed invention to make additional, unclaimed use of Flash EEPROM memory cells, so long as each limitation is satisfied. We agree.

The invention is claimed using non-restrictive terminology. The memory system "includes" an array of "non-volatile floating gate memory cells" which are "partitioned into a plurality of sectors." The claimed method requires "partitioning the memory cells within the individual sectors into at least a user data portion and an overhead portion." As a patent law term of art, "includes" means "comprising." See Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1344-45 (Fed. Cir. 2003); Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp., Inc., 123 F.3d 1445, 1451 (Fed. Cir. 1997). Neither includes, nor comprising, forecloses additional elements that need not satisfy the stated claim limitations. Nor does the choice of articles-"an array" of memory cells, "a plurality of sectors," "said array of memory cells," "the memory cells," or "the individual sectors" - compel a different conclusion. These groupings of Flash EEPROM memory cells provide an antecedent basis for various steps of the claimed method, but nothing in their recitation excludes other configurations of memory cells on a physical device that, in some part, practices the claimed methods. Thus, nothing in the language of claims 1 or 10 prevents the use of Flash EEPROMs containing cells that are not grouped into partitioned sectors.
B.

SanDisk further argues that the '987 patent specification is inconsistent with the trial court's claim construction because, among other reasons, it excludes at least two preferred embodiments: one involving storing a sector defect map in Flash EEPROM memory cells, and another involving using Flash EEPROM cells as a write memory cache. As explained below, the court need only consider the sector defect map to conclude that SanDisk is correct.

The court must always read the claims in view of the full specification. See Vitronics, 90 F.3d at 1582. A claim construction that excludes a preferred embodiment, moreover, "is rarely, if ever, correct." Vitronics, 90 F.3d at 1583; see also C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 865 (Fed. Cir. 2004). The '987 patent specification describes an embodiment involving a sector defect map, which, in brief, contains information mapping defective memory sectors into good ones. See '987 patent, col. 11, ll. 57-60. Although the defect map may be stored in spare, defect-free portions of the affected sector, at some point there will be too many defects to keep the defect map in that location. "Thus, it is preferable in another embodiment to locate the sector map in another memory maintained by the controller. The memory may be located in the controller hardware or be part of the Flash EEPROM memory." '987 patent, col. 11, l. 65 - col. 12, l. 1 (emphasis added). SanDisk argues that because the sector defect map would contain only overhead data, the portions of the Flash EEPROM memory used in the preferred embodiment would not be partitioned into user data and overhead data portions as required by according claims 1 or 10. As the district court's claim construction would foreclose that possibility, the claim construction must be wrong.

The trial court rejected this argument. It ruled, instead,

The fact that the sector defect map contains only overhead data does not prove that the embodiment contemplates sectors with only overhead data. Although the sector defect map is composed entirely of overhead data, the court finds that the sector defect map is located entirely within the overhead portion of a single sector.

We find this reasoning misplaced.

In its brief to this court Ritek concedes that the sector defect map could be located in "a part of memory outside the array of sectors partitioned into a user data and overhead portions, i.e., in an unsectored part of the memory." Ritek Br. at 43-44. If Ritek is correct, then the trial court's claim construction must be wrong. The claims must allow, instead, for Flash EEPROM memory cells that are not sectored, or not partitioned, according to the claimed methods. But since Ritek concedes this point, and both Pretec and Memorex join Ritek's argument, there is no dispute left for the court to resolve. In sum, the trial court's speculative treatment of the preferred embodiment is unsupported by the patent specification, not grounded in the record, and contrary to the reading suggested by all parties. We conclude that SanDisk is correct in faulting the trial court's claim construction.

Ritek contends that the only sectors described in the '987 patent specification are partitioned as illustrated in Fig. 5. Thus, Ritek concludes, the invention is directed only to partitioned sectors. We find this reasoning misplaced for at least two reasons. First, as noted above the language of claims 1 and 10 does not preclude other, unclaimed organizations of Flash EEPROM memory cells. Thus, even if the court concluded that Fig. 5 shows the only partitioning consistent with the claimed methods that would not preclude use of other organizations in the memory system. Second, it is axiomatic that without more the court will not limit claim terms to a preferred embodiment described in the specification. Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."). The '987 patent specification plainly describes the sector partitioning illustrated at Fig. 5 as a "typical" sector organization. See '987 patent, col. 8, ll. 43-45. It is a preferred embodiment of the sector organization claimed in the claim 1 and 10 methods. In short, Ritek's argument is misplaced. The specification does not contradict the plain meaning of claims 1 and 10.

C.

The prosecution history does not compel a contrary result. The court must always consult the prosecution history, when offered in evidence, to determine if the inventor surrendered disputed claim coverage. See Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed. Cir. 2005) ("We cannot look at the ordinary meaning of the term ... in a vacuum. Rather,
we must look at the ordinary meaning in the context of the written description and the prosecution history.

After consulting the prosecution history, the trial court ruled that SanDisk disclaimed any method or device in which Flash EEPROM memory cells were not grouped into partitioned sectors. Ritek urges the court to affirm this analysis. SanDisk, however, maintains that the trial court erred in this conclusion. Instead, SanDisk argues, nothing in the prosecution history provides a clear and unmistakable disclaimer as found by the district court. On reviewing the relevant arguments to the examiner, we agree with SanDisk.

1. When the patentee makes clear and unmistakable prosecution arguments limiting the meaning of a claim term in order to overcome a rejection, the courts limit the relevant claim term to exclude the disclaimed matter. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003) ("Where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender."); Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985) ("The prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.").

As this court has explained,

The doctrine of prosecution disclaimer [precludes] ... patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution. See Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 220-21, 85 L. Ed. 132, 61 S. Ct. 235, 1941 Dec. Comm'r Pat. 802 (1940) ("It is a rule of patent construction consistently observed that a claim in a patent as allowed must be read and interpreted with reference to claims that have been cancelled or rejected, and the claims allowed cannot by construction be read to cover what was thus eliminated from the patent."); Crawford v. Heysinger, 123 U.S. 589, 602-04, 31 L. Ed. 269, 8 S. Ct. 235, 1888 Dec. Comm'r Pat. 185 (1887); Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227, 26 L. Ed. 149, 1881 Dec. Comm'r Pat. 131 (1880); cf. Graham v. John Deere Co., 383 U.S. 1, 33, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966) (ruling, in addressing the invalidity of the patents in suit, that "claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent").

An ambiguous disclaimer, however, does not advance the patent's notice function or justify public reliance, and the court will not use it to limit a claim term's ordinary meaning. See id. at 1324 (collecting cases). There is no "clear and unmistakable" disclaimer if a prosecution argument is subject to more than one reasonable interpretation, one of which is consistent with a proffered meaning of the disputed term. See Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed. Cir. 2004) (finding no disclaimer because "the statements in the prosecution history are subject to multiple reasonable interpretations, they do not constitute a clear and unmistakable departure from the ordinary meaning of the term at issue"); Cordis Corp. v. Medtronic AVE, Inc., 339 F.3d 1352, 1359 (Fed. Cir. 2003) (concluding that a statement made during prosecution "is amenable to multiple reasonable interpretations and it therefore does not constitute a clear and unmistakable surrender"). The question, therefore, is whether any of SanDisk's prosecution arguments to the examiner have no reasonable interpretation other than to disavow any memory system in which Flash EEPROM memory cells are not grouped into partitioned sectors.

2. In this case the relevant prosecution argument responded to an obviousness rejection. The '987 patent is sued from application Ser. No. 174,768 ("the '768 application"). On December 7, 1995, the examiner rejected original claims 79
(which issued as claim 1) and 85 (which issued as claim 10) in the '768 application as obvious under Burke in view of Yorimoto. The examiner explained that Burke - an Australian patent, No. AU-B-83 22536/-taught a memory system including "an array of cells which are inherently partitioned into a plurality of sectors because Burke's array is to 'emulate' a magnetic disk which has sectors." As the examiner explained, Yorimoto - European patent application No. 86114972.2, Pub. No. 0 220 718 - "teaches partitioning the cells with a sector into portions, each portion is for storing a specific type of information." Rejecting claim 85 (issued claim 10), the examiner concluded,

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Yorimoto's memory (of EEPROM type) and Yorimoto's memory cells partitioning in place of Burke's memory.

The artisan would have been motivated to use Yorimoto's EEPROM in the place of Burke's memory because Yorimoto's EEPROM can be partitioned into sectors and Burke's emulation inherently suggests that the emulating memory should be able to emulate the sectors of Burke's magnetic disk.

SanDisk argued that the examiner was mistaken. In particular, SanDisk explained:

The memory cell array is divided into sectors, with the cells within each sector being erasable together as a unit. Stored in each sector is a sectors [sic] worth of user data and some overhead information (a header) about the sector and/or about the user data stored in the sector.

(quoted at Pretec SJ Order, slip. op. at 25). Relying heavily on SanDisk's description of "each sector", the trial court concluded that SanDisk was referring to every sector on the '987 patent EEproms. Id. at 26. Ritek contends that the trial court's analysis was correct, and with this language SanDisk disclaimed its current claim construction. We disagree, and find no clear and unmistakable disclaimer in this passage.

The trial court's and Ritek's reasoning assumes its conclusion. The quoted passage begins with the proviso that "The claims a re directed to a flash EEPROM system[.]" If, when viewed in context, SanDisk used this passage to describe the memory cell array - and, in particular, the claimed sector organization subject to the methods in original claims 79 and 85 - then there is no prior reason why that memory cell array or the discussion of it should be presumed to exhaust every cell on every EEprom in the "memory system" recited in the claim preambles. Given the open language in the claims, there is no reason for the court to read the prosecution argument with such a presumption in mind. Put differently, the reference to "each sector" means "each sector" subject to the claimed method, and no more. In short, SanDisk's reading of this prosecution argument is at least reasonable. Thus, focusing on this passage alone, there is no "clear and unmistakable surrender" within the meaning of Golight.

The trial court further reasoned that because SanDisk sought to emulate a disk drive with the claimed memory system, it followed that SanDisk intended to group every Flash EEprom memory cell into a partitioned sector. The trial court focused on the following prosecution argument, responding to the obviousness rejection of original claim 79:

The claims in this application each define more than the desire to make a semiconductor memory system look on the host system side of the memory controller to be a disk drive. They define a way of configuring and using a semiconductor memory on the memory side of the controller in a way similar to a disk drive. Claim 79 defines a flash EEPROM system with an array that is divided into sectors of cells that are erasable together as a unit. This is not new by itself but is a particular type of memory ... to be used to emulate a disk drive. None of the ... cited references suggest use of such a type of memory. The only mention of an EEPROM system is by Yorimoto et al. but their embodiments appear to be generically described for use with either an EEPROM or a battery backed volatile RAM. Nothing is said by Yorimoto et al. of a flash EEPROM system that is operated with sectors of cells that are erasable together as a unit. It is the use of this type of memory that allows the memory itself to be operated very similarly to that of a disk drive, with individual sectors that store both user data and overhead data (a header for the sector). It is the operation of the flash EEPROM memory by the memory controller with the sectored and partitioned characteristics of a disk drive memory that is novel and non-obvious.

Ritek contends that the trial court correctly read this passage to disclaim the claim construction set forth above. Again, we disagree.

First, as with the last passage, this argument is directed to explicating the claimed invention. It does not purport to exclude
from the "memory system" other configurations of Flash EEPROM memory cells. Even though SanDisk identifies the novel invention as "operation of the flash EEPROM memory by the memory controller with the sectored and partitioned characteristics of a disk drive memory," that statement goes to the claimed memory organization.

Second, the fact that with the claimed invention SanDisk sought to emulate a disk drive memory storage configuration does not compel the conclusion that SanDisk required every Flash EEPROM memory cell in the "memory system" recited in the claims to be grouped into partitioned sectors. The trial court's reasoning, in short, relies on a false analogy. Though every memory cell on a disk drive might have a physical location in a partitioned sector, it does not follow that to "emulate" that function every memory cell in a Flash EEPROM array must also be so grouped. To the contrary, the organization of memory cells in the Flash EEPROM is physically limited only by the requirement of a simultaneous erase by sector; in other respects, the cells are grouped into sectors by a logical allocation. Thus, while physical organization of memory on a disk drive might require every memory cell to be placed in a partitioned sector, the physical organization of memory cells on an EEPROM does not.

The prosecution history as a whole confirms this point. In an earlier passage, SanDisk argued:

The claimed memory system looks to the host computer as if it was a disk drive system, similar to the goal stated in the cited Burke patent. But a significant difference is the claimed operation of the flash EEPROM array with many incidents of a disk system. It is divided into sectors that are operated as a unit, including overhead data (a header) as well as user data, and, in some of the claims, the overhead data is read from an addressed sector before user data is written into that sector. (emphases added). The passage focuses on the claimed operation of the flash EEPROM memory cell array, the subject of claims 1 and 10; it does not address itself to unclaimed uses of the memory cells. Moreover, according to SanDisk, that particular EEPROM configuration was not obvious from combining Burke, which emulated a disk drive, and Yorimoto, which claimed an EEPROM array:

This is quite different from the way that semiconductor memory arrays are usually operated. ... The present claims ... define a disk like approach to semiconductor memory operation. The fact that the system of the Burke patent may look to the host system as a disk memory system does not mean that its array is operated in sectors, with headers, etc., as claimed. ... 

... The flash EEPROM system employed in the present invention, unlike typical RAMs, do have memory operations that can benefit from auxiliary information. The provision for making such information available in a header of each sector in the context of a solid state memory is part of the present invention.

An underlying assumption made throughout the Examiner's Action is that it is inherent in the system of the cited Burke reference to operate its volatile RAM array with sectors, and thus obvious to include overhead data (headers) in individual sectors. This premise, and thus all the rejections based upon it, is respectfully submitted to be incorrect. Contrary to the position taken in the Examiner's Action, it is submitted that the fact that Burke's system looks to the host system as a disk drive memory does not compel this conclusion. The alleged inherent Burke disclosure upon which nearly all the grounds of rejection are based does not exist.

In other words, it was novel to organize the cells into partitioned sectors for purposes of the claim, but the claimed purpose of emulating a disk drive did not compel sorting every memory cell - even those not subject to the claimed method - in that fashion.

In sum, we conclude that SanDisk did not unmistakably surrender the grouping of Flash EEPROM memory cells into non-partitioned sectors. The prosecution history is consistent with the plain meaning of claims 1 and 10, and does not compel the trial court's contrary reading.
The parties propose very different interpretations of the retrieving steps of the ‘597 patent. Detroit Diesel contends that the retrieving steps require the retrieval of one set of data representing a fuel delivery limit curve if the cruise control is engaged, and the retrieval of a different set of data representing a different fuel delivery limit curve if the cruise control is not engaged. Detroit Diesel bases its interpretation on the plain language of the claim and on the dictionary definition of "other." Detroit Diesel also refers the court to what it deems an admission by Caterpillar to the European Patent Office during prosecution of the same claim with that office that the claim is invalid unless the retrieving steps are limited to mutually exclusively retrieving one or the other set of data depending on whether the cruise control is engaged. In response to an objection from the EPO, Caterpillar inserted a reference to prior art WO-A-8403911 (the Thompson Patent European counterpart), explaining in its letter to the EPO presenting the amended application that the reference "does not suggest using a high horse power curve during cruise control engagement and a lesser horsepower curve simply because the cruise control is engaged." Caterpillar amended the claim to explain that WO-A-8403911 "does disclose limiting fuel supply to a to a lower range of values … when cruise control is off than when it is on, even though the limitation to using a lower range of values is not primarily determined by whether or not the cruise control is engaged or disengaged." See Exh. F to Detroit Diesel's Motion.

Caterpillar, on the other hand, contends that when properly interpreted in their open format, the retrieving steps are not limited in the manner Detroit Diesel proposes. Caterpillar claims that the first retrieving step can only be interpreted to require retrieval of at least one set of data, representing one or more fuel delivery limit curves, when the cruise control is engaged. Caterpillar explains that the lower limit curves (which would, under Detroit Diesel's interpretation, be available only when cruise control is not engaged) may also limit the command signal if cruise control is engaged, as shown in the preferred embodiment, in which the additional power is not retrieved unless power above the lower limit curve is needed to maintain the cruise set speed:

Higher rated rack limits, and thus higher engine output torque and horsepower levels, are made available when: (1) the cruise control is engaged; (2) the cruise control set speed is greater than a minimum predetermined speed; and (3) the vehicle speed is less than the cruise control set speed plus a predetermined value.

* * *

If any of the questions posed by the blocks 130, 132, or 134 [of Figure 3] is answered in the negative, then it has been determined that the increased rack limits represented by the torque curves 120A, 122A and respective horsepower curves 120B and 122B are not to be used.

‘597 Patent, Col. 6, lines 23-29 and 62-66. Caterpillar thus concludes that the specification itself contradicts Detroit Diesel's interpretation because it describes a situation where cruise control is engaged but the upper limit curve is not retrieved. The preferred embodiment thus evaluates conditions other than whether the cruise control is engaged before selecting a particular set of data. Because the claim is written in an open format, Caterpillar argues, it will read on devices that include additional elements not referenced in the claim.

According to Caterpillar, the second retrieving step must be read to allow the retrieval of more than one set of data from memory when cruise control is not engaged, and cannot be read as restricting retrieval of the second (lower) fuel delivery limit curve to when the cruise control is not engaged. Claiming to construe the patent practically and in accordance with its purposes, Caterpillar asserts that the second retrieving step may properly be construed to require retrieval of the lower fuel delivery limit curve where power is demanded through the throttle (where by definition the cruise control is not engaged), and to "preclude throttle retrieval of the higher curve in other circumstances."

Caterpillar objects to Detroit Diesel's reliance on the EPO documents, claiming they are presented out of context and in edited form, and are not legal admissions by Caterpillar, and do not support Detroit Diesel's arguments. The correspondence, Caterpillar claims, merely shows its disagreement with the EPO about whether the Thompson Patent European counterpart taught use of the cruise control as a determining step for accessing additional power.
Lastly, Caterpillar argues that the court cannot accept Detroit Diesel's interpretation of Claim 1 because it would mean that "the fuel delivery limit curves in Figures 2A and 2B are mutually exclusive," which in turn would make Claim 3 11 of the patent directly contradicted by Claim 1 and rendered meaningless. Detroit Diesel's reply seems to accept Caterpillar's assertion that its interpretation of Claim 1 would make Claim 3 contradicted by Claim 1 and rendered meaningless, but points out that claim differentiation 12 is a "guide, not a rigid rule." See Autogiro, 384 F.2d at 404.

--- Footnotes ---

11 Claim 3 of the '597 patent provides: "3. The method of claim 1, including the further steps of determining whether the speed of the vehicle is less than the set speed plus a predetermined value and retrieving at least a portion of the other set of data from the memory (86) when the vehicle speed is not less than the set speed plus the predetermined value."

12 The doctrine of claim differentiation is a canon of claim construction which holds that when a patent contains both broad and narrow claims, the additional limitation of the narrow claim should not be read into the broad claim. The doctrine embodies the common sense notion that ordinarily language of one claim should not be so interpreted as to make another claim, such as a claim dependent on the first claim, identical in scope. Motorola, Inc. v. Interdigital Technology Corp., 930 F. Supp. 952, 965 (D.Del. 1996) (quotations and citations omitted).

--- End Footnotes ---

Detroit Diesel's reply brief makes two points relevant to construction of the retrieving steps. Detroit Diesel criticizes Caterpillar's interpretation of the retrieving steps as doing "violence to language as a tool for communication" by effectively eliminating the determining step altogether since, according to Caterpillar, the same sets of data may be retrieved without regard to whether the cruise control is engaged. Detroit Diesel also presents the deposition testimony of the first named inventor of the '597 patent, Michael Moncell, who explains:

Q. So the first and second retrieving steps are mutually exclusive of one another depending on the answer to the determining step; is that accurate?

A. (Mr. Moncell): Yes, they are mutually exclusive. You choose one or the other.

Moncell Dep. at 31. In his affidavit, Mr. Moncell explains that the steps are mutually exclusive in that one or the other sets of data is retrieved (engine fuel delivery necessarily is restricted at any point in time by one of the limit curves), but that this does not mean that the higher fuel delivery curve is the only accessible curve during cruise control engagement. Moncell Aff., PP 10-11.

After examining the claim and the entire specification and considering the parties' arguments, the court agrees with Detroit Diesel's construction of the retrieving steps of the '597 patent. The claim states that one of the sets of data representing one of the fuel delivery limit curves is retrieved when cruise control is engaged, and the other set of data representing the other fuel delivery limit curve is retrieved when the cruise control is not engaged. As Detroit Diesel argues, the claim allows for the cruise control to be in one of two states (engaged or not engaged), and one of two different sets of data is retrieved depending on whether the cruise control is engaged or not engaged. By its own words, the claim sets up two mutually exclusive possible situations.

The court cannot reconcile Caterpillar's urged interpretation with the language of the claim. Caterpillar argues that because the claim is written using "comprising," i.e. in open format, limitations that are not present in the claim's language cannot be read into the claim. While it is true that a claim written in open format does not exclude additional unrecited elements, see Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1271-1272 (Fed. Cir. 1986), Caterpillar's interpretation is not based on additional unrecited elements. Caterpillar argues for an interpretation of the retrieving steps in which neither step is limited even to the language set forth in the step. The claim's words must be given their ordinary and accustomed meaning unless it appears that the inventor used them differently. ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1579 (Fed. Cir. 1988); Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed. Cir. 1984). The first retrieving step provides for retrieval of one set of data when the cruise control is engaged, and the second step provides for retrieval of the other set.
when the cruise control is not engaged. Caterpillar now argues that either set may be retrieved when the cruise control is engaged, and that when the cruise control is not engaged, the first set may nonetheless be retrieved, such as during power take-off. Caterpillar's asserted construction of Claim 1 may make sense in a vacuum, and even jibe with the purposes of the patent (making additional power available when necessary to maintain the set speed), but it finds no support in the claim's language. 13

13 The court does not rely on the EPO documents in reaching this conclusion, and determination of their meaning and status as "admissions" is not necessary.

Caterpillar's reference to portions of the preferred embodiment to support its interpretation is likewise unconvincing. The portion of the preferred embodiment Caterpillar references supports its assertion that in the preferred embodiment additional power is not retrieved unless power above the lower limit curve is needed to maintain the cruise set speed, but the portions Caterpillar cites recite additional steps (corresponding to blocks 132, 134, and 136 of Figure 3) that are not contained in Claim 1, but rather can be seen in the language of Claims 2 and 3 of the patent.

Lastly, Caterpillar's claim differentiation argument does not alter the court's conclusion. Caterpillar contends that Claim 1 cannot be interpreted in the manner urged by Detroit Diesel--"that the fuel delivery limit curves in Figures 2A and 2B are mutually exclusive"--because it would make Claim 3 of the patent directly contradict Claim 1. Caterpillar has not, however, explained how or why Detroit Diesel's interpretation would render Claim 3 contradicted by Claim 1 and "meaningless", and the answer is not obvious to the court.

GO BACK

4464

1. Claim interpretation

Claim 1 of the '447 patent recites:

A method for producing a tone by reading a waveform memory storing a predetermined waveform by an address signal of a selected repetition frequency comprising:

- a step of multiplying the output of said waveform memory with a parameter;
- a step of adding the multiplication product to said address signal; and
- a step of reading said same waveform memory by means of the output resulting from said addition,

a tone being produced by using the output of said same waveform memory.

(emphasis added).

The district court decided that the "output of said same waveform memory" in the last clause must be identical to that in the first step. Based on its interpretation of that phrase, the district court concluded that claim 1 requires that the same output from the waveform memory be simultaneously fed-back and fed-forward, with a tone being produced after downstream processing. Because ESS's device at no time feeds back the same output as it feeds forward, the district court decided that Yamaha was not likely to prove literal infringement.

On appeal, Yamaha challenges the district court's claim interpretation of these two key phrases. Yamaha admits that the term "output" in the last clause of the claim generally refers to the same "output" in the first step of the claim. Yamaha insists, however, that because of the timing delay involved in the arithmetic unit, the "output" in the first step need not be the same data value as used in the last clause to produce a tone. Moreover, even if the two outputs are identical, Yamaha contends that
"by using" is an expansive phrase which merely requires that the output be somehow used to create the ultimate tone. Based on these interpretations, Yamaha argues that the same output need not be simultaneously fed-back and fed-forward to produce a tone.

We interpret the claim in view of its language, the specification, and the prosecution history. Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1578, 37 U.S.P.Q.2d (BNA) 1365, 1370 (Fed. Cir. 1996). As explained below, we agree with the district court and likewise reject Yamaha's proffered interpretation.

We begin first with Yamaha's contention that the output in the last clause need not be the same data value as that in the first step. By using a definite article "the" to describe "output" in the last phrase, Yamaha raises the inference that the term refers to the same value as in the first step. Cf. Zenith Elecs. Corp. v. Exzec, Inc., No. 93-C-5041, 1995 U.S. Dist. LEXIS 6177, 1995 WL 275591, at *5 (N.D. Ill. May 8, 1995) (stating that a definite article such as "the" refers back to an earlier recitation of the element); accord Slimfold Mfg. Co. v. Kinkead Properties, Inc., 626 F. Supp. 493, 495, 229 U.S.P.Q. (BNA) 298, 299 (N.D. Ga. 1985), affirmed, 810 F.2d 1113, 1 U.S.P.Q.2d (BNA) 1563 (Fed. Cir. 1987). The diction chosen by Yamaha therefore suggests that the two uses of "output" refer to identical data values.

To respond to this strong inference, Yamaha notes that the third step of the claim creates another output from the waveform memory, albeit an implicit one. Therefore, Yamaha argues, it makes no sense to require that the output value in the last clause be the same value created by the first step; the last clause could as well refer to the output value created by the third step.

We disagree with Yamaha's argument. If Yamaha meant for "the output" in the final clause to refer to a different value in time from that in the first step, it could have explicitly so stated. * For example, the claim could have been written so that in the last clause, the tone is produced by using "an output" or "the output of the waveform memory in the third step" as opposed to that in the first step. Instead, there is no mention whatsoever of any output that may be created by the third step.

--- Footnotes ---

* Indeed, claims 2 and 3 each use words such as: "first parameter" and "second parameter," "the multiplication product" and "second multiplication product," and "the waveform memory" and "second waveform memory." Apparently, Yamaha's attorney knew how to refer to different signal values when desired.

--- End Footnotes ---

Yamaha's interpretation would change "the" in the last clause to "an." The claim, however, cannot bear such a weight. Unless there exists a strong indication to the contrary, Yamaha must live with its choice of claim language and the inferences to be drawn therefrom. The language of the claim therefore supports the interpretation requiring the same output value to be both fed-forward and fed-back.

This interpretation also finds support in the specification. Although claims are not limited to particular embodiments described in the specification, such embodiments may inform the meaning of terms within the claims. See Autogiro Co. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 397-98, 155 U.S.P.Q. (BNA) 697, 702-03 (Ct. Cl. 1967). In the '447 patent, the basic organization of the invention is described by Fig. 1. This figure admittedly does not depict timing elements; yet the junction following the sinusoid memory (23' at the point labeled sin y) indicates that the same data value is simultaneously both fed-forward (as shown by the arrow pointing to the right) and fed-back to the multiplier 13. Fig. 1, therefore, supports the district court's interpretation.

Fig. 16, which describes the subject matter in claim 3, is also instructive because only claims 1 and 3 twice use the output of said waveform memory. Claim 3 recites "a step of multiplying the output of said waveform [memory] with a first parameter; . . . a step of multiplying the output of said waveform memory with a second parameter." Fig. 16 reveals that the same output signal of the waveform memory undergoes both multiplication steps. Because the multiplication operations on the memory output in claim 3 lack the timing delays involved with the arithmetic unit in claim 1, there is no reason to believe that the output value applied to the first multiplier 13-1 in claim 3 differs from the value applied to the second multiplier 28. Instead, Fig. 16 indicates that both uses of "output" refer to the same data value. This use in claim 3 again lends support to the district court's interpretation of claim 1.
In fact, each of the drawings in the specification indicate that the same output value is both fed-forward and fed-back. In addition to Figs. 1 and 16 described above, Figs. 17, 19, and 24 also depict the output being directly both fed-forward and fed-back. Only in Fig. 9 is the output not directly fed-forward, but even in that case it is clear that the same value fed-back via multiplier 13-1 is also fed-forward to multiplier 27, albeit via multiplier 13-1. In contrast to the inferences created by these drawings of the specification, Yamaha points to no drawings, timing diagrams, or language in support of its interpretation that the last clause in claim 1 refers to an output value of the waveform memory in general, without reference to time. The description in the specification, therefore, weighs in favor of the interpretation adopted by the district court.

In light of the claim language and the specification, we agree with the district court that claim 1 requires that the output value in the first step be the same as the output value in the last clause. The identity of these two outputs, in turn, supports the district court's overall interpretation of the claim as requiring that the same signal be simultaneously both fed-back in the first step of the claim and fed-forward in the last clause.

Despite this interpretation of "output," Yamaha insists that the same output value need not be simultaneously fed-back and fed-forward. Yamaha argues that the claim employs the broad phrase "by using," which requires only that the output eventually be used to produce a tone. In support, Yamaha notes that the specification and all of the drawings recognize that some additional downstream processing will always be required before the waveform memory output is converted into a tone.

This broad reading of "by using" would encompass ESS's device; in each iteration, the output is used to create the next output, with the twenty ninth output being the only one fed-forward to produce a tone. Indirectly, then, each output of ESS's device is used to create the ultimate tone. We, however, disagree with Yamaha's overbroad characterization of this phrase.

As Yamaha itself explains, the first three steps of the claim refer to feedback. The last clause, in contrast, refers to the feed-forward aspect of the claim -- the downstream processing necessary to convert the waveform memory output into a tone. Although the phrase "by using" encompasses such downstream processing, it does not necessarily encompass any processing that occurs during additional feedback. Indeed, the prosecution history of claim 1 confirms our view that the phrase "by using" points to downstream processing, rather than indirect use during the feedback cycle.

Claim 1 as originally filed was substantially similar to the claim as issued except that the last clause as originally filed read: "a tone being produced by using the output of said waveform memory or said multiplication product." (emphasis added). Fig. 1 shows that this multiplication product, labeled \( \beta \sin y \), occurs within the feedback loop. As originally filed, then, the claim contemplated a tone being produced "by using" either downstream processing or processing within the feedback loop.

The examiner rejected this original claim, inter alia, as drawn to an invention not disclosed because "the phrase 'or said multiplication product' cannot be understood as it appears that the tone would be produced only from the output of the waveform memory." In response, Yamaha deleted the objectionable phrase and stated "the claim as amended is clearly drawn to an invention which is disclosed, for example in Fig. 1."'

By eliminating the output of the multiplication product as a source used to produce a tone, Yamaha's amendment indicated that the tone was to be produced via the feed-forward mechanism rather than the feedback mechanism. Therefore, although "by using" may be broad, it is not without bounds, and does not support Yamaha's view.

In sum, we agree with the district court's interpretation of "the output of said waveform memory." Based on this interpretation, we also agree that the claim requires that the same output value be simultaneously fed-back and fed-forward.

4465

G. "the plurality of media player devices including a media asset portability application"

Claim 7 of the '704 patent requires "a plurality of media player devices associated with the user account, the plurality of media player devices including a media asset portability application that enables the user to access the plurality of media assets referenced in the virtual media asset library." "Media asset portability application" is not found in the specification.
The plaintiff recommends that this term should be construed as "two or more 'media player devices' with software permitting a 'media asset' to be copied or moved." On the other hand, the defendant's suggested construction is "each of the media player devices has a software program that allows the media player user to access files stored at the portal in the user's virtual media asset library."

The parties' two primary disagreements are (1) can media player devices transfer media assets directly to other media assets or are they limited to transferring directly to and from the portal; and (2) is each media player device required to run the media asset portability application. First, Apple argues that the media asset portability application is limited to transfers between the media player device and the portal. According to the defendant, the specification contains no references to direct transfers of assets between media player devices. As to the claims themselves, Apple contends that the language of claim 7 mentions nothing about direct transfer of assets from device to device.

In response, Zapmedia notes that the specification discusses watermarking a media asset to associate the asset with a user's family of media devices. (°704 patent, 11:37-42). The specification goes on to explain, "[T]he user will have access to those assets from one client media player device to another in seamless fashion. This example illustrates a capability . . . to move or copy an asset from any home, car, portable, computer, or other computing device." (°704 patent, 11:44-48) (emphasis added). Watermarking an asset for use on multiple media player devices would be superfluous if each media player device were required to download the asset from the portal. Furthermore, the plaintiff argues that dependent claims 8 and 9 provide support for its proposed construction. Claim 8 further limits claim 7 by requiring a media player device to upload a media asset to the virtual media access library portal before it may be downloaded from the portal to the other media player devices. Under Apple's proposed construction, claims 7 and 8 operate in the same manner. Next, claim 9 states that the media asset portability application moves the media assets from one media player device to another; no intermediate step of uploading to the virtual media asset library is mentioned. Thus, the specification and the claims disclose direct transfers of assets among media player devices.

Second, Apple asserts that each of the plurality of media player devices must have the media asset portability application, whereas Zapmedia contends that only or more, not all, of the devices must have the application. According to the plaintiff, claim 7 requires that the plurality include a media asset portability application; it does not refer to multiple applications or state that each asset must have an application. Instead, Zapmedia argues that a single media player device with the media asset portability application may move or copy assets to other media player devices lacking the application. In claim 8, the media asset portability application also posts assets to the virtual media asset library, but the claim language does not state that the application is required "for access by the other of the plurality of media player devices." Thus, it is possible for the media asset portability application to run on only a single device and yet permit access by other devices not running the application. Therefore, the court construes the term "the plurality of media player devices including a media asset portability application" to mean "two or more 'media player devices,' with at least one of the devices having software permitting a 'media asset' to be copied or moved."

4466

Gathering parts-related information for one or more parts within the plurality of parts which meets the customer's requirements

Defendants urge the Court to construe this term as "gathering information about parts that meet the customer's requirements from the electronically specified part information." Defendants argue this construction is necessary to define what is meant by "the plurality of parts," which refers to the parts that were defined in element (b) of claim 1 with the language "electronically specifying information identifying a plurality of parts." Defendants' construction requires multiple parts to meet the customer's requirements; the claim language requires one or more parts. Defendants construction is also susceptible to being misunderstood. Orion seems to understand the construction to mean that the information is gathered from the electronically specified part information. Defendants contend that the plurality of parts are those that were electronically specified.

The Court agrees with Orion that this phrase does not require construction. In some contexts, "the plurality of parts" or similar terms may be confusing to a lay jury. Here, the antecedent "plurality of parts" is identified in the previous step. Given the close proximity of the phrases, it is highly unlikely to be confusing.
2. The language of the radio transmitter limitation is not insolubly ambiguous

The third part of the "remote unit" disclosed in Claim 61 is "the transmission power level selection circuit." There are a number of disputes with respect to the claim language describing this component. First, there is a dispute over whether the language is too ambiguous for construction.

Claim 61 is the first disclosure of a selection circuit. Under the conventions of claim drafting, which follow the normal rules of grammar, the first time a part is mentioned, it should be preceded by the indefinite article "a," i.e., "a selection circuit." Subsequent references to that circuit should be preceded by the definite article "the" or with "said." See MPEP Section 2173.05(e). The first disclosure of a selection circuit Claim 61 uses the definite article, "the." The lack of an antecedent disclosure of "a selection circuit" potentially makes the reference to "the" selection circuit ambiguous. An ambiguity in a claim is problematic for claim construction because it could render the claim "insolubly ambiguous." When a claim is "insolubly ambiguous," a court need not construe the claim because it is indefinite. However, when, despite an ambiguity, the "meaning of the claim is discernible," the court should proceed to construe the claim in accordance with that meaning. See Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001).

The Court finds that the use of "the" instead of "a" to be an error in drafting that does not obscure the ability of the Court to discern a meaning of "the selection circuit," when the claim language is construed in light of the specification. The Court proceeds to consider the other disputes with respect to the selection circuit.


Claim 26, with the disputed terms in bold, states:

The system of claim 25, wherein the data from each of the various sensor appliances is transmitted to the server as it is created, wherein there is further included a monitor associated with the server for displaying data, the server adapted for showing image data in a step video format.

Claim 28, with the disputed terms in bold, states:

The system of claim 25, wherein the data generated by each of the sensor appliances is stored in the memory at each appliance and is transmitted to the server upon occurrence of an event within the zone of operation of each sensor.

Claim 29, with the disputed terms in bold, states:

The system of claim 25, wherein the event is created by the server.

Defendant March Networks argues that the term "the server" is indefinite, or in the alternative that it should be construed as "the initial server." E-Watch contends that the term is not indefinite and that it should be interpreted to mean "the initial network-based server."

If a claim is subject to interpretation, i.e., it is not insolubly ambiguous, then the claim term is not indefinite. See Bancorp Servs., 359 F.3d at 1371. "[T]he definiteness of claim terms depends on whether those terms can be given any reasonable meaning." Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005). In determining whether a claim is insolubly ambiguous, the court should construe the terms according to the general principles of claim construction. Id.

Construing a term in accordance with the principles of claim construction, however, is different than correcting terms.
because of a typographical or clerical error. The court can correct such an error only if: (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification; and (2) the prosecution history does not suggest a different interpretation of the claims. Novo Industries, L.P., 350 F.3d at 1357.

The parties agreed that Claim 25 identifies two servers. The one they have agreed to call the "initial server," is mentioned several times in Claim 25: "a plurality of sensor appliances [which are connected] to a network based server for monitoring, logging, and transmitting data to the server . . ." Part (a) of the claim then describes "a plurality surveillance sensor appliances controlled by the server . . ." And "a data signal indicating a condition in the monitored area controlled by the server, whereby the server receives and logs signal data." Part (c) of Claim 25 then states: "a network for communicating the plurality of sensor appliances with a central server."

The term "server" in Claims 26, 28, and 29 was not the result of a typographical error in leaving off the letter "s." E-Watch would not agree that "the server" in Claims 26, 28, and 29 referred to both servers described in Claim 25, pointing out that too much bandwidth would be needed for all data going to all of the initial servers to also go to the central server. Tr. p.83, ll. 3-17. The specification described the initial servers at a school campus being in use during classroom hours but being shut off after hours, when the central server could monitor all areas. '183 patent, col. 9, ll. 1-7; see also ‘183 patent; col 18, ll. 21-30.

Likewise, E-Watch would not agree that "server" in Claims 26, 28, and 29 referred to the "central server," even though it could be argued that the "central server" is the one specifically claimed in Claim 25. Tr. p. 79, ll. 24-25, p. 80, ll. 1-20.

To the extent that E-Watch argues that the failure to include "initial" before "server" was a typographical error in the patent and should be corrected, the court concludes that the proposed correction of "initial server" is subject to reasonable debate. See Novo Industries, L.P., 350 F.3d at 1357. In the end, deciding which "server" is described in Claims 26, 27, and 29 is a toss-up. Given the claim language, it is just as likely to be the "initial server" as the "central server." True, with a 50-50 chance one can pick the initial server and argue that it is not insolubly ambiguous, merely debatable. But the only "debate" is how the coin toss comes out. Therefore, the court finds that this term is insolubly ambiguous. The court is constrained to find that Claims 26, 28, and 29 are indefinite.

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B. What are the Disputed Issues of Claim Construction?

Intel presents one general claim construction question with respect to all of the claims of the '943 patent: Must the gate electrode be doped prior to differentially thermally growing the dielectric over the gate electrode, or can the gate electrode be doped during a later step of the process? Intel argues that the plain language of independent claims 1, 6, and 15 requires the manufacturer to dope the gate electrode prior to the differential thermal growth step. Furthermore, Intel argues that the specification and the prosecution history demonstrate the importance of doping for differential growth. TENA argues that differential growth can occur without doping, and that the claims allow for doping to occur at any time during the fabrication of an MOS transistor. Moreover, TENA argues that the specification and the prosecution history teach that doping may occur at any time and that the differential growth required by the patent does not require prior doping.

Examining independent claim 1 in light of Intel's general claim construction question, the court must construe the meaning of the phrases "forming a doped gate electrode . . .; then" in step (a), and "differentially thermally growing an oxide . . . whereby a relatively thicker layer of oxide is developed on the top and sides of the gate electrode and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate" in step (b) (emphasis added). The court must construe the meaning of the phrases "forming a doped polysilicon gate electrode" in step (a), and "growing a dielectric layer over the gate electrode by a process controlled to develop a high differential of dielectric thickness such that the dielectric is relatively thick over the top and sides of the gate electrode and relatively thinner over the intended source/drain regions" in step (b) (emphasis added).

Examining independent claim 15 in light of Intel's general question, the court must construe the meaning of the phrases "forming a doped gate electrode . . .; then" in step (a), and "establishing an isolating oxide on the top and sides of the gate
Techniques" section of the specification describes a version of the patented process that dopes the gate electrode after electrode, which suggests that doping can occur at any time during the process. Second, TENA argues that the "Alternative patent. First, TENA asserts that the patent does not teach that doping promotes differential growth. Rather, TENA argues that those skilled in the art would understand doping only to refer to improving the electrical conductivity of the gate electrode, which suggests that doping can occur at any time during the process. Second, TENA argues that the "Alternative Techniques" section of the specification describes a version of the patented process that dopes the gate electrode after
dielectric growth. Third, TENA argues that the final paragraph of the specification, which states that “the sequence in which some steps are practiced may be altered to suit a particular application or processing environment,” indicates that doping need not occur prior to the differential thermal growth step.

Contrary to TENA’s first assertion, claim 10, at column 10, lines 7-9, and the specification, at column 3, lines 30-33, specifically state that doping increases differential dielectric growth. Therefore, even if those skilled in the art were not aware prior to the issuance of the patent that doping promotes differential growth, the patent clearly teaches that effect. In addition, as set out above in the description of the preferred embodiment, the ”Alternative Techniques” do not involve differential dielectric growth and thus do not appear relevant to the patent claims as issued. According to Dr. Chung’s declaration, the initial claims in the ’943 patent did not require differential growth and thus supported this section of the specification. However, when Mr. Manzo, the prosecuting attorney for the ’943 patent, added the differential growth limitation during the prosecution, these ”Alternative Techniques” became irrelevant. Based on the prosecution history as set out below in the discussion of TENA’s claim differentiation argument, Dr. Chung’s characterization appears to be correct.

Even if these ”Alternative Techniques” were relevant, however, the mere fact that doping can occur at any stage of the process in order to give the gate electrode its electrical conductivity does not answer the question of whether the patent claims nevertheless require doping prior to the growth of the dielectric to promote differential growth. TENA cannot use the ”Alternative Techniques” section or the generic catch-all paragraph at the end of the specification to overcome specific limitations of the claims. See Unique Concepts, Inc. v. Brown, 939 F.2d 1558, 1562 (Fed. Cir. 1991) (stating that a patentee cannot use the specification to avoid specific limitations of his claims and to interpret a claim contrary to its plain meaning).

2. Does the doctrine of claim differentiation prevent the court from construing claims 1, 6, and 15 to require doping prior to dielectric growth?

TENA admits that claim 10 requires doping prior to dielectric growth. However, TENA argues that the language of claim 10 that requires this limitation, read in connection with the prosecution history, establishes that prior doping is required only for the differential growth of claim 10. Thus, under the doctrine of claim differentiation, the court cannot construe claims 1, 6, and 15 to require doping for differential growth. TENA’s argument requires a detailed examination of the relevant prosecution history.

a. A chronology of the relevant prosecution history

1) The language of the claims as filed

When Manzo first filed the application that resulted in the ’943 patent, the patent had only two independent claims. These two claims ultimately issued as claims 1 and 6 of the ’943 patent. As initially filed, claim 1 stated in relevant part:

. . . .

(a) forming a gate electrode insulated from the substrate;

(b) forming an implant mask of a controlled width on the sides of the gate electrode;

. . . .

As initially filed, claim 6 stated in relevant part:

. . . .

(b) defining a polysilicon gate electrode over the gate insulator between the intended source/drain regions;

(c) establishing a dielectric layer over the gate electrode and the gate insulator such that the dielectric is relatively thick at least over the sides of the gate electrode and relatively thinner over the intended source/drain regions

. . . .
Neither claim 1 nor claim 6 contained the words "doped" or "then" or the phrases "differentially thermally growing" or "differential growth." However, claim 6 contained language suggesting that a differential must exist between the dielectric over the sides of the gate electrode, where it must be "relatively thick," and over the intended source/drain regions, where it must be "relatively thinner."

2) The first rejection and amendment

The Patent and Trademark Office ("PTO") examiner rejected TENA's claims as obvious in light of the combination of U.S. Patent No. 4,182,023 issued to Cohen et al. (the "Cohen patent") and U.S. Patent No. 4,234,362 issued to Riseman (the "Riseman patent"). The examiner observed that Cohen discloses a layer of oxide overhanging the gate electrode that acts as a shield to prevent the source/drain regions from being implanted next to the gate electrode. Therefore, a subsequent heat driving step would laterally diffuse the edges of the source/drain regions until they were in substantial alignment with the edges of the gate electrode.

In response to this rejection, Manzo added the word "then" after step (a) of claim 1. To explain this change, Manzo stated that the Cohen patent requires the implant mask to be formed before or simultaneously with the gate electrode. Conversely, the invention of the '943 patent forms the gate electrode and "then" forms the implant mask. Although Manzo did not add the word "then" to claim 6, it appears from his argument that the sequence of forming the gate electrode prior to forming the implant mask was important in distinguishing the Cohen patent.

3) Subsequent rejections and amendments

Manzo filed additional amendments to the two independent claims in response to two subsequent rejections that are not relevant here. However, Manzo did file two relevant new independent claims, which ultimately issued as claims 10 and 15 of the '943 patent. As initially filed, claim 10 stated in relevant part:

(a) forming a defined gate insulated from and over a substrate; then

(b) establishing an isolating oxide layer of controlled dimensions by a differential thermal growth process such that the oxide layer covers the top and sides of the gate and regions in the substrate where the source and drain will be formed, the oxide being thicker on the top and sides of the gate than above the prospective source and drain; then

As initially filed, claim 15 stated in relevant part:

[a)] forming a gate electrode insulated from the substrate; then

[b)] establishing a dielectric on the top and sides of the gate electrode and over the substrate adjacent to the gate electrode such that the dielectric on the top and sides of the gate electrode is relatively thick compared to the dielectric over the substrate;

Thus, claim 10 was the first independent claim specifically to recite "differential thermal growth." Claims 6 and 15 contained language suggesting some differential between the dielectric layer over the gate electrode and the layer over the substrate, albeit not necessarily from thermal growth.

Manzo also amended some of the dependent claims in ways that are relevant to the present discussion. In particular, he added differential thermal growth to some of the dependent claims to establish a more narrow basis for patentability. In
addition, he further added anisotropic etching to some of these dependent claims. Manzo argued that, at a minimum, the prior art never suggested using differential thermal growth in combination with anisotropic etching to make a zero overlap MOS transistor.

4) Final rejection

The examiner issued a final rejection of all of the claims in spite of these amendments. Specifically, the examiner stated that the claims were obvious in light of the combination of the Cohen patent and U.S. Patent No. 4,139,402 issued to Steinmaier et al. (the "Steinmaier patent"):

Steinmaier et al. discloses forming an insulated polysilicon gate on a substrate, growing a thermal oxide over the gate and substrate, implanting source and drain regions on either side of the gate through the thin oxide over the substrate, heat driving the source and drain, and forming contacts. The thermally grown oxide is inherently thicker on the top and sides of the polysilicon gate than on the silicon substrate…. It would be obvious to routinely optimize the process of Steinmaier et al. to obtain the advantages of the aligned, nonoverlapping gate structure of Cohen et al.

Thus, the examiner determined that even the dependent claims, some of which contained both differential thermal growth and anisotropic etching, were obvious in light of the prior art.

5) Manzo's "First Proposed Amendment"

In his "First Proposed Amendment After Final Rejection," Manzo made substantial changes to the patent claims. He amended claim 1 to state in relevant part:

…. (emphasis added)

Manzo amended claim 6 to state in relevant part:

…. (emphasis added)

Manzo amended claim 10 to state in relevant part:

…. (emphasis added)
(b) establishing an isolating oxide layer on the top and sides of said gate by thermal oxidation under ambient conditions controlled such that the oxide layer covers the top and sides of the gate and regions in the substrate where the source and drain will be formed, the oxide growing substantially thicker on the top and sides of the gate than above the prospective source and drain; then

…. (emphasis added)

Finally, Manzo amended claim 15 to state in relevant part:

…. 

[(a)] forming a gate electrode insulated from the substrate, said gate being polysilicon doped to a sheet resistance of about 20 ohms per square, said substrate being monocrystalline silicon; then 

[(b)] establishing a dielectric on the top and sides of the gate electrode and over the substrate adjacent to the gate electrode such that the dielectric on the top and sides of the gate electrode is relatively thick compared to the dielectric over the substrate, said establishing step including oxidizing in a steam atmosphere at a temperature which promotes high differential rates of growth as between the doped poly gate and the substrate;

…. (emphasis added)

When Manzo submitted these amendments, he explained in detail the reasons for the changes. In particular, he focused on the examiner's conclusion as a part of his final rejection that the Steinmaier patent inherently disclosed differential growth. Manzo argued that although some differential growth does occur between a gate electrode constructed of one material and a substrate constructed of another, as in the Steinmaier patent, this differential is very small. He argued that differential dielectric growth is more dependent upon the doping of the elements and the ambient conditions, which include the temperature and water content of the atmosphere during the dielectric growth step.

In support of his arguments, Manzo submitted an article by T.I. Kamins entitled "Oxidation of Phosphorous-Doped Low Pressure and Atmospheric Pressure CVB Polycrystalline-Silicon Films," in Volume 126 of the Journal of the Electrochemical Society: Solid State Science and Technology (May 1979) (the "Kamins article"). Manzo stated that the Kamins article demonstrates that when an undoped polysilicon gate electrode on a monocrystalline substrate is placed in a dry oxygen gas atmosphere over a temperature range of 950 [°C] to 1150 [°C], there will be 7% to 9% greater thickness of oxide on the gate electrode. However, based on the Kamins article, Manzo stated that when the ambient conditions are changed to include a steam atmosphere, a differential of 30-35% results. Moreover, Manzo stated that if the gate electrode is doped first, the Kamins article demonstrates that a differential of 300% results.

Manzo contrasted the Steinmaier patent by observing that it recited dielectric layers of "substantially equal thickness" because it involved dry oxidation without doping. He emphasized that in the Steinmaier patent, "polysilicon gate 14 is not doped at the time of oxidation" (emphasis in original). He then described the preferred embodiment of the '943 patent, stating that doping of the gate electrode to a sheet resistance of 20 ohms per square is "very substantial doping" (emphasis in original). Manzo further stated:

It will be appreciated that the polysilicon gate electrode oxide grows about 300% faster than the monocrystalline silicon [substrate] oxide. This accords with the teachings of Kamins in Table I which shows that at a temperature of 850 [°C] [C], the differential between highly doped polysilicon and slightly doped crystal silicon in a steam atmosphere is 327%.

This is an enormous difference in kind between the dry oxidation of an undoped polysilicon gate on an exposed single crystal silicon substrate, where the differential is [7%]. (emphasis in original)

Thus, Manzo distinguished the inherent differential growth between an undoped polysilicon gate electrode and a monocrystalline silicon substrate, as shown by the Kamins article and the Steinmaier patent, from the differential growth of the '943 patent.

The changes to the claims reflect Manzo's arguments that doping and ambient conditions create greater differential growth than recognized by the Steinmaier patent. To claim 1 he added "doped" and "controlling ambient conditions to promote a
high rate of oxidation on the top and sides of the doped polysilicon gate compared to the silicon substrate, whereby a relatively thicker layer of oxide is developed on the top and sides of the gate and a relatively thinner layer of oxide is developed on the intended source and drain regions of the substrate. To claim 6 he added "heavily doped" and "a process controlled to develop a high differential of dielectric thickness as between the gate and other areas." To claim 10 he added "doped to promote a high rate of differential thermal oxidation" and "thermal oxidation under ambient conditions controlled such that . . . the oxide grow[s] substantially thicker on the top and sides of the gate than above the prospective source and drain." Finally, to claim 15 he added "doped to a sheet resistance of about 20 ohms per square" and "establishing a dielectric . . . , said establishing step including oxidizing in a steam atmosphere at a temperature which promotes high differential rates of growth as between the doped poly gate and the substrate."

The examiner stated in response to these amendments that he would not consider new limitations to the claims after final rejection. Instead, he stated that Manzo would have to file a continuation application. Manzo subsequently filed a request for a File Wrapper Continuing Application (the "FWC request").

6) The FWC request

Manzo focused almost exclusively on the Steinmaier patent in his FWC request. He strenuously attempted to distinguish the Steinmaier patent from the processes claimed in the ‘943 patent based on the differential growth resulting from the doping of the gate electrode:

There is absolutely no mention that oxidation growth in the Steinmaier patent is differential in nature . . . . There is not even a clue in the Steinmaier patent that if the poly [gate electrode] layer were doped prior to the formation of the oxide layer 21, there would be an even thicker formation of oxide on the top and sides of the gate . . . . Applicants submit that there is nothing whatsoever in Steinmaier et al. alone which suggests that there is an advantage in doping the poly layer. (emphasis in original)

Manzo further argued that combining the Steinmaier and Cohen patents still failed to teach the advantage of doping the gate electrode "to promote a high rate of oxidation."

Subsequent to the submission of the FWC request, the examiner interviewed Manzo to discuss claims 1, 6, and 15 in light of the Cohen and Steinmaier patents. The examiner stated the following in his "Examiner Interview Summary Record" ("EISR"): "Mr. Manzo to submit preliminary amendment to place case in condition for allowance. Anisotropic etching limitation to be added to claims 1, [6, and 15]." At this point, independent claim 10 already had an anisotropic etching step. In response to the EISR, Manzo submitted a voluntary amendment.

7) The voluntary amendment

As part of Manzo's voluntary amendment, he added an anisotropic etching step after the differential dielectric growth step of claims 1, 6, and 15. He also removed some relevant language from each of the claims. In claim 1 Manzo removed "controlling ambient conditions to promote a high rate of oxidation on the top and sides of the doped polysilicon gate compared to the silicon substrate." In claim 6 he replaced "heavily doped" with "doped" and "establishing a dielectric layer" with "growing a dielectric layer." Finally, in claim 15 he replaced "said gate being polysilicon doped to a sheet resistance of about 20 ohms per square" with "doped gate electrode."

Manzo explained that he amended the claims to include anisotropic etching to overcome a rejection based on a U.S. Patent No. 4,400,866 issued to Yeh et al. (the "Yeh patent"). Apparently, the examiner cited the Yeh patent "to show differential oxidation for providing a gap for a source/drain implant." Manzo did not explain why he removed the additional language from the claims. He merely stated that the independent claims include features of a doped gate and differential dielectric growth.

b. Is TENA's claim differentiation argument valid?

TENA now asserts that when the examiner issued his EISR requiring the additional limitation of an anisotropic etching step, he was indicating to Manzo that the patent claims did not require "substantial" differential growth as recited by claim 10. Therefore, TENA asserts that Manzo amended claims 1, 6, and 15 to provide for lesser levels of differential growth. For
example, claim 1 only requires a "relatively thicker layer of oxide" over the gate electrode, and claims 6 and 15 require that the oxide layer is "relatively thick" over the gate electrode. However, Manzo left the language in claim 10 that requires doping of the gate electrode "to promote a high rate of differential thermal oxidation" resulting in a "substantially thicker" layer of oxide over the gate electrode. Based on these assertions, TENA argues that the doctrine of claim differentiation prevents the court from construing claims 1, 6 and 15 to require prior doping to promote "substantial" differential dielectric growth.

As a threshold matter, TENA's argument contains a number of factual weaknesses. The EISR is ambiguous and does not support clearly TENA's assertion that the examiner did not think "substantial" differential growth was important to allowing the claims. To the contrary, the court could as easily interpret the EISR as supporting the notion that "substantial" differential growth was a necessary but insufficient condition for allowance. In addition, Manzo's removal of some language from the claims does not indicate clearly that doping was not important for differential growth. Manzo did not remove the word "doped" from the first step of claims 1, 6, and 15, nor did he remove the differential language from each of these claims. In particular, claims 6 and 15 still recite that "a high differential" of growth is required.

Even assuming that TENA's assertions regarding the EISR and Manzo's amendments are factually correct, however, TENA's claim differentiation argument suffers from two fundamental errors. The doctrine of claim differentiation prohibits construing one claim to include a limitation expressed in another claim if that construction renders one of the claims "superfluous." Tandon Corporation v. United States International Trade Commission, 831 F.2d 1017, 1023-24 (Fed. Cir. 1987). The first error is that there are a number of differences between the independent claims beyond the level of differential growth that is required, such as the requirement of contact points, the use of dielectrics other than oxide, and so on. Thus, the court need not find a difference between the required levels of differential growth merely to prevent the claims from being "superfluous." See id.

Second, the court can construe the claims as providing for different levels of differential growth consistently with the notion that doping of the gate electrode must occur first. Differential growth depends both on the amount of doping and on the ambient conditions during the growth stage. Lighter doping of the gate electrode might suffice for claim 1 because that claim does not require a "high differential" of dielectric growth as do claims 6 and 15. Furthermore, claim 15 requires steam oxidation, which will further increase the differential rate of growth over that which results from merely doping the gate electrode. In other words, Manzo's amendments affected how much doping or differential growth was required by each of the claims, not whether doping must precede dielectric growth. In fact, Manzo's removal of the "ambient conditions" language from claim 1, rather than implying that "substantial" differential growth is not important, more logically underscores the importance of doping alone to create sufficient differential growth to overcome the examiner's rejections over the Steinmaier patent and the Kamins article.

3. What is the effect of adding the word "then" prior to the word "doped" in claims 1 and 15?

TENA is correct that the word "then" was added to claims 1 and 15 before the word "doped." However, it is not at all clear that this fact alone would suggest that "then" does not apply to doping. As set out above, the plain language and sequential ordering of the claims in conjunction with the word "then" suggests that doping is required prior to differential dielectric growth. Moreover, when Manzo added the doping requirement in step (a) of each claim, he continually argued to the examiner that the doping was necessary to create sufficient differential growth to overcome the Steinmaier patent. At that point, the word "then" took on greater significance than requiring that the gate electrode be formed prior to the formation of the implant mask. The word "then" took on its natural meaning that each part of the preceding step had to be completed prior to the following step. This includes the requirement that the gate electrode be "doped" prior to differential dielectric growth.

4. Do claims 16 and 17 prevent the court from construing claim 15 to require doping prior to differential growth?

TENA argues that dependent claims 16 and 17 specifically allow for doping during the implantation of the source/drain regions. Thus, TENA argues that claims 16 and 17 recognize that doping need not occur prior to the differential growth step. TENA then argues that the court cannot construe claim 15, from which claims 16 and 17 depend, more narrowly than the required scope of claims 16 and 17. In other words, the court cannot construe claim 15 to require doping of the gate electrode prior to the differential thermal growth stage when claims 16 and 17 do not require this sequence.
Assuming for the sake of argument that TENA is correct in its assertion that claims 16 and 17 allow for doping during the implantation step, it does not follow necessarily that claims 16 and 17 recognize that doping need not occur prior to the differential growth step. An alternate reading of claims 16 and 17 suggests that the gate electrode can be doped prior to and after the differential growth stage. This reading is consistent with independent claim 15's requirement that doping must occur prior to differential growth. TENA argues, again under the banner of claim differentiation, that this reading would render claims 16 and 17 superfluous. However, Dr. Chung's declaration states that a second doping can produce improved electrical conductivity. Thus, reciting the possibility of a second doping after the differential dielectric growth step does not appear to render claims 16 and 17 "superfluous."

TENA's reading of claims 16 and 17 would require the court to remove the specific limitation in independent claim 15 that doping of the gate electrode must occur prior to differential thermal growth. The court cannot use a potentially broad reading of a dependent claim to ignore a specific limitation of the independent claim from which it depends, particularly when a logical alternative reading of the dependent claim exists.

5. Does it matter if the prior art does not require doping of the gate electrode prior to differential dielectric growth?

TENA argues that no prior art requires doping of the gate electrode prior to differential dielectric growth. Even if that were true, TENA cannot now eliminate a specific claim limitation that Manzo added to overcome a rejection by the PTO. See Parks v. Fine, 773 F.2d 1577, 1579 (Fed. Cir. 1985) (stating that the insertion of a limitation to overcome an examiner's rejection is strong evidence of materiality); Kinzenbaw v. Deere & Co., 741 F.2d 383, 389 (Fed. Cir. 1984). Manzo ardently argued to the examiner that the Steinmaier patent did not teach doping the gate electrode to achieve differential growth. Moreover, Manzo never withdrew the word "doped" from step (a) of each of the claims even after he added the anisotropic etching step, and he never commented to the examiner that the sequential order of prior doping was no longer material to allowance of the claims. Given the plain meaning of the claim language, the teachings of the specification, and Manzo's arguments before the PTO, the court can only conclude that all of the claims of the '943 patent require doping of the gate electrode prior to the differential dielectric growth step.

B. "automated thermal cycler"

Applera asks the court to construe this term as "an instrument for use in a nucleic acid amplification reaction comprising multiple thermal cycles for alternately heating and cooling samples." Stratagene advocates defining the term as "an instrument that can be programmed to heat and cool a surface or vessel." I adopt Applera's definition.

To define "automated thermal cycler," I must determine how a person trained in the art would have understood the term in 1991. In doing so, I "must define the term in a manner consistent with the scientific and technical context in which it is used in the patent." See AFG Indus., Inc. v. Cardinal IG Co., 239 F.3d 1239, 1248 (Fed. Cir. 2001).

Although the specification does not define "automated thermal cycler," it uses the term in a way consistent with Applera's proposed construction. Every reference to "thermal cycler" or "thermocycler" appears to identify an instrument used for conducting nucleic acid amplification reactions comprising multiple thermal cycles.

At the Markman hearing, Applera presented the testimony of Dr. Carl Batt, who testified that persons trained in the art in 1991 would have understood "automated thermal cycler" as a specialized instrument for use in a nucleic acid amplification reaction comprising multiple thermal cycles for alternately heating or cooling samples. I credit his testimony. Based on the fact that he authored a paper describing PCR technology submitted for publication in 1991 (see Tr. 74-76), I find that he was trained in the art in 1991 and is qualified to testify on this issue. Stratagene has presented no evidence suggesting that persons trained in the art of nucleic acid amplification in 1991 would have understood this term in any other way.

I acknowledge the Federal Circuit's admonition that extrinsic evidence is less reliable than intrinsic evidence. Phillips, 415 F.3d at 1318. In Phillips, the Federal Circuit advised courts to discount expert evidence at odds with the intrinsic evidence. Id. Nonetheless, consulting extrinsic evidence is appropriate when the internal evidence is ambiguous. See Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 832 (Fed. Cir. 2003). Dr. Batt's testimony does not contradict the internal evidence;
Stratagene's proposed construction is too broad and does not reflect the scientific and technical context of the patent. Stratagene's only support for its proposed construction is the specification's reference to "a spectrafluorometer capable of heating and cooling a surface, or vessel." (Col. 12, ins. 14-15.) The specification contrasts this to a spectrafluorometer housed independently of a thermocycler. As Stratagene itself notes in its post-hearing brief, the specification was first drafted for the method patent application. For this reason, the specification reads more broadly than the claim itself. For example, as discussed below, the specification refers to various methods of DNA amplification, including isothermal reactions. But the claimed instrument is limited to reactions comprising multiple thermal cycles. Likewise, the specification refers to various methods of detecting nucleic acid amplification, even if the claimed instrument performs only one such method. My conclusion that the amplification reaction must comprise multiple thermal cycles reinforces the proper construction of "thermal cycler." The evidence shows that a person trained in the art in 1991 would have understood "thermal cycler" or "thermocycler" in the context of amplification reactions comprising multiple thermal cycles in the way suggested by Dr. Batt.

After reviewing the claim language, the specification, and the extrinsic evidence (i.e., Dr. Batt's testimony), the only conclusion consistent with the context of this patent is that "thermal cycler" refers to "an instrument for use in a nucleic acid amplification reaction comprising multiple thermal cycles for alternately heating or cooling samples."

"thesaurus"

Claims 1, 25, 27, 28, and 31 of the '819 Patent contain the term "thesaurus." IPI contends that "thesaurus" means: "A data structure that defines semantic relatedness between words. It is typically used in information retrieval to explain search terms with other closely related words. Even if the thesaurus is not explicitly computed, the mapping performed by query expansion explicitly defines a thesaurus." Google contends that the term means "a data structure that defines semantic relatedness between words." The language in both parties' proposed constructions is taken directly from the specification. '819 Patent, col. 1:51-56. However, the parties dispute whether the construction requires the inclusion of two additional sentences from the specification that discuss how a thesaurus is generated and used.

IPI contends that the inclusion of the last two sentences in its proposed construction are important to clarify that the '819 Patent teaches a "thesaurus" both implicitly and explicitly. IPI asserts that the mapping performed by query expansion defines a "thesaurus" even when one is not explicitly computed and thus, the construction of the term should include this important aspect of a "thesaurus." Google contends that the term is explicitly defined in the specification to mean "a data structure that defines semantic relatedness between words." Google argues that neither the asserted claims nor the summary of the invention or detailed description in the specification mention "query expansion." Google further argues that IPI's proposed construction attempts to expand the reach of the claims by including a description of "how" a thesaurus are generated in the prior art, instead of defining what a thesaurus is. The Court agrees with Google that the inclusion of the additional discussion of "how" a thesaurus is generated and used is beyond the scope of the definition of the term set forth in the specification. Accordingly, the Court adopts Google's proposed construction and construes the term "thesaurus" to mean "a data structure that defines semantic relatedness between words."

c. "third data link"

Plaintiffs contend that “third data link” means “a third communications link that is either a separate link or a combination of the first and second links.” Opening Brief at 27. They point to the specification, which describes the “third data link” in two forms. First, the “third data link” can
directly connect between the peripheral management station and the jukebox. Id., Ex. 7 at 5:1-4. Second, the “third data link” can indirectly connect to the jukebox by utilizing a link between the main data server and the jukebox (the first link) and a link between peripheral management station and the main data server (the second link). Id. at 6:8-14. In this embodiment, the main data server acts as a switch for data flowing between the peripheral management station and the jukebox. Id., Ex. 7 at 3:43-46 (“the main server receives a corresponding connection call from the management station and switches this through to the corresponding ISDN line.”).

Defendants contend that plaintiffs' construction is incorrect because the specification states that the third data link must allow uninterrupted communication between the peripheral management station and the jukebox and because plaintiffs, while prosecuting the patent, distinguished prior art by arguing to the examiner that the third data link must carry different information from the first and second data link. They contend, therefore, that the third data link must allow uninterrupted communication between the peripheral management station and the jukebox. Defendants base their proposed construction on the requirement in one embodiment that the first and second data links be connected in a series, and their expert's opinion that devices connected in series provide uninterrupted communication. Resp. Brief, Ex. F at ¶ 56. Plaintiffs' expert disagrees, opining that a person with ordinary skill in the field would not understand that a serial connection requires uninterrupted communication. Reply Brief, Ex. 21 at ¶ 41. Defendants also point to the description of a preferred embodiment in the specification, which states that “the information on the multimedia box connected in each case is available directly without any additional data transmission being required.” Opening Brief, Ex. 7 at 2:62-65.

The Court need not rely on the conflicting testimony of the experts to construe this term. The claims do not limit the third data link to one allowing uninterrupted communication, and the portion of the specification cited by defendants does not require such a construction. The specification simply does not say that the communication must be “uninterrupted,” as defendants contend. Rather, the preferred embodiment cited by defendants relates to the storage of data on the management station, not whether the third data link allows uninterrupted communication. The Court also rejects defendants' contention that
the third data link must carry different information from the first and second data links. They argue that plaintiffs disclosed such a limitation to the examiner to overcome prior art. But defendants have taken this portion of the prosecution history out of context. The prosecution history reveals that plaintiffs were explaining to the examiner the function of the three different data links. They did not say that the third link—when physically comprised of the first and second links in series must carry information different than the first and second link. Resp. Brief, Ex. N. at 12-13. Indeed, such a construction makes no sense. It would prevent one of the preferred embodiments (using the first two connections in series to form the third) from falling within the scope of the claims. Such a construction would be incorrect. See MBO Lab., 474 F.3d at 1333 (“[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.”) (citation omitted). When the third data link is comprised of the first two links, obviously there must be overlap among them. The Court therefore construes “third data link” as “a third communications link that is either a separate link or a combination of the first and second links.”

Third party

Plaintiff sets forth a construction for the term "third party" of "a payment receiver, i.e., a party that is neither the merchant or merchant processor." Defendants, on the other hand, argue for the construction, "party other than the merchant." The main distinction between Defendants' and Plaintiff's proposed construction is that Plaintiff seeks to exclude merchant processors from the definition of "third party," whereas Defendants' position is that the "third party" can be the merchant processor itself.

The term "third party" is expressly recited in the second element of claim 10 as follows: "means for forwarding a portion of the payment to the third party to reduce the obligation." Col. 8, lines 19-20. In claim 10, the portion of the payment that would otherwise go to the merchant from the merchant processor is instead sent to a separate party that is the payment receiver, i.e., the "third party." The "third party," as this claim language indicates, is that party which receives the portion of the payment that is forwarded by the merchant processor. The payment receiver is referred to as a "third party" in claim 10 because the payment receiver is a party other than the merchant or merchant processor.

The '281 patent specification describes the environment of the invention as the purchase transaction diagramed in Figs. 1A and 1B. Both the merchant and the merchant processor are shown. The automated repayment system of the invention is shown in Fig. 1C, which illustrates an additional party (lender 60) that receives a payment from the merchant processor. Because the merchant processor is identified as a principal, it cannot also be a third party to the same transaction. The claim language finds support only in construing "third party" to be an entity that is not the merchant or the merchant processor.

Accordingly, the Court adopts Plaintiff's construction and construes the term "third party" to mean a "payment receiver, i.e., a party that is neither the merchant or the merchant processor."
A. "a third party for determining"

Term | Plaintiff's Definition | Defendants' Definition
--- | --- | ---
"a third party for determining whether the at least a portion of the received funds transfer information is authentic by using the VAN" | A party or system that performs the determining step of the claim. | A party different from the party performing the other steps of the claim, for determining.

This term appears in claim 41 of the '302 patent. The parties dispute whether the "third party" is permitted to perform any of the other steps enumerated in Claim 41. Claim 41 is a method with four steps:

41. A method for authenticating the transfer of funds from a first account associated with a first party to a second account associated with a second party . . . the method comprising:

- receiving funds transfer information from the first party, including at least information for identifying the first account of the first party, and information for identifying the second account of the second party, and a transfer amount;
- generating a variable authentication number (VAN) using at least a portion of the received funds transfer information;
- a third party for determining whether the at least a portion of the received funds transfer information is authentic by using the VAN; and
- transferring the funds from the first account of the first party to the second account of the second party if the at least a portion of the received funds transfer information and the VAN are determined to be authentic.

Both parties agree that the third party must perform the "determining" step. Plaintiff argues that the plain language of the claim does not prohibit the third party from performing any of the other three steps. As none of the other three steps recite an actor, Plaintiff argues that the language of the claim indicates that the inventor did not intend to restrict those steps to (or from) particular parties. According to Plaintiff, a third party could receive the funds transfer information and use that to generate a VAN.

Plaintiff further argues that Defendant's construction would read out a disclosed embodiment. In the "paperless/cashless transaction system," the transaction system is a terminal belonging to the payment recipient, or "second party" as recited in this claim. '302 patent, 24:5-10. The terminal receives funds transfer information from the payment originator, or "first party" in this claim, generates a VAN, and authenticates the payment originator using the VAN. '302 patent, 14:10-20. Plaintiff argues that the transaction system is the third party of Claim 41, and performs the "receiving," "generating," and "determining" steps.

Finally, Plaintiff argues that the prosecution history supports its construction. When the inventor amended Claim 41, the inventor told the examiner, "In this scheme, the payment originator is a first party, the recipient is a second party, and the system which approves or disapproves the payment is a third party. The use of a third party to authenticate a VAN and transfer of funds is recited in claim [41]." Plaintiff's Brief, Ex. D at 55. This, according to Plaintiff, shows that the third party performs the "determining" step and the "transferring" step. 1

--- Footnotes ---

1 Plaintiff inserted [sic] following "transfer of funds" to suggest the erroneous insertion of the word "of" by the inventor during prosecution of the patent. Pl. Brief at 9.

--- End Footnotes ---
Defendants argue that in the context of Claim 41, the inventor chose to specify the "third party" to differentiate the party that performs the determining step from the party performing the other steps. According to Defendant, a party, which is neither the first nor third parties, receives "funds transfer information" from the payment originator, generates a VAN, and "informs the first party's bank to transfer the funds." Def. Brief at 21. Defendants also argue that it would make no sense to have the same party that receives the funds transfer information and then generates the VAN be the party to authenticate the VAN it just created.

Defendants also rely on the prosecution history, wherein the inventor added the term "third party" by amendment. According to Defendants, "If a 'third party' is the same party performing the other steps of the claim, the recitation of a 'third party' in the claim would not have been necessary." Def. Brief at 22. Defendants also disagree with Plaintiff's reading of the office action response in which the amendment appears. Defendants argue that the sentence, "The use of a third party to authenticate a VAN and transfer and transfer of funds is recited in claim [41]," should be read to mean the third party authenticates a VAN and, thereby, authenticates a transfer of funds.

With respect to the embodiments, Defendants argue that Plaintiff's arguments are misleading. Defendants say that the "system" recited in the prosecution history is not the same "paperless/cashless transaction system" described at the end of the preferred embodiment. See '302 patent, 24:14-24. See also Pl. Br., Ex. D at 55 ("the system which approves or disapproves the payment is a third party"). Defendants attempt to refute Plaintiff's argument that Defendant's construction does not read on the paperless/cashless embodiment by arguing that Claim 41 is not intended to read upon that particular embodiment.

Plaintiff argues that it is "black letter law" that the construed claims must read on all of the preferred embodiments. Pl. Reply at 4. Here, however, is a case where the embodiments are so varied that a single claim is not expected to read upon all of them. See '302 patent, 6:12-45 (describing two authenticating parties, one of which does not and cannot generate a VAN: authenticating transfer information at the originator's bank with a VAN; authenticating the recipient at the recipient's bank without using a VAN). See also id at 24:5-24 (describing a system where the recipient is never authenticated).

Defendant's argument is not without force. A construction that allows the party that generates a VAN to turn around and authenticate that very VAN would be nonsensical. As urged at oral argument, however, the same party might authenticate the VAN it had previously created when the payee presents the check at the issuing financial institution for payment. Inartfully drafted though the claim may be, using Defendant's proposed construction would require four parties, which is not mandated by the claim language, specification, or prosecution history. If the third party is not permitted to perform any of the other steps, then it becomes clear that some additional party or parties must perform the receiving and generating steps.

The Court rejects this view of the claim and construes this limitation to mean, "a party, other than the first or second parties, that performs the determining step of the claim."

Microsoft argues that plaintiff's proposed construction of thread as an "executable entity within a process," Pl Br (Doc # 331) at 19, fails to be sufficiently specific. Microsoft cites plaintiff's discussion of the definition of thread in a reply to the patent office concerning newly cited references. In this discussion, plaintiff stated:

The phrase "sequence of instructions executed by a processor" could not possibly have constituted an all-inclusive "definition" of the term "thread" because the phrase is so broad as to refer to many distinct and different things, such as (1) a program, (2) a routine, (3) a subroutine, (4) a function, (5) a job, (6) a task, (7) a thread, (8) an algorithm, (9) a process, or (10) a procedure, each of which consists of or comprises or refers to a "sequence of instructions executed by a processor."

11/18/93 Affidavit at P11, cited in Def Exh I (Doc # 311, Exh # 16).

Microsoft, however, fails to note plaintiff's definition of thread stated within the same discussion.
"To simplify in order to provide some sorely needed clarity, a "process" is the instance of running a program, whereas in current terminology a "thread" is the execution of a sequence of instructions constituting one of the possibly many procedures, functions or subroutines within the program. That is, in current terminology, a "thread" is merely one of the many resources of a "process."

Id at P14.

The parties dispute whether a thread, or an execution of a sequence of instructions within a program, is required to have its own private memory stack. Because a thread is interrupted during multithreading, the thread's context must be saved and retrievable when the thread is ready to resume execution. The question is whether a thread, by definition, saves its context in a private memory stack or whether multiple threads may share a stack in which their contexts is saved. Microsoft, citing a variety of technical treatises and plaintiff's own reference to these treatises in communications with the patent office, argues that a thread is required to have its own private memory stack. Plaintiff disputes this requirement.

Plaintiff's patents explicitly refer to the compiler and editor in the preferred embodiment as threads: "In this illustrative example, one of the program threads is an editor and another thread is a code processing routing in the form of a compiler. '603:2:3-5. The editor and compiler are not, however, assigned their own private memory stack in which to save their context.

The court is, therefore, faced with a conflict between two sources of evidence of the meaning of claim terms. Dictionaries and technical treatises are generally considered sources of extrinsic evidence. See e.g., Vitronics Corp v Conceptor, Inc, 90 F3d 1576, 1583 (Fed Cir 1996). Plaintiff, however, repeatedly quoted dictionary and treatise definitions of thread to the patent office in an attempt to distinguish his invention from prior art, bringing these definitions within the realm of intrinsic evidence.

Plaintiff engaged in a lengthy discussion of the use of "thread" in his patent applications in a 1993 response to the patent office regarding newly cited references. 11/18/93 Affidavit, cited in Def Exh I (Doc # 311, Exh # 16). In particular, plaintiff attempted to distinguish the use of the term "process" in the Dufond reference from plaintiff's use of the term "thread." As noted above, plaintiff argued that while a process was, essentially, a program, a thread was a sequence of instructions within that program. See id at PP12-15. In support of this distinction, plaintiff cited several industry definitions, some of which included the requirement that a thread have a private memory stack. Plaintiff, for example, cited:

To work successfully with multitasking, you need to understand clearly the difference between a process and a thread. A process is simply the code, data, and other resources of a program memory, such as the open files, allocated memory, and so on. MS OS/2 considers every program that it loads to be a process. A thread, which is everything else required to execute the program, consists of a stack, the state of CPU registers, and an entry in the execution list of the system scheduler.


It is important to note, however, that plaintiff cited such definitions in an attempt to distinguish between a process and a thread. Microsoft cites other technical treatises in support of its position that a thread must have its own private memory stack. Microsoft cites, for example, one of its programmer reference guides, which provides:

Threads are the basic entity to which the operating system allocates CPU time. Each thread maintains a set of structures for saving its context while waiting to be scheduled for processing time. The context includes the thread's set of machine registers, the kernel stack, a thread environment block, and a user stack in the address space of the thread's process.


Although the patents provide that when the compiler of the preferred embodiment is interrupted the stack pointer and other CPU registers are saved by the interrupt service routine, the compiler is not allotted a private memory stack. See '603:4:25-30. Microsoft's proposed construction, therefore, runs up against another principle of claim construction, which, in Microsoft's preferred position, was argued with vigor, namely: "[A] claim interpretation that would exclude the inventor's device is rarely the correct interpretation." Modine Mfg Co v United States Int'l Trade Comm'n, 75 F3d 1545, 1550 (Fed Cir 1996). Further:
A patent claim should be construed to encompass at least one disclosed embodiment in the written description portion of the patent specification. * * * A claim construction that does not encompass a disclosed embodiment is thus rarely, if ever, correct and would require highly persuasive evidentiary support.

Johns Hopkins Univ v Cellpro, Inc, 152 F3d 1342, 1355 (Fed Cir 1998), citations and internal quotations omitted.

It is also worthy of note that at the time of plaintiff's patent applications, the idea of a "thread" was a new one:

Until the latter half of the 1980s, most operating systems allowed a process to have only one thread of execution. (In fact, most operating systems used the term process to refer to an executable entity. Thread is a relatively new term.).

Helen Custer, Inside Windows NT, Microsoft Press, 1993 at 93.

Clearly, plaintiff intended to distinguish a thread from a process. Further, when a thread is interrupted, its context must be saved in some manner and be retrievable when it begins to operate. Yet in light of plaintiff's general definition given to the patent office and in light of the patents' preferred embodiment, the court cannot conclude that a thread must have its own private memory stack. As a result, the court determines that the proper construction of thread is that which plaintiff provided to the patent office in November of 1993. Accordingly, a thread is the execution of a sequence of instructions constituting one of the possibly many procedures, functions or subroutines within the program. Further, when interrupted, a thread's context must be saved and retrievable when a thread is reassigned control of the CPU and resumes execution. If a determination of whether a thread is required to have a private memory stack becomes central to determining infringement, the court may be open to revisiting its construction of this claim term.

D. Three Dimensional Position

The parties present nearly identical definitions for "three dimensional position." Scanner asserts that the term refers to "the X, Y and Z values for the top of at least one ball of a ball grid array." (Scanner Post-Hr. Br. at 13). ICOS asserts the following definition: "the determination of the actual X, Y and Z coordinate positions of the balls." (ICOS Post-Hr. Br. at 23). Because these definitions are similar, it is apparent that the parties do not genuinely dispute the definition of the term as it applies to the patents at issue. The Court adopts the definition set forth by Scanner. Accordingly, for the purposes of this case, "three dimensional position" is defined as "the X, Y and Z values for the top of at least one ball of a ball grid array."

3. Threshold.

The court construes the term "threshold" to mean "the value of current, voltage or other quantity at which something happens." The court has considered both of the parties' arguments on this point and has concluded that this definition is appropriate in the context of the claims. In particular, this construction gives meaning to the term threshold as it is used in claim limitations requiring certain events to occur if a value is at or above a threshold, and it also provides an appropriate meaning for use in limitations which may require something else to occur if the value is below the threshold. See '722 Patent, claim 14 (claiming "an inverter circuit as claimed in claim 12, wherein if said feedback signal is below said predetermined threshold . . . ").

20. "threshold error-detection-and-correction time"
"Threshold error-detection-and-correction time" appears in claim 5 of the 229 patent and claims 14 and 26 of the 148 patent. The specification never explicitly defines this term and only uses the term when paraphrasing the claims. 229 patent 23:4-9, 24:13-15, 24:50-53, 24:61-25:15. Both MoSys and TSMC contend that this term is indefinite; MoSys also asserts that to the extent the term can be construed, it means "the point at which the error correction scheme of the prior art can no longer overcome errors." Jt Cl Const, Ex B at 26; TSMC Br at 39-42. UniRAM proposes a highly-similar construction that defines the term as "the time past which the error correction scheme can no longer consistently and accurately correct errors." Jt Cl Const, Ex B at 26.

UniRAM's proposed construction is problematic because the "consistently and accurately" limitation is never mentioned in the specification. More importantly, UniRAM's construction seems indefinite because it adds a meaningless limitation to the claims. For example, after replacing "threshold error-detection-and-correction time" with UniRAM's proposed construction, each of the claims would read: "an error code checking [ECC] and correction means *** for checking and correcting substantially all memory read errors within the time past which the error correction scheme can no longer consistently and accurately correct errors." The phrases "checking and correcting substantially all memory read errors" and "consistently and accurately correct errors" both refer to an ECC's effectiveness. Accordingly, when used together, either the former or the latter phrase is superfluous. Because a limitation cannot be construed out of the claims, UniRAM's proposed construction cannot be correct. Texas Instruments v United States ITC, 988 F2d 1165, 1171 (Fed Cir 1993).

MoSys's proposed construction suffers from the same indefiniteness problem. The specification notes that "[t]he ECC circuit [used in this invention] is well known to the art, so we do not discuss it in further details." 229 patent at 11:61-63. Accordingly, the terms "an error code checking [ECC] and correction means *** for checking and correcting substantially all memory read errors" and "the point at which the error correction scheme of the prior art can no longer overcome errors" both rely directly on the effectiveness of prior art ECCs.

But simply because UniRAM's and MoSys's proposed constructions are indefinite does not necessarily mean that the claim is "insolubly ambiguous" or that "no narrowing construction can properly be adopted." Honeywell Int'l, Inc. v. ITC, 341 F.3d 1332, 1338-39 (Fed Cir 2003) (quoting Exxon Research, 265 F3d at 1375). Rather, UniRAM's expert, Carl Sechen, notes that "threshold error-detection-and-correction time" likely relates to a memory cell's refresh time, which is the time period since data was last fully written to the memory cell. UniRAM Br, Ex 3 PP 190-93. By improving the capability of a memory cell to correct errors, an ECC circuit allows a memory cell to have a longer refresh time, Tecc, as compared to the refresh time if there were no ECC, Tmin:

When a memory device is equipped with an ECC circuit, it will correct most single-bit errors. As a result, the refresh time of the memory device is no longer dependent on the worst bit in the memory. Instead the device will *** function until the errors are more than what the ECC mechanism can correct. The refresh time (Tecc) is therefore higher than Tmin as shown in FIG. 20(a).

'229 patent at 25:9-14.

Accordingly, the specification supports modifying MoSys's construction so that "threshold error-detection-and-correction time" means the "maximum refresh time beyond which the ECC and correction means can no longer overcome errors." Because this definition imports the concept of a refresh time, constructing the term this way does not render it superfluous as used in the claims.

The term "threshold voltage" appears in claim 1 of the 229 patent and claims 1 and 22 of the 148 patent. MoSys and TSMC contend that threshold voltage should be defined in terms of a specified current that operates under normal conditions. Jt Cl Const, Ex B at 27. UniRAM instead defines threshold voltage as the critical gate electrode to source electrode voltage that turns on the transistor. Id.

Contrary to MoSys's and TSMC's proposed construction, the specification never discusses how threshold voltage depends...
on current flow or operating conditions. But the specification does discuss "[t]he threshold voltage of those depletion mode transistors" in the context of activating those transistors with gate select and drain select signals. 229 patent at 16:57-17:34. Because this intrinsic evidence is more consistent with UniRAM's construction, the court defines threshold voltage is "the critical gate electrode to source electrode voltage that determines whether a field effect transistor is on or off."

This Court therefore turns to the meaning of the '849 Patent's claim 1, and particularly to the portion emphasized in the earlier quotation of that claim, to determine whether the elements of that claim do or do not call for disclosure of Calabrese's admittedly preferred embodiment of the circuits referred to there. It is at that point that Calabrese is forced to resort to the least tenable position of all--one in which he urges an extraordinarily strained and insupportable meaning for the word "through" that appears at '849 Patent col. 2, lines 31 and 44.

As the Special Master's Report at 4-5 reflects, Calabrese's position is that the '849 Patent's reference to data being transmitted "through" the data relays should be read in the same sense in which, though a car is accurately said to pass "through" an intersection, a different meaning is intended by the colloquialism that refers to the car's passing "through" the controlling traffic light--in the latter case, what is meant is simply going past the light. That purported analogy is of course wholly nonanalogous. Here, after all, we are dealing with electric current, which by definition passes "through" the circuitry in the common-sense usage of that term, as contrasted with the wholly figurative concept of passing "through" a traffic light.

As the Special Master's Report accurately finds, the data relays of the '849 Patent are connected by circuitry, and at the time that Calabrese filed the application the best mode that Calabrese knew of for accomplishing that connection comprised the input and relaying circuits that were shown (and acknowledged to be the preferred embodiment) in the application that later matured into the '451 Patent. In advertising to the transmittal of data in '849 Patent col. 2, lines 31-32 and 43-44, Calabrese expressly said that was done sequentially "through" each of the data relays. And it is no accident that in the contemporaneous application that ultimately produced the '451 Patent, the word "through" was used in the identical sense (its col. 2, lines 15-21 referred to the address being received by the data relay and then sent "to" the next data relay "through" the relaying circuit, and at col. 2, lines 22-27 data is said to be transmitted "through" the input circuit where it is reinforced and directed "through" the relaying and input circuits of data relays between the addressed relay and the host (normally a computer).

Calabrese cannot successfully escape his own original usage and its truly unambiguous plain meaning through his attempted post-hoc disclaimer, when he now regards such a new rationalization as redounding to his advantage. This is not at all an instance of the weighing or discrediting of evidence in violation of the basic Rule 56 standards. On the contrary, Calabrese's own contemporaneous conduct in applying for what became the '451 Patent, with its express disclosure of a preferred embodiment, establishes conclusively that--at the very time that he filed the application that ultimately ripened into the '849 Patent--he considered the reinforcing circuitry to be the best mode of connecting the data relays to the bus in order to improve remote data acquisition. That reinforcing circuitry is utilized in connection with the identical data relay system that Calabrese disclosed in the '849 Patent, and it is therefore also the best mode for transmitting data and addresses through each data relay for the system at issue.

In sum, it is Calabrese's own conduct that has driven the nails into the best-mode coffin in which the '849 Patent must be buried. Calabrese's attempts to climb out of that coffin (in the best Bela Lugosi tradition) via his current unpersuasive attempt to give the patent's language a different meaning cannot succeed in the bright sunlight of analysis (or even, to pursue the Lugosi metaphor, at midnight).

The case was remanded to the district court. Judge Shadur requested that the case be reassigned. The case was reassigned by lot to this court.
DISCUSSION

Summary Judgment Motions as to Best Mode


Summary Judgment Motions as to Infringement

A patent infringement analysis involves two steps. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581 (Fed. Cir. 1996). The first step is the proper construction of the claim, i.e., determining the meaning of the claim language. Id. at 1581-1582. This step is decided as a matter of law. Id. at 1582. The second step is the comparison of the accused device to the properly construed claim. Id. The second step is a factual determination. Spectrum Intern., Inc. v. Sterilite Corp., 164 F.3d 1372, 1378 (Fed. Cir. 1998).

The court will begin its analysis with the first step, the construction of the claim. In order to ascertain the meaning of a claim, the court should consider three sources: the claims, the specification, and the prosecution history. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995). The court may also consider extrinsic evidence in aiding the court's understanding of the patent, although extrinsic evidence may not be used to vary or contradict the terms of the claims. Markman at 981. Extrinsic evidence consists of all evidence external to the patent and the patent's prosecution history. Markman at 980. Extrinsic evidence includes dictionaries, expert testimony, and inventor testimony. Markman at 980.

The parties dispute the meaning of the word "through" as used in Claim One. The word "through" appears twice in Claim One. In each usage the word "through" is used to indicate the movement of "data" in relation to "data relays":

"data line means . . . for transmitting data sequentially through each of said plurality of data relays to said host device,

. . .

"means for serializing the parallel data group selected by said sequencing means and for transmitting said selected serialized data group to said data line means whereby the serialized data will be sequentially transmitted through the data relays intermediate the addressed data relay and said host device to said host device."

(emphasis supplied)

Calabrese argues that "through" as used in the claim means to "go past," as in "going through a stop light." Square D argues that "through" means "to enter into and to exit."

The court has carefully examined the claims, the specification, and the prosecution history for other indications of what the word "through" should be interpreted to mean. The court finds that neither the claims, the specification, or the prosecution history provide any clear indication as to the exact meaning of the word as used in the claims. The court further finds that "through" is a common, everyday word and not a technical term. In light of these circumstances the court will turn to extrinsic evidence, specifically a dictionary, in order to determine the word's definition. See Markman, 52 F.3d at 980 (court may use dictionary as extrinsic evidence).

Both the plaintiff's and the defendant's suggested meanings are supported by dictionary definitions. Merriam-Webster's Collegiate Dictionary, Tenth Edition (1996) defines "through" as follows: "used as a function word to indicate movement into at one side or point and out at another and esp. the opposite side of (drove a nail through the board)." This definition is essentially the same as the defendant's suggested meaning, "to enter into and to exit."

The same edition of the same dictionary also defines "through" as "without stopping for; past (drove through a red light)." This definition is essentially the same as the plaintiff's suggested meaning, "to go past."

The question then is whether the word "through" as used in "data transmitted through data relays" is more closely analogous
The court finds that to pick one or the other would be to split linguistic hairs, as the two meanings are so similar as to be virtually identical. The classification of the Merriam-Webster definitions reflects how close the two meanings are. In the Merriam-Webster dictionary the two definitions are listed as subsenses 1 and 4 of subsense 1a. Subsense 1a is itself one of two subsenses of definition 1. The court will therefore define the word "through" as used in the claim as follows: "to go past, or to enter into and to exit."

The court has now resolved the one disputed issue of claim construction, therefore completing the first step of the Markman analysis.

III. RELEVANT LANGUAGE OF THE PATENT-IN-SUIT

The parties agree that what remains at issue before the Court in this Markman process is the correct interpretation of the portion "throughhole passing through the dielectric layer" as used in the claims 1 and 15 of the '555 Patent. Specifically, the '555 Patent claims the following:

1. A deactivatable resonance label, comprising: a dielectric layer having first and second opposed faces;

   a first conducting layer on the first face of the dielectric layer, the first conducting layer being shaped to form an inductor and a first capacitor plate;

   a second conducting layer on the second face of the dielectric layer, the second conducting layer being shaped to form a second capacitor plate, the first and second conducting layers being at least partially superposed, said first and second conducting layers and said dielectric layer forming together and oscillating circuit; and

   shorting means for enabling creation of a short-circuit between the first and second conducting layers when it is desired to deactivate the oscillating circuit, the shorting means being comprised of at least one throughhole passing through the dielectric layer to provide a short circuit path between the first and second conducting layers.

15. A method for fabricating a deactivatable resonance label, said method comprising steps of:

   providing a planar dielectric layer having first and second faces . . . . and

   forming shorting means in the dielectric layer for enabling creation of a short-circuit between the first and second conducting layers when it is desired to activate the oscillating circuit, the shorting means being comprised of at least one throughhole passing through the dielectric layer to provide a short circuit path between the first and second conducting layers.

'555 Patent, col. 7, ln. 33-52; col. 8, ln. 33-34, 47-55 (emphasis added).

IV. CLAIM CONSTRUCTION

The scope of protection provided by a patent is determined by the language of the claims and the brief sentences or paragraphs which "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112. The first step in determining the infringement of a patent is an interpretation of the scope and meaning of the patent claims alleged to be infringed, and construction of those patent claims is a matter of law to be decided by the Court. See Markman, 52 F.3d at 979. In order to aid the Court in this determination, the parties submitted written briefs and made presentations at a Markman hearing. The parties have presented competing descriptions of the proper construction of the patent claims.
A. Summary of Positions on Claim Interpretation

1. Checkpoint

- 4734 -
Plaintiff Checkpoint argues that the proper interpretation of the claimed dispute of the '555 Patent is that the "throughhole" is only properly interpreted as its name suggests. That is, the throughhole is a hole (air-filled space, free of dielectric layer material) through one of the energy conducting layers of the resonance labels, which makes the resonance label operate more efficiently and effectively.

Furthermore, Checkpoint argues that the throughhole is a structural implementation that uniquely improves and advances the design of the resonance label, and sets it apart from prior versions of the label.

It is Checkpoint's position that "the 'throughhole' provides a short circuit path between the conducting layers." Checkpoint disagrees with Defendants' definition, infra, of the throughhole as being limited by and distinguishable from Defendants' use even if there is a difference in or there is uniformity of the thickness of the conducting layers. Simply put, Checkpoint argues that the meaning of "throughhole" puts no limitation on where the hole can be put on a conventional label, and that the "throughhole" works regardless of what the thickness of the label is like where the hole is placed. To that end, Checkpoint argues that the patentee did not and would not have disavowed having the hole in an area of reduced thickness, as Defendants suggest.

As a matter of law, Checkpoint states that the Federal Circuit's recent ruling in Phillips v. AWH Corp. controls the proper construction of a patent's claims in support of Checkpoint's proposed meaning of "throughhole". 415 F.3d, 1303, 1312 (Fed. Cir. 2005). Specifically, Checkpoint argues that the court in Phillips has stated that an inventor's claims should be used to determine what he regards as his invention when there is an ambiguous claim term, but should not necessarily limit the scope of the patent's protection. Id. at 1312, 1323.

2. All-Tag

Defendant All-Tag relies on a different reading of the Phillips court's pronouncement that the specification "is always highly relevant to the claim construction analysis . . . [and] [u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term." Id.

All-Tag argues that claim construction turns on the meaning of the word "throughhole" and the word "layer" as used intrinsically, in the context of the entire claim. All-Tag's position, based on its reading of Phillips is that because "throughhole" and "layer" are not ordinary terms of art, the specification and prosecution history, rather than the inventor's claims, should be used to construe the terms for purposes of determining the validity of the '555 Patent in the Defendant's favor. According to All-Tag, Checkpoint's construction of the "throughhole" as a "space" cannot survive the specification and prosecution history analysis set forth and required by Phillips.

Furthermore, All-Tag argues that its use -- selective reducing of the thickness of a layer in the resonance label -- is specifically critical of and inapposite to the asserted design of the '555 Patent. Thus, All-Tag's position is that its product and design do not infringe upon the '555 Patent.

3. Sensormatic

Defendant Sensormatic's argument parallels Defendant All-Tag's in that Sensormatic states that the term "throughhole" must be construed according to specification and prosecution history in accordance with legal principles of claim construction. Specifically, Sensormatic argues that the term "throughhole" did not appear in the original application for the '555 Patent. Rather, "throughhole" was added to the application for the express purpose of distinguishing the "hole through the layers design" (Checkpoint's alleged use) from the "reduced thickness in layers design" (All-Tag & Sensormatic's alleged use).

B. Interpretation of the Terms of the '555 Patent

There is no dispute that both Plaintiff's and Defendants' proposed labels are workable, functional structures. Therefore, the language of the claims and the brief sentences or paragraphs must "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112. Furthermore, in order for the Court to accept Defendants' construction of "throughhole" such that the functional "hole through the layers design" is distinguishable from the functional "reduced thickness in layers design", the record must reflect the patentee's clear intent to disavow placement of the hole in some area of reduced, or otherwise non-uniform, thickness. See Katz, 63 F. Supp. 2d at 591 (citing York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1572 (Fed. Cir. 1996)) ("[u]less altering claim language to
escape an examiner rejection, a patent applicant only limits claims during prosecution by clearly disavowing claim coverage, that is, by making a statement that concedes or disclaims coverage of the claims at issue based on a piece of prior art.

Checkpoint's proposed construction of "throughhole" is consistent with the context of the patent claims. Claims 1 and 15 describe a "throughhole passing through the dielectric layer to provide a short circuit path between the first and second conducting layers". (col. 7, ln. 49-52; col. 8, ln. 51-55.) Defendants' proffered construction describes "an opening extending through the entire, predetermined, uniform thickness of the dielectric layer". (Def. Sensormatic Electronics Corp.'s Initial Claim Construction Brief 24; All-Tag Defs.' Brief on Claim Construction at 24.) However, this construction imposes a limitation that is inconsistent with the language evidenced by the patent claims.

The prosecution history supports the inventor's use of the term "throughhole" inasmuch as the term "throughhole" was used in place of "hole or cut" without any additional qualification or disavowal of a specific thickness of the layer through which the hole or cut is made. Furthermore, the language in the '555 Patent specification that describes the absence of "[e]ffects such as fluctuations in thickness" (col. 2, ln. 45-47) is properly understood in the full context of the claim as the manner in which deactivation occurs, not a departure from the prior art regarding fluctuations in thickness of the dielectric layer. ('555 Patent, fig. 3; see col. 3, ln. 48-49 and col. 6, ln. 45 (illustrating an embodiment of the invention where the dielectric layer is reduced in thickness)). Rather, it is the continuous hole that is the deviation from prior art and therefore the inventor's invention. (col. 4, ln. 11-13.)

V. CONCLUSION

Having found no clear intent on the part of the patentee to require uniform thickness in the material penetrated, this Court concludes that the term "throughhole" and layer as used in the claim "throughhole passing through the dielectric layer" means "a space between the first and second conducting layers free of dielectric layer material". Furthermore, "throughhole" is not an ambiguous term. This term is construed in accordance with the claim and specification, and dictated by its ordinary and customary meaning. The Court agrees with Checkpoint's proposed construction because it is supported by the consistent use of the word "through" in the claim language ("one through hole passing through the dielectric layer"), in the context of the entirety of the invention, and construed in accordance with the specification. See Markman, 52 F.3d at 979 (stating that claims must be read in view of the specification of which they are a part.). Claim 1 only qualifies the term "throughhole" as "passing through the dielectric layer," and does not include language limiting a throughhole to an area of uniform thickness in the dielectric layer. Therefore, the construction of "throughhole passing through the dielectric layer" as "a space between the first and second conducting layers free of dielectric layer material" is proper as evidenced by the patent's claim, the specification, and the prosecution history. An appropriate Order follows.

AMENDED ORDER

AND NOW, this day of February, 2007, IT IS HEREBY ORDERED AND DECREED that the Court's January 24, 2007 Order (Doc. 213) is AMENDED as set forth herein and as set forth in the accompanying memorandum.

Upon consideration of the briefs and materials submitted by the parties, and after a Markman hearing on patent claim construction, it is hereby ORDERED that the disputed term "throughhole" in the claims of United States Patent No. 4,876,555 (the '555 patent) shall be construed to have the definition herein assigned to it. The Court concludes that "throughhole" means "a space between the first and second conducting layers free of dielectric layer material".

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2. Throughput maximizing unit

The plaintiff proposes that the term "throughput maximizing unit" is "an element of the controller that processes memory requests in response to scheduling constraints of the synchronous DRAM." The defendants contend that the term "throughput maximizing unit" is a means-plus-function limitation. After considering the arguments of counsel, the court concludes that the term "throughput maximizing unit" is not a means-plus-function limitation. Accordingly, the court construes "throughput maximizing unit" to mean "an element of the controller that processes memory requests in response to scheduling constraints of the synchronous DRAM, which maximizes throughput."
1. Throughput maximizing unit for processing said memory requests to the synchronous DRAM in response to scheduling which maximizes the use of data slots by the synchronous DRAM

The court first considers whether § 112 P 6 applies. The plaintiff asserts that it does not and that the phrase "throughput maximizing unit for processing said memory requests . . ." means "an element of the controller that processes memory requests in response to scheduling constraints of the synchronous DRAM which maximizes the use of data slots." In their response brief, the defendants contend that "maximizing throughput of said memory requests . . ." is a means-plus-function limitation. The defendants argue that "claims 1 and 3 fail to recite any structure for processing memory requests to maximize the use of data slots, and claims 11, 13, and 20 fail to recite any acts prescribing how to maximize the use of data slots." Defendants' Response Brief at 71. The absence of the word "means" raises a presumption that § 112, P 6 does not apply.

The court concludes that "throughput maximizing unit for processing said memory requests . . ." is not a means-plus-function limitation. The court therefore adopts the plaintiff's construction and construes "throughput maximizing unit for processing said memory requests" as an "element of the controller that processes memory requests in response to scheduling constraints of the synchronous DRAM which maximizes the use of data slots."

8. "Thumbnail visual image": "A miniature image of a web page." The parties agree that a thumbnail image is a "miniature" image, and this construction is consistent with Figures 1 and 2 of the specification. The court finds no occasion to limit the term, as defendants suggest, to further require that the miniature image contain the "complete visual contents" of the web page. In addition, the provisional application (to which the '904 patent claims priority) included images comprising only a portion of the web page. (D.I. 386, ex. 3 at JA277, ex. 4 at JA285 1)

1 Plaintiff did not cite to the original provisional application, which does not appear to be of record. In their responsive papers, defendants assert that the provisional application does not support the '904 patent, and note that the images in the provisional application were omitted from the '904 specification in any event. (D.I. 379 at 21) Defendants do not specifically dispute that the images in the provisional were less than complete web pages. (Id.)

We begin with the construction of the claim term "tile," which the district court interpreted to exclude a single row of pixels on the basis of the language in the specification referring to "four corners" and the word's plain and ordinary meaning. Slip. op. at 5-6. On appeal, LizardTech asserts that the district court erred in its claim construction by 1) misinterpreting the crucial portion of the specification relating to the definition of a tile and 2) improperly applying the ordinary meaning of the word tile from the inapposite realms of roofs and bathroom floors to the arena of complex computer algorithms. For its part, ERM submits that the district court properly rejected LizardTech's construction of the term that embraced a single row of pixels as unsupported by the specification and contrary to the ordinary meaning of the word "tile." We agree with LizardTech, for our analysis of the specification and the claim language, viewed in the context of the invention as a whole and through the lens of one skilled in the relevant art, reveals that the claim term "tile" does not exclude a single row of pixels.

The portion of the specification relating to the definition of a tile includes the disclosure that "the four corners of a tile are given by" the following equations:

\[
t_{00,ij} = iW[t] \\
t_{01,ij} = \min((i + 1)W[t - 1], W[i - 1])
\]
\[ t[10,ij] = jH[t] \]
\[ t[11,ij] = \min((j + 1)H[t - 1], H[i - 1]). \]

‘835 patent at col. 6, ll. 35-39. In the foregoing set of equations, the first equation defines the left boundary of the tile; the second defines the right boundary; the third defines the upper boundary; and the fourth defines the bottom boundary. LizardTech asserts, and ERM admits, that the equations permit a solution in which the top and bottom boundary have identical values, such that the equations would define a single row of pixels. Accordingly, LizardTech submits that far from precluding a construction of the claim term tile as encompassing a single row of pixels, the specification, as viewed by one skilled in the art, is fully consistent with tiles of varying heights, including a single row.

--- Footnotes ---

3 LizardTech supports this argument using testimony from its expert, Dr. Stanley Osher, who analyzed the meaning of the four equations and concluded that "one of ordinary skill in the art reading the '835 Patent would recognize that the '835 Patent does not exclude a row of input image data as [a] possible tile shape, but rather clearly supports such a tile shape. DWT processing of such tiles in accordance with the '835 Patent is well within the knowledge and capability of persons of ordinary skill in the art."

ERM responds to this argument by contending that an interpretation of a tile as including a single row, with only two unique coordinates, would conflict with the specification's description of "the four corners of a tile." 835 patent at col. 6, ll. 35. Simply put, a "corner" is defined as "the meeting place of two converging lines," while the solutions to the equations for a single row tile are the two end-points of the row, and thus not "corners" at all. Webster's Ninth New Collegiate Dictionary (1988). In other words, ERM argues that the specification's allusion to the "four corners" of a tile requires that the tiles defined therein contain four distinct coordinates with four distinct boundaries. We disagree.

The reading of the specification urged by ERM and adopted by the district court is at odds with a contextual reading of the specification by one skilled in the art that would account for both the significance of the equations and the purpose of the disclosed invention. We think the district court's reliance on the specification's use of a single word--"corner"--impermissibly infused the particular form or shape of a tile with an importance that the equations belie. See Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 844-45, 50 U.S.P.Q.2D (BNA) 1225, 1230 (Fed. Cir. 1999) (rejecting an argument that attempted to construe a claim on the basis of a single passage without regard to the context of the rest of the specification or claimed invention). There is no dispute that the equations that immediately follow the specification's reference to the "four corners" of a tile permit a solution in which a tile comprises a single row of pixels. Further, in the context of the claimed invention, the definition of the term "tile" is pertinent to a "tiling" technique for dividing a large image into subparts that form the entire image when superposed. In addition, the superposition of tiles may form the entire image irrespective of whether they contain one, two, or more rows of pixels. ‘835 patent at col. 11, ll. 41-43. The exclusion of one row of pixels from the definition of the term "tile," absent a demonstration that image subparts with such a shape modify the nature of the claimed invention, improperly elevates the technical meaning of a single word ("corner") used in the specification over the substance of the equations defining the tile and the purpose of the invention.

--- Footnotes ---

4 Because we conclude that the specification supports LizardTech's construction of the term "tile" to include rows of a single pixel, we reject ERM's argument that such a construction would violate the written description requirement of 35 U.S.C. § 112. Cf. Gentry Gallery, inc. v. Berkline Corp., 134 F.3d 1473, 1476, 45 U.S.P.Q.2D (BNA) 1498, 1500-01 (Fed. Cir. 1998).

--- End Footnotes ---

Finally, we part company with the conclusion of the district court, echoed by ERM, that permitting the term "tile" to encompass a single row of pixels traduces its plain and ordinary meaning. In support of this proposition, ERM points out
that we have often relied on dictionary definitions in construing words in patent claims, and in this instance, the dictionary definition of the word tile refers to something used to cover a floor, a roof, or a wall. See York Prods., Inc. v. Cent. Tractor Farm & Family Ctr., 99 F.3d 1568, 1572-73, 40 U.S.P.Q.2D (BNA) 1619, 1622 (referring to dictionary definitions of "substantially" and "plurality"). As an initial matter, it is not clear that the dictionary's reference to bathroom tiles and roof tiles suggests that a single row of pixels cannot constitute a tile, since the superposition of rows would form the entire image just as the superposition of bathroom tiles forms the entire floor. 5 It is true that we have indeed relied on non-technical dictionary definitions to construe non-technical terms, such as "substantially" and "plurality." See York Prods., 99 F.3d at 1572-73, 40 U.S.P.Q.2D (BNA) at 1622. However, the word "tile," as utilized in disclosing and claiming a patented method for transforming and compressing digital images, is manifestly a technical term. The effort to restrict the meaning of the word "tile" in the context of digital image compression on the basis of the definition of the word in the inapposite context of a bathroom floor or a roof violates the essence of the claim construction inquiry: to adduce the scope of the claimed invention. For that reason, we construe the claim term "tile" from the perspective of one skilled in the art, instead of a layperson reading a dictionary. See K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1365, 52 U.S.P.Q.2D (BNA) 1001, 1006 (Fed. Cir. 1999) ("Claim construction is firmly anchored in reality by the understanding of those of ordinary skill in the art."). Based on the expert testimony presented by LizardTech and the role of "tiling" in the context of the claimed invention, we hold that the "plain and ordinary meaning" of the term "tile" to one skilled in the art includes within its scope a single row of pixels. The district court's contrary interpretation and its resulting conclusion that the ER Mapper does not infringe the '835 patent as a matter of law are erroneous.

5 ERM's argument to the contrary depends on the fallacy that bathroom and roof tiles have two dimensions, while a row of pixels is only one-dimensional. As a matter of both logic and geometry, this contention is incorrect, since a row of pixels, unlike a one-dimensional line, has both a width (however many pixels are in the row) and a height (1 pixel), so that superposing each row would yield the entire image.

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A. "time compressed representation"

The term "time compressed representation" appears in every independent claim of the Burst patents. The parties have relied on the reference in claim 1 of the '839 Patent for the purposes of discussion:

1. A method for handling audio/video source information, the method comprising:
   receiving audio/video source information;
   compressing the received audio/video source information into a time compressed representation thereof having an associated burst time period that is shorter than a time period associated with a real time representation of the received audio/video source information;
   storing said time compressed representation of the received audio/video source information;
   transmitting, in said burst time period, the stored time compressed representation of the received audio/video source information to a selected destination


The parties dispute whether the term "time compressed representation" had an accepted scientific or engineering meaning when it was used. Compare Hemami Report at 42-43 with Halpern Report at 8-12. The term was not explicitly defined in the specification. The main dispute is whether the term teaches data compression. Burst argues that it does. Apple's
preferred construction, however, excludes data compression in favor of a reading of "time compressed representation" to refer to time compressed multiplexing. In the alternative, Apple presents an invalidity argument in the guise of contesting Burst's construction as indefinite. First, the court will examine whether "time compressed representation" excludes data compression. Having resolved that dispute, it will construe the term and address Apple's indefiniteness argument.

The literal language of "time compressed representation" tends to favor Apple's preferred construction. While "time compression" was not a widely used term at the time the patents were drafted, the ordinary meaning would suggest time compression and exclude data compression. See Halpern Report at 8. Indeed, Burst's expert concedes that, at the time the patents were filed, there were several meanings of the phrase "time compression," none of which would include data compression. Additionally, TCM would fall within the likely accepted meanings of "time compression" at the time. Hemami Report at 42-43. Further, the expression "burst" was linked to TCM in describing the high-rate bursts at which information is transmitted. See Data Communication Principles at 607-669; Modern Dictionary of Electronics at 122. The use of the term "burst" was unknown in the field of data compression.

The presumption that the term "time compression" is meant to convey its ordinary meaning can be overcome. An inventor may "choose[] to be his or her own lexicographer" by expressly defining terms in the specification. Johnson Worldwide, 175 F.3d at 990. While the term "time compressed representation" is not defined in the specification, the intrinsic evidence establishes that "time compressed representation" refers to data compression. Indeed, the Federal Circuit has concluded that such lexicography by implication may be appropriate, particularly where the prosecution history indicates that the patentee intended to deviate from a term's ordinary and accustomed meaning. Teleflex, 299 F.3d at 1326.

The intrinsic evidence demonstrates that "time compressed representation" refers to data compression. Significantly, the parties do not dispute the fact that the specification does not disclose TCM. The specification refers in several places to data compression and data compression techniques. See, e.g., '995 Patent at 2:42-51 (including as one of the objects of the patent to "provide an audio/video recorder utilizing a data compression technique for efficient storage, transmission, and reception"). The preferred embodiment describes the algorithms used for compression, "which enable the representation of a series of numbers by a reduced number of digits." Id. at 4:63-68; see also id. at 5:20-24 (using "data compression technique" to refer to "the above compression techniques"). The algorithms discussed in the preferred embodiment for performing the compression are types of data compression algorithms--intraframe video compression, interframe video compression, and inter-sample audio compression--which would have no relevance for TCM. See id. at 4:68-5:8 (intraframe video compression); id. at 5:9-18 (interframe video compression); id. at 5:28-33 (inter-sample audio compression). The parties do not dispute that these algorithms are exclusively used for data compression and that they have no use for TCM. n2 Instead, Apple notes that the patents link data compression to more efficient storage and not to faster-than-real-time transmission. See, e.g., id. at 2:42-45 ("A still further object of the invention is to provide an improved audio/video recorder which maximizes storage capacity, through the use of a data compression technique."); but see id. at 2:46-51 ("A still further objection of the invention is to provide an audio/video recorder utilizing a data compression technique for efficient storage, transmission, and reception of digitized audio/video program. . ."). The court will address this argument in more detail below; however, it is not convinced that the patents limit data compression to storage.

n2 In response to the argument that Apple's reading excludes the preferred embodiment, Apple contends that Burst's construction is also not disclosed in the specification. Apple contends that the specification does not support Burst's proposal to link data compression to faster-than-real-time transmission. The court will address the merits of this argument independently. The court is convinced, however, that this contention does not rebut the fact that Apple's construction would exclude the preferred embodiment.

The sequence of three processes within the disputed claims--compression, storage and transmission--supports Burst's construction. See, e.g., '839 Patent at 13:1-16. Burst contends that Apple's proposed construction would not conform to the sequence mandated by the claims because storing information after it had been TCM-compressed would lose the effects of compression. At the Markman hearing, Apple presented several examples of storing TCM-compressed information after
In sum, the court finds that the Burst patents do not exclude data compression. Appropriate); Plastipak, 415 F.3d at 1345-46 (describing the high level clarity of the disclaimer in the prosecution history).

and “the unambiguous language of the amended claim” that construction which excluded the preferred embodiment is

O.U.R. Scientific Intern., Inc., 214 F.3d 1302, 1308 (Fed. Cir. 2000) (concluding on the basis of clear prosecution history

Apple's proffered reading is not the most reasonable one. Therefore, the court is persuaded that TCM does not conform to the sequence of processes in the disputed claims.

The prosecution history appears, at worst, ambivalent and more likely to support Burst's construction. Apple offers two types of evidence from the prosecution history to support its view that Burst abandoned its claim to data compression. First,

Apple argues that Burst's statements during prosecution to distinguish the Izeki patent excludes data compression from the meaning of disputed terms. In its statement, the applicant distinguished the Izeki patent, which "mentions data compression," as "not the equivalent by any means of [the applicant's] specifically claimed time compression." ’705 File History, Brown Dec., Exh. L at APBU 551. The applicant continued to explain that the Izeki patent "contains absolutely no recognition of the need for time compression of audio/video source information or of the need for transmission of time compressed audio/video source information in a burst time period." Id. As Burst points out, this statement, read in context, suggests that the Izeki patent did nothing more than data compression, while the claimed invention combined data compression with faster than real time transmission. Id. Subsequent correspondence with the PTO confirms that the applicant did not disavow data compression because the PTO and the applicant both discuss data compression in the prior art. In particular, they referred to data compression's utility in increasing storage capacity. Fourth Office Action Brown, Dec., Exh. L at APBU 554-58 (noting that using compression for increasing storage capacity was known in the prior art).

Burst further emphasizes that the applicant never distinguished the Izeki patent based on the type of compression utilized. If the applicant had intended to claim TCM, then it could have easily distinguished Izeki on the basis that Izeki employed data compression. See, e.g., North American Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1346 (Fed. Cir. 2005) (concluding from certain description of prior art, which would have been unnecessary under proposed construction, that applicant did not intend proposed construction). Indeed, the applicant distinguished Haskell, a patent that teaches TCM, on the basis that it teaches TCM. In the amendments to the application which resulted in the”705 Patent, the applicant noted that "Izeki teaches a compression technique without transmission. . . . Haskell [] teach[]es a system for time compression multiplexing so that multiple clients can receive audio/video information in real time." ’27 Application, August 7, 1997 Preliminary Amendment, Def.'s Exh. L at APBU 620-21.

Apple also points to statements in Burst's patent application before the European Patent Office to establish that Burst disclaimed data compression. The patent examiner rejected certain claims on the basis that the phrase "time compression" was not supported in the specification. The examiner noted that "compression of information refers to a reduction of a number of digits." File History for European Patent ’561, Brown Dec., Exh. T at APBU 415342-43. In response, the applicant deleted the word "time" from the claims. File History for European Patent ’561, Brown Dec. Exh. W at APBU 415441. However, this deletion does not indicate that Burst disclaimed data compression but rather that it discarded the "time compression" formulation in order to clarify that it meant data compression. The evidence from the prosecution history does not convince the court that the applicant disclaimed data compression.

Second, Apple draws the court's attention to the inventor's amendment of the original claims to demonstrate that Burst abandoned data compression. However, this history is consistent with Burst's construction. Apple argues that, in its original claims, the patentee claimed data compression. ’932 File History, Brown Dec., Exh. 0, at APBU 167. n3 However, the PTO rejected each of the claims in the application, citing patents which showed the transmission of data compressed video. Id. at APBU 199-207. In response, the inventor, along with a new patent lawyer, amended the claims. These amendments cancelled all existing claims and introduced new ones with the term "time compressed representation" in them for the first time. Id. at APBU 212. However, the introduction of a new term does not conclusively demonstrate that Burst disavowed data compression in the original language. In short, the prosecution history is inconclusive on this issue. It certainly does not rise to the level of highly persuasive evidence necessary for a construction that excludes the preferred embodiment, as does Apple's construction which reads data compression out of "time compressed representation." See Elekta Instrument S.A. v. O.U.R. Scientific Intern., Inc., 214 F.3d 1302, 1308 (Fed. Cir. 2000) (concluding on the basis of clear prosecution history and "the unambiguous language of the amended claim" that construction which excluded the preferred embodiment is appropriate); Plastipak, 415 F.3d at 1345-46 (describing the high level clarity of the disclaimer in the prosecution history).

In sum, the court finds that the Burst patents do not exclude data compression.

- Footnotes -

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n3 For the purposes of this argument, Apple argues that the use of the word "compressing" without the word "time" must indicate that Burst claimed data compression. The court is unconvinced by this argument but will assume that it is accurate for the purposes of evaluating the contention that Burst disclaimed data compression.

The term "time compressed representation" appears in eight phrases throughout the patents, frequently in a format with "burst time period." Burst's proposed construction of "time compressed representation" includes that term along with other language connecting it to terms such as "the burst time period." Apple argues that these are distinct terms, and the court agrees. Therefore, the court will consider the two terms separately. The parties agree that there was no accepted meaning in the relevant community for "time compressed representation" at the time of the patent application. The relevant part of Burst's proposed construction is as follows:

a [digital] version of audio/video source information having a reduced number of bits [that allows data transfer / that is received / being received] over an external communications link.

Burst argues that "time compressed representation" contains three elements: 1) a temporal element; 2) a compression element; and 3) a transmission and/or reception element.

The temporal element proposed by Burst is the crux of the dispute. Burst argues that the word "time" in the disputed term refers to the "associated burst time period" that appears in most of the phrases containing the disputed term. Burst construes "burst time period" to mean a transmission time period which is shorter than the time required for normal playback. By contrast, Apple argues that the temporal element of this term refers to TCM and that the "burst time period" is a transmission time period known at the time of compression to be shorter than the time required to play the source information in real time.

The court must address whether the temporal element refers to TCM or the concept of faster-than-real-time transmission. The court adopts the latter construction for the following reasons. The more reasonable interpretation of the temporal element refers to faster-than-real-time transmission. Burst argues that the sequence presented in the claims excludes TCM. Several of the claims require compression and then storage of the "time compressed representation" before transmission. See, e.g., '995 Patent, claim 1; '839 Patent, claim 1. TCM requires immediate transmission after multiplexing; storage of the data after multiplexing but before transmission is, therefore, inconsistent with TCM. Apple's proposed construction would also give the word "compression" two meanings: data compression and TCM. Apple acknowledges that the compressor/decompressor 26 in Figure 2 runs data compression algorithms. Therefore, for the specification to accommodate both data compression and TCM, the word "compression" must accommodate both meanings. Such a reading would render claims such as claim 1 of the '839 Patent nonsensical.

The prior art disclosed in the patent does not support Apple's proposed construction. The court has reviewed the treatment of the Izeki patent, which explicitly disclosed data compression, in the Burst patent application. As Apple notes, the applicant distinguished Izeki in amendments to its '727 Patent application (which resulted in the '705 Patent) in response to the PTO's rejections of its application. The first relevant PTO rejection occurred in February 1997 and noted that Izeki disclosed an apparatus for receiving, compressing and storing audio/video information and later transmitting the information to another apparatus. '705 File History, Brown Dec., Exh. L at APBU 582. In its first response, Burst distinguished Izeki by noting that "Izeki teaches a compression technique without transmission." Id. at APBU 620. The PTO's second rejection was identical to the first. Id. at APBU 625. In response, Burst's amendments noted that Izeki "does not provide for burst transmission of video programs over a communications channel" but rather is "intended to facilitate production of a master tape." Id. at APBU 649-50. Based on this history, Apple argues that the Burst patents contemplate "burst" transmission through TCM, while Izeki discloses data compression. As noted earlier, the court is not persuaded that such statements amount to a disclaimer of data compression. Apple also argues that the treatment of the Haskell patent in the file history indicates that the Burst patents necessarily include TCM. Haskell is a patent for TCM of video signals for transmission to multiple users in real time. In distinguishing Haskell in the patent application, the Burst patents note that Haskell employs TCM for real-time delivery and that the subject invention relates to "a delivery technique that uses compression to transmit a time
compressed representation in a burst time period" shorter than real time. '705 File History at APBU 620. Notably, the application used the phrase "a delivery technique that uses compression" not the phrase "time compression multiplexing." Therefore, the treatment of Haskell does not mean that the Burst patents employ TCM for faster-than-real-time transmission. The court concludes that the temporal aspect of the term does not refer to TCM.

The compression aspect of the term, Burst argues, is that the representation is the result of the compression process. This reading finds support in the specification. For example, claim 1 of the '839 Patent teaches "[a] method for . . . compressing the received audio/video source information into a time compressed representation thereof." '839 Patent at 13:1-6. The compressing, as noted above, is data compression. As the parties agree, the result of data compression is a reduction in the number of bits. Accordingly, the representation is the product of the data compression process. At the Markman hearing, Apple explained that TCM could result in a representation. The use of the word "representation" seems better suited to data compression. A "representation" is the result of reducing bits from the original audio/video information.

According to Burst, "time compressed representation" contains a third element related to transmission/reception. The claims refer to the "time compressed representation" as "transmitting" in a burst time period and that the time compressed representation is "received" in a burst time period. See '839 Patent, claim 1. Burst argues that this context imbues "time compressed representation" with a transmission/reception element that requires transmission over an external link. The court is not convinced that the phrase "time compressed representation" necessarily contains a transmission element. The plain language of the term does not suggest transmission. The inventor demonstrated his ability to adequately describe transmission where he intended. Where the inventor chose to describe transmission, he used separate nomenclature for doing so. Indeed, it would be redundant to include a transmission element in the term "time compressed representation" when Burst offers a similar construction for the term "transmission." Therefore, the court declines to adopt Burst's transmission limitation on the term "time compressed representation."

Finally, Apple challenges Burst's construction on the grounds that the claims link compression and faster-than-real-time transmission but Burst's preferred construction does not. As a result, Apple contends that the court should not adopt Burst's construction of "time compressed representation" because it is indefinite. Apple states that the disclosed technology, data compression, would not by itself enable the stated option of faster-than-real time transmission. Thus, Apple reasons that the patents-in-suit must teach TCM in addition to data compression because data compression alone is insufficient to perform the claimed function. However, this much is acknowledged in the patents themselves. Compare '995 Patent at 7:55-64 (noting that transmission of a video over a fiber optic line would take "less time than it would take to view the program") with '995 Patent at 8:49-57 ("[T]he time required to communicate a video program over a conventional phone line may exceed the time it takes to view the program."). While the patent discloses various transmission technologies, only one of them, a fiber optic line, would have been able to transmit compressed data faster-than-real-time. But, Apple notes, the fiber optic line would have achieved faster-than-real-time transmission of uncompressed data; therefore, the data compression does not enable the claimed function. At the Markman hearing, Apple argued that Burst's specification citations would reflect only the law of nature that compressed signals would be transmitted faster than uncompressed.

Apple's indefiniteness argument boils down to one based on invalidity. This type of invalidity argument, the Federal Circuit warns, is not a proper consideration at claim construction:

While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction. Instead, we have limited the maxim to cases in which the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous. In such cases, we have looked to whether it is reasonable to infer that the PTO would not have issued an invalid patent, and that the ambiguity in the claim language should therefore be resolved in a manner that would preserve the patent's validity.

Pfizer, Inc. v. Teva Pharmaceuticals, USA, Inc., 429 F.3d 1364, 1376 (Fed Cir. 2005). Because the court has concluded that there is no ambiguity in the relevant claims, Apple's argument is best reserved for a later stage of litigation. Apple also uses this argument to attack the limitation in Burst's construction that the representation "allows" transfer in shorter than the time required for normal playback. This, too, is an invalidity argument best reserved for later.
The court construes "time compressed representation" to mean "a version of audio/video source information having a reduced number of bits."

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(1) time division multiplexed bus 4

For this first term, N-Data and National assert that the patents offer a straightforward explanation of the term, and, as such, it needs no construction. '395 Patent, col. 3, ll. 2-6. N-Data also provides an alternative definition, should the court determine the term needs construction. Dell seeks to impose a function-of-time and purpose limitation. During the claim construction hearing, N-Data agreed with the court that the patent requires the intervals to be arranged as a function of time. In support of their own incorporation of such a limitation, N-Data pointed to their alternative proposed definition, requiring the data to be "arranged as a repeating series of frames." As explained in the hearing, N-Data's primary concern is that Dell's limitation is "of a fixed nature" that limits the term to the IsoEthernet, which has very specific discreet time frames of a fixed nature.

As a threshold matter, contrary to N-Data and National's argument, these terms should be construed. Even with contextual clues provided by the specification and explanations provided by the parties, the court believes that the average juror is going to need assistance in giving a meaning to the above terms. Further, while the court agrees with N-Data to the extent that Dell seeks to limit the term to a discrete time interval, N-Data's supposed function-of-time support is not adequate. Its alternative construction would not assist the jury in assigning a function of time to such terms. Finally, the court does not find any support for the inclusion of a purpose limitation as Dell suggests; such limitation would be extraneous and improper.

Accordingly, the court defines "time division multiplexed bus" as "a bus wherein data from a data source is put into time intervals and arranged as a repeating series of frames or templates."

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2. time integration quantity of a brightness change/ideal quantity of light in a stationary state

AUO contends that the term "time integration quantity of a brightness change" means "a quantity of light equal to the actual brightness level output through a liquid crystal, summed over the rise and fall response time of the liquid crystal." D.I. 376 at M-13. According to AUO, the plain meaning of "integration, in this context, is summing a change value (here, brightness level) over a period of time (here, the response time of the crystal)." Id. AUO also contends that the term "ideal quantity of light in a stationary state" refers to the "quantity of light emitted by a pixel during one time increment in which the pixel is in a non-changing state." Id.

LGD contends that these terms are indefinite. In the alternative, LGD appears to conflate the terms and offer a combined definition as follows: "quantity of light based on the actual response characteristic of the liquid crystal cell when the liquid crystal cell is provided with the next brightness level during the next time increment and the previous brightness level before and after the next time increment." D.I. 376 at Exh. M--13.

After reviewing the claim language in light of the specification, the Court concludes that the terms are not indefinite and will adopt AUO's proposed construction of these terms. The specification explains that the "[q]uantity of light can be..."
considered as a time integration quantity of a brightness change." '160 patent, col. 4, ll. 53-57. The specification further explains that "brightness of a pixel to the human eye . . . should be considered in terms of the quantity of light, that is brightness change integrated with respect to time." Id. col. 8, ll. 30-34. In the Court's view, this supports AUO's position that the "time integration quantity of a brightness change" is the quantity of light that is emitted due to the change in brightness. LGD's proposed construction adds limitations that are not supported by the specification.

Likewise, the Court will adopt AUO's proposed construction of the term "ideal quantity of light in a stationary state." The specification teaches, by way of example, that an ideal quantity of light is that quantity of light output by an ideal LC over one time increment. Id., col. 4, ll. 42-47, Fig. 4. However, an ideal LC does not exist, id. at col. 8, ll. 63-65, and the specification's example teaches that the ideal quantity of light from a conventional LC is that quantity of light emitted from the LC during one time increment when the brightness is constant, meaning the image is stationary. Id. col. 8, ll. 37-39 (when the particular pixel or LC is driven at a target brightness for an entire time increment, the pixel or LC may be described as being in a non-changing or "stationary state"). As with LGD's previous construction, its proposed construction of "ideal quantity of light in a stationary state" adds limitations that are not supported by the specification.

B. "Time slot"

There is significant disagreement between the parties over the proper construction of this term. WiAV asserts that the correct construction is: a time interval that a telecommunication protocol has defined as the basic unit recognized by devices operating according to that protocol. The Defendants assert that the term should be construed as: one of 8 physical channels in each time-division multiple access (TDMA) frame of a 200 kHz GSM radio channel.

1. Words of the Claims

Claims I and 2 of the '920 Patent claim a method of operating a mobile station, comprising

   scanning broadcast information in a wireless communication network for a short page channel;

   receiving a single time slot of said short page channel containing one group of call alert data … said single time slot being less than one millisecond in duration and representing less than 128 data bits. . .


   receiving a short page channel transmitted by a wireless communication system operating in accordance with the GSM standard;

   extracting paging data from a time slot of said short page channel;

   determining from said paging data in said time slot that a telephone call or paging message may have been directed to said mobile stations, said time slot being less than one millisecond in duration and representing less than 128 bits; and

   receiving four time slots of a paging channel and responsively determining whether the mobile station is an intended recipient of a telephone call or paging message.

Id. at 26:2-16 (emphasis added).

WiAV argues that "time slot" as used in the claims is consistent with its dictionary meaning. (Pl. Br. at 10.) WiAV begins with the proposition that the Federal Standard 1037C, Telecommunications: Glossary of Telecommunication Terms defines a time slot as: (1) "[p]eriod of time during which certain activities are governed by specific regulations," and (2) [a] time interval that can be recognized and uniquely defined." WiAV further argues that, here, the "regulations" are communications protocols that "uniquely define" the time slots so the devices can "recognize" them. While the words of the claim do not
contradict this construction, there is no intrinsic evidence to support such a construction.

The Defendants correctly assert that the language of the claims place two important limitations on the construction of the term "time slot." First, the time slot must be transmitted by a "wireless communication system operating in accordance with the GSM standard." '920 Patent at 25:38-40; 26:1-4. Second, the time slot must be "less than one millisecond in duration and represent[] less than 128 data bits." Id. at 25:40-42; 26:9-11. Both of those limitations are found directly in the claims. And, the first limitation, which shapes the Defendants' construction, is described further in the specification.

2. Specification

The term "time slot" appears throughout the specification. When described in accordance with the GSM standard, 2 the specification provides:

FIG. 2 illustrates wireless communication signal data transmitted by a base station 104 and structured in data frames, sometimes called time-division multiple access (TDMA) frames, according to the GSM standard. The GSM specification provides eight time slots (or physical channels) in each 200 kHz radio channel. An entire data frame has a duration of 4.615 milliseconds. Each time slot has a time length of 577 microseconds (4, 615/8=577). Because a mobile station 106 may use only one time slot in any data frame, it must transmit information within 577 microseconds.

'920 Patent at 7:40-50 (emphasis added). Additionally, the specification incorporates a textbook, "An Introduction to GSM" into the specification by reference. Id. at 17:1-4 ("See … Siegmund M. Redl, et al., An Introduction to GSM, 40 (1995) which is hereby incorporated by reference herein in its entirety."). The Redl textbook provides:

Considering that the GSM channel spacing is 200 kHz, it would be rather wasteful for a system not to subdivide this resource any further, since regulatory bodies and operators continue to strive for increased efficiency in the use of spectrum. To achieve this, the GSM system makes use of TDMA techniques, with which each frequency channel is further subdivided into eight different time slots numbered 0 to 7.

Ex. F at WIAV000612 (emphasis added). ) The Defendants' construction is well-supported in the embodiments described in the specification as well as Redl's general description of a time slot operating within a GSM system.

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2 The GSM standard is the only standard described in the specification.

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WiAV takes issue with the Defendants' construction for two reasons. First, the Defendants' construction, WiAV argues, seeks to limit the term to a preferred embodiment, a practice which the Federal Circuit repeatedly has cautioned against. It is correct that the limitations suggested by the Defendants appear in the embodiments, but it is clear that those limitations are general ones that apply to all systems operated in accordance with the GSM standard. As noted above, Redl's textbook, discussing the GSM system in general terms, supports the Defendants' construction.

Second, WiAV notes that the claimed range for the time slot (less than 1 millisecond) is broader than the exact GSM time slot in the specification, 577 microseconds. '920 Patent at 7:46-48. Because the claim language allows for a longer time range than the exact GSM time range in the specification, WiAV argues that there is a lack of intent to limit "time slot" to the GSM standard. This argument is refuted by both the words of the claims, which show a clear limitation to the GSM standard, and the specification, which describes the invention in terms of the GSM standard alone.

Instead, WiAV asserts that the specification uses the term "time slot" consistently with its dictionary meaning, as reflected in WiAV's proposed construction. For example, WiAV points to Figures 2 and 5, which show that data is transmitted in data frames 202, which are divided into time slots. '920 Patent at Figs. 2 and 5. Significantly, the figures cited by WiAV show that each TDMA data frame is divided into 8 time slots each, which, of course supports the construction that the term is as used in the incorporated Redl textbook and in the specification.
Additionally, WiA V argues that the specification as a whole demonstrates that its construction is correct because the specification provides that "alternative embodiments of the present invention operate using different time slot formats." Id. at 9:66-10:1. WiA V's point here is misleading. When read in context, the cited passage merely explains that the data transmitted within each GSM time slot may be packaged in different formats, such as a normal burst, synchronization burst, or other variation. The time slots themselves, however, are as set forth in the GSM standard alone.

3. Prosecution History

There is a significant dispute between the parties regarding the appropriate interpretation of the prosecution history. WiA V argues that the prosecution history shows that "the USPTO [] refused to limit 'time slot' to a specific format or protocol." Under WiA V's assessment of the prosecution history, Claim 34 of the '920 Patent was rejected over Raith. (Pl. Ex. 7 at 7-8.) Nevertheless, WiA V contends, the USPTO concluded that Raith disclosed a "time slot" and rejected the claims. (Pl. Ex. 7 at 7 - 8.) Thus, says WiA V, the ordinary meaning (as set out in the dictionary definition discussed above) of the term "time slot" must have been applied by the Examiner in rejecting the claim and should be applied now.

The Defendants' analysis of the patent rejection is quite different. They assert that the Examiner concluded that it was the GSM system, rather than Raith, that disclosed a time slot according to the claims. Thus, under the Defendant's view, the prosecution history actually provides very little support for the broad construction of the term "time slot" urged by WiA V. And, the Defendants argue, the applicant disclaimed all non-GSM systems during prosecution when it distinguished prior art that did not use the GSM standard. For example, in a June 17, 1999 response to the Examiner, the applicant wrote that the "radio communication system disclosed in Raith I is not … a communication system in accordance with the GSM standard … Rather than being based on GSM, the system disclosed in Raith I relies on radio channels in accordance with the IS-54B standard." (Def. Ex. D at WIA V0020096.) This indicates that the '920 Patent is, in fact, a system that operates under the GSM standard. That, in turn, would mean that the time slots within that system must also operate within the GSM standard.

4. Proper Construction of "Time Slot"

Overall, the Defendants' construction is consistent with the intrinsic evidence and will be adopted. To begin, WiA V's very approach to construction is inconsistent with the Federal Circuit's teaching in Phillips. There, the Federal Circuit assessed an earlier-decided case, Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002). In Texas Digital, the Federal Circuit explained that a court must consult the patent's specification and prosecution history to determine if the patentee used "the words [of the claim] in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition." Phillips, 415 F.3d at 1319 (citing Texas Digital, 308 F. 3d at 1204.) The Phillips court called the Texas Digital approach into question, noting that it placed too much emphasis on extrinsic sources, such as dictionaries, and too little emphasis on the specification and prosecution history. Phillips, 415 F.3d at 1320. The Federal Circuit wrote:

In effect, the Texas Digital approach limits the role of the specification in claim construction to serving as a check on the dictionary meaning of a claim term. . .That approach, in our view, improperly restricts the role of the specification in claim construction.

Id. The Texas Digital approach, the court added, creates the risk that the claim term will be defined out of context, resulting in an "unduly expansive" construction. Id. at 1321. Rather, the Phillips court stated, a court should "focus[] at the outset on how the patentee used the claim term in the claims, specification and prosecution history, rather than starting with a broad definition and whittling it down." Id.

WiA V uses the approach rejected by Phillips by beginning with a dictionary definition and selectively examining the specification and prosecution history as a "check" on that definition. Doing so assigns too limited a role to the specification and ignores how the words of the claims and specification would be read by a person of ordinary skill in the art in the context of the patent.

Not only is WiA V's approach questionable, but its proposed construction is not supported by even the extrinsic evidence offered. For example, WiA V offers no support that a time slot is a "basic unit." This terminology does not appear in the
intrinsic or extrinsic evidence. Rather, WiAV's construction appears to be an amalgamation of definitions spliced together and supplemented by WiAV to suit its own needs.

The Defendants' construction, on the other hand, is well-supported by the intrinsic evidence. First, the words of the claims indicate that the wireless communication system, of which the time slot is a part, must operate in accordance with the GSM standard. And, the intrinsic evidence leaves no real question as to what "time slot" means within a GSM system. The GSM standard, according to the specification, requires each data frame to contain eight time slots for each 200 kHz radio channel. And, each of those time slots are 577 microseconds. Those requirements are consistent with the time slot described in the Redl textbook and made a part of the specification. Thus, "time slot" will be construed to mean: one of 8 physical channels in each time-division multiple access (TDMA) frame of a 200 kHz GSM radio channel.

2. "time slot assigned to each of said application programs"

Claim 1 also requires that the remote units receive messages from the master unit and respond in a "time slot assigned to each of said application programs." The parties' dispute concerns whether the "assignment" function must occur at initialization of the application program (the defendants' construction) or whether it may occur at any time. The plaintiff argues that the defendants' construction is inconsistent with the disclosure because the remote units can request additional time slots during data transmission, which is after initialization. See '819 patent, 2:18-26, 3:7-11. The defendants argue that the specification repeatedly discloses time slots assigned to applications at initialization. See '819 patent, 2:46-49, 5:42-43, Fig. 6, Fig. 7.

Although the specification refers to the assignment of time slots during initialization, there is nothing in the patent that requires the claims to be limited in this manner. The court construes "time slot" to mean "an interval of time during which data from an application program is transmitted." All other terms have their plain and ordinary meaning.

I

A single claim limitation, common to both patents, is dispositive of this appeal. Each patent sets forth an independent first claim followed by two dependent claims. Claim 1 of the '589 patent reads as follows in pertinent part:

A dynamically reconfigurable time-space-time (DRTST) switching system for use in conjunction with a high speed transmission media which conveys a plurality of time division multiplex (TDM) channels within a repeated frame of data, comprising:

... a time-space-time (TST) switch having a space switch including a plurality of inlet ports and a plurality of outlet ports each having a memory;...

Claim 1 of the '907 patent contains essentially the same preamble and also requires "a TST switch connected to receive said channels of data from the first line terminating unit at the inlet ports thereof." Both patents share the same written description, and the '589 patent is a continuation of the '907 patent. Consequently, the district court determined that a common construction of the TST switch limitation for both patents was appropriate.

The district court construed the TST switch limitation to require a three-stage switch. The first and third stages are time switches, which allow a change in the time slot occupied by a channel of data within a frame of channels. The first and third stages include the ports of the TST switch, with each port having a memory. The second stage is a single-stage space switch, which performs a change in the physical transmission path of a channel. To reach that construction of the TST switch
limitation, the court relied primarily on the sole embodiment of the invention set forth in the written description and illustrated in figure 3 of each patent. Although the written description refers to TST switches and systems disclosed and claimed in several other patents, the court declined to consider the teachings of those patents to ascertain the meaning of the term as used in the '589 and '907 patents or as understood by a person skilled in the telecommunications art.

In construing the TST switch limitation, the district court properly consulted the written description and figure 3 of the patent. See, e.g., CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1153, 42 U.S.P.Q.2d (BNA) 1577, 1583 (Fed. Cir. 1997). The written description and the drawing, however, do not suggest that Collins was using the term "TST switch" in a special manner in the two patents. In particular, nothing in the claims, descriptions, or drawings of the '589 and '907 patents requires limiting the TST switch to a single-stage space switch. Nor does any point of novelty or asserted advantage of the Collins inventions depend on the TST switch having a single-stage space switch. Accordingly, the normal rule of construing patent terms as persons skilled in the art would understand them applies in this case.

Even when prior art is not cited in the written description or the prosecution history, it may assist in ascertaining the meaning of a term to persons skilled in the art. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584, 39 U.S.P.Q.2d (BNA) 1573, 1578 (Fed. Cir. 1996). When prior art that sheds light on the meaning of a term is cited by the patentee, it can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning.

The '589 and '907 patents note that "system improvements attainable with time division transmission and switching techniques are very significant, and have resulted in the development of TST switches and systems described and claimed in, for example, U.S. Pat. Nos. 3,925,621; 3,956,593; 4,005,272; and 4,038,497." '589 patent, col. 2, ll. 1-6. The cited patents indicate that switches with time-switch inputs and outputs and with multiple intermediate space switches are referred to as TST switches, even though such structures can also be called, for example, TSSST switches. Based on the way the term "TST switch" is used in those patents, and the absence of any indication in Collins's patents or in their prosecution histories that the term was meant to have a different meaning in the '589 and '907 patents, we agree with Collins that the TST switch limitation allows a multiple-stage space switch, rather than just a single-stage space switch.

Collins presses its argument farther and urges us to adopt a broader construction that would allow any combination of intermediate stages that includes at least one space-switch stage and that would allow a space switch to contain additional structure for time translation. The evidence, however, does not support that construction. The prior-art patents indicate that a space-switch stage is just that -- a structure that provides space translation without time translation -- and therefore contains no structure used for time translation, such as memory for channel storage.

Regarding the intermediate stages, we adopt the meaning of TST switch that is used in the patents referred to in the written description, which appears to be the meaning given the term by a person skilled in the art. Thus, we construe the TST switch limitation to mean a structure with time-switch input and output stages, and with one or more intermediate space-switch stages containing only structure for space translation.

Claim 1 of the '589 patent further requires each of the inlet and outlet ports of the TST switch to have a memory. The written description states that "with N bi-directional links, there will be 2N memories," '589 patent, col. 5, ll. 26-27, indicating that the memory associated with each port of the TST switch is a distinct structure, which is "sized to store one frame . . . that will be accessed at one switch port," id., col. 3, ll. 31-33. The district court construed the '907 patent to require the same individual-memory structure, even though the '907 patent does not contain the additional claim language found in the '589 patent regarding individual port memories. The Collins patents -- one a continuation of the other -- use an identical written description, and the prior-art patents cited by the written description disclose TST switch embodiments that all use individual port memories. For those reasons, it may be appropriate to apply the additional limitation to the '907 patent as well. Nortel, however, has not argued that the individual-memory requirement applies to the '907 patent, and we need not reach that issue for purposes of this appeal.
the time when cellular telephone signals were received at the cell site." (144 patent, col. 5, ll. 15-18)

1. "time-division multiplexed bus"

The first term for construction is "time-division multiplexed bus." The plaintiff argues that the term means "a bus having a
bandwidth partitioned into regular time slots, that is shared by two or more sources of data by limiting each source's transmission opportunities to discrete intervals of time. The defendants argue that the term means "a group of one or more conductors that is shared among several users by allowing each user to use the bus for a given period of time in a defined, repeated sequence." The parties appear to agree that a bus allows different sources of data to share bandwidth. The principal dispute is whether the transmission sequence must be a "defined, repeated sequence."

The defendants cite to portions of the specifications that refer to repeated frames for a fixed portion of the TDM bandwidth. See '858 patent, 4:56-57, 5:21-6:5. In addition, the defendants point to extrinsic evidence. See The New IEEE Standard Dictionary of Electrical and Electronic Terms, at 1377 (5th ed. 1993). The plaintiff argues, however, that by limiting the transmission sequence to be a "defined, repeated sequence," the defendants' construction would exclude a preferred embodiment where data sources are skipped when they have no data to send. See '858 patent, Fig. 6, 7:25-9:15.

The court agrees that the patent discloses an embodiment where certain data sources are skipped when they have no data to send. For this reason, the "defined, repeated sequence" more appropriately describes the frames for the fixed portion of the TDM bandwidth. So viewed, the court agrees that the frames are arranged in a "defined, repeated sequence." Accordingly, the court construes the term to mean "a bus having a bandwidth partitioned into a defined, repeated sequence of time slots, that is shared by two or more sources of data by limiting each source's transmission opportunities to discrete intervals of time."

Hidden time-shared set of log-in information

In this phrase, the words "hidden" and "time-shared" are two separate modifiers to the claim term "set of log-in information," which the Court defines in a later section.

MyMail asserts that "hidden" means "not easily accessible to the user." Defendants assert that it means "unknown and inaccessible to the user." Because "hidden" is a normal, non-technical word, the Court notes that the definitions proposed by MyMail and Defendants are correct. Since the patent defines "hidden" as "not easily accessible to the user," the Court will adopt MyMail's definition. Col 18:25.

MyMail proposes defining "time-shared" as "usable by multiple NSPs or multiple users during a period of time," while Defendants propose defining it as "allocated to multiple users each for a separate period of time." The Court adopts Defendants' construction. "Time-shared" is a word familiar to those in the computing field. The Microsoft Press Computer Dictionary defines time-sharing as running separate programs concurrently by interleaving portions of processing time allocated to each program user. See MICROSOFT PRESS COMPUTER DICTIONARY (3d ed. 1997). Put simply, computer time-sharing is analogous to condominium time-sharing, where many lessees each take turns occupying a vacation property for a fixed period of time. Defendants' definition better reflects the meaning of time-shared, as understood by one skilled in the art.

"Timer" and "timing signal corresponding to the application of electrical energy"

At oral argument, the court proposed definitions for "timer," which appears in Claims 1 and 9, and "timing signal," which appears only in Claim 1. The court proposed that a "timer" is a "device or component capable of measuring time and capable of producing output corresponding to its time measurements," and that a "timing signal corresponding to the application of electrical energy" is a "signal that the timer produces corresponding to the elapsed time of a defibrillator shock pulse or phase of a pulse." These definitions are derived from the three paragraphs in the specification that discuss the timer. 212 Patent at 7:3-31. The parties seemed to accept these definitions when the court proposed them. In any event, they offer no compelling evidence in support of different definitions.
The court notes that the specification describes the timer as capable of cutting off a defibrillator pulse when it receives information from another device indicating that the pulse voltage or current has dropped below a threshold value. 212 Patent at 7:12-15, 7:29-31. Defibtech suggested at oral argument that the "timer" of Claims 1 and 9 requires such a capability, but the court finds no indication that the inventors intended such a limitation on the claimed timer.

Microsoft argues that timeslice has a different meaning in the context of periodic multithreading, which is the subject of plaintiff's patents, and priority-based multithreading, which is the method utilized by other forms of multithreading, including some prior art that plaintiff distinguished during prosecution. Microsoft argues that in priority-based multithreading, a timeslice is the maximum amount of time a thread may run without being interrupted and preempted. If a higher priority thread is ready to run during the timeslice, the lower priority thread will be interrupted. See Def Br (Doc # 310) at 17. In periodic multithreading, however, Microsoft argues that a timeslice is a fixed length of time during which a thread operates before it is interrupted.

Microsoft's construction is supported by the language of the patents and their prosecution history. Towards the end of his patent prosecution, in order to overcome prior art (the "Cheriton" reference), plaintiff vigorously argued to the patent office that his form of multithreading was novel and distinct, because in plaintiff's invention the timeslice during which a thread may operate was a fixed length of time.

In Cheriton the timing of preemption of the active process occurs at variable non-predetermined times whenever another process, having a higher priority than the active process, happens to become "ready" (for execution), and this event is neither predetermined nor predictable

In applicant's invention preemption of a currently executing thread occurs at fixed predetermined time intervals at the expiration of its current execution timeslice of fixed predetermined duration.

This interpretation of timeslicing is buttressed by plaintiff's specification. Plaintiff argues that the editor in his preferred embodiment may be interrupted before its timeslice has run and, therefore, that "timeslice," as used in the claims, refers to a maximum period, not a necessary period, during which a thread may run. Besides conflicting with the prosecution history, however, this interpretation conflicts with plaintiff's description of his embodiment. The (single) paragraph discussing timesliced preemption in the patents' written description refers only to "the interrupt which causes control of the CPU to pass from the compiler to the editor." '603:13:8-9; '604:10:3-4. The patents' description does not even mention the possibility that the editor may be interrupted before it has processed the keystroke.

At the claim construction hearing, when asked for support in the patents for the claim that the editor could be interrupted before completing its task, plaintiff's counsel cited the last sentence of the patents' timesliced preemption paragraph, which states: "For most applications clock interrupts at intervals of about ever 10 to 30 milliseconds should be frequent enough to keep up with the keys struck at the keyboard." '603:13:17-20; '604:10:11-14. Plaintiff argues that this sentence indicates that the editor too may be interrupted at intervals of 10 to 30 milliseconds. This interpretation, however, is contradicted by the preceding language of this paragraph. After noting that the compiler may be interrupted and the input port polled to determine if a key has been struck, the patents state that if a key has not been struck,

   the interrupt is terminated and control returns to the compiler. If polling the port reveals that a key has been struck then the interrupt service routine editor takes control and is executed in the manner described in the above embodiment.


The description of the editor's execution in the above embodiment does not provide a mechanism by which the editor may be interrupted. As a result, the court concludes that the proper construction of timeslice is the fixed, predetermined length of
time during which each thread is given uninterrupted control of the CPU, at the expiration of which the executing thread is preempted in favor of another thread.

2. "timing characteristic"

Both parties appear to agree that the prosecution history provides guidance on the proper construction of this term. In the prosecution history, the examiner requested clarification of the phrase "timing characteristic." Response to Office Action, Oct. 14, 1994, at 2. In response, the applicant stated that "timing characteristic" was "used in its normal sense with respect to the memory signals . . . " and that it "may pertain to the memory signal itself or may pertain to a timing relationship between two signals." Id. 2-3. The applicant also gave examples of timing characteristics which include "the time duration (active time) of a memory signal and the elapsed time between a predefined event in a first memory signal and a predefined event in a second memory signal . . . " Id. The applicant, however, explicitly states that "the present invention is not limited to these examples . . . ." Id.

The plaintiff contends that no construction is needed and argues that the phrase is not limited to memory signals nor does it mean anything other than a characteristic related to timing. The defendant proposes "either the time between events in a single signal or the time between corresponding events in two signals," and contends that the term cannot have a plain and ordinary meaning if the examiner requested clarification.

The Court agrees with the defendant's argument. The examiner's request for clarification implies that the term was not understood according to its plain and ordinary meaning. When the examiner allowed the claim based on the applicant's clarification, the applicant implicitly limited the term to what was stated in that clarification. The defendant's proposed construction, however, is too limiting because it limits the term to specific examples listed by the applicant. The sentence prior to the specific examples provides the appropriate guidance for this construction. It states that the timing characteristic "may pertain to the memory signal itself or may pertain to a timing relationship between two signals." Response to Office Action, Oct. 14, 1994, at 2. Accordingly, the Court construes "timing characteristic" to mean "characteristic related to the timing of a signal itself or to the timing relationship between two or more signals."

3. Claim Construction

When construing an asserted claim, the court should first look to intrinsic evidence, namely the patent itself - including the claims and the written description - and, if in evidence, the prosecution history. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). In this case, the main issue is whether the accused devices contain a "timing circuit" as claimed in the '009 patent. The district court interpreted the meaning of "timing circuit" in the following way: "a timing circuit is a circuit [assemblage of electronic components] which controls the duration of the connection between the power source and the lights after the switch closes. A predetermined time means a reasonably predictable, as opposed to random, time after the switch closes. A predetermined time means a reasonably predictable, as opposed to random, time after the switch closes. The timing circuit is not limited to integrated circuits."

The written description of the '009 patent describes the timing circuit as being responsive to the transition of the switch from "off" to "on" state to turn off said light source after a predetermined illumination duration and to prevent re-illumination of said light source until a further "off" to "on" transition of said switch. Thus . . . the light cannot be on continuously but only for a predetermined interval after the switch goes to "on" state. The battery life is thus prolonged and an exciting flashing effect is produced.

'009 patent, col. 1, ll. 24-34 (emphasis added). The prosecution history of the '009 patent indicates that the purpose of the timing circuit is to provide an automatic turn-off of the light source, regardless of whether the switch is in the "on" or "off" state, to prolong battery life. In the original application, the claims did not include a timing circuit. The PTO rejected all the
claims under 35 U.S.C. § 102(a) "as being anticipated by Dana III (European 121,026). It is inherent that the mercury switch is selectively connecting and disconnecting the light source by the motion of the wearer." Rodgers amended the claims 4 to include a circuit that was "designed to connect the light source to the power source responsive to switch transition to 'on' state but further adapted to disconnect the power from the battery a predetermined time after transition." The inventor went on to distinguish his invention by stating that "the claimed invention thus provides motion responsive shoe illumination where the automatic turn-off allows the shoe to be stored in any attitude without risk of running down the battery and provides prolonged battery life."

--- Footnotes ---

4 Claim 8 in the application was issued as claim 1 of the '009 patent; the claims were nearly identical in Rodgers' office response. The only difference is that the final claim element in claim 8 - corresponding to the timing circuit limitation in claim 1 of the '009 patent as issued - requires "said circuit being adapted to disconnect said power source from said light source a predetermined time after said transition."

--- End Footnotes ---

This claim was rejected as being obvious; the examiner stated that "Dana III (U.S. 4,158,922) shows that it is old to use a switch which alternated 'off' and 'on' to turn the light on and off." Rodgers then added the timing circuit element, explaining that "the independent claims have been amended to expressly refer to a timing circuit. . . . the cited art does not show such a timing circuit and applicant's claimed invention prolongs battery life, is energy efficient and allows encapsulation." Thus, in order to overcome Dana III, Rodgers explicitly distinguished the process of extinguishing the illumination through the use of a timing circuit from extinguishing illumination through the use of a switch which alternated between "off" and "on."

Based on the written description and the prosecution history of the '009 patent, we interpret "timing circuit" within the context of the '009 patent to be an assemblage of electronic components that cuts off the power to the light source a predetermined time after a switch, responsive to the motion of the footwear, transitions between the "off" to the "on" state. The timing circuit cuts off the power to the light source regardless of the position of the switch, i.e., if the switch remains in the "on" position, the light source will be disconnected from the power source, preventing battery exhaustion.

--- 4501 ---

Subparagraph (b)(iii) of 16 states:

a timing module having an input coupled to said trigger output of said resistive switch, a control output coupled to said generator control input and an arm/ disarm output coupled to said arm/ disarm input of said resistive switch.

This claim will be construed as: a specific distinct timing module having an input and two outputs. The input is connected to the trigger output of the resistive switch. A control output is connected to the high voltage generator control input. An arm/ disarm output is connected to the arm/ disarm input of the resistive switch.

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Lastly, the last clause of subparagraph (b)(iv) states:

said timing module disarms said trigger circuit of said resistive switch upon said activation of said timer module until said timer module is reset.

This clause will be construed as: the timing module has an output that is coupled to the trigger circuit of the resistive switch to disarm the trigger circuit until a power on reset signal re-enables or re-sets the timing module.
4503

4. "timing parameter"

The plaintiff proposes that no construction is required because the term can be understood according to its plain and ordinary meaning. The defendant proposes "the selectable values which are used to control the timing characteristic of the memory signals."

The plaintiff contends that the defendant's proposal simply repeats limitations already in the claim, i.e., selecting values and controlling the timing characteristic of memory signals. The defendant, on the other hand, points to the prosecution history where, in response to a rejection, the applicant stated that "timing parameters . . . are the selectable values which are used to control the timing characteristics of the memory signals." Response to Office Action, Oct. 14, 1994, at 3. In reply, the plaintiff argues that this statement does not dispositively indicate that the applicant intended to use the phrase in a manner inconsistent with its ordinary meaning.

The Court agrees with the plaintiff that the defendant's proposed construction simply restates limitations already in the claim. The last portion of the claim specifically states that the timing control signal controls "the timing characteristic" of the memory signals. The claim language and the specification provide the proper guidance for construing this term. Claim 7 states that a timing control signal is generated "in response to the selected timing parameter." '924 patent, 10:38-40. The specification also states that the timing parameters are converted into timing control signals by the timing control units. '924 patent, 3:47-52. In light of the claim language and the specification, "timing parameter" means "value used to generate timing control signals."

4504


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4505

a. "Timer" and "timing signal corresponding to the application of electrical energy"

At oral argument, the court proposed definitions for "timer," which appears in Claims 1 and 9, and "timing signal," which appears only in Claim 1. The court proposed that a "timer" is a "device or component capable of measuring time and capable of producing output corresponding to its time measurements," and that a "timing signal corresponding to the application of electrical energy" is a "signal that the timer produces corresponding to the elapsed time of a defibrillator shock pulse or phase of a pulse." These definitions are derived from the three paragraphs in the specification that discuss the timer. 212 Patent at 7:3-31. The parties seemed to accept these definitions when the court proposed them. In any event, they offer no compelling evidence in support of different definitions.

The court notes that the specification describes the timer as capable of cutting off a defibrillator pulse when it receives information from another device indicating that the pulse voltage or current has dropped below a threshold value. 212 Patent at 7:12-15, 7:29-31. Defibtech suggested at oral argument that the "timer" of Claims 1 and 9 requires such a capability, but the court finds no indication that the inventors intended such a limitation on the claimed timer.

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4506

3. Titanium Film Containing Nitrogen Atoms

A "titanium film containing nitrogen atoms" is a thin titanium layer with nitrogen atoms. It may be a composite film
including a thickness with a substantial nitrogen concentration and a thickness with little or essentially zero nitrogen concentration. It may include titanium nitride at some point in its thickness.

1. Titanium Nitride

Titanium nitride is a compound with a one-to-one ratio of titanium atoms to nitrogen atoms.

L. "To," "From" and "Through"

Rejecting the parties' arguments that "to," "from" and "through" should be specifically construed, the magistrate judge recommended that the terms "should be given their generally understood and customary meanings." First Report at 6. Visa objects to the magistrate judge's recommendation, seeking claim construction. Def. Obj. to First Report at 10. Visa contends that "to" should be construed to mean "directly arriving at and not by way of another named party unless otherwise recited in the claim; i.e., having a destination address of." Id. Visa proposes that "from" be defined as "originating from the sender [of the transmission], who is; i.e., having a source IP address of." Id. "Through" should be construed to mean "by way of a second transmission originating with a party with the source address of." Id. After proposing these definitions in place of the magistrate judge's reference to the ordinary and customary meaning of the terms, Visa states its belief that in the context of the '878 patent, Visa's proposed construction are the same as the generally understood and customary meanings of the words "to," "from," and "through." Visa concludes by stating that it proposed its constructions "in order to eliminate any possible ambiguity." Id.

The Federal Circuit reiterated in Phillips that words of a claim "are generally given their ordinary and customary meaning." Phillips, 415 F.3d at 1312 (quoting Vitronics Corp., 90 F.3d at 1582. Ordinary and customary meaning is "the meaning that the term would have to a person of ordinary skill in the art at the time of the invention[.]") Id. at 1313. "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." Id. at 1314. This is just such a case. Moreover, the court agrees with Plaintiffs that Visa's proposed definitions are "remarkably detailed" and that Visa is attempting to "import[ ] very specific and lengthy technical definitions[ ] onto these "simple phrases." Pl. Reply to Def. Obj. to Second Report at 6. Finally, Visa admits that its proposed construction are the same as the generally understood and customary meanings of the words "to," "from," and "through" and that it is merely seeking to avoid any ambiguity. Def. Obj. to First Report at 10. Accordingly, the court determines that the magistrate judge correctly concluded that "to," "from" and "through" "should be given their generally understood and customary meanings." First Report at 6. Accordingly, the court overrules Visa's objection.

6. The term "to a monitor mode" should be interpreted as follows: "to the point the microprocessor is executing a line of code as part of the program."

2. "to a television set"

The plaintiff contends that the term "to a television set" as used in claim 8 of the '094 Patent means to a television set or a receiver for a television set. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that the term means
that the broadcast must be directly to a television set and not to any component residing outside of a television set. Id.

Although the plaintiff argues that its construction comports with the ordinary meaning of the phrase "to a television set," Broadcast's Opening Claim Construction Brief at pp. 18-19, where does the additional language of "or a receiver for a television set" have its origin? According to the plaintiff, the specification describes an embodiment in which receiving and decoding are accomplished by a set top box or receiver connected to the television, and not by the television set alone, pointing to the following:

In conceptual terms, the database receiver at a receiver station generally comprises decoder means, receiver processing means, memory means, input means and means for communicating selected database data.

'094 Patent, col. 4, lines 43-46.

The defendants argue that the doctrine of claim differentiation precludes the plaintiff's proposed construction. The doctrine of claim differentiation provides that when a limitation is included in several claims but stated in terms apparently different in scope, "there is presumed to be a difference in meaning and scope. . . ." Tandon Corp. v. U.S. Int'l Trade Comm., 831 F.2d 1017, 1023 (Fed. Cir. 1987).

In support of their claim differentiation argument, the defendants point out that while claim 8 limits a broadcast "to a television set," claim 22 concerns the receipt of broadcast data by "a communications device such as a personal computer or television or set top box adapted to receive a data stream. . . ." Similarly, claim 29 concerns the broadcast of a carrier signal to "a user."

When the inventors meant to be expansive in describing various receptors of a broadcast, they used expansive language, including receipt by "a personal computer or television or set top box," '094 Patent, col. 23, lines 17-19, and receipt by a "user." Id. at col. 24, lines 14-15.

The plaintiff argued for the first time at the Markman hearing that the use of different language can be explained by the fact that claim 8 concerns broadcasting information, not receiving it, and therefore less thorough language was used. Claim 22, the plaintiff argues by distinction, concerns receiving broadcast information, and there the more expansive language of receipt "by a personal computer or television or set top box" is used. Record, pp. 35-37. The difference in language can be explained by the different purposes of the claims. But as the defendants countered at the Markman hearing, the inventors used the most expansive language of all--broadcast "to a user"--in claim 29, a claim dealing with broadcasting, like claim 8, and not with receiving a broadcast. Record, pp. 77-78.

The plaintiff has presented no evidence to rebut the presumption that the use of different and far more restrictive language in claim 8, concerning broadcasting "to a television set," was not intentional. Modine, 75 F.3d 1545, 1551. Applying the doctrine of claim differentiation, I agree with the defendants, and I construe the term "to a television set" as used in claim 8 to mean directly to a television set and not to any component residing outside of a television set. I reject the plaintiff's position that "to a television set" includes also to a receiver for a television set. GO BACK

4511

3. "To Allow the Device to Withstand Relatively High Breakdown Voltages"

13. IXYS asserts that the language "to allow the devices to withstand relatively high breakdown voltages" requires that the claimed base profile increase breakdown voltage over the same device structure without a deep base portion.

14. It is the case that the claim is directed to base structures that improve the ability of the base to withstand breakdown. The specification states that the "lower portion" of the lightly doped material has a thickness and resistivity selected to withstand the desired breakdown voltage -- "The lower portion has the high resistivity desired to produce high reverse voltage ability, and will have a depth dependent on the desired reverse voltage for the device." ('699 patent, 2:17-19.) Thus, in testing whether or not the deepened base portions have the effect of improving breakdown voltage, it is important to keep the "lower portion" -- the portion of the device between the lowest extent of the base-drain junction and the high conductivity
"drain conductive region" -- constant in terms of its thickness and resistivity. If that is done, and for a given voltage applied across the device, the claimed base structure should have reduced peak electric fields, and hence reduced susceptibility to breakdown, than the same device (i.e., a device having the same thickness and resistivity of the material beneath the base) without the deepened base portion.

15. A MOSFET or IGBT will breakdown at the point of the structure with the greatest susceptibility to breakdown. This could be in the center of the chip, or it could be at the edge, or it could be at the substrate, or it could be somewhere else on the chip. The invention is directed to a structure that improves the breakdown voltage performance of one portion of the device -- the base-drain junctions near the top surface of the active area. Design decisions concerning other aspects of the device (such as the edges or the substrate) will not detract from improvements in breakdown performance at the base-drain junction, even if those other design decisions result in the device breaking down at points away from the base-drain junction.

16. The use of guard rings and field plates to improve breakdown performance at the edge of a chip was well known in the art in 1978. The '699 patent refers explicitly to a field plate: "Source electrodes 22 and 23 can be laterally extended as shown to serve as field plates to help spread the depletion region created during reverse voltage conditions." ('699 patent, 3:55-59.) The use of guard rings and field plates to improve breakdown voltage at the edge of the chip is not inconsistent with the use of deepened base regions to improve breakdown voltage in the active area.

17. For these reasons, this claim limitation is properly construed to permit improvements in breakdown performance of the base-drain junction, even in designs where breakdown first occurs in other locations of the device.
4513

Element (d) of Claim 1 is also subject to claim construction: "a remote control system … for permitting a viewer of said television to direct said microcontroller to perform a search on at least said updated television programming information contained in said RAM of said microcontroller. ..." Gemstar and the Defendants agree that the phrase "to perform a search" means that the viewer would direct the microcontroller to retrieve all of the desired programming information of a particular type, e.g., all sports programs or all movies. SuperGuide maintains the phrase means to retrieve at least a subset of the programming, i.e., an examination of less than all the records in RAM. The specification provides:

If the viewer wished to view a subset of the information, e.g., the television program schedule for the day, the viewer, through a different set of code signals which might include the direct keying of the date on the handheld remote control unit 32, could then direct the microcontroller to output only a part of the information stored in the microcontroller RAM. Likewise, if the viewer wished to see a listing of the sports events being shown on television on a particular day, the viewer could direct the microcontroller to search through the information in the RAM and retrieve only the requested information.

... The next command of the viewer at 105 might indicate whether the viewer wished to see all of the information contained in the RAM, e.g., a complete dump of the RAM, or whether a subset of that information was desired. ... In this manner, the microcontroller would perform the function of a microprocessor in performing a search on the information contained in the RAM and determining, for example, a listing of all the television movies that are to start between 6 and 11 P.M. on a particular date.

Reiter '578, at Col. 5 ll. 16-27, 67-68; Col. 6 ll. 1-3, 17-21 (emphasis added). It is clear from the language of the claim and the specification that the search is of all the information contained in the RAM in order to produce the subset of data specified by the viewer. In addition, the invention envisioned the storage of information unrelated to television programming, such as local movie times, in the RAM. Id., at Col. 5 ll. 37-49 ("The invention envisions that additional information other than television scheduling information may be contained within the RAM of microcontroller 60."); Col. 6 ll. 60-68. Thus, the claim provides that the search will be conducted on "at least said updated television programming information." The Defendants' construction is therefore the appropriate one. The phrase "to perform a search" means a user-directed examination by the microcontroller of all the television programming information stored in the random access memory of the system and the retrieval of a subset of that information which meets the criteria specified by the user for display on the television set.

4514

b. Processing ... an electronic payment ... from the user "to the one of the multiple institutions" to which the form is directed.

Plaintiff asserts Defendant's XAP System meets this limitation because the XAP System processes a payment to an institution. Defendant, however, contends the phrase "to the one of the multiple institutions" in this limitation necessarily requires the direction of any form to multiple institutions. Because Defendant's XAP System does not direct forms to multiple institutions, Defendant argues the XAP System does not meet this limitation.

The Court agrees with Plaintiff that Defendant misinterprets this phrase and that the words "to the one of" unambiguously describe a system by which a form associated with an electronic payment is sent to one of multiple institutions. Contrary to Defendant's position, this limitation does not require a system that allows a form to go to multiple institutions.

4515

Token
Digital Reg contends "token" should be construed as "a file indicating whether access should be granted." Defendants contend "token" should be construed as "A file indicating whether the transaction has been approved; i.e. whether the object should be installed and access granted. The token is not stored on the client." Thus, the parties dispute whether a token indicates whether a transaction has been approved and whether a token must not be stored on the client.

To support their constructions, both sides point to the same part of the specification. The specification states:

"Upon receiving a message from the authorization center indicating either acceptance or rejection of the transaction, the payment server transmits a "token" back to the client computer. The token is a file indicating whether the transaction has been approved, i.e. whether the objection should be installed and access granted. If the token indicates approval, the token causes the client computer to execute the install process discussed previously, wherein, for example, a unique coded key corresponding to the object is installed at the client, along with the client machine identification code.

Col. 4:65-5:7 (emphasis indicating what the parties base their arguments on). The statement in the specification that the token indicates approval of a transaction is made in the specific, illustrative context of the execution of a payment transaction. "Token," when read in the full scope of the disclosure, is not limited to a transaction. See col. 3:16-18 (describing that access is regulated through payment transactions or other authorization information); claim 13 ("the token received is based on a result of the authorization procedure"); claim 18 (limiting claim 13 to an authorization procedure that involves a payment transaction). The full disclosure requires only that "token" means "whether access should be granted."

Defendants also contend that the token may not be stored on the client. Defendants rely on the prosecution of claim 3. During prosecution, the applicant stated:

"The token is not stored, but rather is used as a permission at the client to store the unique key. The token, incapable of interception during transmission, exists on the client only long enough to generate the unique key. No longer existing, the token is incapable of being transferred to another client."

Defendants' Markman Brief (Docket No. 238), Ex. B at 134. 2 This was said in response to the examiner's rejection under 35 U.S.C. § 112, P 1 of claim 3, that "the token on which selectively granting access [is based] is not transferable to another client." The examiner then stated, "The specification discloses writing the unique key, i.e. token, to a Windows registry file on page 16. However, the specification does not disclose a method to prevent transfer of the unique key to another client." Ex. B at 133-34.

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - -

2 Exhibit B to Defendants' Markman Brief (Docket No. 238) is the prosecution history. For ease of reference, all cites to the prosecution history will be cited to as "Ex. B at ."

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

Neither claim 1 nor the specification expressly require that the token not be stored. Claim 3 adds a further limitation about how the token is used rather than what the token is. During prosecution, the applicant was clarifying that the token is used at the client and exists at the client long enough for the generation of the unique key. The applicant was clarifying to the examiner that the token and unique key were not the same thing. The token is necessarily stored on the client long enough to generate the unique key. Thus, this statement is not tantamount to a disclaimer that the token should be limited to not being stored. Claim 1 is non-specific and is not written to disclaim storage of the token in the client's registry.

Accordingly, the Court construes "token" as "a file indicating whether access should be granted."
The parties dispute whether a token consists of a four-part data structure. NetApp contends that it does, and Sun proposes a much more general definition of the term. To begin its analysis, the Court first turns to the claims themselves. The term "token" appears in claims 3, 4, 6, 7, 8, 10, 13, 16, 21, 22, 23, and 24 of the '683 patent, and in claims 1, 8, 11, 14, 16, and 18 of the '249 patent. Claims 1, 11, and 16 of the '249 patent state that the host state is a tree structure including elements in a hierarchical relationship, with "the elements being given value by associated tokens, the elements and associated tokens representing hardware and software components of the computer system." '249 patent at 39:5-10, 40:29-33, 40:65-41:3; see also '249 patent abstract. This claim language demonstrates that tokens give value to elements and represent hardware and software components of the computer system. Other claims also reflect that tokens communicate information about elements, but these claims vary in their specificity. See, e.g., '683 patent at claim 6 ("searching the token data base for at least one token that refers to the respective element type"); claim 16 ("at least one token respectively associated with each of the elements"); claims 3 and 21 ("each of the token types having a value of one aspect of the component information and an indication of an association with one of the elements in the static tree"); claim 23 ("at least one token that refers to the respective element type"). While this claim language indicates that tokens communicate information about elements, the claims do not specifically define what a token is. Nor do the claims rule out the possibility that a token may have other attributes, as evidenced by the varying specificity in which different claims discuss the relationship between tokens and the objects to which they refer. For example, claims 3 and 21 discuss tokens having a value of the component information and an association with an element, while other claims merely discuss the reference to an element. The claim language, therefore, neither defines tokens, nor precludes tokens having certain structural components.

Certain claims refer to the constituent parts of a "token." Claim 16 of the '683 patent, for example, refers to the test output value and the identifier of the element. However, as NetApp notes, reference to the constituent parts of a "token" in certain claims does not provide a basis for disregarding a definition provided by the specification. In Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp., 488 F.3d 982, 990 (Fed. Cir. 2007), for example, the Federal Circuit upheld the district court's construction based on the specification, where the specification made clear that the disputed term "look ahead distance" was a function of both speed and time, even though the claim language described a signaling device for "defining a look ahead distance as a function of the speed of the aircraft" only. Id. (emphasis added). In the present case, therefore, even if certain claims only refer to certain parts of the token or describe tokens very generally, the token may still have a four-part data structure if the specification defines "token" to have such a structure. Accordingly, the Court turns to the specification.

NetApp relies heavily on the following definition of "token" in the specification in support of its proposed construction, while Sun disputes that the patentee was acting as a lexicographer in this passage:

In order to extract information from the diagnostic data stream, "token types" are utilized. A token type defines each token to have a token name and a test name. A test name comes from the tests shown e.g., in Table 1 or in Table 2, and indicates which test output contains the information for each token. In addition to a token name and a test name, each token has a label and a value. The label for the token gives the token knowledge about what element the token is associated with, i.e., the parent of the token which is an element. The value of the token provides a value extracted from the diagnostic data that gives value to the element.

'249 patent at 7:10-20; '683 patent at 6:33-43 (emphasis added). NetApp argues that Sun's construction ignores this four-part structure of a token that includes: a name, an identifier of an element (token label), an identifier of a test to be performed on the element (test name), and a test output value (value of the token). In addition, NetApp argues that the following paragraph, which also appears in both patents, provides further confirmation that "token" refers to a four-part data structure:
For instance, assume a disk element exists with a name of "c0t10d0." Assume also that a token exists for such a disk element indicating the number of sectors per cylinder. The name of such a token would be, e.g., "number of sectors per cylinder." The test name in the token would be "vtsprobe" since the output of that test provides the information needed for the number of sectors per cylinder. The label for the token would be "c0t10d0" indicating that token is associated with a particular disk having that name. Finally, the token would have a value which indicates the number of sectors per cylinder.

'249 patent at 7:21-35; '683 patent at 6:44-58 (emphasis added).

The issue here is whether or not this four-part data structure limitation applies to all of the references to "tokens" in the patent claims. Statements that "describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term." C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole are more likely to be found in certain sections of the specification, such as the Summary of the Invention."). Here, the passage describing the four-part structure is not in the summary of the invention. However, while statements that describe the invention as a whole are more likely to be found in certain sections of the specification of the invention, such as the summary of the invention (see id.), they need not be contained in only certain parts of the specification. For example, as NetApp notes, in Sinorgchem Co. v. International Trade Commission, 511 F.3d 1132, 1136 (Fed. Cir. 2007), the Federal Circuit applied the definition of the term "controlled amount" that appeared in the "detailed description of the invention" in the middle of a long paragraph describing embodiments. See Weber Decl, Ex. 1 (U.S. Patent No. 5, 117,063 at 4:48-52). In Sinorgchem, the Court noted that the presence of quotation marks around the claim term strongly indicated that what followed was a definition. See 511 F.3d at 1136.

In the present case, the above passage defines the parts of a token. While the phrase "token" does not appear in quotation marks in this section of the specification, the phrase "token types" immediately proceeding the token term is in quotes, and the passage defines "tokens" in the context of "token types." In addition, the passage explicitly uses the word "defines" when outlining the token's components. Sun argues that the use of "define" has a specific meaning in computer science that refers to the creation of an object or variable in a programming language. Declaration of Dr. Hugh Smith P 38. The same term "define" is used in a computer language sense in another part of the specification. See '249 patent at 9:42-48 ("an element can have a token defined that is the mathematical result of other tokens"). The sentence following the description of the token name and test name, however, states that "[i]n addition to a token name and a test name, each token has a label and a value," which indicates that the term "define" is used according to its normal usage in the passage at issue. '249 patent at 7:15-16. See also Reply Declaration of Professor Darrell Long P 5 (noting that "define" is not used as a programming term in the patent). Even if the term "define" is being used in the computer language sense, however, a token would still require a four-part data structure under Sun's expert Dr. Smith's own reasoning. See Smith Decl. P 38 (claiming that if the specification defined a token to mean integer, it would simply mean that tokens would have integer values); Long Reply Decl P 5 (noting that under Dr. Smith's analysis, "because the specification states that token type defines a token to be a four-part data structure, tokens will have that four-part structure").

Footnotes:

1 The Court recognizes the limited role of expert testimony in construing claims, but relies on it for background on the technology at issue and to analyze how a person of ordinary skill in the art understands various aspects of the patent. See Phillips, 415 F.3d at 1318.

Furthermore, while other parts of the specification point out that certain descriptions are "exemplary," the passage defining "token" cited by NetApp does not contain such language. For example, the specification points out the exemplary nature of static trees discussed in the preceding passage, but not of the four-part structure of tokens. See, e.g., '249 patent at 6:5-6, 6:54-57. Rather, the passage defining the token components is itself followed by a more specific example, starting with "for instance," of what these specific components of a token may be. Id. at 7:10-36. This language further supports NetApp's assertion that its proposed definition of token is not limited to the preferred embodiment. Rather, the part of the specification on which it is based provides a high-level description of "token."

The specification then notes that there are two types of tokens: element realizing tokens, which provide a way to determine
whether an element should be included when building a particular host state, and data tokens, which provide additional information about an element. This subsequent high-level description of tokens discusses the two types of tokens and reinforces the generalized nature of the "token" discussion. The specification then notes another "exemplary" output of a diagnostic test, before stating that the preferred implementation of the invention described is in an object-oriented computer language. Id. at 7:66-67, 8:8-10. Finally, the patent states that in "preferred embodiment the tokens in token data base 207 are stored as a hashtable to provide faster access to subsequent processing steps of building the representation of the system." '249 patent at 8:32-36. The above passages demonstrate that the patentee knew how to describe certain aspects of the invention as "exemplary" or "preferred implementations," yet did not so limit the four-part structure of tokens.

Sun relies on TiVo, Inc. v. Echostar Communis. Corp., 516 F.3d 1290 (Fed. Cir. 2008), arguing that NetApp seeks to improperly limit the claim term. In that case, Echostar argued that a construction requiring the use of object-oriented software was proper, because the patent described an embodiment that used terms characteristic of object-oriented programming. Id. at 1307. TiVo is distinguishable, however, because the applicant had not expressly defined a claim term. The Federal Circuit held that the use of an example that employs object-oriented programming is insufficient to require that the claims be limited to embodiments using such programming. Id. In contrast, the specification here defines the term "token type," and in that context, tokens themselves, in a higher level discussion of the term.

In addition, even if the specification describing the four-part structure did not provide an explicit definition, if the patentee uses the term throughout the entire patent specification in a manner consistent with this meaning, the term is defined by implication. See Bell Atl. Network Servs. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001). Therefore, while the Court finds the lexicography relatively clear here, it turns to the other examples of tokens in the patent specification to examine whether they utilize a four-part data structure. The Court concludes that they do.

Turning to the various examples in the patent, as discussed above, Column 7 of the '249 patent discusses element realizing tokens. Sun argues that such tokens do not have a four-part data structure. Element realizing tokens "provide a way to determine whether an element should be included when building a particular host state." '249 patent at 7:42-50. A disk name token is a type of element realizing token that provides the parent field or the name. Element realizing tokens obtain information about the specific system to build a host state representation of the system. Hearing Tr. at 36. Such tokens, while not explicitly described as having a four-part data structure, follow the discussion of the four-part structure and fit into such a structure. As NetApp notes, the "test" for the disk name token would be the method by which the name is retrieved, and the name of the disk constitutes the value. 2

2 Sun maintains that NetApp's expert, Professor Darrell Long, provided examples of tokens that include only a two-part structure, giving the example of an element realizing token that identifies a disk drive and provides its name. Sun argues that a token that only provides information as to whether or not a disk exists in a certain location has only a one-part structure. However, as NetApp notes, the value component is really a value field for holding value information. This type of information will differ for different tokens. Therefore, even where the token is merely ascertaining whether or not a disk exists, the value field would still exist, but would not be populated in the ordinary sense of the word, as it would have a zero or blank value, as NetApp notes. In other words, regardless of whether or not the value is a name or a number or yes/no information, the value field exists to hold that type of information.

In addition, as noted above, the paragraph following the description of the four-part data structure gives an example of a data token that retrieves the number of sectors per cylinder, which explicitly has a four-part structure. Another subsequent example refers to at least three parts of that structure: "For example, another token associated with that disk element might be a disk manufacturer token that identifies the manufacturer as 'Seagate.' The value of the token in such an instance would be 'Seagate.'" '249 patent at 7:32-35. In this example, the token name would be disk manufacturer, and the label or element identifier would be the name of the disk, for example c01t10d0. While the patent does not explicitly discuss a test name for this example, the test name would be the name for the process used to retrieve the name, such as "get name," as Professor Long persuasively noted at the hearing. In other words, there is some type of operation or query by which the name "Seagate" must be retrieved. Because this example immediately follows the discussion of the four-part data structure, it utilizes a four-part structure, even though the patentee was emphasizing the value component, i.e., the manufacturer name,
in this example.

The '249 patent discusses yet another example of a token, stating:

An element can have a token defined that is the mathematical result of other tokens. For example, a disk space free token is derived from a simple subtraction from a disk used token and a total disk space token.

Id. at 9:42-49; '683 patent at 8:54-61. According to Sun, because the above mathematical operation is so basic, there is no "test to be performed" and no "test output value" generated. Smith Decl. P 37. Thus, Sun contends that NetApp's construction improperly excludes this particular embodiment. While Dr. Smith argues that the basic mathematical operation to be performed for those tokens defined as a subtraction of the values of two other tokens does not generate a "test output value," the specification does not support his conclusion. Even a straightforward computer operation involving subtraction generates an output and involves a subtraction "test" or method, albeit a simple one. In fact, NetApp's expert, Professor Long notes that a person of ordinary skill in the art would understand that for a disk space free token, the test output value is the amount of free disk space determined through the subtraction, and the test to be performed is the subtraction operation. Long Reply Decl. P 8. This is both logical and persuasive.

Another example of a token implementation involves tokens that are stored in a hashtable, which is a particular type of lookup table:

In a preferred embodiment the tokens in token data base 207 are stored as a hashtable to provide faster access to subsequent processing steps of building the representation of the system. A hashtable is a common key/element pair storage mechanism. Thus, for the token hashtable, the key to access a location in a hashtable is the token name and the element of the key/element pair would be the token value. . . . Token types are run against the test output indicated in the test name in the token. For example token types having a test name parameter of "df" are run against "df" test output.

'249 patent at 8:28-47; '683 patent at 7:47-65. According to Sun, this portion of the specification does not indicate that an "identifier of a test to be performed" is stored in the hashtable. Sun argues that based upon the invention's design, there would be no reason to store an identifier of a test to be performed in the token database or hashtable, because at this point in the process, the relevant data has already been collected and properly associated with the correct element in the tree structure. Smith Decl. P 39.

Sun's arguments are not persuasive, however. The hashtable discussion expressly repeats that the test name is part of the token. In addition, Sun is not really arguing that the hashtable example is at odds with a four-part data structure. Rather, Sun seems to maintain that the hashtable example has no need for all of the parts of the token that are in NetApp's definition. For example, while Sun's expert agrees that varying information can be associated with the hashtable, Sun notes that because a hashtable could contain only yes/no information, this type of hashtable would not conform to the four-part structure. However, as NetApp notes, yes/no information is itself a type of value. See footnote 2, above. In sum, Sun's argument regarding hashtables is at odds with the discussion of hashtable in the specification, which discusses all four parts of the data structure and provides an illustrative test name and test output. In addition, Sun's own expert agreed that the hashtable could have more than two elements. Hearing Tr. at 23.

Sun argues that other parts of the specification support its own proposed construction. However, these portions of the specification actually reveal that Sun's own proposed definition is too general. For example, Sun notes that the abstract of the '683 patent states that data segments that "are defined by respective token types are identified and stored as tokens in a token data base. Each of the tokens has a value field holding a value associated with the element and a parent field referring to an element with which the token is associated." See also '249 patent abstract (noting that tokens are associated with elements and give the elements value). At the hearing, Sun conceded that each token is associated with an element, which is to say that it has a parent field, and Sun's expert stated that the invention requires a correlation between the element (i.e., parent field), and the value (i.e., value field). The abstract, therefore, shows that, contrary to Sun's proposed construction, a token must have at least two components: a value field and a parent field that refer to an element.

Sun also claims that the preferred embodiment description supports its definition, in particular the statement that the system received incoming diagnostic data from a monitored computer system and subsequently the test data "is processed by token processing 211 to extract the information associated with hardware and software components in the monitored system." '249
patent at 5:36-41; ’683 patent at 5:4-11. The patent then notes that: "An element has tokens associated with it. Thus, a partition element may have a disk percentage token, disk name token, and space available token associated with it." ’249 patent at 5:61-64; ’683 patent at 5:26-32. However, this latter excerpt shows that "elements" may be associated with tokens, each token capturing different aspects of the element, and the passage merely lists token types - it does not define the term token itself.

Finally, Sun argues that the ’249 patent emphasizes the flexible and varying nature of tokens. See Sun Opposition at 7 (quoting ’249 patent at 7:55-59; ’683 patent at 7:9-13) ("The exact nature of the tokens and the total number of tokens will depend upon the system that is being monitored . . . ."). Just because tokens may be flexible and variable, however, does not mean that tokens do not share a common structure. The passages quoted by Sun discuss examples of token types and the purpose of tokens, but these passages do not provide a definition of token. In addition, the ’683 abstract refers to two different parts of a token data structure, which is inconsistent with Sun's proposed construction of unstructured data. And, as NetApp notes, even though the abstract refers to certain parts of a "token," this reference does not provide a basis for disregarding the definition provided by the specification. Cf. Honeywell, 488 F.3d at 990.

Turning to the prosecution history, NetApp contends that the applicant made a statement during prosecution of the ’249 patent reinforcing the four-part definition of token. Specifically, in response to the non-final office action filed on March 8, 1999, the applicant stated: "For a description of elements and tokens, please see, for example, pages 9-13 of the specification." See Nathan Decl., Ex. 5 at NAC0015585. NetApp argues that this patent prosecution history is similar to that in Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295 (Fed. Cir. 2004), in which the Federal Circuit upheld the construction of the term "group keys" based in part on the applicant's statement during prosecution that the term had no accepted meaning in the art, but that the meaning was described in the specification. Id. at 1300, 1302-1303. The prosecution history here, however, does not inform the analysis of this term, because the parties are not arguing about whether the construction of "token" has an accepted meaning in the art apart from the specification, as the parties argued in Irdeto. 3 Irdeto merely indicates that the definition of "token" may be found in the specification, but the parties here both agree that the specification defines the term (although they disagree as to the claim term's ultimate meaning).

3 In Irdeto, the Court was addressing rejections based on indefiniteness. In response to the examiner's finding certain terms indefinite, the applicant stated that those terms were clearly defined in the specification. During claim construction, however, the patentee tried to argue that the term had an ordinary meaning in the art. The Court rejected this argument, relying on the prosecution history. Id. at 1298, 1300, 1303. In contrast, here, the patentee cited to pages 9-13 of the specification describing tokens and elements in order to overcome the examiner's rejection of certain claims as being unpatentable in view of prior art. The patentee was arguing that the description of elements and tokens are different from prior art. See Nathan Decl, Ex. 5 at NAC0015585.

Finally, according to Professor Long, all tokens must have the same number of fields to be consistent with the defined computer science format so that the system will work. Hearing Tr. at 57-58. While Sun's expert noted that this argument presupposes a four-part data structure, Dr. Smith did not dispute the fact that a computer system with a defined format must use that format in order to work properly and avoid crashing. Accordingly, the intrinsic evidence, most significantly, as well as the extrinsic evidence, on balance supports NetApp's proposed construction.

In sum, the Court finds that the token examples in the specification utilize a four-part data structure. However, NetApp's proposed construction is not entirely accurate for a number of reasons. First, as noted above, the "test" associated with each token is not necessarily a "test" in the normal sense. In other words, in computer language, this process may be called a test, but this does not necessarily comport with common usage, as it would likely be understood by a jury, so defining a token in this way could lead to juror confusion. Rather, the test is really a method by which the value is generated or by which the value field is populated. NetApp itself articulated the test as "deriving information about the particular system for which you want to build a representation." Hearing Tr. at 33. In addition, as Sun notes, the specification makes no reference to a test "to be performed" on the "element," as NetApp proposes in its construction. ’249 patent at 7:10-15. In fact, the above example involving the subtraction of one token value from another to determine free disk space does not involve a test performed on an element.
Second, the portion of the specification relied upon by NetApp does not discuss a "test output value." Rather, it refers to a token having a value, which "provides a value extracted from the diagnostic data that gives value to the element." '249 patent at 7:17-20. Finally, the examples above make clear that the value field need not be populated, as NetApp itself conceded that a value could be zero or blank, i.e., empty.

In sum, the Court proposes construing "tokens" as "a data structure consisting of a name; an identifier of an element with which the token is associated; an identifier of the method by which the value field may be populated; and the value field, which holds the value associated with the element, which can include an empty value." While this is a proposed construction, the parties may only comment if they find a mistake or ambiguity in the wording, as opposed to disagreeing with the Court's reasoning, and they must do so within ten days of the date of this Order.

12. Tone generator

The term "tone generator" appears in claim 4 of the '482 Patent. Diagnostic asserts that "tone generator" should be construed as "a device for generating sounds of distinct pitch, quality, and duration; i.e., tones." Benson does not propose a definition, but asserts that the "tone generator" must be located in the conventional audiometer.

The dictionary definition of "tone" is "[a] sound of distinct pitch, quality, and duration; a note." American Heritage Dictionary 1886. Therefore, the plain and ordinary meaning of "tone generator" is "a device for generating sounds of distinct pitch, quality, and duration." Next, the Court must examine the intrinsic evidence to determine whether that ordinary meaning has been rebutted or altered. Diagnostic argues that nothing in the specification or prosecution history assigns a different meaning to "tone generator." Based on its prosecution history estoppel argument, Benson argues that the Court must construe the term "tone generator" so as to require that it be located in the conventional audiometer. Finding nothing in the prosecution history that clearly limits the claim so as to require it to reside in the conventional audiometer, the Court assigns the term its plain and ordinary meaning. The Court therefore construes the term as "a device for generating a tone, or a sound of distinct pitch, quality, and duration."

4518

c. "total area of said single substrate" or "total area of said substrate"

The plaintiffs propose "the total surface of the supporting material upon or within which is formed an interconnected array of circuit elements." The defendants propose "area enclosed by the outermost edges of the substrate." This term is used in the context of memory which is claimed to occupy "a majority" of the "total area" of the substrate. The issue is what constitutes the "area."

The plaintiffs argue that the defendants' proposal would include areas of the substrate that are not being actively used (e.g., the sides and back of the substrate). According to the plaintiffs, the proper approach is to refer to the portion of the substrate that has active circuitry as depicted in Figure 9 of the '148 patent.

The area of the substrate refers to the top portion of the substrate, and not the sides or back. See '148 patent, Fig. 9. The Court construes the term to mean "the total top surface area of the substrate."

4519

"Total Traffic Load"

Alcatel's proposed construction is "information indicative of the aggregate traffic of a multiplexed output data stream"
obtained from the traffic load parameters." Cisco's proposed construction is "comparator for the total traffic of all input data streams on an output port."

Essentially, Alcatel relies on its proposed constructions for the terms "multiplexed output data stream" and "traffic load parameters," discussed above, in its definition of the term "total traffic load." Cisco, on the other hand, seeks to construe this term by using the word "comparator" and, once again, incorporating the word "port." In addition to disputing the use of these words in Cisco's construction, Alcatel also disputes the use of the word "all."

A plain reading of the claim supports Alcatel's view. The language of claim 6 clearly indicates that the total traffic load is obtained from traffic load parameters of each of the input data streams that comprise the multiplexed output data stream. See DePrycker, at 15:8-19. Cisco is correct that the use of the word total does imply that the total traffic load is comprised of the traffic load parameters from all of the input data streams. However, as stated in the claim, it is the total of the traffic load parameters of all of the input data streams that form the multiplexed output data stream that determine the total traffic load, and not all of the input data streams on an output port, as Cisco suggests. Therefore, the proper construction of "total traffic load" is "information indicative of the aggregate traffic of a multiplexed output data stream obtained from the traffic load parameters of all input data streams forming said multiplexed output data stream."

Both parties characterize the "total wager amount" as "a sum of all wagers made for each prize award." Where they differ is that Defendants claim the amount should be an actual number "not implicit from or capable of being derived from the hardware and/or software of the gaming device," whereas Plaintiff claims the number can be created by a person or the system in order to meet the needs of various criteria. (Pl. Resp. at 8.) In addition, Defendants emphasize that the total wager amount serves as a link between devices and prizes, while Plaintiff argues that linkage may occur, but it should not be a limitation of the claim. (Pl. Resp. at 7-8.)

The specification supplies a definition for total wager amount:

For a progressive prize, this is the theoretical sum of all wagers made for each prize award event. The total wager amount must be of a value that will support all the criteria for the prize starting value, increment values, and any other values generated as a result of contribution percents applied against wagers.

(‘460 Patent, col. 8:10-15.) When a specification reveals a special definition for a term, the inventor's lexicography governs. Phillips at 1316. Thus, the above definition forms the basis for our construction. We now look at the specification and prosecution history to determine whether the limitations suggested by Defendants should be adopted as well.

The Background of the Invention portion of the specification emphasizes that prior art had the wager amount and odds fixed.
in the individual devices, thus making any change of those amounts, for example due to varying market or regulatory conditions, costly and difficult. ('460 Patent, col. 3:34-42.) In contrast, this invention can use a common total wager amount to link devices with different fixed or programmable currencies and wagers together in order to share a progressive prize. (Id. at col. 3:64-67, col. 5:5-14.) This process is most clearly explained in the prosecution history:

Unlike prior art methods, the preferred embodiment can link gaming devices regardless of the wager/odds combination because the preferred embodiment utilizes a theoretical total wager amount to obtain a maximum random number range. Thus if a player wants to play a progressive game, a theoretical total wager amount is used, e.g. $10,000,000. The total wager amount may then be divided by the player's wager amount of $2 to obtain a maximum random number range of 50,000. The free play apparatus then generates a random number within 50,000 or the corresponding maximum random number range. If the generated random number matches a predetermined prize winning number, then the player is awarded a progressive prize. ('460 prosecution history at 136, Def. Hearing Ex. I.) Thus, an advantage of the instant invention is its ability to link devices with differing odds and wagers by dividing the theoretical total wager amount for each prize award by the individual wagers of the machines to achieve a number range from which a random number can be generated.

The total wager amount's ability to link devices is clearly an important aspect of the invention, as is its status as a theoretical amount, rather than the actual total of wagers bet. However, that does not mean that devices that do have total wager amounts inherent in them cannot be linked to the progressive prizes in this invention, or that those total wager amounts may not be considered somehow in the formulation of the theoretical total wager amount. The purpose of the invention is to link devices together, some of which may have fixed total wager amounts, through a theoretical total wager amount which may override the fixed ones through a free play apparatus. This purpose does not preclude using fixed total wager amounts, or the regulatory, industrial, or mechanical limitations that created them, from influencing the setting of theoretical total wager amounts. Therefore, Plaintiff's proposed construction, which recognizes the diverse considerations going into formulating a total wager amount, is more in line with the specification than Defendants' proposed construction, the adoption of which could unnecessarily preclude the consideration of the hardware or software of a particular device. Because we are not authorized to read into a claim an element that is not present in the claim itself, McCarty v. Lehigh Val. R. Co., 160 U.S. 110, 116, 16 S. Ct. 240, 40 L. Ed. 358, 1895 Dec. Comm'r Pat. 721 (1895), particularly where another construction "most naturally aligns with the patent's description of the invention," Phillips, 415 F.3d at 1316, we reject Defendants' proposed limitation that the total wager amount must not be implicit from or capable of being derived from the hardware and/or software of the gaming device.

However, Defendants' proposed limitation that the total wager amount must serve as a link between the devices is naturally aligned with the specification, and thus presents more of a dilemma. While the total wager amount's linking role is not mentioned in Claim 11, it is touted as a salient point of the invention throughout the specification. (E.g., '460 Patent, col. 3:46-56, "This invention incorporates [the advantage of linking a gaming device to a progressive prize without changing the device's hardware or software] by using the total wager amount as the basis of linkage between a prize and a gaming device;" id., col 5:5-10, "Unlike prior art progressive gaming systems and methods that control linkage between progressive prizes and game pay lines based on some representation of a coin of a specific denomination issued in a specific currency, this invention uses the total wager amount as a common element shared between progressive prizes and the linked game pay lines.") The specification does not discuss any characteristic or component other than the total wager amount as a means of linking the devices with the prizes. Therefore, it is hard to envision an embodiment of this invention that does not utilize the total wager amount as the basis of linkage between the devices and prizes.

Finally, while Claim 11 does not specify that the total wager amount is the link, when the role of the total wager amount is isolated within the claim, it appears to be a linking role. Step (B) provides for determining a total wager amount for a progressive prize. Steps C and D occur at the individual device level, setting up factors to be considered with the total wager amount in generating a random number for an individual hand pull (Step E), to be compared to the prize's winning number (Step F). Because the total wager amount provides part of the equation used in generating the random number, and because the wager is discussed by the specification as being potentially device-specific, and is put forth in the claims at the device level, the role of the total wager amount as the link between the device and a particular prize is implicitly provided in Claim 11. Thus, the meaning of the total wager amount should include its role as a link between devices and prizes. However, we do not see the need to limit that meaning to be the only link between devices and prizes.
Therefore, we adopt the following construction of total wager amount as used in Step (B) of Claim 11:

The theoretical sum of all wagers made for each prize award event. The total wager amount must be of a value that will support all the criteria for the prize starting value, increment values, and any other values generated as a result of contribution percents applied against wagers. The total wager amount serves as a link between devices and a progressive prize.

"touch sensitive screen"

Claims 1, 12, and 14 of the '057 patent contain the term "touch-sensitive screen." Typhoon defines the term as "a screen which is responsive to the touch of a finger." Defendants suggest that the term means "a device, on which a display's output is shown, that recognizes inputs in response to touch." The parties' dispute surrounds whether 1) the term "screen" needs further definition in order to contrast it with the invention's "display" and 2) whether "touch-sensitive" is limited to touch "by a finger."

With regard to the first issue, the patent makes a distinction between a "display," which is an output device that produces images viewable by the user, and a "touch-sensitive screen," which is a separate device that receives input from the user. See '057 Patent at 2:53-55 ("The input/output device has a touch sensitive screen superimposed over a display, for example, a liquid crystal display ("LCD")."). This distinction is expressed sufficiently in the claims themselves. Id. at 31:14-17 ([A] combined input/output device including a display for displaying outputs on a touch-sensitive screen, said screen superimposed over said display . . ."). Thus, contrary to Defendants' arguments, there is no need to define "screen" with regard to its relationship with the display as that relationship is sufficiently communicated in the claim language. See id.

With regard to the second issue, the specification does not limit touch-sensitivity to "touch by a finger." Typhoon cites to a number of references in the specification that clearly refer to a particular embodiment of the invention. See, e.g., id. at 10:38-41 ("A scale or bar graduated, for example, from 1 to 10 can be provided, which has a marker which moves in response to movement of a user's finger across the bar.") (emphasis added); 19:44-46 (explaining that a particular embodiment of the invention would have the ability to respond "with the touch of a finger"). Additionally, neither the claims nor summary of the invention contain any reference to "touch by a finger." It is clear from the context of Typhoon's intrinsic citations that the inventor regarded "touch of a finger" to be a convenient example for explaining the operation of the touch-sensitivity, rather than intending to limit the term to only finger sensitivity.

This conclusion is bolstered by the intrinsic evidence showing that the inventor provided a host of prior art to the Patent and Trademark Office ("PTO") describing "touch-sensitivity" that was sensitive to a variety of different stimuli. See, i.e., U.S. Patent No. 4,653,086 (filed March 15, 1985) (disclosing touch sensitivity to a stylus or pen, but not sensitivity to a finger); U.S. Patent No. 4,555,699 (filed Jan. 10, 1983) (disclosing a data entry system using a stylus or finger and "touch-sensitive" tablet). Thus, the inventor indicated to the Patent and Trademark Office ("PTO") that "touch sensitivity" based on various stimuli (not restricted to a "finger") was well-known in the art and considered when conceiving of the invention described in the '057 patent. Considering both the intrinsic and extrinsic record, references in the specification to touch-sensitivity "with a finger," were not meant to be definitional. Therefore, imputation of such a limitation into the meaning of "touch-sensitive" would be improper. Accordingly, "touch-sensitive screen" is defined as "a screen which is responsive to touch."

"Touch switch"

The invention of the '701 patent activates its shredding function using a "touch switch." Fellowes maintains that the term "touch switch" should be construed to mean a switch that requires physical contact in order to be activated. (See Fellowes's Opening Brief at 20.) Michelin, however, contends that the term "touch switch" means "touch switch, or any other kind of switch." (Michelin's Opening Brief at 10.)
Michilin conceded that "the conventional definition of a 'touch switch' means a switch that must be physically touched to be activated" (Fellowes's Opening Brief, Ex. H, Michilin's Response to Fellowes's Requests for Admissions at 4), and now cites no alternative definition of touch switch offered in the '701 patent. This matter, then, is conclusively established pursuant to Federal Rule of Civil Procedure 36(b). Fed. R. Civ. P. 36(b) ("Any matter admitted under this rule is conclusively established unless the court on motion permits withdrawal or amendment of the issue."). Moreover, Michilin did not contest at the supplemental scheduling conference held on March 29, 2006 that a touch switch requires physical contact, and Michilin II granted Fellowes's request for summary judgment of literal noninfringement. Id., 433 F. Supp. 2d at 12-13. Michilin cannot now revive an argument it opted to waive. In any case, the ordinary meaning of touch switch requires the switch to be physically touched. The claim language is clear and unambiguous. "Touch switch" means a switch that requires physical contact in order to be activated.

"tournament game"

The game machine described in the '887 patent allows each video game "to be played in either a regular (non-tournament) mode, or in a tournament mode." '887 patent at 3:8-9. According to JVL, the patentee acted as lexicographer by defining a "tournament game" as "an extended version of a standard game" that "must have more rounds than a standard game." JVL's Markman Hrg. Presentation, '887 patent at 8 ("Def.'s '887 Presentation"). Merit does not offer a specific construction for "tournament game," but it disclaims acting as a lexicographer and argues neither of JVL's limitations should be read into the construction.

A patentee acting as its own lexicographer can create a new word, assign a meaning to a word without regard to the ordinary and customary meaning of the word, or modify a word's ordinary meaning. Vitronics, 90 F.3d at 1582. Although lexicography does not require a rigid statement of definition, its assigned meaning must appear with reasonable clarity and precision in the patent. Astrazeneca AB, v. Mutual Pharm. Co., Inc., 384 F.3d 1333, 1339-40 (Fed. Cir. 2004). The specification sheds light on whether the inventor has chosen to act as his own lexicographer and used terms in a manner "inconsistent with their ordinary meaning," that is, ascribing the inventor's own meaning to the term. Vitronics, 90 F.3d at 1582.

The specification states that "a tournament game consists of an extended version of the standard game." '887 patent at 9:15-16. In construing "tournament game," the critical issue is whether this statement applies to the patent without qualification or whether it describes only a specific embodiment of the invention. JVL argues this statement is not exemplary, but unambiguously applies to the invention as a whole. Merit disagrees, insisting this language merely describes the preferred embodiment of Figure 10.

To resolve this dispute, it is necessary to consider the context of the statement. The language at issue appears in the section of the patent entitled "Detailed Description of Automated Tournament System." This section includes descriptions of the drawings included in the patent. It states "if the Tournament Setup button" of Figure 9, "is pressed on the initial setup display screen, the Tournament Setup display screen of Figure 10 appears." '887 patent at 7:54-56. Figure 10 is a "Tournament Setup display screen" for a preferred embodiment of the invention. See '887 patent at 2:27-29, 2:48-49. This "Tournament Setup display screen allows access" to a number of functions depicted in Figure 10. See '887 patent at 7:57-58; '887 patent, Fig. 10. Following the functions listing, is "an example of recommended prices for the Credit Fields of the tournament games shown in Figure 10," which depicts, among other things, three rounds of a Solitaire tournament game being offered for eight credits. Id. at 8:65 - 9:11. Following is the terminology at issue:

As noted above, a tournament game is played in the same manner as a standard (non-tournament) game. However, a tournament game consists of an extended version of the standard game. For example, the standard Solitaire game may have only one round and may cost one credits [sic], while the tournament game offers three rounds for eight credits.

'887 patent at 9:13-18. (emphasis added)

To refute JVL's argument that the italicized language provides an unqualified definition of "tournament game," Merit insists...
Figure 10 is simply an "example" relating to "recommended default prices for the Credit Fields," not a definition of tournament games. The issue is not what Figure 10 depicts. It is whether the sentence refers only to Figure 10 or to the patent generally.

Although the context does not clearly indicate an intention to limit application of the "extended version of a standard game" language to Figure 10, the record does not show that Merit acted as its own lexicographer. Merit was free to assign "tournament game" a meaning other than its ordinary one. In order to do so, it had to "deliberately and clearly point out how [this term differs] from the conventional understanding." Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14, 21 n.5 (Fed. Cir. 2000) (citation omitted). The patentee's lexicography must, therefore, appear 'with reasonable clarity, deliberateness, and precision' before it can affect the claim." Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (quoting In re Paulsen, 30 F.3d 1475, 1480 (Fed. Cir. 1994)).

Merit did not assign any unconventional meaning to "tournament game." JVL cites a single sentence in the entire patent application/specification to support its argument. There is nothing in that sentence and the context in which it appears to support a "clear" or "deliberate" intention to redefine the term. Therefore, the first part of JVL's proposed construction, "an extended version of a standard game," is not adopted.

JVL also construes a "tournament game" as having "more rounds than a standard game." Def.'s '887 Presentation at 8. As noted above, the specification states "the standard Solitaire game may have only one round and may cost one credit [sic], while the tournament game offers three rounds for eight credits." '887 patent at 9:16-18. This language describes recommended tournament game prices for the Tournament Setup display screen example of Figure 10 which relates to the preferred embodiment of a tournament system found in Figure 1. See id. at 2:48-49; 7:19-20. It describes what may, not what must, occur. Id. In other words, it is a possibility that does not limit a "tournament game" to always having more rounds than a standard game. Phillips, 415 F.3d at 1323. Nor, contrary to JVL's suggestion, can a blanket limitation be found in the example of default prices for the Credit Field of the tournament games shown in Figure 10. The patent states that the default prices are merely an example applicable to Figure 10. '887 patent at 8:65-9:12. Accordingly, the second aspect of JVL's construction of "tournament game" is not adopted.

"Tournament game" as used in the '887 patent is simply "a game playable in the tournament mode." As the specification describes, "[i]n the tournament mode, a plurality of tournament games are playable by a plurality of players …" '887 patent at 2:1-2. The "detailed description of the invention" distinguishes when a player plays what JVL might call a "standard" game from a tournament game: "[t]he video game machine may allow for each of the video games to be played in either a regular (non-tournament) mode, or in a tournament mode." Id. at 3:7-9. The specification's "overview of automated tournament system" prescribes certain necessary functions:

1. A selected number of pre-loaded video games are designated as games which can be played in the tournament mode;

2. A portion of each tournament game price is programmed to be allocated to the prize pool. An initial seed amount may also be set;

Id. at 3:21-27. This juxtaposition suggests that a "tournament game" is one of the pre-loaded games described in the first clause. Accordingly, "tournament game" is construed as "a game playable in the tournament mode."

The next disputed term, "tournament period for each tournament game" is part of the means-plus-function limitation of Claim 1(c) ("means for programming a tournament period for each tournament game, . . ."). JVL defines a "tournament period for each tournament game" as "a block of time during which each tournament game in a sequence can be played, which is defined before the sequence begins." Def.'s '887 Presentation at 18. Merit defines the function in this means-plus-function limitation as "programming a tournament duration for each tournament game in the sequence of tournament games." Pl.'s '887 Presentation, Ex. 2 at 2.
The specification clearly states that each tournament game has a programmed tournament duration. '887 patent at 2:7-8 ("… a tournament period is programmed for each tournament game.") Thus, this aspect of both constructions is correct.

JVL and Merit disagree as to when the length of the tournament period is programmed. JVL contends the tournament period is defined during setup, before the sequence begins. It relies primarily on the following specification language:

During the setup mode, the tournament duration for each tournament game is set and stored in the tournament duration selector/memory 22. Specifically, start and stop dates and times are selected. The tournament duration may be as short as a few hours, or may be very long, such as a month. The processor 14 is programmed to allocate a percentage of the coin drop 20 to a prize pool 24 during the duration of the tournament. Once all of the setup parameters are entered, the video game machine 12 is placed in a game play mode or normal operating mode.

'887 patent at 4:57-66 (emphasis added). The cited language describes that the tournament period is fixed during the setup mode, not when the machine is in the tournament mode. In other words, the time limitations are set before the tournament games are played.

Merit equates JVL's "before the sequence begins" language with "preprogramming" and notes that the patent specifies "programming" as opposed to "preprogramming" with respect to the tournament period. The brief summary of the invention states:

One or more sequences of tournament games are preprogrammed from the plurality of tournament games, and a tournament period is programmed for each tournament game. The preprogrammed tournament game for each sequence is playable during the programmed tournament period for the respective sequence. A plurality of sequences of tournament games may be preprogrammed to run simultaneously.

'887 patent at 2:6-13 (emphasis added). The language of claim 1 makes the same distinction. Claim 1(b) discloses a "means for preprogramming at least one sequence of tournament games from the plurality of tournament games." Claim 1(c) states "means for programming a tournament period for each tournament game, the preprogrammed tournament game for each sequence being playable during the programmed tournament period for the respective sequence." The specification and claim language clearly distinguish between "preprogramming" sequences of tournament games and "programming" tournament periods, indicating that tournament game sequences are programmed earlier than tournament periods.

JVL suggests that the duration for each tournament game is set before the sequence is played. It does not contend that the tournament period is set or programmed before the sequence of tournament games is programmed. Sequences of tournament games can be preprogrammed and the tournament period for each tournament game can be programmed subsequently without undermining the fact that the programming of the tournament period occurs in the setup mode before the video game machine is placed in game play mode and made available for users to play tournaments. Consequently, Merit's arguments do not undermine JVL's "before the sequence begins" construction. Nonetheless, this language is redundant as the patent teaches that the setup functions occur before a player can play any games. '887 patent at 3:38-39 ("Next, the setup mode is exited and the video game machine becomes ready for game play.") JVL’s construction is not adopted in its entirety.

"Tournament period for each tournament game" is construed as "a period of time, set during the setup mode, during which each tournament game in a sequence can be played."

1. "Track"

Both patents at issue in the instant case use the word "track" in similar contexts. For example, Claim One of the '531 Patent states in relevant part:

upon completion of the data entry, copying the working directory from the updatable memory to the track on the CDROM containing the last entered data, writing a track information map, and closing the track where the data is entered.
Each party's proposed claim construction of "Mack" is as follows:

<table>
<thead>
<tr>
<th>Optima's Proposed Claim</th>
<th>Roxio's Proposed Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Construction</td>
</tr>
<tr>
<td>&quot;Track&quot;</td>
<td>A data structure</td>
</tr>
<tr>
<td>A sequence of sectors,</td>
<td>comprising one or more</td>
</tr>
<tr>
<td>the sector numbers of</td>
<td>groups of contiguous</td>
</tr>
<tr>
<td>which form a contiguous</td>
<td>data blocks.</td>
</tr>
<tr>
<td>ascending sequence. No</td>
<td></td>
</tr>
<tr>
<td>sector belongs to more</td>
<td></td>
</tr>
<tr>
<td>than one track.</td>
<td></td>
</tr>
</tbody>
</table>

The parties agree that the term "Track" is a well-known term in the art of Compact Discs; however, Roxio argues that Optima modified the term's meaning by defining it in the '531 Patent and thus acting as a lexicographer. (Roxio's Opening Claim Construction Brief, p. 15.)

The Court agrees with Roxio and finds that Optima acted as its own lexicographer by defining the term "Track" in the '531 Patent. This finding is compelled by the following language in the "Definitions" section of that patent: "A packet is a grouping of contiguous user data blocks and is the smallest unit of data that can be written to a recordable CD. . . . A track is a grouping of one or more packets." ('531 Patent, col. 3, ll. 2-15.).

The Court construes the term "Track," as used in the '531 Patent, to mean a grouping of one or more packets, each of which is comprised of a grouping of contiguous user data blocks. 12

The term "Track" is used in the '686 Patent as well; however, Roxio did not include a definition of the term and thus did not act as its own lexicographer. Therefore, the Court finds that the customary meaning of the term will be applied to the '686 Patent. Optima's proposed construction is consistent with the customary definition 13 and thus is accepted by the Court as the proper definition of the term "Track," as used in the '686 Patent.

Optima's proposed construction, "A sequence of sectors, the sector numbers of which form a contiguous ascending sequence. No sector belongs to more than one track," mirrors the language of TC 15 Working paper (1992), a document cited by both parties as an industry standard.

In the Markman hearing this Court found that the '531 patent "relates to a new October 6, 2005, recording technique that allows a standard recordable CD-ROM drive to appear to, and be accessed by, a user in the same manner as a non-volatile memory." (Markman Order, p. 2.) The Court held that the '531 patent specification demonstrated that the patentee, acting as his own lexicographer, defined "track information map" as: "A data structure that is stored on the last use data blocks on the last packet of the track. It contains the start logical block address of the directory, and the start and end logical block address of every track." (Id., p. 17.) Put another way, the track information map includes the logical block addresses for the start of...
the directory, the start of every track on the CD, and the end of every track on the CD.

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D. "Track pitch"

Plaintiff's construction: the distance between adjacent track centerlines, as measured in the radial direction

Defendants' construction: the distance between pits in the adjacent tracks (represented in FIG. 3 as Pt)

The parties dispute whether "track pitch" should be defined in terms of "pits" or "tracks." This dispute seems to be less about the actual construction of the term and more about trying to predict what the other side will argue in the context of an infringement or invalidity analysis. Although the parties argue vigorously in favor of their own proposed definitions, the parties' proposed constructions are not very different. The parties agree that the distance "Pt" in Figures 3 and 5 of the '651 patent illustrates the track pitch:

[SEE FIG. 3 IN ORIGINAL]
[SEE FIG. 5 IN ORIGINAL]

Defendants' construction is ambiguous as proposed because it is unclear whether the track pitch should be measured from the outside edge of the pits, the center of the pits or somewhere else. At the claims construction hearing, defendants clarified that they are satisfied with measuring track pitch from the center of the pits; indeed, they even are willing to embrace the term "centerline" so long as it is clear where to place it. Transcript, dkt. 92, at 105. Plaintiff, however, hews to its position that we're talking about the pitch between tracks, not pits, so that pits should not be the frame of reference. Id. at 44-47.

Plaintiff has the better argument; my only concern is its use of the word "centerline," which is not used in the '651 patent. Although the meaning of "centerline" may be inferred from Figure 3 of the patent, it will avoid confusion by changing the definition to "the distance between the center of adjacent tracks, as measured in the radial direction."

Court's construction: the distance between the center of adjacent tracks, as measured in the radial direction

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1. "tracking movement of the device relative to a region of an environment in which said device resides"

Avago proposes that the above phrase be construed as "tracking movement relative to features in the environment where the device operates." Elan proposes the following construction: "Tracking changes in the position and angular orientation of the device in a three-dimensional environment."

Claim 14 is not limited to a device that tracks angular rotation. The written description describes translating pitch as vertical movement, and yaw as horizontal movement, but then states that "[i]n this embodiment, translational movement of the device may also be detected and utilized, so that vertical and horizontal movement of the device translates to a corresponding vertical or horizontal movement of the screen cursor." Col. 4, ll. 15-21. Furthermore, the doctrine of claim differentiation suggests that the Court should not construe Claim 14 as limited to angular movement, as Claim 15 specifically adds the limitation of angular movement.

The remainder of the contested claim language, "environment in which said device resides," refers to a three-dimensional environment. The plain and ordinary meaning of "environment" is as three-dimensional space --unlike a point, a line, or a plane. Furthermore, "environment" as used in the claim language is specified as that "in which said device resides." Claim 14 (emphasis added). The residence of the device is distinguishable in the plain and ordinary lexicon from a planar surface on which the device operates. Such a distinction is also supported by the patent's description of the problem the invention
was intended to solve: "The concern is that there may not be a suitable planar operating surface that is convenient to the operator." Col. 1, ll. 63-65.

Avago argues that the device may not be limited to necessarily being capable of operating in three dimensions. Whether the device claimed by Claim 14 operating in only two dimensions would infringe on a device that is capable of operating in three dimensions is a question for a later stage in this litigation. For the purposes of construing the claims in this patent in light of the specification, "environment in which said device resides" means "the three-dimensional space in which said device may operate," and thus, "tracking movement of the device relative to a region of an environment in which said device resides" is construed to mean "tracking movement of the device relative to a region of the three-dimensional space in which said device may operate."

C. The Proper Construction of Claim 10

"The focus in construing disputed terms in a claim language is not the subjective intent of the parties to the patent contract when they used a particular term." Markman, 52 F.3d at 968. Rather, the focus is on the objective test of what one of the ordinary skill in the art at the time of the invention would have understood the term to mean. Id. (emphasis added). The Court will follow the precedent established by the Eleventh Circuit in Markman and construe the terms "traditionally connectible" and "standard" I/O port to mean devices that were "traditionally connectible" and I/O ports that were "standard" at the time of the invention. Therefore, the Court defines traditionally connectible as a device that would be connectible to a computer as it was in October of 1988. See Webster's New World Dictionary 1417 (Victoria Neufeldt ed., Simon & Schuster 1988) (defining traditional as conforming to tradition; conventional). The Court construes the word "standard" as "regularly and widely used, available or supplied" as of October 1988. See Novo Nordisk A/S v. Becton Dickinson & Co., 2000 U.S. Dist. LEXIS 3384 (S.D.N.Y .) aff'd, Novo Nordisk v. Becton Dickinson & Co., 304 F.3d 1216 (Fed. Cir. 2002); See Webster's New World Dictionary 1306 (Victoria Neufeldt ed., Simon & Schuster 1988) (defining standard as conforming to what is usual; regular or typical). As a result, the claim construction analysis of claim 10 is similar to the analysis found in claim 1.

A. "Traffic channel encoding selector"

The parties now agree that the proper construction of this term is: a module that selects the encoding scheme to apply to a traffic channel. I This construction is consistent with the words of the claim, specification, and prosecution history.

1 During briefing, the parties offered slightly different constructions. WiAV proposed the construction: module that selected the encoding scheme for a traffic channel. (emphasis added). The Defendants proposed the construction: module that selects the encoding scheme applied to a traffic channel. (emphasis added). The difference in proposed construction stems largely from the parties' disagreement over whether an encoding scheme must be applied to a traffic channel at all as well as the timing of that application and the structure that performs it.
a control channel signal quality estimator; and

a traffic channel encoding selector coupled to said control channel signal quality estimator, said encoding selector selecting an appropriate error correction [overhead] scheme to apply to data transmissions on said at least one traffic channel in response to said control channel signal quality estimator …

205 Patent at 14:1-14; 14:40-51 (emphasis added). The claims themselves use the phrase "to apply to" and support a construction that uses that phrase as well.

2. Specification

The specification describes the function of the traffic channel encoding selector, referring to it as the "overhead selector 148." According to the specification, the overhead selector 148 "may be embodied in many ways, such as program executing on the processor for the mobile or base station, or both, or as firmware or as a separate circuit." Id. at 7:26-29. The specification describes several steps that must take place to select and apply an encoding scheme. First, the overhead selector 148 receives information about the bit error rate (BER) from the channel quality estimator 150. Id. at 6:35-36. Information about the BER may also be shared from station to station "so that each station may adjust the amount of error correction overhead in direct relation to the quality of the channel over which that station must transmit data." Id. at 10:22-27.

Next, using the BER provided by the channel quality estimator, "[t]he overhead is selected with an overhead selector 148." Id. at 7:25-26. The exemplary embodiment described in the specification allows the overhead selector to compare the BER with three different thresholds and, based on that comparison, select from three error correction schemes. Id. at 7:62-8:11.

Finally, the selected scheme is applied to adjust the overhead. To accomplish this goal, the specification describes an embodiment in which the "channel quality estimator 150 reports the BER to the processing and control circuitry which in conjunction alters the error correction scheme (encoding) for the outgoing data on the traffic channel." Id. 9:58-61. The specification also describes an embodiment in which "the overhead scheme selector 148 (FIG. 2) selectively adjusts the amount of error correction overhead applied for the data on the traffic channel." Id. at 8:12-15. That embodiment suggests that the overhead selector can, in fact, apply the encoding scheme to the traffic channel, though it is not the only method of application.

This three-step process supports the agreed-upon construction given to the term because it shows the process by which an encoding scheme is selected to apply to a traffic channel. And, it makes clear that the encoding selector, or overhead selector, is the module that makes the selection.

3. Prosecution History

Finally, the prosecution history consistently uses the phrase "to apply to" when referring to the encoding selector's function of choosing an encoding scheme to apply to a traffic channel. The Examiner, for example, referring to prior art, wrote that "Schrader, et al disclose a method…comprising the steps of:…selecting an encoding scheme or data rate to apply to the traffic channel." (Pl. Ex. 9 at 2 (emphasis added).) Additionally I an amendment to the Patent stated that "the method selects an encoding scheme or data rate to apply to the traffic channel." (Pl. Ex. 10 at 2 (emphasis added).)

4. Proper Construction of "Traffic Channel Encoding Selector"

Because the intrinsic evidence illustrates that the phrase "to apply to" appears consistently throughout the claims, specification, and prosecution history, and because, in their briefs, the parties essentially agree on the construction, the term "traffic channel encoding selector" means: a module that selects the encoding scheme to apply to a traffic channel.
Alcatel's proposed construction is "two or more parameters each of which characterize at least the data rate of an input data stream." Cisco's proposed construction is "values identifying the traffic load."

Alcatel argues that, in construing the term "traffic load parameters," the Court should first construe the term "traffic load." Alcatel contends that the ordinary meaning of "traffic load" is some measure of data transmitted over some time period. In other words, according to Alcatel, it is an amount of traffic, expressed as a rate. 21 Alcatel claims that patent specification supports this construction. In particular, Alcatel cites a portion of the specification that reads, "To this end, the average value ABR and the maximum value MBR of the traffic load or bit rates of the forthcoming communication . . ." DePrycker Supp., col. 4, ll. 44-47 (hereinafter DePrycker, at 4:45-47). Alcatel contends that the language "traffic load or bit rates" is a clear definition of "traffic load" as synonymous with "bit rates." Furthermore, Alcatel argues that in every embodiment of the '052 patent, "two different parameters each characterizing a rate of a proposed stream are compared to a predetermined limit that is defined in terms of a rate." Alcatel's Responsive Markman Brief on Claim Construction Regarding United States Patent No. 5,020,052 , (DePrycker et al.) ("Alcatel's '052 Responsive Brief") at 9 (citing DePrycker, at 4:45-5:11, 6:5-30, 6:41-59, 7:19-24, 10:26-46).

21 Alcatel also argues that the plural term "parameters" indicates a requirement of more than one parameter.

Additionally, the claim language itself cites rates (ABR (average bit rate) and MBR (maximum bit rate)) when referring to "traffic load parameters." See DePrycker, at 15:16-19, 15:43-46. Finally, according to Alcatel's expert, "one of ordinary skill in the art at that time would have understood the term 'load,' used with reference to data communications system, to mean an amount of bandwidth (i.e. capacity) which is measured in terms of rate as opposed to a quantity that could be described by generic traffic parameters." Lucantoni '052 Decl., at P 28.

Cisco's primary contention with Alcatel's proposed construction is its argument that "traffic load parameters" do not always need to be expressed as rates. Cisco's entire support for this argument is the testimony of its expert, Prof. Acampora, who claims, as does Cisco, that "traffic load parameters" are not always traffic rates. Acampora cites three examples of parameters from a prior art reference that are not rates. See Lumish Decl., Ex. S ("Acampora '052 Report"), at 10. Nevertheless, Lucantoni disputes these references, and Acampora's conclusion in general, claiming that those references are examples of traffic descriptors, not traffic load parameters. See Lucantoni '052 Decl., at P 29. Therefore, neither experts' opinion is particularly helpful to the Court in determining the ordinary or accustomed meaning of the term.

In construing claim terms, when the inventor was not his own lexicographer (which the inventor was not with regard to this term), there is first a presumption that the term has its full ordinary or accustomed meaning. See K-2 Corp., 191 F.3d at 1362-63; Johnson Worldwide Assoc., 175 F.3d at 989 ("[A] court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms."). In this instance, it is unclear whether or not the accustomed meaning requires the traffic load parameters to be expressed in terms of a rate. Nevertheless, the ordinary or accustomed meaning of the term, whether it requires the use of rates or not, must also be tested against the particular use of the word in the patent, in order to determine its proper construction. See, e.g., Cortland Line v. Orvis Co., 203 F.3d 1351, 1356-57 (Fed. Cir. 2000) (after determining the ordinary meaning of a disputed word, the court proceeded to compare that word to its use in the patent specification and the prosecution history).

Here, as evidenced by the references to "traffic load" and "traffic load parameters" in the claims and the specification as referring to rates, plus the complete lack of intrinsic evidence identified by Cisco in support of its construction and in opposition to Alcatel's construction, the Court finds that the term "traffic load parameters (ABR, MBR)" as used in claims 6 and 9 22 is to be construed as "two or more parameters each of which characterize at least the data rate of an input data stream."

22 Claim 9 is dependent on claim 6.
23 The term "input data stream" has been agreed upon by the parties to mean "data stream entering the data processing system." See Revised Joint Statement, Ex. A, at 5. It is clear from the plain language of claim 6 that the parameters are based on the input data stream. See DePrycker, at 15:8-19.

C. "transaction administrator" or "TA"

The magistrate judge recommended that "transaction administrator" or "TA" be construed as "an entity which authenticates entities and validates the content of the transaction by the originator." First Report at 4. No objections have been filed with respect to the magistrate judge's proposed construction. After careful review of the magistrate judge's findings and conclusions, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "transaction administrator" or "TA" in patent '878 is correct, and it is hereby accepted as the court's construction of "transaction administrator" or "TA."

6.

Claims 1 and 13 of the 298 Patent and Claim 1 of the 456 Patent refer to "storing the account payment number and payment amount in a transaction log file of the system." (Plf. App., Exh. 1 at 16-17 & Exh. 3 at 42) (emphasis added). A similar reference to "transaction file" appears in Claim 6 of the 456 Patent. (Id., Exh. 3 at 43). Paymentech argues that "transaction log file" and "transaction file" both should be construed to mean "a file of transaction data that is individually kept by the system for each payee for periodic transmission to the payee and stored in time order as it is received, having a plurality of records where each record contains data including debit card number, payor account number, payment amount, time/date, and approval code." (Def. Op. Br. at 18). BMC urges that the terms be given their ordinary meanings. (Plf. Op. Br. at 18).

In computer terminology, a "file" is "a collection of related data records." MERRIAM WEBSTER COLLEGIATE DICTIONARY at 434 (1993). A "transaction" is an "exchange or transfer of goods, services, or funds." Id. at 1252. Taken together, the ordinary definition of a "transaction file" is "a collection of related data records pertaining to an exchange or transfer of funds." A "log" is "a record of performance, events, or day-to-day activities." Id. at 685. Thus, a "transaction log file" is "a collection of related data records pertaining to exchanges or transfers of funds occurring during a given day."

Paymentech admits that its suggested construction is a hybrid definition comprised of the ordinary meaning of the disputed terms plus examples drawn from the specifications. However, it is generally impermissible to import limitations from the specification to restrict the meaning of claim terms. See Arlington Industries, 345 F.3d at 1327; see also CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed Cir. 2002) (the presumption of ordinary meaning cannot be rebutted "simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history"). Other than the examples set forth in the specifications, there is no support for Paymentech's definition. The court should construe "transaction file" to mean "a collection of related data records pertaining to an exchange or transfer of funds" and "transaction log file" to mean "a collection of related data records pertaining to exchanges or transfers of funds occurring during a given day."

Claim Construction: "Transaction Type" and "Transaction Parameters"

As discussed above, claim 1 requires that all financial transactions include both a transaction type and a plurality of transaction parameters. Amazon argues that "transaction type" should be defined as "an account balance inquiry or kind or type of asset transfer that is selected as part of a financial transaction," and that "transaction parameter" should be defined as "information necessary to define a given financial transaction." IPXL advocates for a broader definition of these terms.
Specifically, IPXL contends that "transaction type" means any type of financial transaction and that "transaction parameter" means any parameter related to a financial transaction.

The specification in the '055 does not provide express definitions of these terms; however, it does provide relevant examples of each:

... selecting a type of transaction or function (withdrawal, deposit, transfer, payment, balance inquiry, etc.)

Col. 1, ll. 31-33

...transaction parameter (e.g., the amount to be withdrawn). ... selecting one or more transaction parameter (e.g., accounts, dollar amounts, etc.).

Col. 1, ll. 59; Col 5, ll. 53-54). 3

--- Footnotes ---

3 These sets of examples are consistent with the sparse discussion of "transaction type" in the prosecution history. "For example, one screen may seek selection of the transaction type, the next screen may ask for the user to select an account, another may ask for the amount of the transaction, etc." (IPXL 89) This sole reference to "transaction type" in the prosecution history merely supports the proposition that "accounts" and "amounts" are not transaction types.

--- End Footnotes ---

Although a proper construction of "transaction type" and "transaction parameter" must encompass the examples set forth in the specification, the Court recognizes that the Federal Circuit has cautioned against limiting the claimed invention to the specific examples cited in the specification. See e.g., Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed. Cir. 1986)

Accordingly, the Court has looked beyond the specific examples and has carefully considered both the language used in the claims and the context of the entire patent. In defining these claim terms, the Court will apply the definition of "transaction" that it has already found in its construction of the terms "transaction types" and "transaction parameters." Second, the Court will incorporate the enumerated examples listed in the specification into its construction. Given this carefully prescribed context of these claim terms, the Court will again use dictionary definitions to confirm and support the ordinary meaning of "transaction type" and "transaction parameter." The following dictionary definitions are instructive:

| Type: d: a particular kind, class, or group. |
| Parameter . . . 2: any of a set of physical properties whose values determine the characteristics or behavior of something. |

Merriam-Webster's Collegiate Dictionary (Tenth Edition, 1996) 843, 1278. Using these ordinary meanings to define the claim terms at issue, in light of the context of the patent, and encompassing the examples set forth in the specification, the Court construes the term "transaction type" as follows:

A particular kind, class, or group of electronic transfer[s] of funds or a particular kind, class, or group of electronic inquiry[ies] as to funds. Examples of transaction types include withdrawals, deposits, transfers, payments, and balance inquiries.

The Court construes the term "transaction parameter" as follows:

A property whose value determines the characteristics of (1) an electronic transfer of funds, or (2) an electronic inquiry as to funds. Examples of transaction parameters include the identification of the specific account, and the specific dollar amount.
Claim 11 covers a "transactional database." The specification explains that this database "records and stores information related to each transaction performed at each point-of-sale site," and is capable of "transmitting sales data to a requesting publisher." 823 Patent at 2:7-12. Because the court finds no material difference between the parties' proposed definitions, it construes the term to mean "a structured computer memory for storing and accessing data related to transactions," as this definition reflects the ordinary meaning of the term and the disclosure of the database in the specification.

1. "transceiver"

The Court finds that claim 1 of the '222 patent requires a "transceiver," whereas claim 7 of the '222 patent requires a "wireless transceiver." Claim 1 requires that the transceiver has both a transmitter for transmitting and a receiver for receiving. In the Background and Summary of the Invention section, the specification expressly states that a transceiver is "capable of transmitting and receiving information (voice, data or video) in the form of electromagnetic signals," "may be fixed or portable," and in personal communications networks may be a "portable radio unit." '222 patent, 1:33-36, 1:43-45. The Court finds that the ordinary definition of the term "transceiver" is a device that both transmits and receives data. While the Court finds that a two-way radio unit may be a transceiver, the Court rejects Wi-LAN's argument that the transceiver must necessarily be limited to a radio unit.

The Court finds that the primary dispute between the parties is whether certain advantages or benefits of the disclosed system are merely optional or are mandatory omissions from the definition of a "transceiver." Defendants argue that the specification makes repeated disclaimers of prior art transceiver components throughout the specification and distinguishes the "present invention" from the prior art on the basis that it omits a number of components found in prior art transceivers. Defendants argue that the Federal Circuit is clear that when the specification makes clear that the alleged invention does not include particular items those items are outside the scope of the claims. The Court disagrees with Defendants' arguments. While there is language in the specification indicating that the present invention distinguishes prior art as requiring certain attributes of the transceiver that are not required in the applicants' invention, the Court finds that the language is not a clear limitation that the term transceiver is to be so limited. Rather, the Court finds that certain omissions of the present invention, compared to the prior art, are merely advantageous and not necessary. The Court finds that the "not required" language in the specification does not necessarily mean "omitted" or "excluded." For example, in the Detailed Description of the Preferred Embodiments section, the language only states that some of the prior art components of a transceiver are "not required" or "not used" and briefly describes how the "omissions" of these components can be done without impairing the quality and capacity of the system. '222 patent, 4:55-63; 12:45-50. The Court finds that there is no express requirement that the present invention necessarily excludes the optional components nor is there any express disavowal that the term "transceiver" excludes the optional components. The Court finds that not a single claim in the '222 patent includes the
requirement that these optional components must be omitted from the transceiver. Further, because claim 7 provides certain limitations of the width of the frequency band so that "neither carrier nor clock recovery is required at the second transceiver," such a limitation would be meaningless if the transceiver had already expressly omitted clock recovery and carrier recovery. The Court finds that, in the entirety of the specification and the claims and considering the ordinary meaning of the term, the omission of the disputed elements is merely optional, i.e. "not required," and is not a necessary exclusion. Thus, the Court construes the term "transceiver" as "a device that transmits and receives data."

The Court lets stand its previous definition of "transceiver" to mean a singular device capable of both sending and receiving information.

The dispute regarding this term involves competing dictionary definitions. Broadcom cites the Oxford English Dictionary and Newton's Telecom Dictionary for the proposition that a transceiver is "a combined transmitter and receiver." (Broadcom Opening at 45.) Agere cites the IEEE Dictionary for the more specific definition of a transceiver as "transmitting and receiving equipment in a common housing, usually for portable or mobile use, and employing common circuit components for both transmitting and receiving." (Agere Resp. at 16.)

Seeking support for its broader definition, Broadcom relies heavily on the Federal Circuit's statement that "if more than one dictionary definition is consistent with the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings." Texas Digital, 308 F.3d at 1203 (citing Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1343 (Fed. Cir. 2001)); see also Inverness Med. Switzerland GmbH v. Warner Lambert Co., 309 F.3d 1373, 1379 (Fed. Cir. 2002) (same). The Texas Digital court noted, however, that "the intrinsic record may show that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected . . . in a dictionary definition. In such a case, the inconsistent dictionary definition must be rejected." Texas Digital, 308 F.3d at 1206. Indeed, as the Federal Circuit stated in Toro Co. v. White Consolidated Industries, Inc., when each side propounds its own dictionary-supported construction, "this question cannot be decided by a dictionary. . . . Dictionaries provide general definitions, rarely in sufficient detail to resolve close questions in particular contexts. " 199 F.3d 1295, 1300 (Fed. Cir. 1999); see also Inverness, 309 F.3d at 1379 (noting that, in determining which dictionary definition to use, court "must determine whether the specification or prosecution history clearly demonstrates that only one of the multiple meanings was intended"). 21 Thus, the instant term cannot properly be construed without analyzing the intrinsic record.

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--- End Footnotes ---

The claim text teaches a communication module "comprising . . . at least one of a plurality of wireless transceivers." (705 patent, col. 38, ll. 14-16, col. 39, ll. 8-10.) In light of the parties' competing dictionary definitions, the Court must look to the specifications in order to determine whether the context of the claims supports either of the proposed constructions. Agere has provided convincing textual support for its limitation that the transmitter and receiver must be "equipment within..."
common housing . . . employing common circuitry." The written description in the specification refers to a "modular transceiver" (id., col. 3, ll. 33-34), and teaches that multiple transceivers can be contained on one single radio card (id., col. 4, ll. 3-4 ("The radio card may contain more than one type of radio transceiver.")). Furthermore, the embodiments in the specifications also describe "transceiver modules" (id., col. 15, ll. 33-34) and transceivers that are contained within a communication module (id., col. 37, ll. 47-49 ("The communication module . . . contains multiple transceivers.")). As discussed previously, a "module" is a self-contained assembly of electronic components and circuitry. See supra Part II.D.2. Thus, the Court finds that the written description's reference to a "modular transceiver" and "transceiver modules," clearly suggests that the transmitting and receiving components reside in common housing and employ common circuitry.

Accordingly, the Court adopts Agere's proposed construction.

7. "Transceiver" ('366, Claims 5, 19; '311, Claim 16; '771, Claim 1) As discussed previously, see supra Part II.D.4, the Court looks to the specifications to determine which dictionary definition of this term is most appropriate for each patent: Broadcom's proposal of "a combined transmitter and receiver" or Agere's proposal of "transmitting and receiving equipment in a common housing . . ., employing common circuit components for both transmitting and receiving."

a. '771 Patent

The claim text teaches a base station "having" a transceiver ('771 patent, col 54, ll. 14-15) and a roaming terminal "comprising" a data collection system "having" a transceiver (id., col. 54, ll. 18-20). It is undisputed that both base stations and roaming terminals are "combined transmitters and receivers" (see Goodman Rep. P 159); the relevant question, therefore, is whether base stations and roaming terminals also have "transmitting and receiving equipment in a common housing . . ., employing common circuit components for both transmitting and receiving."

Although it is a close case, the Court finds insufficient support in the specifications for Agere's proposed construction. In arguing that the specifications support its definition, Agere cites language referring to "transceiver units" ('771 patent, col. 7, ll. 29-32), "transceiver circuitry" (id., col. 52, ll. 52-54), and the "terminal radio" (id., col. 53, ll. 54-62). These specifications, however, do not indicate any necessary limitation of the invention to commonly-housed or commonly-circuited transceivers. First, all three of these citations refer to specific embodiments of the device, and as such do not provide a basis for limiting the broader claim text. Second, contrary to Agere's argument: (a) "transceiver unit" could refer to a linked, but separately-housed, transmitter and receiver; 36 (b) "transceiver circuitry" could refer to the aggregate circuitry of the transmitter and receiver without requiring that this circuitry be shared; and (c) "terminal radio" suffers both of these ambiguities. Thus, in the absence of stronger textual indications that the term should be limited, the Court finds that the term at issue should be construed using the broader dictionary definition.

b. '366 and '311 Patents

36 The Court conceives of a device, such as a handheld scanner, wherein the transmitting portion of the transceiver is physically located inside the scanner while the receiving portion is, for example, clipped to the user's belt and attached by a wire to the rest of the device. Such a design would appear to satisfy Broadcom's definition of transceiver but not Agere's, but there is no indication, other than the fact that it is not a preferred embodiment, that this design would be excluded from the patent.

The Court agrees with Agere, however, that Broadcom's proposed construction is even broader than the OED and Newton's definitions on which it relies. Unlike Broadcom's construction, which refers merely to "a combined transmitter and receiver," both dictionaries, like the IEEE, specifically refer to physical devices. (Broadcom Opening at 45 (citing OED definition, "instrument," and Newton's Telecom Dictionary definition, "device").) Thus, the Court adopts Broadcom's proposed construction but modifies it to match the broadest dictionary definition, found in the OED, which is "an instrument combining a radio transmitter and a radio receiver."
Each of these patents teaches "bridging nodes" "having" transceivers. (‘366 patent, col. 20, ll. 44-46, col. 21, ll. 57-59; ‘311 patent, col. 21, ll. 5-7.) As with the ‘771 patent, Agere cites portions of the specifications referring to "transceiver units" for the proposition that transceivers must be "unitary," and therefore share common housing and circuitry. As discussed above, the Court finds this argument unpersuasive both because it relies on preferred embodiments and because the word "unit" does not necessarily imply that the receiving and transmitting elements themselves are contained within the same physical structure, as opposed to being connected to the same structure. Thus, the Court adopts the broader construction of transceiver for these patents as well.

7. digital camera picture image data transfer and repository device n3

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n3 The corresponding phrase is "digital data transfer and repository device."

--- End Footnotes ---

This phrase appears in the preamble of several of the claims in both patents-in-suit. The plaintiff contends that this phrase from the preamble should not be read into the claim limitations. To the extent that it is added as a limitation and needs construction, the plaintiff proposes "a device capable of transferring and storing picture image data from a digital camera." The defendants propose "an intermediary repository device whose principal functionality is to transfer picture image files from a digital camera flash memory module by temporarily storing them in the repository device preparatory to copying them to a computer, without independent capability to edit, manage or display the stored file."

The plaintiff agrees that the device is an intermediary device. Furthermore, the defendants correctly state that the body of the claims derive an antecedent basis from the preamble because the claims refer to the "repository device" described in the preamble. However, the defendants' proposed construction includes additional limitations not supported by the intrinsic evidence. Accordingly, "digital camera picture image data transfer and repository device" means "an intermediary repository device for storing picture image data from a removable flash memory module of a digital camera and transferring the picture image data to a user's computer."

1. The phrase "TRANSFER FUNCTION" (claims 9, 10, 20, and 21) requires no construction.

4. "transfer of data"

The parties agree that the term "transfer" means to transmit something from one node to another. See Modern Dictionary of Electronics, 6th Ed. (1997) at p. 1053. However, the parties dispute the meaning of the term "data" as used in the phrase "transfer of data." The term is not explicitly defined in the patent.

Intel proposes that data should be construed to mean anything passed between nodes that conveys meaning, and includes information defining the format set that is sent from one node to another in addition to other data that may later be sent between the nodes. In support of its proposed construction, Intel argues that the term "data" is used throughout the specification in a variety of ways that indicate the term is to have its broad, ordinary meaning.

Broadcom asserts that Intel's proposed construction of the term "data" is overbroad in two ways. Broadcom first argues that
the term "data," as used in the patent, should be limited to basic elements of information that are organized into a frame that identifies the source and destination of the information. A frame is a packet of information that includes the data to be transmitted, an identification of the node that is transmitting the data, and an identification of the node that is the intended recipient of the data. In addition to arguing that data must be information that is sent in frames, Broadcom also draws a distinction between substantive information, which it calls "data," and certain setup information that is transmitted between nodes, which despite the fact that it conveys meaning, is not "data," according to Broadcom.

(i) does "data" need to be transmitted in frames

Broadcom supports their argument as to why the meaning "data" includes frames by relying on the declaration of their expert, Dr. Tobagi. In his declaration, Tobagi asserts that "[a] person of ordinary skill in the field of the invention would understand that a "transfer of data" over a communication medium means that the data is transmitted in 'frames' because that is the way that data is transmitted over a computer communication system." Tobagi Decl. at P 7. Broadcom finds support for this definition in the specification, noting that every embodiment of the invention that is shown and described in the specification transfers data in frames, which include the addresses of the node that initiated the transfer of data and the address of the node to which the data is intended to be sent.

Broadcom also argues that this definition of data is compelled by the patent's definition of the term "format," which is defined in the specification as "the convention used for data transmission which defines frame organization and content." Col. 3:20-21. Broadcom argues that if the data is not required to be transmitted in frames, this definition of format would be rendered meaningless.

Intel argues that the limitation that Broadcom seeks is unsupported by the claim language and asserts that nothing in the 830 patent requires that data must be transferred in frames. Intel also points out that Dr. Tobagi's statement that the claim language must be limited in this way because networks have to transfer data in frames having source and destination identifiers may itself be too broad. Intel notes that Dr. Tobagi's own book, "Advances in Local Area Networks," which is relevant to how one of ordinary skill would construe the patent claims because it was published one year before the 830 patent was filed, see Schering Corp. v. Amgen Inc., 222 F.3d 1347, 1353 (Fed. Cir. 2000), recognized that only "some of the information [in local area networks] is sent in packets containing a destination address." Advances in Local Area Networks (Karl Kummerle, Fouad A. Tobagi, and John O. Limb eds. 1987).

The court finds that the definition of "data" does not require that data is specifically transferred in frames. The ordinary meaning of the term "data," as understood by those with ordinary skill in the art at the time the patent was filed, did not include this limitation. As Broadcom itself noted in its Opening Brief, "the ordinary meaning of the term 'data' is basic elements of information which can be processed or produced by a computer." Broadcom's Opening Br. 10. No ambiguity in the claims requires the court to resort to the specification to understand the claim language.

Moreover, even when examining the specification, nothing in the specification indicates that the ordinary meaning of the term "data" should be limited in the manner urged by Broadcom. Broadcom's argument that the use of frames is compelled by the patent specification's definition of the term "format" is unavailing. First, Broadcom misquotes the specification. The specification defines "protocol," and not "format," as "the convention used for data transmission which defines frame organization and content. . . ." Col. 3:20-23. The term "format" is used in the claim language. The term "protocol" is not. According to the specification, "format" is defined in terms of data rate and/or data architecture, which includes "one or more of" a set of data transmission characteristics that includes encoding, encryption, compression, and protocol. Moreover, the patent specification makes it clear throughout that the diagrams of data frames are only examples of embodiments that could be formed based on the claims. Therefore, Broadcom's argument that the specification's definition of protocol does not require that the term "data" is transmitted using frames.

(ii) Is certain setup information excluded from the definition of "data"

Aside from the definition that includes a requirement that "data" is transmitted using frames, which has been rejected by the court above, Broadcom has not presented to the court a more limited construction that reflects its view that Intel's proposed construction is overbroad. However, Broadcom argues that Intel is wrong in claiming that data is "any thing passed between nodes that conveys meaning." because certain information that is passed between nodes conveys meaning, but is not, in Broadcom's estimation, encompassed by the term "data." In support of this argument, Broadcom refers to the description of
the "inquiry dialog" in the patent specification, which describes frames that are passed between the nodes which convey meaning, but are not referred to in the patent as "data."

The inquiry dialog is initiated by the source node when the source node cannot find the format set for the selected destination node in its cache of format sets. Col. 5:15-22, 5:62-64. "The source node transmits an SFInq frame (Supplemental Format Inquiry frame) to the destination node." Col. 5:64-65. Broadcom notes that the SFInq frame, which is illustrated in Figure 12, does not include any "data." Rather, it includes "two or more flags, destination node address, source node address, type field, FCS, flag and abort. The type field indicates that the frame is an SFInq frame." Col. 7:30-32. In contrast, Broadcom notes, the response to the SFInq frame, sent by the destination node, is a "SFResp frame" that does include data. The SFResp frame includes "two or more flags, source node address, destination node address, type field, data, FCS, flag and abort." Col. 7:35-36 (emphasis added). The "data" is the destination node's format set: it is the "data specifying dest. node format Set (FsetEff)" shown in the illustration of the response frame in Figure 13. Therefore, Broadcom concludes that Intel's construction of "data" is overbroad because it includes information such as the SFInq frame sent by the source node to request the destination node's format set, which conveys meaning, but Broadcom claims is nonetheless not data.

In response, Intel claims that the frames shown in Figures 9 - 13 derive their organization from the fact that they had to be compatible with the Apple Computer's Appletalk networking system, which was the "default format" of the preferred embodiment. Intel claims that these examples should not be construed to limit the claim language, especially when the patent explicitly indicates that the invention can be implemented in many different environments. See Col 1: 16-23.; Col. 9:19-20.

While "the descriptive part of the specification aids in ascertaining the scope and meaning of the claims inasmuch as the words of the claims must be based upon the description," what is claimed should not be restricted to the examples given in the specification. Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988). As noted by the Federal Circuit: "Where a specification does not require a limitation, that limitation should not be read from the specification into the claims." Id.; see also Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed. Cir. 1997).

As acknowledged by the parties, the ordinary meaning of the term "data" is quite broad. Moreover, it seems that the term "data" is used throughout the patent in a number of different ways. For example, in one section of the specification, the term "data" refers to a field within a frame, as indicated in Figure 11 and Figure 13. Col. 7:37-39. However, in another section of the specification, the term "data" refers to the entire frame that is sent from the source node to the destination node. Col. 5:55-61. At yet another point in the specification, the term "data" seems to refer to information generally. Col. 2:46:52.

It is improper to pick one of those uses and limit the claim to that one definition. Rather, the court's task is to construe the meaning of the term "transfer of data" as it is used in elements (b) and (c) of claim 1, which recite:

(b) a plurality of nodes coupled to said communication medium for the transfer of data between said nodes; wherein said transfer of data is a transfer of data from a source node selected from said nodes to a destination node selected from said node, and

(c) transfer format selection means for selecting a format for the transfer of data from said source node to said destination node;

Broadcom asserts that it is not unusual, in the field of communications systems, to distinguish between "data" and other information such as setup information. However, the court disagrees. Nothing indicates that this distinction was adopted in the 830 patent.

While other elements of claim 1 are limited by a number of wherein clauses that follow, the term "data" is not so circumscribed. The unmodified use of the term "data" in the claims themselves indicates that the claim drafter did not intend to vary from the term's broad ordinary meaning. The term "data" in claim elements (b) and (c) encompasses any information that is sent between nodes. Accordingly, the court finds that, in light of the claim language and specification, the term "data" means any thing passed between nodes that conveys meaning.
3. Transfer of payment

Claim 4 of the '364 Patent discloses: "The process of claim 3, wherein said process (g) of providing authorization data comprise the transfer of payment." '364 Patent, col. 16, ll. 13-15.

DE contends that "transfer of payment" means "data enabling the electronic record to facilitate payment." Dell contends that the phrase means "data enabling the electronic record to effect payment."

The language of the specification indicates that the transaction system "can arrange for the funds to be provided to the international carrier ... when the commercial title, bill of lading, etc. are presented so that the goods can clear national customs." '364 Patent, col. 14, ll. 16-18. The specification also provides that, "the present system is capable of arranging payments with local carriers." Id. at col. 14, l. 25.

Accordingly, the court finds that the plain meaning of the phrase, "transfer of payment," is "data enabling the electronic record to authorize payment."

GO BACK

4. "transfer peripheral device command"

EMC asks the Court to construe this term as: "A command that transfers new microcode to the peripheral device." 7 HP proposes (in its opposition brief):

A command sent by the operating system to a peripheral device in response to a transfer peripheral device request sent by an application program to the operating system. The command is received by the peripheral device while the device is in a waiting state, and it causes the peripheral device to download new microcode. The command is separate and functionally different from a previously received initiator peripheral device command.

The transfer peripheral device command is one that an operating system sends to the peripheral device in response to a routine legitimately called by an application program (e.g., a write or read request), as opposed to a special command for the peripheral device to which an application program would not normally have access.

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7 EMC stated at the Claim Construction Hearing on April 5, 2004, that it is willing to add language similar to the language added for the prior term. Transcript of April 5, 2004 Hearing, 88:21-24. Obviously, EMC did not intend to adopt the exact language, and thus the Court must alter it so that it is consistent with the meaning of this term. The Court assumes, only for the purposes of assisting in the discussion, that EMC intended to add the following to its proposal: "This command is sent by the operating system to a peripheral device in response to a transfer peripheral device request sent by an application program to the operating system, and causes the peripheral device to receive new microcode."

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Although the claim language does not clearly define the term, it indicates, consistent with the specification, that the peripheral device receives the transfer peripheral device command while it is in the waiting state. The new microcode is transferred to the peripheral device when it detects the transfer peripheral device command. Additionally, the transfer peripheral device command corresponds to a transfer peripheral device request sent from the application program -- executed by the computer system processor -- to the operating system routine. The written description further explains:

The operating system provides operating system routines, legitimately accessible to an application program, for providing
such access. In response to a call by an application program to such an operating system routine, the operating system will send a specific peripheral device control command . . . to the peripheral device to perform the requested access.

801:2/4-10.

HP’s proposal includes reference to the initiator peripheral device command. As discussed above, the prosecution history indicates that the patentee intended to claim an invention that uses a "two command sequence . . . to download replacement microcode." Deringer Decl., Separate Appendix, vol. 1, pp. 0170, 0174-75. This interpretation is consistent with the claim language and the specification, both of which describe a sequence of actions through which the peripheral device may receive microcode. That is, the peripheral device cannot receive microcode as part of the transfer peripheral device command prior to entering the waiting state in response to an initiator peripheral device command. HP also proposes language excluding a "special command." As stated above, a construction that includes access by an application program necessarily precludes the possibility of special commands.

Accordingly, the Court construes this term as "a command received by a peripheral device -- after it has entered the waiting state in response to the initiator peripheral device command -- from an operating system in response to a transfer peripheral device request sent by an application program to the operating system, and which causes the peripheral device to receive new microcode."

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8. “Transferring”

“Transferring” is utilized in asserted claims 15-16 and 29 of the ‘335 Patent. The Plaintiff asserts that the “transferring” does not need construction. Alternatively, if construed, the Plaintiff asserts that the proper construction is “sending.” The Defendants assert that the term should be construed as “sending toward a destination and relinquishing control of.”

The parties agree to the use of the term of “sending” but disagree as to whether any additional language is necessary. With regard to the Defendants’ use of “toward a destination,” it is noted that the surrounding claim language of each claim already includes this concept. For example, claim 15 states that the transferring is of “a request from an HTTP-complaint device to a page server.” Similarly, claim 29 states that the transferring is of “a request from an HTTP-complaint device to a dispatcher.” The inclusion of “toward a destination” within the term “transferring” itself is therefore unnecessary based upon the context of the claims themselves.

With regard to the “relinquishing control of” language sought by the Defendants, the Defendants point to a Microsoft Press Computer Dictionary definition that includes in transferring the concept of passing program control. Further, the Defendants assert that the purpose of the patent is to reduce processing burden. The Plaintiff argues that two other dictionary definitions noted by the Defendants do not include the relinquishing concept.

Once again, it is more instructive to look to the claims themselves. More particularly, in claim 15 of the ‘335 Patent immediately after the “transferring…to a page server” the claim continues with “said page server receiving said request and releasing said HTTP-compliant device to process other requests…” Likewise, claim 29 of the ‘335 Patent includes later in the claim “said page server receiving said request and releasing said HTTP-compliant device to process other requests…” To include relinquishing within the definition of transferring would possibly conflict with the latter claim language or alternatively be redundant. Further, to the extent that the Defendants assert that the purpose of the patent is to reduce processing burden, the recited releasing language is more related to that concept than the transferring.

As both parties have proposed definitions using the term “sending,” the Court includes that term in its construction. The Court construes “transferring” to mean “sending.”

4546
The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

1. "device"

In the "Field of Invention" portion of the '740 patent, "the present invention" is described as "related to a projection exposure apparatus for use to form a pattern of a semiconductor integrated circuit, or liquid crystal device, or the like." See Patent '740 at 1:16-18. Claim 10 repeats this use of "device," discussing a "method of producing a device, comprising . . . using an exposing method recited in claim 8." Id. at 46:3-5. As with any other term, the court must read "device" in accord with its claim- and specification-language context, both of which suggest that "device" means something more particular than the superficially generic "object or item" phrase ASML forwards. The claim language denotes a particular lithography-related "device," viz., the device produced through the lithographic process of transferring a pattern to a workpiece. Specification language, in turn, refers repeatedly to the imaging of a "circuit" "pattern" onto a substrate, typically in reference to various patent figures. See, e.g., 39:41-46 & 42:52-58; figures 29 & 32. Congruent with this intrinsic evidence, the court thus construes "device" to mean "an integrated circuit or similar item."

2. "workpiece"

Similar logic applies to evaluation of the term "workpiece." As it is used in claim 10, "workpiece" unequivocally refers to a substrate. In the lithographic process, the substrate (or wafer) is the item onto which the pattern is transferred; the text of claim 10—which discusses the transferring of a pattern—makes clear that "workpiece" is the item that receives the pattern. Taken together, these two conclusions make clear that "workpiece," as used in this context, is synonymous with "substrate." The court construes "workpiece" accordingly.

3. "transferring a device pattern to a workpiece"

Because the court has already construed "device" and "workpiece," it remains only to construe the meaning of "transferring." When read in context, the claim text discusses more than the act of transferring a generic device to a generic workpiece; it discusses, instead, "a lithography step of transferring a device pattern on a workpiece using an exposing method." See '336 Patent at 46:3-5 (emphasis added). The specification language likewise teaches that this lithographic "step" involves the formation of a "circuit pattern of a semiconductor device" through "a method[] in which a reticle [] pattern is formed on a substrate such as a semiconductor wafer." Id. at 1:21-25. Only because this substrate is "applied with photosensitive photoresist," the specification language adds, can a "circuit pattern [be] transferred"; that is, the transfer depends on the presence—and reactive quality—of photoresist. The meaning of "transferring a device pattern" reflects, and is defined by, this specification language.

Still, important as it is for the court to understand—and to construe—claim terms in the context in which they appear, it is equally important for the court to avoid folding independent claim (or specification) language into the construction of every discrete claim term. The court cannot ignore that the definition of "pattern" is itself finite; it does not embrace a summary, however pithy, of the operation of the entire photolithographic apparatus. Intrinsic evidence teaches that "transferring a device pattern on a workpiece" means "conveying, through a photolithographic process, the pattern for an integrated circuit or similar item onto a substrate with a photoresist layer." Standard canons of claim construction preclude the court from adding more.

5. Transferring Electrical Energy at a Predetermined Radio Frequency Range as Arcs in Ionized Conductive Pathways at a Predetermined Power Level Within the Gas Jet in an Electrical Circuit Which Includes the Tissue
The final disputed claim term "transferring electrical energy at a predetermined radio frequency range as arcs in ionized conductive pathways at a predetermined power level within the gas jet in an electrical circuit which includes the tissue" is found in Claim 10 as set forth above.

ConMed's Proposed Definition: Transferring electrical energy through an electrode within the nozzle or gas flow at a predetermined radio frequency by imparting an electrical charge to particles of the gas stream that allows the formation of the improved eschar.

Canady's Proposed Definition: A fulguration mode of operation.

(Docket No. 58, Ex. B, pp. 9-10; Docket No. 58, p. 20). Unlike the terms of Claim 1, this term at issue in Claim 10 is not a means plus function claim. Rather, I must give the terms their ordinary meaning as set forth under the standards above. I note from the Joint Disputed Claim Terms Chart that the terms ionized conductive pathways and gas jet are not in dispute. 14 See, Docket No. 58, Ex. B. p. 3. Thus, I must seek to construe the other disputed claim terms.

--- Footnotes ---
14 According to the parties, "ionized conductive pathways" is construed as pathways which carry electrical current, as opposed to radiate current and "gas jet" is construed as a directed or substantially laminar flow stream. Docket No. 58, Ex. B. p. 3.
--- End Footnotes ---

The specification provides as follows:

The ESG 46 supplies electrical energy over a supply conductor 56 of the cord 48 to the pencil 42. The conductor 56 is electrically connected in the pencil to a needle-like electrode 58 which extends into the nozzle 52. The electrical energy supplied by the ESG 46 is of predetermined characteristic sufficient to ionize the gas flowing through the nozzle 52 and to create ionized pathways in the jet 54. The electrical energy travels in the ionized pathways in the jet 54 to a body tissue 62 where it creates a predetermined electrosurgical effect on the tissue 62.

In the fulguration mode of operation of the ESU, also referred to herein as a "macro" mode of operation, electrical energy is transferred in the ionized pathways in the form of arcs 60. The arcs 60 travel within the jet 54 until they reach the tissue 62 at the electrosurgical site. The jet 54 expands slightly above the surface of the tissue 62 and the arcs 60 disperse over a slightly enlarged area of the tissue surface compared to the cross-sectional area of the jet 54. The electrical energy of the arcs is transferred into the tissue 62 and creates the upper arc hole reticulum or layer 30 and a desiccated layer 32 therebelow.

Docket No. 58, Ex. A. col. 8, ll. 14-37. The specification also teaches that "[e]lectrical power at a predetermined level is delivered from the power supply 308 to an RF drive circuit 312. The logic control 304 delivers RF switching signals to the RF drive 312, thereby causing the RF drive 312 to selectively couple energy from the power supply 308 to a resonant output circuit 314 at a frequency established by the RF drive pluses. Energy is transferred from the resonant output circuit 314 to the pencil 42, and current is returned to the resonant output circuit 314 from the patient plate 70 (FIG. 4)." Id. at col. 15, ll. 26-40. Consequently, I construe the term to mean transferring electrical energy, at a predetermined radio frequency from the RF drive to a resonant output circuit to the pencil to the needle-like electrode, which extends into the nozzle, to the tissue as arcs in ionized conductive pathways in a gas jet.

ConMed argues that the term "means transferring electrical energy at a predetermined radio frequency range" found in the second means-plus-function clause of Claim 1 must have the same meaning as the disputed term "transferring electrical energy at a predetermined radio frequency range as arcs in ionized conductive pathways at a predetermined power level with the gas jet in an electrical circuit which includes the tissue" found in Claim 10. Docket No. 58, p. 19. I disagree. To begin with, Claim 1 is in a means-plus-function format and Claim 10 is not a means-plus-function format. Second, the claim term at issue in Claim 10 contains additional language, namely "as arcs in ionized conductive pathways at a predetermined power level with the gas jet in an electrical circuit which includes the tissue," which must be given its ordinary and customary meaning or defined by the intrinsic evidence. Consequently, I reject ConMed's argument in this regard.
In addition, I reject Canady's proposed definition. (Docket No. 66, p. 54). Canady's proposed definition fails to take into consideration the entirety of the claim term at issue as well. Id.

5. "transform object"

TiVo argues no construction for this term beyond a definition for "object" is necessary, or, if construed, should mean "the portion of computer program that stores and retrieves data streams onto a storage device." See TiVo's Op. Br. at 22-23; '389 patent at cols. 7:48-50, 8:39-40, 14:62-64, 18:11-12; TiVo's Markman Slides at 140-49, 154-57.

EchoStar argues "transform object" means "a software object that changes the form of the data upon which it operates." See '389 patent at cols. 7:47-57, 7:66-8:18, 8:49-65, & Fig. 8; EchoStar's Opening Br. at 23-25; EchoStar's Slide Presentation at 121-22.

The Court finds it need look no further than the claims themselves to arrive at the plain and ordinary meaning for this term. For clarification purposes, however, this Court construes the term "transform object" as "a collection of data and operations that transforms the form of data upon which it operates."

4. "transformation component"

The term "transformation component" appears in several claims of the '990 patent (claims 1-7, 9-15). Informatica contends that the term "transformation component" is synonymous with the previously defined "transformation object," from the '670 and '775 patents, and thus proposes the two terms be construed to have the same meaning. Informatica proposes: "A reusable component for processing data according to predefined instructions." BODI proposes: "A transformation component is the same as a transformation object, which is a software binary file acting as an individual unit that possesses built-in autonomy and encapsulates the functionalities of a transformation. The autonomy of each transformation software component is manifested in two dimensions. The first dimension of component autonomy relates to how each transformation component implements staging (storing) the incoming data fields as it processes these data fields. The second dimension of component autonomy relates to how each transformation component automatically selects its own mode of manipulating data input/output. Each transformation component either pushes data to another transformation component, or performs a push/pull operation on the data."

The Detailed Description of the '990 patent specifically states that "[i]n the following detailed description of the present invention, some of the interchangeable key terms relating to the present invention are collected and defined in the section below to resolve possible ambiguity and to facilitate future reference." The precise term at issue here is listed immediately below this statement. "A transformation component is the same as a transformation object, which is a software binary file acting as an individual unit that possesses built-in autonomy and encapsulates the functionalities of transformation." These statements evince the patentee's intention to depart from the ordinary meaning of transformation component. The introductory language makes clear that it is discussing the components of "present invention." The statements in the specification about the meaning of a transformation component are not merely exemplary, rather they define the patentee's understanding and use of the terra transformation component in light of the claimed invention. "Because the inquiry into the meaning of claim terms is an objective one, a patentee who notifies the public that claim terms are to be limited beyond their ordinary meaning to one of skill in the art will be bound by that notification, even where it may have been unintended." Innova/Pure Water, Inc., 381 F.3d at 1117; see also Watts v. XL Sys., Inc., 232 F.3d 877, 883 (Fed. Cir. 2000) (concluding that the written description limits the invention by "stating that 'the present invention utilizes [the] feature'").
The term "transformation object" appears in numerous claims of the '670 patent (claims 1-5, 7-18, 20-35, 38-39) and three claims of the '775 patent (claims 1, 9, 11). Informatica points to the plain meaning of the term, as understood by one skilled in the art, and proposes the term be construed to mean "A reusable component for processing data according to predefined instructions." BODI proffers the construction "A transformation object is an object which transforms (i.e., modifies) data according to some predefined behavior or rule. An object has two parts. The first part has a declaration for the ports and attributes of the object, and the second part has a definition of the behavior of the object. A transformation object has input and output ports. Different transformation objects perform different, unique functions, and are selected according to the functions which need to be performed in order to generate the desired transformations."

As with the previous term, BODI advocates for a narrow construction of this term and relies on language in the intrinsic record. None of the indicia of a patentee's intent to limit the claims is present here. The intrinsic record provides no indication that the patentee acted as its own lexicographer during the prosecution and explicitly defined the term "transformation objects" to differ from its otherwise ordinary meaning. CCS Fitness, 288 F.3d at 1366. Nor is there any evidence before the Court establishing that the patentee distinguished this term from prior art on the basis of a particular embodiment or expressly disclaimed subject matter. Id. Finally, as discussed above, the specification does not state that TDL is the actual invention, nor is there any clear and unmistakeable disclaimer of the claim scope. "Absent a clear disclaimer of particular subject matter, the fact that the inventor may have anticipated that the invention would be used in a particular way does not mean that the scope of the invention is limited to that context." Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 909 (Fed. Cir. 2004) (internal quotation omitted). The Court declines to limit the claim to the preferred embodiment disclosed in the specification.

The Court adopts Informatica's proposed construction and construes the phrase "transformation object" to mean: A reusable component for processing data according to predefined instructions.

The phrase "TRANSFORMED SIGNAL HAVING A PREDETERMINED MATHEMATICAL RELATIONSHIP" (claims 1 and 13) means a signal representative of light of a second wavelength scattered by the tissue sample and that has a predetermined mathematical relationship to the first probe signal. There is no requirement that the transformation itself must be performed based on a predetermined mathematical relationship.

"a device that performs an N-point transform on each set of N data symbols to generate modulated data symbols as output, the modulated data symbols corresponding to a spreading of each data symbol over a separate code selected from a set of more than one and up to M codes, where M is the number of chips per code"
output, the modulated data symbols corresponding to a spreading of each data symbol over a separate code selected from a set of more than one and up to M codes, where M is the number of chips per code and where M equals N.

Claim 4 requires a transformer for operating, where M is the number of chips per code. The specification provides that "[t]he alternative transmitter shown in FIG. 4 includes a transformer 20 for operating on each set of N data symbols to generate N modulated data symbols as output. A series of transforms are shown." '802 patent, 4:40-43. The specification also describes "[e]xamples of the N-point transforms." '802 patent, 4:66. Similar to the “first computing means” term of claim 33, Defendants argue that the "transformer" term in claim 4 is indefinite, and thus renders claim 4 invalid, if M does not equal N. Defendants argue that, like independent claim 33, dependent claim 4 is invalid because the specification does not provide structure corresponding to the "M" chips per code function. Similar to its previous findings, the Court finds that changing N to M for certain terms is not an impermissible broadening of the claims during reissue. The Court finds that M need not equal N, and conversely, the Court is not convinced that M cannot be a different number than N. Thus, the Court rejects Defendants' arguments that claims 2, 4, 12, and 33 reciting the term "M" is invalid if M does not equal N. The Court further rejects Defendants' argument that this dependent claim is broader than claim 1 by eliminating the fixed numerical relationship between the number of data symbols and chips per code. The Court finds that the ordinary meaning of the term "transform" is to change in form, appearance, or structure; a mathematical quantity obtained from a given quantity by an algebraic, geometric, or functional transformation. Wi-LAN proposes a definition for the term "transformer" that is consistent with the ordinary meaning of that term, while Defendants do not provide a definition and only argue that M must equal N. The Court finds that while a transformer can be a device that performs an N-point transform, it may not necessarily be limited to such a device. The parties have not disputed the meaning of other claims that use the terms "transformer" or "transforms." Thus, the Court construes the term "transformer" to mean "a device that performs transforms."

2. A transformer having a primary side and a secondary side.

At the hearing, O2 offered a compromise construction of this term and Samsung accepted it. The court adopts that construction and defines this term to mean "a device, which when used, will raise or lower an incoming voltage, having a side receiving the incoming voltage, and a side outputting the raised or lowered voltage."

E. Transformers

The parties dispute the meaning of the term "transformers" that appears in Claim 3 of the '130 Patent. Use of these transformers in the claimed high-frequency phase shifter unit is important because one of its advantages over prior art is its simplification of power sharing. (See id., Col. 2, ll. 45-48.) Claim 3 claims "[t]he phase shift assembly as claimed in claim 1, wherein the first and second connection lines comprise transformers which share power in a predefined manner between the tapping sections of the at least first and second stripline sections." (Id., Claim 3, Col. 6, ll. 23-27.) Further, Claim 2 claims that "the at least first and second stripline sections have different impedance values." (Id., Claim 2, Col. 6, ll. 20-23.) However, both parties agree that the transformers themselves do not share power. (See Kathrein's Claim Construction Br. 12 ("transformers . . . permit power sharing"); RYMSA's Claim Construction Br. 27 ("A [t]ransformer itself does not share power . . . ").) Thus, the Court's construction of this term within the context of Claim 3 shall reflect this concession.

The Court agrees with RYMSA that Kathrein's definition of transformers, when read in the context of Claim 3, is unhelpful
because it merely repeats other language of the claim. (See Pl.'s Claim Construction Br. 12; '130 Patent, Claim 1, Col. 5, ll. 61-67 & Col. 6, ll. 1-19; id., Claim 3, Col. 6, ll. 24-27.) “The phase shift assembly as claimed in claim 1, wherein the first and second connection lines comprise [the connection lines permit power sharing between the tapping sections] . . . which share power in a predefined manner between the tapping sections of the at least first and second stripline sections.” (Defs.' Claim Construction Br. 28 n.3.)

RYMSA argues that the claim and the specification show that transformers are "portions of the connection lines that are specifically designed for controlling the transmission of electrical signals." (RYMSA's Claim Construction Br. 27-28.) First, with regard to RYMSA's interpretation that transformers are "portions of the connection lines," the Court does not find support for that construction in the intrinsic evidence. It is clear that the transformers may be the entire connection lines because Claim 3 states that the first and second connection lines themselves are transformers. (See '130 Patent, Claim 3, Col. 6, ll. 23-27 ("wherein the first and second connection lines comprise transformers"); RYMSA's Claim Construction Br., Ex. 2 at 46 ("the transformers are the connections 31a and 31b").) Because the transformers can be the entire connection lines, and not merely a portion thereof, the Court will, in part, use the term "devices" in this particular instance because the parties have not provided an alternative, more accurate, term.

Second, with regard to RYMSA's construction that the transformers "are specifically designed for controlling the transmission of electrical signals," RYMSA points to the specification that states:

"Suitable selection of the characteristic impedances and suitable regions of the connections 31a and 31b between the corresponding tapping points 29 as well as tapping points 27a and 27b, respectively, now allows the power to be shared at the same time between the dipole radiating elements 1a and 1d, on the one hand, and the further pair of dipole radiating elements 1b and 1c."

('130 Patent, Col. 5, ll. 8-14.) However, this language does not establish that transformers "control" anything. (See '130 Patent, Claim 3, Col. 6, ll. 22-27; RYMSA's Claim Construction Br., Ex. 2 at 46, 51.) Rather, in the context of the specification, the transformers (connection lines 31a and 31b) transfer electrical signals and match impedance values between a source of energy (center tap 29) and a load (tapping point 27a and corresponding dipole radiating elements 1b and 1c or tapping point 27b and corresponding dipole radiating elements 1a and 1d). Because the transformers enable power to be shared between the tapping sections of the at least first and second stripline sections and because each stripline section has a different impedance value, the transformers necessarily must match the impedance values between the source and the tapping section of each stripline section.

Accordingly, the Court holds that a clearer, more accurate construction of "transformers" is "devices that transfer electrical signals and match impedance values." Thus, in the context of Claim 3, and given the parties' agreement that transformers do not themselves share power but enable the sharing of power, the definition reads: "The phase shift assembly as claimed in claim 1, wherein the first and second connection lines comprise . . . [devices that transfer electrical signals and match impedance values] which . . . [permit the sharing of power] in a predefined manner between the tapping sections of the at least first and second stripline sections.”

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7. Transforming

The term “transforming” means converting each of the color characters to monochromatic characters by replacing the pixels in the color character that represent the foreground colors with the corresponding color pattern masks for those colors and by replacing the pixels in the color character that represent the background colors with the corresponding color pattern masks for those colors.
The parties agree that a transistor is an active semiconductor device with three terminals: a source, a drain, and a gate. Although Quality's opening brief on claim construction is silent on the issue, in its opposition to Pericom's opening brief Quality contends that the singular term "transistor" covers a product with multiple transistors connected in parallel if the aggregate dimensions of the channels in each transistor add up to the specific channel width and length dimensions required by the patent claims.

Pericom counters that where the word "transistor" is used in the claims only a single transistor is meant. In doing so, Pericom focuses primarily on the plain language of the claims and specifications. Pericom asserts that no ambiguity is present in the plain language of the claims and the specifications, and that the patent as a whole indicates that only a single transistor with the specified dimensions is covered. Pericom also makes several arguments based on the prosecution history of the '062 patent.

--- Footnotes ---

1 Among its many arguments, Pericom suggests that the use of the article "a" before the term "transistor" and all parts of the transistor establishes that these elements are singular. See North American Vaccine v. American Cyanamid Co., 7 F.3d 1571 (Fed.Cir. 1993), cert. denied, 511 U.S. 1069, 128 L. Ed. 2d 365, 114 S. Ct. 1645 (1994), in which the court in fact stated that it is "generally accepted in patent parlance that 'a' can mean one or more." Id. at 1576 (citing Robert C. Faber, Landis on Mechanics of Patent Claim Drafting 531 (3d ed. 1990)). Nonetheless, the court found "no indication in the patent specification" that the inventors intended the term to have anything but its singular meaning. Id. The court further stated that "while such an interpretation [i.e., a plural meaning] might make sense as a theoretical concept, it has no support in the specification." Id. Similarly, the specifications and accompanying diagrams of the '062 patent provide no indication that the inventor intended the term "a transistor" to encompass several transistors connected in parallel.

Pericom also uses the prosecution history to support its argument. Pericom states that dependent claims 4 and 10 which originally described two transistors arranged in parallel were rejected by the examiner because they were anticipated by the prior art. Rather than appeal the examiner's decision, Quality dropped the claims. See Ex. D (File History, '050 Application) at D-19 (Original Claim 4) (emphasis added); Ex. D (File History, '050 Application) at D-20 (Original Claim 10) (emphasis added). Not mentioned by Pericom is the fact that one of the examiner's objections to the claim was that the transistors were in fact connected in "inverse parallel," because their conductivity is opposite each other, rather than in parallel as stated in the claim. Heit Opp. Decl., at Ex. H. Although the claim was rejected because anticipated by the prior art, the original claim did not describe the exact configuration in contention, and therefore the rejection of this claim is not relevant. The rejection of claim 10 is not relevant because Claim 10 involved transistors that were two different types, so even though they were arranged in parallel they could not make up a transistor of the same type.

--- End Footnotes ---

Quality argues that a transistor is often made up of many smaller transistors arranged in parallel, aggregated to meet particular dimensions, and that the resulting device is then referred to as a single transistor. According to Quality, the addition of each smaller transistor is like adding lanes to a road. Although the width is increased, the road is still referred to in the singular. In support of this argument, Quality provides a definition of "transistor" found in The New IEEE Standard Dictionary of Electrical and Electronics Terms, quotes the deposition of the device's inventor, David C. Wyland, and quotes the Declaration of Richard D. Crisp, an expert in the field.

The IEEE definition of "transistor" provided by Quality sheds no light on its contention that a "transistor" can be comprised of several smaller transistors arranged in parallel: "an active semiconductor device with three or more terminals. It is an analog device." Quality also offers the testimony of Wyland and Crisp to bolster its conclusions. For instance, Wyland, the device's inventor, states in his deposition:

When you have two physical structures on a -- two physical transistor structures that are individual transistors when they are separated, if they're the same type made on the same process, when you connect them, gate to gate, source/drain to source/drain, source/drain to source/drain, they become a single transistor. And this is the way transistors are commonly made.
Field effect transistors having a channel width greater than 100 to 200 microns are conventionally constructed in the manner described by Mr. Wyland. A semiconductor layout designer will design a transistor by laying out in parallel multiple transistor structures of the same type until the desired dimensions are obtained. This is well known in the art.

Despite Quality's assertions to the contrary, the meaning of the term "transistor" as used in the '062 patent is unambiguous in light of the patent and prosecution history. Nothing in the patent or the prosecution history indicates that "a" transistor may consist of several transistors connected in parallel. For instance, the patent specification precisely defines the meaning of the channel length and width in reference to a single transistor, and points to Figures 3 and 4, which depict a MOS type transistor as a single device with one source, one drain, and one gate as well as a single channel, with a single channel width and a single channel length. '062 patent at 3:36-49. The specification clearly states that:

As shown in FIGS. 3 and 4, the channel length of a MOS type transistor is the distance L between the source and drain regions of the transistor while the channel width is the dimension W of the transistor . . . Another common definition of the channel length is the width of the gate that overlaps the active region of the transistor between the source and drain. Another common definition of the channel width is the length of the gate overlapping the active region of the transistor between the source and drain.

'062 patent, at 3:38-49. Given the diagrams and the language of the specification, it does not appear possible for the "active region" of a transistor as depicted in the diagram to include the separate connections between two or more transistors connected in parallel.

Although Quality correctly suggests that terms of art commonly known in the industry should not be defined in the patent, Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1534 (Fed.Cir. 1987), cert. denied, 484 U.S. 954, 98 L. Ed. 2d 372, 108 S. Ct. 346 (1987), something more than simple assertions provided by the inventor and a single expert are required to create or establish the presence of an ambiguity. Surprisingly, apart from the IEEE definition, Quality provides no documentary evidence showing that transistors are "commonly made" in this manner. For instance, if the channel lengths and widths of several transistors simply "add up" to the desired channel length and width when the transistors are connected in parallel, an elementary electrical engineering textbook would surely state such a simple linear relationship. The court finds it difficult to believe that a "common" occurrence such as the one Quality asserts here is not presented as part of some text or manual on circuit design.

Furthermore, the lack of ambiguity in the meaning of the term "transistor" makes reliance on the presented extrinsic evidence, such as the testimony of the Quality's expert and the device's inventor, inappropriate. As stated by the Vitronics court, expert testimony should only be used as a last resort when the claim language, the prosecution history and the specifications do not remove an ambiguity in the meaning of a term. Vitronics, 90 F.3d at 1583. As noted by the Bell court, the testimony of the inventor is entitled to little or no consideration since it is often a "self-serving, after-the-fact attempt" to broaden the scope of his or her patent. Bell, 132 F.3d at 706. Such is the case here, especially given the unsupported contentions of the device's inventor. Both the schematic drawings provided by Wyland and the testimony of Wyland and Crisp "inject a new meaning into terms that is inconsistent" with what is set forth in the '062 patent. See Bell, 132 F.3d at 706.

Finally, a similar dispute arose in Miles Laboratories Inc. v. Shandon Inc., 997 F.2d 870, 876 (Fed.Cir. 1993), cert. denied, 510 U.S. 1100, 127 L. Ed. 2d 232, 114 S. Ct. 943 (1994). Miles involved a claim for a tissue processing treatment that facilitated the viewing of specimens under a microscope. The plaintiff's claim described a "cabinet" containing the various parts of the apparatus. The claims, specification and drawings all disclosed a single cabinet whereas the accused infringer's
The court therefore construes the term "transistor" as used in the '062 patent to comprise only a single transistor with a source, drain and a gate.

"Transit Traffic"

Peerless proposes the following construction of "transit traffic": "Traffic between one telecommunications carrier and another such carrier, transmitted by a third carrier." NT agrees with this construction but would add to the end of the sentence "in a local region regardless of any other transport of the call." The key disagreement then, is whether "transit traffic" includes the long distance portion of the call. NT admits that the term as used in the industry has the broader definition proposed by Peerless. However, NT argues that the context of the '708 Patent makes clear that transit traffic means traffic within a local region.

When the phrase is considered in the context of the '708 Patent, "transit traffic" is intended to be limited to traffic within a local region. As NT points out, every relevant example and embodiment in the '708 Patent shows that the invention relates only to the segment of a call that occurs within a local region. Therefore, the Court, particularly considering the phrase in the context of the intrinsic record, construes "transit traffic" as "traffic between one telecommunications carrier and another such carrier, transmitted by a third carrier in a local region regardless of any other transport of the call."

The primary differences between the parties' constructions as to the term "transition times" is whether the "transition" is for a voltage waveform "across a primary winding" and whether "transition of a voltage waveform" means a "change from one voltage state to another."

SynQor argues that the language around the term "transition times" in the asserted claims states that the relevant transition is of a voltage waveform "of a primary winding," and that including that language in the disputed "transition times" term is not helpful. SynQor argues that unasserted claims of the patents-in-suit refer to "transitions times" of voltages for power MOSFET switches, not a primary winding, and thus Defendants' proposal is incorrect to add the "across a primary winding" language. SynQor argues that "transition" is a common English word, just like "change," and Defendants' proposal adds nothing of substance to the construction. Defendants argue that SynQor's proposed construction is deficient because it refers to a transition of "a voltage waveform" without identifying which waveform should be considered in determining the recited times. This generic reference to a "voltage waveform" implicitly suggests that any voltage waveform can be considered when determining the "transition times" required by the claims. Defendants argue that their construction is mandated by the claims because they are clear that the only voltage waveform relevant for determining the recited "transition times" is the voltage waveform across "a primary winding."

The Court finds that the claim language at issue requires that the voltage waveform of the primary winding has (i) a fixed duty cycle and (ii) transition times which are short relative to the on-state and off-state times of the controlled rectifiers. Thus, the Court agrees with the Defendants that the language "across a primary winding" is necessary and appropriate, because it is clear from the claims that the only voltage waveform relevant for determining the recited "transition times" is the voltage waveform across "a primary winding." Like in the previous term, the Court rejects Defendants' insertion of the language "voltage stage" when such a limitation appears unnecessary and not based on the claims or the specification. The term "transition" itself generally means to change. Thus, rather than repeating the word "transition" as SynQor proposes in its construction, the Court finds that the term "change" proposed by Defendants is accurate. Thus, the Court construes the term "transition times" to mean "time periods during which a change of a voltage waveform occurs across a primary winding."
7. The term "TRANSLATION CIRCUITRY" (claim 6) means "electrical components that make the sensor and meter electrically and physically compatible." This translation circuitry must be a part of the sensor probe.

Q. Translator/Translating

Visto suggests that the term "translator" means "software routines or code that convert information or data in one format to information or data in a second format." Seven contends that the term means "a global translator that translates between a global format and a Format A or between the global format and a Format B, but not directly between Format A and Format B or vice versa, and residing outside a corporate firewall."

This term is found only in the '708 patent. Seven, through its argument, incorporates the word "global" into this term and dictates where in the system the translator must be located. Seven relies heavily on a statement in the prosecution history in which the patentee distinguished a prior art reference (Smith) by describing claims 1 and 17 of the '708 as providing a "system and method for synchronizing two versions of a workspace element across a network using a global translator." According to Seven, the applicants limited the scope of the word translator to a "global translator" as exemplified by the preferred embodiment.

The court's review of the prosecution history reveals that the patentee did not limit the claim term in the manner Seven proposes. Read in context, the statement made in the prosecution history reflects an attempt to distinguish the Smith reference on the grounds that Smith failed to include the second store limitation contained in claims 1 and 17. As such, the court adopts Visto's definition of "translator" to mean "software routines or code that convert information or data in one format to information or data in a second format." Likewise, the term "translating" as used in various claims of the '708 Patent is defined to mean "converting information of data in one format to information or data in another format."

A. "transmission"! "transmitting away" /"transmission . . . to a select destination"

The term "transmission" appears in various forms including "transmission away"; "transmitting away" and "transmitting . . . to a select destination." These terms appear in a total of eleven claims in all of the Burst patents. Claim 1 of the '995 Patent is indicative.

1. An audio/video transceiver apparatus comprising: input means for receiving audio/visual source information;

   compression means, coupled to said input means, for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

   random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

   output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.

'995 Patent at 10:58-11:7. The parties agree that "transmission" should be understood as "sending."
The first issue in dispute is where the information is sent when the patent uses the term "transmitting away" or "transmitting . . . to a select destination." Burst contends that the information is sent to an external device. Apple disputes this construction, asserting that the inventor disclaimed sending information to an external device when he distinguished his patent from the Izeki prior art. Apple's argument turns on its particular understanding of the depiction of the reproduction device in Figure 1 of the Izeki patent. See U.S. Patent No. 4, 974,178 at Fig. 1 ("Izeki patent"). Apple contends that the dotted line surrounding the reproduction device in the Izeki patent indicates that it is external to the Izeki apparatus. The court is unwilling to conclude that Izeki teaches transfer of information to external devices based on this dotted line. In fact, Figure 1 of the Izeki patent includes a printer which is commonly considered an external device and it is not outlined with dotted lines. Id. In addition, the prosecution history of the Burst patents shows that the inventor distinguished the invention from Izeki by arguing that the Izeki prior art "is simply not concerned with transmitting audio/video information away from the apparatus to one or more receivers." Id., '705 File History, Brown Decl, Exh. L at APBU 652. The inventor contended that the Izeki prior art is an apparatus for editing and storing audio/video source information within the apparatus and without external transmission. Izeki Patent at 1:10-15. Therefore, Burst did not disclaim sending information to external devices.

Apple argues that the proper construction of "transmitting away" should be "sending information to a remote location," attempting to distinguish between sending information to devices that are local and devices that are remote. However, the term "remote" injects further ambiguity into the claim construction, and Apple offers no test to distinguish between devices that are local and devices that are remote, stating only that the difference is a matter of degree. Though the term "remote" is used in the patents, it is not used universally in association with transmission and should not be a limit on the term "transmission." Compare '995 Patent at 10:14-20 (using term "remote"), with id. at 11:3-8 (not using term "remote").

The second issue is whether the construction of "transmission" should be limited to sending information to devices capable of playback. Burst argues that the patent teaches transfer of information between transceiver devices that are capable of playback, relying on language in the '995 patent specification. The key language discussed by Burst appears in the '932 Patent specification: "The VCR-ET can receive/transmit a video program . . . from/to a variety of sources . . For example, a video program may be communicated at an accelerated rate from the first VCR-ET to a second VCR-ET . . . " '932 Patent at 8:18-23 (emphasis added). This language does not support Burst's contention; it indicates that transferred information may be to a device capable of playback, but not that it must. The court is unwilling to adopt such a limitation. Burst further contends that when the patent refers to transmission time it is relative to the duration of real-time playback of the audio/video source information. See, e.g., '995 Patent at 7:60-66. Burst suggests that this reference implies that the device receiving the information must be capable of playback. This conjecture is insufficient to limit transfer of information solely to devices capable of playback.

Accordingly, the court finds that "transmission" means "sending", and "transmitting away" or "transmission . . . to a select destination" means "sending information to an external device".

DTL contends that this limitation is not a means-plus-function limitation under § 112, P 6 and should be construed as "a transmitter." Cingular states that if the court does not consider the limitation to be a means-plus-function limitation, the term should be construed as "a transmitter in the form of an amplifier, amplifier driving a light emitting diode, or solid state diode laser and a transmit interface."

This term substantially reproduces the dispute regarding the meaning of "digital signal processing." For the same reasons discussed above, Claim 18 recites no structure to perform the "transmission means" function. Thus, the claim must be construed as a means-plus-function limitation.

DTL states that function is "transmitting the sequence of groups of digital bits to a location remote from the transducer means" whereas Cingular contends that the function is "transmitting the sequence of groups of digital bits output from the analog-to-digital converter means to a location remote from the transducer means." As with the "digital signal processing
means," the parties agree that the transmission means must transmit the sequence output from the analog-to-digital conversion, though it need not receive that sequence output from the analog-to-digital conversion means directly. The court finds that the function is "transmitting the sequence of groups of digital bits that are received, directly or indirectly, from the analog-to-digital converter means to a location remote from the transducer means."

DTL contends that the corresponding structure is "a transmitter, amplifier or radio transmitter, and equivalents thereof" Cingular proposes that the corresponding structure is "a transmitter in the form of an amplifier, amplifier driving a light emitting diode, or solid state diode laser and a transmit interface that changes the sequence of groups of digital bits into a format suitable for transmission such as a Yamaha part number YM3613B, or a substantially equivalent structure in existence as of September 1991."

The court again turns to the specification of the '799 patent to determine the appropriate structure corresponding to the "transmission means." According to the specification, structure for the "transmission means" includes a transmitter (col. 5, l. 66-67), an amplifier (col. 5, l. 68), an amplifier driving a light emitting diode or solid state diode laser (col. 6, ll. 8-9), and a radio transmitter (col. 6, l. 10).

Cingular argues that the corresponding structure must provide for a transmitter that includes a transmit interface, such as a Yamaha part number YM3613B disclosed in '799 col. 7, ll. 53-59. Cingular points to col. 5, ll.65-67, which states that "the output of the transmit interface is connected to a transmitter." Cingular's argument is unavailing. Figure 3 makes clear that the transmit interface 112, is a separate structure from the transmitter 116. The specification makes it clear that the data is converted by the transmit interface prior to transmission. "The A/D converter output data 110 is converted to a standardized form suitable for transmission by a transmit interface 112." '799 patent, col. 5, ll. 60-62. The transmit interface is not clearly linked to the function recited in Claim 18, and unless the structure is clearly associated with the claimed function, it cannot be corresponding structures for purposes of § 112, P 6. See Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1332 (Fed. Cir. 2003). Accordingly the court finds that the corresponding structure is "a transmitter, an amplifier, an amplifier driving a light emitting diode or solid state diode laser, a radio transmitter, or equivalents thereof."

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"Transmission channels" used in claims 9, 10, 24, and 25.

This disputed term appears in claim 9, which is dependent on claim 1, and in claim 10, which is dependent on claim 9.

9. The information transmission system of claim 1, wherein said transmitter transmits said data packets using multiple transmission channels.

10. The information transmission system of claim 9, wherein . . . said transmitter transmits data packets containing at least selected portions of said video program materials on at least one of said multiple transmission channels and primarily non-video information on at least one other one of said multiplicity of transmission channels;

The term also appears in almost identical language in claim 24, which is dependent on claim 16, and in claim 25, which is dependent on claim 24.

One of ordinary skill in the art would understand that, depending on the context, "channel" as used in the field of data transmission could have two meanings. Sometimes "channel" is used to refer to a band of frequencies of a determined width, measured in megahertz. (MHz). This is the way "channel" is commonly used when referring to common T.V. or radio channels. DirecTV argues that these claims should be limited to this construction.

But multiple "channels" can be carried on a single frequency using a technique called time division multiplexing ("TDM"). In this process, a transmission path (a frequency) is divided into time slots to carry data from several sources at the same time. For example, data from each of three sources is divided into a series of short pieces or "frames" each of which will fit into a time slot. The first piece of data from the first source is transmitted in the first time slot. The first piece of data from the second and third data sources follow in time slots two and three respectively. This sequence is repeated for the second, third and succeeding pieces of data from each source. In effect all three sources of data are transmitted on one path, but in
different, time differentiated "channels."

Finisar argues that "transmission channels" as used in these claims, encompasses both kinds of "transmission channel." The various technical dictionaries and references noted in the parties' briefs describe "channel" in both ways. But, contrary to Finisar's arguments, just because a word can be used in two or more ways, does not mean that it was. The issue is: what is meant by "transmission channels" in these particular claims?

This issue illustrates the tension between understanding the meaning of a claim term in the context of the specification, and incorporating limitations from a disclosed embodiment into the claims. In this case, more than one embodiment is described in the specification. The preferred embodiment is a single channel implementation, and at least one other embodiment is a multiple channel implementation. Several of the dependent claims appear to be directed specifically to a multiple channel implementation. But, although the specification describes at least two embodiments, the terms "channel," and "transmission channel" are consistently used to describe a band of frequencies. In fact, the specification distinguishes between a time division multiplexed "time slot" and a "channel" or "transmission channel."

The specification identifies the one-channel implementation as the "preferred embodiment." 505 patent, col. 4, 11. 65 -- col. 5, 11. 1-2. The specification indicates that satellite transmission channels can be used for different geographical areas. 505 patent, col. 5, 11. 2-5, and it refers to a "single satellite channel," suggesting a single band of frequencies rather than a single TDM time slot in a band of frequencies. 505 patent, col. 5, 11. 23-26. When "multiple transmission channels" are used, the subscriber stations "change the transmission channel being monitored" (' 505 patent, col. 7, 11. 27-36), and the satellite receiver must be told which channel should be selected (' 505 patent, col. 12, 11. 29-36). Bandwidth in a single channel transmission system may be subdivided into tiers, with 25% of the available bandwidth being reserved. 505 patent, col. 13, 11. 67 -- col. 14, 11. 37. The "bandwidth of a channel" (' 505 patent, col. 14, 11. 36) may be subdivided by TDM, suggesting a distinction between channel and TDM time slot.

This suggestion is much more explicit when the specification describes video programming, described as "a classic problem in that it tends to occupy large amounts of bandwidth." 505 patent, col. 16, 11. 46-48. The specification states that "in the preferred embodiment most video programming is transmitted on a separate channel." 505 patent, col. 16, 11. 54-56. This sentence is useless surplusage if "separate channel" refers to TDM. Of course the video programs have to be separated from other data. If only one frequency divided "channel" is being used, there would be no way to transmit the video programs separately, other than with TDM.

The specification then states that on this "separate channel" it would be "possible to use time multiplexing so as to transmit six video programs . . . simultaneously." 505 patent, col. 16, 11. 57-60. One of ordinary skill in the art would know that TDM could be used to transmit several programs on one frequency "channel" so there would have been no need to refer to the "separate channel" if it did not mean another frequency.

Claims 10 and 25 are clarified, when read in the context of the portions of the specification discussed above. Both of these claims describe transmitting video programming on "at least one of said multiple transmission channels" and transmitting "primarily non-video information on at least one other one of said multiplicity of transmission channels." 505 patent, col. 19, 11. 66 -- col. 20, 11. 3 and col. 23, 11. 7-12. What is the purpose of these dependent claims if "transmission channels" refers to TDM?

Hence, although the term "channel" may, in some contexts, apply to a time multiplexed slot on a band of frequencies, the specification of the 505 patent clearly distinguishes between a time multiplexed slot and a band of frequencies, with the latter being referred to as a "channel" or "transmission channel." n4 Therefore this claim term will be defined as follows.

"transmission channels" means "paths for transmitting electronic signals which are differentiated by their frequencies."

n4 The Court need not decide whether the term "channel" would properly apply to a TDM time slot in another context.

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n4 The Court need not decide whether the term "channel" would properly apply to a TDM time slot in another context.
5. Differential Input and Transmission Line

The last element of Claim 1 reads "driver means including low pass filter means having a differential input coupled to the current output for impressing an analog voltage onto a transmission line." '269 Patent at 7:1-4. With respect to the differential output, the parties now appear to agree that the term refers to the driver means and not the low pass filter means, thus the court accepts that construction.

The parties do dispute what transmission line includes. Seeq contends that it should be interpreted to include "any alternative transmission media which exhibit lossy characteristics, including twisted pair wire or radio frequency." Level One asserts that a transmission line refers to communication over a physical connection such as a line, a wire or a cable and that ether is not a lossy media. The court agrees that even though distortion may occur with radio transmission, the term transmission line suggests a physical media and it does not logically apply to radio frequency. While the '269 patent states that it "relates generally to problems in data communication systems having a lossy transmission media," '269 Patent at 1:7-9, it more specifically addresses "conventional transmission lines, such as twisted-pair cable" later in the specification. '269 Patent at 1:29-30. Accordingly, the court construes transmission line to encompass lossy physical media, such as lines, wire and cable.

"Transmission times" as used in two claim terms:

11b. "transmission scheduler reserves transmission times for transmitting portions of said information database requested by subscribers." Used in claim 37; and

11c. "said transmitting step including transmitting said requested portions of said information database during said reserved transmission times." Used in claim 44.

The parties agree that "reserving transmission times" means setting aside transmission times. Again the question is whether or not time has to be reserved in direct response to a request. This would imply that time was reserved only if a subscriber called in and requested certain information. That may be one embodiment, but, as DirecTV agrees, the "reserved" phrases used in the claims do not explicitly state that any action will be "in response to" subscriber request. DirecTV Brief, p. 29.

As with the earlier phrases, the plain language of the claim phrase simply provides that transmission time is set aside for transmitting data requested by subscribers. Nothing in this language limits the "request" to any particular type, nor does the language prohibit transmission of data during "unreserved" times. As pointed out above, data "requested" by a subscriber may be included in the basic subscriber service. 505 patent, col. 5, 11. 45-65.

This term will be defined as follows:

"Transmission times" are "reserved" by setting aside time for transmitting portions of the information database that are requested by subscribers.

1. Transmission system

The Court lets stand its previous definition of "transmission system" to mean an assembly of elements, hardware and software, that function together to convert items of information for storage in a computer compatible form and subsequent transmission to a reception system.
The Court addresses the definition of the phrase "transmission system" because it is a limitation on the method disclosed in Claim 19.

The parties dispute the proper construction of the phrase, "transmission system" as previously defined by the Court and as used in Claim 19. In the July 12 Order, the Court construed the phrase "transmission system," as it is used in apparatus Claims 1, 17 and 27 of the '702 Patent and in Claims 1-18 of the '992 Patent. Based on the arguments in the briefs and presentations made during the June and September hearings, the Court reconceives its definition of "transmission system."

When the meaning of a term is sufficiently clear in the patent specification, that meaning shall apply. Multiform Desiccants, Inc. v. Medzam, LTD., 133 F.3d 1473, 1477 (Fed. Cir. 1998) (citing Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388 (Fed. Cir. 1992)). "This rule of construction recognizes that the inventor may have imparted a special meaning to a term in order to convey a character or property or nuance relevant to the particular invention. Such special meaning, however, must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention." Multiform Desiccants, Inc., 133 F.3d at 1477.

In the July 12 Order, the Court treated "transmission system" as a term with a special meaning, namely, "an assembly of elements, hardware and software, that function together to convert items of information for storage in a computer compatible form and subsequent transmission to a reception system." (July 12 Order at 27-28.) The Court's July 12 definition recognizes that by "transmission system" the patentee meant something more than an apparatus which "transmits." The Court finds that the definition given in the July 12 Order recognizes some but not all of the components of what the patentee meant by the phrase "transmission system."

The phrases "transmission system" and "reception system" are coined terms. The inventions disclosed in the '992 Patent are audio and video transmission and receiving apparatuses and methods which operate over conventional communication channels, but ones in which a user remotely controls what material is transmitted and when it is played back. To accomplish this objective, the patentee disclosed an apparatus with interconnected components for preparing the audio and video information for user access and transmission, which the patentee coined as a "transmission system."

When the patentee acts as his or her own lexicographer, the court looks to the intrinsic evidence for a definition of the words and phrases used in a claim. Vitronics Corp., 90 F.3d at 1582. In the specification of the '992 Patent, the patentee defines the components of the "transmission system" as follow:

To achieve the objects in accordance with the purposes of the present invention, as embodies and described herein, the transmission ... system for providing information to remote locations comprises source material library means prior to identification and compression; identification encoding means for retrieving the information for the items from the source material library means and for assigning a unique identification code to the retrieved information; conversion means, coupled to identification encoding means, for placing the retrieved information into a predetermined format as formatted data; ordering means, coupled to the conversion means, for placing the formatted data into a sequence of addressable data blocks; compression means, coupled to the ordering means, for compressing the formatted and sequenced data; compressed data storing means, coupled to the compression means, for storing as a file the compressed sequenced data received from the compression means with the unique identification code assigned by the identification encoding means; and transmitter means, coupled to the compressed data storing means, for sending at least portion of a specific file to a specific, one of the remote locations.

('992 Patent, Col. 2:25-48.)

In specifying the components of "transmission system" the patentee uses a "structural tag plus means." Under this format, once a given means-plus-function component is introduced, the patentee may make subsequent references to the same structure by using the structural "tag" followed by the word "means," e.g., "After compression processing by compressor
116, the compressed audio and/or video data is preferably formatted and placed into a single file by the compressed data storage means 117." ('992 Patent, Col. 10:24-26). An apparatus claim which is in mean-plus-function format is limited to the corresponding structure in the specification and its equivalents. A method claim containing a preamble which requires that the steps be performed by an apparatus, is limited to that apparatus and any other apparatus identified in the specification for performing the specified step. Claim 19 is limited to the "transmission system" and "receiving system" disclosed in the specification.

In the July 12 Order, the Court defined some of the structures of the components of the "transmission system." Incorporation of those structures does not import preferred embodiments into a claim. The "transmission system" and "receiving system" and methods for using them to distribute audio and video information as described in the specification are the inventions in the '992 Patent. They are not preferred embodiments; they are the inventions themselves. When the embodiment is described as the invention itself, the claims are not entitled to a broader scope than the embodiment. Modine Manufacturing Co., v. United States International Trade Comm., 75 F.3d 1545, 1551 (Fed. Cir. 1996) (abrogated on other grounds by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed. Cir. 2000), rev'd by 535 U.S. 722, 122 S. Ct. 1831, 152 L. Ed. 2d 944 (2002)).

The specification includes drawings of the "transmission system" described as follows:

**FIGS. 1a - 1g are high level block diagrams showing different configurations of the transmission ... system of the present invention.**

('992 Patent, Col. 3:50-53.)

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**FIGS. 2a and 2b illustrate detailed block diagrams of preferred implementations of the transmission system 100 of the present invention.**

('992 Patent, Col. 5:59-61.) It is clear from the specification that the patentee intended "transmission system" to mean a particular assembly of elements depicted in the drawings and described in the specification. These elements are configured in such a fashion to fulfill the purposes of storing, retrieving and identification encoding, formatting, ordering, compressing, storing in a compressed data library, and transmitting information.

Further, in describing the components of the transmission system, the specification states which components are "coupled to" one another. The Court has previously defined "coupled to" to mean "directly connect to or attached to." (July 12 Order at 24.) The specification that a particular component be coupled to another is significant because it means that in order for information to proceed from one component to another, it must follow the same sequence. It also means that each interconnected component is essential because information can only be transferred to an interconnected component.

As used in Claim 19 of the '992 Patent, the Court construes the phrase "transmission system" to mean:

*An apparatus which comprises the following interconnected components: a source material library means, an identification encoding means, a conversion means, an ordering means, a compression means, a compressed data storing means (as illustrated in the block diagram labeled Figure 2a), and a compressed data storage means and a transmitter means (as illustrated in the block diagram labeled Figure 2b). The corresponding structure for each means is the structure identified in the specification for performing the recited function.*
5. "transmit/transmitting information regarding the acceptance and rejection of the onsite and remote auction bids"

The parties dispute the meaning of "transmit/transmitting information regarding the acceptance and rejection of the onsite and remote auction bids" as that term is used in Claims 1 and 3. AMS proposes that the claim term means simply "transmit[ting] facts or data regarding the acceptance and rejection of bids submitted by onsite and remote auction bidders." In contrast, Defendants propose that the term be construed to mean "send[ing] four types of information relating to auction bids: (1) information regarding the acceptance of remote bids, (2) information regarding rejection of remote bids, (3) information regarding the acceptance of onsite bids, and (4) information regarding the rejection of onsite bids."

In support of Defendants' argument that this claim term unambiguously refers to the transmission of four types of information, Defendants proffer three basic arguments. First, defendants argue that the use of the conjunctive in the claim term itself unambiguously requires the transmission of four types of information. Second, Defendants point to the specification, arguing that in order to "instill[] confidence of all parties . . . in the integrity of the process" (612 patent col.2, II 46-52), transmission of four types of information is necessary. Finally, Defendants note that during prosecution the inventors cancelled claims which employed the disjunctive and described the transmission of information about the acceptance or rejection of bids, and substituted the conjunctive form which eventually issued as Claims 1 and 3. Defendants argue that in light of this change in claim language during prosecution, the Court must give effect to that distinction.

In contrast, AMS argues that Defendants' proposed construction is overly restrictive, and that nothing in the claim language, specification, or prosecution history requires the transmission of four distinct types of information. The Court agrees. From the basic grammatical construction of the claim term, the Court sees no reason why four distinct types of information are required, and Defendants do not point out any reason why a single type of information can not relate to both acceptance and rejection of bids. Accordingly, the term "transmit/transmitting information regarding the acceptance and rejection of the onsite and remote auction bids" shall mean "transmit[ting] facts or data regarding the acceptance and rejection of bids submitted by onsite and remote bidders."

"Transmit channels"

Cisco's proposed construction is "logical channels of data transmitted out of a network." Alcatel's proposed construction is "logical channels of data transmitted to the customer premise equipment."

Essentially, the same dispute exists regarding the construction of "transmit channels" as for "egress traffic of a network." Alcatel claims that it is limited to traffic directed towards customer premise equipment, and Cisco claims that there is no such limitation. Again, Alcatel cites to various points in the specification where the term transmit channels is used in connection with references to customer premises equipment. See, e.g., Valizadeh, at 2:60-3:10. However, as before, the plain language of the claims indicates that "transmit channels" is not limited to data transmitted to the CPE. The term "transmit channels" is used in claims 1, 6, 7, and 12. However, the term is not explicitly referred to in connection with customer premise equipment in claims 1 and 12, but is referred to in such a way in claim 6. 11 Furthermore, the specification itself notes that "[t]he queuing and servicing schemes described herein may be readily adapted to any system wherein additional granularity is desired for ensuring fairness when data received from multiple receive channels is to be transmitted over a single transmit channel." Id. at 3:20-24.

11 Claim 7 is dependent on claim 6.
Thus, as before, Alcatel seeks to limit the claim language based on the preferred embodiment, and seeks to read into one claim a limitation included in another claim, which are both at odds with the general principles of claim construction.

Nevertheless, the principles of claim construction also require that the Court interpret the claims in light of the specification. See Netword, LLC v. Centraal Corp., 242 F.3d at 1352 ("The claims are always construed in light of the specification, of which they are a part."). Accordingly, in the same manner that the specification makes clear that "egress traffic" is not merely traffic exiting any "network," neither are "transmit channels" simply "logical channels of data transmitted out of a network," as Cisco suggests. Instead, transmit channels are used to transmit data to the slower network (such as customer premise equipment). See, e.g., Valizadeh, at 1:58-65, 2:60-67, 3:11-34, 3:45-55, 6:3-5, Fig. 2.

Therefore, the Court construes "transmit channels" as "logical channels of data transmitted to a network operating at a slower data rate."

**2. transmit control**

The term transmit control appears in Claim 1, for example:

Control means responsive to said monitor means for automatically transferring transmit control to the first microphone and disabling said second microphone such that transmission cannot occur through said second microphone when audible sounds are generated at said first microphone and for enabling said second microphone to transmit only when audible sounds are not generated at said first microphone.

Claim 1(e); see also, Claims 13(b) or 18(f). Plaintiff argues that "transmit control" means: "the power to regulate or exercise influence over a telephone line; in other words, control over the transmission of sound over the telephone line." This definition is not contested by defendants. Because the term is not defined in the claims, specification or prosecution history, the words are given their ordinary construction by the Court. Thus, the Court defines "transmit control" as used in the 501 patent to mean that "one microphone is given control." This definition applies to all the claims of the 501 patent.

**R. "receiving a transmitted reservation request"**

Claims 5 and 17 refer to a computer and a communications module that are used for "receiving a transmitted reservation request." (col. 27, ll. 36-37,44-45; col. 30, ll. 62-63.) The Defendants maintain that the disputed phrase is simply part of the limitation associated with the means-plus-function analysis of "communications module." Not only does this argument ignore the fact that "receiving a transmitted reservation request" is not always paired with communications module, but the Court has already determined that communications module is not properly construed in means-plus-function terms. The Court has previously construed "reservation request." "Receiving" and "transmitted," two commonly understood words, do not require construction.

**4. Terms Which Depend on the Construction of "transmitted symbol" and "received symbol"**

Disputed terms [17] to [22] of the '322 Patent will be analyzed together as they largely depend on the Court's construction of the terms "transmitted symbol" and "received symbol." Four terms are found in the last two steps of the method recited in Claim 1. The steps are:

[19] implementing said change at the transmitter in response to a [17] transmitted symbol having a symbol count
matching said value; and

[20] implementing said change at the receiver in response to a [18] received symbol having a symbol count matching said value.

'322 Patent, col. 12, 11. 5-10. Two terms are also found in Claim 20. This claim reads as follows:

20. A transmission system using multicarrier modulation, comprising:

a transmitter including a modulator for modulating multiple carriers each with an individually allocated number of data bits per transmission symbol, the transmitter including a [17] [21] transmitted symbol counter for counting transmitted symbols and a control unit for updating a number of data bits allocated to a carrier at a time dependent upon a count of the transmitted symbol counter; and

a receiver including a demodulator for demodulating the carriers to derive the allocated numbers of data bits from the multiple carders, the receiver including a [18] [22] received symbol counter for counting received symbols and a control unit for updating a number of data bits derived from a carder at a time dependent upon a count of the received symbol counter.


The parties dispute the construction of the two steps appearing in Claim 1. Based on the parties' proposed constructions, the issue is whether a "transmitted symbol" and "received symbol" must be entirely or completely transmitted or received, or simply be in the process of being transmitted or received. Plaintiff argues that the term "implementing said change at the transmitter in response to a transmitted symbol having a symbol count matching said value" requires two elements: 1) the change occurs after a symbol is "entirely transmitted," and 2) the change must be caused by that transmission. 16 (Pl.'s Opening Br. at 22-25). Plaintiff submits that the use of the phrase "in response to" supports such an interpretation. Further, Plaintiff contends that the tense of the word "transmitted," that is past tense, signifies that the act of transmission must have been completed before a change is effectuated. (Id. at 23).

Additionally, Plaintiff refers to portions of the specification to support its interpretation. For example, Plaintiff refers to the specification which describes Figure 3 in the patent. It states: "the transmitter control unit 36 includes the counter 38, which it increments immediately after the transmission of each symbol, and the receiver control unit 48 includes the counter 50, which it increments immediately after the reception of each symbol." '322 Patent, col. 7, 11. 10-14 (emphases added). Plaintiff asserts that this disclosure, in addition to the claim language, indicates that "it is the transmission of the symbol itself that . . . instigates cause for the change." (Pl.'s Opening Br. at 24). Logically, Plaintiff submits, these factors necessitate a construction that requires the "complete transmission" of a symbol.

In contrast, Defendants argue that in the context of the claims, and in light of the specification, a "transmitted symbol" is simply a symbol "being transmitted." (Chart at 6). Defendants claim that Plaintiff is attempting to import various limitations by equating "in response to" with "entirely after." Defendants argue that the ordinary meaning of the term "in response to" should be adopted. Based on a competent dictionary reference, Defendants define the word "response" as "[a] reaction, as that of an organism or mechanism, to a particular stimulus." WEBSTER'S II NEW COLLEGE DICTIONARY 945 (1995). Further, Defendants argue that the ordinary meaning of "transmit" means "to move data from one location to another location." THE NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1406 (1993). Combining these definitions, Defendants propose that the term should be construed as "implementing a change at the transmitter or receiver in reaction to symbols that are eventually transmitted." (Defs.' Reply at 17). Defendants assert that neither the intrinsic evidence nor the ordinary meanings of the words require the limitation that the symbol be "entirely
transmitted" before a change can be implemented.

Although the Court agrees with Plaintiff that the terms "transmitted" and "received" are drafted in the past tense, the Court concludes that the specification describes a dynamic or pipeline process in which symbols are being transmitted and received at any given time. The specification describes various radios, bridges, and routers to provide a wireless communication link to the programmed computer. The plain language of the claim does not rule out the possibility that a symbol may still be in the transmitter and be considered a "transmitted symbol." The same reasoning applies to the construction of "received symbol." Therefore, the Court will adopt Defendants' construction of "transmitted symbol" and "received symbol," and will adopt the ordinary meaning of the phrase "in response to."

Accordingly, the Court concludes: 1) [17] "transmitted symbol" means "a symbol that is in the process of being transmitted which may or may not be in the transmitter"; 2) [18] "received symbol" means "a symbol that is in the process of being received which may or may not be in the receiver"; 3) [19] "implementing said change at the transmitter in response to a transmitted symbol having a symbol count matching said value" means "a change is effectuated at the transmitter in reaction to symbols that are in the process of being transmitted that have a symbol count matching said value"; 4) [20] "implementing said change at the receiver in response to a received symbol having a symbol count matching said value" means "a change is effectuated at the receiver in reaction to symbols that are in the process of being received that have a symbol count matching said value"; and 6) [22] "received symbol counter for counting received symbols" means "a counter that counts symbols that are in the process of being received."
another" and "to send out (a signal) either by radio waves or over a wire." Pl. App. Ex. 48 at 475; Pl. App. Ex. 49 at 500.
Based on the dictionary definitions, Papyrus alleges that there is no requirement for direct transmission without intermediate processing or storage, as commonly understood. Pl. MHSP vol. 1 at 81.

NYSE, however, contends that the specification contains no disclosure regarding the sending of signals to some intermediate device between the first device and the second device. Def. Br. 24. As a result, NYSE ask the court to construe the term and phrase as meaning "directly sending between the identified devices without use of an intermediate network." Def. PCCO 3. Specifically, NYSE seeks to distinguish between transmission from the HHD to the programmed computer and communication from the programmed computer to the network system. According to NYSE, when the patent refers to a router and a network, it describes the connection between the booth clerk back into the network system, and the router is only involved when there is communication with entities other than the booth clerk and the floor brokers. See Markman Hr'g Tr. vol. 2 at 14-15. In contrast, NYSE alleges that phrase "direct transmission" refers to "data packet[s] fly[ing] directly from one computer to the other." Id. at 17. Moreover, in direct transmission, the data packet does not go back into the network through the router. Id.

To support its position, NYSE relies on both the patent language and the prosecution history. In citing the specification, NYSE repeatedly emphasizes the phrase "from a first device to a second device." See '877 Patent col.6 ll.42-43. The specification also states that "[a]ll data packets that are to be transmitted, either from the [base station] or the HHD, are handled by the routine illustrated in Fig. 15." Id. col.28 ll.2-4. Because the data packet is "placed in [the] outbound queue" in step 740 and is transmitted in step 742, NYSE alleges that there is no discussion of indirect transmission in the preferred embodiment. Def. Br. 25.

With regard to the prosecution history, NYSE argues that Papyrus defined the "transmitting" term and phrase during prosecution of the '362 Patent, which issued from the same initial application as the '877 Patent. Def. Br. 25; Def. MHSP 121. NYSE also alleges that "Papyrus amended its claims to expressly recite direct transmission . . . [by] add[ing] language that called for transmitting a data packet from a first individual to a second floor broker." Markman Hr'g Tr. vol. 2 at 18. Further, the prosecution history would lead a competitor to reasonably believe that Papyrus had disavowed indirect data transmissions, and therefore function as a disclaimer. Def. Br. 27; see Omega Eng'g, Inc., v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003) ("As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution.").

"When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation." Biovail Corp. Int'l v. Andrx Pharms., Inc., 239 F.3d 1297, 1301 (Fed. Cir. 2001) (quoting Elkay Mfg. Co., 192 F.3d at 980). In addition, "a statement made by the patentee during prosecution history of a patent in the same family as the patent-in-suit can operate as a disclaimer." Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1306 (Fed. Cir. 2007).

In this case, during the prosecution of the '362 Patent, Papyrus specifically explained the process of direct transmission in order to overcome prior art. 17 See Pl. App. Ex. 32 at 314. Following the June 7, 2001 amendment, the PTO examiner rejected the application because "the features upon which applicant relies (i.e., direct transmissions from one floor broker to another) are not recited in the rejected claim(s)." Office Action in Application Serial No. 09/668,184 (Aug. 27, 2001), Pl. App. Ex. 34 at 325. Papyrus again amended the patent application to expressly recite direct transmission. See Amendment in Application Serial No. 09/668,184 (Feb. 21, 2002), Pl. App. Ex. 35 at 328 ("transmitting the data packet from the first device to the assigned network address of the second handheld device"). To explain its proposed changes, Papyrus stated that "[t]he amendments to [C]laim 7 directly address the arguments in Applicants' prior Amendment since the amended [claim] expressly recites direct transmissions from one individual to another." Pl. App. Ex. 35 at 331. The examiner subsequently concluded that the closest prior art discloses a method of order management which fails to anticipate or render obvious the direct transmission from HHD to HHD. Pl. App. Ex. 37 at 340-41.

--- Footnotes ---

17 The amendment states that:

[t]he claimed arrangement enables direct data transmission between and among floor brokers . . . In contrast, Gutterman et al. has all data transmissions directed through the same electronic order entry system and provides no flexibility to allow
direct data transmissions from one floor broker to another.

Amendment in Application Serial No. 09/668,184 (June 7, 2001), Pl. App. Ex. 32 at 314 (emphasis added).

Although NYSE is correct in noting that the '362 Patent used "transmitting" to mean direct communication between HHDs, the prosecution of the '362 Patent Claim 7 does not limit the '877 Patent Claim 1 because the two claims use different language. Ventana Med. Sys. v. Biogenex Labs., Inc., 473 F.3d 1173, 1184 (Fed. Cir. 2006) (suggesting that statements made by inventor during continued prosecution of related patent application should not limit claim scope where patent-in-suit includes different claim language than later-prosecuted claim). The latter does not require direct transmission between two HHDs, but rather, transmission from a programmed computer to a HHD and from a HHD back to the programmed computer. See '877 Patent col.32 ll.29-31, ll.35-36. Given the different language in the claims, it would be inconsistent to apply the same construction to the term "transmitting" as it appears in the two patents. Moreover, because the claim language does not require direct transmission and because the specification calls for the use of radios and ethernet bridges, the court may not adopt a construction that builds in or precludes direct transmission. See '877 Patent col.8 ll.34-39; Fuji Photo Film Co., 386 F.3d at 1106. Accordingly, the court finds that both the term "transmitting" and the transmitting step mean "sending from one place to another."

6. "transmitting" or "transmit"

The parties dispute the meaning of the terms "transmitting" of claim 21 and "transmitted" of claim 24. Echostar argues that nothing in the plain and ordinary meaning of "transmit" requires any particular method of transmission, whereas IPPV argues that "transmitting" is limited to the sending of information by propagating a signal from the first location to the second, and does not include the sending of information by mail.

In support of its construction, IPPV points to a portion of the specification stating that "with the increased interest and activity in the field of subscription or pay video transmission of all types (e.g. broadcast and cable subscription television, long distance satellite transmission, television transmission of textual information, etc.), there has arisen a need for more secure transmission of high quality video information." IPPV argues that the examples set forth in this passage indicate that the mail service is not a type of "transmission" in the context of the invention.

Echostar argues in response that U.S. Patent No. 4,405,942 and the '217 patent, both Block patents, refer to transmissions and include mail as a method of transmission. IPPV therefore contends that the inventors knew that "transmitting" included use of the mail service, yet failed to expressly exclude mail as a method of transmission in claims 21 and 24.

When viewed in the context of claim 21, it is clear that "transmitting" refers to the transmission of a signal. The claim refers to "transmitting the encrypted television program signal to a receiver station" and "transmitting said control signal with said program signal." Program and control signals cannot be transmitted through the mail. The court also recognizes that the examples provided in the specification, broadcast and cable subscription television, long distance satellite transmission and television transmission of textual information, are all methods of sending a signal. The court therefore concludes that "transmitting" of claim 21 means the propagation of a signal from the first location to the second, and does not include the sending of information by mail. To be consistent throughout the patent, the court assigns the same meaning to "transmitted" of claim 24.

A. "transmission"! "transmitting away" /"transmission . . . to a select destination"

The term "transmission" appears in various forms including "transmission away"; "transmitting away" and "transmitting . . .
to a select destination." These terms appear in a total of eleven claims in all of the Burst patents. Claim 1 of the '995 Patent is indicative.

1. An audio/video transceiver apparatus comprising: input means for receiving audio/visual source information;

   compression means, coupled to said input means, for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

   random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

   output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.

'995 Patent at 10:58-11:7. The parties agree that "transmission" should be understood as "sending."

The first issue in dispute is where the information is sent when the patent uses the term "transmitting away" or "transmitting . . . to a select destination." Burst contends that the information is sent to an external device. Apple disputes this construction, asserting that the inventor disclaimed sending information to an external device when he distinguished his patent from the Izeki prior art. Apple's argument turns on its particular understanding of the depiction of the reproduction device in Figure 1 of the Izeki patent. See U.S. Patent No. 4, 974,178 at Fig. 1 ("Izeki patent"). Apple contends that the dotted line surrounding the reproduction device in the Izeki patent indicates that it is external to the Izeki apparatus. The court is unwilling to conclude that Izeki teaches transfer of information to external devices based on this dotted line. In fact, Figure 1 of the Izeki patent includes a printer which is commonly considered an external device and it is not outlined with dotted lines. Id. In addition, the prosecution history of the Burst patents shows that the inventor distinguished the invention from Izeki by arguing that the Izeki prior art "is simply not concerned with transmitting audio/video information away from the apparatus to one or more receivers." Id., '705 File History, Brown Decl, Exh. L at APBU 652. The inventor contended that the Izeki prior art is an apparatus for editing and storing audio/video source information within the apparatus and without external transmission. Izeki Patent at 1:10-15. Therefore, Burst did not disclaim sending information to external devices.

Apple argues that the proper construction of "transmitting away" should be "sending information to a remote location," attempting to distinguish between sending information to devices that are local and devices that are remote. However, the term "remote" injects further ambiguity into the claim construction, and Apple offers no test to distinguish between devices that are local and devices that are remote, stating only that the difference is a matter of degree. Though the term "remote" is used in the patents, it is not used universally in association with transmission and should not be a limit on the term "transmission." Compare '995 Patent at 10:14-20 (using term "remote"), with id. at 11:3-8 (not using term "remote").

The second issue is whether the construction of "transmission" should be limited to sending information to devices capable of playback. Burst argues that the patent teaches transfer of information between transceiver devices that are capable of playback, relying on language in the '995 patent specification. The key language discussed by Burst appears in the '932 Patent specification: "The VCR-ET can receive/transmit a video program . . . from/to a variety of sources . . ." '932 Patent at 8:18-23 (emphasis added). This language does not support Burst's contention; it indicates that transferred information may be to a device capable of playback, but not that it must. The court is unwilling to adopt such a limitation. Burst further contends that when the patent refers to transmission time it is relative to the duration of real-time playback of the audio/video source information. See, e.g., '995 Patent at 7:60-66. Burst suggests that this reference implies that the device receiving the information must be capable of playback. This conjecture is insufficient to limit transfer of information solely to devices capable of playback.

Accordingly, the court finds that "transmission" means "sending", and "transmitting away" or "transmission . . . to a select destination" means "sending information to an external device".
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[b] transmitting, by means of the data processing system, overt terms data representing the overt terms of the offer to trade to at least one party;  

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b. Do UEI's remote control devices transmit "in sequence a plurality of response command signals?"

UEI contends the phrase "transmit in sequence a plurality of response command signals" in claims 1 and 6 should be read to mean that the remote control device, without any intervening action on the part of the user, must be capable of transmitting more than one response command signal in response to a single key press. In support of this claim construction, Cook testified that this language describes an action in which the process is initiated by the user. The device on that action transmits in sequence a plurality of signals; that is, the device transmits a series or a large number of response command signals. He testified that the flow chart in Figure 5 shows this, as it describes a process whereby the user presses a learn button and then presses a category button. The unit then automatically continues to send command signals until the user releases the learn button.

Philips responds by again arguing that the flow chart in Figure 5 is simply a preferred embodiment and that nothing in the words of the claim requires that the signals be sent continuously without any user intervention. Philips contends that while the language of the claim is satisfied if the user holds down a button to send consecutive signals, it is also satisfied if the user presses two buttons alternatively, causing consecutive signals to be sent (as UEI's devices do).

In support of this proposed construction, that claims 1 and 6 do not claim a device that automatically scrolls through the library of codes, Philips notes that it has a separate claim that does claim an automatic search through the library of codes. Claim 9 reads:

9. Apparatus as set forth in claim 8, wherein said first user operable selector means comprises a keyboard having an 'identify' key: and

wherein said first user operable selector means generates said "identify" command during depression of said identify key and a "terminate" command terminating said transmission of said plurality of response command signals upon release of said identify key. (emphasis supplied)

Claim 9's specific identification of a device that automatically scrolls through a library of codes does suggest Philips's proposed construction is correct. Therefore, the words "transmitting in sequence a plurality of response command signals" in claims 1 and 6 should not be construed to provide for an automatic transmitting of a plurality of response command signals. Rather, these words are broad enough to include a user transmitting in sequence one at a time a plurality of response command signals, as the user does in UEI's step and set method.

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1. Claim 12 requires sending the executable software with the email message

The first step required by claim 12 of the '688 Patent is "transmitting said e-mail message and executable software associated with said e-mail message from said first computer using said first e-mail platform to said second computer using said second e-mail platform." '688 Patent col. 10:60-63. PostX claims that Sigaba wrongly reads a "limitation of transmitting executable software with the e-mail message" into the claim. PostX argues that, from prosecution history
through patent issuance, "associated with" was the chosen term to express the requirement that executable software is also transmitted from the sender to the recipient. Pl.'s Opp'n at 12:5-7. PostX warns the Court not to commit error in its consideration of prosecution history, arguing that using the prosecution history to interpret "what is meant by a word in a claim is not to be confused with adding an extraneous limitation . . . , which is improper." Intervet Am., Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1053 (Fed. Cir. 1989) (internal citation omitted).

The Court finds that it need not add extraneous limitations in order to find that Sigaba's interpretation of the claim is correct. In the context of the patent, "with" and "associated with" both suggest conjunctive meanings. In other words, "associated with" has elsewhere in the patent described something being sent "with" something else. See e.g., '688 patent at col. 6:30-32. Further, throughout the specification, there is ample evidence that the e-mail and the executable software together are sent to the e-mail recipient; the transmission of "embedded" executable software, for example, appears integral to the novelty of the PostX product. See e.g., '688 Patent title, col. 1:1-5 ("EMAIL PROGRAM CAPABLE OF TRANSMITTING, OPENING AND PRESENTING A CONTAINER HAVING DIGITAL CONTENT USING EMBEDDED EXECUTABLE SOFTWARE"); col.1:8-12 ("The present invention relates to . . . using embedded executable software."); col. 1:66 - 2:5, see also 2:6-8 ("the executable software that is transmitted as part of the E-mail message . . ."); 2:16-18; 4:4-12; 6:66-7:5.

In Sigaba's technology, the "e-mail sender's computer does not transmit any software with the e-mail." Chakraborty Decl., P 3 (emphasis in original). According to Sigaba's Senior Vice President of Engineering and Operations, Sayan Chakraborty, the disputed software does not at any point or within any embodiment allow for this feature as claimed in the '688 patent. The disputed technology, therefore, fails to meet the limitation of claim 12. Accordingly, the Court can at this point dispose of the case as the failure to meet any one limitation justifies summary judgment. See Intellicall, Inc., 952 F.2d at 1389. However, the Court will address the additional arguments for which parties provided extensive briefing.

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D. Transmitting surface

Claims 1 and 25 recite "a transmitting surface on the tip of the waveguide." The term "transmitting surface" is recited again in the 90% clauses. AMS proposes "surface through which electromagnetic radiation is transmitted from the tip in the targeted lateral direction" as a construction for "transmitting surface." LP proposes a construction limited to the embodiments disclosed in the specification, which is predicated on its argument that "transmitting surface" and the 90% clauses are means-plus-function terms. For the reasons previously stated, the Court concludes that "transmitting surface" is not a means-plus-function term. The Court finds no basis in the specification or prosecution history for limiting "transmitting surface" to the embodiments disclosed in the specification. See Phillips, 415 F.3d at 1323.

Beginning with the claim language itself, claim 1 recites "a transmitting surface on the tip of the waveguide." and "a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation . . . in a direction lateral to the propagation direction toward a particular area on the transmitting surface." Claim 25 recites "a transmitting surface on the tip of the waveguide" and "a reflecting surface on the tip of the waveguide for internally reflecting electromagnetic radiation . . . in a second propagation direction toward the transmitting surface." Claim 1 further recites that "greater than about 90% of electromagnetic radiation reflected by the reflecting surface is incident on the particular area . . . for transmission through the transmitting surface," while claim 25 further recites that "at least 90% of all electromagnetic radiation reflected by the reflecting surface is incident on the transmitting surface . . . for transmission through the transmitting surface." In short, the claim language indicates that electromagnetic radiation reflected by the reflecting surface is transmitted through the transmitting surface, which is on the tip of the waveguide, in a lateral or second propagation direction.

The specification describes electromagnetic radiation as being transmitted "through" or "out" the transmitting surface. See, e.g., '699 Patent col.5 ll.3-6, col.5 ll.66-68, col.6 ll.48-51, col.9 ll.39-43. The specification also indicates that electromagnetic radiation is transmitted through the transmitting surface in a desired lateral direction or second propagation direction and that the second propagation direction is the desired lateral direction. 8 See, e.g., '699 Patent col.2 ll.21-23, col.8 ll.42-46, col.8 ll.59-68, col.9 ll.39-44. As a result, the specification confirms that electromagnetic radiation is transmitted through the transmitting surface in a desired lateral direction.
8 AMS uses the term "targeted" rather than "desired" in its proposed construction. The Court discerns no difference between "targeted" and "desired," but adopts "desired" based on its use in the specification.

LP seeks to limit "transmitting surface" to the outside surface of an optical fiber's core cladding based on the prosecution history of the '699 Patent. After allowing claim 1, the patent examiner rejected original claim 26 as anticipated by Payne. The examiner maintained that Payne disclosed a transmitting surface on the tip of the waveguide. In response, the applicant amended original claim 26 to recite that the waveguide had "a glass cladding extending to a distal end of the tip" and stated in the context of describing one embodiment of the invention that the "transmitting surface includes a portion of the cylindrical outside surface of the core cladding." When taken in context, the applicant's statement does not constitute the "clear and unmistakable" surrender required for prosecution disclaimer. See Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1252 (Fed. Cir. 2000).

The Court construes "transmitting surface" as "surface through which electromagnetic radiation reflected by the reflecting surface is transmitted from the tip in the desired lateral direction." 9

9 LP contends that construing "transmitting surface" in terms of transmission "through" the surface ignores the 90% clauses, which recite that electromagnetic radiation is "incident on" the particular area or transmitting surface. Given the unambiguous language in the claims and specification indicating that electromagnetic radiation is transmitted "through" the transmitting surface, this argument is unpersuasive.

LP makes several collateral arguments with respect to the construction of "transmitting surface." First, LP contends that the accused product does not contain a transmitting surface because the surface interfaces in the accused product are removed by fusing. "[A] trial court should certainly not prejudge the ultimate infringement analysis by construing claims with an aim to include or exclude an accused product or process." Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1326-27 (Fed. Cir. 2006). The Court declines to determine if the accused product includes a transmitting surface at this time.

Second, LP asserts that AMS's proposed construction is suspect because AMS proposed three different constructions of "transmitting surface" during litigation of the '699 Patent in the United States District Court for the District of Massachusetts. LP also maintains that AMS represented to the Massachusetts court that the transmitting surface was on the surface of the optical fiber. The portions of AMS's Massachusetts brief cited by LP as establishing that the transmitting surface is on the surface of the optical fiber, however, simply describe specific embodiments of the invention, and LP has not identified which of the proposed Massachusetts constructions are inconsistent with AMS's proposed construction in this action or indicated that it has relied on the Massachusetts constructions. See SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1290-92 (Fed. Cir. 2005) (explaining when judicial estoppel arises in the context of claim construction).

Moreover, the Court "has an independent obligation to determine the meaning of the claims, notwithstanding the views asserted by" the parties here or in other proceedings. See Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1555 (Fed. Cir. 1995). Accordingly, the Court independently construes the terms here.

Third, LP contends that the patent claims require one, and only one, transmitting surface. The Federal Circuit has repeatedly emphasized the general rule that an indefinite article "a" or "an" in the context of patent claims carries the meaning of "one or more" in open-ended claims containing the transitional phrase "comprising." Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008). "The exceptions to this rule are extremely limited: a patentee must 'evince a clear intent' to limit 'a' or 'an' to 'one.'" Id. Here, "transmitting surface" was introduced using "a" in claims reciting "comprising" as the transitional phrase. In the absence of language in the claims, specification, or prosecution history necessitating a departure from the general rule, the Court construes "a transmitting surface" to permit one or more transmitting surfaces.
A. "Transmitting Surface" (Independent Claims 1, 7, and 25)

The court finds "transmitting surface" to mean "surface through which electromagnetic radiation is transmitted in the lateral direction."

The primary dispute between the parties over this term relates to the location of the transmitting surface. Defendants urge a construction that locates the "transmitting surface" on the outer surface of a round core cladding on the waveguide. They point to figures included in the patent (the '699 Patent Figs. 1-4 and 9) that show a transmitting surface located on the outside of the cladding but beneath any glass cap or transparent adhesive or other materials that lie on the outside of the cladding.

Defendants' limiting construction must be rejected because it would exclude an embodiment of the patent. A definition that excludes an embodiment of the patent is unlikely to be correct or "would require highly persuasive evidentiary support." Vitronics, 90 F.3d at 1583. The '699 Patent describes an embodiment of the patent in which a "transparent tube" is attached to the tip of the probe with adhesive. In Figure 12, the "transmitting surface" is located on the external surface of the transparent tube and not simply on the outside of the core cladding. Because this embodiment of the '699 Patent describes a transmitting surface located elsewhere than on the core cladding, Defendants' proposed definition is too restrictive.

2 This court's construction of the term "transmitting surface," though worded somewhat differently, is in line with Judge Eriksen's, in the sense that it rejects Defendant's more restrictive language. See Laser Peripherals, 2009 U.S. Dist. LEXIS 95387 at *25-*27.

A. "A Transmitting Terminal"

For the following reasons, this court construes the claim term "a transmitting terminal" in claims 1 and 9 to mean:

One or more devices that transmit a WDM optical signal.

The term "a transmitting terminal" is in claims 1 and 9 in the following context: "a transmitting terminal transmitting a wavelength division multiplexed (WDM) optical signal having a variable number of channels associated with different wavelengths." ('681 patent, col. 22:5-8; col. 22:54-57.)

Within the '681 patent's specification, transmitters are represented both as a single device and as a combination of devices. Specifically, Figure 25 illustrates "a transmitter (Tx) transmits a SV light beam to a receiver (Rx), were an SV light beam is light that is wavelength-multiplexed with a main signal." ('681 patent, col. 19:40-44.) So, a transmitting terminal, as represented by the transmitter Tx, can be a single device. Figure 1 of the '681 patent, however, depicts:

a conventional fiber optic communication system which uses wavelength division multiplexing to transmit, for example, four channels through a single optical fiber. Referring now to FIG. 1, transmitting units transmit individual carriers having wavelengths [lambda] 1- [lambda] 4, respectively. Each carrier is modulated with information and represents an individual channel. The different carriers are multiplexed together by an optical multiplexer into a wavelength-multiplexed optical signal. The wavelength-multiplexed optical signal is transmitted through an optical fiber to an optical demultiplexer.

('681 patent, col. 1:44-55; see Fig. 1.) Moreover, the conventional fiber optic communication system of Figure 1 explains
The dispute between the parties centers on whether claim 6, the only claim at issue, by its terms requires the data transmission path from the selected server back to the client to bypass the load balancer. Claim 6 provides (emphasis added to highlight the disputed claim limitation):

6. A computer-implemented method of servicing requests for resources from a client by nodes containing different resources, the computer-implemented method comprising the steps of:

   making a connection and setting up a session between the client and a load balancer at a web site for servicing requests from clients;

   waiting for a URL request from the client once the load balancer has made the connection with the client;

   receiving the URL request from the client and decoding the URL request to determine a requested resource;

   comparing an identifier for the requested resource to identifiers for resources located on a plurality of nodes and determining a first subset of the plurality of nodes which contain the requested resource and a second subset of the plurality of nodes which do not contain the requested resource;

   assigning the URL request to an assigned node in the first subset of the nodes which contain the requested resource, by determining the assigned node to be a server in the first subset of the nodes which is least busy processing requests, wherein the assigned node is not in the second subset;

   transferring the connection and the session setup to the assigned node containing the requested resource by storing packets received from the client when establishing the connection and by transmitting the packets to the assigned node after the URL request is received;

   reading the requested resource on the assigned node and transmitting the requested resource to the client,

   whereby the assigned node is selected based on a location of the requested resource determined from the URL request and load balancing is performed among nodes having the requested resource and the connection is transferred from the load balancer to the assigned node by re-transmitting the packets to the assigned node.

The key phrase "transmitting the requested resource to the client" lies at the heart of the dispute. The district court construed the phrase to mean "transmitting outbound data packets from the server directly to the client using the connection with the client which was transferred to the server, causing the outbound data to bypass the load balancer." (Emphasis added.) In other words, the district court held that claim 6 requires the bypass feature.

In the accused devices, Alteon's Web Switch products running WebOS software, all data transmitted from the selected server to the client passes through the load balancer. Under the district court's construction, the accused devices could not infringe claim 6. Accordingly, the patentee Resonate stipulated that it could not prevail under the district court's construction of the disputed limitation; a judgment of noninfringement was entered.

Resonate timely appeals the final judgment entered by the district court. Alteon supports the district court's construction and judgment, and in addition has filed what it denominates as a cross-appeal. In its cross-appeal Alteon states that, in the event we disagree with the district court's construction of the phrase "transmitting the requested resource to the client," and the
matter is returned to the district court for possible trial before a jury, we should "supplement" the court's construction of two additional limitations in claim 6--"making a connection" and "transferring the connection."

DISCUSSION

A.

The single issue raised on appeal by Resonate is the correctness of the district court's claim construction of the disputed phrase in claim 6. Claim construction is a matter of law over which we exercise independent review. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

As always, we begin our claim construction analysis with the language of the claim. There is a "heavy presumption" that the terms used in claims "mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201 (Fed. Cir. 2002). After identifying the ordinary meaning of a disputed claim term, we turn to the patent's written description and drawings to determine whether that meaning is inconsistent with the patentee's use of the term, Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001), for example whether the patentee has specially defined the term or otherwise limited the scope of the claim. SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1344 (Fed. Cir. 2001).

However, the written description is not a substitute for, nor can it be used to rewrite, the chosen claim language. Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment. Electro Med. Sys., S.A. v. Cooper Life Scis., Inc., 34 F.3d 1048 (Fed. Cir. 1994). In addition to the written description, prosecution history may be relevant to the claim construction process because statements made by a patentee during prosecution also may affect the scope of the claimed invention. Rexnord, 274 F.3d at 1343.

The disputed language in claim 6--"transmitting the requested resource to the client"--specifies nothing regarding the transmission path over which the requested data must be sent. It merely requires the requested resource to be transmitted from the "assigned node" (the server identified as the "least busy processing requests" from among those that contain the requested resource) to the client that initiated the request. The limitation contains no language regarding the load balancer's involvement in the transmission of the requested resource to the client; by its terms, the limitation fails to specify whether data must pass through or bypass the load balancer. Thus, based on the plain language of the disputed limitation, any transmission path from the selected server to the client appears to be within the scope of claim 6. The question then becomes whether there is sufficient reason--in the other language contained in the claim, in the written description, or in the prosecution history--to read into the claim the further limitation that the data must bypass the load balancer on its return to the client.

The district court based its claim construction primarily on its observation that every other step of claim 6 is described in detail, including every interaction between the client, load balancer, and assigned server. From this, the court inferred that if the requested data passed through the load balancer on its way to the client, that step would have been detailed in the claim as well. Because the limitation simply requires the server to transmit the requested resource to the client, the district court held that the language implies that the load balancer is bypassed.

The district court's 'level of detail' analysis does not withstand close scrutiny. The patentee's apparent choice not to specify a transmission path from the server to the client led the district court to add a limitation that the requested resource be transmitted directly to the client. But patentees are not required to claim each part of an invention with the same amount of detail; indeed, such a rule likely would prove unworkable. Courts may not rewrite claim language based on what has been omitted from a claim, and the district court's attempt to do so here was legal error. See K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1364 (Fed. Cir. 1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee."); Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 396 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he has set forth.").

Alteon argues that the district court's reading of the plain language of the claim is correct when the claim is considered as a whole. According to Alteon, bypassing the load balancer is the natural consequence of other limitations set forth earlier in
the claim. While it is true that a disputed claim limitation is construed in the context of other words and limitations in the claim, see Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 2003 U.S. App. LEXIS 13861, 2003 WL 21488142, at *1 (Fed. Cir. 2003), that canon of claim construction does not help Alteon here.

Most of the steps set out in claim 6 relate to the process of selecting a server based on the resource requested by the client. After the initial step of "making a connection" between the client and load balancer, the claim includes several steps detailing the server selection process, followed by the step of "transferring the connection" to the selected server. These steps constitute the 'delayed resource-binding' aspect of the invention; a connection between the client and a server is not made until the load balancer determines which server should receive the client's request. Only the final step of claim 6 involves transmitting the requested resource back to the client.

The crux of Alteon's argument is that once the connection is transferred to the server, transmission of data from the server to the client must occur over that connection, and use of that connection must necessarily cause the data to bypass the load balancer. This line of reasoning is flawed. First, nothing in claim 6 requires that the requested resource be transmitted to the client using the transferred connection. Second, and the issue focused on by the parties, is that even if data transmitted from the server to the client uses the transferred connection, no language in the claim indicates that data transmitted via the transferred connection necessarily bypasses the load balancer.

Alteon fills in the missing language by arguing that a proper understanding of the term "connection" in the TCP/IP context requires that the transferred connection must bypass the load balancer. We agree with Resonate that Alteon's view is overly narrow for at least two reasons. First, as the district court correctly held, nothing in the language of claim 6 requires the connection to be defined in terms of TCP/IP. In holding that a connection is established by the exchange of information uniquely identifying the connection, the district court accepted a portion of Alteon's proposed construction, to which Resonate eventually acceded. The court, however, declined to restrict its construction to the specific unique information Alteon argues is required by a TCP connection.

Second, even if it is proper to consider the TCP/IP context when construing the term "connection," there is no basis for limiting the interpretation to the particular TCP connection Alteon proposes. As Resonate correctly points out, the written description of the '660 patent teaches that TCP/IP can be modified to achieve desired routing of data packets. Therefore, even if one interpreted the term "connection" in the context of TCP/IP, it would be improper to restrict the meaning to any particular implementation of TCP/IP. We conclude that the language of claim 6, both the disputed phrase and the other language of the claim, does not require data transmitted from the server to the client to bypass the load balancer.

The next question to be addressed is whether the written description limits the scope of the claim. Alteon argues that the written description establishes that the claimed invention must include the bypass feature to avoid the potential bottleneck at the load balancer when large files are transmitted from the server to the client via the load balancer. In support of its position, Alteon refers us to several passages in various parts of the written description, including the abstract, "Background of the Invention," and "Summary of the Invention" sections, all of which discuss the bottleneck problem. In response, Resonate cites portions of the written description, including a section entitled "Advantages of the Invention" and an overview of the inventive method in the "Summary of the Invention" section, from which any mention of bypass is conspicuously missing.

Alteon accuses Resonate of ignoring bypass as one of the main inventive features by selectively citing parts of the written description. Resonate responds by criticizing Alteon for focusing on the bypass feature to the exclusion of the other main aspect of the invention, arguing that the key novel feature of the invention is the delayed resource-binding, which allows for content-based load-balancing and eliminates the need to mirror content on the multiple servers comprising a web site's server farm. The bypass feature, Resonate contends, is an additional inventive aspect, not included within the particular terms of claim 6.

The issue at this point may be stated thus: when the written description sets out two different problems present in the prior art, is it necessary that the invention claimed, and thus each and every claim in the patent, address both problems? We conclude that on the record in this case, the answer is no. While not explicitly mentioning the prior art problem of having to store complete copies of the web site's content on multiple servers, claim 6 contains provisions that refer to the solution to this problem: the preamble language indicating that the nodes (servers) contain different resources, and the steps relating to the delayed resource-binding aspect of the invention. The claim does not, however, make any reference to the bottleneck
problem or to the bypass solution of that problem. Therefore, without explicit claim language relating to the bottleneck problem, we see no reason why the invention as recited in claim 6 must include the bypass feature described in the written description as a solution to that problem. See Honeywell, Inc. v. Victor Co. of Japan, 298 F.3d 1317 (Fed. Cir. 2002) (holding that claimed invention did not need to solve both problems in the prior art when claim included language addressing only one problem).

Alteon also relies on the "Detailed Description" portion of the written description and the preferred embodiment contained therein for support of its position that claim 6 must include the bypass feature. It is undisputed that in the preferred embodiment of the '660 patent, data transmitted from the server to the client bypasses the load balancer. Indeed, the "Detailed Description" section contains a subsection entitled "Outgoing Data Bypasses Load-Balancer." However, as noted earlier, limitations may not be read into a claim from a preferred embodiment when the claim language is broader than that embodiment. See Electro Med. Sys., 34 F.3d at 1054. In this case, claim 6 is broader than the preferred embodiment because, as discussed, there is no language in claim 6 relating to the bottleneck problem or the bypass solution of that problem. Therefore, we conclude that the bypass feature, though shown as part of the preferred embodiment and discussed in the written description as a solution to the potential bottleneck problem in the prior art, is not properly a limitation of claim 6.

Nor is this conclusion undercut by anything in the prosecution history. The only argument in that regard that Alteon makes is that the examiner required the inventors to combine both the steps of delayed load-balancing and transferring the connection before he allowed the patent to issue. Even if this statement is true, which Resonate disputes, it is irrelevant because the thrust of Alteon's argument stands on its contention that bypass is an inevitable result of transferring the connection, an argument we have rejected. Therefore, we see nothing in the prosecution history to alter our conclusion that claim 6 does not require that data, transmitted from the server to the client, bypass the load balancer.

P. "transmitting the proposed reservation time to the PCD"

"Transmitting" is the only word in this disputed phrase that has not been construed. The ordinary meaning of "transmit" is "to send out." Webster's Third New International Dictionary (Unabridged) 2429 (1976). Thus, as proposed by the Plaintiff, "transmitting the proposed reservation time to the PCD" means "sending the proposed reservation time to the PCD."

A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties' Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. #292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
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<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>n2&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which&quot;</td>
</tr>
</tbody>
</table>
includes a central processing unit, a card reader, a keypad, and a communications interface

"ID information [stored on the terminal]" "data stored on the terminal in the form of merchant ID, store ID, or terminal ID"

"Stored thereon prior to the transaction" "stored on the terminal prior to the consumer presenting the debit card to the merchant"

"Relates . . . in a predetermined manner" "prior to a transaction, ID information stored on the debit card and ID information stored on a terminal are capable of being matched"

"Matching" and "Matched" "determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical"

"Retrieving via the terminal" "locating and returning, by means of the terminal, ID information and a card number stored on the debit card"

"Computer" and "Computer means" "a data processing device"

"Transmitting to a computer" "sending by means of a signal path to a computer"

"Validation" and "Valid" "indication of whether the ID information stored on the debit card matches the corresponding ID information stored on the terminal"

"Computer means disposed remotely" "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means" "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means" function "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means" structure "a modem or a signal path"

"Selected from a group of ID information" (Claim 2) "chosen from one of the following ID information"
n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

4587

7. Transmitting . . . to said device

The court adopts a construction of "transmitting . . . to said device" which is similar to the one adopted by Judge Brewster. The court construes this phrase to mean "transmitting information directly to the device without re-transmission of the information by an intermediate processor."

4588

8. "transmitting to a user remote access device at least one specific voice message linked to a specific one of said received first signals"

Klausner argues this term needs no construction apart from the construction of "user remote access device." Vonage proposes "the telephone answering device plays back the voice message to the user remote access device over the single telephone link between the telephone answering device and user remote access device."

Among other things, Vonage proposes that this phrase requires "play back" by the telephone answering device. While "play back" of a voice message may be one action taken to accomplish the transmission of the voice message, the concept of "play back" does not appear to be inherent in the word "transmitting," nor does Vonage point to anything in the intrinsic record, aside from a specific embodiment described in the specification, suggesting otherwise. The Court declines to incorporate details of a disclosed embodiment into a claim term in the absence of clear direction otherwise from the intrinsic record. See, e.g., Varco, L.P. v. Pason Sys. USA, Corp., 436 F.3d 1368, 1373 (Fed. Cir. 2006) ("In examining the specification for proper context . . . this court will not at any time import limitations from the specification into the claims."). Vonage also argues the requirement of using a "single telephone link" between the telephone answering device and the "user remote access device." That argument has been addressed above.

4589

III. Claim Construction -- The ' 505 patent, Claim 25

The disputed phrase appears in Claim 25. Claim 25 is a method claim which is dependent on Claim 24, which itself is dependent on Claim 16. Claim 25 is set out below with the disputed phrase in bold.

25. The information transmission method of claim 24, wherein said information database includes video program materials as well as non-video information; said transmitting step transmits data packets containing at least selected portions of said video program materials on at least one of said multiple transmission channels and transmits primarily non-video information on at least one other one of said multiplicity of transmission channels; and at a multiplicity of said subscriber stations, receiving and storing video program materials.

The court previously defined "transmission channels," as used in claims 24 and 25 as "paths for transmitting electronic signals which are differentiated by their frequencies."

Finisar's proposed definition is:
"Transmits information that constitutes more non-video than video on at least a second transmission channel, i.e., there is information that constitutes more non-video than video on at least a second transmission channel."

DirecTV's proposed definition is:

"The transmission capacity of one other of the transmission channels is mostly used to transmit non-video information."

The parties seem to have similar definitions of "primarily" -- DirecTV uses "mostly" and Finisar uses "more." But the court still must determine: "Mostly" what? "More" what? At first glance one might say "mostly" or "more" "non-video information." But how is that measured? Col. 5, 11.23-26 describes the data stream on a single channel as being transmitted at the rate of 1.5 megabytes per second in "fixed size 10KB (kilobyte) data packets having a maximum size of 10,000 bytes." Figure 6 diagrams a data packet. Each data packet has an identifier, a function code, error detection codes and "a set of data" of any size up to the maximum chosen for the system. See ' 505 patent, col. 10, 11. 48-51. But, while a data packet has a fixed maximum size, there is no limit to how little information it contains.

Finisar first argued that one simply counts up the number of data packets labeled or identified as containing non-video information and compares that to the number of data packets labeled or identified as containing video information. Nothing in the claim or specification indicates that transmitting primarily non-video information simply means having more empty data packets with an identifier of "non-video."

At the first Markman hearing, the parties analogized data packets to train cars. Here, an analogy would be to train cars labeled as containing a particular grain, say rice. If more cars were labeled "rice" than were labeled "wheat," (or alternatively if more cars actually contained some rice) then the train would carry mostly rice. So how does one compare fifty cars, each carrying a cup of rice with one caboose carrying fifty bushels of wheat? Could that train be said to "primarily" carry rice? Simply counting the labels on data packets, irrespective of their contents, renders "primarily" ineffective.

Finisar also argued that a transmission channel, which "transmits primarily non-video information" could be a frequency, which carried a great deal of video information, so long as there was some information (i.e., some data packets) on that frequency that contained "more non-video than video." This is contrary to the wording of Claim 25. The claim is dependant on Claim 24, which requires a method using "multiple transmission channels." Claim 25 requires the information database to contain "video program material as well as non-video information." "Data packets containing at least selected portions of said video program materials" must be transmitted on one of the multiple channels. The method of claim 25 "transmits primarily non-video information" on at least one other channel. If, as Finisar argues, all that is required is that some data packets on this other channel have more non-video than video information, then why is "primarily" included in the phrase? What distinguishes the "one other channel" from the first? One data packet a year which has mostly non-video information?

Continuing the parties' analogy, Finisar's construction would be like saying a train with a car carrying a ten pound bag of rice and ten cars each with fifty bushel baskets of wheat, carried "primarily" rice, because one car did. The word "primarily" would be superfluous. The court cannot assume that a word in a claim was included accidentally, or that it has no meaning. Whether the information transmitted by the patented method is measured in data packets, bytes, or in transmission times, or by some other recognized unit of measurement, Claim 25 requires one of the multiple channels to carry more non-video information than video information. Therefore this claim term will be defined as follows:

        "transmits primarily non-video information on at least one other one of said multiplicity of transmission channels" means: "most of the information which is transmitted on at least one of the frequencies is non-video information."

GO BACK

4590

15. Transparent

This term is present within claims 16 and 26 of the '727 patent. The plaintiff argues for a construction of "the support of upper layer protocols so that a remote device and a host server may communicate directly according to their respective
The defendants propose "to perform in a manner that is invisible to, and of no concern to a user." Based on the pertinent portions of the specification, the defendants' construction is proper, and the court adopts it.

7. (Substantially) Transparent

Defendants' Proposed Construction: "Substantially transparent" means transmitting light without appreciable scattering in a manner such as ordinary window glass so that objects placed behind the placard are clearly distinguishable.

Plaintiff's Proposed Construction: Leave undefined.

The Court's Claim Construction For Transparent: "Transparent" means transmitting light without appreciable scattering in a manner such as ordinary window glass so that objects placed behind the placard are clearly distinguishable.

Claim 2 states as follows:

2. The method of claim 1 wherein the provided placard is substantially transparent and printing is applied to one of the faces under the coating of said one of the faces.

MPT argues that "transparent" should not be defined because its common English meaning is clear. The problem with this argument is that the industry definitions provided by Defendants and incorporated into Defendants' proposed construction are entirely consistent with the Court's understanding of the common English meaning of transparent. The technical references state as follows:

"TRANSPARENT Transmitting light without appreciable scattering so that objects beyond are clearly distinguishable." (TLM p. 63).

"TRANSPARENT LABEL A pressure sensitive label whose face material, adhesive and protective coatings, transmit light so that objects can be seen through it." (TLM p. 63).

"Transparent - The ability of a material to transmit light without any appreciable scattering. Objects viewed through transparent materials are clearly distinguishable and are therefore also described as 'clear' or 'glass clear'" (Fairley p. 214).

"Transparent label - Pressure-sensitive label in which the face material, adhesive and any protective coating transmit light and through which objects can be clearly seen. A transparent label on a clear bottle will allow the color, nature and volume of the contents of a bottle to be viewed through the label. See also 'No-label look'." (Fairley p. 215).

Transparent has a well established meaning in the art and a person of ordinary skill in the art would recognize that meaning in the language of Claim 2. However, the Court recognizes that Claim 2 describes a substantially transparent placard. Neither party has attempted to explain to the Court how a substantially transparent placard differs from a transparent placard. Thus, the Court adopts Defendants' definition, but only for the term "transparent."

1. Transparent Light Scattering Materials

The term Transparent Light Scattering Materials is a portion of the specification of the 619 patent. Specifications are utilized in determining the claim language of the patent. This Court defines Transparent Light Scattering Materials, when taken in conjunction the fact that it is not the only means for combining, and read with the patent language, as material that is transparent, such as, but not limited to, glass, epoxy, liquid, or gas, including air.
resistivity lower than the active layers." Claim Construction Order, slip op. at 16-19. Epistar does not challenge or propose an alternative to this construction. It argues instead that the inventors disclaimed the use of ITO in the window layer.

To prevail, Epistar must establish the inventors "demonstrate[d] an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). With respect to Epistar's arguments that the inventors disavowed the use of ITO during the prosecution history, Epistar must also overcome a heavy presumption that claim terms carry their full ordinary and customary meaning, unless it can show the patentee expressly relinquished claim scope. Omega Eng'g v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003). For the following reasons, Epistar's arguments fall short of these standards.

Epistar argues that the Commission erred in permitting "transparent window layer" to encompass a current spreading window layer of ITO because "the very purpose of the '718 patent was to address problems with . . . the use of ITO." The specification of the '718 patent states:

The techniques proposed for minimizing the current crowding problem in AlGaInP LEDs have not been completely satisfactory . . . . Another technique is to use a transparent front electrical contact such as an indium-tin oxide instead of metal. Such transparent electrical contacts have high resistivity and lead to high series resistance in the device. Because of such shortcomings, it is desirable to provide a technique for distributing current from the front contact to the active p-n junction so that light is emitted more uniformly throughout the junction and device efficiency is enhanced.

'718 patent col.1 ll.57-59; col.1 l.67-col.2 l.8 (emphasis added). Although "transparent front electrical contact" and "transparent window layer" are separate structures, nowhere does the '718 patent specification or prosecution history state or suggest that ITO should not be used as a transparent window layer.

The ALJ correctly determined that the '718 patent does not disclaim the use of ITO as a window layer:

The Administrative Law Judge confirms that he does not find a clear disavowal of the use of ITO as a transparent window layer in the specification of the '718 patent. The specification does describe two unsatisfactory techniques proposed for minimizing the current crowding solution which include the modification of the front contact. One of those techniques involved the replacement of a metal front electrical contact with ITO. The Administrative Law Judge does not find, however, that a statement in the background section that the use of ITO was not "completely satisfactory" as a front contact is a disclaimer that ITO does not fall within the scope of the claimed "transparent window layer," which serves a distinct function in an LED.


The '718 patent's discussion of ITO addresses the "current crowding" problem, by using a transparent contact that permits more light to escape than an opaque metal contact. '718 patent col.1 l.67-col.2 l.3. A transparent contact does not block the light generated under the contact. Although current crowding still occurs, the use of a transparent contact, such as ITO, diminishes the problems of a metal contact.

In any event, this technique is not relevant to the '718 patent, which does not modify the front contact to solve the current crowding problem. Instead, the invention keeps the opaque "metal electrical contact" 25 but adds a "transparent window layer" 24 beneath it. Id. The claims and specification of the '718 patent consistently treat these two structures as separate and distinct elements. See, e.g., id., col.2 l.66-col.3 l.13 (claims 1 and 6 discussing metal electrical contact 25 and transparent window layer 24 in Figure 2).

In LizardTech, Inc. v. Earth Resource Mapping, Inc., this court held that where two steps (or structures) are "entirely different concepts and procedures" and identified as separate steps in the claims, no skilled artisan could reasonably construe them as a single element. 424 F.3d 1336, 1342-43 (Fed. Cir. 2005) (excluding the "altogether distinct process of taking a DWT [discrete wavelet transform]" from the scope of the claim term "maintaining updated sums of DWT coefficients"). As in LizardTech, the transparent front electrical contact is "entirely different" from the transparent window layer. Id.
Even if the patent specification did disparage the use of ITO as a window layer, this criticism does not rise to the level of a disavowal. Disavowal requires "expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex, 299 F.3d at 1325. A patentee's discussion of the shortcomings of certain techniques is not a disavowal of the use of those techniques in a manner consistent with the claimed invention.

For example, in Micro Chemical, Inc. v. Great Plains Chemical Co., the patentee explained in the background section of the patent that a prior art device using the "weigh dump method" was too slow and too inaccurate. 194 F.3d 1250, 1260 (Fed. Cir. 1999). The patent did not assert that the "weigh dump method" itself was the reason for the inaccuracies or slowness. Id. This court ruled that the patentee did not disavow the use of the "weigh dump method," even if the claim were construed as a step-plus-function claim under 35 U.S.C. § 112, P 6. Micro Chem., 194 F.3d at 1259-60.

Moreover, this case does not present an instance where an inventor distinguishes an invention over the prior art in an unmistakable disavowal of those prior art features. In Phillips, this court recognized that in certain cases, "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor." 415 F.3d at 1316. In such cases, this court interprets the claim more narrowly than it otherwise would to give effect to the inventor's intent to disavow a broader claim scope. Id.; Honeywell Int'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1319-20 (Fed. Cir. 2006); SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1342-44 (Fed. Cir. 2001). By the same token, this court also recognizes that disparaging comments alone do not necessarily show a manifest or express disavowal of the criticized subject matter. See, e.g., Ventana Med. Sys., Inc. v. Biogenex Labs., Inc., 473 F.3d 1173, 1180-81 (Fed. Cir. 2006) (finding that general comments distinguishing the prior art were not sufficient to limit the term "dispensing" to "direct dispensing"); In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1365-67 (Fed. Cir. 2004) (finding descriptions of the deficiencies of using mainframe computers did not exclude mainframes from the term "user computer" because the specification as a whole did not express a clear disavowal of that subject matter). In this case, the single, passing reference to ITO as a relatively unsatisfactory transparent electrical contact in the specification does not disavow the use of ITO as a transparent window layer.

Epistar argues that the '718 patent "cannot be construed to encompass ITO [because] the patent does not actually disclose a means of using it," i.e., the use of ITO in the transparent window layer is not enabled in the '718 patent specification. See, e.g., Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997) ("To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.") (internal citations omitted)). This court has also held that "[a]n applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention." Cordis Corp. v. MedtronicAve Inc., 339 F.3d 1352, 1365 (Fed. Cir. 2003); see also Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1534 (Fed. Cir. 1987) ("If an invention pertains to an art where the results are predictable, . . . a broad claim can be enabled by disclosure of a single embodiment . . . and is not invalid for lack of enabling simply because it reads on another embodiment of the invention which is inadequately disclosed.") (internal citations omitted)).

Because ITO as a transparent conductive layer was already known to those of skill in the art, the '718 patent specification did not need to make further enabling disclosures about its prior art uses. See, e.g., Spectra-Physics, 827 F.2d at 1534 ("A patent need not teach, and preferably omits, what is well known in the art."). Epistar acknowledges that methods of fabricating transparent ITO layers were known in the art with its discussion of the Lawrence patent that discloses an ITO current spreading layer, i.e., "transparent electrode." Accordingly, this court finds that the ALJ did not err in construing "transparent window layer."

2. "trap sequence number" Used in Claims 6 and 25.

Cisco initially proposed that this term should be construed as "a value associated with a trap that can be used to determine the order in which the trap has been sent." Telecordia suggested "a number associated with a trap that indicates the order in which the trap is sent." In its reply brief, Cisco agreed that "number" could be substituted for "value."

The parties agree that a "trap" is "an unsolicited message, notification, or other communication generated by a network element to indicate an event or status of the network element." This comports with the commonly understood meaning of
the term in this field of technology. See William Stallings, SNMP, SNMPv2 and CMIP: The Practical Guide to Network Management, p. 133 (1993) Exhibit E of Cisco's Opening Claim Construction Brief, [Doc. # 49, Attachment # 5, p. 3 of 3]; Exhibit 8 of Telcordia's Responsive Claim Construction Brief, [Doc. # 57, Attachment # 8, p. 8 of 9]. (defining "trap" as an unsolicited message). Nothing in the claims and specification indicates an intent to ascribe anything but its ordinary meaning to the term.

The specification states that each trap includes "a trap sequence number (TSN)." '656 patent, col. 4, ll. 40-41. A trap sequence number is an example of a "state variable." See '656 patent, col. 6, ll. 44-50. What both parties seem to miss in their respective briefs is that each network element may be sending traps to the network manager, each labeled in sequence. See '656 patent, col. 4, ll. 24-26. For example, if there were three network elements, there could easily be three traps with a sequence number of five. Telcordia's suggestion of a number which indicates the order in which the trap is sent is incomplete because the number five does not really tell the network manager very much. Likewise, Cisco's initial proposal is insufficient, because the number five, by itself, is not enough to determine where the trap falls in the sequence coming from a particular network element.

The trap sequence number is only useful in conjunction with the numbers associated with other traps sent by the same network element. For instance, Method 200 of the patent is described as beginning when a trap is received "from a particular network element 16." '656 patent, col. 8, ll. 49-51. (emphasis added) The trap includes a trap sequence number (TSN). '656 patent, col. 8, ll. 56-57. As part of Method 200, that number is compared with an expected TSN, and the result of the comparison determines what action is taken. '656 patent, col. 8, ll. 60 - col. 9, ll. 10.

Based on this analysis, and the agreements of the parties at the hearing, the court will define this term as follows:

"Trap sequence number" means "a number associated with a trap from a particular network element, which can be, and is, used to determine the order in which that trap has been sent with respect to other traps from the same network element."

D. Traversing

<table>
<thead>
<tr>
<th>Leader's Construction</th>
<th>Facebook's Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching</td>
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</tr>
<tr>
<td></td>
<td>according to a specific path or route</td>
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</tbody>
</table>

The term "traversing" appears in Claims 17 and 18. Both Leader's and Facebook's proposed constructions of the term "traversing" are closely related to their proposed constructions of the term "ordering," discussed above. Leader contends that its proposed construction is correct because one of ordinary skill in the art would understand "traversing" to mean "searching." (D.I. 179, at 10-11.) Further, Leader contends that the claim language describes "a process where the system searches for, and locates, the different data that is associated with the user environments" (id. at 11), directly supporting its proposed construction. Facebook similarly argues that one of ordinary skill in the art would understand "traversing" to mean "navigation by the user according to a specific path or route." (D.I. 191, at 33.) Facebook contends that the claim language requires that the user environments "be navigated according to a specific path or route as defined by their ordering." (Id.) Additionally, Facebook essentially makes a claim differentiation argument, contending that the patentee used the term "searching" in other claims and portions of the specification, and thus, "traversing" should not be construed as synonymous with "searching." (Id. at 33-34.) Leader responds that it can agree that "traversing" means "navigating," but that Facebook's proposed construction reads in two unsupported limitations: that the navigation must be "by a user," and "according to a specific path or route." (D.I. 196, at 9.)

The Court initially concludes that Facebook's proposed limitation- that "traversing" must be done "by the user"- is not supported by the claim language. In relevant part, Claim 17 claims "[a] computer-implemented method of managing data, comprising computer-executable acts of: . . . traversing the different arrangements of the user environments with one or more of the applications based on the ordering information to locate the data associated with the user environment." '761 patent, col. 22:12-13, 31-34 (emphasis added). Dependant Claim 18 claims "[t]he method of claim 17, the act of traversing
is performed using a webslice that includes traversal information for locating the data associated with a given user environment." '761 patent, col. 22:35-38 (emphasis added). By the plain language of Claims 17 and 18, the act of "traversing" does not require a certain action to be taken by a user, but rather is a "computer-executable act[]." '761 patent, col. 22:13. Facebook has not pointed to anything in the specification to support a construction of "traversing" which requires some action by the user. 2

2 Ironically, a portion of the specification which might be read to support Facebook's position that "traversing" must be done "by the user" provides as follows: "the data content is indexed to facilitate searching for the content in a number of different ways in the future by the user of other users." '761 patent, col. 3:50-53. However, Facebook maintains that "searching" and "traversing" are not synonymous. Because Leader has agreed that "traversing" can mean "navigating," the Court will not undertake an unnecessary analysis of whether "traversing" also means "searching."

The Court concludes, however, that "traversing" must be done "according to a specific path or route," as Facebook contends. Claim 18 clearly provides that "traversing" is an act performed for "locating the data associated with a given user environment." '761 patent, col. 22:35-38; see also Claim 17, '761 patent, col. 21:31-34 ("traversing . . . to locate the data associated with the user environments"). The manner in which data associated with the user environments is located is provided for by the Claims. According to Claim 17, "traversing" is done "based on the ordering information." '761 patent, col. 22:32-34. According to Claim 18, "traversing" is done "using a webslice [i.e., routing algorithm] that includes transversal information." '761 patent, col. 22:36-37. Transversal information, in turn, includes "at least a collection ID, a user environment ID, and a routing path to the location of the environment data." '761 patent, col. 22:40-41. Therefore, the act of "traversing" is more than merely "navigating" to locate data associated with the user environment- the navigation must be performed in the manner or path specified by the claim language. Accordingly, the Court adopts, in part, Facebook's proposed construction, and concludes that "traversing" means "navigation according to a specific path or route."

4596

(4) tree topology network

This term appears in only the presently asserted claims of the '395 patent. Similar to "star-topology network," the patentee defined the breadth of the term "tree topology network." The specification states, "[t]he system could also be arranged in a tree structure where one hub 44d is connected to others (44c 44f) as depicted e.g. in FIG 3B." '395 Patent, col. 3, ll. 24-26. The court is unwilling to adopt such strong limiting language asserted by Dell absent sufficient support from the specification.

The court defines "tree topology network" as follows: "a network configuration with a hub connected to other hubs in a tree-like structure."
from a "succession of N outputs from the trellis encoder . . . ." '627 patent, 4:20. According to the plaintiff, multiple outputs correspond to a separate state change and, therefore, a single state transition cannot be a limitation.

The defendants argue that a trellis state transition occurs only when the encoder has moved on to the next symbol. According to the defendants, the "succession of outputs" referenced by the plaintiff refers to subset identifiers which are generated in parallel while the encoder operates on the data. Subset identifiers collectively determine the trellis encoded symbol. The defendants argue that nothing in the intrinsic evidence suggests that these outputs are the result of multiple state changes in the trellis encoder.

The plaintiff's argument is correct. A trellis encoder working on a multiple bit word produces a succession of subset identifiers which collectively make up the trellis encoded symbol. See '627 patent, 5:1-30. The subset identifiers are then supplied to another encoder, e.g., a four-dimensional QAM encoder, which outputs a stream of signal points comprised of interleaved streams of trellis encoded channel symbols. Id. The plaintiff's construction of this term is correct, and the court adopts it.

III. "TRELLIS ENCODING ONES OF THE AGGREGATED BITS TO IDENTIFY, FOR EACH OF THE PLURALITY OF SYMBOLS, A RESPECTIVE SUBSET FROM WHICH THAT SYMBOL IS TO BE CHOSEN" ('154 patent, Claim 1)

As a preliminary matter, the July 20 Order appears to have caused some consternation on the part of Broadcom, which suggests that its proposed construction of this term may have been misunderstood by the Court. This concern is misplaced: The Court arrived at its holding through careful consideration of Broadcom's argument that each group of trellis-encoded bits is used to identify a single symbol subset. To the extent that confusion arose from the Court's citation to col. 14, ll. 22-31 of the '154 patent, the Court reiterates its interpretation of this specification as "disclaiming potential limitations of the subset-identification process on the basis of the specified embodiments of that process." Agere, 2004 WL 1658530, at *40, 2004 U.S. Dist. LEXIS 14187, at *144-45. In other words, the Court did not cite this specification as a direct contradiction of Broadcom's construction, but rather as a manifestation of the patentee's express intent to include as many embodiments of the subset-identification process as possible within the language of the claim term, thereby indicating that Broadcom's proposed limitation of the term to its embodiments was improper. Nonetheless, the Court, acknowledging that its claim construction included potentially confusing language regarding "successive identification of symbol subsets," clarifies that this holding was intended to indicate only that the instant term's ambiguity must, as discussed above, be broadly construed to include the possibility of identifying of multiple subsets per group of trellis-encoded bits.

In light of this clarification, the Court finds that the construction proposed by Agere, "trellis encoding some of the aggregated bits to identify one or more subsets from which one or more symbols is to be chosen," is consistent with the July 20 Order. This construction could, however, be interpreted to imply incorrectly that more than one symbol subset may be associated with a particular symbol. Thus, the Court adopts a slightly modified version of Agere's proposed construction:

"trellis encoding some of the aggregated bits to identify one or more subsets, from each of which one symbol is to be chosen."

14. "trench[es]" 4TThe term "trench" appears in three 229 patent claims as part of "trench capacitor" and in eleven 148 patent claims as part of "trench capacitor, " "capacitor trench, " "trench mask" and "said trench[es]." Three different constructions are offered for "trench[es]." UniRAM proposes that "trench[es]" means "a recess in the surface of a substrate." Jt Cl Const, Ex B at 29-30. TSMC requires that this recess be "deep," and MoSys additionally requires that the recess be in the "active area" of the substrate and that "the initial etching into the substrate is nearly perpendicular to the substrate surface." Id.

At no point do the claims or specification suggest that the initial etching must be nearly perpendicular. Moreover, the patents never indicate that the trench must be deep. On the contrary, the specification suggests that the storage capacitor for
the invention is smaller than that of prior art DRAM cells. 229 patent at 4:15-19, 17:46-50. Moreover, although MoSys and TSMC assert that figures 16(d) and 18(a) depict deep trenches, "the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration." Anchor Wall Systems, Inc v Rockwood Retaining Walls, Inc, 340 F3d 1298, 1306-07 (Fed Cir 2003).

Accordingly, the court adopts UniRAM's definition of "trench(es)" as "a recess in the surface of the substrate."

15. "trench capacitor"

"Trench capacitor" appears in three claims in the 229 patent and nine claims in the 148 patent. The parties briefed this term together with the term "trench." The issue is whether a trench capacitor is formed wholly or partially within a trench. UniRAM argues that a trench capacitor includes a lateral component that is outside of the trench and connects to a transistor. UniRAM Br at 45. MoSys and TSMC instead contend that the lateral component is not part of the trench capacitor, which they assert must be formed wholly within the trench. MoSys Br at 43; TSMC Br at 33, n22. MoSys also asserts that UniRAM's proposed construction is too broad and includes non-trench capacitors such as a stacked capacitors, which only have a small portion within a shallow recess in the substrate. MoSys Br at 42-43.

The court agrees with MoSys and TSMC that a "trench capacitor" does not include the lateral components. In a section beginning with the "following advantages are obtained according to this invention," the patent states that "three edges of the trench capacitor are defined by field oxide" and the fourth edge "is defined by mask." 229 patent at 20:24-29. Accordingly, the trench capacitor cannot include the lateral components, which lie on top of the field oxide and do not share the same four edges as the trench. Figs 14(g), 18(b). And although the court does not limit the term "trench capacitor" to this particular embodiment, the court notes that the patent does not clearly indicate that a trench capacitor includes components outside of the trench. Moreover, UniRAM's broad definition creates ambiguity because the boundaries between the trench, lateral components and top electrode are unclear. Accordingly, the court adopts a modified version of TSMC's definition of "trench capacitor" that fits with the construction of "trench" above: "A capacitor formed entirely within a recess in the surface of a substrate."

1."a plurality of trenches"

This term appears in claims 1, 3 and 16 of the '715 patent. Toshiba does not believe "a plurality of trenches" requires construction but alternatively suggests the term means "more than one groove." Jt Cl Const, Ex C at 1. Hynix argues that the term means "a plurality of recessed areas in which the upper boundary of each trench is defined by the top surface of the material that is removed to form the trench." Id. Hynix appears to refer to the "recessed areas" as "trenches" even within its own definition; hence, the court gathers that the crux of Hynix's construction is construing a "trench" as being bounded "by the top surface of the material that is removed to form the trench."

The specification teaches that a trench is formed by removing material from the substrate. '715 patent at 2:60-67, 4:49-52, 15:9-12, 21:1-8. After the trench is formed, it may be eliminated or have its depth reduced by removing other material comprising the trench's side walls. Id at 4:57-68 (removal of nitride film). Hynix defines "trench" based on its original dimensions; that is, Hynix contends that a trench extends up to the top surface of the material originally removed to create the trench. But if a trench's side walls are later reduced, Hynix's definition leads to an anomaly in which a "trench" exists in a volume of space above its surrounding material. Hynix has not shown that a person of ordinary skill in the art would expect this counterintuitive result, which contravenes the ordinary understanding that a "trench" is defined by its depth relative to the surface at any given time.
Accordingly, the court rejects Hynix's construction and the court declines to construe this straightforward term.

4602

F. "triangulation"

The term "triangulation" is used in claim 31 of the '763 patent: "wherein the positional data is acquired using a system selected from the group consisting of a global positioning system and triangulation." This term is found in the specification: "The first step in the registration process, block 102 is to determine the exact geographic location, block 201 of the communications device via either GPS, block 202, signal strength, block 203, Loran, block 204, triangulation or other similar location means." ('763 patent, 11:34-39) (emphasis added). EMSAT and LBS argue that "triangulation" covers "a method of calculating an unknown point, used by position determining systems such as LORAN, by forming a triangle having the unknown point and two known points as the vertices." On the other hand, Centennial asserts the following construction: "a method of calculating the location of an object by determining the angles from the object to two points having known locations."

The defendant argues that triangulation requires determining angles. Several dictionary definitions support Centennial's argument. See Navigation Dictionary 260 (2d ed. 1969). In its strictest sense, triangulation differs from trilateration, which measures distances instead of angles. Dictionary.com, http://dictionary.reference.com/browse/trilateration. But in the field of mobile phone location, rather than navigation or surveying, the defendant conceded that "triangulation" has a broader connotation that includes distance measurement.

Although the court is persuaded that "triangulation" as a generic concept might conceivably encompass GPS, the '763 patent explicitly refers to GPS as separate and distinct from triangulation. Claim 31 states that the mobile unit's position "is acquired using a system selected from the group consisting of a global positioning system and triangulation." Likewise, the specification explains, "The preferred means for establishing exact geographic location (EGL) is a satellite communication system such as discussed in the incorporated material. However, other means, including, but not limited to, triangulation and the like, can be used ..." ('763 patent, 16:50-54) (emphasis added). GPS is disclosed a means for determining exact geographic location that uses satellites. ('763 patent, 9:24-26). Thus GPS is different from triangulation. As such, the court construes "triangulation" to mean "a method, distinct from GPS, of calculating an unknown point by measuring the distance or angles of two or more reference points."

4603

C. Triangulation Calculation


The Court concludes that there is no significant disagreement between the parties as to the definition of triangulation calculation. For the purposes of this case, the Court adopts the definition of triangulation set forth in The Photonics Dictionary, with the further understanding that triangulation calculation involves the use of trigonometric principles.

4604

Claim 21 of the '015 patent reads as follows:
21. An apparatus for measuring an object, comprising:

- two ultrasonic transducer means, each having an emitter and a receiver associated therewith and oriented in substantially mutually perpendicular relationship to define a two-dimensional field of greater extent in each dimension than that of the largest object to be measured, said ultrasonic transducer means each being aimed across said field to measure a mutually perpendicular dimension of said object;

- a third ultrasonic transducer means having an emitter and a receiver associated therewith for measuring a third dimension of said object in a direction substantially mutually perpendicular to said first two measured dimensions;

- trigger means for selectively activating each of said transducer means to take a dimensional measurement when said object is in proximity thereto;

- timer means for determining travel time between the generation of an ultrasonic wave by each emitter and the receipt of said wave by its associated receiver after reflection from said object;

- correlation means for correlating said travel times to linear distances;

- computing means for determining the dimensions of said object from said linear distances; and

- data collection means for collecting said dimensional measurements.

('015 patent, col. 14, l. 61 -- col. 15, l. 21.)

Here, the "trigger means" claim element does not recite sufficient structure to perform the undisputed function of selectively activating, and Data Trak does not dispute and has not presented evidence to overcome the presumption that this is a means-plus-function limitation. As to the corresponding structure disclosed in the specification for carrying out the function, Quantronix contends that "trigger means for selectively activating each of said transducer means to take a dimensional measurement when said object is in proximity thereto" should be construed to comprise either a beam, a sensor, a timer, a footswitch, a software command or equivalents thereof. Quantronix points to the '015 patent specification, which provides in part as follows:

Given that orientation of movement, photocell 22 and retroreflector 24 are preferably mounted substantially in lateral alignment with sensors 14 and 16 so as to trigger a measurement when the leading edge of a large object 28 or a small object 26 interrupts the light beam between photocell 22 and reflector 24. Photocell 22 may be any commercially available photocell, preferably operating in the infrared polarized light range. Proximity sensors of various types, including but not limited to magnetic or capacitive, may also be employed.

('015 patent, col. 4, ll. 9-19.) Quantronix also points to the following portion of the specification:

Sensor 12 is triggered by the interruption by an object of the beam 23 between photocell 22 and retroreflector 24 (FIG. 5) in the instance of unit 10, and by the operator in the case of unit 110. Process controller 180, in response to photocell 22, produces a trigger signal, sent to pulser 202 and counter/timer 204, causing pulser 202 to transmit an activation signal to sensor 12 and counter/timer 204 to start counting. If static measurement unit 110 is being controlled, pulser activation may be triggered by a timer, footswitch, software command or other suitable means via unit 180. The pulser signal causes sensor 12 to transmit an ultrasonic signal burst toward the object to be measured.

('015 patent, col. 9, ll. 27-40.) In addition, Quantronix cites to the following portion of the Summary of the Invention:

[T]he measuring . . . operations may be triggered and data accumulated and processed by computer means; bar code or other optical character recognition via an optical character recognition reader decodes identification of the objects measured to automatically correlate measurements to a specific package[.]

('015 patent, col. 2, l. 67 - col. 3, l. 5.) Again, Data Trak does not dispute Quantronix's construction.
Although neither party entered the '015 patent's prosecution history as evidence for this motion, the parties represented at oral argument that there is nothing in the prosecution history that would assist the Court in claim construction and that the Court had everything that it would need in front of it to make a determination for the purposes of this motion. Relying on the parties' representations, and upon thorough consideration of the available intrinsic evidence, the Court agrees with Quantronix and construes "trigger means," for the purposes of this motion, to comprise either a beam, a sensor, a timer, a footswitch, a software command or equivalents thereof.

In addition, neither party entered the '392 patent's prosecution history as evidence for this motion either. And the parties similarly represented at oral argument that there is nothing in the prosecution history that would assist the Court for the purposes of ruling on the present motion.

Cygnus asserts that in the '964 patent, "triggered" is used in the ordinary English sense of initiated or precipitated. Defendants admit that "[t]he term 'triggered' is not defined in the specification" but argue that "triggered" should be limited to "(a) a matching of the incoming direct inward dial number (DID) with the assigned/stored DID number and (b) the subscriber hanging up." Defendants overlook that the specification uses "trigger" in another context in a manner consistent with Cygnus's interpretation and inconsistent with their own:

"Triggered" therefore merely means "initiated or precipitated."

Defendants argue that claim 1 of the '027 patent is invalid because the term "triggered" is indefinite, not enabled, and no written description in the specification supports claim 1's use of the term. However, given the constructions of "triggered" and "DID number," claim 1 is not indefinite and provides that "the center dials the callback number of the subscriber when the DID number is initiated, i.e., sent by the terminating LEC. Defendants' motion for summary judgment that the use of "triggered" renders claim 1 of the '027 patent invalid under § 112 is denied.

Defendants argue that "triggering signal(s)" and "triggering activity" are also not capable of construction. Defendants argue it is not possible to construe these terms in light of the patent's use of similar terms-"triggering event signal," "triggering activity signal," and "triggering event." Defendants concede that on its face a "triggering event signal" is a signal indicating a triggering event and, likewise, a "triggering activity signal" is a signal indicating a triggering activity.

The claims use the terms "triggering event" and "triggering activity" synonymously. The claims also use the terms "triggering signal," "triggering event signal," and "triggering activity signal" synonymously. Claims 7-14 are the best
example of this. In claim 7, the motion detector sends the controller "triggering signals." Col. 13:21-22, 25-26. The camera in claim 7 operates in at least two modes. In the first mode, the controller activates the camera mechanism upon receipt of a "triggering signal" from the motion detector. Col. 13:20-22. In the second mode, the controller increases the activity counter but does not activate the camera mechanism when it receives a "triggering signal" from the motion detector. Col. 13:22-26. In claim 8, which depends from claim 7, in the first mode, the controller both activates the camera mechanism and increases the activity counter when a "triggering activity" occurs. Col. 13:27-30. Thus, it is a "triggering activity" that initiates the "triggering signal." In claim 14, which depends from claims 13 and 7, the controller is programmable to ignore "triggering event signals" sent by the motion detector until a predetermined amount of time has passed. Col. 13:45-48. Since claims 7 and 13 do not require the controller to act on any "triggering event signals," such signals must be the "triggering signal" of claim 7. Thus, "triggering event signal" and "triggering signal" must be the same. Further, since "triggering activity" initiate the "triggering signal," "triggering activity" must also initiate "triggering event signals."

Other claims also illustrate this interchangeability. In claim 15, the motion detector sends the controller a "triggering activity signal." Col. 13:53-55. In claim 18, which depends from claim 15, information about a "triggering activity" is stored when the controller receives a "triggering signal" from the motion detector. Col. 14:1-3. Thus, claims 15 and 18 use "triggering activity signal" and "triggering signal" synonymously. Similarly, in claim 20, the controller stores a "triggering activity" upon receipt of a "triggering signal" from the motion detector. Col. 14:14-21.

In claim 21, the activity counter is programmable to display a predetermined number of "triggering events." Col. 14:33-35. In the pause state, the controller ignores any "triggering event signals" received from the motion detector for a predetermined time. Col. 14:36-39. Thus, in claim 21, "triggering events" cause "triggering event signals."

Claim 26 uses "triggering signal" and "triggering event signals" synonymously. In claim 26, the controller receives a "triggering signal" from the motion detector and acts upon the signal. Col. 15:12-19. The controller is also programmable to ignore any "triggering event signals" from the motion detector until a predetermined time has passed. Col. 15:19-23.

The specification supports the synonymous use of the terms. The Summary teaches that in the first mode of one embodiment, the motion detector sends a "triggering signal" to the controller and the controller then activates the camera mechanism. Col. 1:44-47. In the second mode of this embodiment, the controller activates the activity counter but not the camera mechanism when a "triggering activity" occurs. Col. 1:47-50. In another embodiment, the motion detector sends a "triggering activity signal" to the controller. Col. 1:51-57. In this embodiment, the camera's shutter button is located external to the housing allowing a manual activation of the camera. Col. 1:55-57. In a third embodiment, which includes a digital camera mechanism, the motion detector sends a "triggering signal" to the controller. Col. 1:58-64. The distinguishing feature of these embodiments is not the use of a "triggering signal" as opposed to a "triggering activity signal"; rather, it is clear from these descriptions of the embodiments that the drafter used "triggering signal" and "triggering activity signal" interchangeably.

In the Detailed Description, the specification teaches that, in one embodiment, the motion detector sends a signal to the controller when a "triggering event" occurs. Cols. 4:34-36, 8:2-4. A motion detected by the motion detector is one example of a "triggering event." Cols. 4:36-37, 8:4-5. Upon receiving the signal indicating the "triggering event," the controller sends signals to the flash and the camera mechanism. Cols. 4:37-40, 8:5-9. In another embodiment, the LCD display can be used as an activity counter to display the number of "triggering activities" detected by the motion sensor. Col. 8:17-19. In that instance, when the motion detector is triggered, it sends a "triggering signal" to the controller, which then increases the activity counter by one. Col. 8:19-22.

In the pause state, the motion detector sends a "triggering signal" to the controller, and the controller increases the activity counter by one. Col. 8:30-34. The controller then goes into a pause state and ignores the motion detector for a period of time. Col. 8:34-35. "This prevents a single motion activity from causing an inordinate amount of triggering signals." Col. 8:35-37. In the pause state, the controller ignores any "triggering events" of the motion detector for a predetermined amount of time. Col. 8:34-35. In another embodiment, the controller can be programmed to ignore a "triggering activity" during flash charging or film removal. Col. 9:2-5. The controller can also be programmed to go into the pause state after each "triggering event." Col. 12:3-4.

It is clear from the claims and specification that "triggering event" and "triggering activity" are synonymous, as are "triggering signal," "triggering event signal," and "triggering activity signal."
mean "signals sent from a motion detector in response to activity detected by the motion detector" and "triggering signal" to mean "one or more signals sent from the motion detector in response to activity detected by the motion detector." The Court construes "triggering activity" to mean "activity that is detected by the motion detector."

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1. Claim 1

Terms and phrases within subsections (b), (d), and (e) of Claim 1 require construction. Claim 1(b) states:

...triggering the activation of a high voltage and current generator in response to said sensed presence, said generator coupled between said high voltage electrode and said reference electrode, said triggered generator being activated for a predetermined time period.

There are two terms in Claim 1(b) that require construction: "triggering" and "predetermined time period."

With respect to the "triggering" term, Agrizap argues that triggering is defined as "any manner of initiating, actuating or causing activation of a high voltage and current generator in response to the sensed presence, such as through hardware, software or any combination thereof." (Agrizap's Reply Br., at 8). Woodstream argues that Agrizap's definition of "triggering" is unsupported by the patent and does not consider the term in the context of Claim 1(b). Woodstream's proposed construction is: "the sensed presence of a pest results in an immediate and irreversible triggering of the high voltage and current generator without regard to any verification of the sensed presence. " (Woodstream's Reply Br., at 7). In response, Agrizap argues that the triggering is neither immediate nor irreversible because after the pest makes contact, the invention allows for a delay to prevent triggering based on the momentary presence of a pest. According to the specification, when a pest makes contact, a voltage drop on the triggering mechanism occurs and there is a delay of the rising voltage to ensure that the timer is not activated by a momentary presence of a pest. (636 patent, col. 8, lines 21-36).

This Court will construe the "triggering" term as:

the sensed presence of a pest results in an immediate and irreversible triggering of the high voltage and current generator.

As Woodstream argued, the triggering is immediate and irreversible upon sensing the pest. The specification supports this conclusion. See Phillips, 415 F.3d at 1315 (stating that specification is single best guide for determining meaning of disputed term). The specification states that "[g]ood contact must be established before [the] current will be large enough to trigger a timing circuit." (636 patent, col. 4, lines 32-36). Furthermore, the specification states that after the voltage drop, "Capacitor 10 creates a time constant which delays the rising voltage on TTRIG 99 to ensure that the timer is not activated by a momentary presence of a pest." (636 patent, col. 8, lines 32-36). Thus, the triggering of the activation of the generator does not occur until after the delay of the rising voltage in the triggering mechanism. Once this delay has occurred, the generator is triggered immediately and there is no indication in the patent that it can be reversed.

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The same is true as to the construction of "trinary code generator for generating a three-valued or trinary code responsive to the variable binary code." Lear's construction focuses on the conversion from a "binary number generated by the binary code generator into the first trinary code." Such a construction impermissibly limits the claim to conversion from a binary number to a trinary code. As we noted above, the claims never limit the initial binary code to a "binary number," instead leaving the term open to encompass other numerical and character languages, including trinary code. Therefore, we construe "a trinary code generator for generating a three-valued or trinary code responsive to the variable binary code" to mean "a processor programmed to generate a trinary code in response to the variable binary code."

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2. truncated exponential biphasic [multiphasic] waveform

Claim 8 of the '212 Patent recites the delivery of electrical energy to a patient in a "truncated exponential multiphasic waveform." n10 Philips asserts that this phrase should be construed as "a defibrillation shock having at least two truncated exponential phases of opposite polarity." Cardiac Science contends that this term should be construed as "a waveform that is delivered in at least two phases, is interrupted prior to delivery of all energy, and ignoring change of phase and time between phases, has a continuous exponential shape." Thus, although the parties agree that each phase must be truncated and exponential in shape, the parties dispute whether the two phases must constitute one continuous exponential curve. In other words, the parties dispute whether if the second phase was flipped over, the second phase would start where the first phase ended (absent the interphase period), and continue with the same slope.

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n10 The term "truncated exponential biphasic waveform" appears in Claims 50 and 58 of the '454 Patent. That Patent, entitled "Electrotherapy Method and Apparatus," was issued on March 4, 1997. The claims at issue read as follows:

50. The method of claim 47 wherein the discharging step comprises the step of discharging the energy source across the electrodes to deliver electrical energy to the patient in a truncated exponential biphasic waveform.

58. A method for applying electrotherapy to a patient through electrodes attached to an energy source the method comprising the following steps

charging the energy source to an initial level prior to detecting a need to apply a shock to a patient,

determining the need to apply a shock to a patient,

charging the energy source to a second level greater than the initial level

discharging the energy source across the electrodes to deliver electrical energy to the patient in a truncated exponential biphasic waveform.

('454 Patent at c. 14, ll: 43-46; c. 16, ll: 1-12.) The '454 Patent is a continuation-in-part of the parent of the '212 Patent, and the '454 Patent provides no additional guidance with respect to the term at issue. Consistent with the parties' arguments, the Court will construe these claims consistently, the only difference being that the term "biphasic" applies to two phases, and the term "multiphasic" applies to at least two phases.

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The Court finds that the truncated exponential multiphasic (or biphasic) waveform need not be continuous. First, both the '212 and '454 Patents depict the truncated multiphasic (biphasic) wave form represented in Figure 1 as a preferred embodiment of the waveform, not ruling out that other waveform configurations may fall within the scope of the invention. In fact, both the '212 and '454 Patents refer to implantable defibrillators that use truncated exponential biphasic waveforms. Of the examples cited, the inventors refer to U.S. Patent No. 4,800,883 (the "Winstrom Patent"). Undisputedly, the waveform of the Winstrom Patent is noncontinuous. (See Axtell Ex. 70 (Winstrom Patent) at sheet 8, Fig. 8c.) In addition, a preferred embodiment of the '454 Patent describes removing a resistor from the circuit during delivery of a shock. ('454 Patent at c. 14, ll: 43-46; c. 16, ll: 1-12.) Cardiac Science recognizes that a variation in either capacitance or resistance can change the shape of the curve. (Cardiac Science, Inc.'s Mem. of Law on Claim Construction for Additional Claim Terms from Philips' Patents at 17-18.) When a resistor is removed from the circuit, the resistance of the circuit will change, thus resulting in a noncontinuous waveform. Cardiac Science's proposed construction would read out a preferred embodiment, which is rarely proper without strong evidentiary support. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).
For these reasons, the Court construes the term "truncated biphasic (multiphasic) exponential waveform" as "a defibrillation shock having two (at least two) truncated exponential phases of opposite polarity."

"Trusted time source" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that the phrase "trusted time source" means "a non-resettable and tamper-proof real time clock that is installed on or as part of the computer of a user who desires to time-stamp a digital data field" (Doc. 62 at 14). The plaintiff argues that the phrase "trusted time source" means simply "a source from which a time value that is trustworthy may be obtained" (Doc. 60 at 12). However, the latter definition contradicts the patents' express identification of a "local source of trusted time" as an important aspect of the invention. One of the express objectives of the plaintiff's invention is to "provide such systems, apparatus, methods, and articles of manufacture for time-stamping digital data files, which do not continually rely on a remote trusted source of time" (536 Patent at 14:14-18; 709 Patent at 14:2-6).

The plaintiff's proposed construction also contradicts the express teachings of the patents' specifications. In attempting to distinguish his invention over existing prior art, the patentee expressly defines a "trusted time source" as "a real time clock, which is not resettable, is independent of any system clock of the PC, and is installed locally relative to the PC" (709 Patent, Abstract). A patentee may act as his own lexicographer to specially define a word or phrase used in his patent. Markman v. Westview Instruments, Inc., 52 F. 3d 967, 979-80 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). If a patentee provides a definition to distinguish his invention over prior art, he may not later attempt to recapture the disclaimed meaning. Astrazeneca AB v. Mutual Pharmaceutical Co., 384 F.3d 1333, 1340 (Fed. Cir. 2004).

Further, both patents repeatedly distinguish the patented invention over prior art on the basis that conventional DTS used a time source remote from the user. In distinguishing his invention from conventional DTS, the patentee states "because the DTS is located remotely relative to the user, there is no way to provide a digital time-stamp locally at the user's site" (536 Patent at 11:58-67; 709 Patent at 11:64-67). "It would be much more desirable to provide systems and methods of time-stamping digital data files locally and without continuing reliance on a remote time source" (536 Patent at 13:36-43; 709 Patent at 13:23-30). This crucial distinction throughout the patent between a "remote" versus a "local" time source necessarily informs any construction of "trusted time source."

Finally, the plaintiff's urged construction of "trusted time source" as "a source from which a time value that is trustworthy may be obtained" (Doc. 60 at 12) is mere tautology and would render the patent indefinite. Because a "trustworthy" time value may vary widely with context, the plaintiff's proposed construction fails to provide the public adequate notice (as required by law n2) of the patentee's claimed invention. If "one of ordinary skill would not know from one [context] to the next whether a particular composition standing alone is within the claim scope or not . . . [t]hat is the epitome of indefiniteness." Geneva Pharms., Inc. v. GlaxoSmithKline PLC, 349 F.3d 1373, 1384 (Fed. Cir. 2003). The law requires definiteness "to guard against unreasonable advantages to the patentee and disadvantages to others arising from uncertainty as to their rights." General Electric Co. v. Wabash Appliance Corp., 304 U.S. 364, 369, 58 S. Ct. 899, 82 L. Ed. 1402, 1938 Dec. Comm'r Pat. 813 (1938); Athletic Alternatives Inc. v. Prince Mfg. Inc., 73 F.3d 1573, 1581 (Fed. Cir. 1986).

n2 35 U.S.C. § 112 requires a patentee to include "one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, P 2 (2006).

In sum, the patents' express identification of a "local source of trusted time" as an important aspect of the invention (536 Patent at 14:14-18; 709 Patent at 14:2-6), the patentee's express definition of a "trusted time source" (709 Patent, Abstract), the patent's repeated disavowal of a remote time source as used in prior art (536 Patent at 11:58-67, 13:36-43; 709 Patent at 11:64-67, 13:23-30), and the requirement of definiteness disfavor decisively the construction urged by the plaintiff. Accordingly, "trusted time source" means "a real time clock, which is not resettable, is independent of any system clock of
the PC, and is installed locally relative to the PC." n3

n3 This definition comports with the patents' prosecution history. Indeed, during prosecution of the 536 Patent, the U.S. Patent and Trademark Office amended the applicant's claims. The amendment expressly requires a "trusted time source" that is local to the user's PC (Doc. 99). Likewise, the examiner's "Notice for Allowability" for the 709 Patent explains that the "trusted time source" is installed on or as part of the user's PC (Doc. 99).

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2. "tuning said TV signals to a specific program"

TiVo argues no construction is needed for these terms, or, if construed, should mean "adjusting the system to receive signals at a particular frequency or a particular program." See TiVo's Op. Br. at 7-8; '389 patent at col. 3:37-46; TiVo's Markman Slides at 61-68.

EchoStar argues these terms should be defined as "using a tuner to select a radio frequency bandwidth that carries exactly one television program at a time." EchoStar's Opening Br. at 8-9; EchoStar's Response Br. at 15; EchoStar's Slide Presentation at 54-58.

The specification does not explicitly define "a specific program." The claim term "a specific program" does not appear in the specification. Based, however, on its use in the claims, the Court finds that one of ordinary skill in the art would understand "a specific program" to mean "a specified frequency range." The Court finds that the claim term "tuning" was used according to its plain meaning in the '389 patent and does not require further construction.

Therefore, the Court defines "tuning said TV signals to a specific program" as "tuning said TV signals to a specified frequency range."

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"Tunnel"

Cisco's proposed construction for "tunnel" is "path between a client and a network through an intermediary." Alcatel's proposed construction is "communication using encapsulation of packets."

Cisco argues that its proposed construction is the meaning of the term "tunnel" understood by one of ordinary skill in the art in 1996. See Leifer '019 Report, at 10. Alcatel does not dispute that one of ordinary skill in the art would have understood a "tunnel" to exist between a client and a network through an intermediary, but argues that such a definition also applies to connections other than tunnels. See Lazar '019 Decl., at P 49. Alcatel contends that a communication through a tunnel is accomplished in this patent by encapsulating the packets being sent over the tunnel. While this may be true, the claim language does not use the term tunnel to describe the means by which information is delivered over the tunnel, but is obviously referring to the tunnel itself, which is a path, not a communication method. For example, in claim 9, the term tunnel is used in the following manner: "forwarding the encapsulated link level protocol through the tunnel." Valencia, at 16:15-16 (emphasis added). The encapsulation requirement is separately referenced in the claim, and the "tunnel" is referred to as the path through which the encapsulated information is sent.

Nevertheless, as is clear from the claim language and the specification, the "tunnel" in this patent is referring to a communication link between a remote client and the local network. See, e.g., Valencia, at 4:6-9, 4:31-34, 16:35-36, Figs. 2-3. Therefore, the Court construes the term "tunnel" as "communication path between a remote client and a local network"
Cisco's proposed construction for this term is "path between a client and a network through an intermediary by which link level (layer 2) information is sent." Alcatel's proposed construction is "communication using encapsulation of packets according to the layer 2 forwarding protocol."

Both sides essentially restate their proposed constructions for the term "tunnel" while incorporating their respective notions of the definition of layer 2 forwarding protocol. As seen from the claim language, a "layer 2 tunnel" is no more than a "tunnel" operating according to a "layer 2 forwarding protocol." See Valencia, at 16:37-40, 59-67.

Therefore, in accordance with the Court's construction of the terms "tunnel" and "layer 2 forwarding protocol," the Court construes the term "layer 2 tunnel" as "communication path between a remote client and a local network through an intermediary, operating according to a layer 2 forwarding protocol."

2. Transmitting Registration Requests With Tunnel Identifier in a Key Field of a Tunnel Header

Starent also argues that summary judgment is appropriate because the ST products do not transmit registration requests with tunnel identifiers in a key field of a tunnel header. Our conclusion that the ST products do not use tunnel identifiers also disposes of this issue because if the ST products do not have tunnel identifiers then the ST products cannot transmit registration requests with tunnel identifiers in a key field of a tunnel header.

However, assuming, arguendo, that the ST products do use tunnel identifiers, we must determine whether the ST products transmit registration requests with the tunnel identifier in a key field of a tunnel header. First, the terms "tunnel header of a registration request" and "key field in the tunnel header" require claim construction. Starent asserts that a "tunnel header of a registration request" ("tunnel header") is the portion of a tunnel packet with information needed to route the registration request. Starent asserts that a "key field in the tunnel header" ("key field") means a specific field for identification located in the portion of a tunnel packet with information needed to route a registration request. UTStarcom argues that the "tunnel header" is the portion of a data packet containing the information used to identify the end points of the tunnel. UTStarcom argues that a "key field" is a specific field for identification located in the portion of a data packet containing the information used to identify the end points of the tunnel.

In regard to the term "tunnel header of a registration request," Starent finds support for its proposed claim construction in both the specification and the prosecution history. Specifically, the specification states that "[i]n tunneling, packets or frames from one network are placed inside frames (‘encapsulated’) of another network. The encapsulated frames may include a header with sufficient routing information to transmit the encapsulated frame from a source to a destination." (Def. St., Tab 2, ’905 patent, col. 1, ll. 34-38.) During prosecution, UTStarcom amended all of the independent claims to include the limitation that the tunnel identifier was "in a key field of a tunnel header" of both "the registration request sent to the home agent" and "data packets from the home agent." (Def. St., Tab 3, Prosecution History, February 15, 2006 Response to August 15, 2005 Final Office Action and January 10, 2006 Advisory Action at 2 (FH-0079).) In the Summary of the Claimed Invention section of the Office Action Response, UTStarcom stated that:

The foreign agent then tunnels this registration request to the mobile node's home agent. Before doing so, the foreign agent inserts the assigned tunnel identifier into a key field in a tunnel header that the foreign agent uses to tunnel the registration request to the home agent. When the foreign agent receives a registration reply tunneled from the home agent, that reply also has that tunnel identifier in a key field in the tunnel header.
In defense of its claim construction, UTStarcom simply states that "[g]iven the subject matter of the '905 patent and the detailed discussion of tunneling and the GRE tunneling protocol in the specification … one of ordinary skill in the art would understand the term 'tunnel header' to mean 'the portion of a data packet containing the information used to identify the end points of the tunnel.'" However, UTStarcom does not make any arguments or point to any specific evidence, intrinsic or extrinsic, to support its proposed claim construction. It only points to Dr. Olivier's unsupported, conclusory declaration that a "tunnel header" is the portion of a data packet containing the information used to identify the end points of the tunnel. We cannot consider such unsupported and conclusory assertions regarding the definition of a claim term in our claim construction analysis. Phillips, 415 F.3d at 1318.

Furthermore, UTStarcom's proposed claim construction is at odds with the intrinsic evidence. UTStarcom's construction is so broad that the "tunnel header" does not necessarily have to be in the header, nor tunneled. However, in the Summary of the Claimed Invention section of an Office Action response, UTStarcom stated:

Thereafter, when the foreign agent receives packets tunneled from the home agent for the mobile node, those packets will be encapsulated in a tunnel header having the tunnel identifier in a key field.

(Def. St., Tab 3, Prosecution History, February 15, 2006 Response to August 15, 2005 Final Office Action and January 10, 2006 Advisory Action at 14 (FH-0091)). This passage clearly indicates that the tunnel header is not part of the data packet, but instead, it is added during encapsulation.

UTStarcom argues that we should not adopt Starent's claim construction because its claim construction is technically impossible and would render the claims nullities. Specifically, UTStarcom argues that Starent's claim construction requires the registration request to be tunneled but that in actuality registration requests are not tunneled because a tunnel is not created when the registration request is sent. Instead, UTStarcom argues that "transmitting the registration request to the home agent with a tunnel identifier in the 'tunnel header' of the data packet, plus the home agent's responsive transmission using the same tunnel identifier, create the tunnel for further communication between the mobile node and the home agent." (Pl.'s Br. Opp'n Summ. J. 8-9) UTStarcom dismisses the express statements it made during prosecution that "the foreign agent . . . tunnels [the] registration request" and that the "foreign agent receives a registration reply tunneled from the home agent" as "inartful phrasing" and "loose and possibly incorrect language." ((Pl.'s Br. Opp'n Summ. J. 8; Pl.'s Sur-Reply Br. Opp'n Summ. J. 7) We agree with Starent that UTStarcom, as the patentee, should bear the consequences of its inartful phrasing. (Def.'s Reply Br. Supp. Summ. J. 7); see Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1425 (Fed. Cir. 1997) (imposing the "higher cost of careful prosecution on patentees" instead of "on the public at large"). Furthermore, we do not have to reject Starent's claim construction simply because it would be impossible to practice the invention under such a construction. See Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004) (affirming claim construction even though such construction would produce a nonsensical result).

UTStarcom also argues that it should not be bound by its statements from the prosecution history because those statements were not disavowals of claim scope, were not definitions of the claim terms nor were they attempts to avoid prior art. (Pl.'s Sur-Reply Br. Opp'n Summ. J. 7) However, as the Federal Circuit has explained, "the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention." Phillips, 415 F.3d at 1317. Here, the prosecution history demonstrates that UTStarcom understood the invention to tunnel registration requests from the foreign agent to the home agent and to tunnel registration replies from the home agent to the foreign agent. UTStarcom had the opportunity to be more careful in its choice of words and to correct its "inartful phrasing." It did not do so. In fact, it used the same language on two separate occasions during prosecution. We can only assume that UTStarcom meant exactly what it said.

For the above stated reasons, we construe "tunnel header" to be the portion of a tunnel packet with information needed to route the registration request. UTStarcom's and Starent's proposed constructions of "key field" are very similar. The only notable difference between the two constructions is that UTStarcom argues that the key field is located in a portion of a data packet whereas Starent argues that it is located in a portion of a tunnel packet. 6 Given our construction of "tunnel header" that embraces the concept of a tunnel packet, we adopt Starent's construction of "key field." Therefore, we construe the "key field" to be a specific field for identification located in the portion of a tunnel packet with information needed to route a
 registration request.

6 UTStarcom argues that the term "tunnel packet" - as opposed to "tunnel" or "data packet" - has no recognized meaning in
the art. However, UTStarcom does not provide any support for this assertion. Therefore, we find this distinction meritless.

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1. "Tunnel Identifier"

Starent argues that summary judgment is appropriate because the ST products do not contain a tunnel identifier when
performing GRE tunneling. The parties dispute the meaning of the term "tunnel identifier." We must first determine the
meaning of the term "tunnel identifier" and then determine whether the ST products contain a tunnel identifier under the
term's proper meaning. AK Steel Corp., 344 F.3d at 1238.

UTStarcom asserts that the Court should adopt the plain meaning of the term "tunnel identifier" and broadly construe the
term to mean an indicator used to identify a particular tunnel. Starent, on the other hand, asserts that when the tunnel
identifier is read in light of the specification and prosecution history, it should be construed more narrowly to mean an
indicator such as an integer that specifies a tunnel, but does not use addresses.

We agree with Starent that a reading of the term tunnel identifier in light of the specification and prosecution history
requires the term to be construed more narrowly to mean an indicator such as an integer that specifies a tunnel, but does not
use addresses. The abstract of the '905 patent explicitly states that "(t)he tunnel identifier is independent of (i) a home
address of the mobile node and (ii) an address of a home agent for the mobile node." (Def. St., Tab 2, '905 patent, at (57).)
The abstract has been held to be "a potentially useful source of intrinsic evidence as to the meaning of a disputed claim
term. Tate Access Floors, Inc. v. Maxcess Techs., Inc., 222 F.3d 958, 966 n.2 (Fed. Cir. 2000). UTStarcom even admits that
"[t]he Abstract may indeed be probative evidence for claim construction." (Pl.'s Sur-Reply Br. Opp'n Summ. J. 5) But,
UTStarcom asserts that the abstract "is no more probative than the rest of the specification and the plain meaning of the
claim language." Id. UTStarcom, however, does not cite any case law to support this assertion. As will be seen below, the
abstract is but one factor in our determination of the proper claim construction. We choose not to give greater weight to the
abstract than to any other evidence found in the intrinsic record of the patent and its prosecution history.

The body of the specification also supports the construction that a tunnel identifier does not use addresses because the
specification refers to the tunnel identifier and the addresses as distinct items. The specification specifically states:

At step 210, the home agent saves the tunnel identifier and sends a registration response to the PDSN. The registration
response may include the IP address of the mobile, the IP address of the home agent and authentication information using
which the mobile node can authenticate the home agent. The registration response may include other types of information,
as well. The home agent may fill a field in the header (e.g., the key field in a header) with the tunnel identifier and sends
[sic] the data packets to the PDSN.

(Def. St., Tab 2, '905 patent, col.4, ll. 37-45) This passage demonstrates that the tunnel identifier is distinct from the
addresses of the mobile node and the home agent. If, as UTStarcom claims, the tunnel identifier included addresses, it
would be redundant for UTStarcom to separately mention the tunnel identifier and the addresses of the mobile node and the
home agent in the above passage. Therefore, we interpret the above passage to require the tunnel identifier and the addresses
of the mobile node and the home agent to be mutually exclusive.

A review of the prosecution history further supports the interpretation that the tunnel identifier does not use addresses. The
United States Patent and Trademark Office ("USPTO") rejected the originally filed independent claims as being anticipated
by U.S. Patent No. 6,466,964 ("Leung") under 35 U.S.C. § 102(e). (Def. St., Tab 3, Prosecution History, January 11, 2005
Office Action at 2 (FH-0178).) Specifically, among other reasons, the USPTO stated that "Leung anticipates determination
of a tunnel ID" and "Leung anticipates assigning a tunnel ID." (Id. at 3 (FH-0179), 5 (FH-0181).) In response to this rejection, UTStarcom amended the claims to state that "the tunnel identifier is independent of (i) a home address of the mobile node and (ii) an address of a home agent." (Def. St., Tab 3, Prosecution History, April 29, 2005 Response to January 11, 2005 Office Action at 5 (FH-0157).) In the Remarks section of the Office Action Response, UTStarcom argued that Leung did not teach a tunnel identifier that was independent of the addresses of the mobile node and the home agent:

In Leung, and in Mobile IP generally, both the mobile node's home address and [home agent ("HA")]] address are needed to uniquely identify the correct mobile node to which to route packets, because two mobile nodes connected to the same [foreign agent ("FA")]] could have identical home addresses, which each has a different HA.

…

Claim 1, in contrast, is directed to a method where the tunnel identifier that is used to identify the connection to the mobile node is independent of the mobile node's home address and HA address. This identifier, perhaps just a simple integer, is merely extracted from packets sent from the HA to the FA . . . without the FA needing to extract both the home address and the HA address . . . As such, with the method of claim 1, the connection to the mobile node can be identified more quickly (i.e., a "PDSN Fast Tunnel Lookup").

(Id. at 16 (FH-0167).) This amendment to the claims and accompanying arguments clearly indicate UTStarcom's intention to narrow the claim scope to include a tunnel identifier that is independent of the mobile node's home address and the home agent address.

The USPTO rejected UTStarcom's amendments as being anticipated by U.S. Patent No. 6,856,624 ("Magret") under 35 U.S.C. § 102(e). (Def. St., Tab 3, Prosecution History, August 15, 2005 Final Office Action at 2 (FH-0125).) In response to this rejection, UTStarcom withdrew its previous claim amendment, which required the tunnel identifier to be independent of the mobile node and home agent addresses. (Def. St., Tab 3, Prosecution History, October 17, 2005 Response to August 15, 2005 Final Office Action at 2 (FH-0104).) However, in the Remarks section of the response, UTStarcom did not explain the reason for the withdrawal nor did it attempt to reclaim a broader interpretation of the term "tunnel identifier." In fact, contrary to any inference that may be drawn from the withdrawal of the amendment to the claim, UTStarcom reiterated the arguments it had made in its previous response and stated "Leung . . . teaches using both a mobile node's home address and home agent address to identify a connection to a mobile node." (Id. at 12 (FH-0114).) Therefore, UTStarcom continued to distinguish the Leung prior art on the ground that it used addresses in the tunnel identifier.

UTStarcom further maintained a consistent interpretation of "tunnel identifier" in its combined response to the August 15, 2005 Final Office Action and January 10, 2006 Advisory Action. In that response, UTStarcom argued:

Leung contains no advance beyond the standard Mobile-IP practice of uniquely identifying a mobile node using a combination of the mobile node's home address and home-agent address.

…

While the present invention involves a fast lookup using the tunnel identifier to directly access the tunnel table, which is indexed by tunnel identifiers, Magret teaches . . . the necessity to search the visitor cache for an entry having a value that matches the temporary IP address in that extra tunnel header.

…

Leung contains no teaching that goes beyond the standard Mobile-IP practice of maintaining a visitor list and searching that visitor list for a matching combination of home address and home-agent address . . . Again, there is no indication in Leung that that value is anything other than a reference number that the foreign agent uses as shorthand for the home-address/home-agent-address combination that the foreign agent actually uses to identify connections to mobile nodes.


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UTStarcom argues that its withdrawal of the claim amendment rendered the amendment and the supporting arguments a nullity. The Federal Circuit has stated that "[a]lthough a disclaimer made during prosecution can be rescinded, permitting recapture of the disclaimed scope, the prosecution history must be sufficiently clear to inform the examiner that the previous disclaimer, and the prior art that it was made to avoid, may need to be re-visited." Hakim v. Cannon Avent Group, PLC, 479 F.3d 1313, 1318 (Fed. Cir. 2007). Here, UTStarcom made no attempt to reclaim the disclaimed meaning of the term "tunnel identifier." Therefore, the withdrawal did not act to nullify the narrower definition of the term. Even if the withdrawal acted to render the amendment and the supporting arguments a nullity, UTStarcom made identical arguments limiting the scope of the term in subsequent responses, thereby reviving the claim limitation.

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4 However, UTStarcom is unable to direct us to any case law that supports this assertion.

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UTStarcom also argues that we should adopt its broader definition of tunnel identifier because "[u]nder the doctrine of claim differentiation, the express recitation of the GRE tunneling protocol in dependent claim 4 is evidence that the broader, independent claims are not so limited, and encompass the use of other standard tunneling protocols and the full range of associated headers and possible tunnel identifiers." (Pl.'s Br. Opp'n Summ. J. 7) The doctrine of claim differentiation creates a "presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006). "[T]his doctrine is not a rigid rule but rather is one of several claim construction tools." ICU Medical, Inc. v. Alaris Medical Systems, Inc., 558 F.3d 1368, 1376 (Fed. Cir. 2009). The court can choose to not apply this doctrine in its claim construction analysis, even if the result would lead to some redundancy. Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1400 n.1 (Fed. Cir. 2009) (finding plaintiff's claim differentiation arguments unpersuasive when several references in the specification suggested that the term should be construed more narrowly); see also Nystrom v. Trex Co., 424 F.3d 1136, 1142-43 (Fed. Cir. 2005) (construing a term more narrowly because that construction was supported by the specification and prosecution history even though the doctrine of claim differentiation suggested that the term should be construed more broadly). We are not persuaded by UTStarcom's claim differentiation argument because the specification and prosecution history provide overwhelming support in favor of Starent's proposed claim construction.

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5 Dependent claim 4 depends from claim 2 and states that "each of the data packets includes a header and the header is a Generic Routing Encapsulation (GRE) header."

--- End Footnotes ---

UTStarcom also argues that its proposed claim construction is supported by the specification. Specifically, UTStarcom points to the following passage: "The tunnel identifier may be assigned randomly or non-randomly. The tunnel identifier may be in any form, for example, an integer. Other examples of tunnel identifiers are possible." (Def. St., Tab 2, '905 patent, col.5, ll. 43-46.) UTStarcom uses this passage to claim that "[t]here are no words or expressions of manifest exclusion or restriction in the patent to justify limiting the plain meaning of the term 'tunnel identifier.'" (Pl.'s Br. Opp'n Summ. J. 6-7) However, we are not persuaded by this single passage to adopt UTStarcom's proposed claim construction because as discussed above, there are several instances in the specification and prosecution history where UTStarcom limited the scope of the term "tunnel identifier."

Based on the references in the specification and arguments presented during prosecution, we construe the term "tunnel identifier" to mean an indicator such as an integer that specifies a tunnel, but does not use addresses.

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As to the terms "turn-on period," "turn-off period," "turn-on delay period," "turn-off delay period," the Court sees little substantive difference between the parties' constructions and, therefore, adopts Power-One's proposals as the more helpful to the jury. The specification of the '999 patent states that a "delay period" is a "period of time to wait," which would comport with the plain and ordinary meaning of the term. '999 patent, col. 2:31-32. Both parties include this aspect in their proposed constructions. Thus, the Court construes these terms as "the time to wait from an event before turning on an output," "the time to wait from an event before turning off an output," "the time to wait from an event before turning on an output," and "the time to wait from an event before turning off an output," respectively.

As to the terms "turn-on data" and "turn-off data," the '999 patent specification discusses turn-on and turn-off data at col. 2:14-24. In particular, the specification states "[e]xamples of output timing parameters include when to generate the output (e.g., sequencing data, turn-on data), when to stop generating the output (e.g., termination data, turn-off data), the slew rate of the output (e.g., slew rate data), etc." At col. 4:33-52, the '999 patent specification recites and discusses exemplary values of "turn-on data" and other data. In these cases, the "turn-on data" specifies when the output is to be generated. The Court finds that Power One's proposed construction is too broad, while Artesyn's proposed construction is unnecessarily limiting. Accordingly, the Court will construe "turn-on data" to mean "data indicating when to generate an output," and the Court will construe "turn-off data" to mean "data indicating when to stop generating an output."

### PART THREE

The Disputed Claims

Avocent contends that ClearCube's accused products infringe claim 1 of the '997 patent, and claims 1, 6, and 16-18 of the '919 patent. n31 Claim 1 of the '997 patent, and claims 1, 16, and 18 of the '919 patent, are independent claims. Claim 6 of the '919 patent is dependent on claim 1, and claim 17 of the same patent is dependent on claim 16. Claim 1 of the '997 Patent recites:

1. A system for transmission of analog color video signals between a source of said signals and a video monitor, being at spaced locations, comprising: n32

   a plurality of computers, each providing, as a set, said color video signals;

   a switch receiving said sets of said color video signals, each with respect to a common reference, from said computers and providing a selected said set of said color video signals as an output;

   a signal transmitter at a first location responsive to said output of a set of said color video signals, said transmitter, including n33 an amplifier for each said color video signal of one of said sets for providing a color video signal output and wherein n34 at least a high frequency portion of each said color video signal has been amplified as a direct function of frequency and providing both an inverting and non-inverting signal, available as an output;

   a plurality of video transmission circuits, each said circuit having first and second ends, respectively, one circuit for each of said color video signals of one of said sets and each said circuit having an input responsive to an output of said transmitter at said first end, and each said circuit having a responsive signal output at said second end;

   a signal receiver at a second location responsive to each of said transmitted signal outputs and color video signal at said second end, including an amplifier for each said color video signal for providing a discrete color video signal with respect to a common reference; and

   signal means responsive to said receiver for providing each said color signal, each with respect to a common reference, to an analog color video monitor. n35

Claim 1 of the '919 Patent recites:

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1. An extended-in-length computer video communications link for transmitting computer video signals comprising:
   a source of computer video signals including red, green, and blue video signals,
   a video transmitter comprising a plurality of amplifiers, one of each said amplifiers for each of said red, green, and blue video signals, each said amplifier comprising:
   a signal input for receiving a one of said red, green and blue video signals,
   frequency sensitive compensating circuitry responsive to a said video signal so that said amplifier provides a first video signal that increases in amplitude with increasing frequency at a first output and a second video signal that is an inverse of said first video signal at a second output,
   a twisted pair of conductors for each said amplifier, with first and second conductors of said twisted pair coupled at one end to respective said first and second outputs of said amplifier,
   an adapter for each of said twisted pair of conductors, each said adapter coupled to an opposite end of a respective one of said twisted pair of conductors, each said adapter receiving said first video signal and said second video signal and providing a respective said video signal as a single ended output, and further configured to provide a ground reference potential for said transmitter at said adapter, whereby need for a reference ground conductor between said transmitter and said adapter is eliminated. n36

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n31 Doc. no. 1 (complaint); see also doc. no. 125 (Avocent Huntsville's Summary and Background of the Technology Embodied in the Claims of the Patents-in-Suit), at 1.

n32 The word "comprising" is a term of art in Patent law that means the claim includes all of the elements that follow in the body of the claim statement, but does not exclude additional, unrecited elements. See, e.g., Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999). Claims that use "comprising" are sometimes referred to as "open claims." See, e.g., Vivid Techs. v. American Science & Eng'g, 200 F.3d 795, 811 (Fed. Cir. 1999).

n33 The word "including" is another term that, like "comprising," signals the claim statement encompasses all of the elements that follow, but does not exclude additional, unrecited elements. See Robert C. Faber, LANDIS ON MECHANICS OF PATENT DRAFTING § 7 (4th ed. 1999).

n34 The word "wherein" is another term of Patent art that customarily signals the claim includes all the elements that follow, but does not necessarily exclude additional, unrecited elements. See id.

n35 '997 patent, col. 13 & line 14 through col. 14 & line 15. A copy of the '997 patent is located, among many other places in the record, at doc. no. 79 (Avocent's Combined Memorandum), Ex. A(2).

n36 '919 patent, col. 18, lines 12-41. The '919 patent is located, among many other places in the record, at doc. no. 79 (Avocent's Combined Memorandum), Ex. A(1).

- - - - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

Claim 6 of the '919 Patent, which is dependent to claim 1 above, recites "[a] video communications link as set forth in claim 1 wherein said source of video signals comprises a termination point of another video communications link." n37

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n37 Id., col. 19, lines 5-7.

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Claim 16 of the '919 Patent recites:

16. A computer video signal communications system for selectively coupling sets of R, G, B computer color video signals from one of a plurality of computers to a separately located color monitor, said system comprising:

   a transmitter including:

   switching means for selectively providing a said set of said color video signals from a selected said computer, and

   a first signal format converter responsive to each said color signal of a said set of color signals from said switching means for converting a signal format of each said color signal from single ended format to a balanced format;

   a plurality of sets of twisted pair conductors, each set of said conductors having a first end and second end, with a said first end of each of said sets of conductors receiving a discrete color video signal from said transmitter;

   a receiver coupled to said second ends of said sets of said twisted pair conductors and including:

   a plurality of second signal format converters for converting a said balanced format of each said discrete color video signal from each said set of conductors from balanced to unbalanced format; and

   signal means responsive to unbalanced format signals from said receiver for coupling color video signals to a color video monitor. n38

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n38 Id., col. 20 & line 48 through col. 21 & line 7.

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Claim 17 of the '919 Patent, which is dependent to claim 16 above, recites "[a] system as set forth in claim 16 wherein said receiver includes frequency compensation means for boosting a frequency response of at least one said color video signal directly as a function of frequency." n39

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n39 Id., col. 21, lines 8-11.

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Claim 18 of the '919 Patent recites:

18. A computer video signal communications system for selectively coupling a set of R, G, and B computer color video signals from one of a plurality of computers to a separately located color monitor, said system comprising:

   a transmitter including:

   switching means for selectively providing said set of said color video signals from a selected said computer, and

   a first signal format converter responsive to each said R, G and B color video signal for converting a signal format of each said R, G and B color video signal from single ended format to a balanced format;

   a set of twisted pair conductors for each said balanced format R, G, and B color video signals, each said set of twisted pair conductors having a first end and a second end, with a said first end of each of said sets of twisted pair conductors
receiving a discrete one of said balanced format R, G, and B color video signals from said transmitter;

a receiver coupled to said second ends of said sets of twisted pair conductors and including:

frequency compensation means for boosting a frequency response of each said R, G and B color video signal directly as a function of frequency;

a plurality of second signal format converters for converting said balanced format of each said R, G and B color video signal from each said set of twisted pair conductors from balanced to unbalanced format; and

signal means responsive to said unbalanced format signals from said receiver for coupling said R, G and B color video signals to a color video monitor. n40

PART FOUR

Claim Construction Decisions

A claim construction hearing was held on February 22 and 23, 2006. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 372, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996) (holding that the first issue in any patent infringement case is that of "claim construction": the interpretation of words used in a patent's claim, "the portion of the patent document that defines the scope of the patentee's rights"); see also, e.g., Rockwell International Corporation v. United States, 147 F.3d 1358, 1362 (Fed. Cir. 1998) ("The first step in any invalidity or infringement analysis is claim construction.") (citations omitted. The memorandum opinion and order entered on March 15, 2006, set forth this court's interpretation of the following, disputed, claim terms. n41

"Twisted pair" wiring, which is used in the '919 patented invention to conduct analog video signals, may be either "shielded" or "unshielded."

The term "amplifier," as it is claimed in both the '997 and '919 patents, was defined as "a circuit (or a device when connected in a circuit) that draws power from a source other than the input signal and provides an output signal that reproduces the essential features of the input signal."

The term "discrete," as it is used in the claims of both patents, simply means that a color video signal (e.g., red) is separate or distinct from the other two color video signals (e.g., green and blue).

Finally, the phrase "for said transmitter," as recited in claim 1 of the '919 patent, was construed as meaning "from the signals received from the transmitter."

8. Two way interactive communication
The term "two way interactive communication" appears in the preamble of claims 35, 36, 37 (by virtue of its dependency on claim 35), and 38 (by virtue of its dependency on claim 36) of the '774 patent. The plaintiff's proposed construction is "a non-simultaneous exchange of information or commands (handshake) between a host computer and a remote user station." The defendants propose "connection which assigns an upstream channel to a single remote link adapter." The court has considered the arguments of the parties and construes the term "two way interactive communication" to mean "a bi-directional exchange of information or commands between a host computer and a remote computer."

C. "Type Information"

The invention parses a hypermedia document and learns the location of at least a portion of some object. '906 Patent, col. 18, ll. 13-18. This object has "type information" associated with it, and this type information is utilized by the browser to identify and locate the executable application. '906 Patent, col. 18, ll. 18-22. What does type information mean?

1. The Claim and Specification

The claim language suggests that type information provides a clue to the browser to assist it in identifying and locating the executable application. Microsoft seeks to exclude from the scope of "type information" any tag that simply tells the browser which application to use. In its view, type information is limited to data types. For example, according to Microsoft, type information cannot be "WinAmp," it must be ".mp3." If the type information tells the browser what application to use, then the browser has very little left to do in identifying and locating the application. But nothing in the claim language says there has to be a challenge for the browser; if the author of the hypermedia document being parsed wants to make it easy for the browser, and tell it what application to use, so be it. Identifying an application will often convey information as to the type of object involved. For example, identifying the application x-vis conveys that the object is a three-dimensional image; this gives the browser some idea of the character of the object. The claim says type information is associated with the object -- both application names and data types can be associated with objects and both can convey useful information to the browser for it to use in identifying and locating the executable application. Neither possibility is foreclosed by the claim language.

The specification squarely supports this view. The inventors gave examples of type information in the form of the HTML TYPE element of an EMBED tag: "Examples of values for the TYPE element are 'application/x-vis' or 'video/mpeg'. The type 'application/x-vis' indicated that an application named 'x-vis' is to be used to handle the object..." '906 Patent, col. 13, ll. 2-5. Thus, type information could be either the application itself (x-vis) or the data type (video/mpeg).

Microsoft argues that to simply identify an application no longer "associates" type information with the object and thus would read "associated with" out of the claim language. I disagree. There is no evidence that association is a term of art, and I give it a plain and ordinary meaning. Association requires only some connection between the object and the type information; type information does not have to be integrated into the object to be associated with it. In the example used in the specification, by identifying x-vis as the TYPE element of the EMBED tag, the hypermedia document is associating x-vis with the object, which is identified by the HREF element, also within the EMBED tag. 14 '906 Patent, col. 12, l. 54 - col. 13, l. 18. That is all the claim language requires.

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14 See note 3, supra.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - - -

2. The File History

Microsoft says the embodiment in the specification is wrong; the inventors disavowed such a construction of type information in the course of prosecuting the patent. Microsoft acknowledges that this reading would mean that the inventors did not claim one of the embodiments in the specification. It is plausible that during a lengthy prosecution history, patentees
fail to update the specification language as they amend the claims. However, in this case, as noted above, I do not find the specification's example of x-vis as the TYPE element to contradict the ordinary meaning of the claim language. Cf. Novo Nordisk of North America, Inc. v. Genentech, Inc., 77 F.3d 1364, 1369 (Fed. Cir. 1996) (claim language "unquestionably" does not cover specification language). Moreover, given that the primary example used by the patentees in describing the invention, indeed the invention's apparent origin, is the ability to automatically invoke x-vis to allow embedded interaction with 3-D embryo images, I find it difficult to read that embodiment out of the claim. See Vitronics, 90 F.3d at 1583 (interpreting claim to exclude preferred embodiment is rarely correct). To reach such a conclusion, the file history must be "highly persuasive." Id.

a. The Khoyi Patent

At the time of the examiner's rejection based on Khoyi, the claim language said (emphasis added):

wherein said first distributed hypermedia document includes an embed text format that specifies the location of an object external to the first distributed hypermedia document and that specifies type information utilized by said browser to identify and locate an executable application….

The examiner found that Khoyi teaches the ability to "invoke a corresponding object manager (a program external to the document) in response to an invocation request to process and control the object" and teaches "links specifying the object and type." File History, Paper # 12, p. 3 (emphasis added). The applicants amended the claim to read (emphasis added):

wherein said first distributed hypermedia document includes an embed text format… that specifies the location of at least a portion of an object external to the first distributed hypermedia document, wherein said object has type information associated with it utilized by said browser….

File History, Paper # 14, p. 2. Microsoft says this amendment, by adding "associated with" overcomes the Khoyi prior art by implying that type information must be data type. There is no substantive discussion in the File History (from either the applicants or the examiner) relating this amendment to Khoyi. 15 There is no discussion of how this amendment changes, if at all, the meaning of type information. Given the tenor of Paper # 14, which notes the limitations of Khoyi, one could read the amendment to be an attempt to broaden, not narrow, the claim. Perhaps the amendment signals to the examiner that this invention can do more than Khoyi -- it does not use type information in a Khoyi-like manner specified by the source document, but is more flexible. In any event, given the ambiguous nature of the amendment's relationship to Khoyi, I think it insufficient to mandate a claim construction that excludes a preferred embodiment stated in the specification.

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15 Professor Felten testified that, as he read the file history, the applicants never distinguished Khoyi based on how type information was used. Felten Direct Examination, October 25, 2000, Tr. at 102. Professor Dunsmore testified that he was not sure why the applicants made the amendment, but that he assumed the change would help in acceptance by the examiner. Dunsmore Direct Examination, October 26, 2000, Tr. at 233.

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b. The Koppolu Patent

Microsoft next argues that the applicants, in their response to the Koppolu-based objection, revealed an intent to disavow type information as a simple application identifier. Koppolu-OLE, according to the applicants, used a binary pointer mechanism and an operating system registry to identify objects with containee server applications. File History, Paper # 19, p. 9. This CLASSID system, not the compound document's text, is used to determine object type. 16 Id. I do not read this to be an explicit disavowal of the possibility that the '906 browser reads a named application as a type associated with an object; instead I read this reference to distinguish a method of using numerical identifiers and platform-dependent registries to perform the association. See II.D., infra.

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A CLASSID is a 32-bit number that is a unique identifier for a particular component. Michael Wallent Direct Examination, October 25, 2000, Tr. at 169. The Windows operating system maintains a database registry of CLASSIDs, linking the 32-bit numbers with their corresponding application. Without recourse to this registry, the CLASSID is essentially meaningless.

Similarly, the applicants' discussion of the cross-platform benefits of the '906 invention does not disavow the possibility that applications are identified as type information. See File History, Paper # 19, pp. 21, 25. The applicants were not addressing type information, they were saying their invention is better than OLE because it is not platform-dependent: the invention vests more functionality in the hypermedia document and browser than allowed in the OLE system, according to the applicants. Id. Microsoft says it is a logical inference that, since OLE uses the CLASSID architecture, and since that platform-dependent system is generally equivalent to simply naming an application to use with certain objects, the inventors must have been disclaiming this more general approach. I disagree.

In both Paper Nos. 14 and 19, the applicants addressed objections based on prior art, but there is no explicit discussion of how the type information language overcomes the objection. While Microsoft makes plausible arguments by drawing inferences from the file history, I cannot say the history is anything but ambiguous. Given that the claim language supports a construction of type information that includes naming an application, and given that the specification's preferred embodiment explicitly embraces such a form of type information, I reject a reading of the claim that hoists ambiguous file history above the claim and specification.

III. Conclusion

A. An "executable application," as used in the '906 Patent, is any computer program code, that is not the operating system or a utility, that is launched to enable an end-user to directly interact with data.

B. "Type Information" may include the name of an application associated with the object.

A. USB (UNIVERSAL SERIAL BUS)

The '788 patent specification states:

The present invention relates generally to a USB (Universal Serial Bus) to VGA (Video Graphics Array) converter, and in particular to a USB-to-VGA converter connectable between a USB port of a computer and a VGA display device.

Id. at 1:6-9. The parties dispute the meaning of "USB" and propose the following constructions:

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB</td>
<td>Universal Serial Bus, the technology described in the Universal Serial Bus Specification Revision 2.0 and its predecessor revisions.</td>
<td>USB has an ordinary and customary meaning to a person of ordinary skill in the art. USB generically refers to any serial bus specifications which support USB based display signals from the host computer and which are compatible with any USB port/plug.</td>
</tr>
</tbody>
</table>

MCT asserts that the term "USB" refers to any serial bus that supports USB and has a compatible USB port or plug. MCT
asserts that a person of ordinary skill in the art would associate the term "USB" by its unique and characteristic plug. DisplayLink argues that the term "USB" as used in the patent refers to a specific standard rather than to any serial bus specification that is compatible with any USB port/plug. Additionally, DisplayLink asserts that that standard is Universal Bus Specification Revision 2.0 and any prior versions of that standard because these were the specifications that existed and were known at the time of the filing of the '788 patent.

Claim terms should be construed based on how that claim term was understood by a person of ordinary skill in the art at the time of the invention. SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d. 1331, 1338-39 (Fed. Cir. 2005). The parties dispute whether a person of ordinary skill in the art would have understood at the time of the alleged invention that the term "USB" meant a technology utilizing a distinctive port/plug or a bus that complied with a particular industry standard. USB technology was developed in an effort to create a standardized universal port for connecting peripheral devices to a personal computer. 3 Tr. at 18:21-24. Intel introduced the first version of USB, version 1.0, in 1995. Id. at 19:2-3. In 1999, Intel introduced a second USB version, version 1.1. Id. at 19:7-8. This technology was fast enough to run such peripherals as a keyboard, mouse, modem, or printer. Id. at 19:18-22. In April of 2000, Intel released USB 2.0, which had sufficient speed to run a monitor. Id. at 19:10-12. Thus, with USB 2.0, users were able to attach all of their peripherals to their PC using the standard USB interface. Id. at 19:24-20:8.

--- Footnotes ---

2 DisplayLink’s expert, Alan H. Jones, Ph.D., asserts that a person of ordinary skill in the art as it relates to the ’788 patent would have "at least (1) a degree in electrical engineering or computer science and (2) experience in hardware design, including (a) work on the concepts of timing, data throughput, and how the device will need to interact with the intended system and (b) implementing devices that comply with well-known industry standards such as the USB and VGA standards." Jones decl. at P 23. MCT’s expert, Paul S. Min, Ph.D., submits that a person of ordinary skill in the art would have "a minimum of Bachelor of Science degree in Electrical Engineering, Computer Science, or Computer Engineering, and one year experience in the electronics industry." Min decl. at P 23. The court’s construction of the terms in dispute does not depend on whose definition of a person of ordinary skill in the art is adopted. It does not appear that the proposed persons of ordinary skill would construe the disputed language differently.

3 As used herein, references to the "Tr. at    “ refer to page and line numbers of an uncertified transcript of the claim construction hearing held on May 13, 2008.

--- End Footnotes ---

At the hearing, MCT’s electrical engineering expert, Paul S. Min, Ph.D., agreed that the term "USB" is defined by an industry accepted standard. Tr. at 44:7-9. Further, Dr. Min agreed that if a person of ordinary skill in the art wanted to design a system that implemented the USB standard, he or she would turn to the most recent available USB standard. Id. at 44:14-17; 46:10-17. Currently, this standard is contained in the Universal Serial Bus Specification Revision 2.0. Id. at 19:10-12.

In its claim construction brief, MCT states that:

It is common for a computer system to be attached to peripheral devices such as inkjet and laser printers. These devices usually have a cable that attaches on one end of the computer. One way these devices connect to a computer is through a USB port on a the computer. The USB port and USB cable are built based upon an industry accepted USB standard. USB is generically understood in the field to refer to USB without any reference to particular versions of the standard.

MCT Br. 23-24. Thus, MCT itself recognizes that a person of ordinary skill in the art would understand the term "USB" to reference an industry accepted standard, not the shape of a port/plug. Accordingly, the court agrees with DisplayLink that the term "USB" refers to a type of serial bus that meets the requirements of the industry standard.

The parties also dispute whether the term "USB" as used in the ’788 patent is limited to the technology described in the Universal Serial Bus Specification Revision 2.0 and its earlier versions. 4 DisplayLink asserts that the term as used in the ’788 patent must be limited to the 2.0 specification and any earlier version because "[i]t is no way to know whether or not 'future' versions of the USB standard will [be] substantially similar to or substantially different from the versions that existed at the time of the ’788 patent application was filed." DisplayLink Br. at 5.

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4 The most current USB specification is version 2.0.

The '788 patent is silent as to a particular USB standard. However, a person of ordinary skill in the art understood USB to be the technology disclosed in the 2.0 specification (or the earlier versions) and what they would necessarily look to in order to design a USB compliant product. Dr. Min testified that in relation to the term "USB controller" the device communicated according to a USB standard. Asked what he meant by "USB standard," Dr. Min explained that at the time of filing the '788 patent specification, the latest available standard in 2001 (one year before the filing date of the '788 patent) "would have been what a person of ordinary skill in the art would look at" to determine what the USB standard meant. Min Dep. 106:21-107:9. The parties do not dispute that this standard was USB 2.0.

However, at the hearing the parties noted that USB 3.0 is set to be released in the near future. MCT seeks to have a construction that would cover this future version. Display Link objects. Since it is impossible to know what that standard specification will include, the question as to whether the patent will read on a serial bus using a future revision of the USB standard is not ripe for decision.

Accordingly, the court construes the term "USB" as follows:

"USB" is an abbreviation for "Universal Serial Bus," which is a computer standard technology described in Universal Serial Bus Specification Revision 2.0 and the prior versions of this standard. The court does not reach the issue of whether the term as used in the patent is compatible with possible future versions of the USB specification.

The parties propose the following constructions of the term "USB based display signals":

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB based display signals</td>
<td>USB encoded display signals</td>
<td>USB signals containing display information</td>
</tr>
</tbody>
</table>

The parties dispute, to the extent the court understands the distinctions made by the parties, is whether USB based display signals include USB signals that merely contain some display information (MCT's position) or whether the display signal itself must be in a USB encoded format (DisplayLink's position).

The plain language of the claims suggests that USB based display signals are USB encoded. To interpret USB based signals as referring to any USB signal containing display information would seem to read "based" out of the term being construed. Both parties' experts appear to agree that USB display base signals are USB encoded. Jones decl. at PP 45-46;
MCT argues that USB based display signals may include such control or packet information as required by the USB standard. DisplayLink does not disagree to the extent the USB standards requires certain control or protocol information, such information would be included in USB based display signals. The court construes USB based display signals as follows:

"USB based display signals" are USB encoded display signals.

D. USB CONTROLLER

The USB controller of the '788 patent refers to the device positioned between the USB port of a host computer and the bridge of the USB-to-VGA converter. '788 patent Fig. 1. The parties propose the following constructions:

<table>
<thead>
<tr>
<th>Term</th>
<th>DisplayLink's proposed construction</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Controller</td>
<td>Component(s) that controls the receipt, storage, and routing of USB encoded data.</td>
<td>Device that communicates with the computer according to the USB standard and communicates with the bridge in the signal form understood by the bridge.</td>
</tr>
</tbody>
</table>

MCT argues that DisplayLink's construction introduces words "receipt, storage, and routing" of USB "encoded data" and those requirements are not supported by the specification or prosecution history. DisplayLink argues that MCT's proposed construction does not give any meaning to the claim term. Further, DisplayLink asserts that its proposed construction, including the terms "receipt, storage, and routing," is supported by the claims and the specification. DisplayLink argues that the USB controller is not a passive device that simply receives data and sends on signals. Rather, the USB controller is an active device that controls the receipt, storage, and routing of the USB encoded data.

Claim 1 of the '788 patent claims "a USB controller disposed external to the computer for receiving exclusively therethrough USB based display signals from the computer, the USB controller issuing a bus command." Id. at 4:60-65. The '788 patent specification describes the USB controller as a device that is "connectable to a USB port 210 of a host computer 200 for receiving USB based display signals from the host computer 200." Id. at 2:27-29. The USB controller is connected to a bridge that receives USB based signals from the USB controller. Id. at 2:26-30. The specification states that the bridge contains a first-in-first-out ("FIFO") controller that "issues control instructions to the USB controller" to forward signals from the host computer to the FIFO controller. Id. at 2:54-59.

At the hearing, DisplayLink's counsel stated that the key dispute it has with MCT's proposed construction of the term is that MCT's proposed definition changes the controller function to a device that merely communicates. Tr. at 112:1-7. DisplayLink asserts that the controller is actually doing the control function. Tr. at 111:22-23. MCT indicated that its main objection to DisplayLink's proposed construction is DisplayLink's inclusion of the term "encoded." Tr. at 112:17-19. In response to the parties' proposals, the court suggested that the term "USB controller" be construed as a device that receives a USB display signal, holds it until it receives a bus command, and then forwards the USB display signal out on a FIFO basis. The parties did not voice specific objection to this proposed construction. Tr. 112:1-23. The court believes that its proposal...
is consistent with the patent disclosure. Accordingly, the court construes the term "USB Controller" as follows:

"USB Controller" is a device that receives a USB display signal, holds it until it receives a bus command, and then forwards the USB display signal out on a FIFO basis.

17. "data to be permanently stored in memory in an unalterable fashion" ('409 patent, claim 8)

AVID argues that the term should be construed as "data to be stored in memory in a non-volatile manner and in such a way that the data cannot be changed." According to AVID, the claim and the specification use the word "permanently" in conjunction with both "unalterable" and "alterable." Therefore, AVID states that "permanently" must mean that the data is stored in a non-volatile manner (i.e., in non-volatile memory), such that it is retained in the absence of power.

The Defendants propose a construction of "data to be permanently stored in memory in a manner that does not permit the data to be altered after it is initially stored therein." The Defendants argue that the disputed phrase is used in Claim 8 in relation to two steps: (1) "receiving data to be permanently stored in memory in an unalterable fashion, said data being known as unalterable data;" and (2) "storing said unalterable data in an unalterable memory."

The Court agrees with AVID's proposed construction and adopts it. The phrase means "data to be stored in memory in a non-volatile manner and in such a way that the data cannot be changed."

18. "an unalterable memory" ('409 patent, claim 8)

AVID argues that the term should be construed as "memory wherein the stored data cannot be changed." According to AVID, the specification at 1:64-68, 2:7-12, and 7:10-17 supports what it argues is the plain meaning of the term.

The Defendants propose a construction of "a first type of memory whose content cannot be changed because of the nature of the first type of memory." The Defendants argue that the term "unalterable memory" has no accepted meaning in the art. However, according to the Defendants, the specification teaches at 7:10-13 that the laser PROM "contains data which uniquely identifies the tag and is unalterable because of the nature of the laser PROM." The Defendants argue that the specification thus serves to define this term as it is used in the claims. The Defendants also submit an alternative construction: "a non-reprogrammable type of memory in which the data is written once and cannot be changed."

After carefully considering the parties' proposed constructions, the Court construes the term to mean "a memory in which the data is written once and cannot be changed."

8. "occurring under the direction of the auctioneer"

The parties dispute the meaning of the term "occurring under the direction of the auctioneer" appearing in Claims 1 and 2. When read in context with the language of the remainder of this claim, and in view of the inventors' extensive efforts to differentiate the control aspect of their invention from that of time-based systems discussed above, the occurrence of non-time based events must occur under the complete control of the auctioneer. Therefore, the term "occurring under the direction of the auctioneer" shall mean "occurring under the complete control of the auctioneer."
DISCUSSION
Analysis of patent infringement starts with “construction” of the claim, whereby the court establishes the scope and limits of
the claim, interprets any technical or other terms whose meaning is at issue, and thereby defines the claim with greater
precision than had the patentee. Although the construction of the claim is independent of the device charged with
infringement, it is convenient for the court to concentrate on those aspects of the claim whose relation to the accused device
is in dispute. On appeal the Federal Circuit is required to construe the claim de novo; thus we do so without deference to
the rulings of the trial court. See generally Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 46 USPQ2d 1169 (Fed.
Cir. 1998) (en banc).

B. The Term "Immediately"

As noted above, the district court construed "immediately" to require the activation of the blocking flange simultaneously
with removal from the patient. The court decided that this term imposed a limitation upon claims where it appeared in the
preamble, as well as upon two claims where it did not literally appear.

In this case, both the RE '885 patent's specification and prosecution history clearly indicate that the invention is focused on
ensuring the protection of the healthcare worker, patient, and bystanders by safely covering the needle at once upon removal
from the patient. The "Summary of the Invention" section of the RE '885 patent is particularly instructive:

The present invention addresses [the needlestick hazard] problem confronting the healthcare industry and is designed
specifically to eliminate needlestick injuries of the type described in connection with blood collection. To this end, there is
provided a new and improved system which . . . shields the blood-contaminated needle simultaneously with its removal
from the donor . . . whereby the probability of an exposed contaminated point being in any injury-causing proximity to a
medical worker is virtually nil . . . .

RE '885 patent, col.2 ll.52-62 (emphasis added). The summary is of course not wholly dispositive. See Rambus Inc. v.
Infineon Techs. AG, 318 F.3d 1081, 1094 (Fed. Cir. 2003) ("While clear language characterizing 'the present invention' may
limit the ordinary meaning of claim terms, such language must be read in context of the entire specification and the
prosecution history." (internal citations omitted)). There is nothing in the RE '885 patent specification, though, that speaks to
the needle being rendered safe at any time other than the moment of removal from the patient. Furthermore, the prosecution
history provides additional support for the district court's conclusion. During prosecution of the related '347 patent, the
examiner rejected MBO's application in view of U.S. Patent No. 5,026,356, issued to Smith. In response, MBO
distinguished its invention from and criticized the Smith patent:

Please note that in Smith . . . the needle 60 may be fully withdrawn from the patient's flesh by an inattentive or rushed
operator in exactly the [unsafe] state, with the needle point and needle end portion fully exposed and hazardous for
needlestick and contamination! It is required in Smith as a specific manipulative effort that the operator personally bodily
move the [needle guard] forward . . . which may be overlooked in rushed or harried treatment conditions . . . .

Reply Letter to Alexander, Examiner, In the Patent Application of Blecher et al., S.N. 07/972,013, at 8 (Nov. 15, 1993). The
clear implication is that the MBO invention, in contrast to Smith, does provide assurance that the needle will be made
instantly safe upon withdrawal from the patient. Prosecution arguments like this one which draw distinctions between the
patented invention and the prior art are useful for determining whether the patentee intended to surrender territory, since
they indicate in the inventor's own words what the invention is not. See Medtronic, Inc. v. Guidant Corp., 465 F.3d 1360,
1373 (Fed. Cir. 2006) ("A surrender can occur by argument as well as by amendment.").

The patentee here has clearly indicated via the specification and the prosecution history that the invention provides, as an
essential feature, immediate needle safety upon removal from the patient. It is therefore appropriate to construe the claims
so as to ensure that they, too, require that feature. The construction of the term "immediately" to mean "simultaneously with the needle's withdrawal from the patient" is correct. Where that term appears in a claim preamble, it is "necessary to give life, meaning, and vitality to the claim," and may be used as a limitation. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999) (quotation marks omitted).

Reissue claims 32 and 33 do not contain the word "immediately," but the district court nonetheless used its construction of that term to limit the claims. We sympathize with the district court's choice, since we agree that safety at once upon removal from the patient is an essential element of the invention as described by MBO. However, we cannot endorse a construction analysis that does not identify "a textual reference in the actual language of the claim with which to associate a proffered claim construction." Johnson Worldwide Assocs., Inc. v. Zebo Co., 175 F.3d 985, 990 (Fed. Cir. 1999); see also Renishaw PLC v. Marposs S.p.A., 158 F.3d 1243, 1248 (Fed. Cir. 1998) ("[I]t is manifest that a claim must explicitly recite a term in need of definition before a definition may be associated with the claim."); E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988) (finding it improper to impose "a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim").

In this case, we are reviewing only certain disputed terms of the claim construction and lack the power to construe other terms not disputed by the parties. None of the disputed terms that are found in claims 32 or 33 can reasonably be construed to impose the simultaneous-safety requirement upon those claims. The district court's grafting of the "immediately" limitation into claims 32 and 33 is error. 2

--- Footnotes ---

2 We express no view on whether claims 32 and 33 as construed would invoke the recapture rule.

--- End Footnotes ---

11. uniaxial medium ('412 patent)

Claim 3 of the '412 patent, in which this term is found, recites:

A cell according to claim 2, wherein the two polarizing means are crossed rectilinear polarizers and wherein the compensating medium is uniaxial medium of negative optical anisotropy having an axis of symmetry parallel to the homeotropic direction and an extraordinary axis parallel to said axis of symmetry.

CEA requests that the court construe the entire phrase "uniaxial medium of negative optical anisotropy" as a single claim term while Samsung argues that "uniaxial medium" and "negative optical anisotropy" should be separately construed.

CEA's proposed construction is of "uniaxial medium of negative optical anisotropy" is "a new type of birefringent, manufactured, plastic material having optical properties of a product resulting from the process disclosed in the specification and illustrated in figures 4 and 5." As an alternative, should the court construe that phrase as two claim terms, CEA's proposed construction of "uniaxial medium" is "a birefringent medium wherein the extraordinary index exceeds an ordinary index or vice versa."

Samsung's proposed construction of "uniaxial medium" is "a type of birefringent material wherein the values of two of the principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) has a different value."

The court determines that "uniaxial medium" and "negative optical anisotropy" will be separately construed. Samsung's proposed construction of "uniaxial medium" is adopted.

CEA's construction of "uniaxial medium" would read on its construction of "biaxial medium" and must be rejected. 35
Samsung's proposed construction of "uniaxial medium" is both distinguishable from its proposed construction of "biaxial medium" and supported by the specification. Describing figure 1, the specification recites "[t]his nematic liquid crystal layer is also a positive optical anisotropy uniaxial medium, the extraordinary index NeCl of said medium exceeding its ordinary index NoCl." 36 Figure 1 uses the same identifier, NoCl, for both of the ordinary indices of the liquid crystal layer demonstrating that each are equal to the other. The specification continues by specifying that "[c]ompensating plate 16 is a negative optical anisotropy uniaxial medium, the extraordinary index Ne1 of said medium being below its ordinary index No1." 37 Figure 1 uses the same identifier, No1, for both of the ordinary indices of the compensating plate, again demonstrating that each are equal to the other. The description of a biaxial medium, by contrast, makes clear that each of the three indices have different values: "[e]ach plate 20 or 22 is a biaxial medium having two principal indices N1o and N2o with values close to one another and a third index N3e below N1o and N2o, the weak index axis N3e being parallel to the homeotropic direction." 38

Therefore, the court adopts Samsung's proposed construction: "a type of birefringent material wherein the values of two of the principal optical indices (called the ordinary indices) are equal to each other and the third optical index (called the extraordinary index) has a different value."

3. Unified execution of multiple media data streams

The plaintiff proposes that "unified execution of multiple media data streams" be construed to mean "processing two or more different types of media data streams by the same execution unit." On the other hand, the defendants submit that the disputed phrase means "operating on two or more media data streams in parallel, all at the same time with the same processor, without external specialized processors." The parties' primary dispute is whether media data streams are processed "in parallel," "all at the same time," and "without external processors." The defendants correctly note that the general purpose media processor claimed in the patents was an improvement over the combination of prior art specialized processors; however, the court does not read the claim language or the specification to exclude all use of external processors. What is required is that the media processor has the capability of processing two or more different types of media data streams by the same execution unit. The court is persuaded that the plaintiff's proposed construction is correct. Accordingly, the court construes "unified execution of multiple media data streams" to mean "processing two or more different types of media data streams by the same execution unit."

2. Unified media data streams

The court construes "unified media data streams" to mean "combined media data streams of different types."

1. "Uniform file-locking semantics"/"Uniform locking semantics"
**Disputed Claim Term: "Uniform file-locking semantics"/**Uniform locking semantics"

(097 patent claims 1, 5, 14, 27, 31, 40, 53, 57, and 66; '351 patent claims 1, 2, 6, 9-11, 13-16, 18, 38-39, 42, 44, 47-49, 51-54, 56, 76-77, 82, 85-87, 89-92, 94, 114)

<table>
<thead>
<tr>
<th>Sun's construction</th>
<th>NetApp's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A set of lock modes, each combining an access mode and a deny mode, into which lock requests from multiple protocols are translated.&quot;</td>
<td>&quot;[A] set of [file-] locking rules that can be applied in the same way to requests using diverse [file-server] protocols.&quot;</td>
</tr>
</tbody>
</table>

Sun further contends that the preambles in which this term appears are limiting. 13

--- Footnotes ---

13 NetApp concedes that the preambles in which the term appears are limiting. NetApp also abandoned its argument that the term need not be construed at all. 14 The bracketed portions of NetApp's construction apply to "uniform file-locking semantics" but not to "uniform locking semantics."

--- End Footnotes ---

The dispute centers on whether the semantics are lock modes, which must have an access mode and deny mode as Sun contends, or whether uniform file-locking semantics are rules that are applied in the same way to diverse protocols, as NetApp contends. NetApp argues that the claims show that "uniform [file-] locking semantics" are rules, not lock modes. As NetApp notes, claim 1 provides that the uniform file-locking semantics include a list of steps for taking particular actions in response to particular requests. The rules in this claim, according to NetApp, are that the system will grant an opportunistic lock in response to a message using the first protocol, and break the lock in response to a message using the second protocol. '351 patent at Claim 1. The rules allow clients using different protocols to work together to access the same data without corrupting it. Ganger Decl. P 45.

This claim language strongly indicates that the semantics are a set of rules composed of certain predetermined steps that mandate certain responses to certain events. While Dr. Brandt claims that these actions taken by the file server are functions or actions taken by that server, rather than a set of rules, see Supp. Brandt. Decl. P 23, requiring a certain action in response to a given event is more accurately characterized as a "rule" as NetApp argues, as opposed to a function. Claim 1, for example, discusses "steps for enforcing a uniform file-locking semantics." The semantics are the rules that are "enforced" in order to mandate certain actions in response to certain events. In addition, the use of the word "enforce" in the patent title and in the patent abstract indicates that the semantics are rules. The steps outlined as the uniform locking semantics cannot be accurately described as merely a "set of modes," as Sun argues. 15

--- Footnotes ---

15 NetApp also notes that U.S. Patent No. 5,668,958, cited on the face of both patents, states: "The API also comprises the rules or semantics of behavior of the file system i.e. the effects of various file system requests on objects in file system repository." Sun argues that this merits less weight than evidence of the patentee's own words. It is also is unclear whether or not the semantics are more properly categorized as rules or effects in the '958 patent. Therefore, while this reference in the '958 patent mildly supports NetApp, it is not particularly persuasive.

--- End Footnotes ---
Turning to the specification, the patent generally contemplates translating the various types of lock requests received from the file server protocols into uniform file-locks, each containing an access mode and a deny mode:

The file server 110 uses a uniform file-locking semantics so as to model file-locking aspects of any requested operation from any file server protocol in the same way. The uniform file-locking semantics identifies a uniform set of file-locks, each including an access-mode for the requesting client device 130 and a deny-mode for all other client devices 130.

'351 patent at 7:38-44.

NetApp argues that this aspect of the preferred embodiment shows that the "uniform file-locking semantics" identifies the "uniform set of locks," but the former is not equated with the latter. Ganger Decl. P 47. In addition, the uniform file-locking semantics model file-locking in the same way, i.e., uniformly, for any protocol, according to Dr. Ganger. The uniform file-locking semantics do so by providing uniform rules regarding locking, including (1) how requested lock modes are determined for any request from a client using any particular protocol and (2) how requested lock modes are compared to existing lock modes to decide whether to allow or deny a given request. Ganger Decl. P 47. The Court agrees with NetApp, as the above passage demonstrates that the locking semantics are not the same as lock modes. Rather, the semantics identify a set of file-locks, which include certain modes (access and deny modes). These semantics are a set of rules or commands that can be applied in the same way to different requested operations.

Dr. Brandt argues that the same passage shows that the uniform locking semantics establish a uniform representation of file-locks on the server, which consists of a set of lock modes, each including an access mode and deny mode. Brandt Supp. Decl. PP 20-21. This portion of the specification indicates that the set of file-locks which are identified by the uniform file-locking semantics include an access mode and a deny mode. See '351 patent at 4:52-56 (defining "lock mode" as the combination of an access mode and a deny mode). Dr. Brandt argues that no other embodiment, other than this teaching of a uniform file-locking semantics having an access mode and a deny mode, is taught or suggested in the specification. Brandt Decl. PP 70-71. While this portion of the specification uses lock modes having an access mode and deny mode, these lock modes are not utilized in this way for every aspect of the invention.

Specifically, the invention describes three separate aspects of the invention: (1) one in which the uniform file-locking semantics protect against data corruption; (2) another one in which the common internet file system (CIFS) client device can obtain an oplock and the network file system (NFS) and network lock manager (NLM) devices 16 are allowed to request to break the oplock; and (3) a third aspect in which the CIFS client device can obtain a "change-monitoring lock." See '351 patent at column 2. The patents disclose an application of uniform locking semantics in which lock modes are not involved at all — the ability of a CIFS client device to obtain a "change-monitoring" lock on a file directory. This type of lock gives notice when a directory is changed by CIFS or non-CIFS devices. '351 patent at 2:51-59. For example, this "change-monitoring" lock provides notice when a directory is created, deleted, or files are renamed or moved. Id. Such a lock is not exclusive, does not prevent access to a file, and cannot properly be explained in terms of access modes and deny modes. Ganger Decl. P 49. Lock modes are not even mentioned in the description of change-monitoring locks in the specification. '351 patent at 14:20-15:6 (noting that the change monitoring lock specifies both the name of the changed file and the type of change). Yet "uniform file-locking semantics" are used when granting change-monitoring locks. See, e.g., claims 6 and 85. While Sun maintains that the access and deny lock modes constitute the uniform language of these patents, the fact that the change monitoring lock cannot be expressed in mere access and deny modes severely undermines Sun's proposed construction.

16 The background of the invention explains that in the prior art, there are multiple diverse file server protocols, each with differing semantics for file operations. The NFS protocol does not provide semantics for file-locking. The CIFS protocol has an extensive mandatory file-locking semantics. And, while NFS is often augmented by a NLM protocol, NFS treats NLM locks as advisory only.

Sun counters that lock modes are involved in granting a change-monitoring lock, as that process involves receiving a file open request. '351 patent at 14:30-35. In order to determine whether such a request should be allowed, the CIFS open
request must be translated into a uniform lock mode, containing an access mode and deny mode. Id. at 9:37-10:33; Brandt Supp. Decl. PP 18-19. However, while lock modes may be used in granting a change-monitoring lock, the patent does not address what lock mode exists once the change-monitoring lock is in effect. Sun concedes that the patent is silent on this point, but argues that the mode would likely be a deny-none mode. The patent does not support Sun's conclusion, however, and a deny-none mode itself would not provide change notification to a client. Furthermore, the specification notes that the "file-lock" is converted on the open directory to a change-monitoring lock. '351 patent at 14:38-39. When the change-monitoring lock is in effect, therefore, there is no specified lock mode.

Sun's reliance on Respironics, Inc. v. Invacare Corp., 303 Fed. Appx. 865, 871 (Fed. Cir. Dec. 16, 2008) is inapposite, as in that unpublished case, the patent had only one embodiment, in which the pressure magnitudes at issue were "predetermined." Limitation of the claim term at issue in Respironics was supported by the patent's only embodiment. Here, by contrast, one of the three aspects of the invention -- the change-monitoring lock -- does not appear to utilize the uniform lock modes proposed by Sun when carrying out its change notifying function.

As to NetApp's proposed construction, Sun argues that it is flawed because the specification does not teach that the uniform file-locking semantics are applied in the same way to requests using different protocols. In particular, the patent specification describes how the uniform file-locking rules are applied differently to requests from different CIFS, NFS, and NLM protocols. Brandt Decl. PP 74-75; '351 patent at columns 6-13 (outlining differences between application of the rules for CIFS, NFS, and NLM requests). For example, NLM and CIFS byte-range lock requests are handled differently. With respect to NLM, "[i]f the file server 110 is checking for conflicts between existing file -locks or byte range locks, and a new request for a NLM byte-range locks, the . . . locks are cross-indexed against a lock mode equivalent to the new NLM byte-range lock request. For the purpose of comparing with existing file -locks, the file server 100 treats newly requested NLM byte-range locks as having deny-mode deny-none, and as having access-mode read-only for nonexclusive locks . . . and access-mode read-write for exclusive locks." By contrast, "CIFS byte-range lock requests are only checked against byte-range locks because they require a prior CIFS file open operation at which existing file -locks were already checked." Brandt Decl. P 75 (quoting '351 patent at 11:32-38, 12:25-28).

NetApp counters that Sun fails to distinguish between: (1) the locking rules, which apply uniformly to locking requests by each client, no matter what protocol that client uses; and (2) the variation among clients as to which type of locking request a particular client might make. The background of the invention itself notes "that it is desirable to provide a method and system for enforcing file-locking semantics among client devices using multiple diverse file server protocols," which is achieved in the invention by using a "uniform set of file-locking semantics." '351 patent at 1:60-67. In the preferred embodiment, specific file-locking semantics of the CIFS protocol are implemented to allow NFS client devices to interoperate with CIFS client devices. Id. at 2:1-5. And, as noted above, the preferred embodiment states that the file server "uses a uniform file-locking semantics, so as to model file-locking aspects of any requested operation from any file server protocol in the same way." Id. at 7:38-44 (emphasis added). For example, in a system providing for opportunistic locks, the uniform locking semantics are applied in the same way to all requests for opportunistic locks. However, not all clients may be able to request opportunistic locks. Ganger Decl. P 56. As the summary of the invention describes the invention: "uniform file-locking semantics provides that the file server determines, before allowing any client device to read or write data, or to obtain a new file -lock or byte-range lock, whether that would be inconsistent with existing locks, regardless of originating client device and regardless of originating file server protocol or file-locking protocol for those existing locks." '351 patent at 2:21-27.

As NetApp itself acknowledges, "clients using diverse protocols may make different types of requests and therefore trigger different subsets of the rules." NetApp Markman Hearing Slide 93. In other words, the same subset of "rules" do not apply to all requests from all protocols. In addition, the initial translating steps are different for different protocols. For example, both CIFS and NFS protocols issue read requests. For CIFS read requests, the lock mode of the request is compared only against the access mode acquired when the file was opened, after file open time. '351 patent at 4:35-45. On the other hand, for NFS read requests, the lock mode of the request is compared against the lock mode of any pre-existing file or byte-range locks. Id. at 6:27-30, 6:46-50, 11:26-30. NetApp's proposed construction, which states that the rules are applied "in the same way," is therefore somewhat misleading. In addition, the semantics do more than just translate the requests, as they also compare requests. See Sun Reply Brief at 10:18-22 (citing '351 patent at 9:37-10:33) (describing method by which CIFS open request is translated into a uniform lock mode and the requested lock mode is compared with the mode of any preexisting locks to determine whether file access may be granted). In other words, the rules govern file-locking aspects of the request, rather than just translate those requests.
In light of the above, the Court proposes construing "uniform file-locking semantics/uniform locking semantics" as "[a] set of [file] locking rules that consistently govern [file]locking aspects of any request, even though the requests use diverse locking protocols." While this is a proposed construction, the parties may only comment if they find a mistake or ambiguity in the wording, as opposed to disagreeing with the Court's reasoning, and they must do so within ten days of the date of this Order.

4632

(1) Unique. The term "unique" is included in each of the above-listed claims; the parties disagree on its meaning. Defendants construe "unique" to mean "random and non-repeating within an election." Plaintiff defines the term as "a random or pseudo-random number (alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers." The dispute appears to be that, according to Plaintiff, the term "unique" does not require randomization, and, according to Defendants, it does. All parties agree that the term includes non-repeating.

Plaintiff's position is bolstered by the language of Claim 71 describing "identifier for the voting session" as "unique, randomized, and does not identify a voter." The language of the patent therefore demonstrates that unique and random are two different and separate qualities. For example, numbers 1, 2, and 3 can be randomly assigned to 100 people, but all those assigned a number 1 cannot be found to hold a unique number.

As noted above, a dictionary is permissible extrinsic evidence in claim construction as long as the dictionary definition does not conflict with the definition of the term as used in the patent language. See Interactive Gift Express, Inc., 256 F.3d at 1332 n.1. Unique is not necessarily a technical term. When used as an adjective, it is defined as "[o]f which there is only one; one and no other; single, sole, solitary." Oxford English Dictionary, http://www.oed.com/cgi/entry (last visited August 15, 2007).

For the foregoing reasons, the Court agrees with Plaintiff's proposed construction of the term "unique."

4633

3. "A unique audio data signal in IP protocol representing a specific audio condition to be monitored." Used in Claim 1(b).

Claim 1(b), with disputed term in bold, reads:

[the system comprising] at least one audio sensor adapted for monitoring a selected audio condition associated with the commercial transport for generating a unique audio data signal in IP protocol representing a specific audio condition to be monitored.

E-Watch argues this phrase means "an audio signal of a monitored area or object, transmitted in IP protocol together with information for distinctively identifying the audio signal, such as the source and date/time of the audio signal, or together with information for distinctively identifying a sound." March Networks proposes "a specific data signal in IP protocol representing an event that is able to be sensed audibly, and which indicates the occurrence of the event." The specification's description of the use of an audio signal is similar to the description of the visual signal discussed above. See '692 patent, col. 14, l. 45 - col. 15, l. 6. Accordingly, the analysis of this claim element is the same as for the previous claim element, and the court will construe it in a similar fashion, as follows:

"A unique audio data signal in IP protocol representing a specific visual condition to be monitored" means: "Information:

- a. which is transmitted in a protocol compliant with the internet;

- b. is about a condition, which can be heard, and which has been chosen to be observed; and
c. which distinctly identifies the condition being observed.

Claims 3 and 31 are dependent on Claim 1. They are set out below with the disputed terms in bold:

3. The system of claim 1, wherein said sensor is a commercial transport based sensor adapted for monitoring a specific on-board based condition on the commercial transport.

31. The system of claim 1, wherein said sensor comprises an image sensor device for generating an image signal.

1. Unique Authorized Information

Claims 1-12, 15 and 16 all refer to "unique authorized information" associated with individual objects. n59 As CIAS concedes, n60 neither the claims nor the specification define the term explicitly. n61


n60 See CIAS Mem. at 14.

n61 See generally '422 Patent.

CIAS argues that there was no need to define the term, as "unique authorized information" was "intended to and does carry its common and ordinary meaning. The information associated with each object is unique to that object, and it is information that has been authorized by the system." n62 In other words, "unique authorized information" incorporates any data so designated by the counterfeit detection system - even "a picture of Mickey Mouse with a moustache." n63

n62 CIAS Mem. at 14.


Alliance makes two arguments in favor of a more limited definition. It first contends that the specification requires that the term be construed as referring "merely to a small 'authorized' subset of a larger set of 'valid' numbers." n64 As a matter of logic, the "unique authorized information" selected by the system for a given set of objects will be a subset of all possible information that could be so selected. There is no support in the specification, however, for the initial selection of a set of "valid" information from which the "unique authorized information" is then distilled. Alliance points to one section of the specification that, in describing the particular embodiment of casino chips, suggests that casinos, as a practical matter, will need to reserve some coded information for future use. n65 This description of the potential pragmatic needs of one embodiment of the invention, however, cannot be read as a limitation on the claim term itself. n66

n64 Alliance Mem. at 13-14.

n65 See '422 Patent at 7:36-55, 15:57-63.
Alliance next contends that the inventors disclaimed multi-part information from inclusion in "unique authorized information" during re-examination of the '422 patent. During re-examination, the inventors cited Shoshani, another counterfeit detection patent, as prior art that had not been cited during initial prosecution. n67 The inventors described Shoshani as "teaching away from the use of serial numbers alone [because they provide inadequate counterfeit protection]."

According to the '422 inventors, Shoshani provides objects with an associated pair of numbers. One number of the pair is a serially-selected identification number, and the other number of the pair is a randomly-selected control number. A master list of the associated pairs of numbers is stored in mass memory. When an object's pair of numbers is scanned, the device compares that pair with pairs of numbers stored in the mass memory, and discrepancies are indicated. Shoshani teaches the use of a pair of numbers, and not either serial numbers alone or randomly-selected numbers alone. n69

CIAS argues that Shoshani actually is distinguishable as prior art because "it does not detect when information relating to code elements machine read from a similar object is the same as information previously read from a similar object." n70 This argument, however, is misplaced, as the issue is not whether the '422 patent should have issued over Shoshani on re-examination, but rather whether the inventors disclaimed multi-part numbers from their patent. Other possible differences between the '422 patent and Shoshani that were not discussed by the inventors at that time are therefore of no present moment.
Again, while this may be an accurate description of how Shoshani actually works, the question here is what the inventors disclaimed during re-examination. The inventors there characterized Shoshani differently, stating that it "teaches the use of a pair of numbers, and not either serial numbers alone or randomly-selected numbers alone." n72 They did not state that Shoshani used the two numbers separately, but instead implied that the patent used them together, as opposed to "serial numbers alone or randomly-selected numbers alone." The inventors requested re-examination because of their failure to disclose Shoshani as prior art during the initial prosecution, n73 and so the context of their description of Shoshani was their interest in distinguishing it from the '422 patent. With that framework in mind, the implication of the inventors' description is that they understood and claimed the '422 patent, in contrast to Shoshani, to use either serial numbers alone or randomly-selected numbers alone. n74

n72 Request for Re-Examination at 4 (emphasis added).

n73 See id. at 2-4.

n74 See Phillips, 415 F.3d at 1317 ("Like the specification, the prosecution history provides evidence of how the [] inventor understood the patent. Furthermore . . . the prosecution history was created by the patentee in attempting to explain and obtain the patent.").

Despite being secondary to the specification, prosecution history can demonstrate "how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." n75 A competitor, "reading the prosecution history, would reasonably conclude" that the '422 inventors had restricted their claims to information of a single type and thus had given up multi-type information. n76 On the basis of the re-examination statements of the inventors in distinguishing Shoshani, therefore, the term "unique authorized information" excludes information other than serial information alone or randomly-selected information alone.

"The '422 patent claims 'unique authorized information . . . comprised of machine readable code elements coded according to a detectable series. The claim language has no exclusion of multi-part information. To the contrary, use of the word "comprised" expressly means that the 'unique authorized information' may include something in addition to the detectable series." n77

In other words, Claim 1's description of "unique authorized information" includes not just machine readable elements coded according to a detectable series, but also any additional information that the system selects. Thus, argues CIAS, multi-part or -type information is included.

n77 CIAS Mem. at 15-16.
As an initial matter, this argument does not address the re-examination history detailed above, as the Claim 1 language is original to the initial prosecution and so subject to the inventors' disclaimer during re-examination. Accordingly, even if CIAS were correct as to the language in Claim 1, the conclusion would remain the same.

Further, despite the Court's invitation, n78 CIAS was unable to locate binding case law holding that "comprised of" is an open-ended term, rather than a limiting one. Instead, both parties' searches, as well as the Court's, indicate that there is no consensus in the Federal Circuit as to the meaning of this phrase. n79 In the absence of such precedent, of any indication in the patent itself as to the phrase's meaning, and of any external evidence offered by the parties, the Court adheres to the ordinary and customary meaning of "comprised of" as a limiting description of composition. n80 This construction preserves the distinction between "comprised of" and "comprising," the latter of which in fact is a patent term of art when used in a transitional phrase, meaning "including, but not limited to." n81


n80 See, e.g., Apotex, 376 F.3d at 1343 ("Apotex's spray dried solution creates an amorphous 'co-precipitate' comprised of 90% CA, 9% sorbitol, and 1% zinc chloride by mass.").

n81 See, e.g., Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1327-28 (Fed. Cir. 1999).

Accordingly, the Court construes "unique authorized information" to mean information associated with each object, unique to that object and authorized by the '422 patent's system, but excluding information other than serial information alone or randomly-selected information alone.

A. Ref. No. 2 "Unique, randomly assigned identifying number" and "Unique identifier"

These terms/phrases are recited in Claims, 1, 17, 20, and 22 of the '787 Patent. Plaintiff proposes the following construction: "A random or pseudo-random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers which can be used to correlate the voting selections stored in a tangible medium with the voting selections stored separately from the tangible medium in the voting apparatus's memory." Defendants propose the following construction: "A random or pseudo random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers assigned to a particular voting session which the voter takes away at the end of the voting session to enable the voter to identify her voting record from among the voting results published for that particular election."

The language in Claim 1 provides that the randomly assigned identifying number is printed on a paper that is "human readable," "optically readable," or both. (Defs. Ex. 3, Col. 27, ll. 51-55.) Further, the printed paper is provided to "verify [] the voting selections made during the voting session that are printed on the printed paper." (Id. Col. 27, ll. 56-58.) That piece of paper is called a receipt in the specifications of the patent. (Id. Col 6, ll. 14-15.) "At the conclusion of a voter's voting session, voting machine VM stores the voting record of a voting session and the voting session identifier associated therewith by its processor in its internal memory or memories and provides same to local printer LP which provides . . . a tangible record PR, e.g., in the form of a printed receipt PR, to the voter." (Id. Col. 6, l. 66-Col. 7, l. 4) (emphasis added). The specifications further advise that the voter may use the voting session identifier on the receipt to check the voting record and confirm his or her vote. (Id. Col. 7, ll. 48-50.) On the other hand, the patent specifications also teach that the individual voting record may "alternatively" be stored in the non-volatile memory built-in within smart card, hard computer disk, or "any other suitable electronic media, optical media or . . . electronically or optically readable media . . . both within
the voting machine or in the smart card." (Id. Col. 22, ll. 1-7, 12-17.)

The foregoing language does imply that the printed paper can be retained by the voting machine or retained by the voter, but the language is not as clear on this issue as that in the '209 Patent, discussed below. Because the language in the '787 Patent is the same as that in the '730 Patent already litigated in this Court, and because the '787 Patent is a continuation of the '730 Patent, the Court is obligated to follow precedent and, adopting its earlier reasoning, construes these terms as it construed the same terms in the '730 Patent. See Avante Int'l Tech., No. 4:06cv0978 TCM, Doc. 276 at 8-13.

There does not appear to be a dispute about the interchangeable use of the terms "voting session identifier" and "unique identifier" or "unique randomly assigned identifying number." Support for these positions is replete within the patent specifications and in the abstract. (See Defs.' Brief at 13, 14.)

Accordingly, the Court construes the above terms/phrases as follows:

A random or pseudo random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers assigned to a particular voting session which the voter takes away at the end of the voting session to enable the voter to identify his/her voting record from among the voting results published for that particular election.

2. UNIQUE IDENTIFICATION / UID

Reference is first made to "unique identification" in Claim 3. Elsewhere, the claims refer to a UID, however the parties agree (as does the Court) that the phrase "unique identification" means the same thing in the Patent as the acronym "UID."

Plaintiff appropriately cites to a portion of the specification where the drafter provides a clear and specific definition of UID. At column 6, lines 39-42, we are told that "for ease of expression, the identification assigned to a given license file . . . at a given node . . . at a particular time is referred to as the UID." The definition is found within the description of the license transfer embodiment; however, it appears also to pertain to the license pool embodiment. Of course, the definition at column 6, lines 39-42 is itself referential and to be fully understood must therefore be read in conjunction with the specification's description of the "identification assigned to a given license file: "The operating system . . . assigns an identification to each license file . . . . In connection with the installation program at the local node, the assigned identification is unique to the license file . . . that was stored on the local node at a particular time." (Patent 6:33-39).

The phrase "installation program" does not appear in the claims, however, and incorporation of this term into the definition of "UID" would start a snowball effect resulting in the incorporation of a great deal of the specification not appropriate to a non-means-plus-function element. A relevant understanding of the term "installation program" for purposes of defining "UID" thus is simply that one exists on each node and it must be able to distinguish the UID of any license file within its bailiwick from every other license file it may encounter. Therefore, the drafters description of "UID," while specific, merely conforms to plain meaning. That is, a UID must identify each license file such that it will not be confused with any other license file then in existence.

A UID is data assigned to a LICENSE FILE which is different from the data assigned to any other LICENSE FILE then in existence with which the first mentioned LICENSE FILE otherwise may be confused.
is peculiar to or which only relates to a single transaction." Id. at 5.

6 In reaching his proposed construction of "UTID," the magistrate judge rejected the parties' proposed constructions of the term. Plaintiffs asked the magistrate judge to construe "unique transaction identifier" or "UTID" as "information that, at any given time and a particular step of the transaction, allows a party to positively identify the transaction." Visa urged the magistrate judge to construe "unique transaction identifier" or "UTID" "as a data string that is generated by the originator of the transaction and is not repeated within the originator, recipient and transaction administrator systems (i.e. unique) and that is specifically constructed, designated and used for the purpose of establishing both the identity and the validity of a particular transaction."

1. Visa's Objections to Magistrate Judge's Recommended Construction of UTID

Visa has filed objections to the magistrate judge's proposed definition of "unique transaction identifier" or "UTID." Visa contends that the term "information," as used by the magistrate judge in his recommended claim construction, does not fully capture the characteristics of an "identifier," as used in the '878 patent, and risks allowing the jury to confuse the UTID with the information that makes up the transaction itself. Def. Obj. to Second Report at 5. Visa contends that both the '878 claims and the specification indicate that the UTID must be a data string, which is distinct from the transaction information itself. Id. at 6. Visa urges the court to construe "unique transaction identifier" or "UTID" as: "a data string peculiar to or which only relates to a single transaction initiated by an originator, and which specifically identifies the transaction." Def. Obj. to First Report at 2. Alternatively, if the court disagrees with the term "data string," Visa asks the court to insert "symbol," "code," "label," or "text string" in place of the word "information" in the magistrate judge's recommended definition. Id. at 4. Visa also states that these definitions can be combined to read "a symbol, code or label, which also communicates the nature and function of the UTID described in the specification and prosecution history." Id.

Visa also asks the court to incorporate the magistrate judge's definition of "unique," namely, "peculiar or which only relates to a single transaction," into the definition of "unique transaction identifier." Def. Obj. to Second Report at 10. According to Visa, "[t]his modification will ensure [that] the Magistrate Judge's intended meaning is clearly captured in the construction and [will] limit the potential for misinterpretation in subsequent proceedings." Def. Obj. to First Report at 3.

To support its proposed construction that the UTID is a "data string" distinct from the transaction information itself, Visa points to both the intrinsic and extrinsic evidence. Visa references independent claim 27 and dependent claim 28 which specifically describe the "UTID" as a number, and use the word "number" interchangeably with "identifier." Def. Obj. to Second Report at 6-7 (quoting claims 27, 28). "[C]laims 27 and 28 describe sending the 'unique transaction identifier' to the transaction administrator and then subsequently forwarding that same 'unique transaction number' to the originator, where it is compared with other 'unique transaction identifiers.'" Id. at 7. Visa also explains that independent claim 31 and dependent claim 32 use the word "number" synonymously with "identifier." Visa provides the court with excerpts from both claims:

Claim 31 (excerpt):

... generating in response to the second e-mail message a third e-mail message from the transaction administrator to the originator requesting validation of the unique transaction identifier, the third e-mail message including the unique transaction identifier;

... comparing the unique transaction number from the third e-mail message to the other unique transaction numbers generated by the originator to determine if the originator generated the transaction order; and completing the transaction based upon the results of the comparison.

Claim 32 (excerpt):

The method of claim 31 wherein the step of completing further comprises the steps of: notifying the transaction administrator if the originator generated the unique transaction number based on the results of the comparison[.]

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Id. at 20 (quoting claims 31 and 32) (Visa's emphasis). Based on this evidence, Visa contends the court should construe the UTID as a number. Visa also emphasizes Plaintiffs' admission that in claims 27, 28, 31 and 32, the UTID must be a number. Id. at 7 (citing Pl. Reply to Def. Obj at 3 n.2). Visa contends that "[u]nder applicable law as explained in Phillips and elsewhere, if the 'unique transaction identifier' means a number in some claims, then it must also mean a 'number' in all other claims." Id. (citing Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1371 (Fed. Cir. 2003) ("If a claim term appears in more than one claim it should be construed the same in each."). Finally, Visa contends that the specification expressly distinguishes the UTID from the transaction information, explaining that the UTID is created, processed and transmitted in addition to the transaction data. Id. at 8. (Visa's emphasis). Visa provides the following examples from the specification:

The electronic transaction includes details of the transaction such as descriptions of the item(s) that the client desires to purchase, credit card or check payment information, information on other types of payment by means of which the item(s) will be purchased, and a unique transaction identifier that has been generated by the originator and is uniquely associated with the particular purchase transaction.

'878 patent, col. 3 lines 12-19 (emphasis added).

The originator 50 validates the transaction by comparing at step 95 the UTID with a list 100 generated by the processor 70 of the originator listing the UTID associated with each transaction generated by the originator and notifying the transaction administrator 60 of the results. The list 100 also includes the details of the transaction (amount; parties, etc.) associated with the UTID which must also be validated by the originator 50.

'878 patent, col. 5 lines 14-21; see also '878 patent, col. 5 lines 65-67 ("Along with the confirmation request, the merchant 55 transmits the UTID, credit card number and data concerning the purchase order to the CA 60."); col 7 lines 3-5 ("The CA 60 then sends the credit transaction information along with an associated UTID or a rejection of authorization back to client 50 at step 210."); col. 10 lines 64-67 ("Included within the e-mail message . . . are the unique transaction identifier [and] purchase order data such as item, amount and delivery address[]"). Visa also refers the court to Figure 4 of the '878 patent, which separately identifies the UTID, "transaction content," and "relevant information." See Ex. A to App. A to Def. Obj. to Second Report. Additionally, in the Petition to Make Special, VIMachine stated that: "a unique transaction identifier is generated by an originator, and ultimately, the electronic commerce transaction and its associated identifier are returned to the originator to provide for validation." Based on the totality of the above-referenced intrinsic evidence, along with numerous other similar references to the UTID as something separate and apart from the details of the transaction, Visa summarizes its argument as follows: "If the UTID could be the transaction information itself, there would be no need to describe it as something that is included in addition to the details of the transaction." Def. Obj. to Second Report at 8 (original emphasis).

In addition to the intrinsic evidence, Visa supports its proposed construction of "UTID" with various technical dictionaries. Visa cites a computer dictionary which defines "identifier" as "[g]enerally, any text string used as a label, such as the name of a procedure or a variable in a program, or the name attached to a hard drive or floppy drive. Compare descriptor." Id. at 9 (citing Computer Dictionary, Microsoft Press, 1991); see also id. (citing Modern Dictionary of Electronics, R. Graf, 6th ed. 1984) (identifier is "1. A symbol the purpose of which is to identify, indicate, or name a body of data. 2. a mnemonic code used to identify or name an item of data or data format in a computer."). Visa has also provided the court with the testimony of its expert, Dr. Michael I. Shamos, whose testimony at the claim construction hearing regarding how "unique transaction identifier" would be understood by one of skill in the art, was in keeping with the technical dictionary definitions. See App. A to Def. Obj. to First Report at 10-16.

2. Plaintiffs' Response to Visa's Objections

Plaintiffs oppose Visa's proposed modifications to the magistrate judge's recommended construction of the term "unique transaction identifier" or "UTID." Plaintiffs contend that the "UTID [is] simply information that enable[s] a customer to identify a transaction as uniquely his." See Pl. Reply to Def. Obj. to Second Report at 3. "There is no requirement in the specification or claims that the UTID be a contiguous alphanumeric string; rather the specification and claims teach that the UTID can include transaction content, such as the purchase price." Id. Plaintiffs argue further that UTID is never referred to as a "number" in the specification, nor is the word "string" used in the specification or claims.
3. Discussion

Given this intrinsic evidence of record, and the teachings of Phillips, supra, the court determines that the magistrate judge's recommended construction of "unique transaction identifier" or "UTID," insofar as it includes the term "information," is too broad and potentially confusing to the jury. "[I]nformation which specifically identifies an individual transaction initiated by an originator" (see First Report at 5) as the definition of "UTID" could well lead a jury to confuse the "UTID" with the information that makes up the transaction itself. Such a definition would be inconsistent with the intrinsic evidence. The intrinsic record referenced above (including the specification, claims and prosecution history) amply illustrates that the UTID is not merely the transaction information itself, though transaction data can be included in the UTID. The '878 specification clearly distinguishes the UTID from the "information" that constitutes the transaction ('878 patent, col. 3 lines 12-19); the "details of the transaction" ('878 patent, col. 5 lines 14-21); the "data concerning the purchase order" ('878 patent, col. 5 lines 65-67); the "purchase order data" ('878 patent, col. 6 lines 5-9); the "credit transaction information" ('878 patent, col. 6 lines 5-9); the "relevant transaction data" transmitted by the originator ('878 patent, col. 10 lines 58-60); and "item, amount and delivery address" ('878 patent, col. 10 lines 64-67). Figure 4 of patent '878 shows the UTID as different from the "relevant information" or "content" of the transaction itself. As stated by the Federal Circuit in Phillips, "The specification is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315. In the Petition Statement, Plaintiffs similarly separated the "electronic commerce transaction" from its "associated identifier."

Although the court agrees with Visa that the recommended term "information" is too broad and risks confusing the jury, the court rejects Visa's argument that the UTID must always be a number. As Plaintiffs correctly argue, that the UTID is a number in certain claims (27, 28, 32, 32) does not make it a number in all claims. See Pl. Reply to Def. Obj. to Second Report at 3 n.3 ("[W]hile it appears that the UTID in [claims 27, 28, 31 and 32] must be a 'number,' there is no reason to import that limitation to any of the other claims. If the drafter had meant to write claims that required a unique transaction 'number,' he would have used that formulation since he obviously knew how to do so.").

7 Defendants cite to Phillips to support their argument that because the UTID is a number in certain claims it must be a number in all claims. See Phillips, 415 F.3d at 1314 ("Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claim."). The court agrees with Plaintiffs that Visa's invocation of this principle from Phillips is misleading. As stated by Plaintiffs: "There are two different claim terms at play here. In claim 27, for example, there is claimed a 'unique transaction number.' The fact that, in that claim, the UTID is a 'number' does not mean that it has to be a number in all other claims. Two different phrases are at play[,] not a single phrase - the second being more restrictive in claiming a 'number.'" Pl. Reply to Def. Obj. to Second Report at 5 n.6.

In sum, for the reasons stated directly above, the court sustains that portion of Visa's objections relating to the magistrate judge's choice of the word "information" as part of his recommended construction of the claim term "unique transaction identifier" or "UTID." Visa proposes that the court replace the word "information" with "data string," or, alternatively, "code," "symbol," "label," or "text string." Having considered these terms, and the ultimate purpose of the construction, which is to inform the jury of the meaning of claim terms, the court determines that the terms "code or label" best capture the meaning of "identifier," when viewed in light of the intrinsic and extrinsic evidence. 8 Merriam-Webster's Collegiate Dictionary defines "code" as "a system of signals or symbols for communication" or "a system of symbols (as letters or numbers) used to represent assigned and often secret meanings." See Merriam-Webster's Collegiate Dictionary 239 (11th ed. 2004); see also The New Oxford American Dictionary 330 (2001) (code is "a system of words, letters, figures, or other symbols used to represent others"). Merriam-Webster's Collegiate Dictionary defines "label" as "a descriptive or identifying word or phrase[]." See Merriam-Webster's Collegiate Dictionary at 239.

8 Extrinsic evidence in the form of definitions of the word "identifier" from technical dictionaries supports the court's decision to sustain Visa's objection to the magistrate judge's use of the word "information" in his construction of the claim
term "unique transaction identifier" or "UTID." See Def. Obj. to Second Report at 9 (citing Computer Dictionary, Microsoft Press, 1991); see also id. (citing Modern Dictionary of Electronics, R. Graf, 6th ed. 1984) (identifier is "1. A symbol the purpose of which is to identify, indicate, or name a body of data. 2. A mnemonic code used to identify or name an item of data or data format in a computer."). See generally Phillips, 415 F.3d at 1318 ("Because dictionaries, and especially technical dictionaries, endeavor to collect the accepted meanings of terms used in various fields of science and technology, those resources have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention."). Similarly, testimony of Visa's expert regarding the meaning of "unique transaction identifier" to one skilled in the art also supports the court's decision. See App. to Def. Obj. to First Report at 10-16; see generally Phillips, 415 F.3d at 1318 ("[E]xtrinsic evidence in the form of expert testimony can be useful to a court for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field."). The court is mindful, however, that "while extrinsic evidence can shed useful light on the relevant art, . . . it is less significant than the intrinsic record in determining the legally operative meaning of claim language." Id. at 1317 (internal citations and quotations omitted). Further, "undue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the indisputable public records consisting of the claims, the specification and the prosecution history, thereby undermining the public notice function of patents." Id. at 1319 (citation and internal quotations omitted). Here, the court has carefully examined the intrinsic record, as instructed in Phillips, which is the court's primary source for claim construction. Unlike the court in Texas Digital, which adopted the dictionary definition divorced from the intrinsic record, this court has only secondarily consulted the extrinsic evidence, recognizing it is entitled to far less weight. See generally id. at 1319.

The court, however, overrules Visa's request that the court insert the magistrate judge's definition of "unique," namely, "peculiar to or which relates to a single transaction," into the definition of "UTID" in place of "which specifically identifies an individual transaction." The court agrees with Plaintiffs that it is "difficult to see what the difference is or why it is material." See Pl. Feb 27, 2006 Reply to Def. Obj. at 6. The magistrate judge's recommended definition of "unique transaction identifier" or "UTID" more than sufficiently conveys a sense of uniqueness that a jury will understand. Absent a clear need to change the magistrate judge's proposed construction, the court will not substitute an equivalent phrase in its stead.

In sum, after careful review of the magistrate judge's findings and conclusions, Visa's objections, record, legal briefing, and applicable law, the court determines that the magistrate judge's proposed construction of "unique transaction identifier" or "UTID" in patent '878 is correct in part. Specifically, the court rejects that portion of the magistrate judge's recommended definition that uses the word "information," and replaces that term with "code or label." The court accepts the remainder of the magistrate judge's proposed definition. Accordingly, the court construes "unique transaction identifier" or "UTID" in patent '878 to mean: "a code or label which specifically identifies an individual transaction initiated by an originator."

2. "A unique visual data signal in IP protocol representing a specific visual condition to be monitored." Used in Claim 1(a).

Claim 1(a), with disputed term in bold, reads:

[the system comprising] at least one visual sensor adapted for monitoring a selected visual condition associated with the commercial transport for generating a unique visual data signal in IP protocol representing a specific visual condition to be monitored.

E-Watch proposes "an image of a monitored area or object, transmitted in IP protocol together with information for distinctively identifying the image, such as the source and date/time of the image, or together with information for distinctively identifying an object or condition in the image." March Networks suggests "a specific data signal in IP protocol representing an event that is able to be sensed visually, and which indicates the occurrence of the event."
March Network, therefore, argues that the signal being transmitted must be a specific signal such as an alarm in response to an event. That is described at col. 12, ll. 18-21. But the specification also describes the system monitoring an aircraft, with the signal transmitting information such as the tail number and G.P.S. location data, so that the signal identifies a specific aircraft at a specific location and time. See ‘692 patent, col. 12, ll. 41-43; ’692 patent, col. 13, ll. 1-8. Just because the signal in one of the embodiments is a specific alarm does not mean that the entire claim should be so limited. The court construes this claim term as follows:

"A unique visual data signal in IP protocol representing a specific visual condition to be monitored" means: "Information:

a. which is transmitted in a protocol compliant with the internet;

b. is about a condition, which can be seen, and which has been chosen to be observed; and

c. which distinctly identifies the condition being observed."

C. "Screen Identification (ID)" and "Uniquely Identifying"

"Screen identification (ID)," or screen ID, is not sufficiently defined in the claim language to reveal the format in which it is generated. In the specification of the '961 patent, however, the language repeatedly uses the term "screen ID number" in describing the concept, revealing that the format of the screen ID is a number. This is consistent with the specification's discussion of the background of the invention where, in discussing the problem of the prior art, the applicant asks the reader to "consider two possible screen IDs, 123 and 890," both of which are numbers. '961 Pat. at col. 2, ll. 23-24.

Lansa argues that the term "screen identification (ID)" is a number which is devoid of any independent meaning from its meaning associated with the algorithm, and is used solely for identifying a screen. However, no such limitation is provided by either the language or the intrinsic evidence. The only direct support Lansa argues for its position that the screen ID must be a number which is "otherwise meaningless" is a conclusory assertion by a technical expert. However, such extrinsic evidence need not be considered by this Court, particularly where it is unsupported and is not being used to resolve an ambiguous technical term. See Vitronics, 90 F.3d at 1584.

Lansa further contends that, when considered in conjunction with the term "uniquely identifying," screen ID must refer to something other than the data received from the incoming data screen. However, this interpretation is not supported by either the claim language or the intrinsic evidence. The fact that the screen or image must be uniquely identified, i.e. identified as the only one of its kind, in no way implies that it cannot be uniquely identified from information downloaded in the incoming data. The term "uniquely," as used in the claim language, quite simply means one of its kind, and is simply used to qualify the term "screen ID," a number which identifies the screen or image.

a. Definition of "Unistroke Symbols"

I. Symbols Comprised of Entirely Single "Unistroses"

Palm argues that each and every alphabetical symbol must be created by a single, unbroken stroke in order to be a "unistroses" alphabet. The Graffitii alphabet uses various symbols, including the "X" and several accented letters, which clearly require two separate strokes to form the symbol. Thus, Palm argues that Graffitii is not a "unistroses" alphabet. Xerox argues that the Graffitii "X" is actually a "unistroses" symbol which requires two separate strokes to form. They also argue that Graffitii does have an operation mode which includes a symbol for "X" that is formed with only one pen stroke. Finally, Xerox argues that only claims 10 and 11 require an entire alphabet of individual unistroke symbols, while claims 1-9 and 12-16 require that only some, not all, of the symbols be unistrokes.
During the re-examination proceedings before the PTO, the patent examiner noted in his May 24, 1999 Interview Summary that "applicant's representatives also clarified that the claimed invention does require all hand-written unistroke symbols to be a single stroke. Although multi-stroke symbols as entered, for example, using a "soft-key" arrangement are not excluded, the claimed unistroke recognition method/system pertains to symbols consisting of only a single stroke." (May 24, 1999 PTO Interview Summary, p. 3). The patent specification specifically defines the term "unistroke" as "a single, unbroken stroke." ( '656 Patent, col. 2, line 46).

I find that the definition of "unistroke symbols" does not require an entire alphabet of single-stroke symbols. Rather, as Xerox argues, only claims 10 and 11 require an entire alphabet. However, as the PTO Examiner recognized, Xerox's claimed recognition method/system pertains only to symbols consisting of a single stroke - i.e. "unistroke" symbols.

ii. Graphical Separation

Palm argues that the '656 claims do not cover a symbol set where there is a substantial graphical overlap between any pair of the symbols - i.e. where two symbols share similar x,y graphical coordinates and, therefore, can be easily mis-interpreted by the computer due to handwriting sloppiness. Palm argues that Graffiti's Roman alphabetical-like symbols are not well "graphically separated" because some symbols (like "O" and "Q" or "R" and "B") are so similar. They share nearly identical x-y coordinates with only minor variations when graphed by the computer.

Xerox argues that graphical separation of symbols is not a limitation of the '656 patent's claims. This interpretation is inconsistent with the patent's specification and with the prosecution history. The specification of the patent clearly indicates that graphical separation of symbols is a defining characteristic of "unistroke symbols".

In the "Summary of the Invention," the patentee notes that "to relax the graphical constraints on the precision of the handwriting that is required for accurate computerized interpretation of handwritten text, the text is written in accordance with this invention using symbols that are exceptionally well separated from each other graphically." ( '656 Patent, col. 2, lines 35-39).

In the "Background of the Invention" section, the inventor recognizes that "the characters of ordinary Roman alphabets are not reliably distinguishable from each other in the face of rapid or otherwise sloppy writing….Accordingly, it will be evident that the performance of the interpreted text entry system could be improved if all text was entered using characters that are well separated from each other in 'sloppiness space.'" ( '656 Patent, col. 1, lines 54-64). He went on to explain that this sloppiness space notion can best be understood by recognizing that each alphanumeric symbol is defined by some number of features (say, d features). Thus, each symbol normally resides at a unique point in a d-dimensional space which is referred to herein as 'sloppiness space.' From this it follows that the amount of overlap, if any, that occurs in the positioning within this d-dimensional space of the normal variants of the symbols of a given alphabet determines how well separated those symbols' are in sloppiness space. If there is little, if any overlap between the variants of different symbols, the symbols are 'well separated from each other in sloppiness space.'

( '656 Patent, col. 1, line 65 - col. 2, line 9). Finally, in the "Conclusion" portion of the specification, the patentee notes that "the unistroke symbols are readily discriminable from each other, even when imperfectly formed." ( '656 Patent, col. 6, lines 57-58).

Furthermore, during the original prosecution of the '656 patent, Xerox distinguished the Whitaker prior art from Unistrokes on the basis of "graphical separation," arguing that the Whitaker symbols were not well separated graphically (pointing to the Whitaker symbols for "7" and "15"), noting that "there is substantial overlap between the graphical specifications for certain of the symbols". (Xerox January 23, 1996 Information Disclosure Statement, p. 3, para. 2).

During the re-examination proceedings before the PTO, Xerox also clarified that one of the features of "Unistrokes" is that "unistroke symbols are single stroke symbols (representing alphanumeric characters or specified functions) that are sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up, without requiring the system to wait for possible additional strokes." (Patent Owner's Summary of May 24, 1999 Personal Interview with Examiners, p. 2).
Moreover, although not a part of the '656 patent prosecution history, it is interesting to note that PTO Examiner Larry Prikockis, the same PTO Patent Examiner who allowed the '656 patent to come out of re-examination, on the same day, reviewed Palm's application for a patent on Graffiti and specifically distinguished the '656 patent, stating that

it is agreed that Goldberg [the '656 patent] teaches and claims a set of input symbols that are graphically well separated, and teaches away from a set of input symbols based substantially on the Roman alphabet which are not graphically well separated from each other.

(November 18, 1999 Graffiti PTO Examiner's Interview Summary).

Even in the context of this litigation, Xerox has acknowledged that some "graphical separation" is a defining element of "unistroke symbols". For instance, Thomas Webster, the Xerox patent attorney who prosecuted the '656 patent, testified during his deposition, that three or four elements went into defining a "unistroke symbol":

it's a symbol; secondly, that it's a unistroke; thirdly, that it's designed for entering text into a computer for handwriting recognition; and fourthly, the different ones of these symbols differ sufficiently graphically from each other that they can be recognized as soon as the symbol is completed….

(Deposition Transcript of Thomas Webster March 30, 1999 Deposition, p. 14) (emphasis supplied).

Thus, I find that the definition of "unistroke symbols" includes a "graphical separation" limitation such that symbols must be well separated from each other graphically so that unambiguous recognition of symbols can occur immediately upon completion of the symbol, even when imperfectly formed.

iii. Definitive Recognition of Unistroke Symbols

Palm argues that the definition of "unistroke symbols" requires that the computer recognize a symbol definitively and finally as soon as the user lifts his or her pen. Palm argues that Graffiti does not employ "definitive recognition" because Graffiti only tentatively recognizes certain symbols immediately upon pen lift, but must wait to see whether the user will add an additional stroke to change the meaning of the symbol before definitive recognition can occur. In other words, a Graffiti user can add a subsequent stroke to a Graffiti symbol and change the computer's interpretation of the symbol. For example, the Graffiti user can make a stroke for the symbol for "A", lift the stylus, then add a second stroke which changes the "A" symbol to an "M" symbol, and the computer will correctly change its recognition of the A to an M. Palm argues that, in Unistrokes, the computer recognizes and interprets a symbol immediately upon pen lift and the symbol cannot subsequently be changed or modified by the addition of another stroke.

Xerox argues that Palm's interpretation of "definitive recognition" as requiring final, unalterable recognition upon pen-lift is based upon faulty claim construction. Xerox argues that in the context of "unistroke symbols" being defined as "sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up," the term "definitive recognition" requires only that each symbol can be "unambiguously differentiated" from the other input symbols in the system. Xerox points to the patent specification, which teaches that a unistroke symbol may be used for control functions (such as mode shifts) ( '656 Patent, col. 3, lines 40-63). Thus, Xerox argues, the claim term "unistroke symbols" permits, but does not require, the system to reach a final, unalterable recognition after pen lift.

Xerox's proposed interpretation of "definitive recognition" is inconsistent with the interpretation it urged during the prosecution history. During the re-examination proceedings before the PTO, Xerox clarified that one of the features of "Unistrokes" is that "unistroke symbols are single stroke symbols (representing alphanumeric characters or specified functions) that are sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up, without requiring the system to wait for possible additional strokes." (Patent Owner's Summary of May 24, 1999 Personal Interview with Examiners, p. 2) (emphasis supplied).

In fact, Xerox distinguished the prior-art Sklarew patent on a similar basis during re-examination of the '656 patent. Xerox distinguished the Sklarew system on the basis that it was designed to accommodate multi-stroke symbols as well as single stroke symbols and, therefore, did not implement the '656's claimed combination of unistroke symbols and symbol
independent delimiting. The Sklarew method of computerized handwriting recognition requires the computer to wait approximately .5 seconds after a stroke has been entered to recognize the stroke as a character in order to allow the user sufficient time to add an additional stroke to complete the symbol if necessary. The PTO agreed with Xerox, finding that "while the prior art such as the Sklarew patent (US 4,972,496) distinguishes strokes by a symbol independent delimiter (pen up/pen down transition), the prior art is typically designed to accommodate multi-stroke characters as well, so this operation does not equate to a symbol delimiter." (PTO Notice of Intent to Issue Reexamination Certificate, p.2-3).

Moreover, while not a part of the '656 prosecution history, it is again interesting to note the comments of PTO Examiner Larry Prikockis (who conducted the '656 re-examination) with regard to distinguishing the '656 prior art during a PTO review of Graffiti:

Goldberg (the '656 patent) teaches and claims a system that always reaches a final recognition upon pen-up after each stroke (i.e. every symbol is finally recognized upon pen-up and none can be modified by subsequent strokes), as opposed to [the] claimed invention [Graffiti], Sklarew, and other prior art of record where some strokes initially recognized as one character may be modified by subsequent (i.e. "post-character") strokes….Examiner and applicant's representatives also agreed that Goldberg teaches away from a system or process of interpretation of handwritten text that is capable of changing the result of a recognition based on a previous stroke to a different recognized character based on a subsequent stroke (as distinguished from simple editing).

(November 18, 1999 Graffiti PTO Examiner's Interview Summary).

I find that the definition of "unistroke symbols" requires definitive recognition of a symbol immediately upon delimitation - e.g. immediately upon pen lift. I further find that "definitive recognition" does not simply refer to "unambiguous differentiation," but rather requires that the computer be capable of making a final, unalterable interpretation (recognition) of the symbol immediately upon delimitation (e.g. pen lift) without requiring the system to wait for possible additional strokes.

In considering the definition of "unistrokes," the trial court properly looked to the plain meaning of the claims, the specification, and the prosecution history of the '656 patent. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996). The specification defines the term "unistroke" as "a single, unbroken stroke." '656 patent, col. 2, l. 46. In addition, only claims 10 and 11 require an entire alphabet. We therefore agree with the district court that the definition of "unistrokes" itself does not require an entire alphabet.

The only reference to graphical separation in the independent claims is found in claim 10, which states "some of said unistroke symbols have graphical specifications that differ from each other essentially only on the basis of their respective stroke direction parameters." '656 patent, col. 8, ll. 37-40. During reexamination, Xerox clarified that "unistroke symbols are single stroke symbols (representing alphanumeric characters or specified functions) that are sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g., immediately upon pen-up, without requiring the system to wait for possible additional strokes." Xerox additionally distinguished United States Patent No. 4,972,496 ("Sklarew patent") on the basis that it was designed to accommodate multi-stroke symbols as well as single stroke symbols, and, therefore, did not implement the '656 patent's claimed combination of unistroke symbols and symbol independent delimiting. The term "unistroke symbols" therefore requires sufficient graphical separation for the computer to definitively recognize a symbol immediately upon delimitation or pen lift.

Defendants seek to construe the term "unit" as "a device, separate from the computer system, that is designed to be easily installed and removed from the apparatus in the mobile environment." Keystone's proposed construction is: "A device or
collection of components, separate from the computer system." The parties dispute two points of construction of this term: 1) whether a "unit" can be a "collection of components" and 2) whether a "unit" is "designed to be easily installed and removed from the apparatus in the mobile environment."

On the first issue, Keystone argues the specification repeatedly refers to a "unit" as a "collection of components," and supports its proposed construction. See '123 Patent, 6:38-7:44, 8: 19-9-54, and Fig. 7. Further, it argues that because the "unit" has a variety of actions it can perform (e.g., receiving a wireless signal, processing the signal, communicating with the computer system, etc.), the unit must have a variety of components it uses to accomplish those actions. The Court finds that there is sufficient support in the specification to construe the term "unit" as a collection of components.

On the second issue, defendants argue that the intrinsic record overwhelmingly confirms that "unit" should be limited to devices designed "to be easily installed and removed" in the mobile environment. They note that the parties agree that the line replacement unit claimed in the parent '592 patent must be modular and easily replaceable in the field. They contend that this limitation should be read consistently for the term "unit" in the '123 patent. Defendants also contend that both the specification and the prosecution history support a construction of "unit" as a modular, easily replaceable device. Specifically, defendants point to an office action response wherein the inventor argued to the examiner that the "unit" can be "disconnected from a first computer system and . . . connected to a second computer system." See '123 File History, Response to Non-Final Office Action, at SIR013355 (June 24, 2005). They further point to Mr. Hindman's arguments to the examiner about the theft deterrent feature of the "unit," which defendants argue would be pointless unless the unit could not be removed from the first computer and used in a second computer.

Keystone argues that the claims of the '123 Patent use the term "unit" broadly as compared to the claims '592 patent. It attempts to differentiate the term "line replacement unit" used in the '592 patent from the term "unit" in the '123 patent, arguing that by not using the words "line replacement" to modify "unit" in the claims of the '123 patent, the inventor clearly intended a different meaning. Keystone argues that equating the meanings of the two terms would render the words "line replacement" meaningless. However, "claim differentiation is not a 'hard and fast rule of construction,' and cannot be relied upon to 'broaden claims beyond their correct scope'" Wenger Mfg., Inc. v. Coating Mach. Sys., Inc., 239 F.3d 1225, 1233 (Fed. Cir. 2001). The specification and prosecution history of the '123 patent make it clear to the Court that the inventor intended the "unit" to be easily replaceable, notwithstanding the doctrine of claim differentiation. See Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1370 (Fed. Cir. 2007) ("the written description and prosecution history overcome any presumption arising from the doctrine of claim differentiation"); Versata Software, Inc. v. Sun Microsystems, Inc., No. 2-06-CV-358, 2008 U.S. Dist. LEXIS 63645, 2008 WL 3914098, at *5 (E.D. Tex. Aug. 19, 2008).

Based on the discussion above, the Court construes the term "unit" as "a device or collection of components, separate from the computer system, that is designed to be installed and removed from the apparatus in the mobile environment."

11. Multi-precision arithmetic unit

The parties largely agree on the construction of "multi-precision arithmetic unit" with one exception. The plaintiffs contend that the "multi-precision arithmetic unit" is "a unit that can perform addition, subtraction, multiplication, division, and other integer and floating point arithmetic operations on data streams of varying sizes." The defendants object to the plaintiff's proposed construction on two grounds. First, the defendants contend that the term "unit" refers to a defined circuit block, and not circuitry distributed across the media processor, as the plaintiff argues. Second, the defendants further contend that the language "other integer and floating point arithmetic operations" should not be included in the construction. Thus, the defendants propose the following construction of "multi-precision arithmetic unit" -- "a unit that can perform addition, subtraction, multiplication, division, and other arithmetic operations on data streams of varying sizes." The 840 patent provides as follows:

Many of the logic blocks themselves can also replaced [sic] with a single multi-precision arithmetic unit, which can be internally partitioned under software control to perform addition, multiplication, division, and other integer and floating point arithmetic operations on symbol streams of varying widths while sustaining the full data throughput of the memory hierarchy.
Based on the cited portion of the specification, the court is persuaded that the plaintiff's construction is correct and adopts it. The court declines to further define "unit" to require a single circuit block.

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<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>&quot;computing unit&quot;</td>
<td>&quot;a data processor capable of executing a computer program, for example, for evaluating destination call reports or for ultimately associating identification codes with destination floors&quot;</td>
<td>This claim term cannot be construed and renders all claims that use or incorporate this term indefinite, and invalid.</td>
</tr>
<tr>
<td>('861 Patent, claims 1 and 11)</td>
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As a threshold matter, the parties dispute whether the term "computing unit" is subject to means-plus-function treatment. Plaintiff argues that the term "computing unit" does not qualify as a means-plus-function limitation under § 112, ¶ 6. First, Plaintiff notes that the absence of the term "means" triggers a presumption against application of § 112, paragraph 6. See Lighting World, 382 F.3d at 1358. Second, Plaintiff cites to LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364 (Fed. Cir. 2006), overruled on other grounds by, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 128 S. Ct. 2109, 170 L. Ed. 2d 996 (2008), in support of its argument that the term "computing unit" is not subject to § 112. In LG Electronics, the Federal Circuit held that the term "control unit" was subject to the presumption against means-plus-function treatment and held that the presumption was not overcome because the claim itself "provide[d] sufficient structure, namely 'a CPU and a partitioned memory system,' for performing the stated function, 'controlling the communication unit.'" Id. at 1373. Plaintiff contends that the description of the term "computing unit" as being a "commercially available personal computer or workstation," and "includ[ing] at least one processor and at least one data memory," is sufficient to determine that "computing unit" is a not a means-plus-function limitation. Plaintiff argues that these descriptions in the specification contain sufficient structure for the term "computing unit" to preclude application of § 112, ¶ 6.

Defendants respond that the means-plus-function treatment applies to "computing unit" because the claims provide no structure other than to describe the relevant function. Defendants emphasize that the following descriptions of the "computing unit" relate strictly to the functions which the "computer program product" performs as executed by the "computing unit":

1. evaluates destination call reports;
2. associates recognized identification codes;
3. records an input time of each destination call report with a statement of the boarding floor as well as the desired destination floor;
4. compares the distance between the boarding floor and the actual position of the elevator car;
5. computes the distance between the boarding floor and the destination floor;
6. considers the actual user presence and computes possible intermediate stops;
7. performs an optimization and ascertains for each destination call report a conveying result, denoting the most favorable elevator for conveying the passenger;
8. records a recognition time of a recognized identification code;

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(9) compares a recognized identification code with the identification address of stored user profiles;
(10) records the destination floor.

(See Defs.’ Opening Markman Br. 20-21.) Defendants contend that only the functions performed are described in the Patents-in-Suit and that no explanation is provided as to the structure that performs the recited functions, thereby triggering application of § 112, P 6.

Defendants also distinguish LG Electronics on the ground that in that case the claim itself provided a sufficient and definite structure, i.e., a CPU and a partitioned memory system, whereas here the claims themselves lack any analogous description of the structure of the "computing unit."

The Court concludes that the presumption against means-plus-function treatment applies as the term "computing unit" does not use the term "means," see York Prods., 99 F.3d at 1574, however, this presumption is overcome because the claim language itself does not provide sufficient structure to perform the recited function. See Apex, 325 F.3d at 1373. Again, Plaintiff cites only to the language in the specification, rather than the claim language itself, as describing the structure for the function of the "computing unit."

The Court agrees with Defendants that the instant case is distinguishable from LG Electronics. In LG Electronics, the Federal Circuit found that "control unit" was not a means-plus-function limitation because "[t]he claim itself provide[d] sufficient structure, namely ‘a CPU and a partitioned memory system,’ for performing the stated function, ‘controlling the communication unit.’" 453 F.3d at 1372. Unlike LG Electronics, Plaintiff here concedes that nothing in the claim language itself provides the corresponding structure, rather Plaintiff relies on the description provided in the specification. As explained above, in determining whether the means-plus-function presumption is overcome, courts look to the language of the claims themselves to discern whether sufficient structure is provided. See Altiris, 318 F.3d at 1376 (collecting cases). Thus, the Court finds that because the presumption has been overcome and that the claim language itself does not recite sufficient structure to perform the claimed function, means-plus-function treatment is warranted.

Having determined that means-plus-function treatment is appropriate here, the Court must examine the specification in order to: (1) identify the claimed function; and (2) determine the corresponding structure in the written description which performs that function. See Omega Eng'g., 334 F.3d at 1322.

As to the first question, the Court has identified the function of the "computing unit" as follows: (1) generating a destination signal to the modernizing device (‘861 Patent, claim 1); (2) evaluating the destination call reports (‘861 Patent, claim 11); (3) associating destination floors with recognized identification codes (‘861 Patent, claim 11; 465 Patent, claim 1); and (4) outputting a destination signal for one of the destination floors associated with one of the identification codes. (‘861 Patent, claim 11; ‘465 Patent, claim 1).

As to the second question, the Court finds that the means-plus-function limitation is indefinite as the required corresponding structure is not disclosed for the claimed function. The Federal Circuit has established that computer-implemented inventions with means-plus-function claiming are subject to a specific test - the particular structure disclosed in the specification must be more than a general purpose computer microprocessor. See Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008) ("Aristocrat II") (for cases involving functional claims concerning computer-implemented inventions, the Federal Circuit has "consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor"). More specifically, "[i]n a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339, 1349 (Fed. Cir. 1999). In other words, it is insufficient for the patentee to merely point to a "computer" or "microprocessor," rather it is necessary that the particular algorithms that carry out the claimed function be disclosed in order to fulfill the "structure" requirement under § 112, P 6. 9

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

9 An algorithm consists of a specified series of instructions intended to be implemented as a computer program.
Here, the specification provides that the computing unit may be "for example, a commercially available personal computer or a workstation," which may "include[] at least one processor and at least one data memory." (‘465 Patent, col. 6:20-24.) The specification further states that the computing unit is capable of "execut[ing] at least one computer program product for the evaluation of destination call reports or for the association of recognized identification codes with destination floors." (Id. col. 6:27-30.) Furthermore, the explanation of "computer program product" contained in the specification recites only the functionality of the "computer program product," e.g., explaining that the "computer program product" receives destination call reports and/or identification codes, converts identification codes into destination floors, and performs optimization algorithms to assign an elevator car to each user. (Id. col. 6:35-7:50.)

Importantly, however, neither the "computer program product" nor the underlying algorithm used to perform the optimization process is disclosed in the specification. See Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1253 (Fed. Cir. 2005) ("A computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure is the algorithm."). Plaintiff contends that a sufficient algorithm is disclosed in the specification because the "optimization" algorithms performed by the "computer program product" to determine the most favorable elevator for conveying each user were well-known in the art at the time of the filing, citing to U.S. Patent No. 4,718,520 (providing a description of a computer algorithm for performing destination dispatch optimizations). 10 The Federal Circuit, albeit in an unpublished decision, recently addressed a similar argument in Encyclopaedia Britannica, Inc. v. Alpine Electronics, Inc., 355 F. App'x 389 (Fed. Cir. 2009).

10 Importantly, Plaintiff has failed to cite to any evidence, including expert testimony, other than the preexisting patent in support of its argument that a person of ordinary skill in the art would understand the optimization process claimed by the computing unit. Cf. AllVoice Computing PLC v. Nuance Communications, Inc., 504 F.3d 1236, 1245-46 (Fed. Cir. 2007) (relying on expert testimony explaining the scope of the algorithm expressly disclosed in patent in order to give meaning to the claim terms and finding that sufficient structure existed from the perspective of "an ordinarily skilled artisan").

In Encyclopaedia Britannica, the Federal Circuit rejected the patentee's argument that the specification disclosed sufficient corresponding structure for a computer-based means-plus-function element because a person of ordinary skill in the art would recognize that the specification inherently discloses a class of algorithms for retrieving the necessary information from a database on a general purpose computer. Id. at 393. The court emphasized that a contention that sufficient corresponding structure was present when the specification implicitly disclosed to a person of ordinary skill in the art a class of algorithms is not supported by existing case law. Id. at 394. Instead, the court explained that a patent "must explicitly disclose an algorithm in the specification for performing the claimed function for a computer-implemented invention to have sufficient corresponding structure" for the claimed limitation. Id. at 394. Furthermore, the Federal Circuit, citing Aristocrat II, rejected the patentee's alternative argument that the specification need not disclose any algorithm where the computer function being performed is well known. Id. at 395. Based on the patentee's failure to disclose an underlying algorithm, the court found that the patent was indefinite. Id. at 396.

Although Encyclopaedia Britannica is not binding, the Court finds it to be a well-reasoned opinion and will adopt it for purposes of resolving the issue before the Court. The Court finds that Plaintiff has failed to demonstrate that the specification describes the term "computing unit" with sufficient structure in order to avoid indefiniteness. The Patents-in-Suit are devoid of any disclosure as to the algorithm used by the computing unit vis-a-vis the "computer program product" to perform the "optimization" function. The absence of an underlying algorithm is fatal to Plaintiff's proposed construction. Therefore, the Court finds that the term "computing unit" is indefinite for failure to set forth sufficient algorithmic structure associated with the contested means-plus-function clauses.

2. "Evaluation unit"/"Evaluation unit for asking when . . . , whether . . . ."
IPCom neatly says that the '751 Patent's evaluation unit is simply a microprocessor. Chart at 4. Therefore, it does not agree with HTC that this claim limitation is written as a means-plus-function element subject to paragraph 6 of 35 U.S.C. § 112. HTC argues that the function is ambiguous because it is subject to multiple interpretations due to grammatical errors, and its structure is indefinite for failure to disclose such structure in the specification.

Again, the Court concludes that IPCom presents the much more compelling and logical construction, given the Claim, the specification and what would be known to one skilled in the art. "[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 ¶ 6 does not apply . . . the presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome." Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004).

Here, the claim does not use the term "means" and HTC has not rebutted the presumption that it is not a means-plus-function term. Moreover, even if it were such a term, the specification describes the corresponding structure. Figure 2 of the '751 Patent shows a mobile station (5) with a transceiver (65), and evaluation unit (60), antenna (70), and subscriber identity module (SIM) card (75). '751 Patent, Fig. 2. The evaluation unit connects to the transceiver and accesses the SIM card. Id. at 5:4-10 ("The transceiver unit 65 is also connected to an evaluation unit 60, which accesses an access authorization card 75, such as a SIM card.") It has memory, id. at 6:60, and performs the steps set forth in Figures 4a-4c of the Patent, determining for example whether certain data is in the received signals, obtaining a value from the SIM card or memory, drawing a random number, and comparing values. Id. at 8:63-10:10. This description of the evaluation unit and its interaction with other components reveals that it is a microprocessor. Thus, the Court construes "evaluation unit" to mean a "microprocessor."

5. "unit having a persistent unique hardware identification used to restrict access to data received at the unit via the wireless signal" (Claim 1)

Keystone proposes a lengthy construction of this term: "A number, code or other location independent identifier (such as a serial number) that identifies a specific piece of hardware and does not identify any other piece of hardware of the same type, and once assigned to that specific piece of hardware does not change, and is employed in the process of preventing retrieval of all or part of user requested data from the data that actually arrived at the unit by way of the wireless signal." Defendants' proposed construction is "a non-volatile number or bit pattern that is unique to a particular unit is provided to the computer system so that the computer system makes a determination whether it will accept data from the unit that was received from a wireless signal."

The parties dispute four issues of construction of this term (1) whether the computer system plays some role in verifying the persistent unique hardware identification; (2) whether the persistent unique hardware identification can ever change; (3) whether the restricted data must be "user requested;" and (4) whether the hardware identification is unique within a given context or unique as to the world.

On the first issue, Keystone argues that the claim language in no way requires the computer to make a verification based on the hardware identification. It points to the fact that the claims simply read "used to restrict access to data received at the unit." Therefore, Keystone argues that while the computer system may make the determination in one embodiment of the system, there is no requirement that this always be the case. It contends that the computer system alone, the unit alone, or a combination of both should be able to make this determination.

Defendants respond by arguing there is no support in the patent for anything other than the computer system doing this verification. First, they note that the claim language itself recites the "cooperation" between the unit and the computer system in receiving data and thereby determining access restriction. Further, defendants note that specification makes clear that "if the proper address signature is not provided to the mobile computer system in the main assembly 3, data access can be restricted." I See '123 Patent, 7:29-33. Additionally, they point to prosecution history wherein the inventor differentiated prior art by pointing to the hardware identifier that is provided to the computer system in this invention. See '123 File History, at SIR0133317 (Sept. 13, 2004); see also id. at SIR0133420 (Oct. 13, 2005).
The Court agrees with defendants that the claim language, specification and prosecution history all demonstrate that the inventor intended the computer system to make the determination of whether access to a unit should be restricted based on the unit's identifier. Although it may be theoretically possible, there is no support in the patent whatsoever to show that the unit itself could authenticate itself and determine that the computer should receive the wireless signal from it, or that this verification can be done by the computer and the unit in tandem. Although it is improper to read a limitation from the specification into the claims, it is also an established axiom that claims must be read in view of the specification, of which they are a part. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004). As defendants point out, the only portion of the specification that discloses this aspect of the invention clearly refers only to "the proper address signature [being] provided to the mobile computer system." '123 Patent, 7:29-33. The inventor highlighted this aspect to the Examiner, explaining that it is the computer system that verifies the hardware identification of the unit. See '123 File History, at SIR013355 (June 24, 2005) ("This feature of the present invention allows the unit to identify itself to the computer system according to a persistent unique identification. By way of example, the persistent unique identification can be used by the computer system to ensure that only registered units are operating with computer system . . . .") (emphasis added). Plaintiff's arguments that the unit itself or the unit in combination with the computer system can perform this verification are not persuasive.

On the second issue, the parties argue that the interpretation of the term, "persistent." Defendants contend that the identifier must simply be non-volatile and persist through any power loss to the unit. They also argue that this identifier can be "intentionally changed." In support, they point to prosecution history wherein the inventor defined "a persistent unique identification" as "i.e., one that does not typically change over time." See '123 File History, at SIR013355 (June 24, 2005). Hence, they contend that it was not the understanding of the inventor that this identifier never changes. They propose that the hardware identification be construed by the Court as being simply non-volatile, but changeable.

Keystone responds that defendants attempt to limit the hardware identification to a type of non-volatile memory when there is no such limitation defined in the patent specification. It argues that persistent should be defined to be location-independent and unchanging once assigned. The Court agrees with the plaintiff on this point. There is no reason to read in a requirement that the persistent identifier be changeable. The Court however adopts the language used by the inventor to define "persistent" during the prosecution of the patent. See Pfizer, Inc. v. Teva Pharm.s USA, Inc., 429 F.3d 1364, 1373 (Fed. Cir. 2005) (finding that absent contrary intrinsic evidence, "i.e." defines the meaning of a term).

The third issue is whether the data being restricted is only "user requested" data. Keystone argues that while data is continuously received at the unit, only the data requested by the user is restricted based on the hardware identification. Plaintiff's arguments to read in such a restriction are not persuasive. The Court finds that all received data can be restricted.

The final issue on this term is if the unique hardware identification needs to be unique to the world. Defendants argue that the intrinsic record is silent as to the meaning of unique, and therefore the understanding of the term in the art should be adopted. This they contend is "one of a kind within a given context." Keystone argues that defendants improperly import this limitation based on prior art asserted by the defendants to invalidate the claims. They note that the specification refers to passwords and hardware unit codes, along with a HEX word address, as being an address signature of the unit. The Court finds that there is no reason to limit this identifier as being unique only within a given context, rather than being unique globally.

Based on the issues resolved above, the Court construes this term as: "A number, code, bit pattern or other location independent identifier that identifies a specific piece of hardware and does not identify any other piece of hardware of the same type, and once assigned to that specific piece of hardware does not typically change, and is provided to the computer system so that the computer system makes a determination whether it will accept data from the unit that was received from a
wireless signal."

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We also agree with the Commission that the proper construction of the limitation "a unitary, electrically conducting member carrying a pair of spaced electrical contacts" must give meaning to "unitary." The plain meaning of the term "unitary," which modifies "electrically conducting member," denotes a single, continuous structure. The specification and prosecution history confirm that this plain meaning is appropriate in the context of this claim limitation. See Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc).

For example, the specification teaches that "unitary" refers to the nature of the member's physical structure, not just its electrical relationship with the two contacts. Similarly, the Summary of the Invention describes the member as being "rigid" and "in the nature of a buss bar." '398 patent col.1 ll.56-61. Both descriptions refer to the member's physical characteristics; both imply a single structural unit. Additional description in the summary, which explains how the member moves and interacts with other parts of the device, also reveals that the inventor only contemplated a single structural unit. See e.g., id. col.1 l.62-col.2 l.13.

Contrary to P&S's arguments, this requirement of a unitary structure does not improperly confine the claim scope to a buss bar, or a member cast from a single die or molded from a single piece of metal. A unitary structure may contain layers or be formed by an additive process, so long as the resulting product has the physical character of a single unit. Since the claim language requires that a unitary member carries the pair of electrical contacts, the Commission correctly construed the term to require that both electrical contacts are disposed on the same unitary member.

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II.

Herstein contends that the district court failed to properly construe the meaning of the term "unjoined," and that the term should be considered to mean "operational without any separate connection." Claim 1 is representative and provides in relevant part:

1. In a microwave assembly comprising a pair of microwave components and a stripline type of connecting device for electrically interconnecting said components . . . said stripline connecting device comprising:

(a) elongated interconnecting structure for microwave transmission having conductive terminal portions at opposite ends thereof, said terminal portions having lateral faces respectively contacting but unjoined to the projecting end portions of the conductors of said microwave components . . .

'981 patent, col. 10, ll. 41-68.

Herstein further argues that the soldering of the connections in the accused device is not necessary to its operation and that infringement cannot be avoided by the addition of the solder. In Herstein's view, the connection in the accused device should, therefore, be considered to be "unjoined."

Although the district court stated that it "need not engage in a lengthy analysis in construing the claim because there is no dispute as to the meaning of the word 'unjoined' in the relevant claim limitation," Herstein v. Comtek Federal Systems, Inc., Memorandum and Order No. 98-CV-3556 (CBA) at 11 (E.D. N.Y. October 27, 1998) (Herstein I), the court, in its thorough opinion on the infringement issues, carefully considered Herstein's arguments and reviewed the patent's written description and prosecution history in considerable detail. It concluded that the soldered connections in the accused device were not "unjoined" as that term is used in the patent. See id. 1

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In finding no infringement under the doctrine of equivalents, the court considered two prior art references, Lehrfeld and Logan, and concluded that "joined" connections had been relinquished.

A district court's construction of disputed claim terms is a question of law subject to plenary review on appeal. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 U.S.P.Q.2D (BNA) 1169, 1174 (Fed. Cir. 1998) (en banc). We give disputed claim terms their ordinary and accustomed meaning, within the context of the claim, unless (1) a different meaning is clearly set forth in the written description or the prosecution history; or (2) the meaning of the term is unclear from the context of the claim. See Johnson Worldwide Assoc., Inc. v. Zebco Corp., 175 F.3d 985, 989-90, 50 U.S.P.Q.2D (BNA) 1607, 1610 (Fed. Cir. 1999). Claim construction is independent of the device charged with infringement. See Pall Corp. v. Hemasure, Inc., 181 F.3d 1305, 1308, 50 U.S.P.Q.2D (BNA) 1947, 1949 (Fed. Cir. 1999).

A review of the written description of the '981 patent and its prosecution history reveals that the term "unjoined" is not specifically defined. However, the claim term is used in the context of the interconnecting structure having "conductive terminal portions with lateral faces respectively contacting but unjoined to the projecting end portions of the conductors of [the] microwave components." The term "unjoined" does not appear to be so ambiguous that one of skill in the art must look elsewhere in the patent for its meaning. See Johnson Worldwide Assoc., Inc. v. Zebco Corp., 175 F.3d 985, 990, 50 U.S.P.Q.2D (BNA) 1607, 1611 (Fed. Cir. 1999) (citing Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1187, 48 U.S.P.Q.2D (BNA) 1001, 1005 (Fed. Cir. 1998)). Based on the claim language alone, the district court's comment that there is no dispute as to the meaning of the term "unjoined" is appropriate.

Herstein contends that the term "unjoined" should be considered to have a special meaning, i.e., "operational without any separate connection." We, therefore, consult the patent specification and prosecution history to determine whether Herstein's asserted construction of the term "unjoined" is revealed or otherwise appropriate. See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1576 (Fed. Cir. 1996).

Both the patent and the prosecution history provide guidance. The patent is directed to a microwave assembly technique that, inter alia, is free from the disadvantage of soldered connections that do not allow easy replacement of components. See '981 patent, col. 1, ll. 35-68, and col. 2, ll. 1-22. The written description provides further that the "connection between the components is achieved by mechanical clamping. Neither cement nor solder is required for the connection. Component removal and exchange can be performed simply by unclamping and reclamping the housing portions, and this can be done without damage to the leads or tabs." Id., col. 6, ll. 58-64. Finally, the patent provides that "the mechanical clamping utilized in the test fixture leaves the components' leads clean, and reassembly in the final subsystem is extremely simple." Id., col. 8, ll. 51-54. It is clear from this language that one of the salient features of the invention is the ease of connection and disconnection of components.

The prosecution history is also informative. In response to the PTO's rejection of the claims as unpatentable over two prior art references - Lehrfeld and Logan - the claims were amended to add the term "unjoined." The Lehrfeld reference did not employ mechanical clamping, but instead used solder or adhesively bonded joints to achieve its connections. In distinguishing Lehrfeld, it was argued that the invention was distinctive because of its use of mechanical clamping and because the terminal portions of the invention's connecting structure and the projecting ends of the microstrip conductors were unjoined.

The Logan reference employed mechanical clamping and solder in the relevant connections. It was distinguished because the connections were joined and did not allow the feature of the invention of quick connection and disconnection of the microwave components, which was achieved by the invention's unjoined mechanical clamping.

Based on the claim language, the written description and the prosecution history, we conclude, as did the district court, that the term "unjoined" means a connection that employs mechanical clamping and which is not soldered.

Herstein contends, however, that the addition of solder to the accused device was unnecessary and that the accused device was operational and literally infringed the '981 patent before the solder was added.
2 Although Herstein argues that MicroKim conceded that the solder was added to the connections in order to avoid infringement, the record does not bear this out.

The district court fully considered this argument and specifically ruled that:

where one element of the relevant claims is that the device be "unjoined," the accused device clearly does not include all elements of the claims. Defendants have not merely "added" an additional element. They have added a feature that the claims of the '981 patent expressly do not include.

Herstein I at 13 (emphasis in original).

As previously discussed, the term "unjoined" when properly construed means a connection that is not soldered. In MicroKim's accused device the relevant connections are soldered during manufacture. The accused device does not meet all the limitations of the '981 patent claims and, therefore, does not literally infringe.

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B. "Unknown Destination"

Fortinet proposes construing "unknown destination" as an unspecified destination, while PAN advocates construing it to mean a destination that has not yet been determined. In other words, the parties dispute whether "unknown" refers to: (1) the fact that the communication does not identify a specific final destination intended by the sender, as Fortinet contends, or (2) the fact that the system receiving the communication has not yet determined where the communication will ultimately be sent, as PAN contends. The court agrees with Fortinet.

Neither the claim language, nor the specification provide much guidance as to the meaning of "unknown destination." The claims discuss a process by which the system receiving the communication determines where the communication will ultimately be sent, but they do not clarify whether the claimed invention encompasses the process for making such determinations when the sender of the communication has requested a specific final destination. The specification is also unhelpful, as the phrase "unknown destination" is never used, much less defined, in the specification.

The prosecution history, however, makes clear that an "unknown destination" is an unspecified destination, meaning the communication does not identify a specific final destination intended by the sender. "The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." Southwall Techs. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995). During the prosecution of the '272 Patent, the examiner had initially rejected the majority of the claims as anticipated by United States Patent No. 5,757,904 ("Anderson reference"). The applicant sought to distinguish the disclosed invention from the prior art Anderson reference by arguing that the Anderson reference "relate[s] to situations in which the caller has already specified the destination by requesting a specific person." Dkt. No. 47 Ex. B at PAN000178. In an interview with the examiner, the applicant "identified the difference, non-specific requests, between the disclosed invention and Anderson. Examiner suggested that the claims be amended to recite 'unknown destinations' for overcoming the prior art of record." Id. at PAN000231. Based on this conversation, the applicant amended the claims to recite the "unknown destination" limitation in order to overcome the Anderson prior art. Id. at PAN000226. Hence, the patentee has expressly limited the scope of the claims to situations where the sender has not made a specific request regarding the intended final destination for the communication. The court therefore construes "unknown destination" as an unspecified final destination.

1 The court adds the word "final" to Fortinet's proposed construction in order to clarify that the claims encompass situations where the sender has identified a general or intermediary destination, such as the number of a customer service hotline, but
has not identified the intended final destination, such as a particular individual or department.

--- End Footnotes ---

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Claim Element 1h

wherein the web page is accessible from the second user point via an unlisted universal resource locator, and users at the second user point are provided with at least one user ID and user password

The parties disagree on the meaning of "unlisted universal resource locator."

Dell proposed: "an internet address not commonly accessible." Dell further proposed that the remaining terms should be construed according to their ordinary meanings.

Lucent proposed: "the web page containing the customized information is accessible from the second user Internet point by inputting a confidential URL not available through a web search that, along with at least one user ID and user password, has been previously provided to the second user Internet point."

The court construes "unlisted universal resource locator" as follows:

"an internet address not purposefully made available for discovery through a web search or otherwise."

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6. ferromagnetic (claims 1, 2); magnetic material pins (claim 5); unmagnetized magnetic material (claim 8)

Fargo ferromagnetic: of or relating to a class of substances characterized by abnormally high magnetic permeability, definite saturation point, and appreciable residual magnetism and hysteresis

magnetic material pins: pins made of a magnetic material

unmagnetized magnetic material: magnetizable material that is not permanently magnetized

Iris ferromagnetic: a material that exhibits ferromagnetism, but is not magnetized

magnetic material pins: pins made of a material that is capable of being magnetized, but is not magnetized

unmagnetized magnetic material: material that is capable of being magnetized but, in the absence of an applied external magnetic field, is not magnetized

--- Footnotes ---

n5 Iris offered this proposed construction at oral argument.

--- End Footnotes ---

The focus of Iris's arguments regarding these terms is that, within the context of the patent, they all refer to material that is capable of being magnetized, but is not magnetized. Iris highlights evidence in the prosecution history where the applicant sought to distinguish prior art on the basis that the supply rolls have "no magnets." (Fink Aff., Ex. C, pt. 4, at C61-C62.) The
document states:

Claim 11 [issued Claim 8] is specific to the positioning of the identifier indicia, using an unmagnetized magnetic material. This feature is very important, again, from a pollution control standpoint, because there are no magnetic materials that are utilized on the roll, but yet the reliability of a magnetic sensor can be utilized using one stationary detector of the present invention.

* * *

With the present invention the magnetic material pins are cheap, they are non-polluting, and since there are no magnets, there are no plurality [sic] requirement. They can be placed on the supports or inserted into the apertures without regard to polarity.

The doctrine of prosecution disclaimer prevents a patentee from recapturing a specific meaning that it disclaimed during prosecution. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003). The disclaimer must have been clear and unambiguous for the doctrine to apply. Id. at 1324. Fargo argues that there is no clear and unmistakable disavowal of the ordinary and customary meaning of "magnetic material pins." The problem with Fargo's argument, however, is that its proposed construction for "magnetic material pins" is "pins made of a magnetic material." Yet the prosecution history clearly indicates that the "invention" has "no magnets." Neither Fargo's arguments nor its proposed definition help explain how "material" that is "magnetic" is nevertheless not a "magnet."

At oral argument, Iris offered a new definition for "unmagnetized magnetic material" to counter any objection that its previous definition might have excluded the pins in the patent because they are briefly magnetized as they pass through the magnetic field that is part of the sensor. The resulting definition, "material that is capable of being magnetized but in the absence of an applied external magnetic field is not magnetized," is a better definition than Fargo's because it avoids the ambiguity of the word "permanent." In light of the prosecution history indicating that the supply rolls have "no magnets," the Court will adopt this definition for "unmagnetized magnetic material" and a similar definition for "magnetic material pins:" "pins made of material that is capable of being magnetized but in the absence of an applied external magnetic field is not magnetized." In so doing, the Court is aware that it is defining different terms to have essentially the same meaning. Although a patentee's use of different terms normally indicates that it intended those terms to carry different meanings, a reading of the patent and prosecution history does not reveal what that difference might be in this case, and Fargo's objections to Iris's proposed definitions ignore the clear statement in the prosecution history regarding the lack of magnets.

Finally, in light of that same prosecution history, the Court will adopt Iris's definition of "ferromagnetic," modified as follows: "a material that exhibits ferromagnetism, but, in the absence of an applied external magnetic field, is not magnetized." Because Iris concedes that Fargo's definition of "ferromagnetic" is correct "in the abstract," the Court will adopt Fargo's definition of "ferromagnetic" insofar as it is necessary to define the word "ferromagnetism" in Iris's definition of "ferromagnetic."

B. Ref. No. 7 "Wherein the unique voting session identifier is unrelated to a particular voter's personal identity."

This phrase is recited in Claim 1 of the '730 Patent.

Plaintiff proposes the following construction: "The unique voting session identifier consists of a random or pseudo-randomly chosen number." Defendants, on the other hand, argue that the term does not require a construction separate and apart from the definition of unique and voting session identifier as set forth in the previous claim.

The patentee on several occasions informs us that the voting session identifier cannot be associated with the personal identify of the voter. (See Col. 16, ll. 58-59; Col. 8, ll. 43-45; Col. 8, ll. 55-58; Col. 8, ll. 65-67; Col. 10, ll. 47-49; Col. 20, ll. 11-20; Col. 20, ll. 25-30; Col. 24, ll. 1-7.) Based upon the discussion in the previous claim, it appears to the Court that the inventor was concerned about the anonymity of the voter as related to the voting session identifier. Therefore, this feature should be included in the construction of this term.
For the foregoing reasons, the Court has construed the term in Ref. No. 7 as follows: "The unique voting session identifier consists of a random or pseudo-randomly chosen number which is unrelated and untraceable to the voter's identity."

II. DISCUSSION

During the briefing on claim construction for the term "unrequested," Beneficial offered the proposed construction of "not requested by the user" whereas Defendants proposed "not sent in response to a signal from a user's computer." In the Court's claim construction order, the Court rejected Defendants' proposal and construed the term "unrequested" to mean "not requested by the user." The Defendants ask the Court to reconsider its construction of the term "unrequested" in view of Beneficial's remarks to the USPTO. Defendants request that the Court construe the term "unrequested" to mean "just appears and is not in response to any immediately previous user input."

Defendants contend that the patentee's arguments to the USPTO during reexamination contradict the arguments made by Beneficial during the claim construction hearing before this Court. Defendants argue that Beneficial wants the term
"unrequested" to mean one thing in this litigation to prove infringement and to mean something else before the USPTO to preserve validity. At the claim construction hearing, Plaintiff provided to the Court an example of what it considered to be an "unrequested advertisement." The example showed the user inputting a query into a Google search engine and receiving a web page in immediate response to this input. The web page contained results of the search performed by the search engine together with an advertisement. Even though the web page containing advertisement was sent in immediate response to the user inputting the query, Plaintiff characterized the advertisement on that web page as "unrequested." Defendants argue that this example of the "unrequested" advertisement at the claim construction hearing is substantively indistinguishable from the advertisement disclosed in Internet Week that Plaintiff argued is not "unrequested" to the USPTO.

Beneficial argues that it did not expressly define the term "unrequested" in the reexamination. Rather, in arguing to the USPTO that the asserted prior art reference did not teach a system that provided "unrequested" advertising, Beneficial argues that it merely provided the Examiner with an example of one type of advertisement that would be an advertisement that was not requested by the user. Beneficial also argues that the example of an unrequested advertisement that it presented to the USPTO is consistent with its proposed claim construction to this Court and refutes the construction proposed by the Defendants during claim construction. Beneficial also argues that its arguments to the USPTO do not constitute the clear and unambiguous disavowal of claim scope that would be required to overcome a construction compelled by the ordinary meaning of the claim language and the specification.

In distinguishing the prior art during reexamination, the patentee provided an example of "unrequested advertising" as "advertising that just appears and is not in response to any immediately previous user input, e.g. a pop-up ad." The Court finds that the patentee was not merely giving an example of an unrequested advertisement, but was defining the term "unrequested" in its attempt to distinguish the prior art. By distinguishing the claimed invention over the prior art during the reexamination, Beneficial has taken a position on how the term "unrequested" should be construed. The Court rejects Defendants' contention that the remarks during reexamination support Defendants' proposed construction during claim construction. However, while the example of "unrequested advertising" made during reexamination is not directly inconsistent or contradictory with the Court's construction, it is certainly a narrowing of the Court's construction for the term "unrequested." Further, the Court finds that Beneficial's arguments to the Examiner that the prior art is not "unrequested," in which the search engine returns both the search results and a banner advertisement in response to a user's search query, is contradictory to its arguments to this Court that a web page responsive of Google search results combined with an advertisement is "unrequested."

The Federal Circuit is clear that a claim is to be interpreted by the prosecution history of the patent, which includes arguments made during any reexamination. See CIAS, 504 F.3d at 1362-63; CVI/Beta, 112 F.3d at 1158. The Court rejects Beneficial's arguments that this Court should ignore the arguments and remarks made to the USPTO during reexamination, particularly in light that its arguments to the USPTO are contradictory to arguments it made to this Court. The Court will not allow Beneficial to make arguments as to the interpretation of claims in this Court and then to make contradictory arguments to the USPTO in distinguishing the prior art without any effect on the scope of the claim. Defendants propose that this Court adopt verbatim Beneficial's arguments during reexamination that "unrequested" should mean "just appears and is not in response to any immediately previous user input." The language "just appears" is not particularly helpful in the construction of the term, and thus the Court rejects Defendants' proposal that includes this language. The Court finds that the term "unrequested" should be construed to mean "not in response to any immediate previous input by the user."

IV. CONCLUSION

The Court finds that the construction for the term "unrequested" should be modified in light of Beneficial's remarks and arguments to the USPTO during reexamination of the '366 patent. The Court adopts the construction set forth in this opinion for the "unrequested" term in the '366 patent. The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.
5. "Ordinary Unresolved Pointer"

While the parties agree that "ordinary unresolved pointers" are always resolved by high-level language routines, IBM reads into the term the further requirement that an "ordinary unresolved pointer" is an unresolved pointer that is not converted into a resolved pointer after the address of its target is determined. Data General, on the other hand, maintains that an ordinary unresolved pointer could be (but is not necessarily) resolved once by a high-level language routine and then converted into a resolved pointer.

Proper claim construction of the term "ordinary unresolved pointer" requires an understanding of several related terms, of which the definitions are undisputed. The parties agree that a "pointer" is a data item that represents the address of a target data item. A "resolved pointer" contains the target's address. An "unresolved" pointer does not contain the target's address, but instead, contains data from which that address may be determined.

Claim 10 recites in relevant part:

… said data items include ordinary unresolved pointers, each one of said ordinary unresolved pointers representing a represented address of said addresses and containing said data items from which said represented address may be derived.…


The term "ordinary unresolved pointer" is not a term commonly used in computer engineering, and thus, this Court must look beyond Claim 10 to the Common Specification to construe the term. The Common Specification distinguishes between two kinds of unresolved pointers, "ordinary unresolved pointers" and "associative pointers":

The subclasses of unresolved pointers are ordinary unresolved pointers and associative pointers. The difference between the two kinds of unresolved pointers is the manner in which they are resolved. Ordinary unresolved pointers are always resolved by high-level language routines, while associative pointers are resolved the first time they are used in a Process 610 and a domain by high-level language routines, but are subsequently resolved by means of a table called the Associated Address Table (AAT). This table is accessible to microcode, and associative pointers may therefore be more quickly resolved than ordinary unresolved pointers.

'602 Specification, col. 327, l.60 - col. 328, l. 4. The parties agree that, as the Common Specification unambiguously states, ordinary unresolved pointers are always resolved by "high-level language routines."

Data General maintains that an ordinary unresolved pointer could be resolved once by a high-level language routine and then be converted into a resolved pointer. According to Data General, Claim 10 simply requires that the pointer resolution sequence return the target's address but is silent as to whether or not the unresolved pointer is overwritten with the resolved pointer.

This Court was persuaded by Professor Graham's testimony that the replacement of an unresolved pointer with a resolved pointer is conceptually distinct from determining the target of the unresolved pointer. (Graham T. 3/19). The computer can access the target data item without overwriting the unresolved pointer, but at the cost of having to determine again the target address should it encounter the pointer again in the same program. For reasons of efficiency, a computer might overwrite a pointer so that it can go directly to the target data item if it encounters the pointer again in the same run, without the need to resolve the pointer again. Claim 10, Data General argues, does not speak to whether the computer performs this optional step.

In IBM's view, however, the language of the Common Specification supports its proposed construction, namely, that an ordinary unresolved pointer is never converted into a resolved pointer upon the determination of the address of its target. IBM further argues that Data General's construction is inconsistent with the language in the Common Specification.

First, IBM asserts that Data General's contention that an ordinary unresolved pointer could be resolved once and then converted into a resolved pointer contradicts the statement in the Common Specification that "ordinary unresolved pointers are always resolved by high-level language routines." IBM contends that if Data General's position were correct, then an ordinary unresolved pointer would be "resolved by high-level language routines" only the first time it was used. Thereafter,
on subsequent uses of the pointer, no resolution would be required. Thus, such a pointer would not "always" be "resolved by high-level language routines."

IBM's argument is without merit. If a computer replaced an unresolved pointer with a resolved pointer, after determining the target's address, that pointer will no longer be unresolved when encountered again in the same program. Thus, replacing an ordinary unresolved pointer with a resolved pointer is not inconsistent with the statement in the Common Specification that an ordinary unresolved pointer is an unresolved pointer that is "always resolved by high-level language routines" because a particular ordinary unresolved pointer disappears when it is replaced with a resolved pointer.

Second, IBM argues that Data General's proposed construction contradicts the statement in the Common Specification that "associative pointers may therefore be more quickly resolved than ordinary unresolved pointers." IBM contends that if, according to the system Data General envisions, a particular ordinary unresolved pointer were overwritten with a resolved pointer, the next time the processor encountered that pointer it would be "resolved" more quickly than an associative unresolved pointer, which would still have to be looked up in the Associated Address Table.

This argument is similarly unavailing. Again, the critical weakness in IBM's argument lies in the fact that an ordinary unresolved pointer would disappear were it replaced by a resolved pointer. If a particular ordinary unresolved pointer were overwritten with a resolved pointer, the next time the processor encountered that pointer, it would no longer be an ordinary unresolved pointer. The notion that a resolved pointer is "resolved" faster than an associative pointer in no way contradicts the Common Specification language that "associative pointers may therefore be more quickly resolved than ordinary unresolved pointers."

Thus, as outlined above, Data General's interpretation does not appear to be inconsistent with the language in the Common Specification. Data General's expert, Professor Finkel, highlights an example in the Common Specification where an unresolved pointer is resolved and then overwritten. (Finkel T. 1/109-10). That portion of the Common Specification which describes the resolution and overwriting of unresolved pointers by software lends credence to Data General's proposed construction while undermining that of IBM.

The Dynamic Linker then obtains the UID of Procedure Object 608 from EOS, uses the UID and offset information contained in the Binder Area location to locate Procedure 602's gate, places the pointer to the Gate at the location occupied by the unresolved pointer in the Static Data Block, and returns the pointer to the pointer-to-descriptor microcode. The microcode is now able to convert the pointer to a descriptor….

'602 Specification, col. 331, l. 66 - col. 332, l. 5.

3. "unscrambling circuit"

The plaintiffs assert that the term "unscrambling circuit" requires no further construction. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues it means a circuit that restores a scrambled analog signal to its unscrambled condition. The DIRECTV defendants argue an "unscrambling circuit" is the entire electronic circuit that restores a scrambled analog signal to its unscrambled condition.

I have construed "scrambling" to apply to both analog and digital signals. I have construed "unscrambling" to mean restoring a modified signal to its unmodified condition.

The DIRECTV defendants argue that the term should be construed to include "the entire circuit that unscrambles the signal . . . to clarify that the claim language itself dictates that the circuit include both 'key elements,' and perhaps other elements that do not satisfy the 'key elements' limitation." Defendant DIRECTV . . . Principal Opening Brief On Claim Construction, at p. 57. I do not understand the plaintiff to disagree.

I construe the term "unscrambling circuit" to mean the entire circuit that restores a modified signal to its unmodified condition.
10. Claim 10: "unswitched" "Unswitched is construed to mean "the mode in which the bypass is off or not utilized."

A. Untrusted Network

The parties agree that the patentee explicitly defined the term "untrusted network" in the specification of the '416 Patent. However, they disagree as to whether the patentee's definition comprises one or two sentences. The relevant part of the specification reads:

"As used herein, an untrusted network is defined as a public network with no controlling organization, with the path to access the network being undefined and the user being anonymous. A client-server application running over such a network has no control over the transmitted information during all the phases of transmission."

('416 Patent, col. 3, ll. 59-64). Plaintiff contends that "untrusted network" is defined by only the first sentence, whereas Defendants contend that the patentee intended "untrusted network" to be defined by both sentences. (D.I. 266, pg. 25; D.I. 305, pg. 26; D.I. 268, pg. 39; D.I. 306, pg. 17). Defendants contend that the patentee clearly intended to limit the scope of the term "untrusted network" to "control" over transmitted information, and that desired scope is only apparent when both sentences are read together. (D.I. 268 at 39).

After reviewing the claim language and the specification, the Court concludes that the second sentence explains how an untrusted network acts upon a client-server application, while the first sentence contains the patentee's definition of the term. Accordingly, the Court agrees with Plaintiff, and construes "untrusted network" to mean "a public network with no controlling organization, with the path to access the network being undefined and the user being anonymous."

4. '769 Patent Claim 1, 11, 23, 35, 43: "updated billing rate parameters"

Claim 35 describes the apparatus for updating the call rating device. The claim includes four elements; only one sub-element of the fourth element is in dispute.

"means transmitting from the rate provider to the call rating device the updated billing rate parameters when the rate provider determines that an update is required."

The parties dispute the meaning of the term "updated billing rate parameters." The term "updated billing rate parameters" appears in Claims 1, 11, 23 and 43 as well, and has the same meaning as it has in Claim 35. 12

12 No particular or definite means for transmitting is described by this language. The element is therefore a "means-plus-function" claim governed by paragraph 6 of section 112. The only part of the claim that is actually limited by the specification, however, is the means itself. The function that the means performs is fully described in the claim itself. The function of the claim is therefore not limited by the specification, although the specification is a useful aid in interpreting the claim.
According to the claim, the apparatus would be required to transmit "from the rate provider to the call rating device the updated billing rate parameters." MediaCom contends that the term should be construed to require transmission of entire new rate tables whenever the rate provider determines that an update is proper. Rates maintains that the claim requires modifications to the database of the call rating device in order to make current the information stored there, but does not require transmission of entire new rate tables.

The meaning of the disputed term is not obvious from the context of the claim. The specification explains that "billing rate parameters could include the rates for local and long distance calls, and the rates of various carriers in some instances." Col. 3, Lns. 19-21. The billing rate parameters are compiled in a "rate table" that is stored in the "current rate table storage" and the separate "new rate table storage" components of the call rating device. Col. 3, Lns. 24-31. Similarly, the rate provider stores billing rate parameters in a (typically larger) "rate table storage" device. There is no question that the billing rate parameters are stored in the form of tables, as MediaCom argues.

The specification does not say, however, that the information is transmitted in the form of tables, as MediaCom urges the Court to conclude. MediaCom points to Col. 4, Lns. 58-59, "the rate table is replaced (block 105) if changes are required." This language reveals that the new table entirely replaces the current table within the call rating device once the new table becomes effective. 13 It does not reveal, however, how the data are transmitted from the rate provider to the call rating device in the first instance. Similarly, the specification refers to a "newer rate table" becoming available within the rate provider device, Col. 6, Lns. 19-20, but does not discuss transmission. The only discussion concerning transmission of billing parameters refers to a "block of data" or "block of information" being retrieved and sent. Col. 5, Ln. 11, 28; Col. 6, Lns. 2-19. The specification contemplates that an update might require the transmission of more than one such block, based on a determination of whether more data is needed to update the database. Col. 6, Lns. 6-19.

Absent some other clear indication in the specification, there is no reason to conclude that the "updated billing rate parameters" must be transmitted in the form of complete rate tables. Thus the claims encompass transmission of the complete new tables, or, in the alternative, additions, deletions, or modifications to the existing rate tables.

--- Footnotes ---

13 The reason two storage areas are required within the call rating device is that new billing information may become available before the new rates actually go into effect. By using two different tables, the device can be updated as soon as the new rates are publicized, but continue to refer to the old rates as long as they remain in effect.

--- End Footnotes ---

5. "updated secret state"

Step (b) of the process provides: "applying at least said selected transformation operation to said internal secret state to produce an updated secret state." For convenience, the Court will refer to step (b) as the "applying step." In the applying step, the parties dispute the construction of the phrase "updated secret state." In particular, the dispute is over whether an exemplary "mathematical function" disclosed in the written description 4 should be included in the construction. Defendant would like to import the limitation that the "transformation operation" is a "mathematical function."

--- Footnotes ---

4 (See '092 Patent, Col. 4:35-39.)

--- End Footnotes ---

The ordinary and customary meaning of "to update" is "to change." Nothing in the specification, including the claim, indicate that the inventor intended to limit "updated secret state" to the exemplary mathematical function disclosed in the written description. Therefore, the Court finds that the ordinary and customary meaning attributed to the term "updated secret state" by those skilled in the art should be applied.
Accordingly, the Court construes the phrase "updated secret state" to mean: a changed secret state.

D. Updating

The patentee has used several terms in the patent claims that have similar connotations, including "storing" and "maintaining," both of which could be used to suggest the idea of "keeping." Another set of terms vulnerable to confusion is "maintaining" and "updating," either of which could encompass the concept of revising something. To discern the actual meaning in the Hill patent for any of these terms requires careful scrutiny of the context in which the term is used, and consideration of the broader context of the patent itself. The Court has just defined "maintaining" as "keeping the most current information available," which then must be distinguished from the word "updating." Although both terms involve the idea of incorporating revisions, "maintaining" refers to keeping information in a certain state or condition, while "updating" refers to the actual process of bringing data, files, or programs up-to-date.

In the Hill patent, "maintaining" is used only in connection with data or programs on the main computer, and it implies a volitional act, whereas "updating" occurs only with respect to the data or programs on the remote computer, and implies a system-generated activity. The file history makes this point in remarks about an amendment made to "more particularly point out" that constant data stored on the remote computer is a subset of the product information data in the electronic catalog. See Plf's Ex. 93, Tab 9, at 5. When discussing the product selection process, the patentee described the updating of constant data on the remote computer as "automatic." Id. at 6. Specifically, the patentee declared that "the customer never has to request an update of constant data." Id. These passages are in response to an Official Action dated May 23, 1994, in which the examiner rejected claims 1-6, 9-19, 22, 24-29, 32-64, 66-71, and 73-74, based on obviousness in light of prior art. Id., Tab 7 at 3. The examiner had noted that the Waite patent taught the "inherent step" of storing and maintaining a main revision status in the main computer to indicate the revision level of constant data stored therein. Id. at 4. In this prior art reference, such information was necessary to allow a remote user to request the correct revision level of a particular product. Id. It was in response to these objections that the patentee represented in his invention updating of constant data on the remote computer was never at the request of the customer. Thus, the prosecution history supports a finding that "updating" involves the idea of an automatic process.

The patent also describes "updating" as a process of transmitting revised data or programs from the main computer to the remote computer, while "maintaining" refers to action taken only at the main computer. In a network of computers, when there is a main or host computer and one or more remote computers, a hierarchy is created. See Tr., Vol. I at 25-26, 34. By only referring to the process of "updating" as a transmission of information from the main computer to the remote, the Hill patent recognizes that hierarchy. See Id. at 28, 34. Updating involves an automatic transmission of portions of the revised data or programs from the main computer (where the latest program revisions and all data is maintained) down the hierarchy to the remote computer (where such things are only stored). The Court finds that "updating" is also distinguishable from "maintaining" by these features -- the locus of each activity within the network hierarchy and the automatic nature of the process of "updating."

According to Hill, the ordinary definition for "updating" is simply "bringing up to date," and although technical definitions may be found, they are consistent with this proposed ordinary definition. The technical definitions presented at the hearing include, "in database management, a fundamental data manipulation that involves adding, modifying, or deleting data records so that data is brought up-to-date." Webster's New World Dictionary of Computer Terms. Hill's expert testified that this is the meaning that would be understood by one of ordinary skill in the art. Tr., Vol. I at 78-79. Similarly, another technical dictionary defines "update" as, "to change a system or a data file to make it more current." Microsoft Press Computer Dictionary. Compuserve's proposed definition includes several other elements: "bringing up to date all of the constant data files of the electronic catalog stored on the remote computer by transmitting in a single transmission containing the constant data files necessary for synchronization so that a complete copy of all of the most current constant data files are [sic] stored on the remote computer." Def's Brf. at 25.

In support of this definition, Compuserve cites passages from the description of the preferred embodiment relating to the step of comparing the remote and main program and constant data revision statuses. '490 Patent, Col. 18, ll. 47-51. The passages refer to a process in which "all the updated files are compressed into a single update file" and sent from the main.
computer to the remote computer. Id., ll. 59-62. The "single update file is then downloaded" onto the customer's computer in
response to an update request. Id., ll. 62-64. From this, Compuserve concludes that the claim term "updating" must mean the
process of transmitting all updated files, which have been compressed into a single update file, and that "all" means every
constant data file for the entire electronic catalog system that has changed since the last time the remote computer accessed
the catalog.

In another passage, the circumstances are discussed under which the constant data and software on the customer's computer
are more than one revision level behind those on the main computer. In that case, "all of the files for all of the revisions that
the customer requires to become updated are compressed into a single file and downloaded." '490 Patent, Col. 19, ll. 26-31.
Compuserve deduces from this passage further support for its contention the patent requires that all of the changed constant
data be transmitted to the remote computer and synchronized. Def's Brf. at 27. At no point does Compuserve address the
language in the actual claims, or attempt to construe the term "updating" in that context. Nor does Compuserve refer to the
summary of the invention in the specification for any guidance as to the meaning of this claim term.

Based on the cited passages alone, the Court is not satisfied that Compuserve has demonstrated that the patentee created a
"special and particular definition" for "updating" that is more specific than the ordinary technical or dictionary meanings. In
fact, Compuserve's proposed definition specifically refers to constant data, whereas the claims use "updating" in connection
with both constant data and program files. It also imports the "single transmission" limitation found in the preferred
embodiment into the definition of a broader claim term, which is improper. See '490 Patent, Col. 18, ll. 59-62; Mantech, 152
F.3d at 1374; SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed. Cir. 1985). For these reasons, the Court will not
adopt the single transmission of all constant data element of the proposed definition of the defendant.

This decision, however, does not end the inquiry. Both parties have presented arguments about whether "updating" means
that all of the revised data and program files on the main computer must be sent each time updating occurs. Compuserve
contends that updating means transmitting all of the current constant data files on the main computer to the remote.
Hill opposes Compuserve's definition by arguing that the word "all" does not appear in the claim language, and that adding
it to the definition of updating would thus be improper. According to Hill, the only revised data used for the updating step is
the data needed for the specific task to be performed. This argument misses the point. It is the word "updating" that the
Court must construe, and the question is whether that term should be defined to include the limitation that all revised data
and program files on the main computer be included with each update. Answering that question requires the Court to further
examine the claims and the specification for relevant textual clues.

In the summary of the invention, the constant data updating step is described as including the step of "determining updated
portions of the constant data stored in the main computer that are different than the constant data stored in the remote
computer," transmitting those "updated portions," and "replacing portions of the constant data stored on the remote
computer with the updated portions . . . received from the main computer." '490 Patent, Col. 3, ll. 64-67, Col. 4, ll. 1-5
(emphasis added). In another passage, the patentee refers to the method of "automatically" updating a program on a remote
computer. Id., Col. 4, ll. 22-24. A part of that method includes the step of "updating portions of the program" in the remote
computer that are different from the program in the main computer. Id., ll. 35-37 (emphasis added). A similar pattern of
language is used for an illustration of the updating step, each time referring to portions of data that vary from the data on the
remote computer. Id., Col. 4, ll. 40-48. What this language does is point the way to a determination of what data will be
included in an update: the data that is different from what is stored on the remote computer.

Such a limitation is born out in parallel language in the claims. Specifically, Claim 1's updating step calls for updating the
constant data in the remote computer "with constant data maintained in the memory of the main computer that is different
from the constant data stored in the memory of the remote computer." '490 Patent, Col. 22, ll. 5-8 (emphasis added). In
Claim 15, the updating step uses similar language, updating "with constant data stored in the memory of the main computer
that is different from" that stored in the remote computer. Id., Col. 23, ll. 45-48 (emphasis added). Although these passages
suggest that Hill's argument about the transmission of less than all revised files might be correct, their significance in
relation to the meaning of the claim term "updating" cannot be understood without consideration of other language in the
claims.

When a transmission of data relating only to the specific task to be performed by the remote computer is described in the
specification or the claims, the modifier "related to" is used. For example, Claim 1 calls for "transmitting variable data
related to the at least one product" from the main to the remote computer. '490 Patent, Col. 22, ll. 9-11 (emphasis added).
Further, in Claim 15's transmitting step, the method calls for transmitting "variable data related to the selected product" from the main to the remote computer. Id., Col. 23, ll. 49-50 (emphasis added). The integrating step in Claim 15 uses similar language to represent this concept. It requires "integrating constant data stored in the memory of the remote computer associated with the selected product with the variable data . . . ." Id., Col. 23, ll. 51-53 (emphasis added). In Claim 1, the integrating step requires "integrating constant data related to the at least one product . . . ." Id., Col. 22, ll. 12-13 (emphasis added). By using this modifier in the patent claims to indicate the intent to limit the operation being performed to the data needed for the specific task initiated by the customer, the patentee demonstrated that he did not intend to so limit the operation performed on data without the modifier. Thus, Hill's contention that "updating" means transmitting less than all of the revised files or data from the main computer to the remote is not supported in the context of the claims.

Having said this, the question of whether the claim term "updating" should be defined to limit it to a transmission of all the revised data or files on the main computer would seem to be answered. It is not. The reason for this is that the question of whether all or only a portion of the revised files would be transmitted during updating is answered in the claim itself, and the answer need not become a limitation in the definition of the term "updating." As the Court has noted, the claim language makes clear that the constant data or programs from the main computer to be used for updating the remote computer will be those that are different from the constant data or programs stored in the remote computer. Because the constant data stored in the remote computer is a "subset of information data related to the at least one product," it is conceivable that only a subset of all the revised data on the main computer would be transmitted during an update.

By limiting the claim term with respect to how much constant data would be transmitted, the Court would effectively remove that possibility from the claimed invention. That is not necessary. The Court has not accepted the invitation of the parties to interpret the scope of the claim at this point in the litigation. Rather, it is accepting the Markman invitation to define the individual claim term. It is in the interpretation of the scope of the entire updating step that the Court will address the issue of whether all revised data or files must be transmitted, not during the Markman process of construing individual claim terms.

When construed in the context of the other steps in the method claim and the specification, the word "updating" cannot be defined as including a limitation that all revised constant data on the main computer be sent with each transmission. Nor is it adequately defined for purpose of this patent by the phrase "bringing up to date." Thus, the Court finds that the term "updating" should be defined as "an automatic process of adding, modifying, or deleting data records or program files to bring the remote computer up-to-date." This definition is consistent with the cited technical dictionary definitions, and "stays true to the claim language and most naturally aligns with the patent's description of the invention." See Renishaw, 158 F.3d at 1250.

Step 4

The parties dispute the proper construction of Step 4, which provides for "updating, without input from each customer, each customer profile in accordance with the content profiles of the data sources actually accessed by that customer to automatically update each customer's actual preferences for said predetermined characteristics." Amazon construes Step 4 as "modifying, without the user taking an overt action, the mathematical values forming the customer profile to agree with the mathematical values forming the content profiles of the data feeds accessed by the user to reflect the users actual relative interests in the predetermined characteristics." As an initial matter, Amazon's proposed construction must fail to the extent it includes its constructions of "customer profile," "content profile," and "data sources." The Court rejects these constructions. Because Amazon relies on its flawed construction of "customer profile" and "content profile" to construe the phrase "customer's actual preferences for said predetermined characteristics," that construction must too be rejected. The remaining key phrase in dispute is "updating, without input from each customer."

--- Footnotes ---

5 Amazon asserts inconsistent constructions of the claim term "updating." Amazon's claim chart construes "updating" as "modifying with current information," while Amazon's motion construes "updating" as "modifying." Compare Def. Mem. at 23 ("modifying with current information, without the user taking an overt action") with Def. Mem. at 24 ("the entire clause
means . . . 'modifying, without the user taking an overt action'). The court assumes Amazon intends the construction asserted in its motion, rather than in its claim chart.

6 As explained above, neither "customer profile" nor "content profile" solely relate to "predetermined characteristics." Claim 43 is instructive. Both "customer profile" and "content profile" appear in the claim language, but the phrase "predetermined characteristics" is noticeably absent. Thus, Amazon may not imply "predetermined characteristics" into "customer profile" and "content profile."

Amazon asserts that "updating, without input from each customer" means "modifying, without the user taking an overt action." Amazon directs the court to a general purpose dictionary, the patent prosecution history, and its expert witness' declaration about usage in the field of art. Webster's Dictionary defines "update" as "to bring up to date." The prosecution history reveals the inventors described this updating feature as updating customer profiles "without any customer having to take any overt action such as filling out a new questionnaire or requesting that the customer profiles be updated." Def. Mem., Ex. 6 at 26 (AMZN 001679). Amazon's expert attests that the proposed construction is consistent with the understanding in the field; others have referred to this as "modification," a process that requires "modifying the weights for characteristics in the customer profile to be more like the weights for the same characteristics in the content profiles of items the user has implicitly indicated a preference for (e.g., programs watched)." Def. Mem. at 23 (citing Resnick Deci., P 61).

In contrast, Pinpoint construes "updating, without input from each customer, each customer profile in accordance with the content profiles of the data sources actually accessed by that customer to automatically update each customer's actual preferences for said predetermined characteristics" as "the claimed method is able to update the customer's preferences without the customer taking direct action to tell the system how it should update the customer's actual preferences." Pinpoint agrees with Amazon's construction of "updating, without input from each customer," but proposes a different construction using "simpler language."

Pinpoint's construction is flawed in its simplicity. Its proposed construction of Step 3 fails to include many key terms, such as "customer profile," "content profile," and "predetermined characteristics." Nor may the court entirely adopt Amazon's proposed construction as it relies upon rejected constructions. The court restricts claim construction of Step 3 to the phrase "updating, without input from each customer." The proper construction of this phrase is Amazon's: "modifying, without the user taking overt action." See Pl. Opp. Mem. at 20 (construing the claim term "updating" in Claim 41 as "modifying"); Def. Mem., Ex. 6 at 26 (AMZN 001679) ("without any customer having to take any overt action"). 7 The court construes Step 3 as "modifying, without the customer taking an overt action, each customer profile in accordance with the content profiles of the data sources actually assessed by that customer to automatically update each customer's actual preferences for said predetermined characteristics." Vitronics, 90 F.3d at 1582.

7 The court substitutes the term "customer" in place of the term "user" advanced by Amazon to ensure consistency. The plain language of the '257 patent refers to the term "customer," not "user."

5. upgrade microprocessor

A microprocessor which operates at a faster speed than the first microprocessor

This term is defined in the following specification language.
One way to increase the performance of a personal computer system is to replace the microprocessor in the system with a higher speed microprocessor operating on a higher clock rate, . . .

('981 Patent Col 1:19-22)

This definition is also fully supported by the following dictionary definition.

Microsoft Computer Dictionary (4th ed. 1999) upgrade: n. The new or enhanced version of a products; v. To change to a newer, usually more powerful or sophisticated version.

10. "Upon"

Testing in Claim 8 comprises, inter alia, "performing predetermined operations which provide a predetermined expected response from the removable article upon the existence of correct alignment and electrical contact." As with "when," the parties dispute whether the response must be given "as soon as" the existence of correct alignment and electrical contact is detected or whether the response is given "on condition that" alignment and contact are detected, against without a temporal limitation.

The ALJ determined that "upon" had no temporal component. ID at 51 n.18. The Commission did not review that decision.

This Court finds that for many of the same reasons that "when" is construed in its temporal sense, "upon" must also mean "as soon as." Like "when," the term "upon" has as an ordinary meaning either construction. To determine which prevails, attention must be given to the purpose of the claim in question. See Renishaw, 158 F.3d at 1251-52. As a dependent claim, Claim 8 shares independent Claim 1's purpose in the testing step "to facilitate the rapid placement in contact because as soon as this has been done, the process stops." Col 2, Ins 23-24. Because "stopping . . . when" requires a rapid response to the existence of correct alignment and electrical contact so too does the predetermined expected response to those conditions require a rapid response to provide for rapid stopping.

4. The term "upon" in claim 34 requires no construction;

2. "Upon completion of scanning" is construed to mean "after either a single or the first in a series of film-based medical images is scanned, status information is displayed to the user."

6. Upon confirmation of availability of said funds, accepting said order, generating an electronic record n7

n7 This term is also used in Claim 1 of the '364 Patent.
DE argues that the phrase means "following confirmation of availability of said funds, accepting said order, generating an electronic record." Dell contends that the correct construction is "immediately following confirming that funds are available the transaction program accepts the order and generates the electronic record."

Dell's use of the word "immediately" is based upon a dictionary definition of "upon," but this use of extrinsic evidence, as noted in Phillips v. AWH, carries the danger of "focusing the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent." 415 F.3d 1303, 1321 (Fed. Cir. 2005). Dell also relies upon the prosecution history, claiming that the applicant tried to distinguish the '020 Patent from prior art during the prosecution by stating that "the initiation of electronic title generation upon confirmation of available funds greatly expedites the overall process, thereby overcoming one of the major disadvantages inherent to conventional international transactions." Prosecution History Files for Patent '020, at DET05098. Dell contends that this statement clearly indicates that DE intended for "upon" to be construed as "immediately following," otherwise the process would not be "greatly expedited." If this were the case, DE could not argue for a broader temporal limitation because it would have narrowed the claim term during prosecution to distinguish the invention from prior art. See Spectrum Int'l v. Sterilite Corp., 164 F.3d 1372, 1378 (Fed. Cir. 1998). DE contends that the point of novelty was the cause and effect relationship, however, where generation of a record would be based upon confirmation of funds, rather than the timing of the electronic record. The prior art, which lacked an integrated system, took many days to complete the generation of an electronic record. The process could still be expedited, therefore, without generation of a record "immediately following" the confirmation of available funds. The court finds DE's interpretation of the prosecution history to be consistent with the language of the claim and the specification, and does not find that the applicant "clearly and unambiguously disclaimed or disavowed any interpretation during prosecution in order to obtain claim allowance." Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1344 (Fed. Cir. 2005). The court therefore declines to adopt a construction that requires the generation of a record to immediately follow the confirmation of available funds.

The other area of dispute is whether the transaction program itself must accept the order and generate an electronic record. The words of the specification support DE's claim that a retail vendor can use an external program to accept the order. See '020 Patent, col. 7, ll. 19-21; col. 9, ll. 31-34 ("the same processing center can then send a confirmation for the respective customer order to the vendor ... by accessing the vendor order system."). As Dell suggests, however, the transaction program must be used to either generate an electronic record automatically or the vendor will use the system to generate an electronic record. This meaning is supported by the specification, which provides that "once electronic funds (or other authorization) are transferred to the vendor (step 161) from a local clearing house, the vendor will utilize a connection to the transaction system of the present invention to generate an electronic title." '020 Patent, col. 10, ll. 15-27.

Based on the foregoing, the court construes the phrase, "upon confirmation of availability of said funds, accepting said order, generating an electronic record," to mean "following determination that the funds are available, confirming acceptance of the order and generating an electronic record."

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L. "Upon Connection with the Destination" (073 and '766 Patents)

This term appears in independent claims 1, 18, and 36 of the '073 patent and in every independent claim (claims 1, 11, and 21) of the '766 patent. Yodlee believes that the Court does not need to construe this term, while CashEdge proposes "[c]onnecting the user and the user's appliance to the destination." The difference between the two parties' constructions is that CashEdge believes that end user's computer must actually connect to the target website, while Yodlee believes that an intermediary computer may be the computer that actually connects.

The Court agrees with Yodlee that this term need not be construed. The Court agrees with Yodlee that "upon connection to the destination" refers to the portal's connection to the destination. CashEdge's attempt to read a limitation into this term is not supported by the evidence. CashEdge points, first, to the prosecution history, in which Yodlee apparently stated "the user and the user's appliance actually have access to the URL destination WEB page." Assuming that CashEdge has accurately quoted the prosecution history -- its cite is incorrect -- the requirement that a user's appliance have access to the destination web page does not mean that the appliance must actually connect to the web page. CashEdge's second argument relies on
the specification, which states that the invention allows a user to "simply select a destination (a hyperlink) in the Password-All list, and the user's browser then invokes the URL for the selected destination." '073 patent, col. 7, lines 2-4. CashEdge argues that this passage requires that the browser actually connect to the destination. But just because the browser "invokes the URL for the selected destination" does not mean that the browser must actually connect to the destination. Rather, the browser may pass the URL to the portal software. In addition, this description of the preferred embodiment is not sufficient to limit the description in the claims. See Phillips, 415 F.3d at 1323.

The Court believes that the plain language of the claim is clear, and therefore declines to construe this phrase.

2. "upon detecting a predetermined drop in reflectance sufficient to indicate that said sample has reached said first surface" means a reflectance reading taken immediately following or very soon after detecting the point in time of a drop in reflectance, the magnitude of which is determined in advance, to be the point in time of the first breakthrough of sample to the testing surface. At that point in time, the reflectance drop must be mostly or entirely due to wetting of the testing surface and not color from chemical reaction.

The district court construed "upon detecting a predetermined drop in reflectance sufficient to indicate that sample reached said first surface" to mean:

[A] reflectance reading taken immediately following or very soon after detecting the point in time of a drop in reflectance, the magnitude of which is determined in advance, to be the point in time of the first breakthrough of sample to the testing surface. At that point in time, the reflectance drop must be mostly or entirely due to wetting of the testing surface and not color from chemical reaction.

Claim Construction Order, 2002 U.S. Dist. LEXIS 27575 at *10 (emphasis added). In sum, the district court strictly limited the claim term to the "first breakthrough of sample to the testing surface." Because the district court restricted claim 4 of the '162 patent to predetermined timing methods, it limited the initiation of the measuring phase to "the first breakthrough." As discussed previously, this interpretation improperly limits claim 4 to a preferred embodiment and does not give the disputed claim terms their proper scope in this technology at the time of invention. Therefore, "upon detecting a predetermined drop in reflectance sufficient to indicate that sample reached said first surface" means "immediately following or very soon after detecting the point in time of a predetermined drop in reflectance, where the predetermined drop in reflectance is mostly or entirely due to wetting of the testing surface."

3. "upon detection of a suitably stable endpoint" means at the expiration of the predetermined time period.

In this case, this court must ascertain the meaning of the claim language "upon detection of a suitable stable endpoint." The claim language does not explicitly require a predetermined time for the reaction, but instead measures the endpoint by the stability of the reflectance. Thus, according to this language, the endpoint coincides with a suitable stability in the reflectance readings. At this stable endpoint, the method calculates the glucose concentration. The claim limitation emphasizes that the method does not require any determination of a starting point for application of the blood sample to the matrix. In sum, the claim language limits the endpoint by reference to suitable stability in the reflectance readings, not by reference to a predetermined time.
The specification contains further enlightenment on the accustomed usage of "upon detection of a suitably stable endpoint" among artisans of ordinary skill at the time of invention. In discussing the invention as a whole, the specification states that the concentration of an analyte in a sample: "may be determined by measuring the change . . . between two or more points in time." Id. at col. 7, ll. 57-59 (emphasis added). This language shows that a "suitably stable endpoint" varies between unspecified points in time. A predetermined timing method is simply one means of determining when a "suitably stable endpoint" has been reached. In discussing a single embodiment of the invention that used a predetermined reaction time, the '162 patent specifically states: "using the preferred embodiments described herein, the endpoint is not particularly stable and must be precisely timed." Id. at col. 14, ll. 42-44. Thus, the specification limits its discussion of predetermined timing methods to preferred embodiments. Nevertheless, the invention as claimed permits detection of the endpoint with reference to the stability of the reflectance readings.

To overcome the presumption biasing claim construction in favor of the accustomed usage of a term in the relevant community at the relevant time, HDI must show a clear disavowal of such scope in the specification, prosecution history, or both. The district court erred by placing too much emphasis on the specification's discussion of the preferred embodiments, rather than the meaning of the claims themselves. Because the specification discussed only predetermined timing methods, the district court concluded incorrectly that the applicant had disavowed other ways to reach an endpoint. The specification describes a preferred embodiment of the '162 patent that uses a predetermined twenty second time period for blood samples with glucose concentrations below 250 mg/dl and a predetermined thirty second time period for samples with glucose concentrations between 250 mg/dl and 450 mg/dl. '162 patent, col. 14, ll. 47-49. Because the specification described no other embodiments in detail, the district court apparently interpreted the specification's silence regarding alternative embodiments as a disavowal. However, the applicant's choice to describe only a single embodiment does not mean that the patent clearly and unambiguously disavowed other embodiments. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 907-08 (Fed. Cir. 2004).

As noted earlier, the specification's overall context shows that the endpoint "may be determined by measuring the change . . . between two or more points in time." Id. at col. 7, ll. 57-59 (emphasis added). The preferred embodiments that used the predetermined timing method simply do not limit the broader claim language. This court has previously stated that reference to a preferred embodiment does not alone undermine the customary meaning and scope of claim language. Teleflex, 299 F.3d at 1327. The meaning of the claim term "upon detection of a suitably stable endpoint" encompasses multiple methods for finding the proper endpoint. The patent's preferred embodiment is just that - one way of using the invention. That disclosure alone does not clearly and unambiguously disavow other ways of computing the endpoint within the scope of the claim language.

A patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal or contrary definition in the specification. Id. at 1325. The history of the '162 patent illustrates that this applicant took this course. The '162 patent is part of a family of patents that includes U.S. Patent Nos. 5,049,487 (the '487 patent) and 5,843,692 (the '692 patent). These patents stem from the same initial application and contain the same or essentially the same specifications. In place of a "suitably stable endpoint," the '487 patent claims recite a "predetermined time period." '487 patent, col. 22, l. 36. Similarly, the '692 patent claims recite a "predetermined incubation period" rather than a "suitably stable endpoint." '692 patent, col. 23, l. 22. This progression, from "predetermined time period" to "predetermined incubation period" to "suitably stable endpoint," shows that LifeScan purposefully sought in the '162 patent claim scope broader than the predetermined timing method. Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.

The prior art identified by the '162 patent gives additional reasons that an artisan of ordinary skill would not limit "upon detection of a suitably stable endpoint" to predetermined timing methods. See Kumar v. Ovonic Battery Co., 351 F.3d 1364, 1368 (Fed. Cir. 2003); see also Arthur A. Collins, Inc. v. N. Telecom, Ltd., 216 F.3d 1042, 1045 (Fed. Cir. 2000) ("When prior art that sheds light on the meaning of a term is cited by the patentee, it can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning.").

Specifically, U.S. Patent Nos. 4,178,153 and 4,627,014 (the '153 patent and the '014 patent) show the usage of the claim terms at the time of invention. The '153 patent, entitled "Method and Apparatus for Chemical Spot Test Analysis" relates to chemical analysis of a sample with reagents on a fibrous or porous medium after a predetermined period of time. '153...
The '153 patent discloses both an endpoint-seeking methodology and a predetermined-timing methodology. In disclosing an endpoint-seeking methodology, the '153 patent states that a sample can be analyzed, "by monitoring the resultant constituent manifesting reaction." Id. at col. 3, ll. 26-27. Alternatively, the '153 patent discloses that the analysis can utilize, "a single point measurement, i.e., with a single measurement of reaction product." Id. at col. 4, ll. 27-28. The '153 patent demonstrates that as early as 1979, artisans of ordinary skill in the art knew that a chemical analysis of a sample with reagents could be accomplished by either monitoring the reaction itself or by using a single measurement of the reaction product.

The '014 patent, entitled "Method and Apparatus for Determination of an Analyte and Method of Calibrating such Apparatus," reinforces this point. This prior art reference states that the measurement of an analyte can utilize "any chemical analyzer constructed to perform rate or endpoint colorimetric assays." '014 patent, col. 7, ll. 50-52.

In light of the preceding analysis, this court determines that the customary meaning in this art field of "upon detection of a suitable stable endpoint" means "when the stated reaction is sufficiently complete that the glucose concentration of the sample can be calculated without an error of clinical significance." This determination is confirmed by using the contemporary understanding of a skilled artisan to guide an inquiry into dictionary meanings. Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed. Cir. 1998). LifeScan offers a dictionary definition of the term "stable" as "not subject to sudden change: subject to relatively limited fluctuations." Webster's Third New International Dictionary 2071 (3d ed. 1986). Alternatively, Webster's also defines "stable" as "firmly established." Id. The first definition conforms to the usage of "stable" by one of ordinary skill in the art as manifested by the pertinent prior art references identified by the '162 patent.

In contrast, the alternative dictionary definition would import an additional limitation into the claim, namely that the analyte's reaction product and the reagent must be firmly established.

Thus, an examination of dictionary sources guided by the prior art references enlightens the meaning of "stable" and confirms this court's determination that the customary meaning in this art field of "upon detection of a suitable stable endpoint" means "when the stated reaction is sufficiently complete that the glucose concentration of the sample can be calculated without an error of clinical significance."

The parties agree that the term to be construed should be "upon plugging" rather than "upon plug." The plaintiff argues that the plain meaning of "upon plug" is "after plugging." The plaintiff states that there is no time limitation associated with this term and that it should not be construed to include a causal limitation.

The defendant's position is that events occur in the claims only after the portable storage device is plugged into the USB or IEEE 1394 interface. Therefore, the subsequent events must be direct consequences of plugging in the device. The defendant argues against the plaintiff's construction by, inter alia, stating that construing "upon plug" to mean "after being plugged in" is no limitation at all. But the defendant fails to provide a tenable argument to the court for further limiting the claim term.

The specification makes it clear that various events occur when the external storage device is plugged in. The specification, however, does not support importing a causal limitation into this claim term. For example, consider the following passages from the specification:

When the external storage device is plugged into the data processing host, the firmware coordinates with the driver in the operating system to accomplish the initialization of the device.

Col. 4, ll. 32-35.

When the external storage device is plugged into the data processing host, the driver coordinates with the firmware to
accomplish the initialization of the device and notifies the operating system to assign and display a device symbol for the external storage device (steps S2, S2), then waits for the operation request.

Col. 4, ll. 47-52.

The defendant fail to support its argument that "upon plug" must require the limitation "as a direct consequence." The record does not support that limitation.

The court defines "upon plug" to mean "after being plugged in."

A. Claim Interpretation

The '804 patent claims a "Method and Apparatus for Scalable, High Bandwidth Storage Retrieval and Transportation of Multimedia Data on a Network." The '804 patent provides "a better means and method for providing multimedia data in a networked system," (Col. 2, ll. 15-16) by allowing a client flexible access to various multimedia sources over a network. Claim 1 of the '804 patent teaches:

1. A high bandwidth, scalable server for storing, retrieving, and transporting multimedia data to a client in a networked system, said server comprising:

   an upstream manager receiving messages from said client and routing said messages to an appropriate service on said server, said upstream manager being coupled to a first network; a downstream manager sending a stream of said multimedia data from said appropriate service on said server to said client, said downstream manager being coupled to a second network; and a connection service for maintaining information to connect said client, said upstream manager, said downstream manager, and said appropriate service on said server.

In the invention, as shown in Fig. 6 from the '804 patent below, the client communicates his desires to the system using a client device 110. The upstream manager 220 accepts a message, e.g., a request for a particular service, from the client device and routes them to the media server service 322, which will supply that service.

* All column and line references are to the '804 patent.

The client may request such services as interactive shopping, news, games, education, movies, etc. The downstream manager 210 sends the data, i.e., the requested service, to the client device 110. (Col. 16, ll. 11-18) The additional elements in the figure deal with managing the requested service data flows to the requesting client, including obtaining and associating the addresses of the client and the appropriate media server.

This court must interpret the terms governing operation of an "upstream manager" and use of addresses in the invention. As mentioned, the invention of the '804 patent allows the client to receive requested material from different types of networks. This function, in turn, requires the invention to accommodate the addressing schemes of each separate network, which may differ from one another. In order to accommodate the different types of addresses for each data link, the network protocol of the invention superimposes its own independent addresses on top of those of the nodes used in the diverse links of the various networks. (Col. 13, ll. 11-16.) Thus, the invention can route commands and data from the requesting client to the appropriate media server by using the system's own network protocol. As part of this scheme, the connection service described in the specification assigns a "logical" (i.e., ad hoc) address to the "physical" address (i.e., the real physical location) of a client, in the connection manager 230. (Col. 17, ll. 27-51). The relationship between the logical and related
physical addresses is stored in the connection service table 320.

The trial court construed the term "Upstream Manager" as follows:

**Upstream Manager:** a computer system component that (a) accepts messages from a client bound for services on a server, (b) routes messages from a client to services on a server; and (c) is distinct from the Downstream Manager.

The parties agree on this much of the construction, but SeaChange seeks further limitation. In particular, SeaChange contends that the upstream manager must (d) receive and route all messages from clients that are "bound for" services, and (e) must do so using only logical, not physical, addresses, of both sender and receiver of a message. SeaChange also reserves an argument of noninfringement even under the court's claim construction.

The district court's claim construction correctly does not require the upstream manager to receive and route all messages from a client bound for a server. The patent claims require that the upstream manager receive messages from the client and the downstream manager send data to the client, but do not make these the exclusive functions of the units. Figures 1, 2, and 6 of the specification show that the paths from the client to the upstream manager are unidirectionally upward, and from the downstream manager to the client unidirectionally downward, and the text of the specification reflects this asymmetry. (Col. 3, II. 21-22.) However, the specification describes only one embodiment of the invention, and encompasses divergence from that embodiment: "it may be the case that some server process, under the direction of an external network control node, actually establishes contact with the client." (Col. 17, II. 24-26). Thus, the district court correctly stated that the claims encompass this form of communication.

The trial court's construction of "upstream manager" also correctly reflects that this element may route messages using either logical or physical addresses. In the embodiment described in the specification "all routing is accomplished based on logical addresses, not physical addresses." (Col. 23, II. 1-4). Thus, "packets (and therefore messages) only contain logical addresses of the sender and receiver." Id. The logical address of a client is used to establish a unique "virtual circuit" for connection with that client. (Col. 17, II. 28-48). However, the upstream manager of claim 1 is broader than the upstream manager of this embodiment. The creation of a virtual circuit, or "virtual connection," appears only in dependent claim 2 as a "further" function of the connection service. The use of a client logical address first appears specifically only in claim 4. The embodiment described in the specification, in which the service request message includes the client's downstream logical address and a service destination logical address, is specifically described in unasserted claims 5 and 11. Claim 1 does not describe an upstream manager that requires routing only with logical addresses. To read a requirement for use of logical addresses into claim 1 would impermissibly read the "virtual connection" limitation of claim 2 into claim 1, making these claims redundant. See, e.g., LizardTech, Inc. v. Earth Res. Mapping, Inc., 424 F.3d 1336, 1344 (Fed. Cir. 2005). In this case, the claim term "upstream manager" is not "so amorphous that one of skill in the art can only reconcile the claim language with the inventor's disclosure by recourse to the specification." Comark Communs. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998). It is clear that the upstream manager of claim 1 routes messages. This court need not interpret what the patentee meant by "upstream manager" in this claim by importing the limitation of claim 2 into this term. See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988) (holding that it is improper to read a limitation "into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim."). The prosecution history does not contradict the district court's interpretation. During prosecution, the inventor differentiated the invention from the prior art of Mizuhara in several ways: not only by describing the uniqueness of its use of logical addresses, but also by demonstrating that Mizuhara did not teach a partitioned architecture, separating the functions of upstream and downstream managers, and connection service.

The step at issue is described in claim 4. Claim 4 outlines a method by which a server receives a request then decides whether to process the request itself or forward it to a different server for processing. This "determining step" balances incoming requests according to the existence -- or not -- of "a URI in the request." (Second Am. Compl., Ex. 1, '279 Patent 11:45-7). Because the parties hotly dispute the definition of URI, whether WebLogic executes this step remains in controversy. URI abbreviates Uniform Resource Identifier and relates to another technical term, URL, that stands for Uniform Resource Locator.
Plaintiff argues that the patent specification provides idiosyncratic, relative definitions of URI and URL as comprised of certain character strings that form a web address. In asserting that defendant acted as its own lexicographer in drafting the '279 patent, plaintiff relies upon the following language found in the description of the second embodiment:

"The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art at question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005). A claim term should be interpreted not only in light of the claim itself, but also "in the context of the entire patent, including the specification. Id. When a term's meaning is not "immediately apparent ... and because patentees frequently use terms idiosyncratically," courts may consult additional resources and references, including prosecution history and extrinsic evidence, for guidance on appropriate interpretation. Id. at 1314. As between a patent specification and extrinsic evidence, the former is significantly more relevant to gaining an accurate understanding of the term than is the latter, especially given "the statutory requirement that the specification describe the claimed invention in full, clear, concise, and exact terms." Id. at 1315 (quoting 35 U.S.C. § 112, P 1). However, there is a "distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim. . . ." Id. at 1323. "For instance, although the specification often describes very specific embodiments of the invention, [the Federal Circuit] has repeatedly warned against confining the claims to those embodiments." Id. An embodiment is neither necessarily limiting nor necessarily extraneous to understanding the claims, and its appropriate role should be divined from the context of the patent itself. Id. at 1323-24.

Plaintiff correctly argues that an understanding of the claim terms URI and URL should begin with review of the patent itself. The relative definitions of URI and URL cited by plaintiff come from the second embodiment in the specification for the '279 patent that characterizes URI as a discrete part of a web address, separate from URL. The embodiment also discusses "requests having no URL," an example that further undermines defendant's claim that the term URI includes a URL. (Second Am. Compl., Ex. 1, '279 Patent 8:9-11, 22-5; Def.'s Response to Pl.'s Mot. for Summ. J. 2). Plaintiff's argument that defendant acted as its own lexicographer and intended to provide a unique definition for URI would be more persuasive if the rest of the patent specification treated URI and URL as necessarily discrete character strings. The patent itself does not elevate this embodiment, however, and other parts of the specification that discuss URI do not clearly require that it be considered a separate part of the web address. For example, the patent summary maintains that "servers may be configured to recognize specific URIs which designate entry points for stateful transactions." (Second Am. Compl., Ex. 1, '279 Patent 4:22-4). Whether URI, as used in this sentence, refers to the entire web address or, as plaintiff argues, a discrete portion of the address following the URL, does not necessarily alter the meaning of this sentence. Additionally, plaintiff's assertion that the specification only defines URI in comparison to URL is not accurate. (See, e.g., id. at 4:1-3). In light of the Federal Circuit's warning against importing claim limitations from preferred embodiments, confining URI to the meaning implied by the second embodiment is inappropriate.

As the patent language does not adequately instruct a particular meaning of URI, and the parties have not offered prosecution history to advance their positions, extrinsic evidence may be considered in order to elucidate exactly what a person of ordinary skill in the art would understand the term URI to mean. According to plaintiff's expert, Anthony Joseph,
to a person of ordinary skill in the art, "URI refers to a particular resource or location." (Joseph Decl: Ex. A at 6). Mr. O'Neil, defendant's expert, offers a similar definition: "URLs enable a person using a computer on a network to find resources on other computers connected to the network." (O'Neil Decl. P 8). By its own terms, the '279 patent describes a network of servers that process incoming requests "based on a URI in the request," in other words, based on the network resource that a user seeks to access. (Second Am. Compl., Ex. 1, '279 Patent 11:45-7). The WebLogic session ID, on the other hand, enables a server that receives an incoming request to "pin" a user to a particular server for the duration of that user's transaction. (Def.'s Response to PL's Mot. for Summ. J. 5). In other words, the '279 patent contemplates that a particular server will field all of the requests for a particular resource (or URI), whereas under WebLogic, a particular server handles all of the requests from a particular user (or session ID). The session ID inserted by WebLogic does not point to a network resource but, instead, to a user and thus fundamentally differs from a URI.

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First and foremost, the analytical focus of claim construction must begin, and remain centered, on the language of the claims themselves. Tex. Digital Sys., Inc. v. Telegenhix, Inc., 308 F.3d 1193, 1201-02 (Fed. Cir. 2002) (quoting Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001)). Because the claim language is chosen by the patentee to "particularly point[] out and distinctly claim[] the subject matter" of the invention, 35 U.S.C. § 112, P 2, the claim terms chosen by the patentee carry a presumption that "they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." Tex. Digital, 308 F.3d at 1202. In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources, including the claims themselves, see Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357 (Fed. Cir. 1999); dictionaries and treatises, Tex. Digital, 308 F.3d at 1202; and the written description, the drawings, and the prosecution history, see, e.g., DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1324 (Fed. Cir. 2001). While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms. See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1299 (Fed. Cir. 2003); Hockerson-Halberstadt, Inc. v. Converse Inc., 183 F.3d 1369, 1374 (Fed. Cir. 1999).

ACTV, in arguing that the ordinary and customary meaning of the term URL encompasses both relative and absolute URLs, provides a document entitled Request for Comments 1808 ("RFC 1808"), from the World Wide Web Consortium ("W3C"), an industry working group, as authoritative support for this position. RFC 1808 discusses both absolute and relative URLs, noting that a relative URL "is a shortened form of that for [an] absolute [URL]" and that a relative URL is "a compact representation of the location of a resource." In response, Disney offers an earlier document entitled Request for Comments 1738 ("RFC 1738"), from the same organization, in support of its argument that URL encompasses only absolute URLs. Specifically, RFC 1738 indicates that a URL has a typical syntax requiring both a protocol type and a resource locator. RFC 1738 also distinguishes between "relative links," in which the expression of a related resource is described "in the same place as this one except with the following relative path," and general URL syntax, which provides "an abstract identification of the resource location."

As this court has previously noted,

    dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation. Indeed, these materials may be the most meaningful sources of information to aid judges in better understanding both the technology and the terminology used by those skilled in the art to describe the technology.

Tex. Digital, 308 F.3d at 1202-03.
As a preliminary matter, we consider whether the RFCs presented by the parties rise to the level of unbiased, contemporaneous reflection of the common understanding of the technical terms in question as to be considered a reliable source of information on the meaning attributed to those terms by those skilled in the art. The purpose of the W3C organization is "to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability." About the World Wide Web Consortium (W3C), at http://www.w3c.org/Consortium/ (last visited Aug. 7, 2003) ("W3C Website"). To this end, members of W3C (including various industry groups, manufacturers, and others, each with their own conceivable interests in the agenda) are involved in developing standards to describe the various building blocks of the Internet. Id. Both RFC 1738 and RFC 1808 are working papers generated during standardization discussions by one subset, or working group, within W3C. See, e.g., Uniform Resource Locators (RFC 1738), at http://www.w3.org/Addressing/rfc1738.txt (T. Berners-Lee et al. eds. Dec. 1994) ("This document specifies an Internet standards track protocol . . ."). The purpose of the RFCs is thus to collect commentary and to select language to facilitate a common understanding, or to select a standard, from a variety of competing technologies and vocabularies and from a variety of potentially competing interests. Indeed, the acronym "RFC" suggests that end: "Request for Comments." This purpose is in sharp contrast to the role of dictionaries and treatises, which aim not to select or give meaning to a word or phrase, but to report the meaning already established and commonly understood by those skilled in the art. See, e.g., Samuel A. Thumma & Jeffrey L. Kirchmeier, The Lexicon Has Become a Fortress: The United States Supreme Court's Use of Dictionaries, 47 Buff. L. Rev. 227, 291 (1999) (stating that first resort to a dictionary may be appropriate in determining meaning because "dictionaries are designed to reflect usage." (emphasis added)).

Both parties offer these RFC documents as authoritative, unbiased sources relating to the meaning of the expression URL. Because the RFCs were not designed to reflect common usage, but rather to assign language to facilitate further conversation, and because of the seeming contradictions between RFC 1738 and RFC 1808, we conclude that both documents are extrinsic evidence, and in light of the discussion below, we decline to rely on them in our claim construction analysis. See Vitravionics Corp. v. Conceptronc, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[I]f an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . . it is improper to rely on extrinsic evidence."). It should be understood, however, that there is no general prohibition on the use of publications from standards-setting organizations to aid in determining the ordinary and customary meaning of technical terms. Where such a document reflects common usage by those skilled in the relevant art, the document may indeed be an appropriate reference. Where, as in this case, the documents of the standards-setting organizations do not reflect common usage, but purport to select language to be used in the future, elevation of these Requests for Comments to the same authoritative, unbiased level as dictionaries is improper.

In the present case, the construction of URL is principally informed by the plain language and surrounding context of the claims themselves. See Brookhill-Wilk, 334 F.3d at 1299. The claims recite that a URL "specifies one or more Internet addresses of the information segments which relate specifically to the content of the video and audio signals of the programming." '81 patent, col. 59, ll. 8-12 (emphasis added). In construing the claim term URL, these additional terms contained in the claimed means-plus-function expressions provide context for the term URL and must themselves be construed. See, e.g., Hockerson-Halberstadt, 183 F.3d at 1374 ("Proper claim construction, however, demands interpretation of the entire claim in context, not a single element in isolation."). Thus, even though the district court's constructions of "Internet address" and "information segments" were not explicitly appealed, we must also construe those terms to properly construe the appealed term URL.

The district court's construction of "information segments" as "simply referring to parts into which information on the Internet is commonly divided" is supported by the claim language and the specification. See Markman Memorandum, 204 F. Supp. 2d at 653; '81 patent, col. 3, l. 6, col. 6, l. 12; '664 patent, col. 3, l. 31, col. 8, l. 32; '768 patent, col. 3, l. 33, col. 8, l. 55. These parts are exemplified by, but not limited to, items such as web pages, audio clips, and images. See id. However, the district court's construction of the term "Internet address," as "a particular host on the Internet, specified by a uniform resource locator that is unique to that host," Markman Memorandum, 204 F. Supp. 2d at 654, is not supported by the claim language or specification, and relies on circular reasoning related back to URL. Rather, the context of the term "Internet address" informs that it is simply a reference to a location of the information segment on the Internet. There is no support for the district court's added requirements that the "Internet address" be a particular host or that it be unique. A URL, then, as defined by the language and context of the claims, is something that identifies the location of relevant information segments. This can include web pages, audio clips, images, and the like. It can be an absolute URL or a relative URL, as long as it specifies one or more Internet addresses of information segments relating to Internet content.
Digital Reg contends this term does not require construction or alternatively should be construed as "information which a content producer or supplier wishes to consider in regulating access to the digital content." Defendants contend the term means "data used to control, for example, circulation materials such as industry and trade publications, which require the recipient to provide employment data in order to have a 'no charge' edition of the publication."

To support its proposed construction, Digital Reg cites to the specification, which states "Alternatively or in addition to payment information, use information may be required, such as employment-related data, educational information, family information, or any other information which a content producer or supplier wishes to consider in regulating access to the object." See col. 4:22-26. Digital Reg contends Defendants' construction improperly relies on examples in the specification that describe a preferred embodiment.

Defendants contend that the passage from the specification that Digital Reg relies on is not intended to define "use information" but merely describes the type of use information that may be required. See col. 4:22-26. Defendants argue that the specification explicitly defines "use information": "Use information is data used to control, for example, circulation materials such as industry and trade publications, which require the recipient to provide employment data in order to have a 'no charge' edition of the publication." See col. 9:32-36.

Thus, both parties contend the specification expressly defines the term, but they disagree on which portion of the specification is defining and which is exemplary. Column 4, lines 22-26 give a generic description of "use information," which serves a definition. Column 9, lines 32-36 is a subset of what is set forth in column 4. Accordingly, the Court construes "use information" as "information which a content producer or supplier wishes to consider in regulating access to the digital content."

As an initial matter, the Court concludes that the terms "use mode" and "fully enabled mode/full version run" mean the same thing. At the Markman hearing, Microsoft readily agreed that these terms are synonymous. Uniloc, however, was hesitant to agree to synonymous treatment on the spot. But importantly, when pressed by the Court, Uniloc was once again unable to offer an example of a situation when "fully enabled mode" would mean anything other than "use mode." So, although Uniloc has not explicitly agreed that these terms are synonymous, Uniloc has been unable to make an argument, compelling or otherwise, that the terms deserve different treatment. Moreover, the Court observes that Uniloc's proposed constructions for these terms do not vary materially. While Uniloc has included the word "unrestricted" in its construction of the term "fully enabled mode," there is nothing to indicate that "use mode" is restricted in any way other than the scope of the license. Indeed, Uniloc's own expert, David Klausner, stated that use mode is an unrestricted mode:

One of ordinary skill in the art recognizes the patent relates to the use of software or digital data in a restricted or unrestricted mode (use mode/non-use mode). The terms "fully-enabled mode" and "full version run" are used similar to "use mode" to mean allowing unrestricted use in accordance with the license.

Klausner Decl. at P 18. Moreover, the specification discusses these terms in a similar context by explaining that they are the converse of the term "partly enabled or demonstration mode." Compare '216 Patent, col. 2, ll. 44-48 ("The use mode is to be distinguished from what might generally be termed unlicensed modes of operation (which is not to say unauthorized modes of operation) as typified by the demonstration modes later described in this specification"), with id. at col. 15, ll. 1-5 (explaining that the mode switching means switches software between a fully enabled mode on the one hand, and a partly enabled or demonstration mode on the other).

Turning then to the parties' proposed constructions, the main point of disagreement is whether the difference between the
full and demonstration modes involves only functional limitations (such as limitations on the ability to save or print a
document), or whether the claim terms should be construed broadly enough to encompass temporal limitations as well (such
as only being able to use the software for two days). In support of its argument that the demonstration mode only involves
functions being disabled, Microsoft cites portions of embodiments 1 and 5. See id. at col. 6, ll. 47-48 (explaining that "a
demonstration of the software (which typically has features such as save and/or print disabled)"); id. at col. 11, ll. 14-17
(stating that the "[t]he registration code portion 38 can include a preview or demonstration related to a subset of the balance
of the digital data on the CD 54 which can be executed by the platform without license"). But while these embodiments
discuss characteristics which a demonstration mode can have, or typically has, the Court declines to read these examples
from two embodiments to mandate that in all instances, the demonstration mode only can involve functional limitations. See
generally Phillips, 415 F.3d at 1323 (the general rule is that "persons of ordinary skill in the art rarely would confine their
definitions of terms to the exact representations depicted in the embodiments."). For these reasons, the words "functionality"
and "functions are disabled" will not be part of the Court's construction of these terms.

Instead, the Court determines that the use and fully enabled modes are best described as allowing "full use" of software "in
accordance with the license." This language is consistent with the specification's explanation of the term "use mode," see
'216 Patent, col. 2, ll. 40-48 (explaining that use mode refers to use of the digital data or software so as to fulfill the
licensor's obligations), as well as the specification's general guidance that once the registration routine is complete, "full
access to the software is allowed." Id. at col. 8, l. 28.

Accordingly, the terms "use mode" and "fully enabled mode/full version run" shall be construed as: A mode that allows full
use of the digital data or software in accordance with the license.

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n12 Although Microsoft agreed that the terms "use mode" and "fully enabled mode/full version run" should be treated the
same, it did not specify which of its proposed constructions was preferable in that event. Nonetheless, to the extent
Microsoft may have intended to press its proposed construction of "use mode," this writer notes that the Court's construction
incorporates the limitation expressed therein: that use mode means using the data in accordance with the obligations
imposed by the license.

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11. "said first responsive information is used for one or more of" ('702 patent)

<table>
<thead>
<tr>
<th>Beneficial's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
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<tbody>
<tr>
<td>No construction is necessary.</td>
<td>&quot;the first responsive information is capable of performing all of, and actually performs at least one or more of.&quot;</td>
</tr>
<tr>
<td>Alternatively, &quot;one or more of&quot; means &quot;at least one or more of.&quot;</td>
<td></td>
</tr>
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The primary dispute regarding this term is whether the first responsive information "is capable of performing all of, and
actually performs at least one of" as Beneficial proposes. The Court finds that there is a difference between being "used for" and being "capable of performing." The Defendants' construction attempts to rewrite the claim language from "...is used for one or more of" to "...is capable of performing all of, and actually performs at least one of." Defendants' argument relies primarily upon an example in the specification that is capable of performing all of the recited elements. The Court is not inclined to adopt Defendants' construction. The Court finds that the language "used for one or more of" does not necessitate that "said responsive information" be capable of performing all of the elements rather than capable of performing at least one of the elements. Thus, the Court construes the phrase "said first responsive information is used for one or more of" to mean "the first responsive information is used for at least one or more of."
a. The "User" Limitation

The district court construed the term "user" to mean "a person, a person using a computer, a computer, or computers." Supplemental Claim Construction Opinion at 3. Microsoft had attempted to limit "users" to "persons," thereby excluding a computer or computers, while z4 advocated for the broad interpretation adopted by the district court. Id. at 1. Under its definition, Microsoft argues that the asserted claims require the authorization of a "particular user, regardless of what particular computer they are using," while the accused products authorize "a particular computer, regardless of who is using it." Microsoft thus asserts that there can be no infringement because its products do not recognize "unauthorized users," but rather unAuthorized computers. In its reply brief, however, Microsoft concedes a construction of "user" as including both "a person" and "a person using a computer." Reply Br. at 4 ("Properly construed, a 'user' is a person or a person using a computer. . . . It is only the district court's elimination of the person altogether, in allowing a computer by itself to be a 'user,' that we ask this Court to overrule as an error of law.").

In construing a disputed claim term, we begin with the language of the claims. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claims of the '825 patent include the limitations "enabling the software on a computer for use by a user," and "comparing previously stored registration information . . . to at least one of the software, the user, and the computer." In these recitations, the "user" and the "computer" are distinct entities. To construe the term "user" to mean a "computer" would result in the claim being interpreted to recite, for example, "enabling the software on a computer for use by a [computer]." The written description makes clear that the terms "users" and "computers" are distinct and used to describe different things. E.g., '471 patent col.1 ll.48-51 (discussing "users who may have a legitimate need to . . . transfer a copy to a new computer"); id. col.7 ll.7-9 ("[T]he user installs . . . the software in his computer or computer network."). Because a construction that would equate a "user" with a "computer or computers" conflicts with "both the plain language of the claims and the teachings of the specification," NeoMagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062, 1070 (Fed. Cir. 2002), the district court's inclusion of "computer or computers" in its claim construction cannot be sustained. Because we agree with Microsoft that the district court erred in construing "user" to include a computer or computers apart from a person, we modify the district court's claim construction and hold that a "user" is properly construed as "a person or a person using a computer." This construction applies to all of the asserted claims. See Omega Eng'g, Inc., v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003) ("[W]e presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning.").

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2 In so holding, we rely in part on Microsoft's concession that "user" includes both "a person" and "a person using a computer." See Reply Br. at 4. Accordingly, we express no opinion as to whether "a person" and "a person using a computer" differ meaningfully.

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Notwithstanding our modification of the district court's claim construction, however, we find Microsoft's contention that the asserted claims require the authorization of a "particular user, regardless of what particular computer they are using" to be artificial and inconsequential. Although the claims recite "software including instructions to reduce use of the software by unauthorized users," '471 patent claim 32, and "determin[ing] if the user is an authorized or an unauthorized user," '825 patent claims 44, 131, both the claims and specification describe methods of making this determination based on computer-specific information, among other things. This conclusion is based on relevant language that appears in the claims and not on any particular construction of the term "user." Specifically, the claims recite that the software representative may identify authorized users based on a comparison of "registration information provided by the user," with "previously stored registration information related to at least one of the software, the user, and the computer." Id. Because the "[u]se of the phrase 'at least one' means that there could be only one or more than one" of the listed types of previously stored registration information, Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999), the identification called for by the claims may be accomplished by comparing the registration information with previously-stored information related: (a) to the software installed by a person on the computer; (b) to the person using the computer; or (c) to the computer hardware. Microsoft's argument that the asserted claims require the authorization of a "particular user, regardless of what particular computer they
are using" ignores the language of the claims which, as noted above, permits the identification of authorized users based on, inter alia, "previously stored registration information related [only] to . . . the computer." Our construction of the term "user" to mean "a person or a person using a computer" does not foreclose or in any way affect such a conclusion nor does it preclude a determination that the accused Microsoft products infringe. Thus, Microsoft's argument, while correct as to the construction of the claim term "user," is not determinative of the question of infringement.

With respect to infringement, substantial evidence supports the jury verdict, even under our modified construction. Because the claims explicitly contemplate tracking authorized users through, inter alia, the identity of the computers on which they install the software as discussed, supra, and because Microsoft admits that it makes Product Activation determinations based on registration information related to user's computers, see Reply Br. at 2, a reasonable juror could find that Microsoft infringed the asserted claims notwithstanding our modification of the district court's construction of the term user. See Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1328 (Fed. Cir. 2002) (noting that when we determine that the district court "has misinterpreted a patent claim, we independently construe the claim to determine its correct meaning," and that "[w]e may affirm the jury's findings on infringement . . . if substantial evidence appears in the record supporting the jury's verdict and if correction of the errors in a jury instruction on claim construction would not have changed the result, given the evidence presented").

Defendants contend "user" should be construed to mean: "The person using the computer to customize the proposal. The user is not the customer for whom the proposal is customized." Thus, Defendants again assert that a "customer" and a "user" cannot be the same person. For the reasons given above, the Court rejects this argument. The patent uses this term according to its plain lay meaning. This term does not require construction.

Hyundai contends "user" should be construed to mean "one who deals with customers." In the Staples case, the Court rejected the distinction between user and customer and found the term did not require construction because the patent uses this term according to its plain lay meaning. Accordingly, the Court rejects Hyundai's proposed construction and construes the term according to its ordinary meaning.

3) "user" (claims 1, 15, 16)

STV Asia asserts that the word "user" should be given the plain meaning of the term, that is, "an individual who utilizes the network management system." Defendants, on the other hand, argue that the inventor gave the term a special meaning in the specification and therefore, that the term "user" in the '069 patent means "a person located in the distribution center who has access to the product movement information from the receiving sites." The Court agrees with Defendants.

In the Summary of Invention, the inventors state that "[t]he user, located in the distribution center, has access to the product movement information." '069 patent, 2: 49-50. This statement is made in a paragraph that begins, "The present invention is . . ." Where the inventor has made such a clear statement about the nature of his invention and in particular, the meaning of the word "user" as it is used in the '069 patent, it would be improper for the Court to adopt a broader definition, even if a "user" might well mean "an individual who uses" when that word is used in a more general context. See Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001) (holding that "[w]here the specification makes clear that an invention does not include a particular feature, that feature is deemed to be outside the reach of the
claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.

STV Asia's reliance on Bell Atlantic Network Servs., Inc. v. Covad Commc'n's Group, Inc., in support of its position that the term "user" is not "clearly redefine[d]" is misplaced. 262 F.3d 1258, 1268 (Fed. Cir. 2001) (emphasis added). In Bell Atlantic, the court explained that while "the specification must exhibit an 'express intent to impart a novel meaning' to claim terms . . . a claim term may be clearly redefined without an explicit statement of redefinition." Id. (citation omitted). Rather, "the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents." Id. (citation omitted). Indeed, in that case, the court upheld a claim construction based on the conclusion that a term had been implicitly defined in the specification, even though it was not expressly stated in the specification that the claim term was being given a special definition. Id. Similarly, the statement in the Summary of Invention quoted above defines the term "user" by implication.

This conclusion finds further support elsewhere in the specification, which makes clear that one of the main innovations of the invention is its ability to monitor product movements in order to "more efficiently tailor its commercial messages to particular chains, stores, times of day and geographic regions." '069 patent, col. 3, ll. 35-37. If users -- who create the advertising programs -- did not have access to product movement information, they would not be able to accomplish this objective. Nor is there any suggestion in the specification that the preferred embodiments that are described would allow for users without access to product information.

The Court rejects STV Asia's argument that "user" should be construed more broadly based on the statement in the specification that "each user has a security level which allows that user access to certain programs." '069 patent, col. 12, ll. 2-5. The specification explains that the security level of the user determines whether the user will be allowed to create playlists or merely edit them. Id. There is no reason to conclude on the basis of this distinction, however, that "users" were intended to include individuals who do not have access to product movement information.

Finally, the Court rejects STV Asia's reliance on the doctrine of claim differentiation in support of its position. STV Asia points out that in claim 1, the user is expressly identified as "having access to the product movement information from the tracking system" whereas, in claims 15 and 16, no such limitation is included, arguing that this means that the term "user," by itself, does not mean an individual who has access to product information. Under the doctrine of claim differentiation, different claims are presumed to be of different scope. Inpro II Licensing, S.A.R.L. v. T-Mobile U.S.A., Inc., 450 F.3d 1350, 1354 (Fed. Cir. 2006) (citing Tandon Corp. v. U.S. International Trade Com., 831 F.2d 1017, 1023-24 (Fed. Cir. 1987)). However, "describing claim elements or limitations in different words does not invariably change the scope of the claim." Id. Rather, the scope of the claims must be determined in light of the "description in the specification, as well as the prior art and the prosecution history." Id. (citing Phillips). Thus, for example, in Inpro, the Federal Circuit held that the district court correctly construed the term "host interface" in the disputed patent to require "a direct parallel bus interface" even though some of the claims expressly referred to such a limitation while others did not. Id. at 1357. The court reasoned that a host interface with a direct parallel bus interface was the only type of interface described in the specification and pointed to the inventor's statements emphasizing the importance of the parallel bus interface. Id. at 1355. Similarly, in this case, the specification describes only a user with access to product movement information, and such access is an important feature of the invention to the extent it allows for effective customization of programs for the individual receiving sites. The Court concludes that even though the claims, when read in isolation, might be read to support the broader construction of the term "user" proposed by STV Asia, when the claims are read in the context of the specification, it is clear that a more limited construction is appropriate.

The Court construes this claim term as follows: "a person located in the distribution center who has access to the product movement information from the receiving sites."

A. Claims 6 And 26 Of The '622 Patent

Claim I of the '622 patent states:
1. System for remotely determining the position of a selected category of items of interest in selected geographic vicinity from a database, the system comprising:

(A) a database for storing information about a plurality of items of interest, the information including, for each of the items of interest, a geographical position and at least one associated category,

(B) a communications link for communicating between a user of the system and the database,

(C) an information controller for transmitting a portion of the information in the database to the user via the link upon receipt of a request signal representative of a selected category and geographic vicinity, the transmitted portion of the information including identification of geographic position for at least one of the items of interest within the selected category and geographic vicinity, and

(D) a port for remotely accessing the portion of information via the link, the port generating the request signal in response to inputs by the user which are representative of the selected category and geographic vicinity, the port having a user interface for accepting the inputs and for indicating to the user the position at least one of the items of interest in the selected category and geographic vicinity.

(DSUF P 6.) Claims 6 and 26 depend from Claim 1 and therefore include each of the limitations of Claim 1. 35 U.S.C. § 112, P 4 (“A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers”). Expedia first argues that it does not infringe Claims 6 and 26 because it does not use the claimed port or communications link. The Court has construed the term "port" to mean a "terminal, e.g., a personal computer with a modem, from which a user of the invention can access the database storing the information about the items of interest." The Court has also ruled that "user" refers to a "human being." In opposing summary judgment, Civix argues that Expedia does use the claimed system by controlling its customers' use of the ports. 11

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11 Civix also argues that Expedia is a co-infringer along with its customers and suppliers and is therefore jointly liable for infringement. Civix argues that Expedia induces the infringement of claims 6 and 26. Because the Court finds that genuine issues of fact exist whether Expedia, itself, uses the claimed system, the Court does not reach Civix's other arguments.

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14. Users

Certain language in the preamble of claim 37 limits the claim because the preamble language provides antecedent basis. In particular, the language "plurality of programs of different users" provides antecedent basis for the term "said programs" recited in the body of claim 37. At issue is the definition of "user" in the phrase "programs of different users."

Biax contends that "user" includes both persons and programs. Intel and ADI contend that "user" must be limited to persons. Neither construction is proper. It is true that the cited portions of the specification relied on by the defendants support the view that "user" is different from "program." See '755 patent, col. 15, 11. 3-7 (“The TOLL software of the present invention can be used in connection with a number of simultaneously executing programs, each program being used by the same or different users.”)(emphasis added). Nothing in the specification, however, expressly limits the term "user" to a human being using a program to the exclusion of a machine. As a result, the court holds that the term "user" includes "a person or a computer."

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"User"

"User" appears in each disputed patent claim (536 Patent: 1,6; 709 Patent: 1,17). The defendants contend that the phrase "user" means "a human who issues commands to the computer on which a digital data file was created or copied" (Doc. 62 at 14). The plaintiff argues that "user" means "an entity that issues requests to a system on which digital data exists" (Doc. 60 at 20). The plaintiff's urged construction avowedly encompasses a computer program or application as a "user" (Doc. 60 at 19-20). However, an examination of the intrinsic evidence reveals no "entity" other than a human being as performing the tasks of a "user."

In support of the construction of "user" as any human or non-human "entity" (including a computer program), the plaintiff argues that the specifications distinguish a "user" from an "end user," which "end user" the plaintiff concedes is a human (Doc. 60 at 19). Yet, in the paragraph on which the plaintiff relies, "user" and "end user" are employed interchangeably:

This removes the burden of the request process from the end user of the certificate. Certificates in this model can be issued in a centrally managed bulk process on behalf of the user, and any keys that will be used to encrypt data can be securely backed up in case the issued key gets lost.

(536 Patent at 33:22-27). Obviously, "end user" in the first sentence and "user" in the second sentence denote the identical user.

Throughout the patents and their specifications, the patentee repeatedly attributes human attributes to a "user." For example, "User B wants to send User A an offer to purchase a piece of property that User A owns and an authorization to his bank to transfer money if a user accepts the offer" (536 Patent at 10:1-3; 709 Patent at 9:60-62). Similarly, "Verification means 580 may comprise any biometric device (e.g., iris scan, retina scan, hand geometry, voice verification, and dynamic signature verification devices, etc.) that may be used in order to further verify the identity of a user" (709 Patent at 42:50-55). Finally, "This operation may take 0.5 to 2.0 seconds, which could be annoying to a user" (536 Patent at 25:7-8). A non-human "entity" (1) has no desire to sell property, (2) lacks eyes, fingers, hands, or a voice susceptible to "biometric" verification, and (3) is incapable of "annoyance."

Further, the specifications repeatedly depict a "user" as a human manipulating the computer toward some end. For example, "Hypothetically, a user at a computing means 400 signs a document and wants it time stamped" (536 patent at 11:42-43; 709 Patent at 11:30-32). Also, "Indeed, it is quite trivial for a user to reset the [local time clock] to any desirable date and time" (536 Patent at 6:24-25; 709 Patent at 6:24-25). Similarly, "[a] trusted date and time is programmed within real time clock 1000, such that it cannot be changed by a user of the PC system 700" (709 Patent at 28:6-8). Nothing in these statements permits a non-human "user."

In sum, the patentee's consistent use of "user" in the claims and specifications favors the construction urged by the defendants. The intrinsic evidence reveals that a "user" is a human who creates, time-stamps, and publicly verifies the moment of a file's creation. A "user" possesses an array of attributes unavailable to a computer program or other inanimate "entity." Accordingly, "user" means "a human who issues a command to the computer on which a digital data file was created or copied."

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6. "user"

Claim 19 claims a method for a transmission system and a receiving system to distribute information in response to requests from a "user." The parties dispute the construction of the word "user."

The specification contains numerous references to the "user" and to a related word "subscriber:"
A system of distributing video and/or audio information employs digital signal processing to achieve high rates of data compression. The compressed and encoded audio and/or video information is sent over standard telephone, cable or satellite broadcast channels to a receiver specified by a subscriber of the service, ...

The Summary of the Invention provides:

Additionally, the present invention comprises a receiving system responsive to a user input identifying a choice of an item stored in a source material library to be played back to the subscriber ...

('992 Patent, Col. 2:62-65.)

The Description of Preferred Embodiments provides:

The user then enters a customer ID code by which the system accesses the user's account, and indicates to the system that the user is a subscriber of the system (step 3030). In response to the user entering his ID code in step 3030 the system confirms whether the user is in good standing (step 3040). If the user is in good standing, the system queues the user to input his request (step 3050).

The user request may preferably be made from a catalog sent to each of the subscribers of the system. The user will preferably identify his choice and enter the corresponding identification code of the item (step 3060). The system then preferably confirms the selection that the user has made and informs the user of the price of the selection (step 3070).

('992 Patent, Col. 14:14-28.) From the specification, one of skill in the art would understand that the method described in Claim 19, is one in which, a person, called a "user" requests information from the system. Some embodiments disclose a process by which only authorized users, i.e., "subscribers" are able to receive the information.

The specification of the '992 Patent also uses the word "operator" in describing the transmission and reception systems and methods. However, the word "operator" is used in the specification to signify someone who acts as part of the transmission system and is not used by the patentee to describe a "user." Two types of operators are described in the invention, both of which can act as part of the "transmission system."

The first operator function is the "system operator's function" and is described as:

The unique address code is an address assigned to the item by the system operator during storage encoding,

* * *

The storage encoding process may be run by the system operator.

('992 Patent, Col. 10:58-59; Col. 11:13-14.)

The second operator function is that of a "telephone operator," for the purpose of taking requests from a user and manually entering such requests into the transmission system:

Access by the users via operator assisted service includes telephone operators who answer calls from the users. The operators can sign up new customers, take orders, and help with any billing problems. The operators will preferably have computer terminals which give them access to account information and available program information. Operators can also assist a user who does not know a title by looking up information stored in files which may contain the program notes, as described above. Once the chosen program is identified, the operator informs the user of the price. After the user confirms the order, the user indicates the desired delivery time and destination. The operator then enters the user request into the system. The request is placed in the transmission queue.

('992 Patent, Col. 14:49-63.)

The Court finds that the construction of the word "user" should make clear that a "user" is not an "operator" as those terms
are used in the specification.

The Court construes "user" as follows:

In a distribution method as disclosed in Claim 19 of the '992 Patent, in which a transmission system sends information to receiving systems at remote locations in response to a user's request, the word "user" means "a person who requests information from items in the transmission system." Any person acting as part of the transmission system, such as an operator, is not a user or a subscriber.

D. "user account"

The term "user account" appears in several claims, e.g., "a user account corresponding to at least one user" ('704 patent, claim 7); "providing a user with a user account . . . associating the licensed plurality of media assets with the user account . . . authorizing over a network a plurality of media player devices with the user account." ('414 patent, claim 10). "User account" is described in the specification as follows: "Initially, a user becomes a member or subscriber to a portal . . . Once a membership exists, a virtual private media asset database is created and associated with the user's login account and password in the portal." ('704 patent, 10:25-27) (emphasis added). According to the plaintiff, this term means "a record stored in system memory indicating that the user has the right to access a system for managing media assets, and one or more media player devices that may access referenced media assets." Apple argues that the definition should be "a user's membership record in a portal/server that specifies the plurality of media player devices that may access the referenced media assets." The parties' proposed constructions differ in two ways: (1) whether the account must exist in the portal/server or in system memory; and (2) whether the account must specify the media player devices.

Apple argues that the patent neither describes nor enables a user account anywhere but the portal or server. The Summary of the Invention states, "The portal executes a media library database server application that manages access to a master library of media assets that can be accessed by users . . . ." ('704 patent, 1:36-38). Thus, the portal provides the access control functionality, and that access control is based upon the rights assigned to user accounts. ('704 patent, 3:25-28 ("The portal 300 also serves as a central repository within which media assets are 'tagged' with identity and access privileges of those users . . . ."). In response, Zapmedia argues that the location of the user account is unimportant, and the term should not be limited to a disclosed preferred embodiment--user account on the portal. Claim 10 of the '414 patent describes "providing a user with a user account," but nowhere in the claim is a server or portal disclosed; thus, user accounts are not always tied to a portal or server. Additionally, some of the claims specify that the account resides on the portal or server, so adding a location requirement in the construction would be superfluous. As such, the user account is not required to be on the portal or server.

Next, according to Apple, the user account must specify all of the media player devices, not merely some or permitted to access that account's media assets. In support of its proposal, the defendant cites the '704 patent's prosecution history, which states, "The user account specifies the plurality of media player devices that may access the media assets." (Dkt. No. 84, Ex. L, at 11). Zapmedia responds that Apple's proposed construction precludes user accounts that have only one media player device. Zapmedia also contends that the specification describes accounts with one or more associated devices. ('704 patent, 10:15-16 ("[E]ach account on the portal has one or more media player devices associated with it . . . ."). The claim language, however, refers to a "plurality of media player devices." As such, the "one or more" versus "plurality" argument does not have to be resolved in the context of the "user account." In all, the court construes the term to mean "a record indicating that the user has the right to access the media assets, and indicating which media player devices may access referenced media assets."
The parties agree that the term indicates a mode "in which graphics are displayed to attract users to the jukebox," but disagree as to when the jukebox is in this mode. Touchtunes proposes that this mode is "triggered by a determination that no song selection is playing on the jukebox," whereas Arachnid proposes that the jukebox is in user attract mode "when the jukebox is not in selection mode."

Touchtunes' proposed construction seeks to introduce a "triggering" element into the claim, although the term "trigger" does not appear in any Arachnid patent. To support its proposed construction, Touchtunes relies on a preferred embodiment which states that, "if no song selection is playing, the processing circuit 121 operates in a user attract mode" and "[i]f, however, a song selection is being played when the block 161 is encountered, the attract mode sequencing does not occur." '575 Patent at 6:39-59. However, the description of the preferred embodiment is the converse of Touchtunes' characterization. Rather than being "triggered," the user attract mode automatically occurs unless a song selection is being played.

Touchtunes' proposed construction is also incorrect because, by incorporating the concept that user attract mode is triggered by a determination that no song is playing, it renders superfluous the phrase "when no song is playing on the jukebox," as recited in claim 4 of the '189 Patent and claim 6 of the '575 Patent. A claim construction that renders claim language superfluous is almost always incorrect. See Stumbo v. Eastman Outdoors, Inc., 508 F.3d 1358, 1362 (Fed. Cir. 2007).

Arachnid's proposed construction is consistent with the plain meaning of the term: it is a mode to attract users to the jukebox that is exited when the user "uses" the jukebox by making a song selection.

The term "user attract mode" is therefore construed to mean "a mode, when the jukebox is not in selection mode, in which graphics are displayed to attract users to the jukebox."

2. "user authorization information" (claims 1 & 15)

Plaintiff proposes that this "user authorization information" should be construed to mean "a password or user ID used to authenticate a user." Defendant argues that the term should mean "any user information upon which access is determined."

Plaintiff's proposed claim construction is not supported by the record. Plaintiff asks the court to limit "user authorization information" to a password or a user ID used to authenticate the user, but does not provide any support for substantially limiting this term. Unlike the '538 patent in which password protection was a limitation expressed in the claims themselves, claims 1 and 15 of the '940 patent do not include any such limitation. For example, claim 1 includes the limitation of "determining whether a user is authorized to add said record from said user authorization information." See claim 1 of the '940 patent. Similarly, claim 15 includes the following language "means for receiving user authorization information. . . . means for determining whether a user is authorized to add said record from said user authorization information. . . ." See claim 15 of the '940 patent. Neither claim 1 nor claim 15 limits the user authorization information to a password or user ID.

The court declines to adopt Plaintiff's proposed construction. "User authorization information" means "user information upon which access is granted."

4. "user commands"

Manheim contends that the term "user commands" is a well-known term that one of reasonable skill in the art would understand to mean "instructions by a user, such as key presses or mouse clicks, that cause a computer to carry out an action." Thus, according to Manheim, the term "user commands" should be construed to mean "user actions such as key presses or mouse clicks." AMS and Bidsoft, on the other hand, argue that "user commands" means "instructions, issued by a user remotely connected to the host computer network, causing selected portions of the auction data stored on the host..."
computer network to be located, organized, and transmitted over the communication network to the user's workstation."

The Court agrees with AMS and Bidsoft that Manheim's construction must be rejected. As they correctly point out, claim 1 recites

a set of user application modules which cause the computer workstations and host computer network to generate on the video monitors a series of command options selectable by the user to generate the user commands, whereby the selected portions of the auction data stored on the host computer network are located, organized, and transmitted over the communications network to a workstation in response to one or more particular user commands and are displayed on the video monitors.

(873 patent col. 11, ll. 12-22.) Manheim's expert stated that a user would select a "command option" through user actions such as mouse clicks or key strokes. (Bailey Dep. [377-8] at 196.) Thus, Manheim's proposed construction would mean, in essence, command options selectable by the user by pressing a key or clicking a mouse to generate key presses or mouse clicks. As this is nonsensical, the Court rejects Manheim's proposed construction. See ASM America, Inc. v. Genus, Inc., 401 F.3d 1340, 1346-47 (Fed. Cir. 2005) (rejecting proposed claim construction where it would result in nonsensical construction of the claim as a whole).

In contrast, the Court finds AMS and Bidsoft's construction to be consistent with the claim language and specification of '873 patent. For example, claim 1(a) recites a "database server that electronically stores and organizes auction data and that retrieves and transmits selected portions of the auction data in response to user commands." (873 patent col. 10, l. 66-col. 11, l. 3.) Similarly, claim 1(d) recites "a set of user application modules . . . to generate user commands, whereby the selected portions of the auction data stored on the host computer network are located, organized, and transmitted over the communications network to a workstation in response to one or more particular user commands. . . ." (Id., col. 11, ll. 6-7).

Thus, as AMS and Bidsoft correctly explain, "user commands" must be operable to cause selected portions of the auction data to be located, organized and transmitted to the user workstation. Moreover, the construction proposed by AMS and Bidsoft is in consonance with both the remainder of the claim language and the expert testimony. (See id. at col. 11, l. 3. (claiming "means to send user commands to the host computer network"); Bailey Dec. [379-8] at P 24 (explaining that "User commands" are also well-known in the art and would commonly be understood by one of ordinary skill in the art to be instructions, issued by the user, that cause an action to be carried out.)).

Accordingly, the Court concludes that the term "user commands" in claim 1 shall mean "instructions issued by a remote computer, causing selected portions of the auction data stored on the host computer network to be located, organized, and transmitted over the communications network to the user's workstation."
user computers such as mainframes, the specification excludes those mainframes from the definition of user computers.

It is true that the specification suggests that, as the number of users using a mainframe increases, the amount of processing power necessary to run all the user applications increases, and consequently the cost of a mainframe capable of handling all the requisite processing increases. '989 patent, col. 1, ll. 26-41. The specification continues by describing why one potential solution--using several processors in communication with one another to perform the role of a single processor--is inadequate. In that system, the specification explains, the overhead necessary for communication between multiple processors would consume substantial computing resources. Id., col. 1, l. 42 to col. 2, l. 3.

The Background of the Invention thus highlights the problems inherent in performing all the processing necessary to run multiple user applications at a central computer, whether that computer includes only one very expensive processor or several less expensive processors consuming valuable computing resources talking to one another. The specification does not, however, disclaim the networking of mainframes to a central computer that is devoted to database access. To the contrary, the Background of the Invention appears to allow a configuration in which multiple user applications are run separately on several mainframe computers, which communicate with a database computer that is dedicated to the functions of storing and retrieving data. In such a case, several less expensive mainframe computers could be used to manage the processing of an increasing number of user applications while the overhead associated with communication among processors would be limited to communications related to the storage and retrieval of data.

American Academy argues that the specification describes the user stations in a way that distinguishes a "user computer" from a multi-user computer. In particular, American Academy points to a portion of the specification that provides as follows:

the system of the present invention includes a plurality of user stations each dedicated to servicing a user (which could be a person, another device, or machine) and each functioning as a stand-alone computer, having its own central processing unit, typically a microprocessor, and equipment by which the user can communicate with the central processing unit, typically a video display and keyboard terminal. The user stations may have other peripheral equipment as well, such as disk drives, printers, card readers, or the like. The user stations service the users by executing application programs supplied by the users.

'989 patent, col. 2, ll. 35-47 (emphasis added). American Academy notes that the term "user station," which appears to be synonymous with "user computer" as used in the '989 patent, is referred to as "dedicated to servicing a user." That reference, according to American Academy, indicates that a "user station" or "user computer" must be a computer that is dedicated to a single user.

As the Director of the PTO points out in his brief, however, the specification states that a "user" can be "a person, another device, or machine," which suggests that the "user computer" could be a mainframe or minicomputer. The Director also points to a portion of the specification that provides as follows:

Although specific equipments are shown for the user station 4 and data center 8 of FIG. 2, it should be understood that a variety of configurations could be utilized to enable the user station 4 to operate as an interface with users and to process application programs 116, and to enable the data center 8 to serve as a storage and retrieval center for data of common interest to the user stations.

'989 patent, col. 6, ll. 7-14. The specification then proceeds to differentiate the user computers from the data center computer in terms of function, explaining that a "user station . . . would be utilized to interact with the operator, generate payroll information, produce accounting reports, process accounts payable and accounts receivable, sort, compile, process hotel or airline reservation requests, and in general process data pursuant to a variety of conventional application programs" while "the data centers . . . illustratively would serve to store data relating to the personnel of a company, payroll information regarding such personnel, accounts payable and accounts receivable data, information regarding occupancies and vacancies in a hotel chain or airline system, and generally any type of data which may be of interest to more than one user station . . . ." Id., col. 6, ll. 14-27. According to the Director, the specification thus makes clear that the term "user computer" is used to refer to the function of the computer in running a user application, not to the identification of the user computer as a personal computer as opposed to a mainframe.

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American Academy argues that to read "user computer" to encompass mainframes and minicomputers would vitiate the word "user." The Board, however, recognized that the addition of the word "user" would "disqualify those computers that are designed as special purpose computers for some use and are not intended to be reprogrammed by users for their own benefits."

American Academy also points to the specification's reference to the Zilog Z-80 as a type of computer that could be used in a system embodying the invention. The Zilog Z-80, American Academy argues, was never intended to serve as a multi-user computer, and thus, according to American Academy, the reference to the Zilog Z-80 indicates that multi-user computers were not intended to be within the scope of "user computers" as that term was used in the '989 patent. The specification, however, describes the Zilog Z-80 as part of an "illustrative embodiment" of a "conventional microprocessor," not as an essential element of the invention. '989 patent, col. 5, ll. 27-32. Moreover, the examiner, citing a contemporaneous reference on microprocessors, determined that the Zilog Z-80 had the capability to function as a multi-user computer.

We agree with the Board that the description in the specification would not preclude a mainframe or a minicomputer from serving as the "user computer" of the invention. In general, the specification distinguishes a user computer from a data center computer in terms of function. Although some of the language of the specification, when viewed in isolation, might lead a reader to conclude that the term "user computer" is meant to refer to a computer that serves only a single user, the specification as a whole suggests a construction that is not so narrow. Instead, the specification indicates that the invention is intended to reach "a variety of configurations" including those in which the "user" is not a person, but is another device or machine. Thus, in light of the description in the specification, a construction of "user computer" that includes multi-user computers, such as mainframes or minicomputers, is not unreasonably broad.

American Academy contends that the declarations of Dr. Maryanski, submitted at various points in the course of the reexamination proceedings, establish that one of ordinary skill in the art would understand the term "user computer" to mean a computer dedicated to a single user, and not a mainframe or minicomputer. See Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The ordinary meaning must be determined from the standpoint of a person of ordinary skill in the relevant art."); In re Cortright, 165 F.3d 1353, 1358 (Fed. Cir. 1999) ("Although the PTO must give claims their broadest reasonable interpretation, this interpretation must be consistent with the one that those skilled in the art would reach."). The Board upheld the examiner's determination that the declarations consisted only of Dr. Maryanski's personal opinions and did not constitute persuasive evidence in support of his conclusions.

The Board has broad discretion as to the weight to give to declarations offered in the course of prosecution. See Velander v. Garner, 348 F.3d 1359, 1371 (Fed. Cir. 2003) ("Accord[ing] little weight to broad conclusory statements [in expert testimony before the Board] that it determined were unsupported by corroborating references [was] within the discretion of the trier of fact to give each item of evidence such weight as it feels appropriate."); cf. Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 294 (Fed. Cir. 1985) ("Opinion testimony rendered by experts must be given consideration, and while not controlling, generally is entitled to some weight. Lack of factual support for expert opinion going to factual determinations, however, may render the testimony of little probative value in a validity determination." (citations omitted)). Although there is "no reason why opinion evidence relating to a fact issue should not be considered by an examiner," In re Alton, 76 F.3d 1168, 1175 n.10 (Fed. Cir. 1996), the Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations, see Velander, 348 F.3d at 1371; Ashland Oil, 776 F.2d at 294.

American Academy also asserts that the prosecution history of the original application that matured into the '989 patent supports its construction of the term "user computer." During prosecution, the PTO rejected the claims of the application based on a prior art patent to Anderson. The applicant characterized Anderson as including remote transaction terminals and a host data processing system, in which the host, and not the remote terminals, processed the transactions. American Academy argues that the failure of the applicant and the examiner to characterize the host computer as a "user computer" is evidence that a user computer is intended to service a single user. However, the applicant distinguished the Anderson reference on the ground that the application programs were run on the host computer, rather than on remote transaction terminals. In effect, the applicant analogized the system of Anderson to the mainframe and dumb terminal configuration described in the Background of the Invention section of the '989 patent, with the remote transaction terminals of Anderson likened to dumb terminals. Thus, it would not have made sense for the applicant to compare the host computer of Anderson with the user computers of the application, since the user computers of the application were intended to replace devices analogous to the remote transaction terminals of Anderson. Accordingly, the discussion of the Anderson reference in the
prosecution history of the original application for the '989 patent does not support American Academy's position.

Finally, American Academy points to an inconsistency between the Board's construction of the term "user computer" and that of the district court in American Academy's litigation against Novell.

In the district court litigation, the court construed "user computer" to refer to a computer that serves one user at a time. However, the Board is required to use a different standard for construing claims than that used by district courts. We have held that it is error for the Board to "apply the mode of claim interpretation that is used by courts in litigation, when interpreting the claims of issued patents in connection with determinations of infringement and validity." In re Zletz, 893 F.2d 319, 321 (Fed. Cir. 1989); accord In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997) ("It would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption the patent is valid."). Instead, as we explained above, the PTO is obligated to give claims their broadest reasonable interpretation during examination. Under that standard, it was proper for the Board to construe "user computer" to encompass the mainframes and minicomputers of the cited prior art.

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42. The term "user configuration information" - as used in the '498 Patent - means "information associated with the user such as the user's account information, email information, screen formats, or screen colors."

43. The term "user identification information" - as used in the '498 Patent - means "a user's given name or a system user name specially coined by the user that is used to identify the user in each transaction."

4694

13. The user context file for said one program

Claim 37 of the '755 patent requires adding information "identifying at least the user context file for said one program." The parties dispute what is meant by the term "user context file." Biax contends that the term "context file" means "a set of registers" and the term "user context file" means "a set of registers for a user." Intel and ADI contend that the term "user context file" means "a physical register file, assigned to the user of one program, which contains the data used by and specific to that one program."

Although the description of the preferred embodiment supports the defendants' construction, the court disagrees that the limitations should be read into the claim language. The specific language in the specification does not require that the invention be limited to a system having a different context file for each user. See '755 patent, col. 17, 11. 60-63 ("In an MIMD system of the present invention as shown in FIG. 6, each context file would contain data from a different user executing a program.")(emphasis added). Moreover, the specification counsels against a limitation that the context file must be specific to only one program. "The diagram of FIG. 6 represents an MIMD system wherein each context file 660 corresponds to at least one user program." '755 patent, col. 15, 11. 34-36. (emphasis added). As a result, the court adopts a construction similar to the one proposed by Biax. A user context file is "a set of registers assigned to a user." See '755 patent, col. 15, 11.34-36.

4695

C. "User-defined reference to aggregated fact data"

This term appears in claim 1. Hyperion proposes that the term means a "link from a relational database language request to data in a multidimensional data store." Hyperion Br at 11. HyperRoll instead contends that the term means a "user-defined pointer to aggregated fact data." HyperRoll Br at 16.
Hyperion's proposed construction is problematic for many reasons. First, Hyperion seeks to incorporate implicitly its proposed construction for "query statement" ("relational database language request"), which is a construction the court has already rejected. Second, Hyperion's proposed construction improperly reads out the requirements that the reference be "user-defined" and that the fact data be "aggregated."

Moreover, Hyperion improperly limits the definition of this term based on a disclosed embodiment in the specification. Hyperion relies on the steps shown in the flow chart in FIGS 6C1 and 6C2 to contend that "[t]he '604 Patent itself describes the 'user-defined reference to aggregated fact data' as providing a link from a relational database language request to data in a multidimensional data store." Hyperion Br at 11. But even if this were true, it would be improper to limit the claim based solely on this disclosed embodiment, as the court has already explained.

Additionally, Hyperion's construction improperly limits the term "reference" to a "link." In describing an exemplary embodiment of a "reference," the patent notes:

This reference is preferably defined using the Create View SQL statement, which allows the user to: i) define a table name (TN) associated with the MDD database stored in the MDD Aggregation Module, and ii) define a link used to route SQL statements on the table TN to the MDD Aggregation Module.

Id at 12:39-44 (emphasis added). This description indicates that at least in some embodiments, a reference may be more than just a link and may also include a "table name" associated with the MDD database.

Hyperion correctly notes that during reexamination, HyperRoll distinguished this patent over a prior art reference by noting that the user-defined reference "allows a user of the RDBMS to query aggregated fact data stored in a multidimensional data store that is separate from the relational data store." Hyperion Br, Ex G at 27-28. But contrary to Hyperion's suggestion, it would be redundant to import any of these limitations into the definition of "user-defined reference to aggregated fact data" because claim 1 already includes these limitations. '604 patent at claim 1 (A "user-defined reference" is used "to retrieve portions of aggregated fact data" stored "in a non-relationa multi-dimensional data store" that is part of an "aggregation module" separate from a "relational data store.").

The court agrees with HyperRoll that the term "user-defined" and "aggregated fact data" do not need additional construction, as their plain meaning corresponds with their usage in claim 1. The court, however, declines to follow HyperRoll's proposed construction of a "reference" as a "pointer." A "pointer" is a specific and well-known term of art in computer science. See, e.g., Microsoft Computer Dictionary 348 (4th ed 1999) ("pointer * * * [i]n programming and information processing, a variable that contains the memory location (address) of some data rather than the data itself"). Although the court does not dispute that in some embodiments a "reference" might be a "pointer," the court does not read claim 1 as requiring a "reference" to be limited necessarily to just a pointer. Moreover, the meaning of "reference" is clear from its usage in claim 1 and no further construction is needed.

In sum, the court rejects both parties' proposed constructions and declines to construe this term.

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In the present case, the validity issue turns on proper construction of the "user-defined cabinet design standards" limitation. At the heart of the dispute is whether "user-defined standards" signify creating new standards independent of the options presented on the menus. The district court rejected that broad interpretation. Instead, the district court limited "user-defined standards" to "selection and modification from the pre-existing parameters in the database." Cabinet Vision IV, slip op. at 12 (emphasis added). Upon review, this court agrees with the district court.

This court reads the term "user-defined standards" to mean selection and modification of only pre-existing parameters. The language of the claim specifies "user-defined cabinet design standards that are fully defined by the user." Later, the claim stipulates that the user may "selectively create custom defined layout rules." This language, however, does not disclose a method for user definition or creation of design standards or layout rules. The claim language is unclear on whether the user defines the standards by supplying responses to the pre-programmed computer menu or by programming "new" standards beyond those supplied by the computer program.
The written description of the '207 patent illuminates the meaning of "user-defined standards." See Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2d (BNA) 1573, 1576 (Fed. Cir. 1996). The specification explains that a user may select custom parts, styles, and custom accessories "from a catalog" or "under menu control." '207 patent, col. 7, ll. 18-42. Additionally, it clarifies that the "process of customized creation of particular features of the cabinets, from a vast array of possibilities in the database 16, is an example of a user created standard." Id., ll. 39-42 (emphasis added). Further, the patent notes that the "user created standards function permits modification of previously defined standards." Id., col. 10, ll. 20-22 (emphasis added). Significantly, Mr. Cornwell admitted at trial that "what the user does to create a standard is just select something from the database . . . [and] that the user really makes choices from amongst what is in the database." [JA862, 866]

The specification does not, as Cabinet Vision asserts, adequately disclose a method for a user to create "new" standards beyond those provided by the program menu. Although it makes several vague references to teaching user created standards, the written description is far from satisfying the enablement requirement for creating "new" standards independent of the menu options. Thus, this court construes "user-defined standards" as "selection and modification from the pre-existing parameters in the database." This narrower interpretation preserves the validity of the claims for purposes of 35 U.S.C. § 112. Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1557, 37 U.S.P.Q.2D (BNA) 1609, 1617 (Fed. Cir. 1996) ("When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity [under 35 U.S.C. § 112].").

The district court reached and applied the same claim construction. Therefore, the trial court correctly concluded that substantial evidence does not support the jury's finding of validity. On appeal, Cabinet Vision's validity argument rests solely on the district court's claim construction. In fact, Cabinet Vision does not dispute that the admitted prior art would invalidate claims 2-4 under the district court's claim construction. By sustaining the district court's claim construction, this court also sustains the district court's judgment that claims 2-4 are invalid.

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A. "user IDs"

Claim 1 contains the term "user IDs": "a database with entries correlating each of a plurality of user IDs with an individualized rule set," "wherein the dial-up network server communicates a first user ID for one of the users' computers . . . to the authentication accounting server," and "wherein the authentication accounting server . . . communicates the individualized rule set that correlates with the first user ID." The term appears throughout the specification, e.g., "when the user connects to the local network . . . the user's ID and password are sent to the authentication accounting server." (118 patent, 2:66-3:1) (emphasis added). According to Linksmart, the court does not need to construe "user IDs." Alternatively, if the court determines that a construction is necessary, Linksmart's proposed construction is "identification of the user." The defendants assert the following construction: "a unique identification code for a particular person."

The defendants contendthat the user ID must be a unique identification assigned to a particular person. In support of their argument, the defendants note that the purpose of the invention, according to the patent's Summary of Invention, is "to allow the redirection, blocking, or allowing, of specific data traffic for specific users." (118 patent, 2:62-64) (emphasis added). Also, U.S. Provisional Application No. 60/084,014 ("014 application") is fully incorporated by reference, states that "[e]ach redirection is handled individually such that every user can have a different designated site." (014 application, at 8). But nothing in the specification requires that each person must be assigned a unique user ID--a single user ID could be assigned to a group of persons. Therefore, the court construes the term to mean "identification of the user or users."

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1. User Interface

The first element of claim 10 provides:
providing a user interface for controlling one of a seek time of the data storage device and an acoustic noise level of the data storage device; (emphasis added)

There are two disputes over the term "user interface." The first dispute is whether a "user interface" is limited to being either a graphic user interface (GUI) or electromechanical switches, or whether a "user interface" more broadly encompasses any means to alter the drive performance parameters. The second dispute is whether the "user interface" can only be used by the human end-user of the system. Plaintiffs assert that a "user interface" can more generally be used by any person or other system which is capable of setting the parameters.

Within the relevant art 9, there are distinctions between a "user interface" and a "graphic user interface." The dictionary meaning of "User interface" is "the means of communication between a human user and a computer system, referring in particular to the use of input/output devices with supporting software. Examples include the graphical user interface (GUI) and command-line interface (CLI)." A Dictionary of Computing, Oxford University Press, 1996. Defendants assert that the specification indicates that "user interface" should be construed as "a graphic user interface (GUI) of a type common to windowing operating systems such as Microsoft Windows or electro-mechanical switches." ('473 patent Col. 6:44 -- 9:44). This fails to distinguish between a "user interface" and a "graphic user interface". Defendants claim the specification defines the term "user interface" to be synonymous with "graphical user interface":

As an alternative to the GUI, or to supplement the GUI, the disk drive may include one or more electro-mechanical manual switches for controlling all or part of the drive's operation in the manner set forth above.

('473 patent Col. 9:38 -- 42).

--- Footnotes ---

9 The '473 patent discloses an invention for improving the performance of computer disk drives. The relevant art here is the field of computer engineering.

--- End Footnotes ---

This language, however, clearly indicates the breadth of the term "user interface" to include both a GUI or electromechanical switches. This language indicates that a GUI is one type of "user interface," and an electro-mechanical switch is another, albeit simpler, type of "user interface." The "alternative to the GUI" and "supplement the GUI" language indicates that the electro-mechanical switch is not intended to limit the definition of "user interface," but rather demonstrates the range of user interfaces encompassed by the invention. See Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 991 (Fed. Cir., 1999) ("Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition.") Defendants' construction would require that "user interface" ensnare both a complex and simple user interface, but not the spectrum of user interfaces in between. The inventor did not demonstrate a manifest intent to disclaim every type of user interface not disclosed in the specification.

Plaintiffs' construction of "user" as "a person or device that uses the user interface" is too broad. It fails to give meaning to the adjective "user," which distinguishes the interface from other types of interfaces used in the computing field, for example, an advanced programming interface (API) which allows one software program to "interface" with another. The plain meaning of "user interface" requires a user, and the term "interface" typically indicates a means by which anything can interact with a device. Plaintiffs maintain that the term "user" cannot be limited to "a person" because this would exclude the situation where a person indirectly uses the interface. They argue, in essence, that any device can be broken down into a series of simpler devices. A potential infringer could, therefore, circumvent the patent by placing an intermediary device between the user and the invention. For instance, when using a GUI, the user typically positions the cursor on the screen using a mouse. A potential infringer could claim that the user is interfacing with the mouse, and the mouse is interfacing with the computer, thereby avoiding infringement. To avoid such pedantic arguments by accused infringers, the term is constructed specifically to include circumstances where a person has, at some point, dictated what the parameters should be. A patent cannot be constructed to deprive a claim term of all meaning, and plaintiffs' construction of "user interface" would render "user" meaningless.
Defendants also contend that the user of the "user interface" must be the human end-user of the drive. They claim that the description of the GUI in the specification compels an interpretation imposing the end-user restriction. However, the user can be any person who wants to make use of the device; in this case, setting the drive parameters. The plain meaning of "user" does not require an individual who is the end-user of a product. Even the word "end-user" militates against the proposed construction: "end" modifies "user," so in its regular usage "user" must mean something other than end-user. To impose a definition more limited than the normal meaning, there must be a clear intent on the part of the author to use the more limited definition. Johnson Worldwide Assocs., 175 F.3d at 990 (stating that anything other than the "ordinary and accustomed meaning" inheres only "if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term" … [or]… "the term or terms chosen by the patentee so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used.”) (internal citations omitted). Defendants do not assert that the term end-user appears in the patent, nor does any language limiting the potential user of the product appear.

Claim terms are to be given their normal broad meaning absent an explicit disavowal of scope. See Novartis Pharm. Corp. v. Eon Labs Mfg., 363 F.3d 1306, 1314 (Fed. Cir. 2004). The "Windows-like operating system," one of the types of user interfaces defendants claim fits under their definition, is still a user interface when it is used by a technician configuring the computer before sale. There is no contemplation within the patent that only the end-user of the drive be able to use the interface, and defendants' examples also militate toward no limitation based on the type of user.

Defendants contend that plaintiffs' proposed construction could be read to include disk drives that have been irrevocably configured at the factory. This meaning is beyond the scope of a "user interface." A user interface enables the alteration of parameters of the system. Drives manufactured in such a way as to only be capable of a one-time setting, which is then fixed in the hardware, do not possess a capability to alter the parameters. They only have a capability to set the parameters once. This is beyond the ordinary meaning of "user interface" in the art.

Accordingly, the term "user interface," as used in independent claims 1, 10, 11, and dependent claims 4, 12, and 13, is interpreted to mean:

"hardware, firmware, or a combination thereof that allows a person, directly or indirectly, to alter parameters."

1 There is agreement amongst the parties that this term is not subject to paragraph 6 of 35 U.S.C. section 112.

Keyscan seeks the following construction: "Options presented to a user by the input device software, one of which a user must select in order for the input device software to determine what is to be done with the scanned image." Soque seeks the following construction: "Options presented to a user regarding a course of action to be taken with a scanned image, such as faxing, emailing, printing, storing or performing word processing on a scanned image." The parties' argument focuses on whether this claim term should be limited to require the input device software, as opposed to any mine-run software, to present options to the user.

"User-selectable options" appears in every asserted claim. Keyscan's basic argument, based on the specification, is that in response to placement of a document in the input device, the input device software presents the user with options that it determined are available on the host computer. In response to the user's selection, the input device software invokes the third-party software application that corresponds to the user's selection. In support of its argument, Keyscan focuses on the preferred embodiment outlined in the patent specification. Soque, on the other hand, argues that "user-selectable options" must be construed in accordance with the language in the claim limitations themselves, and should not be limited by the
specific embodiment identified in the patent specification. Soque is correct.

The summary of the invention states: "As the term is used herein, an 'paper input device' is a computer peripheral which senses the insertion of a document to be scanned, initiates a host computer process, i.e., controls the host process by insertion of the paper and symbols on the paper, scans the images and text on the paper, provides immediate user interface feedback while sending the scanned data to the host for further electronic processing such as display, transmission, storage or modification." '108 Patent at 2:40-48. Although the preferred embodiment focuses solely on the input device software, the summary eschews any such language. Instead, the paper input device "provides immediate user feedback while sending the scanned data to the host for further electronic processing." Id. This demonstrates that the scope of the patent claims could be broader than the preferred embodiment.

As discussed above, the specification discloses an invention wherein an input device automatically senses the insertion of a document into the device, which device then scans the document and interrupts the computer. In the preferred embodiment, the input device software then presents a list of options to the user, and upon selection of an option, the input device software executes the appropriate software. '108 Patent at 10:34-11:8, 15:7-16:9, 18:34-19:10, Figure 13B, Figure 21B. Nowhere in the specification does the patentee evidence an intent to exclude an interpretation whereby options are presented to the user by software other than the input device software. A specific embodiment may not be read into the claim unless the patentee "intend[ed] for the claims and the embodiments in the specification to be strictly coextensive." Phillips, 415 F.3d at 1323. Here, the preferred embodiment plainly does not "reveal an intentional disclaimer, or disavowal, of claim scope." Id. at 1316.

The patent's plain language supports Soque's construction, that the user-selectable options need not necessarily be presented by the input device software. Id. at 1323 ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments"). Thus, Soque's construction is adopted: "user-selectable options for processing said image data" is construed as "options presented to a user regarding a course of action to be taken with a scanned image, such as faxing, emailing, printing, storing or performing word processing on a scanned image."

To the extent input device software is employed to display the user-selectable options, as in the preferred embodiment, the patent specification allows the input device software to present options that are features or functions present completely within third-party software applications such as Microsoft Word. The patent specification contemplates that the input device software "generates the menu options by checking the bulk storage memory device (typically a hard disk) and the random access memory to determine what software packages are resident and then generates a menu option for each capability of the host as represented by these software packages." '108 Patent at 15:36-42; id. at 18:45-51 ("The options displayed in the pop-up window depend upon the software packages and circuit cards of the host computer. The available options are determined by the input device software resident on the host at installation, and may be updated as new capabilities are added to the host computer."). The preferred embodiment uses a pop-up window or equivalent. Id. at Fig. 21B, Box 296.

The specification, however, does not limit the "menu option" associated with a software package to the simple invocation of the third-party software application. For instance, the menu option need not simply state "Open Microsoft Word," but can provide the user with the option to "Print via Microsoft Word" or "Save using Microsoft Word." Moreover, there appears no limitation upon the input device software's invocation of third-party software in order to determine the capabilities of the third-party software. Consequently, in the preferred embodiment, user-selectable options may be presented to the user by the input device software subsequent to the launch of third-party software. 3

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2 The image associated with the scan may or may not be displayed alongside the "user-selectable options." '108 Patent at 18:51-57 ("In the preferred embodiment, the incoming data is also displayed in a pop-up window, but in other embodiments, the incoming data may be shunted directly to whatever software package is to process it or directly into a file in random access memory or on an internal or external bulk storage device without display in a pop-up window.").

3 The court expresses no opinion on whether the mere invocation of third-party software in response to a scan constitutes the display of user-selectable options by the input device software, and leaves that question for the infringement phase of this action.
Keyscan, which argues essentially that this claim term be limited to the preferred embodiment, must demonstrate that the patentee intended to deviate from this phrase's ordinary and accustomed meaning. Keyscan first argues that the prosecution history demonstrates that the patentee limited the claims only to options presented by the input device software. During prosecution of the '108 patent, the patent examiner found that it was well known in the art to "automatically do something with [a scanned] image," but the prior art did not disclose "the specific means for displaying a plurality of user-selectable options for processing said image data, in response to the placement of a document to initiate the drawing of the document into scanning relationship with the scanner"

Docket No. 39-1 (Godinez Dec.), Exh. D (Patent Reexamination) at KeyScan422. This finding, however, does nothing to limit the scope of user-selectable options to be only those options presented by the input device software itself. In January 1995, the patentee introduced the term "user-selectable options" to require the display of user-selectable options in response to placement of a document in the scanner. Specifically, independent claim 88, which eventually issued as claim 1 of the '108 patent, was amended to include "means for displaying a plurality of user-selectable options for processing said image data in response to placement of the document by the user."

Id., Exh. B (Patent Application) at Soque273; id. at Soque345 (adding "in response to said placement"). These amendments also do not limit the scope of user-selectable options to be only those options presented by the input device software itself.

Keyscan next argues that the patent specification only discloses a "document-driven system" wherein the input device and its software control the operations of a host computer to, among other things, determine and present to a user options regarding what is to be done with scanned data. In support of this argument, Keyscan cites solely to the preferred embodiment outlined in the patent specification. See, e.g., '108 Patent at 18:34-19:9 (describing sequence of events the input device software follows in the preferred embodiment); id. at 10:52-55 (discussing alternatives the input device software may present to the user in the preferred embodiment); id. at 15:36-42 (discussing how the input device software determines the universe of options to present to the user in the preferred embodiment). None of these disclosures limit the patent to require use of the input device software to display the user-selectable options. Keyscan is correct that the summary of the invention states that "[s]pecial software in the input device . . . automatically carries out the desired processing either by receiving a command from the user by manual pointing to menu selections presented to the user by the software . . . ." Id. at 2:55-60. However, the immediately preceding sentence states: "In the preferred embodiment, the input device using scanning technology includes a scanning mechanism." Id. at 2:54-55. Keyscan's attempt to limit this claim term in accordance with the preferred embodiment is unavailing.

Keyscan's reliance upon Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1300-01 (Fed. Cir. 1999), is unpersuasive. There, the Federal Circuit found that the patent encompassed only the "unitary structure" described in the preferred embodiment because "the specification describes the advantages of the unitary structure as important to the invention" and because the structure was "not simply the preferred embodiment; it [was] the only embodiment." Neither situation applies here: nowhere does the specification speak to the advantages associated with employing the input device software, nor is presentation of options to the user through the input device software the only embodiment--the patent specifically discloses symbol recognition as a method through which the user may signal her desires regarding post-scan processing. Keyscan also argues that "[a]lthough precedent offers assorted quotations in support of differing conclusions concerning the scope of the specification, these cases must be viewed in the factual context in which they arose. Whether an invention is fairly claimed more broadly than the 'preferred embodiment' in the specification is a question specific to the content of the specification, the context in which the embodiment is described, the prosecution history, and if appropriate the prior art . . . ." Wang Lab., Inc. v. Am. Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999). Wang is inapposite. Unlike Wang, the prosecution history here does not demonstrate that the inventors intended to limit the patent to the preferred embodiment. Id. at 1383-84. 4

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4 Keyscan cites the parent application of the '108 patent in support of its construction; however, it provides no authority that the parent application is part of the intrinsic record upon which the court may rely. Moreover, Keyscan does not cite any authority that prohibits a patentee from later seeking to expand upon claims specified in the parent application.

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At bottom, Keyscan is arguing that Soque's construction provides a meaning broader than the meaning derived from the intrinsic evidence. See Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1397 (Fed. Cir. 2008) (limiting invention based in part
on use of the phrase "the present invention"). However, at no point here did the patentee explicitly or implicitly limit the claims through use of limiting language. Although the patentee explicitly described the preferred embodiment, the patentee declined to limit the invention to the preferred embodiment. See '108 Patent at 23:21-23 ("those skilled in the art will appreciate numerous modifications and enhancements which can be made without departing from the true spirit of the invention."). Consequently, Keyscan's arguments are rejected and Soque's proposed construction is adopted.

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d. "Said User Selection Criteria" (Claims 18 and 66)

The disputed limitation of claims 18 and 66 of the '121 patent is:

supplying user program selection criteria to the data processor, said user program selection criteria comprising a plurality of independent user chosen program selection criteria and at least one program choice, the data processor combining said user selection criteria, selecting those programs meeting the combined user selection criteria for viewing . . . .

Re'121 patent, claims 18, 66 (emphasis added).

(1) Theme, Channel, and Prime Time

The ITC initially found that "user selection criteria" was limited by the written description and reexamination prosecution history to the "theme," "channel," and "prime time" criteria. FID Opinion 2002 ITC LEXIS 812 at *78. It relied on a passage in the written description that stated: "At the bottom of the screen is a two line status display, showing the actual time and date, and whether any of the search restrictions (prime, theme, and channel) are activated." Id. (citing '121 patent, col. 11, ll. 34-37). The ITC cited other examples in the written description indicating the system only performed searches based on theme, channel, and prime time. 2002 ITC LEXIS 812 at *89. The ITC also cited instances during reexamination where Gemstar reiterated theme, channel, and prime time as individual selection criteria. 2002 ITC LEXIS 812 at *89.

Gemstar argues that the ordinary meaning of "user selection criteria" includes any search criteria selected by the user, and that the written description discloses many other types of "user selection criteria" besides theme, channel, and prime time. Gemstar contends that during reexamination, it provided theme, channel, and prime time as examples of "user selection criteria," not as an exhaustive list limiting claim scope. Scientific-Atlanta responds that the written description and reexamination prosecution history identify only theme, channel, and prime time as "user selection criteria," and fail to identify a single search criterion other than these three parameters.

The ITC correctly looked to dictionary definitions, including a definition of "criterion," the singular form of "criteria," from Webster's Third New International Dictionary 538 (1993): "a standard on which a decision or judgment may be based." From this definition, the ordinary meaning of "user selection criteria" is simply any parameter chosen by the user in selecting a program.

The next step is to consider the written description and prosecution history to see if the applicant disclaimed or otherwise narrowed the scope of this claim limitation. From our examination, the passages from the written description and reexamination proceedings cited by the ITC and Scientific-Atlanta fail to establish that "user selection criteria" was limited to theme, channel, and prime time. Although Gemstar routinely referred to theme, channel, and prime time as examples of user selection criteria in the written description and during reexamination, these passages lack "words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope" required to limit user selection criteria to these three parameters. ACTV, 346 F.3d at 1091. As an example, Gemstar stated during reexamination:

The user selection criteria may be entered and activated independently under different categories (theme, channel, prime time) and are maintained by the data processor whether currently activated or not. This is disclosed, for example from column 12 line 12 to column 15 line 17 (wherein it is stated that buttons can be pressed to independently activate the THEME, PRIME-TIME, and CHANNEL selection criteria) and from column 18 line 11 to column 20 line 38. Furthermore, the selection criteria can be combined as alternatives (in a logical OR fashion), such as a list of acceptable channels or a list of acceptable themes.
Supplemental Amendment After Final, Feb. 25, 1993, at 23-24. Because Gemstar did not expressly limit "user selection criteria" to the theme, channel, and prime time parameters, but simply cited them as examples during reexamination, "user selection criteria" are not limited to theme, channel, and prime time.

(2) Program Choice

The ITC and the parties agreed that the expression "said user selection criteria" in claims 18 and 66 does not have an exact antecedent--the preceding claim language reciting "user program selection criteria" and "independent user chosen program selection criteria." Re'121 patent, col. 5, ll. 17-23 (emphases added); see FID Opinion 2002 ITC LEXIS 812 at *82. The ITC found that the plain language of the claim indicated that "said user selection criteria" referred back to "independent user chosen program selection criteria" and was exclusive of program choice. FID Opinion 2002 ITC LEXIS 812 at *81.

Gemstar argues it was error for the ITC to construe "said user selection criteria" to refer back to "independent user chosen program selection criteria" instead of "user program selection criteria," thereby excluding program choice from the user selection criteria. Scientific-Atlanta responds that including program choice in "said user selection criteria" would be superfluous since the invention requires the user to make a program choice only after the data processor has combined the user selection criteria and produced a list of programs satisfying the combined criteria. Further, Scientific-Atlanta argues that Gemstar consistently described the operation of its invention in this manner during the reexamination.

From an examination of the disputed claim language, we conclude that the ITC correctly held that "user selection criteria" did not include program choice. Although it may appear on first glance that "said user selection criteria" actually refers back to "said user program selection criteria" and thus includes "a plurality of independent user chosen program selection criteria and at least one program choice," see Re'121 patent, col. 5, ll. 17-23, our prior claim construction of "combining" makes clear that such a conclusion is incorrect. The operative claim language is "combining said user selection criteria." Re'121 patent, claims 18, 66 (emphasis added). We previously construed this claim language to require that the combination of "user selection criteria" occur prior to any search. Statements made during the reexamination proceeding make clear that "user selection criteria" are first selected, then combined, following which the system produces search results from the program listing satisfying the "user selection criteria." A statement by the examiner during reexamination clarified that from the search results, a user makes a program choice:

Applicant also agreed to add further limitations to the claims so as to set forth the user's ability to control the processor to select programs from the schedule information which was selected from incoming information based on the "combined" user selection criteria.

Examiner's Statement in Reexamination Advisory Action, Feb. 16, 1993, at 2. Gemstar agreed with this understanding:

Combining User Selection Criteria and Selecting Programs

Several of the present claims recite a process in which the user enters user program selection criteria, and the data processor combines the program selection criteria, searches through the stored schedule information, and creates and stores a display list of program listings that meet the combined criteria. This is disclosed, for example, at col. 17 lines 33 et seq. The user may then make program selection choices (which the Examiner has characterized as further program selection criteria) from this display. The data processor then stores information for these program selections, including information identifying program titles, in a reminder calendar list.

Supplemental Amendment After Final, Feb. 25, 1993, at 22-23 (emphases added). Gemstar and the examiner agreed during reexamination that a program choice was made after the "user selection criteria" were combined. From this it is clear that a contrary construction was disclaimed. "Said user selection criteria" must refer to what the language of the claim describes as "independent user chosen program selection criteria," excluding program choice.

In conclusion, the limitation "said user selection criteria" refers to any parameters chosen by the user to search for a program. Such parameters are not limited to theme, channel, and prime time. Further, "said user selection criteria" does not include a specific program choice.
1. Claims 1 & 5 -- "User Station"

The term "user station" appears throughout the '170 patent and is a term crucial to the invention. Defendants argue that "user station" is a fixed, public structure and not a non-fixed, non-public structure, such as a personal computer. CIVIX, on the other hand, contends that "user station" should not be so narrowly defined and instead is any computer or other electronic device, available to a user for interrogating a database.

CIVIX bases its interpretation of "user station" on the view that "work station," a common computer term, is defined as "a computer terminal or microcomputer connected to a mainframe, minicomputer, or data-processing network." Random House Webster's Unabridged Dictionary, Second Edition 1997. Additionally, CIVIX stresses that the '170 patent itself explains that the "user station" is designed to interrogate a database containing a map and subscriber electronic information. ('170 Patent, Col. 1 lines 46-55). Furthermore, CIVIX looks to the prosecution history where the applicants added the phrase "user station, such as" before the word "kiosks" to emphasize the fact that a kiosk is merely a type of user station. ('170 Patent, Col. 1 line 31) ('170 Prosecution History File, CIV000015, CIV 000058). Finally, CIVIX argues that the terms "kiosk" and/or "fixed" never appear in the claims themselves and, therefore, I should not read this limitation into them. Instead, a fixed kiosks is merely one embodiment of a user station.

I first address Defendants' means-plus-function argument surrounding the term "user station." Defendants urge that the term "user station" appears as part of a functional term and is thus limited to the kiosk specification. Claim 1 of the '170 patent teaches, "a user station within said predetermined region for interrogating said apparatus." Defendants argue that this phrase denotes only a place for interrogating the apparatus, recites no structure and, accordingly, must be construed as limited to the corresponding structure disclosed in the patent specification. 35 U.S.C. § 112 P 6. I disagree that this phrase implies a means-plus-function limitation.

Paragraph 6 of 35 U.S.C. § 112 provides that limitations "expressed as a means . . . for performing a specified function without the recital of structure . . . in support thereof, . . . shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof." Paragraph 6 "operates to cut back on the type of means which could literally satisfy the claim language." Johnston v. IVAC Corp., 885 F.2d 1574, 1580 (Fed. Cir. 1989). More specifically, "where a claim sets forth a means for performing a specific function, without reciting any specific structure for performing that function, the structure disclosed in the specification must be considered, and the patent claim construed to cover both the disclosed structure and equivalents thereof." Data Line Corp. v. Micro Technologies, Inc., 813 F.2d 1196, 1201 (Fed. Cir. 1987).

The phrase at issue here does not use the word "means," and although a claim element might still meet the requirements of 35 U.S.C. § 112, P 6, this does not. In Personalized Media Communications, LLC v. International Trade Com'n, 161 F.3d 696, 703 (Fed. Cir. 1998), the Federal Circuit stated:

We also made clear that use of the term "means" is central to the analysis: "the use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' . . . generally invokes [35 U.S.C. § 112, P 6] and that the use of a different formulation generally does not." . . . Failure to use the word "means" creates a presumption that 35 U.S.C. § 112, P 6 does not apply. . . . In deciding whether either presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of 35 U.S.C. § 112, P 6.

Id. at 703-704 (internal citations omitted); see also Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed. Cir. 1996) ("To invoke [35 U.S.C. § 112 P 6], the alleged means-plus-function claim element must not recite a definite structure which performs the described function.").

In Cole, the claim recited a "perforation means . . . for tearing." The court held that the statute did not apply because the claim "describes the structure supporting the tearing function (i.e., perforations)." Id. In addition, the claim "describes not only the structure that supports the tearing function, but also its location (extending from the leg band to the waist band) and extent (extending through the outer impermeable layer)." Id. The court concluded that "an element with such a detailed
recitation of its structure, as opposed to its function, cannot meet the requirements of the statute." Id.

The same rationale applies here. The phrase at issue provides for a "a user station within said predetermined region for interrogating said apparatus." (525 patent, Claim 1). Although the latter part of the quoted phrase describes a function, the claim includes a specific recitation of the structure to support that function -- a "user station." In addition, as in Cole, this phrase includes a limitation on the user station -- it must be "within said predetermined region." Furthermore, the phrase "user station" is expressed throughout Claims 1 & 5 as a specific structural element, such as a kiosk. Accordingly, the phrase at issue does not meet the requirements of 35 U.S.C. § 112 P 6, and I will not analyze it as a means-plus-function element. Although I do not find that 35 U.S.C. § 112 P 6 limits the scope of the term "user station," the overwhelming weight of relevant evidence supports a more limited construction than that proposed by CIVIX.

This invention was intended to provide travelers a convenient substitute for visitor's centers and Chambers of Commerce. ('170 Patent, Col. 1 lines 25-27). For example, the '170 patent states that a kiosk is to be "placed on the sidewalk of the downtown area of a city. Preferably, user station, such as kiosks are placed on the sidewalks at a plurality of locations throughout the city." ('170 Patent, Col. 1 lines 29-32). The preferred embodiment in figure 1 shows a "base station 2 in the form of a kiosk. The kiosk is preferably placed on a sidewalk, and receives power from cables (not shown) buried beneath the sidewalk." ('170 Patent, Col. 2 lines 40-43). The patent explains that a user station "may be located on a sidewalk at a street intersection for easy access by pedestrians." ('170 Patent, Col. 2 lines 53-54). Further, the patent proudly states that, It will be appreciated that a unique method and apparatus has been described wherein anyone in the city may obtain a map of the area immediately surrounding where they are, the map having information regarding the locations of businesses, historical sites, or the like by simply activating an input key on a kiosk.

('170 Patent, Col. 3 lines 62-67) (emphasis added). The patent specification does not detail or teach any mobile, private, or non-fixed user station. In fact, the patent's stated purpose to provide travelers with information about local businesses could not be furthered without an accessible public structure.

I look to the ordinary meaning of these terms because there is no specialized meaning asserted. See, e.g., Karlin Technology, Inc. v. Surgical Dynamics, Inc., 177 F.3d 968 (Fed. Cir. 1999). A "station" merely denotes "a place established to provide a public service," such as a fire station, police station, or gas station. Webster's Third New Int'l Dictionary 2229 (3d ed. 1986). The modifying word "user," in this context, not surprisingly, means that the station is one for users. I conclude that in early 1990, the time of the filing of the '170 patent application, one of ordinary skill in the art would not have understood the term "user station" to mean a personal computer or "work station," see Markman, 52 F.3d at 986 ("the focus is on the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean.").

Finally, if any ambiguity remains in the meaning of the term "user station," the '525 patent is illuminating. The '525 patent notes the insufficiencies of the '170 patent: "such a system is inflexible. . . . A user of the system must also know the exact location of the kiosk in order to use the system. Tourists and business travelers to the city are unlikely to know of the kiosk; and thus the kiosk system is of little use to such users. Further, a user must be physically present at the kiosk in order to access the information about the businesses and/or sites in the surrounding area." (525 Patent, Col. 1 lines 29-37) (emphasis added). This characterization by the '525 patentees are also those of Mr. Bouve, a named inventor on both the '170 and '525 patents. Therefore, these comments are relevant to the construction of the terms and corroborate my interpretation. Although I do not limit the term "user station" to include only "kiosks," I conclude that "user station," as used in the '170 patent, is limited to a fixed public structure.

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C. "User Store" ('783 and '245 Patents)

"User store" appears in independent claim 20 of the '783 patent and independent claim 9 of the '245 patent. The term was construed by the Block court to mean "a storage component accessible by a processor containing information identifying
information providers that house personal information for a given end user." Yodlee Exh. V at 10-11. Yodlee advances this construction in the instant dispute. CashEdge asserts that this definition impermissibly limits the user store as containing only information identifying information providers, since the patent indicates that the user store also contains "configuration and verification information concerning particular end users." '783 patent col. 5, lines 3-5. CashEdge construes "user store" to mean "the storage component that contains the end user data." The Court agrees with CashEdge that any construction of "user store" must encompass verification information for the end user, as the specification indicates that such data is contained in the user store both in general and in the preferred embodiment. See '783 patent, col. 5, lines 3-8 ("A user store is also necessary to maintain configuration and verification information concerning particular end users."); '783 patent, col. 5, line 57 -- col. 6, line 12. The claim language also refers to the "user store" as "storing end user data associated with each end user," including information identifying the information providers "securely storing" the user's personal information. '783 patent, col. 18 lines 33-37. The use of the word "securely" clearly means that verification data is required to access the user's personal information. Accordingly, the Court construes "user store" to mean "a storage component accessible by a processor containing verification data and information identifying information providers that house personal information for a given end user."

**4703**

Step 1

The final disputed phrase is "automatically generating at least one user target profile interest summary for a user at a user terminal, each of said user target profile interest summary being indicative of ones of said target objects and sets of target object characteristics accessed by said user." Amazon narrowly construes this phrase as meaning, "creating with essentially no human input a numerical measurement constituting a summary of digital profiles of target objects that a user likes and/or dislikes representing multiple areas of interest for a user at a user terminal being indicative of both target objects and sets of target object characteristics accessed by the user." In contrast, Pinpoint's proposed construction is broader: "automatically generating a concise statement of the data that describes the significant characteristics of target objects that a user likes and/or dislikes pointing out or showing indirectly the target objects and/or sets of target object characteristics accessed by the user." As an initial matter, Amazon's proposed construction must fail to the extent it includes its proposed construction of "target objects and sets of target object characteristics." The court has rejected this construction.

The remaining disputed phrase is "target profile interest summary." The parties' dispute centers on whether the phrase "target profile interest summary" is properly construed as requiring a "numerical measurement," as Amazon contends. This term was expressly defined by the inventors; it means "a summary of digital profiles of target objects that a user likes and/or dislikes." Def. Mem., Ex. 3 at Col. 4. Pinpoint's proposed construction adopts the inventors' definition, substituting only the dictionary definitions of "summary" and "profile," that is "a concise statement" and "data that describes the significant characteristics of a user, a group of users, or one or more computer resources." Pl. Opp. Mem. at 7-8 (quoting Merriam-Webster Dictionary at 725 and IBM Dictionary of Computing 534 (1994)). In contrast, Amazon restricts the inventors' definition by adding the additional limitation that the summary be a "numerical measurement." Amazon errs. Neither the plain language nor the express definition of the specification defines the "target profile interest summary" as a "numerical measurement." Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313 (Fed. Cir. 2002) ("an inventor may choose to be his own lexicographer"). Amazon's reliance on the specification's reference to "the user's interest" as a "numerical measurement" cannot alter this express definition. Def. Mem. at 38 (citing Ex. 3, at Col. 9). Pinpoint's proposed construction, which defines the phrase "target profile interest summary" in accordance with the inventors' own explicit definition, is adopted. Teleflex, 299 F.3d at 1313. The court construes the disputed phrase as "automatically generating a concise statement of the data that describes the significant characteristics of target objects that a user likes and/or dislikes pointing out or showing indirectly the target objects and/or sets of target object characteristics accessed by the user."
assigned network address." According to Linksmart, no construction of this term is necessary. Alternatively, Linksmart proposes the following construction: "elements or conditions about the user's session." The defendants (except BWI) contend that "user's rule set" means "filtering and redirection rules for a particular user which apply during an authorized session." Finally, BWI's proposed construction is "filtering and redirection rules unique to a particular user which apply during an authorized session."

The defendants assert that "user's rule set" requires "filtering and redirection rules" and "an authorized session." For the reasons discussed above in "individualized rule set," the court declines to adopt these limitations.

BWI argues that the rules must be "unique to a particular user." BWI notes that claim 15 refers to "user" in the singular form: "a user's rule set" and "the user." But when used with an open-ended transition, the indefinite article "a" means "one or more" except in rare circumstances where the patentee clearly intended to limit the term to a single item. Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1342 (Fed. Cir. 2008). The subsequent use of "the user" does not change the presumption of plurality. Id. To support its argument, BWI notes that the specification explains, "Rule sets . . . are unique for each user ID, or a group of user IDs." ('118 patent, 4:40-41). BWI argues that the language quoted above presents two distinct options--the rules are unique for a single user ID or unique for a group of user IDs--and the claim language shows that the patentees chose the first option.

The court is not persuaded that the patentees clearly intended to limit "user's rule set" to a single user. The claim language does not disclaim the "group of user ID's" embodiment in the specification. Thus court construes "user's rule set" to mean "elements or conditions that apply during a user's or users' session."

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Uses

Hyundai argues "uses" should be construed as "environments." In the Staples Markman, the Court rejected the Staples Defendants' similar proposed construction based on the specification. In Staples, the Court determined that "uses" is used according to its ordinary meaning and no other construction was necessary. Hyundai makes the same specification-based arguments here, and they are equally unpersuasive.

Hyundai also argues the applicant acted as his own lexicographer during prosecution and used "uses" to mean "environments." Specifically, Hyundai cites to an amendment in the prosecution history where the applicant replaced "environments of product use" and "distinctive environments in which the product may be used" with "uses." Hyundai argues these changes were not meant to change the meaning of the claims because the applicant made no statement that he intended to change the meaning of the claims and because the applicant characterized the amendments as corrections of "minor technical matters." See January 24, 1999 Amendment and Interview Summary, Application No. 07/878,602.

However, the applicant did not amend all of the claims in this manner. The applicant amended then claim 2 in other ways, but did not change "environments" to "uses": ". . . related to distinctive environments in which the [product] vehicle may be used . . . ." Id. at 1. As issued, claim 2 also uses the phrase "distinctive environments in which the products may be used." Thus, it is far from clear that the applicant acted as his own lexicographer to exclusively define "use" as synonymous with "environments." Accordingly, the Court rejects Hyundai's proposed construction.

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(d) Using a computer

Step (b) of Claim 1 adds the limitation of "using a computer." The Plaintiff proposes to define the term "to mean that the sub-steps recited in elements (b)(1), (b)(2), and (b)(3) are carried out on or with the aid of a computer." (Pl. Br. at 24; DE 34.) The Defendant suggests that "using a computer" as used in the '815 Patent means employing a computerized data processing method to calculate benefit payments based upon preexisting formulas and, further, to determine the annuity
account value." (Df. Br. at 26; DE 39-2.) The Defendant believes this to be the case because insurance is a formula driven business. In addition, the Defendant submits that the Plaintiff's use of formulas within the '815 Patent are consistent with that interpretation.

The Defendant's interpretation is too narrow. The claim does not contain any formulas, and there is no otherwise clear implication in the specification that the use of the computer must be based upon pre-existing formulas. Likewise, the fact that many of the dependent claims contain specific formulas to calculate benefit payments and account value (e.g., 4, 8, 14-16, 23, 27, and 32) creates a presumption that Claim 1 is not so limited. See Phillips, 415 F.3d at 1323 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.") Accordingly, the Court construes the phrase "using a computer" as meaning the use of a computer to aid in performing the sub-steps in (b)(1)-(b)(3).

Next, the parties seek construction of "using a telecommunications line" and "using a telecommunications network line," as those terms appear in the preamble to Claims 1 and 6 of the 456 Patent. The standard dictionary definition of "telecommunications" is "the electronic systems used in transmitting messages, as by telegraph, cable, telephone, radio, or television." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE at 1845 (3d ed. 1992). A "network" is "a complex, interconnected group or system." Id. at 1214. A "line" is "a wire or system of wires connecting telephone or telegraph systems." Id. at 1045. Combining the ordinary meanings of those terms, "using a telecommunications line" means "using a system of wires and other components to transmit messages between users by various devices such as telegraph, cable, telephone, radio, or television." Likewise, the ordinary meaning of "using a telecommunications network line" is "using a system of wires and other components to transmit messages among a group of users by various devices such as telegraph, cable, telephone, radio, or television."

Paymentech argues for a limitation that would restrict the definition of both terms to "a caller using a telephone connected to a telecommunications line." (Def. Op. Br. at 7). The court rejects this proposed construction. Nothing in the plain language of the claims themselves requires the use of a standard telephone. Although the specifications contain an example of a consumer accessing the Telepay system by using a telephone, it makes clear that "the present invention can take many forms and embodiments. The embodiments shown herein are intended to illustrate rather than to limit the invention[.]") (Compare Plf. App., Exh. 3 at 38 with id., Exh. 3 at 42). Consequently, the requirement of using a telephone to access a "telecommunications line" or "telecommunications network line" should not be read into Claims 1 and 6 of the 456 Patent. See, e.g., In re American Academy of Science Tech Center, 367 F.3d 1359, 1366 (Fed. Cir. 2004) (rejecting proposed construction limiting claim to use of particular type of device based on reference to that device contained in specification).

This phrase appears in claim 1. See Tang Decl., Ex. A at 12:34-49, Ex. D at 2 (amended Claim 1). Trimble contends that it should be construed to mean "using the computed terrestrial locations obtained during the deviation to define the direction of path or travel actually taken by the vehicle." Defendants, by contrast, contend that the phrase should be construed to mean "using the new positions computed while deviating from the previously computed second path across the area to recompute the second path across the area to be treated."

The phrase "define an updated form line" has already been discussed, and has been construed to mean "recompute a previously computed path across the area to be treated." Since this is the case, the only issue is what the sub-phrase "using the computed positions" means.

The meaning of this sub-phrase is illuminated by looking at the context surrounding the sub-phrase in claim 1. See Tang
Decl., Ex. A at 12:34-49, Ex. D at 2 (amended Claim 1). Prior to introduction of the term "computed positions," the language in claim 1 discusses the process of defining an updated second form line. See id. at Ex. D at 2. As the claim language describes it, a second from line is updated when the operator makes one or more deviations from the second form line while following the second form line, new GPS data is collected during this process, and the data is used to "comput[e] one or more positions therefrom…". See id. Only after positions are computed based on the GPS data collected through the deviation process, according to the claim language, are these "computed positions" then used to define the updated second form line.

From this description, therefore, it is apparent that the sub-phrase "computed positions" refers back to, and is based upon, the collection of new GPS data that occurred while the operator followed the second form line, and deviated from it. "Using computed positions," therefore, should be construed as using those positions that were computed while following and deviating from the original second form line. See also '383 patent specification, Tang Decl., Ex. A at 2:4-12 ("New GPS data is collected during these steps of following and deviating from the second form line (as computed) and new positions are computed from the new GPS data").

As such, and in view of the fact that "form line" has already been construed to mean a "path across the area to be treated," it is therefore clear that, with respect to the disputed term at issue here, defendants are correct. The court therefore construes the term "using the computed positions to define the updated second form line" as: "using the new positions computed while deviating from the previously computed second path across the area to recompute the second path across the area to be treated."

**N. "Using the Network Code to Route the User Communication Through the Packet Communication System to the Network Element"**

Claim 1 of the '561 patent recites the phrase "using the network code to route the user communication through the packet communication system to the network element." Sprint contends that, in accordance with the above constructions of "network code" and "route," this phrase does not require construction and should be afforded its plain and ordinary meaning. Vonage contends that this phrase should be construed to mean using the logical address identifying the network element to deliver the user communication through the packet communication system to the egress network element.

Vonage contends that this claim construction is warranted, first, given the proper constructions for "network code" and "route." For reasons described previously, the court will construe these claim terms to have the same meaning and scope as set forth above. Additionally, Vonage contends that the phrase "the network element" plainly refers to an antecedent network element, which is the element that provides egress from the packet communication set forth in the second limitation of claim 1. The court agrees. Claim 1 recites a method of operating a processing system which comprises, among other things, a second limitation of "processing the signaling message to select a network code that identifies a network element to provide egress from the packet communication system" (emphasis added) and a fifth limitation of "using the network code to route the user communication through the packet communication system to the network element" (emphasis added). Plainly, this claim language envisions that "the network element" recited in the fifth limitation is the network element initially recited in the second limitation. As such, it is indeed the egress network element. Accordingly, the court construes the phrase to mean using the logical address identifying a network element (which network element provides an exit from the packet communication system) to direct the user communication through the packet communication system by a selected route or in a specified direction to the network element that provides an exit from the packet communication system.

**C. Indefiniteness of Claims 6, 9, 10, and 13 of the ‘432 Patent**

MicroStrategy also appeals the district court's grant of summary judgment that claims 6, 9, 10, and 13 of the ‘432 patent
were indefinite and, therefore, invalid under 35 U.S.C. § 112, P 2. According to the district court, the claims were indefinite since the word "using" in the phrase "the client system using and transmitting the retrieved information to the at least one web server" lacked an object, and there was more than one plausible way to correct the error (i.e., by adding an object or deleting the phrase "using and"). MicroStrategy contends this was error, and that the district court should have instead construed "the retrieved information" to be the object of both "using" and "transmitting."

In determining that the claims were indefinite, the district court relied on Novo Industries, L.P. v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed. Cir. 2003), in which we held that a court can only correct an error in a patent if "(1) the correction is not subject to reasonable debate based on the consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims."

MicroStrategy does not dispute that the inclusion of the phrase "using and" in the claims was erroneous, nor does MicroStrategy dispute that there is more than one plausible way to correct this error. MicroStrategy does, however, dispute that this renders the claims indefinite. According to MicroStrategy, even with the error uncorrected, the claims are not "insolubly ambiguous" and are, therefore, subject to construction and not indefinite.

In making this argument, MicroStrategy relies on Bancorp Services, L.L.C. v. Hartford Life Insurance Co. in which we stated:

[I]f [a] claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness. That is, if the meaning of the claim is discernible, "even though . . . the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." . . . [C]lose questions of indefiniteness in litigation involving issued patents are properly resolved in favor of the patentee."

359 F.3d 1367, 1371 (Fed. Cir. 2005) (citations omitted). However, the argument MicroStrategy advances, i.e., construing "the retrieved information" to be the object of "using," is the same as one of the corrections considered and correctly rejected by the district court. MicroStrategy's argument does no more than identify a second way to cope with an otherwise indefinite claim term. To credit MicroStrategy's argument would eviscerate our holding in Novo Industries. We decline to do so. Simply put, MicroStrategy cannot make an end run around Novo Industries.

Moreover, even if we were to adopt MicroStrategy's proposed construction and construe "the retrieved information" as the object of "using," the claims would still be indefinite. Although MicroStrategy asserts that "using" and "transmitting" mean the same thing, our case law instructs that different claim terms are presumed to have different meanings. CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000) ("In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings."); Applied Med. Res. Corp. v. U.S. Surgical Corp., 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) ("[T]he use of two terms in a claim requires that they connote different meanings . . ."). Here, there is no evidence that the terms have the same meaning. Therefore, "using the retrieved information" must be presumed to mean something other than "transmitting the retrieved information."

However, without some information in the patent or its prosecution history about the way in which the retrieved information is being used, or for what purpose it is being used, we are unable to discern what that meaning is. Accordingly, even if we were to construe "the retrieved information" to be the object of "using," claims 6, 9, 10, and 13 of the '432 patent would still be indefinite. As such, the district court's grant of summary judgment of invalidity of these claims was not in error.

B. The '863 Patent - Claim 17

Claim 17 provides:

A method of distributing audio/video information comprising:

  formatting items of audio/video information as compressed digitized data at a central processing location;

  transmitting compressed, digitized data representing a complete copy of at least one item of audio/video information from
the central processing location;

    receiving the transmitted compressed, digitized data representing a complete copy of at least one item of audio/video
information, at a local distribution system;

    storing the received compressed, digitized data representing the complete copy of at least one item at a local distribution
system; and

    using the stored compressed, digitized data to transmit a representation of at least one item to at a plurality of subscriber
receiving stations coupled to the local distribution system;

wherein the formatting step comprises:

    inputting an item having information into the transmission system; assigning a unique identification code to the item
having information; formatting the item having information as a sequence of addressable data blocks; and

    compressing the formatted and sequenced data blocks.

For Claim 17, the parties only dispute the proper construction of the phrase "using the stored compressed, digitized data to
transmit a representation."

First, the Court applies its constructions of Claim 14 of the '863 Patent and Claim 19 of the '992 Patent to the corresponding
terms of Claim 17. Second, even though the phrase "using the stored compressed, digitized data to transmit a
representation" is grammatically awkward, the Court construes it as follows:

The phrase "using the stored compressed, digitized data to transmit a representation" means "transmitting a copy of the
stored compressed digitized data.

P. "the usual driver for the input/output [storage] device"

Claim Fourteen of the '399 Patent and Claim Eighteen of the '449 Patent both use the phrase "the usual driver for the
input/output [storage] device" as follows:

    regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device,
responding to the inquiry from the host device by the interface device in such a way that it is an input/output device
customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver
for the input/output device . . . .

'399 Patent, col. 14:51-57 (emphasis added); '449 Patent, col. 14:22-28 (same, but referring to a storage device and not an
input/output device). The Camera Manufacturers assert that the phrase is indefinite because it has no antecedent basis, but to
the extent that the phrase can be construed, it should be construed to mean the driver normally present in most commercially
available computers at the time of the invention. Papst contends that "usual" modifies "input/output device" or "storage
device" and not the term "driver." Thus, Papst seeks to construe the phrase as "a software driver that is normally used by the
computer to communicate with the customary hardware device." Papst's proposal fails to follow the English language. The
analysis is the same as the analysis of the phrase "the driver for the input/output [storage] device customary in a host
device" discussed above. In Claim Fourteen of the '399 Patent, the phrase "the usual driver for the input/output device"
means "the customary driver(s) in a host device used to communicate with customary internal and external input/output
device(s), which driver(s) were normally present within the chassis of most commercially available computers at the time of
the invention." In Claim Eighteen of the '449 Patent, the phrase "the usual driver for the storage device" means "the
customary driver(s) in a host device used to communicate with customary internal and external storage device(s), which
driver(s) were normally present within the chassis of most commercially available computers at the time of the invention."
D. "Utilized By Said Browser To Identify and Locate"

What is the browser supposed to do once it knows of some type information associated with the object? The claim says the type information is "utilized by said browser to identify and locate an executable application external to the first distributed hypertext media document." '906 Patent, col. 18, ll. 20-23. Microsoft asks that I clarify the meaning of this phrase to ensure that it is the browser, not the operating system, that does the "heavy lifting" of utilizing, identifying and locating.

1. The Claim

The claim certainly says that it is the browser, and not any other code, that utilizes the type information to identify and locate the executable application. I read the claim language to mean that the browser identifies and locates the executable application and that it is able to perform these functions because it is armed with the knowledge of type information. Professor Felten agreed that the browser must do the identifying and locating. Felten Cross-Examination, October 25, 2000, Tr. at 149. The question is whether the browser can delegate this function to an outside resource. In other words, can the browser ask the operating system, or perhaps some shared utility, to help it identify and locate an executable application?

Persons skilled in the art define code by its function. Professor Dunsmore, for example, testified that he thinks of browsers and operating systems as defined by functionality. Dunsmore Cross Examination, October 26, 2000, Tr. at 256. Sometimes it is easy to draw a line between browsers and other pieces of code. Functions that are unique to a web browser (e.g., understanding HTML) are considered a part of the browser. Id. However, componentization allows for shared functionality -- the lines begin to blur. When asked to identify when a shared function could be considered part of the browser, Professor Dunsmore said it was a tough question. He hypothesized three possibilities: 1) code is part of the browser; 2) the browser invokes some component; or 3) the operating system is asked to perform the function for the browser. Id. at 257. Professor Felten also acknowledged the difficulty in articulating the minimum amount the browser must do for it to be characterized as performing the functions of identifying and locating. Felten Cross-Examination, October 25, 2000, Tr. at 149. However, I believe that experts are able to make such a judgment when presented with specific code.

The claim language assigns the functions of identifying and locating the executable application to the browser. Whether the browser is performing these functions in any given permutation is a question of fact.

2. The Specification

In a preferred embodiment in the specification, the browser, not the operating system, identifies and locates the executable application. However, the browser does not work alone. The specification makes clear that the inventors contemplated the browser's use of some outside resources. Microsoft agrees that operating systems are always involved on some level, and Microsoft also agrees that the specification discloses the use of outside resources. Microsoft does not propose a claim construction that would entirely preclude the browser from using the operating system or some external resource. In the specification, the browser, armed with the type information, consults a user-defined list of application type/application pairs, such as the MIME (Multipurpose Internet Mail Extensions) database. '906 Patent, col. 15, ll. 13-18. The parties agree that the MIME database is external to the browser. Microsoft's position is that this embodiment is consistent with its construction because it is the browser that consults the MIME database, and it is the browser that uses the MIME database to learn the application type. This example is also consistent with Eolas's broad definition of "utilize" -- to put to use. The browser puts the type information to use by taking it to some outside resource and then using the resource to identify and locate the executable application. This is exactly what the claim language says is supposed to happen.

The parties' dispute over this term appears to be more properly viewed as an infringement question than a claim construction issue. One infringement question will be whether Microsoft's browser, Internet Explorer, identifies and locates executable applications. This is not a question I can answer, yet. All I can decide is that the claim language means what it says, the functions must be performed by the browser.

3. The File History
By arguing that both Khoyi and Koppolu-OLE were different because they were operating system-dependent, the inventors highlighted the difference between having the browser link an object type to an application and using OLE's CLASSID to perform that function. In Khoyi, according to the inventors, "the object managers for different data types are coordinated by the operating system so that each type of displayed data is rendered by its associated object manager, the actual linking operations are coordinated by the operating system." File History, Paper # 14, p. 14. In attempting to overcome the Koppolu-based rejection, the inventors said the same thing: "the actual linking mechanism between the container document and the containee server application is coordinated by the operating system's registry database." File History, Paper # 19, p. 9. I read the inventors' argument as saying not just that the operating system maintains a registry that a browser can use, but that in OLE, it is the operating system itself that performs the linking function. This is different than the invention.

The claim language, the specification and the File History all suggest that the functions of using type information to identify and locate the executable application must be performed by the browser. No one suggests that the browser must do it alone, and I do not construe the claim to require that. However, I accept Microsoft's construction that, as a factual matter, one must be able to characterize the browser as doing the heavy lifting, which is what it does in the specification. Neither the claim nor the specification give adequate guidance as to what heavy lifting may be because neither had a need to address the issue. This is not surprising. "Utilize" is a common English word, and there is no evidence of a particular meaning it may have to those skilled in the art.

This does not mean the question is unanswerable, it merely means the answer lies in specific factual contexts. This is evidenced by both experts' inability to articulate a definition in the abstract. A careful examination of code would be necessary to decide what the browser is utilizing and how it is utilizing it. Framing this as a claim construction question, Eolas took the view that "by said browser" did not exclude some use of the operating system, probably because it viewed Microsoft as contending that the browser must do it all by itself. Microsoft did not take this position. It conceded that the operating system was necessarily a part of the browser's arsenal. Microsoft stood on the proposition that the browser had to do the heavy lifting in contrast to OLE, where the operating system performs the enumerated functions. Beyond this, both sides left the specifics undeveloped. Therefore I am left to simply construe the claim language to mean what it says, the functions of utilizing the type information to identify and locate the executable application must be performed by the browser, not the operating system as in Koppolu's OLE.

III. Conclusion

A. An "executable application," as used in the '906 Patent, is any computer program code, that is not the operating system or a utility, that is launched to enable an end-user to directly interact with data.

B. "Type Information" may include the name of an application associated with the object.

C. "Utilized by said browser to identify and locate" means that the enumerated functions are performed by the browser. This is a fact-intensive inquiry.

4. "utilizing an output from the rules engine to determine if intervention is warranted"

Plaintiff proposes "using information generated by the rules engine to determine if intervention is warranted to manage the care of an individual patient." Defendants propose "using information generated by the rules engine at the remote command center to determine if intervention is warranted." Each side adds one phrase to its proposed meaning that the other side disputes. Plaintiff proposes "to manage the care of an individual patient" and defendants suggest "at the remote command center." The Court disagrees with both proposed constructions.

First, plaintiff's additional language is unnecessary and redundant. As will be set forth below, at plaintiff's urging, the Court will construe the claim term "intervention" to include the phrase "manage the care of an individual patient." (See, infra, § III.B.6.) Thus, there is no need to repeat the same language a second time here.

We also decline to accept defendants' suggestion to add language about the remote command center. The claim terms refer
to the remote command center in reference to where patient data is sent (i.e., "communicating over a network the monitored patient data elements to a remote command center.") The remote command center is also referenced in the "wherein" clause where monitoring determines if intervention is warranted. The claim terms at issue here, which deal with a rules engine and determining if intervention is needed, do not reflect that the "utilizing" step should occur at the remote command center. We, again, decline defendants' suggestion that sections of the "wherein" clause be cut and pasted to other unrelated claims in order to narrow the claim language. "Utilizing an output from the rules engine to determine if intervention is warranted" is construed as: "using information generated by the rules engine to determine if intervention is warranted."

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Utilizing metadata from the metadata database

JuxtaComm contends this term does not require construction or should be construed as "using metadata from a metadata database." JuxtaComm contends its construction is supported by the plain and ordinary meaning. In their briefing, Defendants contended the term should be construed to mean "accessing the logical import and export data interfaces and data transformation rule sets from the metadata database during execution of a script." At the hearing, Defendants offered the following modified construction: "accessing the logical import and export data interfaces and data transformation rule sets and scripts from the metadata database during execution of the script processor." Defendants contend their construction is required by the prosecution history.

According to Defendants, the applicants argued that accessing metadata while a script is being executed allows the source and target data structures to be modified without having to regenerate the entire script. This allows the claimed invention to be more flexible than Morgenstern. Also, according to Defendants, the applicants argued that in Morgenstern the transformation was performed without accessing the metadata, whereas the '662 patent uses instructions in the script to identify and access metadata items when the script is executed.

The Court disagrees with Defendants' characterization of the prosecution history. The entire phrase indicates that nothing more than a script is being accessed during run-time. The primary distinction being made by the applicants in their remarks was that Morgenstern does not disclose a script processor that accesses metadata (i.e., a script) from the database when data transformation is to occur. That is, the script processor executes a script stored in the metadata database to convert data. Instead, Morgenstern uses a pre-built transformer engine 66 that is activated when data transformation is to occur. In other words, there is no "intermediate" program structure that converts the script commands to executable code. There being no such structure in Morgenstern, there necessarily is no metadata database to access to load a script when data transformation is to occur.

The specification describes that: "Scripts 55 must be defined to control data movement into and out of the system, and to control data transformation within the system." Col. 5:65-67. Thus, scripts are identified as the metadata being "utilized." The requirement that the script processor access the database for data transformation is inherent in the claim language itself ("utilizing metadata . . . to control data transformation within said systems interface . . ."). Thus, when data transformation is to occur, a script from the database is accessed for use. Col. 7:19-20 ("Finally, in step 80, the user initiates the script processor 37 to execute the script."). The prosecution history does not support Defendants' version of the limitations imposed by the applicants' remarks. Rather than indicating that the phrase means that the metadata items are accessed by the script processor during execution of a script, the remarks only point out that Morgenstern does not use a script of commands that is pulled from a database and converted by a script processor program to a form for execution by a computer processor.

Defendants' construction also is inconsistent with the specification. Defendants' construction has the script processor accessing the data transformation rule sets, whereas the specification and claim 9 indicate that the rule set processor accesses the database to obtain the data transformation rule sets. See col. 4:32-37; 4:45-48; 7:16-18.

Finally, Defendants' proposed construction is inconsistent with the claim language. The claim indicates nothing more than that the script processor utilizes script metadata obtained from the database during data transformation. Defendants' construction, however, indicates that other metadata (data interfaces and data transformation rule sets) are accessed.

Accordingly, the Court construes the term as "using metadata from a metadata database."
B. VGA (VIDEO GRAPHICS ARRAY)

The '788 patent treats the term "VGA" as an abbreviation for "Video Graphics Array":

The present invention relates generally to a USB (Universal Serial Bus) to VGA (Video Graphics Array) converter, and in particular to a USB-to-VGA converter connectable between a USB port of a computer and a VGA display device.

'788 patent at 1:6-9. The parties propose the following constructions:

<table>
<thead>
<tr>
<th>Term</th>
<th>Display Link's proposed construction</th>
<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA</td>
<td>Video Graphics Array, the technology described in IBM Corporation, Personal System/2 Hardware Interface Technical Reference (1988 and as updated in 1991) and in IBM Personal System/2 and Personal Computer BIOS Interface Technical Reference (1991).</td>
<td>VGA has an ordinary and customary meaning to a person of ordinary skill in the art. VGA generically refers to all video display standards compatible with any 15-pin VGA port/plug.</td>
</tr>
</tbody>
</table>

Thus, the parties dispute whether the term "VGA" as used in the patent is a generic term that covers many forms of video display standards compatible with a distinctive port/plug or is a term that is defined by the VGA standard set forth by IBM.

VGA technology was developed by IBM in the late 1980s. Min decl. at P25. This technology allowed computer displays to offer better resolution, an increased color palette, and the ability to simultaneously display more colors than previous adaptors. Jones decl. at P11. Notably, the VGA standard has a resolution of 640-by-480. The details of the VGA graphics architecture are described in a series of Technical Reference Manuals published by IBM in 1988 and updated in 1991. Jones decl. at P10.

After the VGA standard was introduced by IBM in 1989, clone makers introduced into the market a video graphics array specification called super video graphics array or SVGA. In 1990, IBM introduced the eXtended graphics array or "XGA" video graphics array. Today there are many variations of video graphics array specifications on the market, including SXGA, UXGA, and QXGA. All of these video graphics array specifications utilize the 15 prong port/plug and the signals assigned to each of the pins in the connectors are the same as in the original VGA. Min decl. at P 25. However, they differ in the speed of data transmission. According to Dr. Min, certain video graphics array standards are preferred to others. For example, SVGA is a popular graphics array standard. Tr. at 35:22-36:5; 54:4-9.

MCT asserts that because at the time of patenting, other video graphics array specifications existed, including SVG and VGA, the patentee could not have meant for the term VGA to be limited to only VGA technology as described by the 1991 IBM specification. Rather, MCT asserts that VGA is a term that is used generically by persons of ordinary skill in the art to refer to any video graphic array standard that is compatible with the distinctive 15 prong plug/port. MCT asserts that the specific IBM VGA specification was considered sunset technology at the time of patenting and thus the term VGA must encompass more than the IBM VGA specification itself.

MCT asserts that the '788 patent specification supports its proposed construction. Specifically MCT points to the language in the specification that states: "The present invention relates generally to a USB (Universal Serial Bus) to VGA (Video Graphics Array) converter, and in particular a USB-to-VGA converter." '788 patent at.1:6-9 (emphasis added). MCT asserts the term "VGA" is being used in the patent as a general term, meaning that the term is used generically, and not in relation to the specific VGA standard itself. However, "generally" as used in the patent is not modifying VGA but rather the
converter. There is nothing in the specification or claims of the '788 patent that indicates or suggests that the term "VGA" is used generically. The specification and prosecution history do not mention the term "VGA" being compatible with other video graphics array standards, even though these standards were known by a person of ordinary skill in the art at the time the patent was filed.

MCT next asserts that the statement in the patent that the invention can work with any operating system is evidence that "VGA" is a term used generically to cover all video graphics arrays. Specifically, the '788 patent states: "[t]he operation process discussed herein is based on the WINDOWS operation system released by Microsoft Company, comprising the following steps . . . ." Id. at col.3:54-56. At the hearing, Dr. Min testified that as of December 2002, the filing date of the patent, the most current version of Windows available was Windows XP. Tr. at 40:16-19. Dr. Min further testified that Windows XP would not display the 640-by-480 resolution set forth in the IBM VGA standard. Thus, MCT asserts that the patent could not have contemplated limiting the term "VGA" to the standard using only the letters "VGA" as opposed to other standards such as SGV A. However, at the time the patent was filed, other Windows operating systems were known and in use including Windows 95, Windows 98, and Windows 2000. These operating systems would display VGA. Tr. at 88:6-12. The patent language quoted by MCT does not state which Windows operating system is being referenced.

The construction proposed by MCT is circular and, therefore, it is difficult to understand how it would practically be applied. It construes VGA to refer generically to "all video display standards compatible with any 15-pin VGA port/plug." (Emphasis added). In other words, MCT uses "VGA" to define "VGA."

DisplayLink asserts that MCT is trying to grossly expand the scope of its patent. DisplayLink asserts that a person of ordinary skill in the art would understand the term "VGA" to mean the 640-by-480 resolution as set forth in the IBM specifications for VGA. In response to MCT's argument that such a construction would limit the patent to sunset technology, DisplayLink asserts that this argument is irrelevant and that the patent discloses and claims what it claims, not what MCT wishes it to claim. Further, at the hearing, Dr. Min admitted that at the time the patent was filed in 2001, VGA was supported by virtually all personal computers. Tr. at 50:22-51:1. Additionally, DisplayLink notes that at the time the patent was filed, a person of ordinary skill in the art would have known about the SVGA and XGA standards and that these standards would not work on a VGA monitor. Tr. 51:24-52:5; 52:11-19; 53:22-25. Yet, notes DisplayLink, these standards were not even mentioned in the patent or prosecution history of the '788 patent.

DisplayLink notes that in the claims, VGA modifies "signals," "controller," and "plug." See '788 patent at 4:65- 5:15. Thus, asserts DisplayLink, "VGA" must mean something more than a 15 prong plug/port. DisplayLink further notes that MCT's definition of "VGA controller" is a "device that communicates with a display device according to the VGA standard . . . ." Therefore, DisplayLink argues that MCT itself recognizes that the term "VGA" references a standard. Also, DisplayLink notes that Figure 6 in the specification shows an alternate embodiment of the invention. This embodiment does not contain a 15 prong port/plug. Thus, DisplayLink points out, MCT's proposed construction would not cover one of the embodiments of the patent.

DisplayLink notes that Figure 4 provides an illustration of how a host computer issues USB based display signals to a USB controller. Id. at 2:2-10. The patent describes the steps of how the host computer system transmits the USB display signal. Id. at 3:52-65. None of the steps detailed in the patent specification discuss compression. Tr. at 57:21-25. Further, the patent talks about transmitting USB signals directly from the host computer to the display device. '788 patent at 1:41-45. At the hearing, Dr. Min agreed that USB 2.0 could not support a XGA signal without compression and that the '788 patent does not mention any compression. Min depo., vol. 2 at 211:11-212:12, 225:5-7; see also Tr. 55:12-59:22. Specifically, Dr. Min testified:

Q. Now sir, a person of ordinary skill in the art at the time the '788 patent was filed would understand that USB 2.0 did not have the bandwidth sufficient to directly transmit the XGA signals without compression, correct?

A. That's right.

Q. And the patent is entitled USB to VGA converter, correct?

A. That is correct as well.
Q. And this patent does not teach how to transmit an XGA signal to a monitor; correct?

A. That is correct. I mean it doesn't really talk about XGA signal being specifically part of this transmission.

Tr. 58:7-20. Dr. Min further acknowledged that the patent does not teach or reference compression which would be necessary to transmit any of the signals other than VGA. Tr. 59:2-22. He explained that the bit rate demands for Super XGA, Ultra XGA, and Quad XGA are much higher than the bit rate demands of XGA. Tr. at 59:9-12. Like XGA, Dr. Min agreed that those video graphics array standards could not be transmitted without compression. Tr. at 13-19. Thus, asserts DisplayLink, the '788 patent does not teach how to transmit any video graphics array signals except VGA.

The court on balance is persuaded that DisplayLink's construction should be adopted. It is undisputed that at the time the patent was filed XGA and SVGA were in existence. Several Windows operating systems available when the patent was filed supported VGA. The patent does not teach, give an example of or even mention a compression limitation which would be necessary in order to transmit signals for display other than VGA. The court, therefore, believes that a person of ordinary skill in the art reading the '788 patent at the time it was filed would have understood the term VGA to refer to the specification set forth in the IBM VGA technical references. This does not mean that products using other standards are not essentially identical or equivalent. But that seems more properly a question of infringement as opposed to one of claim construction.

The court does recognize that a review of the intrinsic evidence and a consideration of Dr. Min's testimony about the state of the art at the time leaves unanswered the troubling question as to why the patent would claim an invention that only covered "sunset technology." However, even if the court found (which it does not) that the intrinsic evidence rendered the claim equally susceptible to a broader and narrower interpretation, the narrower interpretation should be adopted. See Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335,1344 (Fed.Cir. 1998) (pointing out that the applicant has the burden to particularly point out and distinctly claim the subject matter of the invention).

Accordingly, the court construes the term "VGA" as follows:


The VGA controller of the '788 patent refers to a device positioned between the bridge and the display device. '788 patent Fig.1. The parties propose the following constructions:

<table>
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<th>MCT's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA Controller</td>
<td>Component(s) that controls the routing of VGA signals pursuant to the VGA standard and communicates with the bridge in the signal form understood by the bridge.</td>
<td>Device that communicates with a display device according to the VGA standard</td>
</tr>
</tbody>
</table>

MCT asserts that its proposed construction is consistent with the intrinsic evidence and that DisplayLink's proposed construction improperly includes the term "routing," which MCT argues is not supported by the intrinsic evidence. Like "USB Controller" discussed above, DisplayLink asserts that the VGA controller does more than merely communicate with the bridge and the display device; it controls the routing of VGA signals to the display device.
Claim 1 of the ’788 patent claims "a VGA controller disposed external to the computer and adapted to connect to the display
device for conveying VGA signals to the display device." Id. at 4:65-67. Claim 1 further provides that the VGA controller
receives signals from the bridge and "in turn applies the VGA signals to the display device." Id. at 5:10-11. The
specification of the ’788 patent states that the "[t]he VGA controller is connectable to a display device 300 whereby the
USB-to-VGA converter 100 provides a signal conversion and connection between the host computer 200 and the display
device 300." Id. at 2:29-32. The specification additionally states that "[t]he VGA controller [after receiving VGA signals]
forwards the VGA signals to the display device 300 for display by the display device." Id. at 2:38-40. Thus, the claim
language and the specification support DisplayLink's proposed construction that the "VGA controller" controls the routing
of VGA signals to the display device. Accordingly, the court construes the term "VGA controller" as follows:

A "VGA controller" is a component or components that control the routing of VGA signals pursuant to the VGA standard.

23 The ’164 patent, claims 3 and 16.

24 "In steps 41 (End of File) and 42, the process of the computer programmed in accordance with the present invention is
completed and the program exited from. At this point the user 3 has either confirmed that the code(s) for which payment is
requested are valid or have been modified to become valid or have been pending so that more information may be obtained
by the user 3 from the physician or his or her billing entity to aid in processing the claims." (’164 patent, col. 10, ll. 8-16) It
is axiomatic that the same claim term must be construed consistently throughout a patent's claims. Phillips, 415 F.3d at
1314. The parties agree that this construction applies to the claim limitation in other claims. The court finds no reason to
deviate from this construction in this claim.

9 The Specification of the ’347 Patent states, in relevant part, that "[a] utility operating on the service processors will give
the user a report of all the non-valid (out of sync) tracks." ’347 Patent, Col. 8, ll. 38-40.
Indeed, in order to provide for efficient error recovery, which is one purpose of the subject invention, each indicator must provide a fairly certain suggestion of whether each data element stored on each respective data storage system has been correctly stored. Such an indication does not simply mean that the data is consistent between the two storage systems. For example, if an indicator on the first data storage system indicates that the data stored there is valid that indication, alone, is not a sign that the data is consistent between the first and second data storage systems. Rather, it indicates that the data has been correctly stored to the first data storage system. It is only if the second indicator provides an indication that the data is valid that the term "valid" become synonymous with consistent.

Similarly, where the first data storage system is write disabled such that the data must be copied, in the first instance, to the second data storage system, the second data storage system may indicate that a particular data element is invalid on the first system but valid on its own system. The latter indication does not signify consistency between the two systems, because, as previously described, the first data storage system is write disabled. These examples illustrate that the term "valid" is not simply a synonym of "consistent" but must be construed in accordance with its broad plain meaning, i.e. correctly stored in a particular data storage system.

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F. "validating," "verifying," and the "variations thereof" as they appear in the patent in the context of the verification process

The magistrate judge recommended that the terms "validating," "verifying," and the "variations thereof" in the context of the verification process be construed as "the process used for comparing the UTID generated by an originator and the amount of the transaction to confirm the identity of the originator and the transaction related thereto." First Report at 6, 12. The magistrate judge reasoned that the UTID must be generated by an "originator" based on arguments made by VLMachine to distinguish prior art during prosecution. See id. at 5-6. The magistrate judge quoted extensively from the Petition Statement to support his proposed claim construction:

[None of the prior art patents] provid[ed] a validated electronic commerce transaction wherein a [UTID] is generated by an originator and ultimately, the electronic commerce transaction and its associated identifier are returned to the originator to provide for validation of the electronic commerce transaction prior to completion of the transaction. Neither [do prior patents disclose] a process for returning the identifier to the originator by a [TA] validating the identity of the originator and determining where to return the electronic transaction and identifier based on the validation.

First Report at 5 (emphasis added). Both parties have filed objections to the magistrate judge's proposed claim construction of "validating," "verifying," and the "variations thereof" in the context of the verification process. As the parties' objections at times overlap, the court will consider the objections in tandem.

Plaintiffs object that the magistrate judge's proposed definition of "verifying," "validating" and "variations thereof" is "unduly restrictive" in that it: (1) "requires generation of the UTID by the originator rather than allowing for the UTID to be optionally generated by the TA, as specifically taught by the specification," and (2) "specifically requires the 'amount of the transaction' rather than a more generic reference to 'transaction content.'" Pl. Obj. to First Report at 9. In light of these objections, Plaintiffs propose two changes to the magistrate judge's proposed definition: (1) the deletion of the requirement that the UTID be "generated by an originator" and (2) the addition of "or" between the UTID and transaction data followed by replacing "amount of the transaction" with "transaction content." Id. at 9-13. Plaintiffs' proposed definition of "verifying," "validating" and "variations thereof" in the context of the verification process is: "The process used for comparing the UTID and/or the transaction content to confirm the identity of the originator and the transaction related thereto." Id. at 9.

Visa similarly objects to the magistrate judge's inclusion of the term "amount of the transaction" in his recommended construction of the terms "validating," "verifying," and "variations thereof." Visa asks the court to define the terms "validating" and "verifying" in keeping with the specification and file history as: "The process used for comparing (a) the UTID that is generated by an originator and associated with a transaction with (b) the record of UTIDs for transactions
generated by the originator, to confirm the identity of the originator and the transaction related thereto." Def. Obj. to First Report at 8.

1. "generated by an originator"

a. Plaintiffs' Objections

In support of their contention that "generated by the originator" should be deleted from the magistrate judge's proposed claim construction of "validating," "verifying," and "variations thereof," Plaintiffs make several arguments. First, Plaintiffs point to the alternative embodiment in the specification in which the UTID is generated by the transaction administrator. Id. at 10 (citing '878 patent, col. 6 lines 61-62) (“In the alternative embodiment parties other than the originator may create the UTID, for example the TA[.]”); id. (citing '878 patent, col. 7 lines 15-16) (noting that the UTIDs in the system shown and described in Figures 7 and 8 are "created by the processor" which is part of the TA's computer system). Plaintiffs further contend that the magistrate judge erred in relying on the prosecution history because the examiner did not similarly read the specification to require that the UTID be generated by the originator in claim 50. Instead, Plaintiffs argue, the examiner failed to specify how the UTID was generated in connection with claim 50, and thus the examiner intended that claim 50 encompass the alternative embodiments from the specification where someone other than the originator generates the UTID. Id. at 11 (“If the Court adopts the Recommendations' requirement that the originator must always generate the UTID, the embodiment described in the specification and set forth in claim 50 will be erased.”). Additionally, Plaintiffs argue that the Petition Statement relied upon by the magistrate judge does not declare "that only the originator can generate the UTID or that generation by the originator is necessary to distinguish the invention over the prior art." Pl. Obj. to Second Report at 12 (original emphasis). Therefore, Plaintiffs argue, the Petition Statement "does not amount to 'words or expressions of a manifest exclusion or restriction.'" Id. at 12. Finally, Plaintiffs argue that the magistrate judge erroneously "read into the claims a limitation that is simply not there." Id. at 10-11.

b. Visa's Response to Plaintiffs' Objections

In response to Plaintiffs' objections, Visa contends that the magistrate judge properly concluded that the UTID must be generated by an originator based on the applicants' own Petition Statement, wherein VI Machine described various prior art references and explained why their invention was allowable over those references. See Def. Resp. to Pl. Obj. to Second Report at 11. According to Visa, “[b]y identifying a UTID 'generated by an originator' as one of the features that distinguished their invention over the prior art, the applicants gave up other embodiments in which the UTID was generated by an entity other than the originator.” Id. 9 Visa also points to the "Summary of Invention" which described the electronic transaction as including "a unique transaction identifier that has been generated by the originator[.]" Id. at 6.

9 In further support of the magistrate judge's proposed claim construction requiring that the UTID be generated by an originator, Visa contends that "[t]he disclaimer is even more apparent when one looks at the prior art the applicants were distinguishing. Two prior art patents discussed by the applicants in the Petition -- Brachtl and Tamada -- disclosed other methods of generating the UTID . . . By arguing that the UTID, in the context of the '878 patent, is generated by an originator, the Petition Statement expressly distinguished the UTID from the 'first authentication code' in Brachtl and the 'confirmation data' of Tamada." Id. at 11-12 n.5.

As to Plaintiffs' argument that an alternative embodiment in the specification allows for the TA to generate the UTID, Visa argues that an alternative "embodiment described in the specification can be disclaimed during prosecution." Id. at 12 (citing Springs Window Fashions LP v. Novo Industries LP, 323 F.3d 989, 996 (Fed. Cir. 2003) ("[W]e have adopted claim constructions excluding an embodiment when the prosecution history requires the claim construction because of disclaimer.")). With regard to Plaintiffs' contention that the Petition Statement "does not amount to 'words or expressions of a manifest exclusion or restriction'" (see Pl. Obj. to Second Report at 12), Visa argues that the doctrine of prosecution disclaimer does not require an express statement that a particular embodiment is the "only" or "necessary" embodiment. "Rather, the prosecution statement need only be 'clear and unmistakable' in stating the point of distinction between the claimed invention and the prior art." Def. Resp. to Pl. Obj. to Second Report at 13 (citing Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325-26 (Fed. Cir. 2003)). Visa also asks the court to reject Plaintiffs' argument that the magistrate
judge erroneously "read into the claims a limitation that is simply not there." See Pl. Obj. to First Report at 10-11. Visa states that the recommended constructions relate to the terms "verifying" and "validating," which literally appear in relevant phrases of the claims. These words appearing in the claims provide the "textual reference in the actual language of the claim with which to associate [the recommended] claim construction." Def. Reply. to Pl. Obj. to First Report at 17 (quoting Johnson Worldwide Assocs. v. Zebo Corp., 175 F.3d 985, 990 (Fed. Cir. 1999)). According to Defendants, Plaintiffs "put the public on notice during prosecution that '[t]he pending claims' and 'claimed invention' recited 'a method for providing a validated electronic commerce transaction wherein a unique transaction identifier is generated by the originator.'" Id. (quoting Petition Statement). Based on the doctrine of prosecution disclaimer, "when statements in the prosecution history require a particular construction of a claim term, the term must be construed to exclude the disclaimed subject matter, even when the specific words describing the exclusion do not appear in the claim language." Id. at 17-18.

c. Discussion

Federal Circuit precedent establishes that when statements in the prosecution history require a particular construction of a claim term, the term must be construed to exclude the disclaimed subject matter. See generally N. Am. Container v. Plastipak Packaging, Inc., 415 F.3d 1335, 1345 (Fed. Cir. 2005) (to overcome an obviousness rejection, applicant distinguished his invention based on prior art disclosing "slightly concave" inner walls; the "inescapable consequence of such an argument in that the scope of applicant's claims cannot cover inner walls that are "slightly concave"); Seachange Inf't, Inc. v. C-Cor Inc., 413 F.3d 1361, 1373 (Fed. Cir. 2005) ("Where an applicant argues that a claim possesses a feature in order to overcome a prior art rejection, the argument may serve to narrow the scope of otherwise broad claim language."); Innova/Pure Water, 381 F.3d at 1117 ("Because the inquiry into the meaning of claim terms is an objective one, a patentee who notifies the public that claim terms are to be limited beyond their ordinary meaning to one of skill in the art will be bound by the notification, even where it may have been unintended."); Omega Eng'g, 334 F.3d at 1323-24 ("[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender."); Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325 (Fed. Cir. 2002) ("Explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations because the public has a right to rely on such definitive statements made during prosecution.") (internal quotations and citation omitted). In Phillips, although recognizing that the prosecution history "often lacks the clarity of the specification and thus is less useful for claim construction purposes[,]" the court went on to state: "Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. (citing Vitronics, 90 F.3d at 1582-83).

The magistrate judge, after considering the Petition Statement and the doctrine of prosecution disclaimer, as well as the specification, correctly determined that by identifying a UTID "generated by an originator" as one of the key features that distinguished their invention over prior art, Plaintiffs surrendered other embodiments in which the UTID was generated by another entity. The Petition Statement unequivocally states that "the pending claims" and "the claimed invention" are distinguished their invention based on prior art disclosing "slightly concave" inner walls; the "inescapable consequence of such an argument in that the scope of applicant's claims cannot cover inner walls that are "slightly concave"); Seachange Inf't, Inc. v. C-Cor Inc., 413 F.3d 1361, 1373 (Fed. Cir. 2005) ("Where an applicant argues that a claim possesses a feature in order to overcome a prior art rejection, the argument may serve to narrow the scope of otherwise broad claim language."); Innova/Pure Water, 381 F.3d at 1117 ("Because the inquiry into the meaning of claim terms is an objective one, a patentee who notifies the public that claim terms are to be limited beyond their ordinary meaning to one of skill in the art will be bound by the notification, even where it may have been unintended."); Omega Eng'g, 334 F.3d at 1323-24 ("[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender."); Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325 (Fed. Cir. 2002) ("Explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations because the public has a right to rely on such definitive statements made during prosecution.") (internal quotations and citation omitted). In Phillips, although recognizing that the prosecution history "often lacks the clarity of the specification and thus is less useful for claim construction purposes[,]" the court went on to state: "Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. (citing Vitronics, 90 F.3d at 1582-83).

Further, the court rejects Plaintiffs' argument that the patent claims should be construed by reference to the patent examiner's statement and subjective intent. It is irrelevand for purposes of examining the prosecution history in this context that the examiner did not specify how the UTID was generated in connection with claim 50, and thus might have intended that claim 50 encompass the alternative embodiments from the specification where someone other than the originator generates the UTID. See Innova/Pure Water, 381 F.3d at 1124 ("It is well settled . . . that it is the applicant, not the examiner, who must give up or disclaim subject matter that would otherwise fall within the scope of the claims."); Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1350 (Fed. Cir. 2004) ("We have stated on numerous occasions that a patentee's statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation."); Laitram Corp. v. Morehouse Indus., Inc., 143 F.3d 1456, 1462 (Fed. Cir. 1998) ("The fact that an examiner placed no reliance on an applicant's statement distinguishing prior art does not mean that the statement is inconsequential for purposes of claim construction.").

The court also rejects Plaintiffs' argument that the magistrate judge erroneously "read into the claims a limitation that is simply not there." Pl. Obj. to First Report at 10-11. The Federal Circuit has "warned against importing limitations from the
specification into the claims absent a clear disclaimer of claim scope." Andersen, 474 F.3d 1361, 1373 (citation omitted); see also Phillips, 415 F.3d at 1323 ("[T]he distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice."). In this case, the court is faced with intrinsic evidence of limitation derived from both the specification and the prosecution history. In light of the Summary of Invention and the Abstract, the court is certain that requiring that the UTID be generated by the originator is using the specification to interpret the meaning of the claim terms, rather than importing limitations into the claims. Even if this were a close call, the prosecution history described above "definitively resolves the question." Andersen, 474 F.3d at 1373 (rejecting patentee's claim that district court imported limitations from specification into the claims based on intrinsic evidence of restriction from specification and prosecutorial disclaimer evident from prosecution history). Based on the foregoing analysis of Plaintiffs' objections, the court overrules Plaintiffs' objection to the magistrate judge's recommendation that the UTID be "generated by the originator." 11

10 The "Summary of Invention" describes the invention as using a UTID that has been generated by the originator. The "Abstract" on the first page of the '878 patent also states that "verification" of a transaction occurs through use of a UTID generated by a purchaser (originator). 11 Visa contends that Plaintiffs, for the first time at the November 5, 2005 claim construction hearing, argued that the magistrate judge's construction of "validating" and "verifying" must be in error because it was inconsistent with the use of the phrases "verifying the identifier for the originator" in claim 15 and "verify the originator identifier" in claim 27. See Def. Resp. to Pl. Obj. to Second Report at 16-17. As Visa correctly notes, the magistrate judge's recommended constructions of "validating" and "verifying" specifically concern "the process of verifying or validation a transaction," which is thereafter referred to as "the validating, verification process." Id. at 16 (quoting First Report at 5-6). The First Report did not construe "validating" and "verifying" as they appear in phrases that concern only verifying the originator identifier, that is, simply verifying that the account exists, without also verifying that the person trying to use the account is truly the account owner. See id. Thus, the court rejects any arguments made by Plaintiffs predicated on inconsistencies between the magistrate judge's recommended constructions of "validating" and "verifying" (which concerned verifying the transaction) the phrases "verifying the identifier for the originator" in claim 15 and "verify the originator identifier" in claim 27. Although the court agrees with Visa that Plaintiffs' arguments should be rejected, the court declines Visa's further request that it define all phrases containing "verify," "validate" and "variations thereof," in the context of the verification of transactions. Id. at 17. The magistrate judge's proposed construction of "verifying" and "validating" and "variants thereof" pertaining to the process of verifying or validating a transaction is clear as it stands. Adopting Visa's suggestion would only create redundancy.

2. "the process used for comparing the UTID generated by an originator and the amount of the transaction to confirm the identity of the originator and the transaction related thereto." (First Report at 6, 12)

a. Parties' Objections

In its next objection to the magistrate judge's proposed construction of "validating," "verifying," and the "variations thereof," Plaintiffs propose the addition of "/or" between the UTID and transaction data and replacing "amount of the transaction" with "transaction content," resulting in "validating," "verifying," and the "variations thereof" being construed as: "The process used for comparing the UTID and/or the transaction content to confirm the identity of the originator and the transaction related thereto." Pl. Obj. to First Report at 9.

In support of the insertion of "/or" between the UTID and transaction content, Plaintiffs refer to certain instances in the '878 patent discussing validation or verification using the UTID "and/or" the "transaction content." Pl. Obj. to First Report at12. Plaintiffs cite to the '878 patent at Figure 4, and note that in box 90 the "TA sends the electronic transaction with UTID and/or transaction content to Originator for validation." Plaintiffs also refer to the '878 patent, column 3 lines 4-6, which defines a "validated transaction" as one in which the "TA validates the entities, facilitates the transaction and/or validates the contents of the transaction by the originator." Based on these instances, Plaintiffs argue that ":[b]y specifying only that the validation is of the UTID 'and' the 'transaction amount,' the Recommendation contradicts the teaching of the specification." Id. (original emphasis). Plaintiffs further argue that the doctrine of claim differentiation supports their suggested changes:

[C]laim 50 only references validation by reference to the UTID -- there is no reference in claim 50 to the "amount of the
transaction" or to "transaction content." Claim 52, which depends from 50, adds the limitation of also validating the "transaction data." If "validation" always includes use of the transaction amount as suggested by the Recommendation, there is no "claim differentiation" between claims 50 and 52. Therefore, the Court should add "/or" and change the "amount of the transaction" to the more generic phrase used in the specification, "transaction content." These two changes make the construction consistent with the specification and claims and ensure that there is differentiation among the asserted claims.

Id. at 12-13.

With regard to the term "amount of the transaction" used by the magistrate judge, Plaintiffs argue that the more generic phrase "transaction content" is appropriate, since the transaction amount is only a specific part of the information related to the internet transaction. "Transaction content" would "implicate not only 'transaction amount,' but also the date of the transaction, description of the goods and services, the merchant at which the order was placed, and the like." Pl. Reply to Def. Obj. to Second Report at 5.

Visa contends that the court should reject Plaintiffs' request to add "/or" and to replace "amount of transaction" with "transaction content" based on the prosecution history and the '878 patent specification. Visa argues that adopting Plaintiffs' requested changes "would have the effect of eliminating the requirement that the UTID be used in the validating/verifying process. Rather, under Plaintiffs' proposed revision, the claim could be satisfied by a process of comparing the 'transaction content,' without using the UTID at all." Def. Reply to Pl. Obj. to First Report at 18. Visa argues that "[t]his result would be contrary to the result required by the specification and by the doctrine of prosecution disclaimer." Id. Visa also points to the specification which provides that "verifying" and "validating" a transaction requires the use of a UTID. The specification states that: "[t]he identifier [UTID] is compared to a listing of generated transaction identifiers at the client [originator]." '878 patent, col. 3 lines 36-39. Visa also contends that Plaintiffs' reference to the '878 patent at Figure 4, box 90 is misleading. Although the box representing claim 90 in Figure 4 does provide that the: "TA sends the electronic transaction with UTID and/or transaction content to Originator for validation," the text in the specification that explains step 90 reads:

If the OID [originator identifier] is valid, the transaction administrator 60 determined the originator associated with the OID, transmits the transaction request and associated data to the originator 50 and requests that the originator validate the transaction request containing the UTID at step 90. The transaction administrator 60 may also validate amounts and credit limits at this time or upon receiving a response for the originator.

Id. (quoting patent '878, col. 5 lines 5-14) (Visa's emphasis). According to Visa, "step 90 in Figure 4 actually supports the Magistrate Judge's conclusion that the use of the UTID is required, and is not an optional choice alongside use of the 'transaction content' for validation purposes." Id. at 19.

While Visa opposes Plaintiffs' proposal to replace the phrase "amount of the transaction" with "transaction content," Visa does agree with Plaintiffs that the magistrate judge's use of the phrase "amount of the transaction" is incorrect, as it appears to require that the UTID for a transaction be compared with the amount of the transaction, which is unsupported by the patent specification. Id. at 19 n.11; see also Def. Obj. to First Report at 8. Visa asks the court to define the terms "validating" and "verifying" as: "The process used for comparing (a) the UTID that is generated by an originator and associated with a transaction with (b) the record of UTIDs for transactions generated by the originator, to confirm the identity of the originator and the transaction related thereto." Def. Obj. to First Report at 8. According to Visa, the magistrate judge's recommended claim construction "does not correctly capture the meaning that he appeared to intend based on his discussion of the issue." Id. Visa's proposed definition removes any reference to "transaction amount" or "transaction content" in the validation and verification process.

b. Discussion

The court first addresses Plaintiffs' objections to the magistrate judge's recommended claim construction insofar as Plaintiffs propose the insertion of "/or" between the UTID and transaction content. To reiterate, Plaintiffs point to certain instances in the '878 patent discussion of "/or" between the UTID and transaction content. To reiterate, Plaintiffs point to certain instances in the '878 patent discussing validation or verification using the UTID "and/or" the "transaction content." Pl. Obj. to First Report at 12. The court rejects Plaintiffs' argument and agrees with Visa that by inserting the "/or," the claim could be satisfied by a process of comparing the "transaction content," without using the UTID at all. Such a construction would be contrary to the specification and the prosecution history. See First Report at 5 (quoting Petition Statement):
[None of the prior art patents] provided a validated electronic commerce transaction wherein a [UTID] is generated by an originator and ultimately, the electronic commerce transaction and its associated identifier are returned to the originator to provide for validation of the electronic commerce transaction prior to completion of the transaction. Neither [do prior patents disclose] a process for returning the identifier to the originator by a [TA] validating the identity of the originator and determining where to return the electronic transaction and identifier based on the validation.

In the Petition Statement, VMachine "clearly and unmistakably" stated the point of distinction between the claimed invention and prior art, namely, a UTID generated by an originator and ultimately a UTID returned to the originator to provide for validation of the transaction.

In further support of inserting "/or," Plaintiffs argue that failure to insert the 'or" would violate the doctrine of claim differentiation, since claim 50 only references validation by reference to the UTID without a reference to the "amount of the transaction" or to "transaction content," whereas claim 52, which depends from claim 50, adds the limitation of also validating the "transaction data." The doctrine of claim differentiation is based on "the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope." Andersen, 474 F.3d at 1369 (citation omitted). "To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between the claims is significant." Id. (citation omitted). The written description and prosecution history, however, may "overcome any presumption arising from the doctrine of claim differentiation." Id. (quoting with approval Kraft Foods, Inc. v. Int'l trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000)). Further, "the doctrine of claim differentiation cannot broaden claims beyond their correct scope, determined in light of the specification and the prosecution history and any relevant extrinsic evidence. . . . [C]laims that are written in different words may ultimately cover the same subject matter." Id. (quoting with approval MultiForm Desiccants, Inc. v. Medzam Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998)); see also Seachange International, 413 F.3d at 1369 (doctrine of claim differentiation is "not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history."). The court determines that the written description and prosecution history overcome any presumption arising from the doctrine of claim differentiation. Based on the foregoing analysis, the court overrules Plaintiffs' objection to the magistrate judge's proposed definition insofar as Plaintiffs propose the addition of "/or" between the UTID and transaction data.

Further, and also based on the prosecution history set forth above, the court overrules Plaintiffs' proposal to replace "amount of the transaction" with "transaction content." In support of this proposed change, Plaintiffs rely on the same references as where the specification describes the use of the UTID "and/or transaction content" as part of the verification and validation process. Again, by choosing to limit the scope of the claimed invention in the Petition Statement, Plaintiffs cannot now seek an expansive interpretation which would effectively allow a claim to be satisfied by a process of comparing the "transaction content," without using the UTID at all.

The court sustains Visa's objection to the magistrate judge's definition of "verifying," "validating," and "variations thereof," as the magistrate judge's insertion of the phrase "the amount of the transaction" is at odds with his analysis. See First Report at 5-6. Visa's proposed claim construction is consistent with the magistrate judge's discussion regarding the prosecution history, and his express recognition that in the Petition Statement, the applicants distinguished their verifying process from that of prior patents. Thus, the court will replace the magistrate judge's proposed claim construction of "verifying," "validating," and "variations thereof," with that proposed by Visa, namely: "The process used for comparing (a) the UTID that is generated by an originator and associated with a transaction with (b) the record of UTIDs for transactions generated by the originator, to confirm the identity of the originator and the transaction related thereto." See Def. Obj. to First Report at 8. 12

12 In response to Defendants' proposed construction, Plaintiffs argue that removal of any references to "transaction content" is "completely inconsistent with the specification and claims. Multiple times the specification describes the UTID and/or transaction content" as part of the verification/validation process." Pl. Reply to Def. Obj. to Second Report at 7. The court rejects Plaintiffs' argument based on prosecutorial disclaimer in the Petition Statement. See supra.

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### A. Claim Construction

On February 16, 2006, the Court held a claims-construction hearing in this matter. See Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The Court considered the '136 Patent and prosecution history, the parties’ Markman briefs, the applicable law regarding, inter alia, claim construction, indefiniteness, and means-plus-function claims, and the argument of counsel. On May 25, 2006, this Court rendered a claims-construction order (Doc. # 292), which construed the terms as following:

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construed Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Debit Card&quot;</td>
<td>&quot;a prepaid card for exchange of value&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the debit card]&quot;</td>
<td>&quot;encrypted data, excluding the card number, stored on the debit card in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Terminal&quot;</td>
<td>&quot;a point-of-sale apparatus, which includes a central processing unit, a card reader, a keypad, and a communications interface&quot;</td>
</tr>
<tr>
<td>&quot;ID information [stored on the terminal]&quot;</td>
<td>&quot;data stored on the terminal in the form of merchant ID, store ID, or terminal ID&quot;</td>
</tr>
<tr>
<td>&quot;Stored thereon prior to the transaction&quot;</td>
<td>&quot;stored on the terminal prior to the consumer presenting the debit card to the merchant&quot;</td>
</tr>
<tr>
<td>&quot;Relates . . . in a predetermined manner&quot;</td>
<td>&quot;prior to a transaction, ID information stored on the debit card and ID information stored on the terminal are capable of being matched&quot;</td>
</tr>
<tr>
<td>&quot;Matching&quot; and &quot;Matched&quot;</td>
<td>&quot;determining whether ID information stored on the debit card and corresponding ID information stored on the terminal are equal or identical&quot;</td>
</tr>
<tr>
<td>&quot;Retrieving via the terminal&quot;</td>
<td>&quot;locating and returning, by means of the terminal, ID information and a card number stored on the debit card&quot;</td>
</tr>
<tr>
<td>&quot;Computer&quot; and &quot;Computer means&quot;</td>
<td>&quot;a data processing device&quot;</td>
</tr>
<tr>
<td>&quot;Transmitting to a computer&quot;</td>
<td>&quot;sending by means of a signal path to a computer&quot;</td>
</tr>
<tr>
<td>&quot;Validation&quot; and &quot;Valid&quot;</td>
<td>&quot;indication of whether the ID information stored on the debit card matches the&quot;</td>
</tr>
</tbody>
</table>

- 4947 -
"Computer means disposed remotely"  "a computer that is located apart from a terminal and connected to the terminal by a signal path"

"Card reader means"  "a device, included as part of a terminal, used for retrieving ID information from a debit card"

"Communication means function"  "transmitting the ID information stored on the debit card and the ID information stored on the terminal to the computer means"

"Communication means structure"  "a modem or a signal path"

"Selected from a group of ID information (Claim 2)  "chosen from one of the following ID information"

n2 "ID," as used throughout this opinion, in whatever context, is shorthand for "identification."

The district court interpreted the "value" of a bid, as used in the patent, to mean the monetary "amount" of the bid, i.e., the...
price offered by the bidder. Bid for Position contends that the term "value" includes equivalents of the monetary amount of the bid. Bid for Position further argues that the Quality Score in the AdWords system is obtained simply through a mechanical conversion of the bid amount (i.e., the Maximum CPC), akin to a currency exchange conversion. Therefore, according to Bid for Position, the "value" of the bid, as that term is used in the '151 patent, includes the Ad Rank that results from adjusting the bid by the Quality Score.

The flaw in Bid for Position's argument is that the order of the bidders' bid amounts, arranged according to Maximum CPC, can be entirely different from the order of the bidders' Ad Ranks. If the conversion of bids to Ad Ranks were simply substitutions of equivalent values, the same order of positions would obtain after the conversions. Instead, the application of the Quality Score creates rankings that have no consistent mapping to the original bids.

Bid for Position is also incorrect in arguing for a construction of "value" that is distinct from the amount or price of the bid. The claim language uses the terms "bid" and "value of the bid" interchangeably, such that the two cannot be read to have separate meanings. Claim 1 recites, in a single subparagraph, the step of "checking for whether a first bid from the first bidder exceeds a second bid from the second bidder," wherein the bidders' relative position of priority "is dependent on whether the value of the first bid exceeds the value of the second bid." '151 patent, col. 14, ll. 15-16, 20-22 (emphases added). Under that formulation, it is clear that checking for whether the first bid exceeds the second bid has the function of determining whether the value of the first bid exceeds the value of the second bid, and thus that there is no distinction between the comparison of "bids" and the comparison of "bid values."

The next step in claim 1 recites "incrementing the first bid to a value exceeding the second bid if the first bid does not exceed the second bid." That step would make no sense if the "value" of the bid for purposes of the patent were different from the amount of the bid submitted by the bidder. It would be meaningless to refer to the "value" of the first bid "exceeding the second bid" if the value of a bid meant something different from the amount of the bid.

The specification supplies further evidence that the terms "bid" and "value of the bid" mean the same thing in the '151 patent. In the detailed description of the first preferred embodiment, for example, the patent provides that a bidder may enter maximum bids into the system and that the system will increase the bidder's lower bids "until they reach desired bidding positions entered by the bidders as long as the bids do not exceed maximum values entered by the respective bidders." The system will ensure relative priority for the bidder "as long as the maximum bid is not exceeded." '151 patent, col. 3, ll. 40-52. As applied to AdWords, the "maximum values entered by the respective bidders" cannot refer to the Ad Ranks, since the bidders do not know what Quality Score the system might assign to their advertisements. Instead, "value," as used in that passage, can only refer to the bid amount, a quantity that the bidders do control.

The same theme is repeated in several of the other embodiments. In the embodiment relating to an auction for a priority position for a website, the specification states that the system "checks for whether the bidder's bid exceeds all other bids in the auction for determining continuing priority for listing the bidder's web page." '151 patent, col. 4, ll. 52-55. Thus, it is the comparison of the bids (i.e., the bid amounts submitted by the bidders) that determines the position of priority, not the comparison of a separately determined "value" of the bids, as calculated by the system. The specification likewise equates the bidders' bids with the "value" of those bids when it describes an auction for golf tee times as determining priority "based on the relative value of related bids" and checking "for whether the golfer's bid exceeds all other bids in the auction." Id., col. 6, ll. 37-38, 48-49. The same formulation is employed in the description of each of the other embodiments. See id., col. 8, ll. 37-38, 48-50 (in an auction for frequent flyer airline seats, "wherein priority is based on the relative value of related bids," the system "checks for whether the frequent flyer's bid exceeds all other bids in the auction for determining priority for preferred seating"); id., col. 10, ll. 43-44, 55-57 (in an auction for priority position for online vendors, "wherein sales are based on the relative value of related bids," the system "checks for whether the vendor's bid is lower than all other bids in the auction"). In each instance, the "value" of the bid is equated with the bid itself, i.e., the amount of the bid as offered by the bidder.

The consistent use of the term "value" throughout the patent thus confirms that the '151 patent does not read on AdWords with Position Preference, which bases the award of priority on something other than a comparison of the bid amounts. The district court therefore correctly entered summary judgment of no literal infringement with respect to AdWords with Position Preference.
2. "Ion output current reference value"

ITW defines this term as "a value corresponding to a desired ion current output by at least one electrode, the value is used as a reference value." Pl. Revised Proposed Order Regarding Claim Construction at 2. Ion contends it is "a binary number corresponding to an ion current output by at least one electrode; the value is used as a reference value." Def.’s Proposed Order re Claim Construction for the ’756 patent at 3.

The only word is really in dispute is "value." The construction for "value" shall ultimately reflect limitations required by language from the specification. Before incorporating these limitations, however, I will begin by discussing the dictionary definition and the claim language. This process will ensure that the construction does not improperly import limitations from the specification. See Tulip Computers, 236 F. Supp. 2d at 373.

The primary definition for "value" in the New IEEE Standard Dictionary of Electrical and Electronics Terms is "the quantitative measure of a signal or variable." New IEEE Standard Dictionary of Electrical and Electronics Terms (5th ed. 1993). This definition from a technical dictionary resembles the mathematical entry for the word in an ordinary dictionary: "an assigned or calculated numerical quantity." American Heritage Dictionary of the English Language (4th 2000). In light of Texas Digital, these definitions can be construed to suggest the ordinary meaning of the word "value" as understood by one of ordinary skill in the art.

Neither of these two dictionary definitions restricts the numerical representation in question to a binary format. Under existing case law, the claim construction analysis should therefore begin with the presumption that "value" could be binary, but need not be. The practical consequence of such a presumption is that "value" could be binary, meaning digital or software-based, analog, meaning hardware-based, or both binary and analog. It remains only to be determined whether such a definition conflicts with either the claim language or the specification. See Interactive Gift, 256 F.3d at 1331.

Ion makes two sets of arguments for why the ’756 patent's intrinsic evidence conflicts in such a way as to require that "value" always be digital. The first set involves the claim language and the second set concerns the specification.

Ion argues that the claim language requires a narrower construction of the word "value." It points to the word "storing" in the language of claim 17 as evidence that the value must be digitally preserved. The claim language clearly states that the ion output current reference value is stored in "a software-adjustable memory." ITW agrees that the "reference value" is digitally stored. See Markman Hr’g Tr. at 15. Nonetheless, it does not concede that "value," for purposes of the ’756 patent, is necessarily digital. Pl.’s Reply Claim Construction Br. at 10. Rather, ITW argues that the fact that a value is stored digitally does not mean the value itself must originally be digital. Id. at 8-10. ITW argues that nothing in the claim language supports Ion's universal construction of "value" as a digital numerical representation, for no mention is ever made of either a specifically binary or digital value and the fact that a value is stored digitally does not require that the value be digital at the outset. Ion has failed to rebut this argument.

Ion makes two arguments for limitations based on language found within the specification. First, Ion points to language from the specification that both introduces the patent and comments on its preferred embodiment. Ion argues that this language necessarily narrows the dictionary definition of "value" because the specification disavows certain forms that a value can take. If language within the specification disclaims a usage or distinguishes its patent application from prior art on the basis of a different type of use, the claim construction should reflect these self-imposed limitations. See CCS Fitness, 288 F.3d at 1367; SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1340-1341 (Fed. Cir. 2001) (holding that, when the specification clearly disavows a feature, that feature is outside the reach of the claim language even if the language might otherwise be broad enough to encompass the feature in question). It must therefore be determined whether ITW has in fact disclaimed a form or type of value that would otherwise be consistent with the word's ordinary and accustomed meaning.

There are two passages within the ’756 patent that potentially conflict with a definition of value that encompasses both digital and analog numerical representations. The first passage states "instead of using analog-type trim potentiometers, the emitter module uses a digital or electronic potentiometer or a D/A converter. The balance and ion current values are stored
in a memory location in the emitter module and are adjusted via software control." '756 patent, col. 6:17-22. This language comes shortly after an introduction of the '756 system's "improved capabilities over conventional systems" and is listed as part of the first example of "some of the improved capabilities." '756 patent, col. 6:10-12. These improved capabilities are informed by an earlier section of the patent specification, wherein the drafters distinguished their product from prior art:

Most feedback systems are entirely or primarily hardware-based. Many of these feedback systems cannot provide very fine balance control, since feedback control signals are fixed based upon hardware component values. Furthermore, the overall range of balance control of such hardware-based feedback systems may be limited based upon the hardware component values.

'756 patent, col. 1:54-60. In light of both the prior art and the "improvements" made by the '756 patent, plaintiff cannot now claim that "value" should encompass hardware component values or any value connected to use of an analog-type trim potentiometer. Such a reading would conflict with the plaintiff's own patent specification.

Second, Ion notes that, in the patent's preferred embodiment, the ion output current values are stored digitally. 8 The structures and methods recited in a preferred embodiment, however, do not restrict the range of physical entities covered by a patent to those described in the embodiment. Renishaw, 158 F.3d at 1248. The fact that the preferred embodiment discloses a digital value therefore cannot, by itself, limit a claim's construction.

--- Footnotes ---
8 "The 'preferred embodiment' is a practical, workable example of the invention described by the claims of the patent." Slater Elec., Inc. v. Thyssen-Bornemisza Inc., 650 F. Supp. 444, 450 (S.D. N.Y. 1986). The preferred embodiment is contained within the specification.

--- End Footnotes ---

For these reasons, "value" shall be defined as "any numerical quantity or measure that is not generated by an analog-type trim potentiometer or described as 'hardware component.'" 9 The word "value", for purposes of construing this claim, is to be modified by the ordinary meanings of the words "ion," "output," "current," and "reference." Because "the same term or phrase should be interpreted consistently where it appears in claims of common ancestry," Epcon Gas Sys., Inc v. Bauer Compressors, Inc., 279 F.3d 1022, 1030 (Fed. Cir. 2002) (citing Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 980 (Fed. Cir. 1999)), I will not repeatedly redefine the word "value." See also CAE Screenplates v. Heinrich Fiedler GmbH, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (noting that, ordinarily, the same word in a patent has the same meaning); Georgia Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1331 (Fed. Cir. 2000) (same). Rather, the word "value," for purposes of the '756 patent, retains the same definition throughout.

--- Footnotes ---
9 It may in fact be that any value that is consistent with these limitations is digital. The parties' presentations to the court suggest that a value is either digital or analog. Rather than making an unjustified conclusion on the basis of those introductory materials submitted to the court, I have restricted the claim construction to only those meanings that the specification clearly supports.

--- End Footnotes ---
2. "an associated value representing a desired quality of result" (claims 9 and 23)

Omax proposes that this phrase "means a value that itself represents desired quality of result, and that can be specified by selecting any numeric, verbal, pictorial or other symbol representing such desired quality, (and which value is stored in computer memory, and is a value that a computer mathematically combines, with one or more other parameters which affect(s) the quality of result, to determine motion control commands provided to the machine tool to adjust velocity or acceleration to achieve the desired quality of result)." Omax continues by noting that an "associated value representing a desired quality of result can be expressed as a so-called 'percentage of speed' if it meets the criteria stated above. It cannot, however, be an actual speed stated in distance/time if such speed specification causes the machine tool to move strictly at the specified speed, without adjustment of the speed to achieve the desired quality of result." Flow's proposed construction is as follows: "A single number that directly represents finished surface quality itself; but cannot be a variable that affects the finished surface quality such as a number related to velocity (e.g. normalized speed or percentage speed scale) or material thickness."

The parties' central dispute is how the value that is inputted by the user "represents" the quality of result that is desired by the user. Flow alleges that this claim was plainly defined during the claim prosecution, when Omax differentiated from prior art by declaring:

However, neither Cutler, nor any other cited art, suggests that the number which should be stored should represent finished surface quality itself rather than any one of many factors which contributes to surface quality. In the claimed invention, a single value is stored which value represents directly the quality of result.

FLO 2268-69. Therefore, Flow argues, the absence of the word "directly" in Omax's proposed construction, and their effort to include "normalized speed" in their definition, is an effort to retrieve ground lost during claim prosecution. Schriber-Schroth Co. v. Cleveland Trust Co., 311 U.S. 211, 220-21, 61 S. Ct. 235, 85 L. Ed. 132, 1941 Dec. Comm'r Pat. 802 (1940) ("It is a rule of patent construction consistently observed that a claim in a patent as allowed must be read and interpreted with reference to claims that have been cancelled or rejected, and the claims allowed cannot by construction be read to cover what was thus eliminated from the patent.").

Omax, of course, disputes this characterization of its statement during the prosecution. The context of the disclaimer was the Cutler prior art, which required an operator to enter velocities of the cutter in surface feet per minute and inches of feed per spindle revolution. These velocity values were typically derived in reliance on a chart that proposed different speeds based on desired quality. Omax was attempting to distinguish the previous system by explaining that the value was not a velocity, but rather the quality level itself. It used the word "directly" to emphasize this difference, and not to distinguish its claim from any claim where the input "inferred" quality. There is no unequivocal disavowal of a variable inputted into an equation which infers quality, so long as it is not an actual velocity. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325-26 ("Consequently, for prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable."). Thus, Omax's patent prosecution statement must be construed in the proper context--distinguishing the new method from the Cutler prior art.

The Court is persuaded by Omax's expert's representation that "representing" has no specialized meaning in the art that would require the explicit exclusion of Flow's method. Hutchins's '596 Expert Report at 15 ("[I]t is my opinion that in this context the term 'represents' would reasonably be understood by a person of ordinary skill as meaning 'symbolizes' or 'stands for.'"). In its ordinary and customary meaning, and as used in the claim specification, the "value representing quality of result" is a variable that relates to or infers the ultimate quality of the piece that is cut. It is one of a number of factors included in a formula that ultimately dictates how the cutting head behaves.

Pursuant to the rules of claim construction, the Court will not determine infringement through its claim construction; instead, the Court will adopt a construction of this claim term without reference to Flow's "percentage" or "normalized" speed. Whether Flow's formula and input method infringe on Omax's patent will be a jury question. The claim will be construed as follows: "One value from a range of values representing the quality of a cut. This value is inputted into an equation containing other values that reflect characteristics of the task that will impact the quality of the cut, such as material type."
4727 e. "variable"

This is not a technical term that requires construction and may be understood according to its plain and ordinary meaning. The Court declines to construe this term.

4728 A. "Variable Authentication Number (VAN)"

Defendants argue that the VAN must be limited to a number created by applying a symmetric key algorithm. Neither the claims, specification, nor prosecution history impose such a limitation. While nearly all of the embodiments apply symmetric key algorithms to create the VAN, the patent does contemplate creating the VAN using asymmetric algorithms. ('148 patent, col. 5, ll. 34-44) In addition, the patent provides examples of VAN's created using asymmetric algorithms, such as the RVAN. ('148 patent, col. 7, ll. 33-38) Thus, "variable authentication number (VAN)" shall be construed to mean "a variable number that can be used in verifying the identity of a party or the integrity of information or both."

4729 B. "variable authentication number (VAN)"

<table>
<thead>
<tr>
<th>Term</th>
<th>Plaintiff's Definition</th>
<th>Defendants' Definition</th>
</tr>
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<tbody>
<tr>
<td>&quot;generating a variable authentication number (VAN) using at least a portion of the received funds transfer information&quot; '302 patent, claim 41</td>
<td>A variable number that can be used in verifying the identity of a party or the integrity of information or both, the number generated by coding information relevant to a transaction, document (paper, electronic, or otherwise), or thing with either a joint key or information associated with or related to at least one party involved in the transaction or issuance of the document or thing.</td>
<td>A variable number that can be used in verifying the identity of a party or the integrity of information or both.</td>
</tr>
<tr>
<td>&quot;the payer creating a variable authentication number (VAN) on a computer using at least a portion of the document information, and a secret key of the payor&quot; '148 patent, claim 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;using a computer to create a variable authentication number (VAN), the VAN being created using at least a secret key of the first party&quot; '148 patent, claim 34</td>
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</table>

This term appears in the '302 patent, claim 41 and the '148 patent, claims 28, 34, and 35. The parties dispute whether Plaintiff is collaterally estopped from arguing a different construction than what it previously proposed and that a Delaware
Plaintiff argues that the Delaware court's construction is of little value because, even though the patentee acted as his own lexicographer, the court's construction "was based entirely on dictionary definitions of the words 'variable,' 'authentication,' and 'number.'" Plaintiff's Brief at 11. After Phillips, according the Plaintiff, Courts are to defer to the patentee when he defines the terms that appear in the claims.

Plaintiff argues that the patentee acted as his own lexicographer when he wrote in the summary of the invention:

In accordance with an embodiment of the present invention, when a transaction, document or thing needs to be authenticated, information associated with at least one of the parties involved (e.g., an originator and/or a recipient) is coded to produce a joint code. This joint code is then utilized to code information relevant to the transaction, document or record, in order to produce a variable authentication number (VAN) or code at the initiation of the transaction.

'302 patent, 2:9-17. Plaintiff argues that VAN is further defined in one of the embodiments: "Note that the VAN is alternatively generated directly from INFO and information associated with at least one of the parties, without the intermediate step of generating the JK." '302 patent, 5:9-25. According to Plaintiff, because "every description and embodiment from the specification" shows the VAN "created by coding information associated with or related to a transaction or credential with either a joint key or 'information associated with at least one of the parties, without the intermediate step of generating the [joint key]."' Plaintiffs Brief at 13 (quoting '302 patent, 5:24-25).

Defendants argue that Plaintiff is collaterally estopped from arguing a different definition in this case and that Philips is not intervening law. To prevail on the theory of collateral estoppel, a party must show the following: "(1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) plaintiff had a full and fair opportunity to litigate the issue in the first action." In re Freeman, 30 F.3d 1459, 1465 (Fed. Cir. 1994); see also U.S. v. Shanbaum, 10 F.3d 305, 311 (5th Cir. 1994) (setting forth a similar test). Defendant argues that only the third element is disputed and that the third element is satisfied because the jury in the Delaware court returned a verdict of non-infringement. Defendants also argue that Phillips does not represent a change in law but, rather, is a clarification of then-existing law. Defendant's Brief at 14.

Should the Court reject Defendant's collateral estoppel argument, the Defendants alternately argue that defining a VAN by the manner in which is generated is unnecessarily importing a limitation from the preferred embodiment. Defendants point out that "each of the claims in which VAN appears specifically includes a limitation dictating precisely how the VAN in that particular claim must be generated." Def. Brief at 15. Both parties agree that the manner in which a VAN is used is necessary to the definition and is consistent in all of the claims, Defendants argue, however, that the VAN is not created the same way in each of claims and to include it in the definition would be superfluous in many of the claims.

Plaintiff's argument that Claim 41, for example, does not tell a person of ordinary skill in the art that the VAN is generated from information relevant to a transaction is not persuasive. The very text of Claim 41 recites, "generating a variable authentication number (VAN) using at least a portion of the received funds transfer information." Funds transfer information, likewise, is described within Claim 41 as "including at least information for identifying the second account of the second party, and a transfer amount." Furthermore, the Court does not agree that the patentee acted as his own lexicographer in the passages that Plaintiff cites.

Absent a showing that a previous construction is incorrect, the Court will not alter a prior court's claim construction. Moreover, where, as here, the Plaintiff obtains the constructions that he advanced previously, the Court is not easily persuaded to depart from those prior constructions. Central to the invention, however, is that the VAN represents an unalterable truth—thereby thwarting fraud. In order to prevent the manipulation or alteration of the VAN, it is encoded and only decodable by selected, trusted parties. The Delaware court's construction does not reflect that the VAN has been encoded. The Court slightly modifies the Delaware construction to read, "an encoded variable number that can be used in verifying the identity of a party or the integrity of information or both."
A key aspect of the Hill invention is the notion of distributing the data needed to obtain complete information about a product on two different computers, the main computer, which contains all of the product information data for the electronic catalog, and the remote computer which holds a subset of that data. This is the essence of the distributed data design technique employed by the inventor to accomplish his design objectives. Two of the three stated objectives of the invention are met by using this system. First, the objective of providing the customer "with an instantaneous distribution of the latest catalog data available" is met because the main computer is responsible for keeping all of the most current data and transmitting the requested data along with any changes to constant data each time a customer seeks information. This feature meets the "latest catalog data available" element. The "instantaneous distribution" element is met because a subset of the catalog data is kept on the remote computer, which reduces the amount of data that must be transmitted when a customer requests product information.

Second, the objective of minimizing "computer on-line time" is met by the distributed data design for the same reason the instantaneous distribution element is met. Keeping a subset of catalog data on the remote computer, which can be easily updated by the main computer transmitting updated portions of data automatically, allows for less time on-line receiving data. The patent teaches that the data classified as constant and kept on the remote computer may include the type of data files, such as graphics, that take a long time to transmit. See '490 Patent, Col. 1, ll. 20-25 (describing disadvantage of prior art "dial-up" electronic catalog system); see also Plf's Ex. 93, Tab 4 at 4; Tab 6 at 3-4; Tab 9 at 5-6.

The parties disagree about the construction of the claim terms "constant" and "variable" data, with Compuserve proposing a definition that contains many elements and Hill proposing a much simpler one. Compuserve's proposed definition of "variable data" is:

"Variable data" is product data: (a) that has been classified by the vendor, before operation of the system, as being more likely to change than constant data; (b) is in a file that relates to only one product; (c) that is transmitted to a remote computer after transmission of all constant data; and (d) for which the main revision status level is not incremented when a new variable data file is changed or updated.

Def's Brf. at 13. According to Compuserve, the four attributes of this definition are required by the Hill patent specification.

The Court finds that "variable data" is adequately defined in the specification itself, and declines Compuserve's invitation to add the four proposed limitations to that definition. In the summary of the invention, variable data is defined as "data that can change at any time." This definition corresponds with ordinary dictionary meanings for the word "variable." For example, one dictionary defines "variable" as "liable or likely to change or vary; subject to variation; changeable; inconstant." American Heritage Dictionary (1976). Another provides a similar definition: "able or apt to vary or change; characterized by variation or by varying." Webster's Third New International Dictionary. Moreover, each time the term "variable data" is used in the patent, this definition could be substituted with no change in the meaning of the sentence. For instance, in Claim 1 the method recites the step of "transmitting variable data [data that can change at any time] related to the at least one product from the main computer to the remote computer." '490 Patent, Col. 22, ll. 9-11. Similarly, the summary of the invention states "a combination of constant data residing on the customer's computer and variable data [data that can change at any time] downloaded from the vendor's computer is integrated and merged to create a completely updated data sheet . . . ." Id., Col. 2, ll. 22-25.

It is the patent's use of the claim term "constant data" that conveys a slightly different meaning than the ordinary dictionary meaning. One dictionary definition is: "unchanging in nature, value or extent; invariable." American Heritage Dictionary. A second definition is: "something that does not vary or change in its relationship with other things; fixed and invariable; remaining unchanged." Webser's Third New World International Dictionary. In the context of the Hill patent, however, "constant data" does not mean data that does not change. That is clear from the fact that the main computer stores and maintains a "main revision status," which is described as "indicating the revision level of the constant data stored in the main computer." '490 Patent, Col. 21, ll. 58-61. Another step describes a similar revision status that indicates the revision level of the constant data stored in the remote computer. Id., ll. 65-67. Finally, the updating step specifically establishes that
"constant data maintained" on the main computer could be different from the constant data stored on the remote computer. The prosecution history also supports a finding that "constant data" is expected to change. See Plf's Ex. 93, Tab 4 at 4; Tab 6 at 3-4; Tab 9 at 5-6. By clear implication, the "constant data" to which the patent refers must undergo changes.

Hill's suggested definition for "constant data" is: "product information likely to change less often than variable data." Hill's Brf at 27. Compuserve, on the other hand, proposes a definition for constant data as follows:

"Constant data" is product data: (a) that has been classified by the vendor before the operation of the system, as being less likely to change than variable data; (b) that can be related to more than one product; (c) that is transmitted to a remote computer before the transmission of any variable data; and (d) for which a main revision status level is incremented when a new constant data file is changed or updated.

Def's Brf at 13. Both parties agree that constant data is "less likely to change than variable data." They disagree, however, about whether the definitions for constant and variable data must include a statement regarding who classifies product information into the two subsets of data. They also dispute defining variable data as relating to only one product and constant data to more than one product, as well as including the order in which the data is transmitted and whether a main revision level is incremented when the data is changed in the definition.

According to Compuserve, these attributes must be included in the definitions for constant and variable data so that the Court will be able to apply the definitions later in the case to determine whether infringement has occurred. Def's Brf at 19. To make that determination, Compuserve asserts, the Court would be required to classify data as either constant or variable. Id. The apparent premise for this conclusion is that the Court will be presented with a list of data files and asked to determine which are constant and which variable. However, the patent does not include any step that describes classifying data. Instead, the invention assumes data is already classified and then describes the operations performed on or with that data. If the Court were to add elements to the definitions of constant or variable data that limit who classifies it, how it is to be classified, and when, the Court would be doing more than construing claim terms, it would be adding claims. The proposed additional limitations exceed the scope of the claimed invention.

Compuserve points to illustration figure 1B, showing the distribution of data and software programs on the vendor's computer, as supporting the disputed elements. That figure depicts constant and variable data being stored separately in the memory of the main computer. While this may be true, that fact alone does not require the Court to define constant or variable data in terms of who classifies it or when. Compuserve cites portions of the prosecution history in further support of adding this element to the definition. Specifically, Compuserve points to Hill's original specification and states that "Hill told the Patent Office that constant data and variable data are already classified as depicted in Fig. 1B" on page 12, lines 15-17. Def's Brf at 14 (citing the Original Specification, Apr. 10, 1992, see Plf's Ex. 93). The only communication the Court can discern from that citation is a description of Figure 1B as "a block diagram illustrating the software and data stored in the memory of the vendor's computer." Plf's Ex. 93, Tab 1 at 12, ll. 15-17. The same statement is included in the specification of the '490 Patent. See '490 Patent, Col. 7, ll. 1-2. Both of these statements refer to a preferred embodiment of the invention, and neither conveys anything other than that the invention assumes, without limiting, classification of the data to be stored, maintained and used as claimed in the patent.

Similarly, Compuserve cites Hill's March 9, 1994, response to an office action, which Compuserve describes as Hill's admission "that the constant data is identified even before being loaded or transferred to the customer's computer from a main computer," in support of the proposed limitation. See Plf's Ex. 93, Tab 6 at 4. It provides no such support. In his response to the examiner, Hill described examples of the types of data that might be stored as constant or variable data. Id. That general description does not constitute an admission of anything about who classifies the data or when. Consequently, the Court finds that a limitation in the claim terms "constant and variable data" requiring the vendor to classify the data before operation of the system is not warranted by the intrinsic evidence in the patent.

The second attribute proposed by Compuserve concerns whether constant and variable data must be defined in terms of whether it relates to one, or more than one, product. In support of this limitation Compuserve offers an excerpt from the specification in which constant data is described as including "logo, graphics data for outlines and boxes, format data which labels the units of the product specifications . . . and graphics data illustrating the configuration of various products." '490 Patent, Col. 9, ll. 41-45. This description is found in the portion of the specification that is a detailed description of a preferred embodiment. Compuserve offers no reason to the Court for importing this limitation from a preferred embodiment
into the claim term of "constant data." Nor can the Court discern one.

Further support for this limitation, according to Compuserve, is found in a reference in the prosecution history which shows that "constant data can relate to multiple products." Def's Brf. at 15. In the reference, the patentee described an amendment to Claims 1, 15, 30 and 35, made in response to the patent examiner's earlier rejection of those claims. See Plf's Ex. 93, Tab 9 at 5. The amendment was intended to clarify the nature of constant data as "a subset of the product information data." Id. In their final form, the claims referred to "a subset of product information data related to the at least one product," or "a subset of product information data related to the plurality of products." '490 Patent, Col. 21, ll. 64-66, Col. 23, ll. 37-39. Given the fact that in Claim 1 the constant data is described as a subset relating to "the at least one product," it does not follow that constant data itself must be defined as capable of being related to more than one product. Apparently, the patent contemplates constant data that can relate to only one product. For this reason, it would be improper to limit the definition of constant data to data that can be related to multiple products.

A similar problem prevents the importation of a limitation that variable data must relate only to one product, from Compuserve's designation of a passage from the summary of the invention. That passage describes the transmission of variable data "related to the specific product selected by the customer." '490 Patent, Col. 2, ll. 17-18. The fact that the invention contemplates the transmission of variable data related to a specific product in order to create a product information sheet does not mean that each piece of variable data only relates to one file. For example, a variable data file may include information about the horsepower of an engine, and the specific product selected may have that size of an engine. This does not mean that there are no other products with that size of an engine. Compuserve's argument that variable data files must only relate to a single product is not required or even suggested by the intrinsic evidence of the patent. The Court will not import this limitation into the definition of constant and variable data.

The next limitation suggested by Compuserve relates to the sequence of transmission of the constant and variable data. Before this limitation could be an element of the definition of these two claim terms, the Court must find that the sequence of steps in the method claims is mandated. Assuming, without deciding, that it is, there is no evidence that supports including this characteristic in a definition of the claim terms "constant and variable data." The ordinary meanings for those terms, as modified to reflect that constant data is data that will be changed, suffices for purposes of understanding the method claims in which the terms appear. Compuserve has pointed to details from the specification that describe differences in how the constant or variable data is treated, but has provided no reason for the Court to find that a "special and particular definition [was] created by the patent applicant." See Renishaw, 158 F.3d at 1249. Nor has Compuserve demonstrated that the common dictionary meanings for these terms, as modified, would be "nonsensical in light of the patent disclosure." See id. at 1250. Consequently, the Court will not import this limitation into the definitions for constant or variable data.

The last element Compuserve seeks to add to the definition of these claim terms is whether the main revision level is incremented when changes occur to the data. This limitation is described as "another way for the Court to distinguish constant data from variable data." Def's Brf. at 17. However, Compuserve has not provided the Court with any reason why the differences already noted between constant and variable data will not suffice to make clear the meaning of each term. While it may be true that both Hill and his expert witness have indicated that it would be difficult to classify data into such categories simply by looking at the data on the computer, that fact does not mean that constant and variable data must be defined in a way that allows such a visual classification. See Hill Dep. at 190-91; Tr. Vol. I at 127. There are various ways of determining which data is constant and which is variable other than just looking at the data files. One example, suggested by Hill during his deposition but also supported in the claims, is to look at how the data is handled by the electronic catalog system. See Hill Dep. at 191; '490 Patent, Col. 21, ll. 56-61 (noting that main revision status indicates revision level of constant data stored in main computer). Another would be to observe the relative number of changes the data has undergone over time, to determine its rate of change in comparison to other data. Hill's expert testified that a person skilled in the art would know how to divide the data into constant and variable data. Tr., Vol. I at 127. Moreover, contrary to Compuserve's claim construction theory, the definitions of these claim terms need not be limited by the differences in how they are treated in order for those differences to provide clues about which data is constant or variable.

The key here is that Hill's patent is not about the proper classification of data for an electronic catalog system. It is about distributing that data between two different computers, a main and a remote, establishing a system for updating the data left on the remote computer, and transmitting the updated variable data to the remote to create the most current product information available. It presumes some sort of classification of the data, but does not limit how that is accomplished. Thus, the Court finds that the definition for "variable data" that is most true to the claim language and in alignment with the
patent's description of the invention, see Renishaw, 158 F.3d at 1250, is "product information classified as capable of changing at any time." The definition that best conveys the meaning of "constant data" is "product information classified as likely to change less often than variable data."

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Variable parameters and Measurable parameters

ConnecTel contends "variable parameters" and "measurable parameters" should be construed to mean "those parameters whose values can vary over relatively short periods of time." Cisco argues "variable parameters" and "measurable parameters" "refer to parameters of the paths that can vary and are measured." The parties' disagreement on this term is whether the variation in value must occur over short periods of time. ConnecTel argues that the variable parameters discussed in the preferred embodiment—$presentstate$, $avgsate$, $latency$, $time$, and $availbandwidth$—vary over a short period of time. ConnecTel's limitation of "short periods of time" is vague and unsupported by the specification. Although the variable parameters described in the specification are likely to vary over short periods of time, there is no requirement in the claims or specification that they must vary over short, as opposed to long, periods of time. Accordingly, the Court rejects this limitation.

The Court adopts Cisco's construction and construes "variable parameters" and "measurable parameters" to mean "parameters of the paths that can vary and are measured." This comports with the common meaning of the terms.

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e. "variable speed"

The next term is "variable speed." The plaintiffs' proposed construction is "capable of operating at speeds that can change." The defendants argue that the term means "a speed (frequency) that is not tightly controlled and varies more than minimally."

The plaintiffs contend that the specification discloses a ring oscillator that is capable of operating at various speeds based on variations in operating conditions. '336 patent, 16:59-63. The plaintiffs also argue that the defendants' proposed construction is too restrictive. The defendants, on the other hand, point to the prosecution where the applicant describes fixed-frequency as a speed that is "tightly controlled" and "var[ies] minimally." Amendment, July 7, 1997, at 3-4. According to the defendants, "variable speed" is the opposite of fixed-frequency.

Notwithstanding the defendants' arguments, one of ordinary skill in the art would understand "variable speed" to describe a component capable of operating at different speeds. Accordingly, the Court construes the term to mean "capable of operating at different speeds."

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1. "Variable speed wind turbine controller"

Plaintiff suggests that this term be interpreted to mean "the hardware and software that is used to control the wind turbine"; defendant contends that it should be defined as "the hardware and software that provides torque command signals to the frequency converter." If defendant's reading is appropriate, it is preferable, because it is more precise and therefore gives greater guidance to persons wishing to avoid infringement. In re Warmerdam, 33 F.3d 1354, 1359 (Fed. Cir. 1994) ("Claims should be evaluated by their limitations, not by what they incidentally cover."). The claim discloses a turbine controller that "provid[es] a generator torque command signal"; a set of hardware and software that does not provide a torque command signal would not satisfy this limitation. Plaintiff's proposed construction is unacceptable because it could encompass sets of hardware and software that do not provide torque command signals and therefore, would not constitute a variable speed wind turbine controller. Correct claim construction "stays true to the claim language and [] naturally aligns with the patent's description of the invention." Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998).
Plaintiff finds defendant's proposal too narrow because it would exclude the high pass filter and summing junction that generate an "augmented torque command signal," as disclosed in dependent claim 2. In fact, defendant's proposed construction does not exclude "augmented" torque command signals. Defendant's construction (hardware and software providing torque command signals) would encompass the high pass filter and summing junction because they generate torque command signals, albeit augmented signals.

However, plaintiff has a second challenge to defendant's construction: it would not reflect the fact that claim 7 of the '736 patent discloses a wind turbine controller with means for providing a turbine rotor speed reference signal in addition to providing torque command signals. Plaintiff overlooks the nature of claim 7, which is a dependent claim. Although courts are to interpret dependent and independent claims of a patent consistently when it is reasonable to do so, Rambus, Inc. v. Infineon Technologies Ag, 318 F.3d 1081, 1093 (Fed. Cir. 2003) (interpretations of independent claims that render terms in dependent claim meaningless are disfavored), plaintiff's challenge does not implicate this rule.

Defendant's construction is not inconsistent with dependent claim 7 simply because the construction does not describe an additional limitation described in that claim. To the contrary, the general rule is that courts are not to read limitations stated in dependent claims into independent claims. Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1123 (Fed. Cir. 2004). A construction incorporating a dependent claim limitation would be improper. To the extent that there might be some confusion whether defendant's proposal implies a limitation on the functions performed by the turbine controller, I will add the phrase "among other things" to make it clear that the variable speed controller performs functions other than generating a torque command signal.

Last, plaintiff contends that defendant's proposed construction is confusing because it includes two claim terms that are not defined: "torque command signal" and "frequency converter." However, as plaintiff goes on to note, the meaning of these terms is not disputed. A frequency converter is a device that converts variable frequency AC to fixed frequency AC while a torque command signal dictates the amount of rotational force (torque) used inside the generator, regulating the speed at which the rotor spins. I see no basis for plaintiff's suggestion that these terms render defendant's construction too confusing.

I will make two minor modifications to defendant's proposal. The first is to eliminate the clause "to the frequency converter" because no such restriction exists in the fifth paragraph of claim 1. Although the sixth paragraph discloses a frequency converter that is "responsive to the generator torque command signal," defendant's proposal suggests a need for direct transmittal that is not mandated by the claim language. The second modification simply makes it clear that a controller is an integrated set of hardware and software. I conclude, therefore, that the phrase "variable speed wind turbine controller" means "an integrated set of hardware and software that provides torque command signals, among other things."

The Parties' Proposed Constructions

AMO proposes that I construe "variably controlling" to mean "the ability of the control unit to alter the amount of power being provided by the ultrasonic power source in some fashion other than merely enabling the power (turning power on) or disabling the power (turning off)." (D.I. 164 at 10.) AMO further proposes that I construe "in response to a sensed vacuum level in the handpiece corresponding to the occluded condition of the handpiece" to mean "to alter or change, including automatically or manually, the ultrasonic power." 3 (Id.)

3 During the Markman hearing, Alcon included in their slide presentation to the court a demonstrative exhibit in which Alcon asserts that the applicant for the '240 patent acquiesced in the examiner's interpretation that the term "varying"
includes turning on and off. (See slide '240-50, Alcon's submitted copy of slides presented during the Markman hearing, Dec. 20, 2004). Alcon, however, made no reference to such assertion in its extensive briefing on the construction of the term "varying" as used in the claims of the '240 patent, despite the disparity between the parties' proposed constructions. (See D.I. 171 at 31-33, 35; D.I. 187 at 16-18.) Thus, AMO has not had a fair opportunity to respond. Even considering Alcon's assertion, in the context of the claim language, see my discussion, infra Part IV.A.1.g.ii., it is clear that the term "variably controlling" in step (f) of claim 1, was intended to refer to the ability to change the ultrasonic power level from one real level of power to another.

--- End Footnotes ---

ii. The Court's Construction

There are two main disputes between the parties with regard to this claim term. The first, is whether this step, step (f), can be performed manually as well as automatically, and the second is whether the "variably controlling" term includes turning the power on or off, as opposed to only adjusting the power level once on. For the same reasons described supra Part IV.A.1.f.ii., I construe this term to be limited to automatic means. Additionally, for the reasons that follow, I construe this term to exclude merely turning the power on or off.

I begin with the language of the claim term itself. The parties agree that the term "variably" is the adverb form of "variable" which means "changeable." (D.I. 171 at 31; D.I. 192 at 34.) The claim term states "variably controlling … the ultrasonic power being provided to the handpiece." (‘240 patent, col. 7, ll. 56-57 (emphasis added).) Because the term describes varying the power that is being provided, this necessarily implies that power is already being provided, i.e. turned on. Thus, this term would not include turning the power on. A sense of symmetry in construction and of logical extension indicates that this term would not include turning the power off. Therefore, consistent with the "corresponding to" term agreed to by the parties, see supra Part IV.A.1.f.i., I construe "variably controlling, in response to a sensed vacuum level in the handpiece corresponding to the occluded condition of the handpiece, the ultrasonic power being provided to the handpiece" to mean "the ability of the control unit to automatically change the amount of ultrasonic power, other than merely turning it on or off, being provided to the handpiece in response to a signal from the vacuum sensor indicating that a sensed rise in the vacuum of the aspiration line has reached a particular numeric value which is equal to the vacuum that exists in the aspiration line when the doctor believes he is going to have an occlusion issue."

The next term is "varying together." The plaintiffs contend that the term means "both increase or both decrease." The defendants' proposed construction is "increasing and decreasing by the same amount." The dispute is whether this term is limited to "the same amount."

The defendants claim that the only way for the invention to work is to match the clock speed to the CPU's processing speed capability. According to the defendants, if the frequency capability increased from 50 MHz to 100 MHz but the clock rate only increased from 25 MHz to 150 MHZ, then the CPU would not be operable. In addition, the defendants argue that there are numerous statements in the prosecution history stating that the processing frequency should "track" or "vary correspondingly with" the clock rate. See Response to Office Action, April 11, 1996, at 6, 8; Response to Office Action, January 8, 1997, at 4.

There is no limitation in the intrinsic evidence requiring the variation between the frequency capability and the clock to
match exactly. The Court construes the term to mean "increasing and decreasing proportionally."

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B. "Vcc current bus" (claim 1, asserted claim 5)

The parties agree that the Vcc bus is the main power supply for an integrated circuit and that in the '830 patent, the Vcc bus is internal to the integrated circuit. They also agree that the Vcc bus supplies current 9 to the circuit. The only dispute is whether the construction of this term should specify that the Vcc bus supplies current to the transistors and capacitors. AMD's proposed construction is: "An internal bus (main conduit) for an integrated circuit that supplies charge for the transistors and capacitors" (emphasis added). Samsung proposes construing Vcc current bus as "The main power supply bus on an integrated circuit for receiving external current and providing that current to the integrated circuit." Although AMD's construction specifies that the Vcc bus supplies current to transistors and capacitors, AMD does not dispute that the Vcc bus is the current supply for the entire integrated circuit. The Court finds that AMD's construction could give the incorrect impression that the Vcc bus supplies current for the transistors and capacitors only. For this reason, Samsung's construction will be clearer to a jury.

9 AMD proposes the word "charge," but agrees that current is "merely charge over time." Supp. Friedman Decl. P 9.

AMD objects that Samsung's reference to "external" current could give jurors the incorrect impression that the Vcc bus is not part of the integrated circuit. The Court agrees that the word external could be confusing. Accordingly, the Court adopts a modified version of Samsung's construction: "The main power supply bus on an integrated circuit for receiving external current and providing that current to the integrated circuit. The Vcc bus is internal to the integrated circuit."

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1. "V[dd]"

The central dispute surrounding the claim term "V[dd]" concerns whether it is limited to an externally supplied voltage applied to a pin of the DRAM, or whether it can also include an internally supplied, or "on-chip," voltage. This distinction is significant because a DRAM chip may use the externally applied voltage in one of two ways. First, a DRAM chip may use an externally applied voltage, e.g., 5 volts, in some circuits on the chip without any manipulation. Second, a DRAM chip may reduce, referred to as "stepping down" or "down converting," the externally applied voltage to a lesser voltage and use that lesser voltage in some circuits on the chip. For example, an externally applied voltage of 5 volts may be stepped down to 3.3 volts, which is then used in certain circuits on the chip. Defendants contend that "V[dd]" does not include any stepped down voltages that may be used on the chip. MOSAID contends that "V[dd]" should not be limited to an external voltage, but may also include stepped down voltages.

Claim construction analysis begins by determining whether the claim term has an ordinary meaning. To that end, one first looks to the language of the claims. The claims of the '602 patent do not explicitly limit "V[dd]" to an externally applied voltage. For example, claim 1 of the '602 patent states:

1. A dynamic random access memory (DRAM) comprising bit lines and word lines, memory cells connected to the bit lines and word lines, each memory cell being comprised of an access field effect transistor (FET) having its source-drain circuit connected between a bit line and a high logic level voltage V[dd], bit charge storage capacitor, the field effect transistor having a gate connected to a corresponding word line;

a high V[pp] supply voltage source which is in excess of high logic level voltage V[dd] plus one transistor threshold
voltage; means for selecting the word line and means having an input driven by the selecting means for applying the V/pp supply voltage level directly to the word line through the source-drain circuit of an FET. '602 patent, claim 1 (emphasis added).

Claim 1, like the other ‘602 claims, says nothing about "V[dd]" being an externally applied voltage. Instead, the claim speaks of "V[dd]" as a voltage level that the memory cell capacitor can store. Thus, looking solely at the claim language, "V[dd]" is not limited to an external voltage.

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13 The parties agreed that all of the disputed claim terms have the same meaning regardless of what patent they appear in. Consequently, as a matter of convenience when dealing with the 9 patents in suit, for each disputed claim term, the Court began by looking at the term in the context of the first patent that issued from the Patent Office. To the extent that the parties felt it was necessary, they were encouraged to direct the Court to other locations in other patents where the context of the claim term may shed light on its meaning. Accordingly, although certain claim terms may only be addressed in the context of one patent, they were considered in the context of all of the patents in suit.

End Footnotes

The Defendants do not dispute the plain language of the ‘602 claims. Instead, they point to claims 1 and 2 of the ‘703 patent to support their construction that "V[dd]" should be limited to an externally applied voltage. Claims 1 and 2 of the ‘703 patent are:

1. A method of selecting a word line in a dynamic random access memory to store a V[dd] logic level in a memory cell comprising:
   - applying a controlled supply voltage V[pp] greater than V[dd] to a level shifter circuit;
   - applying only V[dd] logic level signals to the level shifter circuit to produce a logic signal having a state at the V[pp] voltage; and
   - applying the logic signal having the state at the V[pp] voltage to the word line.
2. A method of selecting a word line in a dynamic random access memory to store a logic level in a memory cell comprising:
   - applying a controlled supply voltage V[pp], greater than the voltage stored in the memory cell, to a level shifter circuit;
   - applying only logic signals having a level less than V[pp] to the level shifter circuit to produce a logic signal having a state at the V[pp] voltage; and
   - applying the logic signal having the state at the V[pp] voltage to the word line. ‘703 patent, claims 1 and 2 (emphasis added).

The Defendants assert that claims 1 and 2 are identical except that claim 1 speaks of "a V[dd] logic level in a memory cell," whereas claim 2 simply speaks of "a logic level stored in the memory cell." According to Defendants, since claims 1 and 2 are independent claims, under the doctrine of claim differentiation, this difference must be significant and must mean that "V[dd]" means something other than a logic level stored in the memory cell, such as an externally applied voltage.

The Defendants' conclusion, however, is mistaken. The doctrine of claim differentiation does not require that two claims differ in scope. O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1582 (Fed. Cir. 1997) ("Although the doctrine of claim differentiation may at times be controlling, construction of claims is not based solely upon the language of other claims; the doctrine cannot alter a definition that is otherwise clear from the claim language, description, and prosecution history.") But even if it did, in this case, assuming that the two claims are of different scope does nothing to support Defendants' argument that "V[dd]" should be limited to an externally applied voltage. Significantly, '703 claim 2 does not require that the "logic level" stored in the memory cell be the only internal voltage on the chip. Accordingly, the '703 claims, like the '602 claims,
do not limit "V[dd]" to an externally applied voltage.

Dictionaries and treatises may also be informative of a claim term's ordinary meaning. Only one dictionary definition for "V[dd]" was submitted in this case. The Radio Shack dictionary states in pertinent part:

V[DD], V[SS], V[CC], V[EE] - In a MOS circuit, the designation of the power-supply terminal serving the drain, source, collector, or emitter. The double subscript refers to the power-supply terminal, while a single subscript references the parameter at the element of a device... In CMOS, the term V[DD] has been adopted as a convention referring to the positive power-supply terminal, although it is actually applied to the source of a p-channel transistor. Radio Shack Modern Dict. of Elecs. 794 (5th ed. 1978).

MOSAID submits this definition as evidence that the ordinary meaning of "V[dd]" includes internal voltages. Defendants contend that the Radio Shack definition supports its narrow construction. Defendants maintain that the definition, by using the word "terminal," indicates to one of skill in the art that V[dd] is supplied through an external connection. In support of this argument, Defendants submit a dictionary definition for "terminal," which is defined as "an externally available point of connection to one or more electrodes or elements within a device." IEEE Standard Dict. of Electrical and Electronics Terms 997 (4th ed. 1988). Defendants point to the word "externally" in that definition as evidence of the correctness of their proposed construction.

The dictionary definitions support a broader construction of "V[dd]." The Radio Shack definition of "V[dd]" does not limit "V[dd]" to an externally applied voltage. In fact, it suggests that "V[dd]" can be an internal voltage since it states that V[dd] can be "applied to the source of a p-channel transistor," and nothing requires that the source of a p-channel transistor be connected to the external pin of a DRAM chip. Likewise, nothing in the definition of terminal requires that V[dd] be externally applied to the DRAM chip. Although it does contain the word "externally," it does so in the context of external to "elements within a device," i.e., elements within the DRAM chip. Consequently, the ordinary meaning of "V[dd]" is "the substantially constant positive source-drain supply voltage in a MOS circuit."

The '602 specification does not alter the ordinary meaning of "V[dd]." The '602 specification includes statements about "V[dd]" such as: the "V[dd] level on the bit line 2A, 2B etc. is fully transferred to the associated capacitor," '620 col. 2, ll. 28-29; and the "signals at the voltage level V[dd] are applied to the inputs of NAND gate 5." '620 col. 3, ll. 15-16. Looking at Figure 1, it is clear that the bit lines and NAND gate 5 are internal circuitry of the chip. Therefore, the voltage being applied to these devices is an internal voltage that is not necessarily limited to an externally applied voltage.

Accordingly, "V[dd]" shall be construed as "the substantially constant positive source-drain supply voltage in a MOS circuit."

AMS and BidSoft contend that the term "vehicle condition grade" is incapable of being construed, although they offer no argument on this point. Manheim contends that the term should mean "a rating based on the condition of the vehicle."

"A claim is indefinite if its legal scope is not clear enough that a person of ordinary skill in the art could determine whether a particular composition infringes or not." Geneva Pharms., Inc. v. GlaxoSmithKline PLC, 349 F.3d 1373, 1384 (Fed. Cir. 2003). That is to say, a claim is indefinite if it "'is insolubly ambiguous, and no narrowing construction can properly be adopted.'" Invitrogen Corp. v. Biocrest Mfg., L.P., 424 F.3d 1374, 1383 (Fed. Cir. 2005) (quoting Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed. Cir. 2001)); see also Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1371 (Fed. Cir. 2004) ("We have held that a claim is not indefinite merely because it poses a difficult issue of claim construction; if the claim is subject to construction, i.e., it is not insolubly ambiguous, it is not invalid for indefiniteness.").

While the parties have not directed the Court to anything in the intrinsic record which would shed light on the proper meaning for this term, Manheim's proposed definition derives from the testimony of its expert, Dr. Bailey, who stated that
"one of ordinary skill in the art would understand [this term] to mean a rating based on the condition of the vehicle." (Bailey Decl. P 69.) In view of this testimony as to the understanding of one reasonably skilled in the art, and being presented with nothing to the contrary from AMS and BidSoft, the Court concludes that this term is not so "insolubly ambiguous" as to be rendered indefinite. As such, the term "vehicle condition grade" in claim 6 shall mean "a rating of the condition of the vehicle."

11. "vehicle sale type"

The parties dispute the meaning of the term "vehicle sale type" as that term appears in claim 1. AMS and Bidsoft contend that the term should mean "categories of auction events including regular sale, manufacturer sale, and heavy duty/truck sale." In support of their construction, they argue that the patentee served as its own lexicographer by clearly defining "vehicle sale type" in the specification and prosecution history, and as such, the inventors' definition should be applied. Manheim argues that one skilled in the art would understand this term to mean "a type of vehicle sale," and that AMS and Bidsoft's construction improperly imports a limitation from the specification and prosecution history.

It is well-settled that "a patentee is free to be his own lexicographer," Markman, 52 F.3d at 979, and thus may define claim terms in ways that differ from the common understanding of those skilled in the art. E.g., Renishaw PLC, 158 F.3d at 1249. However, in order for a patentee's definition of a claim term to be applied over the plain and ordinary meaning to one skilled in the art, the patentee must clearly set forth an explicit definition of the claim term which could differ in scope from that which would be afforded by its ordinary meaning. See Markman, 52 F.3d at 979 (explaining that the "caveat" to the rule affording the patentee the ability to specially define claim terms is that "any special definition given to a word must be clearly defined in the specification"); Mycogen Plant Sci. v. Monsanto Co., 243 F.3d 1316, 1327 (Fed. Cir. 2001) ("[A] patentee is free to be his own lexicographer, so long as the special definition of a term is made explicit in the patent specification or file history."). When the patentee chooses to act has his or her own lexicographer "by providing an explicit definition in the specification for a claim term . . . the definition selected by the patent applicant controls." Renishaw PLC, 158 F.3d at 1249.

The PTO initially rejected previously submitted claim 2 which included the term "sale calendar means" under 35 U.S.C. § 112, P 2, stating: "It appears from the specification that the sales calendar application allows the user to search the database for desired vehicles based on user criteria." (873 patent file history, May 9, 1997 Office Action [377-6] P 2.) In response, the applicants cancelled claim 2, but amended claim 1 to incorporate the limitations of claim 2, and explained that the term "vehicle sale type" referred to the type of sale, rather than the type of vehicle. (873 patent file history, Oct. 17, 1997 Response and Amendment [377-7] at 5.) Specifically, the applicants stated:

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This module does not perform the function of searching by vehicle type; that is carried out in the Stock Locator module. The sale type refers to whether the auction is a "regular" sale (see Fig. 2-B), a "manufacturer" sale (see Fig. 2-C), or a "heavy duty/truck" sale (see Fig. 2-D)].
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(Id.)

In the Court's view, this statement does not clearly and unambiguously offer a special definition for this claim term and explain how it would differ from its ordinary meaning. Rather, the statement, viewed as a whole, merely clarifies that the term "vehicle sale type" refers to the type of sale, and does not encompass a search for particular vehicles—a function performed by the stock locator module. While the applicants did refer to examples of certain sale types described in the specification, the Court views this statement merely as a clarifying reference, and not an explicit definition of the claim term. Therefore, the Court concludes that this statement is not sufficient to overcome the "heavy presumption" in favor of applying the ordinary meaning to a claim term. Apple Computer, Inc. v. Articulate Systems, Inc., 234 F.3d 14, 21 n.5 (Fed. Cir. 2000) ("[A] patentee must deliberately and clearly point out how these terms differ from the conventional understanding."). Accordingly, the term "vehicle sale type" in claim 1 shall mean "a type of vehicle sale which may include regular sale, manufacturer sale, and heavy duty/truck sale."
Claims in reexamination must "be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not to be read into the claims." In re Yamamoto, 740 F.2d 1569, 1571, 222 U.S.P.Q. (BNA) 934, 936 (Fed. Cir. 1984). In this case, the Bose Patent specification nowhere expressly defines "sound reproducing apparatus." Although the claims refer to "vehicle sound reproducing system" and "vehicle sound system," and the specification's "Background of the Invention" section states that "high fidelity sound systems for vehicles have met with wide acceptance," the background section does not purport to define Bose's "sound system" as limited to a "high fidelity sound system," and the claims do not require a "high fidelity" sound system. In any event, the definition of "high fidelity" given in the specification is simply: "faithfully transmitting sound signals." Thus, the Board's construction of the Bose claims as encompassing a vehicle sound reproducing apparatus generally and not as limited to a high fidelity audio "stereophonic" system for a car as Bose contends, is not in error.

Moreover, we do not view the Board's determination that a fiber-optic phone system is a system for faithfully transmitting sound signals as clearly erroneous. Nor do we find persuasive Bose's arguments that the "vehicle" limitation in the preamble precludes the Board's decision. Bose's specification does not limit a vehicle to a car, as Bose suggests, and his preamble refers to "vehicle" without further limitation. Thus, Reibaud suggests use of the claimed system in a "vehicle," as that term is used in Bose's claims. Moreover, the Board's finding that one skilled in the art would have had the motivation to utilize the technology disclosed in Electronics, or Cutler, in a vehicle is not clearly erroneous since the Electronics reference does not limit utilization of its technology to a particular environment and, indeed, invites utilization in various environments.

In anticipation of the potential finding that "vending machine" is more than simply a name for the invention, the parties dispute the meaning of this term. They agree that the general dictionary definition of vending machine is a coin-operated machine for vending merchandise. (See Pls.' Mem. On Claim Construction 10; Aly Decl. Ex. 9). This definition may inform the claim construction of vending machine, "so long as [it] does not contradict any definition found in or ascertained by a reading of the patent documents." Phillips, 415 F.3d at 1322-23. For example, the specification clearly contemplates payment other than by coins, so an appropriate construction will not limit "vending machine" to coin operation. (See '400 Patent 2:50-61). Similarly, payment is clearly required "to initiate a vending transaction," and both the Patents' specifications and the preamble to claim 1 describe the vending of telecommunications channel access, not merchandise. (See '400 Patent 2:43-45, 16:2-6, 12-17).

Although the dictionary definition describes "vending machine" as a single unit, plaintiffs still argue that vending machine should be construed as a system and method for vending services to multiple users contemporaneously, not as a traditional "single, stand-alone device" in a fixed location. (Pls.' Mem. On Claim Construction 11-12). If the Patents' specifications "reveal a special definition given to [vending machine] by the patentee that differs from the meaning it would otherwise possess," such lexicography must control the claim construction of that term. Phillips, 415 F.3d at 1316. According to plaintiffs, the inventors intended vending machine to include "various components . . . distributed in diverse locations, rather than located in a single device." (Id. at 12). Defendant criticizes this construction as not representing the view of a person of ordinary skill in the art and offers, instead, its expert's opinion that equates "vending machine" with "essentially a payphone for computers," as the patent specification diagrams "each show a vending machine that is a unitary, self-contained structure," and "[n]o figures in the . . . patents show it otherwise." (Cooley Aff. PP 15 and 26). In opposition, plaintiffs characterize Figure 4 as describing "not a single, stand-alone device, but . . . a block diagram. . . . including blocks representing the various components and functions that have to be present to provide telecommunications channel access," with "no requirement that the equipment providing those functions be combined into one single device." (Pls.' Mem. On Claim Construction 11). Plaintiffs' characterization disregards the fact that Figure 4, in fact, illustrates a single device labeled as item 300 in the diagram and described in the specification as the single machine to which users would connect. (See '400 Patent 11:41-43 and Fig. 4).
At the Markman hearing, plaintiffs cited the following specification language as supporting the contemporaneous use of one vending machine by multiple customers:

[I]t might be more cost effective to have one control unit operating multiple vending machines. These multiple vending machines may be arranged in the form of a kiosk to allow multiple customers access to the vending machine at the same time. Similarly, almost any combination of functional components of the vending machine could be moved to a location remote from the machine. This could be accomplished, for example, by networking a cluster of machines to a server either on site or at a remote location.

(‘400 Patent 4:28-37). This language describes multiple customers being served by multiple vending machines, not a single machine. That multiple vending machines may share a single control unit does not logically transform the multiple units into a single machine that serves multiple users. Plaintiffs’ argument that the sharing of a single control unit by multiple vending machines somehow converts the multiple machines into a single one effectively elevates the control unit to being the essence of a vending machine. Plaintiffs argue further that removing "any combination of functional components . . . to a location remote from the machine" leads to the same result, i.e., a single vending machine with multiple extensions. This position distills the essence of a vending machine into an undefined collection of whatever functional components are removed from the machine. Such construction is neither sensible nor supported by the specification or the claims, particularly claim 1 which clearly identifies several elements of a vending machine that must be present in order to embody the invention. Plaintiffs have not demonstrated that the Patents defined "vending machine" other than as a traditional stand-alone machine that serves a single customer at a time.

In light of the applicable legal standard, the parties' written submissions, and the argument of counsel, I construe the disputed claim language as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vending machine</td>
<td>A device for vending telecommunications channel access to a single customer at a time when the customer provides sufficient payment</td>
</tr>
</tbody>
</table>

The disputed term "vending transaction" appears multiple times in claim 1, including in the context of "... at least one external telecommunications channel for enabling access ... at the beginning of a vending transaction and disabling access at the end of the vending transaction." (‘400 Patent 16:11-16). It is also included in the claim 1 phrase, "when the vending transaction is completed." Id. at 16:10-11. The parties agree that "when the vending transaction is completed" means "when the customer's connection to the vending machine has been terminated or the customer's payment has been exhausted." (Pls.' Mem. on Claim Construction 15; Def.'s Rebuttal Claim Construction Br. App. A). They disagree, however, about whether completing a transaction upon exhaustion of the customer's payment means that a customer may pre-pay for multiple access sessions and treat these as a single vending transaction. To that end, plaintiffs define "vending transaction" as "the transaction by which telecommunications channel access is provided to the customer in exchange for payment by or on account of the customer," while defendant proposes "a single open-ended session delineated by a turning on and off of access to the telecommunications channel ('pay-as-you-go') and does not include multiple session ('prepaid subscription')." (Pls.' Mem. on Claim Construction 15; Def.'s Rebuttal Claim Construction Br. 22).

The specification states that a "transaction ends when the customer disconnects from all of the connectors or otherwise indicates that the customer is finished." (‘400 Patent 2:67-3:1-2). According to the first preferred embodiment, a "transaction ends when the customer disconnects from the power connector and the telecommunications channel access connector or wireless connector . . . ." Id. at 6:27-29. Another embodiment provides that "[w]hen the customer is finished, they merely disconnect from the connectors and leave. The central control unit automatically senses this event [and] records the end of the transaction . . . ." Id. at 9:18-21. Later embodiments include "push-buttons that would allow the customer to select the language for the display, the connectors to be activated and, optionally, when to terminate the transaction. In the later case, the customer could push a button that would terminate the transaction and the connection, even though he had not disconnected from the connectors." Id. at 9:36-43. Yet another embodiment posits that "[w]hen the customer has stopped using both power and the telecommunications channel for six seconds, the program terminates the transaction by recording the stop time and turning off the switchable power circuit (when present), the switchable telecommunications channel (when
Neither these nor any other preferred embodiment describes a vending transaction as including more than one session. Moreover, in portraying the use of buttons or other means for terminating a session, the embodiments clarify the prior specification language that defines the end of a transaction as occurring either when the customer disconnects or "otherwise indicates" that the customer is finished. While the Federal Circuit "ha[s] repeatedly warned against confining the claims to [very specific] embodiments" and "strictly limiting the scope of the claims to the embodiments disclosed in the specification," it has also discouraged "divorcing the claim language from the specification." Phillips, 415 F.3d at 1323-24. Appropriate interpretation will consider the full context of the patent. See id.

For these reasons, I construe the disputed claim language as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Court's construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vending transaction</td>
<td>A single open-ended session -- not multiple sessions -- initiated by payment by the customer and delineated by a turning on and off of access to the telecommunications channel</td>
</tr>
</tbody>
</table>

XIII. "Ventilation opening"

The term "ventilation opening" appears in claims 9 and 10 of the '925 patent.

A. The Parties' Proposed Constructions

Black & Decker construes the term "ventilation opening" as "a permeable opening [may include air or moisture permeable material]." Bosch counters that the term means "an opening in the enclosure so constructed as to provide for the circulation of external air through the enclosure to remove heat, fumes, or vapor."

B. The Construction Of "ventilation opening"

Bosch argues that Black & Decker's construction of "ventilation opening" is too broad because it would include any opening in the exterior surface of the radio allowing air or water to pass through. As an example, Bosch explained that the mere fact that a radio would fill with water if dropped into a lake would indicate that it had a ventilation opening under Black & Decker's proposed construction. Indeed, Black & Decker's construction is broader than the meaning of "ventilation opening" to a person of ordinary skill in the art at the time of the invention, based on the intrinsic record.

On the other hand, Bosch seeks to incorporate into the term "ventilation opening" the requirement that the opening provide for the circulation of external air through the enclosure to remove heat, fumes, or vapor. Bosch, however, does not point to any portion of the intrinsic record that specifically requires the circulation of external air. Both sides reference Figure 2 in the specification, showing a louver 25 that has a layer of hydrophobic air permeable material. While this embodiment shows that the ventilation opening allows air to pass through it, it does not expressly require from where the air comes, or how the air is used. Both sides also reference the prosecution history of the '059 patent, where the examiner states that "the use of such ventilation is well known [to] reduce the build up of heat within the radio enclosure." (R. 53-1; FH059072.) This statement reflects the understanding of the examiner as to the meaning of "ventilation opening" and closely tracks the last portion of Bosch's proposed construction, "to remove heat, fumes, or vapor." The Court adopts the construction as set forth in the prosecution history, modified slightly to track Bosch's proposed construction. The Court does not include any requirement that the opening provide for the circulation of external air, because the intrinsic record does not support that specific requirement. Also, the Court rejects Black & Decker's attempt to broaden the term "ventilation opening" to specifically allow for an opening that allows water to pass through it. Black & Decker does not point to any portion of the intrinsic record that supports such a construction. Conversely, the specification of the '925 patent emphasizes the importance of the radio enclosure being "moisture resistant" (col. 2, ll.25-27), "waterproof" (col. 2, ll.28-31), and "preventing moisture buildup" (col. 2, ll.32-34).
Accordingly, the Court construes the term "ventilation opening" as "an opening in the enclosure to provide for reducing the buildup of heat, fumes, or vapor, within the radio enclosure."

"Verifiable"

The second disputed claim term is the word "verifiable," as used in the phrase "verifiable digital cryptographic signature" contained in paragraph (c) of claim 1. Plaintiffs assert that "verifiable" should be construed in accordance with its plain and ordinary meaning as "possible to prove the truth of with evidence or testimony." In the context of the '954 patent, a "verifiable digital cryptographic signature" would then mean the provision of significant evidence of the identity of the agency that applied the digital signature. Defendant, on the other hand, offers a more restrictive interpretation of "verifiable" as meaning "indelibly incorporated into the digital data comprising the receipt in such a way as to make any change apparent and to deter the incorporation of a false time statement."

Under the rule in Vitronics, when interpreting a claim, terms are to be given their ordinary and accustomed meaning unless it appears that the inventor has clearly stated an alternative definition in the patent specification or the file wrapper. See Vitronics, 90 F.3d at 1582. There is no indication in the patent that the inventors intended a special meaning for this term. The term "verifiable" is used in the patent in a way that is consistent with its plain and ordinary meaning, and hence no alternative definition is necessary. Specifically, the '954 patent describes the word "verifiable" as providing "any member of the unlimited universe with significant evidence of the identity of the transmitter of the message." 14 Thus, a "verifiable digital cryptographic signature" shows that a particular time-stamp receipt was prepared by the outside agency applying the signature. And, contrary to defendant's assertion that "verifiable" includes deterring the application of a false time-stamp, the specification cites the well-known RSA verifiable signature scheme, which has nothing to do with the application of a time-stamp, as an example of a "verifiable digital cryptographic signature." 15

----------------- Footnotes -----------------

14 U.S. Pat. No. 34, 954, col. 2, ll. 15-18. The patent further states:

The TSA uses a verifiable signature scheme, of a type such as the public key method earlier noted, to certify the time-stamp prior to its transmittal to the author. Confirmation of the signature at a later time, such as by decryption with the TSA's public key, proves to the author and to the universe at large that the certificate originated with the TSA. Proof of the veracity of the time-stamp itself, however, relies upon a following different aspect of the invention[ i.e., the receipt-linking embodiment].

U.S. Pat. No. 34, 954, col. 3, line 66 to col. 4, line 7 (emphasis added).

15 See U.S. Pat. No. 34, 954, col. 6, ll. 29-39.

----------------- End Footnotes -----------------

Support for the conclusion that "verifiable" as used in claim 1 should not be construed to include deterring the application of a false time-stamp can be found in the receipt-linking time-stamping method, which does have a means of verifying the accuracy of the time-stamp. 16 In this method, the time-stamp prepared by the outside agency incorporates the time-stamp of the preceding and succeeding documents, which allows one to locate the position of a particular time-stamp in the chain
of time-stamps issued by that particular time-stamping agency, thereby providing some certainty as to the time of receipt of
the document by the agency. Claim 14 recites the limitations of the receipt-linking embodiment. Any attempt to read a
requirement of the proof of veracity of the time of receipt from claim 14 into claim 1 is forbidden by the Federal Circuit's
d Doctrine of claim differentiation. See Environmental Designs v. Union Oil Co., 713 F.2d 693, 699 (Fed. Cir. 1983). Thus,
defendant's proffered interpretation of "verifiable" cannot be adopted.

16 See U.S. Pat. No. 34, 954, col. 4, ll. 5-7.

II. Verify the Applicant's Identity
A. Construction of Claim Term

Each claim of the '007 Patent which is at issue in this action requires that the system "verify the applicant's identity." The
court construed this limitation as follows:

To "verify the applicant's identity" means to confirm or substantiate the applicant's identity. This is not limited to
checking biometric information and does not exclude verification using information such as name, address, and social
security number plus some additional information less likely to have been improperly obtained (e.g., mother's maiden name,
years at current address, years at job, etc).

Dkt No. 111 at 3-4 (emphasis in original).

In so construing the '007 Patent, this court declined to accept various limitations proposed by Federated (and aligned parties
in the related actions). For instance, the court declined to impose any requirement for a "biometric" form of verification
such as a electronic signature match.

Nonetheless, the construction adopted by the court recognizes that identity "verification" requires a check of information
which is qualitatively different from the specifically listed items of "name, address, and social security number." That
qualitative difference must be such as to make the information "less likely to have been improperly obtained" than the three
specifically listed items. Of the three listed items, the social security number would be the only one not generally available.
Nonetheless, as DCI correctly notes, the court's use of "such as" preceding the list of examples indicates that the list itself is
not exclusive.


AOL: "During receipt of real-time information confirming that the user's computer is functioning properly based on test
signals unrelated to the real-time information."

TWM: "Determine whether the computer is functioning."

The parties agree that this term should be constructed in alignment with the next term's construction. Therefore, for reasons
described in the Court's analysis of disputed claim 15, the Court adopts TWM's proposed construction.
The '311 patent is entitled "Method and Device for Simplifying the Use of a Plurality of Credit Cards, or the Like." It is directed to providing a method and device for storing information from various sources, such as credit cards, on one multifunction card. According to the specification, the invention "provid[es] the advantage of considerable simplification for the individual user and enormous advantages as regards safety against forgery and, generally, abusive use." '311 patent, col. 2, ll. 38-41. Claim 1 of the patent reads as follows:

A method for enabling a user of an electronic multi-function card to select data from a plurality of data sources such as credit cards, check cards, customer cards, identity cards, documents, keys, access information and master keys comprising the steps of:

transferring a data set from each of the plurality of data sources to the multi-function card;

storing said transferred data set from each of the plurality of data sources in the multi-function card;

assigning a secret code to activate the multi-function card;

entering said secret code into the multi-function card to activate the same;

selecting with said activated multi-function card a select one of said data sets; and

displaying on the multi-function card in at least one predetermined display area the data of said selected data set.

Claim 19, the only claim now asserted, is dependent on claim 1 and further requires the step of "storing a personal signature of the user on a central computer of the party issuing the data source and comparing the personal signature produced by the user with said stored personal signature to verify use of said card."

E-Pass asserts infringement of claim 19 by certain Personal Digital Assistants ("PDAs") sold by Hewlett-Packard as well as the Microsoft software that allegedly enables the PDA to perform the method of claim 19. Specifically, E-Pass asserts that claim 19 is infringed when a PDA is used to access data in an account on a central server that verifies a personal signature for entry into the user's account. E-Pass alleges that the PDA satisfies the "card" limitation in the claims. E-Pass has made the same assertion in other cases that have come before this court. E-Pass Techs. v. 3Com, 473 F.3d 1213 (Fed. Cir. 2007); E-Pass Techs. v. 3Com, 343 F.3d 1364 (Fed. Cir. 2003).

The district court granted summary judgment of noninfringement to Hewlett-Packard and Microsoft based on its construction of one of the claim limitations. Claim 19 requires a comparison of the personal signature of the user with a remotely stored signature to "verify use of said card." E-Pass asserts infringement of claim 19 when a PDA is used to access data in an account on a central server that verifies a personal signature for entry into the user's account. E-Pass alleges that the PDA satisfies the "card" limitation in the claims. E-Pass has made the same assertion in other cases that have come before this court. E-Pass Techs. v. 3Com, 473 F.3d 1213 (Fed. Cir. 2007); E-Pass Techs. v. 3Com, 343 F.3d 1364 (Fed. Cir. 2003).

II

On appeal, E-Pass argues that the district court misconstrued the requirements of claim 19 when it found that the claim required the entity that compares signatures to verify the use of the card. Instead, according to E-Pass, the signature comparison is meant to verify the identity of the user, and the "verify use of said card" limitation of claim 19 should be treated as completely independent of whether the card is being used.

The plain language of the claim supports the district court's construction, not E-Pass's. The phrase "verify use of said card" indicates that the signature comparison is performed so as to verify that the card is being used. Sometimes claim
construction "involves little more than the application of the widely accepted meaning of commonly understood words." Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005). This is such a case.

E-Pass argues that the signature comparison is meant to verify "the user's use of the [card]." and not the use of the card itself. In other words, E-Pass argues that it is the use to which the card is being put that is verified in claim 19, and that since the function of the card is to display the user's data at the request of the user, verification of that use involves verification of the user's identity. The problem with that argument is that to "verify use of said card" does not mean the same thing as to verify the identity of the user. To hold otherwise would be to rewrite the claim.

E-Pass also argues that verification through signatures personal to the user indicates that it is the identity of the user that is verified in the method step of claim 19. While it is true that verification of personal signatures effectively verifies the user's identity, that does not mean the claim does not require the use of the card to be verified as well. Indeed, both the patent claims and the specification indicate that claim 19 includes the card verification requirement.

The other claims of the patent indicate that verifying "use of the card" means something other than simply verifying signatures, which is all claim 19 would require under E-Pass's construction. Claims 2, 3, 7, 8, and 9 discuss "verifying the personal signature[s]" or "verifying said stored signature" by comparing a live signature with a stored signature. In contrast, claim 10 refers to "verifying proper use of said card" by comparing signatures while claim 19 refers to "verify[ing] use of said card." The difference in text between claims 2, 3, 7, 8, and 9 on the one hand, and claims 10 and 19 on the other, suggests that claims 10 and 19 should be construed to require verification that the card is being used. The only difference between those two groups of claims appears to be that the first group of claims requires the stored signature to be stored on the card. Accordingly, verifying the signatures in those claims necessarily verifies the use of the card and the identity of the user simultaneously; without the card there would be no stored signature against which the live signature could be compared. Claims 10 and 19, on the other hand, do not require the signature to be stored on the card. Verification of signatures alone would not necessarily verify the use and presence of the card, as required by those claims, although it would still verify the user's identity. n1

Accordingly, a terminology change would be required if and only if the patentee wanted to ensure that the use of the card was verified. Claims 10 and 19 contain such a terminology change, confirming the district court's construction of claim 19.

n1 Claim 10 reads as follows: "The method of claim 1, including the further step of verifying proper use of said card by comparing the personal signature of the user with a stored signature." Claim 10 is indifferent regarding where the signature is stored; it therefore appears to include the embodiment recited in claim 19, in which the signature is stored with a third party.

The specification provides further evidence that the language of claim 19 requires verification that the card itself is used, and not just verification of the identity of the user. As the district court noted, every embodiment in the specification requires that the card be used to complete the desired transaction. The patent describes three embodiments related to signatures: one in which the signature is stored on the card and verified by hand; one in which the signature is stored on a remote server and electronically or mechanically verified; and one in which the signature is stored on the card and electronically or mechanically verified. '311 patent, col. 5, ll. 11-14; col. 9, ll. 26-31; col. 9, ll. 48-50. In the first and third embodiments, the card must be present at the time of use to enable the signature comparison, and verification of the signatures necessarily verifies both the user and the use of the card. The description of the second embodiment, the embodiment captured by claim 19, also requires the card to be present before the signatures can be verified. As described in the specification, the card itself, in conjunction with a customized point-of-sale terminal, is used to "call up" the central database and retrieve the signature. Since the card is needed to retrieve the signature, comparing the signatures will verify both the use of the card and the identity of the user.

Additionally, in the description of the second embodiment—the only embodiment in which it might be possible to verify signatures without verifying the use of the card—the patent specifically indicates that the described process "verify[s] the inserted card." '311 patent, col. 9, ll. 30-31. Again, the card is verified in that case because the only way to retrieve the
signature stored by the third party is by using the card in the customized point-of-sale terminal. That singular description bolsters the pattern evidenced by the differences between those claims that "verify the card" and those that "verify the signatures." Throughout the patent, whenever the signature is not necessarily stored on the card the patent specifically indicates that the claimed method verifies the use of the card.

A requirement that the presence of the card be verified also makes sense in the context of the specification's description of the invention. One of the objects of the invention is "safety against forgery and, generally, abusive use." '311 patent, col. 2, ll. 38-41. Ensuring that the card is physically present and being used to access the user's data provides an extra measure of fraud prevention.

Since both the claims and the specification would lead a person of skill in the art to conclude that the language of claim 19 requires the party comparing the signatures to verify the use of the card itself, and not just the identity of the user, we hold that the district court correctly construed the disputed claim term. We therefore affirm the court's judgment.

J. Independent Claim 15 "verifying if the originator generated the payment transaction"

The magistrate judge recommended that the phrase "verifying if the originator generated the payment transaction" should be construed as:

"The originator must determine that the originator generated the payment transaction by comparing (a) the unique transaction identifier that has been returned to the originator with (b) a particular transaction with a record of unique transaction identifiers maintained by the originator."

First Report at 13. Both parties have filed objections.

1. Plaintiffs' Objections

Plaintiffs' objections to the magistrate judge's proposed claim construction of "verifying if the originator generated the payment transaction" in independent claim 15 are similar to those Plaintiffs raised in their objections to the magistrate judge's recommended claim construction of "validating," "verifying," and "variations thereof." Plaintiffs again object to the magistrate judge's use of the term "UTID" in his proposed claim construction, and ask the court to replace "UTID" with "transaction content." Plaintiffs contend that the recommendations of the magistrate judge improperly suggest importing the UTID limitation into Claim 15, violating both the general rule that limitation from the specification are not imported into the claims and eliminating claim differentiation between claim 15 and claim 18. See Pl. Obj. to First Report at 13. Plaintiffs propose substituting the term "transaction content" for "UTID." Plaintiffs proposed claim construction of "verifying if the originator generated the payment transaction" is: "The originator must determine that the originator generated the payment transaction by comparing the transaction content that has been returned to the originator with a record of unique transaction identifiers maintained by the originator." Pl. Obj. to Second Report at 13 (emphasis added).

In support of the insertion of "transaction content" for "UTID," Plaintiffs contend the magistrate judge's recommended claim construction of "verifying if the originator generated the payment transaction" in independent claim 15 improperly imports the UTID limitation from the specification into claim 15 and violates the principles of claim differentiation by eliminating the differences between claim 15 and claim 18. Plaintiffs once again recite those instances in the specification where validation may be achieved by referencing the UTID "and/or the transaction content." See supra at 31 (summarizing Plaintiffs' arguments in support of inserting an "or" into magistrate judge's proposed claim construction of "validating," "verifying" and "variants thereof."). Based on these instances, Plaintiffs contend that the magistrate judge's recommended claim construction, which does not include "transaction content," improperly imports the UTID requirement from the specification into the claims. Plaintiffs also argue that claim 15 does not explicitly embody a requirement that a UTID be used. Therefore, the magistrate judge should not read a UTID requirement into the claim. Pl. Obj. to First Report at 14 (and cases cited therein). With regard to Plaintiffs' contention that the magistrate judge's recommended claim construction is contrary to the doctrine of claim differentiation, Plaintiffs argue that claim 18 adds a limitation not present in claim 15 regarding a "unique identifier." "If a 'unique identifier' is equivalent to a 'unique transaction identifier,' then the Recommendation's construction eliminates the claim differentiation between independent
claim 15 and dependent claim 18." Id. Finally, Plaintiffs recognize that a patentee may demonstrate its intention to limit the claim scope using "words or expressions of a manifest exclusion or restriction." Id. at 14-15 (citation omitted). Plaintiffs contend that such phrases would include claims that the invention "always" uses a UTID or "cannot be performed without" a UTID. See id. Plaintiffs argue that no such disclaimer occurred here, and that the language in the Petition Statement upon which the magistrate judge relied "merely expresses a preference for an embodiment using a UTID." Id.

In response, Defendants contend that the court should reject Plaintiffs' objections since the proposed modification (replacing "UTID" with "transaction content") "has no support in the specification and attempts to re-claim material that the applicants disclaimed in the prosecution history." Def. Resp. to Pl. Obj. to Second Report at 17. The court agrees.

As already set forth in detail above, in the Petition Statement, VMachine distinguished the "pending claims" and the "claimed invention" over prior art based on the invention's use of a UTID. VMachine applied the limitation globally, not just to "some claims." The magistrate judge, recognizing the importance of the intrinsic record, concluded that the Petition Statement "makes clear that the presence of a unique transaction identifier is a necessary element to the applicants' claims which distinguish them from prior art. Therefore, the materials before the court support a construction of claim 15 which requires the utilization of a unique transaction identifier." First Report at 9. The magistrate judge not only relied on the prosecution history, but also on the specification since "in the summary of the invention, the utilization of a unique transaction identifier was prominently noted as a method for minimizing the potential for fraud." Id. at 9 n.3 (citing col. 3 lines 23-31). As the court stated previously in overruling similar objections, it is confident based on the specification and the prosecution history, that it is not importing limitations from the specification into the claim. 13 See generally Phillips, 415 F.3d at 1323 ("[T]he distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice."). Moreover, any doubt is overcome by the prosecution history. See supra. Regarding the doctrine of claim differentiation, the court first notes that claim 18 contains a limitation beyond claim 15, namely, with regard to the first and second verification requests, claim 18 recites "attaching" the identifier with "the transaction order." As claim 18 is narrower on its face than claim 15, the doctrine of claim differentiation is not triggered. Moreover, as already stated above, the prosecution history in this case overcomes the presumption of claim differentiation. See Seachange International, 413 F.3d at 1369 (doctrine of claim differentiation is "not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.").

--- Footnotes ---
13 The "Summary of Invention" describes the invention as using a UTID that has been generated by the originator. The "Abstract" on the first page of the '878 patent also states that "verification" of a transaction occurs through use of a UTID generated by a purchaser (originator).
--- End Footnotes ---

Based on the foregoing analysis, the court overrules Plaintiffs' objections to the magistrate judge's recommended claim construction of "verifying if the originator generated the payment transaction" in independent claim 15.

2. Visa's Objections

In its objections, Visa contends that the magistrate judge's recommended construction contains a typographical error as to the placement of the "(b)." According to Visa, the "b" in the magistrate judge's proposed definition should be moved to after the phrase "a particular transaction," rather than before it. Visa's proposed claim construction thus reads as follows: "The originator must determine that the originator generated the payment transaction by comparing (a) the unique transaction identifier that has been returned to the originator with a particular transaction with (b) a record of unique transaction identifiers maintained by the originator." Visa argues that the magistrate judge's discussion and the prosecution history make clear that the UTID and transaction are returned together to the originator; thus both the UTID and transaction should be included under heading "(a)." The originator then compares the UTID for that transaction with the record or listing of UTIDs maintained by the originator for the transactions performed by that originator; thus the record of the UTIDs should be under heading "(b)." The court agrees that the comparison is between "(a) the UTID for a particular transaction that has been returned to the originator" and "(b) the record of UTIDs for transactions performed by that originator." See Def. Obj. to First Report at 7. Accordingly, the court sustains Visa's objection to the placement of "b" in the magistrate judge's proposed construction of "verifying if the originator generated the payment transaction" in independent claim 15. The court construes "verifying if the originator generated the payment transaction" in independent claim 15 as: "The originator must determine
that the originator generated the payment transaction by comparing (a) the unique transaction identifier that has been returned to the originator with a particular transaction with (b) a record of unique transaction identifiers maintained by the originator."

3. "Verifying" and Authenticity

Again, Claim 1 of the '581 patent recites the following: "a switchyard for directing accelerated beam from the accelerator to a selected one of the treatment rooms . . . comprising the steps of: (a) receiving a beam request signal from one . . . treatment rooms; (b) verifying the authenticity of one of the beam request signals from one of the treatment rooms."

(Rosenberg Decl. Ex. 2, the '581 Patent at 9:9-10.) Plaintiff argues the terms "'verifying' and 'authenticity' have well understood ordinary meanings." (Optivus P.&A. at p.15.) Relying on common dictionary definitions and intrinsic evidence, Plaintiff Optivus offers the following definition for the term at issue, Claim 1 step (b): "to confirm that one of the beam request signals from one of the treatment rooms is a valid request for the beam." (Optivus P.&A. at 15-16.)

Defendant, on the other hand, contends the term "verifying" is indefinite. (Ion Beam P.&A. at 12:16-19; see also Lennox Decl. at P 37.) Defendant Ion Beam's argument is conclusory and relies exclusively on the summary opinion stated by Dr. Lennox. (See id.) Moreover, Defendant Ion Beam suggests elsewhere that a similar term, namely "confirming," is perfectly clear. (See id. at 14:23-25.) Indeed, Ion Beam proffers the following definition of the disputed claim term: "confirming by comparison that at least the beam request signal is in agreement with another signal or value indicating the origin of the requesting treatment room." (Id.) Comparing the alternate definitions offered by Plaintiff Optivus and Defendant Ion Beam, it appears that both parties have simply replaced the claim term "verifying" with the word(s) "to confirm" or "confirming." (Compare id.; and Optivus P.&A. at 15-16.) Accordingly, the parties seem to agree that "verifying" means "confirming." 19

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19 Defendant Ion Beam insists that "verifying" means "confirming by comparison." (Ion Beam P.&A. at 14-15.) However, the notion of "comparison" nowhere appears in the actual claim terms. Ion Beam asks the court to import the limitation of "comparison" from the patent specification. But that would probably be reversible error. See, e.g., Texas Digital Sys., 308 F.3d at 1204. The term is not ambiguous. Accordingly, there is no reason to resort to the patent specification in order to clarify the meaning of the term. Schering v. Amgen Inc., 18 F. Supp. 2d 372, 380 (D. Del. 1998), aff'd, 222 F.3d 1347 (Fed. Cir. 2000). Moreover, there is nothing in the patent specification suggesting the court must import the limitation "by comparison" to qualify the term "verifying." The '581 patent sets out, in the summary of the patent, the following language: "The verification and authorization steps may comprise comparing the beam request signals with a beam path. . . ." (Rosenberg Decl. Ex. 2, the '581 Patent at 1:39-41, emphasis added; see also the '581 Patent at 5:44-6:50.) If the patentees wanted to introduce such a limitation, they would have used more definite language, as they did in Claim 2 of the '581 patent: "The method of claim 1 wherein steps (b) and (c) comprise comparing the beam request signal with a beam path configuration signal." (Id. at 9:13-15.)

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This construction is otherwise confirmed by common dictionary definitions. Webster's Third, for example, defines "verify" as "to confirm or establish the authenticity or existence of by examination, investigation, or competent evidence." (Airhart Decl. Ex. N at 232.) The following definition is found in the American Heritage Dictionary of the English Language (4th ed. 2000): "To determine or test the truth or accuracy of, as by comparison, investigation, or reference: . . . See Synonyms at confirm." Available at http://dictionary.reference.com/search?q=verifying. Moreover the Oxford English Dictionary includes the following definition: "In general use: To testify to, to assert, to affirm or confirm, as true or certain." OXFORD ENGLISH DICTIONARY (2d. ed. 1989). Accordingly, the court finds the meaning of the term "verifying" is abundantly clear and it means "to confirm or establish the authenticity, truth or accuracy." In the context of Claim 1 step (b), the court hereby adopts the following construction: "to confirm or establish the authenticity of one of the beam request signals from one of the treatment rooms."
4. "Authenticity"

Defendant Ion Beam refers the court to the following dictionary definitions of the term "Authenticity": "the condition or quality of being authentic, trustworthy, or genuine" and "having an undisputed origin; genuine." (Ion Beam P.&A. at 16:3-11.) Plaintiff Optivus does not disagree with this definition. (Optivus Opp'n at 13-14.) Accordingly, the entire phrase of Claim 1 step (b) is hereby constructed as "to confirm or establish the genuine or trustworthy nature of one of the beam request signals from one of the treatment rooms."

15. "VERIFYING THE OPERATIONAL STATUS OF THE USER'S ACCESS TO THE COMMUNICATIONS NETWORK DURING DELIVERY OF THE REAL-TIME INFORMATION"

AOL: "During receipt of real-time information, confirming the user's connection to the network is functioning properly, based on test signals unrelated to the real-time information."

TWM: "Determining whether the user's connection to the communications network is functioning while real-time information is being transmitted."

AOL argues that the "operational status" means "properly functioning." (D.E. 68, pgs. 16-17). TWM counters that operation status means "functioning," and that including "properly" would be superfluous. (D.E. 69, pg. 22). The question, then, is whether the word "properly" to modify "functioning" is necessary. AOL buttresses its argument by pointing to specification language describing "operational status" as "working and active." TWM points to specification language describing "operational language" as "up and running." Both arguments have merit. Describing a system as "working and active" does intimate that the system is properly functioning. And describing "up and running" does suggest that the system is merely functioning, whether or not in the proper manner. Whether to add "properly" to modify "functioning" would be a close call.

However, this term has not one, but two, disputes at issue. Specifically, the second dispute is whether the verification PING signals is based on "real-time" connections. AOL argues that the specification requires sending Pings over a separate network connection unrelated to the delivery of real-time information, e.g., the song being streamed. An inspection of the specification reveals, in contrast, that the preferred embodiment uses the TCP/IP and Ping methods for communications between the media server and the user. The preferred embodiment continues that when the media server receives a valid "play" command, it initiates real-time audio delivery to the user. The user in turn sends notification to the media server that information has been received through the TCP network, which remains open during the audio play operation, or through the UDP port. Therefore, the pings might be sent via the UDP port or the TCP network. Because the pings could travel on either, and the TCP network provides real-time information, AOL's suggestion that the specification requires verification "unrelated to the real-time information" is incorrect. The Court adopts TWM's proposal.

Whether Chemical Mechanical Polishing is Vertical Anisotropic Etching.

In the claims construction, the Court ruled that etching is defined as removing material. Boning's position is that the process used by Tower and UMC is chemical-mechanical polishing. He explains that this is a method for removing elevated portions of the exposed surface of a wafer. It is used primarily for the purposes of planarizing the wafer surface of defining structures. The mechanization process operates to chemically soften (often through oxidation) a shallow layer of the exposed surfaces of the wafer and then remove the softened layer by making sub-microscopic scratches across the oxidized surface using the abrasive particles of the slurry. The chemical agent in the slurry modifies only the exposed surfaces of the wafer surface. Only after the abrasive particles have removed the top exposed layer can the oxidizing agent modify the newly exposed wafer material, and the next layer can then be "scratched" away. In essence, he defines this process as a horizontal process rather than a vertical process.
2. Very long instruction words.

Intergraph invokes fundamental rules of claim construction and asserts that the phrase "very long instruction word" is specifically defined in the claims of the '028 patent as "having a predetermined number N of instructions and including at least one group of M individual instructions to be executed in parallel, where M is less than or equal to N." Intel contends that "VLIW," when employed in the context of a "wide-word" processing architecture, carries with it a definition standard
among those skilled in the art at the time the '028 patent was filed. Accordingly, Intel proposes a construction drawing upon the traditional definition of VLIW discussed in the patent's specification, but augmented by specific limitations it derives from Figs. 7, 10, & 11 of the '028 patent. In sum, Intel proposes the term "very long instruction word" as used in the claims should mean a fixed width frame containing at least 2 tightly packed groups of instructions, each instruction within each frame having a group identifier and a pipeline identifier contained therein.

1 Whether the term "very long instruction word" used in the claim was meant to embrace the same concept as the acronym "VLIW" used in the context of "wide-word" processing architecture is a matter for the Court. The patents only use VLIW in describing the prior art and purpose of the proposed invention. In the claims, however, the patentee repeatedly uses the phrase "very long instruction word," not "VLIW." Accordingly, the Court construes the term "very long instruction word."

The Court construes "very long instruction word" as a fixed-width instruction that encodes multiple operations. '028 patent at 1:64-66; 5:23-25. A "very long instruction word" may contain one or more groups of individual instructions. Id. at 5:25-28.

2. "Via the Modular Connector"

Although the parties purport to disagree over the construction of these combined terms, in essence the real dispute is over the implication of this language on the construction of the remaining terms of the claims, specifically "electrically couple." Defendants ask that I construe "via modular connector" as "by way of an electrical connector constructed with standardized units or dimensions," which in turn requires adopting the construction of "electrical couple" as a direct wire-to-wire connection with equal voltage. Plaintiffs agree with the definition of "modular connector" but not of "via." Plaintiffs construe these combined terms simply to mean "through an electrical connector constructed with standardized units or dimensions," and not requiring a direct wire-to-wire connection with equal voltage. I agree with plaintiffs.

a. Intrinsic Evidence

"Via the modular connector" does not appear in the remainder of the specification, so once again both parties argue its context in the claim language supports their construction. Defendants argue the phrases "electrically couple" and "via the modular connector" must be read together, and because coupling occurs "by way of the modular connector" it is clear that the coupling is direct and wire-to-wire. Plaintiffs argue defendants' construction is not consistent with the remainder of the claim language and that "electrically couple" and "via the modular connector" need not be interpreted together as requiring direct contact, for "via the modular connector" only appears once in claim 1 and claim 8 respectively, and the term
"electrically couple" is used a number of times in other claims without the term "via the modular connector." Similarly, the term "modular connector" is previously identified in the claim, independent from "electrically couple."

As set forth in claim 1, "the first cable assembly is configured to be electrically coupled to each of the plurality of cable assemblies via the modular connector." Once again, the structure of the invention as set forth in the language of the claims and specification weighs in favor of plaintiffs' construction. For one, the modular connector is identified as a separate part of the invention, therefore the text could be read as "electrically coupling" two separate parts of the invention, via a third distinct part. Accordingly, the electrical connection among the cable assemblies is not direct, but through a third part - the modular connector. Furthermore, although the first cable assembly is electrically coupled to the second cable assembly through the modular connector, i.e. electricity travels from the first cable assembly through the modular connector and into the second cable assembly, there is no requirement that the modular connector on the first cable assembly be directly connected to the second cable assembly. Electrical power can travel from the first cable assembly through the modular connector, through the mounting member, and to the second cable assembly. An electrical connection would still exist among these parts, via the modular connector, despite their failure to have a direct, wire-to-wire connection. This is consistent with the adopted construction for "electrically couple" as well.

Defendants also point to the remainder of the specification for an example consistent with their proffered definition. In the example, the modular connector is common to all the cable assemblies at the junction of the first cable issuing from the reel and the camera cable. (See '994 Patent, Figs. 1, 2.) Defendants also invoke U.S. Patent No. 5,094,396 ("the '396 patent"), which is referred to in the specification of the '994 patent when describing a cord reel. However, "particular embodiments appearing in the written description will not be used to limit claim language that has broader effect." Innova/Pure Water, 381 F.3d at 1117 (citations omitted). The examples in the specification, including the referenced '396 patent, simply do not dictate the claim terms be construed to require a direct, wire-to-wire coupling among all parts identified as "electrically coupled." See Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc., 473 F.3d 1173, 1180 (Fed. Cir. 2006) ("district court improperly imported limitations from the specification.") This would be inconsistent with the claim language.

Defendants also resort to the prosecution history of the '994 patent. The term "modular connector" was added to claim 1 in order to distinguish plaintiffs' invention from the art of record. As already discussed, however, the plaintiffs do not dispute defendants' construction of "modular connector," but of "via." Neither party points to any part of the prosecution history which elaborates on this term. Defendants do argue, without any citation to the record, that "the '994 patent application points out the structure of such a modular connector at the distal end of the first cable assembly mates with the proximal end of the second cable assembly." (Def. Markman Br. at 23.) Even assuming the record supports this assertion, defendants fail to explain why this makes the proper construction of "via" "by means of" instead of "through" and why this requires "electrical coupling" occur only through direct wire connections.

The intrinsic evidence does not contain language limiting the term to require direct wire-to-wire coupling or equal voltage. Neither the claim language nor specification restrict the claims to require a direct wire-to-wire connections among all the parts that are identified as "electrically coupled." The fact that the claim states that the modular connector serves to "electrically couple" certain parts is not enough to read in the limitations included in defendants' construction.

b. Extrinsic Evidence

The dictionary definition provided by defendants for "via" is "by way of" or "by means of." This is not inconsistent with plaintiffs' construction, nor is it of much significance in determining whether "via" requires a direct wire connection with equal voltage.

Overall, in light of all of the intrinsic and extrinsic evidence, I adopt plaintiffs' construction for "electrically couple" as "electrically connected" without requiring a direct, wire-to-wire connection. Similarly, I adopt plaintiffs' construction for "via the modular connector" as "through" the modular connector, but without requiring a direct wire-to-wire connection or equal voltage.

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video buffer image within said host computer
Claim 1 contains the term "video buffer image within said host computer." Accolade contends that "video buffer image within said host computer" means "information stored within the host computer which can be used to display an image." Citrix contends that the term means "a bit mapped (or pixel mapped) version of the image currently displayed on the screen of the host computer that is stored in memory of the host computer." Alternatively, Citrix argues that the term means "a bit mapped (or pixel mapped) version of the image currently displayed on the screen of the host computer, if it has one, that is stored in memory of the host computer." The parties generally dispute the limitations found in their proposed constructions. The Court preliminarily construed the term as "the bit mapped (or pixel mapped) version of the image currently displayed on the screen of the host computer, if it has one, that is stored in memory of the host computer."

In light of further consideration, the Court modifies its earlier preliminary construction of "video buffer image within said host computer" and construes this term as "video image data that is stored in memory within the host computer and is currently available for display." The Court does not adopt Citrix's proposal that includes "bitmapped (or pixel mapped)." Citrix's supporting excerpt from the specification states, "The actual image is taken from the video buffer of the host computer within the range specified by the rectangle. Preferably, the bit mapped (or pixel mapped) image taken from the video buffer is compressed . . . before transmission over the internet." U.S. Patent No. 7,100,069 Patent ("the '069 patent") (incorporated by reference into the '888 patent, col. 1:13-19), col. 13:7-13 (emphasis added). 6 While this excerpt makes reference to an image being "bit mapped (or pixel mapped)," the language used does not reach the level of creating a limitation. See Arlington Indus., Inc. v. Bridgeport Fittings, Inc., 345 F.3d 1318 (Fed. Cir. 2003) (declining to limit the claims from language in the specification where there was no indication in the written description that the patentee acted as her own lexicographer and there was no express disclaimer). The '069 patent reference does not provide any evidence of disclaimer or that the patentee acted as his own lexicographer. Thus, the Court does not adopt "bit mapped (or pixel mapped)" in its construction.

The Court also modifies Citrix's proposed language "currently displayed," and instead uses "currently available for display." The prosecution history states, "The present invention also teaches transmitting image information from the host computer to the client computer whereby the image information includes a portion of the video buffer image of the host computer. In this manner, the client program of the client computer may simulate the monitor of the host computer." Defs.' Br., Ex. 9 (11-13-00 Amendment B), 6. This language indicates that the invention includes an ability to display on the client computer the image currently being output for display on a monitor connected to the host computer, and thereby simulate the monitor of the host computer. Also, the fact that video image data in the video buffer is inherently available for current display confirms this interpretation of the prosecution history. Because the host computer may or may not include a monitor, the Court does not adopt "currently displayed" and instead uses "currently available for display."

Additionally, the Court's construction stating that image information "is stored in memory" is supported by the plain and ordinary meaning of buffer. The parties agree that video buffer is commonly understood to connote memory. See Defs.' Br. 39; see Accolade's Mot. to Recons. Prelim. Claim Constructions 4-5. Thus, the plain and ordinary meaning of buffer is used to construe the claim term. Accordingly, the Court construes "video buffer image within said host computer" as "video image data that is stored in memory within the host computer and is currently available for display." 7

6 The '888 patent makes reference to U.S. Patent Application Ser. No. 08/798,703, which became the '069 patent. See Defs.' Br. 37 n.11. Both parties refer to the '069 patent. See id.; Pl.'s Reply Br. 14.

7 No dispute exists as to the remaining language used in the Court's construction, "within the host computer," or "video image," which are taken directly from the claim language.
C. "Video Camera"

"Video camera" is found in claims 1, 7, and 16. Geospan again argues that no construction is necessary because "video camera" is used in the claim in accordance with its plain and ordinary meaning and will be well understood by the jury. J. Claim Constr. Stmt. at 7. Pictometry proposes the following construction: "An apparatus that converts an optical image into an electronic image that can either be displayed on a monitor or recorded onto magnetic tape to be replayed later." Id. In layman's terms, Pictometry's proposed construction would limit the claim term to analog, as opposed to digital, video cameras.

Pictometry contends the claim term "video camera" would have been understood to a person of ordinary skill in the art at the time of the invention, 1994, to be an analog video camera. In addition, Pictometry claims that the specification consistently describes a "video camera" solely in terms of an analog device by its references to "video tape recorder," "video monitor," and "video tapes." '946 patent, cols. 3:56-57, 5:58-6:2.

Geospan responds that because the plain and ordinary meaning of "video camera" includes both analog and digital video cameras, it would be improper to read the limitation "analog" into the claim term "video camera." In support, Geospan cites SuperGuide Corp. v. DirecTV Enterprises., Inc., 358 F.3d 870 (Fed. Cir. 2004). There, the alleged infringer argued, and the district court agreed, that people skilled in the art at the time of the patent, 1985, would have understood the claim terms "regularly received television signal" and "radio frequency information" to mean analog television signals that were being broadcast in 1985. Id. at 878. Further, the alleged infringer argued that nothing in the specification or prosecution history suggested that the patentees gave a different meaning to the claim terms. Id. The Federal Circuit reversed, concluding that although the alleged infringer's argument appeared "persuasive at first blush," a "closer analysis of the intrinsic record" did not support the proposed instruction because the claim language did not limit the disputed terms to any particular type of technology or specify a particular type of signal format and neither the word "analog" nor "digital" appeared anywhere in the asserted claims. Id. The court held, therefore, that the district court erred by concluding that "after-arising technologies," namely, digital technology, could not fall within the literal scope of the claim terms. Id. The court stressed that there was "little doubt that those skilled in the art knew of the existence of digital video [technology]" at the time of the invention, 1985, and that the patentees were "at least aware" that digital signals could be broadcast in the future, even though the technology may have been in its "infancy." Id. at 879, n.6.

The Court agrees with Geospan that this case requires the same conclusion reached in SuperGuide. If it can be said that those skilled in the art of television broadcast transmissions were aware of digital video technology in 1985, surely there can be no doubt that those skilled in the art of photogrammetry also were aware of digital video technology nine years later in 1994. Had the inventors intended to limit "video camera" to analog technology, "they could have easily done so by explicitly modifying the disputed claim language with the term 'analog'". Id. at 880. Nothing in the language of the claims or in the specification's description of the invention precludes the invention from using digital, as opposed to analog, video cameras in capturing video images.

Pictometry next argues that during the prosecution history of the '946 patent, the inventors consistently described a "video camera" through terminology associated with an analog video camera. Specifically, the inventors stated, in attempting to distinguish prior art, that they had amended the claims to "further define the method of the present invention and now state that the video images are recorded on a video tape . . . ." Hobson Decl., Ex. 5 at 4-5. Similarily, the inventors stated:

In order for the data collected according to the present invention to be usable for short range terrestrial photogrammetry, which differs from traditional stereophotogrammetry . . . . it is critical that for each recorded image the position of the video camera from which the recorded video image was obtained, be precisely known. . . . In particular, for each frame of the video tape on which video images are recorded, the video equipment controller provides the control computer with SMPTE time code of the frame on which the video tape recorder is recording . . . .

Id. at 6-7.

As with the prosecution statements cited by Pictometry in connection with "moving platform," the prosecution statements
cited in support of Pictometry's construction of "video camera" fail to show a clear and unmistakable disavowal of scope. The inventors' efforts to distinguish prior art did not seek to do so on the basis that the prior art captured video images through a digital video camera and recorded associated spatial position data in a digital format, whereas the invention in the '946 patent was confined to analog video cameras to capture video images and the recording of associated spatial position data in an analog format. Instead, the efforts were aimed at distinguishing the prior art on other bases, in particular the prior art's reliance on stereovision and the detail with which the spatial position data of the cameras is recorded and associated with captured video images.

The Court concludes that an examination of the intrinsic evidence reveals that no construction of "video camera" is necessary because the term is used in the claim in accordance with its plain and ordinary meaning to one skilled in the art and is not limited to analog video cameras. Accordingly, the Court need not examine extrinsic evidence.

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Claim 1 of the 849 patent recites, inter alia, "(f) a video combiner connected to said symbol generator and to said display computer for processing said symbol producing signals and delivering them to a selected display device . . . ." The district court construed the term "selected" to require that the claimed invention have (1) the capability to be attached to multiple display devices, and (2) the capability to project different images on different displays.

The district court's interpretation of section (f) is consistent with the specification, which makes clear that the claimed invention is capable of delivering different images to different display devices. The specification discloses that one of the objects of the invention is "to provide in a data converter means whereby the resulting picture of the symbol may be distributed to different display devices," 849 patent, col. 1, ll. 49-52, and teaches that "the video combiner acts as a video distributor in that it routes the output of each symbol to an appropriate display device on which the given symbol is to be displayed," 849 patent, col. 3, ll. 26-29.

The district court's construction of section (f) is also consistent with a statement made to the PTO during the prosecution of the 849 patent. In responding to a rejection by the examiner, Mr. Okor distinguished his invention from the Wagner prior art reference by stating that "Wagner's system does not allow for the selective positioning of symbols on different display screens." Mr. Okor's statement distinguishing the Wagner reference indicates that the term "selected" in section (f) of claim 1 refers to the ability to display different images on different display devices.

Mr. Okor challenges the district court's claim construction by citing to the following disclosure in the specification:

If there is more than one display device, it is necessary to know on which display devices to display each symbol. The selector word (S) tells the video combiner 24 where each symbol is to be displayed. The length of the selector word (S) is equal to the number of display devices. If the bit at location i of selector word (S) of symbol j is one, then symbol j could be displayed on display device i.

849 patent, col. 5, ll. 53-59. Mr. Okor argues that this disclosure does not preclude a mode of operation in which all the bits of the selector words are set to one, so that all symbols appear on only one display. According to Mr. Okor, the patent does not require that the claimed invention have the capability of being attached to multiple display devices, but contemplates that it can permanently select a single display device. Although Mr. Okor's argument is correct, it does not advance his position with respect to summary judgment. Even though all the bits of the selector words can be set to a single display device, the claimed invention still has the capability of selecting more than one device. For a "selection" to take place, more than one option must exist. In sum, the claim language, the specification, and the prosecution history persuade us that the district court's construction of section (f) of claim 1 is correct.

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B. "video data"; "video pixel data"; "data set"; "image data set"; "the video data"; "the video pixel data"; "said video pixel data"; "the data sets"; "said image data sets"
1. The Parties' Proposed Constructions

The parties' dispute respecting these terms centers on the meaning of the term "data" when it is used in the context of a video still store system. The parties also disagree about the relationship between the first reference to "data" in each claim and subsequent references to "said data" or "the data." Ampex asserts that "data" should be construed to mean "information, in any form, representing a video image." (D.I. 305 at 7-8.) Ampex then argues that "said/the data" means "data representing the same image as the antecedent data." (Id. at 9.) In other words, the later referenced "data" need not be exactly the same as the initial "data," as long as it represents the same image. (D.I. 300 at 20-21.) Ampex claims support for its proposed claim construction in the preferred embodiments of the invention and the specification of the '121 patent. (Id. at 21-22.) Ampex also relies on extrinsic evidence, including dictionary definitions, expert testimony, and the claim construction arguments made by Kodak during licensing discussions with other companies. (D.I. 307, Exs. 16, 17; D.I. 346 at 13-14.)

Defendants assert that "data" simply means "numerical information." (D.I. 305 at 7.) In line with this proposed construction, Defendants argue that "said/the data" can only mean "the data that is first referenced in the claims." (Id. at 9.) Thus, Defendants contend that any subsequent use of the term "data" in the form "said/the data" refers to the same numerical information as the initial use of the term. (D.I. 299 at 10, 13.) The basis for Defendants' asserted claim construction is the claim language, specification, and prosecution history of the '121 patent, as well as extrinsic evidence in the form of dictionaries and expert testimony. (Id. at 9-13.)

While the parties' arguments focus almost exclusively on the meaning of "data," none of the claims in the '121 patent use the term "data" by itself. Rather, claims 7, 8, 11, and 14 use the term "video pixel data" ('121 patent at 6:23-48, 6:49-7:20, 7:65-8:14, 8:65-10:7), claim 10 uses the term "video data" (id. at 7:31-64), claim 12 uses the term "image data sets" (id. at 8:15-47), and claims 13 and 15 use the term "data sets" (id. at 8:48-64, 10:8-33). Although these terms were not discussed at length in the briefs, both parties have submitted proposed constructions for them. Therefore, I will consider the arguments made regarding the term "data" when construing the terms that are actually present in the claims.

2. The Court's Construction

The ordinary meaning of "data," in the context of a digital system, is "numerical information." See The American Heritage Dictionary (New College ed. 1982) (defining "data" as "numerical information in a form suitable for processing by computer") (cited by Defendants at D.I. 301 at A-009). Ampex's expert, Dr. Ligler, agreed that "data" refers to numerical information. When asked about the meaning of "video pixel data" in claim 7, Dr. Ligler stated that "data is represented using 1s and 0s which is mathematical data." (D.I. 301 at A-632, 280:3-14.) Dr. Ligler went on to say that, when in stored form, "data" cannot be anything other than numbers. (Id. at A-633-634, 288:21-289:6.) Although Ampex submits dictionaries that define "data" broadly to mean "information" (D.I. 307, Exs. 16, 17), Ampex does not overcome the evidence, both intrinsic and from its own expert, showing that "data" is limited to numerical information when used in the context of a digital still store system.

The specification of the '121 patent further explains what is meant by "data, and more particularly the claim terms "video data," "video pixel data," "data set," and "image data set," in the context of the claimed still store system. In order for a video image to be stored in a digital still store system, such as the one claimed in the '121 patent, the image must be in digital format. ('121 patent at 3:16-19.) According to the specification, in "digital sampled data form ... each pixel of video data is represented by three eight bit data bytes defining respectively luminance, red chrominance, and blue chrominance components." (Id. at 3:19-24.) Thus, once converted to digital form, every pixel in an image has three components, each of which has a particular numeric value. (Id. at 3:29-34.) These component values are then represented as a series of binary bits, with each bit being a one or a zero, and the resulting data being stored in the still store system. (See id.) Therefore, the specification confirms that, in a digital system, "data" refers to numerical information and "video data" refers to the numerical information that represents the pixel components of a video image.

There is no indication in the specification or claims that the terms "video data," "video pixel data," "data set," and "image data set" were intended to have different meanings. On the contrary, they appear to be used synonymously. For example, even after the specification explains that a digital video image is composed of pixel components (id. at 3:19-24 ("each pixel of video data has three components), the specification continues to use the term "video data," and not "video pixel data," to refer to information representing a digital image (id. at 3:47-48 ("video data representing a frame of a video image").
Also, the claims appear to use the terms "video data" and "video pixel data" interchangeably. Claim 8 recites a "random access memory means ... for storing the video pixel data presented at the input port" and a "bulk storage memory ... for presenting selected groups of video data at said input port for storage by said random access memory means." (Id. at 653-55, 6:60-63 emphasis added.) Thus, claim 8 uses "video data" and "video pixel data" to refer to the same data. Finally, the claims also use the terms "data set" and "image data set" to refer to information representing an image in the digital still store system. (Id. at 8:15-18 ("full size image data sets representative of corresponding full size images"); id. at 8:48-51 ("A method of storing video pixel data for access and display comprising: providing data sets for a plurality of full size images").) Since images stored in digital format are composed of pixel components, the terms "data set" and "image data set" must be referring to the same numerical information as the terms "video data" and "video pixel data." Since these four "data" terms are used synonymously in the specification and claims, I will give them the same construction. I will construe "video data," "video pixel data," "data set," and "image data set" to mean "numerical information representing the luminance, red chrominance, and blue chrominance components of each pixel in a video image."

In each of the asserted claims, the term "said" or "the" is used in conjunction with a reference to "video data," "video pixel data," "data set," or "image data set." (Id. at cols. 6-10.) The parties appear to agree that the first use of one of these "data" terms in each claim provides an antecedent basis for later references in the form "said data" or "the data." (D.I. 299 at 11; D.I. 346 at 12.) Since each "data" term refers to the numerical information representing the components of each pixel in an image, "said/the data" logically refers to the set of numerical information necessary to recreate those pixels. Ampex actually appears to acknowledge that conclusion when it argues that "said/the data" means that the data must create the same image as that born of the antecedent data. (D.I. 300 at 20.) The specification clearly teaches that, in digital form, an image is represented by the values of the three components of each pixel. (121 patent at 3:19-24.) Therefore, in order for digital data to represent the same image, it must represent the same luminance, red chrominance, and blue chrominance values for each pixel of that image. To the extent that the data necessary to achieve the same luminance and chrominance values must be the same bits originally referenced, the claims require that sameness. To the extent any difference in bits can occur and still achieve the same pixel values, and to that extent only, a variation in the bits is contemplated by the claims.

Ampex argues that construing "said/the data" to require the same numerical information would read a preferred embodiment of the invention out of the claims. (D.I. 300 at 21-22.) According to Ampex, the specification sets forth an embodiment of the invention in which a significant amount of processing takes place between the video input and the image store. (Id. at 21.) Ampex contends that Defendants' claim construction is improper because, in this preferred embodiment, the image store cannot contain the same numerical information that was originally supplied by the video input. (Id.) Of the asserted apparatus claims, only claim 12 is relevant to this argument because it is the only one that provides for a video input. n4 Claim 12 recites "[a] video still store system comprising: an external source for supplying a plurality of full size image data sets representative of corresponding full size images; an image store for storing said full size image data sets ..." (121 patent at 8:15-24.) Therefore, the critical issue is whether the external source performs the processing before it supplies the data or some other circuitry performs the processing between the external source and the image store.

n4 The other apparatus claims asserted by Ampex do not recite a video input ('121 patent at cols. 6-10.), and therefore, they are irrelevant to Ampex's argument that significant processing takes place between the video input and the image store.

Ampex points to two types of processing that are discussed in the specification. First, the specification discloses that "the video input ... will include appropriate video signal decoding means to process video data received from sources that provide the data in an encoded form." (Id. at 3:8-11.) The only element of claim 12 that can be considered a video input circuit is the "external source." (Id. at 8:15-47.) Thus, according to the specification, it appears that the external source itself will perform the decoding process. Contrary to Ampex's assertion, this processing will not occur between the external source and the image store.

Second, the specification states that "[a]n input analog-to-digital (A-D) converter ... is coupled to receive an input video signal provided by the video input circuit ... which typically includes video signal processing circuitry that prepares the signal for conversion by the A-D converter ..." (Id. at 3:12-14.) Claim 12 states that the "external source" supplies "a plurality of full size image data sets." (Id. at 8:16-18.) As previously discussed, the term "image data set" means numerical
information representing the pixel components of a video image. However, the pixel components of a video image only exist after the image has been converted to digital format. (Id. at 3:19-24.) Therefore, in claim 12, the analog-to-digital conversion must be performed before the external source can supply "image data sets" to the digital still store system. As a result, this processing cannot occur between the external source and the image store.

Since neither form of processing described in the specification takes place between the video input and the image store, construing the term "said/the data" to mean the same numerical information encompassed by the first reference to "data" does not read a preferred embodiment out of the claims. Moreover, the focus is not on the exact order of the ones and zeros; it is on the sameness of the image created. As construed above, references to "said/the data" require numerical information representing the same component values for each pixel in the image. Thus, any processing that may occur within the digital still store system, to the extent that it changes binary bit values but still maintains the same pixel values, will not remove the system from the scope of the claims. Again, however, the claims will not cover a system that, in the course of processing the data, changes the values of the luminance and chrominance components.

Finally, Ampex contends that the construction of "said/the data" affects a preferred embodiment of the invention in which the permanent memory component is a magnetic disk store. (D.I. 300 at 22.) Specifically, Ampex relies on expert testimony that "the data actually recorded on the magnetic disk storage system would not be mathematically identical to the data for the video image as stored in the framestore, because ... [it] would be encoded using formats more appropriate for more permanent storage." (D.I. 309 at 8, P 37.) Specifically, the encoding methods used for magnetic disk drives "would significantly change the actual bits recorded on the magnetic disk drive from their original form." (Id. at 8-9, P 40.) Defendants admit that storage on a magnetic disk drive would change the ones and zeros, but they contend that the values of the pixel components would remain the same. (D.I. 348 at 10.) Accordingly, a magnetic disk drive that changes binary bit values without affecting pixel values will not fall outside the scope of the claims.

In sum, I construe "the video data," "the video pixel data," "said video pixel data," "the data sets," and "said image data sets" to mean "numerical information representing the same luminance, red chrominance, and blue chrominance components of each pixel in a video image."

In sum, I construe "the video data," "the video pixel data," "said video pixel data," "the data sets," and "said image data sets" to mean "numerical information representing the same luminance, red chrominance, and blue chrominance components of each pixel in a video image."

2. "Video Delay Circuit"

Comark argues that the term "video delay circuit" means "a circuit which provides to the complementary non-linear amplifier a video signal which is delayed in time." Harris argues that the term means "a circuit element with no other purpose or effect than to delay a 'video signal,' to compensate for the large, unintentional delay inherent in a transmitter's IF vision modulator stage."

Claim 1 of the '904 patent describes "a video delay circuit for receiving and delaying the video signal to provide a delayed video signal." (Ex. DMX-1 at col. 6, lines 27-28.) The specification of the patent describes the video delay circuit as follows:

Because the video signal 25 is delayed by the IF vision modulator 19, the video delay circuit 13 is included to provide[] a similar delay of the video signal 25 so that there is a coincidence of the modified IF aural signal 28 with a visual signal 26, outputted by the IF vision modulator, at the adder 21.

Id. at col. 3, lines 29-34. This description appears almost verbatim in Claim 2. Id. at col. 6, lines 45-48. The fact that the "coincidence" requirement is in Claim 2 demonstrates that the "video delay circuit" of Claim 1 is different because it does not have this feature or any other limitation. Therefore, the court concludes that the "video delay circuit" claimed in Claim 1 is broader than the "video delay circuit" claimed in Claim 2. Claim 1 describes a more general delay circuit with no specific elements, functions, or objectives.

Harris' proposed definition is too narrow because the court does not find that the video delay circuit claimed in the '904 patent has only one purpose or effect or that the delay inherent in a transmitter's IF vision modulation stage is large or unintentional. Rather, Comark's definition is appropriate because it accurately describes the function of the circuit in the
context of Claim 1: to provide to the complementary non-linear amplifier a video signal which is delayed in time.

3. "Delayed Video Signal"

Comark and Harris agree that the term "delayed video signal" refers to a "video signal" that has passed through a "video delay circuit." (Pl.'s Proposed Findings of Fact and Conclusions of Law P 9; Def.'s Pre-Hr'g Mem. at 12.) This definition incorporates the definitions of "delayed video signal" and "video signal."

* * *

The term "video delay circuit" in Claim 1 means a circuit that provides to the complementary non-linear amplifier a video signal that is delayed in time.

The term "delayed video signal" in Claim 1 means a "video signal" that has passed through a "video delay circuit."

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In this case, the term "video delay circuit" has a clear and well-defined meaning. This term is not so amorphous that one of skill in the art can only reconcile the claim language with the inventor's disclosure by recourse to the specification. See E.I. du Pont de Nemours, 849 F.2d at 1433 (stating that the specification can supply understanding of unclear terms, but should never trump the clear meaning of the claim terms). Rather than looking to the specification to ascertain the meaning of a claim term as it is used by the inventor in the context of the entirety of his invention, Harris instead asks us to look to the specification in order to limit the phrase "video delay circuit" to its functional purpose as disclosed in the preferred embodiment. Harris is indeed correct that the specification clearly discloses that the video delay circuit functions to compensate for delay introduced to the video signal being processed by the IF vision modulator by introducing a similar delay to the same video signal in the correction path. However, the language in the specification does not at all aid in our interpretation of the phrase "video delay circuit." It simply details how the video delay circuit is to be used in a single embodiment of the invention. It in no way sheds light on either the meaning of the term to the inventor, or the common meaning of the term to one of skill in the art.

Further, the language that Harris argues should limit claim 1 is clearly found in the '904 patent's description of the preferred embodiment. It is precisely against this type of claim construction that our prior case law counsels. "Appellant misinterprets the principle that claims are interpreted in the light of the specification. Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 U.S.P.Q.2D (BNA) 1057, 1064 (Fed. Cir. 1988) (internal citation omitted); see Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 U.S.P.Q.2D (BNA) 1289, 1299 (Fed. Cir. 1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.").

Finally, as the district court correctly pointed out, Harris's proposed construction of claim 1 would violate the doctrine of claim differentiation by rendering claim 2 superfluous. While we recognize that the doctrine of claim differentiation is not a hard and fast rule of construction, it does create a presumption that each claim in a patent has a different scope. "There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." Tandon Corp. v. United States Int'l Trade Comm'n, 831 F.2d 1017, 1023, 4 U.S.P.Q.2D (BNA) 1283, 1288 (Fed. Cir. 1987). Claim 2 incorporates claim 1 by reference and further defines the "video delay circuit" element with the following additional limitation: "wherein the video delay circuit provides a delay so that there is coincidence of the modified aural signal with the IF modulated signal at the adder circuit." To interpret the term "video delay circuit" to mean a video delay circuit that compensates for the delay introduced by the IF vision modulator, as Harris suggests, would render claim 2 completely superfluous and redundant of claim 1. Harris has not shown any reason sufficient to rebut the presumption that claim 1 should not be so limited in order to preserve the distinction between claims 1 and 2. Consequently, we decline Harris's invitation to limit the term "video delay circuit" to the specific function disclosed in the preferred embodiment and affirm the claim construction of the district court.

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II. Video Display Device and Display Means

Plaintiffs propose to construe the terms "video display device" (‘964 Patent, claim 1) and "display means" (‘964 Patent, claim 4) broadly as a device for providing an image which may be viewed by a viewer, where the device is capable of displaying a moving image. Defendants propose to limit the terms to mean a raster scan device. In the alternative, Defendants propose to define the terms to mean a camera, scanner, television, laser printer, fax machine, or the like that is coupled to the video fill circuit and displays the enhanced image. Where one claim in a patent does not contain a certain limitation, but another claim in the patent does contain the limitation, "that limitation cannot be read into the former claim in determining either validity or infringement." Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325-26 (Fed. Cir. 2003)(stating that "[t]here is a rebuttable presumption that different claims are of different scope" and that "courts must take extreme care when ascertaining the proper scope of the claims, lest they simultaneously import into the claims limitations that were unintended by the patentee"). In the instant action, the words "raster" and "scan" are absent from claims 1 and 4, but are present elsewhere in such patents, such as in claim 5 of the '964 Patent, which depends from and further limits claim 4. Defendants have not provided sufficient justification to read into claims 1 or 4 as limitations the words "raster" and "scan." Thus, the limiting construction "raster scan" cannot be read into claim 1 or 4.

In regard to Defendants' alternative proposed construction, Defendants propose to graft the Sony construction of "display means" onto the entire term "video display device." Plaintiffs, on the other hand, seek to preserve the relationship between the construction and the terms "display means" and "display device," accounting separately for the modifier "video." The court in Sony indicated that a display device should be construed broadly to encompass matrix and hard copy display devices as well as raster type displays, which is what Plaintiffs propose. 2005 U.S. Dist. LEXIS 17962, 2005 WL 2035578, at *3-*4. Defendants have not provided sufficient justification to reach a different construction in regard to the claims before this court. Therefore, we construe the terms "video display device" (‘964 Patent, claim 1) and "display means" (‘964 Patent, claim 4) in a manner consistent with Plaintiffs' proposed construction.

2. Video Game Controller

Defendants contend that the term "video game controller" should mean only those which are joy sticks or are stabilized with one hand and operated by the other hand. The Court cannot agree.

The patent expressly states that "game controllers take a variety of forms, but usually [hence, not always] include at least a button and either a dial or a joystick." 754 Patent col. 1, lines 17-18. The term "video game controller" in the claim should not be read narrowly to include only one of the possible types to which the inventor refers in the specification.

Nor can the Court find in the term "video game controller" a limitation to a device that is stabilized with one hand and operated by the other. While the patent refers to controllers so stabilized when describing the benefits of the invention 2, there is no indication that the term video game controller should be read to exclude such devices that might not be stabilized with one hand and operated with another. Indeed the Patent states: "Virtually all [hence not all] controllers require the use of both hands, one to hold the controller and one to operate the controls." 754 Patent, Col. 1, Lines 19 - 21.

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2 "The invention generally relates to a unique holder for video game controllers which frees one hand and simplifies the operation of the game controller . . ." 754 Patent, Col. 1, Lines 37 - 39. (Emphasis added)

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Moreover, the words "stabilized" and "stable" are, in the context of the 754 Patent, relative terms referring to a continuum of
conditions between a theoretical state of complete instability to a theoretical state of perfect stability. Thus, a video game controller can be "stabilized" by being held in one hand if it is made more stable than it would be if not so held, for example by being placed on a table. References to the use of the invention to "stabilize" such a game controller refer to making the controller more stable than it would be if the invention were not used.

Defendants, on the other hand, assert that the term "video" should be construed, by itself, to mean "a series of related electronic images created for rapid display to allow the appearance of movement." (D.I. 305 at 1.) Accordingly, Defendants contend that there is no aspect of the patent that supports using "video" to refer to a still image. (Id.) For example, Defendants argue that "video" means an "electronic signal representation of visual information that is one of a series of related electronic images created for rapid display to allow the appearance of movement." (D.I. 305 at 3.) This proposed construction does not limit the term "video" to motion videos. (D.I. 348 at 4.) But, according to Defendants' construction, the term "video" does limit the source of a still image. (Id.) In other words, a still video image is a single frame captured from a stream of video. (Id. at 5.) Defendants base their construction on the language of the specification, as well as extrinsic evidence regarding the use of the term "video" during the 1980s, which is when the application for the '121 patent was filed. (D.I. 299 at 6-8.) Defendants also contend that Ampex's proposed claim construction would render "video" meaningless because it would allow any electronic image to be considered a "video image." (Id. at 8-9.)

2. The Court's Construction

The specification of the '121 patent intermingles its use of the terms "image" and "video image" (compare '121 patent at 1:15-17 with id. at 1:27-30), which may be the source of some confusion as to the meaning of these terms. However, when considered in its entirety, the specification does not use the term "video image" to mean only those still images that have been extracted from a stream of images. The specification states that "[t]he invention provides an electronic imaging system that records both motion and still video images." (343 patent at 2:3-4 (cited by Ampex at D.I. 347, Ex. 43).) With respect to the still video images, the specification of Kodak's patent further explains that, in still mode, "a high resolution still image is captured and recorded by the recording unit ... each time the record switch ... is depressed." (Id. at 3:27-31.) Thus, Kodak used the term "video image" for a still image that was captured firsthand by the electronic imaging system, and not by extraction from a related motion image. European
Patent No. 0051305, which is referenced by the '121 patent, also uses the term "video" to describe electronic images. ('121 patent, References Cited.) Specifically, this patent uses the term "video signal" to refer to 2-dimensional picture information that was acquired using a scanner. (European Patent No. 0051305 at 5:23-29 (cited by Ampex at D.I. 308, Ex. 3).) Similarly, U.S. Patent No. 4,205,780 discloses a system that "includes a video camera ... mounted on the document scanner and positioned to capture the video image of each document." (U.S. Patent No. 4,205,780 at 5:55-58 (cited by Ampex at D.I. 307, Ex. 10).) In both of these patents, "video" refers to an image that is obtained by scanning a document, and not from a motion image. This review of other patents, albeit brief, demonstrates that others of skill in the art likely understood "video image" to include any still image in electronic form.

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n2 Kodak's '343 patent was applied for on February 28, 1994. ('343 patent (cited by Ampex at D.I. 347, Ex. 43).)

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Defendants' argument that Ampex's proposed construction essentially reads "video" out of the claims is not persuasive. The term "image," alone, is not limited to electronic representations of visual information. Rather, as Ampex contends, "image" is broader because it includes the depiction of visual information in other formats, such as transmission through a lens or reflection from a mirror (D.I. 346 at 10), or images captured in non-electronic form, such as a photograph or painting. n3 Thus, Ampex's proposed construction does not render "video" superfluous. Accordingly, I will construe the term "video image" to mean "an electronic signal representation of visual information displayable in visual form on a monitor or other display device." I will also construe "video still store" to mean "a system capable of storing still video images."

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n3 This is not to say that a non-electronic image, like a photograph, cannot become a "video image." It would become a "video image" if it were digitized and electronically stored.

--- End Footnotes ---

**L. "Video Player"**

The term "video player" appears in dependent claim 14. Consistent with its construction of the term "media playing means," Apple argues that a video player is not capable of playing music as Apple defines the phrase. As discussed above, a video player may be media playing means. The term is construed as "an electronic device capable of playing a video as well as musical sound."

**14. Based on the intrinsic evidence, the Court construes the '158 patent claim limitation "video program" to mean "recorded movies, broadcast television programs, and cable television, regardless of the media on which they are recorded." See Hearing Tr. at 4:2-5 (June 1, 2009).**

**1. "Video Signal"**

Comark argues that the term "video signal" means "a signal containing television picture information which is not modulated on to any carrier." Harris argues that the term means "a signal containing video information that is input to a
transmitter's IF vision modulator (as opposed to a signal derived from the output of the IF vision modulator, which is referred to in claim 1 as a 'visual signal.')"

A "video signal" can be used to describe the video signal inputted into the IF vision modulator in the '904 patent. (Tr. 10/21/96 at 137.) In addition, an engineer of ordinary skill in the art would use the term "video signal" to describe a signal that had been derived from the output of an IF vision modulator. (Tr. 10/18/96 at 120.) Engineers of ordinary skill in the art use the term "video signal" to describe all sorts of signals that are derived from the output of an IF vision modulator. Id. at 132.

The patent, however, does not use the term "video signal" to mean both types of signals. Claim 1 describes an aural carrier correction system for a common amplification television transmitter that includes "at least an IF vision modulator for receiving a video signal and for outputting the visual signal." (Ex. DMX-1 at col. 6, lines 25-26.) The specification describes the term "video signal" as being "inputted to both the IF vision modulator 19 of the transmitter 12 and the video delay circuit 13 of the correction system 11." Id. at col. 3, lines 26-29. Figure 1 is consistent with these descriptions of the term.

The patent is clear that a "video signal" is television picture information that is inputted to the IF vision modulator and the video delay circuit. The term is used in no other context and has no other meaning in the patent. The court will adopt a modified version of Harris' proposed construction. 5

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5 The parties agree that the phrases "television picture information" in the Comark definition and "video information" in the Harris definition are interchangeable. (Def.'s Pre-Hr'g Mem. at 8 n.4; Pl.'s Post-Hr'g Mem. at 7 n.5.) The court is persuaded by Comark's suggestion that "television picture information" is more appropriate.

In addition, Harris' definition defines "video signal" as a signal "that is input to a transmitter's IF vision modulator." Because the specification of the '904 patent also provides that the signal also is input to the video delay circuit of the correction system, the court believes that both inputs should be part of the term's definition. The court will modify the definition accordingly.

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The term "video signal" in Claim 1 means a signal containing television picture information that is input to the transmitter's IF vision modulator and the video delay circuit.

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I. "Video Signals"

The term "video signals" appears in claim 16 of the '253 patent. ABC contends that "video signals" are "a type of data signal[s] sent from the remote computer to the local computer/interface unit for the production of images on the video display." 245 WebEx asserts that "video signals" are "signals specifically designated for carrying video information as opposed to general data." 246

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245 ABC's Brief, Docket Entry No. 154, at 22.

246 WebEx's Brief, Docket Entry No. 156, at 28.

--- End Footnotes ---
1. Meaning of "Video"

The parties' proposed definitions differ in the way they describe how the word "video" describes or limits the word "signals." ABC's definition provides that video signals are signals "for the production of images on the video display." Therefore, ABC's definition explains that the adjective "video" connotes an association with the production of images. WebEx's definition, on the other hand, is apparently intended solely to differentiate video signals from data signals, and does not elaborate on the meaning of "video." WebEx's definition circularly provides that video signals are "for carrying video information . . . ."

The court concludes that ABC's proposed definition is more helpful in this regard, and is consistent with the intrinsic and extrinsic evidence. The specification of the '253 patent describes one embodiment of the invention in which video signals and data signals received by the local portion from the remote computer unit are formatted into "audio television signals, video television signals, or audio and video television signals." 247 These television signals are then "transmitted to the television display unit so that the television signals are perceivable by the individual located adjacent the television display unit." 248 This description indicates that video signals provide information that can be expressed in a perceivable format by a television or other similar device that, among other things, displays images. Furthermore, the description differentiates audio and video television signals, which indicates that the video signals provide the visual or image portion of the information that is expressed by the television or other similar device, and not the sound. 249

247 '253 patent, col.8 ll.3-9. The specification describes "television signals" as "signals adapted to be displayed by a television set, or any other type of suitable video and/or audio signals." Id. col.5 ll.41-44.

248 Id. col.8 ll.9-12.

249 Presumably, the audio or sound information is provided by the "data signals."

2. A Type of Data Signals

ABC defines video signals as "a type of data signal[s] . . . ." WebEx responds that the claim language and the specification of the '253 patent specifically differentiates between data signals and video signals and, therefore, that video signals are not a type of data signals. 252 WebEx asserts that video signals carry video information, while data signals may carry any other "non-video information." 253 Accordingly, WebEx contends that the definition of video signals should explain that video
signals are "specifically designated" for communicating video information, "as opposed to general data."

Both parties point to the claim language in support of their respective positions. Claim 16 states that

data signals received from each individual's local portion [are] transmitted to each individual's remote computer unit . . ., the data signals being processable by the individual's remote computer unit . . . to generate output signals, the output signals including video signals and being transmittable from the individual's remote computer unit . . . to the individual's local portion.

As WebEx points out, the claim language does not indicate that video signals are a type or subcategory of data signals. The claim uses the term "data signals" only to describe signals that are transmitted from the local portion to the remote computer unit for processing. The claim describes the signals transmitted from the remote computer unit back to the local portion as "output signals," of which "video signals" are a constituent. The claim language, however, does not necessarily foreclose the possibility that video signals could be a type of data signals. For example, "output signals" could be a type of "data signals." Therefore, the claim language alone does not provide a definitive answer, and the court looks to the specification for further guidance. See Markman, 52 F.3d at 979 ("Claims must be read in view of the specification of which they are a part.").

In support of its position WebEx also directs the court to a sentence in the specification describing a particular embodiment of the invention. The sentence states that "the remote portion 22 . . . provides video signals to the local portion 12 . . . via the sequential communication links 27b and 20a, and data signals to the local portion 12 . . . via the sequential communication links 27a and 16a." WebEx argues that because the specification describes video signals being relayed from the remote portion to the local portion over one set of communication links (27b and 20a) and data signals being relayed over another set of communication links (27a and 16a), the two types of signals must be mutually exclusive.

ABC counters that WebEx is improperly reading a limitation from the specification into the claim. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904 (Fed. Cir. 2004) ("[I]t is improper to read a limitation from the specification into the claims."). ABC also points out that the specification provides that "each of the communication links are shown and described separately herein for the sole purpose of clearly illustrating the information being communicated between the various components. The communication links may not be separate communication links but may be a single physical communication link."

ABC counters that WebEx is improperly reading a limitation from the specification into the claim. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904 (Fed. Cir. 2004) ("[I]t is improper to read a limitation from the specification into the claims."). ABC also points out that the specification provides that "each of the communication links are shown and described separately herein for the sole purpose of clearly illustrating the information being communicated between the various components. The communication links may not be separate communication links but may be a single physical communication link."
The court is persuaded by WebEx's argument. The cited portion of the specification gives no indication that video signals are a type of data signals. For example, the specification does not say that video signals are transmitted over one communication link while "other" data signals are transmitted over another. Instead, this portion of the specification simply describes video signals and data signals as two different types of signals. Therefore, the fact that it is possible to distinguish video signals from data signals and transmit each type of signal over its own respective communication link strongly indicates that the two categories are mutually exclusive.

Moreover, ABC's argument that WebEx is improperly reading a limitation from the specification into the claim is unavailing. WebEx is not arguing that data signals and video signals must be transmitted over separate communications links, as they are in the embodiment described. In other words, WebEx is not suggesting that an accused device that transmits the two types of signals on a single communication link would not infringe the asserted claim. Instead, WebEx is merely pointing out that the specification indicates that it is possible to distinguish the two types of signals and transmit them separately. WebEx is properly analyzing how the two terms "video signals" and "data signals" are used in the context of the specification to ascertain their meanings.

Although WebEx has cited only one small excerpt from the specification, the balance of the specification consistently describes data signals and video signals as two distinct types of signals. For example, the specification explains that the remote computer unit processes incoming data signals "to generate output signals including video and data signals." 257 This sentence indicates that there are two distinct categories of output signals -- video signals and data signals -- and it gives no indication that video signals are a type or subcategory of data signals. This sentence also makes clear that the output signals described in claim 16 -- of which video signals are a constituent or type -- are not themselves a type or subcategory of data signals. Instead, it is the other way around -- data signals are a type or category of output signals. 259

257 '253 patent, col.8 ll.20-23.

258 See '253 patent, claim 16 (as amended) (describing the remote computer unit "generat[ing] output signals, the output signals including video signals").

259 The court does not mean to suggest that all data signals are output signals. The patent describes data signals that are clearly not output signals. For example, the claim language describes data signals that are transmitted from the local portion to the remote computer unit for processing. See '253 patent, claim 16 (as amended). The court intends only to explain that some output signals are data signals.

3. Sent from the Remote Computer Unit to the Local Computer Unit

ABC's proposed definition describes video signals as "sent from the remote computer to the local computer/interface unit . . . " ABC's proposed definition therefore suggests that all video signals are necessarily sent from the remote computer unit to the local computer unit. This aspect of ABC's definition is not supported by claim language or the specification.

In claim 16 video signals are mentioned only once, and are described as "being transmittable from the individual's remote computer unit . . . to the individual's local portion." 260 The claim language therefore indicates that video signals can be sent from the remote computer unit to the local portion, but does not suggest that video signals are confined exclusively to that context. Furthermore, the specification describes video signals that are transmitted by a "television station block" to the local portion. 261 Therefore, the court concludes that video signals are not necessarily sent from the remote computer unit to the local computer unit and will not include this limitation in its definition.
260 '253 patent, claim 16 (as amended).

261 See '253 patent, col.6 ll.14-37 (explaining that the local portion may receive television signals from both a "television station block" and the remote computer unit, and defining a "television station block" as "any television station which transmits audio and/or video signals which can be displayed or otherwise output by the television display unit" (emphasis added)).

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - - - -

4. Conclusion

The court concludes that "video signals" are "signals specifically designated for the production of images on the video display." "Video signals" are not a type of "data signals."

GO BACK

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"viewpoint motion"

Claims 1, 28, 42, and 52 of the '785 Patent contain the term "viewpoint motion." IPI contends the term means "a sequence of images that are perceptible as views of a three-dimensional workspace from a moving or displaced viewpoint." Google contends the term means "a sequence of images that causes the viewpoint to appear to move from an initial position to other positions." The parties dispute whether the specification adequately defines the term and whether the term's construction requires inclusion of references to a three-dimensional workspace and viewpoint displacement.

IPI contends its proposed construction is taken directly from the specification, which states: "'Viewpoint motion' or 'viewpoint displacement' occurs when a sequence of images is presented that are perceptible as views of a three-dimensional workspace from a moving or displaced viewpoint." '785 Patent, col. 7:41-44. IPI contends that the inventors acted as their own lexicographers and thus, that definition should be adopted as the appropriate construction. Further, IPI points to other portions of the specification that support this proposition. IPI's Opening Brief, at 26-27. Google counters that IPI's proposed construction is unnecessarily complicated and confusing because other portions of the claim already require that the views be of a three-dimensional workspace. See e.g., '785 Patent, col. 20:39-42 ("presenting a first image on the display; the first image including a first surface that is perceptible as viewed from a first viewpoint within a three-dimensional workspace"). Google further contends that IPI's inclusion of the concept of a "displaced viewpoint" is unsupported because "displaced" is not co-extensive with "motion."

Both parties' proposed constructions set forth "when" and "how" "viewpoint motion" occurs, i.e., by a sequence of images. Although the specification describes the operation of "viewpoint motion," a description of the operation does not constitute a definition of the term as to what "viewpoint motion" is. The specification's description of Figures 2A and 2B of the '785 Patent is particularly useful in defining "viewpoint motion." The relevant portion of the specification provides:

'785 Patent, col. 9:11-23. In light of the claim language and the specification, the Court proposed the following construction for "viewpoint motion" to the parties at the hearing: "perceived movement of an image presentation on a display." IPI's only objection to this proposed construction was that it did not cover "displacement" of the viewpoint. Although "motion" may include "displacement," they are not the same. Further, there is no support in the claim language or the specification to include the concept of "displacement" in the construction of the term "viewpoint motion." Google's only request was that the proposed construction clarify that the "viewpoint" of the image is what is moved, not the image itself. Google's
requested clarification is consistent with the claim language and the specification. Accordingly, the Court construes the term "viewpoint motion" to mean "perceived movement of the viewpoint of an image presentation on a display."

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### 4770

#### 3. "Virtual address"

The court now considers the term "virtual address." The parties' dispute over this term primarily involves the incorporation of the word "application" as used in the defendants' definition. According to the plaintiff, these patents disclose hardware inventions. The plaintiff's argument is that because the patents are hardware patents, use of a definition that includes "application" improperly incorporates a software limitation into the claims. The defendant, for its part, points to several dictionary definitions of the term "virtual address" which suggest that the term itself implies a software limitation. After considering the parties' positions, the court construes the term "virtual address" to mean "a memory address provided by the CPU in executing an application software program and that is translated into a real memory address by hardware." See '846 Patent, Col. 6 ll. 50-53.

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### 4771

#### X. "virtual block address" -- '051 patent

The claim term "virtual block address" appears in claims 2, 3, and 18 of the '051 patent. The parties propose constructions of the disputed claim phrase as follows:

<table>
<thead>
<tr>
<th>Lexar's proposed construction:</th>
<th>Toshiba's proposed construction:</th>
<th>Pretec's proposed construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value to indicate a block location</td>
<td>[NOTE: Toshiba actually construes ‘first virtual block address’]. An address of a physical block in the nonvolatile memory where original information of an information block is stored.</td>
<td>The address of a simulated block that holds the address of a physical block.</td>
</tr>
</tbody>
</table>

The Court finds that Lexar's proposed construction is the correct one for this term. Toshiba's construction is flawed in that the use of the word "address" does not clarify what an "address" in the disputed claim phrase is. The Court finds that Lexar's proposed language, "value to indicate," is more useful here. The Court also finds that much of Toshiba's proposed language, such as "in the nonvolatile memory," is surplusage that fails to clarify what a "virtual block address" is. Additionally, referencing "a physical block" provides an overly narrow construction of "virtual block address" because the VBA does more than indicate a physical block. As Lexar discussed at oral argument, the VBA puts the information block back together and to limit its function to a physical block "depriv[es] it of some part of its function." (Claim Construction Hearing Transcript at 96:17-18.)

The Court also rejects Pretec's proposed construction of "virtual block address." Again, using "address" to define "address" is not helpful. Additionally, Pretec's proposal to include "simulated" adds a limitation to the claim phrase that does not exist in the claims themselves. Therefore, the Court adopts Lexar's proposed construction of "virtual block address:" value to indicate a block location.
4. Constructing a virtual bounding box around each inset of the maps

This term appears in the 615 patent. The defendants contend that the phrase means "drawing an imaginary box around each and every inset of the maps." The plaintiff contends that the term needs no construction; however, the plaintiff would agree to a construction of "defining an imaginary box around each inset of the maps." The court adopts this latter approach and defines the term to mean "defining an imaginary box around each inset of the maps."

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4. "virtual files"

Claim Seven of the '399 Patent provides, "An interface device according to claim 2, which further comprises a root directory and virtual files which are present on the signaled hard disk drive and which can be accessed from the host device." '399 Patent, col. 13:33-36. Papst defines "virtual files" based on the type of media on which such files are stored as meaning "files which appear to be present on an emulated disk drive, yet which are not actually on a rotating disk." Papst's App. at 5. The Camera Manufacturers offer instead that a "virtual file" is "a file that does not physically exist as a file in the interface device but appears to the host device to be an actual file, and references data to be transmitted between the data transmit/receive device and the host device." CMs' Markman Br. at 38.

Claim Seven depends from Claim Two; under Claim Two, the interface device signals to the host device/computer that the interface device is a hard disk. See '399 Patent, col. 13:33 & 13-17. The "signaled hard disk drive" in Claim Seven refers back to the signal first mentioned in Claim Two. That signaled hard disk drive, which does not exist in fact, "further comprises a root directory and virtual files," id., col. 13:34, which also do not exist in fact.

The 1993 New IEEE Dictionary defined the term similarly to the construction proposed by the Camera Manufacturers. In the context of a "virtual record," "virtual" was defined as: "a record that appears to be but is not physically stored; rather, it is constructed or derived from existing data when its contents are requested by an application program." New IEEE Dictionary at 1461 (attached to CMs' Markman Br. as Ex. G); see also Oxford English Dictionary at 674 (2d ed. 1989) (defining "virtual" in the context of computers to mean "not physically existing as such but made by software to appear to do so from the point of view of the program or the user") (attached to CMs' Markman Br. as Ex. P). The '399 Patent and the specification do not indicate that Mr. Tasler used the term "virtual file" in any unique way, such as that proposed by Papst, and the Court construes the term to have its ordinary meaning.

Papst argues that if one interprets "virtual file" to mean "a file that does not physically exist as such but is made by software to appear to do so from the point of view of the program or the user," Claim Seven would be inconsistent with Claims Eight, Nine, and Ten which, Papst asserts, cover "virtual files that are actually stored in the interface device." Papst's Reply at 35. Papst misreads these Claims. Each says, "wherein the virtual files comprise" a configuration file "stored in the memory means," '399 Patent, col. 13:38 (Claim Eight); batch files or executable files for the microprocessor "stored in the interface device," id., col. 13:43-44 (Claim Nine); and batch files or executable files for the host device "stored in the interface device." Id., col: 13:48-49 (Claim Ten).

The Court perceives no conflict among the Claims. Virtual files that are "stored in the memory means" or "stored in the interface device" are no less virtual for that reason. Under Claims Eight, Nine, and Ten, what is "stored" are software instructions in the interface device which instruct the interface device to present data as if in real files of the types described, but which files are, in actuality, non-existent. The Court adopts the definition from the New IEEE Dictionary as the most clear and pertinent: "virtual files" in Claim Seven of the '399 Patent means "files that appear to be but are not physically stored; rather, they are constructed or derived from existing data when their contents are requested by an application program so that they appear to exist as files from the point of view of the host device."
H. Virtual Interface with the Device

Claim 4 further describes the bytecode instructions in the module's software that "generate on the client machine a virtual interface with the device." Digi asserts that "virtual interface with the device" should be defined as a "graphical user display running on the client machine that provides control options for the device and that allows the client machine to generate device control signals to be transmitted to the device control circuitry via the module." Lantronix, on the other hand, contends that the Court should construe this term as an "on-screen virtual image generated by software from the module of a control interface specific to a device."

The patent specification describes a virtual display that allows the user to monitor or control the device from a client machine. The patent specification states that "the user interface or virtual control panel displayed on the browser may be an HTML page, or a Java applet. In either case, graphics, buttons, indicators, etc., may be used to simulate the equipment's control panel or actual appearance." ('192 Patent c. 5, 11: 35-39.) The specification also describes, in the Java-based control method, a "virtual control panel" Java applet that is "created to provide the user of the client to remotely monitor and/or control the remote equipment." (Id. at c. 8, 11: 66-67 - c. 9, 11: 1-2.) In addition, this method describes the "activation of buttons and controls on the panel" that are "translated into commands by the applet and transmitted to the network interface chip." (Id. at c. 9, 11: 13-16.)

The Court finds that the claim language and the specification do not limit the construction of "virtual interface with the device" in the manner that Digi proposes, nor does it broaden the language in the manner that Lantronix proposes. First, neither the claim language nor the specification limits the construction of the virtual interface to a "graphical" display. In fact, the specification lists "graphics" as one of several examples of the way the virtual control panel can simulate the device's control panel. (Id. at c. 5, 11: 35-39.) Digi's proposed construction is too narrow in this regard. In addition, although the specification does not specifically delineate "control options" or "control signals," the specification does provide that the virtual interface is a control panel that generates commands that are sent to the device. (Id. at c. 8, 11: 66-68 - c.9, 11: 1-2; c. 9, 11: 13-16.)

Consistent with the claim language and the specification, the Court construes "virtual interface with the device" to mean "a virtual display that allows the user of the client machine to send commands from the client machine to the device control circuitry via the module."

8. The term "virtual keyboard" in claim 36 is construed with reference to The IEEE Standard Dictionary of Electrical and Electronics Terms -- Sixth Edition (D.I. 66 Ex. Y) as "an input device displayed on a screen consisting of a systematic arrangement of keys, used to encode data."

"Virtual Path"

Alcatel's proposed construction for "virtual path" is "a logical connection transmitted over a physical path and through which one or more virtual circuits may be constructed." Cisco's proposed construction is "a logical path through which data belonging to a particular customer's virtual private network travels and which (1) is dedicated to a particular customer and cannot be shared by other customers, and (2) has a guaranteed bandwidth (e.g., committed information rate)." The principle differences between the parties' proposals is that Cisco seeks to include two additional limitations, namely, that the "virtual path" is dedicated to a particular customer, and that it has a guaranteed bandwidth.

Both parties agree that "virtual path" was not a term commonly known to one of ordinary skill in the art at the time of the
Seid invention. Therefore, the Court will look to the language in the patent for guidance. In the summary of invention, the patent introduces the term "virtual path" ("VP") as follows: "Segments of the VCs [virtual circuits] are carried by VPs, each VP being a logical connection established between two VP terminators which are located in either network elements or customer premises equipment … Each VP is allocated a positive guaranteed bandwidth …" Seid, at 2:66-3:4 (emphasis added). Elsewhere in the patent, VPs are described as having a guaranteed bandwidth. See, e.g., Seid, at 6:3-4 ("A guaranteed (positive) bandwidth (VP-CIR) is allocated to each VP"), 6:22-23 ("[T]he VP reserves a committed bandwidth …"), 14:45 ("Each VP is defined by its bandwidth …").

Alcatel argues that, because "virtual paths" are described as having positive guaranteed bandwidth in claim 9, but not in claim 1 when the term "virtual path" is first introduced in the claims, Cisco is improperly trying to read a limitation from claim 9 into claim 1. See Grain Processing Corp. v. American Maize-Products Co., 840 F.2d 902, 911 (Fed. Cir. 1988) ("It is improper to read the limitations of one claim into another."). However, construing "virtual path" to require a guaranteed bandwidth would not be reading a limitation from one claim into another. When the reference to guaranteed bandwidth is first made in claim 9, it is being made because the claim also contains a discussion of when congestion occurs on a physical path, which requires "only a virtual path using bandwidth greater than the respective positive guaranteed bandwidth … to reduce [its] submission rate of packets onto the network." Seid, at 21:39-42. Claim 1 contains no such discussion regarding congestion, and therefore there is no need to refer to a "virtual path" as having a guaranteed bandwidth. However, simply because claim 1 does not contain language regarding guaranteed bandwidth, that does not necessarily imply that such guaranteed bandwidth is not a component of a "virtual path." In fact, a more complete reading of the patent indicates that guaranteed bandwidth is a required facet of a "virtual path."

Furthermore, the specification also indicates that a "virtual path" is assigned to a particular "virtual private network." In particular, the specification states, "A VP can be specified analogous to an FRC [frame relay connection] with the addition of two parameters of operation: (1) the identity of a VPN [virtual private network] (or reserved subscriber) to which the VP belongs; and (2) the maximum number of VCs that may be multiplexed on this VP." Seid, at 14:8-13 (emphasis added). Elsewhere, the specification states that "[t]he set of VPs established for a customer constitutes the customer's virtual private network." Id. at 14:40-41. See also Seid, at 15:18-19 ("[T]he FR [frame relay] network manager must … provide the identity of a VPN to which the VP will belong …").

In response, Alcatel only argues that the patent allows for sharing of bandwidth when certain "virtual paths" are not using their guaranteed bandwidth. See id. at 3:44-49, 11:28-32. While this is certainly true, it does nothing to refute the statements in the patent that a "virtual path" is assigned to a particular "virtual private network." 53

--- Footnotes ---

53 Cisco seeks a construction that would limit "virtual paths" to being dedicated to a particular customer, not simply to a particular "virtual private network." However, the Court feels that this is too strict a reading of the patent. As discussed previously in the discussion of "virtual private networks," every independent claim addressing "virtual private networks" contains a limitation that the network is "carrying traffic associated with a particular customer of the packet-based network." See, e.g., Seid, at 19:66-20:1, 21:11-13, 24:18-20. Therefore, such limitation need not be read into the construction of "virtual path."

--- End Footnotes ---

Therefore, the Court construes the term "virtual path" as "a logical connection transmitted over a physical path, which is dedicated to a particular virtual private network and has a guaranteed bandwidth, through which one or more virtual circuits may be constructed."

**virtual presence**

The term "virtual presence" means a remote user's ability to send and receive voice and data communications to and from a corporate office with the full capabilities and user interfaces of the corporate office just as if the remote user were physically

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The term "virtual presence" is not commonly used in the relevant art. The Court looks to the intrinsic evidence, from the perspective of one of ordinary skill in the relevant art, to determine the meaning of "virtual presence." 118

The term "virtual presence" is used in the "summary of invention" section of the '639 patent:

The present invention enables the concept of virtual presence or "telepresence" whereby a user at a remote location has the full capabilities and user interfaces of the corporate office just as if the user were physically located at the corporate office. Thus the telephone of the remote user mirrors the telephone the user sees at the corporate office, including substantially the same button configurations at substantially the same locations performing substantially the same functions. 119

This language shows that "virtual presence" entails full functionality of the office telephone and LAN from the remote location.

The "summary of invention" states further:

According to the invention, the remote user makes outgoing telephone calls, sends faxes, transmits data, sends email and performs internet access as if the remote user were physically present in the corporate office. Likewise, incoming calls, faxes, data transmissions and email received at the corporate office are routed to the remote user as if the remote user were physically present in the corporate office. Therefore, a co-worker or external party who telephones the user at the corporate office is unaware that the user is actually not physically located at the corporate office, but rather is at a remote location. 120

The plain meaning of this language shows that "virtual presence" entails transparency from the outside, that is, a person calling the corporate office for the remote worker would be connected to the remote user without being able to perceive that the remote user is not in the corporate office.

The joint claim construction chart indicates that plaintiff originally proposed this interpretation of "virtual presence": "the remote user transparently operates as if, and appears to a coworker or other party to be, physically located in the remote user's corporate office." 121 Plaintiff further highlighted the central feature of transparency in its opening statement, when arguing that if the office door of the remote worker were closed, the remote worker's colleagues at the corporate office should not be able to tell that the remote worker was not in his office when a call was placed to the remote worker's office phone. 122 Two of the inventors, Dr. Barker and Mr. Witt, testified, in sum, that virtual presence allows a remote user to appear to those interacting with him or her to be in the office. 123 In the course of the preliminary injunction hearing, however, plaintiff contended that the claims do not require transparency or, as characterized by plaintiff, "true virtual presence." Plaintiff now argues that the '639 patent "describes preferred embodiments in which the virtual presence server
instructs the corporate PBX to automatically forward all calls to the remote user" but, in these embodiments, the caller with a display telephone would be aware that the PBX had forwarded the call. Therefore, plaintiff argues, if virtual presence requires transparency, a preferred embodiment in the specification would not fall within the scope of the claims -- an interpretation, plaintiff argues, is rarely, if ever, correct. 124 Instead, plaintiff argues that a "reasonable impression" of transparency is all that is required. 125

--- Footnotes ---
121 Docket no. 76. As authority for this interpretation, plaintiff referred to the specification, '639 patent, col.2, lines 50-63 and col. 5, line 66 through col. 6, line 34.

122 Tr. 16-17. The summary of the invention states: "Therefore, a co-worker or external party who telephones the user at the corporate office, or sends email or a fax to the user at the corporate office is unaware that the user is actually not physically located at the corporate office, but rather is at a remote location. In general, a secretary or receptionist located just outside the user's physical corporate office location is unable to discern, without opening the door, whether the user is located in his office at the corporate office or at the remote location" ('639 patent, col. 3, lines 4-12).

123 Tr. 313-14, 470.

124 Docket no. 104 at 12. 125 Docket no. 104 at 12.

--- End Footnotes---

The words of the patent clearly indicate that transparency was part of the claimed invention. 126 In addition, the specification repeatedly emphasizes the importance of transparency to the concept of virtual presence and defines "virtual presence" or "telepresence" to include transparency. This definition, if not dispositive, is highly relevant. 127

--- Footnotes ---
126 As noted by plaintiff in its opening argument, "particular embodiments appearing in the specification will not generally be read into the claims . . . What is patented is not restricted to the examples, but is defined by the words in the claims." Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988) (citations omitted).

127 Vitronics, Corp., 90 F.3d at 1582 ("the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term"); Renishaw PLC, 158 F.3d at 1250.

--- End Footnotes--

Transparency is not at issue with respect to data communications. 128 Transparency is at issue with respect to voice communications. Plaintiff's expert, Mr. Bradner, a person with ordinary skill in the art, agreed at the preliminary injunction hearing that, under the words of the '639 patent, a person who calls the office number of the remote user and whose call is transferred to a remote location should not be able to perceive that the remote worker is not in the office; therefore, if the forwarding of the call is apparent, it would be "incomplete virtual presence, at best" and that "virtual presence" "probably" is not present as that term is used in the patent. 129 To practice the invention, the PBX must send calls to the remote worker in a way that insures transparency. 130

--- Footnotes ---
128 Although the '639 patent purports to offer the full capability of the office LAN to the remote user, Mr. Witt admitted that there are some data, such as files sent to a fixed IP address of an office computer by file transfer protocol, that cannot be accessed remotely (Tr. 542-46, 566-68).

129 The Court notes that Mr. Bradner's declaration in opposition to summary judgment asserts that "virtual presence" under the patent "only requires that the remote worker reasonably appear to be in the office" rather than transparency (docket no. 108, ex. 1 at 2). To the extent, that this expert's testimony refers to claim construction, it has been supplanted by the Court's
legal decision on the meaning of "virtual presence" which includes the extension of the full capabilities of the PBX and LAN to the remote worker.

130 Mr. Bradner testified that the '639 patent covers situations in which there is no call forwarding at all (Tr. 816-17). For example, Mr. Bradner agreed that if a remote worker never works in the office and, in fact, does not have an office telephone, the VPS does not use call forwarding or remote call forwarding to forward office calls to the remote worker, but, instead, the remote worker is assigned an extension on the PBX that is permanently attached to the VPS.

The term "virtual presence server" means a server located at the corporate office that executes software that enables the remote user to maintain a virtual presence at the corporate office by dialing the VPS and establishing a direct connection.

The "summary of the invention" section of the '639 patent states: "The [VPS] executes software that enables the remote user to maintain a virtual presence at the corporate office" by dialing the VPS and establishing a connection." 146 Access from the remote user to the VPS is through the PSTN and not the LAN. After the remote user connects to the VPS through the PSTN, then the remote user connects to the LAN through the VPS. Access from the remote user to the telephony server is not through the LAN or RAS (remote access server) but directly through the VPS.

Plaintiff proposes a definition of VPS as a node on the LAN. With respect to data communications, the VPS may be a node on the LAN even though figure two to the patent suggests that the VPS is not connected directly to a LAN but connected to a LAN through a RAS. With respect to voice communications, a remote worker receives a call at a remote location when the call is sent from the PBX through the VPS. The LAN is not involved at all in the delivery of the call to the remote worker and, so far as voice is concerned, the VPS is not even a node on the LAN. Accordingly, plaintiff's definition of VPS to mean an node on a LAN is not accepted.

Plaintiff also suggests that the VPS must be capable of supporting more than one user at the same time. The definition of "remote user" makes it clear that a system that covers only one user is covered by the '639 patent. The two testifying experts, Bradner and Weiss, people with ordinary skill in the relevant art, each agreed that a server can serve only one user and that the claimed invention could be practices by a system that supports only one remote user. 147

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A virtual presence server communications device is a modem, ISDN adapter or similar device attached to the VPS that connects to the VPS through the transmission media to allow the remote user to dial up the VPS and establish a connection with the VPS through the connection media in order to transmit and receive communications.

"Virtual Private Network"

Alcatel's proposed construction for "virtual private network" is "a collection of packet-based network elements logically connected over one or more physical paths." Cisco's proposed construction is "collection of logical nodes and virtual paths dedicated to one network customer." The primary differences between the two constructions is that Cisco seeks to limit the "virtual private network" to being comprised of "virtual paths" 49 and being dedicated to only one customer, while Alcatel seeks a construction without such limitations.

In determining the proper construction for this term, the Court will first look to the claim language itself. See Kraft Foods, 203 F.3d at 1366. In this regard, when the term "virtual private network" 50 is used in the claim language, it is always specifically described to include "a collection of packet-based network resources including respective network elements, customer premises equipment, virtual paths, and corresponding virtual circuits." See, e.g., Seid Supp., col. 20, ll. 15-18; col. 21, ll. 27-30; col. 23, ll. 3-6 (hereinafter Seid, at 20:15-18, 21:27-30, 23:3-6). Thus, limiting "virtual private networks" to being comprised solely of logical nodes and virtual paths, or limiting it only to network elements, would be at odds with the claim language.

Next, the Court turns to the language in the specification. See Interactive Gift Express v. Compuserve, 256 F.3d at 1336 ("Despite the plain language of the claims, we turn to the specification to discern whether [the inventor] attributed a different meaning to the term . . ."). Here, the specification provides support for both parties' constructions. The specification describes virtual private networks as being "simply a collection of network resources taken from an underlying network." Seid, at 1:46-47. The "virtual private network" in this invention is also described as follows:

According to the present invention, in a packet switching (packet-based) network, such as a frame relay (FR) network,
which includes network resources made up of networked elements and customer premises equipment interconnected by one or more physical paths, a VPN [virtual private network] is built above the underlying network and includes selected portions of the network resources. The VPN is a collection of logical nodes and virtual paths (VPs) and includes one or more virtual circuits (VCs), each VC being a logical connection between CV terminators including network elements and customer premises equipment.

Seid, at 2:56-66 (emphasis added).

Elsewhere, the patent again describes a "virtual private network" as "a collection of logical nodes and virtual paths," although the patent history shows that Alcatel specifically described the "virtual private network" to include "a collection of network resources including network elements, customer premises equipment, virtual paths, and corresponding virtual circuits." Id. at 5:32-34, AL0001143.

Taken together, the claim language itself clearly does not restrict the "virtual private networks" to logical nodes and virtual paths, nor does it only consist of network elements. However, in their proposed constructions of this term, both parties appear to misconstrue the fundamentals of claim construction. When the term "virtual private network" is being used in the claims, it is not creating a new term, but is using a term previously available in the prior art, and then specifically describing in the claims the differences of the virtual private networks in this invention. Therefore, the Court will not construe a claim term to include the limitations that are separately included in the actual claim. The reason why the above-referenced limitations are separately disclosed in every independent claim that contains the term "virtual private network" is because such limitations are not implied in the term itself. 51

51 In similar fashion, Cisco argues that "virtual private networks" must be dedicated to one network customer. However, every claim using the term "virtual private network" contains the limitation that the virtual private network is "carrying traffic associated with a particular customer of the packet-based network." See, e.g., Seid, at 19:66-20:1, 21:11-13, 24:18-20. Therefore, the fact that the inventor included this limitation in every independent claim containing the term "virtual private network" is strong evidence that the limitation was not implicit in the term itself.

The specification and the claim language show that a "virtual private network," as the term is used in the claims, is comprised of selected portions of network resources from the physical network over which the virtual private network is built. 52 See id. at 2:60-62. Any further limitation is contained in the claims themselves. Therefore, the Court construes the term "virtual private network" to mean "collection of selected portions of network resources logically connected over one or more physical paths."

52 The extrinsic evidence provided by the parties does nothing to alter the meaning of term as described in the patent.
be used to construe "virtual private network," whether VirnetX's proposed construction is overly broad, whether "virtual private network" requires anonymity, and whether IP tunneling is a limitation on "virtual private network." In light of intrinsic and extrinsic evidence, the Court construes "virtual private network" as "a network of computers which privately communicate with each other by encrypting traffic on insecure communication paths between the computers."

The '135 patent does not provide an explicit definition for "virtual private network." However, the '135 patent uses "virtual private network" in ways that are consistent with a "virtual private network" being "a network of computers which privately communicate with each other by encrypting traffic on insecure communication paths between the computers." The specification discusses a VPN in the context of connecting and communicating between nodes. For instance, the specification states, "In a second mode referred to as 'promiscuous per VPN' mode, a small set of fixed hardware addresses are used, with a fixed source/destination hardware address used for all nodes communicating over a virtual private network." Col. 23:11-14. This excerpt shows that the '135 invention includes nodes (computers) communicating over a virtual private network.

Furthermore, the claims and specification discuss a VPN in the context of private communication on insecure communication paths. Claim 1 states "A method of transparently creating a virtual private network (VPN) between a client computer and a target computer" and then states the steps of accomplishing this method including "requesting access to a secure web site." Col. 47:20-22, 30-31. Thus, claim 1 associates a "virtual private network" with "security." Also, the specification states, "If the user is not authorized to access the secure site, then a 'host unknown' message is returned (step 2705). If the user has sufficient security privileges, then in step 2706 a secure VPN is established between the user's computer and the secure target site." Col. 39:21-25. This excerpt shows how a "virtual private network" establishes a secure connection between nodes where security may not otherwise exist. Thus, the claim language and the specification are consistent with construing a "virtual private network" as "a network of computers which privately communicate with each other by encrypting traffic on insecure communication paths between the computers."

Extrinsic evidence also supports this construction. The Wiley Electrical and Electronics Engineering Dictionary defines a "virtual private network" as

A network which has the appearance, functionality, and security of a private network, but which is configured within a public network, such as the Internet. The use of a public infrastructure while ensuring privacy using measures such as encryption and tunneling protocols, helps provide the security of a private network at a cost similar to that of a public network.

WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY 842 (2004) (published by the IEEE Press). This dictionary definition describes a network that has attributes of a private network but runs on a public network. The dictionary definition further states that encryption may be used to achieve privacy. The Court's construction is in line with this definition. All pertinent aspects of the Court's construction are explicitly found in the dictionary definition except for "insecure communication paths," which simply corresponds to the dictionary definition's reference to "a public network." Thus, the Court's construction is in accord with the dictionary definition.

Also, the '135 patent refers to the "FreeS/WAN" project in the specification. The specification explains that the "FreeS/WAN" project is developing a conventional scheme that provides secure virtual private networks over the Internet. Col. 37:50-58. The "FreeS/WAN" project defines "virtual private network" as "a network which can safely be used as if it were private, even though some of its communication uses insecure connections. All traffic on those connections is encrypted." "FreeS/WAN" Glossary 24-25, Pl. Br. (Docket No. 194) Ex. 6. The Court's construction is consistent with this definition. 3

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3 The Court's construction largely adopts VirnetX's proposal. However, this construction excludes VirnetX's proposed language regarding the ability of a virtual private network to expand. VirnetX proposes this language to account for the possibility of including additional computers and communication paths in a virtual private network. Pl.'s Br. 6. The Court's construction does not limit a "virtual private network" to any particular number of computers or communication paths. Thus, VirnetX's proposed language is superfluous. Accordingly, the Court's construction accounts for the possibility of additional computers or communication paths.
Microsoft contends that the "FreeS/WAN" glossary is not an explicit definition of "virtual private network" and thus is not persuasive. Microsoft argues that the '135 patent's reference to the "FreeS/WAN" project is made only to describe the prior art and not to define "virtual private network." However, the specification explains that the "FreeS/WAN" project has been developing an implementation of one conventional scheme that provides secure virtual private networks over the Internet. Col. 37:50-58. Also, the applicant disclosed the "FreeS/WAN" project as prior art. See Def.'s Br. (Docket No. 201) Exs. M-O. While these references to the "FreeS/WAN" project do not explicitly define "virtual private network," they at least point to extrinsic evidence that can be considered in construing "virtual private network." Thus, the Court may consider the "FreeS/WAN" project/glossary as extrinsic evidence for construing "virtual private network."

Microsoft also contends that even if the "FreeS/WAN" glossary offers an acceptable definition for "virtual private network," portions of the "FreeS/WAN" glossary definition show that VirnetX's proposed construction is overly broad. Microsoft cites the portion of the "FreeS/WAN" glossary definition for "virtual private networks" that states "IPSEC [Internet Protocol Security] is not the only technique available for building VPNs, but it is the only method defined by RFCs [Request for Comments, Internet documents--some of which are informative while others are standards] and supported by many vendors. VPNs [virtual private networks] are by no means the only thing you can do with IPSEC, but they may be the most important application for many users." Def.'s Br. (Docket No. 201) at 10; "FreeS/WAN" Glossary 25, Pl. Br. (Docket No. 194) Ex. 6. Microsoft points out that IPSEC is the only method defined by RFCs and supported by many vendors. Microsoft argues that this narrow language shows that the "FreeS/WAN" glossary does not identify Secure Sockets Layer ("SSL") or Transport Layer Security ("TLS") as methods for building "virtual private networks." Microsoft then argues that VirnetX's proposed construction is overly broad because it allows for a network using SSL and TLS. However, Microsoft's cited excerpt is an ancillary portion of the "virtual private network" definition and is set apart in a different paragraph from the primary portion of the definition. See "FreeS/WAN" Glossary 24-25, Pl. Br. (Docket No. 194) Ex. 6. Also, Microsoft selectively asserts that IPSEC is the only method defined by RFCs and supported by many vendors and ignores that its cited excerpt states that "IPSEC is not the only technique available for building VPNs." Thus, Microsoft's cited excerpt does not support that the "FreeS/WAN" glossary restricts "virtual private network" to IPSEC.

Microsoft also contends that VirnetX's proposed construction suggests that the "virtual private network" achieves only data security when it should include both data security and anonymity. Microsoft is correct that "private" in "virtual private networks" means both data security and anonymity. The specification supports this interpretation. The Background of the Invention section states "[a] tremendous variety of methods have been proposed and implemented to provide security and anonymity for communications over the Internet." Col. 1:15-17. This section further describes data security as being "immune to eavesdropping" and states "[d]ata security is usually tackled using some form of data encryption" and anonymity as "preventing[ing] an eavesdropper from discovering that terminal 100 is in communication with terminal 110." Col. 1:23-25, 38-39, 27-28. This language suggests that the claimed invention will achieve both data security and anonymity because it prefaces the Detailed Description of the Invention section, which describes a method of creating a virtual private network.

Indeed, the descriptions of the invention later indicate that "private" in "virtual private network" means data security and anonymity. The Detailed Description of the Invention, Further Extensions section describes a mode of the invention as being able to "reduce the amount of overhead involved in checking for valid frames" while allowing "IP addresses . . . [to] still be hopped as before for secure communication within the VPN." Col. 2:66-25 (emphasis added). The "anonymity" feature of a VPN can be handled by the Tunneled Agile Routing Protocol ("TARP"), which executes "address hopping." See Col. 2:66-3:17; see Col. 5:49-64. Thus, the language "still be hopped" indicates that the modifications of the invention retain the anonymity feature of the "virtual private network." Accordingly, the Court construes "virtual private network" as requiring both data security and anonymity.

--- Footnotes ---

4 While the specification states that this mode of the invention "[o]f course . . . compromises the anonymity of the VPNs," this only means that those outside the VPN can discover the VPN and does not mean that the anonymity of the users within the VPN is compromised. This is clear from the example that follows the "compromising anonymity of the VPN" statement: "(i.e., an outsider can easily tell what traffic belongs in which VPN, though he cannot correlate it to a specific
machine/person)." Col. 23:25-28 (emphasis added). Thus, the specification is consistent with construing a "virtual private network" as achieving both data security and anonymity.

Finally, Microsoft contends that "virtual private network" requires IP tunneling. Microsoft argues that the intrinsic evidence shows that TARP and IPSEC are two ways of obtaining anonymity in a virtual private network. Microsoft then argues that tunneling is required to achieve anonymity when TARP, IPSEC, or any other means is employed to achieve anonymity. The Court first and foremost considers the intrinsic evidence. The claims do not assert "tunneling" as a limitation nor has Microsoft pointed to any type of limitation in the specification. Microsoft's citations to the Background of the Invention section only state explanations of how TARP works and does not use any limiting language. See Col. 3:5-18, 19-20, 58-60. Furthermore, Microsoft's citation to the Detailed Description of the Invention, Further Extensions section only refers to a preferred implementation of the virtual private network, stating "The VPN is preferably implemented using the IP address hopping features of the basic invention described above, such that the true identity of the two nodes cannot be determined even if packets during the communication are intercepted." Col. 38:2-6. Again, this excerpt does not include any limiting language and in fact expressly uses the non-limiting language "preferably." Accordingly, "virtual private network" is not limited to IP tunneling, and the Court construes "virtual private network" as "a network of computers which privately communicate with each other by encrypting traffic on insecure communication paths between the computers."

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S. "virtual queue"

The Plaintiff proposes the following construction for "virtual queue": "an electronically-stored representation of a physical queue including reservation information for an attraction retained in solid-state memory such as RAM, magnetic storage such as a disk drive, or other electronic storage facility." The Defendants acknowledge that a "virtual queue" consists of a list of pending and confirmed reservations. (Defs.' Opening Claim Construction Br. at 44.) Nevertheless, the Defendants argue that "virtual queue" is part of a means-plus-function limitation in claims 5 and 17, and a step-plus-function limitation in claim 19. Step-plus-function limitations, like means-plus-function limitations, are permitted under § 112, P 6 for method claims. Similar to the use of "means," if a claim uses the term "steps for," it signals the patentee's intention to invoke § 112, P 6. Likewise, the absence of that language creates a contrary presumption. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 381 F.3d 1371, 1382 (Fed. Cir. 2004); Masco Corp. v. United States, 303 F.3d 1316, 1326 (Fed. Cir. 2002). None of the claims at issue contain "means" or "steps for" language and, thus, it is presumed that § 112, P 6 is not applicable. The Defendants have not offered any evidence to rebut the presumption, and the Court sees no basis for construing "virtual queue" as a means-or step-plus-function limitation. Instead, the Court agrees with the Plaintiff that "virtual queue" is intrinsically defined in the specification. As noted above, the present invention is directed at a system and method for assigning and managing patron reservations in such a way that the patentee can avoid unnecessary time spent waiting in lines, or physical queues, for attractions or other activities. As explained in the Background section of the specification, "[i]t is desirable to allow a patron to effectively 'wait' in line while engaging in other activities in the park . . . so that the time spent waiting is otherwise productive, thus reducing the feeling of having wasted time when delays or malfunctions occur." (col. 2, ll. 37-43.) Therefore, rather than standing in a physical queue, the patron is able to maintain his position in absentia through a reservation electronically stored in the attraction computer. (See col. 10, ll. 61-63 ("Virtual queue 210 is preferably stored in RAM 123 and may be stored, or mirrored to magnetic storage such as disk drive. . . .").) More specifically, the reservations are recorded in the "virtual queue," as described in the specification.

Virtual queue 210 maintains a list of pending and confirmed reservations for the attraction. Virtual queue 210 holds a varying number of reservations, each reservation having data identifying or describing the patron holding the reservation, and either a time or position for the reservation.

(col. 10, ll. 12-16.) Therefore, consistent with the specification, the Court will adopt the Plaintiff's construction and construe "virtual queue" as "an electronically-stored representation of a physical queue including reservation information for an attraction retained in solid-state memory such as RAM, magnetic storage such as a disk drive, or other electronic storage facility."
"Virtual Router"

Cisco's proposed construction of "virtual router" is "logical router that is identified by addresses which can be shared by physical routers." 33 Alcatel's proposed construction is "a virtual entity defined by a group virtual MAC address and a group virtual network layer address that can be emulated by a physical router assuming the state of the active router."

Footnotes

33 In the Revised Joint Statement, on which the Court is relying in determining the parties proposed constructions, Cisco actually proposed the following construction: "Logical router that is identified by addresses which can be adopted by physical routers." Revised Joint Statement, Ex. B, at 13 (emphasis added). However, in its opening claim construction brief, Cisco once again alters its proposed definition, to Alcatel's disadvantage, since Alcatel's opening brief relied upon the proposed construction contained in the Revised Joint Statement. Nevertheless, because the Court finds both of Cisco's proposed constructions overly broad in light of the patent, the Court does not find it necessary to decide whether Cisco should be held to the proposed construction that they originally put forth, or their new proposed construction.

Footnotes

The patent specification contains the following definition of virtual router:

A virtual router in this invention is defined by virtual MAC layer and network layer (e.g., IP) addresses which are shared by a group of routers running the protocol of this invention. The router selected by the protocol to be the active router (R1, R2 or R3 in this case) adopts these virtual MAC and network layer addresses - possibly in addition to its own addresses - and thus receives and routes packets destined for the group's virtual router.

Li Supp., col. 6, 11. 46-53 (hereinafter Li, at 6:46-53).

This definition contemplates the "virtual router" being defined by virtual MAC layer and network layer addresses. Cisco argues that this definition was not meant to be a definition of "virtual router" since it was not contained in the "Definitions" section of the patent. The Court finds this language inconclusive, as the above language in the specification clearly states that it is defining "virtual router" as it is used "in this invention," and is not simply limiting the definition to a particular embodiment, but the language is found within the description of the preferred embodiment, and therefore it may simply be implied that it is describing only the invention identified in the preferred embodiment. 34

Footnotes

34 Regardless, even if the definition of "virtual router" was referring to the preferred embodiment, that would not preclude the Court from using that definition to construe the claim term "virtual router" if the term "virtual router" is used throughout the patent in a manner consistent with only that definition. See Bell Atlantic Network Svcs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1271 (Fed. Cir. 2001); see also Comark, 156 F.3d at 1186 ("We recognize that there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification.").

Footnotes

Instead, Cisco attempts to define "virtual router" by using the term "logical router," which is not a term used anywhere in the patent, nor is it claimed to be a term of art, and therefore provides no guidance in defining "virtual router." Cisco offers nothing to support its argument other than the conclusory statement that claim 10 (the first claim to introduce the term "virtual router") "shows that the 'virtual router' is the logical router to which packets are addressed by a host." Cisco's Opening Claim Construction Brief Concerning U.S. Patent No. 5,473,599 (Li) ("Cisco's '599 Opening Brief"), at 7. However, claim 10 never refers to a "logical router," and thus does not support Cisco's proposed construction.

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Cisco also argues that a "virtual router" does not have to be comprised of both MAC layer and network layer addresses. In support of this argument, Cisco points to the definition of "virtual address." In that definition, the patent describes the virtual router as adopting "one or more virtual addresses." Li, at 4:36-37. Cisco claims that this demonstrates that a virtual router can be comprised of one or more addresses, and not simply a combination of MAC and network layer addresses. However, Cisco seemingly ignores the next sentence in the definition, which defines a virtual address as encompassing "both MAC layer and network layer addresses" in preferred embodiments. Thus, when the patent defines the virtual router as adopting "one or more virtual addresses," it is referring to adopting one or more combinations of MAC and network layer addresses. Nevertheless, the fact that the patent specifically identified the MAC layer and network layer address as the type of addresses used in preferred embodiments is an indication that the invention could be applicable to other types of addresses.

Finally, Cisco argues that the principles of claim differentiation do not allow the Court to construe "virtual router" as being defined by MAC and network layer addresses because claims 16 and 27 expressly add this address combination as a limitation to claims 10 and 21. However, while the principles of claim differentiation instruct that a claim term should not be construed so as to make a claim superfluous, Alcatel's proposed construction would not make claims 16 and 27 superfluous because they differ from claims 10 and 21 in ways other than the reference to MAC and network layer addresses. See Tate Access Floors, 222 F.3d at 967; Comark Communications, 156 F.3d at 1187. In particular, both claims 16 and 27 refer to an IP address rather than simply a network layer address, which, as Cisco's expert acknowledges, is significant since the invention could be used on IPX networks, which do not use IP addresses at all. See Lumish Decl., Ex. DD ("Halpern '599 Report"), at 9. Furthermore, claim 16 requires the virtual router of claim 10 to have an IP address and MAC address that is distinct from the IP and MAC addresses of the two or more other routers, thus providing an additional limitation. See Li, at 18:37-40.

Despite the flaws in Cisco's arguments, Alcatel's proposed construction is also not without error. Alcatel's argument is entirely based on the language defining "virtual router" in the preferred embodiment, as well as Alcatel's assertion that the specification discloses only MAC and network layer addresses. While the Court agrees that the patent discusses only MAC and network layer addresses, the claim language and the specification (other than the preferred embodiment) indicate that the claims are broader than simply MAC and network layer addresses.

In particular, claims 1 to 9 claim a router that is capable of adopting a group virtual address and becoming the active router, 35 without any limitation to any particular type of address that must be adopted, be it a MAC address, a network layer address, or both. See id. at 17:4-55. Furthermore, claim 10 - where the term "virtual router" is first used - also does not make any reference to MAC or network layer addresses. In fact, the first time the terms MAC address or IP address are used in the claims is not until claim 16. While the Court recognized above that claim differentiation does not necessarily indicate that claim 10 was intended to exclude those limitations, the fact that no reference was made in 15 prior claims to any specific type of addresses that must be used in this patent would apprise one of ordinary skill in the art that those claims were not limited to those specific types of addresses.

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35 The parties agree that an "active router" is "a router emulating the virtual router." See Revised Joint Statement, Ex. B, at 14.

--- End Footnotes ---

When reading the claims in light of the specification, the Court finds that while a "virtual router" is a virtual entity that is defined by a group virtual MAC address and a group virtual network layer address in the preferred embodiment, there is no limitation to those specific types of addresses. A MAC address is "intended to apply to a specific physical device no matter where it is plugged into the network." Id. at 4:25-27. As the patent notes, "This should be distinguished from the case of a network layer address ... which changes depending upon where it is plugged into the network." Id. at 4:29-32. Hence, a "virtual router" requires an address capable of being emulated by a physical router (i.e. the active router) that identifies both a physical device and its location in the network. To the extent that another address or set of addresses other than the combination of a MAC address and a network layer address is capable of performing this function, then that type of address or set of addresses could be used to define the "virtual router."

In sum, while Alcatel's proposed construction generally complies with the language of the patent, it limits the claims beyond
what the claim language provides. Furthermore, Cisco's proposed construction is overly broad and does not provide a workable definition of a "virtual router." Therefore, the Court construes the term "virtual router" as used in claims 10 through 28 to be "a virtual entity defined by an address or set of addresses capable of identifying a device and its location in the network that can be emulated by a physical router."

Virtual terminal process

Again the Court rejects both parties' proposed constructions and construes "virtual terminal process" to mean "a process to simulate the operation of a selected real terminal with respect to the transmission and receipt of input and output streams, except that each virtual terminal merely prepares and stores a set of instructions (a display list) for creating a full screen display according to the data from the associated first process; and each virtual terminal process does not independently control a separate screen." This construction is taken from the inventor's description of "virtual terminal" process, a term he coined, and with his statements made during prosecution in discussing an implementation of the invention. See Col. 2:27-39; Prosecution history, Amendment, June, 1987, pg. 4 ("[e]ach virtual terminal emulates a real terminal with respect to sending and receiving the input and output data streams produced by the corresponding program").

VI. "Virtual Topology"

According to Claim 1, the intermediate nodes "define a virtual topology on top of a computer-based communications network." In plaintiff's view, a virtual topology is "a topological representation of overlay network connectivity." This definition is lifted from the patent's description of a preferred embodiment. See Col. 6:11-12. In defendant's view, a virtual topology is "a set of connections between nodes of an underlying network that are not part of the physical configuration of the network."

As their competing constructions indicate, the parties agree that the virtual topology is a map of connections among intermediate nodes, and neither party disputes that the nodes themselves are part of the physical network. They disagree, however, as to whether the internode connections that make up the virtual topology may themselves exist in physical space. While defendant argues that the virtual topology includes only connections between intermediate nodes that are not connected physically, plaintiff contends that the virtual topology includes all connections between intermediate nodes, whether or not the nodes are physically linked.

Once again, defendant points to nothing in the specification or prosecution history suggesting that the virtual topology consists only of the subset of inter-node connections that are not part of the network's physical configuration. Although in practice it may be true that most or even all of the intermediate nodes on a particular network are not physically connected, the claim language does not exclude the possibility that two intermediate nodes may have a physical connection between them. The intrinsic evidence supports a construction of "virtual topology" that includes all connections between intermediate nodes, whether or not those connections are physical.

Plaintiff's proposed construction, however, uses the word "topological" to define "topology." Such a construction will be of limited utility to the trier of fact. Accordingly, the Court will construe "virtual topology" to mean "a map of the connections between intermediate nodes."

2. Virtually Simultaneously and Concurrently

Claim 1 refers to information being "simultaneously and concurrently" entered by two persons sharing a common display at
their respective stations. This means that a person at one station can enter information for display at both stations at the precisely identical time that a person at another station is entering information for display of both stations (Tr. 40-43).

Claim 1 refers to information being "virtually" rather than precisely simultaneously and concurrently" transmitted because, necessarily, the transmission of data from one station to another cannot be absolutely instantaneous. In context, the term "virtually simultaneously and concurrently" means that the transmission is sufficiently swift that insofar as humans are able to perceive, the transmission is effectively, even though not precisely, instantaneous (Tr. 43).

J. "visible exterior surface"

The plaintiff proposes "a surface, at least a portion of which is visible from the exterior of the light bar." Defendants propose "outside surface in plain view."

The plaintiff argues that the prosecution history shows that the examiner characterized prior art as a light enclosed within a transparent cover and visible from the exterior. The plaintiff further argues that, based on this characterization, the patentee amended claims to distinguish the invention from the prior art. See, e.g., '269 patent, Prosecution History, July 18, 2001 Office Action; '269 patent, Prosecution History, Sept. 26, 2001 Response to Office Action. According to the plaintiff, Defendants' construction of "outside surface" would not encompass the embodiments of a light bar with a transparent cover. The plaintiff argues that the requirement of "outside surface" would render the "visible" limitation superfluous, which is contrary to case law. See Merck & Co., Inc., 395 F.3d 1364, at 1372. The plaintiff also argues that it added "a portion" to its proposed construction because something does not need to be completely in plain view in order to be "visible" (e.g., a man sitting behind a desk).

Defendants claim that their definition is appropriate based on the ordinary and plain meaning of the phrase. They also argue that the plaintiff's construction does not make a distinction between "light support" and "light bar." Claims of the '996 and '487 patent involve a "light support" with a "visible exterior surface" while the claims of the '269, '631, '217, and '578 patents involve a "light bar" with a "visible exterior surface." Defendants further argue that in order to distinguish prior art, the patentee stated that the prior involved LEDs within a cylindrical glass as opposed to the invention where the LEDs are mounted on the exterior surface. '189 application, Sept. 5, 2001 Amendment, at 10. Defendants also point to provisional applications which claim that the invention eliminates the need for filters, reflectors, and lenses.

The Court disagrees with the defendants and does not find any support to limit the construction to the "outside surface." The Court concludes that the phrase can be understood as written and no further construction is necessary.

C. "throughout the entire visible spectrum from about 380 to about 780 nanometers, comprising"

TLI contends that the term "throughout the entire visible spectrum from about 380 to about 780 nanometers" should be accorded its ordinary and customary meaning in the art. See TLI's Br. at 12. According to TLI, the term "visible spectrum" is known as the portion of the electromagnetic spectrum that is visible to and can be detected by the human eye. See id. Accordingly, one skilled in the art understands that there are no exact bounds to the visible spectrum, and that a typical human eye will respond to wavelengths from about 380 to 780 nanometers. See id.

Sylvania argues that the claim term "throughout the entire visible spectrum from about 380 to about 780 nanometers" modifies the claim element "substantially identical in uniformity to" which as explained above, is explicitly defined in the specification. See Sylvania's Br. at 9. Sylvania further asserts that the "visible spectrum" range outlined in this claim ("from about 380 to about 780 nanometers") is in conflict with the range set forth in the specification for the defined term "substantially identical," which states "between about 400 and 700 nanometers"). See id. Sylvania contends this conflict creates an inherent inconsistency as to what defines the "visible spectrum." Accordingly, Sylvania argues that due to this
inherent inconsistency, the claim element cannot be construed and is indefinite. Datamize v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed. Cir. 2005)(claims that are "insolubly ambiguous" are indefinite). See id.

I find, however, that TLI's proposed construction of the term "visible spectrum" is not inherently inconsistent with the term "substantially identical in uniformity to." The reference in the '017 Patent to the range from 400 to 700 nanometers does not refer to the visible light spectrum, but instead refers to artificial light emitted from a bulb that can (if within specified values) be considered substantially identical to natural daylight. As stated above, the patentee simply chose to define "substantially identical" light as that which falls within 30 percent of the D(l) value of a reference daylight within the 400 to 700 nanometer range, provided that the combined average of all wavelengths within the 400 to 700 range is within 10 percent of the D(l) value of the chosen reference daylight. That the patentee chose to focus only on a part of the visible light spectrum (400 to 700 nanometers) rather than the "entire" visible spectrum (380 to 780 nanometers) in determining whether or not artificial light from the disclosed bulb is "substantially identical" to natural daylight is a choice that the patentee was free to make, and does not suggest that the term "visible light spectrum" should be afforded any construction other than its known meaning within the art. Accordingly, I find that the term "visible light spectrum" refers to the light spectrum between 380 and 780 nanometers.

2. "Displaying" and "visual display" (claims 1, 3, 4, 21)

TriPath contends that the terms "displaying" and "visual display" should be construed broadly to mean "spreading before the view" and "a display made available to a human observer," respectively. Cytyc interprets the terms in a computer science context: "presenting information on a computer screen" and "the presentation of scanned images on a computer monitor." The disagreement here is not about the ordinary meaning of the word display, but the mechanism by which the objects are displayed. TriPath's proposed construction would not specify any particular mechanism, while Cytyc would restrict the claims to only one.

Although I have construed "image" to be a digital representation, it does not necessarily follow that "display" or "visual display" must be on a computer monitor. If, for example, the patent contemplated another vehicle for presenting objects to humans, including digital images, the definition of "displaying" and "visual display" would expand to incorporate it. However, the patent appears to leave no room for a display other than on a computer monitor.

The claims themselves do not specifically mention a computer monitor, but properly read, the intrinsic evidence suggests one alternative. Whenever the term "displaying" or "visual display" appears in the claims, it is in the context of a digital object or image. For example, claim 1(e) states "displaying at least part of such second image to produce a visual display of said at least one selected object." As discussed above, "image" refers to a digital representation. Claim 1(b) makes clear that an "object" is part of an "image" and therefore must also be digital.

Moving from the claims to the specification, the Summary of the Invention indicates only one possible mechanism for displaying digital images or objects: a monitor. The Summary describes the invention as an apparatus consisting of "a monitor for displaying at least part of the second image to produce a visual display of at least one of the objects." 182 patent at col. 2, 11. 52-54. Figure 1 is a diagram "of a cytopathological classification or screening device in accordance with the present invention." It shows a high resolution monitor as the mechanism for display. Figure 3, another diagram of the screening device, also shows a monitor for display.

The Detailed Description of the Invention repeatedly mentions displays on a "summary screen." See, e.g., id. at col. 4, 11, 40, 45, 46, 53, 60, 68 and col. 7, 11, 61, 62. Some of these references are, to be sure, with respect to a preferred embodiment. Keeping in mind that a court must not read a preferred embodiment as a limitation on the claim, Phillips, 415 F.3d at 1323, the written description still points towards a monitor as the only display mechanism. The preferred embodiments provide examples of ways to configure the display on the summary screen, to arrange the images, and to identify suspect cells, but only one way to view the displays: a screen. 182 patent at col. 4, 11., 40, 45, 46, 53, 60, 68 and col. 7, 11, 61, 62. The examples make clear that the patentee contemplated a variety of uses for the displays, but never doubted that the displays would be presented on a screen or monitor.
Claim 21 uses a different form than claim 1, but yields the same definition of "displaying" and "visual display". Claim 21 reads in pertinent part, a "means for displaying at least part of such second image to produce a visual display of said at least one selected object" (emphasis added). This is a "means plus function" claim that invokes 35 U.S.C. § 112, P 6:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Accordingly, the definitions of "displaying" and "visual display" are limited to the structures or their equivalents actually described in the specification. As discussed above, the specification describes no display mechanism other than a monitor. Therefore, the terms "displaying" and "visual display" as used in claims 1, 3, 4, and 21 refer to displays on a computer monitor or screen.

Scientific-Atlanta further contends that Gemstar's proposed construction would improperly include conventional cursors, which were disclaimed in the written description when it discussed the conventional cursor's undesirable properties. Scientific-Atlanta responds that Gemstar's restriction requirement argument is both waived and incorrect.

We begin our claim construction analysis with the words of the claim. Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201 (Fed. Cir. 2002). "Unless compelled otherwise, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art." Id. at 1202. The ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources, which may include the claims themselves; dictionaries and treatises; and the written description, the drawings, and the prosecution history. Ferguson Beauregard v. Mega Sys., LLC, 350 F.3d 1327, 1338 (Fed. Cir. 2003). The presumption of ordinary meaning will be "rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." ACTV, 346 F.3d at 1091.

The ITC failed to examine the ordinary meaning of the "visual identification" claim term. See FID Opinion 2002 ITC LEXIS 812 at *175. Instead, the ITC exclusively looked to the '204 patent written description, including the following passage:
Turning now to the drawings, more particularly to FIGS. 1-7, there are shown a series of menu screens 10, 12, 14, 16, 18, 20 and 22 used in operation of the system and carrying out the process of the invention. Screens 10, 12, 14, 16 and 20 each consists of an array 24 of irregular cells 26, which vary in length, corresponding to different television program lengths of one half hour to one-and-one half hours or more. The array is arranged as three columns 28 of one-half hour in duration, and twelve rows 30 of program listings. Some of the program listings overlap two or more of the columns 28 because of their length. Because of the widely varying length of the cells 26, if a conventional cursor used to select a cell location were to simply step from one cell to another, the result would be abrupt changes in the screens 10, 12, 14, 18 and 20 as the cursor moved from a cell 26 of several hours length to an adjacent cell in the same row. Such abrupt changes disorient a user of the system.

An effective way of taming the motion is to assume that behind every array 24 is an underlying array of regular cells. By restricting cursor movements to the regular cells, abrupt screen changes will be avoided. However, there is now a potential ambiguity between the underlying cell which governs cursor movement and a visible cell 26 which holds the program title.

Viz.: if the cursor moves in half hour steps, and the cell length is, say four hours, should the cursor be 1/2 hour long or four hours long? If the cursor only spans the interval of the underlying cell (1/2 hour), the cursor appears to be highlighting a segment of the cell, which is misleading. On the other hand, if the cursor spans the entire four hours of the TV listing, the cursor underlying position will be obscure. In this case, cursor right/left commands will appear inoperative while traversing a long cell. The absence of feedback following a cursor command is befuddling to users. Therefore, an innovative cursor 32 (FIG. 1) for the irregular array 24 is required which satisfies several conflicting requirements.

The statement in the written description that the "innovative cursor . . . is required" was made in the context of a discussion of the features of the preferred embodiment. The passage reproduced above beginning at column 4, line 35 is the initial discussion in the Detailed Description of the Invention section of the preferred embodiment in the '204 patent specification. See '204 patent, col. 4, l. 33 - col. 5, l. 5. The passage describes a series of menu screens from the preferred embodiment depicted in Figures 1-7 of the '204 patent. See id. at col. 4, ll. 35-38. In the discussion, the embodiment discusses some of the drawbacks of using a conventional cursor in navigating the menu screens of the preferred embodiment. See id. at col. 4, ll. 46-52. In the context of discussing the advantages of an alternate cursor approach, there is a statement in the written description that: "Therefore, an innovative cursor 32 (FIG. 1) for the irregular array 24 is required which satisfies several conflicting requirements." Id. at col. 5, ll. 3-5. From this language, it follows that the "innovative cursor 32" is a preferred cursor for navigating irregular array 24 in the menu depicted in Figure 1 of the '204 patent. See id.

Our precedent has emphasized that the disclosure in the written description of a single embodiment does not limit the claimed invention to the features described in the disclosed embodiment. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) ("This court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."). "Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." Id. (quoting Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002)).

In the context of the disclosure of the preferred embodiment of the '204 patent, the statement that "innovative cursor 32 . . . is required," is not the "use [of] words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Teleflex, 299 F.2d at 1327; see also ACTV, 346 F.3d at 1091. This statement did not limit the "visual identification" to the "innovative cursor 32" discussed in the written description. Properly read in this context, the statement merely conveys the advantages of "innovative cursor 32" over prior art conventional cursors in the preferred embodiment. It was not a disavowal or disclaimer indicating that the claims excluded all or part of the properties of prior art conventional cursors. Indeed, if the innovative cursor constituted the entirety of the invention, all of the particular formatting and movement characteristics specific to the innovative cursor must be attributed to the "visual identification." See '204 patent, col. 5, ll. 6-13 (describing aspects of the innovative cursor, including, "3-D highlighting," "offset shadows," and "segmented" and "solid" portions of the "underlying black bar" denoting the "current position" of the cursor). Instead, the ITC construed "visual identification" to include only select properties of the innovative cursor, namely "a cursor that (1)
highlights the entire cell, (2) identifies the current half-hour position within a cell that is longer than a half-hour, and (3) differentially identifies the remaining portions of the cell." FID Opinion 2002 ITC LEXIS 812 at *175. Because Gemstar did not disclaim cursors beyond the innovative cursor discussed in the embodiment disclosed in the '204 patent, "visual identification" is not limited to innovative cursors.

The parties agree that "visual identification" is not a term of art or explicitly used in the written description. Because the parties have presented no evidence that "visual identification" has a specialized technical meaning in the art, we consult non-technical dictionary definitions to determine its ordinary meaning. Inverness Med. Switz. GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1369 (Fed. Cir. 2002) ("The parties here do not argue that the term . . . has an established specialized meaning in technical dictionaries, encyclopedias, or treatises of the relevant field of art, and we agree . . . . Accordingly, standard dictionaries of the English language are the proper source of ordinary meaning of the phrase."); see also Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n, 366 F.3d 1311, 1321 (Fed. Cir. 2004). "Visual" is defined as "capable of being seen: VISIBLE." Webster's Third New International Dictionary 2558 (1993). "Identification" is "an act or the action of identifying or the state of being identified," id. at 1123; "identify" is "to link in an inseparable fashion: make correlative with something," id. We examine the language of claim 31 in considering the ordinary meaning in the context of the claims:

providing a visual identification of a selected one of said irregular cells, moving said visual identification in the first dimension and in the second dimension between first and second ones of said irregular cells to select a desired one of said irregular cells corresponding to a desired program . . . .

'204 patent, col. 20, ll. 6-11. Thus, the "visual identification" within the meaning of claim 31 visibly correlates or links an irregular cell selected by the user with the selected irregular cell on the television screen.

Scientific-Atlanta argues that this construction of "visual identification" may include aspects of a conventional cursor, which it argues were disclaimed in the written description of the '204 patent. For the reasons previously discussed, the passage pertaining to conventional and innovative cursors in the '204 patent written description, see id. at col. 4, l. 39 - col. 5, l. 5, establishes neither a disavowal or disclaimer of prior art conventional cursors nor a limitation of the claim scope to the disclosed innovative cursor.

In light of our claim construction that "visual identification" is not limited to the innovative cursor described in the written description of the '204 patent, we need not reach Gemstar's additional claim construction arguments pertaining to the examiner's restriction requirements made during the prosecution of the '204 patent.

Based on the foregoing, the ITC's claim construction erroneously limited the "visual identification" limitation to the features of the innovative cursor. "Visual identification" within the meaning of the claim requires a visual correlation or linkage of a selected irregular cell with the selected irregular cell displayed on the television screen. This may include the properties of a conventional cursor.

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# 6

# 6 -- "visual representations" -- (appears in claims 14, 15, 17, 19, 29, 30, 32 and 34) Luma's Construction (Luma May 4, 2005, p. 3).

MASTER'S CONSTRUCTION

# 6 -- "visual representations" -- means visual representations and may include but are not required to include: text that is anti-aliased; graphical objects; possess the attribute of translucency; prompts for prompting a user; and images.

REASONS

INTRINSIC EVIDENCE
The Patent Specification gives some guidance to what may be included in the "visual representations" and they are included in the Master's Construction (Col. 2, Ls. 21-37).

EXTRINSIC EVIDENCE

Nothing was found in the Markman Hearing that helped the Master in this construction of the term.

LIMA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

Luma's position is set forth in (Luma May 4, 2005, p. 3). Luma proposes the construction as any entity capable of display on a visual medium. Luma's construction appears to be consistent with the Master's Construction. If it is found in any aspect to be inconsistent then the Master's Construction should prevail.

stryker's position and master's comments on that position

Stryker's position is set forth in (Stryker May 23, 2005 p. 9). Stryker argues that Luma does not distinguish between "visual representation" and "graphical objects". The Master's Construction provides that "visual representations" may include graphical objects. The phrase "comprising graphical objects" following "visual representations" is a limitation. For example, in claims 14 (Col. 48, Ls. 23-24), "graphical objects" modifies or limits "visual representations" to require "graphical objects". It is the phrase "comprising graphical objects" that limits "visual representation". The term "visual representations" is not to be constructed to be inherently limited to "graphical objects". Language in the claims subsequent to "visual representations" provides limitations to the term "visual representations". This limitation will be provided when the claim as a whole is construed. Stryker objects to "piecemeal" construction. The Master has addressed the issue in "# 2" above.

KSEA'S POSITION AND MASTER'S COMMENTS ON THAT POSITION

KSEA's position is set forth in (KSEA May 23, 2005, Sheet 7). KSEA does not object to Luma's Construction. The Master's Comments regarding Luma's Construction are applicable with respect to KSEA as well as with Luma on this term.

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3. "Visualization functionality": "Hardware and/or software that produces a designed effect, that is, to download via the image server a thumbnail visual image which is associated with a given hyperlink." This construction is consistent with claims 43 and 44, as well as the specification: col. 2, ll. 6-10; col. 3, ll. 49-53; col. 5, ll. 58-65; col. 6, ll. 24-31.

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C.1.e.1. Functional Limitations

The functional limitations associated with processing means are: 1) receiving customer number data entered by a caller, 2) storing the customer number data in a central memory, 3) coupling an incoming call to the operator terminal based on the occurrence of a condition, and 4) "visually displaying" the customer number data. It appears from the parties' briefs, that Verizon and Katz dispute the meaning of "visually displaying." In an apparent attempt to avoid additional structure, such as a display, from falling into corresponding structure, Katz asserts that "visually displaying" means presenting data to a terminal. Katz Brief at 80-81.

Here, "visually displaying" means "making something viewable on a display device." The Court's construction is consistent with the plain and ordinary meaning of the language. Katz's asserted interpretation, merely requiring the transmission of data signals to a terminal, appears to contravene the plain meaning of the terms. Webster's defines "display," in relevant part, as "to put or spread before the view." Webster's Ninth New Collegiate Dictionary at 365; see also American Heritage Dictionary at 521 ("display," in relevant part, means "to provide (information or graphics) on a screen."). The term
"visually" underscores this requirement. See Webster's Ninth New Collegiate Dictionary at 1318 ("visual" means "visible"); see also The American Heritage Dictionary at 1924 (visual means "seen or able to be seen by the eye; visible."). In addition, the specification does not suggest a contrary interpretation. See 551 patent, Col. 5:22-24 ("the CRT display serves to visually display data regarding select subsets as explained in detail below.").

- - - - - - - - - - - - - - Footnotes - - - - - - - - - - - - - - -

12 Katz's contention does have some appeal in that, in the context of claim 21 of the 551 patent, the limitation "visually displaying the customer number data" appears upon a cursory review of the claim language to refer to visually displaying the customer number data on the operator terminal, rendering its asserted interpretation more plausible. However, the plain meaning of the claim language merely requires "visually displaying the customer number data" and is not specific to any display device. Furthermore, regardless of the presence of the operator terminal in claim 21, as discussed above, Katz's asserted interpretation, and the supporting extrinsic evidence it sights (e.g., "screen pops"), appear to be inconsistent with the plain meaning of the claim language.

- - - - - - - - - - - - End Footnotes - - - - - - - - - - - - - - -

Katz's interpretation of visually displaying appears to contravene the ordered analysis contemplated by the Federal Circuit. Specifically, the Federal Circuit instructs that construction of the functional language in a means-plus-function element drives the determination of corresponding structure. Harley-Davidson, 250 F.3d at 1376. Here, it appears that Katz has conducted the analysis in reverse order. See Katz Brief at 81 ("It follows from Katz's identification of structure that the processing means "displays" data by presenting it to a terminal.").

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3. Paragraph (2) of Claim 20 of the '998 Patent - "Visually Displaying The Waveform"

Macromedia contends that the phrase "visually displaying the waveform" should be construed to mean "providing a graphical pattern of pressure variation, both positive and negative, along time and amplitude axes on a programmable display or computer screen." (D.I. 243 at 10). Adobe contends that a sound waveform can be graphically depicted as either a positive and negative pressure variation or an absolute value representation (i.e. positive) of this variation. (D.I. 305 at 18-19). Because there is no indication in the '998 Patent that the display of the waveform requires positive and negative pressure variation, Adobe contends that the phrase "visually displaying the waveform" should be construed to mean "displaying a graphical representation of a sound waveform." (D.I. 305 at 19).

In construing the phrase "visually displaying the waveform," the Court has considered the specification and prosecution history of the '998 Patent. (See D.I. 248, Ex. B, '998 Patent, Col. 1, lines 9-64; D.I. 248, Ex. B, '998 Patent, Col. 119, Claim 20, lines 30-56; D.I. 248, Ex. C). Because neither the claims, specification, nor prosecution history of the '998 Patent limit the phrase "visually displaying the waveform" to a positive and negative graphical depiction of a sound waveform, the Court construes this phrase to mean "displaying a graphical representation of a sound waveform."

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E. Viterbi-like

Before briefing the disputed terms, the parties had an agreed upon construction for the term "Viterbi-like." The prior agreed construction was "Viterbi-like means similar to and including the Viterbi algorithm" where the disputed term was "Viterbi algorithm." (Docket No. 74-1 at 4). Following the initial claim construction briefing and discussion at the hearing, it became apparent that the parties disputed the scope of the term "Viterbi-like."

"When the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury must resolve that dispute." O2 Micro International Limited v. Benyon Innovation Technology Co., LTD., 521 F.3d 1351, 1360 (Fed. Cir.
2008)(citing Markman, 52 U.S. at 979). Marvell stated at the hearing that based on a construction of "Viterbi", along with the ordinary meaning of the word "like", the jury would be asked if the accused device(s) and/or method(s) contained an element that was "Viterbi-like." However, that the parties dispute, for instance, that the Fitzpatrick Patent is "Viterbi-like", makes clear there is a question of claim scope that cannot be put before the jury. "A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when the term has more than one 'ordinary' meaning or reliance on a term's 'ordinary' meaning does not resolve the parties' dispute." O2 Micro, 521 F.3d at 1361.

Furthermore, the question (of claim scope) as to when an algorithm is like the "Viterbi algorithm" is a question that must be answered by asking how the PHOSITA would read the claims, thus requiring the court to construe the claim term. 12 Only then, with that question answered, could a jury answer the question of whether the accused device(s) and/or method(s) contain elements that the PHOSITA would understand to be "Viterbi-like."

The term "Viterbi-like detector" can be found in Zeng, et al., Modified Viterbi Algorithm for Jitter-Dominated 1-D2 Channel, (Docket No. 82-10 at 3), thus indicating that the term has meaning for those in the art. However, the Zeng article does not use the term in a manner such that it is helpful to this Court's construction of the disputed term.

1. A method of determining branch metric values for branches of a trellis for a Viterbi-like [sic] detector, comprising:

   selecting a branch metric function for each of the branches at a certain time index; and
   applying each of said selected functions to a plurality of signal samples to determine the metric value corresponding to the branch for which the applied branch metric function was selected, wherein each sample corresponds to a different sampling time instant.

23. A system for recording information on a magnetic medium, comprising:

   a write signal processing circuit for processing a plurality of data from a data source; a write control circuit;
   a write head responsive to said write control circuit for receiving a plurality of signals from said write signal processing circuit, said write head for writing said signals to the recording medium;
   a read control circuit;
   a read head for reading said signals from the recording medium, said read head responsive to said read control circuit; and
   a detector circuit for detecting a plurality of data from said read signals, said detector comprising:
   a Viterbi-like detector circuit, said Viterbi-like detector circuit for producing a plurality of delayed decisions and a plurality of delayed signal samples from a plurality of signal samples;
   a noise statistics tracker circuit responsive to said Viterbi-like detector circuit for updating a plurality of noise covariance matrices in response to said delayed decisions and said delayed signal samples; and
   a correlation-sensitive metric computation update circuit responsive to said noise statistics tracker circuit for recalculating a plurality of correlation-sensitive branch metrics from said noise covariance matrices, said branch metrics output to said Viterbi-like detector circuit.

'839 Patent col. 13 ln. 61 - col.14 ln. 2; col. 16 ln. 22-51.

CMU's construction of "Viterbi algorithm" and "Viterbi-like" are as follows:

"Viterbi algorithm" means "an iterative algorithm that uses a trellis to determine the best sequence of hidden states (in this case, written symbols) based on observed events (in this case, observed readings that represent the written symbols), where the determined sequence is indicated by the best path through the trellis and is determined using branch metric values calculated for branches of the trellis."
"Viterbi-like [algorithm]" means "an algorithm that is or is similar to an iterative algorithm that uses a trellis to determine the best sequence of hidden states (in this case, written symbols) based on observed events (in this case, observed readings that represent the written symbols), where the determined sequence is indicated by the best path through the trellis and is determined using branch metric values calculated for branches of the trellis."

RDCTC at 13-14.

Marvell's constructions of "Viterbi algorithm" and "Viterbi-like" are as follows:

"Viterbi Algorithm" means "an algorithm that uses a trellis to perform sequence detection by calculating branch metrics for each branch of the trellis, comparing the accumulated branch metrics for extensions of retained paths leading to each node of the trellis at a given time, and for each node, retaining only the path having the best accumulated metric."

"Viterbi-like" means "similar to and including the 'Viterbi algorithm.'" The Viterbi algorithm includes the step of calculating branch metrics for each branch of the trellis. Therefore, a "Viterbi-like" algorithm must either calculate branch metrics for each branch of the trellis or it must perform a step similar to calculating branch metrics for each branch of the trellis (in addition to other steps similar to or identical to the other Viterbi algorithm steps) such that the overall sequence detection process is similar to the Viterbi algorithm. Under Defendant's construction, a process that only calculated branch metrics for a fraction of the branches in a trellis or only compares a few paths would not be Viterbi-like.

RDCTC at 13-14.

At the hearing, the parties presented two discreet disputes as to the scope of "Viterbi" and "Viterbi-like." Those issues were whether the "Viterbi algorithm" had to calculate a branch metric for every branch of the trellis and whether the "Viterbi-like" algorithm covered the use of a post-processor as used in U.S. Patent 5,689,532 ('532 Patent or "Fitzpatrick Patent"). In the post hearing briefing and reply, Marvell indicated that "Viterbi-like" "does not require calculating branch metrics for every branch of a trellis, and it does not require a specific add-compare-select process at every node of the trellis." (Docket No 138 at 6). Rather, its construction allows for "a step similar to calculating branch metrics for each branch of the trellis" to be used for "Viterbi-like." RDCTC at 13-14. Furthermore, Marvell does not dispute that the reduced state RAM-RSE algorithm referenced in the '839 Patent at col. 1 ln. 33, col. 7 ln. 9-10, is a "Viterbi-like" algorithm. Id. Marvell continues to dispute, however, that the postprocessor error correction circuitry in Fitzpatrick is encompassed by "Viterbi-like."

"Viterbi-like" appears throughout the specification and examples of "Viterbi-like" detectors are given in the background of the invention section.

Traditional peak detectors (PD), such as those described in Nakagawa et al., "A Study of Detection Methods of NRZ Recording", IEEE Trans. Magn., vol. 16, pp. 1041-110, Jan. 1980, have been replaced by Viterbi-like detectors in the form of partial response maximum likelihood (PRML) schemes or hybrids between tree/trellis detectors and decision feedback equalizers (DFE), such as FDTS/DF, MDFE and RAM-RSE.

'839 Patent col. 1 ln. 26-33. Furthermore, in the detailed description section, it is stated that "[i]n the derivations of the branch metrics (8), (10) and (13), no assumptions were made on the exact Viterbi-type architecture, that is, the metrics can be applied to any Viterbi-type algorithm such as PRML, FDTS/DF, RAM-RSE, or, MDFE." '839 Patent col. 7 ln. 5-9.

During the prosecution of the '839 Patent, the examiner issued a rejection finding that the Fitzpatrick patent anticipated claims of the '839 Patent application. (Docket No. 128-2 at 22-24). Pertinent to this discussion is that the examiner found that "Fitzpatrick discloses a method for determining branch metric values of [a] trellis for a Viterbi-like detector." (Docket No. 128-2 at 23). The patentee successfully traversed the examiner's rejection with the following statement:

Applicants have herein amended claims 1, 4, 27, and 28 to clarify that each of said selected functions is applied to a plurality of signal samples to determine the metric value corresponding to the branch for which the applied branch metric function was selected, wherein each sample corresponds to a different sampling time instant. Applicants submit that Fitzpatrick does not teach, among other steps, such a step. In particular, each of the branch metrics is not determined based on a plurality of signal samples.
Fitzpatrick does not specify the manner in which the branch metrics are computed. However, the Viterbi detector described in Fitzpatrick is described as an EPR4 Viterbi detector. Such a Viterbi detector computes a branch metric using:

\[ M_i (r_i, a_{i-3}, \ldots, a_i) = [r_i - y(a_{i-3}, \ldots, a_i)]^2 \]

where \( r_i \) is a single waveform, not a plurality of time variant signal samples.

(Docket No. 83-1 at 8).

Marvell argues that the only Viterbi detector found in Fitzpatrick is the PR4 Viterbi detector and that the post-processor that follows the PR4 Viterbi detector does not fall within the scope of the term "Viterbi-like." Additionally, Marvell points out that the branch metric the patentee cited in the prosecution history was not the error-event metric calculated by the postprocessor and that the patentee ignored all aspects of the post-processor in the prosecution history. Finally, Marvell points to Fig. 5 of the Fitzpatrick patent as indicating that only the PR4 detector is referred to as being a Viterbi detector and not the EPR4 detector or the post-processor 13

[SEE FIG. 5 IN ORIGINAL]

'532 Patent Fig. 5. (See Docket No. 138 at 10-13).

13 At the claim construction hearing, the Court entered into evidence Marvell Exhibit A, the 10/8/2001 email from Dr. Kavcic to Gregory Silvus. (Docket No. 106-1). The Court gives no weight to this email as it is of the type of extrinsic evidence that the PHOSITA could not be aware of since it is a personal email and it post-dates the filing and issuance of the '839 Patent. Furthermore, the email is contradicted by the intrinsic evidence, as discussed below, therefore even if the PHOSITA were aware of the contents of the email, it would be disregarded in favor of the conclusions that would be drawn from the intrinsic record.

The argument that the patentee presented to the examiner was that Fitzpatrick did not contain correlation-sensitive branch metrics because Fitzpatrick did not use a "plurality of time variant signal samples." The patentee specifically described Fitzpatrick as having an EPR4 Viterbi detector and stated that "such a Viterbi detector computes a branch metric using: Mi (r_i, a_{i-3}, \ldots, a_i) = [r_i - y(a_{i-3}, \ldots, a_i)]^2" (Docket No. 83-1 at 8). This is recognized as being the Euclidian branch metric from equation (8). '839 Patent col. 6 ln. 10-14. As a result, Fitzpatrick lacked the use of a "plurality of time variant signal samples."

The specification of the Fitzpatrick patent states the invention relates to a reduced complexity post-processor for a binary input extended partial response class 4 (EPR4) channel. '532 Patent col. 1 ln. 15-17. In discussing the prior art, it then states that "the main drawback to implementing [extending partial response class 4 with maximum-likelihood detection] within a magnetic recording system has heretofore been that the EPR4 Viterbi detector is much more complex that a PR4 Viterbi detector, and has been practically realized only at considerably greater expense." '532 Patent col. 2 ln. 8-12. The patent goes on to discuss the standard approach of implementing a Viterbi detector with a Viterbi algorithm. '532 Patent col. 2 ln. 32-55. The patent also discusses alternate approaches to implementing an EPR4 Viterbi detector and various methods leading up to the method displayed in Fig 5. '532 Patent col. 2 ln. 56 - col. 3 ln. 28. For the method using the post-processor, the patent states:

Another implementation approach is to use a PR4 Viterbi detector, followed by a post-processor for EPR4. A post-processor for an EPR4 channel that achieves nearly maximum-likelihood performance was described by Wood, "Turbo PRML: A Compromise EPRML Detector", IEEE Trans. on Magnetics, Vol. 29, No. 6, Nov. 1993, pp. 4018-4020. In the Turbo PRML post-processor technique, PR4 equalized samples are sent to a PR4 Viterbi detector that produces a preliminary estimate of the binary input sequence. Then, the preliminary estimate is sent to the post-processor to produce a final improved estimate of the binary input sequence.

'532 Patent col. 3 ln 29- 40.
In the detailed description section, the patent discusses the EPR4 Viterbi detector stating:

Typically, an EPR4 Viterbi detector is designed to find the path through the EPR4 trellis that minimizes the squared Euclidean distance between the received samples and the ideal EPR4 samples along the path. The output of the EPR4 Viterbi detector is a maximum likelihood sequence estimate for an EPR4 channel corrupted by independent and identically distributed Gaussian noise with zero mean.

'532 Patent col. 7 ln. 57-64. (emphasis added). In describing the post-processor in Fig. 5 the patent states:

The post-processor 40 uses the estimated binary input sequence at the PR4 Viterbi detector output to establish a PR4 path through the EPR4 trellis. The objective of an EPR4 post-processor is to find the path through the EPR4 trellis that minimizes the squared Euclidean distance between the EPR4 equalized samples and the noiseless EPR4 samples, given that this path is restricted to the set of paths that deviate from the PR4 path by a sequence of non-overlapping minimum distance error-events. If the post-processor achieves this objective, then the estimated input sequence at the output of the post-processor, denoted by \{x[0], x[1],..., x[j], ...\}, is equal to the output of an EPR4 Viterbi detector under the conditions that only minimum distance error-events occurred and that these error-events were sufficiently far apart. The post-processor 40 produces a sequence estimate (x 44 in FIG. 5) which is "nearly" a maximum likelihood sequence estimate for an EPR4 channel corrupted by independent and identically distributed Gaussian noise with zero mean.

'532 Patent col. 9 ln. 20-38. (emphasis added). Based on these quoted passages, the PHOSITA would conclude that the post-processor has the same objective as the EPR4 Viterbi detector and that the post-processor "nearly" produces the same result as the maximum likelihood sequence estimate for the EPR4.

Marvell cites to the following language to show that the post-processor computes too few calculations in order to be considered "Viterbi-like":

In the reduced-complexity post-processor described in the present invention, the post-processor calculates and compares two error-event metrics, independent of the modulation code. The post-processor uses the merge bits from the PR4 Viterbi detector to determine the "best type A" error event and the "best type B" error-event ending at a particular state. In this manner, the post-processor only considers the most-likely error-event of each type, as determined by the PR4 Viterbi detector.

'532 Patent col. 11 ln. 57-65. Although the post-processor in Fitzpatrick only calculates and compares two metrics that are first passed through a PR4 Viterbi detector, the post-processor does perform a metric calculation, comparison and selection of the most likely path through a trellis. These functions of the post-processor are what CMU pointed to in its construction of "Viterbi-like" and what the Fitzpatrick patent stated is considered to be the Viterbi algorithm. "The Viterbi algorithm is an iterative process of keeping track of the path with the smallest accumulated metric leading to each state in the trellis. The metrics of all of the paths leading into a particular state are calculated and compared. Then, the path with the smallest metric is selected as the survivor path." '532 Patent col. 7 ln. 64- col. 8 ln. 2.

After reading the specification of the Fitzpatrick Patent, the PHOSITA would conclude that an EPR4 post-processor would be understood to be "Viterbi-like" based on the examiner's rejection and the patentee's acquiescence, and Fitzpatrick's description of the post-processor. Yet, Marvell has stated that its construction would exclude the post-processor based on the limitation that "a process that only calculates branch metrics for a fraction of the branches in a trellis or only compares a few paths would not be Viterbi-like." ( Docket No. 138 at 9). CMU's construction of "Viterbi-like" reflects, however, that the critical elements are that the objective of the algorithm is to determine the best path through a trellis and that it is performed by calculating metric values. As a result, the Court will adopt CMU's construction for the term "Viterbi-like." 14 As discussed above, no construction will be needed for the term "Viterbi [algorithm]" as any definition may lead the jury to attempt to decide issues of claim construction.

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14 It is noted that '180 Patent contains language that discusses "beyond Viterbi-like detectors." '180 col. 14 In. 10. This language, however, was only cursorily addressed in the briefing and at the hearing and the Court finds that it does not bear
on whether "Viterbi-like" encompasses the post-processor found in Fitzpatrick. Furthermore, it is noted that the '180 Patent issued from a continuation-in-part application filed eleven months after the '839 Patent application and the "beyond Viterbi-like detector" language is found in the new matter added to the '180 Patent specification. Additionally, "Viterbi-like" is not found in the claims of the '180 Patent. As a result, it would be inappropriate to consider the new matter added to the specification of the '180 Patent as intrinsic evidence for construing the claims of the '839 Patent. See Goldenberg v. Cytogen, Inc., 373 F.3d 1158, 1167-68 (Fed. Cir. 2004)(District court erred in considering new-matter content of a related patent as part of the intrinsic record for the patent at issue).

As a result, it is concluded that the construction of the term "Viterbi-like" is as follows:

Viterbi-like means "an algorithm that is or is similar to an iterative algorithm that uses a trellis to determine the best sequence of hidden states (in this case, written symbols) based on observed events (in this case, observed readings that represent the written symbols), where the determined sequence is indicated by the best path through the trellis and is determined using branch metric values calculated for branches of the trellis."

1. "A plurality of voice circuits." Transmission lines capable of carrying voice communications.

15. Voice communication commands

After considering the submissions of counsel, the court concludes that "voice communication commands" does not require construction.

20. Voice communication link

With respect to the term "voice communication link," Foundry asserts that "voice communication" is understood by one of ordinary skill in the art. Foundry further submits that "link" is generally defined as "a connecting structure." Lucent, on the other hand, argues that "voice communication link" should be construed consistently with the definition of "voice-over-IP-link" contained in the specification of the '864 patent. The court does not agree with Lucent's position. As it appears from reading the claims and the specification, a "voice over-IP-link" is a type of "voice communication link." Thus, the term "voice communication link" is broader than the term "voice-over-IP-link." The court therefore construes "voice communication link" to mean "a connecting structure capable of supporting voice communication."

4. Voice communication module

The court is persuaded that Judge Breyer's construction of "voice communication module" in the Nortel case is correct. Accordingly, the court construes "voice communication module" to mean "a module that enables a communication platform to provide voice-over-IP calls."
BACKGROUND

The '301 patent was issued in 1991. It has a single claim, which provides as follows:

1. A payphone which includes a keypad or dial and a digital voice device for providing a user of said payphone voice instructions as to the operation of said payphone; the improvement comprising:

   a directory listing next to said keypad or dial including a list of languages with a corresponding coded numeral found on said keypad or dial;

   and said digital voice device further comprising multilingual voice instructions selectively controlled by the actuation of said keypad or dial such that the numeral actuated on said keypad provides instructions in the language which corresponds in said directory listing.

In 1993, Mr. Maltezos sued AT&T, charging that AT&T's Public Phone 2000 infringed the '301 patent. AT&T moved for summary judgment, arguing that the Public Phone 2000 did not infringe because it lacked a "digital voice device for providing the user of said payphone voice instructions for operating said payphone." The district court granted the motion for summary judgment. The court first ruled that the '301 patent clearly requires the claimed payphone "to have a digital voice device to provide audible instruction in a chosen language." The court then noted that the Public Phone 2000 contains no digital voice device, but instead is capable of presenting readable instructions in languages other than English. The readable instructions, the court held, did not infringe the claim limitation to a "digital voice device," either literally or under the doctrine of equivalents.

Mr. Maltezos took an appeal to the United States Court of Appeals for the Second Circuit, which transferred the case to this court.

DISCUSSION

The first step of an infringement analysis is for the court to determine the scope and meaning of the patent claims asserted. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454, 46 U.S.P.Q.2d (BNA) 1169, 1172 (Fed. Cir. 1998) (en banc). Claim construction begins with the claim language itself. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989, 50 U.S.P.Q.2d (BNA) 1607, 1610 (Fed. Cir. 1999). The district court construed the single claim of the '301 patent to require the claimed payphone to have "a digital voice device to provide audible instruction in a chosen language." As a general rule, the words in a claim are to be given their "ordinary and accustomed meaning." Johnson Worldwide, 175 F.3d at 989, 50 U.S.P.Q.2d (BNA) at 1610. We agree with the district court that the ordinary meaning of the claimed "digital voice device" requires that the device provide audible output.

That construction of the claim is entirely consistent with the written description of the patent. For example, the background section notes that "today payphones are using spoken words to instruct the caller how to make and complete a call." '301 patent, col. 1, ll. 16-17. Similarly, the detailed description section discusses "enabling the voice device within the telephone to provide instructional aid," col. 2, ll. 11-12, and discusses the "voice" to be provided by the "voice chip," col. 2, ll. 13-19. We therefore agree with the district court's construction of the claim.

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c. "Voice Generator Structure"

The term "voice generator" appears in several of the analysis control system claims at issue, and the limitations containing this term read "voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers." The parties agree that the term "voice generator structure"
is not subject to means-plus-function analysis because the term connotes a specific range of structures that correspond to the term to those of ordinary skill in the art. The Court concludes that the plain meaning of the term "voice generator" indicates a structure that can produce vocal sounds. The specification of the patents in which this term is found describes the voice generator structure as "a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing." Column 2 lines 4 to 8 of the '707 patent. The specification also provides that the voice generator is incorporated in the interface, Column 4, lines 55 to 58 of the '707 patent, and that "recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons" on their telephones, Column 1, lines 45 to 47 of the '707 patent. Based on the term's ordinary meaning, the claim language, and the specification, the Court concludes that "voice generator" means: a device for generating vocal instructions or prompts to individual callers at the remote terminals.

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12 The term "voice generator structure" is found in Claim 51 of '309, Claims 33, 104, 117, and 192 of the '707 patent, and Claims 65 and 171 of the '863 patent. In Claim 192 of the '707 patent, the limitation provides that the voice generator structure is also able "to prompt said individual callers to enter data."

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2. Voice guidance

This term appears throughout the '330 patent. Plaintiff proposes that it means "spoken words that give accurate directions." Defendant's construction, which I adopt, is more narrowly tailored to the context of the '330 patent: "spoken words that give accurate directions about how to navigate at a particular position."

2 The court rejects defendant's suggestion that "speech synthesis" is inherent in a "voice recognition system." "Voice recognition" is the mechanism by which spoken instructions are input into the robotic surgical system. (Col. 4, Ins. 14-17) "Speech synthesis," on the contrary, is one way in which sound can be output from the robot to the surgeon. (Col. 16, In. 55 - col. 17, In.3) This conclusion is supported by the structure of the claims, which consists of the "voice recognition" limitation in independent claims and "synthesis" as an added limitation in corresponding dependent claims. (See, e.g., claims 13, 15) References to a "speech recognition and synthesis system," therefore, denote the input and output functions of the robotic surgical system. (col. 6, Ins. 23-25, Ins. 48-59) Furthermore, the court finds no support in the specification or claims for defendant's assertion that "voice recognition" and "input device" are means-plus-function limitations pursuant to 35 U.S.C. § 112 P6.

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- "voice traffic" is construed to mean "transmitted voice packets."
Lucent contends that this term should be construed to mean "packets of voice traffic." (D.I. 396 at 24.) Extreme contends that this term means "voice packets organized into blocks of bits, each block containing bits of a different order of significance, where the bits of lesser significance can be dropped when congestion occurs in the network." In support of its contention, Extreme points to Lucent's statement in the Summary of the Invention section of the specification that "bits in voice packets are organized into blocks according to the order of significance of the bits." (650 patent at 3:33-34.) The Court agrees with Extreme that Lucent describes the organization of voice packets this way. However, the Court does not find that Lucent's description of the way the voice packets are organized amounts to a definition of the term "voice traffic," representing a clear disavowal of claim scope. Further, the Court finds that the parties agree that the ordinary meaning of the term "traffic" is "the information or signals transmitted over a communications system: MESSAGES." (D.I. 379 at 29; D.I. 399 at 21.) The Court finds that the parties also agree that voice traffic is generally comprised of "packets of voice" or "voice packets." (D.I. at 19; D.I. 399 at 18.) Further, the Court finds that the specification references the transmission of voice packets several times in the Summary of the Invention (650 patent at 3:2-16.) Thus, in the Court's view, the Court's construction is consistent with the plain language of the claim and the specification.

The Court agrees with Defendants' construction and thus construes "voiceband" as "frequencies in the range of 0 to 4 kHz." Plaintiff tries to support its construction that reads "frequencies in the range of 0 to 4 kHz reserved for POTS services (e.g., analog voice phone services)" by citations to the specification. However, none of the specifications cited by Plaintiff clearly associate "voiceband" with being limited to those frequencies "reserved for POTS services (e.g., analog voice phone services)." Since Defendants agree with the first part of Plaintiff's construction, Defendants' arguments are limited to disputing the additional language in Plaintiff's construction that reads "reserved for POTS services (e.g., analog voice phone services)." First, Defendants argue adding the POTS service acronym would be confusing to the jury because it is technical and not understood by lay persons. Second, Defendants argue Plaintiff's proposal contradicts the express language of the claims that require only certain signals in the claims to be above "voiceband" (the "resume signal" in claims 1, 7, and 24; the "modulated data signal" in claims 7 and 16). Because the 0 to 4 kHz frequency range is "reserved" for only POTS under Plaintiff's proposal, Defendants argue that signals having no express above-voiceband limitation (the "resume signal" in claim 16; the modulated data signals in claims 1 and 24) could nonetheless be required to be above voiceband.

The Court agrees with Defendants' construction. Plaintiff's construction adds language that is unnecessary and there is no strong foundation in the intrinsic record for adding such limitations. Rather, the intrinsic record actually supports "voiceband" as referring solely to a range of frequencies, which, in that case, is best construed as "frequencies in the range of 0 to 4 kHz." See '323 patent, 7:60, Claim 1 ("outside the voiceband frequency range") (emphasis added); 4:46-48 ("filtered to remove frequencies above voice band"); 2:31-37 ("frequency range above voiceband") (emphasis added). Therefore, the Court construes "voiceband" as "frequencies in the range of 0 to 4 kHz."

Plaintiffs propose to construe the term "void" (964 Patent, claim 1) as a space or spaces in the image carried by the input video signal where a change or illumination may be made to cause an improvement of the perceived quality of the image. Defendants argue that the court should construe the term void more narrowly, to be an off pixel or a space between two pixels, but specifically not a defective pixel such as that corrected by United States Patent No. 4,573,070 (’070 Patent), nor part of a jagged edge in an image. Defendants also argue that Plaintiffs' proposed construction is estopped by the prosecution history of the '964 Patent. In addition, Defendants contend that their proposed construction should be adopted since it parallels the PTO's definition of "void" as excluding jagged edges.

A. Scope of Construction

Defendants argue that the term "void" should not include defective pixels. The intrinsic record, which includes the prosecution history and prior claim constructions of the '780 Patent family supports Plaintiff's proposed construction. The
'964 Patent specification provides a range of examples consistent with this construction:

Examples of voids would include such things as defects, unwanted elements, improper elements, corrupted elements, valid but replaceable elements, locations with no image information, and/or other locations or elements which may be in question or need for improvement. The term void is used to cover all these and similar situations for uniformity.

('964 Patent, col. 3, Ins. 38-52, emphasis added). Plaintiffs' construction was also previously accepted by the court in Lexmark. 424 F.Supp.2d at 1089-90. Thus, the specification in the '964 Patent indicates that voids can be defects. This rebuts Defendants' proposal that voids are not defective pixels and supports Plaintiffs' proposal that voids are spaces in the image where a change may be made to cause an improvement.

B. Estoppel

Defendants also contend that Plaintiffs' proposed construction is estopped by the prosecution history of the '964 Patent. Defendants assert that J. Carl Cooper (Cooper), the inventor of the '964 Patent, distinguished another of his patents, the '070 Patent, from the '964 Patent by claiming in a response to a Patent and Trademark Office (PTO) Action that "a defective pixel, such as that corrected by the '070 Patent, is not the same as 'voids' as in the presently rejected claims." (9/5/03 Resp. to 4/8/03 Off Act, 2)(emphasis in original). The court in Lexmark rejected this same estoppel argument. 424 F.Supp.2d at 1089-90. Defendants contend that Lexmark concerned only the '780 and '637 Patents, not the '964 Patent.

The Defendants selectively quote the office action response in support of their argument. It is clear from a more complete reading of the prosecution history that Cooper was not distinguishing the '070 Patent for present purposes, but was instead referring to his earlier use of that argument in prosecuting the '780 Patent. The office action response cited by Defendants reads as follows.

In fact, the '070 patent was used as the basis for a rejection in claims in United States Patent Application 07/355,461 which is the first grandparent application to the present case. (See paper no. 7 to that application, at p. 9, and paper no. 11, at p. 4). In response to that rejection, the applicant overcame his own '070 patent, noting that a defective pixel, such as that corrected by the '070 invention is not the same as "voids" as in the presently rejected claims.

Id. (first emphasis added). In fact, Cooper went on in the cited office action response to reiterate the distinction between the '070 and '780 Patents, characterizing the latter as more comprehensive than the former. Id. at 3 (noting that "the present invention, as called for in claim 61, further allows for filling a void. . ., while the cited portion of the Cooper '070 patent deals with . . .") (emphasis added). Cooper also invoked the expansive dictionary meaning of "void" as an empty space, opening, gap, or the quality of being without something, noting that such a definition "would preclude the filling of voids from being obvious in view of . . . the '070 patent." Id. In addition, we note that Cooper invoked the expansive dictionary meaning of the word "void" in order to characterize the '780 Patent as a more comprehensive version of the '070 Patent and the same is true for the '964 Patent. See Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed. Cir. 2004)(stating that although a patentee may have intended to use a term in a manner other than its ordinary and customary meaning, prosecution history may prove this conclusion only by a "clear and unmistakable departure" from the common meaning).

C. Effect of PTO's Definition

Defendants argue that their proposed construction parallels the PTO's definition of "void" as excluding jagged edges. The PTO noted in its reexamination decisions for the '780 and '637 Patents that "smoothing the jagged edges does not fill in voids" and that "eliminating the jaggies is smoothing the edges of an image, and not filling voids." D RE of '637 Patent (Apr. 11, 2008), at 8, 10; D RE of '780 Patent (Apr. 17, 2008), at 13. However, the cited PTO decisions do not support Defendants' position as to reexamination of the '780 and '637 Patents. The PTO's post-issuance statements imposed no obligation on Plaintiffs to reply, and Plaintiffs' decision not to reply did not create a surrender of patent rights. Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1347 (Fed. Cir. 2005)(noting that an "examiner's unilateral remarks alone do not affect the scope of the claim, let alone show a surrender of claimed subject matter"). Defendants argue that the PTO's understanding of "void" in the '780 and '637 Patents is significant to construing claims. However, Salazar governs the underlying weight accorded to unilateral remarks by the PTO. Thus, based on the above, we construe the term "void" ('964 Patent, claim 1) in a manner consistent with Plaintiffs' proposed construction.
The term "void" is used throughout both patents. IP proposes the following definition: space(s) in the image where a change of illumination may be made to cause an improvement of the perceived quality of the image. Lexmark and Dell propose that, with respect to still images, "void" should be construed to mean "an empty space, opening, gap, the quality of being without something between pixels of a displayed image." In the context of moving images, Dell asks for another construction: an empty space, opening, gap, the quality of being without something at all times.

The essence of the parties' dispute is whether "void" refers only to gaps or spaces between pixels or includes image elements and defective or turned-off pixels. Lexmark and Dell advance the former position, averring that Cooper disavowed a broader definition in the course of prosecuting the patent application. Specifically, they point to a statement where Cooper referenced a dictionary defining the word "void" as "empty space, opening, gap, the quality of being without something, etc." See S/N 355,461 O.A. response 6/18/92 at 17; S/N 355,461 O.A. response 6/24/93 at 7. Cooper also stated in these two office action responses that "Applicant believes however that the examiner is incorrect in his assertion that a defective pixel such as corrected by the 070 invention is the same as, and would include, voids in the image as in the present disclosure and claims." Id. Lexmark and Dell believe that these statements show a clear intention on the part of the Cooper to redefine the term "void."

It is axiomatic that the prosecution history of a patent can show that a patentee intended to use a term in a way other than its ordinary and customary meaning, but the proceedings before the examiner must show a "clear and unmistakable departure" from the common understanding of the term. See Golight, 355 F.3d at 1332. If the statements made can reasonably be interpreted in more than one way, no clear and unmistakable departure is shown. See id.

In this case, the statements to which Lexmark and Dell refer can reasonably be interpreted as an attempt on Cooper's part to distinguish his present invention from a prior patent. The prior art patent filled in defective voids only, in contrast to the invention in the 780 patent, which ameliorates artifacts caused by defective pixels as well as by gaps or empty spaces between pixels. Rather than excluding defective pixels or image elements from the types of voids the invention could alter, Cooper illustrated that the 780 patent was more comprehensive. Because the reference to the dictionary definition can reasonably be interpreted in this way, there is no clear departure from the more expansive understanding of the term "void."

Last and most important, IP's position is consistent with the specification and the claims. Both the claims and the specification make reference to the possibility that voids need not be completely empty; claim 110 states that "the void can include at least in part a portion of a space occupied by another image element," and the specification states that "new pixels or pixels used for filling, substitution or replacement may be comprised of . . . a portion of a pixel." U.S. Patent No. 5,424,780, col. 5, Ins. 48-50; see Purdue, 237 F.3d at 1364. To accept Lexmark and Dell's definition, we would in essence read out these portions of the patent. Therefore, we construe this term to mean a space or spaces in the image where a change of illumination may be made to cause an improvement of the perceived quality of the image.

In the context of the 637 patent, Lexmark and Dell contend that this term should have a different meaning, relying on a portion of the specification in that patent that supplies illustrative examples of voids. As explained in the discussion of "display device" above, an illustrative list is not tantamount to an exhaustive description. Thus, Lexmark and Dell's arguments that this term should not be given a consistent meaning for both patents are unavailing, and we attribute the construction addressed here to all appearances of this term in both patents.
the '780 family of patents. Sony, however, argues that with respect to this term, the patentee used one meaning of the term in the '780 patent but explicitly redefined the term in the continuation-in-part '637 patent. The Court considers the term within the context of each patent.

For purposes of both the '780 and '637 patents, IPI defines voids as spaces around or in the image where a change of illumination maybe made to cause an improvement of the perceived quality of the image (e.g., blank areas of the image near a detailed area of the image). Importantly, IPI adds that these spaces may or may not include an unused image element.

Sony contends that a void in an image, as used in the '780 patent, means a physical point in a displayed image that is not addressed by image elements on the incoming signal at any time. Thus, according to Sony, the voids disclosed in the '780 patent reflect an empty space, opening, gap, or the quality without being something in the video information in the signal carrying the image. Sony submits that the patentee redefined the term in the '637 patent, as any location in an image including defects, unwanted elements, improper elements, corrupted elements, valid but replaceable elements, locations with no image information, and other locations or elements which may be in question or in need for improvement.

The term "voids" was not expressly defined in the '780 patent, and thus we must ascertain its meaning from the context of the patent. IPI emphasizes that language used in surrounding claims indicates that "voids" must include locations containing existing image elements. It points out that claim 110, which was added during reexamination of the ‘780 patent, discloses "the method of claim 15 characterized in that the void can include at least in part a portion of a space occupied by another image element." IPI argues that this claim makes it clear that a void can include a space occupied by another element. It also draws the Court's attention to the specification's discussion of how a video fill signal can generate a new pixel or pixels, which may be "used for "filling, substitution or replacement [and] may be comprised of all or a portion of a pixel." U.S. Patent No. 5,424,780, col. 5, lines 48-50. IPI reasons that if a fill signal includes substitution or replacement of old pixels with newly generated pixels, then a void, by definition, must include the possibility that a pixel exists within the space designated as a void.

Other claim language supports Sony's interpretation. The Court counted five claims that refer to a "void between image elements." See claims 3, 11, 12, 96 and 147. Moreover, the claims and specification contain numerous references to "blank areas," a phrase that the patentee appears to use interchangeably with "voids." For instance, claim 135 discloses a "means for changing the shape of at least one element [that] can include generating fill image elements in blank areas of the display." Use of the term blank tends to suggest that the patentee had the ordinary meaning of "void" in mind when drafting the patent. In sum, the claims and specification do not conclusively support one interpretation over the other.

The prosecution history, however, sheds more light on the intended meaning of the term. During prosecution of the '780 patent, the inventor, James Cooper, responded to an examiner's objection of a claim based on obviousness by stating:

Applicant has reviewed and considered the examiner's remarks given in his 35 U.S.C. § 103 rejection over Cooper '070. Applicant believes however that the examiner is incorrect in his assertion that a defective pixel such as corrected by the '070 invention is the same as, and would include, voids in the image as in the present disclosure and claims. The '070 patent generally shows replacing a given pixel with an average of pixels based on the similarity or ranking of pixels. The similarity or ranking of pixels is not related to the absence of elements as the examiner suggests. It might be noted that Webster defines the noun void as empty space, opening, gap, the quality of being without something, etc. Such definition would preclude the filling of voids from being obvious in view of the averaging of similar elements for removal of noise which is disclosed in the '070 patent.

See S/N 355,461 O.A. response 6/18/92 at 17. The Court reads Cooper's remarks, and in fact believes that this is only sound interpretation of his comments, as an unambiguously limit on the scope of "voids."

Moreover, during prosecution of the '780 patent on reexamination, Cooper made amendments to certain claims on March 16, 2001. In this document, he amended then claim 138, which read "the apparatus of claim 1 characterized in that the void can include at least in part a portion of a space occupied by another element" to read "the apparatus of claim 1 characterized in that the void can be filled in part with portions of two image elements." See G15/7422R1F at 9. When Cooper, later in the same document, discussed his interview with the examiner, he noted that

in respect to the "portion of a space occupied by another image element" in claim 138, the undersigned pointed out how
the voids may be filled by all or a portion of a pixel (fig. 5A; col 4 lns 51-52; col 5 ln 50; col 10 lns 26-31; col 12 lns 23-34). This use could utilize a combination of a plurality of pixels for the fill element, thus utilizing a portion of two (or more) elements to fill a given void. The examiner indicated he would again reconsider this rejection with the wording as currently constituted.

Id. at 17. Though the Court was not provided with subsequent excerpts of the prosecution so as to determine later changes made to the above mentioned claim 138, the inventor's remarks are illustrative. Following this reasoning, current claim 110, which reads "The method of claim 15 characterized in that the void can include at least in part a portion of a space occupied by another image element," most likely refers to the newly generated elements rather than image elements already existing in the space.

Because the prosecution history of the '780 patent limits the interpretation of "voids" in a manner that unequivocally excludes IPI's interpretation, see Omega, 334 F.3d at 1324, the Court adopts for that patent Sony's proposed definition of "void" as a physical point in a displayed image that is not addressed by image elements on the incoming signal at any time.

The parties do not truly dispute the meaning of "void" in the '637 patent, aside from their preferred phraseology. Both agree that in the context of the disputed claims in that patent, a "void" may include a space occupied by an image element. Indeed, as Sony highlights, the specification contains the following discussion defining the scope of "void:"

It will be also understood that although the word void is used in this specification, the invention is directed towards replicating new image information utilizing neighboring image elements, which new image information is utilized at a certain location(s). These locations might or might not have previously had image information available therefor. The void may exist at the point of image creation, before/after storage and/or at the point of presentation. Examples of voids would include such things as defects, unwanted elements, improper elements, corrupted elements, valid but replaceable elements, locations with no image information, and/or other locations or elements which may be in question or need for improvement. The term void is used to cover all these and similar situations for uniformity.

U.S. Patent No. 6,529,637, col. 3, lines 33-47. This excerpt clearly demonstrates that the patentee used the term in the '637 patent in a manner outside the bounds of its ordinary meaning. Where the specification contains a definition for a term that differs from the meaning the word would otherwise possess, the patentee's lexicography governs. Phillips, 415 F.3d 1303, 2005 WL 1620331, at *8.

Courts presume that a claim term carries the same meaning throughout a particular patent and related patents, including a continuation-in-part. See Omega Eng'g. Inc. v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003). But this presumption maybe overcome by evidence that the patentee clearly assigned different meanings to a term that appears in two related patents. In this case the presumption has been overcome.

Thus, with respect to the use of void in the '637 patent, the term is defined as any location, existing at the point of image creation, before or after storage, or at the point of presentation, in or around an image where a change of illumination may be made to cause an improvement of the perceived quality of the image. Such voids may include, but are not limited to, defects, unwanted elements, improper elements, corrupted elements, valid but replaceable elements, locations with no image information, and other locations or elements which may be in question or need for improvement.

4. "Volley code"

The meaning of the term "volley code," which appears in both Claim 1 and 8 of the '002 Patent, is also in dispute. Papyrus suggests that the term means "one or more symbols used for relating one communication or instruction to another communication or instruction." Pl. PCCO 3; Markman Hr'g Tr. vol. 2 at 87. Moreover, Papyrus alleges that volley codes communicate the stage, i.e., the status, of a transaction or instruction. Markman Hr'g Tr. vol. 2 at 88-89. Specifically, the "Detailed Description" section of the patent addresses volley codes, stating that "[t]he system utilizes volley codes to define the present stage of a transaction or instruction." '002 Patent col. 18 l.41-42 (emphasis added). In addition, Papyrus also notes that the definition of the word "code" is "a system of signals or symbols for communication" and "a system of
symbols (as letters, numbers, or words) used to represent assigned and often secret meanings." Pl. App. Ex. 48 at 457; see Pl. App. Ex. 49 at 481.

In the alternative, NYSE suggests a construction where the term means "a code that reflects the current stage of communications for a transaction." Def. PCCO 3. Although NYSE cites claim language which states "said volley code defining a hierarchical relationship among said subset of data packets," it asks that the court construe the term to mean in part, "the stage of the transaction." '002 Patent col.33 ll.38-39, col.34 ll.28-29 (emphasis added); Def. Reply Br. 18.

Papyrus, however, contends that NYSE's proposed definition "restricts volley codes to characters that reflect the 'current stage of communications.'" Pl. Reply Br. 20. According to Papyrus, "nothing in the written description manifests an intent to confine the volley codes to the preferred embodiments . . . ." Pl. Reply Br. 20-21. Indeed, the patent explains that although the preferred embodiment provides for the use of specific symbols as volley codes (e.g., "Q," "O," "M," "E," "S," "A"), the "characters [used] are merely illustrative of the essential function of the system which they represent" and therefore, "other characters or digital means may be used to identify the progression of one communication from one device to another." '002 Patent col.18 ll.60-63; see id. col. 18 ll.53-59. As a result, the specification supposedly teaches that a "volley code" may also broadly identify the progression of a communication. Pl. MHSP vol. 2 at 55; see Fuji Photo Film Co., 386 F.3d at 1106. Moreover, because Claims 1 and 8 expressly provide that volley codes define a hierarchical relationship, the phrase "volley code" should not be construed to repeat that express provision. Pl. Reply Br. 20.

Here, the meaning of "volley code" as explained by the patent language is ambiguous. On one hand, the written description clearly states not only that volley codes "define the present stage of a transaction or instruction" but also that "other characters or digital means may be used to identify the progression of a communication from one device to another." '002 Patent col. 18 II.41-42, 61-63. On the other hand, the claim states that volley codes define hierarchical relationships among a subset of data packets. See '002 Patent Abstract, col.8 II.2-3, col.33 II.38-39, col.34 II.28-29. Nevertheless, the court finds that Figures 12 and 13 are crucial to understanding the purpose and role of volley codes in the method. According to the specification, Figure 12 shows "the progression among several of the principal subtypes [of volley codes] for orders and quote requests as they are disseminated and handled." Id. col. 18 II.65-67 (emphasis added). Figure 13 also depicts the progression, between the programmed computer and the HHD which prompts the invention to use the volley code that corresponds with the stage of the transaction. Based on the language in the specification and the pictorial representations of the invention, the court defines volley codes as "codes that define the present stage of a transaction or which reflect the progression of communications for a transaction." 4810

3. "Voltage Amplifier"

In P3's opening claim construction submission, it argued that the term "voltage amplifier" as used throughout the '850 Patent should mean "any device or combination of devices that changes the amplitude of the voltage input." UPM appears to argue in opposition that this term, like the prior art UPM references, does not amplify the voltage signal but only "attenuate[s]" it in order to be processed by the ADC. In reply, therefore, P3 contends that the parties at least agree that a proper construction of "voltage amplifier" includes "devices that attenuate voltage." P3 further contends that the argument of UPM's expert that the specific limitations found in the specification should be read into this claim limitation should be rejected as improper. The parties having agreed that the term "voltage amplifier" includes at least devices that "attenuate" voltage, and UPM having made no argument in its opposition brief for any different definition of the term, the term "voltage amplifier" shall be construed as a device that at least attenuates voltage. 4811

3. "Voltage Regulator" (Claim 11)

There are two disputes regarding the construction of this term. First, the parties engage in the identical dispute to that described above regarding "amplifier circuit," with Broadcom arguing for the application of P 6 on the grounds that there
are many different physical manifestations of voltage regulators. For the reasons stated above, the Court rejects this contention and holds that the term is not governed by P 6.

Second, Broadcom objects to Agere's construction of the voltage regulator as a device that "controls the voltage supplied to the input of the bandgap voltage supply circuit by the power source so as to maintain the output bandgap voltage between 1.0 and 1.5 volts." Broadcom argues that this language is "vague," in that it could be read to imply, incorrectly, that the voltage regulator directly controls the output bandgap voltage instead of merely regulating its own output. (R. at 239, 245 (May 7, 2004).) The Court notes, however, that Agere's construction is taken verbatim from the claim itself ('817 patent, col. 7, l. 21-col. 8, l. 2) and, rather than being vague, states unequivocally that the voltage regulator controls the voltage "supplied to . . . the bandgap voltage supply circuit by the power source." Thus, there is no question that the voltage regulator directly controls the input to, and not the output from, the bandgap voltage supply circuit, and therefore Broadcom's vagueness argument is meritless. Accordingly, the Court adopts Agere's construction.

A. Voltage Source Means Dispute

The parties dispute whether the limitation "voltage source means providinga constant or variable magnitude DC voltage between the DC input terminals" is a function-plus-means limitation, subject to construction as limited by section 112, P 6. Lighting Ballast argues that "voltage source" connotes sufficient structure to one skilled in the art and that it should avoid treatment as a means-plus-function limitation. In the alternative, Lighting Ballast argues that if the Court determines that section 112, P 6 applies, then the specification discloses the corresponding structure. Universal argues that the term should be treated as a means-plus-function limitation because it is written in means-plus-function format, and furthermore, that the specification does not disclose a corresponding structure, making both claims in which the limitation appears indefinite.

1. Plaintiff's Proposed Construction

Lighting Ballast argues that this limitation, while using the term "means," is not a means-plus-function limitation because the term "voltage source" has an understood meaning in the art when read in the context of the specification. See Pl.'s Opening Br. 14-15, ECF No. 84. Specifically, according to Lighting Ballast, "voltage source means [providing (claim 1), able to provide (claim 18)] a constant or variable magnitude DC voltage between the DC input terminals" connotes the structure of a rectifier to anyone skilled in the art. Id. at 15. As support for this assertion Lighting Ballast points to extrinsic evidence: expert testimony from Andrew Bobel, the inventor, who has several years of experience working on electronic ballast designs, and Dr. Victor Roberts, an expert witness. Id. Both Bobel and Dr. Roberts testify, that as persons skilled in the art, the "voltage source" limitation clearly connotes the structure of a rectifier. Pl.'s Opening App. Ex. 2-A at 226, ECF No. 84-3; Ex. 3 at 7-8, ECF No. 84-7. In the alternative, Lighting Ballast argues that if the Court determines that section 112, P 6 applies, then the specification discloses the corresponding structure. Universal argues that the term should be treated as a means-plus-function limitation because it is written in means-plus-function format, and furthermore, that the specification does not disclose a corresponding structure, making both claims in which the limitation appears indefinite.

2. Defendant's Proposed Construction

Universal argues that this limitation is governed by section 112, P 6 as a means-plus-function limitation. Def.'s Opening Br. 16, ECF No. 85. First, Universal points to the use of the term "means," which presumptively invokes section 112, P 6. Id. Secondly, according to Universal, the limitation itself clearly recites a function only. Id. And third, the claim language does not point to any structure. Id. Thus, Universal asserts, this limitation is a classic means-plus-function limitation and must be construed according to section 112, P 6. Universal then goes on to argue that the specification for the 529 Patent does not disclose any structure, a rectifier or otherwise, for performing the claimed function. Id. 18-20. Accordingly, Universal urges that Claims 1 and 18 should be held invalid because they are indefinite.

3. Court's Analysis and Construction

The Court begins with the presumption that this is a means-plus-function limitation, subject to construction under section 112, P 6 because it uses the term "means," and is written in a classic means-plus-function format. See Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1361 (Fed. Cir. 2000). Lighting Ballast asserts that the presumption should not
apply because, despite use of the term "means," the limitation recites sufficient structure to avoid section 112, P 6. To determine whether the limitation "voltage source means" connotes sufficient structure, the Court must first consider all of the recited claim language, including nouns, adjectival modifiers, and function descriptions, and secondly, determine whether that claim language has an understood meaning in the electronic ballast field when read in the context of the 529 Patent specification. See Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1320 (Fed. Cir. 2004).

The words "voltage source" precede "means," which is followed by the claimed function, "[providing/able to provide] a constant or variable magnitude DC voltage between the DC input terminals." Lighting Ballast argues, as it must in order to avoid section 112, P 6, that "voltage source" connotes sufficient structure, in this case, a rectifier. However, in order to come to this conclusion, Plaintiff uses the recited function along with inventor and expert testimony, that a rectifier would be required where the function is "providing a constant or variable magnitude DC voltage." Lighting Ballast also points the Court to case law stating "it is sufficient to avoid [section 112, P 6] treatment if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the terms identify the structures by their function." Mass. Inst. of Tech., 462 F.3d at 1356.

Universal argues that the term "source" and by extension, the term "voltage source," is insufficient to connote structure and directs the Court to case law. In Nilssen v. Motorola, Inc., the court held that even if the term "source" in "source means" connotes a device that provides power, this alone is not a sufficient structural recitation to remove the limitation from the ambit of section 112, P 6. 80 F. Supp. 2d 921, 928-29 (N.D. Ill. 2000). The difference here is that "source" is preceded by "voltage" obviously meaning that it is a source of voltage. However, the Court is inclined to agree with the Nilssen court, that even assuming "voltage source" connotes a structure, it is not a sufficient structural recitation to overcome the presumption in favor of section 112, P 6.

Lighting Ballast's argument that "voltage source" connotes sufficient structure to avoid means-plus-function construction is problematic for other reasons as well. First, Lighting Ballast does not point the Court to any evidence, intrinsic or extrinsic, that the term "voltage source" is commonly used in the electronic ballast industry to mean a rectifier. Rather, Plaintiff relies on the description of the function, stating that persons of skill in the electronic ballast industry, including Bobel and Dr. Roberts, understand that this function, insofar as it includes supplying a DC voltage, can be and often is performed by a rectifier. Secondly, Lighting Ballast admits that a rectifier is not the only structure capable of providing a DC voltage, pointing out that a battery would also suffice. There is no indication that "voltage source" is often used synonymously with the term "rectifier" by those of ordinary skill in the electronic ballast industry, and Lighting Ballast does not appear to argue as much. In fact, the opposite would seem to be the case, since a rectifier is merely one voltage source. Lastly, neither the language of claim 1 or claim 18 describes the function of a rectifier. Rather, the recited function, "providing a constant or variable magnitude DC voltage between the DC input terminals," refers only inferentially to the function of a rectifier. 2 For these reasons, the quotation from Massachusetts Institute of Technology, supra, does not assist Plaintiff in avoiding section 112, P 6. Therefore, the Court finds that this limitation, even when read in the context of claims 1 and 18, of which it is a part, does not suggest sufficient structure on its face to overcome the means-plus-function presumption, and it must be construed in accordance with section 112, P 6.

--- Footnotes ---

2 Dr. Roberts appears to acknowledge this fact when he states in his declaration that "one skilled in the art would immediately ascertain and implement the structure necessary to supply the DC supply voltage[.]" Pl.'s Opening App. Ex. 3 at 7-8, ECF No. 84-7.

--- End Footnotes ---

In order to construe the "voltage source means" limitation in accordance with section 112, P 6, the Court must determine the claimed function, and then identify the corresponding structure in the written specification of the 529 Patent that performs that function. See Applied Med. Res. Corp., 448 F.3d at 1332. The Federal Circuit has stated that section 112, P 6 represents a quid pro quo by allowing inventors to use a generic means expression for a claim as long as the specification indicates the structure that constitutes the means. See Atmel, 198 F.3d at 1381. The section 112, P 6 "tradeoff cannot be satisfied when there is a total omission of structure. There must be structure in the specification." Id. at 1382. Once it is established that there is a disclosure of structure in the specification, the analysis proceeds to the sufficiency of the disclosure—whether one skilled in the art will know and understand what structure corresponds to the means limitation. Id. Therefore, as long as
there is disclosure of structure, the written description in the 529 Patent need not explicitly describe the structure; rather, disclosure of the structure may be implicit so long as it meets the above test. See id. at 1380. However, the Court must bear in mind that the proper "inquiry is whether one of skill in the art would understand the specification itself to disclose a structure, not simply whether that person would be capable of implementing a structure." Biomedino, 490 F.3d at 953. In other words, if no structure is disclosed, it is not sufficient that a person of skill in the art could implement a structure. See id. As established supra, the claimed function is "providing [or (able to provide)] a constant or variable magnitude DC voltage between the DC input terminals." Thus, the description in the 529 Patent must disclose a structure, either explicitly or implicitly, such that one with skill in the art would understand the disclosure to connote a structure, that performs this function. See Atmel, 198 F.3d at 1382. The parties do not dispute that the 529 Patent does not explicitly disclose the structure of a rectifier. Therefore, the issue turns on whether the specification in the 529 Patent implicitly discloses a rectifier as the structure to perform the above specified function.

The parties dispute this point. Lighting Ballast directs the Court to several references in the 529 Patent to drawing power from a power line source and to DC supply voltages. Pl.'s Opening Br. 16, ECF No. 84. Lighting Ballast, relying on testimony from Bobel and Dr. Roberts, argues that "the only structure that can perform such a function in a lighting ballast is a rectifier, which is implicit, but clear, from the specification's multiple references to 'a power line source' and 'a DC supply voltage.'" Id. Otherwise, Lighting Ballast does not point the Court to any language in the 529 Patent that discloses a structure. See id. Defendant, Universal, argues that the description in the 529 Patent does not disclose a corresponding structure, and that Lighting Ballast may not use expert testimony to suggest a structure that was not disclosed in the patent. Def.'s Resp. Br. 4-6, ECF No. 89.

Lighting Ballast relies on language from Atmel, where the court states that "disclosure of structure corresponding to a means-plus-function limitation may be implicit in the written description if it would have been clear to those skilled in the art what structure must perform the function recited in the means-plus-function limitation." 198 F.3d at 1380. However, this statement must be understood in its proper context. As noted supra, the central issue in the Atmel opinion was not whether there was a disclosure of a structure, the first step in the analysis, but whether the alleged disclosure would connote a structure to one skilled in the art. See id. at 1380-82. The appellant in Atmel argued that a citation to a particular article in the patent's specification, which included the article's title, was a sufficient disclosure of the structure at issue such that a person of skill in the art would understand the nature of the corresponding structure. Id. at 1380-81 ("Atmel specifically directs us to the testimony of its expert . . . that the mere mention of the title of the . . . article in the specification is sufficient for one skilled in the art to envision the structures disclosed in that article") (emphasis in original). The Federal Circuit agreed, holding that "interpretation of what is disclosed must be made in light of the knowledge of one skilled in the art." Id. at 1380. Therefore, when the Atmel court made the statement above, relied on by Lighting Ballast, the court was specifically discussing the second step of the implied-disclosure analysis, the sufficiency of the alleged disclosure.

It is also worth noting that this language was itself used in a quotation in the Atmel opinion. See id. at 1380. The Atmel court was quoting from what were proposed supplemental guidelines from the PTO which were themselves adopted from the Federal Circuit's In re Dossel opinion. Id.; see In re Dossel, 115 F.3d 942 (Fed. Cir. 1997). In Dossel, the court, like the Atmel court, was discussing the sufficiency of the alleged disclosure of the structure corresponding to a means-plus-function limitation in a claim. Id. at 946. The specific structure at issue was a computer, however, neither the written specification nor the claims ever used the word computer. Id. Rather the description described the structure of a computer, by its functions—"clearly, a unit which receives digital data, performs complex mathematical computations and outputs the results to a display must be implemented by or on a general or special purpose computer." Id. at 946-47. The Dossel court then stated that this conclusion was bolstered by the fact that "in the medical imaging field, it is well within the realm of common experience that computers are used to generate images for display by mathematically processing digital input." Id. at 947. Thus, it is clear that the appellant in Dossel had overcome the initial hurdle of pointing to a disclosure of the structure in the patent's specification, and the court's focus was considering whether the disclosure was adequate.

3 Plaintiff does not point the Court to any language in the specification of the 529 Patent describing the function of a rectifier.
Finally, in Biomedino, the Federal Circuit addressed the substance of Lightning Ballast's argument. 490 F.3d at 952-53. In Biomedino, the court considered the claim limitation "control means" and whether the patent's specification disclosed a corresponding structure. Id. at 948-49. The only references in the specification to the "control means" were a box labeled "Control" in a diagram of the invention and a statement that the regeneration process "may be controlled automatically by known differential pressure, valving and control equipment." Id. at 949. The appellant relied on expert testimony to show that from the above statement, one skilled in the art would be able to identify a structure. 4 Id. at 951. The court rejected this argument, stating that the proper inquiry was not whether a person skilled in the art could implement a structure but whether that person would understand the specification to disclose a structure. Id. at 953 (emphasis added). Thus, the Biomedino court held that the "bare statement that known techniques or methods can be used does not disclose structure." Id.

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4 Similar to Dr. Roberts's argument in this case, see supra n2 and infra n6.

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Here, Lighting Ballast fails to point the Court to any language in the 529 Patent that discloses either implicitly or explicitly the structure of a rectifier. Rather, Lighting Ballast attempts to use testimony from the inventor, Bobel, and an expert, Dr. Roberts, that they understand that the invention covered by the 529 Patent would require a rectifier. In so doing, Lighting Ballast finds itself in same position as the appellant in Biomedino, arguing that one skilled in the art could implement a structure. Lighting Ballast relies on the testimony of Bobel and Dr. Roberts, that they, as persons skilled in the art of lighting ballasts, understand that when the specification speaks of using a DC supply voltage, where power is supplied from a power line source, which they know to supply AC voltage, that a structure to convert AC power to DC power would be required. Furthermore, since the invention is a lighting ballast, Dr. Roberts testifies, a rectifier would be the structure used in the vast majority of applications. While all of this may be true, it ignores the proper inquiry laid out by the Federal Circuit in Atmel and further explained in Biomedino. First, Lighting Ballast must point the Court to the disclosure of a corresponding structure in the specification, and only then, may the Court evaluate the sufficiency of the disclosure and determine whether one skilled in the art would understand the disclosure to suggest the corresponding structure. See Atmel, 198 F.3d at 1381.

Since Lighting Ballast is unable to point the Court to language in the specification disclosing a structure, it seeks to rely on expert testimony that one skilled in the art is capable of implementing a structure after reading the specification. 5 However, the Federal Circuit, in Biomedino, expressly forbids such use of expert testimony. Biomedino, 490 F.3d at 953. At most, the language in the specification to which Lighting Ballast directs the Court requires an inference on the part of one skilled in the art who has read the 529 Patent. The references to a power line source and a DC supply voltage do not connote structure; rather they require the person skilled in the art to implement one. 6 Therefore, the Court finds that Plaintiff, Lighting Ballast, has failed to identify a structure in the 529 Patent's specification that corresponds to the "voltage source means" limitation, contrary the requirements of 35 U.S.C. § 112, P 6.

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5 The Court notes that in its briefing, Plaintiff admits that the 529 Patent focuses on the energy output rather than the energy input side of the ballast. Pl.'s Opening Br. Cl. Const. 4, n.4, ECF No. 84. This may explain the absence of any disclosure of a structure to match the "voltage source means" limitation in Claims 1 and 18.

6 Dr. Roberts only bolsters this conclusion in his declaration when he states: "one skilled in the art would immediately ascertain and implement the structure necessary to supply the DC supply voltage, based on the particular application of the ballast in question." Pl.'s Opeing App. Ex. 3 at 8, ECF No. 84-7 (emphasis added); see also n2 supra.

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IV. CONCLUSION

A determination that a claim is indefinite is a question of law and is part of the court's duty as the construer of patent claims. Personalized Media Commc'n's, 161 F.3d at 705. It is well-established that the determination of whether a claim is invalid as indefinite depends on whether one skilled in the art would understand the scope of the claim at issue when it is read in light
of the specification. North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1579 (Fed. Cir. 1993). Where one employs means-plus-function language in a claim, one must set forth, in the specification, an adequate disclosure showing what is meant by the claim language. Atmel, 198 F.3d at 1378-79 (quoting In re Donaldson Co., Inc., 16 F.3d 1189, 1195 (Fed. Cir. 1994)). If an applicant fails to set forth an adequate disclosure of the structure intended by the claim language, the applicant fails to "particularly point out and distinctly claim the invention," as required by section 112, P 2. Id. at 1379. In order for a claim to meet the particularity requirements of section 112, P 2, the corresponding structure of a means-plus-function limitation must be disclosed in the written specification. Id. at 1382. Where a patent specification fails to disclose a corresponding structure for a means-plus-function limitation in a claim, that claim is invalid for indefiniteness under section 112, P 2. See id; see also Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc., 412 F.3d 1291, 1302-03 (Fed Cir. 2005).

The Court has held that the "voltage source means" limitation, present in both Claims 1 and 18, is a means-plus-function limitation, subject to construction under section 112, P 6. Applying section 112, P 6 the Court found that the specification of the 529 Patent fails to disclose a corresponding structure for the "voltage source means." Therefore, since the 529 Patent fails to disclose a structure for a means-plus-function limitation in a claim, those claims, Claims 1 and 18, are indefinite under section 112, P 2 because they fail to particularly point out and distinctly claim the subject matter which the applicant regards as his invention. See Atmel, 198 F.3d at 1379; Default Proof Credit Sys., 412 F.3d at 1302-03. Accordingly, the Court finds that Claims 1 and 18 are invalid for indefiniteness and may not be enforced by Lighting Ballast against Universal.

4813

a. "voltage supply"

The term "voltage supply" appears in one of the asserted claims of the '955 patent. Claim 1 of the '955 patent requires "a voltage supply having a coupling to said underlying substrate regions determined by a voltage of said underlying substrate regions." NeoMagic and Trident agree that "power supply" and "voltage supply" are synonymous. Therefore, consistent with its earlier construction of "power supply," the court finds that the term "voltage supply" refers to a source of electrical energy, such as a battery, that requires at least two power supply lines to deliver power in an electrical circuit.

4814

C. Voltage Sustaining Layer

1. Plaintiff’s Interpretation

Plaintiff PMT asserts that "voltage sustaining layer" should be defined as "a structure comprising 'alternating' regions of p-type conductivity and n-type conductivity." (PMT Br. at 13). As with "contact layer," PMT argues that "layer" is used in the Chen Patent to mean a horizontal orientation, and "region" is used to mean a vertical orientation. (R. 37 at 11-13). Thus, the voltage sustaining layer is "a horizontal area containing vertical regions." (Id. at 11). In support of its proposed definition, PMT asserts that the inventor chose to be his own lexicographer and unambiguously defined "voltage sustaining layer" in the patent claims. (Id. at 1-5; 15 to 38 at 3; R. 224 at 8-18; R. 231 at 14-15) (referencing Chen Patent, col. 1, In. 55-col. 2, In. 3; col. 7, In. 62 to col. 8, In. 6). In the specification, the inventor calls the type of voltage sustaining layer disclosed by the patent a composite buffer layer, or CB-layer, and PMT regards "voltage sustaining layer" and "CB-layer" as interchangeable. (R. 89 at 22-25; R. 225 at 6 to R. 227 at 16) (referencing, inter alia, Chen Patent col. 1, In. 55-58; col. 1, In. 67 to col. 2, In. 8; col. 2, In. 22-23). PMT admits that the voltage sustaining layer can contain components other than regions of p or n-type conductivity, but urges that the inventor’s definition of CB-layer (i.e., voltage sustaining layer) requires that all components occur in an alternating arrangement. (R. 90 at 4 to 91 at 16; R. 228 at 23 to R. 229 at 24; R. 230 at 20-25). PMT thus contends that everything below that layer of alternating regions is contact layer. (R. 230 at 24 to 231 at 2).

PMT rejects defendants' proposed interpretation first on the ground that it requires back-loading limitations from the generic
"voltage sustaining layer" described in the specification into the "voltage sustaining layer" defined in the claims. (R. 216 at 14 to 217 at 24). PMT contends that the definition that defendants take from the background is actually only Chen's description of the prior art, i.e., of what his invention is not. (R. 219 at 10-17) (referencing Chen Patent, col. 1, In. 11-15). Finally, PMT argues that all semiconductor devices, including Chen's, will sustain some voltage in areas other than their "voltage sustaining layers"; therefore, it is vague to define that structure in terms of its function alone. (R. 221 at 9-19).

2. Defendants' Interpretation

There is some variation in defendants' proposed definitions of "voltage sustaining layer", but "the lightly doped layer of the device that sustains voltage in the off state" 14 sufficiently incorporates their most recent and relevant arguments. Defendants base their proposed definition directly on the language the inventor used to define the term in the specification. (R. 119 at 20-25; Infineon Br. at 20; R. 176 at 1-16) (referencing Chen Patent, col. 1, In. 11-15). Defendants reject PMT's claim that "voltage sustaining layer" and "CB-layer" are interchangeable, arguing that the inventor explicitly defined "CB-layer" in the claims in a way that makes clear he meant it as one species of the genus "voltage sustaining layer." (R. 119 at 12-23; R. 176 at 1 to 177 at 5) (referencing Chen Patent, col. 1, In. 55 to col. 2, In. 2). Defendants contend that the definition of "voltage sustaining layer" that PMT offers the Court is the definition that should instead be applied to "CB-layer." (R. 120 at 7-8; R. 177 at 4-14). Defendant ST explains further that the phrase "called hereafter" that immediately precedes the first use of the term "voltage sustaining layer" in the specification is used to mean "defined as"; therefore, that preceding language is the inventor's intended definition, not the later language used in association with the "CB-layer." (R. 176 at 1-24) (referencing Chen Patent, col. 1 In. 55 to col. 2, In. 2). According to ST, PMT's definition would impermissibly incorporate limitations from a preferred embodiment, the CB-layer, into the definition of "voltage sustaining layer." (R. 177 at 17-19) (referring PMT to it's own Br. at 5 and citing SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1118-25 (Fed. Cir. 1985) (en banc)). Finally, defendants rebut PMT's characterization of their proposed definition as merely Chen's description of the prior art by pointing out that Chen's CB-layer was also prior art under Coe, U.S. Patent No. 4,754,310. (R. 279 at 11-13).

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14 Defendant Infineon specifically asserts that "voltage sustaining layer" should be defined as "the lightly doped layer between n+ and p+ regions that sustains voltage." (R. 120 at 3-5). Defendant ST specifically asserts that "voltage sustaining layer" should be defined as "the layer of the device that sustains the reverse voltage of the device in the offstate." (ST Br. at 11; ST slide # 26).

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ST separately denies that the voltage sustaining layer must be limited to alternating n and p regions because the drafter specifically used the term "comprising," meaning "including the following elements, but not excluding others," 15 to describe the structure rather than the term "consisting of," meaning "the following elements and nothing more." (R. 178 at 2 to 179 at 6) (referencing Chen col. 7, In. 64). ST argues that it makes no difference that none of the embodiments show any other structures, because "comprising" specifically allows for other structures, even if not disclosed. (R. 179 at 15-17). Therefore, under ST's construction, a "voltage sustaining layer" could include anything that sustains a voltage and forms an interface with the contact layers. (R. 180 at 14-18).

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15 The parties have agreed to this definition of "comprising." (R. 178 at 2-5).

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3. Recommended Interpretation

The Special Master recommends that "voltage sustaining layer" also be defined in terms of its function as the "layer that primarily sustains the voltage applied between the terminals of the device." As with "contact layer", "voltage sustaining" is used as an adjective describing the function of this layer within the device. Whether or not this layer can include structures beyond those described as the "CB-layer" can be conclusively determined because the structure of the voltage sustaining
layer is explicitly defined in the claims. 16 (See, e.g., Chen Patent, col. 7, In. 63 to col. 8, In. 6). Chen described the voltage sustaining as "comprising first semiconductor regions of the first conductivity type and..." (Chen Patent, col. 7, In. 64-65) (emphasis added). "Comprising" is a term of art well-known to any patent attorney that is used to mean "including, but not limited to." 17 By using it, the patentee signaled his clear intent that the voltage sustaining layer includes the CB-layer structure, but that it not be restricted from including other layers or structures. Such an interpretation is consistent with the patentee's description of the CB-layer as the point of novelty of the voltage sustaining layer. (Chen Patent, col. 1, In. 55 to col. 2, In. 21). Chen describes the CB-layer as "a new structure of the voltage sustaining layer," but nothing in the disclosure is inconsistent with the idea that the voltage sustaining layer may include structures other than the CB-layer. (Chen Patent, col. 1, In. 55 to col. 2, In. 21). If the patentee had intended to so limit the voltage sustaining layer, he could have easily done so by using "consisting of," meaning "including these elements but no others," 18 rather than "comprising," or he could have used the term "CB-layer" in the claims rather than "voltage sustaining layer," as he did in the original claims, as filed. Instead, his use of "comprising" makes clear that the voltage sustaining layer must contain the alternating regions of the CB-layer, (Chen Patent, col. 1, In. 54 to col. 2, In. 21), but is not limited to those alternating regions. The specific embodiments in the Chen Patent do show the voltage sustaining layer to be just the CB-layer, but to read such a limitation into the term "voltage sustaining layer" would be an impermissible reading of limitations from the preferred embodiments into the claims. Constant, 848 F.2d at 1571. Further, restricting the "voltage sustaining layer" to a particular dopant concentration would be similarly impermissible because of the use of "comprising." (Chen Patent, col. 7, In. 64). The rule against reading limitations from preferred embodiments into the claims remains true even though every embodiment discloses a voltage sustaining layer that is just the CB-layer. Constant, 848 F.2d at 1571. Thus, under the recommended definition, a voltage sustaining layer may also contain additional structures or layers (in addition to the CB-layer), as long as those structures perform the function of sustaining the voltage across the terminals of the device.

--- Footnotes ---

16 Vitronics, 90 F.3d at 1582 (patentee may choose to be his own lexicographer, as long as the special definition is clearly stated); Constant, 848 F.2d at 1571 ("it is the claims that define the claimed invention"). Thus, ST's assertion that the phrase "called hereafter" in the specification signals the inventor's intended definition is incorrect because a clear definition in the claims supercedes any description in the specification.


--- End Footnotes ---

The single use of the term "voltage sustaining region" in, for example, claim 11, confuses the analysis, but does not change the result. (Chen Patent, col. 8, In. 8) (emphasis added). This alternate phrase, voltage sustaining region, is not found in the patent disclosure. There are two possible reasons for the use of this alternate phrase: either it is merely a scrivener's error, 19 or the patentee uses "voltage sustaining region" to mean a voltage sustaining layer plus or minus something else that also sustains voltage. However, such a meaning is nonsensical because, as explained, the definition of "voltage sustaining layer" is already left open by the use of "comprising." Trying to define "voltage sustaining region" as a "voltage sustaining layer" (which may already include other structures) that may then include other layers or structures leads to an absurd result. Thus, the most reasonable explanation is that the alternate phrase "voltage sustaining region" is simply a benign claim drafting error and should be read as "voltage sustaining layer" for claim construction purposes 20

--- Footnotes ---

19 Otherwise, there would be a problem that the term "voltage sustaining region" has no antecedent basis in claim 1.

20 If any meaning is to be attributed to the alternate phrase, it would serve to support PMT's argument that "region" and "layer" are interchangeable.

--- End Footnotes ---
This term is recited or referred to in Claims 1, 5, 17, 20-24, 29, 32, 38-40, 42, 48, 49, 54, 55, 57, 71-77, 80, 82, 85, 94, 96, 102, and 103.

In Claims 1, 5, 20-24, 40, 77, 80, 82, 85, 102, and 103, there is a reference to the voting record and the voting session identifier. In Claims 42, 48, 49, 71-74, 94, and 96, there is a reference to the voting record including the unique voting session identifier. Claims 17, 29, 32, 38, 39, 54, 55, and 57 refer only to the voting record. The parties agree that the term voting record includes the "voter's voting selections/choices." The disagreement is whether the unique voting session identifier should be contained in the definition of the term "voting record."

The description of the invention provides that the memory must store the voting record and the voting session identifier. (Col. 2, ll. 65-67; Col. 3, ll. 1-3.) The separation of these two terms is repeated throughout the description and specification of the invention. (See Col. 3, ll. 13-18; Col. 6, ll. 9-24; Col. 13, ll. 20-24.) The use of the word and indicates that the two terms voting record and voting session identifier -- are different items.

Defendants cite Column 6, lines 9-24 in support of their position; however, the Court finds this citation to favor Plaintiff's argument. "Each voting record PR [tangible voting record]-1, PR-2, . . . PR-n includes the randomly assigned identifying or serial number unique to the particular voting session and a listing of the votes that the voter has cast (the voting record) that is identical to the voting record and identifying number stored in voting machine VM." (Col. 6, ll. 18-24.) (First alteration added.) The citation clearly indicates that there is a difference between the voting record and the voting session identifier. Defendants also cite the prosecution of the patent which provides that "[b]ecause the voting session identifier is stored with or as part of the voting record . . . ." (Def. Ex. 4d, Response to Final Office Action, Aug. 24, 2004, at 24.) This citation is not clear evidence that the voting session identifier and the voting record are the same.

Because the majority of the time the patent refers to the voting record and the voting session identifier as two separate items, the Court will adopt Plaintiff's construction. Accordingly, the Court construes the term "voting record(s)" in Ref. No. 11 as follows: "The voter's voting selections/choices."

This term is recited or referred to in Claims 1, 5, 17, 20, 24, 40-45, 48, 49, 71-74, 76-89, 94, 96, 102, and 103.

Plaintiff proposes that this term be construed as follows: "The time at which a voter makes his or her voting selections on the voting apparatus." The problem with this construction is that Plaintiff does not describe the event in the patent description in that manner. Column 11, lines 46-51 provide that "preferably" the voting machine displays the voting record of the voter requiring at least one confirmation and "preferably" a second confirmation "in order to end a voting session." In even stronger language, the patent provides that "before a voting session is complete the voter confirms the voting selections he has made." (Col. 17, ll. 29-30.)

There should be no dispute here. The language in the specification and description of the patent is clear. The term "voting session" as contained in the above-listed claims is construed as: "The period during which a voter makes his or her voting selections on the voting apparatus, ending when the voter confirms the voting selections."
its construction is simple, yet significant.

Defendants contend that the voter takes away the voter identifier or voting session identifier at the end of the voting session. Plaintiff argues that certain embodiments permit the voter to take the voting session identifier away at the end of the session, but it is not a required element of the contested claims. Plaintiff asserts that each of the four phrases listed above are noun phrases and do not include the verbs "take" or "remove."

In support of their respective positions, the parties cite the background section of the '730 Patent. Column 1, lines 35-43 of that patent explain that previous electronic voting machines did not allow or provide any method by which a voter could personally check his or her vote, thereby increasing voter confidence. Column 1, lines 46-48 further describe the "particular" concern with electronic voting machines that, because of the intangible nature of records stored in electronic and magnetic form, an individual's vote could be altered without "leaving any evidence thereof." These concerns are repeated in Column 2, lines 6-21.

In support of its construction, Plaintiff directs the Court to the third embodiment as set out in Column 3, lines 19-30, describing five steps as an aspect of the invention. Plaintiff argues that there is no requirement in this embodiment for taking the voting session identifier. The last step is "storing the voting record including the voting session identifier and the voting selections in a tangible medium separate from the memory." (Col. 3, ll. 28-30.) The words of the claim themselves contradict Plaintiff's construction.

Additionally, the preferred embodiment section of the patent includes indications that the voting session identifier is to be provided to the voter. Column 6, lines 27-31 provide that there are three separate and independent records of the randomly assigned voting session identifier: "one stored in the memory (memories) of voting machine . . ., one stored in the memory of smart card . . ., and one printed [sic] the voting receipt.]" All three "identify the voting record of the particular voter by the same unique voting session identifier." (Col. 6, ll. 54-59.) And, the voting session identifier is stored after the voting session and is provided to the local printer, which, in turn, provides a tangible record to the voter in the form of a printed receipt. (Col. 7, ll. 9-14.) "Note that where the results are published as individual voting records with the voting session identifier associated therewith, the results are 100% transparent because each individual voter may use the voting session identifier printed on his tangible receipt to check the voting record posted against that on the printed receipt." (Col. 7, ll. 56-62.) (Emphasis added.) Also, the vote results, as explained in the patent, may be made available on the Internet, allowing a voter to log on and use the unique voting session identifying number on the voter's receipt to verify his or her vote. (Col. 8, ll. 27-36.) In Column 14, the patent states that voter may keep the printed record with the voting session identifier for his or her own reference. (Col. 14, ll. 36-43.) There is also a description of a "corrective voting session" which allows an election official to void an individual's voting record and allows the voter to repeat the voting process. (Col. 15, ll. 14-25.) Without a printed receipt containing the voting session identifier, the voter could not confirm that the change was actually made by the official. This is further evidence of the intention of the patent to provide a voting session identifier to the voter after his or her vote is completed.

Column 16, lines 35-41 again provide that the unique voting session identifier may be published or posted in a public location and on the Internet. See also Col. 18, ll. 20-26 (similar provisions). Without the voting session identifier, the voter would have no means to confirm his or her vote. 5 Column 23, lines 5-20 provide that all of the voting records and voting session identifiers are stored and tabulated at the close of voting and are combined at the election headquarters. "All voting records, voting session identifiers, and tallies thereof are made public with reference to each voter's randomly generated serial number (voting session identifier) for 100% transparency of the voting." (Col. 23, ll. 17-19.) "The printed-out receipt . . . is retained by the voter for reference and for checking his or her vote against the final posted voting tallies which include the voters' identifying numbers (voting session identifier)." (Col. 23, ll. 29-36.) (Alteration and emphasis added.)

5 Plaintiff cites Column 7, lines 56-62; Column 16, lines 35-41; Column 18, lines 23-26; and Column 21, lines 59-62 as evidence that publication is optional. The term "publication" as used in these portions of the patent, however, refers to the publication of the voting results, which in turn require the publication of the voting session identifier. This allows the voter to confirm his or her vote by using the voting session identifier provided the voter following the voting session. Column 20, lines 25-33, also cited by Plaintiff, refer to an optional serial number apart from the voting session identifier.
Thus, the description of the patent makes it clear that the inventor intended to create a voting system that promoted confidence in the voting experience. The inventor repeatedly stressed that the use of the voting session identifier retained by the voter is means to gain this confidence. A major tool in the '730 Patent to create this confidence is the ability of the voter to compare or check his or her vote with the published results of the vote. Without some identification number or identifying information on a receipt which is mirrored in the vote tally, the voter cannot confirm his or her vote. To now argue that distribution of the voting session identifier to the voter is optional flies in the face of the description of the invention.

As noted above, "the specification is always highly relevant to the claim construction analysis" and "is the single best guide to the meaning of a disputed term." Honeywell Int'l, Inc., 452 F.3d at 1318 (interim quotations omitted). Moreover, when the patentee "demean[s]" a feature in the description of his or her patent, it can be concluded that the patentee disavows that feature from the scope of the patent's claims. Id. at 1319. Here, the patentee criticizes previous voting events whereby the voter was not provided a means to personally check his or her vote cast. The specification and description of the invention provide the cure to that problem through the use of the voting session identifier on a printed receipt provided to the voter as a way for "personal checking of votes cast." (Col. 1, ll. 42.)

For the foregoing reasons, the Court accepts Defendants' proposed construction of the term "voting session identifier" and construes the term set forth in Ref. No. 6 as follows:

A random or pseudo-random number (or alphanumeric character or symbol) or number randomly chosen from a unique sequence of numbers assigned to a particular voting session which the voter takes away at the end of the voting session to enable the voter to identify her voting record from among the voting results published for that particular election.

7. "Gate"

"Gate" appears in claims 5, 12, 13 and 21 of the 148 patent. UniRAM asserts that "gate" should mean "gate electrode." Jt Cl Const, Ex B at 11. MoSys and TSMC, without providing any reason, contend that the term is indefinite; to the extent the term can be construed, they contend it means "polysilicon gate electrode." Id; TSMC Br (Doc # 99) at 32; MoSys Br (Doc # 103) at 53-54. Because the patentee expressly modified "gates" with "polysilicon" in claim 21 of the 148 patent, not all "gates" must be made of polysilicon. See Phillips, 415 F3d at 1314. Accordingly, the court adopts UniRAM's definition of gate as "gate electrode."

8. "WL-transistor gate" 4T"WL-transistor gate" appears in claim 13 of the 148 patent but does not appear in the specification except in a section paraphrasing the claim. 148 patent at 23:66-24:35. UniRAM contends that it means "the gate electrode in a memory cell transistor, which is connected to the word line (WL)." Jt Cl Const, Ex B at 31. MoSys and TSMC, again without providing any reason, contend that the term is indefinite; alternatively, they assert that the term means "the polysilicon gate electrode of the select transistor." Id.

As demonstrated presently, because "WL-transistor gate" is "amenable to construction," the term is not indefinite. Exxon Research and Engineering Co v United States, 265 F3d 1371, 1375 (Fed Cir 2001). The court rejects UniRAM's construction because it introduces the term "memory cell transistor," which is not mentioned anywhere in the patent. MoSys and TSMC's proposed construction better accords which claim 13, which states in part: "word-line (WL) select transistors each having a WL-transistor gate * * * " 148 patent, at 27:1-3. In construing "gate," the court rejected defining that term using "polysilicon." The court therefore adopts a modified version of MoSys and TSMC's construction and defines "WL-transistor gate" as "the gate electrode of the word-line select transistor."

Pursuant to this Court's Markman Order, the term "wafer" means "a thin, generally cylindrical, slice of semiconductor material used as a base for an electronic component or circuit." The term "a first axially symmetric region" means "a region
that is symmetric about the central axis of the wafer." The term "substantially free of agglomerated vacancy [or interstitial] defects" means "a concentration of such agglomerated defects which is less than the detection limit of these defects, which is currently about 1000 defects/cm³." The term "agglomerated vacancy intrinsic point defects" means "defects caused by the reaction in which vacancies agglomerate to produce D-defects, flow pattern defects, gate oxide integrity defects, crystal originated particle defects, crystal originated light point defects, and other such vacancy related defects." Finally, "agglomerated silicon self-interstitial intrinsic point defects" means "defects caused by the reaction in which self-interstitials agglomerate to produce dislocation loops and networks, and other such self-interstitial related defects."

3. Wafer Cassette (Claims 1 and 21)

Plaintiff argues "wafer cassette" should be construed as "a structure that holds one or more wafers." Defendant argues "wafer cassette" should be construed as "an open structure that holds one or more wafers."

The Court finds "wafer cassette" is properly construed as "a wafer carrier that holds one or more wafers and keeps them separate." 6

6 The Court has not adopted either party's proposed construction. Defendant has failed to show the claimed "wafer cassette" must be "open" at all times. Both parties' reference to a "structure that holds one or more wafers" fails to provide sufficient clarity; both parties agree, however, that a "wafer cassette" is a type of "wafer carrier" that, in addition to holding wafers, keeps them separate. (See Pl.'s Opening Brief on Claim Construction at 16; Gwozdz Decl. PP 23-24, Ex. H.)

6. Step (C): Wager

Plaintiff suggests that "wager" should mean "bet" and provide a dictionary definition for wager: "something (as a sum of money) that is risked on an uncertain event." (Pl. Br. at 22, citing Webster's, Ex. B.) Defendants argue in their Brief that the meaning of "wager" should be limited to a "specific sum of money." (Def. Br. at 21.) Defendants did not allocate much of their time in the hearing to the meaning of "wager," except beyond indicating it should be a monetary amount. Plaintiff did not dispute this argument at the hearing and even proposed that the term "wager having an amount" means "a wager having a numerical currency value."

There is no support in the specification to limit the meaning of "wager" to a "specific sum of money," and indeed, a great deal of support for the proposition that diverse wager amounts are allowed for in the invention. While the preferred embodiment does refer to the "wager amount of a specific bet," this appears to have a distinct meaning from "specific sum of money," namely that an individual bet has a specific amount, but other amounts for other wagers are anticipated. Defining "wager" to mean "a specific sum of money" could limit the invention to allowing only one kind of wager - an unsupported outcome that would destroy the invention's distinction from prior art and invalidate the patent.

However, the parties apparently agree that "wager" involves monetary value. Nevertheless, neither party points to a definition or a means of understanding the term from the specification which we could adopt as a clear definition. Given the lack of limitation presented by the specification and the fact that the extrinsic dictionary definition provided by Plaintiff does not appear to contradict the specification's usage of the term "wager," we adopt the dictionary definition presented by Plaintiff.
The parties dispute the definition of the term "wager" in the context of the patent claims. Specifically, the last step of the "method for automatically accepting a plurality of different wagering formats over a computer system" in every one of the asserted claims of the '865 patent is "requesting said prospective wagerers to enter a wager." Based on that context, Lottotron claims that "wager" is commonly understood to place at risk an infinite variety of things apart from money; such as, pride, bragging rights, avoidance of embarrassment, etc. Lottotron further claims that the breadth of the term is confirmed by its dictionary definition. On the other hand, Gtech submits that pursuant to the intrinsic evidence, "wager" is only limited to denote risking a sum of money.

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--- End Footnotes ---

It is readily apparent from gleaning the '865 patent that "wager" involves risking money. In fact, throughout the patent, references to money are indicated. There is a lack of description in the patent to demonstrate that "wager" places at risk pride, bragging rights, avoidance of embarrassment, and etc. Indeed, other than a definition from a dictionary, Lottotron has failed to identify any intrinsic evidence to show that "wager" involves more than just a sum of money. Accordingly, the Court concurs with Gtech and construes the word "wager" to mean risking a sum of money.

To find support from the intrinsic evidence, the Court first reviewed the "Background of the Invention" section, which makes clear by comparison that the invention involves wagering money:

"None of the aforementioned systems allow a subscriber to call up on a touch-tone telephone, set up an account with a lottery system, place wagers in one or more lotteries available on the system, and charge the account for the wager."

'865 patent, col. 1, ll. 64-67. Next, in the "Summary of the Invention" section, the invention apparently requests "subscriber wagering information," including "a wagering amount for the particular lottery game chosen." Id., col. 2, ll. 24-31. Moreover, with respect to the description of the figures drawn in the patent, references to dollar amount are readily found.

If the caller confirms the date by pressing 1 then the VRU will respond with the message "Enter your two-digit weekly wager amount", else the VRU will again request the expiration month and year. When the caller then enters "10" signifying that on a weekly basis they wager ten dollars ($10.00) on lottery games, the VRU confirms the weekly wager amount by responding with a message "You have entered 10 dollars, press 1 to confirm, 2 to re-enter". In our examples, since the caller pressed '1' to confirm, the VRU then plays the message, "The system will now charge your credit card with 50 dollars, providing you with an open balance to wager."

Id., col. 4, l. 65 - col. 5, l. 9. The patent then describes how the invention prompts the user to enter a wagering amount that will be withdrawn from the credit balance.

The VRU then request the entry of the amount to be wagered during this call. The host compares this amount to the subscriber's open balance to wager to insure that sufficient funds are available for wagering. The system only reduces the open balance to wager as wagers are placed and not by the entry of this wager amount. The VRU plays the message, "Enter 2-digit wager amount". In our example, the subscriber entered '10', and the VRU then responds with, "you entered 10 dollars, press 1 to confirm, 2 to re-enter". As shown the subscriber responded by pressing '1'.

Id., col. 6, ll. 22-32. Ultimately, the system determines whether the user has "sufficient funds to place a wager" by "comparing the subscriber's open balance to wager against the amount which they indicated they would be wagering." Id., col. 7, ll. 19-21.
Clearly, as indicated by the patent language itself, the type of wager contemplated by the specification is monetary in nature, particularly since all the embodiments of the '865 patent require that the user provide information of a credit card from which the system can withdraw money in order to place wagers. See, e.g., id., col.2, ll. 12-18; col.4, ll. 36 - col. 5, l. 45; col.8, ll. 34-39; col.10, l. 45 - col. 11, l.45. Thus, as the meaning of "wager" is apparent from the specification, it is improper for the Court to employ the dictionary meaning as proposed by Lottotron. See C.R. Bird, Inc., 388 F.3d at 862. Indeed, accepting Lottotron's proposed definition would clearly depart from "the true scope and spirit of the invention." '865 patent, col. 11, ll. 60-61. As such, the Court will construe the term "wager" to mean risking a sum of money.

FortuNet argues nothing in the claim language or specification requires that the "additional wager" be a separate wager. FortuNet argues the player could pay a single predetermined amount to cover both the initial and additional wagers, and the "one fee covers all bets" concept is well known in gaming. The Court does not understand Planet Bingo to be arguing the wager has to be physically separate, but that the player simply must be charged an additional price for the second wager. The Court therefore holds "wagering an additional wager" means "placing another wager, either separately or through an increased purchase price, that one or more of the additional lottery elements will be drawn during play of the game." (See JA0206, Col. 19 at 48-51.)

Although the parties discuss other claim terms in their briefs, those arguments revolve around the parties' disputes regarding the need for a "ticket," the "fixed" number of balls called, and the patentee's restriction to Figures 9-12. The Court therefore will not construe these terms individually.

Lottotron proposes that "wagering format" means "the kind of lottery games that are available, such as Keno, Lotto, and 3- or 43- digit lotteries." Gtech, however, submits that construction of "wagering format" is a "wagering game in which the outcome of the game determines the outcome of the associated wager." The Court fails to find support for Gtech's proposed definition from the intrinsic evidence. Rather, the intrinsic evidence properly supports Lottotron's construction.

Gtech's proposed definition of "wagering format" is apparently based upon the logic that for every lottery game, the player places a wager before the outcome of the game is determined, and the outcome of the game determines the outcome of the wager. Thus, the term, Gtech contends, necessarily includes not only the variety of lottery games available on the system but also the ultimate outcome of the wager. To support its reasoning, Gtech cites to certain language of the patent that identifies the different game formats available on the system (e.g., six digit lotto, three digit lotto, keno and four digit lotto), and how a user can access and play these lotto games. However, the language does not mention, let alone describe, the outcome of a player's wager or the game. Instead, the language seems to support Lottotron's definition of "wagering format."

For example, in the "Summary of invention" section, the patentee states that "the invention provides a lottery wagering system comprising . . . second voice responsive means (wager VRU) . . . requesting subscriber wager information . . . including . . . a particular lottery game format chosen from a plurality of lottery game formats available . . . and a wagering amount for the particular lottery game chosen." '865 patent, col. 2, ll. 2-31. The patentee goes on to state with respect to Figure 1 that the system "places a wager" for the caller based on information provided by the caller, including "the particular lottery format of interest, such as 6-Digit lotto, 'keno', 3-Digit lotto." Id., col. 3, ll. 22-30. Accordingly, pursuant to the intrinsic evidence, restricting "wagering format" to "a wagering game in which the outcome of the game determines the outcome of the associated wager" is plainly contrary to the ordinary meaning of the term "wagering format." Thus, the Court construes the term to mean the "kind of lottery games that are available, such as Keno, Lotto, and 3- or 43- digit lotteries."
Indeed, as Lottotron points out, "wagering format" has been constructed, by the United States District Court for the Southern District of New York in Lottotron, Inc. v. Scientific Games Corp., No. 03-0920, 2003 U.S. Dist. LEXIS 15507 (S.D.N.Y. Sep. 9, 2003), as "the kind of lottery games that are available." Id. 2003 U.S. Dist. LEXIS 15507, at *8 n.2. Although Gtech argues that the district court did not analyze the term, and that it merely offered an explanation to provide context for the analysis of the construction for other terms, the district court certainly would not have based its claim constructions on an inappropriate meaning of another term. Nonetheless, this Court finds such interpretation persuasive not only because of the New York court's correct analysis, but also because of this Court's independent construction of the term based upon the intrinsic evidence.

2. "waiting state"

EMC asks the Court to construe this term as: "State of operation of the peripheral device wherein the peripheral device is ready to receive new microcode." HP proposes (in its opposition brief): "A state in which a peripheral device stands ready to receive new microcode." The parties concede that their constructions are the same. Transcript of April 5, 2004 Hearing, 82:3-4; 87:12-16.

The meaning of "waiting state" is unclear from the claim language. The claim indicates that a detector of transfer peripheral device command receives the command and new microcode while in a waiting state and that there is circuitry for entering the waiting state in response to the initiator and transfer command detectors. The specification states:

When an initiator command is detected, a waiting state is entered in which the peripheral device is held ready to receive new microcode. The resident processor also includes a detector for a transfer peripheral device command, which includes the new microcode, received while the peripheral device is in the waiting state.

801:2/36-42; see also 801:2/53 & 6/39-44. Thus, the "waiting state" is equivalent to the state of the peripheral device when it is ready to receive new microcode. Accordingly, the Court construes this term as "a state of the peripheral device in which it is ready to receive new microcode."

C. "warning light signals"

The plaintiff proposes "light signals that convey warning." Defendants propose "a light emission that conveys warning information." The main dispute involves Defendants' inclusion of "information." Both parties agree that "warning" is an adjective that modifies "light signal." The parties, however, make the same arguments as discussed above for the construction of "light signal" and disagree as to whether "light signal" includes messages and images.

For the same reasons as discussed in Section A, the Court concludes that "warning light signals" does not encompass all "information." Accordingly, the Court adopts the plaintiff's construction and "warning light signals" means "light signals that convey warning." The Court incorporates by reference its definition of "light signal."

F. "warning signal light"

The plaintiff proposes "device that generates a warning light signal for identifying a motorized vehicle as an emergency vehicle or as a utility vehicle." Defendants propose "a light that generates a light emission that conveys warning
The plaintiff argues that the specifications and claims do not describe the invention as anything other than a warning signal light for use on emergency vehicles or utility vehicles. In addition, the plaintiff cites to the inventor's deposition stating that purely informational devices on ordinary vehicles would not be a "warning light" because no one would recognize it as an emergency vehicle. The plaintiff further argues that Defendants' construction is too narrow because it covers only one embodiment which can display images, symbols, and characters, in addition to warning light signals, but does not cover the other embodiment where only warning light signals (e.g., flashing, oscillating, etc.) are used with no capability to display messages. The plaintiff also argues that Defendants' construction is too broad because it would cover informational message boards that produce no warning light signals.

Defendants argue that the specifications are broad and discuss warning signal lights other than that attached to a motor vehicle. See '269 patent, 3:19-24, 8:43-45; '865 patent, 7:65-8:2. Furthermore, Defendants argue that under the doctrine of claim differentiation, the claims must have a broad meaning. Claims 1-9 of the '865 patent do not mention a motorized vehicle, while other dependent claims require "an emergency vehicle" or "a utility vehicle." See '865 patent, claim 26, claim 27. Defendants also point out that the phrase "warning signal light" only appears in the preamble and states an intended use, and, therefore, should not limit the claim. Defendants disagree with the plaintiff's contention that one of the embodiments discusses only using warning light signals without the capability to display messages. See '269 patent, 4:37-48, '865 patent, 10:21-33, 10:47-55 (discussing display of images such as arrows).

In reply, the plaintiff argues that the prosecution history clearly limited the invention to warning signal lights on motorized vehicles because the patentee distinguished prior art on the basis that the prior art did not disclose light signals "for use with an emergency vehicle." '871 application, Dec. 20, 1999 Amendment, at 18.

The Court agrees with Defendants that the phrase is not limited to "identifying" the vehicle because this limitation is included in dependent claims. See Phillips, 415 F.3d at 1315 (stating that dependent claim limitations are presumed not to be present in the independent claim). Accordingly, "warning signal light" means "a light that generates warning signals."
involves an element of intent.

The dictionary definition for "waveguide" is:

a device which constrains or guides the propagation of electromagnetic waves along a path defined by the physical construction of the waveguide; includes ducts, a pair of parallel wires, and a coaxial cable.

McGraw Hill Dictionary of Scientific and Technical Terms, supra at 2155. Under this definition, Switchcraft observes that the entire jack can be a waveguide. Therefore, Switchcraft argues, the term, as used in the '378 patent, must have a more specific interpretation. Switchcraft proposes "waveguide" be construed as a "structure positioned to affect impedance matching along the signal transmission through a jack housing."

In support of its proposed construction, Switchcraft argues that if waveguide is interpreted merely as a structure that tunes impedance, any device within a coaxial switching jack that improves impedance matching, regardless of the degree, would constitute a waveguide. Switchcraft argues the prosecution history supports a narrower interpretation. The prosecution history shows that the application that eventually matured to the '378 patent was initially rejected because all pending claims were taught in U.S. Patent No. 5,885,096 ("the '096 patent") in combination with U.S. Patent No. 4,264,115 ("the '115 patent"). See Patent Application File History (Stephens Decl. [Docket No. 46] Ex. C) at 56-99. The examiner found that the '096 patent taught all recited limitations except the housing with a waveguide, which was an obvious variation and shown in the '115 patent. Id. at 51.

The applicant subsequently amended claims 1 and 16 and added other claims to distinguish the '378 patent. For instance, claim 1 was amended to recite "a waveguide projecting from one of said walls adjacent to said movable portion, said waveguide including a planar portion facing said leaf spring portion" (with added limitations in underline). Id. at 101. The applicant argued repeatedly he had improved upon the prior art device "through the addition of structure internal to the jack device which results in an impedance matching at greater frequencies than prior jack designs" and that "the focus of the present invention is the electrical performance (impedance) of the switching jack device so that impedance mismatches are avoided." Id. at 104; see also id. at 105. The applicant also sought to distinguish the waveguides recited in the '115 patent by claiming they served to shield against interference rather than for "impedance matching"as taught by the '378 patent. Id. at 105. Switchcraft argues the measures needed to distinguish waveguides in the '378 patent from prior art limited the scope of "waveguide."

Finally, Switchcraft notes the '378 patent teaches that the geometric shape of the waveguides is not critical. Instead, the specification teaches the waveguide is a structure placed in an empty area of the switch housing to achieve impedance matching. '378 patent at 9:20-27, 9:47-52. For these reasons, Switchcraft argues the term "waveguide" should reflect an intent to position the structure to affect impedance matching.

Conversely, ADC argues "waveguide" should not be construed to include an element of intent. Instead, ADC proposes "waveguide" should be interpreted to mean "structure for tuning impedance in an electrical device for better carrying an electrical signal." ADC argues there is no intent element to direct infringement and it is therefore irrelevant whether the structure was placed or positioned in the device for some other purpose. Under ADC's interpretation, whether or not a structure is a "waveguide" can be determined by testing its affect on the impedance of the device without regard to the subjective intent of the engineer.

The Court construes "waveguide" to be a "structure for tuning impedance in an electrical device for better carrying an electrical signal." In general, intent is not relevant to whether a product directly infringes a patent. See, e.g., Intel Corp. v. U.S. Int'l Trade Comm'n, 946 F.2d 821, 832 (Fed. Cir. 1991); Florida Prepaid Postsecondary Educ. Expense Bd. v. College Sav. Bank, 527 U.S. 627, 645, 144 L. Ed. 2d 575, 119 S. Ct. 2199 (1999). Therefore, whether a structure was placed in the device for some other purpose does not address whether it infringes an existing patent. See Vulcan Eng'g Co. v. Fata Aluminum, Inc., 278 F.3d 1366, 1375 (Fed. Cir. 2002); Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 945 (Fed. Cir. 1990).

The Federal Circuit has acknowledged, however, that a claim can be written, by including a scienter requirement, in a manner that limits it. Koito Manuf. Co., Ltd. v. Turn-Key-Tech., LLC, 381 F.3d 1142, 1150 (Fed. Cir. 2004). In Koito, the Federal Circuit found a claim teaching "a method of injection molding a plastic product" carried a scienter requirement.
when it taught to inject "a quantity of first plastic into the first mold cavity so that the first plastic follows in the first-layer-defining-mold-cavity-section in a first predetermined general direction." Id. at 1145 (emphasis in original). The Federal Circuit affirmed the district court's interpretation that the claim's use of "predetermined" "required intent or foreknowledge in the fixing of plastic flow direction." Id. at 1150.

The terminology at issue in Koito is distinguishable from "waveguide" at issue in the instant case. First, Koito dealt with a method claim rather than the apparatus claim as in the case at bar. Second, and more importantly, the term "predetermined" inherently requires foreknowledge in a manner completely absent from "waveguide."

Switchcraft argues that, without an intent component, any element that tunes impedance is a "waveguide" and that ADC limited the scope of the term through the prosecution history. While it is true that claims should be interpreted in light of the prosecution history, the statements cited by Switchcraft are in keeping with the interpretation of waveguide as a "structure for tuning impedance in an electrical device for better carrying an electrical signal." Subsequent language in the claim and specifications, describes where these waveguides should be positioned to improve impedance matching. n1 Language defining this structural relationship, rather than an intent requirement, modifies and narrows "waveguide" by describing the position necessary to provide impedance tuning. As a result, "waveguide" should be construed as a "structure for tuning impedance in an electrical device for better carrying an electrical signal."

--- Footnotes ---

n1 For example, claim I recites: ". . . said housing including a waveguide projecting from one of said sidewalls adjacent to said moveable portion, said waveguide including a planar portion facing said leaf spring portion."

--- End Footnotes ---

4830

The parties disputed six terms used in the claims of the '843 patent. The Court has construed those terms as follows:

a) "Waveguiding structure" is used interchangeably with "waveguide" and is defined as: "A structure formed by a waveguiding film and a substrate and containing a diffraction grating";

b) "Waveguide film" means: "A film which, in combination with a sample having a lower index of refraction and a substrate can guide light along a path";

c) "Diffraction grating" means: "Any arrangement in the waveguiding structure that imposes a periodic variation of amplitude and/or phase on an incident wave";

d) "Wavelength" means: "A wavelength of light at which the optical sensor, including the waveguiding structure, waveguiding film, and diffraction grating, detects chemical, biochemical or biological substances in the sample";

e) "Effective index" means: "A number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum";

f) "Measuring the effective index and effective index change" means: "determining the effective index" and "determining the effective index change."

(D.I. 156).

4831

The parties disputed six terms used in the claims of the '843 patent. The Court has construed those terms as follows:
a) "Waveguiding structure" is used interchangeably with "waveguide" and is defined as: "A structure formed by a waveguiding film and a substrate and containing a diffraction grating";

b) "Waveguide film" means: "A film which, in combination with a sample having a lower index of refraction and a substrate can guide light along a path";

c) "Diffraction grating" means: "Any arrangement in the waveguiding structure that imposes a periodic variation of amplitude and/or phase on an incident wave";

d) "Wavelength" means: "A wavelength of light at which the optical sensor, including the waveguiding structure, waveguiding film, and diffraction grating, detects chemical, biochemical or biological substances in the sample";

e) "Effective index" means: "A number that relates the propagation velocity of light guided in a waveguide to the speed of light in a vacuum";

f) "Measuring the effective index and effective index change" means: "determining the effective index" and "determining the effective index change."

(D.I. 156).

The Court construes the term as a “terminal at the end of a communication pathway having a transmitter and/or receiver for wavelength division multiplexing communications.” Ciena initially argued that the term does not need to be construed. Alternatively, Ciena proposes that if the term is construed it should be construed as “terminal that can send and/or receive wavelength division multiplexed (WDM) communications.” Nortel argues that the term should be construed as “an apparatus containing wavelength division multiplexed transmitters and receivers at an end of a wavelength division multiplexed optical communication path.” During the Markman Hearing Ciena proposed a construction that read, “a terminal at an end of a communication pathway that can send and/or receive [wavelength division multiplexing] communications.” Nortel agrees with the “a terminal at an end of a communication pathway” language of the proposed construction but further suggests that the “can send and/or receive language be changed to “having a transmitter or a receiver.” Nortel argues that the term is a structural element and should be construed in terms of structure and not capabilities.

Claim 5 of the ‘115 patent claims “An optical communication apparatus, comprising: a first wavelength division multiplexed terminal . . . .” The term is a structural element and should be construed in terms of structure. Accordingly, the Court agrees with Nortel and construes the term as “terminal at the end of a communication pathway having a transmitter and/or receiver for wavelength division multiplexing communications.”

For the following reasons, this court construes the claim term "wavelength division multiplexed (WDM) optical network environment" in claims 6, 14, 17, and 24 to mean:

An environment having a network for carrying information on a plurality of wavelengths, the plurality of wavelengths multiplexed together as an optical signal.
The specification explains that a WDM network is designed to carry a plurality of wavelengths multiplexed together as an optical signal. First, patent '772's specification states, "[t]he invention . . . pertains to upgrading an in-service wavelength division multiplexed (WDM) optical communication system." ('772 patent, col. 1:15-18.) The specification then goes on to explain:

A WDM system employs plural optical signal channels, each channel being assigned a particular channel wavelength. In a WDM system optical signal channels are generated, multiplexed to form an optical signal comprised of the individual optical signal channels, transmitted over a single waveguide, and demultiplexed such that each channel wavelength is individually routed to a designated receiver.

('772 patent, col. 1:29-34.)

Fujitsu's proposed construction again includes the phrase "highest relative order" as Fujitsu asserted in its proposed meanings of other disputed terms in patent '772. (Dkt. No. 90, Ex. C at 7.) As the court stated earlier, Fujitsu's proposed construction improperly imports a limitation from a preferred embodiment in the specification. See Phillips, 415 F.3d at 1323 (explaining that courts generally should not limit claims to the preferred embodiments in the specification); Astrazeneca AB, 384 F.3d at 1340. The specification only uses the term "highest relative order" once as the specification describes Figure 4 and states that "[t]he line interface is adapted for wavelength division multiplexed (WDM) optical communication signals of the highest relative order." ('772 patent, col. 4:48-50.) To incorporate the requirement that the optical signal be of the 'highest relative order' would limit the claim to a preferred embodiment and, therefore, the court rejects the incorporation of the limitation "highest relative order" into the construction of "optical line interface."

D. '252 Patent Claim 1 - "waveshape the voltage and current in order to efficiently ignite the fuel in the turbine engine"

The Court construed this language to mean that the invention must "produce a current waveform . . . which initially rises relatively slowly, followed by a transition to a fast rising current which quickly peaks and thereafter slowly dissipates." Lucas Aerospace, Ltd. v. Unison Industries, L.P., 890 F. Supp. 329, 1995 WL 362387 at *12. As with claim 1 of the '073 patent, Lucas argued to the Court that the phrase 'waveshape the voltage and current' meant to produce a waveform similar to that depicted in Figures 3b and 4 (Curve A) of the '252 patent. See id. at *9 Lucas now repeats the same arguments which it made with respect to claim 1 of the '073 patent. In essence, Lucas suggests that the Court's claim construction encompasses waveforms demonstrated in Figure 3a and Figure 4 (curves B and C) and that, therefore, the Court's claim construction is "too broad since it would cover prior art and invalidate the claim." D.I. 394 at 33.

Lucas's arguments fail for the same reason they failed with respect to the '073 patent. Figure 3b represents the generalized shape of a saturable core inductor's current waveform. Figure 4 (curve A) represents the preferred embodiment's waveshape in comparison to the preferred embodiment implemented with an air core inductor. Once again, Figure 4 (curve A) is representative of just one permutation of the waveforms that could be created by a network with varying electrical and physical characteristics. The fact that Figure 4 (curves B and C) also have an initially slow current rise does not indicate that the claim construction is over broad; it merely demonstrates that the waveform characteristics of the '073 invention implemented with an air core inductor cannot match the theoretical characteristics of an air core inductor demonstrated in Figure 3a. More importantly, the differences between the two sets of waveforms, particularly in Figure 3, help to define what is meant by the claim language describing the change in the rate of current rise. The differences in the two sets of illustrations, however, do not act as an invitation for alleged infringers to argue that their waveform looks more like one curve than the other curve, thereby ignoring the more important and defining aspect of the invention, the components required in the language of the claim that create the waveform. The Court thus concludes, once again, that Lucas has demonstrated no error in the Court's construction of the '252 Patent claim 1.
Given the Court's previous conclusion that "Web" refers to World Wide Web, it follows that "web browser" refers to a software application that can be used to locate and display Web pages in human-readable form. 2 See, e.g., Def. Ex. 13, Microsoft Computer Dictionary (3d ed. 1997) (defining "Web browser" as a "client application that enables a user to view HTML documents on the World Wide Web"); Webopedia, http://www.webopedia.com/TERM/b/browser.html (defining "browser" as "a software application used to locate and display Web pages."). 3

The Court finds no significance in the fact that "Web," which is elsewhere capitalized in the claim language (thereby more clearly reflecting its use as short-hand for the World Wide Web), is here lower-cased: for its function still relates, on the face of the claims, to locating and displaying pages that the claim language refers to as emanating from "Web sites." 3 Although these definitions were published subsequent to the prosecution of the patents, every indication suggests that these definitions were consistent with that understood by one of ordinary skill in the art in 1996, when the application for the '181 patent was filed.

B. Web Browser (Claims 1, 8, 14, 20, 26, 32, 38, 43, 48)

HP argues that the ordinary meaning of web browser is "software that can be used to retrieve information over a network, including, but not limited to, the Internet." Intergraph contends that the term should be defined as "a program within a client computer that utilizes Hypertext Transfer Protocol ("HTTP") to request services from a remote server connected via the Internet."

HP asserts that its proposed construction is consistent with the definitions found in technical dictionaries available at the time the '028 Patent was issued. See Ex. 19, Peter M B Walker, Chambers Dictionary of Science and Technology at 149 (1999) (defining "browser" as "Software used to retrieve information from the Internet . . . or other network"); see also Ex. 20, Dictionary of Computing at 54 (4th ed. 1996) ("The term browser is used either to refer to a person who is browsing, or to the utility program that allows the user to locate and retrieve information from networked information services."). HP contends that the term "web browser" and "browser" are used interchangeably throughout the '028 Patent, and thus the ordinary meaning of "browser" should control the Court's construction.

Intergraph supports its proposed construction by citing language from the specification. Specifically, the specification provides that "the World Wide Web is a collection of servers on the Internet that utilize the Hypertext Transfer Protocol (HTTP)." '028 Patent, col. 1:23-24. The specification further states that "each local computer system may access the remote web sites with web browser software . . . " '028 Patent, col. 3:56-57. Based on this language, Intergraph concludes that the term "web browser" must imply use of the Internet.

The parties dispute over the proper construction of "web browser" stems from the central disagreement between the parties with regards to the '028 patent - does the '028 patent have applicability to other networks besides the Internet? The Court's analysis must begin with the proposition that disputed terms in a claim "are generally given their ordinary and customary meaning." Vitronics, 90 F.3d at 1582. The Court agrees with HP, based on the provided dictionary definitions, that the term "browser" can be used to retrieve information over a network other than the Internet. The Court also agrees with HP's argument that the patent uses the terms "browser" and "web browser" interchangeably. Compare '028 Patent, col. 5:23 with col. 5:34-35 (referring to "browser 200" and "web browser 200," respectively). During oral argument, Intergraph argued that the patent's file history conclusively establishes that the invention was limited to internet applications. However, after reviewing the file history, the Court cannot agree with Intergraph that the patentee intended to limit the claim scope in this manner. See Inverness Med. Switz. GmbH v. Princeton Biomeditech Corp., 309 F.3d 1365, 1372 (Fed. Cir. 2002) (statements made during prosecution history were not a clear and unambiguous disclaimer of a claim scope). Finally, Intergraph argues that upon examining the diagrams of the preferred embodiments, it appears that whenever a client computer is connecting to a remote server, the Internet is being used. However, the Court should not "limit [] the claimed
invention to preferred embodiments or specific examples in the specification.” Ekchian, 104 F.3d at 1303. Accordingly, the Court adopts HP's proposed construction that defines "web browser" as software that can be used to retrieve information over a network, including, but not limited to, the Internet.

4837

web page

Claims 1 and 16 contain the term "web page." Accolade contends "web page" should be given its plain and commonly understood meaning and does not need construction. Alternatively, Accolade argues that the term means "a page which when opened in a web browser on a computer can display text, images or links to the addresses of other pages or locations on a network, such as the internet or an intranet." Citrix contends that "web page" means "a software created 'object' including an interface written in HTML which permits text and images to be presented via a web browser to a computer system that is coupled to or part of the Internet."

The parties dispute whether a "web page" is "a software created object including an interface written in HTML." The patentee acted as his own lexicographer and defined "web page" in the specification. The specification states, "A web page is a software constructed 'object' including an interface written in HTML which permits text and images to be presented to a computer system that is coupled to or part of the Internet." Col. 6:6-9. Thus the specification defines "web page," and thereby resolves the parties' disagreement.

However, the Court does not construe "web page." The definition for "web page" provided in the specification is consistent with the web page that is commonly known to a layperson. As such, lay jurors would be familiar with "web page," and a construction is not necessary. Furthermore, using the definition for "web page" provided in the specification would only lead to confusion about an already well understood term. Thus, the Court does not construe web page.

4838

1. “Web Page”
“Web page” is utilized in asserted claims 1, 3, 6, 7, 9, and 11 of the ‘554 Patent and 1, 4, 7, and 8 of the ‘335 Patent. The Plaintiff asserts that “Web page” does not need construction. Alternatively, if construed, the Plaintiff contends that the proper construction of the term is “content displayable through a Web browser.” The Defendants assert that the terms should be construed as “an HTML document accessible through a URL.” The Court first notes that the Plaintiff’s original briefing expressed concern that the Defendants’ construction implies that dynamically generated Web pages are not included within the term “Web page.” The Court finds this concern somewhat unfounded, and it is noted that the Defendants clearly referred to “Web page” in their briefing and oral argument as encompassing both static and dynamic Web pages.

The other assertions by the parties primarily revolve around two issues, the inclusion of terms “HTML” and “URL” in the construction. The Plaintiff argues that the term “content” is utilized in the specification at least twice to describe what is displayed on a Web page. Col. 1:47-51; Col. 7:23-26. Further, the Plaintiff points out that in the Defendants’ own briefing Web pages are referred to as containing content. Defendants’ Brief at 11-12. The Plaintiff further asserts that the Defendants are also attempting to read in limitations from the specification and that such a construction would exclude documents formatted in other formats such as SGML, XHTML, XML, and JPG.

The Defendants state that HTML is a software language and argue that as described within the specification HTML documents are what are sent back as Web pages. Col. 1:18-22; Figures 3 and 5. The Defendants also cite a Microsoft Press Computer Dictionary definition which states that “A Web page consists of an HTML file…” Defendants’ Brief at 9. The Defendants further assert that “content” in the specification refers to information included in a Web page and that such content itself does not form a Web page.
The Court notes that the specification does appear to consistently refer to the HTML language and does not mention other software languages. However, the Defendant does not identify persuasive support within the specification that the invention must be limited to only one type of software language. Moreover, Defendants have not persuaded the Court that in light of the specification one skilled in the art would assume a Web page as referred to in the patents could only be generated with the HTML language. Further, upon review of the whole specification and claims, with respect to Web pages the described concepts are not related to the intricacies of what particular programming languages are used to display a Web page but rather merely the higher level differentiation of static pre-existing Web pages verse dynamically generated Web pages. In these circumstances, the Court finds it improper to incorporate the limitation of HTML within the more general term Web page that is utilized in the claims themselves.

With regard to the URL concept, the Plaintiff asserts that the Defendants’ definition adds additional complexity to the claim construction as the meaning and scope of “accessible through a URL” could itself require construction. Further, citing the extrinsic evidence that the Defendants themselves put before the Court, the Plaintiff argues that it is known that when a Web browser sends a request what is actually sent does not match what is commonly known as a full URL. In oral argument the Plaintiff asserted that the Defendants’ extrinsic evidence shows a URL as “http://"/" host [":" port ] [ abs_path] thus requiring four components: a protocol (HTTP), a host, a port and an absolute path. Further the Plaintiffs argue that this same extrinsic evidence shows that a request most commonly is structured for example “GET / pub / WWW / TheProject.html HTTP /1.0” The Plaintiff asserts that this also emphasizes the concern over the ambiguity of the meaning of “accessible through a URL.”

The Defendants turn to the specification, which includes the statement “[a] URL is a Web address that identifies the Web page and its location on the Web.” Col. 1:30-33. The Defendants also note the language that states “[w]hen the appropriate Web site receives the URL, the Web page corresponding to the requested URL is located…” Col. 1:33-34. Further, the Defendants point to other examples in the specification, such as Figure 3, which refer to the Web browser sending the URL request. At oral argument, the Defendants also stated that what is sent by a Web browser does include the URL information.

The arguments of the parties highlight some of the concerns the Court has with the inclusion of the term URL. A definition of the meaning of URL within the usage of the patent would further be necessitated as URL is alternatively referred to as “what is examined by the Web browser,” a URL request is received by the Web server, and a URL request can be sent to a page server. Col. 4:13-14; Col. 8:28-32; Col. 8:38-39. The specification does not make clear what is the particular structure and content that is meant by the use of the term “URL” at each of these stages of the process. Again, as with the HTML term, this is not surprising as the specification and claims as a whole do not focus on the particular type of request that is made or the particular structure/content of a request as it processed through the system beyond the static and dynamic distinction discussed above. Further, to add the term “accessible” to the construction would necessitate further claim construction as to what “accessible” means. As described within the specification, a Web page is a mechanism through which static and dynamic content may be displayed. The particular addressing mechanism at each step of the processing of a dynamic Web page is not noted in the specification to be a requirement or of particular importance to the claimed invention. An inclusion of the term URL would improperly incorporate limitations from the specification for the term Web page which has a meaning that is adequately described within the full context of the specification.2

Thus, the Court construes “Web page” to mean “Web content displayable through a Web browser.”

4839

The Court, having reviewed the relevant briefing, finds the parties’ objections are without merit. In their briefing, the parties address, among other things, the word “mechanism” as used in the Magistrate Judge’s discussion of the construction of the claim “Web page.” See Report and Recommendation at pgs. 8-9 (“As described within the
specification, a Web page is a mechanism through which static and dynamic content may be displayed."")(emphasis added). A Web page may include static or dynamic content. However, the Magistrate Judge’s construction of “Web page” as “Web content displayable through a Web browser” does not include the word “mechanism.” The Court adopts the construction of “web page” as proposed by the Magistrate Judge, and with the exception of the use of the word “mechanism,” the Court also adopts the reasoning of the Magistrate Judge with respect to the construction of “Web page.”

4. “Web Server”

“Web Server” is utilized in asserted claims 1 and 11 of the ‘554 Patent and 1-2 of the ‘335 Patent. The Plaintiff asserts that the proper construction of “Web server” is “a processing system capable of processing an HTTP request and producing a response to such a request.” The Defendants assert that the terms should be construed as “a machine running a Web server executable capable of storing, locating, and returning Web pages in response to Web client requests.” In the claim construction Oral Argument, the Plaintiff stated that it would agree to language including “software” in place of the Plaintiff’s originally proposed “system” language similar to the Plaintiff’s agreement with regard to “page server.”

The focus point of the dispute between the parties is whether the term “Web server” requires a machine or whether the term may merely represent software or a combination of the two. Both the Plaintiff and Defendants cite conflicting extrinsic evidence to support their positions in the form of dictionaries, industry guides, and protocols. Some of the Plaintiff’s extrinsic evidence includes citations to extrinsic evidence first brought before the Court by the Defendants. The conflicting extrinsic evidence presented by the parties fits the rationale presented in Phillips regarding the cautions that should be considered relating to such evidence.

Looking to the specification, the Plaintiff points to passages in which “Web server” is not used to describe a machine. In particular, the Plaintiff points to the statement in the specification that:

The preferred embodiment of the present invention is implemented as a software module, which may be executed on a computer system such as computer system 100 in a conventional manner. Col. 3:55-58.

The Plaintiff also highlights the following passage:

This embodiment is appropriate for Web servers such as NetsiteTM from Netscape, that support such extensions. A number of public domain Web servers, such as NCSATM from the National Center for Supercomputing Applications at the University of Illinois, Urbana-Champaign, however, do not provide support for this type of extension. Thus, in an alternate embodiment, Interceptor 400 is an independent module, connected via an ‘intermediate program’ to Web server 201. This intermediate program can be a simple CGI application program that connects Interceptor 400 to Web server 201. Alternate intermediate programs the perform the same functionality can also be implemented. Col. 4:63-Col. 5:7.

The Defendants counter that the specification uses the terms “Web server,” “Web server executable” and “Web server machine” and that the proper interpretation is that the machine is referred to as a Web server machine, the software is referred to as the “Web server executable” and the combination is referred to as a “Web server.” To support this argument, the Defendants cite to various passages and figures in the specification. Figures 2-4; Col. 4:39-41; Col. 4:59-62; Col. 5:7-36.

While the Defendants may be correct that “Web server” may be utilized at times as indicating a combination of a machine and software, the specification clearly does not require the term “Web server” to include a machine. The passages of the specification noted above by the Plaintiff make clear that the Web server is contemplated to be at least in one embodiment, software. It is also noted that in general in other passages of the specification the term “Web server machine” is more often used when describing the machine component and “Web server” to describe merely the software
component. Thus, for example, it is noted that the “Web servers process each of these requests on a single machine, namely the Web server machine,” “Interceptor 400 resides on the Web server machine as an extension to Web server 201,” and the Dispatcher “can, however, also reside on the same machine as the Web server.” Col. 4:39-42; Col. 4:61-62; Col. 5:20-21. Passages such as these imply a utilization of the term “Web server” as the software module as opposed to the combination of both the machine and software. Thus, some usage of “Web server” implies just software and at other times implies a combination of software and hardware.

The Court construes “Web server” to be “software, or a machine having software, that receives Web page requests and returns Web pages in response to the requests.”

The Court is of the opinion that the findings and conclusions of the Magistrate Judge are correct. Therefore, the Court hereby adopts the Report of the United States Magistrate Judge as the findings and conclusions of this Court.

The parties dispute the meaning of "web server," as used in claim 33 of the '372 patent. NICE contends that the plain meaning of the contested term and the specification support its construction, citing col. 12:18-21 and 12:44-46. Witness contends that NICE's construction reads the word "Web" out of the term, that the ordinary meaning of "Web" indicates "World Wide Web," and that the prosecution history confirms Witness's construction.

The Court construes "web server" to mean "A component that provides access to information accessible from a computer connected to the Internet or an intranet." The specification provides:

[T]he Web server 280 acts as an intermediary between one or more recorders 252 in the recorder stage of the logger, and the users accessing the stored information via, for example, the Internet. . . . It will be appreciated that similar distribution scheme can be provided as part of a corporate intranet.

(col. 12:18-21, 12:44-46.) Further, the prosecution history Witness references supports construing "web server" to include either Internet or intranet. "The prior art of record simply does not disclose, teach or even suggest a method for accessing information in a logger, where users communicate requests for stored data over a 'Web' in the sense of a communications network like the Internet." ('372 Pros. Hist. Amend., 13, dated Sept. 24, 2001 (emphasis added).) The term "like" in the prosecution history accords with the usage of both Internet and intranet in the specification and supports the Court's construction.

The Court construes "web server" as "A web server separated from said image server": "A web server that is a separate computer from the image server." During prosecution, the examiner of the '904 patent rejected claims 9-10 as anticipated by Brown in view of its disclosure of a proxy server with "functionality to construct [a] web page which contains HTML code or embed commands to the browser," that functions "as image server and web server." (D.I. 386, ex. 2 at JA165) In response, the applicants asserted
VirnetX argues that the specifications refers to "web site" as "host," which suggests that "web site" carries the broader protection from what he disclosed to the public as "web site." Thus, the patentee cannot gain broader claim face requires a site on the World Wide Web. The patentee chose to use "web site" in the claims instead of using a more encompassing term like "host," "target computer," or "Internet resource." This would offend the meaning of the claim term itself. "Web site" on its face refers to a "web" Internet resource, which is a web page on the World Wide Web. The specification is consistent with construing "web site" as a web page on the World Wide Web. Examples of web sites in the specification are "Yahoo.com" and "Target.com." Col. 37:25, 45. "Yahoo.com" and "Target.com" are well-known web pages on the World Wide Web. Also, the specification states that a "web browser" can be used to access a "web site." Col. 39:44, 50-51, 55; Col. 40:1, 38. It is well-known that a "web browser" is used to navigate "web pages" on the World Wide Web. Thus, "web site" may be construed as its own claim term.

The Court adopts Microsoft's construction and construes "web site" as "one or more related web pages at a location on the World Wide Web." The parties dispute whether "web site" should be given a construction separate from "secure web site" and whether "web site" is limited to web pages on the World Wide Web.

VirnetX argues that "web site" should not be construed separately from "secure web site" because the '135 patent claims never state "web site" without the preceding word "secure." However, "secure" is separable from "web site" as a modifier of "web site." The claims show that "secure" can be replaced by other modifiers to "web site." Claims 1 and 10 of the '135 patent refer to "web site" preceded by "non-secure" and "secure target." Col. 47:28, 30; Col. 48:10, 14. This demonstrates that "web site" can be separated from its modifier and thus is its own term separate from "secure." Thus, "web site" may be construed as its own claim term.


VirnetX proposes construing "web site" as "a computer associated with a domain name." This construction would broaden the meaning of "web site" beyond how this term is used in the patent. VirnetX's construction does not include the limitations "web page" and "World Wide Web." Without these limitations, the claims would include a right to exclude over computers with network addresses that do not host web pages. This would offend the meaning of the claim term itself. "Web site" on its face requires a site on the World Wide Web. The patentee chose to use "web site" in the claims instead of using a more encompassing term like "host," "target computer," or "Internet resource." Thus, the patentee cannot gain broader claim protection from what he disclosed to the public as "web site."

VirnetX contends that the specification demonstrates a broader meaning of "web site" than what Microsoft proposes. VirnetX argues that the specifications refers to "web site" as "host," which suggests that "web site" carries the broader
meaning of "host." However, the claims and not the specification define the scope of the right to exclude. See Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) ("the claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim") (citation omitted). The patentee chose to use "web site" in the claims and thus the claims are limited by that term. Accordingly, the Court construes "web site" as "one or more related web pages at a location on the World Wide Web.

3. "Web site" ( '181 patent, claim 1; '664 patent, claims 1 and 3; '768 patent, claims 1 and 19)

In everyday parlance, "Web" is a short-hand for the World Wide Web, which in turn is a specified subset of the Internet universe. Accordingly, a "Web site" is a location on the World Wide Web. Neither plaintiffs nor their expert dispute that this is the ordinary definition, see transcript ("tr."), Oct. 5, 2001, at 91, but they nonetheless contend that "Web" is being used in the patents in a broader sense to mean the equivalent of the entire Internet. Aside from the fact that the claims themselves do not expressly define "Web" in this unusual way, there is nothing in the function or structure of the claims that compels this unusual definition. By contrast, there is a "heavy presumption in favor of the ordinary meaning of claim language as understood by one of ordinary skill in the art." Bell Atlantic Network Services, Inc. v. Covad Communications Group, 262 F.3d 1258, 1268 (Fed. Cir. 2001). Indeed, to adopt an unusual definition of the familiar term "Web" where the language of the patent did not expressly so define or otherwise compel such usage would undercut the public notice function of a patent. See, e.g. Dayco Products Inc. v. Total Containment, Inc., 258 F.3d 1317, 1324 (Fed. Cir. 2001).

A. "Website"

The term "website" appears in the '945 patent in all three of the asserted claims--claims 3, 4, and 5. 47 ABC asserts that "website" means "one or more servers operating together, that can be provided by a service provider, that can be located on the Internet by use of a Uniform Resource Locator ("URL"), and which can perform services including hosting web pages, validating logon commands and sending, receiving, and processing instructions." 48 WebEx contends that "website" means "a collection of related Web pages maintained by a Web server and retrievable by a Web browser using hypertext transfer protocol ("HTTP") and Hypertext Markup Language ("HTML") interpretation." 49 WebEx further asserts that the claims of the '945 patent must be interpreted to require that the same "website" both receive valid logon commands and receive and send the data that control the remote computer unit. 50

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47 The term "website" literally appears only in claims 1, 2, and 5 of the originally issued version of the '945 patent. Claims 3, 4, and 5, however, are written in dependent form. Claim 3 depends on claim 2, which itself depends on claim 1. Claims 4 and 5 depend on claim 1. As explained above, ABC canceled claims 1 and 2 during reexamination, but claims 3, 4, and 5 survived reexamination without amendment. Therefore, the text of claims 1 and 2, including the term "website," remains part of the '945 patent because it is incorporated by dependent claims 3, 4, and 5.

48 ABC's Brief, Docket Entry No. 154, at 11.

49 WebEx's Brief, Docket Entry No. 156, at 16.

50 Id.

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1. Web Pages or Servers
The first question raised by the parties' proposed constructions is whether a website is a collection of web pages hosted or maintained by a server or servers, or whether a website consists of the server or servers themselves. In support of its position that the term website refers to servers, ABC points out that the claim language (intrinsic evidence) requires that the website claimed in the '945 patent be able to carry out a number of functions: (1) "allowing and facilitating communication between a remote computer unit and an interface unit via an internet," 51 (2) "receiving . . . a valid logon command," 52 (3) "associat[ing] the valid logon command with the remote computer unit," 53 (4) "receiving . . . data signal instructions from the interface unit," 54 (5) "sending the data signal instructions . . . to the remote computer unit," 55 and (6) "downloading a program . . . to the remote computer unit." 56 ABC argues and submits an affidavit from a purported person of skill in the art stating that web pages, alone, are unable to carry out these functions. Therefore, the term "website" must be understood to refer to a server or collection of servers, which could conduct these functions. 57

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51 '945 patent, claim 1.
52 Id.
53 Id.
54 Id.
55 Id. See also '945 patent, claim 2 ("data signal instructions sent by the website to the remote computer unit . . .").
56 '945 patent, claim 5.
57 See ABC's Brief, Docket Entry No. 154, at 12; Affidavit of Ivan Zatkovich, PP 7-10 (May 28, 2009) (included in ABC's Response, Docket Entry No. 165, at Exhibit A).

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Because ABC's argument is based on the claim language itself, the court finds it very persuasive. See Phillips, 415 F.3d at 1312 (explaining that the claim language itself is "of primary importance" in the claim construction process (quoting Merrill, 94 U.S. at 570)). Moreover, WebEx does not make any counter-arguments based on the claim language itself in support of its position. Nor does it attempt to controvert ABC's assertion that web pages alone cannot perform the functions attributed by the claim language to the website. Instead, WebEx argues only that the ordinary and customary meaning of the term in 1998 encompassed only web pages.

WebEx is unable to muster any persuasive intrinsic evidence to support its position, relying only on prosecution history references. 58 See Phillips, 415 F.3d at 1317 (explaining that having a patent's prosecution history "often lacks clarity . . . and thus is less useful for claim construction purposes" than other forms of intrinsic evidence). WebEx first directs the court to two patents cited as prior art during the prosecution of the '945 patent. The first prior art patent states: "In the preferred embodiment, a web site or 'home-page' is constructed on a secure HTTP . . . server . . ." 59 The second patent states: "A 'web site' on a web server 20 contains one or more web pages where a 'base' or 'home' page is the first or entry page into a desired web site." 60 These references indeed equate a website with a web page, not a server. These unrelated patents, however, do not give the court the same insight into how the '945 patent inventor understood the term website as the text of the '945 patent itself does.

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58 The court acknowledges that WebEx had very little intrinsic evidence to work with. The original application for the '945 patent did not include any claims reciting the term "website." See Original Patent Application for '945 Patent, at 31, 36 (Sept. 30, 1999) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6A). Moreover, the term "website" does not appear anywhere in the specification of the '945 patent. See '945 patent. The originally proposed claim language and the specification speak only in terms of a "computer service control unit" facilitating the connection between the local and remote elements. ABC did not propose claim language including the term website until July of 2004, almost five years after.
the application for the '945 patent was filed and over six years after the patent's effective filing date. See Response to Office Action Dated February 4, 2004, at 13 (July 13, 2004) (proposing a new claim, numbered 22, that would eventually become claim 1). Moreover, when ABC finally proposed the claim language including the term "website," ABC did not attempt to define the term or explain how the utilization of a website was supported by the patent specification. See id. at 25-28 (discussing the new proposed claims). In light of this history, WebEx suggests that the asserted claims of the '945 patent are invalid because the website limitation is not supported by the written description, as required by 35 U.S.C. § 112, ¶ 1.

WebEx further states that it intends to file a motion for summary judgment on this issue at some point in the future. WebEx's Brief, Docket Entry No. 156, at 17. Because the issue is not yet ripe for review, the court does not now decide whether the specification supports the website limitation found in the asserted claims.

59 United States Patent No. 6,138,150 col.3 ll.4-6 (filed Sept. 3, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 14). This patent was cited during the prosecution of the '945 patent in an Information Disclosure Statement submitted to the Examiner by ABC. See Information Disclosure Statement by Applicant (Apr. 20, 2005) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6E).

60 United States Patent No. 7,007,070 col.8 ll.65-67 (filed Feb. 28, 1997) (included in WebEx's Response, Docket Entry No. 166, at Exhibit 15). This patent was cited during the ex parte reexamination of the '945 patent in a Response to Office Action. See Response to Office Action in Ex Parte Reexamination, at 8-10, Ex Parte Reexamination of U.S. Patent No. 6,999,945, Control No. 90/008,122 (Feb. 19, 2008) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6f).

WebEx also points to statements made by the USPTO Examiner who conducted the reexamination of the '945 patent. In the Final Office Action for the '945 patent reexamination, the Examiner explained his reasons for concluding that claims 1 and 2 of the '945 patent were invalid as anticipated by a particular prior art reference. 61 Quoting a document describing the prior art technology, the Examiner explained that the prior art enabled a user to "control another computer o[r] transfer files over the Internet by initiating [a] connection from any Web browser via HTML hotlinks,' which inherently utilizes a website." 62 The Examiner also stated that the prior art reference "discloses the use of hot-links in a web browser," and concluded that

[a] page in the web browser utilizing hot-links described in the [prior art reference] would fall under the rubric of what one of ordinary skill would have considered a 'website,' a broad reasonable interpretation consistent with the Patent specification . . . given the lack of description of a 'website' in the Patent's specification. 63

ABC submitted a response to this office action in which it stated that it

agrees with the Examiner's statements regarding the proper interpretation of the term "website" and agrees with the Examiner's conclusion that such interpretation is consistent with the specification. Particularly, the Patent Owner agrees with the Examiner's statement that '[]any system that utilizes a website to connect the two computer systems reads on the instant limitations even if the actual controlling data is sent via another route.' . . . The Patent Owner also agrees with the Examiner's statement that this '[]broad interpretation of "website" is consistent with the specification and the requirement that the Examiner give each claim term its broadest reasonable construction consistent with the specification.' 64


62 Id. at 7 (quoting a document referred to by the Examiner as "Symantec Ships").

63 Id. at 10.

64 Response to Office Action in Ex Parte Reexamination, at 5, Ex Parte Reexamination of U.S. Patent No. 6,999,945, Control No. 90/008,122 (Nov. 26, 2008) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6H).
WebEx argues that these documents show that both the Examiner and ABC were in agreement that a website is a web page retrievable by or viewable in a web browser. The court is not persuaded by WebEx's argument. Although the Examiner's statements could be interpreted to indicate that he understood the term website to encompass a web page or pages, they do not foreclose the possibility that the Examiner considered the term to refer to a server or servers hosting a web page or pages. It is not clear whether the Examiner thought the page in a web browser was itself the website or whether the server or servers that provided the functionality of the hot-links on the page constituted the website. Moreover, the Examiner made clear that he was interpreting the term website very broadly. Thus, it is not at all clear that the Examiner understood the term website to exclude servers that host or are otherwise associated with web pages.

As for ABC's statements expressing its agreement with the Examiner's interpretation, the court understands these statements only to express agreement that the term "website" should be interpreted as broadly as possible consistent with the specification. More importantly, the court does not conclude that ABC disclaimed servers as within the scope of the term website. In conclusion, the court finds that the intrinsic evidence more strongly supports ABC's position that a website is one or more servers, as opposed to merely one or more web pages hosted on a server.

Turning to the extrinsic evidence, WebEx cites three dictionary definitions dating from 1999 and 2000. Two of the definitions are from general purpose dictionaries, which define the term website as "a set of interconnected webpages, usually including a homepage, generally located on the same server," 65 and "[a] group of related Web pages," 66 respectively. These definitions are consistent with WebEx's position, but because the Federal Circuit has warned courts not to rely on "non-scientific dictionaries for defining technical words," AFG Indus., Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1247-48 (Fed. Cir. 2001), the court does not find them persuasive.

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WebEx also cites a technical dictionary that defines a website as "a group of related HTML documents and associated files, scripts, and databases that is served up by an HTTP server on the World Wide Web. . . . Most Web sites have a home page as their starting point, which frequently functions as a table of contents for the site." 67 Although this definition suggests that a person of skill in the art may have understood a website to consist of more than just web pages, encompassing "scripts" and "databases" as well, the definition clearly does not include servers within the scope of the term. Instead, the definition characterizes a server as something separate that "serve[s] up" the website. Therefore, this definition tends to support WebEx's position.

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ABC, however, cites a treatise published in 1997 that defines the term "web site" as a "server that serves the WWW [World Wide Web]." 68 Additionally, ABC cites the deposition testimony of Srinath Anantharaman, a former WebEx engineer who was the named inventor for a patent application that WebEx filed for its allegedly infringing products. During Mr. Anantharaman's deposition he was asked to define HTTP. That question led to the following exchange:

A. That's typically the protocol that's used by web sites to communicate with web browsers.

Q. So the central computer system would be implemented as a web site under the invention?
MR. PANKRATZ: Objection. Mischaracterizes his testimony.

THE WITNESS: Don't know what you mean by web site, but yes, there is a web site that you go to and behind that, is, you know, other servers which are maybe not typically considered part of the web site.

MR. POTTS: Well, what is a web site?

A. It's a very broad term. So a web site, most people would be a machine or a set of machines which host a web server which basically gives you web pages as you ask for it. So that's typically what you would think of as a web site.

Q. That's what the uninitiated would think of as a web site?

A. That's what most people would think of as a web site.

Q. People who create web sites, though, would understand that a web site also includes the other servers, the application servers, the database servers, the communication servers, all of which provide the information through the web server, which can then be accessed over the internet, correct?

A. Certainly. And how a web site is implemented is very wide and different. 69

The treatise and deposition testimony cited by ABC reflects that one of ordinary skill in the art would understand a website to consist of servers, not merely web pages.

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The extrinsic evidence is mixed. It suggests that a person of skill in the art in 1998 could have understood the term website to refer either to a web page or collection of web pages, or to the servers that host web pages. As discussed above, however, the intrinsic evidence in the record would inform one of skill in the art that the inventor of the '945 patent intended the term to refer to a server or servers, and not merely web pages. The court therefore construes website to refer to one or more servers.

2. Web Servers, One or More Servers

The parties further dispute whether the term website, to the extent it refers to a server or servers, refers only to a single web server, or whether it refers to web server(s) and any other server(s) required to carry out all of the services provided by the website. 70 WebEx's proposed definition limits the website to a single web server. 71 ABC, on other hand, argues and presents evidence indicating that many websites, even as early as 1998, provided services beyond simply hosting static web pages and, therefore, required more than just a web server to operate. 72 Therefore, ABC suggests that one of ordinary skill in the art would have understood the term website to encompass more than just a web server. ABC also argues that the '945 patent claims explicitly require that the "website" be able to conduct a number of different functions, which include, inter alia, receiving and checking logon commands, receiving and sending data signal instructions, and downloading a program. 73 Therefore, according to ABC the server or servers that make up the claimed website must be able to carry out all of these functions and, thus, cannot be limited only to a single web server.

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70 From the totality of the briefing it appears that the parties agree that a "web server" is a server that serves web pages.
The court finds ABC's arguments persuasive. The claimed website performs multiple functions besides hosting or serving web pages. Therefore, limiting the server or servers that make up the website only to a single web server, i.e., a server that merely serves web pages, would go against the plain language of the claim. See Phillips, 415 F.3d at 1312 (explaining that the claim language itself is "of primary importance" in the claim construction process (quoting Merrill, 94 U.S. at 570)). Similarly, because the website must perform multiple functions, limiting the number of servers to only one would seem inconsistent with the claim language. Moreover, WebEx's own corporate representative who gave deposition testimony on behalf of the corporation admitted that while many simple websites could operate with only a single web server, at least some websites -- including some commercial websites that have been in operation since around the effective filing date of the '945 patent -- require multiple and different types of servers to operate. 74

WebEx does not deny that, generally speaking, websites may consist of or utilize more than one server. WebEx contends, however, that ABC disclaimed the concept of multiple servers during the reexamination of the '945 patent to overcome a rejection based on certain prior art references. 75 See Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (explaining that "a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution" (quoting Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006))).

During the reexamination of the '945 patent, the Examiner initially rejected claims 1-4 of the '945 patent as obvious in light of the combination of two prior art references, referred to as "Konrad" and "Broadway." 76 In the Office Action stating the rejection of claims 1-4, the Examiner stated that an element of the Konrad reference known as the "starter server," like the website in the claimed invention, performed the functions of receiving a valid logon command and associating the valid logon command with a remote computer unit. 77 ABC did not dispute this statement, but argued that Konrad's "starter server" could not read onto the claimed website because it did not also perform the functions of receiving data signal instructions from the interface unit and sending the data signal instructions onto the remote computer unit, as required by claim 1. As ABC explained, "the starter serv[er] . . . sends commands and software to the remote hosts allowing the remote hosts to connect directly to the local hosts over the network. The connection over the network allows the local host to operate the remote host." 78 In other words, ABC argued that Konrad's starter server merely initiated the connection between a local element and a remote element. Once the local and remote elements were connected, the starter server did not continue to manage and facilitate the connection by receiving and sending data signal instructions like the claimed website in the '945 patent. Once connected, the local element and the remote element interfaced directly with each other. According to ABC, there was no intermediate element comparable to the website in the '945 patent.
WebEx argues that the "starter server" in Konrad received the logon commands and initiated the connection between the remote and local elements, and then the "network" took over to facilitate the connection. Therefore, WebEx contends that the starter server and the network referenced in Konrad are essentially two "servers," which together could make up a "website" if described in the terminology of the '945 patent. Furthermore, according to WebEx, because ABC differentiated its invention from Konrad on the basis that Konrad's starter server did not both initiate and then continue to facilitate the connection between the remote and local elements, ABC limited its claimed website to being composed of only a single server.

WebEx's argument is not persuasive. Nothing suggests that the "network" described in Konrad is at all comparable to a "server" in ABC's definition of website. The available evidence instead suggests that the "network" in Konrad did nothing more than passively conduct data signals from the local to the remote element. In fact, ABC described the network as a mere conduit for a direct connection between the local and remote element. The '945 patent, on the other hand, requires the claimed website, which is made up of one or more servers, to actively manage and facilitate the connection between the remote and local elements.

The court concludes that ABC differentiated its claimed invention from Konrad not because it described one "server" (the "starter server") that initiated a connection and another "server" (the "network") that continued to actively manage and facilitate the connection, but instead, that ABC differentiated Konrad from the claimed invention because in Konrad nothing continued to actively manage and facilitate the connection after the starter server initiated it. Therefore, ABC did not clearly and unmistakably disavow any website that utilized more than one server to perform multiple functions. See Computer Docking Station Corp., 519 F.3d at 1374.

3. Hosting Web Pages, Retrievable by a Web Browser Using HTTP and HTML Interpretation

Under ABC's definition a website "can perform services including hosting web pages . . . ." Therefore, under ABC's definition, a website need only be capable of hosting web pages, but need not necessarily do so. ABC's definition is silent as to whether the web pages hosted by websites must be retrievable by a web browser and as to whether the web pages must be retrievable using HTTP and HTML interpretation.

Under WebEx's proposed definition a website is made up of "Web pages maintained by a Web server and retrievable by a Web browser using [HTTP] and HTML interpretation." Therefore, WebEx suggests that a website must involve web pages, that those pages must be retrievable by a web browser, and that the protocol and programming language used are limited to HTTP and HTML, respectively.

a. Hosting Web Pages

The only evidence in the record that supports ABC's contention that a website need not involve web pages is a statement in the affidavit of ABC's expert (extrinsic evidence): "In fact, a website is not even required to maintain any web pages." 79 However, the source cited by the expert as allegedly supportive of this statement describes only websites that have web pages.

79 Affidavit of Ivan Zatkovich, P 10 (May 28, 2009) (included in ABC's Response, Docket Entry No. 165, at Exhibit A).
The World Wide Web, A Mass Communications Perspective, by Kaye and Medoff, describe five types of commercial websites. Each type of website described clearly utilizes web pages. In fact, several example web pages displayed in web browser windows are depicted. Therefore, the court is not persuaded by ABC's expert's affidavit.

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The other relevant evidence in the record -- both intrinsic and extrinsic -- suggests that websites necessarily involve web pages. As stated above, some intrinsic and extrinsic evidence actually equates the term website with the web pages themselves. Although the court concluded that a website, as the term is used in the '945 patent, consists of one or more servers, as opposed to web pages, the evidence nevertheless strongly suggests that a website necessarily involves or is somehow related to web pages. Accordingly, the court concludes that a website must host one or more web pages.

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81 See United States Patent No. 6,138,150 col.3 ll.4-6 (filed Sept. 3, 1997) ("In the preferred embodiment, a web site or 'home-page' is constructed on a secure HTTP . . . server. . . .") (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 14); United States Patent No. 7,007,070 col.8 ll.65-67 (filed Feb. 28, 1997) ("A 'web site' on a web server 20 contains one or more web pages where a 'base' or 'home' page is the first or entry page into a desired web site.") (included in WebEx's Response, Docket Entry No. 116, at Exhibit 15); Microsoft Computer Dictionary 479-80 (4th ed. 1999) (defining a website as "a group of related HTML documents and associated files, scripts, and databases that is served up by an HTTP server on the World Wide Web. . . . Most Web sites have a home page as their starting point, which frequently functions as a table of contents for the site") (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 10).

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b. Retrievable by a Web Browser

The evidence in the record also suggests that web pages hosted by a website must be retrievable by a web browser. For example, one prior art patent cited during the prosecution of the '945 patent states that "[t]he WWW [World Wide Web] is a collection of files written using [HTML], commonly referred to as 'Web pages.' HTML files may be accessed and displayed using specialized applications known as 'web' browsers . . . ." 82 Another cited prior art patent states that "Web pages are typically accessed using an HTML compatible browser . . . ." 83 Similarly, the Microsoft Computer Dictionary (extrinsic evidence), which defines website as a collection of web pages, states in the definition of website that "[u]sers need a Web browser . . . to access a Web site." 84

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82 United States Patent No. 5,961,586 col.1 ll.15-21 (filed May 14, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 8). This patent was cited during the prosecution of the '945 patent in a supplemental disclosure. See Second Supplemental Disclosure (Oct. 23, 2000) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6B).

83 United States Patent No. 6,167,441 col.1 ll.22-25 (filed Nov. 21, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 9) This patent was cited during the prosecution of the '945 patent in a Notice of References Cited. See Notice of References Cited (May 27, 2003) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6C).


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Moreover, ABC has not produced any evidence to show or give examples of web pages that are not retrievable by a web browser.
browser. Accordingly, the court concludes that a website, by definition, hosts one or more web pages that are retrievable by a web browser.

c. HTTP and HTML

WebEx asserts that one of ordinary skill in the art in 1998 would have understood the term website to connote the use of HTTP and HTML, but not other protocols or languages. Alternatively, WebEx asserts that ABC disclaimed other protocols and languages during the reexamination of the '945 patent in an attempt to distinguish the claimed invention from prior art, and therefore, narrowed the scope of the term. ABC denies that websites, now or in 1998, are or were limited to using HTTP and HTML. ABC also denies that it ever represented that the term "website," as used in the '945 patent, was limited only to the use of HTTP and HTML.

The parties cite multiple references that allegedly support their respective interpretations. The court, however, need not analyze these in detail because the court agrees with WebEx that ABC disclaimed other protocols and languages during the reexamination of the '945 patent, limiting the term website only to HTTP and HTML.

As explained above, during the reexamination of the '945 patent the Examiner concluded that claims 1 and 2 of the '945 patent were anticipated by a prior art reference that utilized hot-links in a web browser. In response ABC submitted an affidavit by a purported expert, Dr. Alan H. Jones, Ph.D., who distinguished the prior art reference by explaining that clicking on a hot-link in a web browser could trigger a number of actions, including

a) retrieval of a web page from a website through [HTTP] and HTML interpretation (emphasis added);

b) initiation of a directory listing and file transfer from a remote FTP server using FTP protocols and formats;

c) activation of an external program operating independently of the browser to retrieve and interpret data using streaming formats (e.g. RealPlayer window using Real Time Streaming Protocol (RTSP) and interpreting RealAudio format); or

d) activation of a browser plug-in to fetch and interpret multimedia data to be displayed within a child window of the browser (e.g. Macromedia flash player plug-in using Real Time Messaging Protocol (RTMP) and interpreting as ShockWave Flash format). 86

Dr. Jones then stated that "[t]he use of the term hot link within a web browser, thus, does not unambiguously imply access to a website, as it can also relate to the use of protocols such as FTP, RTSP, or RTMP" (emphasis added). 87

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85 Supplemental Response to Office Action in Ex Parte Reexamination, at 4, Ex Parte Reexamination of U.S. Patent No. 6,999,945, Control No. 90/008,122 (Sept. 16, 2008) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6F).


87 Id.

- - - - - - - - - - - - End Footnotes- - - - - - - - - - - -

Dr. Jones differentiated the claimed "website" from the prior art hot-link because the prior art hot-link did not necessarily utilize HTTP and HTML, but could have utilized other protocols or languages. The clear implication from his statements is that a website, by definition, utilizes HTTP and HTML, while something that does not utilize this protocol and language would not qualify as a website. Accordingly, because of ABC's "clear and unmistakable disavowal of scope during prosecution," the website referred to in the claims of the '945 patent is limited to the use of HTTP and HTML. Computer Docking Station Corp., 519 F.3d at 1374.

4. Located on the Internet by Use of a URL
ABC contends that a website must be capable of being located on the Internet by use of a URL. WebEx counters that "[t]he ability to be located using a URL does not define a website and does not distinguish a website from other entities that can be located by a URL." 88

Importantly, WebEx does not contend that there are any websites that cannot be located with a URL. To the contrary, WebEx implicitly concedes that all websites can be located with URLs. WebEx instead argues that because "other entities" that do not qualify as websites can also be located with URLs, the ability to be located by a URL should not be included in the definition of a website. 89 This is rather like arguing that a bicycle should be not defined as having two wheels because other vehicles, such as motorcycles, also have two wheels. Therefore, the court does not find WebEx's argument persuasive.

Moreover, evidence in the file, including evidence presented by WebEx, confirms that websites are inherently locatable using URLs. For example, a prior art patent cited during the prosecution of the '945 patent states: "The path to a particular Web server is defined by a Uniform Resource Locator (URL)." 90 Additionally, the Microsoft Computer Dictionary (extrinsic evidence) defines the term "Web page" as "an HTML file . . . in a particular directory on a particular machine (and thus identifiable by a URL)." 91 Further, the same dictionary defines the term "Web directory" as "a list of Web sites, giving the URL . . . of each," and, for the term "Web address," the dictionary refers readers to the definition of URL, suggesting the terms are synonymous. 92

WebEx does not argue that a website is not "located on the Internet." Indeed, in its argument regarding the term "established on the World Wide Web," WebEx characterizes the WWW as a "subset of devices on the Internet." 93 Therefore, a website, clearly a part of the WWW, is located on the Internet.

5. Provided by a Service Provider
ABC asserts that a website inherently "can be provided by a service provider." ABC points to several passages in the specification of the '945 patent that describe the preferred embodiment of the invention. 94 The first passage reads: "An example of the preferred embodiment would be an Internet service provider operating much like a phone or cable company, in which a large number of customers can be connected from a large number of different locations to a large number of PC's, at a specific location." 95 The second passage states: "The customer for example could log onto an internet service provider and could click the mouse arrow on the computer service icon . . . for example and the computer service screen would appear and give the customer several options to select from." 96

--- Footnotes ---

94 ABC's Brief, Docket Entry No. 154, at 12-13.
95 '945 patent, col.4 ll.7-11.
96 Id. col.6 ll.5-9.

--- End Footnotes ---

Courts may not limit the invention to the preferred embodiment unless the patentee describes the particular embodiment as "important to the invention." Toro Co., 199 F.3d at 1301. ABC has not directed the court to any representation in the specification or prosecution history of the '945 patent suggesting that the ability to be provided by a service provider is important to this invention. Although the website may be provided by a service provider in some embodiments of the invention, the court is not persuaded that the website must always be adaptable to being provided by a service provider. Accordingly, the court will not include the service provider limitation in its definition.

6. Validating Logon Commands and Sending, Receiving, and Processing Instructions

ABC argues that the term website, as used in the '945 patent, must be capable of "validating logon commands and sending, receiving, and processing instructions." Claim 1 -- upon which the three asserted claims depend -- explicitly states that the website "receiv[es] . . . a valid logon command from the interface unit whereby the website associates the valid logon command with the remote computer unit." 97 It further states that the website "receiv[es] . . . data signal instructions from the interface unit; and send[s] the data signal instructions . . . to the remote computer unit." 98 The court agrees that this claim language supports ABC's position that the website must validate logon commands and send and receive instructions. The claim, however, does not require that the website process these instructions. Therefore, the court's definition will reflect that a website must be able to validate logon commands and send and receive data signal instructions. The court's definition will not include the requirement that the website process the instructions.

--- Footnotes ---

97 '945 patent, claim 1.
98 Id.

--- End Footnotes ---

7. The Same Website Both Receives Valid Logon Commands and Receives and Sends the Data Signals that Control the Remote Computer Unit

WebEx contends that the claims of the '945 patent speak in terms of a single website such that the same website must both receive valid logon commands and receive and send the data signals that control the remote computer unit. ABC, in its response brief, does not dispute this construction, and itself speaks in terms of a singular website "capable of . . . receiving a valid logon command, associating the logon with a remote computer unit, receiving data signal instructions, sending the data signal instructions and downloading a program . . . ." 99 Moreover, such a construction is consistent with plain language of the claims of the '945 patent. The first use of the term appears in claim 1 and recites, "a website capable of allowing and facilitating communication between a remote computer unit and an interface unit via the internet." 100
subsequent references in claim 1 and the remaining dependent claims speak in terms of "the website." 101 Accordingly, the court agrees that the same website both receives valid logon commands and receives and sends the data signals that control the remote computer unit.

--- Footnotes ---


100 '945 patent, claim 1.

101 '945 patent, claims 1, 2, 5.

--- End Footnotes ---

8. Conclusion

The court concludes that a "website," as the term is used in the '945 patent, is "one or more servers operating together that (1) can be located on the Internet by use of a Uniform Resource Locator (URL), (2) host one or more web pages retrievable by a web browser through hypertext transfer protocol ("HTTP") and hypertext markup language ("HTML") interpretation, (3) validate logon commands, and (4) send and receive data signal instructions." The same website both receives valid logon commands and receives and sends the data signals that control the remote computer unit.

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7. Current Web site (First appearing in claim 1 at col. 12, l. 56, and as used thereafter in claims 1-31)

Websidestory contends that the term "current website" does not require construction, while Netratings construes the term to mean "the website providing the page requested by the network browser." See Joint Claims Construction Chart at 3-4.

Netratings contends that the use of this term in claim 1 of the '479 Patent requires the adoption of its construction. Websidestory contends that the meaning of "current website" would be clear to an ordinary person skilled in the art in 1999, and does not need to be construed by the Court. If the Court requires construction of "current website," Websidestory proposes that "current" should be construed to mean "belonging to the present," and "website" should be construed to mean "a collection of thematically related, hyperlinked World Wide Web services, mainly HTML documents, usually located on a specific Web server and reachable through a URL assigned to the site." Joint Claims Construction Chart at 3-4.

The term "current website" is neither defined nor mentioned in the specification, and appears for the first time in the second element of claim 1 of the '479 Patent as follows:

- receiving a request from a network browser for a page at a website, the page having at least one graphical element having an image source attribute that specifies a website traffic path analysis data location;
- detecting if the website page request includes a website cookie having website traffic path analysis data from the network browser for the current website;
- producing a website cookie in response . . ., wherein the website cookie contains data . . . for the current website.

Patent at col. 12, ll. 50-61 (Emphasis added.). The term appears in a similar context in other claims. After considering the language of the claims, and particularly the context within which the terms "current website" and "current website visit" are used in the claims, the Court concludes that it would be readily apparent to a person of ordinary skill in the art in question at the time of the invention that the term "current website" is used to refer to the web page which is requested by a visitor's network browser. The Court adopts Netratings' proposed construction for "current website," and concludes that the acquired meaning of "current website" is: "the website providing the page requested by the network browser."

8. Detecting if the website page request includes a website cookie having website traffic path analysis data from the network browser.
browser for the current website (Patent at claim 1, col. 12, ll. 54-57)

Netratings contends that construction of this phrase is necessary to clarify that (a) the website cookie contains the traffic path analysis data, and (b) the website page request contains the cookie. Netratings' proposed construction reads: "detecting if the website page request contains a website cookie for the current website from the network browser, which website cookie has website traffic path analysis data." Joint Claims Construction Chart at 2. Websidestory contends that construction of the phrase is unnecessary, and argues that Netratings is needlessly reordering words. Joint Claims Construction Chart at 2. The terms "website page request," "website cookie," "website traffic path analysis data," and "current website" have already been construed by the Court.

The first dispute in this phrase centers on the word "includes." Netratings' proposed construction substitutes the word "contains" for the word "includes." See Joint Claims Construction Chart at 2. Netratings proposed construction begins, "detecting if the website page request contains a website cookie," while the language of the '479 Patent reads, "detecting if the website page request includes a website cookie." See Joint Claims Construction Chart at 2. Netratings argues that the word "includes" must be replaced by the word "contains" to clarify the meaning of the '479 Patent, however, Netratings does not explain why such a clarification is necessary. Instead, Netratings simply notes in its opening brief that the term "contains . . . is consistent with the ordinary meaning of the word" includes, and is used in the specification. Netratings' Opening Claims Construction Brief at 10. Webster's Third New International Dictionary defines "include" as "to place, list, or rate as a part or component of a whole or of a larger group, class, or aggregate," and "contain" as "to keep within limits . . . to have within." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 490-91, 1143 (1986).

The Court finds that substitution of the word "contains" for the word "includes" does not clarify the '479 Patent. First, a court is not permitted to re-write the claims of the patent. ChefAm., Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed. Cir. 2004). Second, the specification states on at least one occasion that, "the browser . . . sends the corresponding cookie along with the request for the page," see Patent at col. 8, ll. 10-15. On the basis of that language, the Court concludes that "includes," with its broader meaning, is more consistent with the specification than "contains." Finally, after reviewing the '479 Patent and extrinsic evidence, there is no evidence that "includes" should be limited to "contains."

Claims construction is "not an obligatory exercise in redundancy," see U.S. Surgical Corp., 103 F.3d at 1568, and while every word in a claim has meaning, not every word requires construction. Orion IP, LLC v Staples, Inc., 406 F. Supp. 2d 717, 738 (E.D. Tex. 2005). After consideration of the parties' arguments and the '479 Patent, the Court concludes that the word "includes" does not need to be construed, and the Court will not substitute the word "contains" in its place. The ordinary and customary meaning of the word "includes" will control.

Netratings' proposed construction also seeks to clarify that the website traffic path analysis data is stored in the website cookie described in this phrase. Netratings' proposed construction reads, "detecting if the website page request contains a website cookie for the current website from the network browser, which website cookie has website traffic path analysis data." Joint Claims Construction Chart at 2 (Emphasis added.). After reviewing the '479 Patent's claims and specification, the Court concludes that there is significant support for the proposition that the website cookie has website traffic path analysis data. See Patent at col. 12, ll. 54-56 ("a website cookie having website traffic path analysis data"); Patent at col. 12, ll. 59-66 ("wherein the website cookie contains an initial set of traffic path analysis data for the current website" and "setting the traffic path analysis data of the website cookie to initial values . . ."). However, the Court finds that the claim language, "a website cookie having website traffic path analysis data," requires that the cookie has the traffic path analysis data, and no construction is necessary.

5. Web site Page Request (First appearing in claim 1 at col. 12, l. 55, and as used thereafter in claims 1-31)

The parties initially disputed this term, but agreed to a meaning at oral argument. Tr. at 95, 105-07, 120-22. The parties agree that the term should be construed as: "a request for a page and its various components." This construction is supported by the '479 Patent's language, and the Court concludes that the construction is consistent with the ordinary and customary meaning of the term to one skilled in the art in 1999. The Court adopts the parties' joint construction. The Court concludes that the acquired meaning of "website page request" is: "a request for a page and its various components."
3. Website traffic path analysis data (First appearing in claim 1 at col. 12, ll. 55-56, and as used thereafter in claims 1-31)

The parties dispute the meaning of the phrase "website traffic path analysis data," which first appears in the '479 Patent at claim 1, col. 12, l. 54. See Joint Claims Construction Chart at 2. Websidestory contends that the phrase means "data used for website traffic path analysis." Netratings contends that the phrase has a more specific and detailed meaning, and proposes "data consisting of the actual sequence of every page at a website visited by a browser during a current visit, the clock time of each page visit obtained from the browser, and cumulative values and statistics."

Netratings contends that the specification and the claims of the '479 Patent detail and define the contents of "website traffic path analysis data," and require the phrase to include a sequence of every page visited, the visitor browser's clock time, and other cumulative values and statistics. Netratings contends that Websidestory's definition renders the word "analysis" meaningless.

Websidestory contends that Netratings' proposed construction improperly imports limitations from the specification, impermissibly limiting the scope of the '479 Patent. Websidestory contends that the claims of the '479 Patent support its proposed, and more general, construction of "website traffic path analysis data," and further contends that it is unnecessary to utilize the specification given the clarity and plain meaning of this disputed phrase. Websidestory disputes Netratings' assertion that the '479 Patent's claims and specification disavow or disclaim the contents of "website traffic path analysis data."

After reviewing the '479 Patent and the parties' arguments, the Court concludes that the phrase "website traffic path analysis data," has an ordinary and customary meaning consistent with Websidestory's proposed construction of "data used for website traffic path analysis." Joint Claims Construction Chart at 2. This construction is consistent with the use of "website traffic path analysis data" in the claims, and supported by those portions of the specification which provide specific examples of "website traffic path analysis data." See Patent at col. 4, ll. 37-40; Patent at col. 5, ll. 2-4. This construction is also consistent with the presence of dependent claims, e.g. claims 2-10, which claim embodiments of the invention where "website traffic path analysis data" must include specific types of data. Patent at col 13, ll. 10-42.

The doctrine of claim differentiation instructs that, ordinarily, (a) each claim in a patent has a different scope, (b) a dependent claim has a narrower scope than an independent claim, and (c) an independent claim has a broader scope than a claim that depends on it. HERBERT F. SCHWARTZ, PATENT LAW AND PRACTICE § 5.1.A.3.d. (5th ed. 2006); see also Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). "[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim." Liebel-Flarsheim Co., 358 F.3d at 910; Phillips, 415 F.3d at 1315. Though that presumption can be overcome where evidence favoring a different construction is "strong, . . . where the limitation that is sought to be read into an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest." Liebel-Flarsheim Co., 358 F.3d at 910; see also Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302-03 (Fed. Cir. 2003).

The independent claims of the '479 Patent do not require "website traffic path analysis data" to include the actual sequence of every page visited by a browser, clock times, cumulative values, or statistics as proposed by Netratings. Instead, those limitations appear in dependent claims, such as claims 2, 5, and 6 of the '479 Patent. See Patent at col. 13. Accordingly, the Court concludes that there is a presumption against including those limitations in the acquired meaning of "website traffic path analysis data." Liebel-Flarsheim Co., 358 F.3d at 910. Netratings attempts to rebut the presumption with intrinsic evidence from the specification. Netratings contends that "website traffic path analysis data" must be defined to include the actual sequence of requested pages, clock times, cumulative values, and statistics, and cites the following sections of the specification in support of its argument:

In addition, conventional Internet-based traffic analysis tools do not indicate the actual sequence, or path, followed by a website visitor from page to page of a website. The website path taken by visitors can be very important . . . .

For every website page requested by a website visitor, the state of the visitor's browser is recorded. The state includes the clock time and an indication of every page at the website visited by the browser during the current visit. Patent at Summary of the Invention, col. 4, ll. 37-40.

Next the path analysis data is initialized. For example, cumulative data such as elapsed visit time is set to zero . . . . Patent at Description of the Preferred Embodiment, col. 8, ll. 39-43.

FIG. 8 is an exemplary cookie format such as will be passed back and forth between browser and server to track website traffic, in accordance with the invention…. The next cookie field is a site visit count. . . . FIG. 9 is an example of path analysis data stored in a cookie. . . . The next field is for the calculated average time between site visits, a statistic that is maintained by the traffic analysis computer. The time spent is calculated in accordance with the cookie expiration time limit . . . . Patent at Description of the Preferred Embodiment, col. 9, ll. 10-60. Netratings asserts that the inclusion of the actual sequence, cumulative values, statistics, and clock times references in the above descriptions of website traffic path analysis data require reading those terms into the definition of "website traffic path analysis data."

After reviewing the language of the claims, the Court concludes that an ordinary person skilled in the art at the time of the invention would not include clock times and cumulative values in the definition of "website traffic path analysis data." Nor is there evidence that a person skilled in the art in 1999 would interpret "website traffic path analysis data" in that manner. In order for the Court to conclude that the specific interpretations proposed by Netratings are part of the acquired meaning, the '479 Patent would have to define "website traffic path analysis data" in a clear and precise way. See Merck& Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1370-72 (Fed. Cir. 2005) ("When a patentee acts as his own lexicographer in redefining the meaning of particular claim terms away from their ordinary meaning, he must clearly express that intent in the written description."). After reviewing the language of the specification, the Court concludes that the specification does not clearly define the term "website traffic path analysis" as including the actual sequence of pages, clock times, cumulative values, and statistics.

Though the '479 Patent specification makes reference to prior art which included data such as time stamp values, see Patent at col. 3, ll. 55-57, the prosecution history of the '479 Patent, and specifically the notice of allowability, does not indicate that a detailed description of data was necessary for patentability. Though the notice of allowability did reference the current requested page and the complete path of website pages as part of "website traffic path analysis data," it did not define data to include specifics such as clock times, cumulative values, or statistics. Swinton Decl. at Ex. 4, p. 30.

Finally, the Federal Circuit has stated on multiple occasions that it is improper to read limitations from a specification into a claim. Callicrate v. Wadsworth Mfg., 427 F.3d 1361, 1368 (Fed. Cir. 2005); Phillips, 415 F.3d at 1312. The limitations proffered by Netratings appear in dependent claims, and the limitations are often preceded with language such as "for example," "exemplary," or "in the preferred embodiment." The Court recognizes that it is often a "fine line" that separates "proper from improper reliance" on the specification. HERBERT F. SCHWARTZ, PATENT LAW AND PRACTICE § 5.1.A.3.b. (5th ed. 2006); Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1117 (Fed. Cir. 2004). The Court concludes, however, that Netratings' proposed construction which includes the actual sequence of pages, clock times, cumulative values, and statistics as part of the definition of "website traffic path analysis data" improperly imports limitations from the '479 Patent specification.

After considering the parties' arguments, the intrinsic evidence presented, and the '479 Patent, the Court concludes that references to the actual sequence of pages visited, clock times, cumulative values, and statistics are not required in the definition of "website traffic path analysis data." The Court adopts Websidestory's proposed construction, and concludes that the acquired meaning of "website traffic path analysis data" is: "data used for website traffic path analysis."
1. Principles of claim construction

Claim construction of a patent, including terms of art within claims, is exclusively within the province of the court, not the jury. Markman v. Westview Instruments, Inc., 517 U.S. 370, 388-8, 116 S. Ct. 1384, 134 L. Ed. 2d 577, 579 (1996).

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. See Markman, 52 F.3d at 979, 34 U.S.P.Q.2d at 1329. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.


The first step is to look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Id. Second, it is necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. Id.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. Id.” Claims must be read in view of the specification, of which they are a part." Id. (citing Markman, 52 F.3d at 979). The specification is always highly relevant to the claim construction analysis, and usually, it is dispositive; it is the single best guide to the meaning of a disputed term. Id. The drawings or figures of the patent are considered with the specification in interpreting claim language. Wright Medical Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed. Cir. 1997).

Third, the court may also consider the prosecution history of the patent, if in evidence. Vitronics Corp., 90 F.3d at 1582.

In addition, the Court should not read into a patent limitations that do not exist in the claims. As the Federal Circuit recently held, "[t]he danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim." Amgen, Inc. V. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed Cir. 2003) (internal citations omitted).

Moreover, like contract interpretation, the Court should first give claim terms their ordinary and accustomed meanings.

Claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic evidence using words or expressions of manifest exclusion or restriction, representing clear disavowal of claim scope.

Apex, Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 1377 (Fed. Cir. 2003) (emphasis added).(citation omitted).

In fact, the Federal Circuit has issued a ruling instructive on this issue. In Rexnord Corp. v. Laitram Corp., 274 F.3d.1336, 1343-44 (Fed. Cir. 2001) the Federal Circuit overruled the district court’s holding that the claim term "portion" was to be accorded a meaning narrower than its customary meaning, by finding that the district court had improperly relied on the preferred embodiment, the drawings, and one passage in the prosecution history to overcome the presumption.

Finally, if an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence. Id. at 1583. Extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles. Id. at 1584. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. Id.

This approach was affirmed in the Federal Circuit's most en banc decision, Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). In that case, the Court reiterated that "[w]e have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms." Id.

Following this guidance and framework, this Court finds that the '801 Patent's Claim 5 and the specification only requires
that the microprocessor permits (allows) audio data to leave through the audio reproduction circuit and not that the audio data must always leave that way.

Additionally, nothing in the claim language, specifications, or prosecution history supports a finding that "allows" is limited to an understanding of "enable" meaning to turn on from a previously turned off starting point. As to "when," this term appears multiple times in the '801 Patent and none support an interpretation of "every time." "When" simply means that "at the time."

Here, it is inappropriate for this Court to find that Mediatek's argument is correct, as there is little to support overcoming the heavy presumption that the terms carry their ordinary meaning. As such, for the purposes of Claim 5 and its dependant claims 6 and 7, the plain terms are interpreted as (1) "allows" meaning "to permit" and (2) "when" meaning "at the time" instead of Defendants' more restrictive interpretation.

4851

7. When a DR is identified ('321 patent, claims 1, 47, 185, 190 and 193)

Plaintiffs assert that certain steps take place "when a DR [data reference] is identified" and other steps take place "as the referencing record is created." Although plaintiffs concede that the word "as" requires real-time processing, they dispute whether the word "when" also requires real-time processing. Claim 47 of the '321 patent, for example, provides that:

A method for identifying a referenced record referenced in a referencing record wherein the referenced record is referenced in the referencing record by at least a data reference (DR), the method comprising the steps of:

 as the referencing record is created:

 (i) receiving the referencing record;

 (ii) analyzing the referencing record to identify a DR; and

 (iii) when a DR is identified, associating the DR and the referenced record.

'321 Patent:, at 36, 37-46 (emphasis added).

The parties do not dispute that "receiving" or "analyzing" the referencing record must be performed in real time. The patent examiner's response is clear on this point. See Aff. of Craig Smith, Exh. N, July 3, 2002 Response to Office Action, at 8 ("Applicant has amended each of claims 47 and 137 to now require that the steps of receiving and analyzing are performed in real time.") (Emphasis in original.) However, plaintiffs argue that because the patent examiner failed to mention "associating" in his response ("when a DR is identified, associating the DR and the referenced record" in step three (iii)), this step need not occur in real time. I disagree. In order to overcome a prior art rejection for lack of a real-time element, the inventor amended the '321 patent by adding "as the referencing record is created" and the word "and" between steps two (ii) and three (iii). Thus, the patent examiner required all three steps after the phrase "as the referencing record is created" to occur in real time. Accordingly, in the '321 patent, "when a DR is identified, associating the DR and the referenced record" occurs in real time.

4852

4. "When a subset of the stored terrain information is located within boundaries" 53
When reading this claim language in the context of the invention, it is clear that the patent refers to any piercing of the alert zones, since it does not limit the term subset in either the claim or specification. To hold otherwise would render some of the claim language moot. Thus, for the reasons set forth under "alert envelope," the court will apply Sandel's proposed construction.

Skyline argues that Google's use of "during periods of time when the local computer is not downloading data blocks describing three-dimensional terrain in response to the coordinates received from the renderer." Skyline counters with "when not downloading data for displaying the scene corresponding to the current view."

Skyline next argues that the only blocks "required by the renderer" are those immediately necessary for the display of the current view. This proposed construction overstates the point. Clearly there are at least two types of data blocks -- those required by the renderer, and those that are being downloaded to fill up excess local memory, with the expectation that they might eventually be required for display of a particular viewpoint. To say that those "required by the renderer" are only those immediately needed for the current viewpoint is not wholly accurate.

Because the data blocks are not transferred at the exact moment they are requested (due to network lag, processor delays, etc.), there will often be a backlog of data blocks that the renderer has requested, but not yet received. Cutting down on this
time lag is a purpose of the '189 patent. However, because the lag exists, and the '189 patent allows for a constantly changing user viewpoint, there will often be a queue of data blocks, some of which may not be needed any longer, that have been requested by the renderer, but not yet downloaded. Until these requested blocks have finished downloading, excess blocks will not be downloaded to fill the local memory. See Fig. 8 ("Queue Empty?" No --> Download blocks from queue; Yes --> Download excess surrounding blocks). Therefore, files which are, or were, "required by the renderer" may include data blocks not required for the currently displayed view.

n14 The process diagramed in Fig. 8 does run a check to see if the block in the queue is out of range (which it would be if the viewpoint has changed so dramatically that the block is obviously no longer needed), but excess blocks are not automatically downloaded if the requested block is found to be out of range. Instead, the logic says to go back to the top of the flowchart, and wait for further inputs.

n15 This point becomes particularly clear if one envisions a viewer hovering over a point, say at the top of a hill. The viewer might start by looking north, then turn around in a circle, examining each of the cardinal points. By the time the viewer's attention comes back to the starting point, the resolution of the terrain image should have increased, so that the view is more detailed that it was initially. While the viewer was turning around, data blocks "required by the renderer" to improve resolution at the starting point were being downloaded. However, these blocks were not required for the display when the viewer was looking in other directions (due south, for example).

Construction: (when not downloading blocks required by the renderer) During periods of time when the local computer, or a connection thereof, is not downloading data blocks in response to coordinates received from the renderer

n16 I have eliminated Google's proposed addition of "describing three-dimensional terrain" whenever "data blocks" appeared, because this term has already been construed in a way that makes the additional language unnecessary.
The '382 patent's specification states,

Preferably, a timer 64 is initiated once the OVP exceeds the threshold, thereby initiating a time-out sequence. The duration of the time-out is preferably designed according to the requirement of the loads (e.g., CCFLs of an LCD panel), but could alternately be set at some programmable value. Drive pulses are disabled once the time-out is reached, thus providing safe-operation output of the converter circuit.

Accompanying this language provides no support for MPS's assertion that the timer circuit measures two time periods before the drive pulses are shut down. On the contrary, the specification states that the drive pulses "are disabled once the time-out is reached," which suggests that the "time-out" constitutes a single time period. Because neither the specification nor any other intrinsic evidence indicates that the timer circuit measures two separate time periods, the Court rejects MPS's proposed construction and concludes that the timer circuit measures only one "predetermined duration."

Accordingly, the Court construes this language to mean: "when the above-mentioned first voltage signal exceeds and continues to exceed a voltage value determined beforehand for the above-mentioned time period."

The main dispute concerns the requirement that "the probe generate a trigger signal when said sensing tip contacts an object and said stylus holder is thereby deflected relative to said housing." The district court determined that "when" is defined by reference to this entire claim limitation, such that "when" means as soon as contact is made and deflection occurs. See Renishaw, 974 F. Supp. at 1089. On appeal, Renishaw argues that "when" should receive one of its broader dictionary definitions: "at or after the time that," "in the event that," or "on condition that," so that the claim would read on a device that does not generate a trigger signal until an appreciable amount of time after contact is made and deflection begins. Because infringement of this limitation depends on the meaning of the word "when," we refer to it in the remainder of the opinion as the "when" limitation. We agree with the district court's construction of this claim limitation and, because all limitations must be met for there to be infringement, we need consider only this limitation.

The ultimate issue is the manner in which "when" defines the timing of probe triggering vis-a-vis contact of a stylus with a workpiece. The issue brings into sharp focus the convergence of the two canons of claim construction discussed above. According to Renishaw, the accused probes escape infringement only if a narrowing limitation is read into "when" from the written description. Marposs counters with an argument that the claim is properly construed to require a finding of noninfringement because the correct meaning of the claim term "when" is embedded throughout the specification.

Neither party forwards a technical meaning for "when" in the applicable industry. However, there are several closely-related, but distinct, common meanings for "when," most cited by Renishaw on appeal. These include: at or during the time that; just at the moment that; at any or every time that; at, during, or after the time that. n4 Renishaw asserts that nothing in claim 2 places an outer endpoint on the time at which a trigger signal must be generated, other than that the device be capable of generating some trigger signal. Therefore, contends Renishaw, the trial court's definition of the term was overly narrow, and the claim is properly defined simply as "at or after the time that." For its part, Marposs argues that the '904 patent's written description exhibits a clear intent to provide triggering as soon as possible after contact with a workpiece, not at appreciable times after contact. Marposs argues that in claim 2 the use of "when" provides an entry point into the claim for that intent.

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The explicit language of claim 2 is our starting point. There, the claim states that a signal is generated "when" there is contact with a workpiece "and said stylus holder is thereby deflected." The claim ties the signal to contact and deflection, thus showing that the trigger signal cannot occur until the probe has contacted the workpiece and the stylus has deflected some amount. In other words, contact and deflection are a condition precedent to signaling. Thus, the claim itself precludes us from viewing "when" as requiring signaling at the precise moment of contact, for some deflection must occur before signaling. The district court also recognized this. See Renishaw, 974 F. Supp. at 1071; see also Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc., 152 F.3d 1368, 1998 U.S. App. LEXIS 18753, No. 98-1079, slip op. at 12-13 (Fed. Cir. Aug. 13, 1998) (looking to other terms in a claim to construe a limitation in dispute); Phonometrics, Inc. v. Northern Telecom Inc., 133 F.3d 1459, 1465, 45 U.S.P.Q.2D (BNA) 1421, 1426 (Fed. Cir. 1998) (same).

Mere recognition that "when" is not limited to the precise moment of contact, however, does not make the term clear, or mandate a meaning of "when" to include any time after contact as long as a measurement is derived from stylus contact. That is because "when" is not a broad and general term when standing in isolation. Instead, it has several meanings, each of which may prevail based on the context. Here, we have bounteous context. Claim 2 does not exist in rarefied air, but rather is surrounded by a patent disclosure of singular purpose. As evidenced by the several common meanings of "when," the term is imprecise as used in the '904 patent. The term is not ambiguous, however, because the written description provides overwhelming evidence to guide a proper interpretation of the term. See Vitronics, 90 F.3d at 1583, 39 U.S.P.Q.2D (BNA) at 1577. Replete with references that indicate that the patentee was preeminently concerned with generating a trigger signal as soon as possible after contact, the written description lends precision to the term "when." The written description shows that the patentee's invention is directed at a machine that produces very accurate, very precise probe readings by maintaining tight control over the position of the stylus. In the context of the invention, such readings can only be obtained if the probe triggers very, very soon after contact.

For example, in describing the invention's place within the prior art, the '904 patent notes: "When the stylus contacts a workpiece surface, a trigger signal is generated by the probe, which is used to trigger the taking of a reading of the instantaneous position of the movable spindle, quill or arm." Col. 1, ll. 36-42. Likewise, the Summary of the Invention states that the preferred embodiment of the probe "includes means for providing a signal when said stylus contacts a workpiece," col. 3, ll. 28-29, and that the movable elements are displaced "out of said rest position when said stylus contacts a workpiece," col. 3, ll. 21-22.

Statements in the "Description of Preferred Embodiments" also use the term "when" to describe a time very close to the precise instant that the stylus contacts the object to be measured and not some appreciable time thereafter:

When the stylus 14 contacts a workpiece, from any direction, the stylus is deflected. For example, if the contact is in a horizontal direction, the stylus 14 tilts, about a point of contact between the surfaces 20 and 22. At this time, the cylinders 34 and balls 36 remain engaged with each other, and the tilting is accommodated by flexing of the planar spring 30. . . .

When the deflecting force on the stylus 14 ceases (i.e. when the probe is moved so that the stylus 14 no longer contacts the workpiece) the stylus member 12 is returned to its axial and lateral rest position by the action of the spring 24.

Col. 4, l. 52 to col. 5, l. 7. This passage refers to "when" as "at this time," i.e., when the planar spring is flexing and the cylinders, or analogously, the legs of the trampoline, have not yet lifted out of their moorings. In other passages, the written description states: "The instant at which the stylus tip 15 first contacts a workpiece can be detected in various possible ways," col. 6, ll. 10-11, that the photoelectric sensor is responsive to motion caused "when the stylus 14 begins to deflect upon contact with a workpiece," col. 6, ll. 33-34, "when the stylus 14 is deflected by contact with a workpiece, the cage 86
initially remains stationary in its kinematic rest position," col. 8, ll. 60-63, "all of the embodiments of FIGS. 4-10 may have any of the arrangements for detecting the instant of contact between the stylus tip and a workpiece," col. 9, ll. 16-20, and:

In operation, when the stylus 14 is deflected by contact with a workpiece, at first the skirt 72 and cage 64 lift or tilt bodily from the surfaces 74. . . . Also for the same reason, when eventually the stylus returns to its rest position, there is little or no hysteresis in its rest position.

However, the above bodily lifting or tilting of the cage 64 upon deflection of the stylus only lasts for a very small amount of stylus deflection.

Col. 8, ll. 11-13 (emphasis added to all quotations). These passages make abundantly clear that "when" in the patent means at the time of, and not some appreciable time thereafter. See Autogiro Co., 384 F.2d at 397, 155 U.S.P.Q. (BNA) at 702-03 ("Words must be used in the same way in both the claims and the specification.").

To the extent that these passages refer to the preferred embodiment, they cannot be read into the claims without some hook. The claim term "when" is that hook. Each of the passages above show that the patentee wanted "when" to mean as soon as possible after contact. In contrast, Renishaw's proferred construction of "when," which would sweep in any time whatsoever after contact, is so broad that it would require us to ignore the abounding statements in the written description that point decidedly the other way.

Renishaw might have us save its claim by placing a functional limitation on the claim such that "when" would permit signaling at any time after contact but no longer than would permit accurate measurement of the workpiece. However, this limitation appears nowhere in the claims; rather, it comes from a concept of operability. To the extent Renishaw must refer to the written description, the patentee's extremely detailed account of his invention in that written description shows that his aim was to generate a signal as soon as possible after contact, not to generate a signal at appreciable times after contact. Any delay in signaling with Renishaw's probes creates an unrecoverable error, because they must equate the position of the probe at the moment of signaling with the position of the workpiece. Therefore, delay in signaling while the probe continues to move creates an error. The patentee strove to eliminate this error, and the entire patent document exhibits his intent to make the delay between contact and signaling as small as possible.

Our construction of "when" matches that of the district court. Although the district court initially construed "when" to mean "at the time that," it recognized that its choice of words could be read out of context to require immediate signaling, a physical impossibility. The district court therefore clarified its construction as follows:

While it is of course true that the laws of nature dictate that no detection device can be "absolutely instantaneous," the claims, specifications, figures, and Mr. McMurtry's testimony confirm that the patented probes signal as soon as possible when the stylus tip contacts the workpiece. The quicker the Renishaw probes trigger, the better their performance. In short, the patents teach the quickest signaling possible, and there is no suggestion otherwise. In fact, Mr. McMurtry stated that he taught good probes with quick signals, "wouldn't do anything but that, but to teach the best."

Renishaw, 974 F. Supp. at 1071. Consistent with this understanding and with the understanding that the claimed probes operate at a micron-level scale, we hold that claim 2 covers probes which signal within a nonappreciable period of time after contact such that the delay in signaling is insignificant when compared to the sensitivity and accuracy of the probe.

The displacing step (c) also provides for "stopping the relative displacement of corresponding contact surfaces when said testing determines said alignment and existence of correct electrical contact." As with displacing, the parties dispute whether stopping can be done manually. They also dispute whether "stopping . . . when" requires stopping as soon as the test is positive or whether the claim embraces a more leisurely stopping as well.

As to whether stopping may be manual, the ALJ concluded that it could be. In the Matter of Certain Removable Electronic
Cards, Inv. No. 337-TA-396 (Initial Determination) [hereafter "ID"] at 55. The Commission disagreed. "We believe that the failure to describe a display element of some kind, or otherwise indicate how the user would know to perform stopping, is significant." ITC at 14. "We find that the specification does not teach that stopping can be performed manually."

This Court also finds that stopping cannot be accomplished manually. The term "stopping" alone does not require this result. But taken in context, the specification clearly contemplates automated stopping. Even in the alternative embodiment allowing for manual displacement, the inventor presumes that stopping will be accomplished by the electric device rather than the card holder. Col. 8, Ins. 26-37. As to the Commission's reasoning, it is not just the absence of a display element but the absence of any means for ensuring that once good electrical contact is achieved, it is maintained during manual stopping. Thomson's reference to the file wrapper is more on point for this purpose, because Moreno did stress to the PTO the non-obviousness and novelty of his invention for performing a electric test to achieve good contact. The Court understands Moreno's statement that in his invention the card is "subsequently aligned[] by an electric device," although appearing to refer to displacing, actually refers to stopping because the card is "aligned" at the point that displacement stops. See Prosecution History at 1100133.

On the question of how quickly stopping occurs, Thomson urges that it be done as soon as possible. Innovatron argues that the term "stopping . . . when" does not mean "stopping . . . as soon as" but "stopping . . . if" good contact has been established, without a temporal limitation. The Commission held that

The phrase 'stopping . . . when' [] mean[s] stopping that occurs as a result of a positive test for correct alignment and electrical contact, and that is instantaneous or nearly instantaneous such that relative displacing is halted before the corresponding contact surfaces are moved from a position of proper alignment and correct electrical contact to a position out of such alignment and contact.

ITC at 15.

This Court concurs in the Commission's reading. The most common use of the term "when" is to indicate a point in time. For example, of the six definitions set forth in one respectable dictionary, the first five have a temporal meaning; only the sixth supports Innovatron's conditional reading. See WEBSTER'S II at 1313; see also Renishaw, 158 F.3d at 1250-53 (construing "when" to mean "as soon as" rather than "upon condition" after extensive discussion). The specification also supports reading "when" to mean "as soon as." When disclosing his invention, Moreno wrote:

(d) Testing . . . and stopping the . . . displacement when the electric contact has been established. This step of the process has as it [sic] purpose, in combination with the preceeding [sic] steps, to facilitate the rapid placement in contact because as soon as this has been done, the process stops.

Col. 2, Ins. 18-24. Either the specification guides selection of which ordinary meaning to ascribe to "when," cf. Renishaw, 158 F.3d at 1251, or, alternatively, even if "when" did not have "as soon as" as its ordinary meaning, Moreno has acted as his own lexicographer and imposed that meaning in the disclosure.

"Calculating . . . When the Animal May Be Released"

Representative claim 1 requires a step of "in response to entry of a selected drug treatment requiring a withdrawal period, calculating in the computer means, for the selected drug treatment, when the animal may be released from the feedlot." Although the term "when" is subject to different shades of meaning, the context of its use in this case does not support the district court's construction. In the phrase "when the animal may be released," the word "when" identifies the point in time at which a discrete act (the animal's release) is permitted. In that context, the term "when" is best understood to refer to the point in time at which release is first permitted, although it does not specify whether that point in time must be identified by hour, day, week, or other temporal reference. By analogy, in the phrase "when the prisoner is in prison," the term "when" would be understood to refer to the entire period of the prisoner's incarceration. But in the phrase "when the prisoner may be released," the term "when" would be understood as referring to the point in time at which the prisoner will be set free, whether it be the day, month, or year of release.
The district court's construction of the term "when," as used in the phrase "calculating . . . when the animal may be released" is also inconsistent with the patent's description of the invention. The Abstract, for example, explains that if a drug treatment has a withdrawal period, "a release date is calculated." And the Summary of the Invention similarly states that if a selected drug treatment requires a withdrawal period, "a release date is calculated for the animal based on the treatment date." One of the embodiments described in the patent's written description states that the computer that performs the calculations recited in the claims "calculates from the treatment data the earliest release date of the animal thereafter." Each of those references supports Lextron's argument that the term "when" in the phrase "calculating . . . when the animal may be released" refers to the point in time at which release is first permitted.

Invoking the doctrine of claim differentiation, Micro Chemical argues that the clause "when the animal may be released" cannot be interpreted as being equivalent to the phrase "earliest permitted release date," because the latter phrase is used in several dependent claims, which would otherwise be identical to the claims from which they depend. The answer to that argument is that the dependent claims add limitations other than the reference to the "earliest permitted release date." Those claims are thus distinguishable from the independent claims without the need to rely on a difference between the clause "when the animal may be released" and the phrase "earliest permitted release date." For example, dependent claim 8 differs from independent claim 1 in that claim 8 requires that the computer compare an animal's earliest permitted release date with the date that the animal is scheduled to be shipped from the feedlot, while claim 1 requires only that the computer calculate when the animal may be released from the feedlot.

Finally, Micro Chemical relies on the prosecution history of the '505 patent to support the district court's claim construction. In particular, it points out that, late in the course of the prosecution, the clause "when the animal may be released" was substituted for the phrase "the earliest permitted release date" in each of the independent claims. That change, Micro Chemical argues, must be regarded as broadening the claims so that they required only that "some withdrawal-related calculation be made."

While the claims as amended may be somewhat broader than they were before the amendment, in that they do not require the calculation of the exact date of permitted release, we find no support for Micro Chemical's assertion that the amendment broadened the claims so much that they would require only that "some withdrawal-related calculation be made," or that the system identify "some date or period of time after the drugs administered to the animal have cleared the animal's system," as Micro Chemical argues. When the claim language was changed, Micro Chemical's patent counsel described the adoption of the "when the animal may be released" clause, along with other changes made at the same time, as designed simply to "clarify [the] coverage." Because the revised claim language does not support Micro Chemical's proposed construction, we are satisfied that the term "when" refers to the beginning of the period in which the animal may be released from the feedlot, which is contrary to the claim construction adopted by the district court.

The dispute between the parties concerns only the meaning of the term "when" in this claim term. Briefly, Defendant contends that in the context of this claim term, the word "when" is used to explain that ticket transfer is completed instantaneously after the ask price equals the bid price. Defendant's construction for this claim term is almost exclusively dependent upon the Court accepting Defendant's proposal that the claims be limited to "exchange type" sales formats.
However, as explained above, the Court declines to limit the claims to "exchange type" formats. The Court will thus not adopt Defendant's proposed construction.

Defendant acknowledges "that 'when' can be either a signifier of causality or proximity in time." (D.I. 57 at 16 (citing Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250-51 (Fed. Cir. 1998).) Likewise, the Federal Circuit has explained that "when" has several meanings and that the particular meaning that prevails depends upon the context. Renishaw, 158 F.3d at 1250-51. Here, the specification explains that "exchange type" transactions are distinguishable from "auction type" formats because, in the former, "sales are made instantaneously when a bid price equals an ask price for a ticket." '809 patent at 4:44-50. Thus, the specification identifies embodiments where transactions are completed the moment a bid price equals an ask price and embodiments where the sale is made at some point after the bid price equals the ask price. In view of this evidence, the Court concludes that the term "when" should be understood broadly, as Plaintiff contends. Accordingly, the Court will construe the claim term "completing a transfer of the paperless tickets when the bid price equals the ask price and the ask quantity is equal to or greater than the bid quantity" to mean "transfer of the paperless tickets is completed at, during, or after the time that the bid price equals the ask price and the ask quantity is equal to or greater than the bid quantity."

1. The "When" Limitation

Zi argues that the district court erred by construing the claim limitation "causing the display means to display the shape of a character . . . when the code numbers entered by the entering means uniquely identify said character" as requiring that the system wait until a unique code is entered to display a character for selection. '352 patent, col. 21, ll. 27-29 (emphasis added); Zi, slip op. at 5-6. According to Zi, the district court applied an incorrect temporal limitation to the claim term "when" by improperly importing limitations from the written description and misconstruing the prosecution history. Zi proposes that the word "when" should be construed to mean "at or during the time that" or "at any and every time that" such that a character is displayed at the time it is uniquely identified. Zi also argues that the court's interpretation excludes two of Zi's preferred embodiments from the claims, i.e., the duplication and compound character features, and results in an inconsistency between claim 1 and dependent claims 7 through 9.

Tegic responds that Zi's proposed broad claim construction is not supported by the written description and prosecution history. In particular, Tegic points to Zi's assertion during prosecution of patentability over Wong's U.S. Patent 4,505,602, in which Zi stated that characters are displayed "as soon as" they have been uniquely identified. Applicant's Resp. to Second Office Action, at 7. According to Tegic, construing the term "when" as broadly as "at any time that" would ignore a critical temporal distinction between Wong and the claimed invention. With respect to the embodiments that Zi asserts display characters before unique identification, Tegic responds that the patent teaches the minimization of the duplication embodiment, which is therefore not within the scope of the claims. Tegic also argues that the duplication embodiment occurs only when unique identification is impossible and therefore does not occur "before" unique identification, a non-event in this context. As for the compound characters embodiment, Tegic argues that compound characters are not displayed until they are in fact uniquely identified and as such are consistent with the district court's narrow claim interpretation.

In interpreting claims, a court "should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vptronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2D (BNA) 1573, 1577 (Fed. Cir. 1996). "The words of a claim are generally given their ordinary and accustom meaning, unless it appears from the specification or the file history that they were used differently by the inventor." Carroll Touch, 15 F.3d at 1577, 27 U.S.P.Q.2D (BNA) at 1840. Furthermore, independent claims should be construed consistently with the claims that depend from them. Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1445, 43 U.S.P.Q.2D (BNA) 1837, 1841 (Fed. Cir. 1997).

We agree with Zi that the district court interpreted the term "when" too narrowly by requiring that the claimed system "wait until the unique code is entered to display the appropriate character for selection." Zi, slip op. at 5-6 (emphasis added). Under the district court's interpretation, the system cannot display any character that might be the target character unless and until the operator enters code numbers that uniquely identify that character.
The written description does not support this interpretation. The district court referred, inter alia, to the caption to Figure 10 to justify its narrow reading. Zi, slip op. at 6; '352 patent, Fig. 10 ("Keystroke entry continues until the character itself is identified on the 13th stroke. It then appears in the 'pending' area and will be moved to the text line by the space bar, if the operator accepts it as correct.") (emphasis added). However, Zi is correct in asserting that the claims should not be limited by the embodiment described in Figure 10, especially in light of other embodiments of the invention that display candidate characters before unique identification. See, e.g., Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347, 49 U.S.P.Q.2D (BNA) 1199, 1203 (Fed. Cir. 1998) ("[A] court may not import limitations from the written description into the claims.") (citations omitted).

Tegic points to another discrete statement from the specification to support a narrow claim construction:

Controller 24 identifies each stroke entered with a code number, and determines from a comparison of the string of code numbers entered to strings stored in storage 26 whether a particular character has been uniquely identified. Once this happens, such character is retrieved from the shape storage 28 and displayed in the pending character area 52 on the display screen of monitor 30.

'352 patent, col. 12, ll. 8-15 (emphasis added). That description, according to Tegic, temporally limits the claims to read only on those devices displaying characters after unique identification. We disagree. We read that statement as meaning only that a character must be displayed at the time of unique identification. The "comprising" transition term of the claim opens the claim to covering systems in which characters are displayed at different times according to different retrieval and display protocols, as long as the claimed retrieval and display features are present in such systems. The specification itself describes embodiments in which target characters are displayed for selection before they are uniquely identified.

One such embodiment addresses the problem of duplication, which occurs when a string of entered code numbers corresponds to more than one character. To solve this problem, the specification states:

The most commonly used of these [duplicate] characters will be sent to the screen on monitor 30; at the same time one or more less commonly used alternative characters are shown in parenthesis alongside the most commonly used character so that the operator can make a choice by a single keystroke.

'352 patent, col. 16, ll. 14-20. Two candidate characters are thus displayed for selection before unique identification; the operator then selects the target character for display in the text field. Although Tegic correctly points out that unique identification by a string of code numbers is impossible when a string identifies more than one character, we understand the duplication embodiment to do exactly what Tegic asserts is outside the scope of the claims--it displays a candidate character before unique identification--even if unique identification by a string of numbers never occurs.

We reject Tegic's argument that the claims do not cover embodiments displaying candidate characters because the patent teaches that duplication is a problematic feature to be minimized and it occurs less than 0.5% of the time in its preferred embodiment. '352 patent, col. 16, l. 50. Even if the patent tries to minimize duplication, the "problem" is a result of the claimed invention and the claims should not be construed to exclude its solution, as taught in the written description. We recently rejected a similar argument in Northern Telecom Ltd. v. Samsung Electronics Co., 215 F.3d 1281, 1293, 55 U.S.P.Q.2D (BNA) 1065, 1073-74 (Fed. Cir. 2000). Samsung argued that a statement in the written description that ion bombardment should be reduced or avoided specifically excluded ion bombardment from the scope of the claims. We disagreed:

Indeed, wholly contrary to Samsung's view, that sentence clearly contemplates that ion bombardment may be present in the claimed process, but states that the patentees prefer that it be reduced or eliminated. In other words, the low level of ion bombardment in conjunction with the claimed plasma etching is plainly a preferred embodiment . . . .

Id. Similarly, the statement in the specification that duplication should be minimized contemplates that duplication--and its concomitant display of candidate characters not uniquely identified--is inherent in the claimed system.

Another embodiment displaying a candidate character before unique identification of the target character relates to compound characters, which have a specific meaning created by the conjunction of two or more individual characters. '352 patent, col. 5, l. 65 to col. 6, l. 2. Dependent claims 7 through 9 relate to such a system using compound code strings that
will display a candidate character according to character context information in the database. For example, the characters for "electricity" and "child" mean "electron" when combined. In practicing the claimed invention, when the first string of numbers for "electricity" has been entered and the character displayed, the user need only input two of the three code numbers necessary to uniquely identify the next character for "child" before it appears on the screen for selection. If this candidate "child" character is the target character, the user can select it without entering all three code numbers normally required for unique identification of "child." If "child" is not the target character, i.e., "electron" is not the target compound character, the operator may continue entering code numbers, the candidate compound character for "child" will disappear, and the target character desired after "electricity" will be displayed when it has been uniquely identified according to claim 1. See '352 patent, col. 11, ll. 14-31; col. 16, ll. 1-8.

Tegic asserts that the claimed compound characters are displayed only after they are uniquely identified, in accordance with the district court's claim construction, because the later character in the compound is displayed when the sequence of code numbers matches the string for the compound character. '352 patent, claim 7, col. 22, ll. 4-9. Nonetheless, this embodiment of the invention displays candidate compound characters before they are uniquely identified according to the limitation described in claim 1 for identifying characters individually. If the user's target character is not the displayed compound character, then the compound character disappears and the target character will be displayed at the time it is uniquely identified in accordance with claim 1.

The district court did not take into consideration in its analysis the duplication and compound features of the claimed invention. It stated that "there is nothing in the claims, the specification, or the prosecutorial history to suggest that [the applicant] contemplated, much less invented, a system that was capable of identifying desired characters before a unique code was entered." Zi, slip op. at 6. We disagree. The duplication and compound string features in the '352 patent clearly describe a system capable of identifying and displaying candidate characters before unique individual identification.

We thus construe the term "when" as requiring only that a character be displayed at the time it is uniquely identified, an event that must occur sooner for those characters with trimmed codes than for those characters with untrimmed codes. This construction of the term "when" avoids reading the claims to exclude the preferred embodiments for duplication and compound character context data. It preserves the consistency of claims 7 through 9 with claim 1.

Tegic argues that statements made during prosecution to distinguish the Wong patent limit the claims to systems that wait to display a character until a uniquely identifying code string has been entered for that character. Wong teaches a method with "untrimmed" codes that displays an operator's desired character when the operator has entered in the full sequence of numbers corresponding to each pen stroke. See col. 11, l. 26 to col. 12, l. 1-25. During prosecution, Zi stated:

Wong does not function in the same way to produce the same results as the different elements of claim 1. The different elements of claim 1 cause characters to be displayed as soon as the characters have been uniquely identified. This happens when the user is inputting characters whose strings of code numbers are shorter than the number of strokes in the characters.

Applicant's Resp. to Second Office Action, at 7 (emphasis added). We do not agree with Tegic that the district court's temporal distinction is necessary to distinguish the claimed invention from Wong. To the contrary--the court's reading of "when" as "wait until" in no way distinguishes over that patent. Wong never displayed candidate characters before unique identification; rather, it only displayed characters after they had been identified with a full code sequence. See Wong, col. 11, l. 26 to col. 12, l. 25.

The statement made during prosecution that "the different elements of claim 1 cause characters to be displayed as soon as the characters have been uniquely identified" must be construed in light of the statement immediately following: "This happens when the user is inputting characters whose strings of code numbers are shorter than the number of strokes in the characters." For the claimed invention, the triggering event of "unique identification" usually (but not always) occurs sooner than in Wong, because, for some characters, a partial code string will trigger the event of unique identification when only one possible character corresponds to the partial string. In Wong, the entire code string must be entered for all characters to trigger unique identification and display of the target character. See id. Thus, the statement that the characters of the patent are displayed as soon as they have been uniquely identified distinguishes the invention from Wong because unique identification generally occurs before it does in Wong and the characters appear before they would appear in Wong.

The specification supports this interpretation: "Where uniqueness is established at an earlier point . . . controller 24 causes
the character to be displayed at the monitor 30 even before the entry of the entire string of code numbers for such character is completed." '352 patent, col. 10, l. 66 to col. 11, l. 3. The temporal limitations imposed by the specification and the prosecution history require only that the unique identification and display of characters occur sooner for the claimed invention than for other systems with full-length codes.

We also reach our conclusion by considering what "characters" were referred to by Zi during prosecution to distinguish over the Wong patent: "The different elements of claim 1 cause characters to be displayed as soon as the characters have been uniquely identified." Applicant's Resp. to Second Office Action, at 7 (emphasis added). The characters referred to with emphasis cannot logically include all characters, including candidate characters not yet uniquely identified, in the context of the sentence referring to display of uniquely identified characters. The statement should not be read to exclude systems that display candidate characters--characters that have not been uniquely identified--prior to the triggering event of unique identification. Such a limitation would read out preferred embodiments from the scope of the claims and render claim 1 inconsistent with claims 7 through 9, which depend from it.

We finally note that Zi distinguished the invention over Wong on an additional basis during prosecution. In response to a rejection for anticipation over Wong, the '352 applicant first stated that "for all the characters in the collection, the order of the code numbers in the string is the same as the predetermined writing sequence of strokes so that the string always begins with a code number for the first stroke of the predetermined writing sequence and follows the sequence without interruption until the end of the string." Applicant's Resp. to Second Office Action, at 5. In contrast, Wong's encoding scheme employs exceptions to the traditional writing order sequence. Thus, the claimed invention is distinguishable over Wong in more than one respect. The validity of the '352 patent over Wong does not require Tegic's proposed narrow construction.

12. "SPNAN receives said first responsive information when the first user has reconnected the first network accessible node to the network" ('702 patent)

<table>
<thead>
<tr>
<th>Beneficial's Proposed Construction</th>
<th>Defendants' Proposed Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>No construction is necessary (except for the individual terms that will be separately construed).</td>
<td>&quot;SPNAN receives the first responsive information at the time that the first user reestablishes the ability of the first network accessible node to communicate with the communications network&quot;</td>
</tr>
</tbody>
</table>

Alternatively, "SPNAN receives said first responsive information when the first user has established a subsequent different network connection between the SPNAN and the first network accessible node"

The Court finds that Defendants' proposed construction of the term "when" to mean "at the time that" is consistent with its meaning in the context of the '702 patent. Further, Beneficial acknowledges that Defendants' proposed construction of the terms "when" and "reconnect" are consistent with the ordinary meaning in the context of the '702 patent. Claim 53 explicitly requires that the SPNAN receive the first responsive information when the first network accessible node is reconnected to the network. Thus, the Court rejects Beneficial's proposal to substitute the term "network" with the term "SPNAN." Further, the claim language implies that the network accessible node is actually reconnected with the network, not that the node merely has the ability to connect to the network as Defendants propose. Thus, the Court construes the phrase "SPNAN receives said first responsive information when the first user has reconnected the first network accessible node to the network" to mean "SPNAN receives said first responsive information at the time that the first user reestablishes a subsequent different network connection with the communications network."
Both patents also refer to "when the market changes." Patent '304's claims 1 and 27 use the term, claiming: "displaying the bid and ask display regions in relation to fixed price levels positioned along the common static price axis such that when the inside market changes, the price levels along the common static price axis do not move and at least one of the first and second indicators moves in the bid or ask display regions relative to the common static price axis." Patent '132's claim 14 states: "(A) display device for displaying market depth of a commodity, through a dynamic display of a plurality of bids and a plurality of asks in the market for the commodity, including the bid and ask quantities of the commodity, aligned with a static display of prices corresponding thereto, wherein the static display of prices does not move when the inside market changes...." Although we do not view the parties' constructions as diametrically opposed to one another, we accept plaintiff's construction. "When the market changes" is construed as "at the time that new data reflecting a change in the inside market is received." Plaintiff, and this construction, recognizes that "when" is not synonymous with "instantaneously." Rather, "when" encompasses the concept that the update will not appear on the trader's screen until the software and/or computer receives, processes, and displays the new market information.

2. "whenever" (1[\[b\]], 11[p.3])

(i) Claim Construction

Two issues arise regarding interpretation of the word "whenever" in claim 1 and claim 11 of the '903 Patent: (1) whether claim 1 includes the situation where a condition to enable a vend will not be established, even if there is sufficient credit for the selected product, until the selection switch has been actuated for a sufficient time, and (2) whether claim 1 and claim 11 include the situation where the means under control of the accumulator will not establish a condition to enable a vend operation to take place until a product selection switch has been actuated and additional logic is satisfied. Coinco argues that the word "whenever" should be construed to allow for a determination that the selection switch has been actuated for a sufficient time and that the accumulator's logic to establish the condition may also include actuation of the product selection switch and any additional logic. Mars argues that "whenever" must exclude the situation where a determination must be made that the product selection switch has been actuated for a sufficient time and that the accumulator's logic to establish a vend condition may not include a test for the actuation of a product selection switch and additional logic.

(a) "whenever" does not require the selection switch to be actuated for sufficient time

The Court finds that the language of the claim itself and of the claim in light of the specification does not state any limitation on the length of time that the select switch must be held prior to the establishment of a condition enabling a vend operation. Claim 1 of the '903 Patent describes "means under control of the accumulator whenever an amount accumulated at least equals the amount of a selected vend price for establishing a condition to enable a vend operation to take place." '903 Patent col. 8, lines 28-32.

(b) "whenever" does not permit the output signal to depend upon other logical requirements

The Court also construes the "whenever" language in both claim 1 and claim 11 as a limitation that requires the accumulator to produce an output signal at every time when the amount accumulated exceeds a set price; the output signal may not depend upon any other logical requirements. n24 The claim language does not suggest that any other logic may play a part in determining whether to assert the accumulator's output; in fact, "whenever" appears to exclude other logical requirements. The specification confirms this view:

The selection monitor circuit 58 is constructed so as to be able to establish a circuit condition which has a control effect on the operation of the relay 45. This control effect causes the AND gate 63, when the change maker 56 has sufficient accumulation, to be able to energize the vend relay 45 . . . .

'903 Patent col. 4, line 65 - col. 5, line 3. Again, the only requirement prior to an accumulator output signal is that the accumulator "has sufficient accumulation," which is not related -- in either the claim language or the specification -- to the actuation of a product selection switch and other logic. n25 The '903 Patent's language prohibits any other logical test prior to asserting the accumulator's output.
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Claims 21 and 22 are at issue. Claim 21 follows, showing in bold typeface the terms whose construction was in dispute:

21. A method of messaging among at least two remote user terminals ("RUTs") in addition to a host computer ("Host") that uses communication software and hardware to connect to a communication network that supports asynchronous transport mode and serial data transmission, said Host serving as a central messaging information center that provides a plurality of RUTs with data in an integrated application program interface ("IAP") that coordinates the operation for said Host's other sub-systems that comprise a programmable application ("PA") supporting IAP menu functions, system commands, and store-and-forward messaging, an index system reflecting at least one published index that divides broad economic activity into mutually exclusive numbered topics that are used routinely in public and private sectors, a memory configured to correspond to said index system using an operating system, said PA's configuration editor for storage, and PA files, and said method comprises the steps of:

storing in said Host's memory, file capacity calibrated to each subdivision of said index system;

modifying said Host's memory, using said PA to store in a complete series those topic boards identified by multiple-digit numbers that match all multiple-digit numbers in said index system;

storing inside said IAPI sufficient logical progressions of menus with commands for a user at any of said plurality of RUTs to select from said topic boards and enter a topic board matching an index number therein by entering input associated with said index number;

and establishing communications over said network between said Host and said plurality of RUTS to enable said PA to control said Host's processing of said RUTs's commands, and transmit over multiple lines messages and data on a selected topic board;

whereby a trade network supports users at said plurality of RUTs who are each guided by said IAPI to select an economic activity, to identify that index topic that corresponds to said activity, to enter that topic board dedicated to said topic, and who are collectively able to concurrently engage in interactive data messaging on said topic boards.

Mr. Hoffer challenges the district court's construction and definition of several claim terms. We review only the construction of the "whereby" clause, for the "interactive" limitation therein suffices to support the district court's finding of noninfringement.

The "Whereby" Clause

Mr. Hoffer states that the district court erred in holding that the "whereby" clause limits the claims, pointing out that the Federal Circuit has held that "a whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited." Minton v. NASD, 336 F.3d 1373, 1381 (Fed. Cir. 2003). It is correct that a "whereby" clause generally states the result of the patented process. However, when the "whereby" clause states a condition

n24 Claim 11 has similar language to claim 1: "means for producing an accumulator output signal whenever the amount accumulated therein at least equals the price of a selected vend." '903 Patent col. 9, lines 52-54.

n25 Indeed, the structure of every patent listed as a potential accumulator, including the '255 Patent, has a hard-coded value for what constitutes "sufficient accumulation." Therefore, these accumulators may assert an output indicating sufficient accumulation regardless of the actuation of a product selection switch. Mars' U1 microprocessor does not use a hard-coded value, but only learns that value upon actuation of a product selection switch.

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that is material to patentability, it cannot be ignored in order to change the substance of the invention.

Mr. Hoffer proposes that with elimination of the "whereby" clause, claim 21 would not require that the network have the capability of interactive data messaging among users of the system. He explains that collaborative messaging between two or more users may indeed be implemented by adaptation of known sub-systems to his multimode messaging and conferencing on indexed topics of trade, but that interactive messaging is not required by his invention. He argues that since the whereby clause does not state the mechanics of how to update topic board files or store menu files for navigation, or show what enables host programmable applications to transmit to network services, the whereby clause simply describes the overall objective but does not limit the claim to interactive data messaging.

The district court held that such a construction would be contrary to the fundamental invention, which the specification describes as interactive data messaging. The whereby clause describes a network of users at multiple remote user terminals who are "collectively able to concurrently engage in interactive data messaging." This capability is more than the intended result of a process step; it is part of the process itself. This interactive element is described in the specification and prosecution history as an integral part of the invention. The "Summary of the Invention" recites that "from a remote terminal, the user would enter selected topic boards on a Host Terminal System ('Host System') to address messages to, and receive messages from, other intended users." Col. 6, lines 64-67. Thus, the users communicate with each other. The prosecution history is in accord. Mr. Hoffer points to an amendment during prosecution which made the disclaimer that "newly added [patent claim 21] is an independent method claim . . . that satisfies the Examiner's Statement by solely teaching methods distinct from real-time messaging." Amendment, September 29, 1997. However, there is a difference between real-time messaging and interactive messaging, which can occur in real time or asynchronously.

We confirm the district court's construction of the "whereby" clause as requiring interactive data messaging, and that claim 21 is thereby limited to a method that provides interactive data messaging.

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a. "Whereby" Clause

Plaintiffs dispute that the clause "whereby data may be selectively transmitted to and received and stored by a remote object only after such remote object has been identified as the correct remote object to receive such data" has been met in the accused products for claims 1 and 4-6. Plaintiffs argue that the accused systems do not infringe the '807 Patent claims because the Plaintiffs' scanner (or interrogator) sends data to a tag both prior to and after identifying the correct tag. In addition, Plaintiffs contend that the accused scanners transmit data to all tags within its range, regardless of whether the scanner has information for that particular tag. Citing to witness deposition testimony, Plaintiffs conclude that contrary to the claim limitations of the '807 Patent, data is transmitted to both correct and incorrect tags.

TransCore, citing to Lockheed Martin Corp. v. Space Systems/Loral, Inc., 324 F.3d 1308 (Fed. Cir. 2003), first responds that the "whereby" clause, although construed by the Court, is not a limitation. Lockheed Martin is inapposite to the facts in this case. In Lockheed, the Federal Circuit found that it was error to consider a "whereby" clause, which merely explained the function of a "means for" clause, since the whereby clause "merely state[d] the result of the limitations in the claim." Id. at 1319. The instant claim in the '807 Patent is not a "means plus function" claim, as was the case in Lockheed Martin. In addition, the whereby clause in the '807 Patent adds additional structure, i.e. limitations, to the claim by further explaining that the data may be selectively transmitted, received and stored to the correct remote object only after it has been identified. As such, TransCore's argument regarding the whereby clause's non-limitation status lacks merit.

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4 Alternatively, the Court also finds that TransCore is estopped from presenting arguments regarding the non-limitation status of the whereby clause in light of previous representations to the contrary. As pointed out by Plaintiffs, TransCore argued in its opposition for invalidity that the "whereby" clause has structure and therefore should be so construed. Accordingly, TransCore is barred from taking an opposing stance in its brief. See Lewmar Marine, Inc. v. Barent, Inc., 821 F.2d 744, 747 (Fed. Cir. 1987).

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TransCore also asserts that Plaintiffs are incorrect in their interpretation of the whereby clause. TransCore specifically argues that the '807 Patent system must at the initial stages inherently send data to all tags that are within range of the RF signal emanating from the interrogator. TransCore points to testimony from Plaintiffs' technical expert that Plaintiffs' system operates in this manner. TransCore states that this Court's claim construction supports its argument when it construed the whereby clause as "the interrogator may selectively transmit, receive and store data to a remote object only after the remote object has been identified as the correct remote object to receive data from the interrogator", i.e. that in order for the remote object to store data to a remote object from an interrogator that has transmitted and received a signal from the same remote object, the correct remote object must first be identified. Thus, TransCore argues that even where incorrect remote objects receive data from an interrogator, such systems would fall within the scope of the claims as long as the interrogator cannot store data to these incorrect remote objects.

The parties, therefore, have a dispute as to the meaning of this Court's claim construction of the whereby clause. This Court, in construing the whereby clause, specifically responded to Plaintiffs' argument that "no data transmitted by the interrogator is stored by the remote object unless and until the remote object has transmitted its entire identity data to the interrogator" by stating that the "plain and ordinary meaning" of the claim refutes their construction. See Doc. No. 211 at 19. Similarly, the plain and ordinary language of this Court's construction of the whereby clause also goes against Plaintiffs' interpretation. This Court construed the whereby clause to mean "whereby the interrogator may selectively transmit, receive and store data to a remote object" only after the interrogator identifies the correct remote object. Id. (emphasis added). The presence of the conjunctive term "and" indicates that the interrogator performs all three functions, i.e. transmits, receives and stores data, only after the correct remote object has been identified by the interrogator. As such, whether an interrogator transmits data but does not store the information to the tag is irrelevant to the infringement analysis, and therefore does not take Plaintiffs' accused device outside the scope of the '807 Patent claims. Accordingly, Plaintiffs' argument lacks merit regarding the whereby clause.

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G. "Whereby said vehicle is caused to operate in a protocol selected from at least one alternative available in said preprogrammed memory"

This term means that after a program in the preprogrammed memory is sent to the vehicle's ECM, the vehicle is caused to operate according to the alternate program now residing in the preprogrammed memory. The vehicle must be responsive to the act of selecting a program while the vehicle is moving or while it is stopped, but otherwise in normal operation.

As discussed above, the inclusion of the "in transit" limitation is required by the language from the Brief Summary of the Invention: "The operation of the vehicle is changed by the control while the vehicle is in transit . . . ." (Id. at col. 2, ln. 43-44).

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4. Claim 1: Element (b): Part (II)

Text:

... whereby the position of the lesion in the ultrasound image can be compared with a position of the lesion in the radiation therapy plan.

'026 Patent, col. 12, ll. 16-19.

NOMOS's Proposed Construction:

The whereby clause of element (b) of claim 1 should be construed to mean that the system must be structured to compare
the position of the lesion in the two dimensional image generated by the ultrasound probe with the position of the lesion identified in the radiation therapy plan.

NOMOS Opening Brief at 12 (quotation marks and citation omitted).

ZMED's Proposed Construction:

The claimed system must be structured to compare (undefined) the position of the lesion in the 2D image which is the direct output of the ultrasound probe with the position of the lesion identified in the radiation therapy plan.

ZMED Opening Brief at 21.

Construction:

The whereby clause of element (b) of claim 1 means "the system must be structured to compare the position of the lesion in the two-dimensional image generated by the ultrasound probe with the position of the lesion identified in the radiation therapy plan."

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D. Ref. No. 59 "Whereby the voting selections marked on each paper ballot are imaged and recorded in accordance with a template corresponding to the jurisdiction identifier for that paper ballot."

This phrase is recited in Claim 1.

According to Defendants' construction of this claim, the voting selections on the ballot are imaged in accordance with a corresponding template and recorded in accordance with the template. Plaintiff construes this term to mean that the paper ballot is imaged and then is recorded pursuant to the identified template. The parties agree that the voting selections are recorded pursuant to the template. The dispute, therefore, is whether the term requires that the voting selections marked on the ballot must also be imaged pursuant to that template.

Comparing Claim 2 with Claim 1's requirements is instructive. Claim 2 provides for a first optical scanner to image the jurisdiction identifier of each ballot and a second optical reader to image the voting selections in accordance with the select template. There is no such language in Claim 1. Moreover, Claim 2 is dependent upon Claim 1, and "[t]he concept of claim differentiation 'normally means that limitations stated in the dependent claims are not to be read into the independent claim from which they depend.'" Nazomi Commune'n, Inc. v. ARM Holdings, PLC, 403 F.3d 1364, 1370 (Fed. Cir. 2005) (quoting Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999)) (alteration added). If Defendants' construction is accepted, Claims 1 and 2 would be identical, and the doctrine of claimed differentiation would be vitiated. Moreover, Path 320a in Figure 8 teaches that the ballot is imaged (Step 321), decoded (Step 323), and then a template is selected in Step 325. After that step, the voting selections are decoded in Step 327 and recorded and stored in Steps 330 and 332. (See Col. 15, ll. 16-31.) This is consistent with Plaintiff's construction of Claim 1 requiring only an imaging step. Claim 1 does not require a second optical reader. The specification of the patent support Plaintiff's construction. The ballots are imaged for the jurisdiction identifier and voting selections, and then a processor receiving the jurisdiction identifier selects a template for recording the voting selections. (Col. 2, ll. 3-10; Col. 15, ll. 2-15.)

For the foregoing reasons, the Court construes the term in Ref. No. 59 as follows:

The voting selections on each paper ballot are imaged and the choices/selections are recorded in accordance with a selected template corresponding to the jurisdiction identifier for that paper ballot.

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H. "Wherein a Credential is Previously Issued"

The court shall apply the ordinary definition this term. Thus, the term "previously issued" shall be construed to mean "existing or occurring prior to something else in time or order." 4 The preamble of claim 20 (from which claim 27 depends) of the '541 patent states that "a credential is previously issued to at least one of the parties." Thus, the credential must be issued prior to the steps of the claim. 5 The term "wherein a credential is previously issued" shall be construed to mean "the credential referenced in the claim must already be issued before the execution of the steps recited in the claim."

--- Footnotes ---


5 Plaintiff argues that the credential cannot be issued before step one of claim 20 because step one creates the VAN which is included on the credential. Step one of the claim does not state, however, that this is the first time the VAN is created. The patent specifically discusses re-creating the VAN to compare with the VAN from the credential to authenticate the credential. ('541 patent, col. 13, ll. 24-28) This is consistent with the claim language describing a method for securing information.

--- End Footnotes ---

D. "Wherein All the Selected Portions of Said Information Database in Each Tier Are Transmitted at a Corresponding Repetition Rate."

This term is closely tied to the "prioritized system of tiers" construed above. Claim 16 recited "said scheduling step including dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate, wherein the repetition rate for higher priority tiers is higher than the repetition rate for lower tier" (21:51-59). For this term, Comcast urges that the "selected portions" refer to "the part of the database that is scheduled for transmission, which is less than all of the database." It further proposes to limit the term to indicate that "[a]ll of the information in each tier is transmitted at a single repetition rate." Finisar proposes that the term should be defined as "transmitting the selected portions in each tier at a chosen repetition rate." 4

--- Footnotes ---

4 As noted above, the Texas Court construed this term together with "a prioritized set of tiers." It held that "dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" to mean "placing each part of the information database selected for transmission into one or more groups of information, and transmitting each group at a chosen repetition rate" (Melgar Decl. Exh. B at 12).

--- End Footnotes ---

Claim 16 itself demands that each individual tier be transmitted at a single repetition rate because "all the selected portions of said information database in each tier" have the same repetition rate. This does not mean that the repetition rate for a tier itself cannot be changed to meet the publisher's or provider's needs. For instance, the specification taught that the "particular repetition rates associated with each tier of data and the amount of data allocated to each tier are selectable parameters that will be carefully considered in order to maximize utility of the system to the most subscribers" (col. 14:34-41). For example, during the middle of March of any given year, the provider anticipates a sharp uptick in interest in information about college basketball. The provider places those portions of the database in a higher tier with a more frequent repetition rate. By mid-April, there is less demand for that information, and thus the provider reduces the repetition rate.

Comcast also proposes that the entire database cannot be placed in a single tier. The term itself indicates that "selected portions" of the database are sent at a given repetition rate within a tier. The specification taught that "while a user has
access to perhaps a terabyte, or even 100 terabytes or more, of data, the total amount of data that systems in accordance with the present invention system can transmit in any one day is much more limited . . ." (col. 2:9-13). The aim of the invention was to give subscribers access to a very large amount of information using a relatively modest amount of bandwidth. This was to be done by sending only the data that a subscriber wanted from a virtually omniscient database. Finisar argues that "selected portions" could mean that all portions of the database are selected for a single tier, but it finds no support for this view in the patent. Were the invention able to send all the information in a single tier, there would be no need for the system of indices for accessing parts of the database, or the system of tiers for sending the information at different repetition rates.

Accordingly, the term "wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate" is construed as transmitting the selected portions of the database within a tier at a single, chosen repetition rate, wherein the selected portions per tier are less than the entire database.

Through trial and on appeal, the parties have narrowed the disputed issues of validity to a single point of contention--the placement of the load balancing software at either the DNS servers or the origin server. Therefore, our initial focus in the anticipation analysis is on the construction of claims 1 and 3, in particular whether claims 1 and 3 require the presence of load balancing software at the DNS servers. The issue before us is thus a relatively self-contained one. On the one hand, if claims 1 and 3 require load balancing at the DNS servers, the claims are not anticipated. On the other hand, if the claims do not require this limitation, they are anticipated by the '598 patent.

The only disputed limitation of claims 1 and 3 reads:

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and the embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers.

'703 patent, col. 17, ll. 31-37 (emphases added).

Claim 3 is dependent upon independent claim 1 and includes the following additional limitation.

3. The hosting framework as described in claim 1 further including a redundant second level name server.

Id., col. 17, ll. 40-41.

Akamai contends that the '598 patent differs from claims 1 and 3 of the '703 patent in the placement of the load balancing software. Indeed, in its brief on appeal, Akamai stated:

The significant difference between the prior art '598 patent and the '703 patent claims on appeal was acknowledged and admitted by everyone throughout the trial. . . . In particular, C&W counsel told the jury the difference involves the fact that selection of the best computer server to deliver the embedded objects of the web page is done in the '598 prior art patent by "software . . . located at the origin server" whereas selection of the best computer server to deliver the content is done in the '703 patent "by software located at the DNS . . . ."

C&W argues that the location of the load balancing software is not a limitation in claims 1 and 3, and in the alternative, that while the '598 patent does not explicitly disclose the placement of load balancing software at the DNS servers, it is nevertheless inherent in the Internet and the '598 patent.

We agree that claims 1 and 3 do not include a load balancing limitation. While the written description unquestionably contemplates the preferred location of the load balancing software, claims 1 and 3 do not expressly require its presence. To support its reading of independent claim 1, Akamai points only to the term "identifying" in the "wherein" clause of claim 1 which states:

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and the embedded object identified by the modified
embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers.

This language, however, requires only that the embedded object is "identified by the modified embedded object URL" and is "served from a given one of the content servers as identified by the first and second level name servers." The plain meaning of the claim language does not require any load balancing mechanism. Instead, it simply requires the embedded object to be served from "the content servers as identified by the first and second level name servers." Load balancing, if required at all, could be at either the DNS servers or the content provider server. The ordinary meaning of the term "identifying" in claims 1 and 3 covers standard DNS resolution, without any sort of load balancing. Absent evidence that a "patentee unequivocally imparted a novel meaning to [the] term[] or expressly relinquished claim scope during prosecution," we give the limitation its full ordinary and customary meaning. Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003); Teleflex, Inc. v. Ficsa N. Am. Corp., 299 F.3d 1313, 1325-26 (Fed. Cir. 2002); CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366-67 (Fed. Cir. 2002); Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998) ("Absent a special and particular definition created by the patent applicant, terms in a claim are to be given their ordinary and accustomed meaning.").

The only question that remains is whether the written description or the prosecution history unequivocally shows that the inventors imparted a novel meaning to the term "identifying" to include load balancing. Omega Eng'g, 334 F.3d at 1323; Teleflex, 299 F.3d at 1325-26. The written description does not specifically define the term "identifying." Rather, the discussion with respect to load balancing focuses on the DNS servers as performing "special functions," e.g., load balancing functions, without any reference to the term "identifying." See, e.g., '703 patent, col. 9, ll. 31-48. Similarly, the parties have pointed to nothing in the prosecution history with respect to the term "identifying." Akamai's only evidence that supports its special definition of the term "identifying" is the testimony of one of the inventors, Mr. Farber, of the '598 patent. Mr. Farber stated that: "the DNS in our system are a little different because we did the step of identifying . . . which repeater should be used by the browser as part of the, using [sic] the HTTP method instead of the DNS method." 3 This extrinsic evidence is not the unequivocal evidence, Omega Eng'g, 334 F.3d at 1323, indicating the term "identifying" should take anything other than its ordinary and accustomed meaning. While this possibly suggests that the inventors believed the "identifying" step included a load balancing function, "what the patentee subjectively intended his claims to mean is largely irrelevant to the claim's objective meaning and scope." Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1379 (Fed. Cir. 2000). It is also not testimony that clearly supports the proposition that the term "identifying" has a special meaning to one of ordinary skill in the art.

3 The "HTTP method" refers to placement of the load balancing software at the origin servers responsible for providing the HTTP container page.

Thus claim 1, as properly construed, does not include the limitation of the placement of the load balancing mechanism. The parties agree that the '598 patent discloses all the remaining limitations of claim 1. Because claim 1 does not require exact placement, it is therefore invalid as anticipated by the '598 patent.

Claim 3 similarly does not require placement of the load balancing software at the DNS servers. Claim 3 only includes the additional limitation that the hosting framework as described in claim 1 further includes "a redundant second level name server." On appeal, Akamai's primary argument echoes that of claim 1, namely that the load balancing software is located at the DNS servers. Akamai's only separate argument with respect to claim 3 is that "because [the] '598 patent did not even mention hierarchical DNS (i.e., more than one level), clearly the jury was entitled to reject the notion that [the] '598 [patent] also anticipated claim 3." This additional argument, however, fails to address C&W's contention that hierarchical DNS is inherent in any Internet system. Indeed, C&W proffered documentary evidence and testimony at trial that redundant domain name servers are inherent in any Internet-based application. See Dayco, 329 F.3d at 1369. Akamai points to no evidence whatsoever that contradicts the evidence presented to the jury at trial. Accordingly, we hold that any inference in favor of Akamai relating to the redundant second level server in claim 3 is unsupported by substantial evidence. The addition of a redundant second level DNS server does not save the validity of dependent claim 3. Claim 3 is therefore also invalid under 35 U.S.C. § 102 as anticipated by the '598 patent. 4
Judge Newman in her dissent specifically points out that the issue of anticipation is a question of fact. Claim construction, however, is a question of law. Before the factual question of anticipation may be addressed, a court must first properly construe the claims before it. Here, claims 1 and 3 were not properly construed by the district court. Therefore, a necessary first step in this court's anticipation inquiry was to properly construe the claims at issue.

Atmel contends that this passage, containing over twenty individual terms, should be construed as a single phrase. See Def.'s Second Brief at 48. Initially, the Court notes that the parties do not cite any case law to support the implicit proposition that it is appropriate for a Court under certain circumstances to provide a construction for a passage in the claims which contains such a large number of individual terms, nor do the parties provide any reasons why, even if permissible, the Court should construe this passage as a single phrase.

At the crux of Atmel's arguments regarding this phrase are two specific contentions. The first actually goes to what Atmel contends should be the construction of the individual terms "self-limiting" and "self-limiting thickness." Atmel contends that such terms would have had no independent meaning to a person of ordinary skill in the art. See Def.'s Second Brief at 48. Furthermore, Atmel contends that the patentee chose to be his own lexicographer and to provide clear definitions for these terms in the specification. See Def.'s Post-Hearing Brief at 19. The Court agrees. The specification states:

The self-limiting effect is characterized by a tungsten formation rate at 10 minutes that is less than 10% of the initial equilibrium rate. The self-limiting thickness is the tungsten thickness under these conditions achieved at 10 minutes.

Atmel goes even further, arguing that the claim language in question should be construed as not covering the use of an environment that includes a cold wall reactor in the temperature range of 250 to 600 degrees C. See Def.’s Post-Hearing Brief at 19-20. Atmel apparently contends that this limitation should be read into the claim language in question as a result of the language appearing in the specification immediately before and after the above-quoted language defining "self-limiting effect" and "self-limiting thickness":

Conditions should be chosen such that a self-limiting effect with a self-limiting thickness smaller than the junction thickness is achieved on the silicon prototype wafer in the 250 [degrees] C. to 600 [degrees] C. temperature range. (The self-limiting effect is characterized by a tungsten formation rate at 10 minutes that is less than 10% of the initial equilibrium rate. The self-limiting thickness is the tungsten thickness under these conditions achieved at 10 minutes.) For example,
when a hot wall, e.g., tube reactor … is employed with tungsten hexafluoride and argon, the self-limiting thickness vs. temperature is shown in FIG. 1. Similarly, when a cold wall reactor … is utilized in the temperature range 250 [degrees] C. to 600 [degrees] C. no self-limiting effect is observed and thus under these conditions this reactor should not be employed. ‘672 Patent at col. 3:64 through col. 4:13. However, the specification language pertaining to the unsuccessful use of a cold wall reactor in the temperature range of 250 to 600 degrees C. simply does not appear in the claim language, nor can this purported limitation be understood as being part of a definition of a specific term or phrase in the claim language. Rather, the specification language indicating that a self-limiting effect is not observed using a cold wall reactor in the temperature range of 250 to 600 degrees C. appears to present merely an illustration of conditions that may not produce the desired result. Thus, it would be improper to read this purported limitation from the specification into the claims. See Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1998).

Atmel's second contention with regard to the claim language in question is that 35 U.S.C. § 112, P 6 applies to claim 1, and that, because claim 1 does not satisfy the requirements set forth in 35 U.S.C. § 112, P 6, claim 1 is invalid for indefiniteness. Section 112, P 6 provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, P 6. The word "combination" in this paragraph can include a combination of mechanical elements in an apparatus claim, a combination of substances in a composition claim, or a combination of steps in a method or process claim. See O.I. Corp. v. Tekmar Co., Inc., 115 F.3d 1576, 1582-83 (Fed. Cir. 1997). In combination apparatus claims, a patent applicant can claim a specified function without reciting in the claim itself the structures or materials necessary for performing that function. See id.; Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364, 2003 WL 1725618, at *5 (Fed. Cir. 2003). Such claim limitations are referred to as "means-plus-function" limitations. See Apex Inc., 325 F.3d 1364, 1371, 2003 WL 1725618, at *5. Similarly, in combination method or process claims, a patent applicant can claim a specified function without reciting in the claim itself the acts necessary for performing that function. See O.I. Corp., 115 F.3d at 1583. Such claim limitations are referred to as "step-plus-function" limitations. Apex Inc., 325 F.3d 1364, 1371, 2003 WL 1725618, at *5. Moreover, when an applicant takes advantage of the convenience of employing a "means-plus-function" or "step-plus-function" limitation, such claim is limited to the means or steps specified in the written description, and equivalents thereof. O.I. Corp., 115 F.3d at 1583.

A threshold question is whether § 112, P 6 applies to a particular limitation. Here, there is no dispute that claim 1 is a process claim. In method or process claims, § 112, P 6 "is implicated only when steps plus function without acts are present," i.e., when "an element in a combination method or process claim [is] recited as a step for performing a specified function without the recital of acts in support of the function." O.I. Corp., 115 F.3d at 1583.

Therefore, when the claim language includes sufficient acts for performing the recited function, § 112, P 6 does not apply. Again similar to a means-plus-function analysis, the absence of the phrase "step for" from the language of a claim tends to show that the claim element is not in step-plus-function form. However, claim elements without express step-plus-function language may nevertheless fall within § 112, P 6 if they merely claim the underlying function without recitation of acts for performing that function. Unfortunately, method claim elements often recite phrases susceptible to interpretation as either a function or as an act for performing a function. Both acts and functions are often stated using verbs ending in "ing." … In such circumstances, claim interpretation requires careful analysis of the limitation in the context of the overall claim and the specification.

In general terms, the "underlying function" of a method claim element corresponds to what that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to how the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, i.e., it's underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then § 112, P 6 applies even without express step-plus-function language.

Seal-Flex, Inc. v. Athletic Track and Court Constr., 172 F.3d 836, 849-50 (Fed. Cir. 1999) (J. Rader, concurring).
The Court has considered the threshold issue of whether § 112, P 6 applies to the claim language in question. As stated above, the issue here is whether the language in this combination process claim sets forth an element that is recited as a step for performing a specified function without the recital of acts in support of the function. Atmel argues that the language in question (“wherein said deposition temperature and environment is controlled such that”) contains no guidance as to how the deposition temperature and environment are to be controlled to achieve the self-limiting effect and thickness … . Therefore, despite the absence of ‘step for’ language, the limitation should be treated under § 112, P 6 and construed to cover only the corresponding steps in the specification, and equivalents thereof, for achieving the self-limiting effect and thickness.

Def.’s Post-Hearing Brief at 19. In response to this argument, Agere contends simply that, "because the claim language clearly recites an act -- i.e., controlling the temperature and environment -- Atmel's 'step-plus-function' argument fails." Pl.'s Post-Hearing Brief at 24. Agere also notes that "courts have been extremely reluctant to interpret process claims as employing 'step-plus-function' limitations," citing to Seal-Flex, 172 F.3d at 850 n.5 (Rader, J., concurring). Atmel counters: "The claim implicates § 112, P 6 because the claim does not teach how to achieve the desired outcome by specifying the act; the teaching appears, if at all, only in the specification." Def.’s Post-Hearing Brief at 19 n.12.

The Court agrees with Atmel that § 112, P 6 applies to the claim language in question. During the Markman hearing, the following colloquy transpired between counsel for Atmel and Agere's expert witness:

Q Going back to the claim limitation it says "wherein said deposition temperature and environment is controlled." The claim language doesn't tell you how it controlled the temperature and the environment such that you achieve a self-limiting interaction with a self-limiting thickness less than said junction depth, does it?

A Your question is the claim language does not tell me how to control?

Q Right.

A It tells me that I need to use that temperature and that environment such that the following occurs.

Q What does it tell you, the claim language, about how you control the environment?

A It just simply says that I have to use whatever environment and deposition temperature such that the interaction and so forth occurs.

Q But the claim language doesn't tell you what you're supposed to do to manipulate or vary the deposition temperature in the environment such that you achieve the interaction that is self-limiting with a self-limiting thickness, does it?

A The specification does describe how one would go about or how the inventor suggests one goes about as to obtain those results.

Q So you need to go to the specification to determine how you achieve the result that the interaction is self-limiting with a self-limiting thickness less than said junction depth, correct?

A That's not exactly what I said. I said the specification describes how one finds when interaction would be self-limiting or not. So one can use that to identify how to choose a temperature and environment such that that interaction occurs.

Tr. 12/5/02 at 156-58. Thus, as acknowledged by Agere's own expert witness, and as asserted by Atmel's expert witness, see Tr. 12/5/02 at 225-26, it is only in the specification of the '672 patent that one reading the patent would find the information necessary to allow one to determine the "deposition temperature and environment" that should be used to achieve the desired function. See '672 Patent at col. 3:56 through col. 4:21. Therefore, the Court concludes that although the claim language in question does not include express step-plus-function language, the claim language nevertheless falls within § 112, P 6 because it recites a step (controlling the deposition temperature and environment) for performing a specified function ("such that said interaction is self-limiting with a self-limiting thickness less than said junction depth") without
reciting the acts necessary to perform this step and achieve this function.

Once it is determined that a claim includes a step-plus-function limitation, the Court must then construe the limitation "to cover the corresponding ... acts described in the specification." 35 U.S.C. § 112, P 6; Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc., 145 F.3d 1303, 1308 (Fed. Cir. 1998). In other words, this Court must now turn to the written description of the patent to find the acts that correspond to the step in claim 1 requiring that the deposition temperature and environment be controlled "such that said interaction is self-limiting with a self-limiting thickness less than said junction depth." B. Braun Medical, Inc. v. Abbott Laboratories, 124 F.3d 1419, 1424 (Fed. Cir. 1997).

The Court concludes that the acts in the specification corresponding to this limitation are set forth in the following passage:

The precise conditions suitable for the tungsten deposition vary with reactor design. Appropriate conditions are determined by performing a control sample in the desired deposition apparatus utilizing 1) a precursor composition including only tungsten hexafluoride and argon and 2) a bare silicon prototype wafer that has been subjected to an implant dose equivalent to the total implant does that is ultimately to be employed in the device. Conditions should be chosen such that a self-limiting effect with a self-limiting thickness smaller than the junction thickness is achieved on the silicon prototype wafer in the 250 [degrees] C. to 600 [degrees] C. temperature range.

'672 Patent at col. 3:56-67. However, the Court does not agree with Atmel that the next passage, referring to the use of hot wall and cold wall reactors, should be included in construing the step-plus-function limitation, since this passage appears to set forth merely illustrative examples and not required limitations. See '672 Patent at Col. 4:4-13 ("For example, when a hot wall reactor ... is employed with tungsten hexafluoride and argon, the self-limiting thickness vs. temperature is shown in FIG. 1. Similarly, when a cold wall reactor ... is utilized in the temperature range 250 [degrees] C. to 600 [degrees] C. no self-limiting effect is observed and thus under these conditions this reactor should not be employed.").

In sum, the Court construes "self-limiting" as "exhibiting an effect that is characterized by a tungsten formation rate at 10 minutes that is less than 10% of the initial equilibrium rate."

The Court further construes "self-limiting thickness" as "the tungsten thickness achieved at 10 minutes under conditions in which a 'self-limiting effect' is achieved, i.e., the tungsten formation rate at 10 minutes is less than 10% of the initial equilibrium rate." The Court also concludes that the claim language in question recites a step-plus-function limitation, and that this limitation should be construed in accordance with the specification language quoted above, see '672 Patent at col. 3:56-67.

8. Wherein said download starts at any point within the data file, exclusive of the start of file and end of file

The Court's Construction: The download cannot resume at the "start of file" or "end of file" indicators/markers. Markman Tr. 55:25-56:2.

Ethos argued that the Court ought adopt the construction: "[t]he download need not resume at the start of file or end of file." Markman Tr. 56:7-25. RealNetworks agreed with the Court's construction and challenged Ethos' construction as contrary to the plain meaning of the term "exclusive of." Id., 57:12-58:11; Def. Br. at 14-15. Ethos contended that "exclusive of" means "not limited to." Pl. Br. at 19. In support of this construction, Ethos referred to an ad for a New Year's Eve dinner at the Ritz Carlton Hotel which states the rate as "$ 95 per guest, exclusive of tax and gratuity," and argued that the use of the term in the ad clearly does not suggest that taxes and gratuities will not be added or expected. Id.; see also Markman Tr. 58:24-59:20 (making a similar argument).

The plain meaning of the phrase "exclusive of" is "[n]ot including: besides." Webster's II New College Dictionary 399 (3d ed. 2005). There is no indication in the specification or the prosecution history that the plain meaning of this term was altered as Ethos suggested. The prosecution history confirmed the propriety of adopting the commonly understood meaning of "exclusive of."

The prosecution history, in distinguishing this invention from prior art, states:
Thus the Miller invention [(the prior art)] may only restart a terminated download at the boundaries of frames/blocks, not at any point between these boundaries as is true with the present invention [this language is cited by Ethos]. Claim 47 specifically excludes Miller's stream of a file of frames, and specifically emphasizes that the resumption of the terminated transfer starts at any point within the data file, exclusive of the start of file and end of file, regardless of the presence of spurious markers, frame boundaries, and other boundaries that may occur within the data file.

... When an unintended termination of transmission occurs, the client may indicate to the server to resume the transfer starting at any point within the data file. The client may indicate to the server the last byte or word successfully received, or the client may indicate to the server from which byte to resume the download. ... "Start of file" and "end of file" indicators are now included for the data file being downloaded. These indicators are included in new claim 47 so that the claim language can specifically exclude those indicators as locations from which the resumption of the download can occur. This is to specifically distinguish prior art, e.g. the Miller reference.

Def. Br., Ex. 8, 11/99 Action at 9-10 (emphasis added); see Pl. Br., Ex. 11; 3/00 Action at 6 (containing similar language).

It is clear from the prosecution history that the inventors intended for that claim specifically to exclude the start of file and end of file indicators as restart locations.

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"wherein said first and second switch means assume a non signal-conducting state when said CPU power circuit is not supplied with power"

The Court agrees with Mitchell and construes the term as, "the eleventh limitation describes a further function performed by the first and second switch means. When the CPU power circuit is not supplied with power, the switch means takes on a state in which no current or voltage may be conducted through the switch, and therefore a voltage representing a signal on a line connected to one side of the switch will not be affected by and will not affect a voltage representing a signal on a line connected to the other side of the switch. This also means that a voltage representing a signal on a line connected to the switch will not be transmitted through the switch." Intel's proposed construction is almost identical to Mitchell's except that Intel argues that the words "when" and "assume" should be construed and proposes additional language to construe the two words: "the 'assumption' of a non signal-conducting state occurs in response to, and continues as long as, the CPU power circuit is not supplied with power." Intel argues that the additional language will help the jury understand that "the claim requires the assumption of the non signal-conducting state to be a response to ... the moment when the CPU gains power and sends an 'appropriate' signal to the 'switch means.'" Intel argues that "the purpose of the eleventh limitation is to isolate the elements of the system from each other in the event the CPU is damaged and to remain in that isolated state until receipt of an appropriate signal from the CPU." See Col. 3:5-13; Col. 42:47-53; Cols. 43:65-44:20.

The additional language proposed by Intel is not supported by the claim language and is not necessary. Furthermore, this additional language was not included in Judge Illston's construction. Accordingly, Intel's proposed addition language is not included in the Court's construction of the limitation.

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"wherein said lines of said CPU and said contacts assume a non signal-conducting state when said first and second switch means are in said non signal-conducting state"

The Court agrees with Mitchell and construes the term as, "the dedicated memory address data, and control lines of the CPU and the dedicated memory address, data and control lines of each of the three sets of contacts assume a non signal-conducting state when the first and second switch means are in a non signal-conducting state. Accordingly, those lines take on a state in which no current or voltage may be conducted through them, and voltages representing signals on the lines may not be transmitted along the lines, whenever the first and second switch means are also in this state." Again, Intel's proposed construction is nearly identical to Mitchell's except that Intel argues that the words "assume" and "when" should be
construed and proposes additional language that states, "the 'assumption' of a non signal-conducting state by the lines and contacts occur in response to, and continues as long as, the first and second 'switch means' are in a non signal-conducting state," to accomplish this goal.

For the same reasons discussed above with regard to the eleventh limitation, Intel's additional language is rejected and the Court construes the term consistently with Judge Illston's construction.

**4876**

VIII. Primary Memory Interface Means
The term "primary memory interface means" appears in independent Claim 9 of the '846 Patent. The parties agree that the term is governed by Section 112(6) but disagree as to the function and corresponding structure.

A. Function
Intergraph's proposed function is "coupling data between said primary memory and said cache memory." Toshiba's proposed function is 

"(a) coupling data between said primary memory and said cache memory; (b) and selectively transerring data between said primary memory and said cache memory in response to a miss signal." The dispute centers on whether the "wherein" clause in the claim imposes an additional function to the term. Claim 9 contains the clause "primary memory interface means for coupling data between said primary memory and said cache memory," followed several clauses later by the clause "wherein said primary memory interface means selectively transfers data between said primary memory and said cache memory in response to a miss signal." Accordingly, the court must decide whether the latter clause constitutes an additional function which must be performed by the primary memory interface means.

The parties dispute the legal effect of the "wherein" clause. Intergraph asserts that the word "wherein" should be treated the same as "whereby." Intergraph's sole support for this contention is a citation to a section of the Manual of Patent Examining Procedure ("MPEP") dealing with the terms "adapted to," "adapted for," "wherein" and "whereby." Pl's Exh. G, MPEP § 2111.04. Significantly, "adapted to" and "adapted for" are treated as a single type of clause, while "whereby" and "wherein" are treated as separate types of clauses. Id. The MPEP gives these clauses as "examples of claim language . . . that may raise a question as to the limiting effect of the language in a claim." Id. The MPEP further states that "[t]he determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case." Id.

**Intergraph cites no case where a "wherein" clause was held not to impose a limitation.** Instead, Intergraph cites two cases dealing with "whereby" clauses: Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n, 988 F.2d 1165, 1172 (Fed. Cir. 1993) (holding that "[a] 'whereby' clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim"); Lockheed Martin Corp. v. Space Sys./Loral, Inc., 324 F.3d 1308, 1319 (Fed. Cir. 2003) (holding that "[t]he function is properly identified as the language after the 'means for' clause and before the 'whereby' clause"). The court in Griffin v. Bertina, 285 F.3d 1029, 1034 (Fed. Cir. 2002), held that "wherein" and "whereby" were two different parts of speech and confirmed that the inquiry as to whether these words create limitations is fact-dependent. There, the court held that a "wherein" clause imposed a limitation because it "expressed[d] the inventive discovery" rather than "merely stat[ing] the inherent result of performing the manipulative steps." Id.

Accordingly, the court cannot consider the word "wherein" in isolation, but must determine whether the "wherein" clause in Claim 9 expresses an inventive component or merely the result of the delineated limitations. Intergraph characterizes Claim 9 as reciting seven separate structural elements, including the primary memory interface means, each with its own clause. The two "wherein" clauses following these seven component clauses, according to Intergraph, simply express how the components are intended to operate together in a computer system. In response, Toshiba argues that treating the "wherein" clause in Claim 9 as non-limiting would force the court to ignore several dependent claims that consist of nothing more than "wherein" clauses. Toshiba's argument misses the mark. As with the specific "wherein" clause at issue in Claim 9, each "wherein" clause elsewhere in the patents must be individually considered to determine whether the clause simply recites a result or sets forth an inventive limitation.

However, the court cannot accept Intergraph's proposed function, because the "wherein" clause at issue does not merely recite a result. Rather, it clearly recites an additional function of the primary memory interface means. Notably, in each of the cases cited by Intergraph, the "whereby" clauses stated pure results rather than actions directly involving the structures or limitations at issue. In Texas Instruments, 988 F.2d at 1169, the result of
the claimed steps was that "the fluid will not directly engage the device and electrical connection means at high velocity, and the conductors will be secured against appreciable displacement by the fluid." Likewise, in Lockheed Martin, 324 F.3d at 1315, the term at issue was "means for rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite," and the immediately ensuing "whereby" clause set forth the necessary result of rotating the wheel as described, i.e. offsetting the attitude of a satellite in a particular manner. In Griffin, 285 F.3d at 1031, the clause at issue was assaying for the presence of a point mutation in the nucleotides of codon 506 within EXON 10 of the human Factor V gene, wherein said point mutation correlates to a decrease in the degree of inactivation of human Factor V and/or human Factor Va by activated protein C, wherein the presence of said point mutation in said test nucleic acid indicates an increased risk for thrombosis or a genetic defect causing thrombosis.

Because the correlation was the inventive discovery, the wherein clauses were necessary limitations.

Here, the "wherein" clause does not recite a necessary result of arranging the delineated components of the claimed apparatus. Rather, it recites a specific function of the primary memory means. Selectively transferring data between the primary memory and cache memory in response to a miss signal is not a necessary result of coupling data between the primary memory and the cache memory. It is a separate function performed by the primary memory interface means which must be read as part of the limitation.

Accordingly, the court adopts Toshiba's proposed function: "(a) coupling data between said primary memory and said cache memory; (b) and selectively transferring data between said primary memory and said cache memory in response to a miss signal."

The parties disagree on the meaning of the above-stated language.

Dell argued that the ordinary meaning should suffice. Lucent proposed: "the web site includes a web page containing a subset of the managed information that is assembled to suit the needs or preferences of users at the second user Internet point." The court concludes that no construction of this claim term is required.

2. "Whether or Not . . . Approved"

The phrase "whether or not . . . approved" means determining without human involvement whether or not establishment of the financial account was fully approved, not merely reaching a preapproval determination. This means the automated process continues until information is provided to the applicant as to whether the financial account was approved or not approved.

5. "while buffer overflow is threatened, admitting for storage in said buffer cells only on such of said virtual channel connections on which the previous cell admitted was not indicated by the header of said previous cell as being end of transmission on said virtual channel"

The plaintiff contends that no construction is needed because the technical terms ("virtual channel," "cells," "buffet," "header" (appears in the agreed definition of "cells"), and "end of transmission" (synonymous with "end of frame"
indicator") have been defined, and the other terms need no further construction. In the alternative, the plaintiff proposes "while buffer overflow is threatened, admitting for storage in the buffer cells only on such of the virtual channel connections on which the previous cell admitted was not indicated by the header of the previous cell as being end of transmission on the virtual channel." The defendants propose "while buffer overflow is threatened, storing cells from each VCC in the buffer when the previous cell stored in the buffer for that VCC did not contain an end-of-frame designation, and rejecting all other cells." After considering the parties' submissions, the court agrees with the plaintiff that no additional construction of this phrase is warranted.

2. "while maintaining an open association with said first remote device throughout a series of image acquisitions"

Plaintiffs' construction: during the time that a series of images is acquired, the association with the first remote device is kept open

Defendant's construction: wherein the imaging system is configured to continuously maintain an association with the first remote device that allows for transmission of multiple images acquired by the imaging system without any re-opening of the association

The crux of the dispute regarding this term, and the '327 patent as a whole, is whether the "open association" claimed in the patent is limited in any way by the claim language, patent specification or prosecution history. Plaintiffs argue that little construction of the term is necessary or appropriate and that defendant's construction results in a "negative limitation" on the claim language that lacks support in the specification or prosecution history. Defendant contends that the specification and prosecution history require the limitations that: the association remain open continuously, the "open association" operates without "reopening," and the "open association" is the result of a particular configuration.

I agree with defendant. Both the patent specification and prosecution history show that the primary advantage of the invention is that it provides for a continuously open association between the imaging system and the remote devices, rather than an association that is opened and closed as individual images are acquired. In fact, in this regard defendant's construction appears to differ only slightly from plaintiffs' construction, which provides that the association is "kept open" while images are acquired.

The Abstract and Summary of the Invention explain that the association between the imaging system and remote devices is "open throughout the course of an examination of a patient." '327 patent, Abstract; id., col. 5, lns. 38-40. In addition, during the patent prosecution, the patentee distinguished the invention disclosed in the '327 patent from prior art by explaining that it allows for "a continuously open association mode." '327 patent prosecution history, Walkenhorst Decl., dkt. # 45, Ex. 15. at 4. Therefore, I agree with defendant that it is proper to construe this term to include the requirement that the association between the ultrasound system and remote device remain open "continuously."

Next, I will consider whether defendant's proposed addition of the phrase "without any re-opening of the association" to the construction is appropriate. As an initial matter, given that both sides state that the association between the imaging system and remote devices is "kept open" or open "continuously" while images are transferred, it is somewhat perplexing why they disagree about whether the connection must be maintained without the need for "re-opening." When a door or a line of communication is "kept open" or is open "continuously," there is little need for it to be "re-opened."

Plaintiffs contend that the addition of the phrase "re-opening" adds unnecessary ambiguity to the patent language. I agree. The patent specification states that the live imaging feature of the patent "allow[s] more efficient image transfer because the association need not be opened and closed for every image sent to a remote device." '327 patent, Abstract; id., col. 5, lns. 41-43. In addition, in order to overcome an obviousness rejection during patent prosecution, the patentee explained that the live imaging feature "allows more efficient image transfer because the associate need not be opened and closed for every image sent to a remote device." '327 patent prosecution history, Walkenhorst Decl., dkt. # 45, Ex. 15 at 4. Although both of these statements are evidence that the association remains open while images are collected and transferred, the inclusion of the phrase "continuously" conveys this adequately.
Finally, plaintiffs do not appear to dispute defendant's argument that the "open association" is the result of a particular configuration, so I will adopt that portion of defendant's construction with no further discussion.

Court's construction: wherein the imaging system is configured to continuously maintain an association with the first remote device that allows for transmission of multiple images acquired by the imaging system

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4. "while said association with said first remote device is open"

Plaintiffs' construction: during the time that the association with the first remote device is open

Defendant's construction: while the association between the ultrasound imaging system and the first remote device has remained open continuously

For the reasons discussed in detail above with respect to the term "while maintaining an open association with said first remote device throughout a series of image acquisitions," I will adopt defendant's proposed construction of this term. Again, the specification and prosecution history for the '327 patent support the understanding that an "open" association between the ultrasound imaging system and the remote device is one that remains open "continuously."

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A. "while the amplification reaction is in progress" Applera asks the court to construe this language to mean "during the amplification reaction," which would include either periodic or constant monitoring. Stratagene argues that the term should be construed to mean "for so long as the amplification reaction is taking place," which would require that the instrument be operable to conduct constant monitoring, even if the user wanted to monitor fluorescence only periodically. In the alternative, in its post-hearing brief, Stratagene asks the court to interpret the term to require that the instrument be operable to conduct intra-cycle monitoring.

The claim language itself provides insufficient guidance for resolving the parties' dispute. Both parties' interpretations are consistent with the plain meaning of the words. Accordingly, I consult the specification, which is "the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

The specification does not exclude either parties' interpretation, although Applera's flows more naturally from the specification. As Stratagene notes, the specification contains references to constant monitoring. For example, it teaches that "the continuous detection of fluorescence throughout the amplification provides an amplification profile that reflects the amount of target present at start." (Col. 24, Ins. 9-12.) However, as Applera observes, there are also references to periodic monitoring. For instance, the specification teaches, "It is appropriate to 'read' the microtiter plate before and after thermocycling for determining fluorescence." (Col. 12, Ins. 36-39.) Similarly, it states, "Because fluorescence can be determined between cycles during the course of a PCR . . . . Monitoring fluorescence while PCR is in progress serves to quantitate small amounts of DNA." (Col. 16, Ins. 22-24, 29-32.) This latter quotation is particularly significant because it ties periodic detection to the phrase "while PCR is in progress."

Stratagene argues that the specification's references to continuous monitoring reflect the inventor's understanding that the instrument had to be operable to detect constantly, even if it was only used to conduct periodic monitoring. Although the specification does not exclude this reading, it certainly does not require it either. A more natural reading of the specification is that the inventor did not consider whether the detector had to be operable to conduct constant monitoring. Under this reading, the detector merely has to be operable to detect the fluorescence signal, whether constantly or periodically, so long
as the detection occurs during the amplification reaction. This reading is preferable, particularly given the explicit reference to inter-cycle detection as occurring "while PCR is in progress."

Because the specification does not provide clear guidance, I turn to the prosecution history. The parties discussed the prosecution history at length during the Markman hearing. The discussion centered on the examiner's rejections of the patent as obvious in light of the Haff reference and the inventor's subsequent amendments to the claim.

I understand the Haff instrument to work as follows. Identical amounts of the same target DNA are placed in different reaction vessels. Identical reactions are run within each vessel. The reactions are stopped after various reaction cycles. After a reaction is stopped, the vessel is opened and dye is added. The fluorescence is measured and plotted on a graph. By this process, one can track the amplification reaction for that target piece of DNA. In first rejecting the invention as obvious in light of Haff, the examiner understood Haff to involve monitoring "during the thermal cycling process." (Bio-Rad Ex. 1, at 190.) The Examiner explained that it would be obvious to one trained in the art to optically couple the fluorescence detector to the thermal cycler to measure fluorescence without transferring samples from the cycler to the detector. (Bio-Rad Ex. 1, at 191.)

In response to the obviousness rejection, the inventor explained:

With applicant's invention, the amplification takes place and is detected in a sealed vessel condition. During amplification, a real-time signal indicative of a cycle-dependent change in double-stranded nucleic acid is generated to allow monitoring of the accumulation of double-stranded product while the amplification reaction is in progress, without opening the reaction vessel, without taking aliquots, and without withdrawing samples. Once the amplification reaction is initiated, no further handling or manipulative steps are required.

. . .
. . . Also, by generating a signal that not only gives an indication of the inter-cycle net change of double-stranded product but intra-cycle variations as well, applicant's claimed instrument eliminates any ambiguities regarding the time of sampling. The signal generated by applicant's claimed invention is independent of the time of sampling.

(Bio-Rad Ex. 1, at 204-05.) The Examiner nonetheless rejected the claims, finding these arguments "directed solely to the intended use of the apparatus, rather than the structural features thereof." (Bio-Rad Ex. 1, at 212.) He also stated that it would have been obvious to use sealed reaction vessels to prevent contamination. (Bio-Rad Ex. 1, at 212.)

In response, the inventor explained that "Haff et al. failed to recognize that an indicator reagent could be included in a nucleic acid reaction mixture to allow amplification to be measured over multiple cycles without opening the reaction vessel." (Bio-Rad Ex. 1, at 249.) The Examiner again rejected this explanation, citing other prior art (i.e., Schnipelsky) showing that detection reagents would not interfere with the reaction. (Bio-Rad Ex. 1, at 276.)

Following these communications, the Examiner and inventor had a personal interview. After the interview, the Examiner wrote, "It was generally agreed that structural language requiring operation of the detector over the course of a thermal cycling amplification reaction would define over the art of record." (Bio-Rad Ex. 1, at 302.) Thereafter, the applicant filed an amended claim containing the language, "while the amplification reaction is in progress." He remarked, "During the interview, applicant's representatives summarized prior arguments. The Examiner agreed that the rejection over the art of record would be withdrawn if the claims more clearly recited that the detector was operable to detect during the amplification reaction, in contrast to a detector that was not operable during an amplification reaction." (Bio-Rad Ex. 1, at 317.)

After reviewing the prosecution history in detail, and focusing on the claimed apparatus, as Stratagene urges me to do, I find the prosecution history too ambiguous to support Stratagene's narrower construction.

The claimed invention is distinguishable from Haff in that the dye is present in the reaction mixture as amplification takes place and the fluorescence can be measured without opening the vessels to withdraw samples or to inject dye. As the inventor explained in 2000, one benefit of his invention is that it can generate a intra-cycle signal, whereas Haff's plainly cannot. Until 2002, the Examiner consistently rejected these differences between Haff and the invention and held the
claimed invention obvious in light of Haff and other references.

We do not know exactly what happened in the 2002 interview. According to Stratagene, the Examiner concluded that a key distinction between the claimed invention and Haff was that Haff could constantly detect fluorescence "over the course of a thermal cycling amplification reaction." On this view, "while the amplification reaction is in progress" must be construed to embody the inventor's and the Examiner's understanding that the claimed invention was structurally operable to detect constantly throughout the entire reaction or, in the alternative, within cycles as opposed to only between cycles.

However, Applera's version of what happened at that meeting is equally, if not more, plausible. According to Applera, the personal interview persuaded the Examiner that Haff did not teach detection "during" the amplification reaction, as he had earlier thought. Accordingly, he agreed to withdraw the objections if it was made clearer that the claimed invention was operable to detect fluorescence during the reaction. This interpretation is supported by the inventor's statement that his representatives summarized prior arguments. Importantly, he did not state that they presented new arguments or distinguished his invention on the ground that it was operable to constantly monitor fluorescence. On the basis of the prior arguments, the Examiner agreed to withdraw the objections in exchange for clearer structural language requiring that the detector be operable to detect during the reaction.

The prosecution history is simply too ambiguous to support the narrower construction proposed by Stratagene. This ambiguity manifests itself in the varying language used by the Examiner and the inventor. In his record of the interview, the Examiner used the language "over the course of the thermal cycling amplification reaction." However, the inventor summarized that same conversation using the word "during." Moreover, in a later document, the Examiner contrasted the invention, which would detect "throughout" the amplification reaction, with an instrument that limited "detection to a time immediately following the amplification reaction." (Bio-Rad Ex. 1, at 438.) This suggests that the Examiner understood "throughout" to mean something like "during."

This analysis reconfirms what I said during the Markman hearing. This is an imperfect process. The fact that we have to speculate about what the Examiner and the inventor had in mind underscores the ambiguity of the prosecution history. Given these ambiguities, and given that Stratagene's narrow construction is not compelled by the intrinsic evidence, I find it appropriate to focus on the plaintiff's statements in deciding whether he limited his claim in the way urged by Stratagene. I cannot conclude that he did.

For these same reasons, I reject Stratagene's alternative argument that the detector must be operable to detect within cycles. The inventor did describe his invention as "generating a signal that not only gives an indication of the inter-cycle net change of double-stranded product but intra-cycle variations as well." (Bio-Rad Ex. 1, at 204-05.) But he characterized this as an "advantage" of his system, not as a "structural and functional difference[]." (Bio-Rad Ex. 1, at 204.) This advantage derives from the structural difference that, in the claimed invention, the detectable nucleic acid binding agent is present in the reaction vessel as the reaction takes place. A detector operable to detect intra-cycle variations could be used to take advantage of this structural difference. But this statement does not necessarily mean that the detector must be operable to detect intra-cycle variations, particularly in light of the specification's references to inter-cycle monitoring.

The limited scope sought by Stratagene is not required by the intrinsic evidence. Accordingly, I construe "while the amplification reaction is in progress" to mean "during the amplification reaction."

L. "modifying at least a portion of the user's rule set while the user's rule set remains correlated to the temporarily assigned network address"

The term "modifying at least a portion of the user's rule set while the user's rule set remains correlated to the temporarily assigned network address" is found in claim 25. The plaintiff argues that no construction of this term is necessary in light of other constructions. Alternatively, Linksmart proposes the following construction: "changing at least one of the elements or conditions about the user's session during the session." The defendants contend that "modifying at least a portion of the user's rule set while the user's rule set remains correlated to the temporarily assigned network address" means "changing at least one of the rules in the user's rule set without ending the authorized session."
The primary difference between the parties' proposed constructions is whether termination of the user's session, which may be a form of a rule change, is covered by the patent term. According to the defendants, when the user's session is terminated, the system breaks the correlation between the user's rule set and the temporarily assigned network address. (See '118 patent, 3:21-26 ("When the user terminates the connection with the network, . . . the authentication accounting server . . . sends a message to the redirection server telling it to remove any remaining filtering and redirection information for the terminated user's temporary IP address."); 4:67-5:4 ("When the redirection server . . . receives information regarding a terminated session . . . , the redirection server . . . removes any outstanding rule sets and information associated with the session."). But Linksmart argues that these quoted passages from the specification are preferred embodiments, and the claim should not be construed to exclude modifications that terminate the session.

The court is persuaded by Linksmart's argument. The system may first terminate the user's session, then break the correlation between the temporarily assigned network address and the user's rule set. The court therefore construes "modifying at least a portion of the user's rule set while the user's rule set remains correlated to the temporarily assigned network address" to mean "changing at least one of the elements or conditions in the 'user's rule set' during the session."

E. Wide-Area-Network

The Plaintiff contends that this term does not require construction, but it alternately proposes "a computer network that spans a relatively large geographical area." The Defendants propose the construction "a geographically dispersed communications network." Both parties agree that the network spans or is dispersed over a large geographic area. The dispute is whether the network is a computer network or a communications network.

Neither party argues that the patent explicitly defines this term. The patent states that the method can provide an interface to access the server located on the wide-area-network. Col. 2:2-4. The patent also provides that the Internet is an appropriate environment for processing a laboratory material analysis, which is connected to a server. Col. 3:57. Claim one states that one step of the method is "accessing a server located on a wide-area-network." Claim thirteen requires a wide-area-network with "one or more client computers coupled to the wide-area-network." Thus, it is clear that the network allows for computer access, but the patent does not specify whether the network is a communications network or a computer network.

The Defendants state without evidence that the Internet allows computers to connect to it, but that they are not part of the Internet. Because the patent gives the Internet as an example of a wide-area-network, the Defendants contend that the disputed term means that computers can connect to a wide-area-network but are not a part of one.

The Plaintiff contradicts the Defendants' assertion with evidence. A wide-area-network is defined in one technical dictionary as "a computer network that spans a relatively large geographical area. . . . The largest WAN in existence is the Internet." RANDOM HOUSE WEBSTER'S COMPUTER & INTERNET DICTIONARY 607 (3rd ed. 1999). Another source, dated from the year the patent was filed, defines a wide-area-network as "a geographically distributed network composed of local area networks joined into a single large network using services provided by common carriers." MICROSOFT ENCYCLOPEDIA OF NETWORKING 1329,30 (2000) . That source also defines a local area network as "a group of computers located in the same room, on the same floor, or in the same building that are connected to form a single network. . . . They might use a dedicated backbone to connect multiple subnetworks, but they do not use any telecommunication carrier circuits or leased lines except to connect with other LANS to form a wide area network." Id. at 718. Another source defines a WAN as "a geographically widespread network, one that relies on communications capabilities to link the various network segments. A WAN can be one large network, or it can consist of a number of linked LANS (local area networks)."

From these extrinsic sources, it is clear that neither party is exactly right. The definition of a wide-area-network encompasses both ideas that are being disputed. It is a collection of LANs - a collection of computer networks - but it is also the communications network between those smaller networks.

Construction: A geographically distributed network composed of smaller networks of computers that are joined into a single
4. "a wideband frequency division multiplexer for multiplexing the information onto wideband frequency channels"

The phrase to be construed is "a wideband frequency division multiplexer for multiplexing the information onto wideband frequency channels." "Wideband in this patent document is described in the context of Wideband-Orthogonal Frequency Domain Modulation (W-OFDM or wideband OFDM)." '222 patent, 5:24-26. The specification defines Wideband-OFDM as "OFDM with a K and a [DELTA] f large enough to be able to achieve a specific throughput and large enough to be able to avoid using either a clock or a carrier recovery device without substantially affecting the BER." '222 patent, 6:30-34. The specification of the '222 patent repeatedly states that a "first frame of information is multiplexed over a number of wideband frequency bands at a first transceiver, and the information transmitted to a second transceiver. See '222 patent, Abstract; 2:54-57. The transceiver includes "a wideband frequency division multiplexer for multiplexing the information onto wideband frequency channels." See '222 patent, Abstract; 3:25-28. "To implement wideband modulation, Orthogonal Frequency Division Multiplexing (OFDM) is preferred in which the information, for example encoded speech, is multiplexed over a number of contiguous frequency bands." '222 patent, 7:12-15.

Wi-LAN argues that the term "frequency division multiplexer" means "a device for placing information onto a number of frequencies. Further, Wi-LAN argues that "frequency division multiplexing" is a method for transmitting information simultaneously in the frequency domain by placing information onto a number of frequencies. Thus, Wi-LAN contends that the term multiplexing means "placing." The Court disagrees with Wi-LAN. However, the Defendants do not provide a helpful construction for the term and merely argue that it is "a multiplexer for multiplexing the information" onto wideband frequency channels. The Court finds that the terms "multiplexer" and "multiplexing" are well known in the art. The Court finds that the term "multiplexer" means a device that multiplexes, e.g., combines or merges two or more signals or input channels into a single output signal or single output channel. Likewise, the Court finds that the term "multiplexing" means combining two or more signals into a single output signal. There is nothing in the specification or claim language that dictates straying away from these well known-meanings. The Court finds that one of ordinary skill in the art would understand, in general, frequency division multiplexing as a type of multiplexing where different frequencies are used to combine multiple streams of data for transmission, wherein each signal is assigned a different carrier frequency. The Court finds that one of ordinary skill in the art would understand, in general, orthogonal frequency-division multiplexing as a type of frequency division multiplexing where a number of sub-carriers are used to carry data, wherein the data is divided into several parallel data streams or channels, one for each sub-carrier. These meanings are consistent with the specification of the '222 patent. Wi-LAN's proposed construction conflicts with the well-known meaning of the term multiplexer by redefining "multiplexing" as "placing." The Court finds that "multiplexing" involves more than merely "placing information onto." The Court notes that the term "multiplexing" is used in claim 7 and the parties do not attempt to define the word "multiplexing." Thus, the Court construes the disputed term "wideband frequency division multiplexer" and not the undisputed "multiplexing" term. The Court construes the term "wideband frequency division multiplexer for multiplexing the information onto wideband frequency channels" to mean "a device that combines the information from multiple inputs into a single output for multiplexing the information onto wideband frequency channels."

In regards to the term "wideband frequency channels," the parties essentially adopt the same construction that is supported by the specification, see '222 patent, 6:30-34, with a few notable differences. The Court finds that "wideband frequency channels" means "frequency channels with certain characteristics, and that the Defendants' proposed construction follows the specification more closely than Wi-LAN's proposal. However, the Court agrees with Wi-LAN that K, [DELTA] f, and BER should be described with more than just symbols or acronyms. In the specification K is defined as a "number of points," [DELTA] f is defined as "frequency band," and BER is defined as "bit error probability" or "bit error rate." '222 patent, 1:64-66; 5:26-29; 7:44-46. Thus, the Court construes the term "wideband frequency channels" to mean "frequency channels with a K (number of points) and a [DELTA] f (frequency band) large enough to be able to achieve a specific throughput and large enough to be able to avoid using either a clock or a carrier recovery device without substantially affecting the BER (bit error rate)."
a. "a total width" and "a width greater than"

LGD contends that these limitations mean "the width of the first metal layer, determined by the portion of the first metal layer in contact with the second metal layer together with the portions exposed to the subsequently deposited gate insulating layer, is more than 1 [μm] and less than 4 [μm] greater than the width of the second metal layer." D.I. 367 at Exh. G-6. LGD goes on to clarify that one skilled in the art would understand that the way to determine the "width" of a metal layer of a TFT gate is to measure at the widest portion, meaning the bottom surface, of the layer.

In response, AUO contends that these terms are indefinite. Alternatively, AUO contends that the phrase "a total width of the first metal layer is greater than a total width of the second metal layer by about 1 to 4 [μm]" means "the width of the first metal layer is about 1 to 4 [μm] greater than the width of the second metal layer when measured from a level defined by the top of the first metal layer." Id.

CMO contends that these phrases should be construed as:

The top surface of the first metal layer has a width that is about 1 to 4 [μm] wider than a width of the top surface of the second metal layer to form a double step. A double step is a structure where not all of the top surface of the first metal layer is covered by the second metal layer.

Id. CMO contends that its construction requires the widths to be measured along the top surfaces of the first and second metal layers. CMO contends that its construction is consistent with LGD's responses to an Office Action issued by the British Patent Office asking for clarification regarding the width measurements.

Examining the claim language in light of the specification and the testimony concerning the understanding of one of ordinary skill in the art, the Court concludes that the width terms are not indefinite and are properly defined as proposed by LGD, such that the width measurement is taken at the widest portion of the layer, which in the case of the '321 patent, is the bottom surface of the layer. While the figures of the '321 patent are not necessarily drawn to scale, and thus, create some ambiguity regarding the meaning of width as designated by "w1" and "w2," the Court is persuaded that any ambiguity is rectified by the specification, which explains that the width of a metal layer of a TFT gate is defined according to the photoresist used to pattern the layer. '449 patent, col. 2, ll. 1-8, 12-20; col. 6, ll. 36-39. One of ordinary skill in the art would understand that, according to standard wet etching techniques, a metal layer structure that is patterned by use of a photoresist would not extend outside the cover of the photoresist, or stated another way, would not be wider than the photoresist. Tr. 352:7-354:5 (Rubloff). Dr. Howard also acknowledged that he had never seen a wet etching process that resulted in the metal layer being wider than the photoresist. Tr. 1161:12-15 (Howard). AUO's construction would conflict with this understanding.

Further, the Court notes that in describing the embodiment of the invention shown in Figures 4A through 4F, the specification defines the photoresist used to form the first metal layer of the gate as having the same width, "w1," as the first metal layer discussed in the background section of the patent, which further discusses the related art in the same terms. The '321 patent further states, "[w]hen etching the first metal layer 43 other than the portion of the layer 43 covered with the photoresist 47, the first metal layer 43 preferably has the same width w1 of the photoresist 47." '449 patent, col. 6, ll. 36-39. Because the metal layers in the preferred embodiments of the invention are etched and patterned with only one photoresist, a second photoresist having a width, "w2," defining the width of the second metal layer is not used in the preferred embodiments. However, the '321 patent refers to the width of the second metal layer in the preferred embodiments using the same designation, "w2," used to describe the width of the second metal layer in the background section, which again defines the width of the second layer in terms of the width of the second photoresist. Id. at col. 2, ll. 1-20. Accordingly, the Court concludes that the width terms are defined as "the width of the first metal layer, determined by the portion of the first metal layer in contact with the second metal layer together with the portions exposed to the subsequently deposited gate insulating layer, is more than 1 [μm] and less than 4 [μm] greater than the width of the second metal layer."
To assist in deciding Articulate's summary judgment motion, the court held a claim interpretation hearing pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967, 34 U.S.P.Q.2d (BNA) 1321 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996). Following that hearing, the court issued its first order, construing the following claim terms at issue:

window - a framing device on the computer screen that displays information and may set the displayed information apart from other information on the screen;

operate on a window - opening, closing, moving or resizing a window without manipulating the data contained within such window;

operate on data in a window - manipulating the data contained within a window without necessarily opening, closing, moving or resizing the window;

help access window - a window that contains one or more controls for accessing information which has been loaded on the central processing unit ("CPU").

* * *

A. Claims 1 and 23

The district court summarily found claims 1 and 23 invalid under 35 U.S.C. § 102(b), stating only that "[Adobe] Photoshop discloses each and every limitation contained in independent claims 1 and 23." On appeal, Apple claims legal error in this finding of anticipation, and in the underlying claim interpretation of the terms "windows" and "simultaneously active." Finding no legal error in the district court's claim construction, we affirm the district court's judgment of invalidity of claims 1 and 23.

1. Apple first asserts that the district court's interpretation of "window" is in error because the court improperly ignored the distinction in the patent specification between "windows" and "menus." According to Apple, the palette of Adobe Photoshop is a type of menu (a "tear-off" menu) and, therefore, not a window within the meaning of the '540 patent. The court's misinterpretation of the term "window," claims Apple, led the court to erroneously find Adobe Photoshop anticipatory.

Apple argues that the '540 patent specification separately refers to both windows and menus, and the specification describes how menus may be included within windows. Therefore, according to Apple, windows and menus are distinguished. Apple further argues that the windows of the '540 patent are limited to windows in which data is displayed, and data cannot include commands. In support of this argument, Apple points to language in claims 1 and 23 requiring the display of "data" and to portions of the specification that distinguish data from commands or functions.

Apple's interpretation of "windows" necessarily excludes menus or palettes, since these graphical features are distinct and since these features display functions, not data. Based on this interpretation, Adobe Photoshop is not anticipatory since it contains only one window within Apple's definition.

We are not persuaded by Apple's arguments. Notwithstanding Apple's arguments to the contrary, the evidence fully supports the district court's construction of the term "window." According to the written description of the '540 patent, "windows" "may take the form of a variety of objects, such as a file folder, loose leaf binders, or simple rectangles." Col. 1, lines 48-50. The written description further teaches that the windows of Apple's invention "include defined areas having window features such as menu bars, command options, text, icons, and/or button functions to be executed by the CPU." Col. 3, lines 8-11 (emphasis added). Taking the language of the '540 patent at face value, a simple icon that performs a button function is a "window." Thus, the palette of Adobe Photoshop, incorporating a number of function keys within a defined area, is surely a "window" for the purposes of the '540 patent.

Moreover, this broad definition of the term "window" is not at odds with the common definition of those skilled in the art.
Indeed, as demonstrated by the very references cited in the '540 patent specification, menu bars or buttons are commonly understood to be types of windows by those skilled in the art.

Footnotes

5 We acknowledge Apple's assertion that a patentee is free to be his own lexicographer, and may define claim terms in ways that differ from the common understanding of those skilled in the art. Autogiro Co. of Am. v. United States, 181 Ct. Cl. 55, 384 F.2d 391, 397, 155 U.S.P.Q. (BNA) 697, 702 (Ct. Cl. 1967). In order to do so, however, a patentee must deliberately and clearly point out how these terms differ from the conventional understanding. Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1249, 48 U.S.P.Q.2D (BNA) 1117, 1121 (Fed. Cir. 1998). Apple did not do so here. Instead, Apple described the term "window" in a manner that was consistent with its definition in the pertinent art. Moreover, rather than specifying a narrower meaning for this term, Apple taught that the terms of its claims were to be construed broadly. See Col. 16, lines 25-26.

End Footnotes

Similarly, in light of the clear language of the specification, Apple's argument that the window of its invention must include data in the form of text, as opposed to mere functions or commands, is equally unavailing.

First, we reject Apple's contention that claims 1 and 23 (and the corresponding dependent claims) require windows containing "data" that a user may operate on. This recitation of "data" in the claimed windows appears in the preambles of claims 1 and 23. The body of claim 23 also refers to data in the windows, but only as a possibility, not as a requirement. Thus, if the "windows" of the claimed invention are to be limited to windows containing "data," this limitation must come from the preambles of claims 1 and 23. Language in a claim preamble, however, acts as a claim limitation only when such language serves to "give meaning to a claim and properly define the invention," not when the preamble merely states a purpose or intended use of the invention. In re Paulsen, 30 F.3d 1475, 1479, 31 U.S.P.Q.2D (BNA) 1671, 1673 (Fed. Cir. 1994) (quoting DeGeorge v. Bernier, 768 F.2d 1318, 1322 n.3, 226 U.S.P.Q. (BNA) 758, 766 n.3 (Fed. Cir. 1985)). Viewing the claims as a whole and in light of the written description, the recitation of "data" in the preambles of claims 1 and 23 does not give meaning to these claims nor serve to define the invention. Instead, the term "data" refers to a purpose or intended use of the windows of the claimed invention.

Second, even if we were to find that the recitation of "data" in the claim preambles acts as a claim limitation, we would conclude that this term is used in a broad sense, and that this broad meaning of data is consistent with the district court's interpretation of the term "window." The written description uses the term "data" to include both text and command features:

The access window 130 includes a working area 145 in which the CPU 52 displays instructions, text or command options. The working area 145 includes a vertical slider 148 for scrolling through data displayed within the working area 145.

(emphasis added) Col. 8, lines 14-16. Thus, the term "data" cannot exclude commands, as argued by Apple.

Finally, we also note that the preferred embodiment of the '540 patent further suggests that Apple's narrow interpretation of "data" cannot be correct. Claims 1 and 23 specify that the user may operate on the "data" displayed in the plurality of windows of the invention. In most of the help windows of the preferred embodiment of the '540 patent, however, the only data that may be operated on are icons or command keys, in many instances a command key labeled "HUH?!" Therefore, under Apple's proposed interpretation, there are no data in most of the help windows of its preferred embodiment to be operated on by the user. And while this evidence alone is not necessarily dispositive of the claim construction issue, it further suggests the incorrectness of Apple's proposed interpretation that the "data" displayed in the windows of its invention does not include icons or command keys.

Footnotes

6 The preamble of claim 1 recites that the plurality of windows contains data that may be operated on by the user. The body of claim 23 recites that a user may operate on the windows or data disposed in the windows.
Accordingly, we reject Apple's arguments that the district court misconstrued the term "window.")

3. "Prefix and window circuit" (Claim 11) and "Windowing function" (Claim 25)

Broadcom argues that the claim language is limited such that the "window circuit" and "windowing function" employ a gradual roll-off pattern, which is one particular mathematical pattern of windowing. In contrast, Agere suggests that no construction is necessary because the claim language is broad and can refer to any applicable pattern of windowing. The parties agree that the plain and ordinary meaning of the general terms "window circuit" and "windowing function" can refer to numerous mathematical patterns, including, inter alia, rectangular, gradual roll-off, and triangular shapes. (R. at 131 (May 7, 2004); Goodman Supplemental Rep. P 5 (stating that windowing function "can have various shapes as long as it has finite duration").) Accordingly, neither party suggests that these terms have a customary meaning in the relevant art limited to a specific pattern. Therefore, in order to determine whether Broadcom's proposed limitation is warranted, the Court begins by looking to the intrinsic record to discern whether the presumption of plain and ordinary meaning is rebutted.

The relevant claim language, located in claims 11 and 25, 15 sets up a three-step process whereby: (1) a data stream is partitioned into groups of bits; (2) the bits pass through an inverse Fourier transform circuit ("IFFT"); and (3) the bits pass through a "prefix and window circuit," in the case of claim 11, or are subjected to a "windowing function," in the case of claim 25. ('786 patent, col. 5, ll. 51-67, col. 6, ll. 42-56.) On the basis of these claims, Broadcom presents two arguments in favor of its proposed limitation. First, Broadcom argues that the fact that the windowing occurs after the bits pass through the IFFT compels its construction. 16 According to Broadcom, the symbol is already in a rectangular shape when it leaves the IFFT block. (Cox Supplemental Rep. at 2.) Therefore, Dr. Cox suggests, "no specific windowing circuit would be necessary if the symbol was to remain rectangularly windowed." (Id.) Even if Dr. Cox's statement is accurate, however, it does not compel the conclusion that a "gradual roll-off" pattern must be utilized, as opposed to any other non-rectangular function, and Broadcom provides no support for such a conclusion.

15 These claims are interpreted together because they both describe the part of the invention that performs windowing. Claim 11 is an apparatus claim wherein the "prefix and window circuit" performs windowing, while claim 25 is a method claim wherein the "windowing function" itself is described.

16 In arguing that the terms at issue are not limited to the gradual roll-off pattern, Agere relies on the expert report of Dr. Goodman, in which he states that "rectangular or other types of functions could be used in the invention to accomplish windowing." (Goodman Supplemental Rep. P 8.) The analysis in Dr. Goodman's expert report, however, is based on his misunderstanding that the windowing function in this invention takes place before the IFFT. (See id. P 4 ("Windowing [is] the process of selecting an individual symbol for Fourier analysis.").) Dr. Goodman's belief is plainly contradicted by the claim language, which, as cited above, states that the windowing occurs after the IFFT. At the Markman hearing, Dr. Goodman admitted that, according to the claim language, the windowing functions occur after the IFFT. (R. at 16-17 (May 7, 2004); see also Cox Supplemental Rep. at 1 (explaining that windowing takes place after IFFFT).) Nonetheless, Agere's expert's misunderstanding of the claim language is not, in itself, a basis for this Court to accept Broadcom's contrary construction.

Second, Broadcom claims that the patentee explicitly defined the term "windowing" in the specifications as employing a gradual roll-off pattern:

To reduce spectral side lobes, the cyclic prefixing and windowing block . . . performs windowing on the OFDM symbol by applying a gradual roll-off pattern to the amplitude of the OFDM symbol.
Contrary to Broadcom's assertions, this quoted language does not constitute a clear definition, but rather a description of one particular embodiment. (Id., col. 3, ll. 32-33.) Therefore, it would be inappropriate to import this limitation from the specifications into the broader claim language. Brookhill-Wilk1, 334 F.3d at 1301 ("Absent a clear disclaimer of particular subject matter, the fact that the inventor anticipated that the invention would be used in a particular manner does not limit the scope to that narrow context.").

In conclusion, Broadcom has not provided convincing support to limit the plain and ordinary meaning of the broad claim language. Telegenix, 308 F.3d at 1202 ("Unless compelled otherwise, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art."). Nonetheless, the Court finds that some construction is necessary to assist the eventual trier-of-fact. Accordingly, the Court adopts a modified version of Broadcom's proposed constructions. 17 "Windowing function" is construed as "applying a pattern to the amplitude of the OFDM symbol at the beginning and the end of the symbol." "Prefix and window circuit" is construed as "a circuit that copies the last part of the OFDM symbol and augments the OFDM symbol by prefixing it with the copied portion of the OFDM symbol, and which also applies a pattern to the amplitude of the OFDM symbol at the beginning and end of the symbol."

--- Footnotes ---

17 At the Markman hearing, Agere agreed to these modified constructions. (R. at 122, 125 (May 7, 2004); see also Agere Reply at 25 n.9.)

--- End Footnotes ---

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2. "Windows TM operating system environment"; "Windows TM software on the computer" (claims 8, 14-19)

The issue raised by PolyVision regarding this term is whether, because the inventor used the Windows trademark in these claims, this limitation is indefinite and not capable of construction or, alternatively, should be construed as "Microsoft Windows Version 3.0" because that is the operating system disclosed in the specification and because it was the only product at the time of filing that could have been used in the invention disclosed in the ’636 patent. (Col. 11, ll. 20-25, 35-40; Col. 13, ll. 44-58.)

To be valid, claims must comply with the definiteness requirement of § 112, P 2, which "focuses on whether the claims, as interpreted in view of the written description, adequately perform their function of notifying the public of the patentee's right to exclude." Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1379 (Fed. Cir. 2000). A claim will be considered indefinite if it does not reasonably apprise those skilled in the art of its scope. See IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.3d 1377, 1383-84 (Fed. Cir. 2005). Because a trademark identifies the source of a product rather than a product itself, see Tumblebus, Inc. v. Cranmer, 399 F.3d 754, 762 n.10 (6th Cir. 2005), the use of a trademark in a patent may render a claim indefinite. The Manual of Patent Examining Procedure ("MPEP") addresses this issue:

The presence of a trademark or trade name in a claim is not, per se, improper under 35 U.S.C. § 112, second paragraph, but the claim should be carefully analyzed to determine how the mark or name is used in the claim. . . .

If the trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim scope does not comply with the requirements of the 35 U.S.C. 112, second paragraph. Ex parte Simpson, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name.

MPEP § 2173.05(u) (2001). n5
n5 Although the MPEP does not have the force of law, it "is well known to those registered to practice in the PTO and reflects the presumptions under which the PTO operates." Critikon, Inc. v. Becton Dickinson Vascular Access, Inc., 120 F.3d 1253, 1257 (Fed. Cir. 1997). As such, the Court will rely on the MPEP to provide the proper framework for dealing with Smart's use of a trademark in its patent.

The United States Patent and Trademark Office Board of Appeals and Interferences has sustained examiners' rejections in several instances upon grounds that inclusion of a trademark rendered the claim indefinite. For example, in Ex parte Simpson, 1982 WL 52193, 218 U.S.P.Q. 1020 (Bd. Pat. App. & Interf. 1982), the matter cited above in the quoted section of the MPEP, the Board rejected the appellants' argument that the use of the trademark "Hypalon" was permissible because the mark was well known and satisfactorily defined in the literature discussing the product, an elastometric chlorosulphonated polythene, or synthetic resin. The Board rejected the argument, noting that the reference to the mark was uncertain in scope because it disclosed nothing about how much chlorosulphonated polythene must be present in the material used in the claimed combination before infringement occurred.

On the one hand, the claim language may be very narrowly construed to a particular chlorosulphonated ethylene having a specific group of additives employed by the owner of the "Hypalon" trademark to produce the desired properties, or on the other hand the claim language might be asserted by appellants . . . to broadly encompass every synthetic resin.

Id. at 1021-22. The Board concluded that the appellant's manner of use of the trademark as merely descriptive of the product not only failed to comply § 112, P 2 by staking out the boundaries of the claim, but was also an improper use of the "Hypalon" trademark. Id. at 1022 & 1022 n.2. See also Ex Parte Schwartz, 1998 WL 1708024, at *5 (Bd. Pat. App. & Interf. 1998) (affirming the examiner's rejection of the claim for indefiniteness because it was not clear "exactly what composition of gelatinous elastomer is encompassed by 'a synthetic polymer gel of the type used in the Kitecko Ultrasound Standoff Pad manufactured by 3M Corporation of St. Paul Minnesota').

Smart contends that its use of"Windows TM " in the claims at issue was not improper because it used the trademark not as a noun to assert a limitation, but rather as an adjective to modify the nouns "operating system environment" and "software." Smart asserts that its use of "Windows TM " in this manner served to distinguish the Windows family of operating systems from other such families, such as MacOS, Sun version Unix, SCO Unix, and HP-UX. The Court rejects this argument because it cannot discern any material difference between using a mark to identify products and using a mark to distinguish Microsoft Windows from other families of operating systems. The fact remains that the claim may still be indefinite because it does not refer to any specific product in the ever-expanding family of Microsoft products. Moreover, Ex parte Kitten, 1999 WL 33134953 (Bd. Pat. App. & Interf. 1999), does not support Smart's claim that its use of the "Windows TM " trademark is proper. In Kitten, the Board noted that although the claim used trademarks to identify the three proprietary products used to produce the subject fertilizer, the appellant filed product sheets in support of the application which identified the makeup and uses of the products. The Board observed: "Based on these product sheets and because claim 13 further limits the fertilizer used in claim 1 to a fertilizer prepared from these well-identified proprietary products, we do not find the use of the trademarks renders claim 13 unclear or confusing." Id. at *2.

In spite of the Court's inclination to conclude that the use of the claims' reference to "Windows TM " renders the claims indefinite, the Court concludes that it is proper to construe the claims as being limited to "Microsoft Windows Version 3.0" as set forth in the specification, in light of the Federal Circuit's admonition that "claims are generally construed so as to sustain their validity, if possible." Whittaker Corp., by its Technibilt Div. v. UNR Indus., Inc., 911 F.2d 709, 712 (Fed. Cir. 1990). It is undisputed that the Microsoft Windows Version 3.0 operating system was the only Windows TM software disclosed in the '636 patent and was the most recently available Windows TM operating system at the time of filing. "The literal scope of the term is limited to what it was understood to mean at the time of filing." Kopykake Enters. v. Lucks Co., 264 F.3d 1377, 1383 (Fed. Cir. 2001). According to PolyVision's expert, Robert Dezmelyk, Windows 3.0 and Windows 3.1 relied on the earlier Microsoft disk operating system, or "MS-DOS," for much of their internal operations. (Dezmelyk Decl. P 4, PolyVision Br. Supp. 3d Mot. Summ. J. Ex. C.) In these systems, Windows was simply a graphical interface that ran on the DOS operating system, and applications programs would run on DOS within the graphical interface of Windows 3.0 or 3.1. (Id.) Dezmelyk further states that beginning with Windows 95, Microsoft eliminated the DOS requirement for its
Windows platform, making Windows a true operating system that is not a mere graphical user interface shell for DOS. (Id. P 5.) See also http://www.webopedia.com/TERM/D/DOS.html (noting that later versions of Windows helped to alleviate some of the DOS limitations for modern computer applications); http://en.wikipedia.org/wiki/History_of.Microsoft.Windows (describing features of Windows 95). Because "Windows TM " includes a number of programs that were not known or released until after Smart filed its patent application and that do not significantly rely upon DOS, Smart may not claim the benefit of those programs, which could not have been known to the inventor or to persons of ordinary skill in the art at the time of the invention in the '636 patent. See Schering Corp. v. Amgen Inc., 222 F.3d 1347, 1353 (Fed. Cir. 2000) (holding that the term "leukocyte interferon" was limited to the understanding of those in the scientific community at the time the application was filed that it meant an interferon polypeptide that originates from leukocytes and not subsequently discovered subtypes of leukocyte interferon). Accordingly, the Court will limit the term "Windows TM " to include Windows 3.0 and Windows 3.1, as well as prior versions of Windows.

2. "Printed board" and "Wire on a printed board"

The parties have asked the court to construe "printed board" and "wire on a printed board." Because construction of these two terms involves the resolution of a single disputed issue, namely, whether a wire on the printed board must be printed or can be discrete, the court will address the construction of these terms together.

Claim 1 of the '641 patent uses these terms as follows:

1. A modular jack to be mounted on a circuit board, said modular jack comprising:

   a printed board containing an electronic element for suppressing noise;
   a contactor for contacting with a plug, said contactor being electrically connected with the electronic element by a wire on the printed board;
   a terminal for contacting with the circuit board, said terminal being electrically connected with the electronic element by a wire on the printed board; and
   an insulating housing for encasing the printed board.

As to "printed board," Murata proposes the following construction:

   A generally flat piece of material typically fabricated from insulating material that provides support and structural integrity for a plurality of interconnected components comprising a circuit. In printed circuit board technology, some or all of the conducting interconnection pattern is formed on the board.

Murata's Opening Brief, at 17. Bel Fuse proposes:

   A flat board made of nonconducting material on which electronic components are adapted to be mounted and electrically connected by a pattern of conductive metal pathways or traces that are printed on the surface of the printed board.

Bel Fuse's Responsive Brief, at 11. Thus, the parties' primary dispute as to the construction of "printed board" is whether all of the wires on the printed board must be printed.

As to "wire on the printed board," Murata proposes: "A conductive metallic element interconnecting various regions, or contributing to the interconnecting of various regions, on the printed board." Murata's Opening Brief, at 20. Bel Fuse proposes: "A conductive metal pathway or trace formed (printed) on a surface of a printed board for electrically connecting components held on the board." Bel Fuse's Responsive Brief, at 11. As with "printed board," the parties dispute whether a "wire on the printed board" must be a printed wire.
The court begins with an examination of the specification of the '641 patent. As part of the summary of the invention, the specification states: "A contactor for contacting with a plug and a terminal for contacting with a circuit board are electrically connected with the electronic element by wires on the printed board." '641 Patent, col. 2, ll. 1-4. The specification also describes three preferred embodiments. As to the first embodiment, it states that "the printed board 30 has printed wires 33 and 34 on both sides," id. at col. 3, ll. 23-24 (emphasis added), and "[i]n order to increase and decrease the number of signal circuits, it is only required to change patterns of the wires 33 and 34 on the printed board 30." Id. at col. 3, ll. 59-62.

"Design of the wires 34 on the printed board 30 is comparatively free, and the pitch P among the holes 32, that is, the pitch among the terminals 36 can be set to 1.02 mm which is the pitch of an ordinary circuit board on which the modular jack is mounted." Id. at col. 4, ll. 11-16. Likewise, the second and third embodiments disclose printed wires. See id. at col. 4, ll. 22-23 ("printed wires 44 and 45 on the board 41 are connected to chip inductors 40."); col. 4, ll. 37-39 ("printed wires 54 and 55 and an earth electrode 57 on the board 51 are connected to the [chip] capacitors 50."). Finally, the specification states:

Although the present invention has been described in conjunction with the embodiments above, it is to be noted that various changes and modifications are apparent to those who are skilled in the art. Such changes and modification are to be understood as included within the scope of the present invention defined by the appended claims.

Id. at col. 4, ll. 50-56.

Thus, the preferred embodiments in the specification of the '641 teach only printed wires on the printed board, but the specification does not expressly exclude the use of discrete wires and states that the invention includes variations to the preferred embodiments that would be apparent to persons of ordinary skill in the art. The question then becomes whether a person of ordinary skill in the art would recognize that some of the printed wires could be replaced by discrete wires.

Murata argues that jumper wires are well-known in the art; jumper wires create "a direct electrical connection, which is not a portion of the conductive pattern, between two points in a printed circuit." The Modern Dictionary of Electronics 532. Murata also cites a photo of an IBM circuit board which includes a jumper wire and the NASA Workmanship Standards which provide standards for the use of jumper wires on printed boards. Exs. 26 and 30 to Murata's Opening Brief. Because the use of jumper wires is well-known in the art and the patent does not specifically exclude them, Murata argues that "printed board" as used in claim 1 of the '641 patent can include discrete wires as well as printed wires and that "wire on a printed board" as used in claim 1 can be either a discrete wire or a printed wire.

Bel Fuse argues that a "wire on a printed board" as used in claim 1 includes only printed wires. Bel Fuse relies on the description of the preferred embodiments in the specification of the '641 Patent, which, as discussed above, include only printed wires. Bel Fuse also argues that one of the objects of the invention of the '641 Patent is that "[a] change in wire patterns on the printed board meets an increase of the required number of signal circuits, thereby never requiring more space." '641 Patent, col. 2, ll. 15-18. Because wire patterns on a printed board are composed of printed wires, Bel Fuse argues that, to achieve this advantage, the invention must include only printed wires. However, Bel Fuse has not explained why this advantage could not be achieved if a discrete wire was used for a connection while the remaining pattern was composed of printed wires, and Bel Fuse does not argue that discrete wires on the type of printed board used in the '641 patent are not known in the art.

Significantly, limiting a "printed board" to one with only printed wires or traces and a "wire on a printed board" to a printed wire would restrict the interpretation of these terms to the preferred embodiments, despite language in the specification saying that modifications apparent to a person of ordinary skill in the art are not excluded. Murata has provided evidence that the use of jumper wires is known in the art, and Bel Fuse has provided the court with no reason to believe that such the modification of using a jumper wire(s) would not have been apparent to a person of ordinary skill in the art. Thus, the court finds that adopting a construction that excludes discrete wires would improperly import a limitation from the specification into the claims. Phillips, 415 F.3d at 1323 (stating that courts should avoid "reading limitations from the specification into the claims"). The court construes "printed board" as "a generally flat piece of material typically fabricated from insulating material that provides support and structural integrity for a plurality of electrically interconnected components comprising a circuit, with some or all of the conducting interconnection pattern formed on the board," and the court construes "wire on the printed board" as "a conductive metallic element interconnecting various regions, contributing to the interconnecting of various regions, on the printed board."
2. Claim Construction for the '553 Patent

The patent consists of forty claims, including independent claims 1 and 22, which are the focus of this motion. Claim 1 sets forth "[a] portable, self-contained hand-carried music performance device for wirelessly transmitting musical accompaniment information stored in a storage medium therein and a voice input from a user, for reception and reproduction by an external receiver and speaker unit." '553 Patent col.10 1.27 (emphasis added). Similarly, claim 22 describes ",[a] portable, hand-carried music performance device capable of transmitting wirelessly both musical accompaniment information stored therein in a storage medium and reproduction by an external speaker unit." Id. at col.13 1.6 (emphasis added). The critical language of these two independent claims for this motion is "wirelessly transmitting" and "transmitting wirelessly." The issue to be resolved is if and how the use of the term "wirelessly" limits the scope of the patent.

a. Plain Language of the Claims

Both parties agree that the ordinary and customary meaning of the word wireless to someone skilled in the art is "without a wire." "Each element contained in a patent claim is deemed material to defining the scope of the patented invention." Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29, 117 S. Ct. 1040, 137 L. Ed. 2d 146 (1997). The Court, therefore, must give heed to the use of the term "wirelessly." In the opening clause of both claims 1 and 22, the patent explains that the device wirelessly transmits information. While the focus of the dispute has been the first clauses of these claims, other clauses in both claims also refer to wireless transmission. Indeed, neither claim refers to the transmission process without including the wireless element. Courts can look to other clauses in the claims in question to inform their construction of the claim element "and further define the functions attributed to it by the patentee." Phonometrics, Inc. v. Northern Telecom, Inc., 133 F.3d 1459, 1465 (Fed. Cir. 1998). Plaintiff's repeated and consistent reference to "wireless transmission," as opposed to "transmission" generally or "wired transmission," throughout claims 1 and 22 shows that Plaintiff understood the patent was for a device that "transmitted wirelessly." See id. ("A word or phrase used consistently throughout a patent claim should be interpreted consistently."). Thus "wireless transmission" is an element of the claim that limits the scope of the patent.

Further support for limiting the scope to wireless transmission can be found in the dependent claims, which describe the transmission process. See Phillips, 415 F.3d at 1313 (holding that claim construction requires interpretation in light of entire patent, including dependent claims). All of the dependent claims that describe the transmission process from the device to the FM receivers refer to transmission through an antenna. n2 As an antenna is only necessary for wireless transmission, this repeated description of transmission through an antenna further supports a finding that the scope of the claim is limited to wireless transmission. Thus, the plain language of the claims 1 and 22 in the context of the entire patent indicates that the patent is limited to wireless transmission.

b. Specification

The specification serves as additional support for a finding that the patent scope is limited to wireless transmission. See Aspex Eyewear, Inc. v. Altair Eyewear, Inc., 386 F. Supp. 2d 526, 534 (S.D.N.Y. 2005) (finding that analysis of the specification supported conclusion that claim included eyeglasses with rims). First, in distinguishing the invention from prior art, the specification discusses the disadvantages of the comparative karaoke systems. Within the list of disadvantages such as the size and expense, Plaintiff describes the need for many wire connections, which causes users to be constrained to
certain locations. The specification goes on to say that the invention overcomes the disadvantages of the typical karaoke system. The invention, through wireless transmission, allows users to be mobile - taking and performing their karaoke in any location where a FM receiver is properly tuned. As Plaintiff distinguishes prior art, in part, on the use of wires, the claim should not now be read so broadly as to cover the very aspects of prior art Plaintiff relied on to distinguish the invention. See, e.g., Asyst Techs., Inc. v. Emtrak, Inc., 402 F.3d 1188, 1194 (Fed. Cir. 2005) (holding that the court's construal of the term "mounted on" to mean "fastened into position" based on the ordinary meaning of mounted and rejection of the plaintiff's definition of being electrically connected was supported by the fact that "on occasion the patent distinguishes between features that are 'mounted on' an object and those that are 'connected to' or 'in electrical communication with'"); see also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("[T]he SciMed patents distinguish the prior art on the basis of the use of dual lumens and point out the advantages of coaxial lumens used in the catheters that are the subjects of the SciMed patents. That discussion in the written description supports the district court's conclusion that the claims should not be read so broadly as to encompass the distinguished prior art structure [of dual lumens].").

Second, in describing the embodiment of the device, the specification does not explicitly discuss the use of wires in the invention, or the lack thereof. The specification, however, outlines in multiple places the use of an antenna for transmitting the music and human voice to common FM receivers. See '553 Patent col.5 1.61, col.6 1.19, col.7 1.64. This is material to the analysis. See Watts v. XL Sys., Inc., 232 F.3d 877, 883 (Fed. Cir. 2000) (holding where "[t]he specification only describes one method" of achieving an element of the claim, "the specification actually limits the invention to structures that utilize [that method]," even if a person of ordinary skill would be aware of other methods for achieving the claim element). Again this indicates that the scope of the invention, and Plaintiff's understanding of the scope, was that transmission was wireless. See SciMed Life Sys., 242 F.3d at 1344 ("[T]he written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format."); Phonometrics, 133 F.3d at 1459; Gen Am. Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 769-70 (Fed. Cir. 1996); Carroll Touch, Inc. v. Electro Mech. Sys., Inc., 15 F.3d 1573, 1577-78 (Fed. Cir. 1993); Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1566-67 (Fed. Cir. 1992).

Finally, in discussing the steps required for performance, the specification only explains that FM receivers need to be tuned to the correct frequency and adjusted to the proper volume. '553 Patent col.8 1.20. Nowhere does the specification explain that the device needs to be wired or physically connected to a receiver. For the above reasons, the specification confirms a construction of the patent that would limit the scope to wireless transmission.

c. Prosecution History

The '553 Patent's prosecution history does not specifically discuss the inclusion of "wirelessly transmitting," but it nonetheless offers insight into why the term was added to the patent claims. The patent application was twice rejected and amended on the grounds of prior art in the form of the Takao and Mankovitz patents. The PTO explained that the Takao and Mankovitz patents, when considered together, teach the technology used for Plaintiff's invention. (Damoulakis Decl. Ex. B 333) The Takao patent discussed portable devices and the Mankovitz patent discussed transmission means. In Plaintiff's response to the first rejection, Plaintiff commented that the invention was more complex than the prior art. (Damoulakis Decl. Ex. B 350) Plaintiff added elements and details in each of the amendments to distinguish the invention from prior art and to describe more clearly the subject matter of the invention. (Damoulakis Decl. Ex. B 348, 395) In the first amendment, Plaintiff included more details of the invention such as the hand-held and self-contained features, but did not elucidate the "means for transmitting." (Damoulakis Decl. Ex. B 343) These changes, however, were not sufficient to avoid obviousness based on prior art. (Damoulakis Decl. Ex. B 361)

In the final amendment, Plaintiff added the term "wirelessly" to the first and last clauses of claim 1 and introduced claim 22, which describes wireless transmission. While additional changes were made to the patent unrelated to transmission in the second amendment, the Court can nevertheless determine that including the word "wirelessly" was part of Plaintiff's goal to define more clearly the invention in order to achieve patentability. See Phillips, 415 F.3d at 1317. Plaintiff has given no other reason for making the amendments in the remarks. Thus "wirelessly transmitting," as opposed to transmitting generally, was an important detail in achieving patentability. Further, in a declaration submitted during the application process, the Vice President of NAS Electronics, Inc., then the assignee of the device, stated that the device was acclaimed as the "first wireless, hand-held microphone." (Damoulakis Decl. Ex. B 399) Based on the foregoing prosecution history, it is apparent that Plaintiff intended to patent a device that specifically transmitted signals wirelessly from the device to a remote
Plaintiff contends in his opposition papers and at oral argument that the purpose of the inclusion of "wirelessly" was to broaden the scope of claim 1, which originally was limited to RF signals capable of being received only by radio receivers. According to Plaintiff, the addition of "wirelessly" broadened the claim to permit signal receivers other than radios, such as televisions.

Plaintiff mischaracterizes the amendments and their effects on the patent scope. While the amendment did broaden the means of reception, it simultaneously narrowed the means of transmission. On the one hand, the original claim only described the transmission and reception process in one clause, stating a "means for transmitting . . . as an RF signal capable of being received by a radio receiver." (Damoulakis Decl. Ex. B 343) The amended claim, on the other hand, describes the transmission and reception in both the first and last clauses of claim 1. The first clause describes a "device for wirelessly transmitting . . . for reception and reproduction by an external receiver." '553 Patent, col.10 1.28-30. The last clause of claim 1 describes a transmitter "for wirelessly transmitting . . . an RF signal capable of being received and reproduced by said external receiver." '553 Patent, col.10 1.64-7. Thus the first half of the clauses, in both the original and final versions of claim 1, outlines the transmission means and the latter half of the clauses outlines the reception means. Plaintiff blurs the clauses, using the language in the first half, which describes transmission, to support his argument about the second half, which involves reception.

Put another way, prior to the introduction of the term "wirelessly," the '553 patent could have been read to cover both wired and wireless transmission. Plaintiff added the phrase "wirelessly transmitting," thereby narrowing the scope from transmission generally to wireless transmission specifically. Even if the amendments broadened the second half of the clause so that the device could receive more than just RF signals, the change to the first half of these clauses limited the means of transmission to wireless. Therefore, Plaintiff's interpretation of the prosecution history fails.

--- Footnotes ---

n3 On August 9, 2006, Plaintiff submitted an unsolicited letter to the Court seeking to supplement the August 8, 2006 oral argument regarding the addition of the word "wirelessly." Plaintiff did not seek or receive permission from the Court and the Court will not consider the letter. Thereafter, on August 18, 2006, Plaintiff filed a Motion for Leave to File Letter Corroborating Information and Argument of Record or, in the Alternative, for a Telephone or Court Continuation of the Oral Argument. Plaintiff has had ample time since the filing of this Motion to seek leave to submit such a letter or to supplement the record. The Court will not entertain additional submissions or argument. In any event, it does not matter why Plaintiff added the term "wirelessly" to the patent, because as noted below, prosecution history estoppel is not necessary to decide this Motion. The claim says what it says, and does so plainly and clearly.

--- End Footnotes ---

Together, the language of the patent claims, the specification, and the prosecution history require a construction of the patent that is limited in scope by the element of wireless transmission. It is not necessary for the Court to look to extrinsic evidence as no ambiguity remains following review of the intrinsic evidence. Based on this limitation, the Court must now compare the patent claims to Defendants' allegedly infringing devices to determine if wired transmission is equivalent to wireless transmission.

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14. Wireless Device: A device that receives and/or transmits electromagnetic signals and can be carried by a person outside of a home or office.

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2. Claim 10: "wireless signals" "Wireless signals" is construed to mean "cellular telecommunications transmitted from a
source to a receiver without use of a wire."

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9. "First and second wiring segments in a building"

This term appears in Claim 25 of the '538 patent, which describes: "A network for transporting digital data and telephone signals, said network comprising: . . . first and second wiring segments in a building, each comprising at least two conductors for carrying digital data signals. . . ." SercoNet construes this term as "two distinct wiring segments, each consists of 2 or more distinct wires exclusively located in a structure." NetGear's construction is: "The building's conventional telephone wiring which has been modified so as to be split into fully separate segments."

There seem to be two main areas of dispute regarding this term. NetGear argues that the wiring must be telephone wiring and that such wiring is modified and split, whereas SercoNet argues that the wiring is not limited to telephone wiring, and that modification or splitting of that wiring is not required. SercoNet agrees that in its proposed construction, a structure is a building. Starting with the claim language, claim 29 is for a network according to claim 25, wherein at least one of the wiring segments is telephone wiring. Based on this claim language, it appears that wiring segments need not be telephone wiring, unless the wiring is explicitly described as telephone wiring, given the fact that dependent claim 29 limits one wiring segment to telephone wiring. In addition, claim 25 notes that the claimed network transports both digital data and telephone signals. The claim language, therefore, supports SercoNet's broader reading that does not limit the wiring to telephone wiring. Nor does the claim language refer to modification of the wiring.

Turning to the specification to further understand this term, the summary of the invention does not refer to modification of wiring. See '538 patent at 4:55-5:15. Nor does the rest of the specification refer to required modification of the wiring, and NetGear does not point to where the specification refers to this. In fact, NetGear seems to abandon this argument in its opposition.

As to whether the specification limits "wiring" to telephone wiring, NetGear's argument that the specification supports construing wiring as "telephone" wiring is persuasive, as the wiring is described as such throughout the specification and abstract. See, e.g., '538 patent at 1:5-8, 3:40-44 (describing network using telephone wiring, telephone lines, and telephone line wiring system). In fact, the invention is summarized as one that "provides a method and apparatus for using the telephone line wiring system within residence or other building for both analog telephony service and a local area data network." However, the abstract also refers to wiring in a more general sense -- as "electrically-conducting media." See also '538 patent at 11:34-38 (referring to wires and conductors generally). In addition, the specification also refers to ethernet wires. See id. at 9:30-38. Therefore, although the specification makes clear that the invention predominantly uses telephone wiring, it is not limited to such wiring.

In sum, and for all the reasons set forth above, the court adopts SercoNet's proposed construction of "first and second wiring segments in a building" with a minor modification (keeping the term "building" rather than changing it to "structure") and construes the term as: "two distinct wiring segments, each consists of 2 or more distinct wires exclusively located in a building."

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3. "with"

The parties disagree about the meaning of the term "with" in the phrase "transmitting said control signal with said television program signal" of claim 21. Echostar argues that "with" requires that the control signal be transmitted at "the same time as" the program signal, whereas IPPV contends that "with" requires a close "association in time" between the transmission of the control signal and the "program (i.e. video) signal."

In support of its proposed construction, Echostar initially argues that the meaning of "with" is not clear from the language of
the claim. It then turns to the specification, and refers the court to an example that discloses that the control signal modifies the vertical rest interval portion of the continuous program signal. The modification is the change in amplitude that results from the combination of the signals. Based on this example, EchoStar asserts that the control signal becomes part of the program signal, and therefore, because the program signal is continuous, the only way for the control signal to be transmitted "with" the program signal is simultaneously. It also argues that if "with" is construed as "near in time to," the claim will be invalid for indefiniteness.

IPPV counters that "with" has several plain and ordinary meanings, and the context of the claim shows that the term means "a close association in time." As further support, IPPV points to a portion of the specification that, in referring to the placement of codes, states that "they are preferably inserted in the blanking so as not to appear as video." It then refers the court to a portion of the specification stating that "the transmitting end of the encoding system includes a program source . . . which generates a composite video signal comprising video information and synchronizing signals . . . ."

IPPV's argument focuses on the location of the control signal relative to the "program (i.e. video) signal." As previously explained, however, program signals and video signals are different types of signals. This distinction is evident from the language of the patent where claim 21 refers to "television program signals" and claim 13 concerns "video signals." In light of this difference, the portions of the specification relating to the placement of signals relative to the video signal are irrelevant to the construction of "with," which concerns the relationship between the control signal and the program signal.

The program signal is constant, and as result, any signal that travels with the program signal must have been transmitted at the same time as the program signal. The context of the claim therefore requires that the court construe "with" as meaning "at the same time as."

The parties dispute the meaning of the words "with the information transmissions" in the phrase "transmitting within at least one allocated television channel frequency band, together with the information transmissions a cost signal indicating the magnitude of the charge for access to the information in the transmissions." EchoStar argues that "with the information transmissions" requires that the cost signal must be placed inside the program signal, while IPPV contends that "with the information transmissions" requires that the cost signal be closely associated in time to the information transmission.

In support of its proposed construction, IPPV refers the court to a portion of the specification stating that "each scrambled program capable of impulse purchase is transmitted with data including the cost of the program in a part of the television signal, which does not convey program information (e.g., the vertical or horizontal interval or an unused portion of the audio frequency band)." Based on this statement, it contends that program information is the data transmitted in an "information transmission," and that the cost signal is not transmitted at exactly the same time as the program information. IPPV therefore concludes that the cost signal is not necessarily transmitted at the same time as the "information transmission." EchoStar simply responds by arguing that the cost signal must be placed inside the program signal.

The parties are focusing on two different relationships: (1) EchoStar wants the court to define the relationship between the cost signal and the program signal; and (2) IPPV wants the court to define the relationship between the cost signal and the information transmission. The court begins with the understanding that the information transmission and the cost signal are components of the continuous program signal. Thus, the cost signal is placed inside the program signal, and due to the continuous nature of the program signal, it is transmitted at the same time. Within the program signal, however, the court finds no reason why the cost signal and the information transmission must be transmitted at the exact same time. As a result, the court concludes that to the extent "with the information transmissions" refers to the relationship between the cost signal and the information transmissions, the words mean closely associated in time.
c. "Within a range"

Each asserted independent claim except Claim 36 states that NSMs must be located "within a range" of at least two RCNs. See CellNet's Memorandum in Support of Its Motion for Non-Infringement at 22-24; Itron's Memorandum in Opposition to CellNet's Cross-Motion for Summary Judgment of Non-Infringement at 25. This limitation allows the '094 patent to achieve one of its central design goals, that of path redundancy. See '094 Patent, Col. 3, 11. 27-30 ("[An] object of the invention is a communications network for collecting data from network service modules that … has inherent communication redundancy to enhance reliability and reduce operating costs."). The specification describes the important role redundancy plays in the patented system:

The remote cell nodes 112 are arranged in an array with the spacing between the remote cell nodes 112 relative to the network service modules 110 so that each network service module can transmit to at least two and preferably four of the remote cell nodes 112. Thus, the remote cell nodes 112 are provided in significantly larger numbers than is absolutely necessary for each network service module 110 to be received by a respective one of the remote cell nodes 112. The remote cell nodes 110 theoretically receive high levels of duplicate information. In a normal residential situation, the location of the remote cell nodes 112 so that each network service module 110 can be received by four such remote cell nodes 112 would lead to an array in which each remote cell node 112 would be responsive to approximately 1,000 of the network service modules 110.

Col. 15, ll. 42-57. Itron contends that the phrase "within a range" does not require that an actual functioning communication link exist between an NSM and two or more RCNs. Rather, it argues, the patent requires only the possibility of such a link. As CellNet points out, however, this proposed construction is contradicted by other aspects of the patent. First, because path redundancy is the central mechanism for assuring data integrity in the '094 patent design, it follows that actual redundancy should be considered a system requirement, not merely an option. Second, the specification language quoted above expressly contemplates actual links between an NSM and at least two or more (and preferably four) RCNs. Third, Claim 36 uses the phrase "within a range" in stating its limitation that only one RCN be within a range of an NSM. If "within a range" were interpreted as requiring only a possible functioning link between an NSM and an RCN, a crucial aspect of the '094 system, as described in Claim 36, would be inoperative. Therefore, according to the well-established rule of claim construction that the same limitation appearing in different claims must be interpreted consistently, see American Permahedge v. Barcana, 105 F.3d 1441, 1446 (Fed. Cir.1997); Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed. Cir. 1995), "within a range" must be interpreted as describing an actually functioning communications link.

In its claim construction Memorandum Opinion, the Court addressed the DMOS issue raised by Defendants and provided a claim construction for the terms "MOS transistor" and "substrate." At that time, the Court considered the DMOS-related issue to be relevant to equivalence and prosecution history estoppel, and therefore, the Court was not persuaded that the DMOS issue was properly before it.

However, by their letter, Defendants have raised the DMOS issue again. Plaintiff has not alleged infringement under the doctrine of equivalents with respect to the '075 patent and has only pursued its infringement allegations based on literal infringement. Therefore, the Court finds any DMOS issues related to equivalence are moot.

As for prosecution history estoppel, the Court of Appeals for the Federal Circuit has recognized that prosecution history estoppel is irrelevant to literal infringement. See Fromson v. Advance Offset Plate, Inc., 720 F.2d 1565, 1571 (Fed. Cir. 1983). To the extent that Defendants rely on the doctrine of prosecution disclaimer, the Court concludes that the doctrine does not apply here. Like the doctrine of prosecution history estoppel, prosecution disclaimer requires "the alleged disavowing statements to be so clear as to show reasonable clarity and deliberateness, … and so unmistakable as to be unambiguous evidence of disclaimer." Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1325-1326 (Fed. Cir. 2003). In this case, the Court is not persuaded that Plaintiff's statements distinguishing Colak were sufficiently clear and unambiguous to amount to a disclaimer of all DMOS devices. In the Court's view, Plaintiff's statements were only relevant to distinguish the type of DMOS device shown in Colak, and not all DMOS devices. Indeed, the specification expressly notes that the invention can be embodied in either an MOS or DMOS structure. '075 patent, col. 3:6-9. Accordingly, the
Court declines to import DMOS limitations into its claim construction by reinterpreting the term "MOS transistor" and defining the term "within a substrate" in the manner suggested by Defendants. 1

--- Footnotes ---

1 As the Court has noted, the term "substrate" has already been defined, and the Court is not persuaded that the term "within" requires special construction beyond its ordinary meaning.

--- End Footnotes ---

In sum, the Court has provided a claim construction for the terms "MOS transistor" and "substrate," and the Court concludes that revisiting its interpretation of those terms is not warranted. Accordingly, the Court will deny Defendants' request for new and/or additional claim construction rulings.

J. "Within the call pod"

Defendants claim that "within the call pod" means "the structures for forming the voice path are inside the call pod." Callpod claims that construction of the term "within the call pod" is not necessary because it is clear and unambiguous.

Defendants offer their interpretation to clarify that "[t]he phrase 'within the call pod' cannot refer to the headsets, because they are outside the call pod and connected to it." However, the phrase "within the call pod" does not need further clarification. See U.S. Surgical Corp v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997) (noting that claim construction "is not an obligatory exercise in redundancy."). The headsets and everything else that are outside of the call pod are already necessarily excluded by the phrase "within the call pod." Further construction of the term would only introduce confusion and ambiguity into a clear and unambiguous phrase. Therefore, the Court finds that the term "within the call pod" does not require further construction.

3. without direct control of the processors of the processing elements

The third disputed term (actually, a phrase) appears in independent Claim 1 and dependent claims 4, 7, and 8. Claim 1 of the '201 Patent reads in relevant part:

A parallel processor array comprising:

said input/output means comprising:

means for broadcasting information received from a parent processing element to said child processing elements, such that common information is distributed to each processing element of the binary tree or a subtree thereof without direct control of the processors of the processing elements;

and

means for determining a priority among respective values of information received from said child processing elements and information received from the processor with which said input/output means is associated without direct control of the processors of the processing elements.

Plaintiff construes the disputed claim term to mean that "the main processor at a node is not burdened with controlling all aspects of an operation." 3 Pl. Br. at 9. Defendant, in contrast, construes it to mean that the "[broadcasting]/[determining a priority] function is performed independently by the I/O device without receiving instructions from its associated processor." Def. Br. at 11.

3 Plaintiff originally construed the term to mean that "the main processor at a node is not interrupted such that very little computational overhead is required for controlling the operation," but proposed the alternative construction in its briefs for the Markman hearing. See Def. Reply at 7 n.6.

The parties thus chiefly dispute the amount of control meant by the words "direct control," and both assert that their respective constructions reflect the ordinary, plain meaning of the words. See Pl. Reply at 9; Def. Br. at 11-12. Resolution of this issue requires focusing on the relationship of the I/O device to its associated processing element. In prior art, the processing elements also handled communication of data to other processing elements, and therefore "propagation times of the query and the result through the binary tree introduce significant delays in overall throughput comparable to those of a serial computer." '201 Patent at 3:29-33. The patent specification establishes that the patent's novel contribution, in part, was that the I/O device "communicates data and queries from the root processing element to all other N processing elements in the array" so as to "minimize propagation delays in the binary tree computer." '201 Patent at 5:10-16. Communication from the root processor to the processing elements is the broadcast function. The specification also provides that "the I/O Circuit of the present invention also provides a high speed function resolve and report function that determines a most favorable value of a set of values stored in the processing elements and reports this value." '201 Patent at 5:56-59. This resolve and report function is the determination of a priority from a data set. In short, the patent specification establishes that the purpose of the I/O device was to increase processing speed by allowing it to handle broadcast and resolve functions, leaving the processing element to perform other tasks.

The dispute over the instant term (or phrase) turns on whether the processor controls, even indirectly, the I/O device during the broadcast and resolve functions. Plaintiff's construction attempts to capture the implication of "no direct control" by stating that the "main processor" is "not burdened with controlling all aspects of an operation," yet the term "main processor" appears nowhere in the patent nor does plaintiff's construction clearly indicate how much of a burden is shifted to the I/O device. Worse still, this construction would permit plaintiff to claim that the processor directly controls some aspects of the broadcast and resolve functions, in contradiction of the claim language "without direct control."

Although plaintiff's construction is not persuasive, plaintiff argues that defendant's construction erroneously requires that the processor have "absolutely no control" over the "broadcast" or "priority" functions and that intrinsic evidence supports the claim that the processor has some control over the state of the I/O device. 4 Pl. Reply at 9. For example, the processor's low level routines send instructions to the I/O device, thus controlling the resolve function by having the bus drivers transmit data back up the binary tree. Pl. Reply at 10 (citing '201 Patent at 28:32-37). Thus, while the I/O device may execute the broadcast and priority functions independently of the processor, according to plaintiff, the processor nevertheless exercises some control because it must send instructions to have the I/O device initiate those functions. See tr., 08/20/09, at 69.

4 Plaintiff goes so far as to claim that the processing element "operates to 'greatly assist the I/O procedure.'" Pl. Reply at 9, citing '201 Patent at 9:15-16. This citation takes the phrase out of context, however, as the full sentence indicates that the processor "is provided with four parallel, 8-bit ports which simplify interconnection between processors and greatly assist the I/O procedure." '201 Patent at 9:13-16. Thus, it is not quite the case that the processor itself "greatly assists" the I/O device.

Although there is no doubt that the processor communicates with the I/O device, see tr. 08/20/09 at 99, the disputed claim language here focuses on the execution of these particular functions, i.e., how "common information is distributed to each
processing element" and how "determining a priority among respective values of information" is handled by the I/O devices. '201 Patent at 70:64-65, 68-69. As the patent specification suggests and the patent prosecution confirms, these functions are performed independently from the associated processor. The '201 Patent applicants originally omitted the phrase "without direct control," and the United States Patent and Trademark Office ("USPTO") rejected the claims as obvious in light of prior art, specifically U.S. Patent No. 4,583,164 ("Tolle"). See '201 Patent Prosecution History, Def. Br., Ex. F, at FBC 829-30. The applicants subsequently sought to distinguish their contribution from prior art by emphasizing that while "broadcasting" was directly controlled by the processors, here "once the broadcast operation is initiated . . . it proceeds independently of the processors . . . . [T]he 'means for determining priority' in each processing element is not under the control of the processor therein." Id. at FGC 793-94. After a second rejection, the applicants modified the claim language to include "without direct control." Id. at FGC 843-44. The applicants asserted that their system handled broadcasting faster than prior systems because it did not have to wait for the execution of processor instructions:

Because 'broadcasting' in Tolle is directly controlled, by the processors of the cells of the binary tree through the execution of a storage management algorithm rather than through cooperation among input/output means within each cell . . . , the time required to move data through the binary tree in Tolle is on the order of the number of cells in the binary tree multiplied by the execution time of the instructions required for moving information from a parent cell to its left and right child cells.

Id. at 852.

Hence, by shifting the execution of the functions to the I/O devices, and away from the processors, the propagation delays were reduced. The prosecution history thus dictates that the execution of the broadcast and resolve functions are performed "independently" by the I/O devices. See Gillespie v. Dywidag Systems Intern., USA, 501 F.3d 1285, 1291 (Fed. Cir. 2007) ("The patentee is held to what he declares during the prosecution of his patent.").

It follows that "without direct control of the processors of the processing elements" means that the [broadcasting] / [determining a priority] function is performed independently by the I/O device without receiving instructions from its associated processor.

C. The '969 Patent - "Without Installing New Software on the Wireless Terminal"

After considering the parties' proposed constructions, the Magistrate Judge recommended that the term "without installing new software on the wireless terminal," as used in Claim 16 of the '969 patent, should be construed to mean "without installing an application program, other than the parsing software, to provide user interfaces." (D.I. 133 at 15-18.) For the reasons set forth in the Report and Recommendations, the Court will adopt this construction.

J. "Without the Need for Human Analysis"

This term is included in all claims of the '382, '617, and '694 patent, as well as claims 1-5 of the '511 patent and claims 1 and 16-25 of the '392 patent. In the '511 patent, the term is used to describe a step that uses a driver to obtain information about the data structure of a data source "without the need for human analysis" of the data source. '511 patent, Col. 19:46-51.
In the joint claim construction chart, Timeline argues that this term is "a fragment of a phrase and cannot be satisfactorily defined out of context; attempts to do so inevitably distort the meaning." Alternately, Timeline proposes:

"A second step for using said first driver to automatically obtain first information about the data structure of said first data source without the need for human analysis of the first data source" means that it is possible (though not always required) to perform the "second step" without human analysis. In other words, the second step has the characteristic that human analysis is not needed for performance of the step, although human analysis or other involvement may be provided for if desired.

Pl.'s Opening Br. at 18. ProClarity's proposed construction is more straightforward: "Not requiring any evaluation or choice by a human."

ProClarity's proposed construction generally reflects the ordinary meaning of this term, which is not difficult to discern. "Without the need for human analysis" obviously means that human evaluation or choice is not required. The parties' dispute over this term appears to be based on an assumption that ProClarity's proposed construction would mean that human analysis is prohibited. However, the court sees no reason why ProClarity's construction, when read literally, would mandate such a result. Simply because human evaluation or choice is not required would not mean that human evaluation or choice is never allowed.

Therefore, the court construes the term "without the need for human analysis" to mean “not requiring evaluation or choice by a human.” The court does not include the word "any" from ProClarity's proposed construction because it is not necessary to reflect the ordinary meaning of the term.

(i) A system for storing digital data words, each data word having a plurality of multi-bit data portions, and for storing said data words in response to a storage request received over a parallel data bus said system comprising . . .

The key disputed term in this part of the definition is "data word." TM contends, without any particular intrinsic evidence to back its contention, that "data word" is no different than "data block" in the '342 patent. The question that arises is why the inventor would use a different phrase to convey the same concept. The issue becomes more acute because the term "word" has a specific and particular meaning in computerese. It is a term of computer architecture, referring to the amount of data that can be transferred to or from input or output devices in one memory cycle. See S. Handel, A Dictionary of Electronics 392 (2d Ed. 1966). The term "block of data," as I have interpreted it in connection with the '342 patent, contains no such specialized meaning and no such restriction. Therefore, I am unpersuaded that the two terms should be construed interchangeably.

IBM would have me construe "data word" even more narrowly, as encompassing only groups of bits that are "small multiples of 32 bits," on the ground that the largest "word" shown in the patent specifications is 256 bits, or 8 times 32 bits. IBM offers no persuasive reason why I should insert this limitation into the term "word," although its counsel -- while agreeing at oral argument that a "word" is indeed the amount of data that can be transferred in one memory cycle -- suggested (without evidentiary support) that only a small amount of data could be transferred in a single memory cycle using current technology. This may or may not be true, but it is not necessary to interpolate so precise a limitation into the patent claim.

Of course, I must interpret this limitation in light of the next following limitation, which specifically states that each data storage unit shall store "a respective one" of the several multi-bit data portions for each data word. (See below, page 32.) Thus, to fall within the literal patent claim, there must be an equivalent number of multi-bit data word portions and data storage units. That does not, however, mean that there may only be 32 data portions and corresponding 32 storage units in order to fall within the limitation. It is not inconceivable that a system could contain several hundred, or even thousand, data storage units, which would therefore be capable of storing a corresponding number of multi-bit word portions in parallel, one data portion to a memory unit.

IBM would also have me declare that the bits of data within the word must be logically related in the sense that they are part
of the same unit of information sent from the computer, and will be part of the same unit of information when returned to
the computer. To illustrate its point: IBM contends that "Mary had a little lamb" could be a data word, because all the "bits"
(that is to say, all the letters) are logically related; but "Mary had a little lamb and the Yankees are World Champions" could
not, because this statement contains two ideas that are not logically related. TM argues that there is no such limitation in the
patent claim, and points out that imposing any such limitation would exclude the preferred embodiment from the scope of
the patent -- a highly disfavored way of construing a patent, one that is "rarely, if ever, correct." See Vitronics, 90 F.3d at
1583. TM is correct, and I decline to impose this restrictive definition on the claim.

The parties agree that the term "parallel data bus" means a system containing more than one conductor within a computer
along which information is transmitted from a source within the computer to a destination within that computer. And the
term "multi-bit data portions" necessarily means data word subsets of two or more bits, because a system described in prior
art could read only one bit at a time. (A 605.)

I will thus describe this first limitation for the jury in the following terms:

We are dealing in this '979 patent with a system for storing something called digital data words. Digital means comprised
or made up of digits, which as we already know can be either 0 or 1. And data, as we already know, means information -- in
this case, information that is encoded into digital form. Now exactly what is a data "word"? Well, the term "word," in
computerese, means the amount of data, or the number of bits (binary digits, or 0s and 1s), that can be transferred to or from
input/output devices in a single memory cycle. It is not a specific number of bits; rather, it is whatever number of bits can be
transferred to or from input/output devices in one memory cycle. We will hear a lot more about input and output devices and
memory cycles as the trial wears on.

In this particular system discussed in the '979 patent, each digital data word is made up of two or more sub-parts, and
each of those sub-parts contains more than one bit, that is, two or more bits. For example, if you had a data word that was 64
bits long, it might have 8 multi-bit data portions consisting of 8 bits each. Or it might have 32 multi-bit data portions
consisting of 2 bits each. But however these sub-parts, these data portions, get whacked up, each one must have at least 2
bits.

Now our system, to be comprehended within the '979 patent, must have the capacity to store the data words in a particular
way. The system has to be able to store the data words in response to a storage request that is received over something called
a parallel data bus. When you think about a data bus, I want you to think about a Bee Line bus, or a city transit bus, or a
school bus. Those are devices for transporting people from one place to another. Well, in a computer, a bus is a device for
transporting data from one place to another. It consists of one or more conductors, along which information is transmitted
from a source to a destination. And a parallel data bus is more or less exactly what it says: it is a data bus that has multiple
conductors, or more than one wire, if you prefer, which can transmit data at the same time -- in parallel, so to speak -- from
one place within a disk system to another.

7. "word line driver circuit"

The parties dispute whether the "word line driver circuit" can provide a driving voltage to a word line or a group of word
lines.

Defendants assert that there can only be one word line for each word line driver circuit. Defendants contend that the
ordinary meaning of the term "word line driver circuit" indicates that it is limited to a single word line. Defendants rely on
MOSAID's definition of "driver" to support this alleged ordinary meaning. "Driver" is defined as "an electronic circuit that
Defendants argue that this definition supports their construction that a "word line driver circuit" supplies an input (i.e.,
voltage) to a word line.

Although Defendants are correct that this definition supports their construction, the Court finds that this definition is also
consistent with MOSAID's broader construction. Nothing in the definition limits a driver to supplying an input to only one

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circuit. On the contrary, it appears that a circuit that applied an input to multiple circuits would still be a driver. Since the Court is required to "give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art," the ordinary meaning of "word line driver circuit" will include "one or more word lines."

Next, the Court turns to the claim language to determine whether the ordinary meaning is consistent with the claims. The phrase "word line driver circuit" is found in multiple claims in the '253 and '643 patents. The '253 patent is representative of how the term is used:

- "a word line driver circuit which applies the controlled high voltage V[pp] from the high voltage supply to a word line" '253 patent, claim 15 (emphasis added);
- "a word line driver circuit which applies the controlled voltage from the voltage supply to a word line" '253 patent, claim 22 (emphasis added);
- "a word line driver circuit, which applies the controlled high voltage V[pp] from the V[pp] supply to a selected word line" '253 patent, claim 29 (emphasis added).

Defendants contend that these relevant excerpts demonstrate that a "word line driver circuit" applies a voltage to a single word line. MOSAID counters by arguing that the word "a" before "word line" means one or more and thus the "word line driver circuit" is not limited to only one word line.

Defendants have the better argument. The word "a" in the '253 claims does not limit the word line driver circuit to only one word line. See KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) ("This court has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims construing the transitional phrase 'comprising.'") (citations omitted). Since the claims do not require that the "word line driver circuit" work with only one word line, its plain and ordinary meaning includes one or more word lines.

Defendants contend that the broader meaning of "word line driver circuit" is not supported by the specification. Defendants argue that nothing in the Lines patents states or even hints at the possibility that the word line driver can drive more than one word line. Defendants argue that one of ordinary skill in the art reading the Lines patents would believe that a secondary decoder's only function would be as an alternative voltage source for that one word line. Thus, according to Defendants, the "word line driver circuit" would be limited to the embodiment shown in Figure 1 of the Lines patents.

For the reasons stated above under the "means for applying" section, see Section 2 supra, Defendants' arguments are unconvincing. The secondary decoder is clearly contemplated as a circuit that can be used in conjunction with the "word line driver circuit" to select and drive more than one word line. Accordingly, the specification does not limit the ordinary meaning of "word line driver circuit" to the embodiment set forth in Figure 1 of the Lines patents.

In sum, the plain and ordinary meaning of "word line driver circuit" is unambiguous and means "a circuit that applies a driving input voltage to a single word line or a group of word lines."

19 This construction determines how the Court construes the disputed claim terms "word line selection signals" ('253, '640 and '643 patent claims), "select signals" ('253 claim 29), "word line control signals" ('253, '640 and '643 patent claims) and "control signals" ('253 and '643 patent claims). The only dispute between the parties concerning these terms is whether they are limited to a single word line or could apply to a group of word lines. Having found that the Lines invention contemplated an embodiment including a group of word lines, the Court adopts MOSAID's proposed constructions for each of those claim terms.
Claims 1, 25, 27, 28, and 31 of the '819 Patent contain the term "word vector." IPI contends that "word vector" means: "A representation corresponding to co-occurrence patterns and relationships between words. The word vectors represent co-occurrence patterns and relationships between word neighbors." Google contends the term means "a column or row of numbers with each number representing the number of times a particular word co-occurs with each other word within a range of words in a corpus of documents; also known as a 'thesaurus vector.'" The parties' dispute centers around whether the term "word vector" is used in a strict mathematical sense in the specification.

IPI's proposed construction is derived from the '819 Patent Abstract: "The word vectors represent global lexical co-occurrence patterns and relationships between word neighbors." IPI argues that "[a] 'word vector' is simply a representation of the co-occurrence patterns of the words in a document" and nothing in the specification requires that this representation be limited to a number or "the number of times a particular word co-occurs" with another word. IPI's Opening Brief, at 6-7. Google argues that IPI's proposed construction is overly broad in that it would cover representations of co-occurrence patterns that have nothing to do with the patented technology, such as a representation of co-occurrence patterns in prose (e.g., "[I]n this brief, 'claim' occurs more frequently with 'construction,' than with debtor."). Google's Responsive Brief, at 11. Further, Google argues that IPI's proposed construction "would result in 'word vectors' that would simply not work to perform the claimed methods" because "as the claims and specification make clear, the co-occurrences are counted." Id. at 12.

Indeed, Google argues that the term "vector" has a precise mathematical definition and thus, one of ordinary skill in the art would understand "word vector" to be numeric in nature. Google supports its assertion with both the claim language and the specification. Claim 1 recites in part, "recording a number of times a co-occurring word co-occurs in a same document . . ." and "generating a word vector for the word based on every recorded number." In addition, the specification states:

"The first preferred embodiment requires the formation of a co-occurrence-based thesaurus, which is formed by computing and collecting a (symmetric) term-by-term matrix C. Each element c[ij] of matrix C records the number of times that words i and j co-occur in a window of size k."

'819 Patent, col. 14:39-43 (emphasis added). Further, Google argues that Dimensions of Meaning, the inventor's article cited in the '819 Patent, explains how vectors representing the relationship between words are generated from a matrix or array of numbers based on co-occurrence patterns.

The Court agrees with Google that IPI's proposed construction is overly broad in referring merely to a "representation" because the specification indicates that a "word vector" is a particular form of representation of lexical co-occurrence patterns. In addition, IPI's use of the phrase "word neighbors" in the second sentence of its proposed construction serves to confuse rather than clarify the construction. On the other hand, contrary to Google's basic premise, although the term "vector" has a generally understood meaning of a variable quantity that can be resolved into components, such as a matrix of numbers, it is not used in that strict of a mathematical sense in the specification. However, from the claim language and the specification, it is clear that the term "word vector" is numerical in nature. Accordingly, the Court rejects both parties' proposed constructions and construes the term "word vector" to mean "a variable numerical quantity, which can be resolved into components, that provides a representation of a lexical co-occurrence pattern."

H. "Established on the World Wide Web"

The term "established on the World Wide Web" appears in claim 16 of the '253 patent. The term imposes an additional limitation on the remote system controller required by that claim. In other words, the remote system controller described in
claim 16 must be "established on the World Wide Web." 219

---------- Footnotes ----------
219 '253 patent, claim 16 (as amended).
---------- End Footnotes ----------

ABC asserts that "established on the World Wide Web" means "that is accessible as a service on the Internet and can be located by a URL." 220 WebEx contends that the term means "able to be communicated with through a browser using HTTP and HTML interpretation." 221

---------- Footnotes ----------
220 ABC's Brief, Docket Entry No. 154, at 21.
221 WebEx's Brief, Docket Entry No. 156, at 12.
---------- End Footnotes ----------

1. Accessible as a Service

ABC asserts that a device that is "established on the World Wide Web" must be "accessible as a service." ABC, however, cites no evidence, intrinsic or extrinsic, that supports this aspect of its definition. None of the cited evidence describes the WWW or devices associated with the WWW as "accessible as a service" or as necessarily providing a service. Therefore, the court will not include this limitation in its definition of "established on the World Wide Web."

2. Accessible on the Internet and Locatable by a URL

ABC contends that a device that is established on the WWW is accessible on the Internet and can be located by a URL. WebEx does not deny that devices that are established on the WWW are accessible on the Internet. In fact, WebEx specifically admits in its response brief that devices established on the WWW are a "subset of devices on the Internet." 222 Nor does WebEx deny that devices that are established on the WWW are locatable by a URL. To the contrary, WebEx admits that devices on the WWW can be located using URLs. 223 Furthermore, the available evidence, both intrinsic and extrinsic, supports ABC's position that a device that is established on the WWW is accessible on the Internet and can be located by a URL. 224

---------- Footnotes ----------
222 WebEx's Response, Docket Entry No. 166, at 14.
223 See id. at 15 ("[W]hile a URL can be used to locate devices on the World Wide Web, a URL also can be used to locate devices that are not on the World Wide Web. . . . ABC's proposal to define devices established on the World Wide Web as those that can be located with a URL fails to distinguish those devices from others that can be located with a URL but are not established on the World Wide Web.").
224 See, e.g., United States Patent No. 6,167,441 col.1 ll.20-22 (filed Nov. 21, 1997) (intrinsic evidence) ("The World Wide Web, or simply 'the web,' is the Internet's multimedia information retrieval system. It is the most commonly used method of transferring data in the Internet environment. . . . The path to a particular Web server is defined by a Uniform Resource Locator (URL).") (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 9). This patent was cited during the prosecution of the '945 patent in a Notice of References Cited. See Notice of References Cited (May 27, 2003) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 6C). See also, e.g., Microsoft Computer Dictionary 479 (4th ed. 1999) (extrinsic evidence) (defining "Web page" as "[a] document on the World Wide Web . . . in a particular directory on a particular machine (and thus identifiable by a URL)," defining "Web directory" as "a list of Web sites, giving the URL . . . of each," and for the term "Web address," referring readers to the definition of URL, suggesting that the terms are
Despite its own admissions and the available evidence, WebEx argues that the definition of the term "established on the World Wide Web" should not mention the characteristics of being accessible on the Internet and locatable by a URL because other devices that are not established on the WWW also have these characteristics. The court is not persuaded by WebEx's argument. Even if certain devices that are not established on the WWW are accessible on the Internet and locatable by a URL, that does not mean that these characteristics should be excluded from the definition of "established on the World Wide Web." The court concludes that a device that is "established on the World Wide Web" is accessible on the Internet and can be located by a URL. The court will include these characteristics in its definition of "established on the World Wide Web."

225 To the extent that WebEx argues that the characteristics of being accessible on the Internet and locatable by a URL alone are not sufficient to define being established on the WWW, the court agrees. As explained below, at least one additional limitation is required.

226 WebEx made a similar argument with respect to the definition of the term "website," and the court found it equally unpersuasive.

3. Able to be Communicated with through a Browser Using HTTP and HTML Interpretation

WebEx asserts that a device that is established on the WWW may be communicated with through a browser using HTTP and HTML interpretation. ABC contends that a browser using HTTP and HTML interpretation is not the only means of communication with a device established on the WWW and, therefore, is too narrow a limitation.

a. Communicated with through a Browser

The evidence provided by the parties suggests that devices established on the WWW may be communicated with through a browser. For example, one prior art patent cited during the prosecution of the '945 patent (intrinsic evidence) states that "[t]he WWW is a collection of files written using [HTML]. . . . HTML files may be accessed and displayed using specialized applications known as 'web' browsers . . . ." Another prior art patent (intrinsic evidence) similarly explains that

[t]he World Wide Web (WWW) is one of the most popular information services on the Internet. The WWW uses browser software to decipher hypertext links to other documents or files located on remote computers all of which are connected through remote computers. Browsers therefore provide a user-friendly graphical interface which allows users to easily navigate or surf from site to site or file to file around the Internet. 227 Another prior art patent (intrinsic evidence) similarly explains that

The same patent explains that a browser provides a user the ability to both send and receive data to and from servers. 229
ABC points out in its response brief that the USPTO Examiner, during the reexamination of the ’253 patent, described certain devices disclosed in a particular prior art reference -- specifically, routers, switches, and cards -- as established on the WWW. 230 ABC then asserts that “[i]t is indisputable that a router, switch, or card is not ‘communicated with through a browser using HTTP and HTML interpretation.’” 231 Although ABC may believe this fact to be "indisputable," it provides no evidentiary support for it. The affidavit of ABC’s expert witness, which ABC cites, does not mention routers, switches, or cards, nor does it identify any other sort of device that is established on the WWW, but which cannot be communicated with through a browser. 232 Therefore, based on the available evidence, the court concludes that a device that is established on the WWW can be communicated with through a browser.

b. HTTP and HTML

WebEx further contends that a browser used to communicate with a device established on the World Wide Web is limited to using HTTP and HTML interpretation. In support of this contention, WebEx cites two prior art patents. 233 The first patent ("the ’586 patent") states that "[t]he WWW is a collection of files written using [HTML] . . . . Servers hosting HTML files can communicate using [HTTP]. HTTP is an application protocol that provides users access to files . . . using the HTML page description language." 234 The second prior art patent ("the ’441 patent") provides that "[i]n the Web environment, clients request Web pages from Web servers using the [HTTP]. HTTP is a protocol that provides users access to files which include text, graphics, images, [and] sound, using a standard page description language known as the [HTML]." 235
236 See Office Action in Ex Parte Reexamination of U.S. Patent No. 6,360,253, Control No. 90/008,052 (Dec. 19, 2007) ("Broadway specifically discloses the benefit of a split personal computer system operating using [HTTP] over the World Wide Web . . . and thus the means for permitting bi-directional communication between the remote and local hosts is 'established on the World Wide Web.'"); id. at 15 ("[O]ne of ordinary skill would have been motivated to add HTTP to Crawford . . ., thus creating a system controller 'established on the World Wide Web.'"); id. ("[A]ny host computer 104 or router/switch that runs HTTP for the connected computers would read on [the 'established on the World Wide Web'] limitation."); id. at 18 ("[O]ne of ordinary skill would have been motivated to add HTTP to pcANYWHERE . . . thus creating a system controller 'established on the World Wide Web.'"); id. ("[A]ny modern ISP controller that runs [HTTP] for the members of the subnet would read on the ['established on the World Wide Web'] limitation; for example, if the remote host also had the ability to run Mosaic or another browser popular at the time and the ISP interfac ed web data for the remote host via HTTP, it would read on the claim even despite the fact that the pcANYWHERE software itself is not taught as being web-based.").

238 TCP/IP, or "transmission control protocol/internet protocol," 239 is a different protocol than HTTP. The '586 patent also discusses the limitations of HTML, noting that it "is a 'display only' language." 240 The patent then explains that the limitations of HTML may be overcome by embedding within HTML files "applications" written in other programming languages. 241 As an example, the patent cites the JAVA programming language. 242

238 United States Patent No. 5,961,586 col.1 ll.29-33 (filed May 14, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 8).


240 United States Patent No. 5,961,586 col.1 ll.47-50 (filed May 14, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 8).

241 Id. col.1 ll.50-59.

242 Id.

The '441 patent also describes that use of other programming languages to communicate on the WWW. It explains that web browsers may support not only HTML, but also "dynamic HTML, XML, Java, [and] JavaScript." 243

243 United States Patent No. 6,167,441 col.1 ll.60-66 (filed Nov. 21, 1997) (included in WebEx's Brief, Docket Entry No. 156, at Exhibit 9).
Furthermore, the '253 patent itself mentions the use of the JAVA programming language. The specification explains that 
"[t]he system of the present invention can be implemented by utilizing a programming language called JAVA . . . . The 
JAVA language is ideally suited to allow communication between the Graphical User Interface (GUI) requirements of a 
local portion . . . and the remote portion of the split personal computer system." 244

ABC also points out that although the Examiner believed that any device that communicates utilizing HTTP would read 
onto the "established on the World Wide Web" limitation of claim 16, none of the Examiner's statements indicated that 
communication on the WWW is limited only to HTTP. More importantly, ABC made no representations limiting the 
invention to utilizing only HTTP.

Considering all the available evidence the court is persuaded that a browser communicating with a device that is established 
on the WWW is not limited to using HTTP and HTML interpretation. The evidence indicates that browsers communicating 
with devices established on the WWW may utilize other protocols and programming languages.

4. Conclusion

The term "established on the World Wide Web" means "(1) accessible on the Internet, (2) can be located by a Uniform 
Resource Locator (URL), and (3) can be communicated with through a browser."
phrase "at least a part of," intended that each of the above terms should include only complete compositions.

Although the issue is close, the court adopts the plaintiff's proposed construction. The defendant's claim differentiation argument fails because the relevant dependent claims of the '345 patent add additional limitations other than the limitation of a "partial work." These dependent claims also require, for example, that the partial works be "previewed" as well as selected from either the lists or a media inventory. As a result, the scope of the dependent claims referred to in the '345 patent are narrower than the independent claims from which they depend. Accordingly, the court construes the relevant terms to mean "audio and/or video compositions, e.g. songs, movies, music videos, advertisements."

4909

(1) Working Data Code

Square D argues that the term "working data code" should be construed to mean "the machine representation of information used by the processor during the execution of its quantifying and reporting functions." At the Markman hearing, it offered an alternative construction, which is a bit simpler: "the machine representation of information being worked on." EI argues that "working data code" should be construed to mean "software or firmware that executes using working data."

At the Markman hearing, counsel for Square D explained that "the difference is, aside from the exact language, is the working data code we're saying is actually the data itself. It's the working data that is in there. They're saying it's the program that uses the working data. And we're saying that that is just inconsistent with the claim." Transcript of Proceedings from December 3, 2009, pp. 43-44.

The Court agrees with Square D that "working data code" means the data itself, not the code that is run on that data. First, the patent's title - "Intelligent Electronic Device with Assured Data Storage on Powerdown" - makes clear that the invention is concerned with storing data, not storing the codes that will execute on that data. The abstract is consistent with this construction:

An IED includes a power monitoring circuit operative to monitor a parameter of a portion of a power distribution system and generate an analog signal representative thereof. A processor couples with the power monitoring circuit and operates to receive the analog signal and at least one of quantify and report the monitored parameter. The processor further includes an integrated circuit, the integrated circuit having a non-volatile memory operative to store program code for the processor. A digital processing core couples with the non-volatile memory and operates to execute the stored program code to implement the quantifying and reporting functions. A volatile memory couples with the processing core and operates to store working data code for the digital processing core during execution of the stored program code.

The stored program code is executed; the working data code is not.

Similarly, the language of Claim 1 makes clear that there is a distinction between working data code and program code. Indeed, the claim itself uses "working data code" and "working data" interchangeably: Claim 1 discloses "a method for storing working data code," U.S. Patent No. 6,745,138 B2, col. 29, line 11, and the final step in that method involves the period transfer of "said working data from said volatile memory to said non-volatile memory." Id., col. 29, lines 28-30. It is not a program that's being stored; it is data.

Claim 19 is consistent: it discusses storing working data code for said digital processing core during execution of said stored program code. Id., col. 30, lines 38-40. Again, it is the data that's getting stored, not the program. Accordingly, the Court construes "working data code" to mean "the machine representation of information being worked on."

4910

L. First Workspace Data/Second Workspace Data
Visto asserts that the term "workspace data" as used in claims of the '221 patent, means "data that may include e-mail data, file data, calendar data, user data, etc. Workspace data may also include other types of data such as applications programs."

Seven asserts that the term "workspace data" means "a plurality of workspace elements or independently modifiable copies of workspace elements, including corresponding version information, but not including external status indicators that indicate whether workspace elements or independently modifiable copies of workspace elements have been viewed or deleted."

The parties appear to agree that the term "workspace data" had no commonly understood meaning in the art. The court therefore turns to the specifications for guidance. In doing so, the court observes that Visto's proposed definition comes almost verbatim from the specification. See '221 Patent, Col. 5, ll. 45-47: "The LAN comprises a client 165, which includes a base system 170 for synchronizing workspace data 180 (e-mail data, file data, calendar data, user data, etc.) with the global server 115 .... Those skilled in the art will recognize that workspace data 180 may include other types of data such as applications programs." It is clear also from the drawings of the various patents that workspace data includes the corresponding version information for each of the workspace elements in workspace data. See '192 and '131 Patents, Fig. 2, Blocks 250 and 255; Fig. 3 Blocks 180 and 350; '708 Patent, Fig. 2, Blocks 250, 255; Fig. 3, Blocks 144, 350; '221 Patent, Fig. 7, Blocks 180, 782. The court therefore adopts Visto's proposed definition of the term "workspace data" but adds the additional limitation that workspace data includes the corresponding version information. The term means "data, including corresponding version information, which may include e-mail data, file data, calendar data, user data, etc. Workspace data may also include other types of data such as applications programs."

B. Legal Issues

Before construing any of the terms or phrases of the patents at issue, the Court addresses two legal issues that are pertinent to this claim construction: (1) whether the Court should defer to the claim construction of Judge T. John Ward of the Eastern District of Texas; and (2) whether the specification for the '708 patent can be used to construe the claims of the '192 and '131 patents.

1. Judge Ward's Claim Construction Order

Visto brought suit against Seven Networks, Inc. in the Eastern District of Texas for infringement of the same four patents at issue in the instant case. On April 20, 2005, Judge Ward issued a claim construction ruling which addressed many of the same terms and phrases at issue in the instant case. Visto argues that, although Judge Ward's order is not binding on Sproqit because it was not a party in the Texas litigation, the Court should nevertheless adopt the definitions of the terms and phrases construed by Judge Ward. See Op. Br. at 5. Visto suggests that this approach is appropriate under stare decisis and for reasons of judicial efficiency.

Stare decisis, of course, does not literally apply. This Court is not bound to follow the decision of another district court. See Texas Instruments, Inc. v. Linear Techs. Corp., 182 F. Supp. 2d 580, 589 (E.D. Tex. 2002) (stating that stare decisis "does not precisely apply"). However, according to Visto, the Supreme Court in Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996), "noted that stare decisis favors promoting uniformity in claim construction." Op. Br. at 5.

Visto's characterization of Markman is not entirely accurate. In Markman, the Supreme Court's concern was whether claim construction should be within the province of a jury or within the province of a judge. The Supreme Court provided several reasons as to why claim construction should be a matter for a judge, one of them being "the importance of uniformity in the treatment of a given patent." Markman, 517 U.S. at 390. The Supreme Court explained:

Uniformity would . . . be ill served by submitting issues of document construction to juries. Making them jury issues would not, to be sure, necessarily leave evidentiary questions of meaning wide open in every new court in which a patent might be litigated, for principles of issue preclusion would ordinarily foster uniformity. But whereas issue preclusion could not be asserted against new and independent infringement defendants even within a given jurisdiction, treating interpretive issues as purely legal will promote (though it will not guarantee) intrajurisdictional certainty through the application of stare
decisis on those questions not yet subject to interjurisdictional uniformity under the authority of the single appeals court

Id. at 391 (emphasis added). In other words, while Visto is correct that the Supreme Court took note of the importance of uniformity of claim construction, Visto ignores the fact that the Supreme Court also made a distinction between intrajurisdictional uniformity and interjurisdictional uniformity. In the instant case, there is no issue of intrajurisdictional uniformity because Judge Ward's opinion issued from a different district court. See Verizon Cal. Inc. v. Ronald A. Katz Tech. Licensing, L.P., 326 F. Supp. 2d 1060, 1069 (C.D. Cal. 2003) (“Furthermore, the AT&T Order has limited stare decisis effect, given that it emanates from a Federal District Court in a separate jurisdiction.”); Texas Instruments, 182 F. Supp. 2d at 588 (noting that the Supreme Court in Markman praised “intrajurisdictional harmony”). As for interjurisdictional uniformity, there is no indication that Judge Ward's opinion has been appealed and, even if so, that the Federal Circuit has made any decision as to the appropriateness of his claim construction.

As for the other authorities cited by Visto in support of its position, it is largely distinguishable or, as above, of limited support. For example, in Zoltar Satellite Systems, Inc. v. LG Elecs. Mobile Communications Co., 402 F. Supp. 2d 731 (E.D. Tex. 2005), the court did say that "inconsistent claim constructions of the same claims by different courts can create serious problems,” which "especially deserve consideration when the same patent is simultaneously being litigated in another district." Id. at 737. However, the court in Zoltar made this statement in connection with its decision as to whether the case before it should be transferred to another district where a judge had already done substantial work on a patent infringement case involving many of the same patents. In Atmel Corp. v. Silicon Storage Tech., Inc., No. C 96-0089 SC, 2001 U.S. Dist. LEXIS 25641 (N.D. Cal. June 20, 2001), the court did rely on a claim construction ruling that issued from the plaintiff's lawsuit against another party but that claim construction ruling had issued from another court in the same district. In other words, intrajurisdictional uniformity was at issue. Moreover, the court indicated that it was appropriate to rely on the claim construction ruling because the defendant in the case at bar had called that claim construction ruling well reasoned and correct and even sought to have it adopted in litigation before the U.S. International Trade Commission. See id. at *22. Finally, in KX Indus., L.P. v. PUR Water Purification Prods., Inc., 108 F. Supp. 2d 380 (D. Del. 2000), the court did make note of deference to a previous claim construction ruling but that was a ruling that had issued from the very same judge. Moreover, the court highlighted that it would defer to the prior ruling only "to the extent the parties do not raise new arguments," id. at 387, and the court actually revisited at least one of its earlier constructions and corrected it. See id. at 389 ("After reviewing Degen and the specification of the '311 patent, the court finds that its earlier opinion . . . about the scope of Koslow's disclaimer was wrong.").

Taking into account all of the above, the Court concludes that it will take into consideration Judge Ward's claim construction order as, per Markman, uniformity in claim construction is important. However, because Judge Ward's order is outside of this jurisdiction, this Court has discretion in determining the degree of deference accorded his order. The Court concludes that order such as Judge Ward's is entitled to "reasoned deference," with such deference turning on the persuasiveness of the order; "in the end, [however, the Court] will render its own independent claim construction." Innovations, L.P. v. Intel Corp., No. 2:04-CV-450, 2006 U.S. Dist. LEXIS 41453, at *13 (E.D. Tex. June 21, 2006) (stating that claim construction ruling from outside the jurisdiction would be taken into account "as a thoughtful and thorough analysis of the parties' arguments involving the same patent and the same claim" but that court would "in the end . . . render its own independent claim construction"); see also Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 2003 U.S. Dist. LEXIS 13900, at *8-9 (N.D. Ill. Aug. 8, 2003) (stating that, even though claim construction order from outside the jurisdiction was "persuasive," at times, the court might "not agree with that court and Markman . . . is not to the contrary").

2. Use of '708 Specification to Interpret '192 and '131 Claims

In its claim construction brief, Sproqit contends that the specification for the '708 patent cannot be used to construe the claims of the '192 and '131 patents. In response, Visto argues that Sproqit's argument has no merit because the '708 patent is related to the '192 and '131 patents. See Reply Br. at 4. The '708 patent states that it is related to and incorporates by reference the '192 patent. The '131 patent in turn is a continuation of the '192 patent. In addition, the specification for the '708 patent has a great deal of overlap with the specifications for the '192 and '131 patents (which are identical).

There is no doubt that the three patents are all related in some fashion. Moreover, Sproqit probably would not contest the use of the '192 and '131 specifications to construe the claims of the '708 patent because the '708 patent specifically states that it is related to the application for the '192 patent and the specification for the '131 patent is identical to that for the '192 patent. But the issue presents the converse - i.e., whether the specification for the '708 patent can be used to construe the
claims of the '192 and '131 patents.

In Goldenberg v. Cytogen, Inc., 373 F.3d 1158 (Fed. Cir. 2004), the Federal Circuit stated that, "[i]n the absence of an incorporation into the intrinsic evidence, this court's precedent takes a narrow view on when a related patent or its prosecution history is available to construe the claims of a patent at issue and draws a distinct line between patents that have a familial relationship and those that do not." Id. at 1167. In the instant case, although the '708 patent incorporates by reference the application for the '192 patent, neither the '192 patent nor the '131 patent makes any reference to the '708 patent or its application. Moreover, the '708 patent was not part of the parentage or the prosecution history of the '192 or '131 patents. See id. at 1168 (examining whether there was a "formal relationship" between two patents or whether one patent incorporated the other during prosecution). In fact, (1) the application for the '708 patent was not filed until after the application for the '192 patent and (2) the specification for the '708 patent contains new matter not contained in the specification for the '192 patent (and therefore the identical specification for the '131 patent). n1 In Goldenberg, the Federal Circuit addressed the issue of subsequently added new matter.

--- Footnotes ---

n1 For purposes of convenience, for the remainder of this section, the Court focuses on the relationship between the '708 patent and the '192 patent only. The '131 patent does not need to be discussed because it, as noted above, is a continuation of the '192 patent and has the same specification as the '192 patent. Therefore, it should not matter that the '708 patent came before the '131 patent.

--- End Footnotes ---

The patent at issue was the '559 patent. The '559 patent issued from the '662 patent application, which was a continuation of the '261 patent application. At the time the patent holder filed the '261 patent application, it also filed the '262 patent application. The '262 patent application led to the '729 patent application, which then resulted in the '744 patent. In short:

'261 patent application --> '662 patent application (continuation) --> '559 patent

'262 patent application --> '729 patent application (continuation in part) --> '774 patent

See id. at 1161. Notably, after the patent holder filed the '261 and '262 patent applications, the PTO - in a first office action - rejected certain claims of the '261 patent application on the grounds of double patenting over the '262 patent application. See id.

One of the issues in Goldenberg was whether the district court erred in relying on the '744 patent and its prosecution history when construing the claims of the patent at issue, i.e., the '559 patent. The Federal Circuit said both "yes" and "no."

According to the court, it was proper for the district court to rely on the '262 patent application as it existed when the patent holder distinguished the '262 application from the '261 application in response to the PTO's office action. This was because the response "constitutes part of the prosecution history of the '261 application, which is a parent application to the '559 patent, and therefore part of the '559 patent's prosecution history." Id. at 1167 (emphasis in original). However, the district court erred in relying on the specification of the '744 patent to construe the claims of the '559 patent because

...[the relevant passages from the '744 patent] ... were added during a continuation-in-part of the '262 application. These passages are therefore new matter added to the content of the '262 application subsequent to when it was distinguished in the [patent holder's] office action response. While the content of the '262 application at the time it was distinguished from the '261 application constitutes part of the prosecution history of the '559 patent, subsequently added new matter is not similarly incorporated.

Id. (emphasis added).

In the case at bar, no part of the '708 patent or its prosecution history is part of the '192 or '131 prosecution history. Under Goldenberg, the '708 patent would, in the first instance, have no bearing on the construction of the '192 or '131 patents.

To be sure, there may be narrow circumstances where a later patent may be looked to in construing an earlier subject patent
even where it is not part of the subject patent's prosecution history. In Microsoft Corp. v. Multi-Tech Systems, Inc., 357 F.3d 1340 (Fed. Cir. 2004), the Federal Circuit concluded that it was permissible for a court to rely on the prosecution history of a sibling patent to construe the claims of another patent even though the subject patent was issued earlier and its prosecution history did not reference the sibling patent. However, in that case, the specifications for the two patents were exactly the same, and it was the accused infringer who was trying to use the later-issued sibling patent to limit the scope of the earlier-issued patent. Evidently, when identical language is used and there is no new matter, the identical nature of the specification provides a basis for seeking parallel constructions. However, particularly in connection with the phrase at issue in this Order, the specifications for the '192 and '708 patents differ in material respects. The '708 addresses translation across formats; the '192 does not. Moreover, unlike Microsoft, in the instant case, it is Visto as the patent holder, not the accused infringer, who is trying to use the later-filed '708 patent to expand the scope of the earlier-filed '192 patent.

B. Construction of "an independently modifiable copy of the first workspace element" n2

Having addressed the legal issues above, the Court now turns to construction of the claim phrase "an independently modifiable copy of the first workspace element." Claim 1 of the '192 patent is a representative claim with respect to the use of this phrase. It provides as follows:

1. A computer-based method comprising the steps of:

   (a) establishing a communications channel through a firewall using an HTTP port or an SSL port;

   (b) generating first examination results from the first version information which indicates whether a first workspace element stored at a first store within the firewall has been modified

   (c) generating second examination results from second version information which indicates whether an independently-modifiable copy of the first workspace element has been modified, the copy being stored at a second store on a smart phone outside the firewall;

   (d) initiating steps (b) and (c) from within the firewall through the communications channel when predetermined criteria have been satisfied;

   (e) generating a preferred version from the first workspace element and from the copy based on the first and second examination results, wherein if only one of the first workspace element and the copy has been modified, then the step of generating includes selecting the one as the preferred version; and

   (f) storing the preferred version at the first store and at the second store.

Khaliq Decl., Ex. K ('192 patent reexamination certificate, cols. 2-3) (emphasis added). Like the parties, the Court shall address the claim phrase in two parts: (a) workspace element and (b) independently modifiable copy.

a. "workspace element"

"[T]he person of ordinary skill in the art is deemed to read [a] claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Phillips, 415 F.3d at 1313. Here, with respect to the claim term "workspace element," the specifications for the '192 and '131 patents state:

It will be further appreciated that the e-mail data 165, file data 170, calendar data 175 and user data 180 are exemplary and collectively referred to herein as "workspace data 185. Those skilled in the art will recognize that "workspace data" may
include other types of data such as application programs. It will be further appreciated that the e-mail data 165, file data 170, calendar data 175 and user data 180 may each be divided into workspace elements, wherein each workspace element is identified by particular version information 255. . . . Accordingly, each e-mail, file, calendar, etc. may be referred to as "a workspace element in workspace data."

'192 patent, Col. 3; "131 patent, col. 3.

The specification for the '708 patent is similar, stating:

It will be appreciated that the e-mail folder 138, file folder 142, calendar folder 140 and bookmark folder 144 or portions thereof may be stored at different locations such as on the desktop computer 134. The e-mail folder 138, file folder 142, calendar folder 140 and bookmark folder 144 are exemplary, grouped by like information and are collectively referred to herein as "workspace data" 136. Those skilled in the art will recognize that the workspace data 136 may include other types of data such as an application program such as Microsoft Work 6.0.1 TM word processor and the documents created using them. It will be further appreciated that the e-mail folder 138, file folder 142, calendar folder 140 and bookmark folder 144 may each be divided into workspace elements, wherein each workspace element folder or each workspace element individually is identified by particular version information 255. . . . Accordingly, each e-mail or e-mail folder, file or file folder, calendar or calendar folder, bookmark or bookmark folder, document or document folder, etc. may be referred to as "a workspace element."

708 patent, col. 3.

The parties agree that, per the specifications, a workspace element can be an e-mail, a file, a calendar, and so forth. For the '708 patent, a workspace element can also be an e-mail folder, a file folder, a calendar folder, and so forth. The parties disagree, however, as to whether a portion of an e-mail (or file, calendar, etc.) can be a workspace element. According to Sproqit, a workspace element must be, e.g., the entire e-mail, that is, each and every field making up the e-mail. According to Visto, a workspace element can be any part of an e-mail, even a single field of an e-mail. Visto relies on Judge Ward's order to support its position, see Ward Order at 22 (defining the term "workspace element" as "a subset of workspace data such as an e-mail, file, bookmark, calendar, or applications program which may include version information") (emphasis added), as well as a dictionary definition for the term "element." See Op. Br. at 10 (noting that Merriam-Webster's Collegiate Dictionary (10th ed. 1993) defines "element" as "simply 'a constituent part'"). As the Court previously indicated in its order denying Visto's motion for a preliminary injunction, each party has taken an extreme position.

Visto's claim that any part of an e-mail (or file, calendar, etc.) can be a workspace element is untenable. First, Visto's reliance on a dictionary definition for the term "element" is not appropriate. The problem with Visto's approach is that it "focuses the inquiry on the abstract meaning of [a] word[] rather than on the meaning of [a] claim term[] within the context of the patent." Phillips, 415 F.3d at 1321. Visto would have the Court look at the term "element" in isolation but the actual term to be construed is "workspace element." Second, Visto's reliance on Judge Ward's order is unavailing because Judge Ward's construction of the term "workspace element" was not intended to -- nor did it address -- the specific issue here, i.e., whether a portion of an e-mail can be a workspace element.

Furthermore, Visto's preferred construction of the term "workspace element" is not supported by the specifications of the patents at issue. Nowhere in the specifications is it suggested that a portion of an e-mail can be considered a workspace element. Simply because the specifications state that workspace data may be divided into workspace elements does not mean that a workspace element may be divided into bits. In discussing a workspace element, the specifications repeatedly refer to the larger -- and complete -- data structure of an e-mail.

"[E]ach e-mail, file, calendar entry, etc. may be referred to as 'a workspace element in workspace data,'" '192 patent, col. 3 (emphasis added); '131 patent, col. 3 (emphasis added).

. "[E]ach e-mail or e-mail folder, file or file folder, calendar or calendar folder, bookmark or bookmark folder, document or document folder, etc. may be referred to as 'a workspace element.'" '708 patent, col. 3 (emphasis added).

. "Therefore, a system and method are needed for providing users with data consistency, and more particularly for synchronizing multiple copies of a workspace element such as a document in the secure network environment." '192 patent,
col. 1 (emphasis added); '131 patent, col. 1 (emphasis added); '708 patent, col. 1 (emphasis added).

Cf. Honeywell Internat'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 2006 WL 1703376, at *5 (Fed. Cir. 2006) (concluding that claim term "fuel injection system component" was limited to a fuel filter in light of the specification, which referred to the fuel filter at least four times as "this invention" or "the present invention"); adding that the fuel filter was not "merely a preferred embodiment" as it "was the only component of an EFI system that the written description disclosed as having a polymer housing with electrically conductive fibers interlaced therein").

Moreover, given the nature of the inventions claimed in the '192, '131, and '708 patents, it is implausible that any subpart or element (including, e.g., a single e-mail field) that is insufficiently complete to make the invention useful could itself be a workspace element. As indicated above, all three patents are designed to address the problem of data inconsistency, more specifically, when multiple copies of "a document" are maintained at different network locations. See '192 patent, col. 1 ("[W]hen maintaining multiple independently-modifiable copies of a document, a user risks using an outdated version. . . . [P] The problem of data inconsistency is exacerbated when multiple copies of a document are maintained at different network locations."); '131 patent, col. 1 (same); '708 patent, col. 1 (same). As Sproqit argues, "[t]he copies are intelligible and can be independently accessed and modified because they are complete and are not simply data fragments." Resp. Br. at 8 (emphasis added); see also Honeywell, 452 F.3d 1312, 2006 WL 1703376, at *5 (noting that "[t]he written description's detailed discussion of the prior art problem addressed by the patented invention, viz., leakage of non-metal fuel filters," supported limitation of the claim term "fuel injection system component" to a fuel filter). The nature of the invention as described in the specifications clearly contemplates that a workspace element be sufficiently complete and independently coherent so that there is utility to the synchronization of the workspace elements contemplated by the patents.

On the other hand, Sproqit's argument -- i.e., that anything less than an e-mail complete with all its fields and ancillary data is not a workspace element -- is equally unpersuasive. Under Sproqit's reasoning, if an e-mail were missing just one field, no matter how insignificant relative to all the other information, the e-mail could not be a "workspace element." Again, the nature of the invention revealed by the specifications is not necessarily defeated simply because a single field is not synchronized and replicated as between a remote device such as a smart phone and a local area network. As Visto pointed out at the hearing, a local area network is likely to have a much larger capacity (and thus is capable of accommodating more fields) than a remote device.

For the foregoing reasons, the Court rejects both extreme positions taken by Visto and Sproqit. Moreover, as noted above, the Court does not adopt Judge Ward's construction of the term "workspace element" because his construction does not address the issue at bar. In addition, under Judge Ward's construction, a workspace element could be an application program even though the specifications for the '192, '131, and '708 identify an application program as a type of workspace data, not a type of workspace element. As for Judge Ward's construction that a workspace element "may include version information," the Court shall address the relationship between a workspace element and version information when it construes the term "version information."

Accordingly, for the '192, '131, and '708 patents, the Court is inclined to construe the term consistent with this Court's order denying the preliminary injunction (and along the lines implicitly recognized by Visto's expert Dr. Head who stated that "the term 'e-mail' refers to the message headers, the message body, [and] status indicators (such as opened/unopened, deleted/undeleted, and other parameters such as urgency, and other message or system dependent parameters, etc.)"). Head Decl. P 28 (located at Docket No. 100).

For the '192 and '131 patents, the tentative construction for the term "workspace element" is as follows: A basic unit of workspace data such as an e-mail, file, bookmark, or calendar. While a portion of a basic unit is not necessarily a workspace element, a basic unit is still a workspace element so long as all significant or important components of that unit are present. For example, a single field of an e-mail is not a workspace element, but an e-mail is still a

For the '708 patent, the tentative construction is as follows: A basic unit of workspace data such as an e-mail or e-mail folder, file or file folder, calendar or calendar folder, or bookmark or bookmark folder. While a portion of a basic unit is not necessarily a workspace element, a basic unit is still a workspace element so long as all significant or important components of that unit are present. For example, a single field of an e-mail is not a workspace element, but an e-mail is still a
workspace element even if it does not contain each and every field present; in other words, an e-mail is still a workspace element so long as all significant or important fields are present.

The Court orders the parties to meet and confer regarding the above tentative constructions to determine whether they can agree on those constructions or on other similar constructions. If the parties are able to come to an agreement, then they should file a joint letter by August 14, 2006, stating what the agreement is. If the parties cannot come to an agreement, then each party should provide a brief (no longer than 5 pages) which (1) states whether the party will agree to the tentative constructions; (2) if not, provides comments on the tentative constructions; and (3) submits alternative constructions. Each brief should also comment on the alternative constructions (if any) proposed by the opposing party. (Such alternative constructions should be discussed at the meet and confer.) The briefs should be filed by August 14, 2006.

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M. Workspace Element/First Workspace Element

The claims of the '192, '131 and the '708 patents include the term "workspace element." Visto proposes that the term means "a subset of workspace data." Seven proposes that the term means "an email, file, bookmark, or calendar, but not including external status indicators indicating whether the email file, bookmark or calendar as been viewed or deleted by a user." Notwithstanding Seven's proposed definition and arguments, the specification calls for a broader definition of workspace element. For example, in Col. 3 of the '192 patent, ll. 20-32, the patent refers to emails, files, calendars and "user data" and also to "application programs" all of which are further subdivided into workspace elements. Seven's definition is therefore too limited.

At the claim construction hearing, Seven's counsel urged that, whatever the court's construction of "workspace element," the definition should exclude version information because the specification repeatedly referred to workspace elements and version information as distinct subsets of the broader term "workspace data." The court has carefully reviewed the specifications of the various patents and disagrees with this argument.

In the '192 patent, the description states "It will further be appreciated that the e-mail data 165, file data 170, calendar data 175 and user data 180 may each be divided into workspace elements, wherein each workspace element is identified by particular version information 255 … . Accordingly, each e-mail, file, calendar, etc. may be referred to as "a workspace element in workspace data." The court therefore defines "workspace element" consistent with the breadth of the term permitted by the specification to mean "a subset of workspace data such as an e-mail, file, bookmark, calendar, or applications program which may include version information."
I. "workstation"

The term "workstation" appears in the claims of the '654 and '547 patents. Claim 11 from the '547 patent is representative:

11. A teleconferencing system, for conducting a teleconference among a plurality of users, comprising:

(a) a plurality of workstations

   (i) each associated with at least one user,

   (ii) each workstation including

       (1) a video display device, and

       (2) associated audio reproduction capabilities;

   (b) audio and video (AV) capture capabilities configured to capture

       (i) video images and

       (ii) spoken audio

       (iii) of a workstation user; and

   (c) at least one unshielded twisted pair of wires defining

       (i) a UTP data path

       (1) along which data can be shared

       (2) among the workstations, and

       (ii) a UTP AV path,

       (1) along which AV signals

       a. representing user video images and audio

       b. can be transported among the workstations.

wherein the system is configured to

(i) interactively display images

   (1) based on the shared data,

   (2) on at least two of the video display devices, and

(ii) reproduce video images and spoken audio

   (1) based on the AV signals,
CPI argues that "workstation" should be construed to mean "a position for an operator or user that is equipped with capabilities for computer data processing in combination with audio and video interaction." Tandberg argues that "workstation" should be construed to mean "a general purpose computer." At oral argument, CPI acknowledged that the "position" in its proposed construction must contain one or more devices. The parties' constructions thus differ in only one respect: whether the device or group of devices must include a general purpose computer.

The claims themselves place certain requirements on the workstation. Claims 1 and 8 of the '654 patent require that the workstation have "first and second monitors." Id. at 41:38-40; see id. at 42:34-41. Claims 1 and 8 also require that the workstation have "AV capture capabilities." Finally, both claims require that the workstation be "configured to control . . . the reproduction of images, based on the data signals, on the first monitor" and "the reproduction of participant video images, based on the AV signals, on the second monitor." Id. at 41:49-55, 42:42-50. Similarly, claim 11 of the '547 patent requires a workstation which includes "a video display device" and "audio reproduction capabilities." '547 patent at 42:54-58. In addition, the workstation must be able to share data with other workstations, and must be "configured to . . . interactively display images . . . based on the shared data" and to "reproduce video images and spoken audio . . . based on the AV signals . . . on at least one of the video display devices." Id. at 42:64-43:11. Taken together, the claims suggest that a workstation must at a minimum have the abilities to process AV signals, to process data, and to control the processing and reproduction of the AV signals and data.

Other than the specific physical components listed above, the claims do not expressly limit the type of system that can be used to implement the required capabilities. Tandberg's argument that the workstation must consist of a "general purpose computer" is therefore based on uses of the word "workstation" and descriptions of the CMW in the specification.

Tandberg argues that the specification expressly defines "workstation" to be a general purpose computer. Column 2, lines 34-37 states that "audio and video capture and processing capabilities have recently been integrated into desktop and portable personal computers and workstations (hereinafter generically referred to as 'workstations')." Although the cited passage purports to establish a uniform meaning of "workstation," the Specification and claims continue to use the word "workstation" in two different senses.

In the first sense, "workstation" refers to a particular type of high-performance computer, most commonly running some variant of UNIX. See Spec. at 14:63-15:1 ("Currently available personal computers (e.g., an Apple Macintosh or an IBM-compatible PC, desktop or laptop) and workstations (e.g., a Sun SPARCstation) can be adapted to work with the present invention."); id. at 15:33-41 (describing certain AV-enabled computers, including "Silicon Graphics' Indy workstations."). For purposes of clarity, the court will use the phrase "UNIX workstation" to indicate the narrower sense.

In the second, broader sense, "workstation" refers to the CMW, which includes AV capabilities above and beyond what were found in contemporaneous computers and UNIX workstations. Although the Specification is somewhat clumsy in its use of a single word to describe two different concepts, certain passages make clear that the CMW "workstation" is broader in its functionality than the UNIX workstation on which it may be based. For example, the sentence "[t]he currently available personal computers and workstations serve as a base workstation platform" uses both senses of the word workstation; a UNIX workstation may serve as the platform on which the multimedia-enabled CMW is based. Id. at 15:11-12. "The addition of certain audio and video I/O devices to the standard components of the base platform . . . enables the CMW to generate and receive real-time audio and video signals." Id. at 15:12-19. Tandberg's argument that the word "workstation" as used in the claims is strictly synonymous with "desktop and portable personal computers and workstations" as used in the Specification is therefore incorrect.

The proper question is whether the "base workstation platform" upon which the CMW is based can be anything other than a desktop computer or workstation. Under CPI's construction, any device with "capabilities for computer data processing" could serve as the base platform.

The statements distinguishing the invention from the prior art in the Summary of the Invention preclude CPI's broad construction. As Tandberg notes, "[s]tatements that describe the invention as a whole, rather than statements that describe
only preferred embodiments, are more likely to support a limiting definition of a claim term." C.R. Bard v. United States Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004). In C.R. Bard, the Federal Circuit relied on language in the Abstract and Summary of the Invention in concluding that the claimed prosthesis was required to have "a pleated surface." Id. at 863-64. The Abstract stated that the "implantable prosthesis includ[es] a pleated surface." Id. at 864. The Summary of Invention also stated that "[t]he implant includes a pleated surface." Id. Because the patentee consistently stated that the invention had a pleated surface, the Federal Circuit found that the claim term was limited. Id.

Although the court does not embrace a categorical rule that statements made in the Abstract, Summary of the Invention and Background of the Invention necessarily limit claim scope, the statements at issue here are particularly significant because they distinguish the patented invention from the prior art:

It has been proposed to extend traditional videoconferencing capabilities from conference centers, where groups of participants must assemble in the same room, to the desktop, where individual participants may remain in their office or home. Such a system is disclosed in U.S. Pat. No. 4,710,917 to Tompkins et al. for Video Conferencing Network issued on Dec. 1, 1987. It has also been proposed to augment such video conferencing systems with limited "video mail" facilities. However, such dedicated videoconferencing systems (and extensions thereof) do not effectively leverage the investment in existing embedded information infrastructures -- such as desktop personal computers and workstations, local area network (LAN) and wide area network (WAN) environments, building wiring, etc. -- to facilitate interactive sharing of data in the form of text, images, charts, graphs, recorded video, screen displays and the like. That is, they attempt to add computing capabilities to a videoconferencing system, rather than adding multimedia and collaborative capabilities to the user's existing computer system. Thus, while such systems may be useful in limited contexts, they do not provide the capabilities required for maximally effective collaboration, and are not cost-effective.

Spec. at 2:12-33 (emphasis added). This language unambiguously disclaims systems which do not "add[] multimedia and collaborative capabilities to the user's existing computer system." See also id. at 3:53-57 ("The present invention thus provides a distributed multimedia collaboration environment that . . . leverages ('snaps on to') existing computing and network infrastructure to the maximum extent possible.").

The invention disclosed in U.S. Pat. No. 4,710,917 (the "'917 patent"), which is cited and distinguished in the passage quoted above, illustrates the way in which CPI's construction is overbroad. The '917 patent covers "a video conferencing network for providing video, audio and data communication between remotely disposed video terminals." '917 patent at 2:54-56. Each video terminal ("MATE") contains a Central Processing Unit ("CPU") for data processing as well as equipment for recording and displaying audio and video data. Id. at 6:62-65, 5:26-34. The MATE described in the '917 patent is thus "a position for an operator or user that is equipped with capabilities for computer data processing in combination with audio and video interaction," which falls squarely within CPI's broad proposed construction.

At oral argument, CPI noted that the invention of the '917 patent differs from the claimed invention in other respects, including the lack of data conferencing capabilities. The Specification, however, distinguishes the invention of the '917 patent on the grounds that it is a "dedicated video conferencing system" that "does not effectively leverage the investment in existing embedded information infrastructures," and on the grounds that it "attempt[s] to add computing capabilities to a videoconferencing system." Spec. at 2:19-33. This language serves as an express disclaimer of dedicated videoconferencing systems with added data processing capabilities.

A passage from the lengthy "remote expert" scenario at the end of the Specification also strongly supports this construction, as it refers to the "invention" rather than any preferred embodiment:

It should be noted that the above scenario involves many state-of-the-art desktop tools (e.g., video and information feeds, information filtering and voice recognition) that can be leveraged by our Expert during videoconferencing, data conferencing and other collaborative activities provided by the present invention -- because this invention, instead of providing a dedicated videoconferencing system, provides a desktop multimedia collaboration system that integrates into the Expert's existing workstation/LAN/WAN environment.

Id. at 41:18-26 (emphasis added).

The Specification's discussion of the outer limits of what might be viewed as a workstation further supports a narrower
construction than CPI proposes. As already discussed, the CMW consists of a base workstation platform, augmented with audio and video capabilities. The capabilities can be added in a variety of ways. At one extreme, the capabilities can be completely incorporated into the base platform: "Add-on box itself can be implemented as an add-in card to the base platform 100. Connections to the audio and video I/O devices . . . can be implemented internally (e.g. via the system bus) rather than through an external RS-232 or SCSI peripheral port." Spec. at 16:17-22. At the other extreme, "Side Mount unit 850 can become virtually a standalone device that does not require a separate computer for services using only audio and video. This also provides a way of supplementing a network of full-feature workstations with a few low-cost additional 'audio video intercoms' . . ." Id. at 18:9-14. This second passage is notable because it defines the outer limits of a workstation; a device which "does not require a separate computer" is referred to as an "intercom" rather than a "full-feature workstation." Consequently, the court finds that "workstation" means "a position including a device or group of devices, which are equipped with capabilities for computer data processing in combination with audio and video interaction, and which are based upon or include a conventional desktop or portable computer."

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Writable Memory

The Court construes the term "writable memory" to mean "memory that is capable of having data written to and read from." First, for memory to be of any use, it must have the ability to be read from. And thus the "read from" limitation is inherent in the term's construction. Second, the Court declines to accept ST's proposed definition, "a read-write memory," due to Motorola's objection that it is ambiguous. Third, the Court also rejects Motorola's proposed definition 6 because it unnecessarily complicates the definition. Motorola's proposed language requiring "writing information into the cells of the array" is included in other claim language describing the writable memory as "a high density memory array," and thus it is not necessary to include the "array" limitation in the term "writable memory." '092 Patent, 49: 22-24.

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6 Motorola's proposed construction is: "memory capable of writing information into the cells of the array."

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3. "each signal processor having write access . . ."

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Plaintiff's Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;each signal processor having write access at any time to only a particular one of said memories and read access at any time to any of said memories&quot;</td>
<td>each of said plurality of signal processors being able to write to only a particular memory location, and said each of said plurality of signal processors being able to read from said particular memory location as well as other respective particular memory locations</td>
</tr>
</tbody>
</table>

Claim 11

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Defendants' Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;each signal processor having write access at any time to only a particular one of said memories and read&quot;</td>
<td>each signal processor can always: (1) write without delay to only its exclusive memory; and (2) read without delay from any of the memories</td>
</tr>
</tbody>
</table>
access at any time to any of said memories"

Claim 11

The parties dispute the meaning of the language "at any time." Defendants argue that this limitation requires that each signal processor have read access and write access "without latency" or, in other words, "without delay." They further argue that Saxon reads the "at any time" language out of the term. Saxon argues that the "at any time" limitation refers to asynchronous operation of multiple processors, i.e. the idea that the processors need not all write at the same time or all read at the same time.

In addition to the Figure 1b embodiment discussed above, the patent also discloses an embodiment containing multiple processors, in which each processor does not have its own designated memory. '394 Pat. at 5:5-6. This embodiment is shown in Figure 1a:

[SEE FIG. 1a IN ORIGINAL]

The Figure 1a embodiment contains a bus arbiter 110 which controls access to the bus. If, for example, both signal processors 106 and 102 need to access system memory at the same time a collision will occur. '394 Pat. at 4:1-3. During a colliding access request, Bus Arbiter 110 assigns priority to one of the processors and only that processor will be able to access system memory. '394 Pat. at 4:8-13. In the meantime, the other processor remains stalled until it has access to the bus. '394 Pat. at 4:13-15. One of the benefits of the Figure 1b embodiment is that it avoids this stalling, i.e. it allows each processor to access memory "without latency." '394 Pat. at 5:18-26.

Defendants argue that the "at any time" limitation of this term refers to the Figure 1b embodiment and the fact that this embodiment allows write access and read access for each processor without latency. Saxon argues that this limitation refers to a more fundamental distinction over the prior art. Specifically, Saxon argues that the "at any time" limitation merely requires that the multiple processors be able to operate asynchronously. Saxon bases its argument on the prosecution history.

During prosecution, the patentee distinguished a prior art reference that also contained multiple processors ("Cutts"). See '394 Pat. Amendment at 1 (June 6, 1995). The patentee argued that Cutts disclosed a system in which each processor may have access to designated memories, but all of the processors operate on identical instruction streams. Thus, they would all read at the same time or write at the same time. '394 Pat. Amendment at 2. The patentee described Cutts as requiring synchronous operation. '394 Pat. Amendment at 3. In contrast, the patentee explained that "in the present invention, a processor's ability to write to any memory location in its area at any time allows the processors to execute entirely different and unrelated streams of instructions and to operate asynchronously of each other." '394 Pat. Amendment at 3. Furthermore, "[t]his ability for a processor to write to any of its memory locations at any time eliminates data write latency." '394 Pat. Amendment at 2-3. Based on this prosecution history, Saxon argues that the "at any time" limitation distinguishes systems that require synchronous operation, not systems that have data write latency.

Viewed in isolation, the phrase "at any time" could refer to asynchronous operation, but in the context of the entire claim, Saxon's position cannot stand. Phillips, 415 F.3d at 1314("the context in which a term is used in the asserted claim can be highly instructive"). Claim 11 requires that each signal processor have write access or read access at any time. The Figure 1a embodiment does not satisfy this limitation because each processor has read or write access only when no other processor has access. Cutts does not satisfy this limitation because each processor has read or write access only when every processor has read or write access. Thus, Saxon's argument that the "at any time" limitation was only meant to distinguish Cutts does not account for the fact that this limitation excludes systems with data read/write latency. Furthermore, while Saxon is correct that Claim 11 distinguishes systems that require synchronous operation, it distinguishes those systems by requiring that "at least one of said signal processors in said plurality operates independently of other signal processors."

To summarize, the parties have presented two different contexts in which data read/write latency may arise: (1) when bus access is limited, e.g. the Figure 1a embodiment, or (2) when multiple processors operate on identical instruction streams, e.g. Cutts. The Court finds that the "at any time" limitation excludes both embodiments. As explained above, neither the Figure 1a embodiment nor Cutts allows read and write access for each processor "without latency." Because Saxon's proposal does not account for the "at any time" limitation, it must be rejected. Defendants proposal, on the other hand,
appropriately describes this limitation as "without delay." 5 Accordingly, the Court adopts Defendants' proposed construction.

5 Saxon also argues that this "without delay" limitation is inappropriate because it is not physically possible. Saxon is correct that no processor can read or write to memory instantaneously. See, e.g., Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075, 2009 WL 1424443 at * 11 (Fed. Cir. 2009) (finding that "real time' cannot mean instantaneous"). Nonetheless, at the hearing, Defendants explained that they will not argue that this limitation requires an accused product to defy the laws of physics. Markman Hr'g Tr. at 117:18-118:6. Thus, Saxon's concern is unfounded.

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The term "write instruction" appears in claim 27 of the '226 Patent and claim 15 of the '244 Patent; it does not appear in the contested claim of the '136 Patent. Claim 27 of the '226 Patent describes "[a] method for accelerating access to data on a network comprising the steps of . . . intercepting a write instruction to one of said plurality of I/O devices from said computer." (226 Patent, at 28:24-25) (emphasis added). Claim 15 of the '244 Patent describes a caching system "wherein at least one of said cache drivers further includes executable interception code for intercepting a write instruction to one of said plurality of I/O devices. . . ." (244 Patent, at 27:5-7) (emphasis added).

The specifications in the patents-in-suit do not use the term "write instruction." Only the claims to the patents-in-suit use this term. However, the specifications refer to several write instructions that are intercepted by the cache driver software for the disk I/O device. For example, the specifications refer to the cache driver as intercepting a write data I/O access, write I/O data function, or write I/O data transfer. Specifically, the specifications state as follows:

When the Open VMS system (14) performs a write data I/O access to a disk (12) the cache driver (10) software intercepts the I/O. The cache driver (10) will search for possible matching TCMB (24) bucket control structures with their corresponding cache data buckets (22) in all three TCH (26) cache control structures, for the disk and the range of disk blocks in the write data I/O access. Using the write data I/O access disk block as a pointer into the disk block value hash table (30) of each of the three TCH's (26), the cache driver (10) attempts to locate matching TCMB (24) bucket control structures. For each TCMB (24) bucket control structure found, the TCMB (24) and its corresponding cache data bucket (22) are invalidated.

If the Open VMS I/O function is 'io_writelblk' (write logical blocks of disk I/O data), or 'io_writepblk' (write physical blocks of disk I/O data) or 'io_dse' (write data security erase pattern) (437), the program dispatches to the "write data" (572, FIG. 5K) program flow.

Referring to FIG. 5K, the "write data" (572) program flow . . . checks that the byte count for the intercepted write I/O data function is a non-zero positive value (574). . . . The program records the positive byte count of the intercepted write I/O data function in the TCB (16, FIG. 1) disk control structure for the disk I/O device.

The program checks whether the intercepted disk I/O device is currently subject to mount verification on the OpenVMS system (582), indicating that the OpenVMS system is checking the integrity of the volume mounted in the disk I/O device. If so, the program exists via the "I/O function exit" (564, FIG. 5J) program flow, allowing the write I/O data to go directly to the disk I/O device.

Referring to FIG. 5L, the "cache data invalidate" program invalidates the cached data blocks in all three caches, small, medium, and large, that match the disk block range in this intercepted write I/O data transfer for the disk I/O device. . . . If this TCMB is associated with the disk I/O device in the intercepted write I/O data transfer, the program checks whether the
In broader terms, the specifications refer to the cache driver software as intercepting an I/O operation. Specifically, the specifications provide that "[w]henever any I/O operation is performed on a disk I/O device, that I/O operation will be intercepted by the cache software of the invention and the program will commence running at the 'process io' (400) entry point." (Id. at 15:57-61) (emphasis added). The specifications refer to Figures 5A-50 of the patents-in-suit, when describing the I/O operations and the "program flow performed by the active data caching of a disk I/O device in the cache software of the invention." (Id. at 15:55-57). Figures 5A-50 describe the "process io" entry point (FIG. 5A), "cache on" program flow (FIG. 5B), "read data" program flow (FIG. 5C), "read cache miss" program flow (FIG. 5F), "read complete" program entry point (FIG. 5H), "read hit" program flow (FIG. 5I), "I/O function exit" program flow (FIG. 5J), "write data" program flow (FIG. 5K), "cache data invalidate" program flow (FIG. 5L), "write invalidate" program flow (FIG. 5M), "message receive" entry point, "remote invalidate" program flow (FIG. 5N), and "basic statistics" program flow (FIG. 5O). (Id. at 15:55-24:48).

Each of the various program flows commence running upon intercepting an I/O operation (i.e., read I/O data function, read I/O data transfer, write I/O data function, or write I/O data transfer). Thus, the term "I/O operation" is not limited to a write instruction, rather the term "I/O operation" encompasses read instructions as well. Because the specifications use the term "operation" instead of "instruction," the term "write instruction" is accurately described by the broader term "operation."

The IEEE DICTIONARY also confirms that a "write instruction" is accurately described as an "operation." The IEEE DICTIONARY does not define the term "write instruction." However, the IEEE DICTIONARY defines "instruction" as "[a] statement or expression consisting of an operation and its operands, if any, which can be interpreted by a computer in order to perform some function or operation." IEEE DICTIONARY at 528. (Instrument No. 69, at 22; Instrument No. 77, at 28) (emphasis added). The definition of "write" is "to record data in a storage device or on a data medium." IEEE DICTIONARY at 1210. (Id.). Thus, the IEEE DICTIONARY is consistent with the specifications of the patents-in-suit, which indicate that a "write instruction" is an "operation." The IEEE DICTIONARY is also consistent with the interpretation that the "write instruction" is used to transfer data to storage. However, the IEEE DICTIONARY does not describe the process by which a particular function (i.e., transferring data to storage) is to be completed.

In this case, the specifications provide that the "I/O operation will be intercepted by the cache software of the invention and the program will commence running at the 'process io'" (226 Patent, at 15:57-61) (emphasis added). The specifications make clear that the program goes through a step-by-step process of checking different specifications before allowing the transfer or invalidation of data. (Id. at 21:53-23:59). The specifications further indicate that the program flow uses information contained in the "write instruction" to assign different values, ranges, and sizes for the transfer of data. (Id.). Thus, the "write instruction" or "operation" does not immediately transfer the data to storage, it merely provides the necessary information to commence or initiate a process that eventually allows the transfer of data. Accordingly, the Court finds that an accurate construction of the term "write instruction" is "an operation that initiates a transfer of data to storage."
The parties' dispute over "writing . . . simultaneously" is similar to the "program" dispute. Lexar simply proposes that the claim phrase should be construed as "initiating a write command to two or more blocks at the same time." Toshiba, however, like its proposed construction of "program," suggests that "writing . . . simultaneously" means "issuing a write command, followed by address and data for two or more sectors at the same time and exactly coincident."

First, the Court notes that again, Toshiba's proposed "followed by address and data" language is superfluous and need not be included in the construction of the term. Second, the "exactly coincident" language proposed by Toshiba is a limitation that is not required by the "simultaneously" portion of the disputed claim term. Lexar is right that while the initial issuance of a write command must occur simultaneously in both write cycles, each and every step of the write cycles need not occur simultaneously. Specifically, as Lexar persuasively explained at oral argument, the programming phase of the write cycle, represented by the cross hatches in Figure 9, can take varying amounts of time depending on what is being programmed. Each phase of the write cycle, therefore, need not occur simultaneously. The cycles need only start at the same time.

The parties' proposed constructions also differ in that Lexar suggests that the write command is issued "to two or more blocks," while Toshiba suggests the write command is issued "for two or more sectors." Neither party addressed this particular difference between their proposed constructions in their briefs or at oral argument and therefore, the Court, in construing this term, opts to include a portion of the language used by the claim itself. The language represented by the ellipsis, as it appears in the claims themselves, is "writing two or more sectors of information to a row of the nonvolatile memory unit simultaneously." Therefore, the Court construes "writing . . . simultaneously" as follows: initiating a write command to two or more sectors within two or more (row) blocks at the same time.

The parties dispute the meaning of "writing the audio data from the buffer onto a digital audio tape and a random access storage device," as used in claim 1 of the '371 patent. NICE contends that, contrary to its plain meaning, Witness seeks to read into this language two improper limitations - that the transfer of audio from a buffer to the DAT and RAS device occurs "directly" and "simultaneously." Witness contends that the claim language, specifically the step after this disputed term, and the specification confirm the simultaneity requirement. NICE responds that the reference to "simultaneous" in the specification does not relate to information being transferred to the DAT and RAS, but to the transfer of data to one of those devices while the buffer is downloading data. With respect to proposed language "directly," Witness contends that the term "writing" inherently includes a subject or agent that performs the act of transferring data to the DAT and RAS, which in this case is the buffer. As the subject doing the transfer, Witness contends that the transfer has to be direct, rather than through an intermediary. Witness cites Figure 1 of the patent to support this interpretation.

The Court construes the disputed language to mean "transferring audio data from the buffer directly to both a digital audio tape and a random access storage device." After reviewing the claim language, specification, and Figure 1, the Court concludes that the disputed language includes directness component but not a simultaneity element. The specification, under the "summary of the invention" heading, states "a digital audio tape (DAT) and a random access storage (RAS) device are in communication with the buffer to simultaneously receive data when the buffer downloads data." (col 1:50-53.) The Court agrees with NICE that "simultaneously" in this context goes to reception and download, not to reception by DAT and reception by RAS. Figure 1 of the claim supports Witness's contention that the transfer of audio data to the DAT and RAS is direct.
1. "yield"

Defendant argues that the determination of "yield," even when read in light of the specification and prosecution history, does not permit a person of ordinary skill in the art to determine its meaning. D's. Brief. at 2. Defendant suggests that the "word 'yield' in the semiconductor field customarily refers to the 'percentage of finished products leaving a process compared to those entering the process.'" Id. at 3; Hurwitz Delc., Ex. 3. In other words, though the parties agree that "yield" refers to some criterion of successful or acceptable junction performance, the criterion itself is undeterminable from the patent language. Id. The specification language that includes the term "yield" is equally unhelpful, claims Defendant, articulating only that a relationship between temperature, self-limiting thickness, and yield exists without identifying how to determine said yield. Id. citing '672 Patent at col. 4:28-37, 49-59. Defendant suggests that the other specifications provide no guidance as they recite certain parameters related to junction performance that "cannot be combined into a pass/fail criterion" from which an understanding of "yield," can be gleaned. Id. at 5-7. Finally, Defendant disputes Plaintiff's suggestion that the definition of "yield" would vary according to manufacturer acceptance requirements, arguing that a flexible definition is unworkable in the semiconductor production industry. Id. at 9.

Plaintiff suggests that, consistent with general usage of the term in the semiconductor industry, a person skilled in the art would easily conclude that the claim term "yield" as applied to junctions, describes "the percentage of device junctions that retain satisfactory electrical properties following contact formation, typically characterized by a contact resistance less than 10 ohms and a junction leakage current less than 10-7 amps/cm2." Pl's. Brief at 5; '627 Patent col. 1:16-21. According to Plaintiff, the Defendant's definition of "yield" more properly corresponds to a "product yield;" the treatise on which Defendant relies explains numerous "yields" all of which share one commonality in that they measure a portion of operational units as a fraction or percentage of the total units. Id. at n.1. Because the specification identifies two specific metrics, the term 'yield' is clearly defined. Id. at 6 citing E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988) ("It is entirely proper to use the specification to interpret what the patentee meant by word or phrase in the claim."). When viewed in context of the specifications, the term "yield" does establish some criterion by which a manufacturer can measure junction performance. Defendant's critique is valid, though the conclusion that "yield" is indefinite for lack of guidance is unsupported. However, Plaintiff's definition, which depends largely on the specification, goes too far. Therefore, the Court construes "yield" as "the percentage of device junctions that retain satisfactory electrical properties following contact formation." But, this does not end the inquiry.

An exemplar use of the term "yield management system" is seen in claim 1 of the '691 patent, stating in part, with the disputed term in bold:

1. A method for inventory management, comprising the steps of: . . . .

(d) generating a price quotation associated with the selected inventory item using the price forecasting system, which price quotation has been predetermined by a yield management system using a pricing strategy.

Grantley suggests that this term means, "software or any hardware programmed to calculate prices for remaining inventory based upon historical information such as past trends and performance data, available inventory and a pricing strategy. A 'system' does not include a human being attempting to perform the task or function manually." Clear Channel proposes "a software module that calculates and recalculates prices using each reservation and each order and designed to recalculate prices prior to the next price quote." The specification describes:

a yield management system which produces a pricing forecast used to determine prices for sales of commercial time
based on factors such as past trends and performance data which are updated periodically in order to maintain an accurate pricing model. See generally Pricing & Rate Forecasting Using Broadcast Yield Management, B. Shane Fox, published by the National Association of Broadcasters, 1992, and Broadcast Revenue Management: Pricing Inventory Management in Today's Broadcast Environment, B. Shane Fox, published by the National Association of Broadcasters, 1997.

'691 patent, col. 2, ll. 8-18. The referenced books have similar definitions of yield management. Normally such books would be extrinsic evidence which should be used with care in determining how one skilled in the art would define a term; however, these volumes are incorporated into the patent by reference, see '691 patent, col. 8, ll. 50-56, and are therefore a form of intrinsic evidence.

"Incorporation by reference provides a method for integrating material from various documents into a host document...by citing such material in a manner that makes clear that the material is effectively part of the host document as if it were explicitly contained therein." Cook Biotech Inc. v. Acell, Inc., 460 F.3d 1365, 1376 (Fed. Cir. 2006)(internal quotation omitted). In order to incorporate material by reference, "the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents." Id. (internal quotation omitted). In making such a determination, "the standard of one skilled in the art should be used to determine whether the host document describes the material to be incorporated by reference with sufficient particularity." Zenon Envtl., Inc. v. United States Filter Corp., 506 F.3d 1370, 2007 U.S. App. LEXIS 25892 at *17 (Fed. Cir. Nov. 7, 2007). "Ambiguous terms within the patent can sometimes be interpreted in light of disclosures made in the material incorporated by reference." Neutrino Dev. Corp. v. Sonosite, Inc., 410 F. Supp. 2d 529, 537 (S.D. Tex. 2006).

The parties agreed that "system" should be defined as inelegantly stated by the patentee - "software or any hardware device which has been programmed to perform the same function, but does not include a human being attempting to perform the task or function manually." '691 patent, col. 5, ll. 24-27. The opposing experts agreed that software without hardware does nothing. Except for certain limited purpose devices, hardware needs software to accomplish anything. Tr. at p. 101, l. 18 - p. 103, l. 6. Nevertheless, one skilled in the art would understand this definition of "system" to refer, in the context of these patents, to an appropriately programmed computer and not a person. Since "system" is so defined in the patents, and the definition comports with the understanding one of ordinary skill would have of computers, the court will incorporate that wording into the definition of the phrase. Similarly, the parties agree, and the specification states, that the "system" calculates and recalculates prices.

Given the parties' agreement that this term describes a computer or computer program that calculates and recalculates prices, it becomes clear that the real dispute concerning this term, as with the next term to be considered, is not its meaning, but rather what the claims using the term teach. See, e.g., Tr. at p. 95, l. 9 - p. 96, l. 3, p. 105, l. 4 - p. 106, l.1, p. 109, ll. 10-20..

Clear Channel wants the information used for the calculations to necessarily include "each reservation and each order." They argue that reservations are part of customer requests, which the yield management system calculates and recalculates. See, e.g., '691 patent, col. 1, ll. 10-13; col. 3, ll. 1-10; col. 12, ll. 1-62. However, Clear Channel disregards the fact that dependent claim 4 of the '691 patent is narrower in scope than independent claim 1, and further requires "recalculating pricing data in [claim 1(g)] in a manner that takes both orders and reservations into account." '691 patent, col. 17, ll. 21-22.

Were the court to accept Clear Channel's construction that "yield management system" requires reservations because reservations are always part of the recalculation that the yield management system performs, it would run afool of the doctrine of claim differentiation. While such canons are guides and not inflexible mandates, unless there is good reason to find otherwise, each claim defines a separate invention. See, e.g., Jones v. Hardy, 727 F.2d 1524, 1528 (Fed. Cir. 1984). A claim interpretation which would result in two claims having the same scope is presumptively unreasonable. See Beachcombers v. Wildewood Creative Prods. Inc., 31 F.3d 1154 (Fed. Cir. 1994). If, as Clear Channel argues, reservations are always part of the recalculations performed by the yield management system, the limitation of claim 4 is meaningless because the recalculation would already take reservations into account.

Clear Channel also argues that the court's construction of this term should require the method or system to "recalculate prices prior to the next price quote," and points to several places in the specification which supposedly support this argument. See, e.g., '691 patent, col. 3, ll. 40-50, 59-64; col. 4, ll. 7-11. However, Clear Channel does not include in their recitation the phrase from col. 4, ll. 54-55 which precedes the language they quote: "According to a preferred aspect of this
A court should avoid importing limitations from the specification into the claim terms, absent a clear disclaimer of claim scope. Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005)(en banc)(citation omitted), cert. denied, 546 U.S. 1170, 126 S. Ct. 1332, 164 L. Ed. 2d 49 (2006); Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1375 (Fed. Cir. 2005). Where the specification uses language of preference, rather than requirement, the specification describes a preferred embodiment rather than an essential step or element of the claim. See Andersen Corp. v. Fiber Composites, Inc., 474 F.3d 1361, 1372-73 (Fed. Cir. 2007), Honeywell Int'l v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006). The language Clear Channel references is a preferred embodiment, in which the yield management system recalculates prices before the next price quote is generated. What Clear Channel cannot point to is any description in the specification that would tend to show that this is the only embodiment the invention was intended to encompass. There simply is no clear language of requirement.

Patent claims recite the outer boundaries or parameters of the invention. S3 Inc. v. NVidia Corp., 259 F.3d 1364, 1369 (Fed. Cir. 2001). The purpose of claim construction is to determine what those outer boundaries are by construing disputed terms. United States Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997)("claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement."). Arguments calculated to establish that an accused device does not infringe, or that a claim is obvious, are better presented at a later date during an infringement and/or invalidity analysis. The definition of every word and phrase does not have to incorporate all of the other limitations set out in a claim. On the other hand, there is no need to add language to the definition of a term which would expand the scope of the claim beyond the limitations it actually teaches. Each claim sets out what factors are included in the calculation or recalculation performed by the yield management system. The court will define these terms as follows:

"Yield management system" means: "a computer with a program that produces a pricing forecast used to determine prices for sales of commercial time based on factors such as past trends, performance data, and available inventory, updated with data from recent transactions in order to maintain an accurate pricing model. A system does not include a human being attempting to perform a task manually."

"Yield management program logic" means "software that produces a pricing forecast used to determine prices for sales of commercial time based on factors such as past trends, performance data, and available inventory, updated with data from recent transactions in order to maintain an accurate pricing model."

5. "0-order" and "non-0-order" diffracted beams

In the photolithographic process, when the "first" and "second light beams" strike a mask pattern, some light diffracts directly back along the same axis; some does not. Claim 1 places these different types of diffracted light into two categories--viz., "0-order diffracted beams" and "non-0-order diffracted beams"--noting what role these beams play in the microlithographic projection procedure. Claim 1 does not otherwise define the "0-order diffracted beam" and "non-0-order diffracted beam" terms, and Nikon now asks the court to construe the "0-order diffracted" and "non-0-order diffracted" terms to mean "light beams, rays or components formed when light from respective localized areas of relatively higher light intensity diffracted by a mask pattern." Before the ITC, Nikon offered an identical construction, and, at that time, ASML apparently acceded to it.

Before this court, however, it appears that ASML has altered its position, asking the court to define "0-order diffracted beams" and "non-0-order diffracted beams" as nothing more than "0-order diffracted ray[s] of light and other higher order diffracted rays of light such as the 1st-order, 2nd-order," and the like. The court is mindful that the "0-order diffracted" and "non-0-order diffracted" terms carry, in certain contexts, purely descriptive, adjectival meaning, though not necessarily the circular meaning ASML suggests. In reference to a light beam, for example, "0-order diffracted" means simply that the beam is not diffracted to a particular (or any) order of magnitude. Since "diffraction" has a readily ascertainable meaning in the art (namely, the phenomenon exhibited by wave fronts that, passing the edge of an opaque body, are modulated, thereby causing a redistribution of energy), it follows that a "0-order diffracted beam" is a beam in which the energy has been..."
modulated and redistributed to the "0-order." In the context of claim 1, moreover, the "0-order diffracted" and "non-0-order diffracted" modifiers are used only vis-a-vis specific light beams, specifically those formed when light from localized areas of higher-intensity light is diffracted by a mask pattern. See '041 Patent at 18:21-26.

Specification language buttresses this understanding of the claim terms, and it allows the court to avoid resort to ASML's largely tautological approach. See '041 Patent at 3:31-50 & 9:32-41. "0-order diffracted beams" and "non-0-order diffracted beams" have specific meaning in the context of the claim, and the court must construe the terms to this end. See Pitney Bowes, 182 F.3d at 1311. For these reasons, the court construes "0-order diffracted beam" to mean "a light beam or ray formed when a mask pattern diffracts light back directly along the illumination axis"; in turn, "non-0-order diffracted beam" means "a light beam or ray formed when a mask pattern diffracts light off the illumination axis."